



**EMG**

**ELDRO®**  
classic

## **ELECTRO HYDRAULIC THRUSTERS**

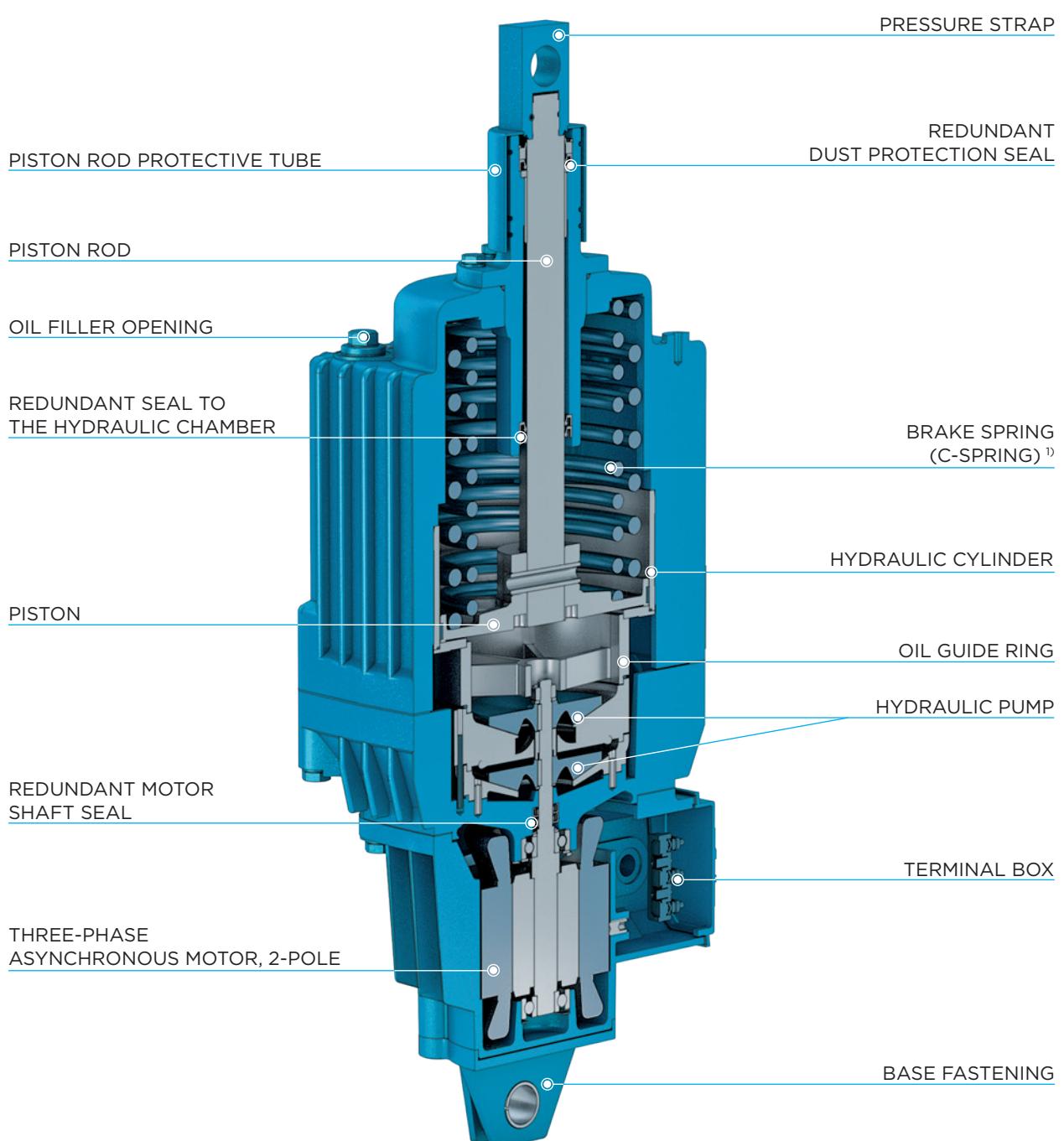
THE ORIGINAL. BE SAFE.

**STANDARD SERIES**

**Ed**

**EMG** .moving ahead.

## DESIGN, FUNCTION AND ADVANTAGES



<sup>1)</sup> Auxiliary equipment

## Ed THRUSTER OVERVIEW



### CHARACTERISTIC FEATURES

The electro hydraulic system of the ELDROclassic® thrusters, in conjunction with the straightforward integration in brake systems and the simple electrical start-up, result in the following features under the diverse application conditions:

- High operational safety
- Long service life due to wear-free work under constant self-lubrication
- Soft and impact-free mode of operation, as a systemic result of the hydraulic working principle
- Short actuating times
- Approved continuous operation S1 in standard temperature range of -25 °C up to +50 °C

- High switching frequency of up to 2,000 cycles per hour in switching operation S3
- Reversing operation without limitations
- Easy to install and de-install
- Arbitrary direction of motor rotation, meaning no changeover contactors required
- Overloading not possible during operation
- Arbitrary external limiting of the stroke path
- Stepless extension of the lifting and/or lowering times through the installation of valves
- The fill level of the operating medium is optimised according to the application conditions

### TECHNICAL VALUES

Type	Lifting force [N]	Stroke path [mm]**	Power consumption [W]	Current consumption [A] at 400 V/50 Hz	Switching frequency with S3 operation [c/h]	Weight [kg]
<i>Three-phase current version</i>						
Ed 12/...	120	40	120	0.36	2,000	8
Ed 23/...	220	50	165	0.50	2,000	10
Ed 25/...	300	50	165	0.50	2,000	10
Ed 30/...	300	50	200	0.50	2,000	14
Ed 50/...	500	60 - 120	210	0.50	1,200 - 2,000*	23 - 26*
Ed 80/...	800	60 - 120	330	1.20	1,200 - 2,000*	24 - 27*
Ed 121/...	1,250	60 - 200	330	1.20	400 - 2,000*	39
Ed 125/...	1,250	70	330	1.20	2,000	24
Ed 185/...	1,850	60 - 155	450	1.30	400 - 2,000*	40
Ed 201/...	2,000	60 - 120	450	1.30	1,200 - 2,000*	39
Ed 301/...	3,000	60 - 150	500	1.40	400 - 1,500*	40 - 50*
Ed 350/...	3,500	200	550	1.40	400	50
Ed 400/...	4,000	80 - 200	550	1.40	400 - 600*	50
Ed 450/...	4,500	80 - 200	600	1.40	400 - 600*	40 - 50*
Ed 500/...	5,000	80	700	1.80	400	50
Ed 630/...	6,300	80 - 120	700	1.80	400	70

\* depending on stroke path

\*\* further on request

Stroke work (N cm) = Lifting force x stroke path

## Ed THRUSTER OVERVIEW



Ed 12/4



Ed 23/5



Ed 30/5



Ed 80/6

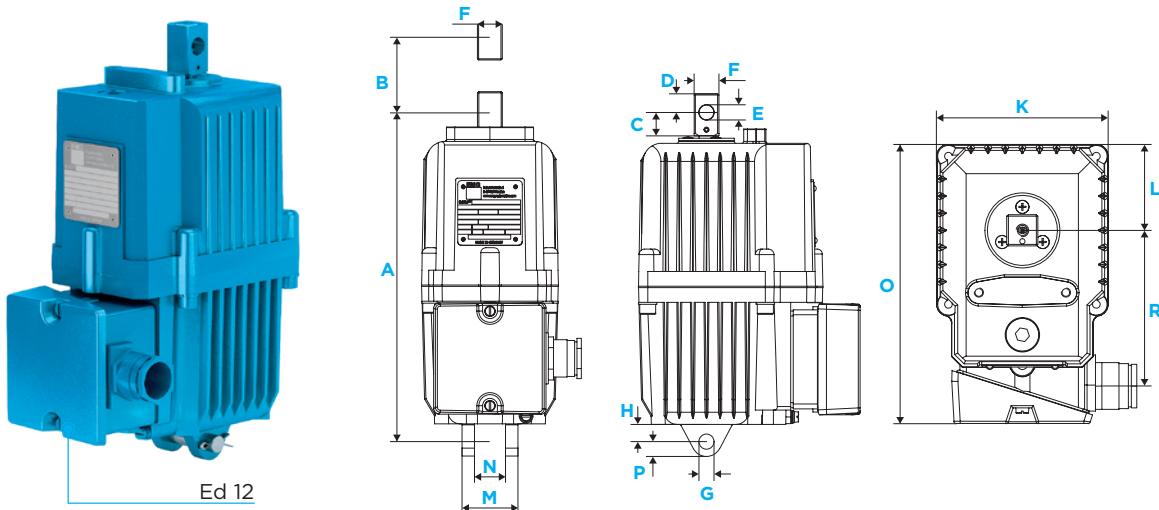


Ed 301/6

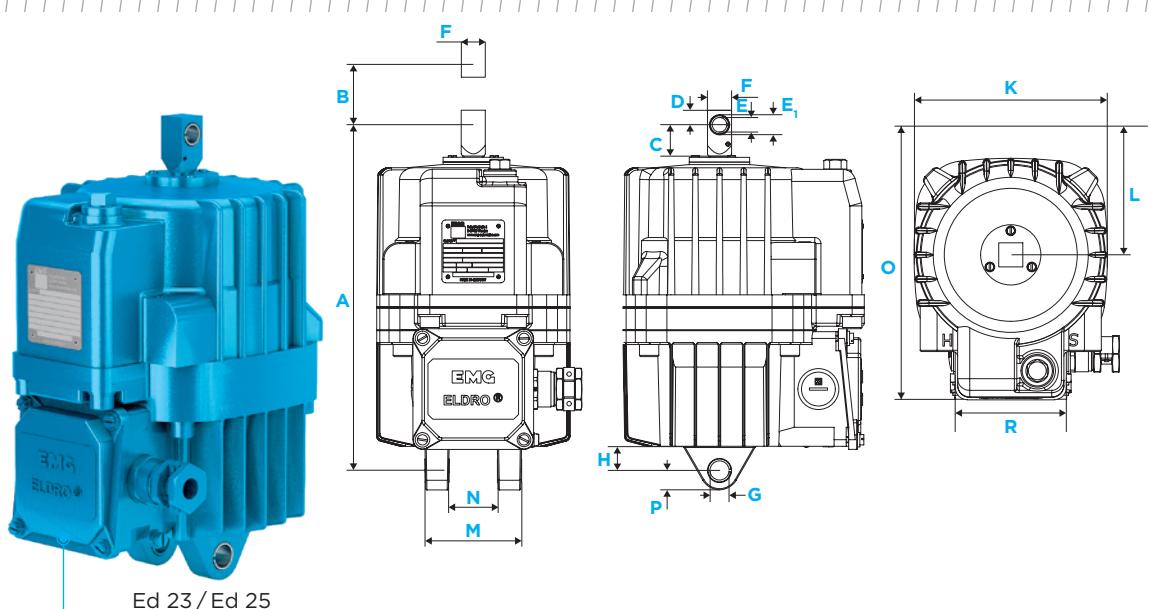


Ed 630/9

## Ed 12



## Ed 23 TO Ed 25

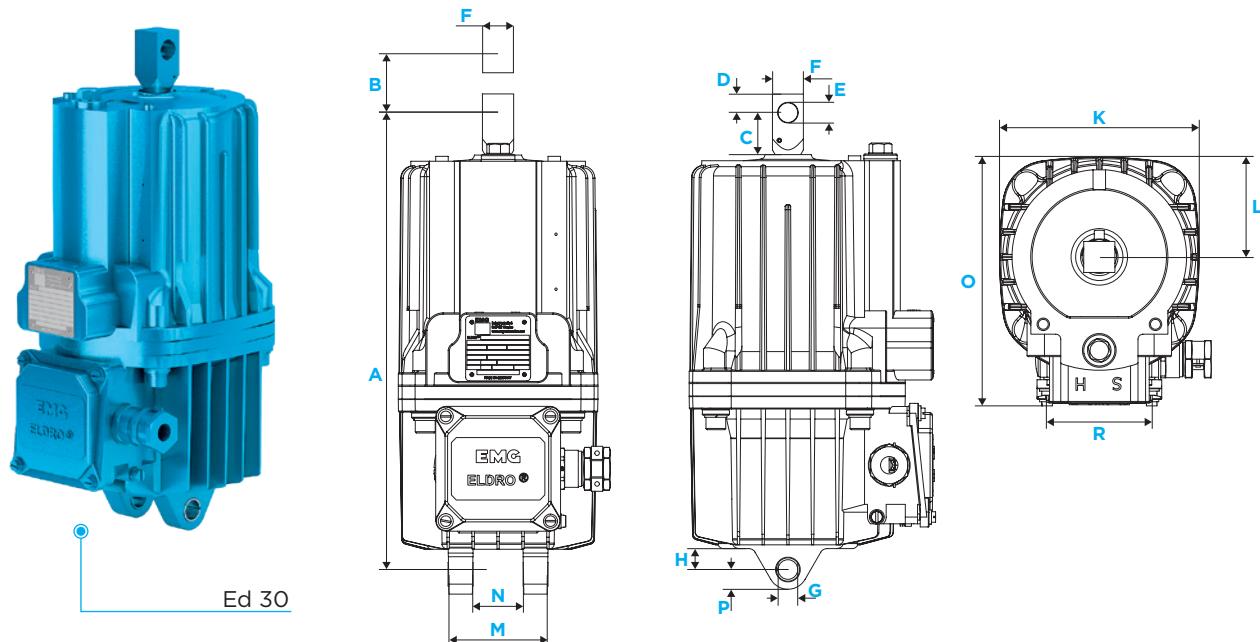


Type	A	C	D	E	E <sub>1</sub>	F	G	H	K	L	M	N	O	P	R
Ed 12/...	265	20	10	12	-	20	12	12	110	55	45	25	178	14	100
Ed 23/...	286	26	12	12	16	20	16	20	160	80	80	40	200	16	92
Ed 25/...	286	26	12	12	16	20	16	20	160	80	80	40	200	16	92

All dimensions in mm

B = stroke path (variable) | E convertible to E<sub>1</sub> by removing the clamping bush

## Ed 30 TO Ed 80 AND Ed 125



Type	A	C	D	E	E <sub>1</sub>	F	G	H	K	L	M	N	O	P	R
<i>Short stroke thrusters</i>															
Ed 30/...	370	34	15	16	-	25	16	18	160	80	80	40	197	16	80
Ed 50/...	435	36	18	20	-	30	20	23	195	97	120	60	254	22	90
Ed 80/...	450	36	18	20	-	30	20	23	195	97	120	60	254	22	90
Ed 125/...	450	36	18	20	-	30	20	23	195	97	120	60	254	22	90

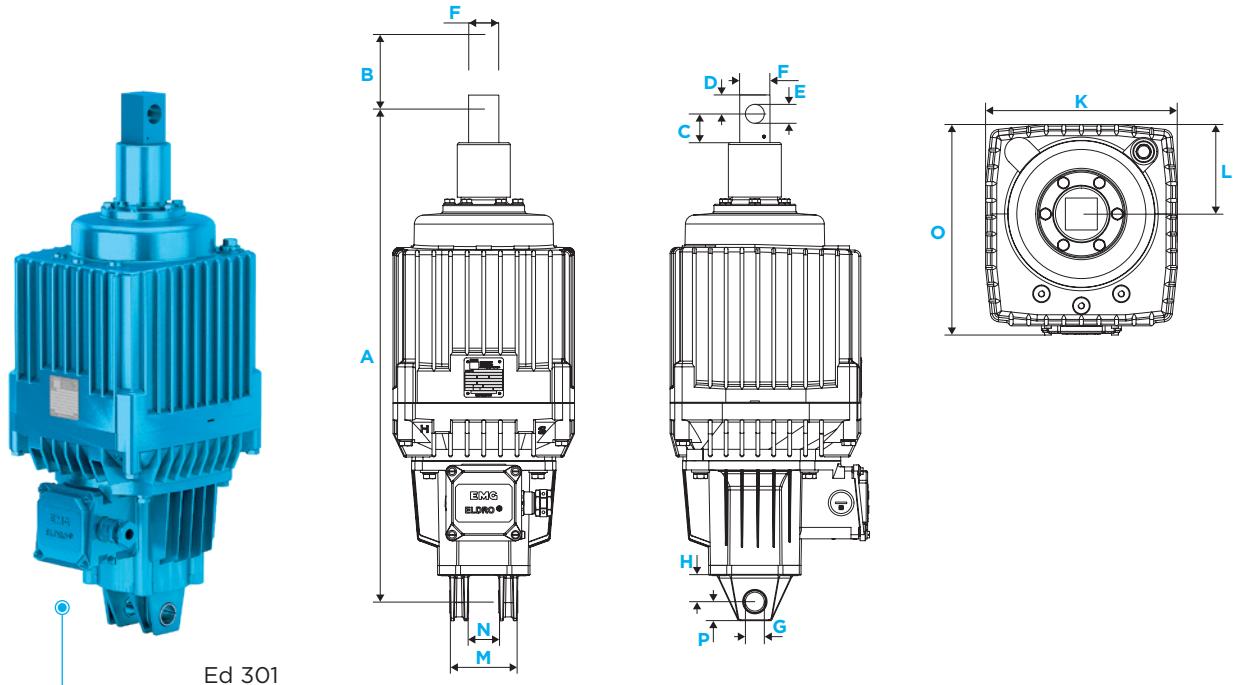
### Long stroke thrusters

Ed 50/...	515	36	18	20	-	30	20	23	195	97	120	60	254	22	90
Ed 80/...	530	36	18	20	-	30	20	23	195	97	120	60	254	22	90

All dimensions in mm

B = stroke path (variable) | E convertible to E<sub>1</sub> by removing the clamping bush

## Ed 121 TO Ed 630



Type	A	C	D	E	F	G	H	K	L	M	N	O	P	R
<i>Short stroke thrusters</i>														
Ed 121/...	645	38	25	25	40	25	35	240	112	90	40	260	25	-
Ed 185/...	600	42	25	25	40	27	44	240	112	160	80	260	25	-
Ed 201/...	645	38	25	25	40	25	35	240	112	90	40	260	25	-
Ed 301/...	645	38	25	25	40	25	35	240	112	90	40	260	25	-

<i>Long stroke thrusters</i>														
Ed 121/...	705	38	25	25	40	25	35	240	112	90	40	260	25	-
Ed 185/...	700	42	25	25	40	27	44	240	112	160	80	260	25	-
Ed 201/...	705	38	25	25	40	25	35	240	112	90	40	260	25	-
Ed 301/...	705	38	25	25	40	25	35	240	112	90	40	260	25	-
Ed 301/...*	880	38	25	25	40	27	44	250	117	160	80	265	25	-
Ed 350/...	880	38	25	25	40	27	44	250	117	160	80	265	25	-
Ed 400/...	645	42	25	25	40	25	34	240	112	90	40	265	25	-
Ed 450/...	645	42	25	25	40	25	34	240	112	90	40	265	25	-
Ed 500/...	665	52.5	25	25	40	25	35	250	117	90	40	265	25	-
Ed 630/...	705	38	25	25	40	25	35	274	127	90	40	328	30	-

All dimensions in mm

B = stroke path (variable) | \* from 130 mm stroke path

## ELECTRICAL VERSION

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### MOTOR

- Three-phase asynchronous motor, 2-pole
- For power data see "Technical values"
- Standard insulation per insulation class F
- Special version in insulation class H

### VOLTAGES AND FREQUENCIES

- Standard:  
230/400 V, 50 Hz, 3 ~  
290/500 V, 50 Hz, 3 ~  
400/690 V, 50 Hz, 3 ~
- Special versions 110 V to 690 V, 3 ~,  
50 Hz and 60 Hz possible
- All thrusters are star (Y) connected on delivery
- Alternating current versions (with capacitor for  
Steinmetz circuit) on request
- DC current version see separate brochure

### CABLE INLET

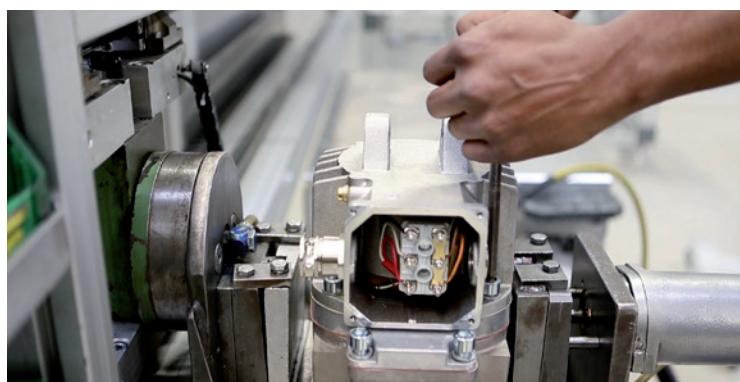
- Threaded cable gland M 25 x 1.5 for cable  
cross-sections to 4 x 2.5 mm<sup>2</sup> (Ø 12 – 18 mm)

### OPERATING MODES

- Continuous operation S1 and intermittent duty  
S3 – 60 % duty cycle standard
- With ambient temperatures > 50 °C deviating  
technical values (available on request)

### TERMINAL BOX

- Terminal board 6-pole, with thrusters with heating  
the terminal board is 9-pole
- Supply line connection M4
- Internal protective conductor connection: M4
- External protective conductor connection: M6



## MECHANICAL VERSION

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### INSTALLATION VARIANTS

- In case of types from Ed 50, the base fastening can be mounted offset through 90°.
- With the types Ed 23/5 and Ed 30/5, the base fastening is cast on the motor.
  - Here, 90° offset installation is possible with a special motor housing.
- The pressure strap at the top rotates in all types.
- In case of versions with a limit switch, minor modifications are required in order to rotate the pressure strap or fasten the base as required.

### OPERATING FLUID

- Mineral hydraulic oil or silicone oil depending on the operating conditions, e.g. ambient temperature, factory-filled

### ENCLOSURE

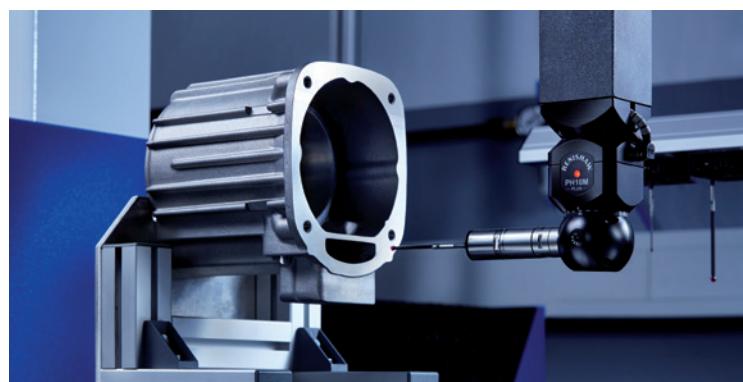
- Standard IP 65, in special version up to IP 68

### PAINT APPLICATION PER DIN EN ISO 12944

- Standard for corrosion load C1, layer thickness 70 µm
- Special paint up to corrosion load C5-M, coating thickness to 280 µm
- Standard colour RAL 7022 (umbra grey)

### PROTECTIVE MEASURES

- Redundant dust protection seal
- Redundant seal with the hydraulic chamber
- Piston rod chromium plated to dimension
- With Ed 121, Ed 201, Ed 301, Ed 350, Ed 630 additional piston rod protective tube against external mechanical influences

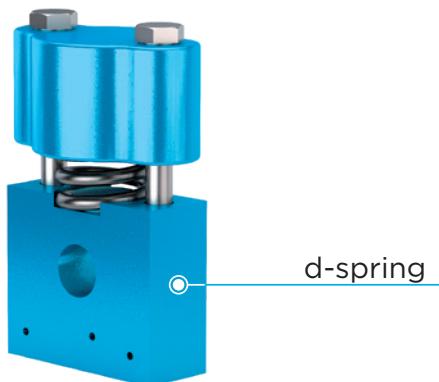


## ELECTRICAL & MECHANICAL AUXILIARY EQUIPMENT



### DAMPING SPRING (D-SPRING)

- Damping of the load change when closing and opening the brake.
- The D-spring is only effective in conjunction with a C-spring.
- With the installation of the D-spring, it is not possible to fit a limit switch.
- The installation length "A" of the device does not change.
- When specifying the working point of the brake, dimension "z" must be taken into account (see device specific dimension drawing).
- Main application: ELDROclassic® control brake



### BRAKE SPRING (C-SPRING)

- Integrated C-spring for generating the brake force. The specified brake force of the C-spring is reached at 1/3 of the nominal stroke.

### VERSIONS WITH BRAKE SPRING

Type	Brake spring force (C-spring) [N]
<i>Three-phase current version</i>	
Ed 23/5	180
Ed 30/5	270
Ed 50/6	460
Ed 80/6	750
Ed 121/6	1,200
Ed 185/6	1,900
Ed 201/6	1,900
Ed 301/6	2,700



### LIFTING AND/OR LOWERING VALVE (H, S, HS)

- The lifting and lowering times can be steplessly extended with an integrated lifting and/or lowering valve. The adjustable minimum values attain 10 to 20-times the normal values.
- Integrated valves in “open position” result in an extension of the lifting and lowering times with short stroke thrusters of up to approx. 0.1 to 0.2 seconds, and with long stroke thrusters of up to approx. 0.2 to 0.4 seconds.
- The desired lifting or lowering time is set externally on the thruster.

### QUICK LOWERING SWITCHING

- The lowering times are shortened through the use of three-phase motor capacitors, or by short-circuiting the stator winding via a contactor.
- The lowering times reduce by approx. 15 %.

### HEATING

- With ambient temperatures below - 25 °C and use of the standard operating fluid, the ELDROclassic® thruster must be equipped with low temperature heating.
- The task of the heating lies in keeping the operating fluid within the liquid range.
- In order to avoid condensation in the motor at high humidity, the ELDROclassic® thruster can be equipped with parking heaters. The temperature of the ELDROclassic® thruster is kept slightly above the ambient temperature and the formation of condensation is thereby avoided.

### INCREASED CORROSION PROTECTION

- Increased corrosion protection is necessary with the use of ELDROclassic® thrusters in environments of aggressive media and/or high relative humidity with the resultant formation of condensation.
- **Increased protection in the motor:**  
Vacuum full potting of the stator or the use of a parking heater
- **Increased external protection:**  
Through special paint application, see “Mechanical version”



# EMG



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