Components for electrical actuation

C_Electrics

Electric actuation
for industrial automation

CAMOZZI

Automation

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C_Electrics

Technology and innovation for industrial applications

Every application in the industrial automation sector has different and very specific requirements. For this reason, by creating a team of expertise people devoted to the development of solutions for electric actuation, Camozzi Automation has included in its technological offerings electromechanical cylinders and axes with auxiliary motors and accessory components, combined in configurable systems. The objective is to supply products and software tools that support the user through their decision-making and afterwards, through installation and maintenance.
For this purpose, Camozzi Automation has developed QSet, an extremely intuitive and efficient configuration software, that is able to create a program for the positioning and control of cylinders and axes based on the requirements of the application in terms of load, speed, and accelerations requested.

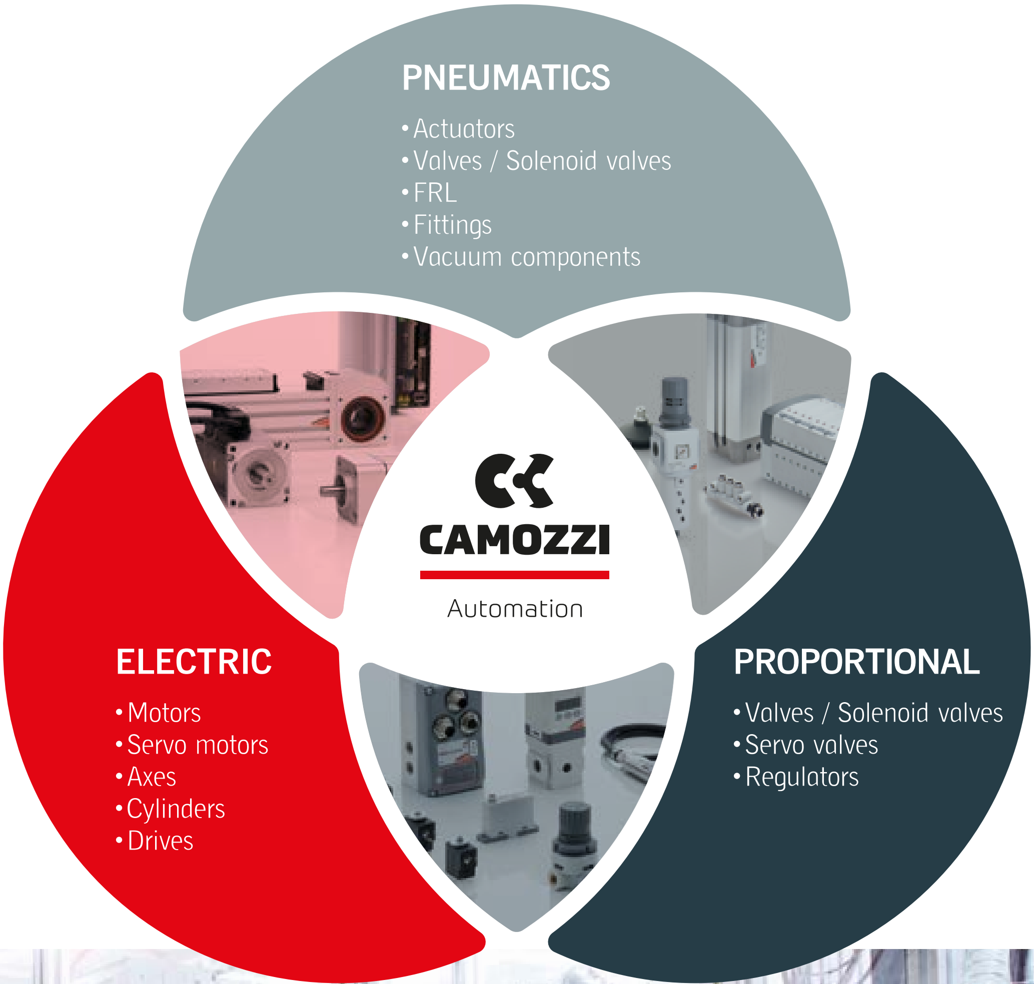
Movement

Technologies to serve our customers

Integration

At Camozzi we believe that there is no actuation technology that is absolutely better than another technology. Our conviction is that every application has different requirements that can be satisfied in the best way possible thanks to the use of a specific technology: pneumatics, proportional or electric. It's precisely the ability to offer all technologies and to combine them in case of need, optimizing single movements and the performance requested in the context of an industrial application, that represents the competitive advantage that Camozzi is able to offer its customers.

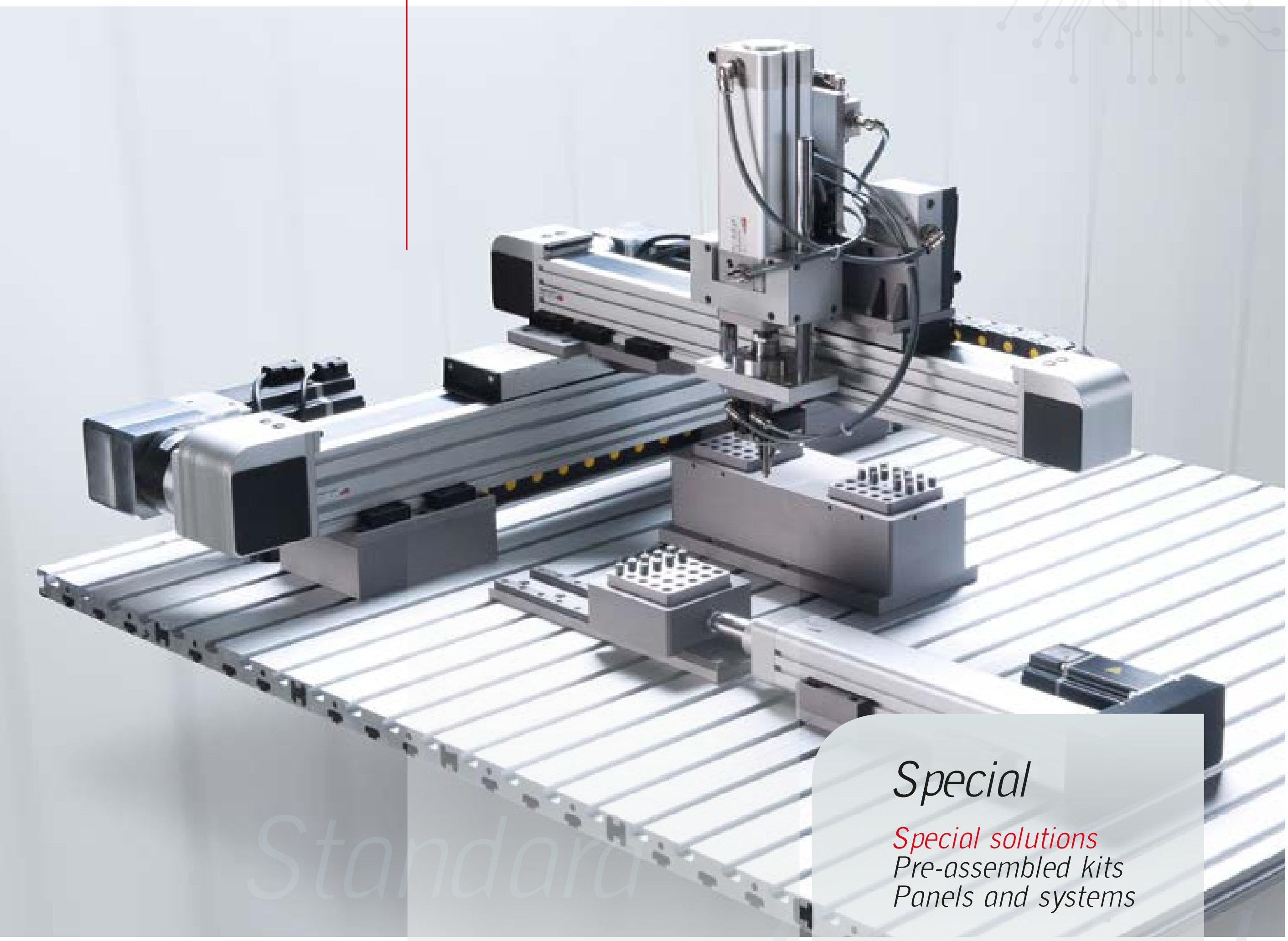
To control speed, acceleration, the position in relation to the load to move and the distances to cover, the requested precision, optimizing costs and providing a solution that is easy to install and to manage, are all the result of the combination of technologies and skills that Camozzi offers its partners with one aim only: providing the solution with the highest added value.



The Camozzi multi-technology approach

The ideal solution for any application

To us, complete service means offering not only standard products, but also special customized solutions, pre-assembled kits, and plug & play panels and systems, each designed and built according to the exact.



Special

Special solutions
Pre-assembled kits
Panels and systems

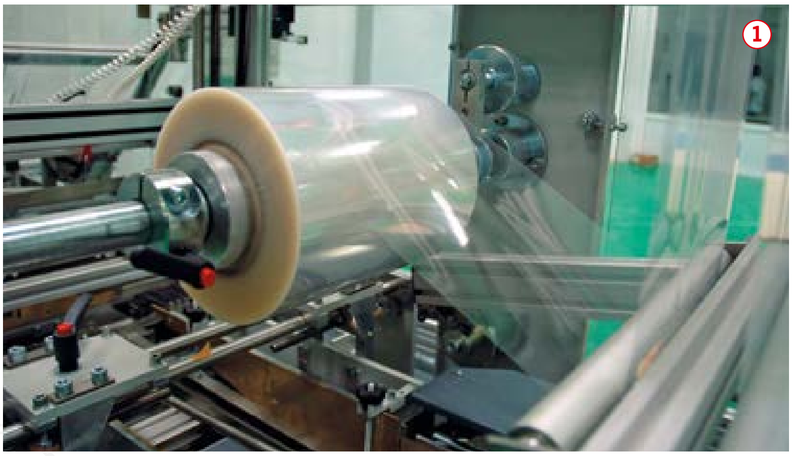
Standard

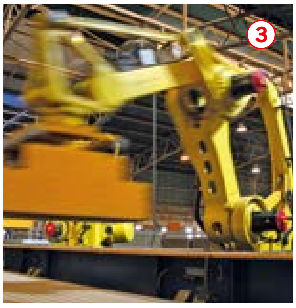
A wide range of standard components designed to be integrated in special applications

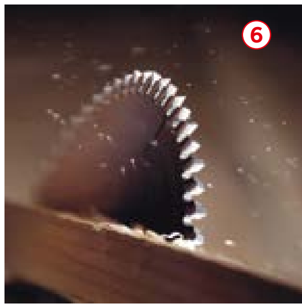
C_Electrics

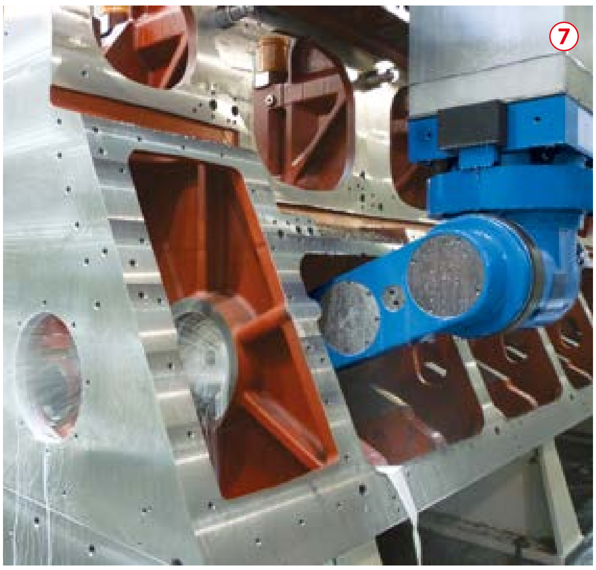
1. *Packaging*
2. *Assembly & Robotics*
3. *Material handling*
4. *Food & Beverage*
5. *Life Science (Biotechnologies)*
6. *Wood*
7. *Machine tools*
8. *Transport*

Our Business Development Managers, who are in charge of single industrial sectors can support you in studying the requirements of the various applications, and can identify the best solution in terms of technologies and products.









Components for electrical actuation

C_Electrics

ELECTROMECHANICAL AXES

Linear units
with recirculating
ball bearing guides
and belt drive.

ELECTROMECHANICAL CYLINDERS

Recirculating ball screw
actuators.

DRIVES

For Stepper
and Brushless motors.

C_Electrics

Linear Motion Systems

QSet Camozzi

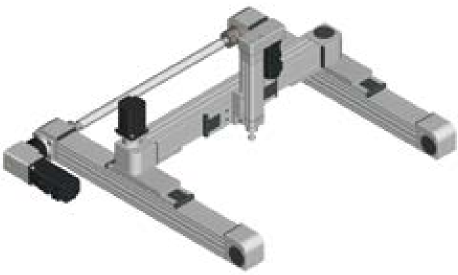
MOTORS

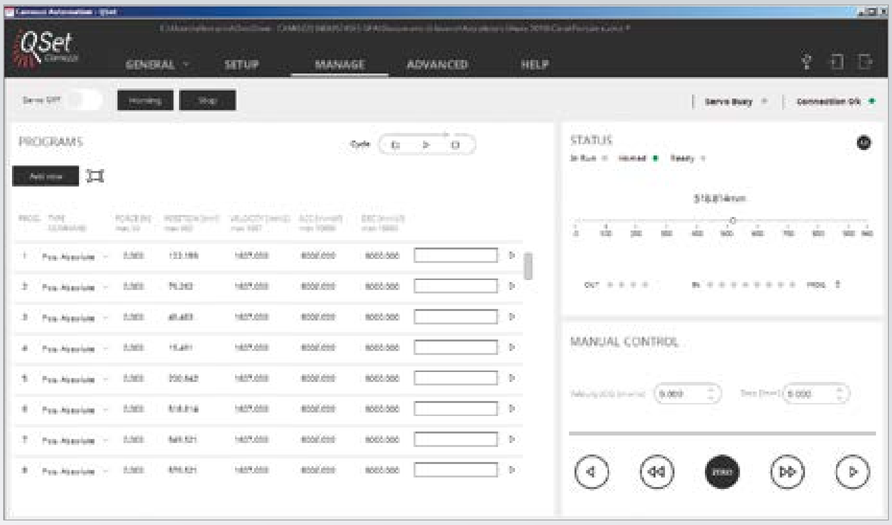
Compact and reliable.
Available in the Stepper
and Brushless versions.

CONFIGURATION SOFTWARE

Camozzi has developed a software
so that every user, with no specific
skill in electronics, can create
a program to position or control
an axis or an electric cylinder.

We build
any configuration
according to
specific requirements

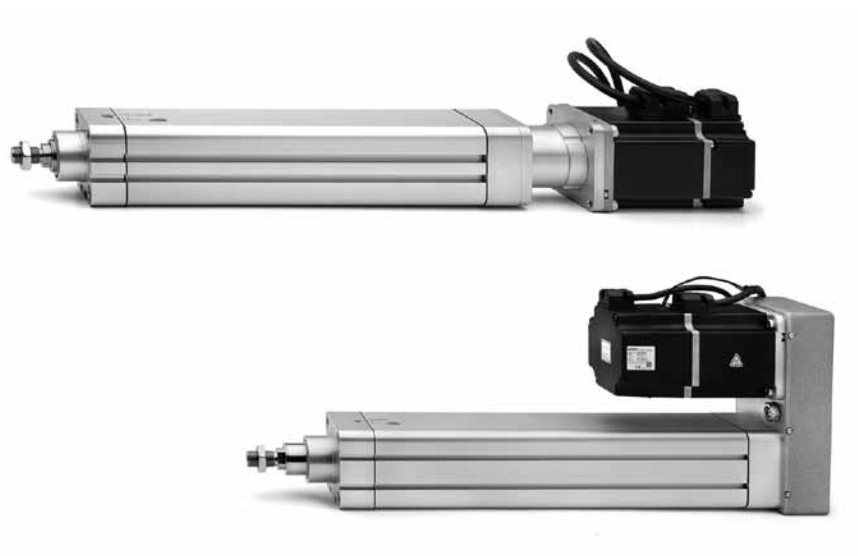




Once configured, it is possible to program up to 64 command lines, each of them defining an absolute, relative, or force position.
All the other functions can be reached easily and promptly.

Series 6E electromechanical cylinders

Sizes 32, 40, 50, 63, 80, 100



The Series 6E cylinders are mechanical linear actuators with rod, in which the rotary movement, generated by a motor, is converted into a linear movement by means of a recirculating ball screw. Available in 4 sizes, 32, 40, 50 and 63, the Series 6E has dimensions based on the ISO 15552 standard and it is therefore possible to use the mounting accessories of the pneumatic cylinders.

The cylinders are equipped with a magnet that makes it possible to use external magnetic proximity switches (Series CST and CSH), allowing operations like homing or extra-stroke readings to be performed. The Series 6E is equipped with specific interface kits, which make it possible to connect the motor, both in line and parallel. High precision and easy mounting make the Series 6E the ideal solution for different applications, especially for multi-position systems.

- » In compliance with the ISO 15552 standard
- » Multi-position system with transmission of the movement by means of a recirculating ball screw
- » Possibility to connect the motor in line or parallel
- » Large range of motor interfaces
- » Permanent pre-lubrication (maintenance free)
- » High positioning repeatability
- » Reduced axial backlash
- » Possibility to use magnetic sensors
- » Integrated anti-rotation system of the rod
- » IP40 / IP65
- » Wide range of fixing accessories
- » Compatible with Series 45 anti-rotation guide units

GENERAL DATA

Construction	electromechanical cylinder with recirculating ball screw
Design	profile with thread rolling screws based on the ISO 15552 standard
Operation	multi-position actuator with high precision linear movement
Sizes	32, 40, 50, 63, 80, 100
Strokes (min - max)	100 ÷ 1500 mm
Anti-rotation function	with anti-friction pads in technopolymer
Mounting	front / rear flange, with feet, with front / rear / swivel trunnion
Mounting motor	in line and parallel
Operating temperature	0°C ÷ 50°C
Storage temperature	-20°C ÷ 80°C
Protection class	IP40 / IP65
Lubrication	Not necessary. A pre-lubrication is performed on the cylinder.
Max. Reversing backlash	0.02 mm
Repeatability	± 0.02
Duty cycle	100%
Max rotation play	± 0.4°
Use with external sensors	slots on three sides for sensors model CSH and CST

STANDARD STROKES

Intermediate strokes are available upon request.

STANDARD STROKES

Size	100	200	300	400	500	600	700	800	1000	1200	1500
32	✖	✖	✖	✖	✖						
40	✖	✖	✖	✖	✖	✖	✖				
50	✖	✖	✖	✖	✖	✖		✖	✖		
63	✖	✖	✖	✖	✖			✖	✖	✖	
80	✖	✖	✖	✖	✖			✖	✖	✖	✖
100	✖	✖	✖	✖	✖			✖	✖	✖	✖

CODING EXAMPLE

6E	032	BS	0200	P05	A	

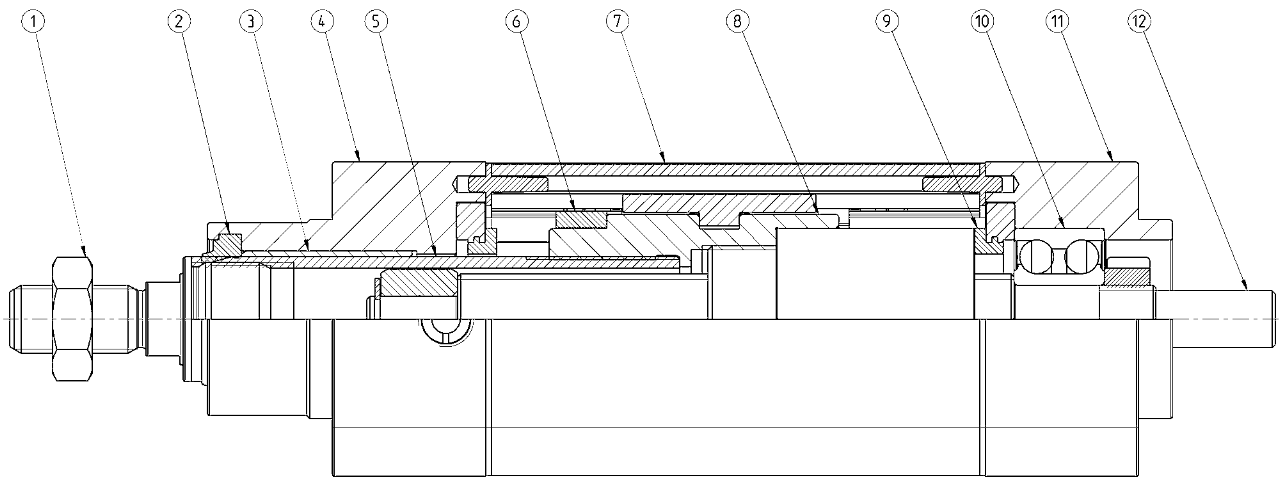
6E	SERIES
032	SIZE: 032 = 32 040 = 40 050 = 50 063 = 63 080 = 80 100 = 100
BS	DESIGN: BS = recirculating ball screw
0200	STROKE: 100 ÷ 1500 mm
P05	SCREW PITCH: P05 = 5 mm P10 = 10 mm P16 = 16 mm (for size 40 only) P20 = 20 mm (for size 50 only) P25 = 25 mm (for size 63 only) P32 = 32 mm (for size 80 only) P40 = 40 mm (for size 100 only)
A	CONSTRUCTION: A = standard with rod nut
	VERSION: = IP40 (not available for sizes 80 and 100) P = IP65 (_ _ _) = extended piston rod _ _ _ mm

MECHANICAL CHARACTERISTICS

Size		32	32	40	40	40	50	50	50	63	63	63	80	80	80	80	100	100	100	100
BS screw diameter	[mm]	12	12	16	16	16	20	20	20	25	25	25	32	32	32	32	40	40	40	40
BS screw pitch (p)	[mm]	5	10	5	10	16	5	10	20	5	10	25	5	10	20	32	5	10	20	40
Dynamic load coefficient (C)	[N]	6600	4400	12000	8500	9150	14900	11300	7800	17700	20500	11300	26300	52500	28200	26100	35100	55900	45300	55900
Max admissible load (Cmax)	[N]	525[A]	440[A]	950[A]	850[A]	1070[A]	1180[A]	1130[A]	980[A]	1405[A]	2050[A]	1535[A]	2085[A]	5250[A]	3550[A]	3845[A]	2785[A]	5590[A]	5705[A]	8875[A]
Max applicable torque	[Nm]	2.50	2.80	5.50	6.50	8.20	9.10	10.90	13.60	16.60	19.90	24.90	30	36	30	36	60	60	60	60
Max linear speed *	[m/s]	0.56	1.12	0.42	0.84	1.33	0.33	0.67	1.33	0.27	0.53	1.33	0.23	0.47	0.94	1.50	0.19	0.38	0.75	1.50
Max rotational speed	[rpm]	6670	6670	5000	5000	5000	4000	4000	4000	3200	3200	3200	2810	2810	2810	2810	2250	2250	2250	2250
Max acceleration	[m/s²]	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

[A] Value refers to a covered distance of 10000 Km (see the diagrams “Life of the cylinder according to the average axial force applied”).
* the maximum rotational speed of the cylinder varies according to the stroke (see the diagrams “Maximum speed of the cylinder according to its stroke”)

SERIES 6E MATERIALS



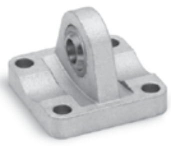
LIST OF COMPONENTS	
PARTS	MATERIALS
1. Rod nut	Zinc-plated steel
2. Rod seal	PU
3. Bushing	Technopolymer
4. Front endcap	Anodized aluminium
5. Rod	Stainless steel
6. Magnet	Plastoferrite
7. Extrusion profile	Anodized aluminium
8. Guiding element BS screw	Aluminium
9. End stroke seals	NBR
10. Bearing	Steel
11. Rear endcap	Anodized aluminium
12. BS ball screw	Steel

ACCESSORIES FOR SERIES 6E CYLINDERS

Piston rod socket joint Mod. GY

Piston rod lock nut Mod. U

Clevis pin Mod. S



Rear trunnion ball-joint Mod. R

Coupling piece Mod. GKF

Swivel ball joint Mod. GA

90° male trunnion Mod. ZC

Swivel Combination Mod. C+L+S

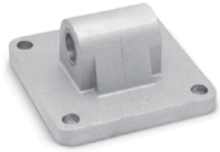
Front flange Mod. D-E

Self aligning rod Mod. GK

Foot mount Mod. B-6E

Rear female trunnion Mod. C and C-H

Rod fork end Mod. G



Rear trunnion male Mod. L

Side clamping bracket Mod. BG

Housing for axial connection Mod. CM

Flange for axial connection Mod. FM

Kit for axial connection Mod. AM

Kit for parallel connection Mod. PM

Kit for axial connection Mod. AR

Cylinder bracket Mod. BA-6E

Front spot faced trunnion Mod. FN

Counter bracket for trunnion Mod. BF

Series 45 anti-rotation guide units

All accessories are supplied separately, except for piston rod lock nut Mod. U

HOW TO CALCULATE THE LIFE OF THE CYLINDER

To perform a correct dimensioning of the Series 6E cylinder, you need to consider some facts.

Among these, the most important are:
- Dynamics of the system
- Operation and pause cyclicity
- Work environment
- General performance requirements: repeatability, accuracy, precision, etc.

CALCULATE THE LIFE IN ROTATIONS
where:

$$L_r = \left(\frac{C}{F_m \cdot f_w}\right)^3 \cdot 10^6$$

L_r = Life of the cylinder in number of rotations of the BS ball screw
C = Dynamic load coefficient of the cylinder [N]
F_m = Average axial force applied [N]
f_w = Safety coefficient according to the working conditions

CALCULATION OF LIFE IN km
where:

$$L_{km} = \frac{L_r \cdot p}{10^6}$$

L_{km} = Life of the cyllinder in km [km]
p = pitch of the BS ball screw [mm]

CALCULATION OF THE LIFE IN HOURS
where:

$$L_h = \frac{L_r}{n_m \cdot 60}$$

L_h = Life of the cylinder in hours
n_m = average number of revolutions of the RDS ball screw [rpm]

APPLICATION	ACCELERATION [m/s²]	SPEED [m/s]	DUTY CYCLE	f_w COEFFICIENT
light	< 5.0	< 0.5	< 35%	1.0 ÷ 1.25
normal	5.0 ÷ 15.0	0.5 ÷ 1.0	35% ÷ 65%	1.25 ÷ 1.5
heavy	> 15.0	> 1.0	> 65%	1.5 ÷ 3.0

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ANALYSIS OF THE DUTY CYCLE AND OF SYSTEM PAUSES

The analysis of the duty cycle and of the pauses of the system is essential to calculate the average Fm axial loads and the number of average revolutions nm that act on the cylinder.
Normally, the duty cycle is composed by phases and for each single phase, we can have an acceleration, constant speed or deceleration.

CALCULATION OF THE AVERAGE AXIAL FORCE

$$F_m = \sqrt[3]{\frac{({F_{a1}}^3 \cdot n_{a1} \cdot t_{a1}) + ({F_{vc1}}^3 \cdot n_{vc1} \cdot t_{vc1}) + ({F_{d1}}^3 \cdot n_{d1} \cdot t_{d1}) + \ldots + ({F_{an}}^3 \cdot n_{an} \cdot t_{an}) + ({F_{vcn}}^3 \cdot n_{vcn} \cdot t_{vcn}) + ({F_{dn}}^3 \cdot n_{dn} \cdot t_{dn})}{(n_{a1} \cdot t_{a1}) + (n_{vc1} \cdot t_{vc1}) + (n_{d1} \cdot t_{d1}) + \ldots + (n_{an} \cdot t_{an}) + (n_{vcn} \cdot t_{vcn}) + (n_{dn} \cdot t_{dn})}}$$

CALCULATION OF THE AVERAGE NUMBER OF REVOLUTIONS

$$n_m = \left\{\frac{(n_{a1} \cdot t_{a1}) + (n_{vc1} \cdot t_{vc1}) + (n_{d1} \cdot t_{d1}) + \ldots + (n_{an} \cdot t_{an}) + (n_{vcn} \cdot t_{vcn}) + (n_{dn} \cdot t_{dn})}{t_{a1} + t_{vc1} + t_{d1} + \ldots + t_{an} + t_{vcn} + t_{dn}}\right\}$$

The table shown below reports the values of acceleration, speed and deceleration for each phase.

		F [N]	n [rpm]	time %
PHASE 1	**Acceleration**	**Fa1**	**na1**	**ta1**
	Constant speed	**Fvc1**	**nvc1**	**tvc1**
	Deceleration	**Fd1**	**nd1**	**td1**
PHASE 2	**Acceleration**	**Fa2**	**na2**	**ta2**
	Constant speed	**Fvc2**	**nvc2**	**tvc2**
	Deceleration	**Fd2**	**nd2**	**td2**
PHASE "n -1"	**Acceleration**	**Fan-1**	**nan-1**	**tan-1**
	Constant speed	**Fvcn-1**	**nvcn-1**	**tvcn-1**
	Deceleration	**Fdn-1**	**ndn-1**	**tdn-1**
PHASE "n"	**Acceleration**	**Fan**	**nan-1**	**tan-1**
	Constant speed	**Fvcn**	**nvcn-1**	**tvcn-1**
	Deceleration	**Fdn**	**ndn-1**	**tdn-1**
	TOTAL			**100%**

APPLICATION EXAMPLE

Phase 1

$F_{a1} = 142\ N;$ $F_{vc1} = 98\ N;$ $F_{d1} = 54\ N;$
$n_{a1} = 630\ rpm;$ $n_{vc1} = 1260\ rpm;$ $n_{d1} = 630\ rpm;$
$t_{a1} = 0{,}7\ \%;$ $t_{vc1} = 12{,}9\ \%;$ $t_{d1} = 0{,}7\ \%;$

Phase 2

$F_{a2} = 616\ N;$ $F_{vc2} = 589\ N;$ $F_{d2} = 562\ N;$
$n_{a2} = 450\ rpm;$ $n_{vc2} = 900\ rpm;$ $n_{d2} = 450\ rpm;$
$t_{a2} = 4{,}8\ \%;$ $t_{vc2} = 33{,}3\ \%;$ $t_{d2} = 4{,}8\ \%;$

Phase 3

$F_{a3} = 997\ N;$ $F_{vc3} = 981\ N;$ $F_{d3} = 965\ N;$
$n_{a3} = 240\ rpm;$ $n_{vc3} = 480\ rpm;$ $n_{d3} = 240\ rpm;$
$t_{a3} = 7{,}1\ \%;$ $t_{vc3} = 28{,}6\ \%;$ $t_{d3} = 7{,}1\ \%;$

in this way it is possible to determine:

$$K_1 = (F_{a1}^3 \cdot n_{a1} \cdot t_{a1}) + (F_{vc1}^3 \cdot n_{vc1} \cdot t_{vc1}) + (F_{d1}^3 \cdot n_{d1} \cdot t_{d1}) \qquad n_1 = (n_{a1} \cdot t_{a1}) + (n_{vc1} \cdot t_{vc1}) + (n_{d1} \cdot t_{d1}) \qquad T_1 = t_{a1} + t_{vc1} + t_{d1}$$
$$K_2 = (F_{a2}^3 \cdot n_{a2} \cdot t_{a2}) + (F_{vc2}^3 \cdot n_{vc2} \cdot t_{vc2}) + (F_{d2}^3 \cdot n_{d2} \cdot t_{d2}) \qquad n_2 = (n_{a2} \cdot t_{a2}) + (n_{vc2} \cdot t_{vc2}) + (n_{d3} \cdot t_{d3}) \qquad T_2 = t_{a2} + t_{vc2} + t_{d2}$$
$$K_3 = (F_{a3}^3 \cdot n_{a3} \cdot t_{a3}) + (F_{vc3}^3 \cdot n_{vc3} \cdot t_{vc3}) + (F_{d3}^3 \cdot n_{d3} \cdot t_{d3}) \qquad n_3 = (n_{a3} \cdot t_{a3}) + (n_{vc3} \cdot t_{vc3}) + (n_{d3} \cdot t_{d3}) \qquad T_3 = t_{a3} + t_{vc3} + t_{d3}$$

Concluding, we know that:

$$F_m = \sqrt[3]{\frac{(K_1 + K_2 + K_3)}{(n_1 + n_2 + n_3)}} = 596{,}64\ N$$

$$n_m = \frac{n_1 + n_2 + n_3}{T_1 + T_2 + T_3} = 685{,}7\ rpm$$

		F [N]	n [rpm]	time %
PHASE 1	**Acceleration**	142	630	0.7
	Constant speed	98	1260	12.9
	Deceleration	54	630	0.7
PHASE 2	**Acceleration**	616	450	4.8
	Constant speed	589	900	33.3
	Deceleration	562	450	4.8
PHASE 3	**Acceleration**	997	240	7.1
	Constant speed	981	480	28.6
	Deceleration	965	240	7.1
	TOTAL			100.0

HOW TO CALCULATE THE DRIVING TORQUE [Nm]

F_A = Total force acting from outside [N]
F_E = Force to be applied externally [N]
g = Gravitational acceleration [9.81 m/s²]
m_E = Mass of the body to move [kg]
μ = Friction coefficient of the support guide
p = Pitch of the ball screw [mm]
C_{M1} = Driving torque due to external agents [Nm]

$$C_{TOT} = C_{M1} + C_{M2} + C_{M3}$$

$$F_A = F_E + \mu \cdot m_E \cdot g$$

$$C_{M1} = \frac{F_A \cdot p}{2\pi \cdot 1000}$$

J_{TOT} = Moment of inertia of rotating components [kg•m²]
J_F = Moment of inertia of fixed-length rotating components [kg·m²]
J_V = Moment of inertia of variable-length rotating components [kg·m²]
K_V = Coefficient of inertia of variable-length rotating components [kg•mm²/mm]
C = Rod stroke [mm]
$\dot{\omega}$ = Angular acceleration [rad/s²]
a = Linear acceleration of the ball screw [m/s²]
C_{M2} = Driving torque due to rotating components [Nm]

$$J_{TOT} = (J_F + J_V) \cdot 10^{-6}$$

$$J_V = K_V \cdot C$$

$$\dot{\omega} = \frac{a \cdot 2\pi \cdot 1000}{p}$$

$$C_{M2} = J_{TOT} \cdot \dot{\omega}$$

F_{TT} = Force needed to move translating components [N]
F_{TF} = Force needed to move fixed-length translating components [N]
F_{TV} = Force needed to move variable-length translating components [N]
m_{C1} = Mass of the fixed-length translating components [kg]
K_{TV} = Mass coefficient of variable-length translating components [kg/mm]
C_{M3} = Driving torque due to translating components [Nm]

$$F_{TT} = F_{TF} + F_{TV}$$

$$F_{TF} = m_{C1} \cdot a$$

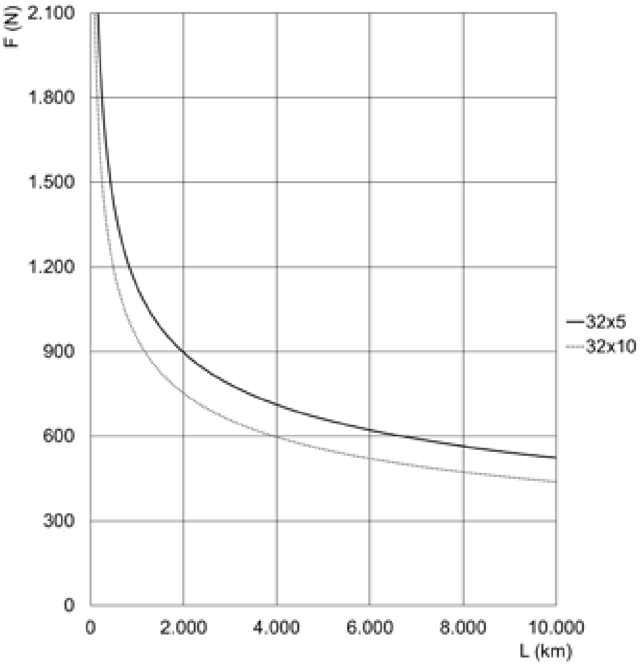
$$F_{TV} = K_{TV} \cdot C \cdot a$$

$$C_{M3} = \frac{F_{TT} \cdot p}{2\pi \cdot 1000}$$

Values of masses and fixed and rotating inertia moments of 6E components

Size	J_F [kg•mm²]	K_V [kg•mm²/mm]	m_{C1} [kg]	K_{TV} [kg/mm]
32	2.88	0.02	0.15	7.9017•10-4
40	7.92	0.05	0.43	9.8771•10-4
50	21.77	0.12	0.70	1.1358•10-3
63	66.35	0.30	1.07	1.3828•10-3
80	230.89	0.81	2.25	1.8766•10-3
100	526.49	1.98	3.94	2.3705•10-3

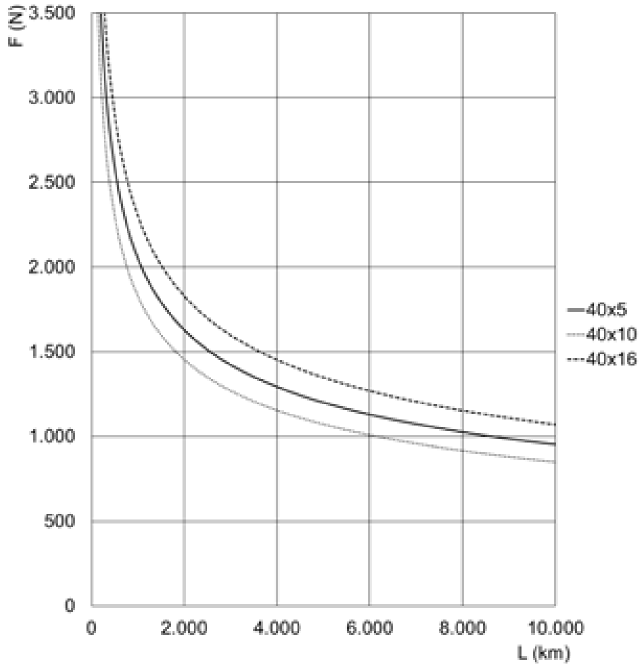
Life of the cylinder according to the average axial force applied



Size 32

F = Axial Force [N]
L = life [km]

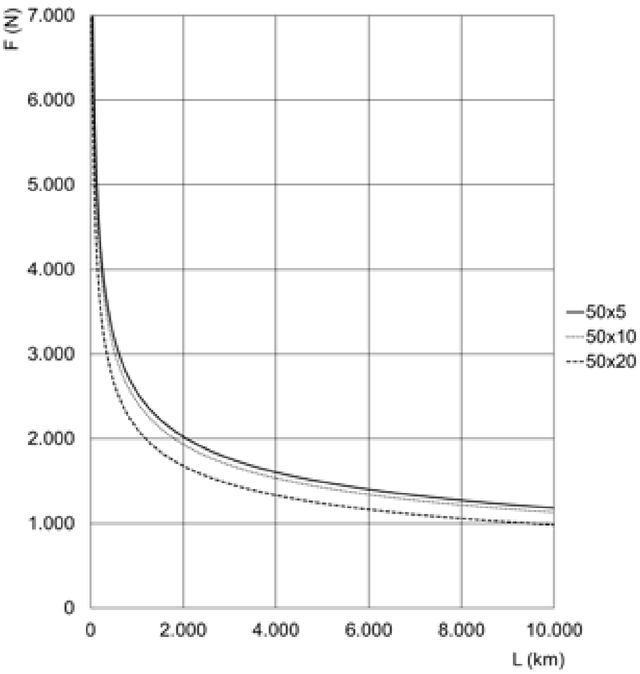
* Curves calculated with fw = 1



Size 40

F = Axial Force [N]
L = life [km]

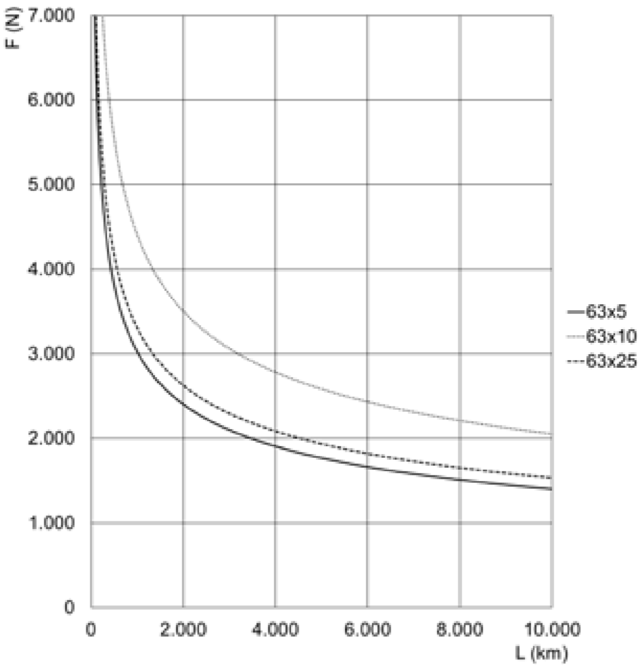
* Curves calculated with fw = 1



Size 50

F = Axial Force [N]
L = life [km]

* Curves calculated with fw = 1

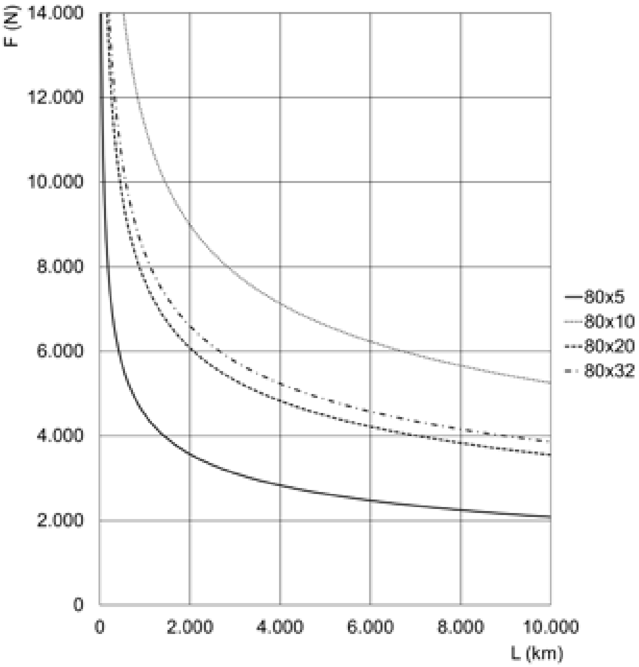


Size 63

F = Axial Force [N]
L = life [km]

* Curves calculated with fw = 1

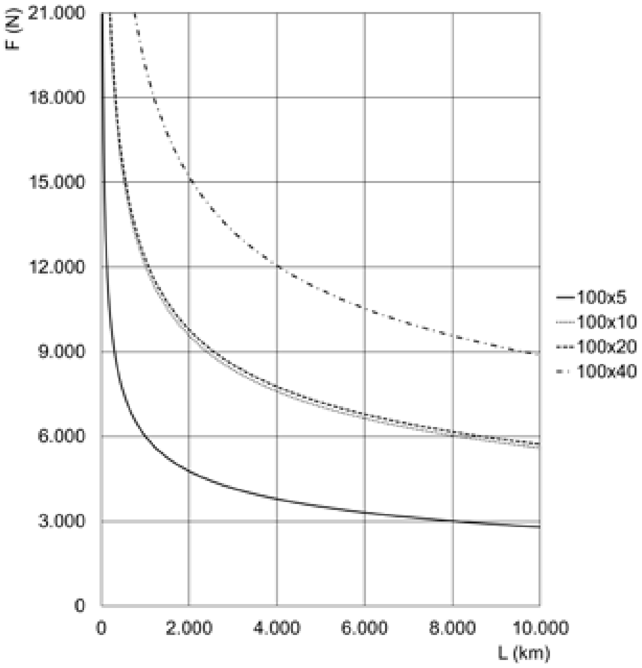
Life of the cylinder according to the average axial force applied



Size 80

F = Axial Force [N]
L = life [km]

* Curves calculated with fw = 1

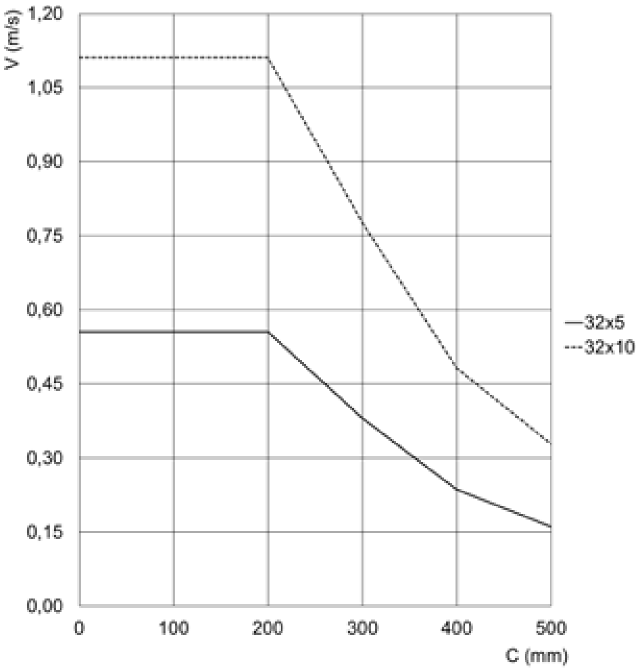


Size 100

F = Axial Force [N]
L = life [km]

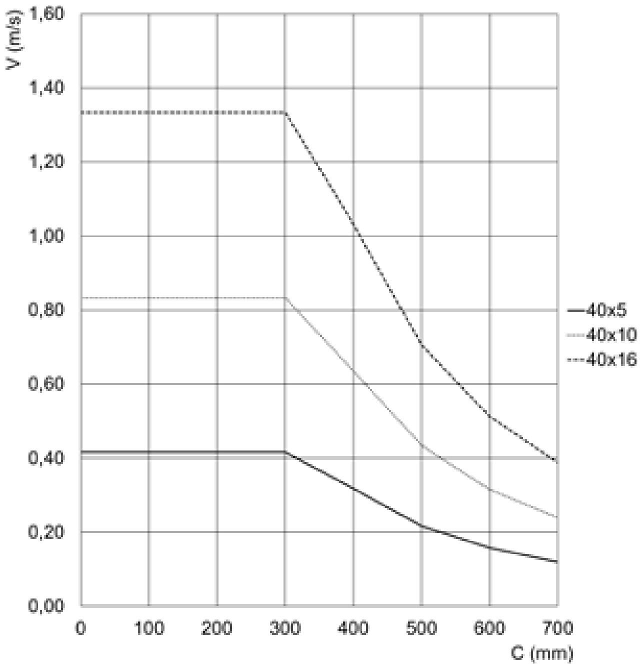
* Curves calculated with fw = 1

Maximum speed of the cylinder according to its stroke



Size 32

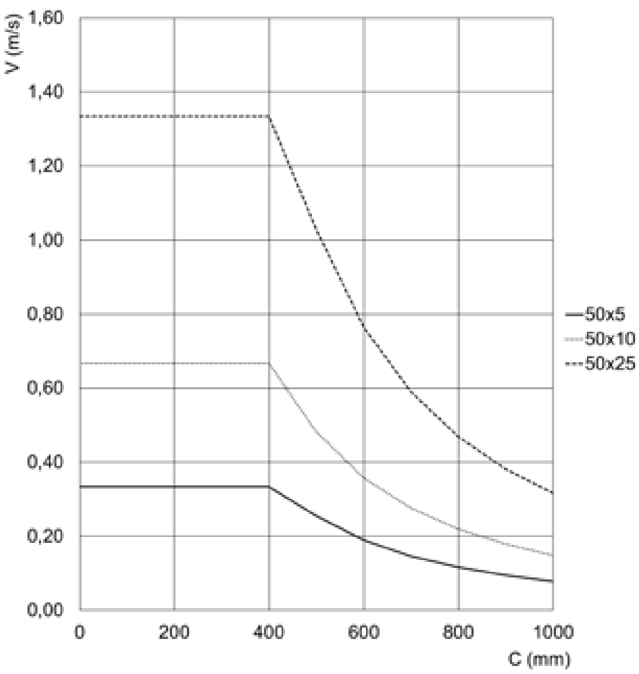
V = speed [m/s]
c = stroke [mm]



Size 40

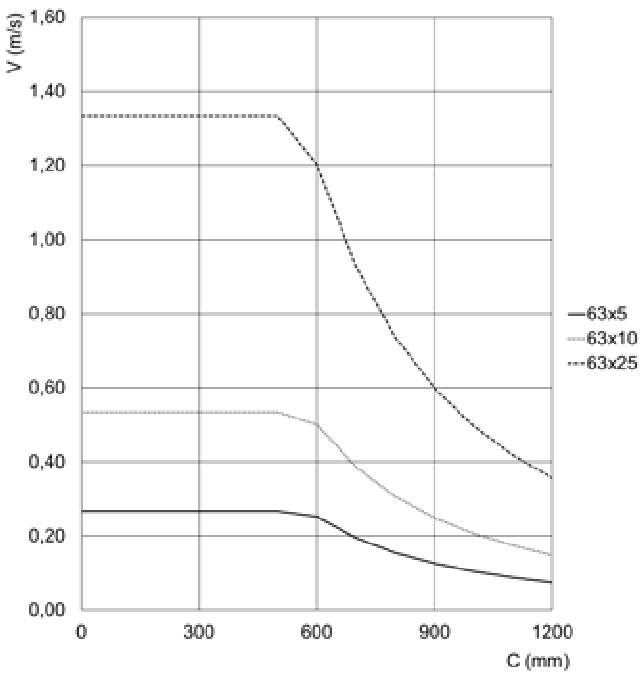
V = speed [m/s]
c = stroke [mm]

Maximum speed of the cylinder according to its stroke



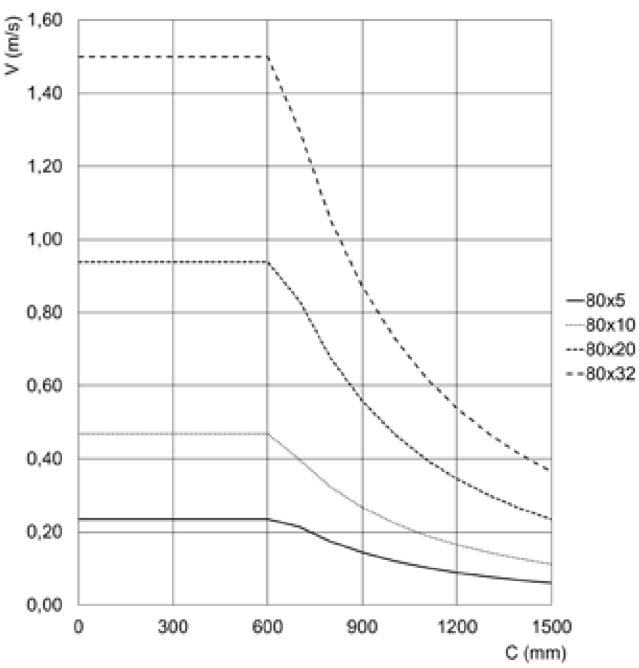
Size v

V = speed [m/s]
c = stroke [mm]



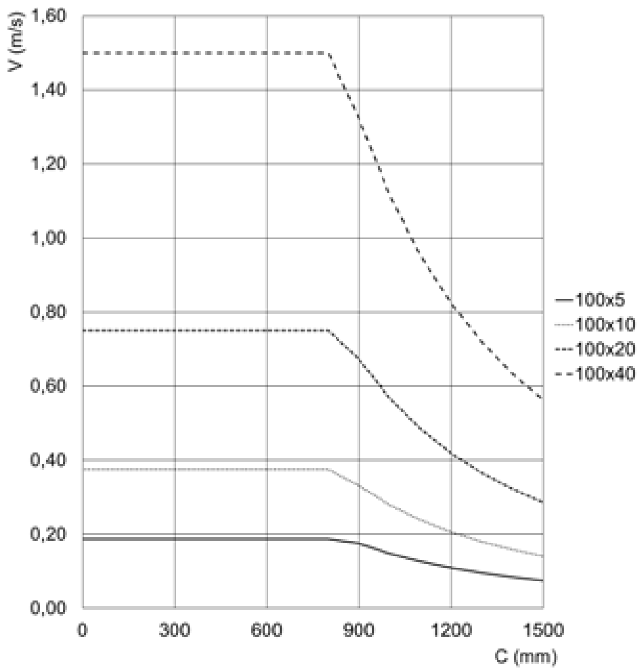
Size 63

V = speed [m/s]
c = stroke [mm]



Size 80

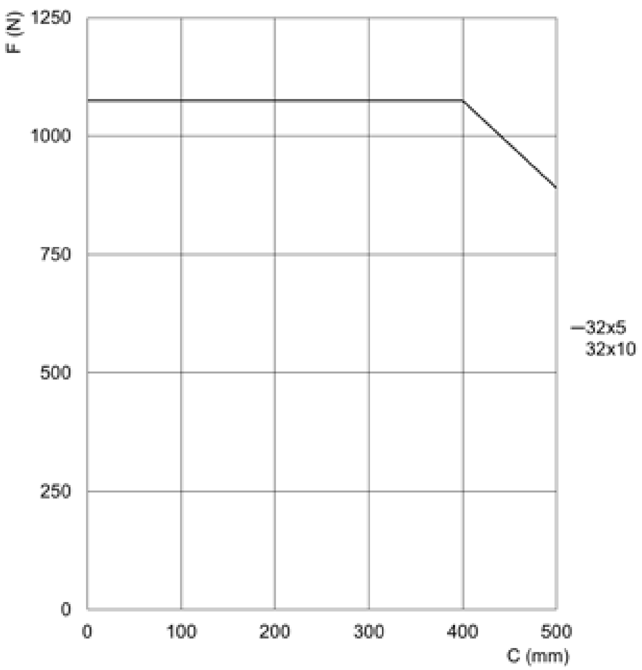
V = speed [m/s]
c = stroke [mm]



Size 100

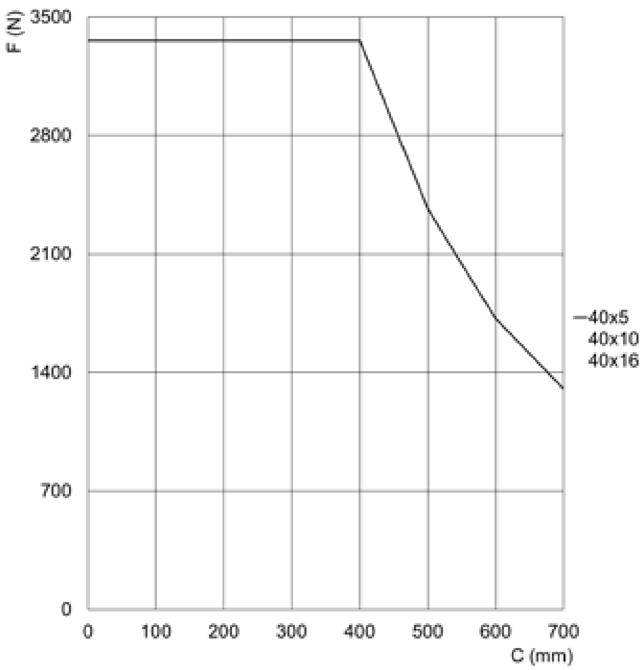
V = speed [m/s]
c = stroke [mm]

Maximum force of the cylinder according to its stroke



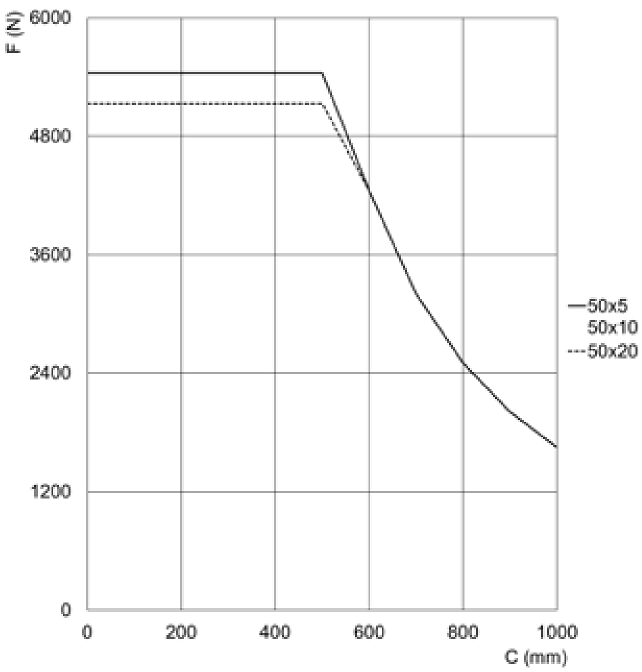
Size 32

F = static axial Force [N]
c = stroke [mm]



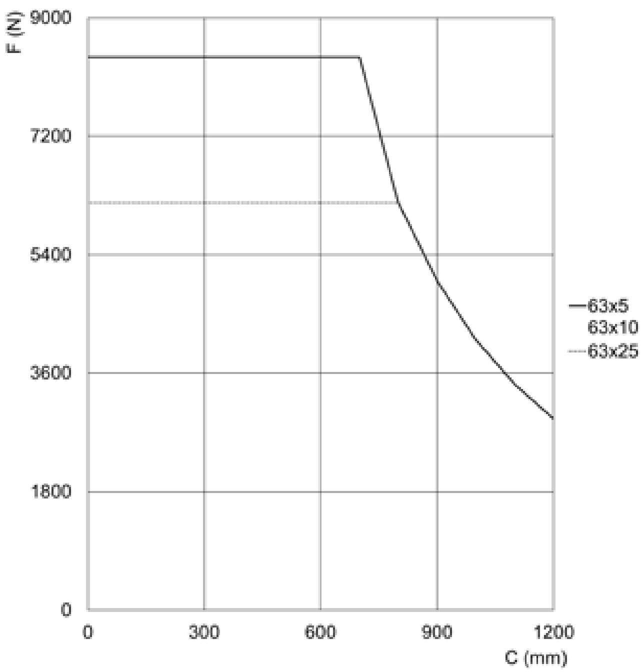
Size 40

F = static axial Force [N]
c = stroke [mm]



Size 50

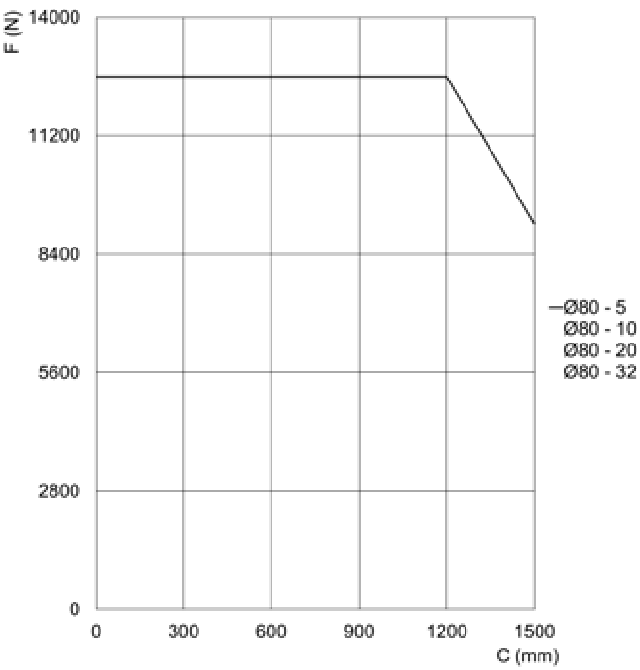
F = static axial Force [N]
c = stroke [mm]



Size 63

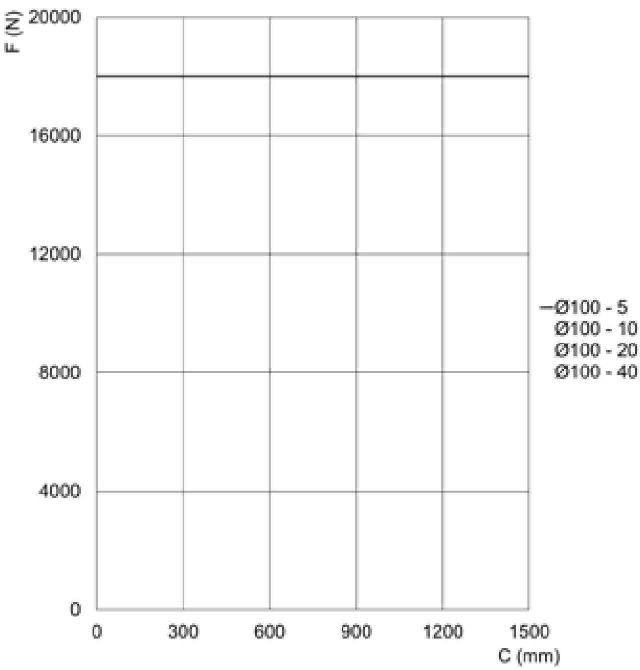
F = static axial Force [N]
c = stroke [mm]

Maximum force of the cylinder according to its stroke



Size 80

F = static axial Force [N]
c = stroke [mm]

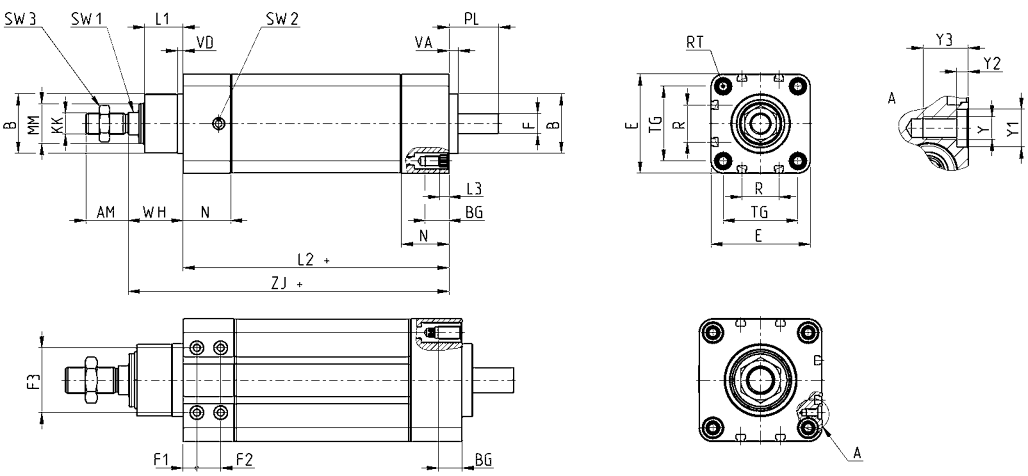


Size 100

F = static axial Force [N]
c = stroke [mm]

Series 6E cylinders

+ = add the stroke



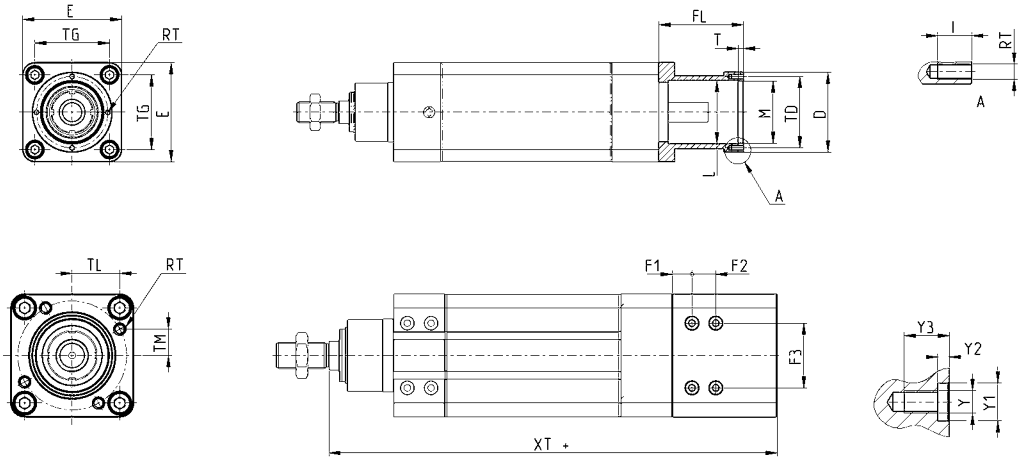
Size	AM	B	BG	E	F	F1	F2	F3	KK	L1	L2+	L3	MM	N	R	RT	PL	SW1	SW2	SW3	TG	VA	VD	Y	Y1	Y2	Y3	WH	ZJ+	weight stroke 0 [g]	weight stroke [g/100mm]
32	22	30	16	46.5	8	-	-	-	M10x1.25	20	125	5.5	18	26	13	M6	21	10	G1/8	17	32.5	6	4	-	-	-	-	30	155	1175	377
40	24	35	16	55.4	10	-	-	-	M12x1.25	22	142	5.5	22	27	13.5	M6	24	13	G1/8	19	38	6	4	-	-	-	-	33	175	1395	530
50	32	40	16	64.9	12	-	-	-	M16x1.5	26	173	5.5	25	36	16	M8	30	17	G1/8	24	46.5	7	4	-	-	-	-	38	211	2280	603
63	32	45	16	75	15	-	-	-	M16x1.5	29	201	5.5	30	36	28	M8	38	17	G1/8	24	56.5	7	4	-	-	-	-	42	242.5	3500	977
80	40	55	18	93	19	10.5	18	49	M20x1.5	35	211	-	40	39	30	M10	39	22	G1/4	30	72	8	8	M6	10	3	12	49	260	6440	1370
100	40	65	18	115	24	13	18	62	M20x1.5	38	232	-	50	44	40	M10	42	22	G1/4	30	89	8	8	M6	10	3	16	51	283	10725	2050

Housing for axial connection Mod. CM

Material: anodized aluminium

Supplied with:
1x housing
4x screws

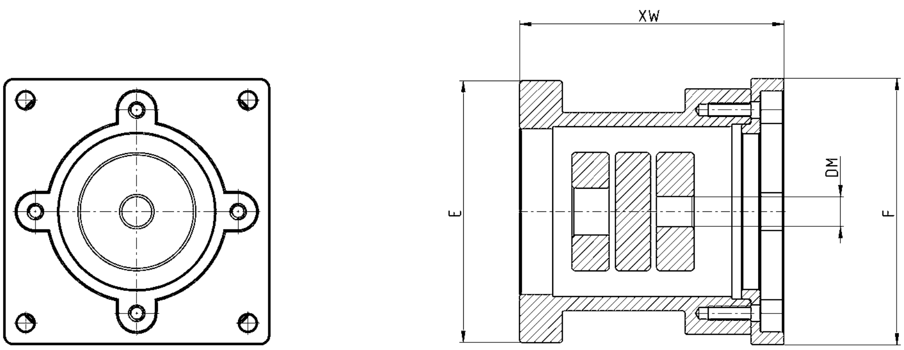
+ = add the stroke



Mod.	Size	XT	E	⌀D	TG	FL	⌀L	⌀M(H7)	T	TD	RT	I	Weight (g)
CM-6E-32	32	201	46.5	42	32.5	46	29	32	4	37	M3	9	100
CM-6E-40	40	224	55.4	52	38	49	36	37	4	43	M3	9	150
CM-6E-50	50	267	64.9	58	46.5	56	39	42	4	49	M4	9	225
CM-6E-63	63	306.5	75	60.5	56.5	64	48	47	4	54	M4	9	280

Kit for axial connection Mod. AM (Protection class IP40)

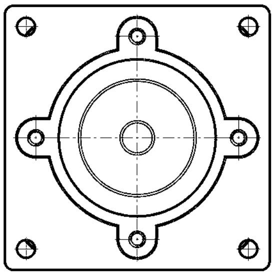
Supplied with:
1x housing
1x flange
1x flexible coupling
4x screws to connect
on the cylinder's side
4x screws to connect
on the motor's side

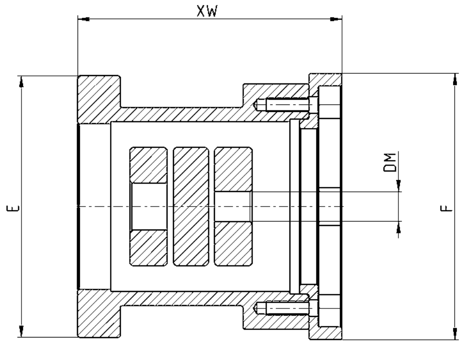


Mod.	Size	Motor	⌀DM	E	F	XW	Weight (g)	η
AM-6E-32-0100	32	MTB-010-…	8	46.5	42	55	165	0.78
AM-6E-32-0023	32	MTS-23-…	6.35	46.5	56.4	53	240	0.78
AM-6E-40-0400	40	MTB-040-…	14	55.4	60	67	290	0.78
AM-6E-40-0023	40	MTS-23-…	6.35	55.4	56.4	56	365	0.78
AM-6E-50-0400	50	MTB-040-…	14	64.9	60	73	435	0.78
AM-6E-50-0024	50	MTS-24-…	8	64.9	58	63	415	0.78
AM-6E-63-0750	63	MTB-075-…	19	75	80	90	845	0.78
AM-6E-63-0024	63	MTS-24-…	8	75	60.5	71	480	0.78

Kit for axial connection Mod. AM (Protection class IP65)

Supplied with:
1x housing
1x flange
1x flexible coupling
4x screws to connect on the cylinder's side
4x screws to connect on the motor's side

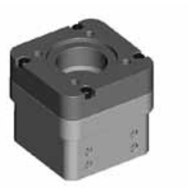




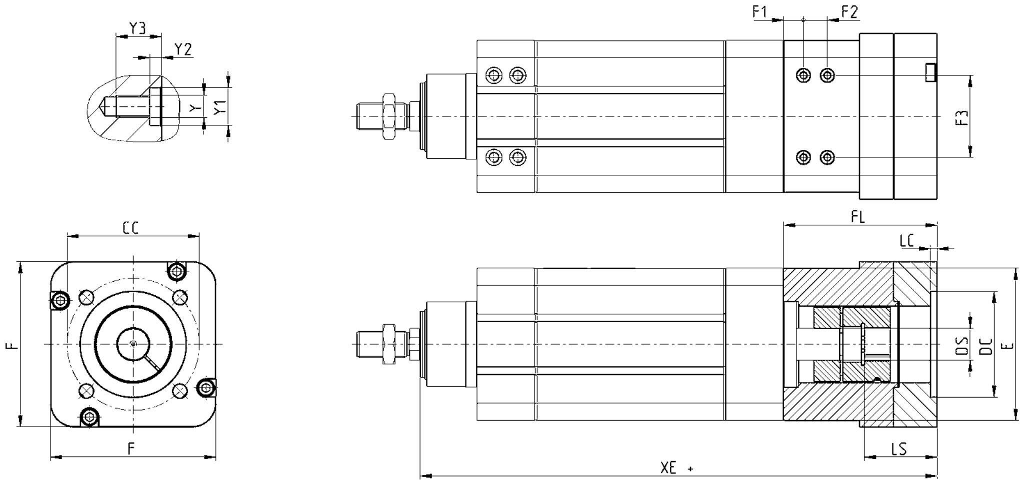
Mod.	Size	Motor	⌀DM	E	F	XW	Weight (g)	η
AM-6E-32-0100P	32	MTB-010-…	8	46.5	42	55	165	0.78
AM-6E-32-0023P	32	MTS-23-…	6.35	46.5	56.4	53	240	0.78
AM-6E-32-0024P	32	MTS-24-…	8	46.5	56.4	53	240	0.78
AM-6E-40-0400P	40	MTB-040-…	14	55.4	60	67	290	0.78
AM-6E-40-0023P	40	MTS-23-…	6.35	55.4	56.4	56	365	0.78
AM-6E-40-0024P	40	MTS-24-…	8	55.4	56.4	56	365	0.78
AM-6E-50-0400P	50	MTB-040-…	14	64.9	60	73	435	0.78
AM-6E-50-0750P	50	MTB-075-…	19	64.9	80	86	746	0.78
AM-6E-50-0024P	50	MTS-24-…	8	64.9	58	63	415	0.78
AM-6E-50-0034P	50	MTS-34-…	14	64.9	86	83	785	0.78
AM-6E-63-0750P	63	MTB-075-…	19	75	80	90	845	0.78
AM-6E-63-0024P	63	MTS-24-…	8	75	60.5	71	480	0.78
AM-6E-63-0034P	63	MTS-34-…	14	75	86	88	1025	0.78
AM-6E-80-1000P	80	MTB-100-…	24	93	130	112.5	2510	0.78
AM-6E-80-0034P	80	MTS-34-…	14	93	93	94.5	1885	0.78
AM-6E-100-1000P	100	MTB-100-…	24	115	30	115.5	3465	0.78
AM-6E-100-0034P	100	MTS-34-…	14	115	93	97.5	2840	0.78

Kit for axial connection Mod. AR (IP65)

New



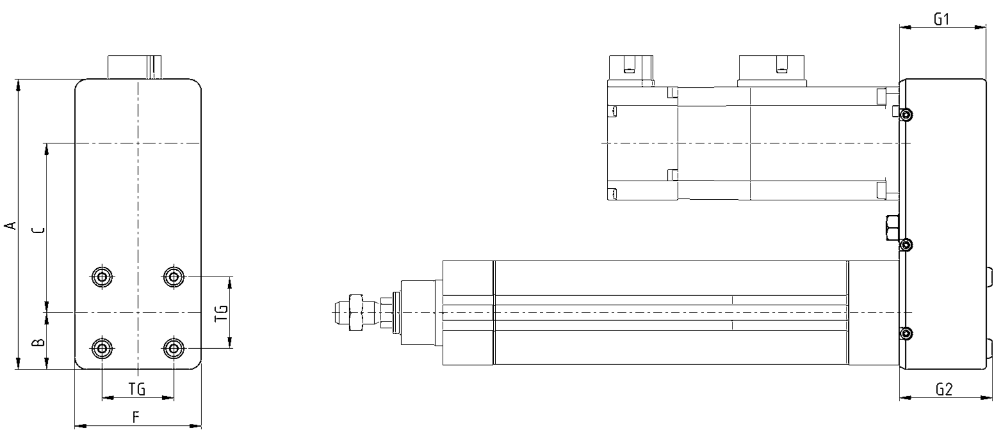
Supplied with:
2x flanges (1 for size 80)
8x screws
1x coupling
2x seals (1 for size 80)



Mod.	Size	Gearbox	XE+	FL	F	E	DC	LC	CC	F1	F2	F3	Y	Y1	Y2	Y3	DS	LS	Weight (g)
AR-6E-50-R060P	50	GB-060-...	287.4	76.4	-	64.9	40	30	52	-	-	-	-	-	-	-	14	35	630
AR-6E-63-R060P	63	GB-060-...	338.5	96	-	75	40	4	52	-	-	-	-	-	-	-	14	35	1100
AR-6E-80-R080P	80	GB-080-...	357.5	97.5	-	93	60	5	70	15	18	49	6	10	3.1	8.9	20	40	2090
AR-6E-100-R120P	100	GB-120-...	399	116	125	115	60	5	70	15	18	62	6	10	3.1	8.9	20	40	3800

Kit for parallel connection Mod. PM (Protection class IP40)

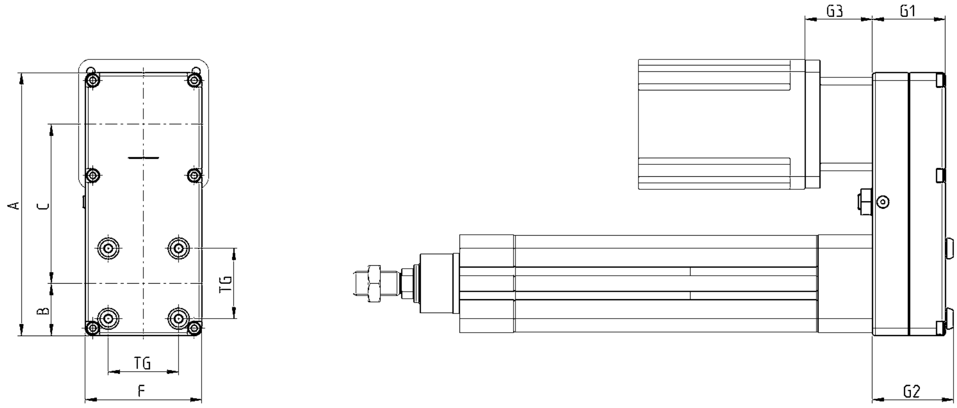
The kit includes:
1x flange to connect
the motor to the cylinder
1x cover
2x pulleys
2x locking sets
1x toothed belt
1x belt traction unit
4x fixing screws
4x screws for cylinder's side
4x screws rear cover
6x cover fixing screws



Mod.	Size	Motor	A	F	G1	G2	B	C	TG	Weight (g)	η
PM-6E-32-0100	32	MTB-010-…	122	50	35	38.2	26.5	65	32.5	400	0.62
PM-6E-40-0400	40	MTB-040-…	154	67	46	49.2	30	90	38	900	0.62
PM-6E-50-0400	50	MTB-040-…	174	77	48	52.4	34.5	105.5	46.5	1250	0.62
PM-6E-63-0750	63	MTB-075-…	192	87	50	54.4	41	107	56.5	1500	0.62

Kit for parallel connection Mod. PM (Protection class IP65)

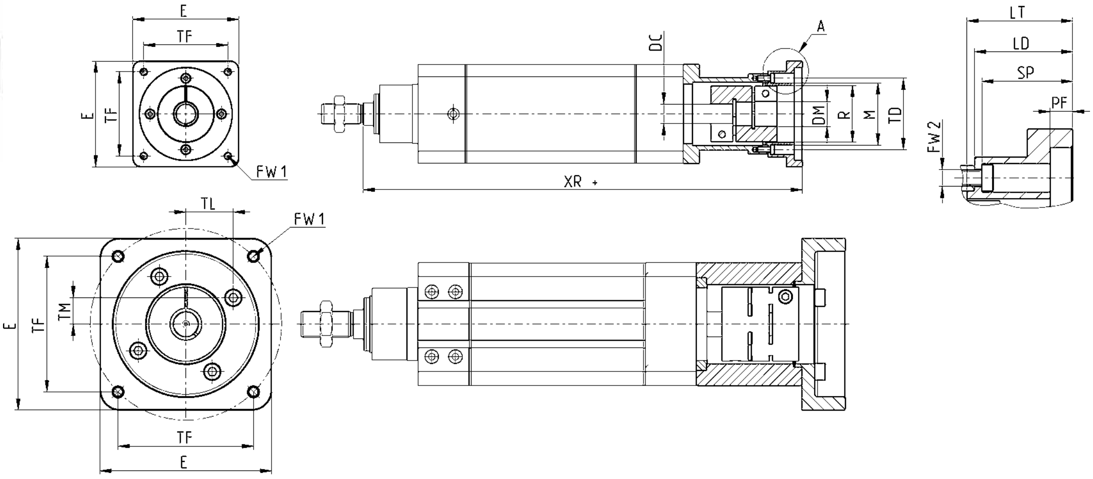
The kit includes:
1x front cover
1x rear cover
2x pulleys
2x locking sets
1x toothed belt
1x belt traction unit
4x screws for cylinder’s side
4x cover rear screws
 + seal washers
6x cover fixing screws
3x seals
1x seal plug
4x motor seal washers



Mod.	Size	Gearbox	Motor	G3	A	F	G1	G2	B	C	TG	Weight (g)	η
PM-6E-32-0100P	32	-	MTB-010-…	-	122	54	35	39.2	26.5	65	32.5	450	0.62
PM-6E-32-0024P	32	-	MTS-24-…	30	122	54	35	39.2	26.5	65	32.5	450	0.62
PM-6E-40-0400P	40	-	MTB-040-…	-	154	67	46	50.2	30	90	38	960	0.62
PM-6E-40-0024P	40	-	MTS-24-…	-	154	67	46	50.2	30	90	38	960	0.62
PM-6E-50-0400P	50	-	MTB-040-…	-	174	77	48	53.4	34.5	105.5	46.5	1375	0.62
PM-6E-50-0034P	50	-	MTS-34-…	44.5	174	77	48	53.4	34.5	105.5	46.5	1375	0.62
PM-6E-50-R060P	50	GB-060-…	MTB-040-…	-	174	77	48	53.4	34.5	105.5	46.5	1375	0.62
PM-6E-63-0750-P	63	-	MTB-075-…	-	192	87	50	55.4	41	107	56.5	1675	0.62
PM-6E-63-0034P	63	-	MTS-34-…	-	192	87	50	55.4	41	107	56.5	1675	0.62
PM-6E-63-R060P	63	GB-060-…	MTB-040…	-	192	87	50	55.4	41	107	56.5	1675	0.62
PM-6E-80-1000P	80	-	MTB-100-…	-	310	135	70	77	65	180	72	4457	0.62
PM-6E-80-0034P	80	-	MTS-34-…	-	310	135	70	77	65	180	72	4457	0.62
PM-6E-80-R080P	80	GB-080-…	MTB-075-…	-	310	135	70	77	65	180	72	4457	0.62
PM-6E-100-1000P	100	-	MTB-100-…	-	310	135	70	77	65	180	72	4457	0.62
PM-6E-100-0034P	100	-	MTS-34-…	-	310	135	70	77	65	180	72	4457	0.62
PM-6E-100-R080P	100	GB-080-…	MTB-075-…	-	310	135	70	77	65	180	72	4457	0.62

Flange for axial connection Mod. FM

Material: anodized aluminium



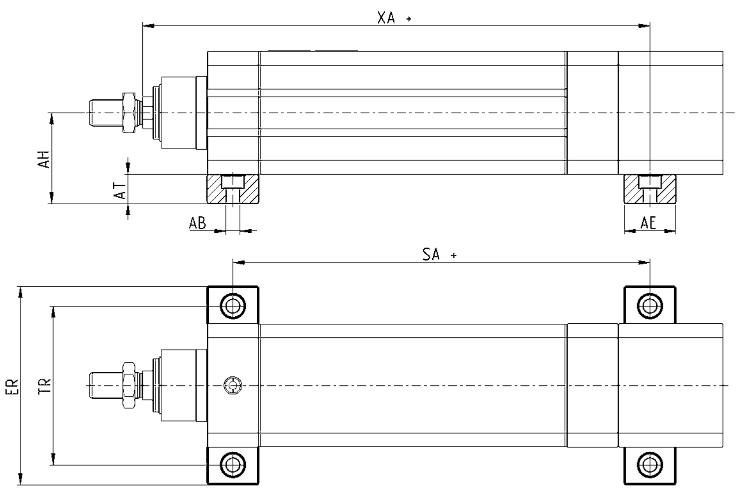
Supplied with:
1x flange
1x flexible coupling
4x screws

+ = add the stroke

Mod.	Size	Housing	Motor	XR	ØC (h7)	PF	LT	LD	ØM (H7)	E	ØR	TF	FW1	ØTD	SP	ØFW2	ØDC	ØDM	Weight (g)
FM-6E-32-0100	32	CM-6E-32	MTB-010-...	210	30	6	11	9	32	42	29	31.8	M3	37	6	3.5	8	8	65
FM-6E-32-0023	32	CM-6E-32	MTS-23-...	208	38.1	5	9	7	32	56.4	29	47.1	M4	37	5	3.5	8	6.35	140
FM-6E-40-0400	40	CM-6E-40	MTB-040-...	242	50	3.5	20	18	37	60	33	49.5	M5	43	3.5	3.5	10	14	140
FM-6E-40-0023	40	CM-6E-40	MTS-23-...	231	38.1	5	9	7	37	56.4	33	47.1	M4	43	5	3.5	10	6.35	215
FM-6E-50-0400	50	CM-6E-50	MTB-040-...	284	50	6	19	17	42	60	37	49.5	M5	49	14	4.5	12	14	210
FM-6E-50-0024	50	CM-6E-50	MTS-24-...	274	38.1	3	9	7	42	58	37	47.1	M4	49	4	4.5	12	8	190
FM-6E-63-0750	63	CM-6E-63	MTB-075-...	332.5	70	6	28	26	47	80	43	63.6	M6	54	24	4.5	15	19	565
FM-6E-63-0024	63	CM-6E-63	MTS-24-...	313.5	38.1	5	9	7	47	60.5	43	47.1	M4	54	5	4.5	15	8	200

Cylinder bracket Mod. BA-6E

New



Supplied with:
2x feet
8x centring rings
8x screws

Mod.	Size	XA	AH	AT	ØAB	SA	ER	TR	Weight (g)
BA-6E-80	80	283.85	68.5	22	10.5	215.5	150	120	630
BA-6E-100	100	306.85	79.5	22	10.5	234	170	140	800

1

MOVEMENT

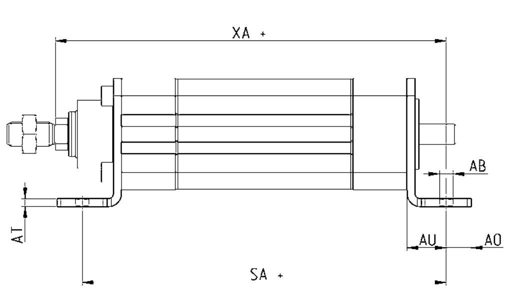
Foot bracket Mod. B-6E

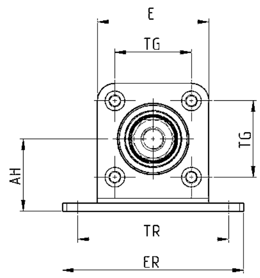
Material: zinc-plated steel

Supplied with:
2x feet
8x screws

* Mounting available for sizes 32, 40, 50 and 63 only

+ = add the stroke





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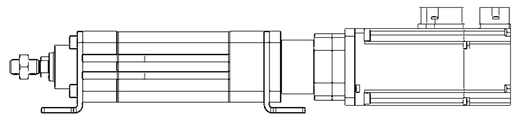

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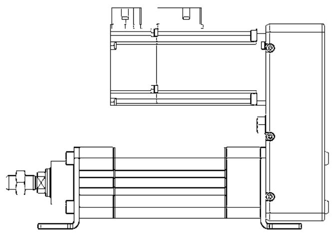
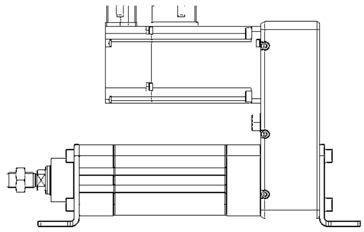


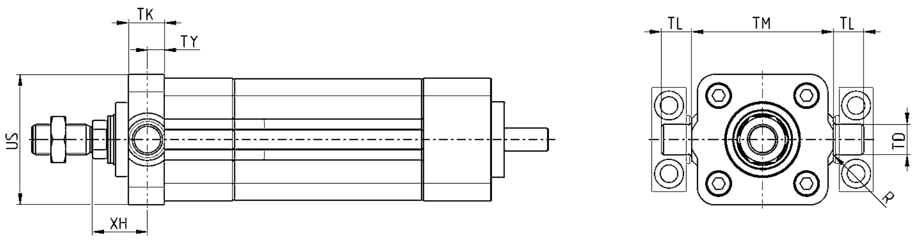


Mod.	Size	SA	XA	AH	TG	TR	AT	AU	AO	øAB	ER	E	Weight (g)
B-6E-32	32	164	174.5	32	32.5	65	4	19.5	12.5	6.6	79	46.5	275
B-6E-40	40	181	194.5	36	38	75	4	19.5	12.5	6.6	90	55.4	340
B-6E-50	50	223	236	45	46.5	90	5	25	15	9	110	64.9	635
B-6E-63	63	251	267.5	50	56.5	100	5	25	15	9	120	75	755
B-6E-80	80	278	293.5	68.5	72	120	6	33.5	17.5	10.5	140	93	1300
B-6E-100	100	299	316.5	79.5	89	140	6	33.5	17.5	10.5	170	115	1800

Front spot faced trunnion Mod. FN

Material: zinc-plated steel

Supplied with:
1x spot faced trunnion
4x screws

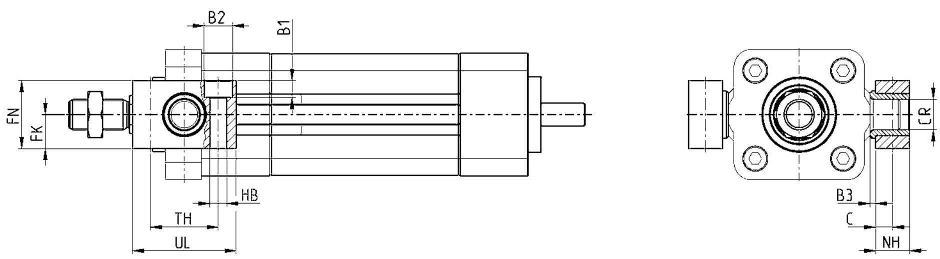


Mod.	Ø	TK	TY	XH	US	TL	TM	⌀TD	R	torque force
FN-32	32	14	6.5	23.5	46	12	50	12	1	5 Nm
FN-40	40	19	9	24	59	16	63	16	1.5	5 Nm
FN-50	50	19	9	29	69	16	75	16	1.6	10 Nm
FN-63	63	24	11.5	30.5	84	20	90	20	1.6	10 Nm
FN-80	80	24	11.5	34.5	102	20	110	20	1.6	15 Nm
FN-100	100	29	14	37	125	25	132	25	2	15 Nm

Counter bracket for front trunnion Mod. BF

Material: aluminium

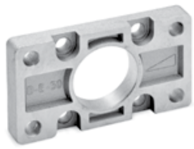
Supplied with:
2x supports



Mod.	Ø	⌀CR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-32	32	12	15	7.5	3	32	46	15	30	6.8	11	6.6
BF-40-50	40 - 50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	100 - 125	25	25	12.5	3.5	50	75	25	50	13	20	14

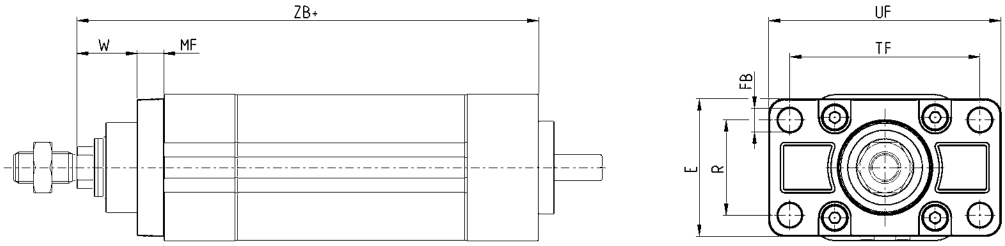
Front flange Mod. D-E

Material: aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke

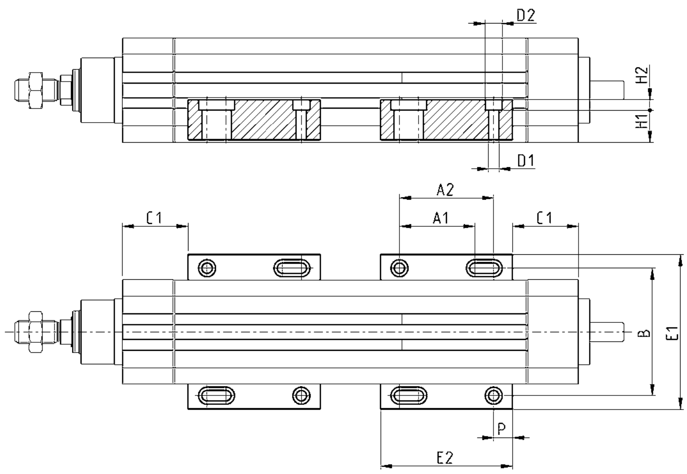


Mod.	Size	W	MF	ZB+	TF	R	UF	E	FB	torque force
D-E-41-32	32	20	10	155	64	32	86	45	7	6 Nm
D-E-41-40	40	23	10	175	72	36	88	52	9	6 Nm
D-E-41-50	50	26.5	12	211	90	43	110	63	9	13 Nm
D-E-41-63	63	30	12	242.5	100	50	116	73	9	13 Nm
D-E-41-80	80	30	16	260	126	63	148	95	12	15 Nm
D-E-41-100	100	35	16	283	150	75	176	115	14	15 Nm

Side clamping bracket Mod. BG

Material: aluminium

Supplied with:
2x clamps



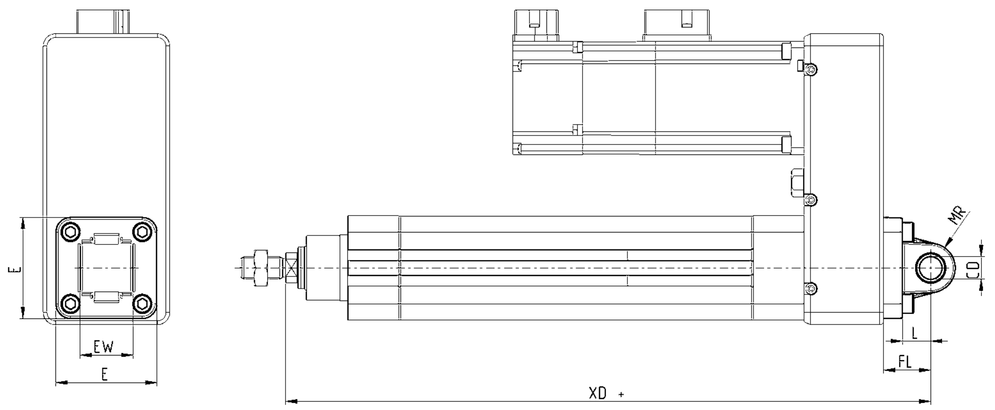
Mod.	Size	C1	E1	E2	P	A1	A2	B	Screw	⌀D1	⌀D2	H1	H2	Weight (g)
BG-6E-32	32	35	71	70	10	40	50	58.5	M4	4.5	7.5	13.5	4.5	80
BG-6E-40	40	35	82	70	10	40	50	67.5	M5	5.5	9	16.9	5.5	105
BG-6E-50	50	35	93	70	10	40	50	76.5	M6	6.5	10.5	19.4	6.5	125
BG-6E-63	63	35	103.5	70	10	40	50	87	M6	6.5	10.5	18.9	6.5	125
BG-6E-80	80	45	131	90	17.5	50	60	111.6	M8	8.5	14	22.5	8.5	260
BG-6E-100	100	50	153	90	17.5	50	60	133.6	M8	8.5	14	28	8.5	300

Rear male trunnion Mod. L

Material: aluminium

Supplied with:
1x male trunnion
4x screws

+ = add the stroke



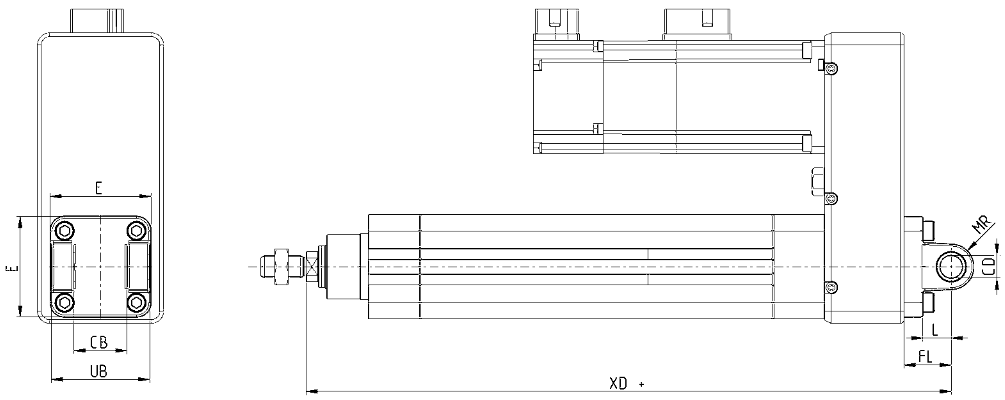
Mod.	Size	⌀CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	212	10	45	26	6 Nm
L-41-40	40	12	15	25	246	13	53.5	28	6 Nm
L-41-50	50	12	15	27	286	13	62.5	32	13 Nm
L-41-63	63	16	20	32	324.5	17	73	40	13 Nm
L-41-80	80	16	24	36	373	17	92	50	15 Nm
L-41-100	100	20	29	41	401	21	108.5	60	15 Nm

Rear female trunnion Mod. C and C-H

Material: aluminium

Supplied with:
1x female trunnion
4x screws

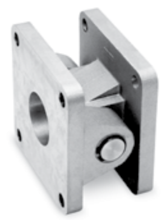
+ = add the stroke



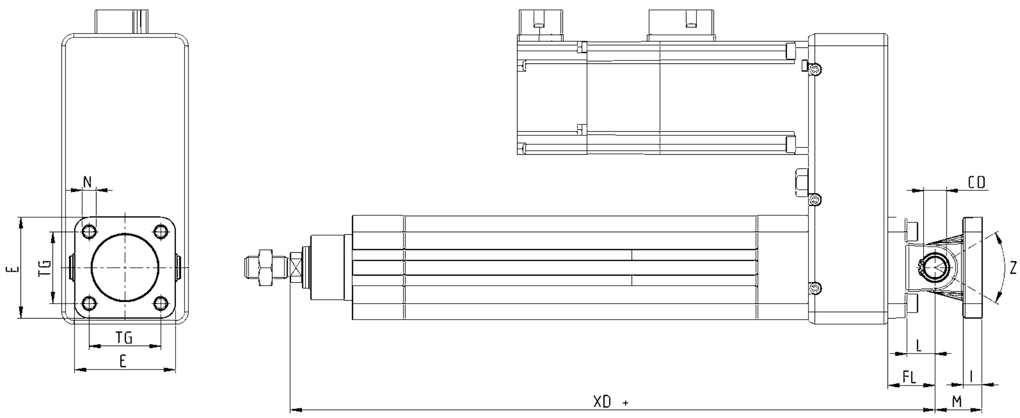
Mod.	Size	⌀CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	212	10	45	26	45	6 Nm
C-41-40	40	12	15	25	246	12	53.5	28	52	6 Nm
C-41-50	50	12	15	27	286	13	62.5	32	60	13 Nm
C-H-41-63	63	16	20	32	324.5	17	73	40	70	13 Nm
C-H-41-80	80	16	24	36	373	17	92	50	90	15 Nm
C-H-41-100	100	20	29	41	401	21	108.5	60	110	15 Nm

Accessory combination Mod. C+L+S

Material: aluminium



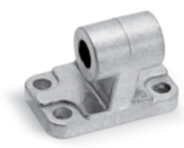
+ = add the stroke



Mod.	Size	E	TG	⌀N	XD+	⌀CD	L	FL	I	M	Z° (max)	torque force
C+L+S	32	45	32.5	6.5	142	10	12	22	10	22	30	6 Nm
C+L+S	40	53.5	38	6.5	160	12	15	25	10	25	40	6 Nm
C+L+S	50	62.5	46.5	9	170	12	15	27	12	27	25	13 Nm
C+L+S	63	73	56.5	9	190	16	20	32	12	32	36	13 Nm
C+L+S	80	92	72	11	373	16	24	36	12	36	34	15 Nm
C+L+S	100	108.5	89	11	401	20	29	41	12	41	38	15 Nm

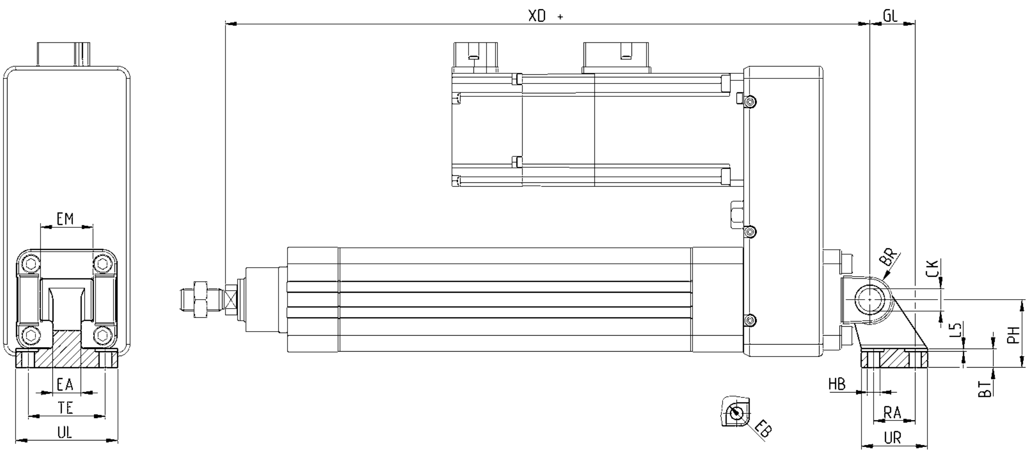
90° male trunnion Mod. ZC

CETOP RP 107P
Material: aluminium



Supplied with:
1x male support

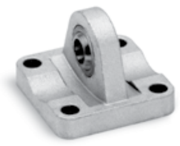
+ = add the stroke



Mod.	Size	⌀EB	⌀CK	⌀HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6.6	212	38	51	10	21	1.6	18	26	31	32	8	10
ZC-40	40	11	12	6.6	246	41	54	15	24	1.6	22	28	35	36	10	11
ZC-50	50	15	12	9	286	50	65	16	33	1.6	30	32	45	45	12	13
ZC-63	63	15	16	9	324.5	52	67	16	37	1.6	35	40	50	50	14	15
ZC-80	80	18	16	11	373	66	86	20	47	2.5	40	50	60	63	14	15
ZC-100	100	18	20	11	401	76	96	20	55	2.5	50	60	70	71	17	19

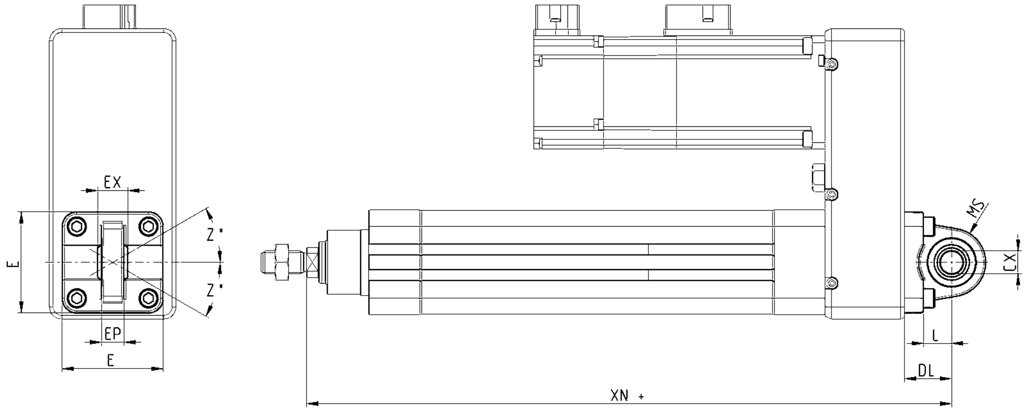
Trunnion ball-joint Mod. R

This trunnion doesn’t comply with the ISO 15552 standard
Material: aluminium



Supplied with:
1x trunnion ball joint
4x screws

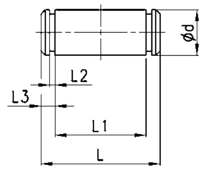
+ = add the stroke



Mod.	Size	⌀CX	L	DL	XN+	MS	E	EX	RP	Z	torque force
R-41-32	32	10	12	22	212	18	45	14	10.5	4°	6 Nm
R-41-40	40	12	15	25	246	18	53.5	16	12	4°	6 Nm
R-41-50	50	12	15	27	286	21	62.5	16	12	4°	13 Nm
R-41-63	63	16	20	32	324.5	23	73	21	15	4°	13 Nm
R-41-80	80	16	24	36	373	28	92	21	15	4°	15 Nm
R-41-100	100	20	29	41	401	30	108.5	25	18	4°	15 Nm

Clevis pin Mod. S

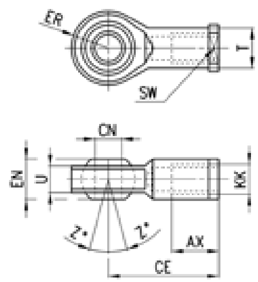
Supplied with:
1x clevis pin in
stainless steel 303
2x Seeger in steel



Mod.	Size	⌀d	L	L1	L2	L3
S-32	32	10	52	46	1.1	3
S-40	40	12	59	53	1.1	3
S-50	50	12	67	61	1.1	3
S-63	63	16	77	71	1.1	3
S-80	80	16	97	91	1.1	3
S-100	100	20	121	111	1.3	5

Swivel ball joint Mod. GA

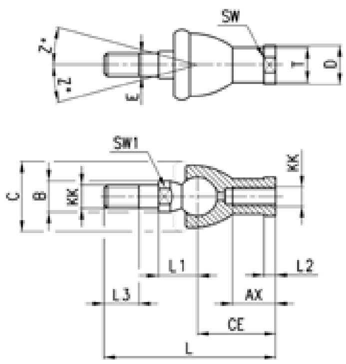
ISO 8139.
Material: zinc-plated steel



Mod.	⌀CN (H7)	U	EN	ER	AX	CE	KK	⌀T	Z	SW
GA-32	10	10,5	14	14	20	43	M10X1,25	15	6,5	17
GA-40	12	12	16	16	22	50	M12X1,25	17,5	6,5	19
GA-50-63	16	15	21	21	28	64	M16X1,5	22	7,5	22
GA-80-100	20	18	25	25	33	77	M20x1,5	27,5	7	30

Piston rod socket joint Mod. GY

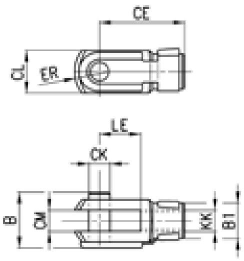
Material: zama and zinc-plated steel



Mod.	Size	KK	AX	CE	E	L	L1	L2	L3	SW	SW1	⌀B	⌀C	⌀D	⌀T	Z
GY-32	32	M10X1.25	18	35	10	74	19.5	6.5	15	17	11	14	28	19	15	15
GY-40	40	M12X1.25	20	40	12	84	21	6.5	17	19	17	19	32	22	17.5	15
GY-50-63	50-63	M16X1.5	27	50	16	112	27.5	8	23	22	19	22	40	27	22	11
GY-80-100	80-100	M20x1.5	38	63	20	133	31.5	10	25	30	24	27	45	34	27.5	7.5

Rod fork end Mod. G

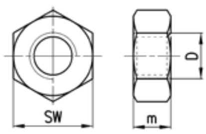
ISO 8140
Material: zinc-plated steel



Mod.	⌀CK	LE	CM	CL	ER	CE	KK	B	⌀B1
G-25-32	10	20	10	20	12	40	M10 X 1.25	26	18
G-40	12	24	12	24	14	48	M12 X 1.25	32	20
G-50-63	16	32	16	32	19	64	M16 X 1.5	40	26
G-80-100	20	40	20	40	25	80	M20 X 1.5	48	34

Piston rod lock nut Mod. U

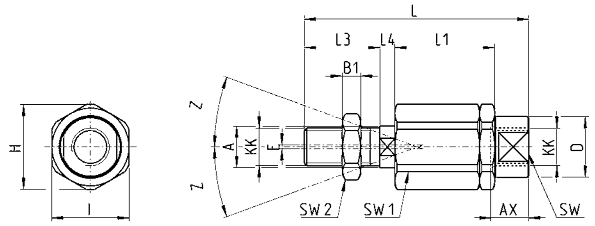
ISO 4035
Material: zinc-plated steel



Mod.	D	m	SW
U-25-32	M10X1.25	6	17
U-40	M12X1.25	7	19
U-50-63	M16X1.5	8	24
U-80-100	M20x1.5	9	30

Self aligning rod Mod. GK

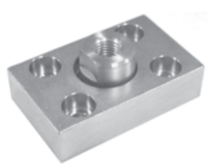
Material: zinc-plated steel

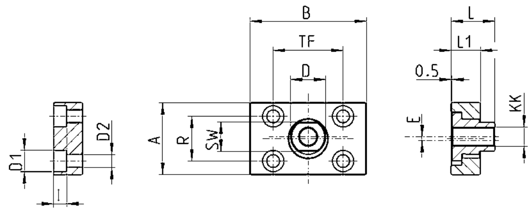


Mod.	Size	KK	L	L1	L3	L4	⌀A	⌀D	H	I	SW	SW1	SW2	B1	AX	Z	E
GK-25-32	32	M10x1.25	71.5	35	20	7.5	14	22	32	30	19	12	17	5	22	4	2
GK-40	40	M12x1.25	75.5	35	24	7.5	14	22	32	30	19	12	19	6	22	4	2
GK-50-63	50-63	M16x1.5	104	53	32	10	22	32	45	41	27	20	24	8	30	3	2
GK-80-100	80-100	M20x1.5	119	53	40	10	22	32	45	41	27	20	30	10	37	3	2

Coupling piece Mod. GKF

Material: zinc-plated steel

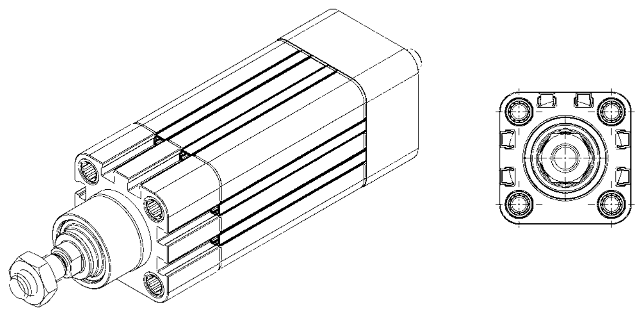




Mod.	Size	KK	A	B	R	TF	L	L1	I	⌀D	⌀D1	⌀D2	SW	E
GKF-25-32	32	M10x1.25	37	60	23	36	22.5	15	6.8	18	11	6.6	15	2
GKF-40	40	M12x1.25	56	60	38	42	22.5	15	9	20	15	9	15	2.5
GKF-50-63	50-63	M16x1.5	80	80	58	58	26.5	15	10.5	25	18	11	22	2.5
GKF-80-100	80-100	M20x1.5	90	90	65	65	32.5	20	13	30.5	20	14	27	2.5

Slot cover profile Mod. S-CST-500

Supplied with 500 mm tube



Mod.
S-CST-500

Series 5E electromechanical axis

New models/

Sizes 50, 65, 80
Available versions: standard axis, support axis, reinforced axis

- Multiposition system with transmission of the movement with toothed belt
- Suitable for high dynamics
- Possibility to connect the motor on 4 sides
- Large range of motor interfaces
- Possibility to use magnetic proximity switches and/ or inductive sensors
- IP 40
- Max stroke 6 meters
- Plates to realize multi-axis systems
- Presence of internal channels for re-lubrication
- Large range of axis mounting accessories
- Sliders available: standard, long, double

Series 5E axes are mechanical linear actuators in which the rotary movement generated by a motor is converted into a linear movement by means of a toothed belt.
The Series 5E, available in 3 sizes, 50, 65 and 80, is realized by means of a special self-supporting square profile, in which the components have been completely integrated, assuring compactness and light weight.
The presence of a recirculating ball guide grants high stiffness and resistance to external loads.

To protect the internal elements from potential contaminants from the external environment, the profile has been closed with a stainless steel plate. The axis is equipped with a magnet that makes it possible to use external proximity switches (Series CSH), allowing operations like homing or extra-stroke readings to be performed. Moreover, these actuators also have accessories in order to be used with inductive sensors.
The Series 5E is equipped with specific interface kits making it possibleto connect the motor on 4 sides. The use with high dynamics and the possibility to realize multi-axis systems, make the Series 5E particularly suitable for the packaging and assembly sectors.

GENERAL DATA

Construction	electromechanical axis with toothed belt
Design	open profile with protection plate
Operation	multi-position actuator
Sizes	50, 65, 80
Strokes	50 ÷ 4000 mm for size 50; 50 ÷ 6000 mm for sizes 65 and 80
Type of guide	internal, with recirculating balls (cage type)
Fixing	by means of slots on the profile and special clamps
Mounting motor	on all 4 sides
Operating temperature	-10°C ÷ +50°C
Storage temperature	-20°C ÷ +80°C
Protection class	IP 40
Lubrication	centralized lubrification by means of internal channels
Repeatability	± 0.05 mm
Duty cycle	100%
Use with external sensors	Series CSH magnetic switches in special slots or inductives by means of supports

1

MOVEMENT

CODING EXAMPLE

5E	S	050	TBL	0200	A	S	2(500)

5E	SERIES
S	PROFILE: S = square section
050	FRAME SIZE: 050 = 50x50 mm 065 = 65x65 mm 080 = 80x80 mm
TBL	TRANSMISSION: TBL = toothed belt
0200	STROKE [C]: 0050 ÷ 4000 mm for size 050 0050 ÷ 6000 mm for sizes 065 and 080
A	VERSIONS: A = standard axis D = support axis H = reinforced axis
S	TYPE OF SLIDER: S = standard L = long - only for standard axis (A version)
2(500)	NUMBER OF SLIDERS: 1 = 1 slider 2(____) = 2 sliders at (____) mm step - only for standard axis (A) with standard slider (S)

MECHANICAL CHARACTERISTICS

(A) Value refers to a covered distance of 2000 Km with fully supported system.
(B) The “suggested” speed is not the mechanical limit of the unit but represents the best compromise between high load applied and high dynamics.
In case of particular requirements, please contact our technical assistance (service@camozzi.com).

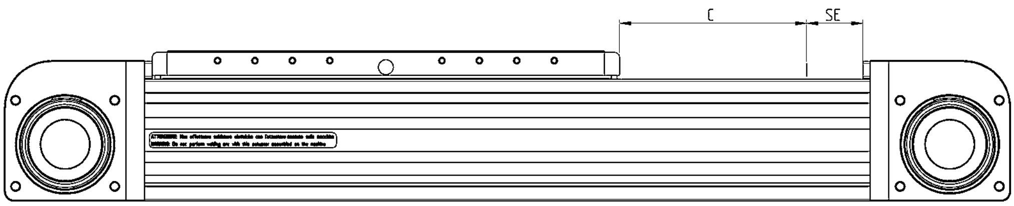
		Size 50	Size 50	Size 50	Size 50	Size 65	Size 65	Size 65	Size 65	Size 80	Size 80	Size 80	Size 80
RECIRCULATING BALL GUIDE (CAGE TYPE)													
Version		A	A	D	H	A	A	D	H	A	A	D	H
Type of slider		S	L	S	S	S	L	S	S	S	L	S	S
Number of guides		1	1	1	2	1	1	1	2	1	1	1	2
Number of RDS blocks	pcs	2	3	2	4	2	3	2	4	2	3	2	4
Dynamic load of RDS blocks (C)	N	11640	17460	11640	23280	28400	42600	28400	56800	44600	66900	44600	89200
Max admissible load (C_{max} z, C_{max} y)	N	3100(A)	5100(A)	3100(A)	6800(A)	8300(A)	12450(A)	8300(A)	16600(A)	13100(A)	19600(A)	13100(A)	26080(A)
Max admissible moment (M_{max} x)	Nm	22.44	31.23	22.44	105(A)	96.00	144.00	96.00	380(A)	216.60	324.9	216.6	740(A)
Max admissible moment (M_{max} y, M_{max} z)	Nm	45.30	96.76	45.3	185(A)	269.40	612.64	269.4	530(A)	525.00	1193.17	525.00	1200(A)
Max linear speed of mechanics (V_{max})	m/s	5	2.5(B)	5	2.5(B)	5	2.5(B)	5	2.5(B)	5	2.5(B)	5	2.5(B)
Max linear acceleration of mechanics (a_{max})	m/s²	50	20(B)	50	20(B)	50	20(B)	50	20(B)	50	20(B)	50	20(B)
PROFILE													
Mass in movement	kg	0.45	0.62	0.45	1.32	1.10	1.51	1.10	2.78	2.30	3.11	2.30	6.96
Mass in movement per stroke meter	kg/m	0.13	0.13	0.13	0.13	0.21	0.21	0.21	0.21	0.41	0.41	0.41	0.41
Moment of surface inertia Iy	mm⁴	$1.89 \cdot 10^5$	$1.89 \cdot 10^5$	$1.89 \cdot 10^5$	$1.89 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$
Moment of surface inertia Iz	mm⁴	$2.48 \cdot 10^5$	$2.48 \cdot 10^5$	$2.48 \cdot 10^5$	$2.48 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$
TOOTHED BELT													
Type		20 AT 5 HP	20 AT 5 HP	-	20 AT 5 HP	32 AT 5 HP	32 AT 5 HP	-	32 AT 5 HP	32 AT 5 HP	32 AT 5 HP	-	32 AT 5 HP
Pitch	mm	5	5	-	5	5	5	-	5	10	10	-	10
Max transmittable load	N	See the diagram	See the diagram	-	See the diagram	See the diagram	See the diagram	-	See the diagram	See the diagram	See the diagram	-	See the diagram
PULLEY													
Effective diameter of the pulley	mm	31.83	31.83	-	31.83	47.75	47.75	-	47.75	63.66	63.66	-	63.66
Number of teeth	z	20	20	-	20	30	30	-	30	20	20	-	20
Linear movement per pulley round	mm/round	100	100	-	100	150	150	-	150	200	200	-	200
NOTE: check the nominal admissible torque of the used motion transmission devices.													

SERIES 5E STROKE

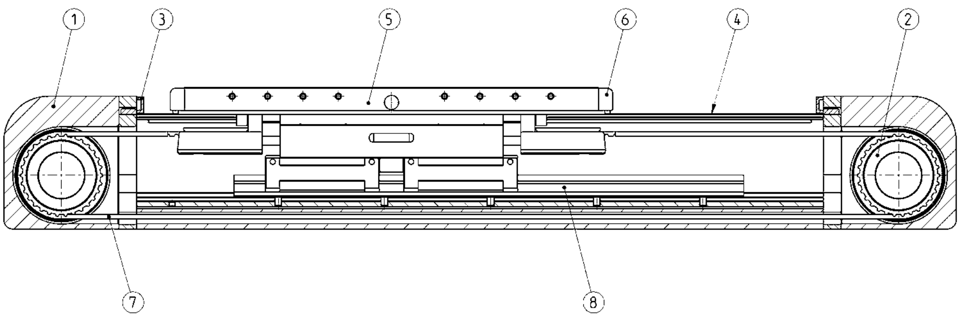
LEGEND:

C = Stroke
SE = Standard extra-stroke [5ES050.. = 30mm]
[5ES065.. = 30mm]
[5ES080.. = 30mm]

NOTES:
- Should an additional extra-stroke be required, it must be foreseen by the client.
- The slider should never work in stop on the header.



SERIES 5E MATERIALS



COMPONENTS	MATERIALS
1. End cap	Aluminium
2. Pulley	Steel
3. End cap bumper	Technopolymer
4. Protection plate	Steel
5. Slider	Aluminium
6. Bumper	Technopolymer
7. Toothed belt	PU + Steel
8. Recirculating ball guide	Steel

How to calculate the life of the axis 5E

The correct dimensioning of the axis 5E, used individually or in a cartesian system with several axes, you need to consider some facts, both static and dynamic. Among these, the most important are described on the following pages.

CALCULATION OF LIFE [km]

$$L_{eq} = \left(\frac{C_{ma}}{C_{eq} \cdot f_w}\right)^3 \cdot 2000$$

L_{eq} = Life of the axis 5E [km]
C_{ma} = Maximum admissible load [N]
C_{eq} = Equivalent load [N]
f_w = safety coefficient according to the working conditions

CALCULATION OF EQUIVALENT LOAD

When compression/traction and side loads as well as bending or torque moments act on the system, you need to calculate the equivalent load acting on the system.

$$C_{eq} = |F_y| + |F_Z| + C_{ma} \cdot \left|\frac{M_x}{M_{x,ma}}\right| + C_{ma} \cdot \left|\frac{M_y}{M_{y,ma}}\right| + C_{ma} \cdot \left|\frac{M_z}{M_{z,ma}}\right|$$

C_{eq} = Equivalent load [N]
F_y = Force acting along the Y-axis [N]
F_z = Force acting along the Z-axis [N]
C_{ma} = Max admissible load [N]
M_x = Moment along X-axis [Nm]
M_y = Moment along Y-axis [Nm]
M_z = Moment along Z-axis [Nm]
$M_{(x,ma)}$ = Max admissible moment along X-axis [Nm]
$M_{(y,ma)}$ = Max admissible moment along Y-axis [Nm]
$M_{(z,ma)}$ = Max admissible moment along Z-axis [Nm]

How to calculate the maximum deflection and verify the distance between supports

The electromechanical axis 5E is a self-supporting system and can also be used between 2 or more supports without the need of a continuous contact surface.
The maximum value of the deflection generated by the deformation of the system must never exceed the following calculation:

$$f_{max} = c_{max} \cdot 5 \cdot 10^{-4}$$

f_{max} = Maximum admissible deflection [mm]
c_{max} = Maximum stroke of axis 5E [mm]

NOTE: for a quicker choice, please see the graphs on the following pages.

APPLICATION	ACCELERATION [m/s²]	SPEED [m/s]	DUTY CYCLE	f_w
light	< 10	< 1.5	< 35%	1 ÷ 1.25
normal	10 ÷ 25	1.5 ÷ 2.5	35% ÷ 65%	1.25 ÷ 1.5
heavy	> 25	> 2.5	> 65%	1.5 ÷ 3

HOW TO CALCULATE THE DRIVING TORQUE [Nm]

$$C_{TOT} = C_{M1} + C_{M2} + C_{M3}$$

F_A = Total force acting from outside [N]
F_E = Force to be applied externally [N]
g = Gravitational acceleration [9.81 m/s^2]
m_E = Mass of the body to move [kg]
D_P = Pulley pitch diameter [mm]
C_{M1} = Driving torque due to external agents [Nm]

$$F_A = F_E + m_E \cdot a$$

$$C_{M1} = \frac{F_A \cdot D_P}{2}$$

J_{TOT} = Moment of inertia of rotating components [kg•m^2]
$\dot{\omega}$ = Angular acceleration [rad/s^2]
a = Axis linear acceleration [m/s^2]
C_{M2} = Driving torque due to rotating components [Nm]

$$\dot{\omega} = \frac{2 \cdot a}{D_P}$$

$$C_{M2} = J_{TOT} \cdot \dot{\omega}$$

F_{TT} = Force needed to move translating components [N]
F_{TF} = Force needed to move fixed-length translating components [N]
F_{TV} = Force needed to move variable-length translating components [N]
m_{C1} = Mass of fixed-length translating components [kg]
K_{TV} = Mass coefficient of variable-length translating components [kg/mm]
C_{M3} = Driving torque due to translating components [Nm]

$$F_{TT} = F_{TF} + F_{TV}$$

$$F_{TF} = m_{C1} \cdot a$$

$$F_{TV} = K_{TV} \cdot C \cdot a$$

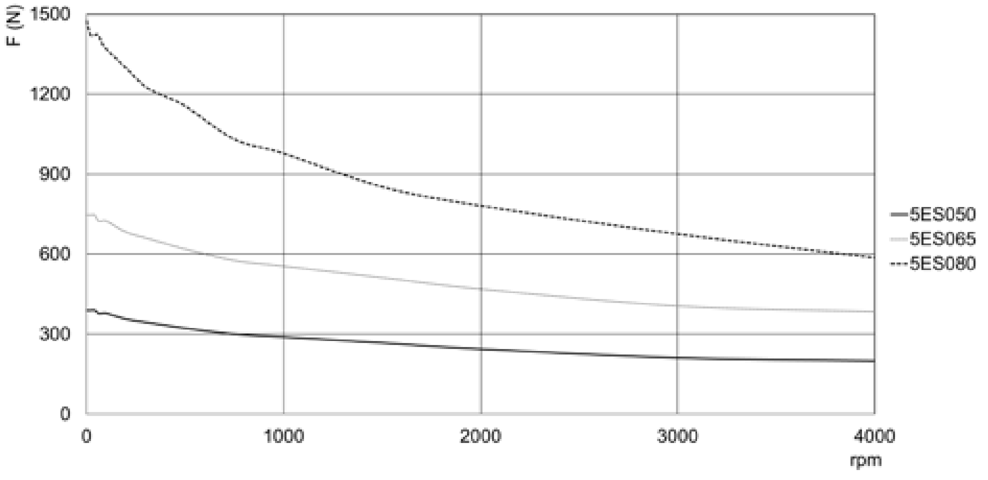
$$C_{M3} = \frac{F_{TT} \cdot D_P}{2}$$

Values of masses and fixed and rotating inertia moments of 5E components

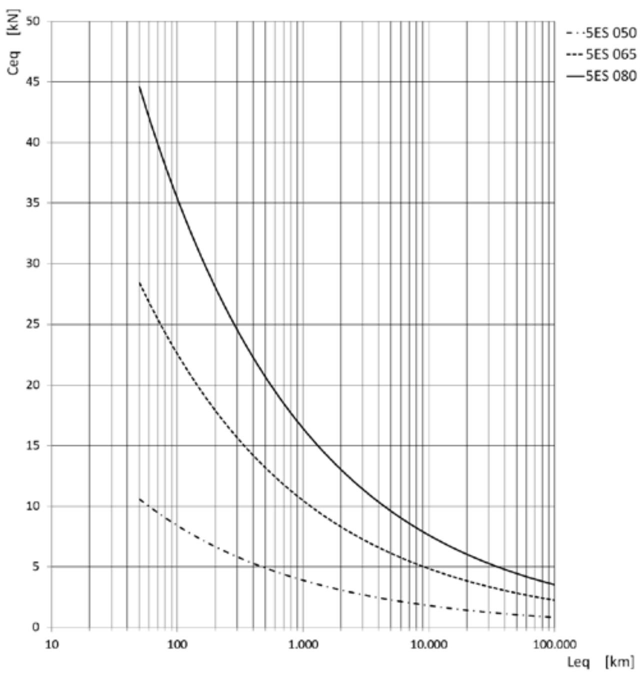
Mod.	J_{TOT} [kg•m²]	m_{C1} [kg]	K_{TV} [kg/mm]
5E050...AS1	48.76	0.51	1.4•10^{-4}
5E050...AL1	48.76	0.80	1.4•10^{-4}
5E050...AS2	48.76	1.01	1.4•10^{-4}
5E050...DS1	0.00	0.40	0.00
5E050...HS1	48.76	1.38	1.4•10^{-4}
5E065...AS1	372.07	1.27	2.1•10^{-4}
5E065...AL1	372.07	1.83	2.1•10^{-4}
5E065...AS2	372.07	2.53	2.1•10^{-4}
5E065...DS1	0.00	1.01	0.00
5E065...HS1	372.07	2.84	2.1•10^{-4}
5E080...AS1	1130.28	2.69	3.4•10^{-4}
5E080...AL1	1130.28	3.84	3.4•10^{-4}
5E080...AS2	1130.28	5.38	3.4•10^{-4}
5E080...DS1	0.00	2.15	0.00
5E080...HS1	1130.28	5.61	3.4•10^{-4}

TRANSMISSIBLE FORCE

According to axis size and speeds chosen, force that can be transmitted from the toothed belt has these limits.

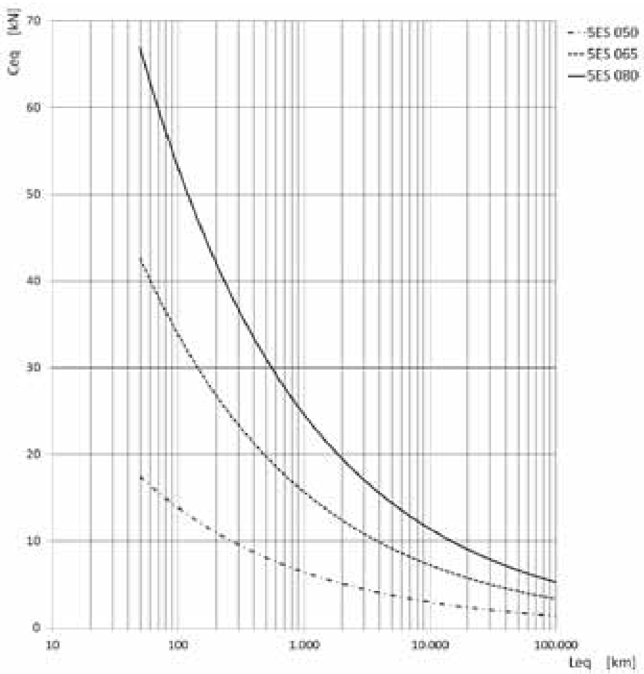


LIFE OF THE SERIES 5E AXIS ACCORDING TO THE EQUIVALENT LOAD



TYPE OF SLIDER: S

Curves calculated with fw = 1
Ceq = Equivalent load applied on the axis 5E [kN]
Leq = Life of the axis 5E [km]



TYPE OF SLIDER: L

Curves calculated with fw = 1
Ceq = Equivalent load applied on the axis 5E [kN]
Leq = Life of the axis 5E [km]

EQUIVALENT LOAD

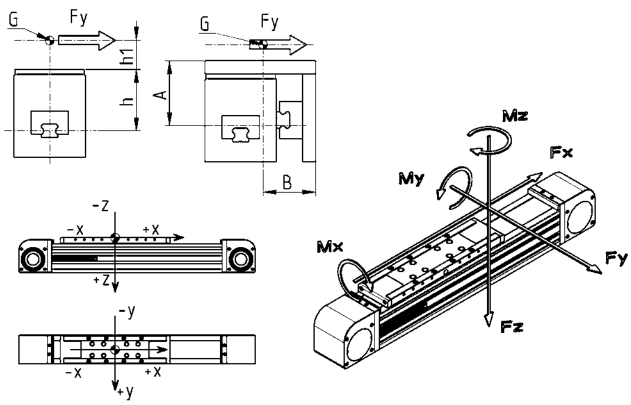
To determine the moment acting on the axis x,Mx, in an accurate way, refer to the following formula:

Mx = Fy · (h+h1)

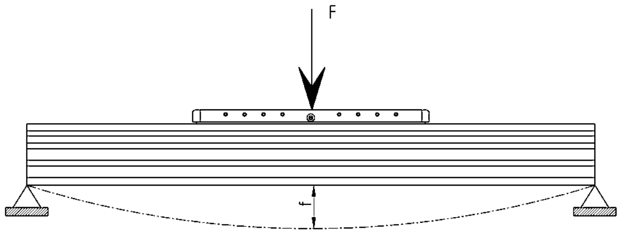
where:
Mx = Moment along X-axis [Nm]
Fy = Force acting along the Y-axis [N]
h = fixed distance for axis 5E [mm]
h1 = application arm [mm]
G1 = origin of the system of 5E axis coordinates
G2 = barycentre of application of acting forces

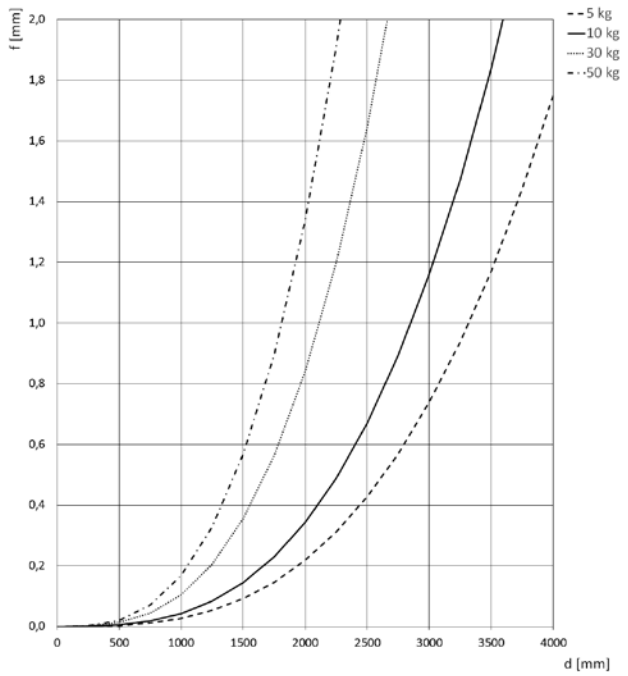
NOTE: here below, valid for A version, the “h” values:
- h = 45.5 mm (5ES050)
- h = 56.0 mm (5ES065)
- h = 69.5 mm (5ES080)

Valid for H version, “A” and “B” version:
“A” = 56.0 mm “B” 32.9 mm (5ES050)
“A” = 57.0 mm “B” 45.0 mm (5ES065)
“A” = 71.6 mm “B” 51.6 mm (5ES080)



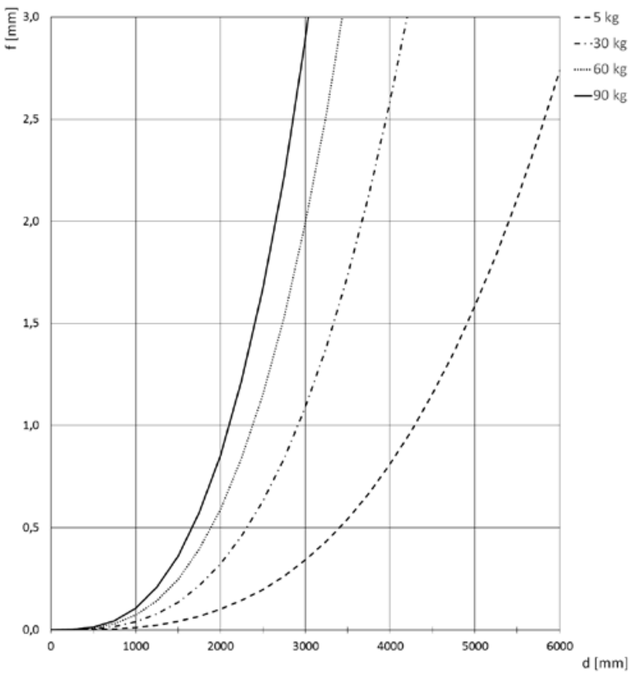
Deflection according to the distance of the supports - A version





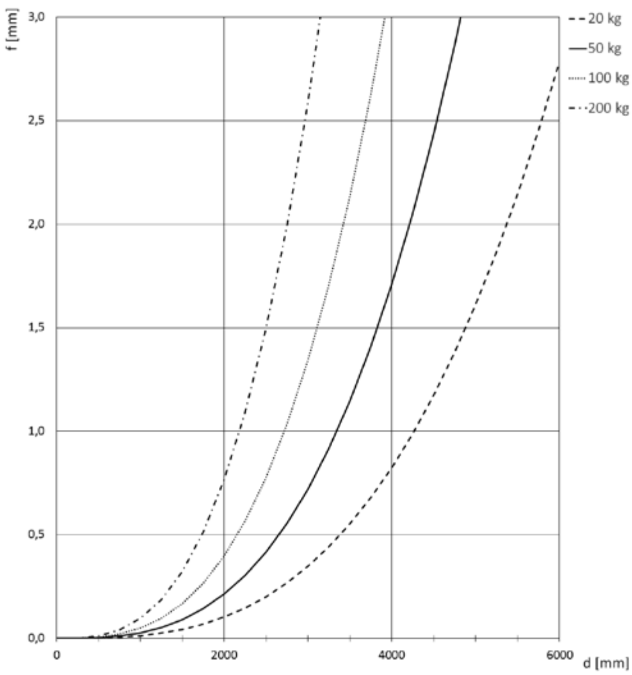
Size 050

f = deflection generated between the supports [mm]
d = distance between the supports [mm]



Size 065

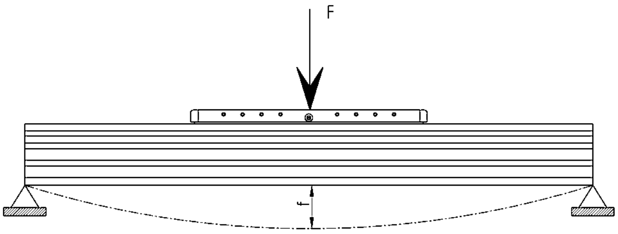
f = deflection generated between the supports [mm]
d = distance between the supports [mm]

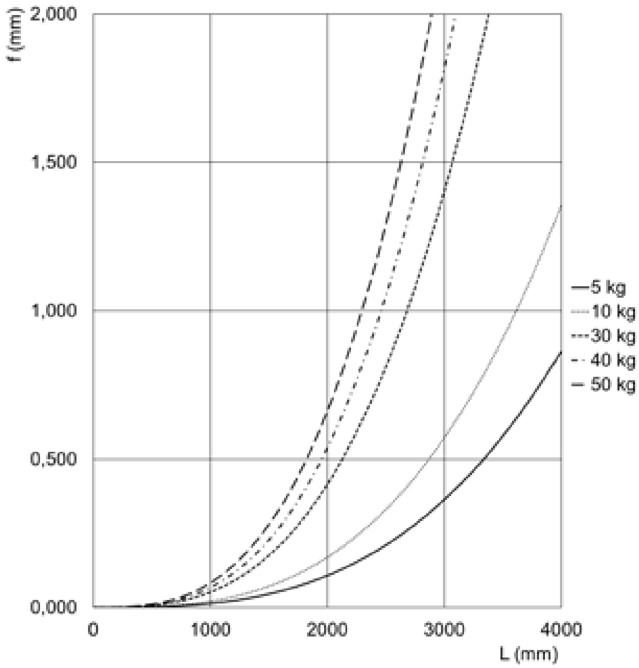


Size 080

f = deflection generated between the supports [mm]
d = distance between the supports [mm]

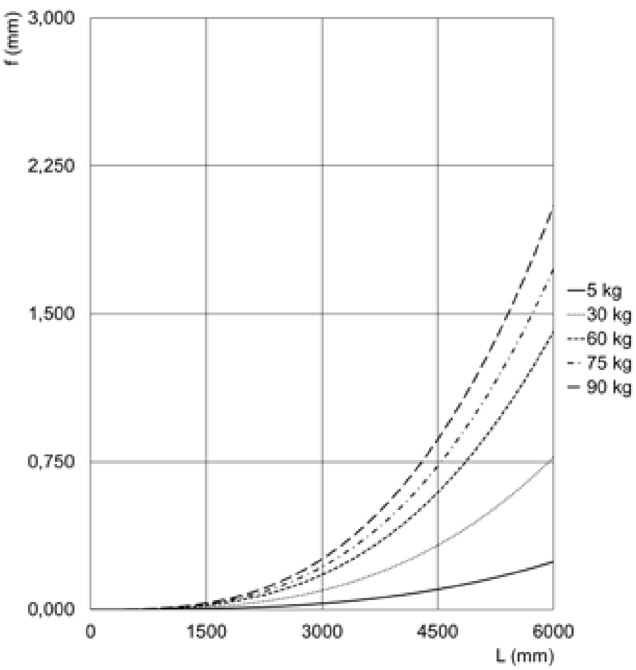
Deflection according to the distance of the supports - H version





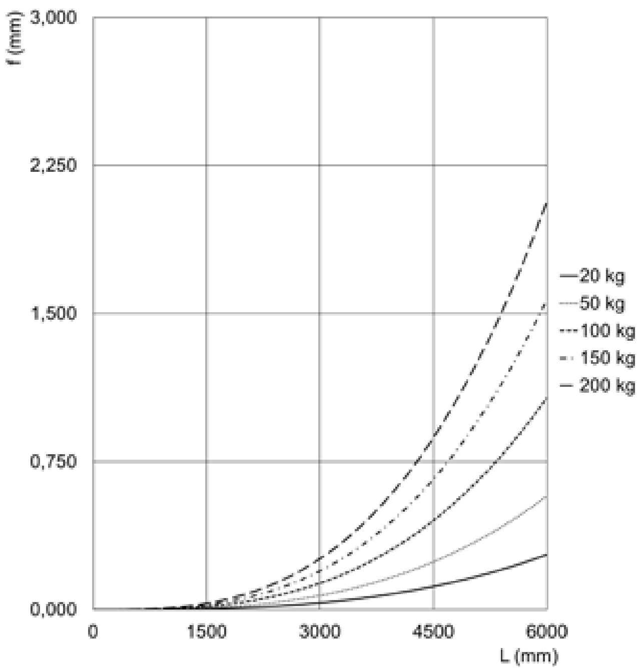
Size 050

f = deflection generated between the supports [mm]
d = distance between the supports [mm]



Size 065

f = deflection generated between the supports [mm]
d = distance between the supports [mm]



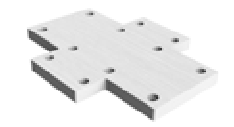
Size 080

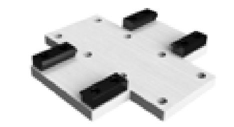
f = deflection generated between the supports [mm]
d = distance between the supports [mm]

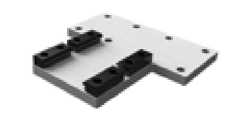
ACCESSORIES FOR SERIES 5E

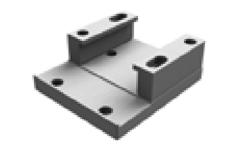

Side clamping bracket Mod. BGS

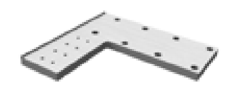

Perforated side clamping bracket Mod. BGA


Interface plate - slider on slider


Interface plate - profile on slider


Interface plate - profile on slider - long arm


Interface plate - Series 6E cylinder on slider


Interface plate - profile side on slider, left pos.

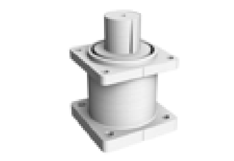

Interf. plate - profile side on slider, right pos.


Fixed interface plate


Interface plate - Guide S. 45 / Cyl. S. 6E


Kit to fix the inductive sensor


Kit to connect the gearbox


Kit to connect the gearbox, enhanced series

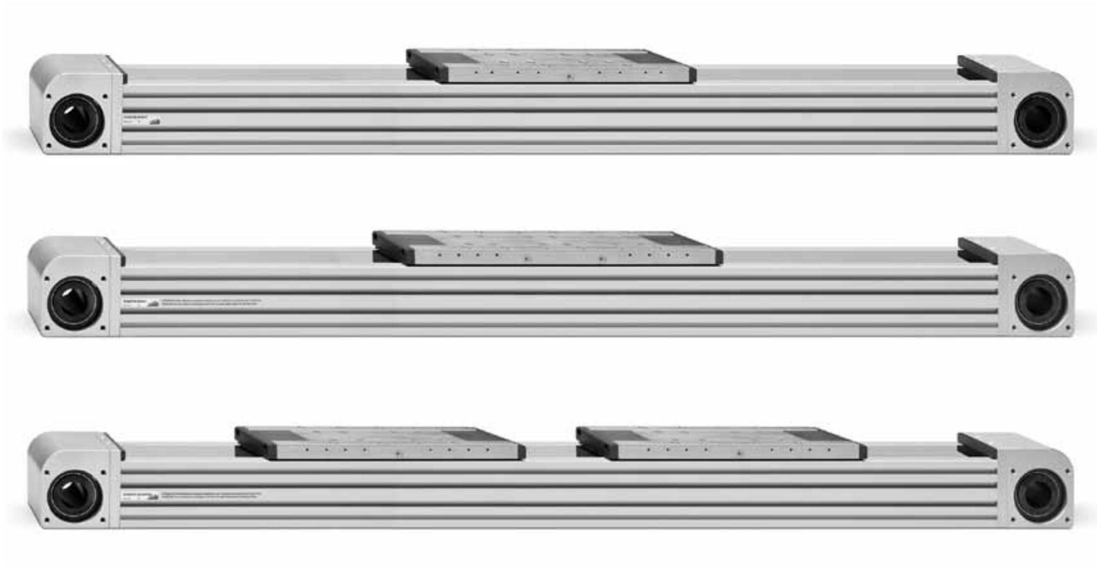

Direct connection kit for Stepper motor


Parallel connection kit


Nuts for slots


5E/5V connection flange


Centering ring Mod. TR-CG

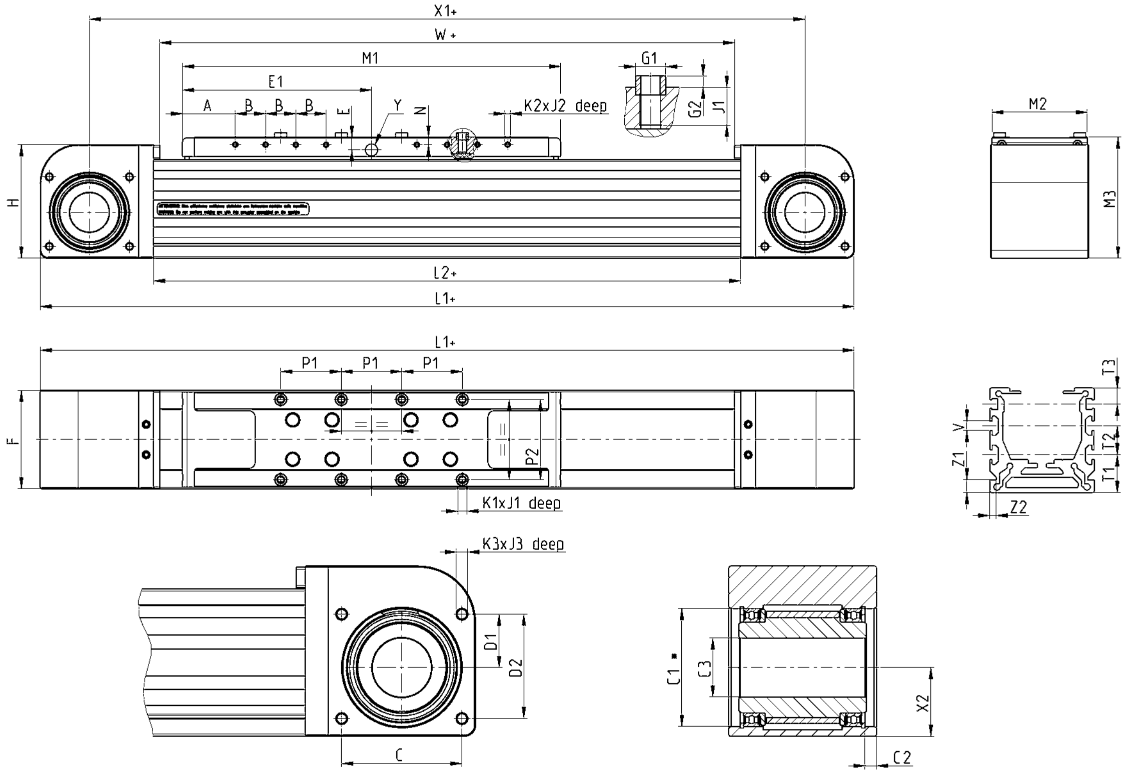


All accessories are supplied separately from the axis.
Together with the axis, a kit is supplied containing:

- covers to close the holes on the endcap
- centering bushings for the slider
- nipples for greasing

Electromechanical axis Mod. 5E...AS1

+ = add the stroke



NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

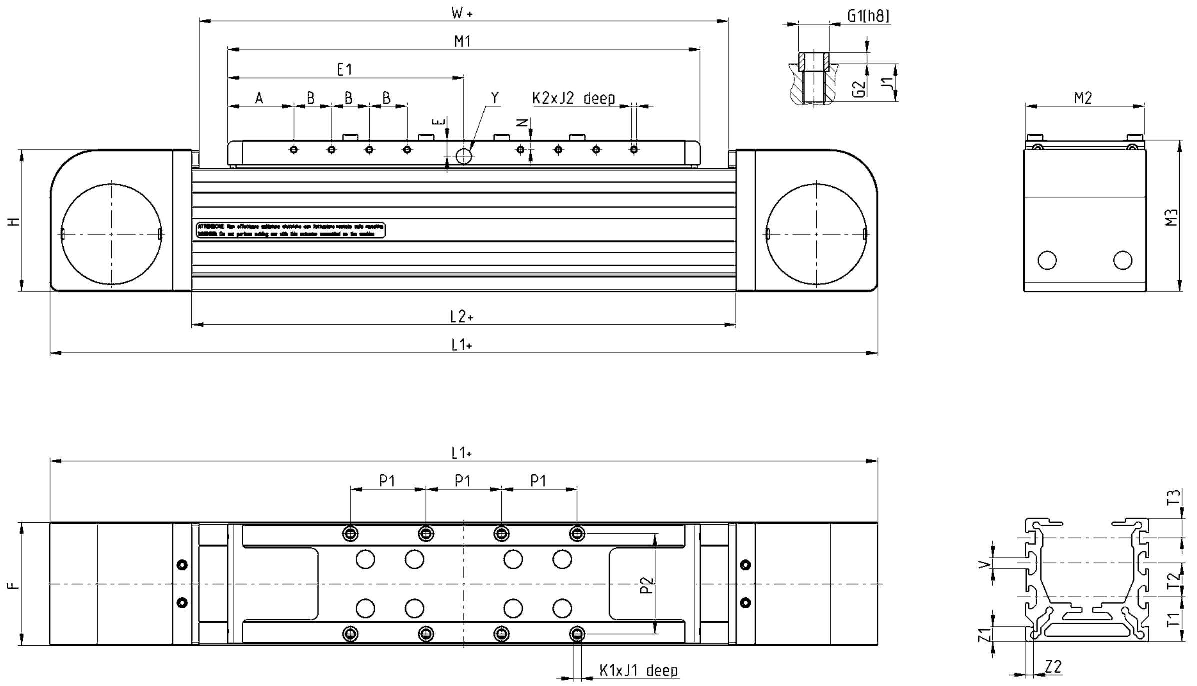
Size	A	B	C	⌀C1	C2	⌀C3 (H8)	D1	D2	E	E1	F	⌀G1 (h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	V	Y	X1	X2	W	Z1	Z2
50	32.5	15	37	37	4.5	20	17	32	8.5	100	50	6	2	60	354	238	200	48	65	5	30	40	M4	7	M3	5	M4	8	20	■	10	6	●	304	21.8	230	8	4
65	35	20	53	52	5	26	23.5	46	8.5	125	65	8	3	75	438	288	250	63	80	5	40	53	M5	8	M3	6	M5	10	23.5	18	10	6	●	373	30.5	280	8	4
80	35	30	68	68	6.5	38	30.5	60.5	11.5	165	80	10	3	95	548	368	330	78	100	8	55	64	M6	12	M4	8.5	M5	10	25	25	10	8	●	468	40.5	360	8	4

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	2.15	3.35
65	4.6	5.4
80	8.9	5.9

Electromechanical axis Mod. 5E...DS1

New version

+ = add the stroke



NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

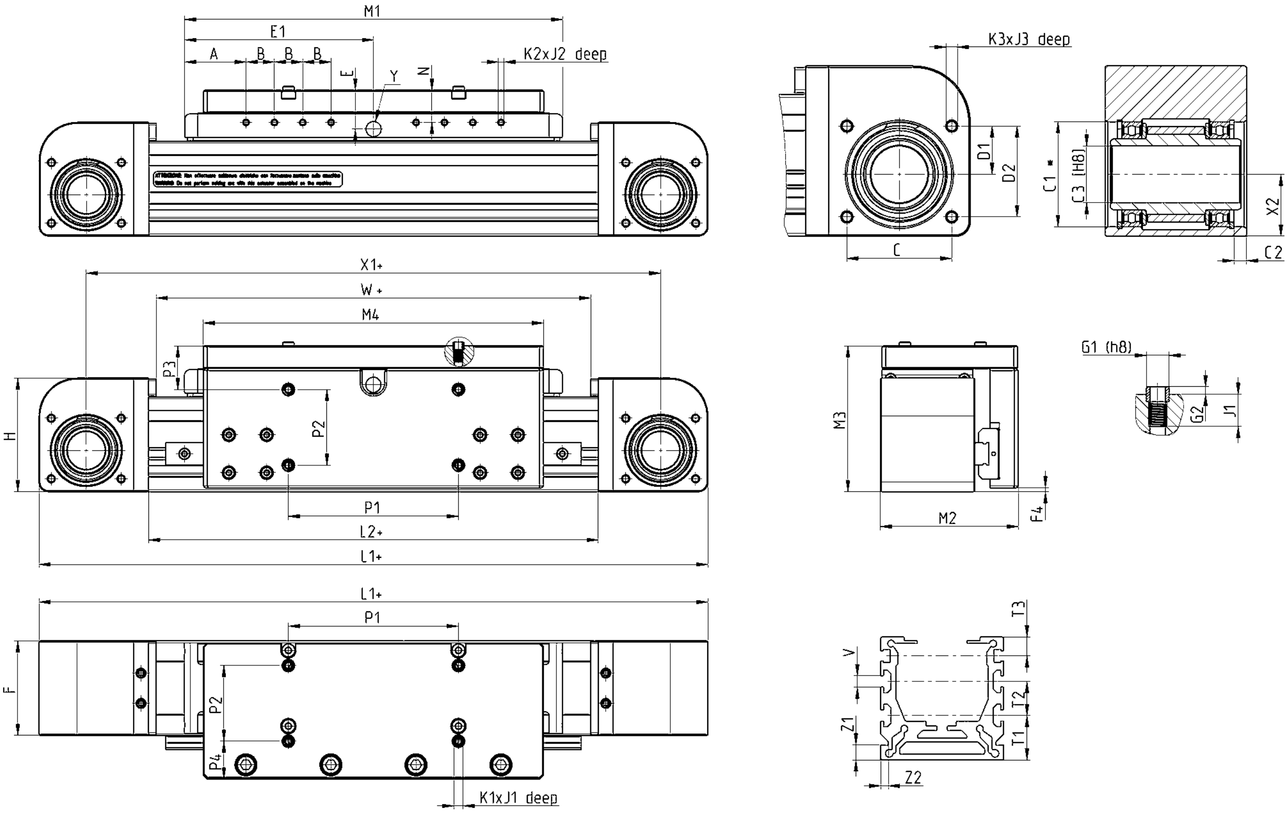
Size	A	B	E	E1	F	⌀G1	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	T1	T2	T3	V	Y	W	Z1	Z2
50	32.5	15	8.5	100	50	6	2	60	354	238	200	48	65	5	30	40	M4	7	M3	5	20	■	10	6	●	230	8	4
65	35	20	8.5	125	65	8	3	75	438	288	250	63	80	5	40	53	M5	8	M3	6	23.5	18	10	6	●	280	8	4
80	35	30	11.5	165	80	10	3	95	548	368	330	78	100	8	55	64	M6	12	M4	8.5	25	25	10	8	●	360	8	4

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	1.81	3.00
65	3.58	4.88
80	7.05	5.31

Electromechanical axis Mod. 5E...HS1

New version

+ = add the stroke



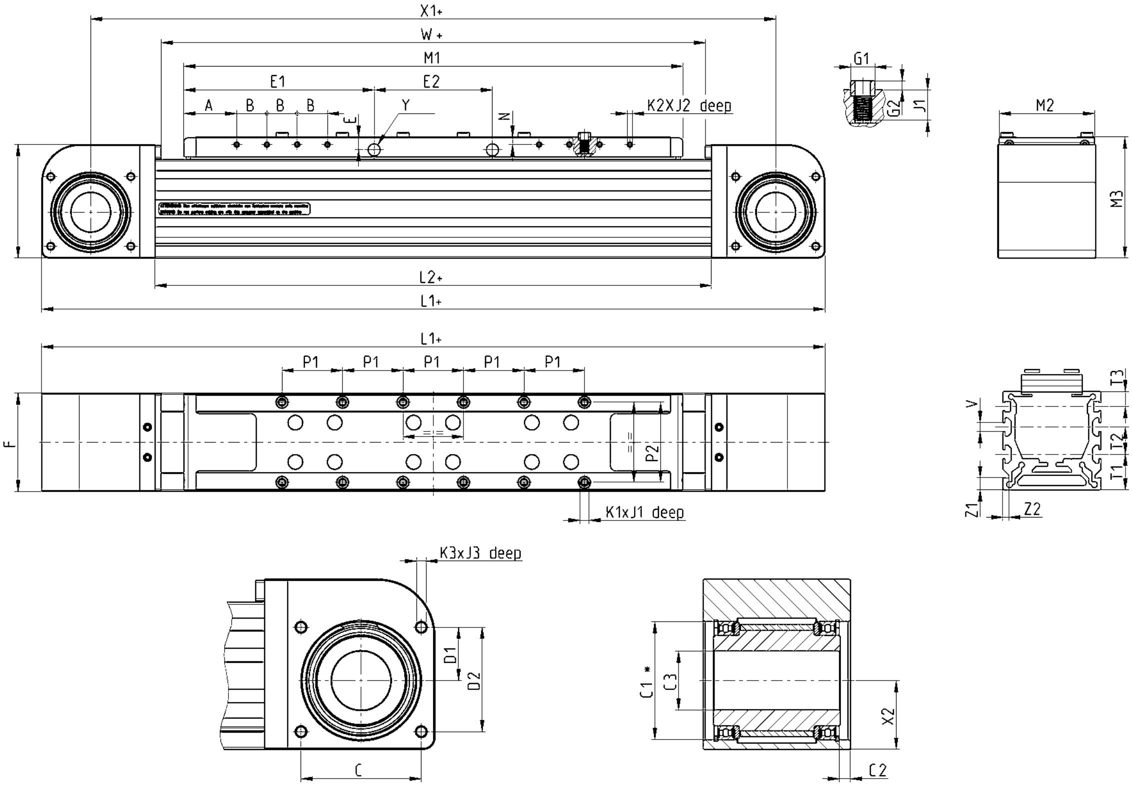
NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Size	A	B	C	⌀C1	C2	⌀C3	D1	D2	E	E1	F	F4	⌀G1	G2	H	L1	L2	M1	M2	M3	N	P1	P2	P3	P4	K1	J1	K2	J2	K3	J3	T1	T2	T3	V	Y	X1	X2	W	Z1	Z2
50	32.5	15	37	37	4.5	20	17	32	20.5	100	50	2	6	2	60	354	238	200	73	77	17	90	40	23	20	M4	7	M3	5	M4	8	20	■	10	6	●	304	21.8	230	8	4
65	35	20	53	52	5	26	23.5	46	20.5	125	65	2	8	3	75	438	288	250	99	92	17	120	53	28	28	M5	8	M3	6	M5	10	23.5	18	10	6	●	373	30.5	280	8	4
80	35	30	68	68	6.5	38	30.5	60.5	26.5	165	80	1	10	3	95	548	368	330	119	115	23	165	64	31	33.5	M5	12	M4	8.5	M5	10	25	25	10	8	●	468	40.5	360	8	4

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	3.30	4.25
65	3.72	6.86
80	14.86	8.34

Electromechanical axis Mod. 5E...AL1

+ = add the stroke



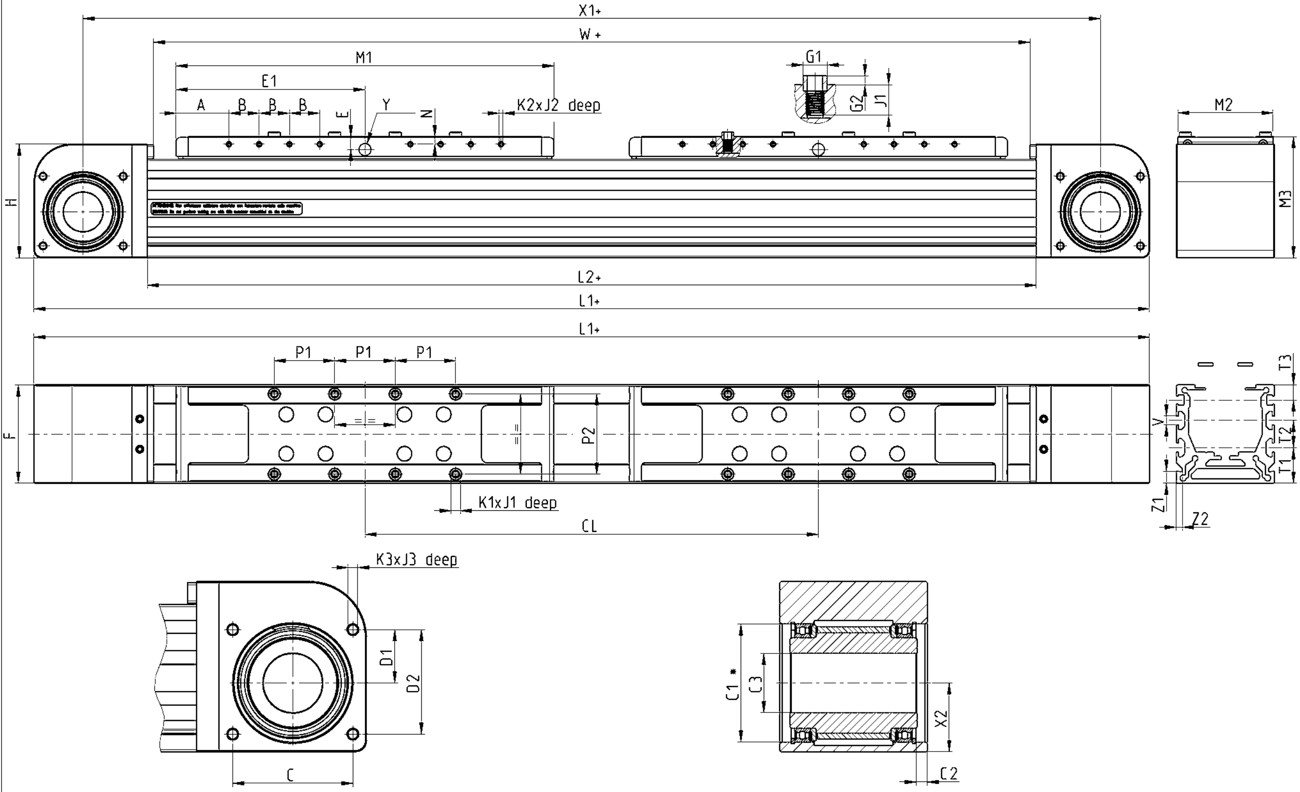
NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Size	A	B	C	øC1	C2	øC3(H8)	D1	D2	E	E1	E2	F	øG1(h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	V	Y	X1	X2	W	Z1	Z2
50	32.5	15	37	37	4.5	20	17	32	8.5	101.5	62	50	6	2	60	419	303	265	48	65	5	30	40	M4	7	M3	5	M4	8	20.0	■	10	6	●	369	21.8	295	8	4
65	35.0	20	53	52	5	26	23.5	46	8.5	126.0	78	65	8	3	75	518	368	330	63	80	5	40	53	M5	8	M3	6	M5	10	23.5	18	10	6	●	453	30.5	360	8	4
80	37.5	30	68	68	6.5	38	30.5	60.5	11.5	167.5	110	80	10	3	95	663	483	445	78	100	8	55	64	M6	12	M4	8.5	M5	10	25.0	25	10	8	●	583	40.5	475	8	4

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	2.58	3.35
65	5.56	5.4
80	11.10	5.9

Electromechanical axis Mod. 5E...AS2

+ = add the stroke and the interaxis



NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Size	A	B	C	øC1	C2	øC3(H8)	D1	D2	E	E1	F	øG1(h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	V	Y	X1	X2	W	Z1	Z2
50	32.5	15	37	37	4.5	20	17	32	8.5	100	50	6	2	60	354	238	200	48	65	5	30	40	M4	7	M3	5	M4	8	20	■	10	6	●	304	21.8	230	8	4
65	35	20	53	52	5	26	23.5	46	8.5	125	65	8	3	75	438	288	250	63	80	5	40	53	M5	8	M3	6	M5	10	23.5	18	10	6	●	373	30.5	280	8	4
80	35	30	68	68	6.5	38	30.5	60.5	11.5	165	80	10	3	95	548	368	330	78	100	8	55	64	M6	12	M4	8.5	M5	10	25	25	10	8	●	468	40.5	360	8	4

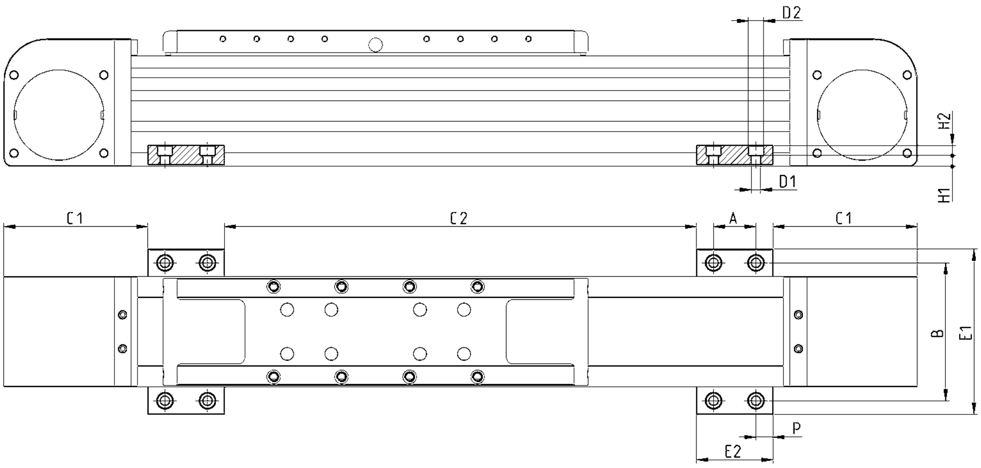
Size	CL min	CL max	Max applicable stroke	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	250	2000	Smax = 4262 - CL	3.49	3.35
65	300	2000	Smax = 6212 - CL	7.35	5.4
80	400	2000	Smax = 6132 - CL	14.68	5.9

Side clamping bracket Mod. BGS

Material: Aluminium

Supplied with:
2x clamps

TABLE NOTE:
* according to the span (max admissible deflection) recommended value 500 mm



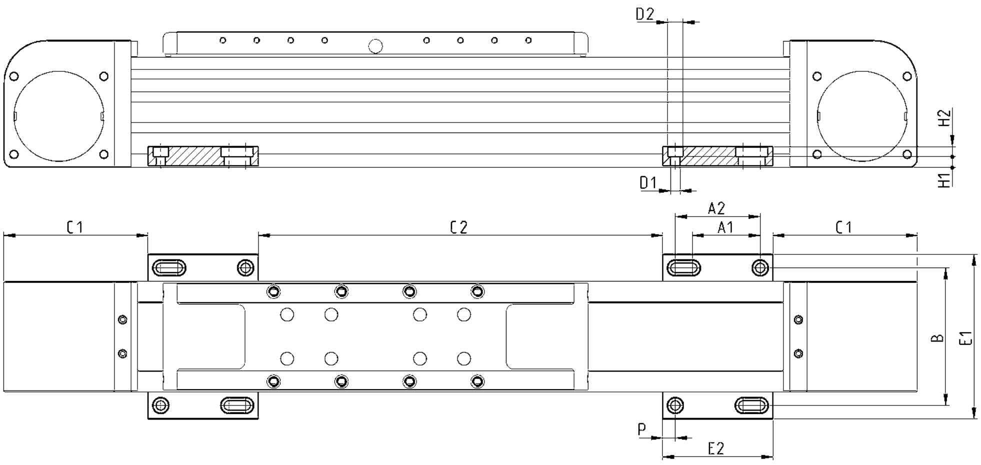
Mod.	Size	A	B	C1	C2	⌀D1	⌀D2	E1	E2	H1	H2	P	Weight (g)
BGS-5E-M5	50	25	66	68	*	5.5	9	82	45	6.4	6	10	45
BGS-5E-M5	65	25	81	85	*	5.5	9	97	45	6.4	6	10	45
BGS-5E-M5	80	25	96	100	*	5.5	9	112	45	6.4	6	10	45
BGS-5E-M6	50	25	66	68	*	6.5	10.5	82	45	5.4	7	10	40
BGS-5E-M6	65	25	81	85	*	6.5	10.5	97	45	5.4	7	10	40
BGS-5E-M6	80	25	96	100	*	6.5	10.5	112	45	5.4	7	10	40

Perforated side clamping bracket Mod. BGA

Material: Aluminium

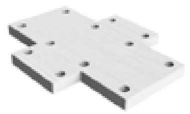
Supplied with:
2x clamps with perforation

TABLE NOTE:
* according to the span (max admissible deflection) recommended value 500 mm

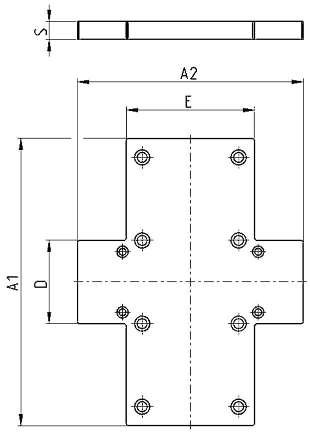


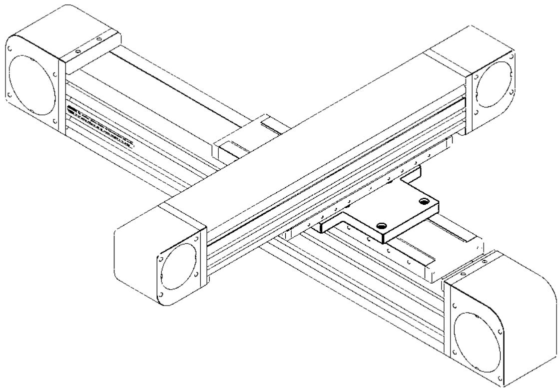
Mod.	Size	A1	A2	B	C1	C2	⌀D1	⌀D2	E1	E2	H1	H2	P	Weight (g)
BGA-5E-M5	50	40	50	66	68	*	5.5	9	82	65	6.4	6	7.5	60
BGA-5E-M5	65	40	50	81	85	*	5.5	9	97	65	6.4	6	7.5	60
BGA-5E-M5	80	40	50	96	100	*	5.5	9	112	65	6.4	6	7.5	60
BGA-5E-M6	50	40	50	66	68	*	6.5	10.5	82	65	5.4	7	7.5	55
BGA-5E-M6	65	40	50	81	85	*	6.5	10.5	97	65	5.4	7	7.5	55
BGA-5E-M6	80	40	50	96	100	*	6.5	10.5	112	65	5.4	7	7.5	55

Interface plate - slider on slider



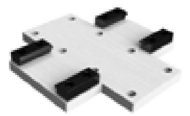
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider of the main axis
4x screws + 4x lock washers to connect the plate on the slider of the secondary axis



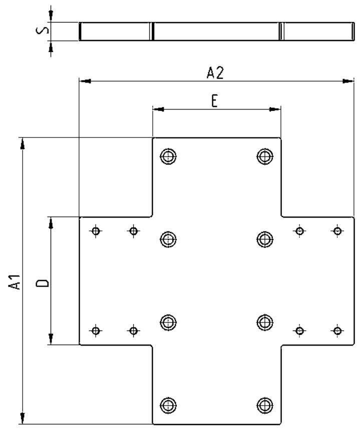


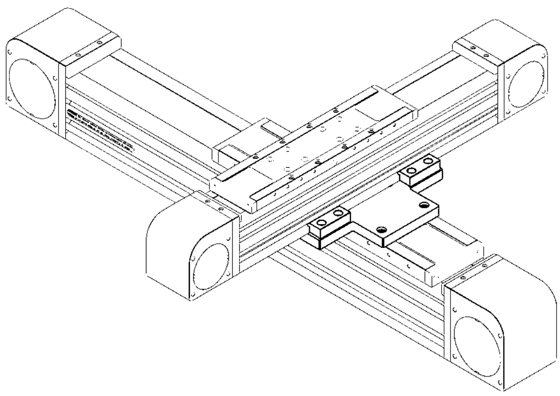
Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S65-S50	65	150	150	55	70	12	515
XY-S80-S50	80	190	150	55	85	12	690
XY-S80-S65	80	190	150	70	85	12	720

Interface plate - profile on slider



The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider of the main axis
4x clamps
8x screws + 8x lock washers to connect the secondary axis on the plate by means of clamps

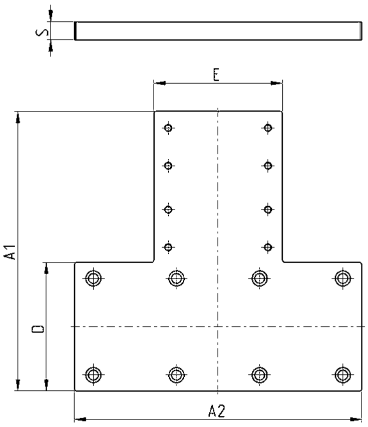


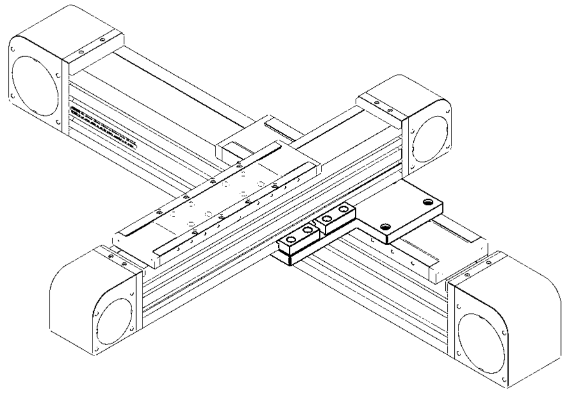


Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S65-P50	65	150	162	85	70	12	730
XY-S80-P50	80	190	182	85	85	12	945
XY-S80-P65	80	190	185	100	85	12	1000

Interface plate - profile on slider - long arm

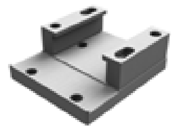
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect plate on the slider of the main axis
4x clamps
8x screws + 8x lock washers to connect plate on the slider of the secondary axis by means of clamps



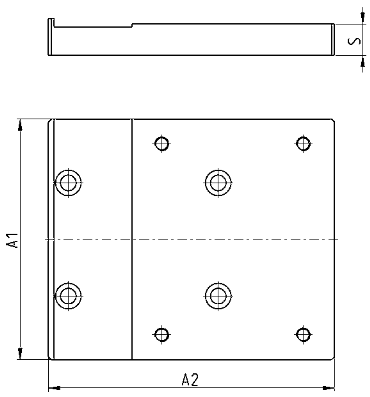


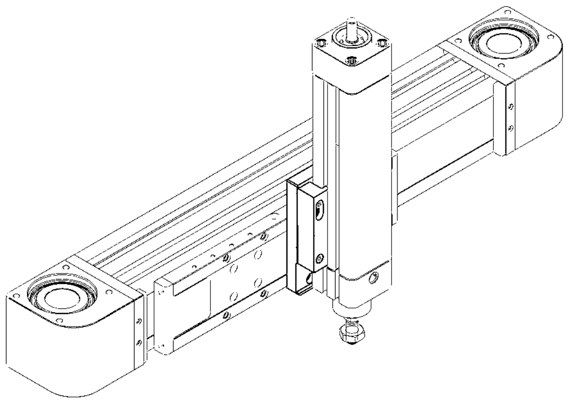
Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S50-P50-T	50	162	130	50	85	12	600
XY-S65-P50-T	65	170	150	65	85	12	750
XY-S65-P65-T	65	185	170	65	100	12	800
XY-S80-P50-T	80	185	190	85	85	12	960
XY-S80-P65-T	80	185	190	85	100	12	1010
XY-S80-P80-T	80	200	190	85	120	12	1100

Interface plate - Series 6E cylinder on slider



The kit includes:
1x interface plate
4x screws + 4x lock washers to connect the plate on the slider of the axis
2x clamps
4x screws + 4x lock washers to fix the Series 6E cylinder by means of clamps

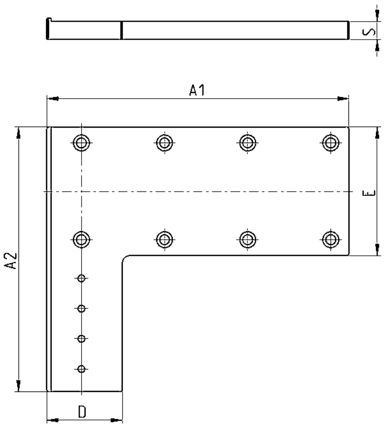


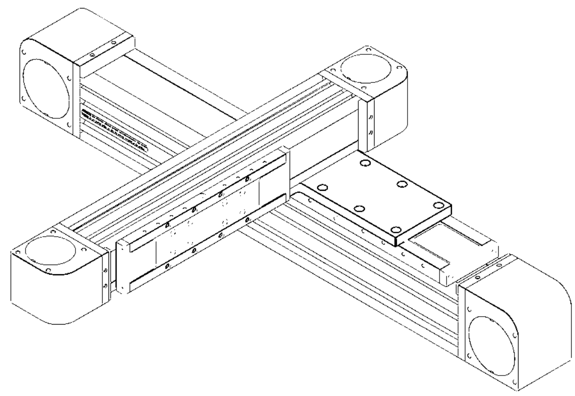


Mod.	Size	A1	A2	S	Weight (g)
XY S50-6E32	50	72	101	11	315
XY-S65-6E32	65	72	101	11	315
XY-S65-6E40	65	85	101	11	350
XY S65-6E50	65	95	110	12	510
XY-S80-6E32	80	75	101	12	385
XY-S80-6E40	80	85	101	12	410
XY-S80-6E50	80	95	110	12	510
XY S80-6E63	80	106	110	12	560

Interface plate - profile side on slider - left position

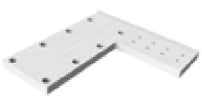
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider of the main axis, screws and nuts for slot to connect the plate on the slider of the secondary axis



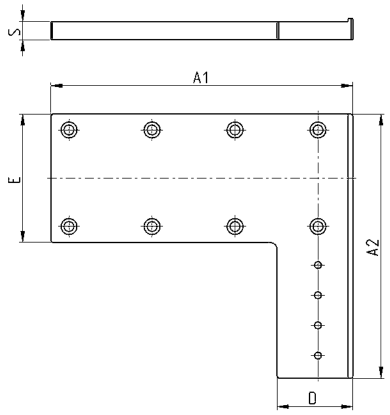


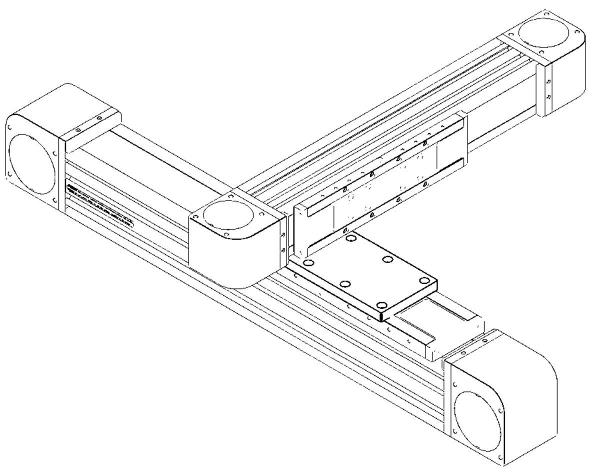
Mod.	Size	A1	A2	D	E	S	Nr of holes	Weight (g)
XY-S50-LL50	50	130	145	50	55	11	4	450
XY-S65-LL50	65	160	160	50	70	11	4	500
XY-S65-LL65	65	170	180	65	70	12	8	550
XY-S80-LL50	80	200	175	50	85	12	4	750
XY-S80-LL65	80	210	195	65	85	12	8	870
XY-S80-LL80	80	210	195	80	85	12	8	900

Interface plate - profile side on slider - right position



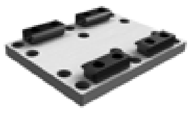
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider of the main axis, screws and nuts for slot to connect the plate on the slider of the secondary axis



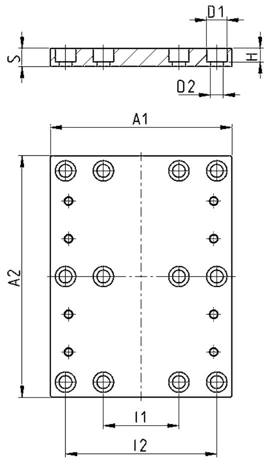


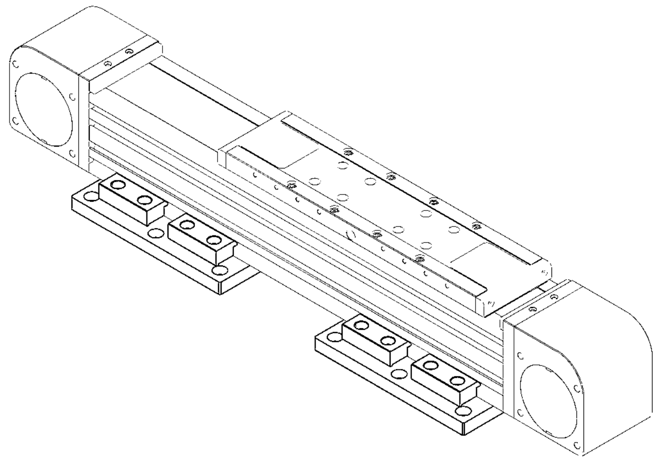
Mod.	Size	A1	A2	D	E	S	Nr of holes	Weight (g)
XY-S50-LR50	50	130	145	50	55	11	4	450
XY-S65-LR50	65	160	160	50	70	11	4	500
XY-S65-LR65	65	170	180	65	70	12	8	550
XY-S80-LR50	80	200	175	50	85	12	4	750
XY-S80-LR65	80	210	195	65	85	12	8	870
XY-S80-LR80	80	210	195	80	85	12	8	900

Fixed interface plate



The kit includes:
1x interface plate
4x clamps
8x screws to connect the clamps on the plate

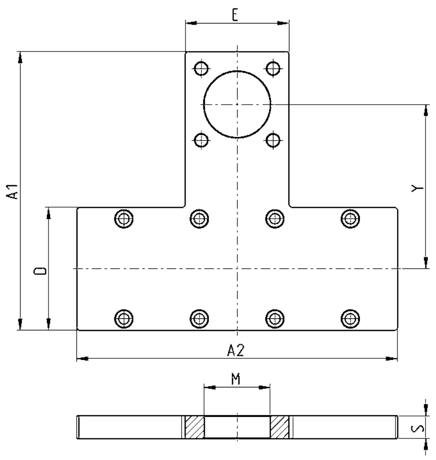


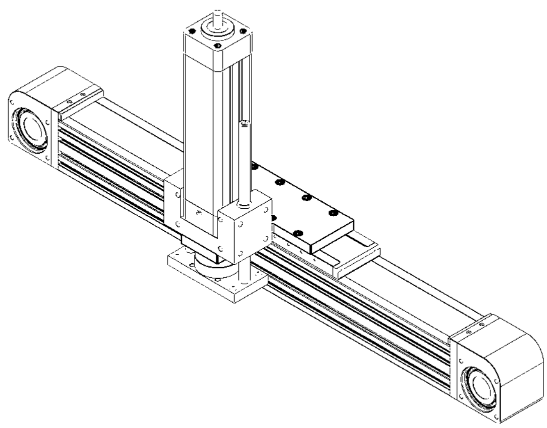


Mod.	Size	A1	A2	⌀D1	⌀D2	H	I1	I2	S	Weight (g)
X-P50	50	95	140	9	5.5	6	45	80	8	275
X-P65	65	120	140	10.5	6.5	7	50	100	10	430
X-P80	80	120	160	13.5	8.5	9	50	100	12	570

Interface plate - Anti-rotation guides S. 45 / Cylinders S. 6E on slider

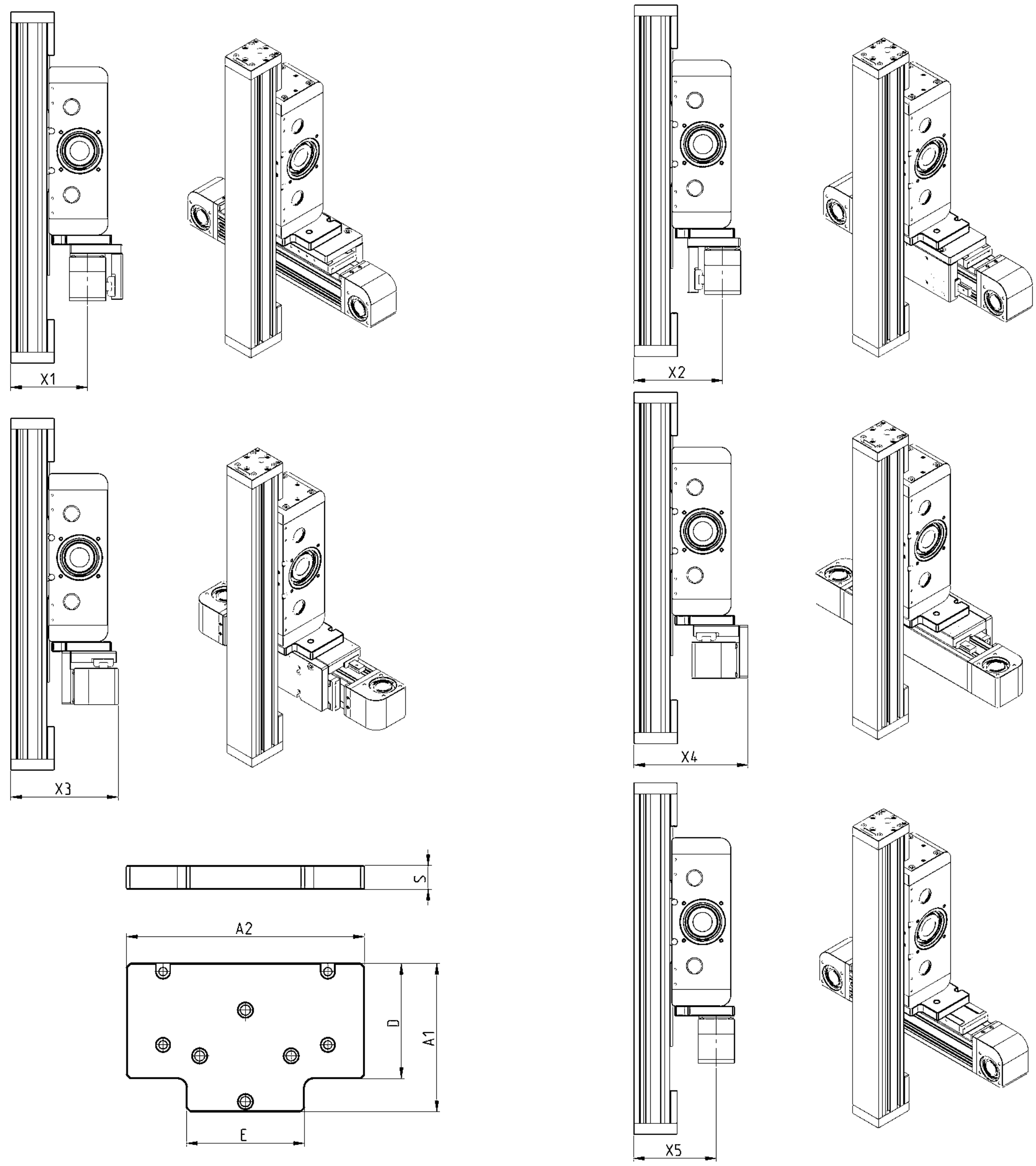
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider
4x screws to connect the cylinder





Mod.	Size	A1	A2	D	E	S	⌀M (H10)	Y	Weight (g)
XY-S50-45N32	50	124	130	50	49	12	30	75	350
XY-S65-45N32	65	139	170	65	49	12	30	82.5	480
XY-S65-45N40	65	147.5	170	65	55	12	35	87	500
XY-S65-45N50	65	157	170	65	66.5	12	40	91.5	530
XY-S80-45N40	80	167.5	190	85	55	12	35	97	660
XY-S80-45N50	80	177	190	85	65	12	40	101.5	690
XY-S80-45N63	80	190.5	190	85	75	12	45	110	740

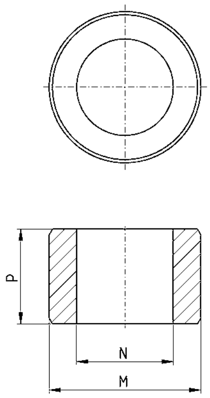
5E/5V connection flange



Mod.	Size	X1	X2	X3	X4	X5	A1	A2	E	D	S	Weight (g)
YZ-50-5V50	50	105	121	147	79	-	87	130	64.5	69	13	335
YZ-65-5V50	65	112.5	136.5	16	87	124.5	105	140	64.5	82	13	445
YZ-65-5V65	65	130	154	179.5	104.5	-	107	140	84.5	82	13	460
YZ-80-5V50	80	120.5	146.5	185.5	81.5	133.5	118	190	64.5	78	15	635
YZ-80-5V65	80	137.5	163.5	202.5	98.5	150.5	118	190	84.5	78	15	770
YZ-80-5V80	80	141	183.5	222.5	118.5	-	120	190	99.5	78	15	825

Centering ring Mod. TR-CG

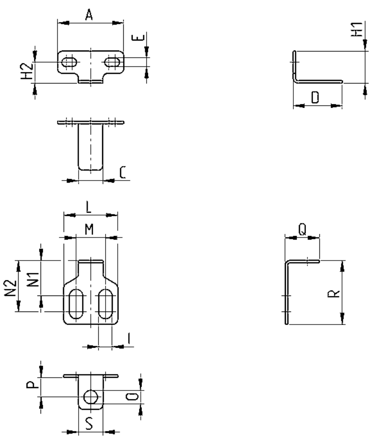
Supplied with:
2x centering rings in steel

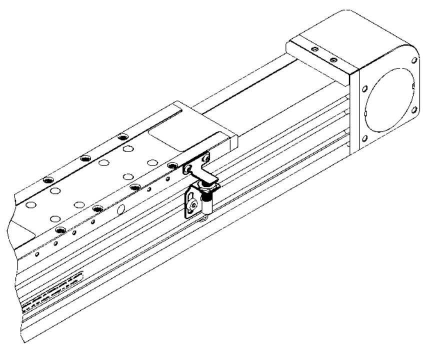


Mod.	M (h8)	N	P
TR-CG-04	Ø4	Ø2.6	2.5
TR-CG-05	Ø5	Ø3.1	3
TR-CG-06	Ø6	Ø4.1	4
TR-CG-08	Ø8	Ø5.1	5
TR-CG-10	Ø10	Ø6.1	6

Kit to fix the inductive sensor

The kit includes:
1x sensor dog
2x screws to fix the sensor dog
1x sensor supporting plate
2x screws to connect the sensor supporting plate
2x nuts for the slot

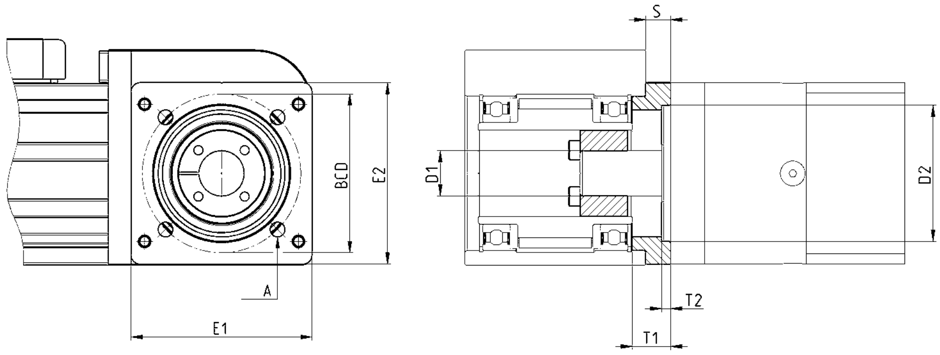




Mod.	Size	A	C	D	E	H1	H2	I	L	M	N1	N2	ØO	P	Q	R	S	Weight (g)
SIS-M5-50/65	50-65	27	10	20	3.5	13	8.5	5.5	22	12	14.5	21	5.5	8	14	26	10	10
SIS-M8-65	65	27	10	20	3.5	13	8.5	5.5	25	15	10.5	24	8.5	10	18.5	30	15	10
SIS-M5-80	80	45	15	20	4.5	16	10.5	5.5	22	12	14.5	21	5.5	8	14	26	10	15
SIS-M8-80	80	45	15	20	4.5	16	10.5	5.5	25	15	10.5	24	8.5	10	18.5	30	15	15

Kit to connect the gearbox

The kit includes:
1x connection flange
4x screws + 4x lock washers
to connect the flange
1x locking set
4x screws + 4x lock washers
to connect the gearbox

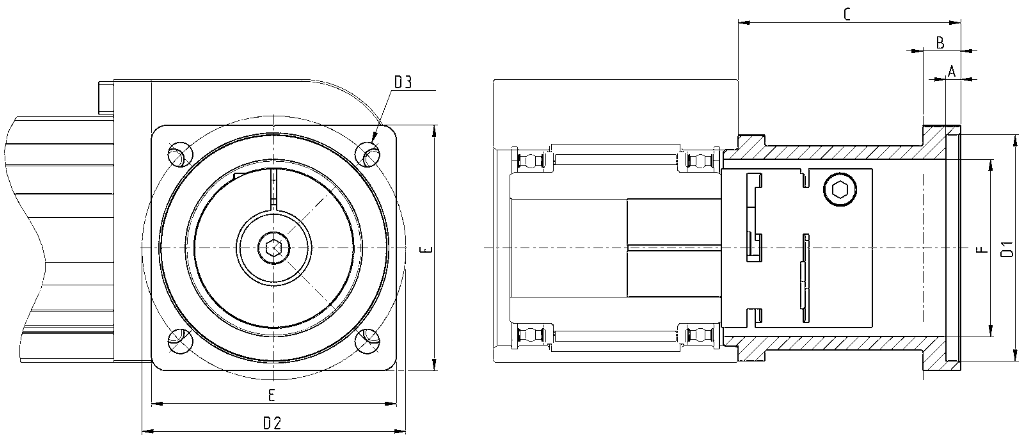


DIMENSIONS

Mod.	Size	E1	E2	S	BCD	⌀A	⌀D1	⌀D2 (H7)	T1	T2	Weight (g)
FR-5E-50	50	48	43	6	34	4.5	10	Ø26	10	10	85
FR-5E-65	65	63	60	7	52	5.5	14	Ø40	11	11	140
FR-5E-80	80	80	80	11	70	6.5	20	Ø60	17	4	325

Kit to connect the gearbox - enhanced series

The kit includes:
1x connection flange
4x screws + 4x lock washers
to connect the flange
1x expansion coupling
4x screws + 4x lock washers
to connect the gearbox

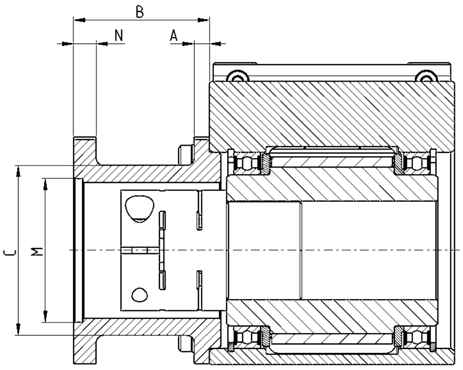


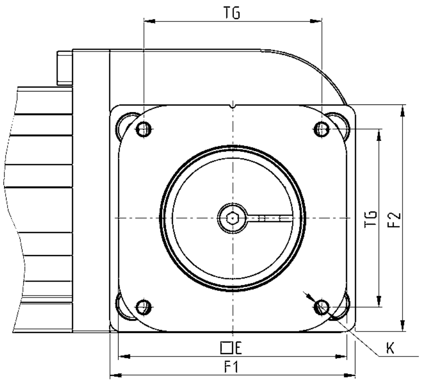
DIMENSIONS

Mod.	Size	⌀D1 (H7)	A	⌀D2	⌀D3	B	C	E	F	Weight (g)
FRH-5E-50	50	40	4	52	5.5	8	51	50	34	170
FRH-5E-65	65	60	4	70	6.5	10	59	65	47	530

Direct connection kit for Stepper motor

The kit includes:
1x NEMA 24 connection flange
4x screws + 4 lock washers
1x coupling Mod. COS
1x bushing (not present in FS-5E-50-0024)



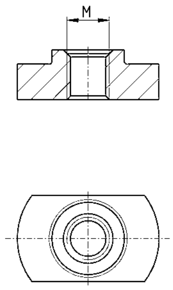


Mod.	Size	Motor	A	B	⌀C	F1	F2	E	TG	K	⌀M	N	Weight (g)
FS-5E-50-0024	50	NEMA 24	4	37	41	47	45	60.5	47.1	M4	38.1	2.5	125
FS-5E-65-0024	65	NEMA 24	4	36	45	65	60	60.5	47.1	M4	38.1	2.5	200

Slot nut for sensor CSH

Material: steel

Supplied with:
2x nuts

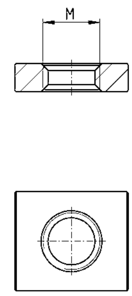


Mod.	Size	M
PCV-5E-CS-M3	50 - 65 - 80	M3
PCV-5E-CS-M4	50 - 65 - 80	M4

Slot nut 6 - rectangular type

Material: steel

Supplied with:
2x nuts

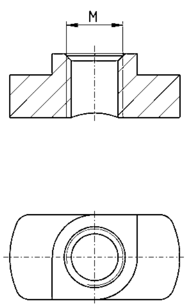


Mod.	Size	M
PCV-5E-C6-M4Q	50 - 65	M4

Slot nut 6 for front insertion

Material: steel

Supplied with:
2x nuts

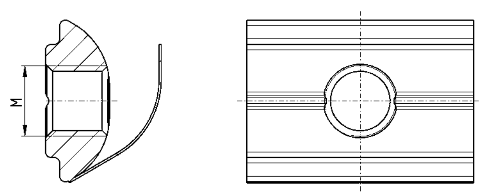


Mod.	Size	M
PCV-5E-C6-M4R	50 - 65	M4

Slot nut 8 with flexible flap

Material: steel

Supplied with:
2x nuts



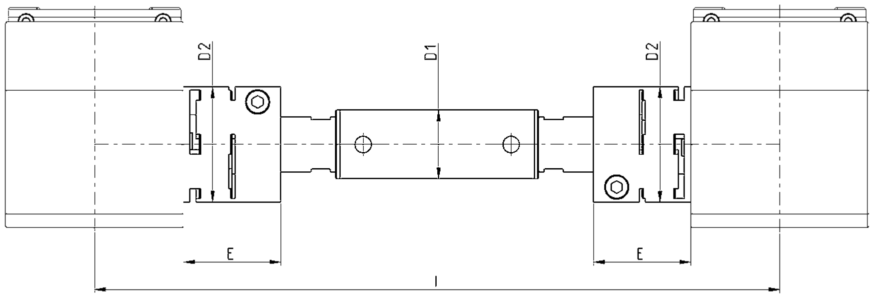
Mod.	Size	M
PCV-5E-C8-M5	80	M5
PCV-5E-C8-M6	80	M6

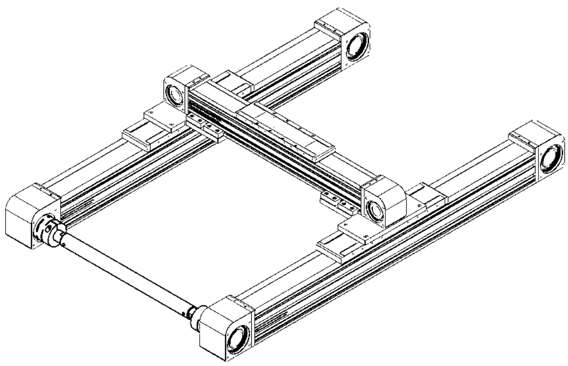
Parallel connection kit

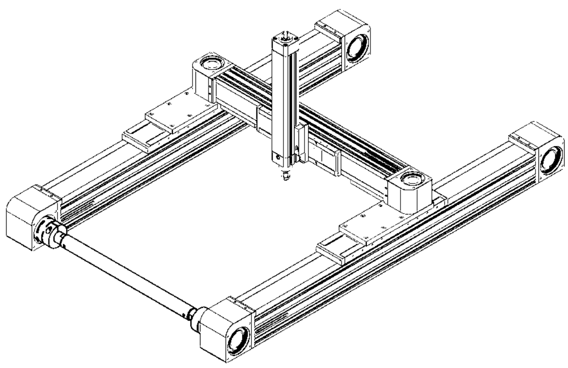
The kit includes:
1x parallel shaft
2x expansion couplings

EXAMPLE:

PS-5E-65-1400 corresponds to a parallel connection for axes positioned at interaxis I = 1400mm

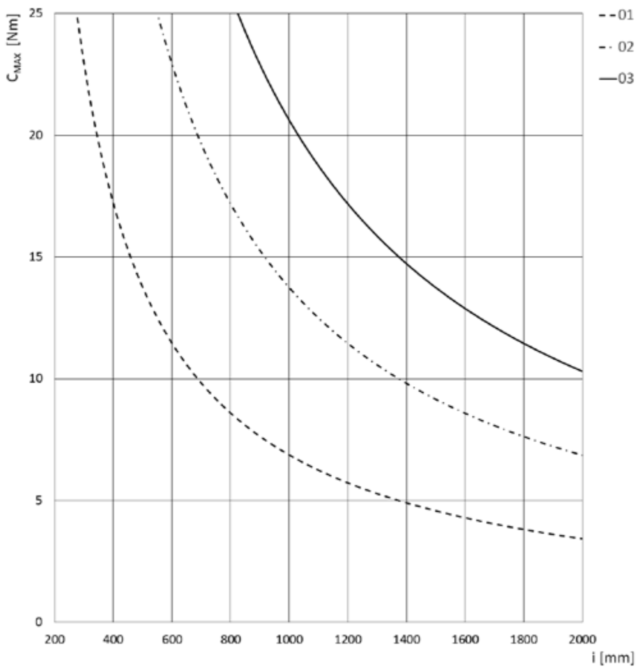






Mod.	Size	I min	I max	⌀D1	⌀D2	E	Transmission torque
PS-5E-50-0000	50	200	2000	22	32	26	see graph
PS-5E-65-0000	65	250	2000	25	42	35.5	see graph
PS-5E-80-0000	80	300	2000	30	56	40	see graph

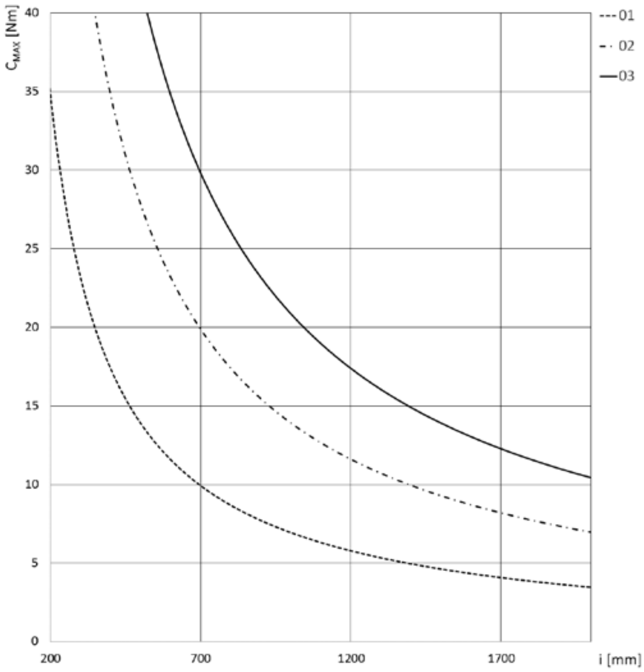
INTERAXIS ACCORDING TO THE MAXIMUM ADMISSIBLE TORQUE



Size 50x50

Cmax = max applicable torque
i = interaxis between the two 5E axes

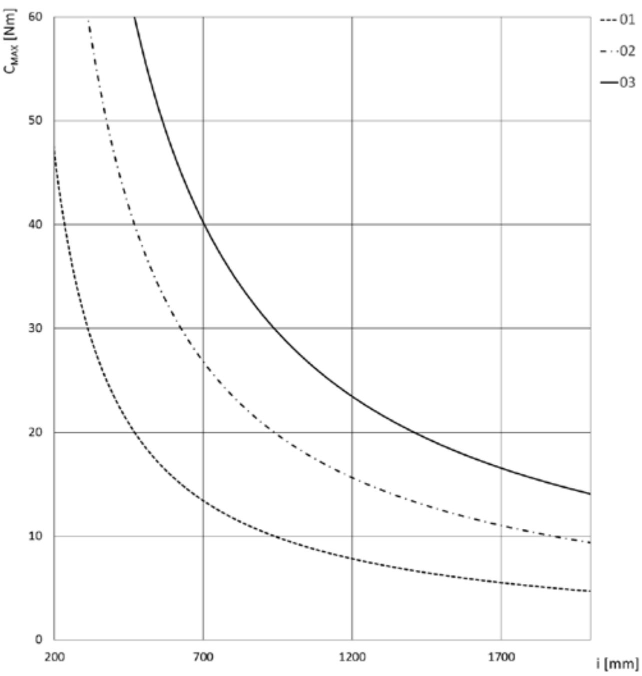
01 = lag error 0.1 mm
02 = lag error 0.2 mm
03 = lag error 0.3 mm



Size 65x65

Cmax = max applicable torque
i = interaxis between the two 5E axes

01 = lag error 0.1 mm
02 = lag error 0.2 mm
03 = lag error 0.3 mm



Size 80x80

Cmax = max applicable torque
i = interaxis between the two 5E axes

01 = lag error 0.1 mm
02 = lag error 0.2 mm
03 = lag error 0.3 mm

Series 5V vertical electromechanical axis

New

Sizes 50, 65, 80

- High dynamics
- Easy to integrate in x-y-z systems
- Strokes up to 1500 mm
- HS version for High Stiffness applications
- Version with integrated shock absorbers

The 5V vertical electromechanical axis represents the ideal solution for applications that require vertical displacements as for example pick and place, dispensing, loading/unloading systems (plastic injection moulding, assembly, machining) or palletisers. Available in three sizes, 50, 65 and 80, it can be used as vertical axis of a x,y,z gantry system or cantilever in applications that require to move loads for long strokes quickly and thus optimise the machine cycle time.

The new Series 5V axes are mechanical linear actuators with toothed belt. Thanks to a specific pulley system with omega configuration, these axes allow to reduce to a minimum the inertia of the system. Furthermore, the presence of one or more recirculating ball guides (HS version) as well as of a special self-supporting square profile provides high stiffness and resistance to dynamic loads, ensuring a precise and fast displacement of heavy loads.

GENERAL DATA

Construction	electromechanical axis with toothed belt
Design	open profile with protection plate
Operation	linear multi-position actuator
Sizes	50, 65, 80
Strokes	max 1500 mm
Type of guide	internal, with recirculating balls (cage type)
Fixing	by means of dedicated accessories
Mounting motor	on both sides
Operating temperature	-10°C ÷ +50°C
Storage temperature	-20°C ÷ +80°C
Protection class	IP 20
Lubrication	centralized lubrification by means of internal channels
Repeatability	± 0.05 mm
Duty cycle	100%
Use with external sensors	CSH and CST magnetic switches by means of accessories Mod. SMS

CODING EXAMPLE

5V	S	050	TBL	0200	A	S	1	

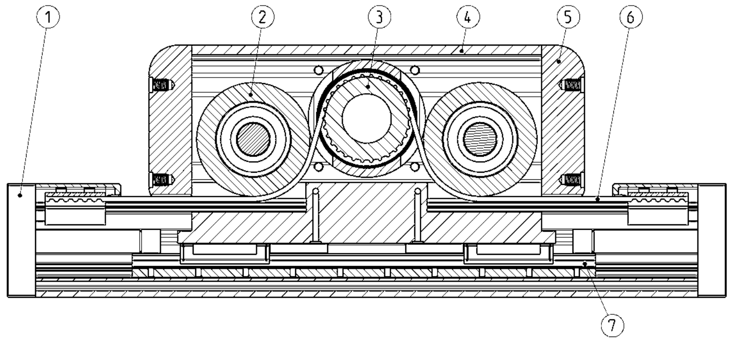
5V	SERIES
S	PROFILE: S = square section
050	FRAME SIZE: 050 = 50x50 mm 065 = 65x65 mm 080 = 80x80 mm
TBL	TRANSMISSION: TBL = toothed belt
0200	STROKE [C]: 0050 ÷ 1500 mm
A	VERSION: A = standard
S	TYPE OF SLIDER: S = standard
1	NUMBER OF SLIDERS: 1 = 1 slider
	TYPE OF END CAP: = standard SA = shock absorber integrated

MECHANICAL CHARACTERISTICS

(A) Value refers to a covered distance of 2000 Km with fully supported system.

	Measuring unit	Size 50	Size 65	Size 80
RECIRCULATING BALL GUIDE (CAGE TYPE)				
Version		A	A	A
Type of slider		S	S	S
Number of RDS blocks	pcs	2	2	2
Dynamic load of RDS blocks (C)	N	11640	28400	44600
Max admissible load (C_{max} z, C_{max} y)	N	3100(A)	8300(A)	13100(A)
Max admissible moment (M_{max} x)	Nm	22.44	96.00	216.60
Max admissible moment (M_{max} y, M_{max} x z)	Nm	45.30	269.40	525.00
Max linear speed of mechanics (V_{max})	m/s	3	3	3
Max linear acceleration of mechanics (a_{max})	m/s²	30	30	30
PROFILE				
Mass in movement	kg	0.45	1.10	2.30
Mass in movement per stroke meter	kg/m	0.13	0.21	0.41
Moment of surface inertia Iy	mm⁴	$1.89 \cdot 10^5$	$4.94 \cdot 10^5$	$1.23 \cdot 10^6$
Moment of surface inertia Iz	mm⁴	$2.48 \cdot 10^5$	$6.97 \cdot 10^5$	$1.68 \cdot 10^6$
TOOTHED BELT				
Type		25 AT 5 HP	40 AT 5 HP	45 AT 10 HP
Pitch	mm	5	5	10
Safe loads	N	See the diagram	See the diagram	See the diagram
PULLEY				
Effective diametre of the pulley	mm	47.75	57.30	76.39
Number of teeth	z	30	36	24
Linear movement per pulley round	mm/round	150	180	240

SERIES 5V MATERIALS



COMPONENTS	MATERIALS
1. End cap	Aluminium
2. Idler	Aluminium
3. Pulley	Steel
4. Omega body	Aluminium
5. Cover	Aluminium
7. Belt	PU + Steel
8. Recirculating ball guide	Steel

HOW TO CALCULATE THE LIFE OF THE AXIS 5V

The correct dimensioning of the axis 5V, used individually or in a cartesian system with several axes, you need to consider some facts, both static and dynamic. Among these, the most important are described on the following pages.

CALCULATION OF LIFE [km]

$$L_{eq} = \left(\frac{C_{ma}}{C_{eq} \cdot f_w}\right)^3 \cdot 2000$$

L_{eq} = Life of the axis [km]
C_{ma} = Maximum admissible load [N]
C_{eq} = Equivalent load [N]
f_w = safety coefficient according to the working conditions

CALCULATION OF EQUIVALENT LOAD

When compression/traction and side loads as well as bending or torque moments act on the system, you need to calculate the equivalent load acting on the system.

$$C_{eq} = |F_y| + |F_z| + C_{ma} \cdot \left|\frac{M_x}{M_{x,ma}}\right| + C_{ma} \cdot \left|\frac{M_y}{M_{y,ma}}\right| + C_{ma} \cdot \left|\frac{M_z}{M_{z,ma}}\right|$$

C_{eq} = Equivalent load [N]
F_y = Force acting along the Y-axis [N]
F_z = Force acting along the Z-axis [N]
C_{ma} = Max admissible load [N]
M_x = Moment along X-axis [Nm]
M_y = Moment along Y-axis [Nm]
M_z = Moment along Z-axis [Nm]
$M_{(x,ma)}$ = Max admissible moment along X-axis [Nm]
$M_{(y,ma)}$ = Max admissible moment along Y-axis [Nm]
$M_{(z,ma)}$ = Max admissible moment along Z-axis [Nm]

HOW TO CALCULATE THE DRIVING TORQUE [Nm]

F_A = Total force acting from outside [N]
F_E = Force to be applied externally [N]
g = Gravitational acceleration [9.81 m/s²]
m_E = Mass of the body to move [kg]
D_P = Pulley pitch diameter [mm]
C_{M1} = Driving torque due to external agents [Nm]

$$C_{TOT} = C_{M1} + C_{M2} + C_{M3}$$

$$F_A = F_E + m_E \cdot (a \pm g)$$

$$C_{M1} = \frac{F_A \cdot D_P}{2}$$

J_{TOT} = Moment of inertia of rotating components [kg•m²]
$\dot{\omega}$ = Angular acceleration [rad/s²]
a = Axis linear acceleration [m/s²]
C_{M2} = Driving torque due to rotating components [Nm]

$$\dot{\omega} = \frac{2 \cdot a}{D_P}$$

$$C_{M2} = J_{TOT} \cdot \dot{\omega}$$

F_{TT} = Force needed to move translating components [N]
F_{TF} = Force needed to move fixed-length translating components [N]
F_{TV} = Force needed to move variable-length translating components [N]
m_{C1} = Mass of fixed-length translating components [kg]
K_{TV} = Mass coefficient of variable-length translating components [kg/mm]
C_{M3} = Driving torque due to translating components [Nm]

$$F_{TT} = F_{TF} + F_{TV}$$

$$F_{TF} = m_{C1} \cdot (a \pm g)$$

$$F_{TV} = K_{TV} \cdot C \cdot (a \pm g)$$

$$C_{M3} = \frac{F_{TT} \cdot D_P}{2}$$

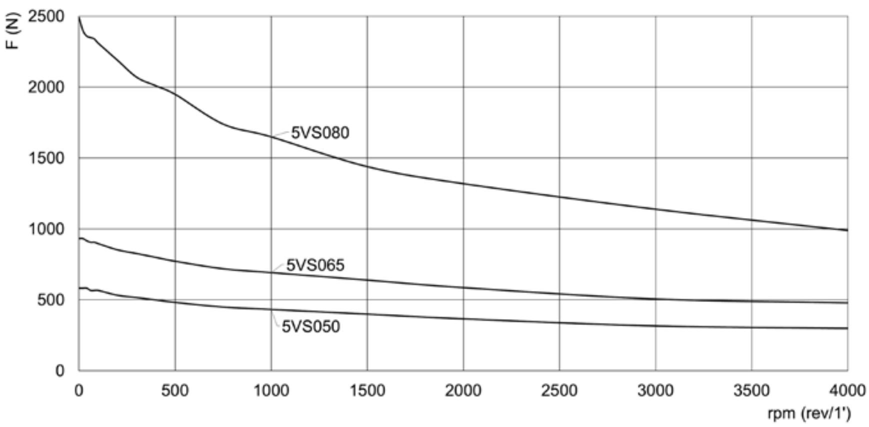
According to axis size and speeds chosen, force that can be transmitted from the toothed belt has these limits.

Values of masses and fixed and rotating inertia moments of 5V components

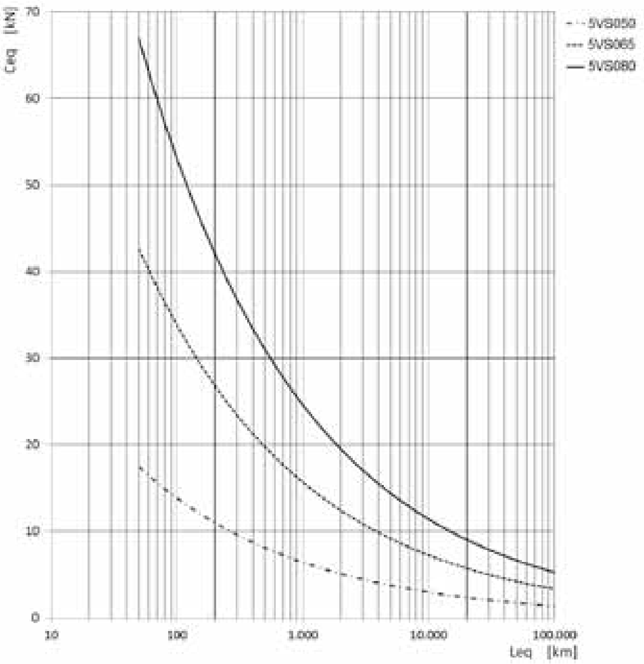
Size	J_{TOT} [kg•m²]	m_{C1} [kg]	K_{TV} [kg/mm]
050	183.83	1.48	$3 \cdot 10^{-3}$
060	480.26	2.64	$4.65 \cdot 10^{-3}$
080	1489.03	6.4	$7.04 \cdot 10^{-3}$

TRANSMISSIBLE FORCE

According to axis size and speeds chosen, force that can be transmitted from the toothed belt has these limits.



LIFE OF THE SERIES 5V AXIS ACCORDING TO THE EQUIVALENT LOAD



Curves calculated with fw = 1

Ceq = Equivalent load applied on the axis [kN]
Leq = Life of the axis [km]

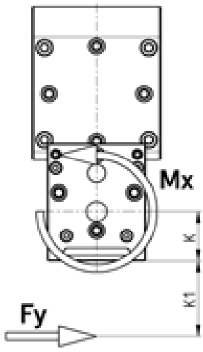
EQUIVALENT LOAD

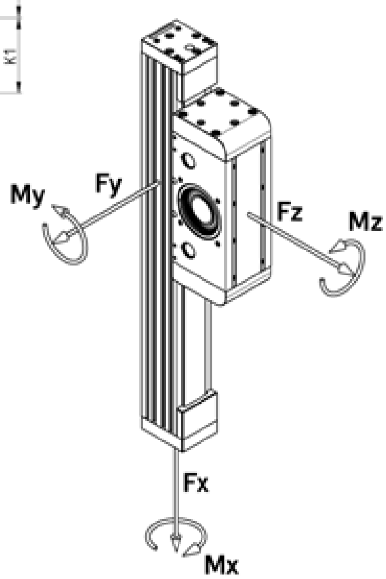
To determine the moment acting on the axis x,Mx, in an accurate way, refer to the following formula:

Mx = Fy · (K + K1)

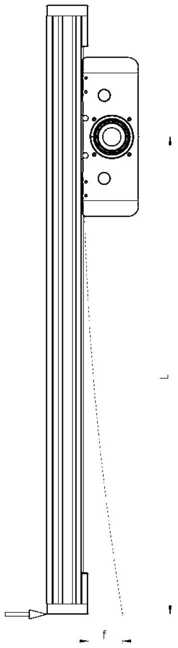
where:
Mx = Moment along X-axis [Nm]
Fy = Force acting along the Y-axis [N]
K = fixed distance for axis 5E [mm]
K1 = application arm [mm]

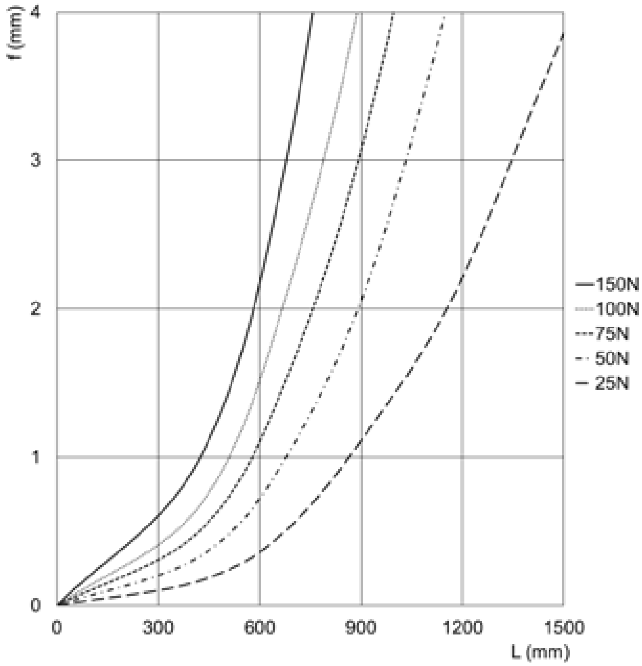
NOTE: here below, the “K” values for the three sizes
- K = 21 mm (5VS050)
- K = 28 mm (5VS065)
- K = 36 mm (5VS080)



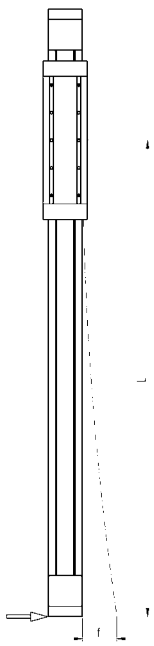


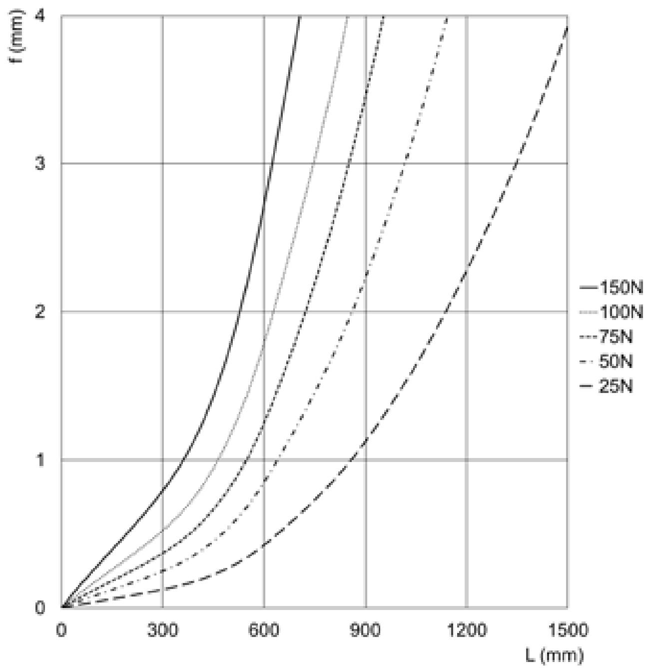
DEFLECTION 5VS050





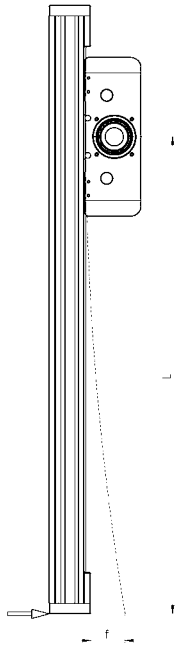
f = generated deflection [mm]
L = arm length [mm]

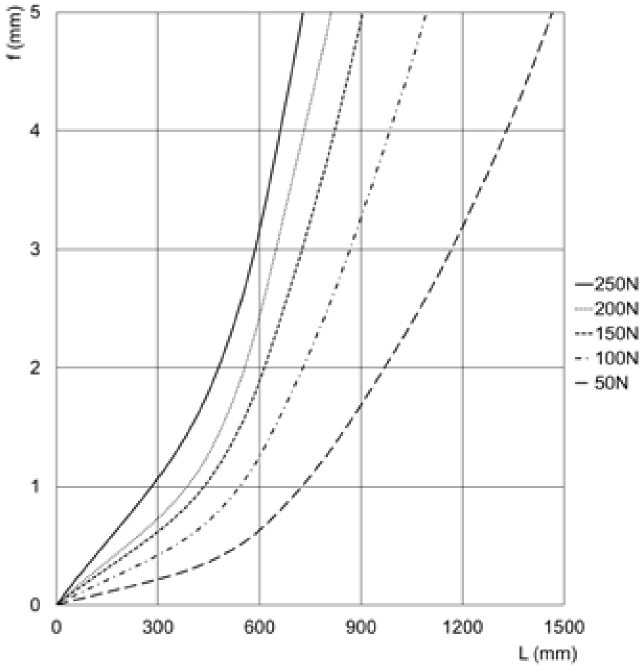




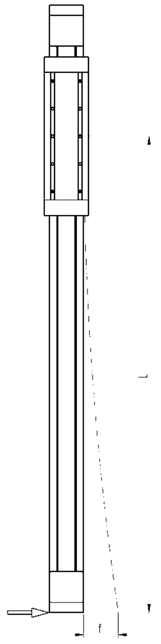
f = generated deflection [mm]
L = arm length [mm]

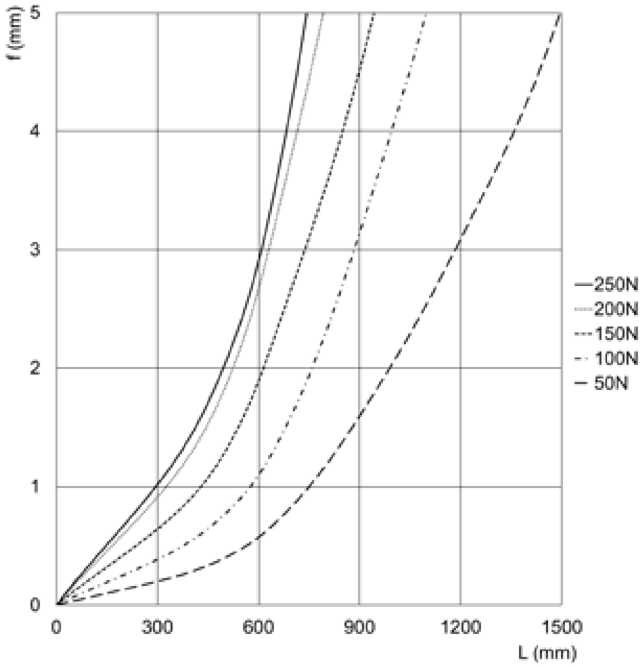
DEFLECTION 5VS065





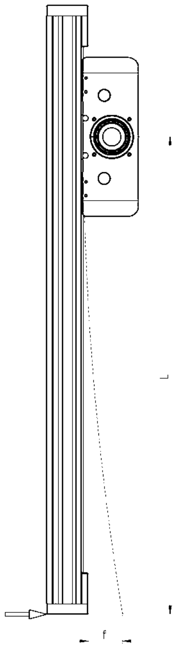
f = generated deflection [mm]
L = arm length [mm]

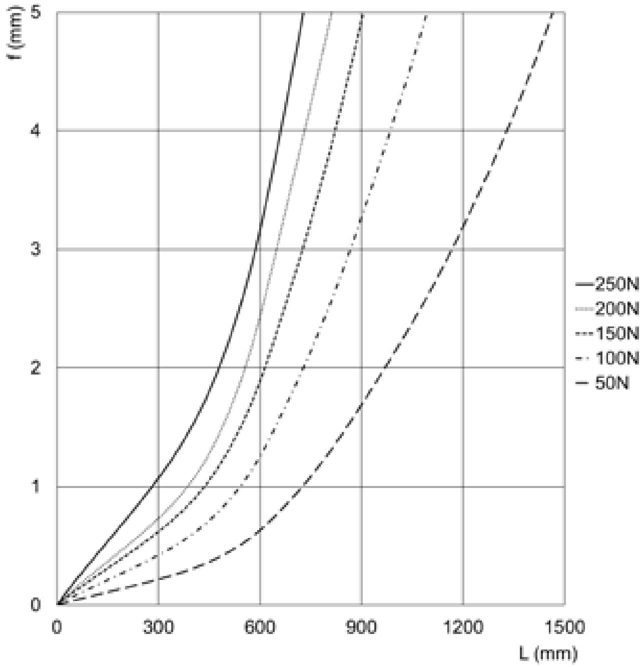




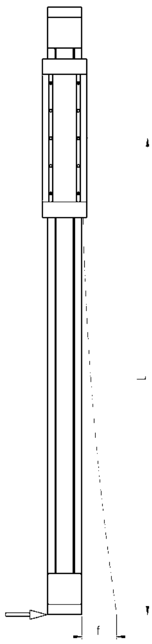
f = generated deflection [mm]
L = arm length [mm]

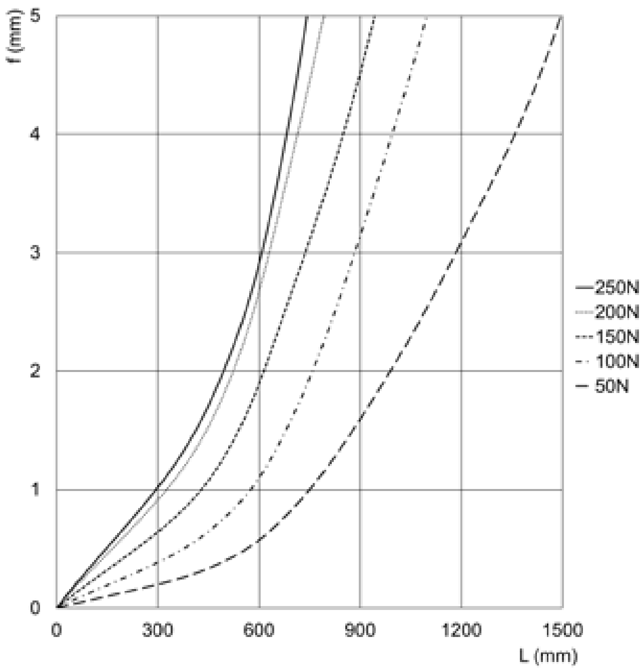
DEFLECTION 5VS080





f = generated deflection [mm]
L = arm length [mm]





f = generated deflection [mm]
L = arm length [mm]

ACCESSORIES FOR SERIES 5V


Kit to connect the gearbox


Magnet kit
Mod. SMS-5V-U

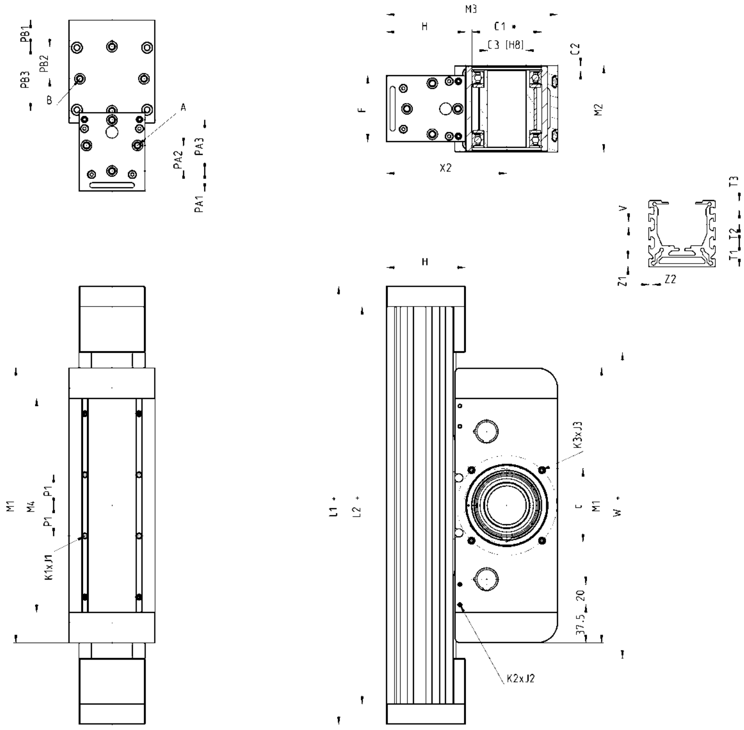

Sensor holder kit
Mod. SMS-5V


Centering ring
Mod. TR-CG

All accessories are supplied separately from the axis.
Together with the axis, a kit is supplied containing:
- covers to close the holes on the endcap
- centering bushings for the slider
- nipples for greasing

Electromechanical axis Mod. 5V...AS1

+ = add the stroke

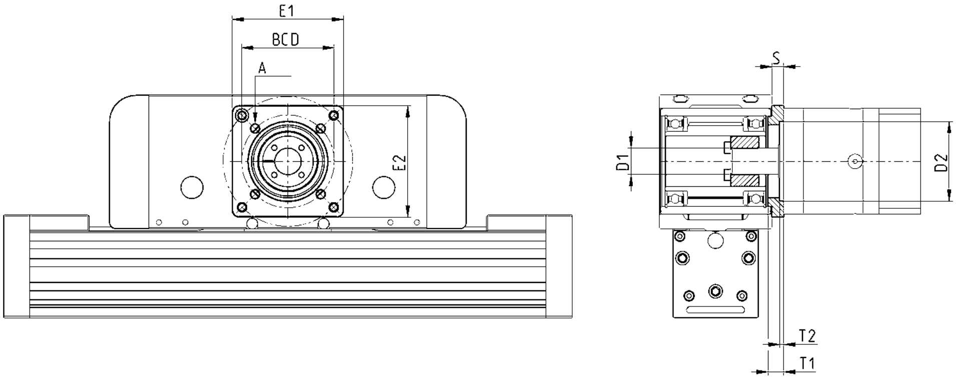


Size	A	B	⌀C	⌀C1	C2	⌀C3 (h8)	D	E	F	H	L1	L2	M1	M2	M3	M4	P1	PA1	PA2	PA3	PB1	PB2	PB3	X2	W+	K1xJ1	K2xJ2	K3xJ3	Z1	Z2	V	T1	T2	T3
50	M5x7.5	M5x7.5	72	52	4.5	26	30	20	50	60	380	350	230	65	133	185	40	14.5	20	40	21	25	50	94.3	260	M4x4.7	M3x6	M5x7.5	8	4	6	20	-	10
65	M6x9	M6x9	98	68	4.5	38	37.5	20	65	77.5	430	390	270	85	168	210	60	20	25	50	26	31.5	63	118	300	M5x4.7	M3x6	M6x10	8	4	6	23.5	18	10
80	M8x12	M8x12	133	80	5	47	37.5	20	80	97.5	635	585	365	100	205	305	60	24	32.5	65	37	35	70	144	395	M6x5	M3x6	M8x18	8	4	8	25	25	10

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
50	2.15	3.35
65	4.6	5.4
80	8.9	5.9

Kit to connect the gearbox

The kit includes:
1x connection flange
4x screws + 4x lock washers
to connect the flange
1x locking set
4x screws + 4x lock washers
to connect the gearbox

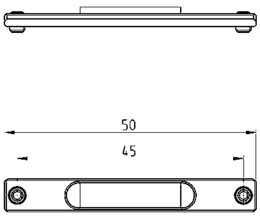


DIMENSIONS

Mod.	Size	E1	E2	S	BCD	⌀A	⌀D1	⌀D2(H7)	T1	T2	Weight (g)
FR-5V-50	50	65	65	6	52	5.5	14	Ø40	10	-	130
FR-5V-65	65	84	84	9	70	6.5	20	60	12	3.5	300
FR-5V-80	80	115	115	13	100	10.5	25	80	18	4.5	620

Magnet kit Mod. SMS-5V-U

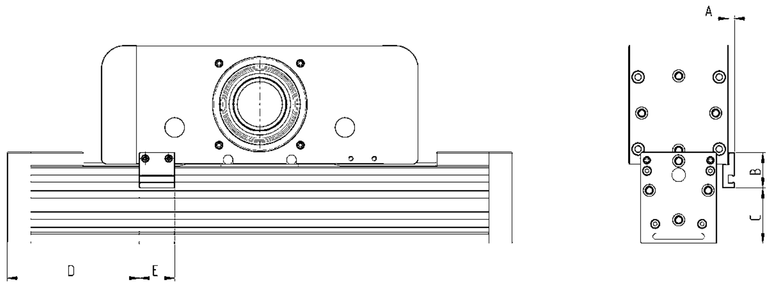
Supplied with:
1x plate
1x magnet
2x locking screws



Mod.
SMS-5V-U

Sensor holder kit Mod. SMS-5V

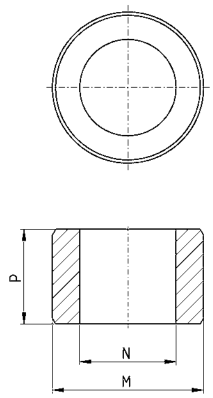
Supplied with:
1x plate
2x screws



Mod.	Size	A	B	C	D	E
SMS-5V-50	50	7.5	30	32	100	30
SMS-5V-65/80	65	5	30	47	112.5	30
SMS-5V-65/80	80	5	30	63	167.5	30

Centering ring Mod. TR-CG

Supplied with:
2x centering rings in steel



Mod.	M (h8)	N	P
TR-CG-04	Ø4	Ø2.6	2.5
TR-CG-05	Ø5	Ø3.1	3
TR-CG-06	Ø6	Ø4.1	4
TR-CG-08	Ø8	Ø5.1	5
TR-CG-10	Ø10	Ø6.1	6

Series DRWB drives for the control of electric actuation

New sizes

Drives for Brushless motors, sizes in power classes 100, 400, 750, 1000 W

- Completely digital drives
- PLC function programmable with the Camozzi QSet configuration software
- Control of speed, position and torque (torque only for Series DRWB)
- 64 positions programmable through the QSet
- Self-compensation of errors

The Camozzi drives Series DRWB have been designed to control the movement of the Camozzi electromechanical actuators (Series 5E and Series 6E).

The servo drives DRWB, compact and especially optimized for the brushless Camozzi motors, are completely digital and available in the power classes 100, 400, 750, 1000 W. Equipped with vector mode and the function of Autotuning and containment of vibrations, they are made in such a way to easily perform replacements and to have a two-line alphanumeric display with 4 control keys on the servo drive.
A digital pulse interface allows control of the direction, position, speed and torque. It is possible to control the drives with analogic signals.

GENERAL CHARACTERISTICS

Mod. DRWB-W01-2-D-E-A, DRWB-W04-2-D-E-A, DRWB-W07-2-D-E-A, DRWB-W10-2-D-E-A	
Power	100 W (Mod. DRWB-W01-2-D-E-A) 400 W (Mod. DRWB-W04-2-D-E-A) 750 W (Mod. DRWB-W07-2-D-E-A) 1000 W (Mod. DRWB-W10-2-D-E-A)
Electrical supply	200 ÷ 240 V AC (± 10%) single or three phase 50 ÷ 60 Hz (± 5%)
Number of phases	1
Maximum current	1.5 A (Mod. DRWB-W01-2-D-E-A) 4.1 A (Mod. DRWB-W04-2-D-E-A) 7.5 A (Mod. DRWB-W07-2-D-E-A, Mod. DRWB-W10-2-D-E-A)
Logic supply	200 ÷ 240 V AC (± 10 %) 50 ÷ 60 Hz (± 5 %) single phase
Maximum logic current	0.5 A max.
OUTPUT CURRENT	
Continuous current (effective)	0.9 A (Mod. DRWB-W01-2-D-E-A) 2.5 A (Mod. DRWB-W04-2-D-E-A) 5.1 A (Mod. DRWB-W07-2-D-E-A, Mod. DRWB-W10-2-D-E-A)
Peak current (effective)	2.7 A (Mod. DRWB-W01-2-D-E-A) 7.5 A (Mod. DRWB-W04-2-D-E-A) 15.3 A (Mod. DRWB-W07-2-D-E-A, Mod. DRWB-W10-2-D-E-A)
Maximum duration of peak current	1 second
Type of control	IGBT PWM vector control
Controller sampling rate	Current, speed and position: 15 kHz
Motor types supported	AC servo motors
Status of LED	Red: Error Green: Ready
OPERATING MODES	
Encoder interface	Operating voltage + 5 VDC ± 5 % @400 mA
Communication interface	USB 2.0
Parameterisable I/O interface	Digital Inputs [I1..I9], (single-end, optocoupler) Digital Outputs [O1..O4], (optocoupler) BRAKE Output [CN2_BRK], max. 1 A DC
Feedback	External transducer Activation threshold + HV> 370 V DC Activation threshold + HV< 360 V DC Tolerance ± 5 %
Monitoring functions	Short circuit, overvoltage (> 390 V DC ± 5 %), undervoltage (< 60 V DC); position error, encoder error, motor phase monitoring, overtemperature D2 (IGBT > 90 °C ± 1°C), motor overtemperature
Autotuning	with automatic mass inertia calculation
VSF (vibration suppression)	01 Hz ÷ 200 Hz
Other functions	Friction compensation, gear play compensation
Ambient conditions	Operating temperature 0°C ÷ 40°C (above 55°C only with air conditioning) Storage temperature -20°C ÷ 65°C UAir humidity 20% ÷ 85% (non-condensing) Operating altitude < 1000 m above sea level Vibration 5.88 m/s (10 Hz ÷ 60 Hz) Protection class IP20

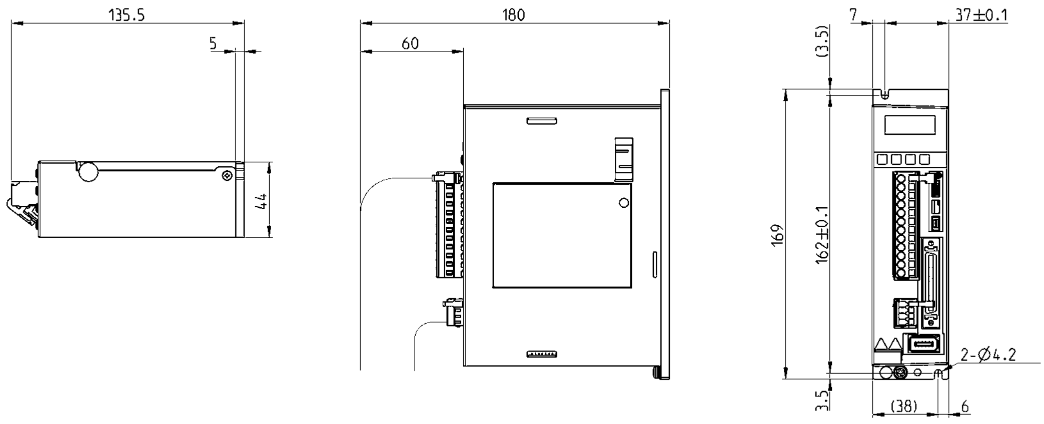
CODING EXAMPLE

DRWB	-	W01	-	2	-	D	-	E	-	A

DRWB	SERIES
W01	SIZE W: W01 = 100 W W04 = 400 W W07 = 750 W W10 = 1000 W
2	SUPPLY: 2 = 220 V AC
D	COMMUNICATION: D = Digital I/O and Analog
E	FEEDBACK: E = incremental encoder 13 bit
A	VERSIONS: A = Standard

Drive Mod. DRWB-W01-2-D-E-A

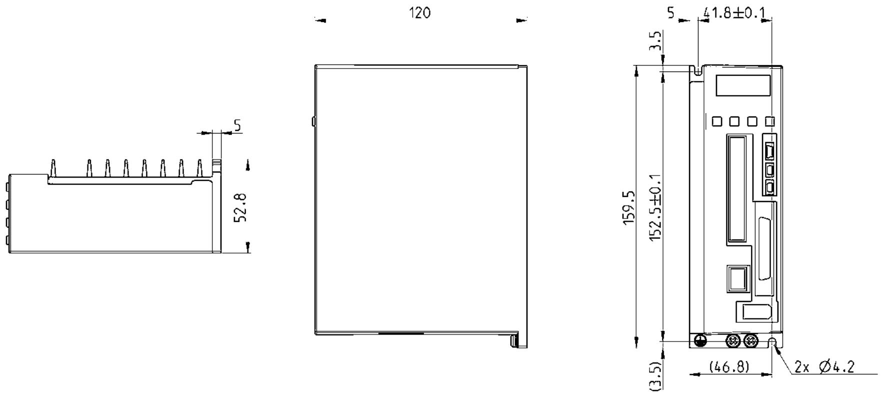
Drive for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
DRWB-W01-2-D-E-A	100 W	230 V AC	13 bit

Drive Mod. DRWB-W04-2-D-E-A

Drive for the Camozzi Brushless motors

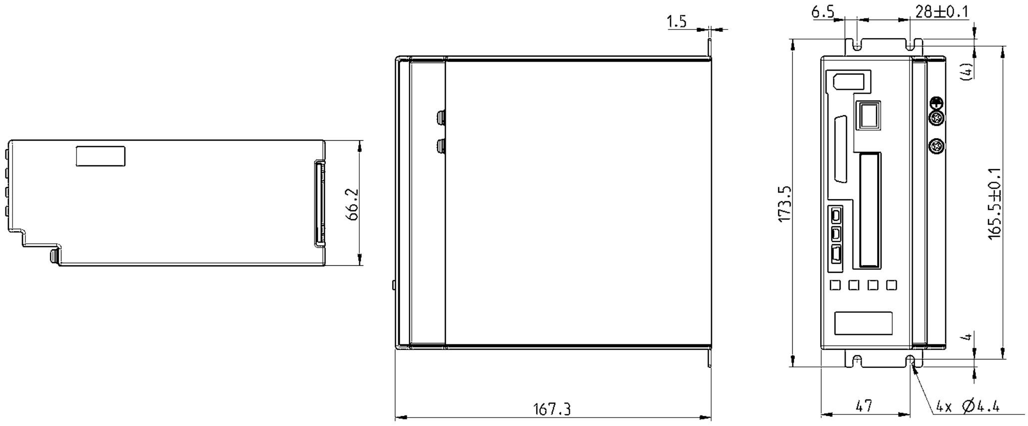


Mod.	Power	Supply	Encoder
DRWB-W04-2-D-E-A	400 W	230 V AC	13 bit

Drives Mod. DRWB-W07-2-D-E-A and Mod. DRWB-W10-2-D-E-A

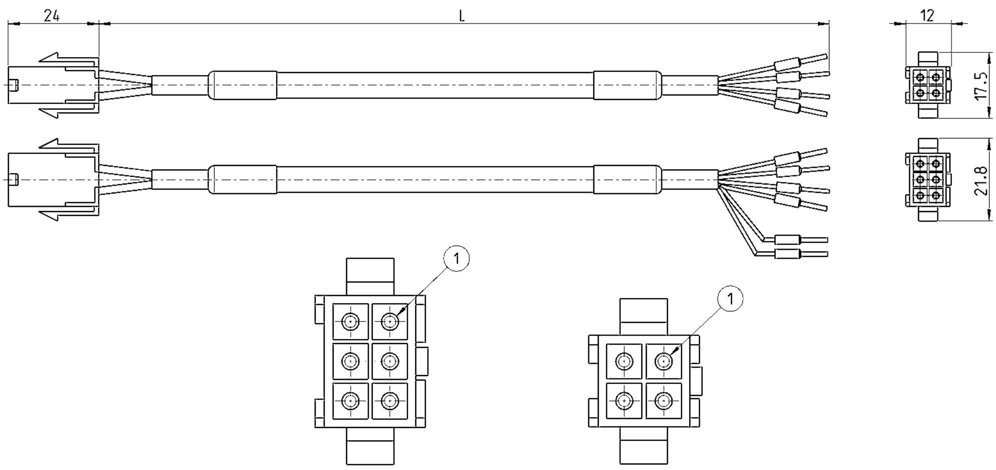
New size

Drives for the Camozzi Brushless motors



Mod.	Power	Supply	Encoder
DRWB-W07-2-D-E-A	750 W	230 V AC	13 bit
DRWB-W10-2-D-E-A	1000 W	230 V AC	13 bit

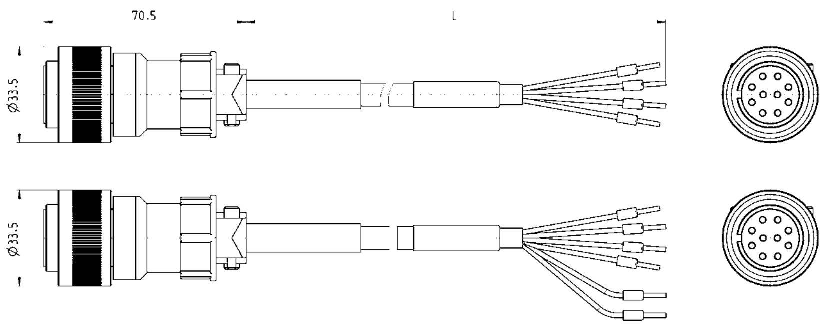
Cables for Brushless (MTB) motors, 100-400-750 W



Mod.	Brake	Pins	L = cable (m)
EC-200421-B300	-	4	3
EC-200421-B500	-	4	5
EC-200421-BA00	-	4	10
EC-210621-B300	✖	6	3
EC-210621-B500	✖	6	5
EC-210621-BA00	✖	6	10

Cables for Brushless (MTB) motors, 100-400-750 W IP65

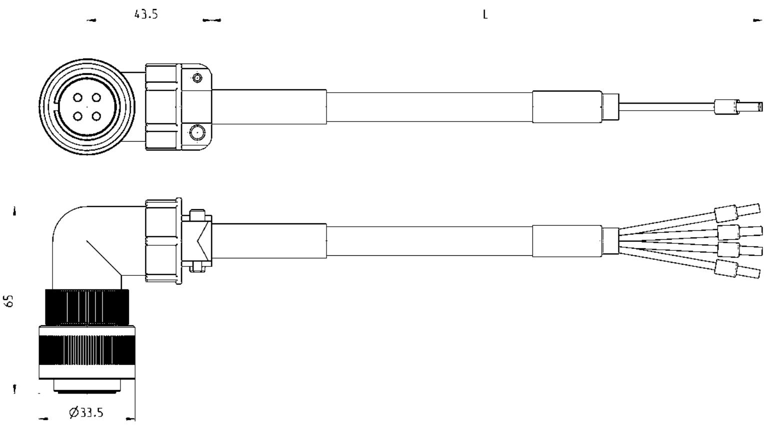
New



Mod.	Brake	Pins	L = cable (m)
EC-3004P1-B300	-	4	3
EC-3004P1-B500	-	4	5
EC-3004P1-BA00	-	4	10
EC-3106P1-B300	✖	6	3
EC-3106P1-B500	✖	6	5
EC-3106P1-BA00	✖	6	10

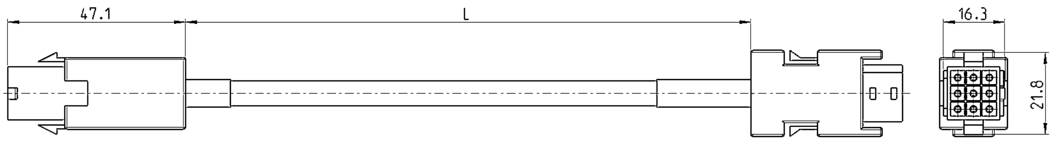
Cables for Brushless (MTB) motor, 1000W IP65

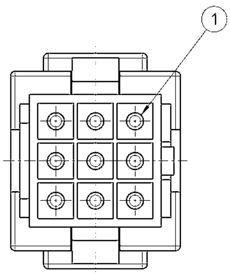
New



Mod.	Brake	Pins	L = cable (m)
EC-4704P1-B300	-	4	3
EC-4704P1-B500	-	4	5
EC-4704P1-BA00	-	4	10

Encoder cables for Brushless (MTB) motors, 100-400-750 W

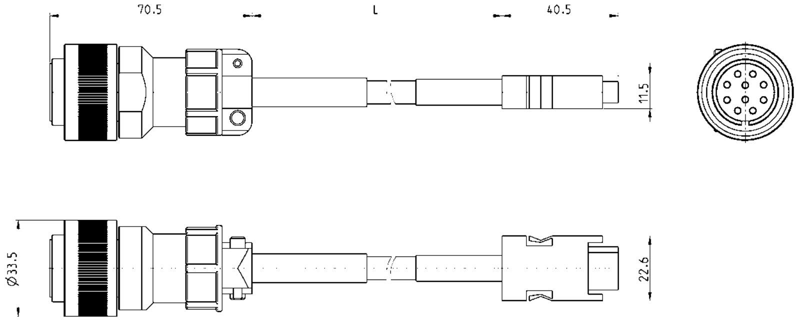




Mod.	Pins	L = cable (m)
EC-220923-B300	9	3
EC-220923-B500	9	5
EC-220923-BA00	9	10

Encoder cables for Brushless (MTB) motors, 100-400-750 W IP65

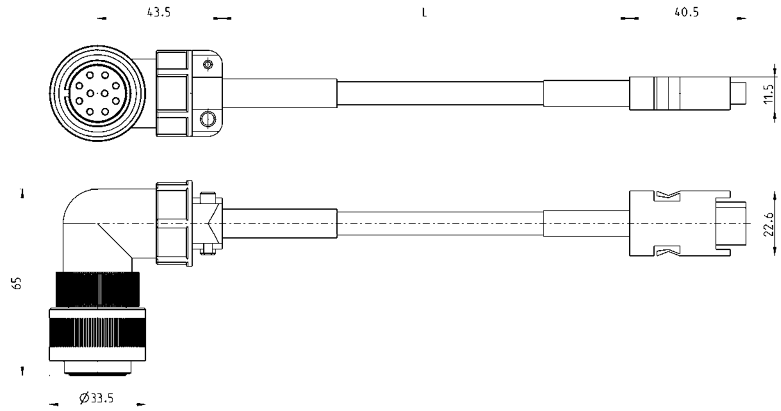
New



Mod.	Pins	L = cable (m)
EC-3209P3-B300	9	3
EC-3209P3-B500	9	5
EC-3209P3-BA00	9	10

Encoder cables for Brushless (MTB) motor, 1000W IP65

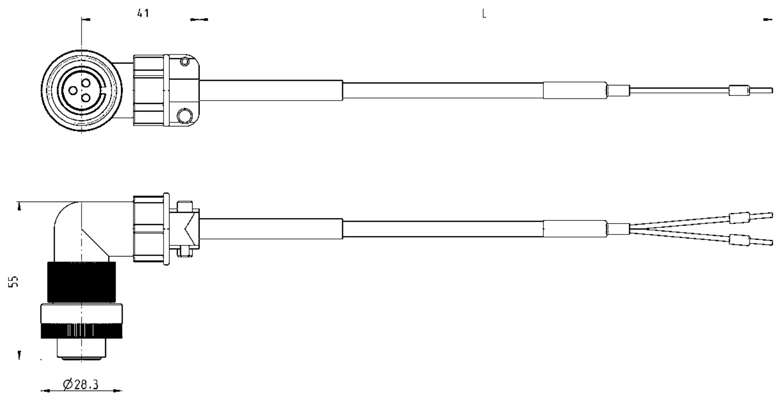
New



Mod.	Pins	L = cable (m)
EC-4809P3-B300	9	3
EC-4809P3-B500	9	5
EC-4809P3-BA00	9	10

Brake cables for Brushless (MTB) motor, size 1000W IP65

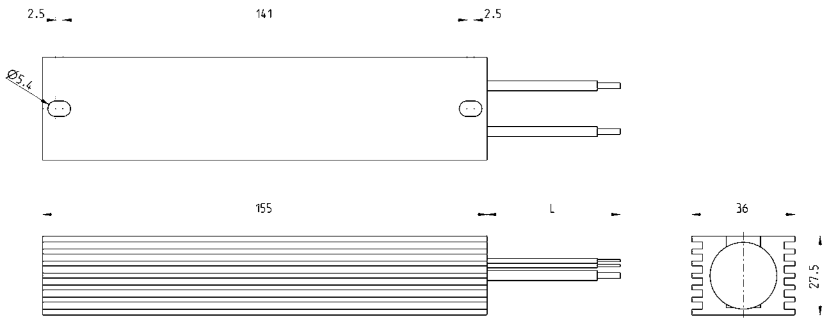
New



Mod.	Pins	L = cable (m)
EC-4902P1-B300	2	3
EC-4902P1-B500	2	5
EC-4902P1-BA00	2	10

Brake resistance for Brushless (MTB) motor

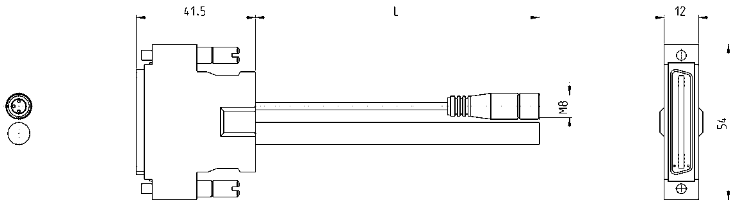
New



Mod.	Power
EC-212022	300 W

Cables for DRWB drive I/O

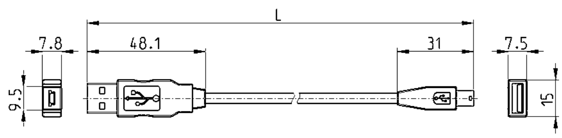
New



Mod.	Pins	L = cable (m)
G14W-1	50	1
G14W-3	50	3
G14W-5	50	5

USB to Mini USB cable Mod. G11W-G13W-2

For the hardware configuration
of the Camozzi products



Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G13W-2	black shielded cable 28 AWG	standard USB to Mini USB	PVC	2

Series DRCS drives for Stepper motors

One-size full digital drives with bluetooth system and NFC integrated

The Series DRCS drives, compact and optimized in one size, have been specially configured for all small and medium-sized Camozzi Stepper motors. They are capable of controlling Stepper motors with 2 phases and micro stepping feed. They are able to calculate the normal resonance frequency of the motors and optimize their driving. The use of the micro stepping technique (up to 1/16 of steps) enables the drive to almost replicate a sinusoidal current while considerably reducing the natural resonance of the motor itself. The availability of 8 inputs allows the realization of a table of 256 commands, for each of which it is possible to set position, speed, acceleration and deceleration.

Each command can be absolute or relative. Furthermore it is possible to control driving in frequency by using the Step and Direction commands. The frequency defines the speed, while the number of steps defines the position. The Series DRCS drives are equipped with the serial protocol CANopen CiA301 and CiA402 by means of which it is possible to run commands for motion control and the integration for the monitoring of the drive’s state. To configure the drive, wired (USB 2.0) or wireless (according to Bluetooth standards; BL-BLE) connections can be used. Thanks to an innovative system that takes advantage of the NFC technology, it is possible to extract production and statistic data regarding the use of the drive, as these have now become essential parameters in order to approach the 4.0 industry.

- » Full digital drive
- » PLC function programmable with the Camozzi QSet configuration software
- » Feedback by means of incremental encoder
- » NFC system integrated
- » Self-compensation of errors
- » 256 programmable positions (control of speed and position)
- » Wire configuration by means of USB 2.0 and wireless configuration by means of bluetooth protocol BL-BLE
- » Can be controlled in frequency (step and direction), digital I/O and serial CANopen protocol

GENERAL DATA

SUPPLY VOLTAGE	
Logic	18 ÷ 32 V DC
Power	24 ÷ 60 V DC
CURRENT	
Current	0.1 ÷ 7 A
Holding current	Automatic reduction of the holding current with motor in stop mode, this function can be set according to the holding current or its delay
AMBIENT	
Operating temperature	0 ÷ 40°C (up to 55°C with forced ventilation)
Storage temperature	-20°C ÷ 70°C
Humidity	0 ÷ 90%
Altitude	< 1000 meters
Vibration	1G (10 to 500 Hz)
Protection	Overvoltage, minimum voltage, overtemperature, short-circuit or grounding on the motor
Control method	4 state PWM 20kHz
Amplification type	Dual H-Bridge, 4 Quadrants
Position control encoder	100 to 5000 differential impulses / revolution
DIGITAL I/O	
Input control signal	12 opto-isolated 24 V DC
Output control signal	6 opto-isolated
Input impulse control	Step inlet and frequency direction maximum 10kHz
Output control signal	Electromechanical brake max current 1A
COMMUNICATION INTERFACE	
USB	USB 2.0
Bluetooth	BL and standard BLE
RFID	with NFC devices
CANopen	standard
Microstep emulation	High resolution by means of microstepping and a detailed synchronization. Reduction of oscillations and of resonance vibrations
Anti-Resonance	Activation of the oscillation system in order to reduce vibrations and obtain a smooth movement, control of speed and a reduction of the time of oscillation
Led status	Green led: ready
Configuration	Digital with the Camozzi QSet configuration software
Control methods	Digital inputs Frequency CANopen
MEMORY	
Data retention memory	Flash
Configuration data backup memory	E²prom
Weight	0.46 kg

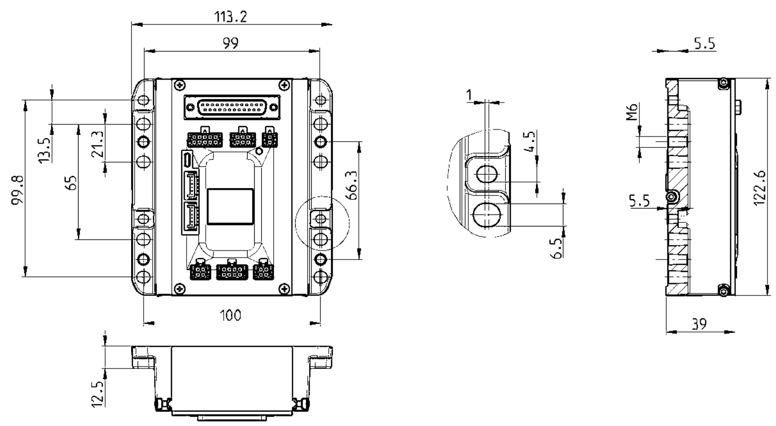
CODING EXAMPLE

DRCS	-	A05	-	8	-	D	-	0	-	A

DRCS	SERIES
A05	SIZE AT MAX CURRENT: A05 = 5 A
8	SUPPLY: 8 = 48 V DC
D	COMMUNICATION: D = Digital I/O and impulse frequency C = CANopen, Digital I/O and impulse frequency
0	FEEDBACK: 0 = Feedback
A	VERSIONS: A = standard B = Bluetooth BL-BLE

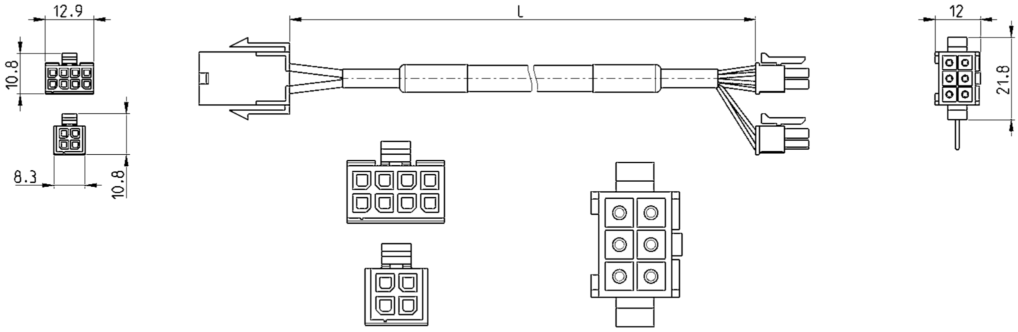
Series DRCS drives

For the Camozzi Stepper motors



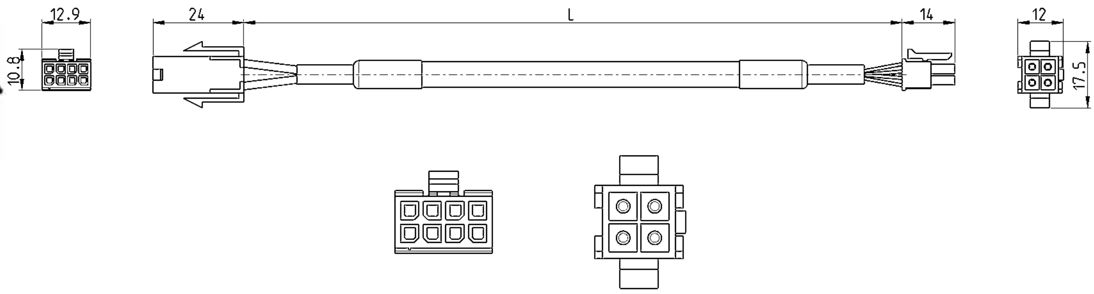
Mod.	Max current	Logic supply	Power supply	Communication	Versions
DRCS-A05-8-D-0-A	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and impulse frequency	standard
DRCS-A05-8-C-0-A	7 A	24 V DC	24 ÷ 48 V DC	CANopen, Digital I/O and impulse frequency	standard
DRCS-A05-8-D-0-B	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and impulse frequency	Bluetooth BL-BLE
DRCS-A05-8-C-0-B	7 A	24 V DC	24 ÷ 48 V DC	CANopen, Digital I/O and impulse frequency	Bluetooth BL-BLE

Cable for Series DRCS drive with brake



Mod.	Motor	Brake	Pins	L = cable (m)
EC-210A22-B300	Stepper	X	6	3
EC-210A22-B500	Stepper	X	6	5
EC-210A22-BA00	Stepper	X	6	10

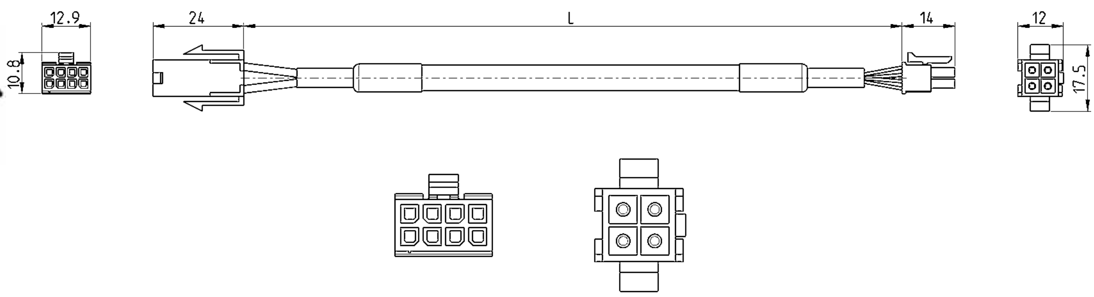
Cable for Series DRCS drive without brake



Mod.	Motor	Brake	Pins	L = cable (m)
EC-200A22-B300	Stepper	-	4	3
EC-200A22-B500	Stepper	-	4	5
EC-200A22-BA00	Stepper	-	4	10

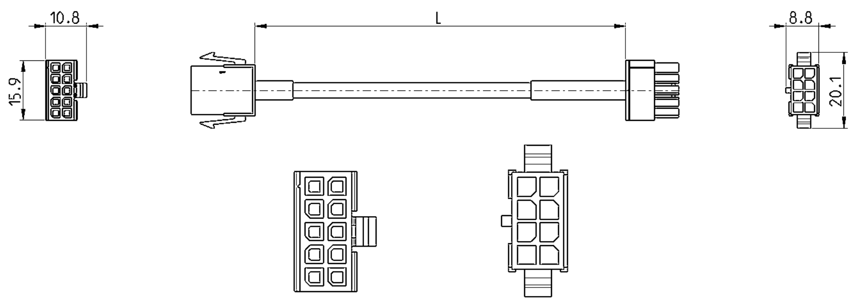
Cable for Series DRCS drive without brake (Nema 34 only)

New



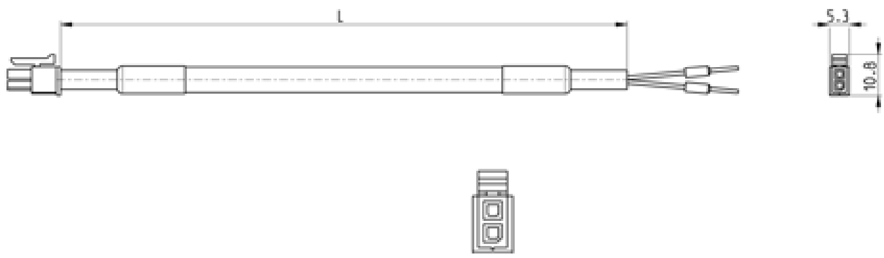
Mod.	Motor	Brake	Pins	L = cable (m)
EC-200522-B300	Stepper	-	5	3
EC-200522-B500	Stepper	-	5	5
EC-200522-BA00	Stepper	-	5	10

Encoder cable for Series DRCS drive



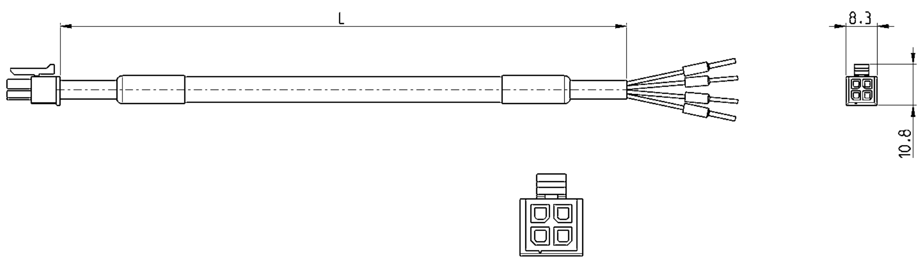
Mod.	Motor	Brake	Pins	L = cable (m)
EC-220A22-B300	Stepper	-	8	3
EC-220A22-B500	Stepper	-	8	5
EC-220A22-BA00	Stepper	-	8	10

Cable for Series DRCS drive logic supply



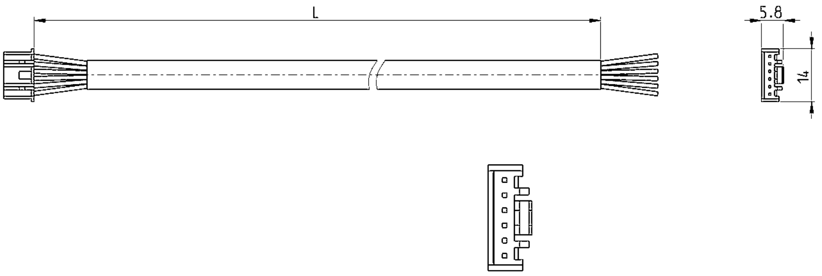
Mod.	Motor	Brake	Pins	L = cable (m)
EC-230422-A200	-	-	2	2

Cable for Series DRCS drive power supply



Mod.	Motor	Brake	Pins	L = cable (m)
EC-140222-A200	-	-	4	2

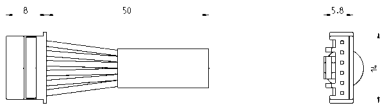
Cable for Series DRCS drive CANopen



Mod.	Motor	Brake	Pins	L = cable (m)
EC-050522-A100	-	-	6	1
EC-050522-A300	-	-	6	3
EC-050522-A500	-	-	6	5

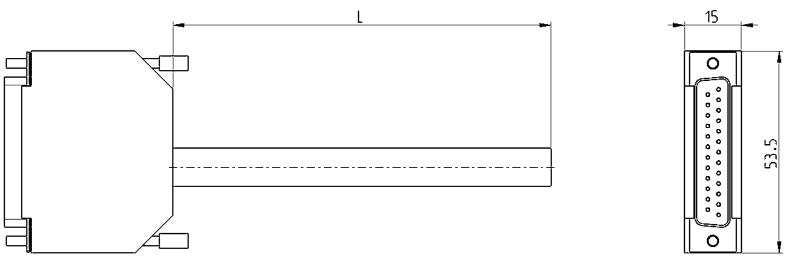
CAN terminating resistor for Series DRCS drives

New



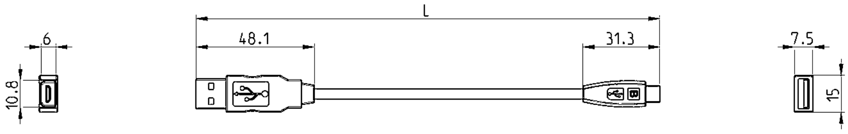
Mod.	Motor	Brake	Pins	L = cable (m)
EC-060623	-	-	6	-

Multipole cable 25P M



Mod.	Motor	Brake	Pins	L = cable (m)
G2W-1	-	-	25	1
G2W-3	-	-	25	3

USB to Micro USB cable Mod. G11W-G12W-2

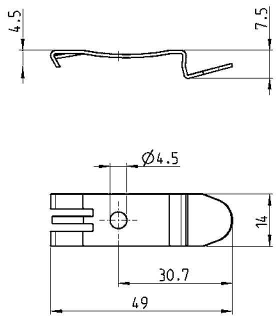


Mod.	description	connections	material for outer sheath	cable length “L” (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Mounting brackets for DIN rail

DIN EN 50022 (mm 7,5 x 35 - width 1)

Supplied with:
2x plates
2x screws M4x6 UNI 5931



Mod.
PCF-E520

Series MTB motors for electric actuation

Brushless motors in power classes 100, 400, 750, 1000 W

- » Low inertia motors
- » Available with or without brake
- » With incremental 13 bit encoder
- » Different sizes or power classes available
- » IP65 version available

The Camozzi motors Series MTB have been designed to be connected in an easy and practical way to the new product range within electrical actuation, being able to drive both electromechanical cylinders and axes.
The Series MTB of synchronous AC Brushless motors is available with a power of 100, 400, 750, 1000 W.

The standard motors are equipped with a 13 bit encoder with 10,000 increments per cycle and are offered with or without a motor brake. Due to the high dynamics of these motors, it is possible to guarantee a constant torque at any speed.
Due to the low mass inertia, they are particularly suitable for high work dynamics, like sudden changes in direction or high moving frequencies.

GENERAL DATA

Power	100 W (Mod. MTB-010-...) 400 W (Mod. MTB-040-...) 750 W (Mod. MTB-075-...) 1000 W (Mod. MTB-100...)
Type of motor	permanently excited synchronous servo motor
Magnet	Neodymium, iron and boron (NdFeB)
Housing	Aluminium
Colour	black
Protection class: motor **on the shaft** **connector**	IP65 IP40 IP20
Insulation class	class A
Shaft end	no machining
Nominal torque	0.32 Nm (100 W) - 1.27 Nm (400 W) - 2.4 Nm (750 W) - 4.77 Nm (1000 W)
Peak torque	3 × nominal torque
Braking torque (only for motors with brake)	0.32 Nm (100 W) - 1.27 Nm (400 W) - 2.4 Nm (750 W) - 4.77 Nm (1000 W)
Service life	> 20.000 h (at nominal load)
Motor connection **Encoder connection**	cable (300 mm) available out of the motor cable (300 mm) available out of the encoder (motors with 1 KW power are equipped with an outgoing motor connector)
Cooling	with an integrated radiator
Thermal monitoring	not available
Encoder	incremental 13-bit TTL encoder, 10 000 pulses/revolution
Ambient temperature **Storage temperature**	0°C ÷ 40°C –15°C ÷ 70°C
Air humidity	up to 80% of relative air humidity
Max. installation height	at below 1000 metres above sea level

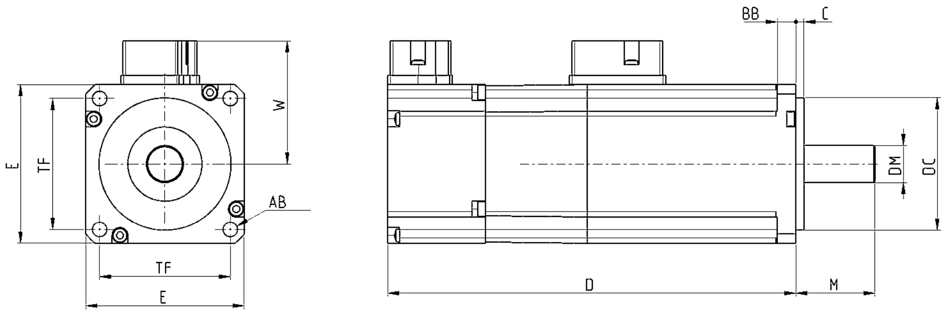
CODING EXAMPLE

MTB	-	010	-	2	-	0	-	E

MTB	SERIES
010	POWER: 010 = 100 W 040 = 400 W 075 = 750 W 100 = 1000 W
2	SUPPLY: 2 = 220 V DC
0	BRAKE: 0 = without brake F = with brake
E	ENCODER: E = incremental 13 bit
	VERSION: = Standard P = IP65

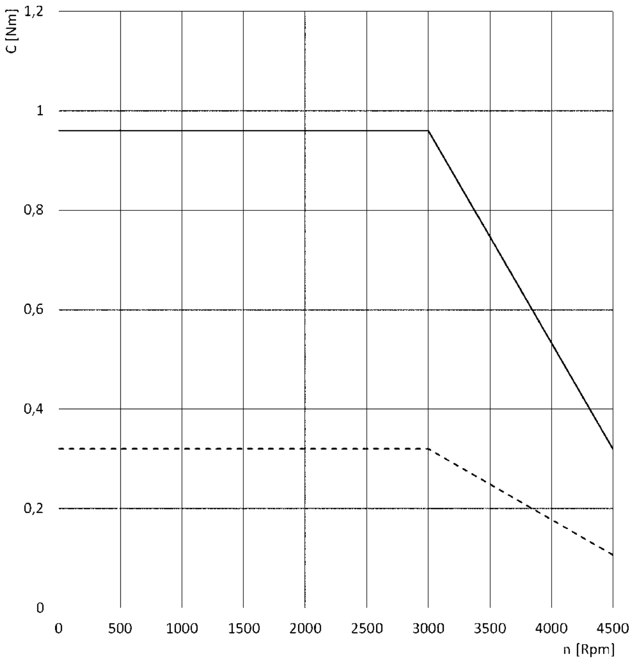
Series MTB Brushless motors - dimensions

Supplied with:
1 motor
4 screws



Mod.	Power	D	E	W	⌀DM(h6)	M	⌀DC	C	TF	⌀AB	BB	Weight (Kg)
MTB-010-2-0-E	100 W	110.5	42	32	8	25	30 f7	2.5	31.8	3.4	12	0.63
MTB-010-2-0-EP	100 W	110.5	42	32	8	25	30 f7	2.5	31.8	3.4	12	0.75
MTB-010-2-F-E	100 W	139	42	32	8	25	30 f7	2.5	31.8	3.4	12	0.76
MTB-010-2-F-EP	100 W	139	42	32	8	25	30 f7	2.5	31.8	3.4	12	0.9
MTB-040-2-0-E	400 W	121.5	60	46.5	14	30	50 h7	3	49.5	5.5	7.5	1.31
MTB-040-2-0-EP	400 W	121.5	60	46.5	14	30	50 h7	3	49.5	5.5	7.5	1.4
MTB-040-2-F-E	400 W	159	60	46.5	14	30	50 h7	3	49.5	5.5	7.5	1.86
MTB-040-2-F-EP	400 W	159	60	46.5	14	30	50 h7	3	49.5	5.5	7.5	1.8
MTB-075-2-0-E	750 W	140	80	56.5	19	40	70 f6	3	63.6	6.6	9	2.66
MTB-075-2-0-EP	750 W	140	80	56.5	19	40	70 f6	3	63.6	6.6	9	2.75
MTB-075-2-F-E	750 W	176	80	56.5	19	40	70 f6	3	63.6	6.6	9	3.32
MTB-075-2-F-EP	750 W	176	80	56.5	19	40	70 f6	3	63.6	6.6	9	3.45
MTB-100-2-0-EP	1000 W	141	130	113	24	55	110	3	102.5	95	12	5.8
MTB-100-2-F-EP	1000 W	175	130	113	24	55	110	3	102.5	95	12	7.7

Torque-speed curves

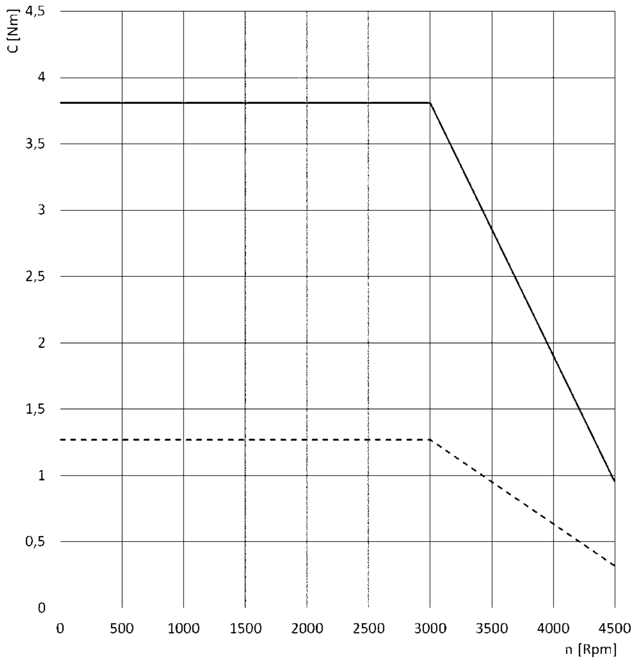


MTB-010..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.

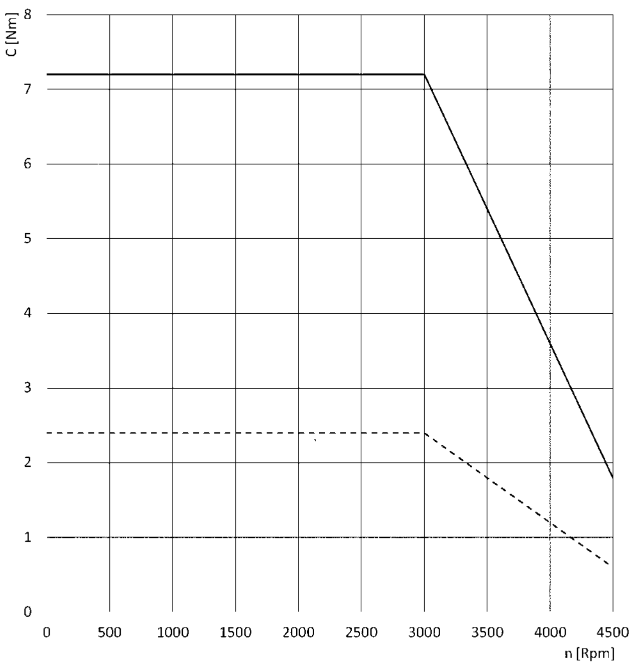


MTB-040..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.

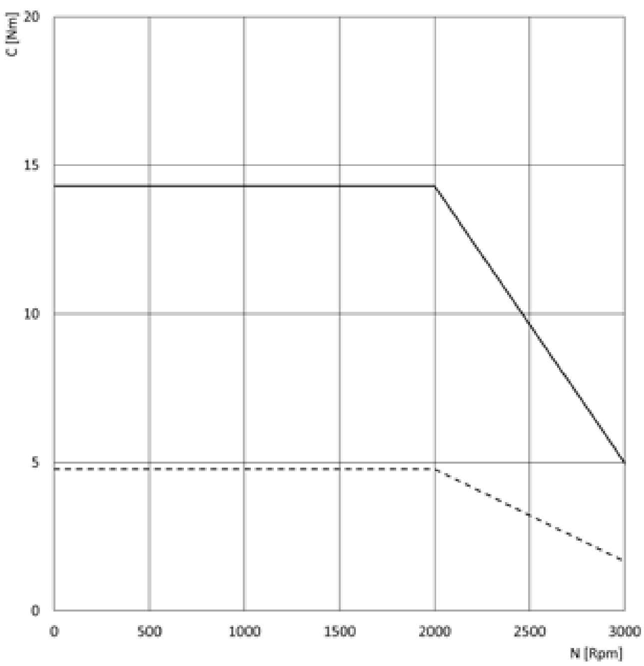


MTB-075..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.



MTB-100..

C = torque
n = number of revolutions per minute

The continuous line represents the peak torque of the motor.

The dashed line represents the nominal torque of the motor.

Series MTS motors for electric actuation

New models

Stepper motors with Nema 23, 24, 34 fixing flange

- Low inertia motors
- Different sizes or power classes available
- Version with incremental encoder
- Version with incremental encoder and brake
- IP65 version available

The new Camozzi motors Series MTS have been designed to be connected in an easy and practical way to the new product range within electrical actuation, being able to drive both electromechanical cylinders and axes.

The new Series MTS electrical Stepper motors are available in the sizes Nema 23, Nema 24 and Nema 34.
Each motor version comes with its own driving version that is interfaceable with the QSet configuration software, especially developed by Camozzi in order to simplify the setting up of the electric actuator.

GENERAL DATA

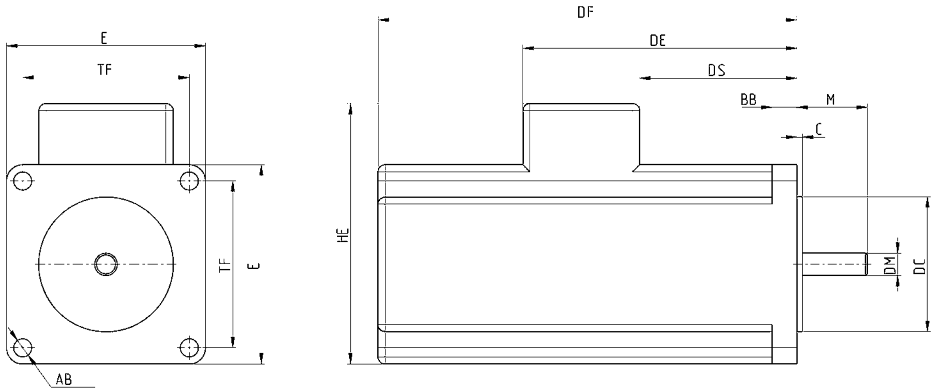
	Models: MTS-23-18-060-0-0-S-C MTS-23-18-060-0-0-E-C MTS-23-18-060-0-F-E-C MTS-23-18-120-0-0-S-CP	Models: MTS-24-18-250-0-0-S-C MTS-24-18-250-0-0-E-C MTS-24-18-250-0-F-E-C MTS-24-18-250-0-0-S-CP	Models: MTS-34-18-701-0-0-E-C
Shaft	single	single	single
Leads	4	4	5
Length	41 mm	85 mm	125.5 mm
Holding torque	0.6 Nm 0.6 Nm/1.2 Nm (Nema 23 IP65 only)	2.5 Nm	7.1 Nm
Current per phase	4.5 A/Phase	4.5 A/Phase	7 A/Phase
Resistance	0.48 Ω/Phase	0.65 Ω/Phase	0.49 Ω/Phase
Motor inertia	135 g·cm²	900 g·cm²	2750 g.cm²
Dielectric strength	500 V AC/min	500 V AC/min	500 V AC/min

CODING EXAMPLE

MTS	-	23	-	18	-	060	-	0	-	0	-	S	-	C

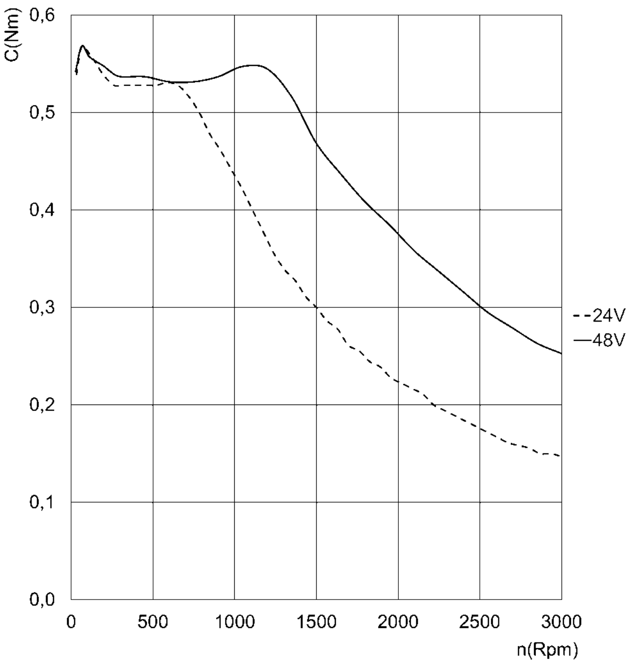
MTS	SERIES
23	MOTOR SIZE FLANGE CONNECTION: 23 = Nema 23 24 = Nema 24 34 = Nema 34
18	RESOLUTION IN DEGREES PER REVOLUTION: 18 = 1.8° per step
060	TORQUE: 060 = 0.6 Nm with Nema 23 only 120 = 1.2 Nm with Nema 23 IP65 only 250 = 2.5 Nm with Nema 24 only 701 = 7.1 Nm with Nema 34 only
0	ELECTRICAL CONNECTION: 0 = connector
0	BRAKE: 0 = without brake F = with brake
S	ENCODER VARIANTS: S = single shaft without encoder E = single shaft with encoder
C	MECHANICAL SHAFT VARIANTS: C = cylindrical shaft
	VERSION: = Standard P = IP65

Series MTS Stepper motors - dimensions



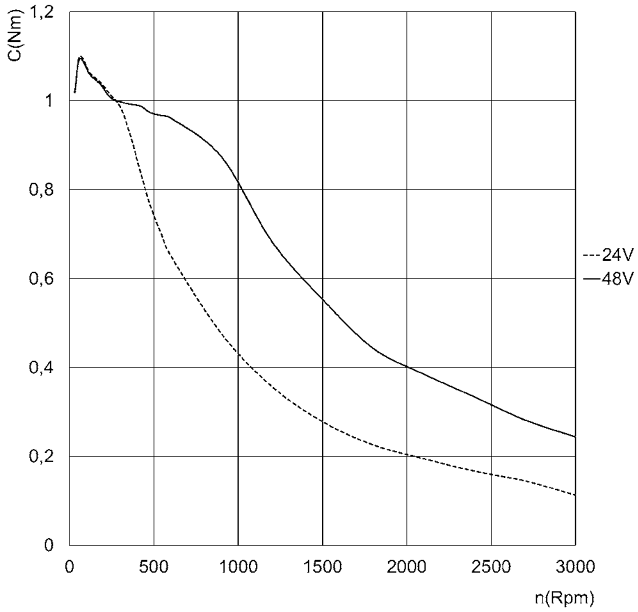
Mod.	Brake	Encoder	Nema	DS	DE	DF	HE	E	L	⌀DM(h7)	M	⌀DC(js10)	C	TF	⌀AB	BB	Weight (Kg)
MTS-23-18-060-0-0-S-C	-	-	23	-	-	41	-	56.4	300 ± 10	6.35	20.6	38.1	1.6	47.14	5.1	5	0.42
MTS-23-18-120-0-0-S-CP	-	-	23	41	-	-	74	56.4	300 ± 10	6.35	20.6	38.1	1.6	47.14	5.1	7	0.8
MTS-23-18-060-0-0-E-C	-	✖	23	31.5	-	64.5	73.6	56.4	200 ± 50	6.35	20.6	38.1	1.6	47.14	5.1	7	0.42
MTS-23-18-060-0-F-E-C	✖	✖	23	31.5	64.5	105.5	73.6	56.4	200 ± 50	6.35	20.6	38.1	1.6	47.14	5.1	7	0.62
MTS-24-18-250-0-0-S-C	-	-	24	-	-	85	-	60	300 ± 10	8	20.6	38.1	1.5	47.14	4.5	7	1.41
MTS-24-18-250-0-0-S-CP	-	-	24	85	-	-	80	60	300 ± 10	8	24.5	38.1	1.5	47.14	4.5	8	1.6
MTS-24-18-250-0-0-E-C	-	✖	24	78	-	111	77.4	60	200 ± 50	8	20.6	38.1	1.5	47.14	4.5	8	1.41
MTS-24-18-250-0-F-E-C	✖	✖	24	78	111	152	77.4	60	200 ± 50	8	20.6	38.1	1.5	47.14	4.5	8	1.62
MTS-34-18-701-0-0-E-C	-	-	34	125.5	-	-	98	86	300 ± 10	14	37	73	2	69.6	6.5	10	3.8

Torque-speed curves



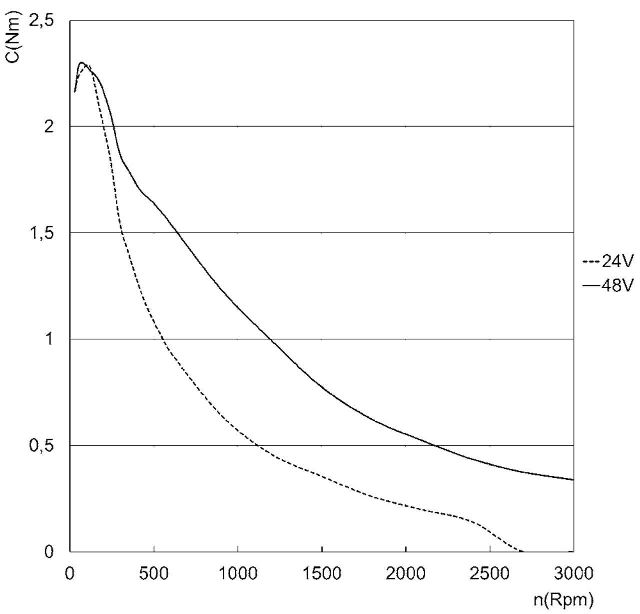
Nema 23 motors
Mod. MTS-23-18-060-0-0-S-C
Mod. MTS-23-18-060-0-0-E-C
Mod. MTS-23-18-060-0-F-E-C

C = torque [Nm]
n = revolutions per minute [Rpm]



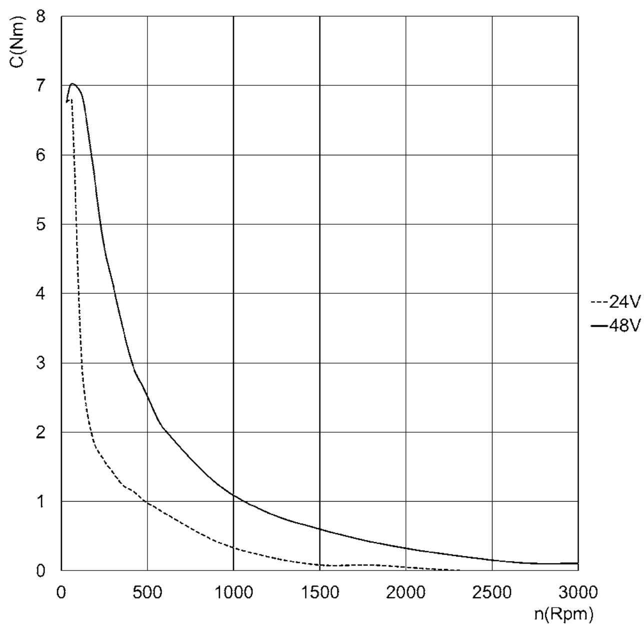
Nema 23 motors IP65
Mod. MTS-23-18-120-0-0-S-CP

C = torque [Nm]
n = revolutions per minute [Rpm]



Nema 24 motors
Mod. MTS-24-18-250-0-0-S-C
Mod. MTS-24-18-250-0-0-E-C
Mod. MTS-24-18-250-0-F-E-C
Mod. MTS-24-18-250-0-0-S-CP

C = torque [Nm]
n = revolutions per minute [Rpm]

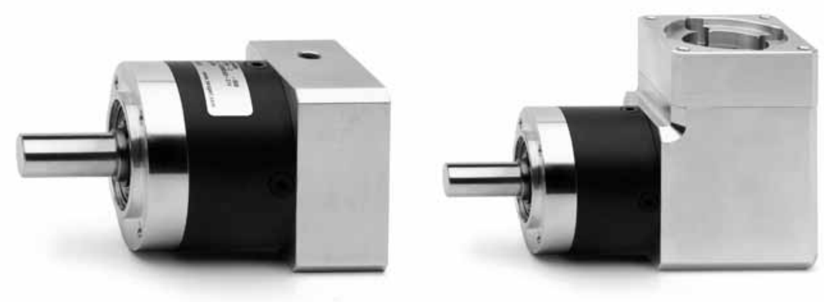


Nema 34 motors
Mod. MTS-34-18-701-0-0-E-C

C = torque [Nm]
n = revolutions per minute [Rpm]

Series GB planetary gearboxes

Available sizes: 40, 60, 80, 120



» Reduced play
» Prepared to be connected with Series MTB and Series MTS motors
» High performance
» 4 Reduction ratios available (i=3,5,7,10)
» Silent operation
» Any mounting position
» Lifetime lubrication
» Available in in-line and orthogonal configurations

The Series GB planetary gearboxes, by means of a planetary gear system, enable the reduction of the angular speed and the increase of transmittable torque. These gearboxes can be used with the Series 5E electromechanical axes.

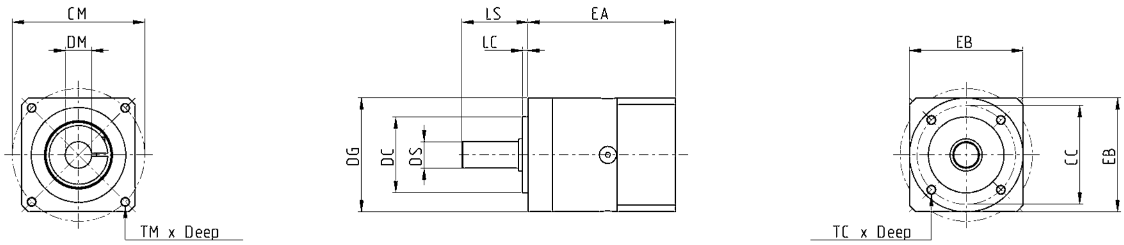
Available in 3 sizes with 4 different reduction ratios, the Series GB planetary gearboxes can be supplied in two different configurations, in-line or orthogonal.
All gearboxes are equipped with interface flanges for the connection to the Camozzi Series MTB and Series MTS motors.

CODING EXAMPLE

GB	-	040	-	03	-	D	-	0100

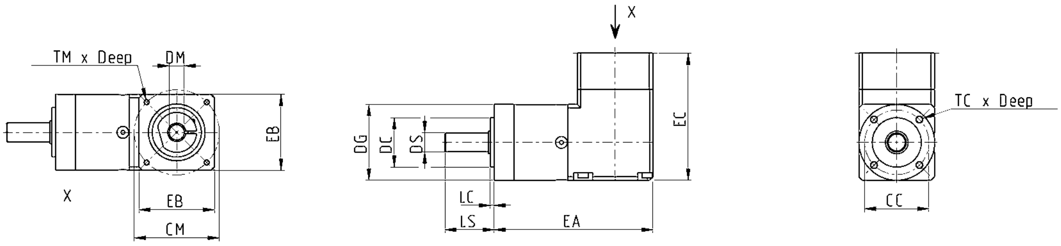
GB	GEARBOX
040	SIZE: 040 = Ø40 060 = Ø60 080 = Ø80 120 = Ø120
03	REDUCTION RATIO: 03 i = 3 05 i = 5 07 i = 7 10 i = 10
D	TYPE: D = straight A = angular
0100	PREPARATION OF THE MOTOR: 0100 = Brushless 100W (size 040 only) 0400 = Brushless 400W (size 060 only) 0750 = Brushless 750W (size 080 only) 1000 = MTB-100... 0024 = Nema 24

IN-LINE PLANETARY GEARBOX



Mod.	BACKLASH	⌀DS(h7)	LS	⌀DC(h7)	LC	⌀CC	TC x Deep	EA	EB	⌀DG	⌀DM	⌀CM	TM x Deep	Weight (Kg)
GB-040-03-D-0100	<15’	10	26	26	2	34	M4 x 6	67.5	40	40	8	45	M3 x 8	0.35
GB-040-05-D-0100	<15’	10	26	26	2	34	M4 x 6	67.5	40	40	8	45	M3 x 8	0.35
GB-040-07-D-0100	<15’	10	26	26	2	34	M4 x 6	67.5	40	40	8	45	M3 x 8	0.35
GB-040-10-D-0100	<15’	10	26	26	2	34	M4 x 6	67.5	40	40	8	45	M3 x 8	0.35
GB-040-03-D-0024	<15’	10	26	26	2	34	M4 x 6	63.5	60	40	8	66.7	M4 x 10	0.35
GB-040-05-D-0024	<15’	10	26	26	2	34	M4 x 6	63.5	60	40	8	66.7	M4 x 10	0.35
GB-040-07-D-0024	<15’	10	26	26	2	34	M4 x 6	63.5	60	40	8	66.7	M4 x 10	0.35
GB-040-10-D-0024	<15’	10	26	26	2	34	M4 x 6	63.5	60	40	8	66.7	M4 x 10	0.35
GB-060-03-D-0400	<10’	14	35	40	3	52	M5 x 8	78	60	60	14	70	M5 x 12	0.9
GB-060-05-D-0400	<10’	14	35	40	3	52	M5 x 8	78	60	60	14	70	M5 x 12	0.9
GB-060-07-D-0400	<10’	14	35	40	3	52	M5 x 8	78	60	60	14	70	M5 x 12	0.9
GB-060-10-D-0400	<10’	14	35	40	3	52	M5 x 8	78	60	60	14	70	M5 x 12	0.9
GB-060-03-D-0024	<10’	14	35	40	3	52	M5 x 8	71	60	60	8	66.7	M4 x 10	0.9
GB-060-05-D-0024	<10’	14	35	40	3	52	M5 x 8	71	60	60	8	66.7	M4 x 10	0.9
GB-060-07-D-0024	<10’	14	35	40	3	52	M5 x 8	71	60	60	8	66.7	M4 x 10	0.9
GB-060-10-D-0024	<10’	14	35	40	3	52	M5 x 8	71	60	60	8	66.7	M4 x 10	0.9
GB-080-03-D-0750	<7’	20	40	60	3	70	M6 x 10	103.5	80	80	19	90	M6 x 15	2.1
GB-080-05-D-0750	<7’	20	40	60	3	70	M6 x 10	103.5	80	80	19	90	M6 x 15	2.1
GB-080-07-D-0750	<7’	20	40	60	3	70	M6 x 10	103.5	80	80	19	90	M6 x 15	2.1
GB-080-10-D-0750	<7’	20	40	60	3	70	M6 x 10	103.5	80	80	19	90	M6 x 15	2.1
GB-080-03-D-0024	<7’	20	40	60	3	70	M6 x 10	93.5	80	80	8	66.7	M4 x 10	2.1
GB-080-05-D-0024	<7’	20	40	60	3	70	M6 x 10	93.5	80	80	8	66.7	M4 x 10	2.1
GB-080-07-D-0024	<7’	20	40	60	3	70	M6 x 10	93.5	80	80	8	66.7	M4 x 10	2.1
GB-080-10-D-0024	<7’	20	40	60	3	70	M6 x 10	93.5	80	80	8	66.7	M4 x 10	2.1
GB-120-03-D-1000	<7’	25	55	80	4	100	M10 x 16	136.5	130	115	24	115	M8 x 18	6
GB-120-05-D-1000	<7’	25	55	80	4	100	M10 x 16	136.5	130	115	24	115	M8 x 18	6
GB-120-07-D-1000	<7’	25	55	80	4	100	M10 x 16	136.5	130	115	24	115	M8 x 18	6
GB-120-10-D-1000	<7’	25	55	80	4	100	M10 x 16	136.5	130	115	24	115	M8 x 18	6

ORTHOGONAL PLANETARY GEARBOX



Mod.	BACKLASH	⌀DS(h7)	LS	⌀DC(h7)	LC	⌀CC	TC x Deep	EA	EB	EC	⌀DG	⌀DM	⌀CM	TM x Deep	Weight (Kg)
GB-040-03-A-0100	<21'	10	26	26	2	34	M4 x 6	84	40	67	40	8	45	M3 x 7	0.51
GB-040-05-A-0100	<21'	10	26	26	2	34	M4 x 6	84	40	67	40	8	45	M3 x 7	0.51
GB-040-07-A-0100	<21'	10	26	26	2	34	M4 x 6	84	40	67	40	8	45	M3 x 7	0.51
GB-040-10-A-0100	<21'	10	26	26	2	34	M4 x 6	84	40	67	40	8	45	M3 x 7	0.51
GB-040-03-A-0024	<21'	10	26	26	2	34	M4 x 6	84	60	63	40	8	66.7	M4 x 7	0.51
GB-040-05-A-0024	<21'	10	26	26	2	34	M4 x 6	84	60	63	40	8	66.7	M4 x 7	0.51
GB-040-07-A-0024	<21'	10	26	26	2	34	M4 x 6	84	60	63	40	8	66.7	M4 x 7	0.51
GB-040-10-A-0024	<21'	10	26	26	2	34	M4 x 6	84	60	63	40	8	66.7	M4 x 7	0.51
GB-060-03-A-0400	<16'	14	35	40	3	52	M5 x 8	112	60	92.5	60	14	70	M5 x 12	1.7
GB-060-05-A-0400	<16'	14	35	40	3	52	M5 x 8	112	60	92.5	60	14	70	M5 x 12	1.7
GB-060-07-A-0400	<16'	14	35	40	3	52	M5 x 8	112	60	92.5	60	14	70	M5 x 12	1.7
GB-060-10-A-0400	<16'	14	35	40	3	52	M5 x 8	112	60	92.5	60	14	70	M5 x 12	1.7
GB-060-03-A-0024	<16'	14	35	40	3	52	M5 x 8	71	60	85.5	60	8	66.7	M4 x 10	1.7
GB-060-05-A-0024	<16'	14	35	40	3	52	M5 x 8	71	60	85.5	60	8	66.7	M4 x 10	1.7
GB-060-07-A-0024	<16'	14	35	40	3	52	M5 x 8	71	60	85.5	60	8	66.7	M4 x 10	1.7
GB-060-10-A-0024	<16'	14	35	40	3	52	M5 x 8	71	60	85.5	60	8	66.7	M4 x 10	1.7
GB-080-03-A-0750	<13'	20	40	60	3	70	M6 x 10	144	80	119.5	80	19	90	M6 x 15	4.4
GB-080-05-A-0750	<13'	20	40	60	3	70	M6 x 10	144	80	119.5	80	19	90	M6 x 15	4.4
GB-080-07-A-0750	<13'	20	40	60	3	70	M6 x 10	144	80	119.5	80	19	90	M6 x 15	4.4
GB-080-10-A-0750	<13'	20	40	60	3	70	M6 x 10	144	80	119.5	80	19	90	M6 x 15	4.4
GB-080-03-A-0024	<13'	20	40	60	3	70	M6 x 10	144	80	109.5	80	8	66.7	M4 x 10	4.4
GB-080-05-A-0024	<13'	20	40	60	3	70	M6 x 10	144	80	109.5	80	8	66.7	M4 x 10	4.4
GB-080-07-A-0024	<13'	20	40	60	3	70	M6 x 10	144	80	109.5	80	8	66.7	M4 x 10	4.4
GB-080-10-A-0024	<13'	20	40	60	3	70	M6 x 10	144	80	109.5	80	8	66.7	M4 x 10	4.4
GB-120-03-A-1000	<11'	25	55	80	4	100	M10 x 16	194.5	130	160.5	115	24	115	M8 x 18	12
GB-120-05-A-1000	<11'	25	55	80	4	100	M10 x 16	194.5	130	160.5	115	24	115	M8 x 18	12
GB-120-07-A-1000	<11'	25	55	80	4	100	M10 x 16	194.5	130	160.5	115	24	115	M8 x 18	12
GB-120-10-A-1000	<11'	25	55	80	4	100	M10 x 16	194.5	130	160.5	115	24	115	M8 x 18	12

Series CO motion transmission devices

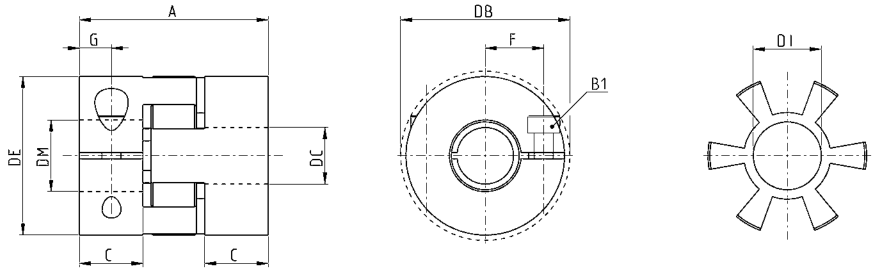
Mod. COE: elastomer coupling with clamps
Mod. COS: elastomer coupling with expansion shaft
Mod. COT: self-centering locking-set

The motion transmission devices are necessary for a proper connection of electromechanical axes and cylinders with motors or gearboxes.

Mod. COE couplings are composed of two hubs with a high concentricity clamp and an elastomeric element.
Mod. COS couplings are composed of one hub with a high concentricity clamp, a hub with expansion shaft and an elastomeric element.
The torque transmission is performed without angular play or vibrations.
Both couplings are without angular play thanks to the pretensioning of the elastomer between the two semi-couplings.

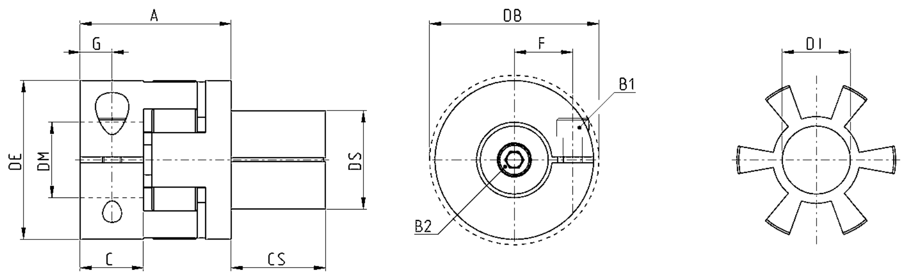
Mod. COT locking-sets are composed by an internal and an external conical ring connected with eachother by means of several screws. Through the tightening of the screws, an axial force is generated that enables the torque transmission from the shaft to the hub.

Elastomer coupling with clamps Mod. COE



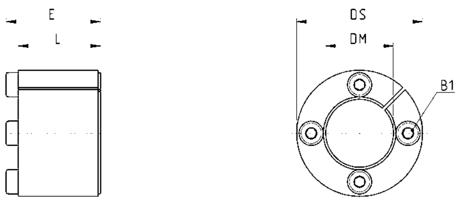
Mod.	⌀DC(H7)	⌀DM(H7)	⌀DE	⌀DB	⌀DI	A	C	F	G	B1	Torque force (Nm)	Nominal torque (Nm)	Weight (g)
COE-05-0800-0635-A	8	6.35	25	25	10.2	26	8	8	4	M3 (CH2.5)	2	9	20
COE-05-0800-0800-A	8	8	25	25	10.2	26	8	8	4	M3 (CH2.5)	2	9	20
COE-10-1000-0635-A	10	6.35	32	32	14.2	32	10.3	10.5	5	M4 (CH2.5)	4	12.5	50
COE-10-1200-0800-A	12	8	32	32	14.2	32	10.3	10.5	4	M4 (CH2.5)	4	12.5	50
COE-10-1000-1400-A	10	14	32	32	14.2	32	10.3	10.5	5	M4 (CH3)	4	12.5	20
COE-10-1200-1400-A	12	14	32	32	14.2	32	10.3	10.5	5	M4 (CH3)	4	12.5	50
COE-10-1500-0800-A	15	8	32	32	14.2	32	10.3	10.5	5	M4 (CH3)	4	12.5	50
COE-20-1500-1900-A	15	19	42	44.5	19.2	50	17	15.5	8.5	M5 (CH4)	8	17	120
COE-60-1900-1400-A	19	14	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300
COE-60-1900-2000-A	19	20	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300
COE-60-1900-2400-A	19	24	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300
COE-60-2400-1400-A	24	14	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300
COE-60-2400-2000-A	24	20	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300
COE-60-2400-2400-A	24	24	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	300

Elastomer coupling with expansion shaft Mod. COS



Mod.	⌀DS(h7)	⌀DM(H7)	⌀DE	⌀DB	⌀DI	A	C	CS	F	G	B1	Torque force (Nm)	B2	Torque force (Nm)	Nominal torque (Nm)	Weight (g)
COS-10-2000-1400-A	20	14	32	32	14.2	28	10.3	20	10.5	5	M4 (CH3)	4	M5 (CH4)	9	12.5	50
COS-10-2000-0800-A	20	8	32	32	14.2	28	10.3	20	10.5	5	M4 (CH3)	4	M5 (CH4)	9	12.5	50
COS-20-2600-2000-A	26	20	42	44.5	19.2	40	17	25	15.5	8.5	M5 (CH4)	8	M6 (CH5)	12	17	120
COS-60-3800-2500-A	38	25	56	57	26.2	46	20	27	21	10	M6 (CH5)	15	M8 (CH6)	32	60	300

Self-centering locking-set Mod. COT



Mod.	⌀DS	⌀DM	L	E	B1	Torque force (Nm)	Nominal torque (Nm)	Weight (g)
COT-2000-1000	20	10	13	15.5	M2.5 (CH2.5)	1.2	19	25
COT-2600-1400	26	14	17	20	M3 (CH2.5)	2.1	40	50
COT-3800-2000	38	20	21	26	M5 (CH4)	4.9	165	140
COT-4700-2500	47	25	26	32	M6 (CH5)	17	290	200

CAMOZZI

Automation

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