

Anlagenbau
Fördern - Dosieren - Verwiegen - Mischen - Austragen
Elektrotechnik - EMSR-Technik - Planung - Durchführung
Montage - Inbetriebnahme - Service

Plant Engineering
Conveying - Dosing - Weighing - Mixing - Discharging
Electrical Engineering - PLC Systems - Planning
Realisation - Assembly - Startup - Service

8.3

Planung

Planning

Auslegung

Design

Elektrische
Steuerungen
für die Anlagen-
technik

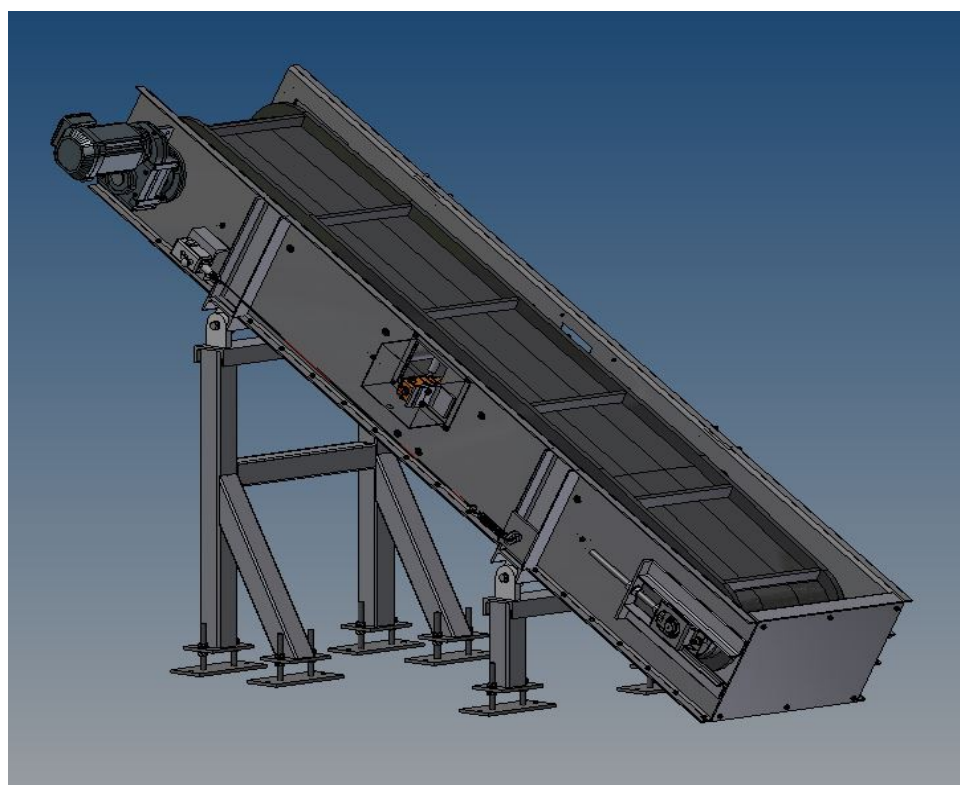
Electrical Control
Systems

Fertigung

Manufac-
turing

Montage

Assembly



CONVEYOR BELTS

GENERAL TECHNICAL DATA

Drive and return pulley diameter

Due to its decisive influence on the service life of a conveyor belt, great importance must also be attached to the selection of the correct drum diameter. The smallest permissible drum diameter for the drive is determined by the overall thickness of the belt, which must not be selected more than 20% smaller, even for return drums.

Conveying capacity and power transmission

The following tables provide guidelines for the selection of the conveyor belt from the point of view of conveying capacity. In calculating these conveying rates per hour, it has been assumed that feeding is uniform and that the angle of 20 is given with a troughed run (calculation values according to DIN 22101). On the other hand, the data on how much horsepower a conveyor belt of 500, 650 and 800 mm width can transmit under a wide range of operating conditions is intended to help you choose the right belt according to the given drive power. For belt speeds other than 1 meter per second, the table values must be multiplied by the actual belt speed.

Hourly capacity of a 500 mm belt in m³

| flat belt | | | | | | | troughed | | | | | | |
|-------------|----------------------|------|------|------|------|------|-------------|----------------------|------|------|------|-------|-------|
| pitch angle | belt speed m/sec. | | | | | | pitch angle | belt speed m/sec. | | | | | |
| | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 | | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 |
| 0° | 25 | 32 | 40 | 50 | 64 | 79 | 0° | 46 | 59 | 72 | 92 | 118 | 146 |
| 2° | 25 " | 32 " | 40 " | 50 " | 64 " | 79 " | 2° | 46 " | 59 " | 73 " | 92 " | 118 " | 146 " |
| 6° | 24 " | 31 " | 39 " | 49 " | 62 " | 77 " | 6° | 45 " | 58 " | 72 " | 90 " | 115 " | 143 " |
| 10° | 24 " | 30 " | 38 " | 47 " | 60 " | 75 " | 10° | 43 " | 56 " | 70 " | 87 " | 112 " | 139 " |
| 14° | 23 " | 29 " | 36 " | 45 " | 58 " | 72 " | 14° | 43 " | 52 " | 66 " | 83 " | 107 " | 133 " |
| 18° | 21 " | 27 " | 34 " | 42 " | 54 " | 67 " | 18° | 36 " | 50 " | 63 " | 78 " | 100 " | 124 " |
| 22° | 19 " | 24 " | 30 " | 38 " | 49 " | 60 " | 22° | 35 " | 45 " | 55 " | 70 " | 90 " | 111 " |
| 24° | 18 " | 23 " | 28 " | 35 " | 45 " | 56 " | 24° | 32 " | 42 " | 52 " | 65 " | 84 " | 104 " |
| 26° | 17 " | 21 " | 26 " | 33 " | 42 " | 52 " | 26° | 30 " | 39 " | 48 " | 60 " | 78 " | 96 " |

A 500 mm wide belt can transfer (belt speed 1m/sec.)

| operating conditions | manufacture of the transport belt | | | |
|--|-----------------------------------|--------|--------|---------|
| | 2 B50 | 3 B50 | 4 B50 | 4 B60 |
| With cloth vested drum and dry company | 4,3 PS | 6,5 PS | 8,6 PS | 10,4 PS |
| Bright-turned drum and dry company | 3,7 PS | 5,5 PS | 7,4 PS | 8,8 PS |
| Bright-turned drum and damp company | 2,8 PS | 4,2 PS | 5,6 PS | 6,7 PS |
| Bright-turned drum and wet company | 1,6 PS | 2,4 PS | 3,2 PS | 3,9 PS |

Hourly capacity of a 650 mm belt in m³

| flat belt | | | | | | | troughed | | | | | | |
|-------------|----------------------|------|------|------|-------|-------|-------------|----------------------|-------|-------|-------|-------|-------|
| pitch angle | belt speed m/sec. | | | | | | pitch angle | belt speed m/sec. | | | | | |
| | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 | | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 |
| 0° | 45 | 58 | 72 | 90 | 116 | 144 | 0° | 83 | 106 | 132 | 165 | 211 | 263 |
| 2° | 45 " | 58 " | 72 " | 90 " | 116 " | 144 " | 2° | 83 " | 106 " | 132 " | 165 " | 211 " | 263 " |
| 6° | 44 " | 57 " | 70 " | 88 " | 114 " | 141 " | 6° | 81 " | 104 " | 129 " | 162 " | 207 " | 158 " |
| 10° | 42 " | 55 " | 68 " | 85 " | 110 " | 137 " | 10° | 79 " | 100 " | 125 " | 156 " | 200 " | 250 " |
| 14° | 41 " | 53 " | 65 " | 82 " | 105 " | 131 " | 14° | 72 " | 96 " | 120 " | 150 " | 192 " | 239 " |
| 18° | 38 " | 49 " | 61 " | 76 " | 98 " | 122 " | 18° | 70 " | 90 " | 112 " | 140 " | 180 " | 223 " |
| 22° | 34 " | 44 " | 59 " | 68 " | 88 " | 108 " | 22° | 63 " | 80 " | 100 " | 125 " | 160 " | 205 " |
| 24° | 32 " | 41 " | 51 " | 64 " | 82 " | 102 " | 24° | 59 " | 75 " | 94 " | 117 " | 150 " | 187 " |
| 26° | 30 " | 38 " | 47 " | 59 " | 76 " | 95 " | 26° | 55 " | 70 " | 87 " | 109 " | 139 " | 173 " |

A 650 mm wide belt can transfer (belt speed 1m/sec.)

| operating conditions | manufacture of the transport belt | | | |
|--|-----------------------------------|---------|---------|---------|
| | 3 B50 | 4 B50 | 4 B60 | 5 B60 |
| With cloth vested drum and dry company | 8,4 PS | 11,2 PS | 13,5 PS | 16,9 PS |
| Bright-turned drum and dry company | 7,2 PS | 9,6 PS | 11,5 PS | 14,4 PS |
| Bright-turned drum and damp company | 5,5 PS | 7,3 PS | 8,8 PS | 11,0 PS |
| Bright-turned drum and wet company | 3,2 PS | 4,2 PS | 5,1 PS | 6,4 PS |

Hourly capacity of a 800 mm belt in m³

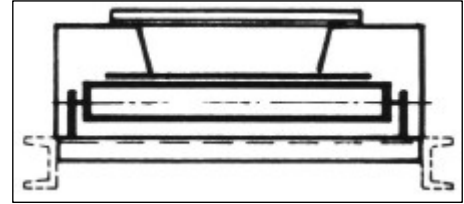
| flat belt | | | | | | | troughed | | | | | | |
|-------------|----------------------|------|-------|-------|-------|-------|-------------|----------------------|-------|-------|-------|-------|-------|
| pitch angle | belt speed m/sec. | | | | | | pitch angle | belt speed m/sec. | | | | | |
| | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 | | 0,66 | 0,84 | 1,05 | 1,31 | 1,68 | 2,09 |
| 0° | 71 | 90 | 109 | 141 | 181 | 225 | 0° | 130 | 165 | 207 | 258 | 330 | 412 |
| 2° | 71 " | 90 " | 109 " | 141 " | 181 " | 225 " | 2° | 130 " | 165 " | 207 " | 258 " | 330 " | 412 " |
| 6° | 69 " | 88 " | 101 " | 138 " | 177 " | 221 " | 6° | 127 " | 162 " | 203 " | 253 " | 324 " | 404 " |
| 10° | 67 " | 85 " | 98 " | 134 " | 172 " | 214 " | 10° | 123 " | 157 " | 197 " | 245 " | 314 " | 392 " |
| 14° | 65 " | 82 " | 94 " | 128 " | 165 " | 205 " | 14° | 118 " | 150 " | 188 " | 235 " | 300 " | 375 " |
| 18° | 60 " | 76 " | 87 " | 120 " | 154 " | 191 " | 18° | 110 " | 140 " | 176 " | 219 " | 280 " | 350 " |
| 22° | 54 " | 69 " | 78 " | 107 " | 137 " | 171 " | 22° | 99 " | 125 " | 157 " | 196 " | 251 " | 313 " |
| 24° | 50 " | 64 " | 73 " | 100 " | 128 " | 160 " | 24° | 92 " | 117 " | 147 " | 183 " | 234 " | 292 " |
| 26° | 47 " | 59 " | 68 " | 93 " | 119 " | 148 " | 26° | 86 " | 109 " | 137 " | 170 " | 218 " | 272 " |

A 800 mm wide belt can transfer (belt speed 1m/sec.)

| operating conditions | manufacture of the transport belt | | | |
|--|-----------------------------------|---------|---------|---------|
| | 3 B60 | 4 B40 | 5 B60 | 4 B80 |
| With cloth vested drum and dry company | 12,5 PS | 16,6 PS | 20,8 PS | 22,2 PS |
| Bright-turned drum and dry company | 10,6 PS | 14,2 PS | 17,7 PS | 18,9 PS |
| Bright-turned drum and damp company | 8,1 PS | 10,8 PS | 13,5 PS | 14,4 PS |
| Bright-turned drum and wet company | 4,7 PS | 6,3 PS | 7,8 PS | 8,4 PS |

CONVEYOR BELTS

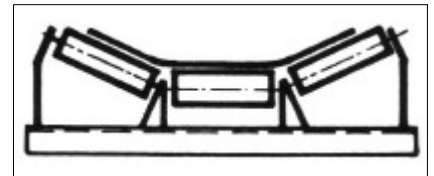
Upper belt station
single-piece
alternative with
purpose channel



Upper belt station two-piece



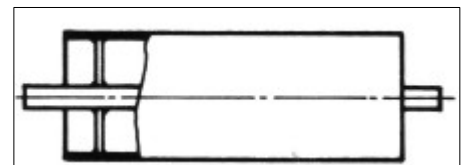
Upper belt station threepart



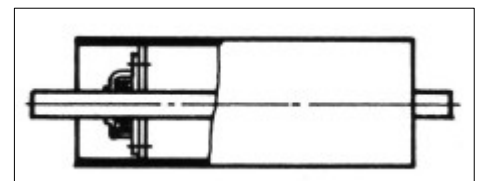
Upper belt station two-piece or
threepart with weather and dust
protection (above and below)
and lower belt carrier rollers set



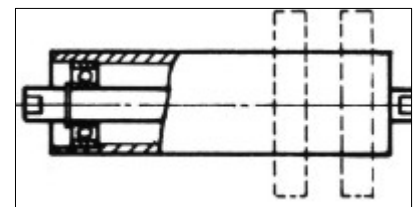
Drum without a bearing
(drive drum for the assembly
with outer bearing)



Drum with inner bearing
(take-up pulley, bend pulley)



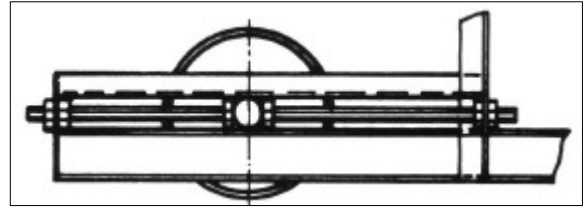
Transport roller for upper and
bottom chord alternative
with cushion rings or
support rings



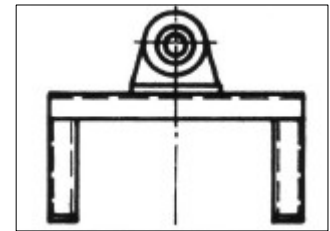
Subject to technical modification

SINGLE DEVICES

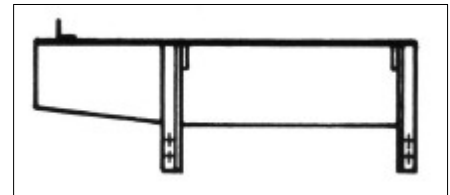
Tensioning station



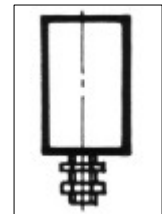
Driving station



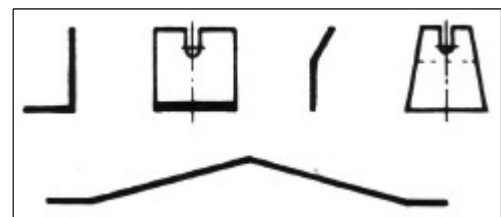
Charging hopper with
hopper fixing



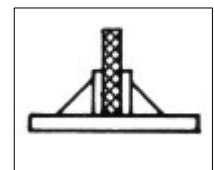
Belt guide roll



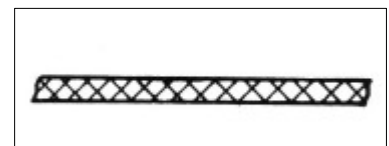
fasteners



Cleaning elements
(plough wiper, belt wiper,
tunnel wiper, brushes)



Conveyor belts
Slat conveyors



| B | Execution | capacity in m ³ /h | | Power demand for 30m A A in PS | |
|-----------------|-----------|-------------------------------|------|--------------------------------|------|
| 400 20° 30° | I | 17 | | 1,5 | |
| | II | 31 | | 2,0 | |
| | III | 31 | 37 | 2,0 | 2,5 |
| 500 20° 30° | I | 28 | | 2,0 | |
| | II | 54 | | 2,5 | |
| | III | 52 | 63 | 2,5 | 3,0 |
| 650 20° 30° | I | 52 | | 2,5 | |
| | II | 100 | | 3,5 | |
| | III | 95 | 115 | 3,5 | 4,0 |
| 800 20° 30° | I | 80 | | 3,5 | |
| | II | 150 | | 4,5 | |
| | III | 150 | 180 | 4,5 | 5,0 |
| 1000 20° 30° | I | 130 | | 4,5 | |
| | II | 240 | | 6,5 | |
| | III | 240 | 290 | 6,5 | 7,0 |
| 1200 20° 30° | I | 190 | | 6,0 | |
| | II | 360 | | 8,5 | |
| | III | 350 | 425 | 8,5 | 10,0 |
| 1400 20° 30° | I | 265 | | 7,5 | |
| | II | | | | |
| | III | 490 | 585 | 11,0 | 12,5 |
| 1600 20° 30° | I | 340 | | 9 | |
| | II | | | | |
| | III | 635 | 770 | 13,5 | 15,5 |
| 1800 20° 30° | I | 445 | | 11 | |
| | II | | | | |
| | III | 815 | 990 | 16,5 | 19,5 |
| 2000 20° 30° | I | 550 | | 13 | |
| | II | | | | |
| | III | 1000 | 1225 | 20,0 | 23,0 |

| B | d Ø | l1 | l2 | l3 | e | h1 | h2 | H ca. | W ca. |
|------|-----|------|-----|-----|------|-----|-----|-------|-------|
| 400 | 89 | | | | | 75 | 10 | 455 | |
| | 108 | 500 | 250 | 165 | 700 | 85 | 42 | 500 | 260 |
| | 133 | | | | | 100 | 42 | 515 | |
| 500 | 89 | | | | | 75 | 10 | 470 | |
| | 108 | 600 | 315 | 200 | 800 | 85 | 42 | 515 | 345 |
| | 133 | | | | | 100 | 42 | 530 | |
| 650 | 89 | | | | | 75 | 10 | 485 | |
| | 108 | 750 | 400 | 250 | 950 | 85 | 42 | 530 | 465 |
| | 133 | | | | | 100 | 42 | 545 | |
| 800 | 89 | | | | | 75 | 10 | 500 | |
| | 108 | 950 | 500 | 315 | 1150 | 85 | 42 | 545 | 575 |
| | 133 | | | | | 100 | 45 | 560 | |
| 1000 | 108 | | | | | 85 | 45 | 570 | |
| | 133 | 1150 | 600 | 380 | 1350 | 100 | 45 | 585 | 750 |
| | 159 | | | | | 130 | 50 | 635 | |
| 1200 | 108 | | | | | 85 | 45 | 590 | |
| | 133 | 1400 | 710 | 465 | 1600 | 100 | 50 | 610 | 905 |
| | 159 | | | | | 130 | 50 | 655 | |
| 1400 | --- | | | | | --- | --- | --- | |
| | 133 | 1600 | | 530 | 1800 | 100 | 50 | 640 | 1070 |
| | 159 | | | | | 130 | 55 | 690 | |
| 1600 | --- | | | | | --- | | | |
| | 133 | 1800 | | 600 | 2050 | 100 | | | |
| | 159 | | | | | 130 | | | |
| 1800 | --- | | | | | --- | | | |
| | 133 | 2000 | | 670 | 2250 | 100 | | | |
| | 159 | | | | | 130 | | | |
| 2000 | --- | | | | | --- | | | |
| | 133 | 2200 | | 750 | 2500 | 100 | | | |
| | 159 | | | | | 130 | | | |

Chart 3 includes standard values about capacity and power demand.

We supposed 1,0m/s belt speed, 1,0t/m³ bulk weight, equal, horizontal conveying and about 75% filling ratio.

We can give more detailed information if we know the transporting material.

Chart 2 shows the dimensions of the different bearing pulley stations and more main Dimensions of the belt conveyors.

The most frequent execution of the drive station for bulk good conveying is illustrated.

Subject to technical modification