

# Parker Series VBYK Pilot Operated Pressure Relief Valves Service Manual

Pilot operated relief valve with proportional adjustment. Series VBY\*K is a pilot operated pressure valve with external drain. Because of the high pressure capability of the outlet port the VBY\*K NG10 can be used as sequence valve. In this case the external drain port Y has to be used. The optimum performance can be achieved in combination with the digital amplifier module PCD00A-400.

## Features

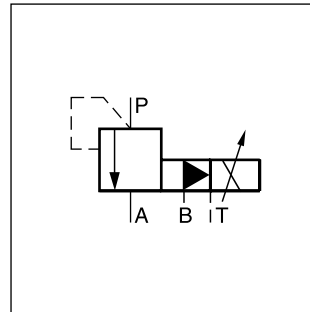
- Proportional adjustment
- Subplate mounting acc. to ISO 5781
- External drain
- Main stage spool type valve
- Pilot stage seated type valve



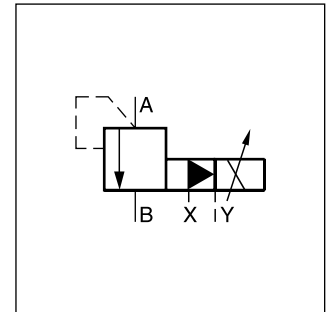
VBY\*K06



VBY\*K10

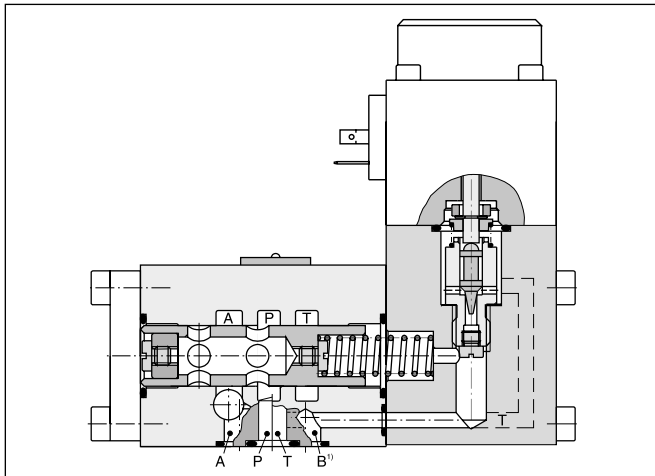


VBY\*K06

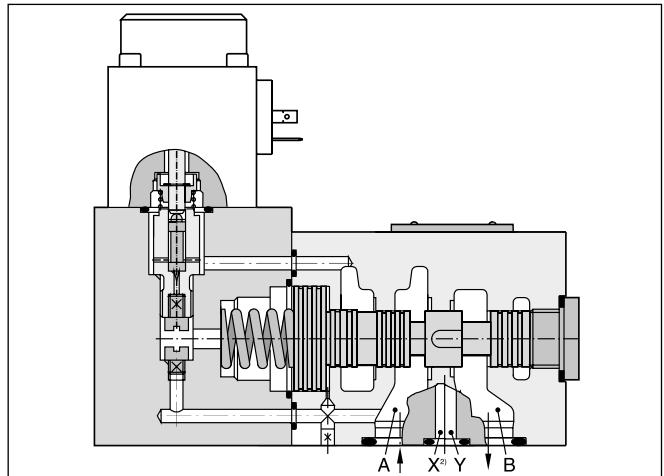


VBY\*K10

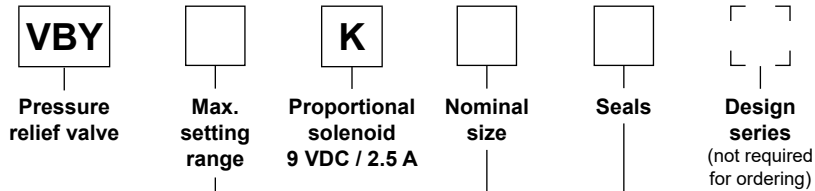
## VBY\*K06



## VBY\*K10



## Ordering code



Code	Max. setting range
<b>064</b>	<b>64 bar</b>
100	100 bar
<b>160</b>	<b>160 bar</b>
210	210 bar
315	315 bar

Code	Seals
<b>N</b>	<b>NBR</b>
V	FPM

Code	Nominal size
<b>06</b>	<b>NG06</b>
<b>10</b>	<b>NG10</b>

**Bold letters = Short-term availability**

- 1) Port B for remote control, otherwise to be blocked.
- 2) Port X for remote control, otherwise to be blocked.

Technical Data / Characteristic Curves

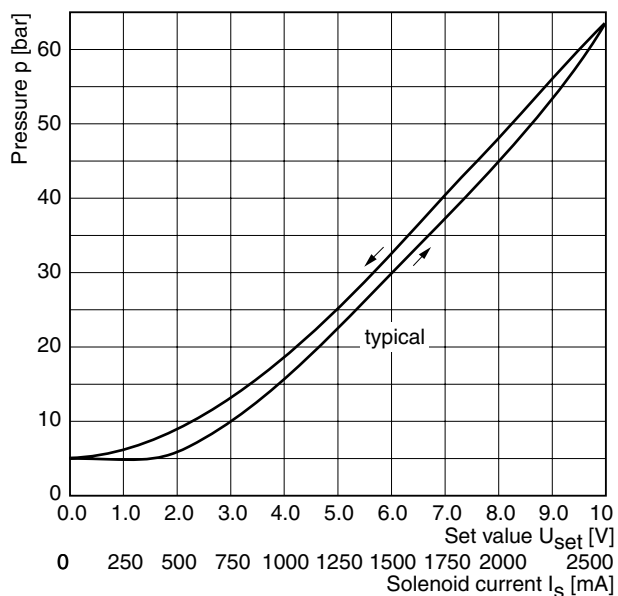
Technical data

General			
Design	Proportional pressure relief valve		
Nominal size	NG06		NG10
Interface	Subplate mounting according to ISO 5781		
Actuation	Proportional solenoid		
Mounting position	unrestricted		
Ambient temperature	[°C]	-20 ... +60	
MTTF <sub>D</sub> value	[years]	75	
Weight	[kg]	2.4	4.5
Hydraulics			
Max. operating pressure	[bar]	P, A: 315, Port B blocked, Port T depressurized	A, B: 315, Port Y blocked, Port Y depressurized
Nominal flow	[l/min]	40	
Adjustment range	[bar]	up to 64, 100, 160, 210, 315	
Fluid	Hydraulic oil according to DIN 51524		
Viscosity	permitted	[cSt] / [mm <sup>2</sup> /s] 20 ... 400	
	recommended	[cSt] / [mm <sup>2</sup> /s] 30 ... 80	
Fluid temperature	[°C]	-20...+70 (NBR: -25...+70)	
Filtration	ISO 4406 (1999); 18/16/13		
Linearity	[%]	±3.5 at > 15 % pnom.	
Repeatability	[%]	<±2	
Hysteresis	[%]	<3	
Response time	[ms]	<150	<200
Electrical			
Duty ratio	[%]	100 ED	
Protection class	IP65 at 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	PCD00A-400		

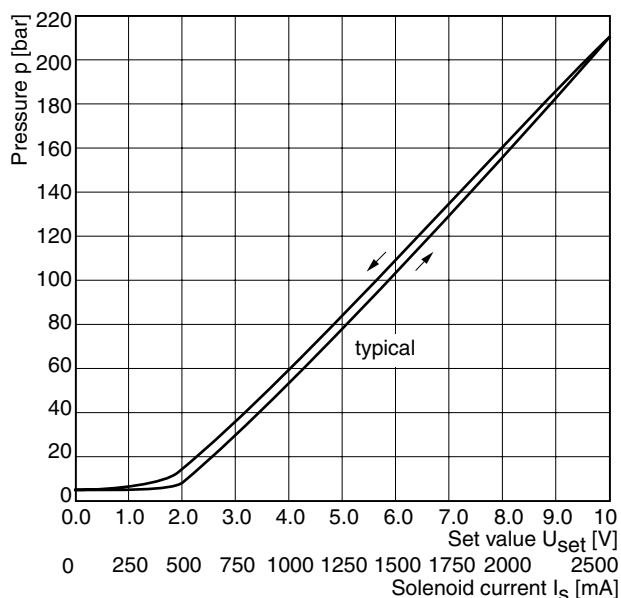
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Characteristic pressure curves for NG06  $p = f(U_{set})$

Setting range max. 64 bar



Setting range max. 210 bar

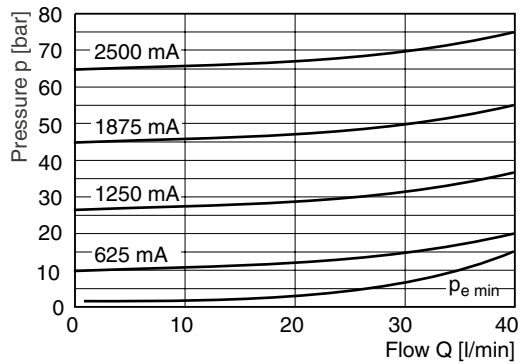


All characteristic curves measured with HLP46 at 50 °C.

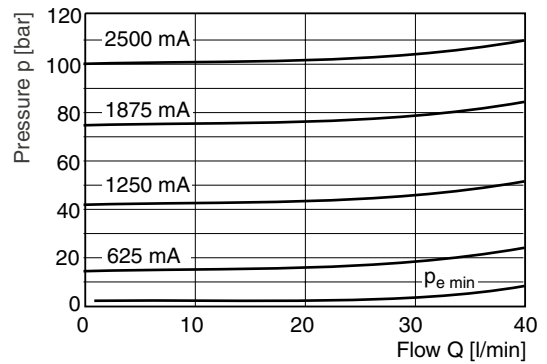
# Characteristic Curves

## NG06 p/Q characteristics

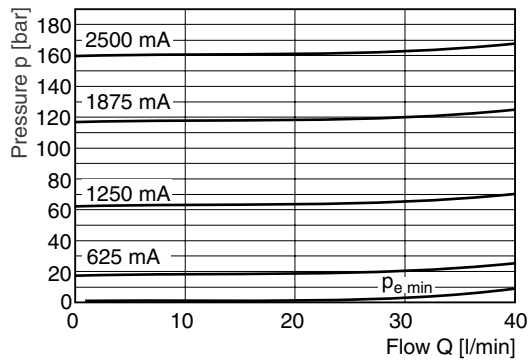
### Setting range max. 64 bar



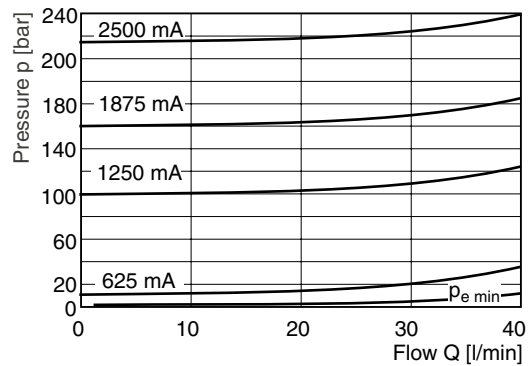
### Setting range max. 100 bar



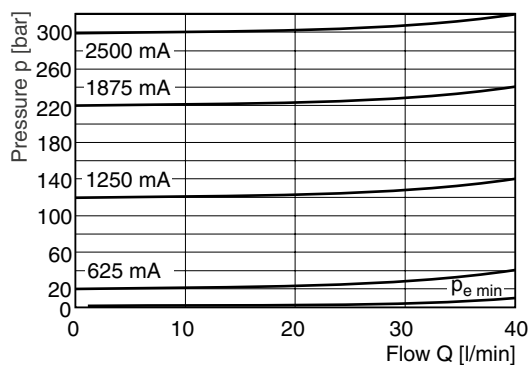
### Setting range max. 160 bar



### Setting range max. 210 bar

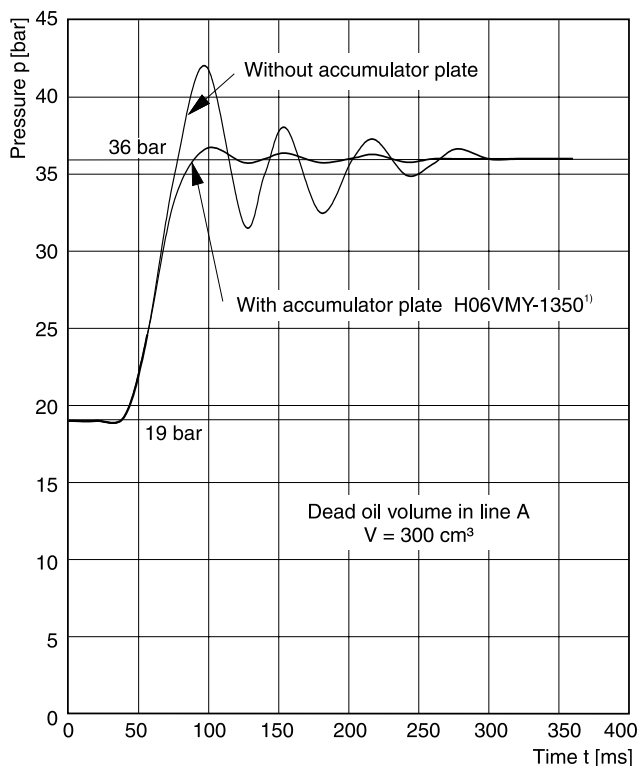
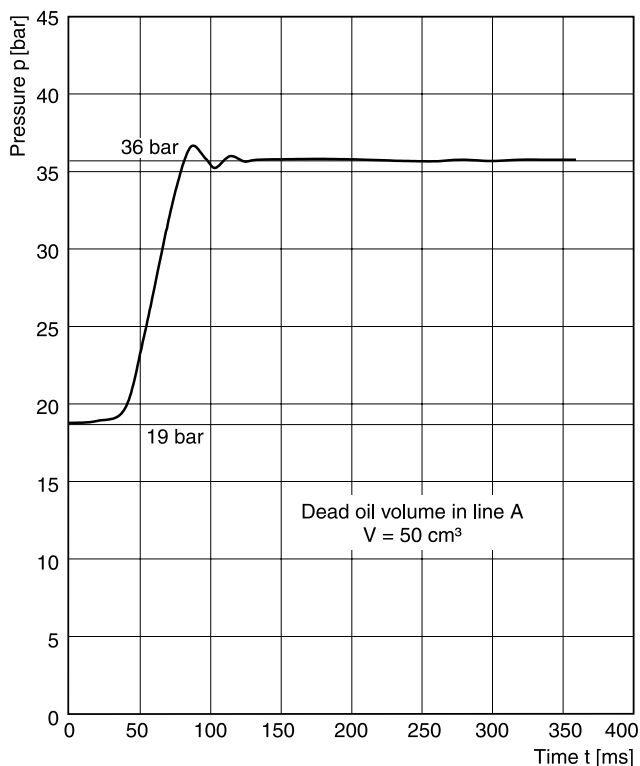


### Setting range max. 315 bar



All characteristic curves measured with HLP46 at 50 °C.

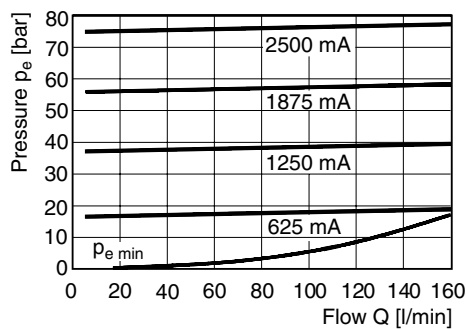
**NG06 step response signal, setting range max. 210 bar**



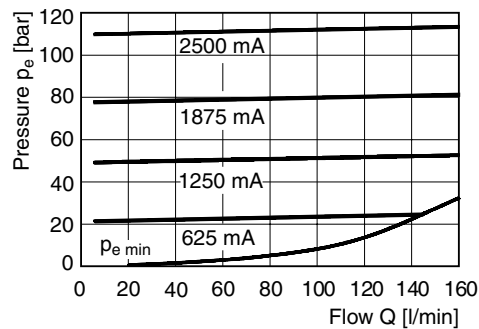
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**NG10 p/Q characteristics**

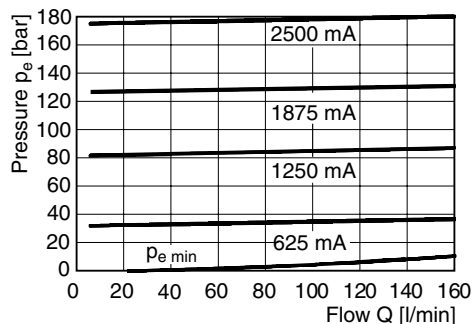
**Setting range max. 64 bar**



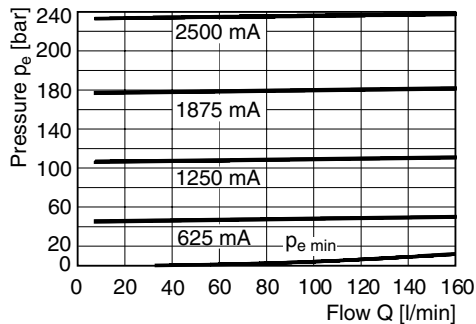
**Setting range max. 100 bar**



**Setting range max. 160 bar**



**Setting range max. 210 bar**

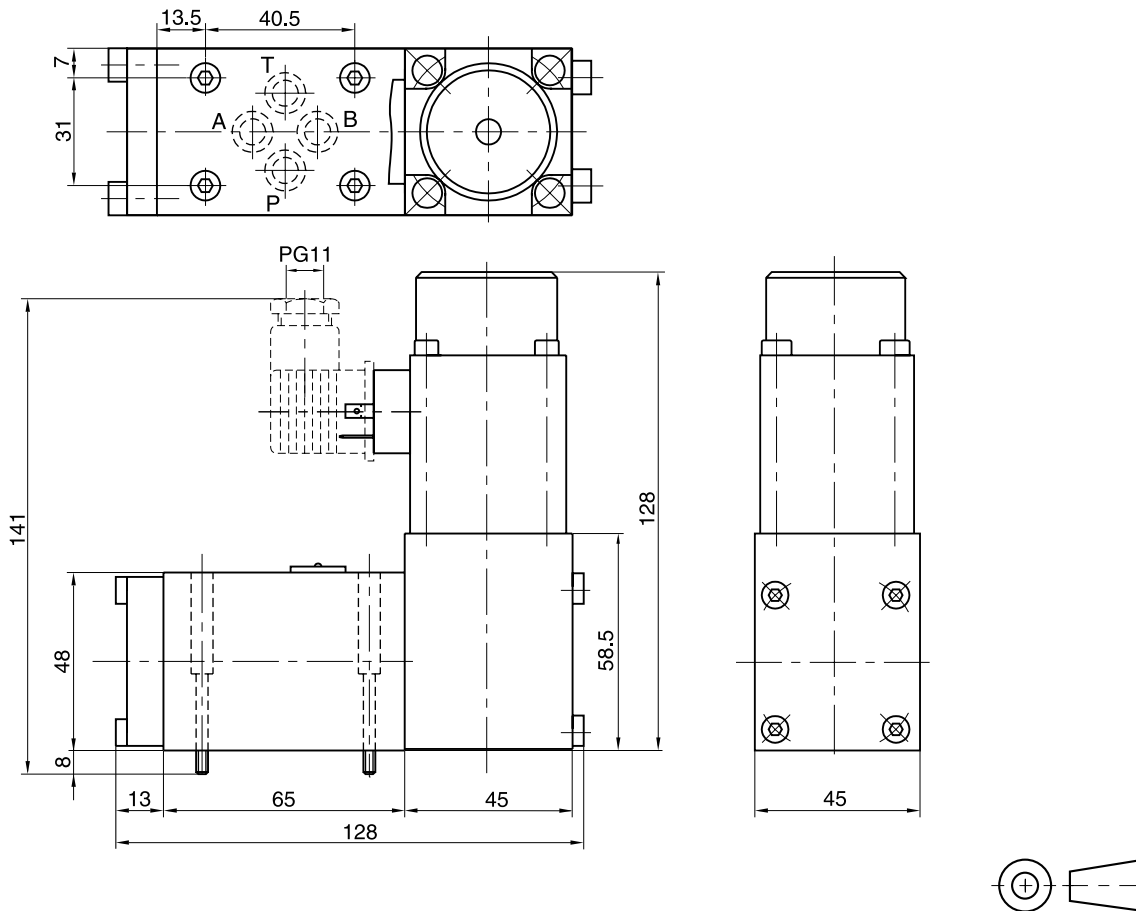


All characteristic curves measured with HLP46 at 50 °C.



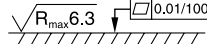
<sup>1)</sup> See series VMY for details.

# Dimensions

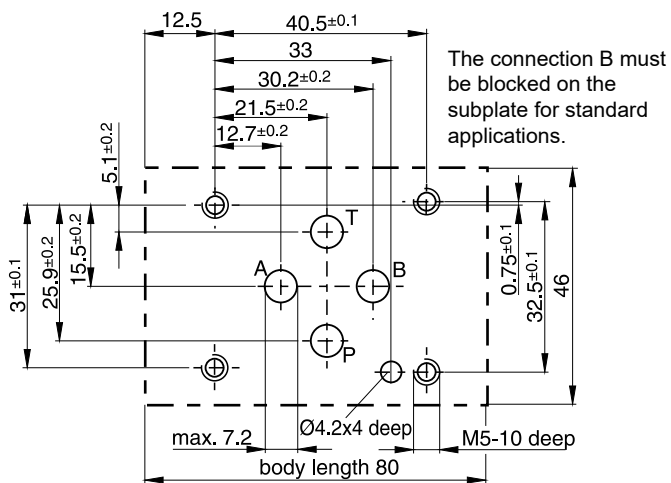
## NG06



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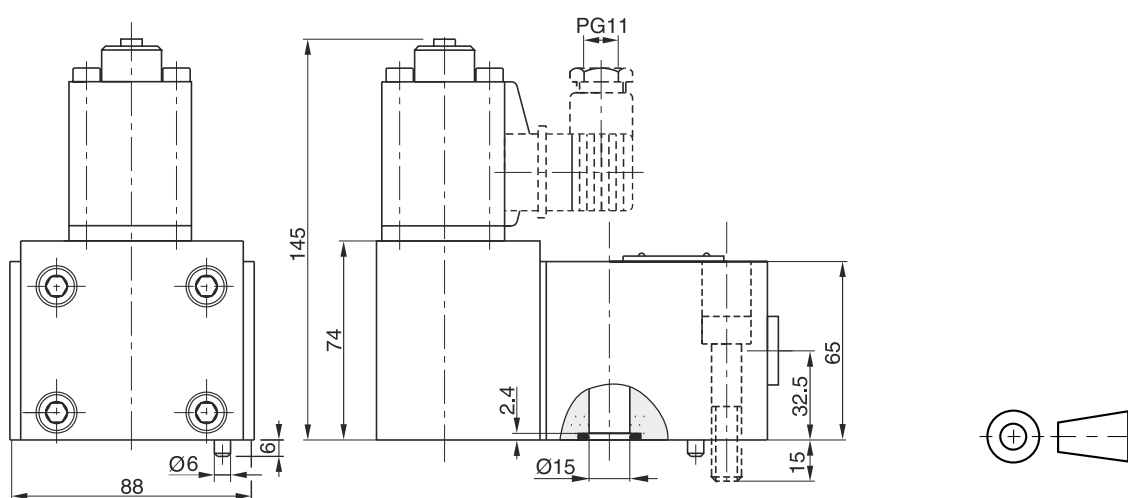
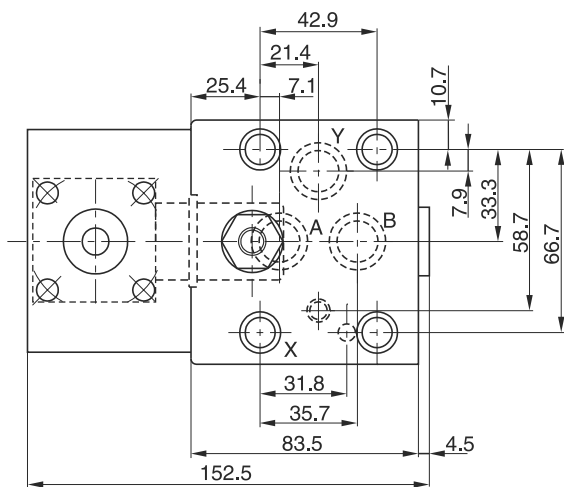
Surface finish	Bolt kit			Kit	
				NBR	FPM
	BK375	4x M5x30 ISO 4762-12.9	7.6 Nm ±15 %	SK-VMY-L06-N	SK-VMY-L06-V

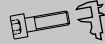


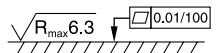
### Mounting pattern ISO 5781-03-04-0-00



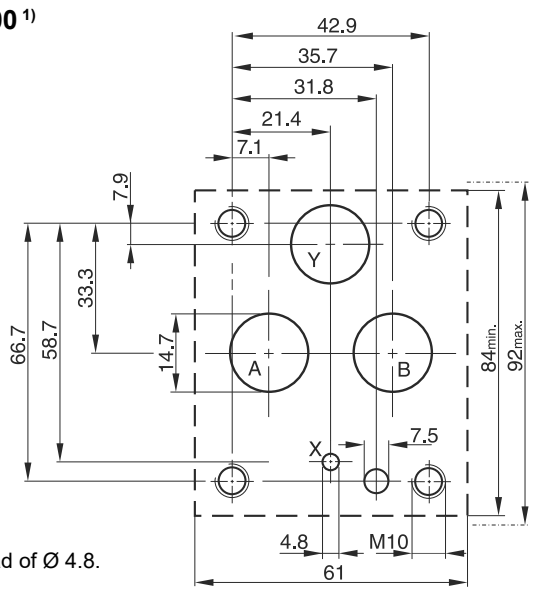
**NG10**

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Surface finish	Bolt kit			
	BK389	4x M10x50 ISO 4762-12.9	63 Nm ±15 %	SK-VB/VM-A10V

**Mounting pattern ISO 5781-06-07-0-00<sup>1)</sup>**



<sup>1)</sup> Deviating from ISO the Y port has Ø 14.7 instead of Ø 4.8.