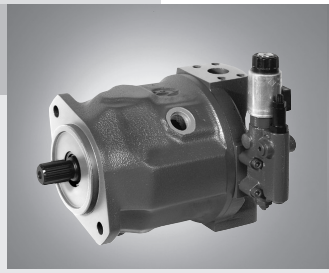
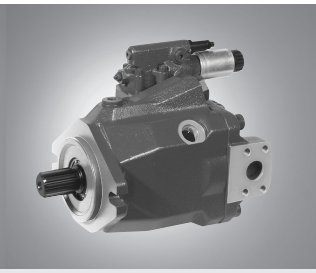
Rexroth
Bosch Group

Electro-hydraulic pressure control ED

RE 92 707/05.01 1/8
Replaces: 04.97



A10VO...ED / 3



A10VO...ED / 5

for the A10V(S)O variable displacement pump Series 3
for the A10VO variable displacement pump Series 5

Contents

Features

- Current dependent, electro-proportional pressure control
- High control accuracy
- Failsafe characteristic, e.g. ED for fan drive
- The same ED-valve for both pump series and applicable sizes
- Use of standard proportional-amplifiers is possible

Further information:

Variable displacement pump A10VSO/3	Size 18	RE 92712
Variable displacement pump A10VSO/3	Sizes 28...140	RE 92711
Variable displacement pump A10VO/3	Sizes 28...140	RE 92701
Variable displacement pump A10VO/5	Sizes 28...85	RE 92703

Ordering code/standard range A10V(S)O...ED Series 3

A10V(S)	O				/	31		–						

Fluid

Mineral oil (no prefix)

Axial piston unit

Variable displacement, swashplate design Nominal pressure 280 bar, peak pressure 350 bar	**A10V(S)**

Operating mode

Pump, open circuits	**O**

Size ≙ displacement $V_{g\,max}$ (cm³)

A10VO / Series 31	–	**28**	**45**	**71**	**100**	**140**	
A10VSO / Series 31	**18**	**28**	**45**	**71**	**100**	**140**	

Control devices

Electro-hydraulic pressure control inverse proportional	ED	●	●	●	●	●	❍	**ED**
Electro-hydraulic pressure control inverse proportional with hydraulic load-sensing control	EDS	❍	❍	❍	❍	❍	❍	**EDS**
Electro-hydraulic pressure control proportional	ER	❍	❍	❍	❍	❍	❍	**ER**
Electro-hydraulic pressure control proportional with hydraulic load-sensing control	ERS	❍	❍	❍	❍	❍	❍	**ERS**

Nominal voltage (V) **Nominal current I_N (A)**

12	1.2	**71**
24	0.6	**72**

Series

	31

Connector design

	18	28	45	71	100	140	
Hirschmann plug / DIN plug	●	●	●	●	●	❍	**H**
Deutsch plug DT 04-2P, connected by cable	●	●	●	●	●	❍	**T**
Deutsch plug DT 04-2P, permanently moulded	❍	❍	❍	❍	❍	❍	**P**

Direction of rotation

Seals

Shaft end

Mounting flange

Service line connections

Through drive

For individual details see
A10VSO 18 - RE 92 713
A10VSO 28...140 - RE 92 711
A10VO 28...100 - RE 92 701

● = available
❍ = in preparation
– = not available

Ordering code/standard range A10VO...ED Series 5

A10V	O				/	5X		–						

Direction of rotation | Seals | Shaft end | Mounting flange | Service line connections | Through drive

For individual details see A10VO/5 - RE 92 703

Fluid

Mineral oil (no prefix)

Axial piston unit

Variable displacement, swashplate design Nominal pressure 250 bar, peak pressure 315 bar	**A10V**

Operating mode

Pump, open circuits	**O**

Size

	28	45	60	85
≙ Displacement V_{gmax} (cm^3)				

Control devices

		28	45	60	85	
Electro-hydraulic pressure control inverse proportional	ED	●	●	●	❍	**ED**
Electro-hydraulic pressure control inverse proportional with hydraulic load-sensing control	EDS	❍	❍	❍	❍	**EDS**
Electro-hydraulic pressure control proportional	ER	❍	❍	❍	❍	**ER**
Electro-hydraulic pressure control proportional with hydraulic load-sensing control	ERS	❍	❍	❍	❍	**ERS**

Nominal voltage (V)	Nominal current I_N (A)	
12	1.2	**71**
24	0.6	**72**

Series

	5X

Connector design	28	45	60	85	
Hirschmann plug / DIN plug	●	●	●	❍	**H**
Deutsch plug DT 04-2P, connected by cable	●	●	●	❍	**T**
Deutsch plug DT 04-2P, permanently moulded	❍	❍	❍	❍	**P**

● = available

❍ = in preparation

ED Electro-hydraulic pressure control for A10V(S)O Series 3

The max. pump output pressure depends on the current to the valve solenoid.

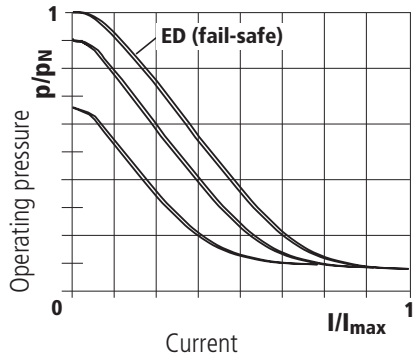
If pump pressure drops below this set pressure the pump will try to increase its displacement, hence the flow to satisfy system demand.

If the pressure reaches the set pressure the pump will adjust its displacement to match the required system flow. (No excess)

With the inverse proportional control max. pump pressure level will go to standby at max. solenoid current, and to max. pressure at zero current. (Fail safe in case of fan drives)

Overriding the current signal is an adjustable hydromechanical setting of max. pressure.

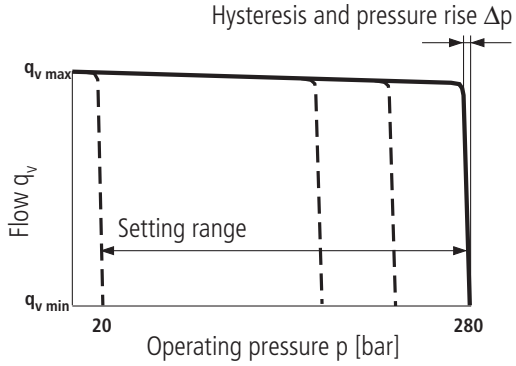
Static current-pressure characteristic (inverse proportional control)



Hysteresis of static current-pressure characteristic < 3 bar

Static flow – pressure characteristic

(at n = 1500 rpm; t_{oil} = 50°C)



Controller data

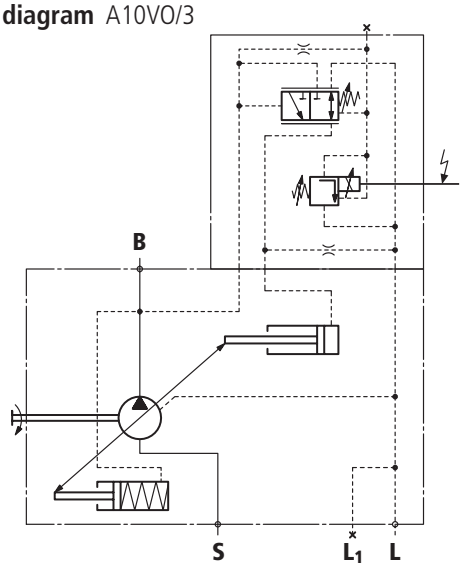
Standby setting 20 bar

Hysteresis and pressure rise Δp _____ < 4 bar

Technical data – electrical

Version	71	72
Operating voltage	12V±20%	24V±20%
Adjustment range	100 – 1200 mA	50 – 600 mA
Impedance at 20°C	5.5Ω	22.7Ω
Limit current	1.54 A	0.77A
Max. duty cycle	100 %	
Temperature range	-30°C to + 115°C	
Dither frequency	100 – 200 Hz	
Enclosure protection class	see connector versions	

Circuit diagram A10VO/3



Ports

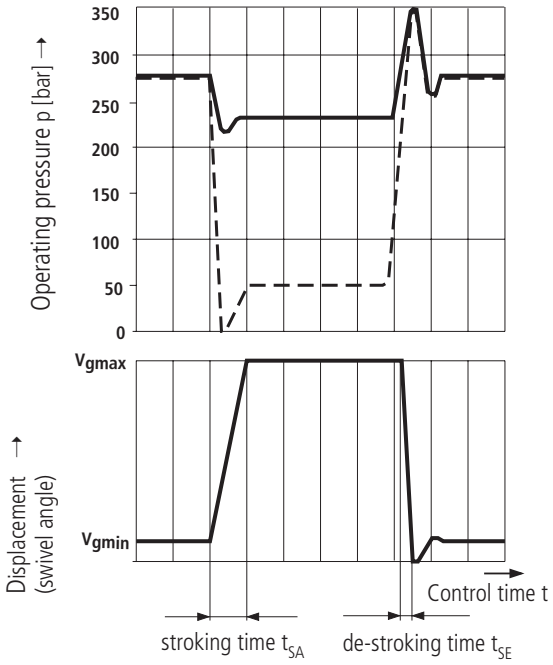
B	Pressure port
S	Inlet port
L, L_1	Case drain (L_1 closed)

Dynamic characteristics

These characteristics are measured average values under test conditions.

Conditions: n = 1500 rpm
t_{oil} = 50°C
Pressure cut-out at 350 bar

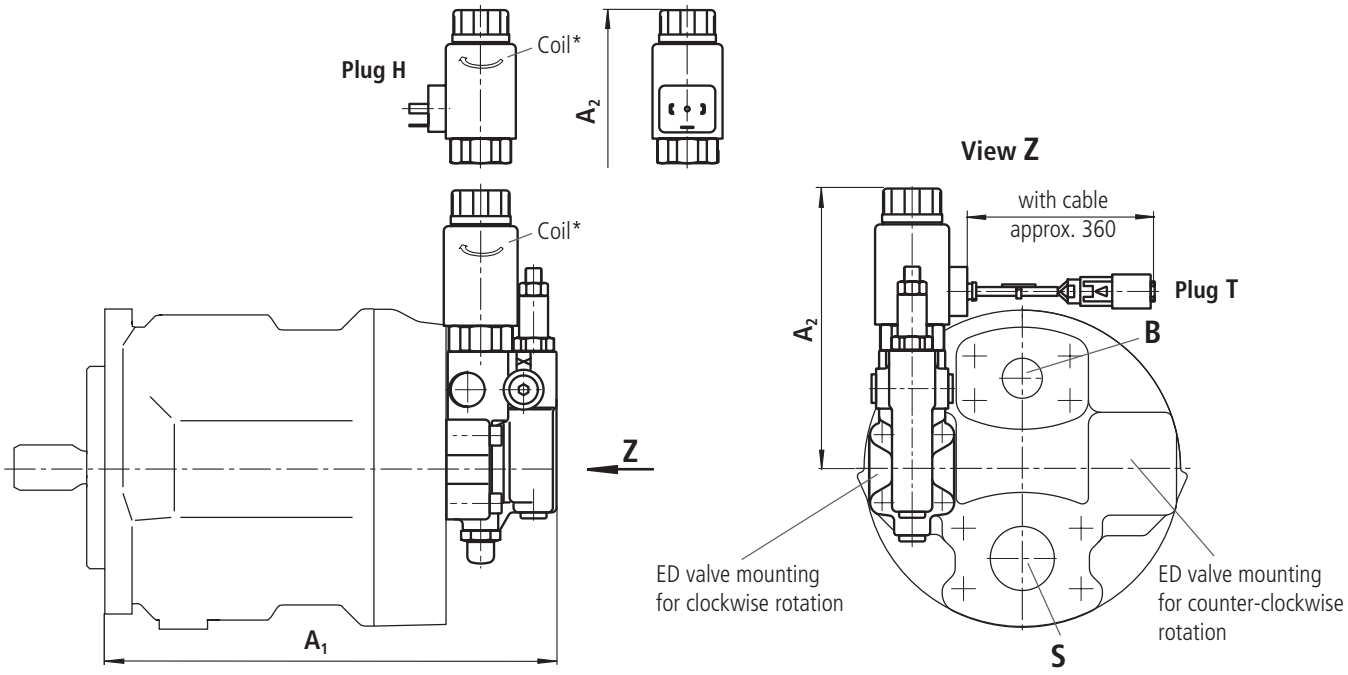
The sudden load change is generated by sudden opening and closing of a pressure line with a pressure-relief valve as load valve 1 m downstream of the pump outlet port.



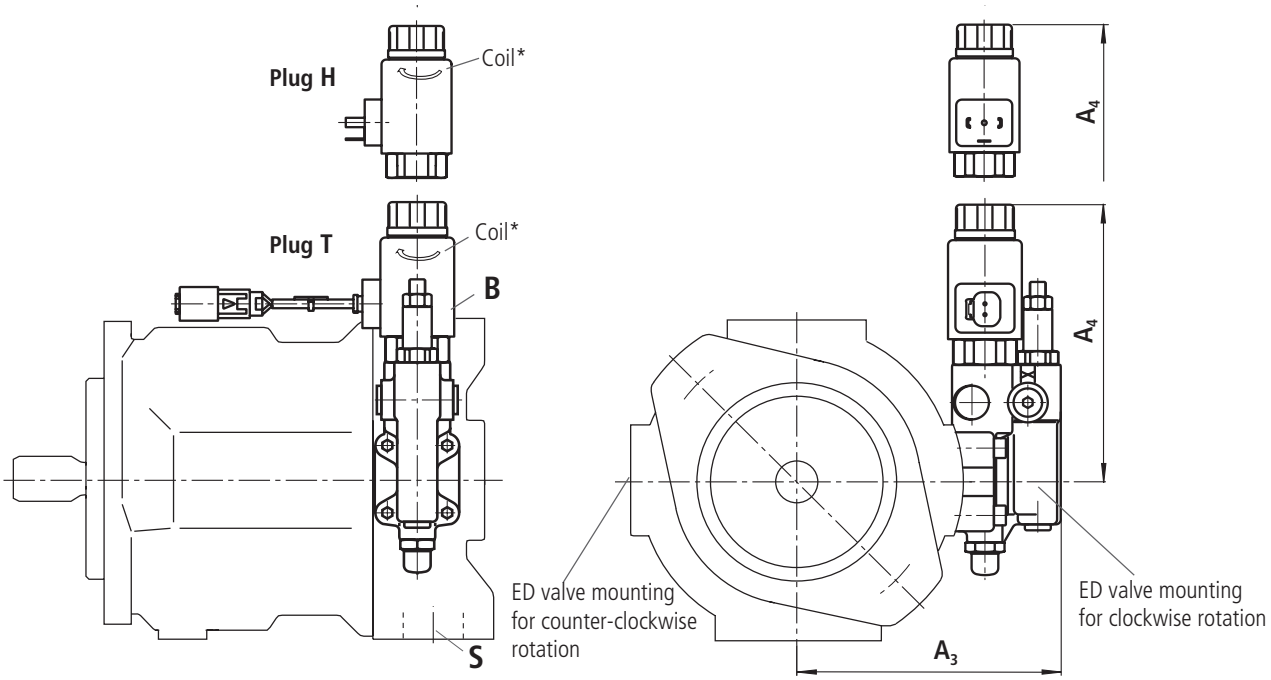
Control time – values available on request

Unit dimensions ED Electro-hydraulic pressure control for A10V(S)O Series 3

Ports at rear – subplates 11 and 61



Ports on side – subplates 12 and 62



Unit dimensions

Size	A_1	A_2	A_3	A_4
18	–	–	126	140
28	225	143	136	140
45	244	140	146	140
71	278	140	160	140
100	344	140	165	140

For detailed unit dimensions and technical details of the variable displacement pump, see the main brochures A10VSO 18 RE 92712, A10VSO 28...140 RE 92711 and A10VO 28...140 RE 92701.

* Connector direction (cable outlet) infinitely variable by rotation through 360°;
after turning the coil, please retighten the plastic screw with 5^{+1} Nm.

ED Electro-hydraulic pressure control for A10VO Series 5

The max. pump output pressure depends on the current to the valve solenoid.

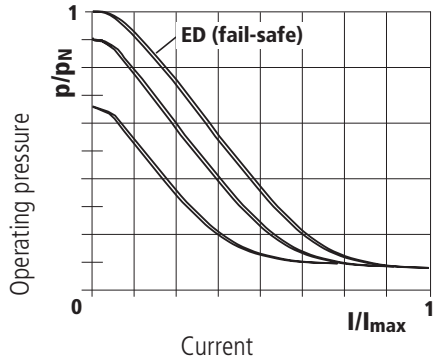
If pump pressure drops below this set pressure the pump will try to increase its displacement, hence the flow to satisfy system demand.

If the pressure reaches the set pressure the pump will adjust its displacement to match the required system flow. (No excess)

With the inverse proportional control max. pump pressure level will go to standby at max. solenoid current, and to max. pressure at zero current. (Fail safe in case of fan drives)

Overriding the current signal is an adjustable hydromechanical setting of max. pressure.

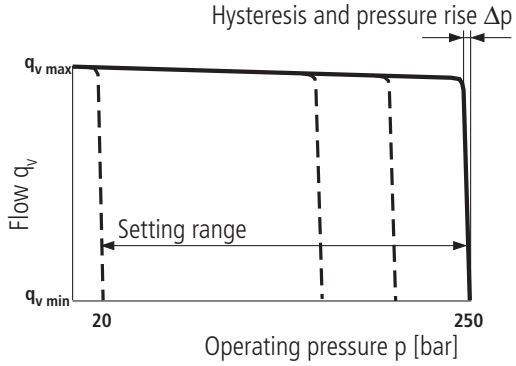
Static current-pressure characteristic (inverse proportional control)



Hysteresis of static current-pressure characteristic < 3 bar

Static flow – pressure characteristic

(at n = 1500 rpm; t_{oil} = 50°C)



Controller data

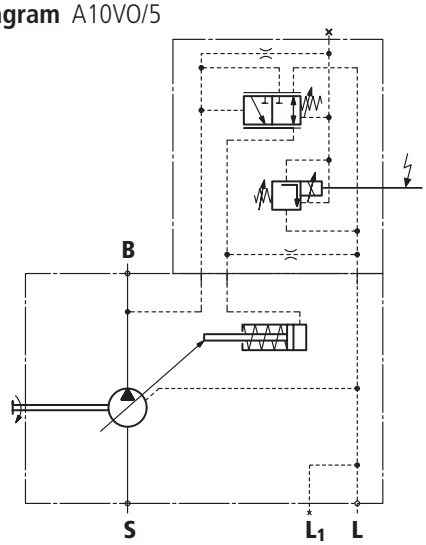
Standby setting 20 bar

Hysteresis and pressure rise Δp _____ < 4 bar

Technical data – electrical

Version	71	72
Operating voltage	12V±20%	24V±20%
Adjustment range	100 – 1200 mA	50 – 600 mA
Impedance at 20°C	5.5Ω	22.7Ω
Limit current	1.54 A	0.77A
Max. duty cycle	100 %	
Temperature range	-30°C to + 115°C	
Dither frequency	100 – 200 Hz	
Enclosure protection class	see connector versions	

Circuit diagram A10VO/5



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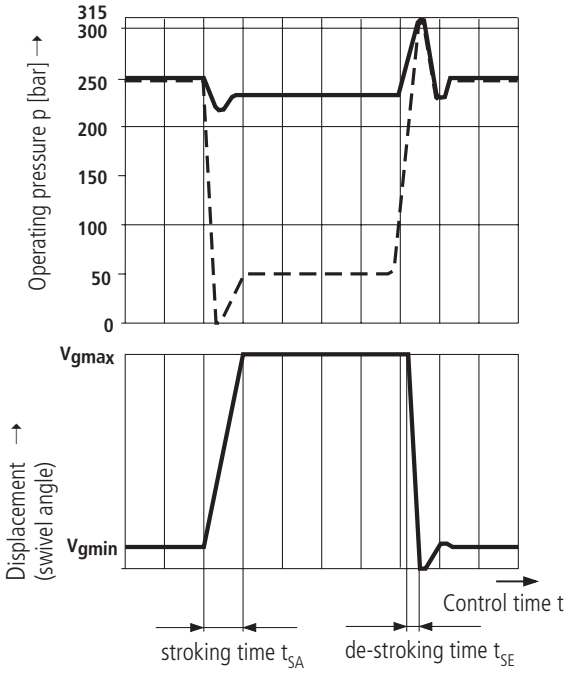
S	Inlet port
L, L_1	Case drain (L_1 closed)

Dynamic characteristics

These characteristics are measured average values under test conditions.

Conditions: n = 1500 rpm
t_{oil} = 50°C
Pressure cut-out at 315 bar

The sudden load change is generated by sudden opening and closing of a pressure line with a pressure-relief valve as load valve 1 m downstream of the pump outlet port.



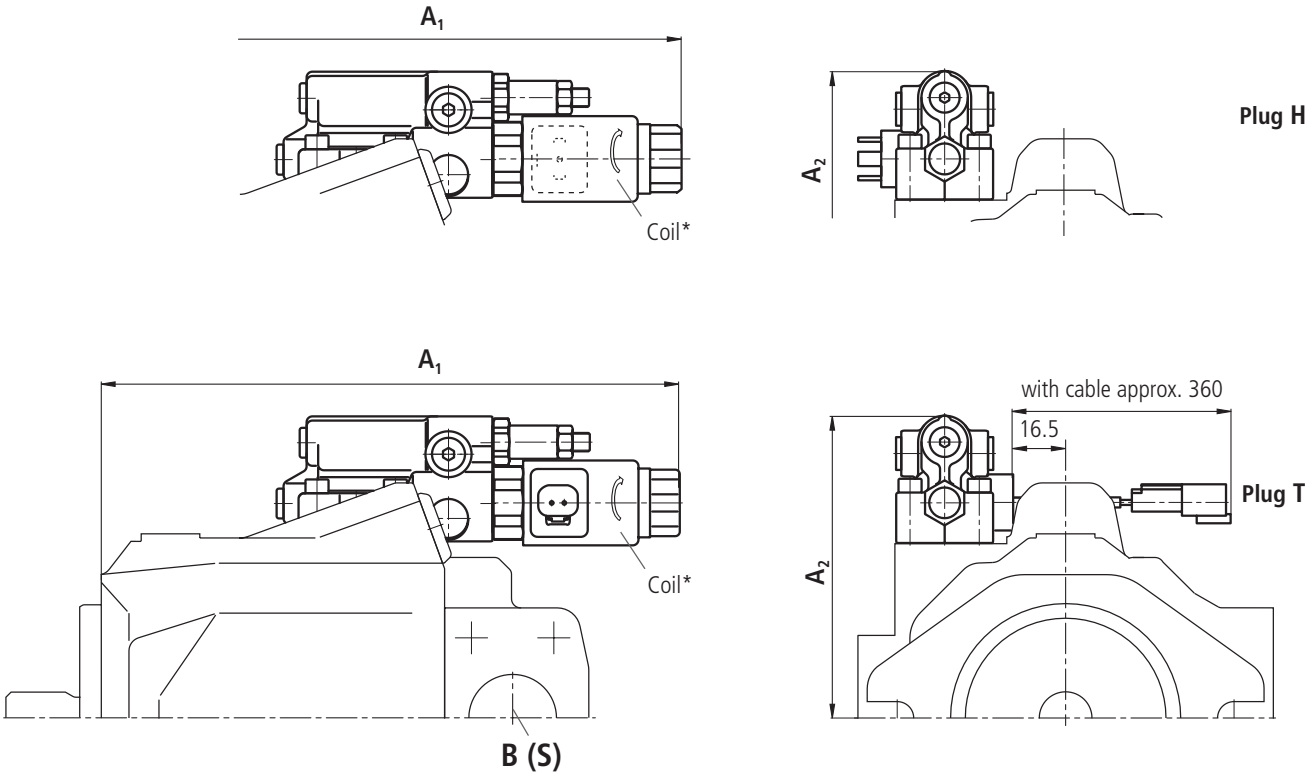
Control time

(please contact us if you have high dynamic requirements)

Size	t_{SA} (ms) against 50 bar	t_{SA} (ms) against 220 bar	t_{SE} (ms) Zero stroke 250 bar
28	90	65	25
45	100	75	25
60	110	85	30

Unit dimensions ED Electro-hydraulic pressure control for A10VO Series 5

A10VO...ED/5



Unit dimensions

Size	A_1	A_2
28	240	124
45	250	132
60	250	137

For detailed unit dimensions and technical details of the variable displacement pump, see the main brochure A10VO 28...85 RE 92703.

* Connector direction (cable outlet) infinitely variable by rotation through 360°;
after turning the coil, please retighten the plastic screw with 5^{+1} Nm.

Connector options and electronic controls

Connectors

Option T
Deutsch plug DT 04-2P on cable
Protection class IP 69K
Preferred: mobile applications

Option H
Hirschmann plug
DIN plug connector
Protect class IP 65
Preferred: stationary applications

Option P
Deutsch plug DT 04-2P, moulded
Protection class IP 69K
in preparation

Electronic controls

Controller	Electronic function	Electronic unit		Further information
Electric pressure control	Regulated current output	PV	analog	RE 95 023
		VT2000	analog	RE 29 904
		RC2-1*)	digital	RE 95 051
Temperature control	Input from temperature sensors, closed-loop control, regulated current output	MHVDL2-1**)		RE 29 885

*) Current outputs for 2 valves, separately controllable

**) Option: current outputs for 2 valves, separately controllable

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