Translation of the original instructions

Module 80/15

Issue: October 2012

Article no.: 1040588

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
EN_1040588_Modul 80-15_R5b.doc	April 2006	New table with planetary gear boxes, external greasing
MAN_EN_1040588_Modul 80-15_R5c.doc	January 2007	Replaced coupler for parallel drive
MAN_EN_1040588_Modul80-15_R5d.doc	2012-10-10	Changes as for as parts number are concerned (sections 7.1, 7.2, 7.3). Adaption to German document ("MAN_DE_1040587_Modul80-15_R7b/c.doc").

Trademarks and trade names are used without any warranty of their free usability Texts and examples were created with great care. Nevertheless, errors cannot be 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 the software or hardware or parts of it, as well as the supplied documentation or parts of it, without previous notice.

IEF Werner GmbH expressly reserves all rights for replication and photomechanical reproduction, including in extracts.

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

© October 2012, IEF Werner GmbH

Table of 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 Assembly instructions **8**

3.1 Installation position 8

3.2 Overview of motor installation variants 8

3.2.1 Module 80/15, installation variant 1 9

3.2.2 Module 80/15, installation variant 5 9

3.3 Attachment 10

3.3.1 Installation of actuators 12

3.4 Wiring 13

3.4.1 Motors 13

3.4.2 Initiators 13

3.4.2.1 Technical data of initiators 14

3.4.2.2 Plug end position switch 15

3.4.3 Cable routing 15

3.5 Technical data 16

3.5.1 Tightening torques for screw connections 16

3.5.2 Technical data of the linear module 80/15 16

3.5.3 Type label 17

3.5.4 Technical data when using a planetary gear 17

3.5.5 Axis distances and tooth numbers 18

3.5.6 Load cases 19

3.5.6.1 Torques and carrying capacities 19

3.5.6.2 Tilting of the carriage unit at lateral load 20

4 Maintenance **21**

5 Troubleshooting **22**

6 Repair **24**

6.1 Factory-setting of the toothed belt tension 25

6.2 Replace toothed belt 26

6.3 Reference side of the guide system 28

7 Parts lists and drawings 30
7.1 Module 80/15 30
7.2 Carriage module 80/15/195 complete 32
7.3 Long carriage module 80/15/300 PS complete 33
7.4 (Belt) Gearbox module 80/15 34
7.5 Flange 36
7.6 Design-specific assemblies/components 37
7.6.1 Installation flange gearbox (e.g. planetary gear type PLFE64) 37
7.6.2 Overview clamping elements 38

8 Declaration of incorporation 39

1 Safety

1.1 Definition or warning notes

WARNING

Indicates 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 or injury.

NOTE Offers additional information.

1.2 General warning notes

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

WARNING

The system must be powered down for all assembly, disassembly 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 the 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 must not be inserted or disconnected when 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 39*).

1.3 Special hazard warnings

In addition, this Original User's Manual also contains the following special hazard warning:

DANGER FROM CRUSHING

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

2 Intended use

The linear unit module 80/15 (see *Figure 1*) was designed for use in the commercial area. Use of a high-quality guide warrants high dynamics and good running behaviour. The internal guide system is protected from contamination by the toothed belt. Additionally, the guide elements have special seals that protect the guide tracks from gross contamination. Use of the linear unit module 80/15 under conditions with increased contamination and abrasive dusts, however, should be avoided because there are no further protective measures like bellows, etc.

Figure 1: Module 80/15

When using the linear unit module 80/15, observe that the constructive setup of the linear unit will cause increased lateral tilting of the carriage due to torque occurring. This feature is, however, an essential benefit in setup of a parallel guide system, because it avoids over-determination of the guide system.

If higher torque appears or a higher stiffness is required, in particular in boom systems, the series module 160/15 must be used.

The areas of use for the linear module 80/15 are accordingly diverse. They range from stop adjustment in the wood industry to equipment systems for SMD-components, joining and pressing processes in precision mechanics, loading and unloading stations of tool machines, to manipulators for the packaging industry.

2.1 Reasonably foreseeable misuse

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

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 Assembly instructions

3.1 Installation position

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

CAUTION

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

3.2 Overview of motor installation variants

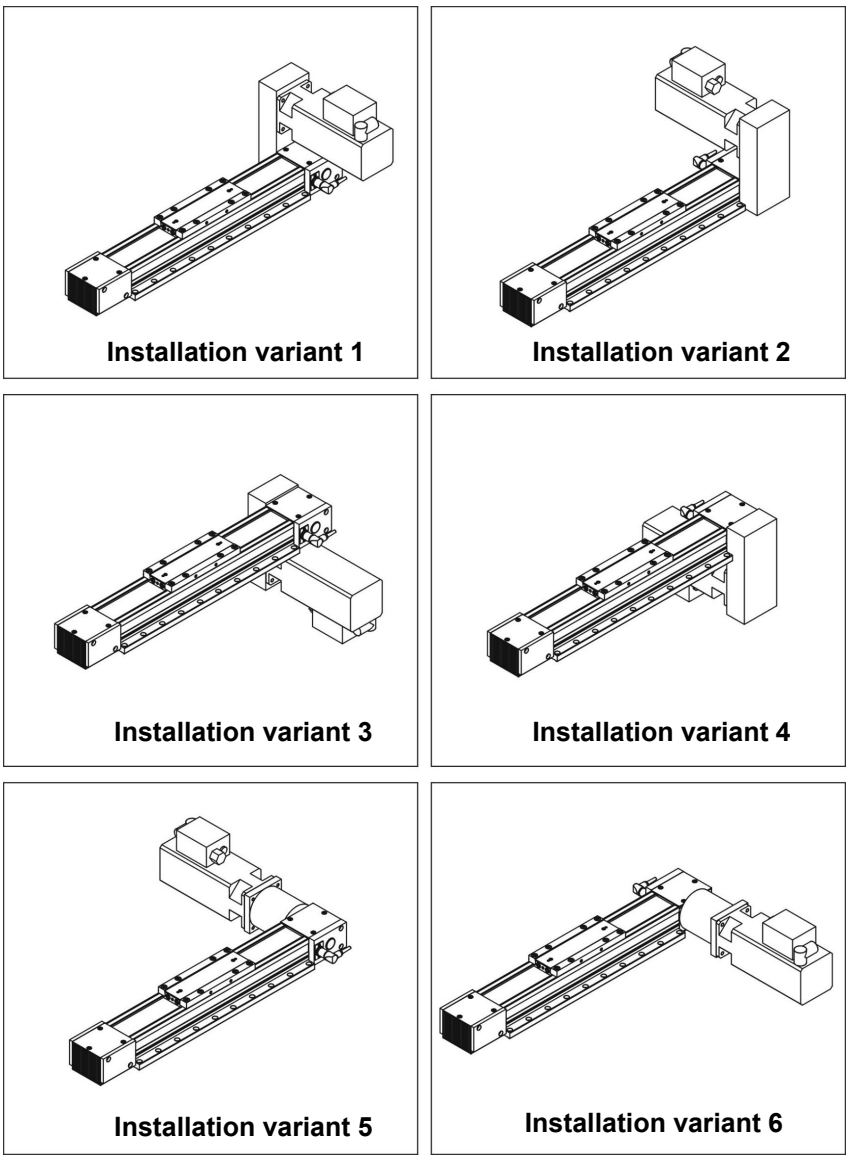


Figure 2: Installation variants module 80/15

3.2.1 Module 80/15, installation variant 1

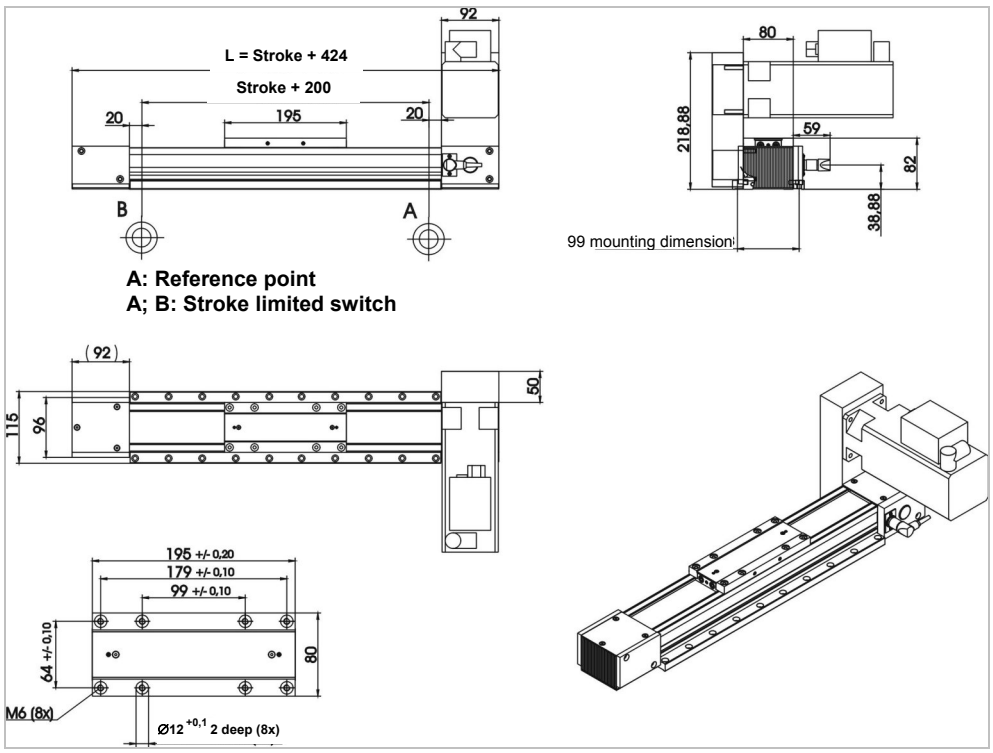


Figure 3: Module 80/15, subassembly number 1000398, installation variant 1

3.2.2 Module 80/15, installation variant 5

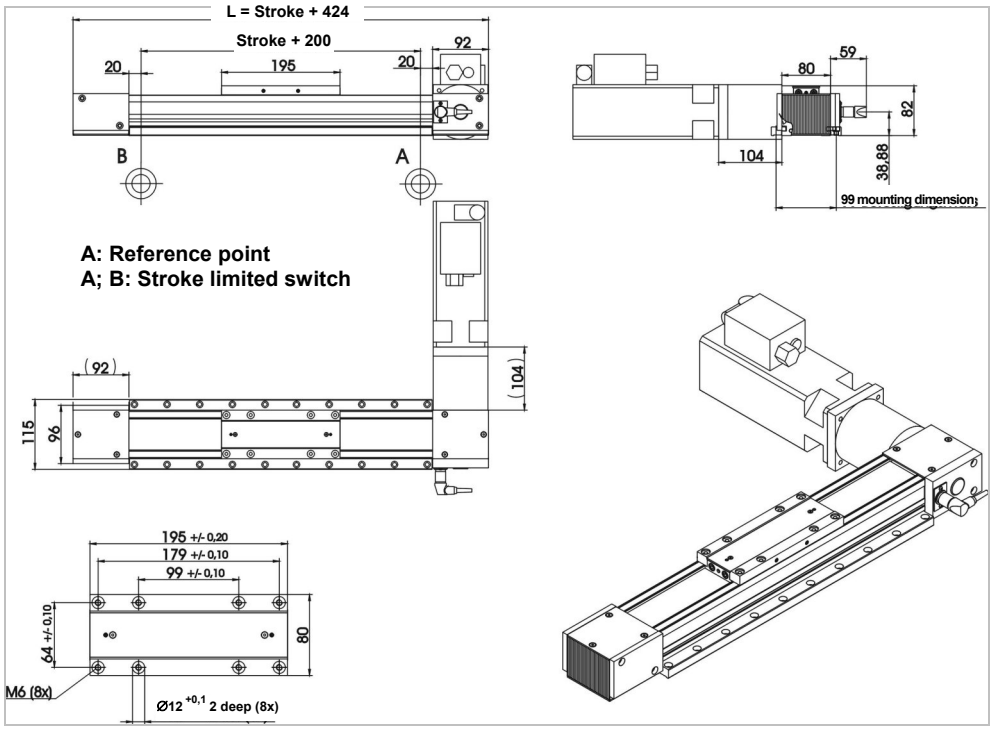


Figure 4: Module 80/15, subassembly number 1000398, installation variant 5

3.3 Attachment

In most use cases, the linear module 80/15 is attached to a level mounting surface with clamping profiles/clamping elements (see *Figure 5, bottom*). The carriage moves freely.

The linear module should not be attached otherwise, e.g. by additional bores in the basic body. These bores will nearly always lead to clamping of the guide basis and damage to internal parts of the module.

CAUTION

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

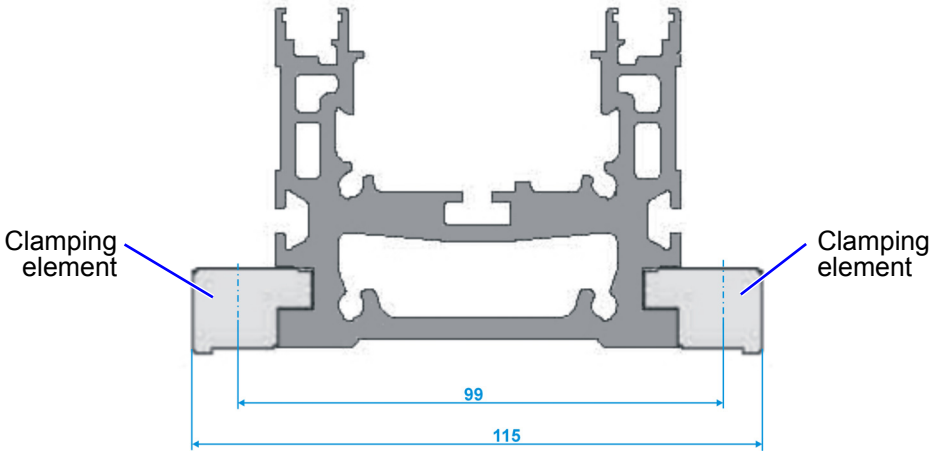


Figure 5: Cross-section with clamping elements and dimensions (module 80/15)

NOTE For an overview of the different clamping elements, see the section *Overview clamping elements, Page 38*.

DANGER FROM CRUSHING

These places of the components pose the danger of crushing limbs.

There is danger of crushing at the start and end of a stroke (see *Figure 6*).

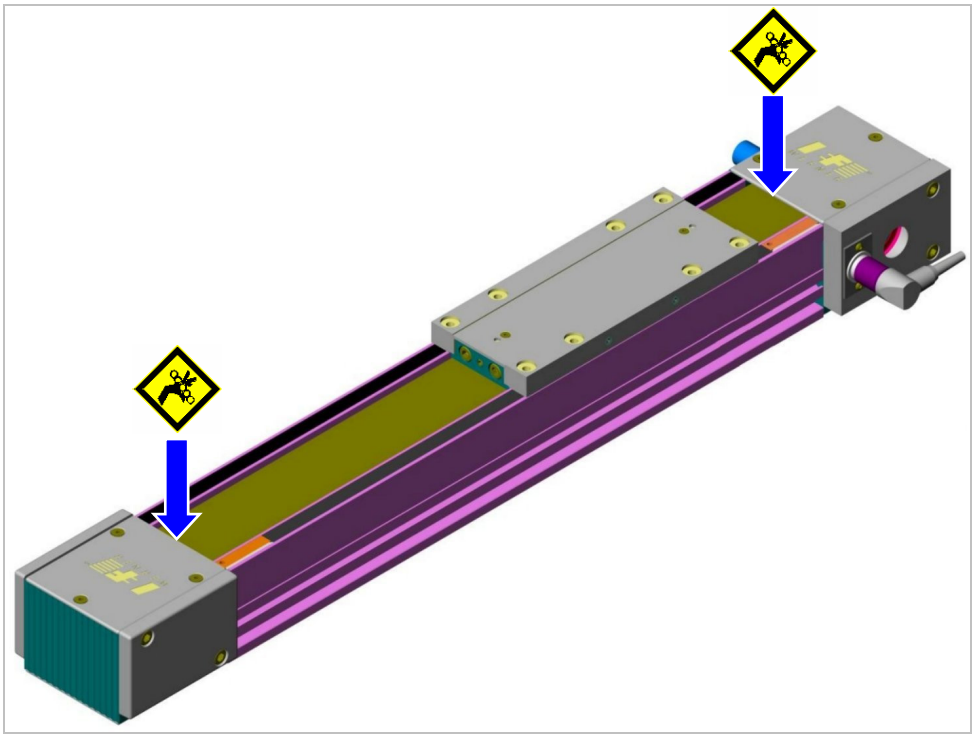


Figure 6: Possible crushing points

Figure 7 shows the drilling pattern of a standard carriage.

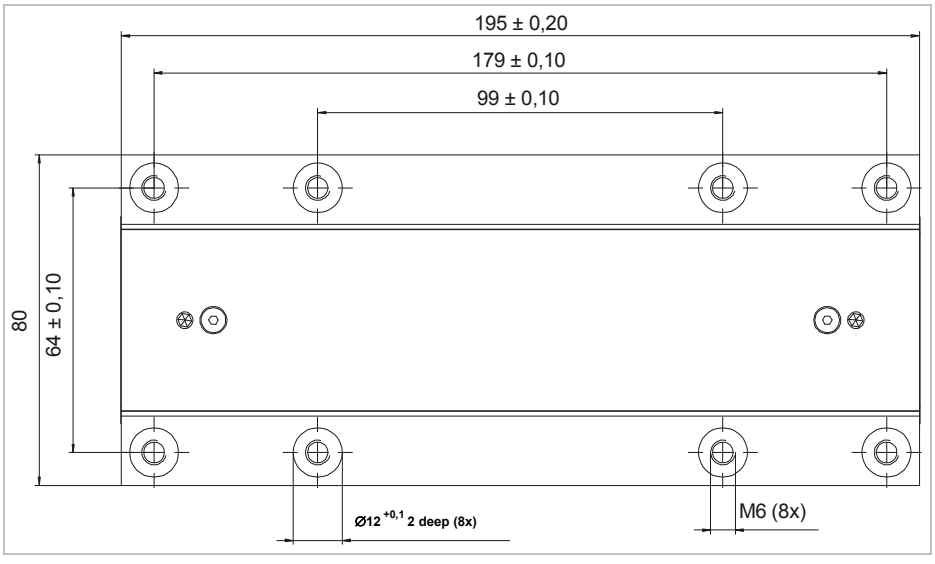


Figure 7: Drilling pattern standard carriage

Figure 8 shows the drilling pattern of a long carriage.

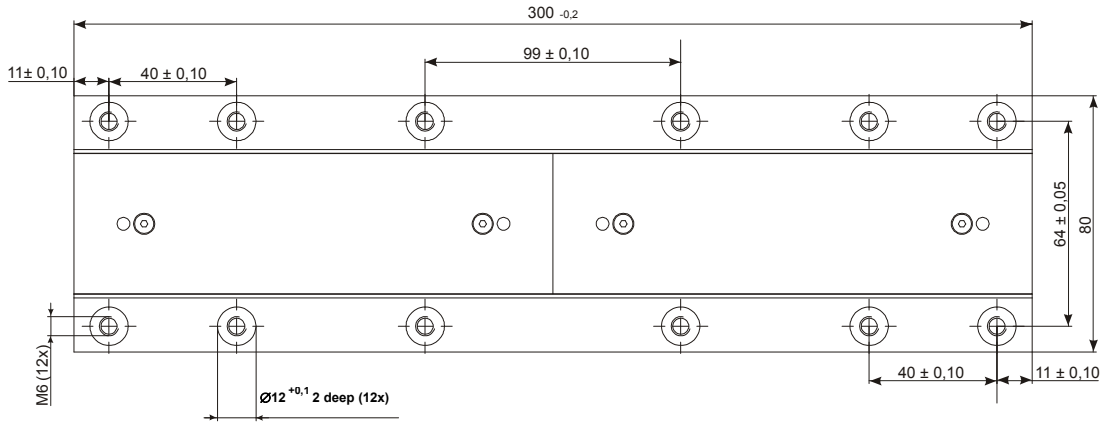


Figure 8: Drilling pattern long carriage

Figure 9 shows a centring ring to take up clamping elements:

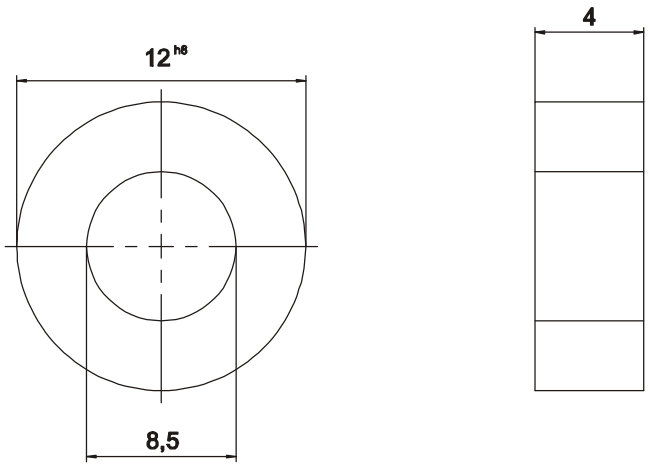


Figure 9: Centring ring (article no.: 1024021)

The threaded bores M6 make different axis configurations possible on the carriage, possibly using an adapter plate.

The recesses Ø12 serve to centre clamping elements with supply option.

3.3.1 Installation of actuators

Actuators to be installed on the linear module (pick-up modules, cylinders) are usually attached to the linear unit using the drill template on the carriage (*Figure 7, page 11* and *Figure 8, page 12*).

3.4 Wiring

3.4.1 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.

3.4.2 Initiators

Inductive proximity switches (PNP normally closed contacts, article no.: 025165) are used as standard limit switches for the running path (see *Figure 10*). These switches are no safety limit switches pursuant to EN60204-1. Optionally, (also subsequently) an additional reference point switch (PNP normally open contact article no.: 726744, see *Figure 11*), can be installed in the linear module 80/15. The active button is marked with a coloured circle. Normally closed contacts are marked with a green, normally open contacts with a red dot. The initiators and their supply lines are protected in a cable channel integrated in the basic body, and are wired to a joint plug.

A plastic strip serves to cover the cable channel. An initiator can be replaced or relocated easily after removal of this plastic strip from the
cable channel.

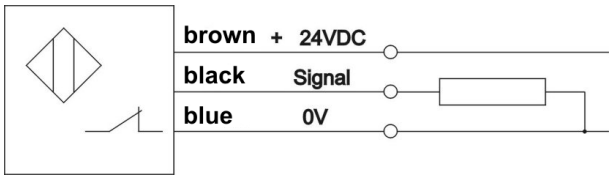


Figure 10: Connection allocation PNP normally closed contact

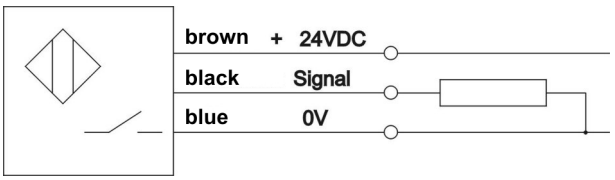


Figure 11: Connection allocation PNP normally open contact

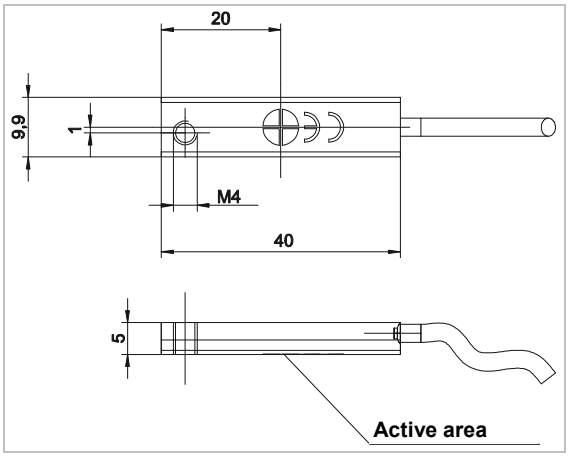


Figure 12: Scaled sketch of inductive proximity switch

3.4.2.1 Technical data of initiators

Parameter	Value
Operating voltage incl. residual ripple	(10 ... 30) VDC ≤ 15 %
Current load capacity	I_a ≤ 200 mA
Voltage drop at I_a max.	≤ 2.5 V
Switching frequency	≤ 1,000 Hz
Own current consumption	≤ 15 mA
Nominal switching distance on steel	1.5 mm ± 10 %
Switching hysteresis	(3 ... 20) %
Reproducibility (U = const.)	± 0.01 mm
Operating temperature	- 25 °C ... + 70 °C
Protection class	IP 65
Short-circuit proof	yes
Protected against polarity reversal	yes

Figure 13: Technical data of initiators

3.4.2.2 Plug end position switch

The end position switch is assigned as follows (see *Figure 14*):

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

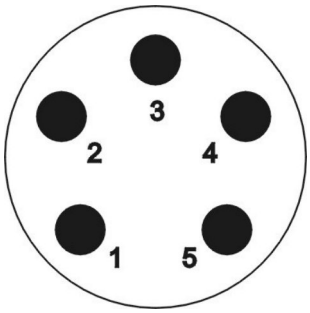


Figure 14: Connection assignment plug end position switch

3.4.3 Cable routing

For all moving cables, suitable cable routing has to be used 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:

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

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.

3.5 Technical data

3.5.1 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

3.5.2 Technical data of the linear module 80/15

Parameter	Value
Repeating accuracy	+/- 0.05 mm
Weight (without motor at stroke 0 mm)	6.9 kg
Weight increase per 100 mm stroke	0.95 kg
Maximum movement speed	5 m/s
Maximum acceleration	40 m/s²
Max. transferrable infeed force at max. movement speed (5 m/s)	1,278 N
Max. torque Mx	80 Nm
Max. torque My	30 Nm
Max. torque Mz	100 Nm
Carrying capacity C1	1,000 N
Carrying capacity C2	300 N
Guide stiffness x	See *Tilting of the carriage unit at* lateral load, *page 20*.
Area inertias of the profile cross-section at the centre of gravity:	
I_x	570018 mm^4
I_y	1,400,047 mm^4

Figure 15: Technical data

3.5.3 Type label

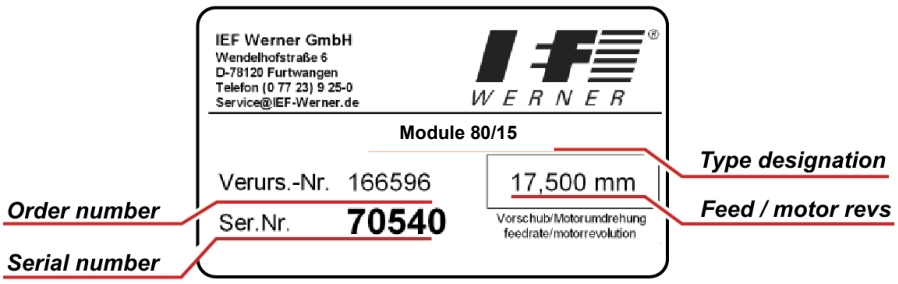


Figure 16: Type label (example)

3.5.4 Technical data when using a planetary gear

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 accuracy of the linear 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?

Infeed constant of the linear 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. http://www.neugart.de/index.php/de/Produkte/Standardgetriebe

http://www.wittenstein-alpha.de/896.htm

3.5.5 Axis distances and tooth numbers

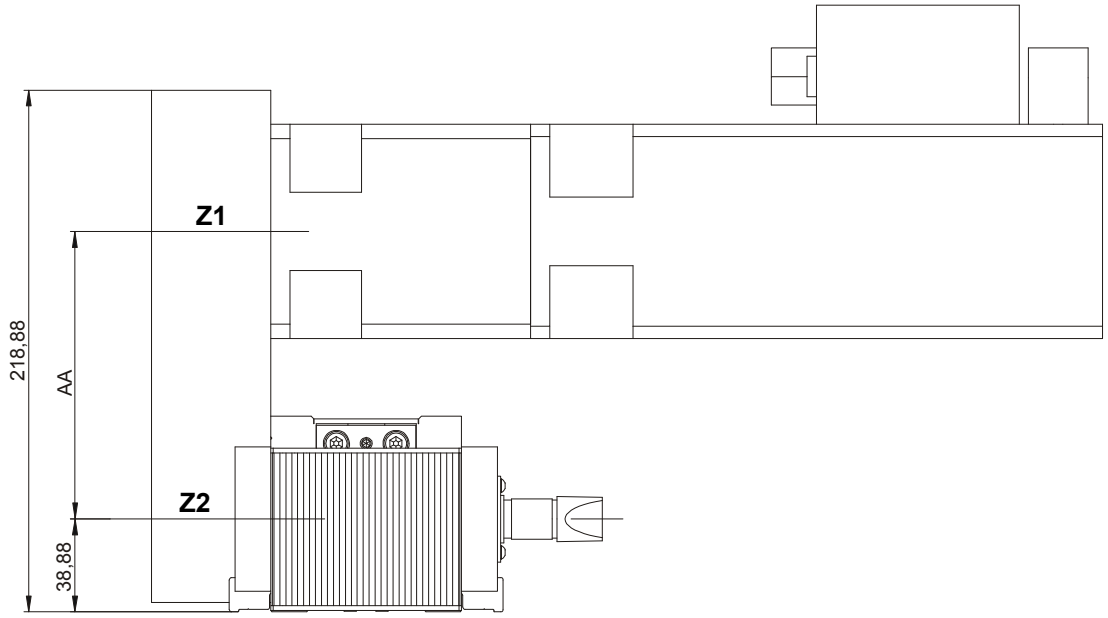


Figure 17: Explanations on the table axis distances, subassembly no.: 1000475

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

i	Z1 drive	Z2 output	Drilled hole drive	Length of toothed belt	AA [mm]	Infeed constant [mm]
1:1	42	42	max. Ø 32 mm	450 mm	120	140
2,1:1	42	20	max. Ø 16 mm	390 mm	116,18	66,667
2,625:1	42	16	max. Ø 14 mm	390 mm	120,73	53,33
3:1	42	14	max. Ø 12 mm	375 mm	115,35	46,667

3.5.6 Load cases

3.5.6.1 Torques and carrying capacities

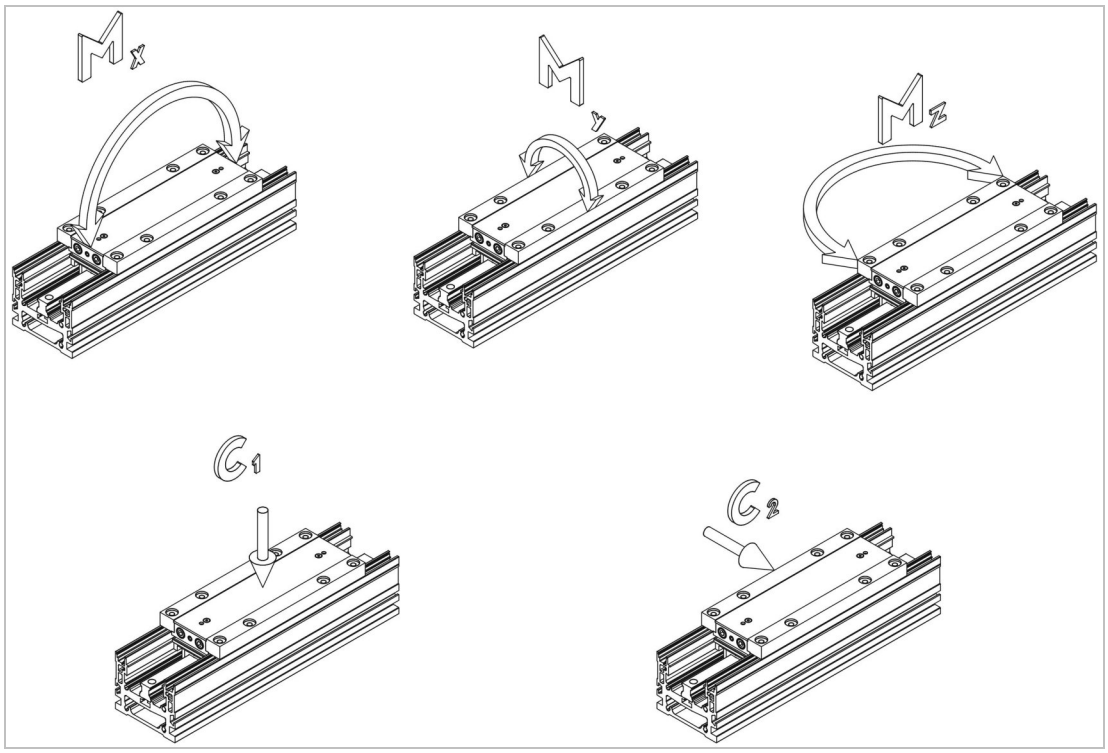


Figure 18: Torques and carrying capacities

Excerpt from the technical data (*Figure 15, page 16*):

Parameter	Value
Max. torque Mx	80 Nm
Max. torque My	30 Nm
Max. torque Mz	100 Nm
Carrying capacity C1	1,000 N
Carrying capacity C2	300 N

Figure 19: Table torques and carrying capacities

3.5.6.2 Tilting of the carriage unit at lateral load

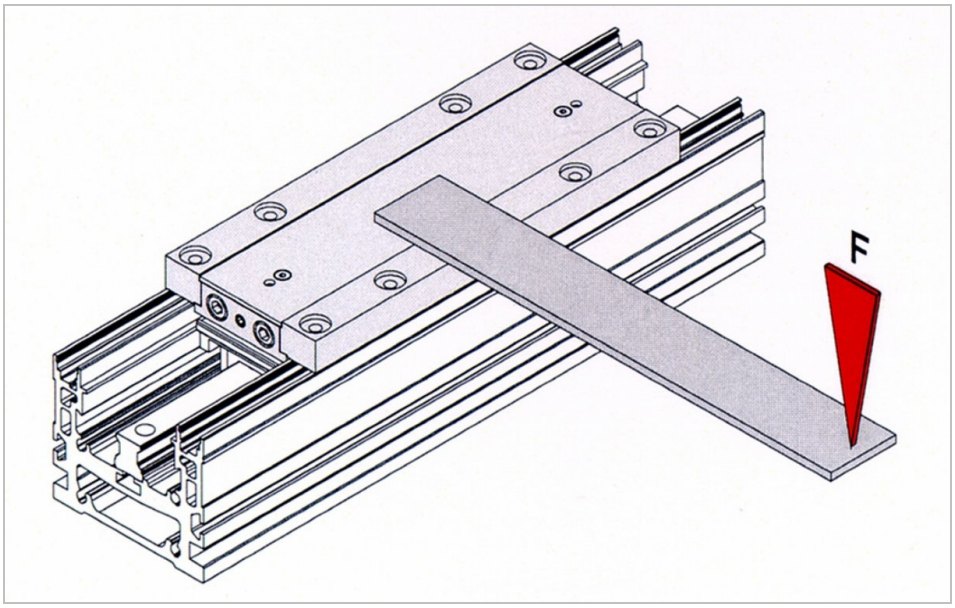


Figure 20: Tilting of the carriage

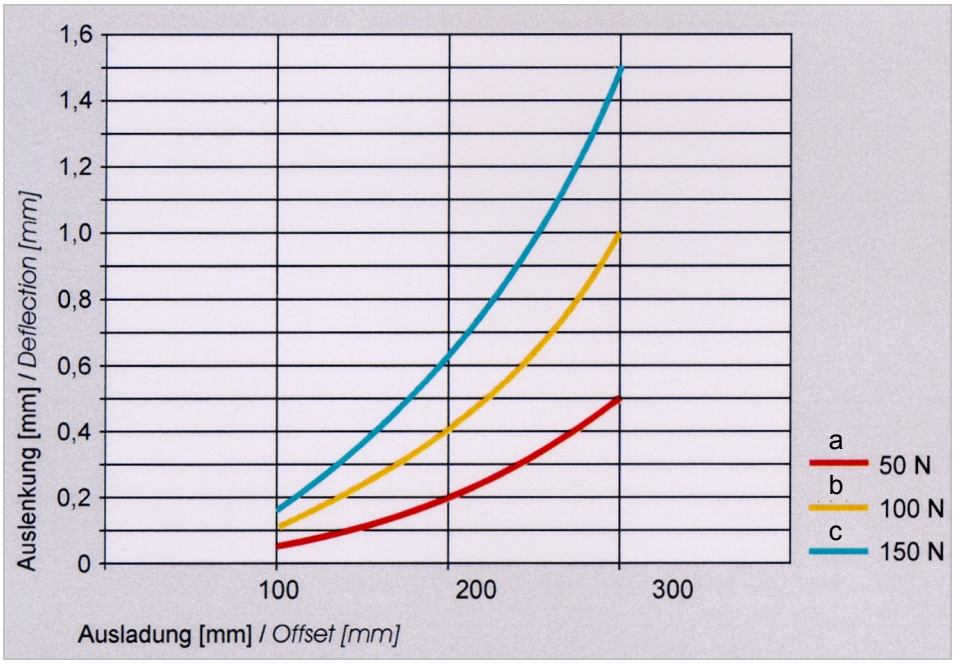


Figure 21: Deflection at lateral load

4 Maintenance

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

The guide carriages are equipped with attached lubrication elements. This makes it possible to achieve a running performance of 10000 km with initial lubrication. In single-shift operation, this corresponds to nearly 5 years at a stroke of 500 mm and 20 cycles per minute.

Once the indicated running output is reached, the guide carriage can be re-lubricated with a special grease press (IEF-item no.: 1055123) (see *Figure 22* and *Figure 23*). The grease gun is filled with the high-performance lubricant Dynalub.

NOTE Never use any grease that contains ester oils.

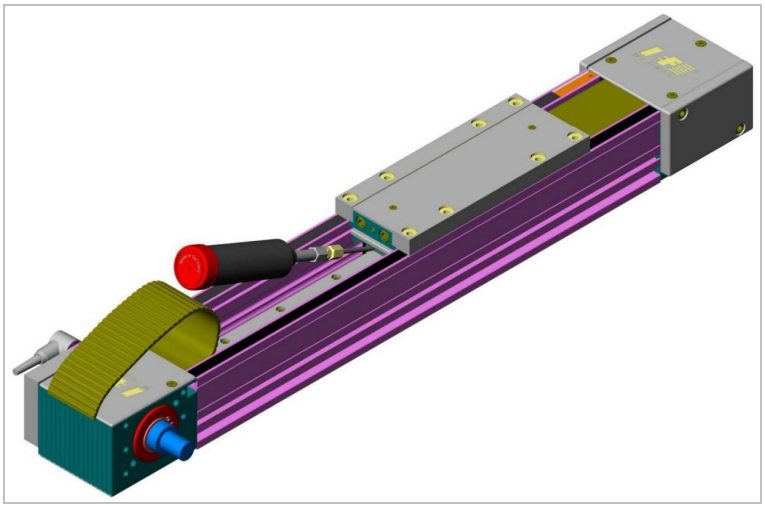


Figure 22: Lubrication of the guide carriage (carriage without external lubrication)

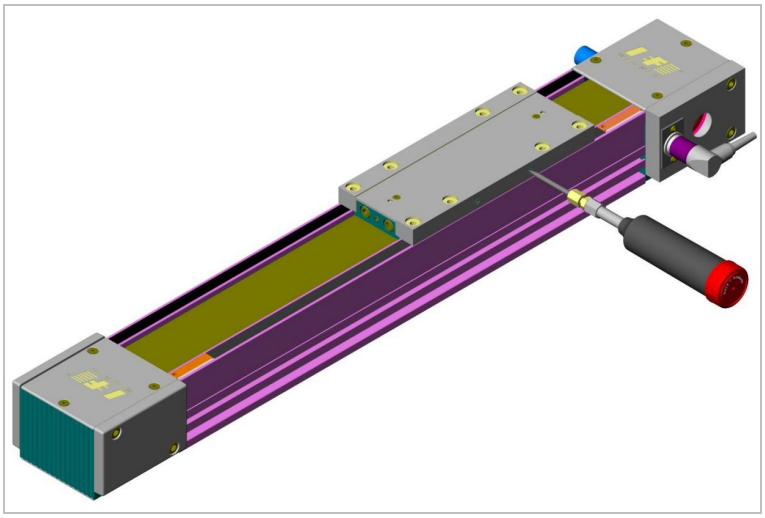


Figure 23: Lubrication of the guide carriage (carriage with external lubrication)

5 Troubleshooting

Interference	Reason	Correction
Increased running noise	Nominal service life of guide carriage exceeded	Replace all guide carriages
	Guide carriage worn due to overload (too-high torque, etc.)	Replace all guide carriages, reduce load
	Guide carriage worn from strong contamination	Replace all guide carriages, clean guide rails and relubricate
	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 tooth segment), tighten cylindrical screws M6 evenly!
	Toothed belt strongly contaminated on the toothed inner side	Replace toothed belt, protect linear module from strong contamination
	Toothed belt defective	Replace toothed belt
	Motor (motor bearing) defective	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 defective	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

Troubleshooting, continued

Interference	Reason	Correction
Linear drive unit does not move	Error in power electronics or control unit	Check the power electronics or the control unit
	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 disk has play (key connection)	Replace motor toothed disc if motor shaft keyway is damaged, replace motor
	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

6 Repair

WARNING

Always power down the system before starting repairs.

WARNING

Any repairs must only 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.

6.1 Factory-setting of the toothed belt tension

The toothed belt tension of the axial toothed belt is set via adjustment screws (see *Figure 24*). The toothed belt tension is correctly set at delivery.

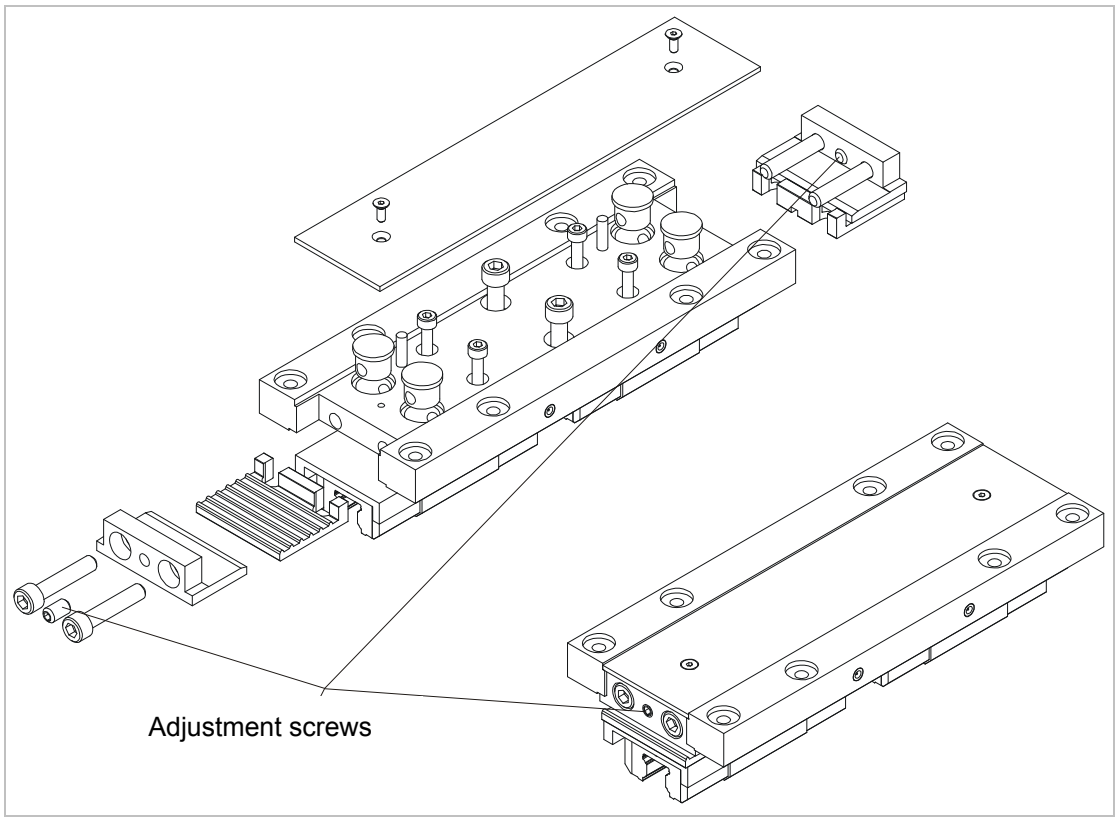


Figure 24: Adjustment screws for toothed belt tension

NOTE Do not remove the threadlocker from the adjustment screws.

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

6.2 Replace toothed belt

Proceed as follows to replace the toothed belt:

NOTE Toothed belt replacement is generally performed the same for the standard and long carriage. The following sections deal with toothed belt replacement at the standard carriage.

(1) Loosen the four attachment screws M6 x 25 (see *Figure 25*, item 100).

(2) Remove the pressure pieces (see *Figure 25*, item 30).

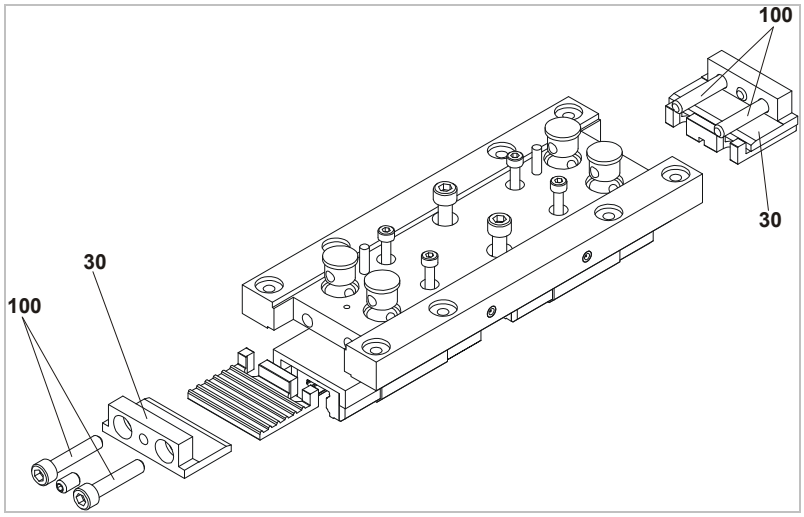


Figure 25: Loosen attachment screws

(3) Remove the covers (see *Figure 26*, item 100).

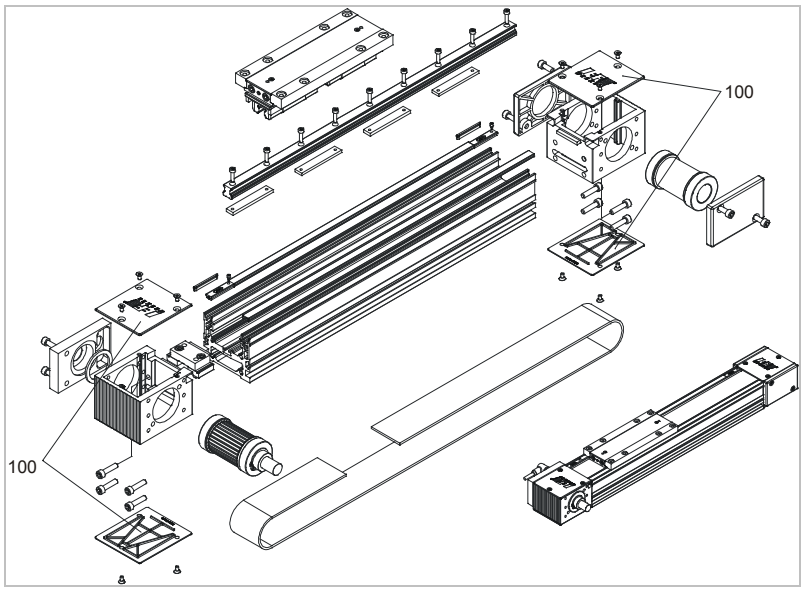


Figure 26: Remove the covers

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

(5) Insert the toothed belt into the tooth segment (see *Figure 27*, item 20).

(6) Screw the pressure piece tightly on both sides "to block" (see *Figure 27*, item 100).

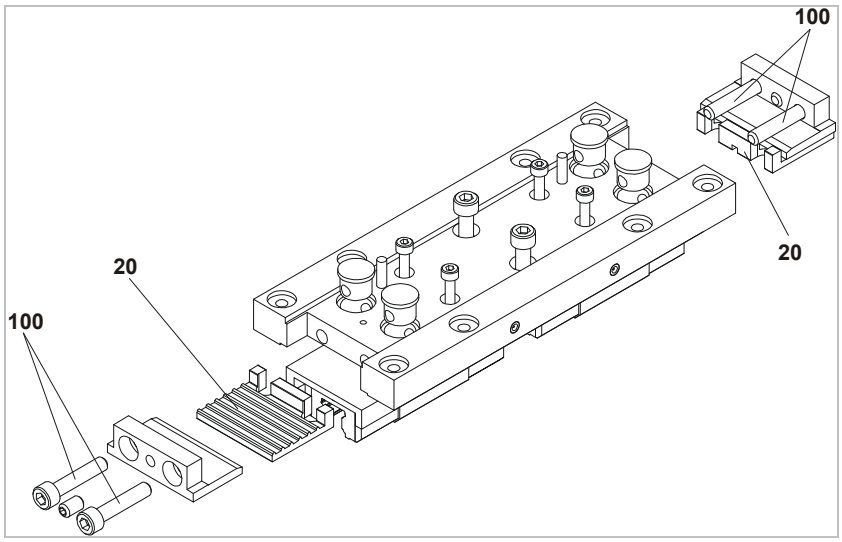


Figure 27: Tooth segment

(7) Install the covers again.

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

6.3 Reference side of the guide system

The guide rail is aligned on the reference side of the basic body (marked by the 90° groove). The reference side of the carriage plate, marked by two unilateral alignment pins, is on the same side as the reference side of the basic body (see *Figure 28*).

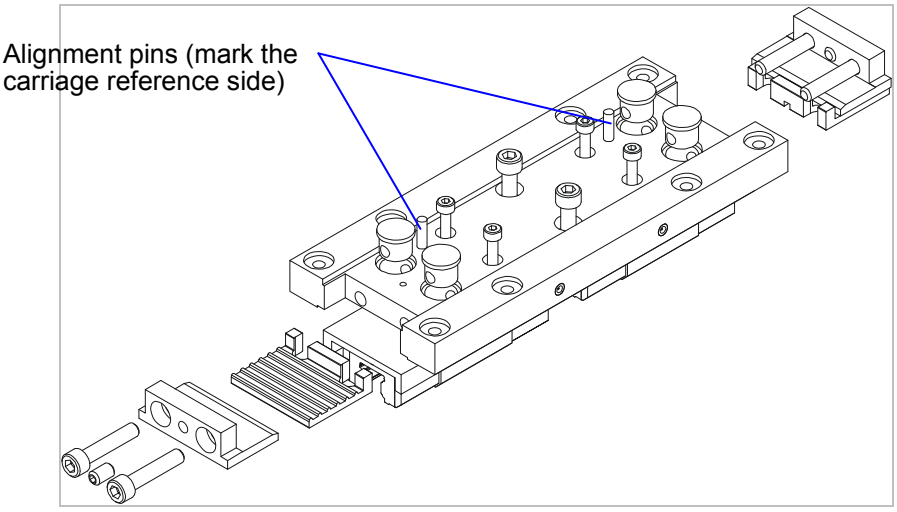


Figure 28: Reference side

The adapter plate is applied to the two guide carriages on the reference side. In the new condition, the guide carriages are harder to push. After a brief run-in time (1-2 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!

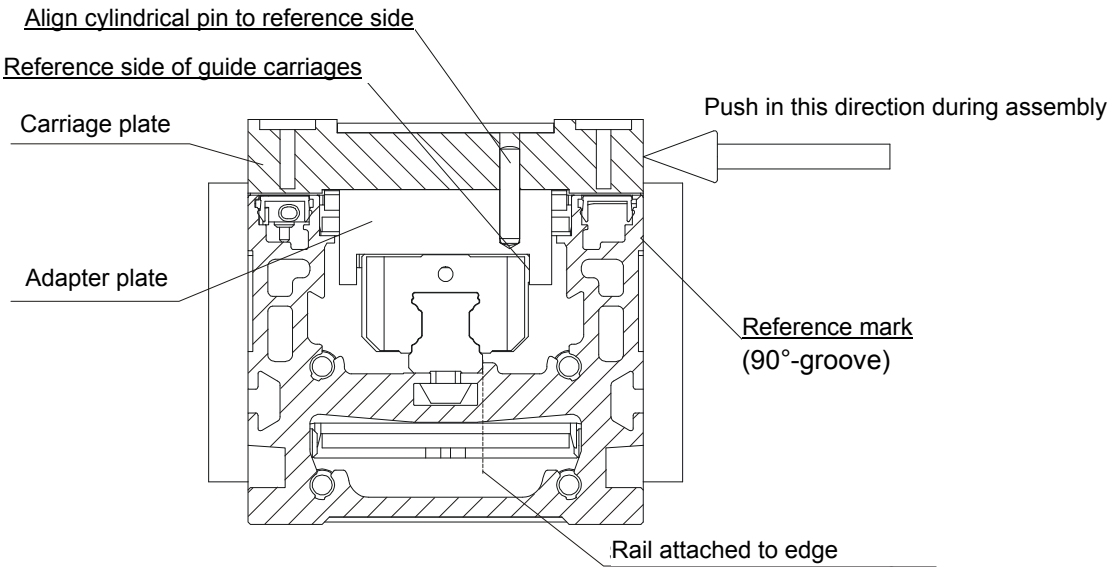


Figure 29: Installation of guide system

This page was kept empty on purpose!

7 Parts lists and drawings

7.1 Module 80/15

Subassembly No.: 1000398; see *Figure 30* and *Figure 31, page 31*.

Drawing item	Article no.	Part (1) / subassembly (0)	+	Designation
10	1000472	0		Basic body module 80/15
30	1000688	0		Ball rail guide type 15
50	1021376	1		Toothed belt 50ATL5
60	1028964	1		Cylindrical screw DIN 912-M4x16-12.9
70	1023994	1		Slot nut 2xM4
	731466	1		Slot nut 1xM4
80	1019279	1		Housing
90	626037	1		Cylindrical screw DIN 912 - M6x20-8.8
100	1034373	1		Cover
110	626124	1		Recessed-head screw ISO 10642-M4x10-8.8
120	1043375	1		Bearing cover
130	1019278	1		Bearing cover 2
140	1022293	1		Support disc DIN 988-35x45x2.5
150	028585	1		Limit switch holder
160	025165	1		Induction switch PNP normally closed contact
170	726744	1	+	Induction switch PNP normally open contact
180	030887	1		Special screw M4 x 7
183	025626	1		Retaining plate
185	725164	1		Angle coupling WKV 50/6
188	725163	1		Installation plug SFV 50/6
189	626038	1		Fillister head screw ISO 7360-M3x8-8.8
190	1044440	1		Plastic clip
200	1044440	1		Plastic clip
230/240	1018813	1	+	Drive unit 80/15/50
“	1059629	1	+	Drive unit 80/15/50/FLG
“	1050222	1	+	Drive unit 80/15/50/FLG/PA
“	1021425	1	+	Drive unit 80/15/50PA/MI
“	1038099	1	+	Drive unit 80/15/50/PA/MA
250	1042982	1		Deflection unit 80/15/50
260	1018827	1	+	Stopper
270	1050687	1	+	Carriage unit 80/15/195
	1050705	1	+	Carriage unit 80/15/300
300	1063250	1	+	Coupling (for parallel drive only)
310	1021466	1	+	Aluminium pipe (for parallel drive only)
	1000041	0	+	Motors
330	1000475	0	+	Belt gearbox
	1000476	0	+	Flange
	1019192	1	+	Clamp profile type 105
	1000562	0	+	Connection plate
	1024734	1	+	Recessed sleeve

+ use depending on design

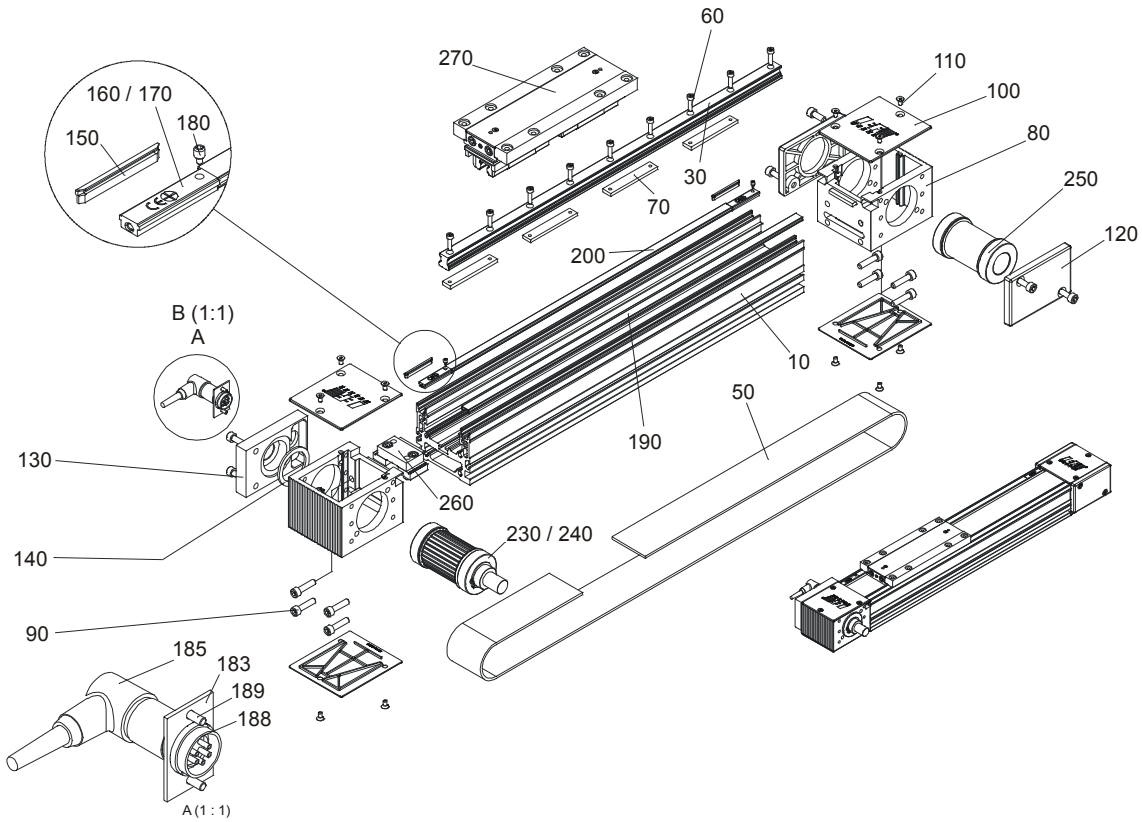


Figure 30: Module 80/15, exploded drawing, subassembly no.: 1000398

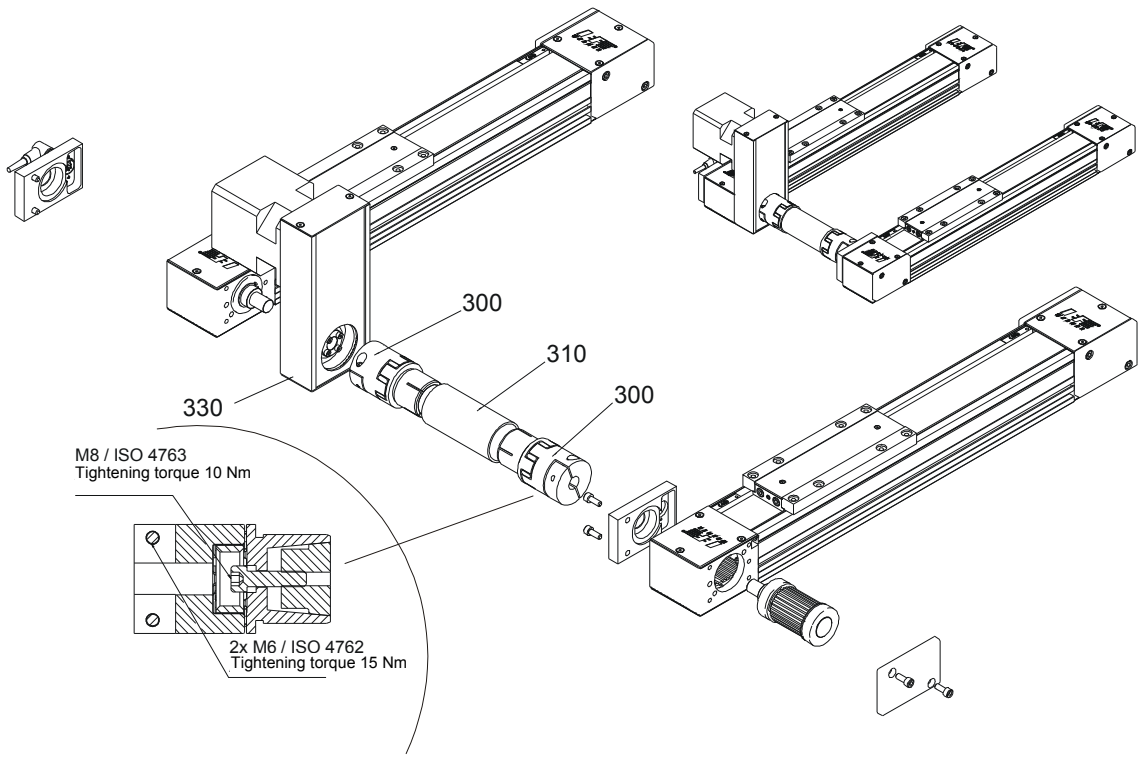


Figure 31: Module 80/15, parallel, exploded drawing, subassembly no.: 1000398

7.2 Carriage module 80/15/195 complete

Article no.: 1050687; see *Figure 32, bottom*.

Drawing item	Article no.	Part (1) / subassembly (0)	Designation
10	1029382	1	Guide carriage size 15
20	1018767	1	Tooth segment, complete
30	1023935	1	Pressure piece
40	1041818	1	Adapter plate
50	1041778	1	Carriage plate
60	1023944	1	Cover
70	626483	1	Cylindrical screw DIN 912-M4x10-8.8
80	626484	1	Cylindrical screw DIN 912-M4x25-8.8
90	626500	1	Cylindrical screw DIN 912-M6x18-8.8
100	626049	1	Cylindrical screw DIN 912-M6x35-8.8
110	626115	1	Recessed-head screw ISO 10642-M3x8-8.8
120	626190	1	Threaded pin DIN 913-M6x10-8.8
130	1023942	1	Threaded sleeve
140	626317	1	Cylindrical pin ISO 8734-4x20-A
150	1028704	1	T. lubrication nipple, DIN 3405, type D4
160	1031602	1	O-Ring, type: 1,80-1,80

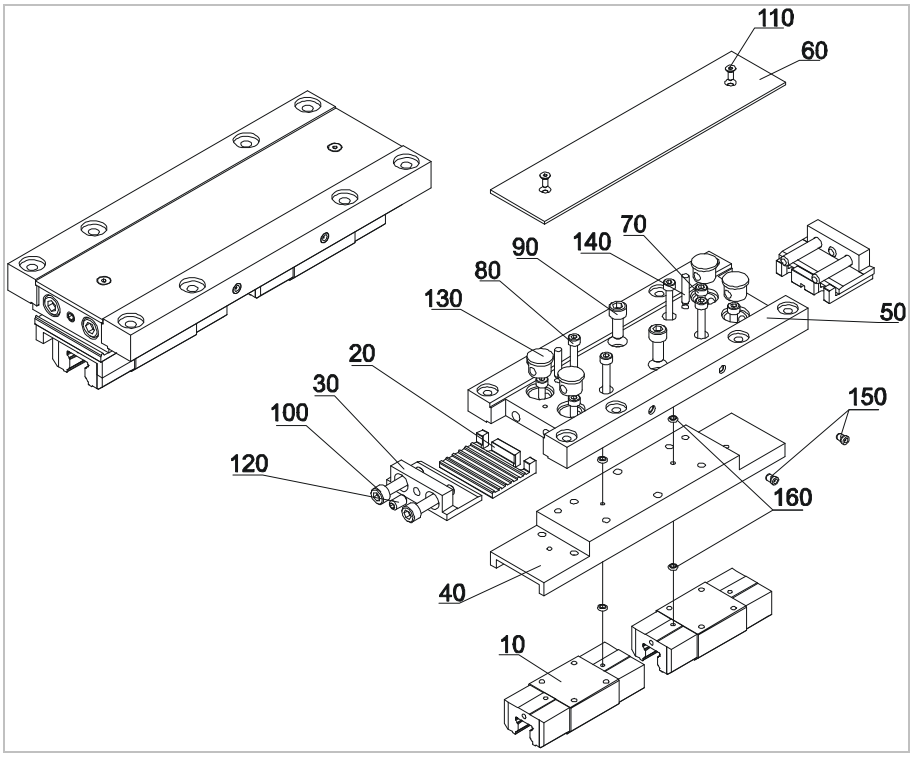


Figure 32: Module 80/15 carriage complete art. no.: 1050687

7.3 Long carriage module 80/15/300 complete

Article no.: 1050705; see *Figure 33, bottom*.

Drawing item	Article no.	Part (1) / subassembly (0)	Designation
10	1029382	1	Guide carriage size 15
20	1018767	1	Tooth segment, complete
30	1023935	1	Pressure piece
40	1042096	1	Adapter plate
50	1042091	1	Carriage plate
60	1018770	1	Cover
70	626483	1	Cylindrical screw DIN 912-M4x10-8.8
80	626484	1	Cylindrical screw DIN 912-M4x25-8.8
90	626500	1	Cylindrical screw DIN 912-M6x18-8.8
100	626049	1	Cylindrical screw DIN 912-M6x35-8.8
110	626115	1	Recessed-head screw ISO 10642-M3x8-8.8
120	626190	1	Threaded pin DIN 9123-M6x10-8.8
130	1023942	1	Threaded sleeve
140	626317	1	Cylindrical pin ISO 8734-4x20-A
150	1031602	1	O-Ring, type: 1,80-1,80
160	1028704	1	T. lubrication nipple, DIN 3405, type D4

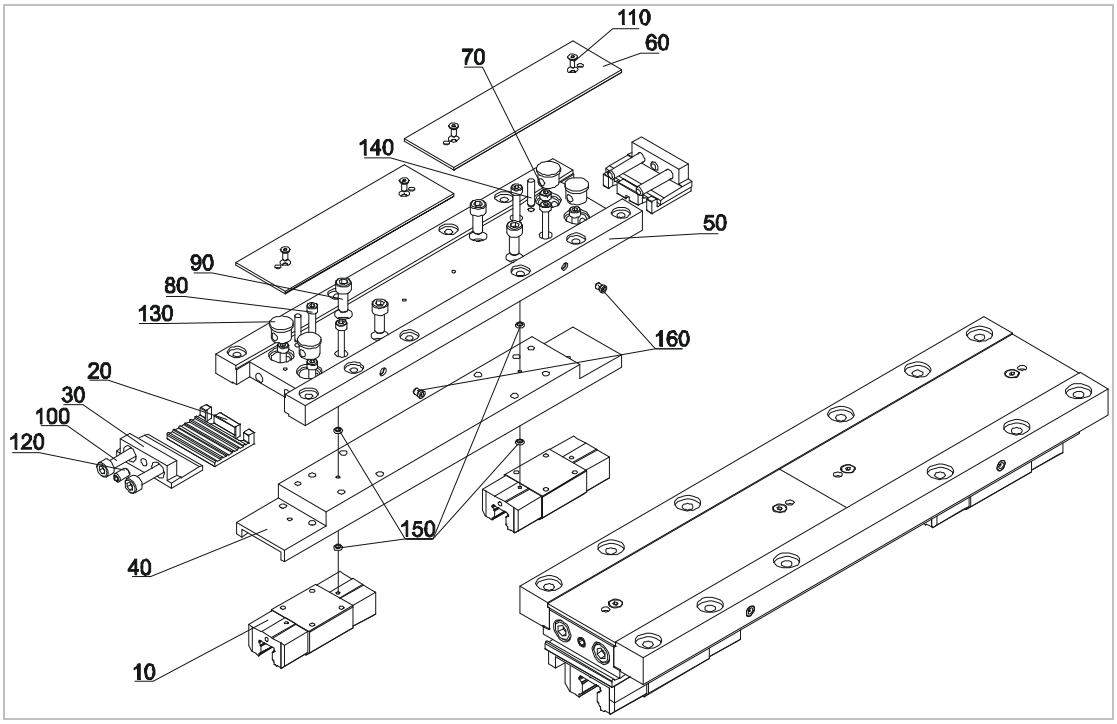


Figure 33: Module80/15 long carriage complete art. no.: 1050705

7.4 (Belt) Gearbox module 80/15

Subassembly No.: 1000475; see *Figure 34, page 35*.

Drawing item	Article no.	Part (1) / subassembly (0)	+	Designation
10	1021557	1	+	Housing
20	029690	1		Toothed disc AT5/42-0
30	1007376	1	+	Toothed disc AT5/42-2
40	028722	1	+	Toothed disc AT5/42-2
50	1006664	1	+	Toothed disc AT5/42-2
60	732770	1		Clamping set 16/32
70	732770	1	+	Clamping set 16/32
80	732294	1	+	Clamping set 20/38
90	734168	1	+	Clamping set 22/40
95	526735	1	+	Toothed disc AT5/20-2, incl. clamping set 12
98	525983	1	+	Toothed disc AT5/20-2, incl. clamping set 14
100	525984	1	+	Toothed disc AT5/20-2, incl. clamping set 16
110	1005790	1	+	Toothed disc AT5/14-2, incl. clamping set 10
120	1005756	1	+	Toothed disc AT5/14-2, incl. clamping set 12
130	1003999	1		Belt gearbox lid
140	028574	1		Motion link
150	626072	1		Fillister head screw ISO 7380-M4x8-8.8
160	1004001	1		Insertion cover
170	730353	1	+	Toothed belt 25AT5/390
180	732286	1	+	Toothed belt 25AT5/375
190	908243	1	+	Toothed belt 25AT5/450

+ use depending on design

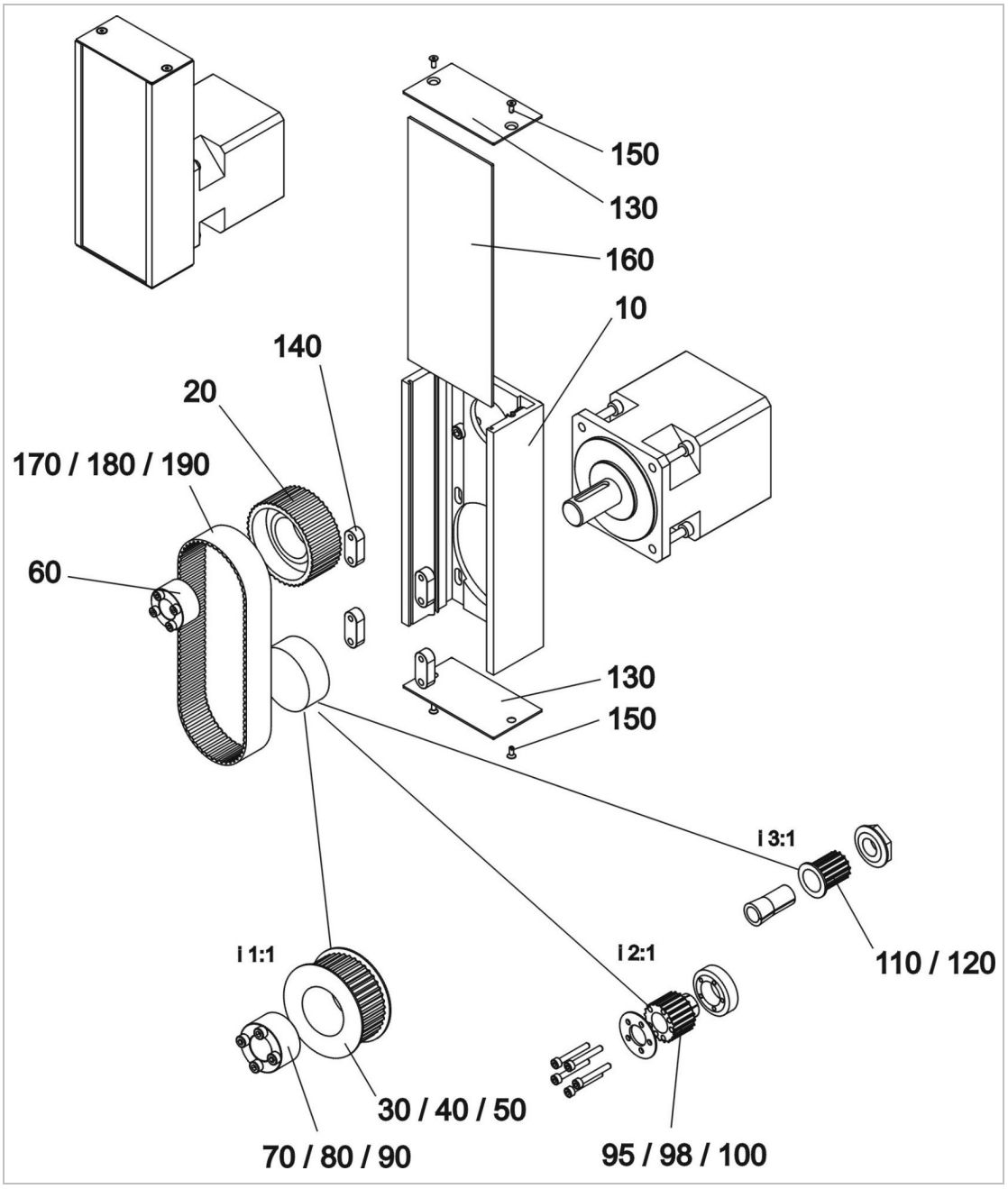


Figure 34: Belt gearbox module 80/15, subassembly no.: 1000475

7.5 Flange

Subassembly No.: 1000476; see *Figure 35, bottom*.

Drawing item	Article no.	Part (1) / subassembly (0)	+	Designation
10	1022105	1		Flange axial
20	1022129	1		Flange plate axial
30	734161	1		Plastic cover
40	626037	1		Cylindrical screw DIN 912 - M6x20-8.8
50	626244	1		Cylindrical screw DIN 912-M6x60-8.8
60	627215	1		Retention ring
70	1022199	1	+	Coupling Ø=16
75	1022203	1		Ring gear 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

+ use depending on design

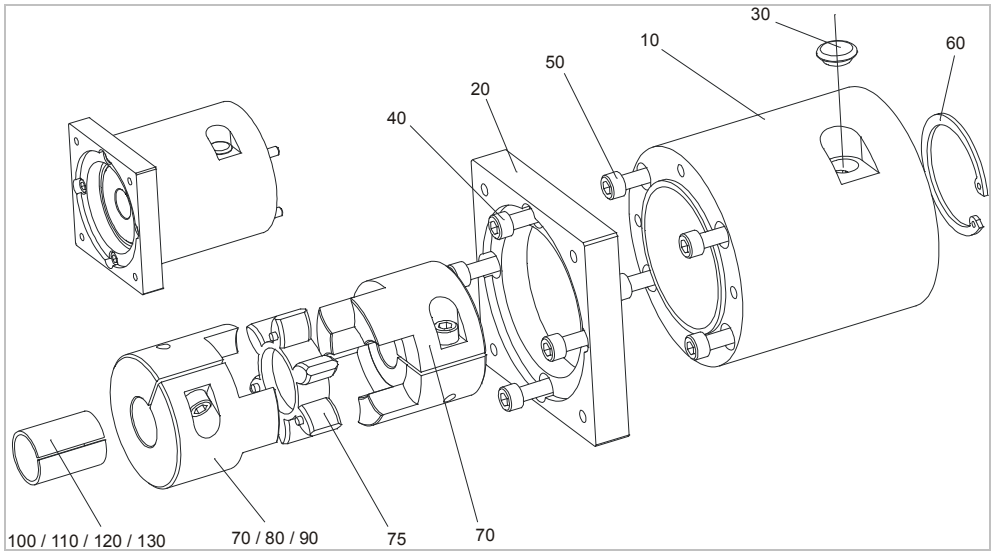


Figure 35: Flange module 80/15; i = 1:1, subassembly no.: 1000476

CAUTION

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

7.6 Design-specific assemblies/components

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

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

Designation	Part No.:
Drive unit 80/15/50/FLG	1059629
Drive unit 80/15/50/FLG/PA	1050222

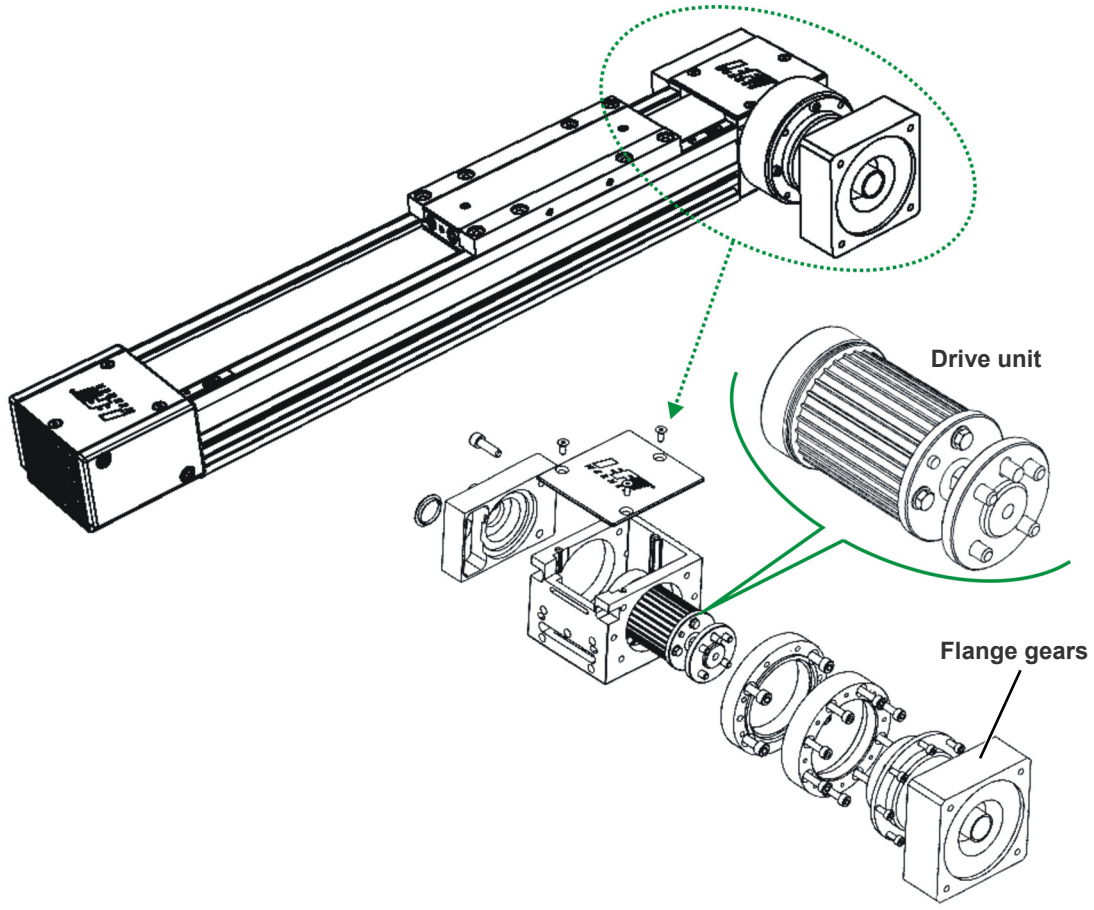
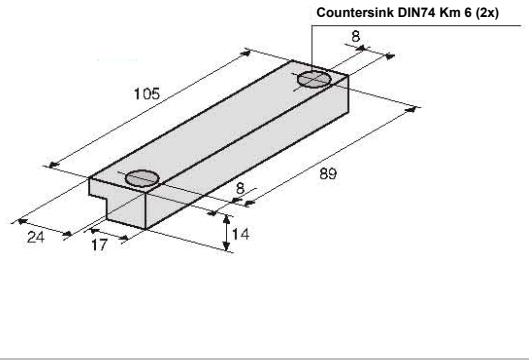
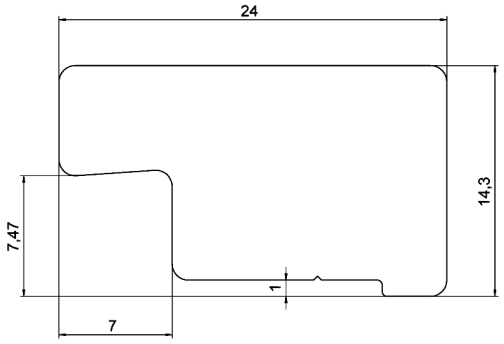


Figure 36: Installation flange gear (example with drive unit 1059629)

7.6.2 Overview clamping elements



Clamping element, example type 105



Scaled drawing 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

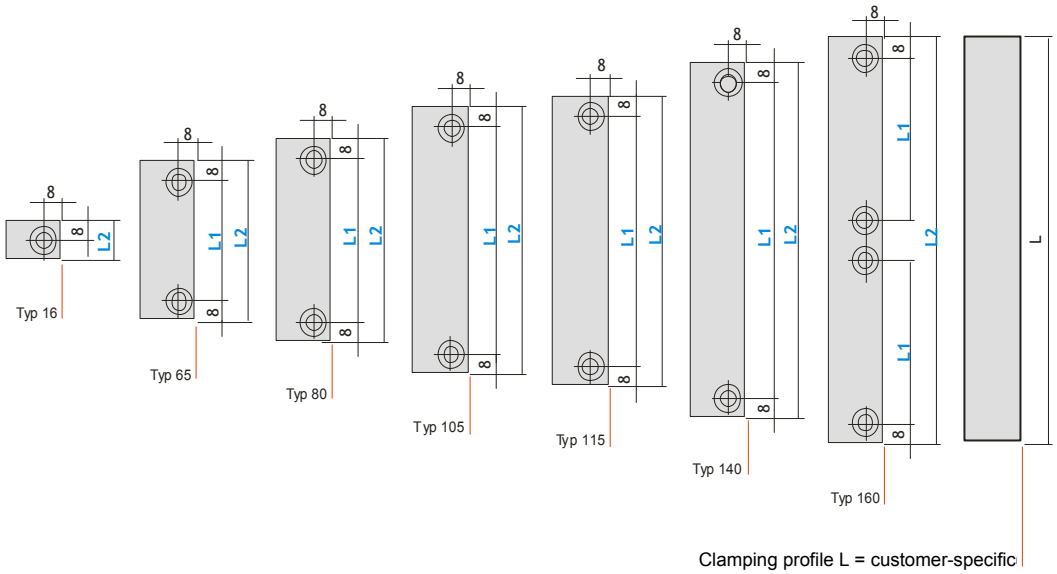


Figure 37: Overview clamping elements

8 Declaration of incorporation

EC declaration of incorporation in the sense of the EC directive 2006/42/EC (machinery), Annex II B

The manufacturer:

IEF Werner GmbH

Wendelhofstraße 6

78120 Furtwangen - Germany

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

Designation	IEF Werner parts group number
Module 80/15	TG1000398

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/EC** of the council, dated 12 December 2006, for harmonisation of the legislation of the member states regarding electrical equipment for use within specified voltage thresholds.

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 applied harmonised 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 the documentation officer: Frank Reichelt, technical editor

Address of the documentation officer: see manufacturer's address

Furtwangen, 07.02.10

Manfred Bär (manager)