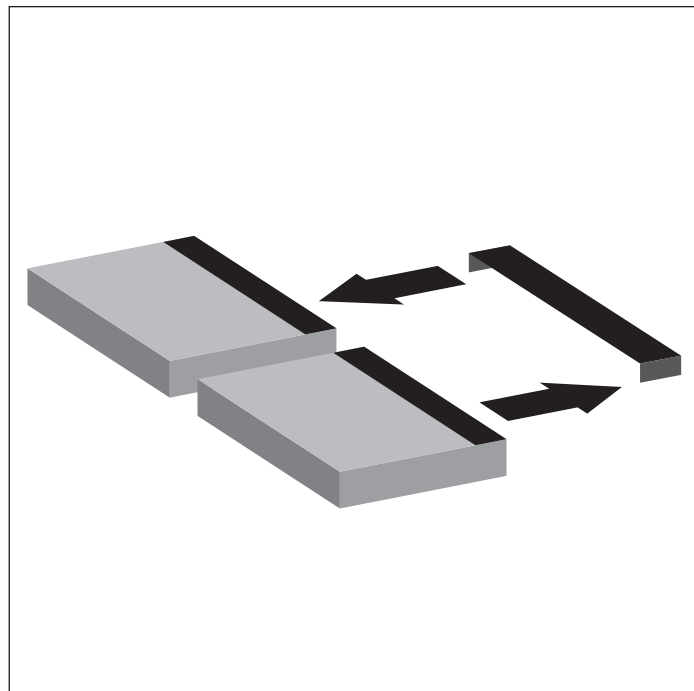


Selection of transverse conveyors

Transverse conveyors are used to change the workpiece pallet direction of transport. They are used to create a branch in the workpiece pallet paths to the individual processing stations. The orientation of the workpiece pallet relative to its conveying direction changes when it is moved from longitudinal conveying to transverse conveying and vice versa.



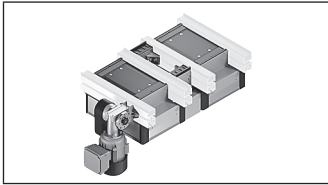
Transverse conveyors can be implemented in the TS 2plus transfer system in two different ways:

- ▶ **EQ 2 electric transverse conveyors** (see p. 5-4) (e.g., EQ 2/TR version with roller section), or
- ▶ **HQ 2 lift transverse units** (see p. 5-26) in combination with BS 2 belt sections or conveyor units

The EQ 2 electric transverse conveyors are complete macro modules. They consist of one or two HQ 2s and additional transverse conveyor sections (BS 2/RS 2).

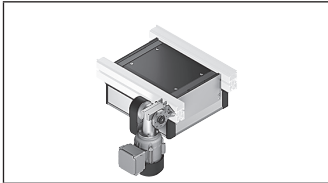
The transverse transport level is 10 mm above the transport level of the longitudinal section.

Note: The lift transverse units lift the workpiece pallet out of the longitudinal section and transport it transversely into the transverse section, which is situated 10 mm higher.



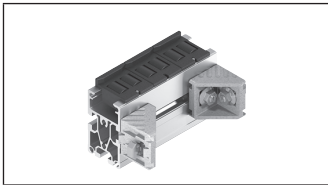
EQ 2 electric transverse conveyors

5-4



HQ 2 lift transverse units

5-26



RS 2 roller sections

5-80

EQ 2 electric transverse conveyors

EQ 2 electric transverse conveyors are used to move workpiece pallets from a longitudinal conveyor section onto a second, parallel longitudinal section. EQ 2s are complete macro modules which consist of one or two HQ 2 lift transverse units and one transverse conveyor section (BS 2/RS 2).

All the transport belts are driven by a motor.
For the TS 2plus transfer systems, electric transverse

conveyors are available with the following transport function:

EQ 2/TR

Moving workpiece pallets from one longitudinal section to a second one, which runs parallel a small distance away, across a roller section.

EQ 2/T

Moving workpiece pallets from one longitudinal section to a second one, which runs parallel a large distance away, across a transverse belt section.

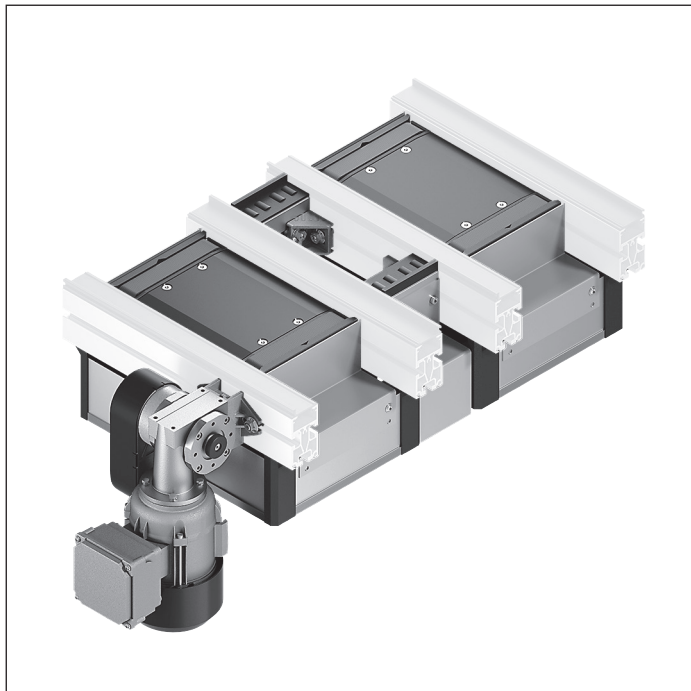
EQ 2/TE

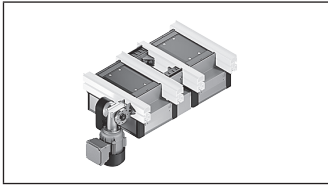
Moving pallets from a longitudinal section to a transverse belt section and vice versa.

Note: Accumulation on the HQ 2 is not permitted.

All EQ 2 designs are delivered with pneumatic connections, optionally for the center and top lift position, or for the bottom, center and top lift position. Pneumatic valves are not included in the delivery.

The pneumatic valves are designed so that the rest position acts as an exhaust position, moving the lift transverse units to the center position in case of a pressure drop. In the center position, the workpiece pallets are stopped by the lift transverse unit. This function provides increased safety and ensures easier commissioning.



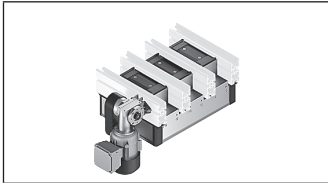


EQ 2/TR electric transverse conveyors

160 x 160 ... 800 x 480

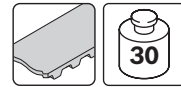


5-6

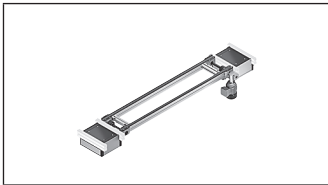


EQ 2/TR-90 electric transverse conveyors

160 x 160; 240 x 160



5-11



EQ 2/T electric transverse conveyors

160 x 160 ... 800 x 480



5-15



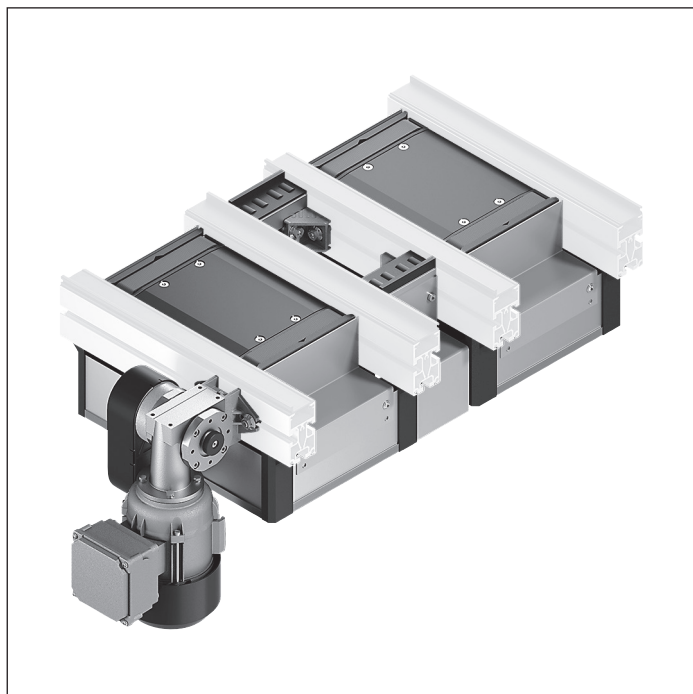
EQ 2/TE electric transverse conveyors

160 x 160 ... 800 x 480



5-20

EQ 2/TR electric transverse conveyor



- ▶ Complete macro module for connecting two parallel longitudinal sections at a short distance from each other
- ▶ In tandem design with RS 2 roller section at a distance of $a = 45 \dots 135$ mm
- ▶ Size 2 with two lifting cylinders from $\geq 480 \times 480$ mm
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2 section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Suspended motor mounting only. Other motor mounting variants available on request
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-106

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electrical position inquiry (2x sensors)
- ▶ Housing element

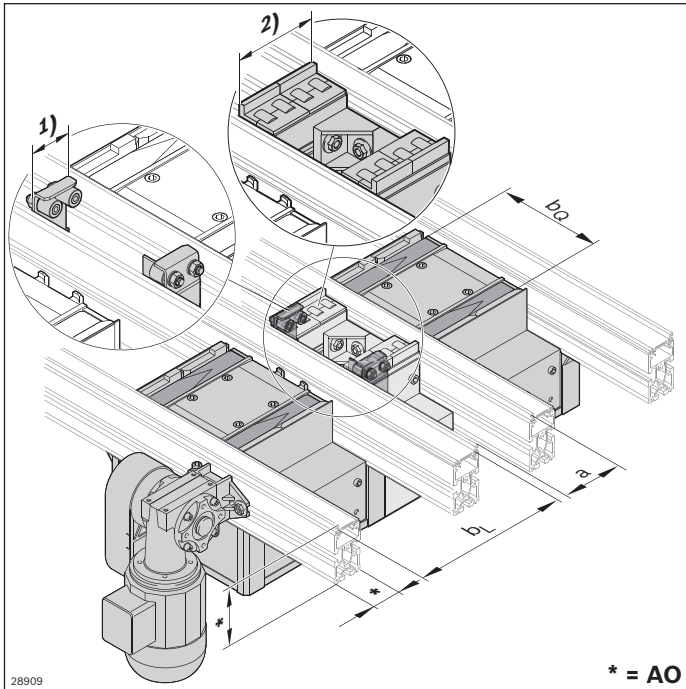
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 rockers (see p. 8-139ff), WI/M (see p. 8-133), DA 2/60 (see p. 8-62), DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ HQ 2/O and HQ 2/T lift transverse unit assembled
- ▶ Connection kit
- ▶ Motor mounting kit, drive motor enclosed
- ▶ Roller section with roller elements
- ▶ Housing elements: not assembled

Ordering information



1 = intermediate section with roller:

Applies when $a = 45$

Applies when $a = 90$ and $b_L = 240$ mm

2 = roller section:

Applies when $a = 90$ and $b_L > 240$ mm

Applies when $a = 135$ and $b_L \geq 320$ mm

Material number		3842999894
b_Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400 BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
a (mm)	Distance between conveyors	45; 90 ³ ; 135 ³

¹ PN = 2: Upper and middle lift position

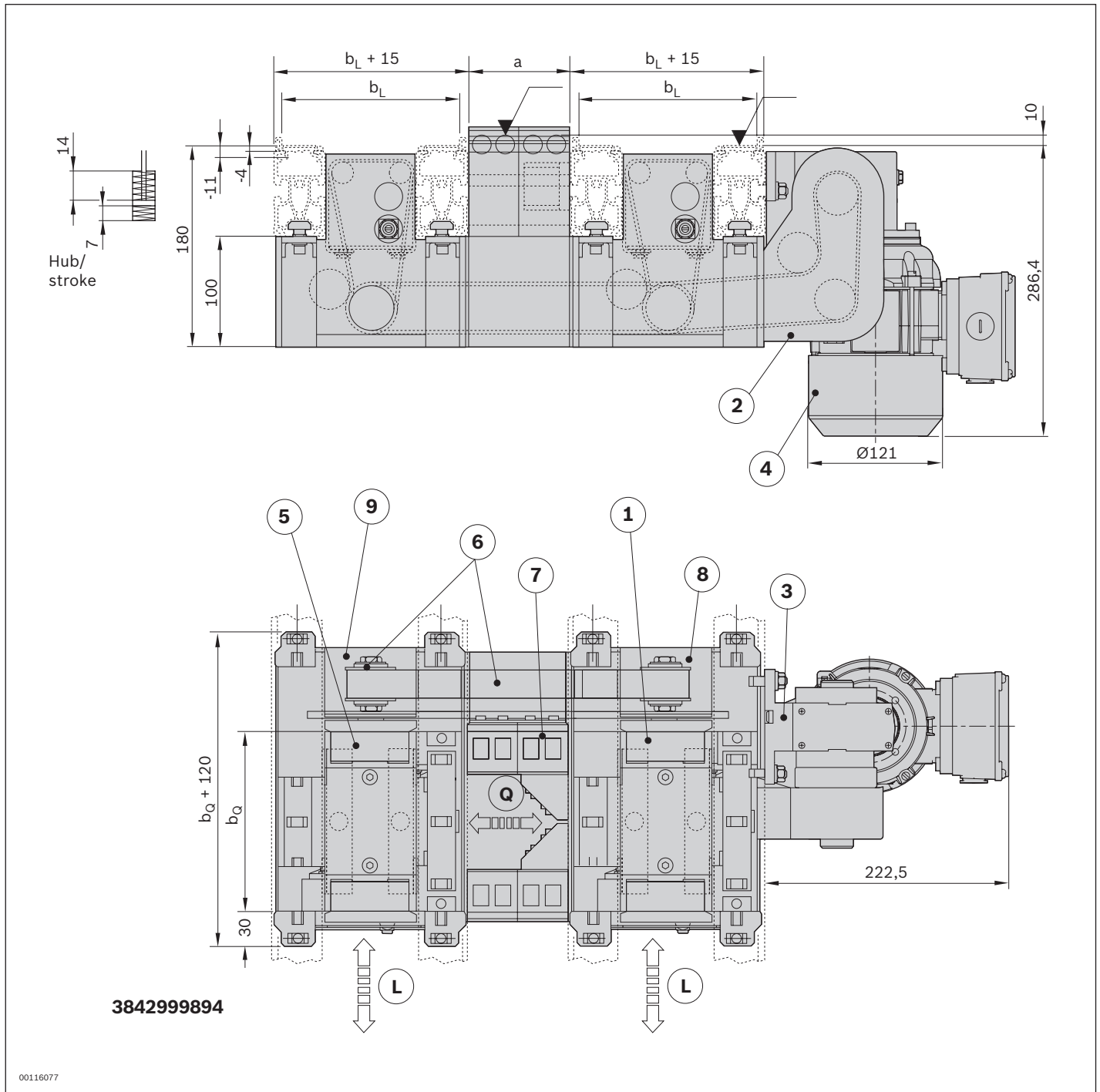
² PN = 3: Upper, middle and lower lift position

³ a = 90 mm only when $b_L \geq 240$ mm; a = 135 mm only when $b_L \geq 320$ mm

Technical data

Material number		3842999894	
Load			
Max. total weight of workpiece pallet	m_G	kg	30
Features			
ESD			Yes
Design			
Size	BG		BG 1; BG 2
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\emptyset	mm	6

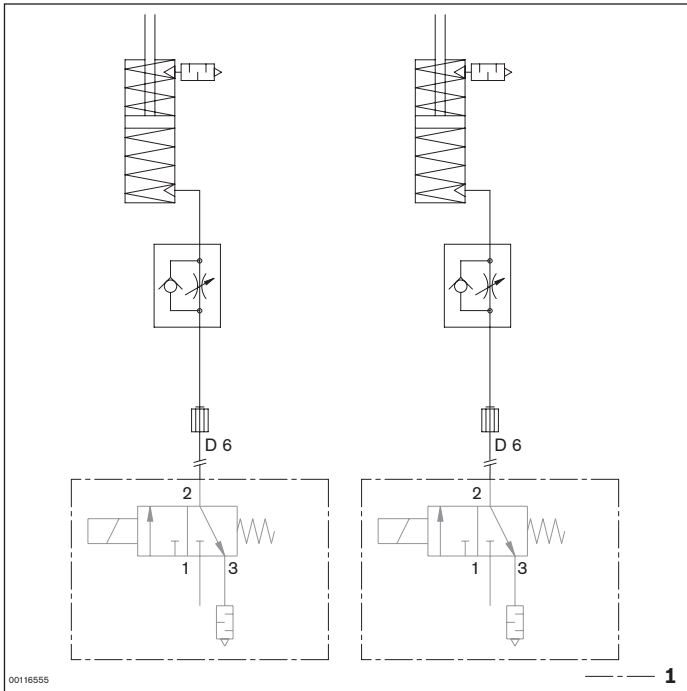
Dimensions



- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 Connecting kit
- 3 Motor mounting kit
- 4 Drive motor
- 5 HQ 2/T lift transverse unit

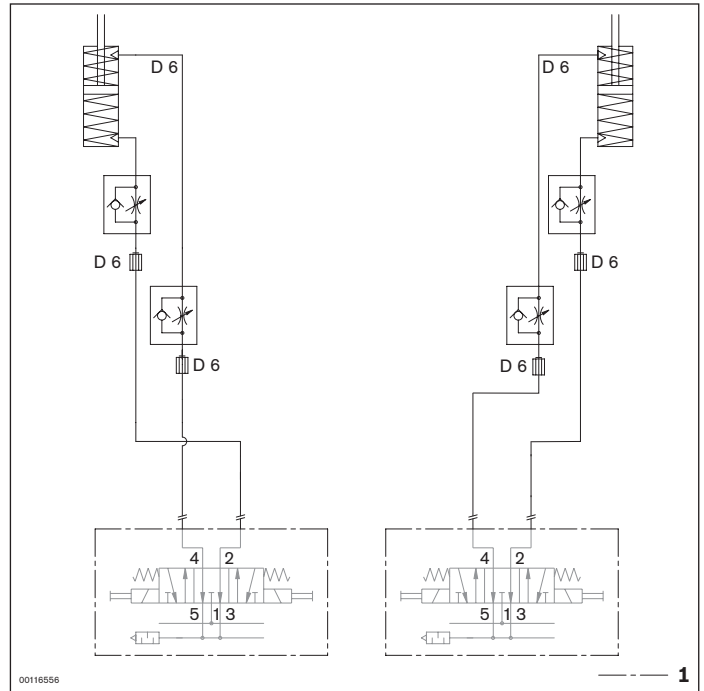
- 6 Drive kit
- 7 Intermediate section with roller elements and housing
- 8 Housing element for HQ 2/O lift transverse unit combined with HQ 2/T
- 9 Housing element for HQ 2/T lift transverse unit

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1



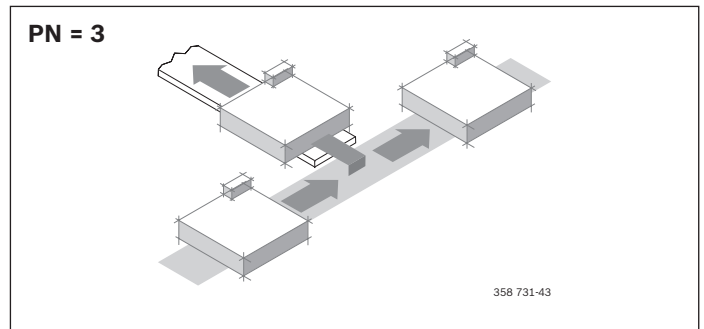
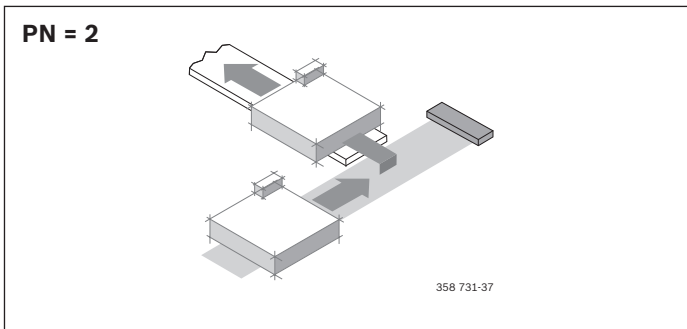
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1

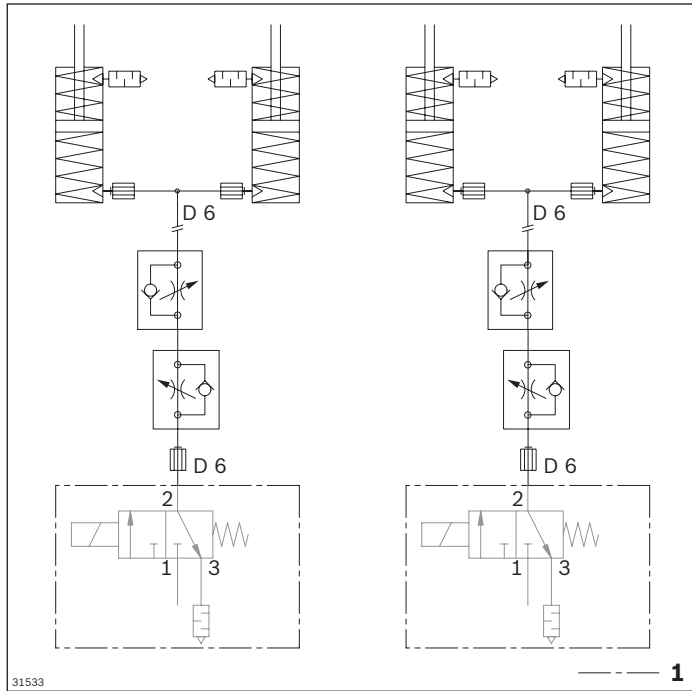


1 Not included in delivery

5

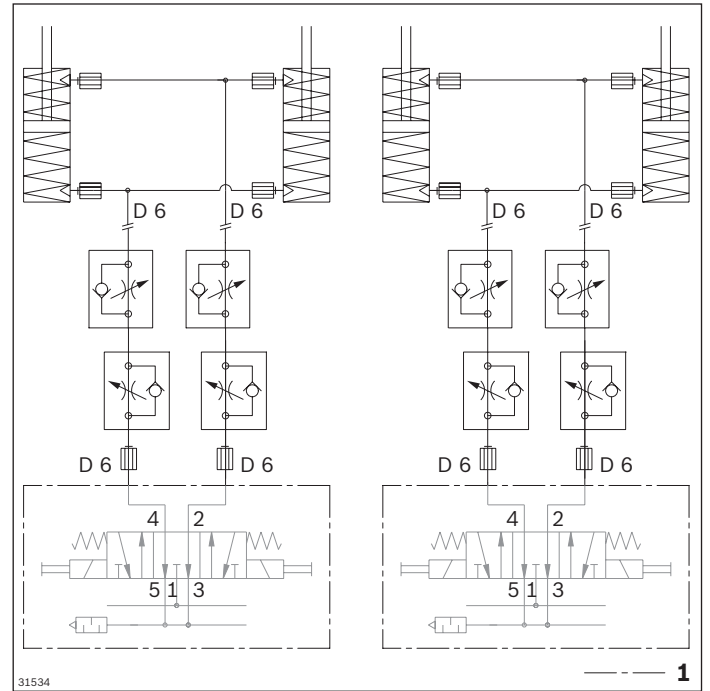


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



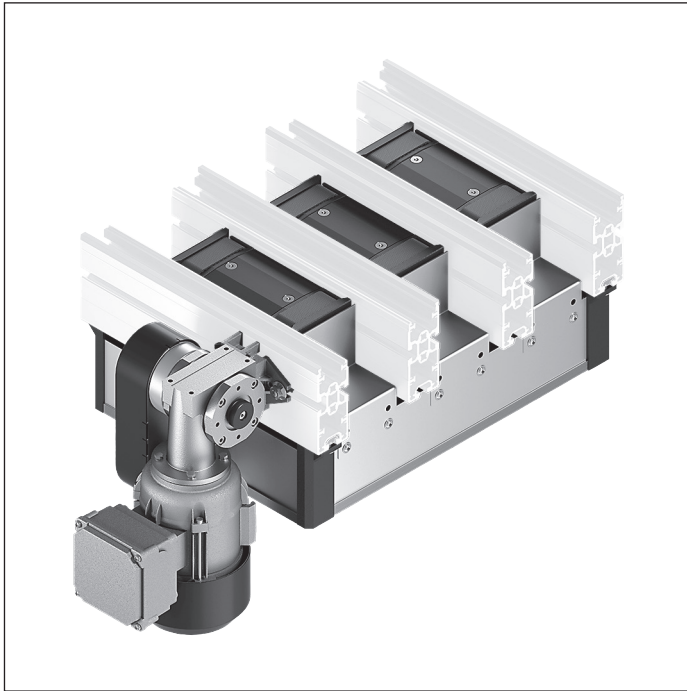
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 3



1 Not included in delivery

EQ 2/TR-90 electric transverse conveyor



- ▶ Complete macro module for connecting two parallel longitudinal sections at a distance of 90 mm from each other
- ▶ With driven intermediate sections
- ▶ Modular unit with three lifting cylinders
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2 and WT 2/E

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-106

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electrical position inquiry (2x sensors)
- ▶ Connection kit
- ▶ Housing element

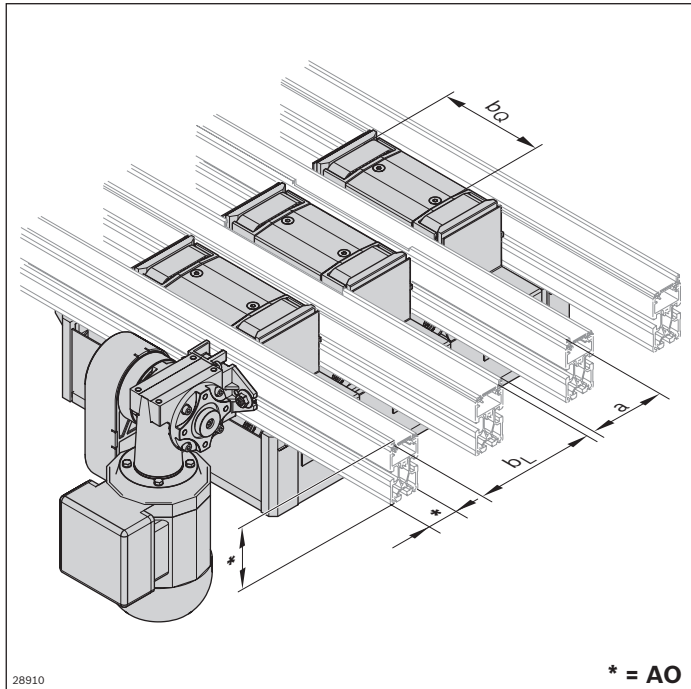
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding WT 2 and WT 2/E workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 rocker (see p. 8-131) WI/M rocker (see p. 8-133) and DA 2/60-C damper (see p. 8-62) for infeeding WT 2 and WT 2/F workpiece pallets

Condition on delivery

- ▶ HQ 2/O and HQ 2/T lift transverse unit assembled
- ▶ Drive kit, assembled
- ▶ Motor mounting kit, drive motor enclosed
- ▶ Connection kit included
- ▶ Protective housing, not assembled

Ordering information



*** = AO**

Material number		3842998289
b_Q (mm)	Track width in the transverse conveyor	160; 240
b_L (mm)	Track width in the longitudinal conveyor	160
$b_Q \times b_L$ (mm x mm)	Combination options	160 x 160 240 x 160
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K

¹ PN = 2: Upper and middle lift position

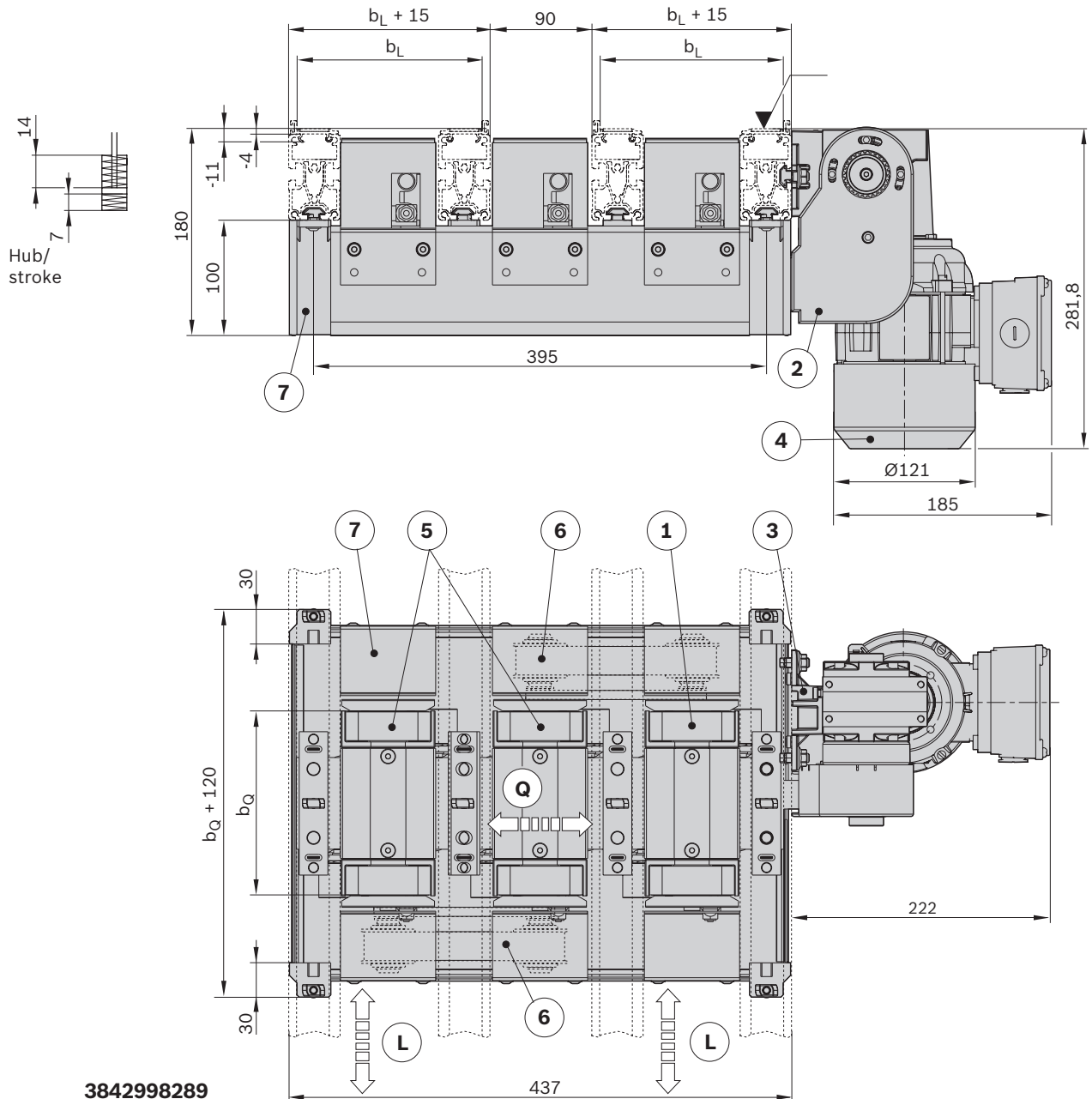
² PN = 3: Upper, middle and lower lift position

Technical data

Material number		3842998289	
Load			
Max. total weight of workpiece pallet	m_G	kg	30
Features			
ESD			Yes
Dimensions			
Distance between conveyors	a	mm	90
Additional information			
Required compressed air connection	p	bar	4 ... 6
Pneumatic connector	\emptyset	mm	6

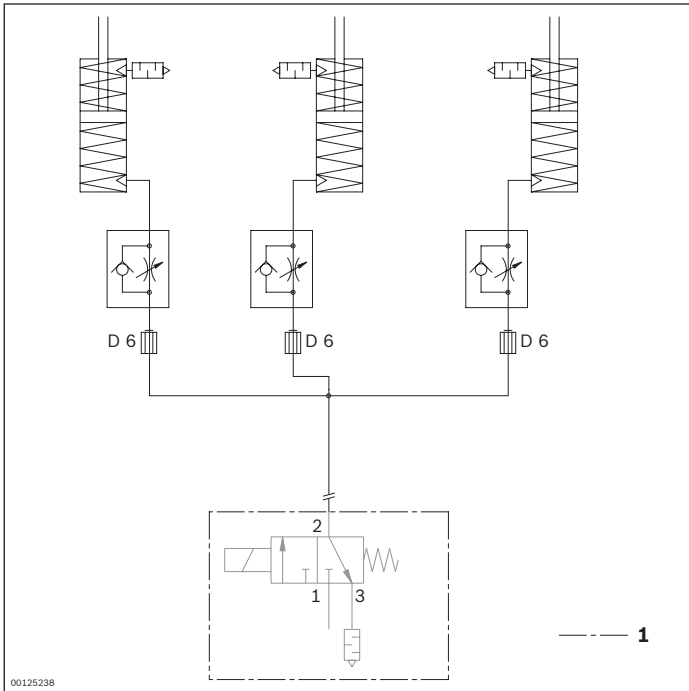
Dimensions

AO = 0 referenced



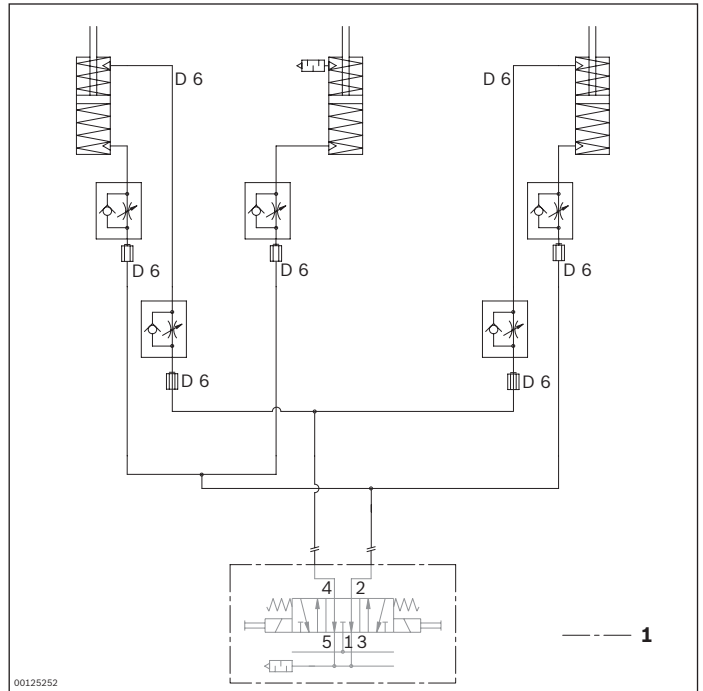
- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 Connecting kit
- 3 Motor mounting kit
- 4 Drive motor
- 5 HQ 2/T lift transverse unit
- 6 Drive kit
- 7 Housing element

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2)

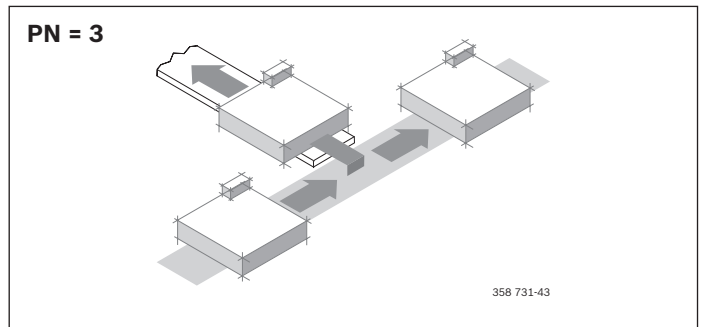
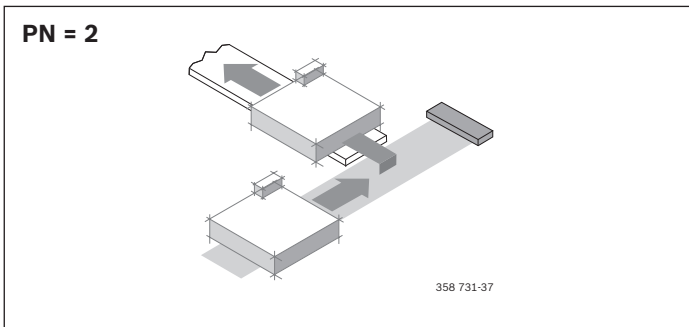


1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3)



1 Not included in delivery



EQ 2/T electric transverse conveyor



- ▶ Pre-assembled module for connecting two parallel longitudinal sections
- ▶ Tandem design with driven belt section for greater distances from 320 mm
- ▶ Size 2 from $\geq 480 \times 480$ mm with two lifting cylinders per lift transverse unit
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2, WT 2/E and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation not permitted on the lift transverse units.

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ Incl. fastening material
- ▶ 2x HQ 2/O
- ▶ 1x BS 2/T tandem belt section
- ▶ 2x connection kit
- ▶ 2x SK 2/B housing element
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

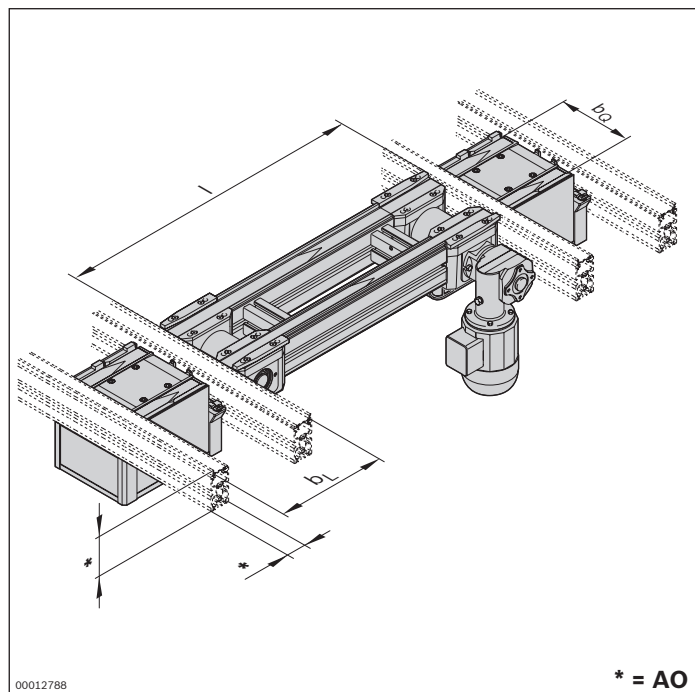
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding workpiece pallets at $v_N > 9$ m/min
- ▶ WI/2 (see p. 8-131ff) or WI/M (see p. 8-133) rocker, DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-71) for infeeding workpiece pallets

Condition on delivery

- ▶ Pre-assembled in modular units

Ordering information



Material number		3842999895
b_Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b_L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
$b_Q \times b_L$ (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400 BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
l (mm)	Length	320 ... 6000
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v_N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; L; M ³

¹ PN = 2: Upper and middle lift position

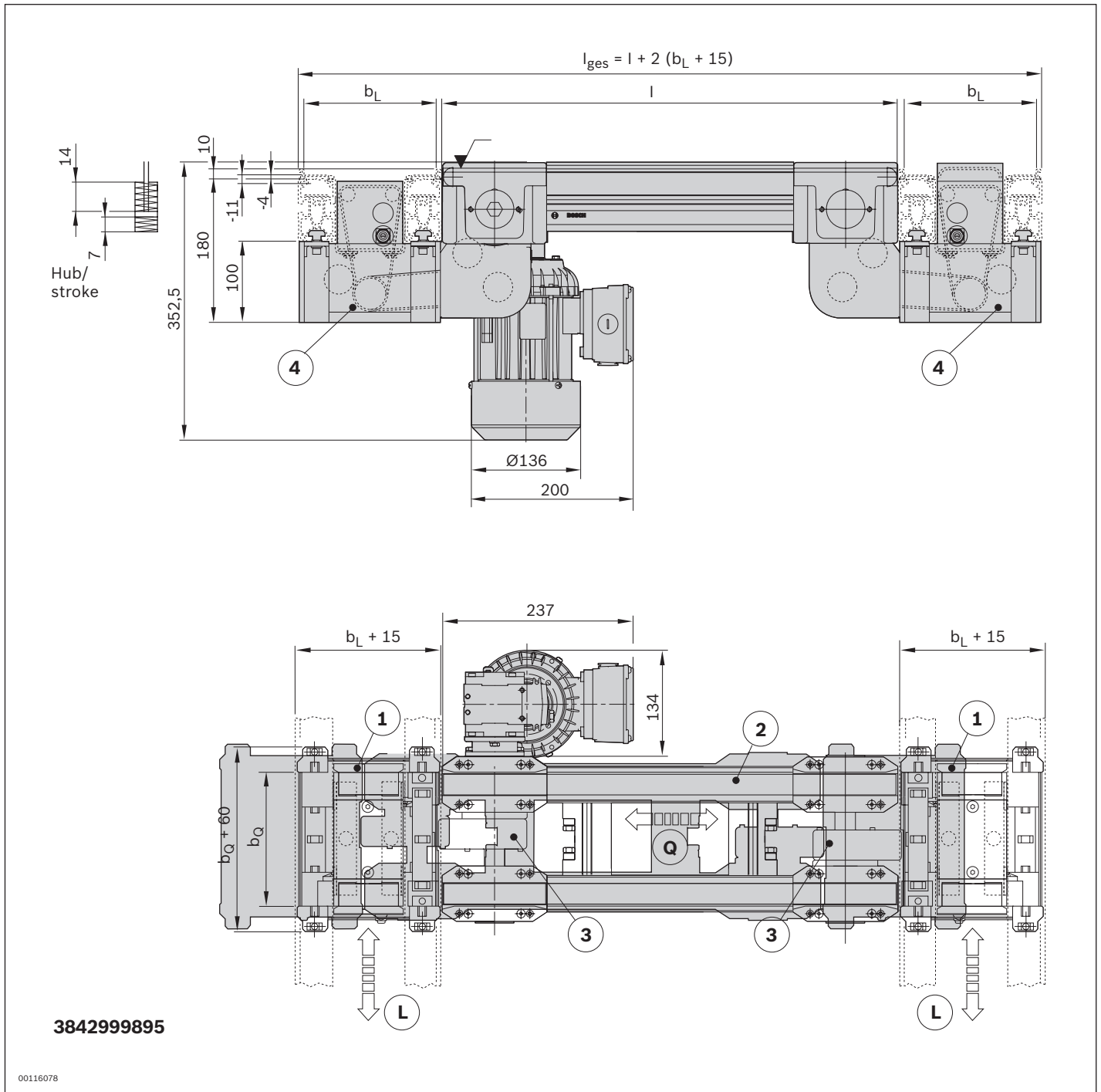
² PN = 3: Upper, middle and lower lift position

³ MA = M when $b_Q \geq 320$ mm

Technical data

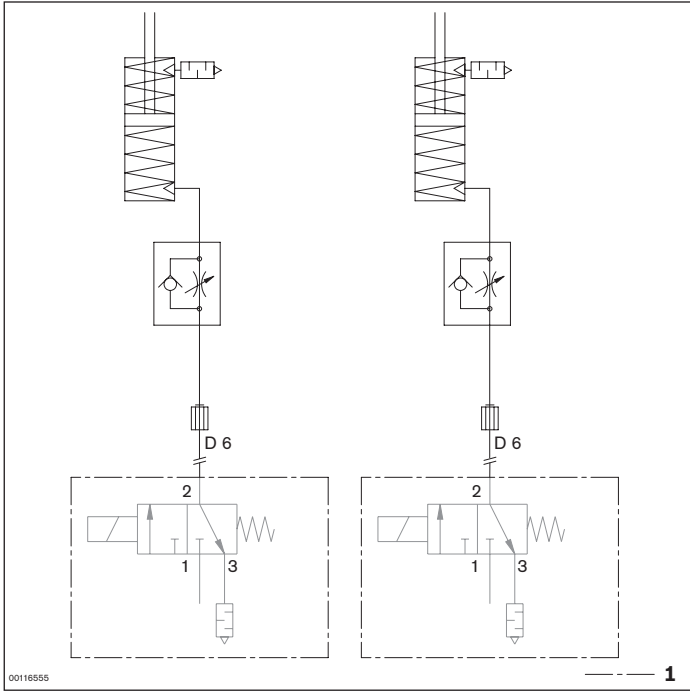
Material number		3842999895
Load		
Max. section load in accumulation operation	kg	60
Max. total weight of workpiece pallet m_G	kg	BG 1: 30 BG 2: 50
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
Pneumatic connector	\emptyset	mm
		4 ... 6
		6

Dimensions



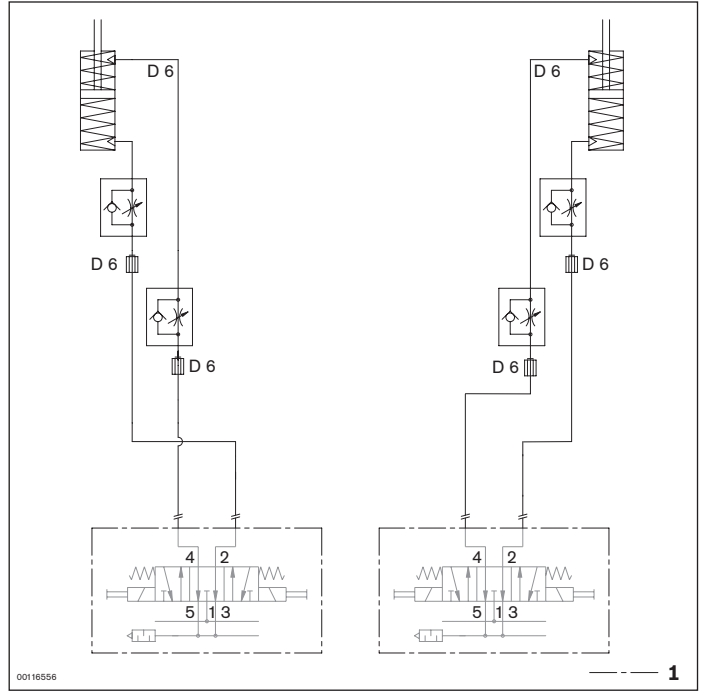
- L Longitudinal conveyor transport direction
- Q Transport direction of transverse conveyor
- 1 HQ 2/O lift transverse unit
- 2 BS 2/T tandem belt section
- 3 Connecting kit
- 4 Housing element

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1

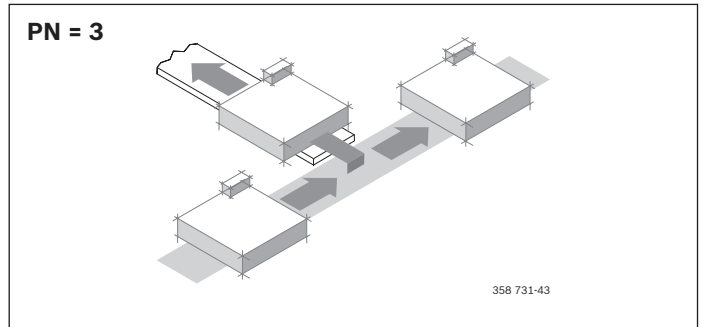
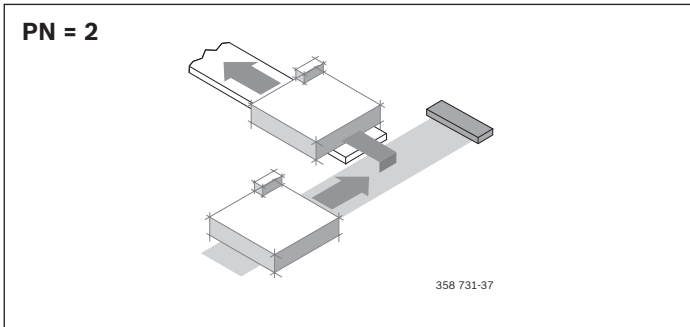


1 Not included in delivery

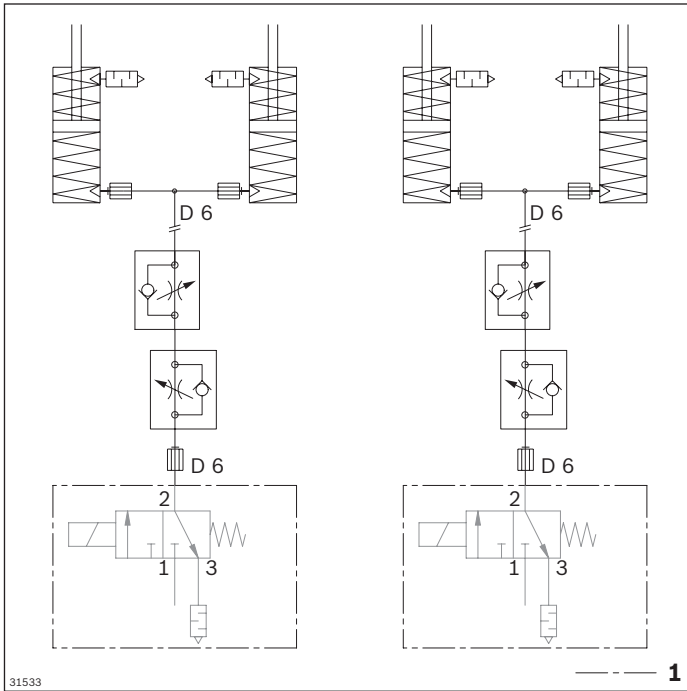
Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1



1 Not included in delivery

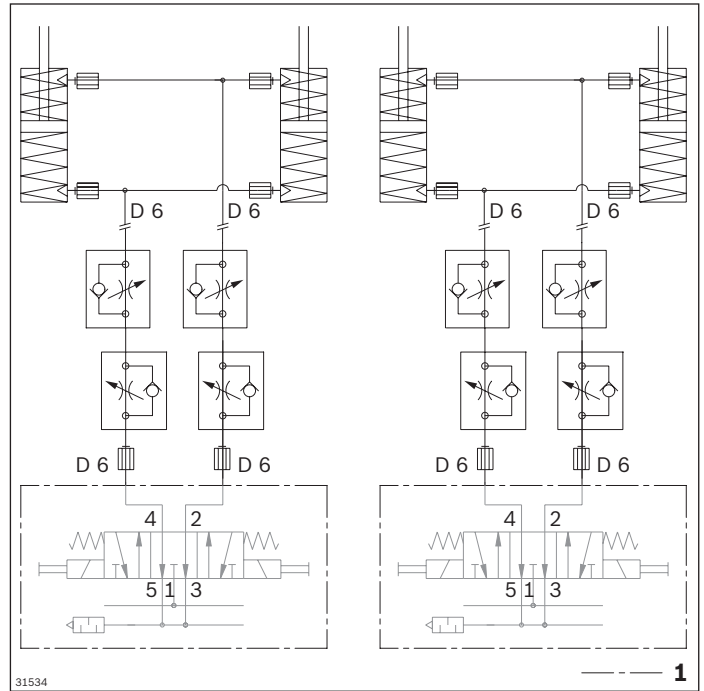


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 3



1 Not included in delivery

EQ 2/TE electric transverse conveyor



- ▶ Pre-assembled assembly for branching off into a transverse section in which the second end does not lead to a further transverse section (dead end)
- ▶ Size 2 from $\geq 480 \times 480$ mm with two lifting cylinders per lift transverse unit
- ▶ Conveyor medium: Toothed belt (suitable for use in an EPA)
- ▶ Pneumatic equipment for 2 (top, center) or 3 (top, center, bottom) lift positions
- ▶ Suitable for mounting on an ST 2/... section with a profile width of 45 mm or an ST 2/...-H section with a profile width of 50 mm
- ▶ Can be combined with WT 2/E, WT 2 and WT 2/F

Note:

- ▶ Reversible operation possible
- ▶ Accumulation operation on the lift transverse unit is not permitted

Accessories

Required accessories

- ▶ 1x M12x1 sensor with rated sensing range $S_N = 4$ mm for each (top/bottom) position sensing location, see p. 8-108/8-110

Delivery notes

Scope of delivery

- ▶ 1x HQ 2/O lift transverse unit
- ▶ 1x BS 2/TE belt section
- ▶ 1x connection kit
- ▶ 1x SK 2/B housing element
- ▶ Pneumatic equipment for two or three positions
- ▶ Kit for electric position sensing

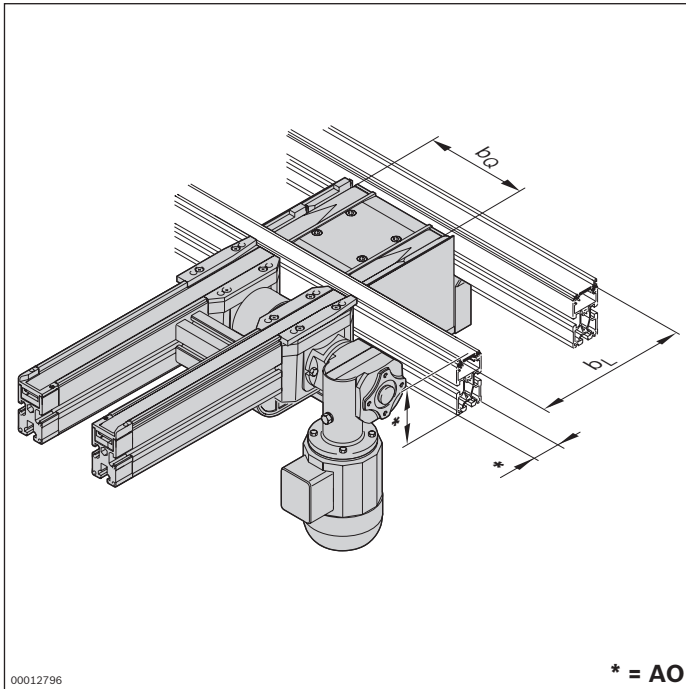
Recommended accessories

- ▶ DA 2/60 damper (see p. 8-62) for outfeeding WT 2, WT 2/F, WT 2/H or WT 2/F-H workpiece pallets at $v_N > 9$ m/min
- ▶ WI 2 (see p. 8-131ff) or WI/M (see p. 8-133) rocker and DA 2/60 (see p. 8-62) or DA 2/100-C dampers for BG 2 (see p. 8-62) for infeeding workpiece pallets

Condition on delivery

- ▶ HQ 2/O lift transverse unit, assembled
- ▶ BS 2/TE belt section, assembled
- ▶ Connection kit included
- ▶ Protective housing, not assembled

Ordering information



Material number		3842999896
b _Q (mm)	Track width in the transverse conveyor	160; 240; 320; 400; 480; 640; 800
b _L (mm)	Track width in the longitudinal conveyor	160; 240; 320; 400; 480
b _Q x b _L (mm x mm)	Combination options	BG 1: 160 x 160; 240; 320 240 x 160; 240; 320; 400 320 x 160; 240; 320; 400 400 x 240; 320; 400; 480 480 x 320; 400 BG 2: 480 x 480 640 x 400; 480 800 x 400; 480
l (mm)	Length	240 ... 6000
AO	Installation location, profile 0 = profile 45x80 1 = profile 45x100 2 = profile 50x100	0; 1; 2
PN	Pneumatic equipment	2 ¹ ; 3 ²
v _N (m/min)	Nominal speed	0; 6; 9; 12; 15; 18
U (V)	Voltage	See motor data, p. 11-24ff
f (Hz)	Frequency	See motor data, p. 11-24ff
AT	Motor connection S = cable/plug K = terminal box	S; K
MA	Motor mounting R = right L = left M = center	R; M ³ ; L

¹ PN = 2: Upper and middle lift position

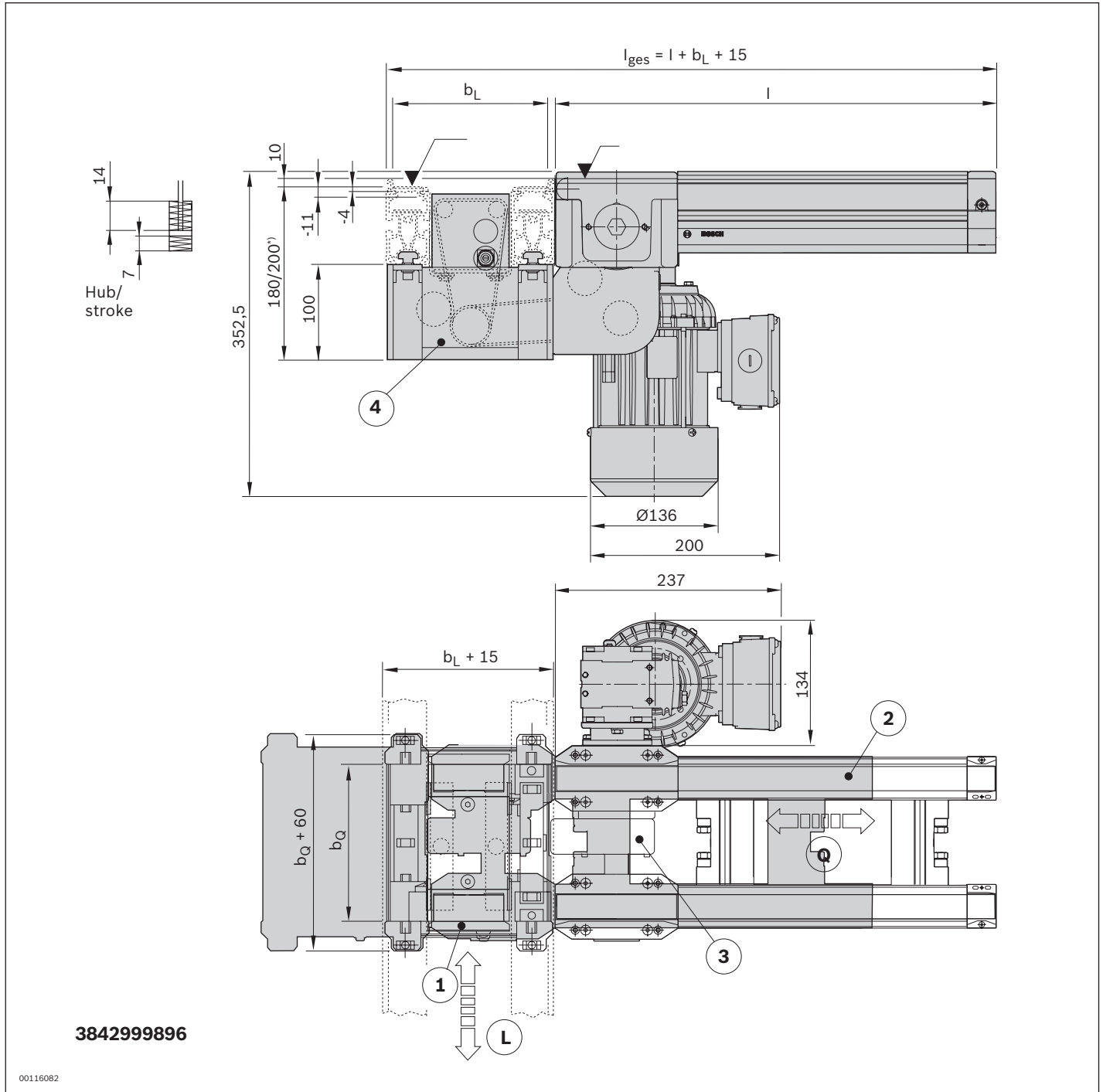
² PN = 3: Upper, middle and lower lift position

³ MA = M when b_Q ≥ 320 mm

Technical data

Material number		3842999896
Load		
Max. section load in accumulation operation	kg	60
Max. total weight of workpiece pallet m _G	kg	30
Features		
ESD		Yes
Design		
Size	BG	BG 1; BG 2
Additional information		
Required compressed air connection	p	bar
Pneumatic connector	Ø	mm
		4 ... 6
		6

Dimensions



L Longitudinal conveyor transport direction
Q Transport direction of transverse conveyor

1 HQ 2/O lift transverse unit

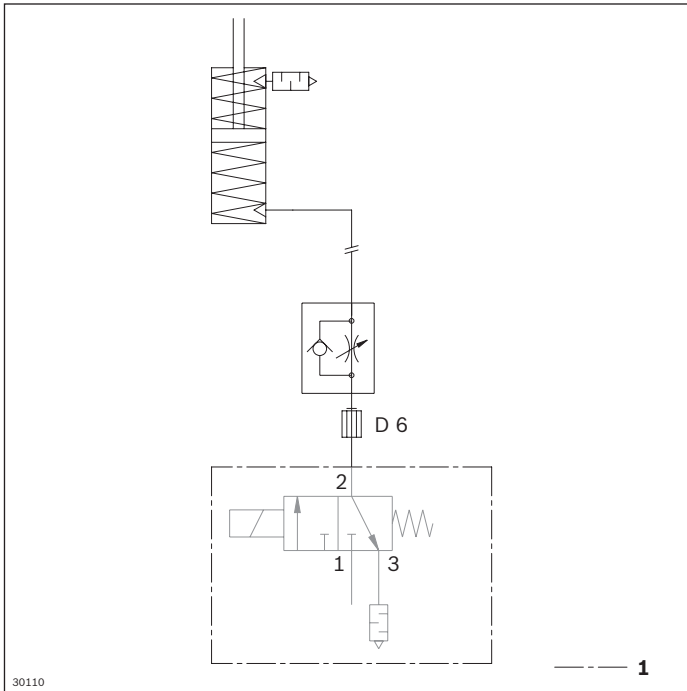
2 BS 2/TE belt section

3 Connecting kit

4 Housing element

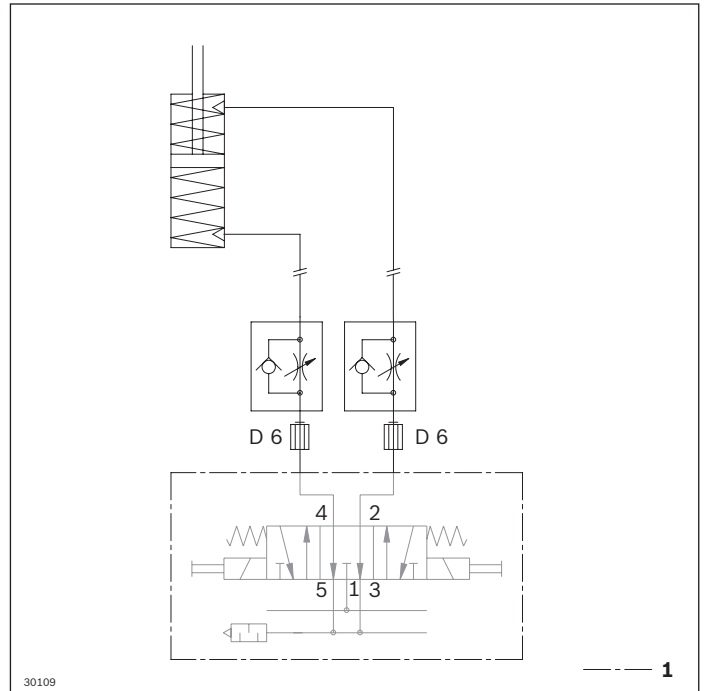
* 180 mm for 80 mm profile height, 200 mm for 100 mm profile height

Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 1



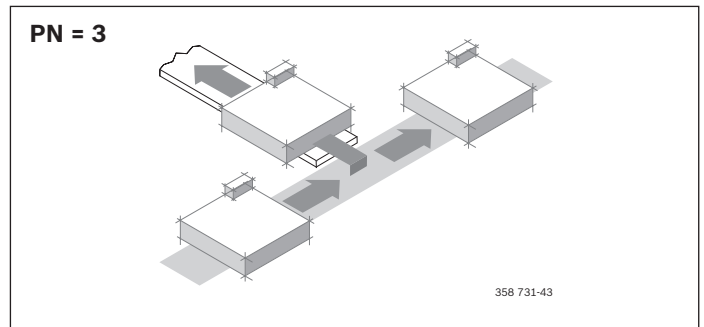
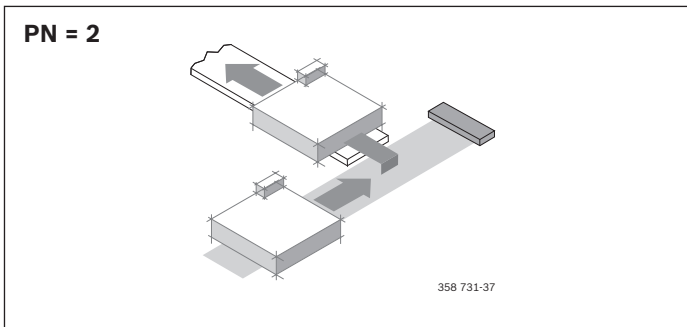
1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 1

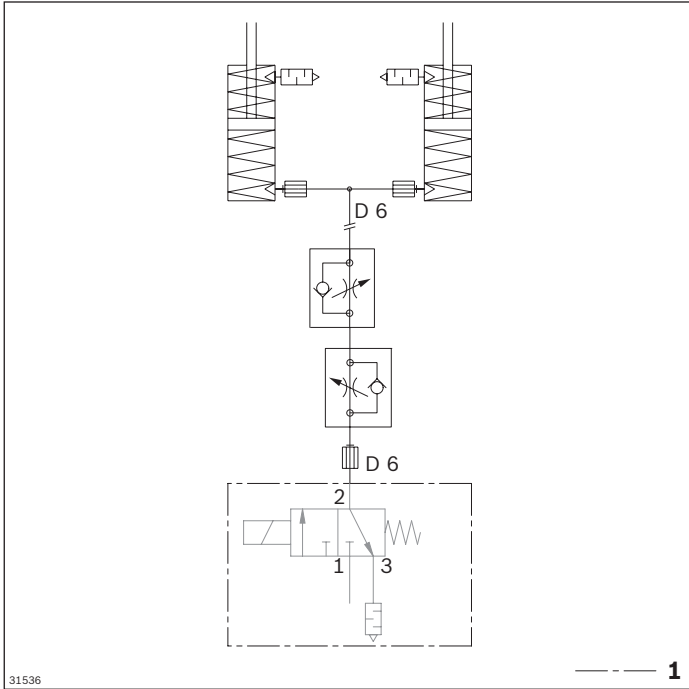


1 Not included in delivery

5

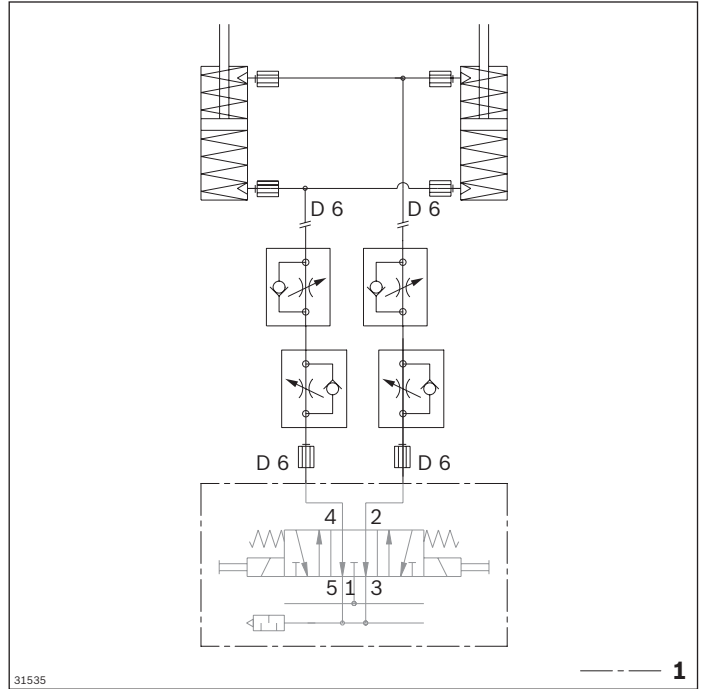


Circuit diagram for unit with pneumatic equipment for two positions (PN = 2), BG 2



1 Not included in delivery

Circuit diagram for unit with pneumatic equipment for three positions (PN = 3), BG 2



1 Not included in delivery