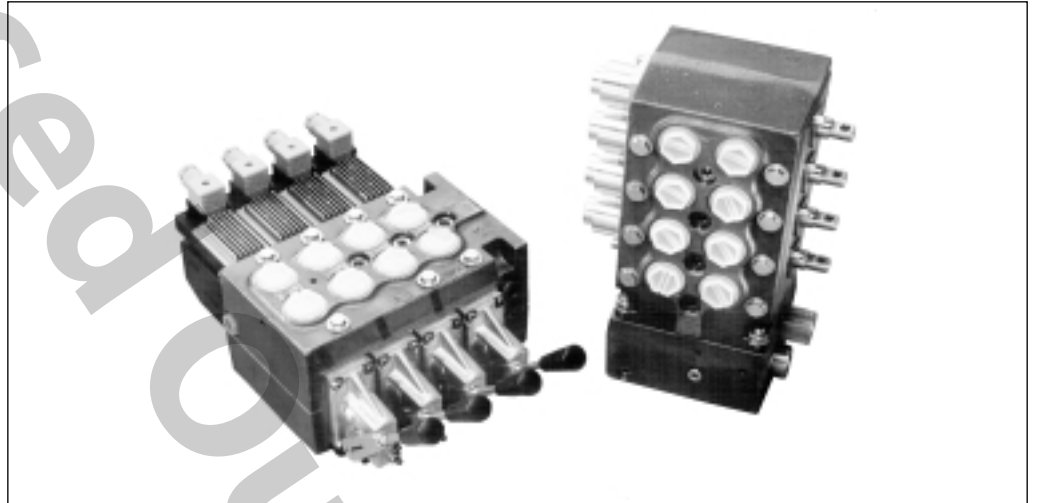


Tech Note

PVG 83 proportional valve group

Introduction

HN.53.A2.02 replaces HN.53.A1.02



Design and function

Valve system

PVG 83 is a hydraulic load sensing valve designed to give the customer just the valve he needs. From a simple load sensing directional valve, to an advanced electrically controlled load independent proportional valve.

The PVG 83 stackable mono block system makes it possible to build up a valve group to meet requirements precisely. The compact external dimensions of the valve remain unchanged whatever combination is specified.

Features

General features PVG 83

- Load-independent flow control:
 - Oil flow to an individual function is independent of the load pressure of this function.
 - Oil flow to one function is independent of the load pressure of other functions.
- Good regulation characteristics
- Energy-saving
- Up to 8 spools per valve group

Pump side module - PVP

- Built in full flow pressure relief valve
- Built in P-controlled back-pressure valve
- Full flow dump valve, electrical actuated
- System pressure up to 250 bar continuous and 260 bar intermittent
- Versions:
 - Open centre version for systems with fixed displacement pumps
 - Central pilot oil supply for electrical actuator built into the pump side module
 - For closed centre versions, without PVP-modul

Mono block

- Port-pressure up to 350 bar A/B
- Depending on requirements the mono block can be supplied with:
 - Check valve in P-channel
 - Integrated compensator in P-channel
 - Shock/suction valves
 - Different spool variants
- 2,3,4 function blocks available

Actuation

- Mono block for mechanical actuation, with free spool ends
- Mono block for electrical actuation, with the following versions:

- 1 - PVEO - ON/OFF
- 2 - PVEM - prop., medium performance (12V or 24V)
- 3 - PVEM - float position
- 4 - PVEH - prop., high performance (12V og 24V)
- 5 - PVEH - float position
- 6 - PVES, prop, super performance

- Mono block for hydraulic actuation

Technical data

The technical data for PVG 83 are typical measured results. For the hydraulic system a mineral based hydraulic oil with a viscosity of 21 mm²/s and a temperature of 50°C was used.

Valve group PVG 83

Max. pressure	Port P	continuous	250 bar
		intermittent ¹⁾	260 bar
	Port A/B		350 bar
	Port T1, static/dynamic		25 bar/40 bar
	Port T2, static/dynamic		85 bar/100 bar
Oil flow	Port P, rated max.		200 l/min
	Port A/B with press. comp		150 l/min
	Port A/B without press. comp		170 l/min
Spool travel			± 7 mm
Spool travel, float pos.	Proportional range		± 4.8 mm
	Float position		± 8 mm
Dead band, flow spools			± 1.5 mm
Max. internal leakage at 70 bar, 21 mm ² /s	A/B→T, with shock valve		8 cm ³ /min
Oil temperature (inlet temperature)	Recommended temperature		30 to 60°C
	Min. temperature		-30°C
	Max. temperature		+90°C
Ambient temperature			-30 to +60°C
Oil viscosity	Operating range		12 to 75 mm ² /s
	Min. viscosity		4 mm ² /s
	Max. viscosity		460 mm ² /s
Filtration	Max. contamination (ISO 4406)		19/16
Oil consumption in:	pilot oil reduction valve		1 l/min

1) Max. 10% operation every minute

Mechanical actuation

Operating force	Neutral position	150 N
	Max. spool travel	170 N
	Float position	420 N

Hydraulic actuation

Regulation range	5 to 15 bar
Max. pilot pressure	30 bar

Electrical actuation PVE

Voltage	Function		PVEO ON/OFF	PVEM Prop. medium	PVEH Prop. high	PVES Prop. high
Neutral switch	Reaction time from neutral position to max. spool travel	Max.	0,235 s	0,700 s	0,230 s	0,230 s
		Rated	0,180 s	0,450 s	0,150 s	0,150 s
		Min.	0,120 s	0,230 s	0,120 s	0,120 s
Neutral switch	Reaction time from max. spool travel to neutral position	Max.	0,175 s	0,175 s	0,175 s	0,175 s
		Rated	0,090 s	0,090 s	0,090 s	0,090 s
		Min.	0,065 s	0,065 s	0,065 s	0,065 s
Constant voltage	Reaction time from neutral position to max. spool travel	Max.	-	0,700 s	0,200 s	0,200 s
		Rated-	-	0,450 s	0,120 s	0,120 s
		Min.	-	0,230 s	0,050 s	0,050 s
Constant voltage	Reaction time from max. spool travel to neutral position	Max.	-	0,700 s	0,100 s	0,100 s
		Rated	-	0,450 s	0,090 s	0,090 s
		Min.	-	0,230 s	0,065 s	0,065 s
Without voltage	Pilot oil flow per PVE	Neutral	0 l/min	0 l/min	0 l/min	0,4 l/min
With voltage	Pilot oil flow per PVE	Locked	0,1 l/min	0,1 l/min	0,1 l/min	0,2 l/min
		1 actuation	0,002 l	0,002 l	0,002 l	0,002 l
		Actuations	0,7 l/min	0,5 l/min	1,1 l/min	1,1 l/min
	Hysteresis	Rated		20%	4%	<1%
	Grade of enclosure IEC 529			IP65		

¹⁾ Hysteresis is indicated at rated voltage and f = 0.02 Hz for one cycle. A cycle incl. neutral→ full A→ N→ full B→ N.

