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INTRODUCTION

The BS 2 transverse conveyors are used to link conveyor modules together. They also can be used for transport over shorter distances, such as the ends of rectangular loops spurs, and side branches. In instances where a lighter load capacity is acceptable, such as connecting workstations or "feed-in" lines, transverse conveyors provide a simple solution. By using a lift-transverse unit, BS 2 transverse conveyors allow pallets to be moved between parallel conveyor lines.

Under normal operating conditions, the BS 2 transverse conveyors have a maximum load capacity of 60 kg (132 lbs) per section. The BS 2/M gains an advantage over the standard BS 2 layout because its drive is positioned within the length of the conveyor section, rather than at the end. This permits an increased load capacity in the reverse direction. The anti-static toothed belt is driven at nominal speeds of 6, 9, 12, 15 or 18 meters per minute, depending on the system ordered. Other options include motor mounting position (inboard/outboard, right or left side).

The BS 2/M transverse conveyor also provides a more compact design because the large drive and return ends are eliminated, which enables other modules, such as lift transverse units, to be positioned closer to the end.

The BS 2/M is reversible, and because of its design, can carry a 60 kg load in either direction.

The BS 2/M transverse conveyor is available in lengths up to 4900mm, and in a range of widths to accommodate pallets from 160mm to 1040 mm. Left or right hand outboard drive is available for all pallet sizes, and pallets 240mm or larger allow an inboard version, with the motor mounted between the rails.

Accessories available for the BS 2 transverse conveyors that are needed in most standard installations include the LE 1 foundation bracket (Fig. 1) and the SZ 2 leg set (Fig. 2).

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LE 1 foundation bracket (210 mm)  
8981 003 224

Figure 1: Foundation Bracket

SZ 2 leg set  
Refer to TS plus catalog for ordering information.

Figure 2: Leg Set
TECHNICAL DATA

Pallet size (b) capacity: 160mm-1040mm

Note: Depending on mounting location, (b) may indicate pallet width or pallet length.

Maximum length: 4900mm (16.1 ft)

Maximum total load capacity:
- In forward direction: 60 kg (132 lbs)
- In reversed direction: 60 kg (132 lbs)

Note: The distance (l 1) shown in the diagram at right will affect the maximum load capacity, especially in the reversed direction.

Transport belt type: Anti-static toothed polyurethane belt with woven polyamide surface

Motor mounting position:
- b = 160mm: Outboard only, left or right side
- b = 240mm - 800mm: Inboard/outboard, left or right side

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Table 1,
Motor data
BS 2/M Transverse Conveyor

Figure 3: Dimensions
(all dimensions in mm)
The major components of the BS 2/M transverse conveyor (shipped assembled) are as follows (Fig. 4):

1 Tothed belts
2 Drive motor
3 Gearbox
4 Bearing housing assembly
5 Return assemblies

6 Connector kit for installation with other conveyor modules (4x)
GENERAL INSTALLATION PROCEDURES

T-slot connectors (Fig. 5)

The BS 2/M transverse conveyor, like virtually all Bosch conveyor modules, is connected to the transfer system using the T-slot principle. For T-bolts, insert the T-bolt into the slot (A), and tighten down the hex nut. As it tightens, it will turn the T-bolt 90° in the slot (B), creating a friction lock (C). The same principle applies to T-nuts. The maximum allowable torque is 25 Nm (18.5 ft-lbs).

Assembly tip: T-bolts also have a mark on the end of the threaded shaft that will be perpendicular to the T-slot when the bolt is in its locked position.

Figure 5: Using T-bolts and T-nuts
INSTALLING THE BS 2/M TRANSVERSE CONVEYOR

Figure 7: Connecting to Other Modules

Attaching the BS 2/M transverse conveyor to a conveyor system (Fig. 10)

The BS 2/M transverse conveyor connects to other conveyor modules and straight segments, such as the ST2/B conveyor section.

For all standard installations, the conveyor connects to other modules with the connector kits supplied. The connectors are designed to provide the proper transport surface height relative to connected modules.

1. When attaching the BS 2/M to a TS plus main conveyor line, note the direction of line flow. The pallet should always move toward the drive end of the BS 2 in normal operation.

2. For 80mm TS plus conveyors or other BS2 modules, use one spacer with the mounting bracket as shown in Fig. 7-A. Use one 20mm and one 50mm T-bolt as shown.

3. For 100mm TS plus conveyors, use three spacers with the mounting bracket as shown in Fig. 7-B. Use one 20mm and one 50mm T-bolt as shown.
Installing leg sets SZ 2 (Fig. 8)

1 The BS 2/M must be supported at each end, either by mounting brackets or leg sets. Additional leg sets are required at no more than two meter intervals for conveyors in excess of two meters in length.

2 The gussets on the leg sets are attached to the T-slots on the bottom of the conveyor rails with T-bolts. End leg sets will have gussets on only one side (facing away from the ends). Intermediate leg sets will have gussets on both sides.
Leveling and securing the conveyor system (Fig. 9)

1. Starting at the drive end, use a level to verify that the conveyor is properly aligned, first from side to side, then lengthwise. Recheck both directions after making any adjustments. The length should be checked at no more than two meter intervals between and at leg sets.

2. If any adjustment is needed, use a 24 mm wrench to loosen the counter nut “A”. Turn the spindles of the leveling feet (inset) accordingly with a 13 mm wrench.

3. Once the legs are adjusted to the proper height (the conveyor is level and all feet are in firm contact with the floor), tighten the counter-nut "A" to lock the feet at their proper height.
Installing foundation brackets LE 1 (Fig. 10)

1. Attach the brackets to the support legs using the included T-bolts and flange nuts. (Foundation bracket kit = Part No. 8981 003 224)

2. Secure the brackets to the floor using foundation anchors (Part No. 3842 146 844)

3. Additional measures may be required in areas where high seismic loads are encountered.

Figure 10: Installing Foundation Brackets
BS 2/M TRANSVERSE CONVEYOR MOTOR CONNECTIONS

Note: The customer assumes all responsibility for the control system, and must provide an EMERGENCY-OFF SWITCH for the BS 2/M transverse conveyor.

Before starting up the conveyor for the first time, recheck all mounting hardware for tightness.

Locate the data tag on the motor and determine the wiring connection used (Y or Delta) by referring to the "Volts" information box on the data tag, then follow the appropriate connection schematic at left.

Note: The rotation marks in Figures 11b and 11c apply to the rotor shaft only. To reverse the direction of rotation, transpose any two leads.

To avoid damage to the power cables, make sure that the cables are long enough to reach the cable input on the terminal box (Figure 11d) without stretching, and secured in such a way as to prevent them from interfering with other objects.
REGULAR MAINTENANCE

Figure 12: Inspection and Maintenance Points

Inspection and Maintenance (Fig. 12)

CAUTION! Lock out all power supplies before beginning maintenance work of any type!

The following cleaning and adjustment procedures will help keep your conveyor in optimal condition if performed on a regular basis.

1. The sealed gearbox is maintenance free. It should, however, be inspected regularly for damage or oil leakage caused by excessive wear.

2. To ensure that the motor remains cool enough, remove all dirt and dust from the motor surface, intake opening, fan hood, and between the cooling fins at least once per week.

3. Check the toothed belt for wear and damage, especially at the arrow shaped weld joint. Wipe the conveyor clean of any excess grease, dirt, and any foreign substances regularly. Replace any parts showing signs of excess wear.

4. Verify that the idle rollers rotate freely and are not damaged. Stuck or damaged rollers will lead to premature belt failure.

Regularly check that all connectors and fasteners are properly tightened and re-tighten to their proper torque as needed.
REPAIR PROCEDURES

Replacing the toothed belt (Fig. 13)

NOTE: Before removing the old toothed belt, verify that the replacement belt is of the proper length! An improperly sized belt will cause poor performance and may cause damage to the conveyor system.

CAUTION! Lock out all power supplies before beginning repair work of any type!

1 Carefully remove the snap-in belt guide profile from the aluminum profile by pulling up on the outside edge. It may be necessary to pry it out by carefully inserting a screwdriver between the guide profile and the aluminum profile and gently prying out the guide profile.

2 Loosen the four M5 x 30 socket head cap screws on each side of the two bearing housing assemblies.

3 Loosen the two flat head phillips screws on top of the two return assemblies and remove retainer.

4 Carefully lift up the belt and return rollers.

5 Slide the return roller out of the belt.

CAUTION! If the drive unit is not kept level when removing or installing it, it may cause damage to the unit by bending or twisting the components. Also, the two sides may separate and fall, potentially damaging the unit and causing personal injury!

6 Carefully lift the upper bearing housings with the motor and gearbox and remove. Use caution handling these parts because they are NOT mechanically fastened together!

7 Remove the two idler rollers adjacent to the aluminum profile on both sides of the bearing housing.

8 Slide the belt end guides out of the aluminum profile and remove.

9 Lift out the old toothed belt.

Installing the new belt:

To install the new belt, reverse the steps above, making sure to:

1 Verify that the new toothed belt is properly lubricated. Oil the toothed surface of the belt with a high quality spindle oil, if necessary.

2 Make sure that the pointed end of the arrow shaped weld is pointing in the direction of forward movement, i.e. towards the drive unit.

3 Make sure that the eight idler rollers are free of dirt and damage, and spin freely.

4 Carefully lower the drive assembly into place, keeping it level! Secure with socket head cap screws, alternating between sides and diagonally opposite corners on the assembly.
Figure 13: Replacing the Toothed Belt