



Product features

- Direct-acting solenoid operational valve as standard type.
- Installation area by DIN24 340 type A
- DC or AC wet-type solenoid that can be arbitrary rotation and with detachable coil.
- Coil can be replaced without oil.
- Equipped with manual emergency operation push rod.

Model Code

Size		QD -	-	-	-	-	-	-	-	-	X
6	NG6										
10	NG10										
Spool type											
...											
Spool position											
...											
Coil voltage											
24D	24 VDC										
230A	230 VAC										
110A	110 VAC										
Manual overwrite											
M	With manual overwrite										
0	Without										
Connector											
H	DIN43650 plug										
L	DIN43650 plug with light										
F	DEUTSCH										
A	AMP plug										
D	Dobule lines										
B	Terminal box										
Throttle											
08	Orifice Ø0.8mm										
10	Orifice Ø1.0mm										
12	Orifice Ø1.2mm										
0	Without										
Seals											
F	FPM										
N	NBR										
Series											
X	Version number										

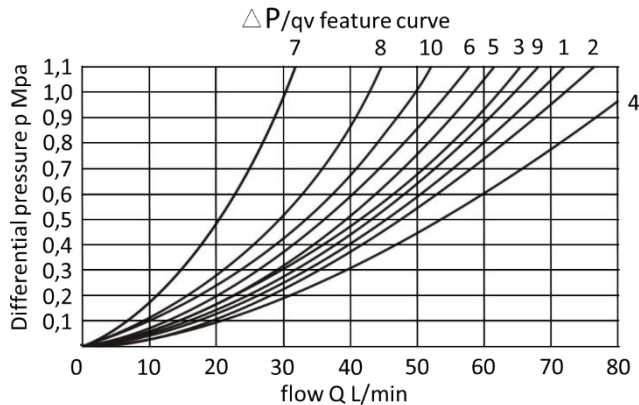
Technical data [NG6]

General Data [NG6]			
Mounting position			Optional
Operating temperature	°C		-30~+50 (nitrile rubber seal)
			-20~+50 (rubber seal)
Weight	Single solenoid valve	kg	1,45 (DC) : 1,45 (AC)
	Double solenoid valve	kg	1,95 (DC) : 1,95 (AC)

Hydraulic Data [NG6]			
Maximum operating voltage fluid port P, A, B	MPa		31,5
Hydraulic fluid port T	MPa		21 (DC) : 16 (AC) When working pressure exceeds the allowable pressure, valves with the sign bit A,B must use T as oil drain port
Maximum flow rate	l/min		80 (DC) ; 60 (AC)
Flux areas	Type Q	mm ²	About 6% of the nominal cross-sectional area
(when in the median)	Type W	mm ²	About 6% of the nominal cross-sectional area
Hydraulic oil 1. suitable for nitrile rubber and fluor rubber seal 2. Fluor seal only			Mineral oil (HL, HLP) by DIN51 524 Rapid biological solution by VDMA24 568 HETG 1) ; HEPG 2) ; HEES3)
Oil temperature range	°C		-30~+80 (nitrile rubber seal) -20~+80 (rubber seal)
Viscosity range	mm ² / s		2,8 - 500
Oil cleanliness			The highest oil pollution level by NAS1639 Class 9 recommend minimum filter filtration precision $\beta_{10} \geq 75$

Electric data [NG6]			
Voltage category		DC	AC (50Hz)
Supply voltage	V	12, 24, 48, 110, 220	110, 220
Allowable voltage tolerance	%	+10~-15	+10~-15
Power consumption	W	30	-
Holding current	A	-	0.27 (220V)
Starting current	A	2.6/1.3/0.65/0.33/0.17	0.72 (220V)
Working system	ED%	100	100
Reversing time	ms	125~145	10~20
Resetting time	ms	100~250	15~40
Switching time	Times/h	<15000	<7200
Protection class by DIN 40050		IP65 (AMP: IP66)	(Deutsch:IP69k)
Maximum coil temperature	°C	135°C (Class B)	180°C (Class H)

Feature Curve [NG6]



Curve 7: spool type "R" is in switch position A→B

Curve 8: spool type "G" and "T" are in median position P→T

Curve 9: spool type "H" is in median position P→T

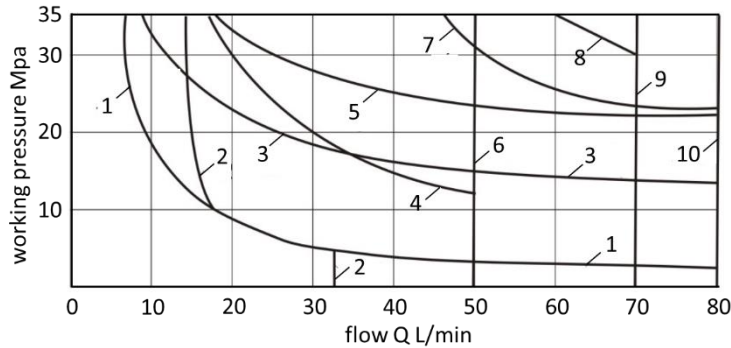
spool symbol	flow direction			
	P→A	P→B	A→T	B→T
A,B	3	3	-	-
C	1	1	3	1
D,Y	5	5	3	3
E	3	3	1	1
F	1	3	1	1
T	10	10	9	9
H	2	4	2	2
J,Q	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	-
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

Switching performance limit

(testing result on basis of using HLP46, t=50°C)

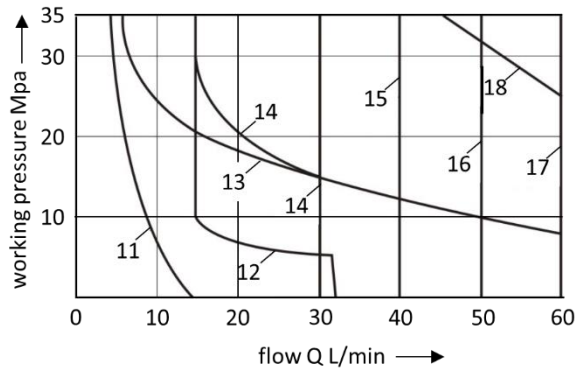
1. The working limit can be used for both flow direction (For example: Flow return from B to T, at the same time, flow from P to A)
2. Power limit tested when solenoid is at working temperature, under voltage 10%, and port T have no back pressure.
3. When unidirectional flow (if it was clogged from port P to A, B port), due to the fluid power in the valve, the allowed switching limit may drop.

DC solenoid		AC solenoid -50Hz		AC solenoid -60Hz	
curve	symbol	curve	symbol	curve	symbol
1	A,B	11	A,B	19	A,B
2	V	12	V	20	V
3	A,B	13	A,B	21	A,B
4	F,P	14	F,P	22	F,P
5	J	15	G,T	23	G,T
6	G,H,T	16	H	24	G,L,U
7	A/O,A/OF,L,U	17	A/O,A/OF/C/O	25	A/O,A/OF,Q,W
8	C,D,Y		C/OFD/O/D/OF	26	C,D,Y
9	M		E,J,L,M	27	H
10	E,R,C/O,C/OF	18	Q,R2,U,W	28	C/O,C/OF,D/C
	D/O,D/OF,Q,W		C,D,Y		D/OF,E,M,R2

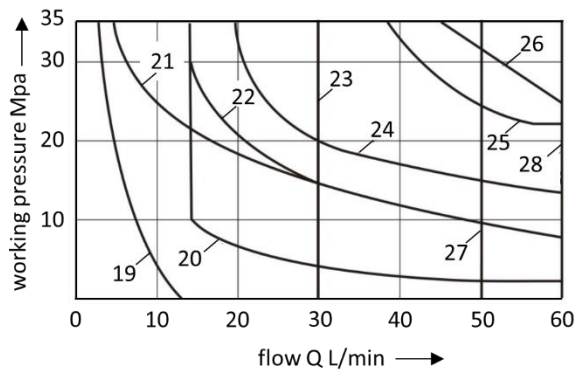


Notice: 1) with emergency operation
2) flow from actuator components back to tank

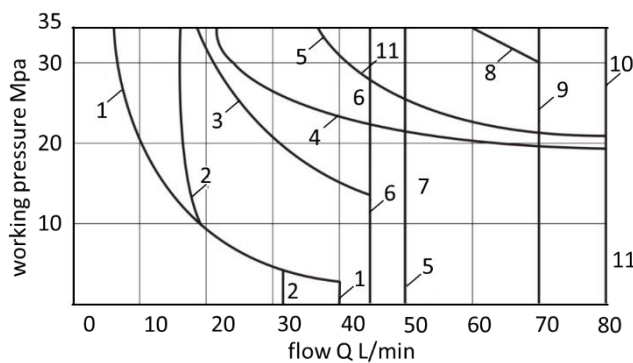
DC solenoid	
feature curve	solenoid voltage
1-10	12,24,48,96,110



AC solenoid		
feature curve	power source voltage	
11-18	110VAC	110V, 50Hz
	220VAC	220V, 50Hz



AC solenoid		
feature curve	power source voltage	
19-28	110VAC	110V, 50Hz
	220VAC	220V, 50Hz

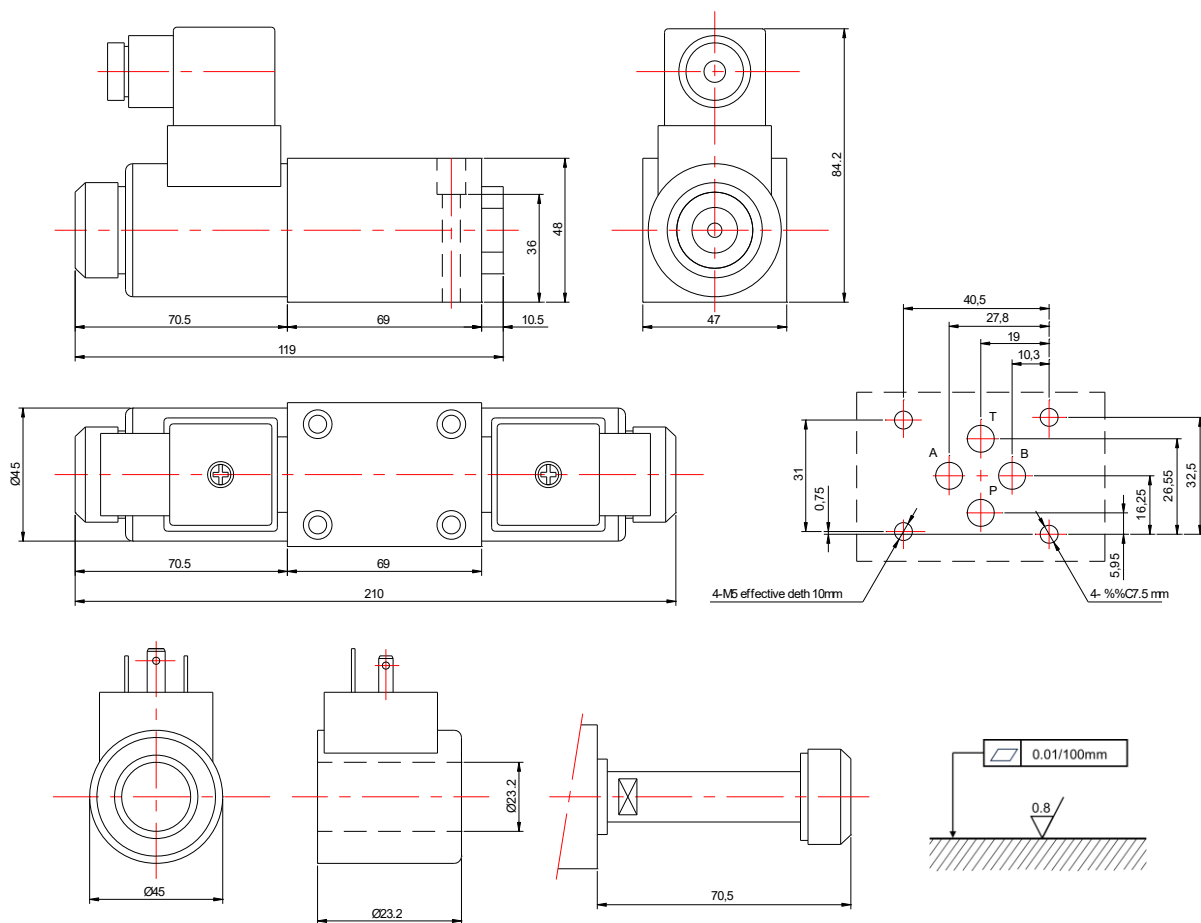


DC solenoid	
feature curve	power source voltage
1-10	110V

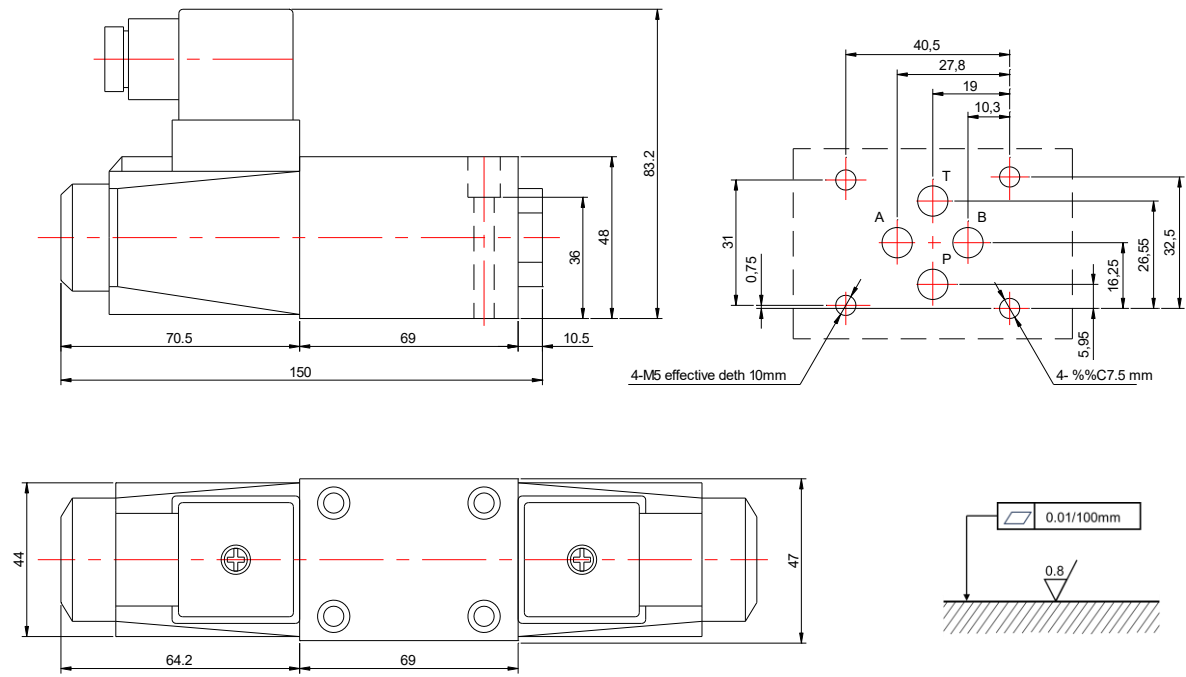
curve	symbol
1	A,B
2	V
3	F,P
4	J,L,U
5	G
6	T
7	H
8	C,D
9	M
10	E,R,C/O,C/OF,D/O,D/OF,Q,W,E1
11	A/O,A/OF
12	E

Installation Dimension [NG6]

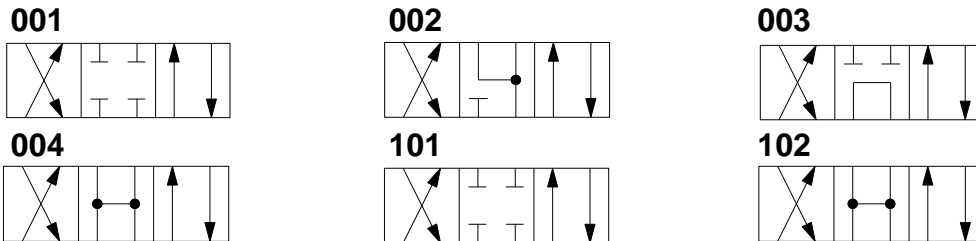
Size NG6-DC-H



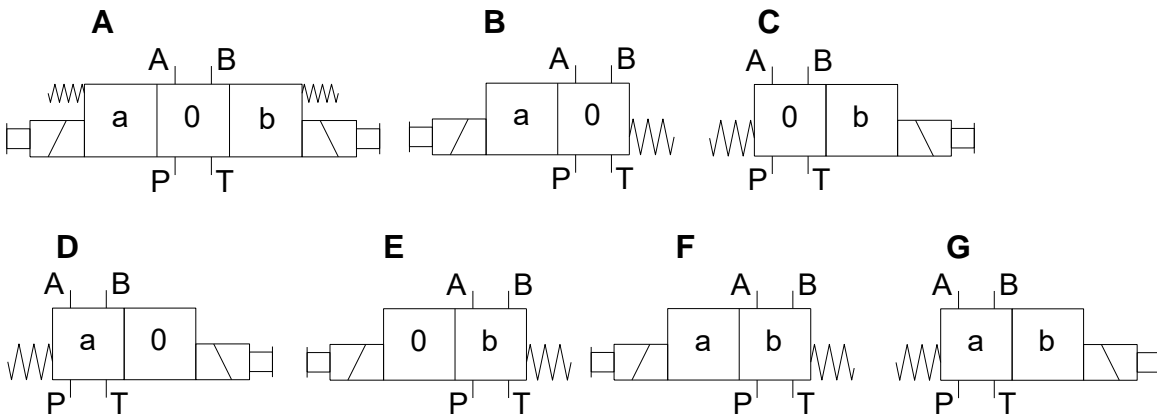
Size NG6-AC-H



Spool Type



Spool position



Ordering codes (most frequently used)

Article code	Description	Remark
QD100001	QD-6-002-A-12D-M-H-0-F-X	12VDC
QD100002	QD-6-001-A-12D-M-H-0-F-X	12VDC
QD100005	QD-6-002-B-12D-M-H-0-F-X	12VDC
QD100006	QD-6-101-G-24D-M-H-0-F-X	24VDC
QD100007	QD-6-101-F-24D-M-H-0-F-X	24VDC
QD100009	QD-6-001-D-24D-M-H-0-F-X	24VDC
QD100010	QD-6-001-B-24D-M-H-0-F-X	24VDC
QD100011	QD-6-001-E-24D-M-H-0-F-X	24VDC
QD100012	QD-6-001-A-24D-M-H-0-F-X	24VDC
QD100016	QD-6-002-D-24D-M-H-0-F-X	24VDC
QD100017	QD-6-002-E-24D-M-H-0-F-X	24VDC
QD100018	QD-6-002-B-12D-M-H-0-F-X	24VDC
QS100001	Sealing set QD size 6	

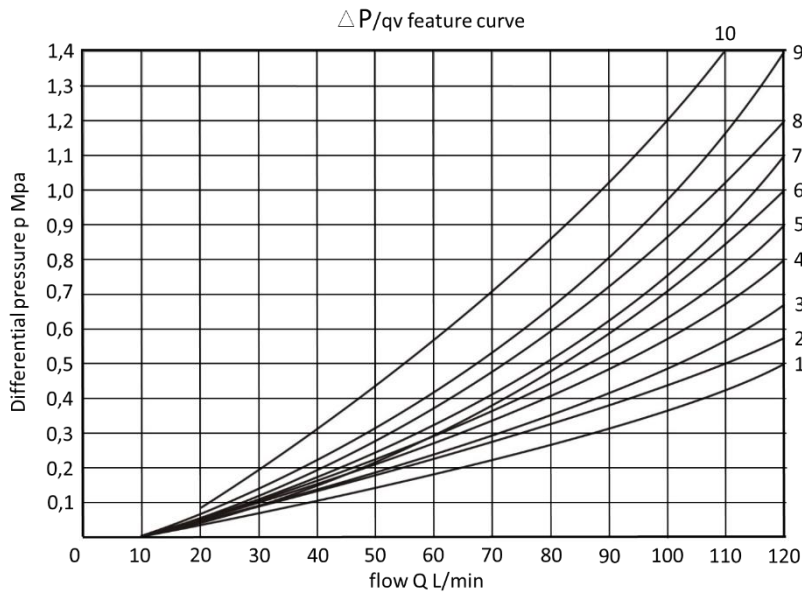
Technical data [NG10]

General Data [NG10]			
Mounting position			Optional
Operating temperature	°C	-30~+50 (nitrile rubber seal)	
		-20~+50 (rubber seal)	
Weight	Single solenoid valve	kg	4,3 (DC) : 3.5 (AC)
	Double solenoid valve	kg	6.0 (DC) : 4.9 (AC)

Hydraulic Data [NG10]			
Maximum operating voltage fluid port P, A, B	MPa		31,5
Hydraulic fluid port T	MPa		21 (DC) : 16 (AC) When working pressure exceeds the allowable pressure, valves with the sign bit A,B must use T as oil drain port
Maximum flow rate	l/min		120 (DC) ; 120 (AC)
Flux areas (when in the median)	Type Q	mm ²	11 (A/B→T); 10.3 (P→A/B)
	Type W	mm ²	2.5 (A/B→T)
	Type Q	mm ²	2.5 (A/B→T)
Hydraulic oil 1. suitable for nitrile rubber and fluor rubber seal 2. Fluor seal only			Mineral oil (HL, HLP) by DIN51 524 Rapid biological solution by VDMA24 568 HETG 1) ; HEPG 2) ; HEES3)
Oil temperature range	°C		-30~+80 (nitrile rubber seal) -20~+80 (rubber seal)
Viscosity range	mm ² /s		2,8 - 500
Oil cleanliness			The highest oil pollution level by NAS1639 Class 9 recommend minimum filter filtration precision $\beta_{10} \geq 75$

Electric data [NG10]			
Voltage category		DC	AC (50Hz)
Supply voltage	V	12, 24, 48, 110, 220	110, 220
Allowable voltage tolerance	%	+10~-15	+10~-15
Power consumption	W	36	-
Holding current	A	-	0.42 (220V)
Starting current	A	-	0.40 (220V)
Working system	ED%	100	100
Reversing time	ms	145~160	15~25
Resetting time	ms	120~130	20~30
Switching time	Times/h	<15000	<7200
Protection class by DIN 40050		IP65 (AMP: IP66)	(Deutsch:IP69k)
Maximum coil temperature	°C	135°C (Class B)	180°C (Class H)

Feature Curve [NG10]



on-position	P-A	P-B	B-T	A-T	P-T
F	4	-	-	9	9
P	-	5	8	-	10
G,T			-	-	9
H			-	-	3

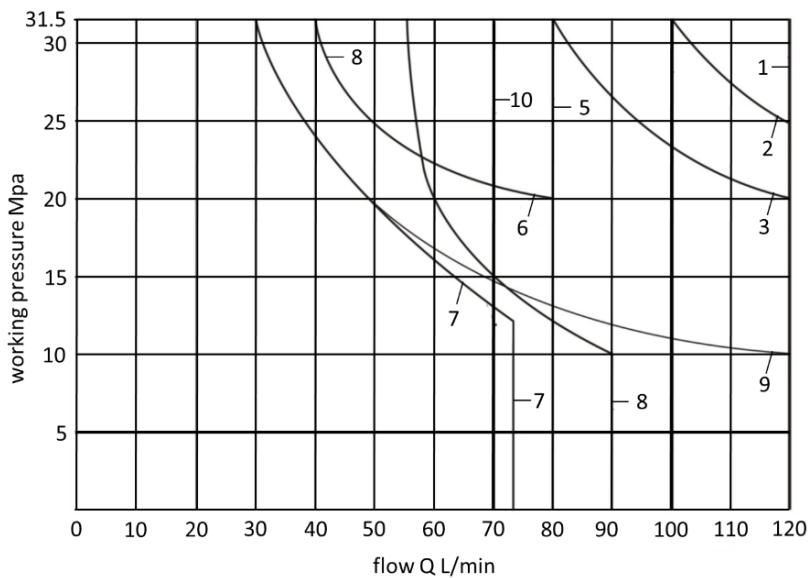
spool symbol	flow direction			
	P→A	P→B	A→T	B→T
A,B	3	3	-	-
C	3	3	4	4
D,Y	5	5	6	6
E	1	1	4	4
F	2	3	7	4
G	3	3	6	7
H	1	1	6	7
J	1	1	3	3
L	2	2	3	5
M	1	1	4	5
P	4	2	5	7
Q	1	2	1	3
R	3	6	4	-
T	3	3	6	7
U,V	2	2	3	3
W	2	3	4	5
on-position	P→A	P→B	A→T	B→T
R	-	9	-	-

Switching performance limit

(testing result on basis of using HLP46, t=50°C)

1. The working limit can be used for both flow direction (For example: Flow return from B to T, at the same time, flow from P to A)
2. Power limit tested when solenoid is at working temperature, under voltage 10%, and port T have no back pressure.
3. When unidirectional flow (if it was clogged from port P to A, B port), due to the fluid power in the valve, the allowed switching limit may drop.

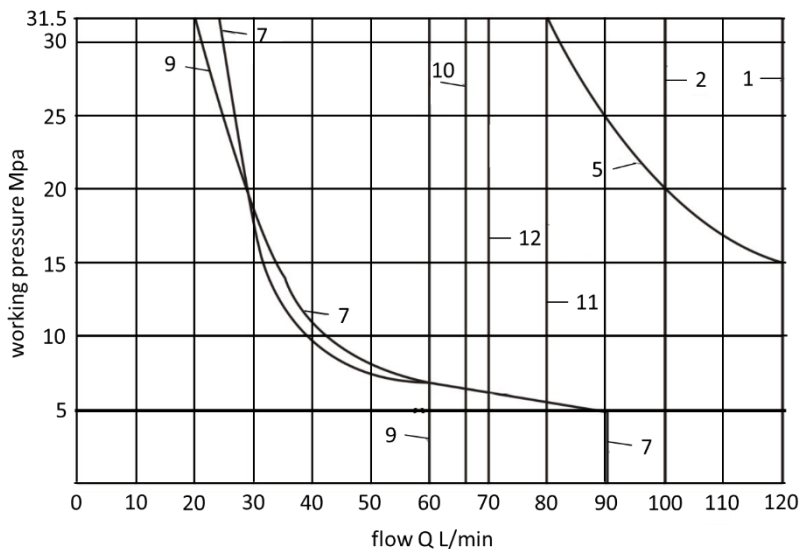
Valve with DC solenoid



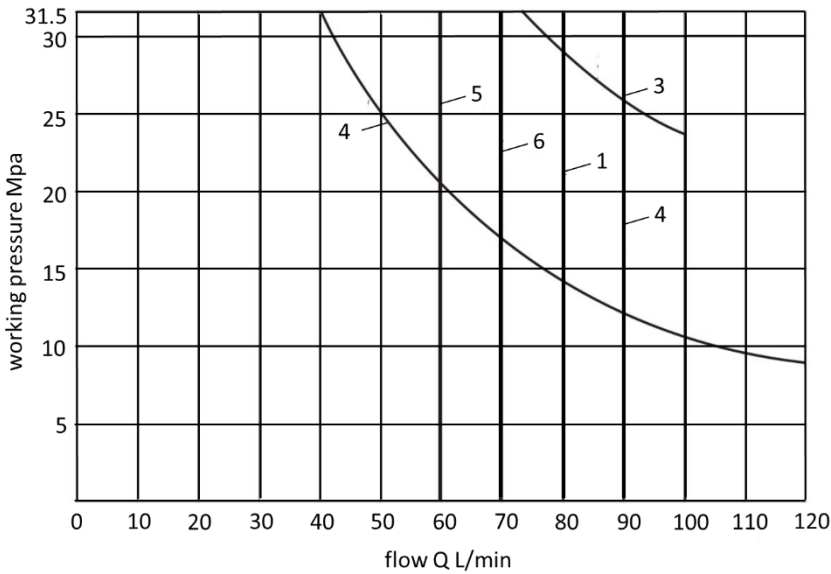
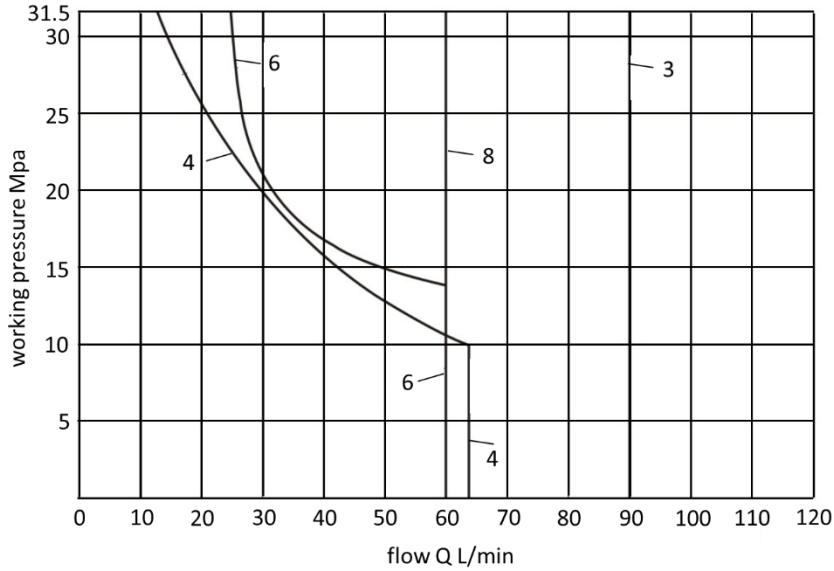
curve	symbol
1	C,C/O,C/OF,D,D/O,D/OF,Y,M
2	E
3	A/O, A/OF,L,U,J,Q,W
4	H
5	R,L2,U2
6	G
7	T
8	F,P
9	A,B
10	V

Notice:

1. The flow of oil return have no relation with area ratio.
2. Be only applied to the condition that spool is in the median position.



curve	spool symbol
1	C,C/O,C/OF,D,D/O,D/OF,Y
2	E,L,U,Q,W
3	M
4	A,B
5	A/O,A/OF,J
6	G
7	F,P
8	V
9	T
10	H
11	R
12	L,U

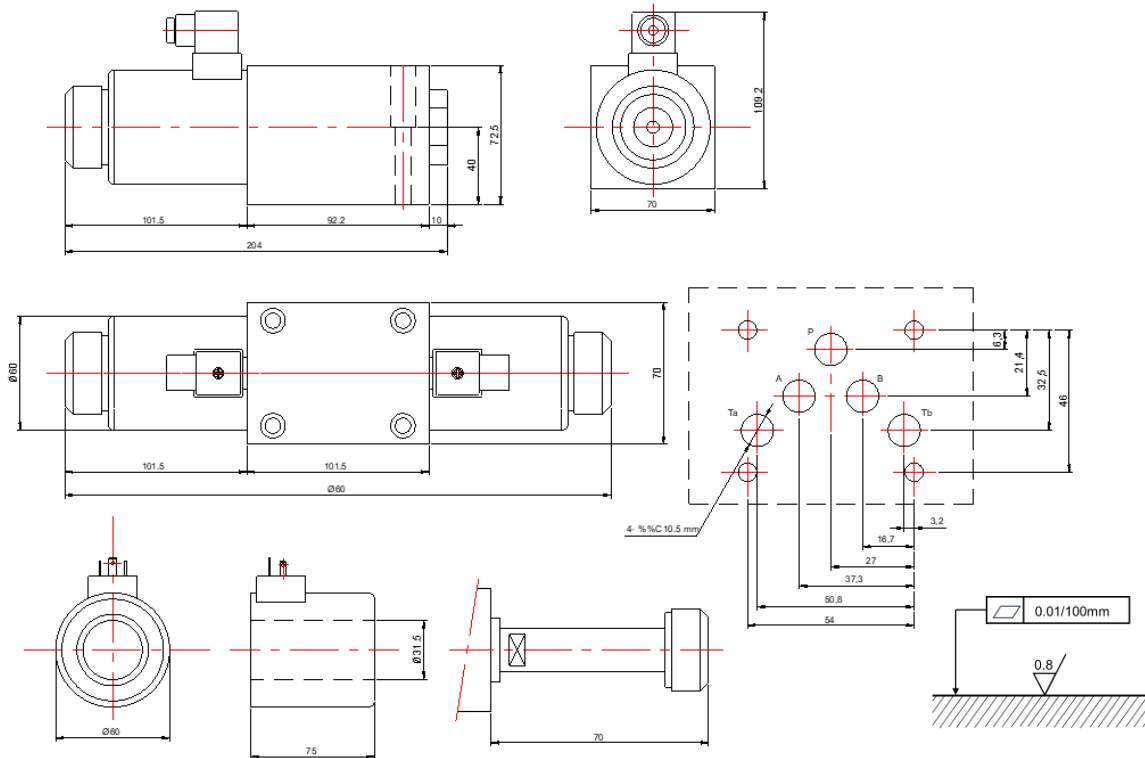


curve	spool symbol
1	C,C/O,C/OF,D,D/O,D/OF,Y
2	A/O, A/OF
3	E
4	M
5	V
6	H

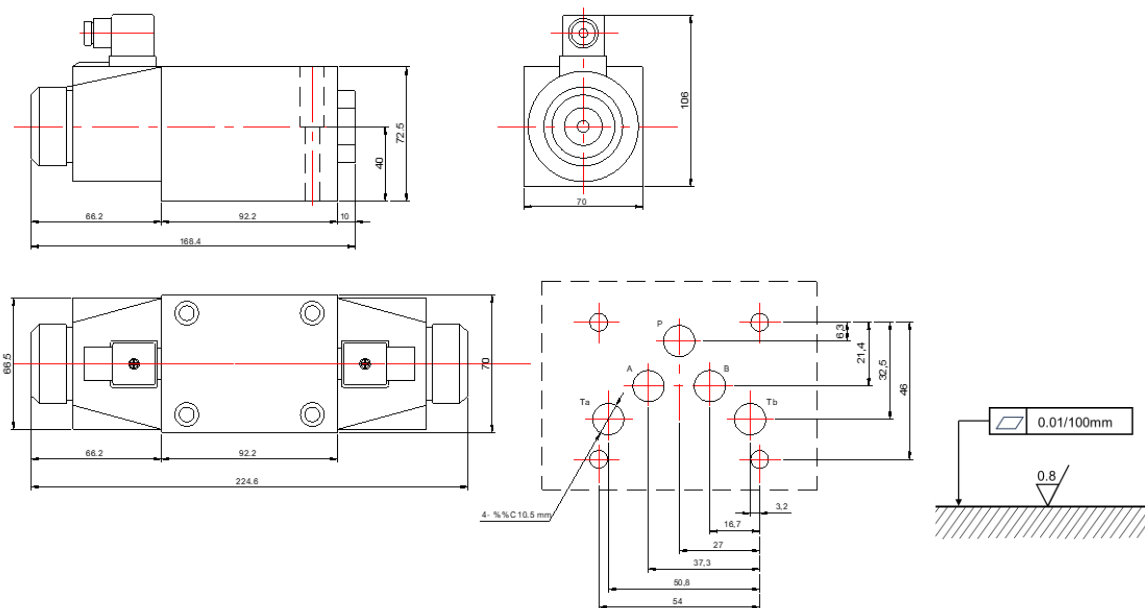
110V, 60Hz
220V, 60Hz

Installation Dimension [NG10]

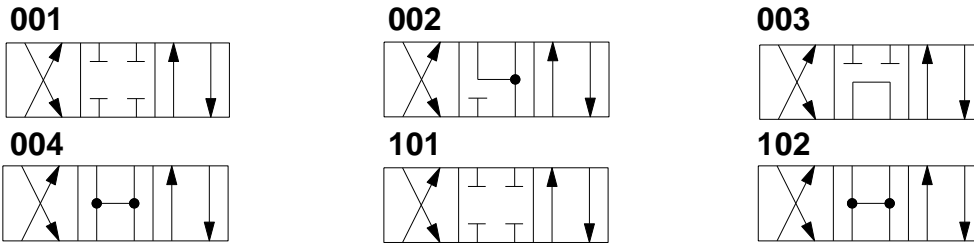
Size NG10-DC-H



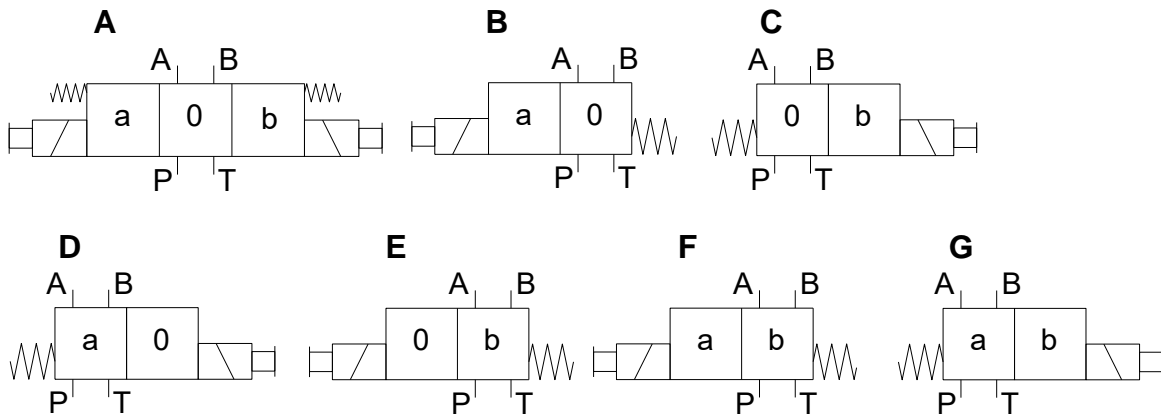
Size NG10-AC-H



Spool Type



Spool position



Ordering codes (most frequently used)

Article code	Description	Voltage
QD100003	QD-10-002-A-12D-M-H-0-F-X	12VDC
QD100004	QD-10-001-A-12D-M-H-0-F-X	12VDC
QD100008	QD-10-001-B-24D-M-H-0-F-X	24VDC
QD100013	QD-10-001-A-24D-M-H-0-F-X	24VDC
QD100014	QD-10-001-D-24D-M-H-0-F-X	24VDC
QD100015	QD-10-001-E-24D-M-H-0-F-X	24VDC
QS100002	Sealing set QD size 10	