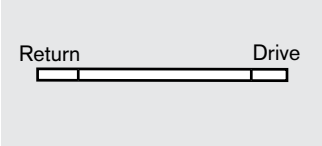
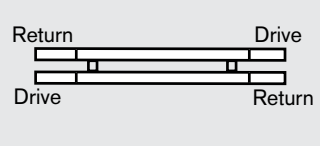
Section 3 – Belt Drive Components

The TS*plus* belt drive powers the transport belt along the conveyor sections while the return units route the belt back through the return channel of the belt profile. Drives and returns can also be linked together end-to-end to create extended conveyor lines of almost any length. Drive units are available in both standard and heavy duty models and have various electrical options and motor mounting positions.

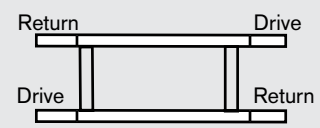
Belt Drive components in this section can be configured into any of the basic line layouts below.



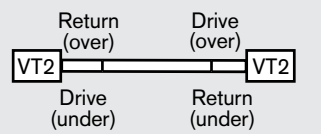
In-Line



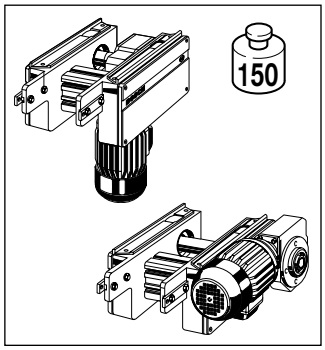
Parallel



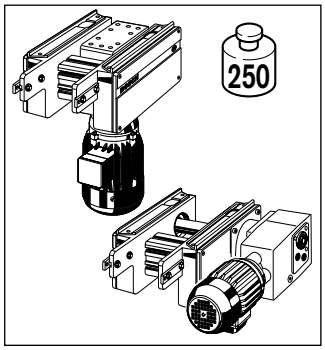
Rectangular



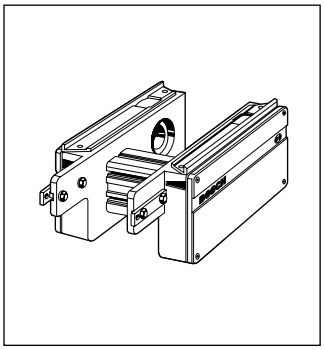
Over/Under



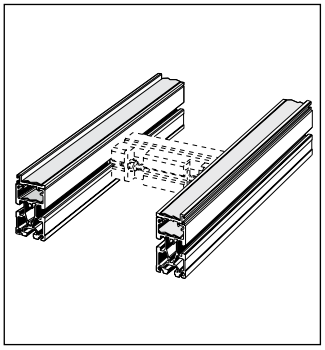
AS2B/M, AS2B/S
Standard Belt Drives
3-2 to 3-3



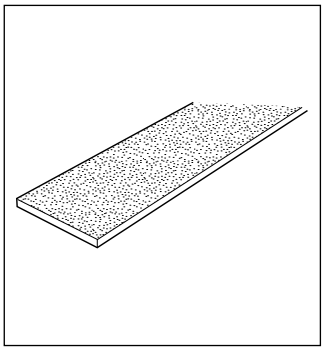
AS2B/M-H, AS2B/S-H
Heavy Duty Belt Drives
3-4 to 3-5



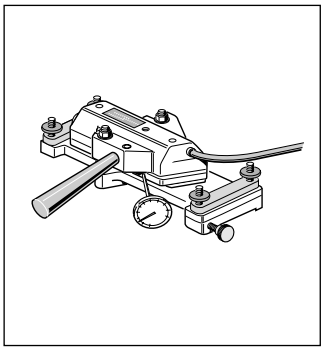
UM2/B
Return Units
3-6



ST2/B, ST2/B100
Belt Conveyor Sections
3-7



GT2/B
Transport Belt
3-8



Belt Welding Equipment
3-9

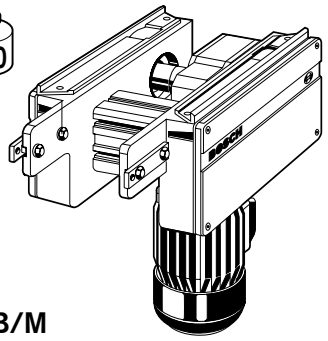
Belt Drive Components

Belt Drive Module

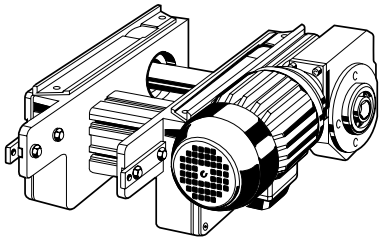
Model AS2B/M, AS2B/S

VFD-Ready

150



AS2B/M



AS2B/S

3

The AS2B/M and AS2B/S drive modules power the conveyor belts. The AS2B/S has an outboard mounted gearbox, while the AS2B/M has the gearbox mid-mounted, between the rails, making it better for situations where space prohibits a side-mounted motor.

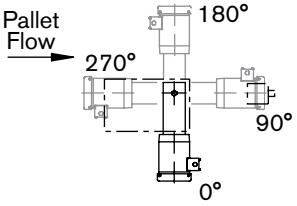
Both models are available for line widths of 160 to 1040 mm. Nominal speeds of 9, 12, 15 and 18 m/min for a number of standard voltages are available (see table 3-1 for motor and gearbox options).

The maximum total load per drive is 150 kg with a maximum conveyor length between drive and return of 50 meters. For increased capacity, Bosch also offers heavy duty drive modules (page 3-4).

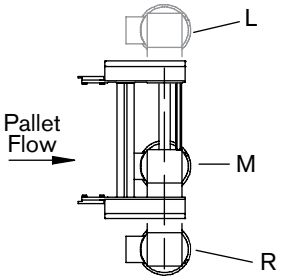
The AS2B/M and AS2B/S drive modules include all hardware required to mount it to a belt conveyor section, as well as fasteners to connect drives and returns end to end

For non-standard width, speed or voltages please contact our applications engineering department.

Outboard Mounted Motor Orientation



Motor Position



Ordering Information for Belt Drive Unit AS2B/M, AS2B/S

AS2B/M Mid-Mounted Motor **3842 999 083**		Specify center or side mounted part number, then select from the options below.	AS2B/S Outboard Mounted Motor **3842 999 190**	
Your selection:	Your options are:		Your options are:	Your selection:
_____ mm	160, 240, 320, 400, 480, 640, 800, 1040	Drive Unit Width*	160, 240, 320, 400, 480, 640, 800, 1040	_____ mm
_____ M/min	9, 12, 15†, 18	Nominal Speed	9, 12, 15†, 18	_____ M/min
_____VAC___Hz	See Table 3-1	Motor Voltage/Frequency**	See Table 3-1	_____VAC___Hz
N/A	M	Motor Location	L, R	_____
N/A	0°	Motor Orientation	0°, 90°, 180°, 270°	_____

* Drive unit width must match workpiece pallet length (L_{wt}) or width (B_{wt}), depending on orientation.

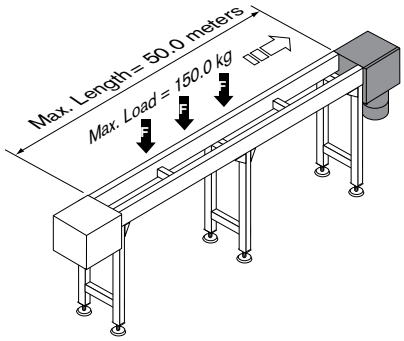
** To omit motor, enter 0 VAC, 0 Hz.

† Only at 50 Hz; see table 3-1

Belt Drive Components

Technical data for AS2B/M and AS2B/S drives

Nominal conveyor speed	=	See table 3-1
Permissible loading weight	=	150 kg
Maximum conveyor unit length	=	50 m (150 ft.)
Motor RPM at 50 Hz	=	1400
Motor RPM at 60 Hz	=	1700
Motor, electrical specification	=	See table 3 - 1



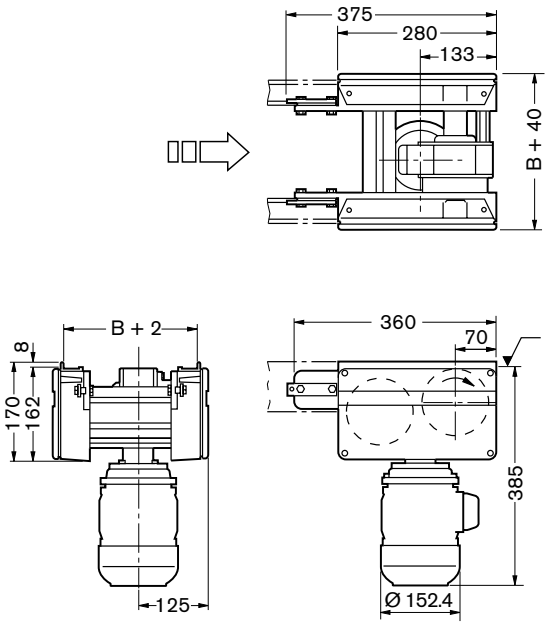
Electrical data for AS2B/M and AS2B/S drives

Nom.	Actual Speed			Full Load Amps @					
M/min	50 Hz	60 Hz	HP	208/60	240/60	380/50	415/50	480/60	575/60
9	8.4	10.2	0.5	1.9	1.8	0.95	0.95	0.82	0.69
12	11.0	13.4	0.5	1.9	1.8	0.95	0.95	0.82	0.69
15	15.5	N/A	0.5	N/A	N/A	0.95	0.95	N/A	N/A
18	18.2	18.9	0.5	1.9	1.8	0.95	0.95	0.82	0.69

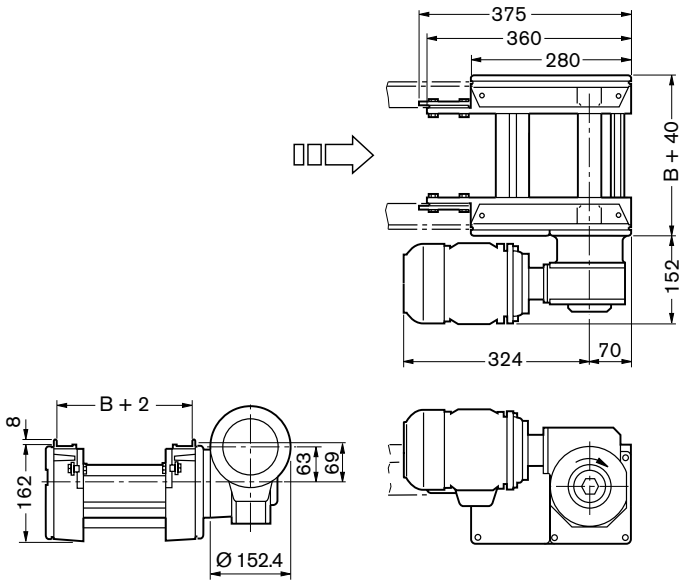
Note: Electrical Data for reference only. Refer to motor name plate for actual amperage ratings.

Table 3-1

Dimensional data for AS2B/M and AS2B/S drives



AS2B/M



Note: Right side, 270° motor orientation option is shown.

AS2B/S

Belt Drive Components

Heavy Duty Belt Drive Module

Model AS2B/M-H, AS2B/S-H

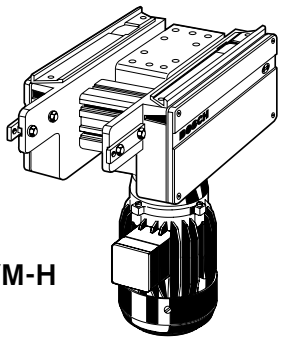
The heavy duty belt drive is similar to the standard drive, but offers an increased load capacity of 250 kg per drive. This means that fewer drives and returns are needed, reducing investment and operating costs.

The heavy duty belt drive is available in two configurations. The AS2B/M-H is available in line widths from 320 to 1040 mm, while the AS2B/S-H is available in line widths of 160 to 1040 mm. Nominal speeds of 9, 12, 15, and 18 m/min for a number of standard voltages are available (see table 3-2 for motor and gearbox options).

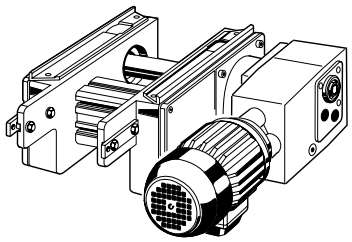
Ordering parameters allow you to specify the motor voltage, frequency, conveyor speed, and motor mounting angle (outboard mounted drives only).

Outboard mounted drive units are delivered with the motor in a customer-specified position but can be rotated as shown. Drives ordered without motors are equipped with an IEC or NEMA motor mounting flange based on the frequency selection of 50 hz or 60 Hz respectively. Both units include hardware required to mount it to a belt conveyor section, as well as fasteners to connect drive and returns end to end.

For non-standard width, speed or voltages please contact our applications engineering department.

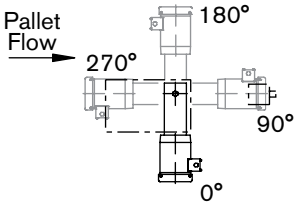


AS2B/M-H

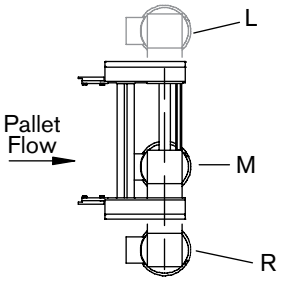


AS2B/S-H

Outboard Mounted Motor Orientation



Motor Position



Ordering Information for Heavy Duty Belt Drive Unit AS2B/M-H, AS2B/S-H

AS2B/M-H Mid-Mounted Motor **3842 999 720**		Specify center or side mounted part number, then select from the options below.	AS2B/S-H Outboard Mounted Motor **3842 999 721**	
Your selection:	Your options are:		Your options are:	Your selection:
_____ mm	320, 400, 480, 640, 800, 1040	Drive Unit Width*	160, 240, 320, 400, 480, 640, 800, 1040	_____ mm
_____ M/min	9, 12, 15, 18	Nominal Speed	9, 12, 15, 18	_____ M/min
_____VAC___Hz	See Table 3-2	Motor Voltage/Frequency**	See Table 3-2	_____VAC___Hz
N/A	M	Motor Location	L, R	_____
N/A	0°	Motor Orientation	0°, 90°, 180°, 270°	_____

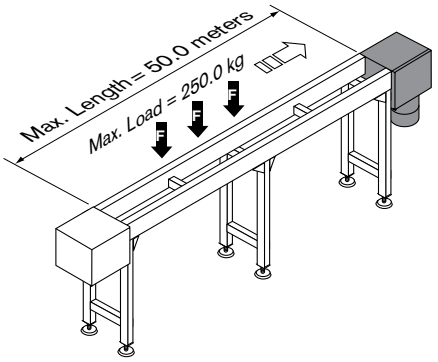
* Drive unit width must match workpiece pallet length (L_{wt}) or width (B_{wt}), depending on orientation.

** To omit the motor, enter 0 VAC, but specify if used for 60Hz or 50Hz application.

Belt Drive Components

Technical data for AS2B/M-H and AS2B/S-H drives

Nominal conveyor speed	=	See table 3-2
Permissible loading weight	=	250 kg
Maximum conveyor unit length	=	50 m (150 ft.)
Motor RPM at 50 Hz	=	1400
Motor RPM at 60 Hz	=	1700
Motor, electrical specifications	=	See Table 3-2



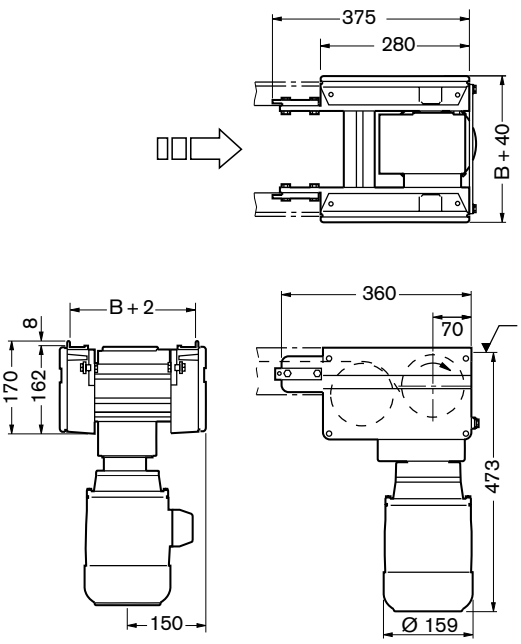
Electrical data for AS2B/M-H and AS2B/S-H drives

Nom.	Actual Speed		HP		Full Load Amps @					
M/min	50 Hz	60 Hz	50 Hz	60 Hz	208/60	240/60	380/50	415/50	480/60	575/60
9	10.6	8.9	0.75	0.5	1.9	1.8	1.6	1.6	.82	.69
12	12.9	12.9	0.75	0.75	3.0	3.0	1.6	1.6	1.6	1.2
15	15.2	15.6	1.0	1.0	3.8	3.8	2.2	2.2	2.2	1.6
18	18.4	18.4	1.0	1.0	3.8	3.8	2.2	2.2	2.2	1.6

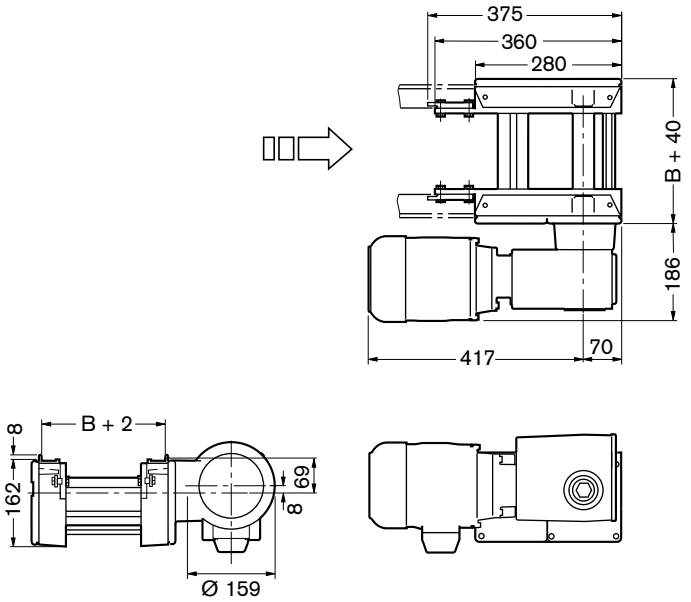
Note: Electrical Data for reference only. Refer to motor name plate for actual amperage ratings.

Table 3-2

Dimensional data for AS2B/M-H and AS2B/S-H drives



AS2B/M-H



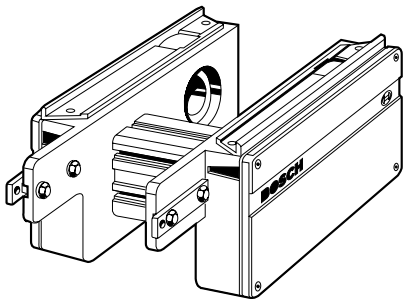
Note: Right side, 270 motor orientation option is shown.

AS2B/S-H

Belt Drive Components

Belt Return Unit

Model UM2/B



A return unit is required for each belt drive unit to direct or “return” the continuous loop of belt from the center channel in the conveyor rail back up to the transport level. The width of both the drive and return units should be specified to match the width or length of the workpiece pallet, depending on the orientation.

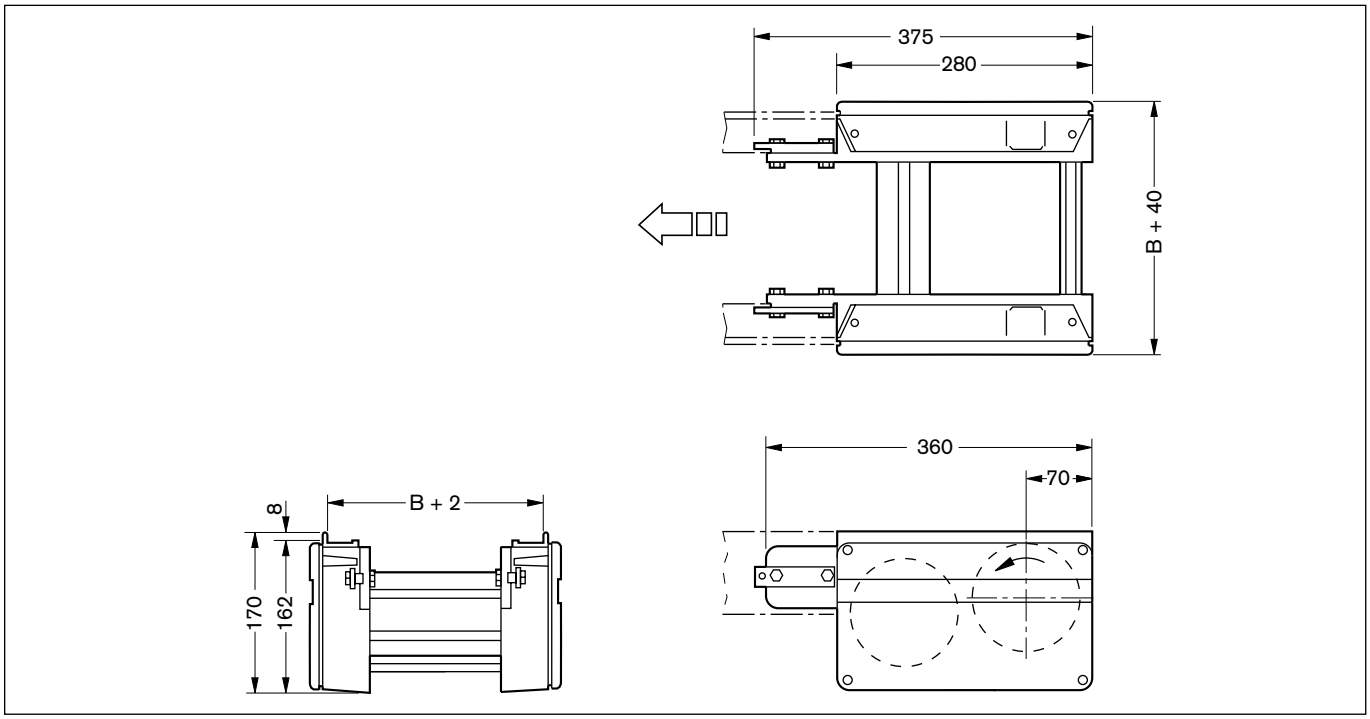
All hardware needed to mount the return unit to a conveyor section is included.

Ordering Information for Belt Return Unit UM2/B

Specify part number, then select from the options below.	Your choices are:	**Part Number 3842 999 090**
		Your selection:
Return Unit Width* (B) in mm	160, 240, 320, 400 480, 640, 800, 1040	_____

* Return unit width must match workpiece pallet width (B_{WT}) or length (L_{WT}), depending on orientation.

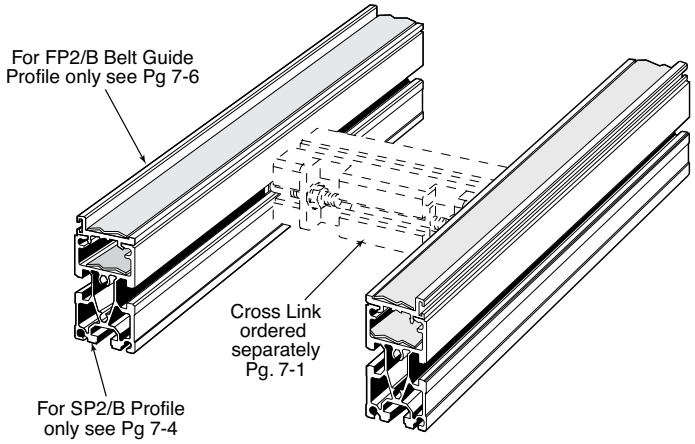
Dimensional Data for UM2/B



Belt Drive Components

Conveyor Section (Belt)

Model ST2/B, ST2/B100



The conveyor section is the structural element that supports and guides the workpiece pallet. Use the ST2/B for pallet payloads up 30 kg. Workpiece pallet payloads over 30 kg require the ST2/B100 conveyor section. Each section consists of two anodized aluminum belt profiles, and two belt guide profiles. The snap-in guide profiles serve as wear strips and as a bearing surface for the belt.

Standard belt section length is 2000 mm. Other customer specified lengths are available in 1 mm increments, from 200 mm up to 6000 mm. Belt sections can be connected end-to-end with connection links (page 7-1) to extend the conveyor length.

The 10 mm T-slot in each side and the bottom of the aluminum belt profile allows conveyor modules or peripheral devices to be mounted using T-bolts or T-nuts, eliminating the need for special machining.

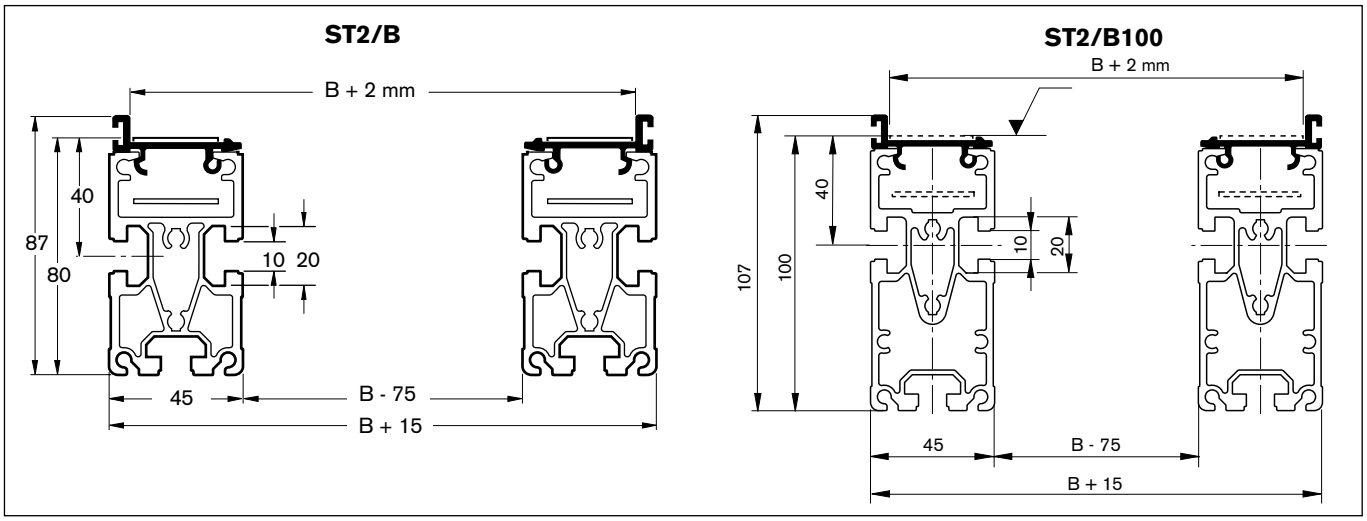
Cross links (not included--see page 7-1 to order) must be used every 2000 mm to maintain proper belt section width and alignment.

Ordering Information for Conveyor Sections ST2/B, ST2/B100

Description	Part Number
Conveyor section ST2/B (pallet payloads under 30 kg)	**3842 992 650/...**
Conveyor section ST2/B100 (pallet payloads over 30 kg)	**3842 994 927/...**

* To order conveyor sections 200-6000 mm long, please specify desired length at the end of the part number. For example, to order a standard 2000 mm belt conveyor section, your part number should look like this: **3842 992 650/2000**.

Dimensional Data for ST2/B, ST2/B100



B=Nominal conveyor width

Belt Drive Components

Transport Belt

Model GT2/B

The anti-static belt transports the workpiece pallets. In normal operation, the belts run continuously, carrying the pallet on their surface. Due to the low coefficient of friction between the belt and the pallet frames, pallets can be stopped on the conveyor while the belts continue to run.

Belt is available in up to 250 meter rolls, or can be ordered precut to the desired length in 1 meter increments. The maximum available uncut length is 250 meters.

When installing or replacing belts, they must be tensioned and welded to create a continuous loop in each conveyor section. Tensioning ensures proper positive contact with the drive pulleys. This requires the use of a belt welding kit, which can be ordered on page 3-9. The belt welding kit includes the necessary tools for tensioning, grinding, and welding the belt ends.

Material:

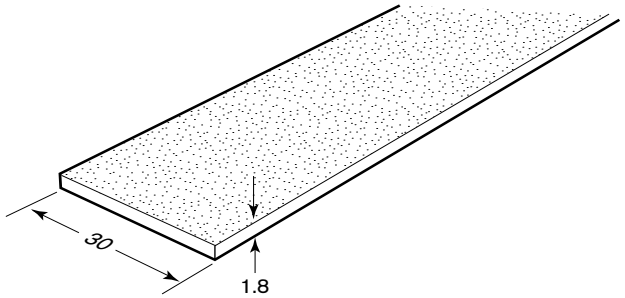
Polyamide 12 with an electrically conductive (antistatic) fabric covering.

Shipping Information:

This belt is shipped in rolls, pre-cut to specified lengths.

Application Note:

For large systems with multiple drives Rexroth recommends ordering in less than 100 m segments. This will avoid having to splice a short drop off piece onto the next roll.



Ordering Information for Antistatic Belt GT2/B

Conveying media	Part Number
Anti-static belt, specify length*	**3842 992 811**
Anti-static belt, 250 m roll	**3842 539 479**

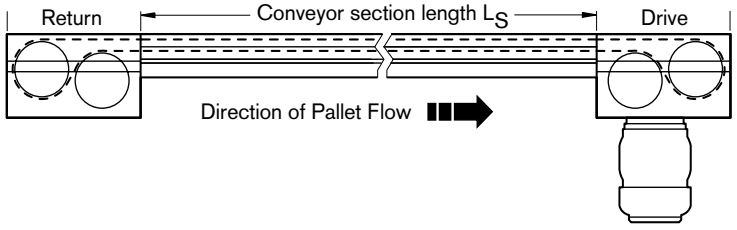
* To order belt, in lengths up to 250 meters, please indicate the desired length in meters, in 1 meter increments. For example, to order 46 meters of belt, the part number would read as follows:
3842 992 811 Qty. = 46 meters

How to calculate belt length

To calculate the length of belt needed, please refer to the formulas below.
Two belts are required for a conveyor section.

Drive Type		2 x conveyor section length (in mm)	Belt needed for AS 2 and UM 2 (in mm)	Factor for pre-tensioning	Belt needed for overlap at weld (in mm)
AS2B/M, AS2B/S	Belt length for conveyor sections ≤ **4 meters** in length (1 side)	= [(2 x L_S	+ 1320 mm)	x 0.980]	+ 60 mm
AS2B/M, AS2B/S	Belt length for conveyor sections > **4 meters** in length (1 side)	= [(2 x L_S	+ 1320 mm)	x 0.975]	+ 60 mm
AS2B/M-H, AS2B/S-H	Belt length for conveyor sections > **1 meter** in length (1 side)	= [(2 x L_S	+ 1320 mm)	x 0.965]	+ 60 mm

Minimum Length L_S = 1000 mm between drive and return



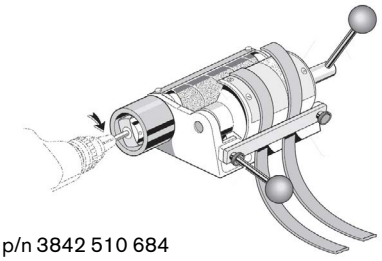
Belt Drive Components

Belt Welding Equipment

To weld belt ends together, a Size 1 or Size 2 belt welding kit is needed. The Size 1 belt welding kit is used on conveyors 160 mm to 480 mm wide; the Size 2 kit is used on conveyors 560 mm to 1040 mm wide. Each belt welding kit includes a belt-grinding device for beveling the ends of the belt, a heat press for fusing the ends of the belt together, and a ratchet-tensioning unit and clamping jaw for pre-tensioning. An abrasive band, brush, and cleaning agent are also included. Adhesive is ordered separately.

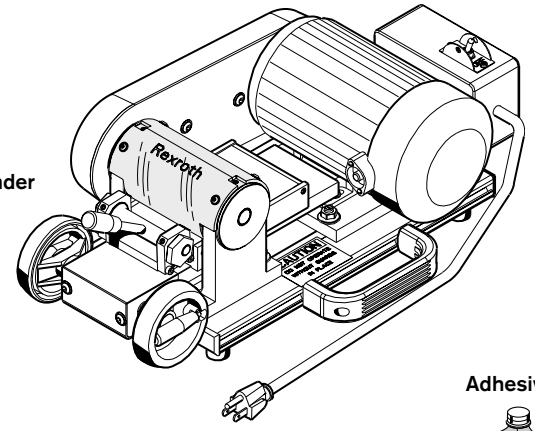
To cut welding time in half, a second heating press is recommended for welding together two adjacent belts at the same time.

NOTE: This kit is **not** intended for use with toothed belts such as those on BS2 transverse conveyors.



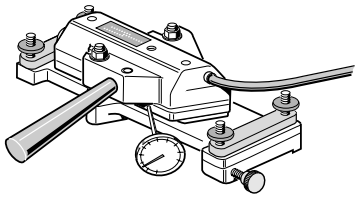
p/n 3842 510 684

Belt Grinder



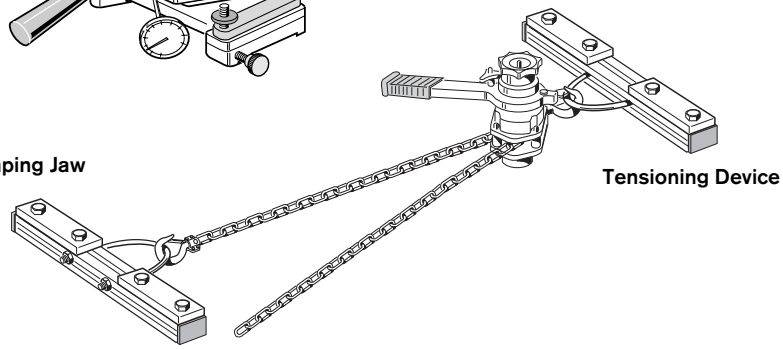
Adhesive

Belt Heating Press, 110VAC, 60Hz



Clamping Jaw

Tensioning Device



Ordering Information for Belt Welding Equipment

Description	Part Number
Size 1 – for 160 mm to 480 mm conveyors includes: 110V grinder, 110V heating press, tensioner, and clamping jaw	**R980 023 722**
Size 2 – for 560 mm to 1040 mm conveyors includes: 110V grinder, 110V heating press, tensioner, and clamping jaw	**R980 023 723**
Belt Heating Press, 110VAC, 60Hz	**R980 025 490**
Belt Heating Press, 220VAC, 50Hz	**3842 315 101**
Belt Grinder, 110VAC, 60Hz	**R980 024 059**
Belt Adhesive, 50g, (1.75 oz.)	**3842 315 106**

Note: The R980 024 059 belt grinder is only designed for use at 110V. For applications requiring a 220V belt grinder, we recommend the use of the Rexroth drill-powered belt grinder, p/n 3842 510 684.