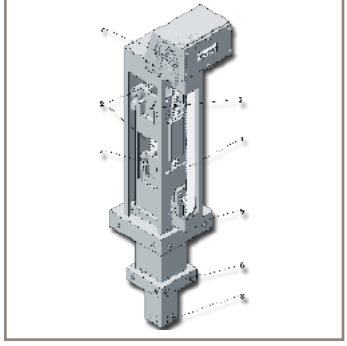
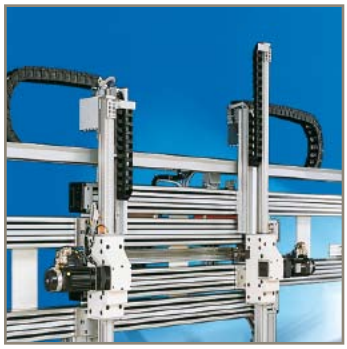
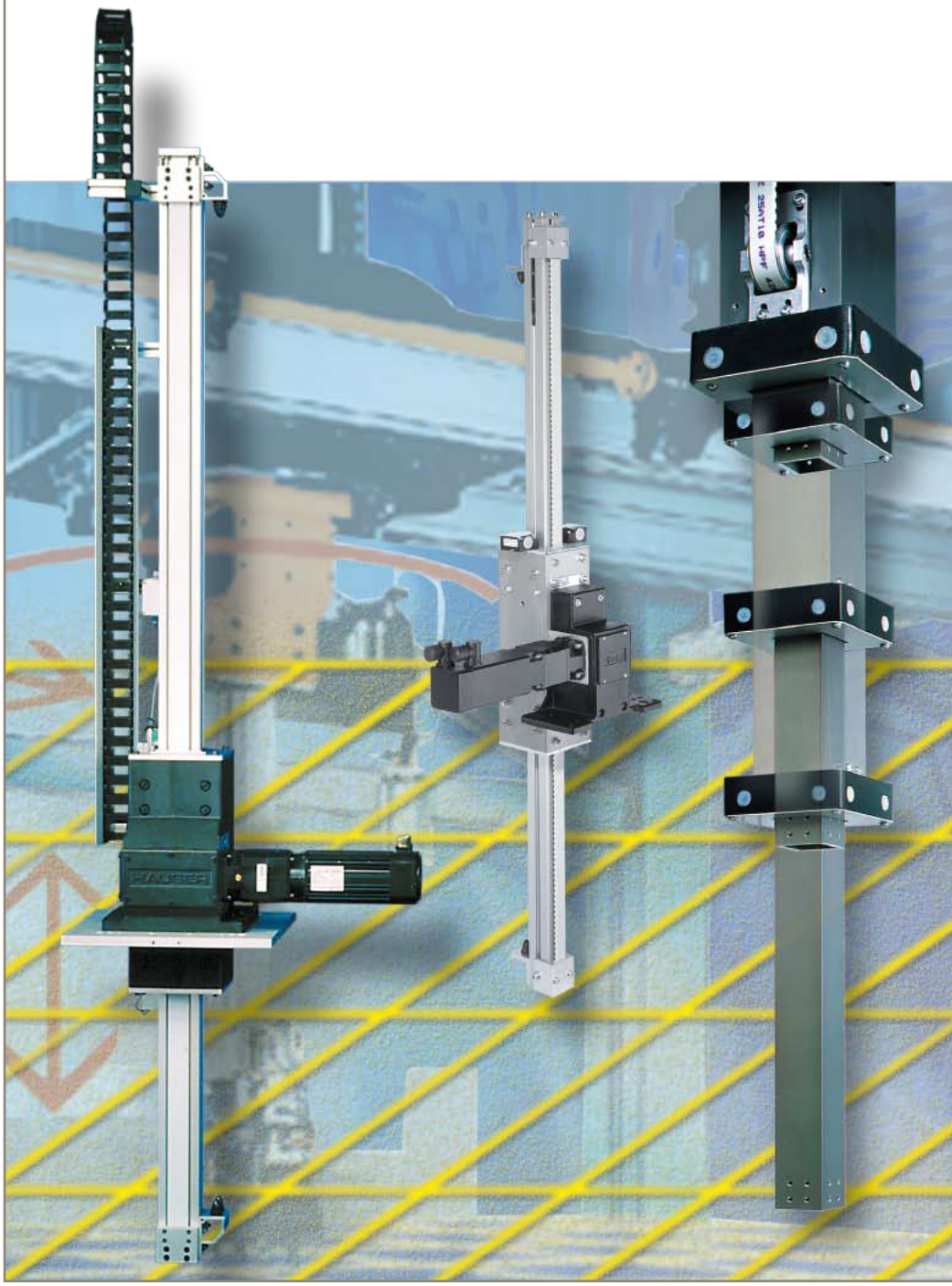




aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Vertical Actuators

HTR Telescopic actuator with belt drive
HZR Z axis with belt drive

Parker

ENGINEERING YOUR SUCCESS.

WARNING — USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

HTR dynamic telescopic actuator

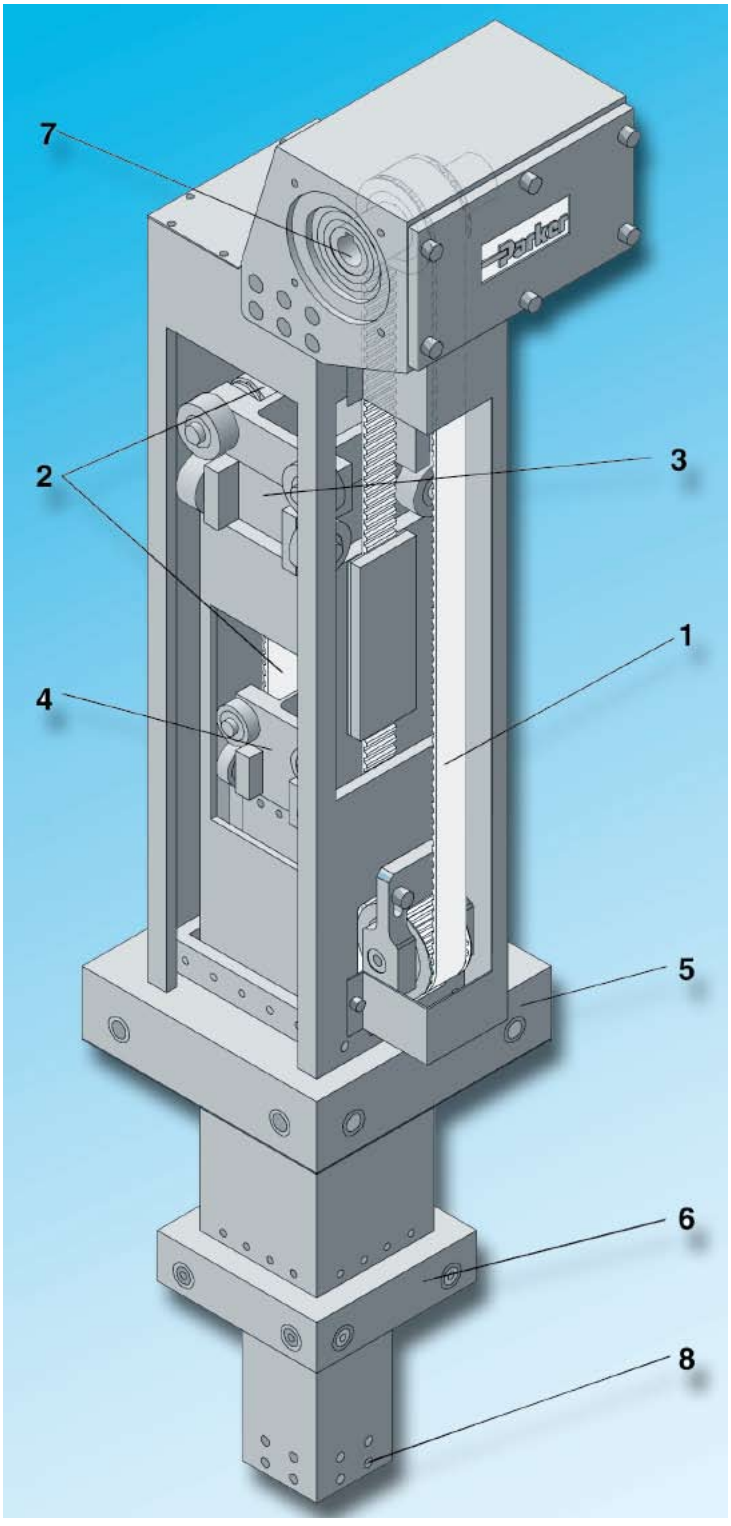
Telescopic actuator with belt drive - for vertical applications where height is limited.

Contents:

HTR Characteristics

- Long stroke (maximum 4,000mm) with minimum overall height.
- High payload up to 50 kg.
- Can be combined with HLE and HPLA linear actuators in a modular system
- Withstands high side loads and moments- even when extended - by means of the closed and torsion-resistant aluminium telescope profile.
- Backlash-free guidance by means of adjustable plastic rollers mounted on roller bearings.
- Low maintenance and low-noise rollers with PA coating.
- Non-wearing and non-slip toothed belt drive.
- Available in two sizes: T3B050 and T3B080.

Product Description



Maximum stroke with minimum overall height

Parker has developed and specially designed the telescopic actuator for applications that require a long vertical stroke in a limited space.

The non-wearing, high strength toothed belt of the main drive **(1)** and the transmission drive **(2)** ensure optimal power transfer to the load attachment **(8)**.

Maintenance free plastic rollers mounted on roller bearings, combined with surface treated aluminium extrusion profiles, guarantee minimum wear with optimal running smoothness.

A newly developed guiding principle, consisting of the 3 guide profiles and the relevant carriage stations **(3 to 6)**, ensures self-stabilising properties.

The hollow shafts and flange design of the drive station **(7)** are harmonized to the flange dimensions of our servo drives, offering optimal combinations with our drive technology.

HTR connections and attachments are compatible with the Parker modular system, which means that modular application-specific handling can be provided in combination with linear actuators.

Parker's proven design principles provide the user with numerous advantages including applications with the telescopic actuator.

Technical data

HTR size	Unit	T3B050	T3B080
Weights and mass moments of inertia			
Weight of basic unit without stroke	kg	12.8	35.3
Weight of additional length	kg/m	8.6	16.2
Weight of the moving parts, no stroke	kg	2.8	7.4
Weight of moving parts, to be added per metre of stroke	kg/m	2.4	4.5
Mass moment of inertia, related to the drive shaft, no stroke	$kgcm^2$	52.4	302.8
Additional mass moment of inertia related to the drive shaft per metre of stroke	$\frac{kgcm^2}{m}$	49.2	202.3
Travel lengths and speeds			
Maximum travel speed	m/s	5.0	5.0
Maximum travel path	mm	3000	4000
Maximum acceleration	m/s^2	5	5
Accuracy			
Repeatability in one direction (DIN EN ISO 9283)	mm	±0.2	±0.2
Overall dimensions & physical data			
Cross-section outer profile	mm x mm x mm	125 x 125 x 6	180 x 180 x 10
Cross-section central profile	mm x mm x mm	80 x 80 x 6	125 x 125 x 6
Cross-section inner profile	mm x mm x mm	50 x 50 x 5	80 x 80 x 6
Moment of inertia of the outer profile ($I_X = I_Y$)	cm^4	676	3261
Moment of inertia of the centre profile ($I_X = I_Y$)	cm^4	163	676
Moment of inertia of the inner profile ($I_X = I_Y$)	cm^4	31	163

Torques, forces, dimensions of pulley and toothed belt

Travel distance per revolution [1]	mm/rev	340					480				
Pulley diameter [1]	mm	108.2					152.8				
Toothed belt width / pitch											
Main drive (refer to Item. 1, page 4)	mm	25 / 10					32 / 10				
Transmission drive (refer to Item. 2, page 4)	mm	25 / 5					32 / 5				
Maximum drive torque	Nm	40					108				
Maximum belt traction at travel speed	m/s	1	2	3	4	5	1	2	3	4	5
	N	444	339	288	256	233	861	645	541	475	428
Belt traction (effective load), maximum [2]	N	245					491				

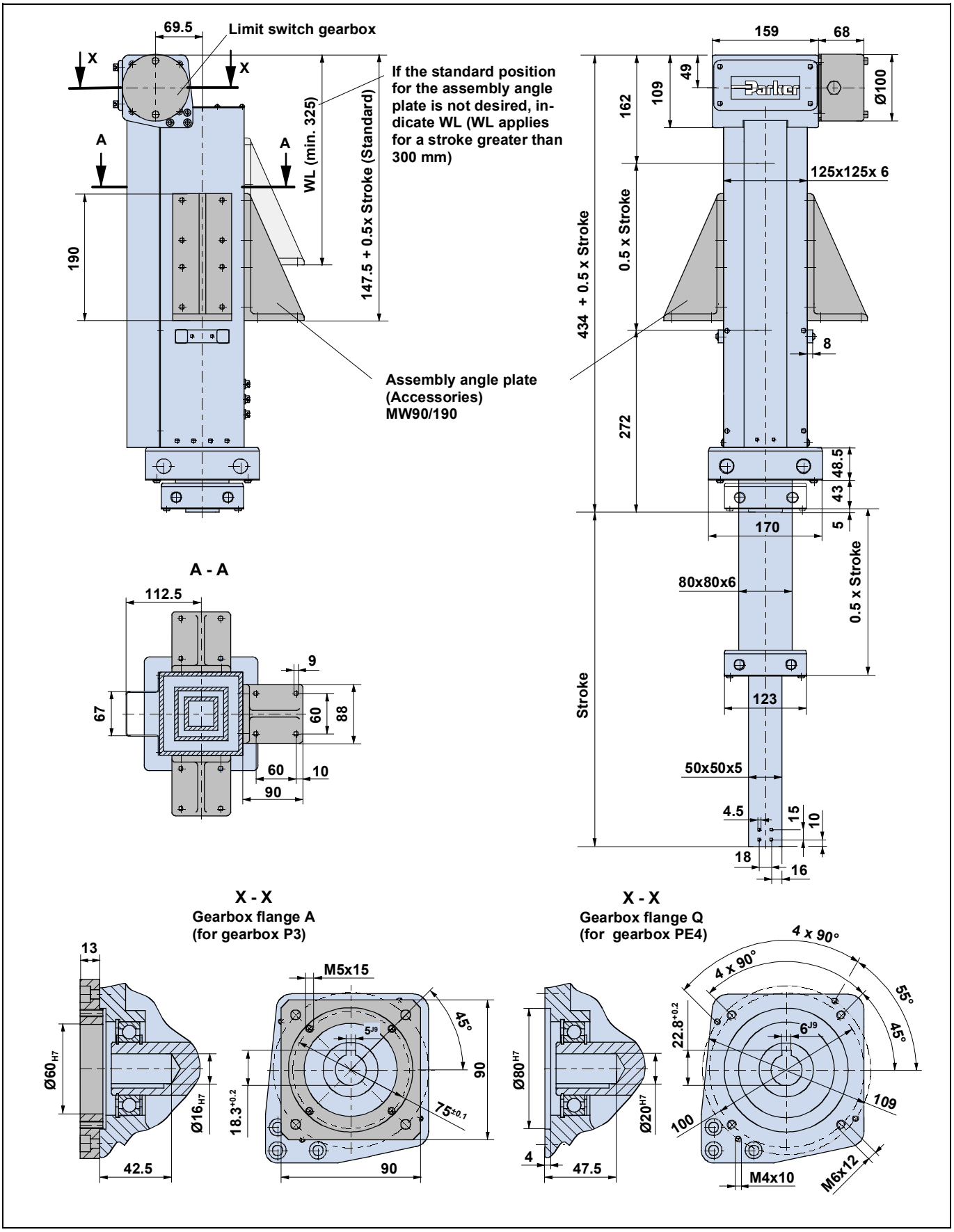
Technical data: safety factor S=1 taken into consideration. The data apply for a temperature range of –10°C to +40°C. The characteristics are valid under normalized conditions and only for the individual operating and load type. In the case of compound loads, it is necessary to verify in accordance with normal physical laws and technical standards whether individual ratings should to be reduced. In case of doubt please contact Parker Hannifin.

[1] Calculated value, taking into account telescope ratio 1:2

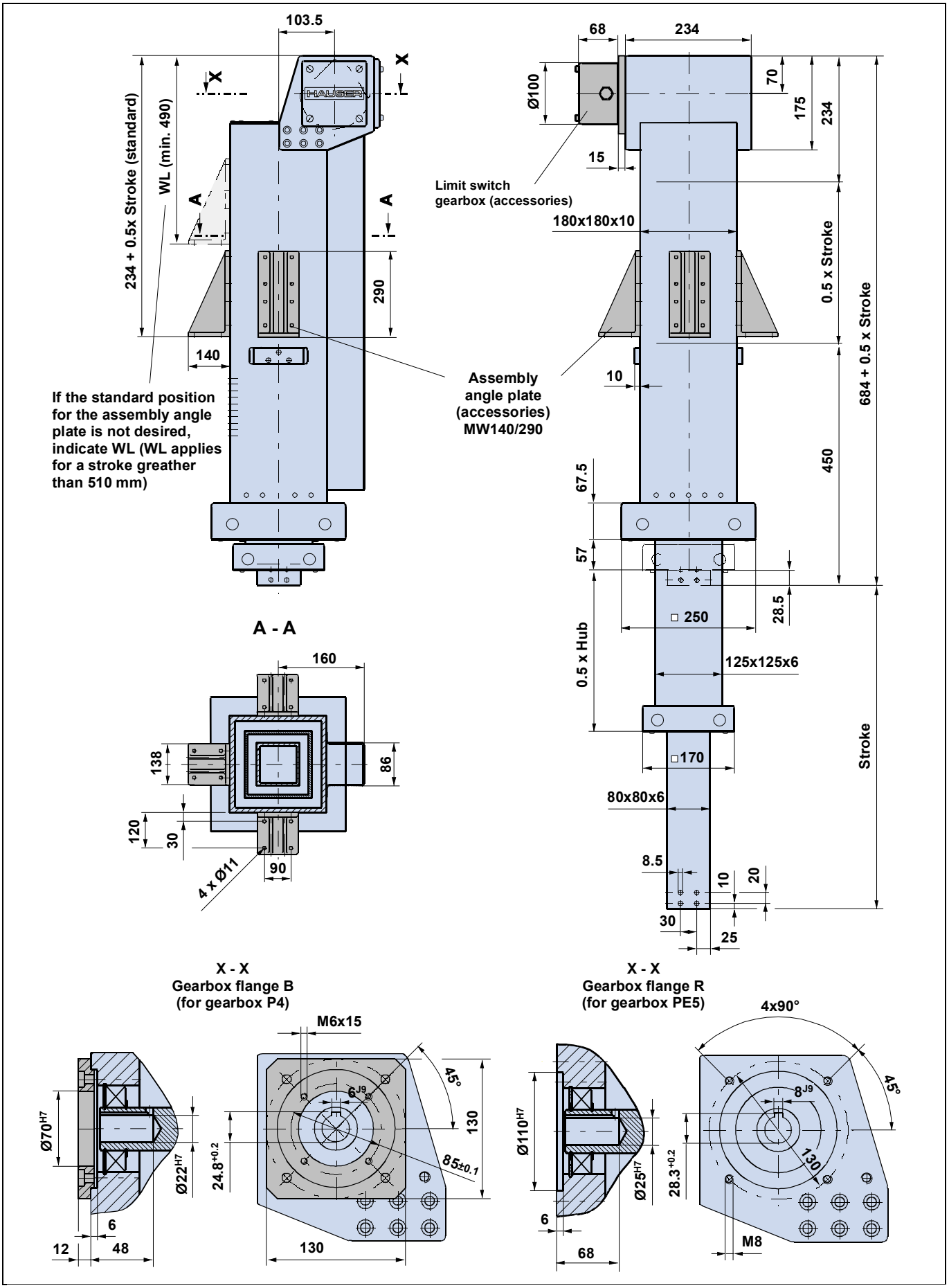
[2] Exact calculations of the load-bearing capacity can be made with the "DimAxes" software (see page 35)

HTR Dimensions

T3B050



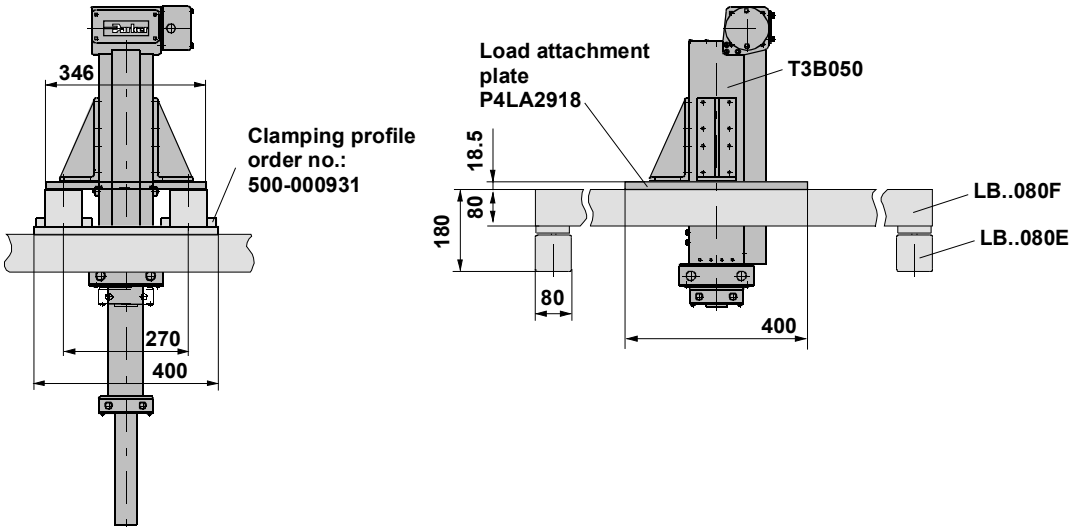
T3B080


103.5
X
X
A
A
234 + 0.5x Stroke (standard)
WL (min. 490)
290
140
If the standard position for the assembly angle plate is not desired, indicate WL (WL applies for a stroke greather than 510 mm)
Assembly angle plate (accessories) MW140/290
68
234
Ø100
70
175
234
15
Limit switch gearbox (accessories)
180x180x10
0.5 x Stroke
684 + 0.5 x Stroke
10
450
67.5
57
28.5
□ 250
0.5 x Hub
125x125x6
□170
80x80x6
Stroke
8.5
10
20
30
25
A - A
160
138
86
120
30
4 x Ø11
90
X - X
Gearbox flange B
(for gearbox P4)
M6x15
Ø70H7
Ø22H7
24.8+0.2
6J9
45°
130
85±0.1
6
12
48
130
X - X
Gearbox flange R
(for gearbox PE5)
4x90°
Ø110H7
Ø25H7
28.3+0.2
8J9
45°
130
6
68
M8

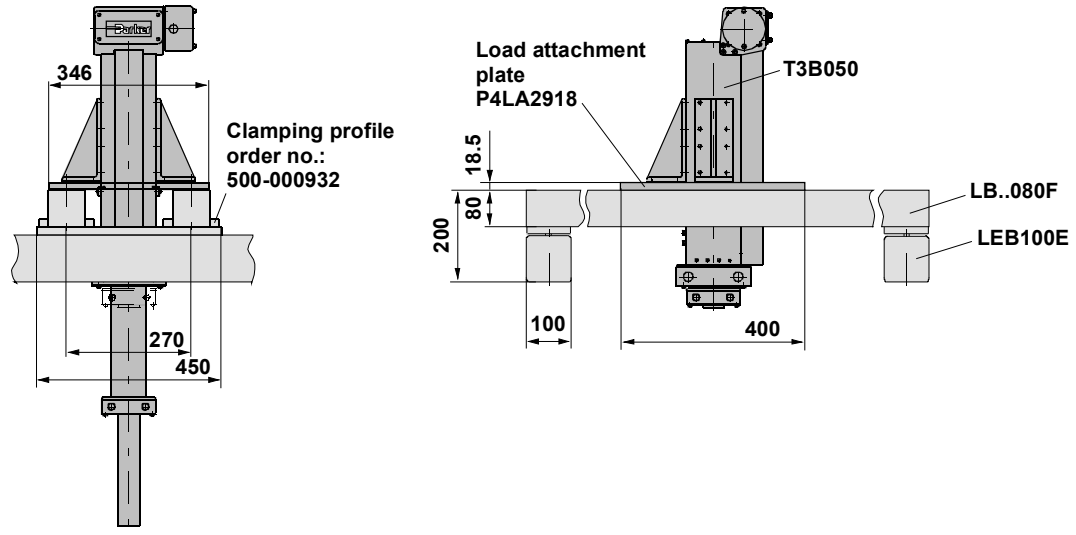
HTR – HLE/HPLA Combinations

Overview of possible combinations

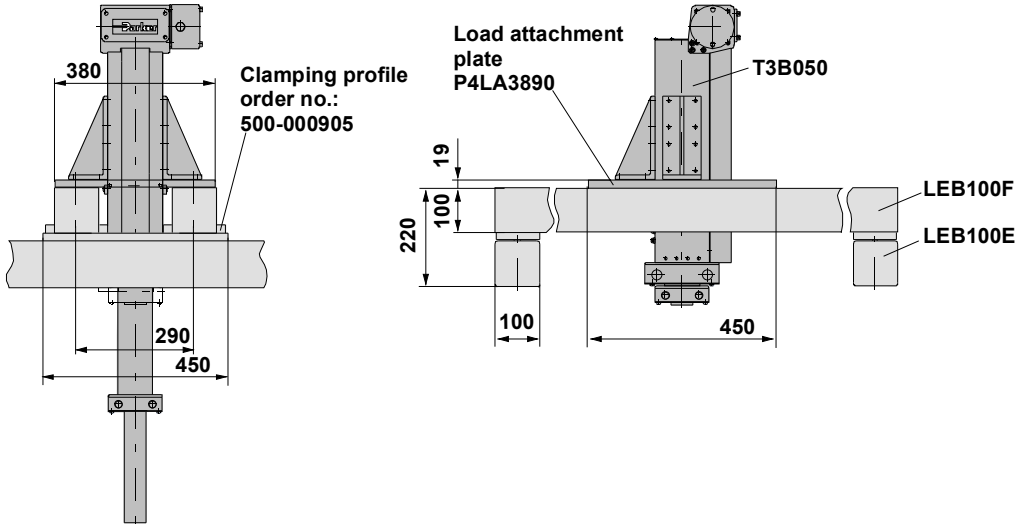
T3B050 - LB..080F double axis / LB..080E double axis



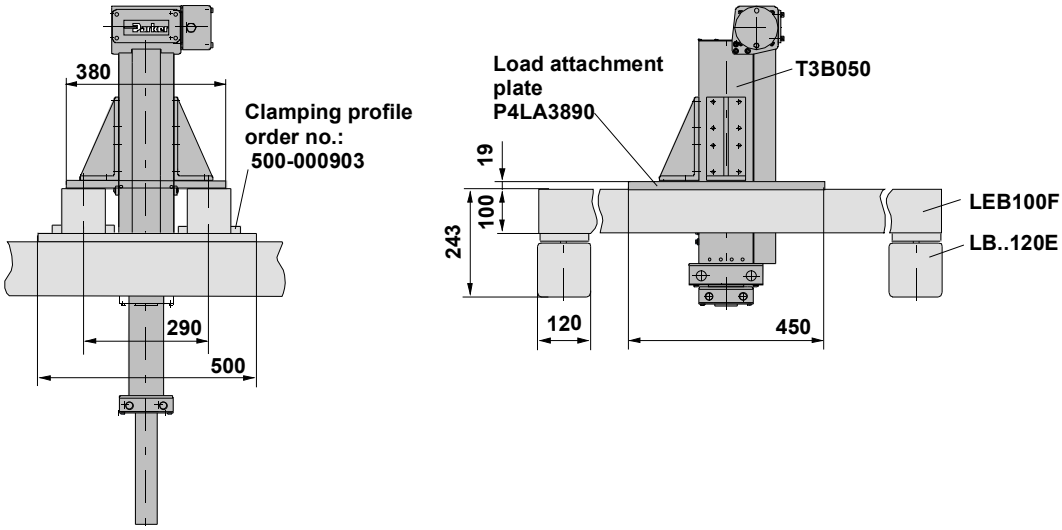
T3B050 - LB..080F double axis / LB..100E double axis



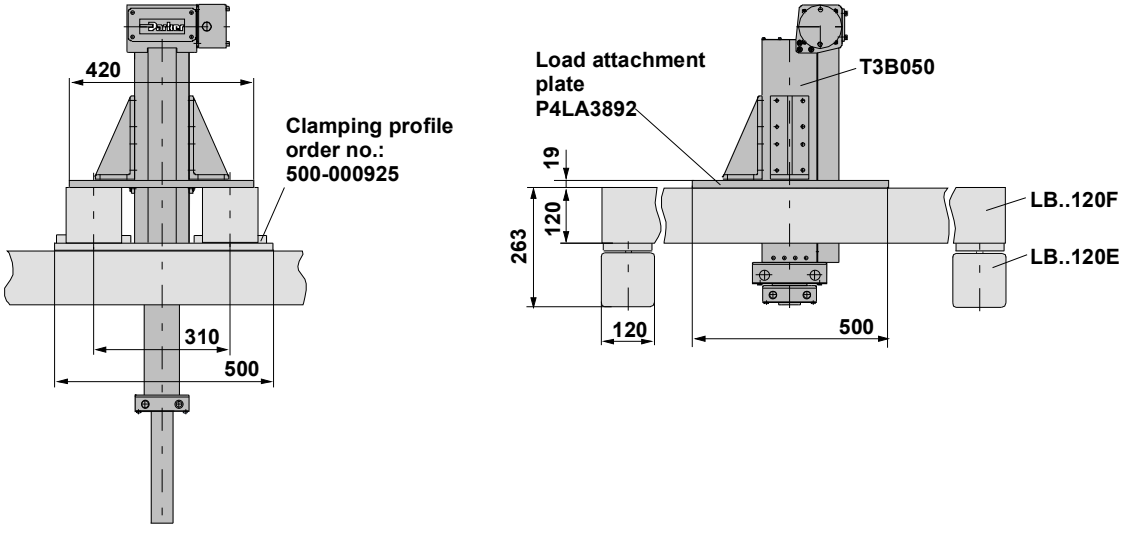
T3B050 – LEB100F double axis / LEB100E double axis



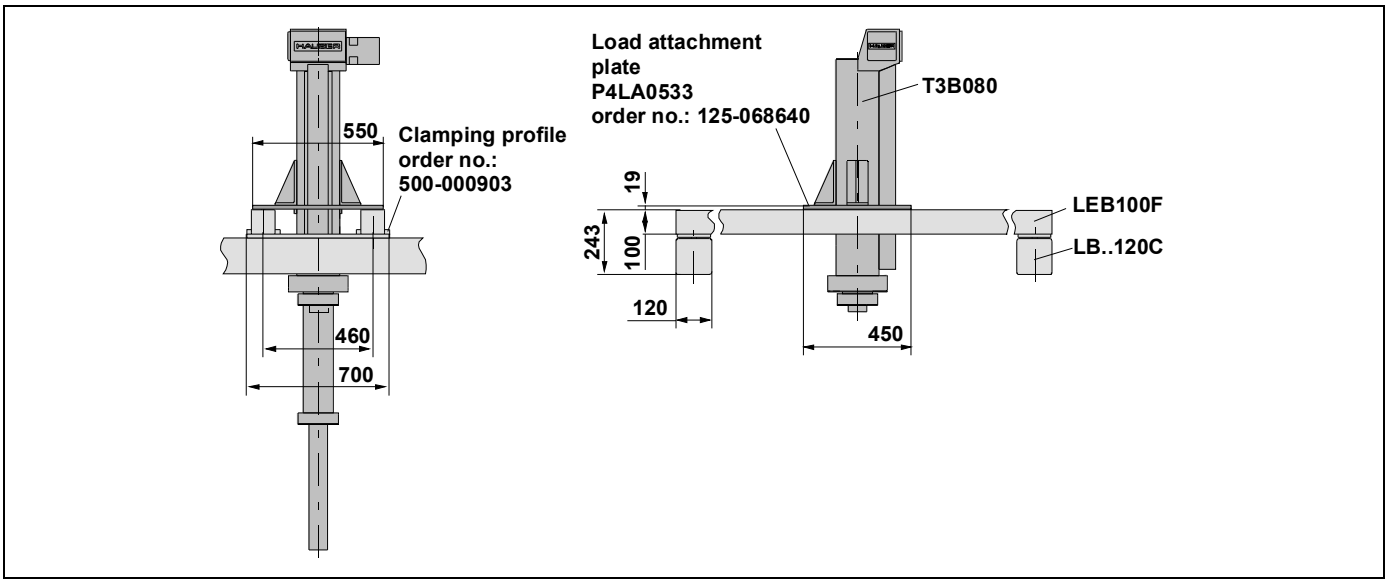
T3B050 – LEB100F double axis / LB..120E double axis



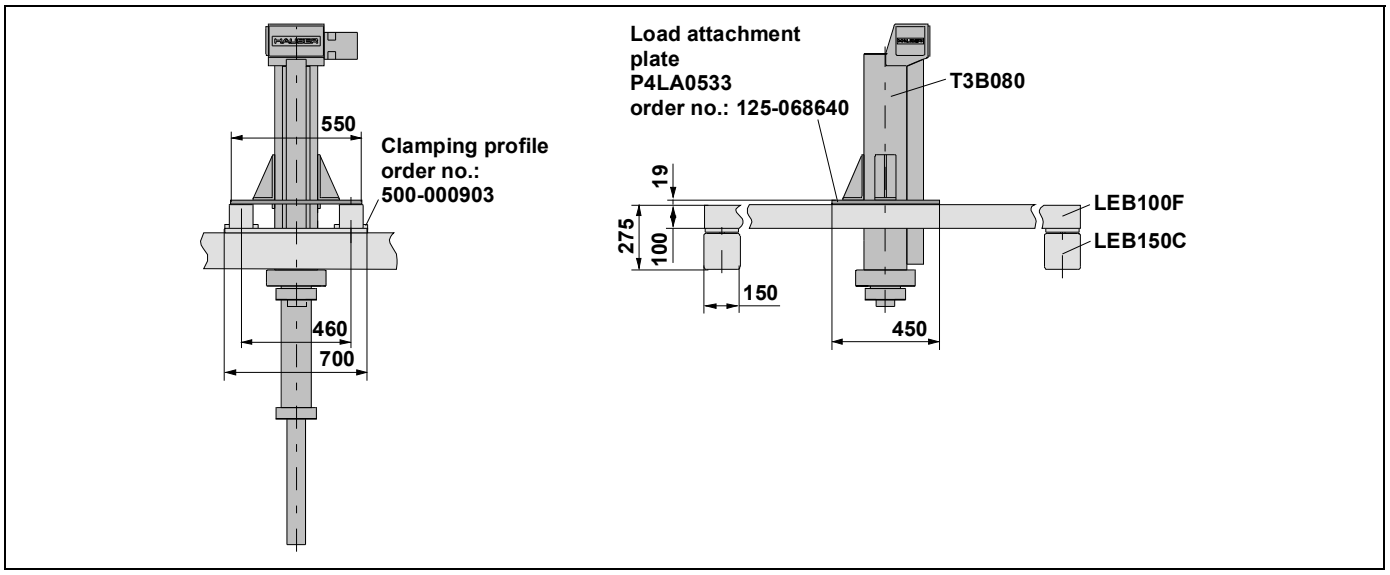
T3B050 – LB..120F double axis / LB..120E double axis



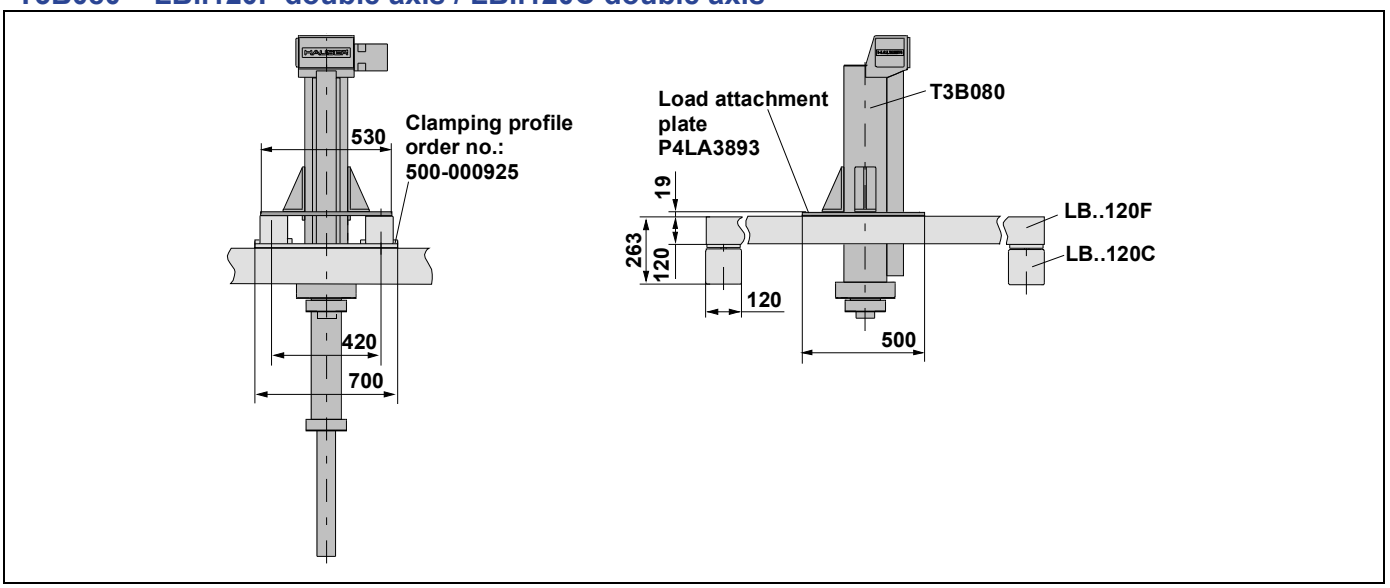
T3B080 – LEB100F double axis / LB..120C double axis



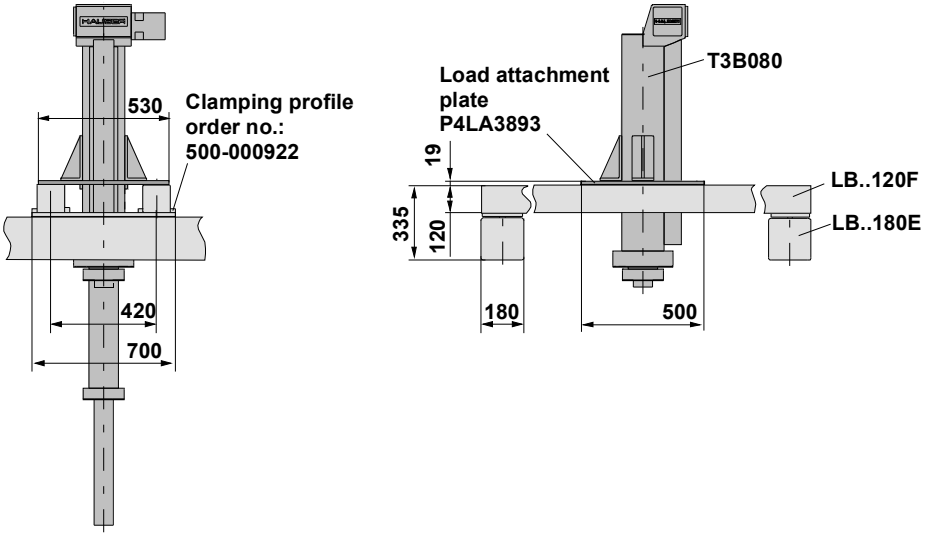
T3B080 - LEB100F double axis / LEB150C double axis



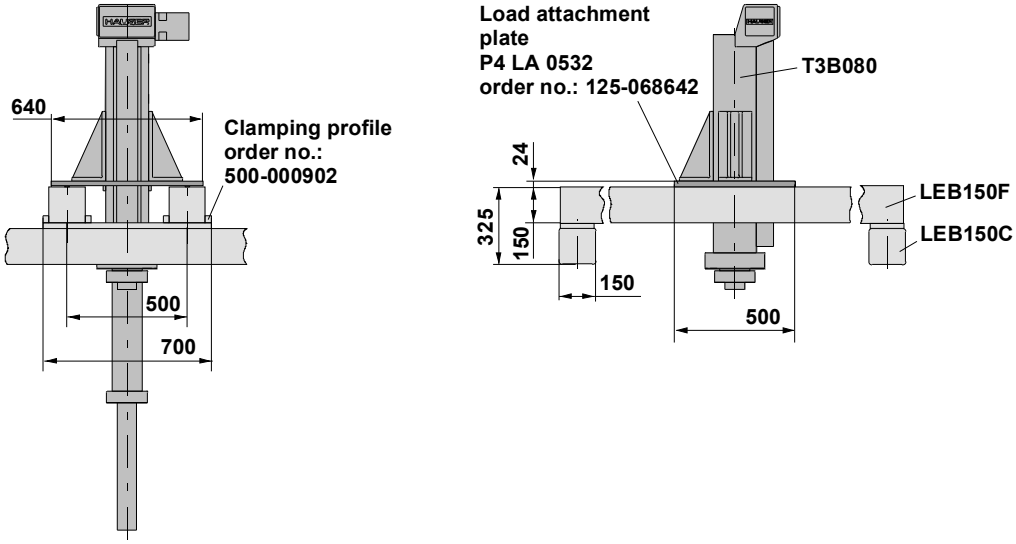
T3B080 – LB..120F double axis / LB..120C double axis



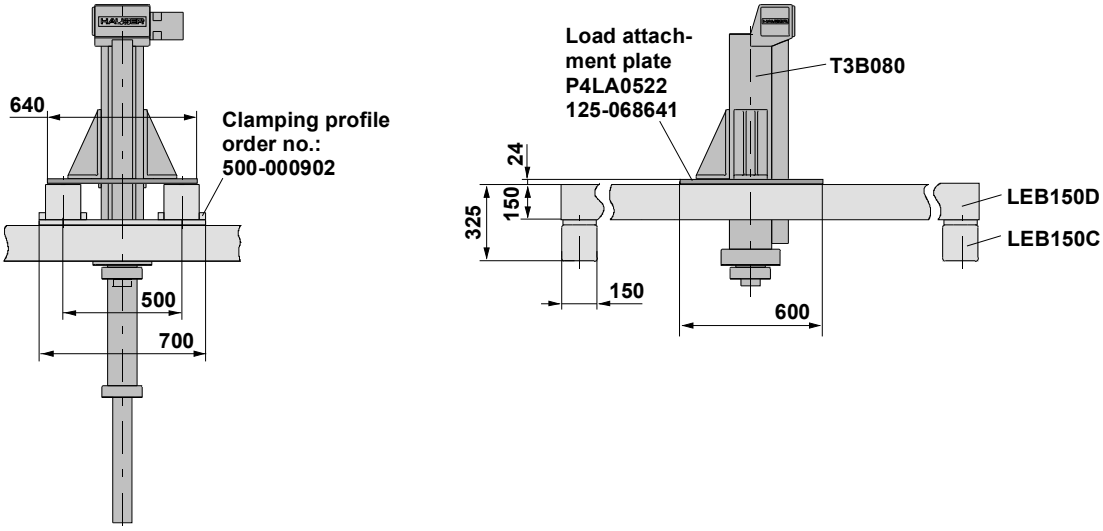
T3B080 – LB..120F double axis / LB..180E double axis



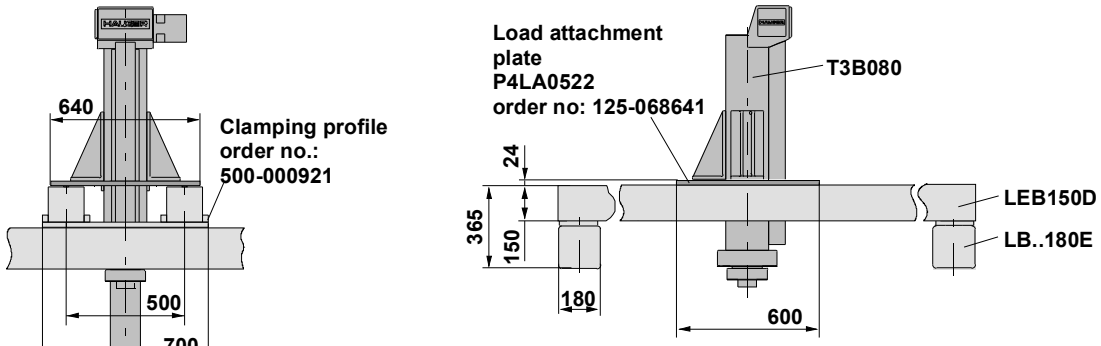
T3B080 - LEB150F double axis / LEB150C double axis



T3B080 - LEB150D double axis / LEB150C double axis



T3B080 – LEB..150D double axis / LB..180E double axis



HZR dynamic stroke actuator

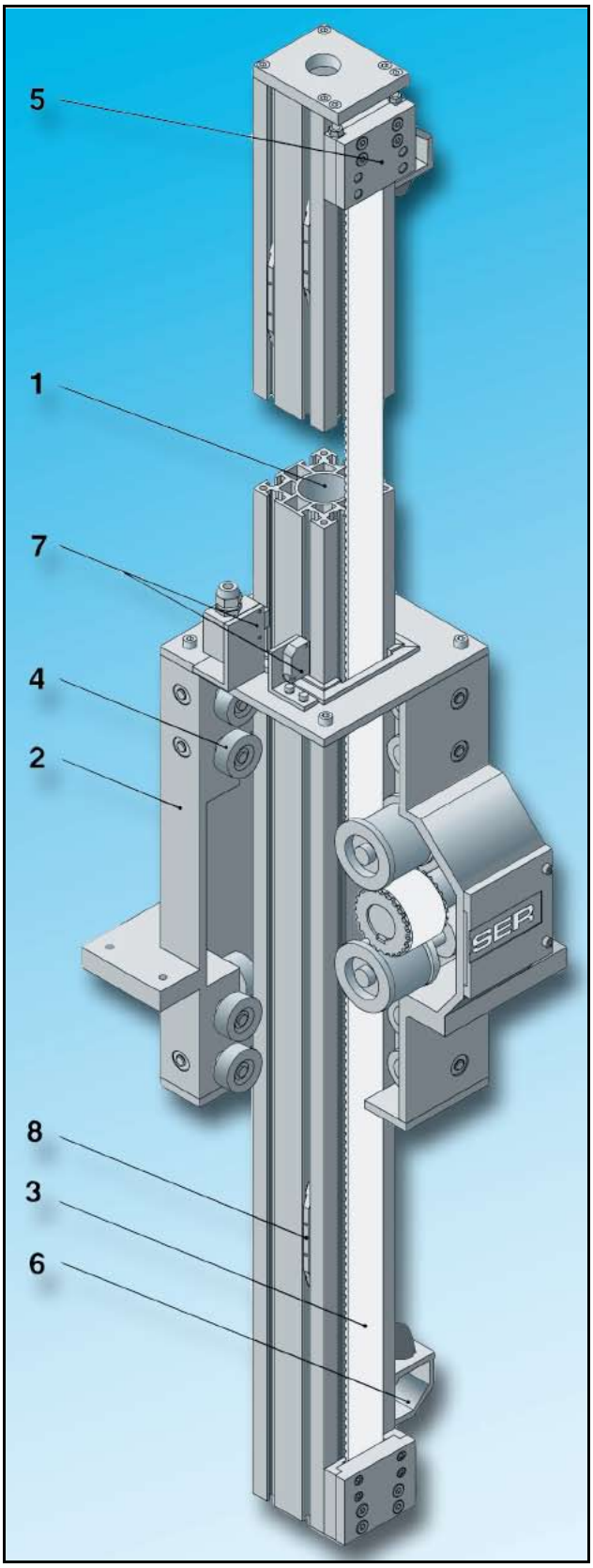
Z-axis with belt drive - designed for vertical use

Contents:

Features of the HZR

- Available in 3 sizes:
  ZEB050, ZEB080 and ZEB100
- Can be combined with Parker linear actuators in a modular system
- Withstands large side forces by means of a deflection-resistant aluminium profile, carried in a closed, generously-dimensioned cast housing.
- Backlash-free guidance by means of adjustable plastic-sheathed rollers mounted on roller bearings.
- High vertical forces up to 1500 N can be accommodated.
- Simple, non-critical installation and start up.
- Low maintenance and low-noise rollers with PA coating.
- Non-wearing and non-slip toothed belt drive.

Construction of the HZR



The profile (1)
Light, compact and self-supporting construction made from a closed and therefore torsion-resistant aluminium profile. Available in the following cross-sections:

50x50mm (ZEB050) / 80x80mm (ZEB080) / 100x100mm (ZEB100)

On each of the three sides of the profile there are two (ZEB080 and ZEB100) resp. one (ZEB050) groove(s) for mounting tripping plates, limit stops and additional mechanical components. Cables can be fed downwards through the large opening in the centre of the profile. At the lower end of the profile, there are four screw threads for suspending loads.

The housing (2)
The stable cast housing with a closed frame structure can withstand very high lateral forces and bending moments resulting from horizontal acceleration for example. An integrated cast flange ensures a stable connection to other mechanical components, such as a dual axis system using Parker linear actuators. The drive can be mounted on either side of the housing.

The toothed belt (3)
High speeds and repeatability are guaranteed by a wide, slip-free toothed belt drive, reinforced by steel tension cords. A wide area clamp ensures a secure connection between the toothed belt and the carriage profile.

The guide rollers (4)
Modern, plastic-sheathed rollers with rolling-contact bearings guarantee low-friction operation. They can be adjusted by means of eccentric bolts so that the profile (1) is backlash-free. Very high side forces and moments can be applied due to the large roller distances in the stable housing.

The tensioning station (5)
The tensioning station is easily accessible and is therefore easy to maintain and mount. It is used to set the required pre-tension of the toothed belt.

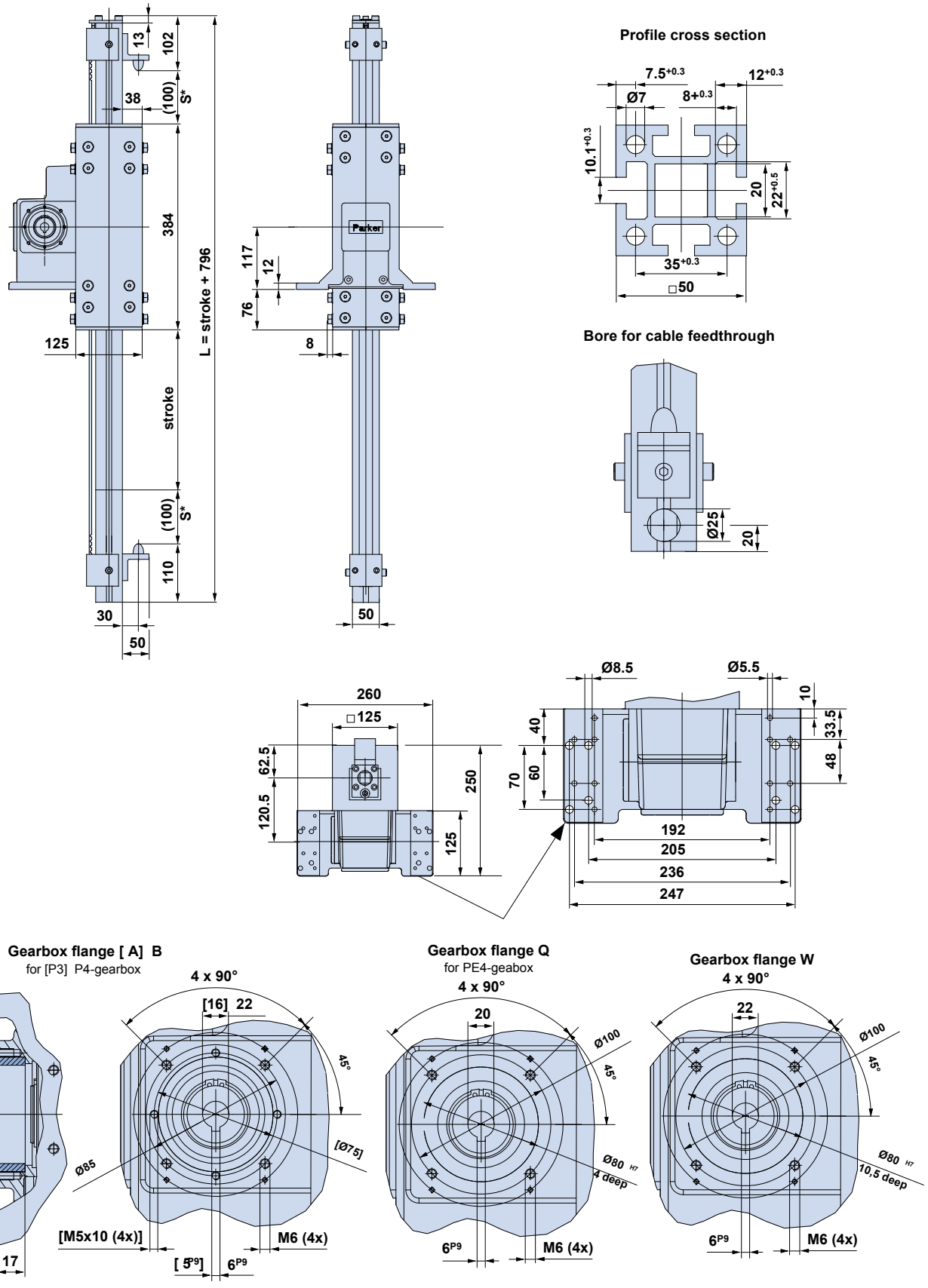
The limit stop (6)
The mechanical limit stops consist of stable, closed aluminium brackets each with two damping rubber buffers. These can be moved freely along the profile grooves and can be mounted on any side of the profile (except the toothed belt side).

The position sensors (7)
Mechanical or inductive limit switches may optionally be mounted on the covers of the upper and lower sides of the HZR housing. A cylindrical limit switch (home sensor) may be optionally mounted on the right or on the left side of the ZEB050 housing.

The tripping plate (8)
The tripping plates are completely integrated into the profile grooves and can be continuously varied in position.

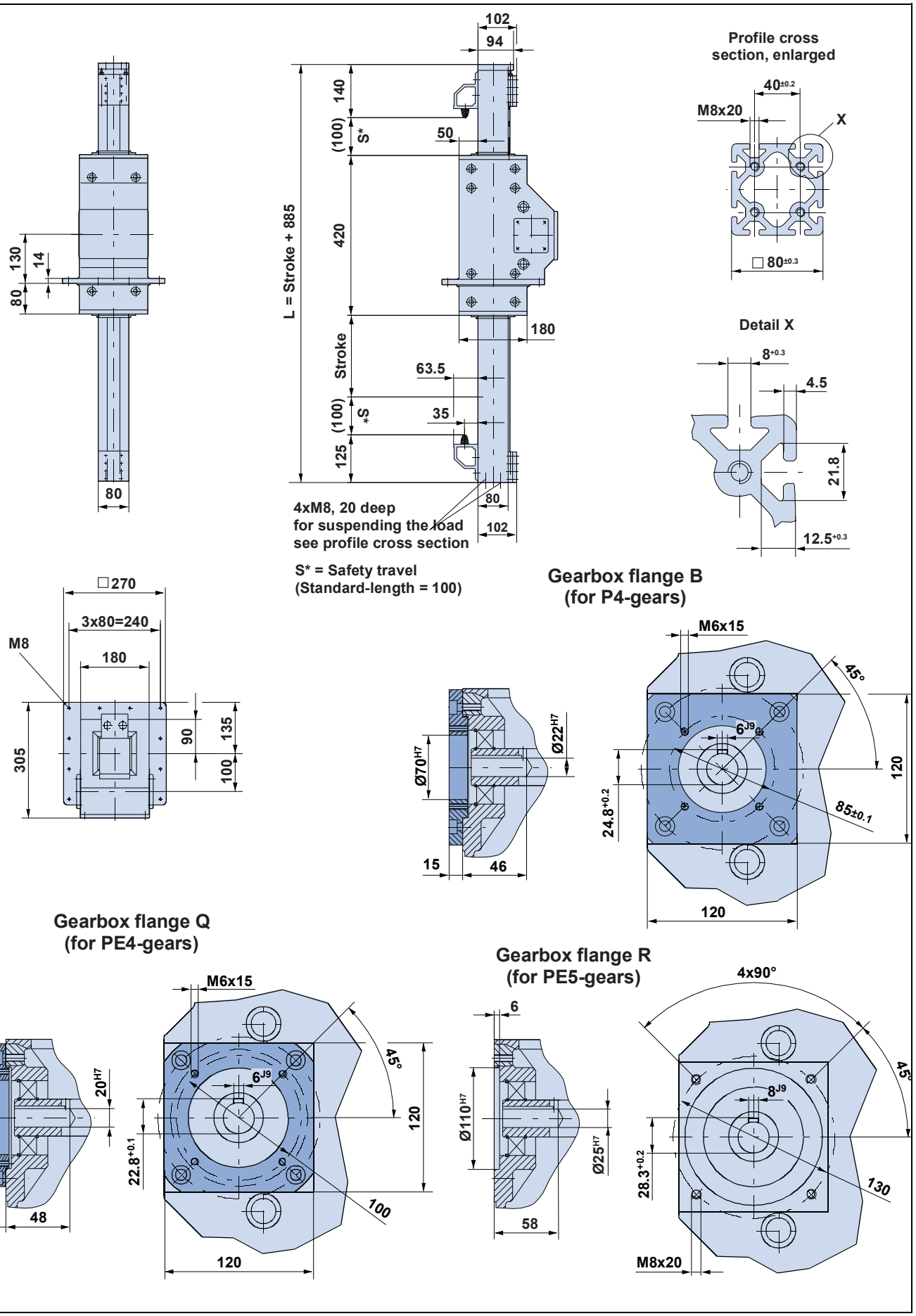
Dimensions

ZEB050

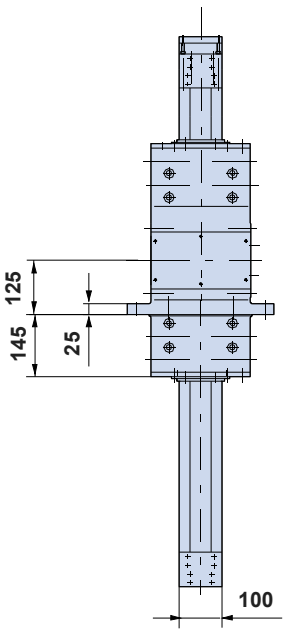


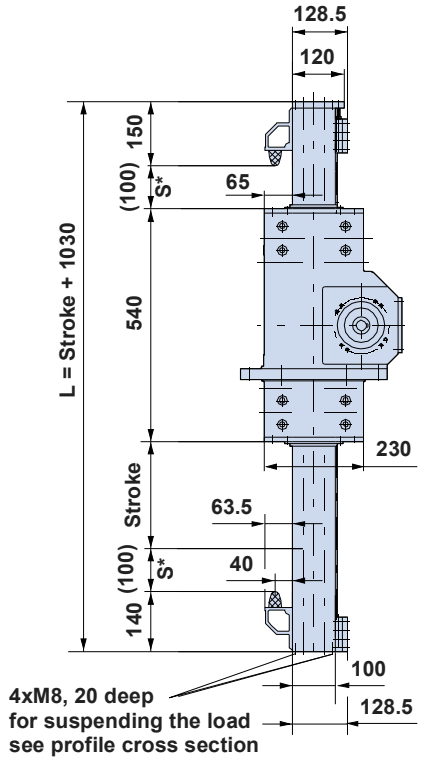
Note: P3-gearbox is fitted at a 45° angle

ZEB080


102
94
140
(100)
S*
50
420
Stroke
63.5
35
125
180
L = Stroke + 885
80
130
14
80
4xM8, 20 deep
for suspending the load
see profile cross section
S* = Safety travel
(Standard-length = 100)
Profile cross
section, enlarged
40±0.2
M8x20
X
□80±0.3
Detail X
8+0.3
4.5
21.8
12.5+0.3
□270
3x80=240
M8
180
305
90
135
100
Gearbox flange B
(for P4-gears)
M6x15
45°
6J9
Ø22H7
Ø70H7
15
46
24.8+0.2
85±0.1
120
120
Gearbox flange Q
(for PE4-gears)
Ø80H7
20H7
12
48
M6x15
45°
6J9
120
22.8+0.1
100
120
Gearbox flange R
(for PE5-gears)
6
Ø110H7
Ø25H7
58
4x90°
45°
8J9
28.3+0.2
130
M8x20

ZEB100

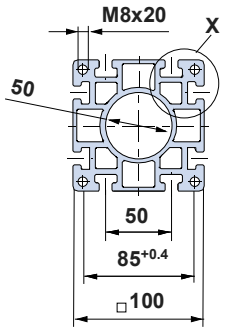




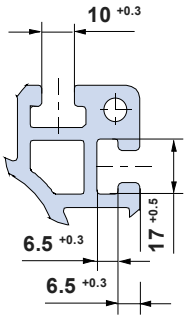
4xM8, 20 deep
for suspending the load
see profile cross section

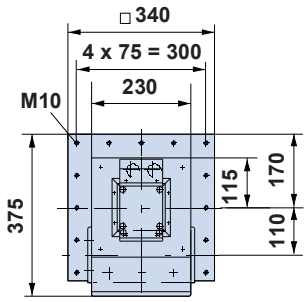
S* = safety travel
(Standard-length = 100)

Profile cross section, enlarged

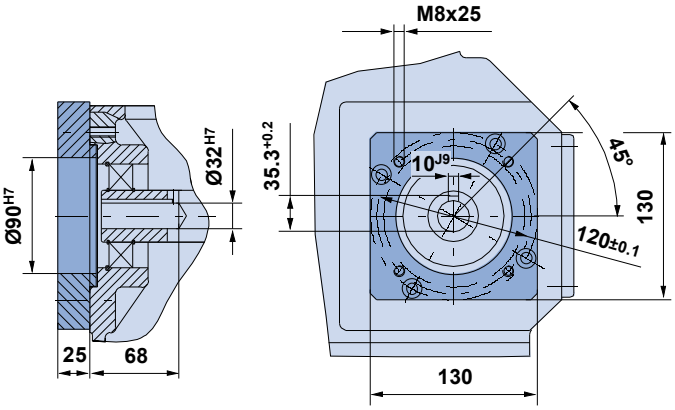


Detail X

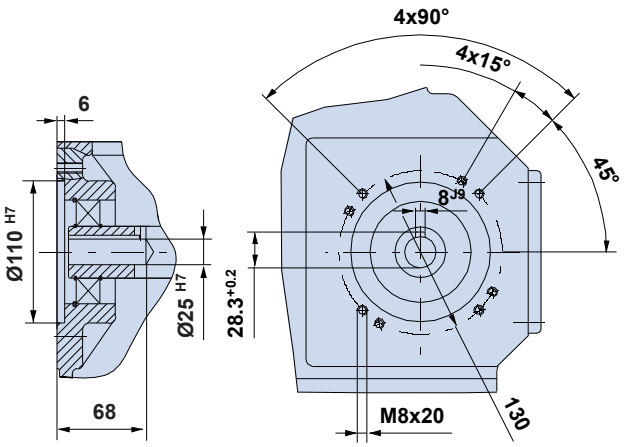




Gearbox flange C (For P5-gearbox)



Gearbox flange R (For PE5-gearbox)



Technical data

HZR size **P:** standard guiding; **E:** extended guiding[1]	Unit	ZEB050		ZEB080	ZEB100
		P	E	P	P
Weights and mass moments of inertia					
Weight of basic unit without stroke	kg	12.4	14.3	30.7	50.2
Additional weight per metre of stroke	kg/m	2.9		6.4	9.8
Mass moment of inertia, related to the drive shaft, no stroke	$kgcm^2$	40.8	41.2	153.7	209.3
Additional mass moment of inertia related to the drive shaft per metre of stroke	$\frac{kgcm^2}{m}$	25.31		96.3	147.7
Travel lengths and speeds					
Maximum travel speed	m/s	5.0		5.0	5.0
Maximum travel path	mm	1500		1500	2000
Maximum acceleration	m/s^2	5		5	5
Accuracy					
Repeatability in one direction (DIN EN ISO 9283)	mm	±0.2		±0.2	±0.2
Overall dimensions & physical data					
Cross section of moving profile	mm x mm	50 x 50		80 x 80	100 x 100
Geometrical moment of inertia $I_x = I_y$	cm^4	29.9		174.7	392
Section modulus $W_x = W_y$	cm^3	29.9		43.6	78.4
Torques, forces, dimensions of pulley and toothed belt					
Travel distance per revolution	mm/rev	180		240	240
Diameter of pulley	mm	57.300		76.394	76.394
Toothed belt width / pitch	mm	25 / 10		32 / 10	50 / 10
Nominal drive torque	Nm	13		28.6	57.3
Maximum drive torque	Nm	47		108	168
Nominal traction (effective load)	N	450		750	1500
Maximum belt traction[2]	N	1654		2827	4400

Please contact Parker if your application has the following requirements:

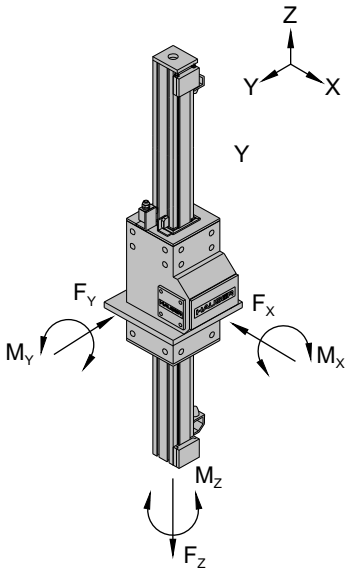
1. Speeds and acceleration greater than the data given above
2. Travel greater than the data given above
3. If the nominal load capacity (Fz) is greater than the data given above, an increased toothed belt tension is required.
4. Fitting position horizontal or upside down.

Technical data: safety factor S=1 taken into consideration. The data apply for a temperature range of –10°C to +40°C. The characteristics are valid under normalized conditions and only for the individual operating and load type. In the case of compound loads, it is necessary to verify in accordance with normal physical laws and technical standards whether individual ratings should to be reduced. In case of doubt please contact Parker Hannifin.

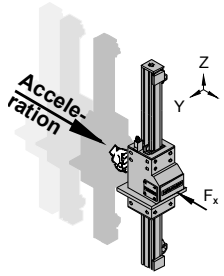
[1] Extended guiding with 16 additional rollers in the housing

[2] Vertically accelerated at 5 m/s² with the payload of a ZEB/HZR050 (30 kg), ZEB/HZR080 (50 kg) and HZR100 (100 kg).

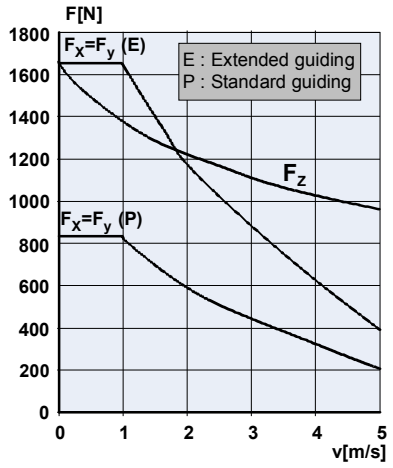
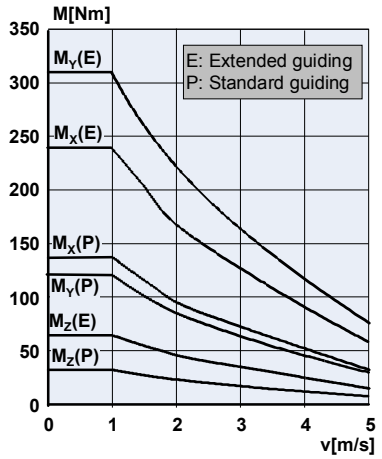
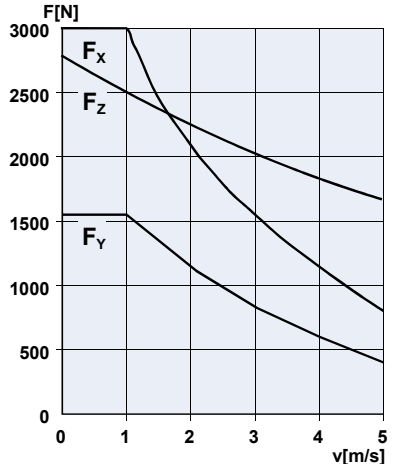
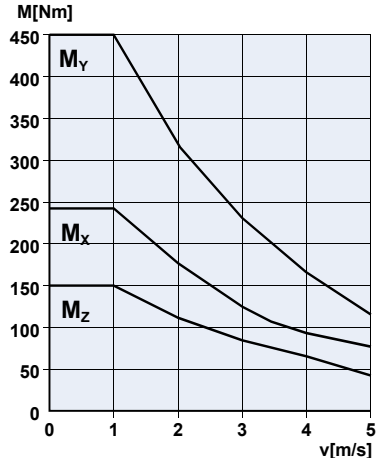
Force and torque capabilities

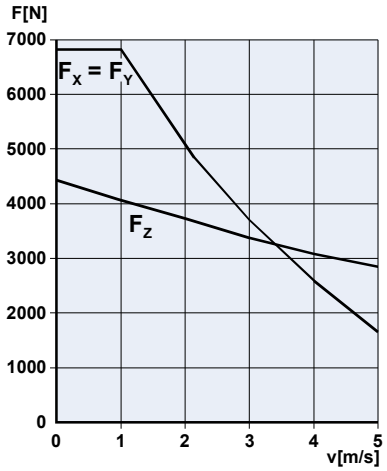
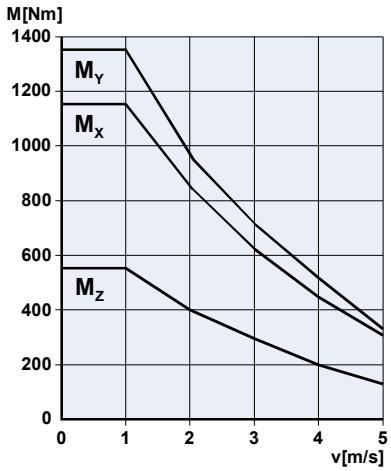


The forces and torques the rollers and toothed belt are capable of transferring are speed-dependent.
The curves show the maximum load-bearing capacity of the rollers in one direction of force or torque. If several loads are applied in different directions, the values specified in the curves **must be derated**, i.e. the load or speed should be reduced if necessary.
For precise dimensioning, our software "DimAxes" is available (Refer to "other accessories/software", on page 35)

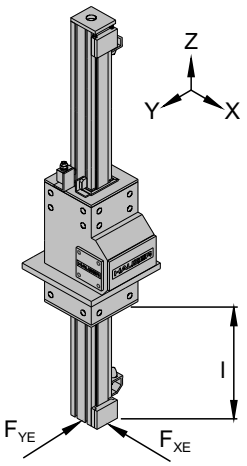


Note: The forces Fx resp. Fy arise as forces of inertia if the HZR itself is mounted on a linear actuator and is accelerated!

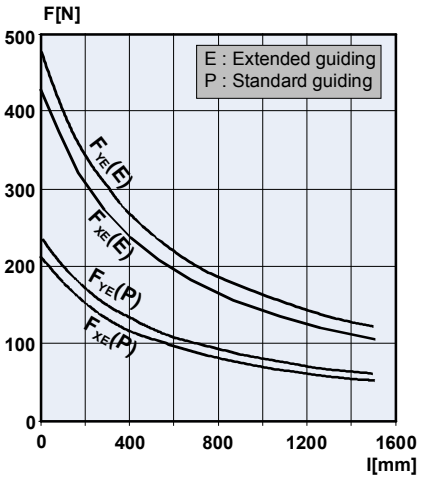
Axis type	Fx, Fy, Fz	Mx, My, Mz
ZEB050		
ZEB080		

Axis type	Fx, Fy, Fz	Mx, My, Mz
ZEB100		

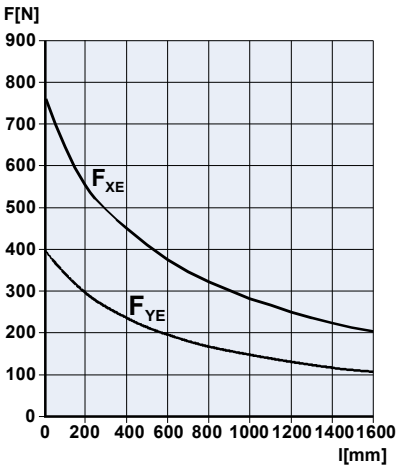
Roller load bearing capacity on the basis of a permanent side load



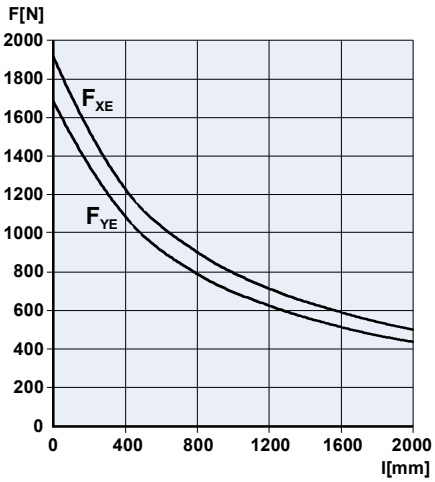
ZEB050



ZEB080



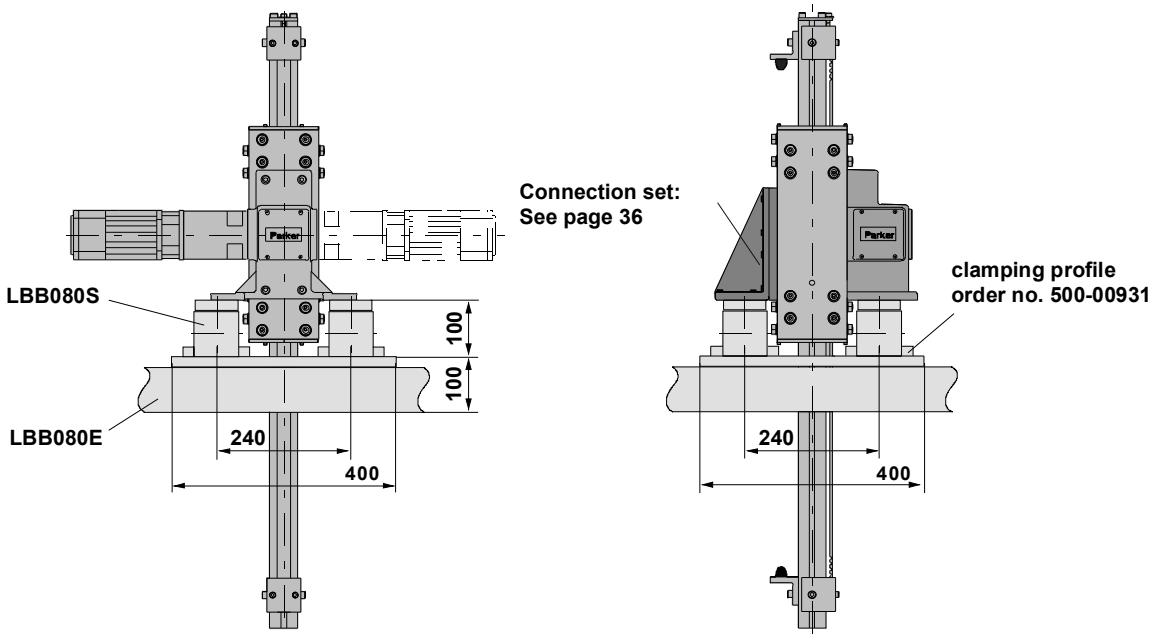
ZEB100



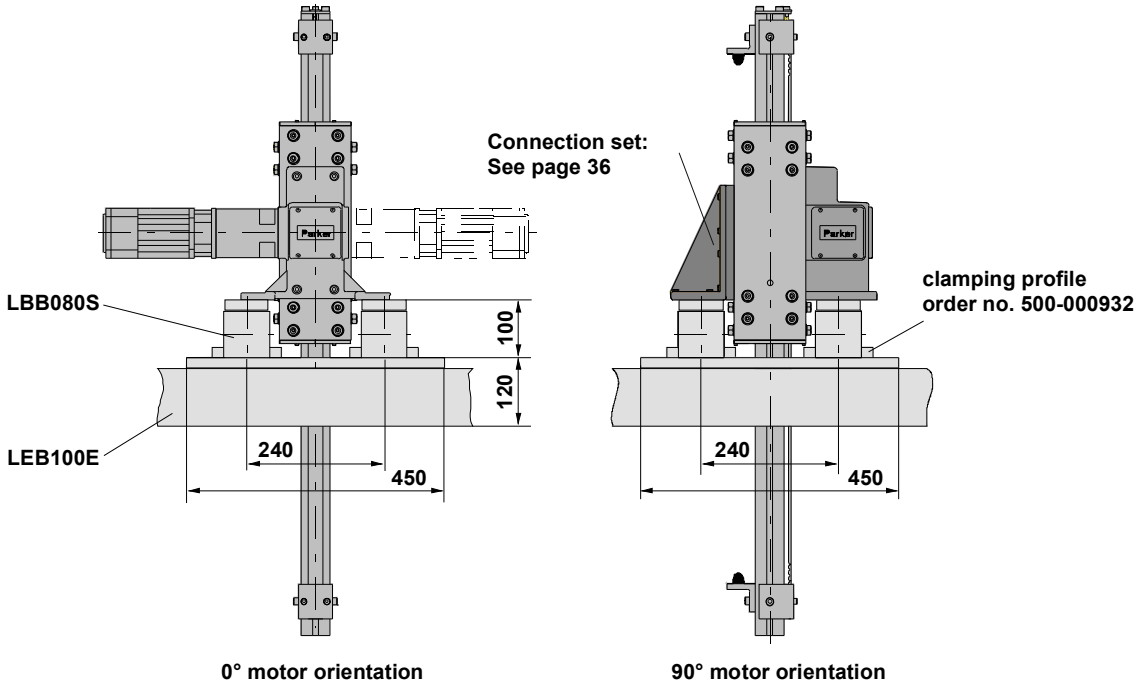
HZR – HLE/HPLA Combinations

Overview of possible combinations

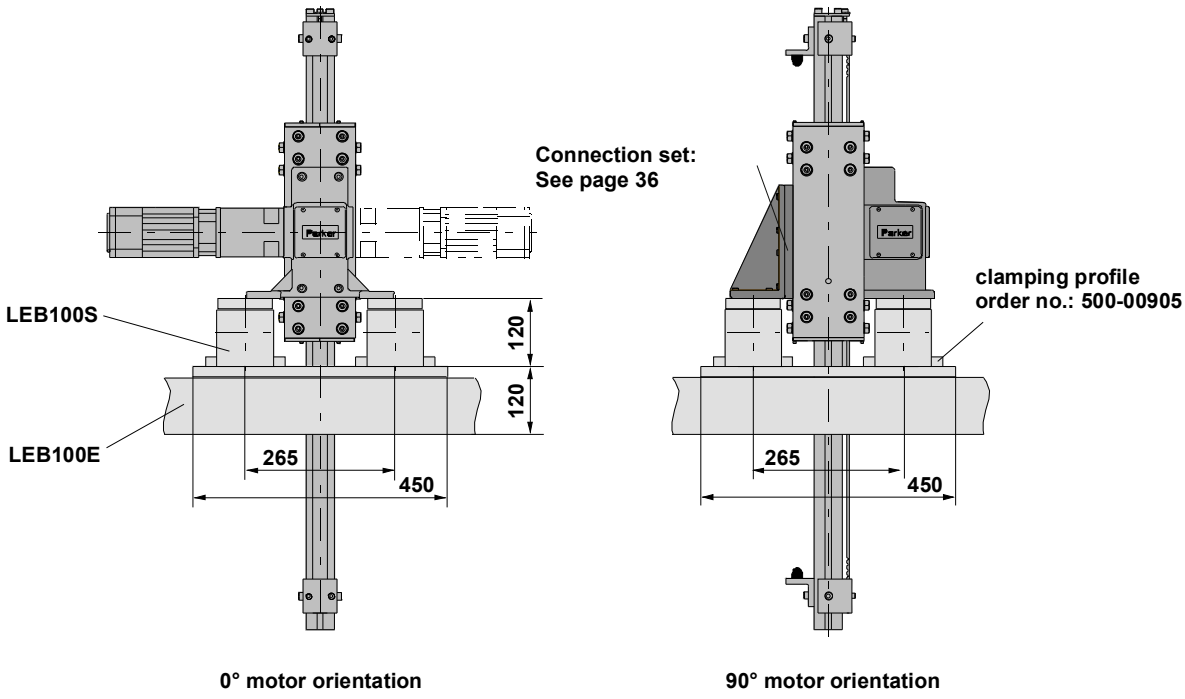
ZEB050 - LB..080S double axis / LB..080E double axis



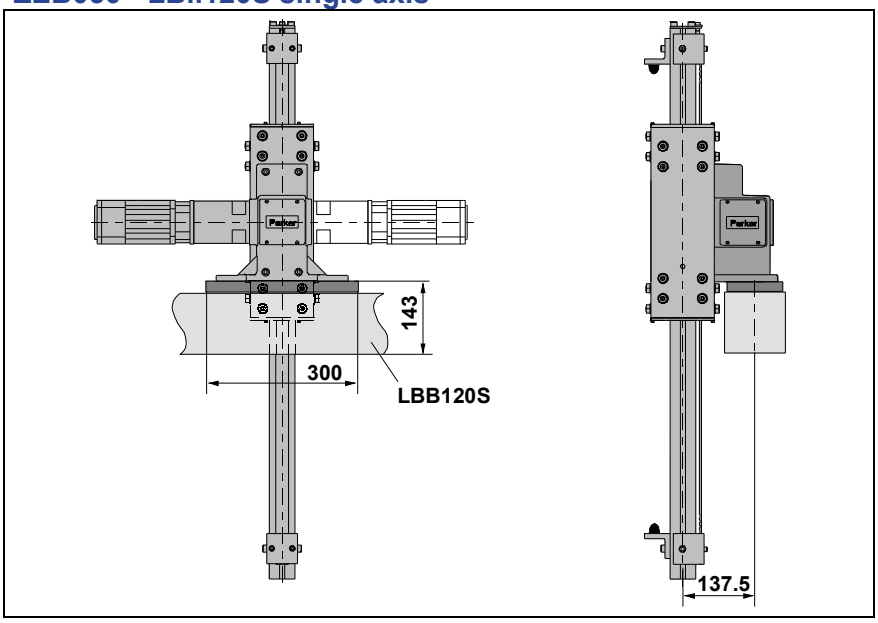
ZEB050 - LB..080S double axis / LEB100E double axis



ZEB050 - LEB100S Double axis / LEB100E Double axis



ZEB050 - LB..120S single axis

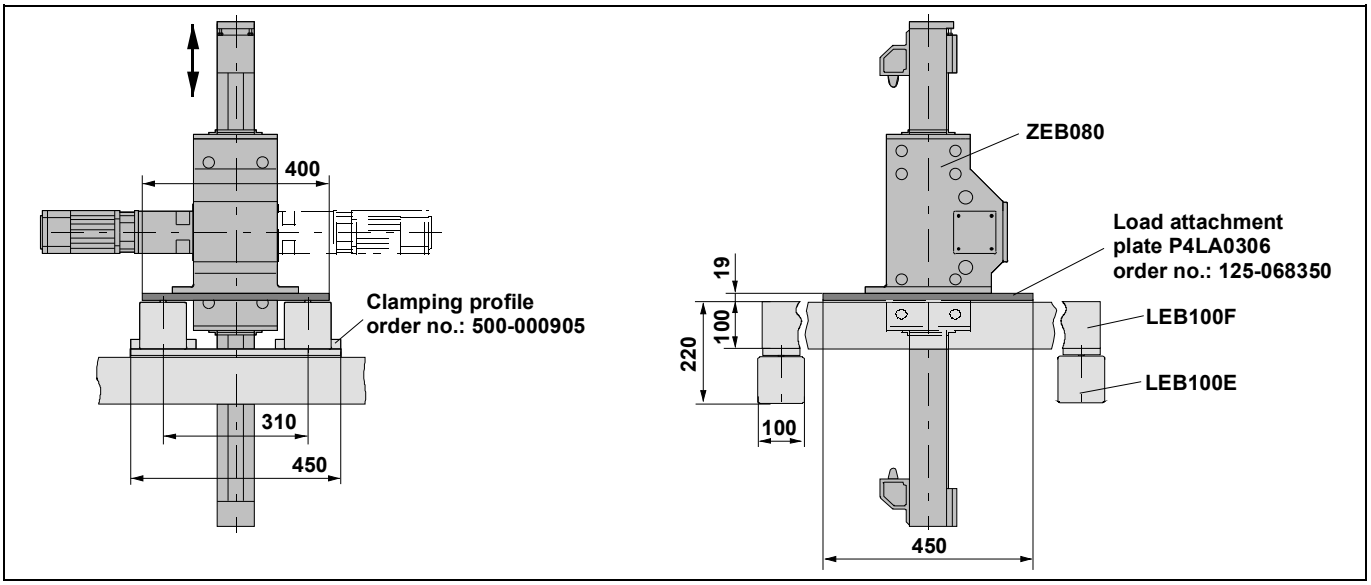


Please provide for a robust base when using this axis combination. The HPLA120 must be supported in regular and not too wide spaces.

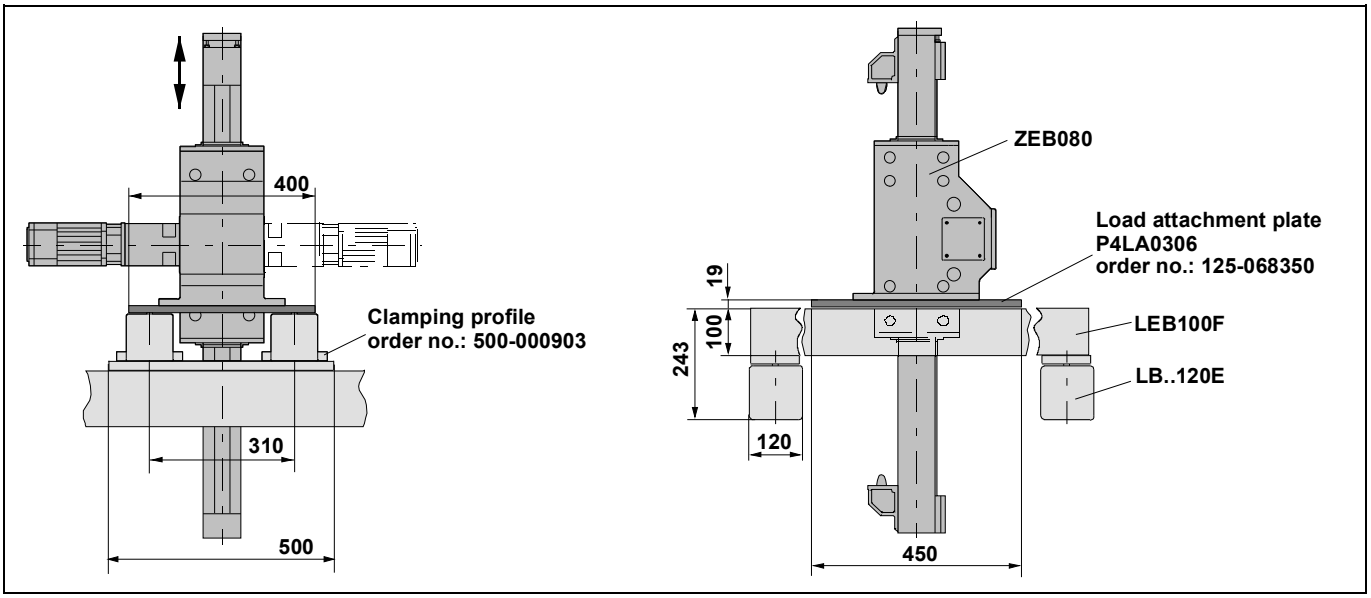
When using a standard carriage (length 300mm as shown in the drawing), a HPLA with steel roller guiding is necessary.

When using an extended carriage (length 500mm), a plastic roller guiding is sufficient.

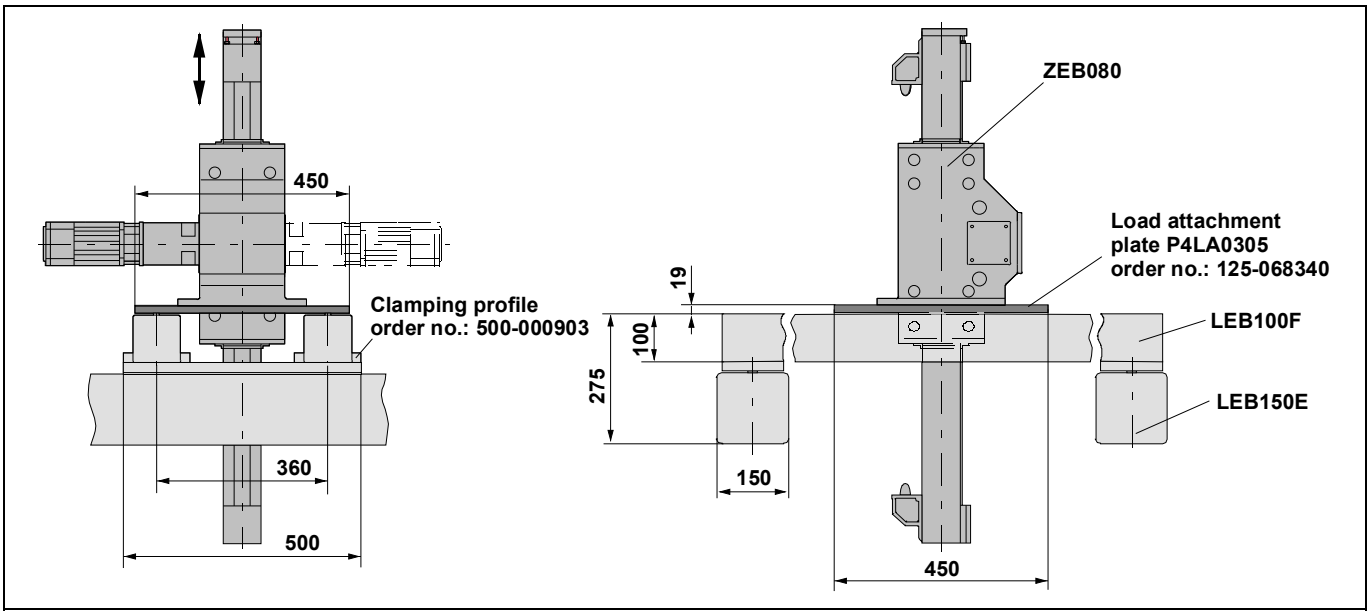
ZEB080 - LEB100F Double axis / LEB100E Double axis



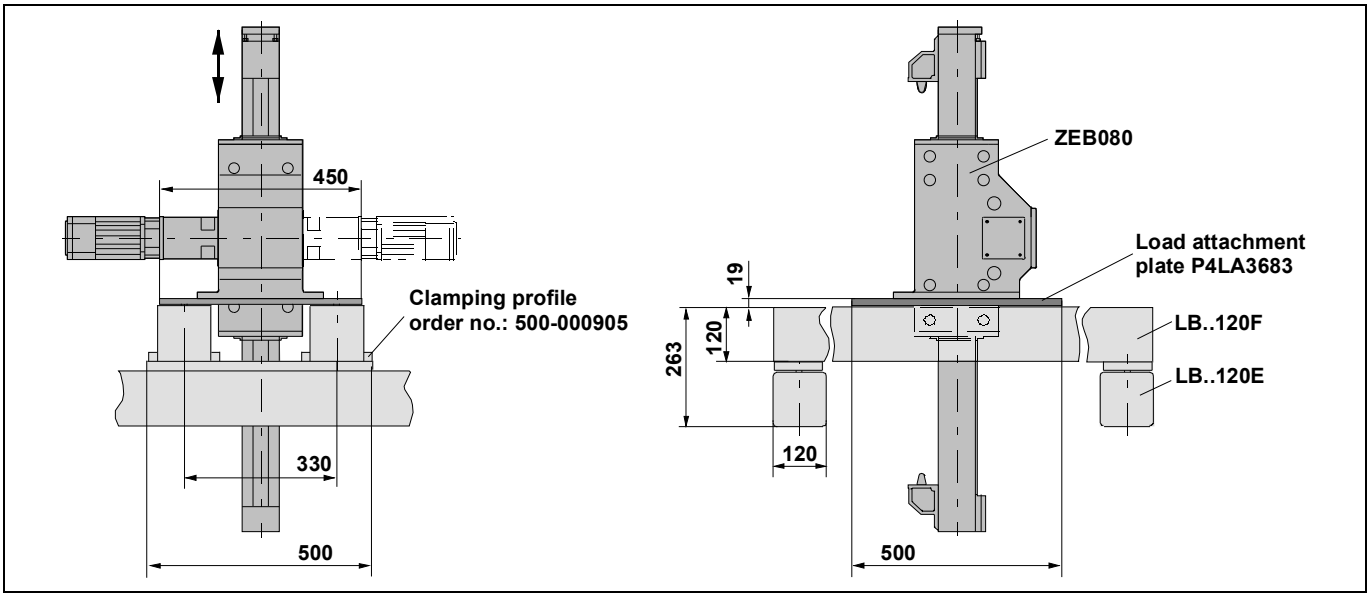
ZEB080 – LEB100F double axis / LB..120E double axis



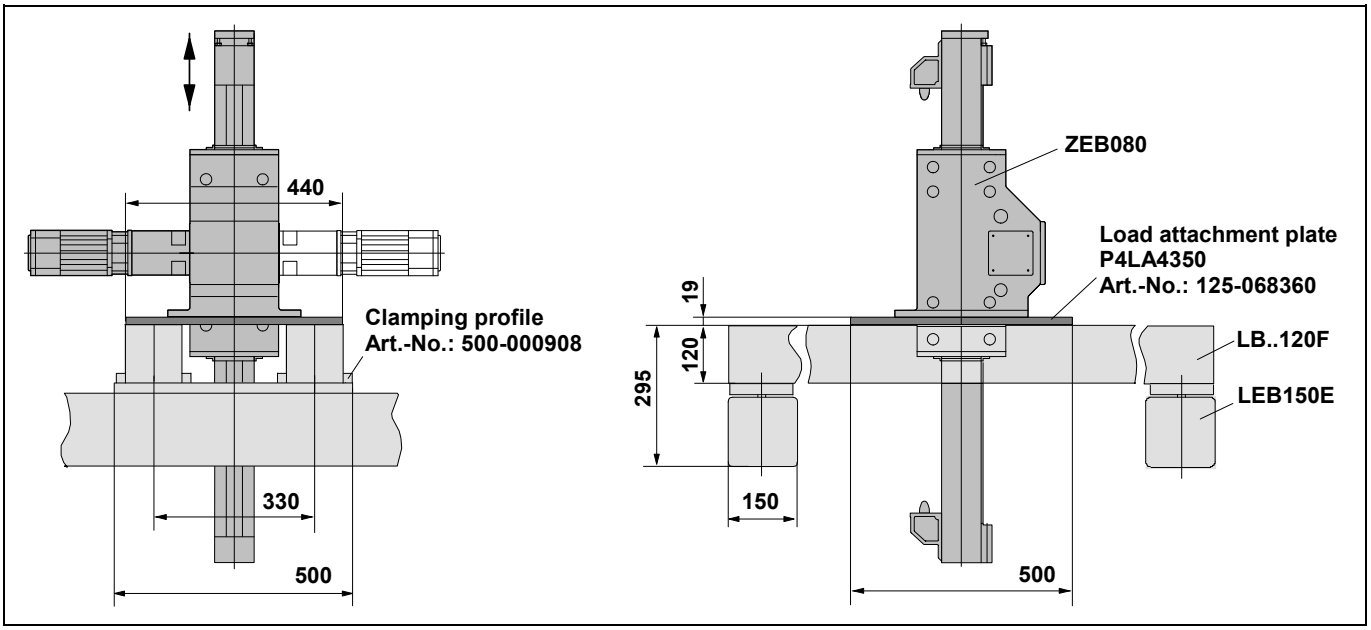
ZEB080 - LEB100F Double axis / LEB150E Double axis



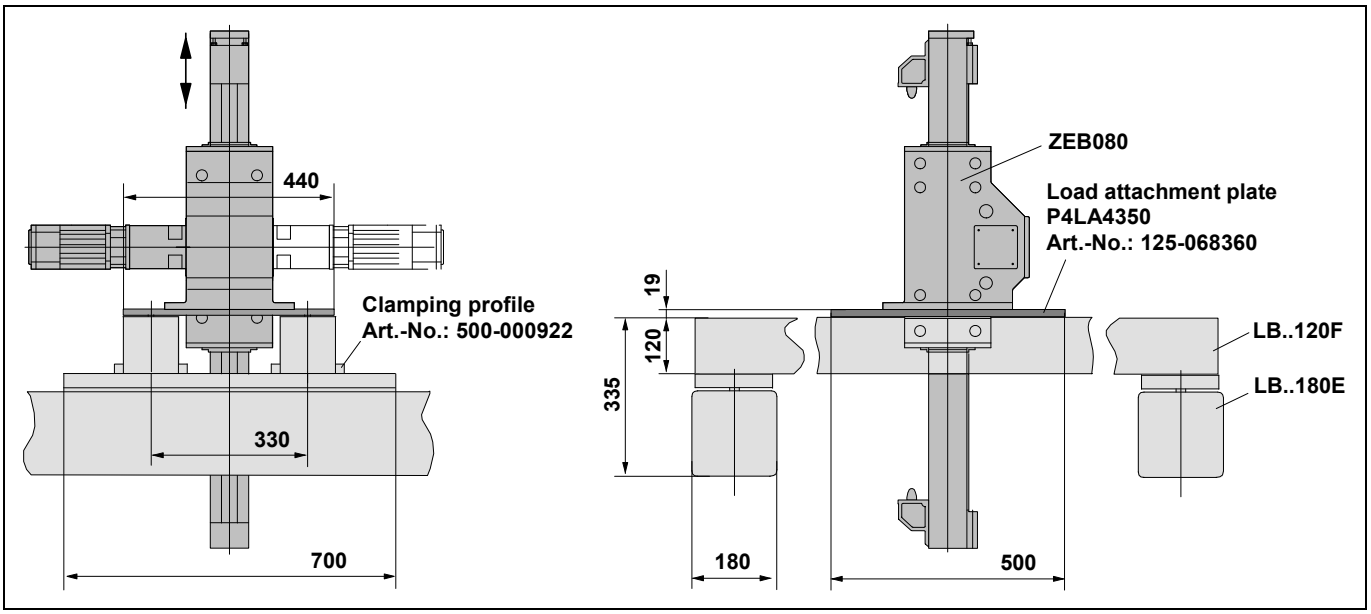
ZEB080 – LEB120F double axis / LB..120E double axis



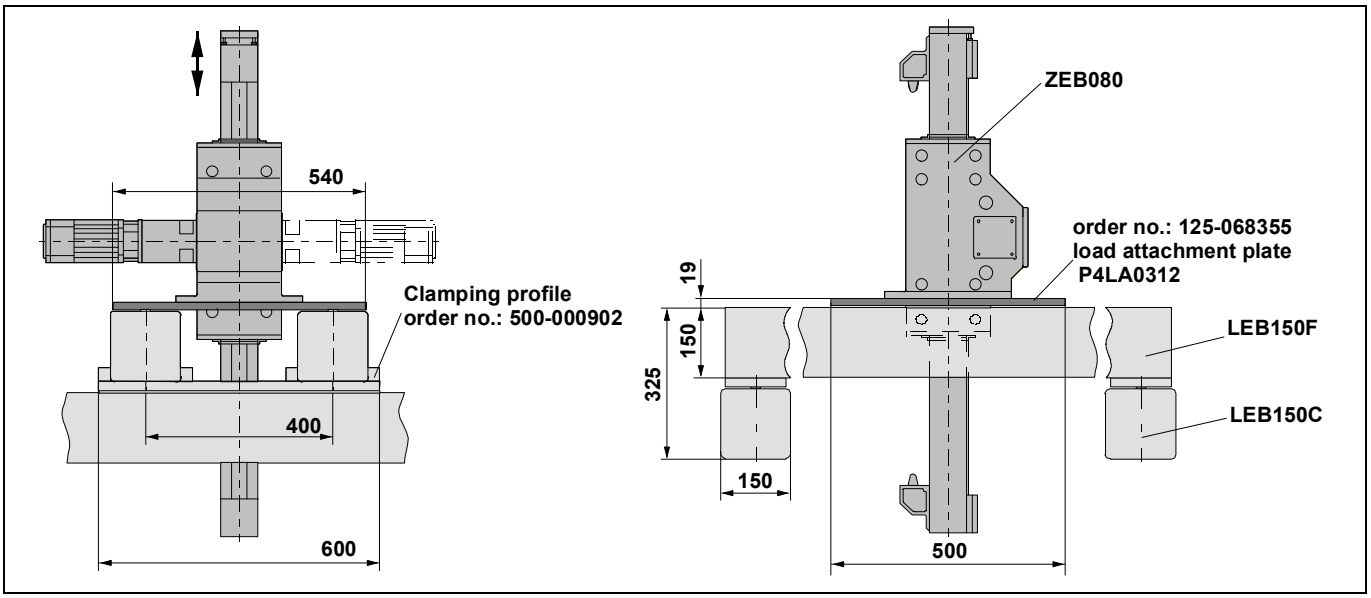
ZEB080 – LB..120F double axis / LEB150E double axis



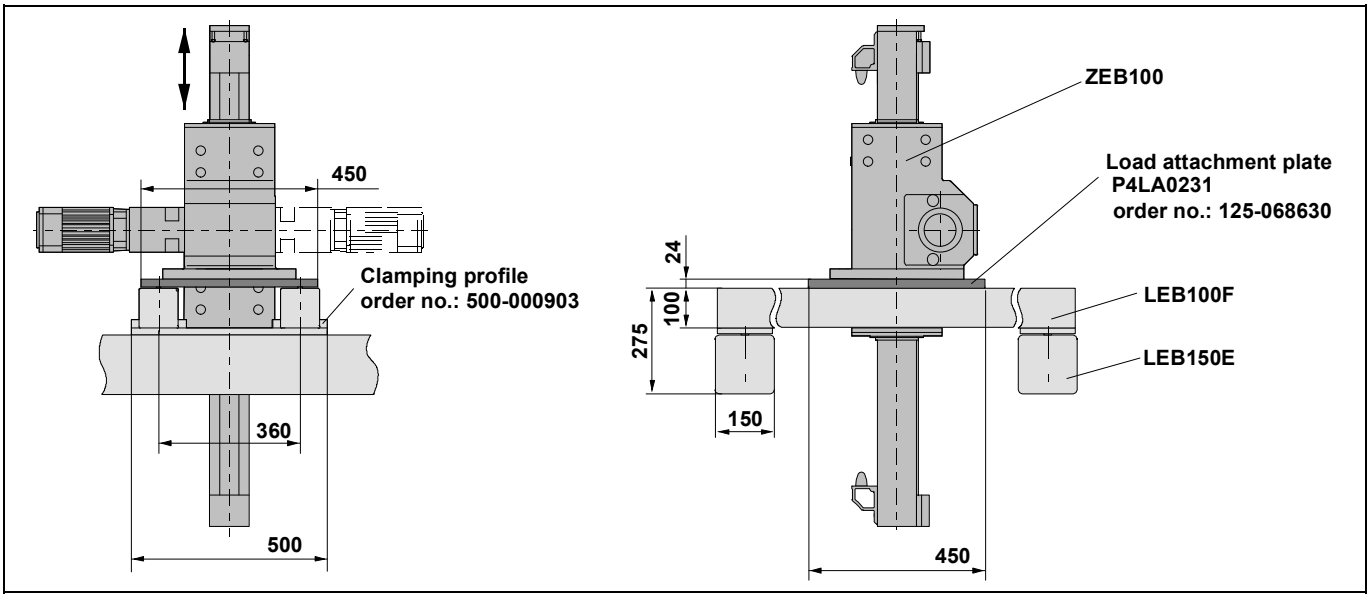
ZEB080 – LB..120F double axis / LB..180E double axis



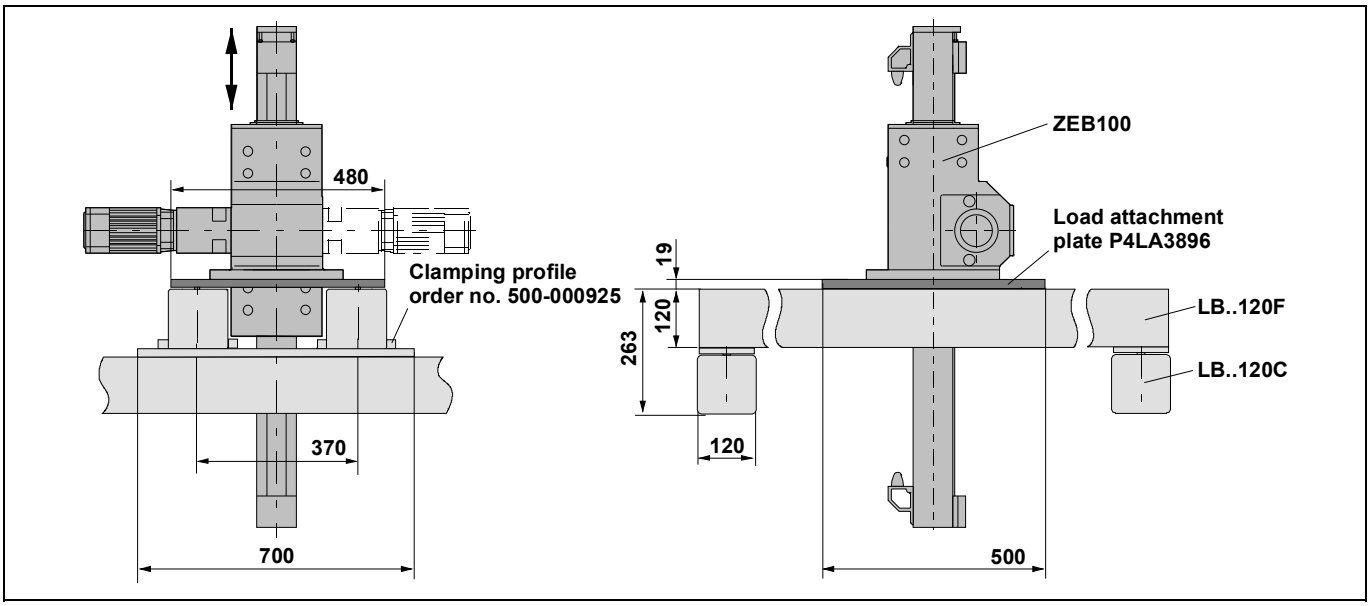
ZEB080 - LEB150F Double axis / LEB150C Double axis



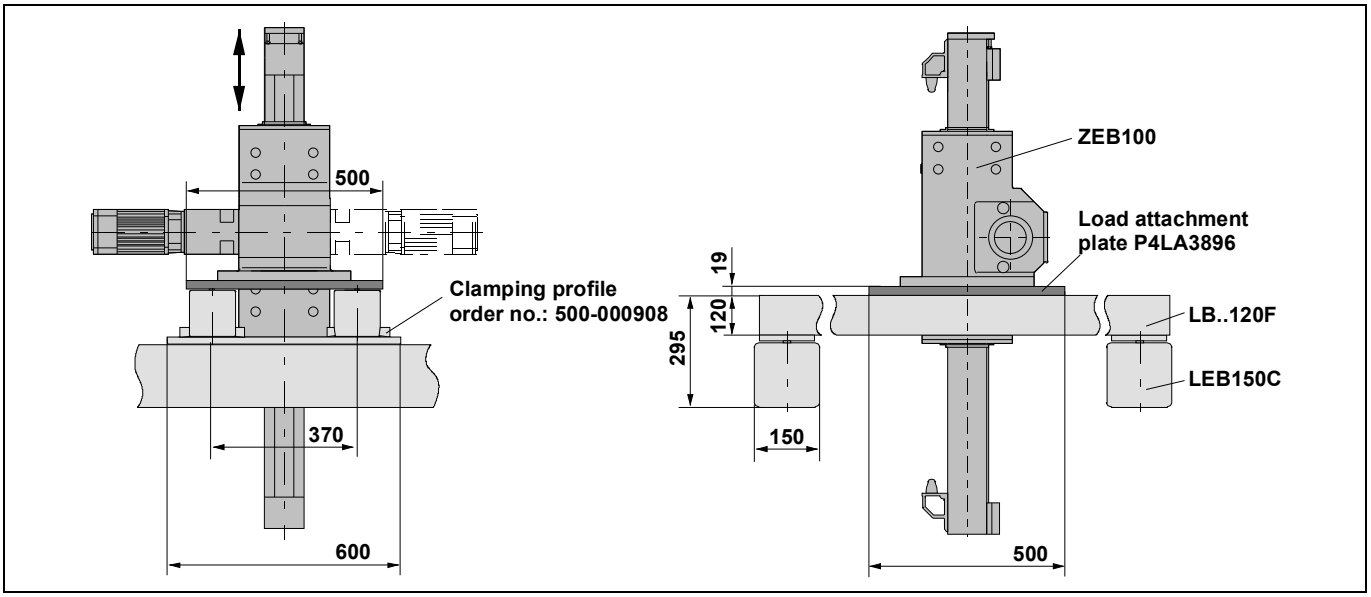
ZEB100 - LEB100F Double axis / LEB150E Double axis



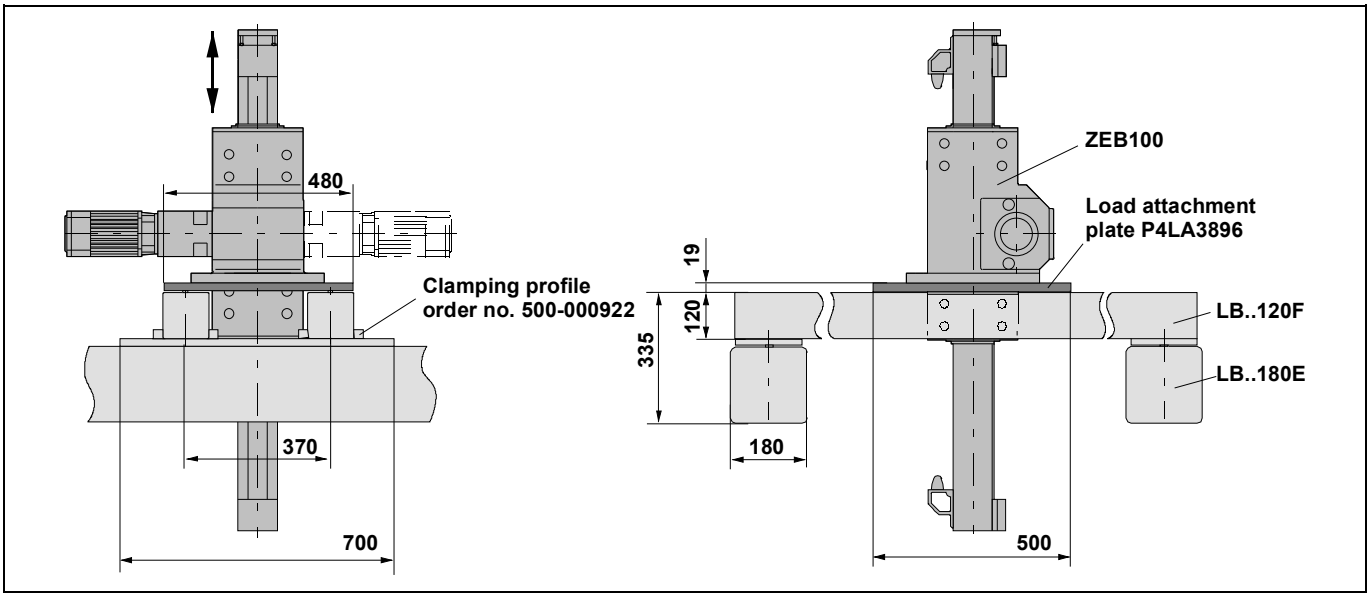
ZEB100 – LB..120F double axis / LB..120C double axis



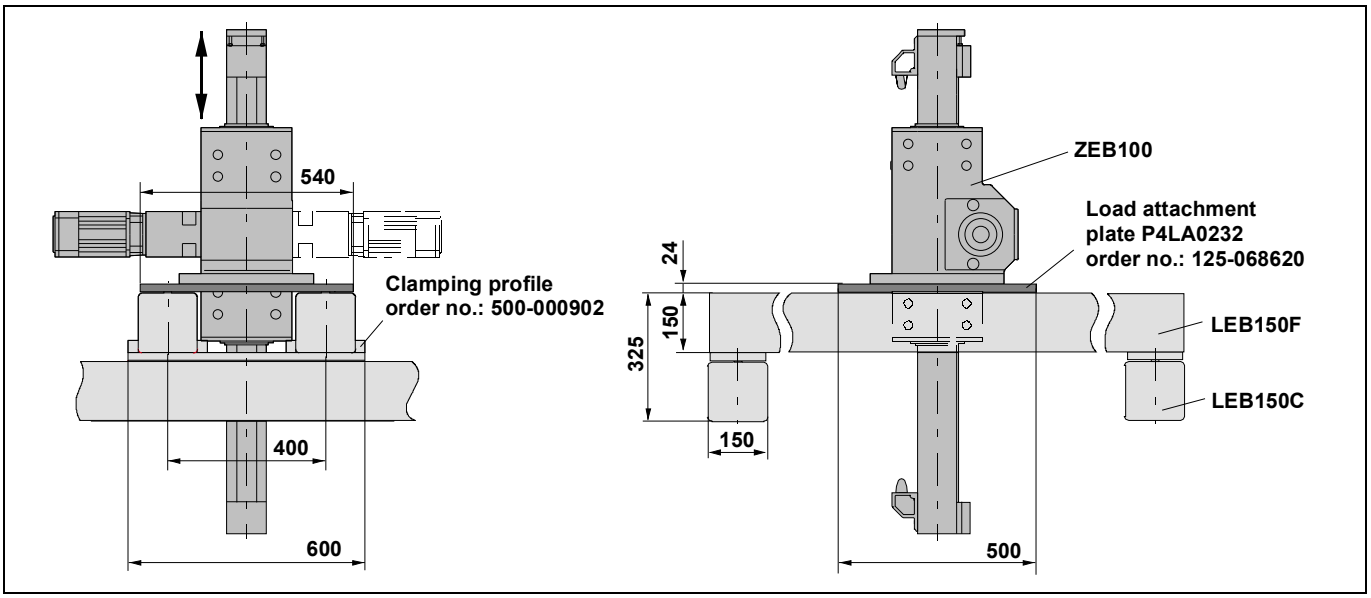
ZEB100 – LB..120F double axis / LEB150C double axis



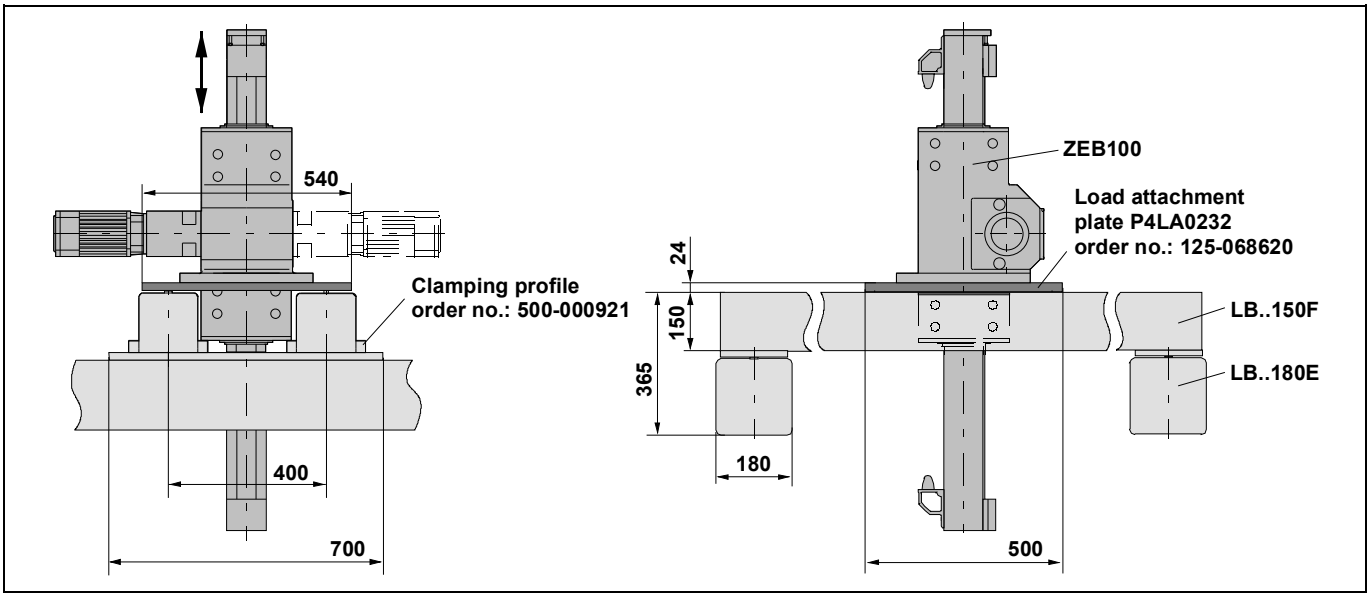
ZEB100 – LB..120F double axis / LB..180E double axis



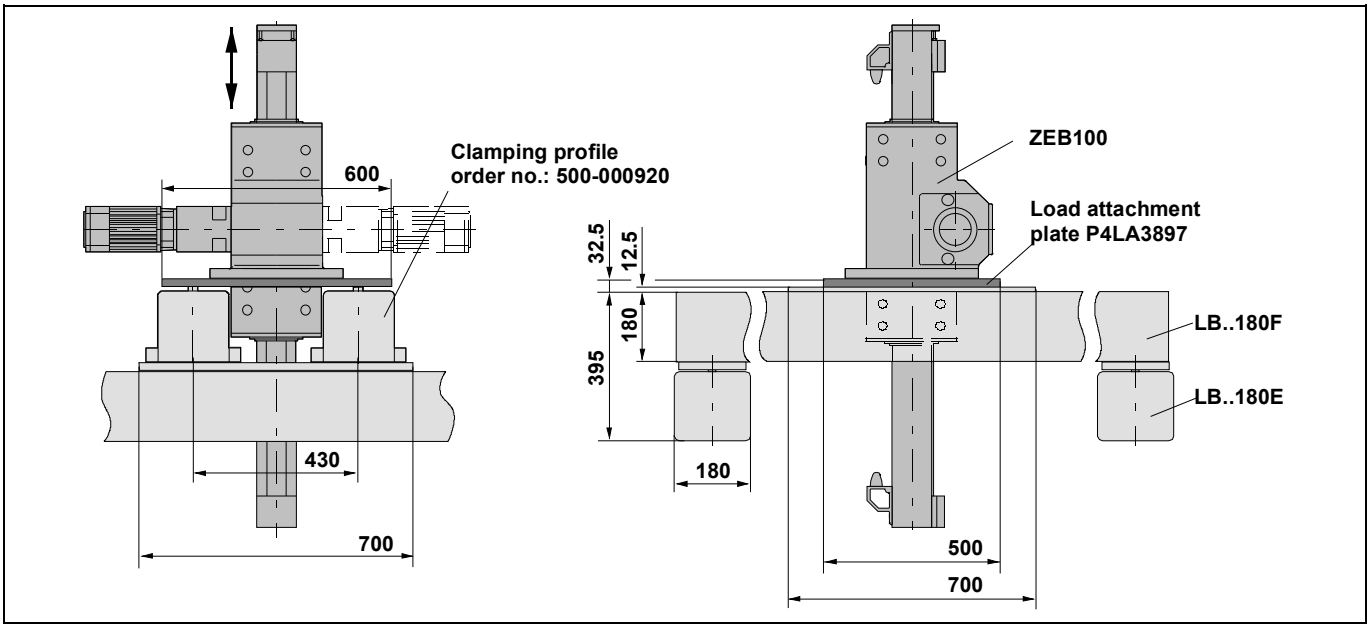
ZEB100 - LEB150F double axis / LEB150C double axis



ZEB100 - LEB150F double axis / LB180E double axis



ZEB100 – LB..180F double axis / LB..180E double axis

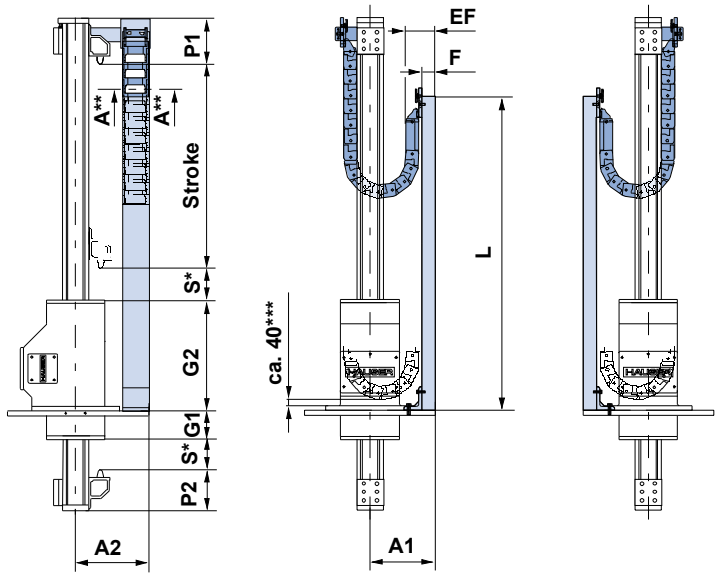


Accessories

Cable carrier

A cable carrier is needed when making power connections to moving elements. The cable carrier chain consists of glass fibre reinforced polyamide, and the support profile is made of aluminium. The process for fully determining the dimensions of a cable carrier is very complex. The examples listed below represent simple applications, but more data will normally be required when the situation is less straightforward. If the application you are running is more demanding, please contact us.

HZR with cable carrier type 2500.03 (ZEB050) resp. type 2500.05 (ZEB080 and ZEB100)



S*: safety travel (standard length 100mm)
** for cross section A - A refer to page 29
*** remaining maximum distance to HZR flange if the actuator is driven on buffer.

Chain length for ZEB050:

$$L_K = \frac{Stroke + 2 \cdot Safety\ travel}{2} + 400$$

Chain length for ZEB080:

$$L_K = \frac{Stroke + 2 \cdot Safety\ travel}{2} + 555$$

Chain length for ZEB100:

$$L_K = \frac{Stroke + 2 \cdot Safety\ travel}{2} + 630$$

round chain length to a pitch of 46 mm

→ example see below

Type	A1	A2	G1	G2	P1	P2	S	F	EF	L
ZEB050	63	143	87	297	102	110	100	6	46	L = (Stroke+2S)/2 + 150
ZEB080	200	225	80	340	140	125	100	40	90	L = (Stroke+2S)/2 + 350
ZEB100	200	255	145	395	150	140	100	40	90	L = (Stroke+2S)/2 + 350

Example for calculating the chain length

The chain length for a ZEB080 with a 800mm stroke and a standard safety travel of 100mm is calculated as follows:

$$L_K = \frac{800 + 200}{2} + 555 = 1055$$

This is the theoretical chain length required for driving a stroke plus safety travel. The chain is made up of parts each measuring 46mm. The chain length must therefore be rounded up to the next whole number divisible by 45:

$$L_K = \frac{1055}{46} = 22{,}93$$

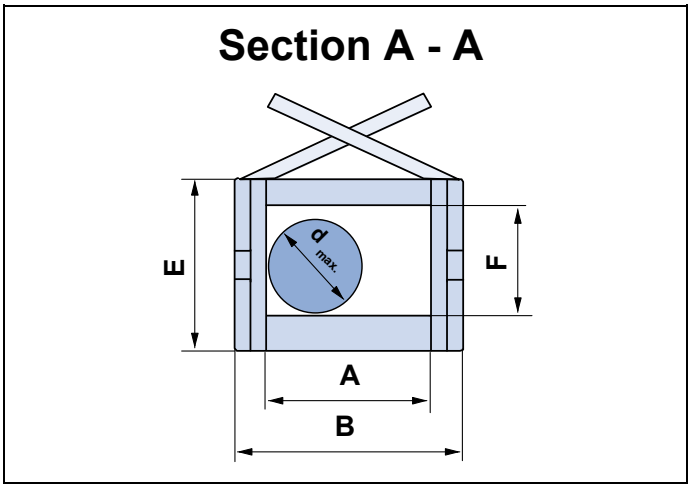
The number of chain parts must be rounded up to the next whole number (23). The chain length to be ordered is:

$$L_K = 23 \cdot 46 = 1058$$

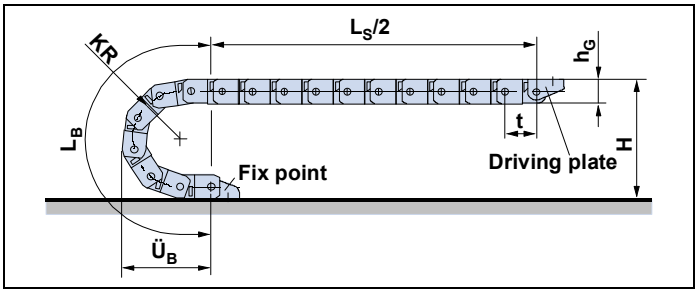
In this case you would need to order a chain with 23 parts and a length of 1,058mm for your application.

Cable carriers for the telescopic HTR must be planned individually for each application.

Dimensions of the cable carrier chain



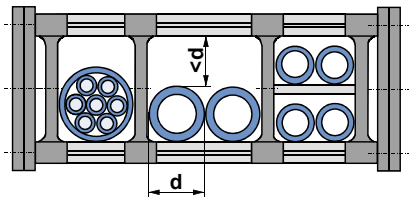
Axis type	Chain type	A	B	I	F	d max.
ZEB050	045.21 KR52	38	54	35	25	23
ZEB080/ZEB100	0450.41 KR94	57	73	35	25	23



Type	Bending radius KR	Bending t	Height h_G	Curve length $Ü_B$	Connection height H	Clearance mounting height H_F	Connection height weight kg/m
2500.03.055.0	**55**	46	35	125	145	170	~ 0.81
2500.05.100.0	**100**	46	35	170	235	260	~ 0.90

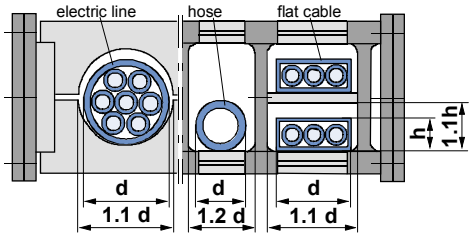
Guidelines for using cable carriers

Use only electrical cables suitable for use in cable carriers. Hose lines should be highly flexible and should only extend slightly under pressure. Weight should be distributed across the cable track as evenly as possible. Cables must not be twisted when routed in the cable carrier and should be routed next to one another and as loosely as possible.



Avoid laying several lines on top of each other and laying lines of different diameters directly next to one another. If multiple layers must be used, separating strips should be inserted between each layer – should such circumstances arise, please contact Parker.

If there is no alternative to routing several lines beside each other without sub-divisions, the clearance height within the carrier must be less than the line diameter. This is the only way of preventing the cables from twisting.



The supply cables must be free to move within the cable carrier. They cannot be fixed to the cable carrier or tied together. Separating strips must always be inserted between flat cables routed in multiple layers.

Recommended dimensions of the space required:

with round cables (electrical cable): approx. 10% of the line diameter
with flat cables: approx. 20% of the hose diameter
with hose lines: for each, approx. 10% of the cable width and cable thickness

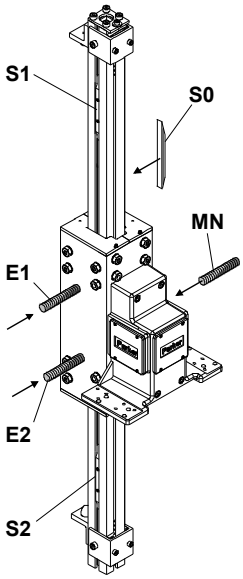
Attachment of position sensors and accessories

Attachment variants for HZR position sensors

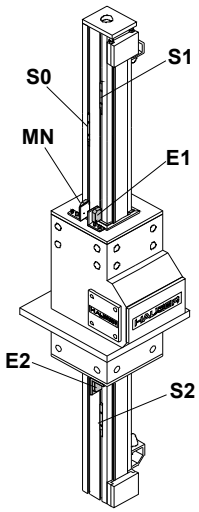
The limit switches are fitted ensuring that they are activated directly before the start of the standard safety travel (100mm). Unless otherwise agreed, the linear actuator is supplied with position sensors attached using attachment variant 1 (ZEB080/ZEB100) resp. attachment variant 4 (ZEB050). The tripping plates, position sensors and distribution box are described on page 31.

Attachment variant 1 ZEB050/ZEB080/ZEB100

with three electrical (inductive) limit switches



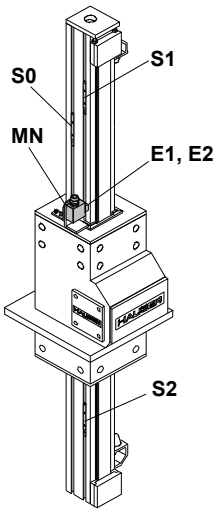
ZEB050



ZEB080/ZEB100

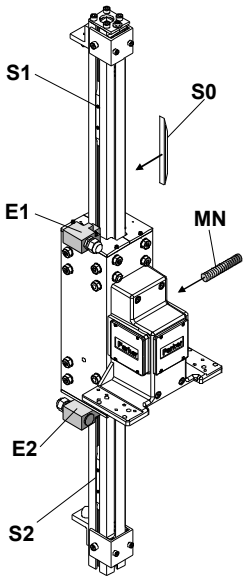
Attachment variant 2 ZEB080/ZEB100

with one mechanical and one inductive limit switch

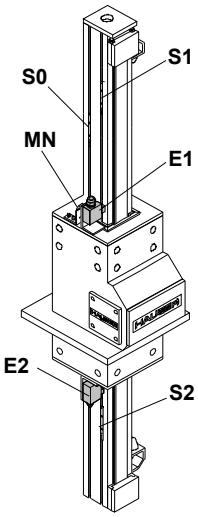


Attachment variant 3 ZEB050/ZEB080/ZEB100

with two mechanical and one electrical (inductive) limit switch



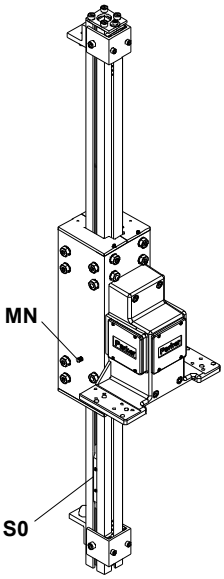
ZEB050



ZEB080/ZEB100

Attachment variant 4 ZEB050

with one electrical (inductive) limit switch



Key

I1: Limit switch 1
I2: Limit switch 2
MN: Machine zero initiator
S0: Tripping plate for home sensor
S1: Tripping plate for limit switch 1 (E1)
S2: Tripping plate for limit switch 2 (E2)

Notes on the ZEB050

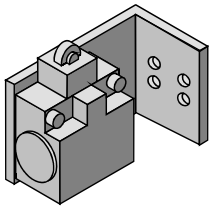
The machine zero initiator can be screwed in either at the right or at the left side of the housing.

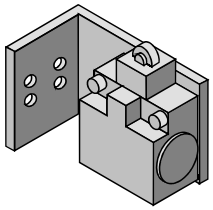
The electric limit limit switches must always be mounted on the opposite housing side of the machine zero initiator.

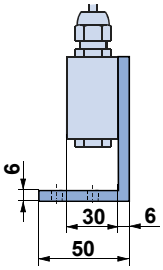
The mechanic limit limit switches must always be mounted on the opposite housing or with an offset of 90° with reference to the machine zero initiator.

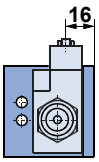
Mechanical limit switch for HZR

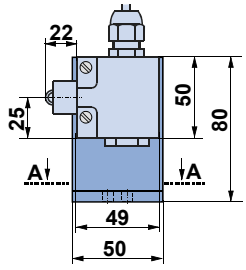
The switching button complies with DIN EN 50047. The contacts satisfy the safety requirements in accordance with EN 60947-5-1 by virtue of forced opening (positively driven). The limit switch can be assembled on the angle plate in two ways (see picture on the left).



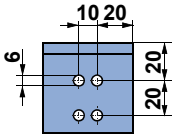


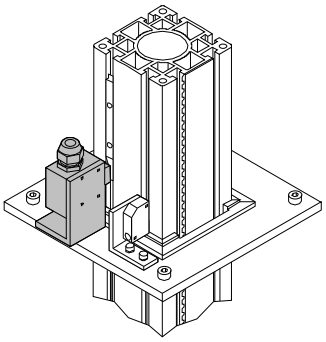




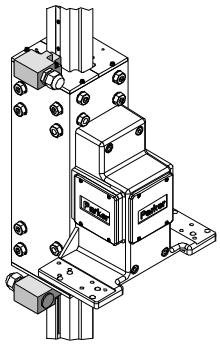


Schnitt A - A





ZEB080/ZEB100

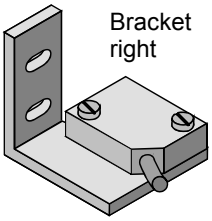


ZEB050

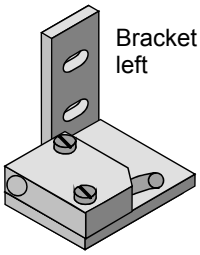
Designation	Order No.
Mechanical limit switch for ZEB050 (including attachment material)	092-701031
Mechanical limit switch for ZEB080 and ZEB100 (including angle plate and attachment material)	510-900560

Electronical limit switch (initiator) only for ZEB080 and ZEB100

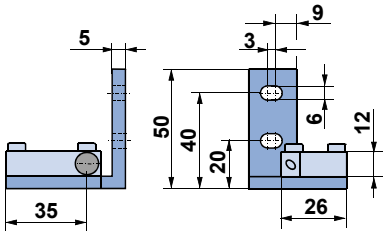
There are two different angle plates for attaching the switch (PNP-normally closed contact).

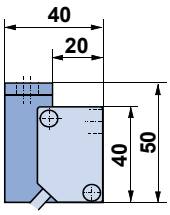


Bracket right

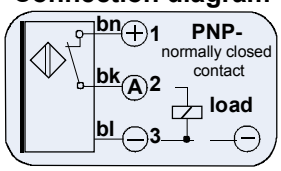


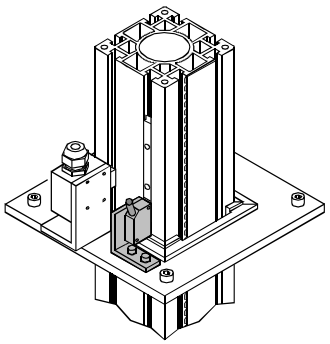
Bracket left





Connection diagram



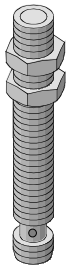


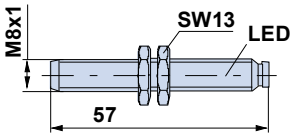
Designation	Order No.
Electronic limit switch PNP – normally closed contact, left (including bracket and fixing material)	510-900604
Electronic limit switch PNP – normally closed contact, right (including bracket and fixing material)	510-900605

Technical data		Electrical data	
Switching distance	2mm / 4mm ± 10%	**Rated Voltage**	24V DC
Switch hysteresis	≥ 1% ...≤ 15%	**Voltage range**	10...35 V DC
Repeatability	0.01mm	**Supply current**	≤ 15mA
Temperature drift	≤ 10 %	**Maximum load current**	300mA
Ambient temperature	-25°C - +70°C	**Residual voltage**	≤ 2.5V DC
Protection class	IP67	**Switching frequency**	2kHz
Cable Length	6m	**Connecting cables**	3 x 0.25mm^2

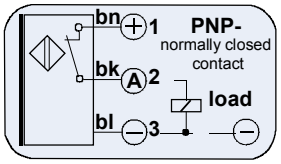
Cylindrical limit switch for ZEB50

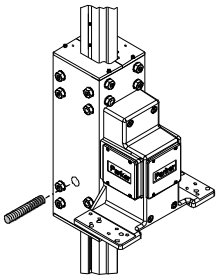
The cylindrical limit switch may be optionally screwed in on the right or on the left side of the housing.





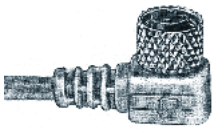
Connection diagram normally closed contact





Designation	Order no.
Electronic limit switch for ZEB050 PNP-normally closed contact (including fixing material) (cable: see below).	092-510636

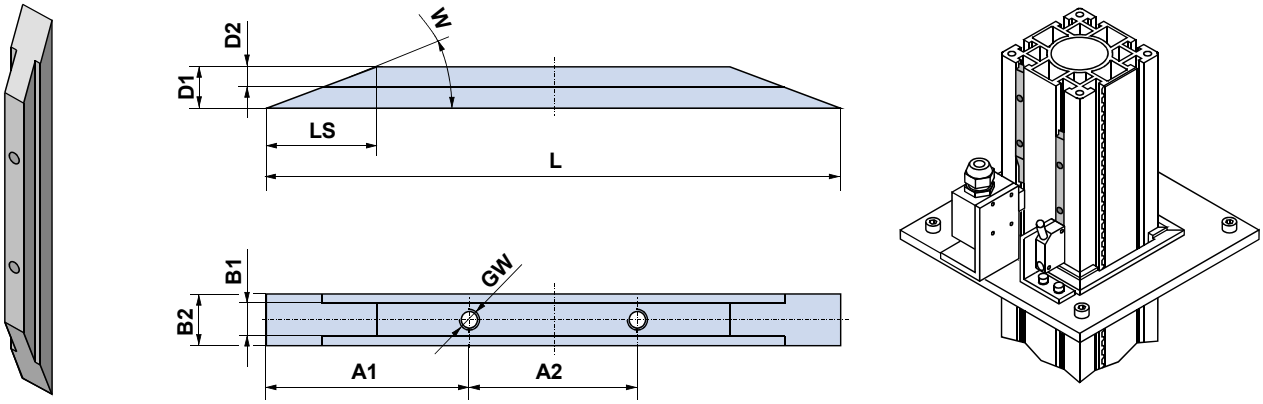
Technical data		Electrical data	
Switching distance	1.5mm / 2mm ± 10%	**Rated Voltage**	24 V DC
Switch hysteresis	≥ 1% ...≤ 15%	**Voltage range**	10...35 V DC
Repeatability	0.01mm	**Supply current**	≤ 15mA
Temperature drift	≤ 10 %	**Maximum load current**	300mA
Ambient temperature	-25°C - +70°C	**Residual voltage**	≤ 2.5V DC
Protection class	IP 65	**Switching frequency**	5 kHz

Cable suitablefor the cylindrical limit switch Coupling can be screwed directly to the initiator. Open cable end; you can configure the cable according to your requirements		
	**Angle coupling (90°), RKMWV 3-90, screw coupling with self-securing knurled nut, with moulded on cable, length 10m, 3 x 0.34 mm².** (Please note: This cable is not suitable for use in cable carrier chains)	080-900215
	**Miniature coupling, RKMV 3-90, screw coupling with self-securing knurled nut, with moulded on cable, length 10m, 3 x 0.34 mm².** (Please note: This cable is not suitable for use in cable carrier chains)	080-900212

Cable suitablefor the cylindrical limit switch Coupling can be screwed directly to the initiator. Cable end can be directly connected to the COMPAX via connector.			
Standard cable LiYCY 3 x 0.34 shielded (These cables are not suitable for use in cable carrier chains!)	**Order no.**	**Highflex cable Unitronic-FD CP 3 x 0.14 shielded.** (suitable for use in cable carrier chains)	**Order no.**
GBK 21/01 1m long	GBK21/01	GBK 22/01 1m long	GBK22/01
GBK 21/02 2.5m long	GBK21/02	GBK 22/02 2.5m long	GBK22/02
GBK 21/03 5m long	GBK21/03	GBK 22/03 5m long	GBK22/03
GBK 21/04 7.5m long	GBK21/04	GBK 22/04 7.5m long	GBK22/04
GBK 21/05 10m long	GBK21/05	GBK 22/05 10m long	GBK22/05
GBK 21/06 12.5m long	GBK21/06	GBK 22/06 12.5m long	GBK22/06
GBK 32/07 15m long	GBK21/07	GBK 22/07 15m long	GBK22/07
GBK 21/08 20m long	GBK21/08	GBK 22/08 20m long	GBK22/08
GBK 21/09 25m long	GBK21/09	GBK 22/09 25m long	GBK22/09
GBK 21/10 30m long	GBK21/10	GBK 22/10 30m long	GBK22/10
GBK 21/11 35m long	GBK21/11	GBK 22/11 35m long	GBK22/11
GBK 21/12 40m long	GBK21/12	GBK 22/12 40m long	GBK22/12
GBK 21/13 45m long	GBK21/13	GBK 22/13 45m long	GBK22/13
GBK 21/14 50 m long	GBK21/14	GBK 22/14 50 m long	GBK22/14

Tripping plate for HZR

The tripping plate is fixed in the HZR profile and it activates the mechanical or electrical limit switch.



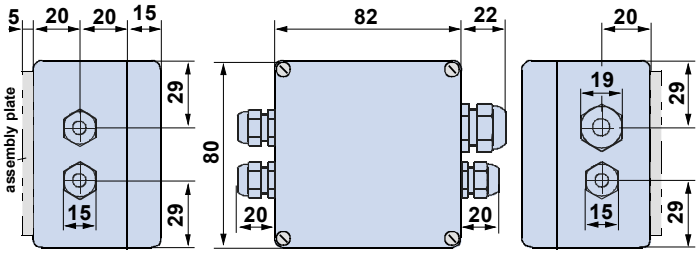
Axis type	A1	A2	B1	B2	D1	D2	GW	L	LS	W	Order No.
ZEB050	30	50	10 -0.1	20	9	3.5 -0.1	M6	110	24.73	20	125-068605
ZEB080	52	50	8 -0.1	12	8	3.5 -0.1	M6	153	21.98	20	125-068325
ZEB100	60.5	50	9.6 -0.1	15	12	6 -0.1	M6	171	32.97	20	125-068608

Fixing the tripping plate

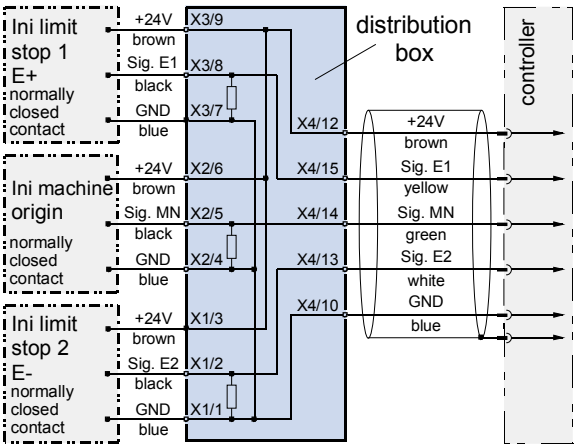
For fixing a tripping plate, you will need two threaded pins

Axis type	Pcs.	Designation	Order No.
ZEB050	2	Threaded pin DIN913 M6x12	130-902029
ZEB080	2	Threaded pin DIN913 M6x8	130-902027
ZEB100	2	Threaded pin DIN913 M6x12	130-902029

Distribution box



Only for limit switch attachment variant 1!



Designation	Order No.
Fixing material for distribution box on ZEB050	510-900710
Fixing material for distribution box on ZEB080/ZEB100	510-900610

Designation	Art. No.
Distribution box including 2.5m cable	800-003102
Distribution box including 5m cable	800-003103
Distribution box including 7.5m cable	800-003104
Distribution box including 10m cable	800-003105
Distribution box including 12.5m cable	800-003106
Distribution box including 15m cable	800-003107
Distribution box including 20m cable	800-003108

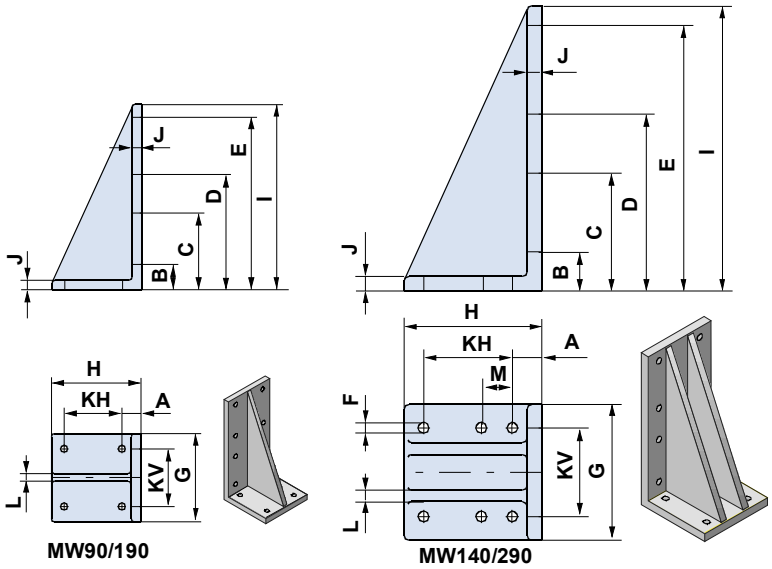
Designation	Art. No.
Distribution box including 25m cable	800-003109
Distribution box including 30m cable	800-003110
Distribution box including 35m cable	800-003111
Distribution box including 40m cable	800-003112
Distribution box including 45m cable	800-003113
Distribution box including 50m cable	800-003114

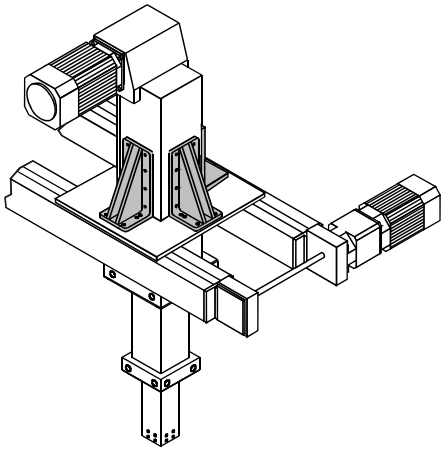
Assembly angle plate for HTR

The assembly angle plate is used to connect an HTR unit

- to another linear actuator
- to other machine components

This is available in two sizes with through-holes.

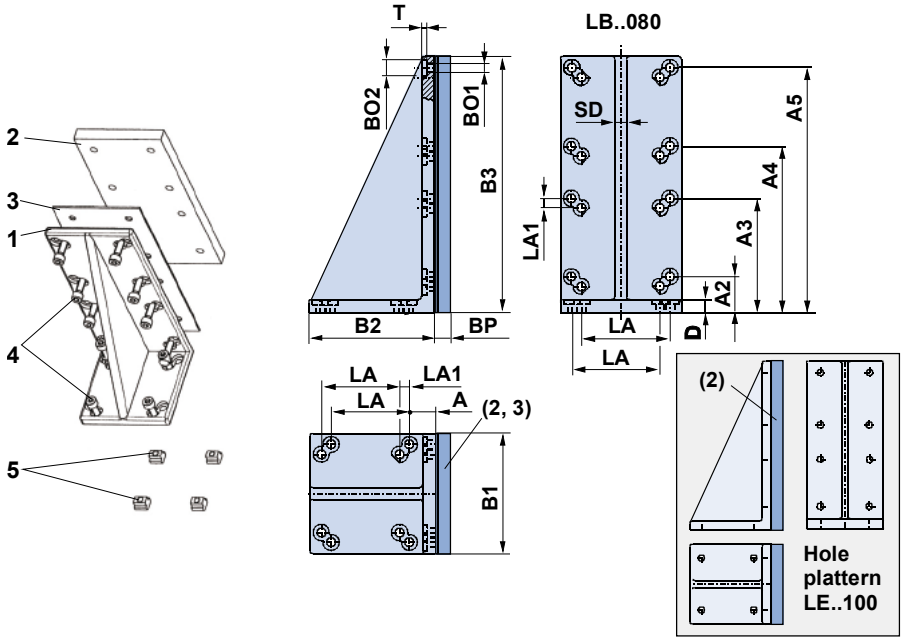


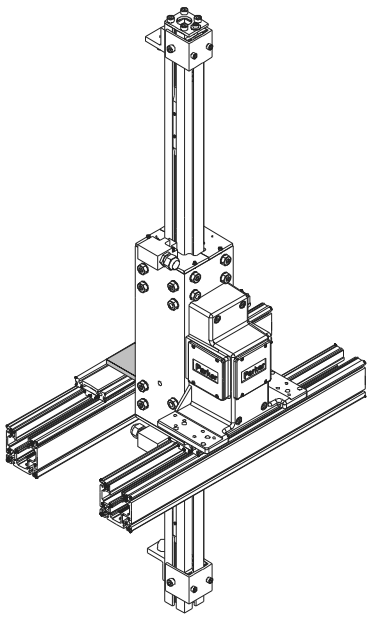


Axis type	Type	A	B	C	D	E	F	G	H	I	J	KH	KV	L	M	Order No.
T3B050	MW 90/190	37.5	20	80	120	180	Ø6.6	88	90	190	10	42.5	60	10	--	500-000516
T3B080	MW 140/290	55	40	120	180	270	Ø11	138	140	290	15	65	90	12	25	500-000524

Connection set for HZR50

The connection set is used for connecting a HZR50 with another linear actuator (HPLA80 or HLE100) and consists of a mounting bracket (1) with corresponding screws (4), nuts (5), fixing plate (2) and intermediate plate (3 – only for mounting on a LB..080).

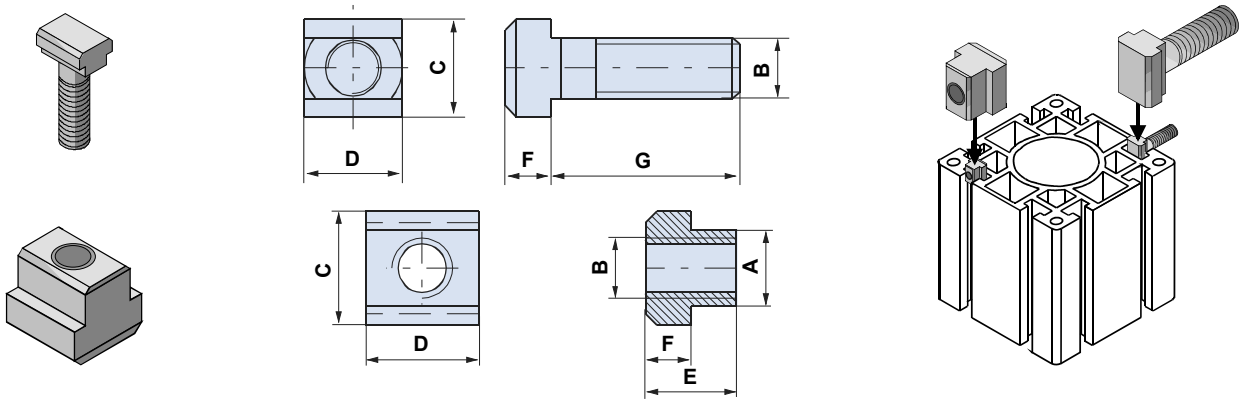




Axis type	A1	A2	A3	A4	A5	BO1	BO2	B1	B2	B3	D	LA	LA1	T	BP	Order No.
LB..080	16	22	70	102	150	Ø5.5	Ø10	74	77	157	8	54	6	3	11.5	510-000630
LE..100	20	30	80	120	180	Ø9	Ø9	80	90	190	10	60	--	--	20	510-000631

T-nuts and bolts for HZR

The T nuts (DIN 508) and bolts (DIN787) can be used to attach other components in the T-slots of the profile, or to the upper side of the load attachment plate.



Axis type	Designation		A	B	C	D	E	F	G	Order No.
ZEB080	T-bolt	DIN787 M8x8x25	--	M8	--	13	--	6	25	131-700001
ZEB100	T-bolt	DIN787 M10x10x25	--	M10	--	15	--	6	25	131-700007
ZEB080	T-bolt	DIN787 M8x8x32	--	M8	--	13	--	6	32	131-700002
ZEB100	T-bolt	DIN787 M10x10x32	--	M10	--	15	--	6	32	131-700008
ZEB080	T-bolt	DIN787 M8x8x40	--	M8	--	13	--	6	40	131-700003
ZEB100	T-bolt	DIN787 M10x10x40	--	M10	--	15	--	6	40	131-700009
ZEB050	T-Nut	Page M8x10	10	M8	16	20	6	4.5	--	131-700090
ZEB080	T-Nut	DIN508 M6x8	8	M6	13	13	10	6	--	131-700103
ZEB100	T-Nut	DIN508 M8x10	10	M8	15	13	12	6	--	131-700104
ZEB080	Long nut*	HWN313 ZN M6x8	8	M6	13	26	10	6	--	131-700140
ZEB100	Long nut*	HWN313 ZN M8x10	10	M8	15	30	12	6	--	131-700141
ZEB080	T-Nut	ITEM St M6	without drawing							400-000033
ZEB100	T-Nut	ITEM St M8	without drawing							400-000034

* When using the combination of two linear actuators via clamping profiles, we would recommend the use of long nuts.

Other accessories / software

RSM Belt tension measuring device:

For accurately setting the toothed belt tension
(Order no.: 037-000201).

DimAxes:

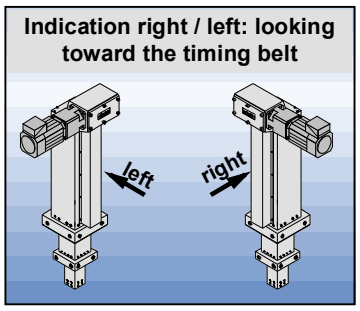
PC dimensioning tool for HLE, HPLA, HZR, HTR, BLMA Parker Linear Actuator rollers as from Windows version 95.

Download free of charge of the dimAxes Tool and DXF files for the HLE and HPLA linear actuators under:

www.parker-eme.com/htr; www.parker-eme.com/hzr; www.parker-eme.com/hle; www.parker-eme.com/hpla

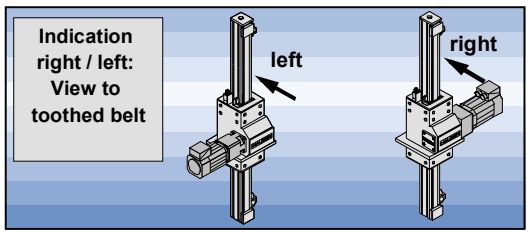
HTR Order Code

HTR telescopic actuator	T		B	0		0		P	0							
Drive system																
HTR telescopic actuator	T															
Number of telescope sections																
3		3														
4 (Special design T4B050 = 4 stage HTR)		4														
Type of drive																
Toothed belt			B													
Model size (according to the cross section of the inner profile)																
50mm				0	5	0										
80mm				0	8	0										
Material Option																
Standard							N									
VA stainless (on request)							V									
Guide system																
Standard (plastic sheathed rollers)								P								
Stroke																
Specify required stroke (in mm)									0	n	n	n	n			
Drive options (for definition see picture below)																
Prepared for gearbox to be fitted on the left														D	L	
Prepared for gearbox to be fitted on the right														D	R	
Extras (other drive versions)														X	X	
Gearbox flange																
P3 for T3B050																A
P4 for T3B080 and T4B050																B
PE4 for T3B050, T4B050																Q
PE5 for T3B080																R
Extras (others, not standard, on request)																X



HZR Order Code

Z-axis HZR	Z	E	B			0		P	0							
Drive system																
Z-axis	Z															
Series																
HZR		E														
Type of drive																
Toothed belt			B													
Profile cross section																
050mm				0	5	0										
080mm				0	8	0										
100mm				1	0	0										
Material Option																
Standard							N									
VA stainless							V									
Guide system																
Standard								P								
Extended guide with 16 additional rollers - only for ZEB050!								E								
Stroke																
Specify required stroke (in mm)									0	n	n	n	n			
Drive options (for definition of on right / on left: see picture below))																
Prepared for gearbox to be fitted on the left														D	L	
Prepared for gearbox to be fitted on the right														D	R	
Extras (other drive versions)														X	X	
Gearbox flange																
P3 for ZEB050																A
P4 for ZEB050, ZEB080																B
P5 for ZEB100																C
Lenze 52.308.04 for ZEB080 / Lenze 52.308.05 for ZEB100																L
PE4 for ZEB050, ZEB080																Q
PE5 for ZEB080, ZEB100																R
Flange for gearbox with fitting edge Ø80, pitch diameter Ø100, shaft diameter Ø22 and shaft length up to 40 mm for ZEB050																W
Extras (others, not standard, on request)																X



Additional information available on:

www.parker-eme.com/htr
www.parker-eme.com/hzr

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Parker Hannifin GmbH
Electromechanical Automation
Robert-Bosch-Straße 22
D-77656 Offenburg, Germany
+49 (0)781 / 509-0
+49 (0)781 / 509-98176
sales.automation@parker.com
www.parker-eme.com