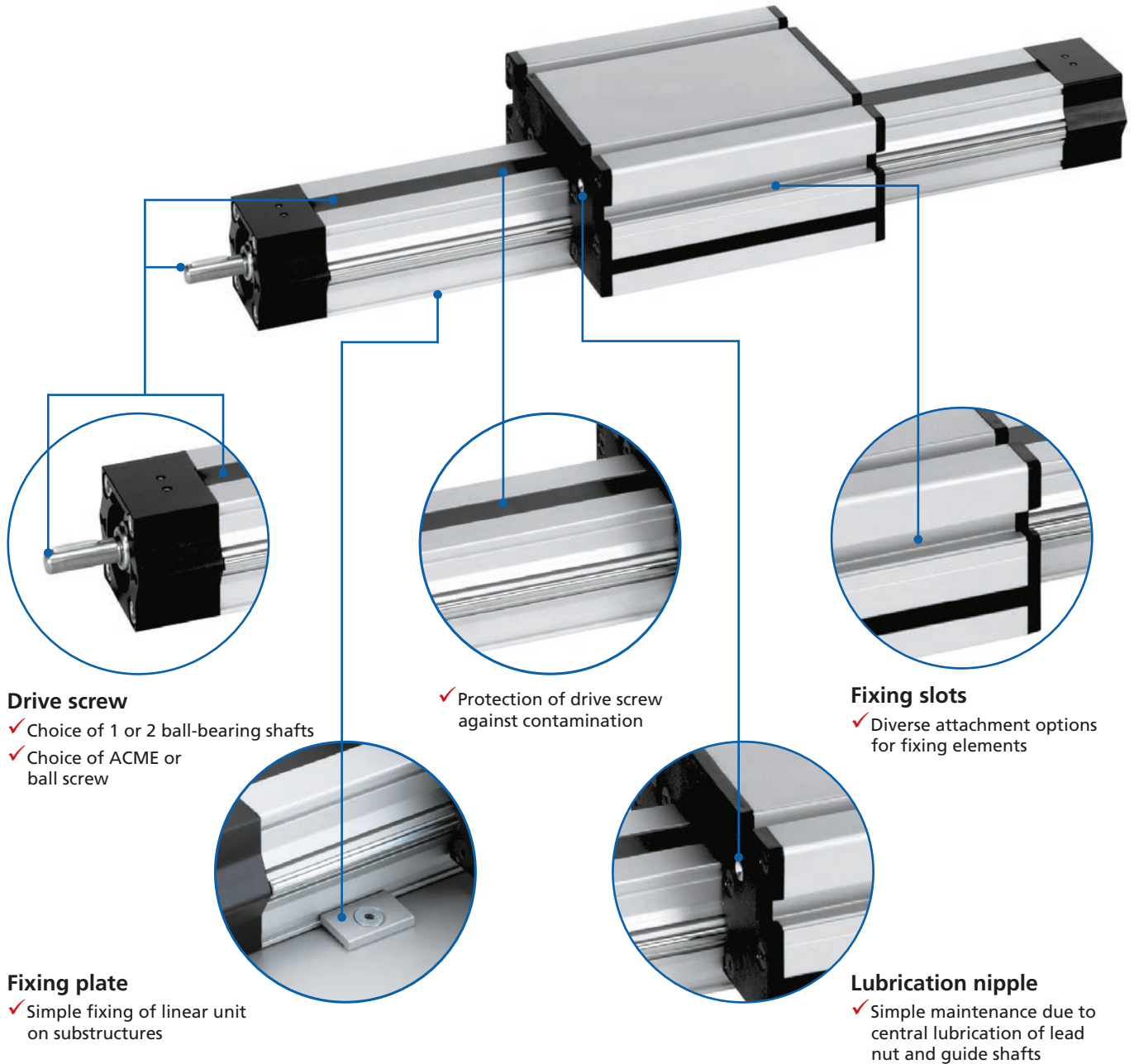


Profile guide/actuator - PL/PLS II

Motor-driven or manual adjustment of medium to heavy loads – easy for the PLS profile linear unit



Drive screw

- ✓ Choice of 1 or 2 ball-bearing shafts
- ✓ Choice of ACME or ball screw

- ✓ Protection of drive screw against contamination

Fixing slots

- ✓ Diverse attachment options for fixing elements

Fixing plate

- ✓ Simple fixing of linear unit on substructures

Lubrication nipple

- ✓ Simple maintenance due to central lubrication of lead nut and guide shafts

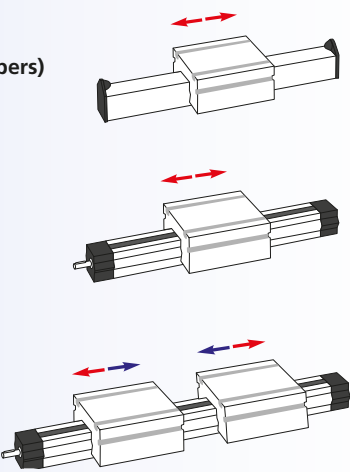
Features:

- Choice of ACME screw or ball screw drive
- Cover strip protects screw against contamination
- Adjustable roller guide
- External lubrication

Options:

- Longer stroke lengths
- Second free-running carriage
- Extended carriage

PL/PLS II - Table of contents

Properties/Technical data		<ul style="list-style-type: none"> ■ General information/operating conditions ... 236 ■ Load data..... 237
<p>Versions (Dimensions, order numbers)</p> 		<ul style="list-style-type: none"> ■ Guide 238 - 239 ■ Right or lefthand thread 240 - 241 ■ Right and lefthand thread 242 - 243
Accessories	Fixing	<ul style="list-style-type: none"> ■ Fixing plate..... 244 ■ Fixing element..... 244 ■ Slot stone -N-..... 245
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	Position determination	<ul style="list-style-type: none"> ■ Positioning indicator..... 250 ■ Limit switch 251 - 252

General information/operating conditions

Design	Profile linear unit with extruded carriage/guide profile
Guide	Adjustable roller guide
Installation position	Any position
Lead accuracy	± 0.1 mm/300 mm travel
Self-locking	Yes, for threaded screw, no, for ball screw drive
Duty cycle	ACME: S3 30% Basic 1h / Ball screw: S3 100%
Ambient temperature	0°C to +60°C

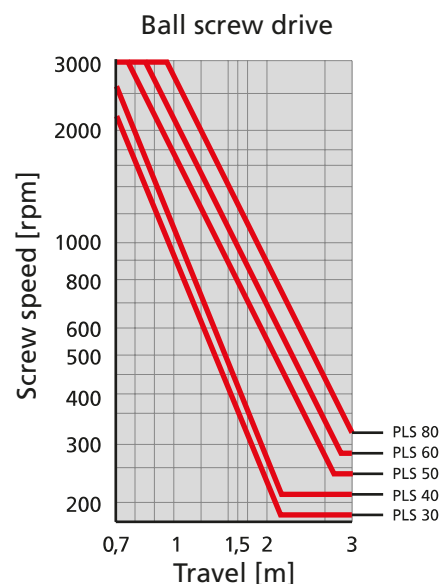
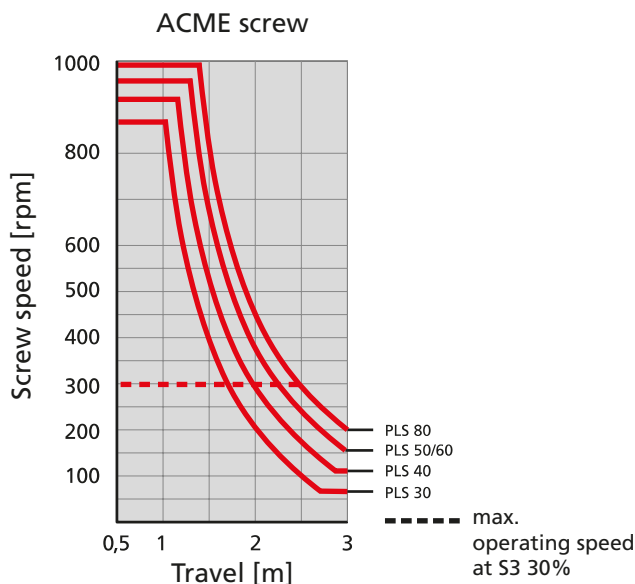
Screw lead

ACME screw		[mm]
Type	Screw lead	
PLS 30	3	
PLS 40	4	
PLS 50	4	
PLS 60	4	
PLS 80	5	

Ball screw drive		[mm]
Type	Screw lead	
PLS 30	3	
PLS 40	4	
PLS 50	5	
PLS 60	5	
PLS 80	5	
PLS 80	10	

$$\text{Required screw speed } n \text{ [rpm]} = \frac{\text{speed [m/min]} \times 1000}{\text{screw lead [mm]}}$$

Critical screw speed



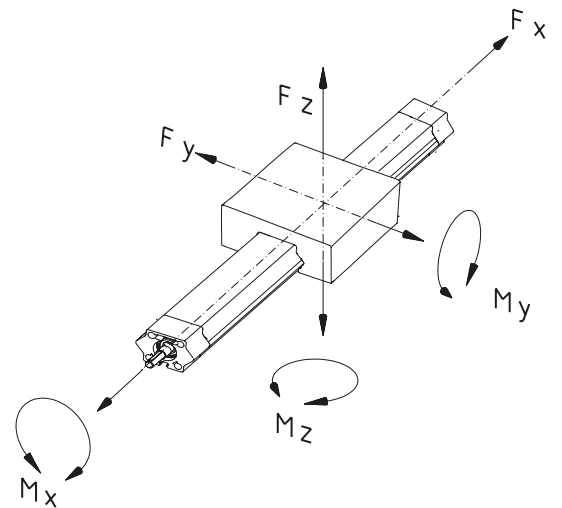
No-load torque

Type	ACME screw	Ball screw drive	[Nm]
PLS 30	0.10	0.10	
PLS 40	0.20	0.15	
PLS 50	0.25	0.20	
PLS 60	0.30	0.25	
PLS 80	0.40	0.35	

Load data*

- F Force [N]
- M Moment [Nm]
- I Geometric moment of inertia [cm⁴]

* With reference to carriage (static values, guide element resting on full surface)

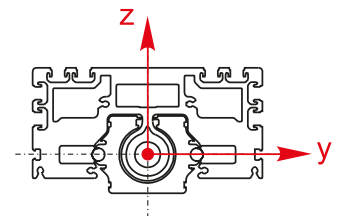


Type	F _x	F _y	F _z	M _x	M _y	M _z
PLS 30	340	790	790	14	20	22
PLS 40	1675	1020	1020	23	33	33
PLS 50	1900	1020	1020	28	49	49
PLS 60	2400	2550	2550	99	143	143
PLS 80	3050	2550	2550	124	168	169

Geometric moment of inertia

 [cm⁴]

Type	I _y	I _z
PLS 30	4.30	6.36
PLS 40	14.36	19.85
PLS 50	35.45	44.27
PLS 60	77.28	111.53
PLS 80	201.86	280.73



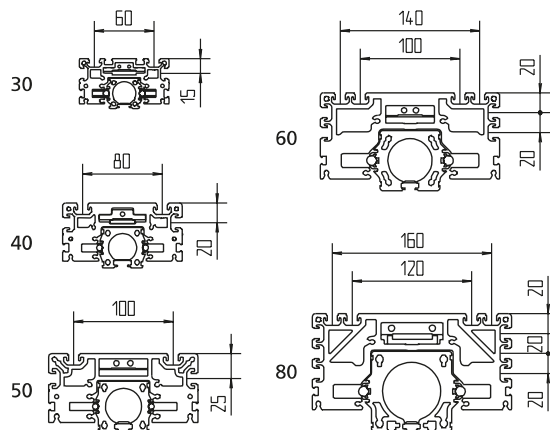
PL - Versions

Order information:

- Longer travel lengths on request
- Second or extended carriage available on request

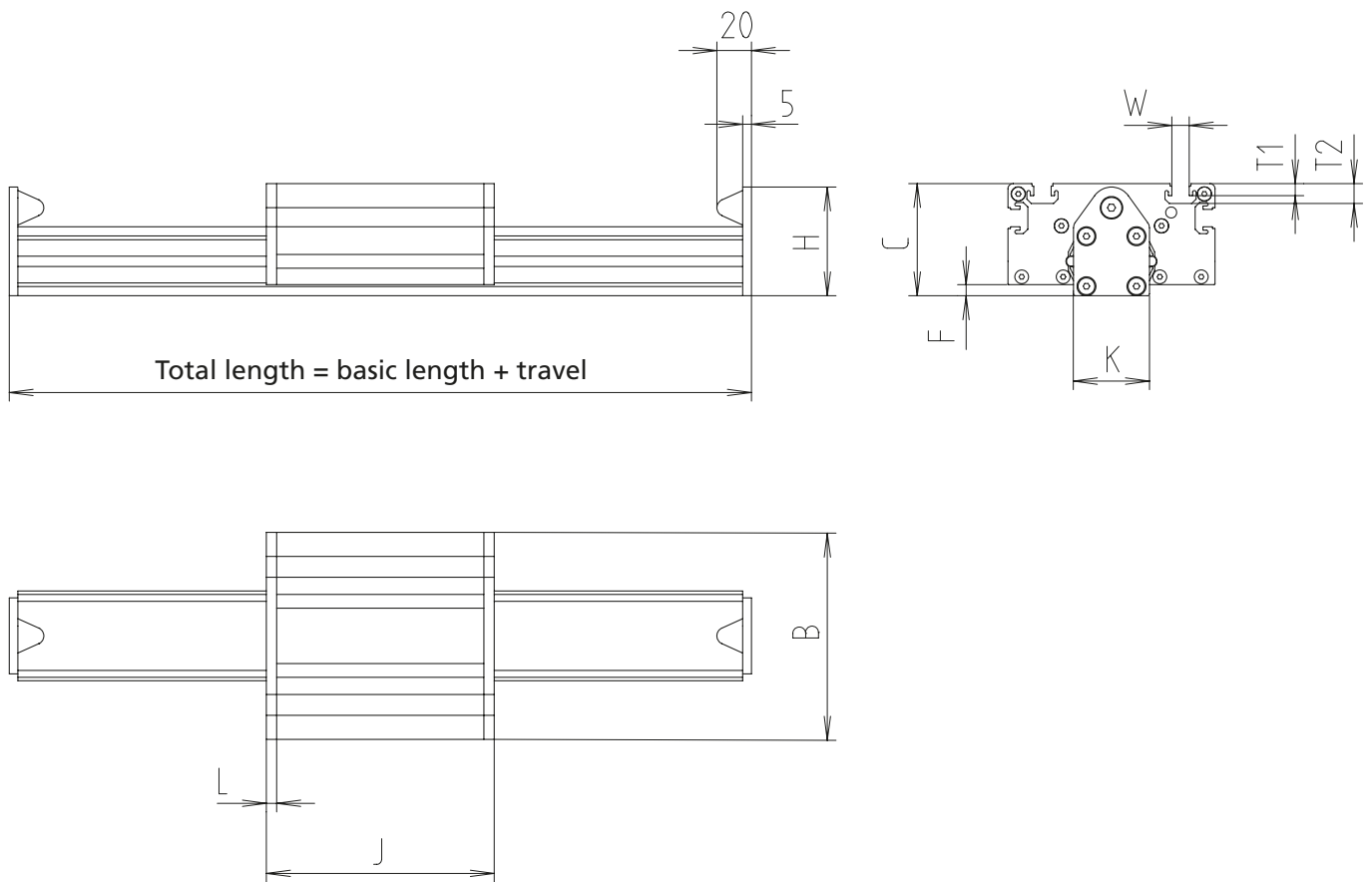
Version

■ Guide



Code No.	Type	Basic length	B	C	F	H	J	K
MMA3030AA	PL-II 30	142	90	50	4.5	50	102	34
MMA4040AA	PL-II 40	172	120	65	6.5	63	132	44
MMA5050AA	PL-II 50	202	150	78	9.0	74	162	54
MMA6060AA	PL-II 60	232	180	98	11.5	84	192	72
MMA8080AA	PL-II 80	252	200	118	21.5	104	212	92

----- Total length = basic length + travel [mm]



[mm]

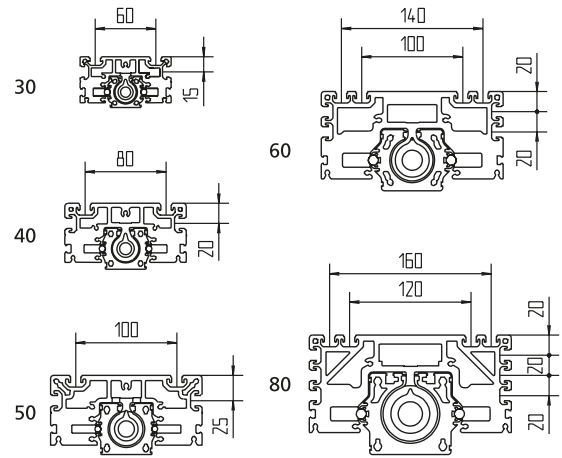
L	T1	T2	W	Max. travel	Mass [kg]	
					Basic length	per 100 mm travel
6	8.5	4.5	10.1	5860	1.0	0.16
6	11.5	7	10.1	5830	1.9	0.28
6	11.5	7	10.1	5800	3.5	0.41
6	11.5	7	10.1	5770	5.9	0.60
6	11.5	7	10.1	5750	7.9	0.90

PLS - Versions

Order information:

- Longer travel lengths on request
- Second free-running carriage available on request
- Extended carriage available on request

Version ■ Right or lefthand thread

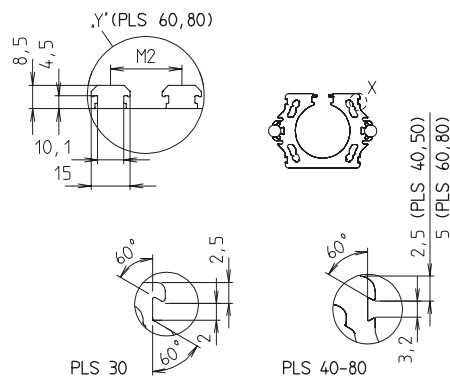
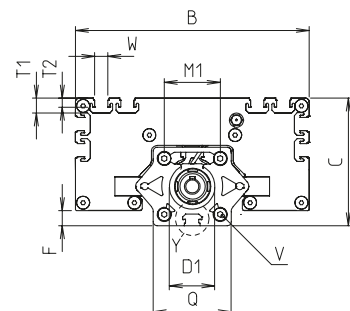
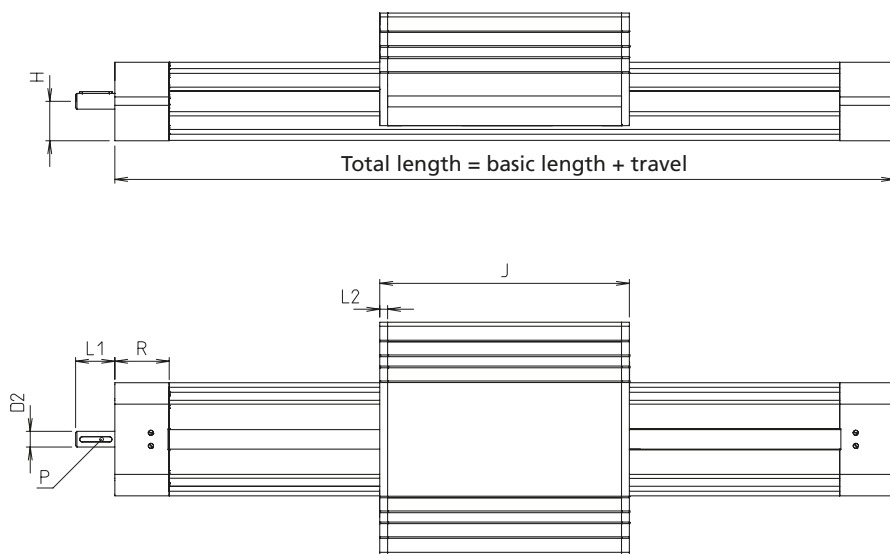


Code No.	Type	Spindle	Basic length	B	C	D1	D2	F	G	H	J
PLS with ACME screw											
FX_3030_A	PLS 30	12 x 3	162	90	50	22 ^{J6}	6	4.5	M5	15	102
FX_4040_A	PLS 40	16 x 4	204	120	65	30 ^{J6}	8	6.5	M5	20	132
FX_5050_A	PLS 50	20 x 4	238	150	78	35 ^{J6}	10	9	M5	25	162
FX_6060_A	PLS 60	20 x 4	276	180	98	35 ^{J6}	12	11.5	M5	30	192
FX_8080_A	PLS 80	24 x 5	308	200	118	50 ^{H7}	14	21.5	M5	40	212
PLS with ball screw drive											
FY A 3030_A	PLS 30	10 x 3	162	90	50	22 ^{J6}	6	4.5	M5	15	102
FY A 4040_A	PLS 40	12 x 4	204	120	65	30 ^{J6}	8	6.5	M5	20	132
FY A 5050_A	PLS 50	16 x 5	238	150	78	35 ^{J6}	10	9	M5	25	162
FY A 6060_A	PLS 60	20 x 5	276	180	98	35 ^{J6}	12	11.5	M5	30	192
FY A 8080_H	PLS 80	25 x 5	308	200	118	50 ^{H7}	14	21.5	M5	40	212
FY A 8080_A	PLS 80	25 x 10	308	200	118	50 ^{H7}	14	21.5	M5	40	212

----- Total length = basic length + travel [mm]

Drive shafts:
T = 1 drive shaft
U = 2 drive shafts

Version:
A = righthand thread
H = lefthand thread



[mm]

L1	L2	M1	M2	P	Q	R	T1	T2	V	W	Max. travel	Mass [kg]	
												Basic length	per 100 mm travel
25	6	21	-	2 x 2 x 20	30	30	8.5	4.5	M4	10.1	830	1.12	0.27
28	6	29	-	2 x 2 x 20	40	36	11.5	7	M5	10.1	3000	2.20	0.44
30	6	38	-	3 x 3 x 20	50	37	11.5	7	M6	10.1	3000	4.51	0.64
30	6	43	0	4 x 4 x 25	60	42	11.5	7	M6	10.1	2964	6.34	0.95
38	6	64	20	5 x 5 x 32	80	48	11.5	7	M6	10.1	2916	9.91	1.25
25	6	21	-	2 x 2 x 20	30	30	8.5	4.5	M4	10.1	830	1.09	0.26
28	6	29	-	2 x 2 x 20	40	36	11.5	7	M5	10.1	1840	2.12	0.40
30	6	38	-	3 x 3 x 20	50	37	11.5	7	M6	10.1	1702	4.50	0.60
30	6	43	0	4 x 4 x 25	60	42	11.5	7	M6	10.1	2664	6.18	0.90
38	6	64	20	5 x 5 x 32	80	48	11.5	7	M6	10.1	2664	9.59	1.19
38	6	64	20	5 x 5 x 32	80	48	11.5	7	M8	10.1	2664	9.59	1.19

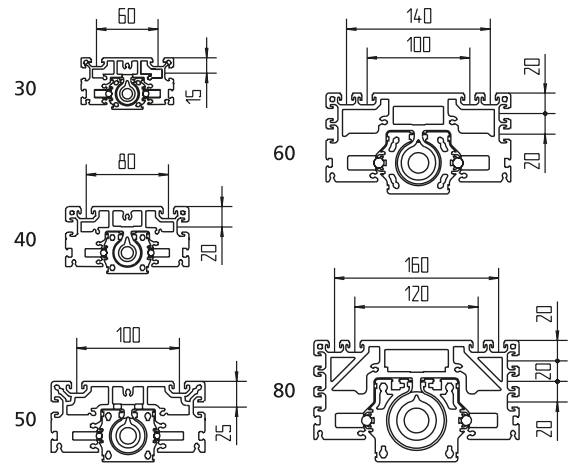
PLS - Versions

Order information:

- Please specify total travel when placing an order
- Longer travel lengths on request
- Extended carriage available on request

Version

■ Right and lefthand thread

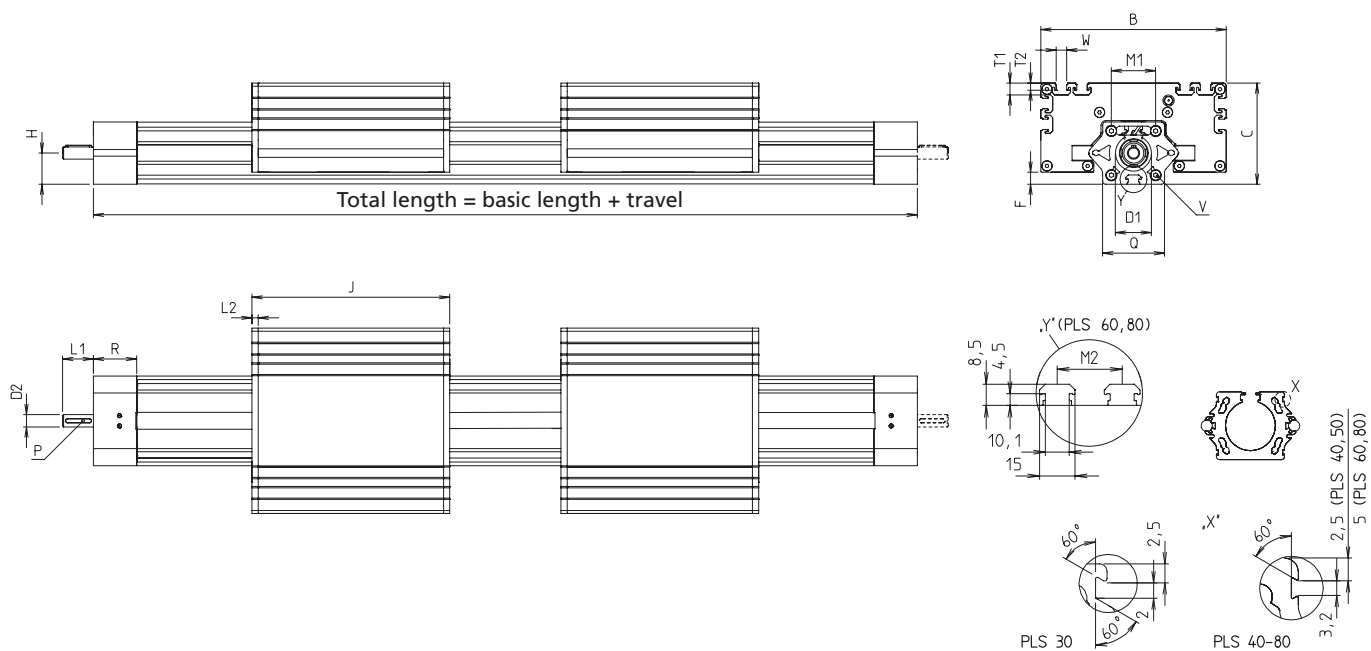


Code No.	Type	Spindle	Basic length	B	C	D1	D2	F	G	H	J
PLS with ACME screw											
FXC 3030 _ A	PLS 30	12 x 3	264	90	50	22J6	6	4.5	M5	15	102
FXC 4040 _ A	PLS 40	16 x 4	336	120	65	30J6	8	6.5	M5	20	132
FXC 5050 _ A	PLS 50	20 x 4	400	150	78	35J6	10	9	M5	25	162
FXC 6060 _ A	PLS 60	20 x 4	468	180	98	35J6	12	11.5	M5	30	192
FXC 8080 _ A	PLS 80	24 x 5	520	200	118	50H7	14	21.5	M5	40	212

--- Total length = basic length + travel [mm]

Version:

- S = 1 drive shaft at lefthand thread end
- T = 1 drive shaft at righthand thread end
- U = 2 drive shafts



[mm]

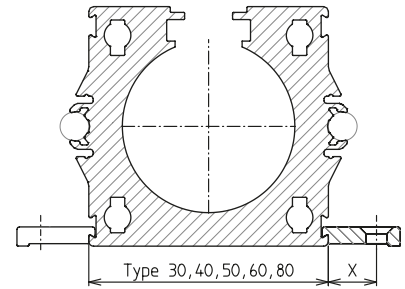
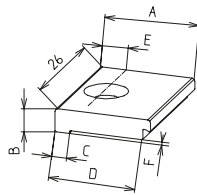
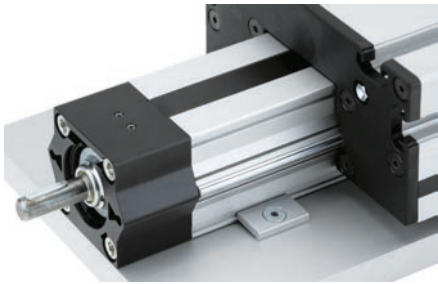
L1	L2	M1	M2	P	Q	R	T1	T2	V	W	Max. travel	Mass [kg]	
												Basic length	per 100 mm travel
25	6	21	–	2 x 2 x 20	30	30	8.5	4.5	M4	10.1	728	1.95	0.27
28	6	29	–	2 x 2 x 20	40	36	11.5	7	M5	10.1	2868	4.08	0.44
30	6	38	–	3 x 3 x 20	50	37	11.5	7	M6	10.1	2838	7.75	0.64
30	6	43	0	4 x 4 x 25	60	42	11.5	7	M6	10.1	2772	10.99	0.95
38	6	64	20	5 x 5 x 32	80	48	11.5	7	M6	10.1	2704	16.66	1.25

PLS – Fixing/Drive

Fixing plate

- Plate for fixing the linear unit to a substructure
- The fixing plates can also be retrofitted and moved axially

Scope of delivery: Pack of 10 without screws



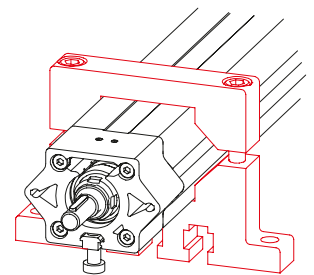
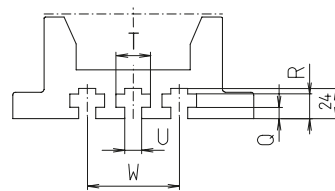
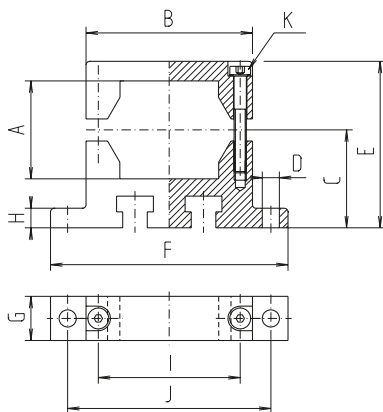
Code No.	Type	Version	A	B	C	D	E	F	X
95510	PL/PLS 30, 40, 50	Counterbore for M5 screw, DIN 79911	16.3	4	2.5	15	7	0.5	8
95511	PL/PLS 60, 80	Counterbore for M6 screw, DIN 7984	23.8	7.5	3.5	22.5	12.5	1	10

[mm]

Fixing element

- Element for clamping the PLS to the guide profile or end element

Material: AlMgSi, clear, anodised
Steel parts galvanised



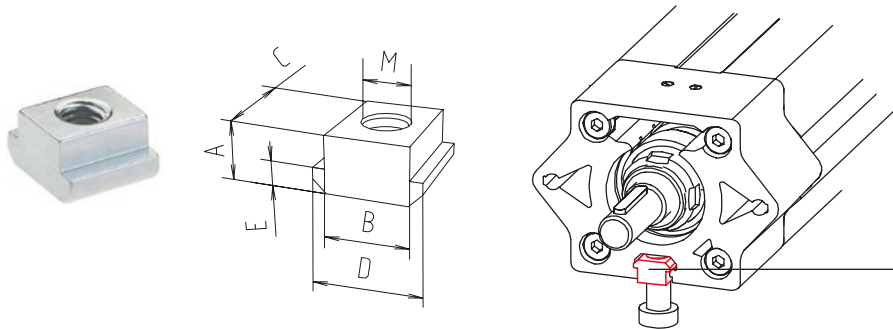
Code No.	Type	A	B	C	D	E	F	G	H	I	J	K	Q	R	T	U	W
95503	PLS 30	30	56	30	7	51	84	16	6	47	70	M5 x 30	4.5	9	10	6	20
95504	PLS 40	40	68	40	7	68	97	18	8	58	83	M5 x 40	6.5	13	15	10	28
95505	PLS 50	50	85	50	7	85	125	20	10	69	105	M6 x 45	7	14	20	10	30
95506	PLS 60	60	126	69.7	11	115.4	170	24	16	106	148	M10 x 60	8	20	19	12	65
95508	PLS 80	80	126	80	11	136	170	24	16	113	148	M6 x 70	8	20	19	12	65

[mm]

Slot stone -N-

- Slot stone for lateral insertion in the carriage
- For further slot stone versions, please refer to the catalogue BLOCAN® profile systems

Material: Steel, galvanised



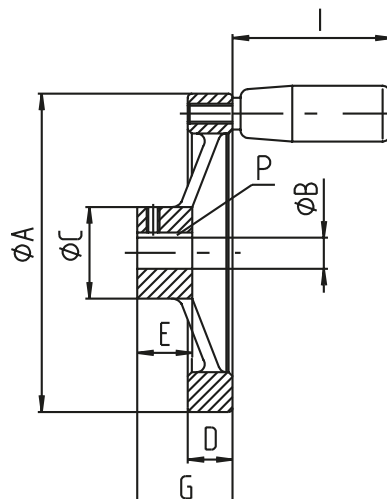
* **Note:** Please use flat slot stones 30 for fixing in the end elements (only available for sizes 60 and 80).

Code No.	Type	Version	A	B	C	D	E	M	F [N]
4006201	PLS 30	M5	5	10	13	13	3	M5	4000
4006203	PLS 30	M6	5	10	13	13	3	M6	4000
4006202	PLS 30	M8	5	10	13	13	3	M8	4000
4026207	PLS 40-80*	M5	8	10	13	15	4	M5	4000
4026203	PLS 40-80*	M6	8	10	13	15	4	M6	9000
4026206	PLS 40-80*	M8	8	10	13	15	4	M8	9000

Handwheel

- Rotating cylindrical grip
- Fully turned wheel rim
- Hub machined

Material: Die-cast aluminium black powder-coating



Code No.	Type	A	B	C	D	E	G	P	I
90901	30	60	6	18	13	16	22	2 x 2	28
90903	40	80	8	23	11	17	35	2 x 2	42
90904	50	100	10	28	14	17	30	3 x 3	52
90905	60	140	12	36	16.5	19	36	4 x 4	66
90918	80	160	14	36	18	20	36	5 x 5	80
90928	80	200	14	43	20	24	44	5 x 5	80

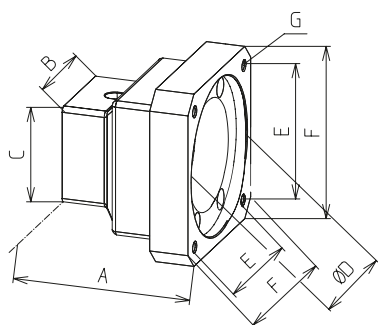
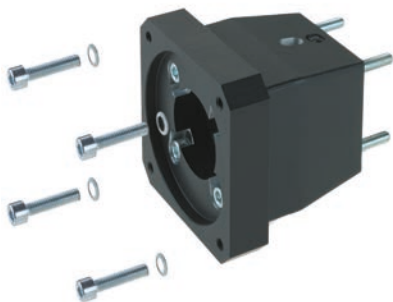
Selection table Motor adaptor/coupling

Type	Servo motors without gear			Three-phase motor	
	RK-AC 118	RK-AC 240	RK-AC 470	90/120W	180/250 W
PLS 30	949207	–	–	94981	–
	911430 0611	–	–	910920 0612	–
PLS 40	949208	949227	–	949100	949101
	911430 0811	911430 0814	–	911430 0812	911430 0814
PLS 50	949209	949228	–	949605	94935
	911430 1011	911430 1014	–	911430 1012	911430 1014
PLS 60	949210	949229	949241	949107	949108
	911430 1112	911940 1214	911940 1219	911430 1212	911430 1214
PLS 80	949404	949230	949242	94958	94940
	911430 1114	911940 1414	911940 1419	911940 1214	911940 1414

Note:

For further details on motor versions, please refer to the chapter "Motors and controls"

Motor adaptor



- Simple assembly on linear unit and motor
- Exact fit due to centering shoulders

Material: Aluminium, black anodised

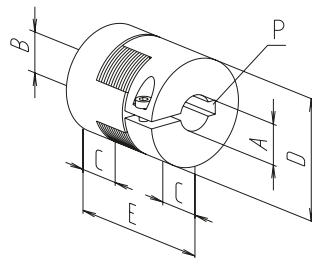
[mm]

Code No.	Type	A	B	C	D	E	F	G
949207	30	63	40	40	60	53	70	M5
94981	30	65	40	40	50	46	80	M5
949208	40	65	50	50	60	53	70	M5
949227	40	73	50	50	80	70,7	90	M6
949100	40	73	50	50	50	46	80	M5
949101	40	73	50	50	80	100	Ø120	Ø6,6
949209	50	66	52	52	60	53	70	M5
949228	50	73	52	52	80	70,7	90	M6
949605	50	73	52	52	50	65	80	M5
94935	50	73	52	52	80	100	Ø120	Ø6,6
949210	60	66	60	60	60	53	70	M5
949229	60	81	60	60	80	70,7	90	M6
949241	60	91	60	60	95	81,3	115	M8
949107	60	75	60	60	50	65	80	M5
949108	60	75	60	60	80	100	Ø120	Ø6,6
949404	80	74	80	80	60	53	70	M5
949230	80	86	80	80	80	70,7	90	M6
949242	80	96	80	80	95	81,3	115	M8
94958	80	86	80	80	50	46	80	M5
94940	80	86	80	80	80	100	Ø120	Ø6,6

Coupling

- Small size
- Shaft connection without backlash
- Maintenance-free
- Easy plug-in assembly

Material: Aluminium



[mm]

Code No.	ØA	ØB	C	ØD	E	P	Torque [Nm]	
							with feather key	without feather key
9109200695	6	9,5	10	20	30	2x2 / -	5	3
9109200612	6	12	10	22	30	2x2 / 3x3	5	3
9114300611	6	11	11	30	35	2x2 / 4x4	12	6
9114300895	8	9,5	11	30	35	2x2 / -	12	6
9114300811	8	11	11	30	35	2x2 / 4x4	12	6
9114300812	8	12	11	30	35	2x2 / 4x4	12	6
9114300814	8	14	11	30	35	2x2 / 5x5	12	6
9114309510	9,5	10	11	30	35	- / 3x3	12	6
9114309512	9,5	12	11	30	35	- / 4x4	12	6
9114301011	10	11	11	30	35	3x3 / 4x4	12	6
9114301012	10	12	11	30	35	3x3 / 4x4	12	6
9114301014	10	14	11	30	35	3x3 / 5x5	12	6
9114301112	11	12	11	30	35	4x4 / 4x4	12	6
9114301114	11	14	11	30	35	4x4 / 5x5	12	6
9114301212	12	12	11	30	35	4x4 / 4x4	12	6
9114301214	12	14	11	30	35	4x4 / 5x5	12	6
9119409514	9,5	14	25	40	65	- / 5x5	17	10
9119401214	12	14	25	40	65	4x4 / 5x5	17	10
9119401219	12	19	25	40	65	4x4 / 6x6	17	10
9119401414	14	14	25	40	65	5x5 / 5x5	17	10
9119401419	14	19	25	40	65	5x5 / 6x6	17	10

PLS – Drive

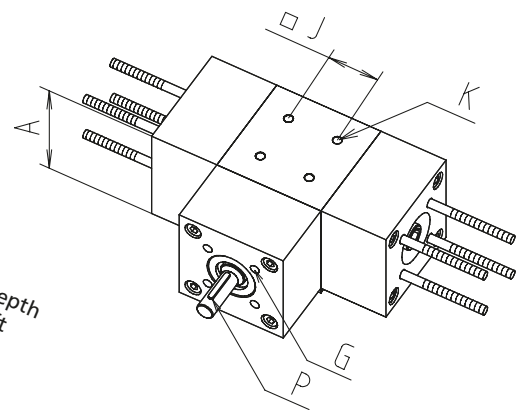
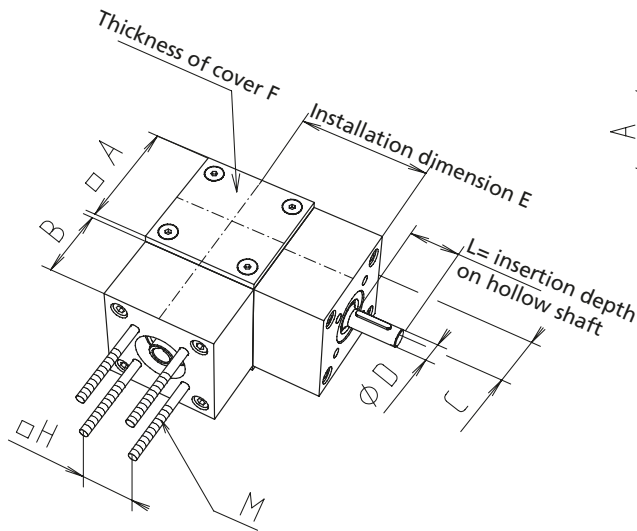
Order information:

- The fitting dimensions of the angular drives and the end elements of the linear units may not be the same.
- Accessories for connection to the angular drives available on request.

Angular drive

- Choice of helical or straight bevel gears
- Available with solid or hollow shaft
- Good fastening options due to thread in combination cube
- Drive and output shaft with roller bearing
- Long lifetime* due to oil lubrication
- Max. speed** 2500 rpm
- Operating temperature from -18°C to +80°C

Material: Housing AlMgSi, black anodised



[mm]



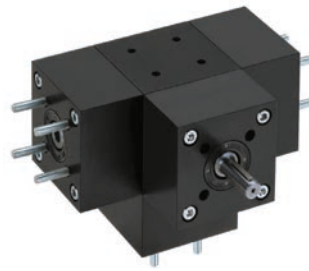
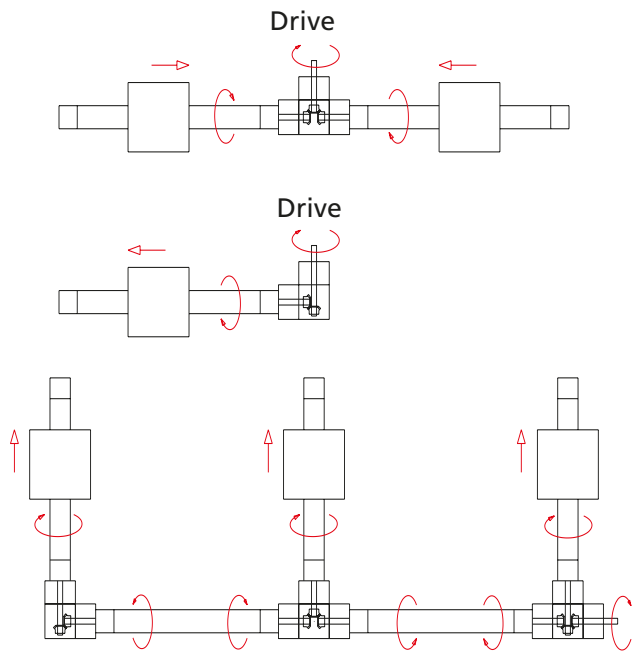
Dimensions \ PLS	30	40	50	60	80
A	50	64	74	84	108
B	36	40	40	50	67
C	25	32	37	42	54
D	8	10	12	14	16
e	61	72	77	92	121
F	4	4	4	5	6
G	M4-10 deep	M5-12 deep	M6-15 deep	M6-15 deep	M8 x 16 deep
H	21	29	38	43	64
J	20	30	30	40	50
K	M5-5.5 deep	M5-7.5 deep	M6-10 deep	M6-10 deep	M8-12 deep
L	25	28	30	30	38
M	M4 x 80 DIN 912	M5-85 DIN 912	M6 x 80 DIN 912	M6 x 110 DIN 912	M8 x 130 DIN 912
P	2 x 2 x 20	3 x 3 x 20	4 x 4 x 20	5 x 5 x 25	5 x 5 x 32
Max. starting torque	3.6 Nm	6.4 nm	10 Nm	15.4 Nm	25.4 Nm
Max. input torque**	1 Nm	3 Nm	4.5 Nm	6.5 Nm	11 Nm

* Service life ~10,000 h at 1,000 rpm

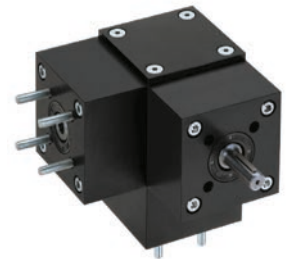
** In the case of gearing up
i=1:1.5 max. input speed 1600 rpm



Application examples:



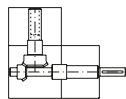
Version K



Version E

Version K and E and other shaft configurations available on request

Version L



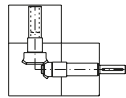
Code No.

9158 _ 2300 _

Version

Solid shaft, long/hollow shaft, short input/output direction of rotation are identical

Version L



9158 _ 1300 _

Solid shaft, short/hollow shaft, short input/output direction of rotation are not identical

Version L



9158 _ 3300 _

Hollow shaft, short/hollow shaft, short input/output direction of rotation are not identical

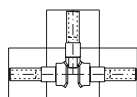
Version L



9158 _ 3400 _

Hollow shaft, long/hollow shaft, short input/output direction of rotation are identical

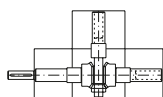
Version T



9158 _ 3330 _

Hollow shaft, short/hollow shaft, short input/output direction of rotation are not identical

Version T



9158 _ 1340

Solid shaft, short/hollow shaft, short & long input/output direction of rotation are identical

Size

- 3 = 30
- 4 = 40
- 5 = 50
- 6 = 60
- 8 = 80

Bevel gear set

- A = straight toothed, $i = 1:1.5$
- B = spiral toothed, $i = 1:1$
- C = straight toothed, $i = 1:1$
- D = straight toothed, $i = 1:1.5$
- E = straight toothed, $i = 1:1.5$

PLS – Position determination

Positioning indicator

- Permitted ambient temperature +80°C
- Figure height 6 mm
- Reading accuracy ± 0.1 mm

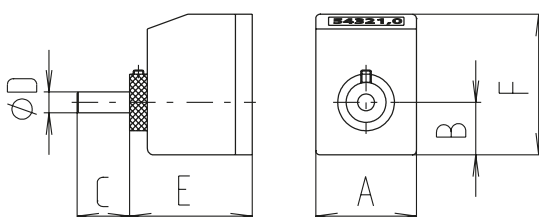
Material: Housing made of polyamide 6
Orange RAL 2004
Steel parts galvanised

Scope of delivery: Positioning indicator, clamping ring, shaft extension and fastenings

Note: "rising" and "falling" versions refer to the clockwise rotation of the drive shaft.



Installation position:
horizontal



Installation position:
vertical

[mm]

Type	Installation position	Code No.	Version	Code No.	Version*	A	B	C	D	E	F
30	Horizontal	91090	3 mm rising	910151	6 mm rising	48	25	25	6	59	67
30		91093	3 mm falling	910152	6 mm falling	48	25	25	6	59	67
30	Vertical	910110	3 mm rising	910153	6 mm rising	48	25	25	6	59	67
30		910111	3 mm falling	910154	6 mm falling	48	25	25	6	59	67
40	Horizontal	91094	4 mm rising	910155	8 mm rising	48	25	28	8	59	67
40		91095	4 mm falling	910156	8 mm falling	48	25	28	8	59	67
40	Vertical	910112	4 mm rising	910157	8 mm rising	48	25	28	8	59	67
40		910113	4 mm falling	910158	8 mm falling	48	25	28	8	59	67
50	Horizontal	91096	4 mm rising	910159	8 mm rising	48	25	30	10	59	67
50		91097	4 mm falling	910160	8 mm falling	48	25	30	10	59	67
50	Vertical	910114	4 mm rising	910161	8 mm rising	48	25	30	10	59	67
50		910115	4 mm falling	910162	8 mm falling	48	25	30	10	59	67
60	Horizontal	91098	4 mm rising	910163	8 mm rising	48	30	38	12	59	73
60		91099	4 mm falling	910164	8 mm falling	48	30	38	12	59	73
60	Vertical	910116	4 mm rising	910165	8 mm rising	48	30	38	12	59	73
60		910117	4 mm falling	910166	8 mm falling	48	30	38	12	59	73
80	Horizontal	91008	5 mm rising	91082	10 mm rising	48	25	38	14	59	81
80		91018	5 mm falling	91083	10 mm falling	48	25	38	14	59	81
80	Vertical	91028	5 mm rising	91084	10 mm rising	48	25	38	14	59	81
80		91038	5 mm falling	91085	10 mm falling	48	25	38	14	59	81

* Versions with double pitch, e.g. for mounting on righthand/left-hand screws

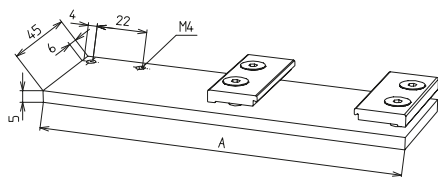
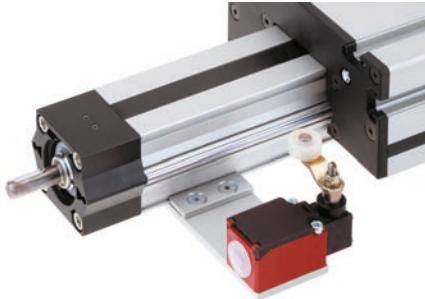


PLS - Position determination

Holder for mechanical limit switch

- Clamping with fixing plates to guide profile
- Simple axial displacement and adjustment of holder is possible

Material: AlMgSi, clear, anodised
Galvanised fastenings

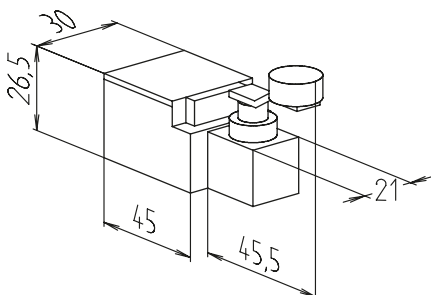


Code No.	Type	Version	A [mm]
92784	PLS (PLZ) 30	Holder with fastenings without limit switch	110
92785	PLS (PLZ) 40		130
92786	PLS (PLZ) 50		150
92787	PLS (PLZ) 60		177
92788	PLS (PLZ) 80		197

Mechanical limit switch

- Limit switch with angle lever
- Compact design

Material: Thermoplastic, fully insulated



Max. voltage	250 V AC
Max. switching current	6 A
Max. starting current	16 A
Operating cycles	Max. 6,000/h
Mechanical lifetime	1 x 10 ⁷ switching cycles
Axis lever adjustment	Engages at I 360°
Protection class	IP 65
Ambient temperature	-30°C to +80°C

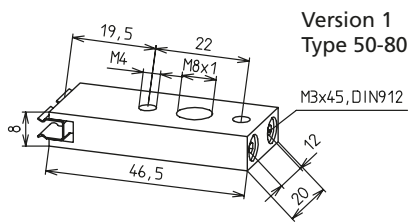
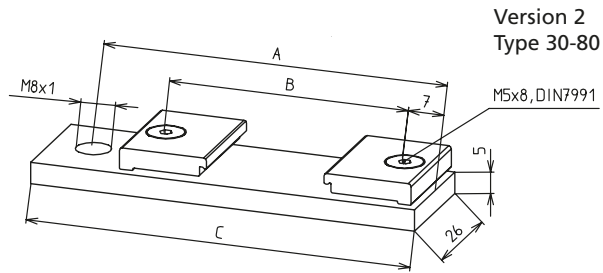
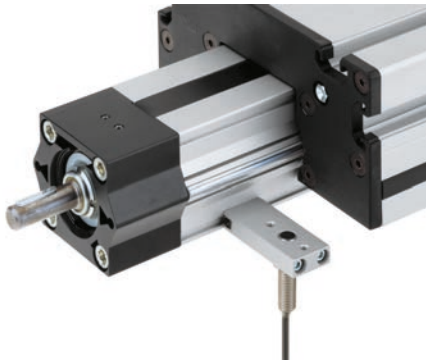
Code No.	Type	Switching function
91905	PLS 30-80	NC/NO

PLS – Position determination

Holder for inductive limit switch

- Clamping on guide profile
- Simple axial displacement and adjustment of holder is possible
- Holder with fastenings without limit switch

Material: AlMgSi, clear, anodised
Galvanised fastenings



[mm]

Code No.	Type	Version	A	B	C
92990	PLS 30	2	64.5	46	74
92991	PLS 40	2	80	56	90
92992	PLS 50	2	96	66	106
92993	PLS 60	2	80	80	123.5
92994	PLS 80	2	133.5	100	143.5
92986	PLS 50-80	1	–	–	–

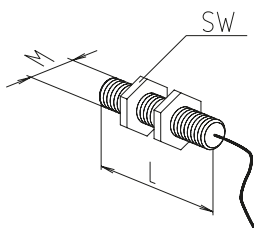
Inductive limit switch

- Function indicator (LED)
- Maintenance-free

Material: Housing: stainless steel



Type	30-80
Voltage	10 - 30 V DC
Max. switching current	150 mA
Operating distance	2 mm for steel
Protection class	IP 67
Ambient temperature	-25°C to +70°C
Cable lengths	2m



[mm]

Code No.	Type	Switching function	L	M	Wrench size (SW)
92826	PLS 30-80	Changeover	40	8x1	13

