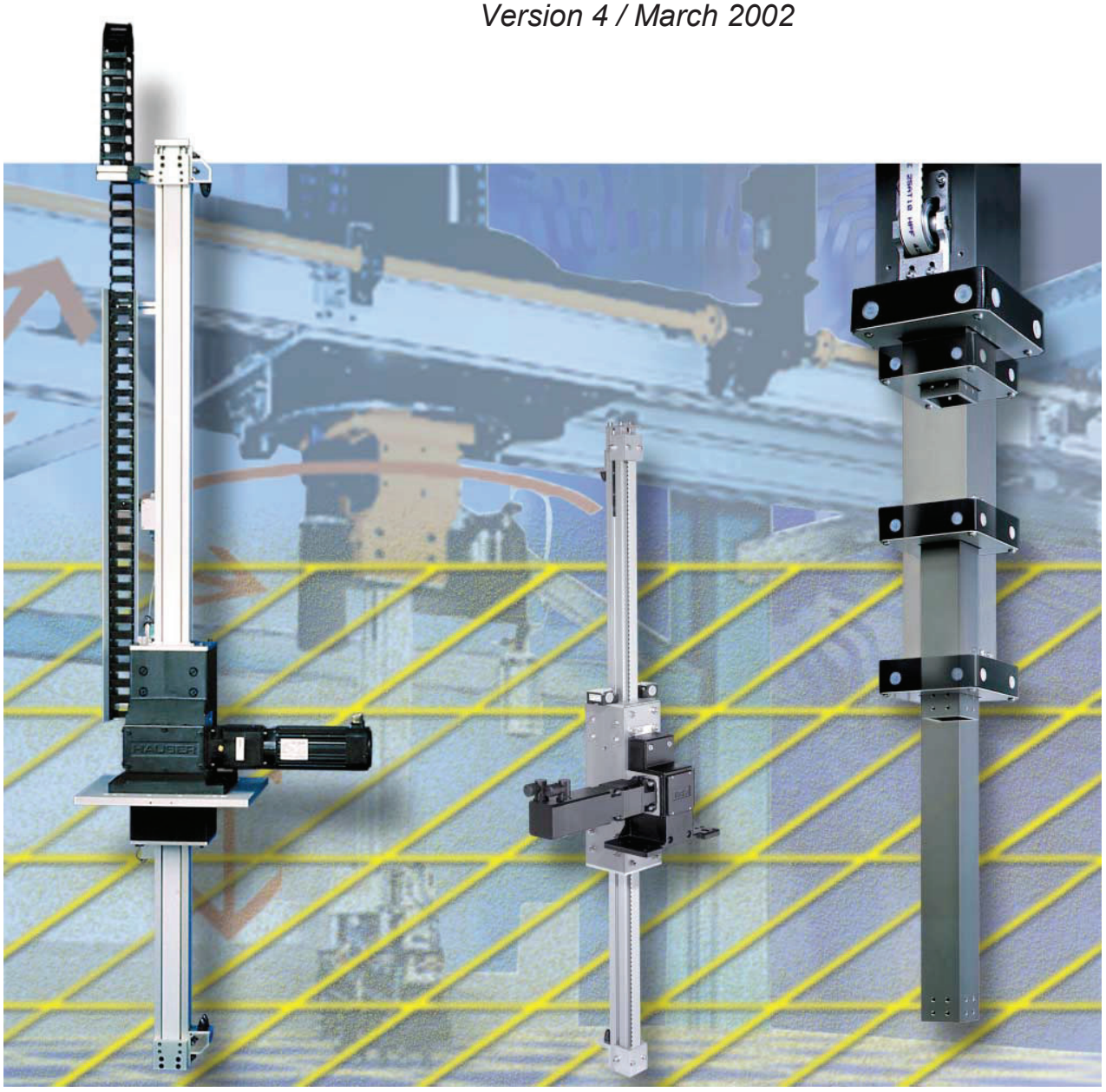
Vertical actuators

HTR Telescopic actuator with belt drive

HZR Z-axis with belt drive

Catalogue: 192-560011N4/UK
Version 4 / March 2002



HTR dynamic telescopic actuator

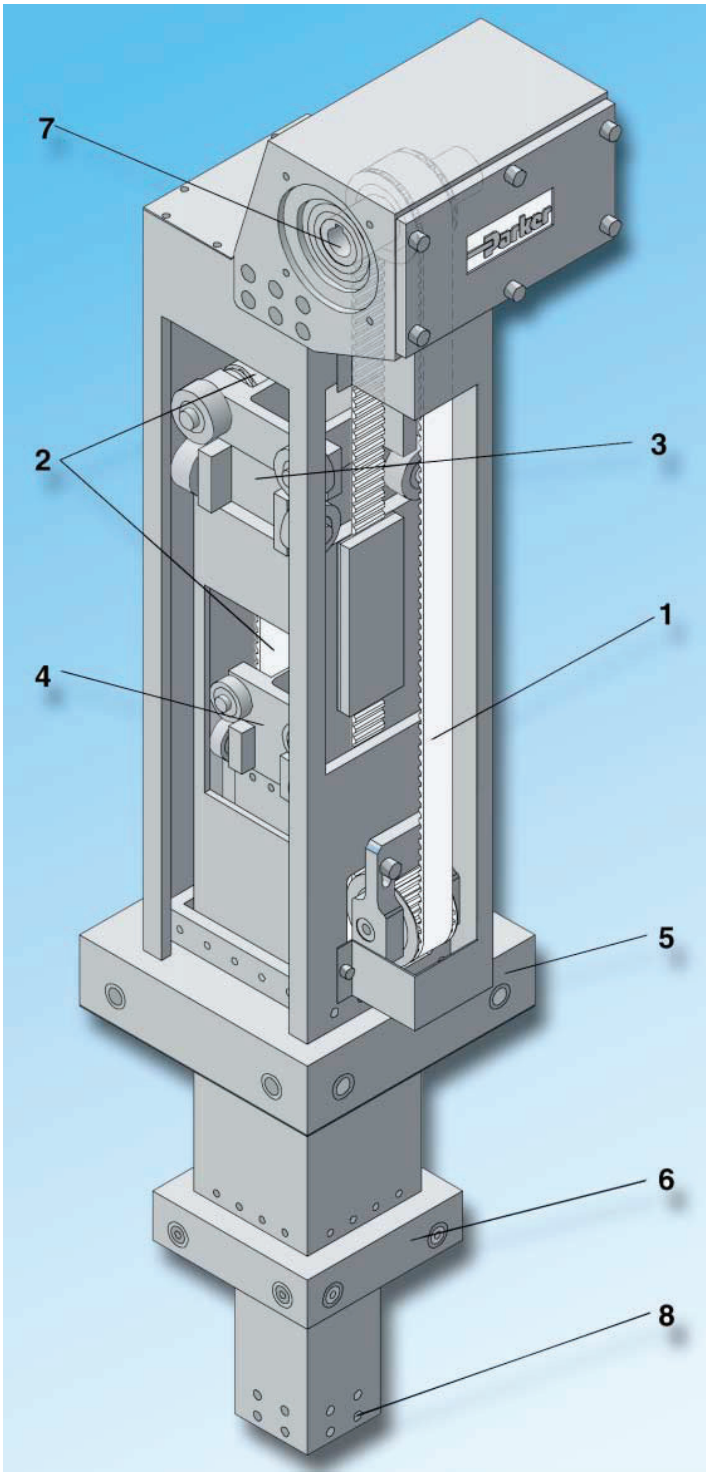
Telescopic actuator with belt drive - for vertical applications where height is limited.

Contents:

HTR Characteristics

- Long stroke (maximum 2500mm) with minimum overall height.
- High working load up to 50kg.
- 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.
- Maintenance-free, low-noise plastic rollers with PA coating.
- Non-wearing and non-slip toothed belt drive.
- Available in two sizes: T3B050 and T3B080.

Product description



Long stroke with minimum overall height

Parker has developed and specially designed the telescopic actuator for applications that require a long vertical lifting path 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 roll mounting stations **(3 to 6)**, ensures self-stabilising properties.

The hollow shafts and flange design of the drive station **(7)** are identical 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
Weight and moment of inertia			
Weight of basic unit without stroke	kg	12.8	35.3
Weight of additional length	kg/m	8.0	16.2
Weight of the moving parts, no stroke	kg	2.8	7.4
Weight of the 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 paths and speeds			
Maximum travel speed	m/s	5.0	5.0
Maximum travel path	mm	2500	2500
Maximum permissible acceleration	m/s^2	5	5
Accuracy			
Repeatability in one direction (DIN EN ISO 9283)	mm	±0.2	±0.2
Geometrical 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
Pulley and toothed belt data, torques and forces			
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	922 707 602 535 488
Belt traction (effective load), maximum [2]	N	245	491

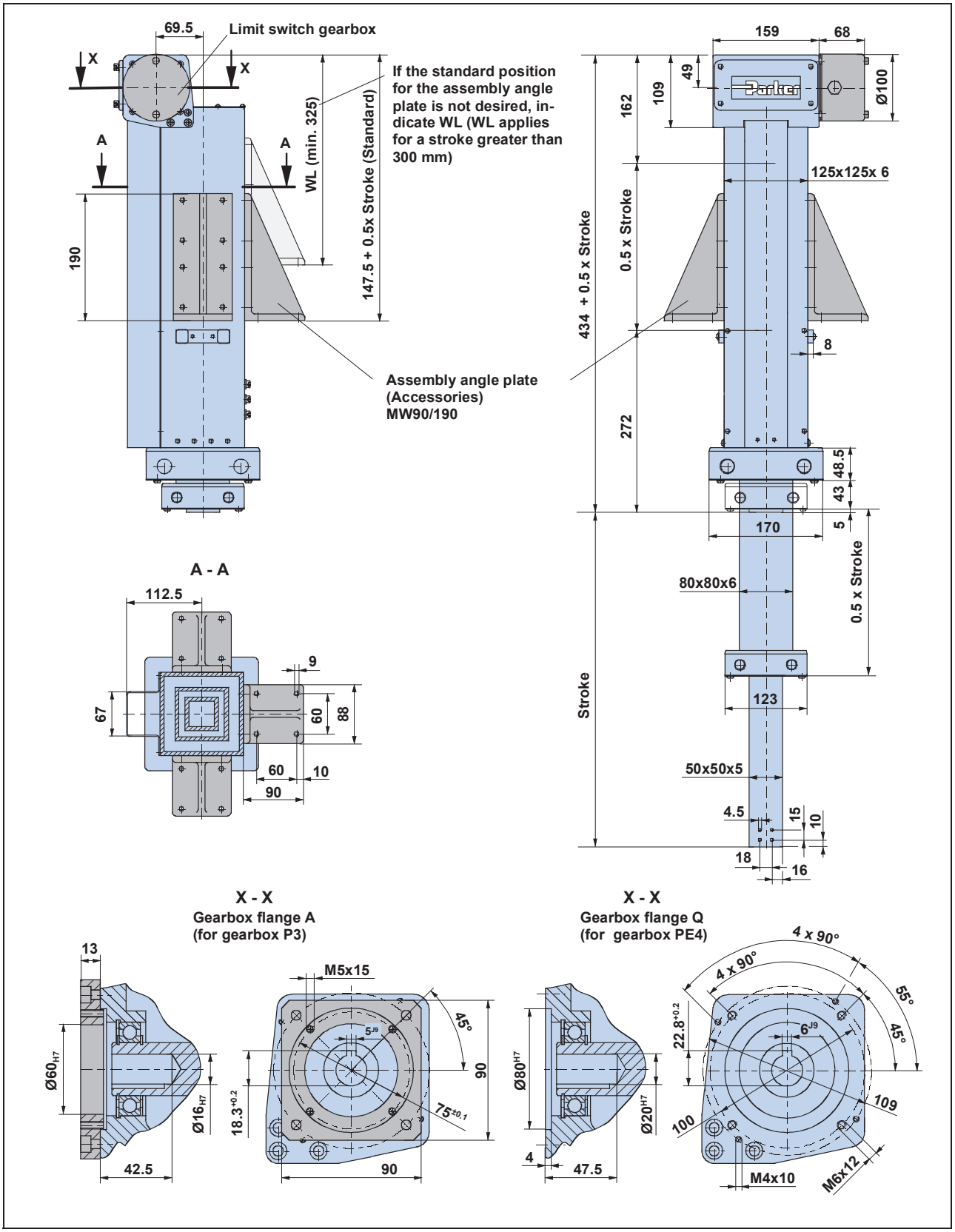
Technical data issued 03/02, safety factor taken into consideration S=1. Data applies for a temperature range of between -10°C and +40°C. The technical data applies under standard conditions and only for the individually specified operating mode and nature of load. In the case of compound loads, it must be verified in accordance with the laws of physic and technical standards, whether single data have to be reduced. Please contact us in the case of doubt.

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 38)

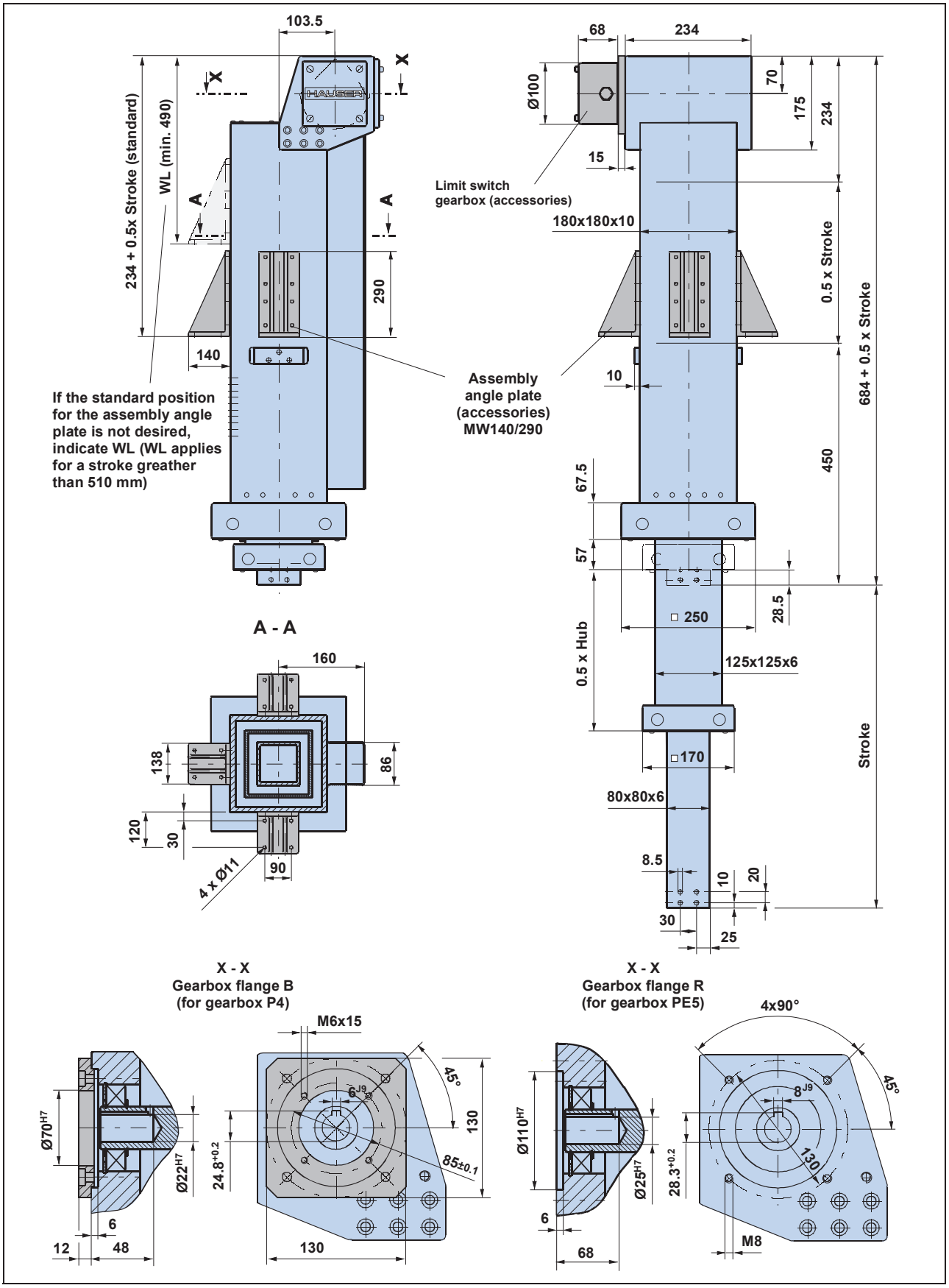
HTR Dimensions

T3B050



HTR – Telescopic actuator with belt drive

T3B080

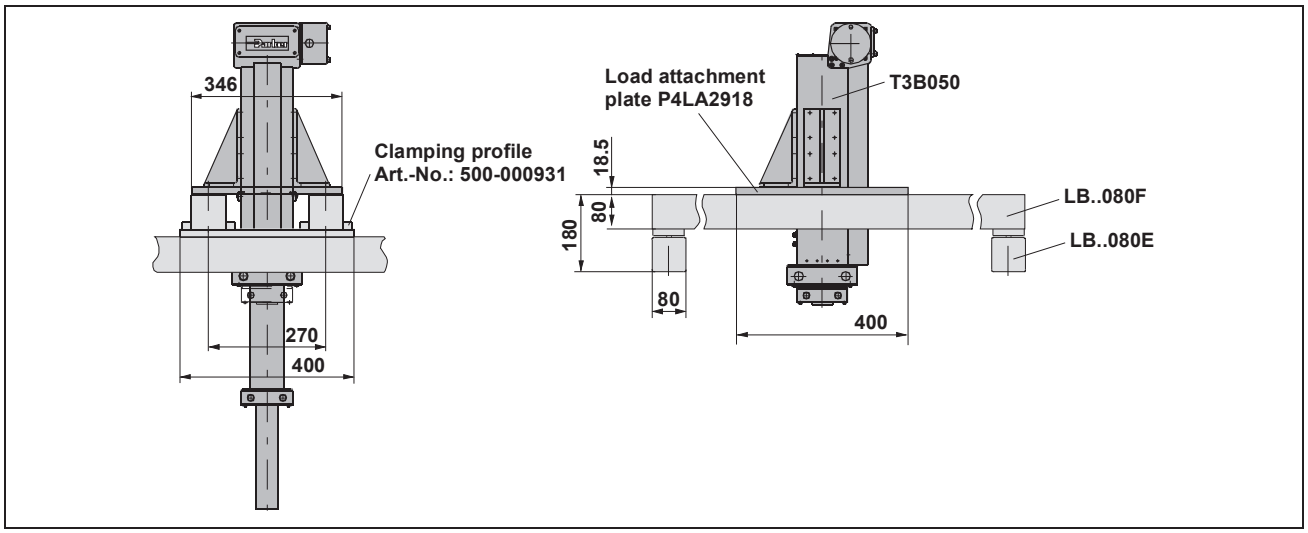


Parker Hannifin GmbH
Electromechanical Automation

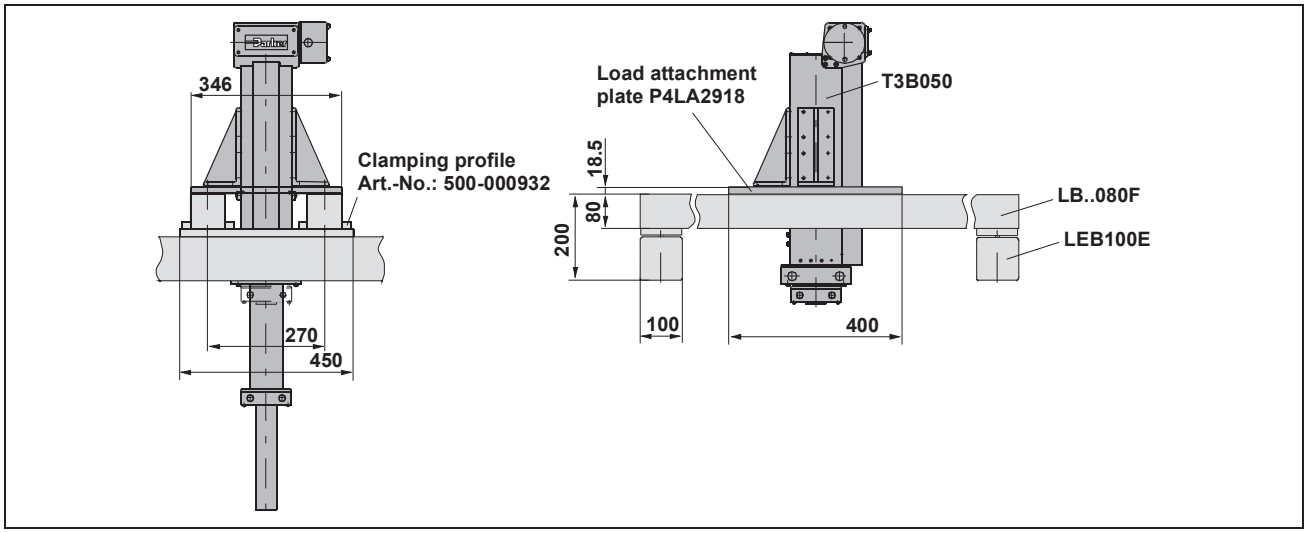
HTR – HLE/HPLA Combinations

Overview of all possible combinations

T3B050 – LB..080F Dual actuator / LB..080E Dual actuator

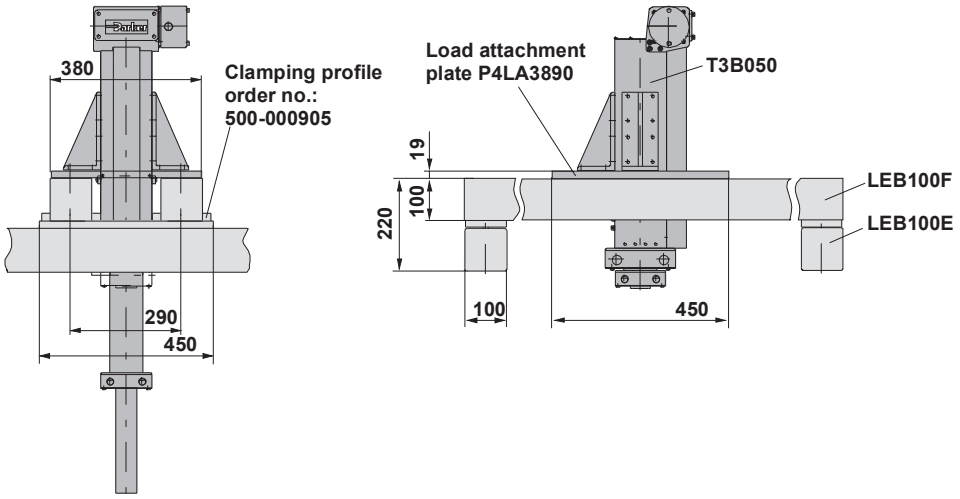


T3B050 - LB..080F Dual actuator / LEB100E Dual actuator

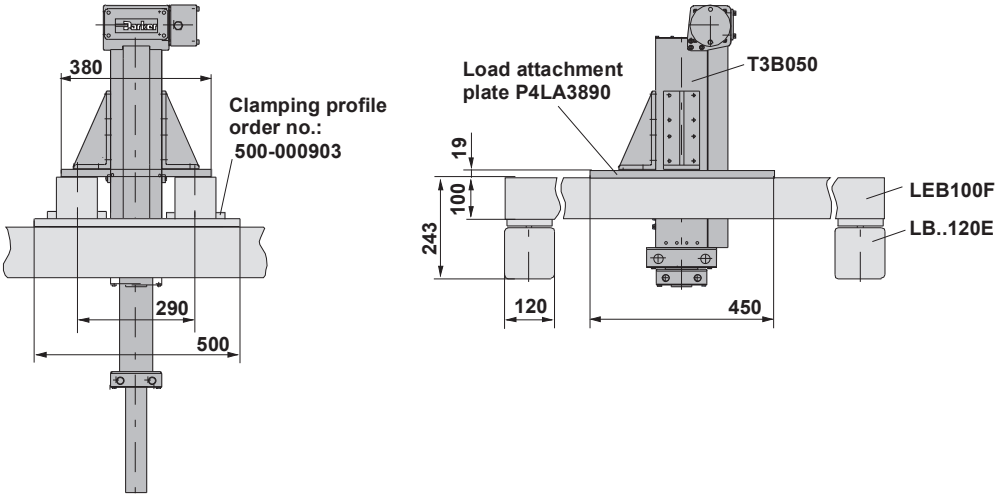


HTR – Telescopic actuator with belt drive

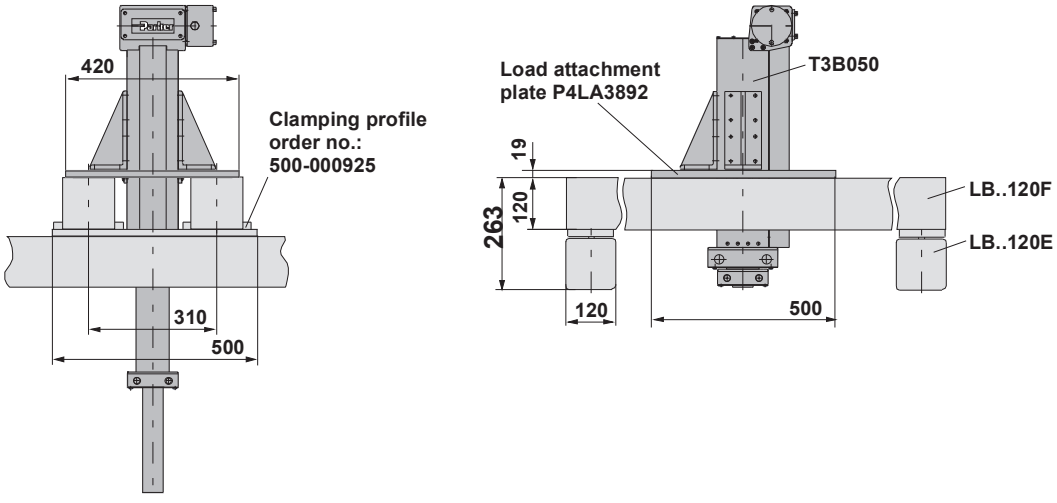
T3B050 - LEB100F Dual actuator / LEB100E Dual actuator



T3B050 - LEB100F Dual actuator / LB..120E Dual actuator

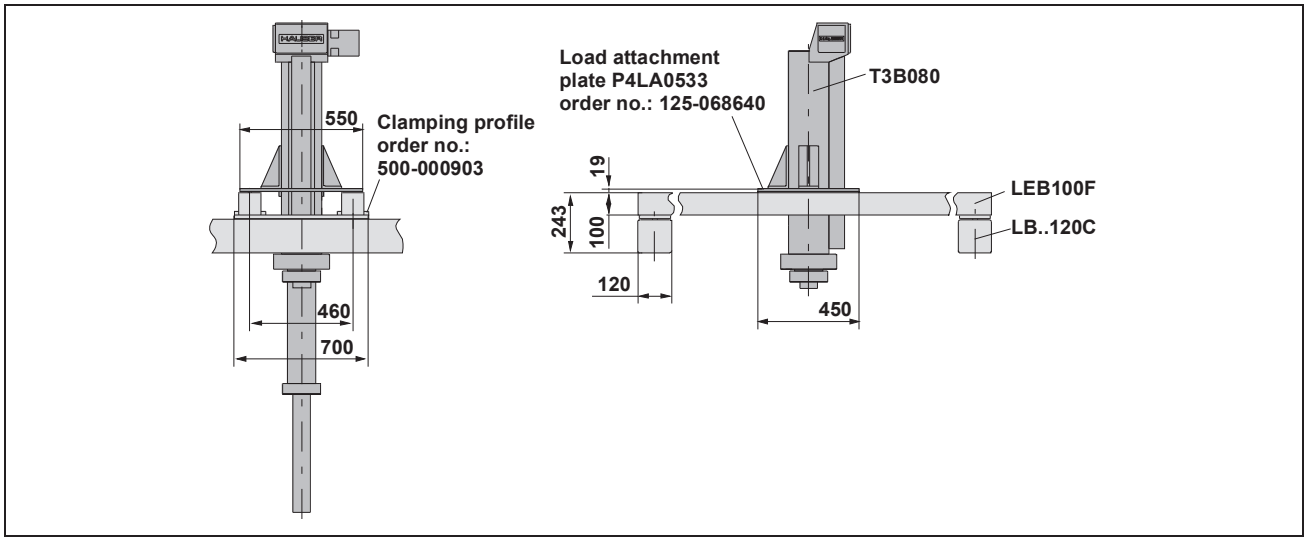


T3B050 – LB..120F Dual actuator / LB..120E Dual actuator

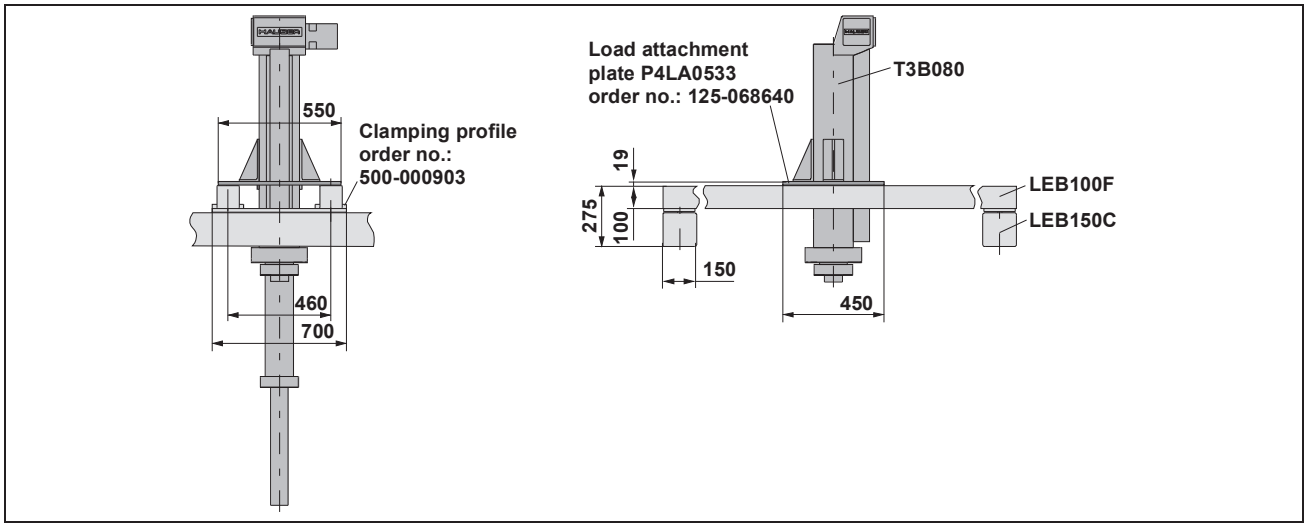


HTR – Telescopic actuator with belt drive

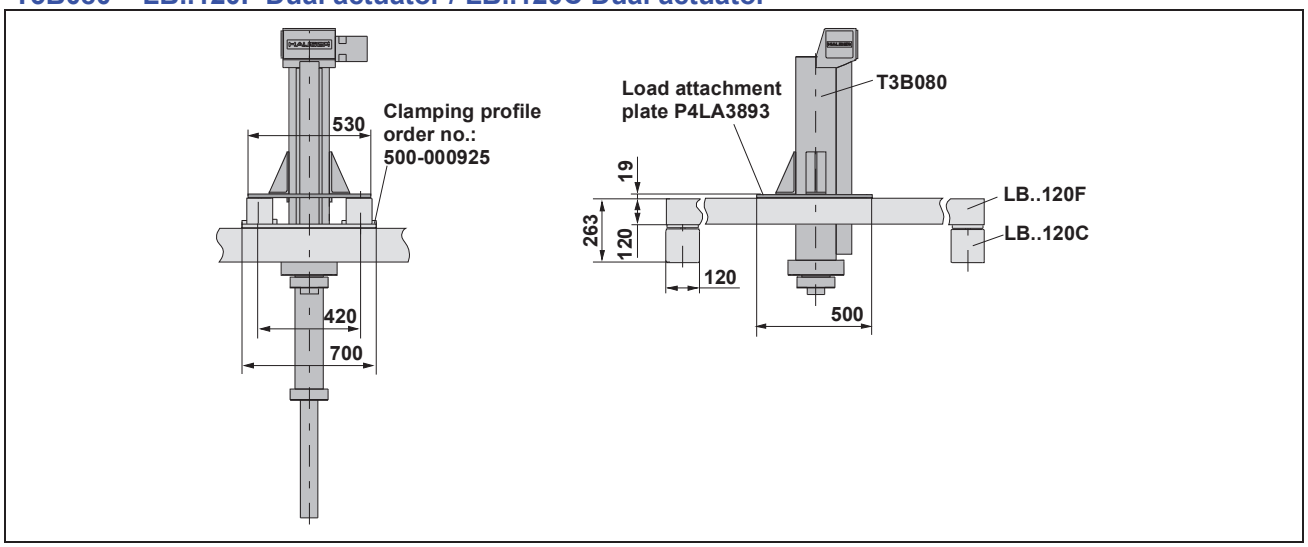
T3B080 - LEB100F Dual actuator / LB..120C Dual actuator



T3B080 - LEB100F Dual actuator / LEB150C Dual actuator

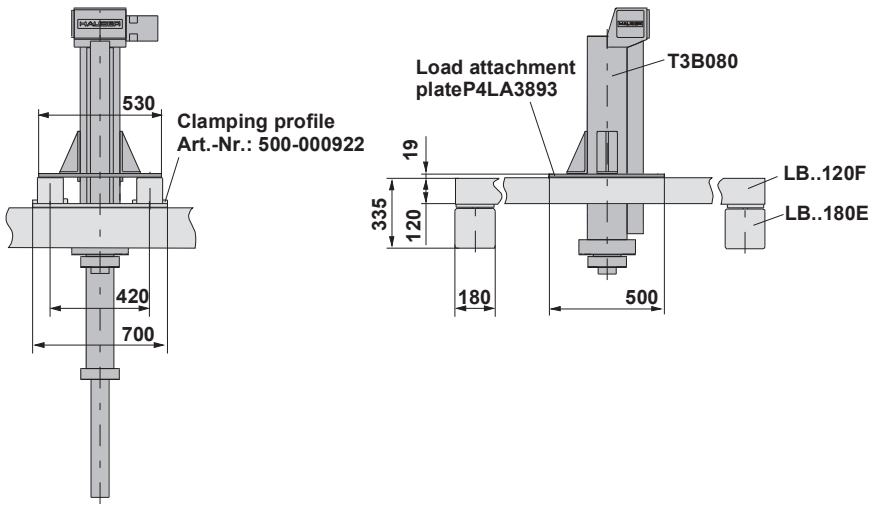


T3B080 – LB..120F Dual actuator / LB..120C Dual actuator

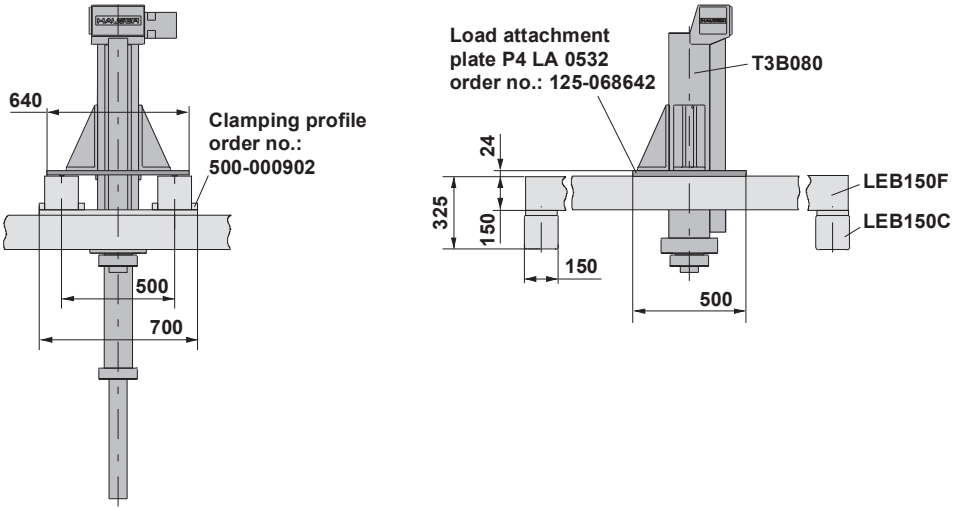


HTR – Telescopic actuator with belt drive

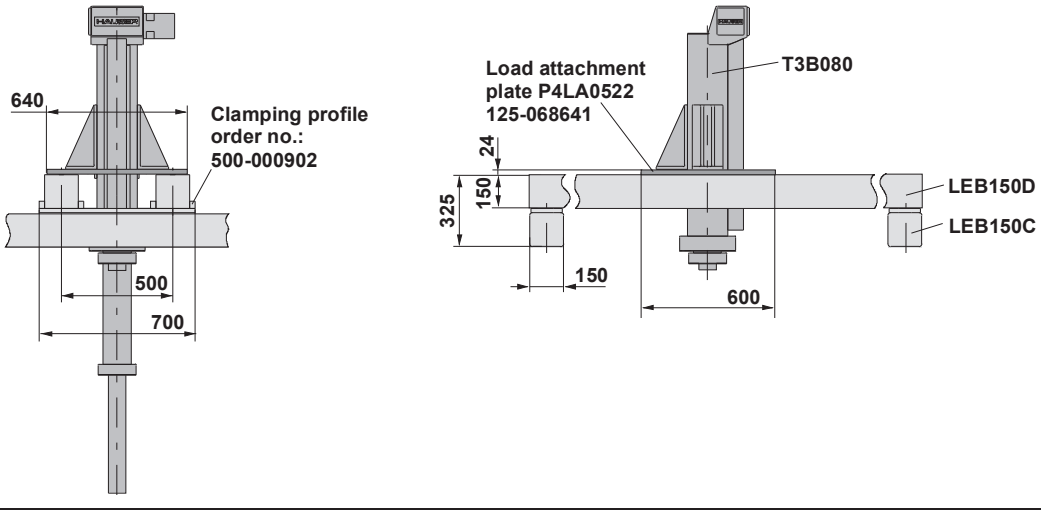
T3B080 – LB..120F Dual actuator / LB..180E Dual actuator



T3B080 - LEB150F Dual actuator / LEB150C Dual actuator

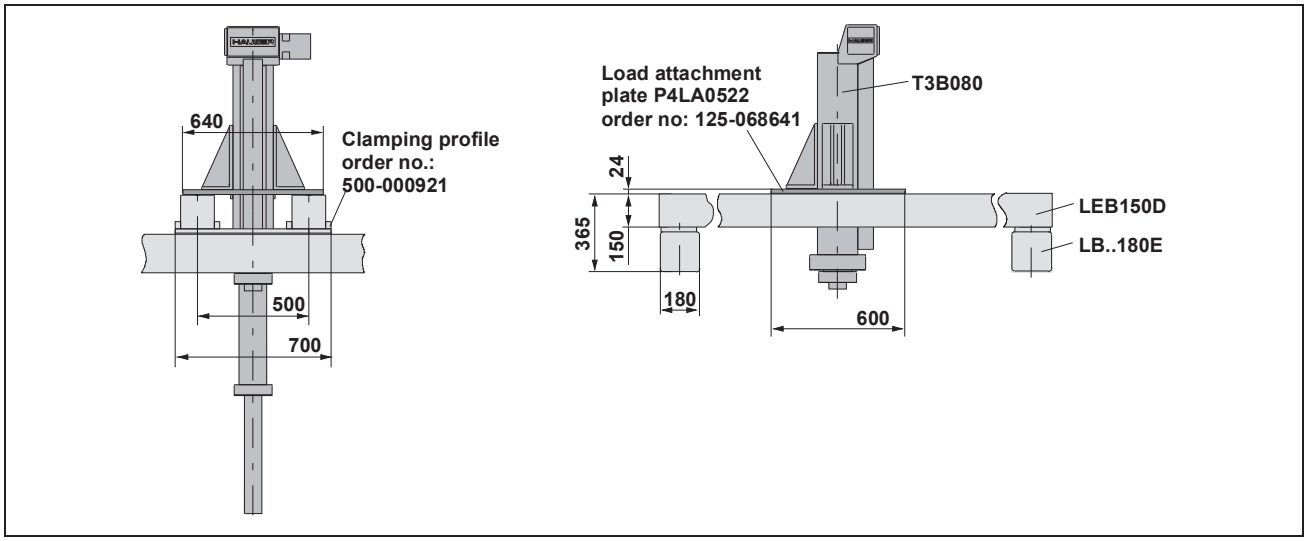


T3B080 - LEB150D Dual actuator / LEB150C Dual actuator



HTR – Telescopic actuator with belt drive

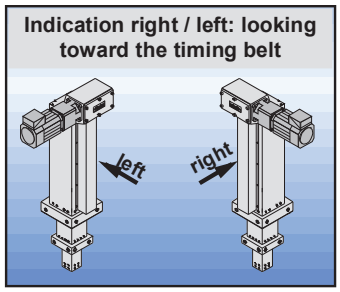
T3B080 - LEB150D Dual actuator / LB..180E Dual actuator



HTR – Telescopic actuator with belt drive

Order code

HTR telescopic actuator	T		B	0		0		P	0							
Drive system																
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 version																
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



Note: The limit switch gearbox (→ page 35) must be ordered separately!

HZR dynamic lifting actuator

Z-axis with belt drive - designed for vertical use

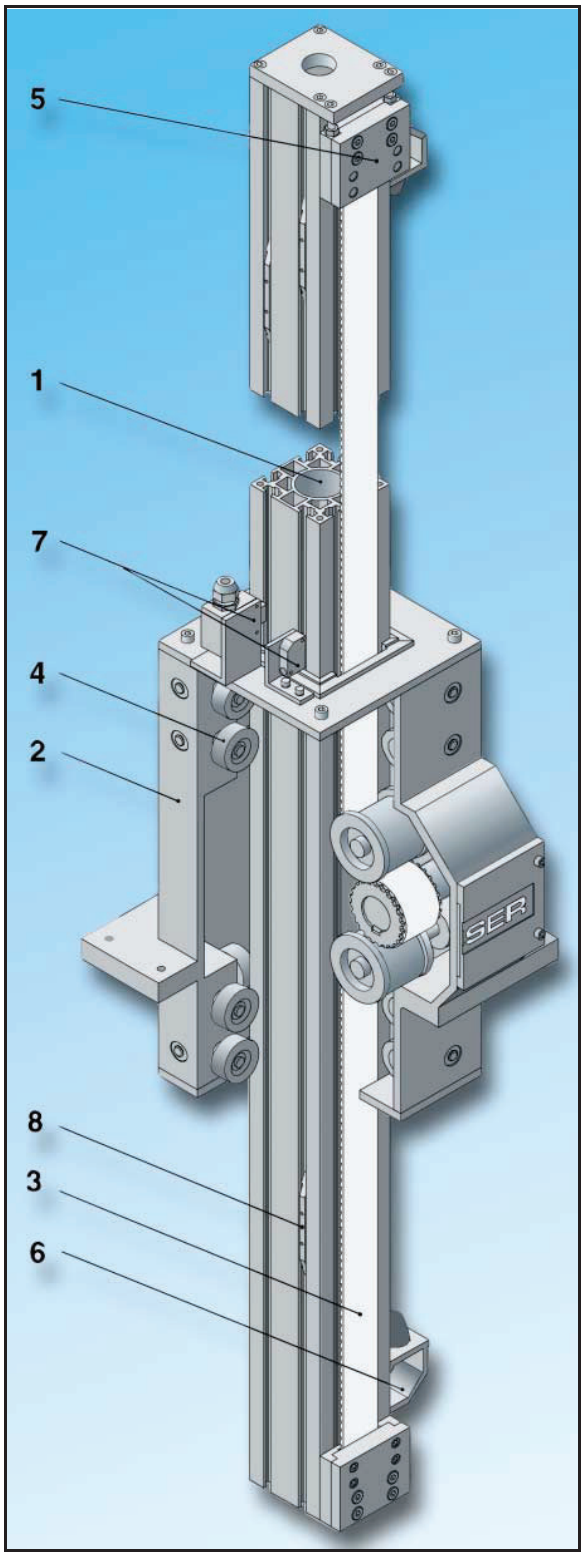
Contents:

Features of the HZR

- Available in 3 sizes:
  ZEB050, ZEB080 and ZEB100
- Can be combined with HLE and HPLA 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.
- Maintenance-free, low-noise PA sheathed rollers.
- Non-wearing and non-slip timing belt drive.

Subject to technical modifications. Data correct at time of printing.

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 large side 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 actuator system using Parker linear actuators. The drive can be mounted on either side of the housing.

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

The guide rollers (4)
The latest type of plastic sheathed rollers mounted on roller bearings ensure low-friction running. 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 timing belt.

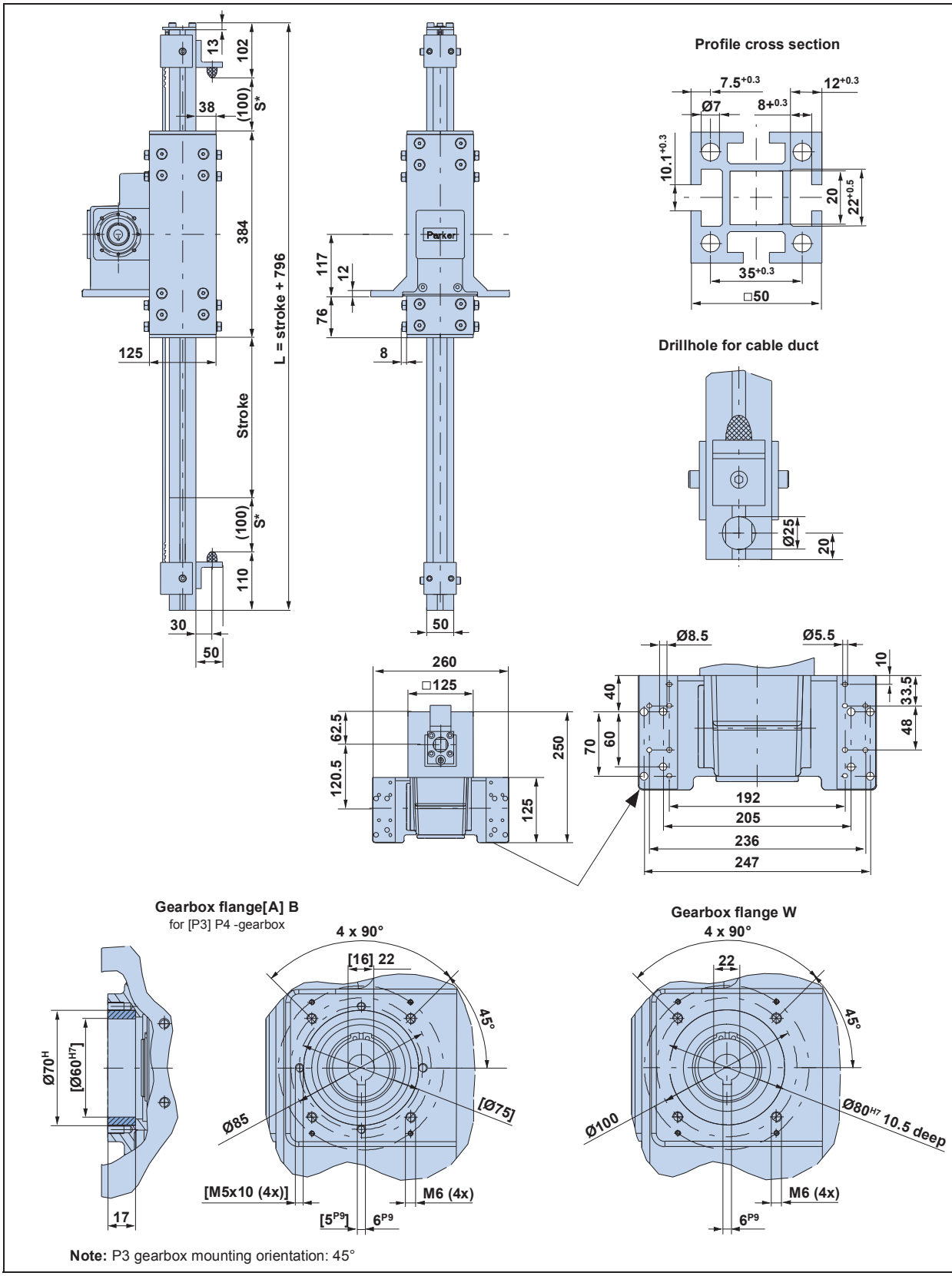
The limit stop (6)
The mechanical limit stops consist of stable, closed aluminium brackets each with two damping rubber buffers. These can be moved freely along the profile grooves and can be mounted on any side of the profile (except the toothed belt side).

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

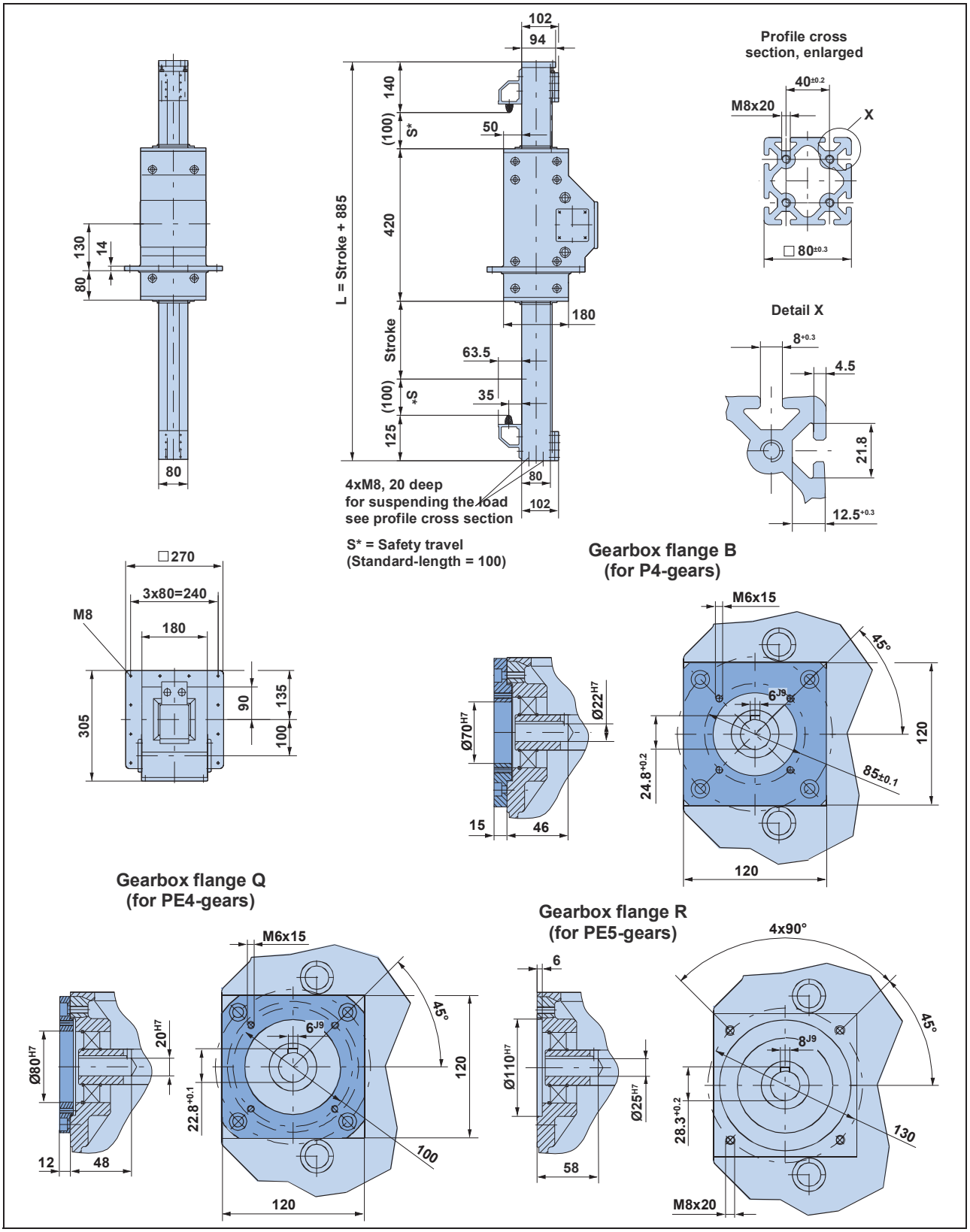
ZEB050



Note: P3 gearbox mounting orientation: 45°

HZR – Z-axis with belt drive

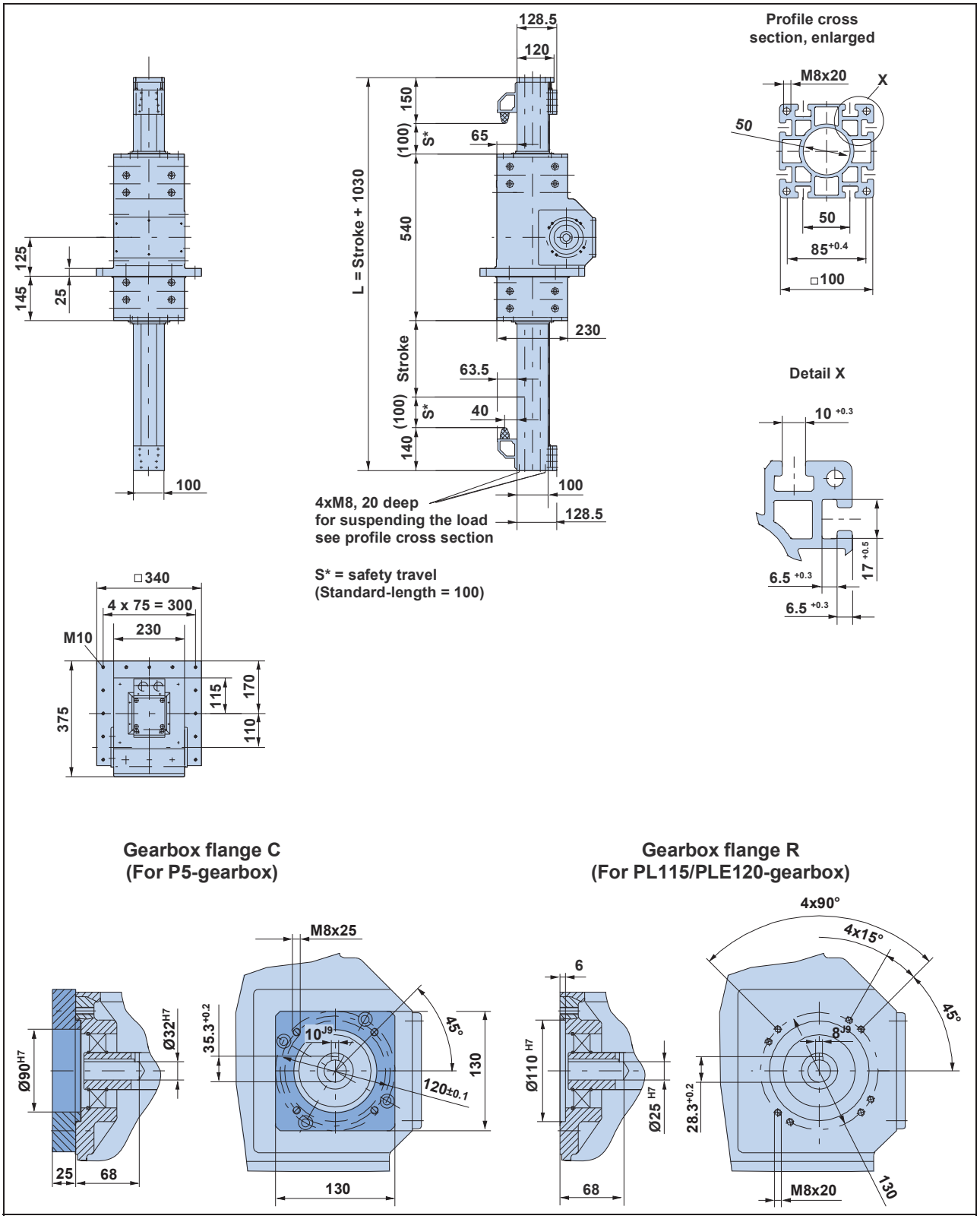
ZEB080



Parker Hannifin GmbH
Electromechanical Automation

HZR – Z-axis with belt drive

ZEB100



Parker Hannifin GmbH
Electromechanical Automation

Technical data

HZR size P: standard guiding; E: extended guiding[3)]	Unit	ZEB050		ZEB080	ZEB100
		P	E	P	P
Weight and moment of inertia					
Weight of basic unit without stroke	kg	12.4	14.3	30.7	50.2
Additional weight per metre	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 paths and speeds					
Maximum travel speed	m/s	5.0		5.0	5.0
Maximum travel path	mm	1500		1500	2000
Maximum permissible acceleration	m/s^2	5		5	5
Accuracy					
Repeatability in one direction (according to DIN EN ISO 9283)	mm	±0.2		±0.2	±0.2
Geometrical data					
Cross section of moving profile	mm x mm	50 x 50		80 x 80	100 x 100
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
Pulley and toothed belt data, torques and forces					
Travel distance per revolution	mm/rev	180		240	240
Pulley diameter	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 thrust force (effective load)	N	450		750	1500
Maximum thrust force	N	1654		2827	4400

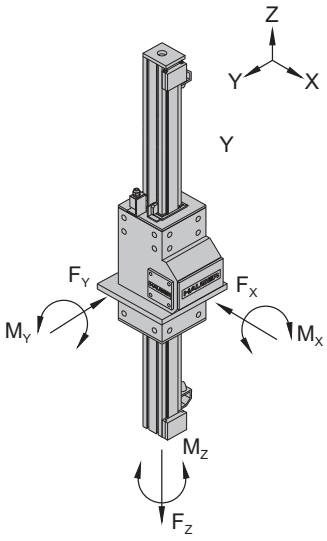
Please contact us if your application has the following requirements:

1. Speeds and acceleration greater than the data given above
2. Travel greater than the data given above
3. Nominal belt thrust force greater than the data given above. Increased timing belt tension is required.
4. Fitting position horizontal or upside down.

Technical data issued 03/02, safety factor taken into consideration S=1. Data applies for a temperature range of between -10°C and +40°C. The technical data applies under standard conditions and only for the individually specified operating mode and nature of load. In the case of compound loads, it must be verified in accordance with the laws of physic and technical standards, whether single data have to be reduced. Please contact us in the case of doubt.

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

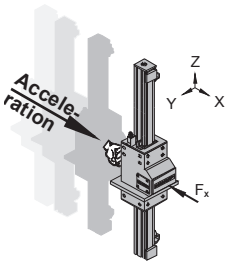
Force and torque capabilities



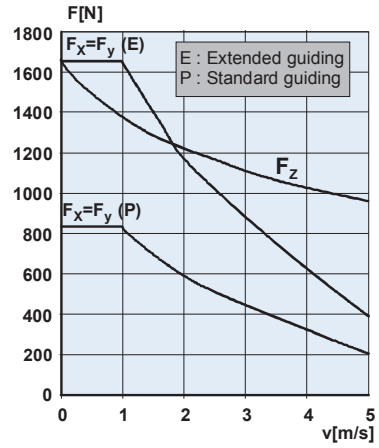
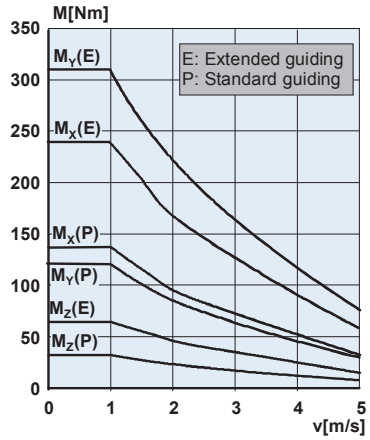
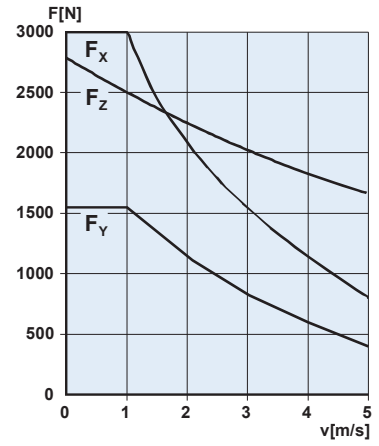
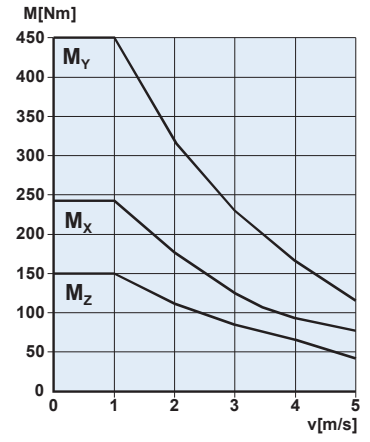
The forces and torques the rollers and timing belt are capable of transferring are speed-dependent.

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.

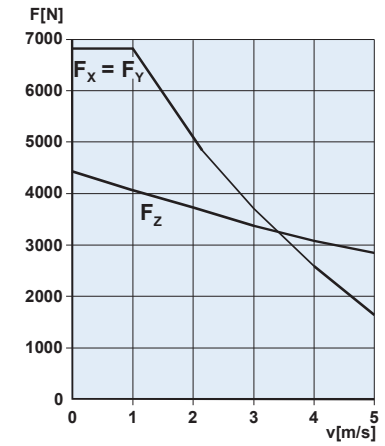
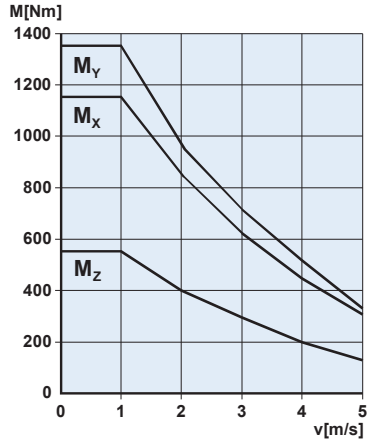
For precise dimensioning, our software "DimAxes" is available (Refer to "Other accessories / software", page 38)



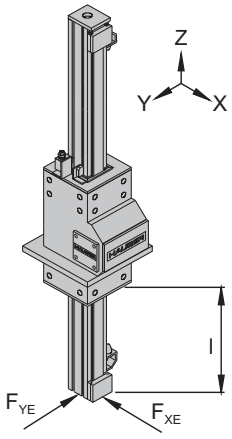
Note: The forces Fx resp. Fy arise as forces of inertia if the HZR itself is mounted on a linear actuator and is accelerated!

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

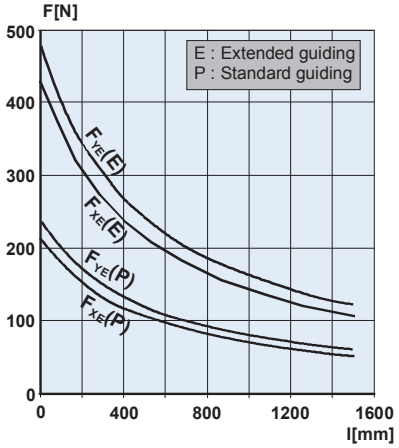
HZR – Z-axis with belt drive

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

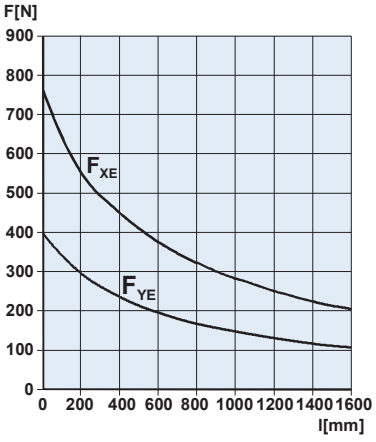
Roller load bearing capacity on the basis of a permanent side load



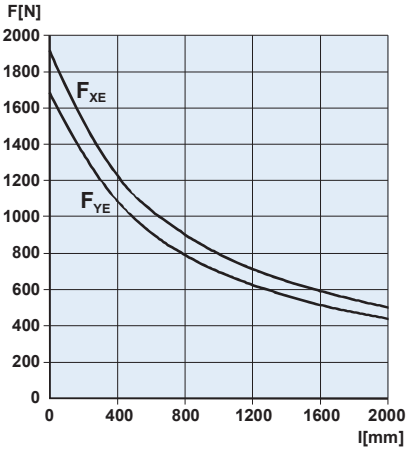
ZEB050



ZEB080



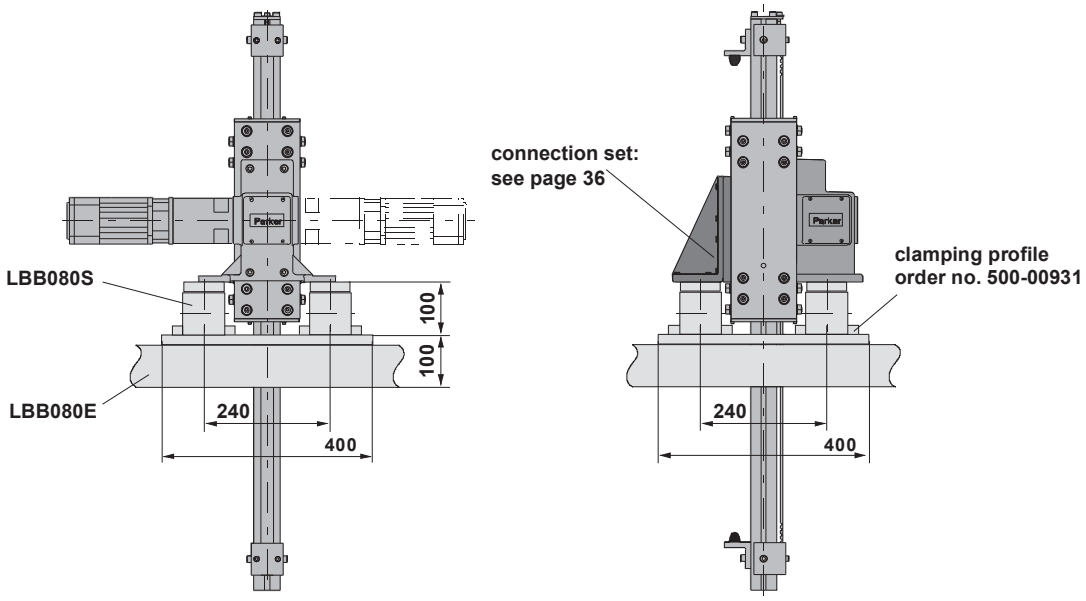
ZEB100



Combinations HZR - HLE/HPLA

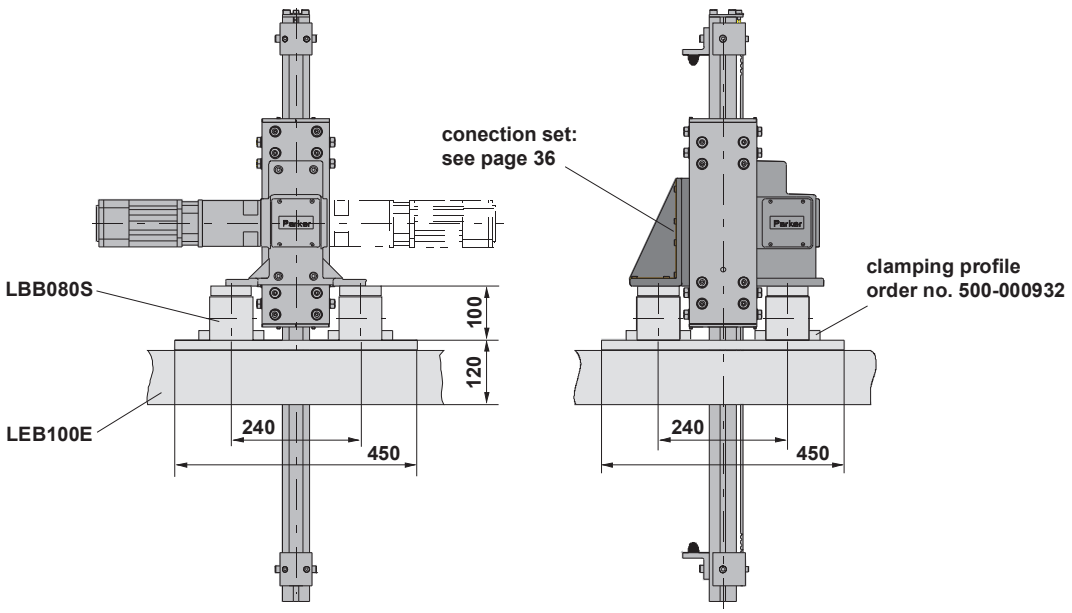
Overview on all possible combinations

ZEB050 – LB..080S Dual actuator / LB..080E Dual actuator

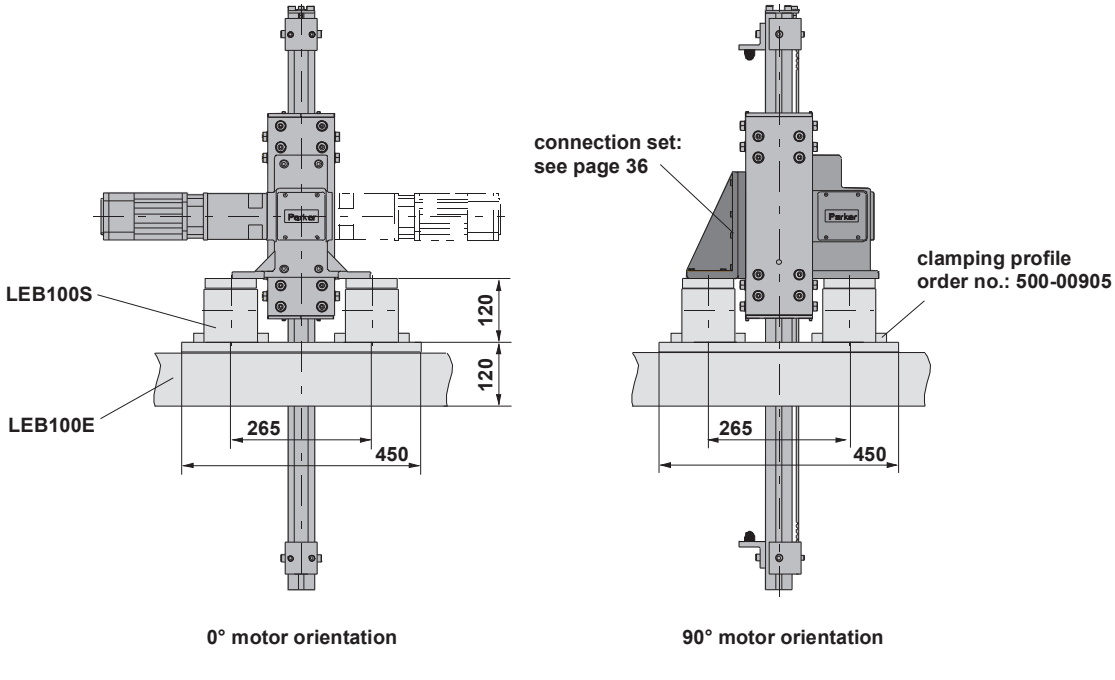


HZR – Z-axis with belt drive

ZEB050 – LB..080S Dual actuator / LEB100E Dual actuator

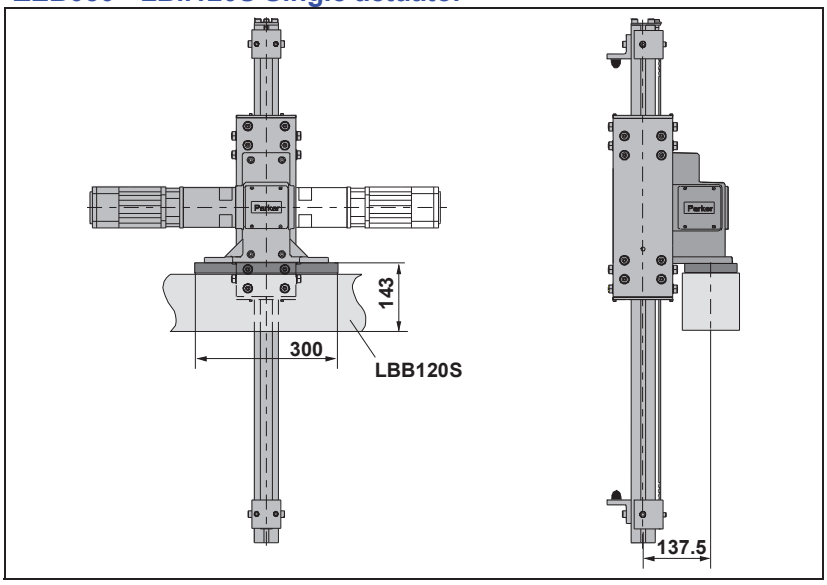


ZEB050 - LEB100S Dual actuator / LEB100E Dual actuator



HZR – Z-axis with belt drive

ZEB050 - LB..120S Single actuator

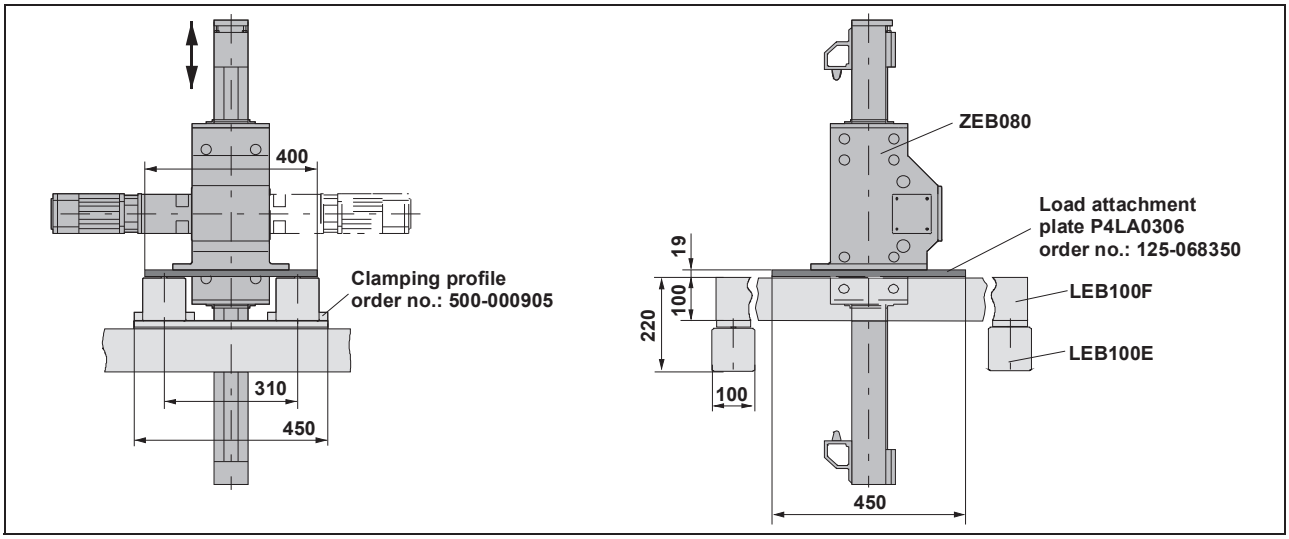


Please make sure you use a robust substructure for this actuator combination. The HPLA120 must be supported in regular, relatively small intervals.

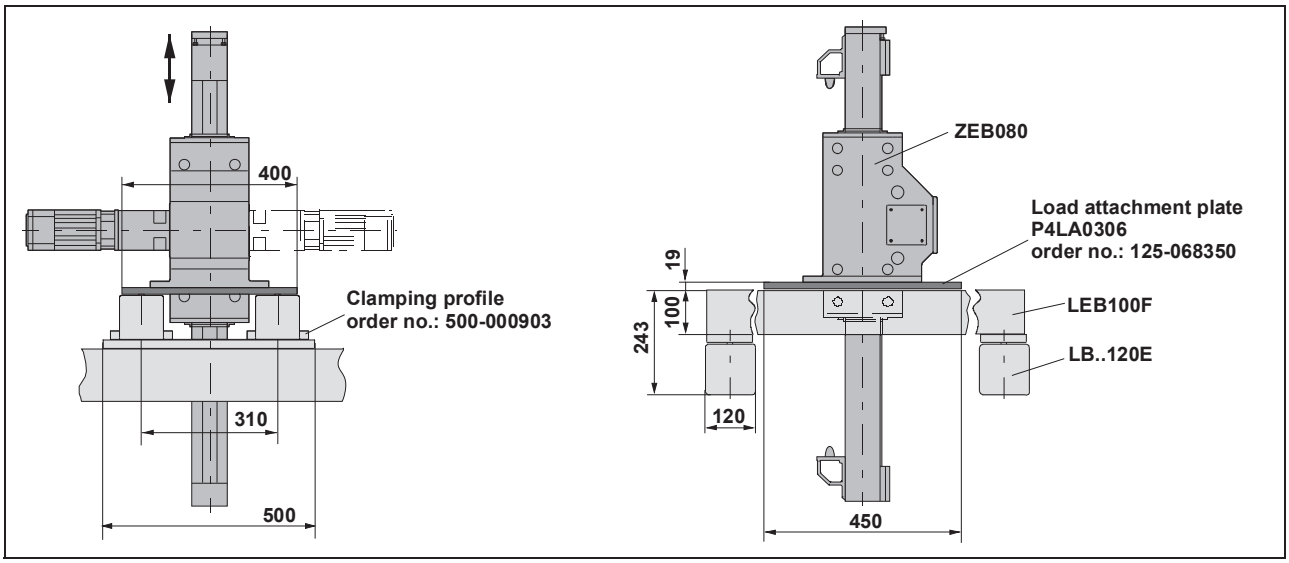
If you use a standard carriage (length 300mm – as shown in the drawing) only the HPLA with steel roller guidance may be used.

If you use an extended carriage (length 500mm), a guiding with plastic sheathed rollers is sufficient.

ZEB080 - LEB100F Dual actuator / LEB100E Dual actuator



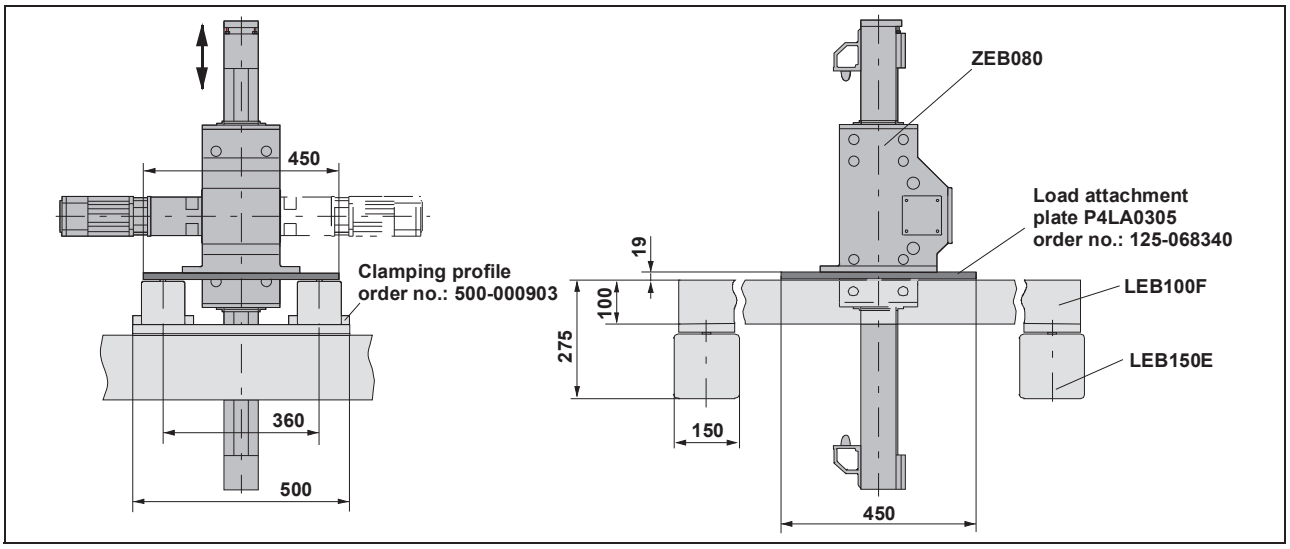
ZEB080 - LEB100F Dual actuator / LB..120E Dual actuator



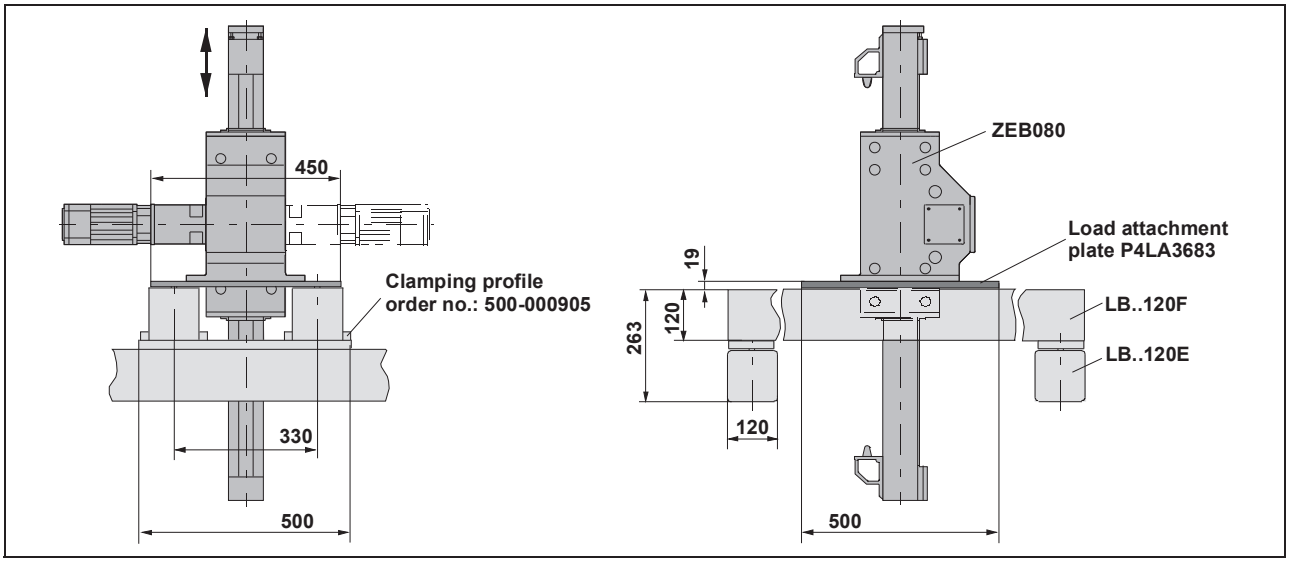
Parker Hannifin GmbH
Electromechanical Automation

HZR – Z-axis with belt drive

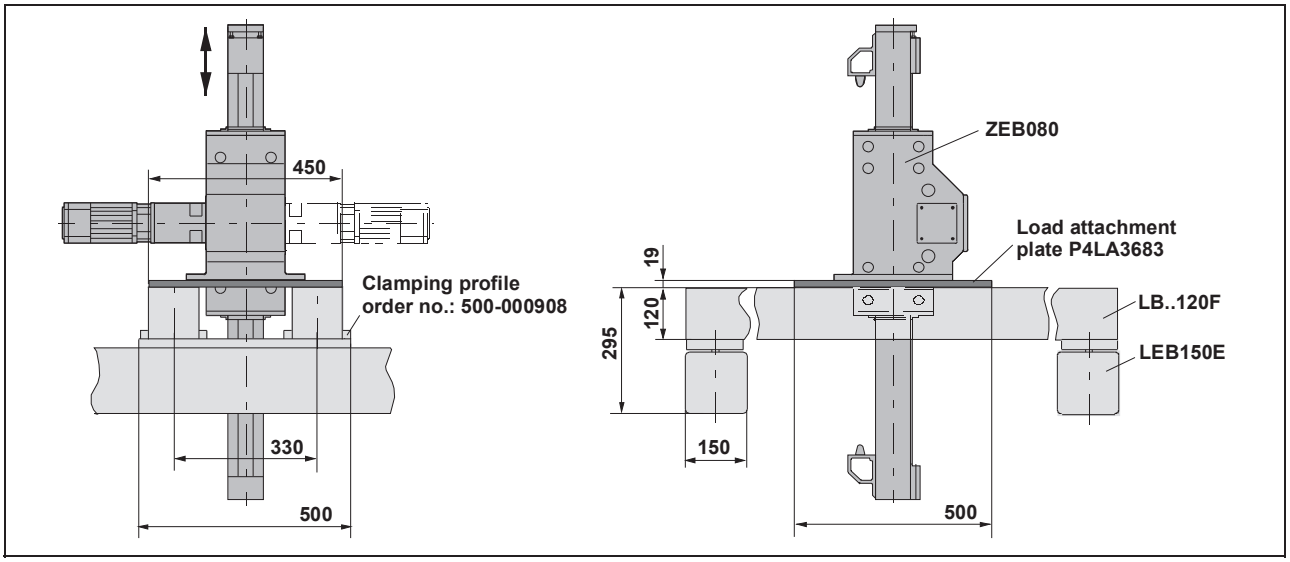
ZEB080 - LEB100F Dual actuator / LEB150E Dual actuator



ZEB080 – LB..120F Dual actuator / LB..120E Dual actuator

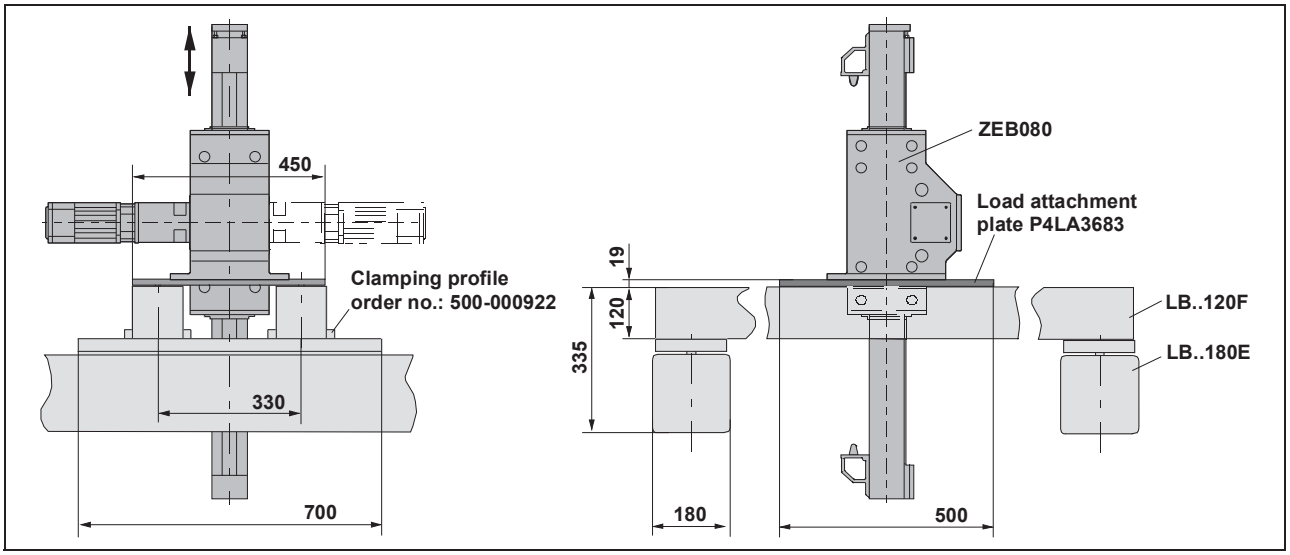


ZEB080 – LB..120F Dual actuator / LEB150E Dual actuator

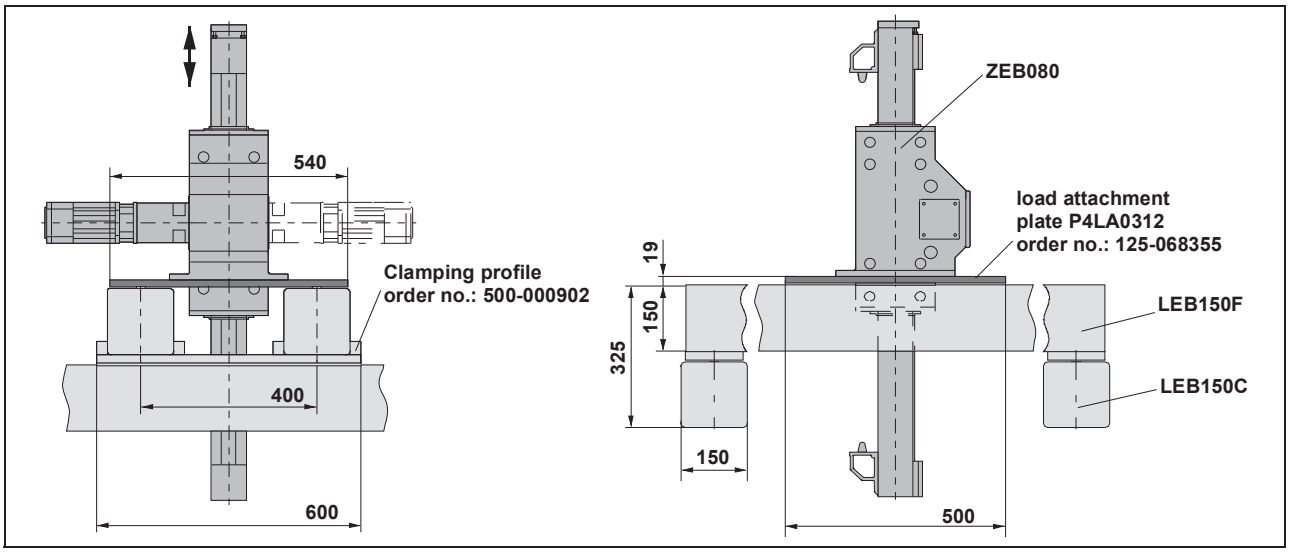


HZR – Z-axis with belt drive

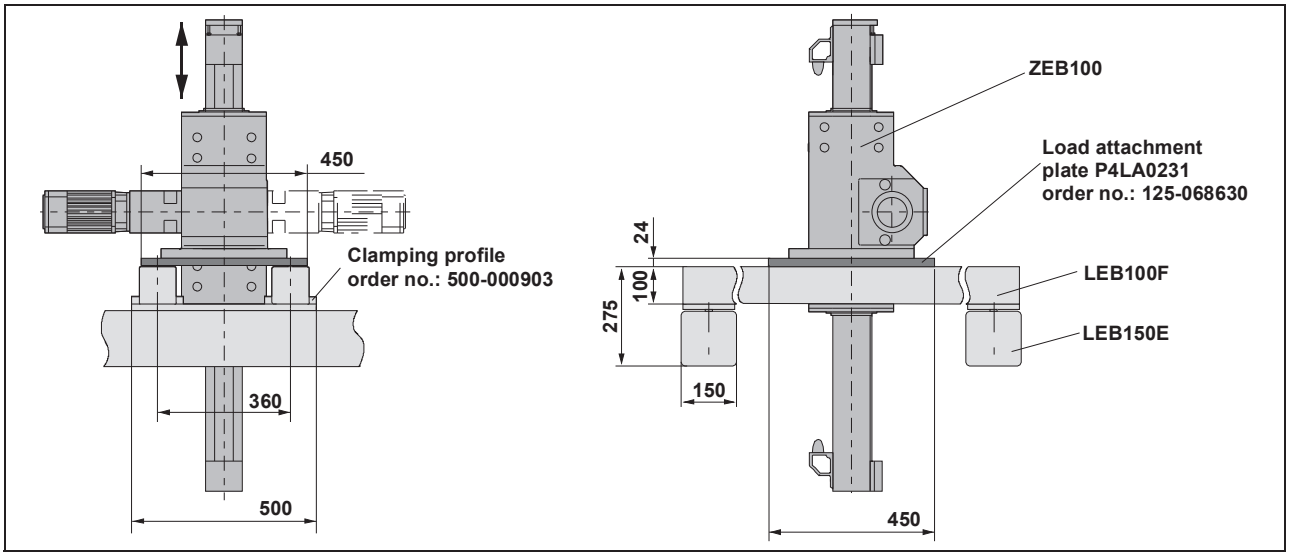
ZEB080 – LB..120F Dual actuator / LB..180E Dual actuator



ZEB080 - LEB150F Dual actuator / LEB150C Dual actuator

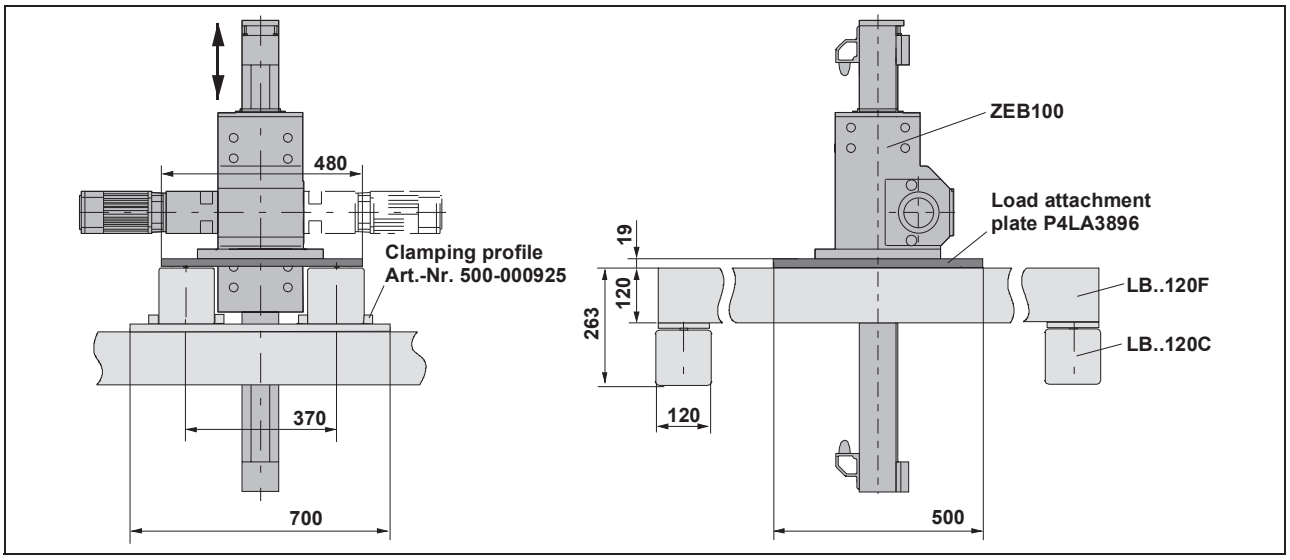


ZEB100 - LEB100F Dual actuator / LEB150E Dual actuator

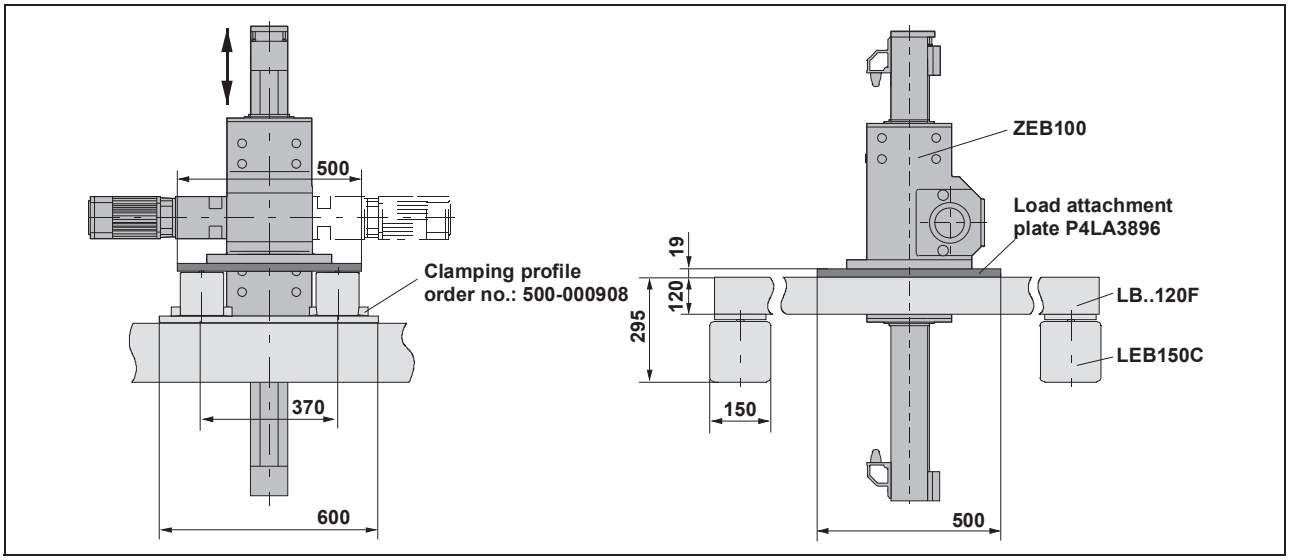


HZR – Z-axis with belt drive

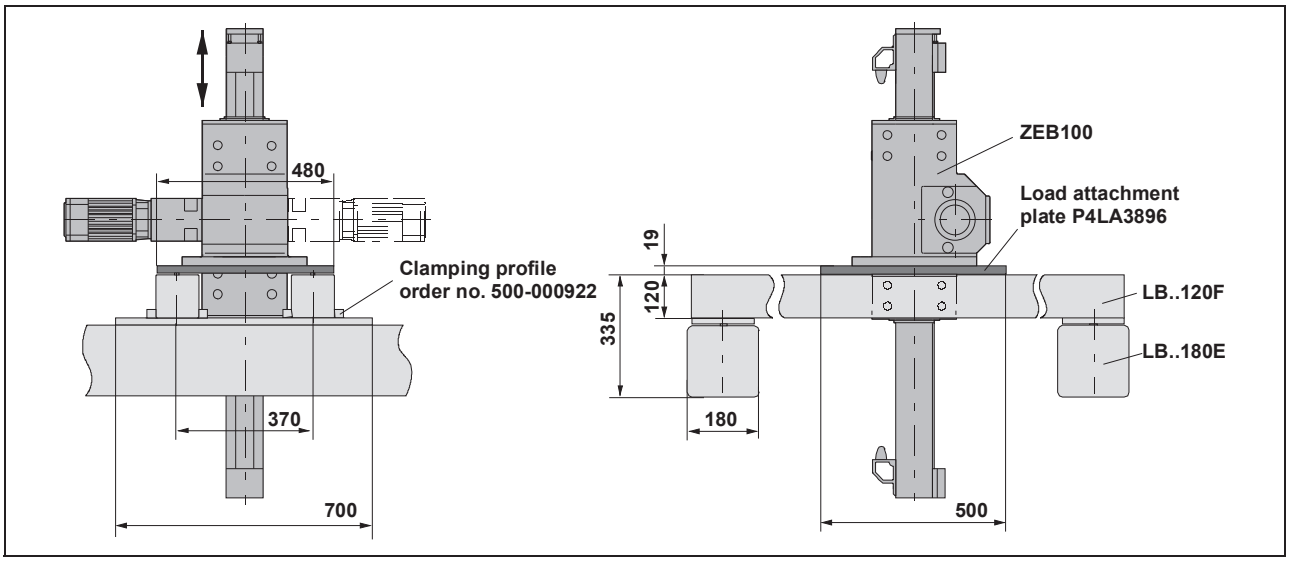
ZEB100 – LB..120F Dual actuator / LB..120C Dual actuator



ZEB100 – LB..120F Dual actuator / LEB150C Dual actuator

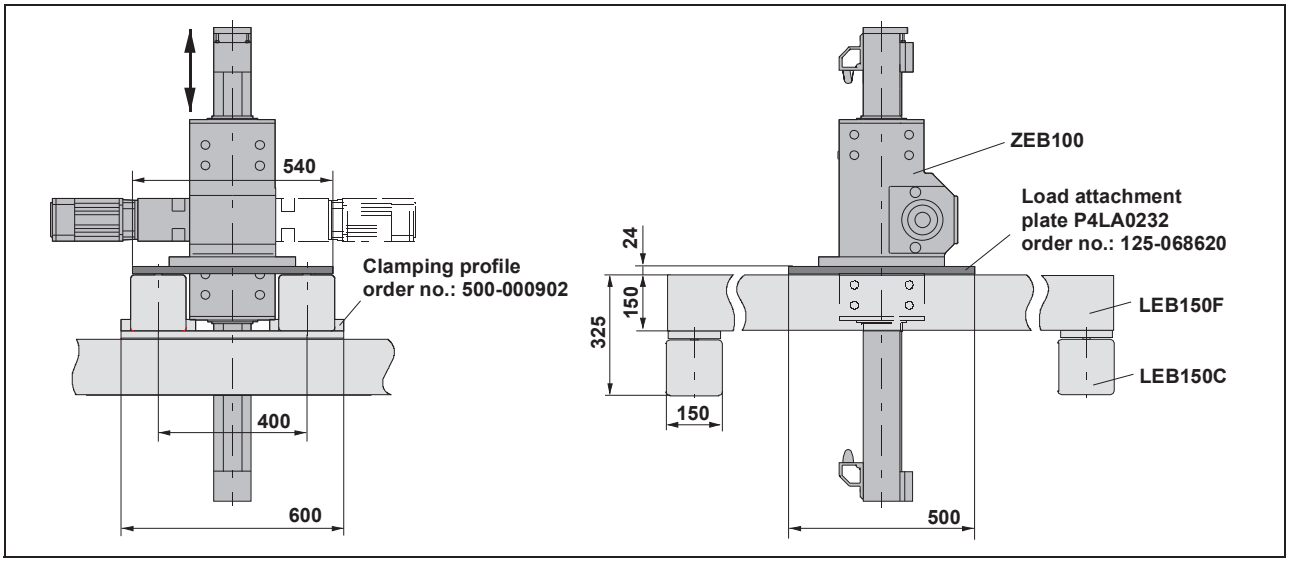


ZEB100 – LB..120F Dual actuator / LB..180E Dual actuator

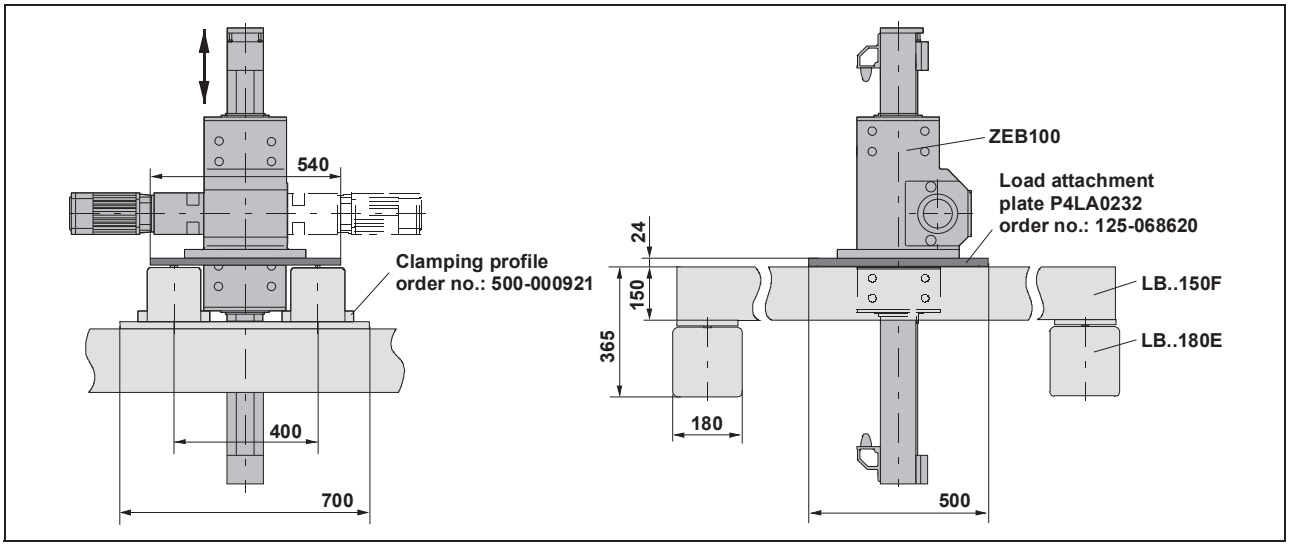


HZR – Z-axis with belt drive

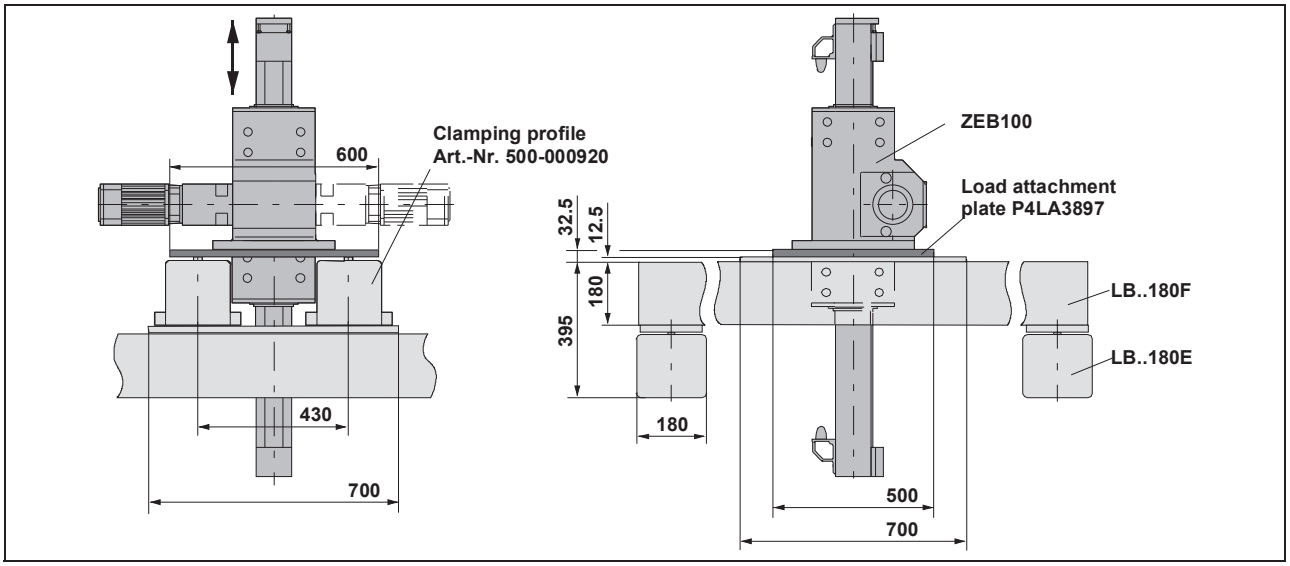
ZEB100 - LEB150F Dual actuator / LEB150C Dual actuator



ZEB100 - LEB150F Dual actuator / LB..180E Dual actuator



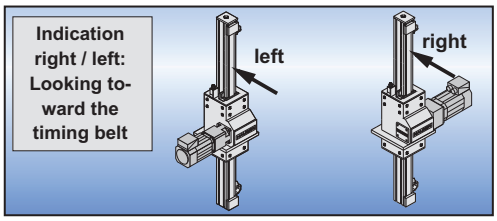
ZEB100 – LB..180F Dual actuator / LB..180E Dual actuator



HZR – Z-axis with belt drive

Order code

Z-axis HZR	Z	E	B			0		P	0							
Drive system																
Z-axis	Z															
Series																
HZR		E														
Type of drive																
Timing belt			B													
Profile cross section																
050mm				0	5	0										
080mm				0	8	0										
100mm				1	0	0										
Material version																
Standard							N									
VA corrosion resistant							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 ZEB080, ZEB050																B
P5 for ZEB100																C
Lenze 52.308.04 for ZEB080 / Lenze 52.308.05 for ZEB100																L
PE4 for ZEB080																Q
PE5 for ZEB100 / ZEB080																R
Flange for gearbox with fitting edge Ø80, pitch diameter Ø100, shaft diameter Ø22 and shaft length up to 40mm for ZEB050																W
Extras (others, not standard) (on request)																X

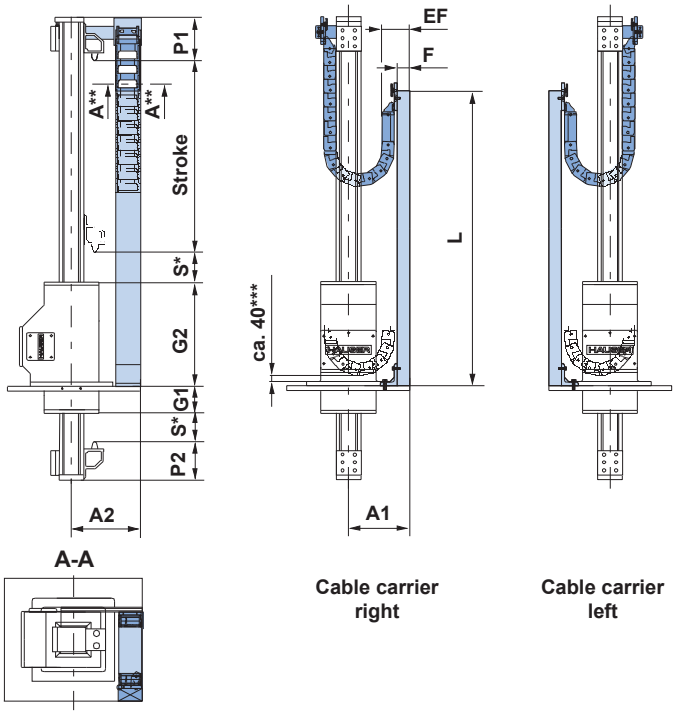


Accessories

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 0450.21 (ZEB050) resp. type 0450.41 (ZEB080 and ZEB100)



S*: safety travel (standard length 100mm)
** for cross section A - A refer to page 31
*** remaining maximum distance to HZR flange if the actuator is driven on buffer.

Chain length for ZEB050:

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

Chain length for ZEB080:

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

Chain length for ZEB100:

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

round chain length to a pitch of 45mm
→ 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 45mm. The chain length must therefore be rounded up to the next whole number divisible by 45:

$$L_K = \frac{1055}{45} = 23.44$$

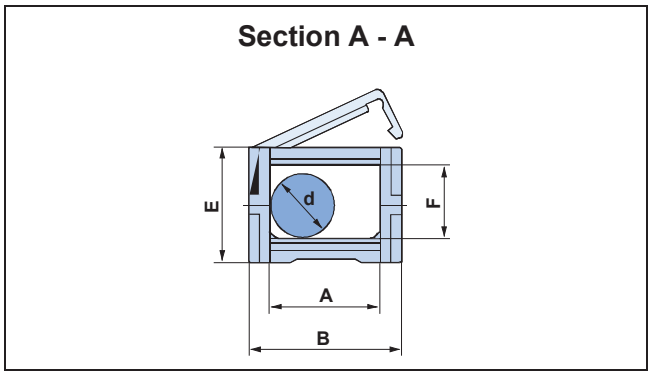
The number of chain parts must be rounded up to the next whole number (24). The chain length to be ordered is:

$$L_K = 24 \cdot 45 = 1080$$

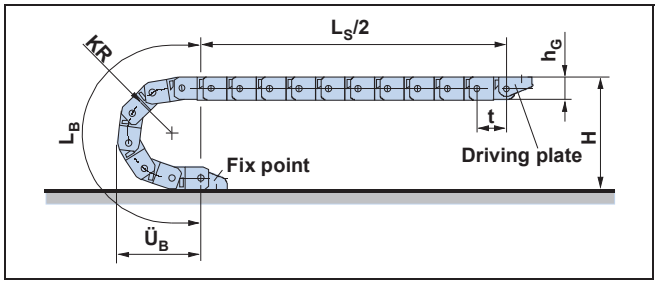
In this case you would need to order a chain with 24 parts and a length of 1080mm for your application.

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

Dimensions for the cable carrier chain



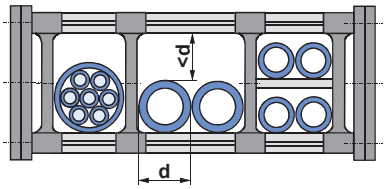
Actuator type	Chain type	A	B	E	F	d max.
ZEB050	0450.21 KR52	38	54	40	24	22
ZEB080 / ZEB100	0450.41 KR94	58	74	40	24	22



Actuator type	Chain type	Bending radius KR	Pitch t	Height h_G	Curve length L_B	Curve protrusion $Ü_B$	Connection height H_{min} (= 2KR+hg)	Own chain weight kg/m
ZEB050	**0.450.21**	**52**	45	40	254	117	144	0.75
ZEB080/ZEB100	**0.450.41**	**94**	45	40	386	159	228	0.85

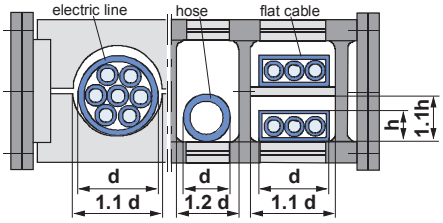
Guidelines for using cable carriers

Use only electrical cables which are suitable for use in cable carriers. Hose lines should be highly flexible and should only extend or shorten 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 us.

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 line diameter. This is the only way of preventing the cables from twisting.



The supply cables must be able to move freely in the cable carrier. They must never be fastened or bundled 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 hose lines:	approx. 20% of the hose diameter
with flat cables:	for each, approx. 10% of the cable width and cable thickness

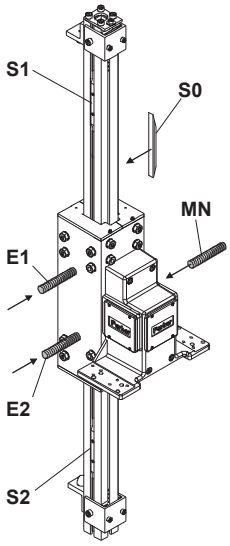
Attachment of position sensors and accessories

Attachment variants for HZR position sensors

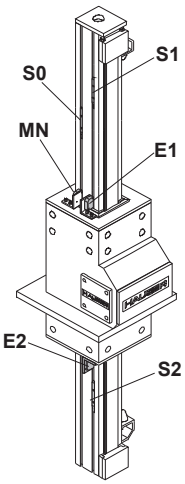
The limit switches are fitted ensuring that they are activated directly before the start of the standard safety travel (100mm). Unless otherwise agreed, the linear actuator is supplied with position sensors attached using attachment variant 1 (ZEB080 and ZEB100) resp. attachment variant 4 (ZEB050). The tripping plates, position sensors and distribution box are described on page 33.

Attachment variant 1 ZEB050/ZEB080/ZEB100

with three electrical (inductive) limit switches



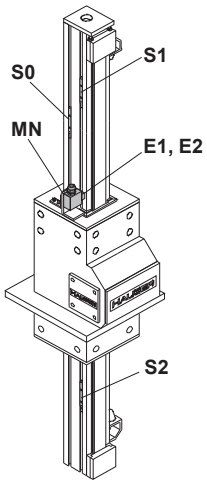
ZEB050



ZEB080 / ZEB100

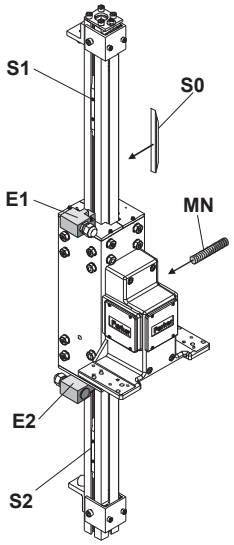
Attachment variant 2 ZEB080/ZEB100

with one mechanical and one inductive limit switch

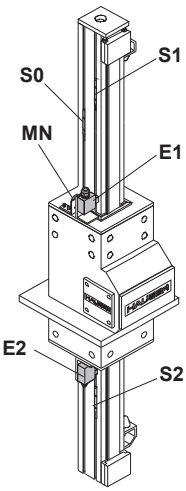


Attachment variant 3 ZEB050/ZEB080/ZEB100

with two mechanical and one electrical (inductive) limit switch



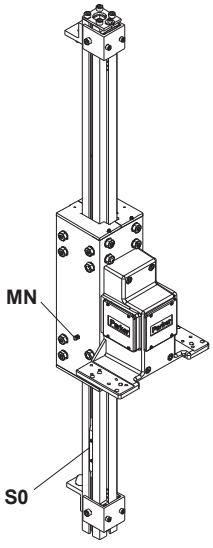
ZEB050



ZEB080 / ZEB100

Attachment variant 4 ZEB050

with one electrical (inductive) limit switch



Key

E1: Limit switch 1
E2: Limit switch 2
MN: Home sensor
S0: Tripping plate for home sensor
S1: Tripping plate for limit switch 1 (E1)
S2: Tripping plate for limit switch 2 (E2)

Comments on ZEB050

The home sensor may optionally be mounted on the right or on the left side of the housing.

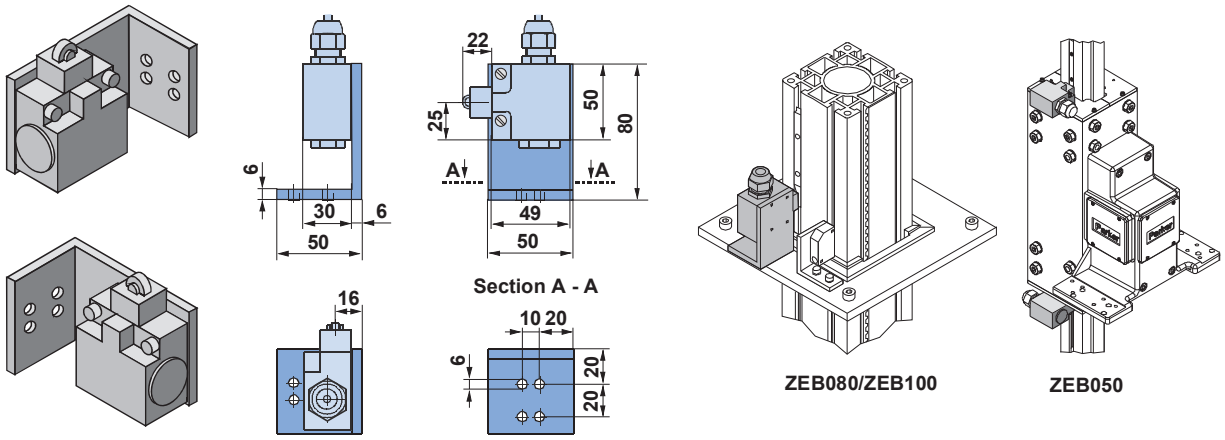
The electrical limit switches must always be mounted on the side of the housing opposite the home sensor.

The mechanical limit switches must always be mounted on the side of the housing opposite the home sensor or shifted by 90° .

Accessories HTR and HZR

Mechanical limit switch for HZR

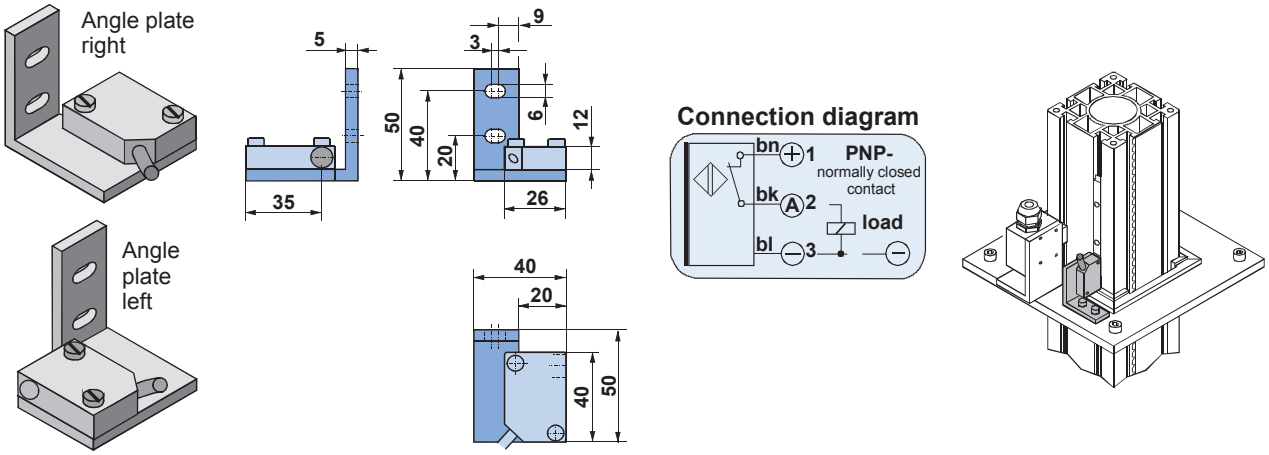
The switching button complies with DIN EN 50047. The contacts satisfy the safety requirements in accordance with EN 60947-5-1 by virtue of forced opening (positively driven). The limit switch can be assembled on the angle plate in two ways (see picture on the left).



Description	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

Electrical limit switch (initiator) - only for ZEB080 and ZEB100

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



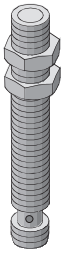
Description	Order no.
Electrical limit switch (PNP normally closed contact) - left (including angle plate and attachment material)	510-900604
Electrical limit switch (PNP normally closed contact) - right (including angle plate and attachments)	510-900605

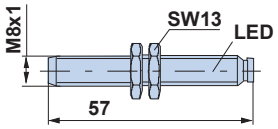
Technical data		DC electrical data	
Operating distance	2mm / 4mm ± 10%	**Rated voltage**	24 V DC
Switch hysteresis	≥ 1% ...≤ 15%	**Voltage range**	10...35 V DC
Repeatability	0.01mm	**Supply current**	≤ 15 mA
Temperature drift	≤ 10 %	**Maximum load current**	300mA
Ambient temperature	-25°C - +70°C	**Residual voltage**	≤ 2.5 V DC
Type of protection	IP67	**Max. switching frequency**	2kHz
Cable length	6m	**Connection cable**	3 x 0.25mm^2

Accessories HTR and HZR

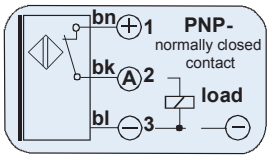
Cylindrical limit switch for ZEB50

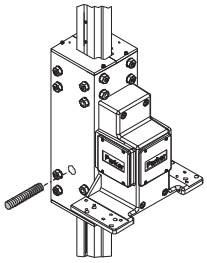
The cylindrical limit switch may be optionally screwed in on the right or on the left side of the housing.





Connection diagram normally closed contact

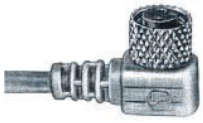




Description	Order no.
Electrical limit switch for ZEB050 normally closed contact (incl. attachment material) (Cable: see picture below)	092-510636

Technical data	
Operating distance	1.5mm / 2mm ± 10%
Switch hysteresis	≥ 1% ...≤ 15%
Repeatability	0.01mm
Temperature drift	≤ 10 %
Ambient temperature	-25°C - +70°C
Type of protection	IP 65

DC electrical data	
Rated voltage	24 V DC
Voltage range	10...35 V DC
Supply current	≤ 15 mA
Maximum load current	300 mA
Residual voltage	≤ 2.5 V DC
Max. switching frequency	5 kHz

Cable for the cylindrical limit switch. Coupling can be screwed directly to the initiator. Cable end for self assembly		
	**Miniature angle coupling (90°), RKMWV 3-90, screw cap with self-securing knurled nut, with gated cable, length 10m, 3 x 0.34mm²** (Please note: This cable is not suitable for the use in cable carrier chains)	080-900215
	**Miniature coupling, RKMV 3-90, screw cap with self-securing knurled nut, with gated cable, length 10m, 3 x 0.34mm²** (Please note: This cable is not suitable for the use in cable carrier chains)	080-900212

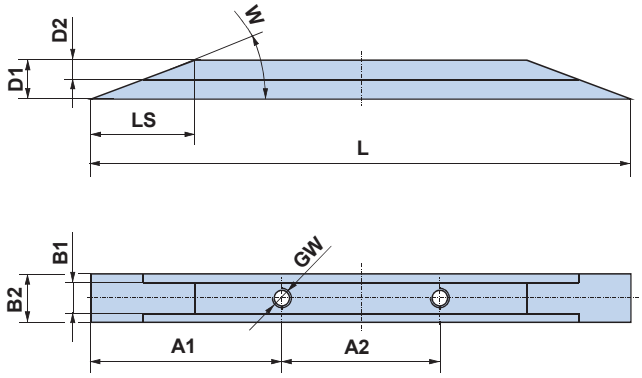
Cable for the cylindrical limit switch. Coupling can be screwed directly to the initiator. Cable ends may be directly connected to the COMPAX via a plug.

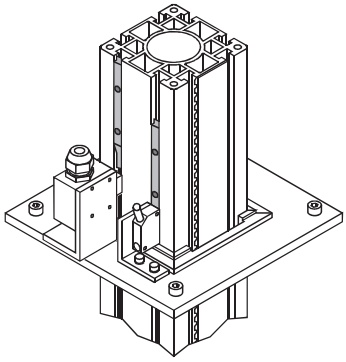
Standard cable LiYCY 3 x 0.34 screened These cables are not suitable for the use in cable carrier chains)		**Order no.**	**Highly flexible cable Unitronic-FD CP 3 x 0.14 screened.** (Suitable for use in cable carrier chains)		**Order no.**
GBK 21/01	1m long	GBK21/01	GBK 22/01	1 m long	GBK22/01
GBK 21/02	2.5m long	GBK21/02	GBK 22/02	2.5 m long	GBK22/02
GBK 21/03	5m long	GBK21/03	GBK 22/03	5 m long	GBK22/03
GBK 21/04	7.5m long	GBK21/04	GBK 22/04	7.5 m long	GBK22/04
GBK 21/05	10m long	GBK21/05	GBK 22/05	10 m long	GBK22/05
GBK 21/06	12.5m long	GBK21/06	GBK 22/06	12.5 m long	GBK22/06
GBK 21/07	15m long	GBK21/07	GBK 22/07	15 m long	GBK22/07
GBK 21/08	20m long	GBK21/08	GBK 22/08	20 m long	GBK22/08
GBK 21/09	25m long	GBK21/09	GBK 22/09	25 m long	GBK22/09
GBK 21/10	30m long	GBK21/10	GBK 22/10	30 m long	GBK22/10
GBK 21/11	35m long	GBK21/11	GBK 22/11	35 m long	GBK22/11
GBK 21/12	40m long	GBK21/12	GBK 22/12	40 m long	GBK22/12
GBK 21/13	45m long	GBK21/13	GBK 22/13	45 m long	GBK22/13
GBK 21/14	50m long	GBK21/14	GBK 22/14	50 m long	GBK22/14

Accessories HTR and HZR

Tripping plate for HZR

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





Actuator 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

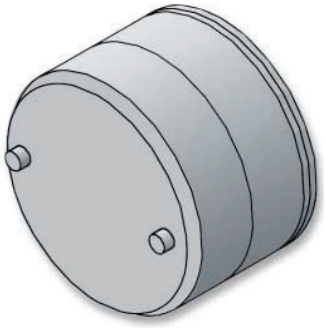
Attachment of the tripping plate

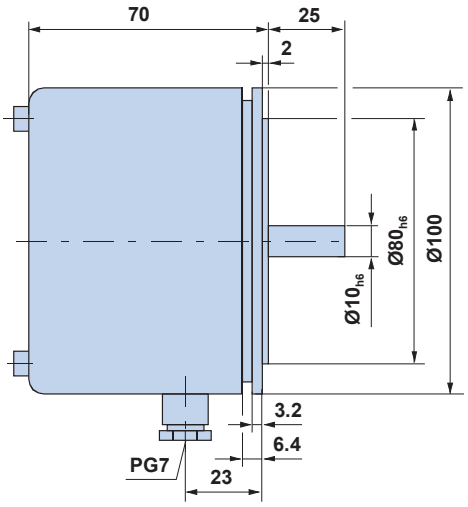
You need two threaded pins in order to attach a tripping plate

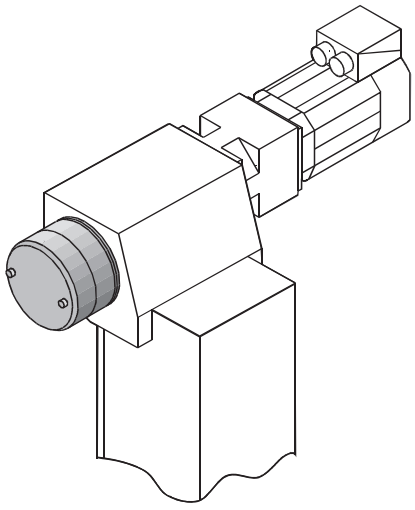
Actuator type	pieces	Description	Order no.
ZEB050	2	Threaded pin DIN913 M6x12	130-902029
ZEB080	2	Threaded pin DIN913 M6x8	130-902027
ZEB100	2	Threaded pin DIN913 M6x12	130-902029

Limit switch gearbox for HTR

The limit switch gearbox contains a combination of electrical and mechanical limit switches (see table). It is available with a reduction ratio of i=8 and is assembled opposite the drive/gearbox combination.



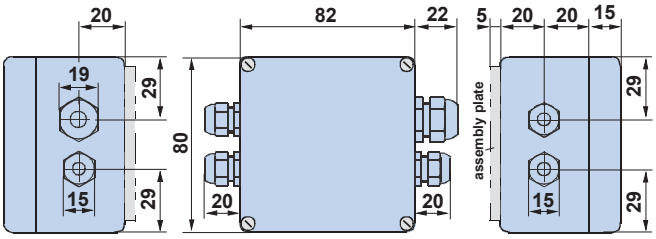


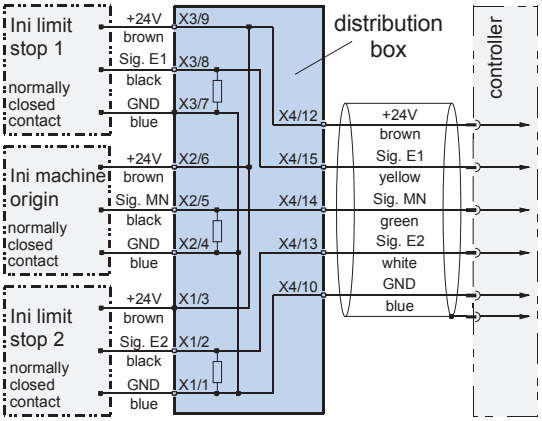


Description	Initiator PNP normally opened contact	Initiator PNP normally closed contact	mechanical limit switch	Order no.
Limit switch gearbox 1:8 with:	--	3	--	029-180001
Limit switch gearbox 1:8 with:	2	1	--	029-180002
Limit switch gearbox 1:8 with:	--	1	2	029-180003
Limit switch gearbox 1:8 with:	1	--	2	029-180004

Accessories HTR and HZR

Distribution box





Only for limit switch attachment variant 1!

Description	Order no.
Attachment components for distribution box on ZEB050	510-900710
Attachment components for distribution box on ZEB080/ZEB100	510-900610

Description	Order no.
Distribution box incl. 2.5m cable	800-003102
Distribution box incl. 5m cable	800-003103
Distribution box incl. 7.5m cable	800-003104
Distribution box incl. 10m cable	800-003105
Distribution box incl. 12.5m cable	800-003106
Distribution box incl. 15m cable	800-003107
Distribution box incl. 20m cable	800-003108

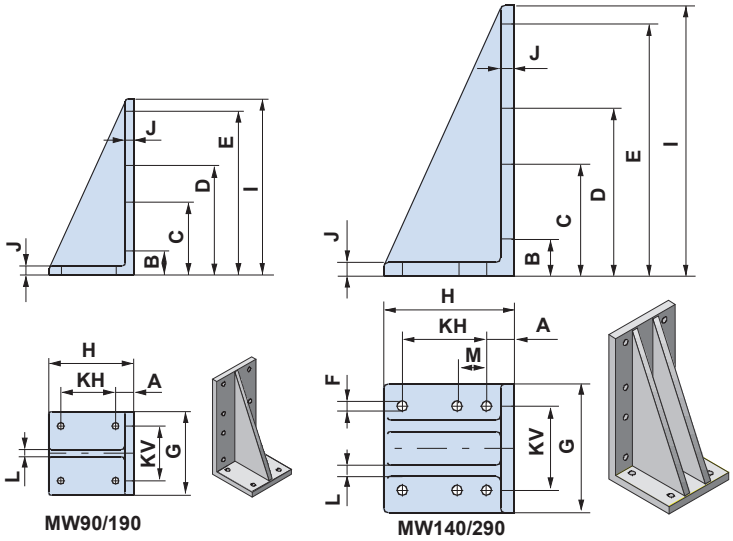
Description	Order no.
Distribution box incl. 25m cable	800-003109
Distribution box incl. 30m cable	800-003110
Distribution box incl. 35m cable	800-003111
Distribution box incl. 40m cable	800-003112
Distribution box incl. 45m cable	800-003113
Distribution box incl. 50m cable	800-003114

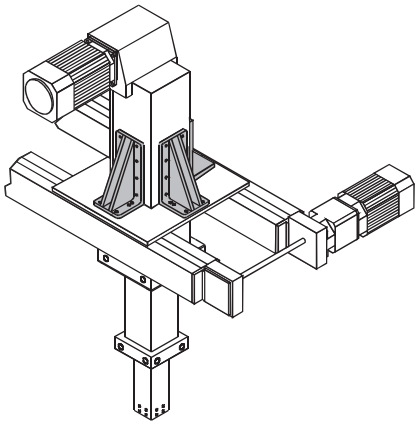
Assembly angle plate for HTR

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.



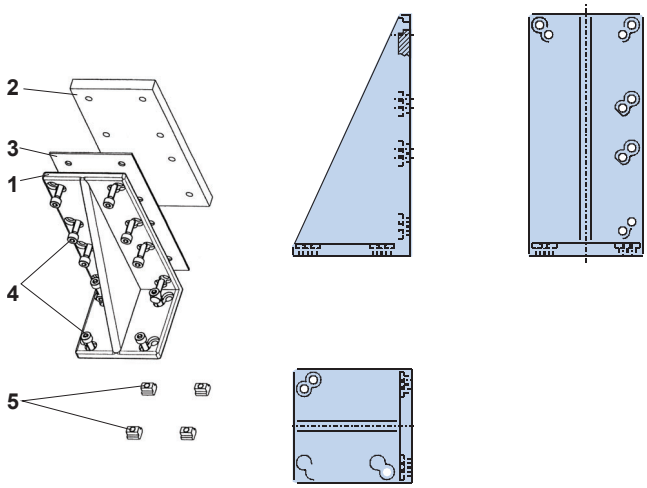


Actuator type	Type	A	B	C	D	E	F	G	H	I	J	KH	KV	L	M	Order no.
T3B050	**MW 90/190**	37.5	20	80	120	180	Ø6.6	88	90	190	10	60	60	10	--	500-000516
T3B080	**MW 140/290**	55	40	120	180	270	Ø11	138	140	290	15	65	90	12	25	500-000524

Accessories HTR and HZR

Connection set for HZR50

The connection set is used to connect a HZR50 unit to another actuator (HPLA80 or HPLA120) and consists of an assembly angle plate **(1)** and the respective screws **(4)**, t-nuts **(5),** connection plate **(2)** and division plate (**3** – only for connection to a LB..080 actuator).



Other accessories / software

Belt tension measuring device RSM:

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

DimAxes:

Dimensioning software for the rollers of linear actuators HLE, HPLA, HZR, HTR, BLMA for PC, Windows 95 or higher.

Free download:
http://www.parker-eme.com

Download of the DimAxes software, DXF files of HLE and HPLA linear actuators free of charge:
www.parker-eme.com

Notes

- Your partner for automation

Would you like more information?
We would be happy to send you our brochures and catalogs!
Or call us and set up a meeting.

Our product program:

2. reprint 2005/05/25

Parker Hannifin GmbH & Co.KG
Electromechanical Automation
Robert-Bosch-Str. 22
D-77656 Offenburg,
Germany
☎ +49 (0)781 509 0
+49 (0)781 509 98176
Website: www.parker-eme.com
e-mail: sales.hauser@parker.com

Parker Hannifin S. p. A
Electromechanical Automation
Via Gounod 1
I-20092 Cinisello Balsamo (MI),
Italy
☎ +39 0266012459
+39 0266012808
Website: www.parker-eme.com
e-mail: sales.sbc@parker.com

Parker Hannifin plc
Electromechanical Automation
Arena Business Centre
Holy Rood Close, Poole, Dorset.
BH17 7BA UK
☎ +44 (0)1202 606300
+44 (0)1202 606301
Website: www.parker-eme.com
e-mail: sales.digiplan@parker.com