Proportional pressure reducing valves of the series VMY allow the variable adjustment of the reduced pressure from 0 bar up to the nominal pressure.

The valve consists of a spool type main stage and a proportionally operated pilot stage. The desired pressure can be variably set corresponding to the command signal specified on the amplifier. The proportional solenoid converts the current of the amplifier into force on the valve poppet of the pilot stage.

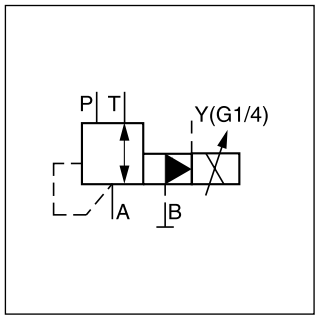
Typical applications are pressure systems, test equipment, or counterweight systems. The optimum performance can be achieved in combination with the digital amplifier module PCD00A-400 for open loop systems or with PWDXXA-40* for closed loop systems.

Function VMY*K06

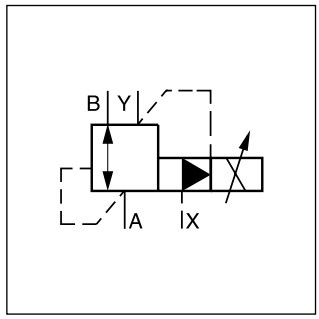
With the proportional solenoids de-energized the main spring forces the main spool into the neutral position. Port A is connected to port T. Thus the reduced pressure only depends on the back pressure in the external drain pipe and/or the tank pressure and can accordingly be reduced down to 0 bar. The pressure present in the P line delivers the pilot oil to the pilot stage via a flow control valve.

When the proportional solenoid is energized, the pilot pressure is increased in the pilot pressure area, and the main spool moves against the spring until the connection P - A opens. The regulation of the reduced pressure on connection A takes place by the constant comparison of the actual pressure and the reference pressure of the pilot stage.

VMY*K06



VMY*K06

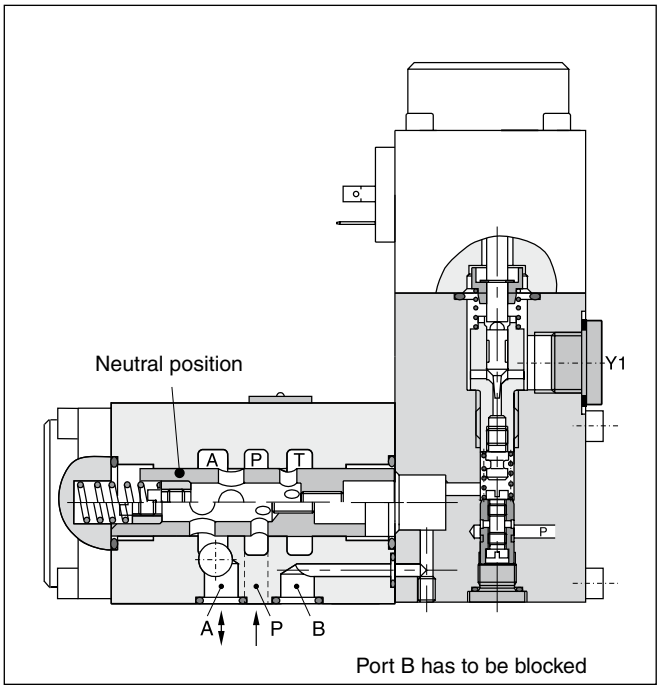


VMY*K10

VMY*K10

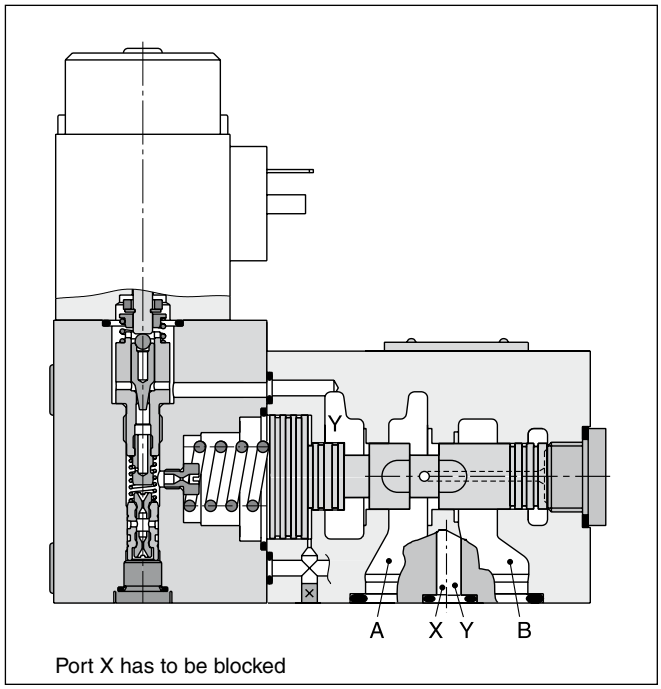
The valve spool is designed so that the connection B-A is open in the neutral position and is closed in the working position.

VMY*K06N



Port B has to be blocked

VMY*K10



Port X has to be blocked

Ordering code

VMY		K				1	P
Reducing valve	Pressure stages	Proportional solenoid 9 V / 2.5 A	Nominal size	Pilot	Seals	Design series	High pressure channel

Code	Pressure stages
064	**up to 64 bar**
100	**up to 100 bar**
160	**up to 160 bar**
210	**up to 210 bar**
315	up to 315 bar

Code	Seals
N [2]	**NBR**
V	FPM

Code	Nominal size
06	**NG06**
10	**NG10**

Bold letters =
Short-term availability

Pilot oil				
Code	Size	Pilot	Drain	p_{min} [bar]
omit	**10**	**Internal**	**Internal**	**3 - 4**
N [1]	**06**	**Internal**	**External**	**0.5 - 1**
T	**06**	**Internal**	**Internal**	**1 - 2**

4

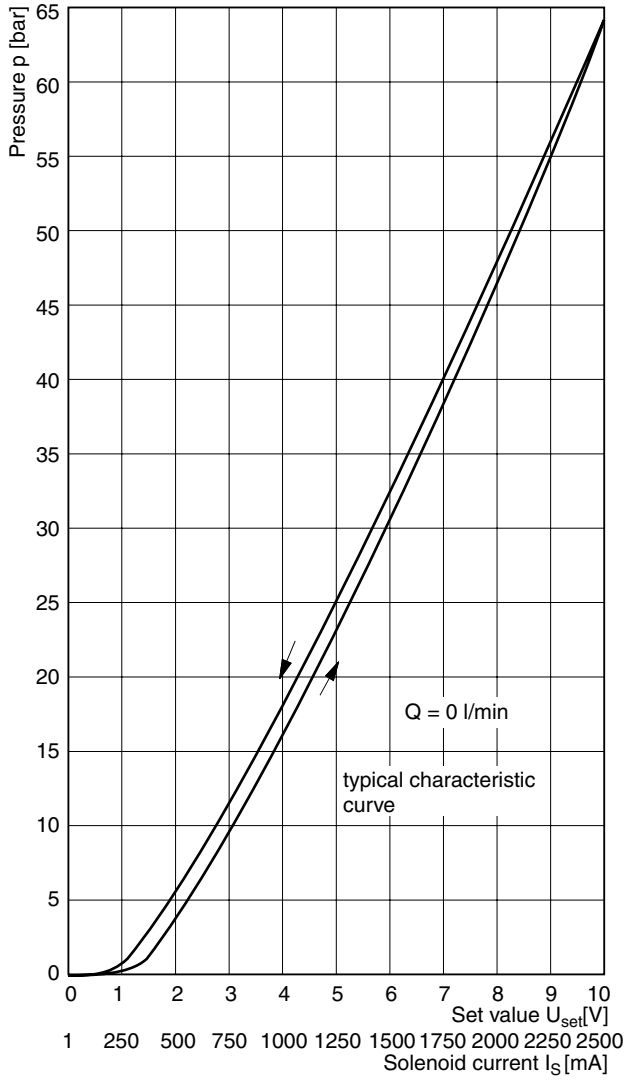
Technical data

General				
Design			3 way proportional reducing valve, pilot operated, spool design	
Nominal size			**06 (DIN NG06/CETOP 03/NFPA D03)**	**10 (DIN NG10/CETOP 05/NFPA D05)**
Interface			Subplate mounting according to ISO 5781	
Actuation			Proportional solenoid	
Mounting position			unrestricted	
Ambient temperature		[°C]	-20 ... +60	
$MTTF_D$ value		[years]	75	
Weight		[kg]	2.8	5
Hydraulics				
Max. operating pressure		[bar]	Size 06: Ports P, A 315; Port T, Y depressurized; port B has to be blocked	
		[bar]	Size 10: Ports A, B 350; Port Y depressurized; port X has to be blocked	
Pressure stages		[bar]	64, 100, 160, 210, 315	
Nominal flow		[l/min]	40	160
Fluid			Hydraulic oil according to DIN 51524	
Viscosity	permitted	[cSt] / [mm²/s]	20 ... 400	
	recommended	[cSt] / [mm²/s]	30 ... 80	
Fluid temperature		[°C]	-20...+70 (NBR: -25...+70)	
Filtration			ISO 4406 (1999); 18/16/13	
Linearity		[%]	See characteristic pressure curves	±3.5 at > 15 % $p_{nom.}$
Repeatability		[%]	<±2	
Hysteresis		[%]	<3	
Response time		[ms]	<150	<200
Electrical				
Duty ratio		[%]	100 ED	
Protection class			IP65 in accordance with EN 60529 (with correctly mounted plug-in connector)	
Nominal voltage		[VDC]	9	
Max. current		[A]	2.7	
Nom. current		[A]	2.5	
Ambient temperature		[°C]	-20...+70	
Coil resistance		[Ohm]	-2.1 (at 20 °C)	
Solenoid connection			Connector as per EN 175301-803	
Power amplifier, recommended			PCD00A-400	

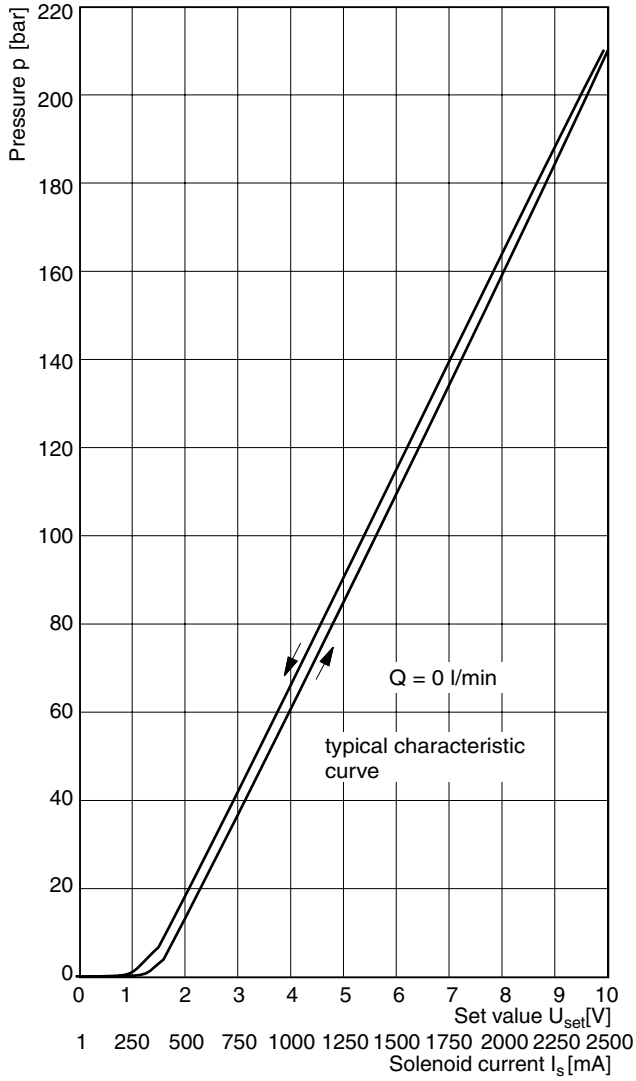
[1] Connection on port Y1 or Y2.
[2] Not for NG06.

NG06 Characteristic pressure lines p = f (U_{set})

Setting range max. 64 bar

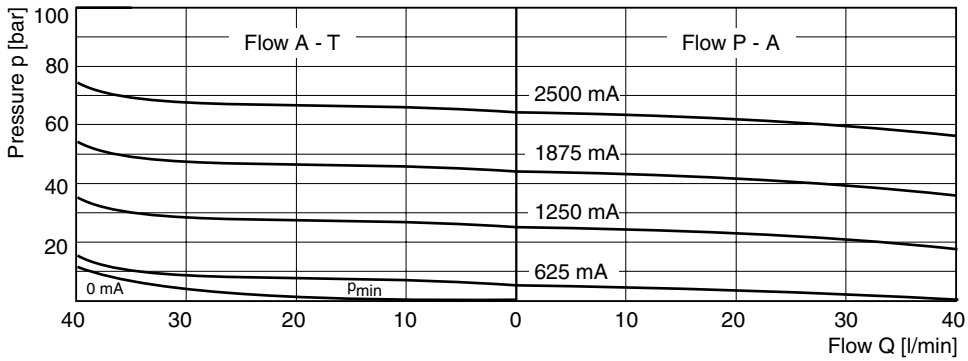


Setting range max. 210 bar



NG06 p/Q characteristics

Setting range max. 64 bar

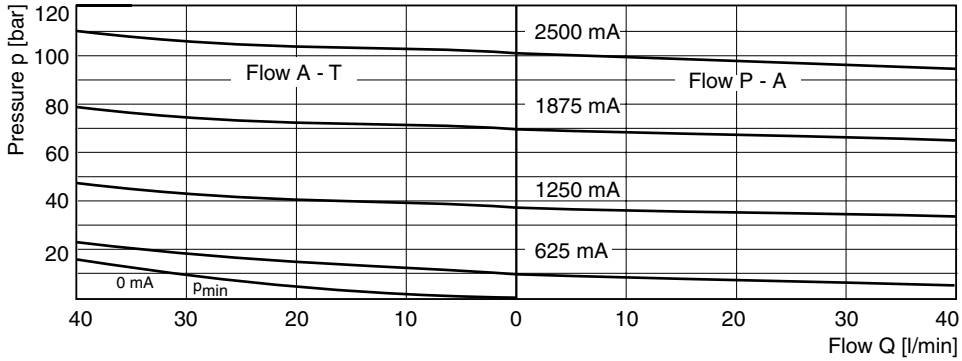


All characteristic curves measured with HLP46 at 50 °C.

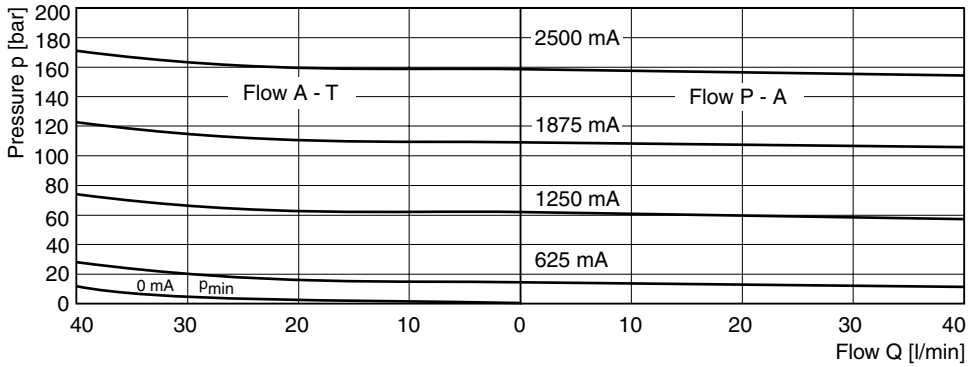
4

NG06 p/Q characteristics

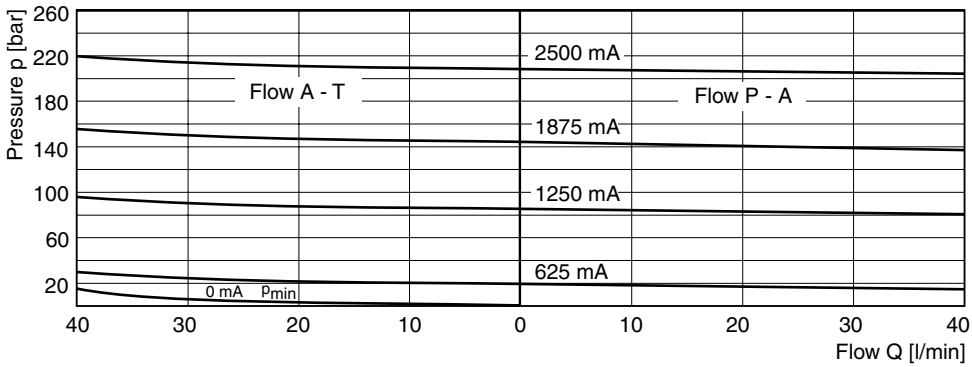
Setting range max. 100 bar



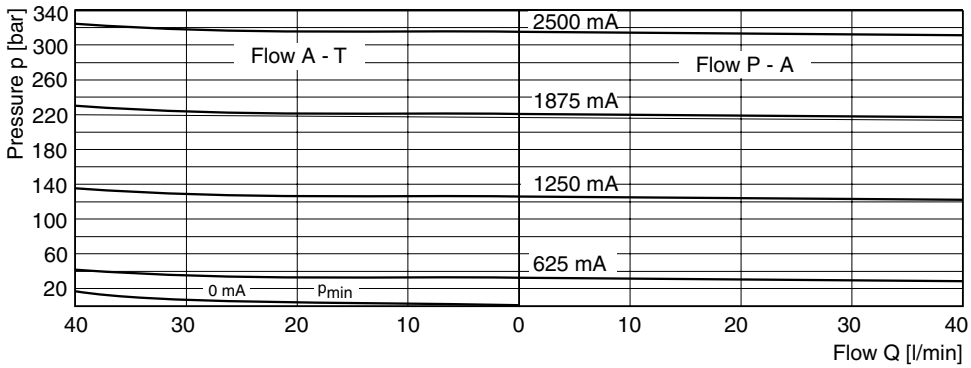
Setting range max. 160 bar



Setting range max. 210 bar



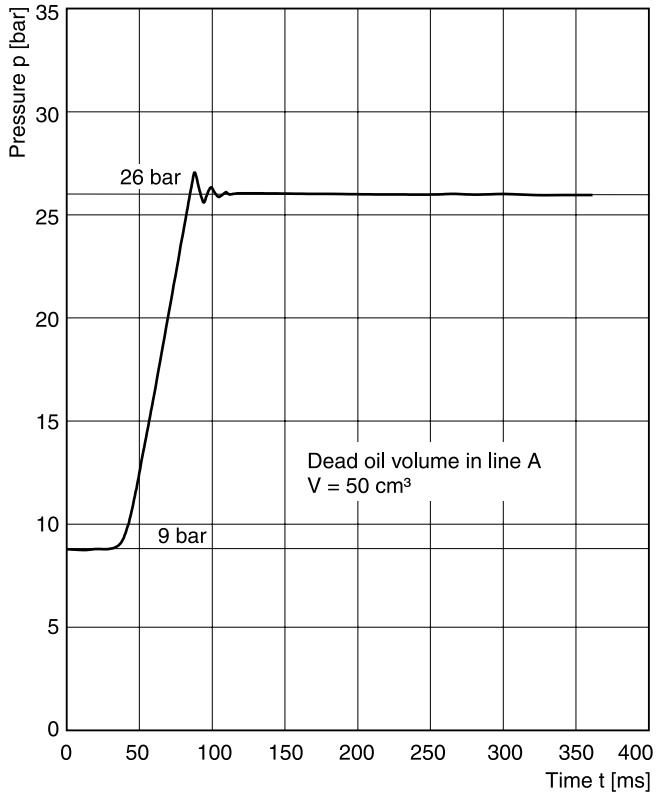
Setting range max. 315 bar

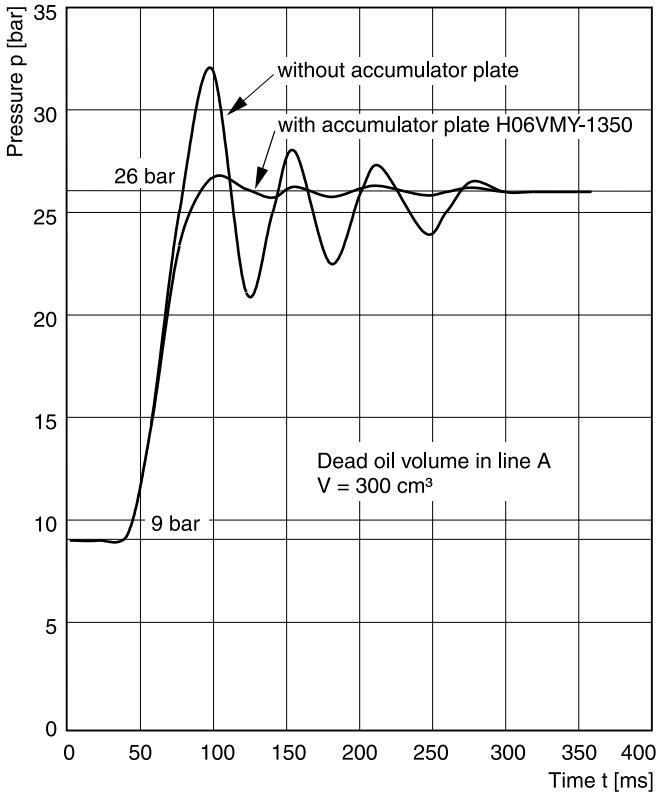


All characteristic curves measured with HLP46 at 50 °C.

Step response

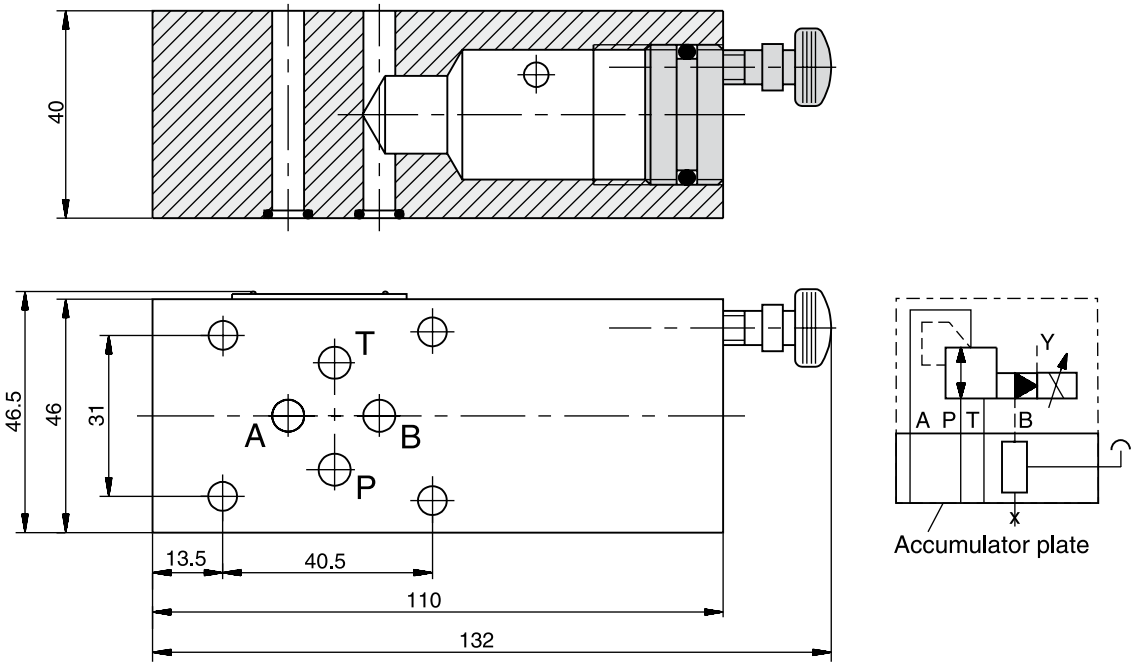
Typical curve





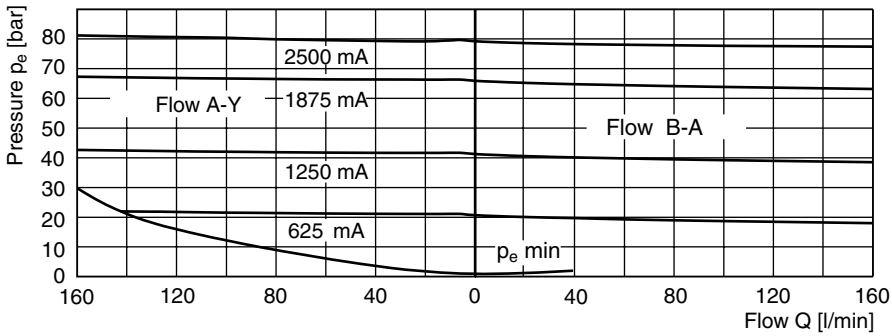
All characteristic curves measured with HLP46 at 50 °C.

Accumulator plate H06VMY-1350

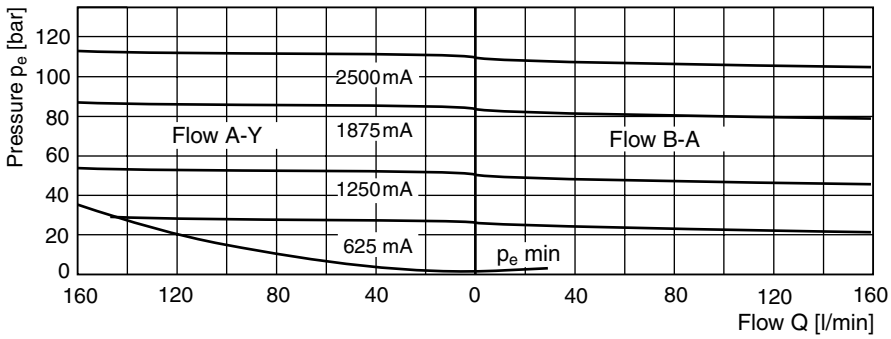


NG10 p/Q characteristics
for pilot oil supply from high pressure channel P

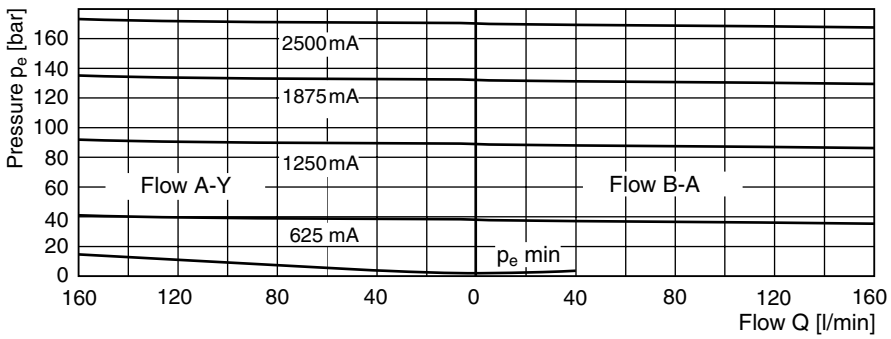
Setting range max. 64 bar



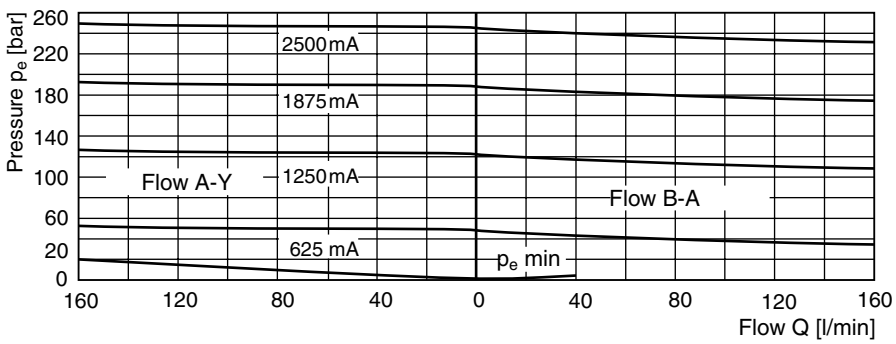
Setting range max. 100 bar



Setting range max. 160 bar

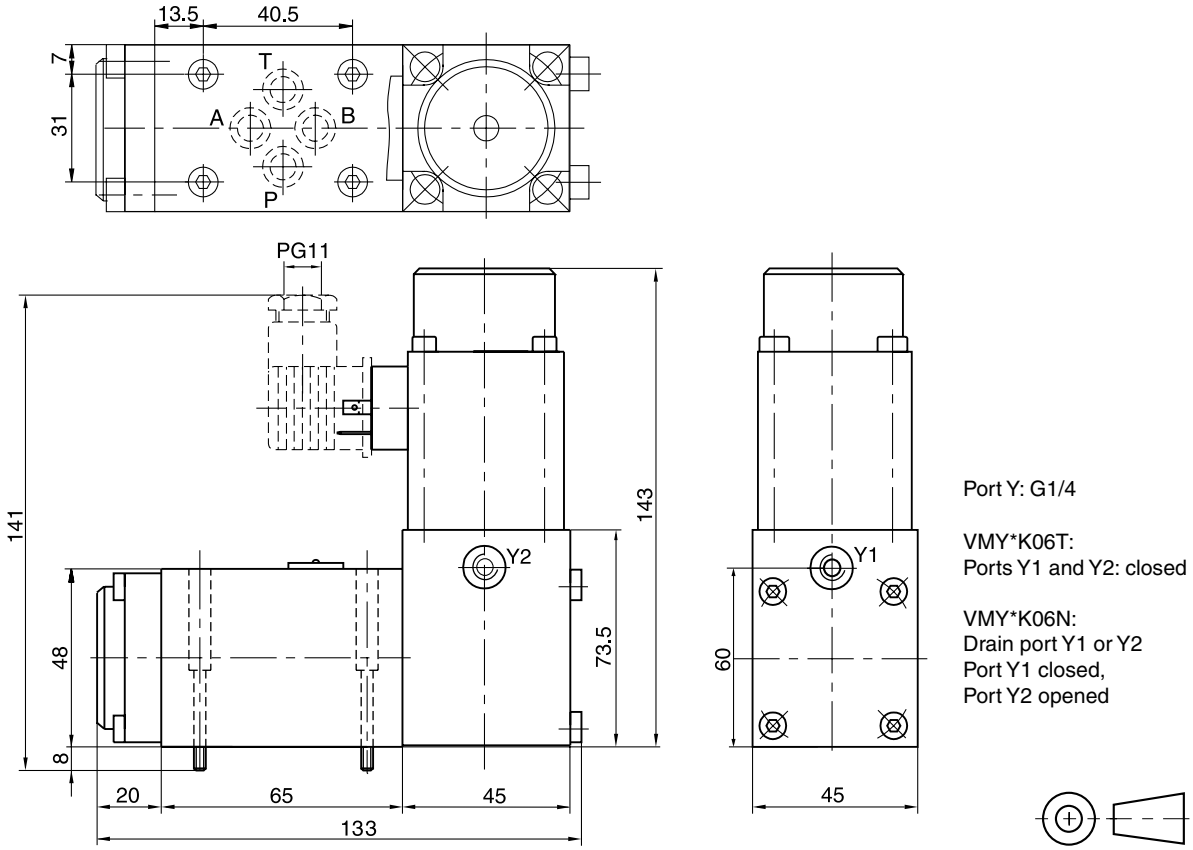


Setting range max. 210 bar



All characteristic curves measured with HLP46 at 50 °C.

NG06



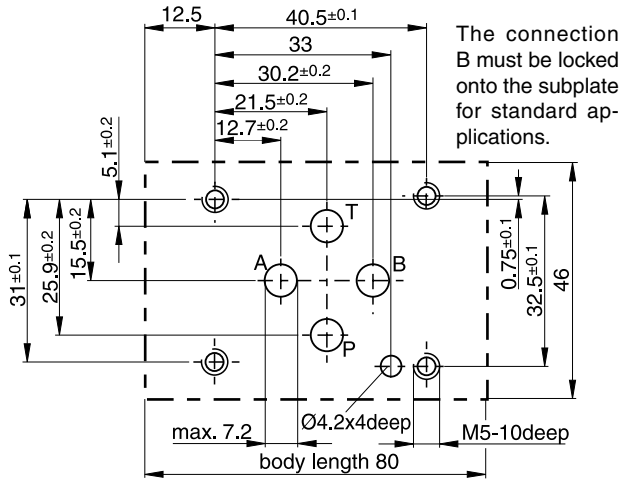
Port Y: G1/4

VMY*K06T:
Ports Y1 and Y2: closed

VMY*K06N:
Drain port Y1 or Y2
Port Y1 closed,
Port Y2 opened

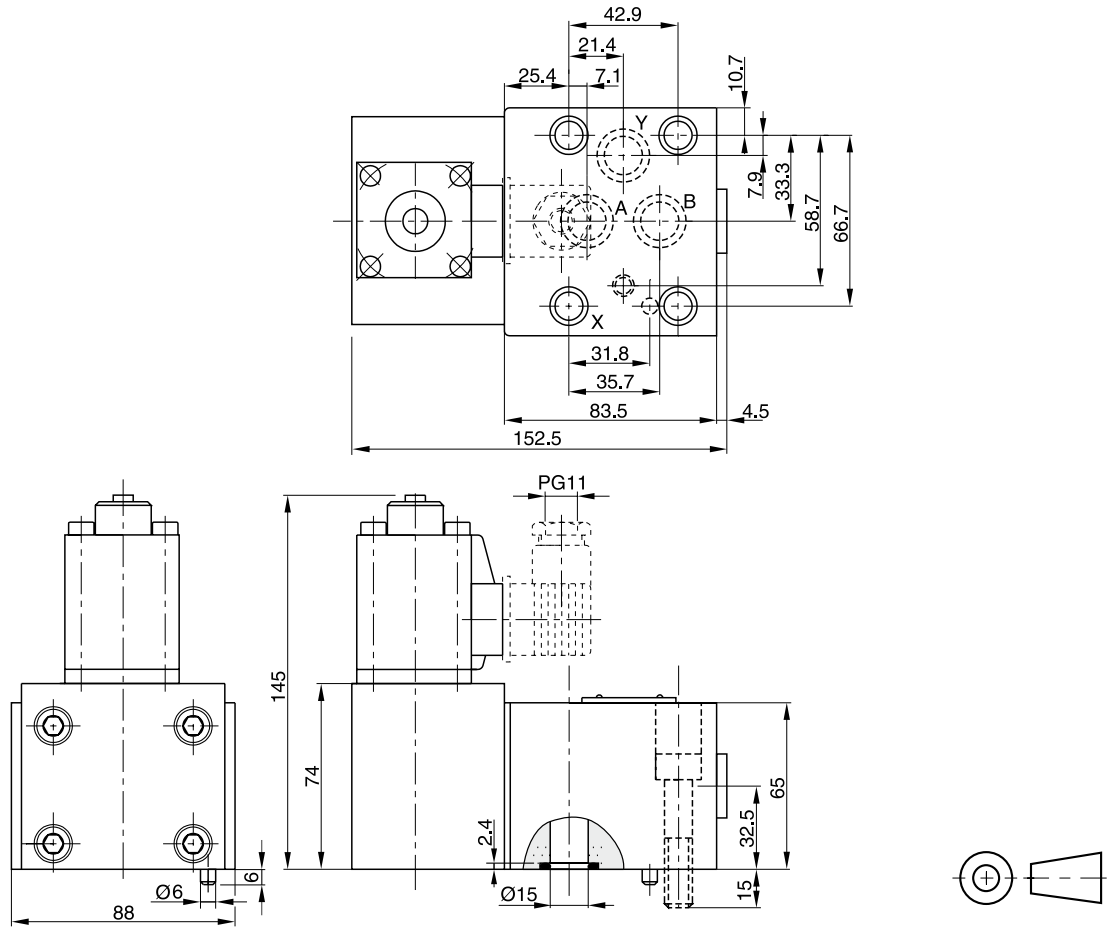
Surface finish	Bolt kit			Kit FPM
$\sqrt{R_{max}6.3}$ 0.01/100	BK375	4x M5x30 ISO 4762-12.9	7.6 Nm ±15 %	SK-VMY-L06-V

Mounting pattern ISO 5781-03-04-0-00



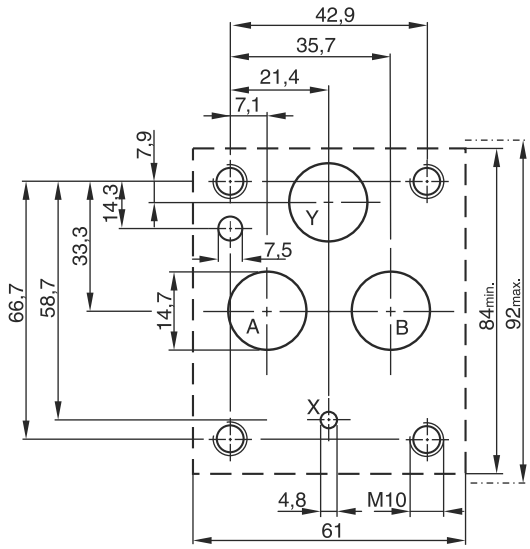
The connection B must be locked onto the subplate for standard applications.

NG10



Surface finish	Bolt kit			Kit FPM
$\sqrt{R_{max}6.3}$ 0.01/100	BK389	4x M10x50 ISO 4762-12.9	63 Nm ±15 %	SK-VB/VM-A10V

Mounting pattern ISO 5781-06-07-0-00 [1)]



[1)] Deviating from ISO the Y port has Ø 14.7 instead of Ø 4.8.