Components for electrical actuation

C_Electrics

Electric actuation
for industrial automation

CAMOZZI

Components for electrical actuation

C_Electrics

C_Electrics: the new Camozzi division that expands the scope of solutions for the industrial automation

At Camozzi we are well aware that every application in the industrial automation sector has different and very specific requirements. In order to be able to satisfy all clients, we have expanded our technological offerings by creating C_Electrics, the new division that is dedicated to the development of electric actuation, proposing solutions that include electromechanical cylinders and axes with auxiliary motors and accessory components, combined in configurable systems.

The objective of Camozzi is to supply products and software tools that support the user through their decision-making and afterwards, through installation and maintenance. For this purpose, we developed QSet, an extremely intuitive and efficient configuration software, that is able to create a program for the positioning and control of cylinders and axes based on the requirements of the application in terms of load, speed, and accelerations requested.

Polpenazze production facility - Italy

Camozzi: innovation, expertise and passion

Camozzi was founded in 1964, and since then we have specialized in pneumatic automation.
Our product range has been constantly evolving and we now design and manufacture a comprehensive range of highly advanced components and systems.
Our objective is to satisfy our customers' needs through the provision of innovative and high quality solutions, which are produced using optimized production processes and supported by excellent pre- and post-sales support services.
The passion and enterprising nature of the company's founders, the Camozzi brothers, has always guided the business, leading to sustained growth and a global presence. One of our guiding philosophies is to be close to our customers throughout the world as we believe this is fundamental in the building of successful partnerships. It is through these close customer partnerships that we provide quality components which are in accordance with local regulations and standards.
Every product and solution offered is fully supported through our global infrastructure, which ensures we are proactive in providing solutions and quick to meet the needs of every customer.

FOCUS ON MAXIMIZING CUSTOMER BENEFITS

CONSTANT COMMITMENT TO IMPROVING PERFORMANCE

PRODUCTION PLANTS IN ITALY, USA, RUSSIA, UKRAINE, CHINA AND INDIA

BRANCHES, DISTRIBUTORS AND SUPPORT CENTRES IN MORE THAN 75 COUNTRIES

Our unique goal: total quality

Camozzi Research Centre. Present and future Quality

The quality of our processes and activities is guaranteed by the Camozzi Quality Department that operates in the context of Total Quality Management; in addition all our production plants are organized according to the principles of Lean Production to assure maximum efficiency.

Constant Research and Development of products and technologies are at the foundation of our strategy and this target is pursued thanks to the continuous cooperation between the technical departments and the Camozzi Research Centre, an internal department completely dedicated to achieving the most innovative mechatronic technologies.

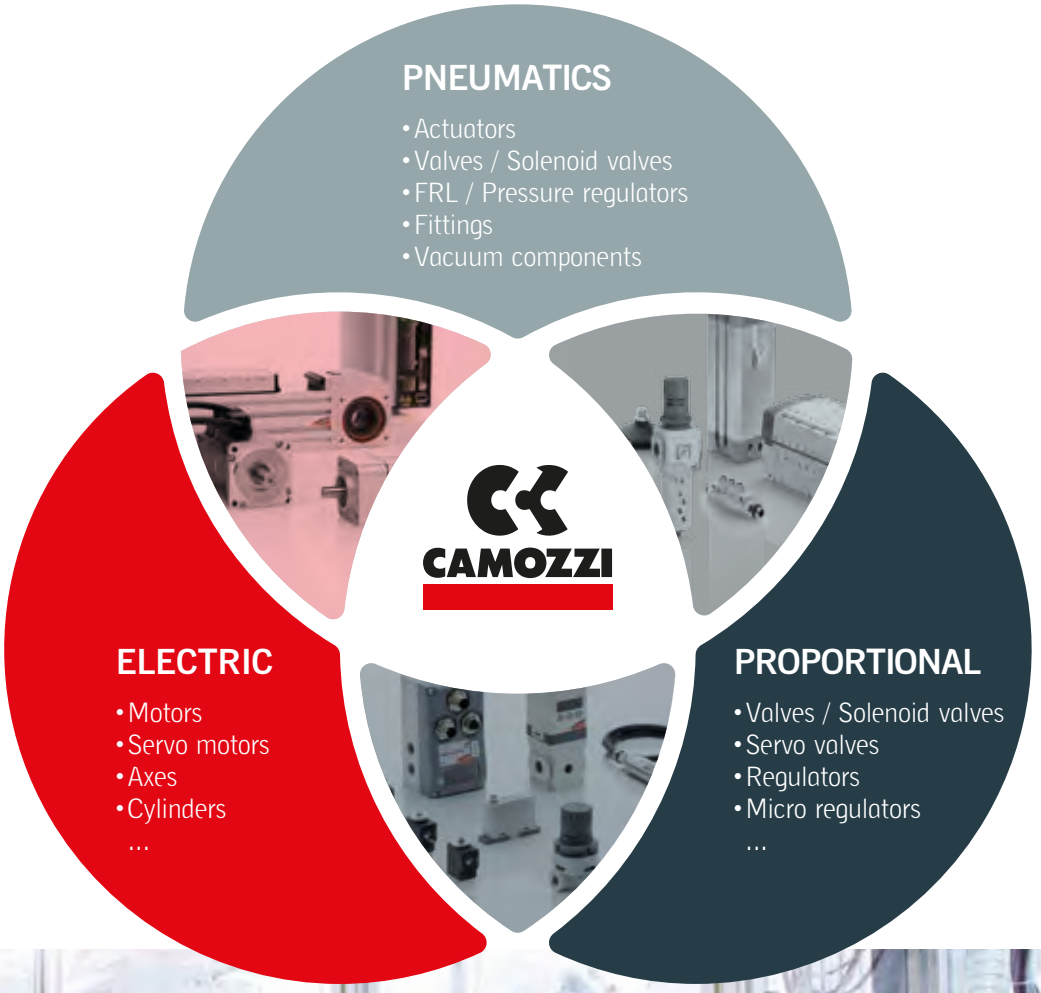
Clean room and in-house testing area equipped to simulate the most diverse working conditions

Technologies to serve our customers

Integration

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

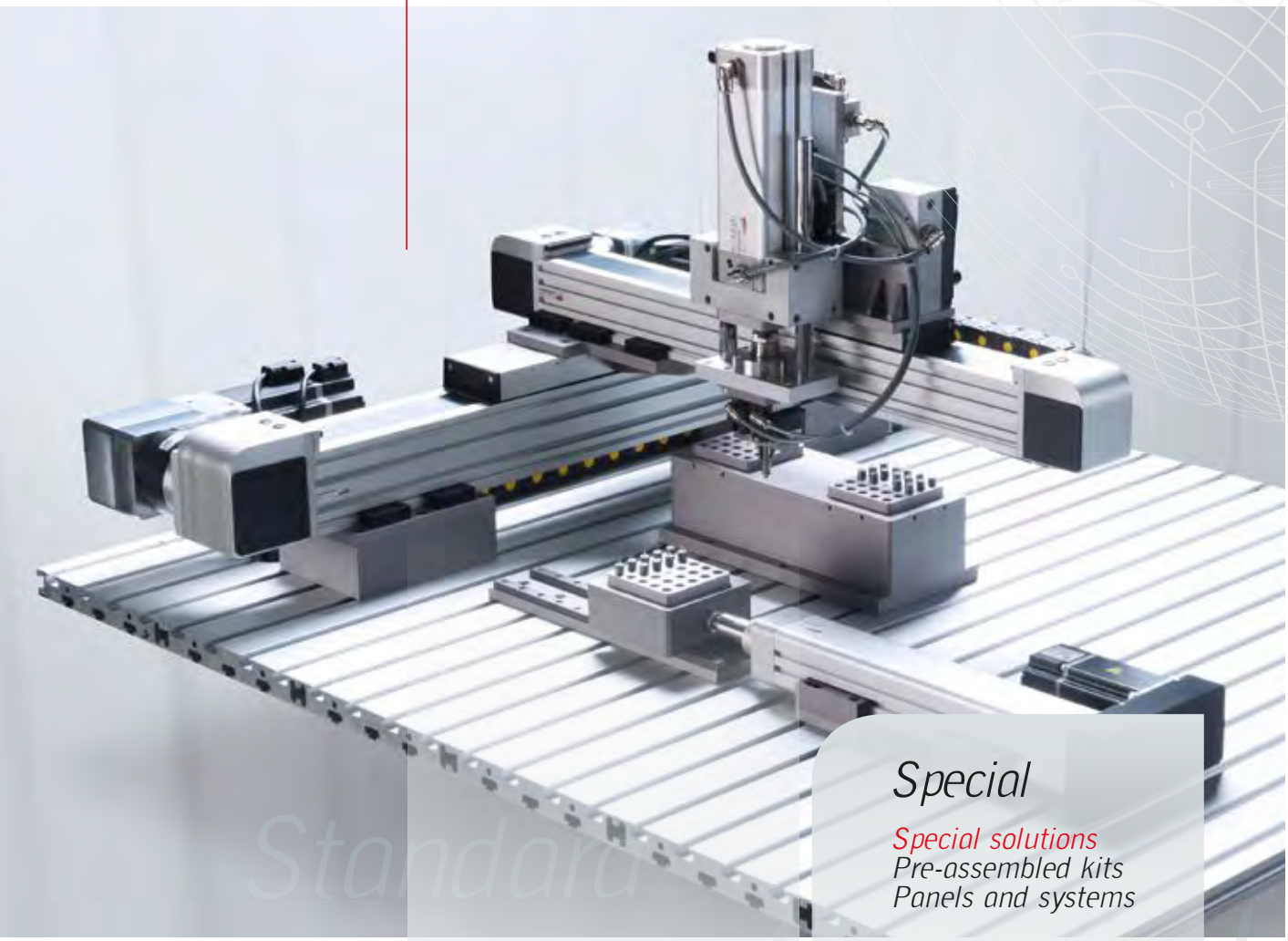
To control speed, acceleration, the position in relation to the load to move and the distances to cover, the requested precision, optimizing costs and providing a solution that is easy to install and to manage, are all the result of the combination of technologies and skills that Camozzi offers its partners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



Camozzi. All you need for Automation

The ideal solution for any application

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

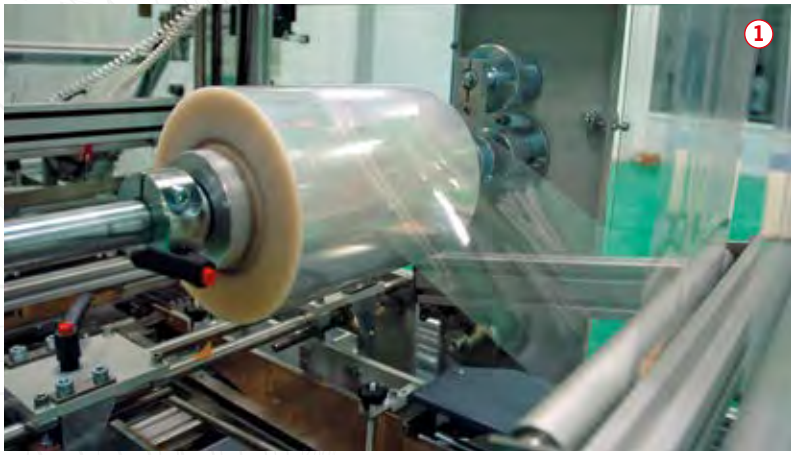


Special

Special solutions
Pre-assembled kits
Panels and systems

Standard

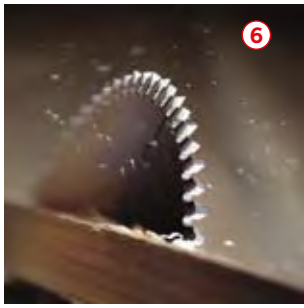
A wide range of standard components designed to be integrated in special applications

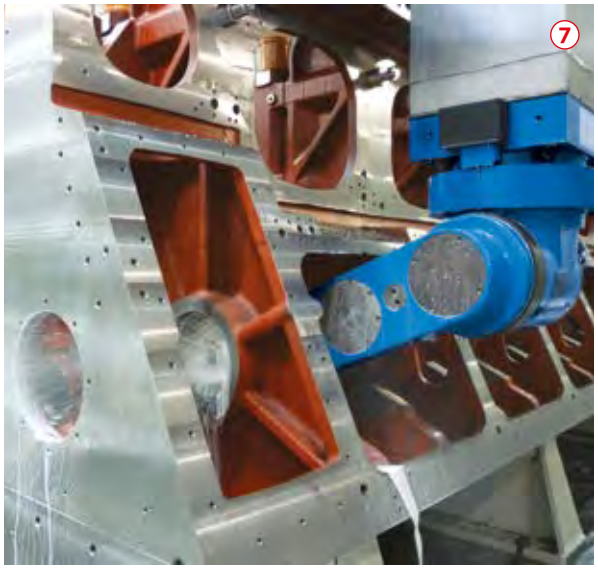


C_Electrics

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

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





Components for electrical actuation

C_Electrics

ELECTROMECHANICAL AXES

Linear units
with recirculating
ball bearing guides
and belt drive.

ELECTROMECHANICAL CYLINDERS

Recirculating ball screw
actuators.

DRIVERS

For Stepper
and Brushless motors.

C_Electrics

Linear Motion Systems

MOTORS

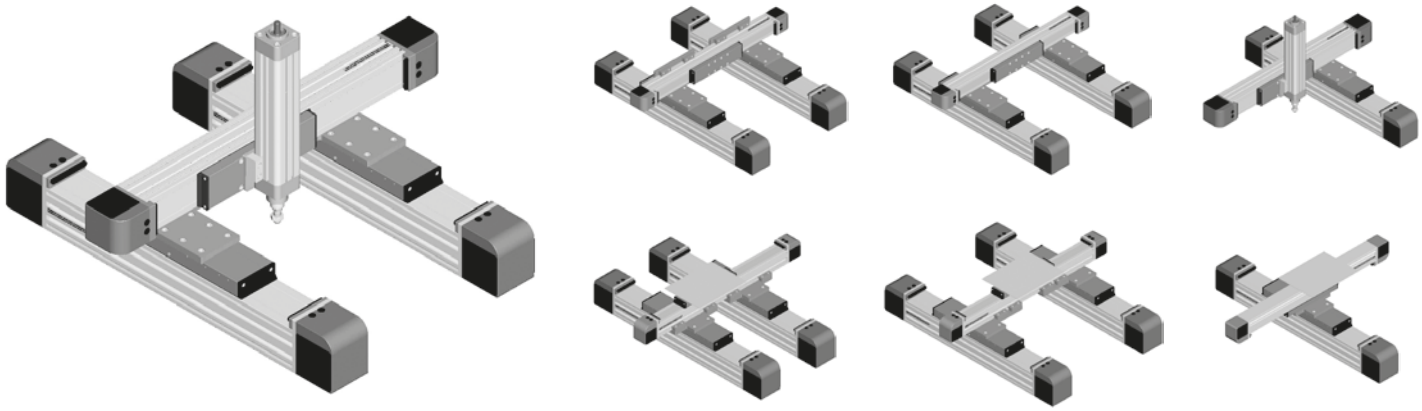
Compact and reliable.
Available in the Stepper
and Brushless versions.

QSet Camozzi

CONFIGURATION SOFTWARE

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

We build any configuration according to specific requirements



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

Series 6E

Electromechanical cylinder ISO 15552

Size 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 CSH), allowing operations like homing or extra-stroke readings to be performed.
The **Series 6E** is supplied 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.

- > CONFORM TO 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
- > NO STICK-SLIP EFFECTS
- > INTEGRATED ANTI-ROTATION SYSTEM OF THE ROD
- > IP 40
- > LARGE RANGE OF FIXING ACCESSORIES

DETAIL OF THE REAR OF THE CYLINDER

General data

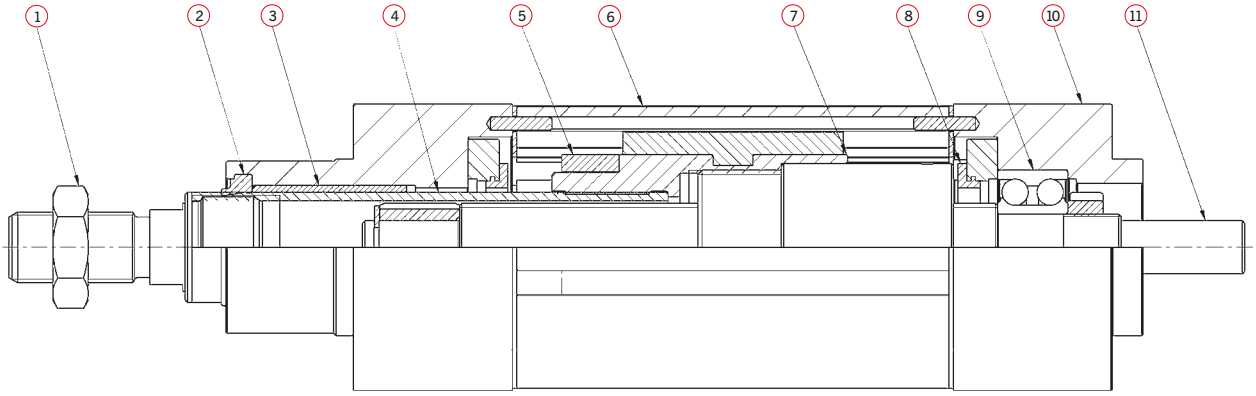
Type of construction	electromechanical cylinder with recirculating ball screw
Design	Profile with thread rolling screws according to ISO 15552
Operation	multi-position actuator with high precision linear driving
Sizes	32, 40, 50, 63
Strokes (min - max)	100 ÷ 1200 mm
Anti-rotation function	with anti-friction pads in technopolymer
Mounting	front / rear flange, with feet, with front / rear / swivel / intermediate trunnion
Mounting motor	in line and parallel
Operating temperature	0°C ÷ 50°C
Storage temperature	-20°C ÷ 80°C
Protection class	IP 40
Lubrication	Not necessary. A prelubrication is performed on the cylinder.
Max. Reversing backlash	0.02 mm
Repeatability	+/- 0.02 mm
Duty cycle	100%
Max rotation play	+/- 0.4°
Use with external sensors	slots on three sides for sensor model CSH

Mechanical features

SIZE	UN.	32		40			50			63		
RDS screw diameter	mm	12		16			20			25		
RDS screw pitch	mm	5	10	5	10	16	5	10	20	5	10	25
Dynamic load coefficient	N	6600	4400	12000	8500	9150	13700	21000	14600	17500	21000	20000
Static Load coefficient	N	12000	7700	25000	12500	18750	29900	51000	35000	42400	54000	48000
Max applicable torque	Nm	5.6		10			17.3			33.9		
Max linear speed	m/s	0.56	1.11	0.42	0.83	1.33	0.33	0.67	1.33	0.27	0.53	1.33
Max rotational speed	rpm	6670		5000			4000			3200		
Max acceleration	m/s^2	25		25			25			25		

Standard strokes

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



Materials

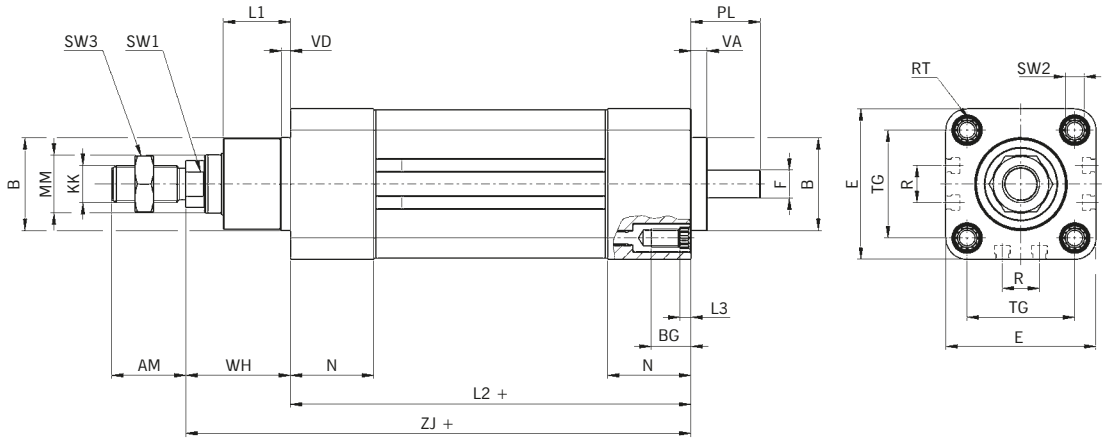
PARTS	MATERIAL
1 Rod nut	Galvanized steel
2 Rod seal	Polyurethane
3 Bushing	Technopolymer
4 Rod	Stainless steel
5 Magnet	Plastoferrite
6 Profile	Anodized aluminum
7 Guiding element RDS screw	Aluminum
8 Seal	NBR
9 Bearing	Steel
10 Rear end cap	Anodized aluminum
11 Ball screw	Steel

Coding example

6E	032	BS	0200	P05	A	

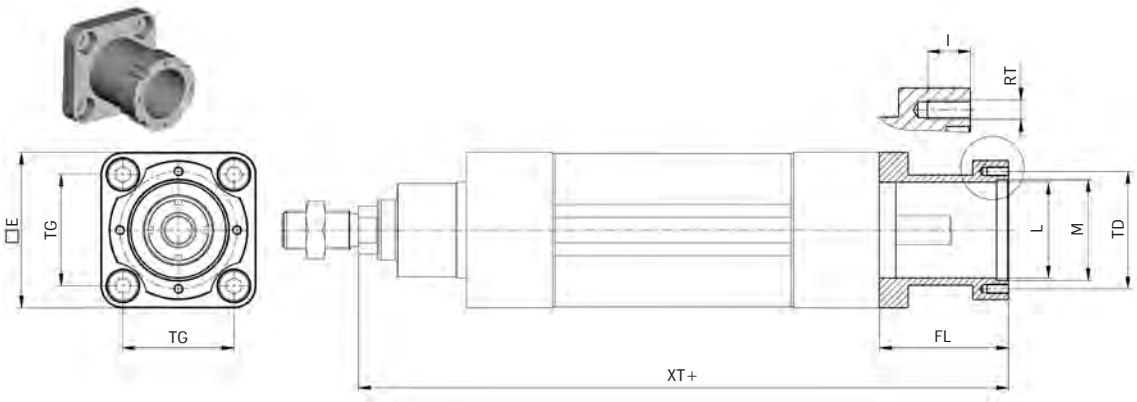
6E	SERIES
032	FRAME SIZE: 032 = 32 mm 040 = 40 mm 050 = 50 mm 063 = 63 mm
BS	VERSION: BS = Ball Screw
0200	STROKE: 100 ÷ 1200 mm
P05	SPINDLE PITCH: P05 = 5 mm P10 = 10 mm P16 = 16 mm (for frame size 40 mm only) P20 = 20 mm (for frame size 50 mm only) P25 = 25 mm (for frame size 63 mm only)
A	CONSTRUCTION: A = standard with rod nut F = Centre trunnion
	= standard (_ _ _) = extended piston rod _ _ _ mm

Cylinders dimensions



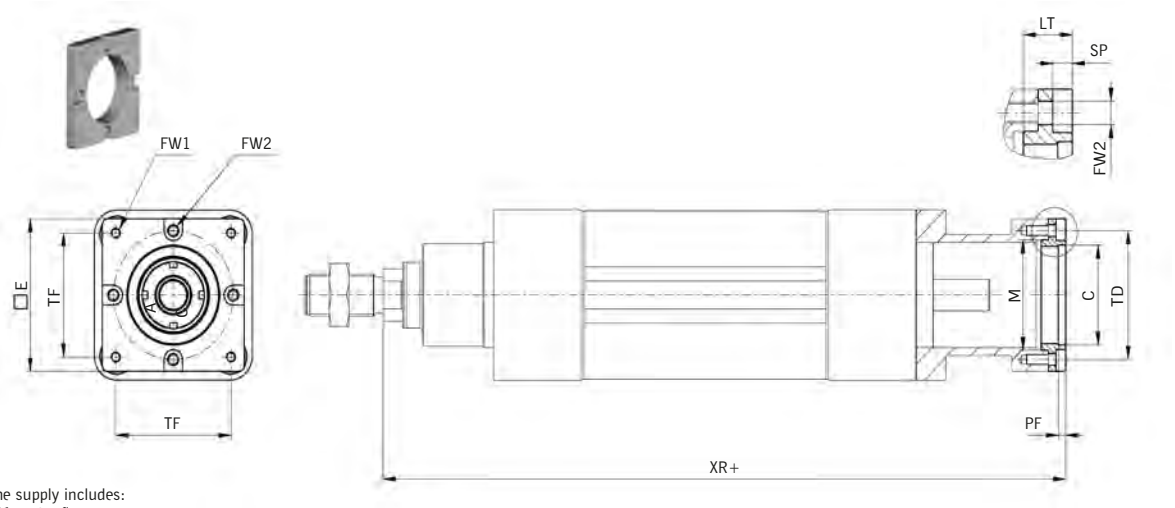
MOD.	Ø	AM	B	BG	E	F	KK	L1	L2+	L3	MM	N	R	RT	PL	SW1	SW2	SW3	TG	VA	VD	WH	ZJ+
6E032...	**32**	22	30	16	46.5	8	M10x1.25	20	125	5	18	26	13	M6	21	10	6	17	32.5	6	4	30	155
6E040...	**40**	24	35	16	55.4	10	M12x1.25	22	142	5	22	27	13.5	M6	24	13	6	19	38	6	4	33	175
6E050...	**50**	32	40	17	64.9	12	M16x1.5	26	173	5	25	36	16	M8	30	17	8	24	46.5	7	4	38	211
6E063...	**63**	32	45	17	75	15	M16x1.5	29	201	5	30	36	28	M8	37.5	17	8	24	56.5	7	4	41.5	242.5

Housing dimensions



MOD.	Ø	HOUSING	E	FL	L	M [H7]	TD	TG	I	RT	XT+
6E032...	**32**	**CM32**	46.5	46	26	24	30.5	32.5	9	M3	201
6E040...	**40**	**CM40S**	55.4	49	27.8	28	32.5	38	9	M3	224
6E040...	**40**	**CM40**	55.4	57	36	33	40.5	38	9	M3	232
6E050...	**50**	**CM50**	64.9	54	40	42	49	46.5	9	M4	265
6E063...	**63**	**CM63S**	75	64	36	33	43.5	56.5	9	M4	306.5
6E063...	**63**	**CM63**	75	76.5	47	43	54.5	56.5	9	M4	319

Flange dimensions

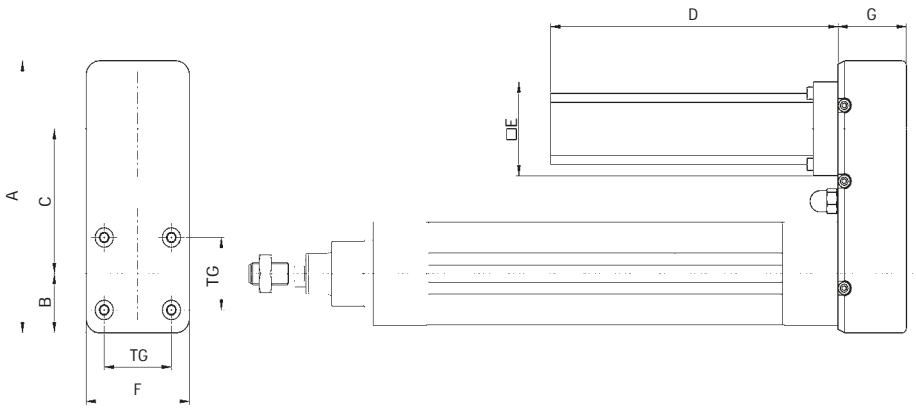


The supply includes:
N°1 motor flange
N°1 flexible star coupling

* size referred to the dimensions of the flexible coupling

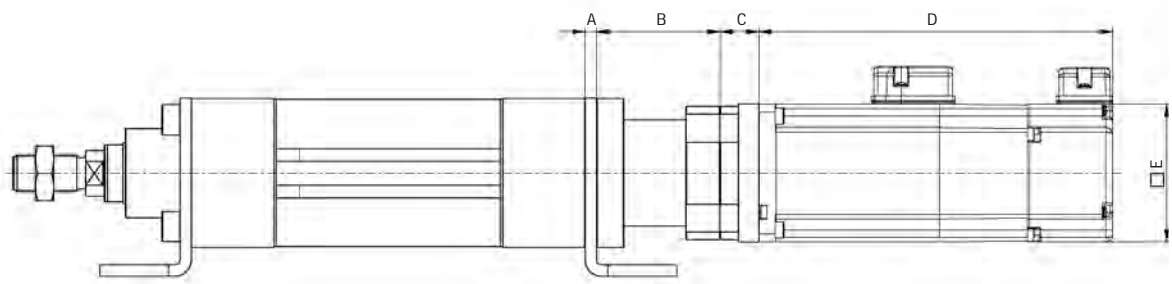
MOD.	HOUSING	MOTOR FLANGE	MOTOR TYPE	C [H7]	E	FW1	FW2	LT	M	PF	SP	TD	TF	XR	D1	D2	D3	P
6E032...	CM32	**MF0014**	Stepper NEMA 14	22	35.3	Ø3.5	Ø3.5	7	24	3	3.5	30.5	26	206	8	5	20	30
6E032...	CM32	**MF0017**	Stepper NEMA 17	22	38.3	Ø3.5	Ø3.5	7	24	3.5	3.5	30.5	31	206	8	5	20	30
6E032...	CM32	**MF0100**	Brushless 100 W	30	42	M3	Ø3.5	10	24	6	3	30.5	31.82	209	8	8	20	30
6E040...	CM40S	**MF0017**	Stepper NEMA 17	22	38.3	Ø3.5	Ø3.5	7	28	3	3	30.5	31	229	10	5	25	31.25
6E040...	CM40S	**MF0023**	Stepper NEMA 23	38	52.4	M4	Ø3.5	9	28	5	5	32.5	47.14	231	10	6.35	25	31.25
6E040...	CM40	**MF0400**	Brushless 400 W	50	60	M5	Ø3.5	10	33	3.5	3.5	40.5	49.498	240	10	14	30	35.3
6E050...	CM50	**MF0023**	Stepper NEMA 23	38	64.9	M4	Ø4.5	10	42	3	4	49	47.14	272	12	6.35	30	35.3
6E050...	CM50	**MF0400**	Brushless 400 W	50	60	M5	Ø4.5	21	42	6	8	49	49.498	282	12	15	40	55
6E063...	CM63S	**MF0024**	Stepper NEMA 24	38.1	60.5	M4	Ø4.5	9	33	5	5	43.5	47.14	313.5	15	8	30	35.3
6E063...	CM63	**MF0750**	Brushless 750 W	70	80	M6	Ø4.5	14	43	6	6	54.5	63.64	331	15	19	40	55

Parallel kit dimensions



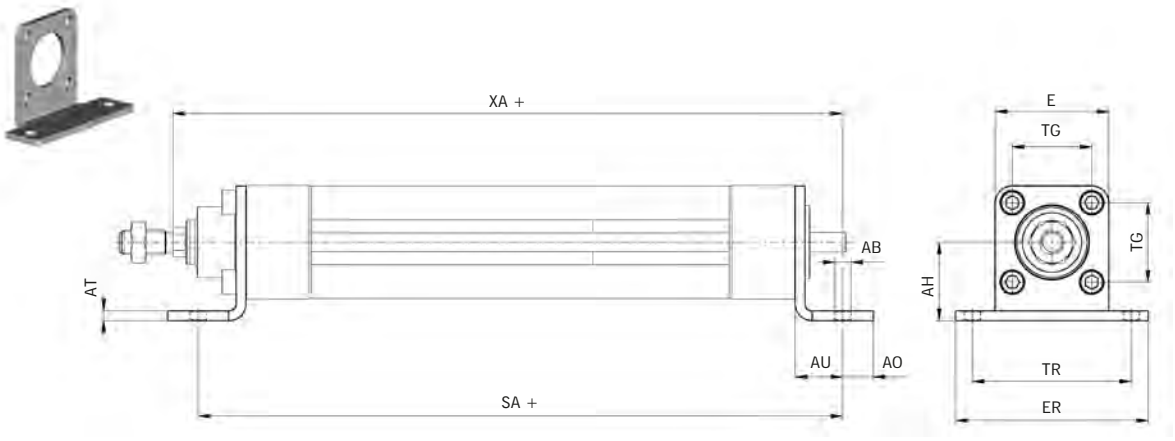
MOD.	Ø	PARALLEL KIT	MOTOR TYPE	A	B	C	D	E	F	G	TG	I
6E032...	**32**	**RP32**	Brushless 100 W	122	26.5	65	173	60	50	33	32.5	1
6E040...	**40**	**RP40**	Brushless 400 W	154	30	90	159	60	67	37	38	1
6E050...	**50**	**RP50**	Brushless 400 W	174	37	100	159	60	77	45	46.5	1
6E063...	**63**	**RP63**	Brushless 750 W	192	41	107	176	80	87	50	56.5	1

Motor in line dimensions



MOD.	MOTOR TYPE	A	B	C	D		E
					WITH BRAKE	WITHOUT BRAKE	
6E032...	Stepper NEMA 14	4	46	5		40	35
6E032...	Stepper NEMA 17	4	46	5		47	42
6E032...	Brushless 100 W	4	46	8	139	173	60
6E040...	Stepper NEMA 17	4	49	5		40	42
6E040...	Stepper NEMA 23	4	49	5		76	56.4
6E040...	Brushless 400 W	4	57	8	121.5	159	60
6E050...	Stepper NEMA 23	5	54	7		76	56.4
6E050...	Brushless 400 W	5	54	17	121.5	159	60
6E063...	Stepper NEMA 24	5	64	7		85	60.5
6E063...	Brushless 750 W	5	76.5	12	140	176	80

Foot dimensions



MOD.	Ø	AB	AH	AO	AT	AU	E	ER	SA +	TG	TR	XA +
6E032...	**32**	6.6	32	12.5	4	19.5	46.5	79	164	32.5	65	174.5
6E040...	**40**	6.6	36	12.5	4	19.5	55.4	90	181	38	75	194.5
6E050...	**50**	9	45	15	5	25	64.9	110	223	46.5	90	236
6E063...	**63**	9	50	15	5	25	75	120	251	56.5	100	267.5

Series 5E

Electromechanical axis

Size 50, 65, 80

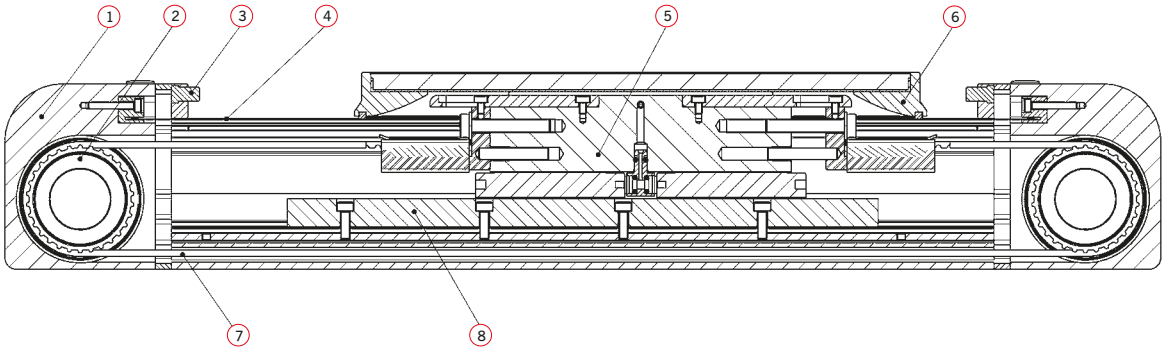
Series 5E axes are mechanical linear actuators in which the rotary movement generated by a motor is converted into a linear movement by means of a toothed belt.
The **Series 5E**, available in 3 sizes, 50, 65 and 80, is realized by means of a special self-supporting square profile, in which the components 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
- ACCESSORIES FOR CABLES FIXING
- PRESENCE OF INTERNAL CHANNELS FOR RELUBRICATION
- LARGE RANGE OF AXIS MOUNTING ACCESSORIES

DETAIL OF THE HEAD OF THE AXIS

General data

Construction	electromechanical axis with toothed belt
Design	open profile with protection plate
Function	multi-position linear actuator
Sizes	50, 65, 80
Strokes	from 0 to 4000 mm for size 50, from 0 to 6000 mm for size 65 and 80
Guide type	internal, with recirculating balls
Fixing	by means of slots on the profile and special clamps
Motor mounting	on all 4 sides
Operating temperature	from -10°C to +50°C
Storage temperature	from -20°C to +80°C
Protection class	IP40
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



Materials

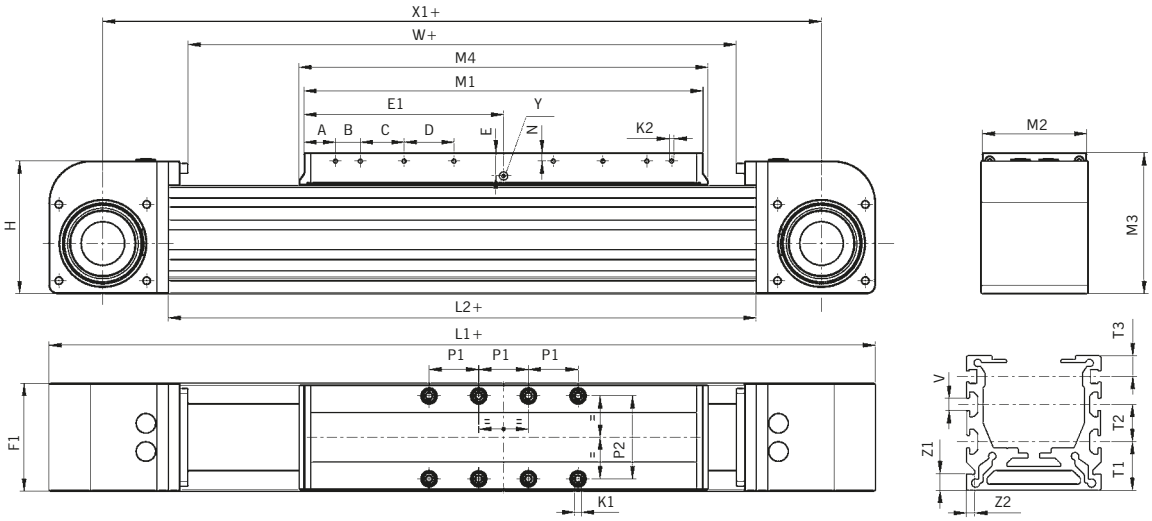
COMPONENT	MATERIAL
1 End cap	Aluminum
2 Pulley	Steel
3 End cap bumper	Polyurethane
4 Protection plate	Stainless Steel
5 Carriage	Aluminum
6 Bumper	POM
7 Toothed belt	Polyurethane + Steel
8 Recirculating ball guide	Steel

Coding example

5E	S	050	TBL	0200

5E	SERIES
S	PROFILE: S = squared
050	FRAME SIZE: 050 = 50x50 mm 065 = 65x65 mm 080 = 80x80 mm
TBL	VERSION: TBL = Toothed belt
0200	STROKE: 0 ÷ 4000 mm (for frame size 50x50 mm) 0 ÷ 6000 mm (for frame sizes 65x65 and 80x80 mm)

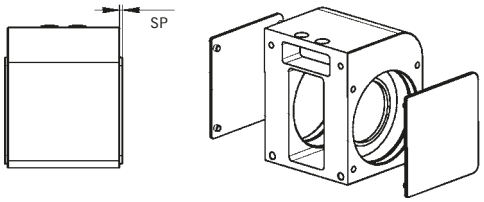
Dimensions



* In size 50 there is only one slot
** Centralized lubrication (grease)

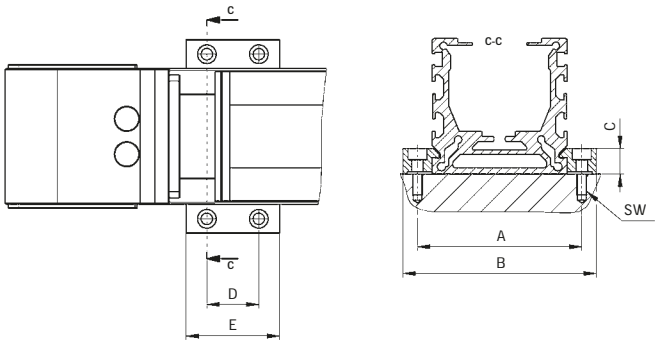
MOD.	Ø	A	B	C	D	N	K2	E	E1	M1	M2	M3	M4	P1	P2	K1	W	L1	L2	H	F1	F2	X1	T1	T2	T3	V	Z1	Z2	Y
5ES050...	**50**	19	15	20	28	5	M3	14	110	220	49.5	70	226	28	36.5	M4	260	398	284	65	50	54	348	20	*	10	6	8	4	**
5ES065...	**65**	19	15	26.5	30	5	M3	14	120.5	241	63	85	247	30	50	M4	331	499	355	80	65	69	434	23.5	18	10	6	8	4	**
5ES080...	**80**	25	20	35	30	6	M3	22	190	380	79	110	388	40	58	M6	421	621	445	100	80	84	541	25	25	10	8	8	4	**

End cap covers



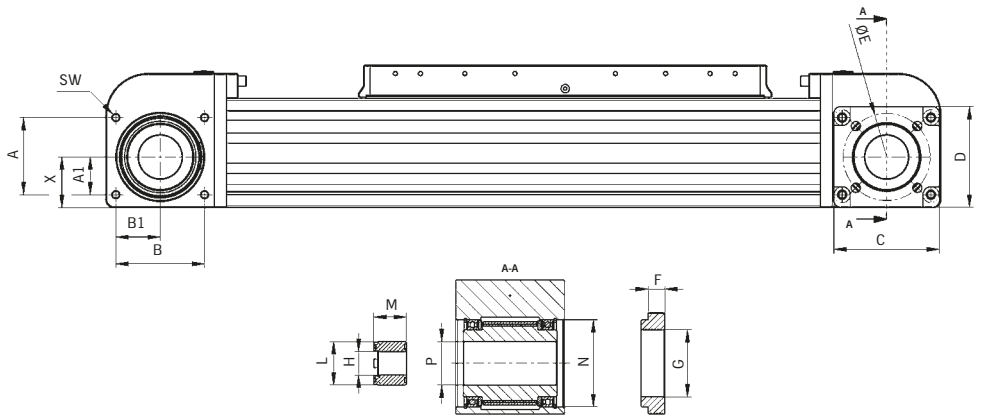
MOD.	Ø	SP
5ES050...	**50**	2
5ES065...	**65**	2
5ES080...	**80**	2

Bracket



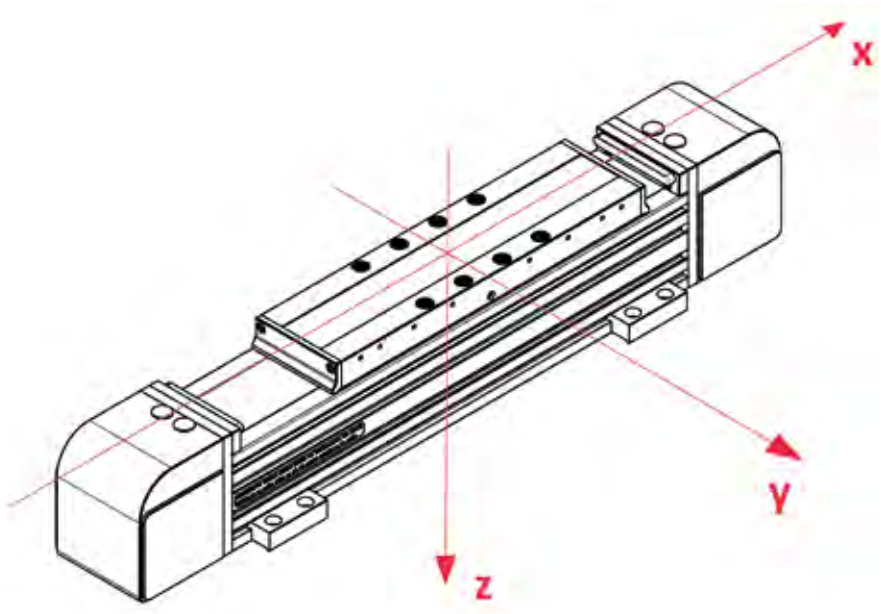
MOD.	Ø	A	B	C	D	E	SW
5ES050...	**50**	64	78	12.3	25	45	M5
5ES065...	**65**	79	93	12.3	25	45	M5
5ES080...	**80**	98	112	12.3	25	45	M6

Motor interface



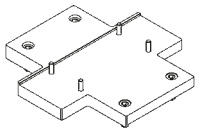
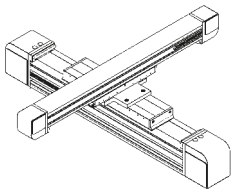
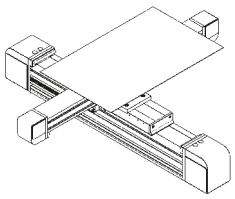
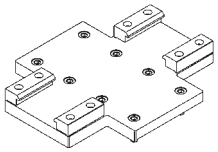
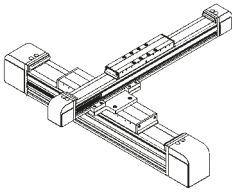
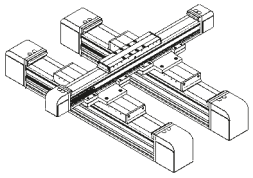
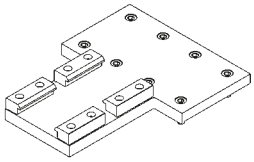
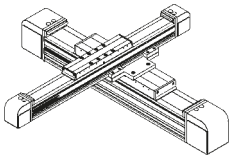
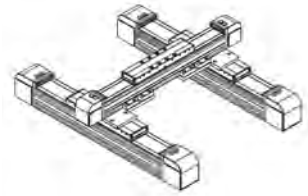
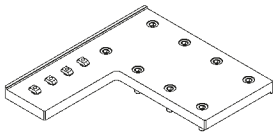
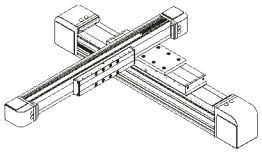
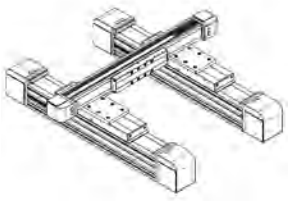
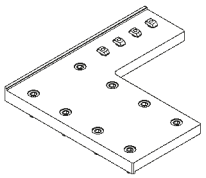
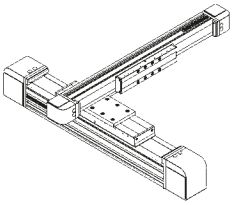
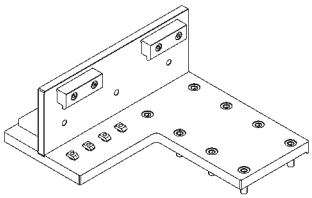
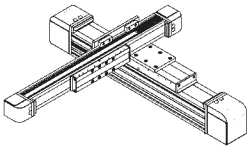
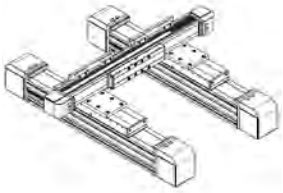
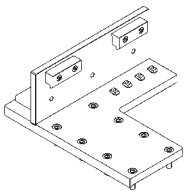
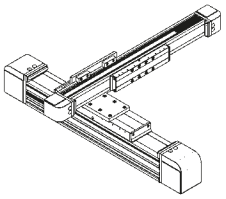
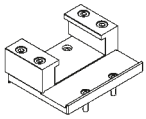
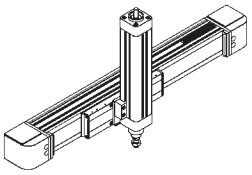
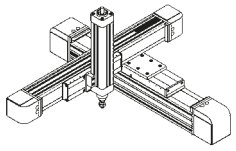
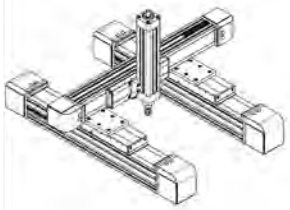
MOD.	Ø	A	A1	B	B1	SW	X	N (+0,06/+0,01)	P H8	C	D	ØE	F	G H7	H	L	M
										INTERFACE FLANGE (optional)					LOCKING SET (optional)		
5ES050...	**50**	32	15	37	18.5	M4	21.8	37	20	48	43	34	8	26	10	20	15.5
5ES065...	**65**	46	22.5	53	26.5	M5	30.3	52	26	63	60	52	10	40	14	26	20
5ES080...	**80**	6.5	30	68	34	M5	40.5	68	38	80	80	70	10	60	20	38	26

Technical data

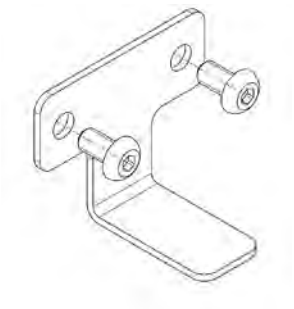
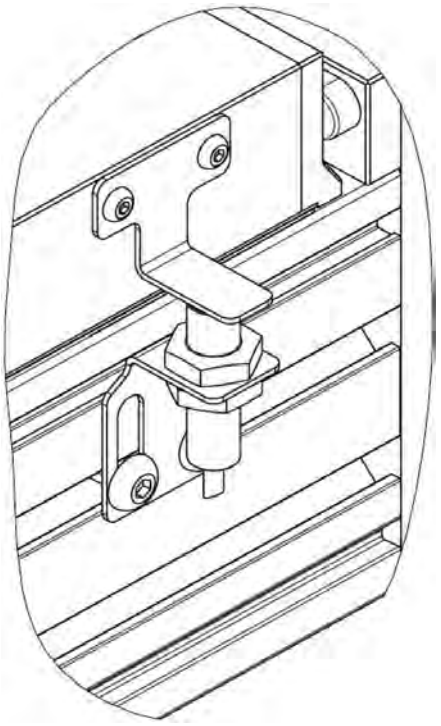
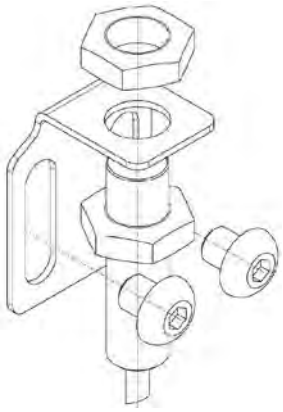


MOD.	Ø	BELT TYPE	Dp PULLEY [mm]	Z [n°]	Fx [N]	Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]	STROKE FOR EACH PULLEY ROUND [mm/round]	MAX SPEED [m/s]	MAX ACCELARATION [m/s²]
5ES050...	**50**	20 AT5	31.83	20	1110	3180	18.7	37.75			100	5	50
5ES065...	**65**	32 AT5	47.75	30	1785	8520	80	224.5			150	5	50
5ES080...	**80**	32 AT10	63.66	20	4060	13380	180.5	437.5			200	5	50

Configurations

	KIT	MOUNTING	APPLICATION
PLATE XY - CARRIAGE ON CARRIAGE			
PLATE XY - PROFILE ON CARRIAGE			
PLATE XY - PROFILE ON CARRIAGE LONG ARM			
PLATE XY - PROFILE ON CARRIAGE LEFT POSITION			
PLATE XY - PROFILE ON CARRIAGE RIGHT POSITION			
PLATE XY - PROFILE ON CARRIAGE LEFT POSITION HEAVY APPLICAZION			
PLATE XY - PROFILE ON CARRIAGE RIGHT POSITION HEAVY APPLICAZION			
PLATE XY - CYLINDER SERIES 6E ON CARRIAGE			 

Inductive sensors

	KIT	MOUNTING
SENSOR DOG		
SENSOR FIXING		

Series DRWS and DRWB

Driver for the control of electric actuation

Series DRWS: one size/version

Series DRWB: in power classes 100 - 400 - 750 W

The new Camozzi drivers in both its versions **DRWS** and **DRWB** have been designed to control the movement of the motors connected. The servo drivers **DRWB**, compact and especially optimized for the brushless Camozzi motors, are completely digital and available in the power classes 100 W, 400 W and 750 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 driver. A digital pulse interface allows control of the direction, position, speed and torque.

The **DRWS** drivers, compact and optimized in one size, have been especially studied for all Camozzi stepper motors. They are capable of controlling stepper motors with 2 phases and micro stepping feed. They are able to calculate the normal resonance frequency of the motors and optimize their driving. Moreover, they can reduce natural friction to a minimum during very slow rollings of the stepper motor, giving a continuous and very fluid (smooth effect) movement at any speed thanks to the Microstepping technique, thus achieving a 1/128 STEP resolution. Another function that has been integrated into the driver reduces vibrations to a minimum during rolling inversion or during sudden changes in speed. At initial ignition/ switching on, the **DRWS** drivers are able to calculate the inductance, the electrical resistance of the motor connected and the inertia of the motor, and saves these parameters inside in order to better manage the driving of the motors.

- > COMPLETELY DIGITAL DRIVERS
- > PLC FUNCTION PROGRAMMABLE WITH QSET CAMOZZI
- > CONTROL OF SPEED, POSITION AND TORQUE. (TORQUE ONLY FOR DRWB)
- > 6 DIGITAL INPUTS FOR 64 CONFIGURATIONS (QSET CAMOZZI)
- > SELF-COMPENSATION OF ERRORS
- > CAN BE INTERFACED WITH QSET CAMOZZI CONFIGURATION SOFTWARE

General data DRWS

MOD.	Series DRWS-A05-2-Q-D-0 and DRWS-A05-2-0-D-0
Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 20 KHz
Protection	Over-voltage, under-voltage, over-temp, internal motor shorts (phase-to-phase, phase-to-ground)
Idle Current	Automatic idle current reduction to reduce heat after motor stops moving, software selectable current and idle delay
Microstep Emulation	Performs high resolution stepping by synthesizing fine microsteps from coarse steps. Reduces jerk and extraneous system resonances.
Anti-Resonance	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time.
Torque ripple smoothing	Allows for fine adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Humidity	90% non-condensing
Ambient Temperature	0 - 40°C when mounted to a suitable heat sink
Mass	Approx. 0.2Kg
I/O Specifications	STEP; DIR inputs: optically isolated, differential, 5 V DC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz; EN input: optically isolated, 5-12 V DC; OUT output: optically isolated, 24 V DC max, 10 mA max; AIN analog input: Range = 0-5 V DC, resolution = 12 bits

General data DRWB

MOD.	DRWB-W01-2-Q-D-E DRWB-W01-2-0-D-E	DRWB-W04-2-Q-D-E DRWB-W04-2-0-D-E	DRWB-W07-2-Q-D-E DRWB-W07-2-0-D-E
Power	100 W	400 W	750 W
Final stage supply voltage and frequency	200 to 240 V AC (± 10 %) / 50 to 60 Hz (± 5 %)		
Number of phases	1		
Power consumption of final stage	1.5 A	4.1 A	7.5 A
Logic supply voltage and frequency	200 to 240 V AC (± 10 %) / 50 to 60 Hz (± 5 %) 1- phase only		
Power consumption of logic supply	0.5 A max.		
Output current			
Continuous current	(effective) 0.9 A	(effective) 2.5 A	(effective) 5.1 A
Peak current (effective)	2.7 A	7.5 A	15.3 A
Maximum duration of peak current	1 second		
Type of control	IGBT PWM vector control		
Controller sampling rate	Current, speed and position controllers: 15 kHz		
Motor types supported	AC servo motors		
Status 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 BRAKE [CN2_BRK], max. 1 ADC		
Feedback	Resistance External		
	Activation threshold + HV> 370 VDC		
	Deactivation threshold + HV< 360 VDC		
	Tolerance ± 5 %		
Monitoring functions	Short circuit, overvoltage (> 390 VDC ± 5 %), undervoltage (< 60 VDC); position error, encoder error, motor phase monitoring, overtemperature D2 (IGBT > 90 °C ± 1°C), motor overtemperature.		
Autotuning	With automatic mass inertia calculation		
Error mapping	Method Compensation table for correcting position errors through linear interpolation		
	Table entries Max. 16,000		
	Activation Following successful referencing or via digital input signal		
VSF (vibration suppression)	0.1 Hz to 200 Hz		
Other functions	Friction compensation, gear play compensation		
Ambient conditions	Operating temperature 0 to 40 °C (above 55 °C only with air conditioning)		
	Storage temperature -20 °C to 65 °C		
	Air humidity 20 to 85 % (non-condensing)		
	Operating altitude < 1000 m above sea level		
	Vibration 5.88 m/s (10 to 60 Hz)		
	Protection class IP20		

Series MTS and MTB

Motors for electric actuation

Series MTS: Nema fixing flange 17-23-24

Series MTB: in power classes 100 - 400 - 750 W

The new Camozzi motors in both its versions **MTS** and **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 new **Series MTB** of synchronous AC brushless motors is available with a power of 100, 400 and 750 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.
The new **Series MTS** electrical stepper motors, in the sizes from Nema 14 to Nema 24, are available with single or double shaft, with or without brake, according to the application needs of the client.
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.

- > HIGH DYNAMIC MOTORS
- > AVAILABLE WITH AND WITHOUT BRAKE
- > WITH SINGLE OR DOUBLE SHAFT (ONLY MTS)
- > WITH ABSOLUTE 13 BIT ENCODER (ONLY MTB)
- > DIFFERENT SIZES OR POWER CLASSES AVAILABLE IN ORDER TO MEET ALL REQUIREMENTS

General data MTS

MOD.	SHAFT	LEADS	LENGTH "L" [mm]	HOLDING TORQUE [Nm]	CURRENT A/Phase	RESISTANCE Ω/Phase	ROTOR INERTIA g·cm²	MOTOR MASS KG	DIELECTRIC STRENGTH
MTS-17-18-050-4-0-S **MTS-17-18-050-0-0-S** **MTS-17-18-050-4-F-S** **MTS-17-18-050-0-F-S**	Single Shaft	4	48.3	0.5	1.8	2.3	82	0.36	500V AC 1 minute
MTS-23-18-060-4-0-S **MTS-23-18-060-0-0-S** **MTS-23-18-060-4-F-S** **MTS-23-18-060-0-F-S**	Single Shaft	4	41	0.6	4.5	0.48	135	0.42	500V AC 1 minute
MTS-24-18-250-4-0-S **MTS-24-18-250-0-0-S** **MTS-24-18-250-4-F-S** **MTS-24-18-250-0-F-S**	Single Shaft	4	85	2.5	4.5	0.65	900	1.4	500V AC 1 minute

General data MTB

MOD.	MTB-010-2-0-E-04 MTB-010-2-F-E-04	MTB-040-2-0-E-06 MTB-040-2-F-E-06	MTB-075-2-0-E-08 MTB-075-2-F-E-08
Power	100 W	400 W	750 W
Motor type	Permanently excited synchronous servo motor		
Magnets	Neodymium iron boron magnets		
Housing	Aluminium		
Colour	Black		
Motor protection class	IP65		
Connector protection class	IP20		
Motor shaft protection class	IP40		
Insulation class	Class A		
Shaft end	With feather key groove		
Peak torque	3 × nominal torque		
Service life	> 20 000 h (at nominal load)		
Motor connection	Cable (300 mm) with ready-assembled connector		
Encoder connection	Cable (300 mm) with ready-assembled connector		
Cooling	Convective		
Thermal monitoring	Not available		
Encoder	Incremental 13-bit TTL encoder, 10 000 pulses/revolution		
Ambient temperature	0 °C to 40 °C		
Storage temperature	–15 °C to 70 °C		
Air humidity	Up to 80 % relative air humidity		
Max. installation height	1000 m above sea level		

M.K COMUNICAZIONE - MI

What makes us different

Global vision, local service and a commitment to excellence

- Innovative New Generation Products
- Optimisation of Internal Processes and Successful Relationships with Customers and Suppliers
- Complete and Customised Solutions
- Focus on Product Quality and Customer Service

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