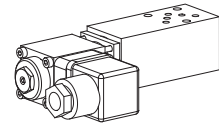


**Proportional throttle valve
 Flange and sandwich construction**

- Direct operated, not pressure compensated
- Throttle in one flow direction
- $Q_{max} = 12 \text{ l/min}$, $p_{max} = 250 \text{ bar}$
- $Q_{Nmax} = 6,3 \text{ l/min}$

NG3-Mini[®]

DESCRIPTION

Directly operated proportional throttle valve in flange or sandwich construction. Screw-in cartridge M18x1,5 in accordance with ISO 7789. Function optional „normally closed“ or „normally open“. In sandwich types for A and B line, a by-pass check valve for reversed free flow is incorporated. Two flow ranges are available. The volume flow is adjusted by a proportional solenoid (VDE standard 0580).

FUNCTION

The force controlled proportional solenoid running in the fluid acts directly on the control spool which opens or closes the triangular shaped throttling notches in the cartridge body. The throttle opening, and therefore the flow volume, changes proportionally to the current absorption of the proportional solenoid. When the solenoid is without current, the control spool is held in the closed position by a spring. To control the valve proportional amplifiers are available from Wandfluh (see register 1.13).

APPLICATION

Proportional throttle valves are suitable for precise feed control systems. An extremely sensitive opening and closing response allows a smooth control of movements in stationary or mobile installations, e.g. machine tools, public vehicles. Mini-3 proportional throttle valves are used where hydraulic systems have to be both light and compact.

TYPE CODE

Throttle valve	D <input type="checkbox"/> P <input type="checkbox"/> A03 - <input type="text"/> - <input type="text"/> - <input type="text"/> # <input type="text"/>	
Normally closed	<input type="checkbox"/> N	
Normally open	<input type="checkbox"/> O	
Proportional		
Flange construction	<input type="checkbox"/> F	
Sandwich construction	<input type="checkbox"/> S	
Mounting interface acc. to Wandfluh standard, NG3-Mini		
Type list / Function		
Flange construction		
A → B	<input type="checkbox"/> A/B	
Sandwich construction		
in P	<input type="checkbox"/> P	in A <input type="checkbox"/> A
in T	<input type="checkbox"/> T	in B <input type="checkbox"/> B
		in A and B <input type="checkbox"/> AB
Nominal volume flow rates Q_N	4 l/min <input type="checkbox"/> 4	6,3 l/min <input type="checkbox"/> 6,3
Nominal voltage U_N	12 VDC <input type="checkbox"/> G12	24 VDC <input type="checkbox"/> G24
Design-Index (Subject to change)		

GENERAL SPECIFICATIONS

Description	Proportional throttle valve
Nominal size	NG3-Mini acc. to Wandfluh standard
Construction	Flange and sandwich
Operations	Proportional solenoid
Mounting	3 mounting holes for. cyl.screws M4 or double ended screws M4
Connection	Threaded connection plates Multi-flange subplates Longitudinal stacking system
Ambient temperature	-20...50 °C
Mounting position	any
Fastening torque	$M_D = 2,8 \text{ Nm}$ (Qual. 8.8), fastening screws $M_D = 30 \text{ Nm}$ for screw-in cartridge
Weight	Depending on the type $m = 0,4...0,7 \text{ kg}$

HYDRAULIC SPECIFICATIONS

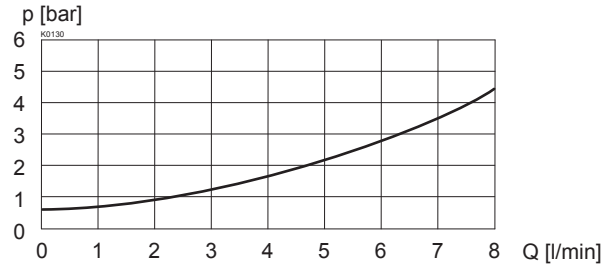
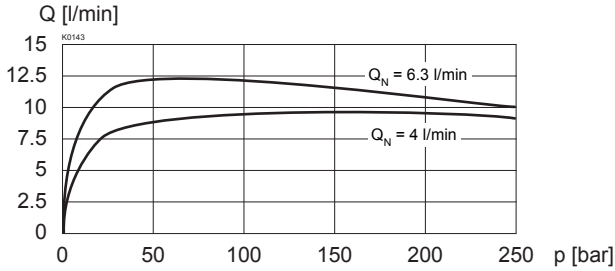
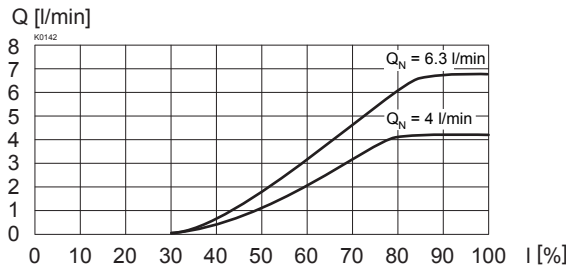
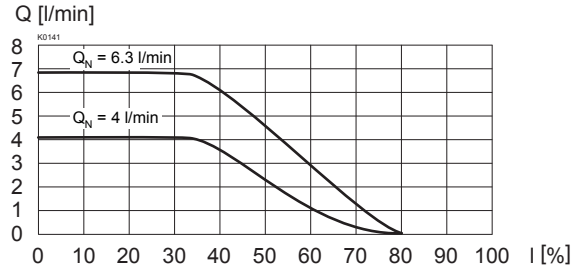
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade $\beta_{6...10} \geq 75$) see data sheet 1.0-50/2
Viscosity range	12 mm ² /s...320 mm ² /s
Fluid temperature	-20...+70 °C
Peak pressure	$p_{max} = 250 \text{ bar}$
Nominal volume flow rates	$Q_N = 4 \text{ l/min}$, $Q_N = 6,3 \text{ l/min}$ at 10 bar pressure drop
Max. Volume flow	$Q_{max} = 8 \text{ l/min}$
Leakage volume flow	see data sheet 2.6-510
Resolution	1 mA
Repeatability	≤ 1% *
Hysteresis	≤ 2% *
	* at optimal diithersignal

For further hydraulic specifications see data sheet 2.6-510

ELEKTRICAL SPECIFIACATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight.	
Standard-Nominal volt.	U = 12 VDC	U = 24 VDC
Limiting current	$I_G = 1080 \text{ mA}$	$I_G = 540 \text{ mA}$
Relative duty factor	100% ED (see data sheet 1.1-430)	
Protection class	IP 65 to EN 60 529	
Connection/Power supply	Over device plug connection to ISO 4400/ DIN 43650 (2P+E)	
Other electrical specifications see data sheet 1.1-90 (PI29V)		

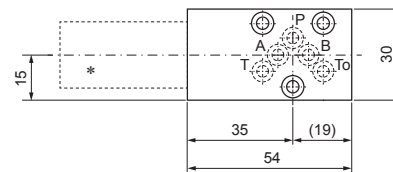
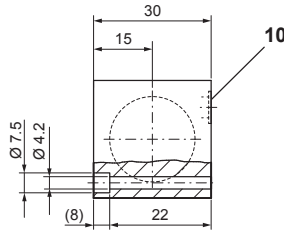
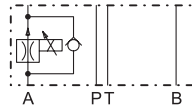
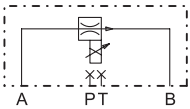
CHARACTERISTICS Oil viscosity $\nu = 30\text{mm}^2/\text{s}$
 $Q = f(p)$ Volume flow pressure characteristics

 $\Delta p = f(Q)$ Pressure loss/flow characteristic over non-return valve

 $Q = f(I)$ Volume flow adjustment characteristics
 DNP.A03

 $Q = f(I)$ Volume flow adjustment characteristics
 DOP.A03

SYMBOLS / DIMENSIONS

D.PFA03-A/B

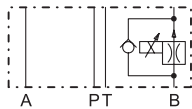
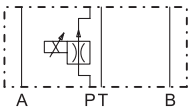
D.PSA03-A

Flange construction D.PFA03-A/B



D.PSA03-P

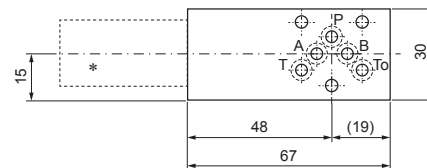
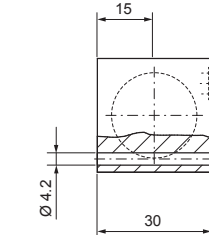
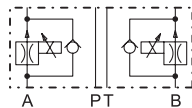
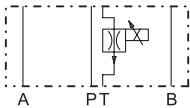
D.PSA03-B



Sandwich construction D.PSA03-P, T

D.PSA03-T

D.PSA03-AB



Sandwich construction D.PSA03-A, B, AB

PARTS LIST

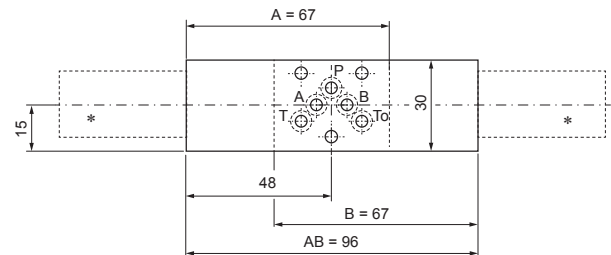
Position	Article	Description
10	160.2045	O-ring ID 4,5x1,50

SCREW-IN CARTRIDGES INSTALLED

The following screw-in cartridges are used in either the flange body or the sandwich body:

Type	Designation	Data sheet no.
D.PPM18	Proportional throttle valve	2.6-510

* The total lengths depends on the cartridge type, see data sheet 2.6-510


ACCESSORIES

Proportional amplifier

Register 1.13

Technical explanation see data sheet 1.0-100