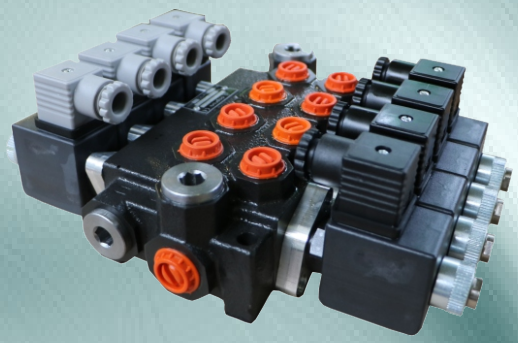

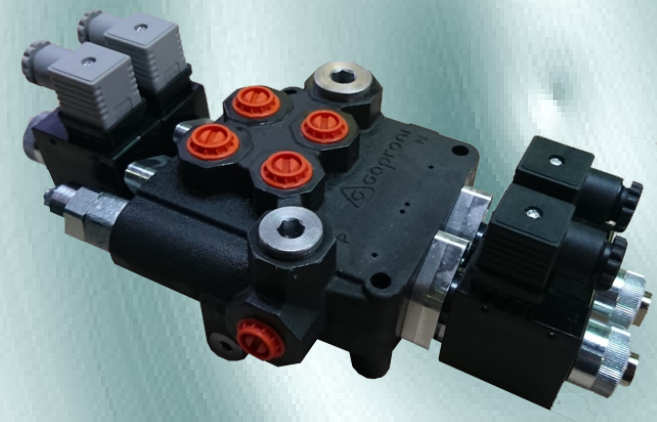

MONOBLOCK DIRECTIONAL CONTROL VALVES

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RME40... (solenoid operated)..... 26/31...28/31

RME80... (solenoid operated)..... 29/31...31/31

MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM20

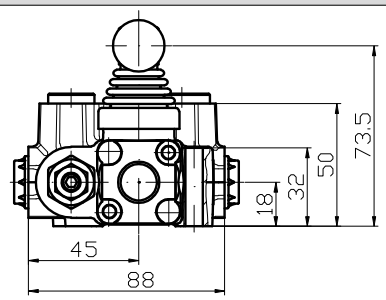
GENERAL DESCRIPTION

Hydraulic valve RM20 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM20 is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated relief and check valve, spool , control and spring-centering group of the spool. The valve RM20 provides direct passing of the flow from the pump line to the tank at neutral position (open center).
Options “closed centre” and “carry over” are possible with additional adapters. There are different control options: spring–centering in “neutral” position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

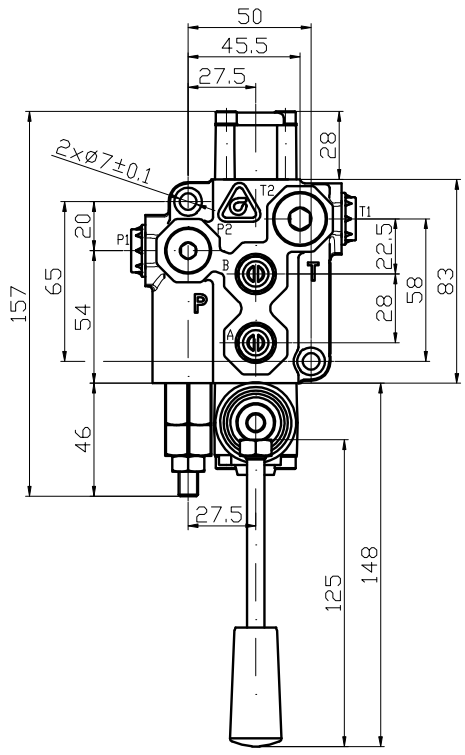
TECHNICAL DATA

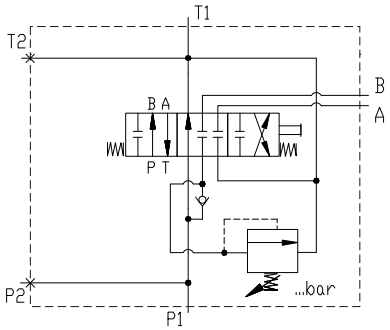
Rated flow	20 l/min
Max. pressure	P=250 bar; T=30 bar; A,B= 250 bar
Spool stroke	±3,5 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar , t=40°C and viscosity 46cSt	max. 8cm³/min; max 2cm³/min (special version)
Actuating force	less than 150N
Weight	1,7kg

DIMENSIONS



RM20/Q/1CLA1/R/P1T1/G/N





ORDERING CODE

RM20 / N / Q / 1 CL A 1 E1 / R / P1T1 / G / N

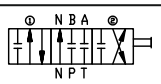
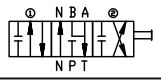
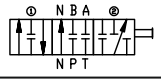
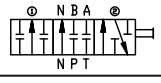
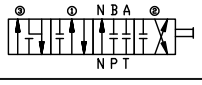
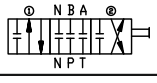
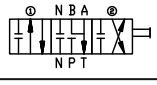
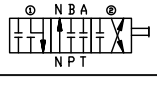
with check valve - omit
without check valve - N

Code	application
N	normal
T	tropical

standard port threads		
Code	P1 , T1 , T2	P2 , A , B
G	G3/8"-A	G1/4"-A

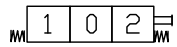
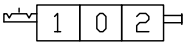
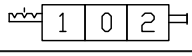
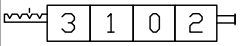
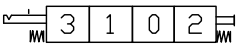
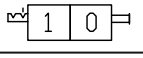
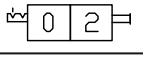
relief valve	Code
setting range 5...250bar. (example of required settings 180bar.)	Q Q180
shut-off plug installed	K

Code	used connection ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

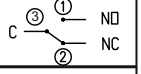
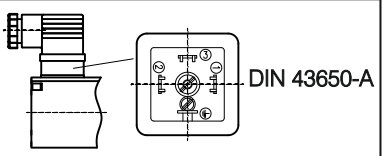
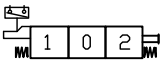
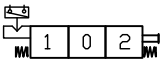
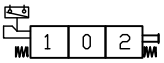
spools	Code
	1
	2
	3
	4
	5*
	6
	7
	8*

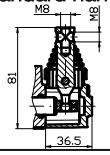
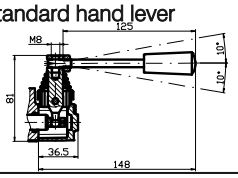
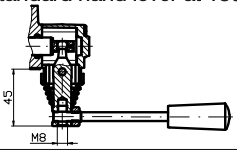
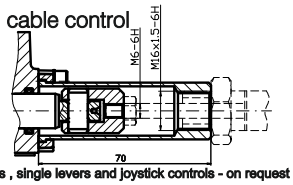
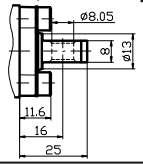
* The scheme (spool code 5 , 8) needs special body with extra machining and modified cap (C , CL , CLO control) for spool control code 5.

Code	hydraulic power output
R	open center (port P connected to T - short plug)
W	closed center (port T1 plugged - long plug)
C	carry over (T1 - with power beyond sleeve)

Code	spool control
1	
2	
3	
4	
5	
6	
7	

Code	lever position
A	at port side A(standard)
B	at port side B

Code	micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration
	
	 DIN 43650-A
omit	without microswitch
E1	
E2	
E3	

operation control	Code	operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever 	CL	with standard hand lever at 180° 	CLO
with cable control  Cables , single levers and joystick controls - on request	H	without lever , with dust-proof plate 	Z		

MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM35

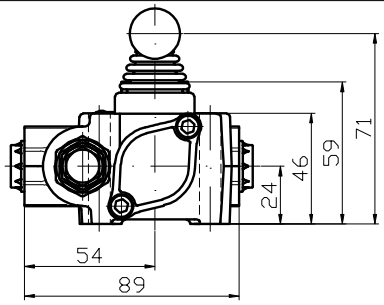
GENERAL DESCRIPTION

Hydraulic valve RM35 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM35 is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated relief and check valve, spool , control and spring-centering group of the spool.
The valve RM35 provides direct passing of the flow from the pump line to the tank at neutral position (open center).
There are different control options: spring–centering in “neutral” position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

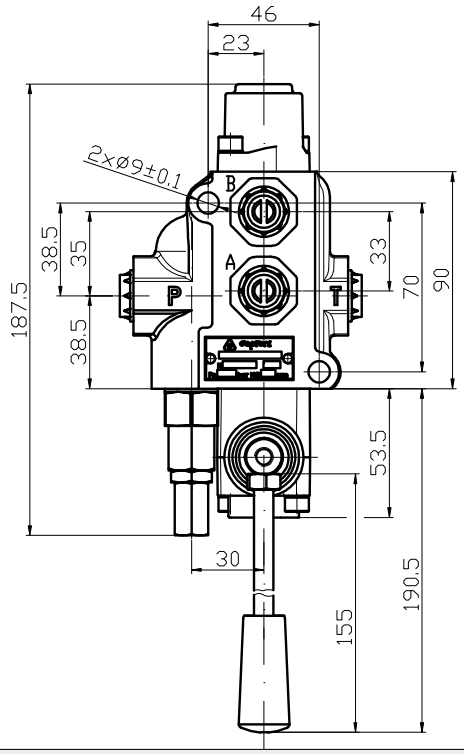
TECHNICAL DATA

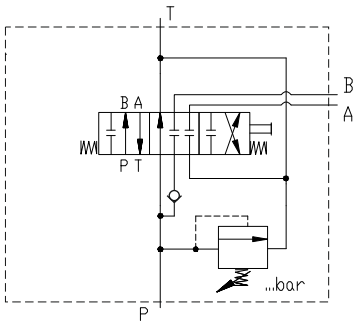
Rated flow	35 l/min
Max. pressure	P=250 bar; T=50 bar; A,B= 300 bar
Spool stroke	±6 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar , t=40°C and viscosity 46cSt	max. 8cm³/min; max 2cm³/min (special version)
Actuating force	less than 200N
Weight	2,2kg

DIMENSIONS



RM35/Q/1CLA1/G/N





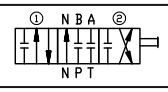
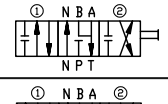
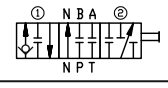
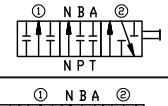
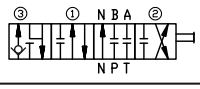
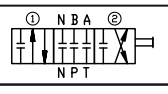
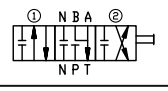
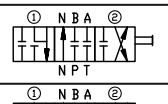
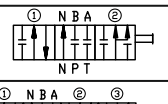
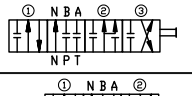
ORDERING CODE

RM35EHI / N / Q / 1 CL A 1 E1 / G / N

type of control	Code
without control	omit
ON-OFF internal electro-hydraulic	EHI
ON-OFF external electro-hydraulic	EHE
ON-OFF electro-pneumatic	EPC
ON-OFF hydraulic	HC
ON-OFF pneumatic	PC

with check valve - omit
without check valve - N

relief valve	Code
setting range 5...250bar. (example of required settings 180bar.)	Q Q180
shut-off plug installed	K

spools	Code
	1
	2
	3
	4*
	5*
	6
	7
	8*
	9*
	10*
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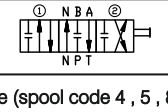
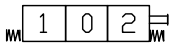
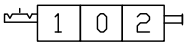
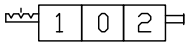
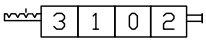
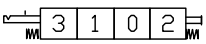
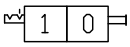
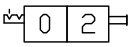
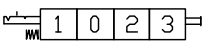
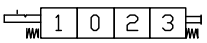
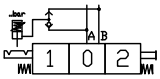
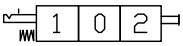
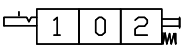
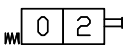
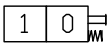
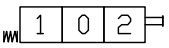
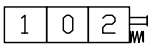
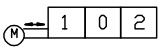
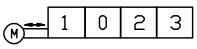
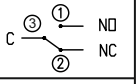
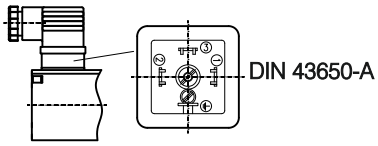
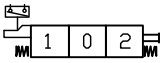
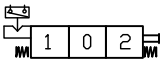
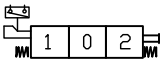
	13

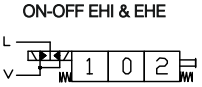
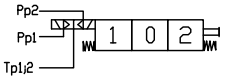
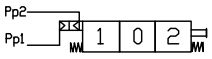
* The scheme (spool code 4 , 5 , 8 , 9 and 10) needs special body with extra machining.

Code	spool control
1	
2	
3	
4	
5	
6	
7	
9	
10	
11*	 Adjustment range of automatic kick-out feature - 60...180bar
12	
13	
14	
15	
16	
17	
SD1	
SD10	

standard port threads	
Code	P , T , A , B
M	M18x1,5-6H
G	G3/8"-A

Code	application
N	normal
T	tropical

Code	
	micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration 
	 DIN 43650-A
omit	without microswitch
E1	
E2	
E3	

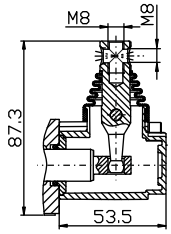
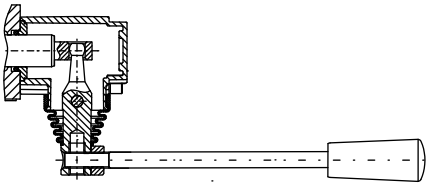
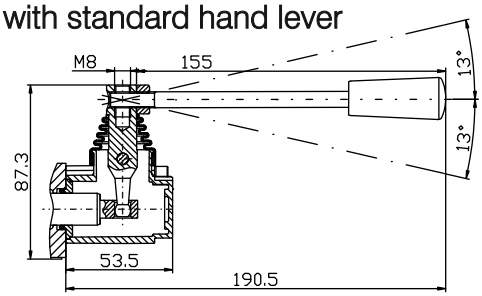
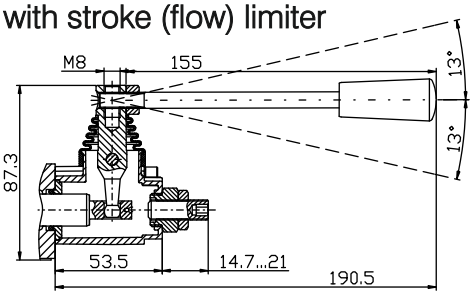
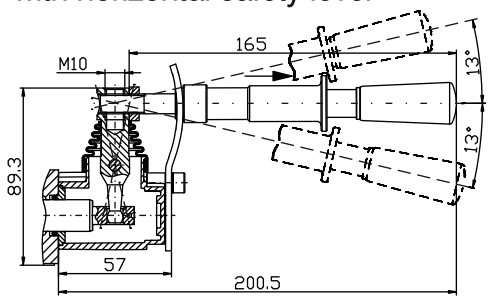
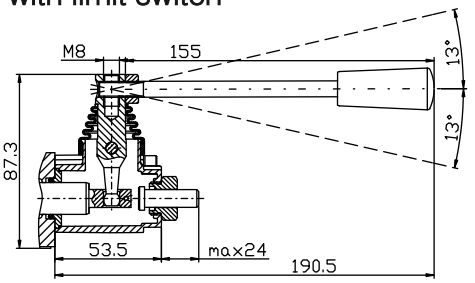
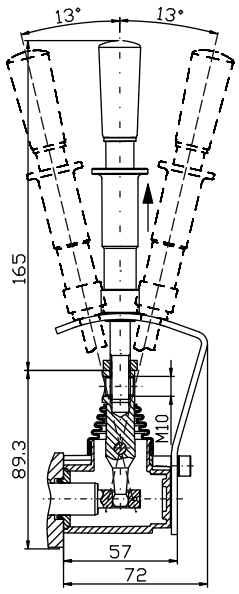
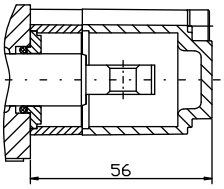
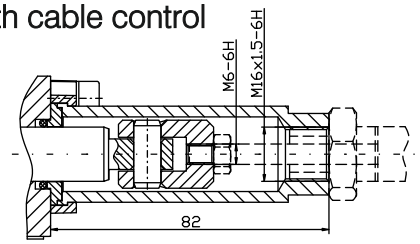
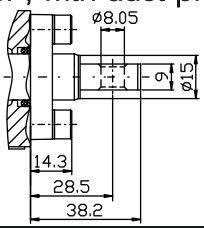
Code	spool control	
20-12 20-24 20-11 20-22	12VDC 24VDC 110VRAC 220VRAC	ON-OFF EHI & EHE 
30-12 30-24 30-11 30-22	12VDC 24VDC 110VRAC 220VRAC	ON-OFF EPC 
32		ON-OFF HC & PC 

* The kit (spool control code 11) needs special spool.

Code	lever position
A	at port side A(standard)
B	at port side B

Code	operation control
C CL CLO CLR CLS SHL SVL CP H Z	see page 3/3

OPERATION CONTROL

operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever at 180° 	CLO
with standard hand lever 	CL	with stroke (flow) limiter 	CLR
with horizontal safety lever 	SHL	with limit switch 	CLS
with vertical safety lever 	SVL	with protection cap 	CP
		with cable control  Cables , single levers and joystick controls - on request	H
		without lever , with dust-proof plate 	Z

MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM40P

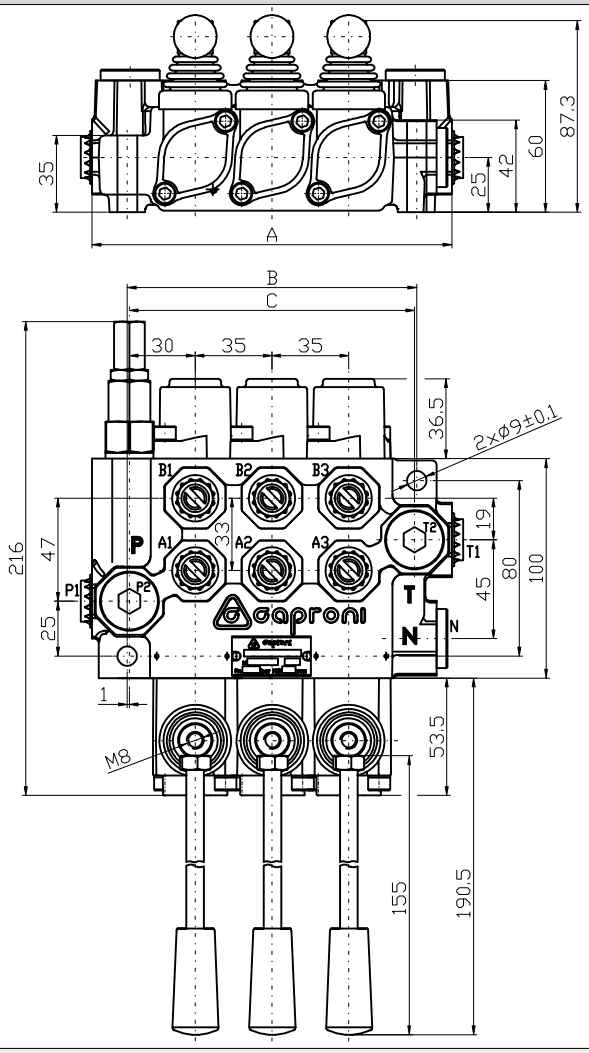
GENERAL DESCRIPTION

Hydraulic valve RM40P provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM40P is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated relief and check valves, spools , control and spring-centering group of the spools. The valve RM40P provides parallel distribution of the working liquid and direct passing of the flow from the pump line to the tank at neutral position (open center). Options “closed centre” and “carry over” are possible with additional adapters. There are different control options: spring–centering in “neutral” position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

TECHNICAL DATA

Rated flow	40 l/min
Max. pressure	P=250 bar; T=50 bar; A,B= 300 bar
Spool stroke	±6 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar , t=40°C and viscosity 46cSt	max. 8cm³/min; max 2cm³/min (special version)
Actuating force	less than 200N

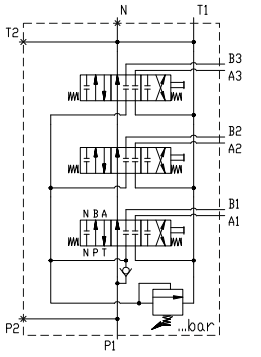
DIMENSIONS



RM40P/03/Q/3x/1CLA1/R/P1T1/G/N

Type	A	B	C	Weight, kg
RM40	87	62	-	2.6
RM40P/02	129	97	95	4.4
RM40P/03	164	132	130	5.9
RM40P/04	199	167	165	7.3
RM40P/05	234	202	200	8.8
RM40P/06	269	237	235	10.3
RM40P/07	304	272	270	11.8

STANDARD PARALLEL CIRCUIT



MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM40P

ORDERING CODE

RM40PEHI / 0 3 / Q / 1 CL A 1 E1** / R / P1T1 / G / N

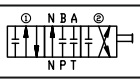
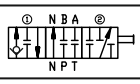
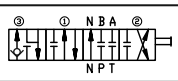
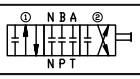
parallel connection *for RM40 - omit*

type of control	Code
without control	omit
On-Off internal electro-hydraulic	EHI
On-Off external electro-hydraulic	EHE
On-Off electro-pneumatic	EPC
On-Off hydraulic	HC
On-Off pneumatic	PC

common check valve	Code
with check valve *for RM40 - omit*	0
without check valve	N

number of the spools *for RM40 - omit*

relief valve	Code
setting range 5...250bar (example of required settings 180bar)	Q Q180
shut-off plug installed	K

spools	Code
	1
	2
	3
	4
	5
	6
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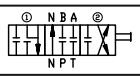
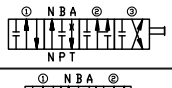
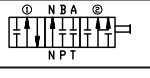
	8*
	9
	10*
	11*

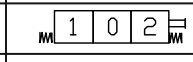
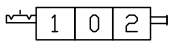
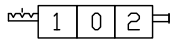
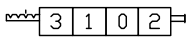
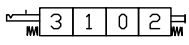
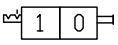
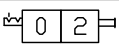
* The scheme (spool code 8 , 10 and 11) needs special body with extra machining.

standard port threads			
Code	P1 , P2	A , B	T1 , T2 , N
M	M22x1,5-6H	M18x1,5-6H	M22x1,5-6H
G	G1/2”-A	G3/8”-A	G1/2”-A
U	7/8-14UNF-2B	3/4-16UNF-2B	7/8-14UNF-2B
G1/2	G1/2"-A		

Code	application
N	normal
T	tropical

Code	hydraulic power output
R	open center (port N connected to T - short plug)
W	closed center (port N plugged - long plug)
C	carry over (port N - with power beyond sleeve)
CS	short carry over connection

Code	used conn. ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

Code	spool control
1	
2	
3	
4	
5	
6	
7	
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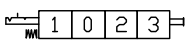
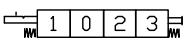
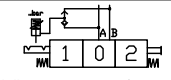
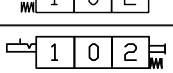
9	
10	
11*	 Adjustment range of automatic kick-out feature - 60...180bar
12	
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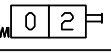
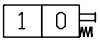
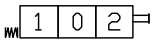
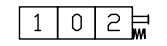
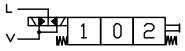
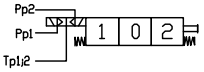
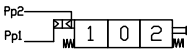
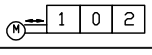
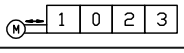
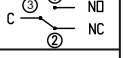
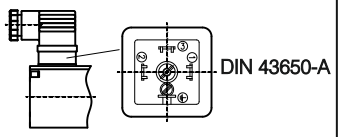
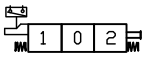
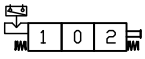
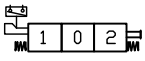
14	
15	
16	
17	

Code	spool control
20-12 20-24 20-11 20-22	12VDC 24VDC 110VRAC 220VRAC  ON-OFF EHI & EHE
30-12 30-24 30-11 30-22	12VDC 24VDC 110VRAC 220VRAC  ON-OFF EPC
32	 ON-OFF HC & PC
SD1	
SD10	

Code	micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration
Code	  DIN 43650-A
omit	without microswitch
E1	
E2	
E3	

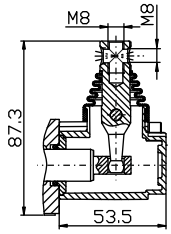
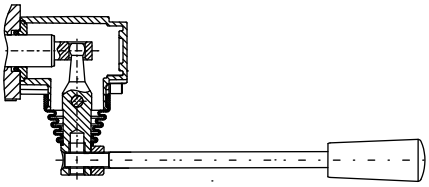
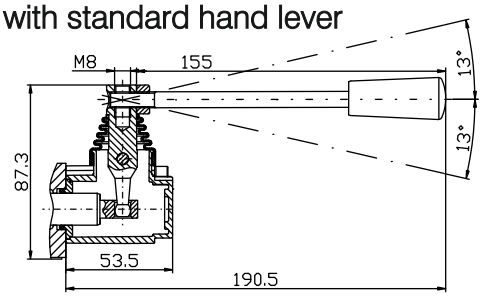
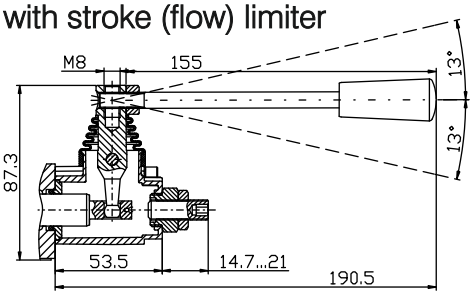
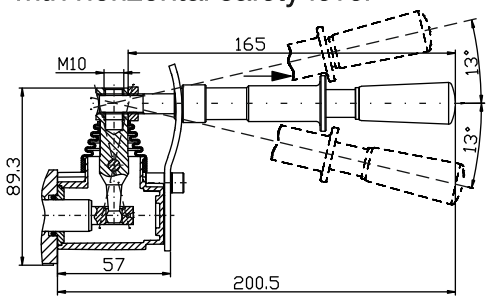
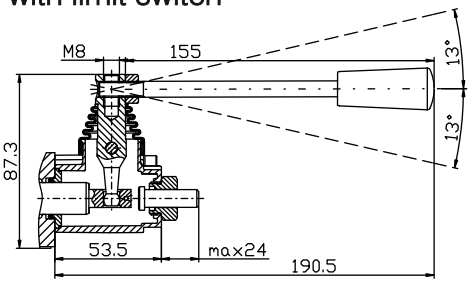
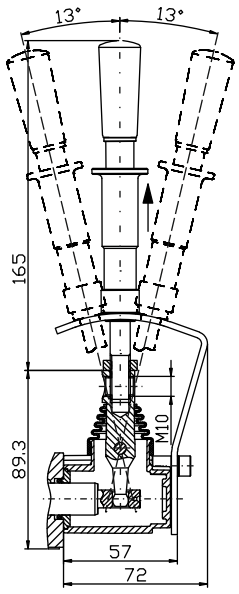
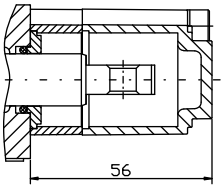
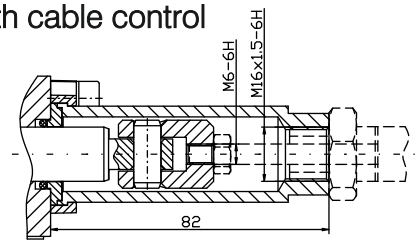
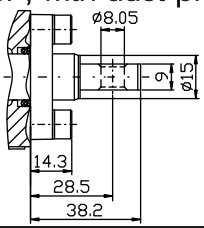
Code	operation control
C CL CLO CLR CLS CP H Z	see page 3/5
J...	see page 4/5

Code	lever position
A	at port side A (standard)
B	at port side B

* The kit (spool control code 11) needs special spool.

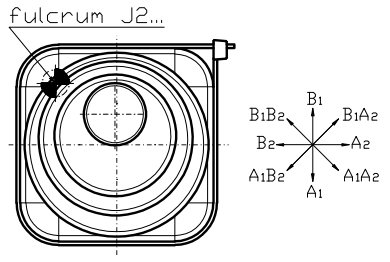
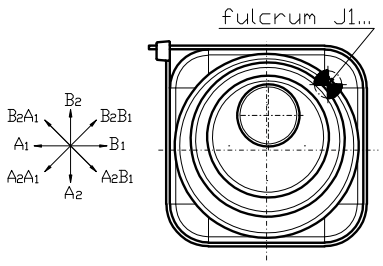
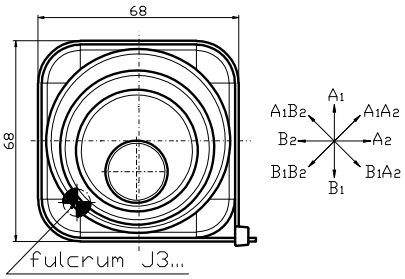
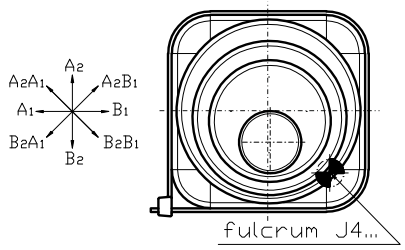
** Repeat for each spool. In case of identical spools example ordering code is:
RM40P / 03 / Q / 3x / 1CL A1 / R / P1T1 / G / N

OPERATION CONTROL

operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever at 180° 	CLO
with standard hand lever 	CL	with stroke (flow) limiter 	CLR
with horizontal safety lever 	SHL	with limit switch 	CLS
with vertical safety lever 	SVL	with protection cap 	CP
		with cable control  Cables , single levers and joystick controls - on request	H
		without lever , with dust-proof plate 	Z

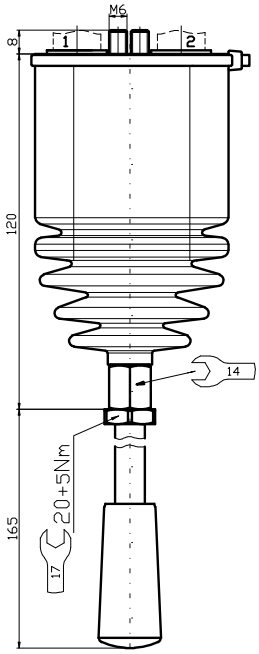
OPERATION CONTROL

Working scheme by assembly on the side of threaded ports A (standard)

	Code		Code
	J2...		J1...
	J3...		J4...

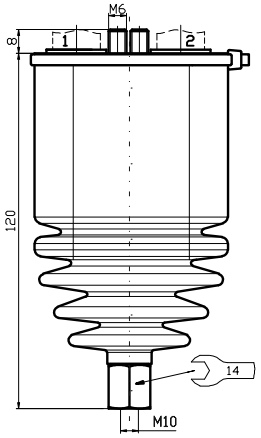
joystick
with standard hand lever

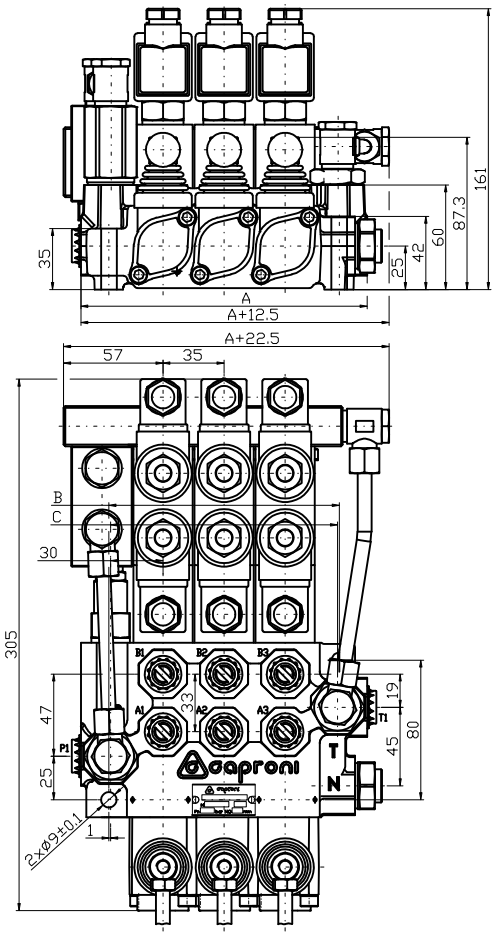
Code: J1L ; J2L ; J3L ; J4L



joystick
without standard hand lever

Code: J1 ; J2 ; J3 ; J4



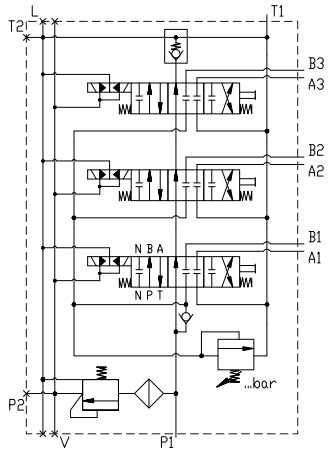


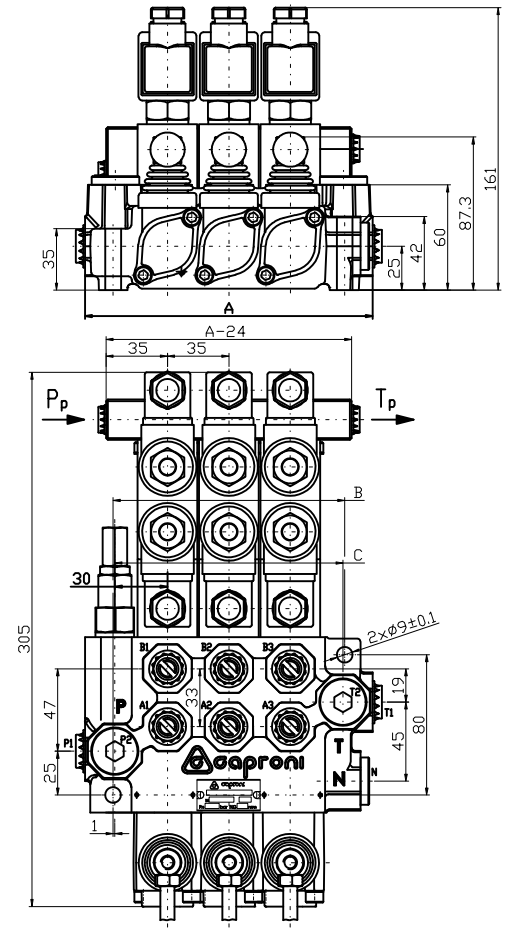
RM40PEHI/03/Q/3x/1CLA20-24/R/P1T1/G/N

On/Off electrohydraulic control (internal)
operating features:

Pilot pressure - 10...50 bar
Max. pilot flow - 8 l/min
Filtration - 25 μm
Coil - 18W , duty cycle ED 100%
Voltage options - 12V DC , 24V DC ,
110V RAC , 220V RAC
Integrated back pressure valve

Scheme



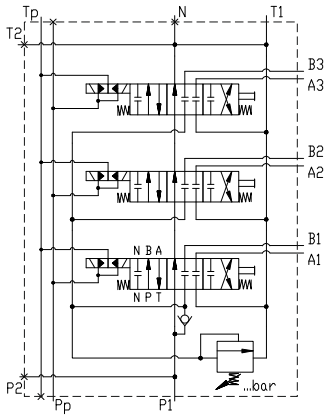


RM40PEHE/03/Q/3x/1CLA20-24/R/P1T1/G/N

On/Off electrohydraulic control (external)
operating features:

Pilot pressure Pp - 10...50 bar
Max. pilot flow - 8 l/min
Filtration - 25 μm
Coil - 18W , duty cycle ED 100%
Voltage options - 12V DC , 24V DC ,
110V RAC , 220V RAC
Pp , Tp - G1/4

Scheme



MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM80

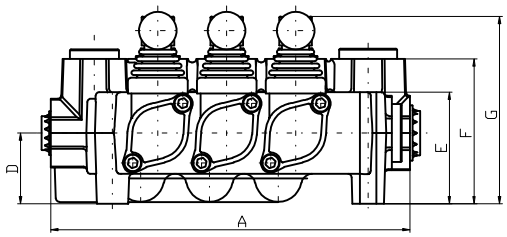
GENERAL DESCRIPTION

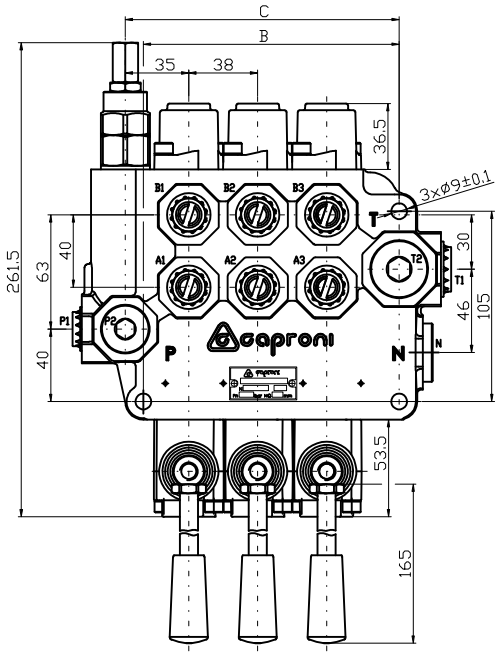
Hydraulic valve RM80 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM80 is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated relief and check valves, spools , control and spring-centering group of the spools. The valve RM80 provides parallel distribution of the working liquid and direct passing of the flow from the pump line to the tank at neutral position (open center). Options “closed centre” and “carry over” are possible with additional adapters. There are different control options: spring–centering in “neutral” position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

TECHNICAL DATA

Rated flow	80 l/min
Max. pressure	P=250 bar; T=50 bar; A,B= 300 bar
Spool stroke	±7 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar , t=40°C and viscosity 46cSt	max. 8cm³/min; max 2cm³/min (special version)
Actuating force	less than 280N

DIMENSIONS

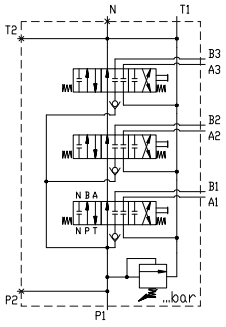




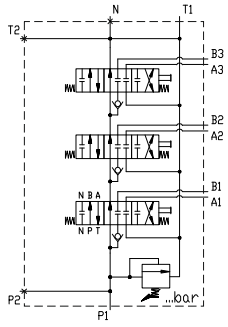
RM80P/3/Q/3x/1CLA1/R/P1T1/G/N

Type		A	B	C	D	E	F	G	Weight, kg
parallel	serial								
RM80		108	65	-	24	46.5	65	88.3	4.0
RM80P/2	RM80S/2	160	103	113					7.4
RM80P/3	RM80S/3	198	141	151					9.7
RM80P/4	RM80S/4	236	179	189	39	61.5	80	103.3	12.0
RM80P/5	RM80S/5	274	217	227					14.3
RM80P/6	RM80S/6	312	255	265					16.7

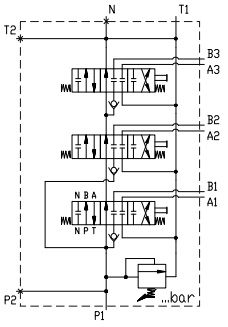
STANDARD PARALLEL CIRCUIT



STANDARD SERIES CIRCUIT



TANDEM CIRCUIT



ORDERING CODE

RM80PEHI / 3 / Q / 1 CL A 1 E1** / R / P1T1 / G / N

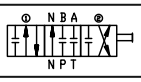
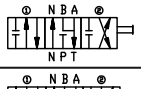
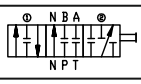
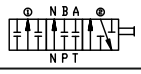
type of connection	Code
for RM80	*omit*
Parallel	P
Series*	S
Tandem (P+S)*	T

* The scheme (connection type S and T) needs special body.

type of control	Code
without control	omit
On-Off internal electro-hydraulic	EHI
On-Off external electro-hydraulic	EHE
On-Off electro-pneumatic	EPC
On-Off hydraulic	HC
On-Off pneumatic	PC

number of the spools *for RM80 - omit*

relief valve	Code
setting range 20...300bar (example of required settings 180bar)	Q Q180
shut-off plug installed	K

spools	Code
	1
	2
	3
	4
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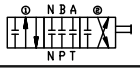
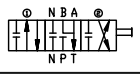
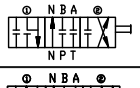
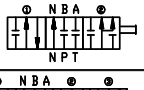
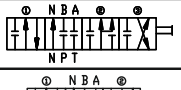
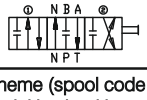
	6
	7
	8*
	9*
	10
	12
	13

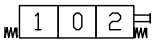
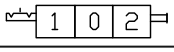
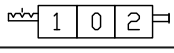
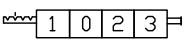
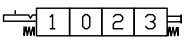
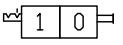
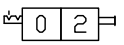
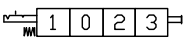
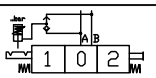
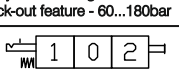
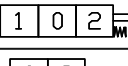
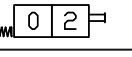
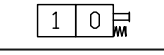
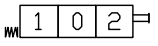
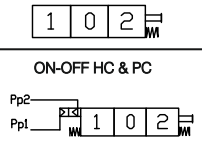
* The scheme (spool code 8 and 9) needs special body with extra machining.

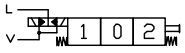
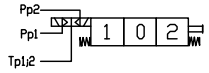
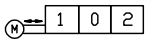
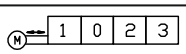
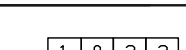
standard port threads		
Code	P1 , P2 , A , B	T1 , T2 , N
M	M22x1,5-6H	M26x1,5-6H
G	G1/2"-A	G3/4"-A
U	7/8-14UNF-2B	1 1/16-12UN-2B

Code	application
N	normal
T	tropical

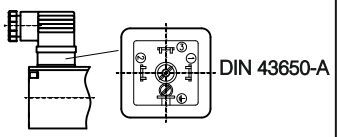
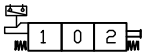
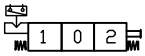
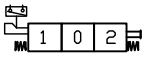
Code	hydraulic power output
R	open center (port N connected to T - short plug)
W	closed center (port N plugged - long plug)
C	carry over (port N - with power beyond sleeve)
CS	short carry over connection

Code	used conn. ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

Code	spool control
1	
2	
3	
4	
5	
6	
7	
9	
11*	 Adjustment range of automatic kick-out feature - 60...180bar
12	
13	
14	
15	
16	
17	
32	ON-OFF HC & PC 

Code	spool control
20-12 20-24 20-11 20-22	12VDC 24VDC 110VRAC 220VRAC ON-OFF EHI & EHE 
30-12 30-24 30-11 30-22	12VDC 24VDC 110VRAC 220VRAC ON-OFF EPC 
SD1	
SD5	
SD10	

* The kit (spool control code 11) needs special spool.

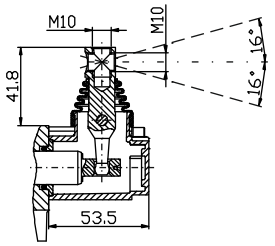
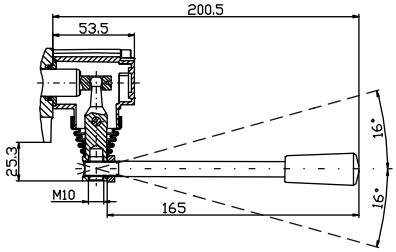
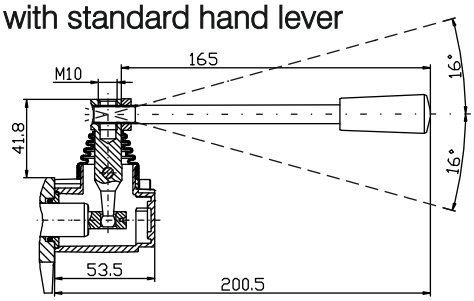
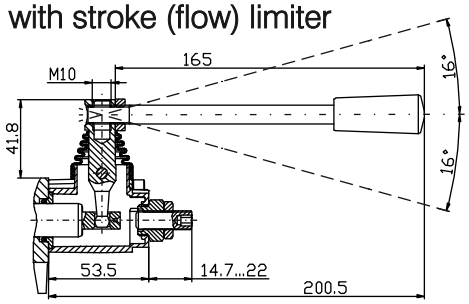
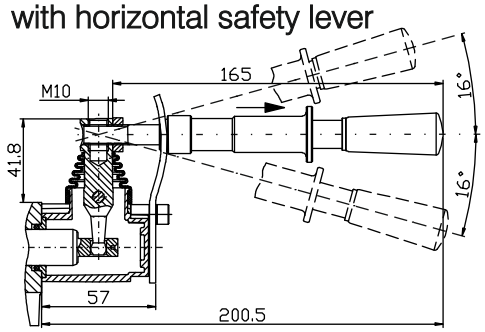
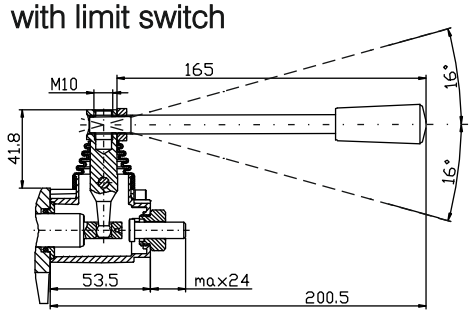
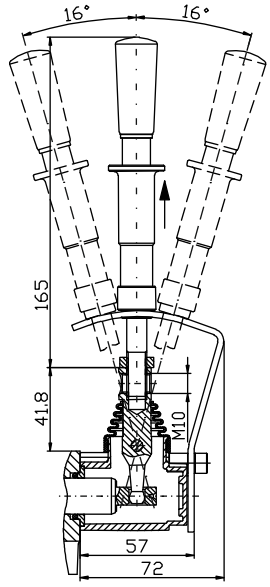
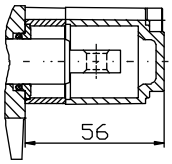
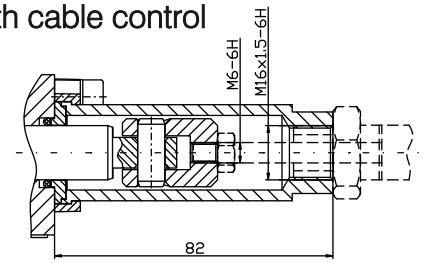
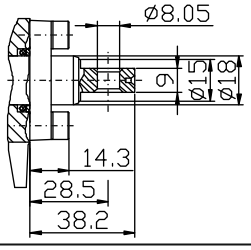
Code	micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration
Code	 DIN 43650-A
omit	without microswitch
E1	
E2	
E3	

Code	operation control
C CL CLO CLR CLS CP H Z	see page 3/5
J...	see page 4/5

Code	lever position
A	at port side A (standard)
B	at port side B

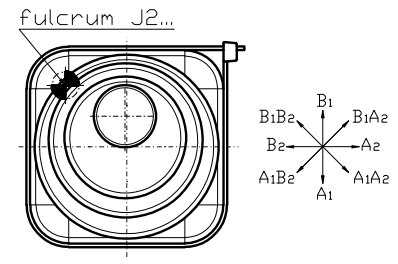
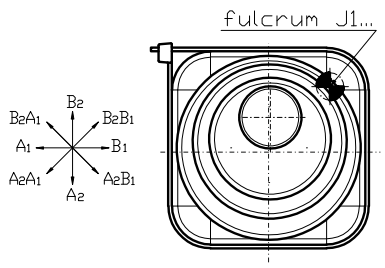
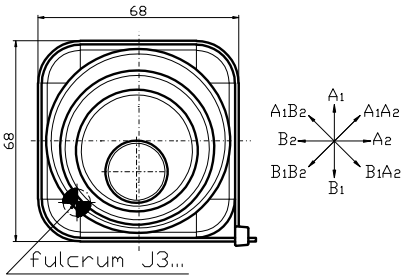
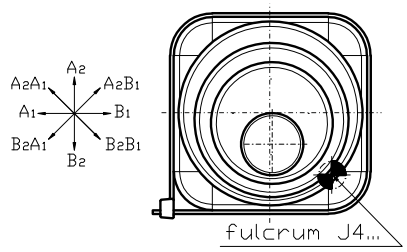
** Repeat for each spool. In case of identical spools ordering codeexample is:
RM80P / 3 / Q / 3x / 1CL A1 / R / P1T1 / G / N

OPERATION CONTROL

operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever at 180° 	CLO
with standard hand lever 	CL	with stroke (flow) limiter 	CLR
with horizontal safety lever 	SHL	with limit switch 	CLS
with vertical safety lever 	SVL	with protection cap 	CP
		with cable control  Cables , single levers and joystick controls - on request	H
		without lever , with dust-proof plate 	Z

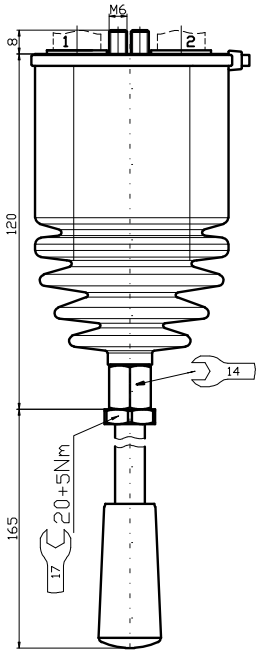
OPERATION CONTROL

Working scheme by assembly on the side of threaded ports A (standard)

	Code		Code
	J2...		J1...
	J3...		J4...

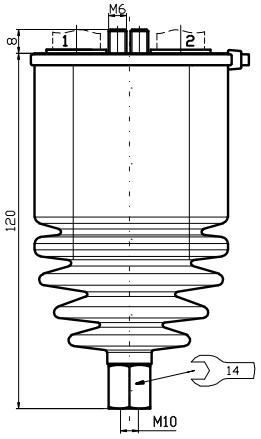
joystick
with standard hand lever

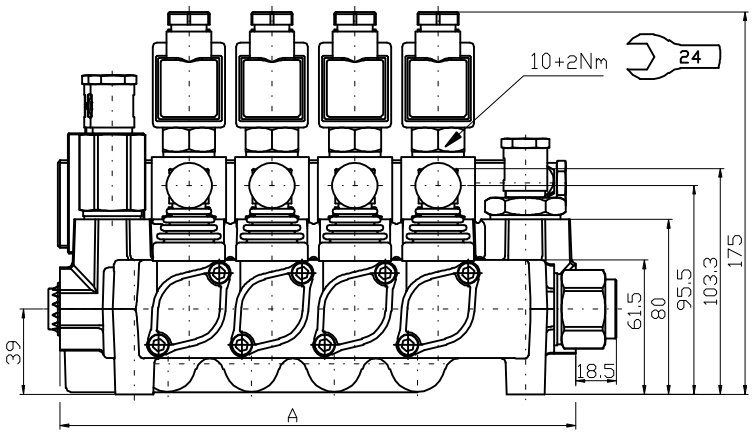
Code: J1L ; J2L ; J3L ; J4L



joystick
without standard hand lever

Code: J1 ; J2 ; J3 ; J4

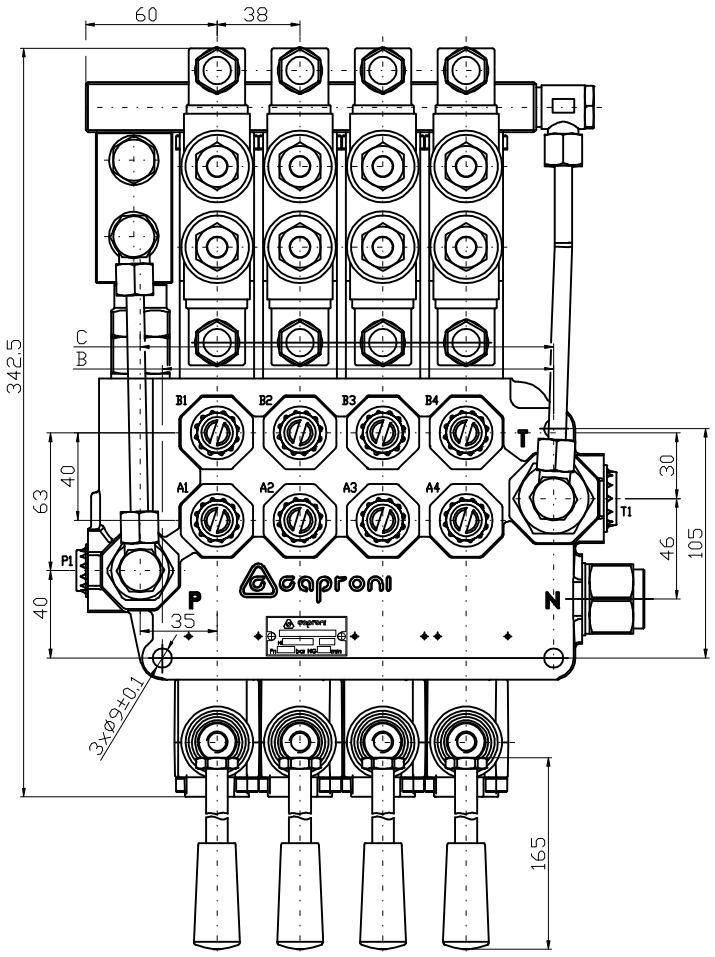




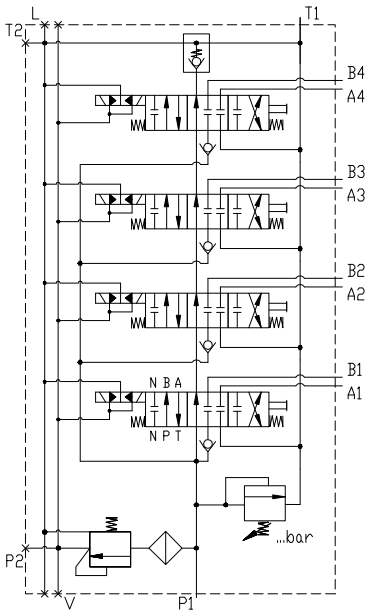
RM80PEHI/4/Q/4x/1CLA20-24/R/P1T1/G/N

On/Off electrohydraulic control (internal) operating features:

Pilot pressure - 10...50 bar
Max. pilot flow - 8 l/min
Filtration - 25 μm
Coil - 18W , duty cycle ED 100%
Voltage options - 12V DC , 24V DC , 110V RAC , 220V RAC
Integrated back pressure valve



Scheme



GENERAL DESCRIPTION

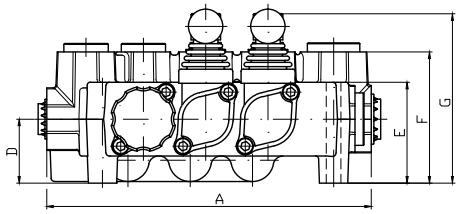
Hydraulic valve RMF80 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. Integrated pressure compensated flow control valve provide flow adjustment of the priority flow(PF) and exceeding flow (EF) is sent to tank. Best performance of the valve is assured when inlet flow is at least 10% bigger than priority flow. Priority flow is constant regardless of pressure variations , thus flow out the work port remains smooth and constant regardless of changes in load conditions. The valve RM80 is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated relief and check valves , flow control valve , spools , control and spring-centering group of the spools. The valve RMF80 provides distribution of the working liquid and direct passing of the flow from the pump line to the tank at neutral position (open center). Options “closed centre” and “carry over” are possible with additional adapters. There are different control options: spring–centering in “neutral” position , detent , automatic kick-out , hydraulic , electro-hydraulic control , pneumatic and electro-pneumatic control.

TECHNICAL DATA

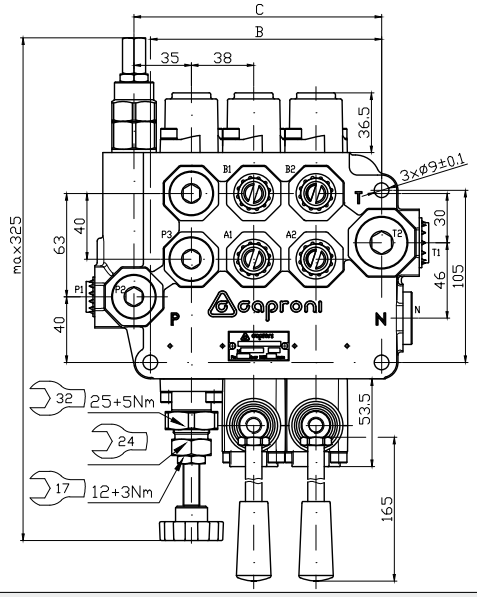
Rated flow	80 l/min
Max. inlet flow rate	95 l/min
Flow control valve setting range	5...80 l/min.
Max. pressure	P=250 bar; T=50 bar; A,B= 300 bar
Spool stroke	±7 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar , t=40°C and viscosity 46cSt	max. 8cm³/min; max 2cm³/min (special version)
Actuating force	less than 280N

DIMENSIONS

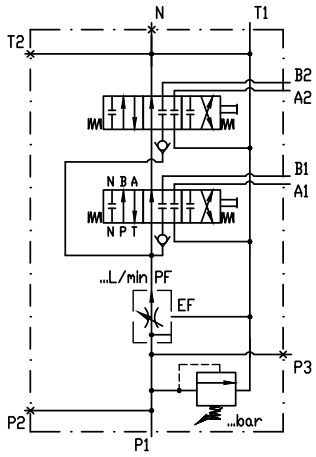
RMF80/2/Q/F/2x/1CLA1/R/P1T1/G/N



Type	A	B	C	D	E	F	G	Weight, kg
RMF80	160	103	113	39	61.5	80	103.3	7.4
RMF80P/2	198	141	151					9.7
RMF80P/3	236	179	189					12.0
RMF80P/4	274	217	227					14.3
RMF80P/5	312	255	265					16.7



STANDARD PARALLEL CIRCUIT



Standard port threads

Code	P1, P2, P3, A, B	T1, T2, N
M	M22x1.5-6H	M26x1.5-6H
G	G1/2"-A	G3/4"-A
U	7/8-14UNF-2B	1 1/16-12UN-2B

ORDERING CODE

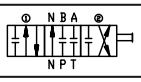
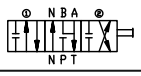
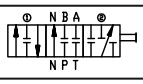
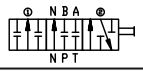
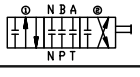
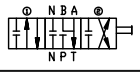
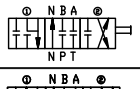
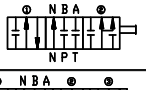
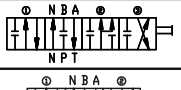
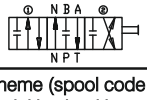
RMF80EHI / 3 / Q / F / 1 CL A 1 E1** / R / P1T1 / G / N

type of control	Code
without control	omit
On-Off internal electro-hydraulic	EHI
On-Off external electro-hydraulic	EHE
On-Off electro-pneumatic	EPC
On-Off hydraulic	HC
On-Off pneumatic	PC

number of the spools
for RMF80 - omit

relief valve	Code
setting range 20...300bar (example of required settings 180bar)	Q Q180
shut-off plug installed	K

flow control valve	Code
setting range 5...80bar	F
required setting 60l/min	F60

spools	Code
	1
	2
	3
	4
	5
	6
	7
	8*
	9*
	10
	12
	13

* The scheme (spool code 8 and 9) needs special body with extra machining.

Code	operation control
C CL CLO CLR CLS CP H Z	see page 3/4
J...	see page 4/4

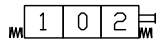
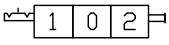
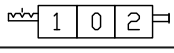
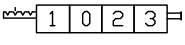
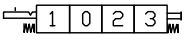
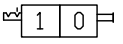
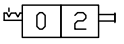
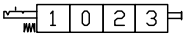
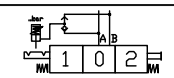
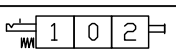
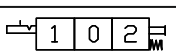
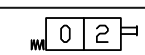
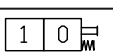
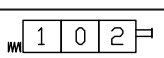
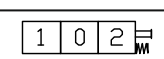
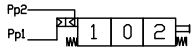
Code	lever position
A	at port side A (standard)
B	at port side B

standard port threads		
Code	P1 , P2 , A , B	T1 , T2 , N
M	M22x1,5-6H	M26x1,5-6H
G	G1/2"-A	G3/4"-A
U	7/8-14UNF-2B	1 1/16-12UN-2B

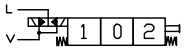
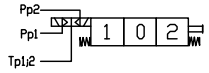
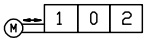
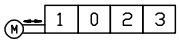
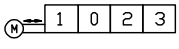
Code	application
N	normal
T	tropical

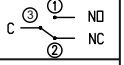
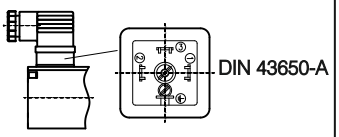
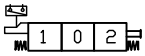
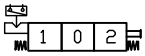
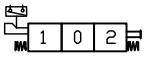
Code	hydraulic power output
R	open center (port N connected to T - short plug)
W	closed center (port N plugged - long plug)
C	carry over (port N - with power beyond sleeve)

Code	used conn. ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

Code	spool control
1	
2	
3	
4	
5	
6	
7	
9	
11*	 Adjustment range of automatic kick-out feature - 60...180bar
12	
13	
14	
15	
16	
17	
32	ON-OFF HC & PC 

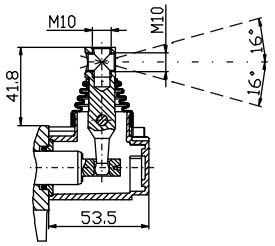
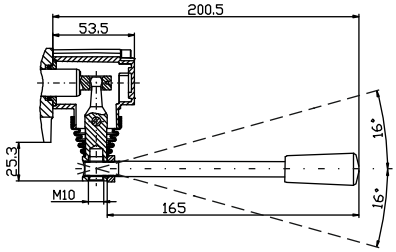
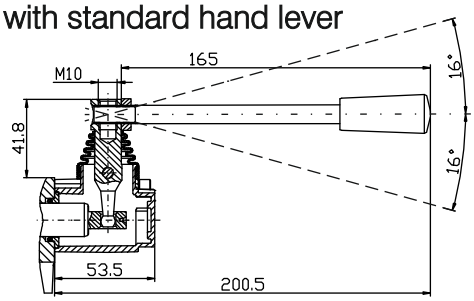
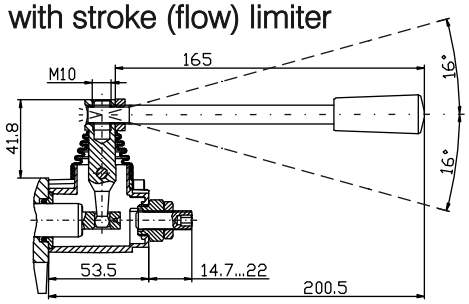
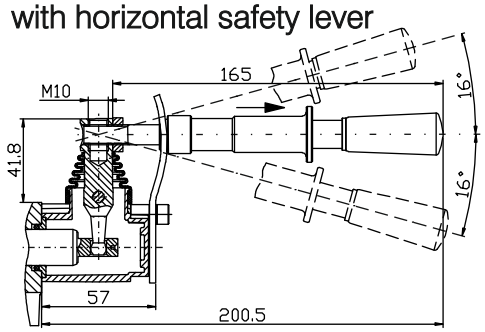
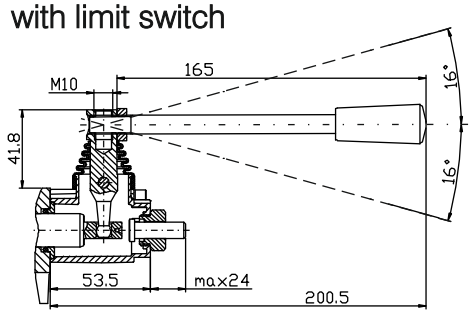
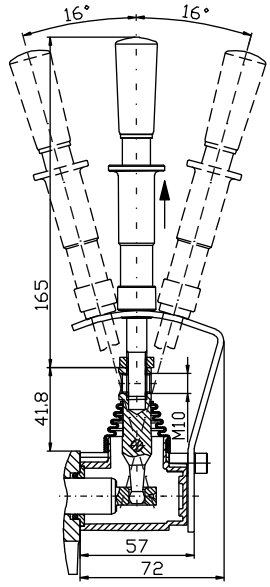
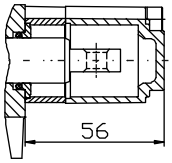
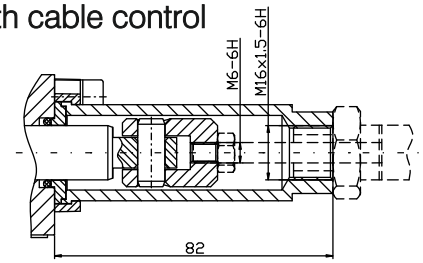
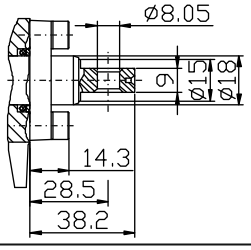
* The kit (spool control code 11) needs special spool.

Code	spool control	
20-12 20-24 20-11 20-22	12VDC 24VDC 110VRAC 220VRAC	ON-OFF EHI & EHE 
30-12 30-24 30-11 30-22	12VDC 24VDC 110VRAC 220VRAC	ON-OFF EPC 
SD1		
SD5		
SD10		

Code	micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration
Code	  DIN 43650-A
omit	without microswitch
E1	
E2	
E3	

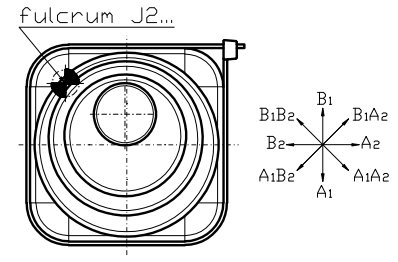
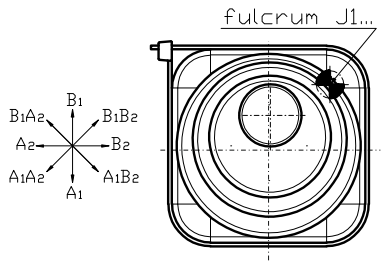
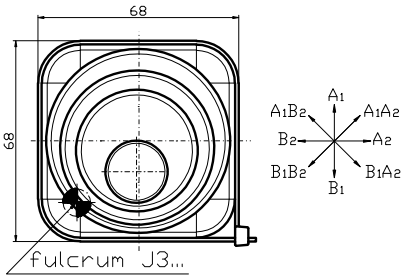
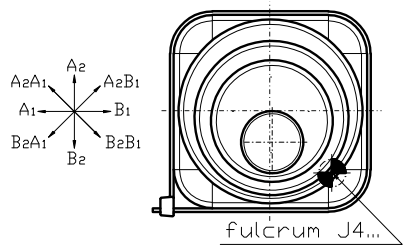
** Repeat for each spool. In case of identical spools ordering code example is:
RMF80 / 3 / Q / F / 3x / 1CL A1 / R / P1T1 / G / N

OPERATION CONTROL

operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever at 180° 	CLO
with standard hand lever 	CL	with stroke (flow) limiter 	CLR
with horizontal safety lever 	SHL	with limit switch 	CLS
with vertical safety lever 	SVL	with protection cap 	CP
		with cable control  Cables , single levers and joystick controls - on request	H
		without lever , with dust-proof plate 	Z

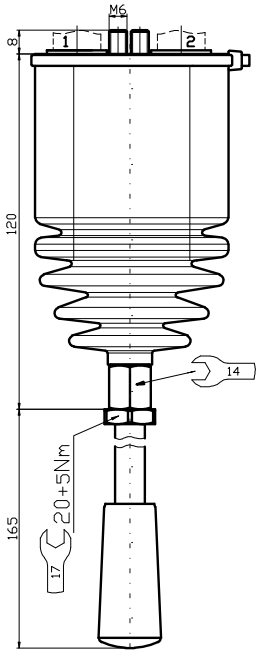
OPERATION CONTROL

Working scheme by assembly on the side of threaded ports A (standard)

	Code		Code
	J2...		J1...
	J3...		J4...

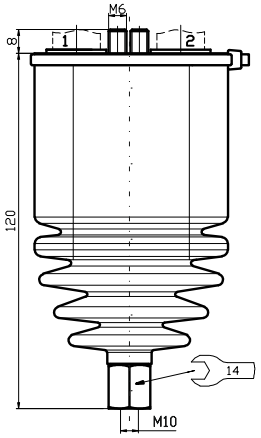
joystick with standard hand lever

Code: J1L ; J2L ; J3L ; J4L



joystick without standard hand lever

Code: J1 ; J2 ; J3 ; J4



MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RMD90

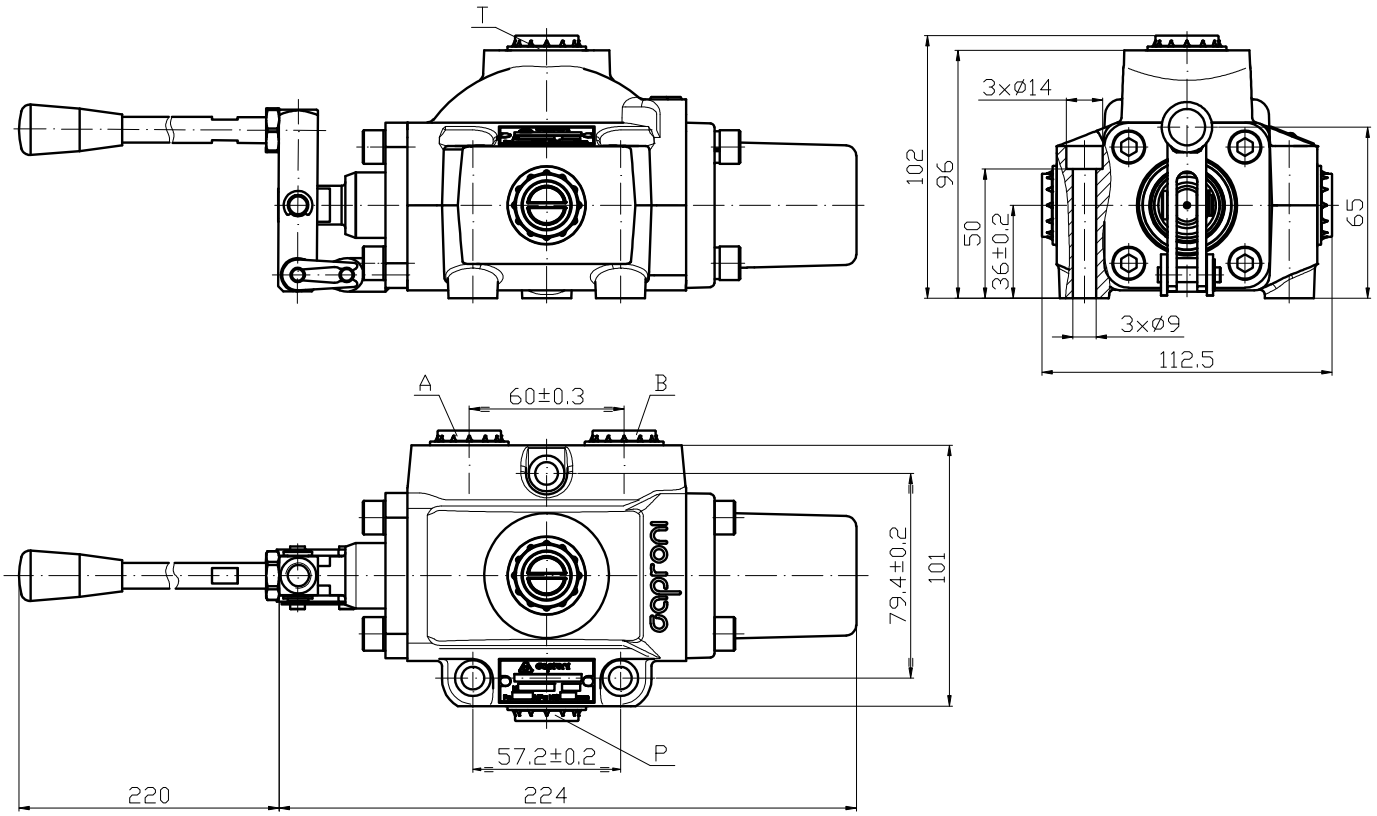
GENERAL DESCRIPTION

The directional control valve RMD90 provides a change of fluid flow direction in the channels of the hydraulic system. Valve RMD90 is designed for mounting in the hydraulic systems of the mobile and industrial machines.

TECHNICAL DATA

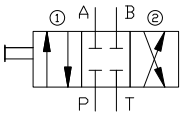
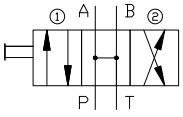
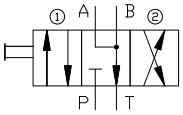
Weight	5.7kg
Nominal flow	90 l/min
Maximal flow	150 l/min
Nominal pressure	16 MPa
Maximal pressure	20 MPa
Working stroke of the spool	±8 mm
Spool leakage at p=100bar t=40°C and viscosity 36cSt	25 cm^3/min
Working fluid-hydraulic oil with parameters:	viscosity - 15...300cSt recommended viscosity - 20...80cSt temperature - -20...+80°C degree of filtration - 0,025mm

DIMENSIONS



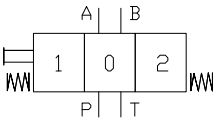
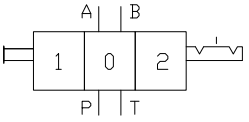
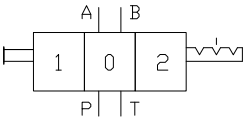
ORDERING CODE

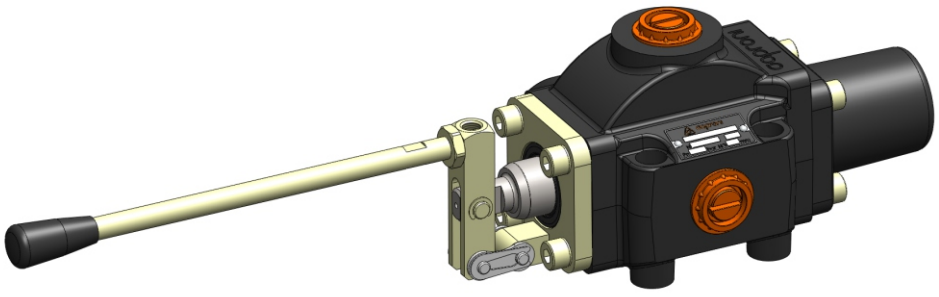
RMD90 - 1 DL 1 G

	Code
Double acting , 3 position , 4 way A and B blocked in neutral 	1
Double acting , 3 position , 4 way A , B and P to tank in neutral 	2
Double acting , 3 position , 4 way A and B to tank in neutral 	3

	Code
Lever : with lever	DL
without lever	D

Code	P , T , A , B
G	G3/4”-A
K	K3/4”-14 GOST6111-52 (3/4”-14NPT)

Code	
1	Spring return to neutral 
2	Detent in position 1 and 2 
3	Detent in three positions 

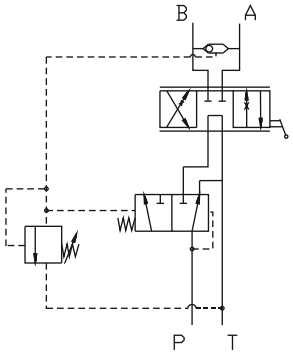


MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRP70

GENERAL DESCRIPTION

1. The valve type MRP 70 incorporates the features of a 4-way directional control valve , an adjustable full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package.
2. Less fittings and plumbing , eliminates leakage points.
3. Fine positive metering is possible in either direction with one manually adjustable , infinitely variable lever controlling both direction and amount of flow. Amount of flow is proportional to movement of the lever.
4. Flow is constant regardless of pressure variations , thus flow out the work port remains smooth and constant regardless of changes in load conditions.
5. An externally adjustable pilot relief is standard.
6. Friction detent (Friction positioner kit).

Hydraulic scheme:

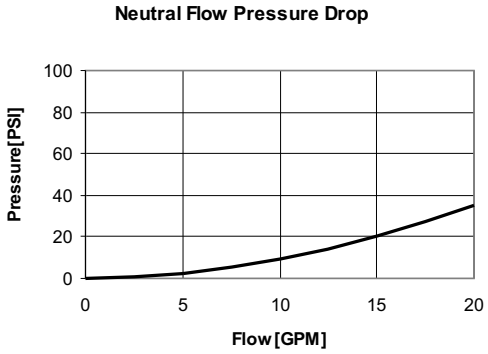


TECHNICAL DATA

DATA	UNIT	VALUE/RANGE
Rated flow	l/min (US GPM)	70 (18)
Rated pressure	bar (PSI)	210 (3000)
Standard port size:		
Inlet & outlet	BSP	3/4”
work ports A & B	BSP	½”
Working liquid - hydraulic oils with parameters: -viscosity	mm^2/sec (cSt)	15...300
-recommended viscosity	mm^2/sec (cSt)	20...80
-temperature	°C (°F)	-20...+80 (-4...+176)
-degree of filtration	mm (in)	0.025 ($9.8\ 10^{-4}$)
Leakage at p=100bar t=40oC ; 36cSt	cc/min	15

PERFORMANCE CURVE

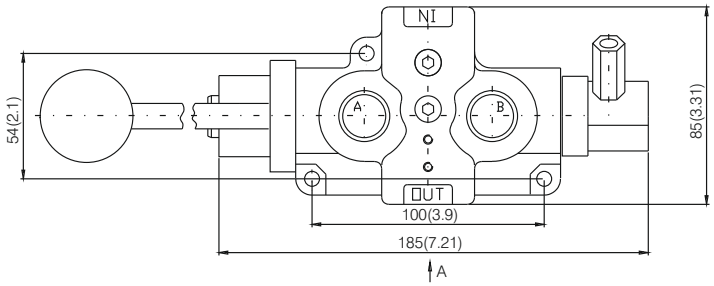
CONDITIONS:
ΔP=f(Q)
36 cSt oil viscosity
T=40°C(104°F)

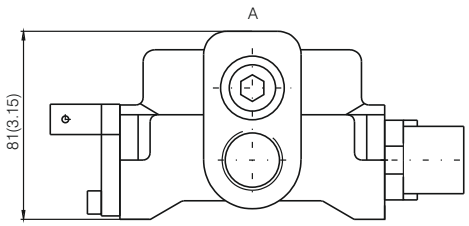


In this curve the pressure difference between the inlet and outlet is shown.

DIMENSIONS

All dimensions are in mm (in).

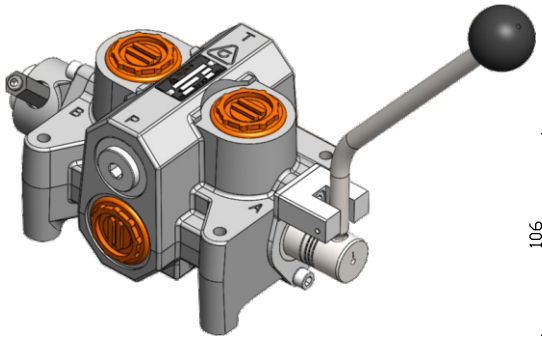




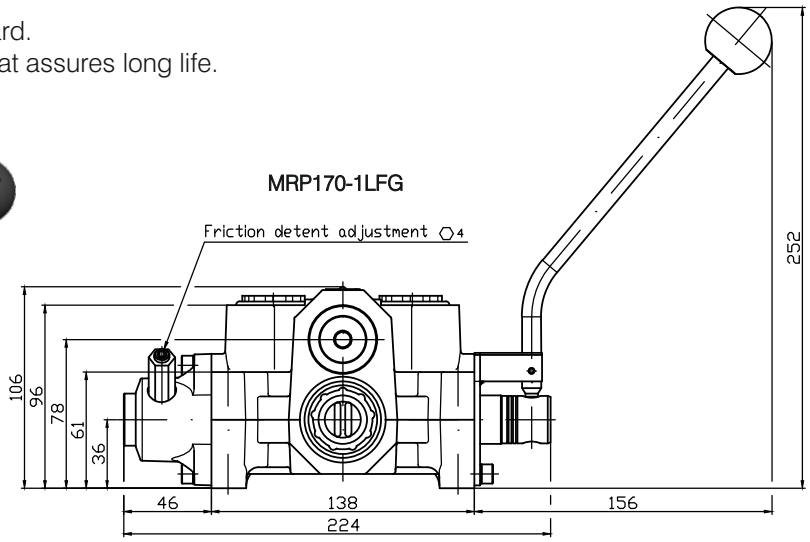
MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRP170

GENERAL DESCRIPTION

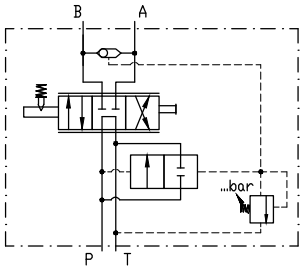
1. The valve type MRP170 incorporates the features of a 4-way directional control valve , an adjustable full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package.
2. Less fittings and plumbing , eliminates leakage points.
3. Fine positive metering is possible in either direction with one manually adjustable , infinitely variable lever controlling both direction and amount of flow. Amount of flow is proportional to movement of the lever.
4. Flow is constant regardless of pressure variations , thus flow out the work port remains smooth and constant regardless of changes in load conditions.
5. An externally adjustable pilot relief is standard.
6. Precision ground chromium plated spool that assures long life.

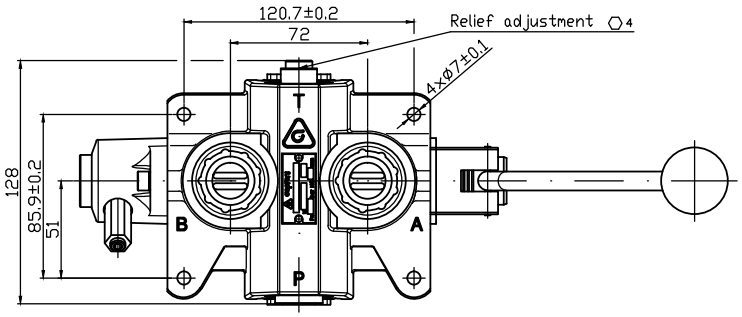


MRP170-1LFG



Hydraulic scheme:



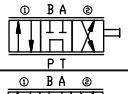
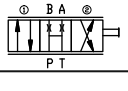


TECHNICAL DATA

DATA	UNIT	VALUE/RANGE
Rated flow	l/min	170
Rated pressure P , A & B T	bar	210 30
Pressure control valve setting range	bar	30...300
Spool working stroke	mm	±8,5
Working liquid - hydraulic oils with parameters: -viscosity -recommended viscosity -temperature -degree of filtration	 mm^2/sec (cSt) mm^2/sec (cSt) °C mm	 15...300 20...80 -20...+80 0,025
Leakage at p=100bar t=40oC ; 46cSt	cc/min	60
Weight	kg	7

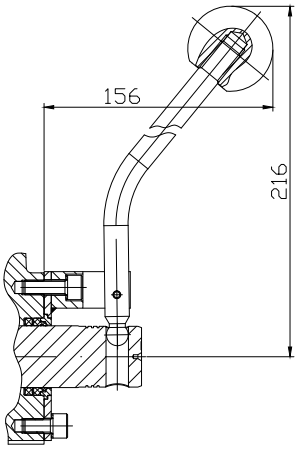
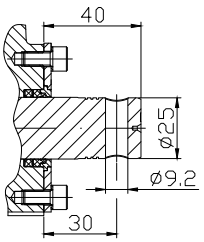
ORDERING CODE

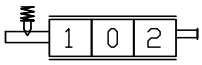
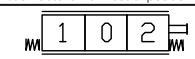
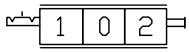
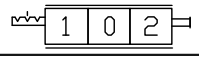
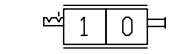
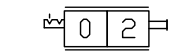
MRP170 - 1 L F G T

spools	Code
	1
	2

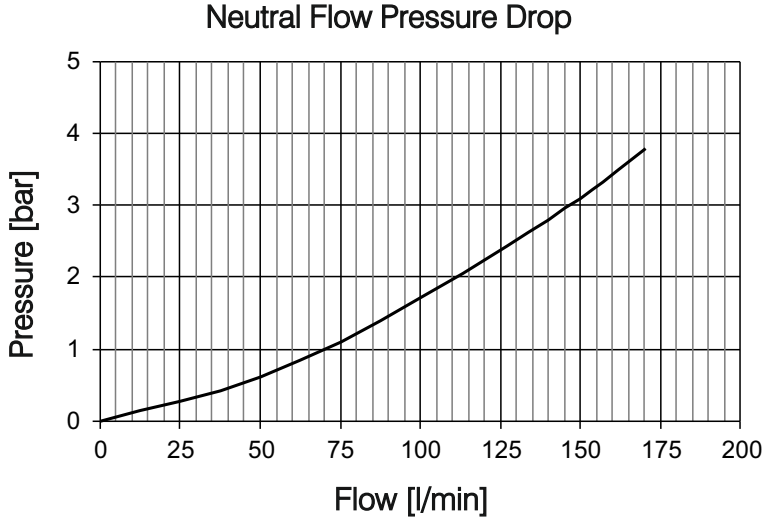
Code	application
omit	Normal
T	Tropical (Stainless Steel Spool and Lever , Painted Body)

standard port threads	
Code	P , A , B , T
G	G1”
N	3/4”-14NPT
U	1”5/16-12UN

operation control	Code
with standard hand lever 	L
without lever with dust-proof plate 	Z

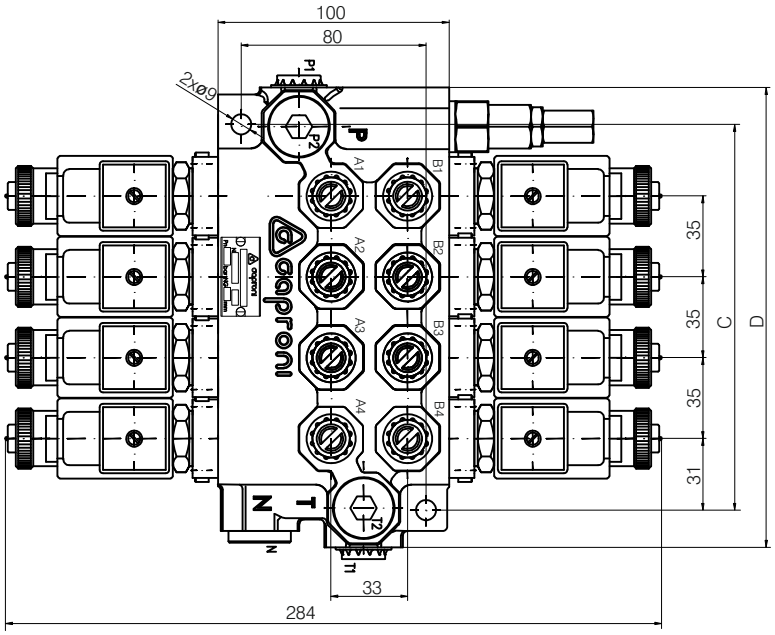
Code	spool control
F	 Friction detent with neutral position detent
1	
2	
3	
4	
5	

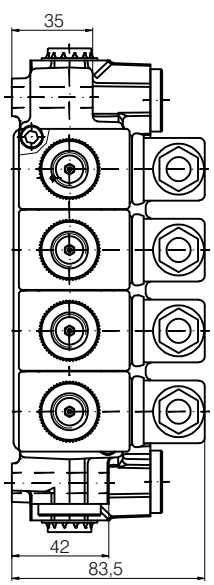
PERFORMANCE CURVE



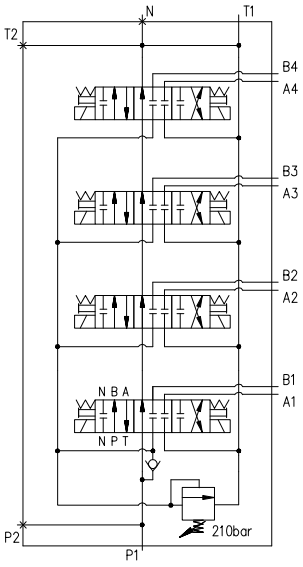
CONDITIONS:
ΔP=f(Q)
36 cSt oil viscosity
T=40°C(104°F)

RME40P/04/Q210/4x/1/R/P1T1/G/N/24D - example





HYDRAULIC SCHEME



spool number	C[mm]	D[mm]	spool number	C[mm]	D[mm]
1	62	87	4	167	199
2	97	129	5	202	234
3	132	164	6	237	269

ORDERING CODE

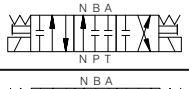
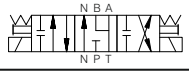
RME40P / 0 4 / Q / 1** / R / P1T1 / G / N / 24D

connection	Code
parallel connection (for 1 spool valve - without code)	P

common check valve	Code
with check valve (for 1 spool valve - without code)	O
without check valve	N

number of the spools - (for 1 spool valve -without code)	Code
	2 ... 6

relief valve	Code
setting range 5...250bar	Q
(example of required settings 180bar)	Q180
without valve-shut-off plug installed	K

spools	Code
	1
	2

Code	application
N	normal
T	tropical

Code	supply voltage
12D	12V DC
24D	24V DC

standard port threads			
Code	P1 , P2	A , B	T1 , T2 , N
M	M22x1,5-6H	M18x1,5-6H	M22x1,5-6H
G	G1/2"-A	G3/8"-A	G1/2"-A
U	7/8-14UNF-2B	3/4-16UNF-2B	7/8-14UNF-2B
G1/2	G1/2"-A		

Code	hydraulic power output
R	open center (port N connected to T - short plug)
W	closed center (port N plugged - long plug)
C	carry over (port N - with power beyond sleeve)

Code	used conn. ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

** Repeat for each spool. In case of identical spools for 3-sectional valve example ordering code is:
RME40P / 03 / Q / 3x / 1 / R / P1T1 / G / N / 24D

TECHNICAL DATA

GENERAL

DATA		UNIT	VALUE/RANGE
Max. ambient temperature		°C	-20...+50
Valve weight:	1 spool	kg	3,300
	2 spools		5,500
	3 spools		7,550
	4 spools		9,520
	5 spools		11,700
	6 spools		13,720

HYDRAULIC

Max. pressure	port P , A & B	MPa	25
	port T	MPa	5
Max. flow (see characteristics)		l/min	50
Hydraulic fluid-mineral oil:			
-viscosity		mm^2/s	10...800
-filtration degree		mm	0.025
-temperature		°C	-20...80
Max. internal leakage A(B)>T : (at p=120bar , viscosity 35cSt)		cm^3/min	20

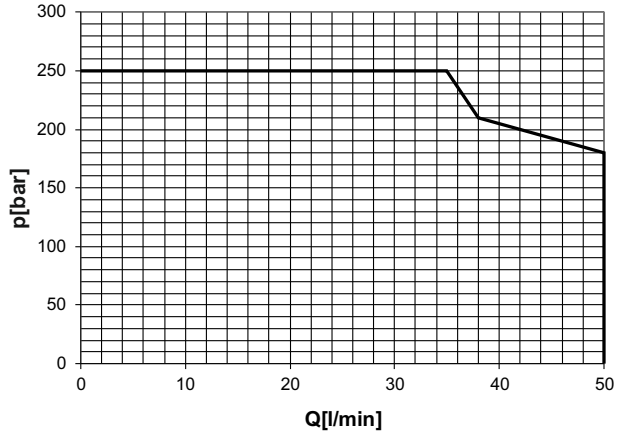
ELECTRICAL

Cyclic duration		%	ED100
Waterproof			IP65
Available voltages		V	12DC / 24DC
Voltage tolerance		%	±10
Power consumption		W	37

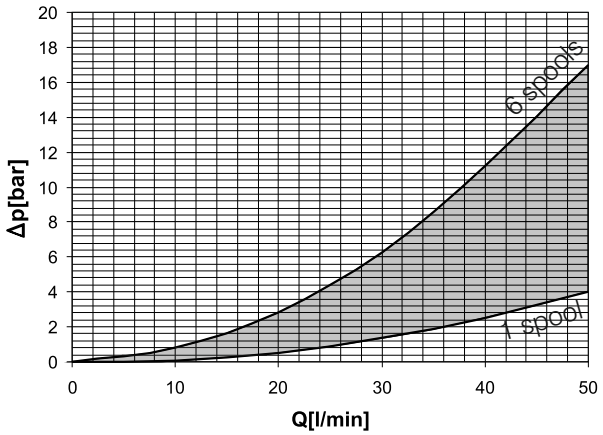
CHARACTERISTICS

All characteristics are measured with hydraulic oil - ISO VG32 , t=45±5°C

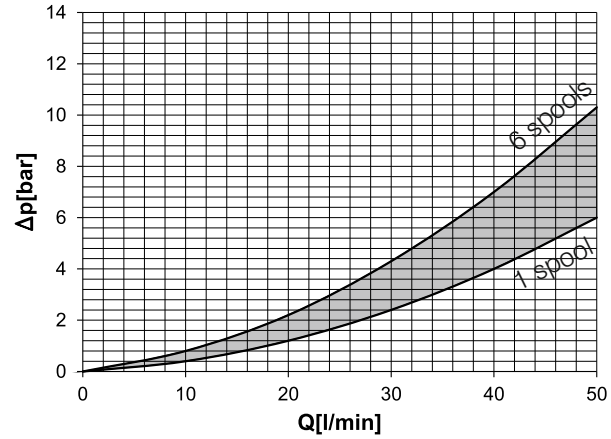
Functional limit



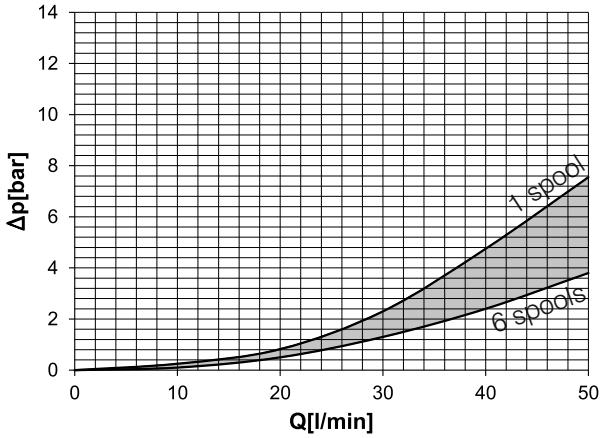
Pressure drop P to T



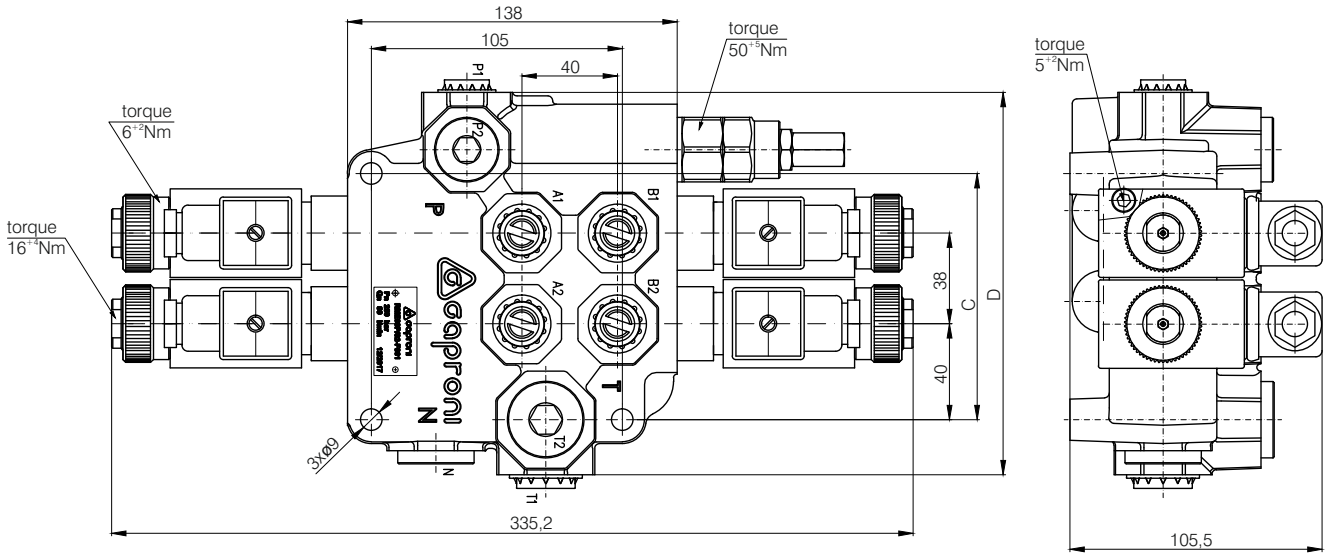
Pressure drop P to A&B



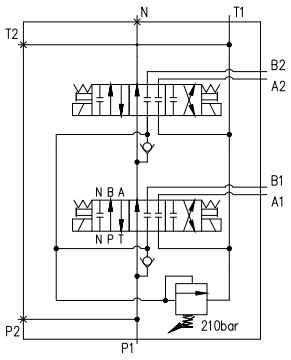
Pressure drop A&B to T



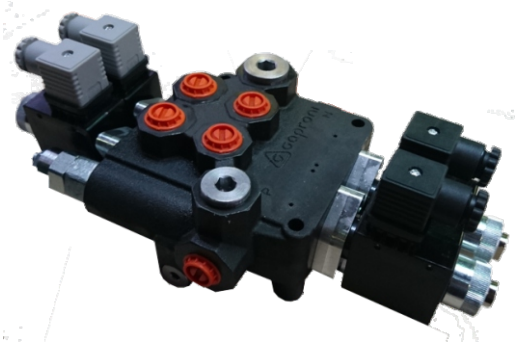
RME80P/02/Q210/2x/1/R/P1T1/G/N/24D - example



HYDRAULIC SCHEME



spool number	C[mm]	D[mm]
1	65	108
2	103	160
3	141	198
4	179	236
5	217	274
6	255	312



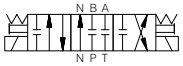
ORDERING CODE

RME80P / 2 / Q / 1** / R / P1T1 / G / N / 24D

connection	Code
parallel connection (for 1 spool valve - without code)	P

number of the spools - (for 1 spool valve -without code)	Code
	2 ... 6

relief valve	Code
setting range 20...300bar (example of required settings 180bar)	Q Q180
shut-off plug installed	K

spools	Code
	1
	2

Code	application
N	normal
T	tropical

Code	supply voltage
12D	12V DC
24D	24V DC

standard port threads		
Code	P1 , P2 , A , B	T1 , T2 , N
M	M22x1,5-6H	M26x1,5-6H
G	G1/2"-A	G3/4"-A
U	7/8-14UNF-2B	1 1/16-12UN-2B

Code	hydraulic power output
R	open center (port N connected to T - short plug)
W	closed center (port N plugged - long plug)
C	carry over (port N - with power beyond sleeve)

Code	used conn. ports
P1T1	P1 and T1
P1T2	P1 and T2
P2T1	P2 and T1
P2T2	P2 and T2

** Repeat for each spool. In case of identical spools for 3-sectional valve example ordering code is:
RME80P / 3 / Q / 3x / 1 / R / P1T1 / G / N / 24D

TECHNICAL DATA

GENERAL

DATA	UNIT	VALUE/RANGE
Max. ambient temperature	°C	-20...+50
Valve weight: 1 spool	kg	4,010
2 spools		7,340
3 spools		9,750
4 spools		12,200
5 spools		14,400
6 spools		16,000

HYDRAULIC

Max. pressure	port P , A & B	MPa	25
	port T	MPa	5
Max. flow (see characteristics)		l/min	80
Hydraulic fluid-mineral oil:			
-viscosity		mm^2/s	10...800
-filtration degree		mm	0.025
-temperature		°C	-20...80
Max. internal leakage A(B)>T : (at p=120bar , viscosity 35cSt)		cm^3/min	25

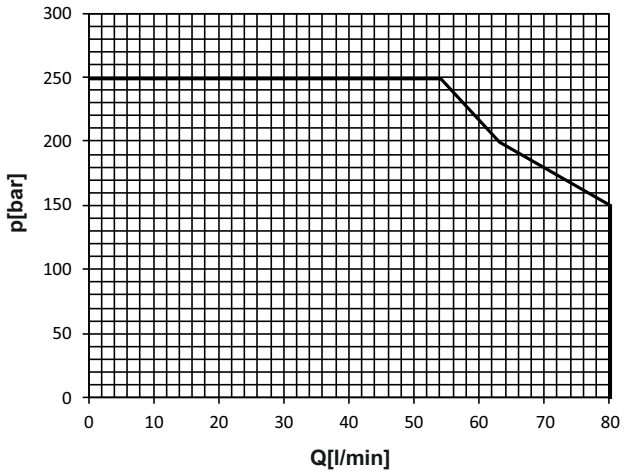
ELECTRICAL

Cyclic duration	%	ED100	
Waterproof		IP65	
Available voltages	V	12DC	24DC
Voltage tolerance	%	±10	
Power consumption	W	60	

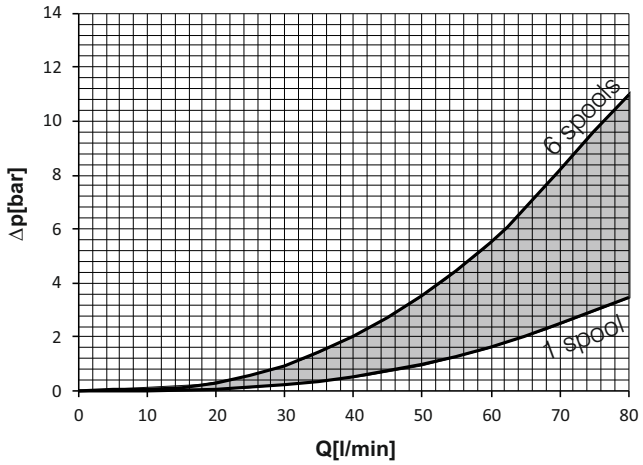
CHARACTERISTICS

All characteristics are measured with hydraulic oil - ISO VG32 , t=45±5°C

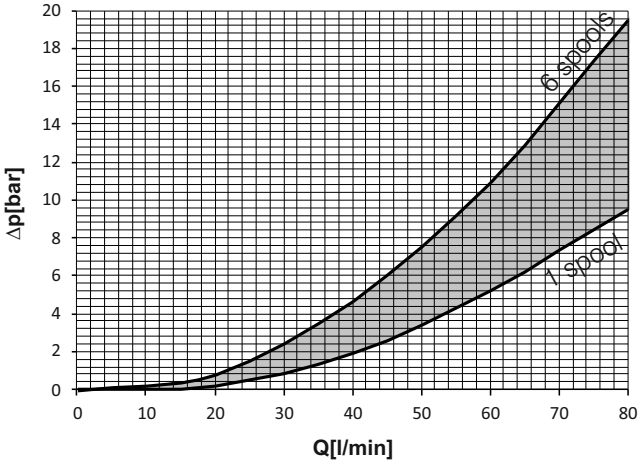
Functional limit



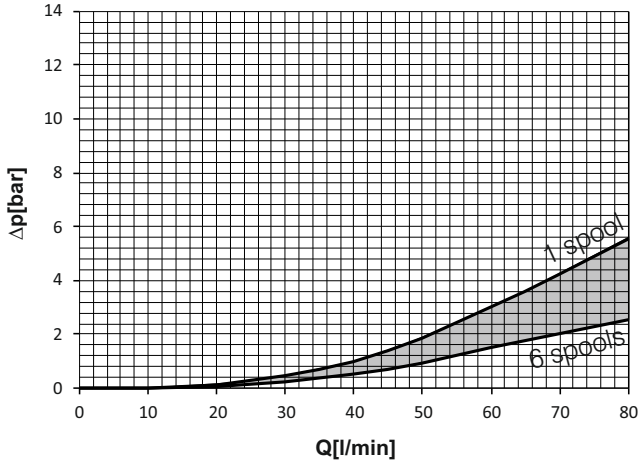
Pressure drop P to T

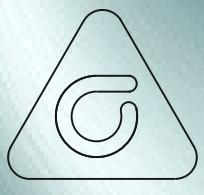


Pressure drop P to A&B



Pressure drop A&B to T





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