CATALOGUE

CAMOZZI
Automation

ELECTRIC ACTUATION

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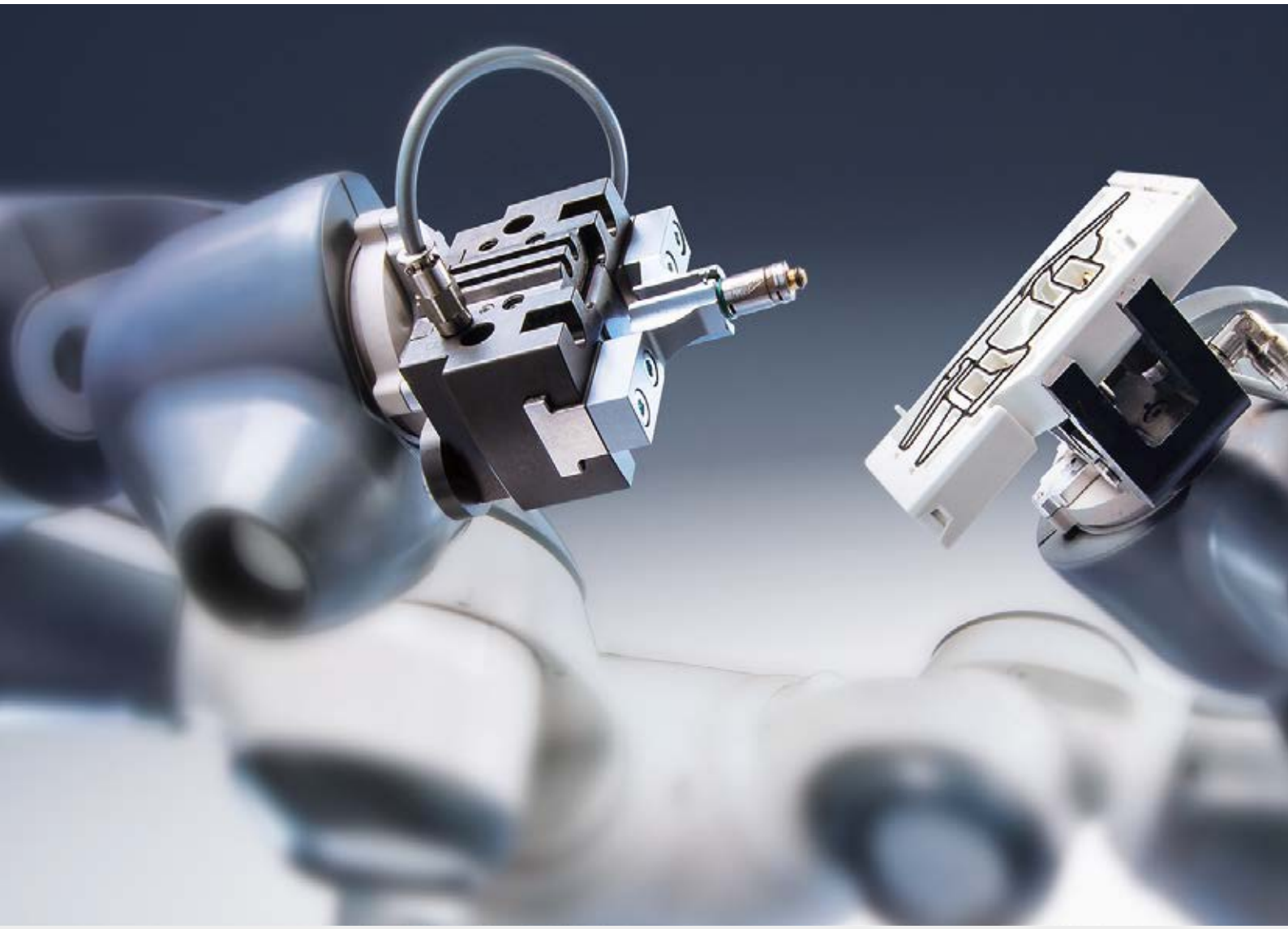
Camozzi Automation is a global leader in the design and production of motion and fluid control components, systems and technologies for Industrial automation, Transportation and Life science industries.



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CAMOZZI
Automation

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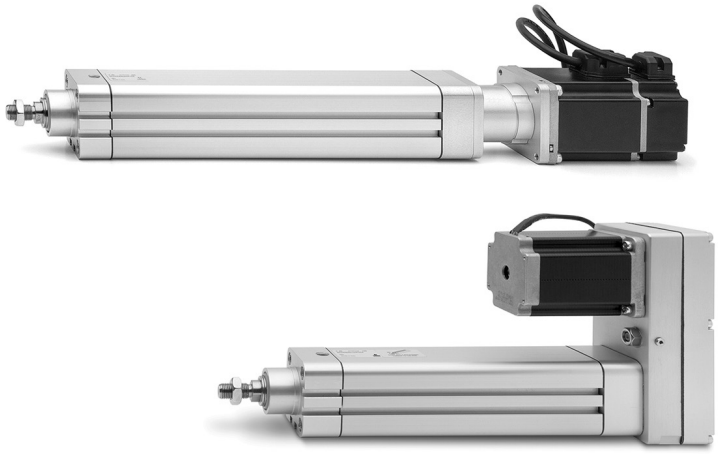
Series 6E electromechanical cylinders

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 6 sizes, 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

GENERAL DATA

Construction **Design** **Operation**	electromechanical cylinder with recirculating ball screw profile with thread rolling screws based on the ISO 15552 standard multi-position actuator with high precision linear movement
Sizes **Strokes (min - max)**	32, 40, 50, 63, 80, 100 100 ÷ 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 **Storage temperature**	0°C ÷ 50°C -20°C ÷ 80°C
Protection class	IP40 / IP65
Lubrication	Not necessary. A pre-lubrication is performed on the cylinder.
Max. Reversing backlash **Repeatability** **Duty cycle** **Max rotation play**	0.02 mm ± 0.02 100% ± 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	

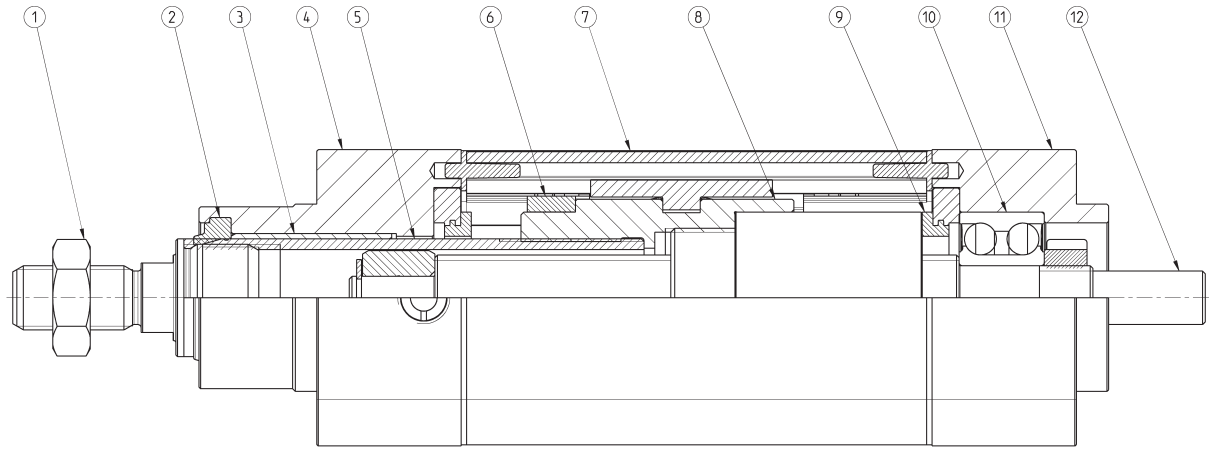
6E	SERIES	
032	SIZE: 032 = 32 040 = 40 050 = 50	063 = 63 080 = 80 100 = 100
BS	DESIGN: BS = recirculating ball screw	
0200	STROKE: 100 ÷ 1500 mm	
P05	SCREW PITCH: P05 = 5 mm P10 = 10 mm P16 = 16 mm (for size 40 only) P20 = 20 mm (for size 50 only)	P25 = 25 mm (for size 63 only) P32 = 32 mm (for size 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	[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
Average load [(A)]	[N]	525	440	950	850	1070	1180	1130	980	1405	2050	1535	2085	5250	3550	3845	2785	5590	5705	8875
Max applicable torque to screw's shaft	[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	72	86	86	108
Max linear cylinder's 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 cylinder's speed	[rpm]	6670	6670	5000	5000	5000	4000	4000	4000	3200	3200	3200	2810	2810	2810	2810	2250	2250	2250	2250
Max cylinder's 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

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 alloy
5. Rod	Stainless steel
6. Magnet	Plastoferrite
7. Extrusion profile	Anodized aluminium alloy
8. Guiding element BS screw	Aluminium alloy
9. End stroke seals	NBR
10. Bearing	Steel
11. Rear endcap	Anodized aluminium alloy
12. BS ball screw	Steel

ACCESSORIES FOR SERIES 6E CYLINDERS

Piston rod socket joint
Mod. GY

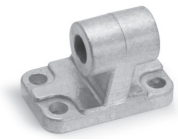
Piston rod lock nut
Mod. U

Clevis pin Mod. S

Rear trunnion ball-joint
Mod. R

Coupling piece
Mod. GKF

Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC

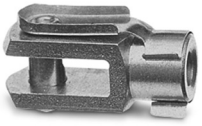
Swivel Combination
Mod. C+L+S

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

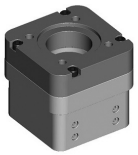
Side clamping bracket
Mod. BG

Housing for axial
connection Mod. CM

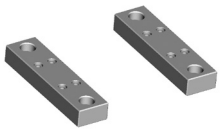
Flange for axial
connection Mod. FM

Kit for axial connection
Mod. AM

Kit for parallel connection
Mod. PM



Kit for axial connection
Mod. AR



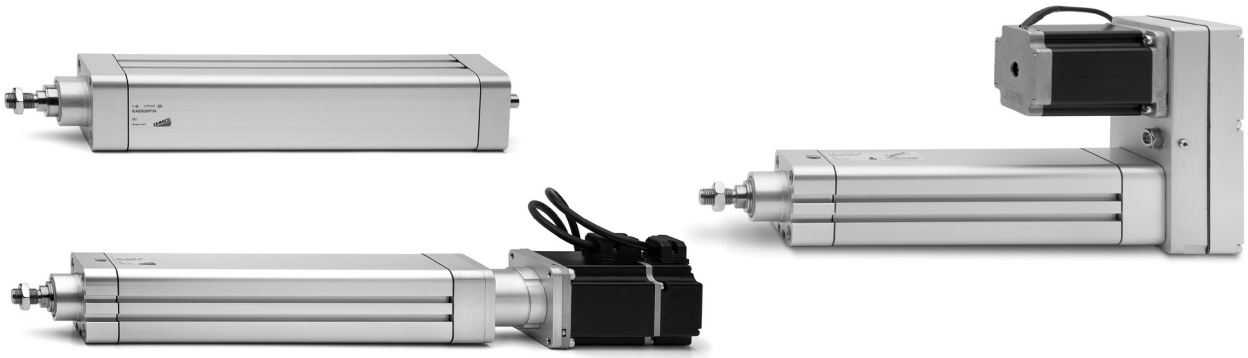
Cylinder bracket
Mod. BA-6E

Front spot faced trunnion
Mod. FN

Counter bracket for
trunnion Mod. BF

Anti-rotation guide units

Nuts for slots



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 = 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

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

CALCULATION OF LIFE IN km
where:

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

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

CALCULATION OF THE LIFE IN HOURS
where:

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

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

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

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.

F_m = CALCULATION OF THE AVERAGE AXIAL FORCE
n_m = CALCULATION OF THE AVERAGE NUMBER OF REVOLUTIONS

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

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

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

		F [N]	n [rpm]	time %
PHASE 1	**Acceleration**	F_{a1}	n_{a1}	t_{a1}
	Constant speed	F_{vc1}	n_{vc1}	t_{vc1}
	Deceleration	F_{d1}	n_{d1}	t_{d1}
PHASE 2	**Acceleration**	F_{a2}	n_{a2}	t_{a2}
	Constant speed	F_{vc2}	n_{vc2}	t_{vc2}
	Deceleration	F_{d2}	n_{d2}	t_{d2}
PHASE "n -1"	**Acceleration**	F_{an-1}	n_{an-1}	t_{an-1}
	Constant speed	F_{vcn-1}	n_{vcn-1}	t_{vcn-1}
	Deceleration	F_{dn-1}	n_{dn-1}	t_{dn-1}
PHASE "n"	**Acceleration**	F_{an}	n_{an-1}	t_{an-1}
	Constant speed	F_{vcn}	n_{vcn-1}	t_{vcn-1}
	Deceleration	F_{dn}	n_{dn-1}	t_{dn-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:

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

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]

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

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

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

$$C_{M1} = \frac{F_A \cdot p}{2\pi \cdot 1000} \cdot \frac{1}{\mu}$$

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]
ώ = Angular acceleration [rad/s²]
a = Linear acceleration of the ball screw [m/s²]
C_{M2} = Driving torque due to rotating components [Nm]

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

$$J_V = K_V \cdot C$$

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

$$C_{M2} = J_{TOT} \cdot \dot{\omega} \cdot \frac{1}{\mu}$$

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

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

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

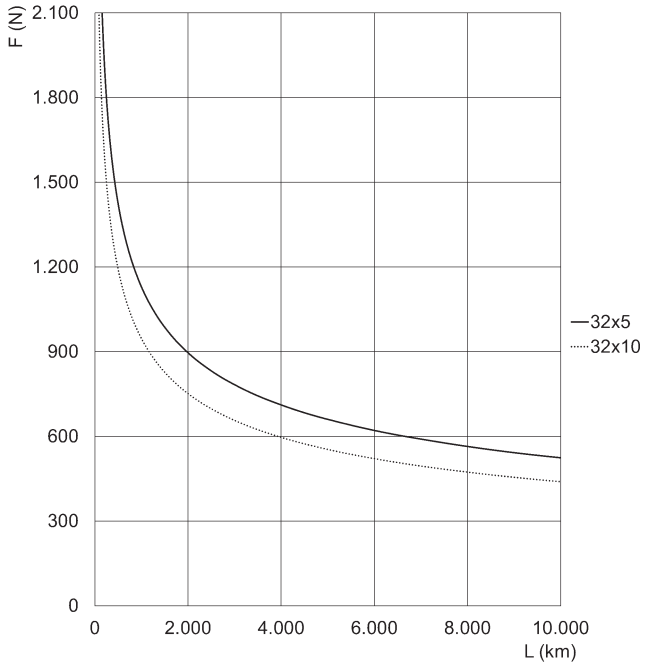
$$F_{TV} = K_{TV} \cdot C \cdot a$$

$$C_{M3} = \frac{F_{TT} \cdot p}{2\pi \cdot 1000} \cdot \frac{1}{\mu}$$

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

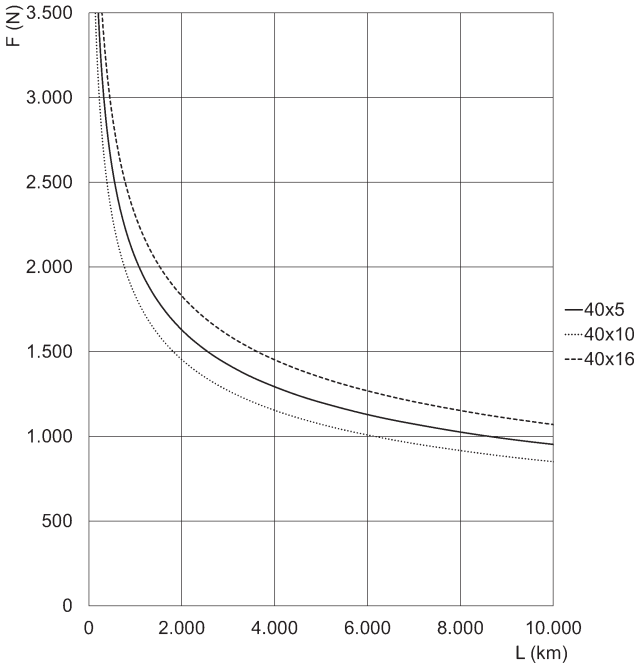
Size	J_F [kg·mm²]	K_V [kg·mm²/mm]	m_{C1} [kg]	K_{TV} [kg/m]
32	2.88	0.02	0.15	0.79
40	7.92	0.05	0.43	0.98
50	21.77	0.12	0.70	1.13
63	66.35	0.30	1.07	1.38
80	230.89	0.81	2.25	1.87
100	526.49	1.98	3.94	2.37

Life of the cylinder according to the average axial force applied
(environmental T and standard conditions of use)



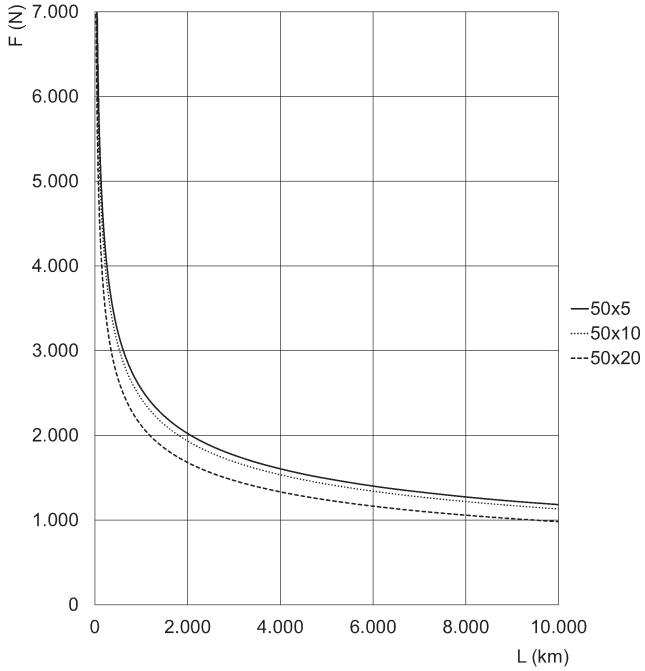
Size 32

F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1



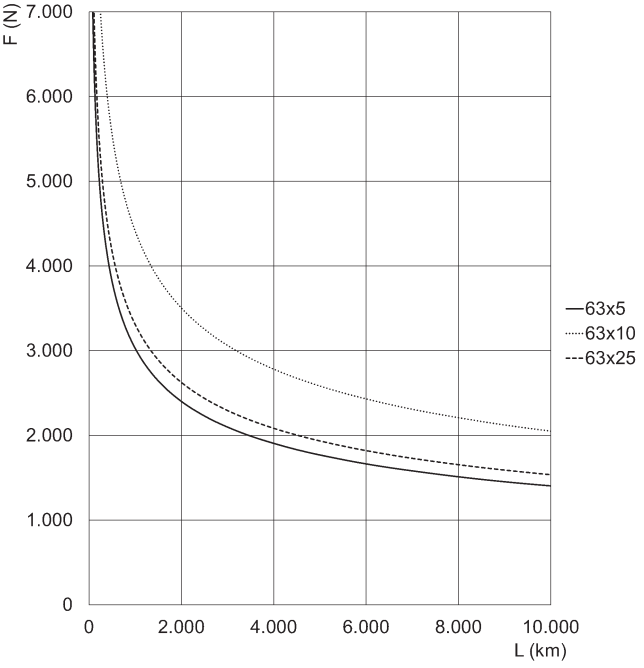
Size 40

F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1



Size 50

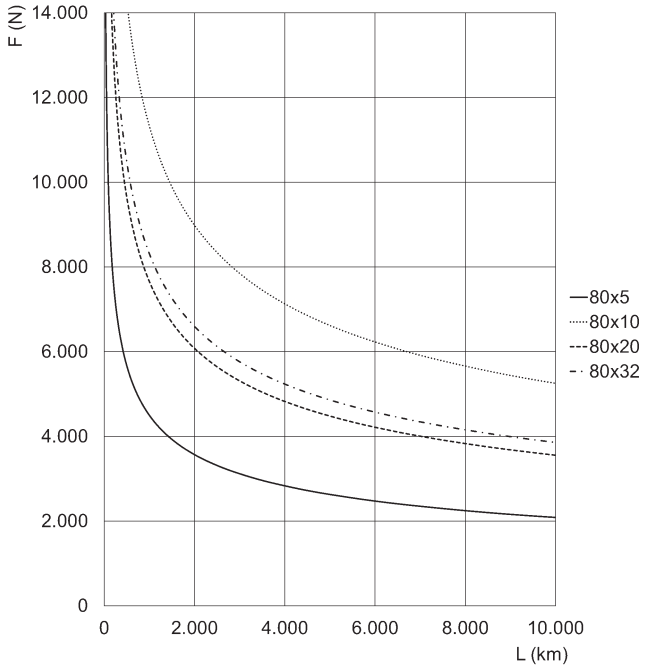
F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1



Size 63

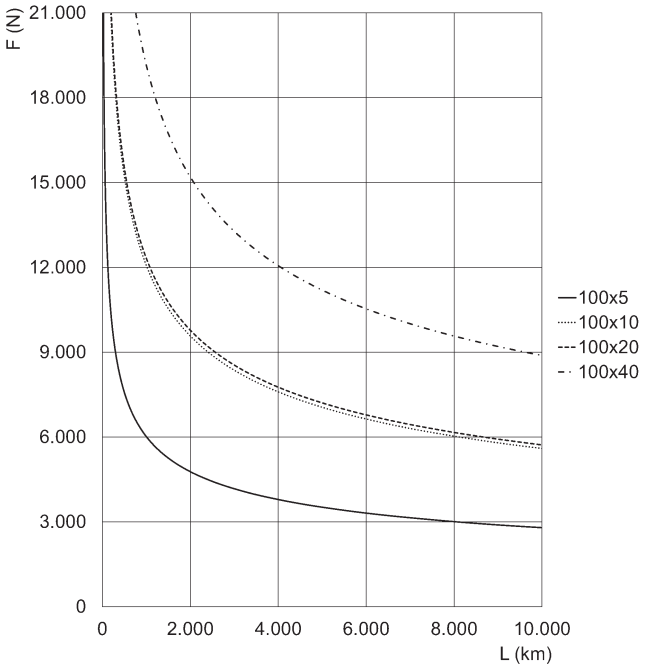
F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1

Life of the cylinder according to the average axial force applied
(environmental T and standard conditions of use)



Size 80

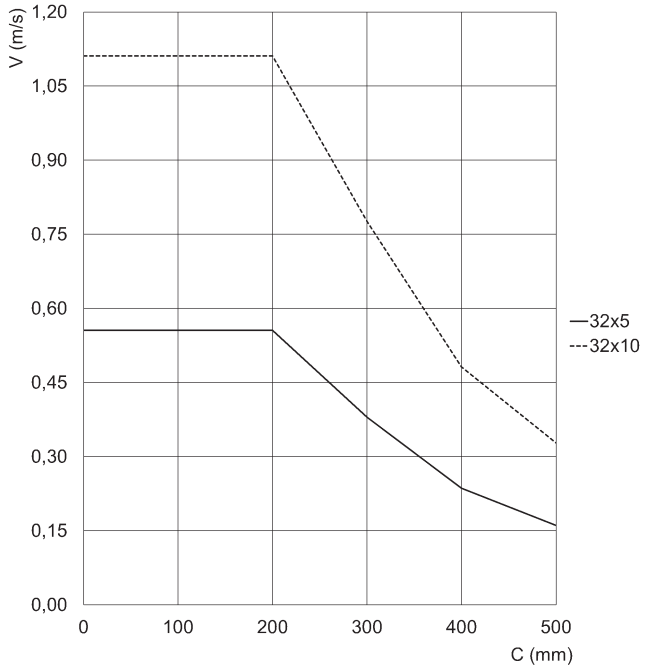
F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1



Size 100

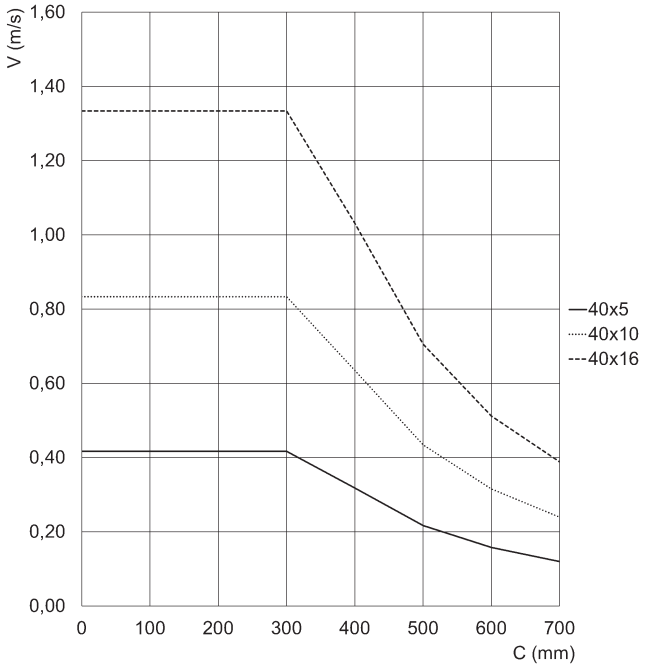
F = Axial Force [N]
L = life [km]
Curves calculated with fw = 1

Maximum speed of the cylinder according to its stroke



Size 32

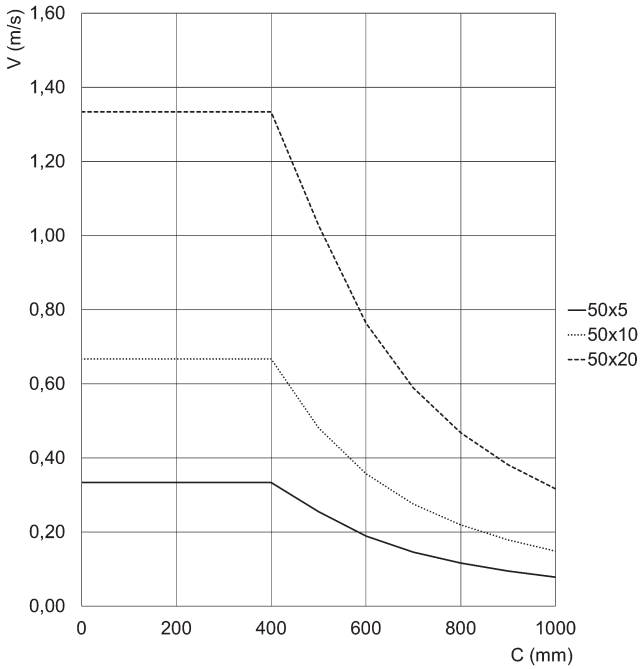
V = speed [m/s]
c = stroke [mm]



Size 40

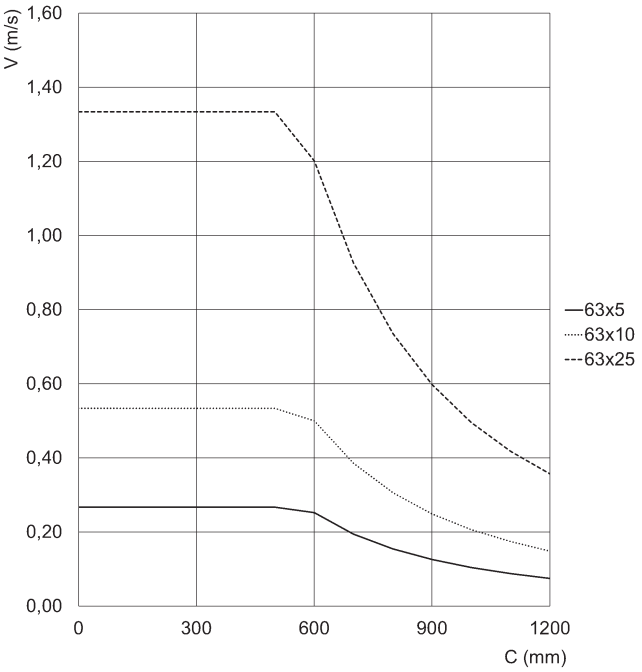
V = speed [m/s]
c = stroke [mm]

Maximum speed of the cylinder according to its stroke



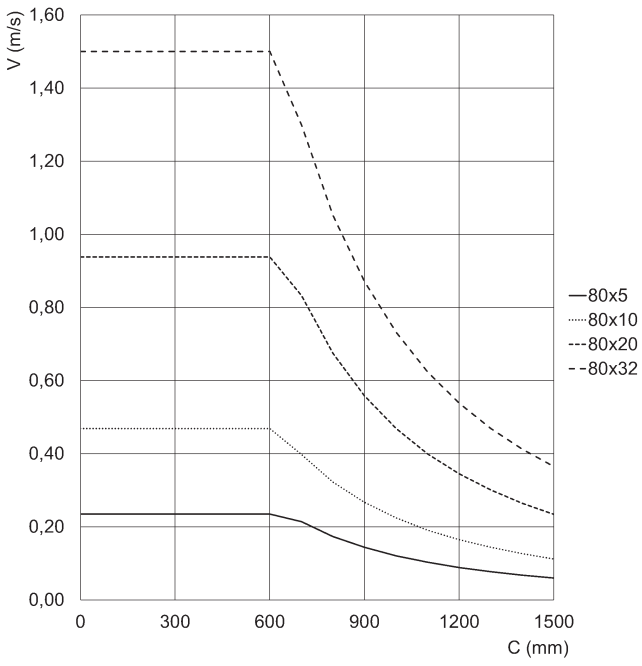
Size v

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



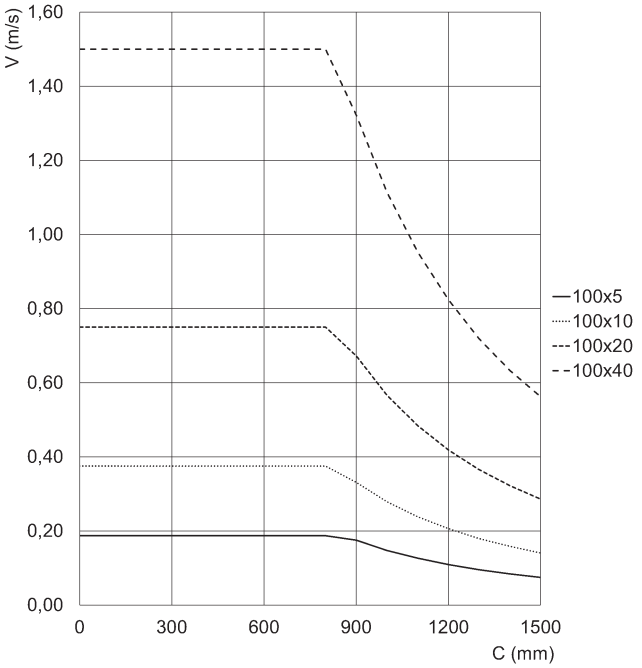
Size 63

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



Size 80

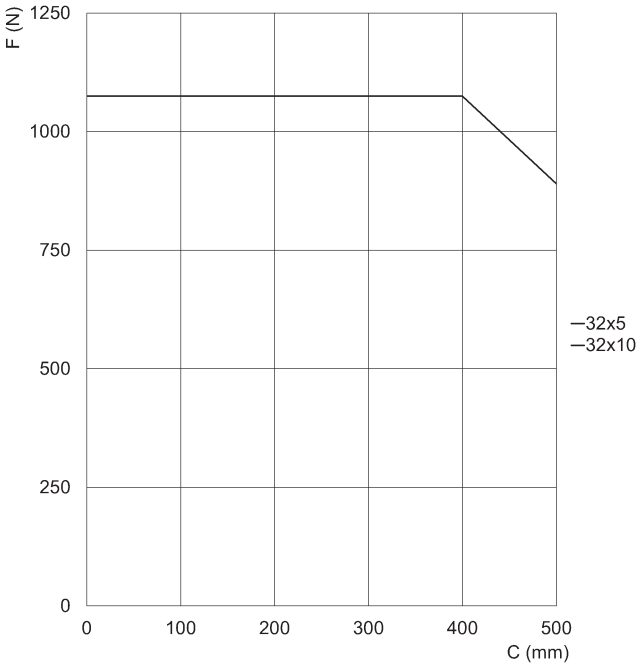
V = speed [m/s]
c = stroke [mm]



Size 100

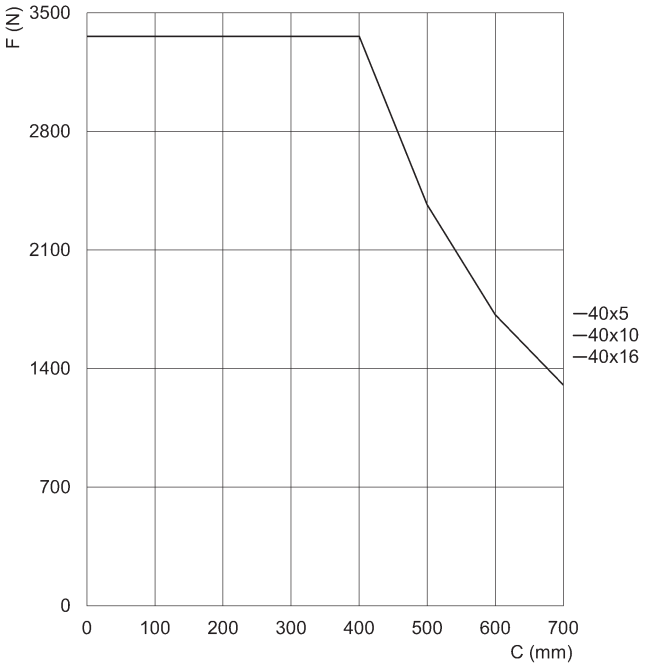
V = speed [m/s]
c = stroke [mm]

Maximum force of the cylinder according to its stroke



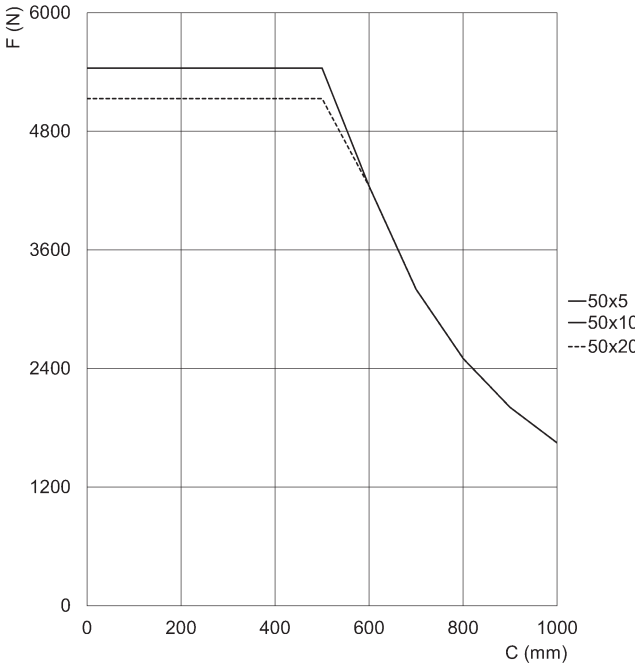
Size 32

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



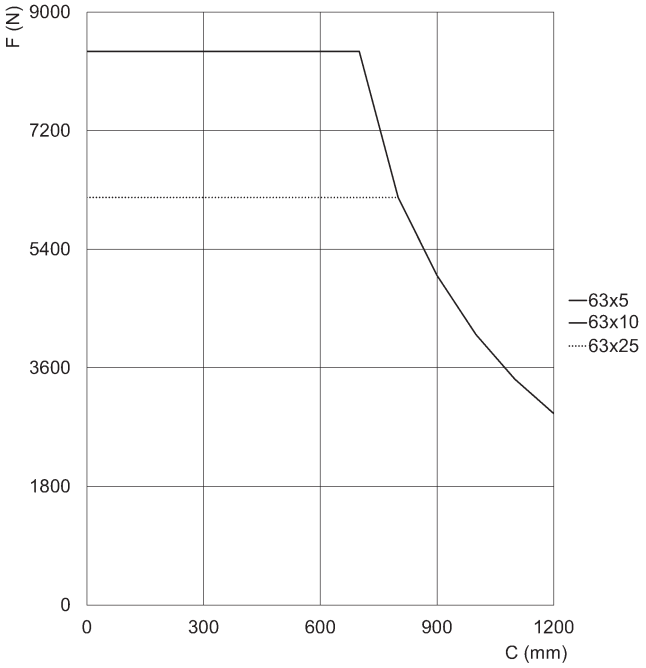
Size 40

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



Size 50

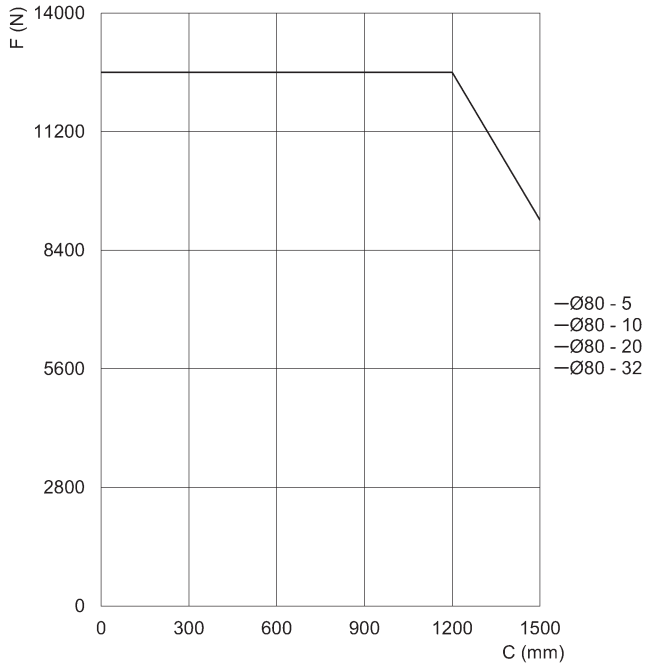
F = static axial Force [N]
c = stroke [mm]



Size 63

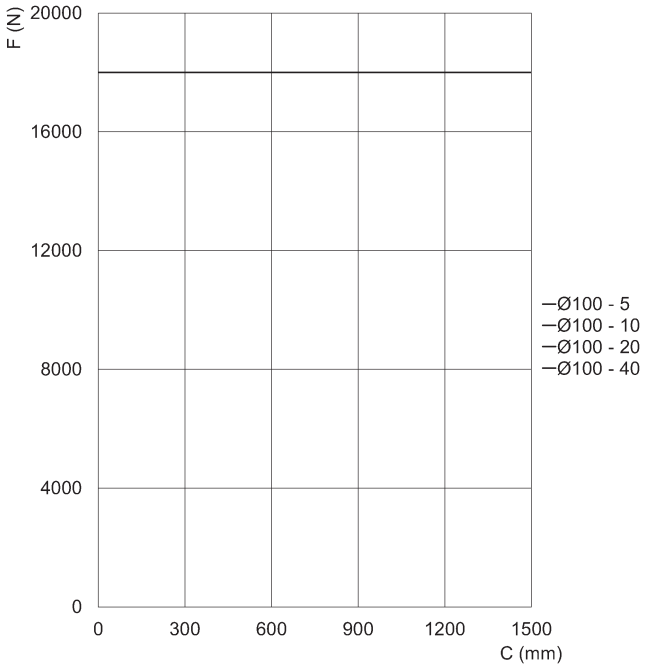
F = static axial Force [N]
c = stroke [mm]

Maximum force of the cylinder according to its stroke



Size 80

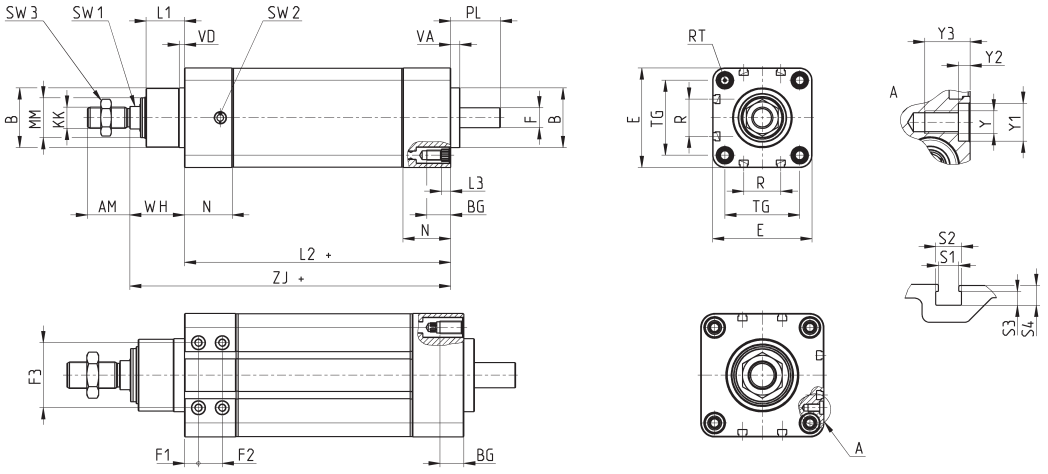
F = static axial Force [N]
c = stroke [mm]



Size 100

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

Series 6E cylinders



+ = add the stroke
*Dimension not in compliance with ISO 15552 standard

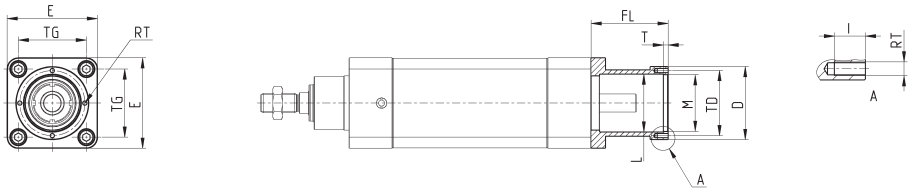
Size	AM	B	BG	E(e10)	F(h7)	F1	F2	F3	KK	L1	L2+	L3	MM	N	R	RT	PL	SW1	SW2	SW3	TG	VA	VD	Y	Y1	Y2	Y3	WH	ZJ+	S1	S2	S3	S4	weight stroke 0 [g]	weight stroke [kg/m]
32	22	30	16	46.5	8	-	-	-	M10x1.25	20	125	5.5	18	26	13	M6	21	10	G1/8	17	32.5	6	4	-	-	-	-	30	155	5,4	6,8	3,65	5	1175	3.77
40	24	35	16	55.4	10	-	-	-	M12x1.25	22	142	5.5	22	27	13.5	M6	24	13	G1/8	19	38	6	4	-	-	-	-	33	175	5,4	6,8	3,65	5	1395	5.30
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	5,4	6,8	3,65	5	2280	6.03
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	5,4	6,8	3,65	5	3500	9.77
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	5,4	6,8	3,65	5	6440	13.70
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	M8	12	3	16	51	283	5,4	6,8	3,65	5	10725	20.50

Housing for axial connection Mod. CM

Material: anodized aluminium

Supplied with:
1x housing
4x screws

+ = add the stroke



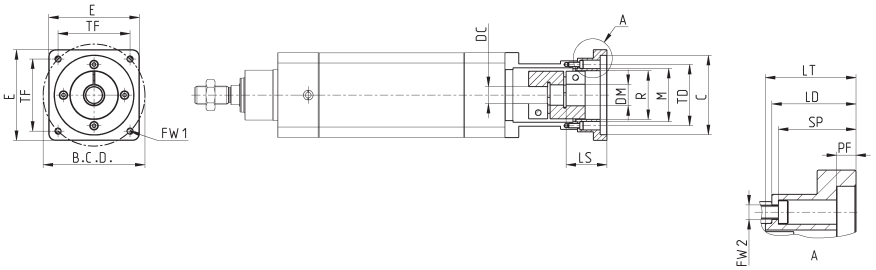
Mod.	Size	XT	E	øD	TG	FL	øL	øM(H7)	T	TD	RT	I	Weight (g)
CM-6E-32	32	201	46.5	42	32.5	46	29	32	4	37	M3	9	100
CM-6E-40	40	224	55.4	52	38	49	36	37	4	43	M3	9	150
CM-6E-50	50	267	64.9	58	46.5	56	39	42	4	49	M4	9	225
CM-6E-63	63	306.5	75	60.5	56.5	64	48	47	4	54	M4	9	280

Flange for axial connection Mod. FM

Material: anodized aluminium

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

+ = add the stroke

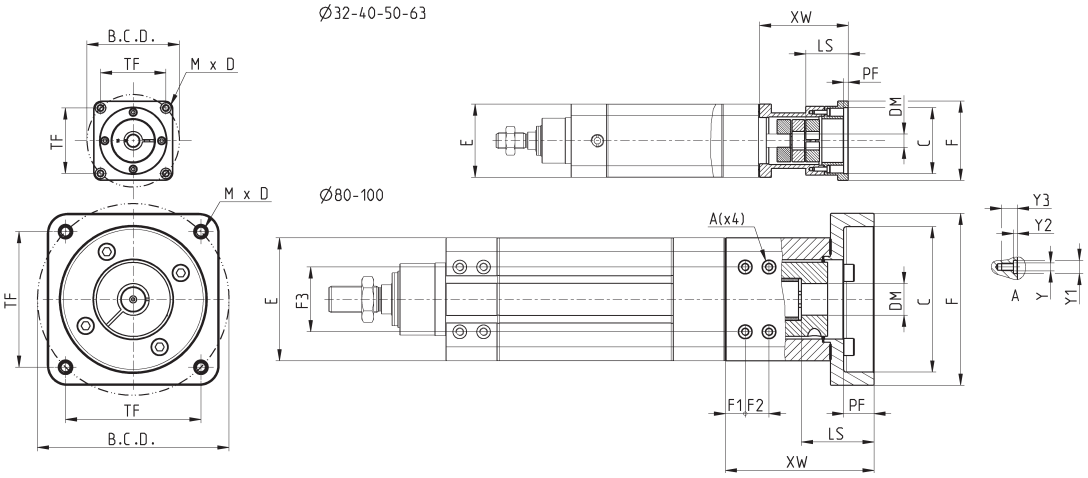


Mod.	Size	Housing	Motor	XR	øC(H7)	PF	LT	LD	øM(H7)	E	øR	TF	øB.C.D.	FW1	øTD	SP	øFW2	øDC	øDM	LS	Nominal torque (Nm)(A)	Max torque (Nm)(B)	J (Kgmm²)	Weight (g)	η
FM-6E-32-0100	32	CM-6E-32	MTB-010-...	210	30	6	11	9	32	42	29	-	45	M3	37	6	3.5	8	8	22	9	18	2	65	0.78
FM-6E-32-0023	32	CM-6E-32	MTS-23-...	208	38.1	5	9	7	32	56.4	29	47.1	-	M4	37	5	3.5	8	6.35	25	9	18	2	140	0.78
FM-6E-40-0400	40	CM-6E-40	MTB-040-...	242	50	3.5	20	18	37	60	33	-	70	M5	43	3.5	3.5	10	14	40	12,5	25	3	140	0.78
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	29,3	12,5	25	3	215	0.78
FM-6E-50-0400	50	CM-6E-50	MTB-040-...	284	50	6	19	17	42	60	37	-	70	M5	49	14	4.5	12	14	37,3	12,5	25	3	210	0.78
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	29,3	12,5	25	3	190	0.78
FM-6E-63-0750	63	CM-6E-63	MTB-075-...	332.5	70	6	28	26	47	80	43	-	90	M6	54	24	4.5	15	19	54,8	17	34	10	565	0.78
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	29,3	12,5	25	3	200	0.78

(A) Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
(B) Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Kit for axial connection Mod. AM

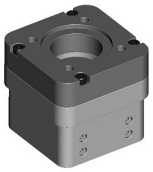
Supplied with:
1x housing, 1x flange,
1x flexible coupling,
4x screws to connect on the cylinder's side,
4x screws to connect on the motor's side,
3x seals, 4x seal washers



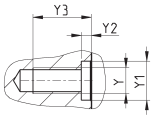
Mod.	Size	Protection class	Motor	⌀DM	LS	⌀C	PF	E	F	TF	⌀B.C.D.	F1	F2	F3	Y	Y1	Y2	Y3	XW	Nominal torque[A]	Max torque[B]	J (Kgmm²)	Weight (g)	η
AM-6E-32-0100	32	IP40	MTB-010-...	8	22	30	6	46.5	42	-	45	-	-	-	-	-	-	-	55	9	18	2	165	0.78
AM-6E-32-0100P	32	IP65	MTB-010-...	8	22	30	6	46.5	42	-	45	-	-	-	-	-	-	-	55	9	18	2	165	0.78
AM-6E-32-0023	32	IP40	MTS-23-...	6.35	25	38,1	5	46.5	56.4	47,1	-	-	-	-	-	-	-	-	53	9	18	2	240	0.78
AM-6E-32-0023P	32	IP65	MTS-23-...	6.35	25	38,1	5	46.5	56.4	47,1	-	-	-	-	-	-	-	-	53	9	18	2	240	0.78
AM-6E-32-0024P	32	IP65	MTS-24-...	8	21,6	38,1	6	46.5	60	47,1	-	-	-	-	-	-	-	-	53.5	9	18	2	240	0.78
AM-6E-40-0400	40	IP40	MTB-040-...	14	40	50	3,5	55.4	60	-	70	-	-	-	-	-	-	-	67	12,5	25	3	290	0.78
AM-6E-40-0400P	40	IP65	MTB-040-...	14	40	50	3,5	55.4	60	-	70	-	-	-	-	-	-	-	67	12,5	25	3	290	0.78
AM-6E-40-0023	40	IP40	MTS-23-...	6.35	25	38,1	5	55.4	56.4	47,1	-	-	-	-	-	-	-	-	56	12,5	25	2	365	0.78
AM-6E-40-0023P	40	IP65	MTS-23-...	6.35	25	38,1	5	55.4	56.4	47,1	-	-	-	-	-	-	-	-	56	12,5	25	2	365	0.78
AM-6E-40-0024P	40	IP65	MTS-24-...	8	20,5	38,1	5	55.4	60	47,1	-	-	-	-	-	-	-	-	55	12,5	25	3	365	0.78
AM-6E-50-0400	50	IP40	MTB-040-...	14	40	50	6	64.9	60	-	70	-	-	-	-	-	-	-	73	12,5	25	3	435	0.78
AM-6E-50-0400P	50	IP65	MTB-040-...	14	40	50	6	64.9	60	-	70	-	-	-	-	-	-	-	73	12,5	25	3	435	0.78
AM-6E-50-0750P	50	IP65	MTB-075-...	19	40	70	4,5	64.9	80	-	90	-	-	-	-	-	-	-	86	17	34	10	746	0.78
AM-6E-50-0024	50	IP40	MTS-24-...	8	29,3	38,1	3	64.9	58	47,1	-	-	-	-	-	-	-	-	63	12,5	25	3	415	0.78
AM-6E-50-0024P	50	IP65	MTS-24-...	8	29,3	38,1	3	64.9	58	47,1	-	-	-	-	-	-	-	-	63	12,5	25	3	415	0.78
AM-6E-50-0034P	50	IP65	MTS-34-...	14	37,5	73	4,5	64.9	86	47,1	-	-	-	-	-	-	-	-	83	17	34	10	785	0.78
AM-6E-63-0750	63	IP40	MTB-075-...	19	54,8	70	6	75	80	-	90	-	-	-	-	-	-	-	90	17	34	10	845	0.78
AM-6E-63-0750P	63	IP65	MTB-075-...	19	54,8	70	6	75	80	-	90	-	-	-	-	-	-	-	90	17	34	10	845	0.78
AM-6E-63-0024	63	IP40	MTS-24-...	8	29,3	38,1	5	75	60.5	47,1	-	-	-	-	-	-	-	-	71	12,5	25	3	480	0.78
AM-6E-63-0024P	63	IP65	MTS-24-...	8	29,3	38,1	5	75	60.5	47,1	-	-	-	-	-	-	-	-	71	12,5	25	3	480	0.78
AM-6E-63-0034P	63	IP65	MTS-34-...	14	36,5	73	3,5	75	86	69,6	-	-	-	-	-	-	-	-	88	17	34	10	1025	0.78
AM-6E-80-1000P	80	IP65	MTB-100-...	24	55,7	110	23	93	130	-	90	15	18	49	M6	10	3.1	12	112.5	60	120	40	2510	0.78
AM-6E-80-0034P	80	IP65	MTS-34-...	14	37,5	73	5	93	93	69,6	-	15	18	49	M6	10	3.1	12	94.5	60	120	40	1885	0.78
AM-6E-100-1000P	100	IP65	MTB-100-...	24	55	110	23	115	130	-	145	15	18	62	M8	12	3.1	18	115.5	60	120	40	3465	0.78
AM-6E-100-0034P	100	IP65	MTS-34-...	14	37,5	73	5	115	93	69,6	-	15	18	62	M8	12	3.1	18	97.5	60	120	40	2840	0.78

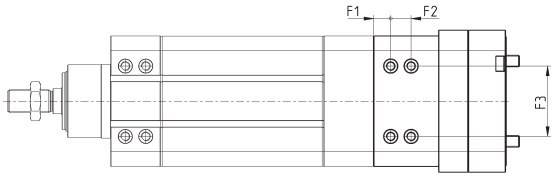
[A] Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
[B] Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

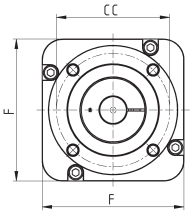
Kit for axial connection Mod. AR

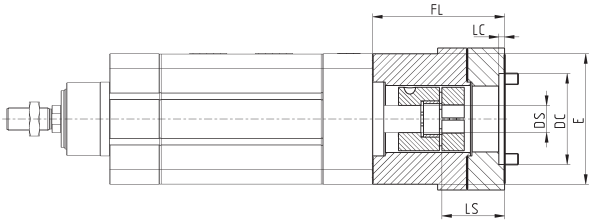


Supplied with:
2x flanges (1 for size 80)
8x screws
1x coupling
2x seals (1 for size 80)









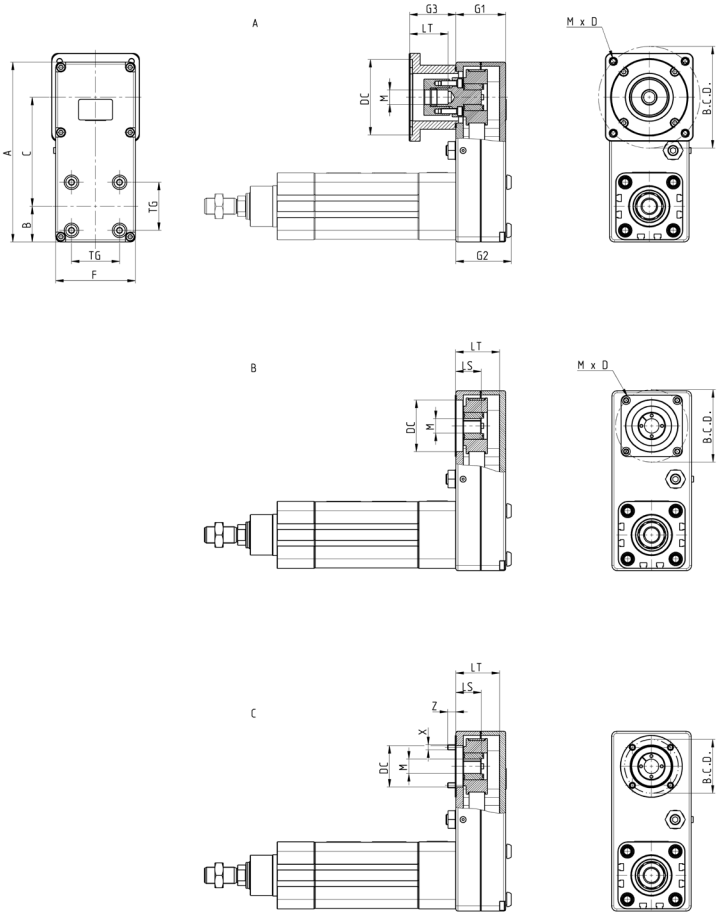
Mod.	Size	Protection class	Gearbox	XE+	FL	F	E	DC	LC	CC	F1	F2	F3	Y	Y1	Y2	Y3	DS	LS	Nominal torque[A]	Max torque[B]	J (Kgmm²)	Weight (g)	
AR-6E-50-R060P	50	IP65	GB-060	288.2	77.2	-	64.9	40	3	52	-	-	-	-	-	-	-	14	35	16	32	3	630	0.78
AR-6E-63-R060P	63	IP65	GB-060	339.3	88.6	-	75	40	4	52	-	-	-	-	-	-	-	14	35	21	42	10	1100	0.78
AR-6E-80-R080P	80	IP65	GB-080	358	98	-	93	60	5	70	15	18	49	6	10	3.1	12	20	40	60	120	40	2090	0.78
AR-6E-100-R120P	100	IP65	GB-120	399.8	116.8	125	115	80	5	100	15	18	62	8	12	3.1	18	25	55	60	120	40	3800	0.78

[A] Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
[B] Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Kit for parallel connection Mod. PM

Detailed information about the size of interfaceable motors and reducers can be found further on in the dedicated sections.

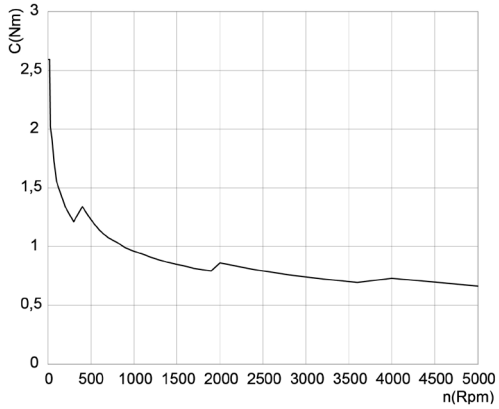
The kit includes:
1x front cover
1x rear cover
2x pulleys
2x locking sets
1x toothed belt
1x belt traction unit
4x screws for cylinder's side
4x cover rear screws
+ seal washers
6x cover fixing screws
3x seals
1x seal plug
4x motor seal washers



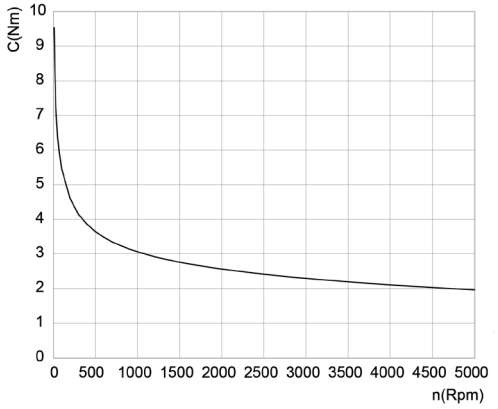
Mod.	Size	Type	Gearbox	Motor	G3	A	F	G1	G2	B	C	TG	øM	LS	LT	øDC	B.C.D.	M x D	X	Z	J (Kgmm²)	Weight (g)	η
PM-6E-32-0100P	32	B	-	MTB-010-...	-	122	54	35	39,2	26,5	65	32,5	8	18,5	29,5	30	45	M3x6	-	-	20,67	450	0,62
PM-6E-32-0024P	32	A	-	MTS-24-...	30	122	54	35	39,2	26,5	65	32,5	8	-	20,5	38,1	66,6	M4x10	-	-	27,78	450	0,62
PM-6E-40-0400P	40	B	-	MTB-040-...	-	154	67	46	50,2	30	90	38	14	25	40,6	50	70	M5x7	-	-	133,8	960	0,62
PM-6E-40-0024P	40	B	-	MTS-24-...	-	154	67	46	50,2	30	90	38	8	20,5	40,5	38,1	66,6	M4x7	-	-	90,3	960	0,62
PM-6E-50-0400P	50	B	-	MTB-040-...	-	174	77	48	53,4	34,5	105,5	46,5	14	24,5	42,5	50	70	M5x7	-	-	229,6	1375	0,62
PM-6E-50-0034P	50	B	-	MTS-34-...	44,5	174	77	48	53,4	34,5	105,5	46,5	14	-	47	73,025	98,42	M6x10	-	-	276,3	1375	0,62
PM-6E-50-R060P	50	C	GB-060-...	MTB-040-...	-	174	77	48	53,4	34,5	105,5	46,5	14	24,5	42,5	40	52	-	M5	8	229,6	1375	0,62
PM-6E-63-0750P	63	B	-	MTB-075-...	-	192	87	50	55,4	41	107	56,5	19	29,5	43,5	70	90	M6x8	-	-	357,1	1675	0,62
PM-6E-63-0034P	63	B	-	MTS-34-...	-	192	87	50	55,4	41	107	56,5	14	27,5	43,5	73,025	98,42	M6x8	-	-	244,5	1675	0,62
PM-6E-63-R060P	63	C	GB-060-...	MTB-040...	-	192	87	50	55,4	41	107	56,5	14	27,5	43,5	40	52	-	M5	7,5	434,8	1675	0,62
PM-6E-80-1000P	80	B	-	MTB-100-...	-	310	135	70	77	65	180	72	24	41	60,5	110	145	M8x10	-	-	1053,1	4457	0,62
PM-6E-80-0034P	80	B	-	MTS-34-...	-	310	135	70	77	65	180	72	14	35	60,5	73,025	98,42	M6x10	-	-	970	4457	0,62
PM-6E-80-R080P	80	C	GB-060-...	MTB-075-...	-	310	135	70	77	65	180	72	19	36	60,5	60	70	-	M6	9,5	999,6	4457	0,62
PM-6E-100-1000P	100	B	-	MTB-100-...	-	310	135	70	77	65	180	72	24	41	60,5	110	145	M8x10	-	-	1110,8	4457	0,62
PM-6E-100-0034P	100	B	-	MTS-34-...	-	310	135	70	77	65	180	72	14	35	60,5	73,025	98,42	M6x10	-	-	1031,2	4457	0,62
PM-6E-100-R080P	100	C	GB-060-...	MTB-075-...	-	310	135	70	77	65	180	72	19	36	60,5	60	70	-	M6	9,5	1054,8	4457	0,62

TRANSMISSIBLE POWER KIT PM

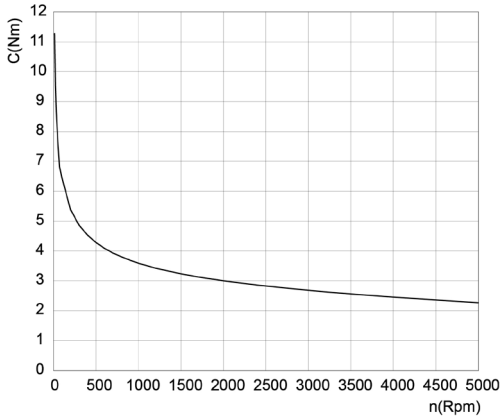
The curves refer to a duty cycle of 70%



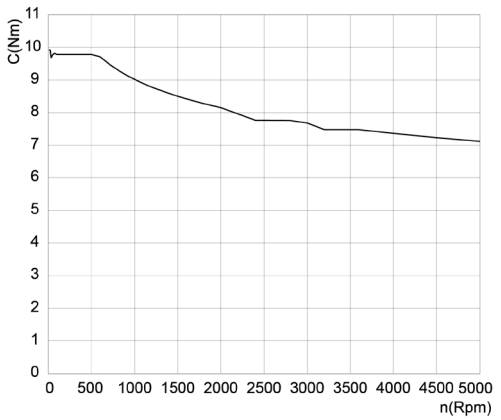
PM-6E 32...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]



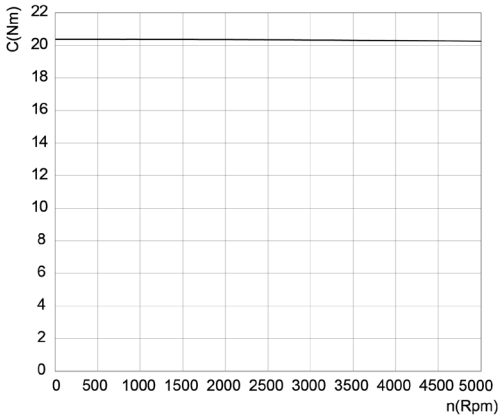
PM-6E 40...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]



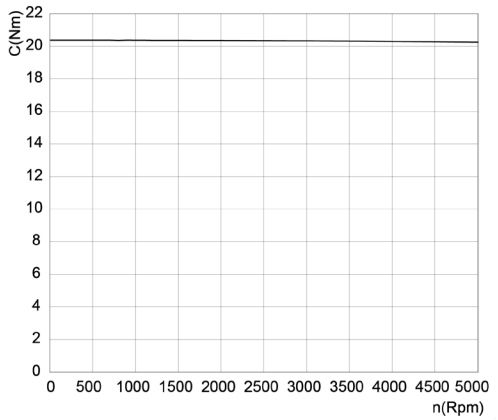
PM-6E 50...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]



PM-6E 50...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]

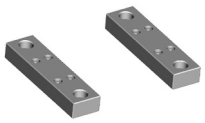


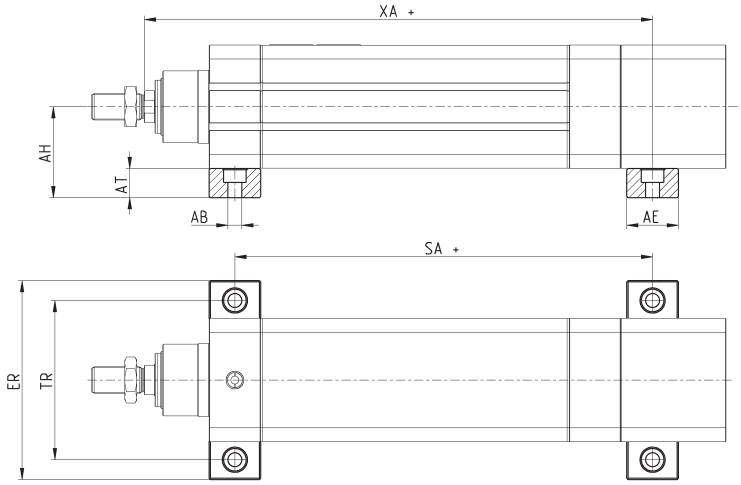
PM-6E 80...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]



PM-6E 100...
C = Torque [Nm]
n = number of revolutions per minute [Rpm]

Cylinder bracket Mod. BA-6E





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

Mod.	Size	XA	AH	AT	⌀AB	SA	ER	TR	AE	Weight (g)
BA-6E-80	80	283.85	68.5	22	10.5	215.5	150	120	39	630
BA-6E-100	100	306.85	79.5	22	10.5	234	170	140	44	800

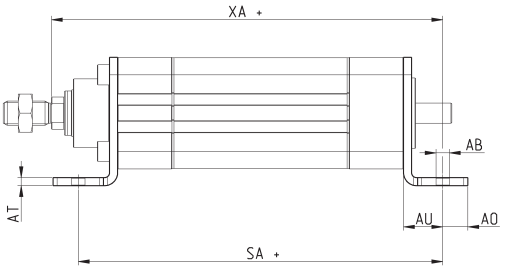
Foot bracket Mod. B-6E

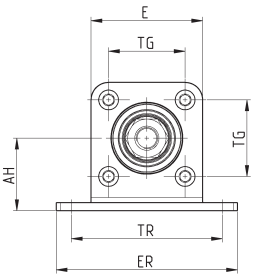
Material: zinc-plated steel

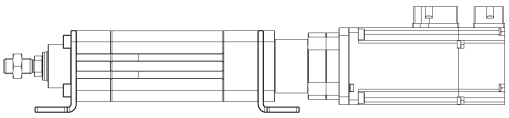
Supplied with:
2x feet
8x screws

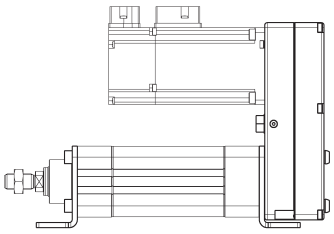
* Mounting available for sizes 32, 40, 50 and 63 only

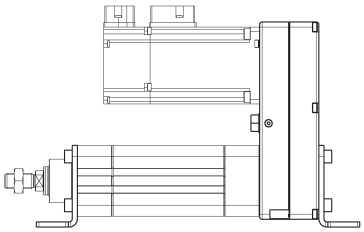
+ = add the stroke







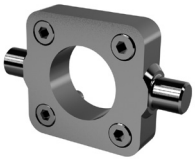




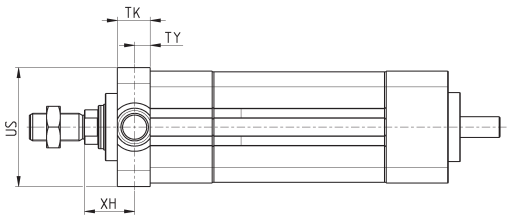
Mod.	Size	SA	XA	AH	TG	TR	AT	AU	AO	⌀AB	ER	E	Weight (g)
B-6E-32	32	164	174.5	32	32.5	65	4	19.5	12.5	6.6	79	46.5	275
B-6E-40	40	181	194.5	36	38	75	4	19.5	12.5	6.6	90	55.4	340
B-6E-50	50	223	236	45	46.5	90	5	25	15	9	110	64.9	635
B-6E-63	63	251	267.5	50	56.5	100	5	25	15	9	120	75	755
B-6E-80	80	278	293.5	68.5	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

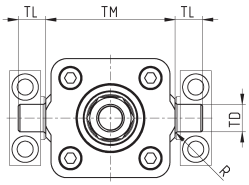
Front spot faced trunnion Mod. FN

Material: zinc-plated steel



Supplied with:
1x spot faced trunnion
4x screws

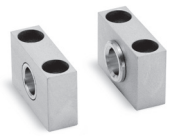




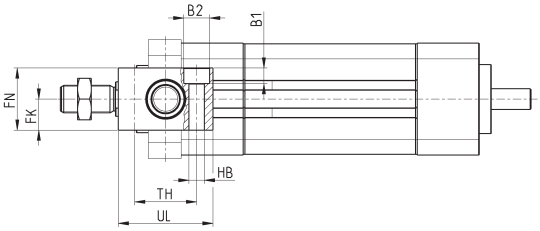
Mod.	Ø	TK	TY	XH	US	TL	TM	øTD	R
FN-32	32	14	6.5	23.5	46	12	50	12	1
FN-40	40	19	9	24	59	16	63	16	1.5
FN-50	50	19	9	29	69	16	75	16	1.6
FN-63	63	24	11.5	30.5	84	20	90	20	1.6
FN-6E-80	80	24	11.5	34.5	102	20	110	20	1.6
FN-6E-100	100	29	14	37	125	25	132	25	2

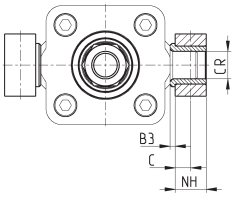
Counter bracket for front trunnion Mod. BF

Material: aluminium



Supplied with:
2x supports





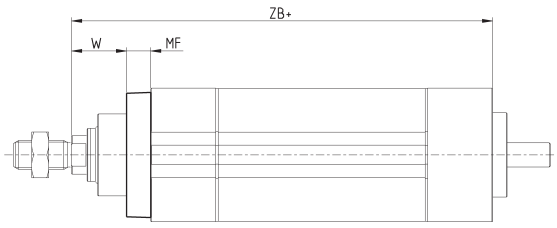
Mod.	Ø	øCR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-32	32	12	15	7.5	3	32	46	15	30	6.8	11	6.6
BF-40-50	40 - 50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11
BF-100-125	100 - 125	25	25	12.5	3.5	50	75	25	50	13	20	14

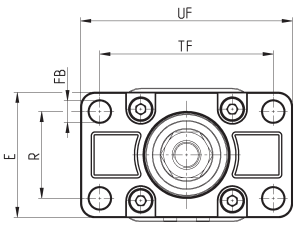
Front flange Mod. D-E

Material: aluminium

Supplied with:
1x flange
4x screws

+ = add the stroke



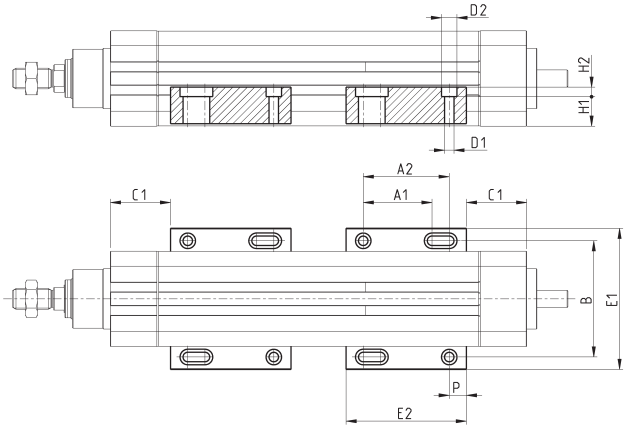


Mod.	Size	W	MF	ZB+	TF	R	UF	E	FB
D-E-41-32	32	20	10	155	64	32	80	45	7
D-E-41-40	40	23	10	175	72	36	90	52	9
D-E-41-50	50	26.5	12	211	90	43	110	65	9
D-E-41-63	63	30	12	242.5	100	50	120	75	9
D-E-6E-80	80	30	16	260	126	63	150	95	12
D-E-6E-100	100	35	16	283	150	75	170	115	14

Side clamping bracket Mod. BG

Material: aluminium

Supplied with:
2x clamps



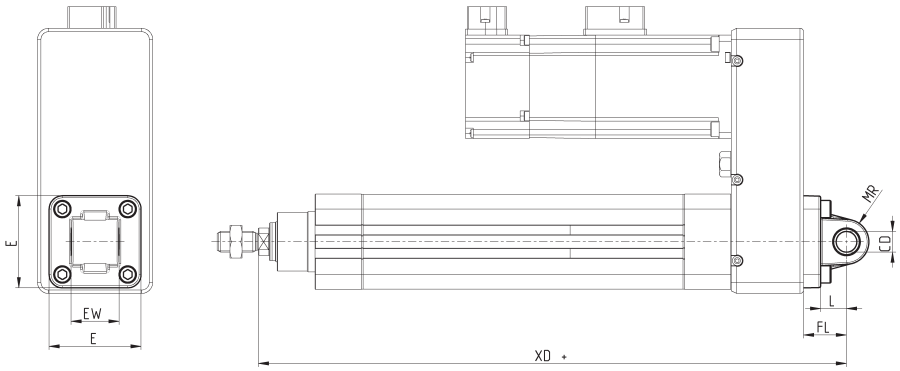
Mod.	Size	C1	E1	E2	P	A1	A2	B	Screw	⌀D1	⌀D2	H1	H2	Weight (g)
BG-6E-32	32	35	71	70	10	40	50	58.5	M4	4.5	7.5	13.5	4.5	80
BG-6E-40	40	35	82	70	10	40	50	67.5	M5	5.5	9	16.9	5.5	105
BG-6E-50	50	35	93	70	10	40	50	76.5	M6	6.5	10.5	19.4	6.5	125
BG-6E-63	63	35	103.5	70	10	40	50	87	M6	6.5	10.5	18.9	6.5	125
BG-6E-80	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



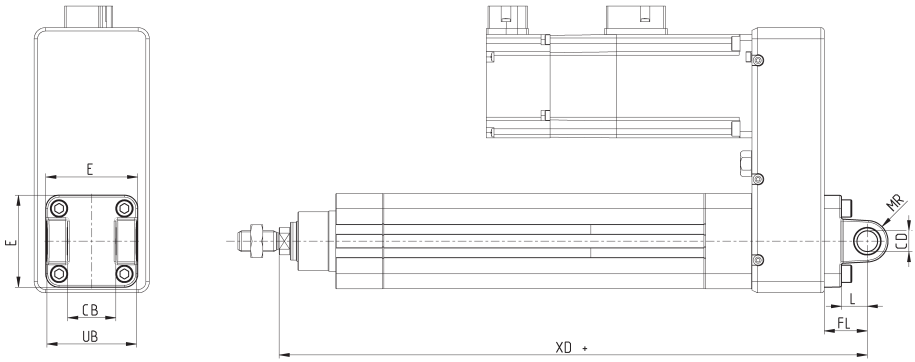
Mod.	Size	øCD	L	FL	XD+	MR	E	EW
L-41-32	32	10	13	22	212	10	46	26
L-41-40	40	12	16	25	246	12	52	28
L-41-50	50	12	16	27	286	12	64	32
L-41-63	63	16	21	32	324.5	16	74	40
L-41-80	80	16	22	36	373	16	93	50
L-41-100	100	20	27	41	401	20	112	60

Rear female trunnion Mod. C and C-H

Material: aluminium

Supplied with:
1x female trunnion
4x screws

+ = add the stroke

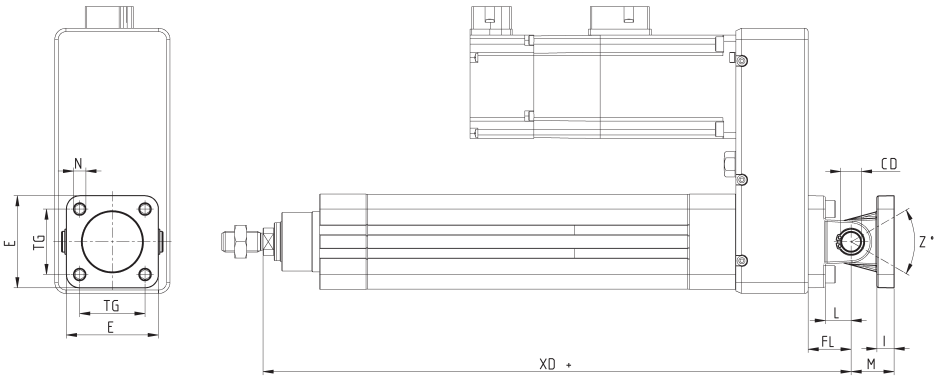


Mod.	Size	øCD	L	FL	XD+	MR	E	CB	UB
C-41-32	32	10	13	22	212	10	46	26	45
C-41-40	40	12	16	25	246	12	52	28	52
C-41-50	50	12	16	27	286	12	64	32	60
C-H-41-63	63	16	21	32	324.5	16	74	40	70
C-H-41-80	80	16	22	36	373	16	93	50	90
C-H-41-100	100	20	27	41	401	20	112	60	110

Accessory combination Mod. C+L+S

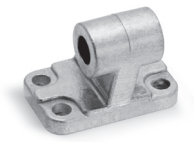
Material: aluminium

+ = add the stroke



Mod.	Size	E	TG	øN	XD+	øCD	L	FL	I	M	Z° (max)
C+L+S	32	46	32.5	6.5	142	10	13	22	13	22	30
C+L+S	40	52	38	6.5	160	12	16	25	16	25	40
C+L+S	50	64	46.5	9	170	12	16	27	16	27	25
C+L+S	63	74	56.5	9	190	16	21	32	21	32	36
C+L+S	80	93	72	11	373	16	22	36	22	36	34
C+L+S	100	112	89	11	401	20	27	41	27	41	38

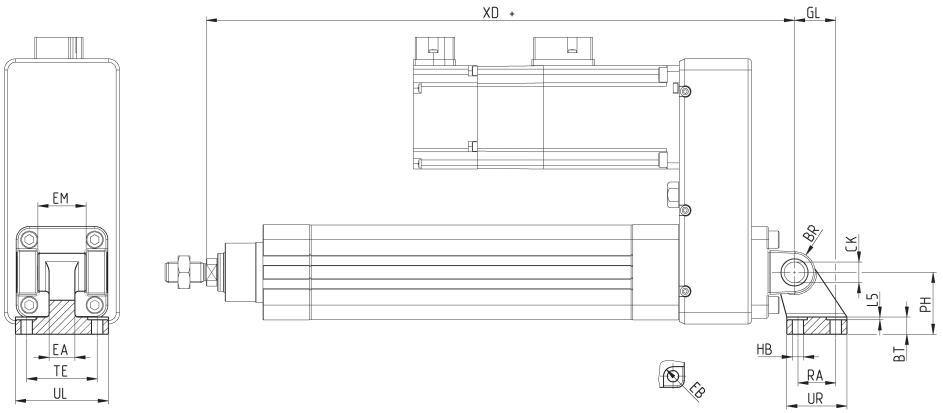
90° male trunnion Mod. ZC



CETOP RP 107P
Material: aluminium

Supplied with:
1x male support

+ = add the stroke



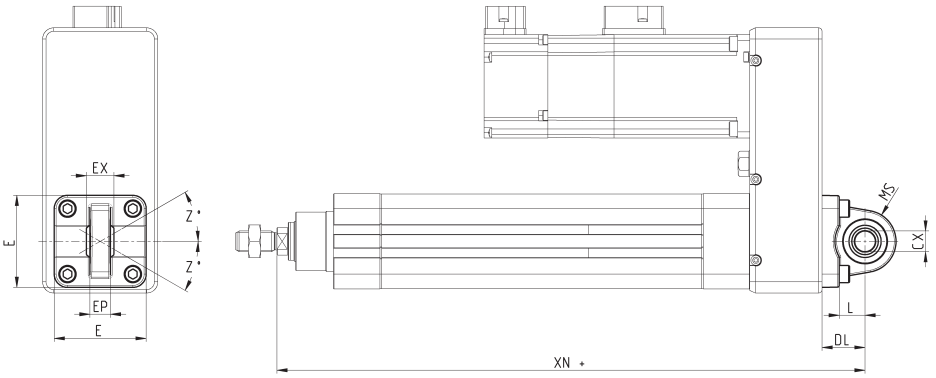
Mod.	Size	øEB	øCK	øHB	XD+	TE	UL	EA	GL	LS	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6.6	212	38	51	10	21	1.6	18	26	31	32	8	10
ZC-40	40	11	12	6.6	246	41	54	15	24	1.6	22	28	35	36	10	11
ZC-50	50	15	12	9	286	50	65	16	33	1.6	30	32	45	45	12	13
ZC-63	63	15	16	9	324.5	52	67	16	37	1.6	35	40	50	50	14	15
ZC-80	80	18	16	11	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

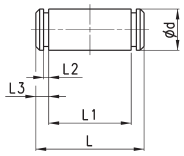
+ = add the stroke



Mod.	Size	øCX	L	DL	XN+	MS	E	EX	EP	Z
R-41-32	32	10	12	22	212	18	45	14	10.5	4°
R-41-40	40	12	15	25	246	18	53.5	16	12	4°
R-41-50	50	12*	15	27	286	21	62.5	16*	12*	4°
R-41-63	63	16	20	32	324.5	23	75	21	15	4°
R-41-80	80	16*	24	36	373	28	92	21*	15*	4°
R-41-100	100	20	29	41	401	30	115	25	18	4°
R-50	50	16	15	27	286	21	65	21	15	4°
R-80	80	20	20	36	373	28	95	25	18	4°

Clevis pin Mod. S

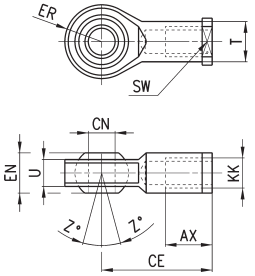
Supplied with:
1x clevis pin in
stainless steel 303
2x Seeger in steel



Mod.	Size	ød	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

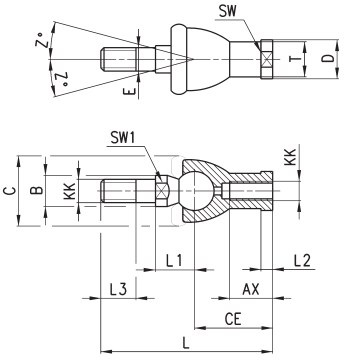
ISO 8139.
Material: zinc-plated steel



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

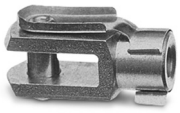
Piston rod socket joint Mod. GY

Material: zama and zinc-plated steel

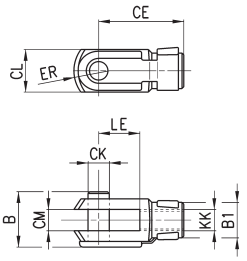


Mod.	Size	KK	AX	CE	E	L	L1	L2	L3	SW	SW1	⌀B	⌀C	⌀D	⌀T	Z
GY-32	32	M10X1.25	18	35	10	74	19.5	6.5	15	17	11	14	28	19	15	15
GY-40	40	M12X1.25	20	40	12	84	21	6.5	17	19	17	19	32	22	17.5	15
GY-50-63	50-63	M16X1.5	27	50	16	112	27.5	8	23	22	19	22	40	27	22	11
GY-80-100	80-100	M20x1.5	38	63	20	133	31.5	10	25	30	24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

Rod fork end Mod. G



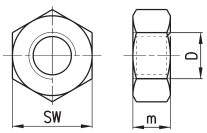
ISO 8140
Material: zinc-plated steel



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

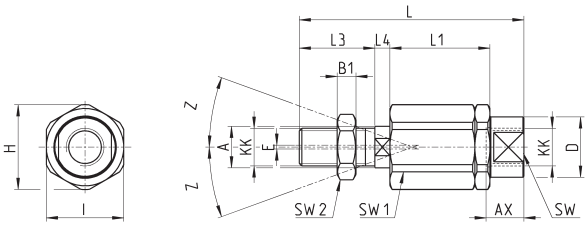
ISO 4035
Material: zinc-plated steel



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

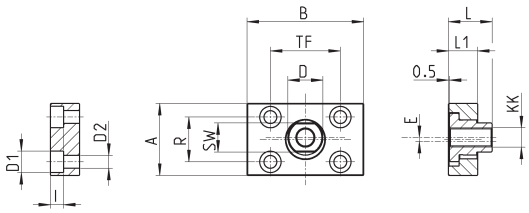
Material: zinc-plated steel



Mod.	Size	KK	L	L1	L3	L4	øA	øD	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

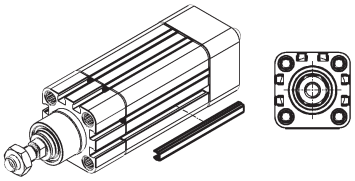
Material: zinc-plated steel



Mod.	Size	KK	A	B	R	TF	L	L1	I	øD	øD1	øD2	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

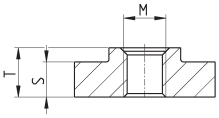
Slot cover profile Mod. S-CST-500

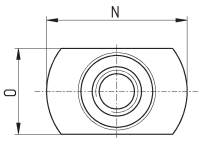
Supplied with 500 mm tube



Slot nut for sensor

Material: steel





Supplied with:
2x nuts

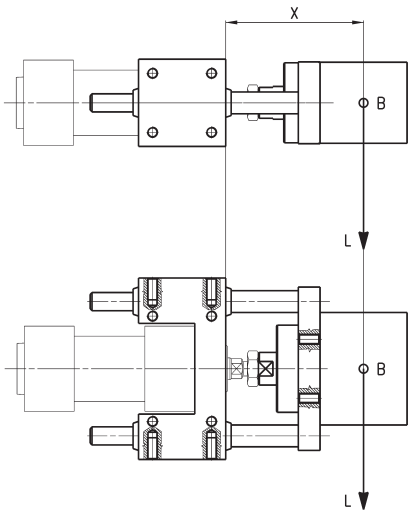
Mod.	Size	M	N	O	S	T
PCV-5E-CS-M3	50 - 65 - 80	M3	10.3	6.1	2.5	3.5
PCV-5E-CS-M4	50 - 65 - 80	M4	10.3	6.1	2.5	3.5

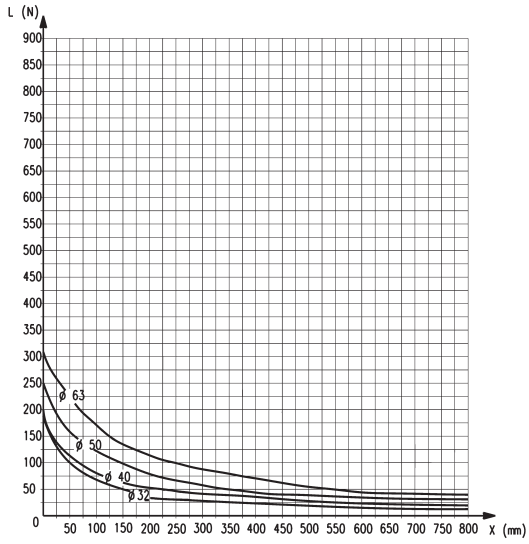
GUIDE MOD.45NUT, 45NHT, 45NHB

45	N	UT	050	A	0100

45	SERIES
N	VERSION N = standard
UT	OPERATION UT = "U" self lubricating guide HT = "H" self lubricating guide HB = "H" ball guide
050	SIZE 032 = 32 040 = 40 050 = 50 063 = 63
A	MATERIALS A = anodized aluminium body - stainless steel AISI 420B columns for 45UT and 45HT - hardened steel C50 columns for 45HB
0100	STROKE in mm

45NUT GUIDES - APPLICABLE LOADS DEPENDING ON PROJECTION

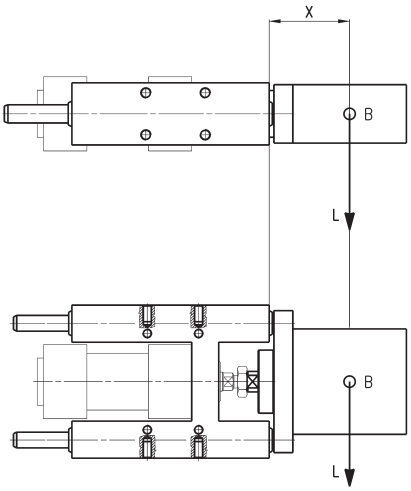


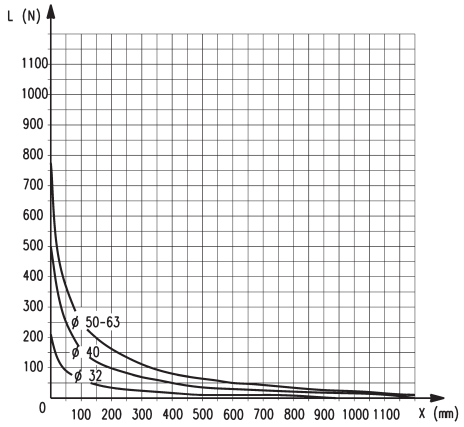


B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide "U" moving on bush (45NUT)

45NHB GUIDES - APPLICABLE LOADS DEPENDING ON PROJECTION

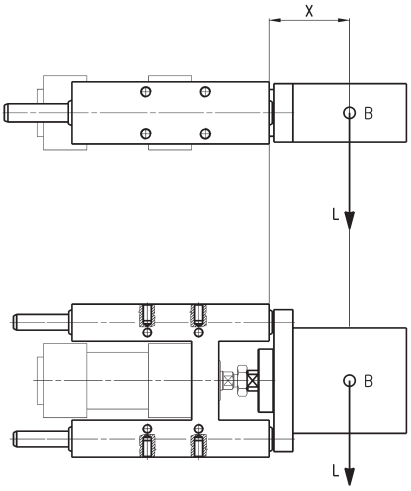


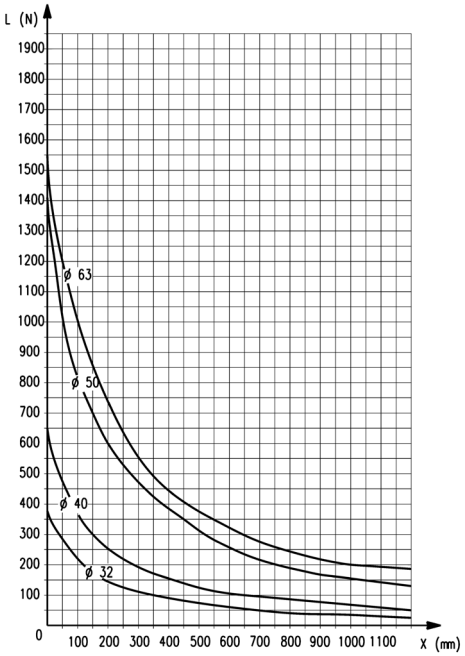


B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide “HB” with linear ball bearing (45NHB)

45NHT GUIDES - APPLICABLE LOADS DEPENDING ON PROJECTION





B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

Guide “HT” moving on bush (45NHT)

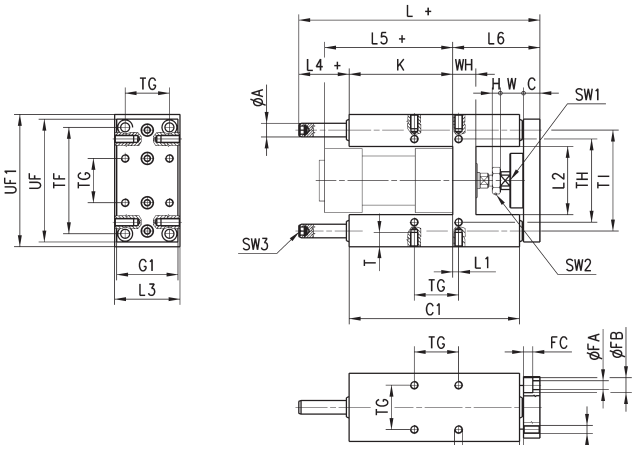
Guides Mod. 45NHT for cylinders Series 6E

Material body: anodized aluminium
Coupling: stainless steel AISI 303
Flange: anodized aluminium
Guide columns: rolled stainless steel AISI 420B

These guides don't need lubrication

Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke



DIMENSIONS

Ø	TF	TG	TH	TI	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	T	øFA	øFB	FC	SW1	SW2	SW3
32	78	32.5	61	74	90	45	97	12	17	125	6	17	12	76	177	4.3	50.2	50	37	94	64	3	M6	14	6.5	11	6.8	13	17	6
40	84	38	69	87	110	54	115	16	21	140	7	22	12	81	192	11	58.2	58	37	105	74	3	M6	14	6.5	11	6.8	15	19	6
50	100	46.5	85	104	130	63	137	20	26	149	8	26	15	78.5	205	19.8	70.2	70	37.5	106	89	3	M8	16	9	15	9	22	24	6
63	105	56.5	100	119	145	80	152	20	26	178	8	26	15	111	237	15.3	85.2	85	37	121	89	7	M8	16	9	15	9	22	24	6

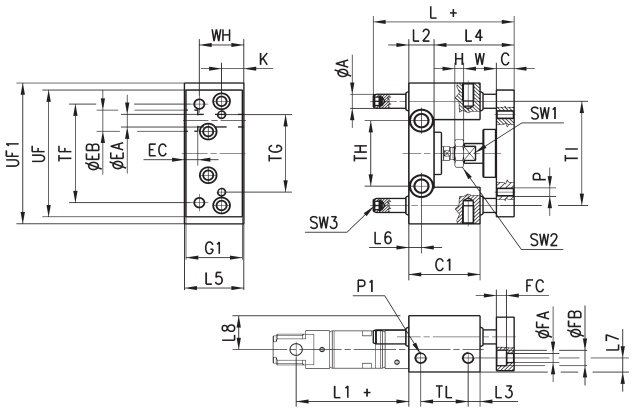
Guides Mod. 45NUT for cylinders Series 6E

Material body: anodized aluminium
Coupling: stainless steel AISI 303
Flange: anodized aluminium
Guide columns: rolled stainless steel AISI 420B

These guides don't need lubrication

Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke



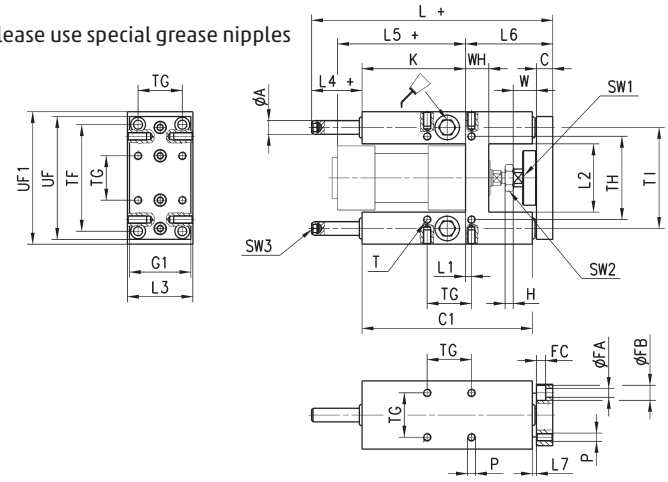
DIMENSIONS

Ø	TF	TG	TH	øA	T1	P	FB	UF	G1	UF1	L	C1	H	W	C	L1	WH	L2	L3	L4	L5	TL	SW1	SW2	SW3
32	78	32,5	58	12	74	M6	6,6	90	45	100	106	48	6	22	12	94	17	7,8	52	48	7,8	32,5	15	17	6
40	84	38	64	12	80	M6	6,6	100	50	106	117	58	7	22	12	105	21	10	53	56	10	38	15	19	6
50	100	46,5	80	16	96	M8	9	120	60	125	129	59	8	26	15	106	25	6,2	64	66	6,3	46,5	22	24	6
63	105	56,5	95	16	104	M8	9	125	70	132	146	76	8	26	15	121	25	9,8	64	76	9,8	56,5	22	24	6

Guides Mod. 45NHB for cylinders Series 6E

Material body: anodized aluminium
Coupling: stainless steel AISI 303
Flange: anodized aluminium
Guide columns: hardened steel C50

To lubricate these guides, please use special grease nipples



Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke

DIMENSIONS

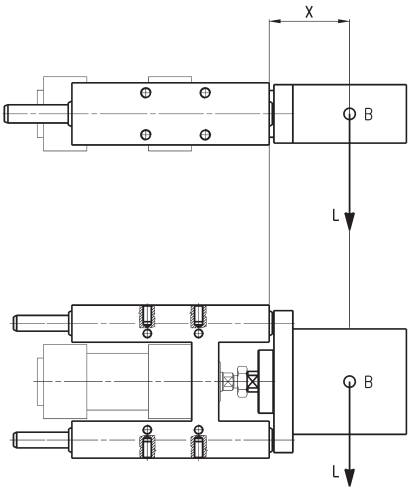
Ø	TF	TG	TH	TI	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	T	øFA	øFB	FC	SW1	SW2	SW3
32	78	32.5	61	74	90	45	97	12	17	125	6	17	12	76	177	4.3	50.2	50	37	94	64	3	M6	14	6.5	11	6.8	13	17	6
40	84	38	69	87	110	54	115	16	21	140	7	22	12	81	192	11	58.2	58	37	105	74	3	M6	14	6.5	11	6.8	15	19	6
50	100	46.5	85	104	130	63	137	20	26	149	8	26	15	78,5	237	19.8	70.2	70	69.5	106	89	3	M8	16	9	15	9	22	24	6
63	105	56.5	100	119	145	80	152	20	26	178	8	26	15	111	237	15.3	85.2	85	37	121	89	7	M8	16	9	15	9	22	24	6

GUIDE MOD.6ENHT

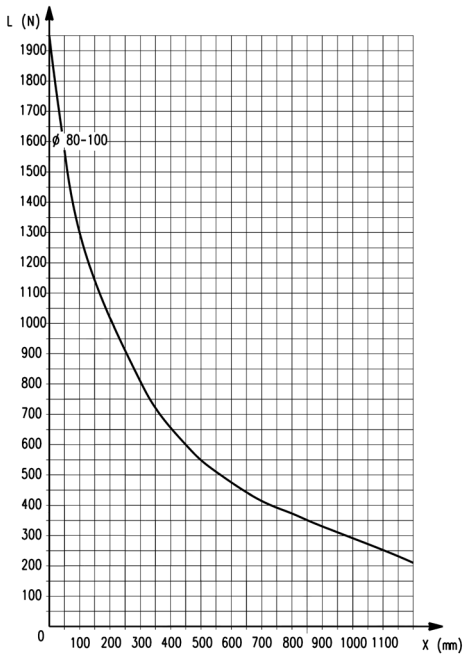
6EN	HT	080	A	0100

6EN	MODEL
HT	OPERATION HT = "H" self lubricating guide
080	BORE 080 = 80 100 = 100
A	MATERIALS A = anodized aluminium body - stainless steel AISI 420B columns for 45UT and 45HT - hardened steel C50 columns for 45HB
0100	STROKE in mm

6ENHT GUIDES - APPLICABLE LOADS DEPENDING ON PROJECTION



B = centre of gravity for applied load
L = load
X = fixed projection + stroke
fixed projection = distance to the centre of gravity

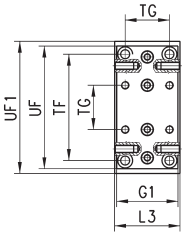


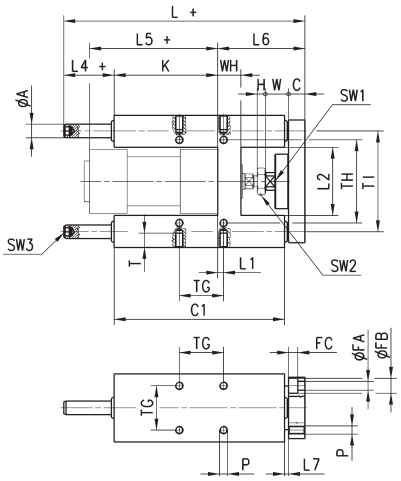
Guide "HT" moving on bush (45NHT)

Guides Mod. 6ENHT for cylinders Series 6E

Material Body: anodized aluminium
Coupling: stainless steel AISI 303
Flange: anodized aluminium
Guide columns: rolled stainless steel AISI 420B

These guides don't need lubrication





Supplied with:
4x fixing screws.

Draw note:
+ = add the stroke

DIMENSIONS																												
Ø	TF	TG	TH	TI	UF	G1	UF1	øA	WH	C1	H	W	C	K	L	L1	L2	L3	L4	L5	L6	L7	P	T	øFA	øFB	FC	SW1	SW2	SW3
80	130	72	130	148	180	100	189	25	34	195	9	32	20	128	280	21	105.4	105	42	128	110	23	M10	20	11	18	11	27	30	6
100	150	89	150	172	200	120	213	25	39	220	9	32	20	128	280	24.5	130.4	130	37	138	115	3	M10	20	11	18	11	27	30	6

Series 5E electromechanical axis

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

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 possible to 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.

- 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
- Supplied with protection plugs for end caps and slider's centering bushings
- Greasing nipples included

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 (available for versions A and D only)
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

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 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 (for sizes 65 and 80 only)
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 support axis (D) and standard slider (S)

MECHANICAL CHARACTERISTICS

		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	A	A	D	H	A	A	D	H
Type of slider		S	L	S	S	L	S	S	S	L	S	S
Number of guides		1	1	1	1	1	1	2	1	1	1	2
Number of RDS blocks	pcs	2	3	2	2	3	2	4	2	3	2	4
Fy, eq (A)	N	3400	5100	3400	8300	12450	8300	16600	13000	19500	13000	26000
Fz, eq (A)	N	3400	5100	3400	8300	12450	8300	16600	13000	19500	13000	26000
Mx, eq (A)	Nm	19.4	29	19.4	47.7	71.6	47.7	234.7	106	160	106	454
My, eq (A)	Nm	91.7	183.5	91.7	283.2	564.7	282.3	564.7	626	1252	626	1252
Mz, eq (A)	Nm	91.7	183.5	91.7	283.2	564.7	282.3	564.7	626	1252	626	1252
Max linear speed of mechanics (V_{max})	m/s	5	2.5(B)	5	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	50	20(B)	50	2.5(B)	50	20(B)	50	20(B)
PROFILE												
Moment of surface inertia I_y	mm⁴	$1.89 \cdot 10^5$	$1.89 \cdot 10^5$	$1.89 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$
Moment of surface inertia I_z	mm⁴	$2.48 \cdot 10^5$	$2.48 \cdot 10^5$	$2.48 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$
TOOTHED BELT												
Type		20 AT 5 HP	20 AT 5 HP	-	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	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
PULLEY												
Effective diameter of the pulley	mm	31.83	31.83	-	47.75	47.75	-	47.75	63.66	63.66	-	63.66
Number of teeth	z	20	20	-	30	30	-	30	20	20	-	20
Linear movement per pulley round	mm/round	100	100	-	150	150	-	150	200	200	-	200

NOTES:
1. Check the nominal admissible torque of the used motion transmission devices.
2. Details about directions of loads and moments can be found in the "EQUIVALENT LOAD" section.

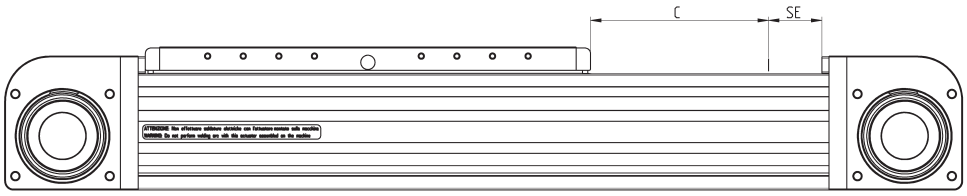
(A) Value refers to a covered distance of 2000 Km with fully supported system.
(B) The "suggested" speed is not the mechanical limit of the unit but represents the best compromise between high load applied and high dynamics.

SERIES 5E STROKE

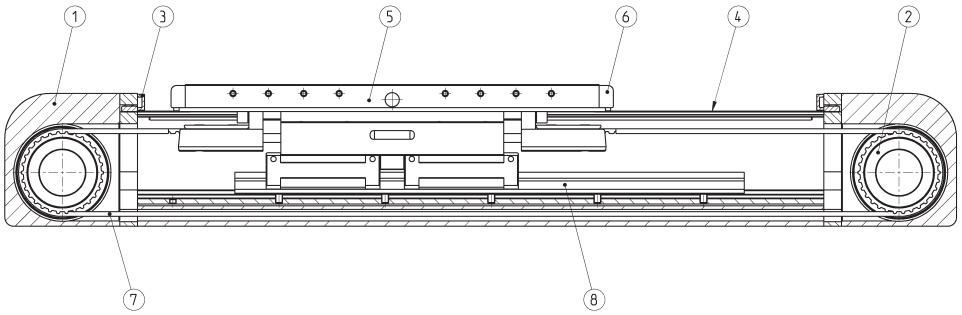
LEGEND:

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

HOW TO CALCULATE THE LIFE OF SERIES 5E AXIS

The correct dimensioning of the Series 5E axis, used individually or in a cartesian system with several axes, you need to consider some facts, both static and dynamic.

CALCULATION OF LIFE [km]

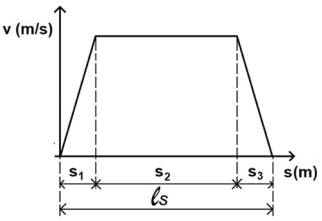
L_{eq} =Life of the axis [km]
f_l = load coefficient
f_w = safety coefficient according to the working conditions

The loads acting on the actuator (Fy, Fz, Mx, My and Mz) that appear in the fl calculation are the average ones on the cycle. These are calculated by averaging the loads of each single phase as indicated in the equation of P.

l_s = stroke
s_1 = acc. phase; s_2= constant speed phase; s_3 = deceleration phase
P = Mx / My / Mz /Fy / Fz

$$f_l = \frac{|Fy|}{Fy,eq} + \frac{|Fz|}{Fz,eq} + \frac{|Mx|}{Mx,eq} + \frac{|My|}{My,eq} + \frac{|Mz|}{Mz,eq}$$

$$L_{eq} = \left(\frac{1}{f_l \cdot f_w}\right)^3 \cdot 2000$$



$$P = \sqrt[3]{\frac{1}{ls} \cdot \sum_{i=1}^{n} (P_i{}^3 \cdot s_i)}$$

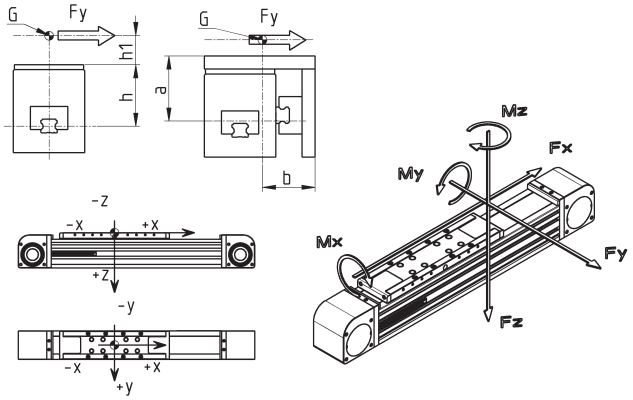
$$P = \sqrt[3]{\frac{1}{ls} \cdot (P_1{}^3 \cdot s_1 + P_2{}^3 \cdot s_2 + P_3{}^3 \cdot s_3)}$$

EQUIVALENT LOAD

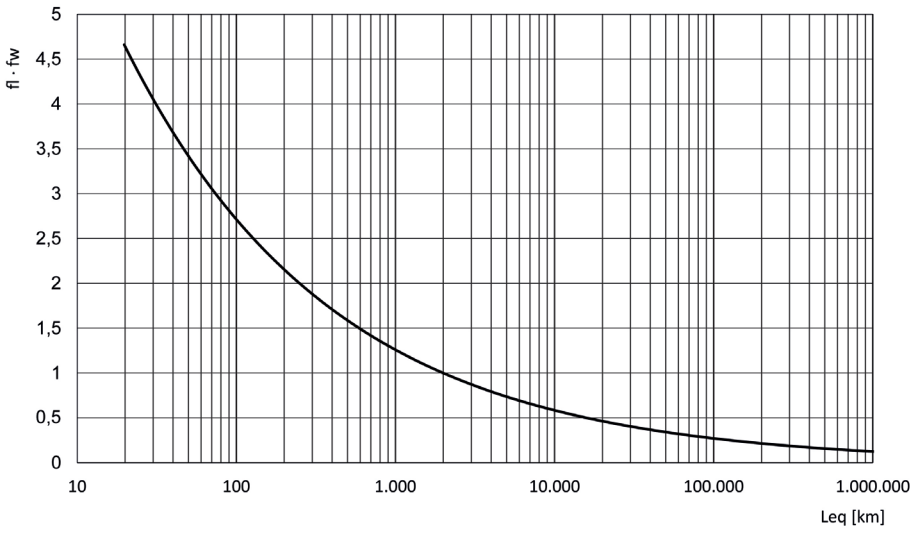
Fy = Force acting along the Y-axis [N]
Fz = Force acting along the Z-axis [N]
h = fixed distance for 5E axis [mm]
Mx = Moment along X-axis [Nm]
My = Moment along Y-axis [Nm]
Mz = Moment along Z-axis Z [Nm]

Here you can find the "h" values, valid for version A:
- h = 45.5 mm (5ES050)
- h = 56.0 mm (5ES065)
- h = 69.5 mm (5ES080)

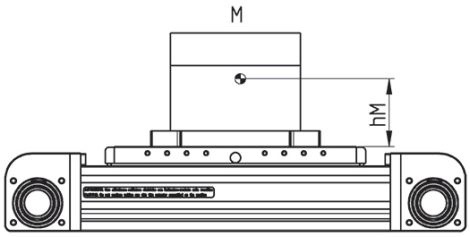
Here you can find the "A" and "B" values, valid for version H:
"A" = 56.0 mm "B" 32.9 mm (5ES050)
"A" = 57.0 mm "B" 45.0 mm (5ES065)
"A" = 71.6 mm "B" 51.6 mm (5ES080)

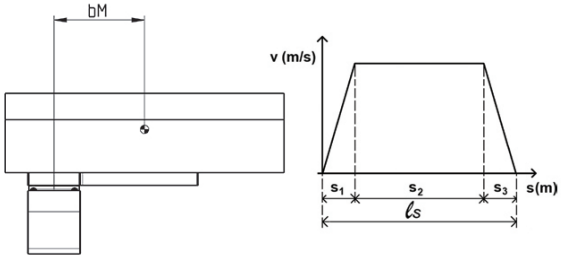


GRAPH OF THE SERVICE LIFE



HOW TO CALCULATE THE SERVICE LIFE OF 5ES050TBL0500AS1 - HORIZONTAL MOUNTING





Application data:
M = 15 kg
bM = 86 mm
hM = 50 mm

acc = dec = 6 m/s² v = 0.6 m/s
$s_1 = s_3 = 30$ mm
Ls = 500 mm
$f_w = 1$

CALCULATION OF APPLIED LOADS

$$F_y = 0$$

$$F_z = M \cdot g = 15 \cdot 9.81 = 147\ N$$

$$M_{x_{1;2;3}} = F_z \cdot b_M = 147 \cdot 0.086 = 12.7\ Nm$$

$$M_{y_{1;3}} = F_x \cdot (h_M + h) = M \cdot a \cdot (h_M + h) =$$
$$= 15 \cdot 6 \cdot (0.05 + 0.045) = 8.55\ Nm$$

$$M_{y_2} = F_x \cdot (h_M + h) = M \cdot a \cdot (h_M + h) =$$
$$= 15 \cdot 0 \cdot (0.05 + 0.045) = 0\ Nm$$

$$M_{z_{1;3}} = F_x \cdot b_M = M \cdot a \cdot b_M =$$
$$= 15 \cdot 6 \cdot 0.086 = 7.74\ Nm$$

$$M_{z_2} = F_x \cdot b_M = M \cdot a \cdot b_M =$$
$$= 15 \cdot 0 \cdot 0.086 = 0\ Nm$$

$$M_y = \sqrt[3]{\frac{1}{ls} \cdot (My_1{}^3 \cdot s1 + My_2{}^3 \cdot s2 + My_3{}^3 \cdot s3 + \cdots + My_n{}^3 \cdot sn)} =$$
$$= \sqrt[3]{\frac{1}{500} \cdot (8.55^{\,3} \cdot 30 + 0 \cdot 440 + 8.55^{\,3} \cdot 30)} = 4.22\ Nm$$

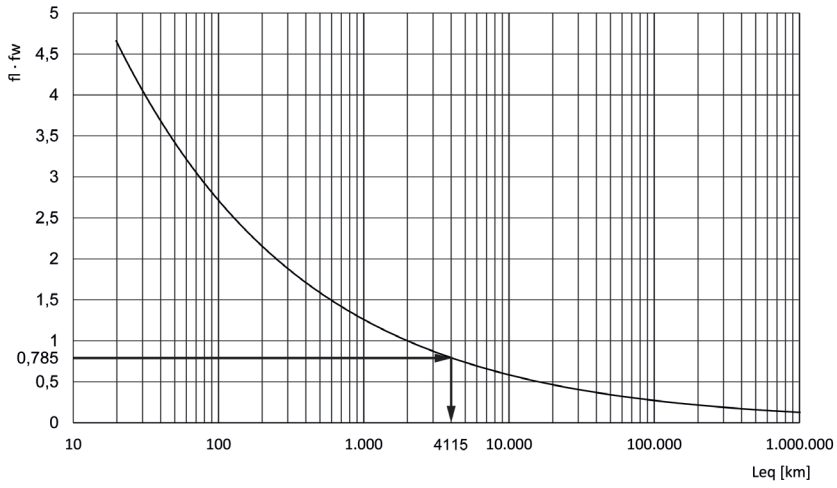
$$M_z = \sqrt[3]{\frac{1}{500} \cdot (7.74^{\,3} \cdot 30 + 0 \cdot 440 + 7.74^{\,3} \cdot 30)} = 3.82\ Nm$$

$$fl = \frac{|Fy|}{Fy,eq} + \frac{|Fz|}{Fz,eq} + \frac{|Mx|}{Mx,eq} + \frac{|My|}{My,eq} + \frac{|Mz|}{Mz,eq} =$$
$$= \frac{0}{3400} + \frac{147}{3400} + \frac{12.7}{19.4} + \frac{4.22}{91.7} + \frac{3.82}{91.7} = 0.785$$

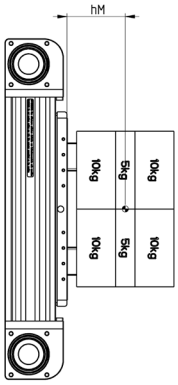
HOW TO CALCULATE THE SERVICE LIFE

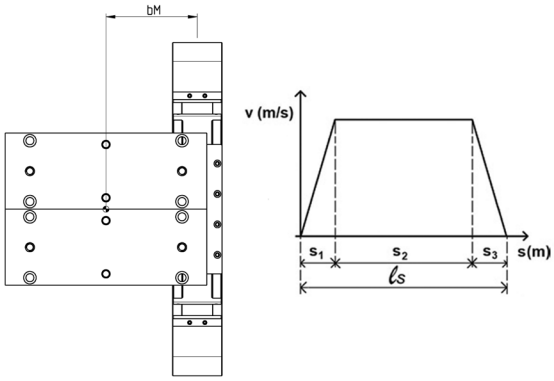
Once the fl value has been calculated, the service life value can be obtained from the graph or by using the formula:

$$Leq = \left(\frac{1}{fl \cdot fw}\right)^3 \times 2000 = \left(\frac{1}{0.785 \cdot 1}\right)^3 \times 2000 = 4115\ \text{km}$$



HOW TO CALCULATE THE SERVICE LIFE OF 5ES065TBL0750AS1 - VERTICAL MOUNTING





Application data:
M = 50 kg
bM = 120 mm
hM = 79.5 mm

acc = dec = 10 m/s² v = 0.8 m/s
$s_1 = s_3 = 32$ mm
Ls = 750 mm
$f_w = 1.5$

CALCULATION OF APPLIED LOADS

$$F_y = 0\ N$$

$$F_z = 0\ N$$

$$M_{x_{1;2;3}} = 0\ Nm$$

$$M_{y_1} = F_x \cdot (h_M + h) = M \cdot (g + a) \cdot (h_M + h) =$$
$$= 50 \cdot (9.81 + 10) \cdot (0.056 + 0.0795) = 134.2\ Nm$$

$$M_{y_2} = F_x \cdot (h_M + h) = M \cdot (g + a) \cdot (h_M + h) =$$
$$= 50 \cdot (9.81 + 0) \cdot (0.056 + 0.0795) = 66.5\ Nm$$

$$M_{y_3} = F_x \cdot (h_M + h) = M \cdot (g + a) \cdot (h_M + h) =$$
$$= 50 \cdot (9.81 - 10) \cdot (0.056 + 0.0795) = 1.3\ Nm^*$$

$$M_{z_1} = F_x \cdot b_M = M \cdot (g + a) \cdot b_M =$$
$$= 50 \cdot (9.81 + 10) \cdot 0.12 = 118.9\ Nm$$

$$M_{z_2} = F_x \cdot b_M = M \cdot (g + a) \cdot b_M =$$
$$= 50 \cdot (9.81 + 0) \cdot 0.12 = 58.9\ Nm$$

$$M_{z_3} = F_x \cdot b_M = M \cdot (g + a) \cdot b_M =$$
$$= 50 \cdot (9.81 - 10) \cdot 0.12 = 1.14\ Nm^*$$

$$M_y = \sqrt[3]{\frac{1}{750} \cdot (134.2^{\,3} \cdot 32 + 66.5^{\,3} \cdot 686 + 1.3^{\,3} \cdot 32)} = 71.9\ Nm$$

$$M_z = \sqrt[3]{\frac{1}{750} \cdot (118.9^{\,3} \cdot 32 + 58.9^{\,3} \cdot 686 + 1.14^{\,3} \cdot 32)} = 63.7\ Nm$$

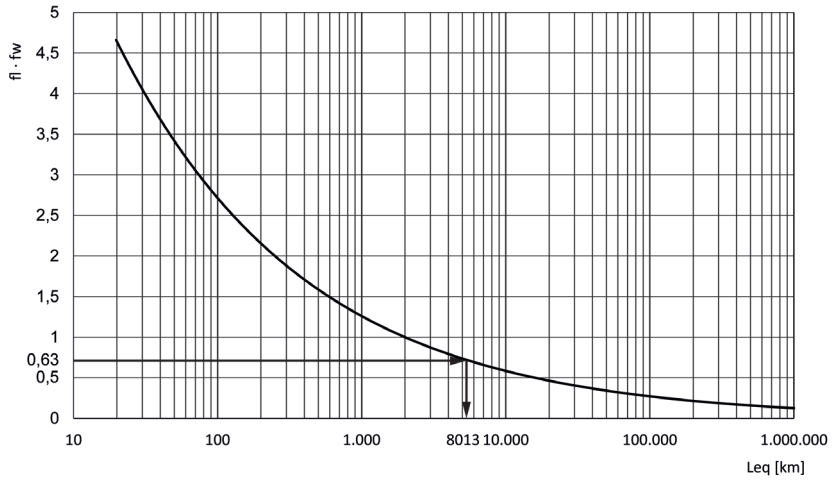
$$fl = \frac{|Fy|}{Fy,eq} + \frac{|Fz|}{Fz,eq} + \frac{|Mx|}{Mx,eq} + \frac{|My|}{My,eq} + \frac{|Mz|}{Mz,eq} =$$
$$= \frac{0}{8300} + \frac{0}{8300} + \frac{71.9}{324} + \frac{63.7}{324} + \frac{0}{55} = 0.42$$

*N.B: Positive sign because for each phase, the values are considered in absolute value.

HOW TO CALCULATE THE SERVICE LIFE

Once the fl value has been calculated, the service life value can be obtained from the graph or by using the formula:

$$Leq = \left(\frac{1}{fl \cdot fw}\right)^3 \times 2000 = \left(\frac{1}{0.42 \cdot 1.5}\right)^3 \times 2000 = 8013\ \text{km}$$



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]

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

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

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

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

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

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

K_{TI} = Mass coefficient of variable-length ..... components with the interaxis [kg/mm]
C = Stroke [mm]
I = Interaxis [mm]

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

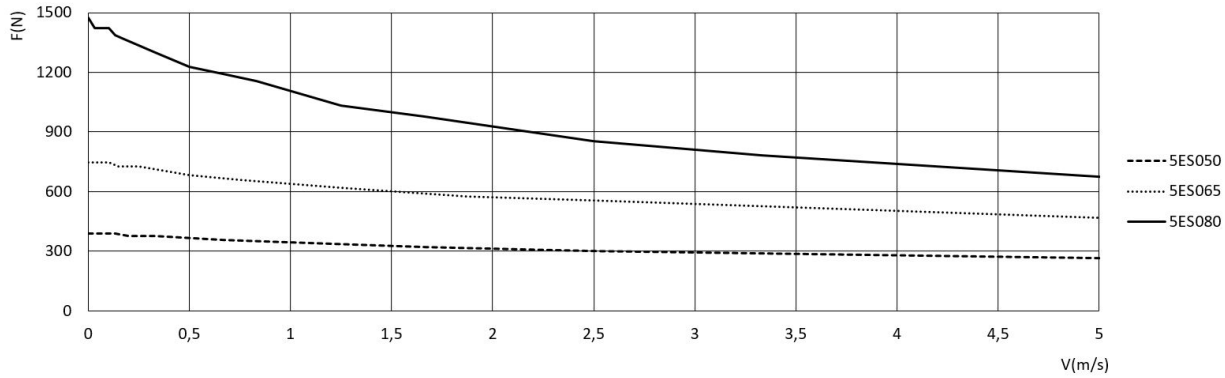
$$C_{M3} = \frac{F_{TT} \cdot D_P}{2}$$

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

Mod.	J_{TOT} [Kg·mm²]	m_{C1} [kg]	K_{TV} [Kg·m]	K_{TI} [Kg/m]
5E050...AS1	48.76	0.51	0.14	0.00
5E050...AL1	48.76	0.80	0.14	0.00
5E050...AS2	48.76	1.01	0.14	0.38
5E050...DS1	0.00	0.40	0.00	0.00
5E050...DS2	0.00	0.87	0.00	0.31
5E065...AS1	372.07	1.27	0.21	0.00
5E065...AL1	372.07	1.83	0.21	0.00
5E065...AS2	372.07	2.53	0.21	0.41
5E065...DS1	0.00	1.01	0.00	0.00
5E065...HS1	372.07	2.84	0.21	0.00
5E065...DS2	0.00	2.1	0.00	0.31
5E080...AS1	1130.28	2.69	0.34	0.00
5E080...AL1	1130.28	3.84	0.34	0.00
5E080...AS2	1130.28	5.38	0.34	0.48
5E080...DS1	0.00	2.15	0.00	0.00
5E080...HS1	1130.28	5.61	0.34	0.00
5E080...DS2	0.00	4.41	0.00	0.31

TRANSMISSIBLE FORCE

According to the size of the axis and the selected speed, the transmissible force of the toothed belt has the following limits.



HOW TO CALCULATE MAX DEFLECTION AND VERIFY 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:

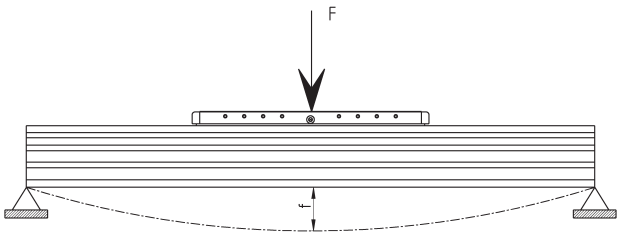
f_{max} = Maximum admissible deflection [mm]
c_{max} = Maximum stroke of axis 5E [mm]

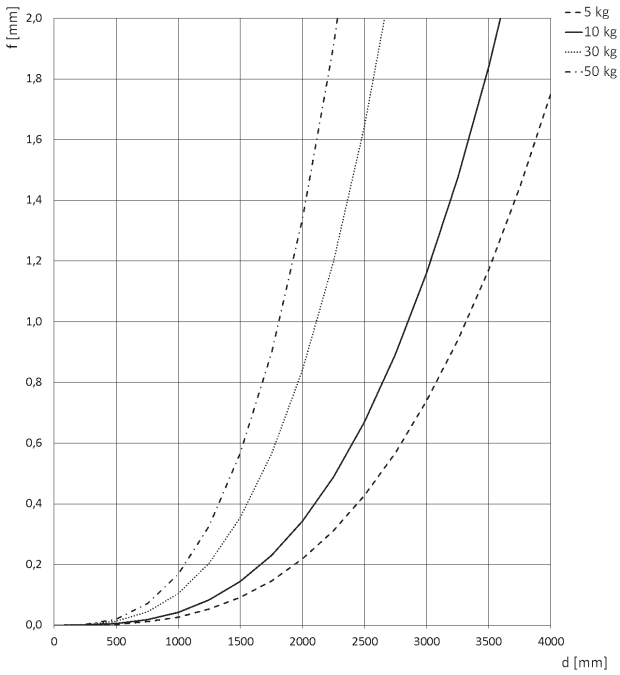
$$f_{max} = c_{max} \cdot 5 \cdot 10^{-4}$$

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

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

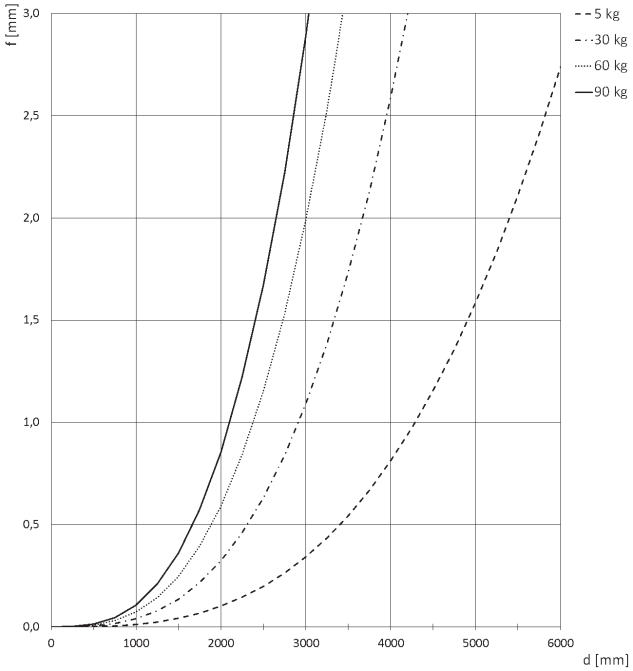
Deflection according to the distance of the supports - Version A





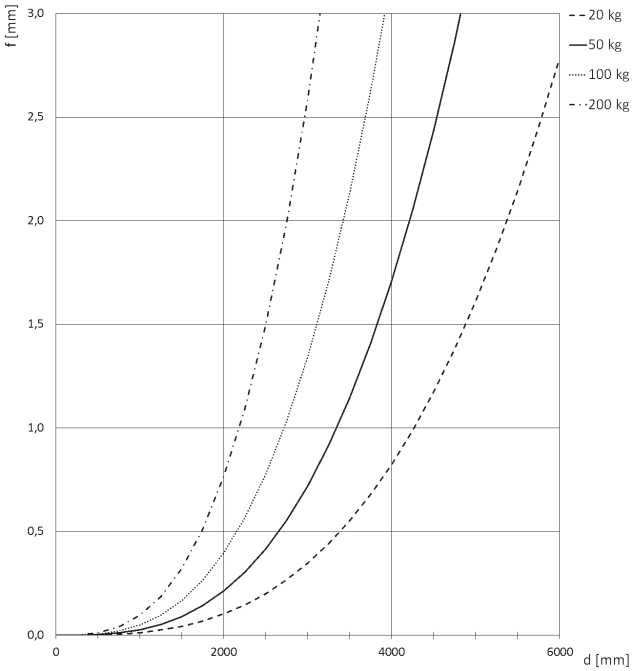
Size 050

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



Size 065

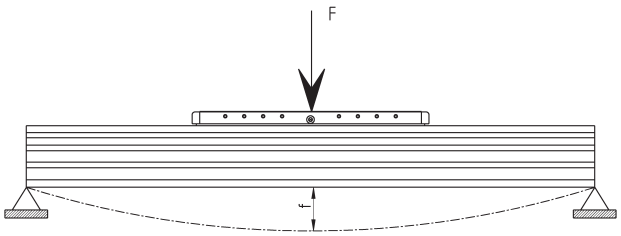
f = deflection generated between the supports [mm]
d = distance between the supports [mm]

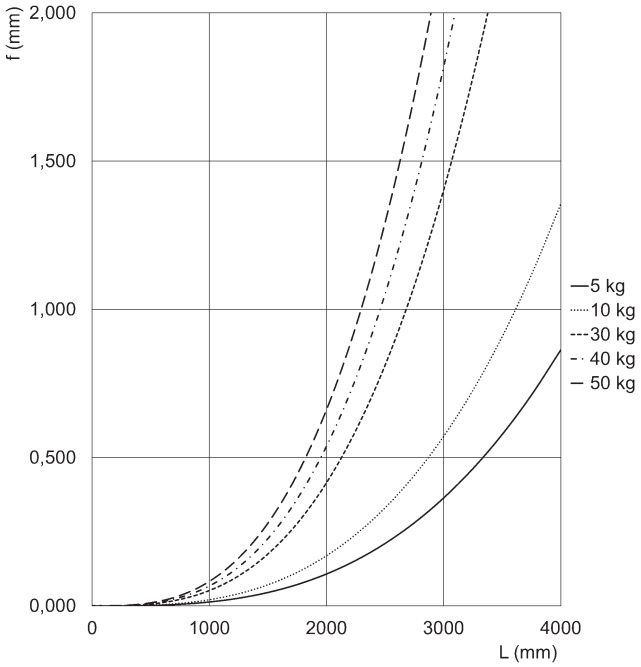


Size 080

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

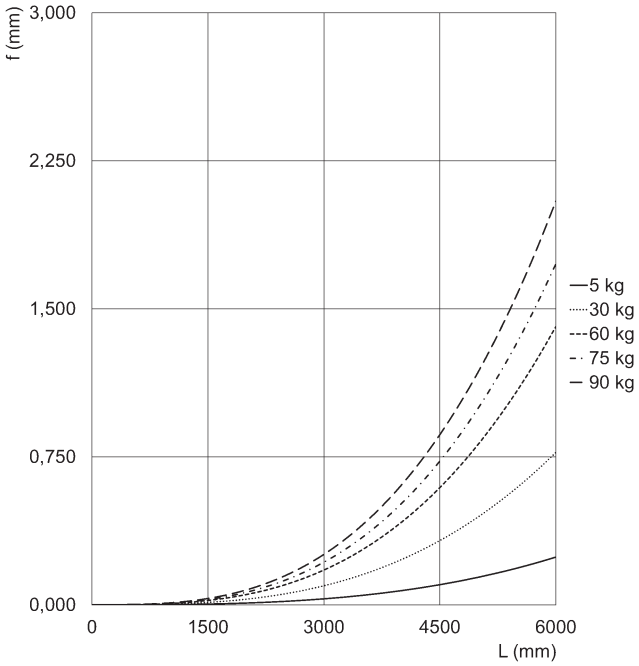
Deflection according to the distance of the supports - Version H





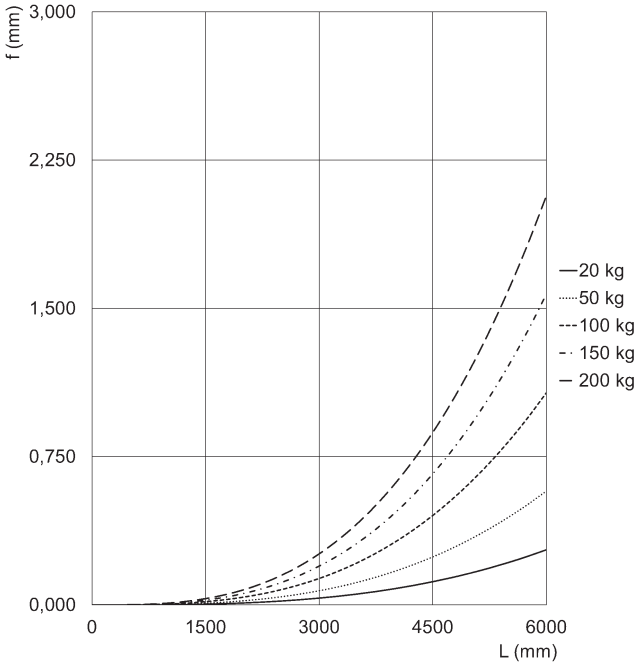
Size 050

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]



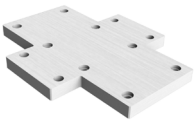
Size 080

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

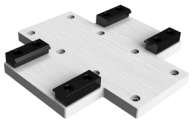
ACCESSORIES FOR SERIES 5E

Side clamping bracket Mod. BGS

Perforated side clamping bracket Mod. BGA

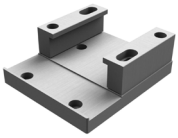


Interface plate - slider on slider



Interface plate - profile on slider

Interface plate - profile on slider - long arm

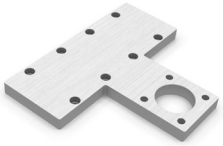


Interface plate - Series 6E cylinder on slider

Interface plate - profile side on slider, left pos.

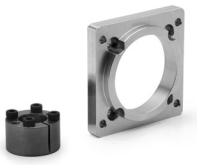
Interf. plate - profile side on slider, right pos.

Fixed interface plate



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

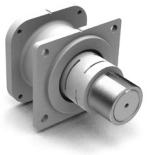
Kit to fix the inductive sensor



Kit to connect the gearbox GB Mod. FR

Kit to connect the gearbox, enhanced series

Kit to connect the gearbox, enhanced series (size 80)



Direct connection kit for Stepper motor

Parallel connection kit

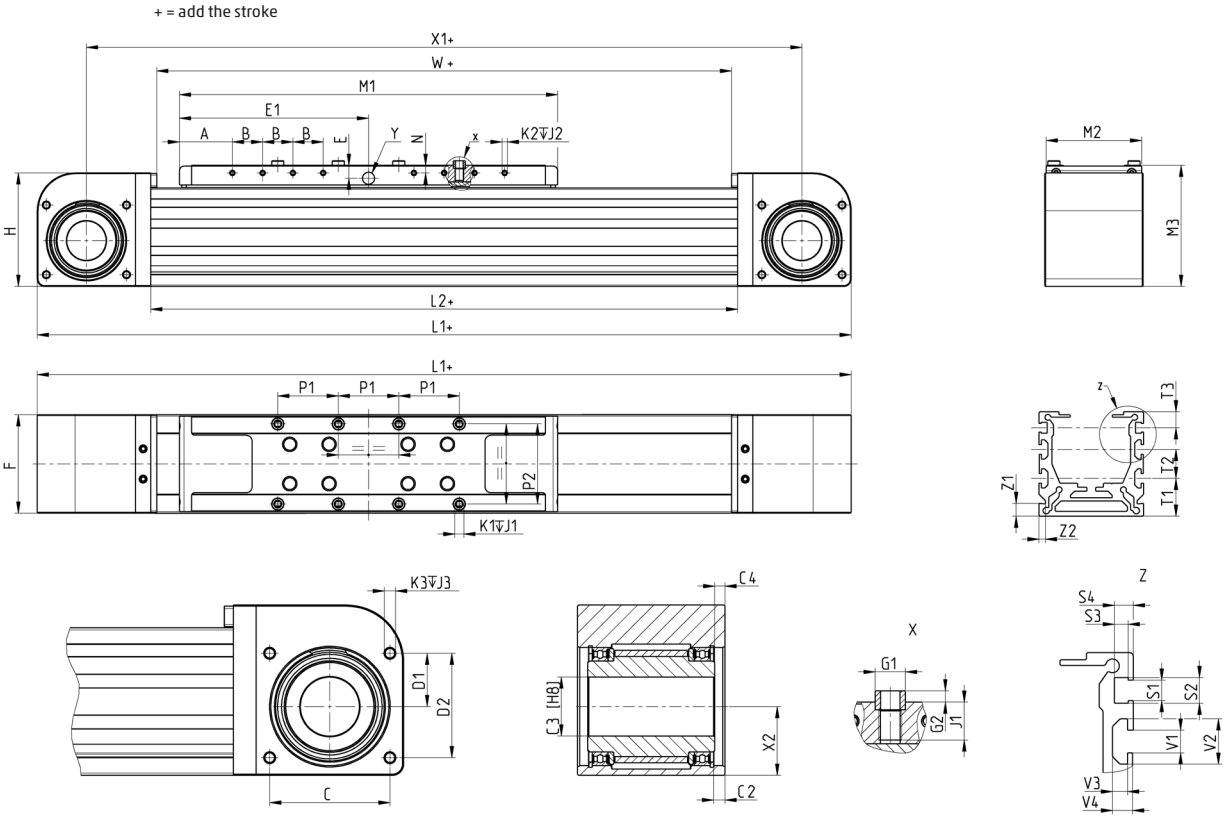
Nuts for slots

5E/5V connection flange

Centering ring Mod. TR-CG

All accessories are supplied separately from the axis.

Electromechanical axis Mod. 5E...AS1

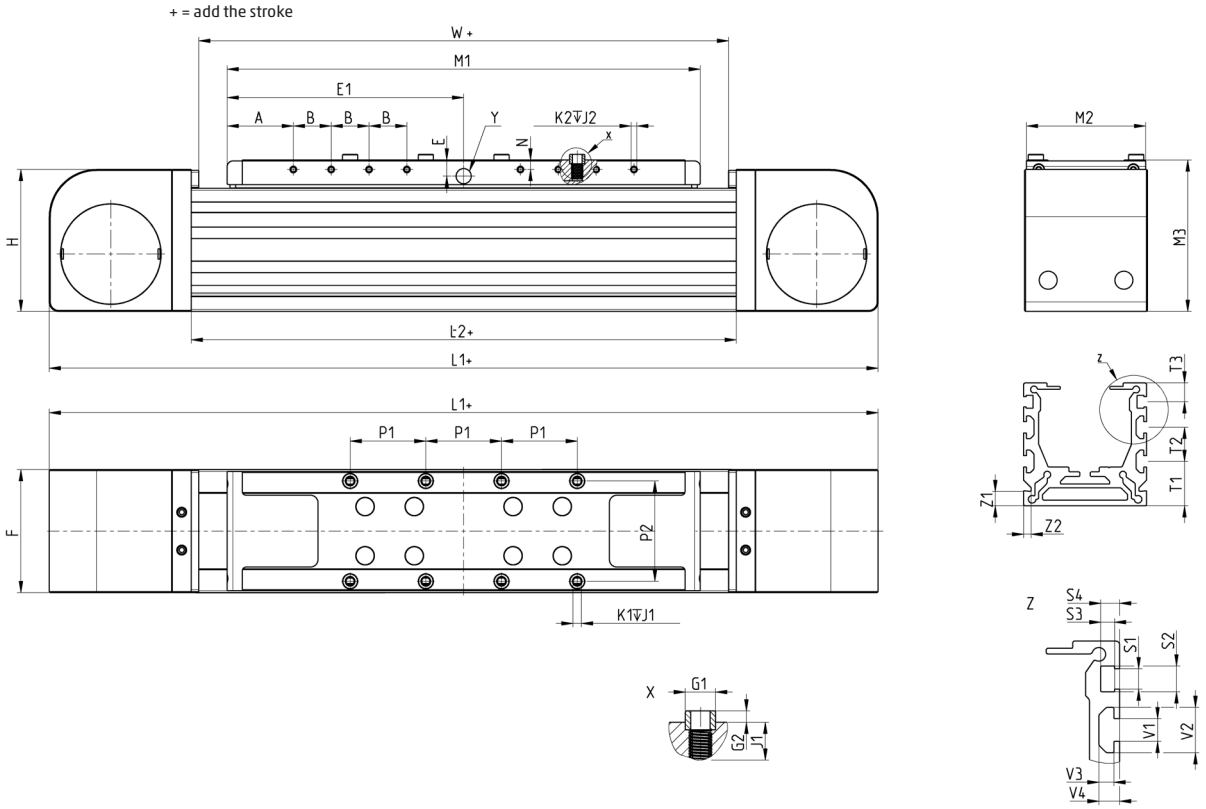


NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Taglia	A	B	C	ø C1	C2	ø C3 (h8)	C4	D1	D2	E	E1	F	ø G1 (h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	Y	X1	X2	W	Z1	Z2	S1	S2	S3	S4	V1	V2	V3	V4
50	32.5	15	37	37	4.5	20	2	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	●	304	21.8	230	8	4	5.4	6.8	3.65	5	6	12	4	5.5
65	35	20	53	52	2	26	4.5	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	●	373	30.5	280	8	4	5.4	6.8	3.65	5	6	12	4	5.5
80	35	30	68	68	6.5	38	6	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	●	468	40.5	360	8	4	5.4	6.8	3.65	5	8	16.5	6.8	9

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

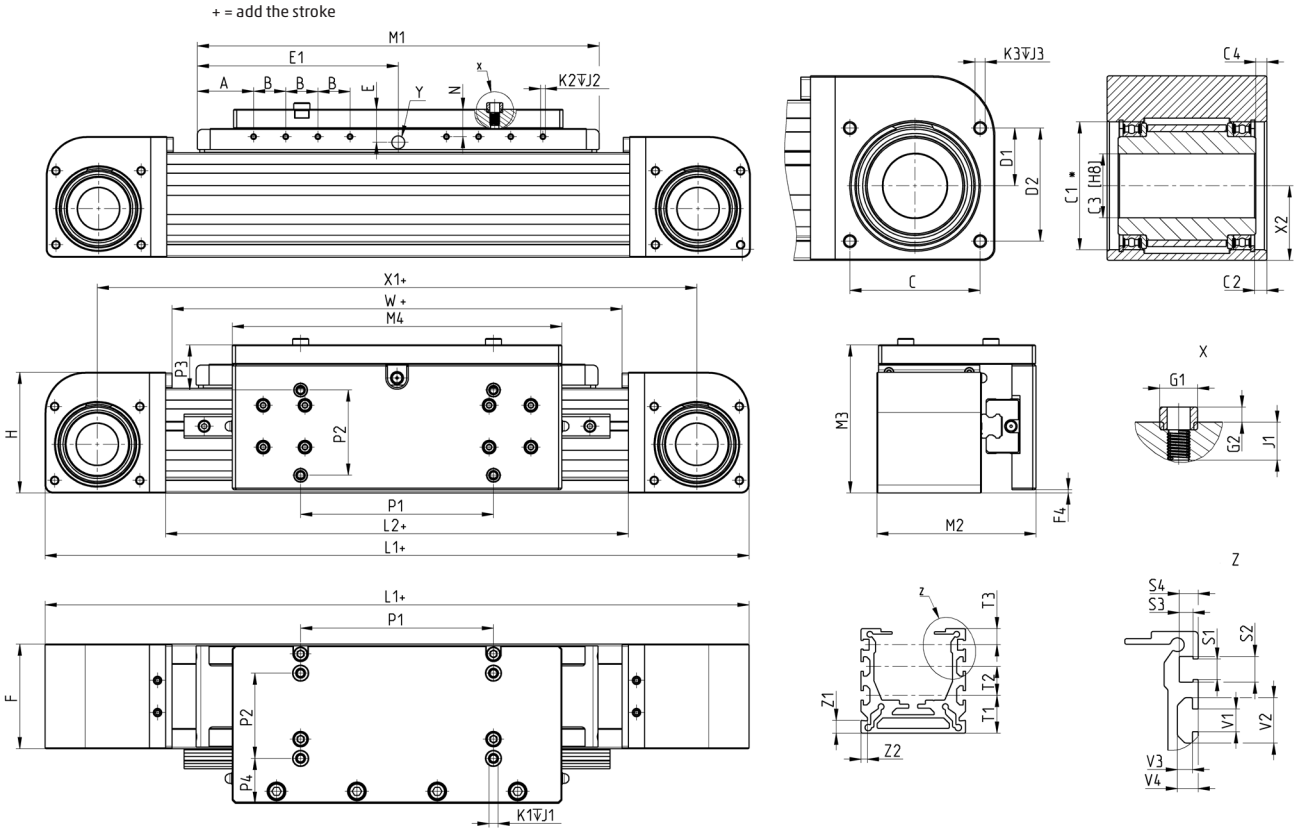


NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Taglia	A	B	E	E1	F	⌀G1	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	T1	T2	T3	Y	W	Z1	Z2	S1	S2	S3	S4	V1	V2	V3	V4
50	32.5	15	8.5	100	50	6	2	60	354	238	200	200	48	5	30	40	M4	7	M3	5	20	■	10	●	230	8	4	5,4	6,8	3,65	5	6	12	4	5.5
65	35	20	8.5	125	65	8	3	75	438	288	250	250	63	5	40	53	M5	8	M3	6	23.5	18	10	●	280	8	4	5,4	6,8	3,65	5	6	12	4	5.5
80	35	30	11.5	165	80	10	3	95	548	368	330	330	78	8	55	64	M6	12	M4	8.5	25	25	10	●	360	8	4	5,4	6,8	3,65	5	8	16.5	6.8	9

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

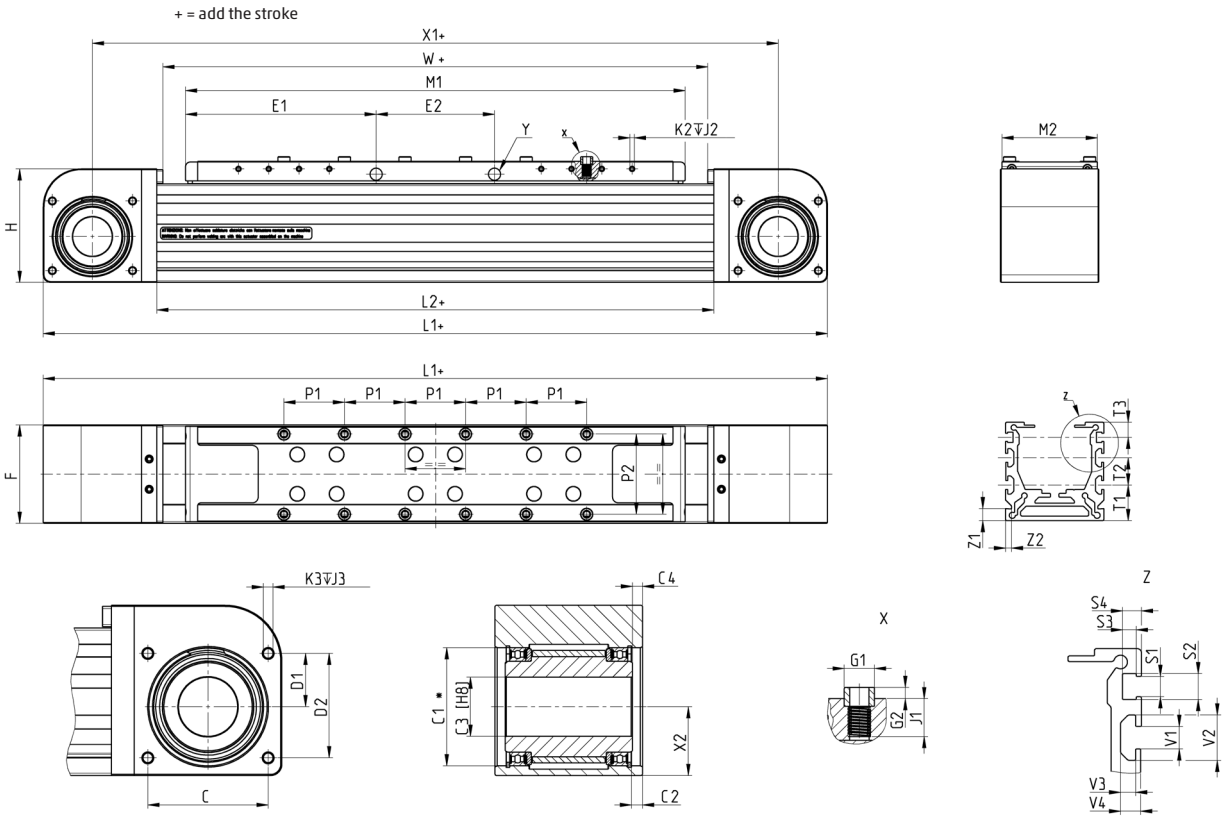


NOTE:
* We recommend a coupling with a shaft of tolerance h8.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Size	A	B	C	ø C1	C2	ø C3	C4	D1	D2	E	E1	F	ø F4	ø G1	G2	H	L1	L2	M1	M2	M3	N	P1	P2	P3	P4	K1	J1	K2	J2	K3	J3	T1	T2	T3	Y	X1	X2	W	Z1	Z2	S1	S2	S3	S4	V1	V2	V3	V4
65	35	20	53	52	5	26	4.5	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	●	373	30.5	280	8	4	5.4	6.8	3.65	5	6	12	4	5.5
80	35	30	68	68	6.5	38	6	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	●	468	40.5	360	8	4	5.4	6.8	3.65	5	8	16.5	6.8	9

Size	WEIGHT STROKE ZERO [kg]	STROKE WEIGHT PER METER [kg/m]
65	7.08	6.86
80	14.86	8.34

Electromechanical axis Mod. 5E...AL1

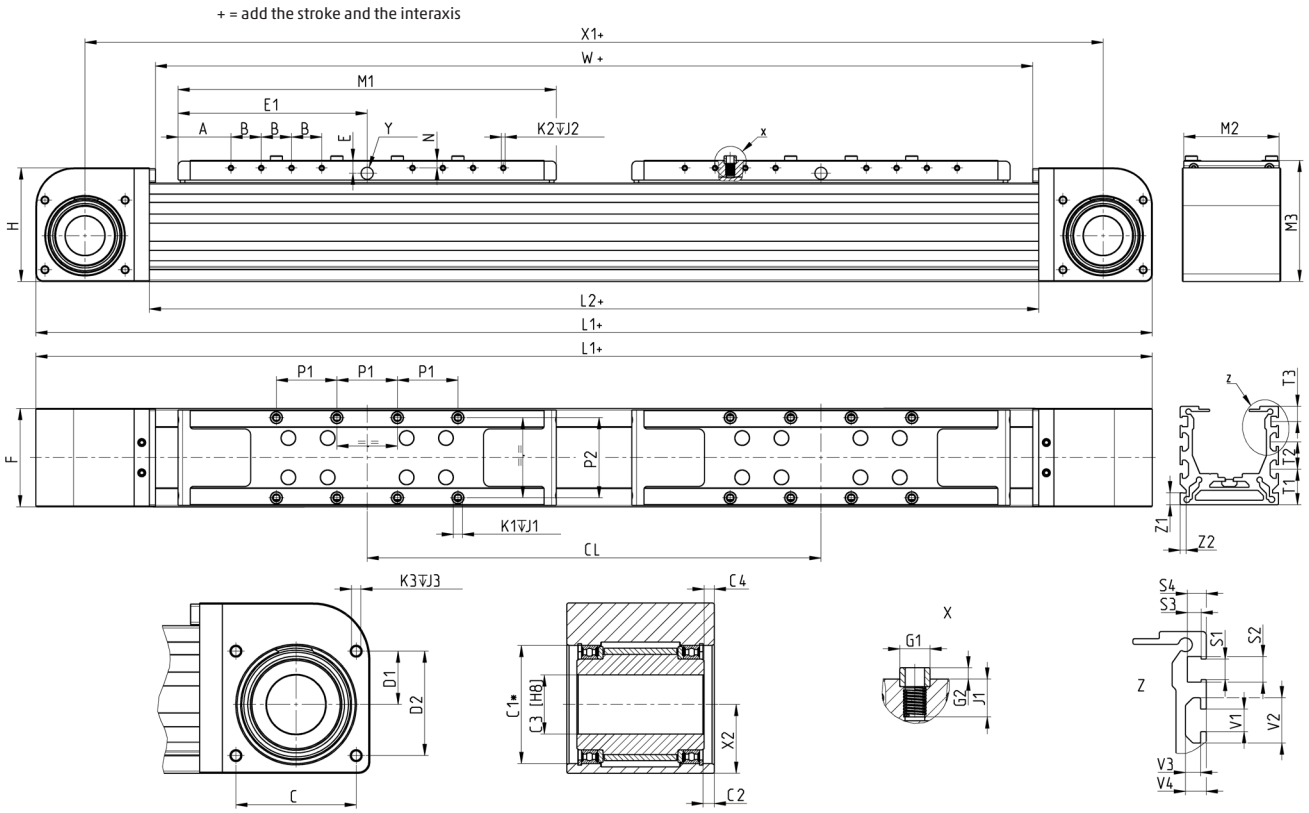


NOTE:
* We recommend a coupling with a shaft of tolerance h8.
■ Dimension T2 in size 50 is not indicated because there is only one slot.
● Dimension Y indicates the hole for centralized lubrication by means of grease.

Size	A	B	C	ø C1	C2	ø C3 (h8)	C4	D1	D2	E	E1	E2	F	ø G1 (h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	Y	X1	X2	W	Z1	Z2	S1	S2	S3	S4	V1	V2	V3	V4
50	32.5	15	37	37	4.5	20	2	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	●	369	21.8	295	8	4	5.4	6.8	3.65	5	6	12	4	5.5
65	35.0	20	53	52	5	26	4.5	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	●	453	30.5	360	8	4	5.4	6.8	3.65	5	6	12	4	5.5
80	37.5	30	68	68	6.5	38	6	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	●	583	40.5	475	8	4	5.4	6.8	3.65	5	6	16.5	6.8	9

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



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	ø C1	C2	ø C3 (H8)	C4	D1	D2	E	E1	F	ø G1 (h8)	G2	H	L1	L2	M1	M2	M3	N	P1	P2	K1	J1	K2	J2	K3	J3	T1	T2	T3	Y	X1	X2	W	Z1	Z2	S1	S2	S3	S4	V1	V2	V3	V4
50	32.5	15	37	37	4.5	20	2	17	32	8.5	100	50	6	2	60	604	488	200	48	65	5	30	40	M4	7	M3	5	M4	8	20	■	10	●	304	21.8	230	8	4	5.4	6.8	3.65	5	6	12	4	5.5
65	35	20	53	52	5	26	4.5	23.5	46	8.5	125	65	8	3	75	738	588	250	63	80	5	40	53	M5	8	M3	6	M5	10	23.5	18	10	●	373	30.5	280	8	4	5.4	6.8	3.65	5	6	12	4	5.5
80	35	30	68	68	6.5	38	6	30.5	60.5	11.5	165	80	10	3	95	948	768	330	78	100	8	55	64	M6	12	M4	8.5	M5	10	25	25	10	●	468	40.5	360	8	4	5.4	6.8	3.65	5	8	17	6.8	9

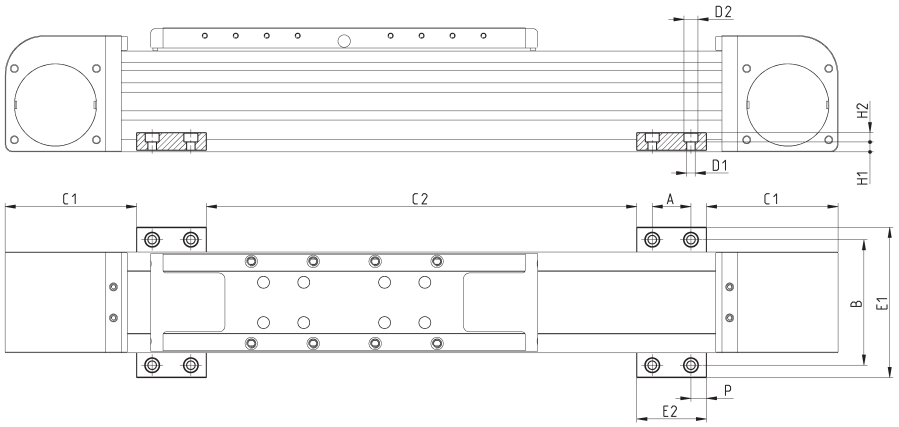
Size	CL min	CL max	Max applicable stroke	WEIGHT STROKE ZERO [kg]	WEIGHT PER METER [kg/m] (valid for stroke and interaxis increases)
50	250	2000	Smax = 4262 - CL	3.49	3.35
65	300	2000	Smax = 6212 - CL	7.35	5.4
80	400	2000	Smax = 6132 - CL	14.68	5.9

Side clamping bracket Mod. BGS

Material: Aluminium

Supplied with:
2x clamps

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



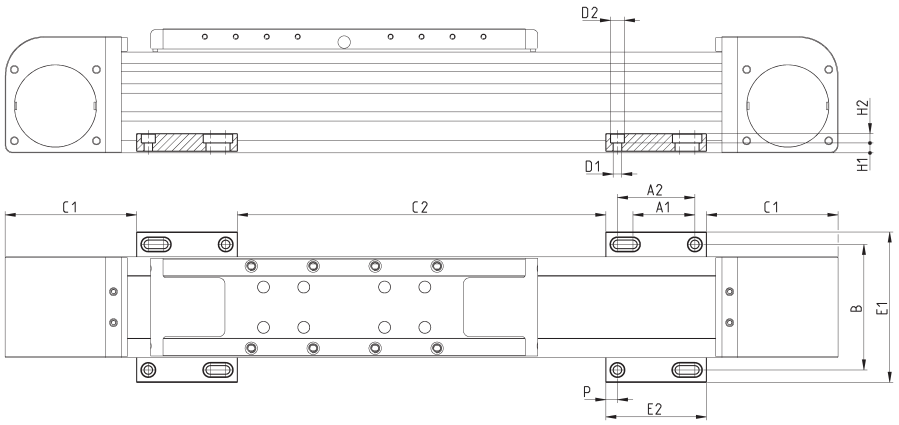
Mod.	Size	A	B	C1	C2	øD1	øD2	E1	E2	H1	H2	P	Weight (g)
BGS-5E-M5	50	25	66	68	*	5.5	9	82	45	6.4	6	10	45
BGS-5E-M5	65	25	81	85	*	5.5	9	97	45	6.4	6	10	45
BGS-5E-M5	80	25	96	100	*	5.5	9	112	45	6.4	6	10	45
BGS-5E-M6	50	25	66	68	*	6.5	10.5	82	45	5.4	7	10	40
BGS-5E-M6	65	25	81	85	*	6.5	10.5	97	45	5.4	7	10	40
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

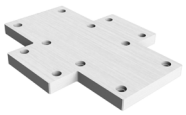
Supplied with:
2x clamps with perforation

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

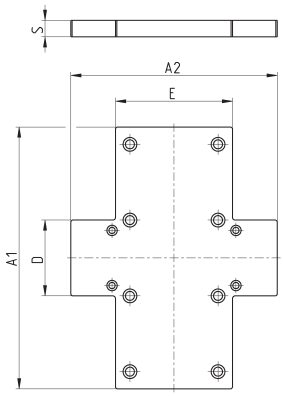


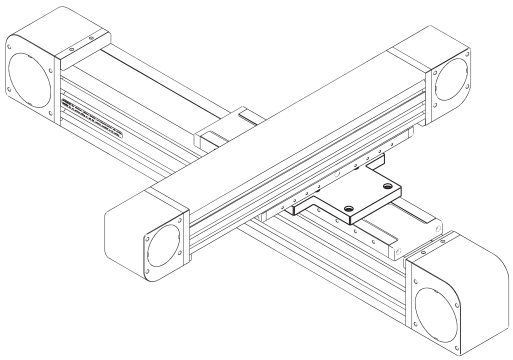
Mod.	Size	A1	A2	B	C1	C2	øD1	øD2	E1	E2	H1	H2	P	Weight (g)
BGA-5E-M5	50	40	50	66	68	*	5.5	9	82	65	6.4	6	7.5	60
BGA-5E-M5	65	40	50	81	85	*	5.5	9	97	65	6.4	6	7.5	60
BGA-5E-M5	80	40	50	96	100	*	5.5	9	112	65	6.4	6	7.5	60
BGA-5E-M6	50	40	50	66	68	*	6.5	10.5	82	65	5.4	7	7.5	55
BGA-5E-M6	65	40	50	81	85	*	6.5	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

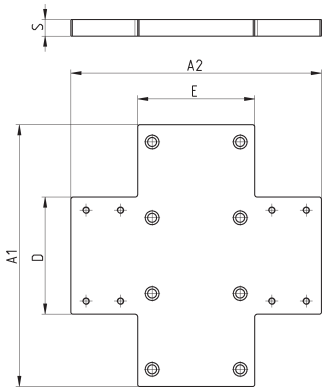


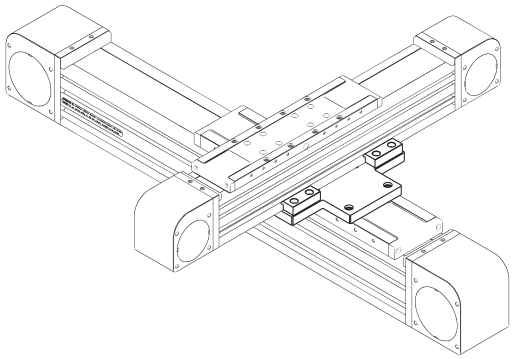


Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S65-S50	65	150	150	55	70	12	515
XY-S80-S50	80	190	150	55	85	12	690
XY-S80-S65	80	190	150	70	85	12	720

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

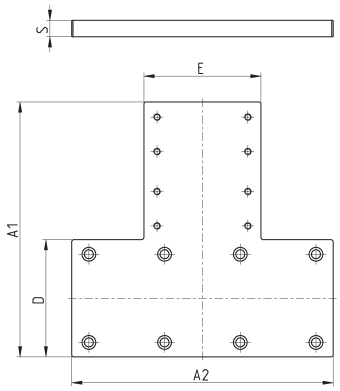


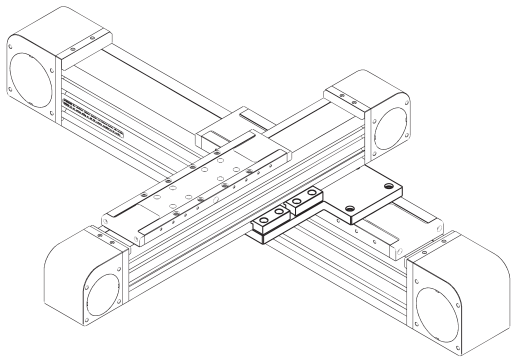


Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S65-P50	65	150	162	85	70	12	730
XY-S80-P50	80	190	182	85	85	12	945
XY-S80-P65	80	190	185	100	85	12	1000

Interface plate - profile on slider - long arm

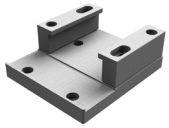
The kit includes:
1x interface plate
8x screws + 8x lock washers
to connect plate on the slider
of the main axis
4x clamps
8x screws + 8x lock washers
to connect plate on the slider
of the secondary axis by
means of clamps



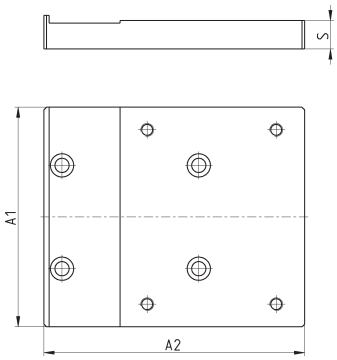


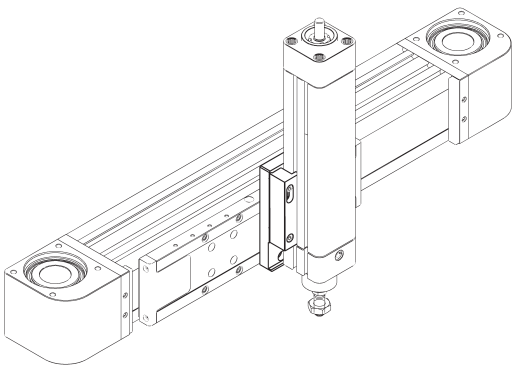
Mod.	Size	A1	A2	D	E	S	Weight (g)
XY-S50-P50-T	50	162	130	50	85	12	600
XY-S65-P50-T	65	170	150	65	85	12	750
XY-S65-P65-T	65	185	170	65	100	12	800
XY-S80-P50-T	80	185	190	85	85	12	960
XY-S80-P65-T	80	185	190	85	100	12	1010
XY-S80-P80-T	80	200	190	85	120	12	1100

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

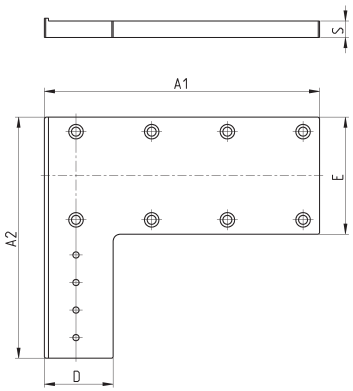


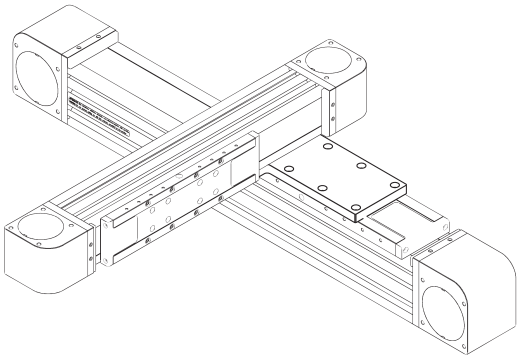


Mod.	Size	A1	A2	S	Weight (g)
XY S50-6E32	50	72	101	11	315
XY-S65-6E32	65	72	101	11	315
XY-S65-6E40	65	85	101	11	350
XY S65-6E50	65	95	110	12	510
XY-S80-6E32	80	75	101	12	385
XY-S80-6E40	80	85	101	12	410
XY-S80-6E50	80	95	110	12	510
XY S80-6E63	80	106	110	12	560

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

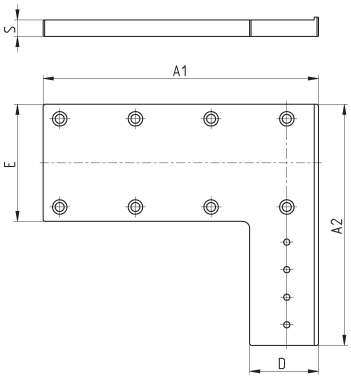


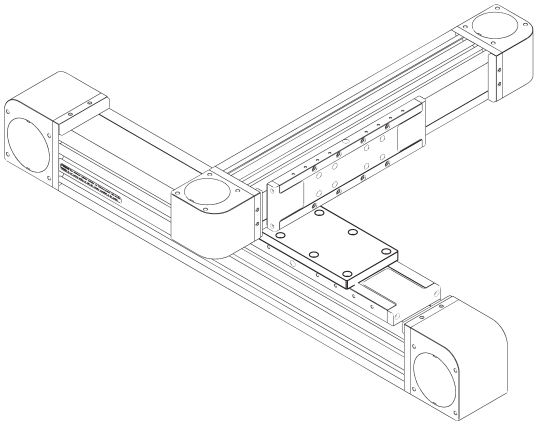


Mod.	Size	A1	A2	D	E	S	Nr of holes	Weight (g)
XY-S50-LL50	50	130	145	50	55	11	4	450
XY-S65-LL50	65	160	160	50	70	11	4	500
XY-S65-LL65	65	170	180	65	70	12	8	550
XY-S80-LL50	80	200	175	50	85	12	4	750
XY-S80-LL65	80	210	195	65	85	12	8	870
XY-S80-LL80	80	210	195	80	85	12	8	900

Interface plate - profile side on slider - right position

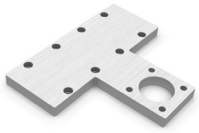
The kit includes:
1x interface plate
8x screws + 8x lock washers to connect the plate on the slider of the main axis,
screws and nuts for slot to connect the plate on the slider of the secondary axis



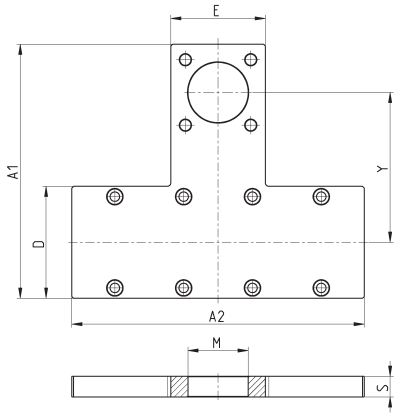


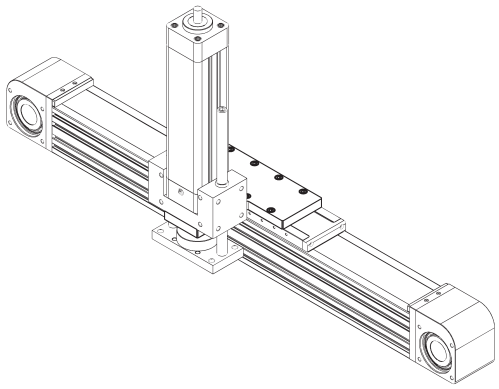
Mod.	Size	A1	A2	D	E	S	Nr of holes	Weight (g)
XY-S50-LR50	50	130	145	50	55	11	4	450
XY-S65-LR50	65	160	160	50	70	11	4	500
XY-S65-LR65	65	170	180	65	70	12	8	550
XY-S80-LR50	80	200	175	50	85	12	4	750
XY-S80-LR65	80	210	195	65	85	12	8	870
XY-S80-LR80	80	210	195	80	85	12	8	900

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

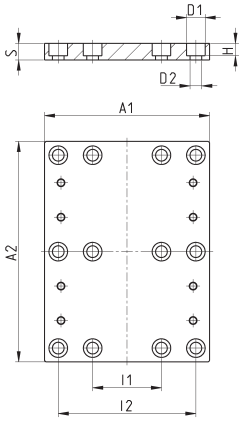


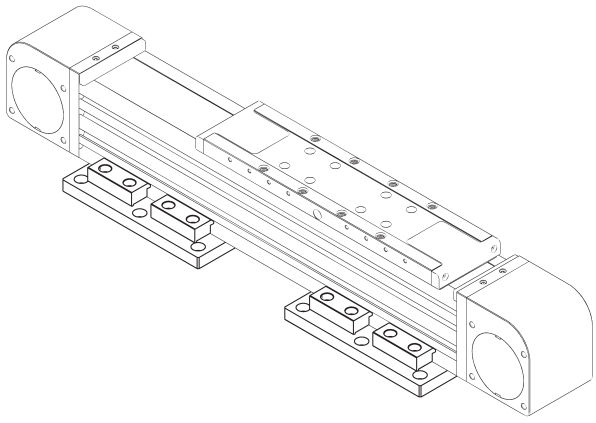


Mod.	Size	A1	A2	D	E	S	ø M(H10)	Y	Weight (g)
XY-S50-45N32	50	124	130	50	49	12	30	75	350
XY-S65-45N32	65	139	170	65	49	12	30	82.5	480
XY-S65-45N40	65	147.5	170	65	55	12	35	87	500
XY-S65-45N50	65	157	170	65	66.5	12	40	91.5	530
XY-S80-45N40	80	167.5	190	85	55	12	35	97	660
XY-S80-45N50	80	177	190	85	65	12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

Fixed interface plate

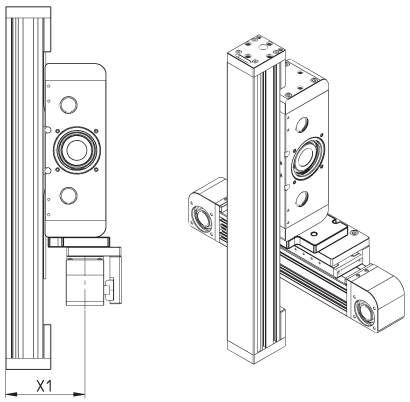
The kit includes:
1x interface plate
4x clamps
8x screws to connect the clamps on the plate

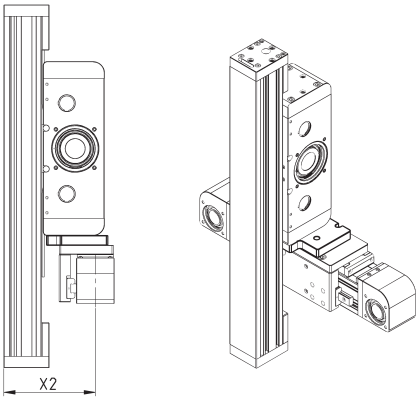


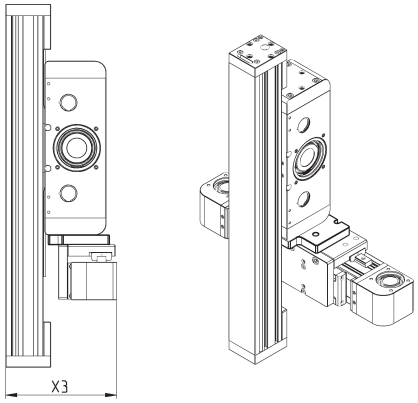


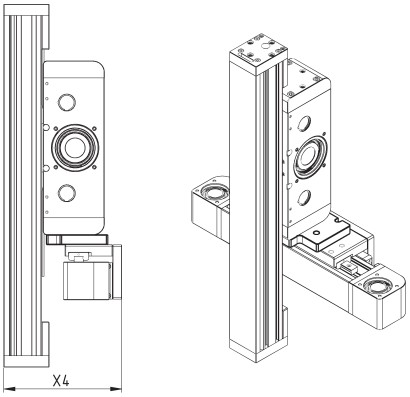
Mod.	Size	A1	A2	ø D1	ø D2	H	I1	I2	S	Weight (g)
X-P50	50	95	140	9	5.5	6	45	80	8	275
X-P65	65	120	140	10.5	6.5	7	50	100	10	430
X-P80	80	120	160	13.5	8.5	9	50	100	12	570

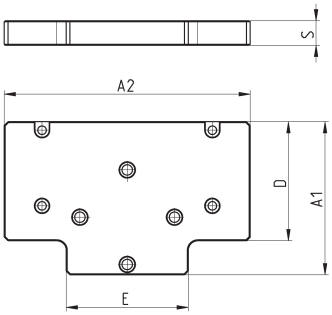
5E/5V connection flange

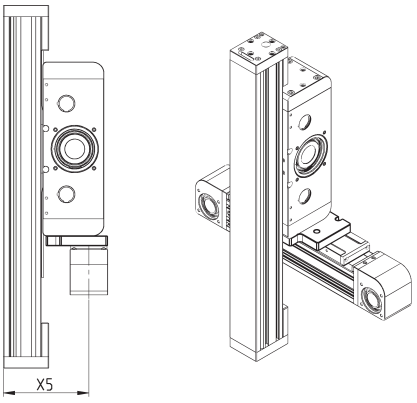








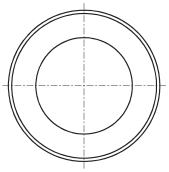


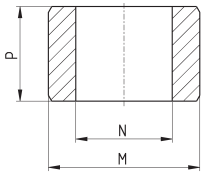


Mod.	Size	X1	X2	X3	X4	X5	A1	A2	E	D	S	Weight (g)
YZ-50-5V50	50	105	121	147	79	-	81	130	64.5	63	13	335
YZ-65-5V50	65	112.5	136.5	16	87	124.5	99.5	140	64.5	76.5	13	445
YZ-65-5V65	65	130	154	179.5	104.5	-	101.5	140	84.5	76.5	13	460
YZ-80-5V50	80	120.5	146.5	185.5	81.5	133.5	118	190	64.5	78	13	635
YZ-80-5V65	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

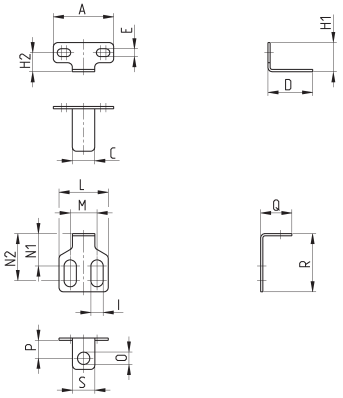


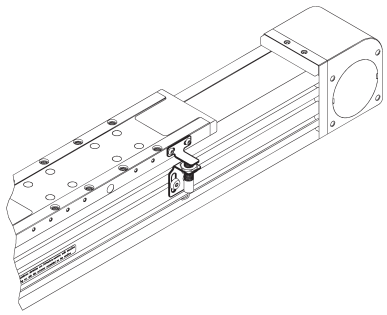


Mod.	M (h8)	N	P
TR-CG-04	Ø4	Ø2.6	2.5
TR-CG-05	Ø5	Ø3.1	3
TR-CG-06	Ø6	Ø4.1	4
TR-CG-08	Ø8	Ø5.1	5
TR-CG-10	Ø10	Ø6.1	6
TR-CG-12	Ø12	Ø8.1	6

Kit to fix the inductive sensor

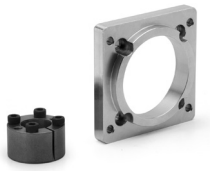
The kit includes:
1x sensor dog
2x screws to fix the sensor dog
1x sensor supporting plate
2x screws to connect the sensor supporting plate
2x nuts for the slot



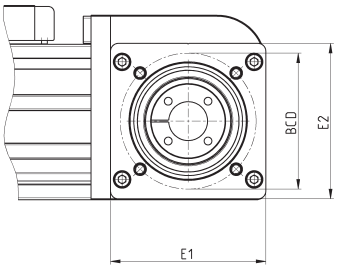


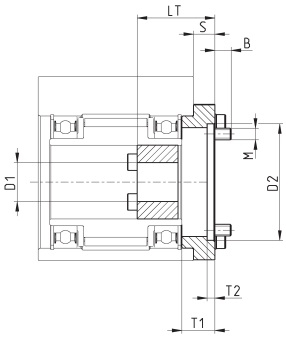
Mod.	Size	A	C	D	E	H1	H2	I	L	M	N1	N2	⌀O	P	Q	R	S	Weight (g)
SIS-M5-50/65	50-65	27	10	20	3.5	13	8.5	5.5	22	12	14.5	21	5.5	8	14	26	10	10
SIS-M8-65	65	27	10	20	3.5	13	8.5	5.5	25	15	10.5	24	8.5	10	18.5	30	15	10
SIS-M5-80	80	45	15	20	4.5	16	10.5	5.5	22	12	14.5	21	5.5	8	14	26	10	15
SIS-M8-80	80	45	15	20	4.5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

Kit to connect the Series FR 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



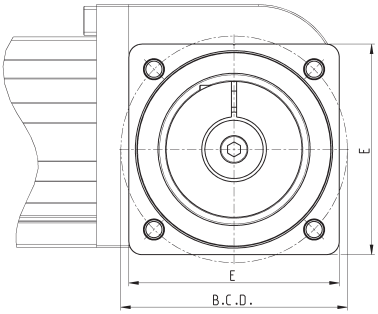


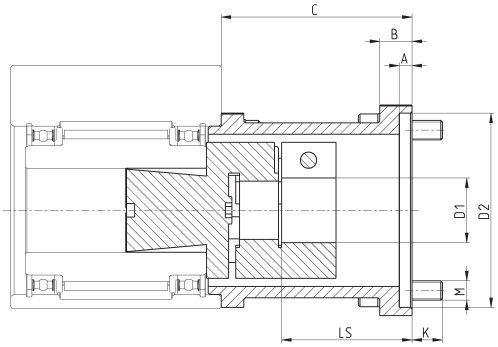
Mod.	Size	Gearbox	E1	E2	S	øD1	øD2(H7)	LT	BCD	T1	T2	M	B	Max torque (Nm)(A)	J (Kgmm²)	Weight (g)
FR-5E-50	50	GB-040	48	43	6	10	26	26	34	10	10	4	5.5	14	1.50	85
FR-5E-65	65	GB-060	63	60	7	14	40	40	52	11	11	5	7.4	30	5.49	140
FR-5E-80	80	GB-080	80	80	11	20	60	60	70	17	4	6	8.4	125	31.20	325

(A) value refers to ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Kit to connect the gearbox - enhanced series (sizes 50, 65)

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



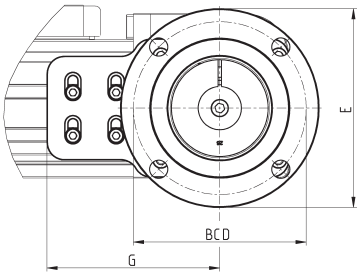


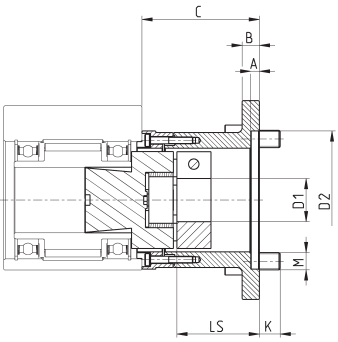
DIMENSIONS																
Mod.	Size	Gearbox	øD1	øD2(H7)	A	LS	øBCD	B	C	E	M	K	Nominal torque (Nm)(A)	Max torque (Nm)(B)	J (Kgmm²)	Weight (g)
FRH-5E-50	50	GB-060	14	40	4	35.3	52	8	51	50	5	7.4	12.5	25	13	170
FRH-5E-65	65	GB-080	20	60	4	40.3	70	10	59	65	6	9.4	17	34	50	530

(A) Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
(B) Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Kit to connect the gearbox - enhanced series (size 80)

The kit includes:
2x connection flanges
4x screws + 4x lock washers
1x expansion coupling
4x screws + 4x lock washers
to fix the axis
4x screws + 4x lock washers
to fix the profile
4x nuts + 4x screws to fix the
gearbox

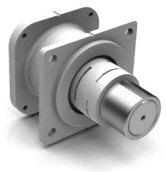




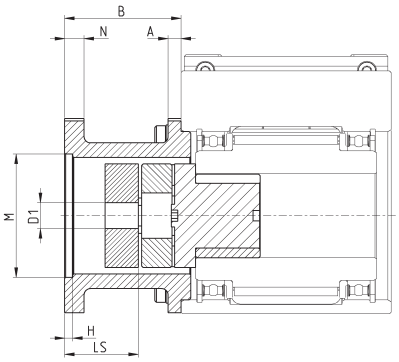
Mod.	Size	Gearbox	⌀D1(H7)	⌀D2	A	LS	⌀BCD	B	C	⌀E	K	G	Nominal torque (Nm)(A)	Max torque (Nm)(B)	J (Kgmm²)	Weight (g)
FRH-5E-80	80	GB-120	20	80	5	47.8	100	10	68	115	12	100	60	120	140	1000

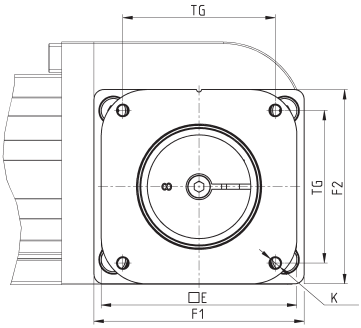
(A) Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
(B) Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Direct connection kit for Stepper motor



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



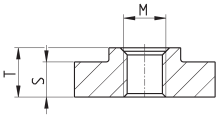


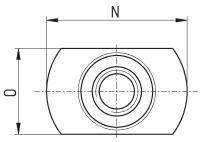
Mod.	Size	Motor	⌀D1	A	B	F1	F2	E	LS	TG	K	⌀M	H	N	Nominal torque (Nm)(A)	Max torque (Nm)(B)	J (Kgmm²)	Weight (g)
FS-5E-50-0024	50	MTS-24-...	8	4	37	47	45	60.5	21.3	47.1	M4	38.1	2.5	2.5	12.5	25	13	125
FS-5E-65-0024	65	MTS-24-...	8	4	36	65	60	60.5	22.8	47.1	M4	38.1	2.5	2.5	12.5	25	13	200

(A) Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
(B) Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Slot nut for sensor

Material: steel



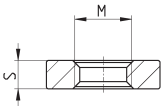


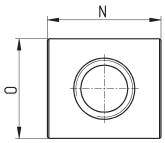
Supplied with:
2x nuts

Mod.	Size	M	N	O	S	T
PCV-5E-CS-M3	50 - 65 - 80	M3	10.3	6.1	2.5	3.5
PCV-5E-CS-M4	50 - 65 - 80	M4	10.3	6.1	2.5	3.5

Slot nut 6 - rectangular type

Material: steel



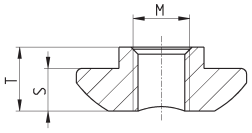


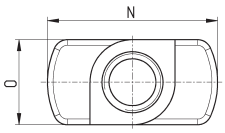
Supplied with:
2x nuts

Mod.	Size	M	N	O	S
PCV-5E-C6-M4Q	50 - 65	M4	8	7	2

Slot nut 6 for front insertion

Material: steel



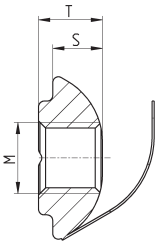


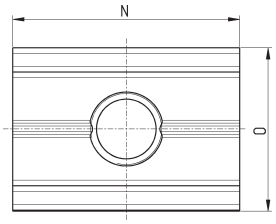
Supplied with:
2x nuts

Mod.	Size	M	N	O	S	T
PCV-5E-C6-M4R	50 - 65	M4	12	6	3	4.5

Slot nut 8 with flexible flap

Material: steel





Supplied with:
2x nuts

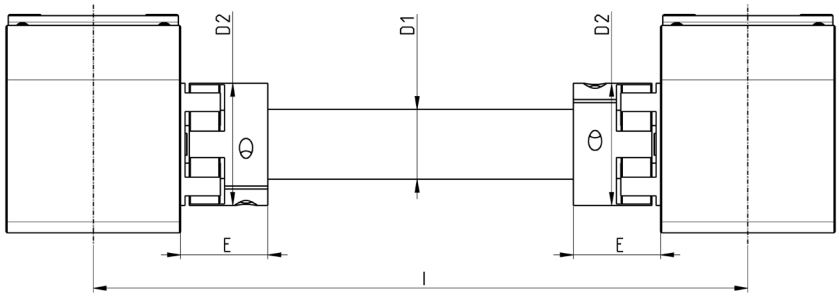
Mod.	Size	M	N	O	S	T
PCV-5E-C8-M5	80	M5	16	11.5	3.5	4.5
PCV-5E-C8-M6	80	M6	16	11.5	3.5	4.5

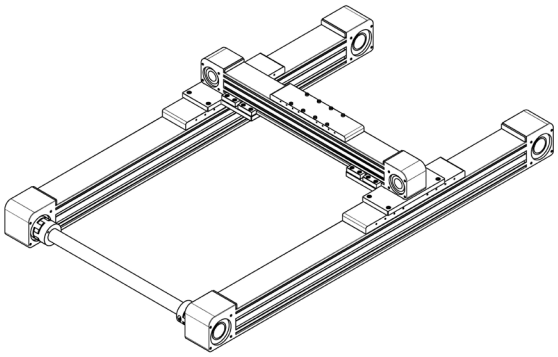
Parallel connection kit

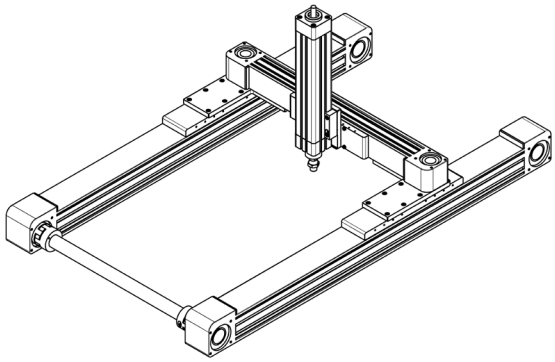
The kit includes:
1x parallel shaft
2x expansion couplings

EXAMPLE:

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

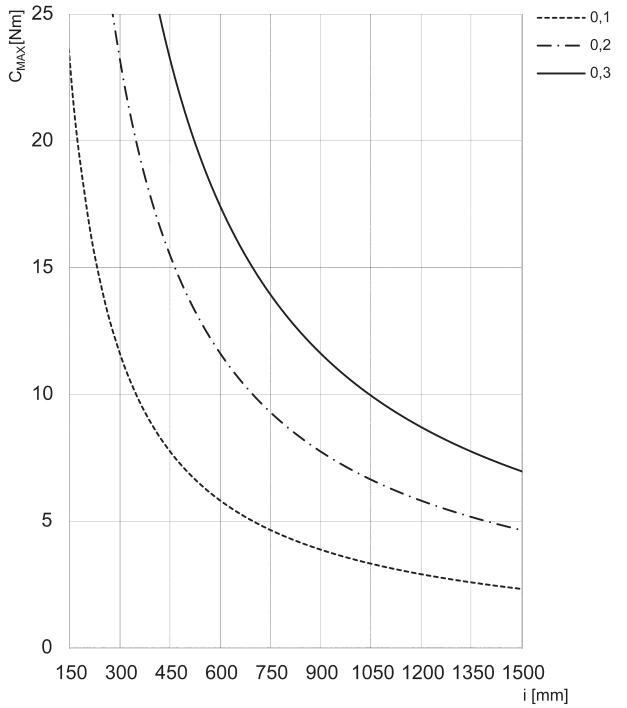






Mod.	Size	I min	I max	⌀D1	⌀D2	E	Transmission torque
PS-5E-50-0000	50	200	1500	16	32	26	see graph
PS-5E-65-0000	65	250	2000	25	42	35.5	see graph
PS-5E-80-0000	80	300	2000	32	56	40	see graph

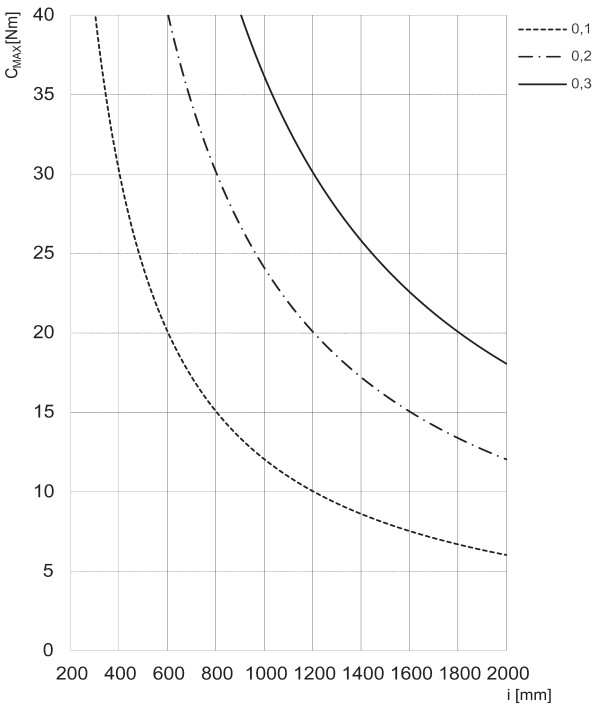
INTERAXIS ACCORDING TO THE MAXIMUM ADMISSIBLE TORQUE



Size 50x50

C_{max} = max applicable torque
i = interaxis between the two 5E axes

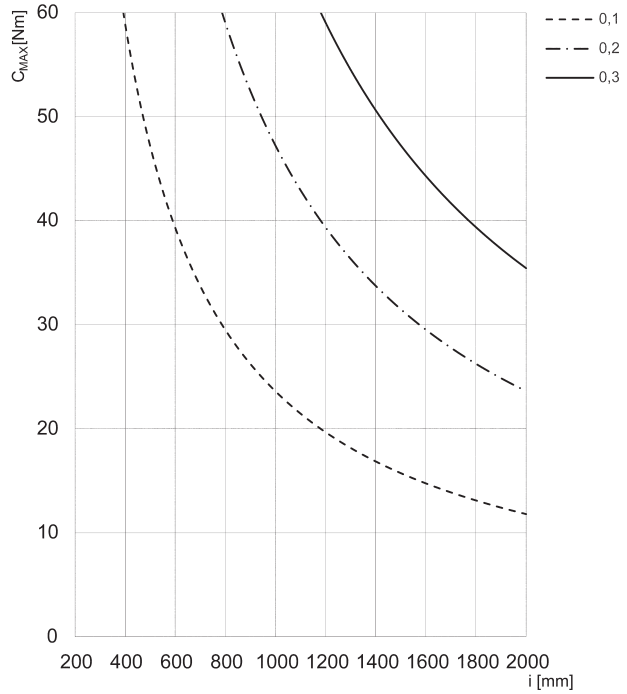
01 = lag error 0.1 mm
02 = lag error 0.2 mm
03 = lag error 0.3 mm



Size 65x65

C_{max} = 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

C_{max} = 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

Sizes 50, 65, 80

- High dynamics
- Easy to integrate in x-y-z systems
- Strokes up to 1500 mm
- Version with integrated shock absorbers
- Greasing nipples included
- Supplied with slider's centering bushings

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	

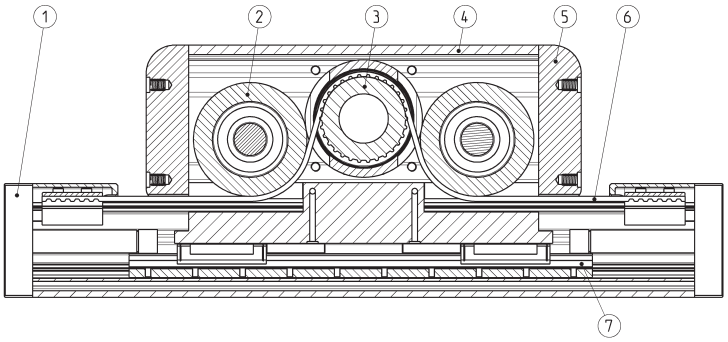
5V	SERIES
S	PROFILE: S = square section
050	FRAME SIZE: 050 = 50x50 mm 065 = 65x65 mm 080 = 80x80 mm
TBL	TRANSMISSION: TBL = toothed belt
0200	STROKE [C]: 0050 ÷ 1500 mm
A	VERSION: A = standard H = reinforced axis (for sizes 65 and 80 only)
S	TYPE OF SLIDER: S = standard
1	NUMBER OF SLIDERS: 1 = 1 slider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

MECHANICAL CHARACTERISTICS

	Measuring unit	Size 50	Size 65	Size 65	Size 80	Size 80
Version		A	A	H	A	H
Type of slider		S	S	S	S	S
Number of guides	pcs	1	1	2	1	2
Number of RDS blocks	N	2	2	4	2	4
Fy, eq [A]	N	3400	8300	16600	13100	26000
Fz, eq [A]	Nm	3400	8300	16600	13100	26000
Mx, eq [A]	Nm	19.4	47.7	234.7	106	454
My, eq [A]	m/s	91.7	282.3	564.7	626	1252
Mz, eq [A]	m/s^2	91.7	282.3	564.7	626	1252
Max linear speed of mechanics (V_{max})		3	3	3	3	3
Max linear acceleration of mechanics (a_{max})		30	30	30	30	30
PROFILE						
RECIRCULATING BALL GUIDE (CAGE TYPE)						
Moment of surface inertia I_y	mm^4	$1.89 \cdot 10^5$	$4.94 \cdot 10^5$	$4.94 \cdot 10^5$	$1.23 \cdot 10^6$	$1.23 \cdot 10^6$
Moment of surface inertia I_z	mm^4	$2.48 \cdot 10^5$	$6.97 \cdot 10^5$	$6.97 \cdot 10^5$	$1.68 \cdot 10^6$	$1.68 \cdot 10^6$
TOOTHED BELT						
Type		25 AT 5 HP	40 AT 5 HP	40 AT 5 HP	45 AT 10 HP	45 AT 10 HP
Pitch	mm	5	5	5	10	10
Safe loads	N	See the diagram	See the diagram	See the diagram	See the diagram	See the diagram
PULLEY						
Effective diametre of the pulley	mm	47.75	57.30	57.30	76.39	76.39
Number of teeth	z	30	36	36	24	24
Linear movement per pulley round	mm/round	150	180	180	240	240

[A] Value refers to a covered distance of 2000 Km with fully supported system.

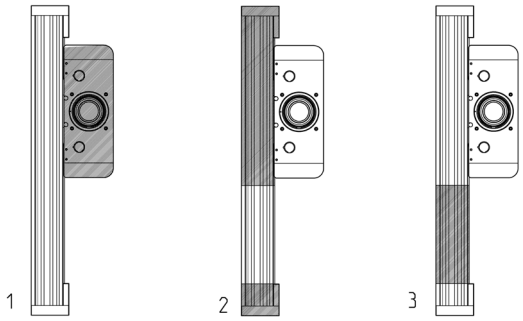
SERIES 5V MATERIALS



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

WEIGHT DISTINCTION

1 = fixed mass Mf
2 = moving mass
3 = moving mass that varies according to the stroke Ktv



5V...AS1					
Size	Mf[Kg]	mc1[Kg]	Ktv[Kg/m]	tot weight stroke 0 [Kg]	Jtot [Kg*mm²]
50	3.37	1.49	3.15	4.86	183.83
65	6.14	2.67	5.13	8.81	480.26
80	12.16	6.43	8.3	18.59	1489.03

5V...HS1					
Size	Mf[Kg]	mc1[Kg]	Ktv[Kg/m]	tot weight stroke 0 [Kg]	Jtot [Kg*mm²]
65	6.28	4	6.35	10.28	480.26
80	13.05	10.27	10.11	23.32	1489.03

HOW TO CALCULATE THE LIFE OF THE 5V AXIS

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

CALCULATION OF LIFE [km]

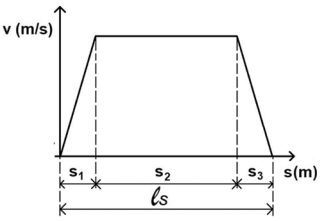
L_{eq} = life of the 5v axis [km]
f_l = load coefficient
f_w = safety coefficient

According to the operating conditions, the loads acting on the actuator (Fy, Fz, Mx, My and Mz) that appear in the fl calculation are the average ones on the cycle.
These are calculated by averaging the loads of each single phase as indicated in the equation of P.

ls = stroke
s_1 = acc. phase; s_2= constant speed phase; s_3 = deceleration phase
P = Mx / My / Mz /Fy / Fz

$$f_l = \frac{|Fy|}{Fy,eq} + \frac{|Fz|}{Fz,eq} + \frac{|Mx|}{Mx,eq} + \frac{|My|}{My,eq} + \frac{|Mz|}{Mz,eq}$$

$$L_{eq} = \left(\frac{1}{f_l \cdot f_w}\right)^3 \cdot 2000$$



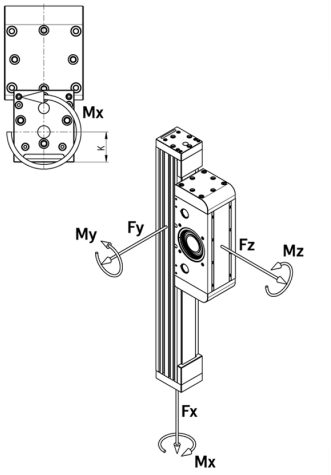
$$P = \sqrt[3]{\frac{1}{ls} \cdot \sum_{i=1}^{n} (P_i{}^3 \cdot s_i)}$$

$$P = \sqrt[3]{\frac{1}{ls} \cdot (P_1{}^3 \cdot s_1 + P_2{}^3 \cdot s_2 + P_3{}^3 \cdot s_3)}$$

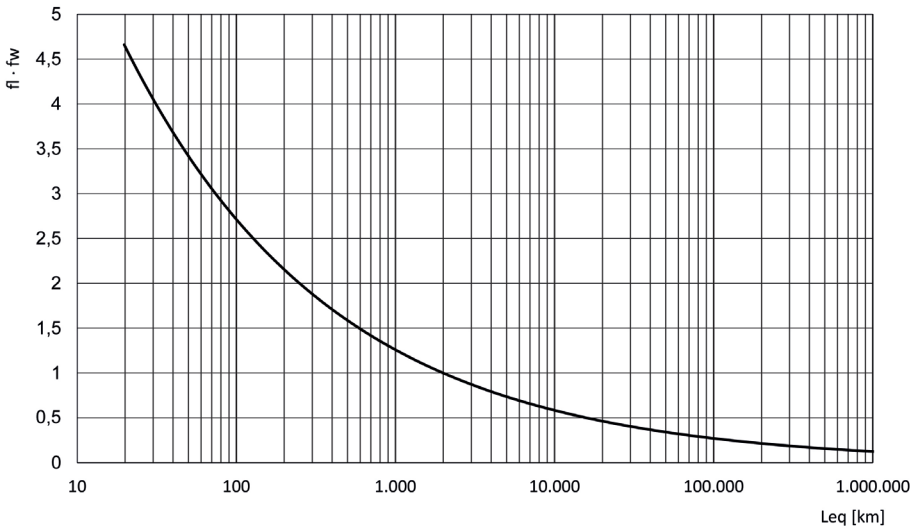
EQUIVALENT LOAD

Fy = Force acting along the Y-axis [N]
Fz = Force acting along the Z-axis [N]
K = fixed distance for 5V axis [mm]
Mx = Moment along X-axis [Nm]
My = Moment along Y-axis [Nm]
Mz = Moment along Z-axis Z [Nm]

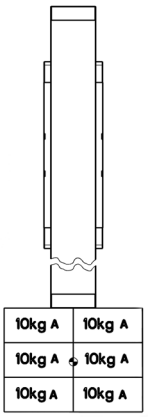
Here you can find the "K" values, valid for the sizes:
- K = 21 mm (5VS050)
- K = 28 mm (5VS065)
- K = 36 mm (5VS080)

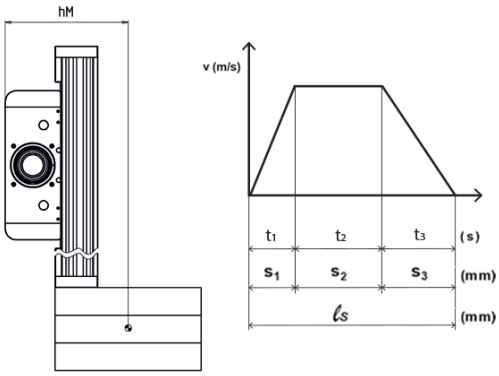


GRAPH OF THE SERVICE LIFE



HOW TO CALCULATE THE SERVICE LIFE - 5VS065TBL0750AS1





Application data:
M = 60
hM = 233 mm

acc = dec = 10 m/s² v = 0.8 m/s
$s_1 = s_3 = 32$ mm
Ls = 750 mm
fw = 1,5

HOW TO CALCULATE THE APPLIED LOADS

$F_y = 0\ N$

$F_z = 0\ N$

$M_{x_{1;2;3}} = 0\ Nm$

$$M_{y_1} = F_x \cdot (h_M - k) = M \cdot (g + a) \cdot (h_M - k) =$$
$$= 60 \cdot (9.81 + 10) \cdot (0.233 - 0.028) = 243.7\ Nm$$

$$M_{y_2} = F_x \cdot (h_M - k) = M \cdot (g + a) \cdot (h_M - k) =$$
$$= 60 \cdot (9.81 + 0) \cdot (0.233 - 0.028) = 120.7\ Nm$$

$$M_{y_3} = F_x \cdot (h_M - k) = M \cdot (g + a) \cdot (h_M - k) =$$
$$= 60 \cdot (9.81 - 10) \cdot (0.233 - 0.028) = 2.34\ Nm^*$$

$M_{z_{1,2,3}} = 0$

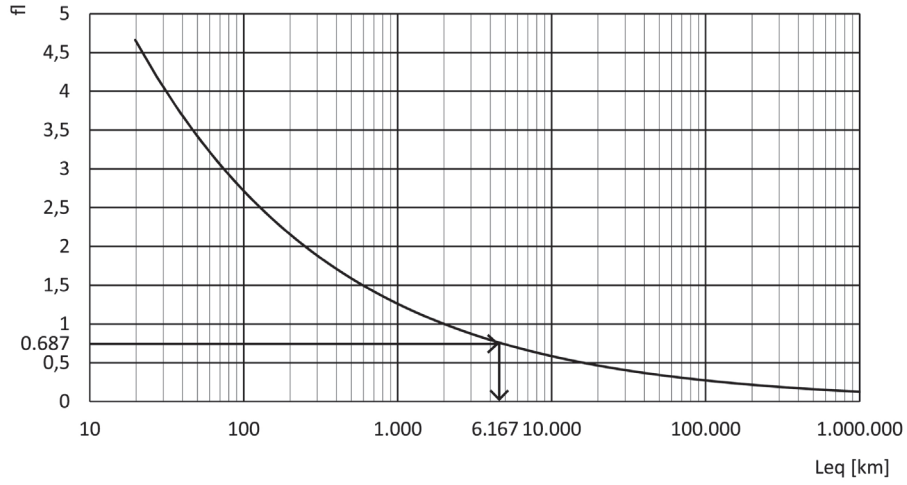
$$M_y = \sqrt[3]{\frac{1}{750} \cdot (243.7^3 \cdot 32 + 120.7^3 \cdot 686 + 2.34^3 \cdot 32)} = 148.4\ Nm$$

$$fl = \frac{|Fy|}{Fy,eq} + \frac{|Fz|}{Fz,eq} + \frac{|Mx|}{Mx,eq} + \frac{|My|}{My,eq} + \frac{|Mz|}{Mz,eq} =$$
$$= \frac{0}{8300} + \frac{0}{8300} + \frac{148.4}{324} + \frac{0}{324} + \frac{0}{55} = 0.458$$

HOW TO CALCULATE THE SERVICE LIFE

Once the fl value has been calculated, the service life value can be obtained from the graph or by using the formula:

$$Leq \left(\frac{1}{fl \cdot fw}\right)^3 \times 2000 = \left(\frac{1}{0.458 \cdot 1.5}\right)^3 \times 2000 = 6167\ \text{km}$$



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

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

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

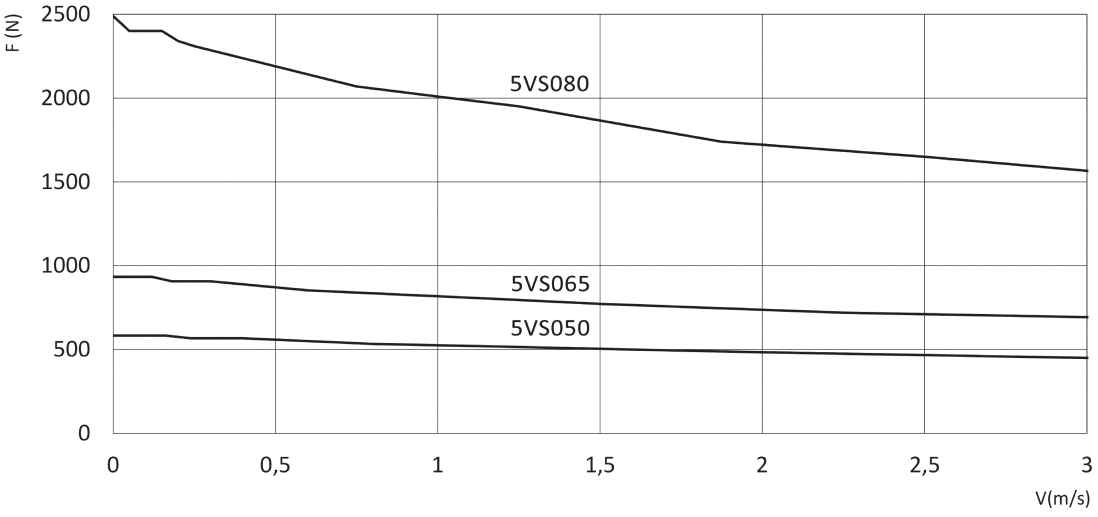
$$F_{TV} = K_{TV} \cdot C \cdot (a \pm g)$$

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

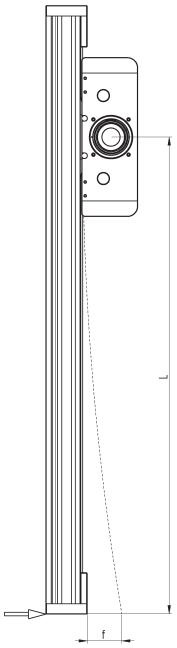
According to the axis size and to the speeds chosen, force that can be transmitted from the toothed belt has these limits.

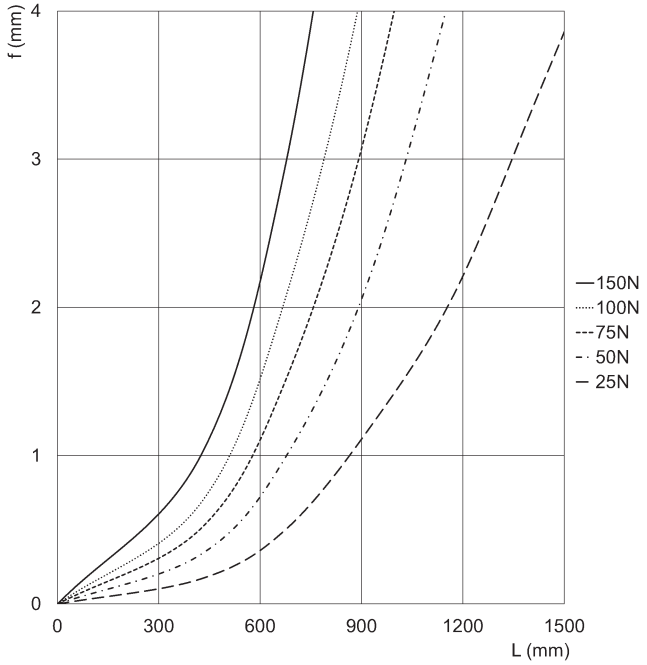
TRANSMISSIBLE FORCE

The force that can be transmitted from the toothed belt depends on the axis size and speeds chosen.

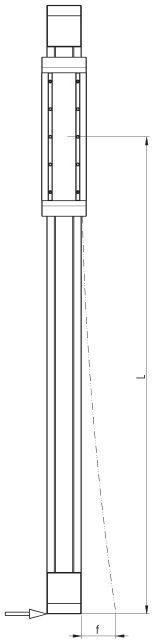


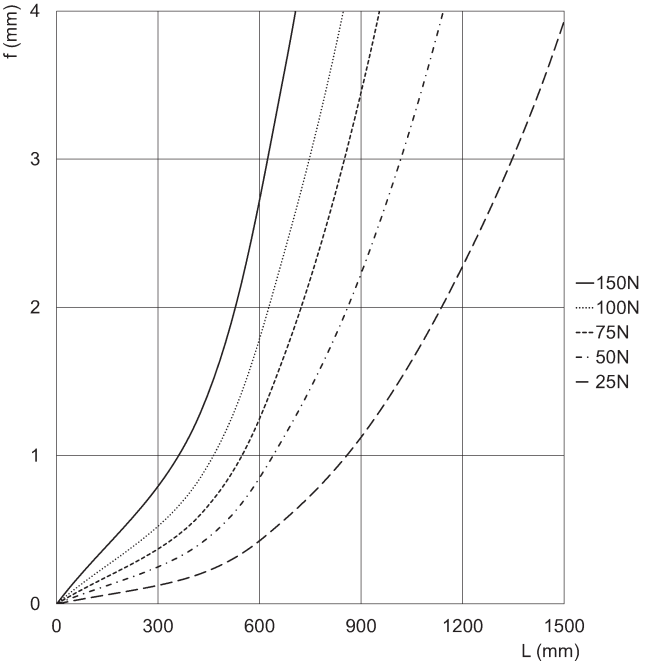
DEFLECTION 5VS050 - Version A





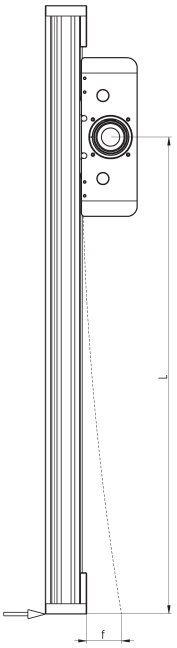
f = generated deflection [mm]
L = arm length [mm]

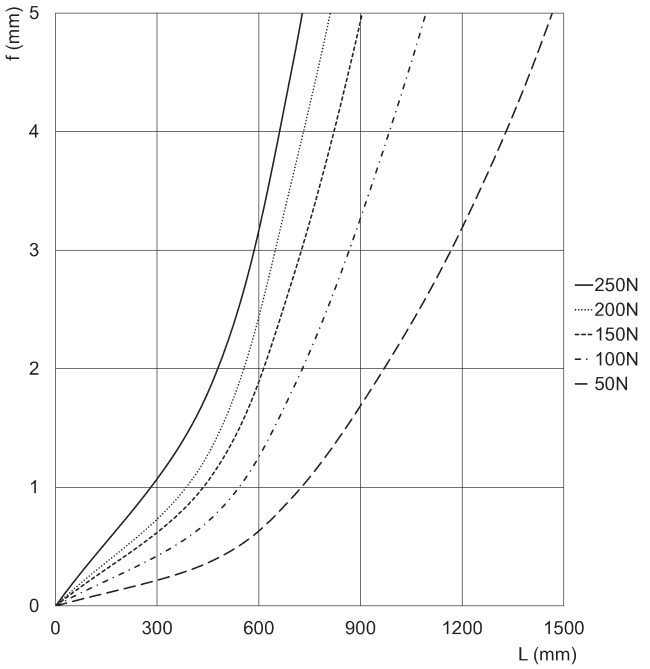




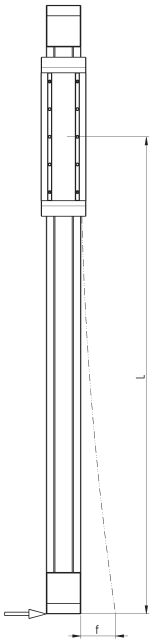
f = generated deflection [mm]
L = arm length [mm]

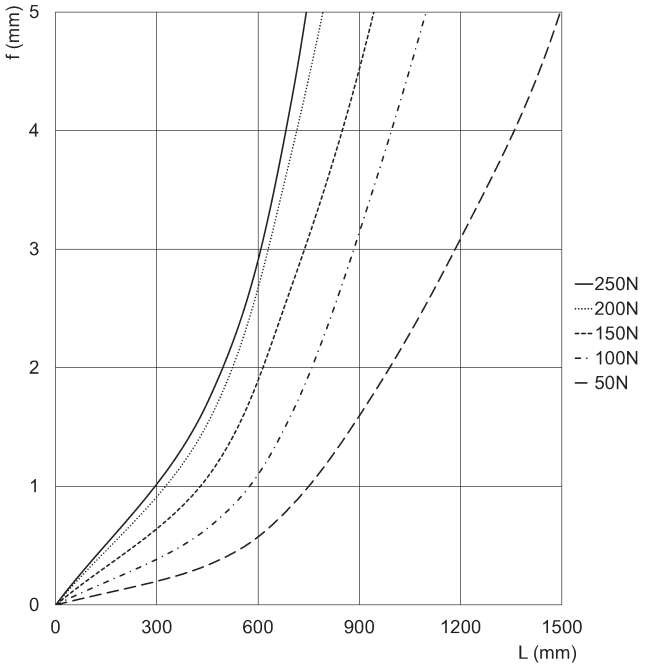
DEFLECTION 5VS065 - Version A





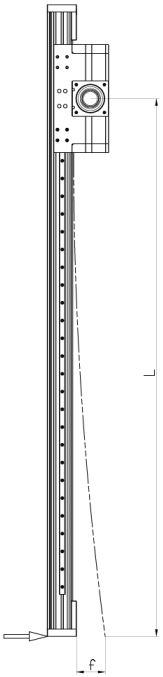
f = generated deflection [mm]
L = arm length [mm]

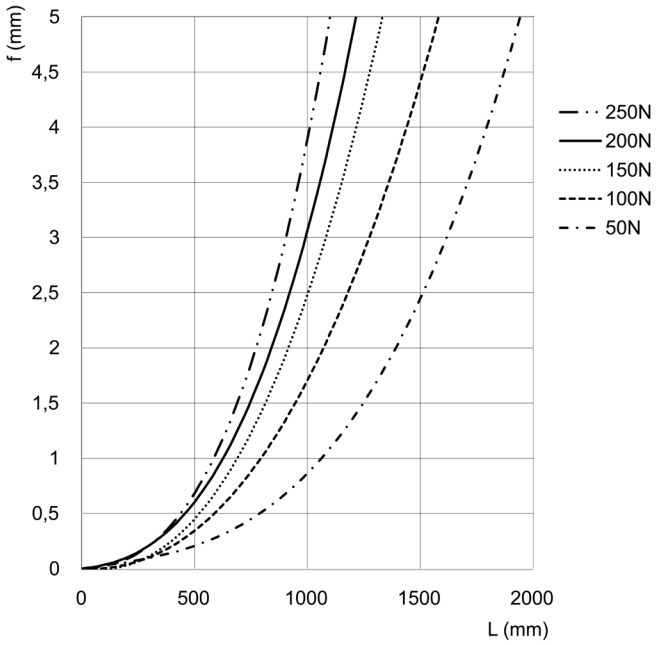




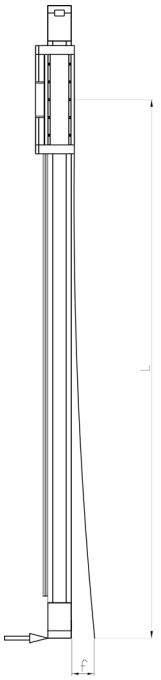
f = generated deflection [mm]
L = arm length [mm]

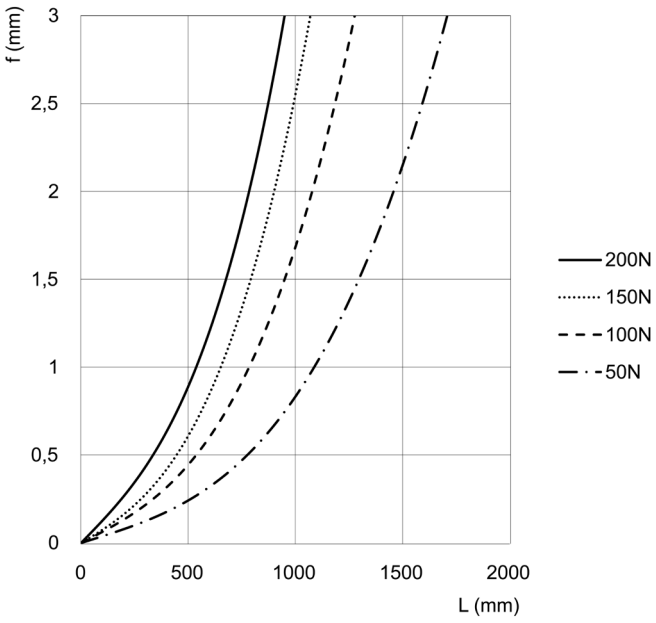
DEFLECTION 5VS065 - Version H





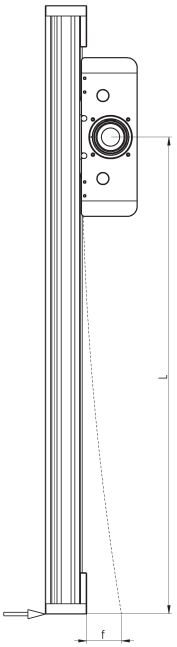
f = generated deflection [mm]
L = arm length [mm]

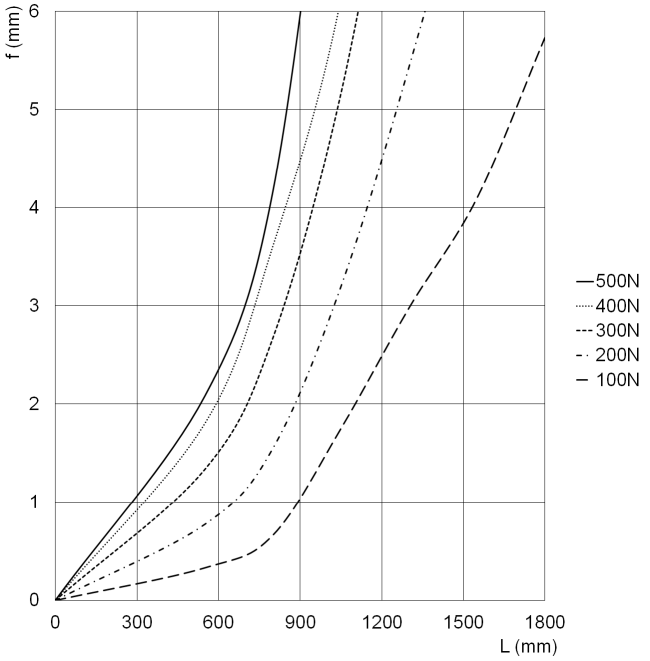




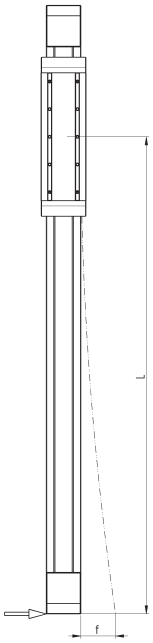
f = generated deflection [mm]
L = arm length [mm]

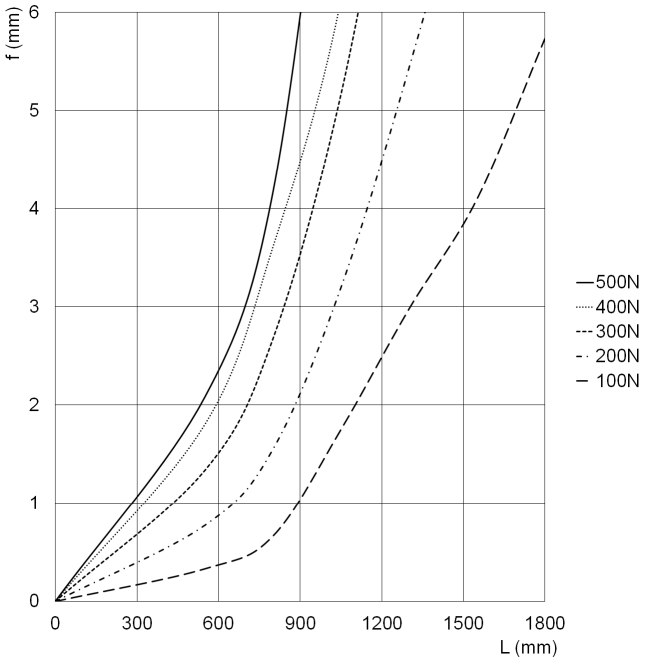
DEFLECTION 5VS080 - Version A





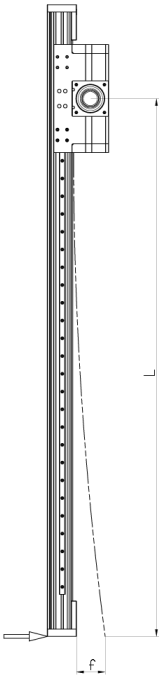
f = generated deflection [mm]
L = arm length [mm]

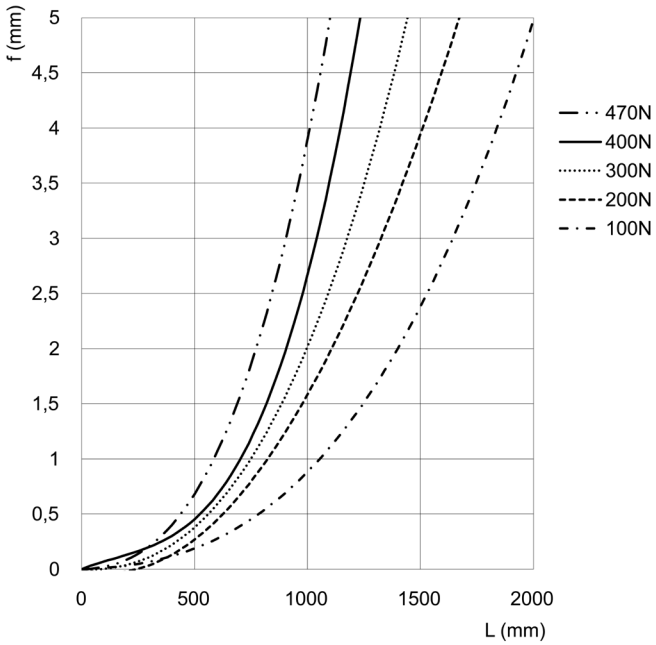




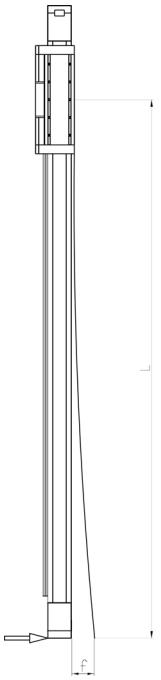
f = generated deflection [mm]
L = arm length [mm]

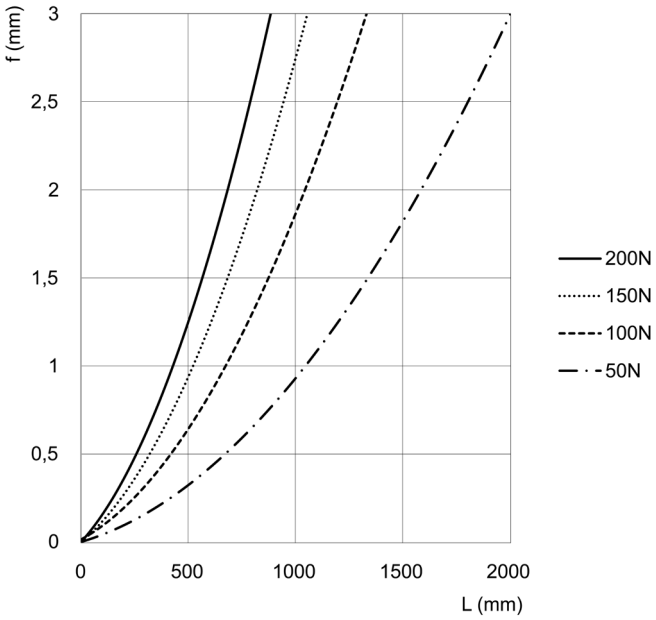
DEFLECTION 5VS080 - Version H





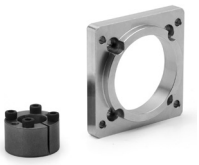
f = generated deflection [mm]
L = arm length [mm]



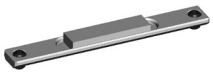


f = generated deflection [mm]
L = arm length [mm]

ACCESSORIES FOR SERIES 5V



Kit to connect the gearbox



Magnet kit
Mod. SMS-5V-U

Sensor holder kit
Mod. SMS-5V

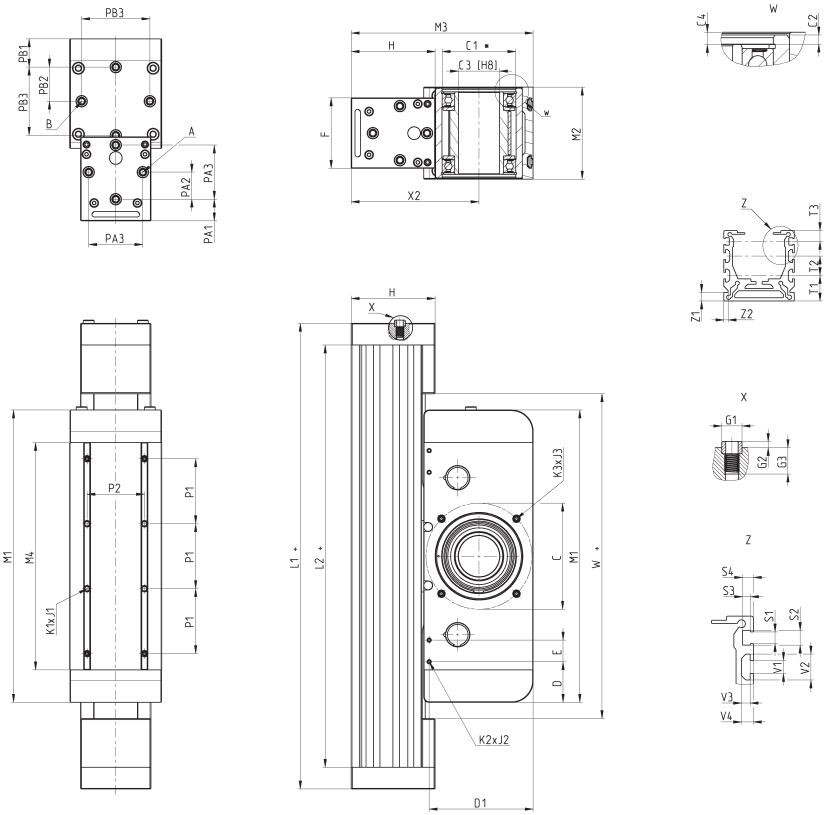
Centering ring
Mod. TR-CG

5E/5V connection flange

Nuts for slots

All accessories are supplied separately from the axis.

Electromechanical axis Mod. 5V...AS1



+ = add the stroke

Size	WEIGHT STROKE ZERO (kg)	STROKE WEIGHT PER METER (kg/m)
50	4.86	3.15
65	8.81	5.13
80	18.59	8.3

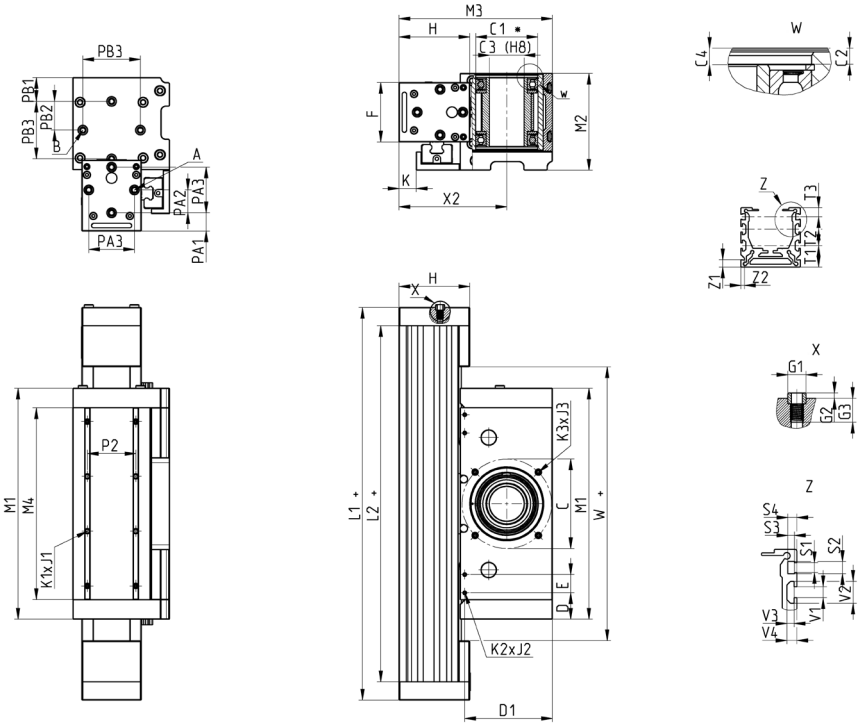
Size	A	B	øC	øC1	C2	øC3 [H8]	C4	D	E	F	H	K	L1	L2	M1	M2	M3	M4
50	M5x7,5	M5x7,5	72	4.9	4.9	26	4.5	30	20	50	60	1.5	380	350	230	86	133	185
65	M6x9	M6x9	98	4.4	4.4	38	4.5	37.5	20	65	77.5	19	430	390	270	106	168	210
80	M8x12	M8x12	133	7.8	7.8	47	5	37.5	20	80	97.5	22	635	585	365	130.5	205	305

Size	P1	P2	PA1	PA2	PA3	PB1	PB2	PB3	X2	W+	K1xJ1	K2xJ2	K3xJ3	øG1(h8)	G2	G3
50	40	40	14.5	20	40	21	25	50	94.3	260	M4x4,7	M3x6	M5x7.5	8	3	9.5
65	60	53	20	25	50	26	31.5	63	118	300	M5x4,7	M3x6	M6x10	10	3	12
80	60	70	24	32.5	65	37	35	70	144	395	M6x5	M3x6	M8x18	12	3	12

Size	Z1	Z2	T1	T2	T3	S1	S2	S3	S4	V1	V2	V3	V4
50	8	4	20	-	10	5.4	6.8	3.65	5	6	12	4	5.5
65	8	4	23.5	18	10	5.4	6.8	3.65	5	6	12	4	5.5
80	8	4	25	25	10	5.4	6.8	3.65	5	8	16.5	6.8	9

Electromechanical axis Mod. 5V...HS1

+ = add the stroke



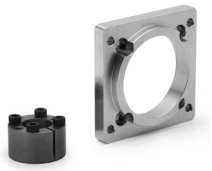
Size	WEIGHT STROKE ZERO (kg)	STROKE WEIGHT PER METER (kg/m)
65	8.81	5.13
80	18.59	8.3

Size	A	B	øC	øC1	C2	øC3 [H8]	C4	D	E	F	H	K	L1	L2	M1	M2	M3	M4
65	M6x9	M6x9	98	4.4	4.4	38	4.5	37.5	20	65	77.5	19	430	390	270	106	168	210
80	M8x12	M8x12	133	7.8	7.8	47	5	37.5	20	80	97.5	22	635	585	365	130.5	205	305

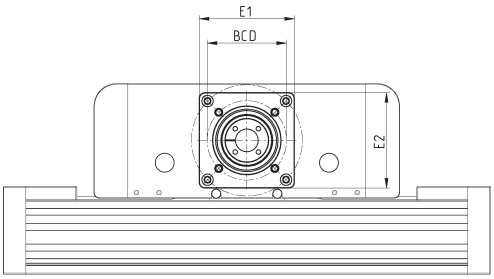
Size	P1	P2	PA1	PA2	PA3	PB1	PB2	PB3	X2	W+	K1xJ1	K2xJ2	K3xJ3	øG1(h8)	G2	G3
65	60	53	20	25	50	26	31.5	63	118	300	M5x4,7	M3x6	M6x10	10	3	12
80	60	70	24	32.5	65	37	35	70	144	395	M6x5	M3x6	M8x18	12	3	12

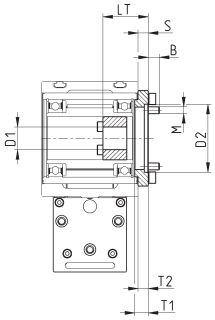
Size	Z1	Z2	T1	T2	T3	S1	S2	S3	S4	V1	V2	V3	V4
65	8	4	23.5	18	10	5.4	6.8	3.65	5	6	12	4	5.5
80	8	4	25	25	10	5.4	6.8	3.65	5	8	16.5	6.8	9

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

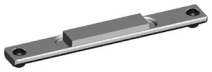




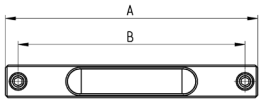
Mod.	Size	Gearbox	E1	E2	S	LT	øBCD	øD1	øD2(H7)	T1	T2	M	B	Max torque (Nm)(A)	J (Kgmm²)	Weight (g)
FR-5V-50	50	GB-060	65	65	6	35	52	14	40	10	-	5	7.9	30	5.49	130
FR-5V-65	65	GB-080	84	84	9	40	70	20	60	12	3.5	6	9.8	125	31.20	300
FR-5V-80	80	GB-120	115	115	13	55	100	25	80	18	4.5	10	15.8	215	90.06	620

(A) value refers to ideal mounting and operating conditions.
For further details, please contact service@camozzi.com

Magnet kit Mod. SMS-5V-U



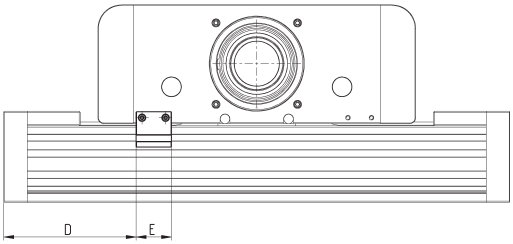
Supplied with:
1x plate
1x magnet
2x locking screws

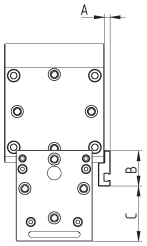


Mod.	A	B
SM5-5V-U	50	45

Sensor holder kit Mod. SMS-5V

Supplied with:
1x plate
2x screws

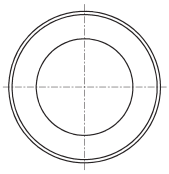


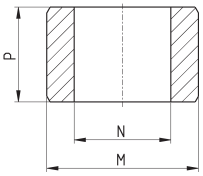


Mod.	Size	A	B	C	D	E
SMS-5V-50	50	7.5	30	32	100	30
SMS-5V-65/80	65	5	30	47	112.5	30
SMS-5V-65/80	80	5	30	63	167.5	30

Centering ring Mod. TR-CG

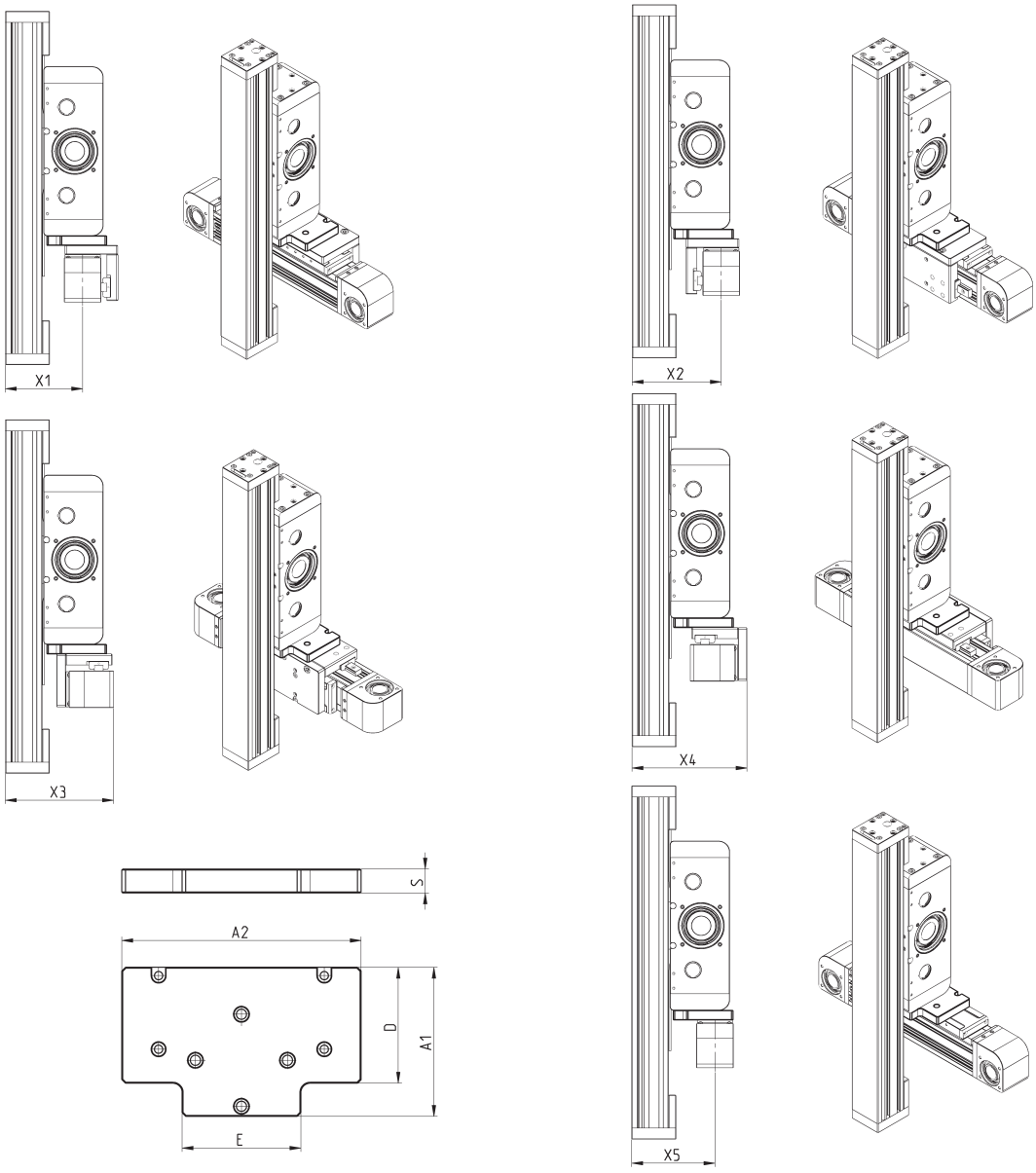
Supplied with:
2x centering rings in steel





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
TR-CG-12	Ø12	Ø8.1	6

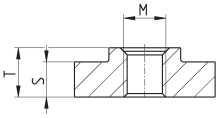
5E/5V connection flange

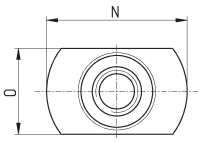


Mod.	Size	X1	X2	X3	X4	X5	A1	A2	E	D	S	Weight (g)
YZ-50-5V50	50	105	121	147	156	-	81	130	64.5	63	13	335
YZ-65-5V50	65	112.5	136.5	162	179	124.5	99.5	140	64.5	76.5	13	445
YZ-65-5V65	65	130	154	179.5	196.5	-	101.5	140	84.5	76.5	13	460
YZ-80-5V50	80	120.5	146.5	185.5	196.5	133.5	118	190	64.5	78	13	635
YZ-80-5V65	80	157.5	163.5	202.5	213.5	150.5	118	190	84.5	78	15	770
YZ-80-5V80	80	141	183.5	222.5	233.5	-	120	190	99.5	78	15	825

Slot nut for sensor

Material: steel



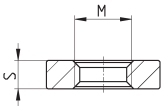


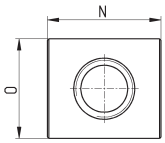
Supplied with:
2x nuts

Mod.	Size	M	N	O	S	T
PCV-5E-CS-M3	50 - 65 - 80	M3	10.3	6.1	2.5	3.5
PCV-5E-CS-M4	50 - 65 - 80	M4	10.3	6.1	2.5	3.5

Slot nut 6 - rectangular type

Material: steel



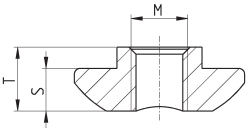


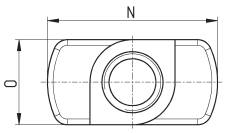
Supplied with:
2x nuts

Mod.	Size	M	N	O	S
PCV-5E-C6-M4Q	50 - 65	M4	8	7	2

Slot nut 6 for front insertion

Material: steel



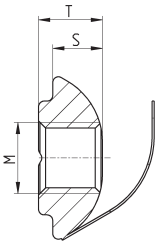


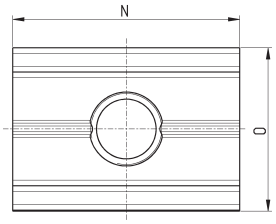
Supplied with:
2x nuts

Mod.	Size	M	N	O	S	T
PCV-5E-C6-M4R	50 - 65	M4	12	6	3	4.5

Slot nut 8 with flexible flap

Material: steel





Supplied with:
2x nuts

Mod.	Size	M	N	O	S	T
PCV-5E-C8-M5	80	M5	16	11.5	3.5	4.5
PCV-5E-C8-M6	80	M6	16	11.5	3.5	4.5

Series DRWB drives for the control of electric actuation

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

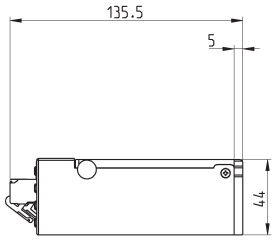
CODING EXAMPLE

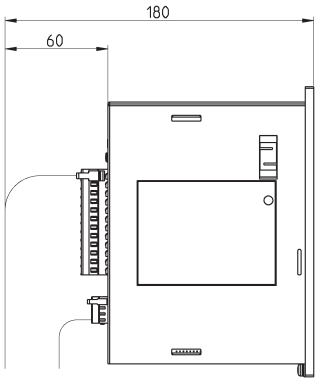
DRWB	-	W01	-	2	-	D	-	E	-	A

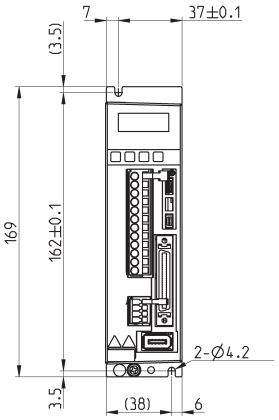
DRWB	SERIES
W01	SIZE W: W01 = 100 W W04 = 400 W W07 = 750 W W10 = 1000 W
2	SUPPLY: 2 = 220 V AC
D	COMMUNICATION: D = Digital I/O and Analog
E	FEEDBACK: E = incremental encoder 13 bit
A	VERSIONS: A = Standard

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

Drive for the Camozzi Brushless motors



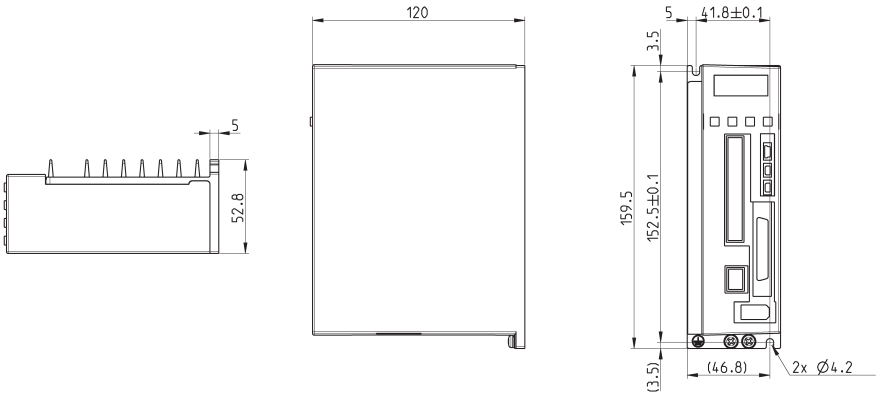




Mod.	Power	Supply	Encoder
DRWB-W01-2-D-E-A	100 W	230 V AC	13 bit

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

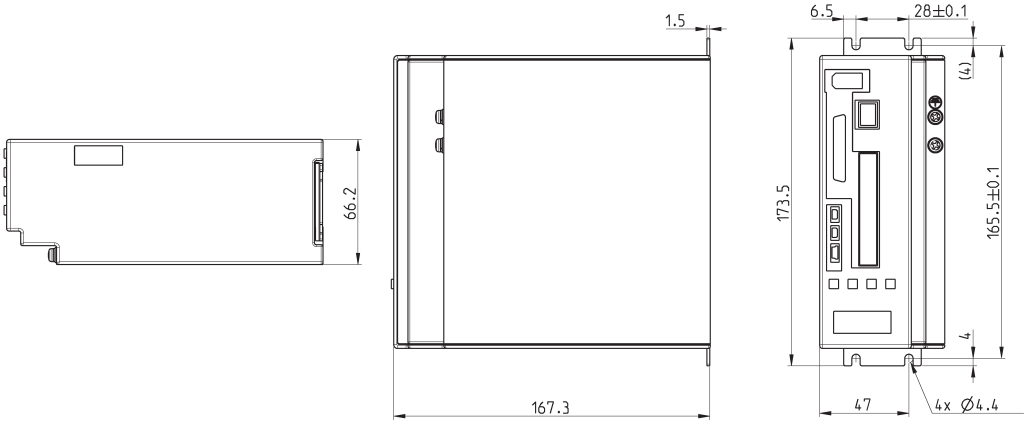
Drive for the Camozzi Brushless motors



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

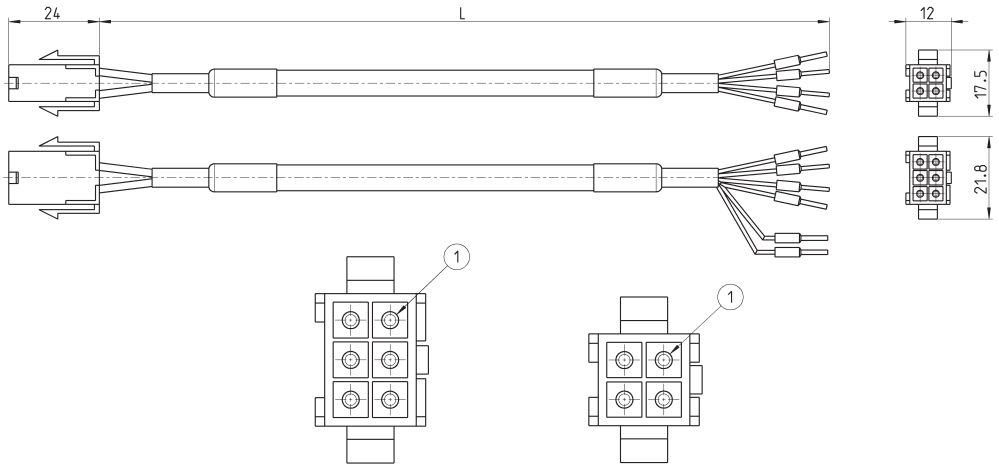
Drives Mod. DRWB-W07-2-D-E-A and Mod. DRWB-W10-2-D-E-A

Drives for the Camozzi Brushless motors



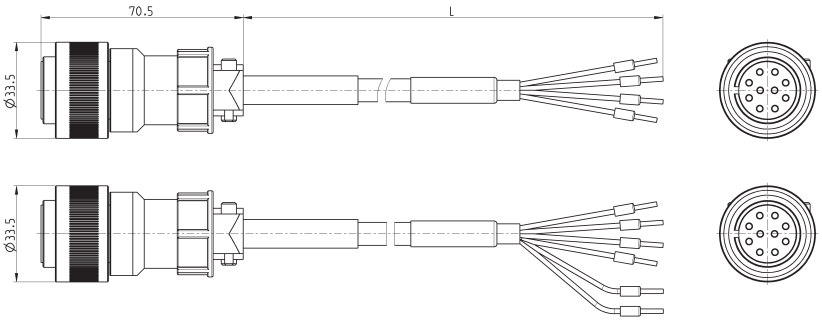
Mod.	Power	Supply	Encoder
DRWB-W07-2-D-E-A	750 W	230 V AC	13 bit
DRWB-W10-2-D-E-A	1000 W	230 V AC	13 bit

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



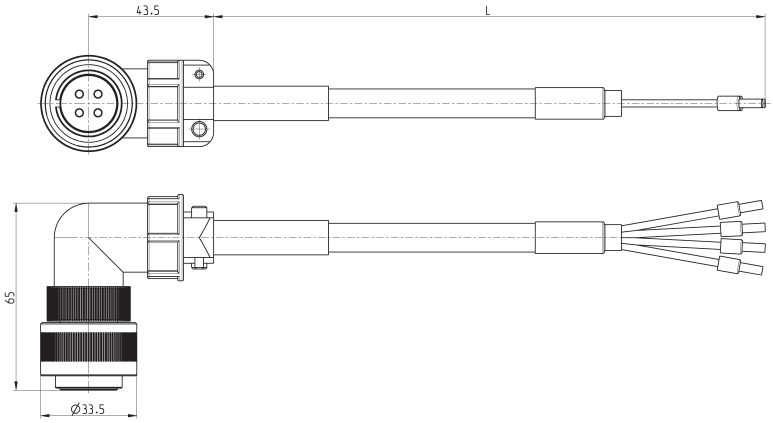
Mod.	Brake	Pins	L = cable (m)
EC-200421-B300	-	4	3
EC-200421-B500	-	4	5
EC-200421-BA00	-	4	10
EC-210621-B300	✖	6	3
EC-210621-B500	✖	6	5
EC-210621-BA00	✖	6	10

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



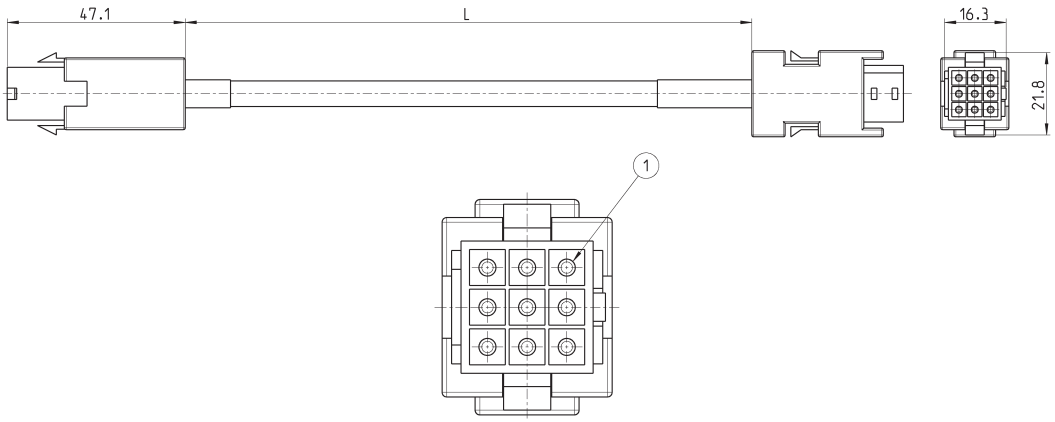
Mod.	Brake	Pins	L = cable (m)
EC-3004P1-B300	-	4	3
EC-3004P1-B500	-	4	5
EC-3004P1-BA00	-	4	10
EC-3106P1-B300	✖	6	3
EC-3106P1-B500	✖	6	5
EC-3106P1-BA00	✖	6	10

Cables for Brushless (MTB) motor, 1000W IP65



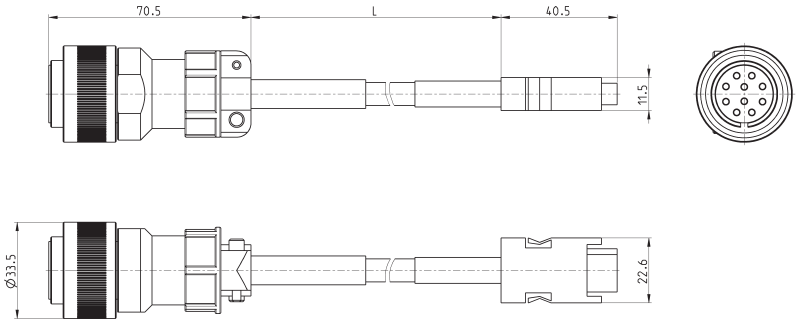
Mod.	Brake	Pins	L = cable (m)
EC-4704P1-B300	-	4	3
EC-4704P1-B500	-	4	5
EC-4704P1-BA00	-	4	10

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



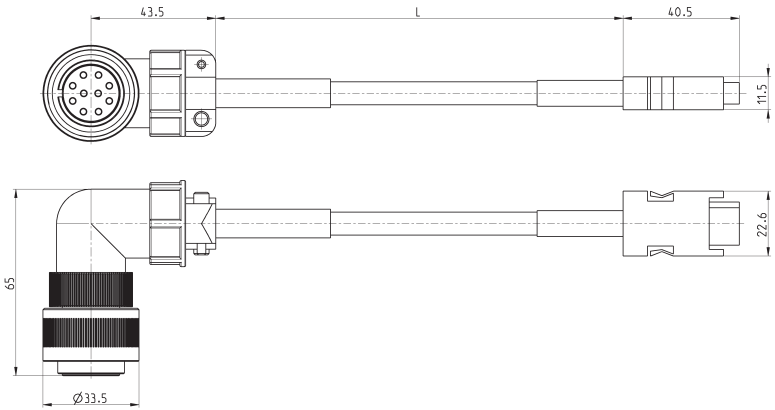
Mod.	Pins	L = cable (m)
EC-220923-B300	9	3
EC-220923-B500	9	5
EC-220923-BA00	9	10

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



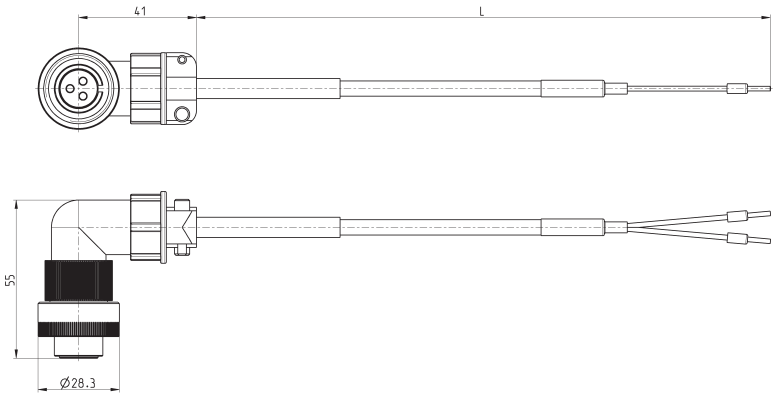
Mod.	Pins	L = cable (m)
EC-3209P3-B300	9	3
EC-3209P3-B500	9	5
EC-3209P3-BA00	9	10

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



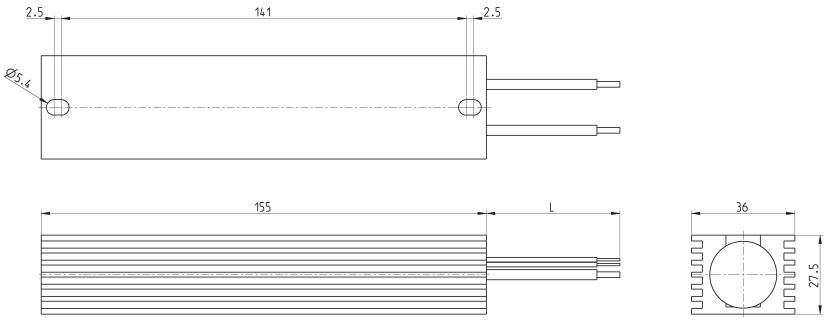
Mod.	Pins	L = cable (m)
EC-4809P3-B300	9	3
EC-4809P3-B500	9	5
EC-4809P3-BA00	9	10

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



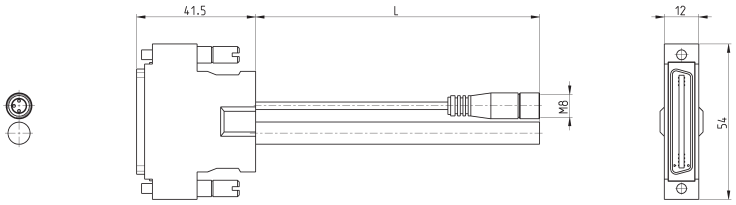
Mod.	Pins	L = cable (m)
EC-4902P1-B300	2	3
EC-4902P1-B500	2	5
EC-4902P1-BA00	2	10

Brake resistance for Brushless (MTB) motor



Mod.	Power
EC-212022	300 W

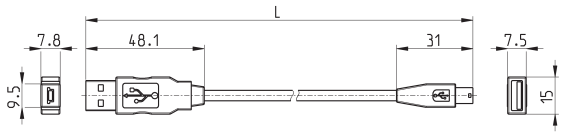
Cables for DRWB drive I/O



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 WLAN system and NFC integrated

- Full digital drive with integrated PLC functions
- Programmable with the Camozzi QSet configuration software
- Feedback by incremental encoder
- NFC (Near Field Communication) system enabled
- 127 programmable positions (setting, acceleration, speed and position)
- Wire configuration by means of USB 2.0 and WLAN BL-BLE
- Can be controlled in frequency (step and direction), digital I/O and serial CANopen protocol

Series DRCS drives, compact and optimised in one size, are capable of controlling all Camozzi Stepper motors with two-phase and micro-stepping feed. The use of the micro-stepping control technology (up to 1/16 of a step) enables the drive to almost replicate a sinusoidal current while considerably reducing the natural resonance of the motor itself.

Series DRCS drives can calculate the normal resonance frequency of the motors and optimise their performance. The availability of eight inputs allows the realisation of a table of 127 commands, for each of which it is possible to set position, speed, acceleration and deceleration.
Each command can be absolute or relative. Through the Step and Direction commands, it is possible to control the drive in frequency mode. The frequency defines the speed, while the number of steps defines the position. The Series DRCS drives are equipped with serial protocols CANopen CiA 301 and CiA 402 through which it is possible to perform motion control and condition monitoring of the drive. To configure the drive, wired USB 2.0 or WLAN connections can be used. Thanks to an innovative system that takes advantage of Near Field Communication (NFC) technology, it is possible to extract production and statistical data on the use of the drive, which are essential parameters for industry 4.0.

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
WLAN	BL-BLE
RFID	with NFC devices
CANopen	CiA 301 and CiA 402 (interpolated position mode)
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
Configuration	Digital with the Camozzi QSet configuration software
Control methods	Digital inputs Frequency CANopen
MEMORY	
Data retention memory	Flash
Configuration data backup memory	E^2prom
Weight	0.46 kg

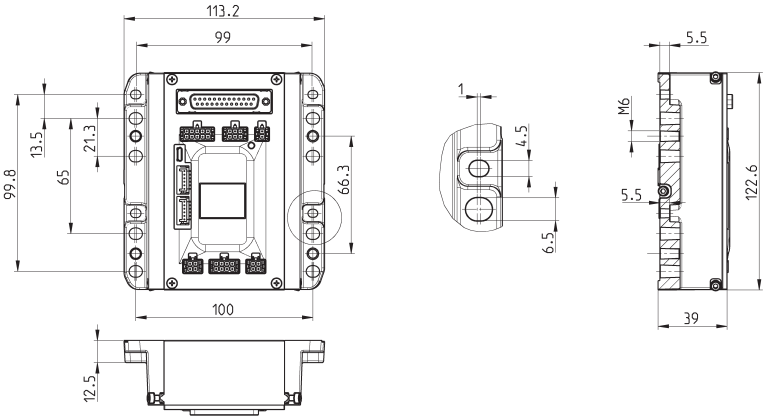
CODING EXAMPLE

DRCS	-	A05	-	8	-	D	-	0	-	A

DRCS	SERIES
A05	SIZE AT MAX CURRENT: A05 = 7A
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 = WLAN BL-BLE

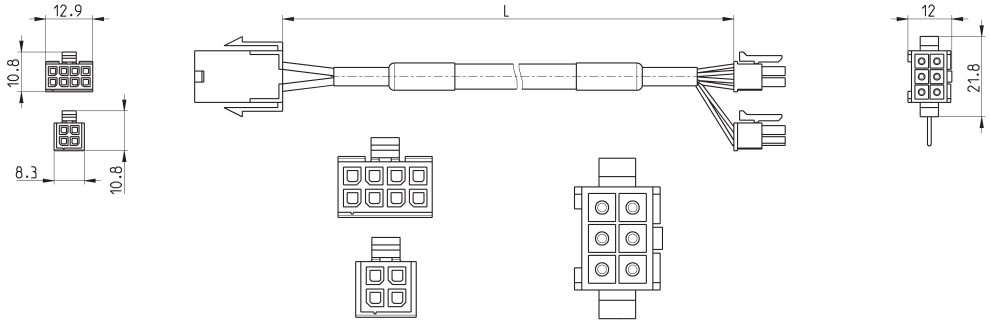
Series DRCS drives

For the Camozzi Stepper motors



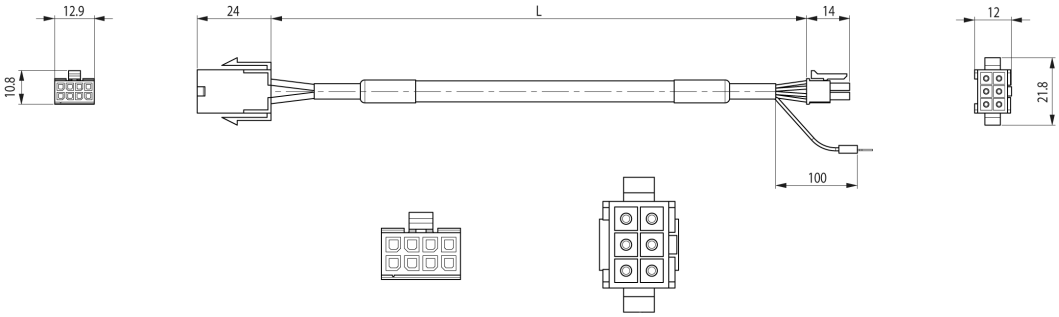
Mod.	Max current	Logic supply	Power supply	Communication	Versions
DRCS-A05-8-D-0-A	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and impulse frequency	standard
DRCS-A05-8-C-0-A	7 A	24 V DC	24 ÷ 48 V DC	CANopen, Digital I/O and impulse frequency	standard
DRCS-A05-8-D-0-B	7 A	24 V DC	24 ÷ 48 V DC	Digital I/O and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

Motor cable for Series DRCS drive with brake



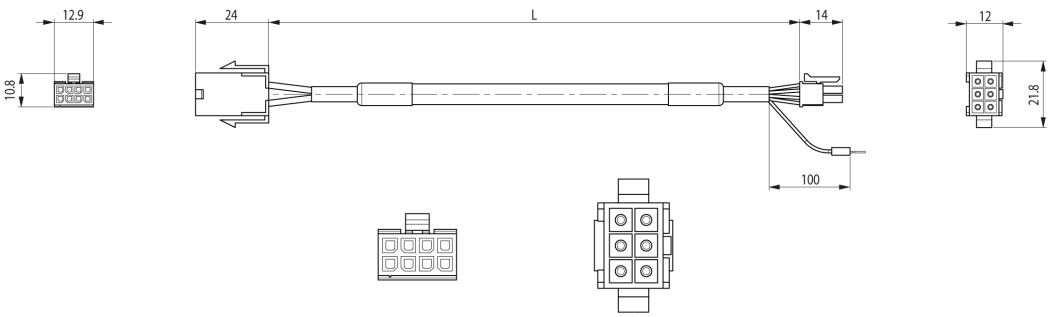
Mod.	Motor	Brake	Pins	L = cable (m)
EC-210A22-B300	Stepper	X	6	3
EC-210A22-B500	Stepper	X	6	5
EC-210A22-BA00	Stepper	X	6	10

Motor cable for Series DRCS drive without brake



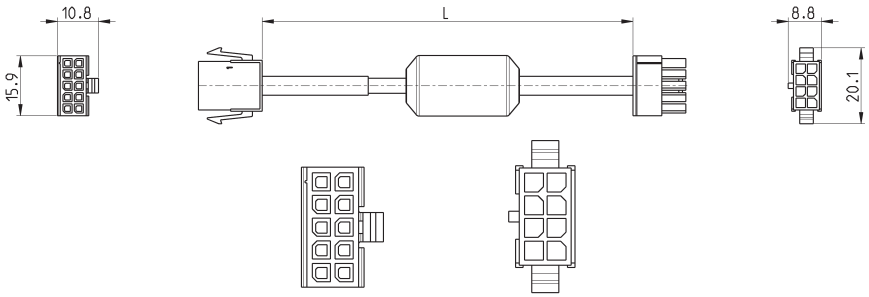
Mod.	Motor	Brake	Pins	L = cable (m)
EC-200A22-B300	Stepper	-	4	3
EC-200A22-B500	Stepper	-	4	5
EC-200A22-BA00	Stepper	-	4	10

Motor cable for Series DRCS drive without brake (Nema 34 only)



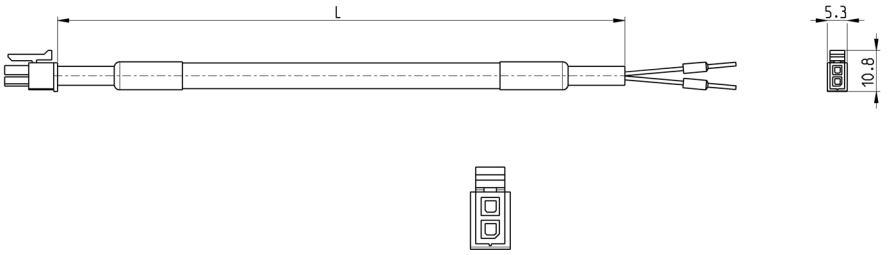
Mod.	Motor	Brake	Pins	L = cable (m)
EC-200522-B300	Stepper	-	5	3
EC-200522-B500	Stepper	-	5	5
EC-200522-BA00	Stepper	-	5	10

Encoder cable for Series DRCS drive



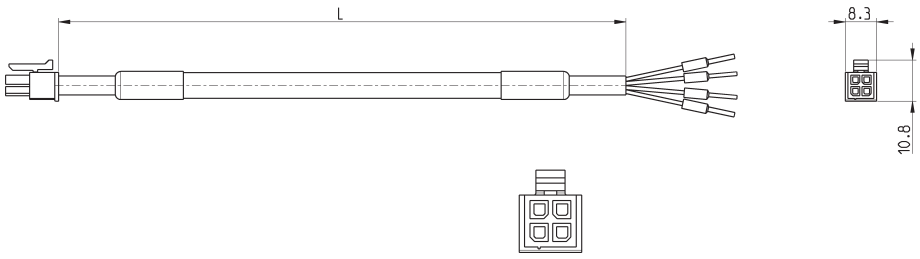
Mod.	Motor	Brake	Pins	L = cable (m)
EC-220A22-B300	Stepper	-	8	3
EC-220A22-B500	Stepper	-	8	5
EC-220A22-BA00	Stepper	-	8	10

Cable for Series DRCS drive logic supply



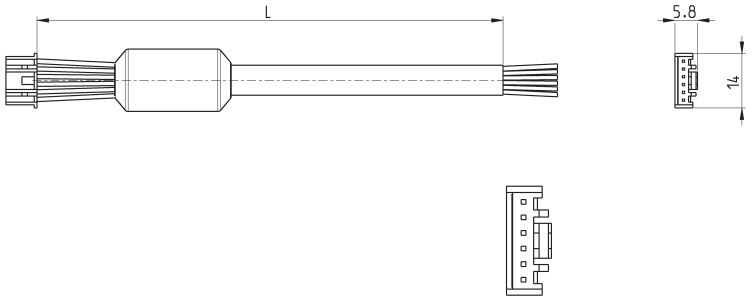
Mod.	Motor	Brake	Pins	L = cable (m)
EC-140222-A200	-	-	2	2

Cable for Series DRCS drive power supply



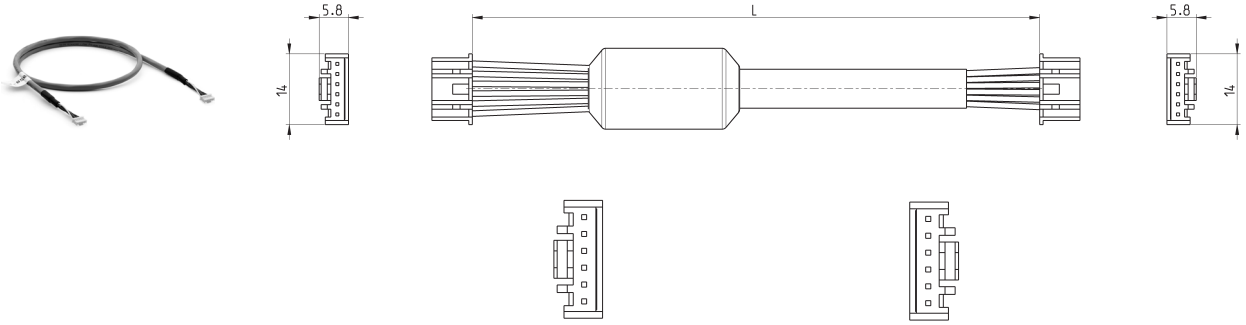
Mod.	Motor	Brake	Pins	L = cable (m)
EC-230422-A200	-	-	4	2

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

Cable for Series DRCS drive CANopen expansion

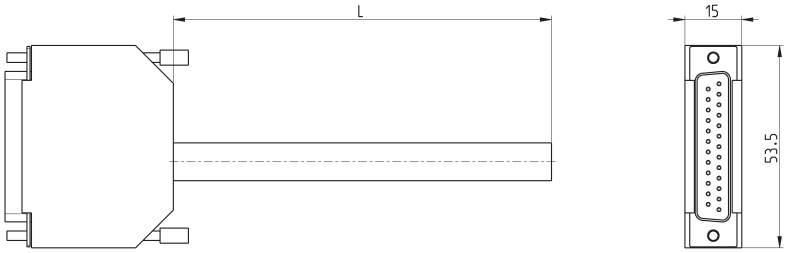


Mod.	Motor	Brake	Pins	L = cable (m)
EC-0130422-A030	-	-	6	0.3

CAN terminating resistor for Series DRCS drives

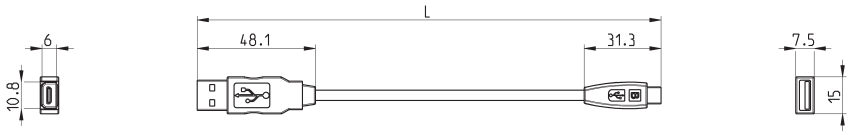
Mod.	Motor	Brake	Pins	L = cable (m)
EC-060623	-	-	6	-

Multipole I/O 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

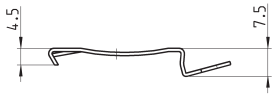


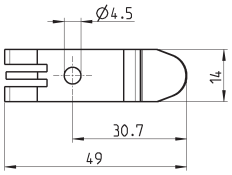
Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Mounting brackets for DIN rail

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

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

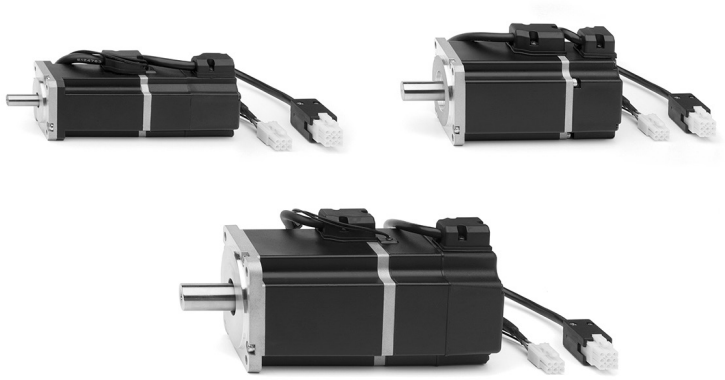




Mod.
PCF-E520

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

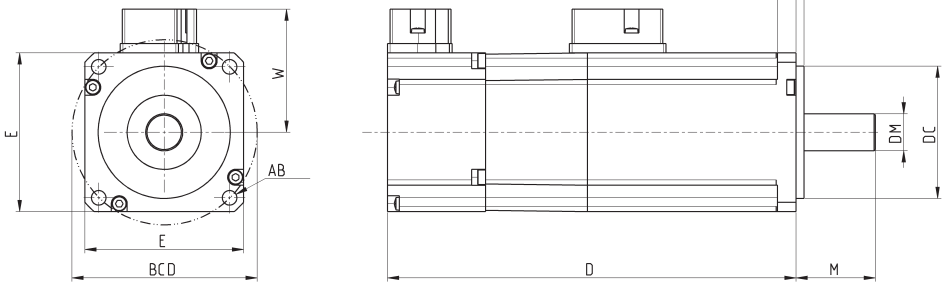
CODING EXAMPLE

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

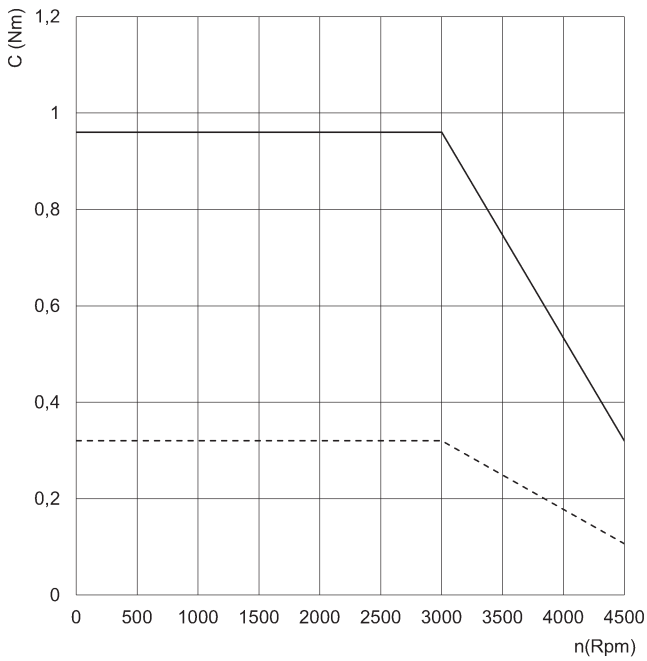
Series MTB Brushless motors - dimensions

Supplied with:
1 motor
4 screws



Mod.	Power	torque constant	voltage constant	D	E	W	⌀DM(h6)	M	⌀DC	C	BCD	⌀AB	BB	L cables	J (Kgcm²)	Weight (kg)
MTB-010-2-0-E	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	110.5	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,36	0.63
MTB-010-2-0-EP	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	110.5	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,36	0.75
MTB-010-2-F-E	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	139	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,38	0.76
MTB-010-2-F-EP	100 W	0,356 Nm/Arms	21,98 Vrms/krpm	139	42	32	8	25	30 f7	2.5	45	3.4	12	300± 10	0,38	0.9
MTB-040-2-0-E	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	121.5	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,27	1.31
MTB-040-2-0-EP	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	121.5	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,27	1.4
MTB-040-2-F-E	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	159	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,31	1.86
MTB-040-2-F-EP	400 W	0,51 Nm/Arms	31,9 Vrms/krpm	159	60	46.5	14	30	50 h7	3	70	5.5	7.5	300± 10	0,31	1.95
MTB-075-2-0-E	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	140	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,4	2.66
MTB-075-2-0-EP	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	140	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,4	2.75
MTB-075-2-F-E	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	176	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,46	3.32
MTB-075-2-F-EP	750 W	0,47 Nm/Arms	28,4 Vrms/krpm	176	80	56.5	19	40	70 f6	3	90	6.6	9	300± 10	1,46	3.45
MTB-100-2-0-EP	1000 W	0,94 Nm/Arms	54,7 Vrms/krpm	141	130	113	24	55	110	3	145	9	12	-	7,6	5.8
MTB-100-2-F-EP	1000 W	0,94 Nm/Arms	54,7 Vrms/krpm	175	130	113	24	55	110	3	145	9	12	-	8,7	7.7

Torque-speed curves

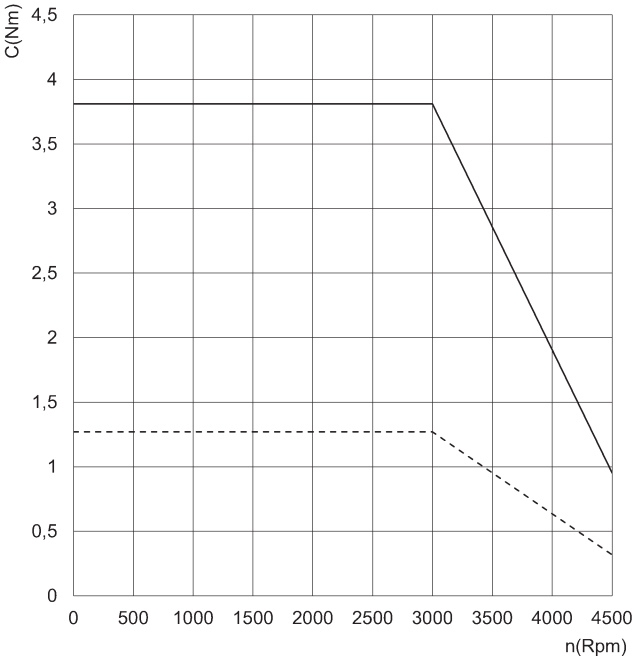


MTB-010..

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.

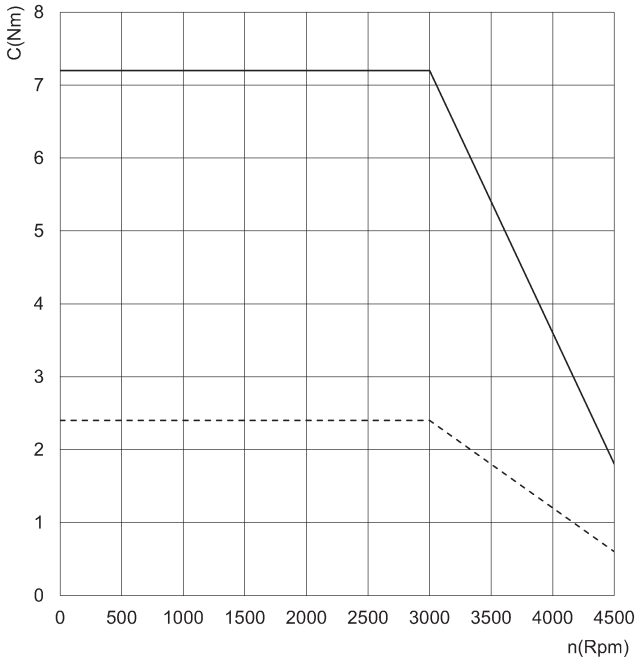


MTB-040..

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.

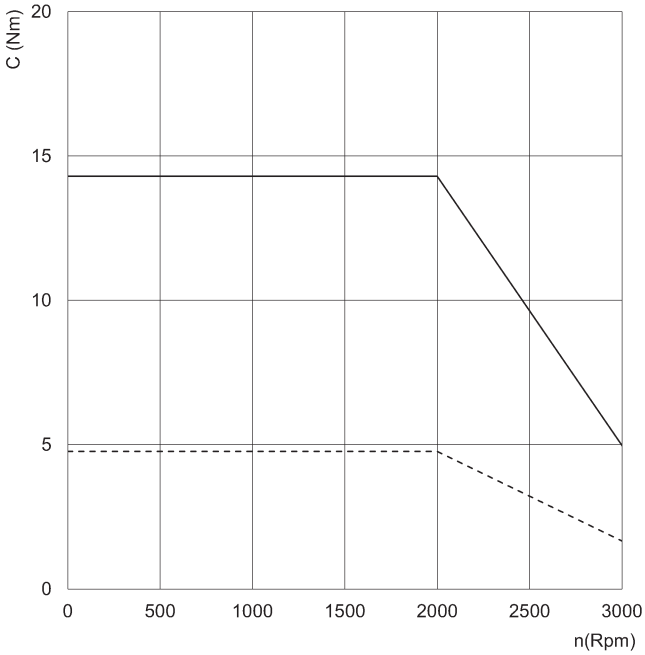


MTB-075..

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

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-S-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

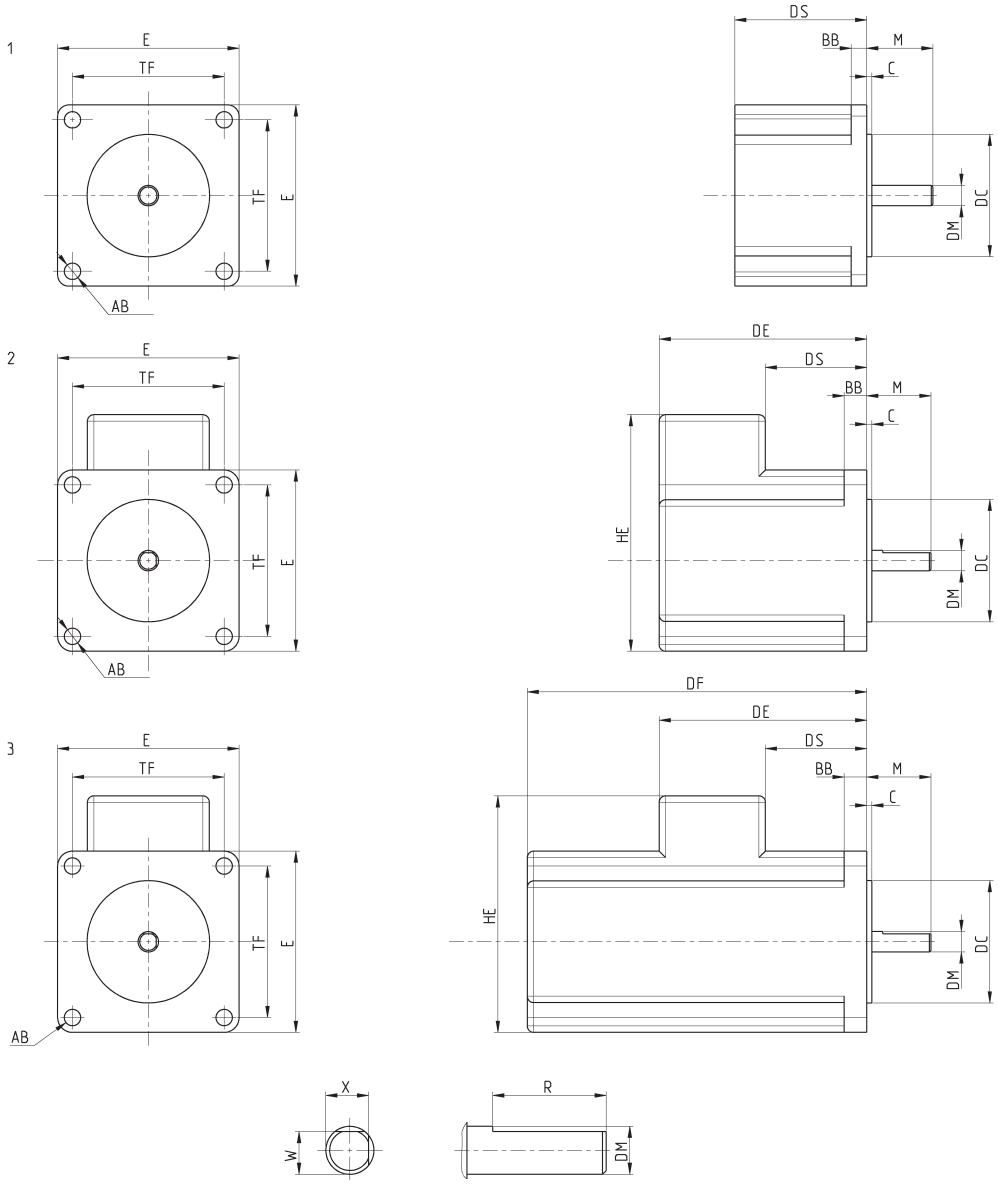
CODING EXAMPLE

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 (SIZE Nema 23 and 24 only)
C	MECHANICAL SHAFT VARIANTS: C = cylindrical shaft
	VERSION: = Standard P = IP65

Series MTS Stepper motors - dimensions

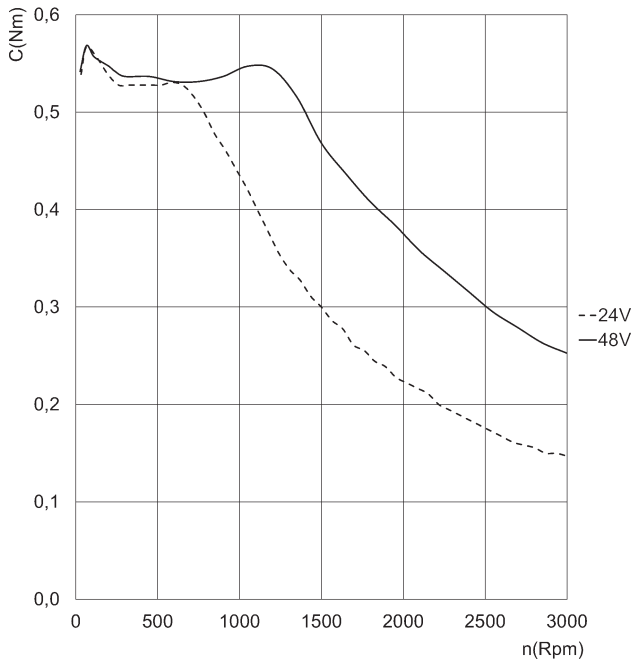
Supplied with:
1 motor
4 screws



Mod.	Nema	Layout	DS	DE	DF	HE	E	ø$DM^{(h7)}$	M	ø$DC^{(js10)}$	C	TF	øAB	BB	L_{cables}	X	W	R	J (Kgcm²)	Weight (g)
MTS-23-18-060-0-0-S-C	23	1	39	-	-	-	56.4	6.35	20.6	38.1	1.6	47.14	5.1	5.08	300 ± 10	-	-	-	0.135	0.42
MTS-23-18-120-0-0-S-CP*	23	1	61.7	-	-	-	56.4	6.35	20.6	38.1	1.6	47.14	5.1	7	2000 ± 20*	5.8	-	15	0.46	0.6
MTS-23-18-060-0-0-E-C	23	2	31.5	64.5	-	73.6	56.35	6.35	20.6	38.1	1.6	47.14	5.1	7	200 ± 50	5.8	-	15	0.135	0.42
MTS-23-18-060-0-F-E-C	23	3	31.5	64.5	105.5	73.6	56.3	6.35	20.6	38.1	1.6	47.14	5.1	7	200 ± 50	5.8	-	15	0.135	0.62
MTS-24-18-250-0-0-S-C	24	1	86,5	-	-	-	60	8	20.6	38.1	1.5	47.14	4.5	7	300 ± 10	-	-	-	0.9	1.4
MTS-24-18-250-0-0-S-CP*	24	1	94,5	-	-	-	60	8	24	38.1	1.5	47.14	4.52	8	2000 ± 20*	7.5	-	20	0.9	1.6
MTS-24-18-250-0-0-E-C	24	2	78	111	-	77.415	60	8	20.6	38.1	1.5	47.14	4.5	8	200 ± 50	7.5	7.5	15	0.9	1.4
MTS-24-18-250-0-F-E-C	24	3	78	111	152	77.415	60	8	20.6	38.1	1.5	47.14	4.5	8	200 ± 50	7.5	7.5	15	0.9	1.6
MTS-34-18-701-0-0-S-C	34	1	125.5	-	-	-	86	14	37	73.025	2	69.6	6.5	10	300 ± 10	-	-	-	2.75	3.8
MTS-34-18-701-0-0-S-CP*	34	1	127.5	-	-	-	86	14	37	73.025	2	69.6	6.5	10	2000 ± 20*	13	13	25	2.75	3.8

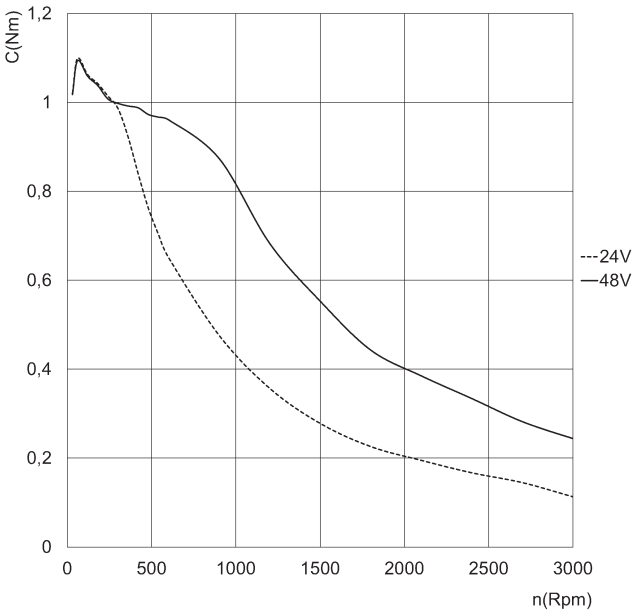
*wire without connector, a cabling kit will be supplied

Torque-speed curves



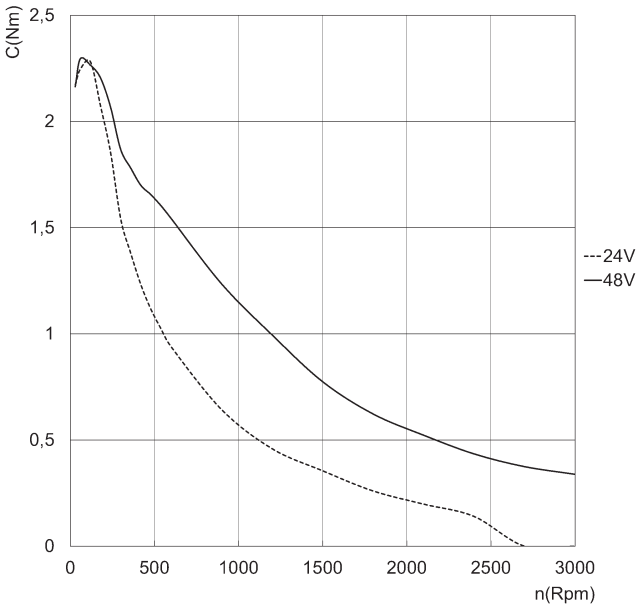
Nema 23 motors
Mod. MTS-23-18-060-0-0-S-C
Mod. MTS-23-18-060-0-0-E-C
Mod. MTS-23-18-060-0-F-E-C

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



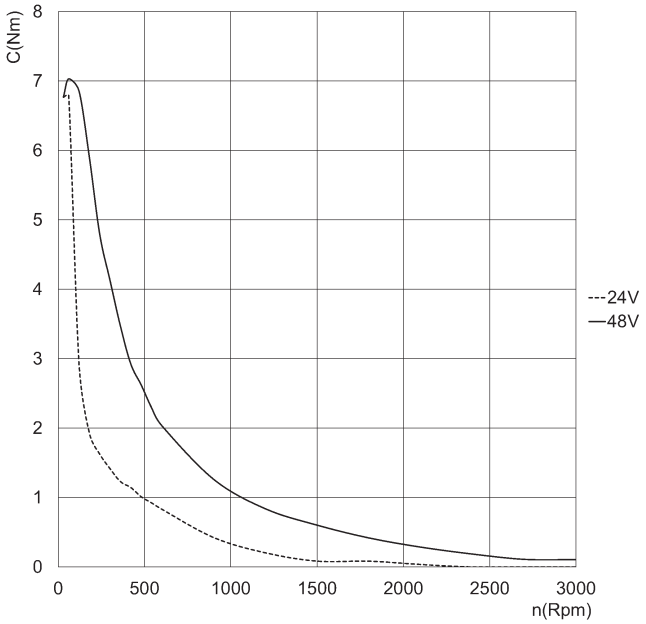
Nema 23 motors IP65
Mod. MTS-23-18-120-0-0-S-CP

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]

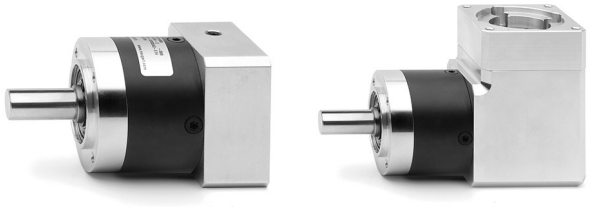


Nema 34 motors
Mod. MTS-34-18-701-0-0-S-C

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 and 5V electromechanical axes and with the Series 6E electromechanical cylinders.

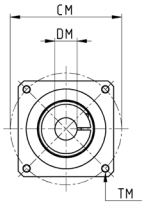
Available in 4 sizes with 4 different reduction ratios, the Series GB planetary gearboxes can be supplied in two different configurations, in-line or orthogonal.
All gearboxes are equipped with interface flanges for the connection to the Camozzi Series MTB and Series MTS motors.

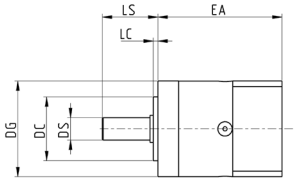
CODING EXAMPLE

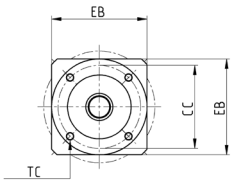
GB	-	040	-	03	-	D	-	0100

GB	SERIES
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 = Brushless 1000W (size 120 only) 0024 = Nema 24

IN-LINE PLANETARY GEARBOX





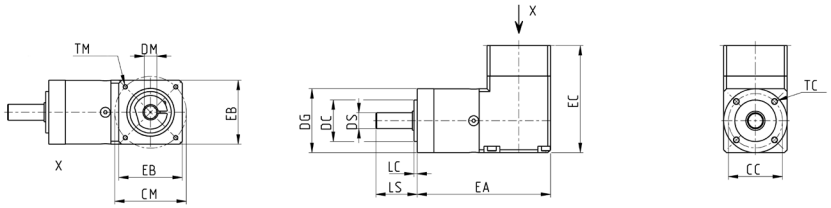


Mod.	BACKLASH	øDS(h7)	LS	øDC(h7)	LC	øCC	TC	EA	EB	øDG	øDM	øCM	TM	Weight (Kg)
GB-040-D-0100	<15′	10	26	26	2	34	M4 x 6	67.5	40	40	8	45	M3 x 8	0.35
GB-040-D-0024	<15′	10	26	26	2	34	M4 x 6	67.5	60	40	8	66.7	M4 x 10	0.35
GB-060-D-0400	<10′	14	35	40	3	52	M5 x 8	78	60	60	14	70	M5 x 12	0.9
GB-060-D-0024	<10′	14	35	40	3	52	M5 x 8	71	60	60	8	66.7	M4 x 10	0.9
GB-080-D-0750	<7′	20	40	60	3	70	M6 x 10	103.5	80	80	19	90	M6 x 15	2.1
GB-080-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-D-1000	<7′	25	55	80	4	100	M10 x 16	136.5	130	130	24	145	M8 x 18	6

	Nominal output torque (Nm)(A)	Max output torque (Nm)(A)(B)	Emergency output torque (Nm)(C)	Max input speed (RPM)	J (Kgcm²)
GB-040-03-D-0100	11	17.5	22.5	18000	0.027
GB-040-05-D-0100	14	22	36	18000	0.019
GB-040-07-D-0100	8.5	13.5	26	18000	0.015
GB-040-10-D-0100	5	8	27	18000	0.014
GB-040-03-D-0024	11	17.5	22.5	18000	0.027
GB-040-05-D-0024	14	22	36	18000	0.019
GB-040-07-D-0024	8.5	13.5	26	18000	0.015
GB-040-10-D-0024	5	8	27	18000	0.014
GB-060-03-D-0400	28	45	66	13000	0.128
GB-060-05-D-0400	40	64	80	13000	0.08
GB-060-07-D-0400	25	40	80	13000	0.069
GB-060-10-D-0400	15	24	80	13000	0.065
GB-060-03-D-0024	28	45	66	13000	0.128
GB-060-05-D-0024	40	64	80	13000	0.08
GB-060-07-D-0024	25	40	80	13000	0.069
GB-060-10-D-0024	15	24	80	13000	0.065
GB-080-03-D-0750	85	136	180	7000	0.654
GB-080-05-D-0750	110	176	220	7000	1.633
GB-080-07-D-0750	65	104	178	7000	0.423
GB-080-10-D-0750	38	61	200	7000	0.359
GB-080-03-D-0024	85	136	180	7000	0.654
GB-080-05-D-0024	110	176	220	7000	0.423
GB-080-07-D-0024	65	104	178	7000	0.379
GB-080-10-D-0024	38	61	200	7000	0.359
GB-120-03-D-1000	115	184	390	6500	2.361
GB-120-05-D-1000	195	312	500	6500	1.633
GB-120-07-D-1000	135	216	340	6500	1.463
GB-120-10-D-1000	95	152	480	6500	1.378

(A) Values refer to intermittent load, without rotation inversion, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
(B) Referred to 30,000 revolutions of the output shaft, under ideal mounting and operating conditions; see paragraph “How to calculate the life of the gearbox according to applied torque”. For further details, please contact service@camozzi.com.
(C) Allowed for maximum 1000 times, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com.

ORTHOGONAL PLANETARY GEARBOX



Mod.	BACKLASH	⌀DS(h7)	LS	⌀DC(h7)	LC	⌀CC	TC	EA	EB	EC	⌀DG	⌀DM	⌀CM	TM	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-040-03-A-0024	<21′	10	26	26	2	34	M4 x 6	84	60	63	40	8	66.7	M4 x 7	0.51
GB-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-060-03-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-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-080-03-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-120-03-A-1000	<11′	25	55	80	4	100	M10 x 16	194.5	130	160.5	130	24	145	M8 x 18	12

	Nominal output torque (Nm)[A]	Max output torque (Nm)[A][B]	Emergency output torque (Nm)[C]	Max input speed (RPM)	J (Kgcm²)
GB-040-03-D-0100	4,5	7	22,5	18000	0,049
GB-040-05-D-0100	7,5	12	35	18000	0,035
GB-040-07-A-0100	8,5	13,5	26	18000	0,033
GB-040-10-A-0100	5	8	25	18000	0,032
GB-040-03-A-0024	4,5	7	22,5	18000	0,049
GB-040-05-A-0024	7,5	12	35	18000	0,035
GB-040-07-A-0024	8,5	13,5	26	18000	0,033
GB-040-10-A-0024	5	8	25	18000	0,032
GB-060-03-A-0400	14	22	66	13000	0,357
GB-060-05-A-0400	24	38	80	13000	0,236
GB-060-07-A-0400	25	40	80	13000	0,225
GB-060-10-A-0400	15	24	70	13000	0,221
GB-060-03-A-0024	14	22	66	13000	0,357
GB-060-05-A-0024	24	38	80	13000	0,236
GB-060-07-A-0024	25	40	80	13000	0,225
GB-060-10-A-0024	15	24	70	13000	0,221
GB-080-03-A-0750	40	64	180	7000	1,273
GB-080-05-A-0750	67	107	220	7000	0,973
GB-080-07-A-0750	65	104	178	7000	0,929
GB-080-10-A-0750	38	61	170	7000	0,91
GB-080-03-A-0024	40	64	180	7000	1,273
GB-080-05-A-0024	67	107	220	7000	0,973
GB-080-07-A-0024	65	104	178	7000	0,929
GB-080-10-A-0024	38	61	170	7000	0,91
GB-120-03-A-1000	80	128	360	6500	2,846
GB-120-05-A-1000	130	208	500	6500	2,074
GB-120-07-A-1000	120	216	340	6500	1,905
GB-120-10-A-1000	95	152	430	6500	1,82

[A] Values refer to intermittent load, without rotation inversion, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

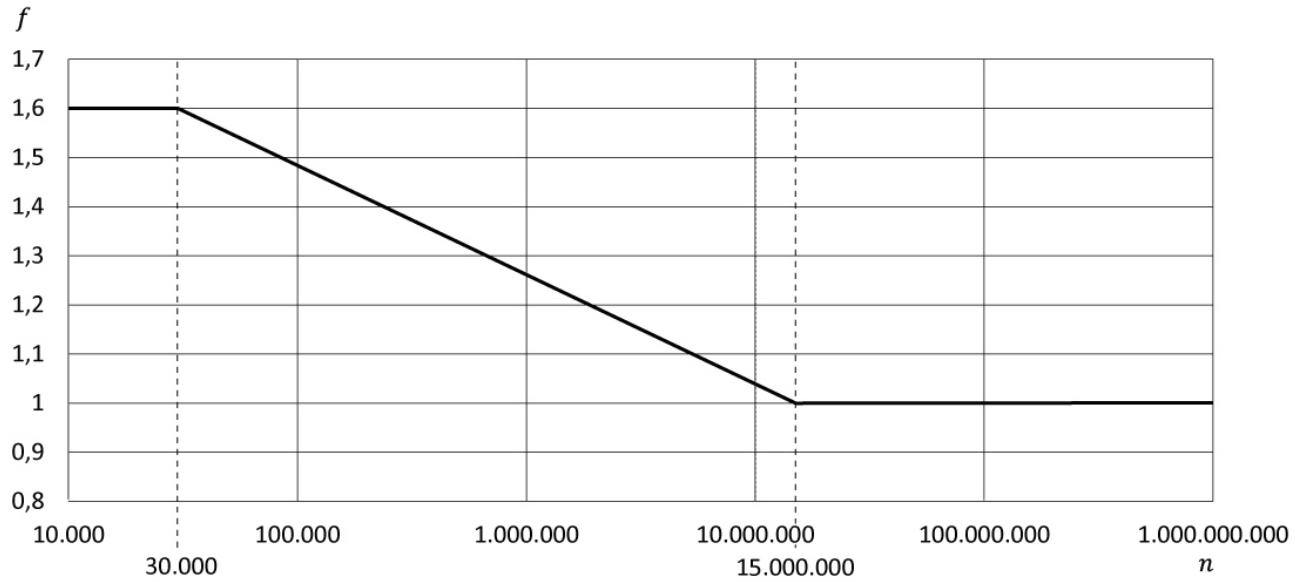
[B] Referred to 30,000 revolutions of the output shaft, under ideal mounting and operating conditions; see paragraph "How to calculate the life of the gearbox according to applied torque". For further details, please contact service@camozzi.com.

[C] Allowed for maximum 1000 times, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com.

How to calculate the life of the gearbox according to applied torque

Ca = Effective torque application [Nm]
Cn = Nominal output torque [Nm]
f = increasing factor
n = number of revolutions output shaft

$$f = \frac{Ca}{Cn}$$



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.

AVAILABLE STANDARD DIAMETERS

Size	6.35	8	10	11	12	12.7	14	15	16	19	20	22	24	25	32
5	×	×	×	×											
10	×	×	×		×	×	×	×	×						
20					×		×	×	×	×	×	×	×		
60							×		×	×	×		×	×	×

MOD. COE CODING EXAMPLE

COE	-	10	-	1200	-	1400	-	A

COE	SERIES MODEL
10	SIZE: 05 10 20 60
1200	HOLE DIAMETER 1: 0635 = 6,35 mm (for sizes 5 and 10 only) 0800 = 8,00 mm (for sizes 5 and 10 only) 1000 = 10,00 mm (for sizes 5 and 10 only) 1100 = 11,00 mm (for size 5 only) 1200 = 12,00 mm (for sizes 10 and 20 only) 1400 = 14,00 mm (for sizes 10, 20 and 60 only) 1500 = 15,00 mm (for sizes 10 and 20 only) 1600 = 16,00 mm (for sizes 10, 20 and 60 only) 1900 = 19,00 mm (for sizes 20 and 60 only) 2000 = 20,00 mm (for sizes 20 and 60 only) 2400 = 24,00 mm (for sizes 20 and 60 only) 2500 = 25,00 mm (for size 60 only) 3200 = 32,00 mm (for size 60 only)
1400	HOLE DIAMETER 2: 0635 = 6.35mm (for sizes 5 and 10 only) 0800 = 8.00mm (for sizes 5 and 10 only) 1000 = 10.00mm (for sizes 5 and 10 only) 1100 = 11.00mm (for size 5 only) 1200 = 12.00mm (for sizes 10 and 20 only) 1270 = 12.70mm (for size 10 only) 1400 = 14.00mm (for sizes 10, 20 and 60 only) 1500 = 15.00mm (for sizes 10 and 20 only) 1600 = 16.00mm (for sizes 10, 20 and 60 only) 1900 = 19.00mm (for sizes 20 and 60 only) 2000 = 20.00mm (for sizes 20 and 60 only) 2200 = 22.00mm (for size 20 only) 2400 = 24.00mm (for sizes 20 and 60 only) 2500 = 25.00mm (for size 60 only) 3200 = 32.00mm (for size 60 only)
A	ELASTOMER HARDNESS: A = 98 Sh A B = 64 Sh D (for sizes 10 and 20 only)

Elastomer coupling with clamps Mod. COE

DC: hole 1 diameter
DM: hole 2 diameter
See the CODING EXAMPLE

Size	øDE	øDB	øDI	A	C	F	G	B1 [ISO 4762]	Tightening torque (Nm)	Nominal torque with elastomer A (Nm)[A]	Nominal torque with elastomer B (Nm)[A]	Max torque with elastomer A (Nm)[B]	Max torque with elastomer B (Nm)[B]
05	25	25	10.2	26	8	8	4	M3 (CH2.5)	2	9	-	18	-
10	32	32	14.2	32	10.3	10.5	5	M4 (CH3)	4	12.5	16	25	32
20	42	44.5	19.2	50	17	15.5	8.5	M5 (CH4)	8	17	21	34	42
60	56	57	26.2	58	20	21	10	M6 (CH5)	15	60	-	120	-

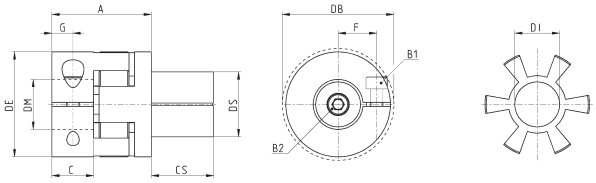
[A] Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
[B] Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

MOD. COS CODING EXAMPLE

COS	-	10	-	2000	-	1400	-	A

COS	SERIES MODEL
10	SIZE: 10 20 60
2000	SHAFT DIAMETER: 2000 = 20.00mm (for size 10 only) 2600 = 26.00mm (for size 20 only) 3800 = 38.00mm (for size 60 only)
1400	HOLE DIAMETER: 0635 = 6.35mm (for size 10 only) 0800 = 8.00mm (for size 10 only) 1000 = 10.00mm (for size 10 only) 1200 = 12.00mm (for sizes 10 and 20 only) 1270 = 12.70mm (for size 10 only) 1400 = 14.00mm (for sizes 10, 20 and 60 only) 1500 = 15.00mm (for sizes 10 and 20 only) 1600 = 16.00mm (for sizes 10, 20 and 60 only) 1900 = 19.00mm (for sizes 20 and 60 only) 2000 = 20.00mm (for sizes 20 and 60 only) 2200 = 22.00mm (for size 20 only) 2400 = 24.00mm (for sizes 20 and 60 only) 2500 = 25.00mm (for size 60 only) 3200 = 32.00mm (for size 60 only)
A	ELASTOMER HARDNESS: A = 98 Sh A B = 64 Sh D (for sizes 10 and 20 only)

Elastomer coupling with expansion shaft Mod. COS

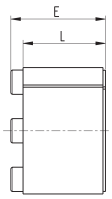


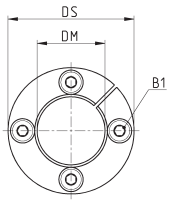
DS: shaft diameter
DM: hole diameter
See the CODING EXAMPLE

Size	⌀DE	⌀DB	⌀DI	A	C	CS	F	G	B1 [ISO4762]	Tightening torque (Nm)	B2 [ISO4762]	Tightening torque (Nm)	Nominal torque with elastomer A (Nm)[A]	Nominal torque with elastomer B (Nm)[A]	Max torque with elastomer A (Nm)[B]	Max torque with elastomer B (Nm)[B]
10	32	32	14.2	28	10.3	20	10.5	5	M4 (CH3)	4	M5 (CH4)	9	12.5	16	25	32
20	42	44.5	19.2	40	17	25	15.5	8.5	M5 (CH4)	8	M6 (CH5)	12	17	21	34	42
60	56	57	26.2	46	20	27	21	10	M6 (CH5)	15	M8 (CH6)	32	60	-	120	-

[A] Continuously applicable torque, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com
[B] Torque applicable for short intervals, under ideal mounting and operating conditions. For further details, please contact service@camozzi.com

Self-centering locking-set Mod. COT





Mod.	⌀DS	⌀DM	L	E	B1	Torque force (Nm)	Max torque (Nm)(A)	Weight (g)
COT-1800-0800	18	8	11	13,5	M2.5 (CH2.5)	1,2	8	16
COT-2000-1000	20	10	13	15,5	M2.5 (CH2.5)	1,2	14	25
COT-2200-1200	22	12	13	15,5	M2.5 (CH2.5)	1,2	15	27
COT-2600-1400	26	14	17	20	M3 (CH2.5)	2,1	30	50
COT-2800-1500	28	15	17	20	M3 (CH2.5)	2,1	32	58
COT-3500-1900	35	19	21	25	M4 (CH3)	4,9	70	113
COT-3800-2000	38	20	21	26	M5 (CH4)	4,9	125	140
COT-4700-2400	47	24	26	32	M6 (CH5)	17	210	200
COT-4700-2500	47	25	26	32	M6 (CH5)	17	215	200

(A) value refers to ideal mounting and operating conditions.
For further details, please contact service@camozzi.com

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