

Functional Description

The proportional directional control valve consists of a cast-iron body (1), main spool (2), control spool (3), two auxiliary centring springs (4), two main return springs (5) and two proportional solenoids (6).

The pilot controlled main spool valve copies the control spool position, which is given the control current of the solenoid.

The central position of the main spool is defined by the auxiliary centring springs.

The solenoids are supplied from an external source, which should be provided with a current feedback.

In order to achieve optimum operating parameters the external elektronics should be able to generate an additional dither - signal. The proportional valve can be used within the whole range of input pressure, where

within the required continuity of the flow-rate characteristics and minimum hysteresis is achieved. The selected concept increases the achieved output parameters of the proportional valve in comparison to direct controlled proporcional valve. Further on the valve shows a monotone increasing relation between pressure gradient and flow rate by constant control current.

Proper functions of the valve are guaranteed only, if the supply pressure in the "P" channel is present; this pressure must be always higher than the pressure in the "T" channel.

The basic surface treatment of the valve housing is phosphate coated and the operating solenids are zinc coated.



Ordering Code



Electronics for controlling proportional valves is possible to order separately, see catalog HA 9150.

Technical Data

Nominal size	mm (US)	06								
Maximum operating pressure at ports P, A, B	bar (PSI)	350 (5076)								
Maximum flow at pressure 320 bar (4641PSI)	l/min (GPM)	140 (37)								
Maximum operating pressure at port T	bar (PSI)	210 (3046)								
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524								
Fluid temperature range (NBR / Viton)	°C (°F)	-30 +80 (-22 +176) / -20 +80 (-4 +176)								
Ambient temperature, max.	°C (°F)	+50 (+122)								
Viscosity range	mm ² /s (SUS)	20 400 (98 1840)								
Maximum degree of fluid contamination		Class 21/18/15 according to ISO 4406								
Nominal flow rate Q_n at $\Delta p = 10$ bar(145PSI) (v = 32 m ² m.s ⁻¹ (156 SUS))	l/min (GPM)	25 (6.60)								
Hysteresis	%	≤ 6								
Weight PRM8-063	kg (lbs)	2,4 (5.29)								
Mounting position		unrestricted, preferably horizontal								
Enclosure type EN 60 529		IP 65								
Technical Data of the Propo	ortional So	lenoid								
Type of coil	V		12 DC		24 DC					
Limit current	А	2,5	1.6 (12 V elec	ctronic)	1,0					
Resistance at 20 °C (68 °F)	Ω	2,3	5.2 (12 V elec	ctronic)	13,4					
Technical Data of the Electronics										
Nominal supply voltage U _{cc}	V	12 DC		24 DC						
Supply voltage range	V	11,2 14,7		20 30 DC						
Stabilized voltage for control	V	5 DC (R > 1 kΩ		10 DC (R ≥ 1 kΩ)						
Maximum output current	А	2.4 for R < 4 Ω		1,5 for R < 10 Ω						
Ramp adjustment range	S	0,053								
Dither frequency	Hz	90 / 60								
Dither amplitude	%	030								



HA 5178									
Spai	re Parts								
1 Solenoid coil 2 Seal kit 3 Connector plug EN 175301-803-A 4 Bolt kit 5 Nut + seal ring 3 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2									
		Ordering number			r	1			
		E1	E3A		E	E12	E13		
Nominal s	upply voltage [V]			Order	ing number	r			
	12	18838500 19744700		19696		96100	19909300		
24		18838300 19744300 196		6200 28811200					
2. Seal Kit			imonsions numb	or		0			
Viton					158/5/00				
3 Connect	or plug EN 175301-80)3- Δ		, 17 🔨 1	,70 (2003)		13043400		
Туре	T	M	-1	Ma	ax. input	Outering			
designation	Туре	MOO	ei	v	oltage	Ordering nu			
К1	Connector B (černá) Connector A (šedá)	bez usměrňovače - M16x1,5 (otvor průchodky $arnothing$ 6-8 mm)		V AC/DC 162021 162022					
4. Bolt kit									
Dime	nsions, number		Tightening torque	Э		0	Ordering number		
M5 x 45 DIN 912-10.9 (4 pcs) 8,9 Nm (6.56 lbf.ft) 158451				15845100					
5. Nut + se	eal ring		0.1.			-			
Type of the	e nut					0			
Standard nut 22 x 2 15844600				100440UU					
Caut • The • The • Mour Tight • The t not b	ion ! Dacking foil is recyclabl protective plate can be nting bolts M5 x 45 DIN tening torque of the bol technical information re be construed in any cas	e. returned to manufac 912-10.9 or studs n ts is 8,9 Nm (6.6 ft-lk garding the product e as a guaranteed re	cturer. hust be ordered s os). presented in this epresentation of t	eparat catalo he pro	ely. ogue is for c duct prope	descriptive pu rties in the se	rposes only. It should nse of law.		
ARGO-H tel.: +42 e-mail: s www.arg	IYTOS s.r.o. CZ - 543 20-499-403111, fax: +4 ales.cz@argo-hytos.cc go-hytos.com	15 Vrchlabí 20-499-403421 om							