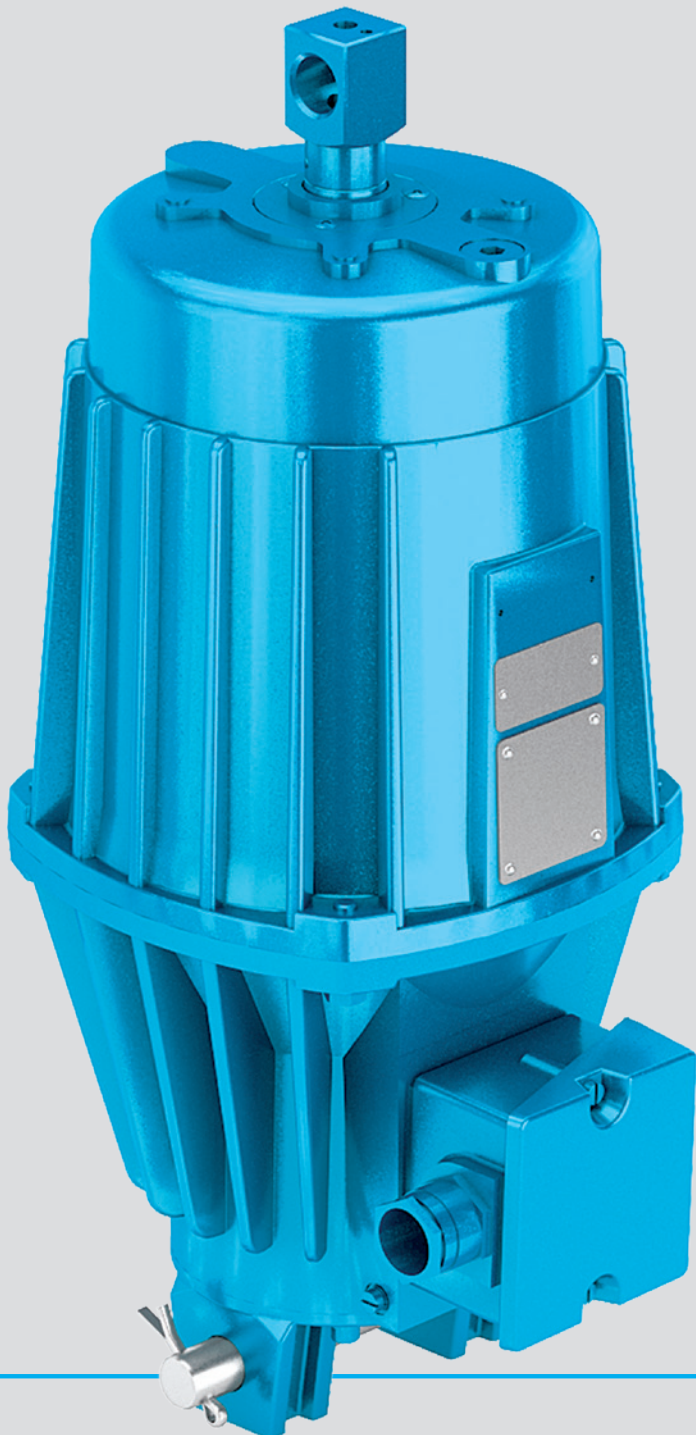


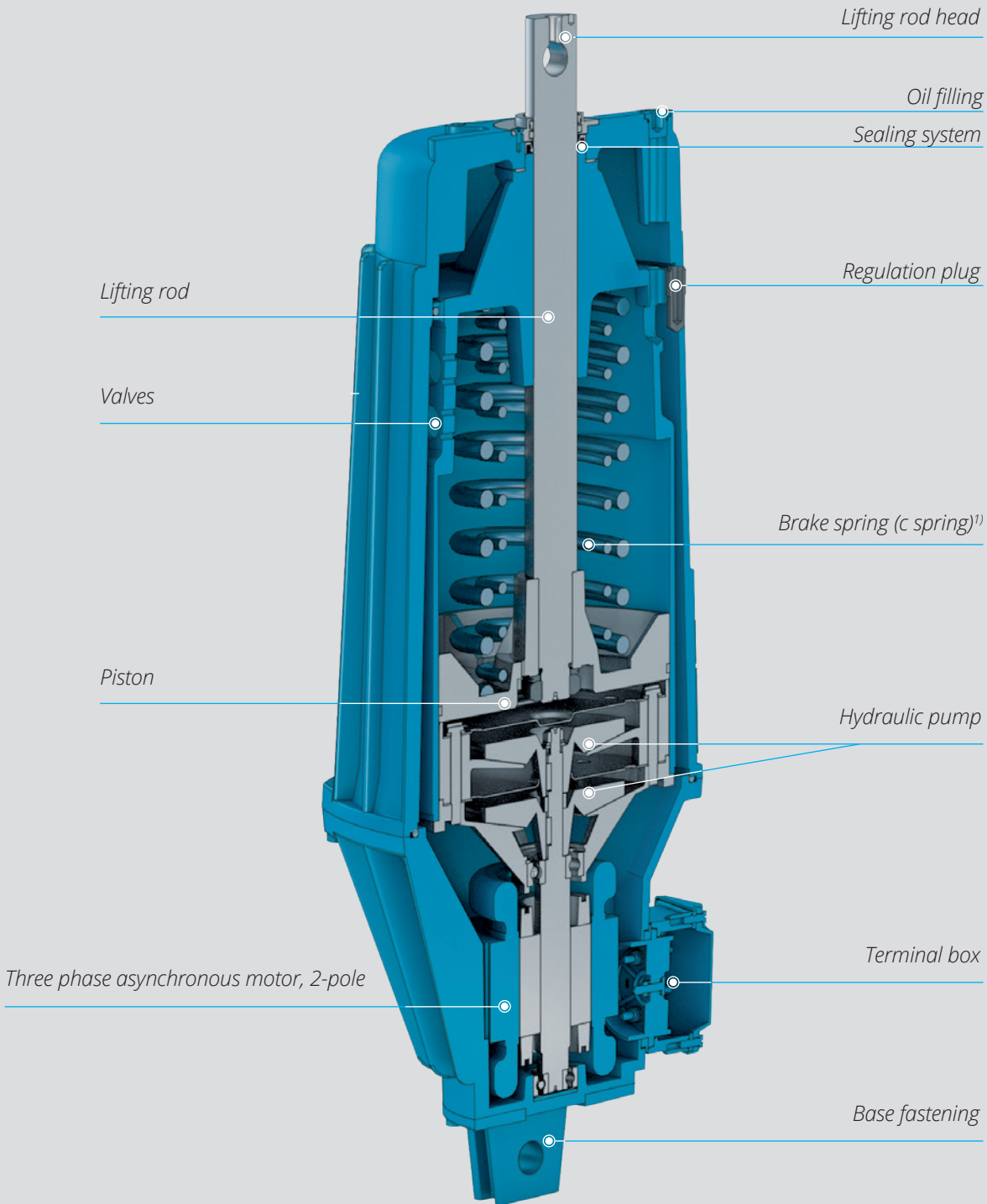
Electro hydraulic thrusters.  
THE ORIGINAL. BE SAFE.

## EMG ELHY® EB series



EMG ELHY® EB series

# Design, function and advantages



<sup>1)</sup> Auxiliary equipment

## Area of application

In addition to a wide range of applications in the mechanical engineering industry, materials lifting and handling can be considered as the main uses of industrial brakes offered on the market. Drive and brake problems can be solved using a drum brake or a shoe brake which is still quite common or by using industrial type disk brakes. As the requirements with respect to driving power, controllability and availability have clearly increased,

advanced electrical engineering and electronics have become ever more important catering for these demands. Although most components of modern systems are electrical and electronic, the mechanical safety brake, with the electrohydraulic EMG ELHY® brake thruster, still has the most important role to play: as the last link in the chain, it ensures safety for man and machine in the event of power failure.

### Technical values

Type TGL 35868	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]
EB 12/...	120	50	160	0.4	2000	12
EB 20/...	200	50	180	0.4	2000	11
EB 50/...	500	50 - 100	200	0.4	2000	14 - 15*
EB 80/...	800	60 - 160	300	0.5	2000	19 - 26*
EB 125/...	1250	60 - 160	400	0.7	2000	19 - 26*
EB 150/...	1500	60 - 160	400	0.7	2000	19 - 26*
EB 250/...	2500	60 - 160	500	0.9	2000	33 - 40*
EB 320/...	3200	100	600	1.1	2000	40
EB 630/...	6300	120	850	1.6	240	45
Type DIN 15430	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]
EB 220-...	220	50	160	0.4	2000	12
EB 300-...	300	50	180	0.4	2000	11
EB 500-...	500	60 - 120	200	0.4	2000	14 - 15*
EB 800-...	800	60 - 120	300	0.5	2000	19 - 25*
EB 1250-...	1250	60 - 120	400	0.7	2000	26
EB 2000-...	2000	60 - 120	500	0.8	2000	33 - 40*
EB 3000-...	3000	60 - 120	600	0.9	2000	40
EB 6300-...	6300	120	850	1.6	240	45

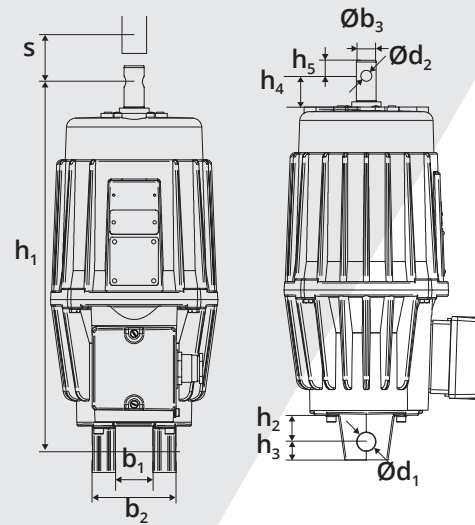
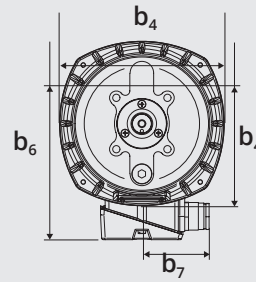
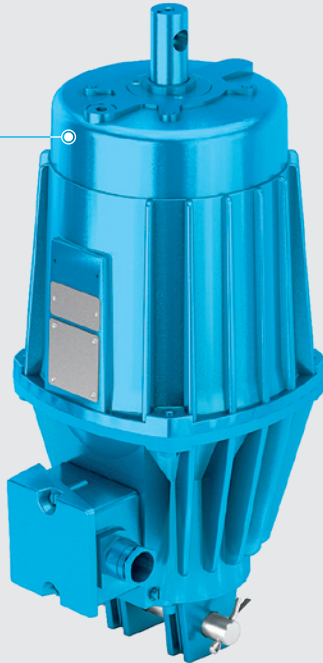
\* depending on stroke path \*\* further on request

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

EMG ELHY® EB series

# EB TGL 35868

EB 50/50

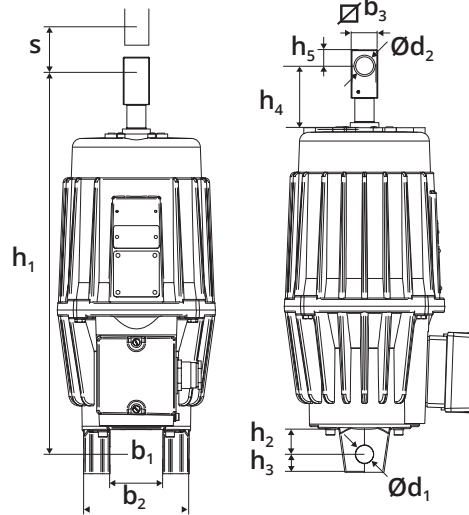
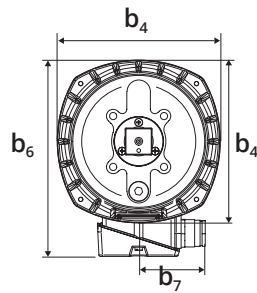


Size	Type	$h_1$ +/-1	s	$b_1$ +2	$b_2$ +1	$b_3$ e8	$b_4$	$b_6$	$b_7$	$d_1$ +0.1	$d_2$ F9	$h_2$	$h_3$ +1	$h_4$ +/-1	$h_5$
0	EB 12 -1 <sup>1)</sup>	272	50	-	-	20	162	236	100	16.1	12	-	-	23	17
	EB 12 -2 <sup>2)</sup>	286	50	40	80	20	162	236	100	16.1	12	20	16	23	17
	EB 12 -3 <sup>3)</sup>	314	50	40	80	20	162	236	100	16.1	12	38	16	23	17
1	EB 20	380	50	40	80	21.5	150	200	100	20.2	12	30	20	30	17
2	EB 50	400	50	40	90	21.5	180	220	100	20.2	12	30	20	32	17
	EB 50	452	100	40	90	21.5	180	220	100	20.2	12	30	20	32	17
3	EB 80. 125. 150	458	60	40	90	27.5	208	232	100	20.2	16	30	25	36	21
	EB 80. 125. 150	573	160	40	90	27.5	208	232	100	20.2	16	30	25	36	21
4	EB 250	549	60	40	90	35.5	250	265	100	20.2	20	30	25	36	25
	EB 250	660	160	40	90	35.5	250	265	100	20.2	20	30	25	36	25
	EB 320	660	100	40	90	35.5	250	265	100	20.2	20	30	25	36	25
5	EB 630	660	120	40	90	35.5	250	265	100	20.2	20	30	25	36	25

<sup>1)</sup> Flange version <sup>2)</sup> Basic unit with cast-on feet <sup>3)</sup> Unit with screwed foot plate

EMG ELHY® EB series

# EB DIN 15430



EB 500/60



Size	Type	$h_1$ +/-1	s	$b_1$ +2	$b_2$ +1	$b_3$ e8	$b_4$	$b_6$	$b_7$	$d_1$ +0,1	$d_2$ F9	$h_2$	$h_3$ +1	$h_4$ +/-1	$h_5$
0	EB 120 -2 <sup>2)</sup>	265	40	25	45	20	110	178	55	12.1	12	12	14	20	10
	EB 120 -3 <sup>3)</sup>	286	40	40	60	20	110	178	55	16.1	12	16	23	20	10
	EB 220 -1 <sup>1)</sup>	272	50	-	-	20	162	236	100	16.1	12	-	-	26	15
	EB 220 -2 <sup>2)</sup>	286	50	40	80	20	162	236	100	16.1	12	20	16	26	15
	EB 220 -3 <sup>3)</sup>	314	50	40	80	20	162	236	100	16.1	12	38	16	26	15
1	EB 300	370	50	40	80	25	150	200	100	16.1	16	18	16	32	15
2	EB 500	435	60	60	120	30	180	220	100	20.1	20	30	20	67	18
	EB 500	515	120	60	120	30	180	220	100	20.1	20	30	20	95	18
3	EB 800	458	60	60	120	30	208	232	100	20.1	20	23	22	42	18
	EB 800	530	120	60	120	30	208	232	100	20.1	20	23	22	39	18
	EB 1250	645	60	40	90	40	208	232	100	25.1	25	30	25	108	25
	EB 1250	705	120	40	90	40	208	232	100	25.1	25	30	25	168	25
4	EB 2000	645	60	40	90	40	250	265	100	25.1	25	30	25	132	25
	EB 2000	705	120	40	90	40	250	265	100	25.1	25	30	25	81	25
	EB 3000	660	60	40	90	40	250	265	100	25.1	25	30	25	36	25
	EB 3000	705	120	40	90	40	250	265	100	25.1	25	30	25	81	25
5	EB 6300	705	120	40	90	40	250	265	100	25.1	25	30	25	83	25

## Special versions according to DIN 15430

Size	Type	$h_1$ +/-1	s	$b_1$ +2	$b_2$ +1	$b_3$ e8	$b_4$	$b_6$	$b_7$	$d_1$ +0,1	$d_2$ F9	$h_2$	$h_3$ +1	$h_4$ +/-1	$h_5$
2	EB 320	385	50	40	80	25	180	220	100	16.1	16	18	16	30	18
	EB 320	493	100	40	80	25	180	220	100	16.1	16	18	16	85	18
	EB 500	435	50	60	120	30	180	220	100	20.1	20	30	20	65	18
	EB 500	515	100	60	120	30	180	220	100	20.1	20	30	20	95	18
3	EB 800	573	160	60	120	30	208	232	100	20.1	20	23	22	42	18
	EB 1250	705	160	40	90	40	208	232	100	25.1	25	30	25	168	25
	EB 1500	645	60	40	90	40	208	232	100	25.1	25	30	25	108	25
	EB 1500	705	160	40	90	40	208	232	100	25.1	25	30	25	168	25
4	EB 2500	645	60	40	90	40	250	265	100	25.1	25	30	25	152	25
	EB 2500	705	160	40	90	40	250	265	100	25.1	25	30	25	81	25
	EB 3200	660	100	40	90	40	250	265	100	25.1	25	30	25	36	25

<sup>1)</sup> Flange version <sup>2)</sup> Basic unit with cast-on feet <sup>3)</sup> Unit with screwed foot plate



# Electrical version

## 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:
  - 400 V, 50 Hz, 3 ~
  - 500 V, 50 Hz, 3 ~
  - 690 V, 50 Hz, 3 ~
  - 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 devices are star (Y) connected on delivery
- » Alternating current versions (with capacitor for Steinmetz circuit) on request

## Cable inlet

- » Threaded cable gland M 25 x 1.5 for cable cross-sections to 4 x 2.5 mm<sup>2</sup> (Ø 7.5 – 18 mm)

## Operating modes

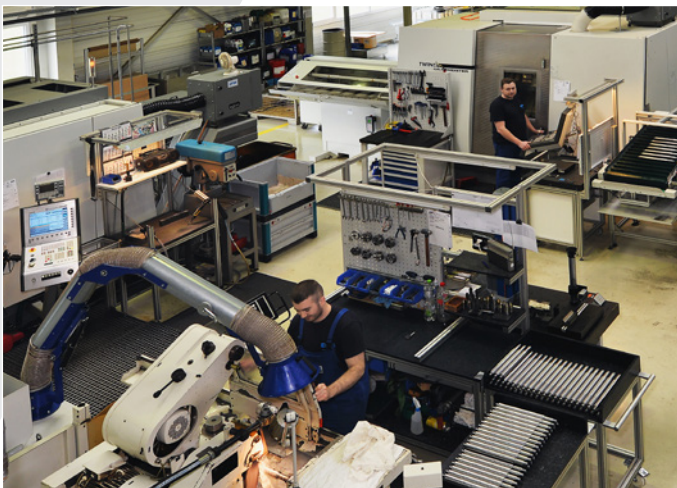
- » Continuous operation S1 and intermittent duty S3 – 60 % duty cycle standard
- » With ambient temperatures > 50 °C deviating technical values (available on request)

## Terminal box

- » Terminal board 6-pole, with devices with position indicator Lk/La 3-pole
- » Supply line connection M5
- » Internal protective conductor connection: M5
- » External protective conductor connection: M5
- » Connection Lk/La: M4

## Temperature range

- » Broad standard temperature range from – 25 °C to + 40 °C, expandable to – 40 °C to + 70 °C with additional equipment and use of special operating media
- » Deviating temperature on request



EMG ELHY® EB series

# Mechanical version

## Installation variants

- » The base fastening can be mounted offset through 90°.
- » The lifting rod head 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 56, in special version up to IP 66

## Paint application per DIN EN ISO 12944

- » 2K Polyacryl coating, layer thickness 80 µm
- » Special paint up to corrosion load C5-M, layer thickness up to 240 µm
- » Standard colour RAL 5008 (grey-blue)

## Protective measures

- » Redundant seal against dust and humidity from outside and against oil lost from inside
- » Piston rod QPQ
- » Protective tube against external mechanical influences





# Electrical & mechanical auxiliary equipment

## Control/Damping spring (R/d-spring)

- » Damping of the load change when closing and opening the brake.
- » The R/D-spring is only effective in conjunction with a C-spring.
- » The installation length "h1" of the device does not change.
- » When setting the working point of the brake, the spring characteristic must be taken into account.
- » Main application: ELHY® control brake

## Brake spring (c-spring)

- » Integrated C-spring for generating the brake force. The indicated braking force of the C-spring refers to stroke 0 mm to maximum.

## Lifting, lowering or throttling valve (H, S, D)

- » With a built-in lift, lowering or throttling valve, lifting or lowering times as well as both times can be infinitely increased. 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. 0.4 to 1.0 Sseconds, and with long stroke thrusters of up to approx. 0.7 to 2.0 seconds.
- » The desired lifting or lowering time is set externally on the device in standing position.

## 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 %.

## Increased corrosion protection

- » Increased corrosion protection is necessary with the use of ELHY® devices in environments of aggressive media and/or high relative humidity with the resultant formation of condensation.
- » Increased protection in the motor: The motor compartment is under oil and does not require any additional corrosion protection.
- » Increased external protection: Through special paint application, see "Mechanical version"

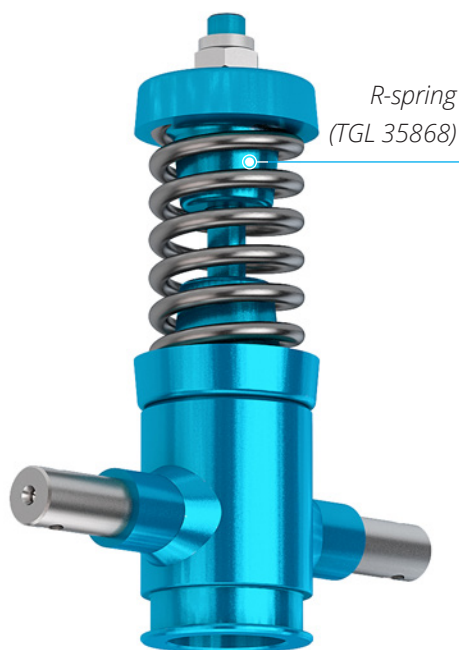




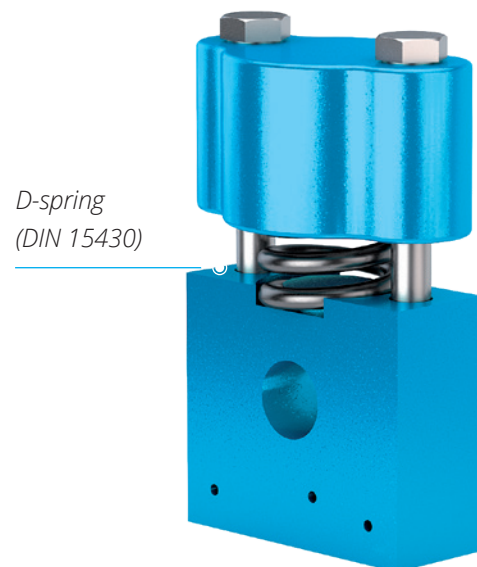
## Versions with brake spring

Type TGL 35868	Brake spring force (c-spring) N]
EB 12/50 C12	110 - 160
EB 20/50 C20	220 - 260
EB 50/50 C32	370 - 450
EB 50/50 C50	540 - 680
EB 80/60 C80	740 - 1060
EB 125/60 C125	1200 - 1630
EB 150/60 C125	1200 - 1630
EB 250/60 C200	1900 - 2500
EB 320/100 C320	2540 - 3690

Type DIN 15430	Brake spring force (c-spring) N]
EB 220-50 C220	200 - 290
EB 300-50 C270	260 - 310
EB 500-60 C500	540 - 680
EB 800-60 C800	740 - 1060
EB 1250-60 C1250	1200 - 1630
EB 2000-60 C2000	1900 - 2500
EB 3000-60 C3200	2540 - 3690



*R-spring*  
(TGL 35868)



*D-spring*  
(DIN 15430)

EMG ELHY® EB series

# Electrical & mechanical auxiliary equipment

## Internal level indicator (LK)

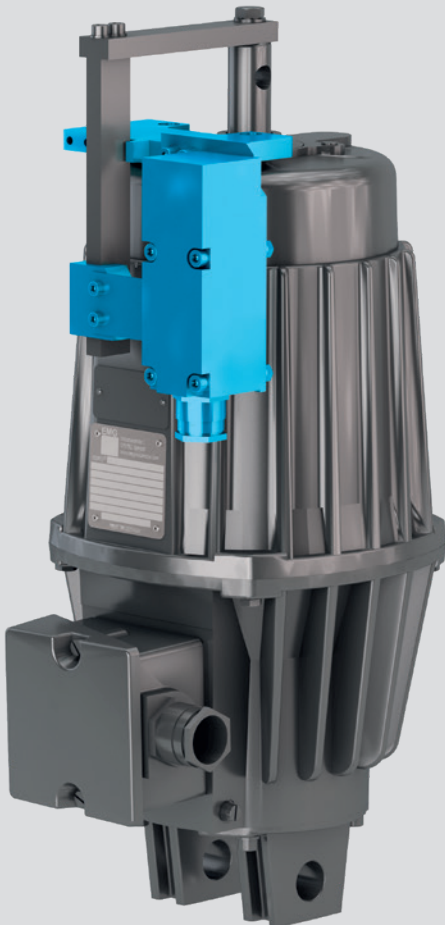
- » Indication whether the piston rod is retracted or extended (brake closed, open or lining wear)
- » Switching current max. 0.5 mA
- » Switching voltage max. 250 V AC/DC

## Position measuring systems (LA)

- » Internal analogue measuring systems for monitoring the entire stroke path
- » Version depending on stroke length
- » Signal current 4...20 mA

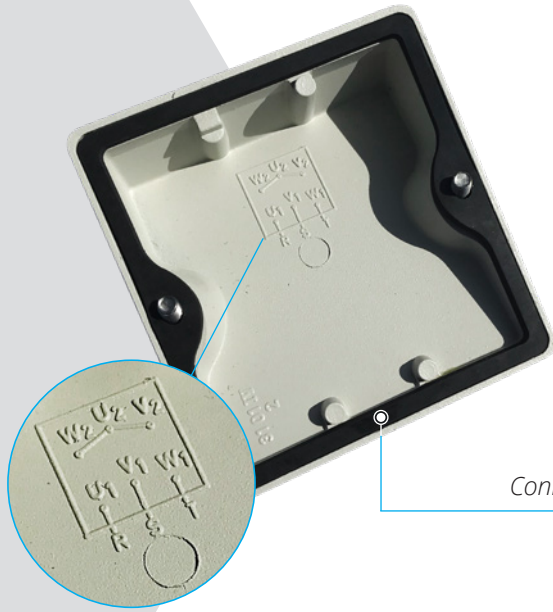
## Limit switches (LI and LM)

- » Mechanical or inductive limit switches can be fitted to all ELHY® thrusters for electrical indication of the release and brake positions.
- » Detailed information available in the data sheet of the limit switches



## EMG ELHY® EB series

# Electrical connection



Connection diagram

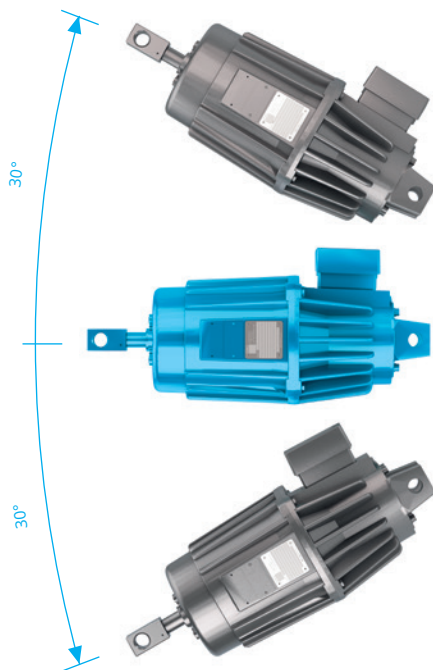
- » The connection diagram can be found in the terminal box cover
- » Motor is voltage interchangeable for delta ( $\Delta$ ) or star (Y) switching
- » The devices exhibit star (Y) switching when delivered. Phase sequence arbitrary with connection

## ELHY® EB series

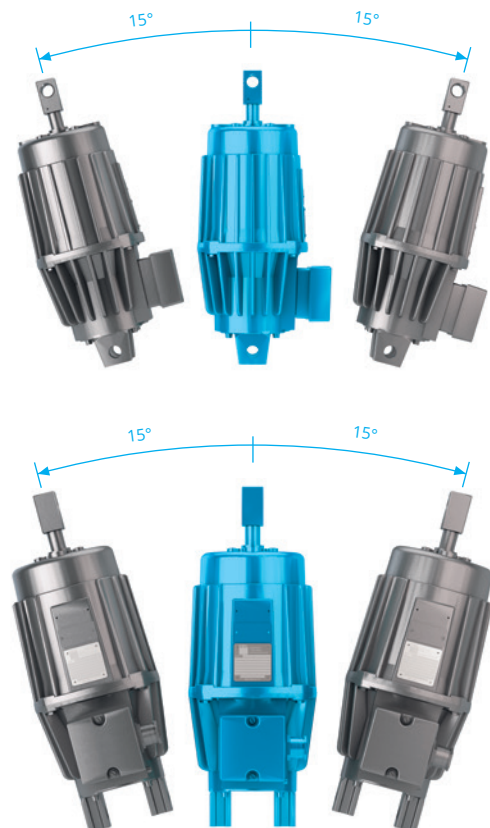
# Installation position

- » The pivoting of the device must be ensured at the installation into the brake.
- » There must be no transverse forces on the piston bar.

### Horizontal installation I



### Vertical installation II



The logo consists of the letters 'EMG' in a bold, white, sans-serif font. The background of the entire page is a blue-tinted photograph of industrial machinery, with large circular components and a metal structure visible. A white line graphic starts from the left edge, goes horizontally across the middle, then curves down and right to form a large, rounded shape that frames the contact information.

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