

ELECTRIC SLIDE SERIES ELEKTRO CS

Compact electric slide, equipped with a guideway and a ball-recirculating pad capable of withstanding high radial loads on the piston rod.

Available in the 55 mm stroke, the slide in the ELEKTRO CS series features the same technical choices as those made in the ELEKTRO SSC series in terms of extreme compactness and pure design, including the wear-resistant aluminium body.

Driven by a hardened steel screw and recirculating ball screw nut, the stainless-steel piston rod is coupled, via a rigid aluminium structure, to a recirculating pad that runs along a guide rail integral with the main body. The coupling system prevents the piston rod from rotating.

A magnet is integral with the piston rod to ensure an end-stop signal, while two longitudinal slots are provided on the body to accommodate Square-type sensors.

For easy re-greasing of the screw and nut, the cylinder body comes with a special hole that is normally closed with a tight-fitting plug.

A wide range of standard pneumatic cylinder accessories as well as dedicated accessories can be used to fix the slide.

The ELEKTRO CS series slide is available in either a standard profile version or a V-Lock interface version.

The electric motor can be either connected in-line with the slide or by means of a transmission system; in the latter case, three different configurations are available.

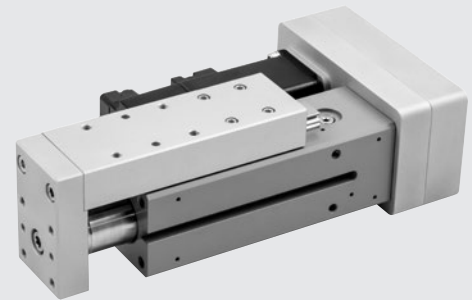
The motor can be selected from an optimised range comprising both STEPPING and BRUSHLESS motors.

Drives most suitable for motor control are also provided. When using motors of a make or model other than those offered in the catalogue, special flanges and couplings can be made and supplied on request.

in-line version



geared version



TECHNICAL DATA

Ø 32

Environmental temperature range for STEPPING motors	°C	from -10 to +50
BRUSHLESS motors	°C	from 0 to +40
Electrical protection rating with STEPPING motors		IP55 or IP65 (see key to codes on page A5.168)
BRUSHLESS motors		IP65 (see key to codes on page A5.168)
Maximum relative humidity of the air for IP55 STEPPING motor		90% with 40°C; 57% with 50°C (no condensate)
IP65 BRUSHLESS motor		90% (no condensate)
Standard strokes (including 5 mm extra-stroke) for homing	mm	55
Positioning repeatability	mm	±0.02
Positioning accuracy	mm	±0.2 *
Versions		Ball screw In line or geared motor
Anti-rotation of the piston rod		YES
Uncontrolled impact at the end of stroke		NOT ALLOWED (for rear buffer ONLY)
Sensor magnet		YES
Work position		Any
Interface for fixing on carriage		Standard / V-Lock

* Indicative average data that gets influenced by various factors such as the type of motor, the cylinder version, etc ...

MECHANICAL FEATURES

Screw pitch (p)	mm	4	10
Screw diameter	mm	12	12
Static axial load (F ₀) *	N	3000	3000
Dynamic axial load (F) **	N	5200	3160
Maximum number of revs	1/min	3000	3000
Maximum speed (V _{max})	mm/s	200	500
"K" ratio of motor revs and piston rod speed	n/V	15	6
Maximum acceleration without load	m/s ²		5
Maximum driving torque applicable to the screw	Nm		2.5

Example: V = 100 mm/s; pitch = 10 → K = 6 n = V · K = 100 · 6 = 600 rpm

* Static loads bearable without damage.

** Calculate mean axial load and the calculate life (see graphs on page A5.160).

N.B.: For the verification of the linear guide system, please refer to page A5.159. For the verification of the screw, see bottom of page.

WEIGHTS

Screw pitch (p)	mm	4	10
Weight at stroke 0, in-line version	g	1188	1198
Weight at stroke 0, geared version	g	1498	1508
Additional weight each mm of stroke	g	7.6	7.6
Moving mass at stroke 0 (M0)	g	546	553
Additional moving mass each mm of stroke (MX)	g	2.5	2.5

N.B.: You get the total weight of a complete slide by adding: weight stroke 0 + stroke [mm] · weight for each mm of stroke + weight of the motor.

MASS MOMENTS OF INERTIA

Screw pitch	mm	4	10
Transmission ratio (τ)		1:1	1:1
J0 at stroke 0	kgmm ²	7.821	7.934
J1 each metre of stroke	kgmm ² /m	12.76	13.76
J2 each kg of load	kgmm ² /kg	0.4053	2.5330
J3 in-line transmission	kgmm ²	2.879	2.879
J3 geared transmission	kgmm ²	3.237	3.237

The total mass moment of inertia (J_{tot}) reduced for the motor is: J_{tot} = {J1 · stroke [m] + J2 · [(MX · stroke) + M0 + load] + J0} · τ² + J3
MX and M0 are defined in the WEIGHTS table.

CALCULATION OF MEAN AXIAL LOAD F_m AND VERIFICATION

Peak axial load in a work cycle must not exceed the static axial load F₀.

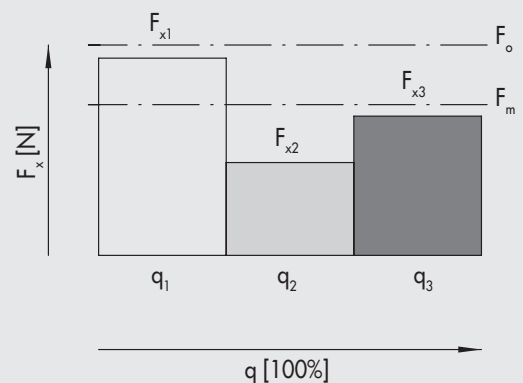
The peak value is usually achieved during upward acceleration in vertical installation. Exceeding this value leads to greater wear and hence shorter life of the recirculating ball screw.

Mean axial load F_m

$$F_m = \sqrt[3]{\sum F_x^3 \times \frac{V_x}{V_m} \times \frac{q}{100}} =$$

$$F_m = \sqrt[3]{F_{x1}^3 \times \frac{V_{x1}}{V_m} \times \frac{q_1}{100} + F_{x2}^3 \times \frac{V_{x2}}{V_m} \times \frac{q_2}{100} + F_{x3}^3 \times \frac{V_{x3}}{V_m} \times \frac{q_3}{100} + \dots}$$

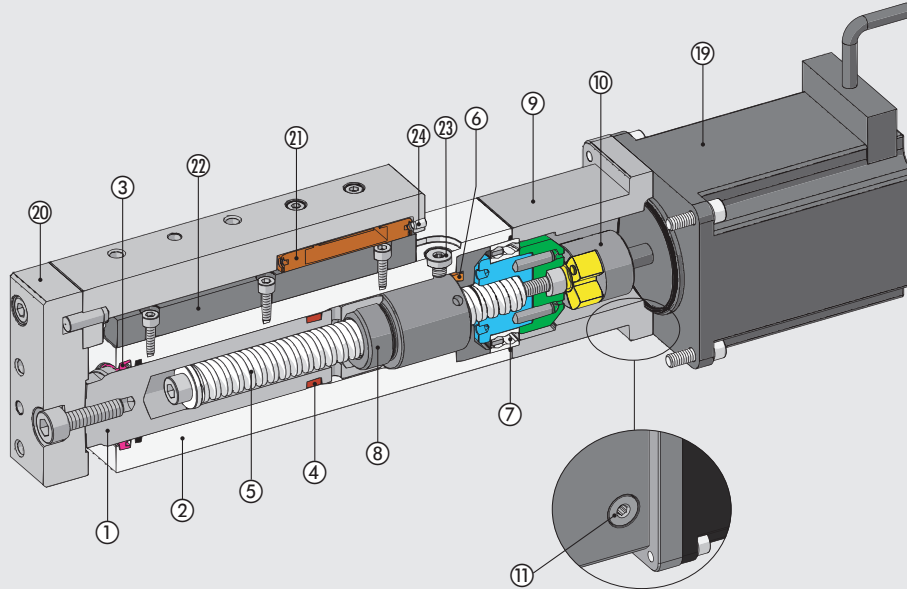
- F_x = Axial load at stage x
- F_m = Mean axial load during extension
- F₀ = Static axial load
- q = Time segment
- V_x = Speed in the phase x
- V_m = Average speed



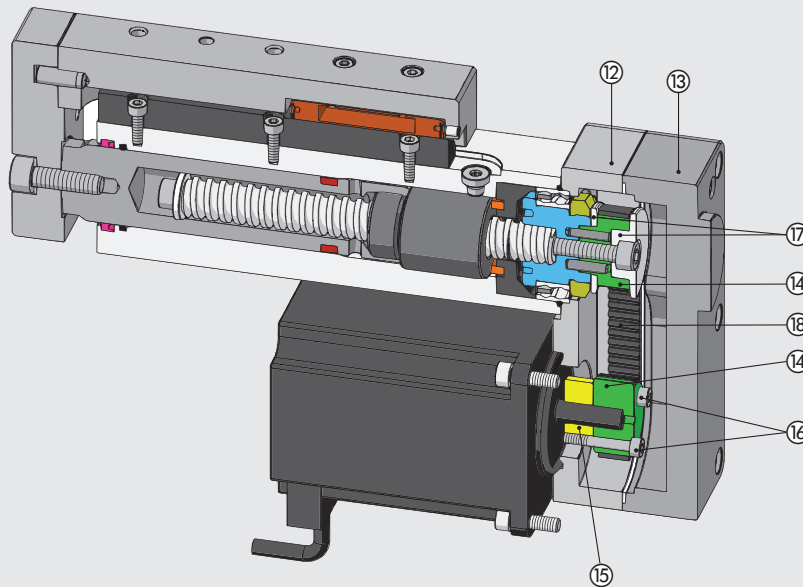
The mean axial load must not exceed the dynamic axial load: F_m ≤ F
The graphs on page A5.160, show screw life as a function of F_m

COMPONENTS

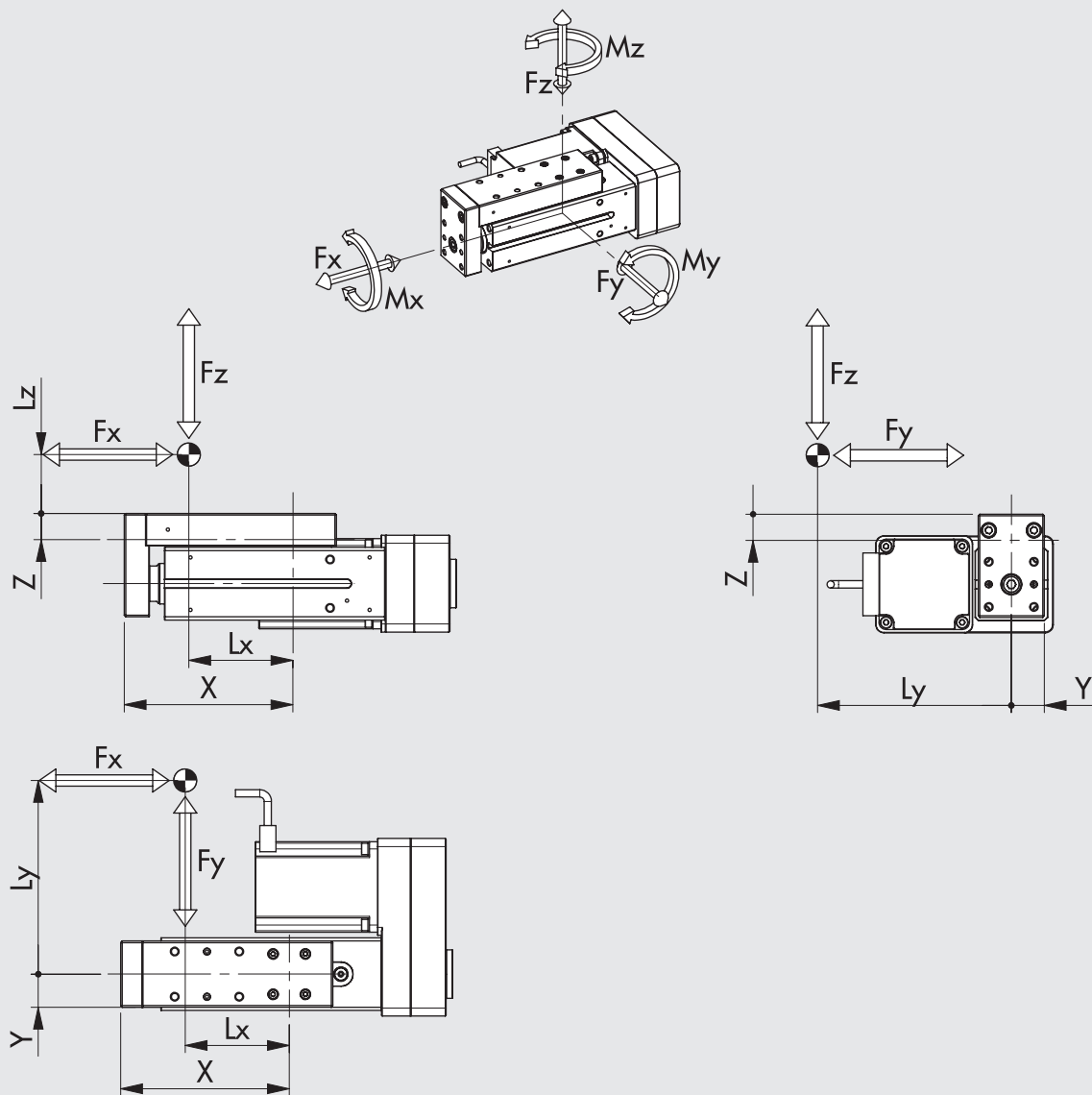
IN-LINE VERSION



GEARED VERSION



- | | |
|---|---|
| ① PISTON ROD: stainless steel (AISI 316) | ⑬ COVER: anodized aluminium |
| ② BODY: aluminium alloy with wear-resistant coating | ⑭ COG PULLEY: anodized aluminium |
| ③ WIPER RING: polyurethane | ⑮ ELASTIC COLLAR: anodized aluminium |
| ④ MAGNET: plastoferrite (optional) | ⑯ ELASTIC COLLAR-LOCKING SCREWS: zinc-plated steel |
| ⑤ RECIRCULATING BALL SCREW: hardened and rolled steel | ⑰ BELT FLANGES: anodized aluminium |
| ⑥ BUFFER: polyurethane | ⑱ TOOTHED BELT: polyurethane with steel cables |
| ⑦ BEARING: oblique with two ball rings | ⑲ MOTOR |
| ⑧ RECIRCULATING BALL SCROLL: steel | ⑳ SLIDE: anodized aluminium |
| ⑨ ADAPTOR PLATE: anodized aluminium | ㉑ BALL RECIRCULATION PAD: stainless steel / technopolymer |
| ⑩ ELASTIC COUPLING: aluminium / polyurethane | ㉒ GUIDING RAIL FOR PADS: hardened stainless steel |
| ⑪ PLUG: for access to the elastic coupling screw | ㉓ PLUG: for screw greasing |
| ⑫ TRANSMISSION PLATE: anodized aluminium | ㉔ GRUB SCREW: for pad greasing |

DIAGRAM OF FORCES AND MOMENTS

STATIC VERIFICATION

When on the slide is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

X [mm]	Y [mm]	Z [mm]	Fy max [N]	Fz max [N]	Mx max [Nm]	My max [Nm]	Mz max [Nm]
104.5	20.5	16.25	2790	2790	21.8	13.5	13.5

N.B.: The values in the table relates to the maximum admissible loads beyond which serious damage is likely to occur.

$$M_x = F_y \cdot (L_z + z) + F_z \cdot L_y \quad M_y = F_z \cdot L_x + F_x \cdot (L_z + z) \quad M_z = F_y \cdot L_x + F_x \cdot L_y$$

$$\frac{(M_x)}{M_{x0 \max}} + \frac{(M_y)}{M_{y0 \max}} + \frac{(M_z)}{M_{z0 \max}} + \frac{(F_y)}{F_{y0 \max}} + \frac{(F_z)}{F_{z0 \max}} \leq 1$$

DYNAMIC VERIFICATION

When on the slide is subjected simultaneously to torque and force, keep to the following equations, where the lengths have to be given in metres.

X [mm]	Y [mm]	Z [mm]	Fy max [N]	Fz max [N]	Mx max [Nm]	My max [Nm]	Mz max [Nm]
104.5	20.5	16.25	1395	1395	10.9	6.75	6.75

N.B.: The values are calculated on the basis of theoretical useful life of 10000 km.

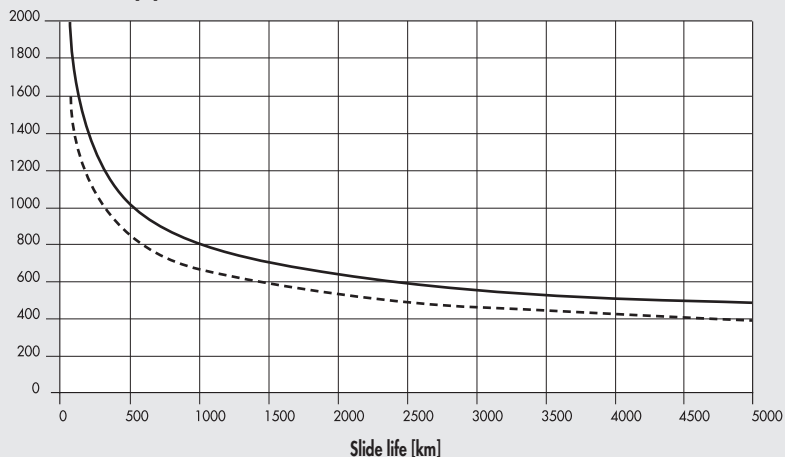
$$M_x = F_y \cdot (L_z + z) + F_z \cdot L_y \quad M_y = F_z \cdot L_x + F_x \cdot (L_z + z) \quad M_z = F_y \cdot L_x + F_x \cdot L_y$$

$$\frac{(M_x)}{M_{x \max}} + \frac{(M_y)}{M_{y \max}} + \frac{(M_z)}{M_{z \max}} + \frac{(F_y)}{F_{y \max}} + \frac{(F_z)}{F_{z \max}} \leq 1$$

LIFE CHARACTERISTICS AS A FUNCTION OF THE MEAN AXIAL LOAD, VERSION WITH BALL SCREW

Life characteristics can vary considerably from those indicated in the graphs due to different operating conditions (radial loads, temperature, lubrication status, etc.).

Mean axial load [N]



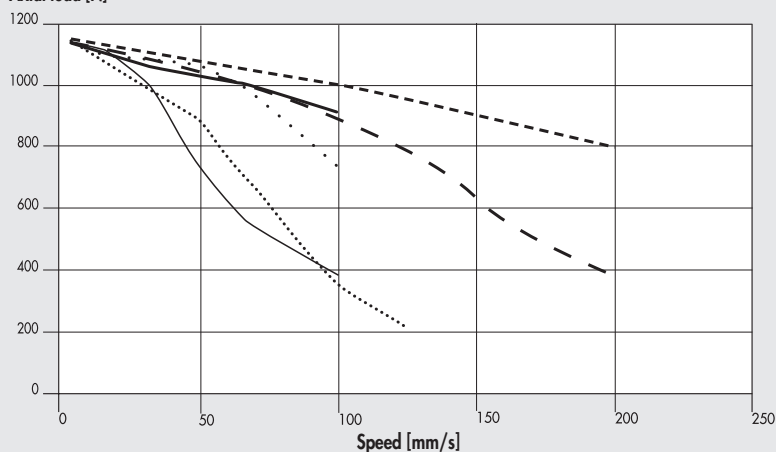
— Screw pitch 4
- - - Screw pitch 10

AXIAL LOAD CURVES AS A FUNCTION OF SPEED (SLIDE COMPLETE WITH MOTOR AND DRIVE)

N.B.: The obtainable load values already take the efficiency of the system into account.
For **STEPPING** motors, with the motor off, the drive current is automatically reduced by 50% to prevent overheating.
Consequently, available axial load with the motor stopped is also reduced by 50%.

Ø 32 with pitch 4 ball screw, STEPPING motor, STEPPING motors with encoder, STEPPING motors with encoder + brake

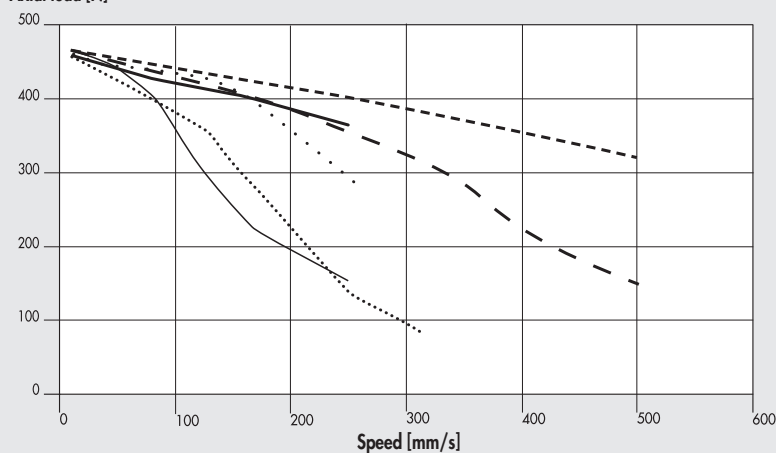
Axial load [N]



— 37M1220000 (24VDC) or 37M8220000 (with encoder, 24VDC) or 37M3220000 (with encoder + brake, 24VDC)
- - - 37M1220000 (48VDC) or 37M8220000 (with encoder, 48VDC) or 37M3220000 (with encoder + brake, 48VDC)
— 37M1220000 (75VDC) or 37M8220000 (with encoder, 75VDC) or 37M3220000 (with encoder + brake, 75VDC)
..... 37M1120001 (24VDC)
- - - 37M1120001 (48VDC)
- - - 37M1120001 (75VDC)

Ø 32 with pitch 10 ball screw, STEPPING motor, STEPPING motors with encoder, STEPPING motors with encoder + brake

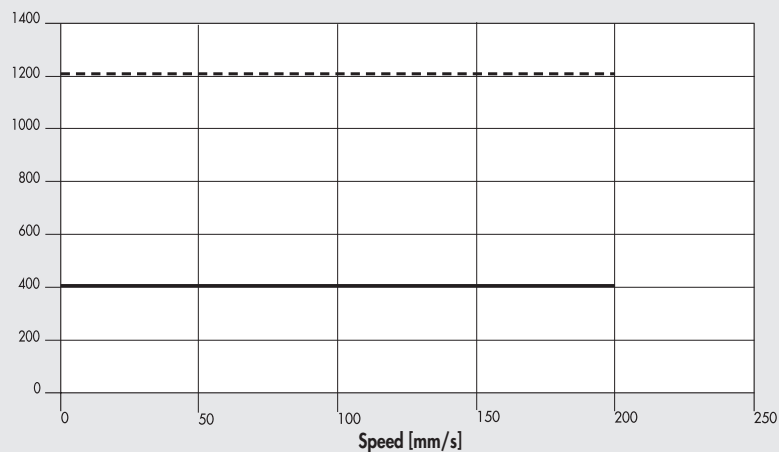
Axial load [N]



— 37M1220000 (24VDC) or 37M8220000 (with encoder, 24VDC) or 37M3220000 (with encoder + brake, 24VDC)
- - - 37M1220000 (48VDC) or 37M8220000 (with encoder, 48VDC) or 37M3220000 (with encoder + brake, 48VDC)
— 37M1220000 (75VDC) or 37M8220000 (with encoder, 75VDC) or 37M3220000 (with encoder + brake, 75VDC)
..... 37M1120001 (24VDC)
- - - 37M1120001 (48VDC)
- - - 37M1120001 (75VDC)

Ø 32 with pitch 4 ball screw, BRUSHLESS motor and BRUSHLESS motor with brake

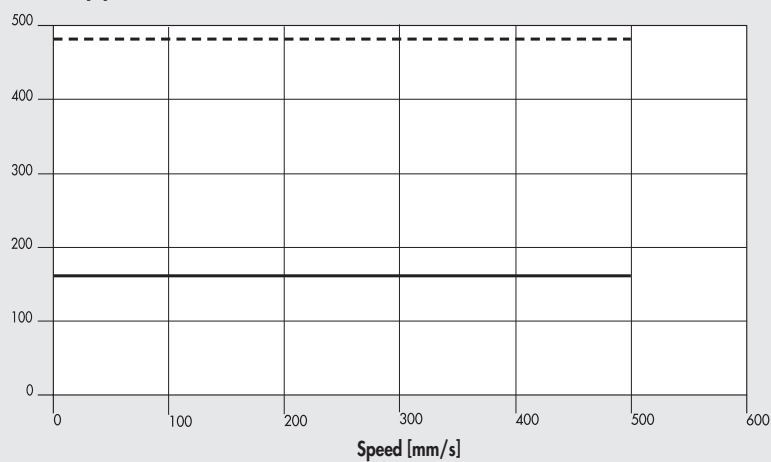
Axial load [N]



- Nominal 37M2000000
or 37M4000000 (with brake)
+ 37D2100000 (100W)
- - - Max 37M2000000
or 37M4000000 (with brake)
+ 37D2100000 (100W)

Ø 32 with pitch 10 ball screw, BRUSHLESS motor and BRUSHLESS motor with brake

Axial load [N]

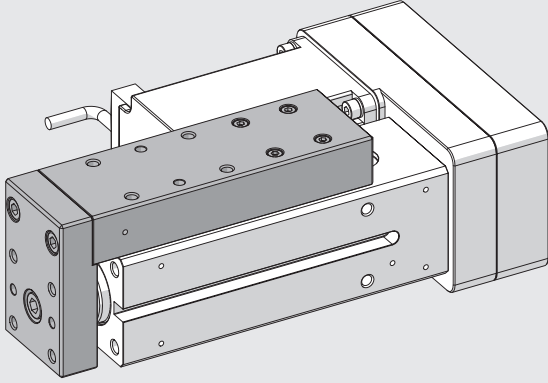


- Nominal 37M2000000
or 37M4000000 (with brake)
+ 37D2100000 (100W)
- - - Max 37M2000000
or 37M4000000 (with brake)
+ 37D2100000 (100W)

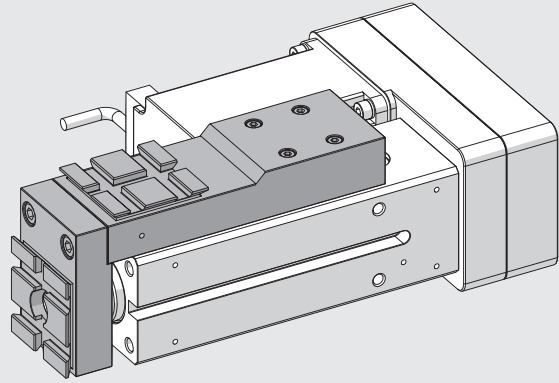
VERSIONS

TYPE OF CARRIAGE INTERFACE

STANDARD

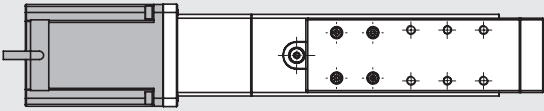


V-LOCK

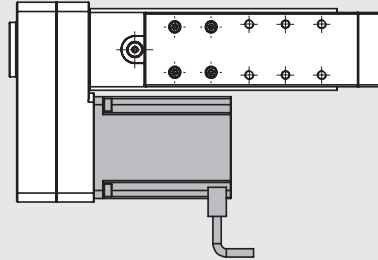


MOTOR POSITIONING

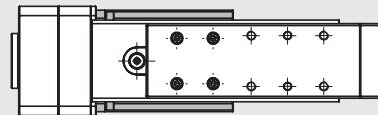
IN-LINE



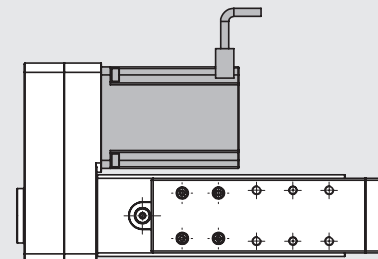
RIGHT GEARED



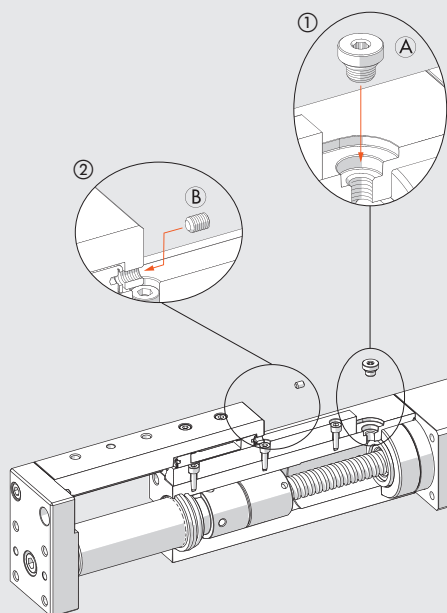
GEARED WITH MOTOR OPPOSITE TO THE SLIDE



LEFT GEARED



LUBRICATION DIAGRAMS



The slide features two specific lubrication zones:

- ① greasing point for the recirculating ball nut;
- ② greasing point for the recirculating ball pad.

Only use food-grade grease for re-greasing ULTRAPLEX FG1 NSF CAT H1 (code 9910514), according to the quantities indicated in the table.

Follow the steps below:

- retract the piston rod towards the motor adapter plate, as far as it will go;
- move the piston rod at low speed and/or controlled torque forwards by a value corresponding to the cylinder total stroke;
- remove plug A7 (A) and grub screw (B);
- use a grease gun to pump grease into the two grease nipples;
- make the slide complete 4 strokes (at the end of which the piston rod will be back in its initial position);
- repeat the latter two steps;
- replace plug A7 (A) grub screw (B);

The operation of re-greasing will have to be repeated at least once a year.

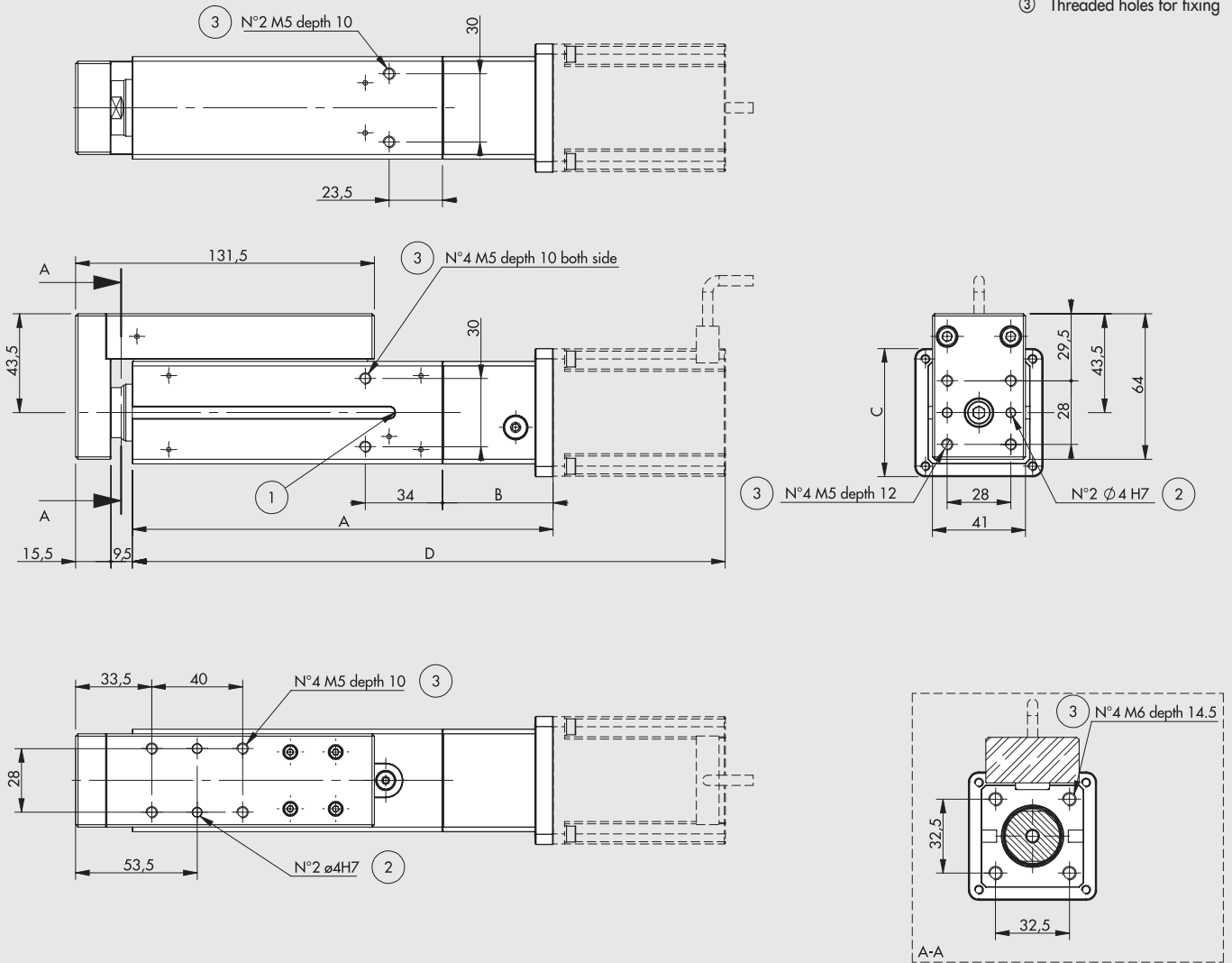
		Pad		Screw	
Pitch (p)	mm	-	4	10	
Relube grease quantity	g	0.7	0.3	0.5	
	cc	0.61	0.26	0.42	

NOTES

DIMENSIONS SLIDE IN-LINE

WITHOUT MOTOR

- ① N° 2 slots for sensors
- ② Holes for centring pins
- ③ Threaded holes for fixing



SLIDE WITH MOTOR

	1121				1220				8220				3220				2000				4000				
	STEPPING MOTOR				STEPPING MOTOR				STEPPING MOTOR + ENCODER				STEPPING MOTOR + ENCODER + BRAKE				BRUSHLESS MOTOR				BRUSHLESS MOTOR + BRAKE				
	code 37M1120001				code 37M1220000				code 37M8220000				code 37M3220000				code 37M2000000				code 37M4000000				
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
STROKE	0055	185	48.5	56	261	185	48.5	60	277	185	48.5	60	292	185	48.5	60	337	190	53.5	45	291	190	53.5	45	327

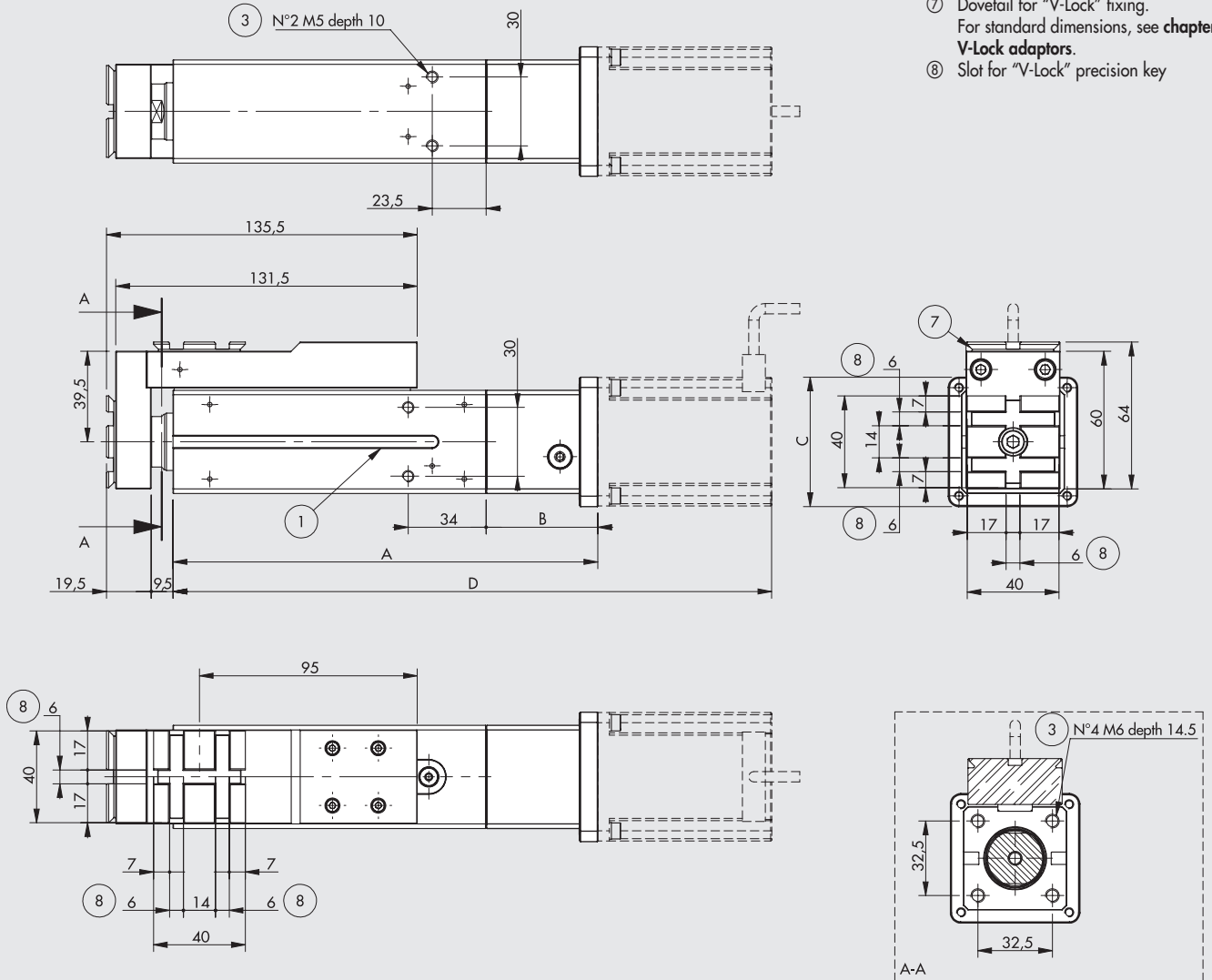
377032005512
377032005542

--- = Enter the type of drive to complete the code.

V-LOCK IN-LINE SLIDE DIMENSIONS

WITHOUT MOTOR

- ① N° 2 slots for sensors
- ③ Threaded holes for fixing
- ⑦ Dovetail for "V-Lock" fixing.
For standard dimensions, see chapter V-Lock adaptors.
- ⑧ Slot for "V-Lock" precision key



SLIDE WITH MOTOR

	1121				1220				8220				3220				2000				4000			
	STEPPING MOTOR				STEPPING MOTOR				STEPPING MOTOR + ENCODER				STEPPING MOTOR + ENCODER + BRAKE				BRUSHLESS MOTOR				BRUSHLESS MOTOR + BRAKE			
	code 37M1120001				code 37M1220000				code 37M8220000				code 37M3220000				code 37M2000000				code 37M4000000			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
STROKE 0055	185	48.5	56	261	185	48.5	60	277	185	48.5	60	292	185	48.5	60	337	190	53.5	45	291	190	53.5	45	327

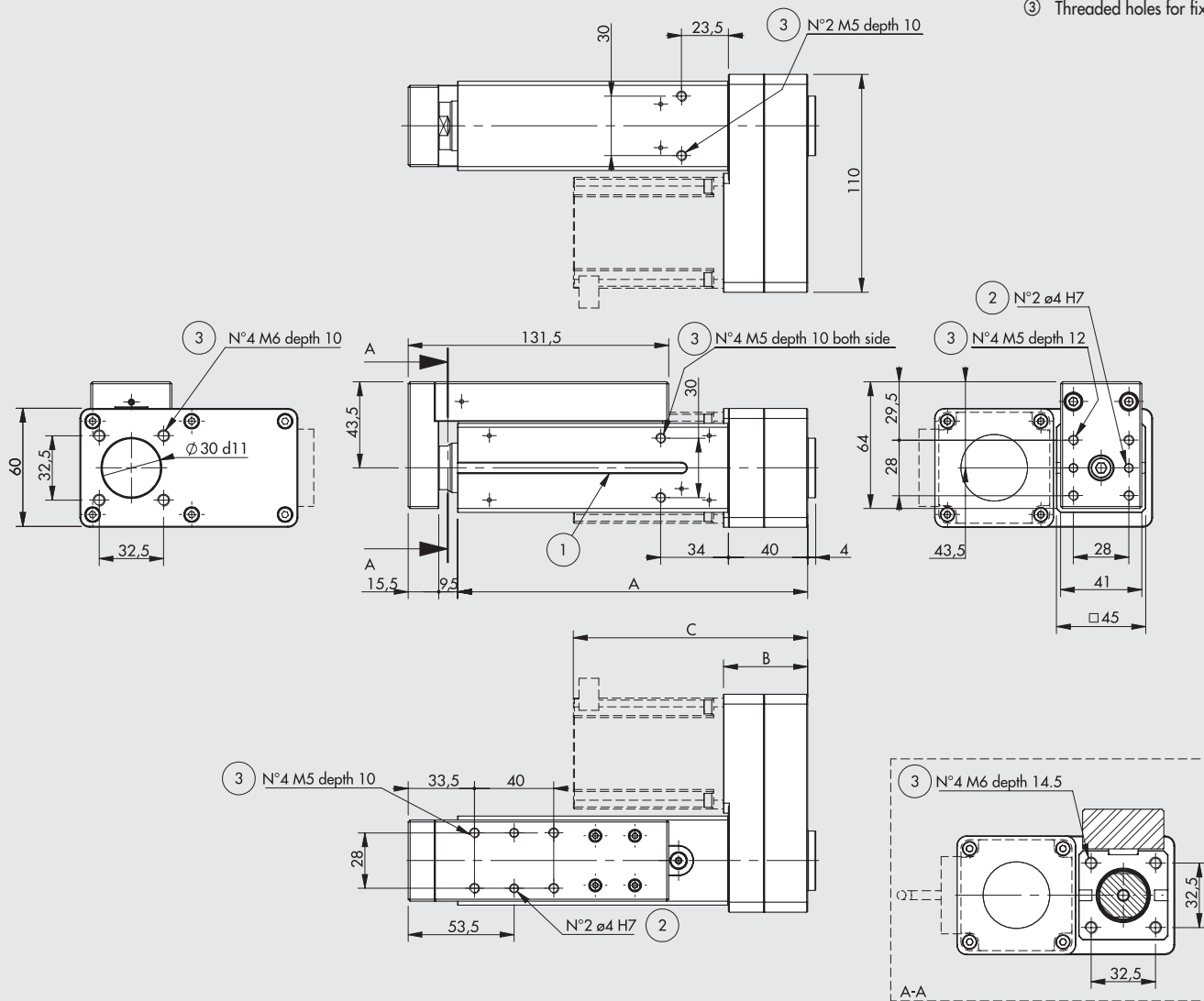
377K32005512
377K32005542

--- = Enter the type of drive to complete the code.

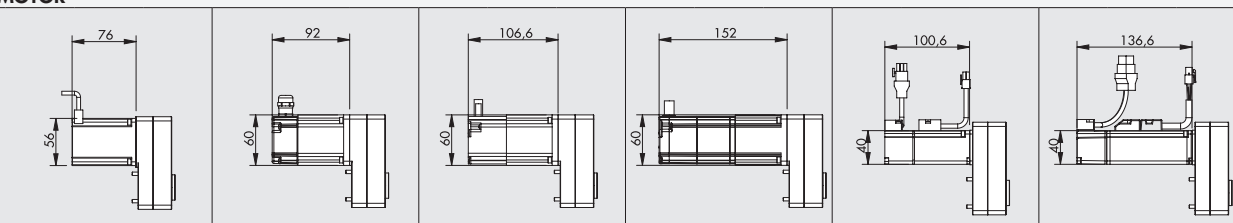
DIMENSIONS SLIDE GEARED

WITHOUT MOTOR

- ① N° 2 slots for sensors
- ② Holes for centring pins
- ③ Threaded holes for fixing



SLIDE WITH MOTOR



1121			1220			8220			3220			2000			4000		
STEPPING MOTOR			STEPPING MOTOR			STEPPING MOTOR + ENCODER			STEPPING MOTOR + ENCODER			BRUSHLESS MOTOR			BRUSHLESS MOTOR + BRAKE		
code 37M1120001			code 37M1220000			code 37M8220000			code 37M3220000			code 37M2000000			code 37M4000000		

STROKE	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
0055	177	42.5	118.5	177	42.5	134.5	177	42.5	149	177	42.5	194.5	177	43.5	144	177	43.5	180

37703200551N ----- 377032005516 ----- 377032005519 -----
 37703200554N ----- 377032005546 ----- 377032005549 -----

----- = Enter the type of drive to complete the code.

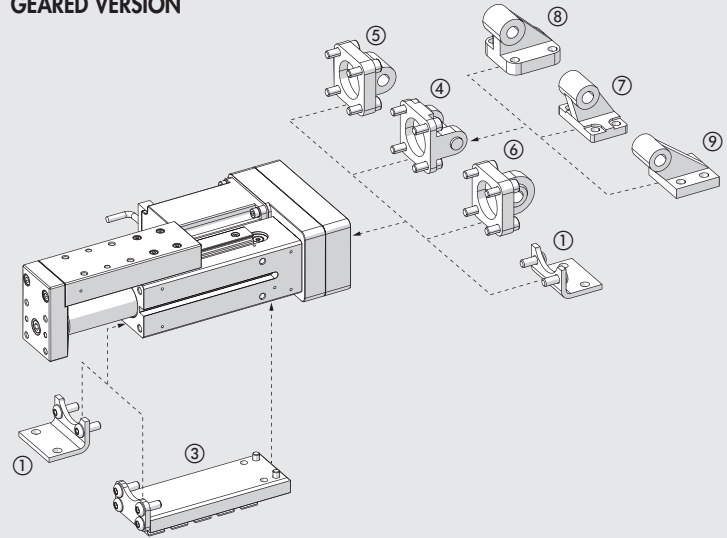
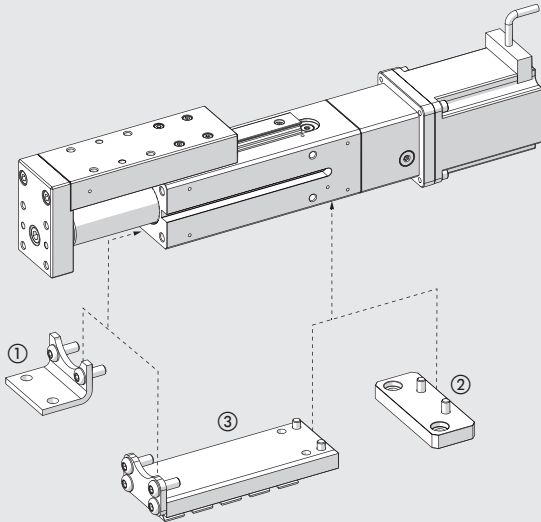
ACCESSORIES FOR ELECTRIC SLIDE SERIES ELEKTRO CS

Note: Where specified, limit the maximum axial loads (Fmax) according to the electric slides.

FIXING OPTIONS

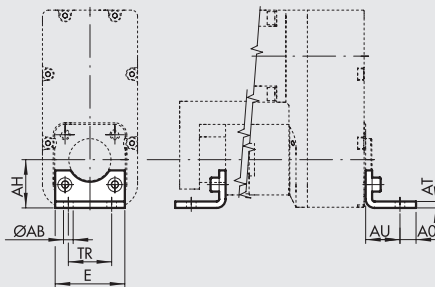
IN-LINE VERSION

GEARED VERSION



ACTUATORS
ELECTRIC SLIDE SERIES ELEKTRO CS

① FOOT MODEL A ELEKTRO CS

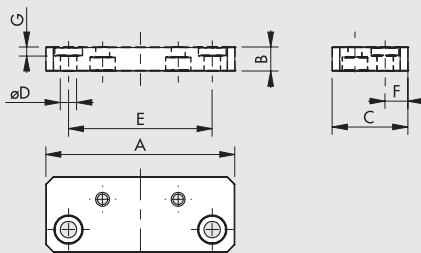


STEEL

Code	Ø	Ø AB	AH	AO	AT	AU	TR	E	Weight [g]	Fmax [N]
0950327111	32	7	32	11	4	24	32	45	76	1600

Note: Individually packed with 2 screws.

② ELEKTRO CS IN-LINE BACK FOOT



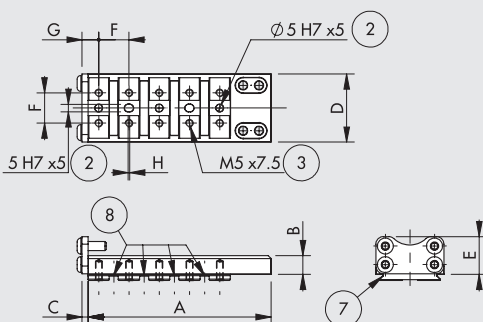
ALUMINIUM

Code	Ø	A	B	C	D	E	F	G	Weight [g]	Fmax [N]
0950327110	32	75	9.5	30	6.5	57	9	3.5	60	1600

Note: Individually packed with 2 screws.

N.B.: Use in the In-Line version only.

③ ELEKTRO CS V-LOCK FITTING



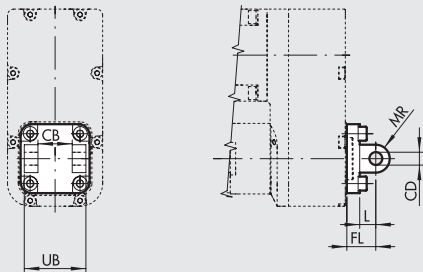
ALUMINIUM

Code	Ø	A	B	C	D	E	F	G	H	Weight [g]
0950327110K	32	121	13	4	45	25	20	11	1	740

Note: Individually packed with 6 screws.

- ② Holes for centring pins
- ③ Threaded holes for fixing
- ⑦ Dovetail for "V-Lock" fixing. For standard dimensions, see chapter V-Lock adaptors.
- ⑧ Slot for "V-Lock" precision key

④ FEMALE HINGE - MODEL B



ALUMINIUM

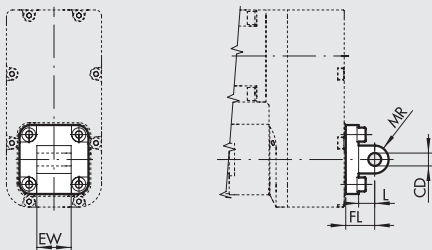
Code	Ø	UB	CB ^{H14}	FL	CD ^{H9}	MR	L	Weight [g]	Fmax [N]
W0950322003	32	45	26	22	10	10	12	116	800

STEEL

Code	Ø	UB	CB ^{H14}	FL	CD ^{H9}	MR	L	Weight [g]	Fmax [N]
W095E322003	32	45	26	22	10	10	13	348	1600

Note: Supplied with 4 screws, 4 washers, 2 snap rings and 1 pin.
 N.B.: Mounting requires 4 M6x16 UNI 5931 screws.

⑤ MALE HINGE - MODEL BA



ALUMINIUM

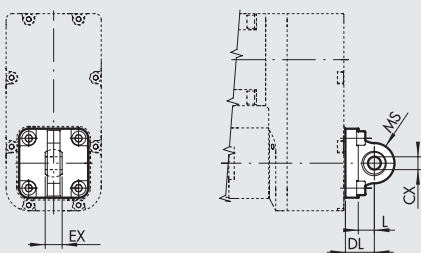
Code	Ø	EW	FL	MR	CD ^{H9}	L	Weight [g]	Fmax [N]
W0950322004	32	26	22	10	10	13	94	800

STEEL

Code	Ø	EW	FL	MR	CD ^{H9}	L	Weight [g]	Fmax [N]
W095E322004	32	26	22	10	10	13	282	1600

Note: Supplied with 4 screws.
 N.B.: Mounting requires 4 M6x14 UNI 5931 screws.

⑥ ARTICULATED MALE HINGE - MODEL BAS



ALUMINIUM

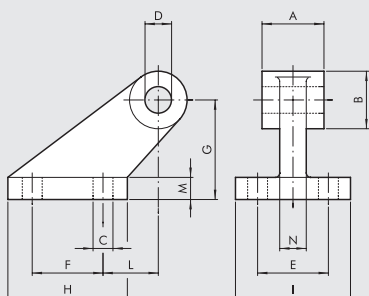
Code	Ø	DL	MS	L	CX ^{H9}	EX	Weight [g]	Fmax [N]
W0950322006	32	22	16	12	10	14	106	800

STEEL

Code	Ø	DL	MS	L	CX ^{H9}	EX	Weight [g]	Fmax [N]
W095E322006	32	22	15	14	10	14	318	1600

Note: Supplied with 4 screws, 4 washers.
 N.B.: Mounting requires 4 M6x16 UNI 5931 screws.

⑦ CETOP HINGE FOR MODEL B - MODEL GL

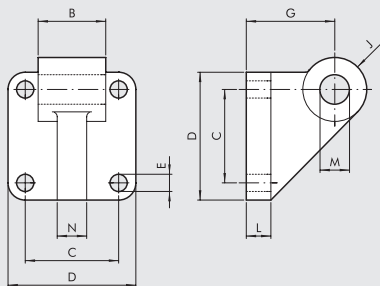


ALUMINIUM

Code	Ø	A	B	C	D	E	F	G	H	I	L	M	N	Weight [g]	Fmax [N]
W0950322008	32	26	19	7	10	25	20	32	37	41	18	8	10	96	800

Note: Supplied with 4 screws, 4 washers.

⑧ COUNTER-HINGE FOR MODEL B - MODEL GS

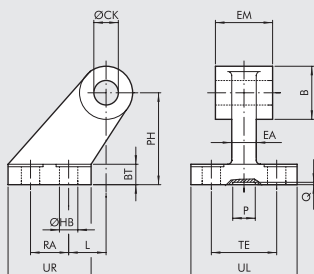


ALUMINIUM

Code	Ø	B	C	D	E	G	J	L	M	N	Weight [g]	Fmax [N]
W0950322108	32	26	32.5	45	7	32	11	10	10	10	106	800

Note: Supplied with 4 screws, 4 washers.

⑨ ISO 15552 COUNTER-HINGE FOR MODEL B - MODEL AB7



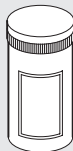
ALUMINIUM

Code	Ø	EM	B	ØHB	ØCK	TE	RA	PH	UR	UL	L	BT	EA	P	Q	Weight [g]	Fmax [N]
W0950322017	32	26	20	6.6	10	38	18	32	31	51	3	8	10	21	3	60	800

STEEL

Code	Ø	EM	B	ØHB	ØCK	TE	RA	PH	UR	UL	L	BT	EA	P	Q	Weight [g]	Fmax [N]
W095E322017	32	26	20	6.6	10	38	18	32	31	51	3	8	10	20	5	180	1600

GREASE

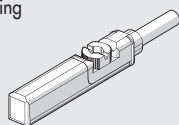


Code	Description	Weight [g]
9910514	Grease pipe ULTRAPLEX FG1 NSF CAT H1	400

RETRACTABLE SENSOR

SENSOR, SQUARE TYPE

Latest generation, secure fixing



For codes and technical data, see [chapter A6](#).

DRIVES



For motor-drive couplings see table on page [A5.168](#).

SPARE PARTS

ELECTRIC MOTORS



For motor-drive couplings see table on page [A5.168](#).