Translation of the original instructions

Module 80/15 ZR10

Edition: January 2014
Article No.: 1105907

IEF-Werner GmbH
Wendelhofstraße 6
78120 Furtwangen – Germany
Phone: + 49 7723 925-0
Fax: +49 7723 925-100
www.IEF-Werner.de
info@IEF-Werner.de

Change History:

Document Code	Date	Revision
MAN_EN_1105907_Module80-15-ZR10_R1a.doc	2011-10-29	Initial release of this english Document (“MAN_EN_ 1105907_Module80-15-ZR10_R1a.doc”). Made from German Document: “MAN_DE_1087234_Modul80-15-ZR10_R3b.doc”
MAN_EN_1105907_Module80-15-ZR10_R1b.doc	2013-03-13	update feed constant details in chapter ***Fehler! Textmarke nicht definiert.***
MAN_EN_1105907_Module80-15-ZR10_R1c.doc	2014-01-29	Update dimensioning of drilling pattern (see figure *Figure 13* page *14)*, diverse article numbers and formal revision

Trademarks and trade names are used without an assurance of their free usability. Although the texts and examples were created with great thoroughness, errors cannot be fully excluded. IEF-Werner GmbH does not assume legal responsibility nor any liability for missing or incorrect statements and their consequences.

IEF-Werner GmbH reserves the right to modify or improve without previous notice the software or hardware or parts of it as well as the supplied documentation or parts of it.

IEF-Werner GmbH expressly reserves all rights for duplication and photomechanical reproduction, including extracts.

We are always grateful for suggestions for improvements and information about errors.

© January 2014, IEF-Werner GmbH

Contents

1 Safety **5**

1.1 Definition or warning notes 5

1.2 General warning notes 5

1.3 Special hazard warnings 6

2 Intended use **7**

2.1 Reasonably foreseeable misuse 7

3 Description (main assemblies) **8**

4 Assembly instructions **11**

4.1 Installation position 11

4.2 Overview of motor installation variants 11

4.2.1 Module 80/15 ZR10 Installation variant 1 12

4.2.2 Module 80/15 ZR10 Installation Variant 5 12

4.3 Attachment 13

4.3.1 Installation of Actuators 15

4.4 Wiring 16

4.4.1 Motors 16

4.4.2 Initiators 16

4.4.2.1 Technical Data of Initiators 17

4.4.2.2 Limit Switch Pins 18

4.4.3 Cable routing 18

4.5 Technical data 19

4.5.1 Tightening torques for screw connections 19

4.5.2 Technical Data of Module 80/15 ZR10 19

4.5.3 Type Label 20

4.5.4 Technical data when using a planetary gear, worm gear, bevel gear wheel 20

4.5.5 Axis distances and tooth numbers 21

4.5.6 Load Cases 22

4.5.6.1 Torques and carrying capacities 22

4.5.6.2 Tilting of the carriage unit with side load 23

5 Maintenance **24**

6 Troubleshooting **25**

7 Repair **27**

7.1 Factory-setting of toothed belt tension 28

7.2 Replace toothed belt 29
7.3 Reference side of guide system 31

8 Parts lists and drawings 32
8.1 Module 80/15 ZR10 32
8.2 Carriage Module 80/15 ZR10; L = 300 mm 34
8.3 (Belt) Gearbox module 80/15 ZR10 36
8.4 Flange 38
8.5 Design specific assemblies/components 39
8.5.1 Installation of flange gearbox (e.g. planetary gear type PLFE64) 39
8.5.2 Overview of clamping elements 40

9 Declaration of Incorporation 41

1 Safety

1.1 Definition or warning notes

WARNING

Indicates a potential danger. Non-observance of the safety provisions may cause death or severe injury.

CAUTION

Indicates potential danger. Non-observance of the safety provisions may cause property damage of injury.

NOTE Offers additional information.

1.2 General warning notes

The module must only be commissioned by specialists who have received safety-technical instruction and are able to assess potential danger. Furthermore, all chapters of these operating instructions must have been read and understood completely.

WARNING

The system must be powered down for all assembly, disassambly or repair work. There is a high danger of injury!

WARNING OF HOT SURFACE

During operation, heating of the motor, in particular of stepper motors, can cause burns of skin when touching the motor. Install a protective device, if possible! Do not touch the marked areas or wait for an adequate cooling time.

CAUTION

Motor connectors may not be inserted or disconnected under live. Risk of burning of the contacts and risk of flying sparks.

CAUTION

Linear modules always have to be operated in connection with suitable safety devices (e.g., safety cell, protective room, protective housing, light curtain).

NOTE Observe the Declaration of Incorporation (see Section *Declaration of Incorporation, page 41*).

1.3 Special hazard warnings

In addition, this operating instruction also contains the following special hazard warning:

RISK FROM CRUSHING

These places of the components pose the danger of crushing limbs in operation

2 Intended use

The linear drive unit Module 80/15 ZR10 (see *Figure 1*) was designed for industrial applications. The use of a high-quality guide ensures high dynamics and good running characteristics. The toothed belt protects the internal guide system from contamination. In addition, the guide elements have special seals which protect the guide tracks from gross contamination. However, the application of the linear drive unit Module 80/15 ZR10 under conditions with increased contamination and abrasive dusts should be avoided because no further protective measures, such as bellow cover, etc., are available.

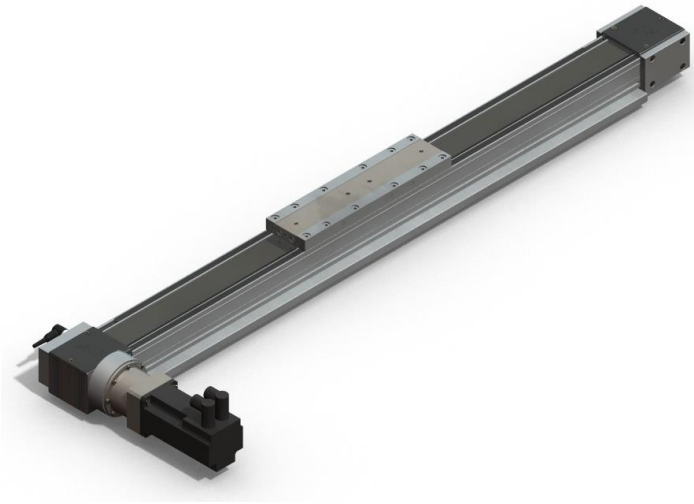


Figure 1: Module 80/15 ZR10

When using the linear unit Module 80/15 ZR10, attention must be paid to the fact that torques generated as a result of the design of the linear unit cause increased tilting of the carriage to the side. However, this characteristic is a significant advantage when setting up a parallel guide system because this prevents over-determination of the guide system.

If higher torques appears or higher stiffness is required, in particular for cantilever systems, the Module 160/15 series must be preferred.

The fields of application for the Module 80/15 ZR10 are correspondingly versatile. They range from stop adjustments in the timber industry, component insertion systems for SMD components, insertion and pressing-in processes in precision engineering, loading and unloading stations of machine tools to manipulators for the packaging industry.

2.1 Reasonably foreseeable misuse

The linear drive Module 80/15 ZR10 is **not** to be used for certain applications such as transport of persons and animals or as a pressing/bending device for cold working of metal.

The use of the linear module without additional measures is also **not** possible in special fields of application, such as the chemical or food industry or in explosive atmospheres.

In case of doubt, consult the manufacturer.

3 Description (main assemblies)

The Module 80/15 ZR10 consists essentially of the following main assemblies (see *Figure 2* to *Figure 7*):

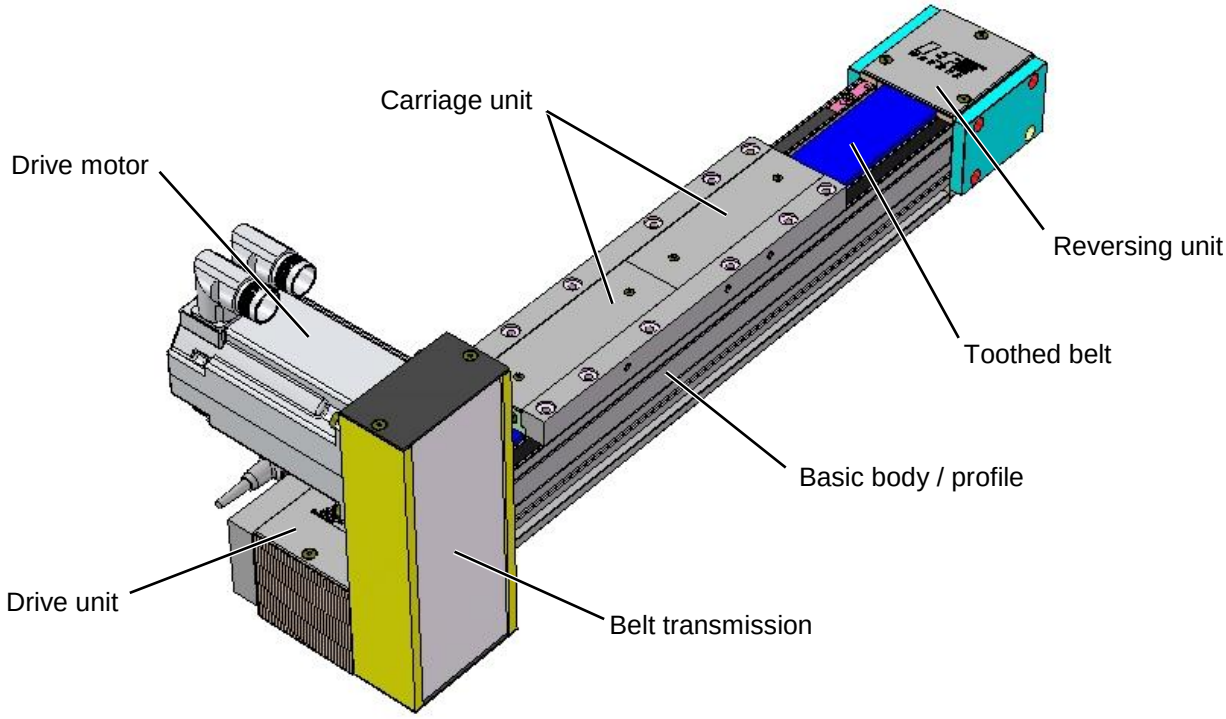


Figure 2: Main assemblies of the Module

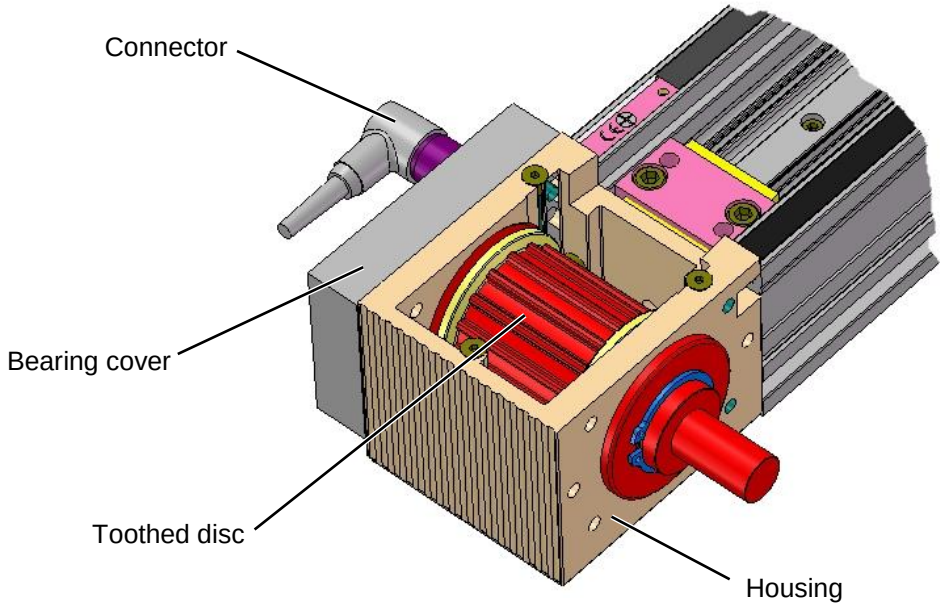


Figure 3: Drive unit

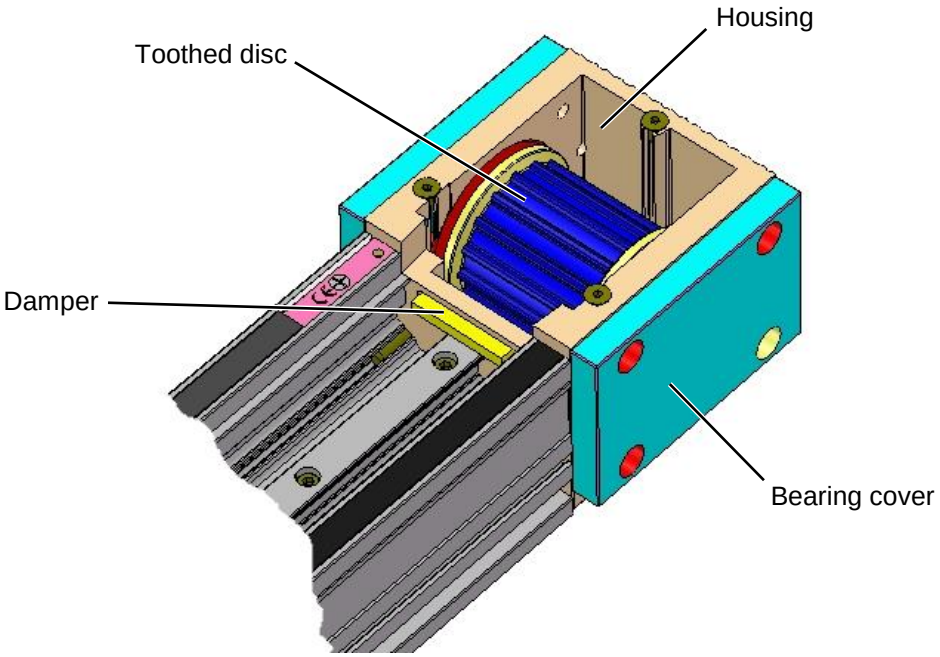


Figure 4: Reversing unit

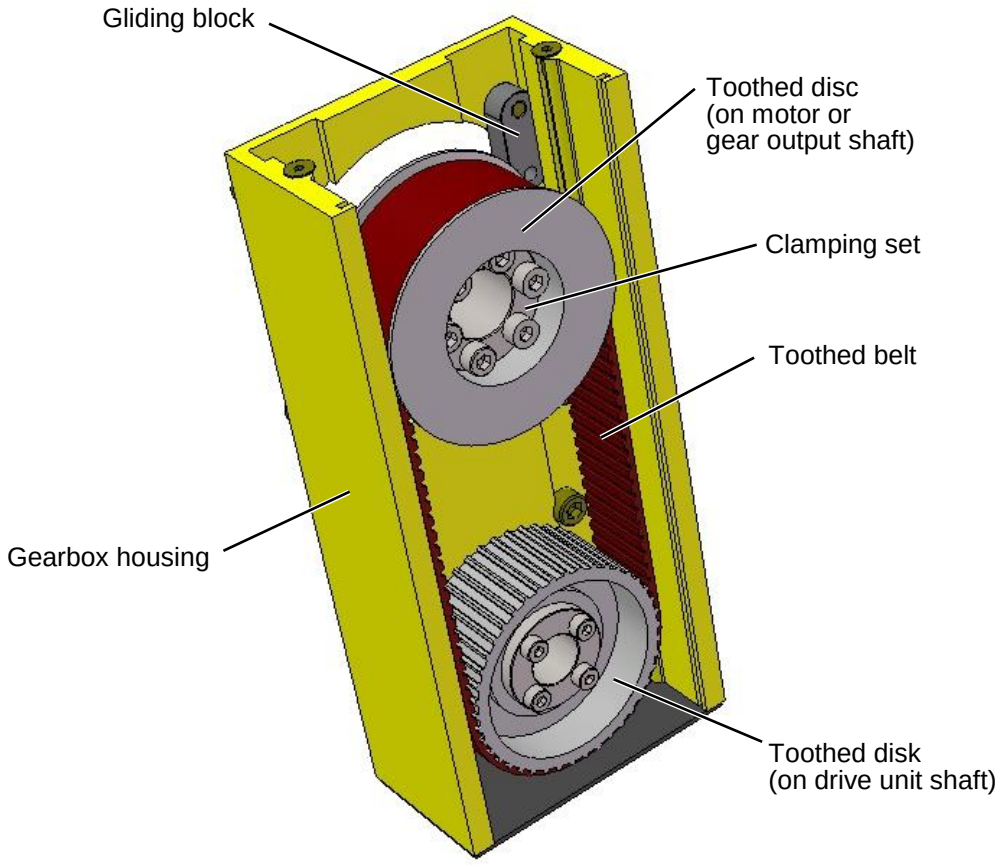


Figure 5: Belt transmission

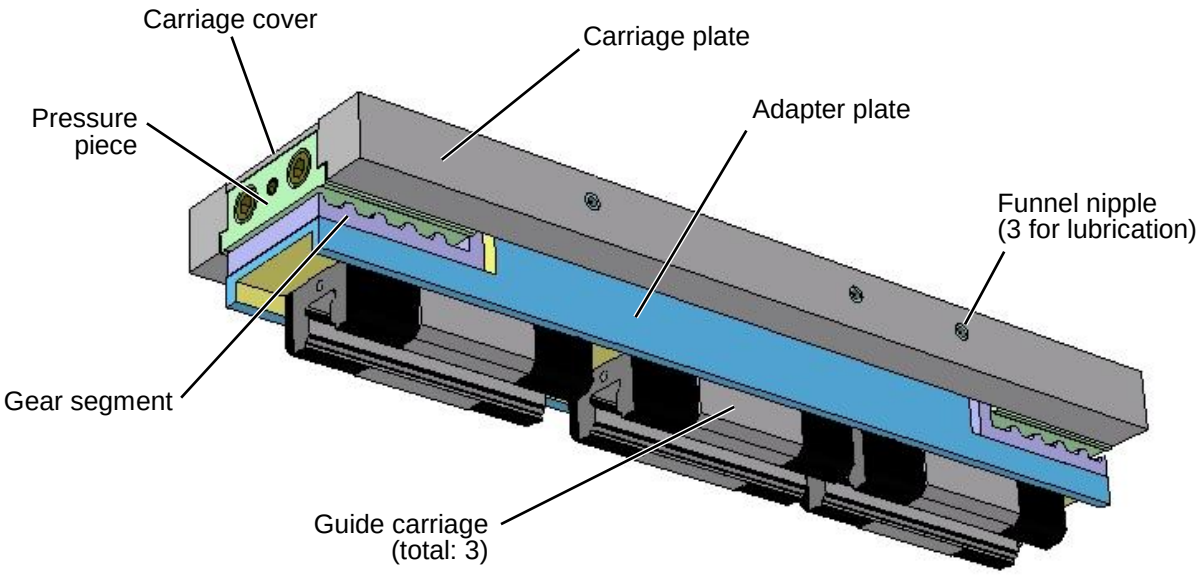


Figure 6: Carriage unit

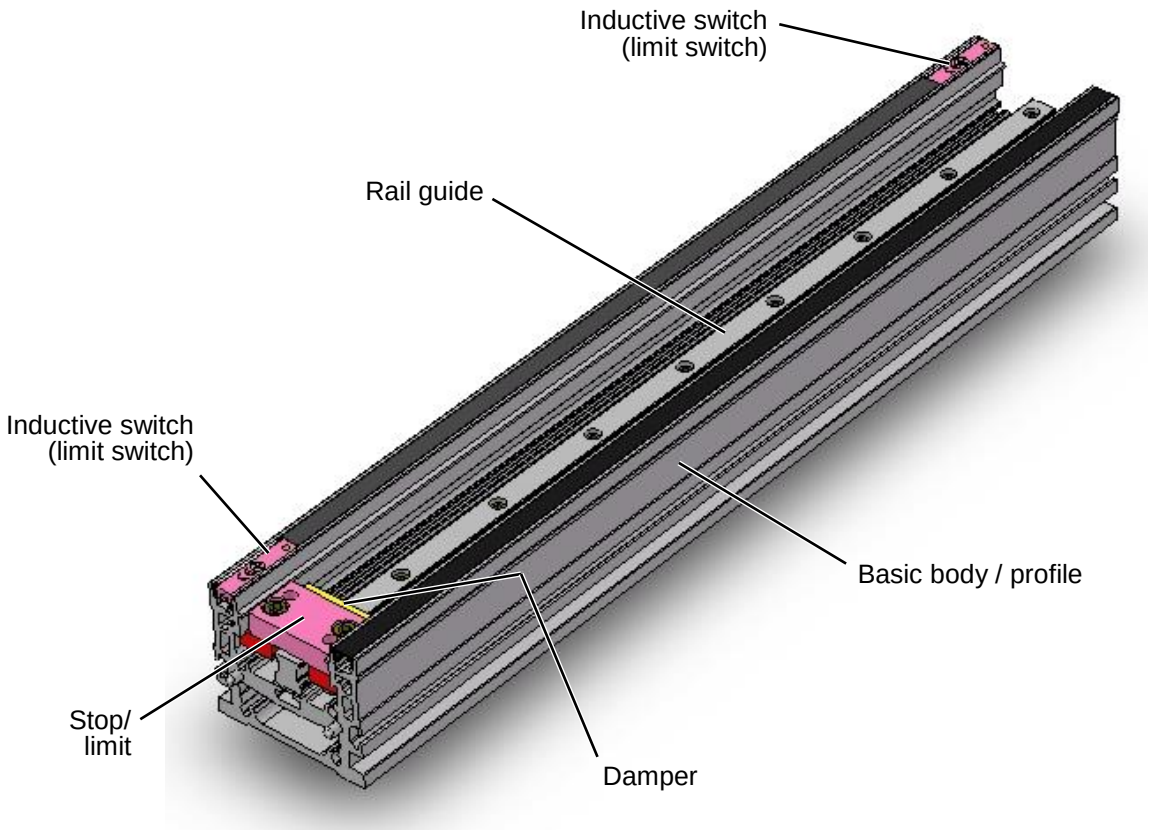


Figure 7: Basic body

4 Assembly instructions

4.1 Installation position

The installation position is optional, i.e. the linear Module 80/15 ZR10 can be used horizontally as well as vertically.

CAUTION

For a vertical installation position, use only motors with spring-operated brake to prevent the lowering of the drive in de-energized condition!

4.2 Overview of motor installation variants

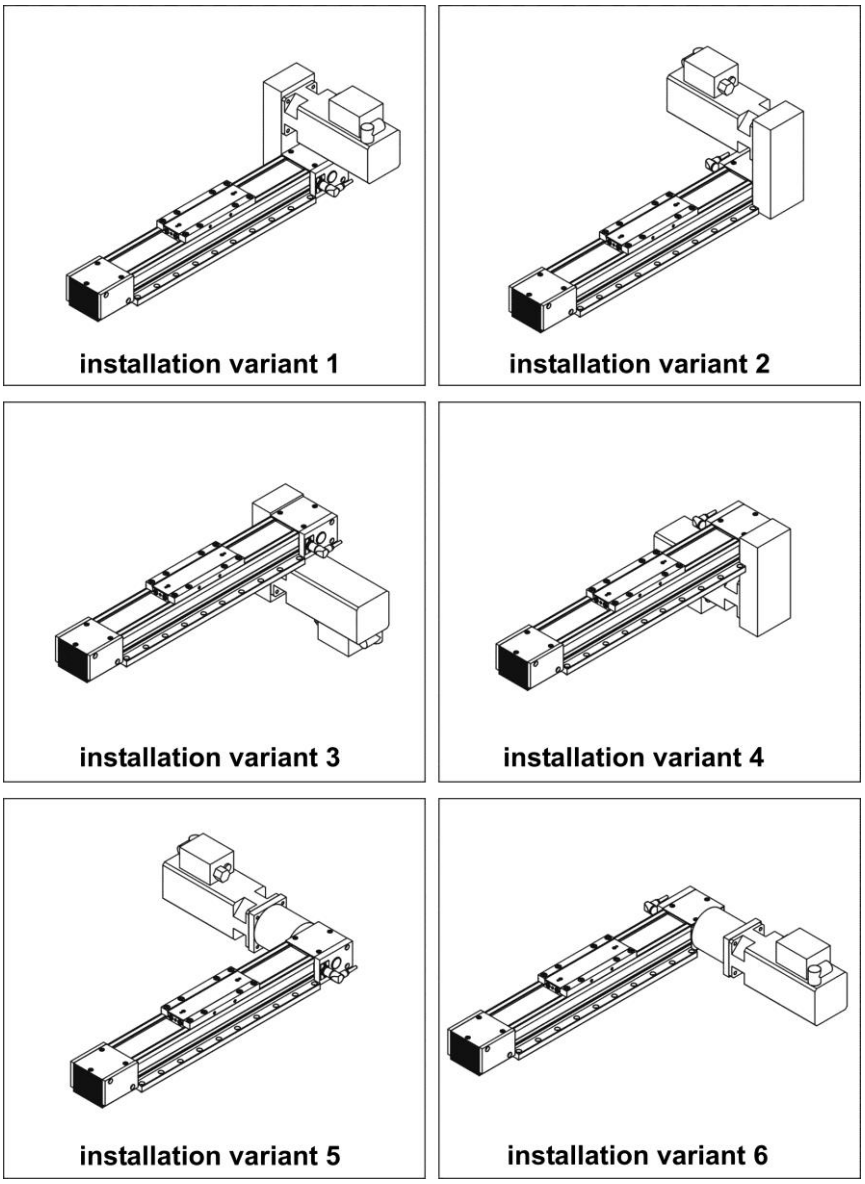


Figure 8: Module 80/15 ZR10 installation variants

4.2.1 Module 80/15 ZR10 Installation variant 1

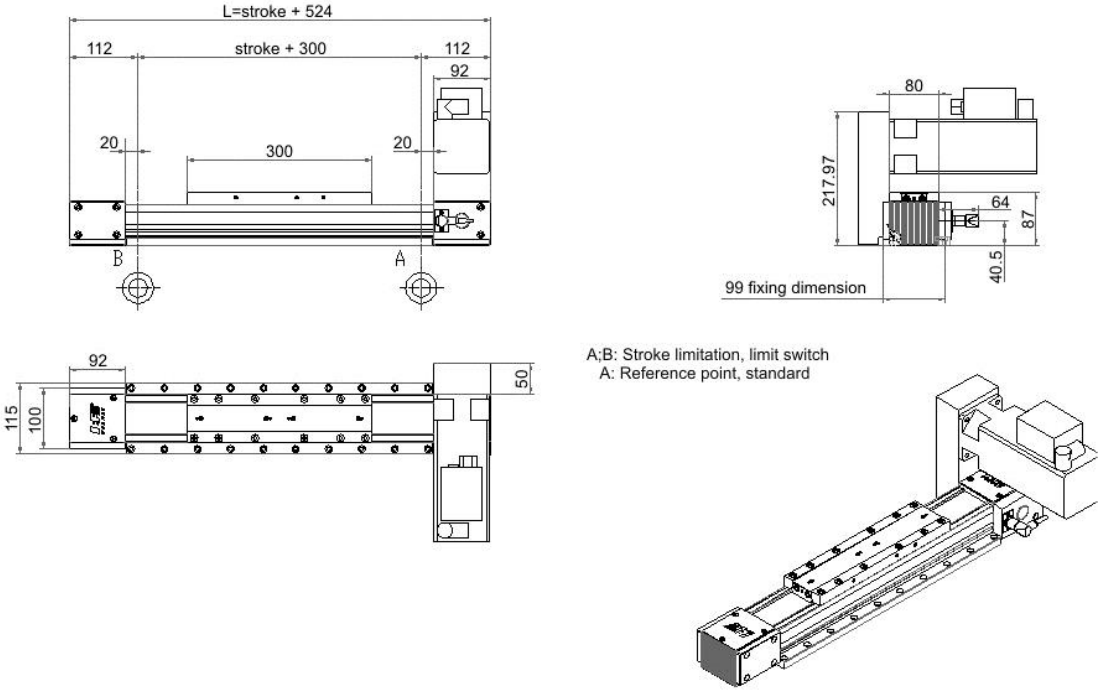


Figure 9: Module 80/15 ZR10 subassembly number 1001336, installation variant 1

4.2.2 Module 80/15 ZR10 Installation Variant 5

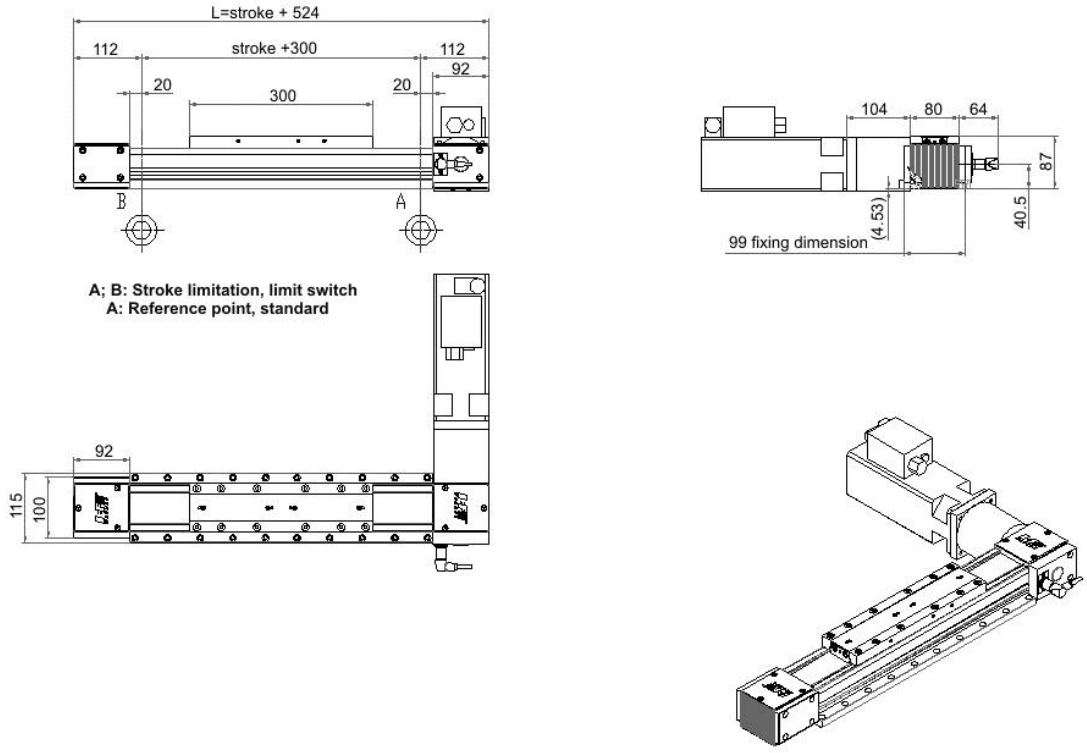


Figure 10: Module 80/15 ZR10, subassembly number 1001336, installation variant 5

4.3 Attachment

In most applications, the Module 80/15 ZR10 is attached with clamping profiles/ clamping elements (see *Figure 11*, below) to a level mounting surface. The carriage moves freely.

Other types of attachment of the linear module, for example with additional drilled holes in the basic profile, should be avoided. In almost all cases, these drilled holes cause tension in the guide basis and the damaging of internal parts of the module.

CAUTION

The clamping surface should have a levelness of 0.1 mm/m².

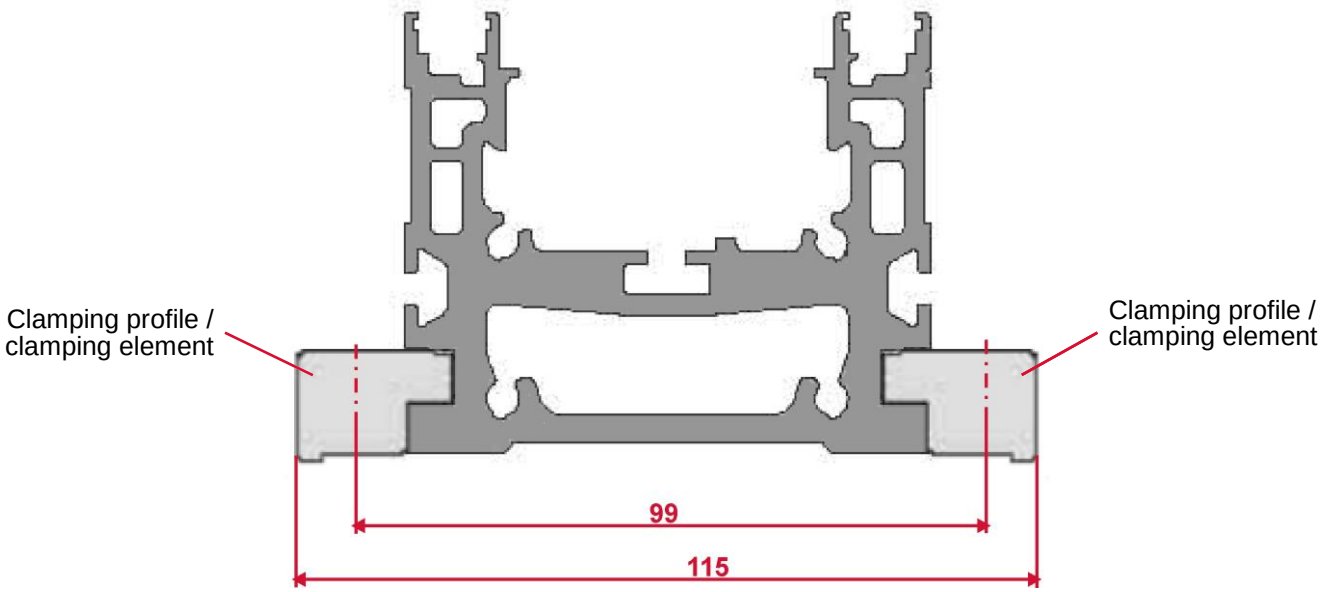


Figure 11: Attachment with clamping profiles / clamping elements

NOTE For an overview of the different clamping elements, see Section *Overview of clamping elements, page 40*.

RISK FROM CRUSHING

Risk of limb crush injuries during operation at these component positions.

Risk of crushing exists at the start and end of the stroke (see *Figure 12*).

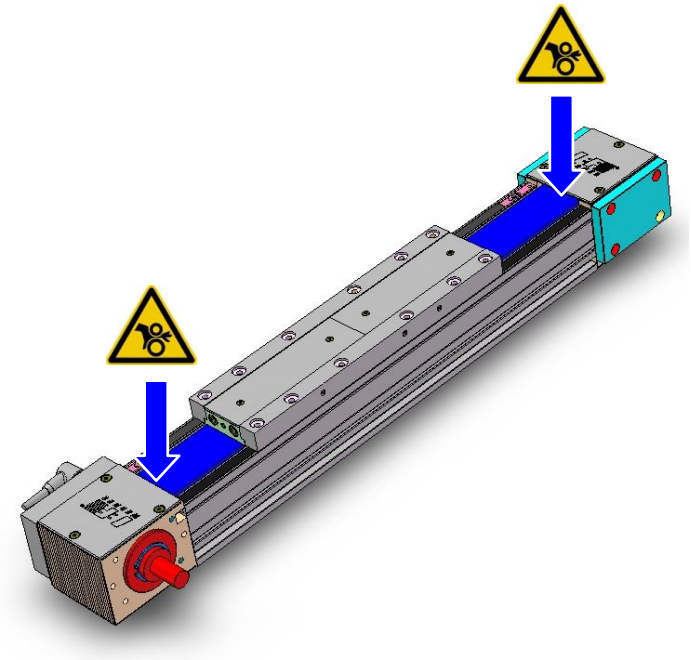


Figure 12: Potential crushing positions

Figure 13 shows the drilling pattern of the standard carriage:

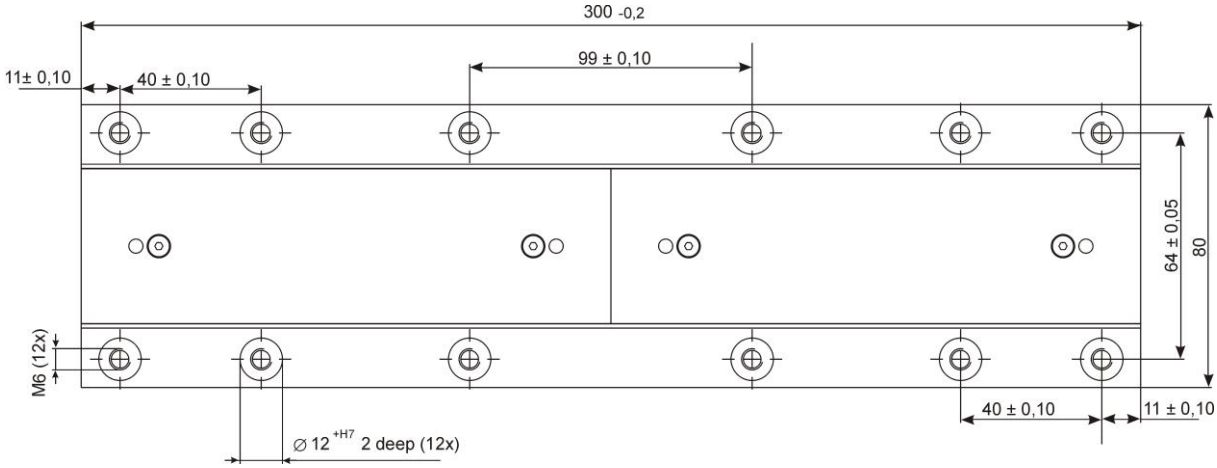


Figure 13: Standard carriage drilling pattern

Figure 14 shows a centering ring for mounting clamping elements:

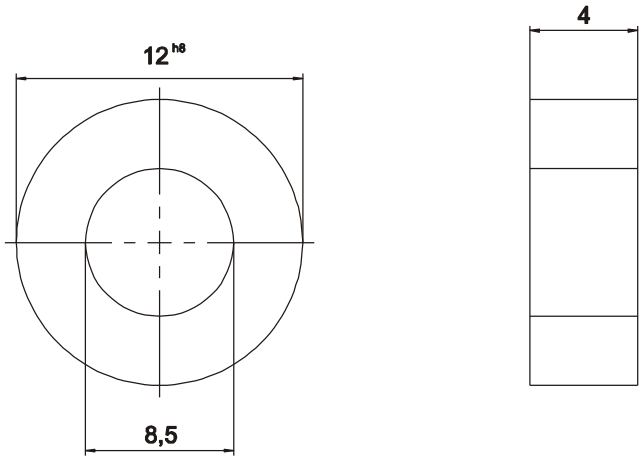


Figure 14: Centring ring (Art. No. 1024021)

With the M6 threaded holes on the carriage, different axis configurations can be achieved, possibly via an adapter plate.

The countersinking with Ø12 serves to centre clamping elements with possible adjustment.

4.3.1 Installation of Actuators

Actuators (gripper modules, cylinders) attached to the linear module are usally attached to the linear drive unit via the drilling pattern on the carriage (see *Figure 13, page 14*).

4.4 Wiring

4.4.1 Motors

CAUTION

The electrical connection of the motors is performed according to the motor data sheet. For customer-specific motors, the data sheet must be requested from the respective manufacturer and the motor connected accordingly.

4.4.2 Initiators

Inductive proximity switches (PNP-NC, IEF-Werner Article No.: 025165) are used as standard limit switches for the running path (see *Figure 15* to *Figure 17*). These switches are not safety limit switches according to EN60204-1. Optionally, an additional reference point switch (PNP-NO, IEF-Werner Article No.: 726744) can also be installed in the Module 80/15 ZR10. The active bottom is marked with a coloured circle symbol. The NCs are marked with a green, the NOs with a red dot. The initiators and their supply lines are protected in a cable channel which is integrated in the basic body and are routed jointly to a connector.

A plastic strip serves to cover the cable channel. The replacement of an initiator or its shifting is easily possible after removal of this plastic strip from the cable channel.

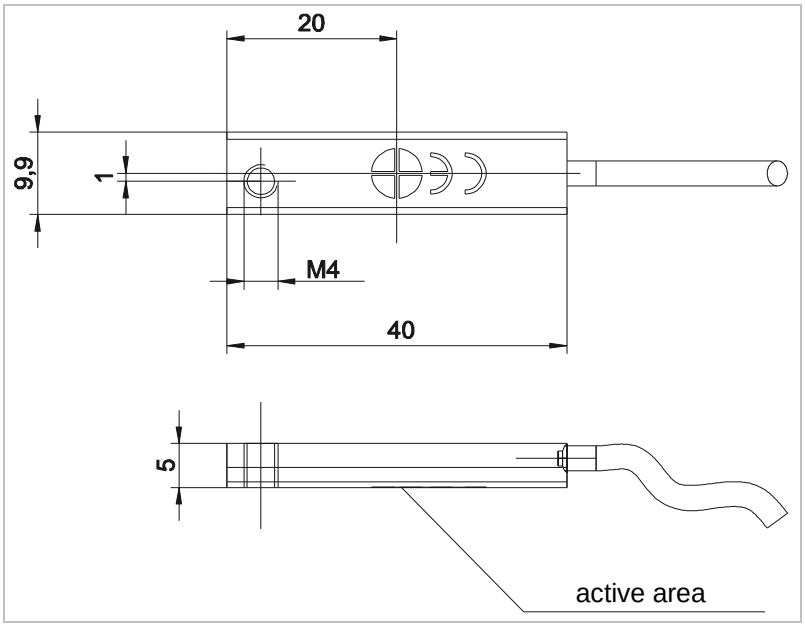


Figure 15: Dimensional sketch of inductive proximity switch

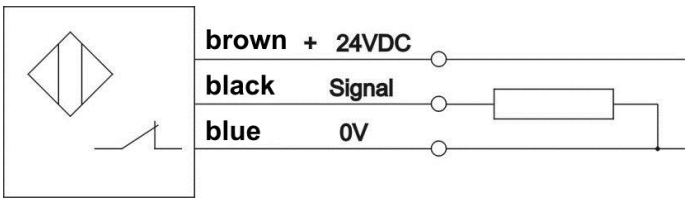


Figure 16: PNP-NC connection designation

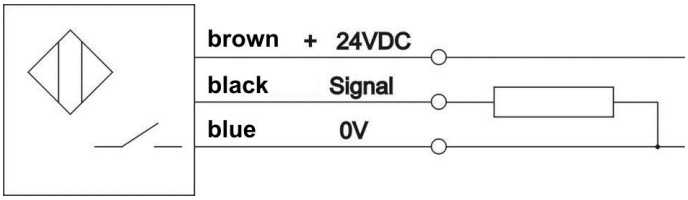


Figure 17: PNP-NO connection designation

4.4.2.1 Technical Data of Initiators

Parameter	Value
Operating voltage including ripple	(10 ... 30) VDC ≤ 15%
Current load capacity	$I_a \leq 200$ mA
Voltage drop at I_a max.	≤ 2.5 V
Switching frequency	≤1000 Hz
Self-current consumption	≤ 15 mA
Nominal operating distance on steel	1.5 mm ± 10 %
Switch hysteresis	(3 ... 20) %
Reproducibility (U = const.)	± 0.01 mm
Operating temperature	(-25 ... to ... +70) °C
Protection class	IP 65
Short-circuit proof?	Yes
Protected against polarity reversal?	Yes

Figure 18: Technical data of initiators

4.4.2.2 Limit Switch Pins

The pin assignment of the limit switch is as follows (see *Figure 19*):

Pin No.:	Assignment	IEF-Werner cable
1	+ 24V	brown
2	Limit switch, negative direction of movement	green
3	0 V	white
4	Limit switch, positive direction of movement	yellow
5	Reference switch	grey

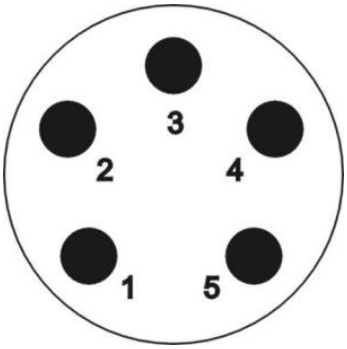


Figure 19: Pin assignment of limit switch

4.4.3 Cable routing

Suitable cable routing has to be used for all moving cables to effectively prevent cable breaks.

The minimum radius r_{min} for cable routing chains is calculated for IEF-Werner cables according to the following formula:

$$\mathbf{r_{min} \geq 10 \times cable\ diameter}$$

When different cables are used, EN 60204 must be observed. In addition, it must be ensured that a space reserve of 30% is kept free within the routing chains. A strain relief for the cables has to be attached at the outlet of the cable routing chain.

We recommend to also order cables and cable routing chains at IEF-Werner GmbH.

4.5 Technical data

4.5.1 Tightening torques for screw connections

Screw 8.8	Tightening torque [Nm]
M3	1.1
M4	2.5
M5	5.0
M6	8.5
M8	21.0
M10	41.0
M12	71.0
Screw 12.9	**Tightening torque [Nm]**
M4 (guide rail attachment)	4.9

4.5.2 Technical Data of Module 80/15 ZR10

Parameter	Value
Repeating accuracy	+/- 0.05 mm
Weight (without motor at 0 mm stroke)	6.9 kg
Weight increase per 100 mm stroke	0.95 kg
Maximum movement speed	5 m/s
Maximum acceleration	40 m/s²
Maximum transferrable feed force at max. movement speed (5 m/s)	1505 N
Guide stiffness x	See Section *Tilting of the carriage unit with side load, page 23*
Feed constant (V_k) (feed per turn of the pinion)	160 mm
Idle torque	1.5 Nm
Mass inertia	23.5 kg • cm^2
Area inertias of profile cross-section at the centre of gravity:	
I_x	570,018 mm^4
I_y	1,400,047 mm^4

4.5.3 Type Label

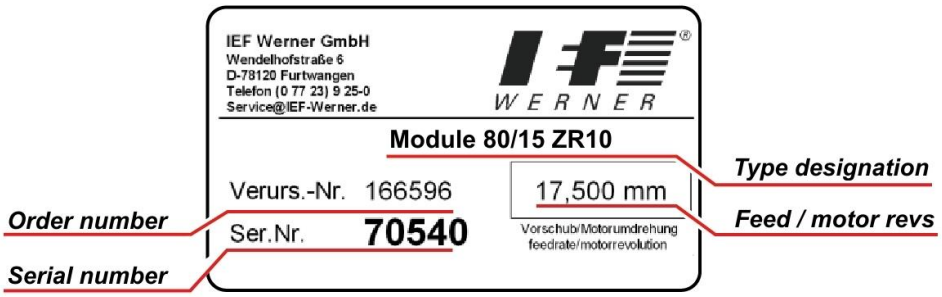


Figure 20: Type label (example)

4.5.4 Technical data when using a planetary gear, worm gear, bevel gear wheel

Before commissioning, observe the possible input speeds of the gear manufacturers. Too-high input speeds can lead to increased wear at the gear and/or thermal problems.

The precision of the linear drive unit is influenced by the reverse play of the gears.

Example:
The gear reverse play (S) is 9 angle minutes.

How high is the reverse play at the carriage of the linear unit?

Feed constant of linear drive unit (Vk): 140 mm
Reverse play at the carriage = (Vk • S) / (360 x 60)

= (140 mm • 9) / (360 x 60)

= 0.058 mm

Consider the information of the respective gear manufacturer in any case.

e.g. Standard gearboxes / products / Neugart - Neugart UK

WITTENSTEIN alpha - Home

4.5.5 Axis distances and tooth numbers

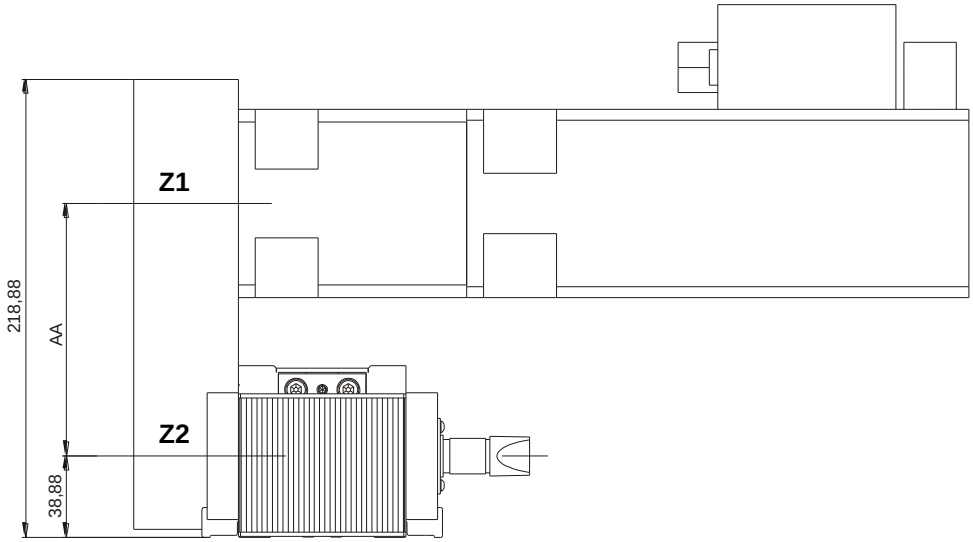


Figure 21: Explanations on the table axis distances, subassembly no.: 1000475

Comply with the following axis distances in the required standard reductions:

i	Z2 Toothed disc [number of teeth]	Z1 Toothed disc [number of teeth]	Drilled hole drive	Length of toothed belt	AA [mm]	Infeed constant [mm]
1:1	42	42	max. Ø 32 mm	450 mm	120	160
2.1:1	42	20	max. Ø 16 mm	390 mm	116.18	76,190
2.625:1	42	16	max. Ø 14 mm	390 mm	120.73	60,952
3:1	42	14	max. Ø 12 mm	375 mm	115.35	53,333

4.5.6 Load Cases

4.5.6.1 Torques and carrying capacities

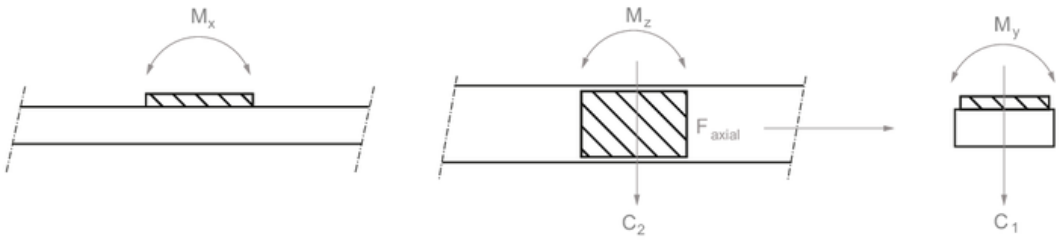


Figure 22: Torques and carrying capacities

The Table in *Figure 23* shows the possible torques and carrying capacities of Module 80/15 ZR10:

Parameter	Value
Maximum torque Mx	150 Nm
Maximum torque My	45 Nm
Maximum torque Mz	180 Nm
Carrying capacity C1	1500 N
Carrying capacity C2	450 N

Figure 23: Table of torques and carrying capacities

4.5.6.2 Tilting of the carriage unit with side load

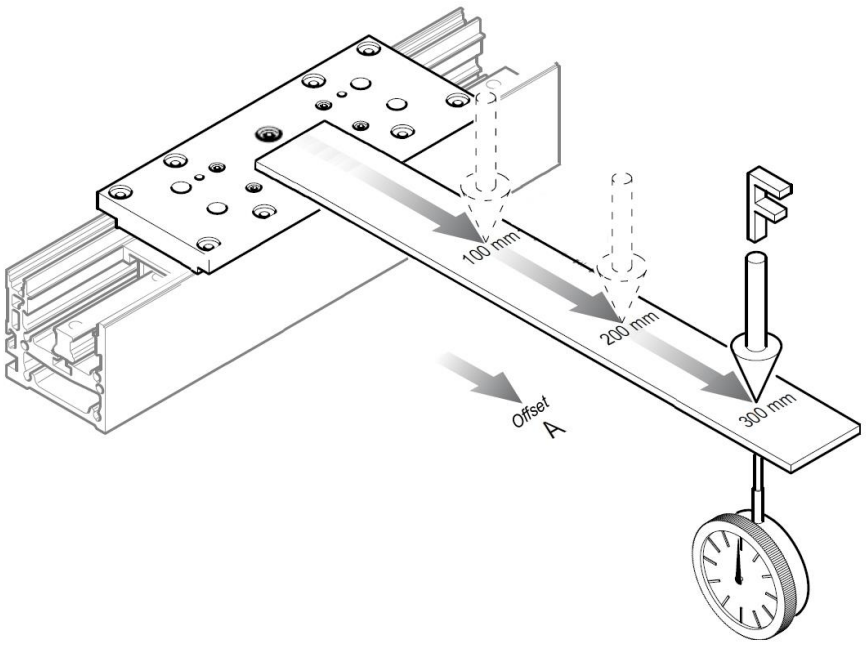


Figure 24: Tilting of the carriage

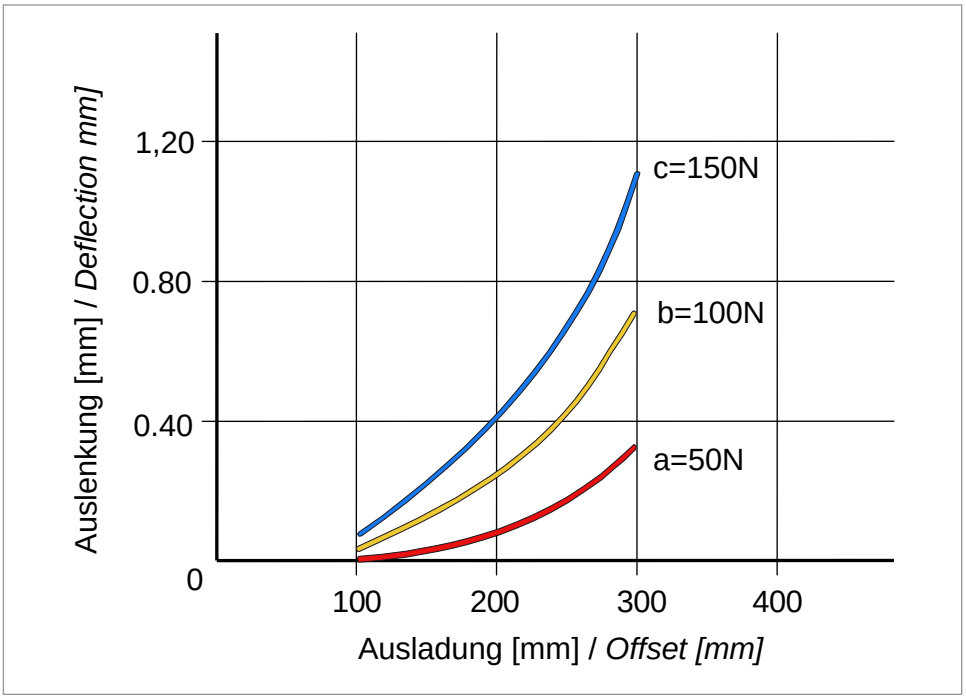


Figure 25: Deflection with lateral load

5 Maintenance

During the design of the linear module Module 80/15 ZR10, great importance was placed on the use of maintenance-free components. All roller elements were provided with lifetime lubrication in the factory.

The guide carriages are equipped with auxiliary lubrication elements. This makes it possible to achieve a running performance of 10000 km with initial lubrication. In single-shift operation, with a stroke of 500 mm and 20 cycles per minute, this is equivalent to an operating performance of almost 5 years.

Once the indicated running output is reached, the guide carriage can be re-lubricated with a special grease gun (IEF-item no.: 1055123) (see *Figure 26*). The grease gun is filled with the high-performance lubricant Dynalub.

NOTE Never use any grease that contains ester oils.

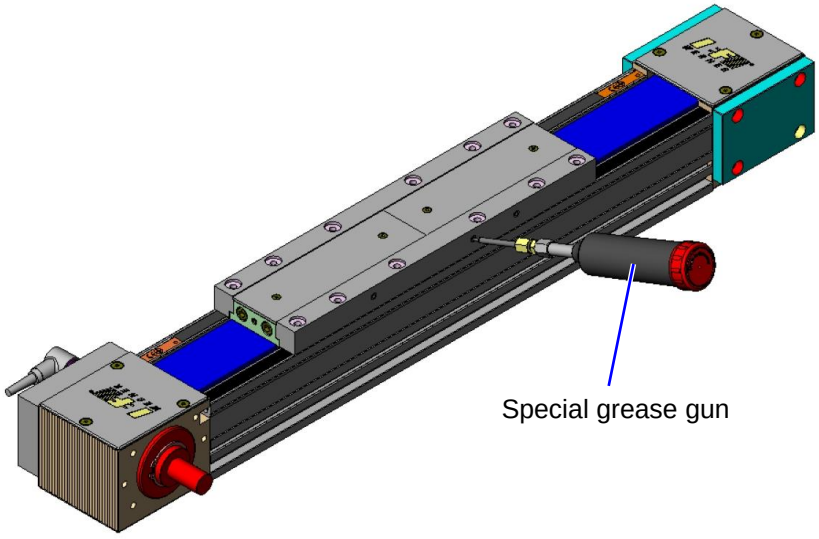


Figure 26: Lubrication of the guide carriage (carriage with external lubrication)

6 Troubleshooting

Interference	Reason	Correction
Increased running noise	Nominal service life of guide carriage exceeded	Replace all guide carriages
	Guide carriages worn due to overload (too high torques, etc.)	Replace all guide carriages, reduce load
	Guide carriages worn from strong contamination	Replace all guide carriages, clean and relubricate guide rails more frequently
	Guide rails worn	Replace guide rails, replace all guide carriages, check load, protect linear module from strong contamination
	Guide rails corroded	Replace all guide rails, replace guide carriages if required
	Deflection unit worn	Replace deflection unit
	Drive unit worn	Replace drive unit
	Toothed belt runs dry	Slightly lubricate toothed belt on the toothed inner side
	Toothed belt tension too high	Re-set toothed belt tension at the carriage part
	Toothed belt runs diagonally	Align toothed belt with belt fastener (pressure piece and toothed segment), evenly tighten M6 fillister head screws!
	Toothed belt strongly contaminated on the toothed inner side	Replace toothed belt, protect linear module from strong contamination
	Toothed belt devective	Replace toothed belt
	Motor (motor bearing) devective	Replace motor
	For motor with brake: brake does not disengage	Apply current to the brake, if the brake still does not open, replace motor.
Linear drive unit does not move	Limit switch cable not connected	Connect the cable
	Limit switch defective	Replace limit switch
	Limit switch cable damaged	Check limit switch cable
	Solder connection on socket has come loose	Solder on wires
	Motor connected incorrectly	Check and change connector assignment, if required
	Motor defective	Replace motor
	Error in power electronics or control unit	Check the power electronics or the control unit

Continuation of troubleshooting:

Interference	Reason	Correction
Linear drive unit does not move	Motor cable defective	Check motor cable, replace cable, if required
	For belt gear: Toothed disc slips through	Engage clamp set tightly and secure screws with threadlocker
	For planetary gear: Clutch between motor and planetary gear slips	Engage clutch tightly and secure screws with threadlocker
	For motor with brake: Brake does not disengage	Apply current to the brake, if the brake still does not open, replace motor
Play on reversal	Gearbox toothed belt not tensioned	Tension gear toothed belt
	Motor toothed disc of motor has play (key connection)	Replace toothed disc of motor, if motor shaft keyway is damaged, replace motor
	Drive toothed belt is loose	Tension drive toothed belt
Linear drive unit moves mechanically against the stop during the reference run	Incorrect direction of rotation	Change motor direction of rotation
	Broken motor cable	Replace cable

7 Repair

WARNING

Always power down the system before starting repairs.

WARNING

Generally, repairs must be performed by specialist personnel who have read and understood the operating instructions.

CAUTION

Only use original replacement parts, otherwise IEF-Werner GmbH will not accept any warranty.

7.1 Factory-setting of toothed belt tension

The toothed belt tension of the axial toothed belt is set via adjustment screws (see *Figure 27*). The toothed belt tension is correctly set at delivery.

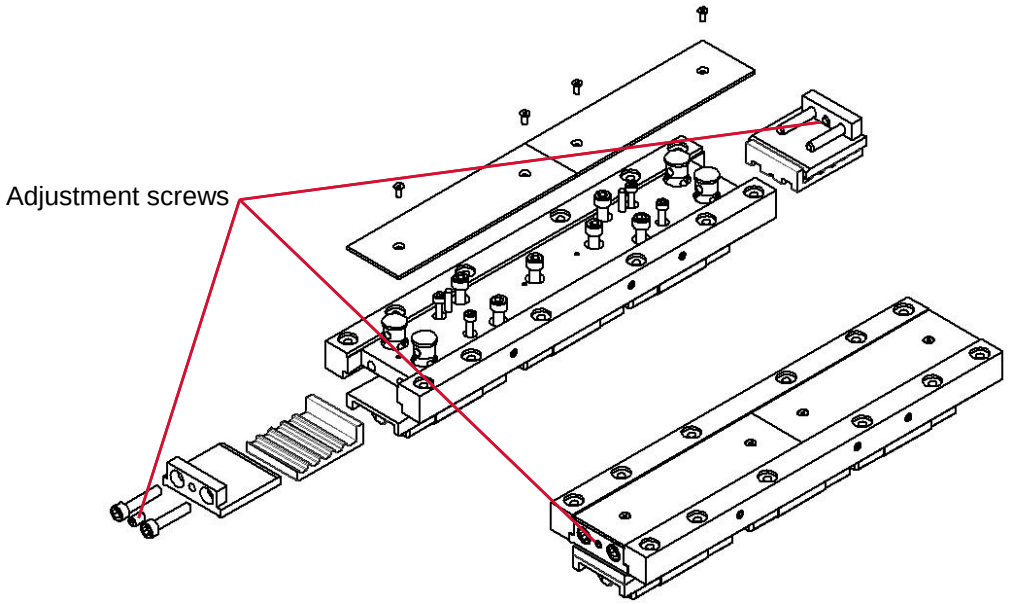


Figure 27: Adjustment screws for toothed belt tension

NOTE Do not remove the threadlocker from the adjustment screws.

The belt tension of the gear toothed belt is 150 N (motor installation variants 1-4).

7.2 Replace toothed belt

Proceed as follows to replace the toothed belt:

(1) Loosen the four attachment screws M6 x 35 (see *Figure 28*, item 100).

(2) Remove the pressure pieces (see *Figure 28*, item 30).

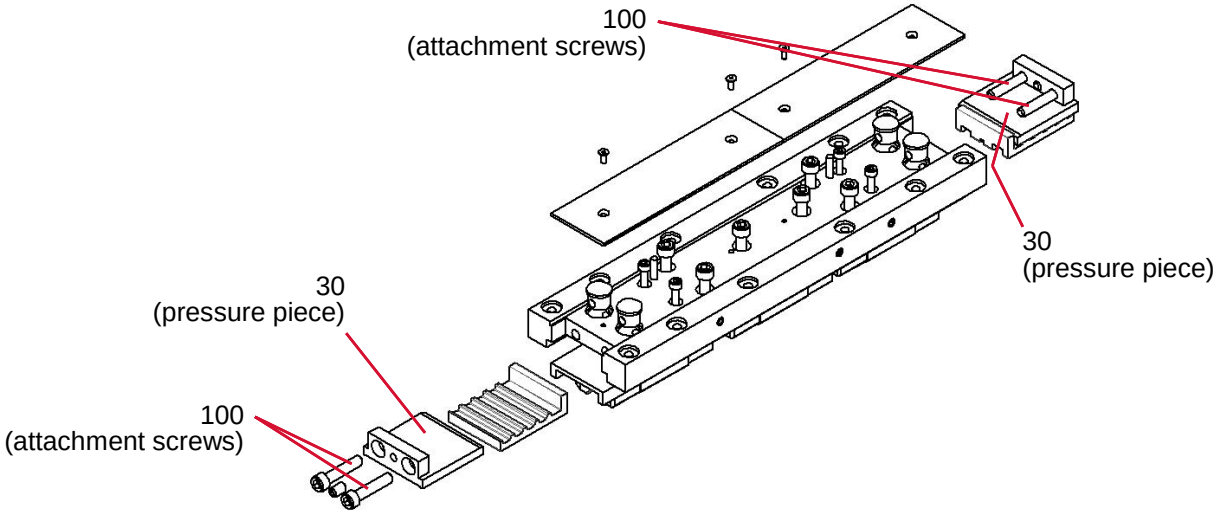


Figure 28: Loosen attachment screws

(3) Remove the covers (see *Figure 29*, item 100).

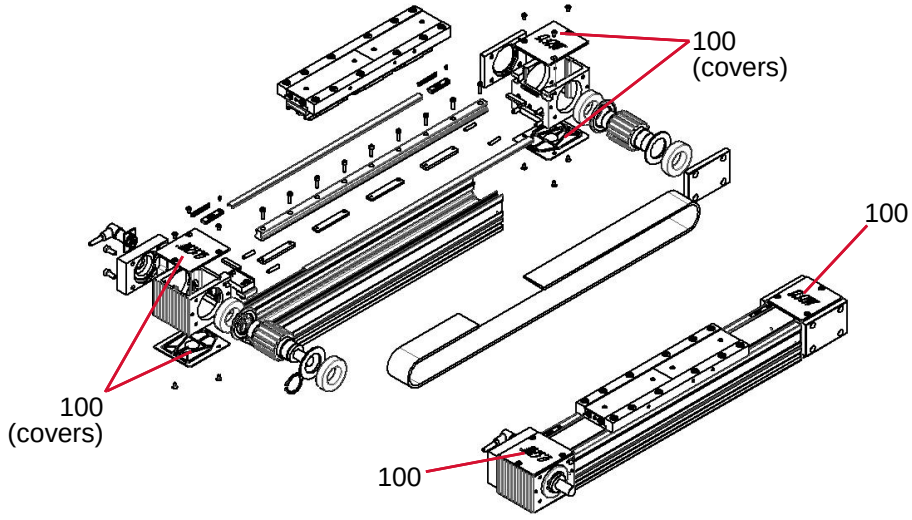


Figure 29: Remove the covers

(4) Remove the defective toothed belt and install a new toothed belt.

(5) Insert the toothed belt in the tooth segment (see *Figure 30*, item 20).

(6) Screw the pressure piece tightly on both sides ‘up to block’ (see *Figure 30*, item 100).

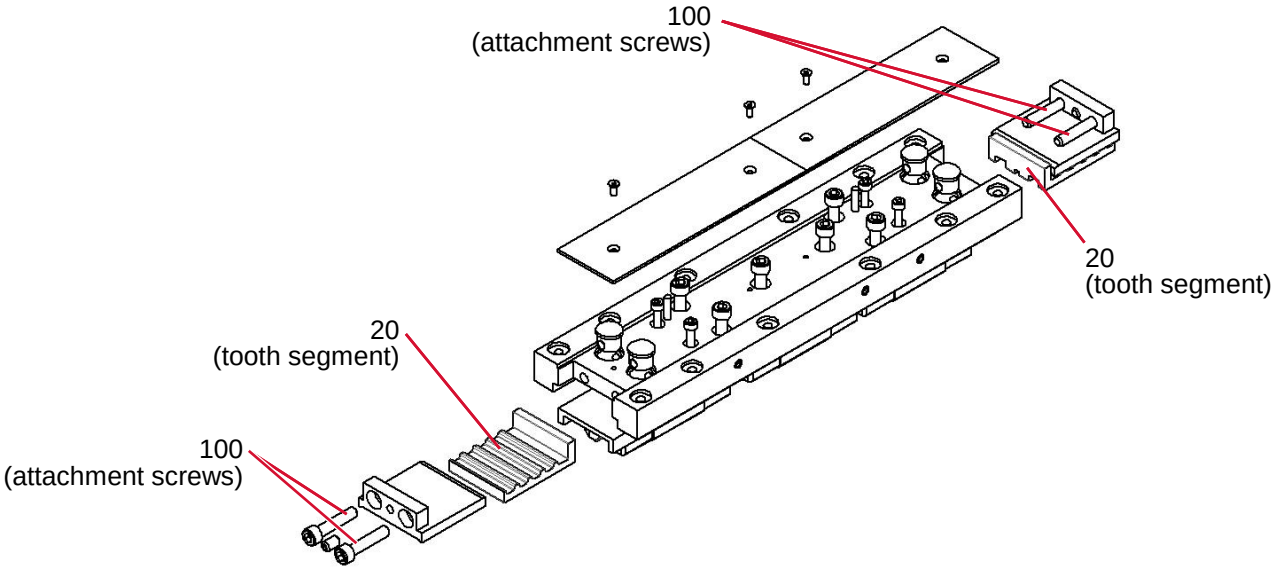


Figure 30: Tooth segment

(7) Re-install the covers.

NOTE The belt tension is pre-set in the factory. Do not remove the threadlocker from the retention screws!

7.3 Reference side of guide system

The guide rail is applied to the reference side of the basic body (marked by a 90° notch). The reference side of the carriage plate which is indicated by two locating pins which are attached one-sided is on the same side as the reference side of the basic profile (see *Figure 31*).

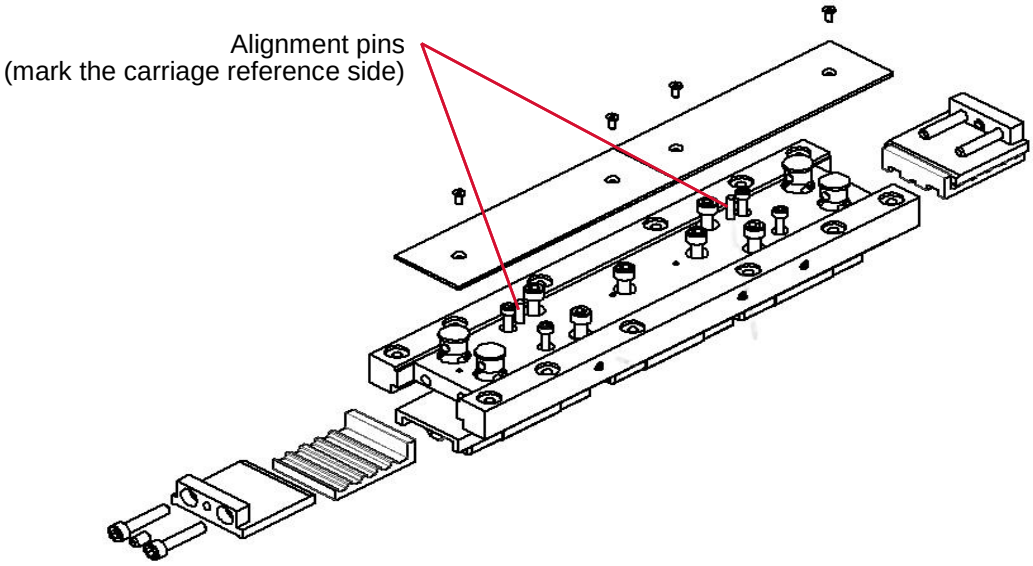


Figure 31: Reference side

The adapter plate is attached on the reference side on the two guide carriages. In the new condition, the guide carriages are harder to push. After a short run-in time (1 to 2 days), the pushing resistance reduces to its regular amount.

NOTE Carriage plate and adapter plate must ***not*** be swapped with the carriage plate and adapter plate of other linear units of Module 80/15!

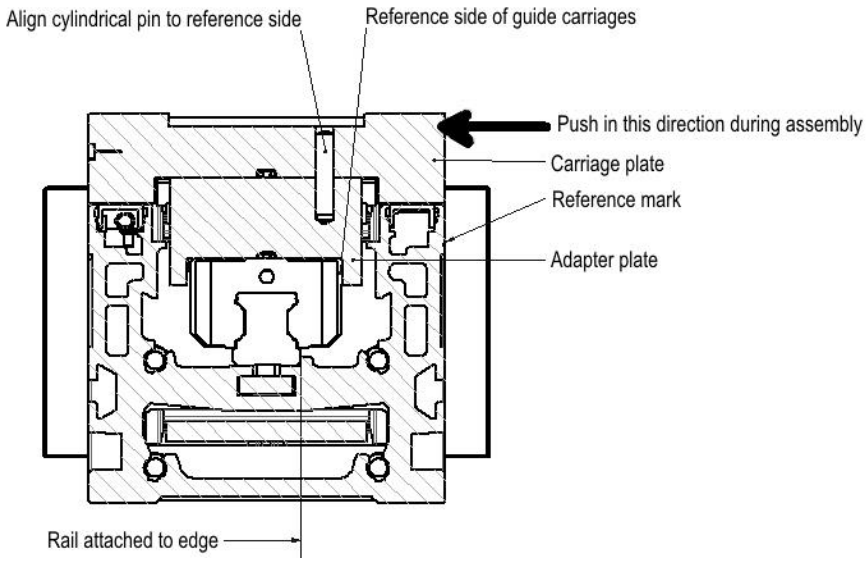


Figure 32: Installation of guide system

8 Parts lists and drawings

8.1 Module 80/15 ZR10

Subassembly No.: 1001336; see *Figure 33* and *Figure 34, page 33*.

Drawing item	Art. No.	Part (1)/ Subassembly (0)	Usage	Designation
10	1000472	0		Module 80/15 basic body
30	1000688	0		Ball rail guide type 1605-103-31
50	1071943	1		Toothed belt with E-strand; W=45 mm; type: ATL 10
60	1028964	1		Cylindrical head screw, black, DIN 912-M4x16-12.9
70	1023994	1		Slot nut M4 flat; type: 80/160/15
- - -	0731466	1		Slot nut, galvanized, type: 5 St/M4
80	1071759	1		Housing with damper; type: M80/15 ZR10
90	0626037	1		Cylindrical head screw, galvanized, DIN 912-M6x20
100	1034373	1		Cover M80/160/15, plastic
110	1043514	1		Countersunk-head screw, stainless steel, DIN 7991-M4x10/V2A
120	1071901	1		Bearing cover ZR10; type: M80/15 ZR10
130	1071906	1		Bearing cover; type: ZR10
150	0028585	1		Limit switch holder; type: easyLINE
160	0025165	1		Inductive switch, PNP-NC
170	0726744	1	+	Inductive switch, PNP-NO
180	0030887	1		Special screw M4 x 7/V2A
183	0025626	1		Retaining plate
185	0725164	1		Angle coupling, offset version WKV 50/6
188	0725163	1		Installation plug, round, type: SFV 50/6
189	1072646	1		Fillister head screw ISO 7380-M3x8/V2A
190	1044440	1		Plastic clip; 10.8 x 5.5 mm
200	1044440	1		Plastic clip; 10.8 x 5.5 mm
230/240	1071761	1	+	Drive unit M80/15 ZR10
“	1081647	1	+	Drive unit M80/15 ZR10 PLFE64
“	1081511	1	+	Drive unit M80/15 ZR10 PLF64 PA
“	1071908	1	+	Drive unit M80/15 ZR10 PA
“	1071911	1	+	Drive unit M80/15 ZR10 PA
250	1071765	1		Deflection unit AT10; type: M80/15 ZR10
260	1018827	1	+	Stopper 80/160/15
- - -	1071471	1	+	Carriage module 80/15 ZR10; L = 300 mm
300	1063250	1	+	Compensating coupling drilled hole 16^{H7}
310	1021466	1	+	Aluminium pipe AlMgSi 0.5 anodized
- - -	1000041	0	+	Motors
330	1001358	0	+	Gear; type: Module 80/15 RZ 10
- - -	1000476	0	+	Flange, type: Module 80/15
- - -	1000562	0	+	Connection plate; type: 80/160/15
- - -	1024734	1	+	Countersunk bushing; type: Module 80/15

+ = usage depending on version

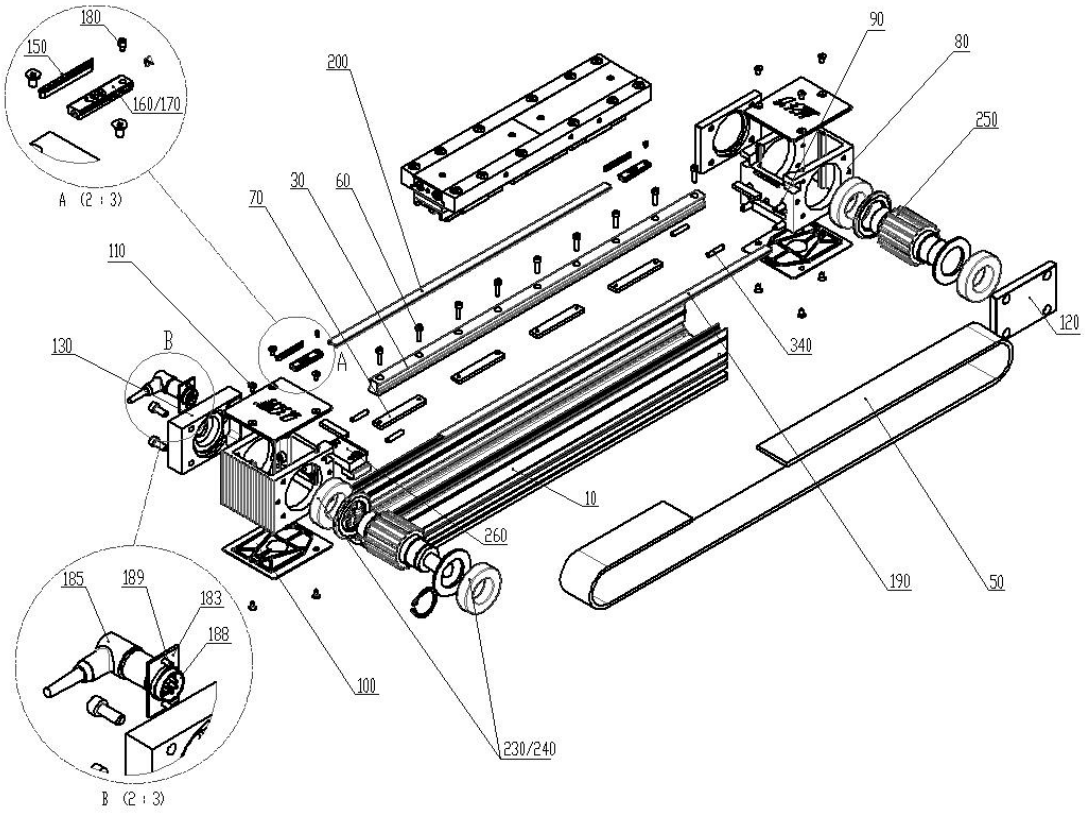


Figure 33: Module 80/15 ZR10, exploded view, subassembly No.: 1001336

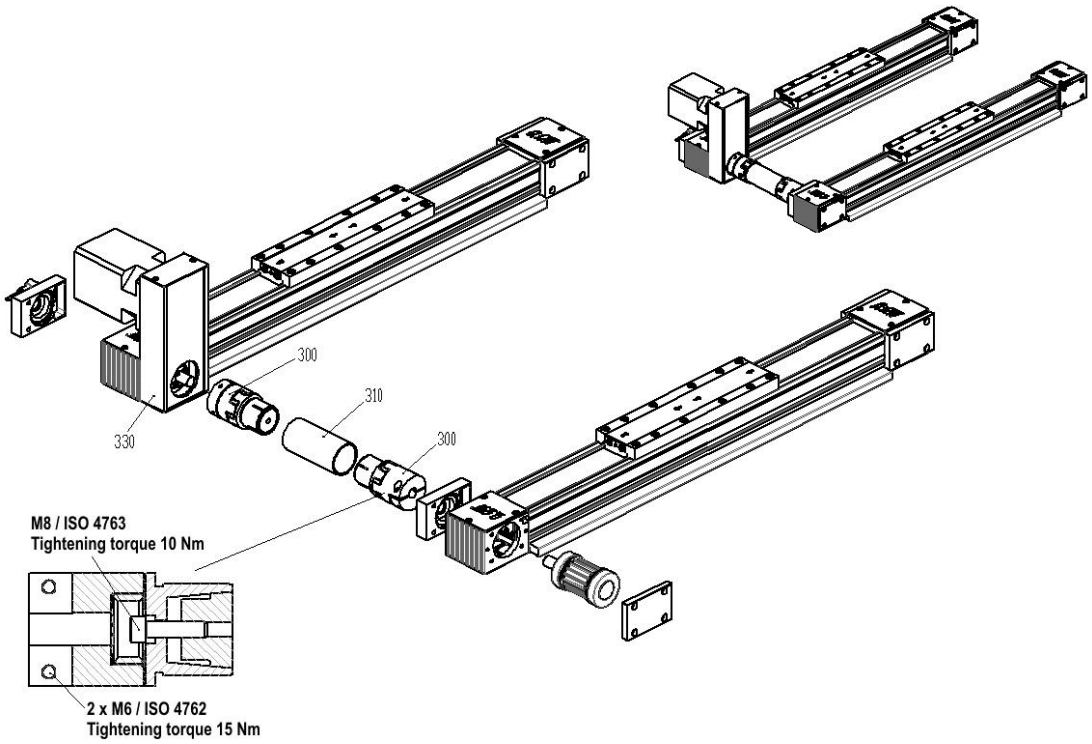


Figure 34: Module 80/15 ZR10, parallel, exploded view, subassembly No.: 1001336

8.2 Carriage Module 80/15 ZR10; L = 300 mm

Article No.: 1071471; see *Figure 35, page 35*.

Drawing item	Article No.:	Part (1) / Subassembly (0)	Designation
10	1046583	1	Guide carriage, size 15
20	1071472	1	Tooth segment; type: M80/15/300/ZR10
30	1071473	1	Pressure piece; type: M80/15/300/ZR10
40	1071474	1	Adapter plate; type: M80/15/300/ZR10
50	1071475	1	Carriage plate; type: M80/15/300/ZR10
60	1018770	1	Cover; type 15
70	1043506	1	Cylindrical screw DIN 912-M4x10/V2A
80	1045120	1	Cylindrical screw DIN 912-M4x30/V2A
90	1027032	1	Cylindrical screw DIN 912-M6x18/V2A
100	1019272	1	Cylindrical screw DIN 912-M6x30/V2A
110	1072610	1	Countersunk head screw DIN 7991-M3x8/V2A
120	0058044	1	Threaded pin DIN 913-M6x10/V2A
130	1023942	1	Threaded bush; type: 80/160/15
140	1072713	1	Cylindrical pin DIN 6325-4m6x20/V2A
150	1031602	1	O-ring; type: 1,80-1,80
160	1028704	1	T-lubrication nipple, DIN 3405, type D4
170	1072714	1	Cylindrical pin DIN6325-3m6x5/V2A
180	0626977	1	Cylindrical screw DIN 912-M4x16/V2A

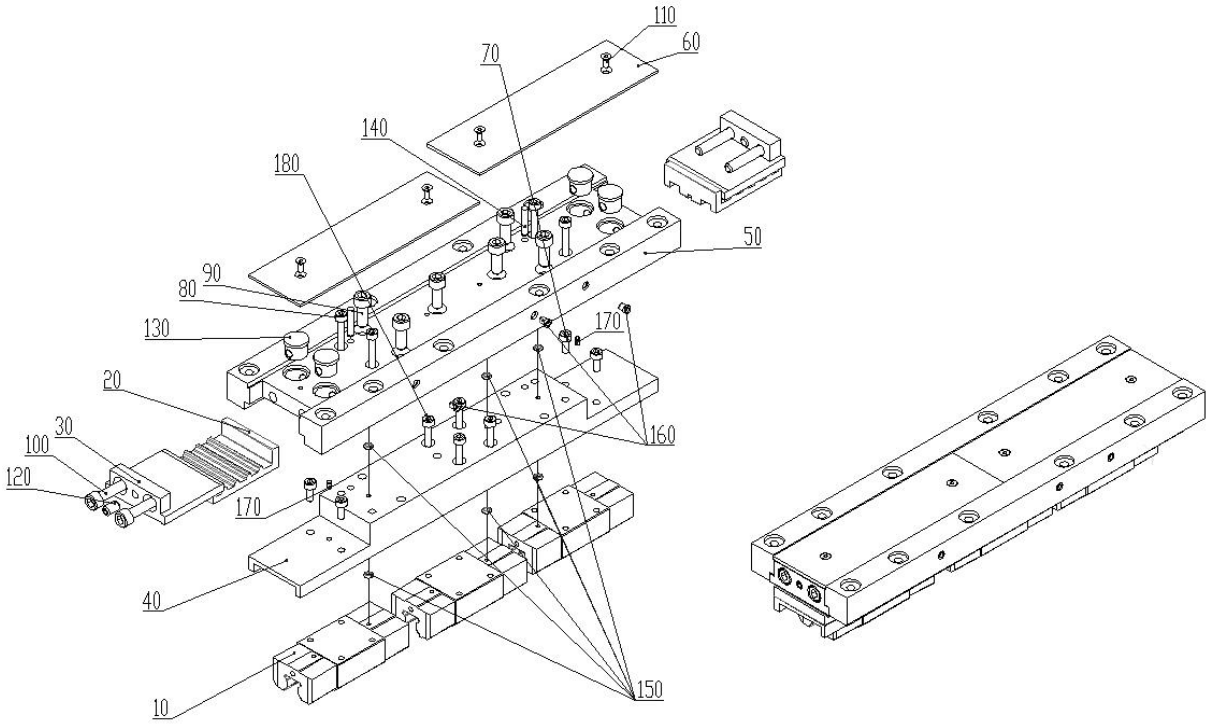


Figure 35: Module 80/15 ZR10 carriage, Article No.: 1071471

8.3 (Belt) Gearbox module 80/15 ZR10

Subassembly No.: 1001358; see *Figure 36, page 37*.

Drawing item	Article No.:	Part (1) / Subassembly (0)	Usage	Designation
10	1071927	1	+	Gearbox housing ZR10; type: M80/15 ZR10
20	0029690	1		Toothed disc St 28,5 AT5/42-0
30	1007376	1	+	Toothed disc St 32,0 AT5/42-2
40	0028722	1	+	Toothed disc St 32,0 AT5/42-2
50	1006664	1	+	Toothed disc St 32,0 AT5/42-2
60	0732770	1		Clamping set 16/32
70	0732770	1	+	Clamping set 16/32
80	0732294	1	+	Clamping set; type: PSV 2061 20x38
90	0734168	1	+	Clamping set; type: PSV 2061 22x40
95	0526735	1	+	Toothed disc St 43,0 AT5/20-2 including clamping set 12
98	0525983	1	+	Toothed disc St 43,0 AT5/20-2 including clamping set 14
100	0525984	1	+	Toothed disc St 43,0 AT5/20-2 including clamping set 16
110	1005790	1	+	Toothed disc St 37,0 AT5/14-2 including clamping set 10
120	1005756	1	+	Toothed disc St 37,0 AT5/14-2 including clamping set 12
130	1025513	1		Belt transmission cover; type: 80/15
140	1042097	1		Sliding block guide
150	0626039	1		Countersunk head screw, galvanized, DIN 7991-M4x8
160	1004001	1		Slide-on lid for gearbox; type: pL 200
170	0730353	1	+	Toothed belt (red); type: 25AT5/390 GEN III
180	0732286	1	+	Toothed belt (red); type: 25AT5/375 GEN III
190	0908243	1	+	Toothed belt (red); type: 25AT5/450 GEN III

+ = usage depending on version

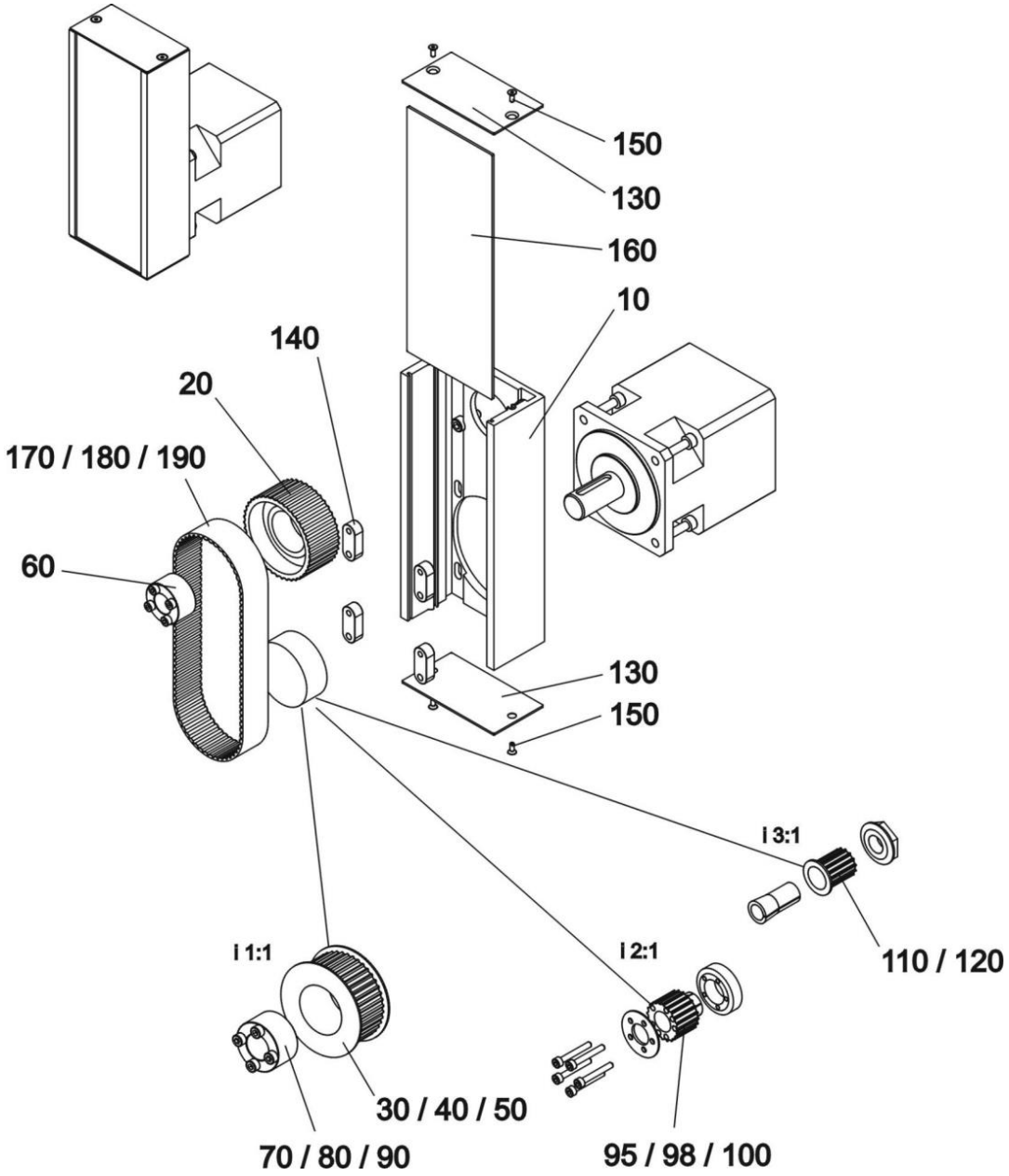


Figure 36: Belt gearbox module 80/15 ZR10, subassembly No.: 1001358

8.4 Flange

Subassembly No.: 1000476; see *Figure 37, bottom*.

Drawing Pos.	Article No.:	Part (1) / Subassembly (0)	Usage	Designation
10	1022105	1		Flange axial
20	1022129	1		Flange plate axial
30	0734161	1		Plastic cover
40	0626037	1		Cylindrical head screw DIN 912 - M6x20-8.8
50	0626244	1		Cylindrical head screw DIN 912 - M6x60-8.8
60	0627215	1		Retaining ring
70	1022199	1	+	Coupling dia.=16
75	1022203	1		Toothed ring red
80	1022201	1	+	Coupling Ø=20
90	1022202	1	+	Coupling Ø=22
100	1006530	1	+	Sleeve 12/16
110	1007310	1	+	Sleeve 15/20
120	1008886	1	+	Sleeve 14/16
130	1022206	1	+	Sleeve 19/22

+ = usage depending on version

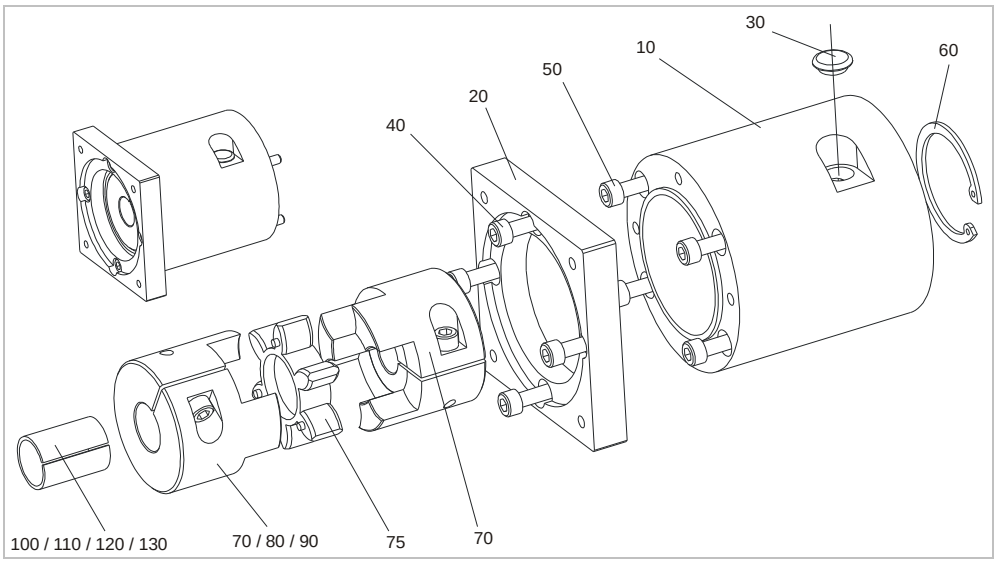


Figure 37: Flange Module 80/15 ZR10; i = 1:1, subassembly No.: 1000476

CAUTION

Please additionally observe the wear parts list included with the delivery according to the order.

8.5 Design specific assemblies/components

8.5.1 Installation of flange gearbox (e.g. planetary gear type PLFE64)

The following different drive units for flange gearboxes may be used:

Description	Part No.
Drive unit M80/15 ZR10 PLFE64	1081647
Drive unit M80/15 ZR10 PLF64 PA	1081511

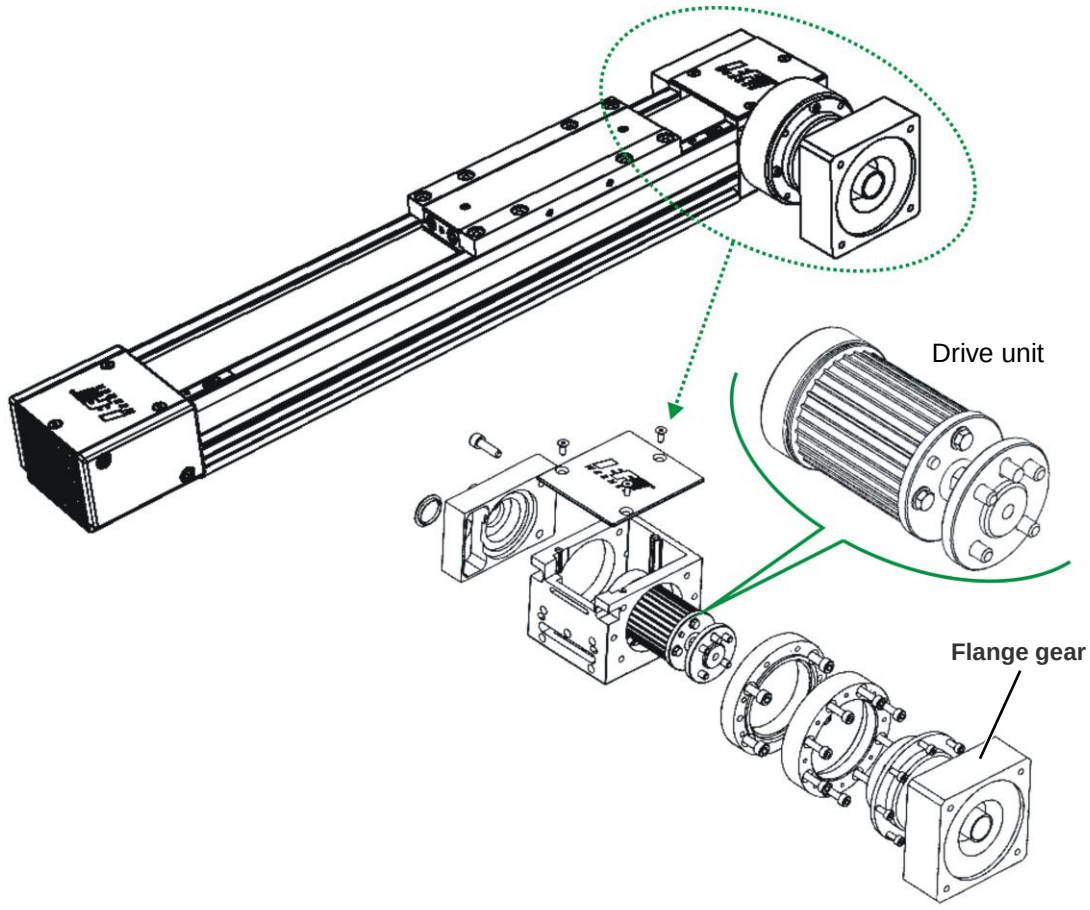
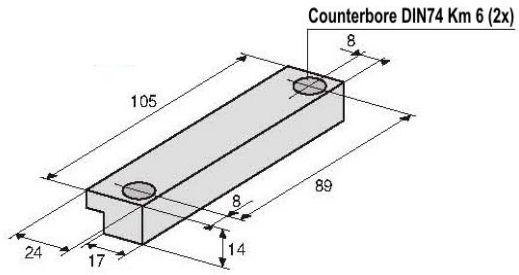
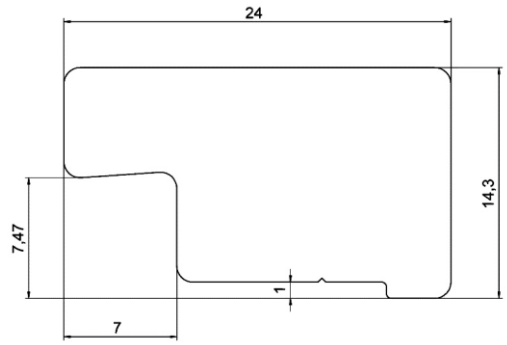


Figure 38: Installation of flange gearbox (example with drive unit 1081647)

8.5.2 Overview of clamping elements



Clamping element, example: type 105



Scaled drawing of clamping element

Clamping element Type:	L1 in mm	L2 in mm	Article number:
16	0	16	220701
65	49	65	1062169
80	64	80	1021641
105	89	105	28674
115	99	115	1054491
140	124	140	220702
160	64	160	1039032
undrilled		customer-specific	1019192

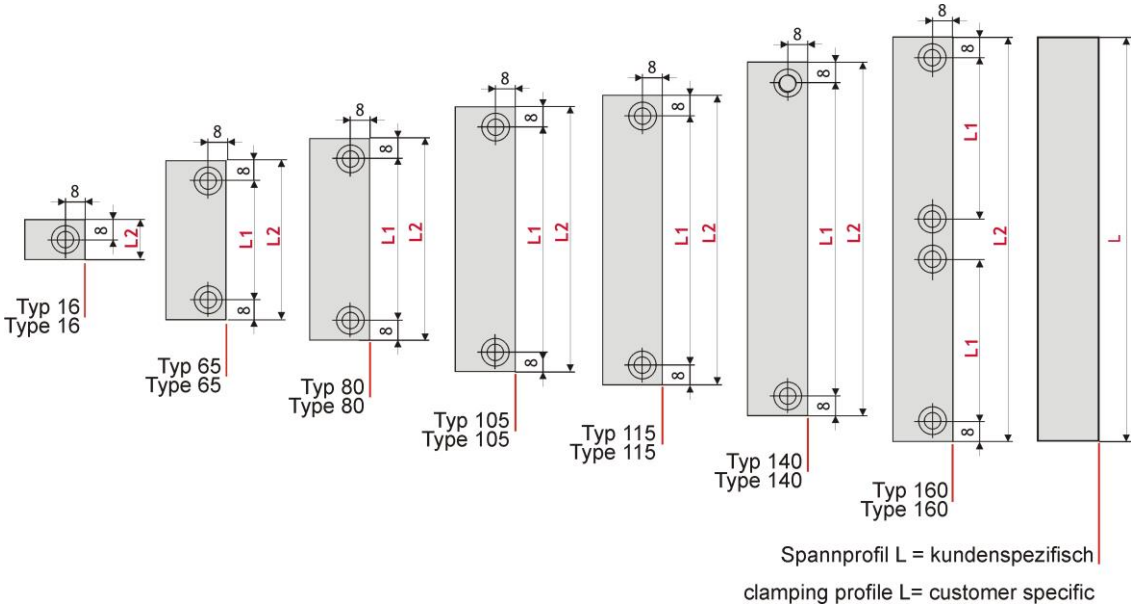


Figure 39: Overview clamping elements

9 Declaration of Incorporation

EC declaration of incorporation in accordance with the EC Directive 2006/42/EC (machinery), Annex II B

We, the manufacturer:

IEF-Werner GmbH

Wendelhofstraße 6

78120 Furtwangen - Germany

hereby declares that the following product (the incomplete machine / partial machine):

Designation	IEF-Werner subassembly number
Module 80/15 ZR10	TG1001336

where possible based on the scope of delivery, correspond to the following basic requirements of the directive on **Machinery (2006/42/EC)**:

- Annex I, item: **1.1.2**; **1.1.3**; **1.1.5**; **1.3.2**; **1.3.4**; **1.5.1**; **1.7.3**.

The incomplete machine also corresponds to the following further directives:

Directive **2004/108/EC** of the council, dated 15 December 2004, for harmonisation of the legal provisions of the member states on electromagnetic compatibility.

Directive **2006/95/EG** of the council, dated 12 December 2006, for harmonisation of the legislation of the member states regarding electrical equipment for use within specified voltage limits.

The technical documents were generated according to Annex VII Part B and may be electronically submitted to the national authorities upon justified request.

List of some harmonized standards:
EN ISO 12100-1,-2 / EN ISO 13857 / EN ISO 13850 / EN 60201-1

Commissioning of the incomplete machine delivered by us is not permitted until it has been determined that the overall system into which the incomplete machine is installed meets the basic safety and health protection requirements according to Annex I of the above EC directive 2006/42/EC.

Name of documentation officer: Frank Reichelt, technical editor

Address of documentation officer: See manufacturer's address

Furtwangen, 04 February 2010 Manfred Bär (managing director)