Series 6E electromechanical cylinders

Sizes 32, 40, 50 and 63

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

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

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

GENERAL DATA

Construction **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, 63 100 ÷ 1200 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

STANDARD STROKES

Size	100	200	300	400	500	600	700	800	900	1000	1100	1200
32	✖	✖	✖	✖	✖							
40	✖	✖	✖	✖	✖	✖	✖					
50	✖	✖	✖	✖	✖	✖		✖		✖		
63	✖	✖	✖	✖	✖			✖		✖		✖

CODING EXAMPLE

6E	032	BS	0200	P05	A	

6E	SERIES
032	SIZE: 032 = 32 040 = 40 050 = 50 063 = 63
BS	DESIGN: BS = recirculating ball screw
0200	STROKE: 100 ÷ 1200 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)
A	CONSTRUCTION: A = standard with rod nut
	VERSION: = standard (IP40) (_ _ _) = extended piston rod _ _ _ mm P = IP65

MECHANICAL CHARACTERISTICS

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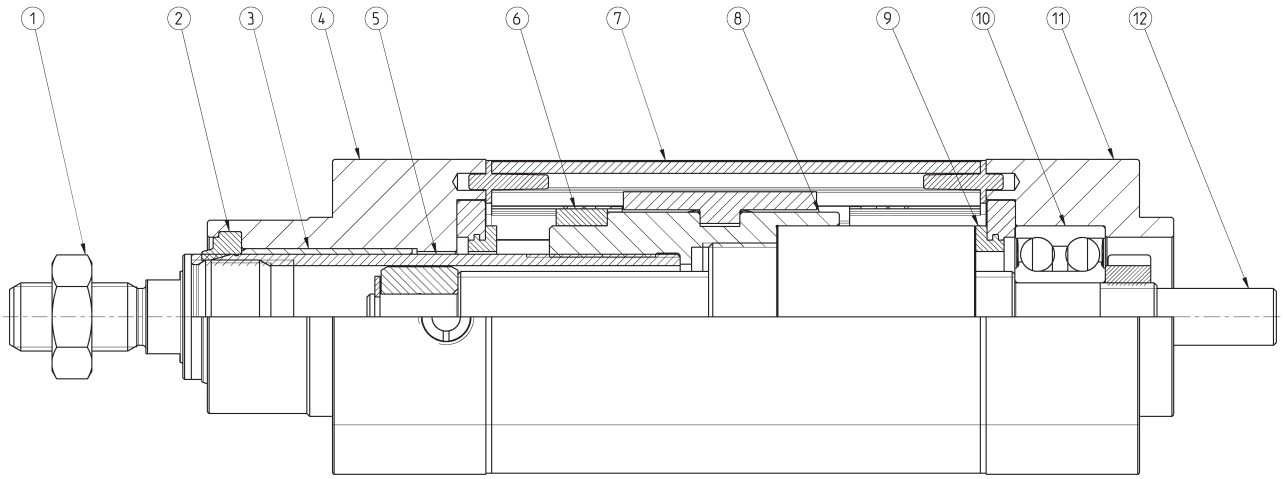
Size		32	32	40	40	40	50	50	50	63	63	63
BS screw diameter	[mm]	12	12	16	16	16	20	20	20	25	25	25
BS screw pitch (p)	[mm]	5	10	5	10	16	5	10	20	5	10	25
Dynamic load coefficient (C)	[N]	6600	4400	12000	8500	9150	14900	11300	7800	17700	20500	11300
Max applicable torque	[Nm]	2.50	2.80	5.50	6.50	8.20	9.10	10.90	13.60	16.60	19.90	24.90
Max linear speed *	[m/s]	0.56	1.12	0.42	0.84	1.33	0.33	0.67	1.33	0.27	0.53	1.33
Max rotational speed	[rpm]	6670	6670	5000	5000	5000	4000	4000	4000	3200	3200	3200
Max acceleration	[m/s²]	25	25	25	25	25	25	25	25	25	25	25

* it varies according to the stroke (see the graphs representing the maximum speed of the cylinder)

SERIES 6E MATERIALS



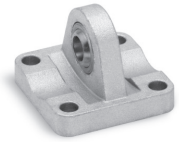
LIST OF COMPONENTS	
PARTS	MATERIALS
1. Rod nut	Zinc-plated steel
2. Rod seal	PU
3. Bushing	Technopolymer
4. Front endcap	Anodized aluminium
5. Rod	Stainless steel
6. Magnet	Plastoferrite
7. Extrusion profile	Anodized aluminium
8. Guiding element BS screw	Aluminium
9. End stroke seals	NBR
10. Bearing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

ACCESSORIES FOR SERIES 6E CYLINDERS

Piston rod socket joint
Mod. GY

Piston rod lock nut
Mod. U

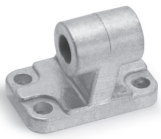
Clevis pin Mod. S



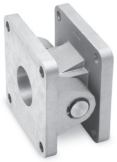
Rear trunnion ball-joint
Mod. R

Coupling piece
Mod. GKF

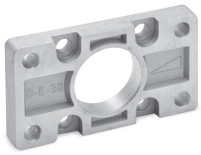
Swivel ball joint Mod. GA



90° male trunnion
Mod. ZC



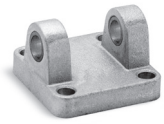
Swivel Combination
Mod. C+L+S



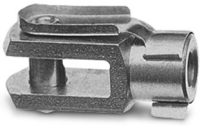
Front flange
Mod. D-E

Self aligning rod
Mod. GK

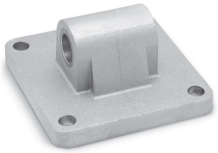
Foot mount Mod. B-6E



Rear female trunnion
Mod. C and C-H



Rod fork end Mod. G



Rear trunnion male
Mod. L

Side clamping bracket
Mod. BG

Housing for axial
connection Mod. CM

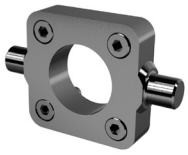
Flange for axial
connection Mod. FM

Kit for axial connection
Mod. AM (IP40)

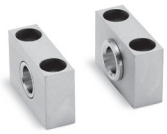
Kit for parallel connection
Mod. PM (IP40)

Kit for axial connection
Mod. AM (IP65)

Kit for parallel connection
Mod. PM (IP65)

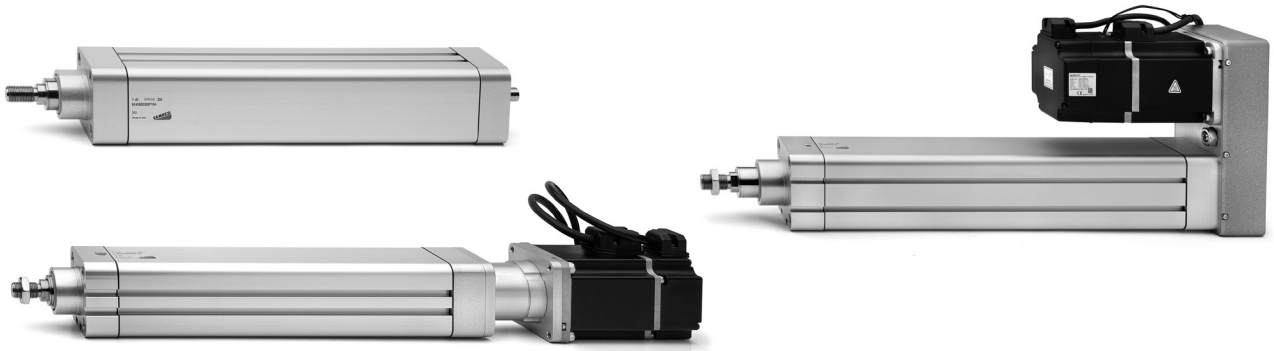


Front spot faced trunnion
Mod. FN



Counter bracket for
trunnion Mod. BF

Series 45
anti-rotation guide units



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

1
MOVEMENT

HOW TO CALCULATE THE LIFE OF THE CYLINDER

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

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

CALCULATE THE LIFE IN ROTATIONS
where:

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

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

CALCULATION OF LIFE IN km
where:

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

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

CALCULATION OF THE LIFE IN HOURS
where:

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

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

APPLICATION	ACCELERATION [m/s²]	SPEED [m/s]	DUTY CYCLE	fw 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.

CALCULATION OF THE AVERAGE AXIAL FORCE

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

CALCULATION OF THE AVERAGE NUMBER OF REVOLUTIONS

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

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

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

APPLICATION EXAMPLE

Phase 1

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

Phase 2

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

Phase 3

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

in this way it is possible to determine:

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

Concluding, we know that:

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

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

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

MECHANICAL DIMENSIONING

CALCULATION OF THE DRIVING TORQUE AT CONSTANT SPEED [Nm]

$$C_{m1} = \frac{F_a \cdot p}{2\pi \cdot \eta \cdot 1000}$$

TOTAL FORCE ACTING ON THE SYSTEM [N]

$$F_a = F + \mu \cdot m \cdot g$$

where:
F = Force to be applied in axial direction [N]
m = Mass of the body to move [kg]
g = Gravitational acceleration (9.81 m/s²)
p = Pitch of the ball screw [mm]
η = Output of the Series 6E cylinders = 0.9
μ = Friction coefficient of the support guide

CALCULATION OF THE DRIVING TORQUE AT CONSTANT ACCELERATION [Nm]

$$Cm_2 = Cm_1 + J_{tot} \cdot \frac{\dot{\omega}}{\eta}$$

ANGULAR ACCELERATION [rad/s²]

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

where:
a = Linear acceleration of the ball screw [m/s²]
p = Pitch of the screw [mm]

MOMENT OF TOTAL INERTIA OF THE CYLINDER [kg·m²]

$$J_{tot} = J_{frb} + J_{vrb}$$

MOMENT OF TOTAL INERTIA OF THE 6E COMPONENTS AT FIXED LENGTH [kg·m²]

$$J_{frb} = (J_{c1} \cdot 10^{-6}) + m_{c1} \cdot \left(\frac{p}{2\pi \cdot 1000}\right)^2$$

where:
J_{c1} = Moment of inertia of 6E rotating components [kg·m²]
m_{c1} = Mass of the 6E components to move [kg]

MOMENT OF TOTAL INERTIA OF THE 6E COMPONENTS AT VARIABLE LENGTH [kg·m²]

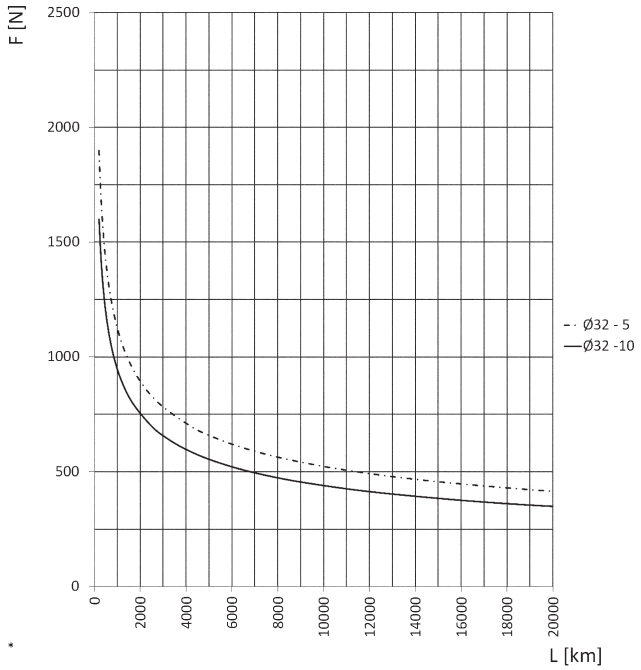
$$J_{vrb} = \left[(J_{c2} \cdot 10^{-6}) + m_{c2} \cdot \left(\frac{p}{2\pi \cdot 1000}\right)^2\right] \cdot \frac{c}{1000}$$

where:
J_{c2} = Moment of inertia of the 6E rotating components [kg·m²]
m_{c2} = Mass of the 6E components to move [kg]
c = rod stroke [mm]

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

Size	Pitch	m_{c1}	m_{c2}	J_{c1}	J_{c2}
32	5	0.151 Kg	0.0008 Kg	12.38 kg mm²	1.59 kg mm²
	10	0.151 Kg	0.0008 Kg	12.38 kg mm²	1.59 kg mm²
40	5	0.428 Kg	0.0010 Kg	35.55 kg mm²	5.02 kg mm²
	10	0.428 Kg	0.0010 Kg	35.55 kg mm²	5.02 kg mm²
	16	0.428 Kg	0.0010 Kg	35.55 kg mm²	5.02 kg mm²
50	5	0.399 Kg	0.0011 Kg	54.96 kg mm²	12.33 kg mm²
	10	0.399 Kg	0.0011 Kg	85.94 kg mm²	12.33 kg mm²
	20	0.399 Kg	0.0011 Kg	83.25 kg mm²	12.33 kg mm²
63	5	0.576 Kg	0.0014 Kg	207.53 kg mm²	30.07 kg mm²
	10	0.576 Kg	0.0014 Kg	230.82 kg mm²	30.07 kg mm²
	25	0.576 Kg	0.0014 Kg	219.55 kg mm²	30.07 kg mm²

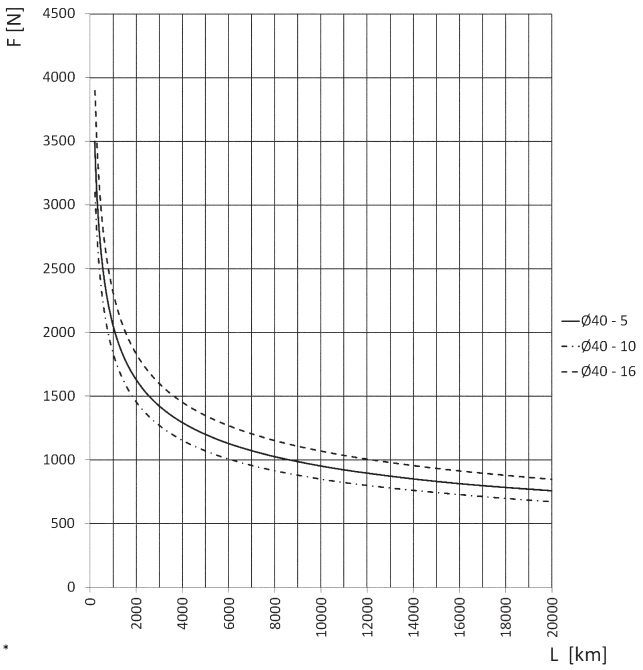
Life of the cylinder according to the average axial force applied



Size 32

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

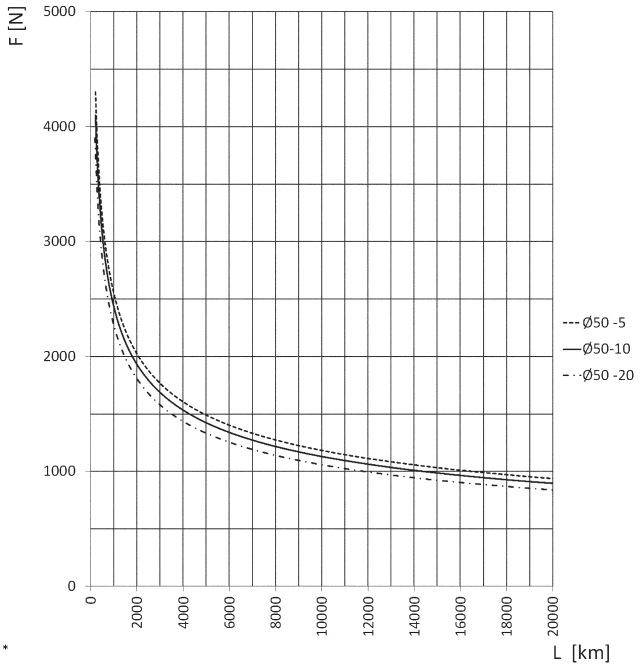
* Curves calculated with fw = 1 (see page 1/11.05.05)



Size 40

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

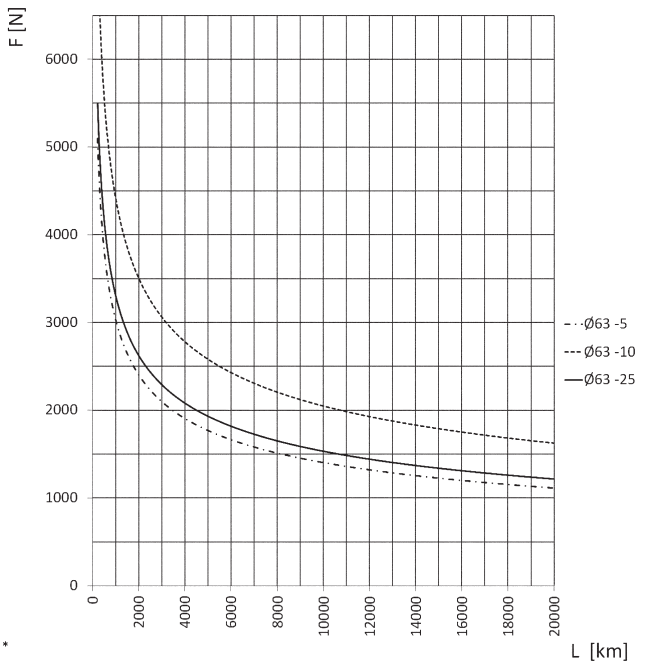
* Curves calculated with fw = 1 (see page 1/11.05.05)



Size 50

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

* Curves calculated with fw = 1 (see page 1/11.05.05)

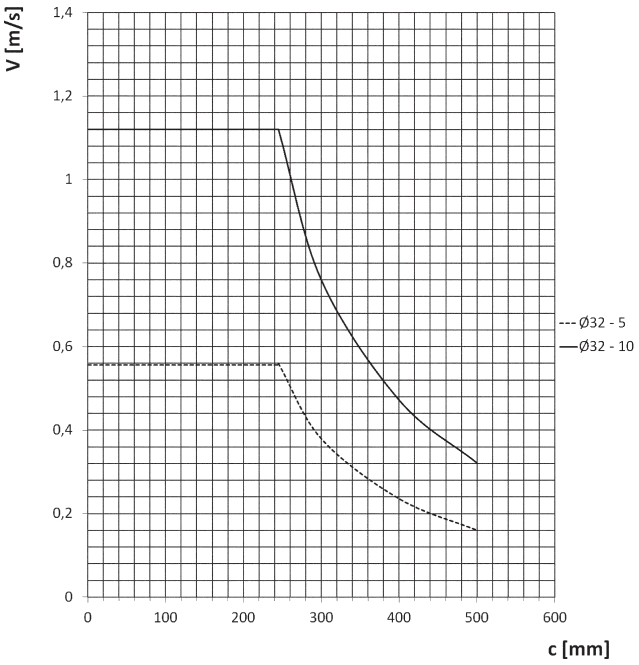


Size 63

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

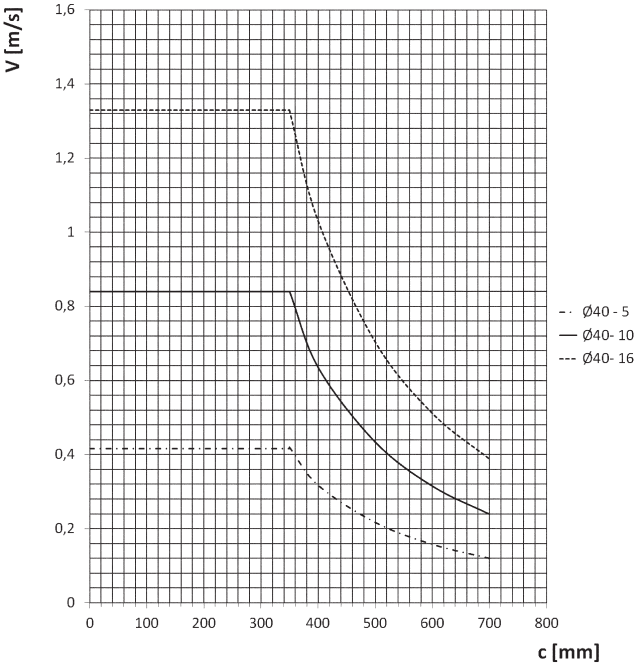
* Curves calculated with fw = 1 (see page 1/11.05.05)

Maximum speed of the cylinder according to its stroke



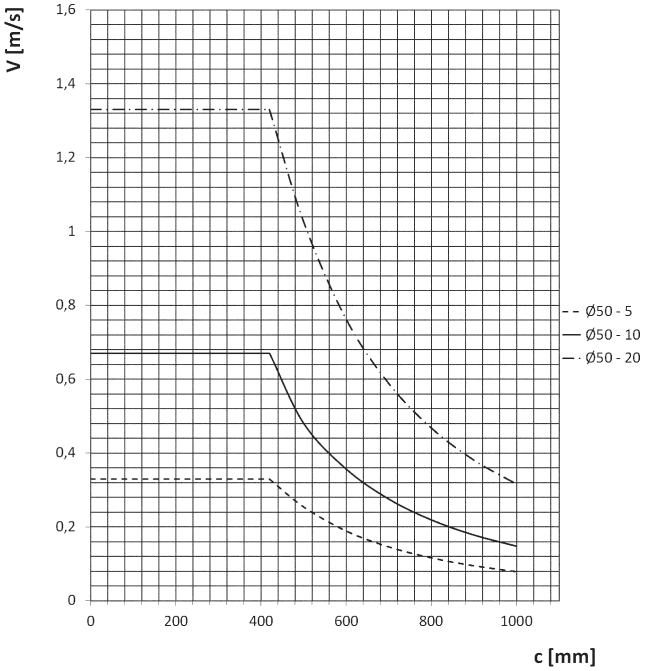
Size 32

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



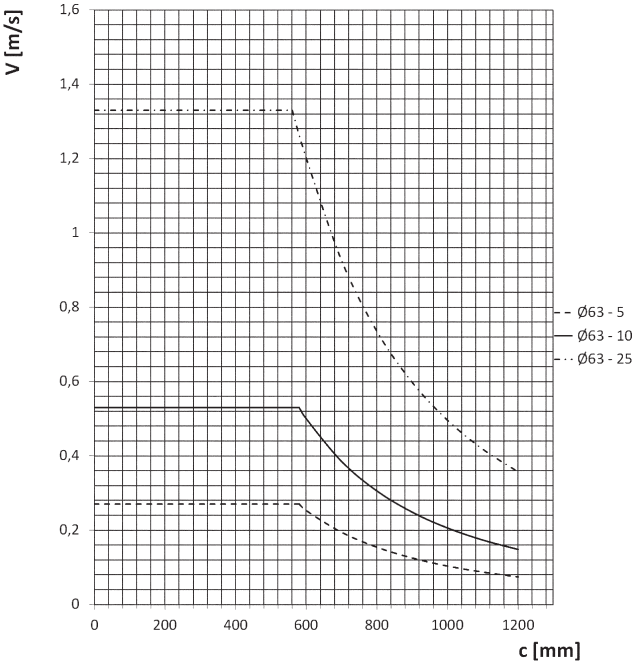
Size 40

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



Size 50

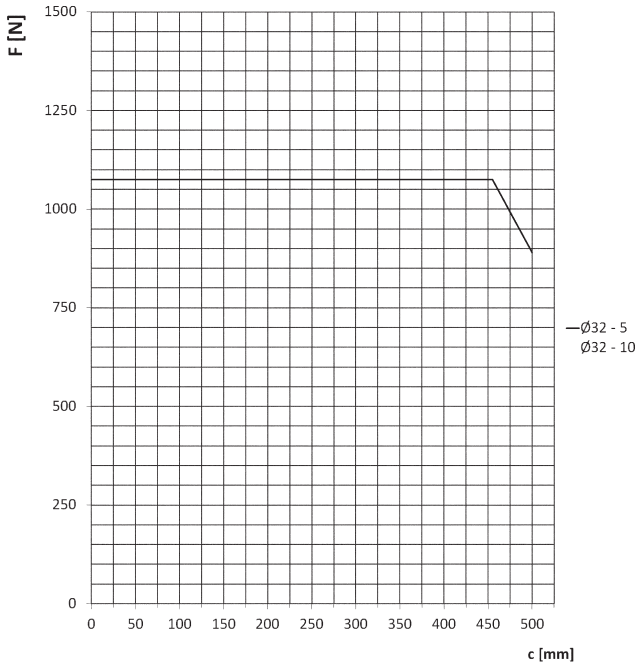
V = speed [m/s]
c = stroke [mm]



Size 63

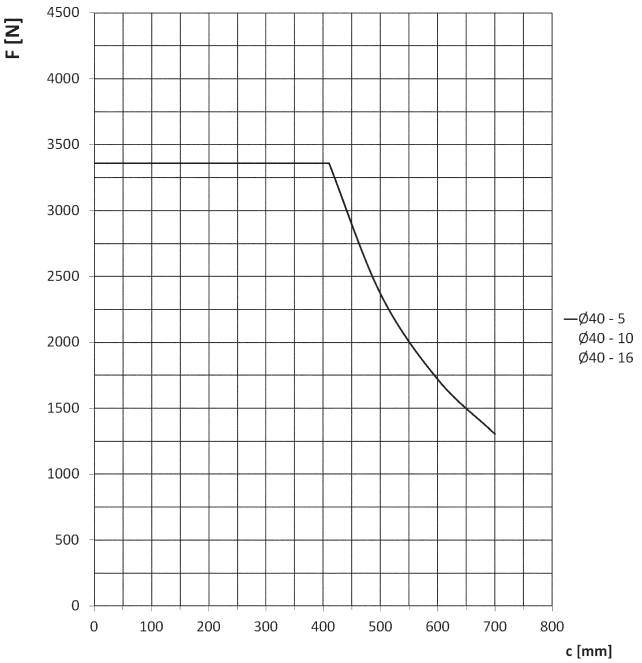
V = speed [m/s]
c = stroke [mm]

Maximum force of the cylinder according to its stroke



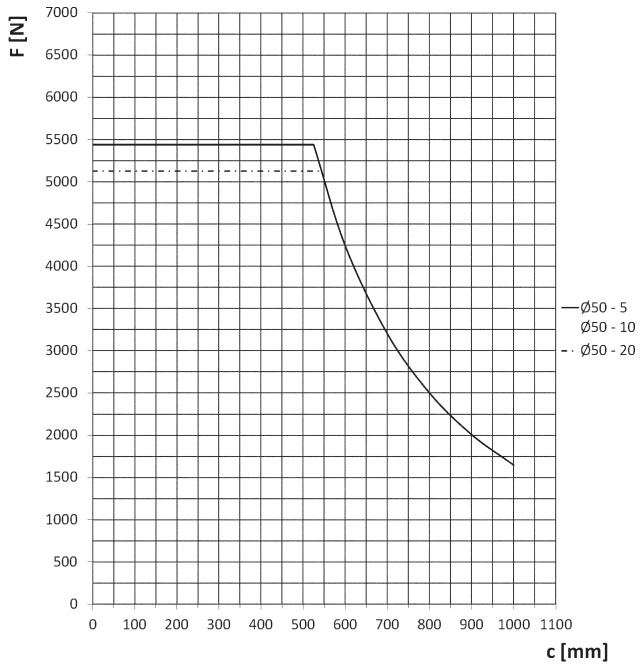
Size 32

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



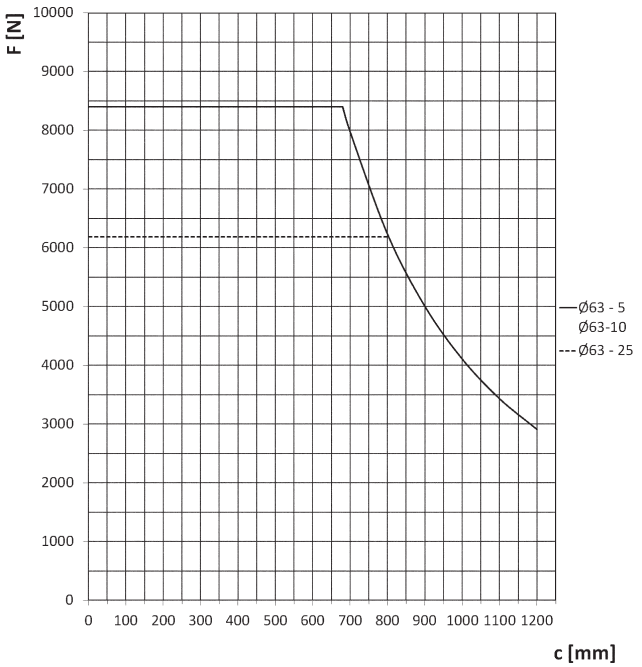
Size 40

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



Size 50

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

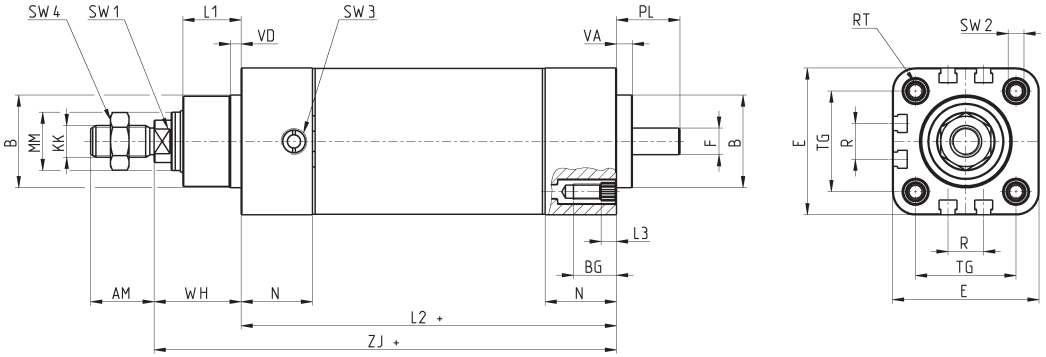


Size 63

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

Series 6E cylinders

+ = add the stroke



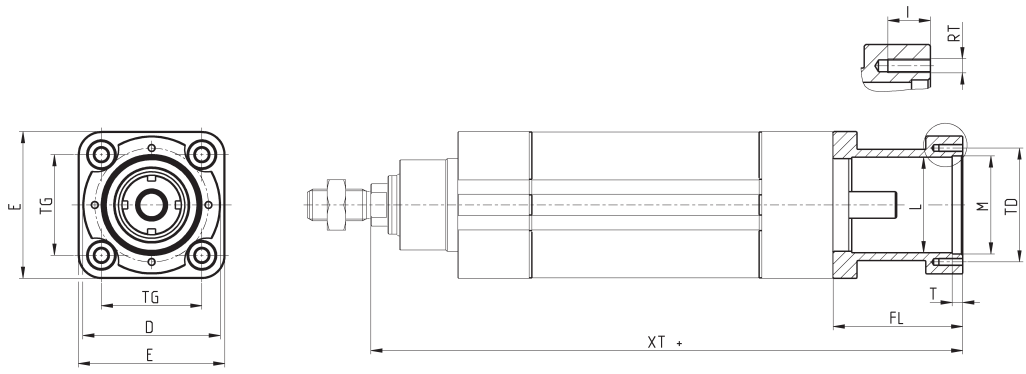
Size	AM	B	BG	E	F	KK	L1	L2+	L3	MM	N	R	RT	PL	SW1	SW2	SW3	SW4	TG	VA	VD	WH	ZJ+	weight stroke zero [g]	weight stroke [g/100mm]
32	22	30	16	46.5	8	M10x1.25	20	125	5.5	18	26	13	M6	21	10	6	G1/8	17	32.5	6	4	30	155	1175	377
40	24	35	16	55.4	10	M12x1.25	22	142	5.5	22	27	13.5	M6	24	13	6	G1/8	19	38	6	4	33	175	1395	530
50	32	40	16	64.9	12	M16x1.5	26	173	5.5	25	36	16	M8	30	17	8	G1/8	24	46.5	7	4	38	211	2280	603
63	32	45	16	75	15	M16x1.5	29	201	5.5	30	36	28	M8	38	17	8	G1/8	24	56.5	7	4	42	242.5	3500	977

Housing for axial connection Mod. CM

Material: anodized aluminium

Supplied with:
1x housing
4x screws

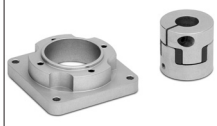
+ = add the stroke



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

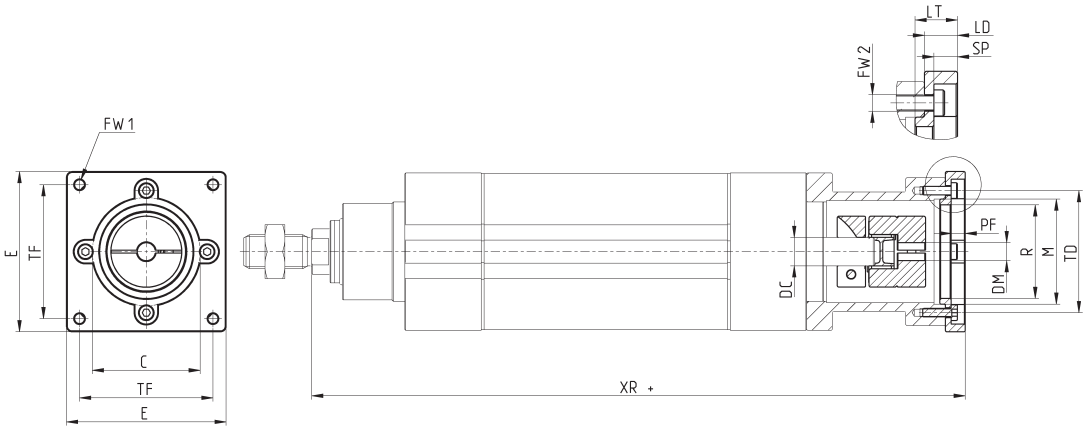
Flange for axial connection Mod. FM

Material: anodized aluminium



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

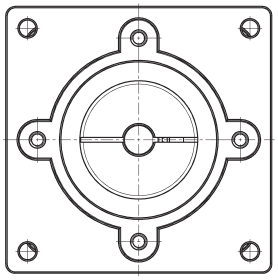
+ = add the stroke

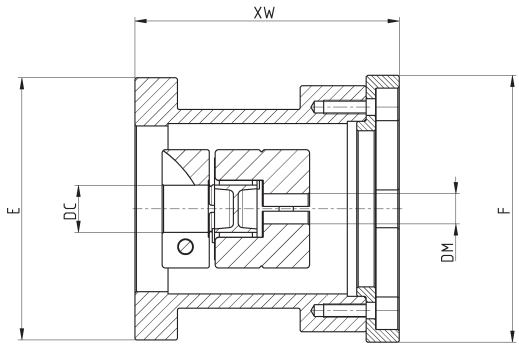


Mod.	Size	Housing	Motor	XR	⌀C [h7]	PF	LT	LD	⌀M [H7]	E	⌀R	TF	FW1	⌀TD	SP	⌀FW2	⌀DC	⌀DM	Weight (g)
FM-6E-32-0100	32	CM-6E-32	MTB-010-…	210	30	6	11	9	32	42	29	31.8	M3	37	6	3.5	8	8	65
FM-6E-32-0023	32	CM-6E-32	MTS-23-…	208	38.1	5	9	7	32	56.4	29	47.1	M4	37	5	3.5	8	6.35	140
FM-6E-40-0400	40	CM-6E-40	MTB-040-…	242	50	3.5	20	18	37	60	33	49.5	M5	43	3.5	3.5	10	14	140
FM-6E-40-0023	40	CM-6E-40	MTS-23-…	231	38.1	5	9	7	37	56.4	33	47.1	M4	43	5	3.5	10	6.35	215
FM-6E-50-0400	50	CM-6E-50	MTB-040-…	284	50	6	19	17	42	60	37	49.5	M5	49	14	4.5	12	14	210
FM-6E-50-0024	50	CM-6E-50	MTS-24-…	274	38.1	3	9	7	42	58	37	47.1	M4	49	4	4.5	12	8	190
FM-6E-63-0750	63	CM-6E-63	MTB-075-…	332.5	70	6	28	26	47	80	43	63.6	M6	54	24	4.5	15	19	565
FM-6E-63-0024	63	CM-6E-63	MTS-24-…	313.5	38.1	5	9	7	47	60.5	43	47.1	M4	54	5	4.5	15	8	200

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

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

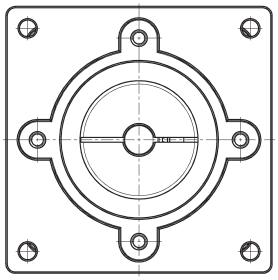


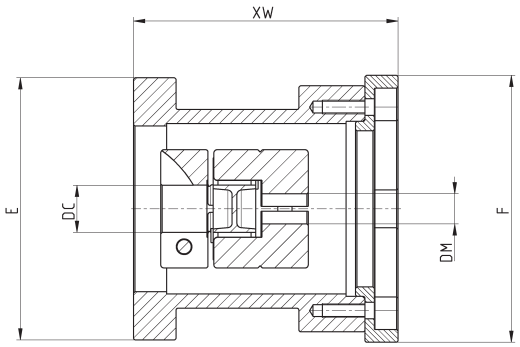


Mod.	Size	Motor	⌀DC	⌀DM	E	F	XW	Weight (g)	η
AM-6E-32-0100	32	MTB-010-…	8	8	46.5	42	55	165	0.78
AM-6E-32-0023	32	MTS-23-…	8	6.35	46.5	56.4	53	240	0.78
AM-6E-40-0400	40	MTB-040-…	10	14	55.4	60	67	290	0.78
AM-6E-40-0023	40	MTS-23-…	10	6.35	55.4	56.4	56	365	0.78
AM-6E-50-0400	50	MTB-040-…	12	14	64.9	60	73	435	0.78
AM-6E-50-0024	50	MTS-24-…	12	6.35	64.9	58	63	415	0.78
AM-6E-63-0750	63	MTB-075-…	15	19	75	80	90	845	0.78
AM-6E-63-0024	63	MTS-24-…	15	6.35	75	60.5	71	480	0.78

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

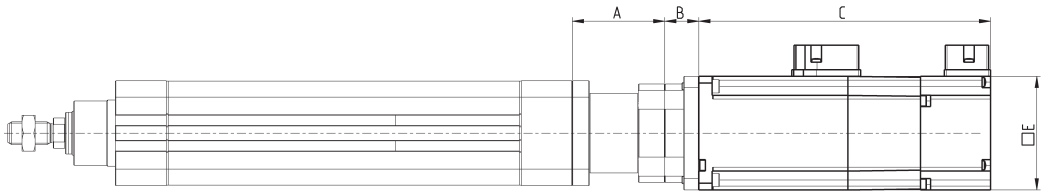
Supplied with:
1x housing
1x flange
1x flexible coupling
4x screws to connect on the cylinder's side
4x screws to connect on the motor's side
3x seals
4x seal washers





Mod.	Size	Motor	⌀DC	⌀DM	E	F	XW	Weight (g)	η
AM-6E-32-0100P	32	MTB-010-...	8	8	46.5	42	55	165	0.78
AM-6E-32-0023P	32	MTS-23-...	8	6.35	46.5	56.4	53	240	0.78
AM-6E-40-0400P	40	MTB-040-...	10	14	55.4	60	67	290	0.78
AM-6E-40-0023P	40	MTS-23-...	10	6.35	55.4	56.4	56	365	0.78
AM-6E-50-0400P	50	MTB-040-...	12	14	64.9	60	73	435	0.78
AM-6E-50-0024P	50	MTS-24-...	12	6.35	64.9	58	63	415	0.78
AM-6E-63-0750P	63	MTB-075-...	15	19	75	80	90	845	0.78
AM-6E-63-0024P	63	MTS-24-...	15	6.35	75	60.5	71	480	0.78

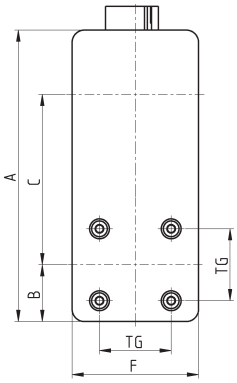
Series 6E cylinders - in line motor configuration

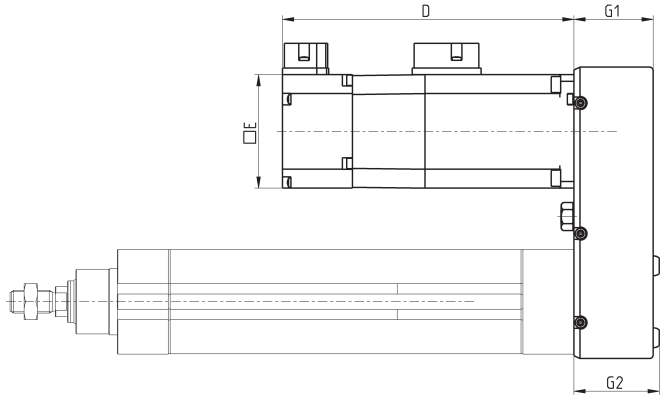


Size	Motor	A	B	C (with brake)	C (with encoder)	C (without brake)	E
32	MTS-23-...	46	7	105.5	64.5	41	56.4
32	MTB-010-...	46	9	139	-	110.5	42
40	MTS-23-...	49	7	105.5	64.5	41	56.4
40	MTB-040-...	49	18	154.5	-	121.5	60
50	MTS-24-...	56	7	152	111	85	60.5
50	MTB-040-...	56	17	154.5	-	121.5	60
63	MTS-24-...	64	7	152	111	85	60.5
63	MTB-075-...	64	26	176	-	140	80

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

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

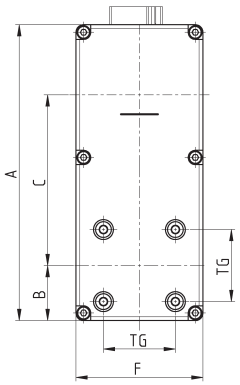


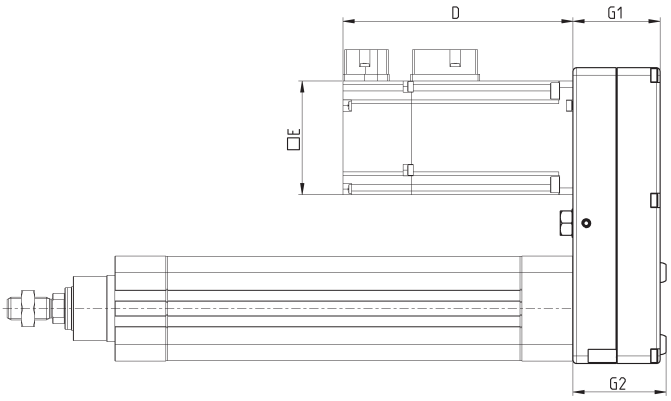


Mod.	Size	Motor	E	D (with brake)	D (without brake)	A	F	G1	G2	B	C	TG	Weight (g)	η
PM-6E-32-0100	32	MTB-010-…	42	139	110.5	122	50	35	38.2	26.5	65	32.5	400	0.62
PM-6E-40-0400	40	MTB-040-…	60	154.5	121.5	154	67	46	49.2	30	90	38	900	0.62
PM-6E-50-0400	50	MTB-040-…	60	154.5	121.5	174	77	48	52.4	34.5	105.5	46.5	1250	0.62
PM-6E-63-0750	63	MTB-075-…	80	176	140	192	87	50	54.4	41	107	56.5	1500	0.62

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

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





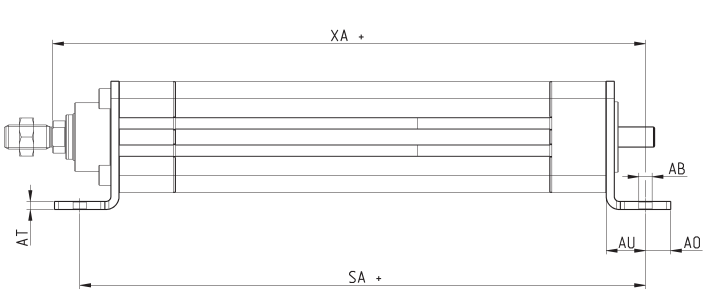
Mod.	Size	Motor	E	D (with brake)	D (without brake)	A	F	G1	G2	B	C	TG	Weight (g)	η
PM-6E-32-0100P	32	MTB-010-…	42	139	110.5	122	54	35	39.2	26.5	65	32.5	450	0.62
PM-6E-40-0400P	40	MTB-040-…	60	154.5	121.5	154	67	46	50.2	30	90	38	960	0.62
PM-6E-50-0400P	50	MTB-040-…	60	154.5	121.5	174	77	48	53.4	34.5	105.5	46.5	1375	0.62
PM-6E-63-0750P	63	MTB-075-…	80	176	140	192	87	50	55.4	41	107	56.5	1675	0.62

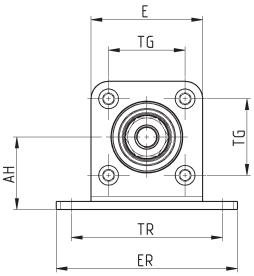
Foot bracket Mod. B-6E

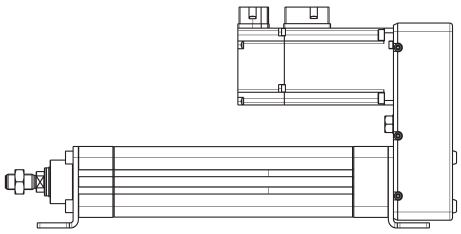
Material: zinc-plated steel

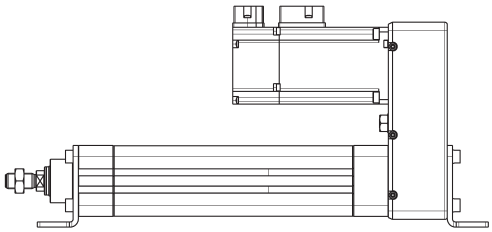
Supplied with:
2x feet
8x screws

+ = add the stroke





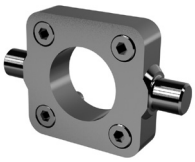




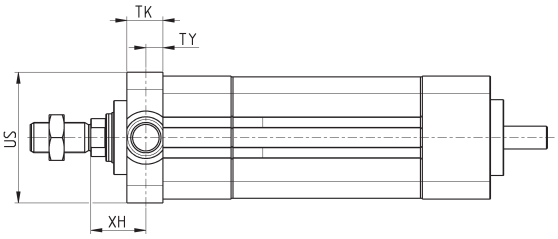
Mod.	Size	SA	XA	AH	TG	TR	AT	AU	AO	⌀AB	ER	E	Weight (g)
B-6E-32	32	164	174.5	32	32.5	65	4	19.5	12.5	6.6	79	46.5	275
B-6E-40	40	181	194.5	36	38	75	4	19.5	12.5	6.6	90	55.4	340
B-6E-50	50	223	236	45	46.5	90	5	25	15	9	110	64.9	635
B-6E-63	63	251	267.5	50	56.5	100	5	25	15	9	120	75	755

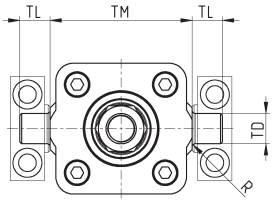
Front spot faced trunnion Mod. FN

Material: zinc-plated steel



Supplied with:
1x spot faced trunnion
4x screws

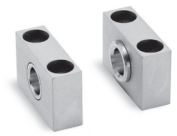




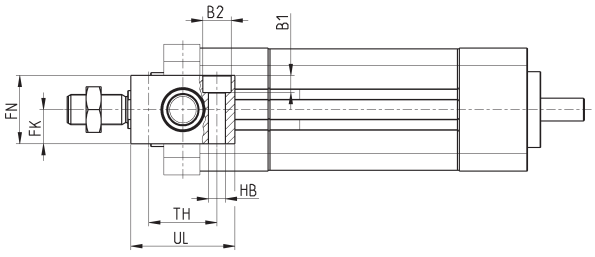
Mod.	Ø	TK	TY	XH	US	TL	TM	TD	R	torque force
FN-32	32	14	6.5	23.5	46	12	50	12	1	5 Nm
FN-40	40	19	9	24	59	16	63	16	1.5	5 Nm
FN-50	50	19	9	29	69	16	75	16	1.6	10 Nm
FN-63	63	24	11.5	30.5	84	20	90	20	1.6	10 Nm

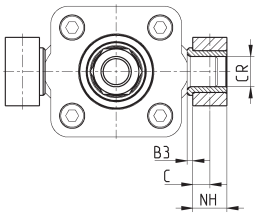
Counter bracket for front trunnion Mod. BF

Material: aluminium



Supplied with:
2x supports

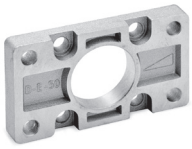




Mod.	Ø	CR	NH	C	B3	TH	UL	FK	FN	B1	B2	HB
BF-32	32	12	15	7.5	3	32	46	15	30	6.8	11	6.6
BF-40-50	40 - 50	16	18	9	3	36	55	18	36	9	15	9
BF-63-80	63 - 80	20	20	10	3	42	65	20	40	11	18	11

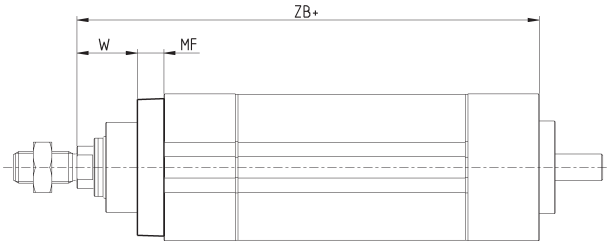
Front flange Mod. D-E

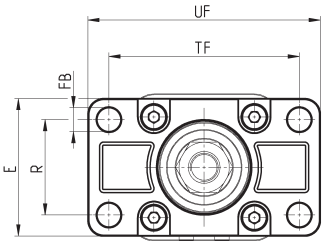
Material: aluminium



Supplied with:
1x flange
4x screws

+ = add the stroke



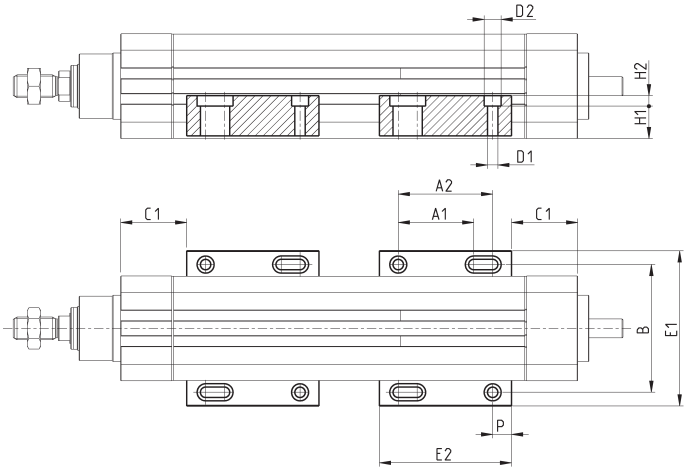


Mod.	Size	W	MF	ZB+	TF	R	UF	E	FB	torque force
D-E-41-32	32	20	10	155	64	32	86	45	7	6 Nm
D-E-41-40	40	23	10	175	72	36	88	52	9	6 Nm
D-E-41-50	50	26.5	12	211	90	43	110	63	9	13 Nm
D-E-41-63	63	30	12	242.5	100	50	116	73	9	13 Nm

Side clamping bracket Mod. BG

Material: aluminium

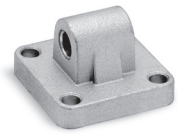
Supplied with:
2x clamps



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	M4x...	4.5	7.5	13.5	4.5	80
BG-6E-40	40	35	82	70	10	40	50	67.5	M5x...	5.5	9	16.9	5.5	105
BG-6E-50	50	35	93	70	10	40	50	76.5	M6x...	6.5	10.5	19.4	6.5	125
BG-6E-63	63	35	103.5	70	10	40	50	87	M6x...	6.5	10.5	18.9	6.5	125

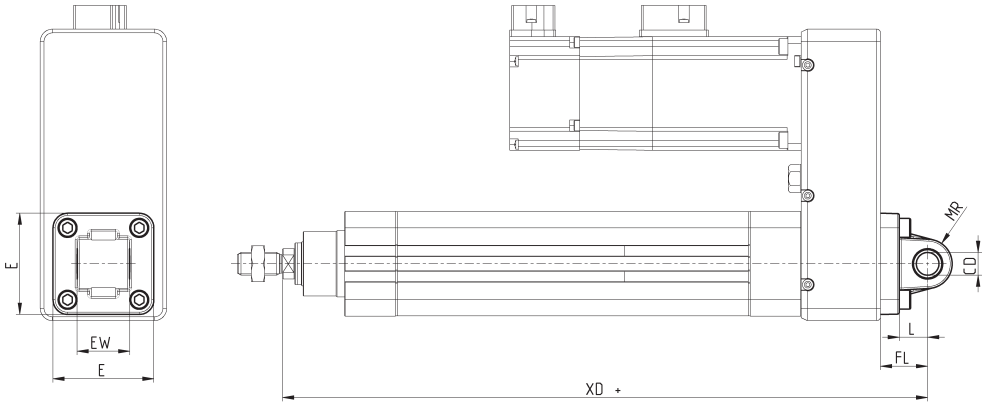
Rear male trunnion Mod. L

Material: aluminium



Supplied with:
1x male trunnion
4x screws

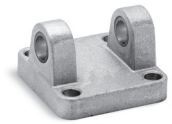
+ = add the stroke



Mod.	Size	⌀CD	L	FL	XD+	MR	E	EW	torque force
L-41-32	32	10	12	22	212	10	45	26	6 Nm
L-41-40	40	12	15	25	246	13	53.5	28	6 Nm
L-41-50	50	12	15	27	286	13	62.5	32	13 Nm
L-41-63	63	16	20	32	324.5	17	73	40	13 Nm

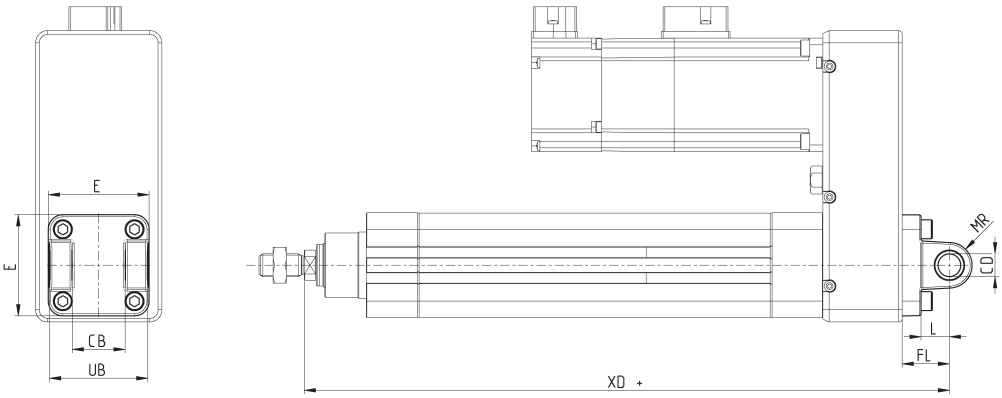
Rear female trunnion Mod. C and C-H

Material: aluminium



Supplied with:
1x female trunnion
4x screws

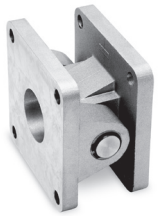
+ = add the stroke



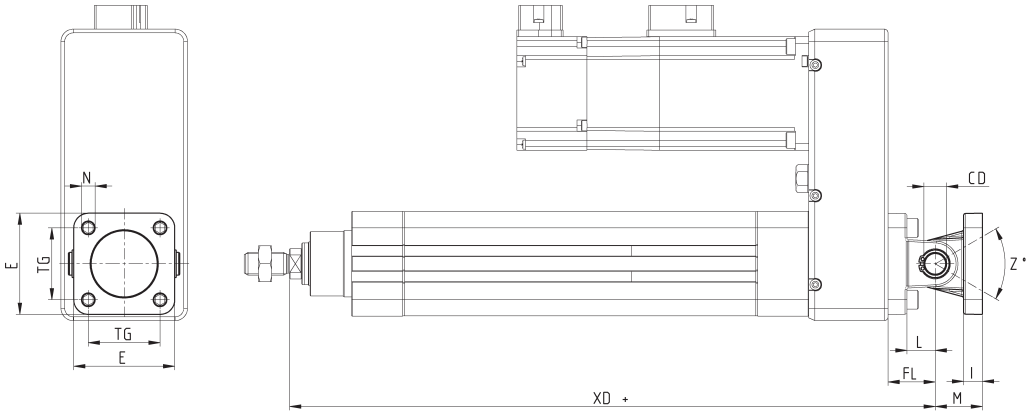
Mod.	Size	⌀CD	L	FL	XD+	MR	E	CB	UB	torque force
C-41-32	32	10	12	22	212	10	45	26	45	6 Nm
C-41-40	40	12	15	25	246	12	53.5	28	52	6 Nm
C-41-50	50	12	15	27	286	13	62.5	32	60	13 Nm
C-H-41-63	63	16	20	32	324.5	17	73	40	70	13 Nm

Accessory combination Mod. C+L+S

Material: aluminium



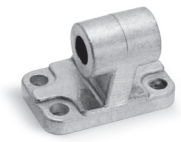
+ = add the stroke



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

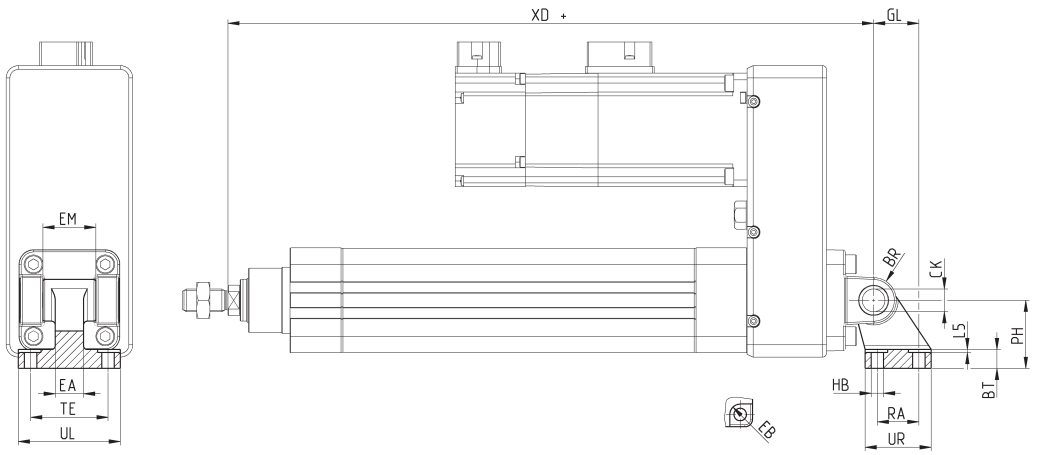
90° male trunnion Mod. ZC

CETOP RP 107P
Material: aluminium



Supplied with:
1x male support

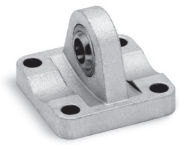
+ = add the stroke



Mod.	Size	⌀EB	⌀CK	⌀HB	XD+	TE	UL	EA	GL	L5	RA	EM	UR	PH	BT	BR
ZC-32	32	11	10	6.6	212	38	51	10	21	1.6	18	26	31	32	8	10
ZC-40	40	11	12	6.6	246	41	54	15	24	1.6	22	28	35	36	10	11
ZC-50	50	15	12	9	286	50	65	16	33	1.6	30	32	45	45	12	13
ZC-63	63	15	16	9	324.5	52	67	16	37	1.6	35	40	50	50	14	15

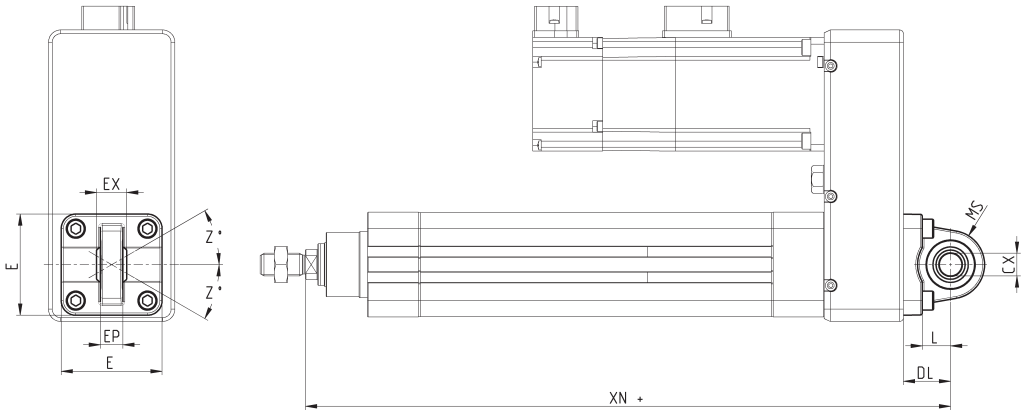
Trunnion ball-joint Mod. R

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



Supplied with:
1x trunnion ball joint
4x screws

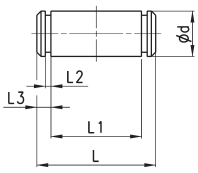
+ = add the stroke



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

Clevis pin Mod. S

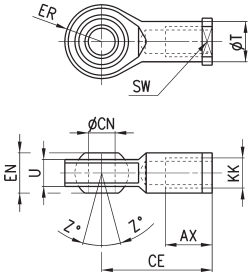
Supplied with:
1x clevis pin in
stainless steel 303
2x Seeger in steel



Mod.	Size	d	L	L1	L2	L3
S-32	32	10	52	46	1.1	3
S-40	40	12	59	53	1.1	3
S-50	50	12	67	61	1.1	3
S-63	63	16	77	71	1.1	3

Swivel ball joint Mod. GA

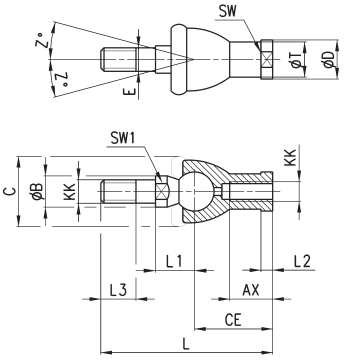
ISO 8139.
Material: zinc-plated steel



Mod.	⌀CN	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
GA-41-125	30	25	37	37	51	110	M27x2	40	7,5	41

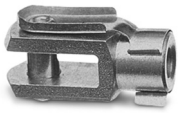
Piston rod socket joint Mod. GY

Material: zama and zinc-plated steel

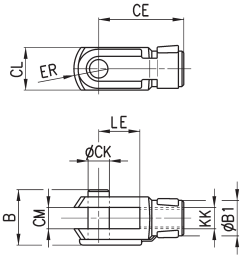


Mod.	Size	KK	AX	CE	E	L	L1	L2	L3	SW	SW1	⌀B	⌀C	⌀D	⌀T	Z
GY-32	32	M10X1.25	18	35	10	74	19.5	6.5	15	17	11	14	28	19	15	15
GY-40	40	M12X1.25	20	40	12	84	21	6.5	17	19	17	19	32	22	17.5	15
GY-50-63	50-63	M16X1.5	27	50	16	112	27.5	8	23	22	19	22	40	27	22	11

Rod fork end Mod. G



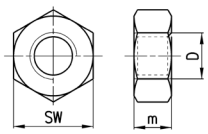
ISO 8140
Material: zinc-plated steel



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

Piston rod lock nut Mod. U

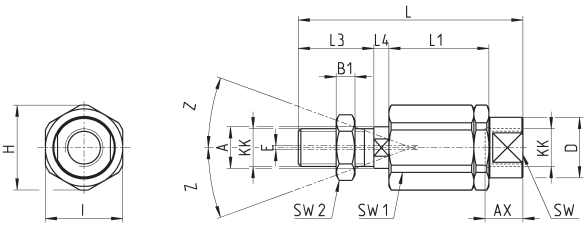
ISO 4035
Material: zinc-plated steel



Mod.	D	m	SW
U-25-32	M10X1,25	6	17
U-40	M12X1,25	7	19
U-50-63	M16X1,5	8	24

Self aligning rod Mod. GK

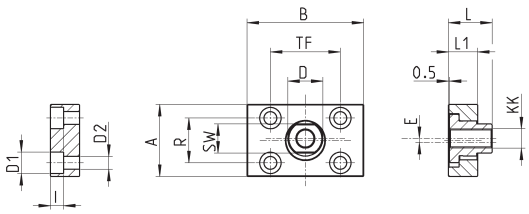
Material: zinc-plated steel



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

Coupling piece Mod. GKF

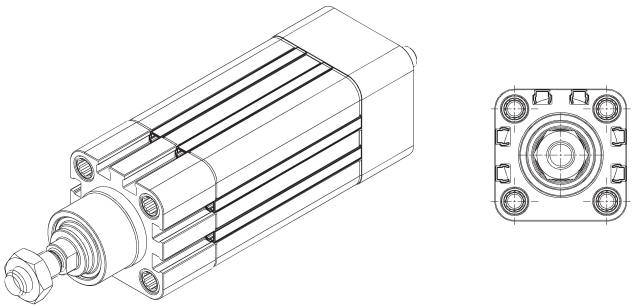
Material: zinc-plated steel



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

Slot cover profile Mod. S-CST-500

Supplied with 500 mm tube



Mod.
S-CST-500