ROXON

PRODUCT CATALOGUE

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ROXON
Conveyor Components

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1. ROLLERS AND COMPONENTS FOR INDOOR CONVEYORS

- Selection and load rating of roller for indoor conveyors
- Unit goods roller GA
- Unit goods roller GS
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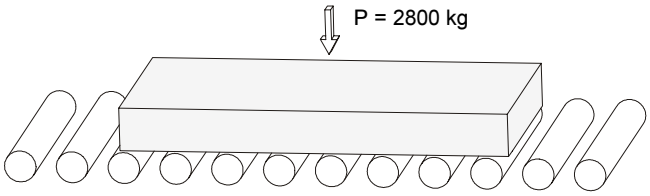
SELECTION AND LOAD RATING OF ROLLER FOR INDOOR CONVEYORS

When selecting the roller, both the shaft load and the shell load must be considered. The study for the shaft load covers also the bearing load rating and the study for the shell covers the end cap load rating.

Selection example: In this case the even load 2800 kg is carried by 8 rollers, roller length 600 mm. Load for one single roller:

$$F_C = \frac{P}{8} = \frac{28}{8}\ \text{kN} = 3.5\ \text{kN/roller}$$



Based on values L = 600 mm and F_C = 3.5 kN

(A) Select the shaft diameter d = 20 and shaft end alternative D according to diagram 1 (loading capacity of shaft end A is not enough).

(B) Check the roller shell load according to diagram 2 and select for the shell 70 x 2.0 (when selecting the diameter take notice the conveyed unit).

(C) Based on the points (A) and (B) select roller type

GS - 70 x 2.0 - 20D - 600 or GA 70 x 2.0 - 600

Diagram 1: Shaft load

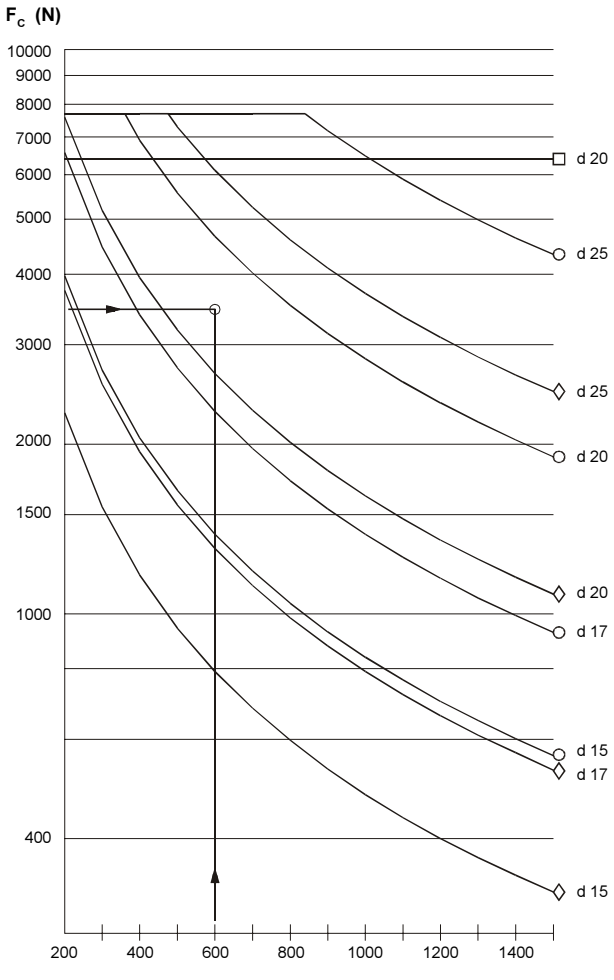
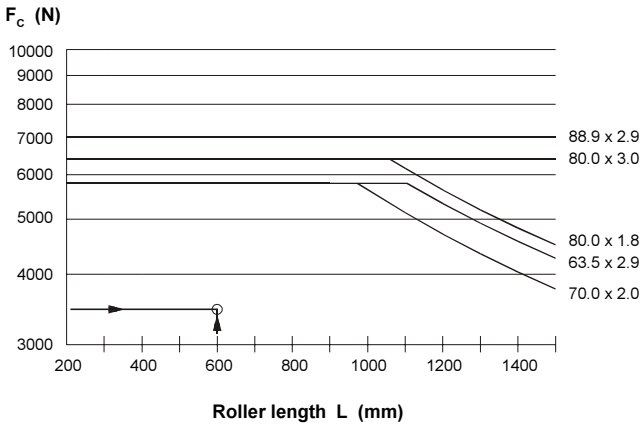


Diagram 2: Shell load

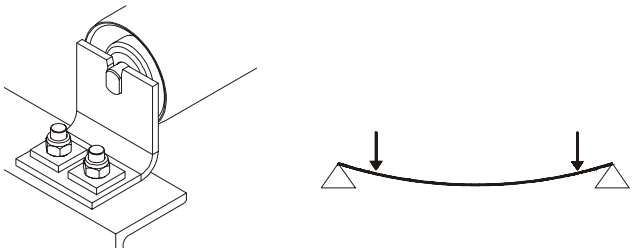


□ = GA-rollers

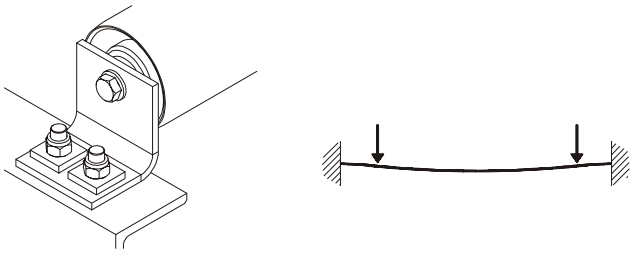
○ = GS- and GK-rollers
shaft ends D and E

◇ = GS- and GK-rolles
shaft end A

Diagram 3

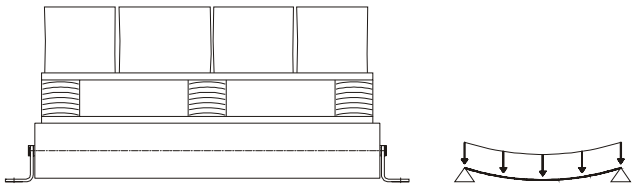


Roller with shaft end A is loosely fixed to the frame. Loading according to diagram 1.



Shaft ends D and E are tightly fixed to the frame and due to a smaller shaft bend their load capacity is higher. Tight fixing junction requires a sturdy frame construction. Loading according to diagram 1.

Diagram 4



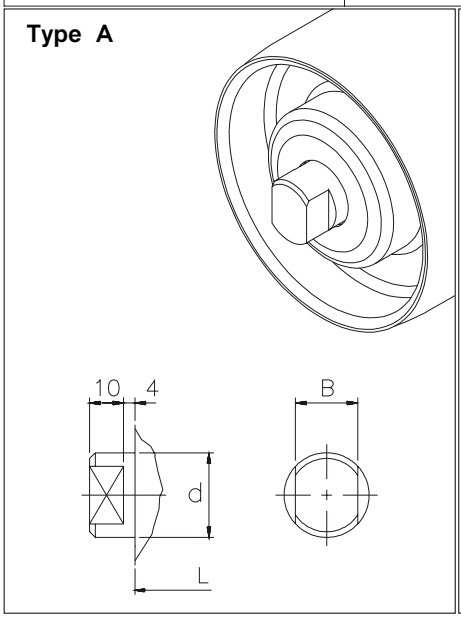
Shell loading values are for an even load. Loading according to diagram 2.

Values in diagram 2 must be multiplied by 0.75, for point load situations. Roller shells with non-standard wall thicknesses are also available.

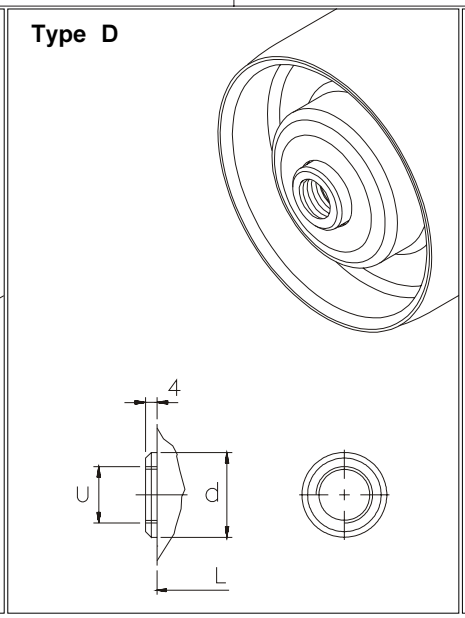
Standard shaft end alternatives for GS- and GK-rollers

d	B	U	M
15	12	M8 x 15	M12
17	12	M8 x 15	M16
20	14 (15)	M12 x 20	M16
25	18	M16 x 25	M16

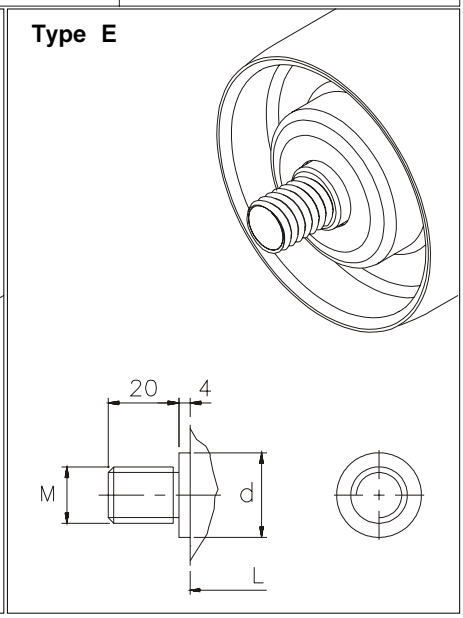
Type A



Type D



Type E



UNIT GOODS ROLLER GA

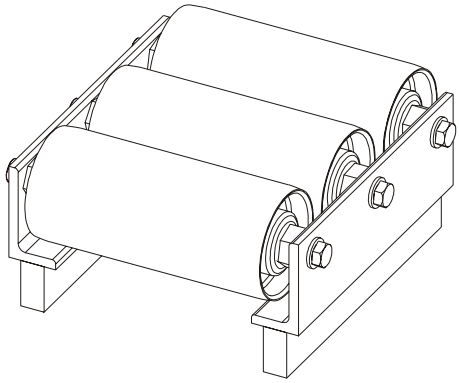
GA -rollers are used in belt- and roller conveyors for heavy unit goods in normal conditions. Rollers deep-drawn end caps of the steel are pressed inside the shell.

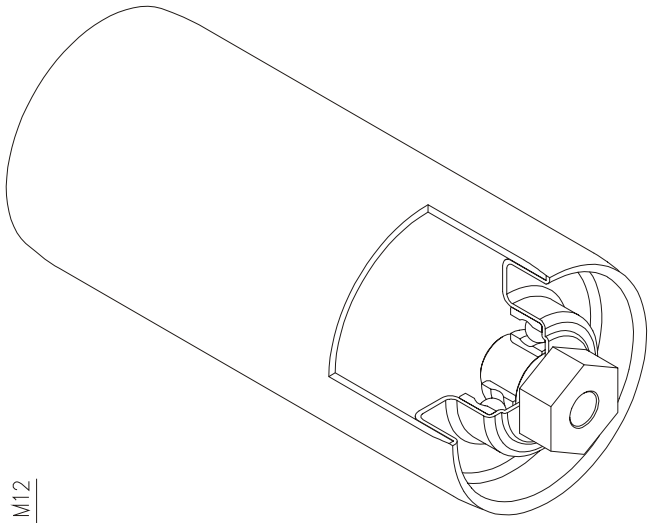
Shaftless roller construction with adapter allows a high loading capacity even with the long rollers. Wide fixing adapter consructions allows also high loading for the conveyor with thin material thickness. Easy and fast installation by assemblage improves the economy.

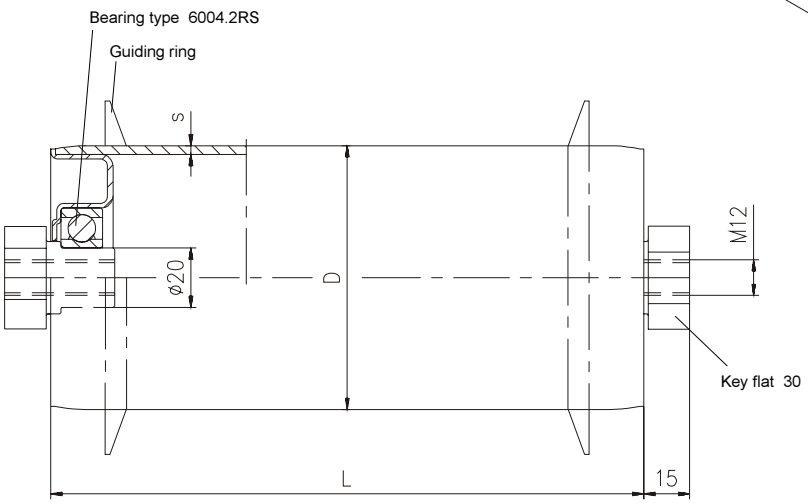
Standard surface treatment is zinc-plated. Guiding rings are included only on special request.

ORDERING EXAMPLE: GA 80 x 1.8 - 400 X

- Type code
- Roller shell D x s (mm)
- Length of the roller shell L (mm)
- Number of the guiding rings
  - X = TWO RINGS
  - Y = ONE RING
  - BLANK = NO RINGS







Weight of roller (kg)

D x s	d	Length of the roller shell L (recommended dimensions, other lengths also available)													
		200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
63.5 x 2.9	20	1.4	1.8	2.3	2.7	3.1	3.6	4.0	4.4	4.9	5.3	5.7	6.2	6.6	7.0
70 x 2	20	1.2	1.5	1.8	2.2	2.5	2.8	3.2	3.5	3.8	4.2	4.5	4.8	5.2	5.5
80 x 1.8	20	1.5	1.8	2.1	2.5	2.8	3.2	3.5	3.9	4.2	4.6	4.9	5.3	5.6	6.0
88.9 x 2.9	20	2.0	2.6	3.3	3.9	4.5	5.1	5.7	6.3	6.9	7.6	8.2	8.8	9.4	10.0

UNIT GOODS ROLLER GS

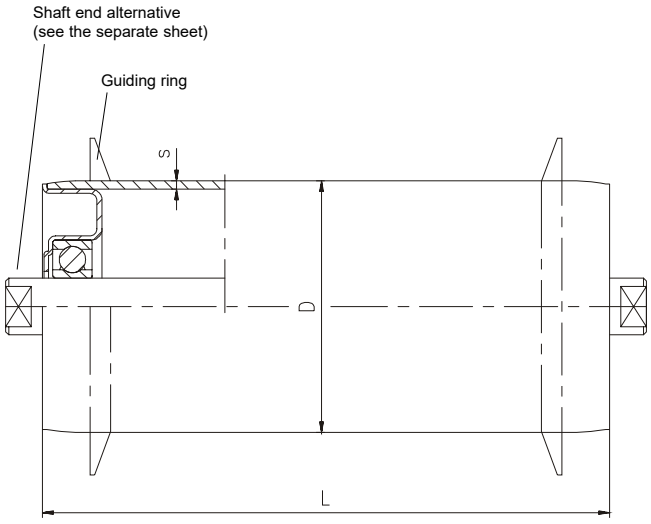
GS -rollers are used in belt- and roller conveyors for heavy unit goods in normal conditions. Rollers deep-drawn end caps of the steel are pressed inside the shell.

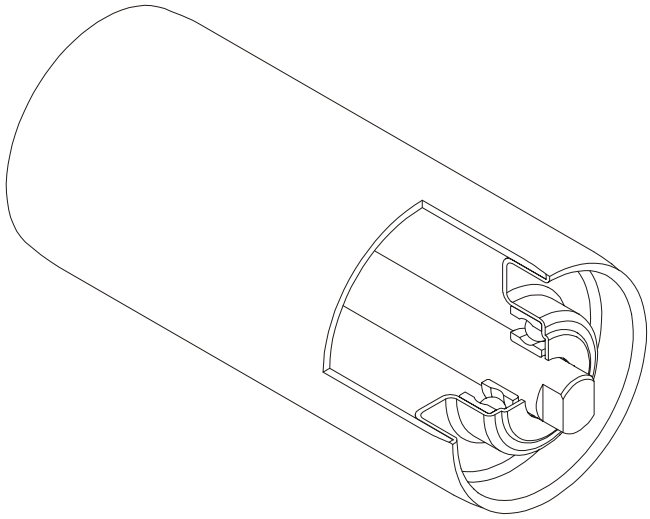
The load capacity and shaft end alternatives of the roller are checked from the general information sheet of the unit good rollers.

Standard surface treatment is zinc-plated. Guiding rings are included only on special request.

ORDERING EXAMPLE: GS 80 x 1.8 - 20 A - 400 X

- Type code
- Roller shell D x s (mm)
- Shaft diameter d (mm)
- Shaft end alternative (see the separate sheet)
- Length of the roller shell L (mm)
- Number of the guiding rings
  - X = TWO RINGS
  - Y = ONE RING
  - BLANK = NO RINGS





Weight of roller (kg)

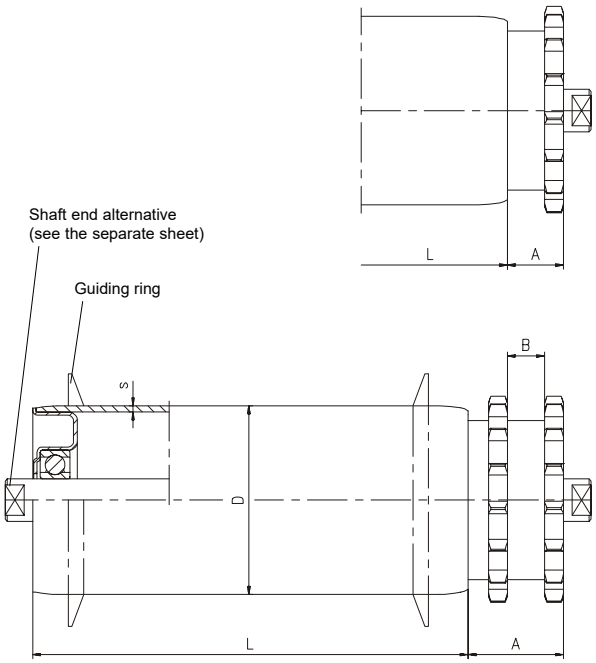
D x s	d	Bearing type	Length of the roller shell L (recommended dimensions, other lengths also available)													
			200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
63.5 x 2.9	20	6004. 2RS	1.7	2.1	2.6	3.0	3.4	3.9	4.3	4.7	5.2	5.6	6.0	6.5	6.9	7.3
70 x 2	15	6202. 2RS	1.2	1.6	1.9	2.2	2.6	2.9	3.2	3.6	3.9	4.2	4.6	4.9	5.3	5.6
	17	6003. 2RS	1.3	1.6	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0	5.3	5.7
80 x 1.8	20	6004. 2RS	1.8	2.1	2.5	2.8	3.1	3.5	3.8	4.2	4.5	4.9	5.2	5.6	5.9	6.3
	25	6205. 2RS	2.1	2.4	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6
80 x 3.0	25	6205. 2RS	2.6	3.1	3.7	4.3	4.9	5.4	6.0	6.6	7.1	7.7	8.3	8.8	9.4	10.0
88.9 x 2.9	20	6004. 2RS	2.3	2.9	3.6	4.2	4.8	5.4	6.0	6.6	7.3	7.9	8.5	9.1	9.7	10.3
	25	6205. 2RS	2.5	3.1	3.8	4.4	5.0	5.6	6.2	6.8	7.4	8.1	8.7	9.3	9.9	10.5

CHAIN DRIVEN ROLLER GK

GK -chain driven roller for unit goods are used in roller conveyors transporting unit goods in normal conditions. Sprockets are manufactured as machined from the same preform with the bearing house and thus secure the precision of the sprockets and the straightness against the chain, as well as good load carrying capacity.

The load capacity and shaft end alternatives of the roller are checked from the general information sheet of the unit good rollers.

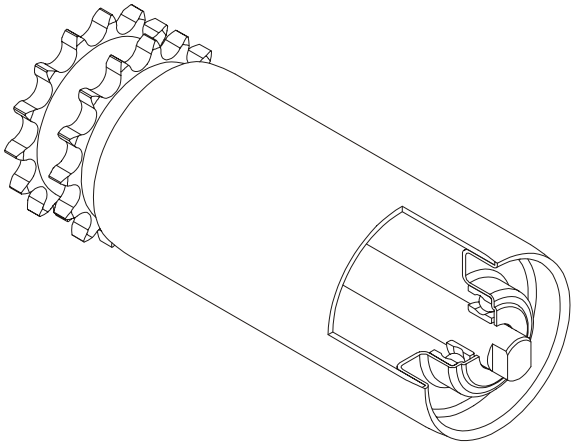
Standard surface treatment is zinc-plated. Guiding rings are included only on special request.



ORDERING EXAMPLE: GK 80 x 1.8 - 20 A - 1000 D X

- Type code
- Roller shell D x s (mm)
- Shaft diameter d (mm)
- Shaft end alternative (see the separate sheet)
- Length of the roller shell L (mm)
- Number of sprockets
  - E = ONE SPROCKET
  - D = TWO SPROCKETS
- Number of the guiding rings
  - X = TWO RINGS
  - Y = ONE RING
  - BLANK = NO RINGS

When ordering please inform the chain type and number of teeth for ex. 5/8" x 15 Z



D x s	d	Bearing type	Sprocket	A	B
63.5 x 2.9	20	6004. 2RS	E 1/2" x 15 Z	27	
			D 1/2" x 15 Z	44	15
70 x 2	15	6202. 2RS	E 1/2" x 14 Z	27	
			D 1/2" x 14 Z	44	15
	17	6003. 2RS	E 1/2" x 14 Z	27	
			D 1/2" x 14 Z	44	15
80 x 1.8	20	6004. 2RS	E 1/2" x 15 Z	27	
			D 1/2" x 15 Z	44	15
	25	6205. 2RS	E 5/8" x 21 Z	20.4	
			D 5/8" x 18 Z	43.5	17.1
			D 5/8" x 15 Z	48.5	17.1
80 x 3.0	25	6205. 2RS	E 5/8" x 21 Z	20.4	
			D 5/8" x 18 Z	43.5	17.1
			D 5/8" x 15 Z	48.5	17.1
88.9 x 2.9	20	6004. 2RS	E 1/2" x 15 Z	27	
			D 1/2" x 15 Z	44	15
	25	6205. 2RS	E 5/8" x 21 Z	20.4	
			D 5/8" x 18 Z	43.5	17.1
			D 5/8" x 15 Z	48.5	17.1

E = One sprocket
D = Two sprockets

Number of teeth
Sprocket size

Weight of roller (kg)

D x s	d	Sprocket	Length of the roller shell L (recommended dimensions, other lengths also available)													
			200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
63.5 x 2.9	20	E 1/2" x 15 Z	2.1	2.5	3.0	3.4	3.8	4.3	4.7	5.1	5.6	6.0	6.4	6.9	7.3	7.7
		D 1/2" x 15 Z	2.3	2.8	3.2	3.6	4.1	4.5	4.9	5.4	5.8	6.2	6.7	7.1	7.5	8.0
70 x 2	15	E 1/2" x 14 Z	0.9	1.9	2.3	2.6	3.0	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.6	6.0
		D 1/2" x 14 Z	1.8	2.1	2.5	2.8	3.1	3.5	3.8	4.1	4.5	4.8	5.1	5.5	5.8	6.2
70 x 2	17	E 1/2" x 14 Z	1.7	2.0	2.4	2.7	3.1	3.4	3.7	4.1	4.4	4.7	5.1	5.4	5.7	6.1
		D 1/2" x 14 Z	1.9	2.2	2.6	2.9	3.2	3.6	3.9	4.2	4.6	4.9	5.2	5.6	5.9	6.2
80 x 1.8	20	E 1/2" x 15 Z	2.2	2.5	2.9	3.2	3.6	3.9	4.3	4.6	5.0	5.3	5.7	6.0	6.4	6.7
		D 1/2" x 15 Z	2.4	2.8	3.1	3.5	3.8	4.2	4.5	4.9	5.2	5.6	5.9	6.2	6.6	6.9
80 x 1.8	25	E 5/8" x 21 Z	3.1	3.4	2.4	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6
		D 5/8" x 18 Z	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6	8.0	8.3
		D 5/8" x 15 Z	3.1	3.4	3.8	4.1	4.5	4.8	5.2	5.5	5.9	6.2	6.6	6.9	7.3	7.6
80 x 3.0	25	E 5/8" x 21 Z	3.6	4.1	4.7	5.3	5.9	6.4	7.0	7.6	8.1	8.7	9.3	9.8	10.4	11.0
		D 5/8" x 18 Z	4.2	4.8	5.4	5.9	6.5	7.1	7.6	8.2	8.8	9.3	9.9	10.5	11.1	11.6
		D 5/8" x 15 Z	3.6	4.1	4.7	5.3	5.9	6.4	7.0	7.6	8.1	8.7	9.3	9.8	10.4	11.0
88.9 x 2.9	20	E 1/2" x 15 Z	2.8	3.4	4.1	4.7	5.3	5.9	6.5	7.1	7.7	8.4	9.0	9.6	10.2	10.8
		D 1/2" x 15 Z	2.6	3.2	3.8	4.4	5.0	5.7	6.3	6.9	7.5	8.1	8.7	9.3	10.0	10.6
88.9 x 2.9	25	E 5/8" x 21 Z	2.9	3.5	4.1	4.7	5.4	6.0	6.6	7.2	7.8	8.4	9.1	9.7	10.3	10.9
		D 5/8" x 18 Z	3.6	4.2	4.8	5.4	6.1	6.7	7.3	7.9	8.5	9.1	9.7	10.4	11.0	11.6
		D 5/8" x 15 Z	2.9	3.5	4.1	4.8	5.4	6.0	6.6	7.2	7.8	8.4	9.1	9.7	10.3	10.9

CHAIN DRIVEN ROLLER GE

The diameter of the chain sprocket on the chain driven GE rollers is smaller than the roller. This provides an advantageous solution for conveying large material, such as slab for instance. The chain sprockets are suitable for a one-row roller chain.

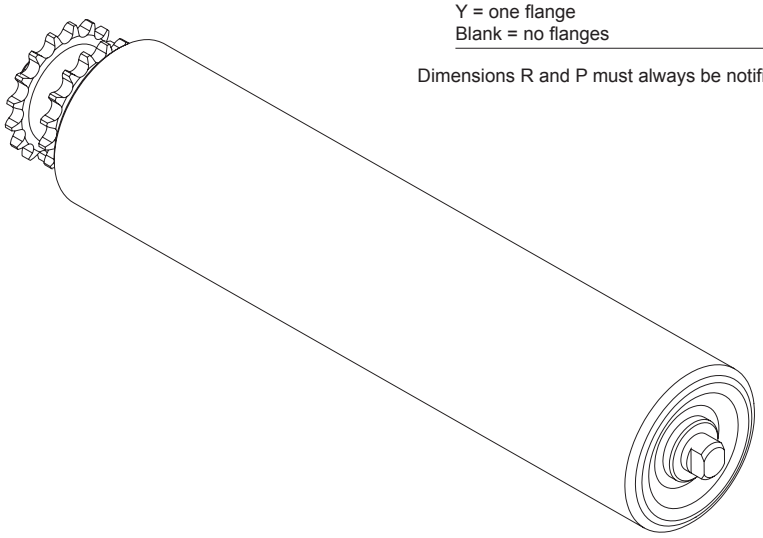
Choosing the GE rollers and amount of strain is based on the reference pages of the base roller (TS) which functions as the frame. Likewise, the alternatives for the ends of the shaft and the standard L-dimensions can be found on the same pages.

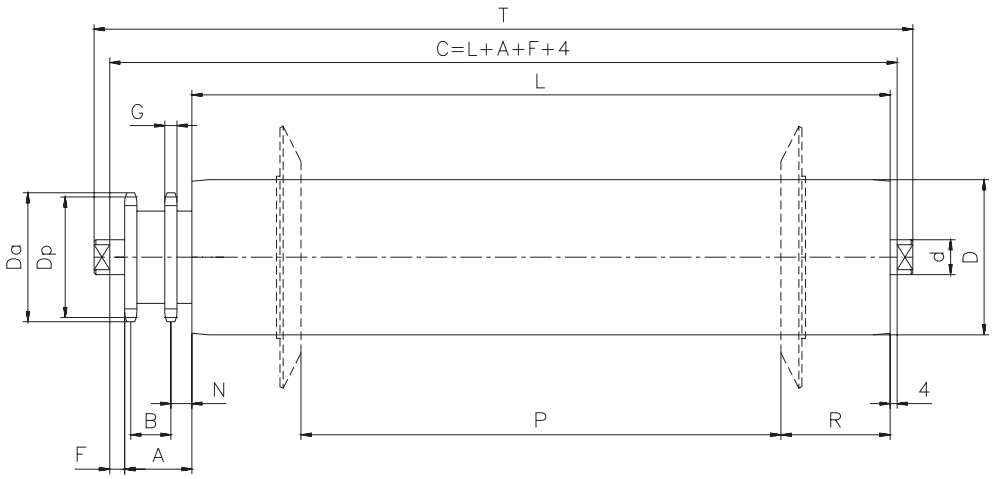
Guiding flanges are also available, if necessary.

ORDERING EXAMPLE: GE 108 - 20 A - 1000 K X

- Type code
- Roller diameter D (mm)
- Shaft diameter d (mm)
- Shaft end alternative, see the separate sheet
- Length of the roller shell L (mm)
- Number of sprockets
  - K = two sprockets
  - E = one sprocket, outer
- Number of the guiding flanges
  - X = two flanges
  - Y = one flange
  - Blank = no flanges

Dimensions R and P must always be notified when ordering guiding flanges.





Calculate the weight of the GE roller with the following formula:

G = G1 + G2

G1 = the weight of the TS roller

G2 = the weight of the chain sprocket

D	d	F	N	A	B	G	Dp	Da	Number of teeth Z	Chain pitch	G2 (kg/pcs)
76	**20**	12.0	15.5	42.0	23.0	7.0	61.08	66.0	15	08B (1/2")	0.75
89	**20**	12.5	12.0	38.5	23.0	7.0	69.12	74.0	17	08B (1/2")	0.94
108	**20, 25, 30**	13.5	14.75	44.5	25.3	8.9	86.39	93.0	17	10B (5/8")	1.67
133	**20, 25, 30**	14.5	18.5	57.5	33.5	11.0	103.67	113.0	17	12B (3/4")	2.25
159	**25, 30, 40**	20.0	22.5	83.0	52.5	16.0	130.2	143.0	16	16B (1")	6.50

CHAIN DRIVEN ROLLER GD

The diameter of the chain sprocket on the chain driven GD rollers is larger than the roller. This provides an advantageous structure superior in carrying capacity. The chain sprockets are suitable for a one-row roller chain.

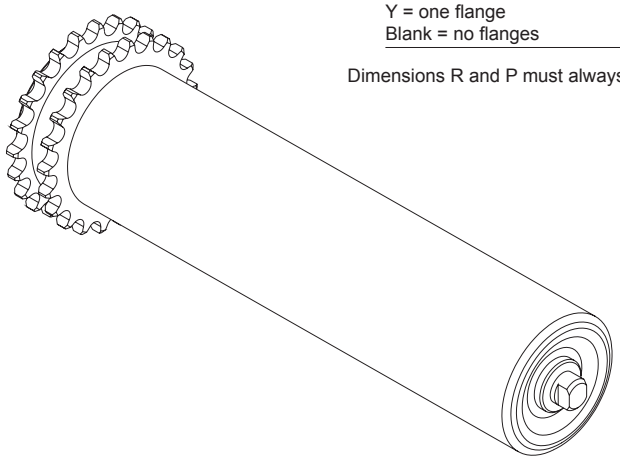
Choosing the GD rollers and amount of strain is based on the reference pages of the base roller (TS) which functions as the frame. Likewise, the alternatives for the ends of the shaft and the standard L-dimensions can be found on the same pages.

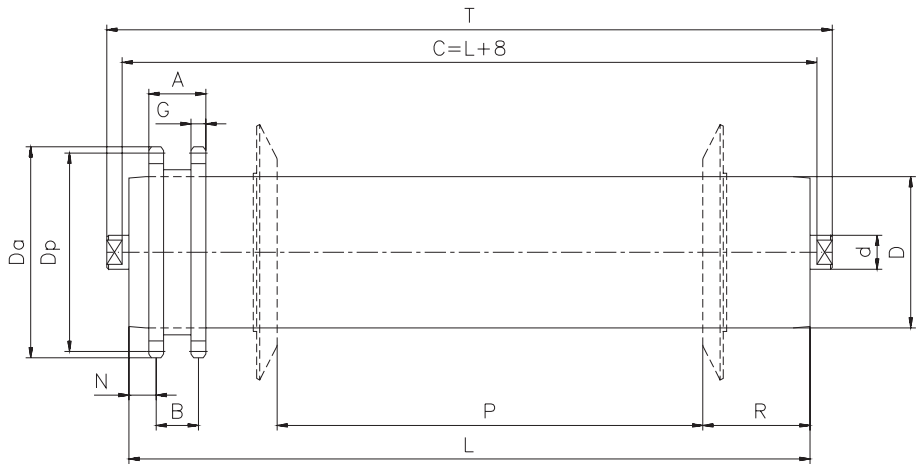
Guiding flanges are also available, if necessary.

ORDERING EXAMPLE: GD 108 - 20 A - 1000 K X

- Type code
- Roller diameter D (mm)
- Shaft diameter d (mm)
- Shaft end alternative, see the separate sheet
- Length of the roller shell L (mm)
- Number of sprockets
  - K = two sprockets
  - E = one sprocket, outer
- Number of the guiding flanges
  - X = two flanges
  - Y = one flange
  - Blank = no flanges

Dimensions R and P must always be notified when ordering guiding flanges.





Calculate the weight of the GD roller with the following formula:

G = G1 + G2

G1 = the weight of the TS roller

G2 = the weight of the chain sprocket

D	d	N	A	B	G	Dp	Da	Number of teeth Z	Chain pitch	G2 (kg/pcs)
51	**20**	12.0	21.7	16.5	5.2	69.95	73.0	23	06B (3/8")	0.35
63.5	**20**	14.0	28.0	21.0	7.0	93.27	98.0	23	08B (1/2")	0.40
76	**20, 25, 30**	14.0	30.5	23.5	7.0	101.33	106.0	25	08B (1/2")	0.60
89	**20, 25, 30**	16.0	33.5	24.8	8.7	116.58	124.0	23	10B (5/8")	0.50
108	**20, 25, 30, 40**	16.0	34.2	25.2	9.0	136.74	144.0	27	10B (5/8")	0.90
133	**20, 25, 30, 40**	18.0	44.5	33.5	11.0	164.09	173.0	27	12B (3/4")	1.45
159	**25, 30, 40**	18.0	44.5	33.5	11.0	188.31	196.0	31	12B (3/4")	2.05

GUIDING FLANGES FOR UNIT GOODS CONVEYORS

KL

The KL guiding flanges are intended for belt and roller conveyors that transport unit goods. The guiding flanges effectively guide unit goods or belt.

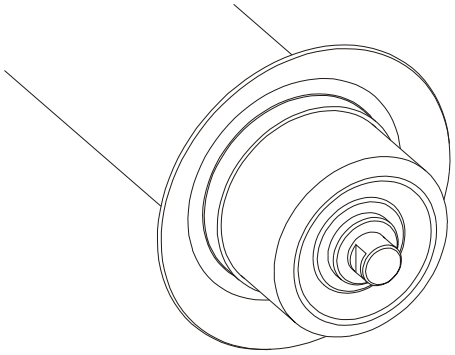
The guiding flanges are quick and easy to install onto the conveyor either by welding (type H) or with a bolted joint (type R).

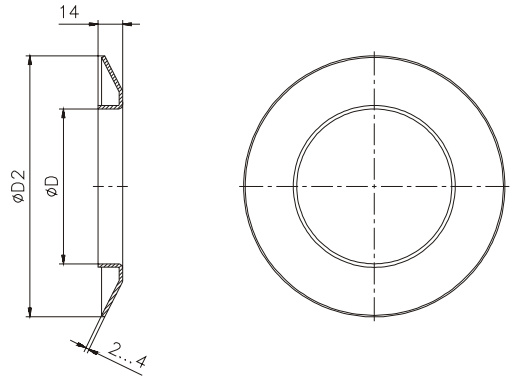
Thanks to its bolted joint, type R may be adjusted after installation as well.

ORDERING EXAMPLE: KL 89 - R

- Type code
- Roller diameter D (mm)
- Type of guiding flange
  - R = REMOVABLE FLANGE (BOLTED JOINT)
  - H = WELDED FLANGE

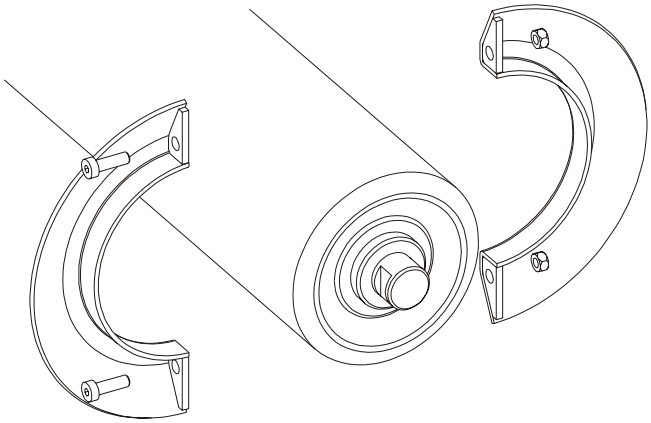
Type H

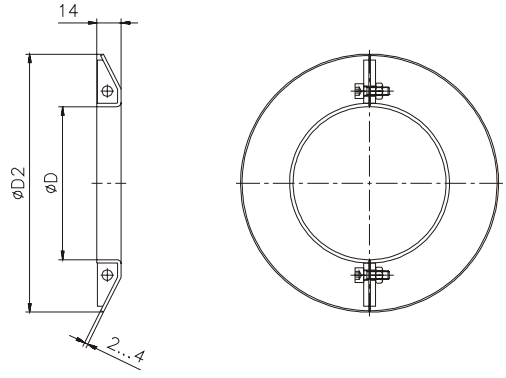




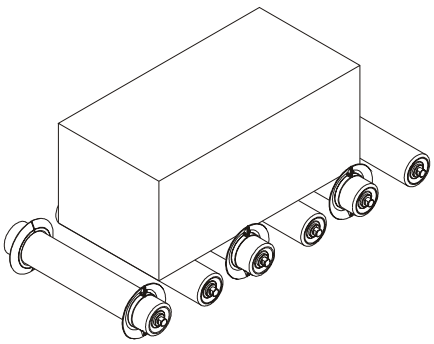
D	60	63,5	80	89	108
D2	120	130	140	150	160

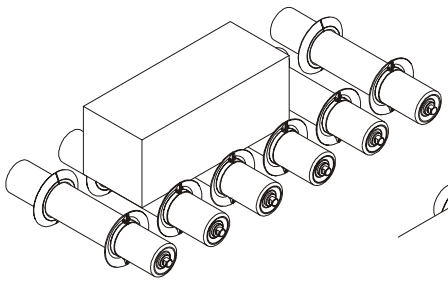
Type R

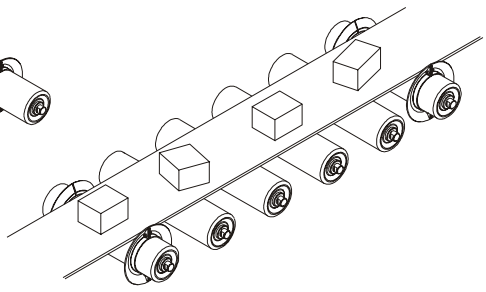




D	60	63,5	80	89	108
D2	120	130	140	150	160







IDLER WITH BEARING HOUSE TL

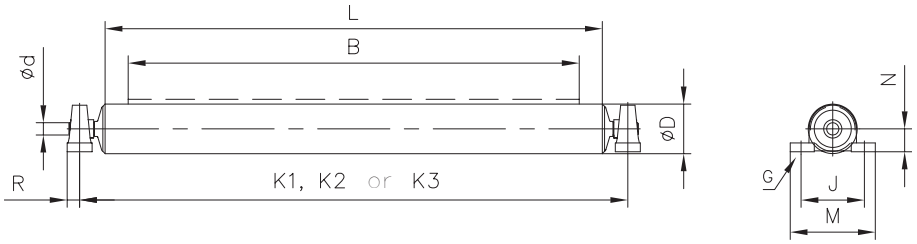
The TL idler with separate bearing house, are made for wide belt and unit goods conveyors. The shaft of the idler, which does not go all the way through, is welded to the casing with double flanges, which enables a great load capacity.

Driving machinery, chain gears etc. can be installed case-by-case according to the given measurements. The idler tube thickness for heavy duty belt feeders must be checked separately based on point and shell load capasity.

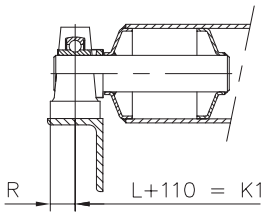
ORDERING EXAMPLE: TL 108 - 20 - 1150 K S 1

- Type code
- Idler diameter D (mm)
- Shaft diameter d (mm)
- Idler length L (mm)
- Surface treatment alternative (see separate information sheet)
- Type of bearing house
  - Y = UCP (Asahi)
  - S = SNL (SKF)
  - F = UCF (Asahi)
- Idler type
  - NO MARKING = freely rotating
  - 1 = drive at one end
  - 2 = drive at both ends

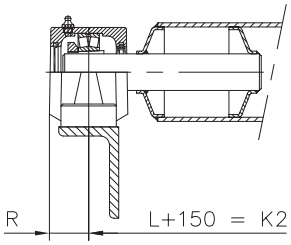
Freely rotating



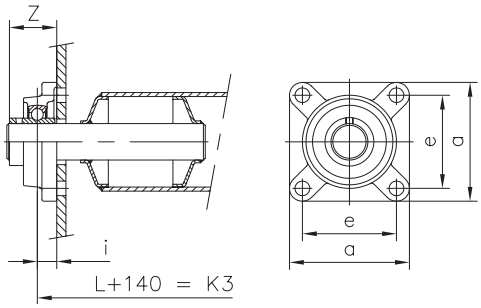
Bearing house type Y



Bearing house type S



Bearing house type F



TL idler weight (kg), without bearing houses.

D	d	B 400	500	650	800	1000	1200	1400	1600	1800	2000
		L 500	600	750	950	1150	1400	1600	1800	2000	2200
(50.8)	20	2.5	2.7	3.1	3.6	4.1	4.7	5.2	5.6	6.1	6.6
63.5	20	2.8	3.1	3.5	4.0	4.6	5.2	5.8	6.3	6.8	7.4
(76)	20	3.9	4.3	5.0	5.9	6.8	7.9	8.9	9.8	10.7	11.6
88.9	20	4.9	5.5	6.4	7.6	8.9	10.4	11.6	12.9	14.1	15.3
	25	5.5	6.1	7.0	8.2	9.5	11.0	12.2	13.5	14.7	15.9
	30	6.1	6.7	7.6	8.8	10.1	11.6	12.8	14.1	15.3	16.5
	40	7.9	8.5	9.4	10.6	11.9	13.4	14.6	15.9	17.1	18.3
(101.6)	20	6.4	7.2	8.5	10.3	12.0	14.2	15.9	17.7	19.4	21.1
	25	6.9	7.7	9.0	10.8	12.5	14.7	16.4	18.2	19.9	21.6
	30	7.6	8.4	9.7	11.5	13.2	15.4	17.1	18.9	20.6	22.3
	40	9.4	10.2	11.5	13.3	15.0	17.2	18.9	20.7	22.4	24.1
108	20	5.4	6.0	7.0	8.3	9.6	11.2	12.5	13.8	15.1	16.4
	25	6.0	6.6	7.6	8.9	10.2	11.8	13.1	14.4	15.7	17.0
	30	6.7	7.3	8.3	9.6	10.9	12.5	13.8	15.1	16.4	17.7
	40	8.4	9.0	10.0	11.3	12.6	14.2	15.5	16.8	18.1	19.4
133	20	8.3	9.5	11.2	13.5	15.8	18.7	21.0	23.3	25.6	27.9
	25	8.8	10.0	11.7	14.0	16.3	19.2	21.5	23.8	26.1	28.4
	30	9.5	10.7	12.4	14.7	17.0	19.9	22.2	24.5	26.8	29.1
	40	11.3	12.5	14.2	16.5	18.8	21.7	24.0	26.3	28.6	30.9
159	20	11.7	13.4	16.0	19.4	22.8	27.1	30.5	34.0	37.4	40.8
	25	12.3	14.0	16.6	20.0	23.4	27.7	31.1	34.6	38.0	41.4
	30	13.0	14.7	17.3	20.7	24.1	28.4	31.8	35.3	38.7	42.1
	40	14.7	16.4	19.0	22.4	25.8	30.1	33.5	37.0	40.4	43.8
219	30	21.8	24.9	29.6	35.9	42.2	50.1	56.4	62.7	69.0	75.3
	40	23.6	26.7	31.4	37.7	44.0	51.9	58.2	64.5	70.8	77.1
	50	25.8	28.9	33.6	39.9	46.2	54.1	60.4	66.7	73.0	79.3

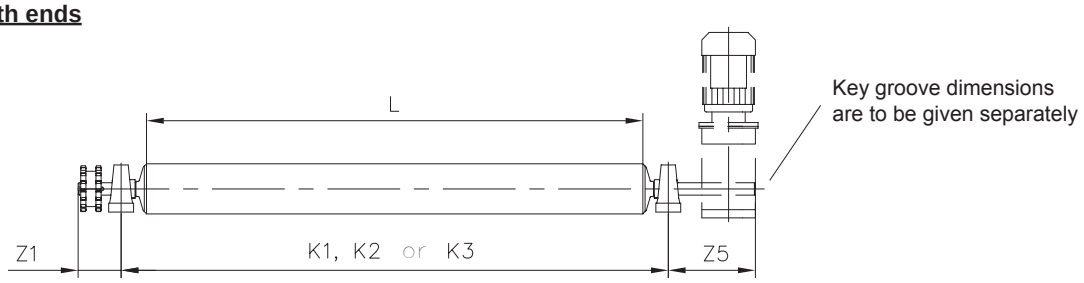
Bearing house type	d	G	R	N	J	M	Weight (kg / 2 pcs)
Bearing house Y	20	M10	19	33	95	127	1.3
	25	M10	19	37	105	140	1.6
	30	M14	24	43	121	165	2.6
	40	M14	27	49	137	184	4.0
	50	M16	30	57	159	206	5.4
Bearing house S	20	M12	34	40	130	165	3.4
	25	M12	39	50	150	185	4.7
	30	M12	41	50	150	185	5.5
	40	M12	43	60	170	205	7.5
	50	M16	48	70	210	255	11.0

Bearing house type	d	G	Z	i	e	a	Weight (kg / 2 pcs)
Bearing house F	20	M10	33	15	64	86	1.2
	25	M10	36	16	70	95	1.6
	30	M10	40	18	83	108	2.2
	40	M14	51	21	102	130	4.0
	50	M14	55	22	111	143	5.0

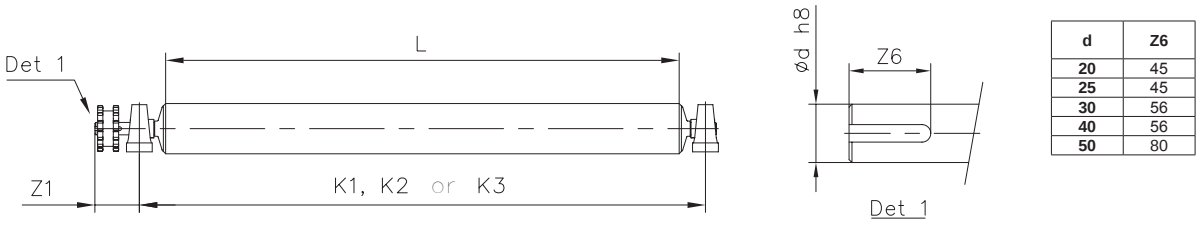
TL idler with driving machinery

- Driving machinery, chain gears, flat transmission belts or V-belts are not included in idler deliveries.
- If the Z-measurements are not standard, this must be noted in the order.
- Key groove according to standard DIN 6885.

Drive at both ends

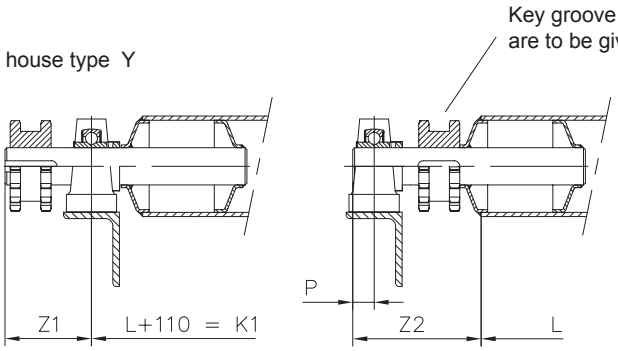


Drive at one end



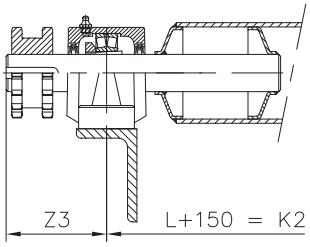
d	Z6
20	45
25	45
30	56
40	56
50	80

Bearing house type Y

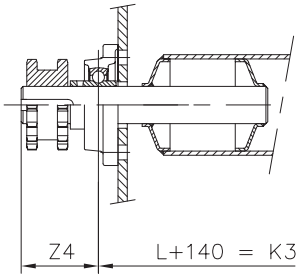


Bearing house type	d	P	Z1	Z2	Z5
Bearing house Y	**20**	15	75	108	145
	25	15	75	110	164
	30	20	90	127	171
	40	23	93	138	203
	50	23	96	165	233

Bearing house type S



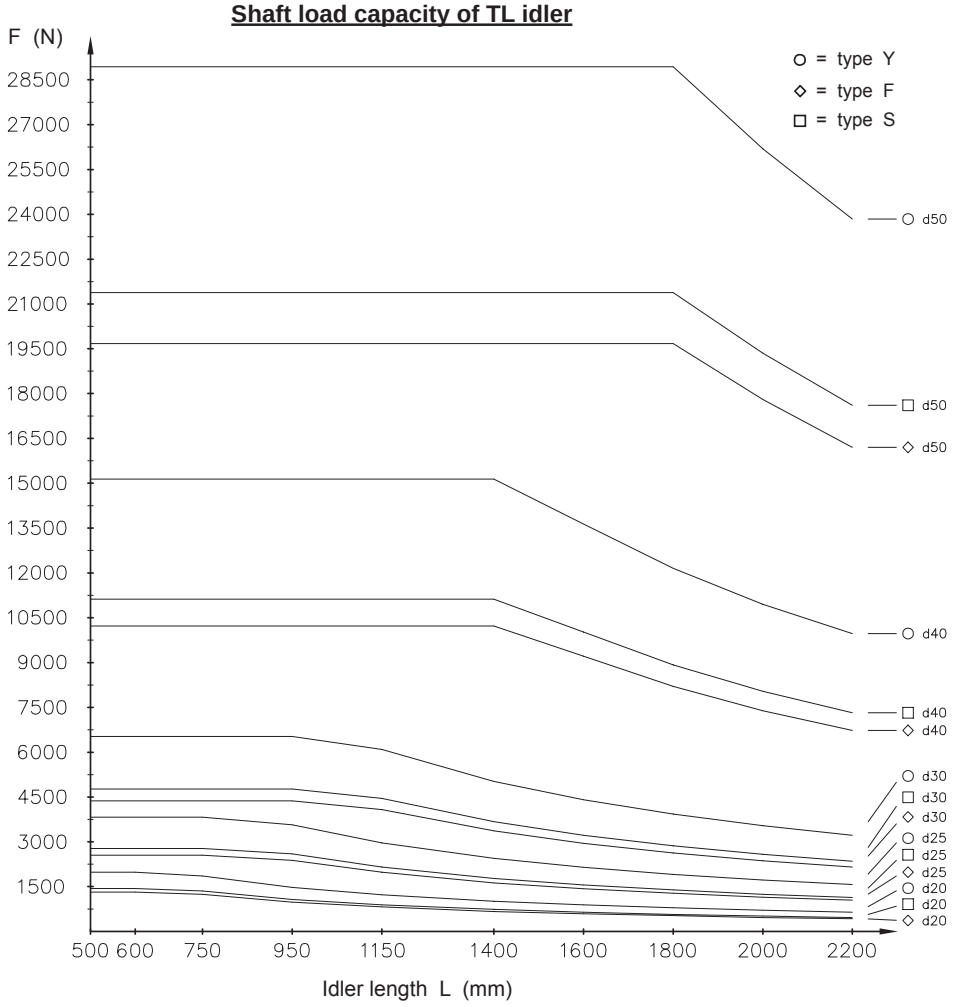
Bearing house type F



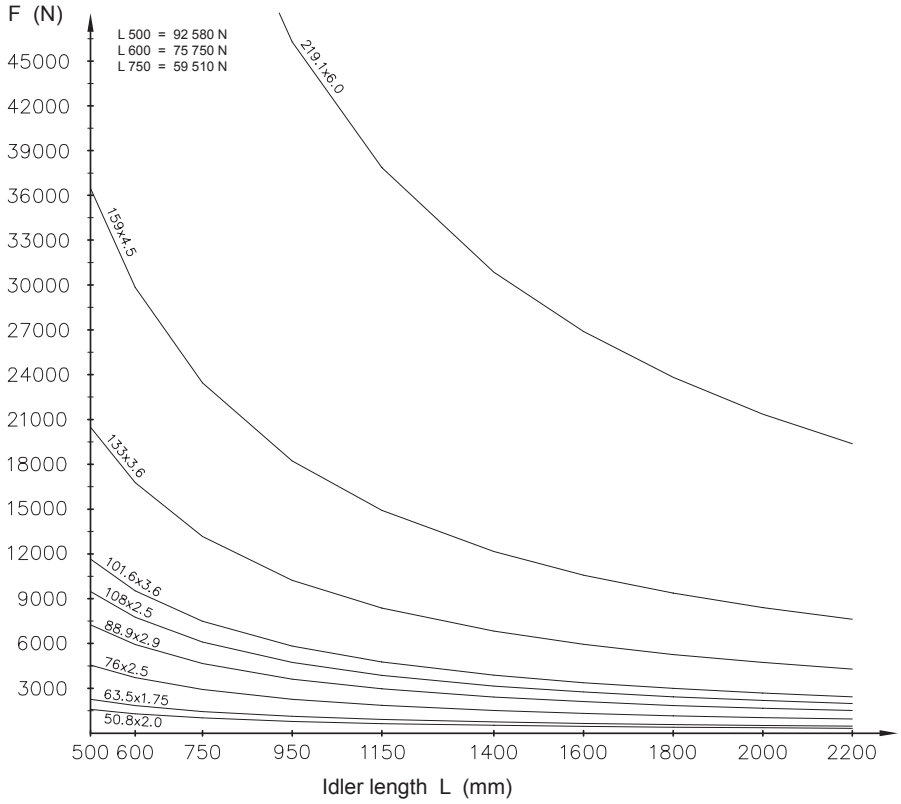
Bearing house type	d	Z3	Z5
Bearing house S	**20**	89	160
	25	94	184
	30	107	188
	40	108	219
	50	137	251

Bearing house type	d	Z4	Z5
Bearing house F	**20**	61	144
	25	63	165
	30	75	169
	40	83	206
	50	110	236

Shaft load capacity of TL idler



Shell load capacity of TL idler



Point load: The values shown in the table for shell load capacity are multiplied by 0.75, assuming a load width of 100 mm.

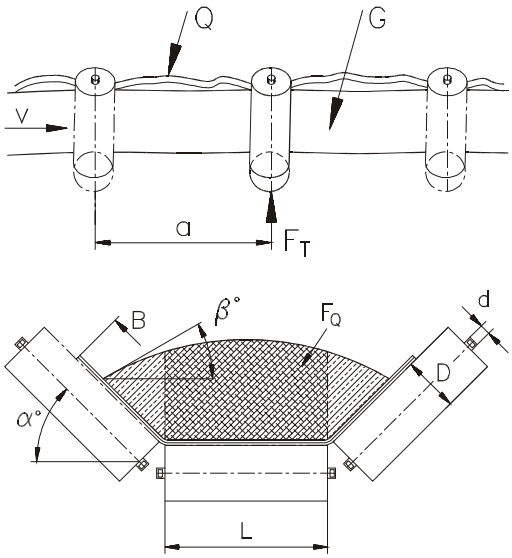
2. ROLLERS FOR BELT CONVEYORS

- Selection and load rating of the idlers for belt conveyors
- Surface treatment of idlers, shaft end alternatives and standard lengths
- Steel idler TS
- Steel idler TS-E
- “Extra heavy-duty” idler TH
- Impact idler LA
- “Extra heavy-duty” impact idler LH
- Guiding idlers TV
- Belt guiding disc TV6
- Wearing surface for the guiding idler TV7
- Stub idler for side wall belt TF
- Return idlers of belt conveyors
  - Return idler RA(H)
  - Return idler RA(S)
  - Return idler RB(S)
  - Return idler RA(K)
  - Return idler RB(K)
  - Return idler for side wall belt RF
- Rubber and urethane discs of the idlers
- Plastic idler TG
- Electrically heated idler TZ
- Garland idlers
  - Carrying garland idlers NT3 NL3
  - Return garland idlers NT2 NR2

INDEX

SELECTION AND LOAD RATING OF THE IDLERS FOR BELT CONVEYORS

Selection of the bulk handling idlers is based on the idler load, generally on the center idler of a 3 -roll set.



Q = conveyor capacity (t/h)
v = belt speed (m/s)
G = belt weight (kg/m)
F_T = total load of one idler set (N)
F_Q = total load of center idler (N)
B = belt width (mm)
L = length of idler shell (mm)
D = idler diameter (mm)
d = shaft diameter (mm)
a = idler spacing (m)
α = troughing angle
β = rolling angle of the material in motion
e = factor which takes into account the influence of the troughing angle on the load of centre idler (table 1)
c = factor which takes into account the influence of material particle size on the load of centre idler (table 2)

Table 1 Factor **e**

β	α		
	20°	**30°**	**45°**
0°	0.61	0.63	0.67
10°	0.64	0.65	0.68
20°	0.67	0.67	0.69
30°	0.70	0.70	0.70

e -values are valid if the filling grade of conveyor cross section is according to SFS-ISO 5048 standard.

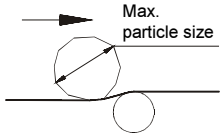


Table 2 Factor **c**

Max. particle size	Density (kg/m³)						
(mm)	800	1200	1600	2000	2400	2800	3200
0 - 100	1.0	1.0	1.0	1.0	1.1	1.1	1.1
100 - 150	1.0	1.0	1.0	1.1	1.1	1.1	1.1
150 - 200	1.0	1.0	1.1	1.1	1.1	1.2	1.2
200 - 300	1.0	1.1	1.1	1.2	1.2	1.2	1.3
300 - 400	1.1	1.1	1.1	1.2	1.2	1.3	1.3
400 - 500	1.1	1.1	1.2	1.2	1.3	1.3	1.4

1. CALCULATE IDLER LOAD (center idler of 3 -roll set)

Basic information

Q = 1300 t/h
v = 2.2 m/s
G = 20 kg/m
B = 1400 mm
a = 1.2 m
α = 45°
β = 30° (coal)

Load for one idler set F_T

$$F_T = \left(\frac{Q}{3.6 \times v} + G\right) \times a \times 10$$

$$F_T = \left(\frac{1300}{3.6 \times 2.2} + 20\right) \times 1.2 \times 10 = 2210\ N$$

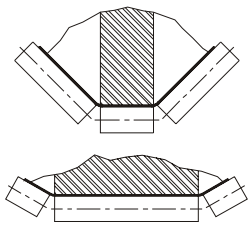
Load of center idler F_Q

$$F_Q = e \times c \times F_T$$

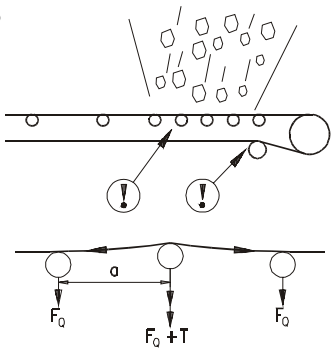
e = 0.7 (table 1)
c = 1.2 (table 2)

$$F_Q = 0.7 \times 1.2 \times 2210 = 1856\ N$$

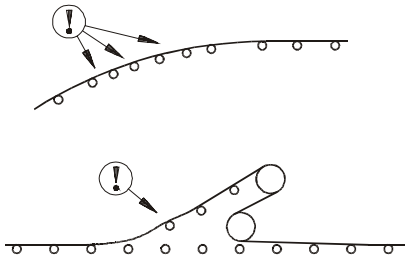
NOTE THE POSSIBLE EXTRA LOADS



Center idlers of unequal length



Local extra loads



Influence of vertical curves

Take into account the extra load for the idlers at places where pulling on and replacing the conveyor belt.

2. DETERMINE THE IDLER DIAMETER

Select the idler diameter D so that the idler speed n is between 300...650 1/min. For speeds over 650 1/min contact our technical service department.

Selection: D = 133 → n = 320 1/min (Diagram 1).

3. SELECT THE SHAFT SIZE

Select the shaft diameter according to bearing life time with the help of previously calculated idler load F_Q and idler speed n.

Selection: d = 25 → F_r = 5750 N (Diagram 2).

The working life of the bearing is calculated by multiplying the bearing load rating F_r in table 3 by the coefficient k.

h = 50 000 h

F_r x k = 5750 N x 0.79 = 4542 N

4. CHECK THE LOAD RATING

Check the load rating of the idler shaft and steel construction from diagram 3.

For the belt width B = 1400 is idler lenght L = 530 mm. When d = 25, diagram 3 gives:

F_c = 3900 N

The idler load F_Q must always be less than the bearing load rating F_r x k and shaft load rating F_c.

$$F_c \geq F_Q \leq (F_r \times k)$$

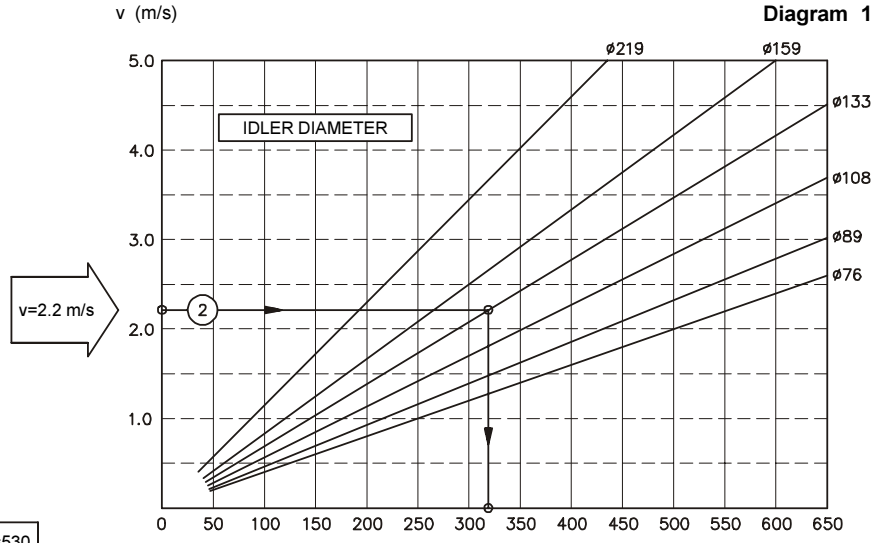
3900 N ≥ 1856 ≤ 4542

F_Q = idler load (N)
F_c = shaft load rating (N)
F_r = bearing load rating (N)
h = expected life (h)

Table 3

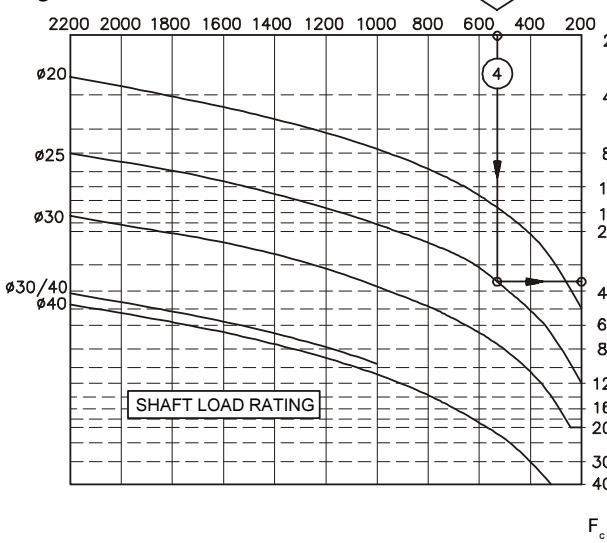
Life time h	k
10 000	1.35
16 000	1.16
20 000	1.08
25 000	1.00
32 000	0.93
50 000	0.79
63 000	0.73
80 000	0.68
100 000	0.63

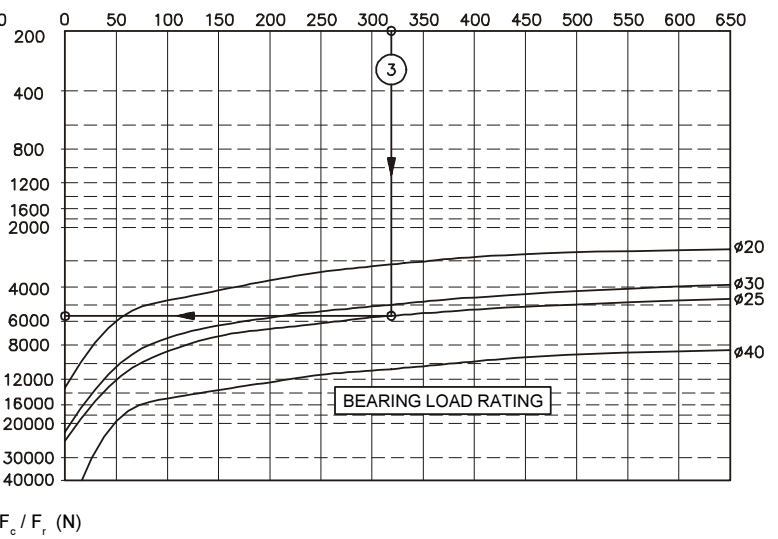
Diagram 1



L=530
d=25

Diagram 3





F_c / F_r (N)

Diagram 2

SURFACE TREATMENT OF IDLERS, SHAFT END ALTERNATIVES AND STANDARD LENGTHS

SURFACE TREATMENT ALTERNATIVES

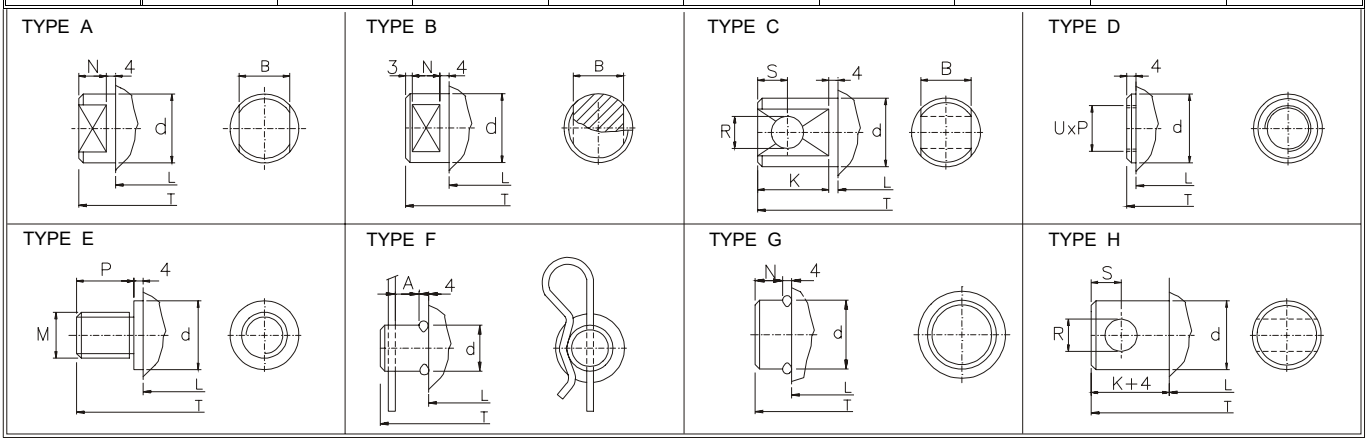
• = sufficient, •••• = excellent

	PM = shop primer
Roxon standard finishing:	**EP = epoxy**
Special coatings:	PA = polyamide
	LD = plast tube
	K = rubber
	PU = polyurethane

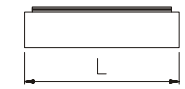
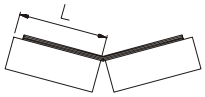
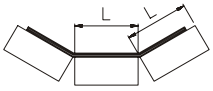
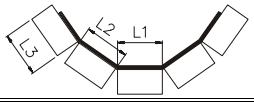
PROPERTY	PM	EP	PA	LD	K	PU
WEAR RESISTANCE	•	••	••	•••	•••	••••
CHEMICAL RESISTANCE	•	••	•••	••••	••••	••••
CORROSION RESISTANCE	•	••	•••	•••	••••	•••
STICKING RESISTANCE	•	••	••	••••	••••	••••

SHAFT END DIMENSIONS

d	N	B	K	R	S	P	U	A	M
12	9	9	-	-	-	15	M8	5	M10
15	9	12	-	-	-	20	M10	5	M12
20	9	14	20	8	8	20	M12	10	M12
25	12	18	25	10	10	20	M16	-	M16
30	12	22	31	14	13	25	M20	-	M20
40	12	32	41	18	18	30	M24	-	M30



STANDARD LENGTHS OF THE IDLERS

		Belt width B											
		400	**500**	**650**	**800**	**1000**	**1200**	**1400**	**1600**	**1800**	**2000**	**2200**	**2400**
	**L**	500	600	750	950	1150	1400	1600	1800	2000	2200		
	**L**	250	315	380	465	600	670	750	900	1000	1150	1400	1400
	**L**		200	250	315	380	465	530	600	670	750	800	950
	**L1**						250	250	315	380	380	465	465
	L2						250	315	315	380	380	465	530
	L3						250	315	380	380	465	465	530

Non- standard idler lengths also available.

STEEL IDLER

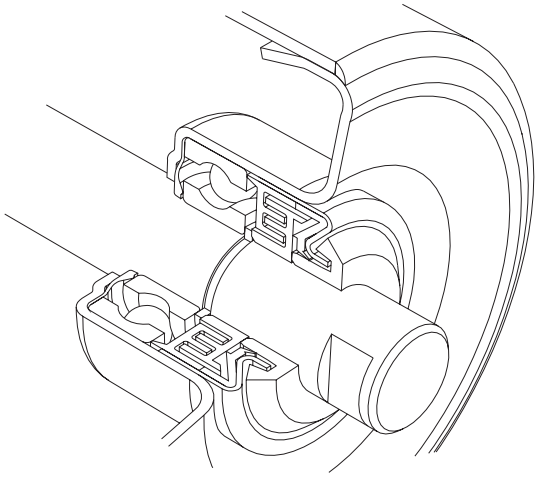
TS

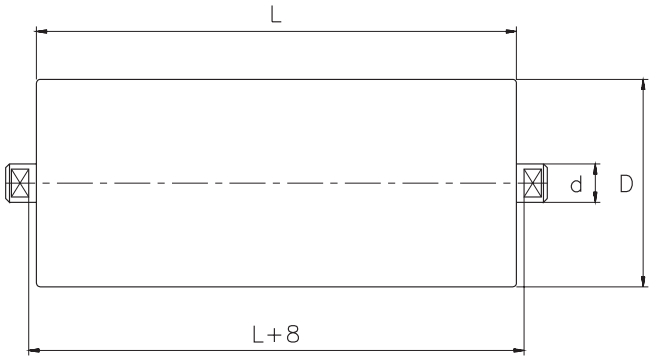
Roxon TS-idler is designed for very demanding environments. TS-idler is equipped with a special sealing against dirt, dust and freezing. TS-idler is used in belt conveyors as a carrying idler and also as return idler for non-sticky materials.

The steel sealing casing and the weather seal form a reliable cover against the splashwater. The multiple sealing labyrinth and rubbing double lipseal efficiently prevent the dirt from getting inside the idler. The standard surface treatment is shot-blasting and epoxy powder coating RAL3000, red. Special surface treatment is also available for sticky materials.

ORDERING EXAMPLE: TS108 - 20 B - 380 K

- Type code
- Idler diameter D (mm)
- Shaft diameter d (mm)
- Shaft end alternative, see separate sheet
- Idler length L (mm)
- Special surface treatment, see separate sheet





Example: Total weight 7,2 kg
Weight of rotating parts 3,8 kg

Idler weight (kg)

D	d	L														
		200	250	315	380	465	530	600	670	750	950	1150	1400	1600	1800	2000
51	20	1,4 0,9	1,6 1,0	1,9 1,2	2,3 1,3	2,7 1,5	3,0 1,7	3,3 1,8	3,7 2,0	4,1 2,2	5,0 2,7	6,0 3,2	7,2 3,8	8,2 4,2	9,2 4,7	10,1 5,2
63	20	1,6 1,1	1,9 1,3	2,2 1,5	2,6 1,6	3,0 1,9	3,3 2,0	3,7 2,2	4,1 2,4	4,5 2,6	5,5 3,2	6,5 3,7	7,8 4,4	8,9 4,9	9,9 5,5	10,9 6,0
89	20	2,5 2,0	3,0 2,3	3,5 2,7	4,1 3,1	4,8 3,7	5,4 4,1	6,0 4,5	6,6 4,9	7,3 5,4	9,0 6,6	10,7 7,9	12,9 9,4	14,6 10,6	16,3 11,9	18,0 13,1
	25	3,2 2,4	3,7 2,7	4,4 3,1	5,0 3,5	5,9 4,1	6,5 4,5	7,2 4,9	7,9 5,3	8,7 5,8	10,7 7,0	12,7 8,3	15,2 9,8	17,2 11,0	19,2 12,3	21,2 13,5
	30	3,6 2,5	4,2 2,8	4,9 3,2	5,7 3,6	6,7 4,1	7,5 4,5	8,3 4,9	9,1 5,4	10,0 5,9	12,4 7,1	14,7 8,3	17,6 9,9	20,0 11,1	22,3 12,3	24,7 13,6
108	20	2,7 2,2	3,1 2,5	3,7 2,9	4,3 3,4	5,1 3,9	5,7 4,3	6,3 4,8	6,9 5,3	7,6 5,8	9,4 7,1	11,2 8,4	13,5 10,0	15,3 11,3	17,0 12,6	18,8 13,9
	25	3,4 2,6	3,9 2,9	4,6 3,4	5,3 3,8	6,1 4,3	6,8 4,8	7,5 5,2	8,3 5,7	9,1 6,2	11,2 7,5	13,2 8,8	15,8 10,4	17,9 11,7	20,0 13,0	22,0 14,3
	30	3,8 2,7	4,4 3,0	5,2 3,4	6,0 3,9	7,0 4,4	7,8 4,8	8,6 5,3	9,5 5,8	10,4 6,3	12,8 7,6	15,3 8,9	18,3 10,5	20,7 11,8	23,1 13,1	25,5 14,4
	40	9,2 7,2	10,0 7,5	11,1 7,9	12,1 8,4	13,5 8,9	14,6 9,3	15,7 9,8	16,9 10,3	18,2 10,8	21,4 12,1	24,7 13,4	28,8 15,0	32,1 16,3	35,3 17,6	38,6 18,9
133	20	4,1 3,6	4,8 4,2	5,7 5,0	6,7 5,7	7,8 6,7	8,7 7,4	9,7 8,2	10,7 9,0	11,8 10,0	14,6 12,3	17,4 14,6	20,9 17,4	23,7 19,7	26,5 22,0	29,3 24,3
	25	4,8 4,0	5,5 4,6	6,5 5,3	7,5 6,1	8,8 7,0	9,8 7,8	10,9 8,6	12,0 9,4	13,2 10,3	16,3 12,6	19,3 14,9	23,2 17,8	26,2 20,1	29,3 22,4	32,4 24,7
	30	5,2 4,0	6,0 4,6	7,1 5,4	8,2 6,1	9,7 7,1	10,8 7,8	12,0 8,6	13,2 9,4	14,5 10,4	17,9 12,7	21,3 15,0	25,6 17,8	29,0 20,1	32,4 22,4	35,8 24,7
	40	10,6 8,6	11,6 9,2	13,0 9,9	14,4 10,7	16,2 11,6	17,6 12,4	19,1 13,2	20,6 14,0	22,3 14,9	26,6 17,2	30,9 19,5	36,2 22,4	40,5 24,7	44,7 27,0	49,0 29,3
159	20	5,5 5,0	6,5 5,9	7,8 7,0	9,0 8,1	10,7 9,6	12,0 10,7	13,4 11,9	14,7 13,1	16,3 14,4	20,2 17,9	24,1 21,3	29,0 25,6	33,0 29,0	36,9 32,5	40,8 35,9
	25	6,2 5,4	7,2 6,3	8,6 7,4	10,0 8,5	11,7 10,0	13,1 11,1	14,6 12,3	16,1 13,5	17,7 14,8	21,9 18,3	26,1 21,7	31,4 26,0	35,6 29,4	39,8 32,9	44,0 36,3
	30	6,6 5,5	7,7 6,3	9,2 7,4	10,6 8,5	12,6 10,0	14,1 11,1	15,6 12,3	17,2 13,5	19,0 14,9	23,6 18,3	28,1 21,7	33,8 26,0	38,3 29,5	42,9 32,9	47,4 36,3
	40	12,2 10,2	13,6 11,1	15,3 12,2	17,1 13,3	19,4 14,8	21,1 15,9	23,0 17,1	24,9 18,3	27,1 19,7	32,5 23,1	37,9 26,5	44,6 30,8	50,0 34,2	55,4 37,7	60,8 41,1
219	30	10,5 8,5	12,2 9,7	14,3 11,2	16,5 12,8	19,4 14,8	21,6 16,4	23,9 18,0	26,3 19,7	29,0 21,6	35,7 26,4	42,5 31,1	50,9 37,1	57,6 41,8	64,4 46,6	71,1 51,4
	40	15,1 13,1	16,8 14,3	19,0 15,9	21,2 17,4	24,0 19,5	26,2 21,0	28,6 22,7	30,9 24,3	33,6 26,2	40,4 31,0	47,1 35,8	55,5 41,7	62,3 46,5	69,0 51,3	75,7 56,0

STEEL IDLER

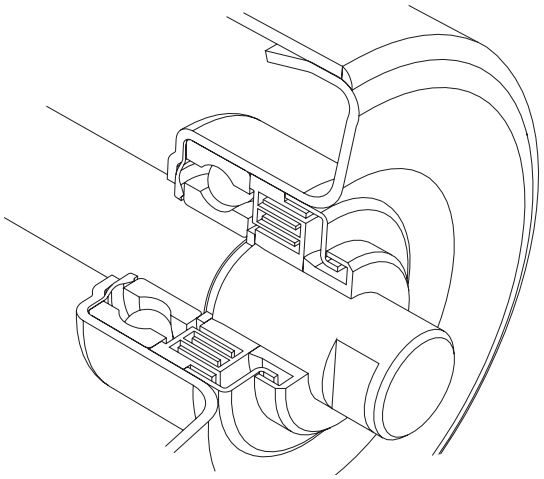
TS-E

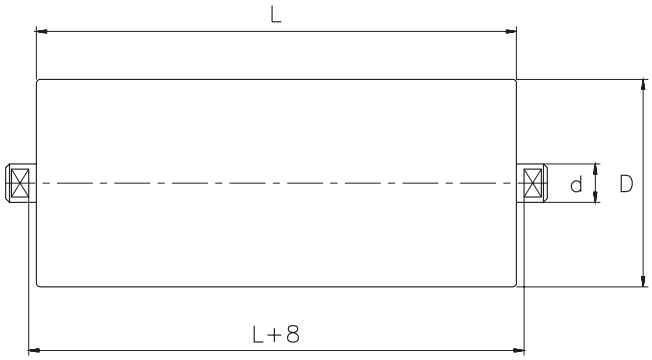
Roxon TS-E idler is a competitive standard idler for belt conveyors. TS-E idler is used as carrying idler and also as a return idler for non-sticky materials.

The steel sealing casing and the weather seal form a reliable cover against the splashwater. The multiple sealing labyrinth efficiently prevents the dirt from getting inside the idler. The standard surface treatment is shot-blasting and epoxypowder coating RAL3000, red. Special surface treatment is also available for sticky materials.

ORDERING EXAMPLE: TS108 E - 20 B - 380 K

- Type code
- Idler diameter D (mm)
- Sealing alternative E
- Shaft diameter d (mm)
- Shaft end alternative, see separate sheet
- Idler length L (mm)
- Special surface treatment, see separate sheet





Example: Total weight 7,2 kg
Weight of rotating parts 3,8 kg

Idler weight (kg)

D	d	L														
		200	250	315	380	465	530	600	670	750	950	1150	1400	1600	1800	2000
51	20	1,4 0,9	1,6 1,0	1,9 1,2	2,3 1,3	2,7 1,5	3,0 1,7	3,3 1,8	3,7 2,0	4,1 2,2	5,0 2,7	6,0 3,2	7,2 3,8	8,2 4,2	9,2 4,7	10,1 5,2
63	20	1,6 1,1	1,9 1,3	2,2 1,5	2,6 1,6	3,0 1,9	3,3 2,0	3,7 2,2	4,1 2,4	4,5 2,6	5,5 3,2	6,5 3,7	7,8 4,4	8,9 4,9	9,9 5,5	10,9 6,0
89	20	2,5 2,0	3,0 2,3	3,5 2,7	4,1 3,1	4,8 3,7	5,4 4,1	6,0 4,5	6,6 4,9	7,3 5,4	9,0 6,6	10,7 7,9	12,9 9,4	14,6 10,6	16,3 11,9	18,0 13,1
	25	3,2 2,4	3,7 2,7	4,4 3,1	5,0 3,5	5,9 4,1	6,5 4,5	7,2 4,9	7,9 5,3	8,7 5,8	10,7 7,0	12,7 8,3	15,2 9,8	17,2 11,0	19,2 12,3	21,2 13,5
	30	3,6 2,5	4,2 2,8	4,9 3,2	5,7 3,6	6,7 4,1	7,5 4,5	8,3 4,9	9,1 5,4	10,0 5,9	12,4 7,1	14,7 8,3	17,6 9,9	20,0 11,1	22,3 12,3	24,7 13,6
108	20	2,7 2,2	3,1 2,5	3,7 2,9	4,3 3,4	5,1 3,9	5,7 4,3	6,3 4,8	6,9 5,3	7,6 5,8	9,4 7,1	11,2 8,4	13,5 10,0	15,3 11,3	17,0 12,6	18,8 13,9
	25	3,4 2,6	3,9 2,9	4,6 3,4	5,3 3,8	6,1 4,3	6,8 4,8	7,5 5,2	8,3 5,7	9,1 6,2	11,2 7,5	13,2 8,8	15,8 10,4	17,9 11,7	20,0 13,0	22,0 14,3
	30	3,8 2,7	4,4 3,0	5,2 3,4	6,0 3,9	7,0 4,4	7,8 4,8	8,6 5,3	9,5 5,8	10,4 6,3	12,8 7,6	15,3 8,9	18,3 10,5	20,7 11,8	23,1 13,1	25,5 14,4
	40	9,2 7,2	10,0 7,5	11,1 7,9	12,1 8,4	13,5 8,9	14,6 9,3	15,7 9,8	16,9 10,3	18,2 10,8	21,4 12,1	24,7 13,4	28,8 15,0	32,1 16,3	35,3 17,6	38,6 18,9
133	20	4,1 3,6	4,8 4,2	5,7 5,0	6,7 5,7	7,8 6,7	8,7 7,4	9,7 8,2	10,7 9,0	11,8 10,0	14,6 12,3	17,4 14,6	20,9 17,4	23,7 19,7	26,5 22,0	29,3 24,3
	25	4,8 4,0	5,5 4,6	6,5 5,3	7,5 6,1	8,8 7,0	9,8 7,8	10,9 8,6	12,0 9,4	13,2 10,3	16,3 12,6	19,3 14,9	23,2 17,8	26,2 20,1	29,3 22,4	32,4 24,7
	30	5,2 4,0	6,0 4,6	7,1 5,4	8,2 6,1	9,7 7,1	10,8 7,8	12,0 8,6	13,2 9,4	14,5 10,4	17,9 12,7	21,3 15,0	25,6 17,8	29,0 20,1	32,4 22,4	35,8 24,7
	40	10,6 8,6	11,6 9,2	13,0 9,9	14,4 10,7	16,2 11,6	17,6 12,4	19,1 13,2	20,6 14,0	22,3 14,9	26,6 17,2	30,9 19,5	36,2 22,4	40,5 24,7	44,7 27,0	49,0 29,3
159	20	5,5 5,0	6,5 5,9	7,8 7,0	9,0 8,1	10,7 9,6	12,0 10,7	13,4 11,9	14,7 13,1	16,3 14,4	20,2 17,9	24,1 21,3	29,0 25,6	33,0 29,0	36,9 32,5	40,8 35,9
	25	6,2 5,4	7,2 6,3	8,6 7,4	10,0 8,5	11,7 10,0	13,1 11,1	14,6 12,3	16,1 13,5	17,7 14,8	21,9 18,3	26,1 21,7	31,4 26,0	35,6 29,4	39,8 32,9	44,0 36,3
	30	6,6 5,5	7,7 6,3	9,2 7,4	10,6 8,5	12,6 10,0	14,1 11,1	15,6 12,3	17,2 13,5	19,0 14,9	23,6 18,3	28,1 21,7	33,8 26,0	38,3 29,5	42,9 32,9	47,4 36,3
	40	12,2 10,2	13,6 11,1	15,3 12,2	17,1 13,3	19,4 14,8	21,1 15,9	23,0 17,1	24,9 18,3	27,1 19,7	32,5 23,1	37,9 26,5	44,6 30,8	50,0 34,2	55,4 37,7	60,8 41,1
219	30	10,5 8,5	12,2 9,7	14,3 11,2	16,5 12,8	19,4 14,8	21,6 16,4	23,9 18,0	26,3 19,7	29,0 21,6	35,7 26,4	42,5 31,1	50,9 37,1	57,6 41,8	64,4 46,6	71,1 51,4
	40	15,1 13,1	16,8 14,3	19,0 15,9	21,2 17,4	24,0 19,5	26,2 21,0	28,6 22,7	30,9 24,3	33,6 26,2	40,4 31,0	47,1 35,8	55,5 41,7	62,3 46,5	69,0 51,3	75,7 56,0

"EXTRA HEAVY-DUTY" IDLER TH

TH-type "extra heavy-duty" belt conveyor idler range begins where the loading capasity of the standard idlers ends.

TH-types with 1...6 deep-drawn end caps are used in normal belt conveyors and belt feeders. When there are big loading variations and shocks (for ex. caused by the loading of the belt feeder and material), it is recommended to use the TH 7...12-type of idlers with the solid end caps.

Alternatives for shaft ends are shown on the sheet '*Surface treatment of idlers, shaft end alternatives and standard lengths*'.

Choose the bearing from the page '*Selection and load rating of the idlers for belt conveyors*' using the diagrams and the table for the life time coefficient **k** on this page.

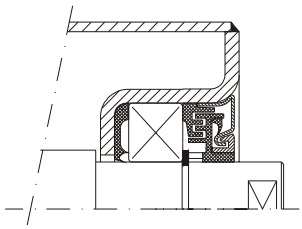
The standard surface treatment is shop primer. Special surface treatment for sticky materials is also available.

If there is any need for help while choosing the idler, please contact us.

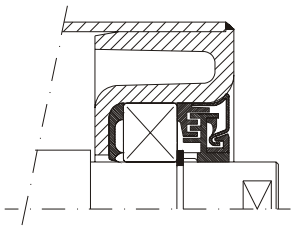
ORDERING EXAMPLE: TH3-159 - 40 B - 2200

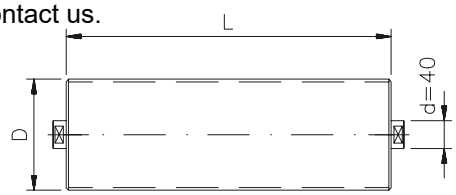
- Idler type (TH 1 ... 12)
- Idler diameter D (mm)
  - 159 or 219
- Shaft end diameter d (mm) (always 40)
- Shaft end type, see separate information sheet
- Idler length L (mm)

TH 1...6



TH 7 ... 12



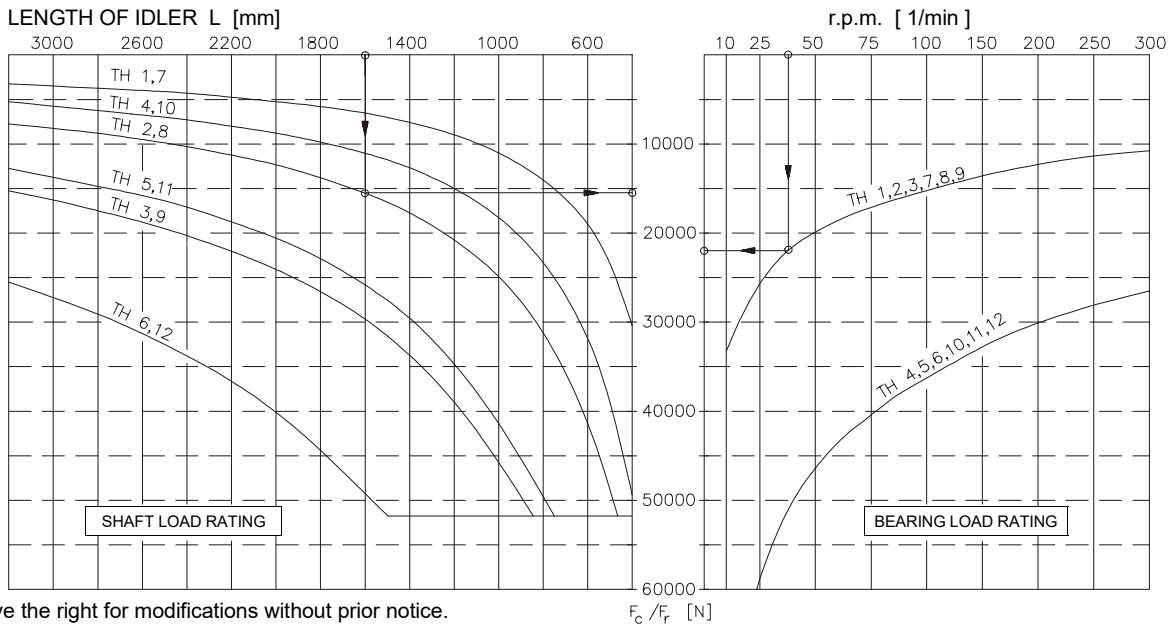


Idler weight (kg) Total weight / Weight of rotating parts

TH-	D	Shell length L									
		650	670	750	950	1150	1400	1600	1800	2000	2200
1,4	159	21/13	21/14	23/15	29/18	34/21	40/25	45/28	50/31	55/34	60/37
	219	30/22	31/23	33/25	41/30	48/35	57/42	64/47	71/53	79/58	86/63
2,5	159	24/13	25/14	27/15	33/18	39/21	47/25	53/28	59/31	65/34	71/37
	219	33/22	34/23	37/25	45/30	54/35	64/42	72/47	81/53	89/58	98/63
3,6	159	27/13	28/14	31/15	39/18	46/21	56/25	63/28	71/31	78/34	86/37
	219	36/22	37/23	41/25	51/30	61/35	73/42	82/47	92/53	102/58	112/63
7,10	159	30/22	30/22	32/23	37/26	42/30	48/33	54/36	59/39	64/43	69/46
	219	53/45	53/45	56/48	63/53	71/58	80/65	87/70	94/75	102/80	109/86
8,11	159	33/22	33/22	36/23	42/26	48/30	56/33	62/36	68/39	74/43	80/46
	219	56/45	56/45	60/48	68/53	76/58	87/65	95/70	104/75	112/80	120/86
9,12	159	36/22	37/22	40/23	47/26	55/30	64/33	72/36	79/39	87/43	94/46
	219	59/45	60/45	64/48	74/53	83/58	96/65	105/70	115/75	125/80	134/86

Bearing load rating:

life time h	k TH 1,2,3, 7,8,9	k TH 4,5,6,10, 11,12
10000	1.35	1.32
16000	1.16	1.15
20000	1.08	1.07
25000	1.00	1.00
32000	0.93	0.93
40000	0.86	0.87
50000	0.79	0.81
63000	0.73	0.76
80000	0.68	0.71
100000	0.63	0.67



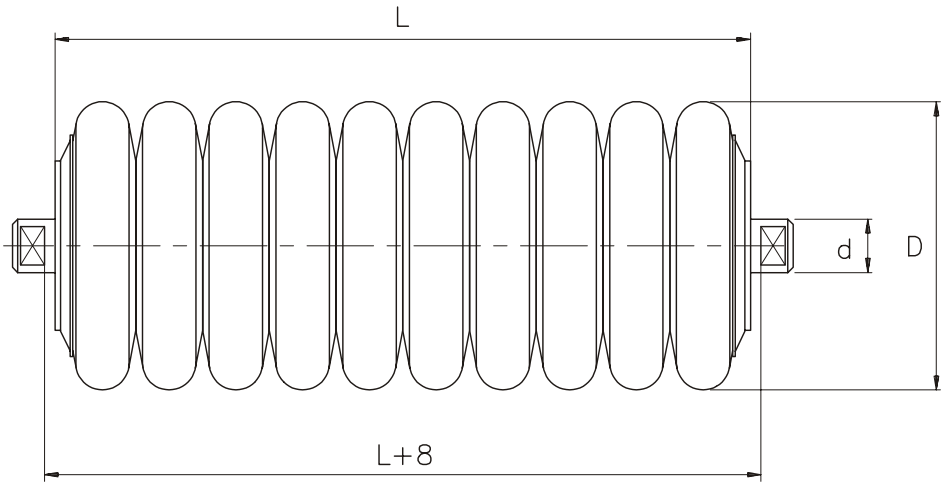
IMPACT IDLER LA

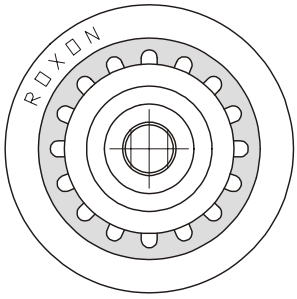
ROXON LA-idler is designed for an impact idler to absorb impact shocks at belt conveyor loading points. The LA-idler is also suitable for a snub pulley for the dirty side of the belt as well as for an impact idler for unit goods conveyors.

LA-idler is based on the sturdy TS-idler.

ORDERING EXAMPLE: LA 108E - 20 B - 380

- Idler type
- Idler diameter D (mm)
- E = steel idler type TS-E
- Blank = steel idler type TS (see steel idlers)
- Shaft diameter d (mm)
- Shaft end type, see separate information page
- Idler length L (mm)





Example: Total weight 11.6 kg
Weight of rotating parts 8.3 kg

Idler weight (kg)

D	d	L														
		250	315	380	465	530	600	670	750	800	950	1150	1400	1600	1800	2000
89 *	20	2.3 1.7	2.9 2.1	3.3 2.4	3.9 2.8	4.4 3.1	4.9 3.5	5.4 3.7	6.0 4.2							
	25	2.6 1.6	3.2 2.0	3.7 2.3	4.5 2.7	5.0 3.0	5.7 3.4	6.2 3.6	6.9 4.1							
108	20	2.9 2.3	3.6 2.8	4.2 3.3	5.0 3.9	5.7 4.4	6.3 4.9	7.0 5.3	7.8 6.0	8.2 6.2	9.7 7.3	11.6 8.3				
	25	3.2 2.2	3.9 2.7	4.6 3.2	5.6 3.8	6.3 4.3	7.1 4.8	7.8 5.2	8.7 5.9	9.2 6.1	10.9 7.2	13.1 8.2				
133	20	4.8 4.6	5.8 5.4	6.7 6.2	8.3 7.5	9.2 8.3	10.2 9.1	11.4 10.2	12.7 11.3	13.5 12.0	15.8 13.9	19.2 15.8	23.1 18.5	26.4 21.7	29.6 24.3	
	25	5.6 4.7	6.6 5.5	7.7 6.3	9.3 7.6	10.4 8.4	11.5 9.2	12.8 10.3	14.2 11.3	15.1 12.1	17.6 14.0	21.2 15.9	25.5 18.6	29.1 21.7	32.5 24.4	
	30	6.1 4.3	7.2 5.1	8.4 5.9	10.2 7.2	11.3 8.0	12.6 8.8	14.0 9.9	15.5 11.0	16.5 11.7	19.2 13.6	23.2 15.5	27.9 18.2	31.9 21.4	35.6 24.0	
159	20	5.7 5.5	6.9 6.5	8.0 7.5	10.0 9.2	11.1 10.2	12.3 11.2	13.8 12.6	15.4 14.0	16.4 14.9	19.2 17.3	23.4 20.0	28.2 23.6	32.3 27.6	36.2 30.9	
	25	6.5 5.6	7.7 6.6	9.0 7.6	11.0 9.3	12.3 10.3	13.6 11.3	15.2 12.7	16.9 14.0	18.0 15.0	21.0 17.4	25.4 20.1	30.6 23.7	35.0 27.6	39.1 31.0	
	30	7.0 5.2	8.3 6.2	9.7 7.2	11.9 8.9	13.2 9.9	14.7 10.9	16.4 12.3	18.2 13.7	19.4 14.6	22.6 17.0	27.4 19.7	33.0 23.3	37.8 27.3	42.2 30.6	
219	30	11.5 10.2	14.7 12.9	17.8 15.7	21.1 18.6	24.3 21.3	27.4 24.1	30.6 26.9	33.9 29.8	35.7 31.3	43.3 38.0	49.5 44.0	59.3 52.9	68.3 60.5	77.7 68.8	87.1 77.1
	40	17.1 10.1	20.5 12.8	23.9 15.6	27.7 18.5	31.1 21.2	34.5 24.0	38.0 26.8	41.7 29.7	43.7 31.2	51.9 38.0	58.3 43.9	68.8 52.9	78.8 60.5	89.1 68.7	99.3 77.0

* Roller is equipped with C-type rubber disc

"EXTRA HEAVY-DUTY" IMPACT IDLER LH

LH-type "extra heavy-duty" impact idler range begins where the loading capasity of the standard LA-idlers ends.

LH-types 1...3 are used in normal belt conveyors and belt feeders. When there are big loading variations and shocks (for ex. caused by the loading of the belt feeder and material), recommendation is to use the LH 4...6-type of idlers.

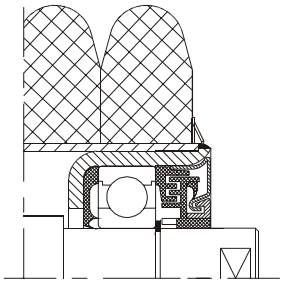
Alternatives for shaft ends are shown on the sheet *'Surface treatment of idlers, shaft end alternatives and standard lengths*'.

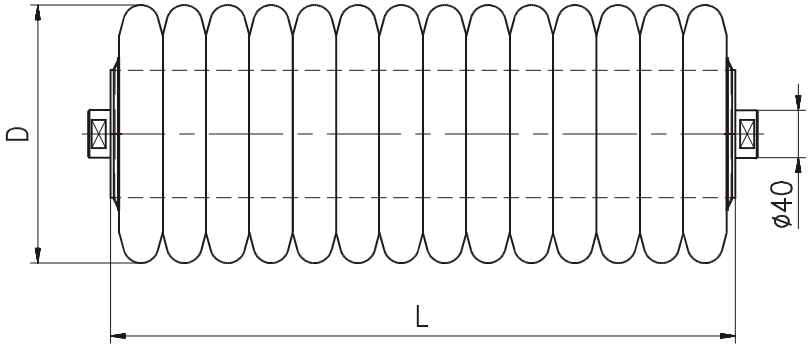
Choose the bearing from the page *'Selection and load rating of the idlers for the belt conveyors'* using the diagrams and the table for the life time coefficient **k** on this page.

If there is any need for help while choosing the idler, please contact us.

ORDERING EXAMPLE: LH3-159 - 40 B - 1150

- Idler type (LH 1 ... 6)
- Idler diameter D (mm)
  - 159 or 219
- Shaft end diameter d (mm) (always 40)
- Shaft end type, see separate information sheet
- Idler length L (mm)





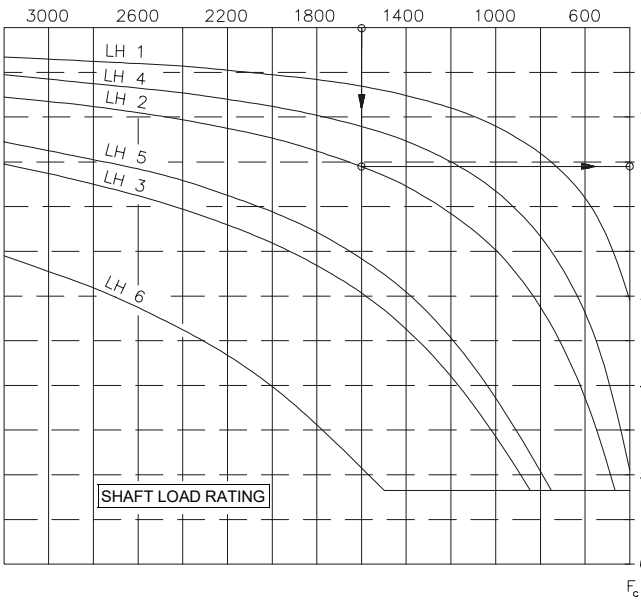
Idler weight (kg) Total weight / Weight of rotating parts

LH-	D	Shell length L									
		600	670	750	950	1150	1400	1600	1800	2000	2200
1,4	159	20 / 14	22 / 15	24 / 17	30 / 21	36 / 25	43 / 29	49 / 33	55 / 37	61 / 41	67 / 45
	219	31 / 25	35 / 28	38 / 31	48 / 39	58 / 46	70 / 56	79 / 63	89 / 71	99 / 80	110 / 88
2,5	159	23 / 14	25 / 15	28 / 17	35 / 21	42 / 25	50 / 29	57 / 33	64 / 37	71 / 41	79 / 45
	219	34 / 25	38 / 28	42 / 31	53 / 39	63 / 46	77 / 56	87 / 63	99 / 71	110 / 80	121 / 88
3,6	159	26 / 14	29 / 15	32 / 17	40 / 21	49 / 25	59 / 29	67 / 33	76 / 37	84 / 41	93 / 45
	219	37 / 25	41 / 28	46 / 31	59 / 39	70 / 46	86 / 56	97 / 63	110 / 71	123 / 80	135 / 88

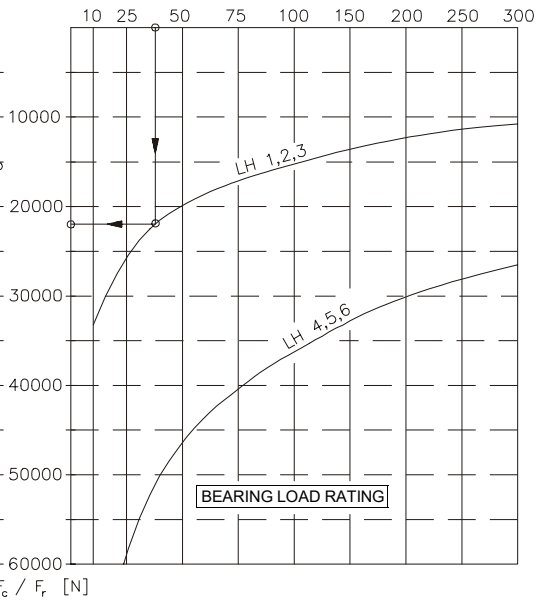
Bearing load rating:

Life time h	k LH 1,2,3	k LH 4,5,6
10000	1.35	1.32
16000	1.16	1.15
20000	1.08	1.07
25000	1.00	1.00
32000	0.93	0.93
40000	0.86	0.87
50000	0.79	0.81
63000	0.73	0.76
80000	0.68	0.71
100000	0.63	0.67

LENGTH OF IDLER L [mm]

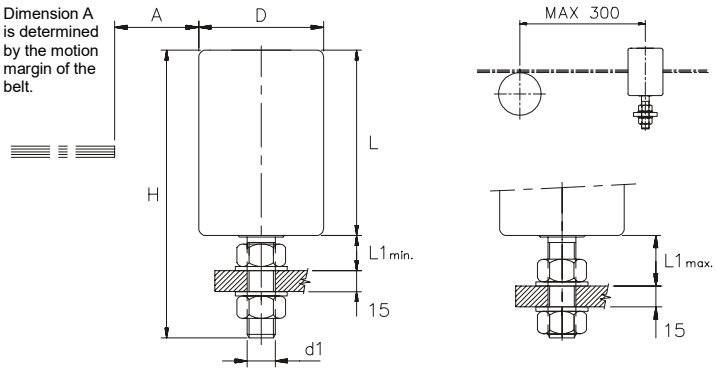


r.p.m. [1/min]



GUIDING IDLERS TV

Cylindrical guiding idlers are designed for all belt conveyors in normal and light conditions. The idler is easy to install to the steel frame.

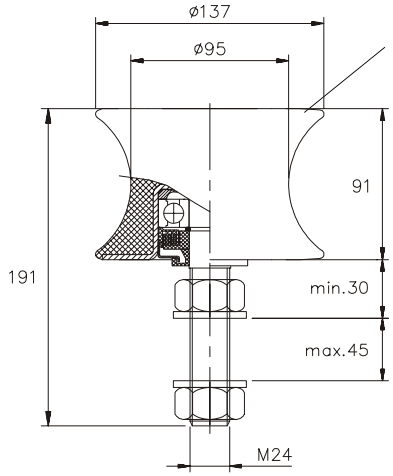


ORDERING EXAMPLE: TV 89E - 130

Idler type
Idler diameter D (mm)
Sealing alternative E
Length L (mm)

D	L	H	d1	$L1_{min}$	$L1_{max}$	Weight (kg)
63	130	205	M20	25	35	1.4
89	130	205	M20	25	35	2.0
108	160	265	M24	30	65	4.1

BELT SAVING GUIDING IDLER 'EVERGREEN' TV95



EVERGREEN of polyurethane

ORDERING EXAMPLE: TV 95E - U

Type
Sealing alternative E
Material of the shell

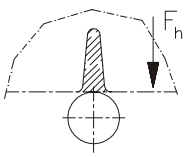
U = polyurethane with steel bearing housing
T = steel

The load on the belt edge caused by the guiding idlers especially in heavy conveyors is considerable. The advanced design of **ROXON EVERGREEN** reduces these loads. It is equipped with a steel bearing housing and efficient sealing.

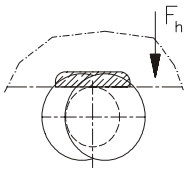
ROXON EVERGREEN touches the belt edge for a distance of about 100 mm so the load is divided evenly. The load against the edge is minimal compared to the traditional solution. Measure **A** is in maximum 10% of the belt width **B**. To prevent the belt from damaging, choose it case by case so that the belt will touch the idler before it touches the fixed frames of the conveyor. **ROXON EVERGREEN** is made of polyurethane and has a high wear resistance. Due to the high friction coefficient between the urethane and rubber the belt stays straight and steady on the idler.

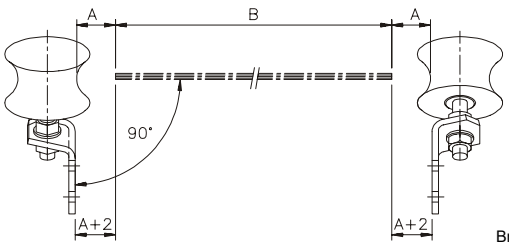
The pressure of the **Evergreen** -guide idler against the belt is essentially less than with a cylindrical idler. The belt is trying to guide with power F_h sidewards.

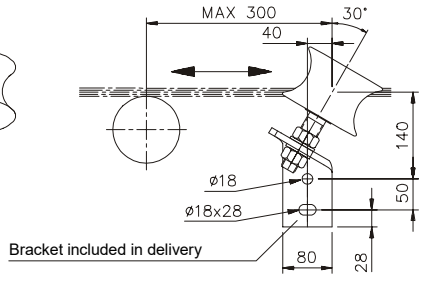
Cylindrical idler: high pressure peak against the belt edge due to point contact.

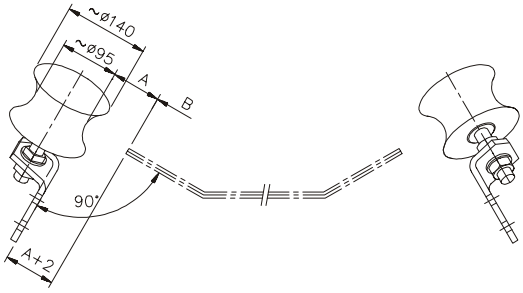


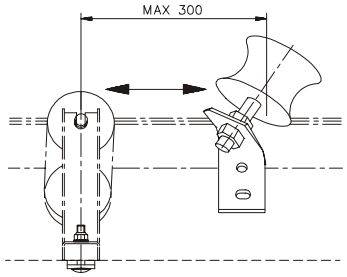
Evergreen: low pressure against the belt edge due to the long linear contact.











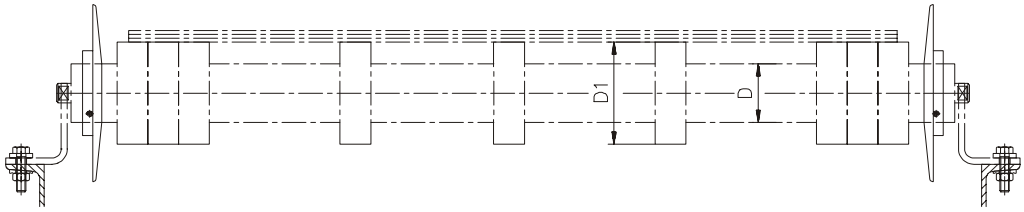
BELT GUIDING DISC TV6

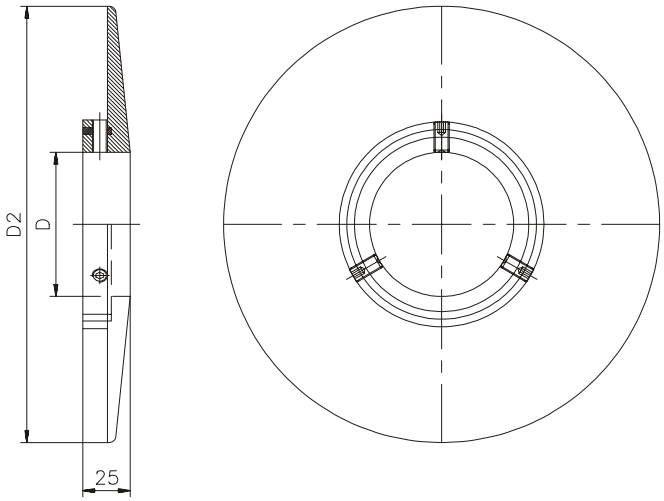
Belt guiding disc TV6 is installed on to the steel mantle of the return idler with rubber rings and is thus efficiently guiding the return belt. The guiding disc is installed to the desired place with screws and it is easy to be installed to the return idler also afterwards. Steel framed disc with polyurethane surface has a very good wear resistance without damaging the belt.

ORDERING EXAMPLE: TV6 - 63

Type code

Diameter of the steel tube D (mm)





D	D1	D2
51	108	200
63	108, 133	
76	108, 133, 159	230
89	133, 159	
108	159, 219	300

WEARING SURFACE FOR THE GUIDING IDLER TV7

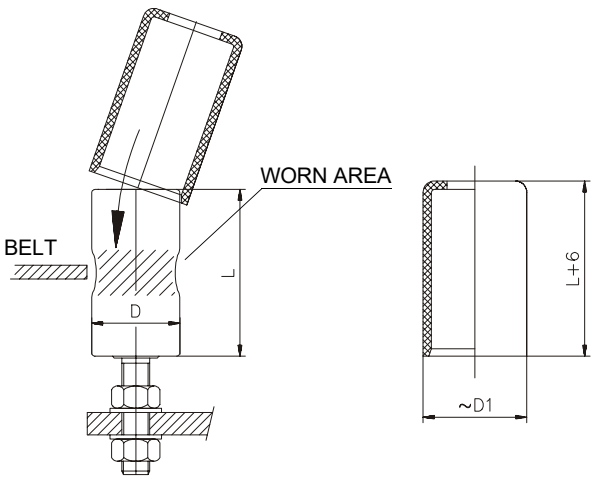
The wearing surface TV7 will enable to extend the life time of the guiding idler with locally worn-out mantle. Thus it is possible to lengthen the replacement interval of the idler essentially. Good wear resistance of the urethane and big friction coefficient against the rubber belt secures the smooth rolling of the idler even at lightest touch. Thus the edge of the belt will not be damaged and the mantle of the idler is not wearing.

ORDERING EXAMPLE: TV7 - 63 - 120

Idler type

Idler diameter D (mm)

Length of idler shell L (mm)



D (mm)	D1 (mm)	L (mm)
51	62	120
63	75	120
76	87	120
89	100	120
108	119	160

STUB IDLER FOR SIDE WALL BELT TF

The type TF stub idler is made to support the side wall belt from its sides, from the outside of the side wall. The idler has a circular shape that does not wear out the belt and bearings which can withstand well the axial force.

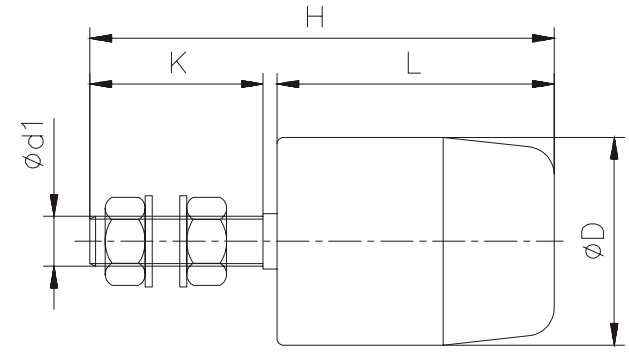
The long threading of the idler's shaft makes it easy to mount to a steel structure. The end of the idler and the thick wall of the casing withstand wear and tear.

ORDERING EXAMPLE: TF133 - 200

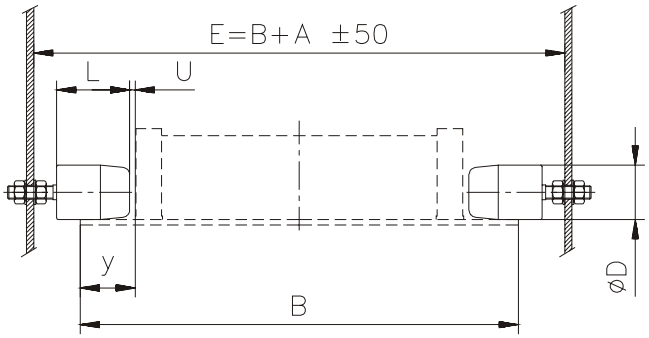
Type code

Idler diameter D (mm)

Measurement L (mm)

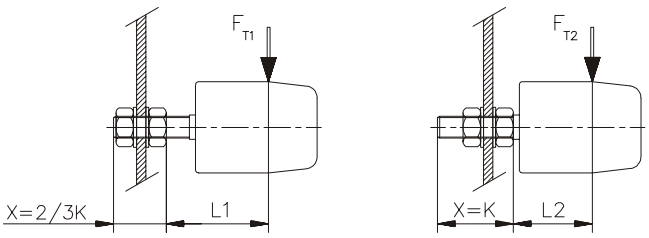


D	L	H	d1	K	Weight (kg)
89	100	205	M24	100	4
108	100	205	M24	100	6
133	200	335	M36	125	19
150	200	335	M36	125	25



B	*) y	*) U	A			
			D89	D108	D133	D150
400	60	12	214	214	449	449
500	60	12	214	214	449	449
650	75	15	190	190	425	425
800	100	20	150	150	385	385
1000	125	25	110	110	345	345
1200	150	30	70	70	305	305
1400	175	35	30	30	265	265
1600	200	40	-10	-10	225	225
1800	225	45	-50	-50	185	185

*) Measurement must always be checked. It may vary depending on the manufacturer of the belt.

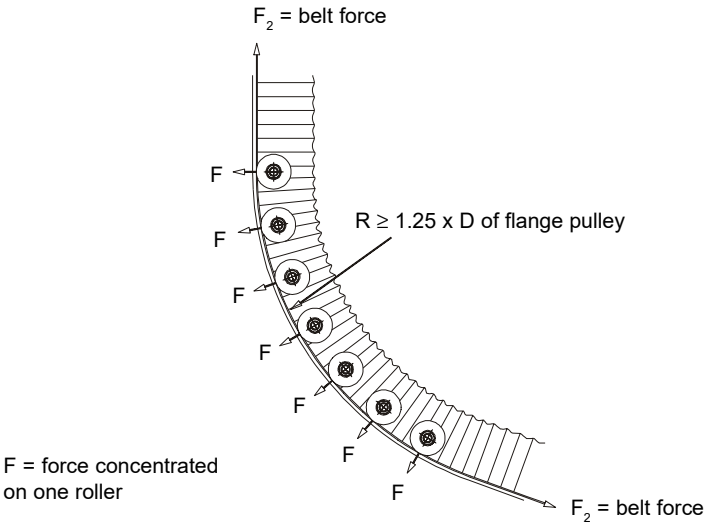


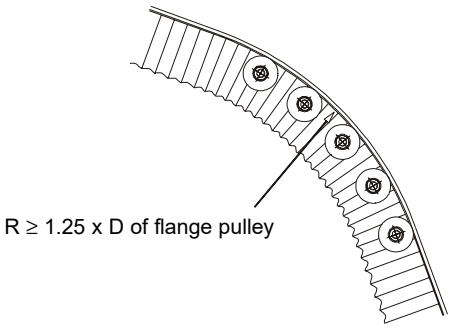
$F \leq F_{T1}$ $F \leq F_{T2}$

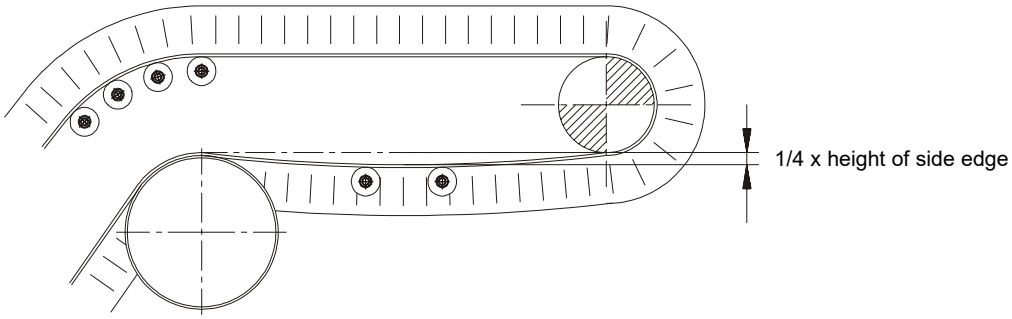
TF idler load capacity (N/roller)

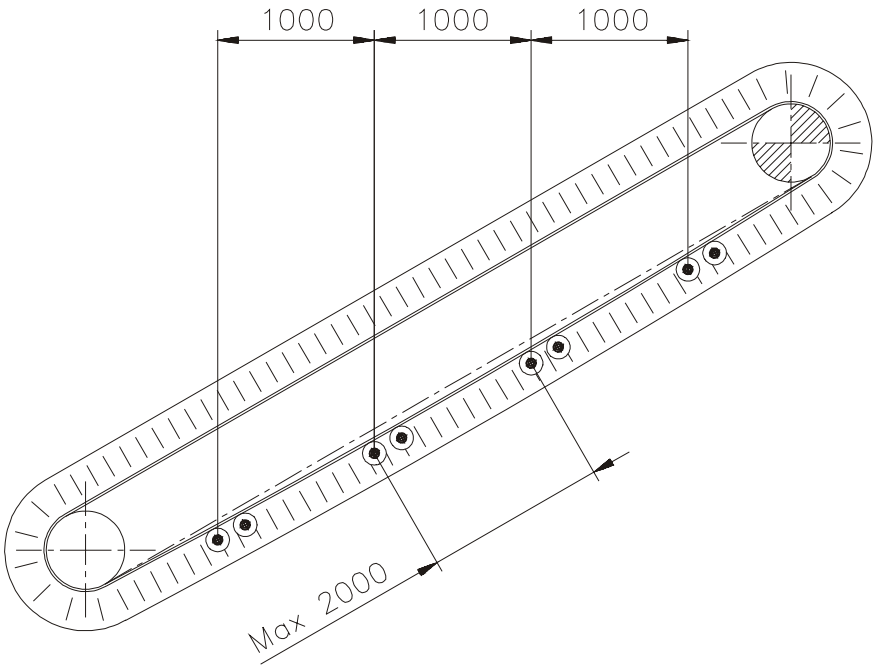
D	L1	F_{T1} (N)	L2	F_{T2} (N)
89	101	900	65	1398
108	101	900	65	1398
133	198	1624	160	2010
150	198	1624	160	2010

TF









RETURN IDLERS OF BELT CONVEYORS

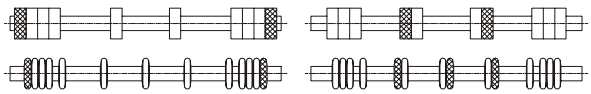
Return idlers are designed to support the return belt. The selection of the return idler type is influenced by the strength, stiffness and weight of the belt. Likewise the dirtyness of the belt and to what extent material sticks to the idler.

Besides the rubber disc types A and B (ISO, SMS and SFS standards) return idlers can be equipped with polyurethane discs. Tailor-made disc assembly types are also available.

ORDERING EXAMPLE: RA 133E - 25 B - 1400 S X

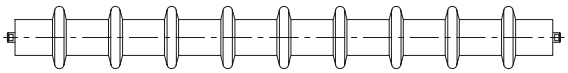
- Idler type RA, RB, TS
- Idler diameter D (mm)
- E = steel idler type TS-E
  Blank = steel idler type TS
  (see steel idlers)
- Shaft diameter d (mm)
- Type of shaft end, see separate page
- Idler length L (mm)
- Rubber disc order H, S, K
- Additional rubber discs (only if needed)
  - X = place at the ends of the idler
  - Y = middle discs doubled

X-additional discs Y-additional discs



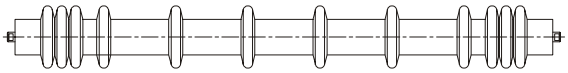
TYPES OF DISC RETURN IDLERS

Idler type RA, disc assembly type H



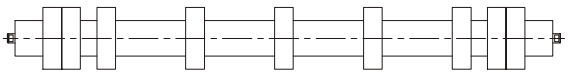
Idler type RA with disc assembly type H is with A-type discs. Distance between discs is equal. The idler is for light, stiff belts with short distances between idlers.

Idler type RA, disc assembly type S



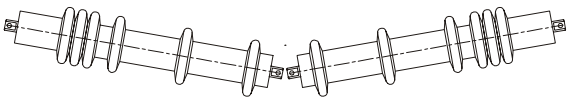
Idler type RA-typ with disc assembly type S is with A-type discs. The discs form a tight package in the outer areas of the belt. This arrangement secures a reliable run of the belt even if it drifts sidewards.

Idler type RB, disc assembly type S



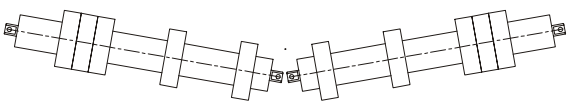
Idler type RB with disc assembly type S is with B-type discs. The discs form a tight, flat surface package in the outer areas of the belt. It is designed for medium and heavy belts with longer distances between idlers.

Idler type RA, disc assembly type K



RA-type idler, disc assembly K for wide, light belts.

Idler type RB, disc assembly type K



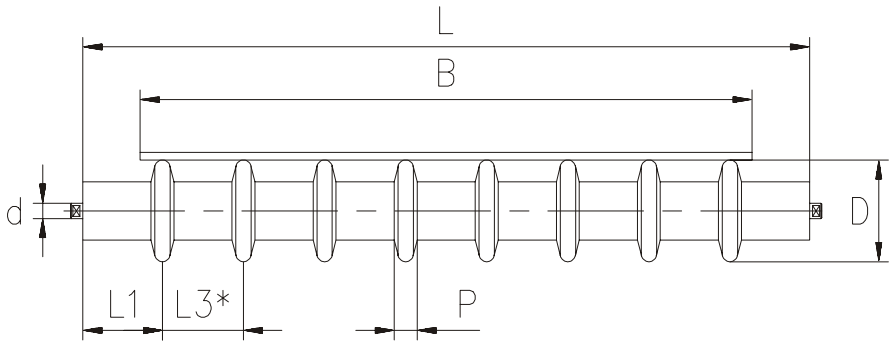
RB-type idler, disc assembly K for heavy and wide belts.

Idler type TS, steel surface, without discs

TS steel idlers are used as return idlers when the belt is almost clean and the dirt non-sticky. TS-idlers are also available with rubber lagging (5 mm or 10 mm) and can be used as a snub pulley. They are also used on both sides of the pressing guide bracket and as a counter idler for the cleaner.

RETURN IDLER

RA(H)



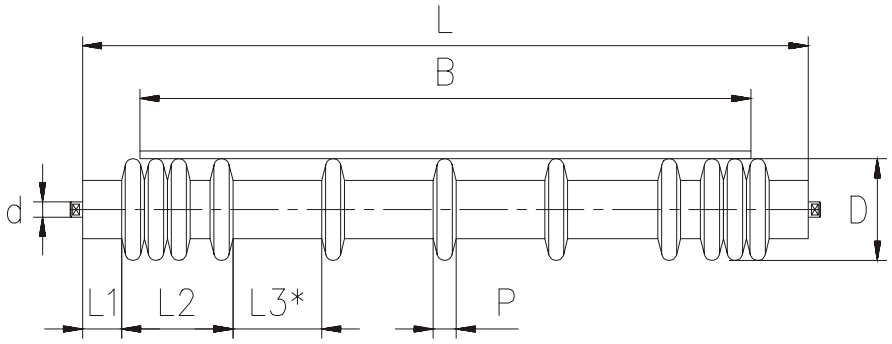
L	B	D	P	L1	L3	Discs (pcs)
500	400	108	25	58	96	5
		133	30			
		159	30			
600	500	108	25	60	96	6
		133	30			
		159	30			
750	650	108	25	47	106	7
		133	30			
		159	30			
950	800	108	25	104	106	8
		133	30			
		159	30			
1150	1000	108	25	95	116	9
		133	30			
		159	30			
1400	1200	108	25	120	126	10
		133	30			
		159	30			
1600	1400	133	30	120	136	11
		159	30			
1800	1600	133	30	120	136	12
		159	30			
2000	1800	133	30	120	136	14
		159	30			
2200	2000	133	30	120	136	15
		159	30			

* For technical reasons in production the discs may be differently spaced in the middle of the idler.

Idler weight / Weight of rotating parts (kg)				
L	d	D108	D133	D159
500	20	3.7 / 2.5	6.2 / 5.3	6.7 / 5.8
	25	4.3 / 2.4	7.3 / 5.4	7.8 / 5.9
	30		8.2 / 5.0	8.7 / 5.5
600	20	4.3 / 2.9	7.2 / 6.1	7.8 / 6.7
	25	5.1 / 2.8	8.5 / 6.2	9.1 / 6.8
	30		9.6 / 5.8	10.2 / 6.4
750	20	5.2 / 3.4	8.7 / 7.3	9.4 / 8.0
	25	6.1 / 3.3	10.2 / 7.3	10.9 / 8.0
	30		11.5 / 7.0	12.2 / 7.7
950	20	6.4 / 4.0	10.6 / 8.7	11.4 / 9.5
	25	7.6 /3.9	12.4 / 8.8	13.2 / 9.2
	30		14.0 / 8.4	14.8 / 9.2
1150	20	7.5 / 4.6	12.6 / 10.1	13.5 / 11.0
	25	9.0 / 4.5	14.6 / 10.2	15.5 / 11.1
	30		16.6 / 9.8	17.5 / 10.3
1400	20	8.9 / 5.4	14.9 / 11.9	15.9 / 12.9
	25	10.7 / 5.3	17.3 / 11.9	18.3 / 12.9
	30		19.7 / 11.6	20.7 / 12.6
1600	20		16.8 / 13.3	17.9 / 14.4
	25		19.5 / 13.3	20.6 / 14.5
	30		22.3 / 13.4	23.4 / 14.1
1800	20			20.0 / 15.9
	25		21.7 / 14.8	22.9 / 16.0
	30		24.8 / 14.4	26.0 / 15.6
2000	20			22.3 / 17.8
	25			25.5 / 17.8
	30			28.9 / 17.5
2200	25			27.8 / 19.4
	30			31.6 / 19.0

RETURN IDLER

RA(S)



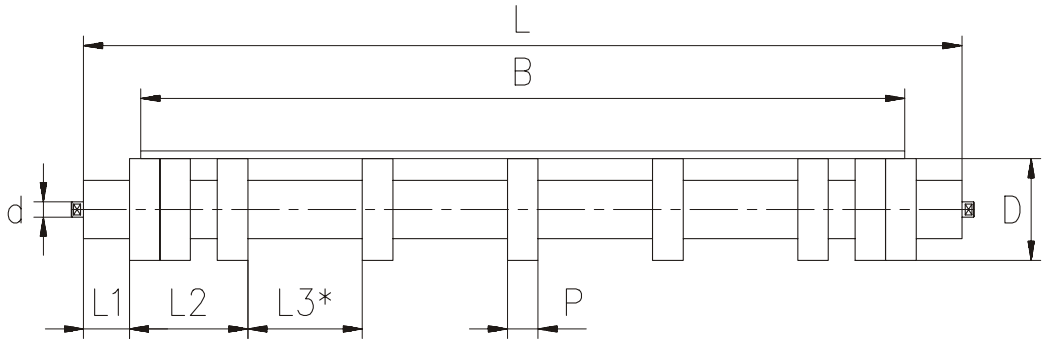
L	B	D	P	L1	L2	L3	Discs (pcs)
500	400	108	25	43	101	91	7
		133	30	23	116	96	7
		159	30				
600	500	108	25	45	121	121	9
		133	30	23	146	116	9
		159	30				
750	650	108	25	48	121	121	10
		133	30	25	146	116	10
		159	30				
950	800	108	25	75	121	121	11
		133	30	52	146	116	11
		159	30				
		219	40	60	156	146	8
1150	1000	108	25	75	121	111	13
		133	30	54	146	126	12
		159	30				
		219	40	55	156	146	9
1400	1200	108	25	100	151	131	15
		133	30	75	176	126	15
		159	30				
		219	40	59	196	146	12
1600	1400	133	30	75	176	136	16
		159	30				
		219	40	66	196	146	13
1800	1600	133	30	75	176	136	17
		159	30				
		219	40	60	196	156	14
2000	1800	133	30	75	176	146	18
		159	30				
		219	40	55	196	156	15
2200	2000	133	30	75	176	146	19
		159	30				
		219	40	65	196	156	16

* For technical reasons in production the discs may be differently spaced in the middle of the idler.

Idler weight / Weight of rotating parts (kg)					
L	d	D108	D133	D159	D219
500	20	3.9 / 2.7	6.6 / 5.7	7.3 / 6.4	
	25	4.5 / 2.6	7.7 / 5.8	8.4 / 6.5	
	30		8.6 / 5.4	9.3 / 6.1	
600	20	4.6 / 3.2	7.8 / 6.7	8.7 / 7.6	
	25	5.4 / 3.1	9.1 / 6.8	10.0 / 7.7	
	30		10.2 / 6.4	11.1 / 7.3	
750	20	5.5 / 3.7	9.3 / 7.9	10.3 / 8.9	
	25	6.4 / 3.6	10.8 / 7.9	11.8 / 8.9	
	30		12.1 / 7.6	13.1 / 8.6	
950	20	6.7 / 4.3	11.2 / 9.3	12.3 / 10.4	
	25	7.9 / 4.2	13.0 / 9.4	14.1 / 10.5	
	30		14.6 / 9.0	15.7 / 10.1	23.5 / 22.8
	40				32.1 / 18.2
1150	20	7.9 / 5.0	13.4 / 10.9	14.7 / 12.2	
	25	9.4 / 4.9	15.4 / 11.0	16.7 / 12.3	
	30		17.4 / 10.6	18.7 / 11.9	27.4 / 25.5
	40				36.9 / 21.0
1400	20	9.4 / 5.9	15.9 / 12.9	17.4 / 14.4	
	25	11.2 / 5.8	18.3 / 12.9	19.8 / 14.4	
	30		20.7 / 12.6	22.2 / 14.1	34.2 / 30.9
	40				44.7 / 26.4
1600	20		17.8 / 14.3	19.4 / 15.9	
	25		20.5 / 14.4	22.1 / 16.0	
	30		23.3 / 14.0	24.9 / 15.6	38.1 / 33.7
	40				49.5 / 29.1
1800	20				
	25		22.2 / 15.8	24.4 / 17.5	
	30		25.8 / 15.4	27.5 / 17.1	42.0 / 36.5
	40				54.2 / 31.9
2000	20				
	25			29.8 / 18.7	
	30			27.8 / 18.4	45.9 / 39.3
	40				59.0 / 34.7
2200	25				
	30			30.3 / 19.9	49.8 / 42.1
	40				63.8 / 37.5

RETURN IDLER

RB(S)



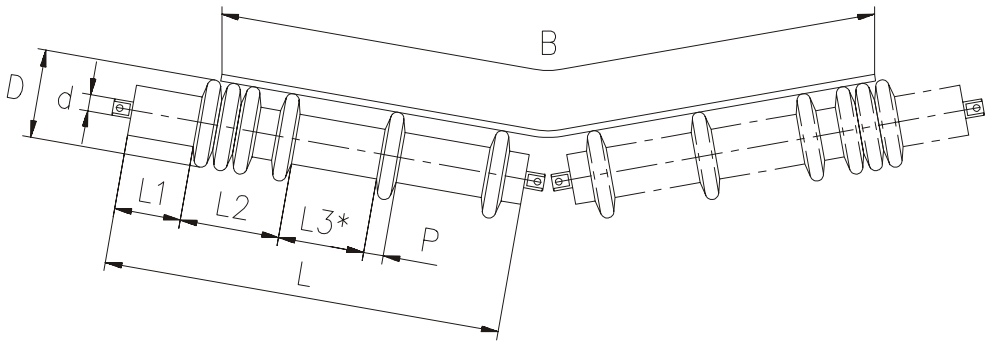
L	B	D	P	L1	L2	L3	Discs (pcs)
500	400	108	40	50	100	80	5
		133	40				
		159	40				
600	500	108	40	50	105	125	5
		133	40				
		159	40				
750	650	108	40	50	110	110	6
		133	40				
		159	40				
950	800	108	40	60	155	145	8
		133	40				
		159	40				
		219	50	60	190	115	8
1150	1000	108	40	60	155	150	9
		133	40				
		159	40				
		219	50	60	190	125	9
1400	1200	108	40	65	195	145	12
		133	40				
		159	40				
		219	50	70	195	135	10
1600	1400	133	40	70	195	145	13
		159	40				
		219	50	70	200	135	11
1800	1600	133	40	70	200	145	14
		159	40				
		219	50	70	195	140	12
2000	1800	133	40	60	200	150	15
		159	40				
		219	50	70	195	140	13
2200	2000	133	40	60	200	150	16
		159	40				
		219	50	70	195	140	14

* For technical reasons in production the discs may be differently spaced in the middle of the idler.

Idler weight / Weight of rotating parts (kg)					
L	d	D108	D133	D159	D219
500	20	4.5 / 3.2	6.7 / 5.8	8.2 / 7.3	
	25	5.1 / 3.1	7.8 / 5.9	9.3 / 7.4	
	30		8.7 / 5.5	10.2 / 7.0	
600	20	5.0 / 3.5	7.5 / 6.4	9.0 / 7.9	
	25	5.7 / 3.4	8.8 / 6.5	10.3 / 8.0	
	30		9.9 / 6.1	11.4 / 7.6	
750	20	6.0 / 4.2	9.1 / 7.7	10.9 / 9.5	
	25	6.9 / 4.1	10.6 / 7.7	12.4 / 9.5	
	30		11.9 / 7.4	13.7 / 9.2	
950	20	7.6 / 5.2	11.4 / 9.5	13.8 / 11.9	
	25	8.8 / 5.1	13.2 / 9.6	15.6 / 12.0	
	30		14.8 / 9.2	17.2 / 11.6	26.7 / 26.0
	40				35.3 / 21.4
1150	20	8.8 / 6.0	13.5 / 11.0	16.2 / 13.7	
	25	10.3 / 5.9	15.5 / 11.1	18.2 / 13.8	
	30		17.5 / 10.7	20.2 / 13.4	31.0 / 29.1
	40				40.5 / 24.6
1400	20	10.9 / 7.4	16.5 / 13.5	20.1 / 17.1	
	25	12.7 / 7.3	18.9 / 13.5	22.5 / 17.1	
	30		21.3 / 13.2	24.9 / 16.8	36.0 / 32.7
	40				46.5 / 28.2
1600	20		18.5 / 15.0	22.4 / 18.9	
	25		21.2 / 15.1	25.1 / 19.0	
	30		24.0 / 14.7	27.9 / 18.6	40.3 / 35.9
	40				51.7 / 31.3
1800	20			24.8 / 20.7	
	25		23.5 / 16.6	27.7 / 20.8	
	30		26.6 / 16.2	30.8 / 20.4	44.6 / 39.1
	40				56.8 / 34.5
2000	20				
	25			30.3 / 22.6	
	30			33.7 / 22.3	48.9 / 42.3
	40				62.0 / 37.7
2200	25				
	30			36.7 / 24.1	53.2 / 45.5
	40				67.2 / 40.9

RETURN IDLER

RA(K)



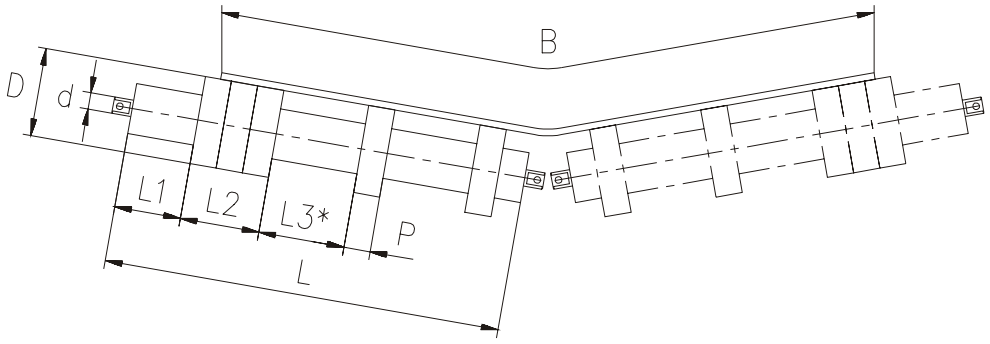
L	B	D	P	L1	L2	L3	Discs (pcs)
380	650	108	25	70	121	111	5
		133	30	70	146	106	5
		159	30				
465	800	108	25	70	121	101	6
		133	30	70	146	146	5
		159	30				
600	1000	108	25	100	171	121	8
		133	30	110	146	116	6
		159	30				
670	1200	108	25	60	171	111	9
		133	30	60	176	166	7
		159	30				
		219	40	50	196	146	6
750	1400	133	30	45	176	136	8
		159	30				
		219	40	35	196	126	7
900	1600	133	30	100	176	156	8
		159	30				
		219	40	85	196	156	7
1000	1800	133	30	100	186	136	9
		159	30				
		219	40	85	236	166	8
1150	2000	133	30	145	186	146	10
		159	30				
		219	40	135	236	146	9

* For technical reasons in production the discs may be differently spaced in the middle of the idler.

Idler weight / Weight of rotating parts (kg)					
L	d	D108	D133	D159	D219
380	20	2.8 / 2.2	5.1 / 4.6	5.6 / 5.1	
	25	3.1 / 2.1	6.1 / 4.7	6.6 / 5.2	
	30		6.8 / 4.3	7.3 / 4.8	
465	20	3.6 / 2.5	6.1 / 5.3	6.7 / 5.9	
	25	4.2 / 2.4	7.1 / 5.4	7.7 / 6.0	
	30		8.0 / 5.0	8.6 / 5.6	
600	20	4.5 / 3.1	7.2 / 6.1	7.8 / 6.7	
	25	5.3 / 3.0	8.5 / 6.2	9.1 / 6.8	
	30		9.6 / 5.8	10.2 / 6.4	
670	20	5.0 / 3.3	8.0 / 6.8	8.7 / 7.5	
	25	5.8 / 3.2	9.4 / 6.9	10.1 / 7.6	
	30		10.6 / 6.5	11.3 / 7.2	17.4 / 13.7
	40				24.8 / 13.6
750	20		8.9 / 7.5	9.7 / 8.3	
	25	6.4 / 3.6	10.4 / 7.5	11.2 / 8.3	
	30		11.7 / 7.2	12.5 / 8.0	19.6 / 15.5
	40				27.4 / 15.4
900	25	7.5 / 4.1	11.9 / 8.5	12.7 / 9.3	
	30		13.5 / 8.1	14.3 / 8.9	21.7 / 16.7
	40				30.1 / 16.7
1000	25		13.1 / 9.3	14.0 / 10.2	
	30		14.8 / 8.9	15.7 / 9.8	24.2 / 18.7
	40				33.0 / 18.6
1150	25			15.8 / 11.4	
	30			17.6 / 11.0	26.3 / 19.9
	40				35.8 / 19.9

RETURN IDLER

RB(K)



L	B	D	P	L1	L2	L3	Discs (pcs)
380	650	108	40	80	80	126	3
		133	40				
		159	40				
465	800	108	40	70	120	156	4
		133	40				
		159	40				
600	1000	108	40	100	120	136	5
		133	40				
		159	40				
670	1200	108	40	50	160	176	6
		133	40				
		159	40				
		219	50	50	200	146	6
750	1400	133	40	35	160	136	7
		159	40				
		219	50	45	200	186	6
900	1600	133	40	85	160	166	7
		159	40				
		219	50	85	200	146	7
1000	1800	133	40	85	160	186	8
		159	40				
		219	50	85	200	176	7
1150	2000	133	40	135	160	156	9
		159	40				
		219	50	135	200	196	7

Idler weight / Weight of rotating parts (kg)					
L	d	D108	D133	D159	D219
380	20	3.4 / 2.4	5.0 / 4.5	5.9 / 5.4	
	25	3.8 / 2.3	6.0 / 4.6	6.9 / 5.5	
	30		6.7 / 4.2	7.6 / 5.1	
465	20	4.0 / 2.9	6.1 / 5.3	7.3 / 6.5	
	25	4.6 / 2.8	7.1 / 5.4	8.3 / 6.6	
	30		8.0 / 5.0	9.2 / 6.2	
600	20	5.0 / 3.5	7.5 / 6.4	9.0 / 7.9	
	25	5.7 / 3.4	8.8 / 6.5	10.3 / 8.0	
	30		9.9 / 6.1	11.4 / 7.6	
670	20	5.6 / 3.9	8.4 / 7.2	10.2 / 9.0	
	25	6.4 / 3.8	9.8 / 7.3	11.6 / 9.1	
	30		11.0 / 6.9	12.8 / 8.7	19.8 / 16.1
	40				27.2 / 16.0
750	20		9.4 / 8.0	11.5 / 10.1	
	25	7.2 / 4.3	10.9 / 8.0	13.0 / 10.1	
	30		12.2 / 7.7	14.3 / 9.8	20.9 / 16.8
	40				28.7 / 16.7
900	25	8.2 / 4.7	12.4 / 9.0	14.5 / 11.1	
	30		14.0 / 8.6	16.1 / 10.7	24.5 / 19.5
	40				32.9 / 19.5
1000	25		13.7 / 9.9	16.1 / 12.3	
	30		15.4 / 9.5	17.8 / 11.9	25.9 / 20.4
	40				34.7 / 20.3
1150	25			18.2 / 13.8	
	30			20.2 / 13.4	28.0 / 21.6
	40				37.5 / 21.6

* For technical reasons in production the discs may be differently spaced in the middle of the idler.

RETURN IDLER FOR SIDE WALL BELT RF

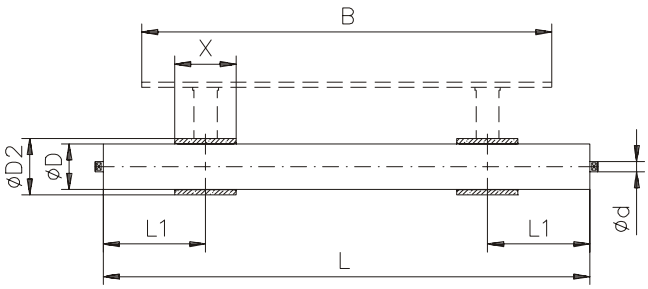
RF return idlers are made to carry the return belt of a side wall belt conveyor. The belt can either be supported from the top of the side walls or between them, depending upon the belt, the material conveyed and on the conditions.

A standard TS idler is used as the base idler. The selection of TS idler is made according to the 'Selection and load rating of the idlers for belt conveyors' page. If the amount and position of the discs are not in accordance with the standard, this must be noted separately in the order.

ORDERING EXAMPLE: RF 330/89 - 25 B - 1400 K

- Type code
- Disc / sleeve outer diameter D2 (mm)
- Idler diameter D (mm)
- Idler shaft diameter d (mm)
- Shaft end type (see separate information sheet)
- Idler length L (mm)
- Disc / sleeve material
  - LD = LD PIPE (only RF76...171)
  - K = RUBBER (in all D2 measurements)
  - PU = POLYURETHANE (only RF76...171)

RF76...171 (with sleeves)



Please inform the measures L1, L2 and/or L3 while ordering.

Table 1: RF76...171

D	D2	X
63.5	76	95
89	101	120
108	120	160
133	145	240
159	171	240

RF250...440 (with discs)

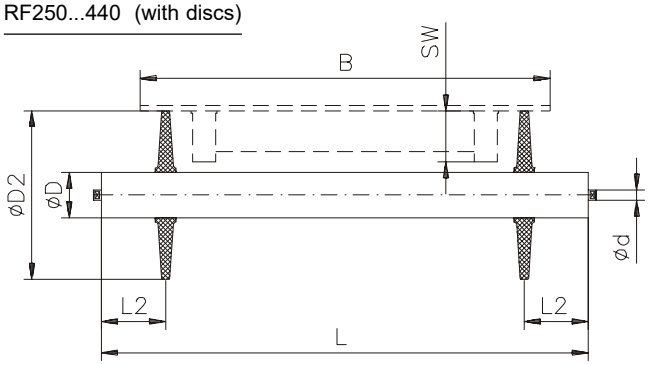


Table 2: RF250...440

Height of side edge SW	D	D2
80	63.5	250
100	89	330
120	89	355
160	89	440

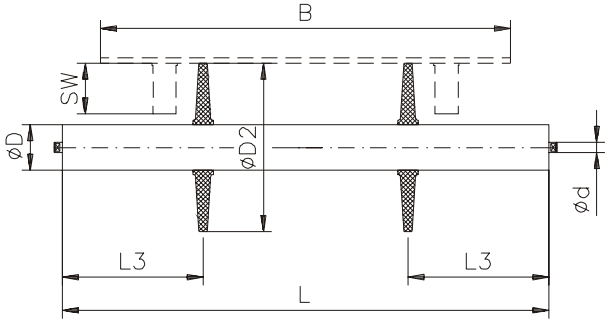


Table 3: RF76...440

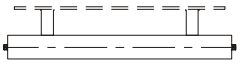
L	B	L1	L2	L3
500	400	130	81	180
600	500	130	81	180
750	650	150	87.5	215
950	800	200	125	275
1150	1000	225	137.5	300
1400	1200	290	175	385
1600	1400	315	187.5	420
1800	1600	340	200	450
2000	1800	365	212.5	480

RETURN IDLER OPTIONS FOR SIDE WALL BELT

RF

Without scrapers

With scrapers

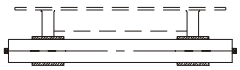


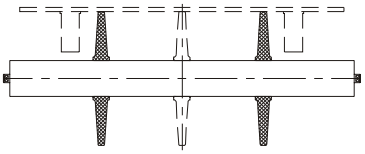
Light and narrow belts

Material is sticky, light belts

RF76...171 (sleeve idler)

- LD pipe LD
- Rubber K
- Polyurethane PU

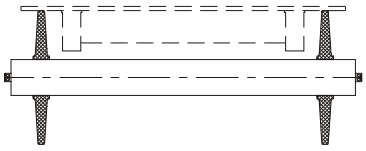


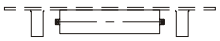


Material is wearing, heavy belts

RF250...440 (disc idler)

Number of discs determined case-by-case

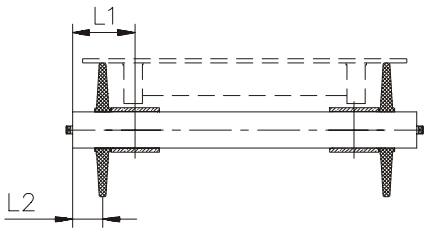




Material is neither very sticky, nor wearing

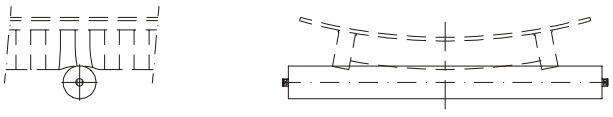
Idler type TS, coated

- LD pipe LD
- Rubber K
- Polyurethane PU

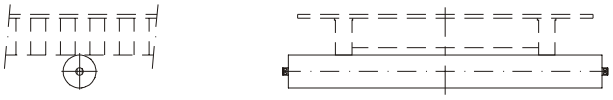


Designed case-by-case. Material is very wearing, heavy belts. Inform the measures L1 and L2 while ordering.

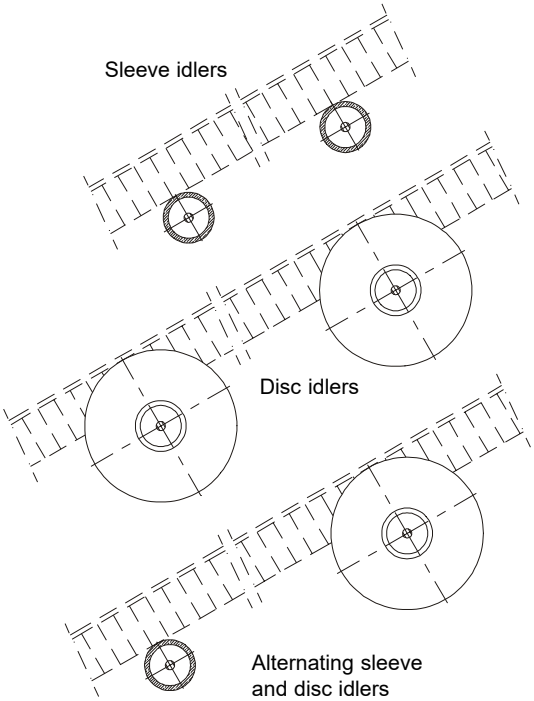
wrong



right



Maximum return idler distribution on top of side wall must always be arranged with the respective belt supplier.



RUBBER AND URETHANE DISCS OF THE IDLERS

The A-type disc is used as a rubber disc on the RA-return idler and LA-impact idler. It features a small touch point on the belt and good elasticity.

The B-type disc is used as a rubber disc on the RB-return idler. It has a wide contact surface, good wear resistance and it stays well on its place on the shell.

The C-type rubber disc is used as discs on LC-type impact idler. Besides a wide carrying surface it has very good elasticity.

U-type urethane discs are used as discs on RB-type return idlers in very wearing conditions. Recommended as return idler discs for nodule surfaced belts.

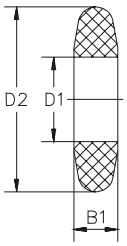
The W-type rubber disc is used at the loading point of heavy items e.g. on the idlers of conveyors transporting wood logs. The disc has great elasticity and impact resistance.

ORDERING EXAMPLE: B - 89 -133 - 40

- Disc type
- Hole diameter D1 (mm)
- Disc diameter D2 (mm)
- Width B1/B2/B3/B4/B5 (mm)

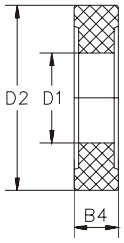
Disc type A, B and C dimensions are according to ISO 4123, DIN 15209, DIN 15210, SMS 2882, SMS 2883 and SFS 4645.

Type A



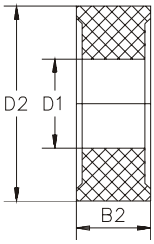
	D1	D2	B1
	51	108	25
*	63	108	25
	76	108	25
	76	133	30
	76	159	30
*	89	133	30
*	89	159	30
	108	219	40

Type U



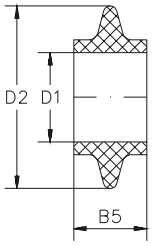
	D1	D2	B4
	51	108	25
*	63	108	25
	76	108	25
	76	133	30
	76	159	30
*	89	133	30
*	89	159	30
	108	159	30
	133	219	35

Type B



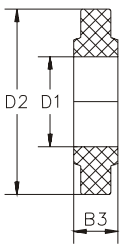
	D1	D2	B2
	51	108	40
*	63	108	40
	76	108	40
	76	133	40
	76	159	40
*	89	133	40
*	89	159	40
	108	159	50
	108	219	50

Type W



	D1	D2	B5
	75	160	60
*	90	200	80
*	102	200	80
	152	250	80

Type C



	D1	D2	B3
	51	108	25
*	63	89	25
	63	108	30
	76	108	30
	76	133	35
	76	159	35
	89	133	35
	89	159	35
	108	159	40
	133	219	45

Dimension D1 is the diameter of the steel tube on which the rubber discs are assembled. The disc is tightly pressed on to keep it in place.

Other rubber and urethane discs also available.

* = most common sizes

PLASTIC IDLER

TG

The TG idler is a full-plastic idler with steel in the bearings and shaft only. Plastic idlers are ideal for applications that require high resistance to corrosion and wear. Due to their structure, which is nonmagnetic for the most part, they are used by the process industry for magnetic separation and metal detectors.

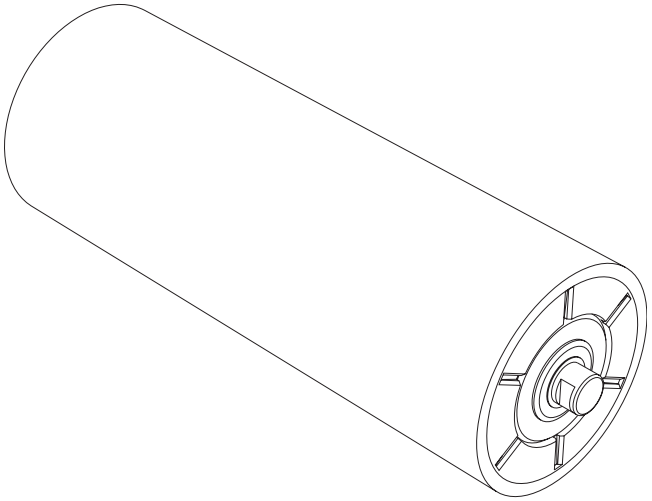
The labyrinth seal enables use of the idlers in dusty, humid, and icy environments.

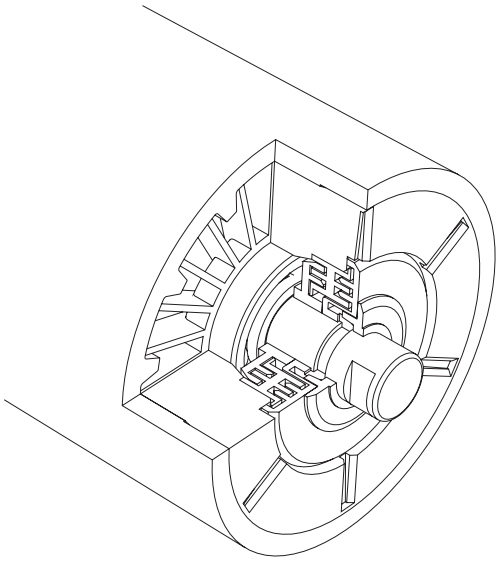
Compared to a steel idler, a plastic idler weighs about 50% less, collects less material stuck to the surface, and has a lower noise level.

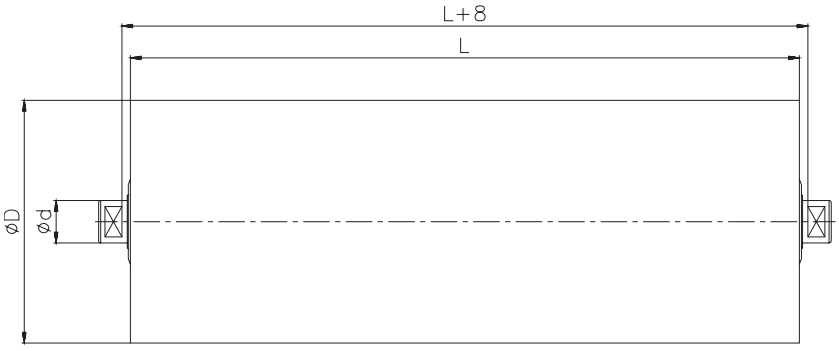
Refer to the separate product sheet for standard shaft end alternatives, which for the plastic idler are A, B, C, D, E, and H.

ORDERING EXAMPLE: TG 108 - 20 B - 315

- TG — Type code
- 108 — Idler diameter D (mm)
- 20 — Shaft diameter d (mm)
- B — Shaft end alternative, see the separate sheet
- 315 — Length of the roller shell L (mm)







Idler weight (kg)

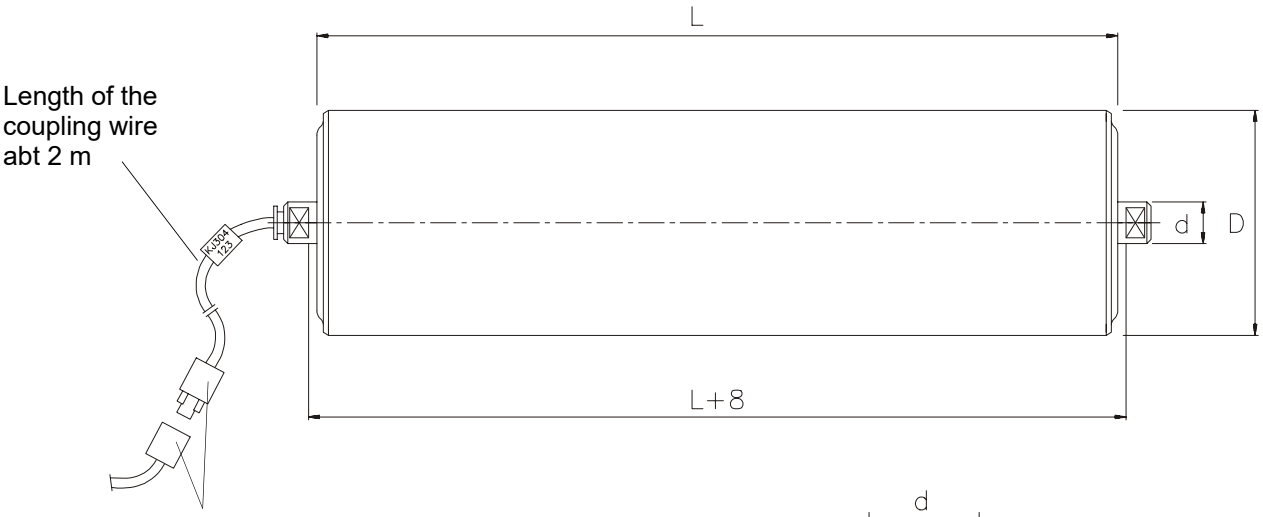
D	d	L														
		200	250	315	380	465	530	600	670	750	950	1150	1400	1600	1800	2000
89	20	1,2	1,4	1,7	1,9	2,3	2,5	2,8	3,1	3,4	4,2	5,1	6,1	6,9	7,7	8,5
108	20	1,5	1,7	2,1	2,4	2,8	3,1	3,5	3,9	4,3	5,3	6,3	7,6	8,6	9,6	10,7
	25	1,8	2,1	2,4	2,8	3,3	3,7	4,1	4,5	5,0	6,1	7,3	8,7	9,9	11,0	12,2
	30	2,0	2,3	2,8	3,2	3,7	4,2	4,6	5,1	5,6	6,9	8,2	9,9	11,2	12,5	13,8
133	20	2,0	2,3	2,7	3,1	3,7	4,1	4,6	5,0	5,6	6,9	8,2	9,8	11,1	12,5	13,8
	25	2,3	2,6	3,1	3,6	4,2	4,7	5,2	5,6	6,3	7,7	9,1	10,9	12,4	13,8	15,2
	30	2,4	2,9	3,4	3,9	4,6	5,1	5,7	6,2	6,9	8,5	10,1	12,1	13,7	15,3	16,9
159	30	3,1	3,7	4,4	5,0	6,0	6,6	7,4	8,1	9,0	11,1	13,3	15,9	18,0	20,2	22,3
	40	5,8	6,4	7,2	8,0	9,1	10,0	10,9	11,8	12,7	15,3	17,8	21,0	23,5	26,1	28,6

ELECTRICALLY HEATED IDLER TZ

The electrically heated idler is designed for conditions where the temperature differences and/or variations between the ambient temperature and the conveyed material cause the surface of the normal idler to freeze. Connection 220 V, 50 Hz to the electric network as a standard. Other voltages available.

ORDERING EXAMPLE: TZ159 - 30 - 750

- Idler type
- Idler diameter D (mm)
- Shaft diameter d (mm)
- Length L (mm)

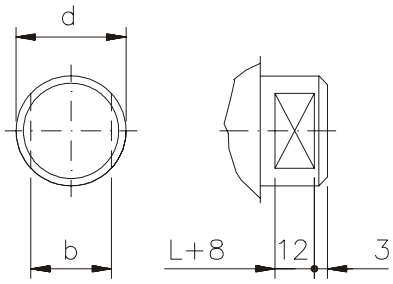


Electrical plug (male and female) included in the delivery.

Dimensions of shaft ends

d	b
30	22
40	32

Shaft end type always B



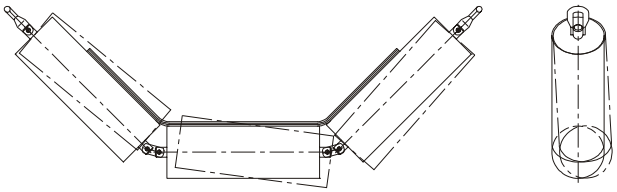
Example: Total weight 17.5 kg
Weight of rotating parts 8.4 kg

Idler weight (kg)

D	d	L														
		250	**315**	**380**	**465**	**530**	**600**	**670**	**750**	**800**	**950**	**1150**	**1400**	**1600**	**1800**	**2000**
108	**30**	5,0 2,5	5,9 2,9	6,8 3,3	8,0 3,9	9,0 4,3	10,0 4,8	11,0 5,3	12,2 5,8	12,9 6,1	14,9 7,1	17,5 8,4	20,6 10,0	23,2 11,3	25,8 12,6	
133	**30**	6,0 3,6	7,2 4,2	8,3 4,9	9,8 5,7	11,0 6,3	12,2 7,0	13,5 7,7	14,9 8,5	15,8 9,0	18,3 10,5	21,6 12,5	25,5 14,9	28,8 16,9	32,1 18,9	35,3 20,8
159	**30**		8,6 6,1	10,2 7,1	11,8 8,0	13,4 9,0	14,6 9,9	16,0 10,7	18,0 12,0	19,0 12,6	22,0 14,6	26,0 17,3	30,9 20,7	34,9 23,4	38,9 26,1	42,8 28,7
	40			12,2 5,3	14,0 7,3	15,6 8,5	17,1 9,2	18,8 10,1	20,7 11,0	21,8 11,5	25,3 13,3	29,7 15,6	35,1 18,4	39,5 20,7	44,0 23,0	49,1 25,6
219	**30**			15,1 12,0	17,5 13,7	19,7 15,4	21,8 17,1	23,8 18,5	26,7 20,7	28,3 21,9	33,0 25,6	39,0 30,3	46,1 35,9	52,2 40,7	58,3 45,5	64,3 50,2
	40				20,2 13,9	22,9 15,7	25,1 17,2	27,5 18,8	30,7 21,0	32,3 22,0	37,5 25,5	44,5 30,4	53,3 36,6	59,6 40,8	66,6 45,6	73,8 50,3
Electric-power (W)		100	100	100	100	100	200	200	200	200	200	300	300	300	400	400

GARLAND IDLERS

Garland idlers replace traditional idlers and brackets. The idlers are connected to each other with flexible links and fixed to the conveyor frame with suspension links which allow free movement in the direction of belt travel. A garland idler set is easy to replace by lifting the idler set from the hook.

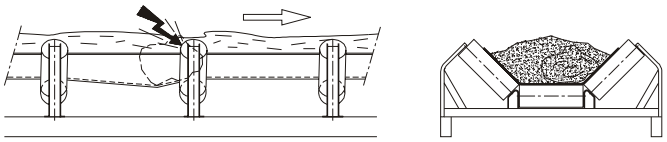


Carrying garland idler

Return garland idler

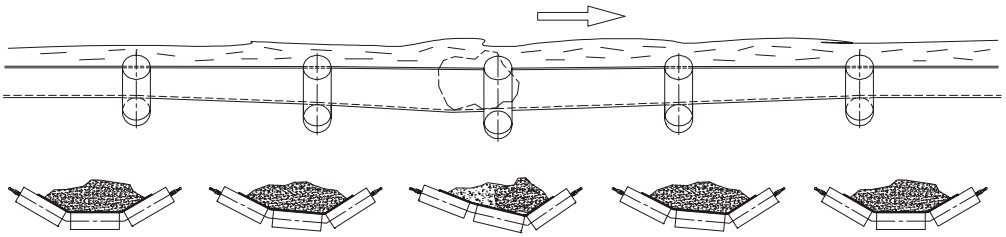
TRADITIONAL CONVEYOR CONSTRUCTION

Conveying especially heavy items on fixed brackets causes a larger local expansion to the belt and an additional shock to the idler.



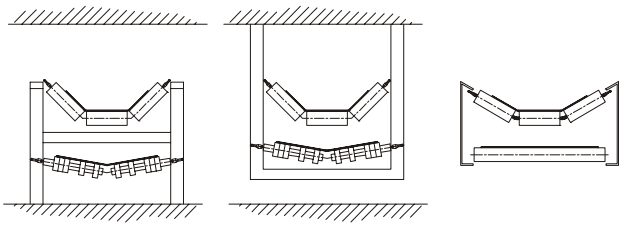
ELASTIC CONVEYOR CONSTRUCTION WITH THE GARLAND IDLERS

With garland idlers it is possible to build an elastic conveyor construction both in crossward and in travelling direction of the belt. Especially when conveying heavy items, with the help of garland idlers the pressures against the belt and idlers can be reduced. The life of the belt and idlers increases and thus a better economy is achieved.



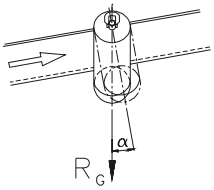
Elastic garland idlers spread the load over more idlers. Thus also the belt profile changes and the belt load becomes steadier.

The total quantity of the steel in conveyor frames can often be considerably reduced and the frames simplified.



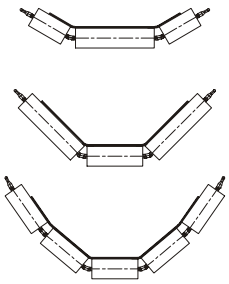
INFLUENCE ON BELT GUIDING

On ascending conveyors garland idlers offer an advantageous solution and automatic belt alignment. Because they hang there is a natural ploughing in the direction of belt travel.



DIVERSIFIED CROSS SECTIONS

We deliver also non-standard garland idlers. With the changes of idler lengths and quantities, different types of conveyor cross sections are achieved to meet operation demands. Normally TS-steel idlers are used or alternatively e.g. LA-rubber disc idlers in heavier loading points.



CARRYING GARLAND IDLERS 30° AND 45° NT3 NL3

NT3-garland idlers are used to support the upper belt in all kinds of conveyor constructions. NL3-garland idlers are suitable for the conveyor loading sections when transporting heavier material.

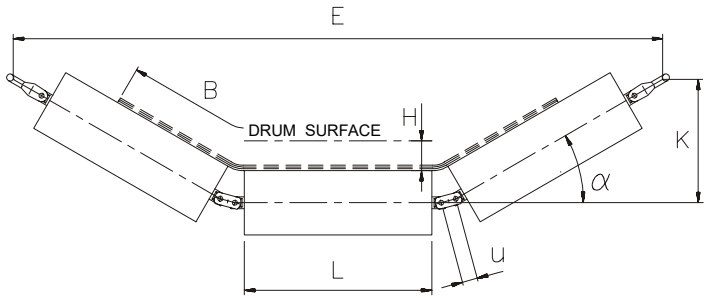
Garland idlers are assembled from ROXON standard rollers equipped with H-type shaft ends. There are sideplates and bolts in links which are easy to dismantle and assemble when replacing the idlers. Suspension hooks are of sturdy one piece construction.

ORDERING EXAMPLE: NT3 - 133E - 25 - 1200Z

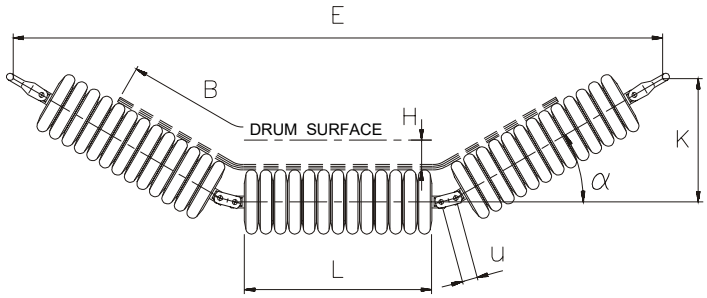
- 3-piece garland idler ID
  - NT3 -GARLAND IDLERS WITH TS-STEEL IDLERS
  - NL3 -GARLAND IDLERS WITH LA-IMPACTING IDLERS
- Idler shell diameter D (mm)
- E = steel idler type TS-E
  Blank = steel idler type TS
  (see steel idlers)
- Shaft diameter d (mm)
- Belt width B (mm)
- Z only if the idler dimensions are different from the standards

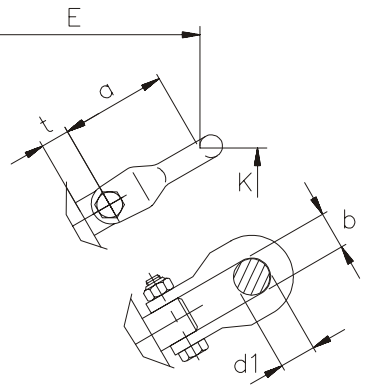
The idler dimensions must always be mentioned separately.

NT3



NL3





d	u	b	t	a	d_{1max}
20	25.4	20	16	55	18
25	31.8	25	19	70	23
30	38.1	30	22	70	28

Dimensions of garland idler

B	L	H	α 30°						α 45°					
			E			K			E			K		
			d20	d25	d30	d20	d25	d30	d20	d25	d30	d20	d25	d30
800	315	50	1086	1140		214	228		950	996		302	322	
1000	380	60	1264	1318	1344	246	260	266	1108	1154	1176	348	368	376
1200	465	80	1496	1550	1576	288	302	308	1312	1358	1380	408	427	436
1400	530	100	1674	1728	1754	321	335	341	1470	1514	1538	454	473	482
1600	600	120		1920	1946		370	376		1684	1706		523	531
1800	670	140		2110	2136		405	411		1852	1876		572	581
2000	750	160		2330	2356		445	451		2046	2070		630	638

Total weight of garland idler* (kg) Type NT3 / Type NL3

B	D108		D133			D159			D219
	d20	d25	d20	d25	d30	d20	d25	d30	d30
800	13.6 / 11.2	16.7 / 12.6	17.8 / 17.8	20.7 / 20.8	- / -	- / 21.1	26.9 / 24.1	- / -	- / -
1000	15.7 / 13.1	19.1 / 14.8	20.6 / 20.7	23.7 / 23.9	26.6 / 26.8	- / 24.6	31.0 / 27.8	33.9 / 30.7	51.5 / 55.0
1200	18.5 / 15.6	22.2 / 17.7	24.1 / 25.3	27.6 / 28.9	31.0 / 32.2	- / 30.4	36.3 / 34.0	39.7 / 37.3	60.1 / 65.1
1400	20.6 / 17.5	24.6 / 19.9	26.9 / 28.1	30.6 / 32.0	34.3 / 35.7	- / 33.8	40.4 / 37.7	44.1 / 41.4	66.7 / 74.5
1600	- / -	27.2 / 22.1	- / -	33.9 / 35.3	37.9 / 39.4	- / -	44.8 / 41.6	48.9 / 45.7	73.7 / 84.0
1800	- / -	29.8 / 24.4	- / -	37.1 / 39.2	41.4 / 43.6	- / -	49.3 / 46.4	53.6 / 50.8	80.8 / 93.5
2000	- / -	32.7 / 27.2	- / -	40.8 / 43.4	45.5 / 48.2	- / -	54.3 / 51.5	59.1 / 56.3	88.9 / 126.6

* Weight of rotating parts from pages of corresponding TS- or LA-idlers.

RETURN GARLAND IDLERS NT2 NR2

NT2- and NR2-garland idlers are used to support the return belt in all type of conveyor constructions. Garland idlers are assembled from ROXON standard idlers equipped with suitable shaft ends. As links there are heavy side plates and bolt joints.

Links are easy to dismantle and assemble when replacing the idlers. Suspension hooks are sturdy one piece construction.

ORDERING EXAMPLE: NT2 - 133E - 25 - 1200

Idler type of 2-roll garland
NT2 -GARLAND IDLERS WITH TS-STEEL IDLERS
NR2 -GARLAND IDLERS WITH RB-RETURN IDLERS WITH RUBBERING ORDER K

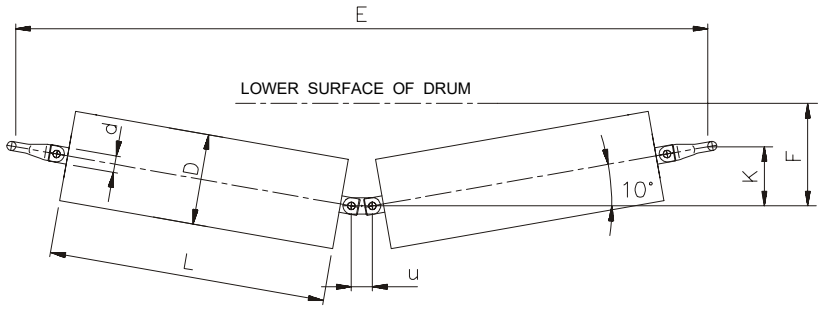
Idler shell diameter D (mm)

E = steel idler type TS-E
Blank = steel idler type TS
(see steel idlers)

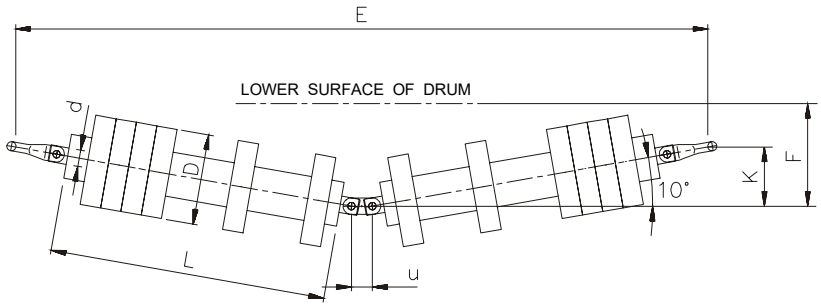
Shaft diameter d (mm)

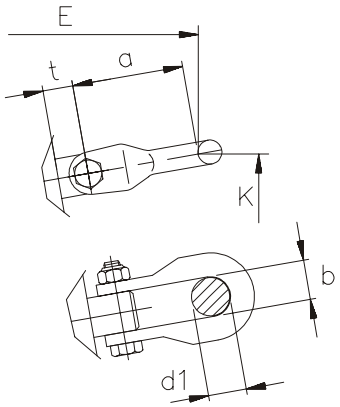
Belt width B (mm)

NT2



NR2





d	u	b	t	a	d_{1max}
20	25.4	20	16	55	18
25	31.8	25	19	70	23
30	38.1	30	22	70	28
40	50.4	40	27	100	38

Dimensions of garland idler

B	L	F_{max}	E				K			
			d20	d25	d30	d40	d20	d25	d30	d40
800	465	121	1113	1160	1179		96	100	101	
1000	600	134	1379	1426	1444		119	123	124	
1200	670	160	1516	1564	1582	1674	132	135	136	143
1400	750	172	1674	1722	1740	1831	145	149	150	157
1600	900	217	1969	2017	2035	2127	171	175	176	183
1800	1000	229	2166	2214	2232	2324	189	192	193	200
2000	1150	242		2510	2528	2619		218	220	226

Total weight of garland idler* Type NT2 / Type NR2

B	D108	D133			D159				D219	
	d20	d20	d25	d30	d20	d25	d30	d40	d30	d40
800	12.3 / 8.4	16.1 / 12.4	18.4 / 14.8	20.7 / 17.1	- / 14.8	24.2 / 17.2	26.5 / 19.5	41.5 / -	40.1 / 29.1	50.8 / 43.5
1000	15.3 / 10.3	19.8 / 15.4	22.5 / 18.1	25.3 / 20.9	- / 18.4	29.9 / 21.1	32.6 / 23.9	48.8 / -	49.2 / 35.8	59.9 / 51.5
1200	16.8 / 11.5	21.8 / 17.2	24.7 / 20.1	27.7 / 23.1	- / 20.8	32.8 / 23.7	35.8 / 26.7	52.6 / -	53.9 / 40.8	64.7 / 57.0
1400	18.5 / 12.8	24.0 / 19.1	27.1 / 22.3	30.4 / 25.6	- / 23.3	36.2 / 26.5	39.4 / 29.8	56.9 / -	59.3 / 46.0	70.0 / 63.0
1600	21.8 / 14.4	28.2 / 21.7	31.7 / 25.3	35.5 / 29.1	- / 25.9	42.5 / 29.5	46.2 / 33.3	65.0 / -	69.4 / 50.2	80.1 / 68.4
1800	23.9 / 15.9	31.0 / 24.0	34.8 / 27.9	38.9 / 32.0	- / 28.8	46.7 / 32.7	50.8 / 36.8	70.4 / -	76.1 / 56.0	86.9 / 75.1
2000	27.2 / 18.0	35.2 / 27.2	39.4 / 31.5	44.0 / 36.1	- / 32.6	53.0 / 36.9	57.6 / 41.5	78.5 / -	86.2 / 63.2	97.0 / 83.6

* Weight of rotating parts from pages of corresponding TS- or LA-idlers.

3. IDLER BRACKETS, GUIDING IDLER BRACKETS

- Selection and load rating of the idler bracket S-SERIES
- Idler bracket SU
- Idler bracket SK
- Idler bracket SE
- "Heavy duty" idler bracket SL SM SH
- Roller brackets BDH6, -7, -9 BDL4
- Bracket for the roller conveyors SB1
- Guiding idler brackets
  - Self-aligning idler bracket for the carrying belt BDP10 BDP11 BDP12
  - Self-aligning idler bracket for the carrying belt MDP1
  - Self-aligning idler bracket for the return belt BDR4 BDR11
  - Self-aligning idler bracket for the return belt MDR1
  - Guiding bracket for the return belt QR220
- Belt centralizing idler BELT-PILOT

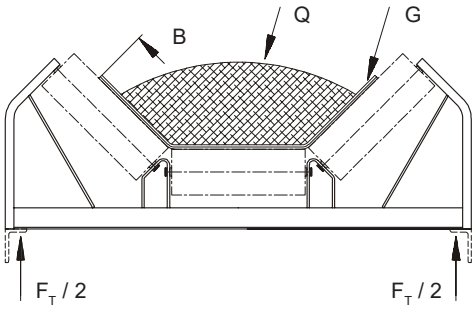
SELECTION AND LOAD RATING OF THE IDLER BRACKET

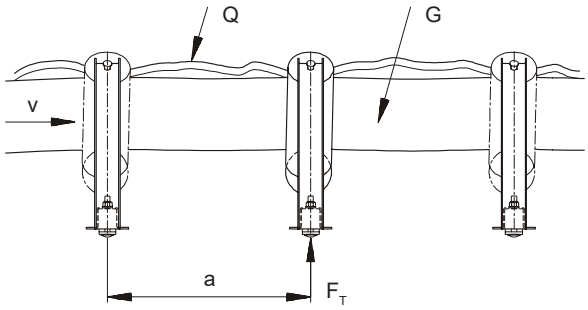
S - SERIES

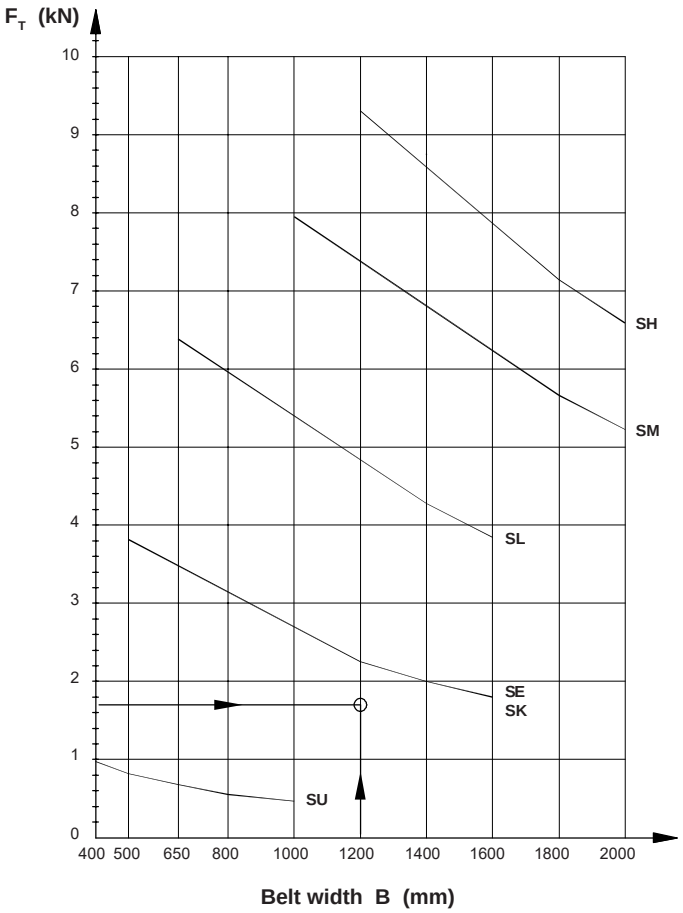
Choosing brackets for bulk conveyors depends on the amount of weight to be loaded onto each individual bracket. Please consider the possible additional loads presented on the "*Selection and load rating of the idlers for belt conveyors*" page.

It is assumed that the load on the belt is distributed evenly. If there are large variations in the distribution of the load, then the basis of measurement for the largest possible load must be considered. Likewise, if there is a possibility that the conveyor will be over-loaded (i.e. loading the conveyor while it is stopped), then that particular weight must be used for the basis of measurement. Additionally, the weight caused by large pieces mixed in with the material must also be considered.

Q = conveyor capacity (t/h)
v = belt speed (m/s)
G = belt weight (kg/m)
F_T = total load of one idler bracket (N)
B = belt width (mm)
a = idler spacing (m)







Calculation of idler bracket load

Basic information:

Q = 1000 t/h
v = 2.2 m/s
G = 15 kg/m
B = 1200 mm
a = 1.2 m

Load for one idler bracket F_T

$$F_T = \left(\frac{Q}{3.6 \times v} + G \right) \times a \times 10$$

$$F_T = \left(\frac{1000}{3.6 \times 2.2} + 15 \right) \times 1.2 \times 10 = 1695\ N$$

The bracket is selected from the curve right above the intersection.

IDLER BRACKET SU

SU idler brackets are designed for small capacities and narrow belts. A suitable bracket type from the selection may be optimised, depending on the unit weight and volume of the material to be conveyed. The bracket may be chosen according to the information on the *Selection and load rating of the idler bracket* page.

Fixing to the flange is done either by friction fixing or by screws.

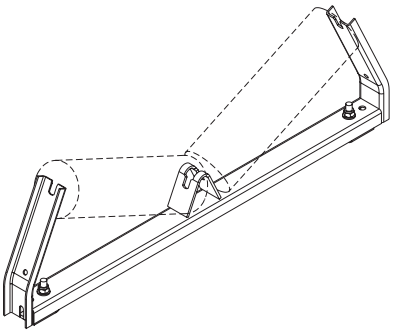
The standard surface treatment is hot galvanisation. It effectively protects from corrosion and does not require special caution during transportation and instalment.

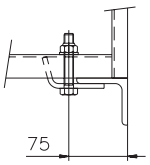
SU brackets are suitable for roller diameters D89 and D108 shaft diameter being d20. Standard SU brackets are dimensioned for 2 rollers, but on request, they are available for 3 rollers.

ORDERING EXAMPLE: SU 225 - 20 - 650 Z A

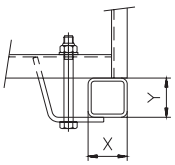
- Type code
- Idlers (pcs)
- Troughing angle (α)
- Shaft diameter d (mm)
- Belt width B (mm)
- Finishing of bracket
  - Z = Hot galvanized
  - P = Painted
- Fixing alternative
  - A = Friction fixing
  - B = Screw fixing

If you choose friction fixing to rectangular hollow section, please specify its X and Y dimensions with order.

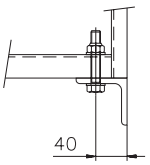




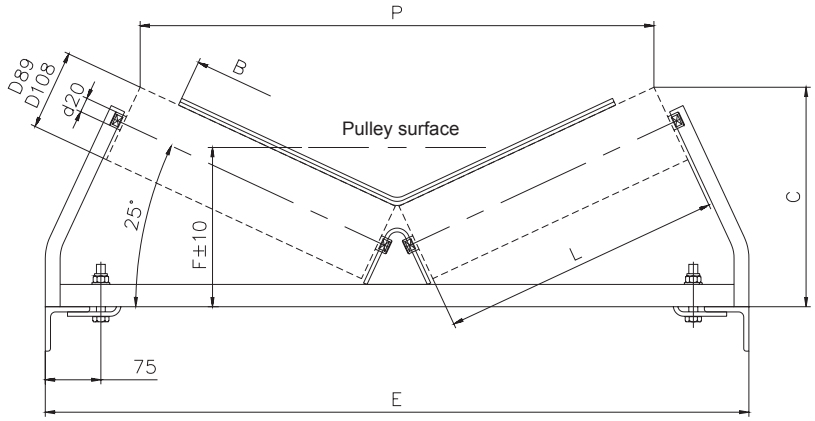
Friction fixing

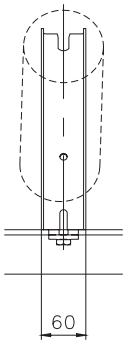


Friction fixing

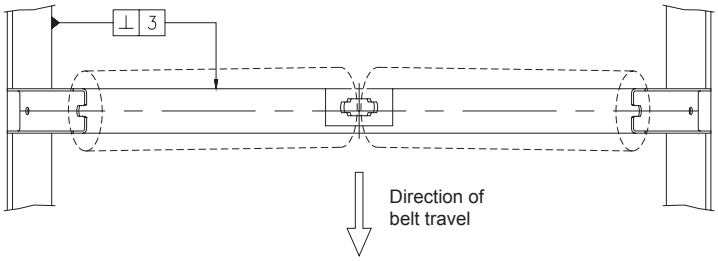


Screw fixing





Direction of belt travel



Direction of belt travel

B	E	L	F		C		P		Bracket weight (kg)
			D89	D108	D89	D108	D89	D108	
400	700	250	190	195	233	241	466	458	3.4
500	800	315	200	205	260	269	584	576	3.8
650	950	380	210	215	288	296	702	694	4.3
800	1150	465	220	225	324	332	856	848	5.0
1000	1350	600	235	240	381	389	1101	1093	5.8

IDLER BRACKET

SK

The idler bracket SK is designed for the standard flange widths in Europe. The gap between the main support and the rotating parts is according to the European safety regulations. The optimized profile steel structure provides a high load capacity - weight ratio. SK bracket improves the centering of the belt as the side idlers are tilted forward.

Fixing to the flange is done either by friction fittings or by screws.

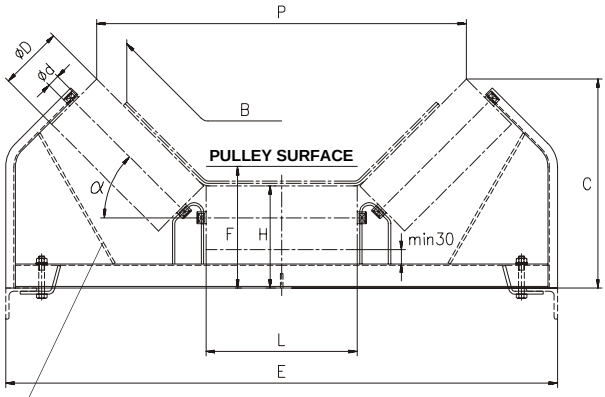
The standard surface treatment is hot galvanizing. Hot galvanizing provides a good protection against corrosion and does not require any special precausions during transport and handling.

The standard SK bracket range covers belt widths B = 500...1600, troughing angles α = 20°, 30° and 45°, idler diameters D = 108 and 133, and shaft diameters d = 20 and 25.

ORDERING EXAMPLE: SK330 - 20 - 108 - 800 Z A

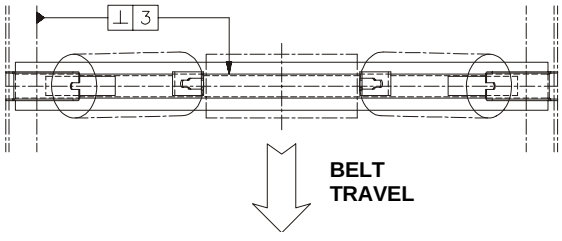
- Bracket type
- Idlers (pcs)
- Troughing angle (α)
- Shaft diameter d (mm)
- Idler diameter D (mm)
- Belt width B (mm)
- Finishing of bracket Z = hot galvanized P = painted
- Fixing alternatives A = friction B = screw

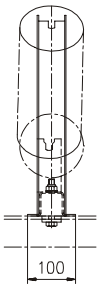
WHEN THERE IS FRICTION FIXING WITH RECTANGULAR PIPE, PLEASE INFORM THE MEASURES OF THE FRAME PIPE OF THE FLANGE, X×Y.

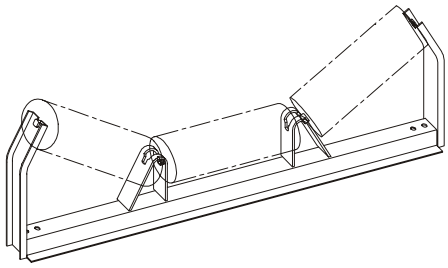


There is a support in the bracket, when
α = 30° and B ≧1200
α = 45° and B ≧800

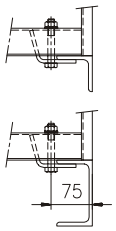
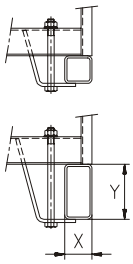
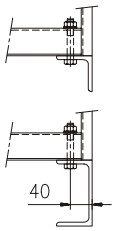
øD	H
108	188
133	213







FIXING ALTERNATIVES

Ⓐ FRICTION FIXING		Ⓑ SCREW FIXING
OPEN PROFILE	RECTANGULAR PIPE	BORING THROUGH THE FLANGE
		

B	L	E	C						P						F	
			α = 20°		α = 30°		α = 45°		α = 20°		α = 30°		α = 45°			
			D108	D133	D108	D133	D108	D133	D108	D133	D108	D133	D108	D133	D108	D133
500	200	800	273	285	304	315	347	355	611	603	565	553	503	485	213	238
650	250	950	290	302	329	340	382	391	755	747	702	690	623	606	223	248
800	315	1150	312	324	362	372	428	435	943	934	880	867	780	763	228	253
1000	380	1350	335	346	394	405	474	483	1130	1121	1057	1045	937	919	238	263
1200	465	1600	364	375	437	447	534	543	1374	1366	1289	1283	1142	1125	248	273
1400	530	1800	386	398	469	480	580	589	1562	1553	1467	1454	1299	1282	263	288
1600	600	2000	410	422	504	515	629	638	1763	1755	1658	1646	1468	1451	273	298

B	Weight (kg)		
	20°	30°	45°
500	5.9	6.3	7.3
650	6.5	7.0	8.2
800	7.5	8.0	9.4
1000	8.4	9.0	10.7
1200	9.6	11.1	12.2
1400	10.5	12.2	13.5
1600	11.4	13.3	14.7

IDLER BRACKET

SE

Construction of the SE -bracket situating under the flange, gives a low and steady cross section to the conveyor. L-screw fastening makes the conveyor stronger in sideways and allows more load on the bracket.

Macroeconomic of the bracket will be increased while putting the return idle on the same bracket, type D.

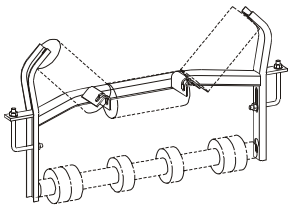
Mostly used idler diameter with SE -bracket is D=108 and shaft diameters d=20 and 25. Bracket angles are 30° and 45°.

ORDERING EXAMPLE: SE345 - 20 - 108 - 1000 D Z

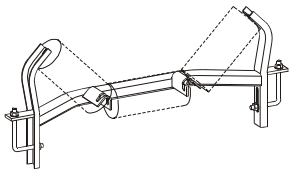
- Type code
- Idlers (pcs)
- Troughing angle (α)
- Shaft diameter d (mm)
- Idler diameter D (mm)
- Belt width B (mm)
- Type
  - E = WITHOUT RETURN IDLER
  - D = WITH RETURN IDLER
- Finishing of bracket
  - Z = HOT GALVANIZED
  - P = PAINTED

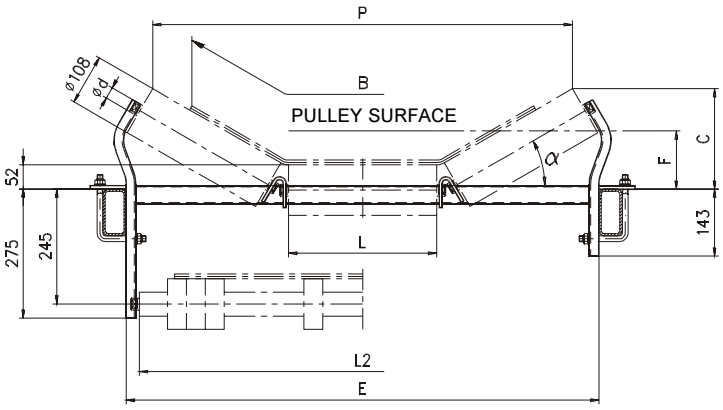
Inform also the size of the frame pipe or the flange. If using the bracket with ROXID or FLEXID, please contact our tecnical advise.

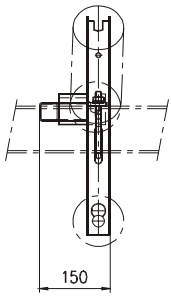
TYPE D

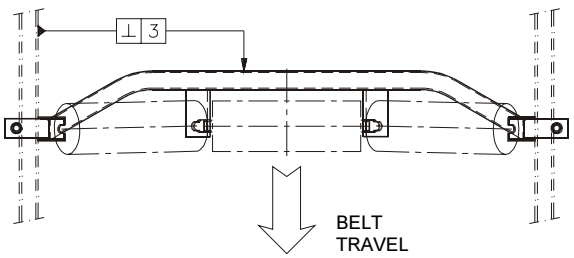


TYPE E

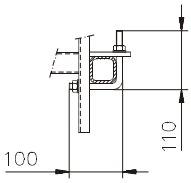






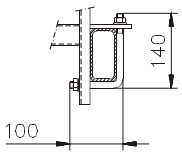


SIZE OF THE FRAME PIPE OF THE FLANGE



SE1 - 100 / 110

Size of the frame pipe:
40x40 ... 60x60



SE1 - 100 / 140

Size of the frame pipe:
40x80 ... 50x100

MAIN DIMENSIONS OF THE IDLER BRACKET:

B	E	F D=108	L	L2
650	806	87	250	750
800	1006	92	315	950
1000	1206	102	380	1150
1200	1456	112	465	1400
1400	1656	127	530	1600

EXTREME DIMENSIONS AND WEIGHT OF THE IDLER BRACKET:

B	C		P		Bracket weight (kg) *)	
	SE 330 D=108	SE 345 D=108	SE 330 D=108	SE 345 D=108	SE 330 type E	SE 345 type E
650	178	230	703	618	5.6	6.1
800	211	276	881	775	6.9	6.7
1000	243	322	1058	932	7.5	7.5
1200	286	382	1291	1137	8.5	8.7
1400	318	428	1468	1294	10.9	11.9

***)** The weight of the D -type is E -type + 0.5 kg.

“HEAVY DUTY” IDLER BRACKET SL SM SH

This heavy-duty idler bracket series is intended for belts that are wide and can withstand large capacities. A suitable bracket type from the selection may be optimised, depending on the unit weight and volume of the material to be conveyed. The bracket may be chosen according to the information on the "Selection and load rating of the idler bracket" page.

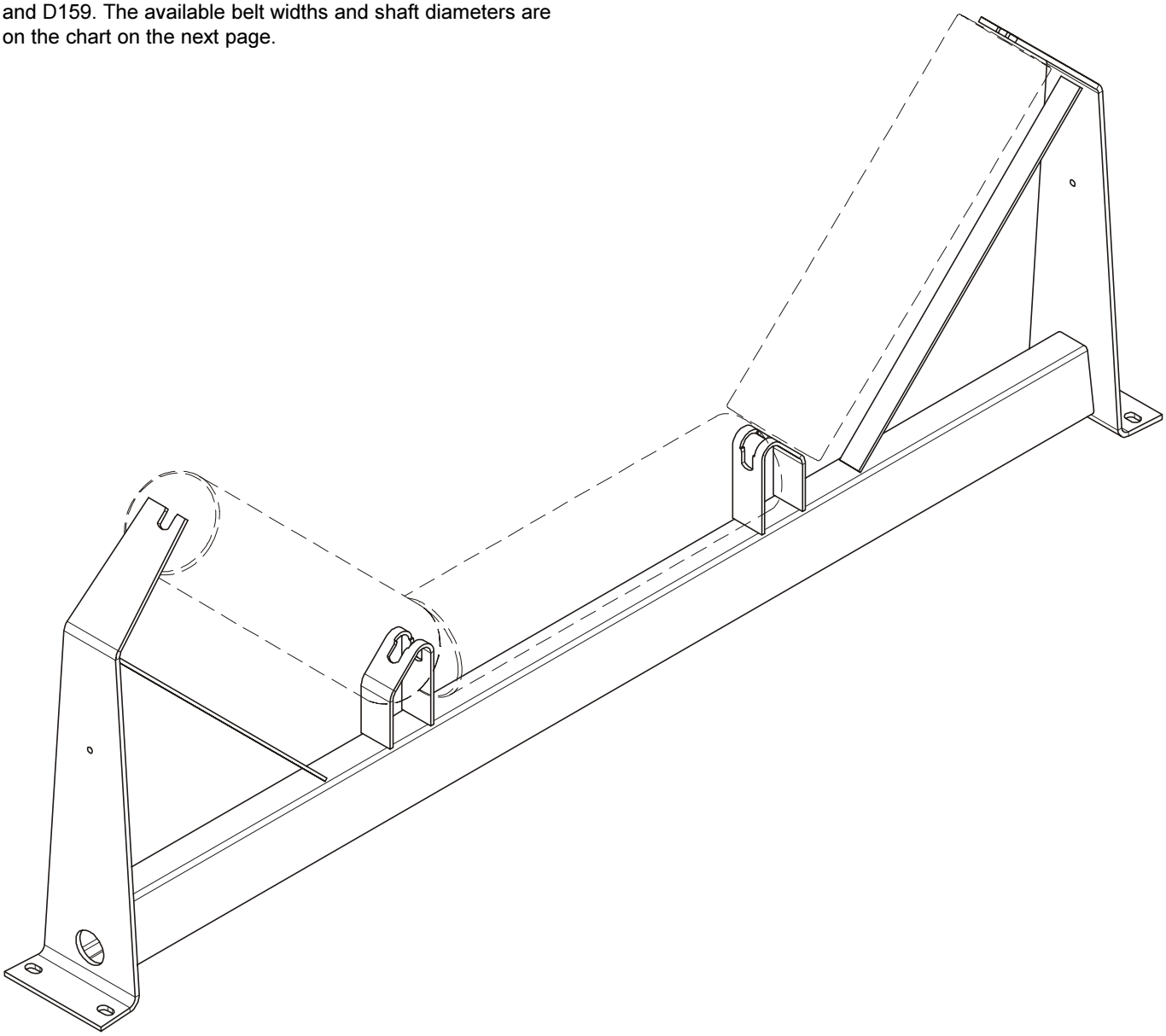
The main support, produced from sheet-metal, is designed to withstand maximum weight. The narrow shape of the mechanism's top edge effectively prevents scavenging material from building up. The side support's wide bottom braces attachment to the rail. Attachment with a screw coupling through the rail.

The standard surface treatment is hot galvanisation. It effectively protects from corrosion and does not require special caution during transportation and instalment.

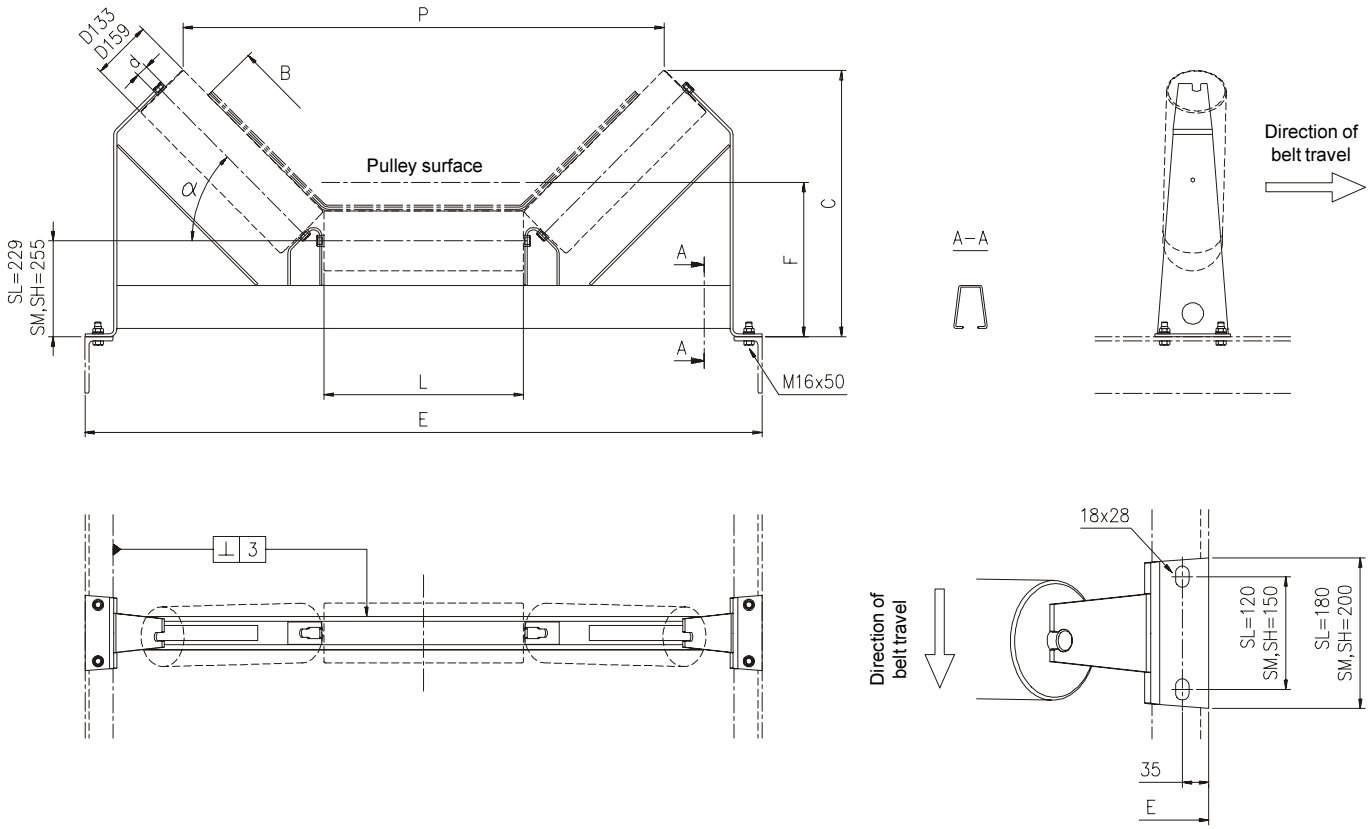
The brackets have been designed for idlers diameters D133 and D159. The available belt widths and shaft diameters are on the chart on the next page.

ORDERING EXAMPLE: SM 330 - 30 - 1600 Z

- Type code
  - SL
  - SM
  - SH
- Idlers (always 3 pcs)
- Troughing angle (α) 20°, 30° or 45°
- Shaft diameter d (mm)
- Belt width B (mm)
- Finishing of bracket
  - Z = HOT GALVANIZED
  - P = PAINTED



Brackets main dimensions and weights



SL idler shaft diameter d=25

B	E	L	F		C						P						Bracket weight (kg)		
					20°		30°		45°		20°		30°		45°				
			D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	20°	30°	45°
650	950	250	331	344	384	396	423	434	473	482	765	756	708	695	627	608	11.0	11.5	12.5
800	1150	315	336	349	406	418	455	467	520	529	952	943	885	872	783	765	13.0	14.0	15.0
1000	1350	380	346	359	428	440	488	499	565	574	1139	1130	1062	1049	938	920	15.0	16.0	17.5
1200	1600	465	356	369	457	469	531	542	627	636	1384	1375	1294	1281	1139	1121	17.5	18.5	21.0
1400	1800	530	371	384	479	492	562	574	673	682	1571	1562	1472	1459	1296	1278	19.0	20.5	23.0
1600	2000	600	381	394	503	516	597	608	723	732	1772	1763	1664	1651	1465	1447	21.0	22.5	24.0

SM idler shaft diameters d=25 or d=30

B	E	L	F		C						P						Bracket weight (kg)		
					20°		30°		45°		20°		30°		45°				
			D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	20°	30°	45°
1000	1350	380	372	385			513	525	591	600			1064	1051	938	920		21.0	23.0
1200	1600	465	382	395	484	496	555	567	653	662	1384	1375	1296	1283	1139	1121	22.5	24.0	26.5
1400	1800	530	397	410	505	518	589	600	699	708	1571	1562	1472	1459	1296	1278	25.0	27.5	29.0
1600	2000	600	407	420	529	542	624	636	748	759	1772	1763	1663	1650	1465	1447	27.5	30.0	32.0
1800	2200	670	417	430	553	566	659	671	798	807	1974	1965	1854	1841	1635	1617	30.0	32.5	34.5
2000	2400	750	427	440	581	593					2204	2195					32.5		

SH idler shaft diameter d=30

B	E	L	F		C						P						Bracket weight (kg)		
					20°		30°		45°		20°		30°		45°				
			D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	D133	D159	20°	30°	45°
1200	1600	465	382	395	484	496	555	567	653	662	1384	1375	1296	1283	1139	1121	26.0	27.5	30.0
1400	1800	530	397	410	505	518	589	600	699	708	1571	1562	1472	1459	1296	1278	29.0	31.5	33.0
1600	2000	600	407	420	529	542	624	636	748	759	1772	1763	1663	1650	1465	1447	32.0	34.5	36.5
1800	2200	670	417	430	553	566	659	671	798	807	1974	1965	1854	1841	1635	1617	35.0	37.5	39.5
2000	2400	750	427	440	581	593	699	710	852	861	2204	2195	2073	2060	1833	1815	38.0	40.5	42.5

ROLLER BRACKETS

BDH 6, 7, 9
BDL 4

BDH roller brackets were designed for mounting idlers of flat belt conveyor and belt feeder rollers. The BDL bracket was specially designed for the return idler bracket, and the BDH bracket can also be used for return idlers.

BDH 9 and BDL 4 roller brackets are suitable for shaft end type B, and the others are suitable for shaft end types A, B and C. The brackets are delivered with all necessary mounting screws and ordered by total units needed.

ORDERING EXAMPLE: **BDH 6 - 2 - 20**

Type code

Size of brackets (1, 2, 3)
- 1 = for idler dia D76, D108
- 2 = for idler dia D133, D159
- 3 = for idler dia D219

Idler shaft diameter (mm)
d20, d25, d30 or d40

Suitable for shaft end types A, B, C

ORDERING EXAMPLE: **BDH 7 - 159 - 30**

Type code

Idler diameter (mm)
D159 or D219

Idler shaft diameter (mm)
d30 or d40

Suitable for shaft end types A, B, C

ORDERING EXAMPLE: **BDH 9 - 133 - 25**

Type code

Idler diameter (mm)
D108, D133 or D159

Idler shaft diameter (mm)
d20 or d25

Suitable only for shaft end type B

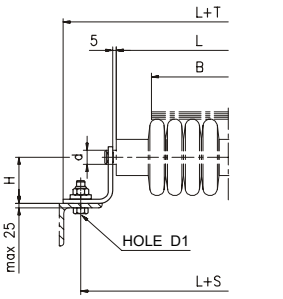
ORDERING EXAMPLE: **BDL 4 - R 25**

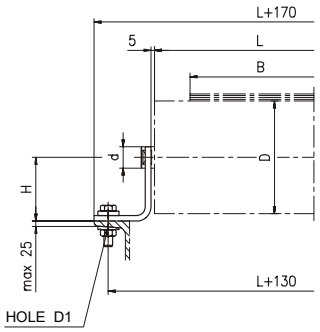
Type code

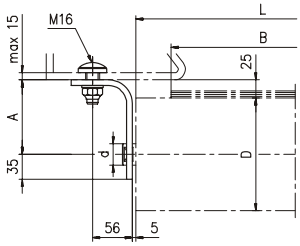
Code for the belt width
- R = B ≤ 1200 mm
- S = B > 1200 mm

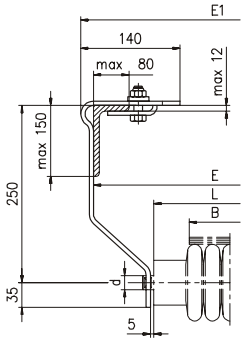
Idler shaft diameter (mm)
d20, d25 or d30

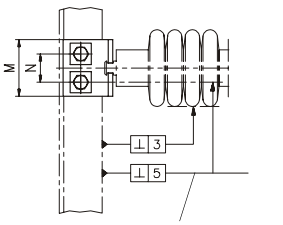
Suitable only for shaft end type B

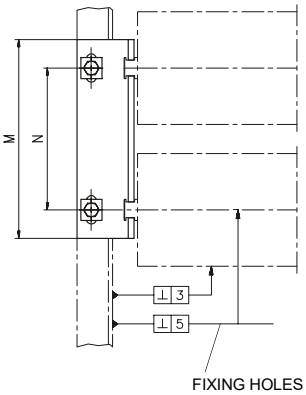


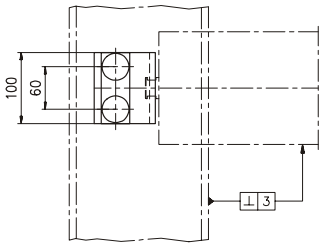




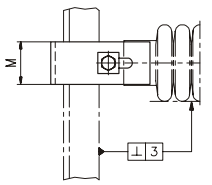








TIGHTENING TORQUE 100 Nm



BDH 6

BDH6	- 1	- 2	- 3
D1	14	14	18
H	65	90	120
M	80	100	120
N	40	55	65
S	100	130	130
T	150	170	170
Weight (kg)	0.52	1.00	1.76

BDH 7

BDH7	- 159	- 219
D1	14	18
H	90	120
M	280	330
N	200	250
Weight (kg)	3.0	5.2

BDH 9

D	108	133	159
A	79	92	105
Weight (kg)	1.6	1.7	1.8

BDL 4

B	L	E	E1
500	600	770	810
650	750	920	960
800	950	1120	1160
1000	1150	1320	1360
1200	1400	1570	1610
1400	1600	1770	1810
1600	1800	1970	2010
1800	2000	2170	2210

BDL4	- R	- S
M	60	80
Weight (kg)	2.0	2.6

BRACKET FOR THE ROLLER CONVEYORS SB 1

Idler brackets SB 1 are used in both gravity roller conveyors and driven conveyors. They can also be used in flat belt conveyors. The bracket enables horizontal adjusting and it is designed for shaft end alternative A.

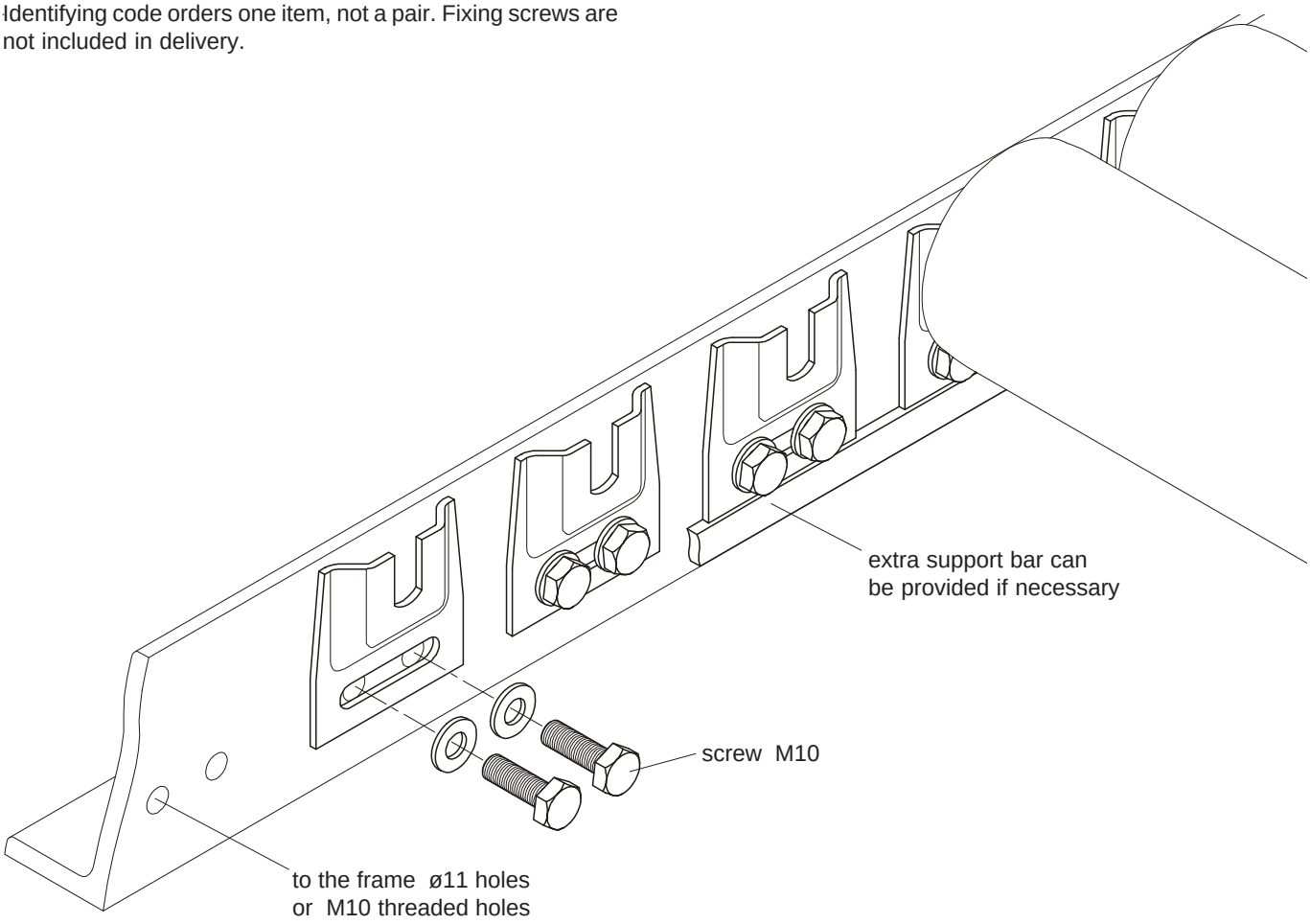
The bracket can be welded to the frame. Surface treatment is electrogalvanized.

Identifying code orders one item, not a pair. Fixing screws are not included in delivery.

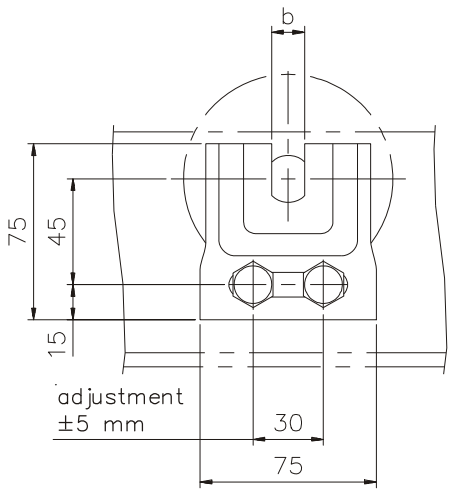
ORDERING EXAMPLE: SB 1 - 20

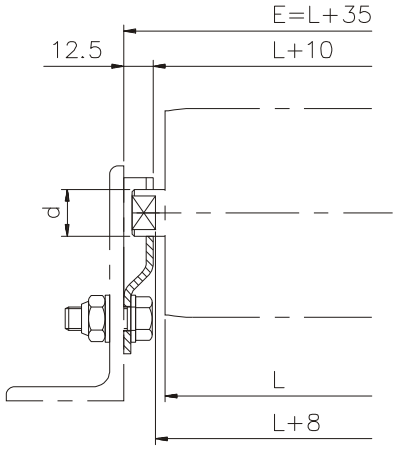
Type code

Shaft diameter of roller d (mm)



d	b
15	12
17	12
20	14
25	18
30	22

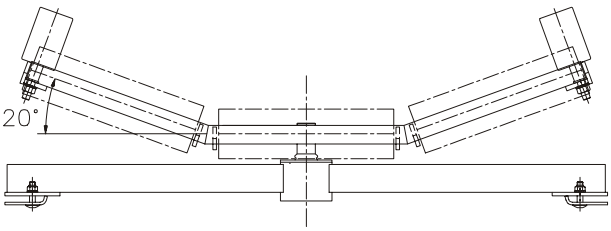




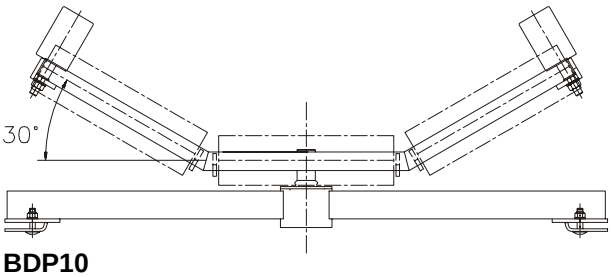
GUIDING IDLER BRACKETS

There is a suitable alternative for every conveyor in our wide range of guiding idler brackets. Due to steady friction fixing method they are easy to assemble. The height of the guiding idler on the upper belt should always be 10 mm higher than other idlers; then its guiding power essentially improves. Special solutions, according to customer's dimensions, are also available.

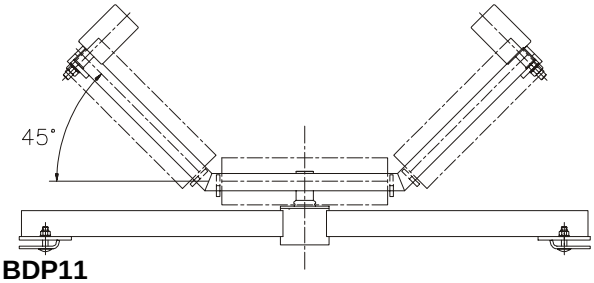
FOR UPPER BELT



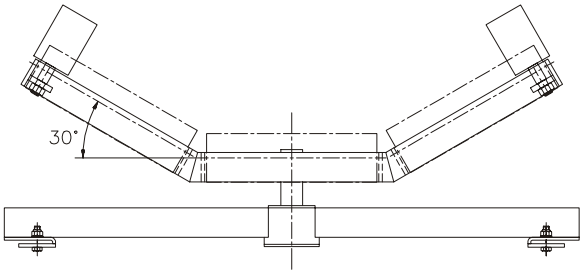
BDP12
Friction fixing to the flange, belt troughing angle 20°, B = 500...1400, D = 108 and 133



BDP10
Friction fixing to the flange, belt troughing angle 30°, B = 500...1400, D = 108 and 133

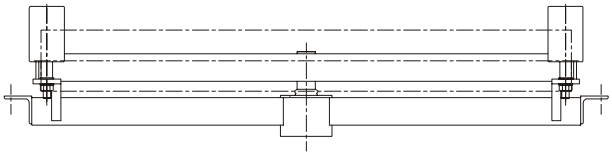


BDP11
Friction fixing to the flange, belt troughing angle 45°, B = 500...1400, D = 108 and 133

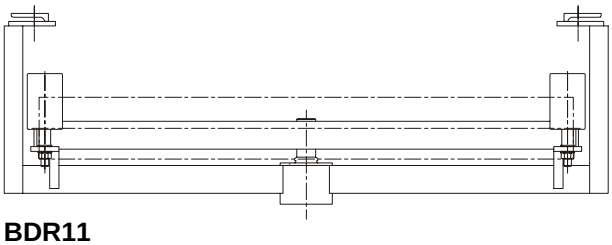


MDP1
Heavy duty self-aligning bracket. Bolt secured friction fixing to the flange, B = 1200...2000, D = 133 and 159

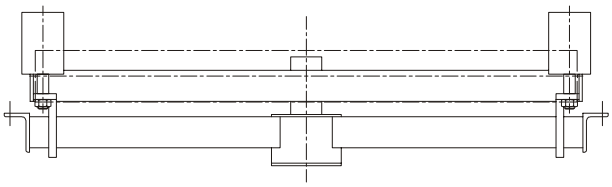
FOR RETURN BELT



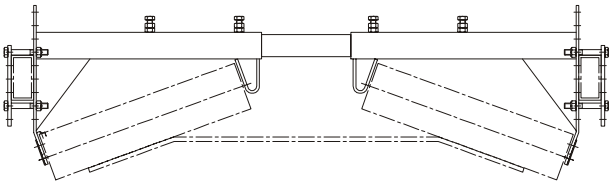
BDR4
Screw fixing to the leg of frame, B = 400...1200, D = 108, 133 and 159



BDR11
Friction fixing to the flange, B = 400...1200, D = 108, 133 and 159



MDR1
Heavy duty self-aligning bracket with bolt fixing to the leg of the frame, B = 1200...2000, D = 133, 159 and 219



QR220
Guiding bracket without bearing pressing the belt sides downwards. Adjustment margin to the cross direction of the frame, B = 400...1800, D = 108 and 133

SELF-ALIGNING IDLER BRACKET FOR THE CARRYING BELT

BDP10 BDP11 BDP12

These medium duty self aligning brackets can be installed in most conveyors due to the easy frictoin joint installation. Also the alternative height dimension H gives a good usability to every conveyor cross section. Different types of flanges do not cause any problem. Side guide idlers are included in the bracket; carrying idlers to be ordered separately.

Idler diameter D108 or D133.

ORDERING EXAMPLE: BDP10 - 1000 - 120 - 20 - 2

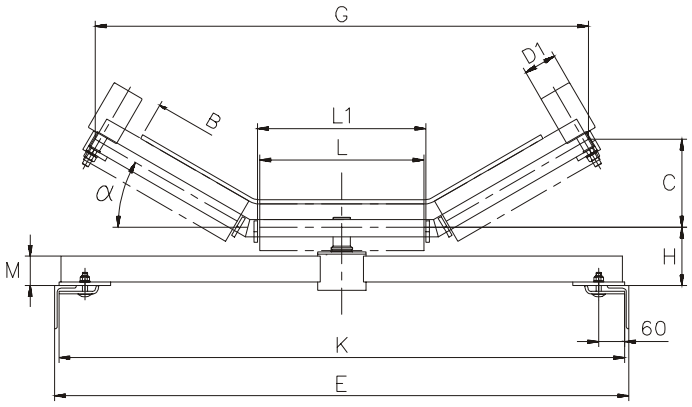
Bracket type
- BDP10 = 30°
- BDP11 = 45°
- BDP12 = 20°

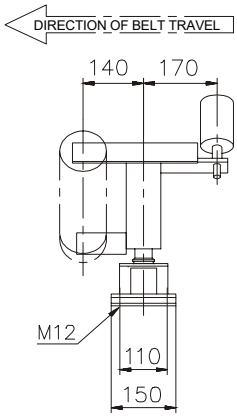
Belt width B (mm)

Height H (mm) 120 or 135

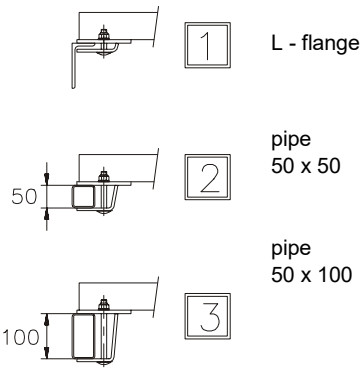
Shaft diameter d (mm) 20, 25 or 30

Fixing method
- 1 = L -flange
- 2 = tube 50 x 50
- 3 = tube 100 x 50





MOUNTING ALTERNATIVES



B	E	L	L1	K	M	D1
500	770	200	210	760	58	63
650	920	250	260	910	58	63
800	1120	315	325	1110	58	63
1000	1320	380	390	1310	68	89
1200	1570	465	475	1560	68	89
1400	1770	530	540	1760	68	89

B	BDP10-			BDP11-			BDP12-		
	C	G	Weight (kg)	C	G	Weight (kg)	C	G	Weight (kg)
500	117	669	22.0	163	589	25.2	69	694	23.4
650	130	805	25.5	198	708	26.7	86	837	25.5
800	163	982	28.5	245	872	29.5	109	1024	28.5
1000	195	1161	42.5	290	1020	40.5	131	1211	42.5
1200	238	1392	46.5	350	1225	44.7	160	1456	46.5
1400	270	1570	50.0	382	1382	48.0	183	1644	50.0

SELF-ALIGNING IDLER BRACKET FOR THE CARRYING BELT

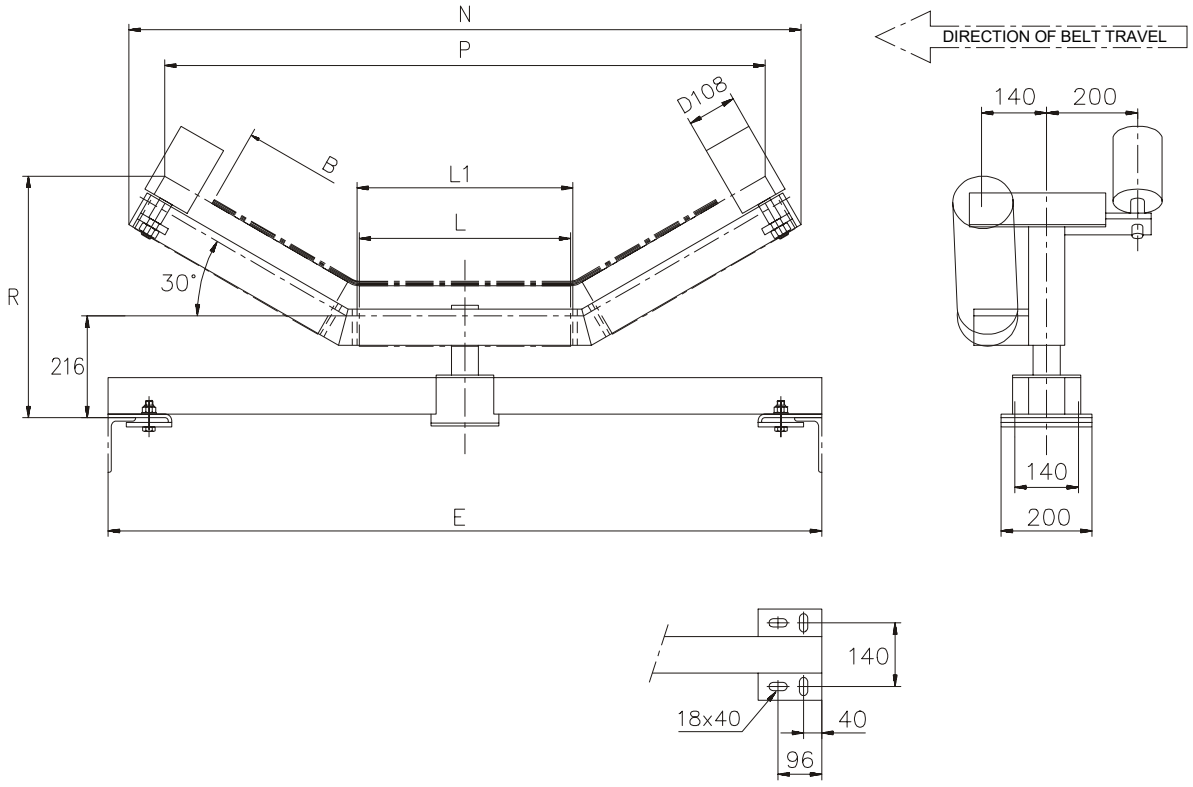
MDP1

Heavy duty MDP1-bracket is reliable also in conveying large units. Besides the friction fixing it is possible to secure with the bolt fixing. Roller angle 30° standard. Other roller angles available. Side guide idlers are included in the bracket, carrying idlers to be ordered separately.

Idler diameter D133 or D159.

ORDERING EXAMPLE: MDP1 - 1400 - 159 - 25

- Bracket type
- Belt width B (mm)
- Idler diameter D (mm) 133 or 159
- Shaft diameter d (mm) 25 or 30



B	E	L	L1	N	D = 133		D = 159		Weight
					P	R	P	R	(kg)
1200	1570	465	475	1479	1322	523	1309	534	77
1400	1770	530	540	1657	1500	556	1487	567	82
1600	1970	600	610	1848	1691	591	1678	602	86
1800	2170	670	680	2039	1882	626	1869	637	91
2000	2370	750	760	2258	2101	666	2088	677	96

SELF-ALIGNING IDLER BRACKET FOR THE RETURN BELT BDR4 BDR11

These medium duty self-aligning brackets can be fixed to the frame leg of the conveyor with screw joint (BDR4) or to the flange with friction joint (BDR11). To improve the guiding power the return idler with rubber discs can be replaced with a plain steel idler or an idler with rubber coating.

Guiding idlers on sides are included in the bracket, return idler to be ordered separately.

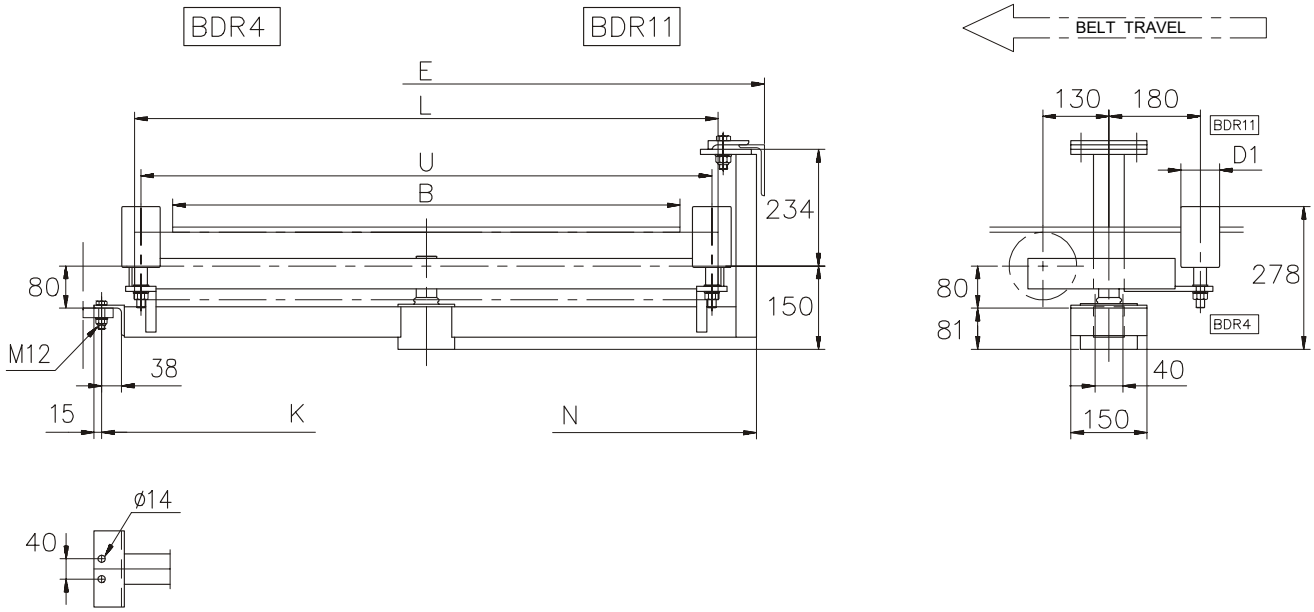
Diameter of return idler D108, D133 or D159.

ORDERING EXAMPLE: BDR11 - 1000 - 25

Bracket type
BDR4 = fixing to the leg
BDR11 = fixing to the flange

Belt width B (mm)

Shaft diameter d (mm) 20, 25 or 30



B	D1	L	U	N	K	E	BDR4 Weight (kg)	BDR11 Weight (kg)
400	63	500	500	650	600	670	18.0	23.0
500	63	600	600	750	700	770	19.0	24.3
650	63	750	750	900	850	920	20.0	25.6
800	63	950	900	1100	1050	1120	22.0	27.6
1000	89	1150	1125	1300	1250	1320	32.0	37.1
1200	89	1400	1325	1550	1500	1570	35.0	41.2

SELF-ALIGNING IDLER BRACKET FOR THE RETURN BELT — MDR1

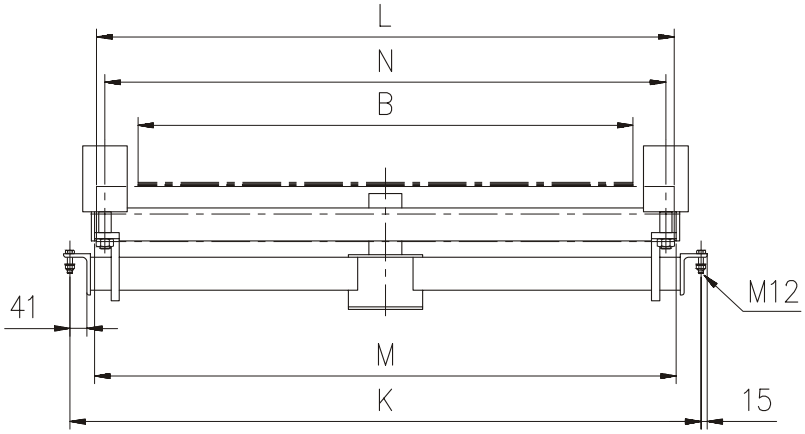
The heavy duty, self-aligning MDR1-bracket is reliable also with high belt tensions. To improve the guiding power always use a plain steel idler or an idler with rubber coating. Fixing with bolt joint to the frame leg of conveyor.

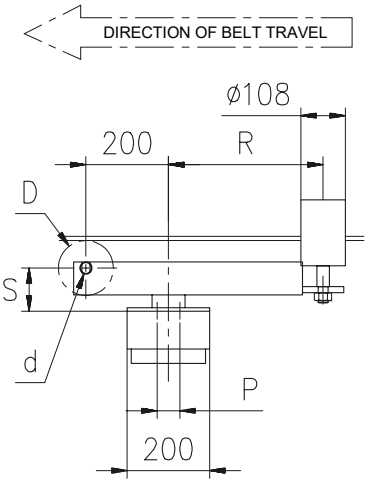
Side guiding idlers are included in the bracket, return idler to be ordered separately.

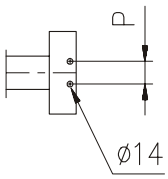
Return idler diameter D133, D159 or D219.

ORDERING EXAMPLE: MDR1 - 1400 - 159 - 25

- Bracket type
- Belt width B (mm)
- Idler diameter D (mm)
- Idler diameter d (mm) 25, 30 or 40







Idler diameter D	P	S
133	55	105
159	55	105
219	65	135

B	K	L	M	N	R	Weight (kg)
1200	1530	1400	1410	1360	375	88
1400	1730	1600	1610	1560	400	94
1600	1930	1800	1810	1760	425	100
1800	2130	2000	2010	1960	450	107
2000	2330	2200	2210	2160	475	113

GUIDING BRACKET FOR THE RETURN BELT QR220

Guiding bracket QR220 is used to center the return belt. Centering efficiency is achieved bending the belt to the trough with two rollers which are in a 20° angle to the sides of the belt and 5° toe-in to the direction of travel. Due to stepless width adjustment and attachments at end, QR220 is very suitable for the guiding of conveyor belts already in use.

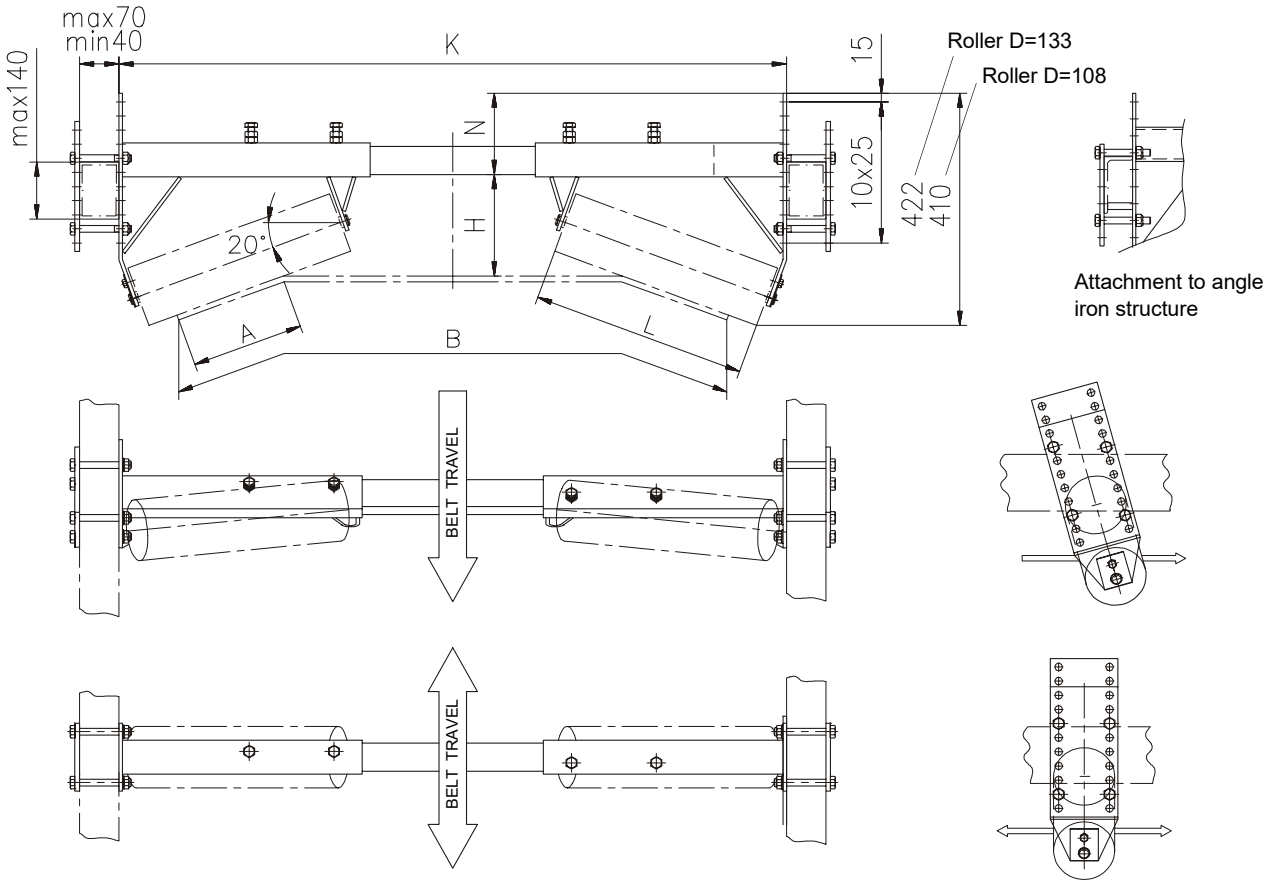
ORDERING EXAMPLE: QR220 - 1200

Brakcet type

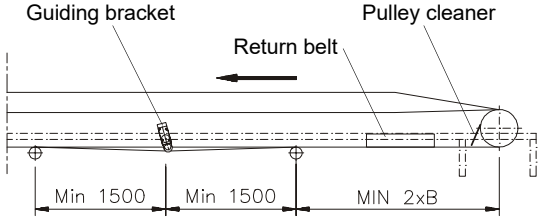
Belt width B (mm)

NOTICE! **Rollers to be ordered according to the table below**

If the fixing is to L-flange, please inform us when ordering



B	K		A	H	L	N	Weight (kg)	Roller
400	570	+100 -54	100	180	200	207	17.0	TS108-20B-200
500	670	+100 -54	100	195	250	189	18.0	TS108- or
650	820	+100 -82	130	180	250	189	19.0	TS133-20B-250
800	1020	+/-100	160	195	380	143	21.5	TS108- or
1000	1220	+/-100	200	180	380	143	22.0	TS133-20B-380
1200	1470	+/-100	240	160	465	115	24.5	
1400	1670	+/-100	280	145	465	115	25.5	TS108- or
1600	1870	+/-100	320	145	465	115	26.5	TS133-25B-465
1800	2070	+/-100	360	145	465	115	27.5	



The most suitable place for the guiding bracket is between the first and second return idler at the tail end. Return idlers have to be either steel-, plastic or rubber coated flat idlers (no rubber discs).

BELT CENTRALIZING IDLER BELT-PILOT

Belt centralizing idler BELT-PILOT starts centering the return belt immediately when the slightest center deviation appears. The centralizing effect is achieved by a special bearing unit inside the roller which simultaneously tilts and turns BELT-PILOT.

Available standard alternatives include three tube diameters with rubber coating. Polyurethane coated BELT-PILOT is recommended for demanding conditions, plain steel surface can be used in dry and clean applications. Other coating alternatives are supplied on request. Please choose the right BELT-PILOT type according to your conveyor operation: one direction or reversible belt.

BELT-PILOT requires only a small space on the conveyor. The fastening parts can be moved along the roller shaft, which makes BELT-PILOT easy and quick to install.

ORDERING EXAMPLE: BELT-PILOT 219 L - 1600 K D

Type code

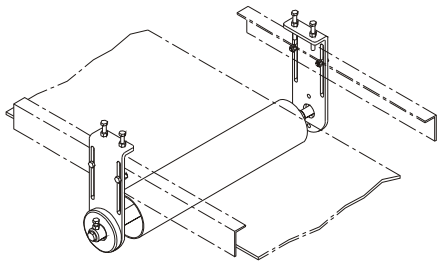
Steel tube diameter D (mm)

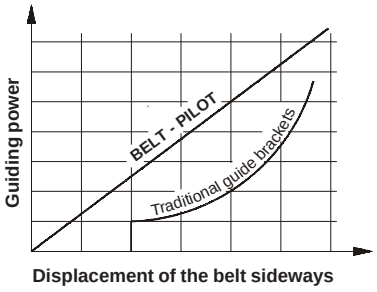
Load capacity class (only when D=219)
- L = STANDARD DUTY
- H = HEAVY DUTY

Idler length L (mm)

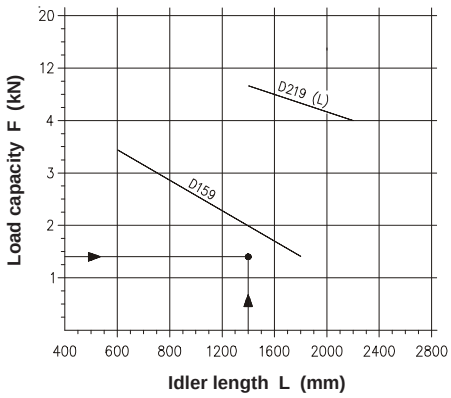
Idler coating
- T = STEEL SURFACE
- K = RUBBER (please see table for coating thickness)
- U = POLYURETHANE (please see table for coating thickness)

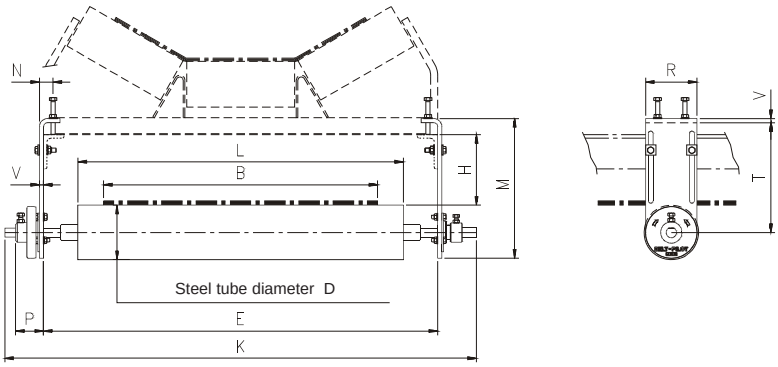
Conveyor type
- S = ONE DIRECTION
- D = REVERSIBLE CONVEYOR





BELT-PILOT starts centering the return belt immediately when the slightest center deviation appears. Traditional guide brackets with bearing or brake do not have any centralizing effect before the belt has hit the side guide idler.





The load bearing capacity of the centralizing roller must equal the weight of belt on the roller.

Idler load	F = 1.4 kN
Idler length	L = 1400 mm
Determine the idler diameter	**D = 159**

Steel tube diameter D	H *) min	H max	M	N	R	V	T	Thickness of the rubber and polyurethane coating
159	120	240	407	40	150	12	320	5
219 (L)	120	260	470	45	165	16	371,5	8

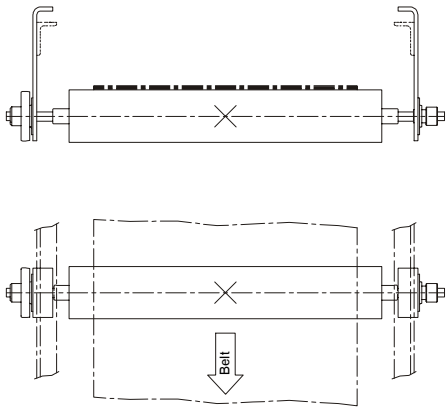
*) When H_{min} is smaller than given value, gap between the idler and belt must be protected with separate mesh protector (we consulate if needed).

Steel tube diameter D	K	E		P	
		Conveyor type S	Conveyor type D	Conveyor type S	Conveyor type D
159	L + 520	min L + 100 max L + 440	min L + 100 max L + 360	55	85
219 (L)	L + 520	min L + 100 max L + 430	min L + 100 max L + 350	60	90

Idler weights: **steel surface / coated**

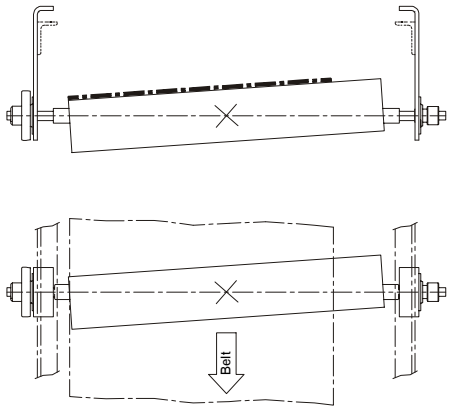
L	B	Weight (kg) D159	Weight (kg) D219 (L)
600	500	46 / 48	
750	650	50 / 53	
950	800	56 / 59	
1150	1000	62 / 66	
1400	1200	70 / 75	125 / 132
1600	1400	76 / 81	135 / 143
1800	1600	82 / 88	145 / 155
2000	1800		156 / 166
2200	2000		164 / 178

Function of the BELT-PILOT



1. Belt in the centre

Centre of gravity of the belt and idler are in the middle. Idler is both straight horizontally and in the direction of the belt.



2. Belt is driven sideaways

Due to difference of the centre of gravity of the belt and idler,the idler sinks down effected by the belt weight and turns diagonally in the direction of the belt. Where the idler is aslant in the direction of the belt, will it centre the belt. The idler is aslant until it has centred the belt. Then the centre of gravitis are again at the same point and the idler returns the place **1**.

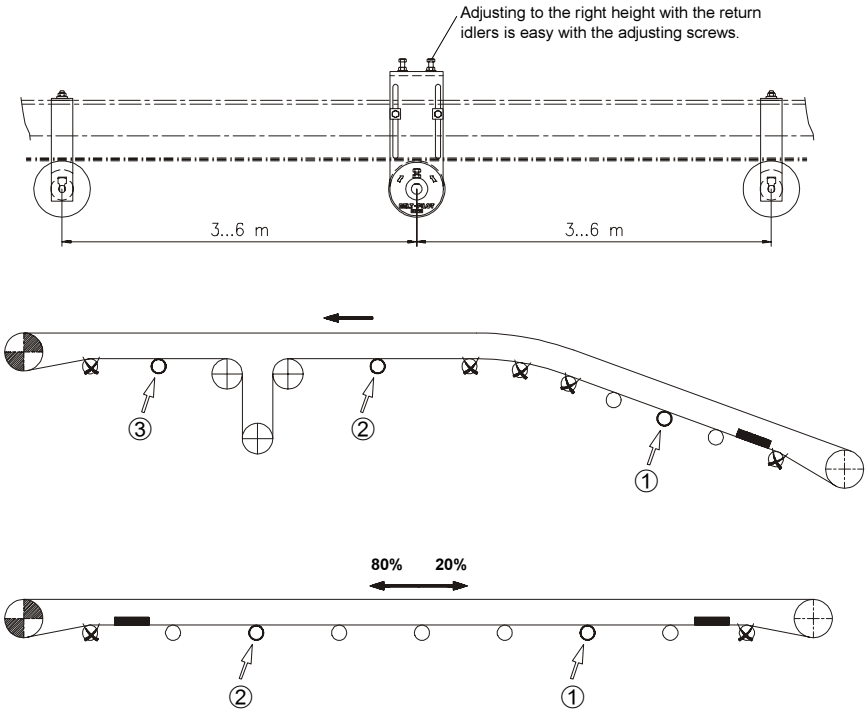
Placing on the conveyor

BELT-PILOT centralizing idler replace one return idler. With this secures the sufficient idler load to enable thee sufficient tracking power to the belt. Distance of the centralizing idler to the next return idler must not been under 3 m. The centralizing idler is installed to the same level with the other return idlers.

The Centralizing idler **IS NOT ALLOWED** to be installed to the places where the belt is bending and there are belt forces on the idler ✕.

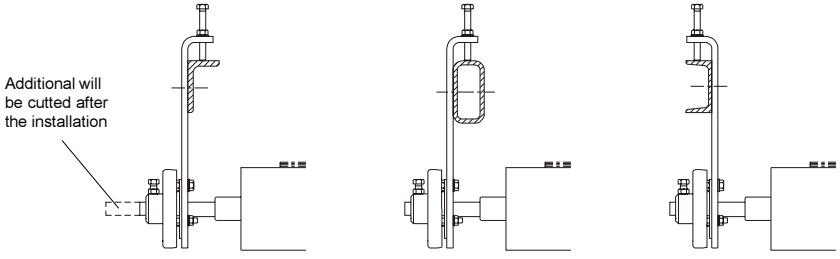
Most efficient places for the tracking idler ⚡ and the best placing order ① , ② and ③ seen on the drawing.

On the reversible conveyor the % informs the ratio between the running quantities (80 % / 20 %) and the numbers ① and ② the most efficient placing.



Fixing alternatives

Moveable fixing parts in the direction of the idler shaft enable the easy and quick fixing for the different frame types and -breadths.



4. CONVEYOR PULLEYS

- Selection of conveyor pulley
- Belt tensions and friction, pulley diameter
- Optimization examples of the pulley size
- Pulley laggings
- Pulley friction balk DC
- Standard pulleys
- Bearing and sealing methods
- Bearing life and need for a balancing
- Conveyor pulley DL BL
- Conveyor pulley DK BK
- Conveyor pulley BED BEE
- Tail and bend pulley BP
- Drive pulley DT
- Tail and bend pulley BT
- Tail pulley of the elevator BE
- Wing pulley BW
- Flange pulley for side wall belt BF...X
- Flange pulley for side wall belt BF...H
- Base plate and adjust piece US1 US2
- Base plate and adjust piece US3 US4
- Pulley fastener US5

INDEX

SELECTION OF CONVEYOR PULLEY

1

CAPACITY- AND POWER CALCULATIONS

Selecting the conveyor pulleys is started by specifying the belt tensions of the conveyor. Belt tensions come from the capacity calculations of the conveyor. Calculations can be made according to SFS-ISO5048. **Specify the belt tensions F** and **wrap angle** α for each pulley. Capacity and power calculations also give the correct **belt width B**. Generally the belt specifies the minimum diameter of the pulley. **Select the diameter**.

We will help you with the calculations if needed.

Specify:

Wrap angle α
Belt width **B**
Method of belt strain
Belt tensions **F**
Pulley diameters

Use following pages as help:

' Belt tensions and friction/ Pulley diameter '
' Optimization examples of the pulley size '

1

Make the capacity- and power calculations

Estimate tentatively
- wrap angle α
- friction coefficient μ

Calculate tentative belt tensions

2

Use as help the pages

' Belt tensions and friction/Pulley diameter '
' Optimization examples of the pulley size '
' Pulley laggings '

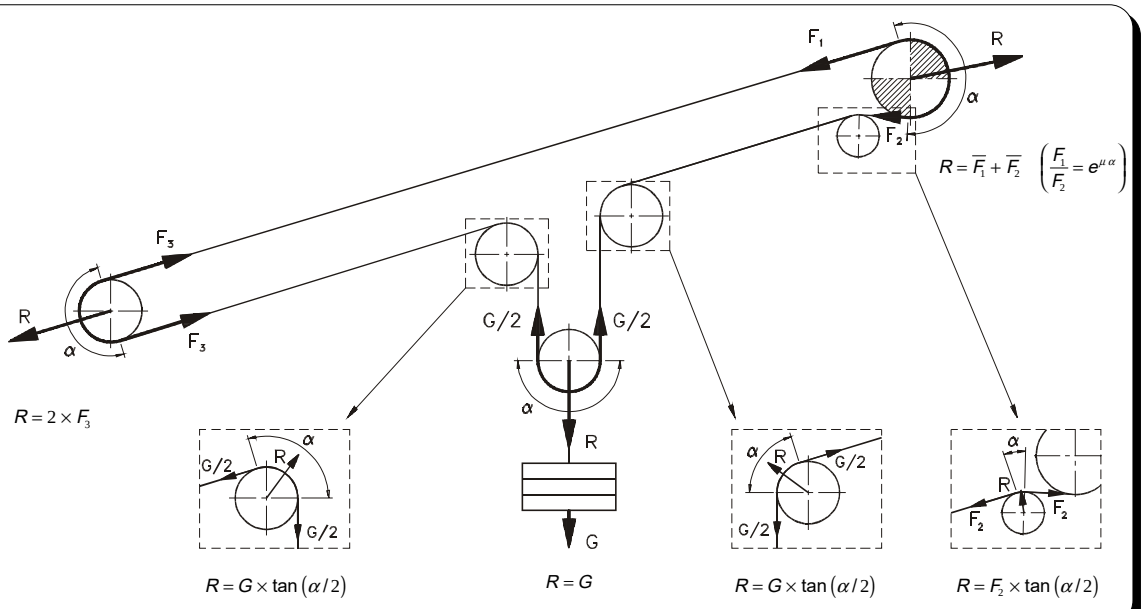
Optimize the belt tensions of the pulley

3

Decide

- wrap angle α
- friction coefficient μ

Calculate the final results of belt tensions



2

SPECIFY THE RESULTANT LOAD OF THE PULLEY

The resultant load R is specified on the basis of the **belt tensions**. Specify own **resultant load R** for each pulley with the help of belt tensions and general calculation methods.

The obtained resultant load R has to be corrected in the following cases:

Calculate:

Resultant R

SCREW TAKE-UP: When there is a screw take-up on the conveyor, the resultant load R **of tail pulley** has to be multiplied by the safety factor 1.5.

$R = 1.5 \times R_{\text{(of the belt tensions)}}$

SMALL WRAP ANGLE α: If the calculated resultant load R of tail pulley exceeds 50 kN and the wrap angle α is less than 75 degrees, extra tension is placed on the pulley shell. ROXON's technical service helps you to select the correct pulley.

Select the pulley according to the corrected resultant load.

3 SELECTION OF THE PULLEY TYPE AND SEALING

Use the pages:

' Standard pulleys '
' Pulley bearing and sealing methods '

The ROXON pulley range is very versatile. Selection of our standard pulleys contain the most general constructional alternatives among our customers. They have been optimized to the functional constructions on the economical, strength and technical basis. We design and tailor make pulleys also exclusively acc. to your special needs. **Select the pulley type**.

Note that the loadability of each pulley types is different on the same shaft diameters.

Bearing house sealings of our standard pulleys are designed to give long operational lifetime when running the conveyor in normal environments. However, sometimes it is advantageous to select some other sealing method from our wide selection. **Check the suitability of the standard sealing**.

4 SELECTION OF THE PULLEY SIZE (SHAFT DIAMETERS)

Use the pages:

' DL, BL, DK, ... '

The max. load R_T for each pulley type and size is given on the data pages relating to of our standard pulleys. Select the pulley size (shaft diameter) suitable for your belt width so that the calculated resultant load R is smaller than the allowed load R_T of the pulley.

5 CHECK THE BEARING LIFE AND ROTATION SPEED

Use the page:

' Bearing life and need for a balancing '

Check the bearing life for the selected pulley according to the ' *Bearing life and need for a balancing* ' -page. If the bearing life is below the resultant load R, select the next pulley size with a larger shaft diameter. Check the bearing life and need for a balancing.

6 OTHER PULLEY SIZES

When the load exceeds the loading range of the standard pulley selection, the pulleys must be tailor made.

SELECTION EXAMPLE OF THE DRIVE PULLEY:

Select the drive pulley according to the following initial information:

Calculated resultant	R = 18 kN
Wrap angle	α = 180 °
Belt speed	v = 1.8 m/s
Belt width	B = 1200 mm
Pulley diameter	D = 500 mm
Expected bearing life	50 000 h

In the example resultant load need not be corrected due to the wrap angle (α) and screw take-up. **Select the pulley according to resultant R = 18 kN**.

Pulley type selected is from the DK -serie.

From the data sheet of DK-, BK-pulley, from the table- ' *Loadability of the pulley* R_T ', the following pulley is selected:

DK60 - 500X - 1400

Base: $R < R_T$ (18 kN < 21 kN)

On the basis of pulley diameter D , belt speed v and expected life from the page heated ' *Bearing life and need for a balancing* ' gives for the DK60 -pulley:

R_L' = 71 kN

Because $R < R_L$' (21 kN < 71 kN), selected pulley is accepted.

ORDERING EXAMPLE:

DK60 - 500X - 1400, for the gear Kumera RF125

SELECTION EXAMPLE OF THE TAIL PULLEY:

Select the tail pulley according to the following initial information:

Calculated resultant	R = 8 kN
Wrap angle	α = 180 °
Belt speed	v = 1.2 m/s
Belt width	B = 1200 mm
Pulley diameter	D = 400 mm
Expected bearing life	50 000 h
Belt tensioning	Screw take-up

In the example resultant load need not to be corrected due to the wrap angle (α). Due to screw take-up, **selection of the pulley according to resultant R = 1.5 x 8 = 12 kN**.

Pulley type selected is from the BK -serie.

From the data sheet of DK-, BK-pulley, from the table- ' *Loadability of the pulley* R_T ', the following pulley is selected:

BK50 - 400T - 1400

Base: $R < R_T$ (12 kN < 13 kN)

On the basis of pulley diameter D , belt speed v and expected life from the page heated ' *Bearing life and need for a balancing* ' gives for the BK50 -pulley:

R_L' = 50 kN

Because $R < R_L$' (12 kN < 50 kN), selected pulley is accepted.

ORDERING EXAMPLE:

BK50 - 400T - 1400

BELT TENSIONS AND FRICTION PULLEY DIAMETER

BELT TENSIONS AND FRICTION

The friction coefficient of the drive pulley surface is of decisive importance for the power transmission between the conveyor drive and the belt. The friction coefficient is influenced not only by the environmental and operational conditions but also essentially the used lagging material on the pulley.

The power and periphery force transferred with the pulley is calculated with the following formulas:

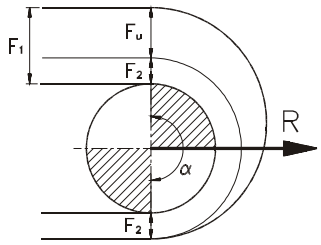
$$P_A = F_u \times v \qquad F_u = F_1 - F_2$$

The friction coefficient is of importance to the ratio between the belt tensions:

$$\frac{F_1}{F_2} = e^{\mu\alpha} \qquad F_2 \geq F_u \times \frac{1}{e^{\mu\alpha} - 1} = F_u \times m \qquad m = \frac{1}{e^{\mu\alpha} - 1}$$

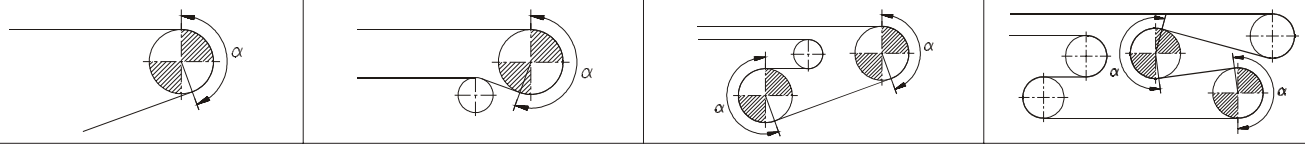
Coefficient **m** is called factor of power transmission. The table below shows the factor value with some μ and α values.

Using good, friction increasing lagging also has an important effect on the pulley size. Study carefully the lagging alternatives on the ' *Pulley laggings* ' -page.



P_A = power transmitted with the pulley
F_u = required periphery force
v = conveyor speed
F_1 = belt tension on the incoming side
F_2 = belt tension on the outgoing side
e = radix 2.718 of the natural logarithm
μ = coefficient of friction on the pulley
α = wrap angle of the belt on the pulley (rad)
R = resultant load

Wrap angle α°	FACTOR OF POWER TRANSMISSION m Friction coefficient of the drive pulley										
	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60
170	2.895	1.784	1.234	0.909	0.697	0.548	0.439	0.357	0.293	0.243	0.203
180	2.709	1.661	1.144	0.838	0.638	0.499	0.398	0.321	0.262	0.216	0.179
190	2.543	1.552	1.063	0.775	0.587	0.456	0.361	0.290	0.235	0.192	0.158
200	2.394	1.453	0.990	0.718	0.541	0.418	0.329	0.262	0.212	0.172	0.140
210	2.259	1.364	0.925	0.667	0.499	0.384	0.300	0.238	0.190	0.154	0.125
220	2.136	1.284	0.866	0.621	0.462	0.353	0.274	0.216	0.172	0.138	0.111
230	2.024	1.211	0.812	0.579	0.428	0.325	0.251	0.197	0.155	0.124	0.099
240	1.922	1.144	0.763	0.541	0.398	0.300	0.230	0.179	0.140	0.111	0.088
250	1.828	1.082	0.718	0.506	0.370	0.277	0.212	0.163	0.127	0.100	0.079
360	1.144	0.638	0.398	0.262	0.179	0.125	0.088	0.063	0.045	0.033	0.024
370	1.102	0.612	0.379	0.248	0.168	0.116	0.082	0.058	0.041	0.030	0.021
380	1.063	0.587	0.361	0.235	0.158	0.109	0.076	0.053	0.038	0.027	0.019
390	1.025	0.563	0.345	0.223	0.149	0.102	0.070	0.049	0.034	0.024	0.017
400	0.990	0.541	0.329	0.212	0.140	0.095	0.065	0.045	0.031	0.022	0.015
410	0.957	0.519	0.314	0.201	0.132	0.089	0.061	0.042	0.029	0.020	0.014
430	0.894	0.480	0.287	0.181	0.118	0.078	0.052	0.035	0.024	0.016	0.011
450	0.838	0.445	0.262	0.163	0.105	0.068	0.045	0.030	0.020	0.013	0.009
	α ~ 120° ... 180°		α ~ 210° ... 250°			α ~ 360° ... 400°			α ~ 410° ... 450°		

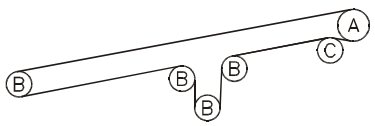


PULLEY DIAMETER

Always check the minimum diameter of the pulley according to the belt type because the overlay of the different manufacturers varies and needs a different minimum diameter. Standards (SFS, ISO 3684-76) specifies the min. diameters of the pulleys for each type of belt according to the operating data. The table enclosed shows the min. diameters of the most common EP -type belts. Besides the enclosed examples of EP-belt with polyesther fabric there are also vinyl-nylon and steel wire belt as well as patterned- and ribbed belts which all need checking according to the brochures of the belt manufacturers.

Frame type of the EP -fabric belt	Recommended minimum diameter of the pulley Percentage (%) of belt tension during conveyor run from maximum allowed tension								
	(60) - 100 %			(30) - 60 %			30 %		
	Location of the pulley			Location of the pulley			Location of the pulley		
	A	B	C	A	B	C	A	B	C
160/2	250	200	160	200	160	125	160	160	125
200/2	250	200	160	200	160	125	160	160	125
250/2 315/3	320	250	200	250	200	160	200	200	160
315/2 400/3 500/3	400	320	250	320	250	200	250	250	200
400/2 630/4 500/4 630/3	500	400	320	400	320	250	320	320	250
630/5 800/4 1000/3	630	500	400	500	400	320	400	400	320
800/5 1250/4 1000/4	800	630	500	630	500	400	500	500	400
1000/5 1600/4 1600/5	1000	800	630	800	630	500	630	630	500

Better friction and more power for transmission can not be achieved by enlarging the pulley diameter. Only if the preliminary selection has been too small a pulley diameter for the stiff belt, can enlarging the pulley diameter increase the friction between drive pulley and belt.



A = drive pulleys or other pulleys with heavy belt tensions
B = freely rotating tail pulleys
C = freely rotating tail pulleys with wrap angle less than 30 degrees

BELT CODE: EP 800 / 5

Fabric type (EP = polyesther)
Tensile strength at break of the belt N/mm²
Number of plies

We reserve the right for modifications without prior notice.

OPTIMIZATION EXAMPLES OF THE PULLEY SIZE

The coefficient of friction and wrap angle of the drive pulley have an essential influence on the component selection of a belt conveyor. The pulley laggings which increase the friction will decrease tensions considerably.

Example conveyor:

Belt width B	1200 mm
Conveyor length	70 m
Capacity	450 t/h
Belt speed	1.0 m/s
Conveyed material	ore
Conveyor type	ascending conveyor
Take-up method	gravity take-up

The enclosed study covers only the main components of transmission; comparison of the pulleys and belt. Considerable savings will also be reached with other conveyor components and frame structures by reducing the belt tensions.

Among other things by limiting the belt sag the belt stress will increase a little in example 3.

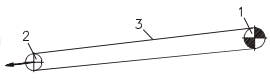
The prices below described **ratio of financing costs** between different kinds of conveyor solutions.

COEFFICIENT OF FRICTION

In the following examples the effect of **the coefficient of friction** on the belt tensions and selection of the main components has been compared. Used wrap angle α = 180°.

Example 1 μ **= 0.1**

Required F_u = 31 kN
Belt width B = 1200 mm
Wrap angle α = 180°



$F_2 = F_u \times m = 31 \times 2.709 = 84$ kN
$F_1 = F_u + F_2 = 31 + 84 = 115$ kN
$R = F_1 + F_2 = 115 + 84 = 199$ kN

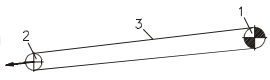
F_3 = 81 kN → **R = 2 x F_3** = 162 kN

Cost comparison of the components:

1. Drive pulley:	DK140 - 800T - 1400	21 660 mk
2. Tail pulley:	BK135 - 630T - 1400	16 670 mk
3. Belt:	EP1000/5	67 500 mk
	Total:	**105 830 mk**

Example 2 μ **= 0.3**

Required F_u = 31 kN
Belt width B = 1200 mm
Wrap angle α = 180°



$F_2 = F_u \times m = 31 \times 0.638 = 20$ kN
$F_1 = F_u + F_2 = 31 + 22 = 51$ kN
$R = F_1 + F_2 = 51 + 20 = 71$ kN

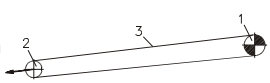
F_3= 17 kN → **R = 2 x F_3** = 34 kN

Cost comparison of the components:

1. Drive pulley:	DK100 - 500X - 1400	10 875 mk
2. Tail pulley:	BK80 - 400T - 1400	6 220 mk
3. Belt:	EP500/4	43 800 mk
	Total:	**60 895 mk**

Example 3 μ **= 0.6**

Required F_u = 31 kN
Belt width B = 1200 mm
Wrap angle α = 180°



$F_2 = F_u \times m = 31 \times 0.179 = 6$ kN
$F_1 = F_u + F_2 = 31 + 6 = 37$ kN
$R = F_1 + F_2 = 37 + 6 = 43$ kN

F_3 = 3 kN → **R = 2 x F_3** = 6 kN

Cost comparison of the components:

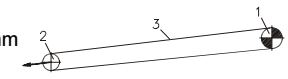
1. Drive pulley:	DK80 - 400Z - 1400	9 610 mk
2. Tail pulley:	BK40 - 320T - 1400	3 410 mk
3. Belt:	EP315/3	30 000 mk
	Total:	**43 020 mk**

WRAP ANGLE

In the following examples the effect of **the wrap angle** on the belt tensions and selection of the main components has been compared. Used friction cofficient μ = 0.3.

Example 1 α **= 180°**

Required F_u = 31 kN
Belt width B = 1200 mm
Friction cofficient μ = 0.3



$F_2 = F_u \times m = 31 \times 0.638 = 20$ kN
$F_1 = F_u + F_2 = 31 + 20 = 51$ kN
$R = F_1 + F_2 = 51 + 20 = 71$ kN

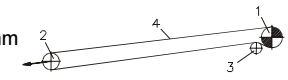
F_3 = 17 kN → **R = 2 x F_3** = 34 kN

Cost comparison of the components:

1. Drive pulley:	DK100 - 500X - 1400	10 875 mk
2. Tail pulley:	BK80 - 400K - 1400	6 210 mk
3. Belt:	EP500/4	43 800 mk
	Total:	**60 885 mk**

Example 2 α **= 210°**

Required F_u = 31 kN
Belt width B = 1200 mm
Friction cofficient μ = 0.3



$F_2 = F_u \times m = 31 \times 0.499 = 15$ kN
$F_1 = F_u + F_2 = 31 + 15 = 46$ kN
$R = F_1 + F_2 = 46 + 15 = 61$ kN

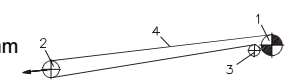
F_3 = 13 kN → **R = 2 x F_3** = 26 kN

Cost comparison of the components:

1. Drive pulley:	DK90 - 400X - 1400	8 560 mk
2. Tail pulley:	BK70 - 320T - 1400	5 090 mk
3. Snub pulley:	BK50 - 270K - 1400	4 670 mk
4. Belt:	EP500/3	40 300 mk
	Total:	**58 620 mk**

Example 3 α **= 250°**

Required F_u = 31 kN
Belt width B = 1200 mm
Friction cofficient μ = 0.3



$F_2 = F_u \times m = 31 \times 0.370 = 11$ kN
$F_1 = F_u + F_2 = 31 + 11 = 42$ kN
$R = F_1 + F_2 = 42 + 11 = 53$ kN

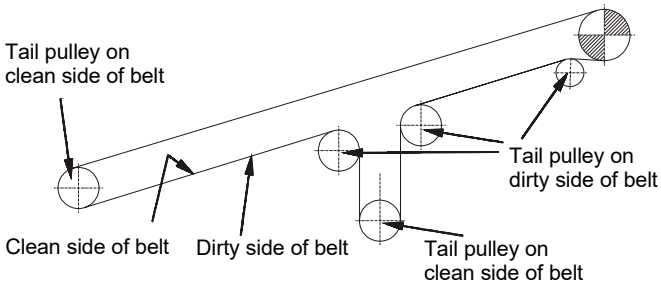
F_3 = 9 kN → **R = 2 x F_3** = 18 kN

Cost comparison of the components:

1. Drive pulley:	DK90 - 400X - 1400	8 560 mk
2. Tail pulley:	BK60 - 320T - 1400	4 540 mk
3. Snub pulley:	BK50 - 270K - 1400	4 670 mk
4. Belt:	EP400/3	36 000 mk
	Total:	**53 770 mk**

PULLEY LAGGINGS

There is a wide range of different laggings on ROXON pulleys depending on weather-, process- and operation environments. When selecting the laggings please note that their purposes on the drive- and tail pulleys are different and so lagging should be considerated separately. In addition to the lagging range, other laggings are also available for special needs.



Drive pulley:

The main purpose of the lagging is to increase the friction and so improve the transmission between the belt and the pulley.

Elastic laggings also help to keep the pulley clean and so improve the duration of friction.

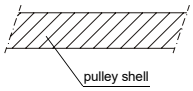
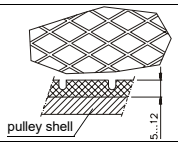
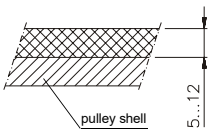
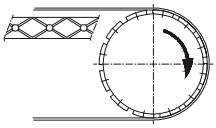
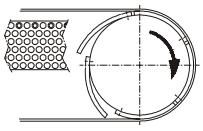
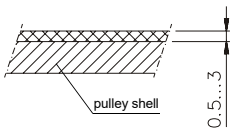
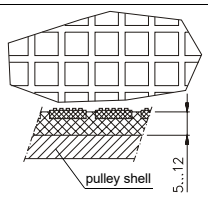
Grooved lagging makes possible the removal of moisture at the point where the belt comes to the pulley and thus improves the friction.

Tail pulley:

On the dirty side of the belt lagging helps the pulley to remain clean and so to keep the belt centered.

On the clean side of the pulleys smooth lagging is often used to maintain cleanness in demanding processes.

The cleanness of the tail pulley can be considerably improved by using separate pulley cleaners.

LAGGING TYPE	Type		Operating target	Environments	Price ratio	Friction coefficient on drive pulley			Remarks
						Dry	Slightly moist	Wet, dirty ice	
Steel surface no separate laggings	**T**		**Drive pulley** **Tail pulley**	indoor, clean, dry clean, no sticking materials	0	0.4	0.15	<0.1	
Cross grooved SBR-rubber 60 ShA° hot vulcanized/sand blasted steel surface	**X**		**Drive pulley**	normal environements	4	0.6	0.5	0.2	Other groove types also available (example V-type grooving).
Smooth SBR-rubber 40 or 60 ShA° hot vulcanized/sand blasted steel surface	**K**		**Drive pulley** 60 ShA° **Tail pulley** 40 ShA°	normal environments	3	0.5	0.4	0.2	
Friction beam fixed with the screws to the shell	**P**		**Drive pulley**	wet, icy, sticking materials	5	0.6	0.5	0.3	Use of carving belt cleaners not recommended.
Friction plate fixed from the front edge to the shell	**R**		**Drive pulley**	wet, icy, sticking materials	5	0.6	0.5	0.4	Not for high belt tensions.
Ceramic elastic epoxy resin containing Al_2O_3 grain	**S**		**Drive pulley**	wet, powder type, wearing materials	5	0.7	0.6	0.3	
"Cerabber" to the hot vulcanized rubber surface is casted ceramic tiles	**Z**		**Drive pulley**	wet, icy, sticking materials	8	0.7	0.6	0.5	

PULLEY FRICTION BALK DC

The pulley friction balk DC is intended for the surfacing of the drive pulley on a conveyor belt. The balk significantly increases friction during transmission so preventing the belt from slipping. Cross-grooving efficiently removes moisture and increases the flexibility of the surface. This helps the balk to stay clean.

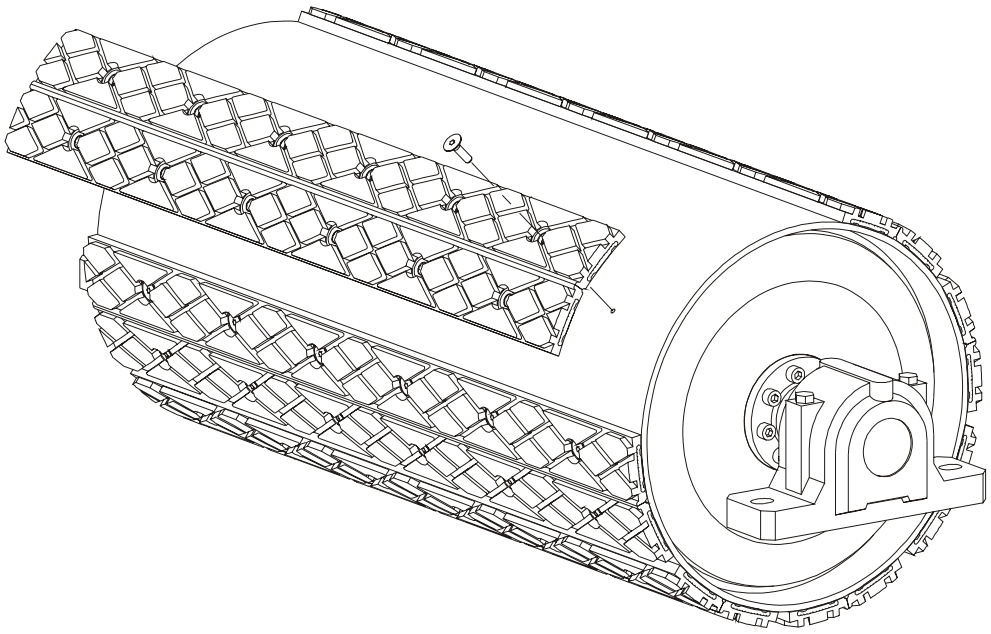
Changing the friction balk to a new one is possible from between the belts without removing the pulley. Thanks to the screw attachment, changing the balk is easy and quick and thus decreases the conveyor's down-time.

The friction balks are delivered in standard measurements, as 1500 mm long elements. The screws are included in the delivery.

ORDERING EXAMPLE: DC 2

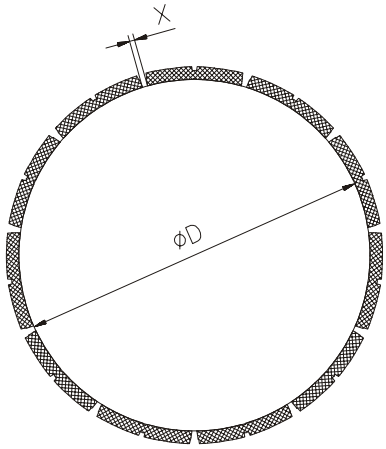
Type code

2 = RUBBER BALK, THICKNESS 17mm

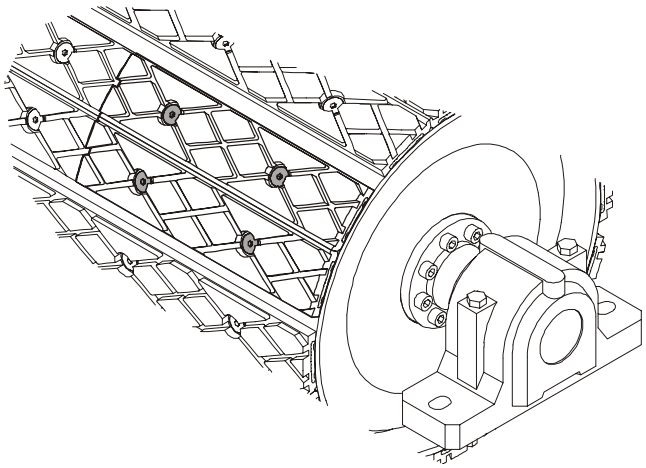


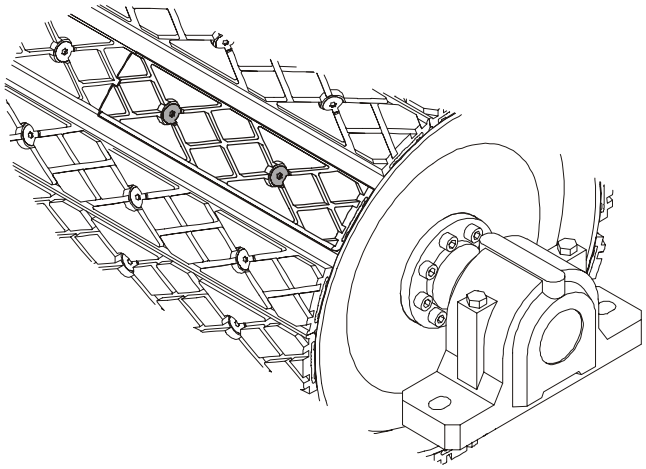
The gap between the balks should be kept as small as possible in case of possible belt cleaners on the pulley. A large gap between the balks may cause a disturbance while cleaning the belt, depending on the type of cleaner. If the gap is large, then using a carving belt cleaner with hard metal blades is not recommended. The suitability of cleaners with a uretane vertex should be determined according to each case. There are no limitations on using a belt brush.

Diameter of pulley D (mm)	Number of balks from the top of the pulley	*) Gap between the balks ~X (mm)
400	9	5
500	11	7
630	14	5
800	17	11
1000	21	13
1250	26	14
1400	29	14

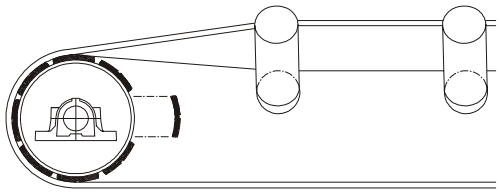


*) The diameters of the pulleys may vary. The gap between the balks in proportion to the pulley's actual circumference should be checked after attaching the first balk.

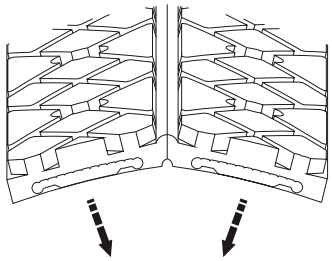




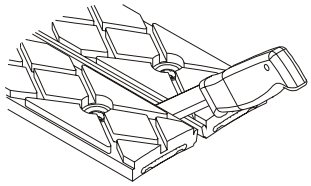
There must be at least four fastening screws on a severed balk (upper illustration). A severed and cleaved balk should be fastened with at least two screws (lower illustration).



Changing the friction balk is possible between the belts as well, without removing the pulley. Consider safety regulations when servicing the conveyor.

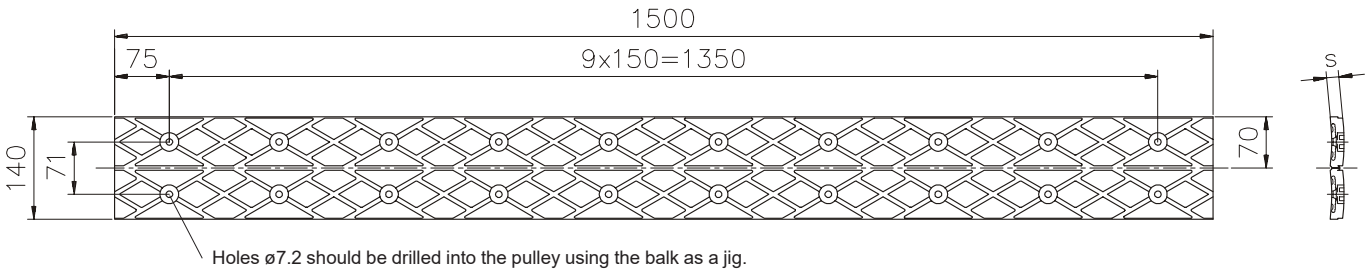


There are aluminum profiles in line with fastening holes on the balk. The balk is flexible in the middle and bends onto the smallest diameters of the pulley as well.



The balk may be cleaved from the middle as well.

Technical information

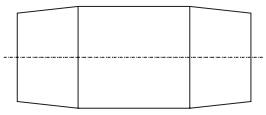


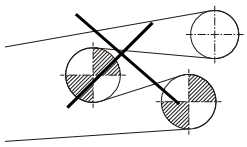
Holes ø7.2 should be drilled into the pulley using the balk as a jig.

Friction balk DC2
Balk DC2-P - Rubber NR/SBR - Hardness 55 ShA - Thickness s=17 mm Fastening screw DC2-R - M8x30 Torx, spec. inlay head - self-screwing - 20 screws/balk Weight incl. fastening screws: 4.6 kg/pc

STANDARD PULLEYS

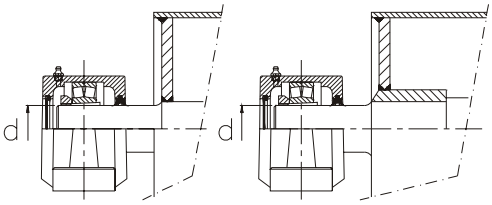
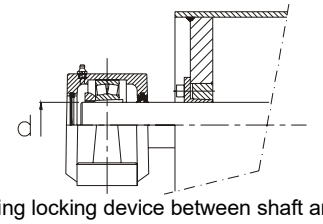
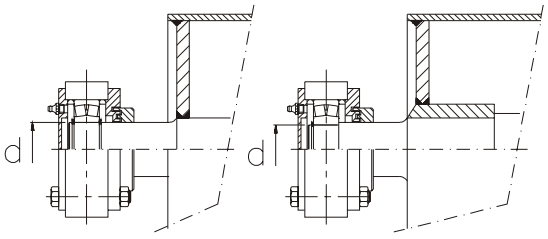
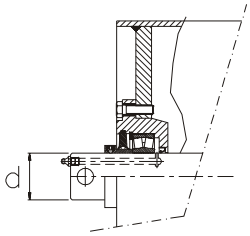
Roxon's range of standard construction pulleys are shown in the below. Choose the correct solution in your case. We also manufacture tailor made pulleys according clients' special needs.





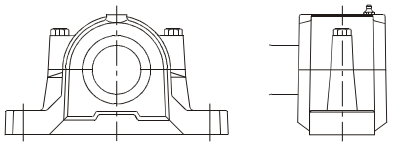
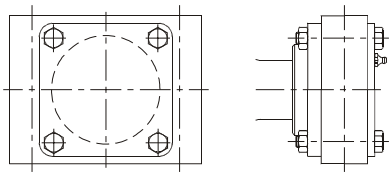
CROWNED PULLEYS

Crowning of pulley means that shell diameter in the middle of pulley is larger than on both ends. It is used widely for improving alignment of belt. Crowning of pulleys for drives with multi pulleys is not recommended in order to prevent local overloads of the belt. Crowning is not used with steel cord belts either. **ROXON'S standard pulleys are always supplied crowned**. If a pulley is needed without crowning, it must be mentioned at the time of ordering.

Pulley type		Shaft d	Bearing	Sealing	Construction
Drive	Tail				
DL	**BL**	**40...140**	- divisible casted bearing housings. to DIN standard - bearing assembly with adapter sleeves	Polyurethane 2-lip seal	 - end plate welded on the shaft on both sides of plate - larger shaft dimensions with intermediate bushing
DK	**BK**	**40...140**	- divisible casted bearing housings. to DIN standard - bearing assembly with adapter sleeves	Polyurethane 2-lip seal	 - cone bushing locking device between shaft and end plate - shaft can be dismantled from shell construction - loadability higher than DL/BL type pulleys
BED	**BEE**	**40...140**	- bearing housings made from solid steel plate - cylinder hole bearing assembled with locking rings	Labyrinth and shaft seal	 - end plate welded on the shaft on both sides of plate - lager shaft dimensions with intermediate bushing
	BP	**40...80**	- Detachable solid steel type bearing housing located on end plate of pulley	Polyurethane 2-lip seal	 - standing shaft - shaft and bearing house can be dismantled from shell construction - excellent loadability due to location of bearing

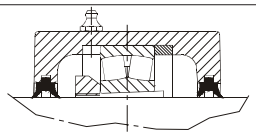
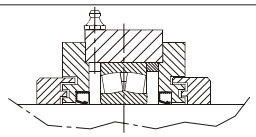
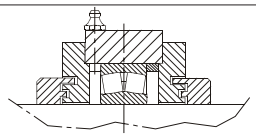
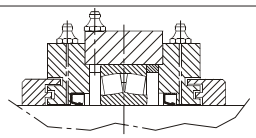
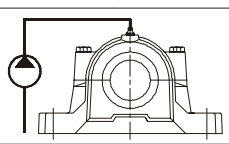
BEARING AND SEALING METHODS

STANDARD ALTERNATIVES AND MAIN FEATURES OF THE HOUSINGS

	Cast iron housing DIN **Taper bearing, adapter sleeve assembly on the shaft** 	**Steel plate housing BZC11** **Cylindrical bearing hole, press fit on the shaft, locking rings** 
Easy to replace the bearing	+ +	+
Dividend	+ +	-
Dismantling of the bearing	+ +	+
Space requirement for the housing	+	+ +
Normal mounting	+ +	+ +
Reverse mounting	-	+ +
Impact strength	-	+ +
Sealing alternatives	+ +	+ +
Reliability of the greasing	+ +	+ +

SEALING METHOD ALTERNATIVES

The bearing housings of our pulleys can be sealed with the best sealing methods. Select the correct solution from the table below for your conveyor if the standard solution is not suitable. Our specialists can help you.

Properties	Design principle	Remarks	Environmental conditions
2 -lips polyurethane seal		Standard alternative in DL, DK, BL, BK -pulleys	Normal conditions, dirty, moist
Roxon LABLIP labyrinth shaft seal		Standard alternative in BED and BEE -pulleys	Normal conditions, also in conjunction with larger particles
Labyrinth seal		Possible for all pulley types	Excellent, clean, indoor use
Taconite -type		Possible for all pulleys, need for space increases the distance between bearings	Very dusty conditions
Continuous lubrication		Optional extra for all pulleys	Very dusty conditions, wide variations of outer temperatures

BEARING LIFE AND NEED FOR A BALANCING

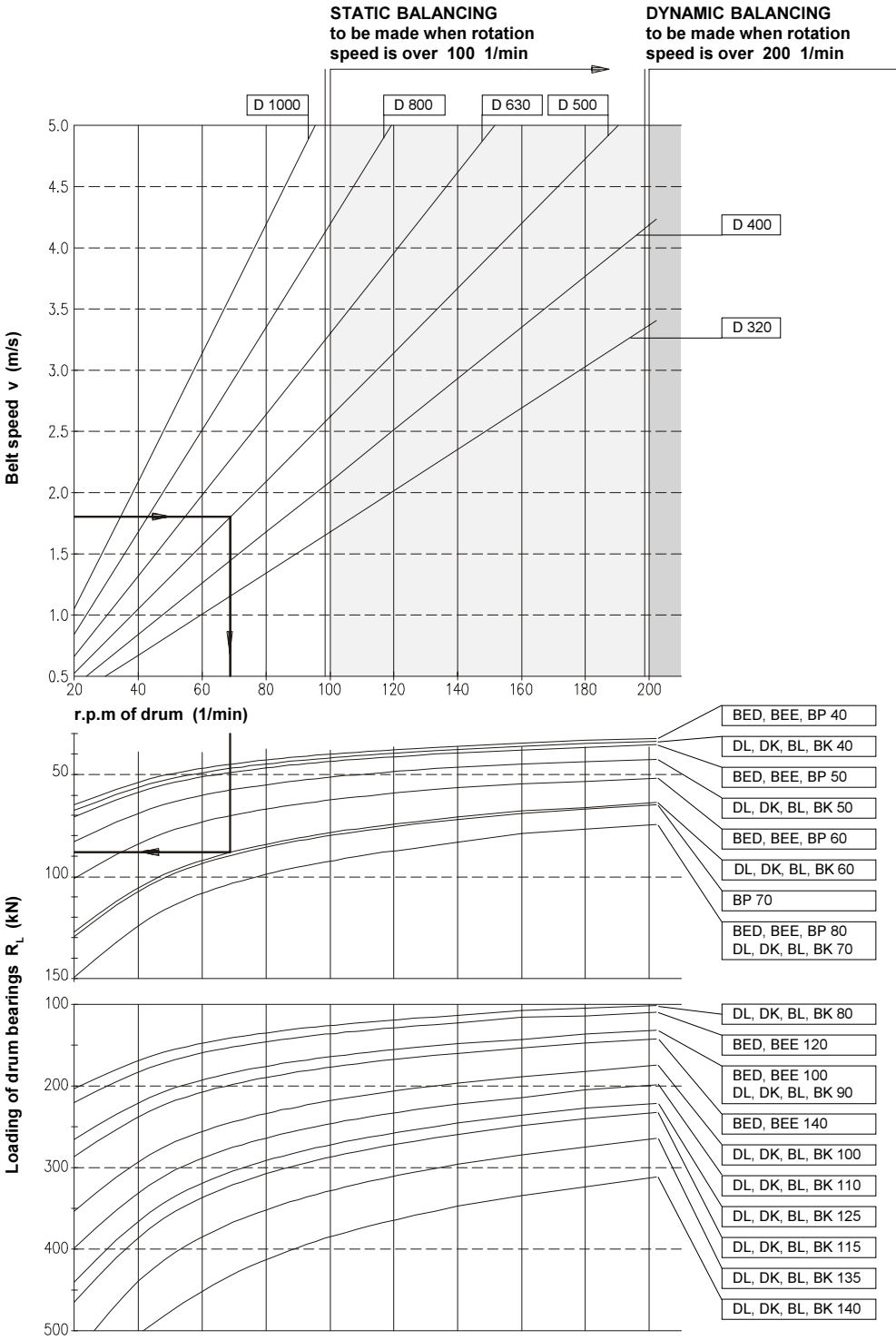
Bearing life of the pulleys with different shaft diameters can be easily checked according to the enclosed diagram when the belt speed v and pulley diameter D is known.

Demand for the life is assumed to be 25000 h, but with the factor on table 1 also the other life times are easily checked.

As the bearings 222- and 230- series spherical cylinder bearings of well known manufacturers are used.

By ordering the pulley, please inform the need for a balancing:

example: DK140 - 500X - 1400
- static balancing



Example:

Calculated resultant R:	18 kN
Belt speed:	1.8 m/s
Pulley diameter:	500 mm
Expected life:	50 000 h

1. Suitable pulley for the construction and strength is

   DK60 - 500X - 1400

2. From the diagram we see that the bearing life is $\mathbf{R_L = 88\ kN}$.

3. Adjust the given bearing life to correspond with expected life as requested:

   $\mathbf{R_L' = k \times R_L = 0.81 \times 88\ kN = 71\ kN}$

4. Because $\mathbf{R_L' > R}$, bearing of the pulley will last the required length of time.

Table 1

Life h	k
10 000	1.32
16 000	1.15
20 000	1.07
25 000	1.00
32 000	0.93
50 000	0.81
63 000	0.76
80 000	0.71
100 000	0.63

Larger pulley sizes are dimensioned separately case by case

CONVEYOR PULLEY

DL BL

Construction of DL and BL pulleys is given on the *'Standard pulleys' -page*. Shaft end dimensions (L_3 and d_3) are always designed according to the customer's needs. When ordering please state the exact type and make of the gear or connecting device. The shaft end can also be fabricated according to the customer's own drawing.

ORDERING EXAMPLE: DL 110 - 500 X - 1400

Pulley type
- DL= drive pulley
- BL= tail pulley

Shaft diameter d (mm)

Diameter of the pulley shell D (mm)

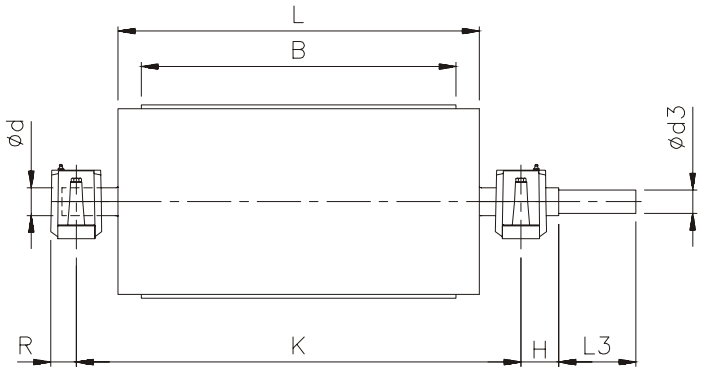
Lagging (see separate information leaf)
- T= steel
- K= rubber lagging *
- X= grooved rubber lagging*
- P= friction beam
- R= friction plate
- S= ceramic
- Z= "Cerabber" ceramic

Length of the pulley shell L (mm)

* = K- and X -rubber laggings are 5 mm thick, the hardness of drive pulleys 60 ShA and of the tail pulleys 40 ShA

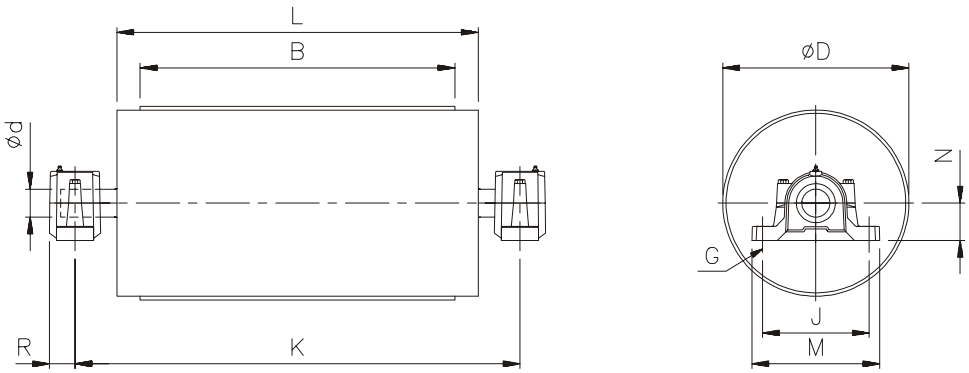
DRIVE PULLEY

DL



TAIL AND BEND PULLEY

BL



DL,BL d	K	H	R	J	M	N	G	Bearing house (SKF type)	Bearing
40	L+180	50	43	170	205	60	M12	SNL 509	22209EK
50	L+180	55	48	210	255	70	M16	SNL 511	22211EK
60	L+180	60	55	230	275	80	M16	SNL 513	22213EK
70	L+180	70	60	260	315	95	M20	SNL 516	22216EK
80	L+190	75	70	290	345	100	M20	SNL 518	22218EK
90	L+200	85	80	320	380	112	M24	SNL 520	22220EK
100	L+210	95	88	350	410	125	M24	SNL 522	22222EK
110	L+230	100	93	350	410	140	M24	SNL 524	22224EK
115	L+240	105	95	380	445	150	M24	SNL 526	22226EK
125	L+250	110	103	420	500	150	M30	SNL 528	22228CCK
135	L+270	115	110	450	530	160	M30	SNL 530	22230CCK
140	L+280	125	118	470	550	170	M30	SNL 532	22232CCK

DL BL

Select the conveyor pulley according to table 2. Make the selection according to the resultant force R which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle, (see *'Selection of the Pulley'*).

WEIGHT OF THE PULLEY:

The weights of tail pulleys (BL) are on the table. For drive pulleys (DL), add the weight from the extra weight column.

Table 1

Pulley shaft d	D	BL L 600 / B 500	750 / 650	950 / 800	1150 / 1000	1400 / 1200	1600 / 1400	1800 / 1600	2000 / 1800	2200 / 2000	DL Extra weight
40	270	60	71	86	100	118	132	147	161	175	1
	320	73	86	103	120	142	159	177	194	212	
	400	88	104	124	144	169	190	210	230	251	
	500	119	140	168	194	228	256	283	311	338	
	630	154	179	212	312	368	413	458	503	549	
50	270	73	85	101	116	136	152	167	183	199	2
	320	87	102	120	139	162	181	200	218	237	
	400	106	123	145	166	193	215	236	258	280	
	500	143	164	193	221	257	286	315	343	372	
	630	185	212	246	347	404	451	497	544	590	
60	320	105	120	141	161	186	206	227	247	267	4
	400	127	145	169	191	220	243	267	290	313	
	500	169	192	222	252	289	320	350	380	411	
	630	220	247	283	385	445	493	541	589	637	
	800	302	336	381	509	583	643	702	762	822	
70	320	126	143	165	187	215	237	259	281	303	6
	400	152	171	196	221	252	277	303	328	353	
	500	198	223	255	286	326	359	391	423	455	
	630	258	287	325	428	490	540	590	640	690	
	800	355	390	436	566	642	704	765	827	889	
80	320	145	163	187	212	242	266	290	315	339	9
	400	171	192	219	246	279	307	334	361	388	
	500	217	243	277	311	354	389	422	456	491	
	630	277	307	347	452	517	569	621	673	725	
	800	374	410	459	590	669	733	797	860	924	
	1000	510	555	613	775	871	949	1026	1104	1181	
90	320	169	189	216	242	275	302	329	355	382	13
	400	195	218	247	276	313	343	372	402	431	
	500	241	269	306	342	387	424	460	497	534	
	630	301	333	376	483	550	605	659	714	768	
	800	398	437	487	621	703	769	835	901	967	
	1000	535	581	641	806	905	985	1065	1144	1224	
100	400	229	255	290	325	368	404	438	474	509	17
	500	275	307	349	390	443	485	527	569	611	
	630	335	371	419	531	606	666	725	785	845	
	800	432	474	530	670	758	830	901	973	1044	
	1000	568	619	685	855	960	1046	1131	1216	1301	
110	400	249	275	310	345	388	423	458	493	528	23
	500	295	327	369	410	463	505	547	589	631	
	630	354	391	439	551	626	686	745	805	865	
	800	451	494	550	689	778	850	921	993	1064	
	1000	588	639	705	875	980	1066	1151	1236	1321	
115	400	297	326	364	402	449	487	525	563	602	27
	500	343	377	423	467	532	568	614	659	704	
	630	403	442	493	608	686	749	812	875	938	
	800	500	545	604	746	839	914	988	1063	1137	
	1000	637	689	758	932	1041	1129	1218	1306	1394	
125	400	346	378	419	460	512	553	595	636	678	36
	500	393	429	478	526	586	634	683	731	780	
	630	452	493	548	667	749	815	882	948	1014	
	800	549	597	659	805	902	980	1057	1135	1213	
	1000	686	741	814	990	1104	1195	1287	1379	1470	
135	400	405	439	484	528	584	629	674	720	765	41
	500	451	490	542	594	659	711	763	815	869	
	630	511	555	612	735	822	892	961	1031	1101	
	800	608	658	724	873	974	1056	1137	1219	1300	
	1000	745	802	878	1058	1177	1272	1369	1462	1557	
140	400	441	478	527	575	636	685	734	783	831	48
	500	487	530	585	641	710	766	822	878	934	
	630	547	594	655	782	873	947	1021	1094	1168	
	800	644	697	767	920	1026	1111	1196	1282	1367	
	1000	781	841	921	1105	1228	1327	1426	1525	1624	

LOAD CAPACITY OF THE PULLEY:

Load capacity of the steel construction of the pulley **R_T (kN)**

Table 2

Pulley shaft d	D	L 600 / B 500	750 / 650	950 / 800	1150 / 1000	1400 / 1200	1600 / 1400	1800 / 1600	2000 / 1800	2200 / 2000
40	270	4	4	4	3	3	3	3	3	3
	320	5	4	4	4	3	3	3	3	3
	400	5	4	4	4	3	3	3	3	3
	500	5	5	4	4	4	3	3	3	3
	630	5	5	5	4	4	4	4	3	3
50	270	10	9	9	8	8	8	8	8	8
	320	10	9	9	8	8	8	8	8	8
	400	10	10	9	9	8	8	8	8	8
	500	11	10	9	9	8	8	8	8	8
	630	12	11	10	9	9	8	8	8	8
60	320	19	18	17	17	16	16	16	16	16
	400	19	18	17	17	16	16	16	16	16
	500	20	19	18	17	16	16	16	16	16
	630	21	20	18	17	17	16	16	16	16
	800	22	21	19	18	17	17	16	16	16
70	320	32	31	31	30	29	29	29	29	29
	400	33	31	30	29	29	28	28	28	28
	500	34	32	30	29	29	28	28	28	27
	630	35	33	31	30	29	28	28	28	27
	800	37	34	32	31	29	29	28	28	28
80	320	38	36	35	34	33	33	33	32	32
	400	39	37	35	34	33	32	32	31	31
	500	41	38	36	34	33	32	32	31	31
	630	43	40	37	35	33	33	32	31	31
	800	46	42	39	36	34	33	33	32	31
	1000	49	44	40	38	36	34	33	33	32
90	320	44	42	40	39	38	38	37	37	37
	400	46	43	40	38	37	36	36	35	35
	500	49	45	41	39	38	37	36	35	35
	630	53	48	44	41	39	37	36	36	35
	800	58	52	46	43	40	39	38	37	36
	1000	63	56	50	46	42	40	39	38	37
100	400	65	59	54	52	49	48	47	46	45
	500	72	64	58	54	51	49	47	46	45
	630	82	72	63	58	54	51	49	48	46
	800	94	81	71	64	58	55	52	50	49
	1000	106	91	78	70	63	59	56	53	51
110	400	60	55	50	48	45	44	43	42	42
	500	66	59	54	50	47	45	44	43	42
	630	76	66	59	53	49	47	45	44	43
	800	87	75	65	59	54	51	48	46	45
	1000	98	84	72	64	58	54	52	49	48
115	400	71	68	65	62	61	60	59	59	58
	500	75	69	64	61	58	57	56	55	54
	630	83	75	68	63	59	57	56	54	53
	800	95	84	74	68	63	60	58	56	55
	1000	108	94	82	74	68	64	61	59	57
125	400	88	83	79	76	74	72	71	71	70
	500	94	85	78	74	70	68	67	65	64
	630	107	95	85	78	73	69	67	65	64
	800	128	110	96	86	79	75	71	69	66
	1000	147	127	109	97	87	81	77	74	71
135	400	99	94	89	87	84	83	82	81	81
	500	104	95	87	82	78	76	74	73	71
	630	121	107	95	87	81	77	74	72	70
	800	148	127	110	98	89	84	80	76	74
	1000	173	150	127	112	100	93	87	83	80
140	400	103	96	91	88	85	83	82	81	80
	500	114	102	92	86	81	78	76	74	73
	630	138	120	105	94	86	82	78	76	73
	800	173	146	124	110	98	92	86	82	79
	1000	186	176	147	128	112	104	97	92	87

CONVEYOR PULLEY

DK BK

Construction of DK and BK pulleys is given on the *'Standard pulleys' -page*. Shaft end dimensions (L_3 and d_3) are always designed according to the customer's needs. When ordering please state the exact type and make of the gear or connecting device. The shaft end can also be fabricated according to the customer's own drawing.

ORDERING EXAMPLE: DK 110 - 500 X - 1400

Pulley type
- DK= drive pulley
- BK= tail pulley

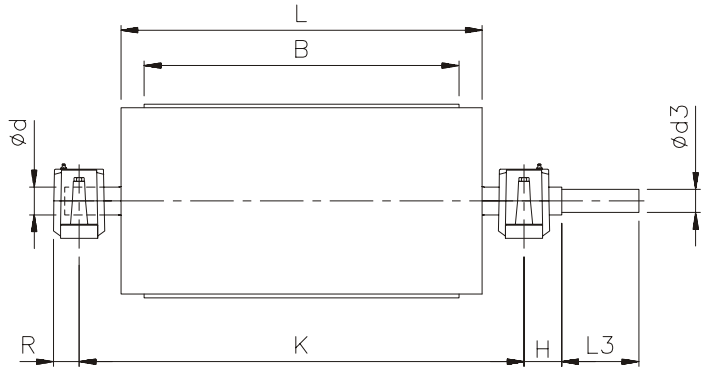
Shaft diameter d (mm)

Diameter of the pulley shell D (mm)

Lagging (see separate information page)
- T= steel
- K= rubber lagging *
- X= grooved rubber lagging *
- P= friction beam
- R= friction plate
- S= ceramic
- Z= "Cerabber" ceramic

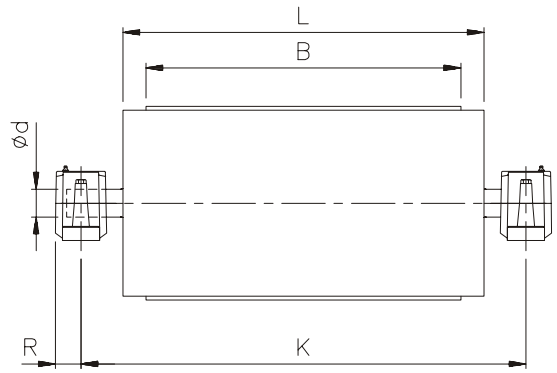
Length of the pulley shell L (mm)

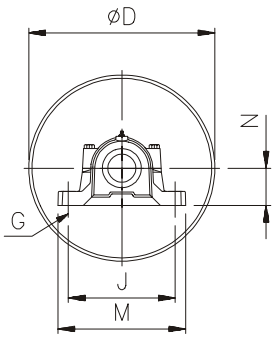
* = K- and X -rubber laggings are 5 mm thick, the hardness of drive pulleys 60 ShA and of the tail pulleys 40 ShA.



DRIVE PULLEY

DK





TAIL AND END PULLEY

BK

DK,BK d	K	H	R	J	M	N	G	Bearing house (SKF type)	Bearing
40	L+180	50	43	170	205	60	M12	SNL 509	22209EK
50	L+180	55	48	210	255	70	M16	SNL 511	22211EK
60	L+180	60	55	230	275	80	M16	SNL 513	22213EK
70	L+180	70	60	260	315	95	M20	SNL 516	22216EK
80	L+190	75	70	290	345	100	M20	SNL 518	22218EK
90	L+200	85	80	320	380	112	M24	SNL 520	22220EK
100	L+210	95	88	350	410	125	M24	SNL 522	22222EK
110	L+230	100	93	350	410	140	M24	SNL 524	22224EK
115	L+240	105	95	380	445	150	M24	SNL 526	22226EK
125	L+250	110	103	420	500	150	M30	SNL 528	22228CCK
135	L+270	115	110	450	530	160	M30	SNL 530	22230CCK
140	L+280	125	118	470	550	170	M30	SNL 532	22232CCK

DK BK

Select the conveyor pulley according to table 2. Make the selection according to the resultant force R which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle, (see *'Selection of the Pulley'*).

WEIGHT OF THE PULLEY:

The weights of tail pulleys (BK) are on the table. For drive pulleys (DK), add the weight from the extra weight column.

Table 1

Pulley shaft d	D	BK L 600	750	950	1150	1400	1600	1800	2000	2200	DK Extra weight
		B 500	650	800	1000	1200	1400	1600	1800	2000	
40	270	74	86	102	117	137	152	168	184	200	1
	320	91	105	124	143	166	185	203	222	241	
	400	117	133	155	176	203	225	247	268	290	
	500	164	186	214	243	278	307	336	365	393	
	630	227	253	288	386	444	491	537	584	630	
50	270	84	97	114	131	153	170	188	205	222	2
	320	101	116	137	157	182	203	223	243	264	
	400	127	144	168	190	219	242	266	289	312	
	500	173	197	227	257	294	325	355	385	416	
	630	236	264	300	400	460	508	556	604	653	
60	320	114	131	153	175	203	225	247	269	292	4
	400	139	158	184	208	239	265	290	315	340	
	500	186	211	243	275	314	347	379	411	443	
	630	249	278	316	418	480	530	580	630	680	
	800	353	389	435	563	640	702	763	825	886	
70	320	131	149	174	198	228	252	277	301	325	5
	400	156	177	204	231	264	292	319	346	373	
	500	203	229	263	297	339	373	408	442	477	
	630	266	292	336	441	505	557	609	661	714	
	800	370	407	455	586	665	729	792	856	920	
80	320	150	170	197	224	257	283	310	337	363	8
	400	175	197	227	256	293	322	352	382	411	
	500	222	250	286	322	368	404	441	478	514	
	630	285	317	359	466	534	588	642	697	751	
	800	389	428	478	611	693	759	825	891	957	
	1000	539	585	646	810	908	988	1068	1148	1227	
90	320	177	199	228	257	293	323	352	381	410	12
	400	201	225	258	289	329	361	394	426	458	
	500	248	277	317	355	404	443	482	522	561	
	630	310	345	390	499	570	627	684	741	798	
	800	415	455	509	644	729	798	867	935	1004	
	1000	565	613	676	842	945	1027	1109	1192	1274	
100	400	228	254	289	324	368	402	438	473	508	15
	500	274	306	348	390	442	484	526	568	610	
	630	337	373	421	533	608	668	727	787	847	
	800	441	484	540	679	767	839	910	982	1053	
	1000	591	642	708	877	983	1068	1153	1238	1323	
110	400	256	285	324	361	405	447	485	528	561	21
	500	303	337	382	426	483	528	573	618	663	
	630	365	404	455	570	648	711	774	837	900	
	800	470	515	574	715	808	883	957	1032	1106	
	1000	620	672	741	914	1023	1111	1200	1288	1376	
115	400	280	309	347	384	432	470	508	546	584	25
	500	326	360	405	450	506	551	596	641	687	
	630	389	427	478	593	672	735	798	860	923	
	800	493	538	597	739	831	906	980	1055	1130	
	1000	643	696	764	937	1047	1135	1223	1311	1399	
125	400	329	360	401	442	494	535	577	618	660	33
	500	377	414	462	510	570	619	667	716	764	
	630	443	484	538	655	738	804	870	936	1003	
	800	563	611	673	816	913	991	1069	1147	1225	
	1000	741	796	869	1043	1156	1248	1339	1431	1523	
135	400	377	411	456	501	557	602	647	692	737	38
	500	425	465	517	568	633	685	737	789	841	
	630	490	534	592	713	800	870	939	1009	1079	
	800	611	661	727	874	975	1057	1138	1220	1301	
	1000	789	847	923	1100	1218	1314	1409	1504	1599	
140	400	420	457	506	554	615	664	713	762	811	44
	500	469	511	567	622	692	747	803	859	915	
	630	533	580	641	766	858	931	1005	1079	1152	
	800	654	707	777	927	1033	1118	1204	1289	1374	
	1000	832	892	972	1153	1276	1375	1474	1573	1672	

LOAD CAPACITY OF THE PULLEY:

Load capacity of the steel construction of the pulley **R_T (kN)**

Table 2

Pulley shaft d	D	L 600	750	950	1150	1400	1600	1800	2000	2200
		B 500	650	800	1000	1200	1400	1600	1800	2000
40		11	11	11	8	7	6	5	5	4
50		17	17	16	16	13	12	10	9	9
60		32	32	31	27	23	20	18	16	15
70		43	40	38	36	35	32	29	26	24
80		58	53	50	47	45	44	42	38	35
90	320	63	60	57	56	54	53	53	50	46
	400	72	66	62	60	58	56	55	50	46
	500	81	73	68	64	61	59	55	50	46
	630	81	78	74	69	65	62	55	50	46
	800	81	81	80	74	69	62	55	50	46
100	320	70	66	63	61	59	58	57	57	56
	400	82	75	70	66	63	62	61	60	59
	500	95	85	78	73	69	66	65	63	62
	630	104	97	87	80	75	72	69	67	63
	800	104	104	97	88	81	77	74	69	63
110	320	84	78	74	63	61	60	59	59	58
	400	101	92	84	80	76	74	72	71	70
	500	122	108	97	90	84	81	78	76	75
	630	127	127	111	101	93	89	86	83	81
	800	127	127	127	114	103	98	94	88	81
115	320	81	76	72	63	61	60	59	59	58
	400	98	89	82	77	73	71	70	69	67
	500	119	105	94	97	81	78	76	74	72
	630	123	123	108	98	91	86	83	80	78
	800	123	123	123	111	101	95	91	85	78
125	400	115	105	100	96	93	91	90	88	87
	500	136	123	112	106	101	98	96	94	92
	630	147	141	126	117	110	106	103	100	98
	800	147	147	142	130	120	115	111	107	99
	1000	147	147	147	143	131	124	118	108	99
135	400	125	115	108	103	99	97	95	94	92
	500	152	136	123	116	109	106	103	101	99
	630	174	161	143	131	122	116	112	109	107
	800	174	174	165	149	136	129	123	119	116
	1000	174	174	174	166	150	141	134	129	122
140	400	151	138	128	122	117	114	112	110	109
	500	189	168	151	140	132	127	123	120	118
	630	209	205	179	163	150	143	137	133	129
	800	209	209	209	189	171	161	153	147	142
	1000	209	209	209	209	193	180	170	162	154

CONVEYOR PULLEY

BED BEE

The construction of BED and BEE pulleys is given on the *'Standard pulleys' -page.* Shaft end dimensions (L3 and d3) are always designed according to the customer's needs. When ordering please state the exact type and make of the gear or connecting device. The shaft end can also be fabricated according to the customer's own drawing.

Fixing elements for pulley are also available. Four fixing elements are needed for one pulley. Order code in table below.

ORDERING EXAMPLE: BED 100 - 500 X - 1400

Pulley type

BED=drive pulley
BEE=tail pulley

Shaft diameter d (mm)

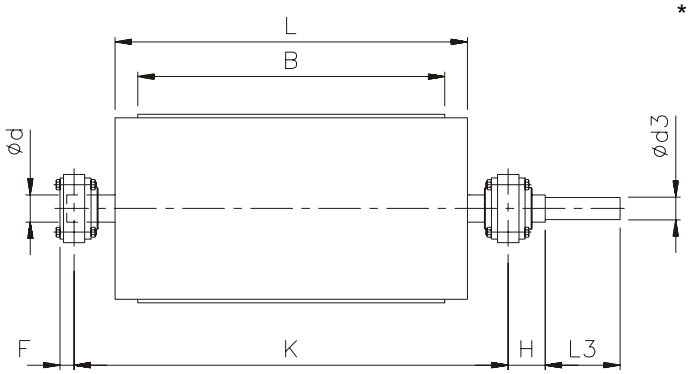
Diameter of the pulley shell D (mm)

Lagging (see the separate information page)

T= steel surface
K= rubber lagging *
X= grooved rubber lagging *
P= friction beam
R= friction plate
S= ceramic
Z= "Cerabber" ceramic

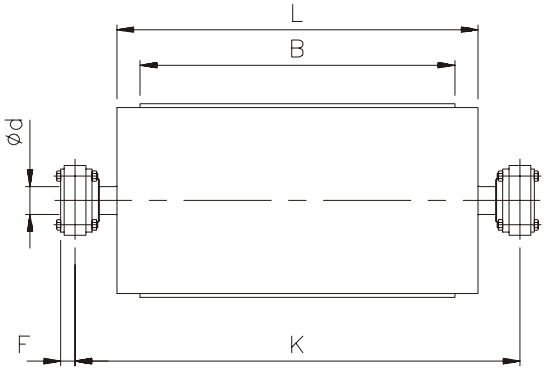
Length of the pulley shell L (mm)

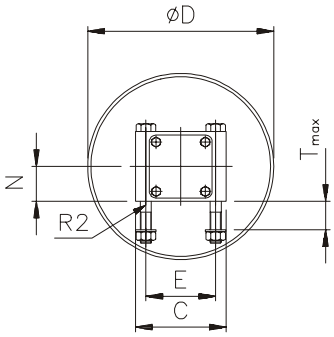
* = K- and X -rubber laggings are 5 mm thick, the hardness of drive pulleys 60 ShA and of the tail pulleys 40 ShA.



DRIVE PULLEY

BED





TAIL AND BEND PULLEY

BEE

BED d	BEE d	K	H	F	E	C	N	R2	T_{max}	Bearing house	Bearing	Fixing elements
40	**40**	L+180	100	30	110	145	55	M20	25	BZC11-80	22208E	BZC11X-80
50		L+180	120	32	120	155	60	M20	30	BZC11-90	22210E	BZC11X-90
60	**60**	L+180	150	37	150	195	75	M24	35	BZC11-110	22212E	BZC11X-110
80	**80**	L+180	180	40	180	225	90	M24	40	BZC11-140	22216E	BZC11X-140
100	**100**	L+180	200	48	230	290	115	M30	45	BZC11-180	22220E	BZC11X-180
120		L+180	200	48	230	290	115	M30	45	BZC11-180	23024E	BZC11X-180
140	**140**	L+180	250	65	345	425	135	M24	50	BZC12-210	23028CC	BZC12X-210

BED BEE

Select the conveyor pulley according to table 2. Make the selection according to the resultant force R which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle, (see. *'Selection of the Pulley'*).

WEIGHT OF THE PULLEY:

The weights of tail pulleys (BEE) are in the table. For drive pulleys (BED), add the weight from the extra weight column.

Table 1

Pulley shaft d	D	BEE L 600	750	950	1150	1400	1600	1800	2000	2200	BED Extra weight
		B 500	650	800	1000	1200	1400	1600	1800	2000	
40	270	83	97	114	131	153	170	187	205	222	-28
	320	100	115	135	155	181	201	221	242	262	-30
	400	122	140	163	186	215	238	261	285	308	-35
	500	163	186	217	246	284	314	345	375	405	-40
	630	214	242	278	380	439	487	535	584	632	-50
	800	297	331	375	503	577	637	697	757	816	-67
50	270	77	89	105	120	140	156	171	187	203	0
	320	92	106	125	143	167	185	204	223	241	0
	400	111	128	150	171	198	220	241	263	285	0
	500	149	170	199	227	263	292	321	349	378	0
	630	193	219	254	354	412	458	505	552	598	0
	800	264	297	339	467	539	597	655	713	771	0
60	270	116	132	154	175	201	223	244	265	287	-35
	320	132	151	175	199	229	254	278	302	327	-36
	400	155	176	203	230	263	291	318	345	373	-38
	500	196	222	256	290	333	367	401	436	470	-40
	630	247	278	318	423	488	540	592	644	696	-43
	800	330	367	415	547	626	690	754	817	881	-48
80	320	168	190	219	248	285	314	343	372	402	-40
	400	194	219	251	282	322	355	387	419	451	-43
	500	240	270	309	348	397	436	475	514	553	-48
	630	300	334	379	489	560	617	674	731	788	-56
	800	397	437	491	627	712	781	849	918	987	-70
100	320	251	282	324	366	419	461	503	545	587	-48
	400	277	311	356	400	456	501	546	591	636	-51
	500	323	362	414	466	530	583	635	687	739	-56
	630	382	426	484	607	694	763	833	903	973	-64
	800	479	530	596	745	846	928	1009	1091	1172	-72
	1000	616	674	750	930	1048	1143	1239	1334	1429	-100
120	400	326	358	399	440	491	533	574	616	657	0
	500	367	404	452	500	561	609	658	706	755	0
	630	418	460	514	634	716	782	848	915	981	0
	800	501	548	611	757	854	932	1010	1088	1166	0
	1000	616	671	744	921	1035	1126	1218	1310	1401	0
140	400	414	456	512	567	637	693	749	805	861	-19
	500	460	507	570	633	711	774	837	900	963	-24
	630	520	572	640	774	874	955	1036	1116	1197	-32
	800	617	675	752	912	1027	1119	1212	1304	1396	-46
	1000	683	749	835	1028	1160	1266	1372	1478	1584	0

LOAD CAPACITY OF THE PULLEY:

Load capacity of the steel construction of the pulley **RT (kN)**

BED PULLEYS

Table 2a

Pulley shaft d	D	L 600	750	950	1150	1400	1600	1800	2000	2200
		B 500	650	800	1000	1200	1400	1600	1800	2000
40		6.8	6.8	6.8	6.8	5.6	4.8	4.2	3.8	
50		13	13	13	13	12	10	8.7	7.8	
60		23	23	23	23	21	18	16	14	
80		53	53	53	53	53	48	43	38	
100	320		64	61	60	59	58	57	57	56
	400		63	58	56	53	52	51	50	50
	500		68	62	57	54	52	50	49	48
	630		78	68	62	57	54	52	50	49
	800		91	78	70	63	59	56	54	52
	1000		105	89	79	70	65	61	58	56
120	400		85	78	74	70	68	66	65	64
	500		98	86	79	73	69	66	64	63
	630		118	101	90	81	76	72	69	66
	800		146	122	107	94	87	81	77	73
	1000		176	145	125	109	100	92	87	82
140	400		112	102	96	90	87	85	83	81
	500		136	118	106	96	91	87	83	81
	630		174	146	127	113	104	98	93	88
	800		226	186	159	138	126	116	109	103
	1000		281	229	194	166	150	138	128	120

BEE PULLEYS

Table 2b

Pulley shaft d	D	L 600	750	950	1150	1400	1600	1800	2000	2200
		B 500	650	800	1000	1200	1400	1600	1800	2000
40	270	34	34	34	34	33	33			
	320	29	29	28	28	27	27			
	400	28	28	27	26	26	26			
	500	27	26	26	25	25	25			
	630		26	25	25	25	24			
	800				25	25	24			
60	270		55	55	54	54	54	54		
	320		48	47	47	47	46	46		
	400		42	41	40	40	40	40		
	500		40	39	38	37	37	36		
	630			39	38	36	36	35		
	800			38	36	36	35			
80	320		83	82	82	81	81	81	80	
	400		71	70	69	68	68	67	66	
	500		68	65	64	63	62	61	60	
	630			65	64	61	59	59	58	
	800				64	61	59	58	57	
100	320				130	130				
	400				115	110	108	107	106	106
	500				110	101	98	97	95	94
	630				111	104	100	98	94	92
	800				124	113	107	102	99	96
	1000						117	111	106	102
140	400									
	500									
	630				157	153	151	150		
	800				142	134	129	126	123	
	1000				147	127	116	108	100	95

TAIL AND BEND PULLEY BP

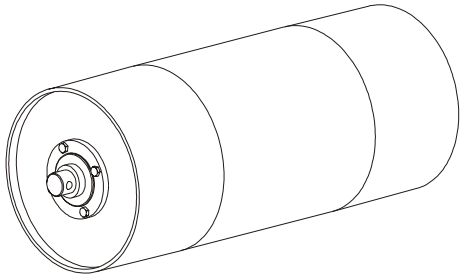
In the BP -type of tail pulley the bearing housing is on the end plate of the pulley. Due to the bolt assembled bearing housing, the bearing is easy to replace. The spherical roller bearing acts as a joint and thus reduces the tension against the end plate and shaft. The load capacity with the same shaft dimension is higher than other traditional pulleys. The load capacity is higher because of the unrotating shaft.

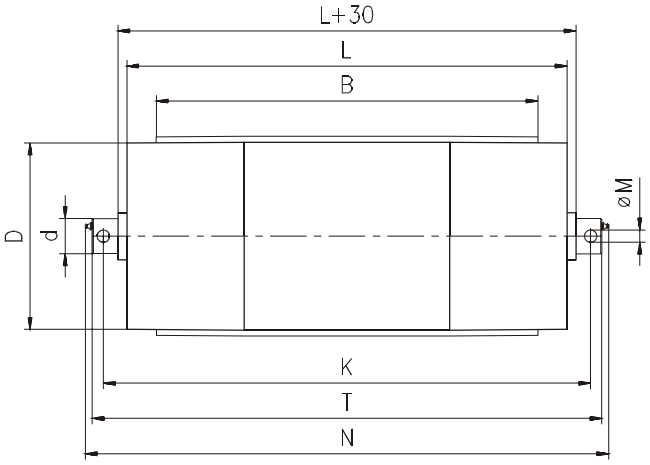
Lubricating is made through the shaft drilling while the pulley is rotating.

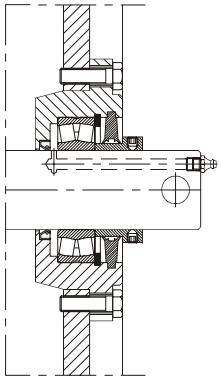
Belt tensioning by the BP -pulley is easy to make with the tension screw through the hole of the shaft.

ORDERING EXAMPLE: BP 60 - 400 T - 950

- Pulley type
- Shaft diameter d (mm)
- Pulley diameter D (mm)
- Lagging
  - T = STEEL SURFACE
  - K = RUBBER LAGGING (5 mm, 40° Shore A)
- Length of the pulley shell L (mm)



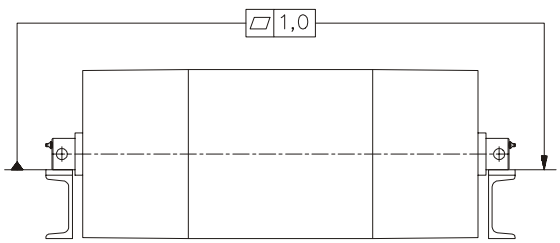


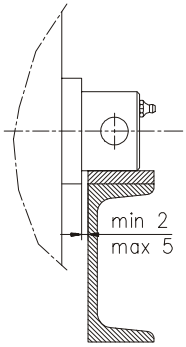


d	ø M	K	T	N
40	17	L + 70	L + 108	L + 133
50	17	L + 70	L + 108	L + 133
60	21	L + 80	L + 118	L + 143
70	21	L + 80	L + 118	L + 143
80	25	L + 90	L + 132	L + 157
90	28	L + 100	L + 148	L + 188
100	28	L + 100	L + 148	L + 188

Mounting the pulley onto a steel structure

The flatness tolerance for the shaft's mounting bases must be added to the technical drawings. The flatness prevents excess strain on the shaft. In addition, the alignment gap between the pulley and the steel structure must be considered.





BP

WEIGHT OF THE PULLEY (kg)

Pulley shaft diameter d	D	L								
		600	750	950	1150	1400	1600	1800	2000	2200
		B								
		500	650	800	1000	1200	1400	1600	1800	2000
40	215	45	51	60	69	80	89	98	107	116
	270	63	73	86	100	116	129	143	156	169
	320	79	91	108	138	158	174	190	207	223
	400	102	116	136	174	198	217	237	256	275
	500	143	163	189	246	279	305	332	358	384
50	270	68	78	93	107	125	139	154	168	182
	320	84	97	114	131	153	170	188	205	222
	400	106	122	142	162	187	207	228	248	268
	500	147	168	195	222	256	284	311	338	366
60	320	93	107	125	144	167	186	205	224	242
	400	115	132	153	175	201	223	245	267	288
	500	156	178	207	235	271	299	328	357	386
	630	207	234	268	368	426	472	519	565	612
70	320	111	126	147	167	192	213	233	253	274
	400	141	158	182	204	233	257	280	303	327
	500	192	215	245	275	312	343	373	404	434
	630	260	287	324	424	484	532	580	628	676
80	320	120	137	159	181	209	231	253	275	297
	400	150	169	194	219	250	275	300	325	350
	500	201	225	257	289	329	361	393	426	458
	630	269	298	336	438	500	550	600	650	700
90	400	167	192	225	258	299	332	365	398	431
	500	208	238	278	317	367	406	446	485	525
	630	282	322	376	429	497	550	604	658	711
	800	384	436	505	573	660	728	797	866	935
	1000	565	642	744	847	974	1077	1179	1281	1384
100	400	196	223	258	294	338	374	409	445	480
	500	237	269	311	353	405	448	490	532	574
	630	310	353	409	465	535	592	648	704	760
	800	412	466	537	609	698	770	841	913	984
	1000	594	672	777	882	1013	1118	1223	1328	1433

LOAD CAPACITY OF THE PULLEY

Load capacity of the steel construction of the pulley R_T **(kN)**

Pulley shaft diameter d	L								
	600	750	950	1150	1400	1600	1800	2000	2200
	B								
	500	650	800	1000	1200	1400	1600	1800	2000
40	25	20	15	13	10	8.8	7.8	7.0	6.5
50	55	48	37	31	25	22	19	17	15
60	85	85	71	58	47	41	36	32	28
70	132	132	130	106	86	74	66	59	52
80	176	176	176	162	131	114	101	90	88
90	201	201	201	201	201	201	193	185	178
100	214	214	214	214	214	214	203	193	181

Select the conveyor pulley according to table above. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α, (see 'Selection of the Pulley').

DRIVE PULLEY

DT

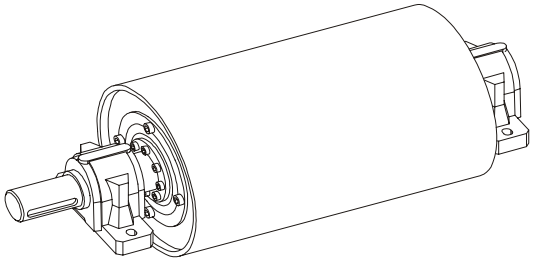
DT -drive pulley is meant for belt conveyors with low capacity.

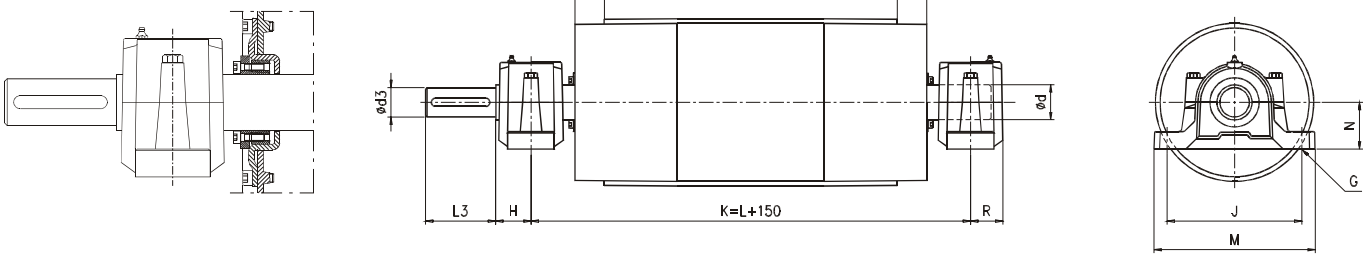
The shell of the DT -drive pulley is fixed to the shaft with a self-centralizing locking assembly without any welding. Therefore the load capacity of DT -drive pulley is higher than compared to a welded construction pulley.

Shaft end dimensions (L3 and d3) are always designed according to the customer's needs. When ordering please state the exact type and make of the gearbox or connecting device. The shaft ends can also be fabricated according to the customer's own drawing.

ORDERING EXAMPLE: DT 60 - 270 X - 950 S

- Pulley type
- Shaft diameter d (mm)
- Pulley diameter D (mm)
- Lagging
  - T = STEEL SURFACE
  - K = RUBBER LAGGING (5 mm, 60° Shore A)
  - X = GROOVED RUBBER LAGGING (5 mm, 60° Shore A)
- Length of the pulley shell L (mm)
- Type of bearing house
  - S = SNL (SKF -type)
  - P = SYT (SKF -Pop Release)
  - Y = SY / UCP

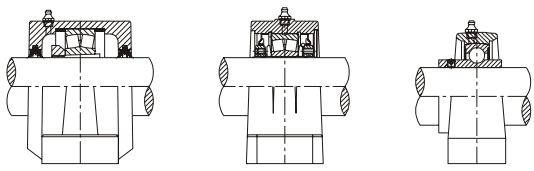




DIMENSIONS OF BEARING HOUSE

d	H	G	Type of bearing house S				Type of bearing house P				Type of bearing house Y			
			R	N	J	M	R	N	J	M	R	N	J	M
40	50	M12	43	60	170	205	30	60	170	205	30	50	137	185
50	55	M16	48	70	210	255	35	70	210	255	35	58	159	205
60	60	M16	55	80	230	275	40	80	230	275	40	70	184	240

TYPE OF BEARING HOUSE



WEIGHT OF THE PULLEY (kg)

Pulley shaft diameter d	D	L 400 / B 300	L 500 / B 400	L 600 / B 500	L 750 / B 650	L 950 / B 800	L 1150 / B 1000
40	215	35	40	45	52	61	71
	240	37	42	47	54	64	74
	270	43	49	56	65	78	91
	320	53	62	71	84	101	119
	400	72	84	97	116	142	167
50	215	40	44	49	56	65	75
	240	41	46	51	59	68	78
	270	47	54	60	70	82	95
	320	57	66	75	88	105	123
	400	76	88	101	120	146	172
60	215	46	50	55	62	71	81
	240	47	52	57	65	75	84
	270	53	60	66	76	88	101
	320	63	72	81	94	111	129
	400	82	94	107	126	152	178

LOAD CAPACITY OF THE PULLEY

Load capacity of the steel construction of the pulley $\mathbf{R_T}$ **(kN)**

	L 400 / B 300	L 500 / B 400	L 600 / B 500	L 750 / B 650	L 950 / B 800	L 1150 / B 1000
DT 40	5.3	5.3	5.3	5.3	5.3	5.3
DT 50	10.4	10.4	10.4	9.9	8.1	6.9
DT 60	11.1	11.1	11.1	10.2	8.3	7.0

Select the conveyor pulley according to table above. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α, (see 'Selection of the Pulley').

TAIL AND BEND PULLEY BT

BT -tail pulley is meant for belt conveyors with low capacity.

The bearing is assembled into a deep drawn end cap in the pulley. The bearing is sealed using a high quality seal, which can be either greased for life or regreasable. The bearing acts as a pivot reducing the stress on the end cap and shaft. Therefore the load capacity of BT -tail pulley is higher than compared to a welded construction pulley.

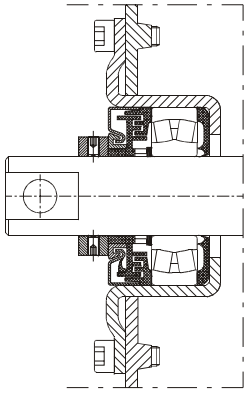
With the BT -type tail pulley it is easy to tension the belt with the tension screw going through the shaft.

ORDERING EXAMPLE: BT 40 - 270 T - 950 A

- Pulley type
- Shaft diameter d (mm)
- Pulley diameter D (mm)
- Lagging
  - T = STEEL SURFACE
  - K = RUBBER LAGGING (5 mm, 40° Shore A)
- Length of the pulley shell L (mm)
- Lubrication method
  - A = PERMANENTLY LUBRICATED
  - B = REGREASABLE

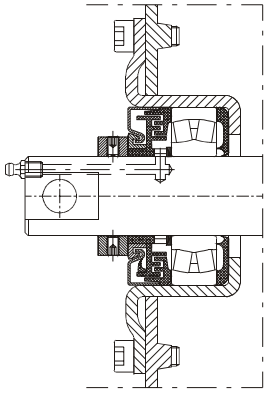
LUBRICATION METHOD A

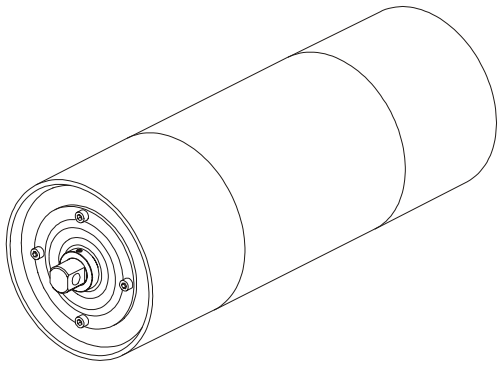
permanently lubricated

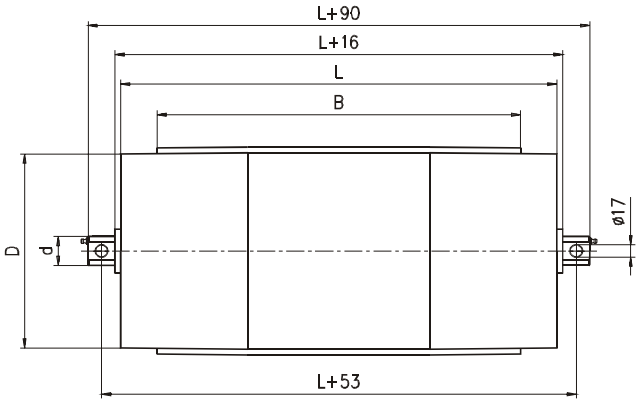


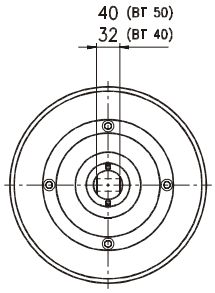
LUBRICATION METHOD B

regreasable



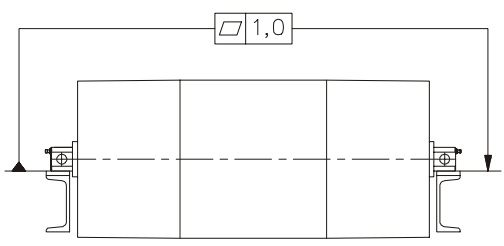


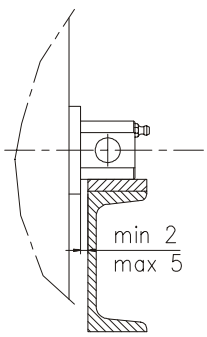




Mounting the pulley onto a steel structure

The flatness tolerance for the shaft's mounting bases must be added to the technical drawings. The flatness prevents excess strain on the shaft. In addition, the alignment gap between the pulley and the steel structure must be considered.





BT

WEIGHT OF THE PULLEY (kg)

Pulley shaft diameter d	D	L					
		400	500	600	750	950	1150
		B					
		300	400	500	650	800	1000
40	215	22	25	29	34	41	48
	240	23	27	31	36	44	51
	270	29	35	40	48	58	68
	320	40	47	55	66	81	96
	400	58	69	81	98	121	145
50	215	24	28	32	38	46	54
	240	26	30	34	41	49	58
	270	32	38	43	52	63	75
	320	42	50	58	70	86	102
	400	60	72	85	103	127	151

LOAD CAPACITY OF THE PULLEY

Load capacity of the steel construction of the pulley R_T **(kN)**

	L					
	400	500	600	750	950	1150
	B					
	300	400	500	650	800	1000
BT 40	18.4	18.4	18.4	18.4	15.6	12.7
BT 50	36.0	36.0	36.0	36.0	36.0	29.7

Select the conveyor pulley according to table above. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α , (see 'Selection of the Pulley').

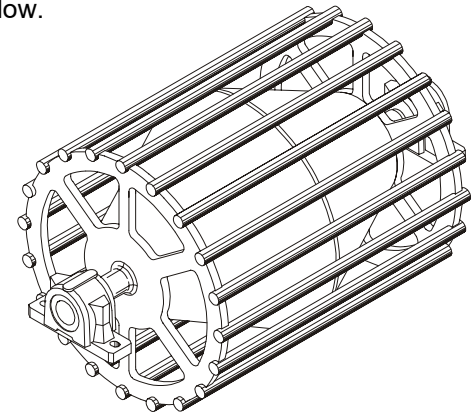
TAIL PULLEY OF THE ELEVATOR BE

BE - rib pulley is suitable tail pulley to work in a material on the belt under part of the belt-elevator. The shell is made of steel bars and sturdy double cone construction which efficiently removes the material between the belt and pulley through the sector gap of the end cap. Pulley shell is "crowned" to center the belt.

Standard pulley is equipped with the DIN-type casted bearing housings. Between the bearing housing and the pulley is the space for the possible sealing of the elevator housing which is supplied by the customer according to material. Possibility also to the K-measure different from the table below.

ORDERING EXAMPLE: BE 60 - 630 - 750

- Pulley type
- Shaft diameter d (mm)
- Diameter of the pulley shell D (mm)
- Length of the pulley shell L (mm)



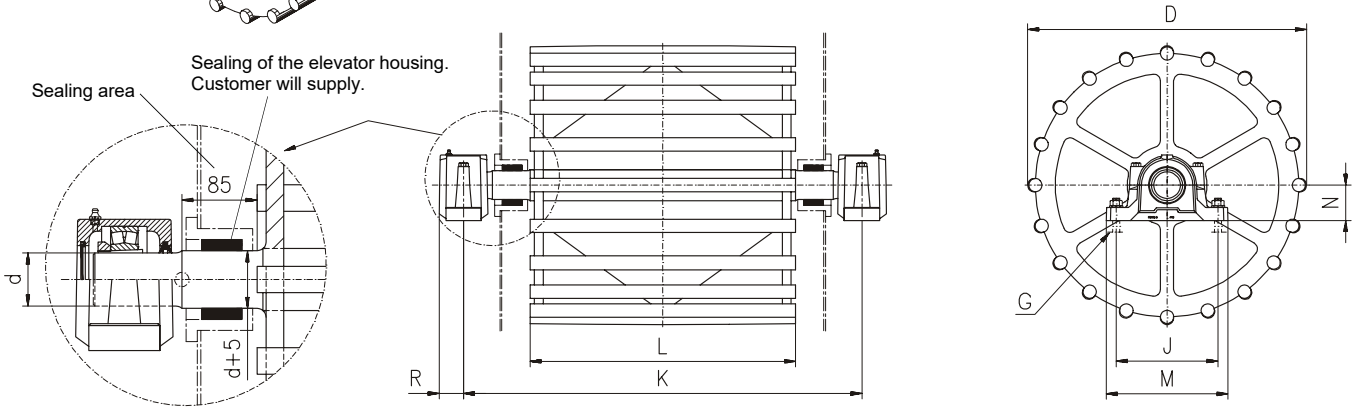
LOAD CAPACITY OF THE PULLEY

Select the conveyor pulley according to table. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle, (see *'Selection of the Pulley'*).

Load capacity of the steel construction of the pulley R_T [kN]

Pulley shaft d	R_T
40	12
50	19
60	28
70	39
80	51
90	65
100	81



Pulley shaft d	D	WEIGHT OF THE PULLEY (kg) L 400	500	600	750	950	1150	1400	1600	R	J	M	N	G	K	Bearing house (SKF type)	Bearing
		B 300	400	500	650	800	1000	1200	1400								
40	250	45	52	60	71					43	170	205	60	M12	L+270	SNL 509	22209EK
	320	55	63	71	84												
	400	66	74	83	97												
50	320	63	72	81	95					48	210	255	70	M16	L+280	SNL 511	22211EK
	400	74	83	93	108												
	500	114	131	148	175												
	630	143	160	179	207												
60	400	100	114	129	150	179				55	230	275	80	M16	L+300	SNL 513	22213EK
	500	122	139	155	182	216											
	630	153	171	190	219	258											
	800				350	416											
70	400		131	146	181	211				60	260	315	95	M20	L+310	SNL 516	22216EK
	500		155	173	221	257											
	630		224	244	274	296											
	800				427	494											
	1000					590	646										
80	500		195	214	243	281				70	290	345	100	M20	L+330	SNL 518	22218EK
	630			264	296	338	319										
	800				449	519	589										
	1000					614	688										
	1250						1003	1098									
90	630			350	397	459	522	600		80	320	380	112	M24	L+350	SNL 520	22220EK
	800				545	595	656	746	820								
	1000					720	796	892	968								
	1250						1011	1112	1193								
100	630				427	492	557	639		88	350	410	125	M24	L+370	SNL 522	22222EK
	800				576	628	692	785	861								
	1000					753	831	931	1009								
	1250						1046	1150	1234								

WING PULLEY

BW

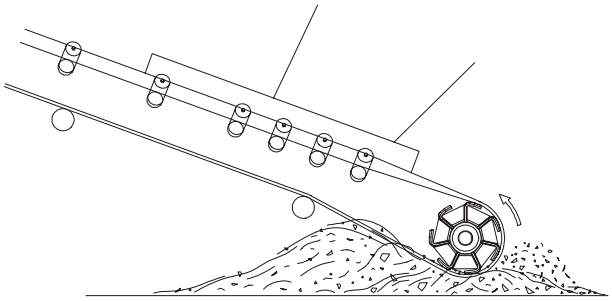
The BW wing pulley is intended to be used as a tail pulley in places where material builds up on the curving end of the conveyor. The pulley may be used as a tail pulley on the dirty side of the belt because debris does not stick to its surface. The pulley's handles and the centre-body guide the material away from in between the belt and pulley therefore preventing damage to the belt and pulley.

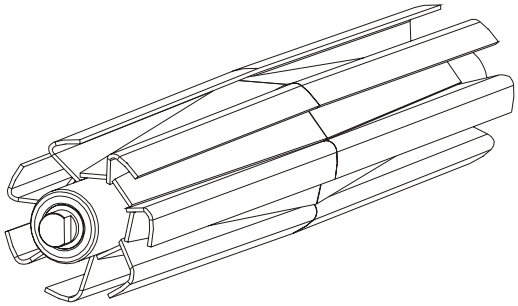
The shaft on the pulley which does not rotate and the conic casing, together with the ball-like roller bearing, allow for a large weight capacity.

The compact bearings on the end of the pulley's skeletal pipe is protected with a multi-labyrinth structure. The crowning of the pulleys, which is larger than the crowning of standard conveyor pulleys, helps to keep the belt in the centre better.

ORDERING EXAMPLE: BW 50 - 320 - 1280 - 1390 B J

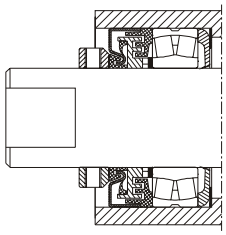
- Type code
- Shaft diameter d (mm)
- Diameter of the pulley shell D (mm)
- Length of the pulley wings W (mm)
- Length of the pulley shell L (mm)
- Lubrication method
  - A = PERMANENTLY LUBRICATED
  - B = REGREASABLE
  - C = REGREASABLE, GREASE NIPPLE BUILT-IN
- Shaft end type (see the next page)





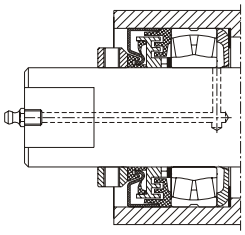
Lubrication method A

Permanently lubricated
For shaft ends J, M and V



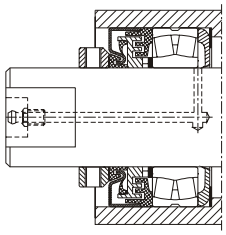
Lubrication method B

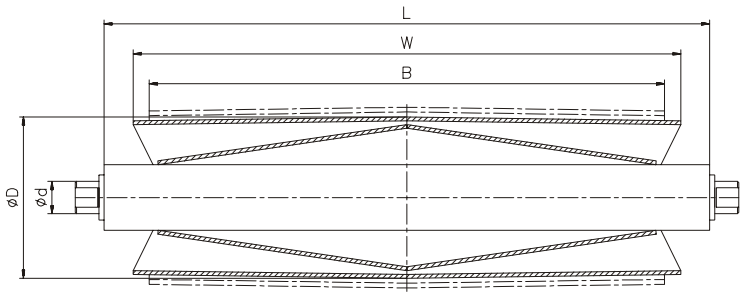
Regreasable
For shaft ends J, M and V
Grease nipple noncentrally, when shaft end type V



Lubrication method C

Regreasable
Grease nipple built-in
For shaft ends J and M





Weight of the pulley (kg)

Pulley shaft diameter d	D	W										
		340	440	540	690	850	850	1030	1060	1235	1280	1480
		L										
		390	490	590	740	940	990	1098	1140	1325	1390	1590
		B										
		300	400	500	650	800	(800)	(1000)	1000	(1200)	1200	1400
40	200	22	27	33	41	50	51	59	60	70	72	82
	250	26	32	39	49	60	61	72	73	85	88	99
	320	31	39	47	58	71	73	86	88	102	105	119
50	200	32	40	47	58	71	73	85	86	100	103	115
	250	37	46	55	69	85	86	103	104	117	124	138
	320	45	56	67	84	102	104	125	126	147	150	168

BW

Load capacity of the pulley

Load capacity of the steel construction of the pulley R_T **(kN)**

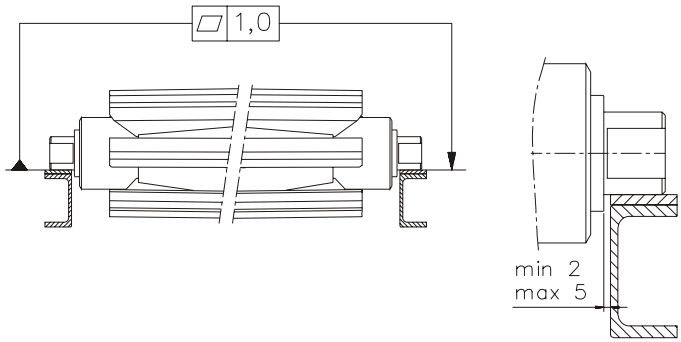
Select the conveyor pulley according to table. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α, (see 'Selection of the Pulley').

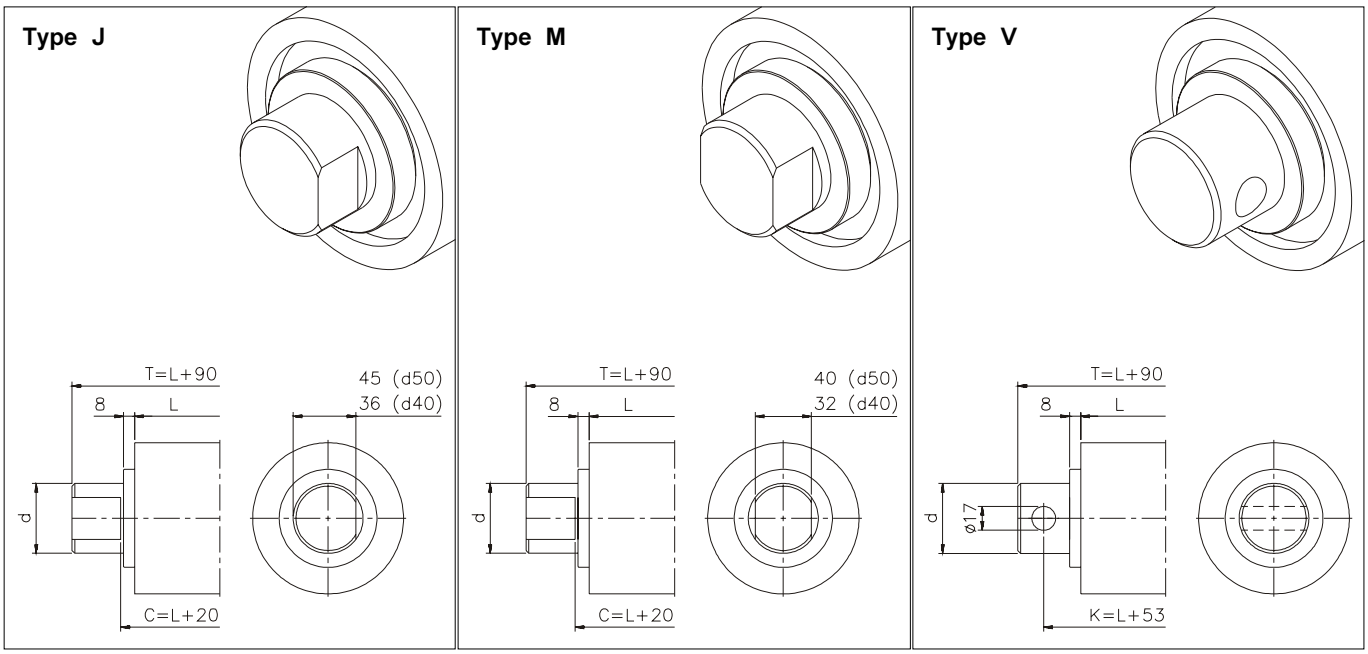
	W										
	340	440	540	690	850	850	1030	1060	1235	1280	1480
	L										
	390	490	590	740	940	990	1098	1140	1325	1390	1590
	B										
	300	400	500	650	800	(800)	(1000)	1000	(1200)	1200	1400
BW 40	30	30	30	29	24	23	21	20	18	17	16
BW 50	59	59	59	59	54	52	47	45	40	38	37

Mounting the pulley onto a steel structure

The flatness tolerance for the shaft's mounting bases must be added to the technical drawings. The flatness prevents excess strain on the shaft. In addition, the alignment gap between the pulley and the steel structure must be considered.



Standard shaft end alternatives



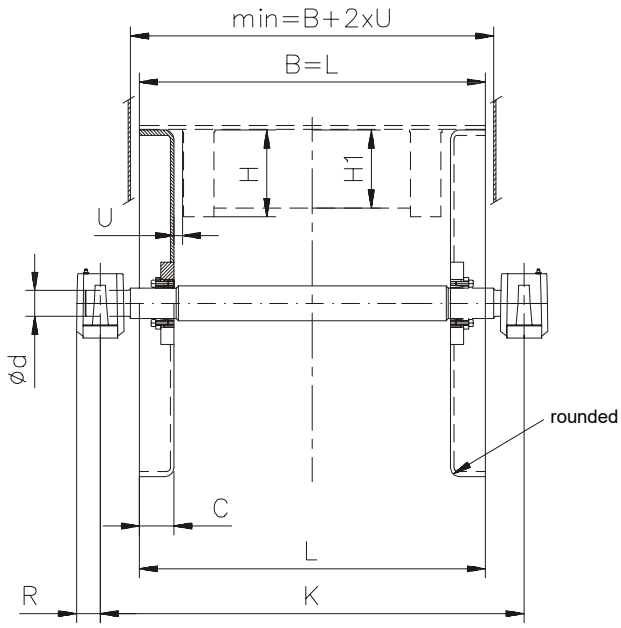
FLANGE PULLEY FOR SIDE WALL BELT BF...X

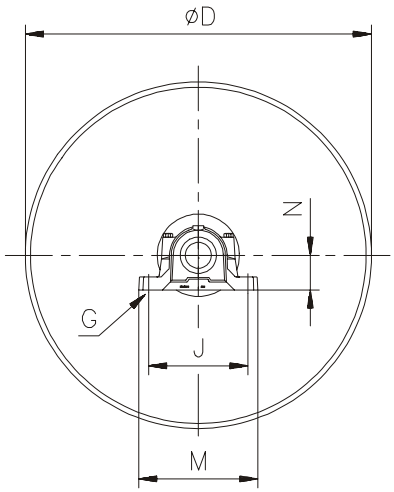
Flange pulley BF…X, without a center pulley, is made to support a side wall belt from the sides, from the outside of the side wall. Clamp elements which fasten the flanges to the shaft enable flange maintenance even in the most wearing conditions. The structure also increases load capacity.

The inner side of the flange protects the side wall of the belt with a smooth surface; the surface which comes in contact with the belt does not have any sharp edges that will wear on the belt.

ORDERING EXAMPLE: BF 100X - 800 - 1200

- Type code
- Shaft diameter d (mm)
- Pulley model
  - X = WITHOUT CENTER PULLEY
- Pulley diameter D (mm)
- Pulley length L (mm)





D / L / C / U measurements must also be checked according to the H and H1 measurements used by the belt manufacturer.

Belt width B	Free zone U	C
400	12	50
500	12	50
650	15	60
800	20	80
1000	25	100
1200	30	120
1400	35	140
1600	40	160
1800	45	180

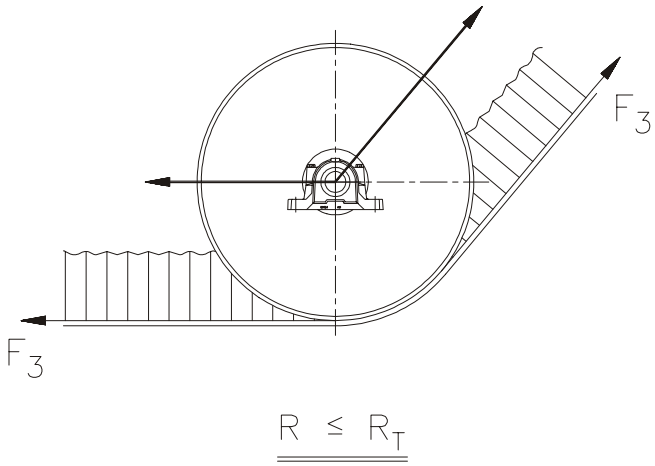
Height of edge profile H	Scraper height H1	Flange pulley diameter D
40	35	215
60	55	270
80	75	400
100	90	400
120	110	500
140	120	630
160	140	800
180	160	800
200	180	800
240	220	1000
250	230	1000
300	280	1250
350	330	1400
400	360	1600
500	CONSULT ROXON	
630		

d	K	R	J	M	N	G	Bearing house (SKF type)	Bearing
40	L + 180	43	170	205	60	M12	SNL 509	22209 EK
50	L + 180	48	210	255	70	M16	SNL 511	22211 EK
60	L + 180	55	230	275	80	M16	SNL 513	22213 EK
70	L + 180	60	260	315	95	M20	SNL 516	22216 EK
80	L + 190	70	290	345	100	M20	SNL 518	22218 EK
90	L + 200	80	320	380	112	M24	SNL 520	22220 EK
100	L + 210	88	350	410	125	M24	SNL 522	22222 EK
110	L + 230	93	350	410	140	M24	SNL 524	22224 EK
115	L + 240	95	380	445	150	M24	SNL 526	22226 EK
125	L + 250	103	420	500	150	M30	SNL 528	22228 CCK
135	L + 270	110	450	530	160	M30	SNL 530	22230 CCK
140	L + 280	118	470	550	170	M30	SNL 532	22232 CCK

BF...X

The flange pulley is chosen according to table 2. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α, (see 'Selection of the Pulley').



Note: It is necessary to confirm with each belt supplier that the BF…X models, without center pulleys, can be used with the belt force in question.

When the transverse rigidity of the belt is low, flange pulleys BF...H, which have center pulleys, are used.

Table 1

Flange pulley BF...X weight (kg)

Pulley shaft diameter d	D	L								
		400	500	650	800	1000	1200	1400	1600	1800
40	215	29	32	36	40	46	52	58	64	69
	270	33	35	39	44	51	57	63	70	76
	400	47	50	55	63	72	81	90	99	108
	500	59	62	68	77	87	98	108	118	128
	630	79	81	89	101	114	127	141	154	167
50	215	39	42	47	53	60	68	75	82	90
	270	42	45	51	57	65	73	80	88	96
	400	57	60	67	76	86	97	107	118	129
	500	69	72	79	89	101	113	125	137	149
	630	88	91	100	113	128	143	158	172	187
60	270	57	61	68	76	85	95	104	114	124
	400	72	76	84	94	107	119	131	144	156
	500	84	88	96	108	122	135	149	163	176
	630	103	107	117	132	148	165	182	198	215
	800	128	132	142	157	174	191	208	224	241
70	270	72	77	86	95	106	118	130	142	153
	400	87	92	102	114	128	142	157	171	186
	500	99	104	114	127	143	159	174	190	206
	630	119	124	135	152	170	189	207	226	245
	800	143	148	160	177	195	214	233	252	271
80	500	118	124	136	151	169	187	205	223	241
	630	138	144	157	175	196	217	238	259	280
	800	162	169	182	200	221	242	264	285	306
	1000	225	231	246	266	290	313	337	360	384
	1250	300	306	322	345	372	398	425	451	477
90	630	164	172	187	207	230	254	277	301	324
	800	189	196	212	232	256	279	303	327	351
	1000	251	258	275	298	324	350	376	402	428
	1250	326	333	352	377	406	435	464	493	522
100	630	189	198	215	237	263	290	316	342	368
	800	214	223	240	262	289	315	342	368	395
	1000	276	285	303	328	356	385	414	443	472
	1250	351	360	380	407	439	471	502	534	566
110	800	242	252	272	297	326	355	385	414	444
	1000	304	314	335	362	394	425	457	489	521
	1250	379	389	411	441	476	511	545	580	615
	1400	495	506	535	577	624	671	718	766	813
115	800	279	291	314	341	373	406	439	472	505
	1000	341	353	376	406	441	476	511	546	581
	1250	416	428	453	485	523	561	599	637	675
	1400	532	545	576	620	671	721	772	823	873
125	1000	383	397	423	455	493	532	571	610	648
	1250	458	472	499	534	576	617	659	700	742
	1400	574	588	622	669	723	777	831	885	940
	1600	670	684	719	771	829	887	945	1003	1061
135	1000	429	444	473	508	551	593	636	678	721
	1250	503	519	550	587	633	678	724	769	814
	1400	620	635	672	722	780	838	896	954	1012
	1600	715	731	770	824	886	947	1009	1071	1133
140	1000	462	478	507	542	584	626	669	712	754
	1250	537	553	583	621	666	712	757	802	848
	1400	653	669	706	756	814	871	929	987	1045
	1600	749	764	803	857	919	981	1043	1104	1166

Table 2

Flange pulley BF...X load capacity
Load capacity of flange pulley steel structure R_T (kN)

Pulley shaft diameter d	L								
	400	500	650	800	1000	1200	1400	1600	1800
40	9.5	9.5	8.8	7.7	6.9	6.2	5.6	5.1	4.7
50	16.6	16.6	15.4	13.5	12.0	10.7	9.8	8.9	8.2
60	26.9	26.9	24.9	21.7	19.2	17.3	15.7	14.3	13.2
70	40.2	40.2	37.2	32.4	28.7	25.8	23.4	21.4	19.7
80	57.3	57.3	53.0	46.2	40.9	36.7	33.3	30.5	28.1
90	73.3	73.3	68.2	59.9	53.4	48.1	43.8	40.2	37.2
100	93.5	93.5	87.7	77.3	69.1	62.5	57.1	52.5	48.6
110	113.9	113.9	106.7	94.8	85.3	77.5	71.0	65.5	60.8
115	135.7	135.7	134.8	119.8	107.8	98.0	89.9	83.0	77.0
125	166.7	166.7	163.3	145.6	131.4	119.7	110.0	101.7	94.5
135	193.2	193.2	189.3	170.0	154.1	141.0	130.0	120.5	112.3
140	194.9	194.9	184.1	165.7	150.6	138.1	127.4	118.3	110.5

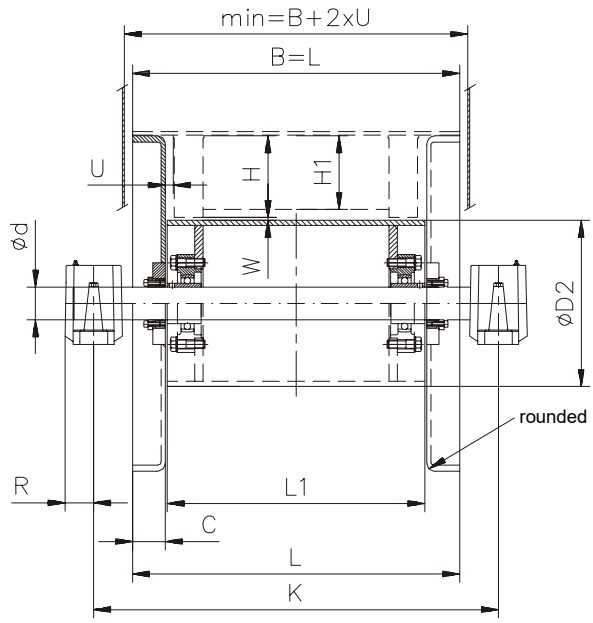
FLANGE PULLEY FOR SIDE WALL BELT BF...H

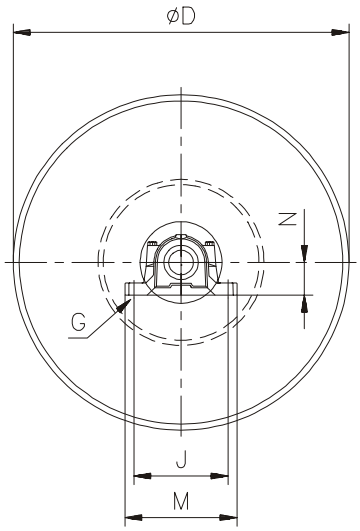
Flange pulley BF...H, with a center pulley, is made to support a side wall belt from the sides of the belt and from the side wall. The bearings of the center pulley guarantee that the belt will be supported without wearing on the side wall. Clamp elements which fasten the flanges to the shaft enable flange maintenance even in the most wearing conditions.

The structure also increases load capacity. The inner side of the flange protects the side wall of the belt with a smooth surface; the surface which comes in contact with the belt does not have any sharp edges which will wear on the belt.

ORDERING EXAMPLE: BF 100H - 800 - 1200

- Type code
- Shaft diameter d (mm)
- Pulley model
  - H = WITH CENTER PULLEY
- Pulley diameter D (mm)
- Pulley length L (mm)





D / D2 / L / C / U measurements must also be checked according to the H and H1 measurements used by the belt manufacturer.

Belt width B	Pulley width L1	Free zone U	C
400	290	12	50
500	390	12	50
650	520	15	60
800	630	20	80
1000	780	25	100
1200	940	30	120
1400	1100	35	140
1600	1260	40	160
1800	1420	45	180

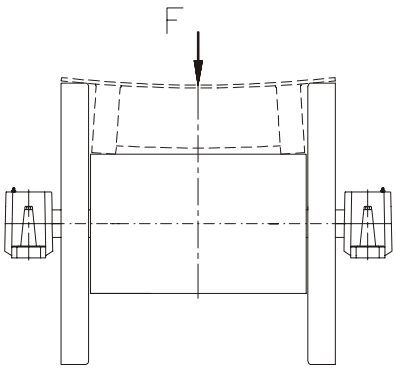
Height of edge profile H	Scraper height H1	Flange pulley diameter D	Center pulley diameter D2	W
40	35	283	193	5
60	55	323	193	5
80	75	385	215	5
100	90	425	215	5
120	110	574	320	5
140	120	619	320	7.5
160	140	659	320	7.5
180	160	781	400	7.5
200	180	821	400	7.5
240	220	1008	500	10
250	230	1028	500	10
300	280	1253	630	10
350	330	1523	800	10
400	360	1623	800	10
500	CONSULT ROXON			
630				

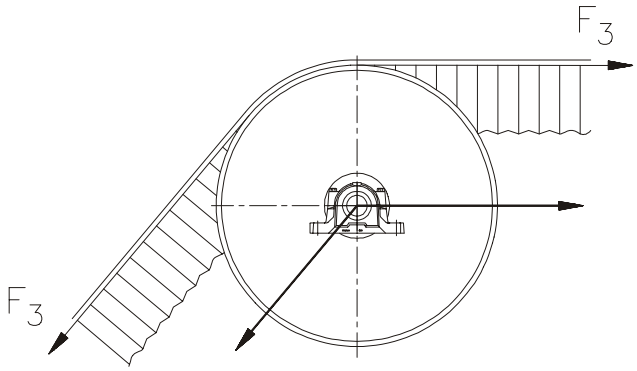
d	K	R	J	M	N	G	Bearing house (SKF type)	Bearing
40	L + 180	43	170	205	60	M12	SNL 509	22209 EK
50	L + 180	48	210	255	70	M16	SNL 511	22211 EK
60	L + 180	55	230	275	80	M16	SNL 513	22213 EK
70	L + 180	60	260	315	95	M20	SNL 516	22216 EK
80	L + 190	70	290	345	100	M20	SNL 518	22218 EK
90	L + 200	80	320	380	112	M24	SNL 520	22220 EK
100	L + 210	88	350	410	125	M24	SNL 522	22222 EK
110	L + 230	93	350	410	140	M24	SNL 524	22224 EK
115	L + 240	95	380	445	150	M24	SNL 526	22226 EK
125	L + 250	103	420	500	150	M30	SNL 528	22228 CCK
135	L + 270	110	450	530	160	M30	SNL 530	22230 CCK
140	L + 280	118	470	550	170	M30	SNL 532	22232 CCK

BF...H

The flange pulley is chosen according to table 2. Make the selection according to the resultant force **R** which is determined by the belt tensions resulting from power calculations.

In the value of the resultant R pay attention to the extra tension caused by the screw take-up and a small wrap angle α, (see 'Selection of the Pulley').





$R \leq R_T$

Table 1

Flange pulley BF...H weight (kg)

Pulley shaft diameter d	D	L								
		400	500	650	800	1000	1200	1400	1600	1800
40	283	50	54	62	70	85	90	101	111	121
	323	53	58	65	74	90	96	106	117	128
	385	64	69	78	89	106	115	127	140	153
	425	68	73	82	94	112	120	134	147	160
	574	109	118	133	149	175	191	212	232	253
50	385	75	80	90	102	115	129	144	158	172
	425	79	84	95	106	121	135	150	164	179
	574	120	129	145	162	184	206	228	250	272
	619	138	147	164	183	207	231	256	280	305
	659	145	154	172	192	216	241	266	291	316
60	574	132	142	159	177	200	223	247	270	293
	619	150	160	178	198	223	249	275	301	326
	659	157	167	185	206	232	258	285	311	337
	781	208	222	247	275	309	344	379	414	449
	821	217	231	256	285	319	355	391	427	462
70	574	153	164	182	202	226	251	276	301	326
	619	171	182	201	223	249	276	304	332	359
	659	178	189	209	231	258	286	314	342	370
	781	229	244	270	299	335	371	408	445	481
	821	238	253	279	309	345	382	420	457	494
80	574	175	187	206	227	253	280	307	334	361
	619	192	204	224	248	276	305	335	364	393
	659	200	211	232	256	285	315	344	375	404
	781	250	266	293	324	361	400	439	477	516
	821	259	275	303	334	372	411	450	490	529
	1008	337	356	390	427	473	519	567	614	661
	1028	375	394	430	473	523	575	628	680	733
90	781	279	296	325	357	396	437	478	519	559
	821	288	305	334	367	407	448	490	531	572
	1008	366	386	421	460	508	556	606	655	704
	1028	404	424	461	506	558	612	667	721	776
100	1008	418	439	476	517	567	618	670	722	773
	1028	456	477	516	562	617	673	731	787	844
	1253	595	625	677	737	810	884	960	1035	1109
110	1253	636	667	721	783	858	935	1013	1091	1168
	1523	814	845	901	968	1047	1128	1211	1293	1375
	1623	864	895	952	1021	1102	1185	1270	1354	1437
115	1253	689	722	778	842	920	1000	1081	1162	1242
	1523	868	900	958	1027	1109	1193	1279	1364	1448
	1623	917	950	1009	1080	1164	1250	1337	1425	1511
125	1253	761	795	854	921	1001	1084	1168	1252	1335
	1523	940	973	1034	1105	1190	1278	1366	1454	1542
	1623	989	1023	1085	1158	1245	1334	1425	1515	1604
135	1523	1042	1077	1140	1214	1302	1393	1485	1576	1667
	1623	1091	1127	1191	1267	1357	1450	1543	1637	1730
140	1523	1072	1107	1170	1244	1332	1423	1515	1606	1697
	1623	1121	1157	1221	1297	1387	1480	1574	1667	1760

Table 2

Flange pulley BF...H load capacity
Load capacity of flange pulley steel structure R_T (kN)

Pulley shaft diameter d	L								
	400	500	650	800	1000	1200	1400	1600	1800
40	4.5	4.5	4.2	3.7	3.3	3.0	2.5	2.0	1.6
50	8.8	8.8	8.2	7.2	6.4	5.8	5.3	4.8	4.0
60	15.2	15.2	14.1	12.5	11.1	10.0	9.2	8.4	7.8
70	23.9	23.9	22.3	19.7	17.5	15.9	14.5	13.4	12.4
80	35.3	35.3	33.0	29.2	26.0	23.5	21.5	19.8	18.4
90	46.7	46.7	43.8	39.1	35.0	31.9	29.3	27.1	25.2
100	61.1	61.1	57.5	51.5	46.3	42.3	39.0	36.1	33.6
110	76.0	76.0	71.8	64.7	58.5	53.7	49.6	46.1	43.1
115	97.0	97.0	91.7	82.8	75.0	68.9	63.7	59.3	55.4
125	118.8	118.8	112.6	102.0	92.7	85.3	79.1	73.7	69.0
135	140.0	140.0	132.9	120.9	110.4	102.0	94.9	88.6	83.2
140	136.2	136.2	129.7	118.3	108.2	100.2	93.2	87.2	81.9

BASE PLATE AND ADJUST PIECE US1 US2

Base plate US1 and adjust piece US2 are used with the SNL -bearing houses of cast iron. Can also be used with the US5 -fixing of the BP -pulleys.

US1 -base plate is always used when the material under the bearing house is under F_{min} and/or the construction is bended.

US2 -adjusting piece is always used when the material under the bearing house is thicker than value F_{min} and the construction is not bended (for ex. hot-rolled bar).

Always add the plane tolerance of the bases by the bearing house when welding the bearing house bases.

BASE PLATE

ORDERING EXAMPLE: US1 - 516

Type code

Size of SNL -bearing house

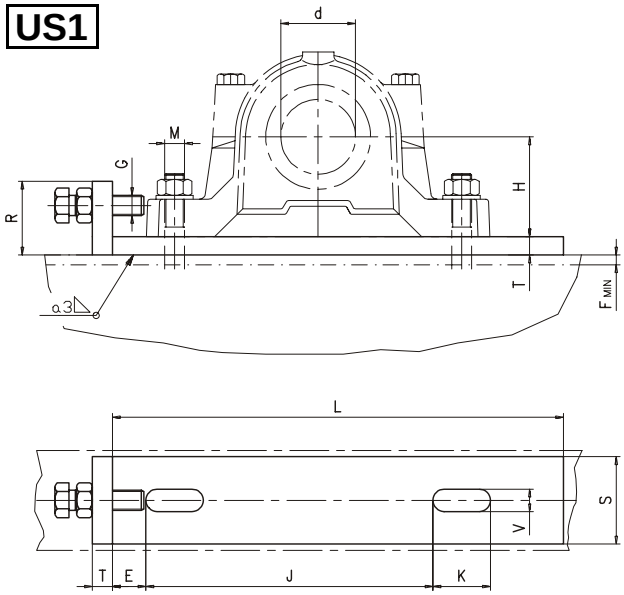
ADJUST PIECE

ORDERING EXAMPLE: US2 - 516

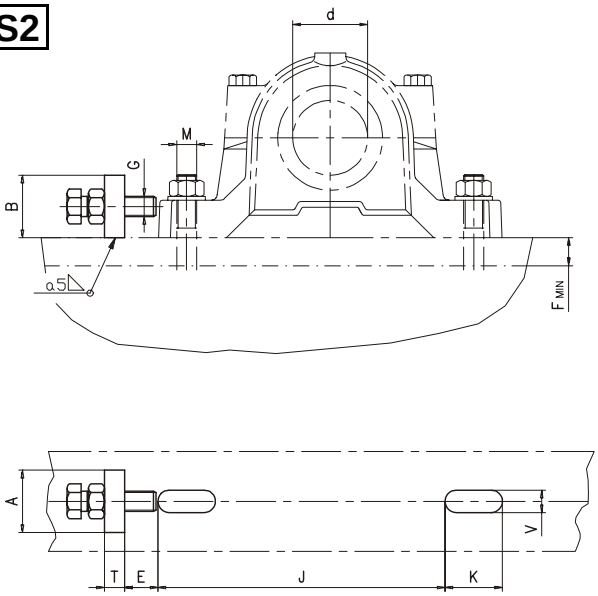
Type code

Size of SNL -bearing house

US1



US2



SNL	d	H	F_{min}	G	E	J	L	V*K	M	A	R	S	T	B	Weight (kg) US1	Weight (kg) US2
509	40	60	8	M16	20	170	252	14*42	M12	40	50	60	16	40	2.2	0.36
511	50	70	8	M16	20	210	296	18*46	M16	50	50	80	16	40	3.4	0.41
513	60	80	12	M16	20	230	316	18*46	M16	60	50	80	16	50	3.6	0.47
516	70	95	12	M20	23	260	358	22*52	M20	60	60	100	20	50	6.4	0.77
518	80	100	12	M20	23	290	388	22*52	M20	60	60	100	20	50	6.9	0.77
520	90	112	12	M20	23	320	422	26*56	M24	100	60	120	20	70	8.9	1.39
522	100	125	16	M20	23	350	452	26*56	M24	100	60	120	20	70	9.4	1.39
524	110	140	16	M20	23	350	452	26*56	M24	100	60	120	20	70	9.4	1.39
526	115	150	16	M24	32	380	517	26*56	M24	120	80	160	25	80	18.3	2.41
528	125	150	16	M24	32	420	557	33*73	M30	140	80	160	25	80	19.5	2.72
530	135	160	16	M24	32	450	587	33*73	M30	150	80	160	25	80	20.5	2.88
532	140	170	16	M24	32	470	607	33*73	M30	150	80	160	25	80	21.1	2.88

BASE PLATE AND ADJUST PIECE US3 US4

Base plate US3 and adjust piece US4 are used with the ROXON BZC11 and -12 types of steel plate bearing houses.

US3 -base plate is always used when the material under the bearing house is under F_{min} and/or the construction is bended.

US4 -adjusting piece is always used when the material under the bearing house is thicker than value F_{min} and the construction is not bended (for ex. hot-rolled bar).

Always add the plane tolerance of the bases by the bearing house when welding the bearing house bases.

BASE PLATE

ORDERING EXAMPLE: US3 - 210

Type code

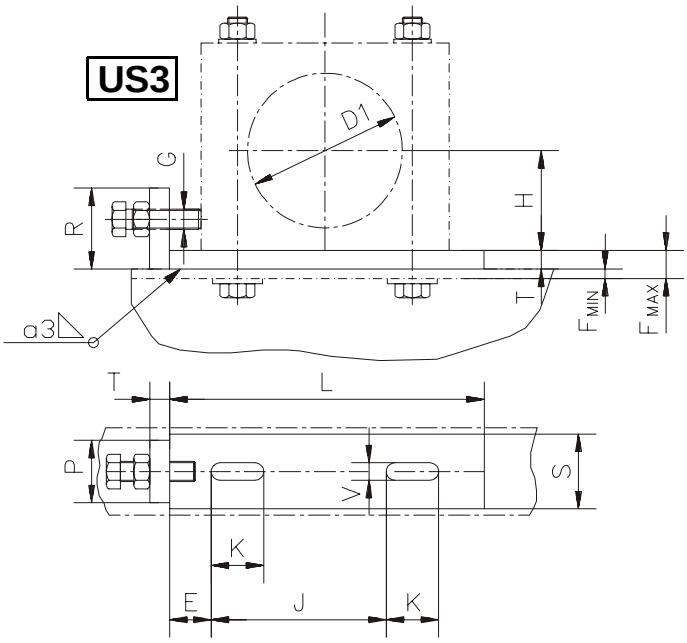
Outer diameter of bearing D1 (mm)

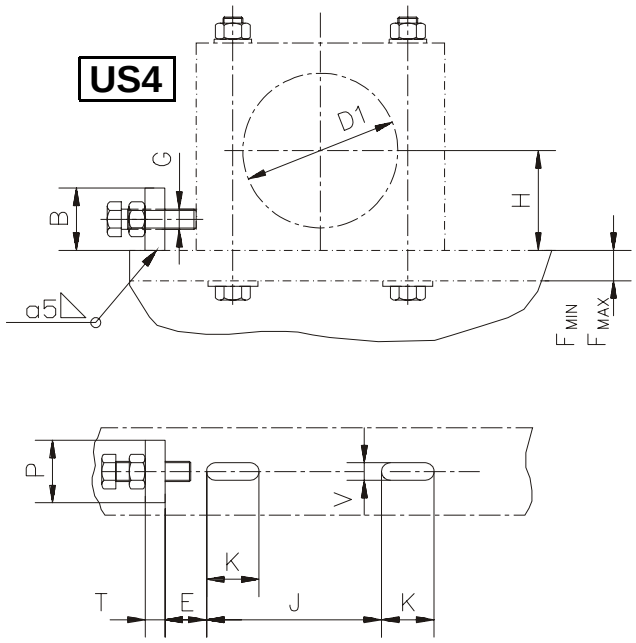
ADJUST PIECE

ORDERING EXAMPLE: US4 - 210

Type code

Outer diameter of bearing D1 (mm)





Type of bearing house	D1	L	J	G	E	S	P	F_{min}	*)F_{max}	H	T	V*K	Weight (kg) US3	Weight (kg) US4
BZC11	**80**	195	110	M16	16	50	50	8	15	55	10	22*52	1.1	0.5
	90	205	120	M16	16	50	50	8	20	60	10	22*52	1.1	0.5
	110	245	150	M16	20	60	50	12	23	75	12	26*56	1.6	0.5
	140	275	180	M16	20	60	50	12	28	90	12	26*56	1.8	0.5
BZC12	**180**	340	230	M20	23	80	80	16	29	115	16	33*63	4.0	1.0
	200	485	345	M20	37	80	80	16	34	135	16	26*66	5.5	1.0
	210	485	345	M20	37	80	80	16	34	135	16	26*66	5.5	1.0
	225	520	375	M20	36	100	80	16	34	145	16	33*73	7.0	1.0
	240	560	415	M20	36	100	80	20	54	165	16	33*73	7.5	1.0
	260	560	415	M20	36	120	80	20	54	165	16	33*73	8.9	1.0
	280	615	460	M20	37	120	80	20	54	180	16	40*80	9.6	1.0
	310	660	500	M24	37	140	120	25	60	200	20	40*80	15.9	2.3
	340	715	550	M24	40	160	120	25	60	225	20	46*86	19.1	2.3

*) **F_{max},** when the fixing parts BZC11-X and BZC12-X are used.

PULLEY FASTENER US5

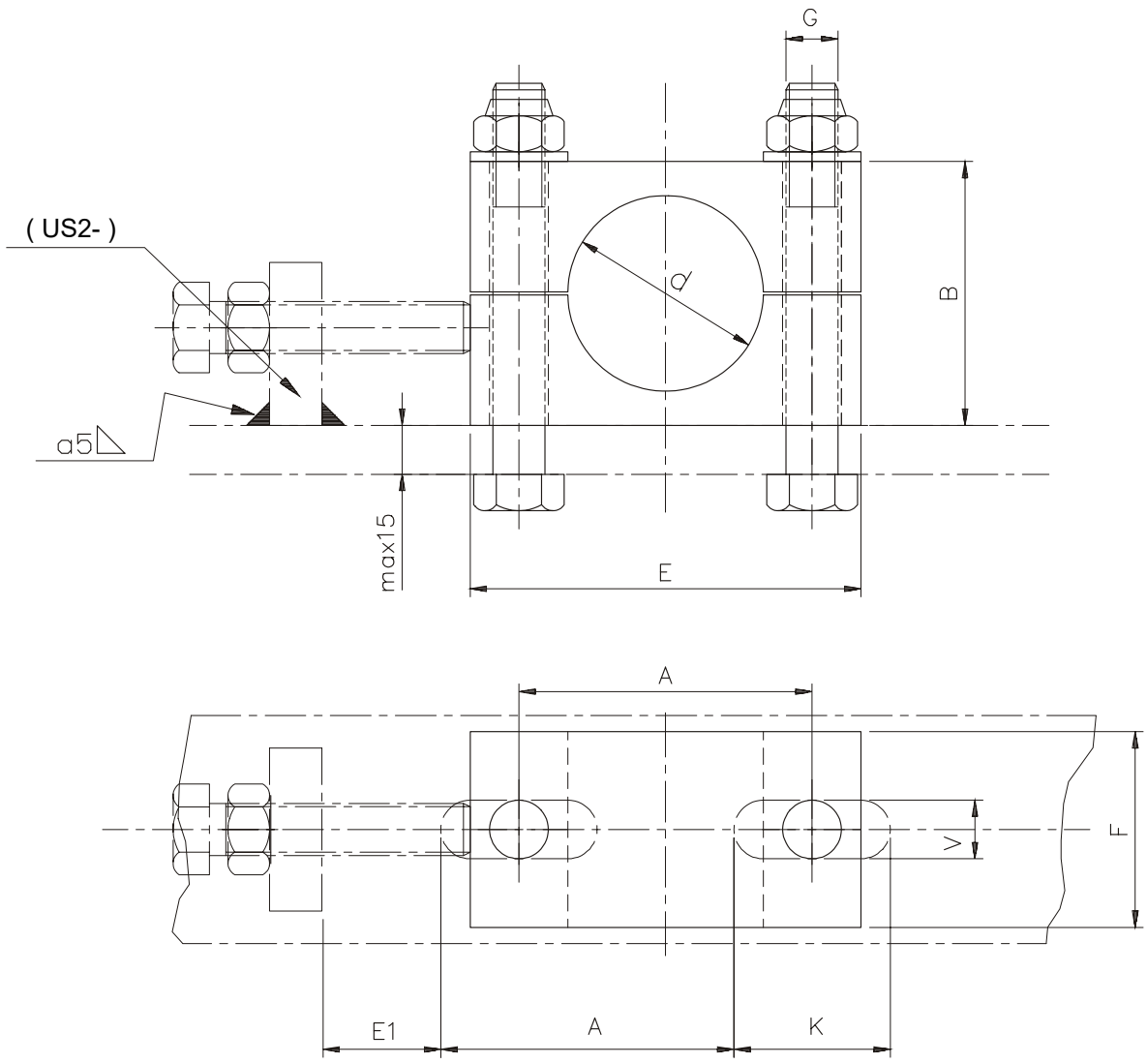
US5- pulley fastener is used for the steel frame fastener of the BP -pulleys when there is no need for the belt tensioning like the normal (stand.) tail pulley has. The adjustment of the pulley position is taking care with the long holes on base construction.

ORDERING EXAMPLE: US5 - 60

Type code

Shaft diameter of pulley d (mm)

Fastener needed quantity for order 2 pcs/pulley.



Pulley type	d	A	B	E	F	G	E1	V x K	Weight (kg)
BP 40	**40**	70	61	100	40	M12	16	14 x 44	1.7
BP 50	**50**	70	71	100	50	M12	16	14 x 44	2.3
BP 60	**60**	90	81	120	60	M16	14	18 x 48	3.7
BP 70	**70**	100	101	150	60	M16	22	18 x 48	5.9
BP 80	**80**	110	101	150	60	M20	14	22 x 52	5.7

5. CLEANERS

- Selection of belt cleaners
- Pre-cleaner MAX3
- Fine cleaner MAX6
- Accessories for MAX cleaners MEP4 MEP5
- Pre-cleaner PIT-BOSS
- Fine cleaner PIT-TROJAN
- Belt brush MOTOMAX
- Air knife AIRMAX10
- Belt turning BELT-TWIST
- Bar cleaner MAX7
- Vibrating idler BEP13
- Motorised vibrator for side wall belt MK222
- Carving cleaner BEP15
- Carving multiblade cleaner BEP31
- Return belt cleaner MR1
- Return belt plough MR2
- Pulley cleaner MS1
- Pulley cleaner MS2
- Pulley cleaner MS3
- Pulley cleaner MS4
- Pulley cleaner MS5
- Pulley cleaner MS6
- Pulley cleaner MS8

SELECTION OF BELT CLEANERS

As a result of the long-term product development, our range of belt cleaners is wide and versatile. Our product range provides suitable solutions to different kinds of conditions. The cleaners are divided into three main groups based on its working position. According to the belts operating position, the cleaners are divided into three main groups:

CLEANERS ON THE DIRTY SIDE OF THE BELT

These are ordinary belt cleaners. The product range includes carving, rubbing and rotating belt cleaners. Correct cleaner selection is an important factor when thinking of safety, reliability and general economics of the conveyor.

CLEANERS ON THE RETURN BELT

These ploughing or wiping return belt cleaners take off the material occasionally dropped onto the clean side of the belt. Thus the undesirable material is prevented from being conveyed between the belt and pulley.

PULLEY CLEANERS

The continuous keeping of belt clean is important for the centering and steady travel of the belt. Pulley cleaners protect the belt against damage.

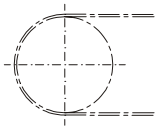
ECONOMY

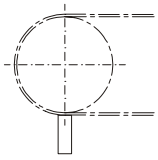
Presented below is a comparison of how the selection of belt cleaners influence maintenance costs during a period of 3 years. Investment, maintenance and spare parts costs are included in the comparison.

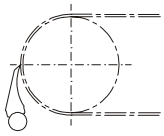
Selection of the cleaners is of great importance to the safety and economics of the conveyor. Correct selection of cleaners adds working safety, reduces cleaning costs and leads to considerable economical savings, with less production breaks and accidents.

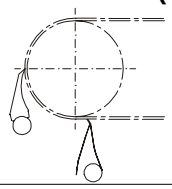
When selecting cleaners, materials conveyed and climatic conditions must be taken into consideration. Long term economics should also be considered. In the enclosed comparisons, the economics of different type of cleaners are compared. The target is to keep the floor under the conveyor clean from dirt and scraps. The data provided has been collected from on-site field tests.

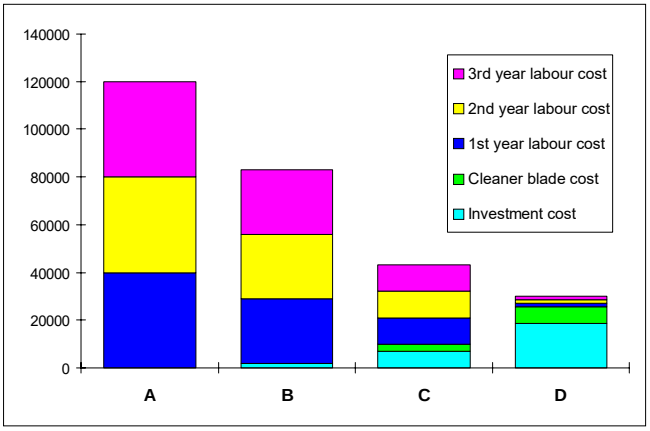
Without cleaners (A) | **Conventional cleaners (B)** | **Precleaner (C)** | **Precleaner + fine cleaner (D)**

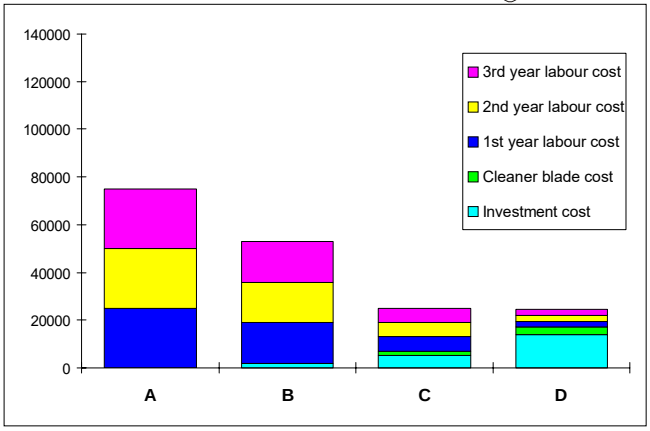






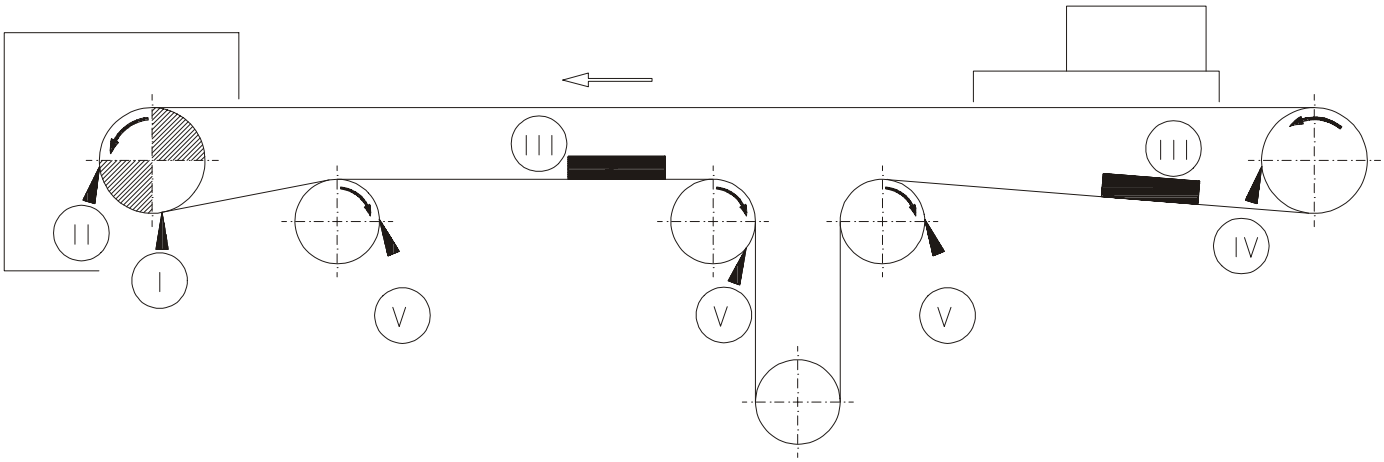






Example 1:	Material:	Cement	Example 2:	Material	Moist limestone
	Capacity:	400 m^3/ h (700 t/h)		Capacity:	22 m^3/h
	Scrap:	0,008%		Scrap:	0,1%

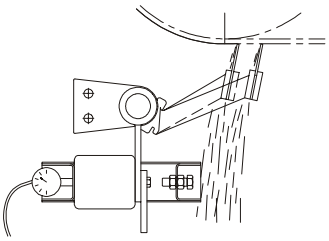
LOCATION OF THE BELT CLEANERS ON THE CONVEYOR



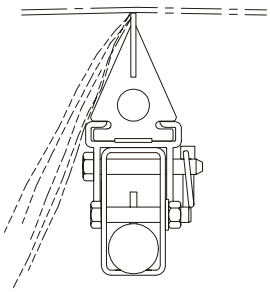
I RUBBING AND ROTATING CLEANERS

Rubbing cleaners are used alone or to encrease the efficiency of the carving cleaners.

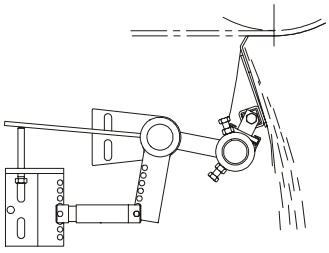
MAX6 is rubbing type cleaner equipped with support arms and an air spring where several metal blades press against the belt and follow the belt contour smoothly. Blade alternatives are; stainless (R), hardmetal (K) or ceramic (S). These are higly recommended for the cleaning of dry, pulverized or granular materials.



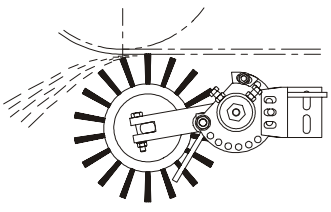
MAX7 is a bar type multiblade cleaner. The support bar is easily fixed to the steel frames of the conveyor. The blades are fixed to the bar by means of an elastic joint. The wearable part alternatives are; stainless (R), hard metal (K), ceramic (S) or polyethene (M). MAX7 is recommended as a general cleaner for all kinds of material and operates properly with conveyors of 2-direction drives, too.



HHP is a dragging type cleaner. Due to its narrow construction, materials are not allowed to be carried over the cleaner and is suitable for all kinds of materials in all kinds of conditions. Metallic blade frames can also be equipped with a patented heating system which encreases the efficiency of the cleaning result in sub-zero conditions. Recommended for the use on all materials in all conditions.



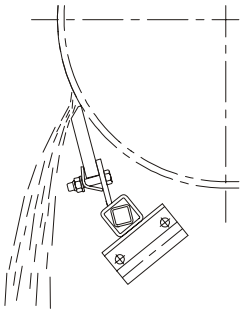
MOTOMAX is a belt brush with bristles composed of polyprophen (P), polyamid (N), polyurethane (U) or steel (T). As it is a self-adjusting, the brush is reliable and easy to maintain. The brush is used on nipper or rib belts for which the carving or ribbing cleaners are not always suitable. It is also possible to use the brush on smooth surface belts.



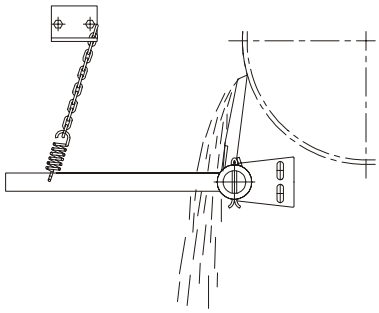
II CARVING CLEANERS

The carving cleaner is one of the most popular cleaner types. ROXON's range of carving cleaners is wide and contains a suitable solution for every situation.

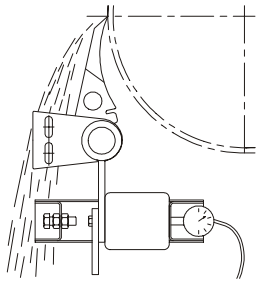
BEP15 is an economical and reliable universal cleaner with a wide operating area. The cleaner unit is the same width as the belt and is produced from either pure polyurethane (U) or polyurethane filled with aluminium (A) or polyethene (M). Recommended for use in easy conditions and with low cleaning demands.



BEP31 is a multiblade cleaner with a very wide operating area. It is easy to maintain due to the easy replacing of wearable parts. Wearable parts comprise of either polyurethane (U), polyurethane filled with aluminium oxide (A) or ceramic (S). Recommended for use in more difficult and demanding conditions.



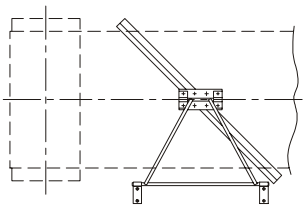
MAX3 is a realiable carving multiblade cleaner which meets the highest demands related to maintenance and cleaning efficiency. The wearable part of the polyurethane blades are easy to replace. Material comprises of either pure polyurethane (U) or polyurethane filled with aluminium oxide (A) or ceramic (S). Recommended for use in difficult conditions when the cleaning demands are high.



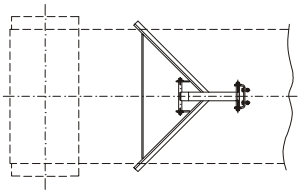
III CLEANERS ON THE RETURN BELT

Belt wipers clean off the material and foreign objects dropped onto the return belt. This protects both the tension- and tail pulleys and the belt from damages.

MR 1 is a heavy duty belt wiper which moves wiped materials to one side of the belt. As a wearable part, either polyethene (M) or more wear resistance polyurthane (U) can be selected depending on conditions. Polyurethane is also available filled with aluminium oxide (A). The operation area of MR 1 is very wide and is suitable for all types of conveyors in all kinds of conditions.



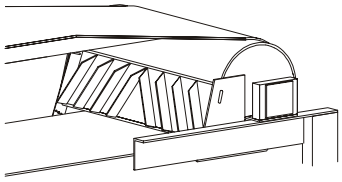
MR 2 is a ploughing type cleaner for the return belt. As a wearable part, either polyethene (M) or more wear resistance polyurethane (U) can be selected, depending on the conditions. Polyurethane is also available filled with aluminium oxide (A). Due to the elastic fastening, it follows the belt contour closely. MR 2 is suitable for all types of conveyors in all kinds of conditions.



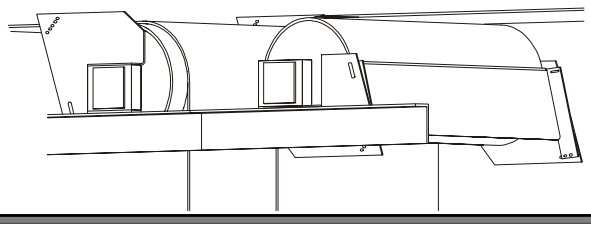
IV and V PULLEY CLEANERS

Pulley cleaners clean the pulleys and keep them clean of dirt. Thus dirt cannot guide the belt sideaways.

MS1, **MS3** and **MS5** rib type construction moves the dirt which covers the pulley and the return belt over the belt edge. Is used by the bending points of the belt conveyor, on tail pulleys when the cleaners drop the loosened material onto the return belt.



MS2, **MS4** and **MS6** are pulley cleaners with smooth blade. They are used on the pulleys bending the belt, when the loosened material does not drop onto the return belt. They are suitable for almost all conditions and for all kind of conveyors.



Most of ROXON's cleaners are suitable for almost all conveyors and in all conditions. Selection of the cleaner depends especially on the conveyed material, conditions and demand on the cleaning results. The table below gives guide lines when selecting cleaners.

We at ROXON can also select cleaners for you if needed.

Table 1: Selection of the cleaner 0 = non-suitable, 1= suitable, 2 = excellent suitabililty

Operation area	Cleaner type		Wearable part	Suitability for different materials											
				Abrasive, dry				Sticky				Wood based materials			
				PELLETS	APATIT	ORE	GRAVEL	COAL	CONCEN-TRATES			BARK	WOOD CHIPS	PEAT	WOOD LOGS
I	Carving cleaners	BEP15	POLYETHENE	0	0	0	0	0	0			1	1	1	1
			PUR	1	1	2	2	2	2			2	2	2	2
			PUR+Al_2O_3	1	1	2	2	2	2			2	2	2	2
		BEP31	PUR	1	1	2	2	2	2			2	2	2	2
			CERAMIC	2	2	2	2	2	2			1	1	1	1
			PUR+Al_2O_3	2	2	2	2	2	2			2	2	2	2
		MAX3	PUR	1	1	2	2	2	2			2	2	2	2
			CERAMIC	2	2	2	2	2	2			1	1	1	1
			PUR+Al_2O_3	2	2	2	2	2	2			2	2	2	2
II	Ribbing	MAX6	STAINLESS	1	1	2	2	2	1			1	2	2	1
			HARD METAL	2	2	2	2	2	2			1	2	2	1
			CERAMIC	2	2	2	2	2	2			1	2	2	1
		MAX7	STAINLESS	2	2	2	2	2	2			1	2	2	1
			POLYETHENE	0	0	0	0	0	0			2	2	2	2
			CERAMIC	2	2	2	2	2	2			1	1	1	1
			HARD METAL	2	2	2	2	2	2			1	2	2	1
		HHP	STAINLESS	1	1	2	2	2	1			2	2	2	2
			HARD METAL	2	2	2	2	2	2			2	2	2	2
	Brushes	MOTOMAX	POLYPROPHEN	0	1	1	1	1	1			2	2	2	2
			POLYAMID	0	1	1	1	1	1			2	2	2	2
			STEEL	1	2	1	1	1	1			2	2	2	2
			PUR	2	2	2	2	2	2			2	2	2	2
III	Return belt cleaner	MR1	POLYETHENE	0	0	0	0	0	0			2	2	2	2
			PUR	2	2	2	2	2	2			2	2	2	2
			PUR+Al_2O_3	2	2	2	2	2	2			2	2	2	2
		MR2	POLYETHENE	0	0	0	0	0	0			2	2	2	2
			PUR	2	2	2	2	2	2			2	2	2	2
			PUR+Al_2O_3	2	2	2	2	2	2			2	2	2	2
IV	Pulley cleaners	MS1 MS3 MS5		2	2	2	2	2	2			2	2	2	2
V		MS2 MS4 MS6		2	2	2	2	2	2			2	2	2	2

PROPERTIES OF THE CLEANERS

In the table below is a collection of the main properties of the cleaner types located on the dirt side of the belt. (Operation areas I, II and III).

Table 2: Properties

Cleaner type		Multiblade cleaner	Automatic tension	Air spring tensioning	Gas spring tensioning	Belt power tensioning	Inspection hatch extra	Heating as extra	Suitable for pattern belt	Suitable for 2-way conveyor
Carving cleaners	BEP15									
	BEP31	X	X							
	MAX3	X	X	X			X			
Rubbing cleaners	MAX6	X	X	X						
	MAX7	X	X			X	X			X
	HHP	X	X		X		X	X		X
Brushes	MOTOMAX		X		X		X		X	

COST COMPARING OF THE BLADES

Wear resistance of the blades is very depent on the material and conditions. In the table below, the relative wear resistance and price friction of the cleaners, is shown.

Table 3: Relative wear resistance and price

Cleaner type	Wearable part	Wear resistance	Price
Carving and return belt cleaners	POLYETHENE	2	2
	PUR	10	4
	PUR + AL_2O_3	20	7
Rubbing cleaners	STAINLESS	3	3
	HARD METAL	7	4
	POLYETHENE	1	1
	CERAMIC	10	7
Brushes	POLYPROHEN	1	1
	POLYAMID	0.8	1.1
	STEEL	3	2
	PUR	5	3

PRE-CLEANER MAX3

MAX3 pre-cleaner removes residue that has adhered to the belt via a carving. It is a multi-blade cleaner and there are various blades types available for it according to the material being transported on the belt and the operating conditions.

The blade is made up of two different parts. When the Ecoblade-part has worn out, it is easy to be replaced to the Never change-fastening part operating as a spring. Most common material of the tip part is polyurethane. In abrasive materials is recommended to use polyurethane blade filled with aluminium oxide granules. In very difficult and abrasive conditions polyurethane blade with vitrified ceramic piece are used.

The automatically adjustable and constant-force CleverMax tightening device makes supervision of the wear on the blades possible directly from the service level.

ORDERING EXAMPLE: MAX3 - 1200 - T U - X A C

Type code

Belt width B (mm)

Blade structure
- T = DIVIDED (separate base and blade parts)

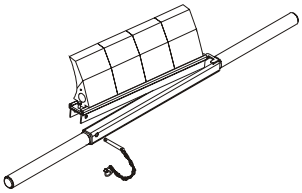
Blade material
- U = POLYURETHANE
- A = POLYURETHANE + ALUMINUM OXIDE (Al_2O_3)
- S = POLYURETHANE + VITRIFIED CERAMIC PIECE

Fixing method
- X = BASIC FIXINGS
- E = UNIVERSAL FIXINGS
- L = SERVICE HATCH

Blade frame
- A = ALUMINUM

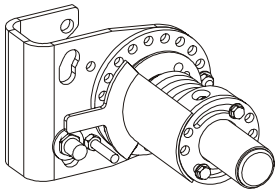
Tightening alternative
- C = CLEVERMAX TORSION SPRING

The sensor which monitors the wear and tear of the blades is not included in the standard shipment. It must be ordered separately. Other types of blades are also available.



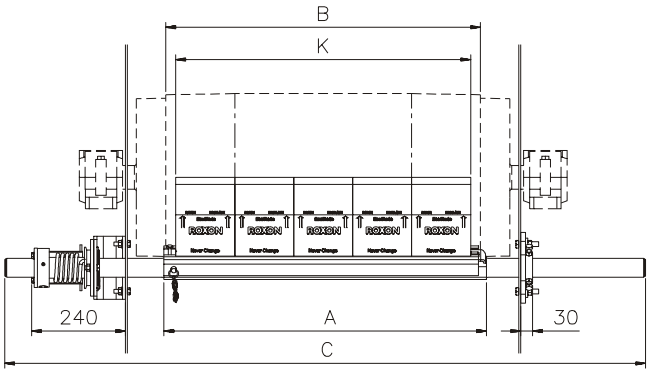
Detachable blade cassette

The detachable blade cassette of MAX - cleaners is easy to be replaced through the inspection opening on the chute wall. With an extra mounting profile, the whole "blade cassette" can be pre-assembled thus minimizing the actual replacement time.



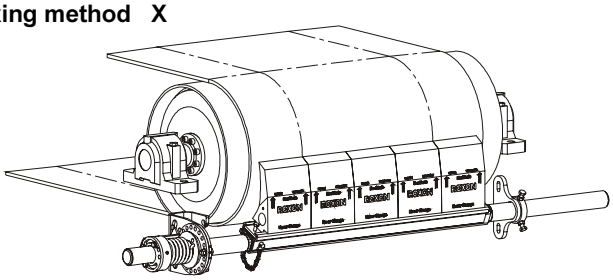
CleverMax tightening device

It is possible to install an inductive sensor onto the tightening device that will monitor the wear and tear of the blades. The frame takes a ø18 sensor.

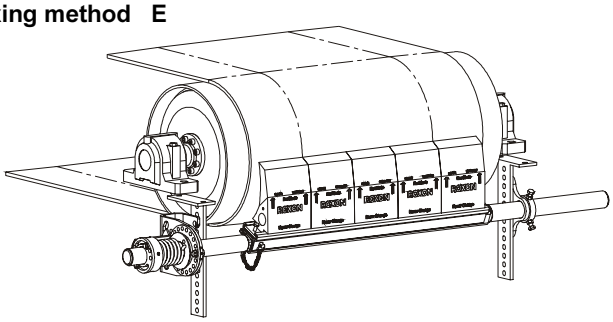


B	K	A	C	Blade (pcs)	Weight (kg) Type X	Type E	Type L
400	300	370	1170	2	18	23	20
500	450	520	1320	3	19	25	22
650	600	670	1470	4	21	26	24
800	750	820	1620	5	23	28	25
1000	900	970	1770	6	25	30	27
1200	1050	1120	2020	7	27	32	30
1400	1350	1420	2320	9	31	36	33
1600	1500	1570	2470	10	32	38	35
1800	1650	1720	2620	11	34	39	37
2000	1950	2020	2920	13	38	43	40

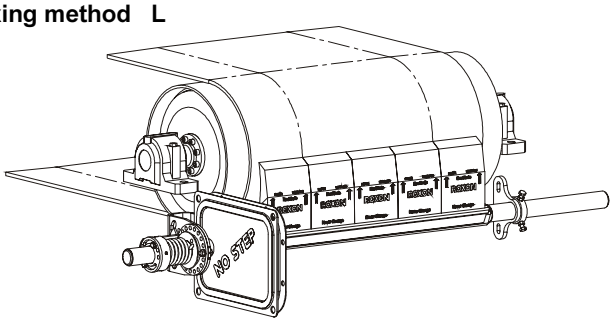
Fixing method X



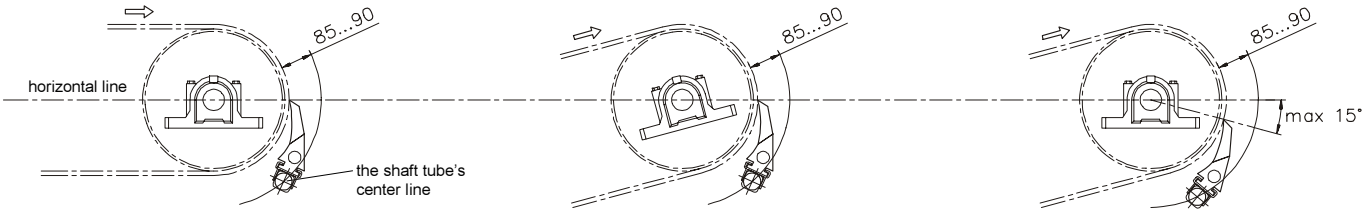
Fixing method E



Fixing method L

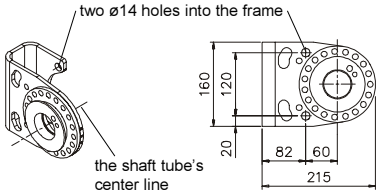


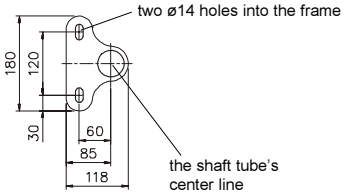
Measurements to the conveyor

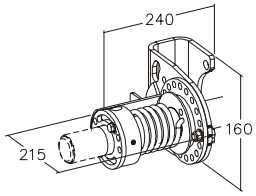


The distance of the shaft tube's center line from the surface of the belt should be 85...90 mm. The tip of the blade should be at the point of the horizontal line which passes through the center line of the pulley.

For slow speeds (under 1 m/s), the cleaner is recommended to install at a maximum of 15° below the horizontal line.

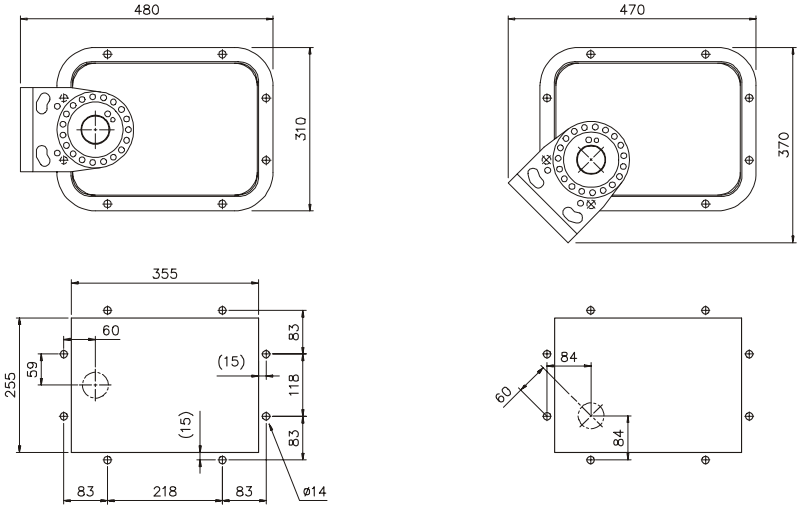




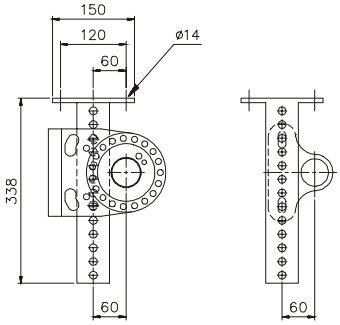


The spring frame and the brace can be turned to the desired position in relation to the shaft tube's center line. If necessary, a through hole (ø52) can be made into the conveyor structure for the shaft tube.

The amount of space needed for an assembled spring tension device. If necessary, the excess part of the shaft tube may be cut off.

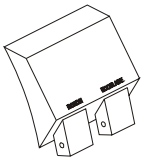


Alternatives for installing the hatch and spring frame and perforation of the chute's wall for the hatch



Universal clamp with spring frame and opposite side brace.

Ordering codes for the expendable parts



ORDERING EXAMPLE: ECOBLADE - U

Type code

Blade material

U = POLYURETHANE
A = POLYURETHANE + ALUMINUM OXIDE (Al_2O_3)
S = POLYURETHANE + VITRIFIED CERAMIC PIECE

ORDERING EXAMPLE: NEVER CHANGE

Type code

ORDERING EXAMPLE: MAX3 - T - U

Type code

Blade structure

T = DIVIDED (separate base and blade parts)

Blade material

U = POLYURETHANE
A = POLYURETHANE + ALUMINUM OXIDE (Al_2O_3)
S = POLYURETHANE + VITRIFIED CERAMIC PIECE

FINE CLEANER

MAX6

MAX6 fine cleaner removes residue that has adhered to the belt via a rubbing motion. It is a multi-blade cleaner and there are various blades types available for it according to the material being transported on the belt and the operating conditions.

Linear touch in the cleaner guarantees a very good cleaning result including dusty material which is stuck tight on the belt. Sharp angle with respect to the direction of the belt makes possible the high blade pressure without damaging the belt. The elastic joint of the blade parts to the arms allows them to follow the belt and, and sharp edge contacts are not born. The elastic blade arm guarantees also good belt contact even on the uneven belt. The most common blade material is hard metal.

The automatically adjustable and constant-force CleverMax tightening device makes supervision of the wear on the blades possible directly from the service level.

ORDERING EXAMPLE: MAX6 - 1200 - K - X A C

Type

Belt width B (mm)

Blade material

R = STAINLESS
K = HARD METAL
S = VITRIFIED CERAMIC

Fixing method

X = BASIC FIXINGS
E = UNIVERSAL FIXINGS
L = SERVICE HATCH

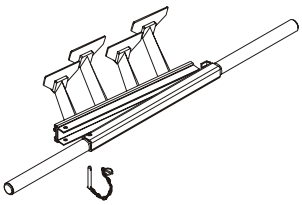
Blade frame

A = ALUMINUM

Tightening alternative

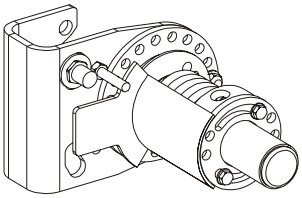
C = CLEVERMAX TORSION SPRING

The sensor which monitors the wear and tear of the blades is not included in the standard shipment. It must be ordered separately. Other types of blades are also available.



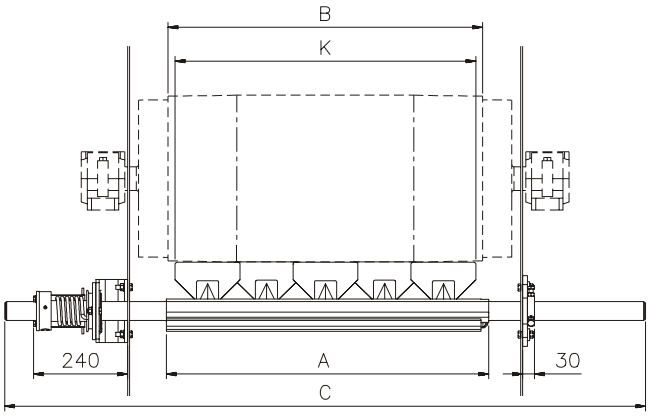
Detachable blade cassette

The detachable blade cassette of MAX - cleaners is easy to be replaced through the inspection opening on the chute wall. With an extra mounting profile, the whole "blade cassette" can be pre-assembled thus minimizing the actual replacement time.



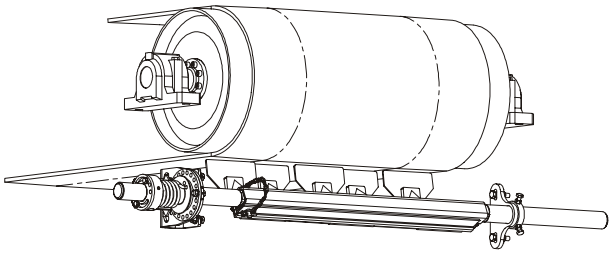
CleverMax tightening device

It is possible to install an inductive sensor onto the tightening device that will monitor the wear and tear of the blades. The frame takes a ø18 sensor.

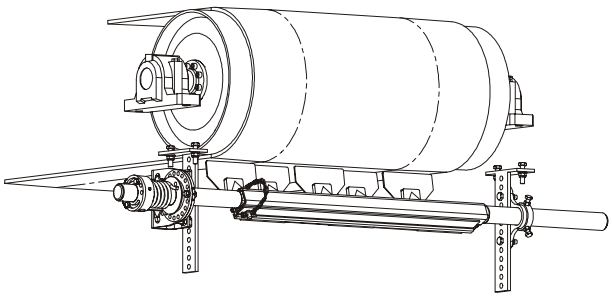


B	K	A	C	Blade arm (pcs)		Blade	Weight (kg)		
				Long	Short	(pcs)	Type X	Type E	Type L
400	315	370	1170	1	1	2	20	24	21
500	465	520	1320	2	1	3	22	27	24
650	615	670	1470	2	2	4	25	29	26
800	765	820	1620	3	2	5	28	32	29
1000	915	970	1770	3	3	6	31	35	32
1200	1065	1120	2020	4	3	7	34	38	35
1400	1365	1420	2320	5	4	9	39	44	40
1600	1515	1570	2470	5	5	10	50	54	51
1800	1665	1720	2620	6	5	11	52	57	54
2000	1965	2020	2920	7	6	13	58	62	59

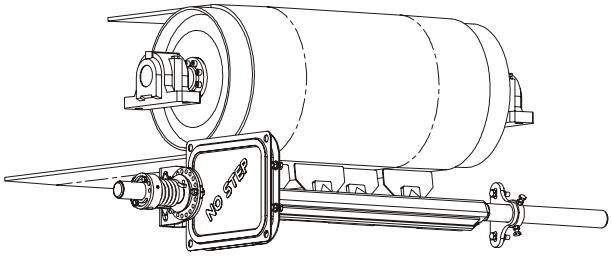
Fixing method X



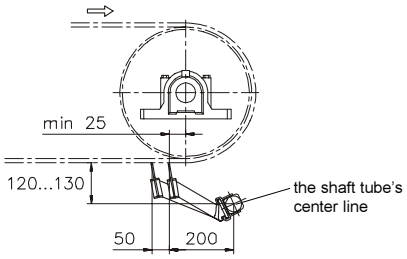
Fixing method E



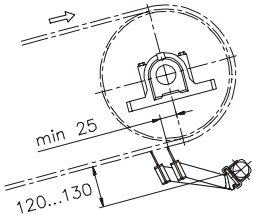
Fixing method L



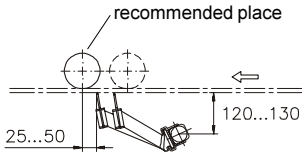
Measurements to the conveyor



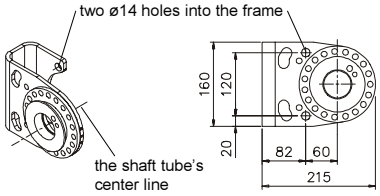
The distance of the shaft tube's center line from the surface of the belt should be 120...130 mm.

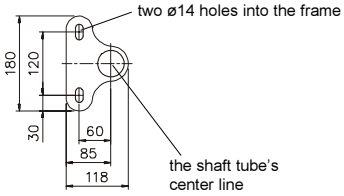


With inclined conveyors, dimensioning acc. to direction of the belt.

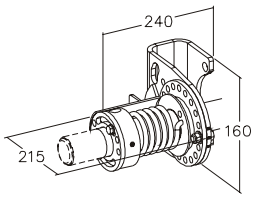


When MAX6 is not located near by the pulley, the belt is supported with counter roll above the belt.



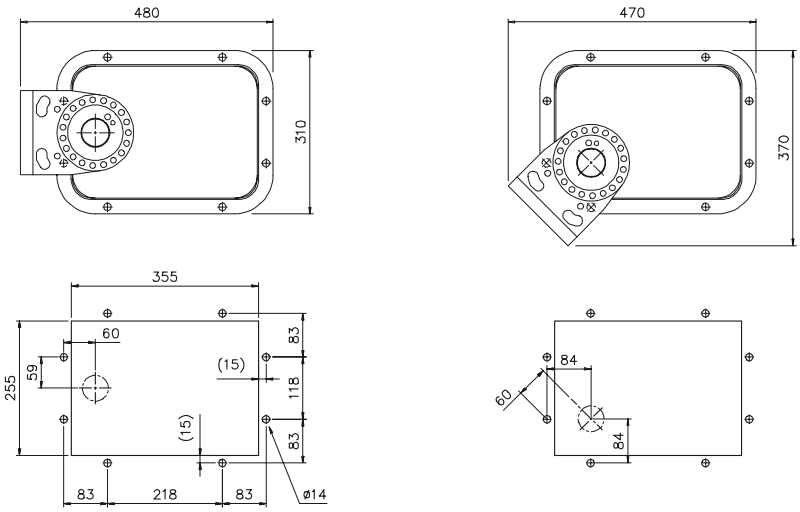


The spring frame and the brace can be turned to the desired position in relation to the shaft tube's center line. If necessary, a through hole (ø52) can be made into the conveyor structure for the shaft tube.

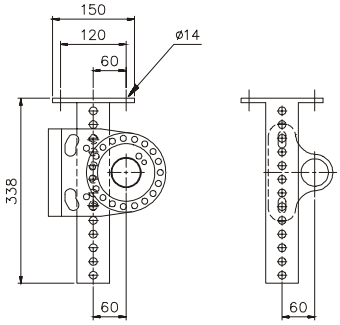


The amount of space needed for an assembled spring tension device. If necessary, the excess part of the shaft tube may be cut off.

For belt widths 1600...2000 mm the assembly includes two spring tension devices, one for each side of the cleaner.

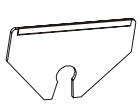


Alternatives for installing the hatch and spring frame and perforation of the chute's wall for the hatch.



Universal clamp with spring frame and opposite side brace.

Ordering codes for the expendable parts

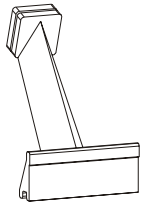


ORDERING EXAMPLE: MAX6 - T - K

Type code

Blade material

R = STAINLESS
K = HARD METAL
S = VITRIFIED CERAMIC



ORDERING EXAMPLE: MAX6 - V - P

Type code

Type of blade arm

L = SHORT
P = LONG

ACCESSORIES FOR MAX CLEANERS MEP4 MEP5

MEP4 : CONNECTION TO A COMPRESSED AIR SYSTEM

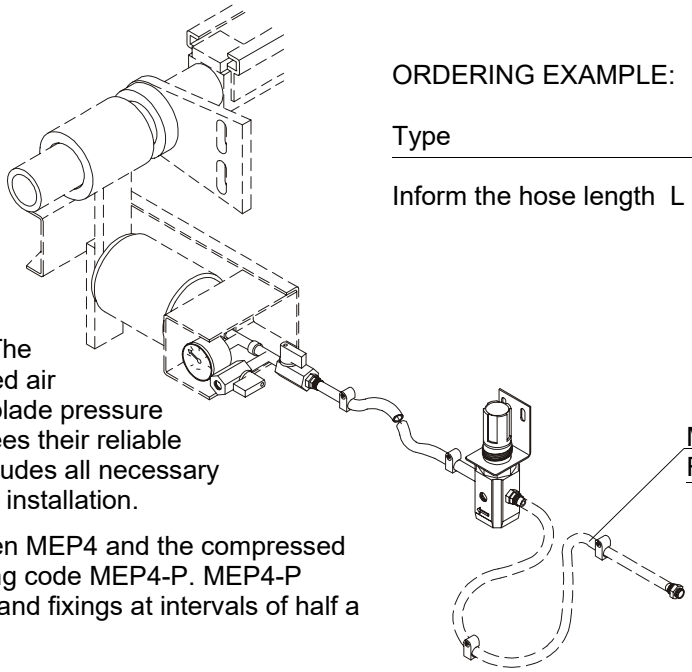
ORDERING EXAMPLE: MEP4

Type

ORDERING EXAMPLE: MEP4 - P

Type

Inform the hose length L (m)



MEP4-P
Fixing hose with fixings

Max cleaners can be connected to a compressed air system (air pressure 7...10 bar) by using MEP4. The connection to the compressed air system ensures a constant blade pressure to the cleaners and guarantees their reliable function. MEP4 package includes all necessary parts and instructions for the installation.

The connecting hose between MEP4 and the compressed air system is ordered by using code MEP4-P. MEP4-P includes the hose (PUR6/4) and fixings at intervals of half a meter.

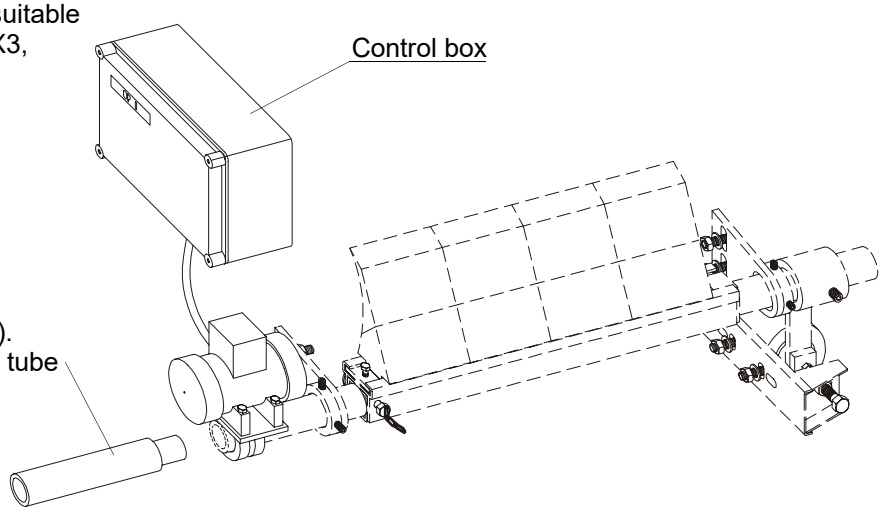
MEP5 : VIBRATING EQUIPMENT

ORDERING EXAMPLE: MEP5

Type

With adhesive and sticky materials, the cleaning efficiency of the cleaner can be increased considerably by cleaning the scraper blades with a vibrator.

MEP5 vibrating equipment includes a timer which enables the adjustment of the vibrating intervals and the vibrating time according to the situation. MEP5 can be connected directly to an electric network, voltage 240/400 V. MEP5 is suitable for the use with cleaners MAX3, MAX6 and BEP31.



Control box

Extension part (if needed).
To be welded to the body tube

PRE-CLEANER

PIT-BOSS

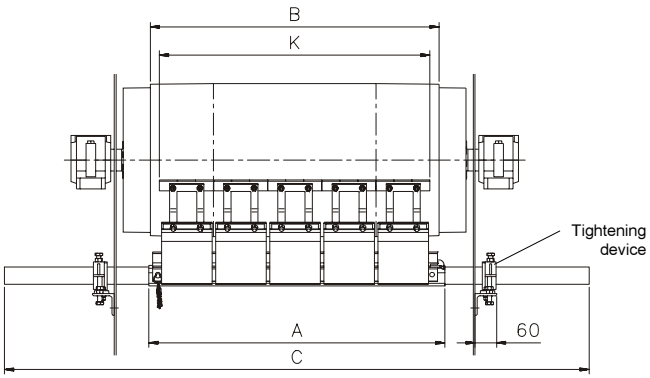
PIT-BOSS pre-cleaner equipped with hard metal blades is developed for very abrasive materials, for demanding processing industry.

Blade material of tungsten carbide guarantees a good wear resistance even with the weary materials. Open construction prevent the cleaner to be plugged.

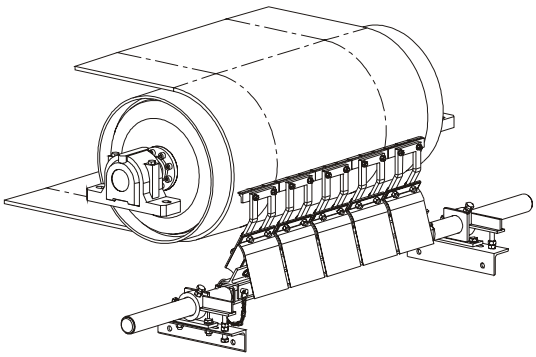
Simple torque system and small blade pressures saves the belt. Operation is at its best with the new, smooth belt. Do not install the cleaner on the belt which is teared, with holes or big roughness on the surface.

ORDERING EXAMPLE: PIT-BOSS 500 - 1200 - T X A

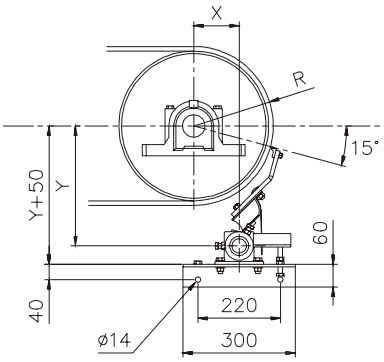
- Type code
- Pulley diameter D (mm)
- Belt width B (mm)
- Blade material
  - T = HARD METAL (tungsten carbide)
- Fixing method
  - X = BASIC FIXINGS
- Profile bar for blades
  - A = ALUMINIUM



Tightening devices can also be placed inside the shute wall if space is required

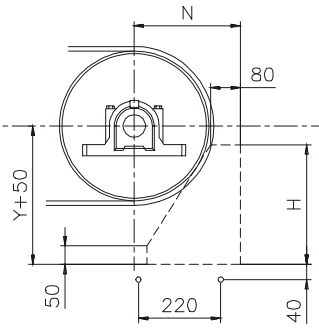


Measurements to the conveyor

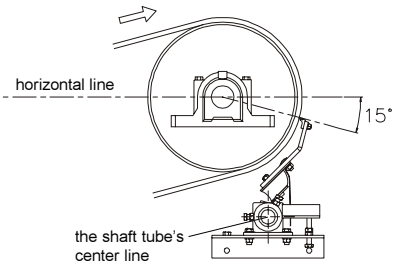


The tightening device can be turned to the desired position in relation to the shaft tube's center line.

Installation opening (if needed)



Inclined conveyors



The tip of the blade should be at the point of 15° below the horizontal line. If necessary, a through hole (ø52) can be made into the conveyor structure for the shaft tube.

D steel surface pulley diameter	R when rubber lagging of the pulley 5 mm and belt thickness 10 mm	X	Y	N	H
320	175	96	314	246	319
400	215	134	325	284	319
500	265	151	391	301	373
630	330	213	408	363	373
800	415	281	475	431	418
1000	515	354	524	534	438

B	K	A	C	Blade (pcs)	Weight (kg)
400	300	370	1170	2	19
500	450	520	1320	3	23
650	600	670	1470	4	28
800	750	820	1620	5	32
1000	900	970	1770	6	36
1200	1050	1120	2020	7	41
1400	1350	1420	2320	9	50
1600	1500	1570	2470	10	54
1800	1650	1720	2620	11	57
2000	1950	2020	2920	13	67

The shaft tube's center line has been calculated with thickness of pulley rubber lagging 5 mm and belt 10 mm. **X** and **Y** dimensions need to be check and move case by case according to next example.

Calculation example
Values: Pulley diameter 500 mm, thickness of rubber lagging 8 mm and belt 20 mm ⇒ R = 278 mm
Difference with the measure given on the table R is 278 - 265 = **13 mm**

In this case X and Y dimensions to be used are:

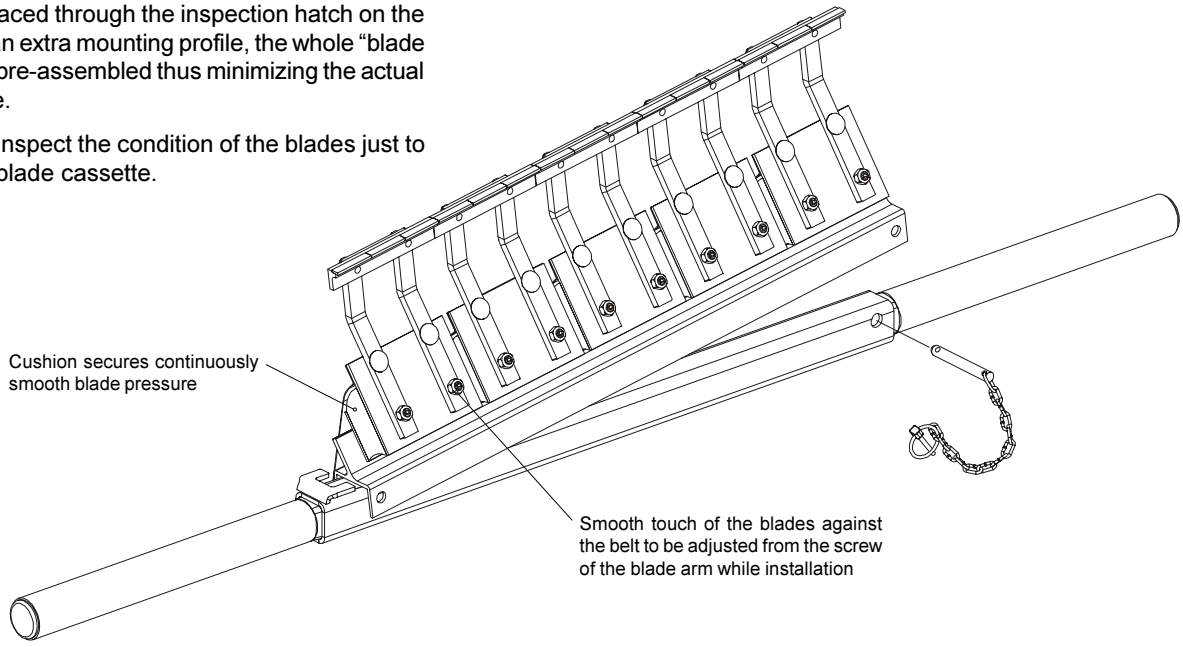
X dimension 151 + 13 x 0.966 = **163.5 mm** (0.966 = X constant, which is used when moving X dimension)
Y dimension 391 + 13 x 0.259 = **394 mm** (0.259 = Y constant, which is used when moving X dimension)

With the bigger pulley diameters and belt widths please contact our technical service department.

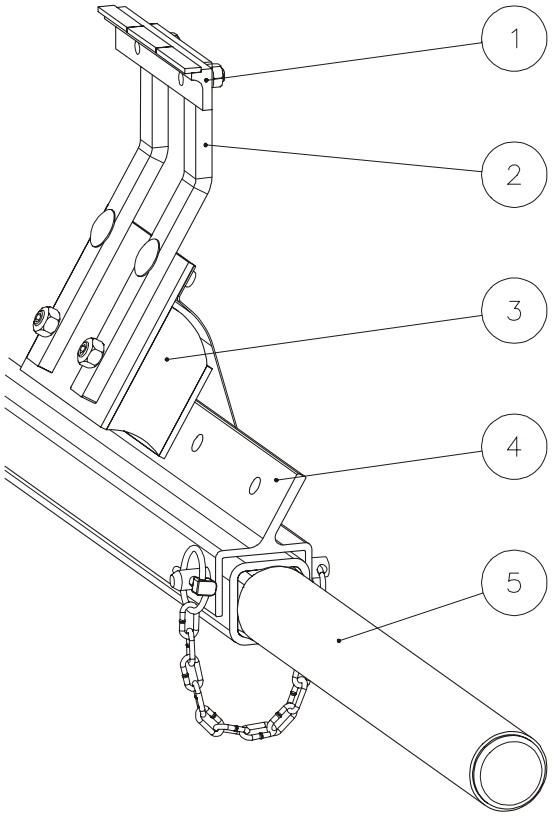
Detachable blade cassette

The detachable blade cassette of Pit-Boss pre-cleaners is easy to be replaced through the inspection hatch on the chute wall. With an extra mounting profile, the whole “blade cassette” can be pre-assembled thus minimizing the actual replacement time.

It is very easy to inspect the condition of the blades just to lift up the whole blade cassette.



Ordering codes for spare parts



1. Blade part

ORDERING EXAMPLE: B - LL - T - 150

Type code

2. Blade arm

ORDERING EXAMPLE: PB - V - A

Type code

Arm model

A = PULLEY DIAMETERS 320 and 400 (mm)
B = PULLEY DIAMETERS 500 and 630 (mm)
C = PULLEY DIAMETER 800 (mm)
D = PULLEY DIAMETER 1000 (mm)

3. Cushion

ORDERING EXAMPLE: B - SC - 150

Type code

4. Profile bar for blades

ORDERING EXAMPLE: MEP7 - P - 800

Type code

Belt width B (mm)

Profile material aluminium.

5. Shaft tube

ORDERING EXAMPLE: MEP1 - T1 - 800

Type code

Belt width B (mm)

FINE CLEANER

PIT-TROJAN

PIT-TROJAN fine cleaner equipped with hard metal blades is developed for very abrasive materials, for demanding processing industry.

Adjusting of the blade pressure together with rubber cushion secure the right blade position against the belt. Linear touch enables small blade pressure, which saves the belt. Blade material of tungsten carbide guarantees a good wear resistance even with the weary materials.

Operation is at its best with the new, smooth belt. Do not install the cleaner on the belt which is teared, with holes or big roughness on the surface.

ORDERING EXAMPLE: PIT-TROJAN - 1400 - T A

Type code

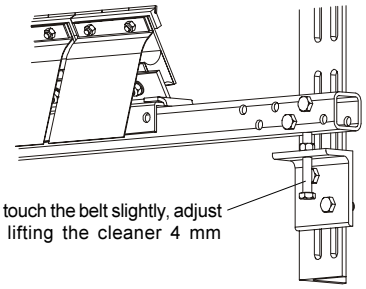
Belt width B (mm)

Blade material

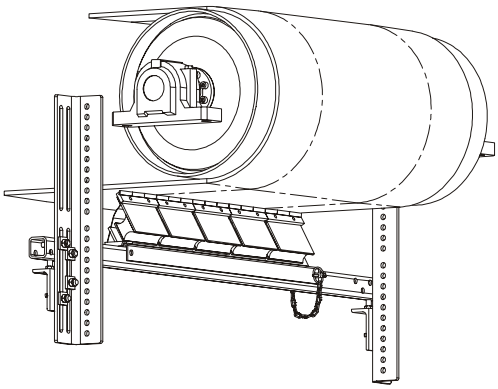
T = HARD METEL (tungsten carbide)

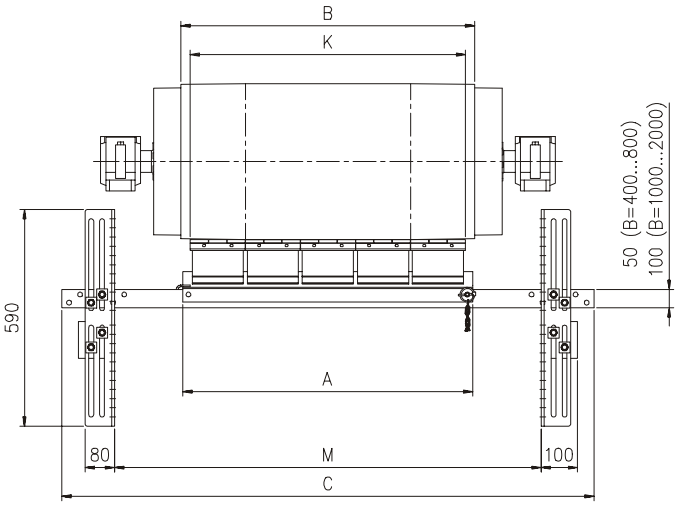
Profile bar for blades

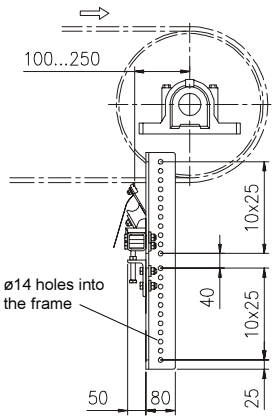
A = ALUMINIUM



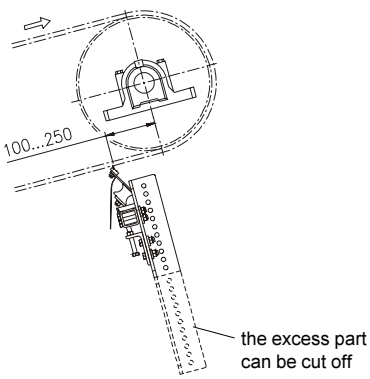
When the blades of the cleaner touch the belt slightly, adjust the right blade pressure by lifting the cleaner 4 mm upwards.



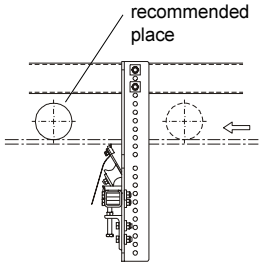




With inclined conveyors, dimensioning acc. to direction of the belt.



When Pit-Trojan is not located near by the pulley, the belt is supported with counter roller above the belt.

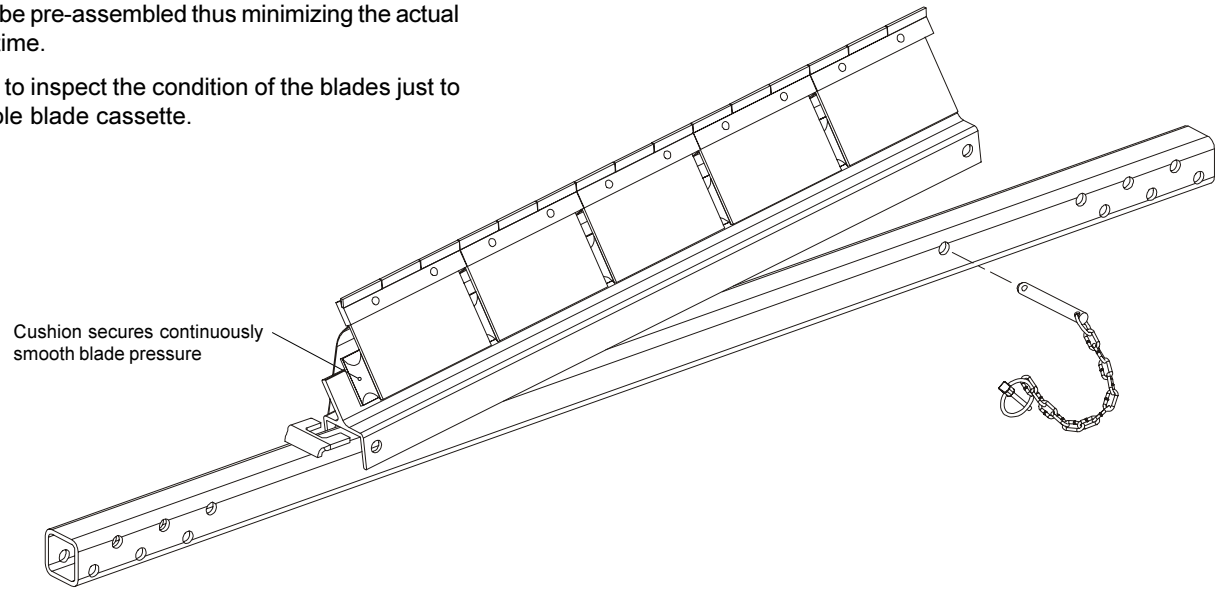


B	C	K	A	M		Blade (pcs)	Weight (kg)
				min	max		
400	1000	300	340	590	830	2	19
500	1150	450	490	740	980	3	21
650	1300	600	640	890	1130	4	24
800	1450	750	790	1040	1280	5	26
1000	1600	900	940	1190	1430	6	33
1200	1750	1050	1090	1340	1580	7	36
1400	2050	1350	1390	1640	1880	9	42
1600	2200	1500	1540	1790	2030	10	44
1800	2350	1650	1690	1940	2180	11	47
2000	2650	1950	1990	2240	2480	13	53

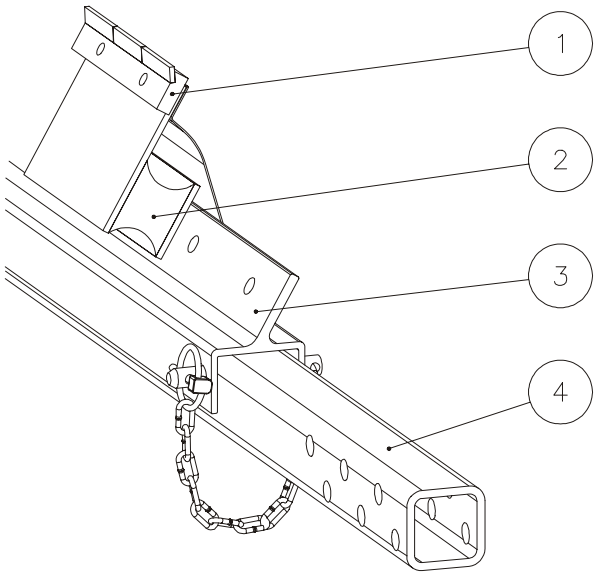
Detachable blade cassette

The detachable blade cassette of Pit-Trojan fine cleaners is easy to be replaced through the inspection hatch on the chute wall. With an extra mounting profile, the whole “blade cassette” can be pre-assembled thus minimizing the actual replacement time.

It is very easy to inspect the condition of the blades just to lift up the whole blade cassette.



Ordering codes for spare parts



1. Blade part

ORDERING EXAMPLE: T - LL - T

Type code

2. Cushion

ORDERING EXAMPLE: T - SC

Type code

3. Profile bar for blades

ORDERING EXAMPLE: MEP7 - P - 800

Type code

Belt width B (mm)

Profile material aluminium.

4. Shaft tube

ORDERING EXAMPLE: MAX7 - P - 800

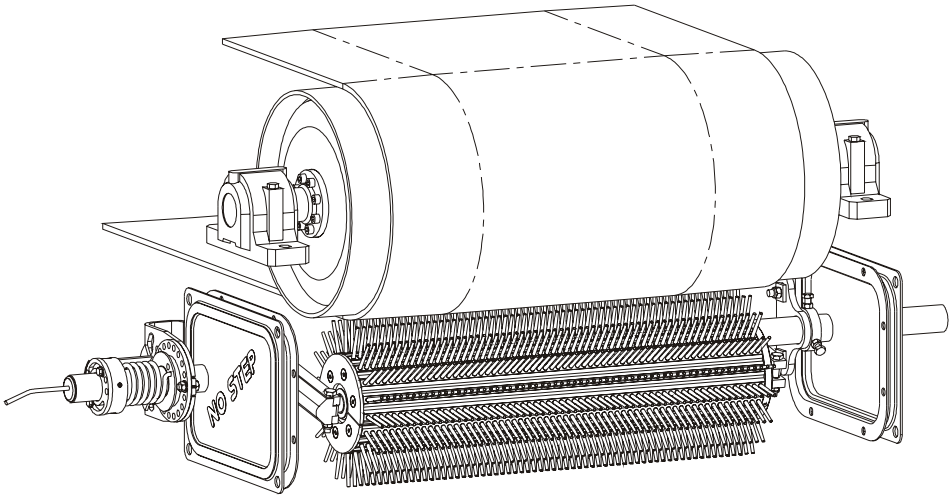
Type code

Belt width B (mm)

BELT BRUSH MOTOMAX

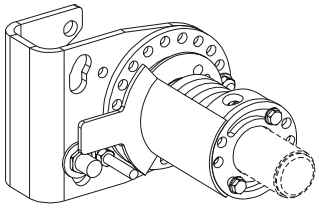
MotoMax belt brush is used on nipper or rib belts for which the carving or ribbing cleaners are not always suitable. It can easily be fitted with other cleaners, on smooth belts, to guarantee an excellent cleaning result. Due to the low rotation speed, the it is also suitable for the board- and sawmill industries because, while brushing, the dusting is essentially reduced.

Installing a brush onto different structures is easy with diverse mounting parts. The rubber hatch allows the chute structures to be extremely tight. The hatch also facilitates maintenance of the brush and parts are easy to change without removing the brush using the hatch.



Adjustment

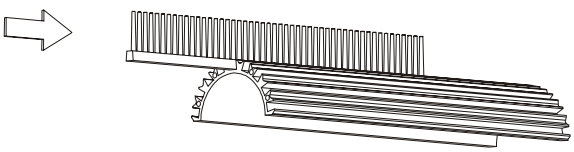
Constant-force torsion spring of the MotoMax-brush gives a constant, stabile force to the brush elements. Thus the right and effective cleaning angle 85 - 90° between the brush elements and the belt is held during the whole lifetime of the brush. The brush's self-regulating CleverMax tightening device guarantees you continuous, excellent cleaning results without having to make adjustments by hand. The wear and tear of the brush can be checked directly from the service bridge. It is possible to install an inductive sensor onto the tightening device that will monitor the wear and tear of the brushes. The frame takes a ø18 sensor.



Brush elements

MotoMax -belt brush has plenty of brush elements (18 pcs) that are pushed radially into the dove tail -type grooves. A large quantity of brush elements ensure a good cleaning result, because it is directly proportionate to the number of brush element making contact. Radial fixing of the brush elements together with the aluminium frame transferring the heat from the pulley motor, guarantees the cleanness of the brush elements also in the winter. The brush element range is very wide. Suitable alternatives are provided for every operating condition and situation.

New wearable parts are easy to replace in the aluminium frame. The frames are fixed to the pulley motor with an end flange. Brush -and profile elements are also available in one package.

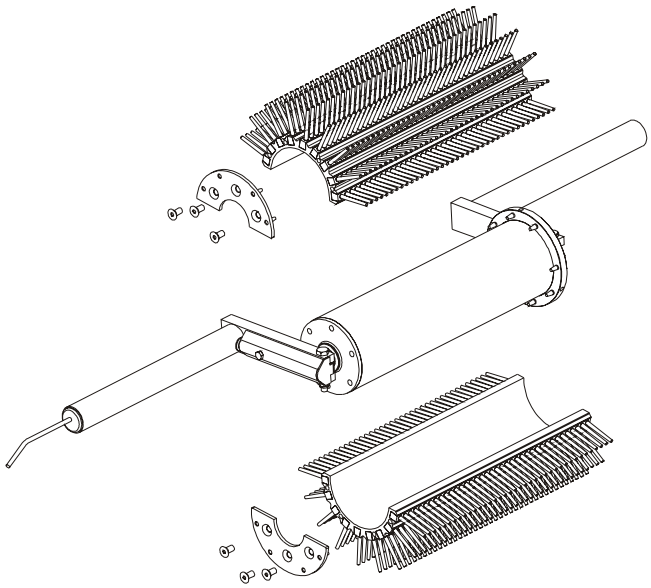


Drive motor

Compact drum motor drive is especially space saving and easy to maintain. Tight construction is reliable to operate, even in difficult conditions. Motor is 3-phased with the thermal protection which will protect the motor against over heating. The motor is CE-approved and fulfils the demands of the electric devices formulated in the directive 73/23/EEC. Protection class of the motor is IP67.

Construction

The cleaner brush does not have support structures going through it which would gather scavenging material and therefore prevent the brush from working properly. Because of its simple, space- saving structure, installing the brush onto even old conveyors is easy.



General information for choosing a belt brush

Take advantage of our expertise when considering the alternatives on the enclosed example order form, i.e. when choosing a suitable brush material. Our design engineer will locate the brush on your conveyor layout if necessary.

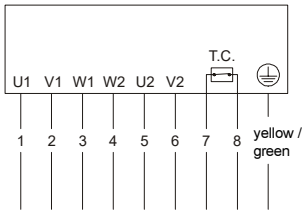
The service hatch model represents the fixing method we recommend most because maintenance and inspection of the brush can be carried out directly from the hatch. The Motomax belt brush guarantee is void if maintenance and inspection cannot be carried out due to an enclosed instalment.

Electrical connections

We do not recommend connecting the MotoMax belt brush to one circuit breaker or protective relay as with a traditional motor because they are not sufficient enough. The thermal protector (T.C.) inside the motor must also be used in addition to the circuit breaker and protective relay.

It is a heat-sensitive switch that measures the motor's temperature. When the motor over-heats, it disconnects the electricity from the contactor guiding the motor and the motor will shut off. Operations will automatically return to normal when the temperature has reached a safe degree.

The reason why the motor over-heated and switched off must be determined before turning the motor on again. Repeated over-heating will damage the motor if the reason for the over-heating is not fixed. The brush must be taken immediately off the belt if it has stopped while the conveyor is still operating. This will prevent it from filling up.



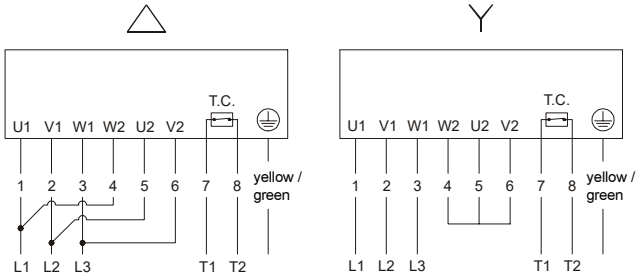
T.C. - switch
(Thermo Controller)

- Openable (normally closed)
- Voltage tolerance 230 V
- Current tolerance 2.5 A

r.p.m of motor n_1 = 2750 r/min

r.p.m of brush n_2 = 140 r/min

Wiring of motor by delivery



Motor wiring △ or Y according to voltage (see motor plate and the table below)

Operating voltage (V)	Current (A)	Wiring	Frequency (Hz)	Power (kW)
290 - 300	2.4	△	50	0.75
500 - 525	1.4	Y		
380 - 400	2.1	△	50	0.75
660 - 690	1.2	Y		

Technical information for standard motors. Motors for other voltages/frequencies are also available.

ORDERING EXAMPLE: MOTOMAX - 1200 - P - X A C

Type code

Belt width B (mm)

Brush material

P = POLYPROPHEN
N = POLYAMID (NYLON)
T = STEEL
U = POLYURETHANE

Fixing method

X = BASIC FIXINGS
E = UNIVERSAL FIXINGS
L = SERVICE HATCH

Profile bar for brush elements

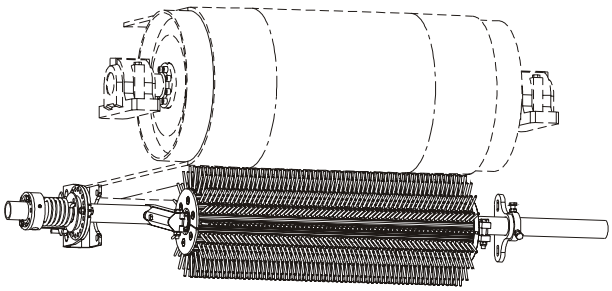
A = ALUMINIUM

Tightening alternative

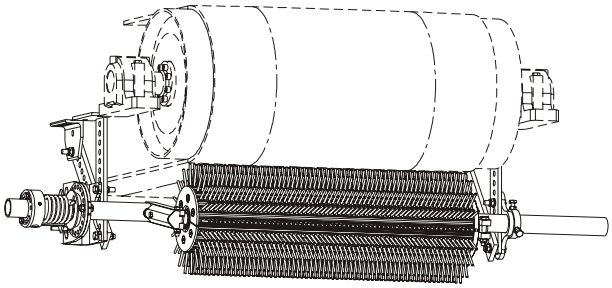
C = CLEVERMAX TORSION SPRING

Please inform the voltage and frequency by ordering.

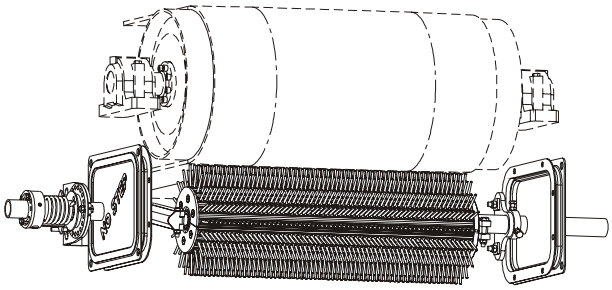
Fixing method X



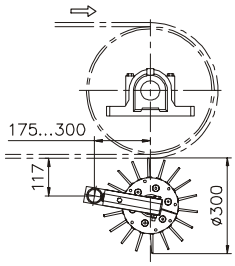
Fixing method E

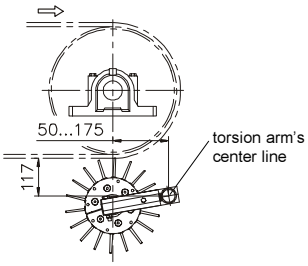


Fixing method L

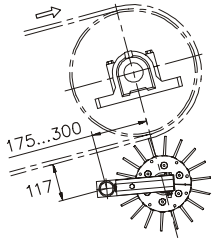


Motomax -belt brush measurements to the conveyor

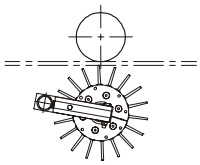




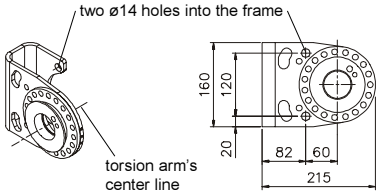
The distance of the torsion arm's center line from the surface of the belt should be 117 mm. Torsion arms can be turned to face other directions if the need for space so demands. It is recommended that the brush will be located directly under the drive pulley in a way that it is possible to guide the brushed material to the discharging chute.

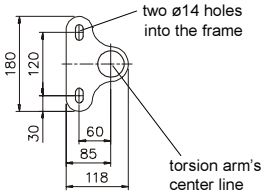


With inclined conveyors, dimensioning acc. to direction of the belt.

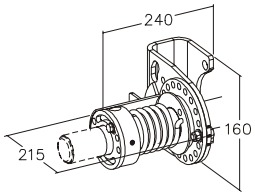


When MotoMax is not located on vertical line of the drive pulley, the belt is supported by counter roller above the belt.



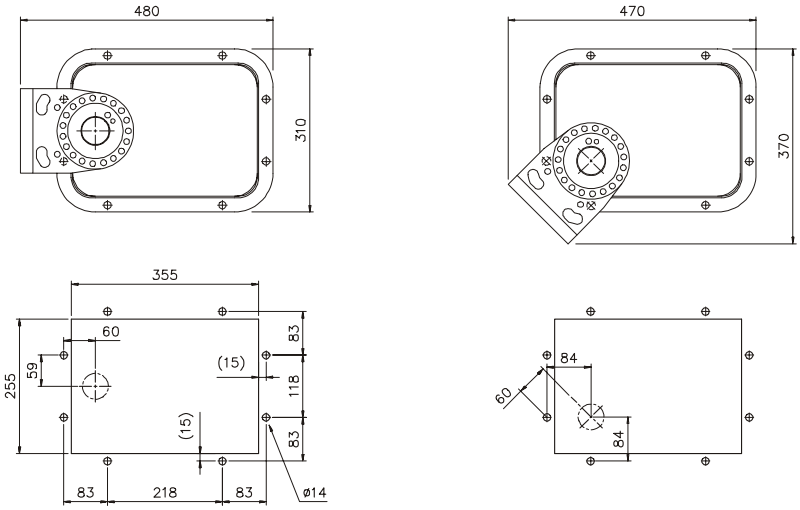


The spring frame and the brace can be turned to the desired position in relation to the torsion arm's center line. If necessary, a through hole (ø52) can be made into the conveyor structure for the torsion arm.

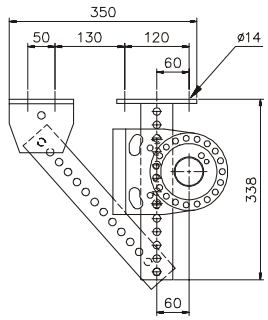


The amount of space needed for an assembled spring tension device. If necessary, the excess part of the torsion arm can be cut off.

For belt widths 1400...2000 mm the assembly includes two spring tension devices, one for each side of the brush.

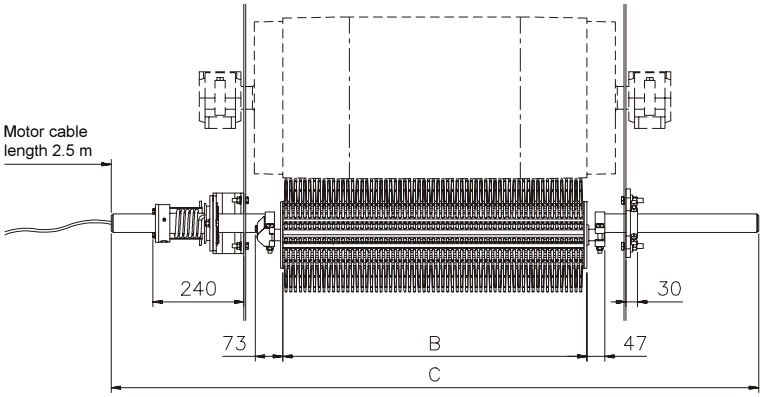


Alternatives for installing the hatch and spring frame and perforation of the chute's wall for the hatch.

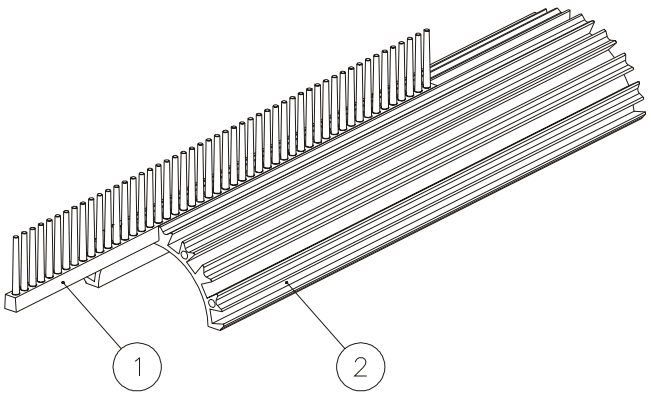


Universal clamp with spring frame.

B	C	Weight (kg)		
		Type X	Type E	Type L
400	1290	53	58	56
500	1390	56	61	59
650	1540	62	67	65
800	1690	67	72	70
1000	1890	74	79	77
1200	2090	81	86	84
1400	2290	94	99	97
1600	2490	101	105	104
1800	2690	108	112	111
2000	2890	115	119	118



Ordering codes for spare parts



Belt width B (mm)	400	500	650	800	1000	1200	1400	1600	1800	2000
Quantity of brush elements (m)	7.5	9	11.5	14.5	18	22	25	29	32.5	36

1. Brush elements

ORDERING EXAMPLE: MM135 - U

Type code

Brush material

P = POLYPROPHEN
N = POLYAMID (NYLON)
T = STEEL
U = POLYURETHANE

Quantity of brush elements from table

2. Profile bar for brush elements

ORDERING EXAMPLE: MM135 - S - 800

Type code

Belt width B (mm)

Order 2 pcs for each belt brush. Profile material aluminium.

THE BELT BRUSH'S CONTROL BOX

We do not recommend connecting the MotoMax belt brush to one circuit breaker or protective relay as with a traditional motor because they are not sufficient enough. The thermal protector inside the motor must also be used in addition to the circuit breaker and protective relay.

The MM135-ELE control box has a contactor already in it where the thermal protector may be connected. When the motor over-heats, the thermal protector disconnects the electricity from the contactor guiding the motor and the motor will shut off. Operations will automatically return to normal when the temperature has reached a safe degree.

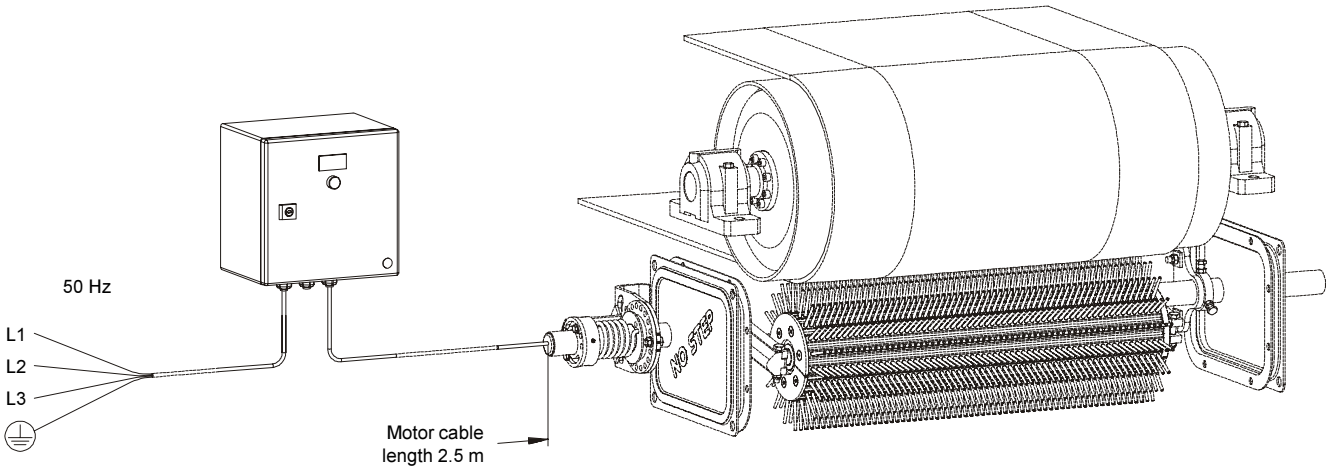
There is a signal light on the top of the box that notifies the user of a 'malfunction'. This information may be directed to the control room also.

ORDERING EXAMPLE: MM135 - ELE - 400

Type code

Operating voltage (V)

400
690



AIR KNIFE

AIRMAX 10

The AIRMAX air knife cleans belts effectively. It even cleans off especially difficult materials. The air knife is also well-suited for belts with worn surfaces. Thanks to the long and narrow air passage of the blasting nozzle, blasting power can be precisely concentrated, and water, for example, can be blasted off the belt.

Different fixing methods are available. You can connect air knife to a pressurized air system or use a blaster.

ORDERING EXAMPLE: AIRMAX10 - 1150 X B1

Type code

Length of the pulley shell L (mm)

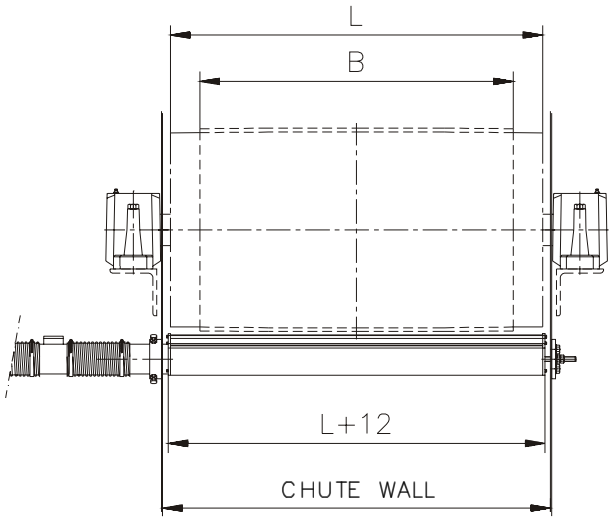
Fixing method

X = BASIC FIXINGS
E = UNIVERSAL FIXINGS
L = SERVICE HATCH

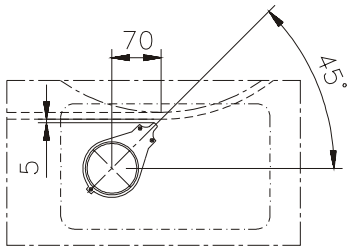
Type of pressurized air

B = USING A BLASTER
B1 = ONE AIR NOZZLE
B2 = TWO AIR NOZZLES
C = FROM THE PRESSURIZED AIR SYSTEM

TYPE C



C = Delivery includes nozzle hose (max. 5 m) with valve.



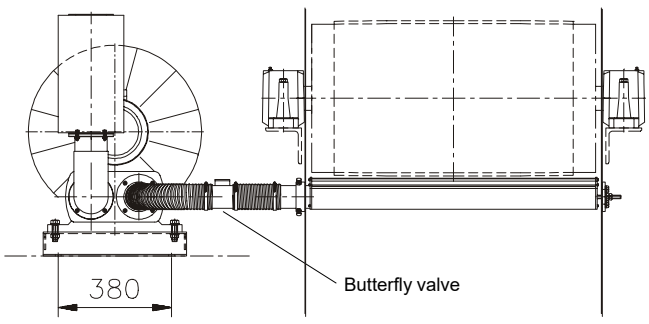
Blasting angle 45° - 30°

Total weight (kg/unit)

L	B	Fixing method					
		X Type of pressurized air		E Type of pressurized air		L Type of pressurized air	
		B	C	B	C	B	C
600	500	155	11	159	15	156	12
750	650	155	11	160	16	157	13
950	800	156	12	161	17	158	14
1150	1000	157	13	161	17	158	14
1400	1200	158	14	162	18	159	15
1600	1400	158	14	163	19	160	16
1800	1600	159	15	164	20	160	16
2000	1800	160	16	164	20	161	17
2200	2000	160	16	165	21	162	18

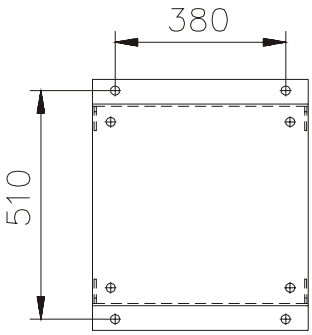
TYPE B

Blaster must be a minimum of 1.5 m from the nozzle.



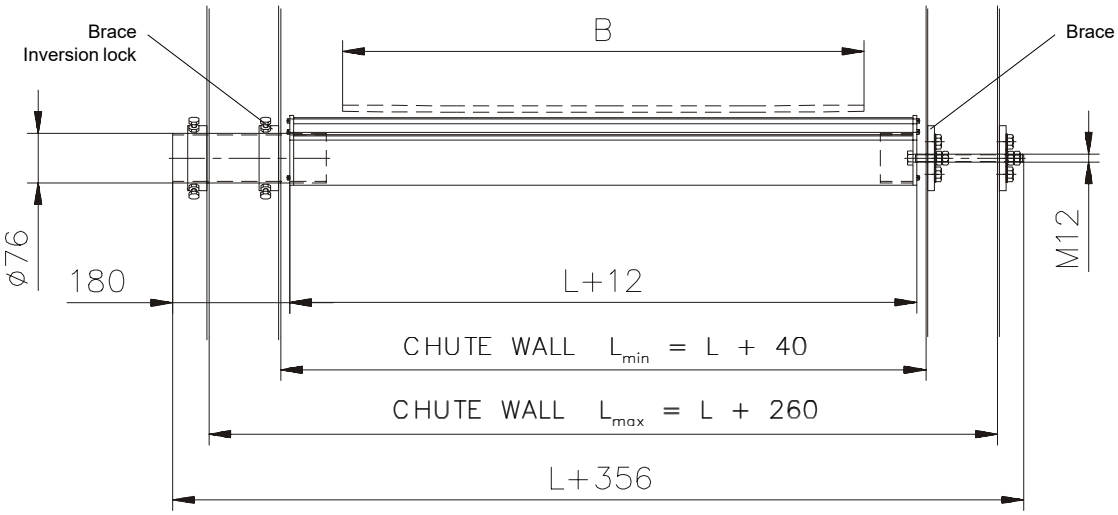
B = Delivery includes nozzle hose (max. 5 m) with valve and a blaster on a mounting plate. Fixture bolts for the frame (M16, 4 bolts) are not included.

Distance between fixture holes in the frame

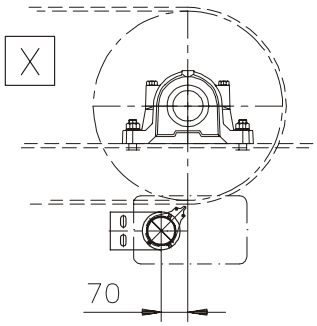


CHUTE WALL 1

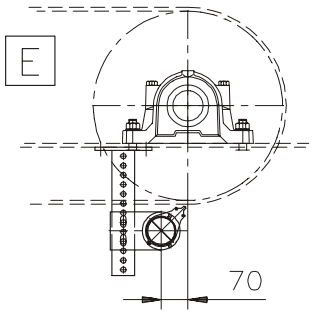
CHUTE WALL 2



With basic fixings



With universal fixings



With service hatch

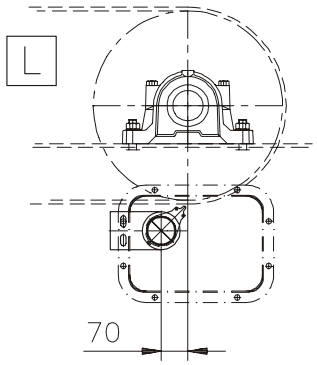
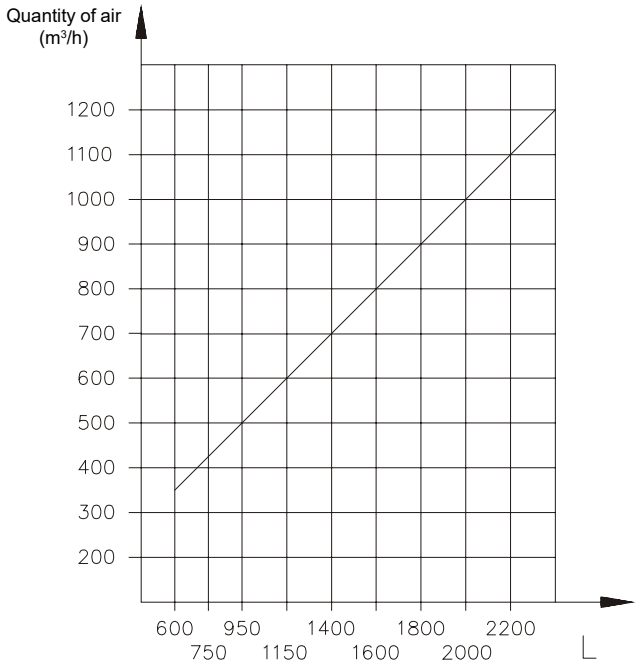
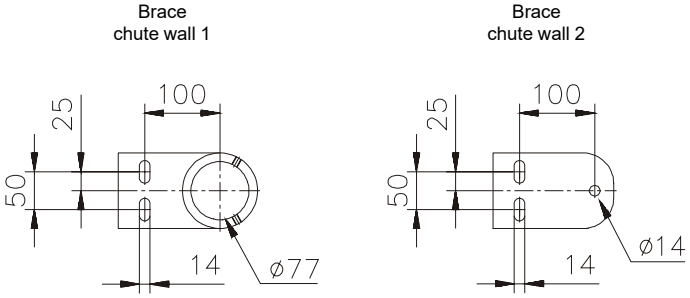


Chart values with motor power of 7.5 kW / 400 V





BELT TURNING

BELT-TWIST

Belt turning is a solution where the lower belt is turned dirty side up as soon as possible after the drive pulley so that the return rollers will carry the belt touching the clean side, unlike in standard belt conveyor applications. At the end of the lower belt, before the tail pulley, the belt is then turned back to its original position without getting the ends of the tail pulley dirty. Thus, loading the material always takes place on the same side of the belt.

Thanks to belt turning, areas where spillage occurs can be limited to the start and the end of the conveyor. Hazardous cleaning of spillage under the conveyor is history, belt centralizing improves and there is less wear on the return rollers. Belt turning is the only way to deal with spillage of old belts, where worn belt surface cannot be cleaned effectively with standard belt cleaners.

With BELT-TWIST turning equipment type 3, 5 and 7, it is easy to turn the belt respecting the belts original lines. Thus the belt will not be damaged and the allowed belt tensions will not be exceeded.

The conveyors onto which the turning will be installed must be commissioned and test-driven, both loaded and unloaded. Therefore the conveyor must first be equipped with normal return rollers and brackets.

ORDERING EXAMPLE: BELT-TWIST 5 - 1000 - W

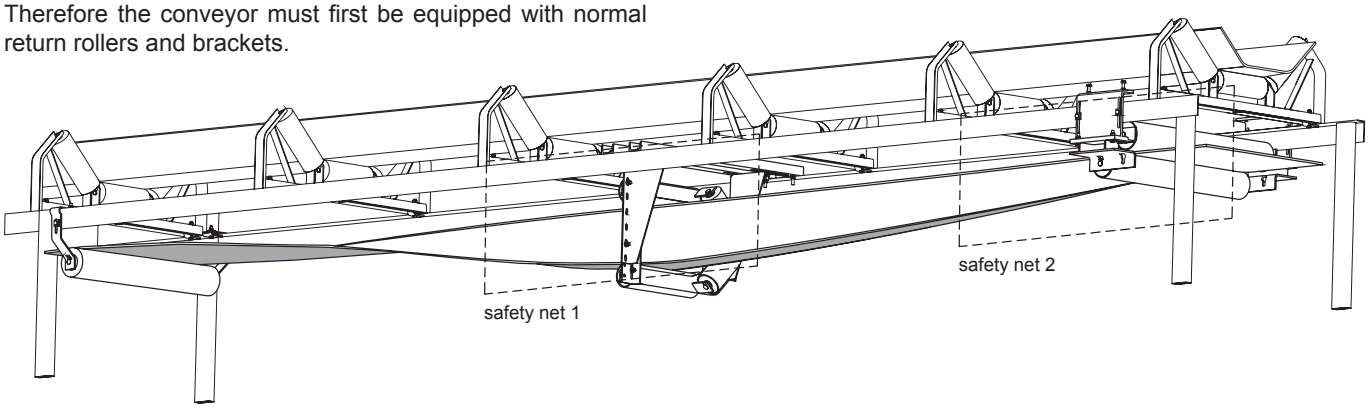
Type code

Load capasity class
- 3 = "Light-duty" conveyors
- 5 = Standard (normal conveyors and belts)
- 7 = Heavy (large belt forces and thick belts)

Belt width B (mm)

Safety net
- W = Safety nets on both sides
- V = Safety net on one side only
- X = Without safety nets

Delivery includes both turning equipment, six idlers and fixing- and adjusting brackets (one Belt-Twist unit per conveyor). The end customer is responsible for the decision about the location of the protective net, taking into consideration the requirements set forth in the directives for machinery SFS-EN 294 and SFS-EN 811.



Example of the performance of the Belt-Twist belt turning:

Basic information:

Carbonized coal conveyor
c-c = 130 m
Q = 190 tons per hour
B = 1000 mm
v = 1,5 m/s
Return roller division 3,5 m

Measured quantity of spilled material before belt turning:
Quantity of return rollers 37 pcs,
average spillage per roller 0,1125m³/day
Total spillage 37 x 0,1125 = **4,16 m³/day**

Measured quantity of spilled material after installing Belt-Twist belt turning:
Quantity of return rollers 2 pcs, per roller 0,125 m³/day
Total spillage 2 x 0,125 = **0,25m³/day**

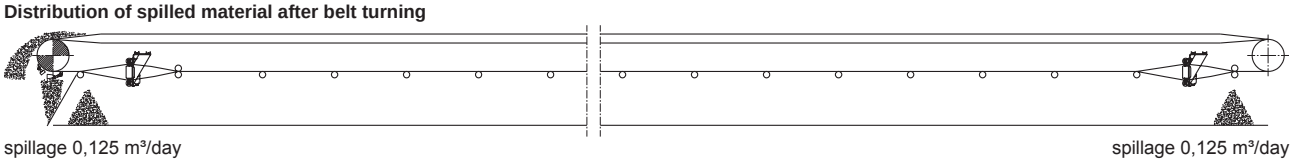
Immediate saving:
Difference in the quantity of spilled material is 3,91 m³/day, 94 % less spillage with Belt-Twist.

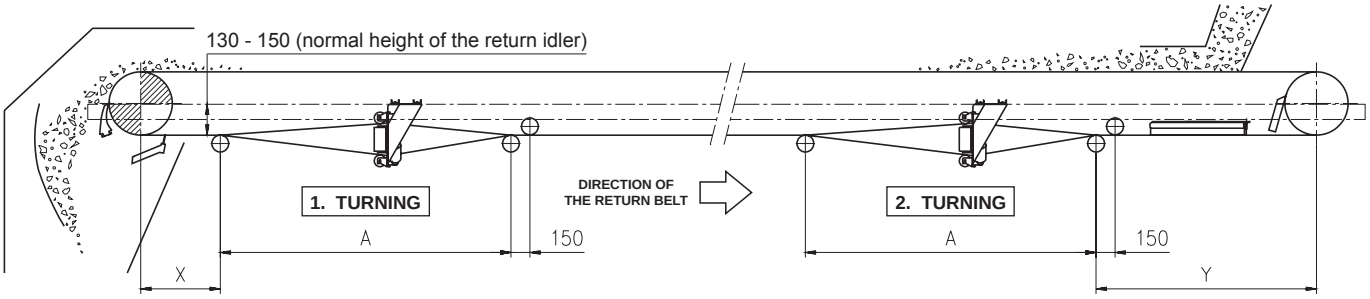
Measured cleaning time of spillage:
- working time before 6 hours/day i.e. 24 hours/month
- working time after 1 hour/month
- difference 23 hours/month

Difference in costs á = 25€/hour x 23hours/month = 575 €/month, **repayment period ~10 month**.

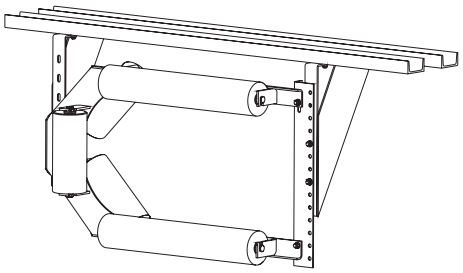
Distribution of spilled material without belt turning

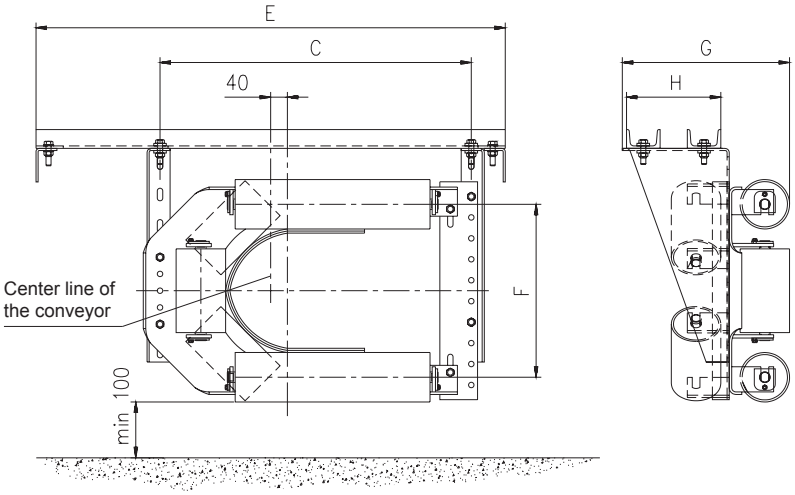
Distribution of spilled material after belt turning





Idlers on the dirty side of the belt are rubber coated and on the clean side painted steel idlers.



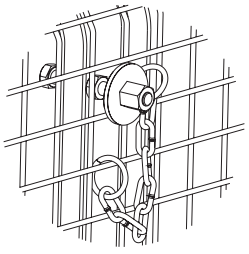


	Load capasity class		
	3	5	7
G	395	400	522
H	255	255	325

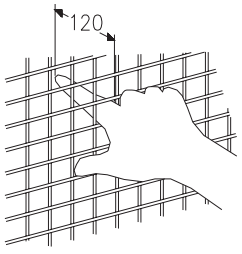
B	A *)			E max	C			F			Y min	X min
					Load capasity class			Load capasity class				
	EP500-630	EP800-1000	EP1000-1200		3	5	7	3	5	7		
500	7000 - 9000	8000 - 11000	9000 - 12000	800		543			353		1800	1000
650	8000 - 12000	9000 - 13000	10000 - 14000	950	642	634		383	383		2100	1200
800	10000 - 15000	10000 - 16000	11000 - 17000	1150	718	748		426	413		2500	1400
1000	12000 - 16000	13000 - 17000	14000 - 18000	1350	880	879	888	434	473	473	2900	1500
1200	17000 - 20500	18000 - 21500	19000 - 22500	1600	885	1018	1018	494	503	503	3200	1600
1400	18500 - 21000	20000 - 23500	21000 - 25000	1800			1133			583	3600	1700

*) Turning distance A is specified according to belt type and -force. For the belt widths over 1400 mm is the turning of the belt always dimensioned case by case.

According to the safety regulations of the conveyor belt, the gap between the belt and the idler must be protected when there is no room for the belt to rise. The protective nets fulfil the requirements for machine safety regulations of conveyor belts. The location of the protective nets must be considered case by case and the regulations set forth the directives for machinery, SFS-EN 294 and SFS-EN 811, must be observed.

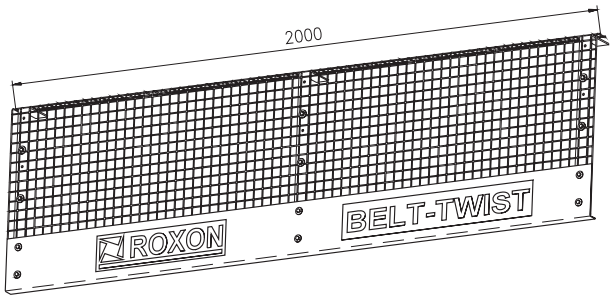


Safety net fastening with support. Can only be opened with a tool (Finnish government decision no. 1314).

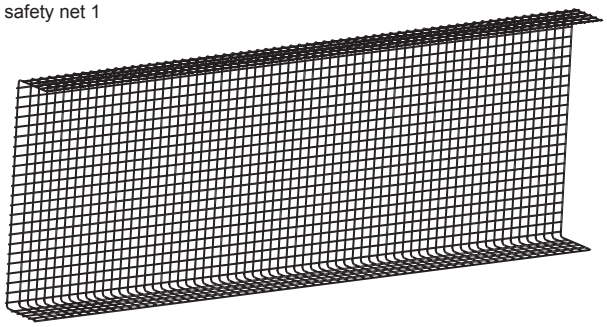


The safety distance for the safety net is 120 mm with 27 x 27 mm mesh (standard SFS-EN 294).

We reserve the right for modifications without prior notice.



safety net 1



safety net 2

BAR CLEANER

MAX7

MAX7 is a bar type universal cleaner. Due to the minimum need for space it is very easy to fix to the conveyor frames.

The cleaner is fixed to the conveyor supports or other steel frame with a screw joint. Thanks to the removable blade cassette, servicing and changing the blades is quick and easy.

Location of MAX7 cleaner must be planned so that the removal of the waste material under the conveyor is possible. Cleaner is also very suitable for 2-way conveyors.

ORDERING EXAMPLE: MAX7 - 1200 - K

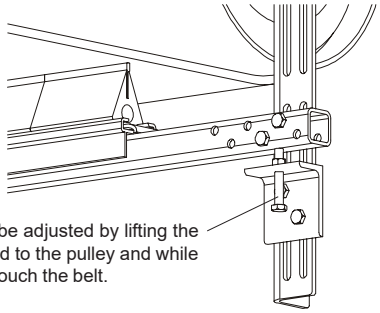
Type code

Belt width B (mm)

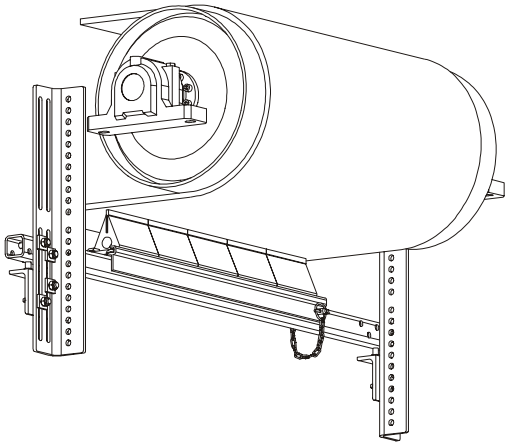
Blade material

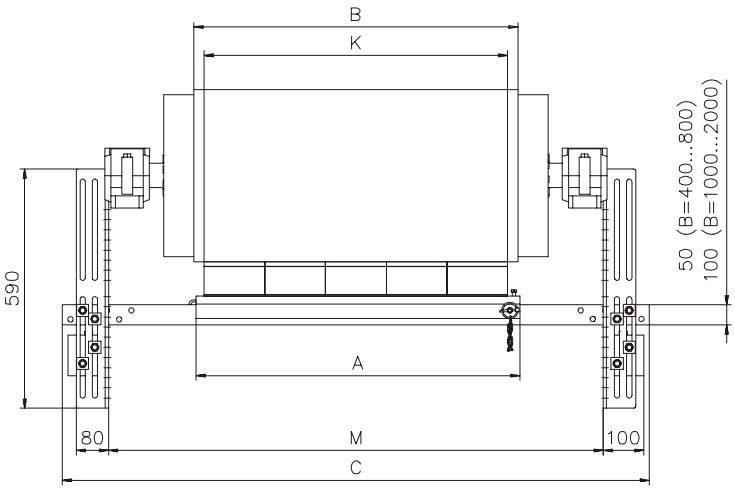
K = POLYURETHANE + HARD METAL
R = POLYURETHANE + STAINLESS STEEL
S = POLYURETHANE + VITRIFIED CERAMIC
M = POLYURETHANE + POLYETHENE (UHMWPE)

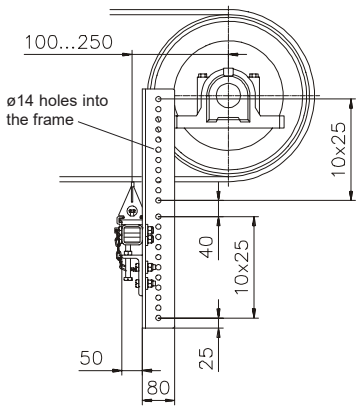
The blade pieces are cast onto a polyurethane base.



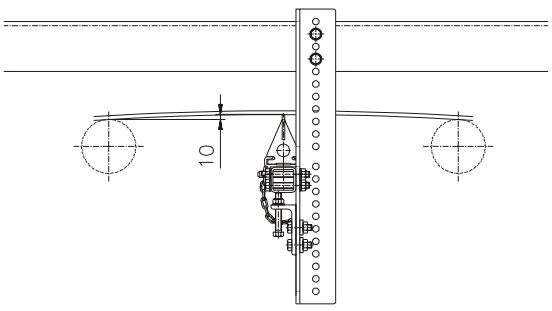
The correct blade pressure can be adjusted by lifting the cleaner up 5 mm while connected to the pulley and while the blades of the cleaner lightly touch the belt.







Placement and blade pressure when MAX7 is not connected to the pulley.

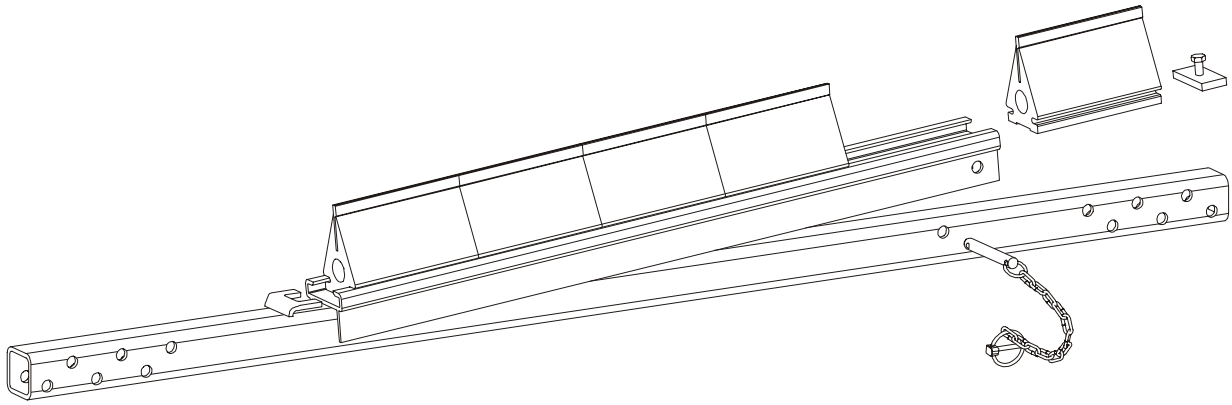


B	C	K	A	M		Blade (pcs)	Weight (kg)
				min	max		
400	1000	300	350	590	830	2	21
500	1150	450	500	740	980	3	23
650	1300	600	650	890	1130	4	25
800	1450	750	800	1040	1280	5	28
1000	1600	900	950	1190	1430	6	33
1200	1750	1050	1100	1340	1580	7	36
1400	2050	1350	1400	1640	1880	9	40
1600	2200	1500	1550	1790	2030	10	43
1800	2350	1650	1700	1940	2180	11	45
2000	2650	1950	2000	2240	2480	13	50

Detachable blade cassette

The detachable blade cassette of MAX7 bar cleaners is easy and quick to be replaced. With an extra mounting profile, the whole “blade cassette” can be pre-assembled thus minimizing the actual replacement time.

It is very easy to inspect the condition of the blades just to lift away the whole blade cassette.



Ordering codes for spare parts

1. Blade

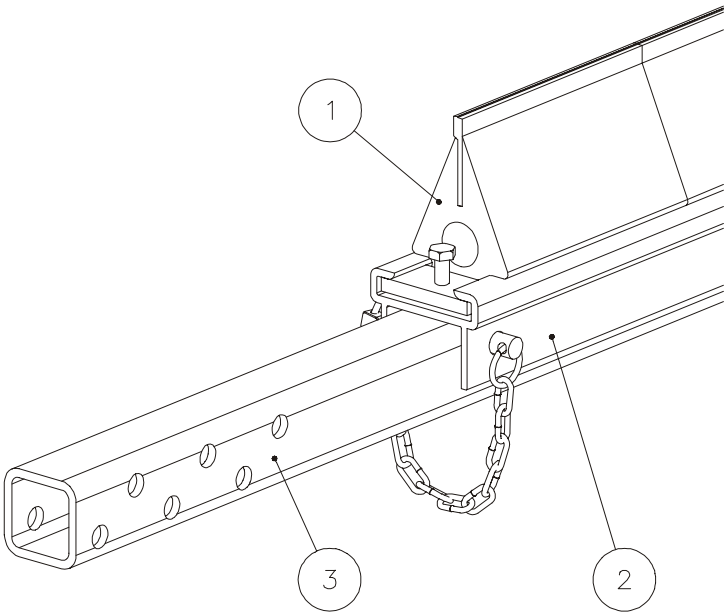
ORDERING EXAMPLE: MAX7 - T - K

Type code

Blade material

K = POLYURETHANE + HARD METAL
R = POLYURETHANE + STAINLESS STEEL
S = POLYURETHANE + VITRIFIED CERAMIC
M = POLYURETHANE + POLYETHENE (UHMWPE)

The blade pieces are cast onto a polyurethane base.



2. Profile bar for blades

ORDERING EXAMPLE: MEP1 - P - 800

Type code

Belt width B (mm)

Profile material aluminium.

3. Shaft tube

ORDERING EXAMPLE: MAX7 - P - 800

Type code

Belt width B (mm)

VIBRATING IDLER

BEP13

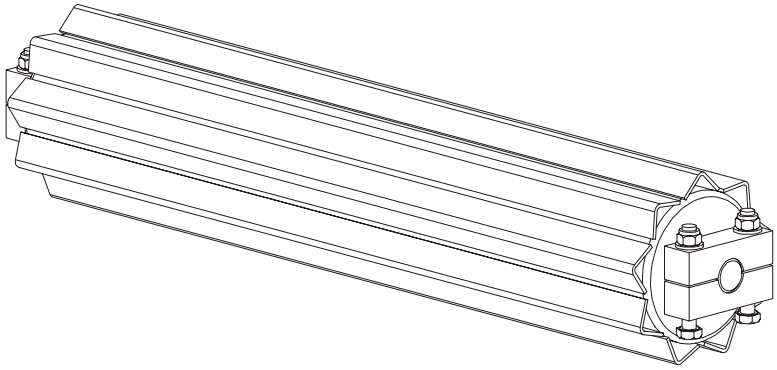
BEP13 vibrating idler is meant for the cleaning of the patterned belts.

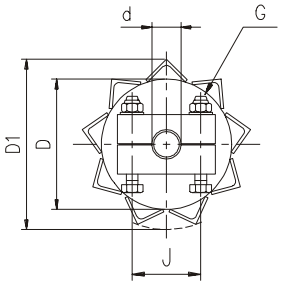
In low patterned belts (max. height of the pattern 10 mm) the idler is allowed to install also to the material side, but in the high patterned belts it is always installed to the clean side of the belt.

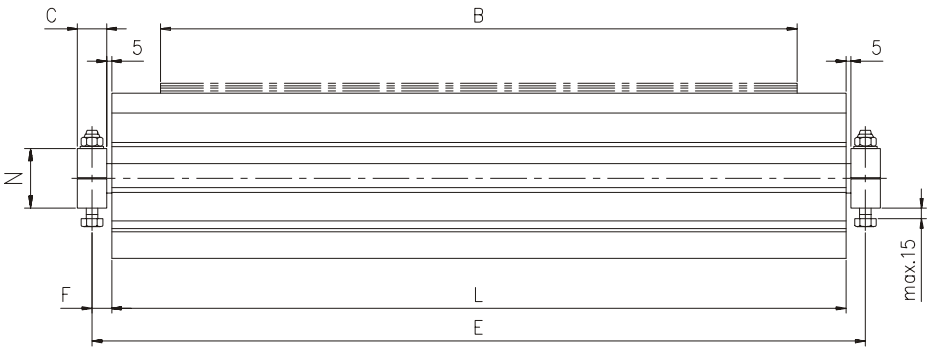
Spherical roller bearing and the construction where the end cap is inside in the shell, guarantees a long life in continuous shocking loading.

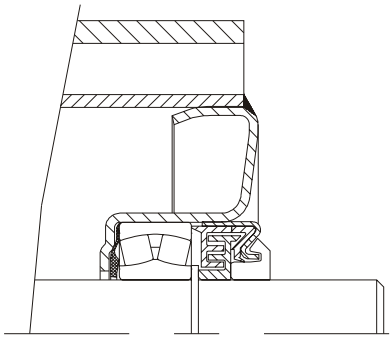
ORDERING EXAMPLE: BEP13 - 40 - 159 - 1150

- Type code
- Shaft diameter d (mm)
- Idler diameter D (mm)
- Idler length L (mm)

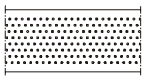
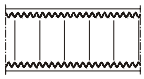




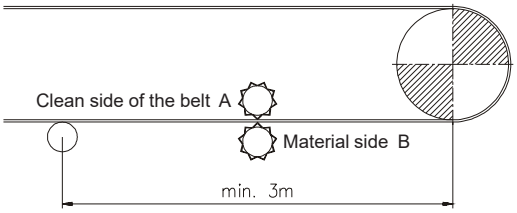




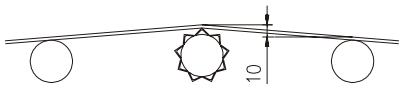
D	L	B	E	d	F	C	~D1	J	G	N	Weight (kg)
89	**500**	400	535	20 / 25	17.5	25	122	50	M10	50	12
	600	500	635								14
	750	650	785								16
	950	800	985								20
108	**500**	400	535	20 / 25	17.5	25	142	50	M10	50	14
	600	500	635								16
	750	650	785								18
	950	800	985								23
133	**500**	400	540	30	20	30	175	70	M12	60	19
	600	500	640								22
	750	650	790								26
	950	800	990								33
159	**1150**	1000	1200	40	25	40	200	70	M12	60	56
	1400	1200	1450								65
	1600	1400	1650								73
	1800	1600	1850								81

Belt type	Installation place	
	A	B
Smooth belt	Recommended	Allowed
Ribbed belt 	Recommended	Forbidden, if the rib is over 10 mm
Curve ribbed belt Ribs within each other 	Recommended	Allowed
Open ribbed belt 	Recommended	Forbidden
Patterned belt 	Recommended	Forbidden, if the pattern is over 10 mm
Side wall belt 	Recommended	Forbidden

Installation places



Installation underneath of the belt
- rib in a vertical position



Installation upper side of the belt
- rib in a vertical position

MOTORISED VIBRATOR FOR SIDE WALL BELT

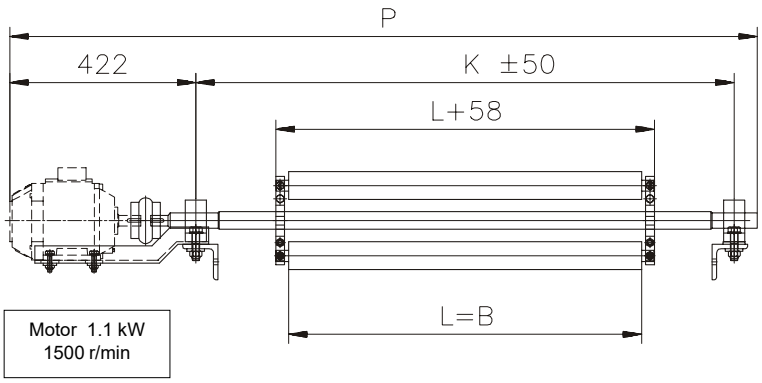
MK222

MK222 vibrator is meant for the cleaning of the patterned belts in very difficult conditions. Heavy rollers with roller bearings knock the clean side of the belt and effectively loosen the dirt on the patterned surface, even dirt stuck in grooves comes loose. A flexible switch between the motor and the vibrating axle eliminates vibrations in the motor.

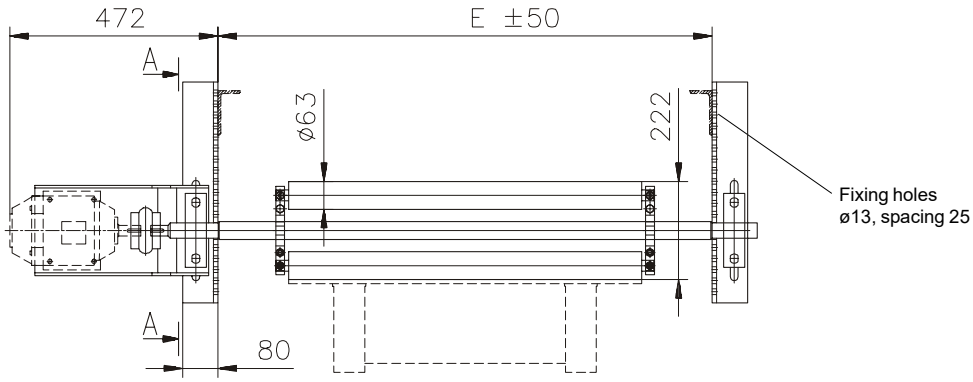
ORDERING EXAMPLE: MK222 - 1000

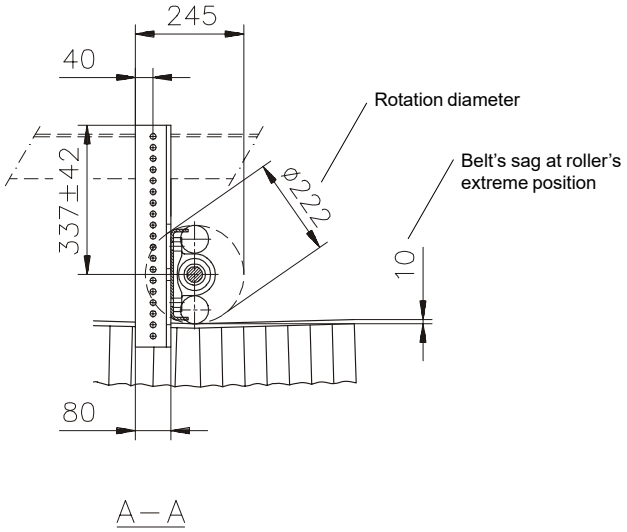
Type code

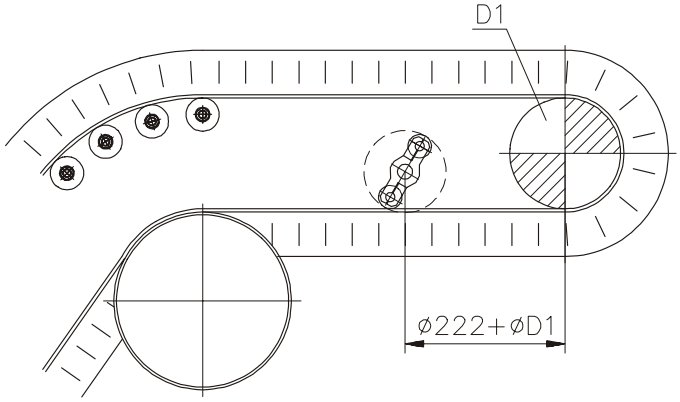
Roller length L (mm)



L	E	K	P	Weight (kg)
400	670	770	1244	58
500	770	870	1344	63
650	920	1020	1494	69
800	1120	1220	1694	76
1000	1320	1420	1894	85
1200	1570	1670	2144	94
1400	1770	1870	2344	102
1600	1970	2070	2544	111
1800	2170	2270	2744	120







CARVING CLEANER BEP15

The carving cleaner BEP15 is a reliable universal purpose cleaner which is easy to install even to the old conveyors, because of its armless construction. Tip of blade removes or loosens most of the undesired material from the conveyor belt and the tangential side of the tip scrape away the fine material from the belt.

The most common scraper blade material is polyurethane (type U). For very abrasive materials is recommended a polyurethane blade filled with aluminium oxide granules (type A). For the moist and less abrasive materials polyethene (type M).

The most common method of installation is external mounting (type U). However, with easy materials and suitable conveyor constructions, the internal mounting is a proper alternative (type S).

ORDERING EXAMPLE: BEP15-1200-U X U

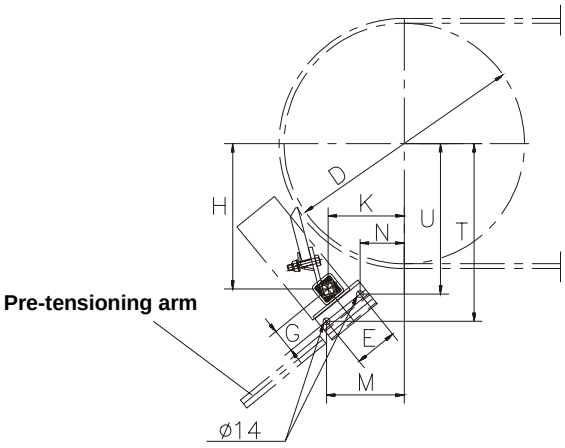
Type code

Belt width B (mm)

Scraper blade material
- U=polyurethane
- A=polyurethane filled with aluminium oxide(Al_2O_3)
- M=polyethene (UHMWPE)

Dimensions of scraper
- X=blade width A (mm)
- Y=belt width B (mm)

Mounting method
- S=internal
- U=external



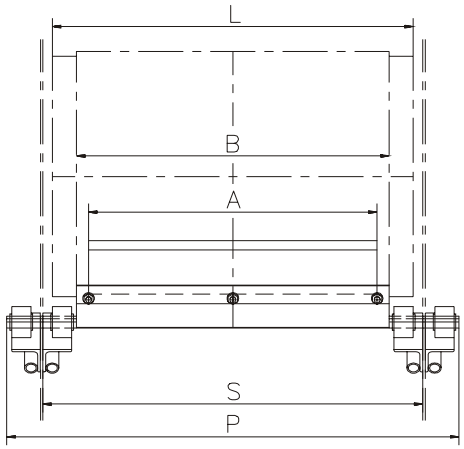


Table 1

B	A	L	S	P		E	G	Weight (kg)
				Type S	Type U			
400	350	500	540	520	690	90	50	11.0
500	450	600	640	620	790	90	50	12.5
650	600	750	790	770	940	90	50	15.0
800	700	950	990	970	1140	90	50	17.0
1000	900	1150	1190	1170	1340	90	50	20.0
1200	1050	1400	1440	1420	1590	110	65	33.5
1400	1250	1600	1640	1620	1790	110	65	37.5
1600	1450	1800	1840	1820	1990	110	65	41.5
1800	1650	2000	2040	2020	2190	110	65	45.5

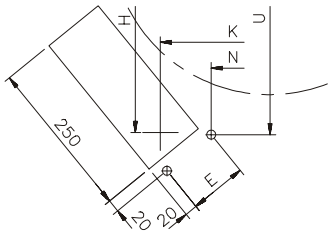
Table 2

D	H	K	B 400 ... 1000				B 1200 ... 1800			
			M	N	U	T	M	N	U	T
270	223	87	97	22	240	290	97	5	247	308
320	239	100	107	34	254	306	107	17	260	323
400	268	125	130	59	280	335	129	42	286	353
500	303	158	162	92	313	370	160	75	318	388
630	341	214	218	148	352	408	217	131	357	426
800	381	295	301	229	394	448	300	212	400	466
1000	433	383	390	317	447	500	389	300	453	518

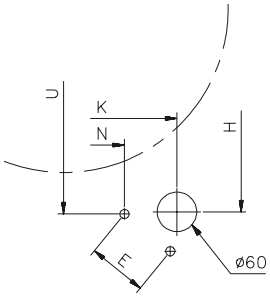
INSTALLATION OPENING:

(Left handed maintenance direction on the drawing)

Service platform side



Opposite side



Tabel 3
Ordering code for wear parts

Material code	Order code
- U	BEP23 - (dim A or B)
- A	BEP24 - (dim A or B)
- M	BEP23 - (dim A or B)

CARVING MULTIBLADE CLEANER BEP31

The BEP31 is the right choice for the universal purpose cleaner because of the simple and reliable construction.

Tension arm of the cleaner can be turned 360° with respect to the frame pipe in which case the placing to the old constructions is easy.

There is a right choice for every material from the large number of blade alternatives: U = normal materials
A = weary materials
S = extremely weary materials

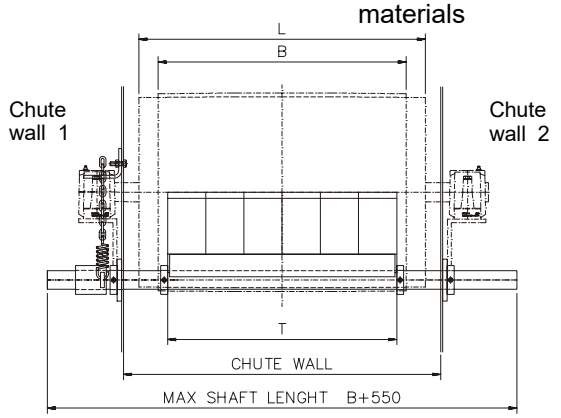
ORDERING EXAMPLE: BEP31 - 1200 - U - X

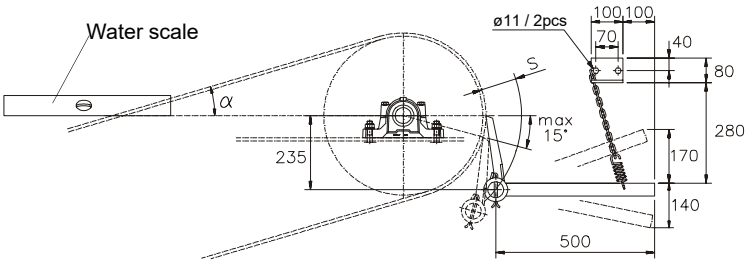
Type code

Belt width B (mm)

Scraper blade material
- U = polyurethane
- A = polyurethane filled with al.oxside (Al_2O_3)
- S = sintered (scraper blade inside the urethane)

Fixing alternatives
- X = base fixings
- E = universal fixings
- L = with inspection hatch

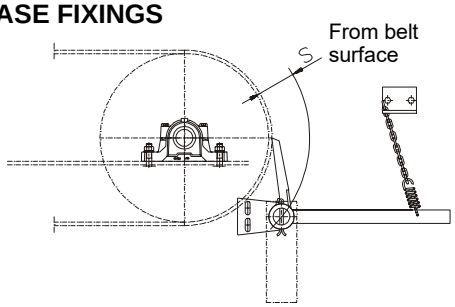




INCLINED CONVEYORS
Top of the blade must be on the horizontal line which goes trough center point of pulley (when belt speed is low, 15 degrees downwards from horizontal line is allowed)

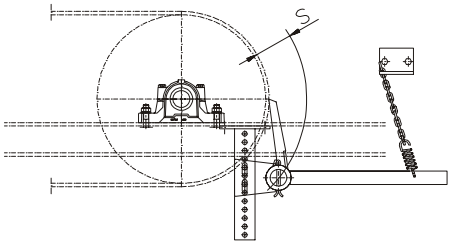
WITH BASE FIXINGS

X



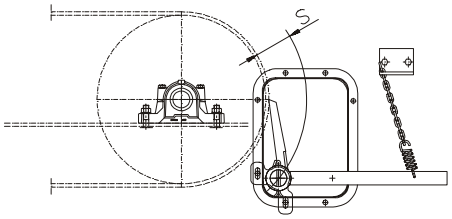
WITH UNIVERSAL FIXINGS

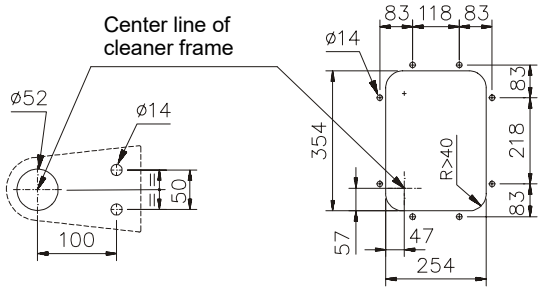
E



WITH INSPECTION HATCH

L





Chute wall 2

Chute wall 1
(when equipped with hatch)

Table 1

B	L	T	Weight (kg)	Wear parts (pcs)
500	600	400	21	4
650	750	600	24	6
800	950	700	27	7
1000	1150	900	30	9
1200	1400	1100	34	11
1400	1600	1300	38	13
1600	1800	1500	41	15
1800	2000	1700	45	17
2000	2200	1900	49	19

Table 2

D	S
320	124
400	117
500	112
630	105
800	100
1000	100

Table 3

Ordering code for wearable parts

Material	Ordering example
- U	BEP35 - U
- A	BEP35 - A
- S	BEP35 - S

The required number of wearable parts for the whole cleaner is shown in table 1.

RETURN BELT CLEANER MR1

The diagonal return belt cleaner MR1 effectively wipes the material dropped on to the belt. The diagonal position makes it possible to move the material to either side of the belt. The hot galvanized construction is long lasting and the replacement of the wearable parts is easy due to the friction joint.

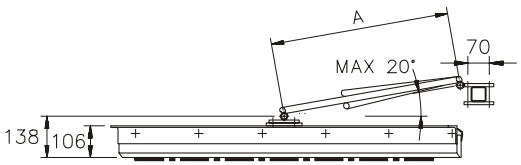
ORDERING EXAMPLE: MR1 - 1000 - U

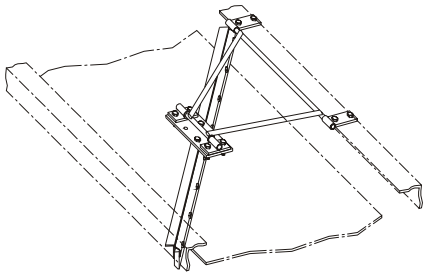
Type code

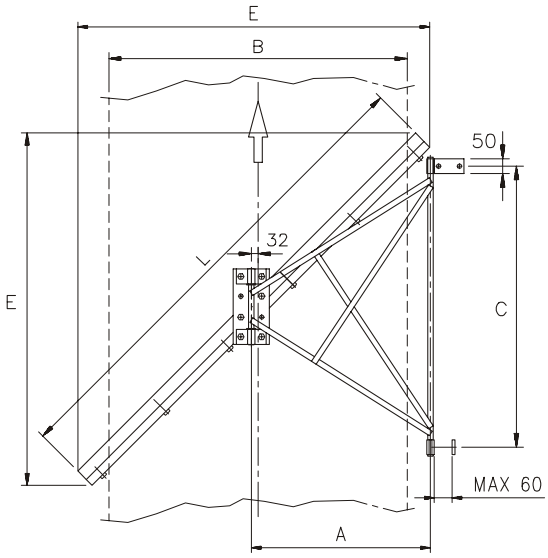
Belt width B (mm)

Scraper blade material

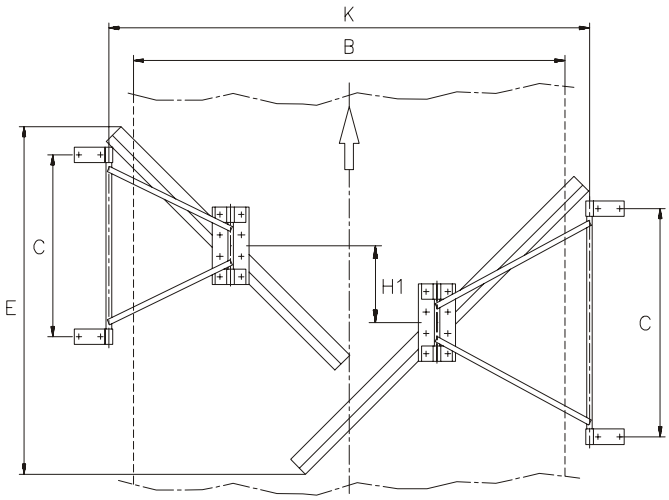
U = polyurethane
A = polyurethane filled with aluminium oxide (Al_2O_3)
M = polyethene (UHMWPE)







For belt widths over 1200 mm, two separate wipers are to be ordered using the type codes mentioned in the table below.

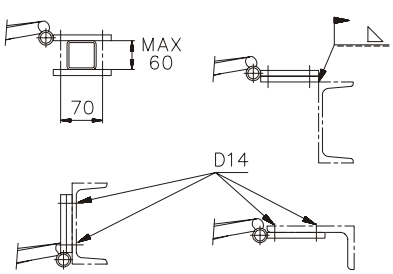


B	A	C	E	L	Weight (kg)
400	270	420	543	700	13,0
500	320	450	614	800	14,0
650	395	600	790	1050	16,5
800	495	750	967	1300	19,0
1000	600	950	1179	1600	25,5
1200	725	1070	1391	1900	29,0

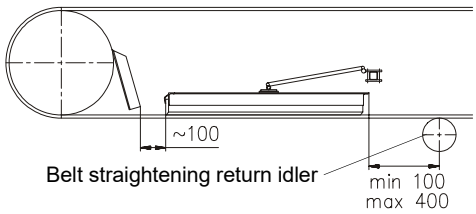
B	Wipers (two) B	E	H1	K
1400	1 x B650 and 1xB800	1080	250	1560
1600	2 x B800	1275	320	1770
1800	1 x B800 and 1xB1000	1615	250	1960
2000	2 x B1000	1430	270	2160

FASTENING ALTERNATIVES

Fastener elements can be turned to different positions depending on the location.



INSTALLATION ON THE CONVEYOR



SPARE PARTS

Spare part blades to be ordered by metres. See length L of the blade from the table. The most economic way is to buy the blade as 3 meter long bars.

Material code of the scraper blade	Ordering code of the scraper blade
U	MR5-U-(Length L)
A	MR5-A-(Length L)
M	MR5-M-(Length L)

RETURN BELT PLOUGH MR2

The plough-type return belt cleaner MR2 effectively cleans the dropped material on the belt. Due to the jointed support bar the plough follows the belt surface well. The scraper blade is fixed to the frame using a friction joint enabling an easy and quick replacement.

ORDERING EXAMPLE: MR2 - 1200 - U

Type code

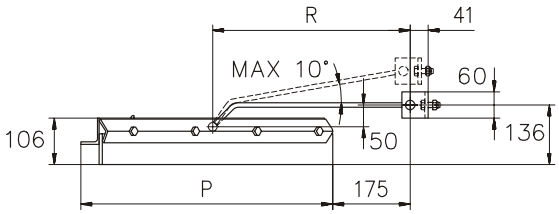
Belt width B (mm)

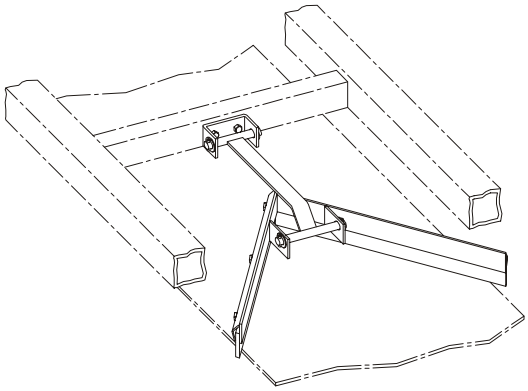
Scraper blade material

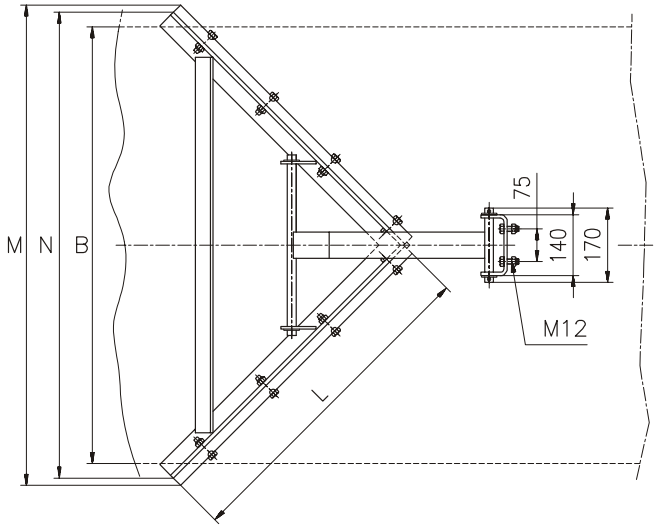
U = polyurethane

A = polyurethane filled with aluminium oxide (Al_2O_3)

M = polyethene (UHMWPE)



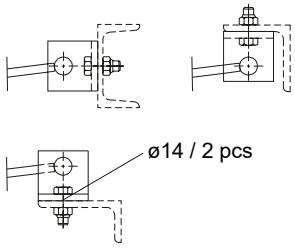




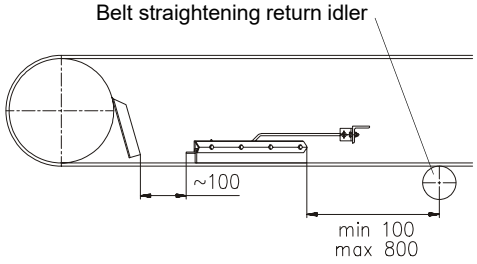
B	L	M	N	P	R	Weight (kg)
500	390	594	574	298	343	9.0
650	500	749	730	376	343	10.5
800	600	891	871	447	343	12.5
1000	750	1094	1075	573	452	18.5
1200	920	1335	1315	693	452	22.5
1400	1060	1533	1513	806	452	31.0
1600	1200	1731	1711	905	452	35.0

FASTENING ALTERNATIVES

Fastener elements can be turned to different positions depending on the location and steel construction.



INSTALLATION ON THE CONVEYOR



SPARE PARTS

Spare part blades to be ordered by metres. See length L of the blade from the table. The most economic way is to buy the blade as 3 meter long bars.

Material code of the scraper blade	Ordering code of the scraper blade
U	MR5-U-(Length L); 2 pcs
A	MR5-A-(Length L); 2 pcs
M	MR5-M-(Length L); 2 pcs

PULLEY CLEANER MS1

MS1 - pulley cleaner is used by the BK- and BL-tail pulleys. The ribs of the cleaner convey the material to the belt sides from where it is easy to clean.

The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

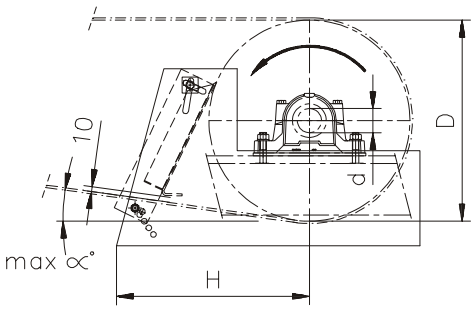
The sectional holes, on the under edge of the rip-plate, make the adjustment possible so that when the belt is ascending from the pulley, the rip-plate is possible to install near the belt surface as a gap cover.

Continuos variation of the upper edge of the rip-plate, guarantees the accurate adjusting of the plate cutter against the pulley surface.

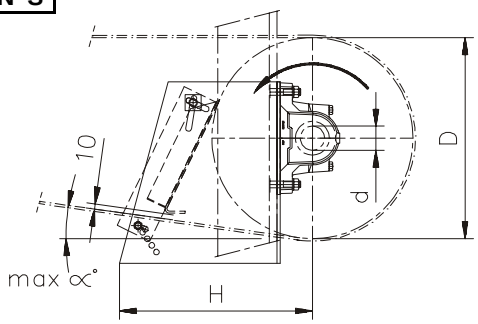
ORDERING EXAMPLE: MS1-R60-500-1150

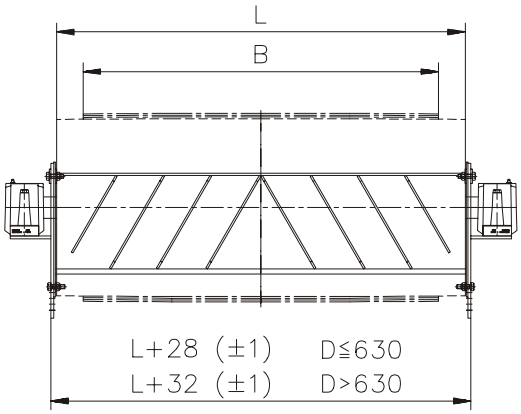
- Type code
- Position of bearing housing
  - R = vertically fastening screws
  - S = horizontally fastening screws
- Shaft diameter of pulley d (mm)
- Pulley diameter D (mm)
- Shell length of pulley L (mm)

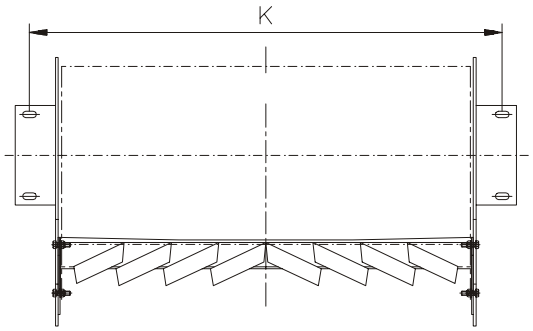
POSITION R



POSITION S







D	320	400	500	630	800	1000
αmax	15	11	8	7	5	3
H	360	410	480	560	670	800

L	B	Weight (kg) D					
		320	400	500	630	800	1000
600	500	23	29	38	49	77	102
750	650	24	31	40	51	80	105
950	800	27	34	44	57	87	113
1150	1000	28	36	47	60	91	118
1400	1200	31	40	52	66	98	127
1600	1400	42	53	68	85	123	156
1800	1600	45	57	73	91	129	164
2000	1800	48	62	78	98	138	174
2200	2000	51	64	82	102	143	180

d	K	Bearing housing of pulley
40	L+180	SNL 509
50	L+180	SNL 511-609
60	L+180	SNL 513-611
70	L+180	SNL 516-613
80	L+190	SNL 518-615
90	L+200	SNL 520-617
100	L+210	SNL 522-619
110	L+230	SNL 524-620
115	L+240	SNL 526
125	L+250	SNL 528
135	L+270	SNL 530
140	L+280	SNL 530

PULLEY CLEANER MS2

The pulley cleaner MS2 is used with take-up pulleys BK and BL, for gravity take-up applications. In this case the pulleys operate on the dirty side of the belt, being thus exposed to material accumulation.

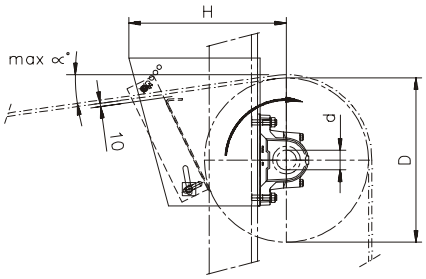
MS2 cleaner must be fitted so that the removed materials fall to the open space. The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

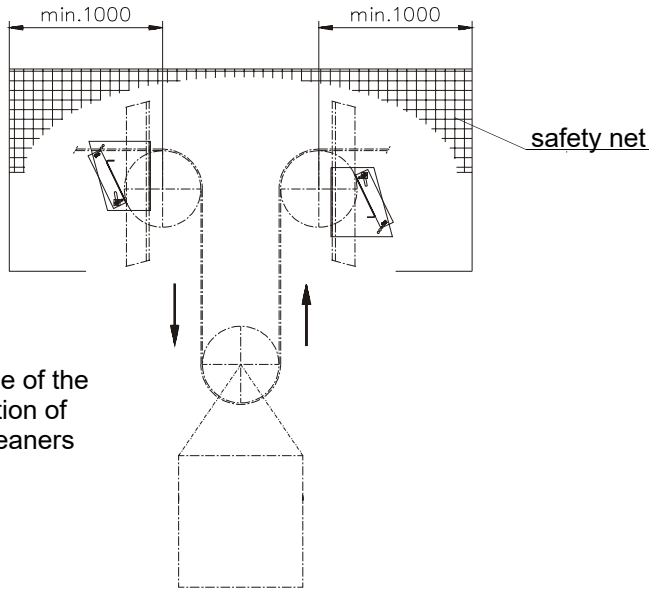
In extreme applications, i.e. with very sticky materials, rubber lagging is recommended for the pulley-in addition to the MS2 cleaner. Because of the stepless adjustment of the upper section of the material plate, the cleaner can be installed accurately.

The gap protection in gravity take-up applications is always arranged by a separate safety net.

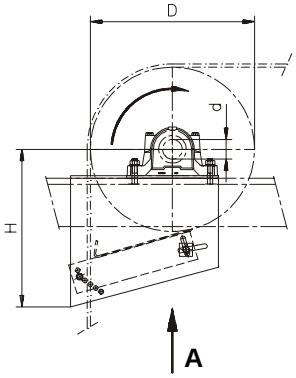
ORDERING EXAMPLE: MS2-S60-500-1150

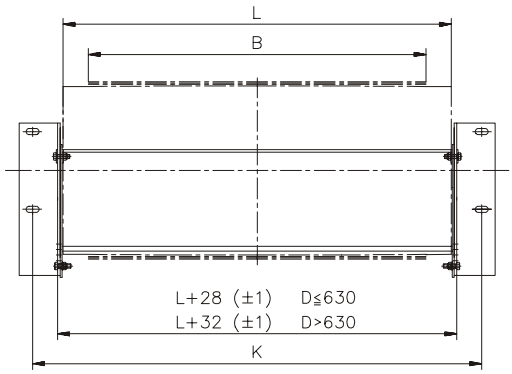
- Type code
- Shaft diameter of pulley d (mm)
- Pulley diameter D (mm)
- Shell length of pulley L (mm)





Example of the installation of MS2 cleaners





DIRECTION A

D	320	400	500	630	800	1000
αmax	15	11	8	7	5	3
H	360	410	480	560	670	800

d	K	Bearing housing of pulley
40	L+180	SNL 509
50	L+180	SNL 511-609
60	L+180	SNL 513-611
70	L+180	SNL 516-613
80	L+190	SNL 518-615
90	L+200	SNL 520-617
100	L+210	SNL 522-619
110	L+230	SNL 524-620
115	L+240	SNL 526
125	L+250	SNL 528
135	L+270	SNL 530
140	L+280	SNL 530

L	B	Weight (kg) D					
		320	400	500	630	800	1000
600	**500**	19	24	32	41	68	90
750	**650**	21	26	34	44	71	94
950	**800**	23	28	37	47	75	99
1150	**1000**	24	31	40	50	79	104
1400	**1200**	27	34	43	55	85	110
1600	**1400**	37	47	60	74	109	139
1800	**1600**	40	50	64	80	116	147
2000	**1800**	43	54	68	85	123	155
2200	**2000**	46	58	73	90	129	163

PULLEY CLEANER

MS3

MS3 - pulley cleaner is used by the BEE-tail pulleys. The ribs of the cleaner convey the material to the belt sides from where it is easy to clean.

The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

The sectional holes, on the under edge of the rip-plate, make the adjustment possible so that when the belt is ascending from the pulley, the rip-plate is possible to install near the belt surface as a gap cover.

Continious variation of the upper edge of the rip-plate, guarantees the accurate adjusting of the plate cutter against the pulley surface.

ORDERING EXAMPLE: MS3-R90-500-1150

Type code

Position of bearing housing

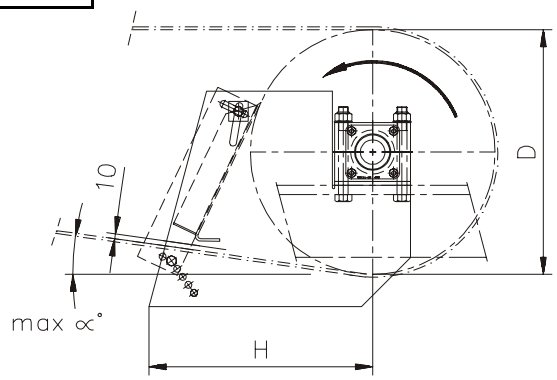
R = vertically fastening screws
S = horizontally fastening screws

Outer diameter of bearing D1 (mm)

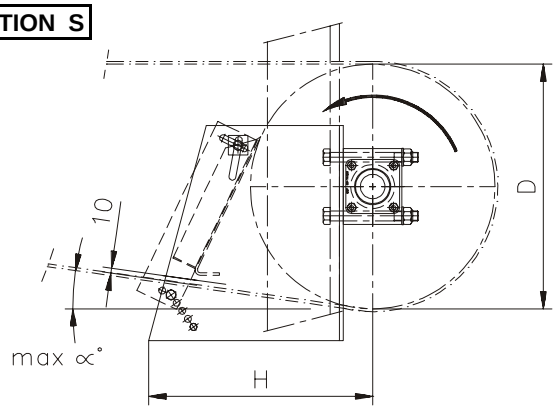
Pulley diameter D (mm)

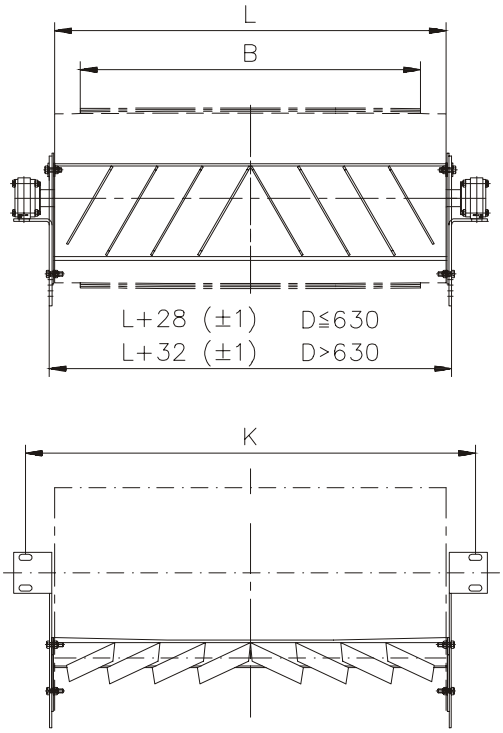
Shell length of pulley L (mm)

POSITION R



POSITION S





D	320	400	500	630	800	1000
∝max	15	11	8	7	5	3
H	345	395	460	545	655	805

Outer diameter of bearing D1	K	Bearing housing of pulley
80	L+180	BZC11-80
90	L+180	BZC11-90
110	L+180	BZC11-110
140	L+180	BZC11-140
180	L+180	BZC11-180

L	B	Weight (kg) D					
		320	400	500	630	800	1000
600	**500**	20	26	33	43	70	94
750	**650**	22	28	35	46	73	98
950	**800**	24	31	39	51	79	106
1150	**1000**	26	33	42	54	84	111
1400	**1200**	29	37	47	60	91	120
1600	**1400**	39	50	63	80	115	149
1800	**1600**	42	54	68	85	122	157
2000	**1800**	46	59	73	92	131	167
2200	**2000**	48	61	77	96	136	172

PULLEY CLEANER MS4

The pulley cleaner MS4 is used with take-up pulleys BEE for gravity take-up applications. In this case the pulleys operate on the dirty side of the belt being thus exposed to material accumulation.

MS4 cleaner must be fitted so that the removed materials fall to the open space. The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

In extreme applications, i.e. with very sticky materials, rubber lagging is recommended for the pulley-in addition to the MS4 cleaner. Because of the stepless adjustment of the upper section of the material plate the cleaner can be installed accurately.

The gap protection in gravity take-up applications is always arranged by a separate safety net.

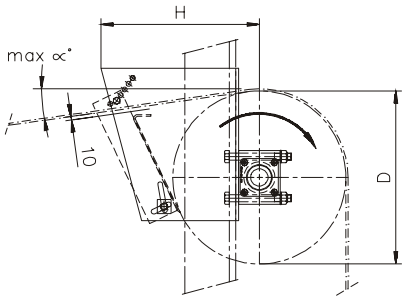
ORDERING EXAMPLE: MS4-S90-500-1150

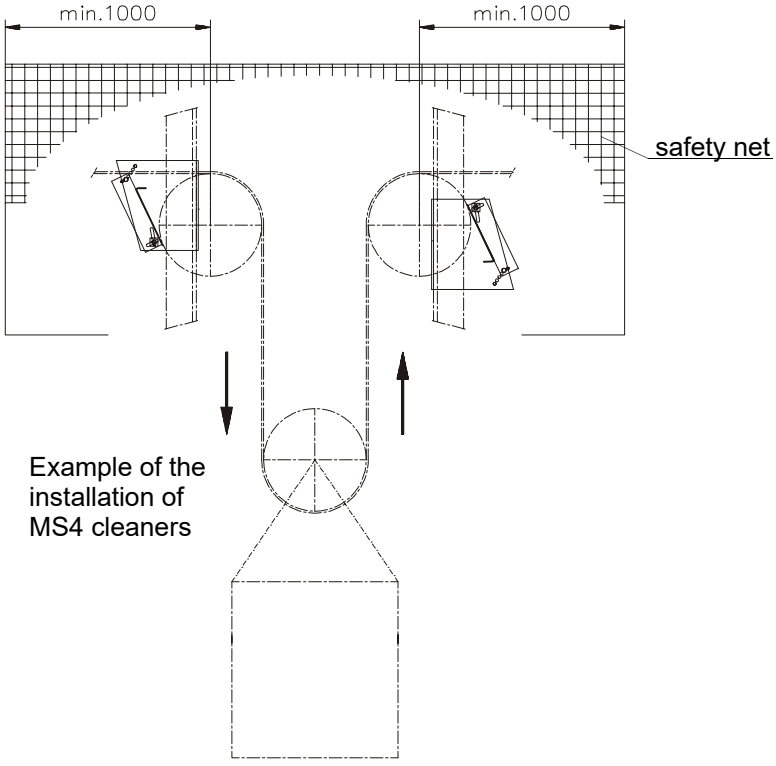
Type code

Outer diameter of bearing D1 (mm)

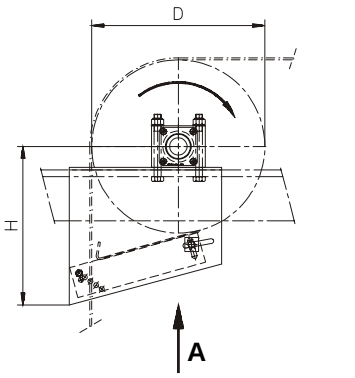
Pulley diameter D (mm)

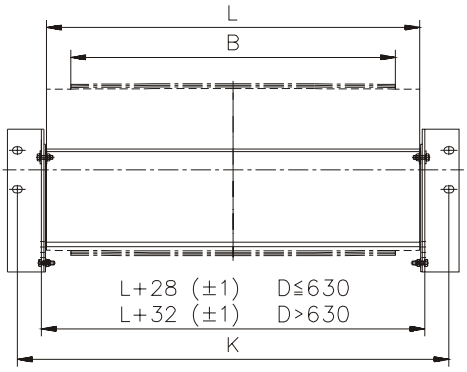
Shell length of pulley L (mm)





Example of the installation of MS4 cleaners





DIRECTION A

Outer diameter of bearing D1	K	Bearing housing of pulley
80	L+180	BZC11-80
90	L+180	BZC11-90
110	L+180	BZC11-110
140	L+180	BZC11-140
180	L+180	BZC11-180

D	320	400	500	630	800	1000
αmax	15	11	8	7	5	3
H	345	395	460	545	655	805

L	B	Weight (kg) D					
		320	400	500	630	800	1000
600	**500**	18	23	29	38	63	86
750	**650**	19	25	31	40	66	90
950	**800**	21	27	34	44	70	95
1150	**1000**	23	29	37	47	75	100
1400	**1200**	25	32	40	51	80	106
1600	**1400**	36	45	56	71	104	135
1800	**1600**	39	49	61	76	111	143
2000	**1800**	42	52	65	82	118	151
2200	**2000**	44	56	70	87	124	159

PULLEY CLEANER

MS5

MS5 -pulley cleaner is used by the BP -tail pulleys. The ribs of the cleaner convey the material to the belt sides from where it is easy to clean.

MS5 -pulley cleaner is possible to fit directly under the US5 fastener of the BP -pulley, to the UR8 -take-up device or UR2(3)- take-up bar. When fitting it to the take-up device, the cleaner will automatically be moved with the pulley when it is tensioned.

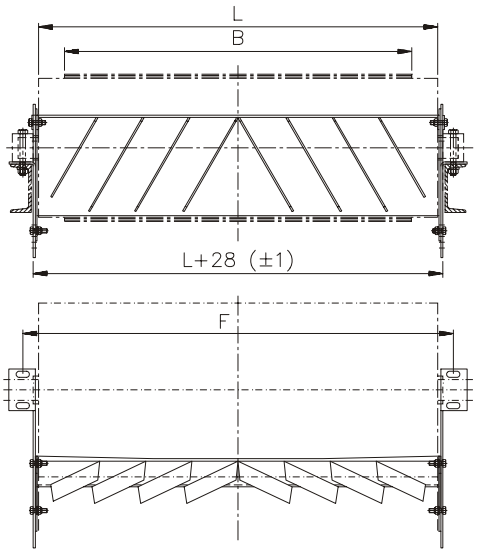
The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

The sectional holes, on the under edge of the rip-plate, make the adjustment possible so that when the belt is ascending from the pulley, the rip-plate is possible to install near the belt surface as a gap cover.

Continuos variation of the upper edge of the rip-plate, guarantees the accurate adjusting of the plate cutter against the pulley surface.

ORDERING EXAMPLE: MS5-R60-500-1150

- Type code
- Type alternative
  - S = for BP -pulley fastener US5
  - R = for take-up device UR8
  - T = for take-up bars UR2 and UR3
- Shaft diameter of pulley d (mm)
- Pulley diameter D (mm)
- Shell length of pulley L (mm)



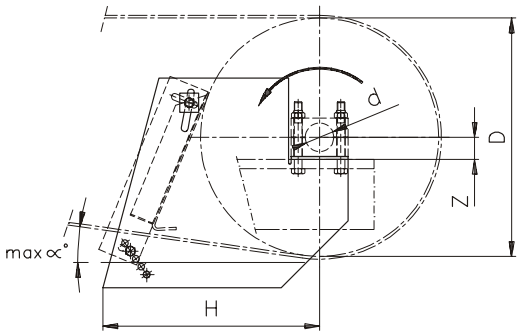
L	B	Weight (kg) D			
		320	400	500	630
600	500	20	26	32	42
750	650	22	27	34	44
950	800	24	30	38	50
1150	1000	26	33	41	53
1400	1200	29	37	46	59
1600	1400	40	50	62	78
1800	1600	43	54	67	84
2000	1800	47	58	72	91
2200	2000	49	61	76	95

d	F	Z	X
40	L+70	36	36
50	L+80	41	41
60	L+90	46	46
70	L+90	56	51
80	L+90	56	56

D	320	400	500	630
αmax	15	11	8	7
H	340	390	455	540

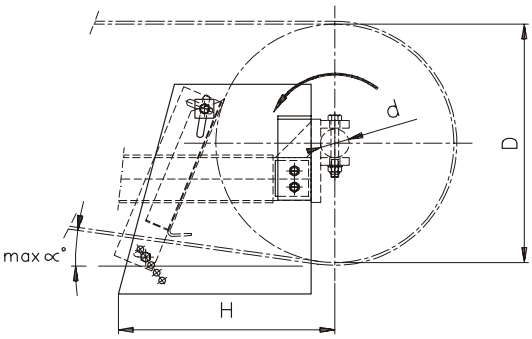
TYPE S

for pulley fastener US5



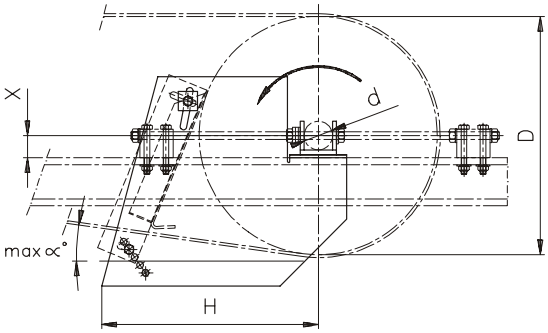
TYPE R

for take-up device UR8



TYPE T

for take-up bars UR2 and UR3



PULLEY CLEANER MS6

The pulley cleaner MS6 is used with take-up pulleys BP for gravity take-up applications. In this case the pulleys operate on the dirty side of the belt, being thus exposed to material accumulation. The pulley cleaner is fitted under the US5 fastener.

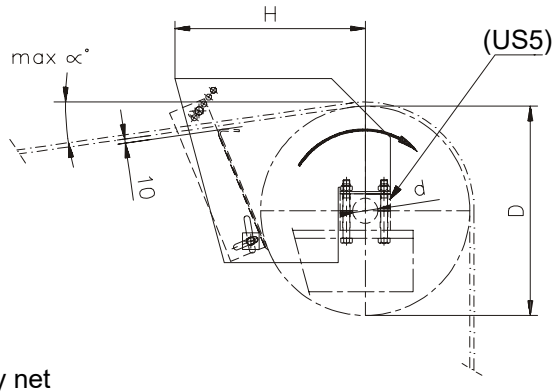
MS6 cleaner must be fitted so that the removed material falls to the open space. The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

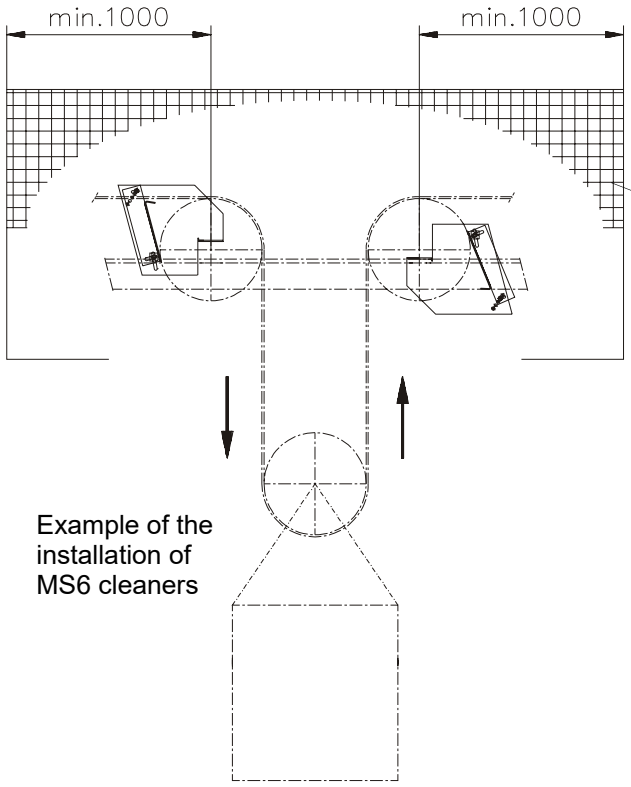
In extreme applications, i.e. with very sticky materials, rubber lagging is recommended for the pulley-in addtion to the MS6 cleaner. Because of the stepless adjustment of the upper section of the material plate the cleaner can be installed accurately.

The gap protection in gravity take-up applications is always arranged by a separate safety net.

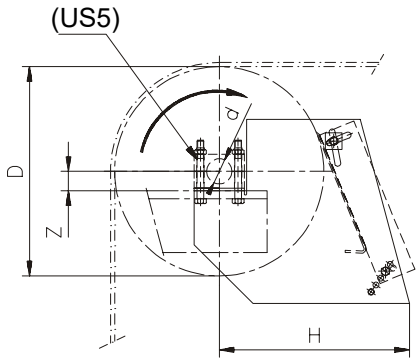
ORDERING EXAMPLE: MS6-S60-500-1150

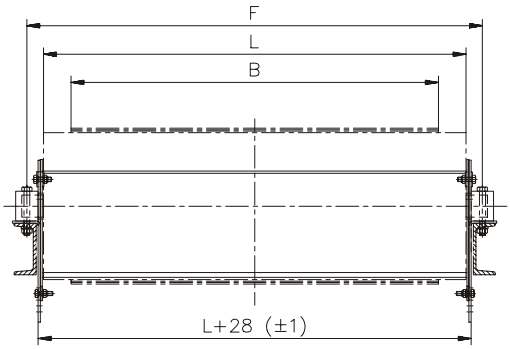
- Type code
- Type alternative
  - S = for BP -pulley fastener US5
- Shaft diameter of pulley d (mm)
- Pulley diameter D (mm)
- Shell length of pulley L (mm)





Example of the installation of MS6 cleaners





L	B	Weight (kg) D			
		320	400	500	630
600	500	18	22	28	37
750	650	19	24	30	40
950	800	21	26	33	43
1150	1000	23	28	36	46
1400	1200	25	31	40	51
1600	1400	35	44	56	70
1800	1600	38	48	60	76
2000	1800	41	52	65	81
2200	2000	44	55	69	86

d	F	Z
40	L+70	36
50	L+80	41
60	L+90	46
70	L+90	56
80	L+90	56

D	320	400	500	630
αmax	15	11	8	7
H	340	390	455	540

PULLEY CLEANER MS8

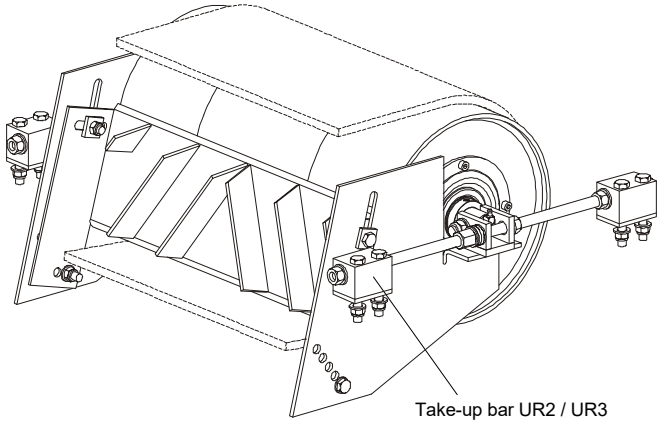
The MS8 pulley cleaner is used with the BT tail pulleys. The handles of cleaner's plate transport the material to the sides of the belt where it is easy to clean.

Install the pulley cleaner onto the UR2 and UR3 take-up bar. The cleaner automatically moves along with the pulley while tightening it. The pulley cleaner is installation and maintenance friendly with the installation screws easy to handle.

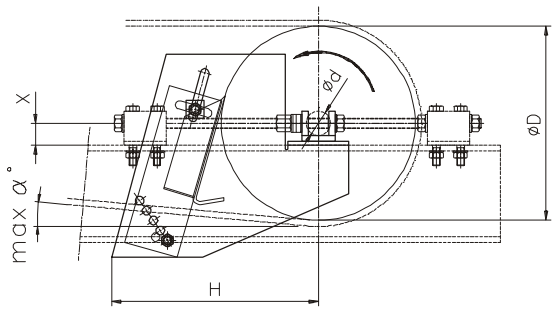
Position of the cleaner plate can be adjusted by applying a suitable set of fixing holes on the bottom of the cleaner plate assembly and side brackets so the lower edge of the cleaner plate can be installed close to the return belt to serve as a gap cover. The stepless adjustment of the top ensures accurate installation of cleaner plate close to the pulley surface.

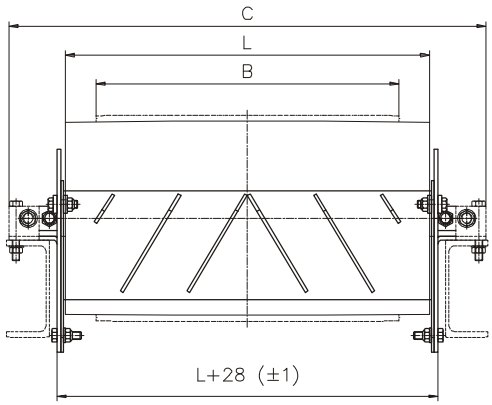
ORDERING EXAMPLE: MS8 - T40 - 320 - 1150

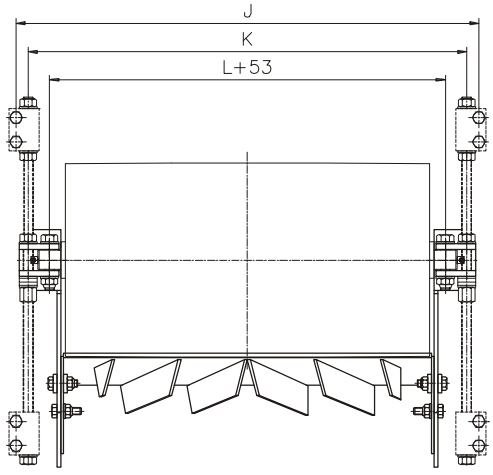
- Type code
- Type alternative
  - T = for take-up bars UR2 and UR3
- Pulley shaft diameter d (mm)
- Pulley diameter D (mm)
- Pulley length L (mm)



D	d	X	H	max a
320	40 50	36 41	340	15
400	40 50	36 41	390	11







L	B	d	C	J	K	Weight (kg) D320	Weight (kg) D400
500	400	40 50	687 707	663 677	623	19.0 19.5	23.0 23.5
600	500	40 50	787 807	763 777	723	20.5 21.0	25.5 26.0
750	650	40 50	937 957	913 927	873	22.0 22.5	27.0 27.5
950	800	40 50	1137 1157	1113 1127	1073	24.5 25.0	30.5 31.0
1150	1000	40 50	1337 1357	1313 1327	1273	26.0 26.5	32.5 33.0

6. LOADING SECTION COMPONENTS

- Sealingless loading point DREAM
- Rear sealing DREAM-TL
- Front sealing DREAM-EL
- Additional skirt board DREAM-LL
- Raising skirt board DREAM-KL
- Cover for loading point DREAM-C
- Loading of belt conveyor
- Supporting alternatives of belt at loading point of conveyor
- Skirt board sealing ROXEL1 ROXEL3
- Skirt boards ROXEL10 ROXEL11
- Rear board ROXEL12 ROXEL13
- Cover for the standard board ROXEL14
- Front curtain ROXEL15
- Sliding plate for loading point ROXID
- Sliding balk for loading point FLEXID

SEALINGLESS LOADING POINT DREAM

DREAM loading point is fully dustproof and maintenance-free. Different from standard loading points, it does not need any skirtboard sealings. DREAM is easily installed in standard idler brackets and it is an excellent choice for conveyors with multiple loading points.

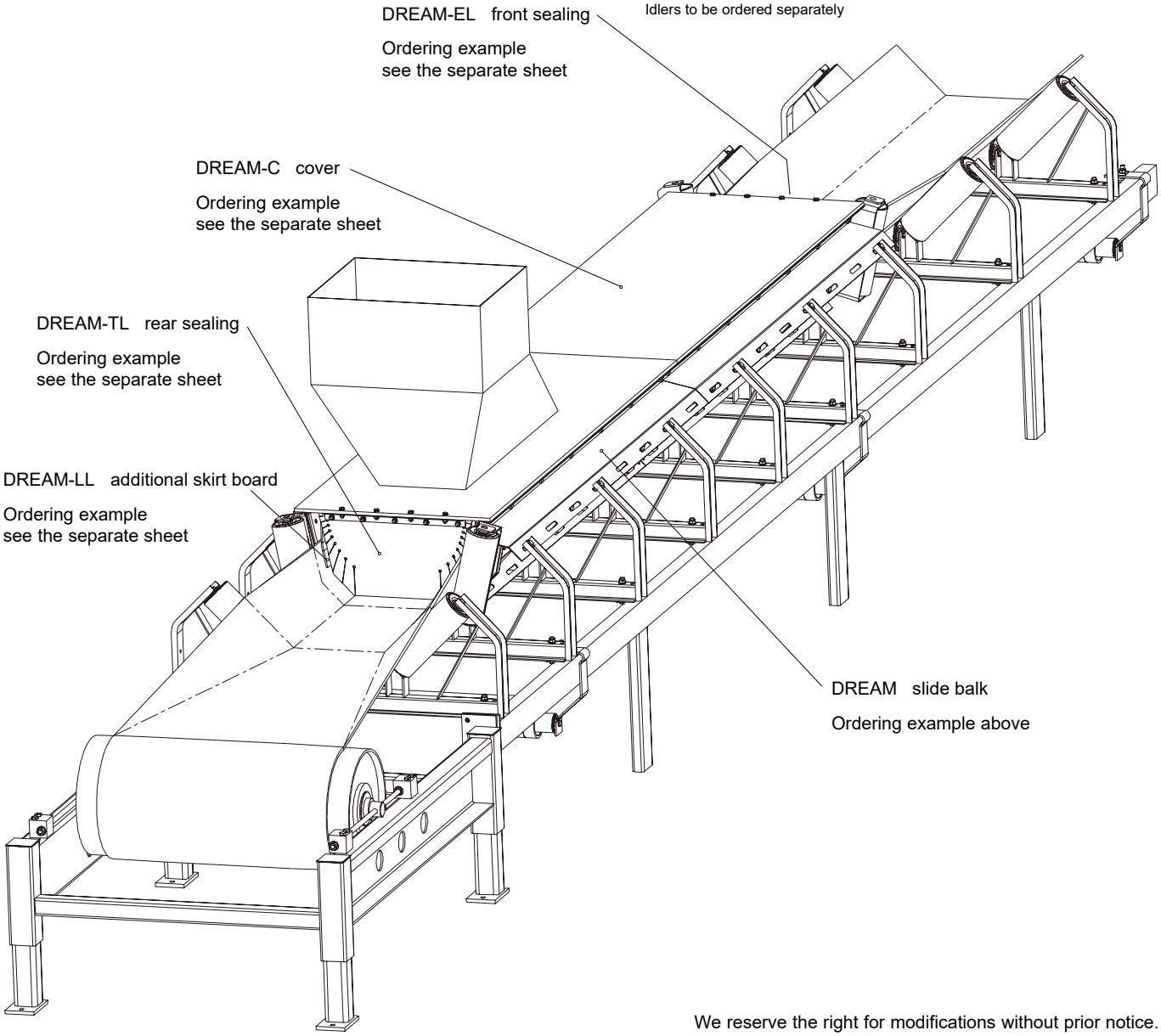
The necessary number of DREAM slide balks can be installed in a row to suit the specific needs of material flow and dust control. Where additional dust binding is needed, ROXON CLEAR system can be combined with DREAM loading point.

DREAM loading point package includes slide balks for both sides of the conveyor. Idlers at both ends of slide balks are of the same size as in standard three-roller conveyor brackets (ISO/EC standard bracket). Idlers are not included delivery.

ORDERING EXAMPLE: DREAM 475 - 108 - 20 - 45 - S M A

- Type code
- Bracket supports width L1 (mm)
- Idler diameter D (mm)
- Idler shaft diameter d (mm)
- Troughing angle (α) 30° of 45°
- Material of frame balk
  - S = STEEL (epoxy coated)
  - R = STAINLESS STEEL
  - H = ACID PROOF STEEL
- Material of sliding sheet
  - M = POLYETHENE (UHMWPE)
  - V = PLYWOOD
  - O = WITHOUT SHEET
- Alternative structure
  - A = WITHOUT END ROLLER PLACES
  - B = ROLLER PLACES IN ONE END
  - C = ROLLER PLACES IN BOTH ENDS

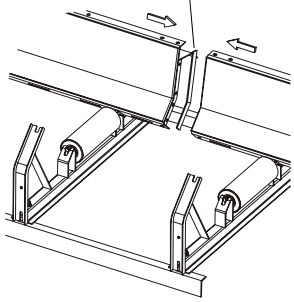
Idlers to be ordered separately



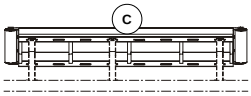
Examples of alternative structures

Ordering example includes 1 set of side balks, i.e. for both sides of the conveyor. The length of one slide balk is 2 meters.

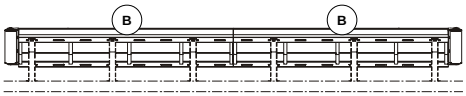
When DREAM units are installed consecutively up to the needed length, each joint is secured with a rubber sealing (rubber sealings are included in the delivery of consecutive assemblies).



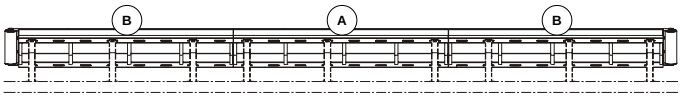
DREAM 475 - 108 - 20 - 45 - S M C; 1 pc



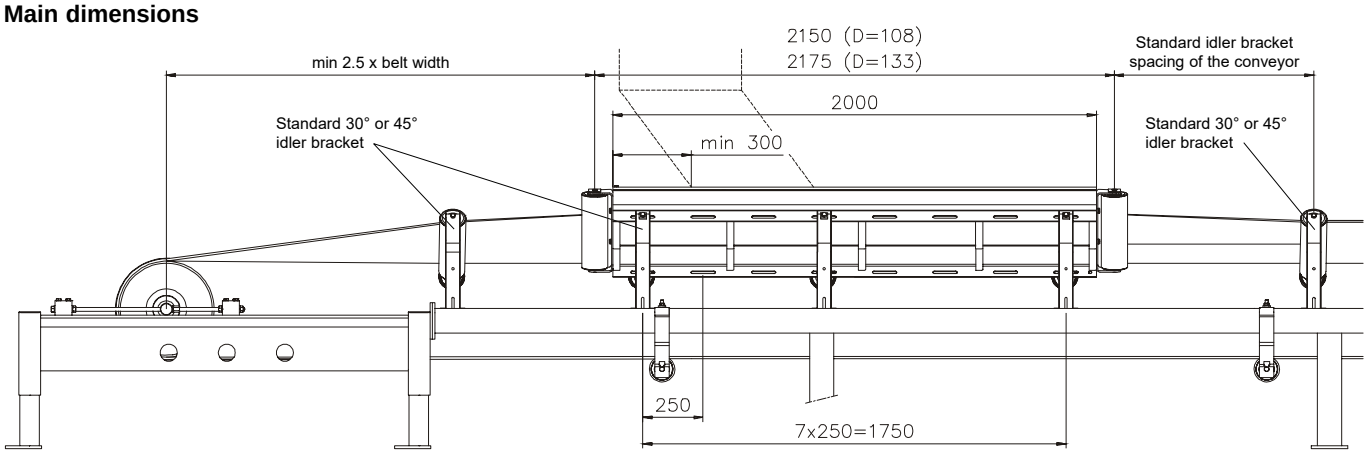
DREAM 475 - 108 - 20 - 45 - S M B; 2 pcs



DREAM 475 - 108 - 20 - 45 - S M A; 1 pc
DREAM 475 - 108 - 20 - 45 - S M B; 2 pcs

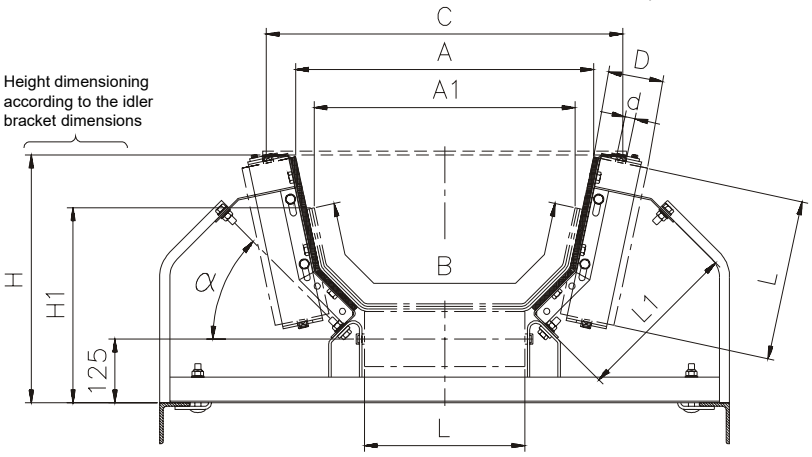


Main dimensions



Division of fixing holes for idler brackets. The quantity and position of idler brackets must be estimated by each case.

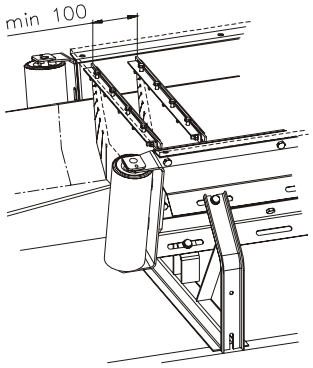
Height dimensioning according to the idler bracket dimensions



L1	L	B	D	Troughing angle 30°								Troughing angle 45°							
				C	A	A1	H	H1	Weight (kg) alternative structure A	B	C	C	A	A1	H	H1	Weight (kg) alternative structure A	B	C
260	250	650	108									595	478	425	428	348	65	68	70
325	315	800	108	710	594	520	483	378	85	88	91	700	585	512	486	383	76	80	83
			133	696	582	512	494	395	87	91	95	682	568	498	495	397	79	83	86
390	380	1000	108	840	724	658	541	437	98	102	105	830	713	651	545	441	88	92	95
			133	828	712	650	552	457	101	105	109	812	696	632	555	466	91	95	99
475	465	1200	108	970	860	786	588	481	111	116	120	960	850	776	592	487	99	104	108
			133	958	846	774	599	498	114	119	123	942	830	760	601	504	102	107	111
540	530	1400	108	1082	968	892	645	537	123	128	132	1075	960	888	647	549	110	114	118
			133	1070	956	886	656	563	126	131	136	1056	942	876	656	572	112	118	123

REAR SEALING

Rear sealing is designed for use at the end where belt enters the DREAM loading point. To adjust tightness according to the dust concentration, more than one rear sealings can be installed consecutively. Recommended quantity is 1…3 pcs.



B	E	F	H				Weight (kg)			
			Raising board alternative				Raising board alternative			
			1	2	3	4	1	2	3	4
650	510	380	260	360	410	460	2.8	3.2	3.4	3.6
800	610	490	315	415	465	515	4.0	4.5	4.7	5.0
1000	740	600	370	470	520	570	5.7	6.2	6.5	6.8
1200	875	710	420	520	570	620	7.5	8.1	8.4	8.8
1400	985	820	475	575	625	675	9.5	10.2	10.6	11.0

DREAM - TL

ORDERING EXAMPLE: DREAM - TL - 800 - 1

Type code

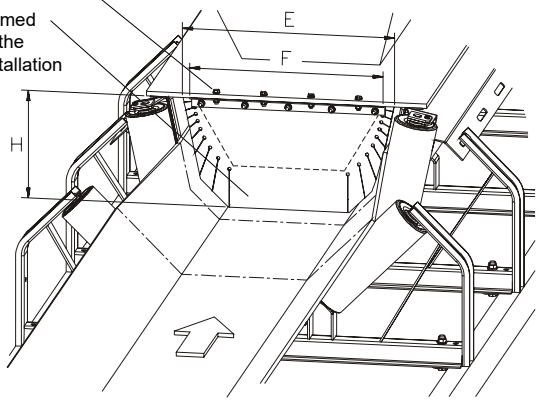
Belt width B (mm)

Raising skirt board

1 = WITHOUT RAISING BOARD
2 = RAISING BOARD, HEIGHT 100 mm
3 = RAISING BOARD, HEIGHT 150 mm
4 = RAISING BOARD, HEIGHT 200 mm

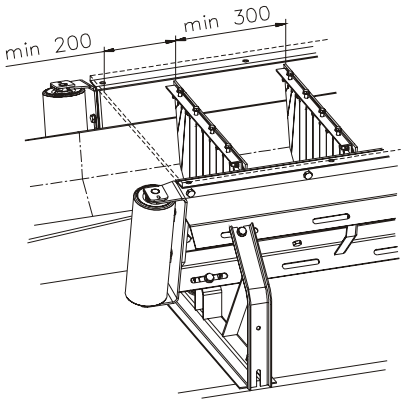
ø10 holes to the cover

Sealing is formed according to the belt while installation



FRONT SEALING

Front sealing is designed for use at the outlet end of the DREAM loading point. To adjust tightness according to the dust concentration, more than one front sealings can be installed consecutively. Recommended quantity is 1…3 pcs.



B	E	F	H				Weight (kg)			
			Raising board alternative				Raising board alternative			
			1	2	3	4	1	2	3	4
650	510	380	260	360	410	460	1.9	2.3	2.5	2.7
800	610	490	315	415	465	515	2.6	3.1	3.3	3.6
1000	740	600	370	470	520	570	3.5	4.0	4.3	4.6
1200	875	710	420	520	570	620	4.4	5.0	5.3	5.7
1400	985	820	475	575	625	675	5.3	6.0	6.4	6.8

DREAM - EL

ORDERING EXAMPLE: DREAM - EL - 800 - 1

Type code

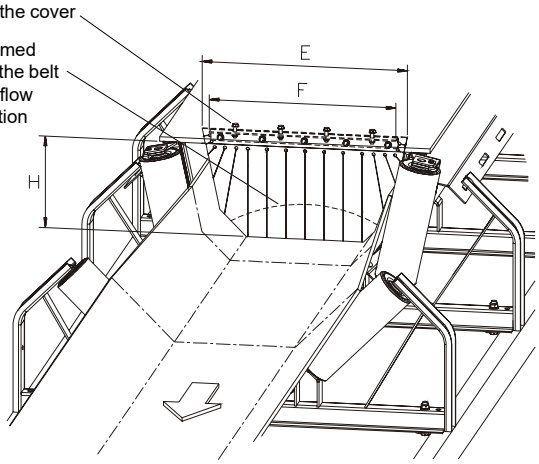
Belt width B (mm)

Raising skirt board

1 = WITHOUT RAISING BOARD
2 = RAISING BOARD, HEIGHT 100 mm
3 = RAISING BOARD, HEIGHT 150 mm
4 = RAISING BOARD, HEIGHT 200 mm

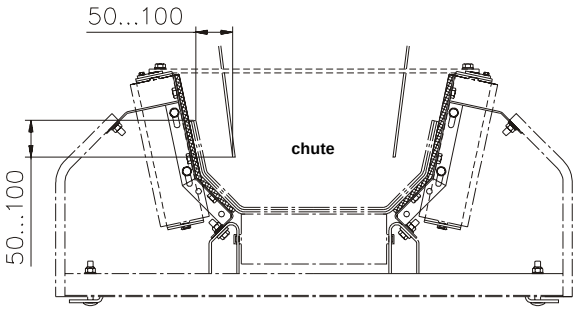
ø10 holes to the cover

Sealing is formed according to the belt and material flow while installation

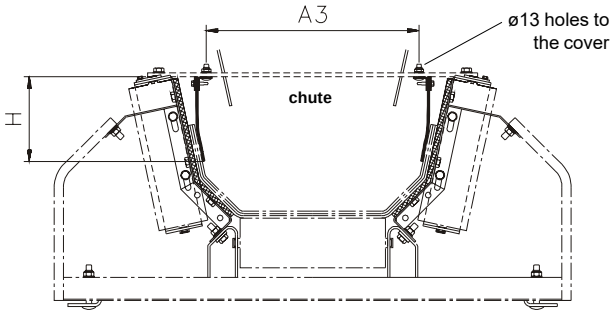


ADDITIONAL SKIRT BOARD DREAM - LL

With DREAM loading point, the chute side walls must be dimensioned according to the drawing below.



DREAM additional skirt board is needed when the chute walls cannot be extended so that the chute opening is clearly below the edge of the belt (see upper drawing). Ordering example includes 1 set of addtional skirt boards, i.e. for both sides of the conveyor. The length of one skirt board is 2 meters.



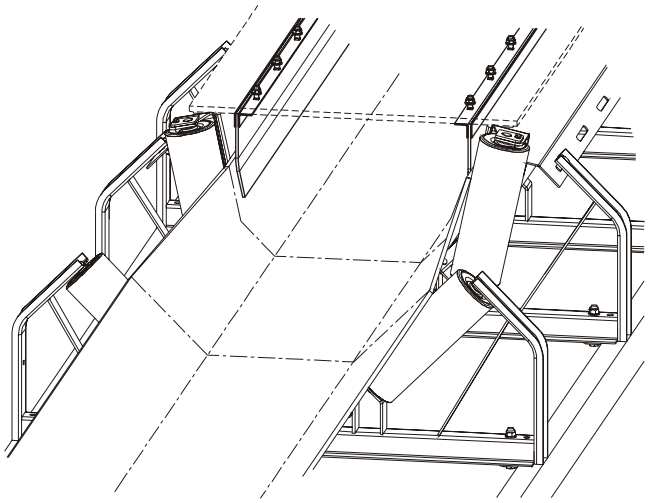
ORDERING EXAMPLE: DREAM - LL - 800 - 1

Type code

Belt width B (mm)

Raising skirt board

1 = WITHOUT RAISING BOARD
2 = RAISING BOARD, HEIGHT 100 mm
3 = RAISING BOARD, HEIGHT 150 mm
4 = RAISING BOARD, HEIGHT 200 mm



Belt width B	Additional skirt board weight (skirt boards for both sides, length 2 m)			
650	13	16	17.5	19
800 - 1400	14	17	18.5	20

Belt width	A3				H			
	Troughing angle 30°		Troughing angle 45°		Raising board alternative			
B	D108	D133	D108	D133	1	2	3	4
650			355		155	255	305	355
800	465	455	460	440	185	285	335	385
1000	595	585	590	570				
1200	735	720	725	705				
1400	840	830	835	815				

RAISING SKIRT BOARD DREAM - KL

Raising skirt board can be added to DREAM loading point in applications where the material requires large space during loading. With raising skirt board material can be loaded safely even when material bed is high and material surface slope is steep.

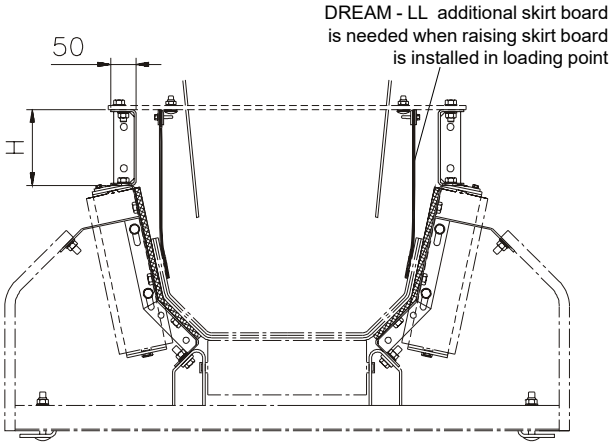
Furthermore, raising skirt board can be used with multiple loading points, installed after the first loading point in belt direction.

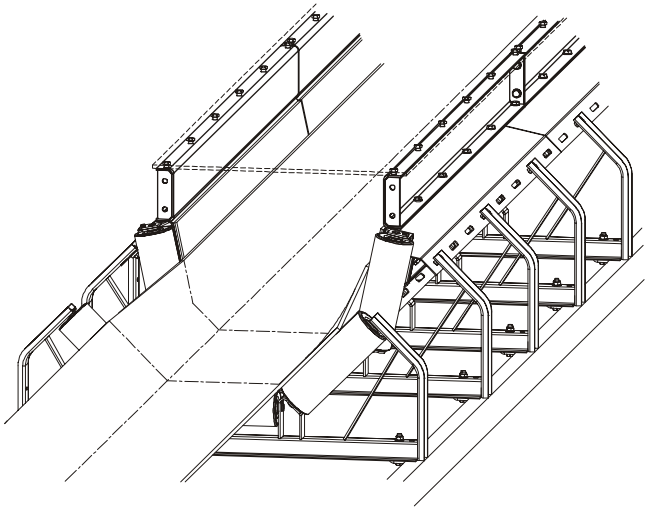
ORDERING EXAMPLE: DREAM - KL - 2

Type code

Raising skirt board

2 = RAISING BOARD, HEIGHT H = 100 mm
3 = RAISING BOARD, HEIGHT H = 150 mm
4 = RAISING BOARD, HEIGHT H = 200 mm





Weight of raising skirt board (skirt boards for both sides, length 2 m)

H = 100 mm, weight 24,5 kg
H = 150 mm, weight 37,5 kg
H = 200 mm, weight 53,5 kg

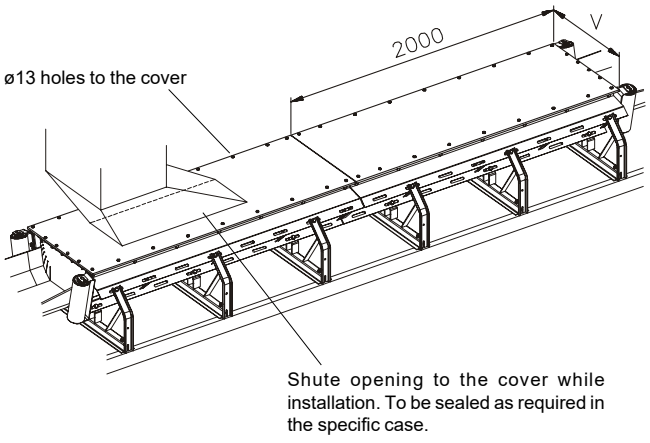
COVER FOR LOADING POINT DREAM - C

Cover for DREAM loading point. Standard length of the cover is 2000 mm and material plywood.

ORDERING EXAMPLE: DREAM - C - 850

Type code

Cover width V (mm)



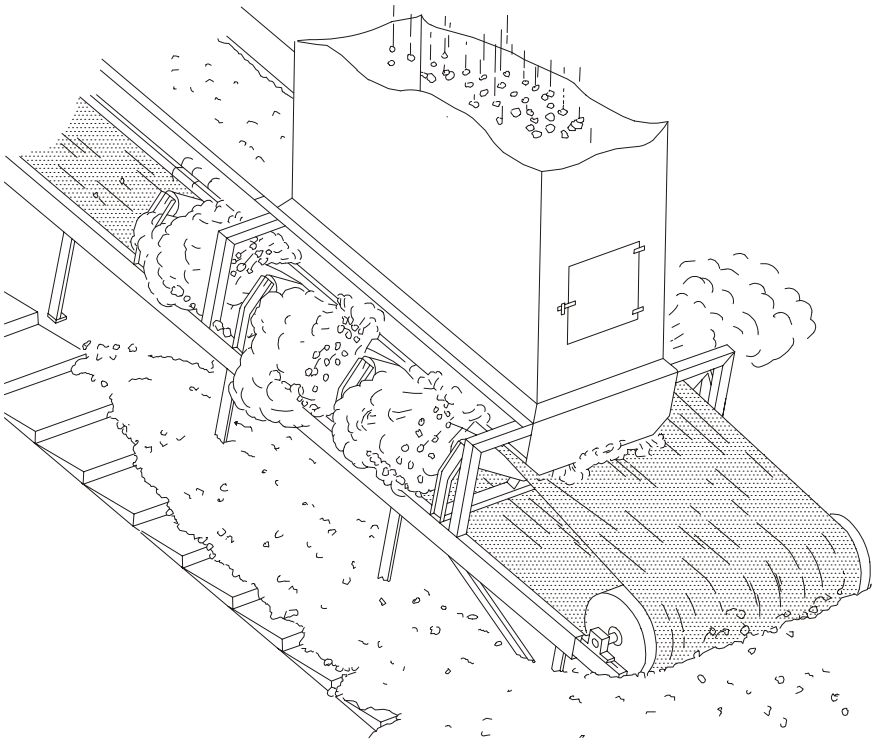
Belt width B	Idler diameter D	Cover width V Troughing angle 30°	Troughing angle 45°
650	108		610
800	108	720	710
	133	710	690
1000	108	850	840
	133	840	820
1200	108	980	970
	133	970	960
1400	108	1100	1090
	133	1080	1070

Cover width V	Cover weight (~ kg)
610	10
690	12
710	12
720	12
820	14
840	14
850	15
960	16
970	17
980	17
1070	18
1080	18
1090	19
1100	19

LOADING OF BELT CONVEYOR

Key point of well operating conveyor system

Is your conveyor as shown in the picture?

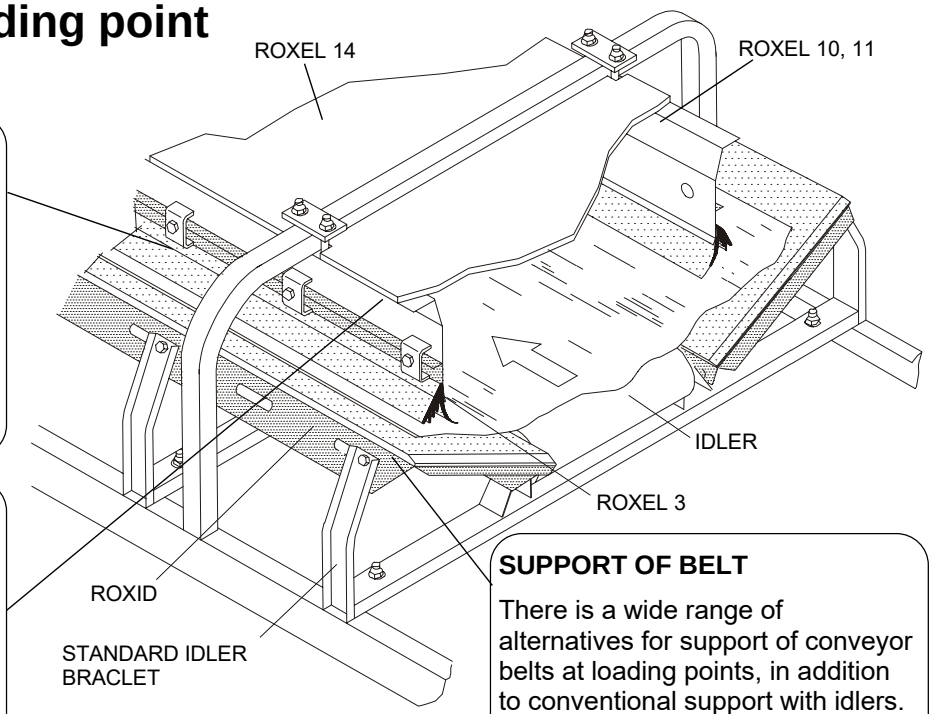


* dust in the air
* eccentric material flow from one conveyor to another
* travel direction of falling material flow and belt are different
* material overflow: part of conveyor and tail pulley covered by the dust
* needs much expensive manual shoveling work

Most of these problems can be minimized or removed if the loading point is designed well, taking into consideration the shape of the chute, skirt board sealing and support of the belt.

With ROXEL-ROXID-FLEXID products these targets are easily realized.

PROPER FUNCTION AT LOADING SECTION - with ROXON's components for loading point



SKIRT BOARD SEALING

ROXEL1 and -3 type skirt board sealings can be installed both on existing and/or fixed skirt board con-struction and thus can improve operation of loading point.

* ROXEL 1, skirt board sealing
* ROXEL 3, skirt board sealing

GUIDING SKIRT BOARDS

With ROXEL10...14 elements of standard construction, it is possible to build a tight enclosure and side walls for guiding material flow at the conveyor loading point.

* ROXEL 10, low wall
* ROXEL 11, high wall
* ROXEL 12 and 13, rear wall
* ROXEL 14, plywood cover
* ROXEL 15, discharge curtain

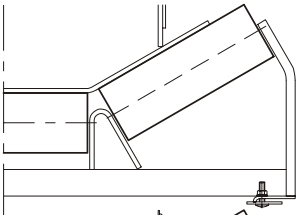
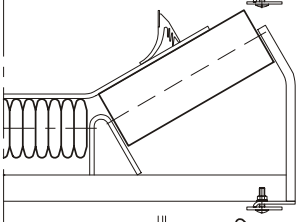
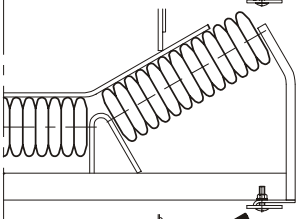
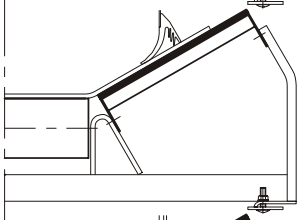
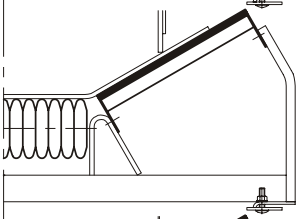
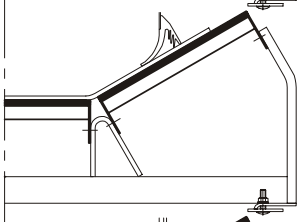
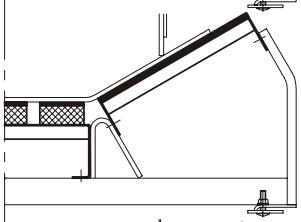
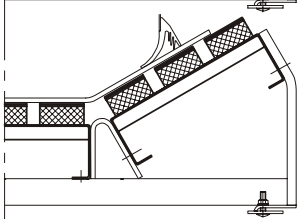
SUPPORT OF BELT

There is a wide range of alternatives for support of conveyor belts at loading points, in addition to conventional support with idlers.

* steel idlers
* impact idlers
* ROXID -sliding plate
* FLEXID -sliding balk

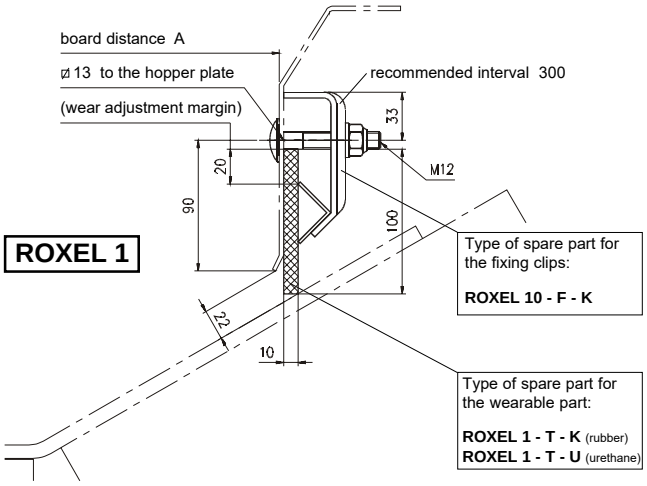
SUPPORTING ALTERNATIVES OF BELT AT LOADING POINT OF CONVEYOR

There are a versatile range of different alternatives for support of conveyor belts at loading points. Components are fixed on standard type idler brackets, thus it is easy to add them on existing conveyor constructions, too.

	COMPONENTS	ENVIRONMENTAL CONDITIONS
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - TS-type steel idler in the middle - TS-type steel idlers at sides	- normal capacities - minor dusting - small particle sizes - low dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - LA-type impact idler in the middle - TS-type steel idlers at sides	- normal capacities - minor dusting - medium particle sizes - low dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - LA-type impact idler in the middle - LA-type impact idlers at sides	- normal capacities - minor dusting - small particle sizes - high dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - TS-type steel idler in the middle - ROXID-sliding plates at sides	- normal capacities - dusting materials - small particle sizes - low dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - LA-type impact idler in the middle - ROXID-sliding plates at sides	- normal capacities - minor dusting - medium particle sizes - low dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - ROXID-sliding plates in the middle - ROXID-sliding plates at sides	- normal capacities - dusting materials - small particle sizes - low dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - FLEXID-sliding plates in the middle - ROXID-sliding plates at sides	- normal capacities - dusting materials - medium particle sizes - normal dropping height
	- skirt board sealing ROXEL1 or ROXEL3 - standard type idler bracket - FLEXID-sliding plates in the middle - FLEXID-sliding plates at sides	- normal capacities - minor dusting - large particle sizes - high dropping height

SKIRT BOARD SEALING ROXEL1 ROXEL3

ROXEL -sealing profiles are suitable especially for dusting fine material like peat, chip and powdery materials. The profiles are fixed to the guiding skirt board construction of customer's own one. The delivery includes all the needed fixing elements. ROXEL -sealing profiles are easy to place onto the steel skirt boards under the construction or to the existing ones according to enclosed dimensions.



ORDERING EXAMPLE: ROXEL1 - U 66 m

Type code

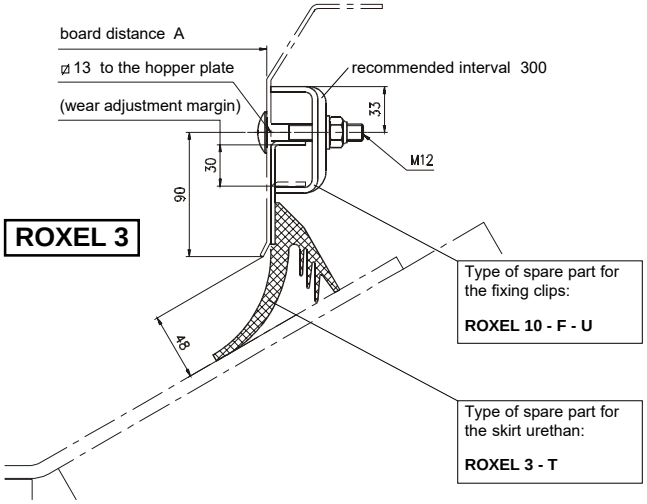
Material of the wear part

K = RUBBER
U = POLYURETHANE

Quantity of skirt board sealing (m)

Delivery includes fixing clips, screws and bolts for the fixing intervals of 300 mm.

ROXEL1 consists of a rubber plate band and is a skirt board sealing, for a universal purpose, used in the board constructions on the loading points. Rubber seal is pushed to the chute wall with the help of clips and an angle bar. The angle bar is available as 3 metres long bars.



ORDERING EXAMPLE: ROXEL3 24 m

Type code

Quantity of skirt board sealing (m)

ORDERED QUANTITY TO BE ROUND OFF TO THE FULL ELEMENT LENGTHS OF 3 m

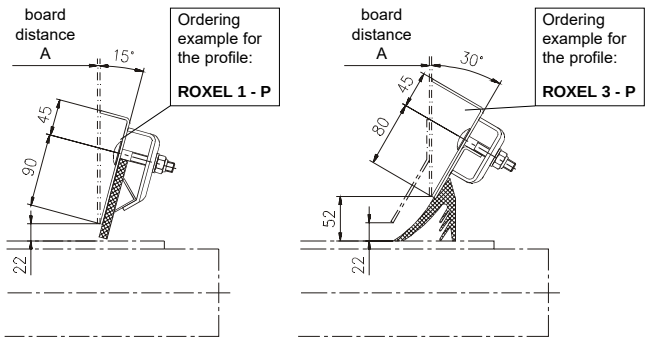
ROXEL 3 delivered as a 3 metres element. Ordered quantity will be rounded off to full element lengths. Delivery consisting of fixing clips, screws and bolts 10 pcs/element.

The sealing part of the ROXEL 3 -multilip, sealing against the belt, is of wear resistance polyurethane. Due to three different surfaces against the belt, the tightness is very good.

Polyurethane is casted on a hot galvanized profile which stiffens and makes the sealing construction solid. It also guarantees good tightness in the direction of the belt. Fixing and adjustment of the sealing element with different methods in the chute construction is easy.

LOCATION OF THE SEALING PROFILES ON THE FLAT BELT

When using a flat belt, the sealing profile must be fixed on to an inclined additional part. With the ROXEL3 it is always recommended to use the extra board inside the chute. A piece of approximately ~30 mm is cut off from the tip of ROXEL3 in flat belt applications. Profiles to be ordered according to the ordering examples below.



Note ! ROXEL 1 and 3 skirt board sealings to be ordered according combined sealing meters. For example, if the loading point and skirts are 3 meters long, order the skirtboard in 6 meters.

Recommended value for the board distance **A**

Belt width	Troughing angle			
B	α = 0°	α = 20°	α = 30°	α = 45°
500	330	320	310	280
650	460	440	420	400
800	590	570	550	490
1000	760	740	720	640
1200	900	880	870	760
1400	1100	1060	1020	920
1600	1260	1210	1170	1040

SKIRT BOARDS

ROXEL10 (LOW)
ROXEL11 (HIGH)

ROXEL10...13 board series is used as a universal board, suitable as a skirt board for most materials. Traditional ROXEL1-rubber sealing or ROXEL3-polyurethane multilip sealing can be used as skirt board sealing. Select high or low board height depending on the material.

Dusting is avoided by using a cover and the separate dedusting systems can be coupled on. Coverplates can be delivered on special request.

The board consists of standard elements which are available to be joined with each other up to the needed length. Support for the flange of the conveyor frame can be fitted steplessly and thus easy to modify even on existing conveyor frames.

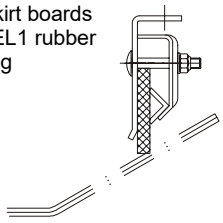
ORDERING EXAMPLE: ROXEL10K-1200-30-3000-W

- Board construction (see below)
- Belt width B (mm)
- Troughing angle α (20°, 30° or 45°)
- Nominal length of the board L (mm)
- Gap shelter
  - W= GAP SHELTERS ON BOTH SIDES
  - V= GAP SHELTER ONLY ON OTHER SIDE
  - X= WITHOUT GAP SHELTERS

NOTE. The order includes a pair of skirt boards, i.e. one skirt boardfor each side.

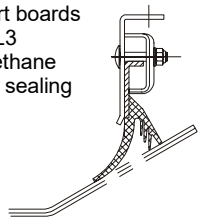
ROXEL10K-

- low skirt boards
- ROXEL1 rubber sealing



ROXEL10U-

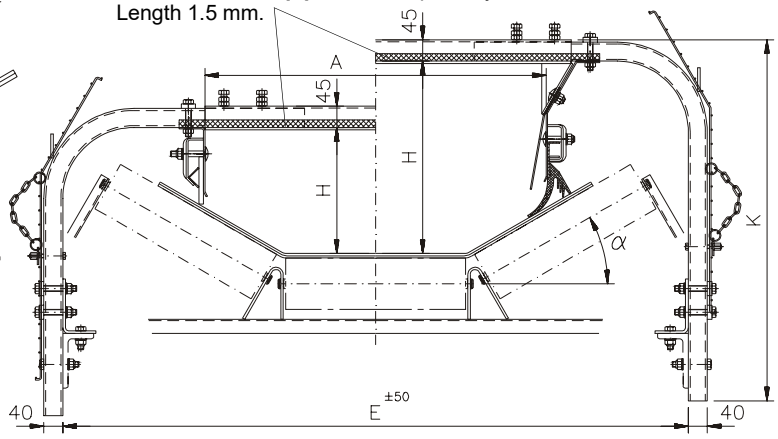
- low skirt boards
- ROXEL3 polyurethane multilip sealing



LOW BOARD

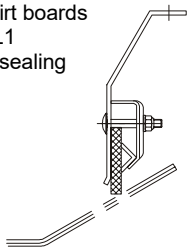
HIGH BOARD

Cover **ROXEL14-(B)** ordered separately.
Length 1.5 mm.



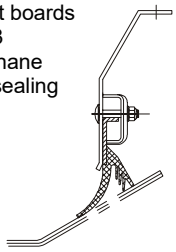
ROXEL11K-

- high skirt boards
- ROXEL1 rubber sealing



ROXEL11U-

- high skirt boards
- ROXEL3 polyurethane multilip sealing

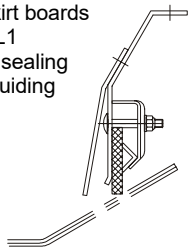


See the dimensions on the next page.

NOMINAL LENGTH L OF THE BOARD	EXACT LENGTH L OF THE BOARD	SUPPORT LEGS (pcs)
1500	1612	2
3000	3112	3
4500	4724	4
6000	6224	5

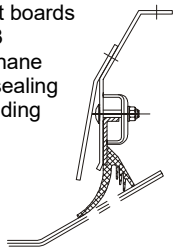
ROXEL11KL-

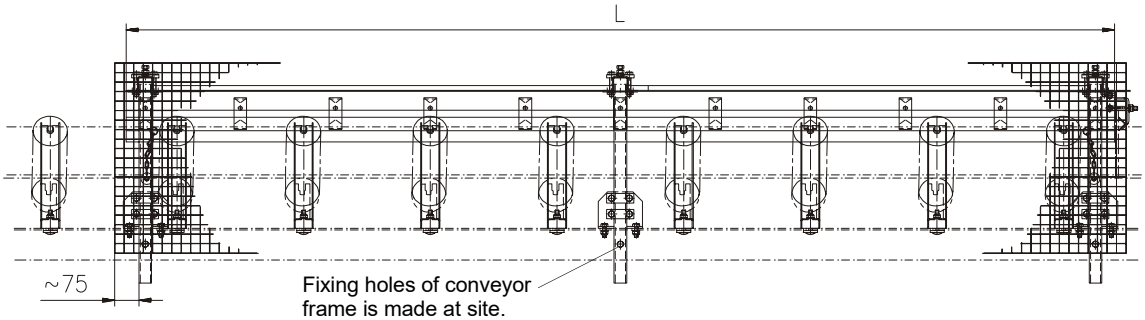
- high skirt boards
- ROXEL1 rubber sealing
- inner guiding plate



ROXEL11UL-

- high skirt boards
- ROXEL3 polyurethane multilip sealing
- inner guiding plate





B	BOARD DIMENSION H												A			E	K	WEIGHT * (kg/m)	
	ROXEL10K			ROXEL10U			ROXEL11K			ROXEL11U								ROXEL	ROXEL
	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°			10	11
500	183	194	214	206	224	261							320	310	280	770	640	37	
650	197	212	249	220	242	296		322	359		352	406	440	420	400	920	780	41	43
800	209	231	262	232	261	309	315	341	372	338	371	419	570	550	490	1120	850	44	45
1000	231	260	304	254	290	351	336	371	414	359	401	461	740	720	640	1320	950	47	49
1200	278	320	363	301	350	410	347	390	432	370	420	479	880	870	760	1570	970	49	52
1400	299	348	410	322	378	457	368	418	476	391	448	526	1060	1020	920	1770	1050	58	60
1600	314	372	437	337	402	484	383	442	506	406	472	553	1210	1170	1040	1970	1070	60	62

* = extra weight 26 kg/m, when W; 13 kg/m, when V; 11 kg/m, when L

REAR BOARD

ROXEL12 (LOW)
ROXEL13 (HIGH)

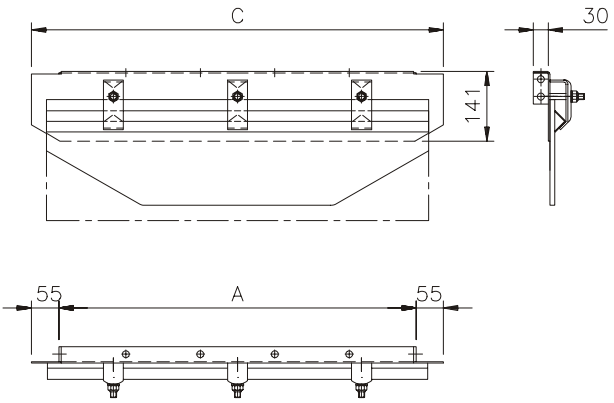
Rear boards ROXEL12 and 13 are used with the skirt boards ROXEL10 and 11. They prevent the material from flowing backwards and dust the loading point.

The rear boards are fixed to the skirt boards and support legs with screw joints. They are easy to loosen for maintenance work. The lower edge of the rubber sealing is modelled to follow the belt while installing.

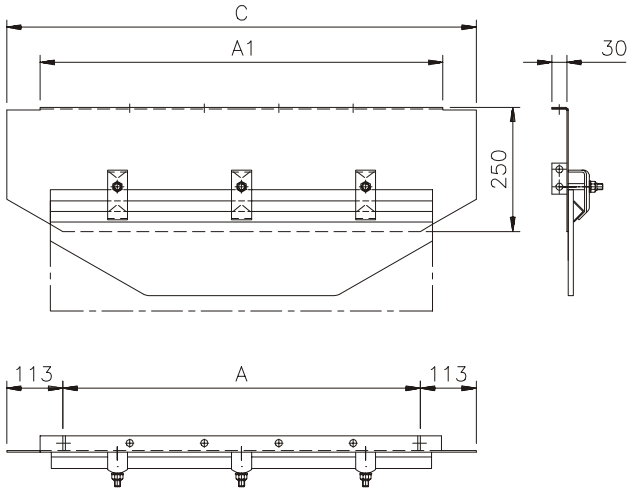
ORDERING EXAMPLE: ROXEL12-1200-30

- Type
- Construction
  - 12= for board ROXEL10
  - 13= for board ROXEL11
- Belt width B (mm)
- Troughing angle α (20°, 30° or 45°)

ROXEL12-



ROXEL13-



B	A			C			WEIGHT
	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	(kg/st)
500	320	310	280	430	420	390	2,9
650	440	420	400	550	530	510	4,0
800	570	550	490	680	660	600	4,9
1000	740	720	640	850	830	750	6,4
1200	880	870	760	990	980	870	8,1
1400	1060	1020	920	1170	1130	1030	11,7
1600	1210	1170	1040	1320	1280	1150	13,4

B	A			A1			C			WEIGHT
	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°	(kg/st)
650	440	420	400	536	516	496	666	646	626	6,4
800	570	550	490	666	646	586	796	776	716	7,9
1000	740	720	640	836	816	736	966	946	866	10,0
1200	880	870	760	976	966	856	1106	1096	986	12,5
1400	1060	1020	920	1156	1116	1016	1276	1246	1146	17,8
1600	1210	1170	1040	1306	1266	1136	1436	1396	1266	20,4

COVER FOR THE STANDARD BOARD ROXEL14

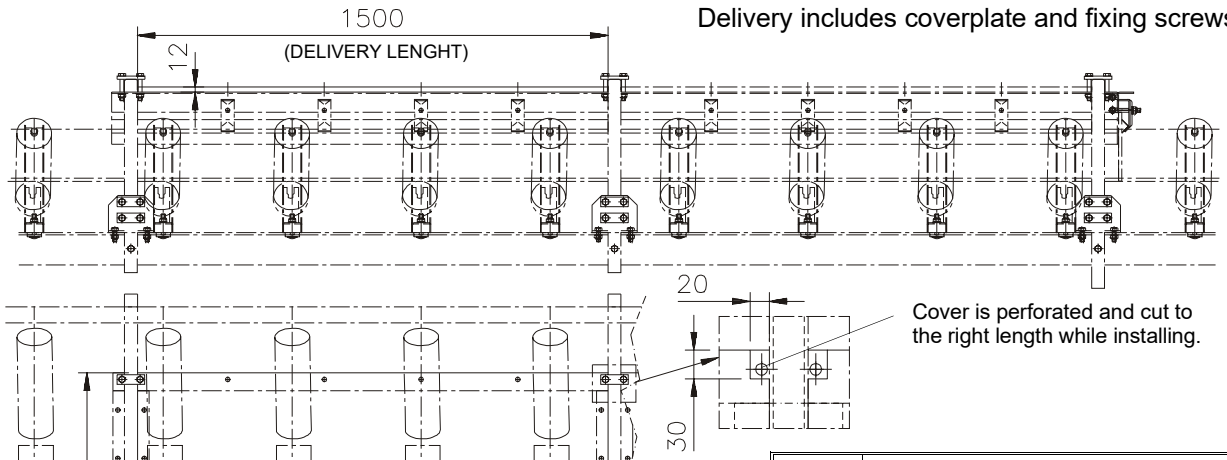
ROXEL 14-plywood cover is used with the standard skirt boards ROXEL10 and 11. On the boards there are fixing holes ready for the fitting of the cover. With the help of the cover, a tight construction to the loading point is reached. It is easy to make the holes into the plywood cover based on the chute construction.

ORDERING EXAMPLE: ROXEL 14 - 750

Type

Cover width C (mm)

Delivery includes coverplate and fixing screws.



Cover is perforated and cut to the right length while installing.

Edges are notched while installing.

Belt width B	Width C (when board distance = A)					
	ROXEL 10			ROXEL 11		
	α = 20°	α = 30°	α = 45°	α = 20°	α = 30°	α = 45°
500	430	420	390			
650	550	530	510	666	646	626
800	680	660	600	796	776	716
1000	850	830	750	966	946	866
1200	990	980	870	1106	1096	986
1400	1170	1130	1030	1276	1246	1146
1600	1320	1280	1150	1436	1396	1266

FRONT CURTAIN ROXEL15

ROXEL15 front curtain is used with the ROXEL14-cover. The loading point of the material on the conveyor is easy to seal with the front curtain. It prevents dust from moving with the material flow, when the loading point is connected to the mechanical dedusting.

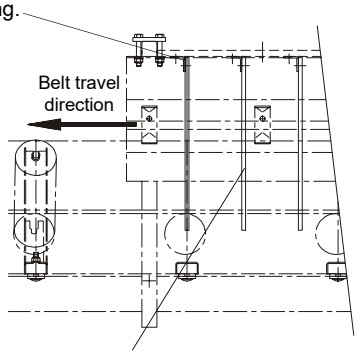
ORDERING EXAMPLE: ROXEL 15 - 650

Type

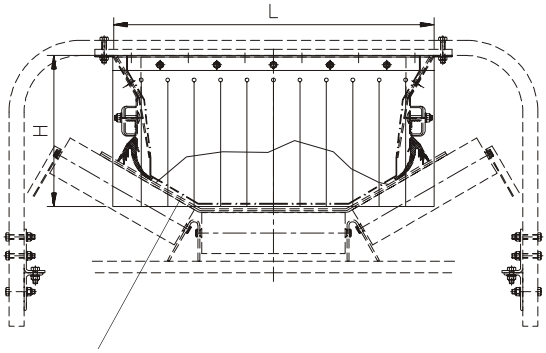
Belt width B (mm)

Delivery includes a rubber curtain with fixing bars and screws.

Fixing holes D14 are drilled to the cover while installing.



Front curtains can be placed one after the other when needed to reach a tighter construction.



Curtain is narrowed and formed according to the belt while installing.

Belt width B	L	H	Weight (kg)
500	320	210	1.0
650	550	400	2.3
800	680	410	2.9
1000	850	460	3.9
1200	990	470	4.5
1400	1160	520	5.7
1600	1320	550	6.7

SLIDING PLATE FOR LOADING POINT ROXID

The ROXID sliding plate consists of a bent steel construction made of structural stainless or acid proof steel. On the plate there is a low-friction UHMWPE polyethene sheet fixed with bolts. The width of the sliding plate L1 is according to the idler lengths (of ISO-standards) thus the plate can be installed on the most normal 3-roller idler brackets replacing the side roller. The width of the plate can be according to special request, too.

Sliding polyurethene sheets can be replaced by plywood.

If requested, sliding plates are also available for 2- and 5-rollers idler brackets. Minimum supporting distance of balk at the loading section is 0,5 m.

ORDERING EXAMPLE: ROXID - 380 - 108 - 20 S M

Type

Idler length L (mm)

Idler diameter D (mm) 108, 133 or 159

Idler shaft diameter d (mm) 20 or 25

Material of steel balk

- S= plastic epoxy coated (Fe37B)
- R= stainless steel
- H= acid proof steel

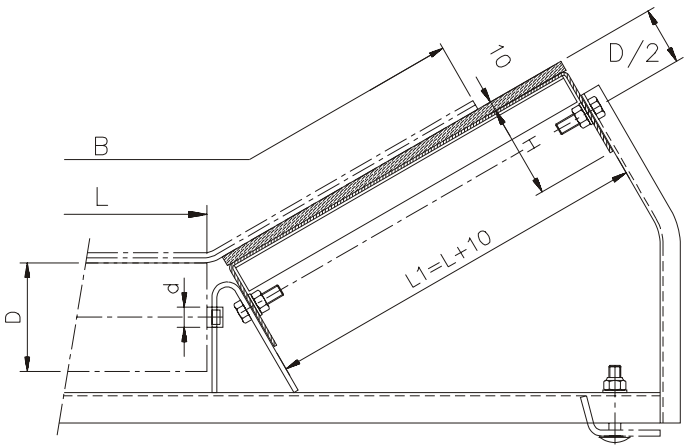
Material of sliding sheet

- M= polyethene (UHMWPE)
- V= plywood
- O= without sheet

The sliding plate is fixed onto the brackets by bolts. Delivery includes 8 pc bolts and nuts per plate.

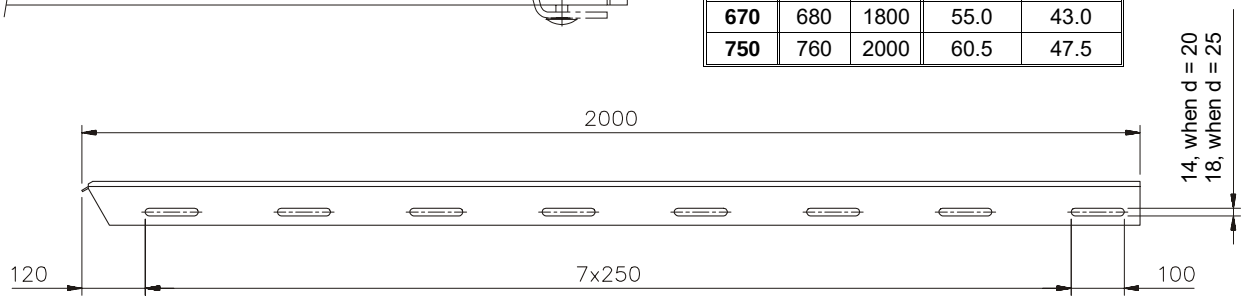
Bolt sizes: M12x50, when d=20

M16x60, when d=25

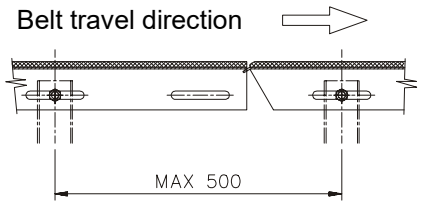


L	L1	B	Weight (kg)	
			Model M	Model O
200	210	500	21.0	18.0
250	260	650	24.5	20.5
315	325	800	30.0	24.5
380	390	1000	34.5	28.0
465	475	1200	40.5	32.5
530	540	1400	45.0	36.0
600	610	1600	50.0	39.5
670	680	1800	55.0	43.0
750	760	2000	60.5	47.5

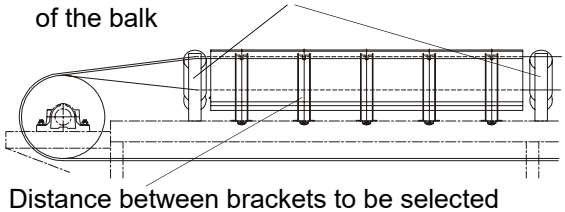
D	H
108	83
133	96
159	109



Several ROXID sliding plates can be installed after each other and so build a construction which improves tightness above the long skirt boards.



Idler bracket with rollers on both ends of the balk



Distance between brackets to be selected case by case.

SLIDING BALK FOR LOADING POINT FLEXID

FLEXID-sliding balk system consist of a frame, which is fixed to the stand idler bracket, together with the traditional rubber slide bars of plast. The sliding balk frame can be installed either by replacing some idlers or only the middle idlers.

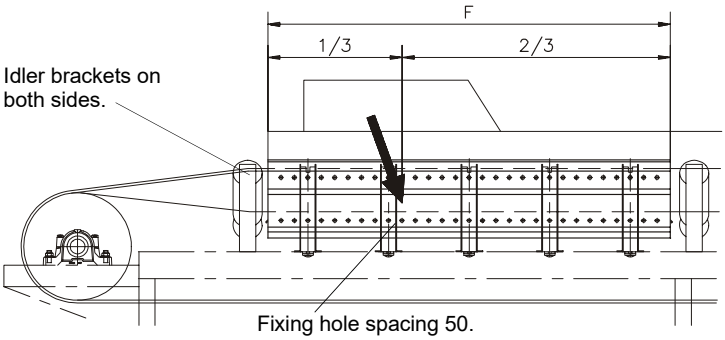
FLEXID is easy to fix to all existing idler brackets. ROXON will, with pleasure help you find the right solution if needed.

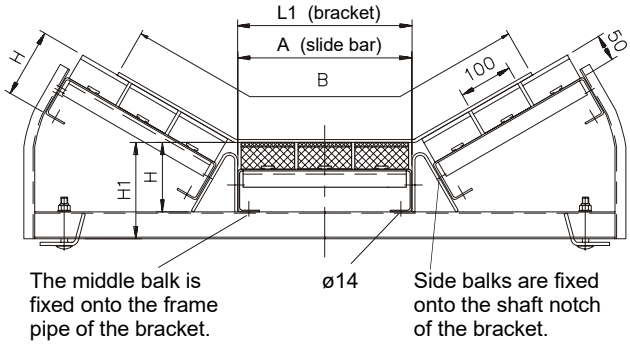
Delivery includes a slide bar with fixing screws. When the whole loading point is build up with slide bars order 3 pcs of FLEXID-bars.

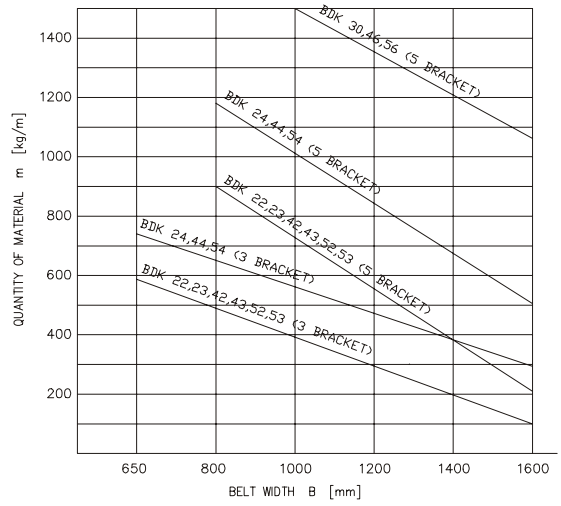
Please, order the idler bracket separately if needed.

ORDERING EXAMPLE: FLEXID - 465 - 22 - 108 S 1220

- FLEXID: Type
- 465: Idler length L (mm)
- 22: Type number of idler bracket
- 108: Idler diameter D (mm)
- S: Material of frame bar
  - S = PLASTIC EPOXY COATED (FE37B)
  - Z = HOT DIP GALVANIZED (FE37B)
  - R = STAINLESS STEEL (AISI 304)
  - H = ACID PROOF (AISI 316)
- 1220: Length of sliding balk F (mm) (1220 or 1500)







Use so many idler brackets to support the bars as necessary to achieve the loading point tension.

Use enclosed diagram as a guide when selecting the material- and idler bracket quantity.

Calculate the material on the belt as follows:

$$m = \frac{Q}{3.6 \times v}$$

Q = capacity of the conveyor [t/h]
v = speed of the conveyor [m/s]

When replacing the idler on the sides with flexid can sometimes leave the outer slidebar out.

Thus the quantity on the table below is less. This abnormal quantity has to be informed separately when ordering.

L	L1 (L+10	A (L+8)	B (belt)	Slidebars pcs n
250	260	258	650	2
315	325	323	800	3
380	390	388	1000	3
465	475	473	1200	4
530	540	538	1400	5
600	610	608	1600	5

Tabel 1

Bracket BDK-	Idler dia. D	H	H1	Weight (kg) Frame lenght F = 1220 Idler lenght L 250 (B=650)	315 (B=800)	380 (B=1000)	465 (B=1200)	530 (B=1400)	600 (B=1600)	Frame lenght F = 1500 Idler lenght L 250 (B=650)	315 (B=800)	380 (B=1000)	465 (B=1200)	530 (B=1400)	600 (B=1600)
22 , 42 , 52	108	129	179	22.4	28.6	30.5	44.0			27.6	35.2	37.6	54.2		
	133	142	192	23.2	29.4	31.3	45.0			28.5	36.2	38.5	55.4		
23 , 43 , 53	108	129	179		28.6	30.5	44.0	50.9	53.6		35.2	37.6	54.2	62.6	66.0
	133	142	192		29.4	31.3	45.0	51.9	54.6		36.2	38.5	55.4	63.8	67.2
24 , 44 , 54	133	172	238		30.9	32.8	47.1	53.9	56.6		38.0	40.4	57.9	66.3	69.7
	159	185	251		31.7	33.6	48.1	54.9	57.7		39.0	41.3	59.2	67.6	70.9

7. TAKE-UP DEVICES

- Screw take-up device UR1 UR7
- Take-up bar UR2
- Take-up bar UR3
- Screw take-up device UR6
- Screw take-up device UR8
- Vertical take-up carriage UP1
- Vertical take-up carriage UP2
- Take-up weight UP5
- Rope wheel UK

SCREW TAKE-UP DEVICE UR1 UR7

UR1 fits for the belt pulleys with cast iron bearing housings (for ex. BK; BL-pulleys) and UR7 for the pulleys with steel plate housings (for ex. BEE-pulleys).

UR1 and UR7 belogs to Roxon's EASY POWER screw take-up device range. The unfastened, spherical ALUBLOCK-nut, of special cast metal together with the stainless steel take-up screw, ensures an easy movement so that the system will not get stuck even in an inclined position.

The open bottom construction prevents the material from collecting on the screw and thus jamming the screw. Wide frame bars last even in violent oblique pulling- and jam situations.

ORDERING EXAMPLE: UR7 - 40 - 300

Type code

1= cast iron SNH/SNL -bearing house

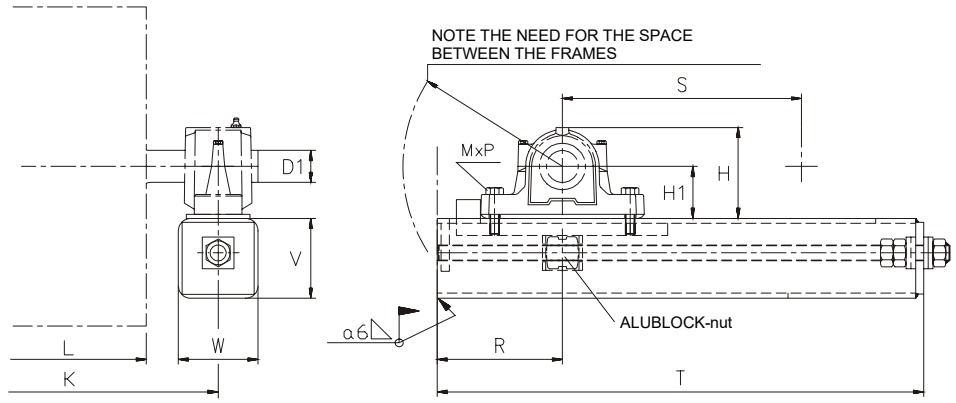
7= Roxon-type BZC11 -houses

Shaft diameter D1 (mm) by the bearing

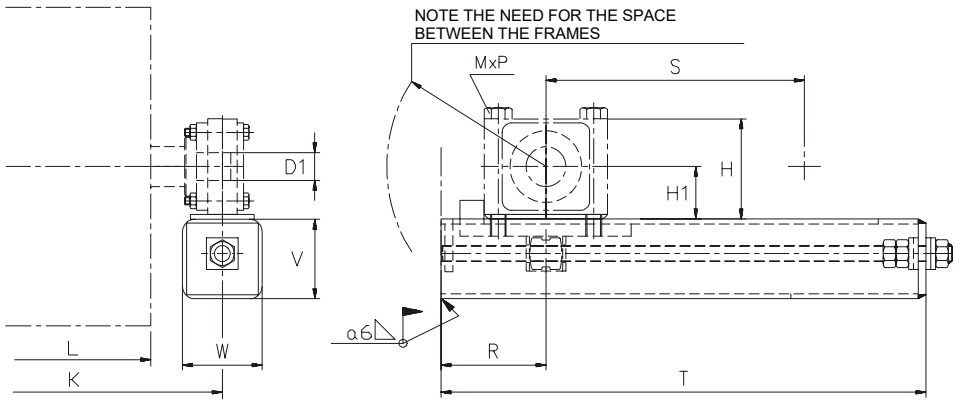
Allowance for the take-up distance S (mm)

Order two take-up devices for each pulley

Delivery includes fixing screws for the bearing housing (MxP).



UR1-



UR7-

UR 1 **Weight kg/pc**

D1	H	H1	M x P	R	V	W	TAKE-UP DISTANCE (S)			
							300	500	700	900
40	114	65	12x60	159	100	100	17,6	21,4	25,3	29,1
50	132	75	16x60	184	100	100	18,1	22,0	25,8	29,7
60	154	86	16x60	194	100	100	18,6	22,4	26,3	30,1
70	181	101	20x70	214	100	100	19,0	22,9	26,7	30,6
80	199	108	20x80	231	120	120	32,7	38,5	44,3	50,1
90	223	120	24x90	248	120	120	33,4	39,2	45,0	50,8
100	247	133	24x90	263	120	120	34,1	39,9	45,7	51,4
110	279	148	24x90	263	120	120	34,1	39,9	45,7	51,4
115	300	160	24x100	284	150	150	52,9	60,5	68,1	75,7
125	312	160	30x100	311	150	150	54,7	62,3	69,9	77,5
135	333	170	30x100	326	150	150	55,6	63,2	70,8	78,4
140	354	180	30x100	336	150	150	56,2	63,8	71,4	79,0

UR 7 **Weight kg/pc**

D1	H	H1	M x P	R	V	W	TAKE-UP DISTANCE (S)			
							300	500	700	900
40	115	60	20x140	129	100	100	16,7	20,6	24,4	28,3
50	125	65	20x160	134	100	100	16,8	20,7	24,6	28,4
60	156	81	24x190	156	120	120	28,1	33,9	39,7	45,4
80	186	86	24x220	171	120	120	28,7	34,4	40,2	46,0
100	238	123	30x270	206	150	150	44,3	51,9	59,5	67,1
120										

UR 1 and 7 **Length T**

UR1-		UR7-		TAKE-UP DISTANCE (S)			
				300	500	700	900
40 **60**	**50** **70**	**40**	**50**	720	920	1120	1320
80 **100**	**90** **110**	**60**	**80**	810	1010	1210	1410
115 **135**	**125** **140**	**100**	**120**	960	1160	1360	1560

TAKE-UP BAR

UR2

The UR2 take-up bar is used for the fixing of the BP pulley. The fixing parts of the bar are fitted to the base with screws and the bar can also be fitted directly on the flange, enabling an easy pulley installation and take-up.

The take-up bar UR2 can also be fitted to the BP pulley with the MS5 pulley cleaner.

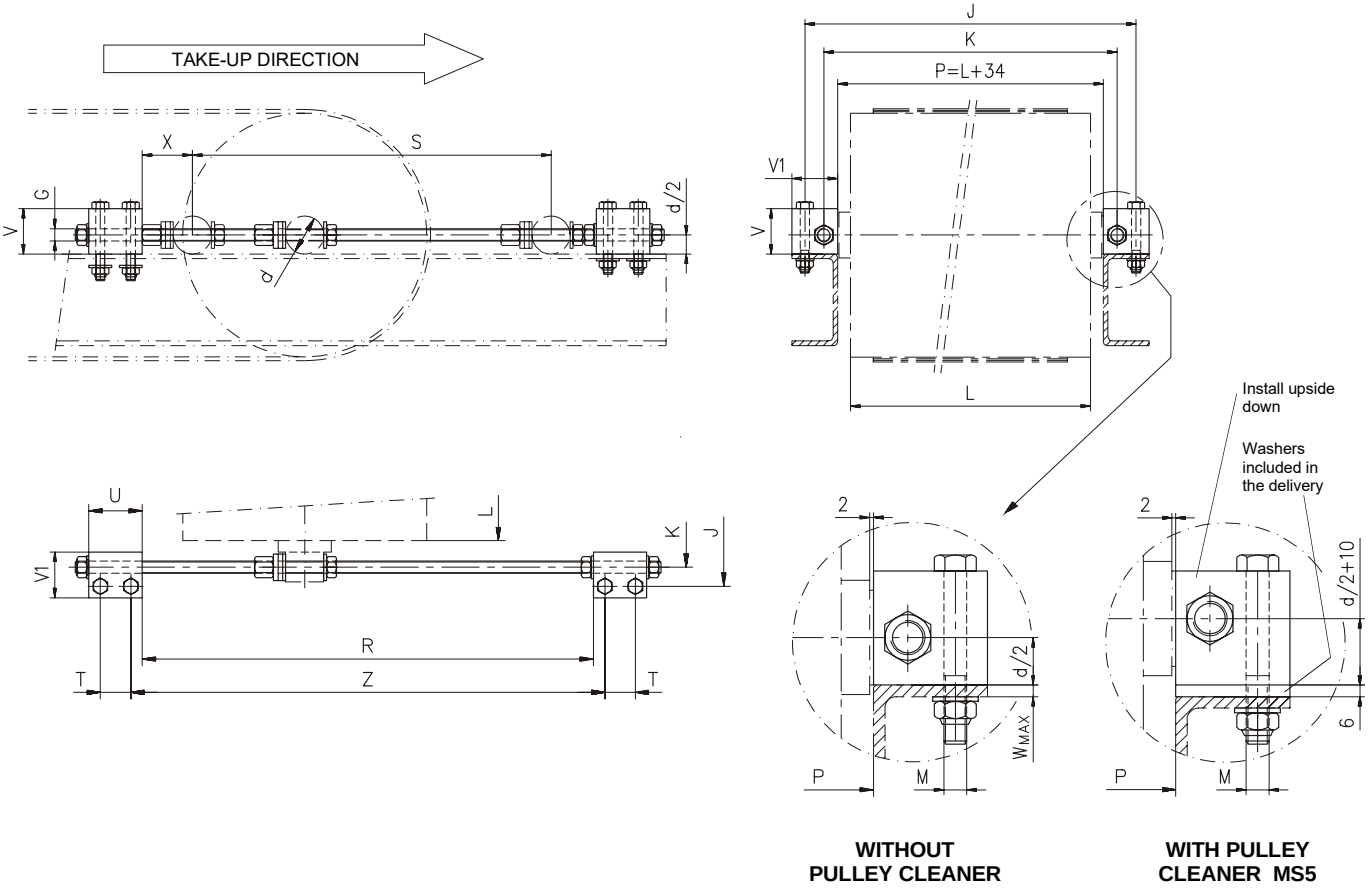
ORDERING EXAMPLE: UR2 - 60 - 500

Type code

Shaft diameter d (mm)

Take-up distance S (mm)

Order two take-up bars for each pulley



WITHOUT PULLEY CLEANER

WITH PULLEY CLEANER MS5

d	Take-up distance S (mm)							
	300		500		700		900	
	Z	R	Z	R	Z	R	Z	R
40	442	412	642	612	842	812	1042	1012
50	452	422	652	622	852	822	1052	1022
60	485	445	685	645	885	845	1085	1045
70	495	455	695	655	895	855	1095	1055
80	522	482	722	682	922	882	1122	1082
90	532	492	732	692	932	892	1132	1092

d	K	G	J	M	W_{MAX}	T	U	V	V1	X	Weight (kg) Take-up distance S (mm)			
											300	500	700	900
40	L+70	M16	L+110	M12	20	40	70	50	50	63	4.0	4.5	4.5	5.0
50	L+70	M16	L+124	M12	20	40	70	60	60	68	5.5	5.5	6.0	6.0
60	L+80	M20	L+144	M16	25	55	95	70	70	78	10.0	11.0	11.0	11.5
70	L+80	M20	L+144	M16	15	55	95	80	80	83	12.5	13.0	13.5	14.0
80	L+90	M24	L+154	M20	20	60	100	90	90	96	14.5	15.0	16.0	16.5
90	L+100	M24	L+154	M20	30	60	100	100	90	101	18.0	18.5	19.5	20.0

TAKE-UP BAR

UR3

The UR3 take-up bar is used for the fixing of the BP pulley. The fixing parts of the bar are welded to the base and the bar can also be fitted directly on the flange, enabling an easy pulley installation and take-up.

The take-up bar UR3 can also be fitted to the BP pulley with the MS5 pulley cleaner.

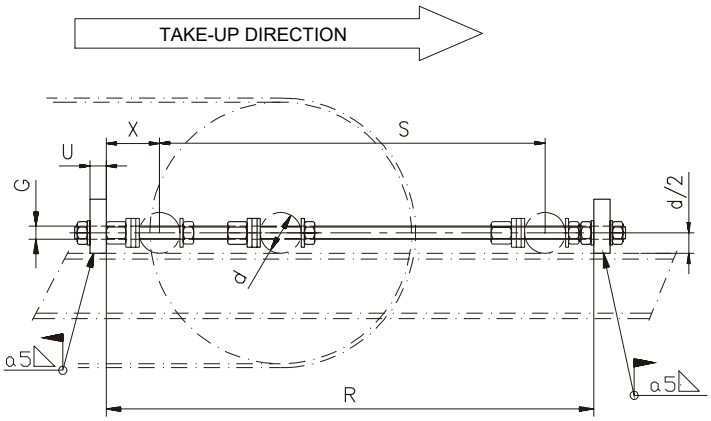
ORDERING EXAMPLE: UR3 - 60 - 500

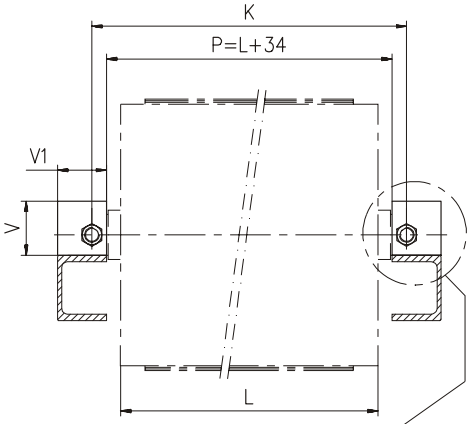
Type code

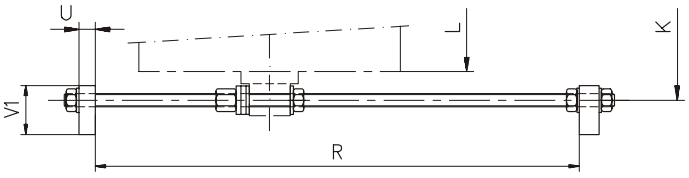
Shaft diameter d (mm)

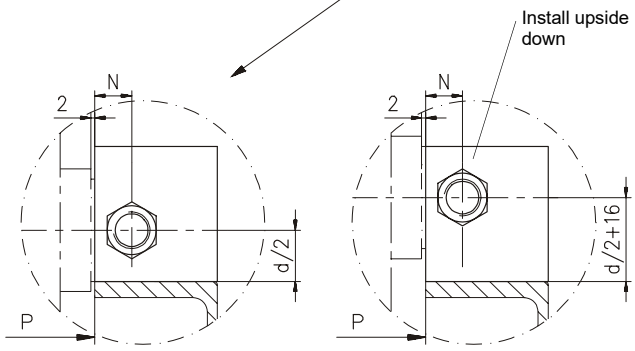
Take-up distance S (mm)

Order two take-up bars for each pulley









WITHOUT PULLEY CLEANER

WITH PULLEY CLEANER MS5

d	R			
	Take-up distance S (mm)			
	300	500	700	900
40	412	612	812	1012
50	422	622	822	1022
60	445	645	845	1045
70	455	655	855	1055
80	482	682	882	1082
90	492	692	892	1092

d	K	G	U	V	V1	N	X	Weight (kg)			
								Take-up distance S (mm)			
								300	500	700	900
40	L+70	M16	20	56	50	18	63	2.0	2.0	2.5	3.0
50	L+70	M16	20	66	60	18	68	2.0	2.0	2.5	3.0
60	L+80	M20	25	76	70	23	78	3.5	4.0	4.5	5.0
70	L+80	M20	25	86	80	23	83	4.0	4.5	5.0	5.5
80	L+90	M24	30	96	90	28	96	6.5	7.0	8.0	8.5
90	L+100	M24	30	106	100	33	96	7.0	8.0	8.5	9.0

SCREW TAKE-UP DEVICE UR6

The UR6 screw take-up device is designed for pulleys with cast-iron bearing housings, type BK and BL. UR6 belongs to Roxon's new EASY POWER screw take-up device range. The unfastened, spherical ALUBLOCK nut, of special cast metal, together with the stainless steel take-up screw, ensures an easy movement so that the system will not get stuck even in an inclined position.

The take-up screw is placed inside a closed structure where it is protected against impacts and dirt. The take-up screw with a thrust bearing makes the adjustment easy, even with high belt tensions.

Hot-dip galvanised finishing lasts long even in difficult conditions.

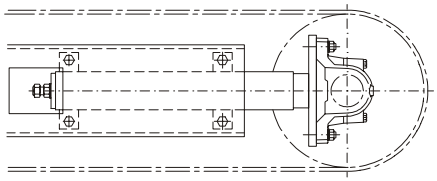
ORDERING EXAMPLE: UR6 - 2

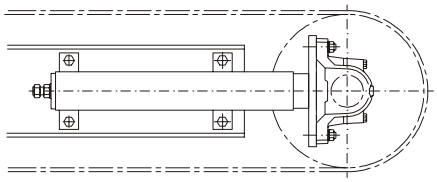
Type

Size

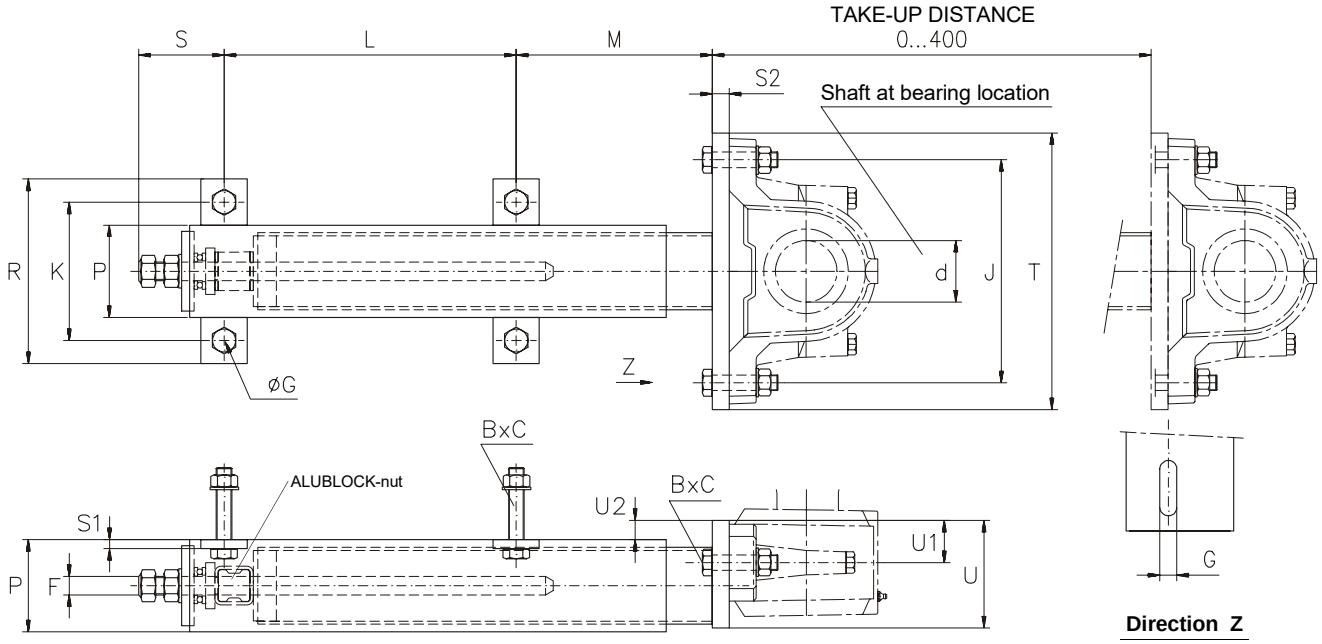
Order two take-up devices for each take-up pulley

The fixing screws (B x C) for the bearing housing and the screw take-up device are included in the delivery.





Size	Pulley shaft diameter d	Fits for SNH / SNL bearing houses of SKF	Belt tension resultant (kN)
1	40	506-605, 507-606, 508-607, 509, 510-608, 206, 207, 208, 209, 210	15
2	50 60	511-609, 512-610, 513-611 515-612, 211, 212, 213, 215	48
3	70 80	516-613, 517, 518-615, 519-616 216, 217, 218	99
4	90 100 110 115	520-617, 522-619 524-620, 526	169
5	125 135 140	528, 530, 532	250



Size	B x C	F	G	J_{min}	J_{max}	K	L	M_{min}	P	R	S	S1	S2	T	U	U1	U2	Weight (kg)
1	M12x60	M16	14	144	176	140	400	185	90	180	79	10	15	220	105	45	15	18.0
2	M16x80	M20	18	198	242	160	400	185	100	200	88	10	20	290	120	50	20	24.0
3	M20x90	M24	23	258	292	180	380	225	120	240	111	12	22	360	140	55	25	35.5
4	M24x120	M30	27	314	386	210	380	230	140	280	128	15	25	450	165	65	25	64.0
5	M30x130	M36	33	400	490	240	400	230	170	310	128	15	30	570	190	85	20	88.5

SCREW TAKE-UP DEVICE UR8

The UR8 screw take-up device is designed for dead-shaft pulleys, type BP. UR8 belongs to Roxon's new EASY POWER screw take-up device range. The unfastened, spherical ALUBLOCK nut, of special cast metal together with the stainless steel take-up screw, ensures an easy movement so that the system will not get stuck even in an inclined position. The take-up screw is placed inside a closed structure where it is protected against impacts and dirt. The take-up screw with a thrust bearing makes the adjustment easy, even with high belt tensions.

Because the screw take-up device is located almost entirely inside the conveyor frame structure, the installation of an endless, ready-made conveyor belt is easy.

Welding instructions and tolerances must be transferred to the steel construction drawings of the conveyor.

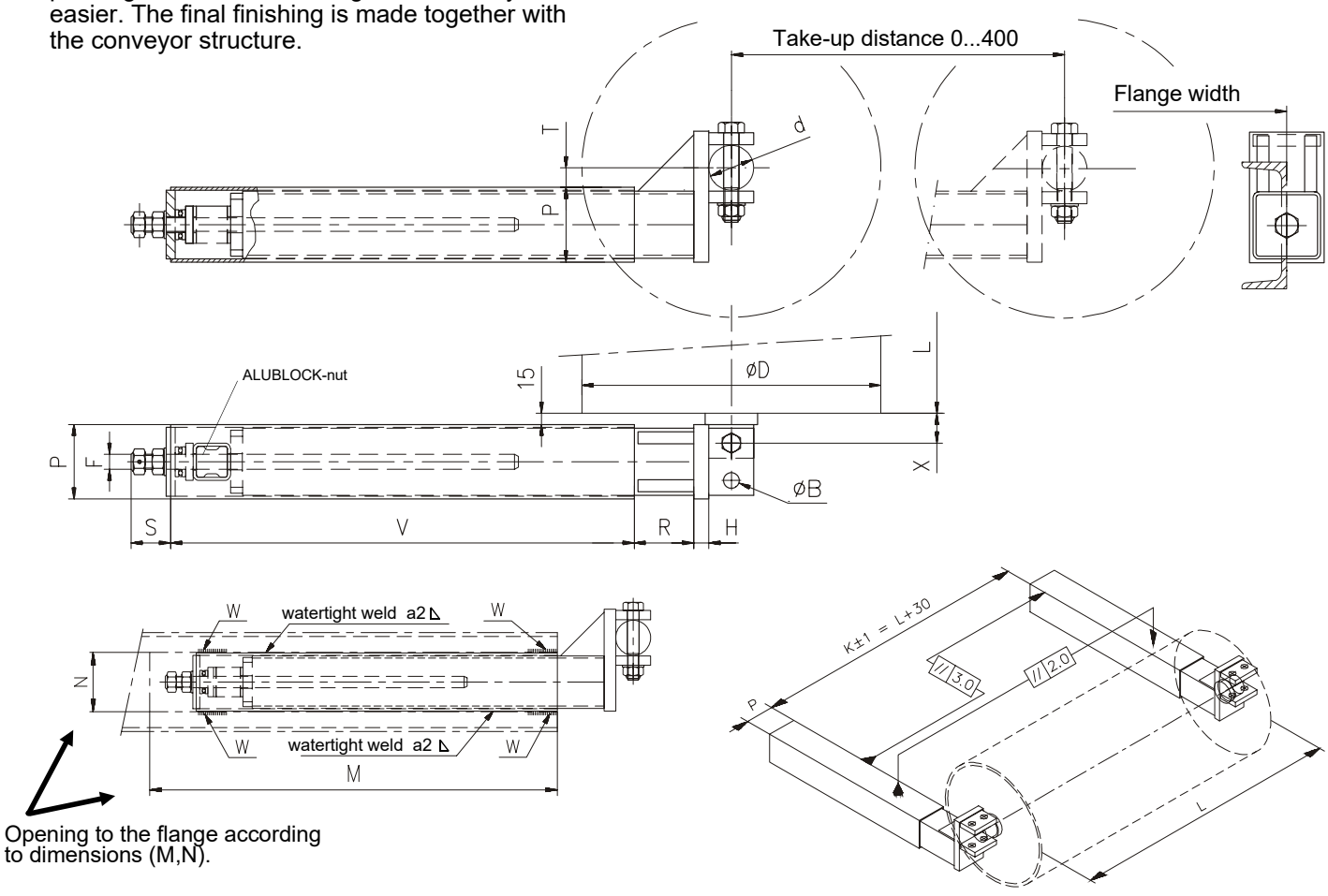
The surface treatment of the construction, is primer painting to make the welding to the conveyor structure easier. The final finishing is made together with the conveyor structure.

ORDERING EXAMPLE: UR8 - 60

Type

Pulley shaft diameter d (mm)

Order two take-up devices for each pulley



Opening to the flange according to dimensions (M,N).

d	B	F	V	P	R	S	H	T	X	M	N	W	Weight (kg)
40	17	M16	620	90	70	44	15	16	35	725	92	a6d50	17.0
50	17	M20	620	100	85	53	20	21	35	740	102	a6d50	22.0
60	21	M20	620	100	85	53	20	26	40				22.5
70	21	M24	620	120	105	66	22	26	40	760	122	a10d50	38.0
80	25	M24	620	120	105	66	22	31	45				39.0
90	25	M30	770	140	115	70	25	36	50	920	142		59.0

VERTICAL TAKE-UP CARRIAGE UP1

UP1 -take-up carriage is assembled unity, ready to installation. Take-up weight is connected to the take-up carriage with wedge housing and wire. Thus both places on the conveyor are to be optimated to receive the secure transmission and economical result.

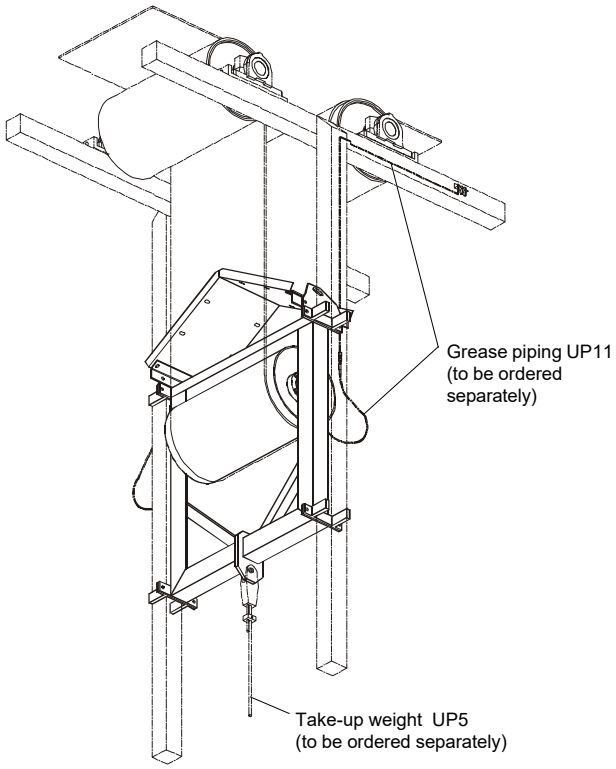
Big height/width -relation and sturdy frame construction secure good controlling and straightness. Turning of the carriage and sticking between guiding bars do not happen and the carriage stays straight and the belt centered.

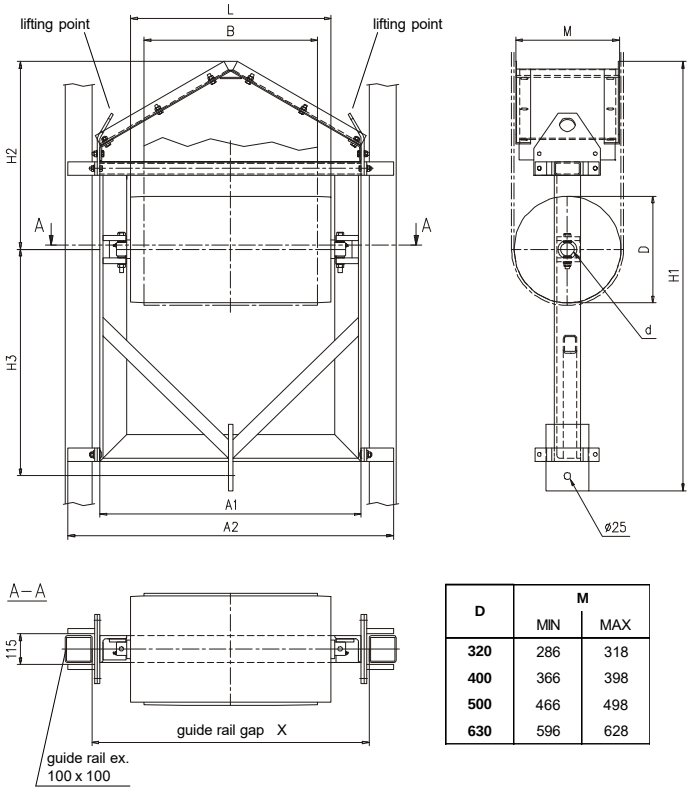
By assemble of the UP1 -take-up carriage, the pulley is lined vertically towards guide rail line, to eliminate the adjusting needs in instruction of the operation. Lifting points are outside of the spill cover to ease up the liftings needed by the installation and service.

ORDERING EXAMPLE: UP1 - 60 - 400 - 1150

- Type code
- Shaft diameter d (mm)
- Pulley diameter D (mm)
- Length of the pulley shell L (mm)

In UP1 -take-up carriage include BP -tail pulley with steel surface.





D	M	
	MIN	MAX
320	286	318
400	366	398
500	466	498
630	596	628

UP1 - 50 and **UP1 - 60**

L	B	D	A1	A2	X	UP1 - 50 H1	UP1 - 50 H2	UP1 - 50 H3	UP1 - 50 Weight (kg)	UP1 - 60 H1	UP1 - 60 H2	UP1 - 60 H3	UP1 - 60 Weight (kg)
750	650	320	980	1220	1040	1511	706	750	209	1611	756	800	219
		400							237				247
		500							287				297
950	800	320	1180	1420	1240	1669	764	850	239	1769	814	900	250
		400							271				281
		500							328				340
1150	1000	400	1380	1620	1440	1826	821	950	304	1926	871	1000	317
		500							369				382
		630											521
1400	1200	400	1630	1870	1690	1999	894	1050	346	2099	944	1100	359
		500							420				435
		630											597
1600	1400	400	1830	2070	1890					2256	1001	1200	394
		500											477
		630											658

UP1 - 70 and **UP1 - 80**

L	B	D	A1	A2	H1	H2	H3	X	UP1 - 70 Weight (kg)	UP1 - 80 Weight (kg)
950	800	400	1280	1520	1798	843	900	1340	321	
		500							388	
		630							474	
1150	1000	400	1480	1720	1955	900	1000	1540	356	372
		500							432	447
		630							588	603
1400	1200	400	1730	1970	2128	973	1100	1790	401	419
		500							486	504
		630							666	683
1600	1400	400	1930	2170	2285	1030	1200	1990	439	457
		500							531	550
		630							729	747
1800	1600	400	2130	2370	2393	1088	1250	2190	474	494
		500							574	594
		630							790	811
2000	1800	400	2330	2570	2557	1152	1350	2390	510	533
		500							619	641
		630							853	875
2200	2000	400	2530	2770	2665	1210	1400	2590		568
		500								684
		630								939

VERTICAL TAKE-UP CARRIAGE UP2

UP2 take-up carriage is assembled unity, ready to installation. Take-up weight is connected to the take-up carriage with wedge housing and wire. Thus both places on the conveyor are to be optimated to receive the secure transmission and economical result.

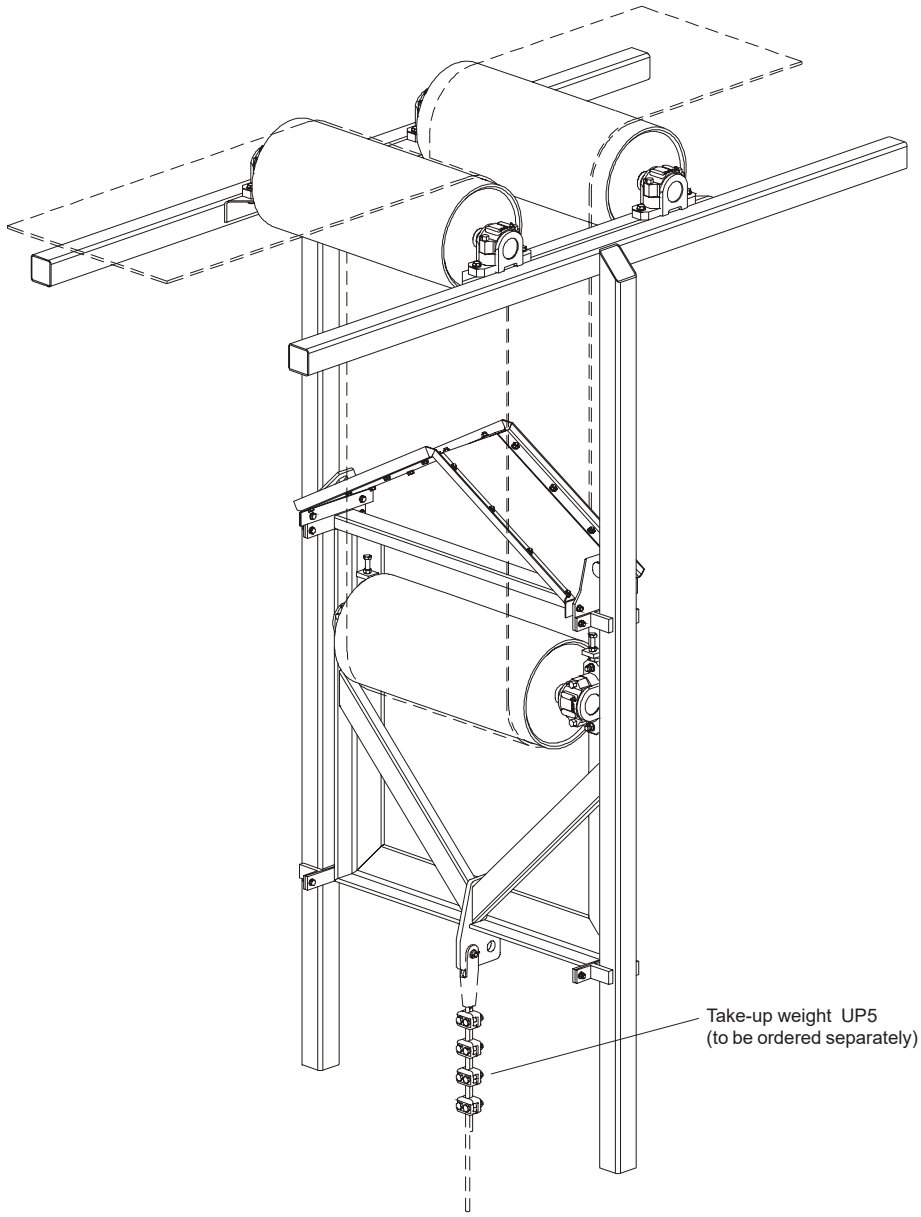
Big height/width -relation and sturdy frame construction secure good controlling and straightness. Turning of the carriage and sticking between guiding bars do not happen and the carriage stays straight and the belt centered.

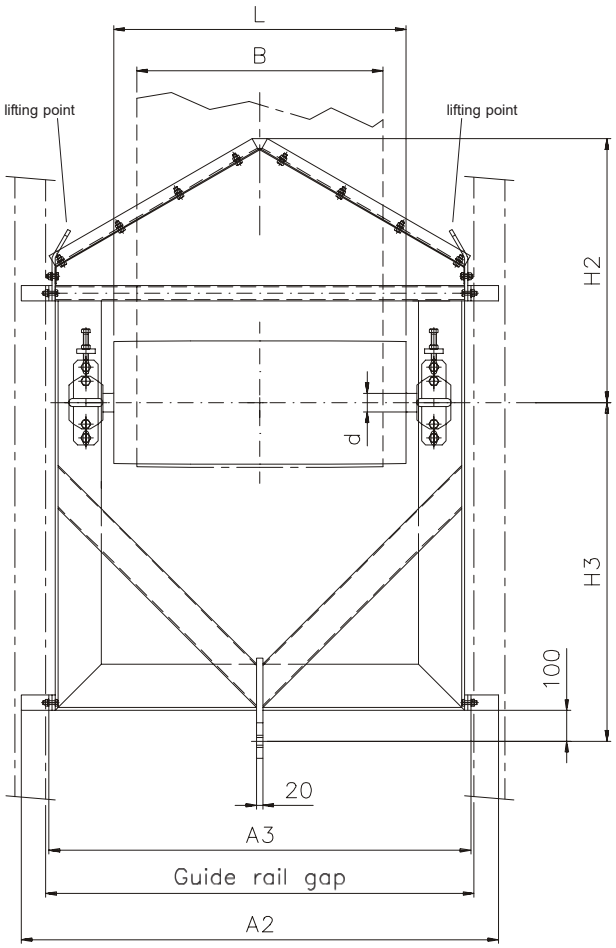
By assemble of the UP2 take-up carriage, the pulley is lined vertically towards guide rail line, to eliminate the adjusting needs in instruction of the operation. Lifting points are outside of the spill cover to ease up the liftings needed by the installation and service.

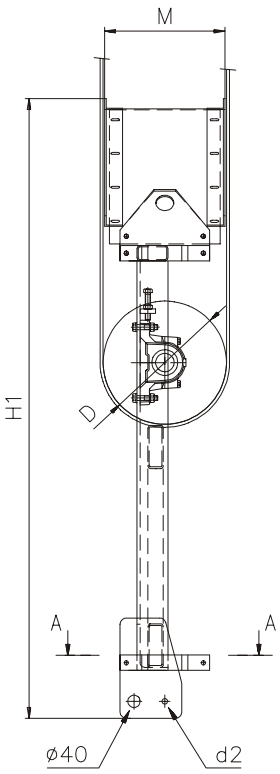
ORDERING EXAMPLE: UP2 - BL60 - 400 - 1150 - 14

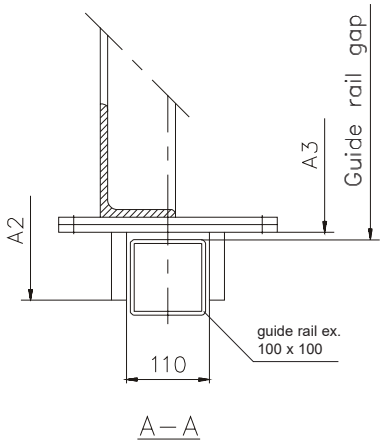
- Type code
- Pulley type
  - BL - tail pulley
  - BK - tail pulley
- Shaft diameter d (mm)
- Pulley diameter D (mm)
- Length of the pulley shell L (mm)
- Rope diameter of the take-up weight d1 (mm)

In UP2 -take-up carriage include BL or BK tail pulley with steel surface.









D	M	
	MIN	MAX
400	360	396
500	460	496
630	590	626

Rope diameter of the take-up weight d1	d2
14	18
20	25
28	52

UP2 - BL / BK60...80-

L	B	H1	H2	H3	A2	A3	guide rail gap
950	800	2012	857	1100	1550	1370	1390
1150	1000	2170	915	1200	1750	1570	1590
1400	1200	2342	987	1300	2000	1820	1840

UP2 - BL / BK90...100-

L	B	H1	H2	H3	A2	A3	guide rail gap
950	800	2191	936	1200	1650	1470	1490
1150	1000	2349	994	1300	1850	1670	1690
1400	1200	2521	1066	1400	2100	1920	1940
1600	1400	2679	1124	1500	2300	2120	2140
1800	1600	2836	1181	1600	2500	2320	2340

UP2 - BL / BK110...140-

L	B	H1	H2	H3	A2	A3	guide rail gap
1150	1000	2577	1122	1400	1950	1770	1790
1400	1200	2750	1195	1500	2200	2020	2040
1600	1400	2907	1252	1600	2400	2220	2240
1800	1600	3065	1310	1700	2600	2420	2440
2000	1800	3223	1368	1800	2800	2620	2640

WEIGHT (kg), without tail pulley

L	B	D	Pulley shaft diameter d									
			60	70	80	90	100	110	115	125	135	140
950	800	400	154	155		209						
		500	158	159		213						
		630				219						
1150	1000	400	170	171		228		295	297	299	300	
		500	174	175		233		300	302	304	305	
		630				239		306	308	311	311	
1400	1200	400	188	189		251		322	324	326	326	
		500	193	194		256		327	329	332	332	
		630				263		335	337	339	339	
1600	1400	400				270		343	345	347	348	
		500				276		350	352	355	355	
		630				284		358	360	363	363	
1800	1600	400				289		367	369	371	372	
		500				296		374	376	378	378	
		630				304		383	385	387	387	
2000	1800	400						389	391	394	394	
		500						397	399	401	401	
		630						406	408	410	411	

TAKE-UP WEIGHT

UP5

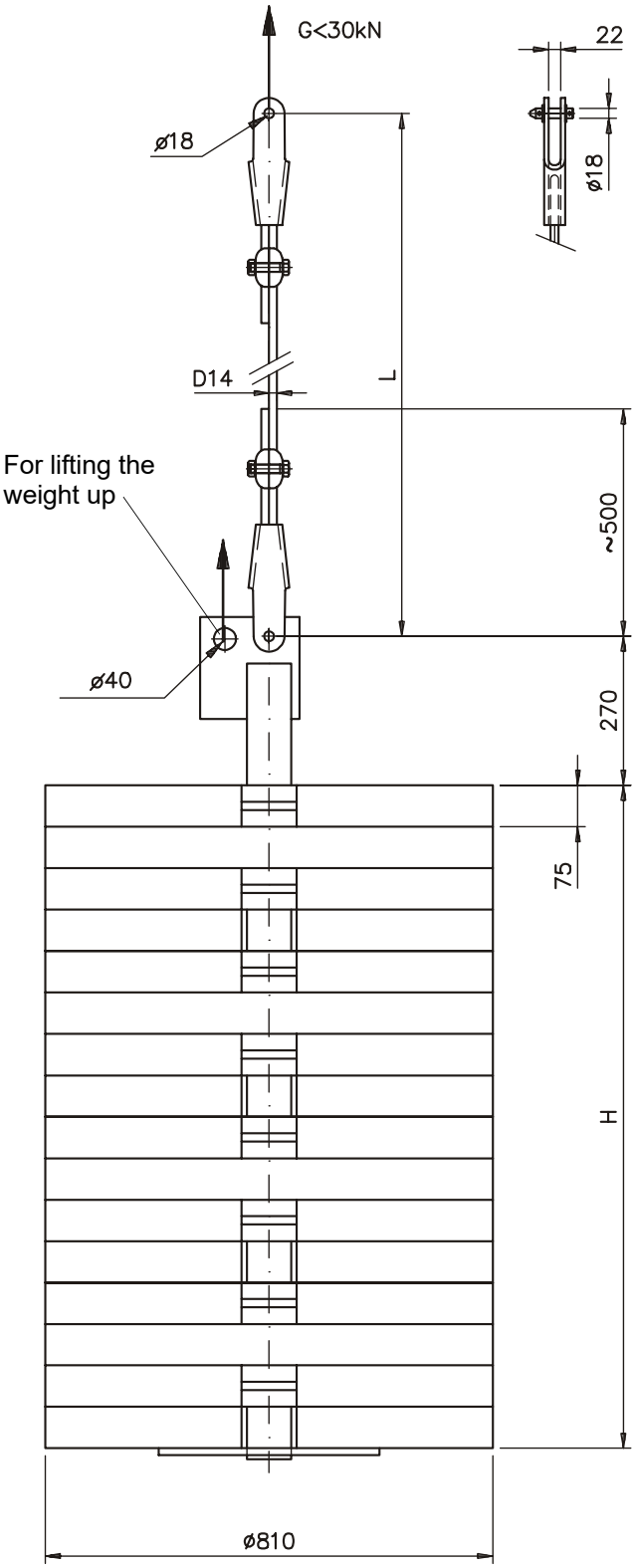
The UP5- take-up weight is used for the driving gear, under 30 kN. Weight elements of concrete are easy to fit to the frame pipe on the ground. The concrete weight is of 75 kg, in other words, two men are able to lift it up.

ORDERING EXAMPLE: UP5 - 25 - 12

Type code

Number of weight elements n (pcs)

Length of rope L (m)



All the fixing parts which are needed are included in the delivery. We also deliver the safety cover net if needed-by the under weight on the ground.

Divide the calculated need of weight G by the weight of the element when needing the quantity of the concrete elements.

$$n = \frac{G\ [kN]}{0.75}\ pcs$$

$$H = n \times 0.075m$$

$$H_{max} = 3m$$

Total weight of pieces except concrete elements:

21.7 kg
9.2 kg x H (m)
\+ 1.2 kg x L (m) steel rope

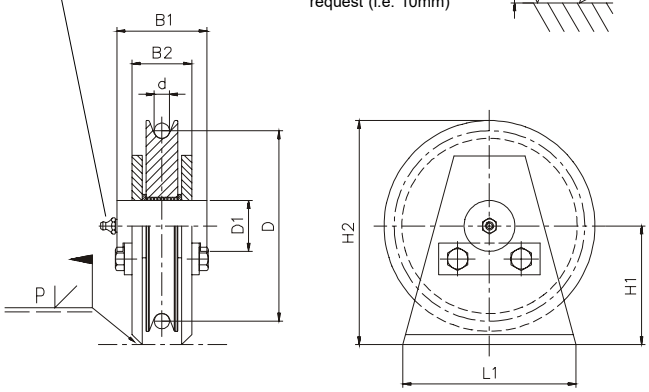
ROPE WHEEL UK

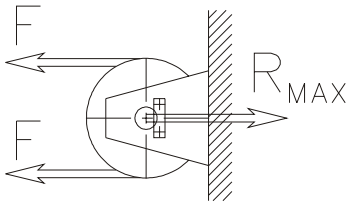
UK rope wheels are proportioned for use as conveyor counterweights. With permanently lubrication and slide bearings, they ensure the responsive movement of the counterweight rope, even in difficult conditions.

Surface treatment, epoxy paint E70, black RAL9005.

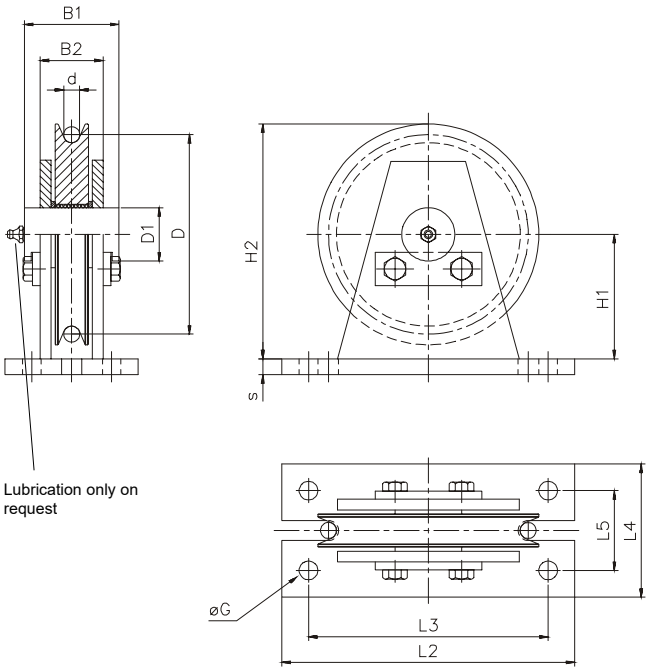
ORDERING EXAMPLE: UK1 - 14 - A - N - 0

- Type code
- Rope diameter d (mm)
- Delivery model
  - A = WITH SIDE PLATES (standard)
  - B = WITHOUT SIDE PLATES
- Lubrication method
  - N = WITHOUT RE-LUBRICATION (standard)
  - J = WITH RE-LUBRICATION
- Inclination of the rope wheel (max. 22 mm, standard 0 mm)





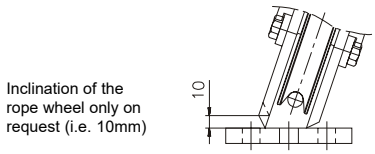
d (max)	D	D1	H1	H2	B1	B2	s	L1	L2	L3	L4	L5	G	P	R (max) (kN)	UK1- Weight (kg) Type A	UK1- Weight (kg) Type B	UK2- Weight (kg)	UK2- Size of fixing screw
12	150	40	94	177	71	47	12	136	220	180	100	60	14	8	20	6	4.5	8	M12
14	200	50	120	230	88	56	15	165	270	220	120	70	18	10	50	12	9	15.5	M16
20	280	60	165	319	106	74	20	245	370	310	150	90	23	12	120	26	18	34	M20
28	400	80	225	440	132	92	25	340	500	420	190	110	30	16	240	59.5	38.5	77	M27



ORDERING EXAMPLE: UK2 - 14 - N - 0

- Type code
- Rope diameter d (mm)
- Lubrication method
  - N = WITHOUT RE-LUBRICATION (standard)
  - J = WITH RE-LUBRICATION
- Inclination of the rope wheel (max. 22 mm, standard 0 mm)

Fixing screws not included in delivery

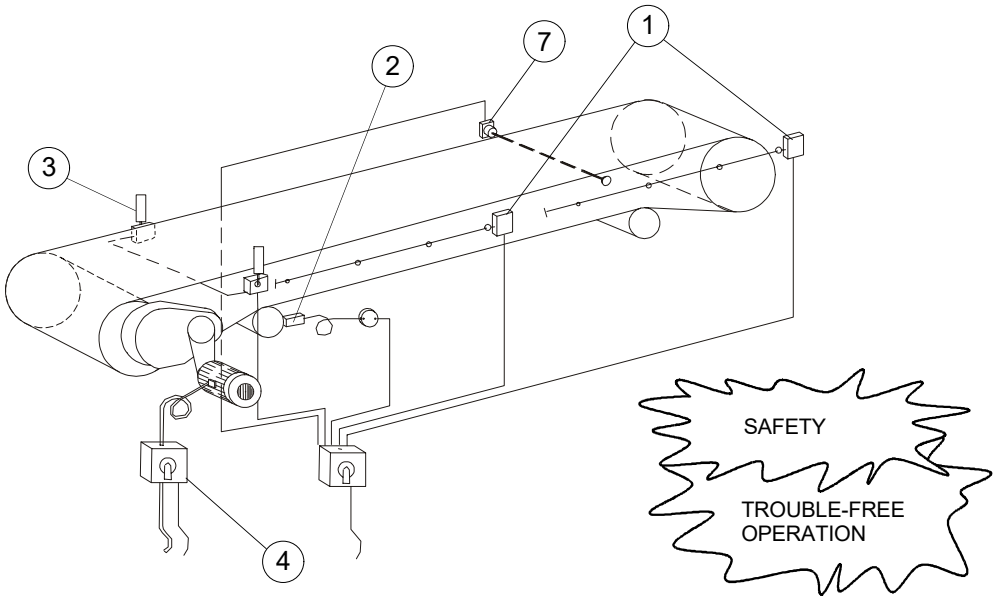


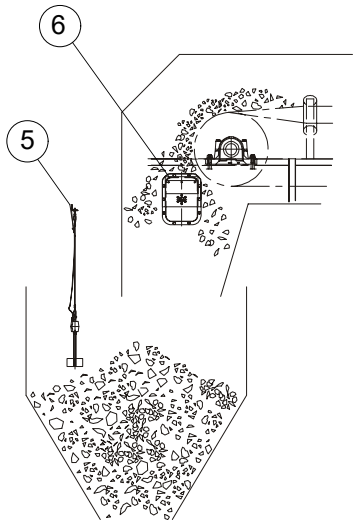
8. SAFETY AND CONTROL DEVICES

- Electrical safety devices for belt conveyors ES
- Pull cord emergency switch ES1 ES2
- Pull cord emergency switch ES5 ES2
- Belt rotation detector ES10
- Belt misalignment switch ES20 ES21
- Safety switch ES30
- Level limit switch ES40
- Blockage detector ES50
- Belt tearing detector ES60 ES61

ELECTRICAL SAFETY DEVICES FOR BELT CONVEYORS

ES





Do the electrical safety devices on your conveyor comply with the safety regulations?

Safety device range based on the European standard EN620 and EN418 of the bulk handling conveyors.

Are you wasting time and money - especially in winter time - for instance clearing of blockages and repairing belt damages? With the help of the electric rotation detector and belt misalignment switch device, you can avoid blockages and belt damages.

SAFETY DEVICE RANGE

Safety Device range includes the following complete packages:

1.	PULL CORD EMERGENCY SWITCH	ES1, ES5
2.	ROTATION DETECTOR	ES10
3.	BELT MISALIGNMENT SWITCH	ES20, ES21
4.	SAFETY SWITCH	ES30
5.	LEVEL LIMIT SWITCH	ES40
6.	BLOCKAGE DETECTOR	ES50
7.	BELT TEARING DETECTOR	ES60, ES61

Every package consists of parts that are tested in the harsh climatic conditions in Scandinavia. The selection of the mechanical components and the practical realization are based on our long experience as a supplier of conveyor systems. It is also possible to order and operate every package individually even in a single conveyor.

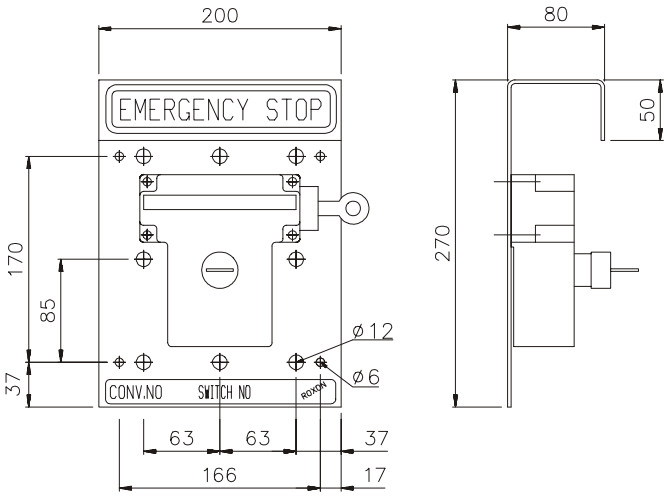
WE DELIVER THE COMPLETE PACKAGE TO YOU INCLUDING ALL PARTS AND ALSO MANUALS FOR INSTALLATION, MAINTENANCE AND INSPECTION.

WE ARE ALSO READY TO OFFER OUR INSTALLATION SERVICES TO YOU, IF NEEDED.

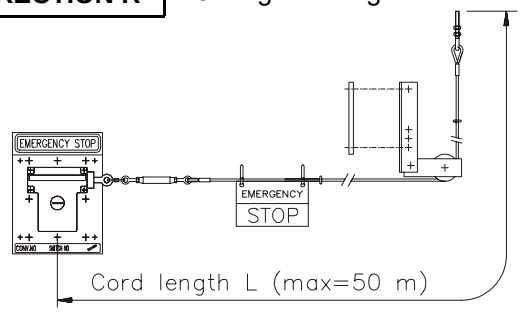
Waiting for your contact to boost the safety in your belt conveyors!

PULL CORD EMERGENCY SWITCH ES1 ES2

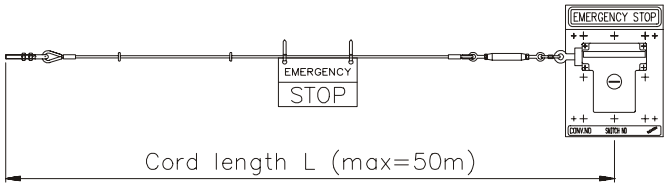
The pull cord emergency switch ES1 is used in short belt conveyors, in easy applications. The switch type is XY2-CE1C250 when the cord goes to the right and XY2-CE2C250 when it goes to the left from the switch.



DIRECTION R Cord goes to right

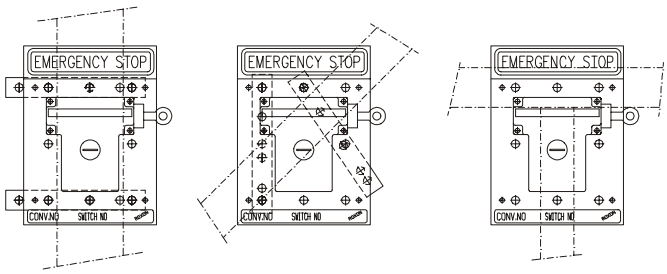


DIRECTION L Cord goes to left



FIXING EXAMPLES:

The delivery includes the fasteners for fixing the mounting plate of the switch into the conveyor's steel structure.



The emergency switch package consists of the standard parts set and the cord set. Both sets are ordered separately. The language of the installation and maintenance instructions must be informed when placing the order, as well as the language of the sign and the stickers.

STANDARD PARTS SET: ES1 - R - 2

Type

Direction

R = the cord goes to right from the switch
L = the cord goes to left from the switch

Number of cord wheels, max 2 pcs/cord

The standard parts set includes the switch, tensioning springs, mounting plate with fasteners, cord-end fasteners as well as "EMERGENCY STOP" sign for the cord and the stickers "Emergency Stop", "Conveyor No." and "Switch No." for the switch.

CORD SET: ES2

Type

The cord set includes the red pull cord with cord guides.

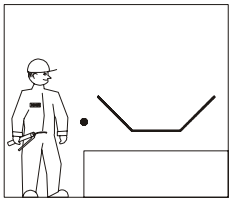
HOW TO ORDER A COMPLETE PULL CORD EMERGENCY SWITCH SYSTEM

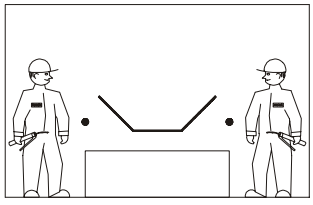
The complete emergency switch system is ordered for example as follows:

Emergency Switch	ES1-R-1	4 pcs
Emergency Switch	ES1-L-0	1 pcs
Pull Cord with Guides	ES2	187 m

The language for instructions and stickers: English (EN).

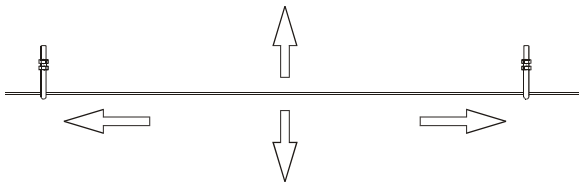
The pull cord emergency switch is always installed on the same side as the service platform. When required, the emergency switch must be installed on both sides of the conveyor



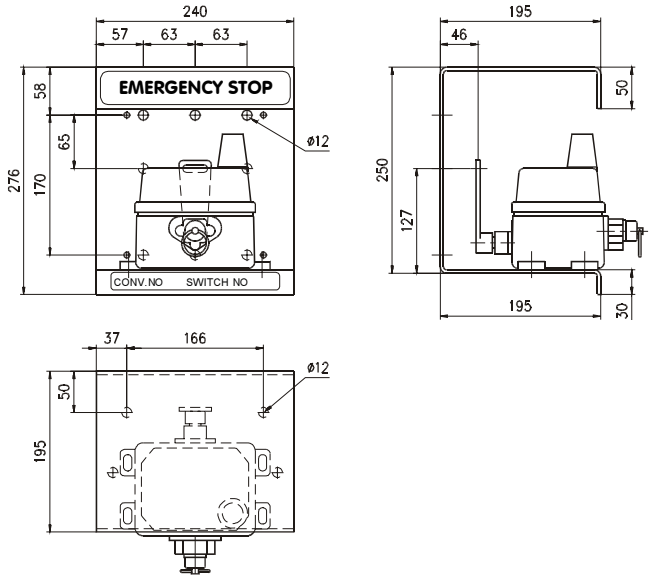


PULL CORD EMERGENCY SWITCH ES5 ES2

The pull cord emergency switch, ES5, is suitable for hard conditions and when cord break-downs must be detected. The ES5 emergency switch meets international requirements.

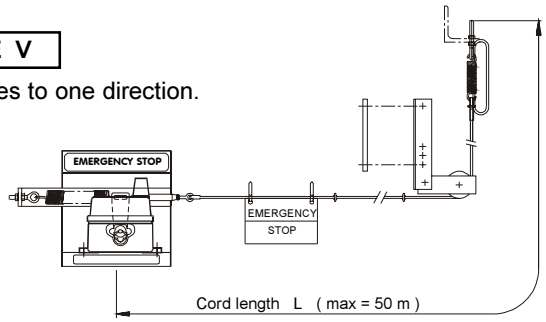


The ES5 system operates when pulling the cord to any direction. The control of the cord tension is arranged reliably. The indicator lamp lights up when the switch has been activated making switch monitoring easier in the field conditions.



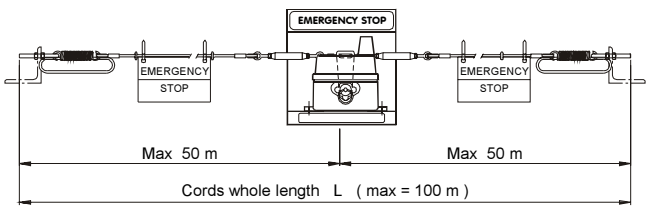
TYPE V

Cord goes to one direction.



TYPE W

Cord goes to two directions.



The emergency switch package consists of the standard parts set and the cord set. Both sets are ordered separately. The language for the installation and maintenance instructions must be informed when placing the order, as well as the language for the sign and the stickers.

STANDARD PARTS SET: ES5 - V - 2

Type code

Direction

V = THE CORD GOES ONLY TO ONE DIRECTION
W = THE CORD GOES TO TWO DIRECTIONS

Number of cord wheels, max 2 pcs/cord

(WHEN V ⇒ MAX 2 pcs, WHEN W ⇒ MAX 4 pcs)

The standard part set includes the switch, tensioning springs, a mounting plate with fasteners, cord-end fasteners as well as an 'EMERGENCY STOP' sign and 'Emergency Stop', 'Conveyor No.' stickers and a 'Switch No.' for the switch.

CORD SET: ES2

Type code

The cord set includes the red pull cord with cord guides.

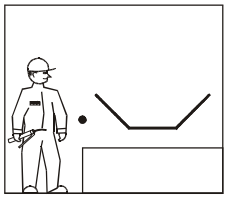
HOW TO ORDER A COMPLETE PULL CORD EMERGENCY SWITCH SYSTEM:

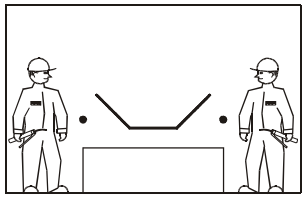
The complete emergency switch system is ordered for example as follows:

Emergency switch	ES5 - V - 1	4 pcs
Emergency switch	ES5 - W - 0	1 pc
Pull cord with guides	ES2	187 m

The language for instructions and stickers: English (EN).

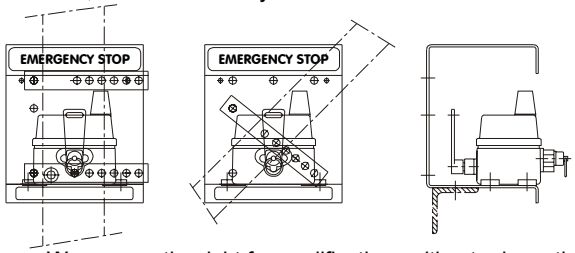
The pull cord emergency switch is always installed on the same side as the service platform. When required, the emergency switch must be installed on both sides of the conveyor.





FIXING EXAMPLES:

The delivery includes fasteners for fixing the mounting plate, of the switch, onto the conveyor's steel structure.



BELT ROTATION DETECTOR ES10

Rotation detector stops the belt conveyor when the speed lowers under the nominated minimun speed. Lowering of the speed is always caused by some disturbances in operation conditions and the conveyor must be stopped to clear up the disturbance. In larger conveyor systems the equipment and the conveyors before this belt conveyor will usually stop also.

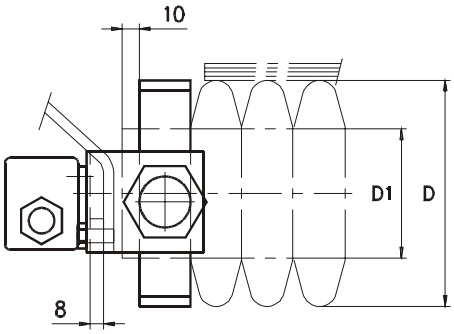
Belt rotation detector ES10 is meant to be installed to the return idler support. Thus are avoided the problems of the rotation detector situated on the end of the traditional tail pulley (for ex. rubbing the pulley into the material, often the long cabling ways to the tail pulley). Installation to the conveyor leg or other frame construction is easy. Placing near the drive-end will reduct the guiding cablings on long belt conveyors. Speed area of ES10 is wide; v = 0.1 m/s ... 5 m/s. It is reliable even in frost.

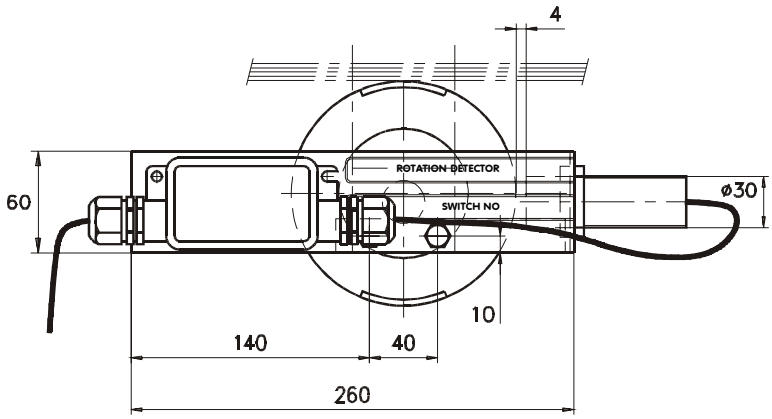
Our selection includes a compact pulse detector (C), and proximity switch (D), which is fixed to the separate rotation control (not incl. in our product range). Both switches are two-wire switches.

ORDERING EXAMPLE: ES10 - 63 - 108 - C - H

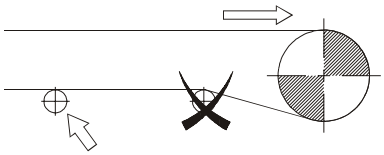
- Type code
- Tube diameter of return idler D1 (mm)
- Outer diameter of return idler D (mm)
- Switch type
  - C = PULSE DETECTOR
  - D = PROXIMITY SWITCH
- Speed area of the belt
  - L = (v = 0.1 ... 0.5 m/s)
  - H = (v = 0.6 ... 5.0 m/s)

In the delivery of rotating detector is include control detector according to speed area, control disc, switch box and the support with fixing screws and the stickers 'Rotation detector', 'switch no.- and conveyor no.' to the switch frame. The language of the installation- and maintenance instructions must be informed when placing the order, as well as the language of the sign and the stickers.





Rotation belt detector is not allowed to be installed to the belt bending return idler. The idler where the detector is installed, must be chosen so that it is favorable and safe considering the dirt and conditions and so that the cabling distance is short.



Diameter of the standard idlers

Return idler	D1	D
RA108-, RB108	63	108
RA133-, RB133	89	133
RA159-, RB159	89	159
RA219-, RB219	108	219

Other D and D1 measures also possible.

Support of the rotation indicator is meant to Roxon's return idler supports BDH6-, BDH9-, BDH10-, BDL4-, RRS1-, SB10 and also for most idler supports of other manufactures.

TECHNICAL PROPERTIES:

Compact pulse detector (C) DI0001

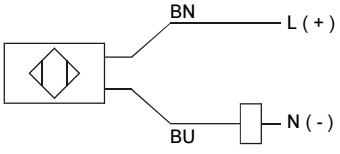
- 20 ... 250 VAC / VDC
- Adjusting range 5 ... 300 imp/min
- IP 67

Compact pulse detector (C) DI0002

- 20 ... 250 VAC / VDC
- Adjusting range 50 ... 3000 imp/min
- IP 67

Proximity switch (D) II0012

- 20 ... 250 VAC / VDC
- Adjusting range maximum 1500 imp/min
- IP 67



BELT MISALIGNMENT SWITCH ES20 ES21

The purpose of the belt misalignment switch is to give a warning or/and stop the belt conveyor when the belt has moved too much sideways (during the operation that the belt or the structures nearby could be damaged).

The switch is normally used with the upper belt, but in unstable conditions in long conveyors, it can also be used with the return belt.

The type of belt misalignment switch for normal applications is ES20, where the lever arm of the switch turns perpendicularly sideways. In applications where the conveyed material can go over the upper belt's edge, it is recommended to use an ES21 type switch. In this type, the lever arm turns 45 degrees in relation to the belt.

Two different switch options are available:

The single-contact pair switch is either to give a warning or stop the belt conveyor in the event that the belt moves too far to the side.

The dual-contact pair switch is generally to send a warning to the control system and then stop the belt conveyor by turning the lever further.

ORDERING EXAMPLE: ES20 - 1

Type code

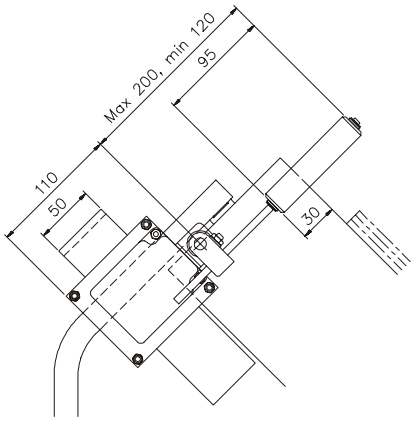
Type number

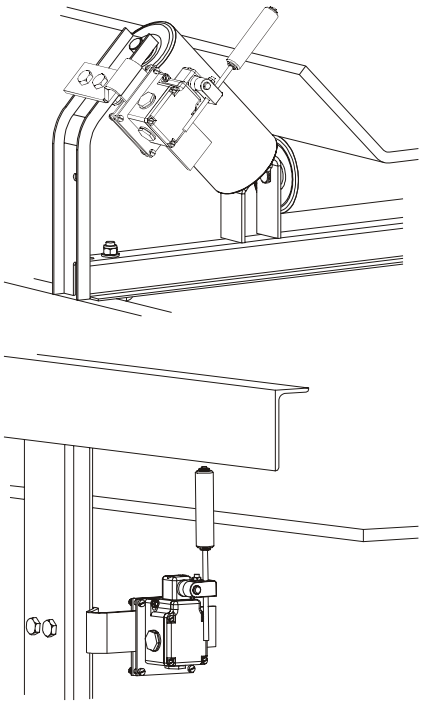
20 = TURNS 90 DEGREES IN RELATION WITH THE BELT
21 = TURNS 45 DEGREES IN RELATION WITH THE BELT

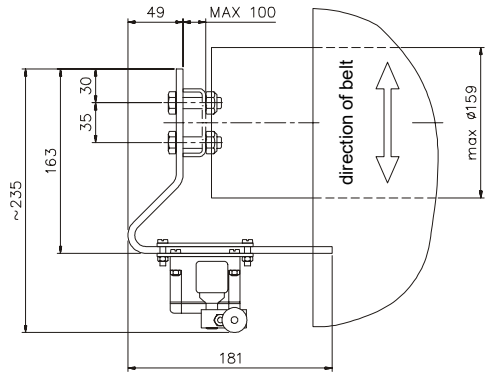
Switch type

1 = SINGLE-CONTACT PAIR SWITCH
2 = DUAL-CONTACT PAIR SWITCH

The delivery includes the switch with roller, console, fixing screws and stickers to the conveyor structure.

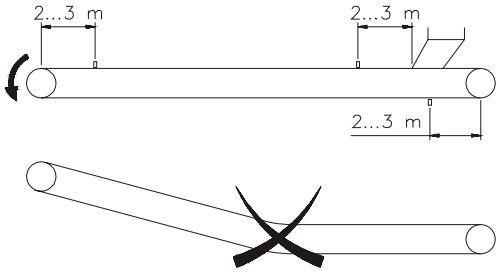


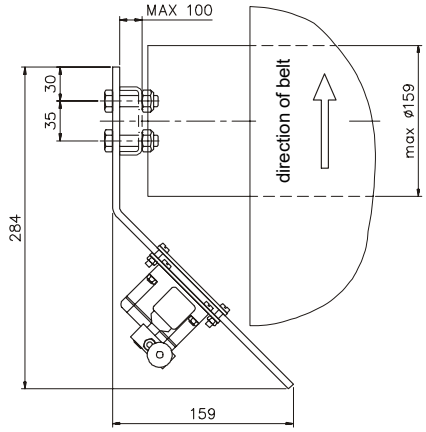




ES20

The belt misalignment switch is installed in the drive end or in the take-up end of the conveyor, and in long conveyors at intervals of 90 meter. It is not allowed to install the switches in upward curves.





ES21

SAFETY SWITCH ES30

The safety switch ES30 prevents the conveyor from being started. During the work at the conveyor, the switch is turned to the 0-position. Additionally, the turning of the switch to the operating position can be prevented with a separate lock.

ORDERING EXAMPLE: ES30 -1

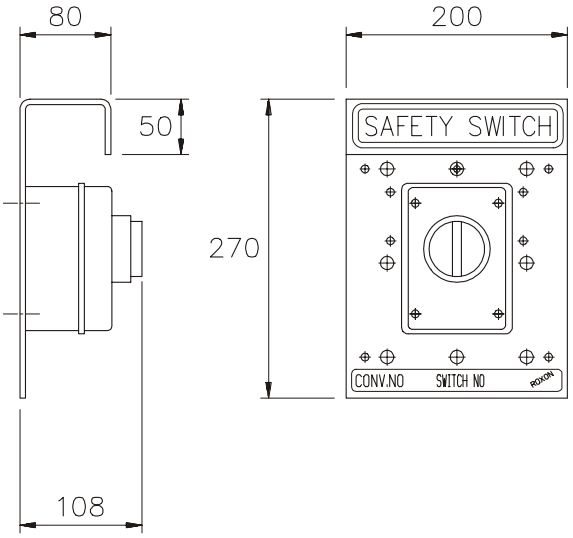
Type

Size

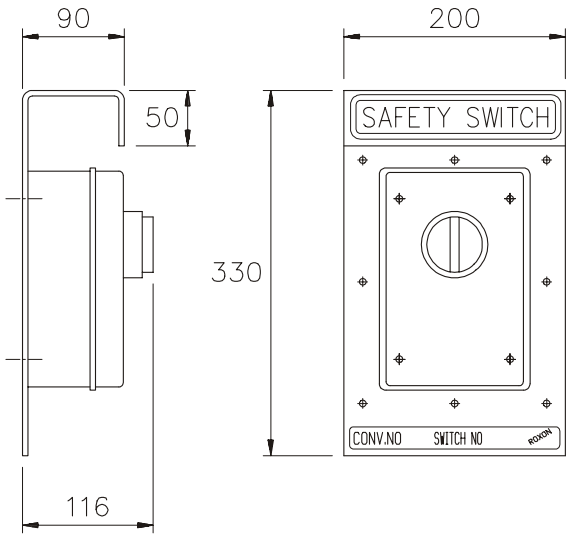
The delivery includes the switch, mounting plate and fixing screws as well as the stickers 'Safety switch', 'Conv.no.' and 'Switch no.' for the mounting plate. The language of the installation and maintenance instructions must be informed when placing the order, as well as the language of the sign and the stickers.

The size of the switch is always chosen individually according to the manufacturer's instructions.

Size 1 and 2



Size 3 and 4



Choosing of the size of the safety switch for the voltage 400V.

Size	Max power (kW)	Weight (kg)	Switch type
- 1	7.5	3.0	KUM316T+KU1V
- 2	11	3.0	KUM325T+KU1V
- 3	15	4.3	KUM336T+KU1V
- 4	30	4.3	KUM363T+KU1V

LEVEL LIMIT SWITCH

ES40

The level limit switch ES40 is used for the upper limit controlling of powders, grain and crushed materials, as well as for jam alarms on conveyors and discharge chutes.

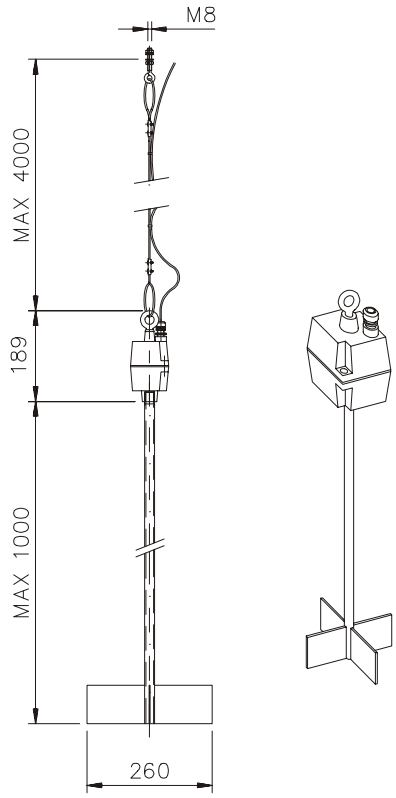
The sturdy metal box contains a ball-operated microswitch. The switch is opened when the sensor rod reaches an indication of 17 degrees-informing of a blockage or a level limit.

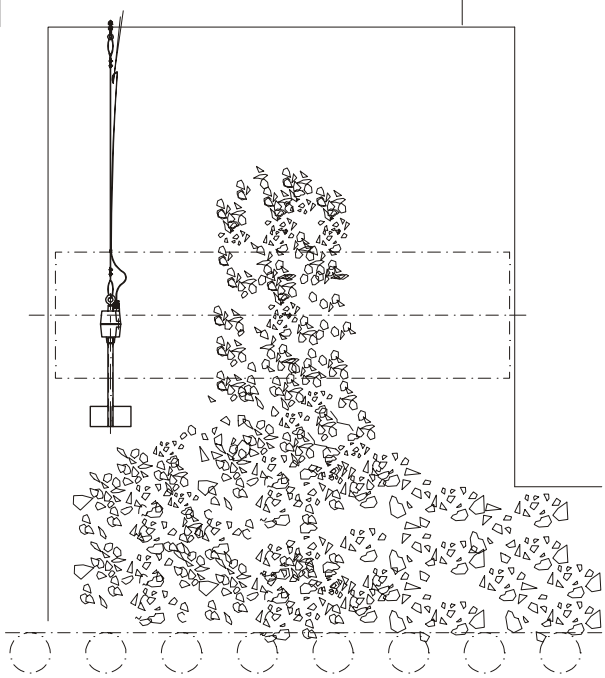
The level limit package includes the switch, the plastic coated cord and the steel pipe with a wing plate. The wing plates enchance the swing movement especially with fine materials.

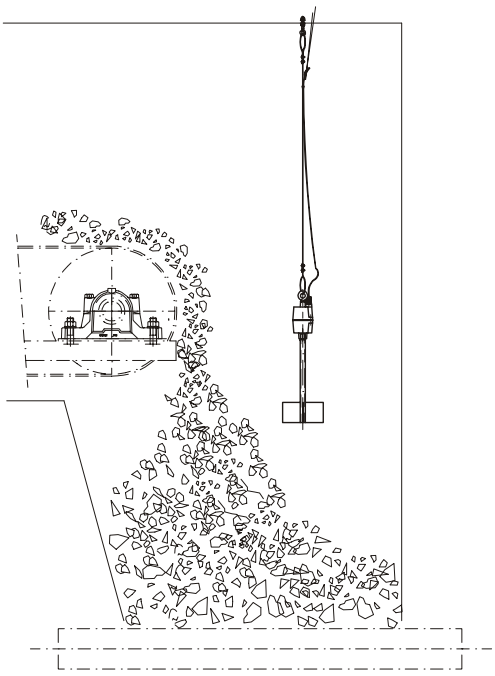
The sensor rod can be shortened to the right length at assembly.

ORDERING EXAMPLE: ES40

Type





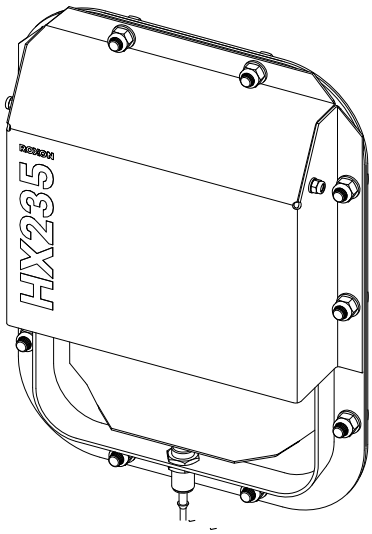


BLOCKAGE DETECTOR HX235

The rubber plate of the blockage detector HX235 is equipped with a spring loaded metal plate. The inductive sensor in the blockage detector, operates when the material presses the metal plate against the sensor

ORDERING EXAMPLE: HX235

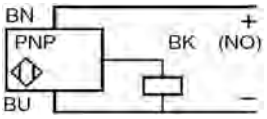
Type

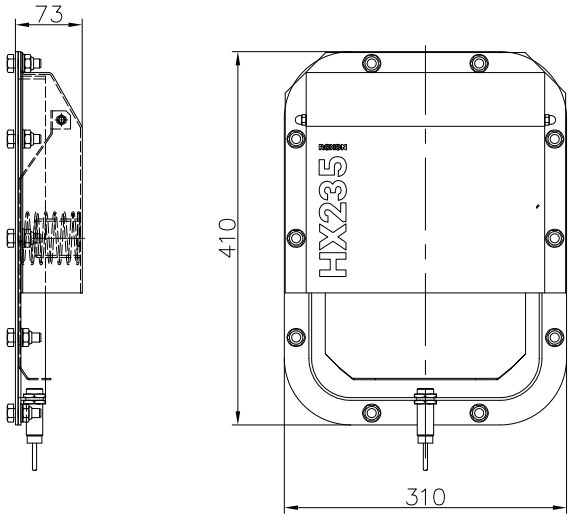


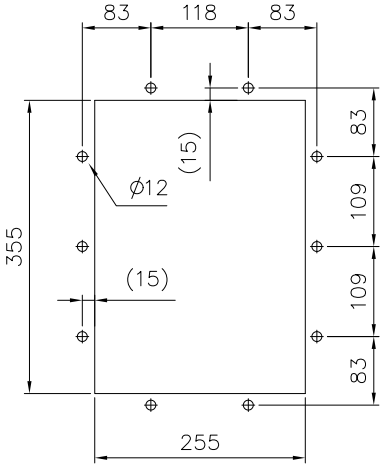
TECHNICAL PROPERTIES:

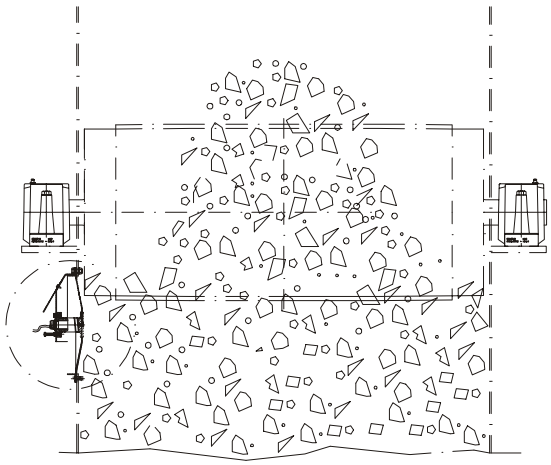
Proximity detector XS618B1PAL2TF

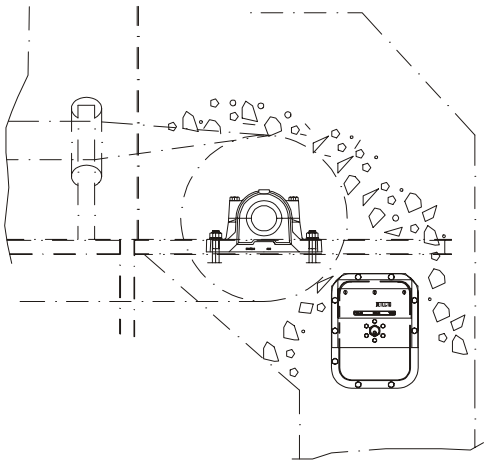
- 12 ... 48 VDC
- PNP NO
- IP 68











GENERAL INSTRUCTION: Level of the material can reach the upper edge of the hatch.

BELT TEARING DETECTOR ES60 ES61

The most important and the most expensive component in the conveyor is the conveyor belt.

The best guarantee for a trouble-free and economical operation is to prevent larger belt damages immediately after a smaller damage have occurred.

With the help of the belt tearing detector, even large belt damages can be efficiently prevented.

Correctly placed belt tearing detector ES60 and ES61 inform immediately of any occured belt damages. The purpose of the detector is:

- to stop the conveyor and/or
- to inform of the belt damage to the control room

ES60 and ES61 are activated by small belt damages (for ex. a tear caused by a block or a metal object). The conveyor is now stopped immediately and thus larger damages to the belt and other components are prevented.

ES60 and ES61 are installed after an idler in the travel direction of the belt. Cross-section of the belt must be as straight as possible. Delivery includes all fixing parts for the standard conveyor cross-sections.

ORDERING EXAMPLE: ES60 - 1

Type code

Size

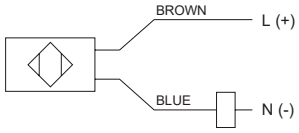
1 = BELT WIDTH B 500...800
2 = BELT WIDTH B 1000...2000

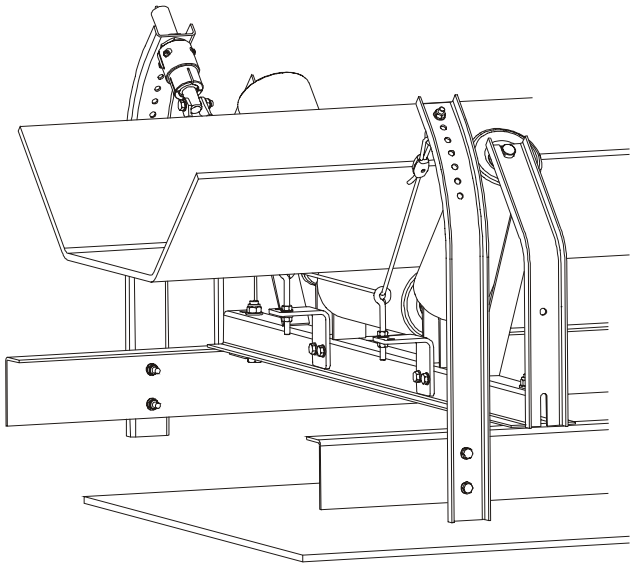
ORDERING EXAMPLE: ES61

Type code

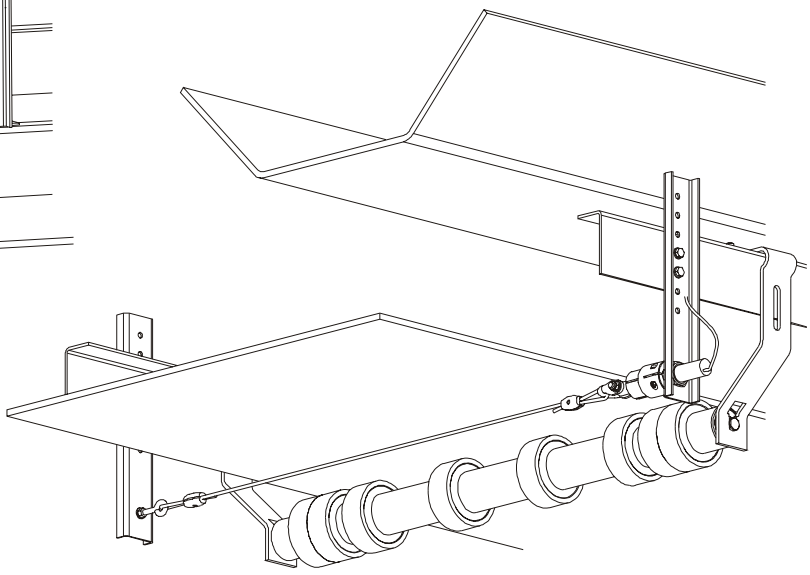
Technical properties:

Proximity switch **II0011**
- 20...250 VAC / VDC
- 2 - wire
- Normally open
- IP67





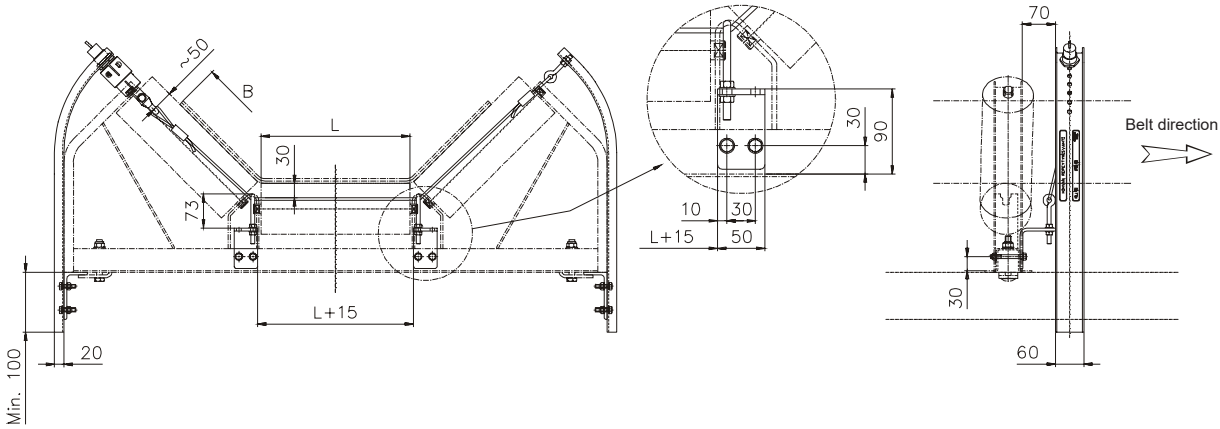
ES60 Carrying belt detector



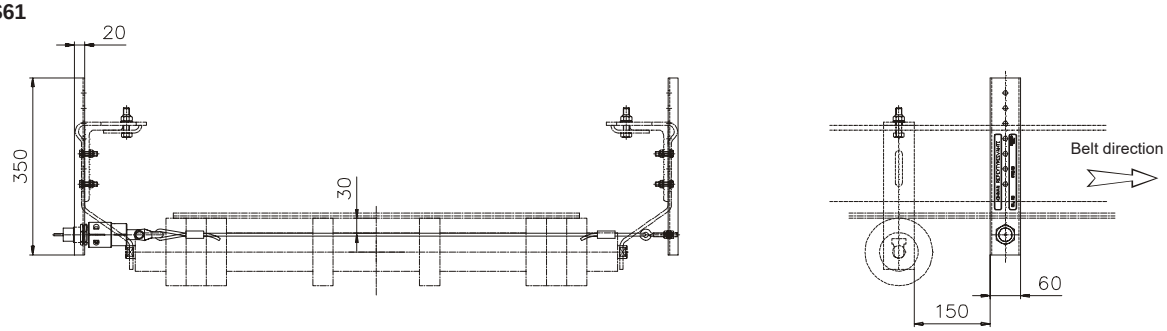
ES61 Return belt detector

Measurements to the conveyor

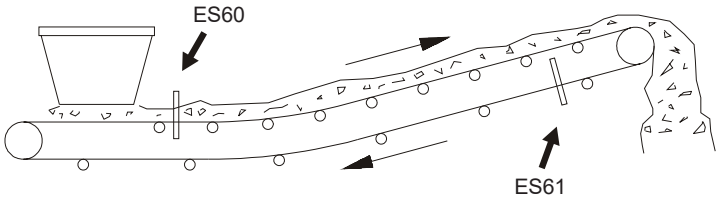
ES60



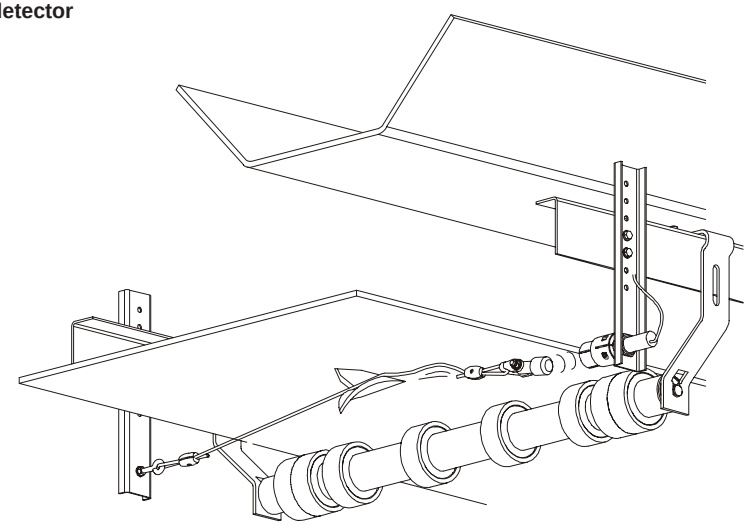
ES61



Recommended locations



Function of the belt tearing detector



9. CONVEYOR ELEMENTS

- Drive end BC.. D..
- Drive end, equipment BC..D..
- Drive end, installation BC..D..
- Drive end, the hopper BC..D..
- Tail end BCT
- Loading point BCL

INDEX

DRIVE END

BC..D..

ROXON's standard drive end is a fully equipped and dust proof unit. It is ordered according to the enclosed ordering example and will be mounted on a separately designed steel frame using the screws supplied together with the unit.

The drive unit is equipped with a backstop. The gap shelters for the idler brackets before the drive end, are included in the delivery.

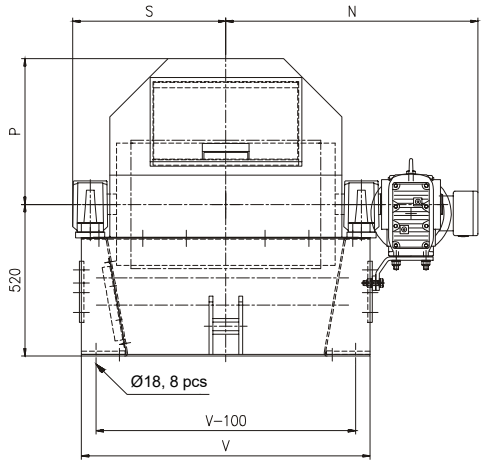
ORDERING EXAMPLE: BC05 D40 - V0005000-15L

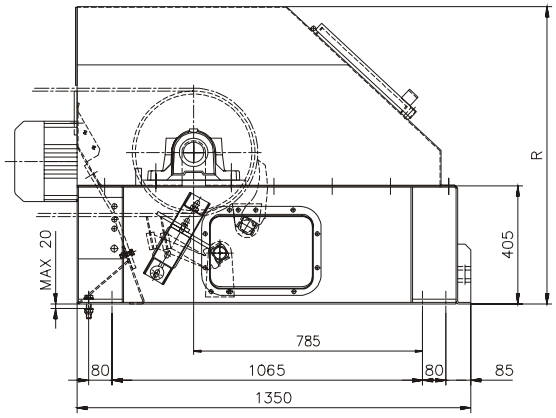
Belt width B (mm)
(05=500, 06=650, 08=800)

Drawing number
V0005000, when B=500
V0005001, when B=650
V0005002, when B=800

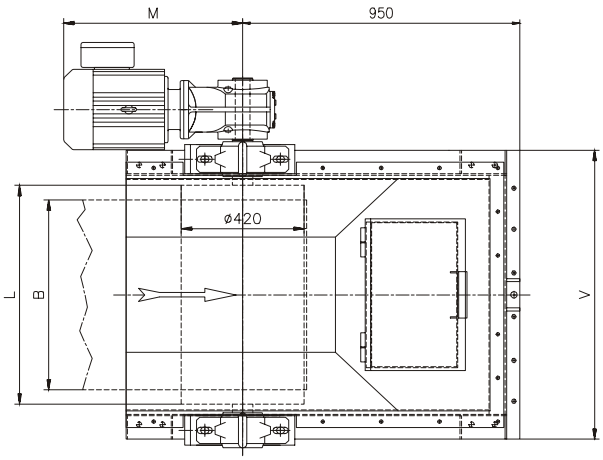
Power rating (04, 07, 11, 15) (kW)

Left or right handed (L or R)

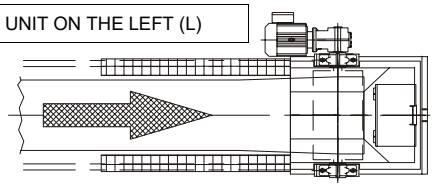




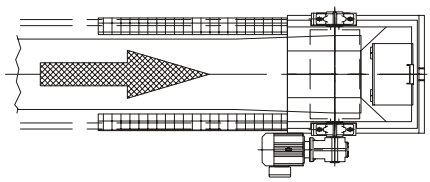
B	Power (kW)	M	N	L	S	V	R	P	Weight (kg)
500	4	613	720	600	450	840	970	450	483
	7.5	694	790						532
	11	834	828						574
	15	943	858						686
650	4	613	795	750	525	990	1020	500	521
	7.5	694	865						570
	11	834	903						612
	15	943	933						724
800	4	613	895	950	625	1190	1070	550	574
	7.5	694	965						623
	11	834	1003						665
	15	943	1033						777

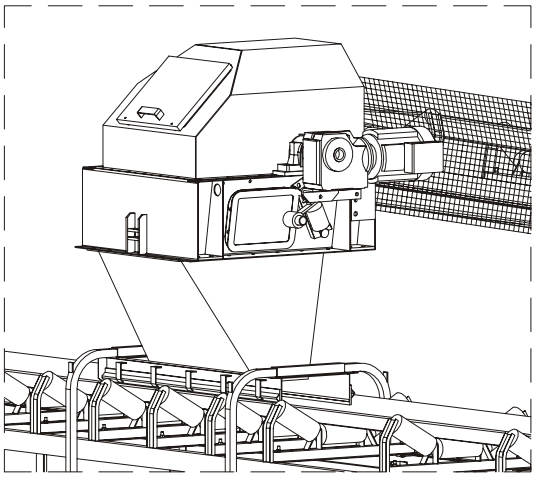


DRIVE UNIT ON THE LEFT (L)



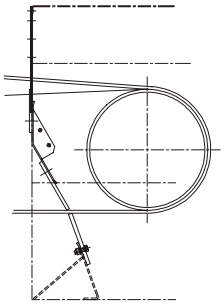
DRIVE UNIT ON THE RIGHT (R)





DRIVE END, EQUIPMENT BC..D..

SEALING OF THE REAR SIDE

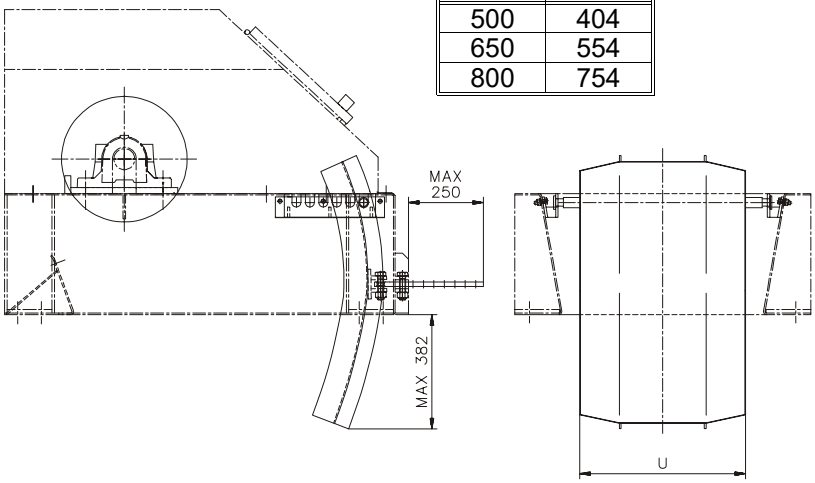


GUIDE PLATES

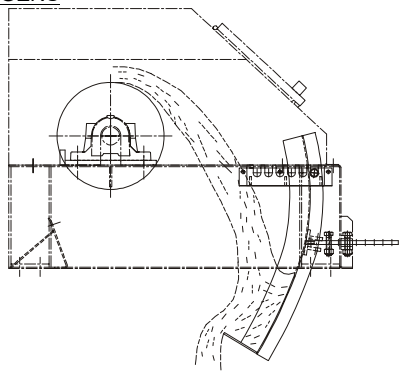
STRAIGHT GUIDE PLATE

Guide plates are used to guide the material flow to the next conveyor in transfer stations. The plate is always used when the angle of the conveyor is more than 20°.

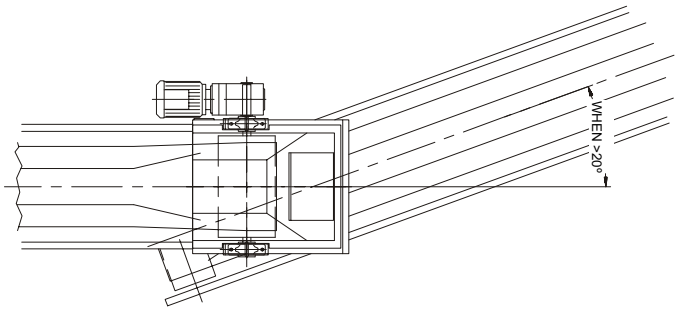
B	U
500	404
650	554
800	754



AUTOGENS

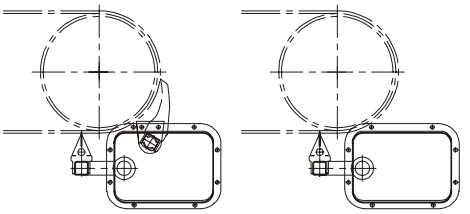


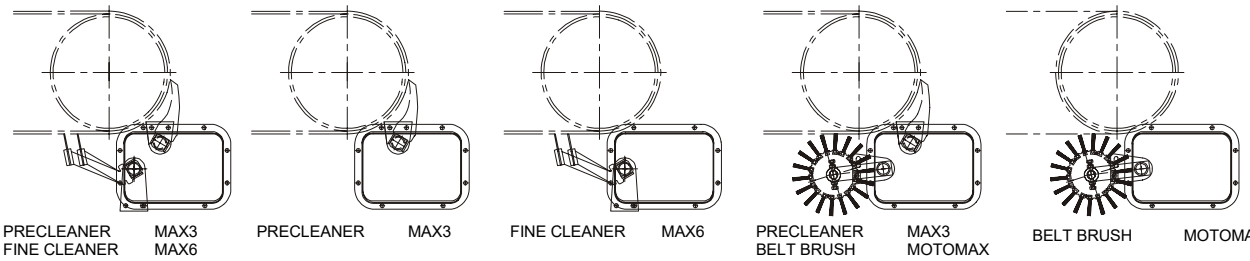
Autogen is used when conveying abrasive materials, to guide the material flow to the next conveyor or equipment.



RECOMMENDED BELT CLEANER COMBINATIONS

Select the cleaners for the drive end from the enclosed selection, taking into consideration the special demands caused by the material and the process. When selecting the cleaner type and the wearable parts, use the cleaner information sheets in ROXON's product manual.



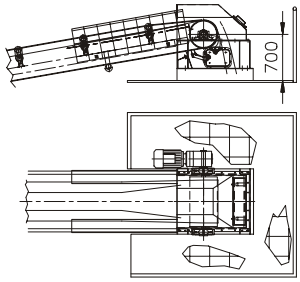


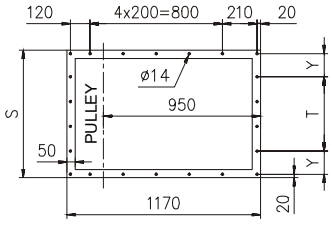
DRIVE END, INSTALLATION BC..D..

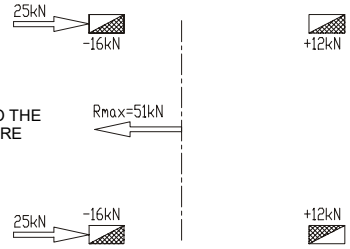
The drive end is always installed horizontally on the conveyor in spite of the angle of ascent. The service platforms are designed around the drive end.

The hopper under the drive end can easily be fixed to the fixing holes on the under side of the drive end.

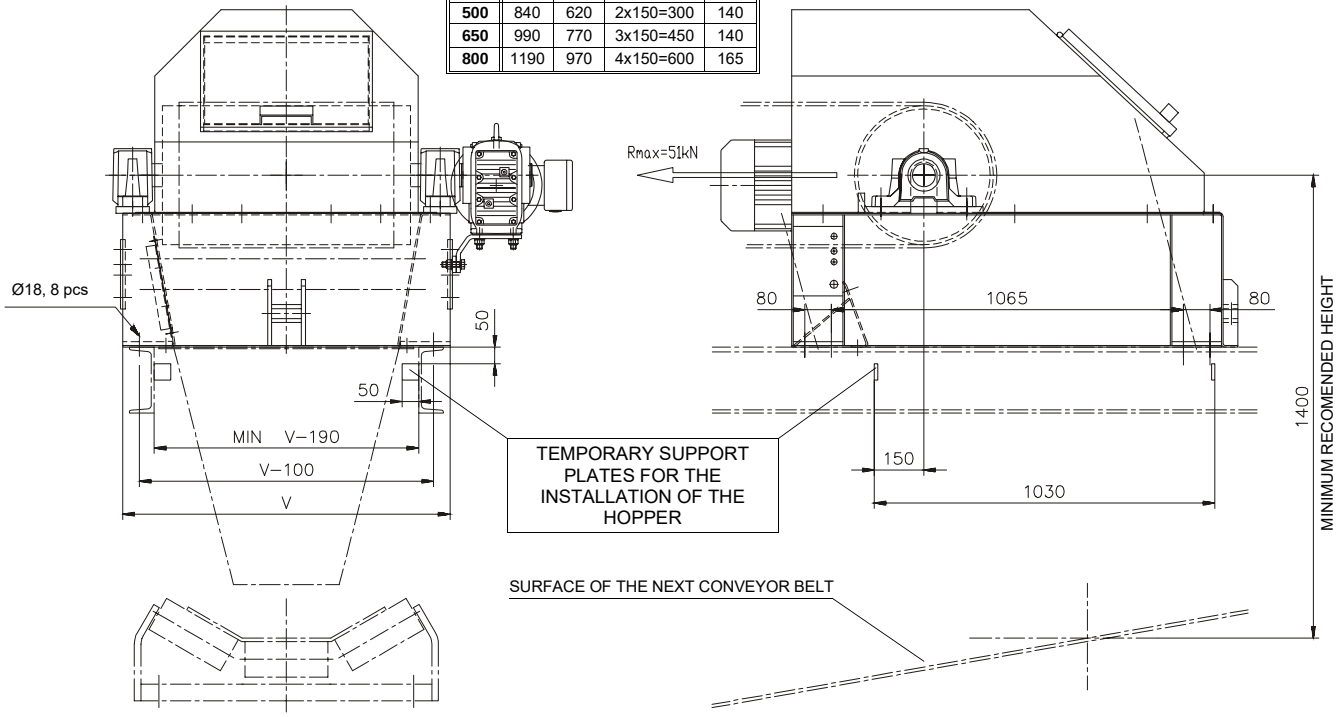
In the enclosed drawing you will find the connection dimensions of the hopper on the under side of the drive unit.





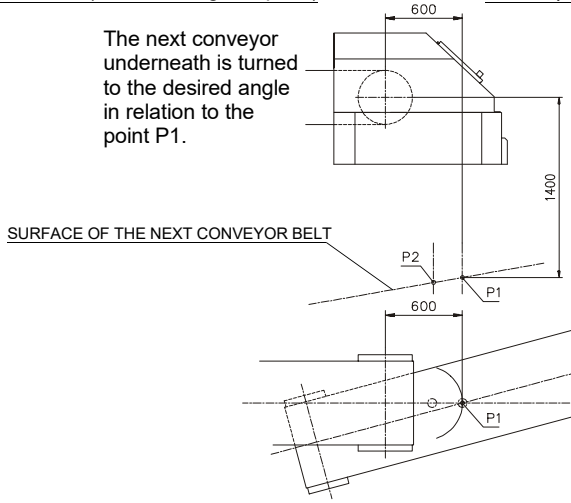


B	V	S	T	Y
500	840	620	2x150=300	140
650	990	770	3x150=450	140
800	1190	970	4x150=600	165



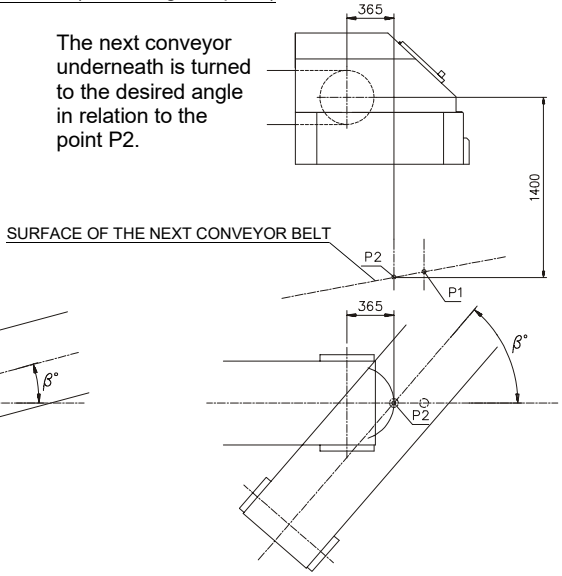
WHEN β ≤ ± 20° (Without the guide plate)

The next conveyor underneath is turned to the desired angle in relation to the point P1.



WHEN β > ± 20° (With the guide plate)

The next conveyor underneath is turned to the desired angle in relation to the point P2.



DRIVE END, THE HOPPER BC..D..

The standard hopper is bolted to the bottom of the drive end. The height difference between the drive end and the next conveyor belt must be 1300 mm, as shown in the drawings below.

ORDERING EXAMPLE: BC 08 X + 15 + 90 Y

Belt conveyor

Belt width B (mm)

Hopper

The angle of ascent of the next conveyor α

+ = UPWARDS, STEP 5º
- = DOWNWARDS, STEP 5º

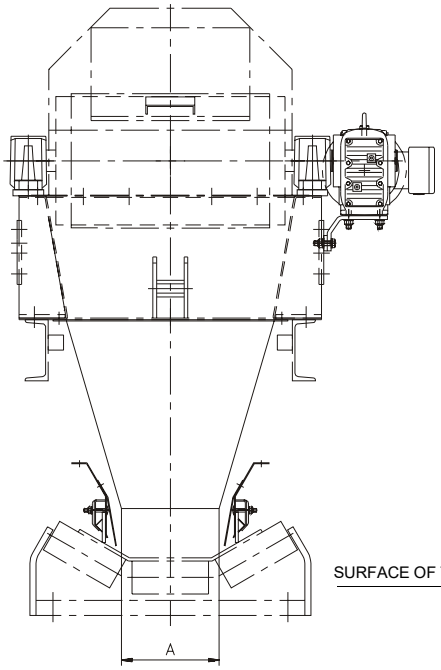
The rotation angle of the next conveyor β

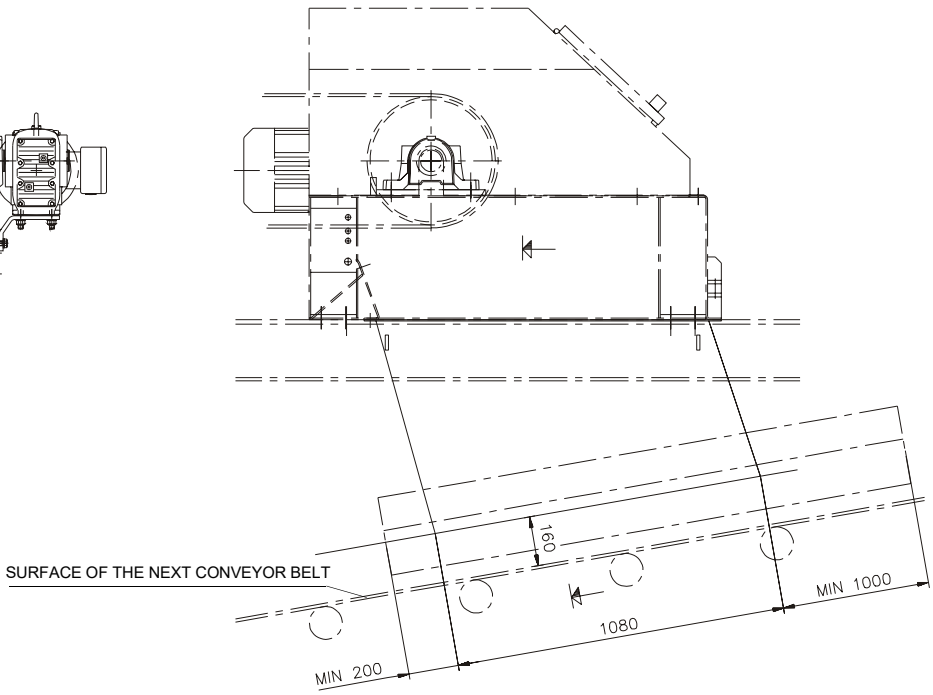
+ = LEFT, STEP 5º
- = RIGHT, STEP 5º

Blockage detector

BLANK = WITHOUT BLOCKAGE DETECTOR
Y = BLOCKAGE DETECTOR ON THE LEFT SIDE
Z = BLOCKAGE DETECTOR ON THE RIGHT SIDE

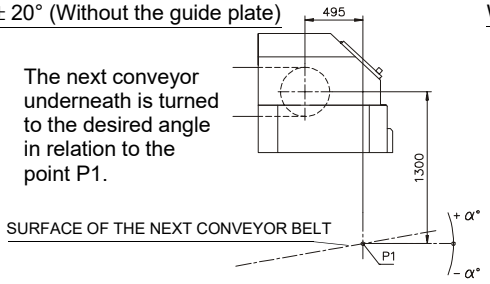
B	A
500	230
650	320
800	450

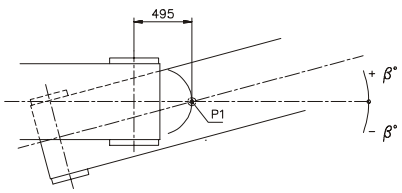




WHEN β ≤ ± 20° (Without the guide plate)

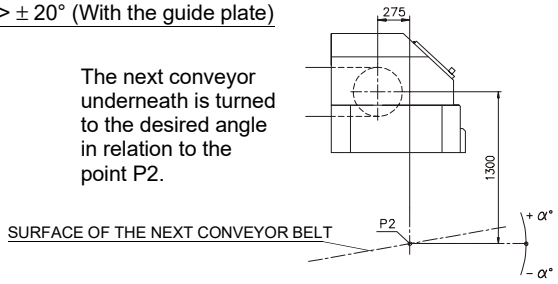
The next conveyor underneath is turned to the desired angle in relation to the point P1.

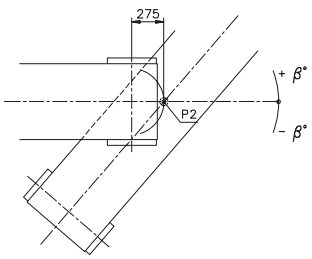




WHEN β > ± 20° (With the guide plate)

The next conveyor underneath is turned to the desired angle in relation to the point P2.





TAIL END

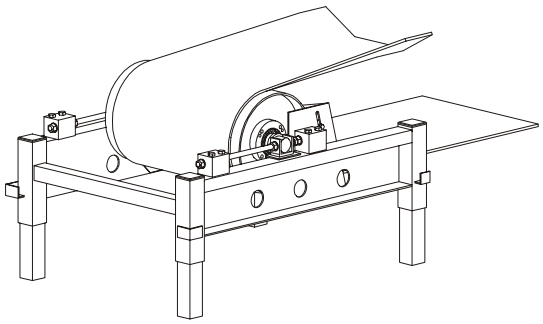
BCT

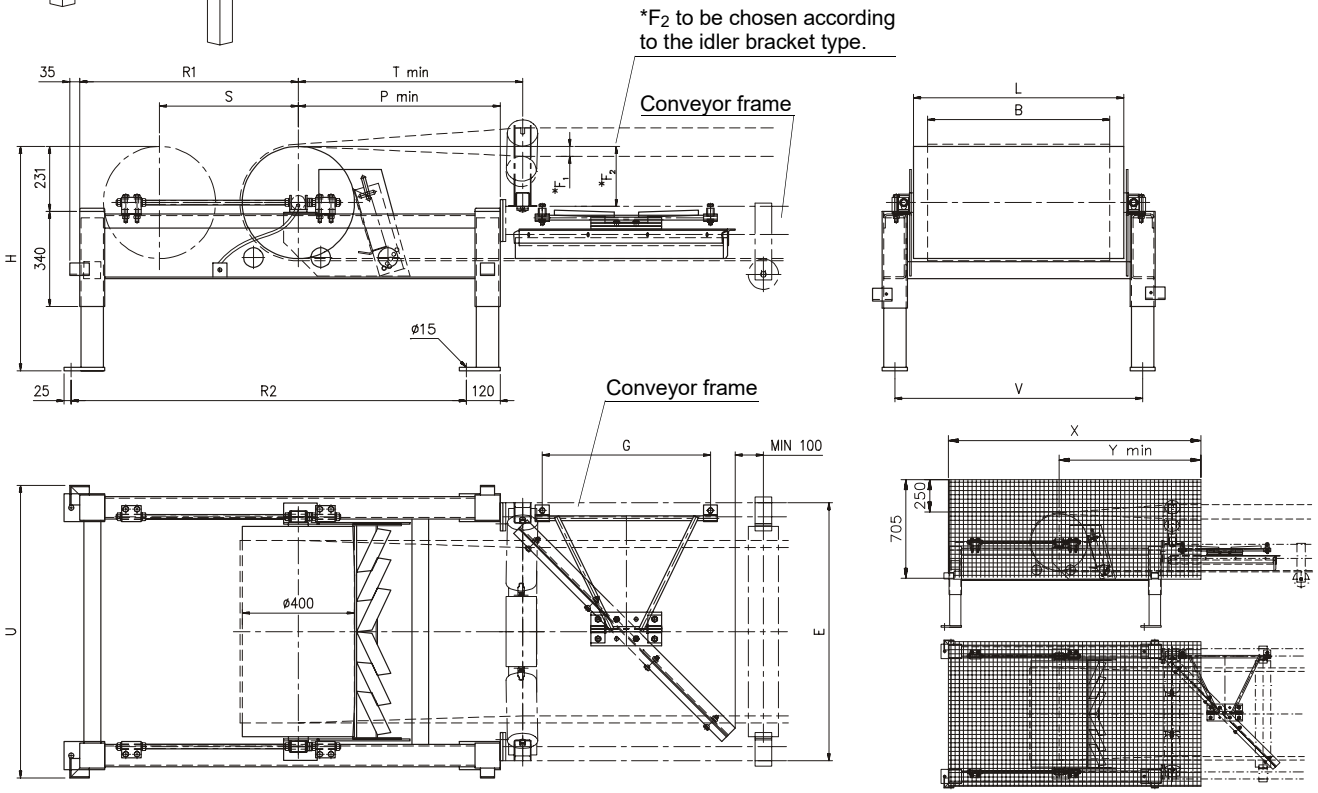
On the tail end of the BCT - serie all needed components are in compact package. That will minimize the working hours of the adjusting by installing and by taking into operation. Fixing to the base with the screws (types **L** and **J**) or by welding (type **T**).

Standard equipment of the tail end are: pulley, take-up devices of the belt, pulley cleaners, return belt cleaners, grease piping of the pulley and the covers according to safety norms.

ORDERING EXAMPLE: BCT06 - 500 M L

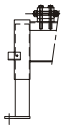
- Type code
- Belt width B (mm)
  - (05=500, 06=650, 08=800)
- Take-up distance S (mm)
- Height of the tail end H (mm)
  - M = LOW LEGS (H = 750 ... 1000)
  - K = HIGH LEGS (H = 1000 ... 1250)
- Fixing plates of the support legs
  - L = WELDED
  - J = TO BE DELIVERED LOOSE
  - T = WITHOUT THE PLATES



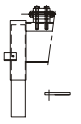


B	S	R1	R2	X	Y_{min}	T_{min} 30º	T_{min} 45º	T_{min} 20º	L	E	P_{min}	U	V	G	$*F_1$	Weight (kg) M	Weight (kg) K
500	0	300	780	1205	900	650	900	850	600	770	570	894	734	450	25	260	275
	500	780	1260	1685												280	295
	1000	1275	1755	2165												305	320
	1500	1770	2250	2675												325	340
650	0	300	930	1355	1050	800	1200	1100	750	920	720	1044	884	600	35	285	300
	500	780	1410	1835												310	325
	1000	1275	1905	2315												335	350
	1500	1770	2400	2825												355	370
800	0	300	1130	1565	1250	1000	1450	1350	950	1120	920	1244	1084	750	40	335	350
	500	780	1610	2045												355	370
	1000	1275	2105	2525												380	395
	1500	1770	2600	3035												405	420

FIXING PLATES OF THE SUPPORT LEGS



L
Fixing plates to be welded to the tube.
(Horizontal conveyors)



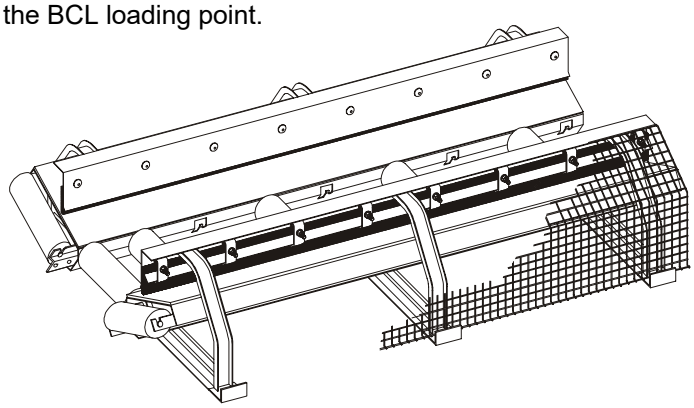
J
Fixing plates to be delivered loose.
(Ascending conveyors)

T
Fixing plates do not include to the delivery.

LOADING POINT BCL

The loading point BCL is a ready-assembled package to be mounted directly on the conveyor frame. The compact BCL unit will eliminate expensive installation time and eventual errors at site, which often cause considerable troubles in the start-up phase.

ROXID slide sheets located under the belt will ensure the straight position of the belt. This is to secure the perfect operation of the upper skirt board. Before installing the conveyor belt, only the middle idlers will be lifted onto place. The idler spacing will be shorter at the anticipated dropping point of material, case by case. The idler type used is the same as connected to the BCL loading point.



ORDERING EXAMPLE: BCL 06 - 330 - A 1 W

Type

Belt width B (mm)

(05=500, 06=650, 08=800)

Idler bracket type

330 = 3 - part 30° (bracket BDK...)
345 = 3 - part 45° (bracket BDK...)
320 = 3 - part 20° (bracket BDK...)

Alternative structures

A = EXTENSION ELEMENT
B = BASIC ELEMENT (belt runs in one direction)
C = BASIC ELEMENT (belt runs in both directions)

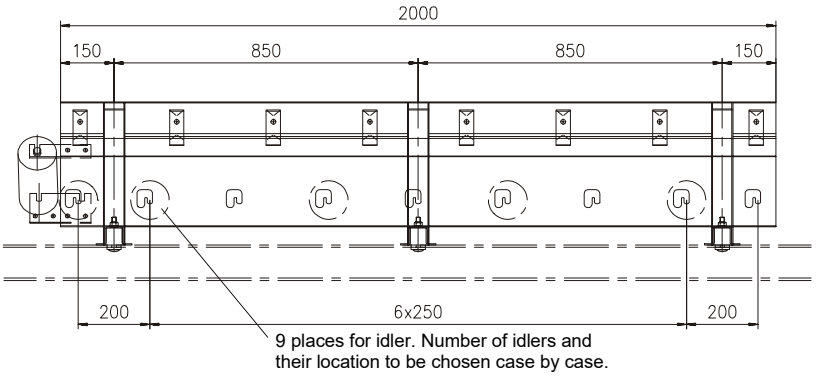
Type of skirt board

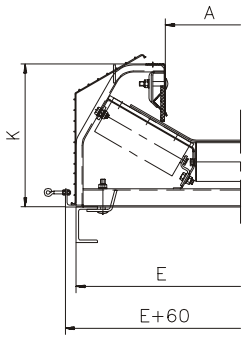
1 = LOW
2 = HIGH

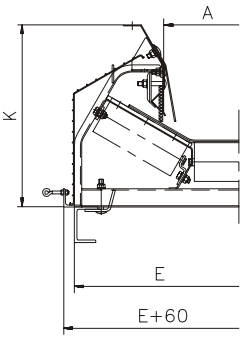
Gap shelter

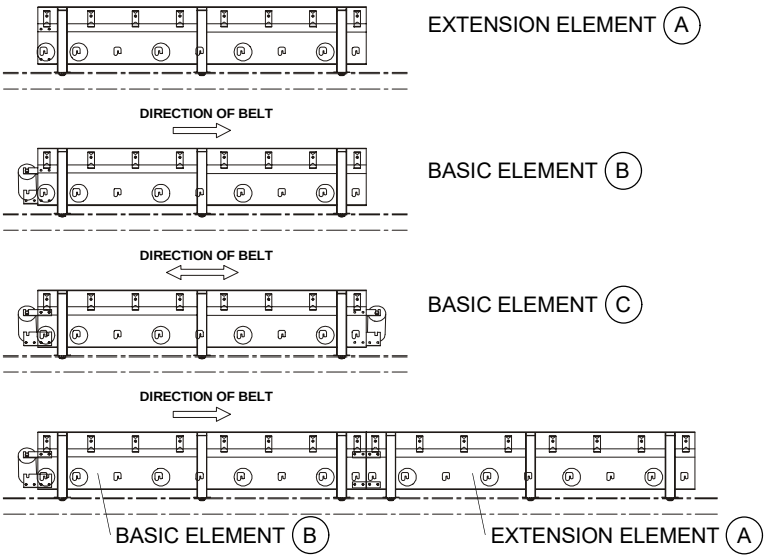
W = GAP SHELTERS ON BOTH SIDES
V = GAP SHELTER ON ONE SIDE ONLY
X = WITHOUT GAP SHELTERS

NOTE: IDLERS TO BE ORDERED SEPARATELY









B	A			K				
				Low skirt			High skirt	
	30°	45°	20°	30°	45°	20°	30°	45°
500	310	280	320	382	400	389	491	509
650	420	400	440	400	435	412	509	544
800	550	490	570	420	448	445	527	557

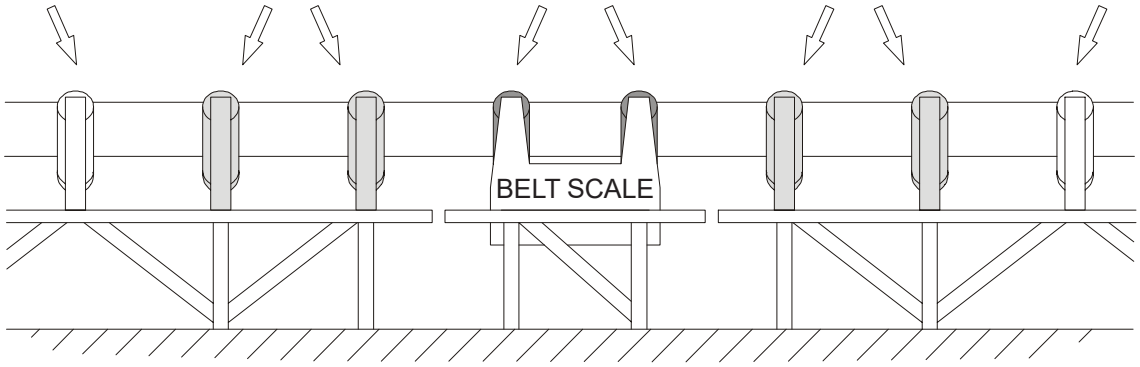
B	E	Idler type	Weight (kg)
500	770	TS108E-20B-200	113
650	920	TS108E-20B-250	120
800	1120	TS108E-20B-315	130

10. OTHER CONVEYOR COMPONENTS

- Placing the belt scale to the conveyor
- Components for the belt scale
- Maintenance and inspection hatch MEP12
- Maintenance and inspection hatch MEP13
- Cover deck CX
- Gap cover CS5 CS6
- Safety net SV
- Spilled material conveyor RIPEX4
- Freezing inhibitor MIX7
- Dust control system ROXON CLEAR
- Side wall belt conveyor components

PLACING THE BELT SCALE TO THE CONVEYOR

IDLERS Standard TS-idler	**IDLERS** TS...S idlers	**IDLERS** TS...D idlers	**IDLERS** TS...S idlers	**IDLERS** Standard TS-idler
BRACKETS Standard S-series bracket	**BRACKETS** S...-V brackets		**BRACKETS** S...-V brackets	**BRACKETS** Standard S-series bracket



To reach the measured precision of the belt scale, it requires for deviating components before and after the belt scale. Idler brackets next to the belt scale are designed stiffer than other brackets on the conveyor. To ensure the accuracy of the belt scale, only very small bending is allowed for these brackets. Also, the idlers are turned to be non eccentric. It is recommended that next to the belt scale, there are, on both sides, at least two brackets with bigger loading capasity and precision than standard brackets have.

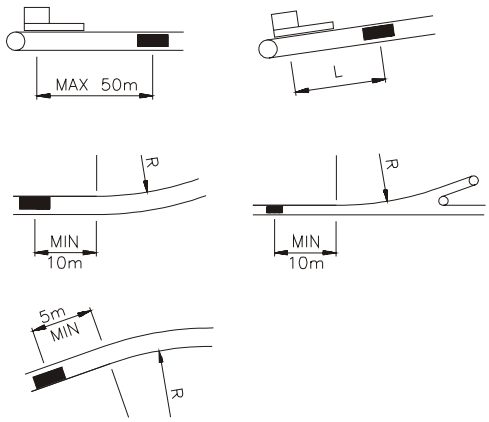
PLACING THE BELT SCALE TO THE CONVEYOR

On horizontal conveyors, the belt scale can be placed almost any where. The recommended place is, maximum 50 meters after the loading point.

On ascending conveyors, the belt scale is placed directly after the loading point. Distance L is chosen so that the material has time to settle down on the belt 2...5 sec.

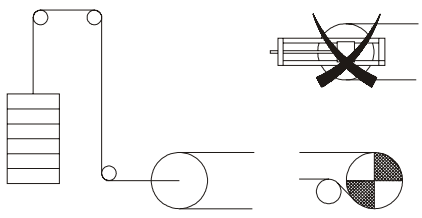
The belt scale is not allowed to be placed at ascending curves. Minimum distance to the start point of the curve is 10 meters. The same concerns the belts ascending to the tripper carrage.

Minimum distance to the declining curves is 5 meters.



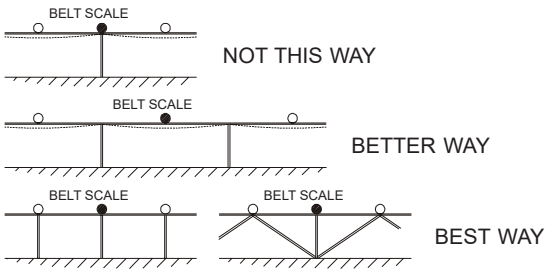
BELT STRESSES

The belt stresses of the conveyor must be as small and as even as possible, from the point of the belt scale. That's why it is always recommended to use the gravity take-up. Screw take-up must be avoided. The friction angle is added on the drive pulley, if, because of small belt stresses, sliding occurs.



CONVEYOR FRAME

Bendings on the conveyor frame, easily cause precision errors to the belt scale. That's why the stresses on the frame must be removed by the belt scale idler brackets and by the brackets next to belt scale. The frame of the conveyor must be designed stiffer than normally if needed.



COMPONENTS FOR THE BELT SCALE

IDLERS

Idlers of the belt scale brackets are designed with bigger precisions than normally. Their surfaces are turned and balanced if needed. The idler diameter is “under measured” about the turning (1-2 mm) compared with the diameter of the standard idler.

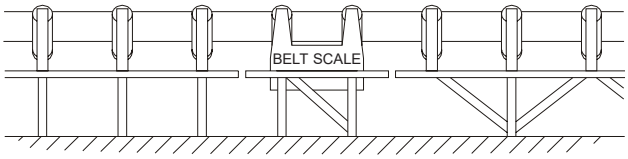
On brackets manufactured by Roxon, next to the belt scale, idlers with B-shaft end type, are used. Type A shaft end is universal as well. Weighing idlers can also be manufactured according to a customer’s shaft end.

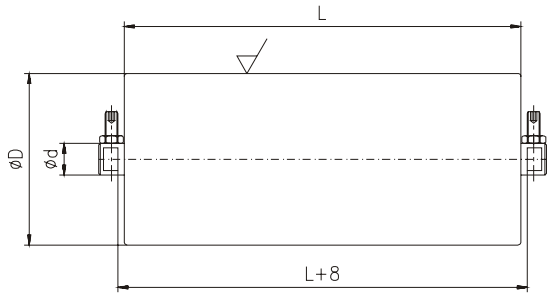
The idler connected to the adjacent Roxon bracket of the scale must always have screws for adjusting the height (indication K).

When placing the components on a conveyor, note that the frame construction (of the conveyor) is sufficiently stiff regarding the deflections. With that, is reached sufficient precision for the scale.

ORDERING EXAMPLE: TS 108 S - 20 B K - 250

- Idler type
- Idler diameter D (mm)
- Idler of the bracket next to the belt scale
  - S = TURNED, LIGHT GREY IDENTIFYING COLOUR
  - D = TURNED AND BALANCED, YELLOW IDENTIFYING COLOUR
- Shaft diameter d (mm)
- Shaft end type, see separate information sheet
- Idler height adjusting screws
  - K = WITH HEIGHT ADJUSTING SCREWS
  - BLANK = WITHOUT HEIGHT ADJUSTING SCREWS
- Idler length L (mm)





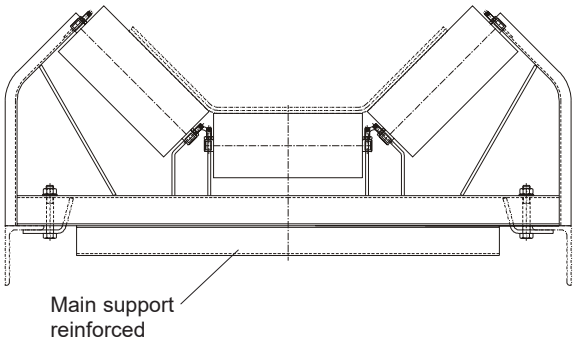
IDLER BRACKETS

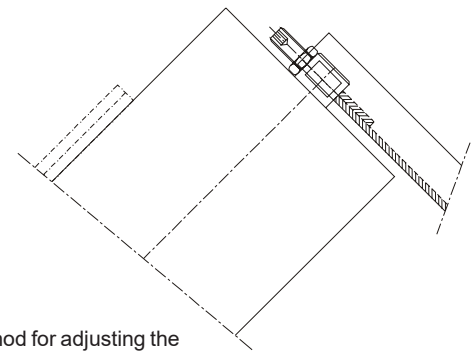
Idler brackets next to belt scale are manufactured by using standard bracket dimensions and they are suitable beside to them for the heights. Deviating from the standard brackets, they have a bigger loading capasity against the bends.

ORDERING EXAMPLE: SK345 - 20 - 108 - 1000 Z A V

- Ordering type of the standard bracket
- Type of the bracket next to the belt scale

Idlers to be ordered separately. The idler connected to the adjacent bracket of the scale must always have screws for adjusting the height.





The standard method for adjusting the height of the belt scale idler is the screw at the shaft end.

MAINTENANCE AND INSPECTION HATCH

MEP12

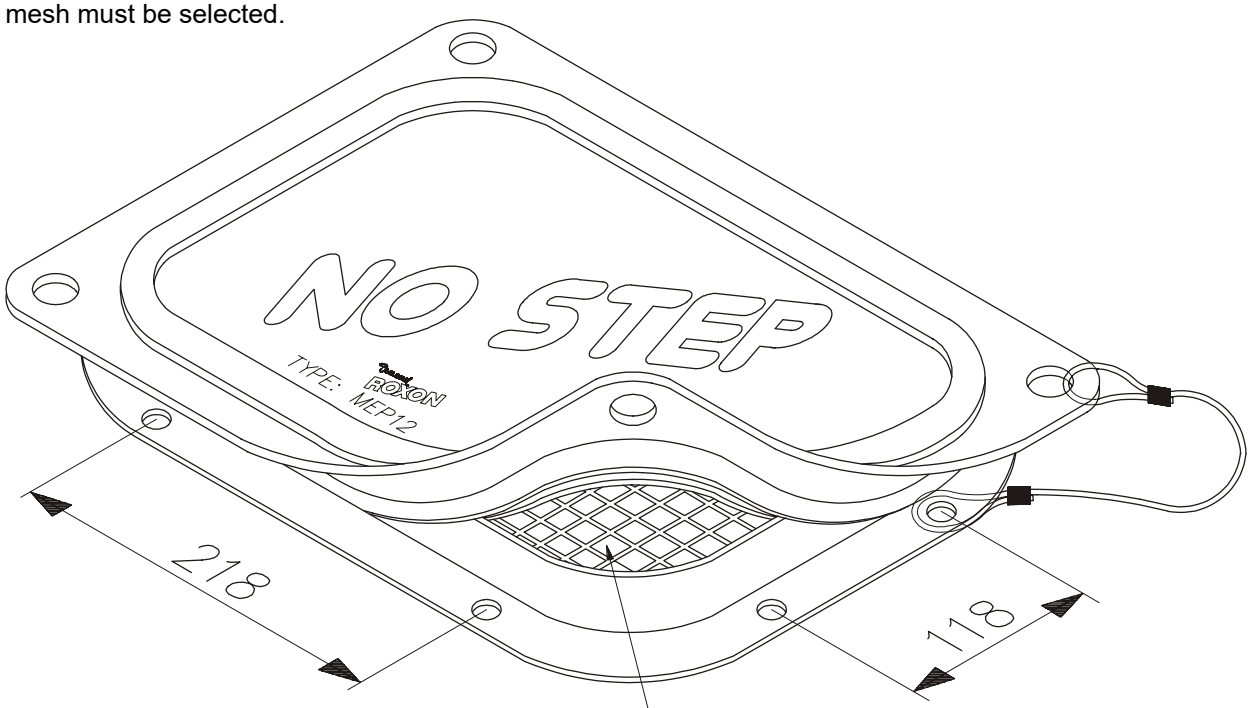
HATCH WITH RUBBER COVER

- A maintenance and inspection hatch with a rubber cover is recommended for places where good sealing properties are required, but where no pressure shocks exist.
- The hatch with the rubber cover enables dustproof installation of cleaners, pulleys and other shafted equipment.
- When using the inspection hatch in places where there is a risk of injuries, e.g. in bucket elevators, a hatch with a protective steel wire mesh must be selected.

ORDERING EXAMPLE: MEP 12 - S

Hatch type

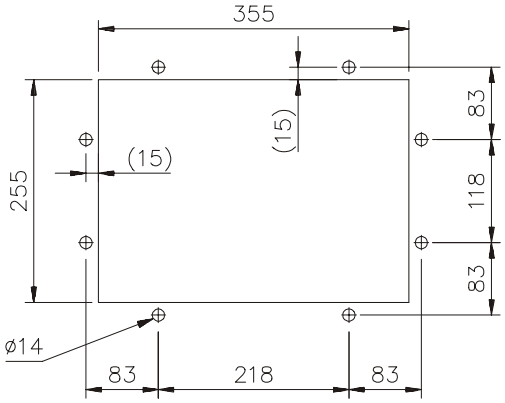
S = provided with a protective steel wire mesh

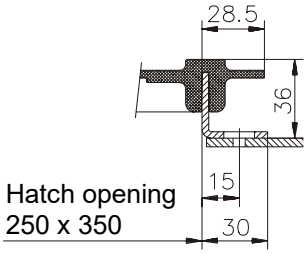


PROTECTIVE STEEL WIRE MESH ONLY WHEN REQUESTED

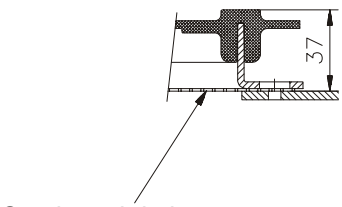
REFER TO THE ORDERING EXAMPLE

CHUTE OPENING





Hatch opening
250 x 350



Steel mesh in between Galvanized PL1 (mesh opening 10 x 10)

MAINTENANCE AND INSPECTION HATCH

MEP13

HATCH WITH STEEL COVER

- A maintenance and inspection hatch with a steel cover is meant for places where heavy pressure shocks call for strength and reliable sealing properties. The locking system is fixed to the centre of the cover ensuring a constant sealing pressure.
- The stainless steel clamping screw functions also in difficult conditions.
- Oil resistant rubber seal.
- Screw fixing (M12) makes the installation easy.
- Hot-dip galvanised construction.
- When using the inspection hatch, in places where there is a risk of injuries, e.g. in bucket elevators, a hatch with a protective steel wire mesh must be selected.

ORDERING EXAMPLE: MEP13 - 1 - S

Hatch type

Size

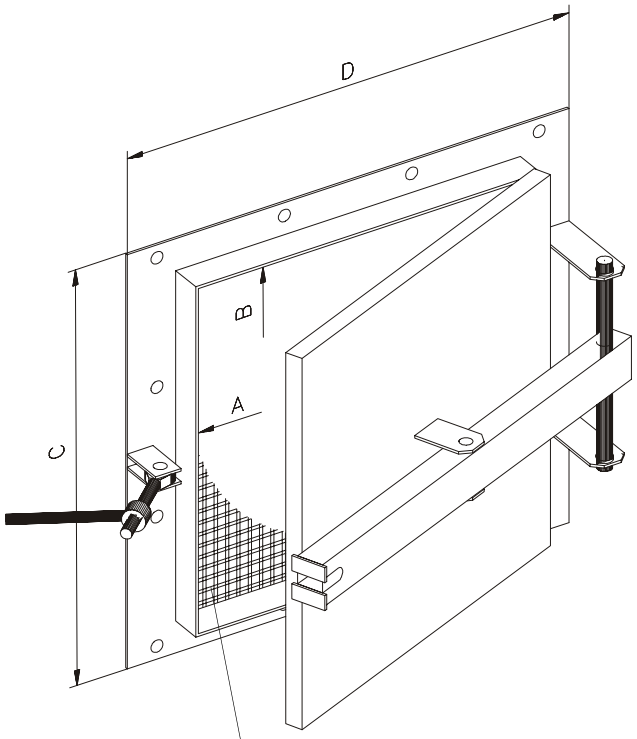
1 = hatch opening 400 x 250 mm
2 = hatch opening 400 x 400 mm
3 = hatch opening 400 x 600 mm
4 = hatch opening 600 x 400 mm

S = Provided with a protective steel wire mesh

Width of hatch opening

Height of hatch opening

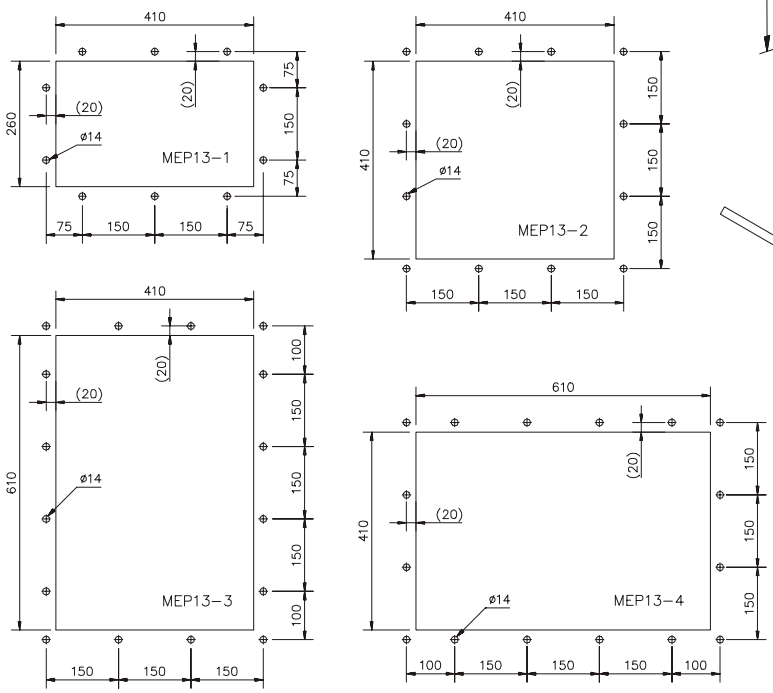
TYPE	A x B	C	D	Weight (kg)
MEP13-1	400 x 250	330	520	13
MEP13-2	400 x 400	480	520	17
MEP13-3	400 x 600	680	520	22
MEP13-4	600 x 400	480	720	22

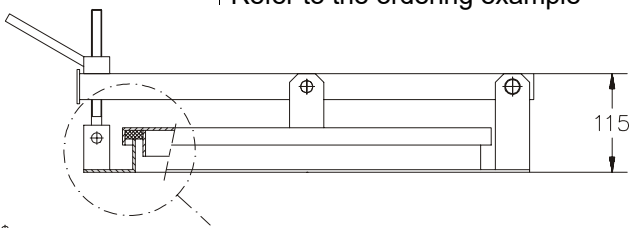


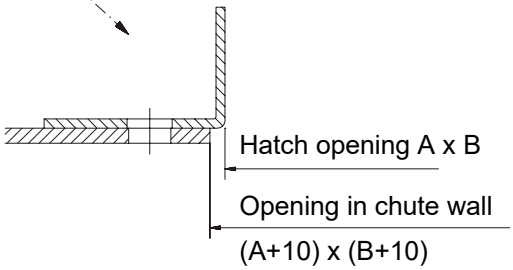
Protective mesh only when required

Refer to the ordering example

CHUTE OPENINGS







Hatch opening A x B

Opening in chute wall

(A+10) x (B+10)

COVER DECK

CX

CX cover deck is suited for the outdoor conveyors, to protect the conveyed material and also conveyor itself from the dust and wet. With uncovered conveyors, frozen belt and pulley cause transmission problems in winter times. This freezing is able to be prevented efficiently with the cover deck.

This self-supporting structure without separate brackets is quick and easy to install. The short protective sheet-metal cover is easy to handle and therefore facilitates the opening and closing of the cover during maintenance. Deck can be opened on both sides of the conveyor.

Hot galvanized plate as standard. Painted or aluminium plate also available.

ORDERING EXAMPLE: CX 1200 Z - 1 S RAL 9018

Type code

Belt width B (mm)

Coating

Z = HOT GALVANIZED
P = PAINTED
A = ALUMINIUM
AP = ALUMINIUM, PAINTED

Mounting angle type

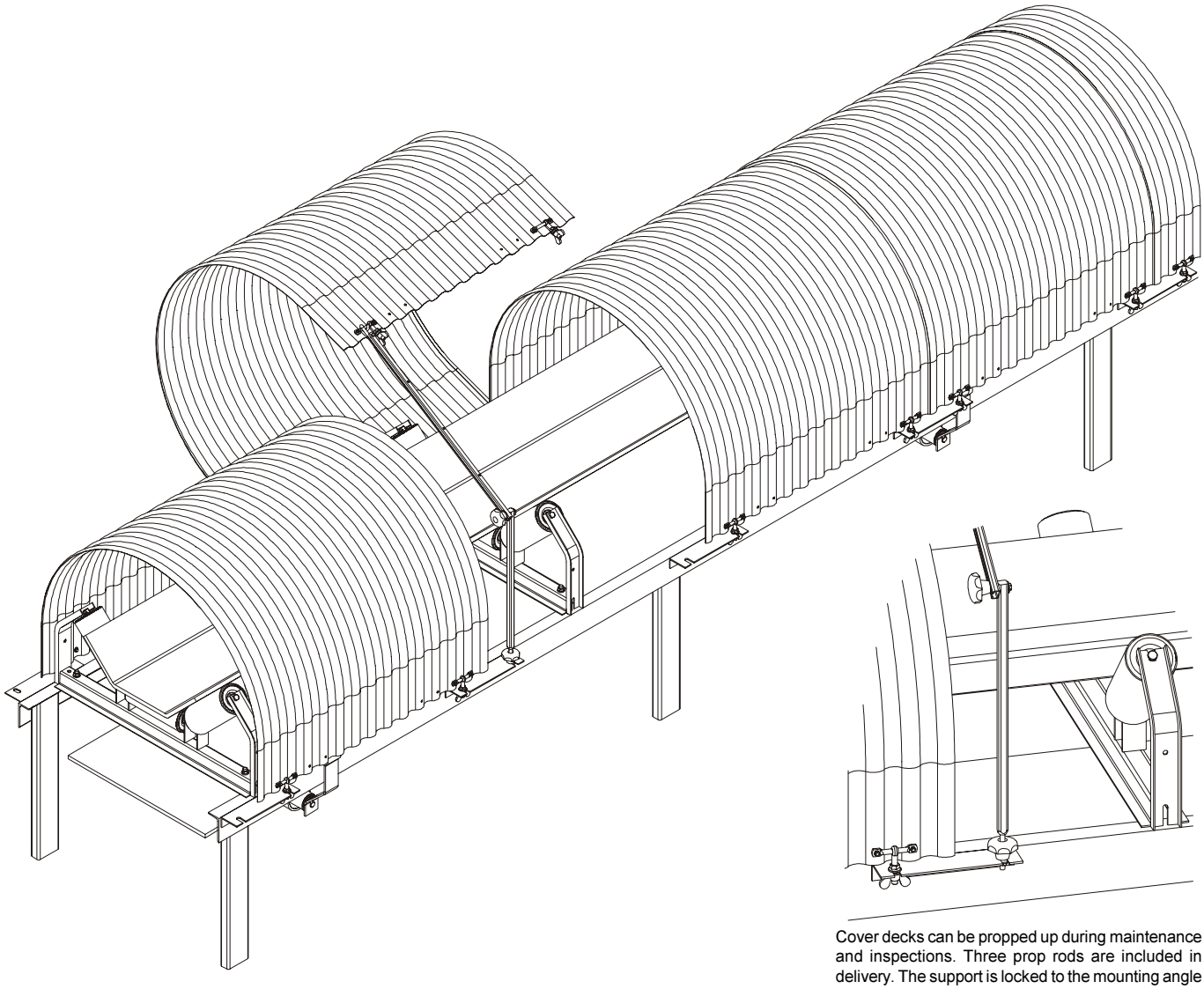
1 = WIDTH 75 mm
2 = WIDTH 90 mm

Deck opening

S = ONE SIDE
D = BOTH SIDES

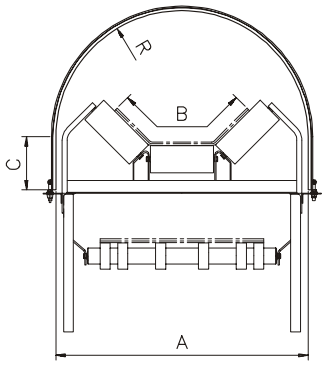
Colour, if painted

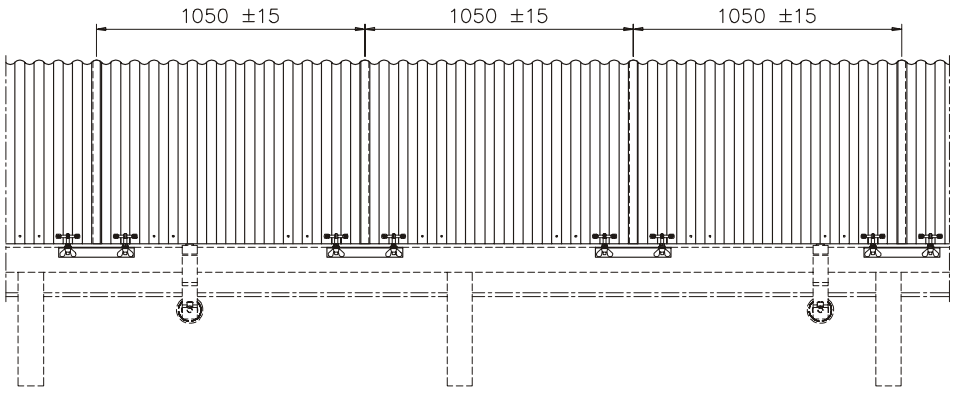
AVAILABLE COLOURS:
RAL1001, RAL3011, RAL5019, RAL6021, RAL7038, RAL9018



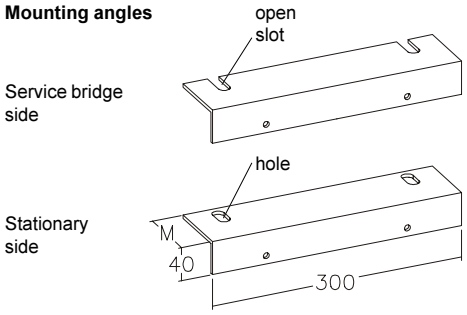
Cover decks can be propped up during maintenance and inspections. Three prop rods are included in delivery. The support is locked to the mounting angle with a knurled-head screw.

Main dimensions





Mounting angles



Bracket	Mounting angle type	M
BDK, SK SL, SM, SH	1	75
SE (40) SE (50)	2	90
SE (60)	1	75

frame pipe width

B	A	R	C	Weight (kg) deck plate	Weight (kg) deck plate with fixing parts
400	750	375	200	9.5	15.0
500	850	425	200	10.5	16.0
650	1000	500	210	12.0	17.5
800	1200	600	210	14.0	19.5
1000	1400	700	220	16.0	21.5
1200	1650	825	250	18.5	24.0
1400	1850	925	250	20.5	26.0
1600	2050	1025	300	23.0	28.5
1800	2250	1125	300	24.5	30.0
2000	2450	1225	350	27.0	32.5

The nominal size A may have small differences because of the transport packing.

LOWER COVER RX

Lower protective cover prevents the “airplane wing” effect from occuring, i.e. the rising and uncontrollable movement of the belt caused by the wind. The lower cover should be mounted to the leg or brackets of the conveyor with self-screwing screws.

The standard height of the sheet-metal cover is 495 mm. The length may be chosen according to need, 3 m at maximum. The sheet-metal weighs 4.3 kg/m.

ORDERING EXAMPLE: RX 495 Z - 3000

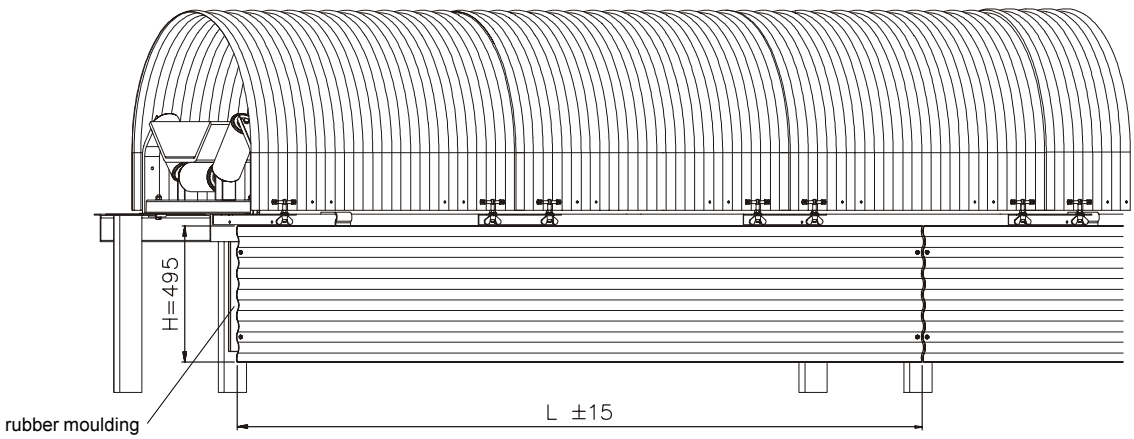
Type code

Standard height H (mm) 495

Coating

Z = HOT GALVANIZED

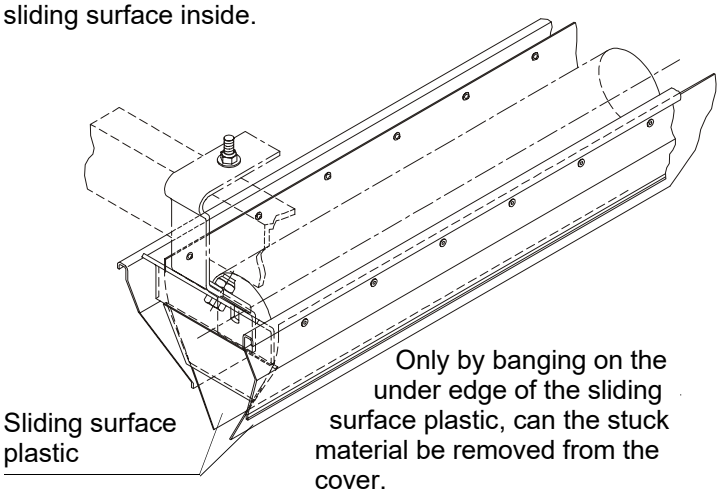
Length L (mm)



GAP COVER CS5 CS6

According to the safety instructions of the conveyor, the gap between the belt and the idler is to be covered, if the belt bends downwards and/or the idler is within reach, and especially when the belt does not have the inclination margin upwards.

The falling excess material between the cover and idlers, makes the active cover problematic. Based on the many years of experiments and experience, we have developed the CS5 - gap cover which is very efficient because of its wide construction and plastic sliding surface inside.



Sliding surface plastic

Only by banging on the under edge of the sliding surface plastic, can the stuck material be removed from the cover.

ORDERING EXAMPLE: CS5-108-20-1150

Type code
- CS5 = for BDL4-idler support
- CS6 = for SE-bracket

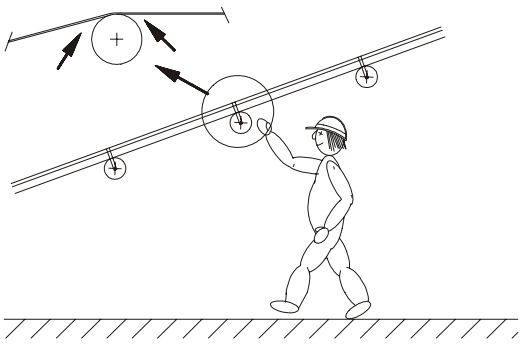
Idler diameter D (mm)

Shaft diameter d (mm)

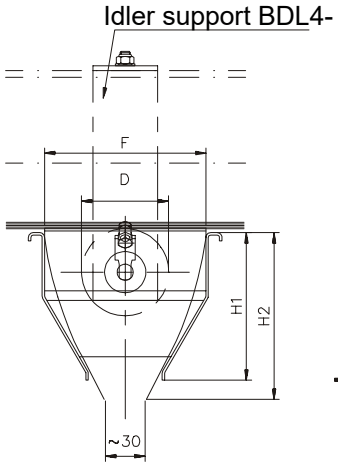
Idler length L (mm)

The gap cover CS5, of the idler, is suitable for use with the BDL4-idler support. It can be fixed directly to the holes on the support.

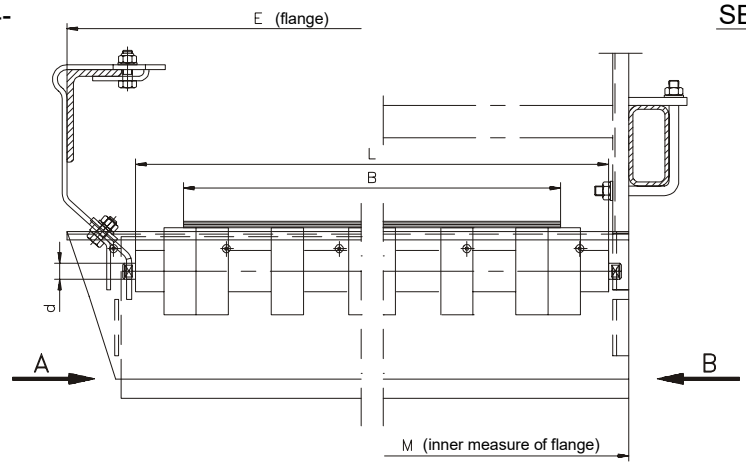
The gap cover CS6, of the idler, is suitable for use with an SE-bracket. It can be fixed to the return idler support of the bracket.



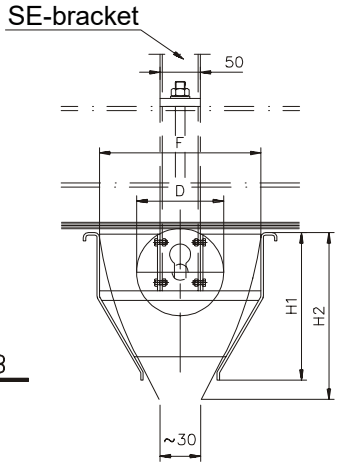
TYPE CS5



DIRECTION A



TYPE CS6



DIRECTION B

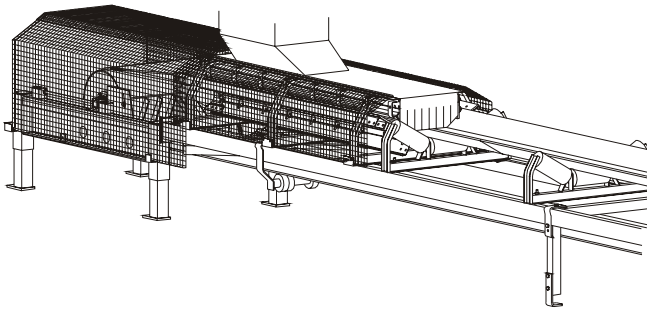
D	F	H1	H2
108	200	183	205
133	230	195	240
159	250	221	280

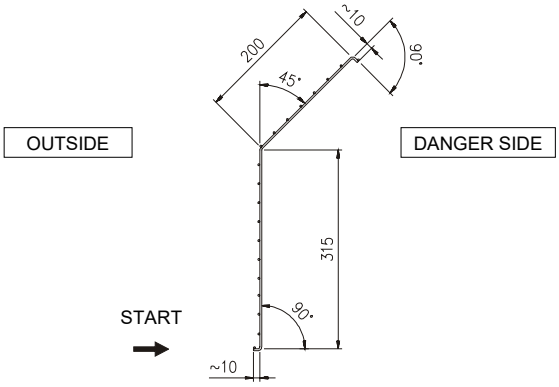
L	B	E	M	Weight (kg) CS5 108	133	159	Weight (kg) CS6 108	133	159
750	650	920	806	11.5	12.0	14.2	8.8	9.4	10.6
950	800	1120	1006	13.5	14.1	16.6	10.9	11.6	13.0
1150	1000	1320	1206	15.5	16.2	19.0	13.0	13.8	15.4
1400	1200	1570	1456	18.0	18.9	22.0	15.5	16.4	18.3
1600	1400	1770	1656	20.0	21.0	24.4	17.6	18.6	20.8
1800	1600	1970	1856	22.0	23.1	26.6	19.7	20.8	23.2

SAFETY NET

SV

The safety net is a welded wire net, 30x30x3 in size. Standard length of the safety net is 2000 mm. Surface treatment is hot galvanised.

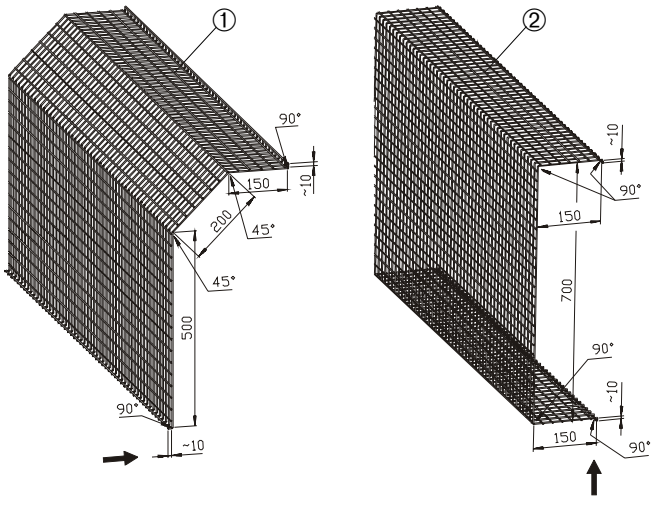




Examples of safety nets:

① SV2 - 10L90 - 500R45 - 200R45 - 150L90 - 10

② SV2 - 10L90 - 150R90 - 700R90 - 150R90 - 10



Standard safety nets

Ordering example for the safety nets designed to fit Roxon brackets and loading points.

SV1 - 3

Type code

Variation (see table from the next page)

Special safety nets

Please see the ordering example for specifying your safety net dimensions (safety net in the ordering example is shown in the drawing next to ordering example).

SV2 - 10L90 - 315R45 - 200R90 - 10

Type code

Measure 10 mm

L = direction to the left

Bending 90°

Measure 315 mm

R = direction to the right

Bending 45°

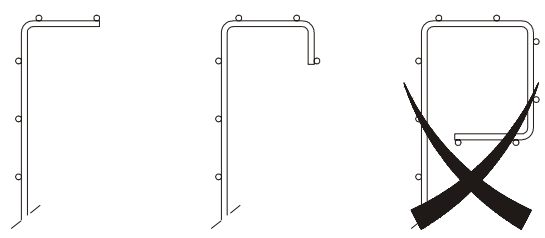
Measure 200 mm

R = direction to the right

Bending 90°

Measure 10 mm

End bending

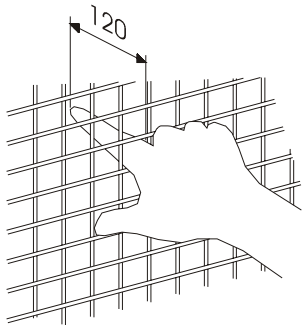


Recommended **Allowed** **Not allowed**

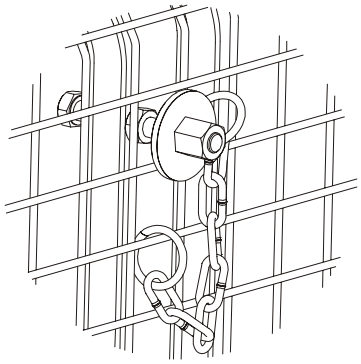
Code list for the SV1 safety nets

Bracket type	Belt width	SV1- variation				
		- 1	- 2	- 3	- 4	- 5
BDK 21	500	X				
	650	X				
	800	X				
	1000		X			
	1200		X			
BDK 22	500	X				
	650	X				
	800	X				
	1000		X			
	1200		X			
BDK 51	500	X				
	650		X			
	800		X			
	1000		X			
	1200		X			
MDK 52	500	X				
	650		X			
	800		X			
	1000		X			
	1200		X			
MDK 61	500	X				
	650	X				
	800		X			
	1000		X			
MDK 62	650	X				
	800		X			
	1000		X			
SK	500	X				
	650		X			
	800		X			
	1000		X			
	1200		X			
	1400			X		
	1600			X		
SE	650				X	
	800				X	
	1000				X	
	1200					X
	1400					X

Safety



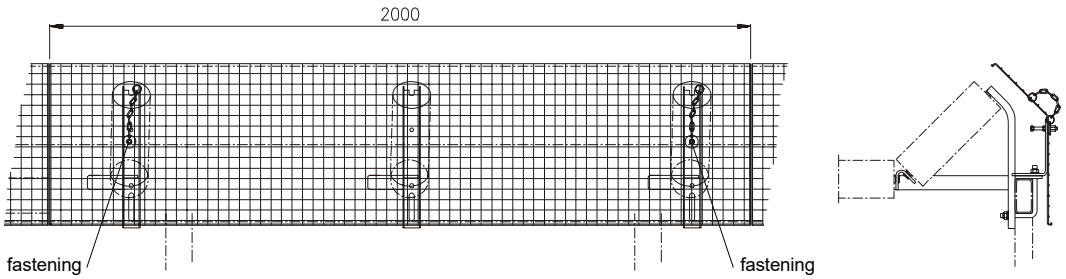
The safety distance for the safety net is 120 mm with 27 x 27 mm mesh (standard SFS-EN 294).



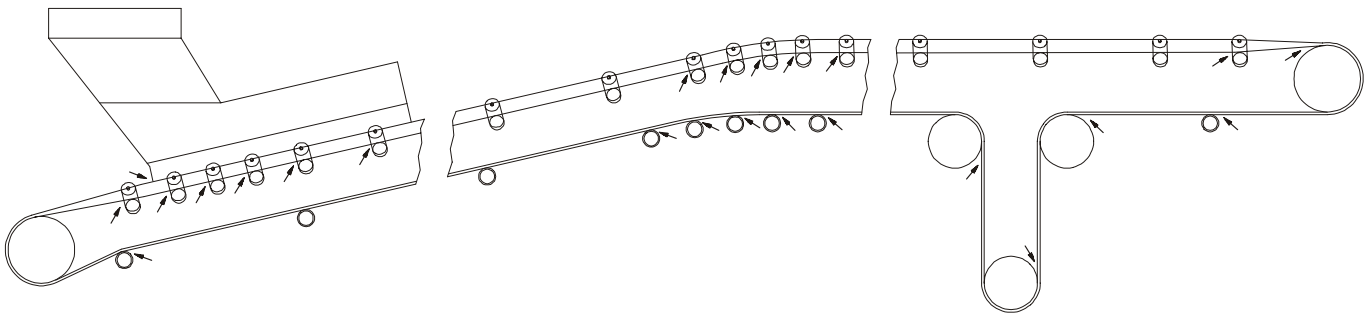
Safety net fastening with support. Can only be opened with a tool (Finnish government decision no. 1314).

Main dimensions

Standard length of the safety net is 2000 mm. Maximum height of the net (as flattened) up to 1500 mm. One net includes two piece of fastening parts.



Gaps in the belt conveyor that need to be protected.



We reserve the right for modifications without prior notice.

SPILLED MATERIAL CONVEYOR RIPEX 4

RIPEX 4, ROXON's chain conveyor for spilled material, is designed to move the material dropped under the return belt to a chute or to another type of collector.

RIPEX 4 conveyors can be chosen either with steel flight collectors or equipped with plastic scrapers.

The RIPEX 4 conveyor can be easily installed between belt conveyor frame supports. The fastening eyes can be either underneath or above the chain conveyor.

The conveyor's operating time and interval is individually adjusted to meet process requirements. The delivery includes the electric control box with the necessary adjusting device.

ORDERING EXAMPLE: RIPEX4-800-2500 T A L

Type

Belt width B (mm)

Conveyor length C-C (mm)

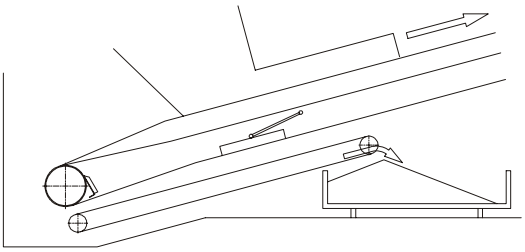
Flight material

- T = steel flight collectors
- M = flight collectors with plastic scrapers

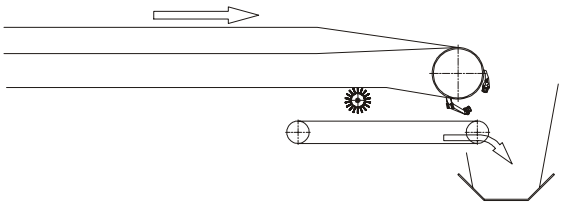
Fastening eyes

- A = underneath (standard attachment)
- Y = above

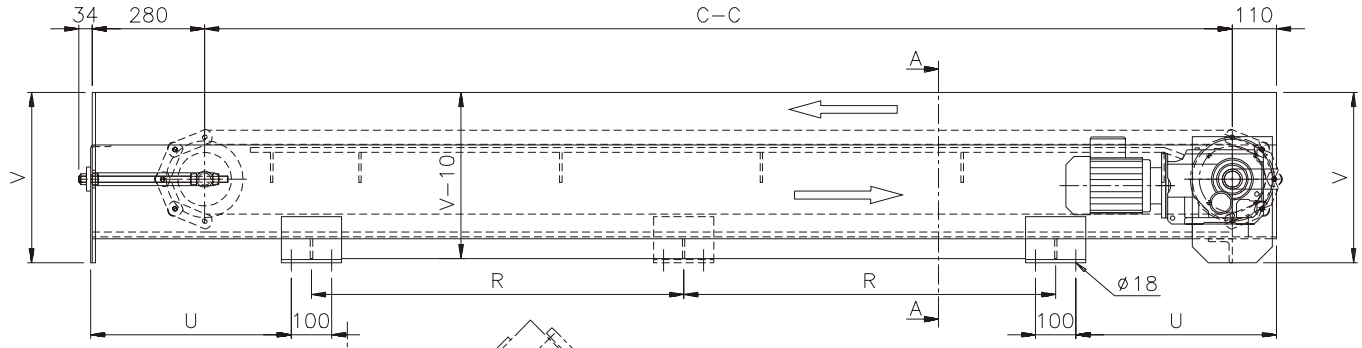
Add L if an additional skirt board is required

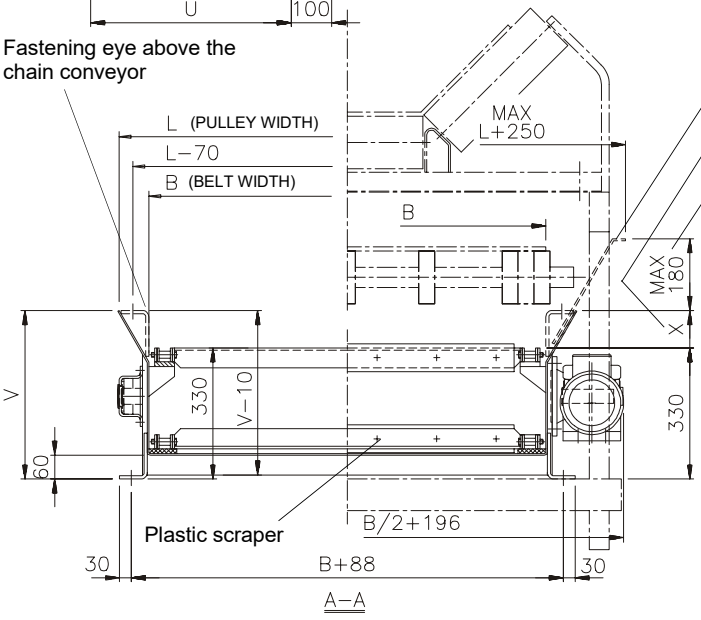


At the belt conveyor tail-ends with limited space and height, the spilled material can be conveyed to a place where cleaning is done easier, e.g. directly into an interchangeable container.



In places where the chute structure is too narrow to allow for an adequate cleaning system, the problem can be solved by using a RIPEX 4 conveyor. The cleaners can now be installed in a free space before the drive-end of the conveyor and RIPEX 4 moves the separated material into the chute.





Additional skirt board when required.

When required, the skirt board can be lowered or cut by the measure X.

The maximum height of the additional skirt board.

B	Conveyor weight (kg) Conveyor's nominal length C-C							V
	1000	1500	2000	2500	3000	4000	5000	
650	215	249	288	336	380	454	527	381
800	235	273	316	370	418	501	581	424
1000	256	297	344	402	454	544	630	424
1200	282	328	379	443	501	601	696	467
1400	305	354	409	477	541	647	748	467
Exact C-C	960	1440	1920	2560	3040	4000	4960	
R	-	-	-	-	1095	1575	2055	
U	300	500	500	500	500	500	500	

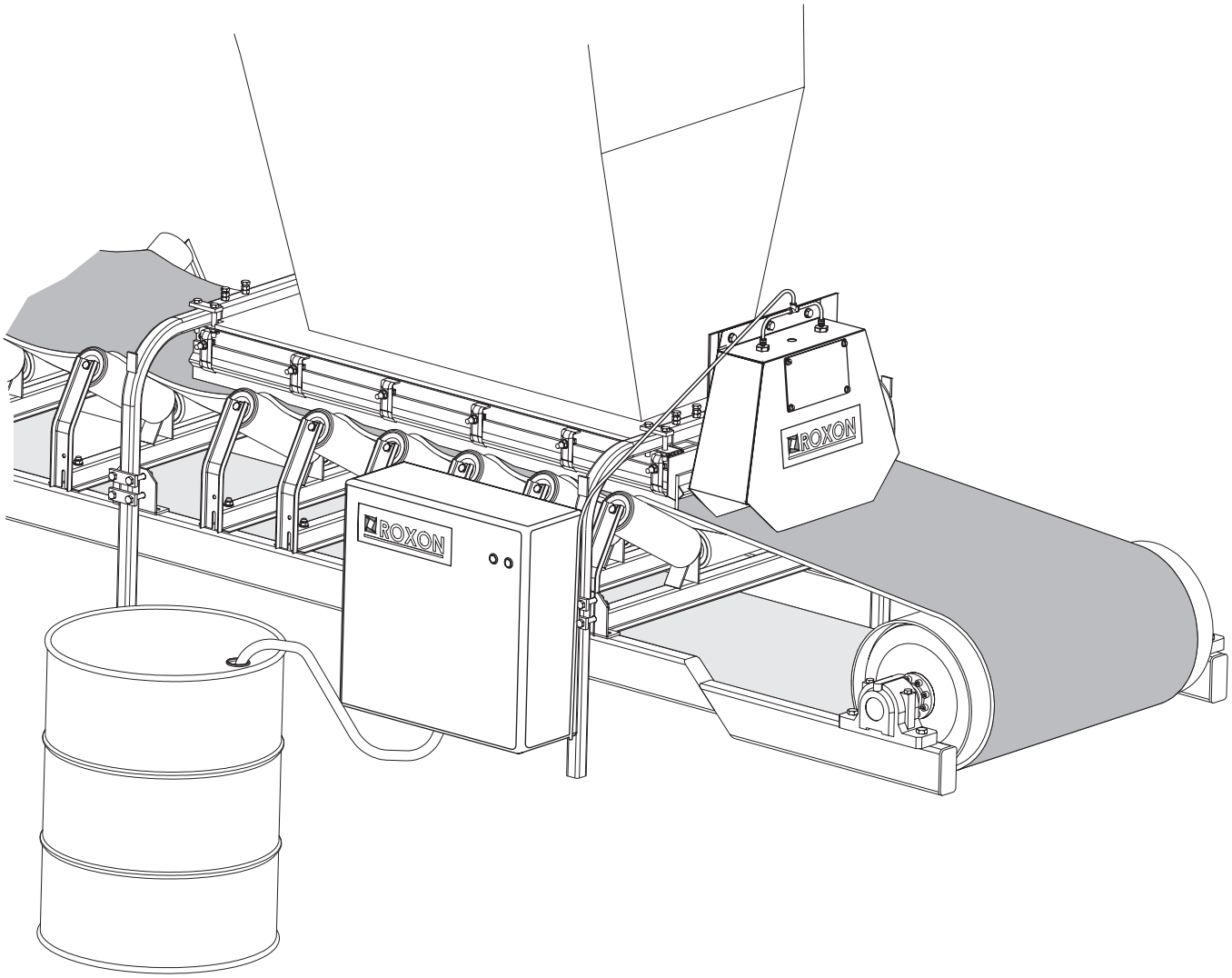
FREEZING INHIBITOR MIX 7

MIX7 freezing inhibitor system is designed to prevent freezing of the upper surface of the conveyor belt. Problems caused by sliding of material will thereby be avoided.

Diluted anti-freeze solution is sprayed on the belt by the inhibitor. Environmentally friendly propyleneglycol-based anti-freeze solutions are recommended by Roxon. Thin and even anti-freeze coating will be achieved by spraying with pressure, and consumption of liquid is minimized.

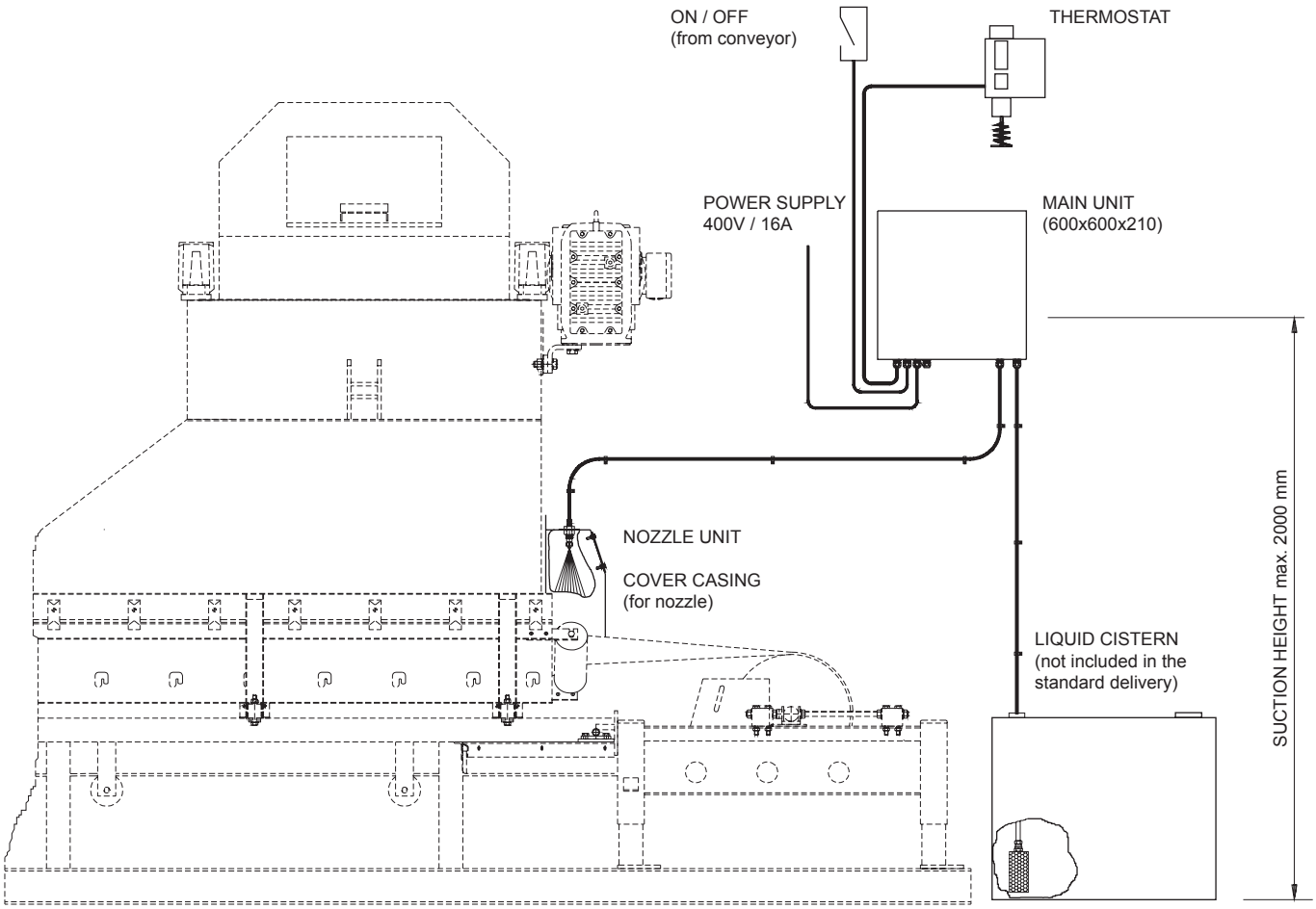
ORDERING EXAMPLE: MIX7 - D - 1000

- Type code
- Conveyor control voltage
  - D = 24 VDC
  - A = 230 VAC
- Belt width B (mm)



- Freezing of the belt will be prevented in damp and icy circumstances
- Thermostat controlled assembly
- Connection to the control system of the conveyor - equipment is active only when the conveyor is running
- Duration of spraying and pauses is adjustable in accordance with the length and speed of the conveyor
- Automation module control
- Running dry of the pump is prevented by safety guards
- With a local guiding can the system be activated past the automation for the short extra spraying
- Equipment of the system have a protection class IP-66 which makes possible the installation both outdoors and indoors

MIX7 equipment and placing to the belt conveyor



Please let us know the following information when ordering MIX7:

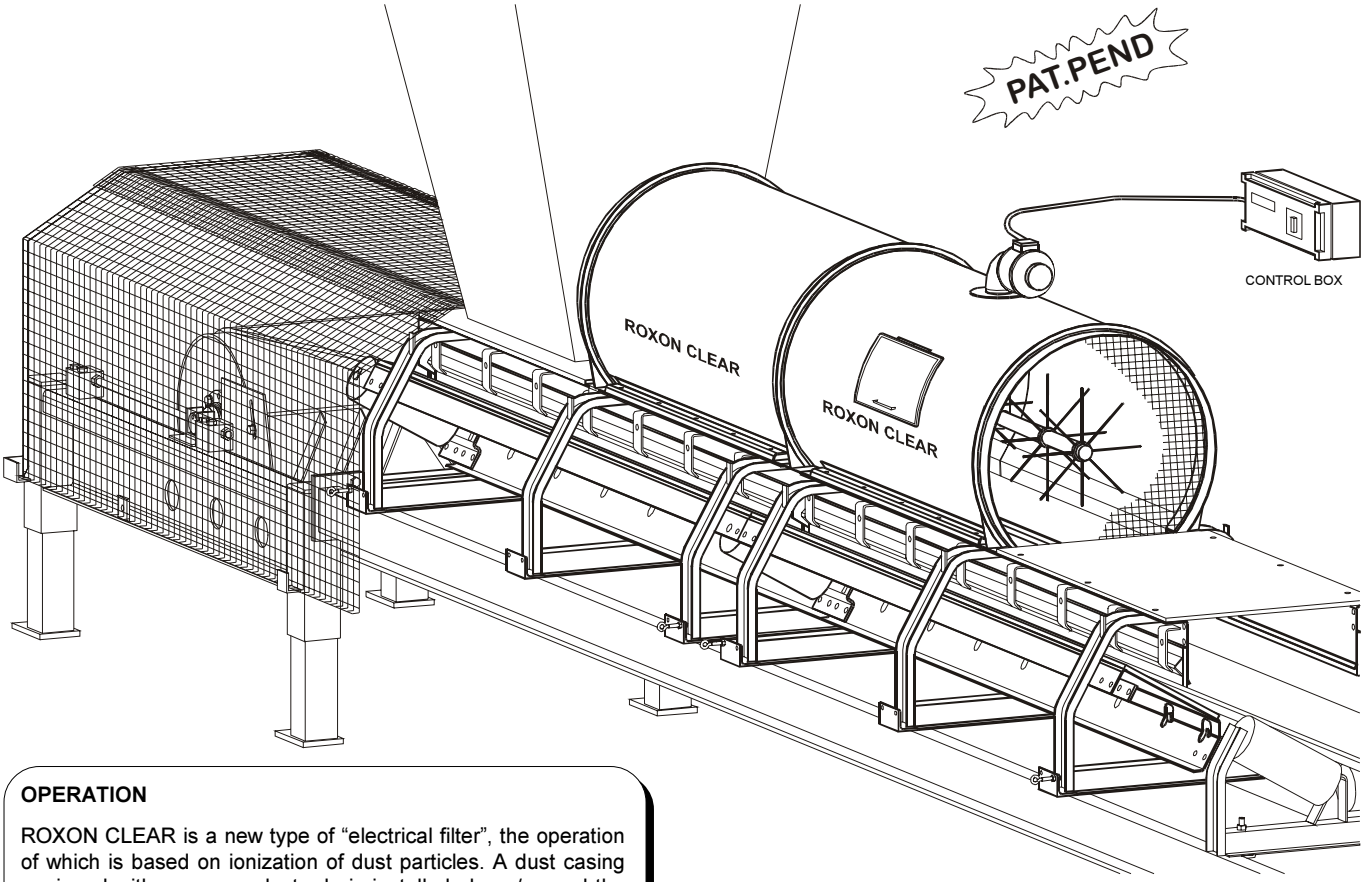
- Belt width
- Belt speed
- Conveyed material
- Will the main unit be located indoor or outdoor
- Length of suction pipe (from the main unit to the liquid cistern) and suction height
- Length of supply pipe (from the main unit to the nozzle unit)

- MIX7 system is equipped with the needed components and installation- and maintenance instructions and ready tested. On request, we can also supply installation.
- MIX7 freezing inhibitor system is based on the patented invention in Finland. We have already tens of satisfied customers who have got rid of the conveying problems caused by the frozen belts.

DUST CONTROL SYSTEM ROXON CLEAR

ROXON CLEAR Dust Control System is developed especially for the control of dust emission in bulk materials handling. Dust is a major problem in various bulk handling industries, with a harmful effect on the environment, not only at the handling place itself but also over a larger area. Often a substantial quantity of material is wasted as dust.

ROXON CLEAR Dust Control System binds up dust on location where it is created, and returns it to the material flow. As an economical, simple, efficient and user-friendly system ROXON CLEAR offers an excellent alternative to traditional dust removal systems.



OPERATION

ROXON CLEAR is a new type of “electrical filter”, the operation of which is based on ionization of dust particles. A dust casing equipped with a corona electrode is installed above/around the dust emisson area. Weak current and high voltage (40-60 kV) is fed to the electrode, hence the air inside the casing becomes ionized. Charged gas molecules i.e. ions collide with dust particles in the air. Dust particles become charged and are then drawn and finally fastened to grounded surfaces; both onto the dust casing made of stainless steel and conveyed material. The dust fastened on the casing walls is returned back to the process.

ROXON CLEAR standard unit consist of the dust casing, a high voltage unit, bushing insulator and a corona electrode. A small fan for keeping the bushing insulator clean and a vibrator for keeping the casing clean are available as optional accessories.

INSTALLATION

Roxon's BCL-type standard loading point is an excellent installation base for the dust control system - and in addition to that it ensures tight side sealing. BCL- loading point is a ready-made compact unit which is easy to install directly on the conveyor frame. ROXON CLEAR can also be easily installed directly on existing conveyor structures.

APPLICATION

ROXON CLEAR Dust Control System is suitable for a wide range of materials, however NOT for flammable or explosive dusts. Dust removal efficiency varies from 94 to 97 % depending on the particle size distribution and electric characteristics of dust, as well as on the assembly of the conveyor and dust control system itself.

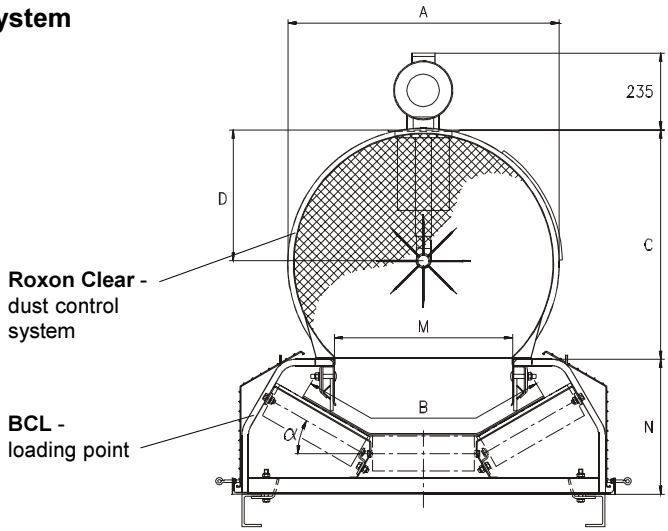
ROXON CLEAR ADVANTAGES:

- high separation efficiency
- minimized waste of material; separated dust is returned back to the process
- clog-proof (no filters)
- low power requirement (below 500 W)
- low service and operation expenses
- easy to install
- simple and strong modular construction
- silent operation

Main dimensions and space requirement of the basic system

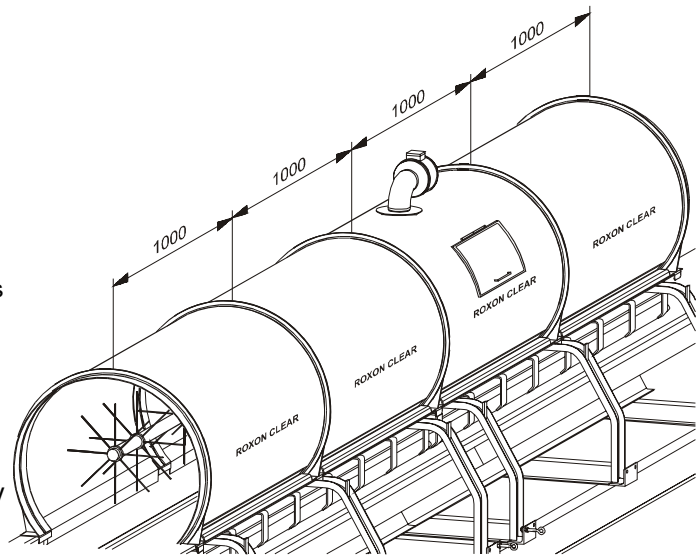
B	A	C	D	M			N		
				30°	45°	20°	30°	45°	20°
500	500	480	250	310	280	320	382	400	389
650	600	540	285	420	400	440	400	435	412
800	790	710	395	550	490	570	420	448	445
1000	860	720	415	720	640	740	450	499	420
1200									
1400									
1600									

For belt widths over 1000 mm, dust control system is dimensioned on a case by case basis.



Technical data (MIF 4 -basic system)

Power input:	230 VAC, 50/60 Hz, 10 A
Conveyor information:	Normally open switch
Grounding:	6 mm² to equipotential bonding bus bar
Length of dust casing:	4000 mm, which can be extended or shortened in modules of 1000 mm each
Support for dust casing:	For example BCL loading point 4000 mm, which can be extended in modules of 2000 mm each. Also other alternatives.
Location:	On conveyors usually immediately after the loading area
Connection to feed chute:	Arranged on a case by case basis



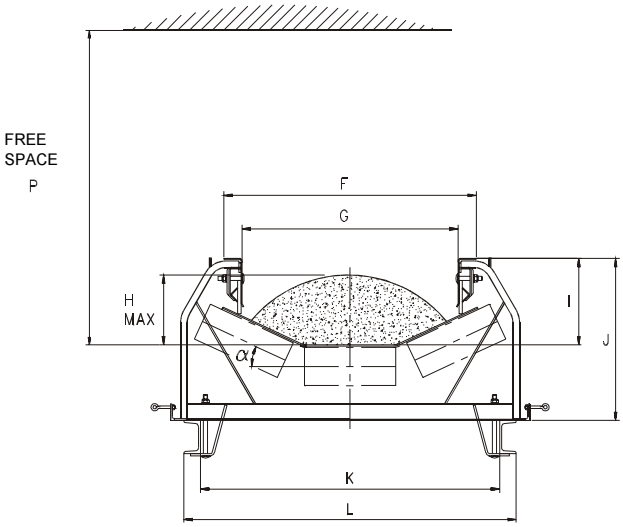
Dimensioning and ordering

Basic systems dimensions and conveyor widths can be seen from the drawing and table at the top of the page.

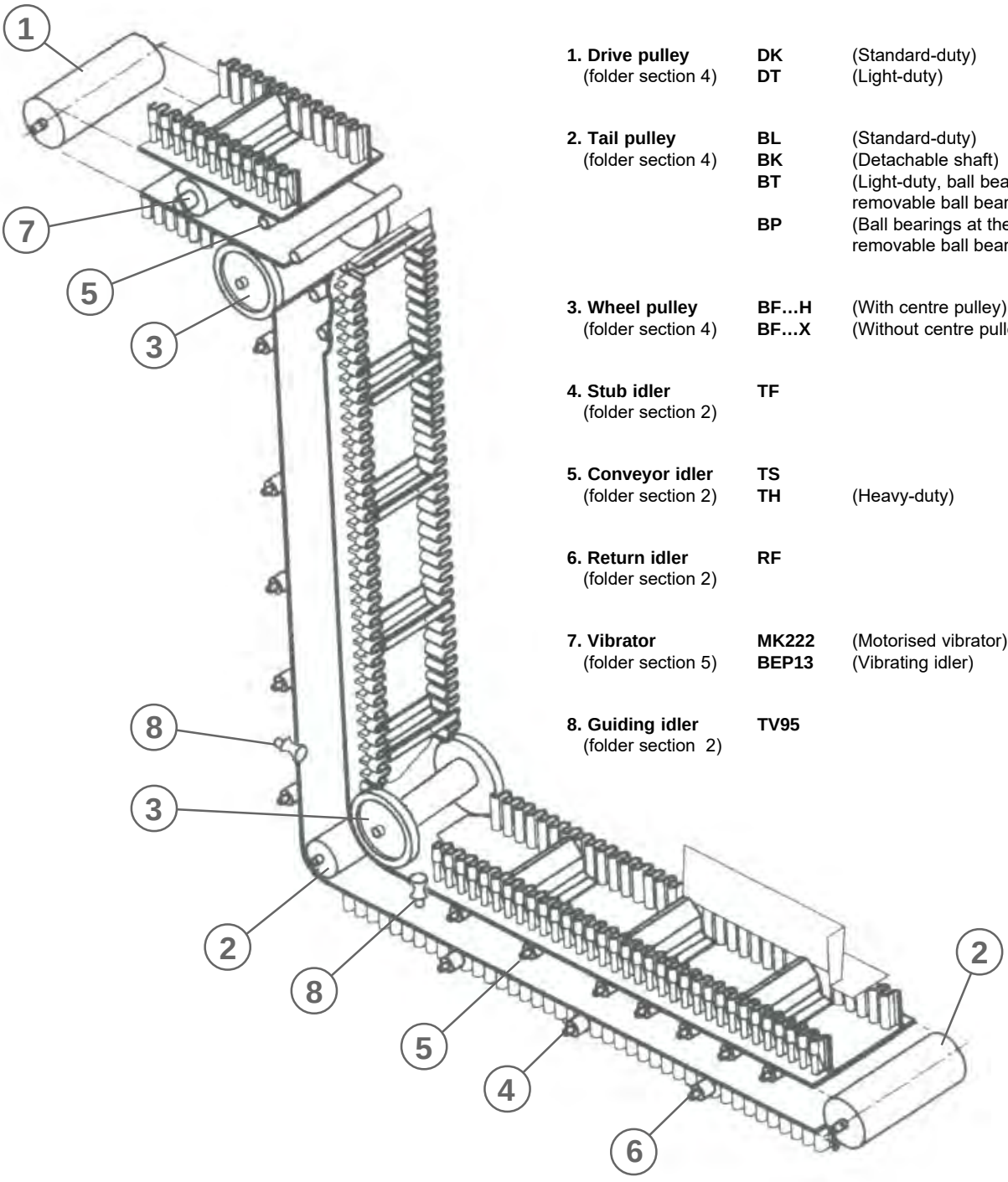
For exact dimensioning of ROXON CLEAR system, please let us know your conveyor dimensions as per the enclosed drawing, or preferably send us a dimensional drawing of the conveyor.

Further, we need information on the characteristics of the handled material and operation conditions. There is a separate questionnaire available for this data.

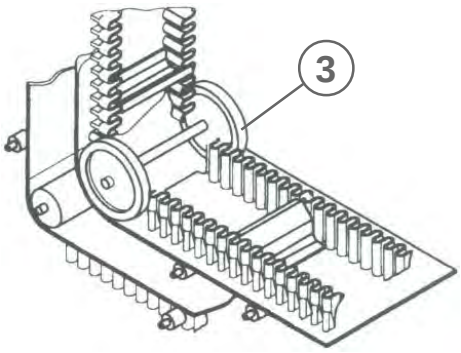
There are pending patents for the ROXON CLEAR Dust Control System in several countries.

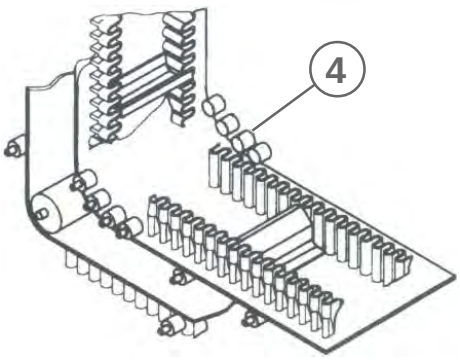


SIDE WALL BELT CONVEYOR COMPONENTS



1. Drive pulley (folder section 4)	**DK**	(Standard-duty)
	DT	(Light-duty)
2. Tail pulley (folder section 4)	**BL**	(Standard-duty)
	BK	(Detachable shaft)
	BT	(Light-duty, ball bearings at the end, removable ball bearings and shaft)
	BP	(Ball bearings at the end, removable ball bearings and shaft)
3. Wheel pulley (folder section 4)	**BF…H**	(With centre pulley)
	BF…X	(Without centre pulley)
4. Stub idler (folder section 2)	**TF**	
5. Conveyor idler (folder section 2)	**TS**	
	TH	(Heavy-duty)
6. Return idler (folder section 2)	**RF**	
7. Vibrator (folder section 5)	**MK222**	(Motorised vibrator)
	BEP13	(Vibrating idler)
8. Guiding idler (folder section 2)	**TV95**	





A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A

Accessories for MAX cleaners MEP4 MEP5
Additional skirt board DREAM-LL
Air knife AIRMAX10
AIRMAX10 Air knife

B

Bar cleaner MAX7
Base plate and adjust piece US1 US2
Base plate and adjust piece US3 US4
BC.. D.. Drive end
BCL Loading point
BCT Tail end
BDH6 Roller bracket
BDH7 Roller bracket
BDH9 Roller bracket
BDL4 Roller bracket
BDP10 Self-aligning idler bracket for the carrying belt
BDP11 Self-aligning idler bracket for the carrying belt
BDP12 Self-aligning idler bracket for the carrying belt
BDR11 Self-aligning idler bracket for the return belt
BDR4 Self-aligning idler bracket for the return belt
BE Tail pulley of the elevator
Bearing and sealing methods
Bearing life and need for a balancing
BED Conveyor pulley
BEE Conveyor pulley
Belt brush MOTOMAX
Belt centralizing idler BELT-PILOT
Belt guiding disc TV6
Belt misalignment switch ES20 ES21
Belt rotation detector ES10
Belt tearing detector ES60 ES61
Belt tensions and friction, pulley diameter
Belt turning BELT-TWIST
BELT-PILOT Belt centralizing idler
BELT-TWIST Belt turning
BEP13 Vibrating idler
BEP15 Carving cleaner
BEP31 Carving multiblade cleaner
BF...H Flange pulley for side wall belt
BF...X Flange pulley for side wall belt
BK Conveyor pulley
BL Conveyor pulley
Blockage detector ES50
BP Tail and bend pulley
Bracket for the roller conveyors SB1
BT Tail and bend pulley
BW Wing pulley

C

Carrying garland idlers NT3 NL3
Carving cleaner BEP15
Carving multiblade cleaner BEP31
Chain driven roller GD
Chain driven roller GE
Chain driven roller GK
CLEANERS
Components for the belt scale
CONVEYOR ELEMENTS
Conveyor pulley BED BEE
Conveyor pulley DK BK
Conveyor pulley DL BL
CONVEYOR PULLEYS
Cover deck CX
Cover for loading point DREAM-C

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Cover for the standard board ROXEL14
CS5 Gap cover
CS6 Gap cover
CX Cover deck

D

DC Pulley friction balk
DK Conveyor pulley
DL Conveyor pulley
DREAM Sealingless loading point
DREAM-C Cover for loading point
DREAM-EL Front sealing
DREAM-KL Raising skirt board
DREAM-LL Additional skirt board
DREAM-TL Rear sealing
Drive end BC.. D..
Drive end, equipment BC..D..
Drive end, installation BC..D..
Drive end, the hopper BC..D..
Drive pulley DT
DT Drive pulley
Dust control system ROXON CLEAR

E

Electrical safety devices for belt conveyors ES
Electrically heated idler TZ
ES Electrical safety devices for belt conveyors
ES1 ES2 Pull cord emergency switch
ES10 Belt rotation detector
ES20 Belt misalignment switch
ES21 Belt misalignment switch
ES30 Safety switch
ES40 Level limit switch
ES5 ES2 Pull cord emergency switch
ES50 Blockage detector
ES60 Belt tearing detector
ES61 Belt tearing detector
“Extra heavy-duty” idler TH
“Extra heavy-duty” impact idler LH

F

Fine cleaner MAX6
Fine cleaner PIT-TROJAN
Flange pulley for side wall belt BF...H
Flange pulley for side wall belt BF...X
FLEXID Sliding balk for loading point
Freezing inhibitor MIX7
Front curtain ROXEL15
Front sealing DREAM-EL

G

GA Unit goods roller
Gap cover CS5 CS6
Garland idlers
GD Chain driven roller
GE Chain driven roller
GK Chain driven roller
GS Unit goods roller
Guiding bracket for the return belt QR220
Guiding flanges for unit goods conveyors KL
Guiding idler brackets
Guiding idlers TV

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

H

"Heavy duty" idler bracket SL SM SH

I

Idler bracket SE

Idler bracket SK

Idler bracket SU

IDLER BRACKETS, GUIDING IDLER BRACKETS

Idler with bearing house TL

Impact idler LA

J

K

KL Guiding flanges for unit goods conveyors

L

LA Impact idler

Level limit switch ES40

LH “Extra heavy-duty” impact idler

Loading of belt conveyor

Loading point BCL

LOADING SECTION COMPONENTS

M

Maintenance and inspection hatch MEP12

Maintenance and inspection hatch MEP13

MAX3 Pre-cleaner

MAX6 Fine cleaner

MAX7 Bar cleaner

MDP1 Self-aligning idler bracket for the carrying belt

MDR1 Self-aligning idler bracket for the return belt

MEP12 Maintenance and inspection hatch

MEP13 Maintenance and inspection hatch

MEP4 Accessories for MAX cleaners

MEP5 Accessories for MAX cleaners

MIX7 Freezing inhibitor

MK222 Motorised vibrator for side wall belt

MOTOMAX Belt brush

Motorised vibrator for side wall belt MK222

MR1 Return belt cleaner

MR2 Return belt cleaner

MS1 Pulley cleaner

MS2 Pulley cleaner

MS3 Pulley cleaner

MS4 Pulley cleaner

MS5 Pulley cleaner

MS6 Pulley cleaner

MS8 Pulley cleaner

N

NL3 Carrying garland idlers

NR2 Return garland idlers

NT2 Return garland idlers

NT3 Carrying garland idlers

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

O

Optimization examples of the pulley size

OTHER CONVEYOR COMPONENTS

P

PIT-BOSS Pre-cleaner

PIT-TROJAN Fine cleaner

Placing the belt scale to the conveyor

Plastic idler TG

Pre-cleaner MAX3

Pre-cleaner PIT-BOSS

Pull cord emergency switch ES1 ES2

Pull cord emergency switch ES5 ES2

Pulley cleaner MS1

Pulley cleaner MS2

Pulley cleaner MS3

Pulley cleaner MS4

Pulley cleaner MS5

Pulley cleaner MS6

Pulley cleaner MS8

Pulley fastener US5

Pulley friction balk DC

Pulley laggings

Q

QR220 Guiding bracket for the return belt

R

RA(H) Return idler

RA(K) Return idler

RA(S) Return idler

Raising skirt board DREAM-KL

RB(K) Return idler

RB(S) Return idler

Rear board ROXEL12 ROXEL13

Rear sealing DREAM-TL

Return belt cleaner MR1

Return belt plough MR2

Return garland idlers NT2 NR2

Return idler for side wall belt RF

Return idler RA(H)

Return idler RA(K)

Return idler RA(S)

Return idler RB(K)

Return idler RB(S)

Return idlers of belt conveyors

RF Return idler for side wall belt

RIPEX4 Spilled material conveyor

Roller brackets BDH6, -7, -9 BDL4

ROLLERS AND COMPONENTS FOR INDOOR CONVEYORS

ROLLERS FOR BELT CONVEYORS

Rope wheel UK

ROXEL1 Skirt board sealing

ROXEL10 Skirt boards

ROXEL11 Skirt boards

ROXEL12 Rear board

ROXEL13 Rear board

ROXEL14 Cover for the standard board

ROXEL15 Front curtain

ROXEL3 Skirt board sealing

ROXID Sliding plate for loading point

ROXON CLEAR Dust control system

Rubber and urethane discs of the idlers

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

S

SAFETY AND CONTROL DEVICES

Safety net SV

Safety switch ES30

SB1 Bracket for the roller conveyors

Screw take-up device UR1 UR7

Screw take-up device UR6

Screw take-up device UR8

SE Idler bracket

Sealingless loading point DREAM

Selection and load rating of roller for indoor conveyors

Selection and load rating of the idler bracket S-SERIES

Selection and load rating of the idlers for belt conveyors

Selection of belt cleaners

Selection of conveyor pulley

Self-aligning idler bracket for the carrying belt BDP10 BDP11 BDP12

Self-aligning idler bracket for the carrying belt MDP1

Self-aligning idler bracket for the return belt BDR4 BDR11

Self-aligning idler bracket for the return belt MDR1

SH "Heavy duty" idler bracket

Side wall belt conveyor components

SK Idler bracket

Skirt board sealing ROXEL1 ROXEL3

Skirt boards ROXEL10 ROXEL11

SL "Heavy duty" idler bracket

Sliding balk for loading point FLEXID

Sliding plate for loading point ROXID

SM "Heavy duty" idler bracket

Spilled material conveyor RIPEX4

S-SERIES Selection and load rating of the idler bracket

Standard pulleys

Steel idler TS

Steel idler TS-E

Stub idler for side wall belt TF

SU Idler bracket

Supporting alternatives of belt at loading point of conveyor

Surface treatment of idlers, shaft end alternatives and standard lengths

SV Safety net

T

Tail and bend pulley BP

Tail and bend pulley BT

Tail end BCT

Tail pulley of the elevator BE

Take-up bar UR2

Take-up bar UR3

TAKE-UP DEVICES

Take-up weight UP5

TF Stub idler for side wall belt

TG Plastic idler

TH "Extra heavy-duty" idler

TL Idler with bearing house

TS Steel idler

TS-E Steel idler

TV Guiding idlers

TV6 Belt guiding disc

TV7 Wearing surface for the guiding idler

TZ Electrically heated idler

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

U

UK Rope wheel

Unit goods roller GA

Unit goods roller GS

UP1 Vertical take-up carriage

UP2 Vertical take-up carriage

UP5 Take-up weight

UR1 Screw take-up device

UR2 Take-up bar

UR3 Take-up bar

UR6 Screw take-up device

UR7 Screw take-up device

UR8 Screw take-up device

US1 Base plate and adjust piece

US2 Base plate and adjust piece

US3 Base plate and adjust piece

US4 Base plate and adjust piece

US5 Pulley fastener

V

Vertical take-up carriage UP1

Vertical take-up carriage UP2

Vibrating idler BEP13

W

Wearing surface for the guiding idler TV7

Wing pulley BW

X

Y

Z