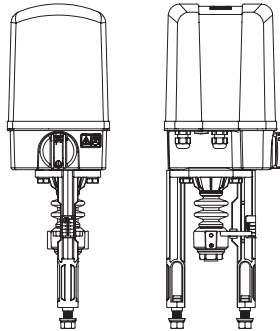


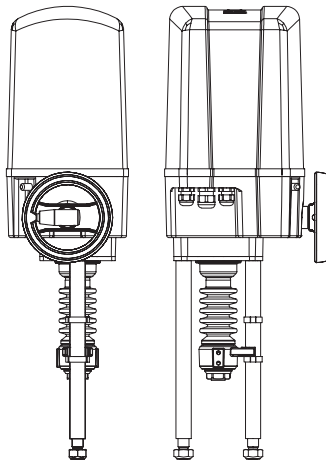
Electric actuator ARI-PREMIO

Electric thrust actuator  
ARI-PREMIO®  
2,2 - 5 kN

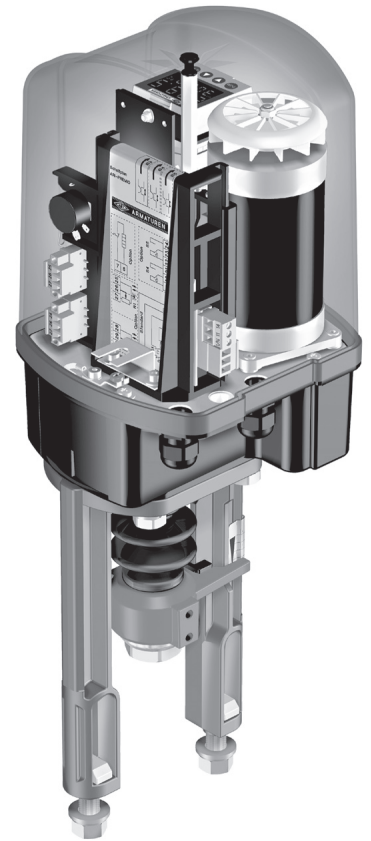


Page 2

Electric thrust actuator  
ARI-PREMIO®  
12 - 15 kN



Page 4

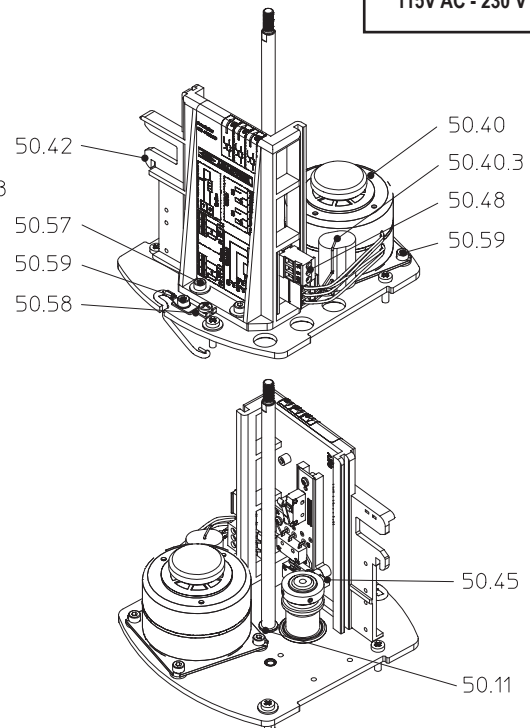
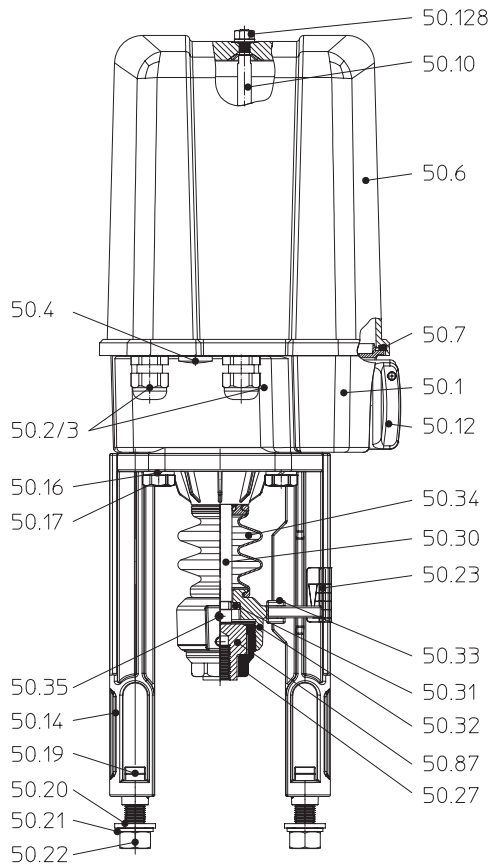
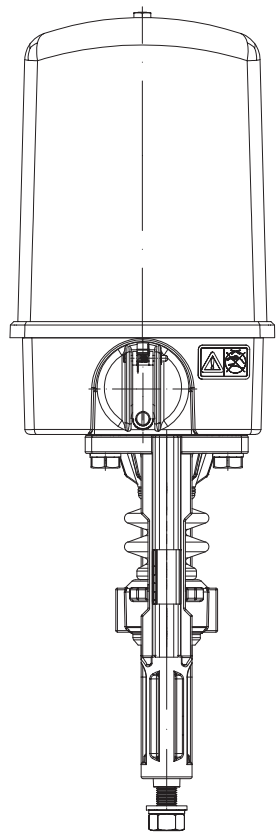


**Features**

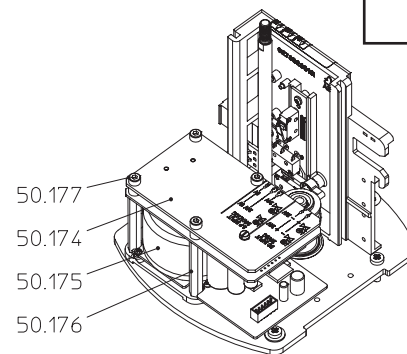
- 2 torque switches
- Handwheel
- Operative ambient temperatures -20°C up to +70°C
- Enclosure IP 65
- Additional devices available, e.g. potentiometer
- Travel indicator

### Electric actuator ARI-PREMIO 2,2 - 5 kN

Synchronous motor  
115V AC - 230 V AC



BLDC motor  
24 V AC/DC



Pos.	Description
50.1	Gearbox
50.2/3	Cable gland 2 x M16x1,5
50.4	Sealing plug 1 x M16x1,5
50.6	Hood
50.7	Hood seal
50.10	Column
50.11	Spring washer
50.12	Handwheel
50.14	Yoke
50.16	Washer DIN 128-A10
50.17	Hexagon screw DIN EN ISO 4017 - M10x40
50.19	T-head bolt DIN 261-M12x40
50.20	Washer DIN EN ISO 7089
50.21	Washer DIN 128 - A12
50.22	Hexagon nut DIN EN ISO 4032 - M12
50.23	Lift dial
50.27	Coupling
50.30	Driving spindle

Pos.	Description
50.31	Spindle safety feature
50.32	Torsion safety feature
50.33	Slide
50.34	Bellow
50.40	Synchronous motor, complete
50.40.3	Capacitor
50.42	Board support, cpl. (incl. circuit board)
50.45	Shift lever
50.48	Connector, 3-pole (standard)
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.58	Protective conductor terminal
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.87	Threaded bush
50.128	Flange nut Seal lock M6
50.174	Platine AC/DC
50.175	BLDC motor
50.176	Distance bolt M4x45
50.177	Cylinder screw M4x18

**Technical data**

Type		ARI-PREMIO 2,2 kN	ARI-PREMIO 5 kN	
Thrust force	kN	2,2 kN	5,0 kN	
Operating speed	mm/s	0,38 mm/s	0,38 mm/s	1,0 mm/s
Travel distance max.	mm	50 mm		
Duty classification in accordance with EN 60034-1		S3 80% ED / max. 1200 c/h		S3 50% ED / max. 1200 c/h
Motor voltage	V - Hz	230 V - 50 Hz / 60 Hz <sup>1)</sup>		230 V - 50/60 Hz <sup>1)</sup>
Motor type		Synchronous motor		
Power consumption	VA	21	33	75
Torque switch		2 pcs., fixed wiring switching capacity 10 A, 250 V~		
Travel switch		1 pcs., fixed wiring switching capacity 10 A, 250 V~ (Options trip slide necessary!)		
Enclosure EN 60529		IP 65		
Max. storage temperature	°C	-40 °C ... +85 °C		
Max. permissible ambient temperature	°C	-20 °C ... +70 °C (For outdoor use and sub-zero temperatures, a heating is recommended!)		
Hand operating device		Yes (always running)		
Operation		3-step		
Max. cable cross section	mm <sup>2</sup>	3-step input: 2,5 mm <sup>2</sup>		
Mounting position		Any, except: motor not hanging downwards		
Gear lubricant		Klüber / Isoflex Topas NB152		
Weight	kg	5,4 kg	6,0 kg	6,5 kg
Accessories		refer to page		

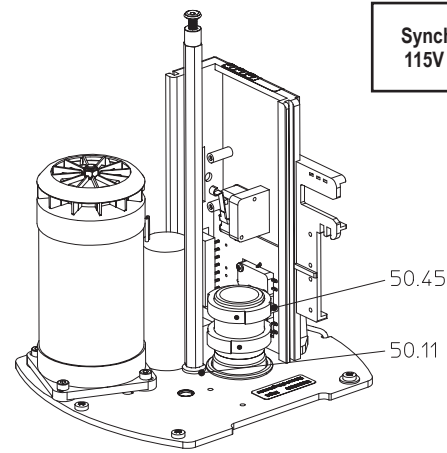
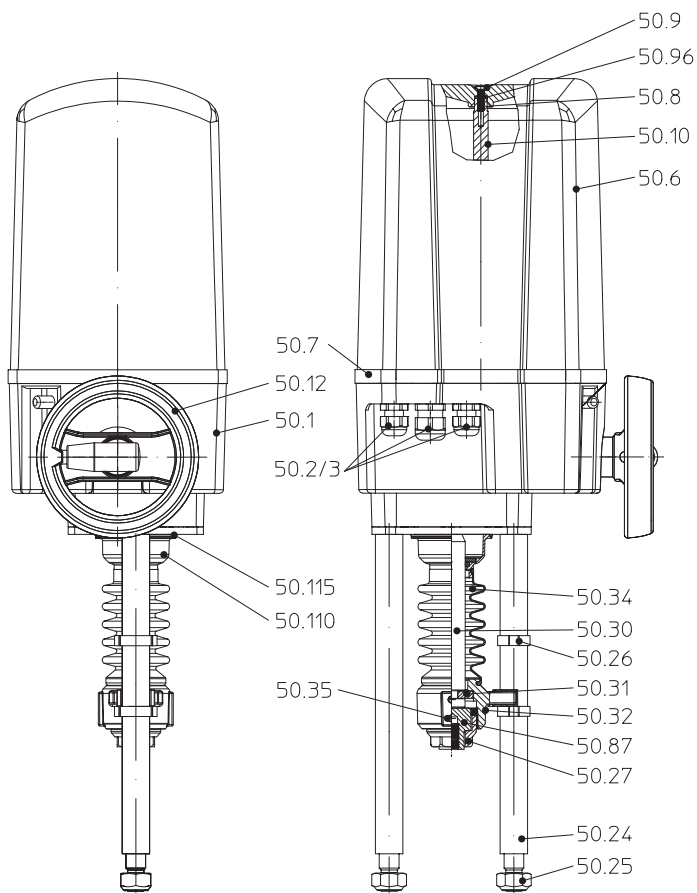
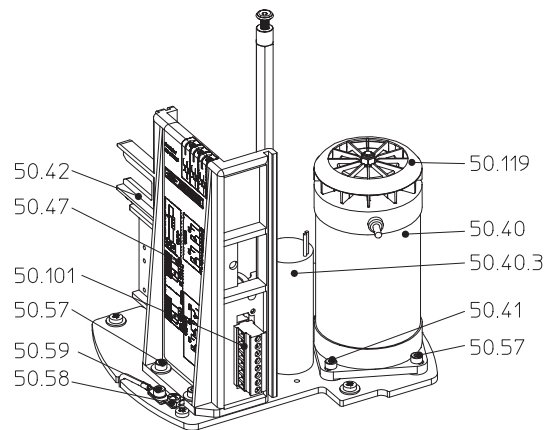
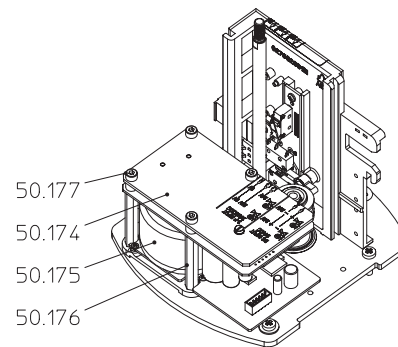
**Additional voltage / frequencies**

Synchronous motor				
Type		ARI-PREMIO 2,2 kN	ARI-PREMIO 5 kN	
Thrust force	kN	2,2 kN	5,0 kN	
Operating speed	mm/s	0,38 mm/s	0,38 mm/s	1,0 mm/s
Motor voltage	V - Hz	115 V - 50/60 Hz <sup>1)</sup> 3~400 V - 50/60 Hz <sup>1)</sup>		115 V - 50/60 Hz <sup>1)</sup> 3~400 V - 50/60 Hz <sup>1)</sup>
Duty classification in accordance with EN 60034-1		24 V - 230 V: S3 80% ED / max. 1200 c/h 400 V : S3 50% ED / max. 1200 c/h		S3 50% ED / max. 1200 c/h
Power consumption		refer to nameplate or on request		

BLDC motor (Brushless DC motor)				
Type		ARI-PREMIO 2,2 kN	ARI-PREMIO 5 kN	
Thrust force	kN	2,2 kN	5,0 kN	
Operating speed	mm/s	0,38 mm/s	0,38 mm/s	1,0 mm/s
Motor voltage	V - Hz	24V - AC/DC		
Duty classification in accordance with EN 60034-1		S3 80% ED / max. 1200 c/h		
Power consumption	VA	53	53	72

<sup>1)</sup> Control speed and power consumption are 20% higher at frequency of 60 Hz.

## Electric actuator ARI-PREMIO 12 - 15 kN


 Synchronous motor  
115V AC - 230 V AC

 BLDC motor  
24 V AC/DC


Pos.	Description
50.1	Gearbox
50.2	Cable gland 2 x M16 x 1,5 / 1 x M20 x 1,5
50.6	Hood
50.7	Hood seal
50.8	Counter-sunk screw DIN EN ISO 10642 - M5x20
50.9	Gasket DIN EN ISO 7089 - 5,3
50.10	Column
50.11	Spring washer
50.12	Handwheel (engageable)
50.24	Distance column
50.25	Hexagon nut DIN EN ISO 4032 - M12
50.26	2-ear clamp
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature
50.34	Bellow
50.35	Grub screw DIN ISO 4766 - M6

Pos.	Description
50.40	Synchronous motor, complete
50.40.3	Capacitor
50.41	Cylinder screw DIN EN ISO 4762-M4 - 18
50.42	Board support, cpl. (incl. circuit board)
50.45	Shift lever
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.58	Protective conductor terminal
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.87	Threaded bush
50.96	O-ring DIN 3771 - 4x1,8
50.101	Connector, 8-pole
50.110	Gear cap
50.115	O-ring
50.119	Fan wheel
50.174	Board AC/DC
50.175	BLDC motor
50.176	Distance bolt M4x45
50.177	Cylinder screw M4x18

**Technical data**

Type		ARI-PREMIO 12 kN		ARI-PREMIO 15 kN
Thrust force	kN	12,0 kN		15,0 kN
Operating speed	mm/s	0,38 mm/s	0,79 mm/s	0,38 mm/s
Travel distance max.	mm	80 mm		
Duty classification in accordance with EN 60034-1		S3 50% ED / max. 1200 c/h		
Motor voltage	V - Hz	230 V - 50 Hz		
Motor type		Synchronous motor		
Power consumption	VA	69	85	69
Torque switch		2 pcs., fixed wiring, switching capacity 16A, 250V~		
Travel switch		1 pcs., fixed wiring switching capacity 16A, 250V~ (Options trip slide necessary!)		
Enclosure EN 60529		IP 65		
Max. storage temperature	°C	-40 °C ... +85 °C		
Max. permissible ambient temperature	°C	-20 °C ... +70 °C (For outdoor use and sub-zero temperatures, a heating is recommended.)		
Hand operating device		Yes (engageable)		
Operation		3-step		
Max. cable cross section	mm <sup>2</sup>	3-step input: 2,5 mm <sup>2</sup>		
Mounting position		Any, except: motor not hanging downwards		
Gear lubricant		Molyduval Valenzia H2		
Weight	kg	10,5 kg		
Accessories		refer to page		

**Additional voltage / frequencies**

Synchronous motor				
Type		ARI-PREMIO 12 kN		ARI-PREMIO 15 kN
Thrust force	kN	12,0 kN		15,0 kN
Operating speed	mm/s	0,38 mm/s	0,79 mm/s	0,38 mm/s
Motor voltage	V - Hz	24 V - 50 Hz / 24 V - 60 Hz <sup>1)</sup> 115 V - 50 Hz / 115 V - 60 Hz <sup>1)</sup> 230 V - 60 Hz <sup>1)</sup> 3~400 V - 50 Hz / 3~400 V - 60 Hz <sup>1)</sup>		
Duty classification in accordance with EN 60034-1		S3 50% ED / max. 1200 c/h		
Power consumption		refer to nameplate or on request		

BLDC motor (Brushless DC motor)				
Type		ARI-PREMIO 12 kN		ARI-PREMIO 15 kN
Thrust force	kN	12,0 kN		15,0 kN
Operating speed	mm/s	0,38 mm/s	0,79 mm/s	0,38 mm/s
Motor voltage	V - Hz	24V - AC/DC		
Duty classification in accordance with EN 60034-1		S3 80% ED / max. 1200 c/h		
Power consumption	VA	60	72	60

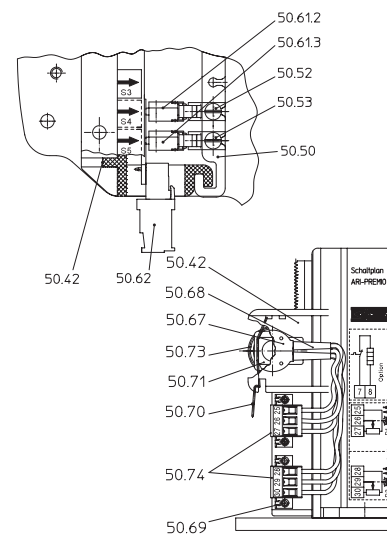
<sup>1)</sup> Control speed and power consumption are 20% higher at frequency of 60 Hz.

**Accessories**

Type		ARI-PREMIO 2,2 kN - 15 kN
Trip slide		<b>Required for acutating ...</b> - the travel switch S3 / retracting spindle (the travel swith S3 is in the basic version of the actuator already available) - the potentiometer - the additional travel switches S4 / S5
Options trip slide necessary !	<b>Additional intermediate position switches S4, S5</b> (for low switching capacities and at aggressive atmosphere gold contacts should be used)	<b>Type Standard</b> - 2 piece, zero potential, switching capacity 10 A, 250 V~
		<b>Type low voltage</b> - 2 pieces, zero potential, with gold contacts, switching capacity max. 0,1 A, 4-30 V
	<b>Potentiometer</b>	<b>Conductive</b> (max. 2 only) - 500, 1000, 2000, 5000 Ohm; 1 Watt (at +70 °C) - Wiper current max. 0,01 mA / recommended 0,002 mA
		<b>Wire</b> (max. 2 only) - 100, 200 Ohm; 0,5 Watt (at +70 °C) - Wiper current max. 35 mA / recommended 0,02 mA
		<b>TÜV-approved potentiometer</b> (max. 2 only) - TÜV tested conductive plastic for use as a sensor for position feedback of control devices in electronic systems for controlling and monitoring of fuel, air and gas streams in combustion plants - 5000 Ohm (standard) - or optional: 100, 200, 500, 1000 Ohm; 1 Watt (at +70 °C) - Wiper current max. 0,01 mA / recommended 0,002 mA - No retrofitting possible!
	<b>Electronic position controller</b> (for controlling the actuator with an analog control signal)	<b>Type ES11</b> - Input signals 0(2)...10V or 0 (4)...20mA; - galvanically separation between power supply and control signal - including potentiometers (note max. number of potentiometers))
		<b>Type PREMIO-Plus</b> (refer to separeate data sheet / operating instructions) - Input signals: 3-point, 0-10V or 4-20mA; - self-adaptation; - Optional position feedback; - galvanically separation between power supply and control signal
	<b>Electronic position indicator</b> (for position feedback with an analog control signal)	<b>RI21</b> (only for AC) - analogue output for position-feetback 0(4)...20mA changeable to 0(2)-10V, invertable; galvanically separation between power supply and control signal - active - including potentiometers (note max. number of potentiometers))
		<b>RI32</b> - analogue output for position-feetback 2... 10V; 4... 20 mA - compact design; 2 (passive) or 4 wire technology (active) - Power supply: 24V AC/DC - including potentiometers (note max. number of potentiometers))
	<b>Heating</b>	<b>Heating resistor</b> - (automatic switching circuit) 230 VAC, 115VAC, 24VAC/DC, 15 Watt
<b>Connection board</b> 2 Torque- and 1 Travel switch, all switch contacts are guided on terminals (for low switching capacities and at aggressive atmosphere gold contacts should be used)	<b>Type Standard PA</b> - zero potential, switching capacity 10A, 250V~ - (At 12/15kN already possible with the standard version)	
	<b>Type low voltage NA</b> - zero potential, with gold contacts, switching capacity max. 0,1 A, 4-30 V	
<b>(Process-) controller</b>	<b>Type Processcontroller dTRON 316</b> (only for AC) - Mounted in the actuator - 3-point stepping controller with 2 solid state relay outputs outputs for direct control of the PREMIO actuators with a 3-point signal; - for resistance thermometers and thermocouples (provided by the customer) or standard signals, - Pre-configured for temperature control: control range from -200°C up to +850°C (resistance thermometer) - Not compatible for use with the ES11!	
<b>Special voltage 24 V AC/DC</b>		
Board support for pole-changing	- For the control of the BLDC motor with pole-changing (2-wire technology). - By reversing the polarity of the supply voltage, the motor rotation direction is changed (ON/ OFF)	
<b>Special voltage 3~400 V</b>		
Integrated reversing contactor	- Only 1 electronic module possible ! - At 2,2 kN - 5kN is no electronic in the actuator possible!	

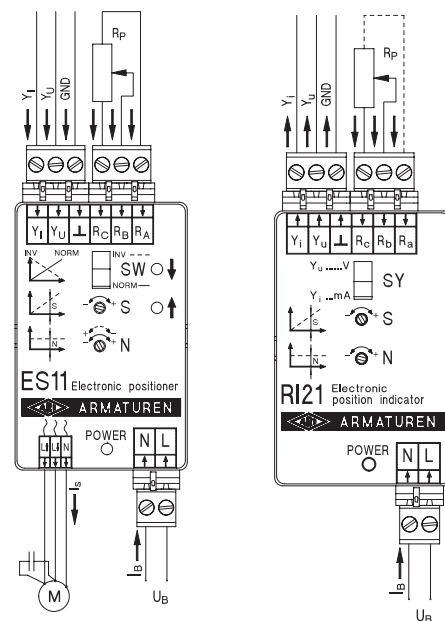
Intermediate position switch	
Pos.	Description
50.42	Board support
50.50	Trip slide
50.52	Setting spindle for switch S4
50.53	Setting spindle for switch S5
50.61.2	Travel switch S4
50.61.3	Travel switch S5
50.62	Connector, 6-pole

Potentiometer	
Pos.	Description
50.42	Board support
50.67	Potentiometer
50.68	Connecting cable
50.69	Self-tapping screw
50.70	Pinch spring
50.71	Slide block </td
50.73	Pinion
50.74	Connector, 3-pole

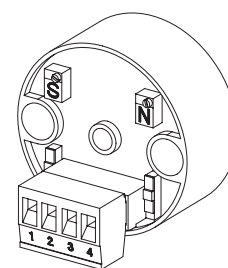


Electronic position controller ES11						
Motor type		BLDC motor		Synchronous motor		
Operating voltage	U <sub>B</sub>	24V - DC	24V - AC	24V - AC	115 V - AC	230 V - AC
		--	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Operating current without load	I <sub>B</sub>	150 mA		40 mA	20 mA	
Input control signal	Y <sub>U</sub>	0 (2) .... 10 V DC - (RI = 30 kOhm)				
Input control signal	Y <sub>I</sub>	0 (4) .... 20 mA DC - (RI = 125 Ohm)				
Potentiometer input	R <sub>P</sub>	0 .... 10 kOhm, recommended 0 .... 1 kOhm (Potentiometer can be used only as a voltage divider)				
3-point-Output	U <sub>A</sub>	24 V - DC	24 V - AC	115 V - AC	230 V - AC	
Three-step switching current	I <sub>S</sub>	4 A max.				

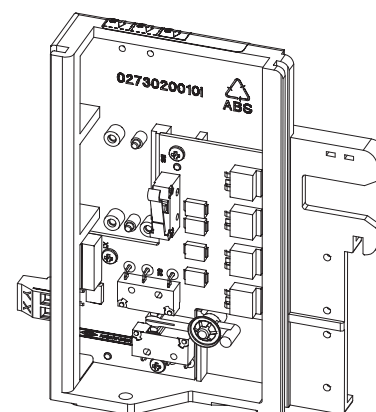
Electronic position indicator RI21				
Operating voltage	U <sub>B</sub>	24 V - AC 50/60 Hz	115 V - AC 50/60 Hz	230 V - AC 50/60 Hz
Operating current without load	I <sub>B</sub>	150 mA	40 mA	20 mA
Output control signal	Y <sub>U</sub>	0 (2) .... 10 V DC - (load resistance > 1 kOhm) active		
Output control signal	Y <sub>I</sub>	0 (4) .... 20 mA DC - (load resistance max. 800 Ohm) active		
Potentiometer input	R <sub>P</sub>	0 .... 1 kOhm		



Electronic position indicator RI32		
Operating voltage	U <sub>B</sub>	24V - DC/AC 50/60 Hz
Output control signal	Y <sub>U</sub>	2 .... 10 V DC active
Output control signal	Y <sub>I</sub>	4 .... 20 mA DC - (load resistance max. 500 Ohm) passive or active
Potentiometer input	R <sub>P</sub>	100 Ohm .... 20 kOhm



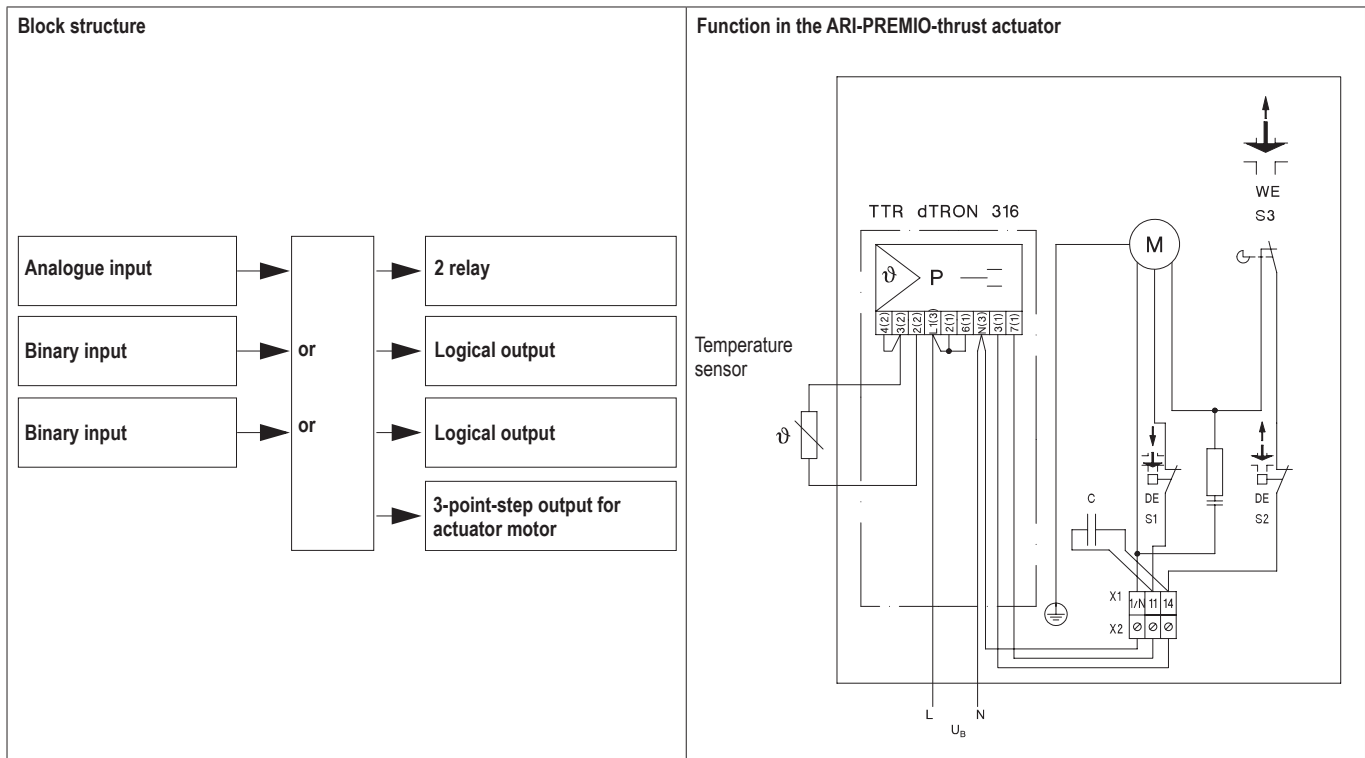
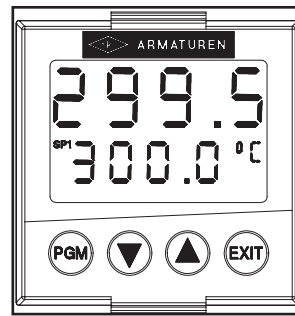
Board support for pole-changing for 24 V DC																																		
To control the 24V-AC/DC PREMIO-actuators with a 3-point 24V-DC signal or by pole-changing																																		
Comparison:	DC 3-point (standard)	DC pole-changing																																
<b>Opening retracting stem</b> 	<table border="1"> <tr> <td>0V</td> <td>DC</td> <td>DC</td> <td>X37</td> </tr> <tr> <td>○</td> <td>○</td> <td>○</td> <td>X38</td> </tr> <tr> <td>↑</td> <td>↓</td> <td>↑</td> <td></td> </tr> <tr> <td>-</td> <td></td> <td>+</td> <td></td> </tr> </table>	0V	DC	DC	X37	○	○	○	X38	↑	↓	↑		-		+		<table border="1"> <tr> <td></td> <td>X</td> <td>Y</td> <td>X37</td> </tr> <tr> <td>○</td> <td>○</td> <td>○</td> <td>X38</td> </tr> <tr> <td>↑</td> <td>↓</td> <td>↑</td> <td></td> </tr> <tr> <td>-</td> <td></td> <td>+</td> <td></td> </tr> </table>		X	Y	X37	○	○	○	X38	↑	↓	↑		-		+	
0V	DC	DC	X37																															
○	○	○	X38																															
↑	↓	↑																																
-		+																																
	X	Y	X37																															
○	○	○	X38																															
↑	↓	↑																																
-		+																																
<b>Closing extending stem</b> 	<table border="1"> <tr> <td>0V</td> <td>DC</td> <td>DC</td> <td>X37</td> </tr> <tr> <td>○</td> <td>○</td> <td>○</td> <td>X38</td> </tr> <tr> <td>↑</td> <td>↓</td> <td>↑</td> <td></td> </tr> <tr> <td>-</td> <td></td> <td>+</td> <td></td> </tr> </table>	0V	DC	DC	X37	○	○	○	X38	↑	↓	↑		-		+		<table border="1"> <tr> <td></td> <td>X</td> <td>Y</td> <td>X37</td> </tr> <tr> <td>○</td> <td>○</td> <td>○</td> <td>X38</td> </tr> <tr> <td>↑</td> <td>↓</td> <td>↑</td> <td></td> </tr> <tr> <td>+</td> <td></td> <td>-</td> <td></td> </tr> </table>		X	Y	X37	○	○	○	X38	↑	↓	↑		+		-	
0V	DC	DC	X37																															
○	○	○	X38																															
↑	↓	↑																																
-		+																																
	X	Y	X37																															
○	○	○	X38																															
↑	↓	↑																																
+		-																																



### Integrated temperature controller dTRON 316

#### Features

- programmable analogue input
- 2 auto-tune methods
- Program function with 8 program sections or slope-function
- 2 Timer functions
- 4 limit-comparators
- Interlock for keyboard and level
- 4 programmable setpoints, two parameter sets
- 4 digit resolution (max. 2 decimal places)
- Controller characteristic P, PD, PI or PID
- Actual value input by usual temperature sensors (see in table)
- 2 relay outputs 230V/3A (shutter)
- 1 three-step output for actuator motor (by solid state relay 4A)
- 2 combinable binary inputs / binary outputs



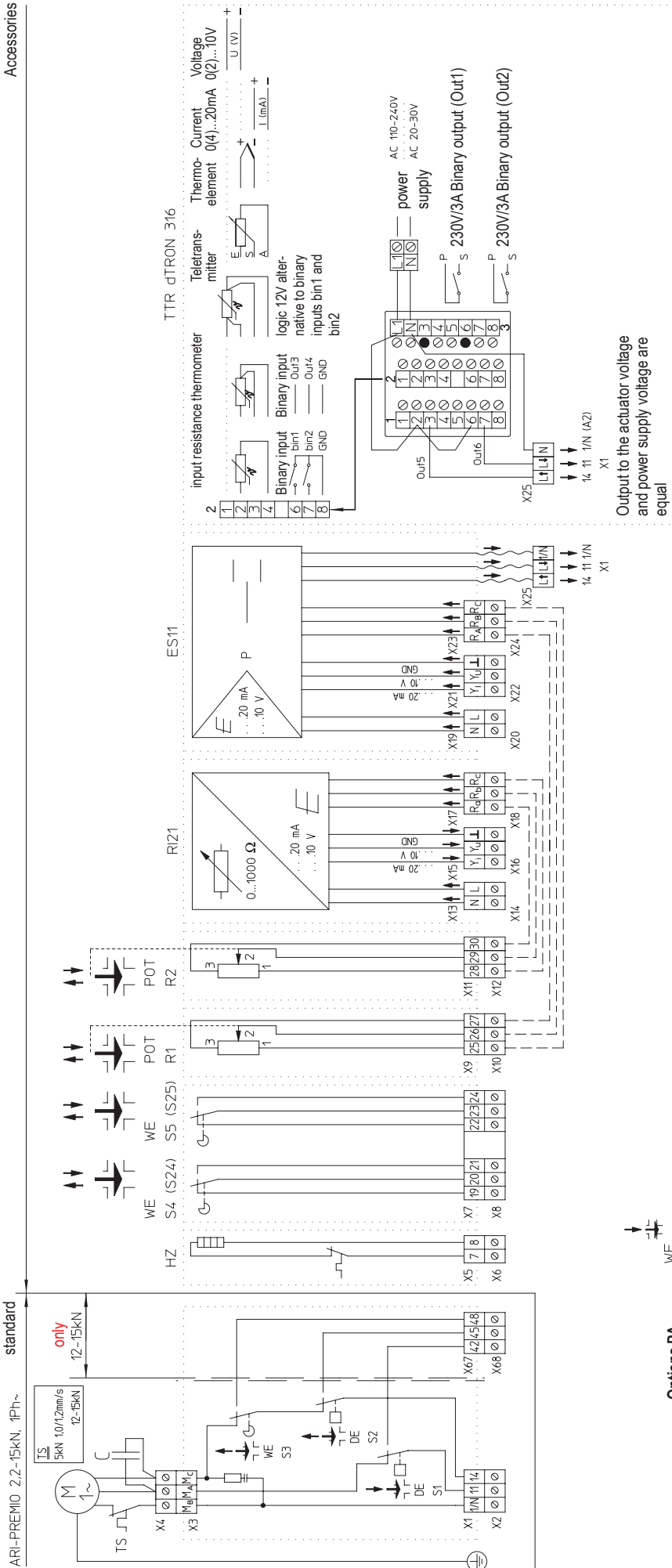
Input thermocouples	
Description	Measuring range
Fe-CuNi „L“	-200 ...+900°C
Fe-CuNi „J“ DIN EN 60584	-200 ...+1200°C
Cu-CuNi „U“	-200 ...+600°C
Cu-CuNi „T“ DIN EN 60584	-200 ...+400°C
NiCr-Ni „K“ DIN EN 60584	-200 ...+1372°C
NiCr-CuNi „E“ DIN EN 60584	-200 ...+1000°C
NiCrSi-NiSi „N“ DIN EN 60584	-100 ...+1300°C
Pt10Rh-Pt „S“ DIN EN 60584	0 .....+1768°C
Pt13Rh-Pt „R“ DIN EN 60584	0 .....+1768°C
Pt30Rh-Pt6Rh „B“ DIN EN 60584	0 .....+1820°C
W5Re-W26Re „C“	0 .....+2320°C
W3Re-W25Re „D“	0 .....+2495°C
W3Re-W26Re	0 .....+2400°C

Input resistance thermometer		
Description	Type of connection	Measuring range
Pt 100 (standard)	2-wire / 3-wire / 4-wire	-200...+850°C
Pt 500	2-wire / 3-wire / 4-wire	-200...+850°C
Pt 1000	2-wire / 3-wire / 4-wire	-200...+850°C
KTY11-6	2-wire	-50...+150°C
Sensor output resistance: max. 300Ohm each circuit at 3- and 4-wire connection		
Measurement current: approx. 250µA		
Circuit adjustment: - at 3- and 4-wire connection not necessary. - at 2-wire connection a circuit adjustment can be done with software by correcting the actual value.		

Input standardized active current or voltage signals	
Description	Measuring range
Voltage	0 (2) ... 10V, input resistance Re > 100kOhm
Current	0 (4) ... 20mA, voltage drop ≤ 1,5iV



Accessories



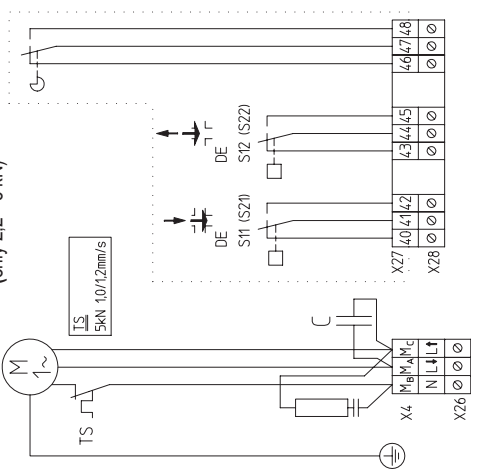
Output to the actuator voltage and power supply voltage are equal

Wire connections of the different valve types

Valve Type	1/N	N (MP)
Straight through valve	closed	open
3-way valve with mixing plug	A - AB open	B - AB open
3-way valve with diverting plug	AB - B open	AB - A open

**Option NA:**  
same design but no RC circuit and switches with gold contacts (Switching capacity 0.1A, 4-30VDC)

Options PA (only 2,2 - 5 kN)

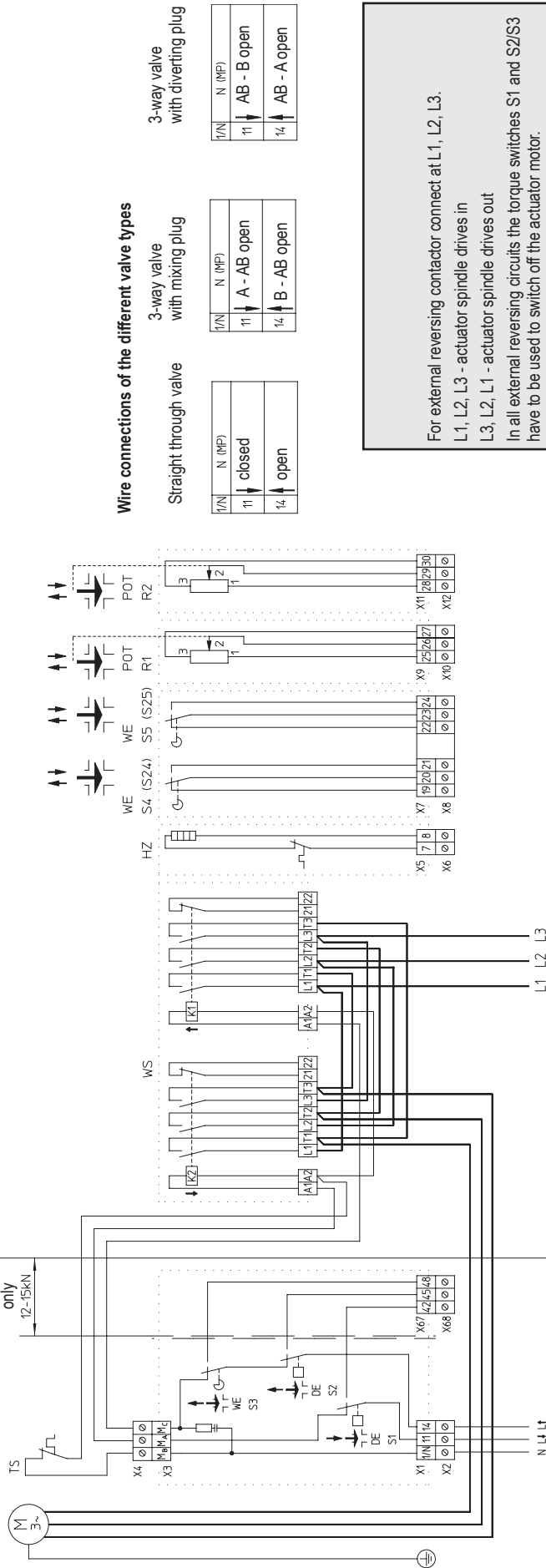


HZ	Heating resistor
DE	Torque switch
WE (S3)	Travel switch for limiting the travel distance in opening direction
R121	Electronic position indicator
ES11	Electronic position controller
NA	Low-voltage connection board, zero potential
PA	Standard-voltage connection board, zero potential
POT	Potentiometer
WE	Travel switch, zero potential
TTR	Electronic temperature controller dTRON316

Accessories

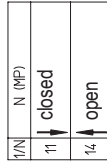
standard

ARI-PREMIO 2.2-15kN, 3Ph~

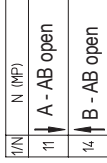


**Wire connections of the different valve types**

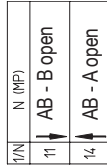
Straight through valve



3-way valve with mixing plug



3-way valve with diverting plug



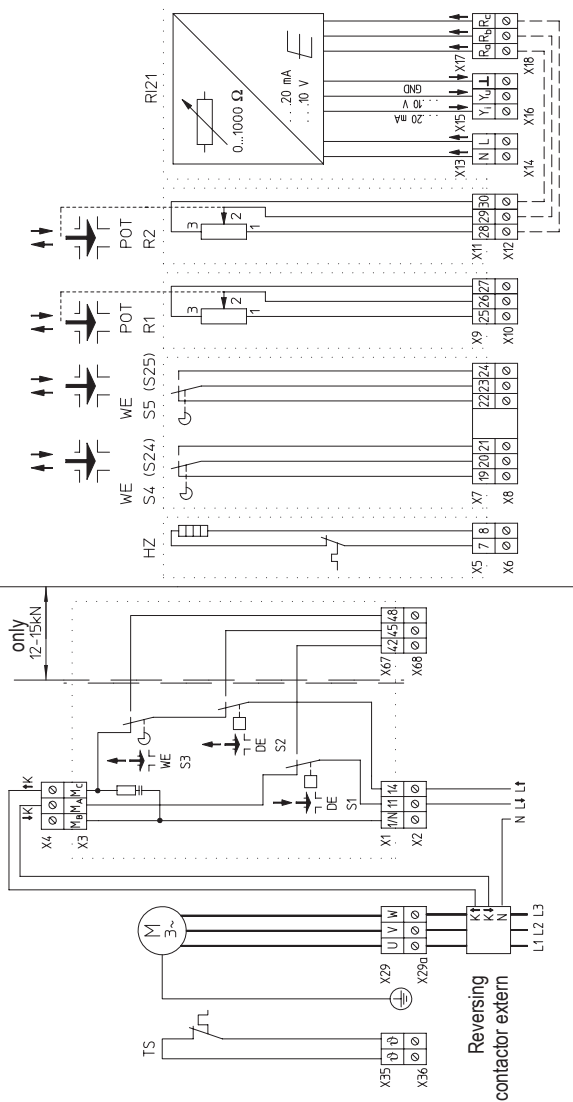
For external reversing contactor connect at L1, L2, L3.  
L1, L2, L3 - actuator spindle drives in  
L3, L2, L1 - actuator spindle drives out  
In all external reversing circuits the torque switches S1 and S2/S3 have to be used to switch off the actuator motor.

**Attention:**  
Please check the operating direction of the actuator !

Accessories

standard

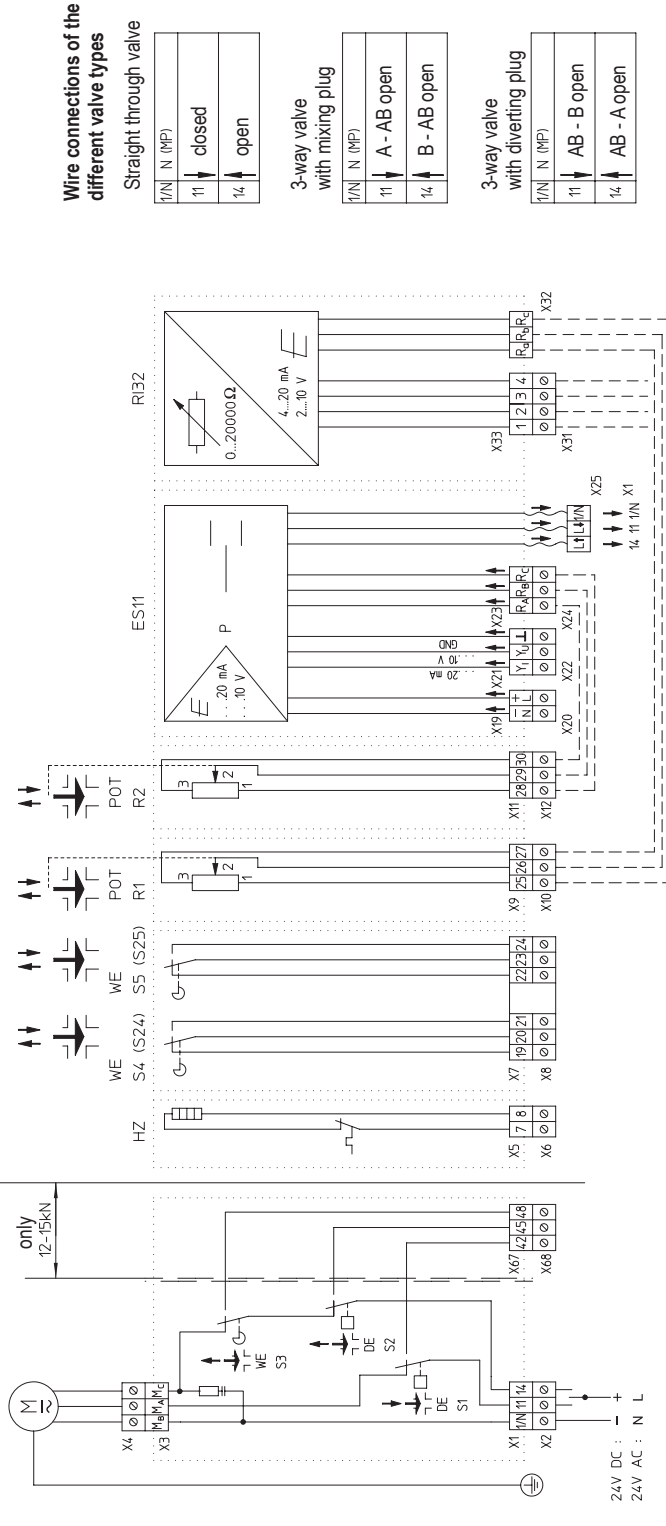
ARI-PREMIO 2.2-15kN, 3Ph~ /



HZ	Heating resistor
DE	Torque switch
WE (S3)	Travel switch for limiting the travel distance in opening direction
RI21	Electronic position indicator
ES11	Electronic position controller
NA	Low-voltage connection board, zero potential
POT	Potentiometer
WE	Travel switch, zero potential
TTR	Electronic temperature controller d'IRON316
WS	Reversing contactor
TS	Temperature switch (motor)

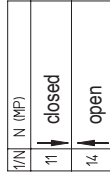
Accessories

ARI-PREMIO 2,2-15kN, 24VAC/DC standard

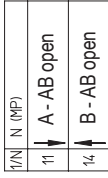


Wire connections of the different valve types

Straight through valve



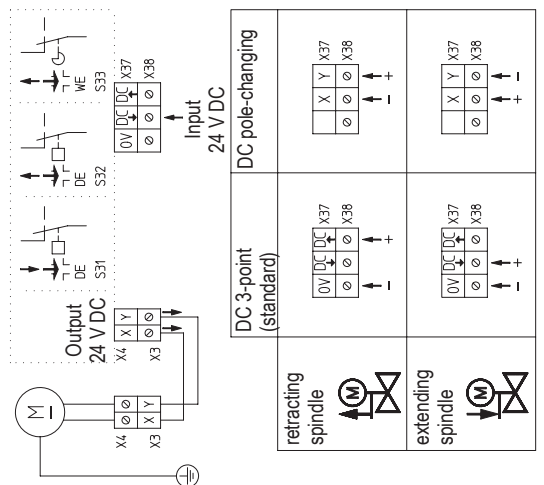
3-way valve with mixing plug



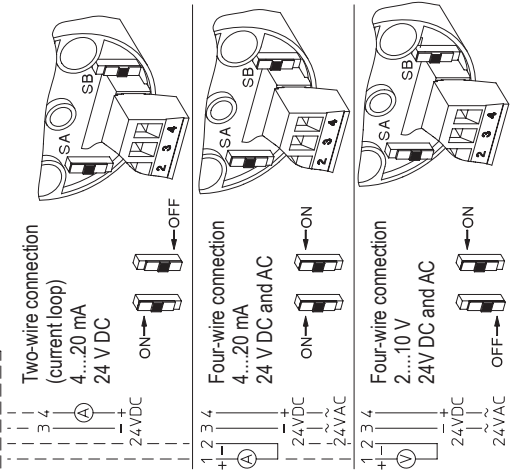
3-way valve with diverting plug

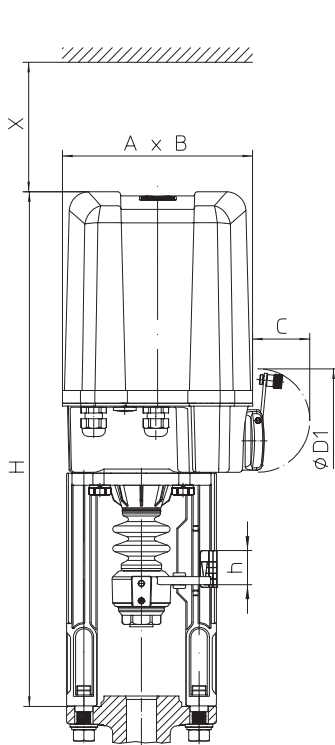


Board support for pole-changing for 24 V DC (Connector X37/X38)

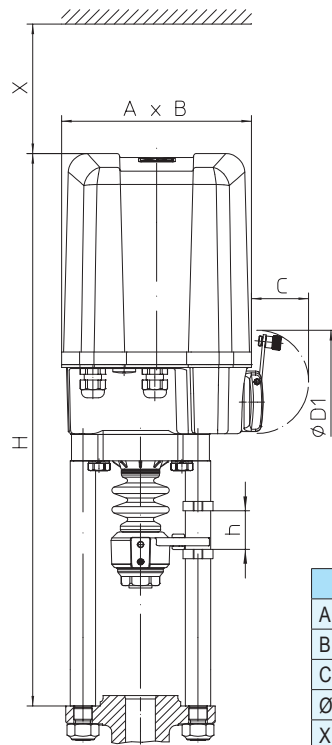


**Attention:**  
Do not connect terminal 2 and 3.  
By a potential shift the position indicator R132 could be destroyed.



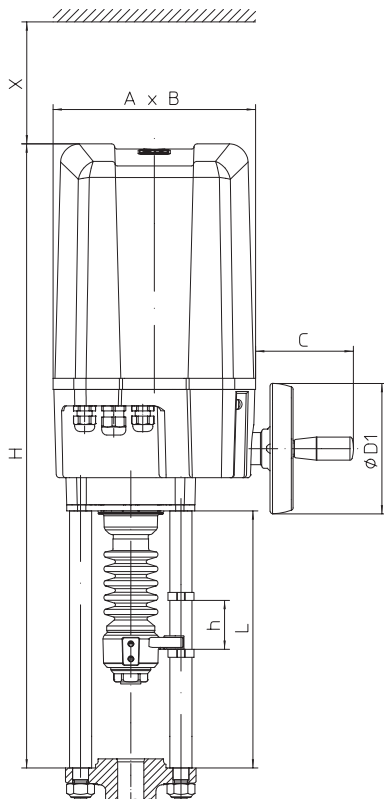

**2,2 - 5 kN**

Nominal travel max. 30 mm


**2,2 - 5 kN**

Nominal travel &gt; 30 mm - 50 mm

		2,2 - 5 kN	
A	(mm)	171	
B	(mm)	156	
C	(mm)	50	
Ø D1	(mm)	90	
X	(mm)	150	
H	(mm)	447	480
h (Nominal travel)	(mm)	max. 30	max. 50


**12 - 15 kN**

Nominal travel max. 80 mm

		12 - 15 kN		
A	(mm)	202		
B	(mm)	176		
C	(mm)	97		
Ø D1	(mm)	130		
X	(mm)	200		
H	(mm)	622	637	652
h (Nominal travel)	(mm)	max. 50	max. 65	max. 80
L (Column)	(mm)	256	271	286


**Technology for the Future.**  
 GERMAN QUALITY VALVES

ARI-Armaturen Albert Richter GmbH &amp; Co. KG, D-33756 Schloß Holte-Stukenbrock,

 Tel. +49 52 07 / 994-0, Telefax +49 52 07 / 994-158 or 159 Internet: <http://www.ari-armaturen.com> E-mail: [info.vertrieb@ari-armaturen.com](mailto:info.vertrieb@ari-armaturen.com)