The 2-way proportional throttle valves series TDA are used to control large oil flows.

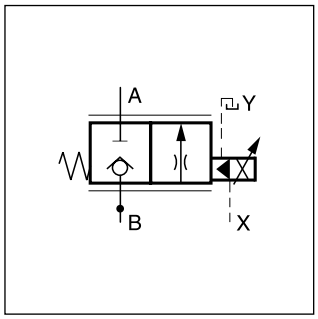
Features

- Cavity and mounting pattern according to ISO 7368
- Fail-safe function at power failure
- Leak-free from port B to A
- Pressure differential up to 350 bar possible
- 8 sizes NG16 up to NG100

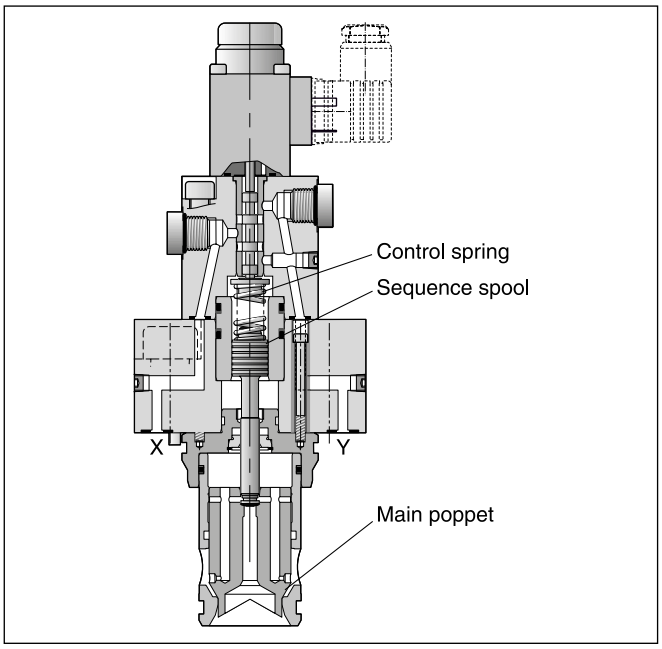
Function

The 2-way proportional throttle valves have a 3-stage design consisting of the first solenoid operated pilot stage with a spool in sleeve design, the second pilot stage with the control spring and the sequence spool and as main stage the poppet in the sleeve. The proportional solenoid operates the pilot spool against the feedback of the control spring and controls the position of the sequence spool. The main poppet follows the position of the sequence spool and provides an open area for flow from B to A (optional A to B) in proportion to the solenoid current. The poppet is positioned independently of the differential pressure, which can become as high as the maximum working pressure.

In combination with the digital power amplifier PC-D00A-400 the valve parameters can be saved, changed and duplicated.



TDA025



Ordering code

TDA		E	W	0			2				W	
2-way proportional throttle valve	Nominal size	Slip-in valve DIN ISO 7368	Design	Poppet shape	Nominal flow	Flow direction	Piloting	Seal	Solenoid voltage	Plug socket without plug	Design series (not required for ordering)	

Code	Nominal size
016	NG16
025	**NG25**
032	**NG32**
040	**NG40**
050	**NG50**
063	NG63
080	NG80
100	NG100

Code	Nominal flow
9	**Nominal flow**
6 [1]	**Reduced flow**

[1] Only for NG16 and NG25.

Code	Solenoid voltage
X	**16 VDC**
L	6 VDC

Code	Seal
N	**NBR**
V	**FPM**

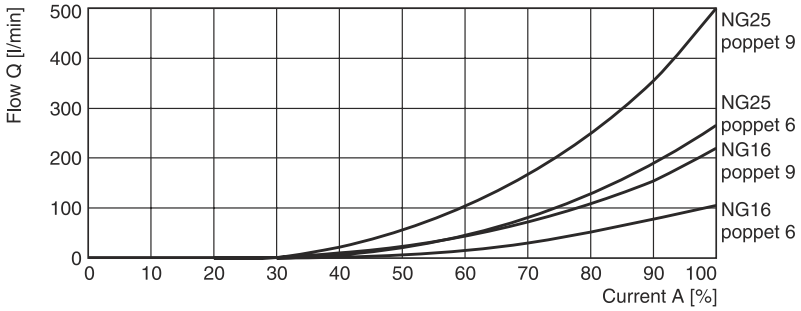
Code	Flow direction
A	A to B
B	**B to A**

Bold letters =
Short-term availability

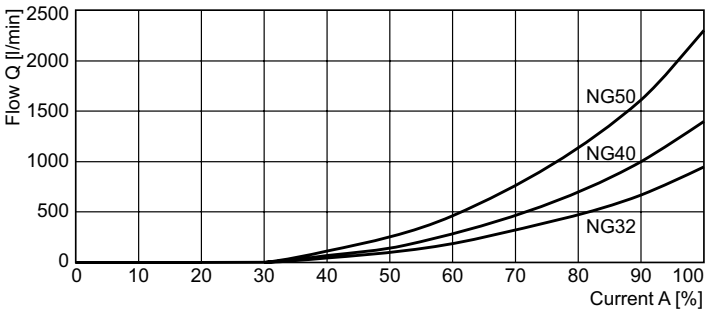
General									
Design		2-way proportional throttle valves, slip-in cartridge according to ISO 7368							
Nominal size		**NG16**	**NG25**	**NG32**	**NG40**	**NG50**	**NG63**	**NG80**	**NG100**
Mounting position		unrestricted							
Ambient temperature	[°C]	-20...+60							
$MTTF_D$ value	[years]	75							
Weight	[kg]	3.1	4.3	5.8	9.2	15	33	63	87
Extracting tool		see accessories							
Hydraulics									
Max. operating pressure	[bar]	Ports A, B and X up to 350, port Y: max. 10							
Fluid		Hydraulic oil according to DIN 51524							
Fluid temperature	[°C]	-20...+70 (NBR: -25...+70)							
Viscosity permitted recommended	[cSt] / [mm²/s] [cSt] / [mm²/s]	20...400 30...80							
Filtration		ISO 4406 (1999); 18/16/13							
Nominal flow at Δp = 10 bar	[l/min]	220	500	950	1400	2300	4000	6000	9500
Flow direction		see ordering code							
Pilot pressure, min.	[bar]	> 25 % of system pressure							
Min. operating pressure	[bar]	Port A → B approx. 10; Port B → A approx. 15							
Pilot oil supply drain		Depending on flow direction A or B using X or external X External using port Y max. 10 bar							
Pilot oil at p = 100 bar	[l/min]	Port X → Y <1.5							
Opening point		At 30 % of nominal current							
Manufacturing tolerance	[%]	±5 of Qnom							
Static/dynamic									
Response time at px=50 bar	[ms]	20	25	30	35	45	55	65	80
Hysteresis	[%]	< 3							
Repeatabiltity	[%]	< 1							
Electrical (proportional solenoid)									
Duty ratio		100 % ED							
Protection class		IP65 according to EN 60529 (with correctly mounted plug-in connector)							
Solenoid	Code	L				X			
	at size	16-50		63-100		16-50		63-100	
Solenoid voltage	[V]	6				16			
Nominal current (100 % ED)	[A]	2.6				1.05			
Nominal resistance	[Ohm]	2.2		2.5		11.3		14	
Power amplifier, recommended		PCD 00A-400							
Solenoid connection		Connector as per EN 175301-803							

The pilot pressure in X-line must be at least 25 % (NG16-40) or 45 % (NG50-100) of the pressure in the draining-off line of the cartridge to make sure that the main poppet closes safely without malfunction.

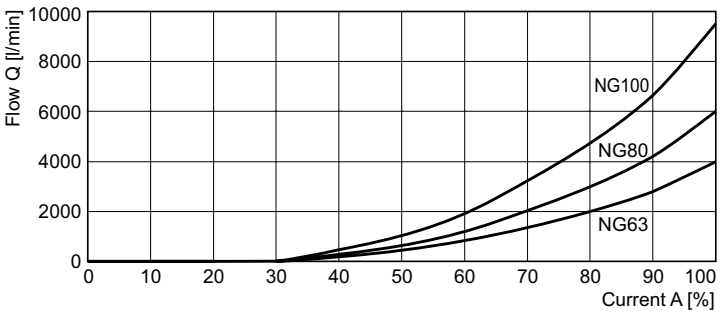
Solenoid current / flow curves
NG16-25 (∆p = 10 bar)



NG32-50 (∆p = 10 bar)

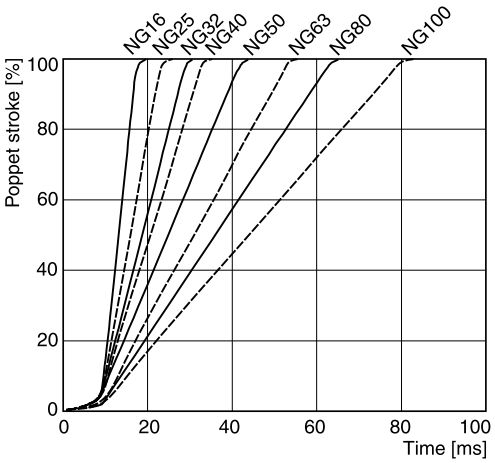


NG63-100 (∆p = 10 bar)



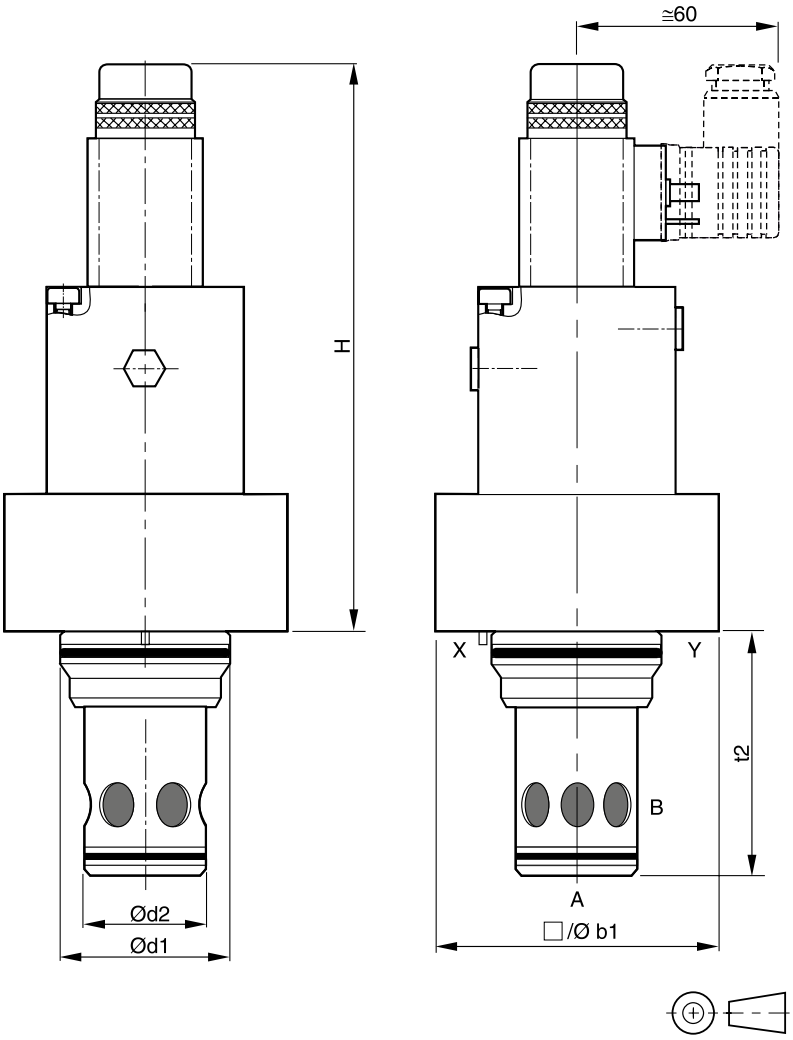
$$\Delta p_{actual} = \left(\frac{Q_{actual}}{Q_{nominal}}\right)^2 \bullet \Delta p_{nominal}$$

Poppet stroke / time curve

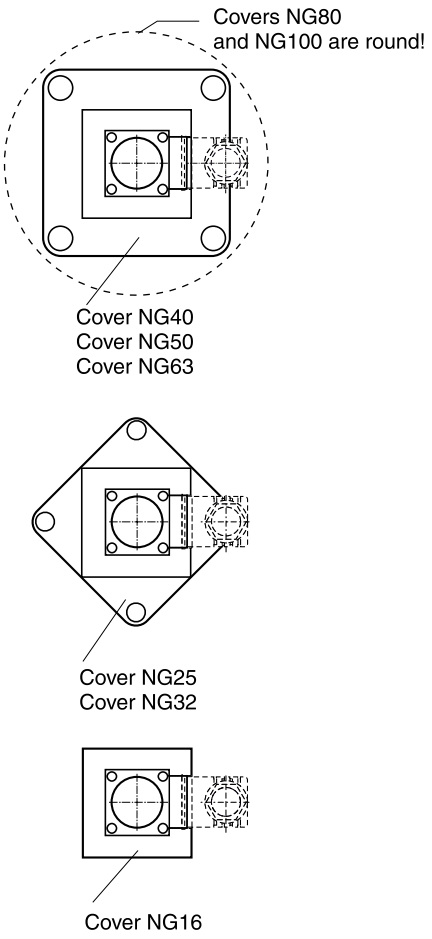


All characteristic curves measured with HLP46 at 50 °C.

Valves



Valve covers



Size	16	25	32	40	50	63	80	100
H	168	177	182	192	202	304	324	339
b1	65	85	102	125	140	180	Ø250	Ø300
$d1^{H7}$	32	45	60	75	90	120	145	180
$d2^{H7}$	25	34	45	55	68	90	110	135
$t2^{+0.1}$	56	72	85	105	122	155	205	245

NG	Kit	ISO 4762-12.9		Kit NBR	Kit FPM
16	BK510	4x M8x100	31.8 Nm	SK-TDA016EN	SK-TDA016EV
25	BK391	4x M12x50	108 Nm	SK-TDA025EN	SK-TDA025EV
32	BK415	4x M16x55	264 Nm	SK-TDA032EN	SK-TDA032EV
40	BK416	4x M20x70	517 Nm	SK-TDA040EN	SK-TDA040EV
50	BK417	4x M20x75	517 Nm	SK-TDA050EN	SK-TDA050EV
63	BK418	4x M30x100	1775 Nm	SK-TDA063EN	SK-TDA063EV
80	BK419	8x M24x120	890 Nm	SK-TDA080EN	SK-TDA080EV
100	BK420	8x M30x140	1775 Nm	SK-TDA100EN	SK-TDA100EV