

GENERAL DESCRIPTION

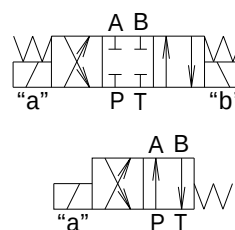
List: RH10-1F-1-July 2016

- ✓ 4/3- and 4/2- way directional control valves with solenoid operation , heavy duty construction
- ✓ Removable AC and DC voltage coils-quick replacement and rotation in any direction without leakage from the system
- ✓ Wet pin core tubes connected to a tank with high pressure capacity
- ✓ Manual override option
- ✓ Maximum control of hydraulic power
- ✓ Reliability and long life
- ✓ Mounting surface CETOP5 (NG10)

RH10...1-...F...



Symbol



The RH10...1-...F... valves are solenoid operated directional spool valves. They are control the start , stop and direction of flow.

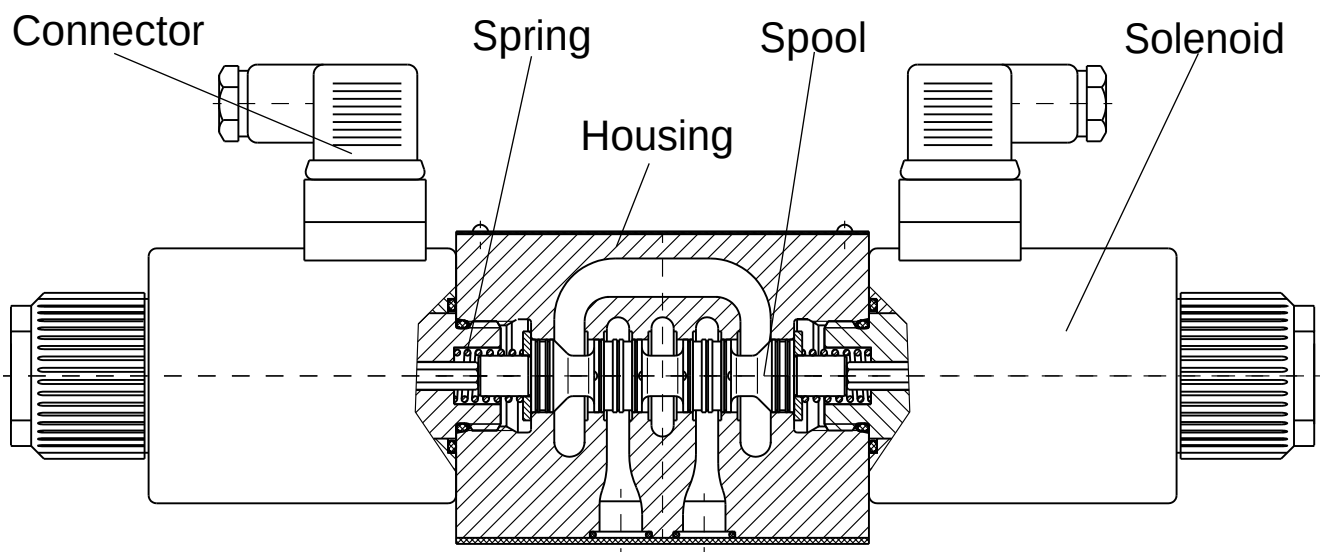
The RH10...1-...F... valves consist of a spool , housing , springs and solenoids.

This model is designed with two-spring centered spool for 4/3- and 4/2- valves. The housing has 5-chambers.

The operating solenoids are DC type. For AC supply the solenoids are provided with rectifier , which is integrated into the installation ground of the connectors. The standard supply voltages are 12V DC , 24V DC , 48V DC , 110V AC(RAC) and 220V AC(RAC). Electrical connectors conform to DIN 43 650 standard.

In case of problem with the electric supply , an option for manual spool operation is provided.

GENERAL DESCRIPTION



ORDERING CODE

RH 10 ... 1 - .../... F

Directional control valve

Nominal size

Functional symbol

see the page below

Type of control: -electrical

Supply voltage/current frequency

see page 7/7

Modification

012/00
024/00
048/00
110/50
220/50

C1
C2
C3
C4
C5

N - normal
T - tropical

Switching time speed control of spool

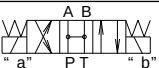
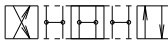
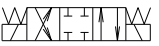
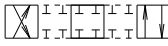
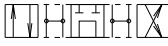
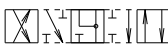
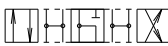
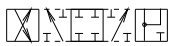
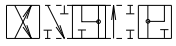
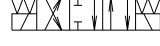
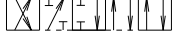
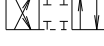
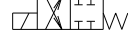
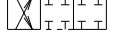
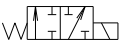
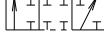
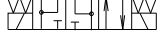
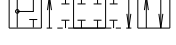
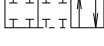
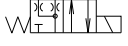
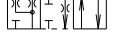
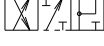
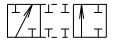
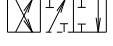
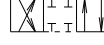
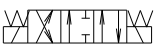
Omit -without throttle
R1- with fixed throttle
R2- with adj. throttle
see page 5/7

Screw cap
Omit-with plastic cap
M -with metal cap
see page 5/7

Connectors

see page 7/7

FUNCTIONAL SYMBOLS

DESIG- NATION	SYMBOL	INTERMEDIATE	DESIG- NATION	SYMBOL	INTERMEDIATE
00			28		
01			32		
02			33		
04			35		
05			36		
06			39		
08			40		
10			41		
<u>11</u>			42		
12			45		
13			61		
14			62		
16			64		
17			68		
18			70		
<u>19*</u>			83		
20*					
21					
24					
26					
27					

* Symbols 19 , 20 and 82 are with detent. Both switched positions are alternately fixed and there is no need to energize the solenoid continually. Other symbols on request.

TECHNICAL DATA
GENERAL

DATA	UNIT	VALUE/RANGE
Installation position		optional except symb."08" , "19" and "20"-horizontal
Max. ambient temperature	°C	-20... + 50
Weight	kg	5
single solenoid valve	kg	6,6
double solenoid valve		

HYDRAULIC

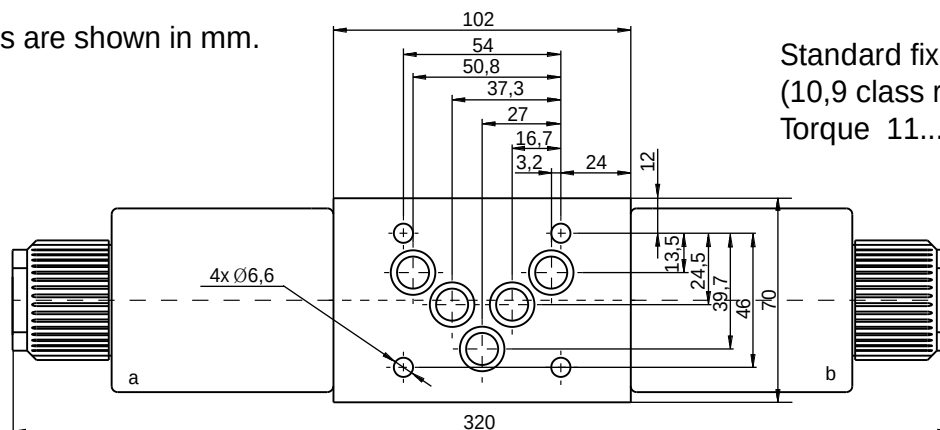
Max. pressure	port P , A & B port T	MPa MPa	32 16
Rated flow	(at Dp 0,1MPa.)	l/min	15...45
Max. flow (depend on symbol-see page 6/7)		l/min	140
Hydraulic fluid-mineral oil:			
-viscosity	mm ² /s		10...800
-filtration degree	mm		0.025
-temperature	°C		-20...80

ELECTRICAL

Cyclic duration	%	100	
Waterproof		IP65	
Heat insulation		H	
Type of voltage		DC	AC
Available voltage /frequency	V/Hz	12/00 24/00 48/00	110/50(60) 220/50(60)
Voltage tolerance	%	± 10	
Current consumption	A	2,9 1,6 0,75	0,5 0,25
12VDC 24VDC 48VDC 110V RAC 220V RAC			
Max. switching frequencies	cycle/h	15000	
Switching time at p = 15MPa , Q = 63,5l/min (measured for control valve symbol "01")	on ms off ms	94 32	

DIMENSIONS

All dimensions are shown in mm.

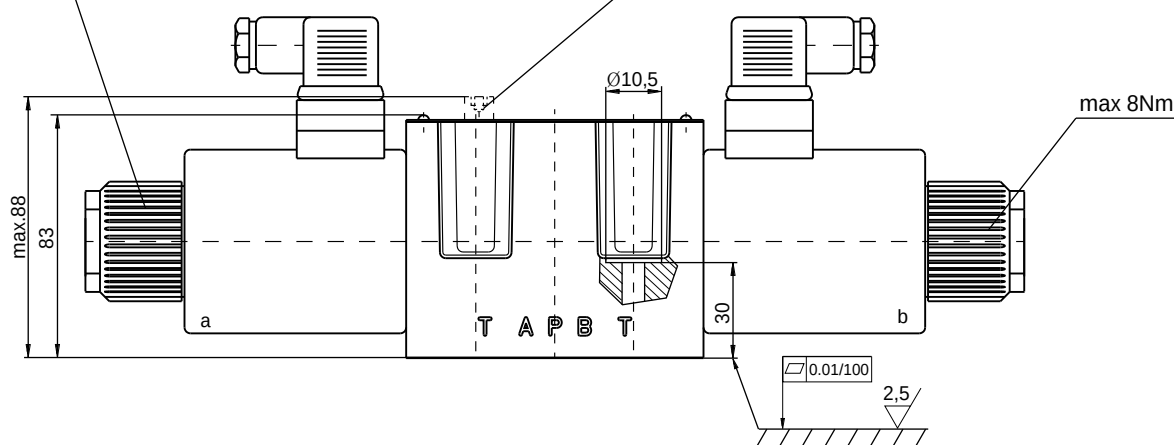


Standard fixing bolts M6x40
(10,9 class recommended).
Torque 11...14 Nm.

Gray or white plug connectors for solenoid "a",
black connectors for solenoid "b" and
transparent for solenoids with light indicator.

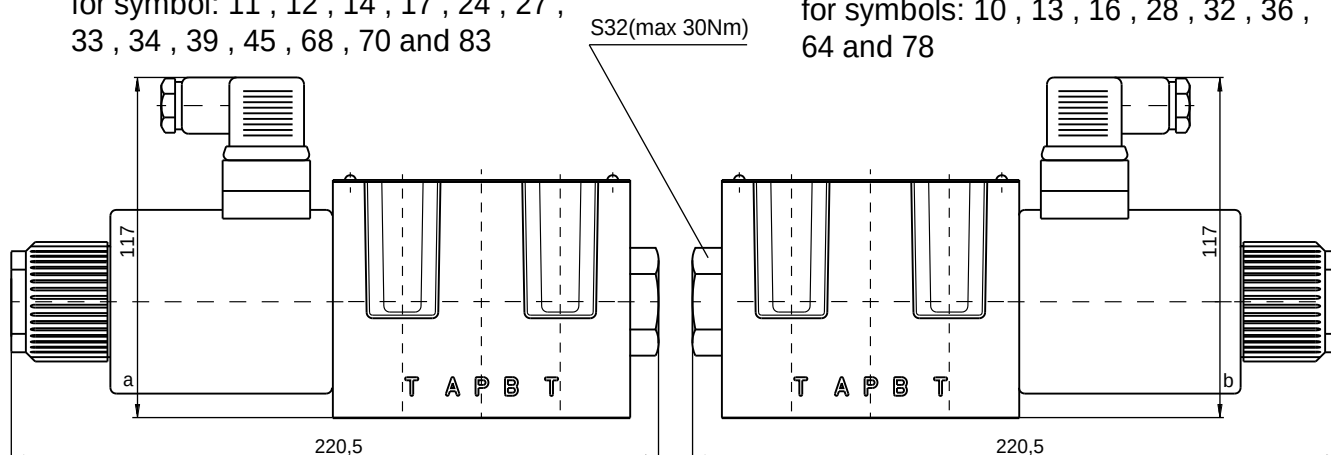
For one-lead supply scheme, the
metal screw cap should be used
see "ORDERING CODE" - code M

An option with adjustable throttle
for switching over speed control
With fixed throttle Ø0,6mm.-
code R1, with adjustable
throttle-R2(internal hexagon S=3)
see "ORDERING CODE" - code R....

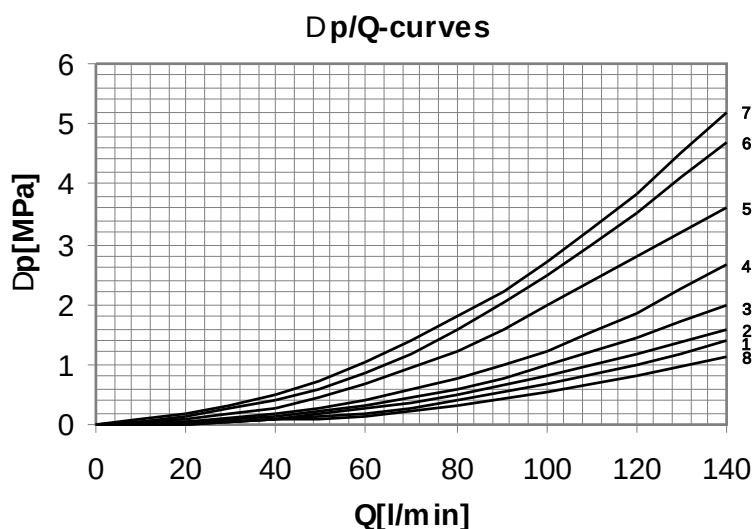


with solenoid "a"
for symbol: 11, 12, 14, 17, 24, 27,
33, 34, 39, 45, 68, 70 and 83

with solenoid "b"
for symbols: 10, 13, 16, 28, 32, 36,
64 and 78



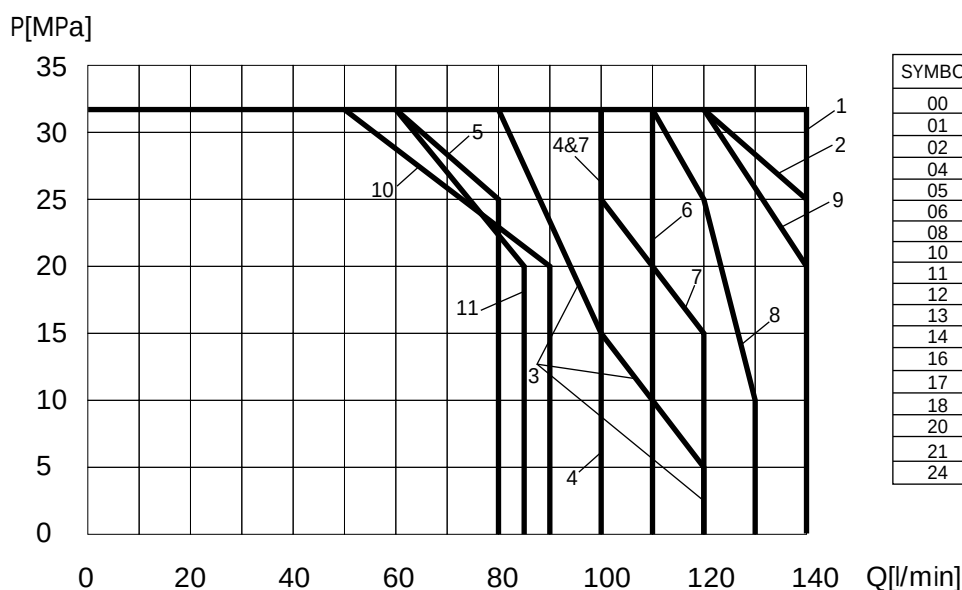
The other dimensions are the same as double solenoid valve.

CHARACTERISTICS
Dp / Q


SYMBOL	CURVE				
	P>A	P>B	A>T	B>T	P>T
00	3	3	8	8	4
01	3	3	1	1	
02	6	6	5	5	4
04	3	3	2	2	
05	1	1	1	8	
06	2	2	7	5	2
08	2	2	1	1	
10	2	2	1	1	
11	2	2	1	1	
12	2	2	1	1	
13	2	2			
14	6			5	4
16	2			1	
17		1	1		
18	2	2	1	1	
20	3	3	2	2	
21	2	2	1	1	
24	3	3	2	2	
26	3	3	2	1	
27	3			1	
28	3	3	2	2	
32	4	4			
33		3	8		4
36	4	4	2	2	
39	4	4	2	2	
40		4	1		
41		4	8		
42	3	3	2	1	
45		2	1		
61	4			8	
62	4			1	
64	2			1	
68	4	4			
70	3	3	2	1	
83		2	1		

p / Q

The operating limit of hydraulic power shown here is for applications with two directions of flow (e.g. from P to B and simultaneously from A to T). If the valve is with one direction passage only (e.g. from P to B and with blocked port A), the operating limit may considerably be reduced. The performance limits are measured with hydraulic oil 35 ± 5 cSt, temperature 50°C and supply voltage $0,9U_N$.

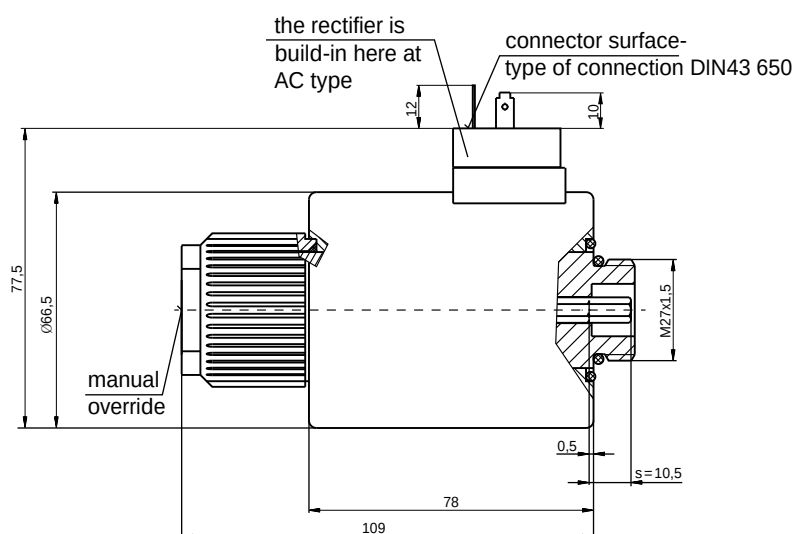


SYMBOL	CURVE	SYMBOL	CURVE
00	1	26	8
01	2	27	1
02	11	28	9
04	9	32	3
05	1	33	1
06	2	36	5
08	2	39	5
10	1	40	6
11	1	41	7
12	1	42	8
13	2	45	2
14	11	61	7
16	2	62	6
17	1	64	2
18	2	68	3
20	2	70	8
21	4	83	2
24	9		

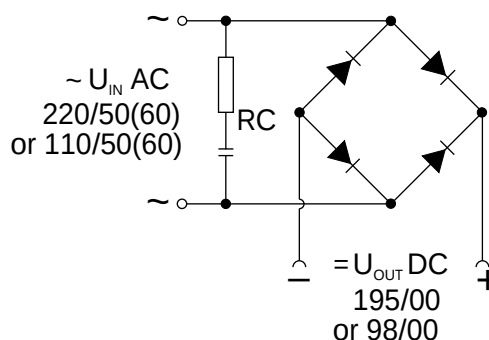
SOLENOIDS

AC & DC

All dimensions are shown in mm.



rectifier scheme



AC and DC solenoids have the same dimensions , connections and characteristics. The difference between AC and DC solenoids is in the integrated rectifier into the AC type - see "rectifier scheme". The solenoids can be used for 50Hz and 60Hz. The supply voltages are as follows: 12V DC , 24V DC , 48V DC , 110V AC/50(60)Hz and 220V AC/50(60)Hz.

CONNECTORS

CODE/TYPE				
C1	C2 (for DC type)	C3 (for DC type)	C4 (for AC type)	C5 (for AC type)
Without connector	With standard connector - DIN 43 650	Connector with light indicator (transparent)	Connector with integrated "RC" filter	Connector with light indicator and "RC" filter (transparent)

SEALS

