Marzorati
Sistemi di Trasmissione

drive your motion

LINEAR ACTUATORS MARZORATI

Trapezoidal screw - MET
Recirculating ball screw - MES

www.marzorati.it

EN

Our Range

Marzorati linear actuators are power transmission systems that use an electric motor to produce linear motion. They are moved silently and smoothly by a worm screw and worm wheel, to which the drive screw is connected. This drive screw then moves the thrust tube connected to the load.

Since these linear actuators are easy to install, they can be used in various applications and even as a valid alternative to jacks, pneumatic or hydraulic cylinders.

Below are the main design characteristics of our **MET** and **MES** ranges:

MET

TRAPEZOIDAL SCREW
For contained applications:

MET10 - MET20 – MET30 – MET40 – MET50

The lead nut that enables the linear motion is made of CuSn12Ni2-C bronze alloy

MES

RECIRCULATING BALL SCREW
For fast speeds and high performance:

MES10 – MES20 – MES30 – MES40 – MES50

The lead nut that enables the linear motion is made of hardened steel with balls in 100Cr6

HOUSING:
Aluminium alloy ENAC-AlSi10Mg (b) T6-S EN1706 for sizes 10 and 20.
Cast iron EN-GJS-500-EN-1563 for sizes 30 – 40 – 50.

THRUST TUBE:
The thrust unit is made of St52 ground steel tubes, which are chrome-coated with f7 tolerance.

WORM SCREW:
The worm screws are made of 17NiCrMo6-4 hardened steel and undergo heat treatment like case-hardening and carburizing before being thoroughly ground both on the threads and on the shafts.

WORM WHEEL:
The worm wheel is made of CuSn12Ni2-C bronze alloy.

OUTER TUBE:
The rigid outer protection is made of SS E355 EN-10297 steel tubes.

SPINDLE ENDS:
It is possible to have different front spindle ends so that the actuator can be adapted to the application.

OPTIONAL:
Marzorati Sistemi di Trasmissione provides a wide range of accessories and the possibility of customising the product to meet each customer’s various needs.

General Characteristics

TECHNICAL DATA		TRAPEZOIDAL SCREW		RECIRCULATING BALL SCREW	
		MET10		MES10	
LEAD SCREW	dxp	30x6		32x10	
MAX STATIC LOAD	daN	2500		2500	
REDUCTION RATIO	V	1/6			
MOTOR	4 POLES	M80B14 0,75kW	M90B14 1,85kW	M80B14 0,75kW	M90B14 1,85kW
MAX LOAD	[daN]	800	2100	1200	2500
LINEAR SPEED	[mm/s]	23,33		38,89	
REDUCTION RATIO	L	1/24			
MOTOR	4 POLES	M80B14 0,75kW			
MAX LOAD	[daN]	2200		2500	
LINEAR SPEED	[mm/s]	5,83		9,72	
TOT LENGTH (WITH FI12) - DEPTH "T"	[mm]	310+STROKE		355,5+STROKE	

TECHNICAL DATA		MET20		MES20
LEAD SCREW	dxp	40x7		40x10
MAX STATIC LOAD	daN	5000		5000
REDUCTION RATIO	V	1/7		
MOTOR	4 POLES	M90B14 2,2kW	M112B14 4kW	M90B14 2,2kW
MAX LOAD	[daN]	2200	4000	4000
LINEAR SPEED	[mm/s]	23,33		33
REDUCTION RATIO	L	1/28		
MOTOR	4 POLES	M90B14 2,2kW		M80B14 0,75kW
MAX LOAD	[daN]	5000		4500
LINEAR SPEED	[mm/s]	5,83		8,33
TOT LENGTH (WITH FI12) - DEPTH "T"	[mm]	430+STROKE		490+STROKE

TECHNICAL DATA		MET30		MES30
LEAD SCREW	dxp	55x9		50x10
MAX STATIC LOAD	daN	10000		10000
REDUCTION RATIO	V	1/9		
MOTOR	4 POLES	M100B14 3kW	M112B14 4kW	M100B14 3kW
MAX LOAD	[daN]	2700	3550	8000
LINEAR SPEED	[mm/s]	23,5		26,11
REDUCTION RATIO	L	1/36		
MOTOR	4 POLES	M112B14 4kW		M90B14 1,5 kW
MAX LOAD	[daN]	6700		10000
LINEAR SPEED	[mm/s]	5,83		6,48
TOT LENGTH (WITH FI12) - DEPTH "T"	[mm]	520+STROKE		571+STROKE

The values in the table relate to the highest performance achievable with the motors listed. Depending on the application, different types of drive can be used.
The operating cycle is nevertheless essential for selecting the right actuator.

General Characteristics

<table>
<tr><th colspan="2" rowspan="2">TECHNICAL DATA</th><th>TRAPEZOIDAL SCREW</th><th colspan="2">RECIRCULATING BALL SCREW</th></tr>
<tr><th>MET40</th><th colspan="2">MES40</th></tr>
<tr><td>LEAD SCREW</td><td>dxp</td><td>70x10</td><td colspan="2">80x16</td></tr>
<tr><td>MAX STATIC LOAD</td><td>daN</td><td>20000</td><td colspan="2">20000</td></tr>
<tr><td>REDUCTION RATIO</td><td>V</td><td>-</td><td colspan="2">1/5</td></tr>
<tr><td>MOTOR</td><td>4 POLES</td><td>-</td><td colspan="2">M132B14 7,5kW</td></tr>
<tr><td>MAX LOAD</td><td>[daN]</td><td>-</td><td colspan="2">7500</td></tr>
<tr><td>LINEAR SPEED</td><td>[mm/s]</td><td>-</td><td colspan="2">76,5</td></tr>
<tr><td>REDUCTION RATIO</td><td>L</td><td colspan="3">1/10</td></tr>
<tr><td>MOTOR</td><td>4 POLES</td><td>M132B14 7,5kW</td><td colspan="2">M132B14 7,5kW</td></tr>
<tr><td>MAX LOAD</td><td>[daN]</td><td>6000</td><td colspan="2">14000</td></tr>
<tr><td>LINEAR SPEED</td><td>[mm/s]</td><td>23,9</td><td colspan="2">38,27</td></tr>
<tr><td>REDUCTION RATIO</td><td>L</td><td colspan="3">1/30</td></tr>
<tr><td>MOTOR</td><td>4 POLES</td><td>M132B14 7,5kW</td><td>M112B14 4kW</td><td>M132B14 5,5kW</td></tr>
<tr><td>MAX LOAD</td><td>[daN]</td><td>12000</td><td>17500</td><td>20000</td></tr>
<tr><td>LINEAR SPEED</td><td>[mm/s]</td><td>7,97</td><td colspan="2">12,7</td></tr>
<tr><td>TOT LENGTH (WITH FI12) - DEPTH "T"</td><td>[mm]</td><td>600+STROKE</td><td colspan="2">735,5+STROKE</td></tr>
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<table>
<tr><th colspan="2">TECHNICAL DATA</th><th colspan="2">MET50</th><th colspan="2">MES50</th></tr>
<tr><td>LEAD SCREW</td><td>dxp</td><td colspan="2">100x12</td><td colspan="2">100x16</td></tr>
<tr><td>MAX STATIC LOAD</td><td>daN</td><td colspan="2">35000</td><td colspan="2">35000</td></tr>
<tr><td>REDUCTION RATIO</td><td>V</td><td colspan="4">1/10</td></tr>
<tr><td>MOTOR</td><td>4 POLES</td><td colspan="2">M160B5 15kW</td><td>M132B14 7,5kW</td><td>M160B5 15kW</td></tr>
<tr><td>MAX LOAD</td><td>[daN]</td><td colspan="2">9000</td><td>14000</td><td>27000</td></tr>
<tr><td>LINEAR SPEED</td><td>[mm/s]</td><td colspan="2">29,2</td><td colspan="2">38,93</td></tr>
<tr><td>REDUCTION RATIO</td><td>L</td><td colspan="4">1/30</td></tr>
<tr><td>MOTOR</td><td>4 POLES</td><td>M132B14 7,5kW</td><td>M160B5 15kW</td><td colspan="2">M132B14 7,5kW</td></tr>
<tr><td>MAX LOAD</td><td>[daN]</td><td>8500</td><td>17000</td><td colspan="2">35000</td></tr>
<tr><td>LINEAR SPEED</td><td>[mm/s]</td><td colspan="2">9,57</td><td colspan="2">12,75</td></tr>
<tr><td>TOT LENGTH (WITH FI12) - DEPTH "T"</td><td>[mm]</td><td colspan="2">780+STROKE</td><td colspan="2">905+STROKE</td></tr>
</table>

The values in the table relate to the highest performance achievable with the motors listed. Depending on the application, different types of drive can be used.

The operating cycle is nevertheless essential for selecting the right actuator.

Order Coding

Identify the desired actuator by consulting the diagram

Example of code	MET10	V	5	100	TM	M80 B14	GT	FI12

SIZES

RATIOS

CONFIGURATION
1 - 2 - 3 - 4 - 5 - 6 - 7

STROKE

SPINDLE END
TP - TM - TO - TS - TF

MOTOR

ANTI-ROTATION

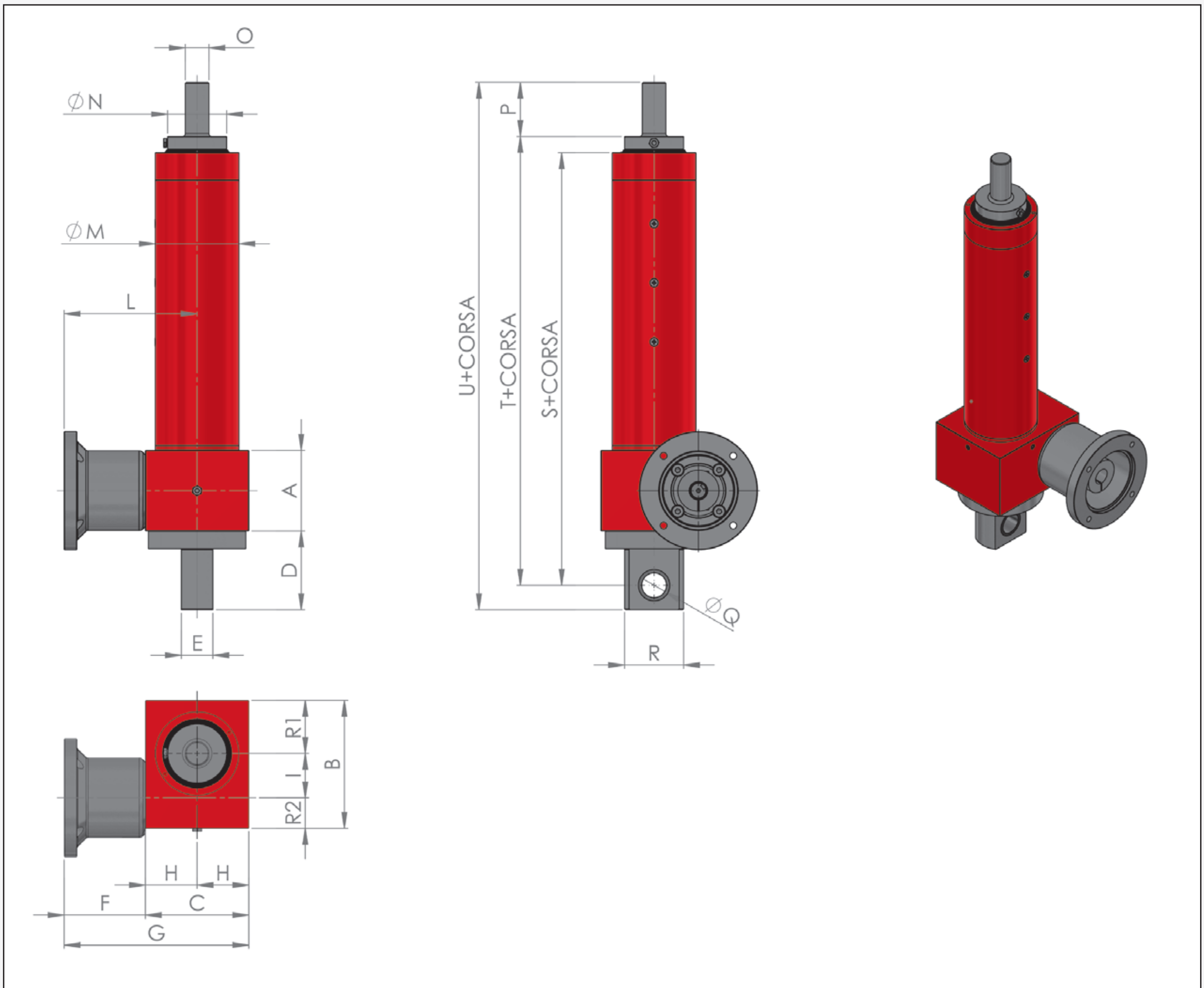
LIMIT SWITCH

Lubrication

Like any mechanical transmission system, lubrication is a key aspect for obtaining proper operation and adequate life. There are two types of lubrication, one for the drive screw and one for the internal components. For the latter, grease that lasts throughout the life of the transmission is used.

As for the drive screw, lubrication is under the customer's responsibility and must be carried out periodically at regular intervals.

Dimensions MET
TRAPEZOIDAL SCREW



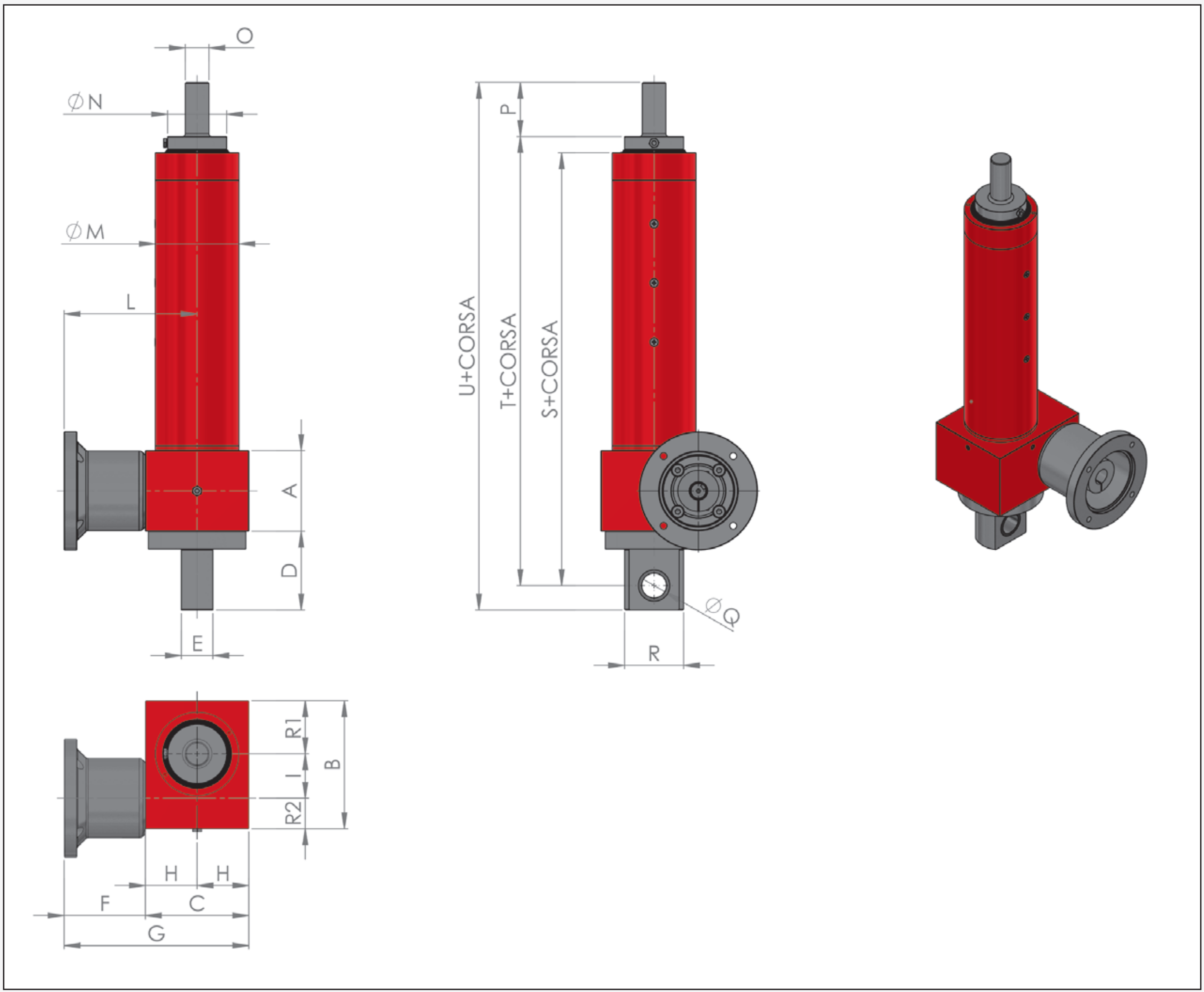
SIZE	SCREW	A	B	C	D	E	F	G	H	I	L
10	30x6	82	130	105	80	32	82,5	187,5	52,5	45	135
20	40x7	116	180	145	98	40	105,5	250,5	72,5	63	178
30	55x9	160	200	175	98	55	112	287	87,5	71	199,5
40	70x10	176	280	230	155	80	160,5	390,5	115	90	275,5
50	100x12	230	320	250	185	100	204	454	125	110	329

SIZE	SCREW	M	N	O	P	Q	R	R1	R2	S	T	U
10	30x6	85	60	M24x2	55	25	60	54	31	272	295	375
20	40x7	105	70	M30x2	70	30	75	78	39	357	380	485
30	55x9	127	90	M42x3	80	40	95	83	46	421	470	585
40	70x10	152,4	100	M52X3	80	60	125	115	75	507,5	541,5	676,5
50	100x12	193,7	140	M64X4	110	80	150	125	85	628	722	902

The O and P measurements identify the TM spindle end

Dimensions MES

RECIRCULATING BALL SCREW

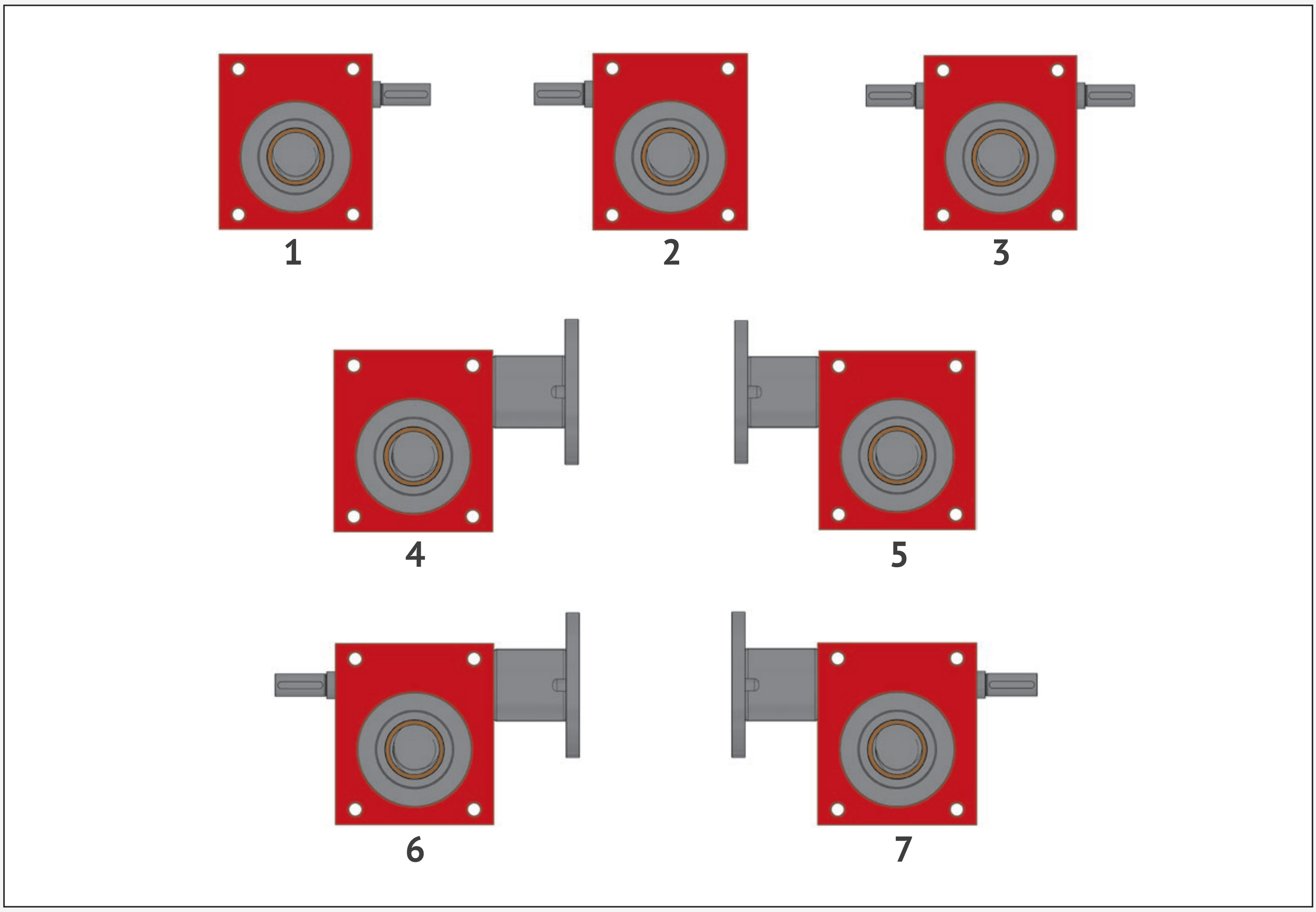


SIZE	SCREW	A	B	C	D	E	F	G	H	I	L
10	32x10	82	130	105	80	32	82,5	187,5	52,5	45	135
20	40x10	116	180	145	98	40	105,5	250,5	72,5	63	178
30	50x10	160	200	175	98	55	112	287	87,5	71	199,5
40	80x16	176	280	230	155	80	160,5	390,5	115	90	275,5
50	100x16	230	320	250	185	100	204	454	125	110	329

SIZE	SCREW	M	N	O	P	Q	R	R1	R2	S	T	U
10	32x10	85	60	M24x2	55	25	60	54	31	339	355,5	435,5
20	40x10	105	70	M30x2	70	30	75	78	39	423	451,5	556,5
30	50x10	127	90	M42x3	80	40	95	83	46	495	521	636
40	80x16	168,5	110	M52X3	80	60	125	115	75	655,5	703,5	838,5
50	100x16	193,7	140	M64X4	110	80	150	125	85	796	845	1025

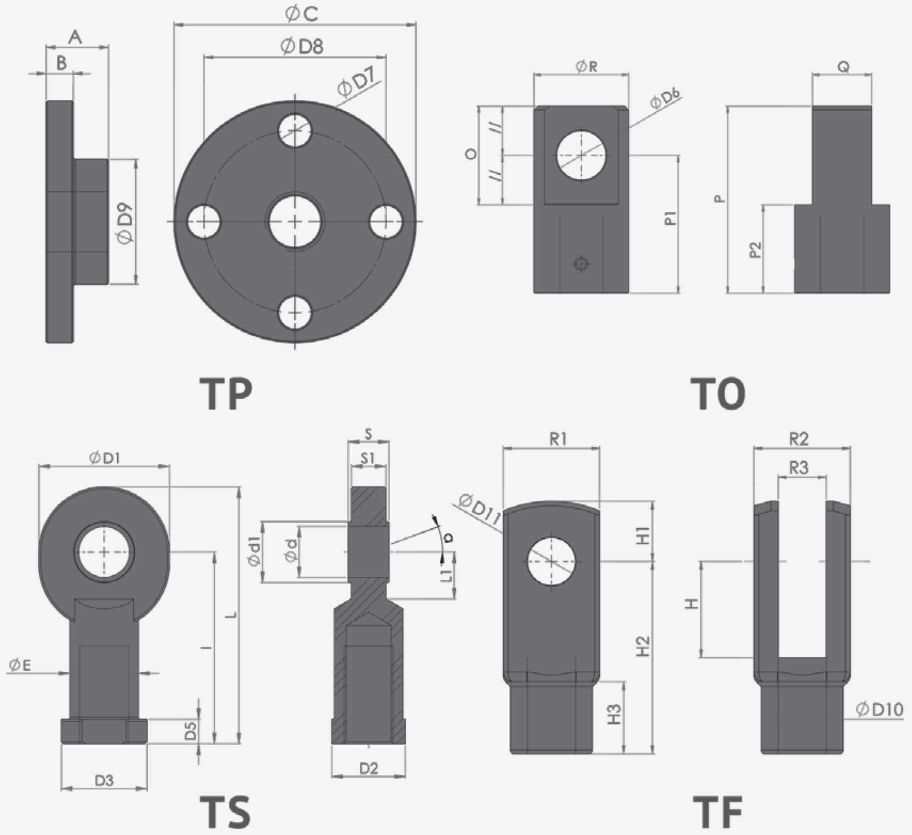
The O and P measurements identify the TM spindle end

Configurations



Marzorati actuators are available in 7 different configurations so that a genuine linear motion system can be obtained through a series connection of several actuators, as shown below.

Spindle Ends



SIZE	A	B	C	D7	D8	D9	O	R	D6	P	P1	P2
10	23	10	89	12	67	46	50	48	25	95	70	45
20	30	15	109	13	85	60	70	68	35	125	90	55
30	50	20	149	17	117	85	100	88	50	180	130	80
40	60	30	198	25	155	105	120	108	65	210	150	90
50	80	40	278	29	220	150	160	138	80	280	200	120

SIZE	Q	D1	L	l	D5	E	D3	D2	S	S1	d	d1
10	30	50	102	77	10	27,5	34	30	25	18	20	24,3
20	40	70	145	110	15	40	50	41	37	25	30	34,8
30	60	80	165	125	17	46	58	50	43	28	35	37,7
40	75	135	242	175	20	70	88	75	44	38	60	66,8
50	100	180	320	230	25	95	110	100	55	47	80	89,4

SIZE	L1	a	R1	R2	R3	H	H1	H2	H3	D10	D11
10	27	14°	40	40	2	40	25	80	30	20	34
20	36	17°	55	55	30	54	38	100	38	48	48
30	41	19°	70	70	35	72	42	144	40	60	60
40	75	6°	-	-	-	-	-	-	-	-	-
50	100	6°	-	-	-	-	-	-	-	-	-

The spindle ends proposed are standard ones, but they can be customised as required by the customer so that the actuator is adapted to the application.

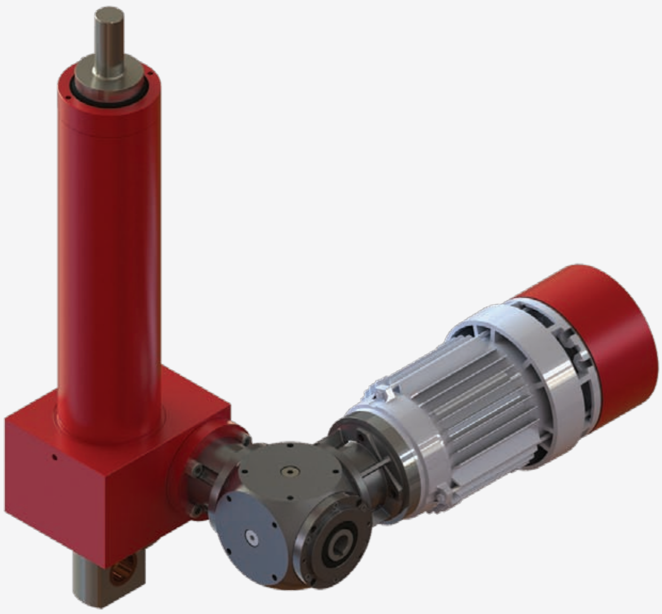
Accessories

All Marzorati products are customised according to the design requirements; indeed, there is also a range of optional accessories for the MET and MES linear actuators that ensures full adaptability to the different applications. Below is a list of accessories and their names.

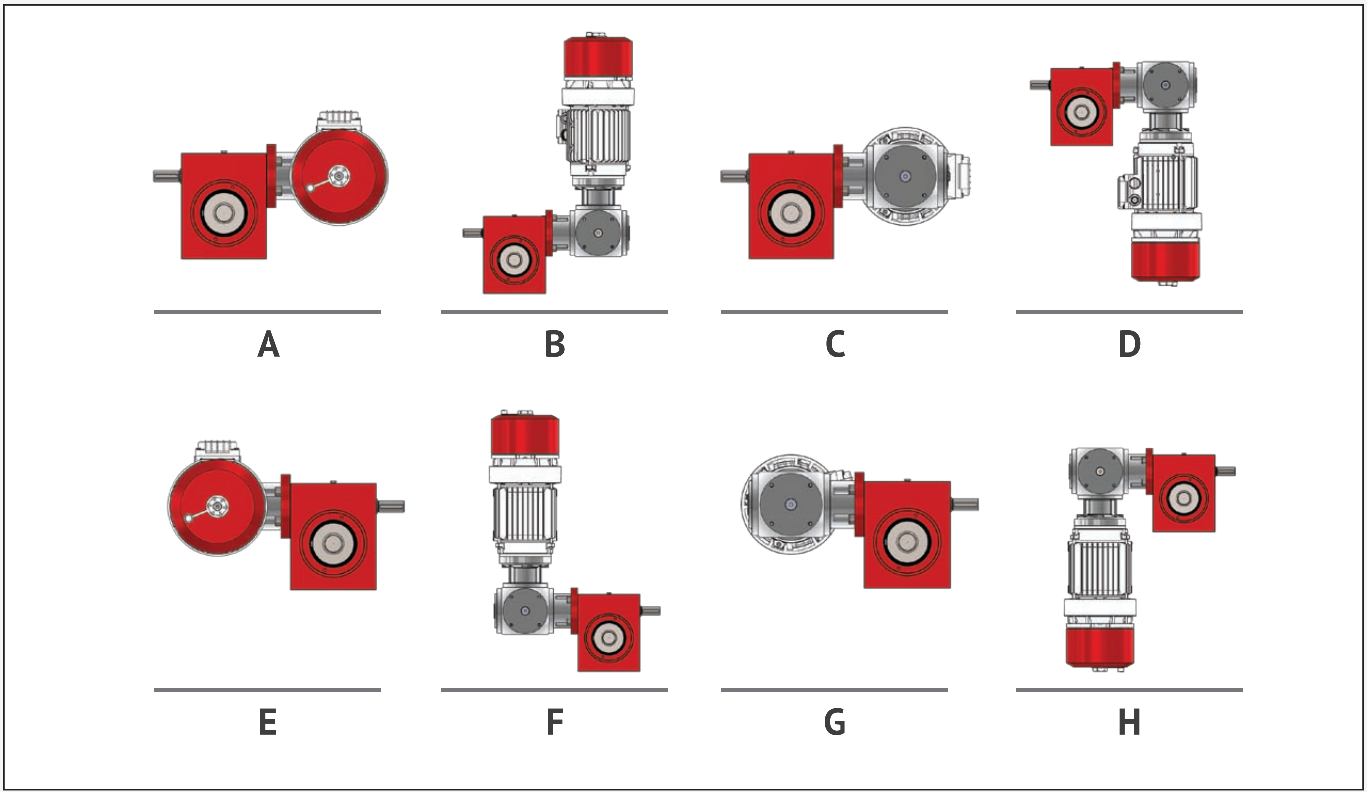
FI	**Inductive limit switches M12**	**(requires a longer actuator)**
FIM	**Mechanical limit switches**	**(requires a longer actuator)**
GT	**Anti-rotation guide in the tube**	
PE	**Elastic protection**	**(requires a longer actuator)**
CS	**Safety lead nut**	**(requires a longer actuator)**
PL	**Oscillating side pivots**	
PO	**Oscillating plate with pivots**	

Versions R-MET and R-MES

For special applications in which the bulk of the motor becomes a restriction, Marzorati proposes versions R-MET and R-MES which allow the motor to be guided along the axis of the actuator or at 90° with respect to the standard set-up.

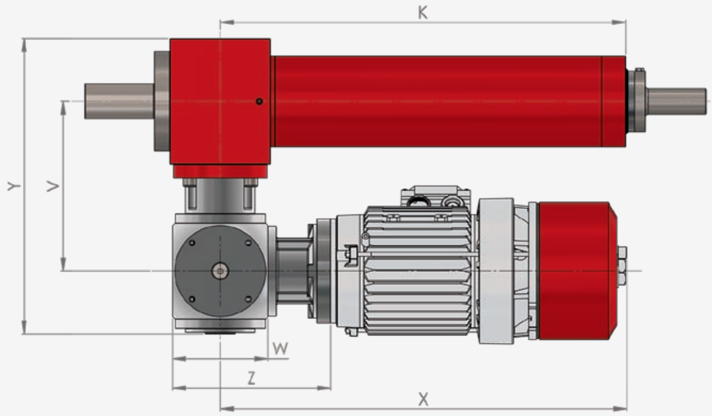


The 8 available configurations are listed below; in the coding, the letters A/B/C/D/E/F/G/H identify the layout of the motor (e.g.: R-MET30-V-**F**-230-TS-M120B14-GT-FI12).



PLEASE NOTE: The configuration with the motor parallel to the rod may require the S, U and T measurements to increase according to the dimensions of the motor.

The X measurement in the diagram is the longitudinal bulk dimension of the largest motor. The K measurement is therefore the "fully closed" position of the actuator and must be higher than or equal to X.



SIZE	V	X	W	Y	Z
10	157,5	493	80	262,5	147
20	195,5	582	110	340,5	192
30	210,5	582	110	370,5	192
40	290	739	140	497,5	250
50	310	915	170	547	320

We're Here
To Help You

Marzorati

sistemi di trasmissione srl

Via A. De Gasperi, 89
20017 Rho (MI)
ITALIA

Tel +39 02.36.76.39.30

www.marzorati.it

Info:
info@marzorati.it
Export:
export@marzorati.it
Administration:
amministrazione@marzorati.it