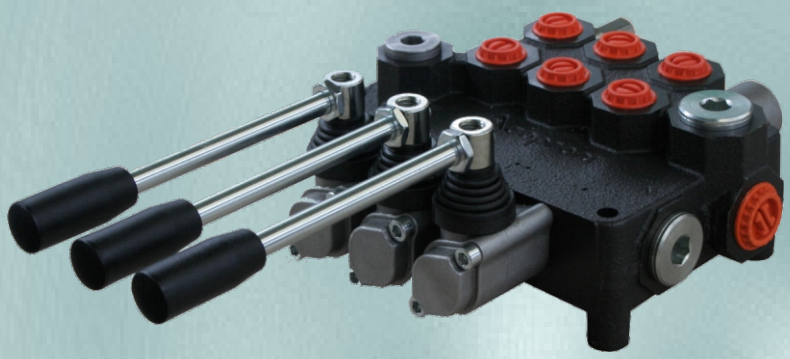
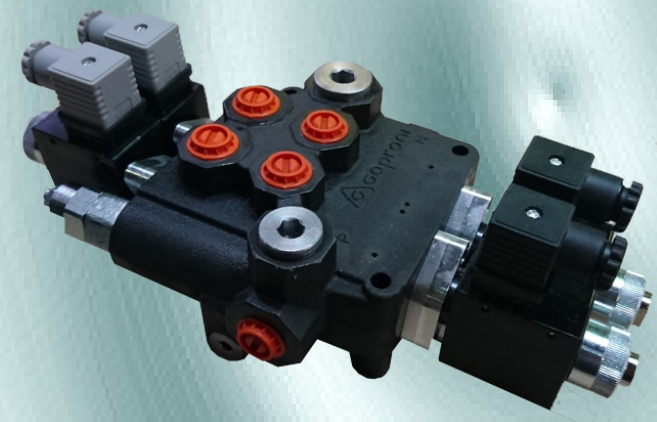




# MONOBLOCK DIRECTIONAL CONTROL VALVES

CONTENTS: Page

# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM20

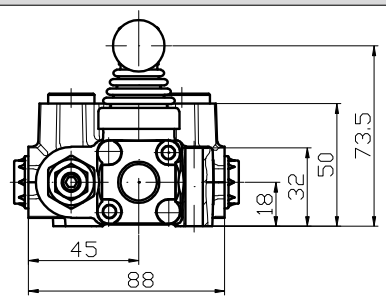
## GENERAL DESCRIPTION

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.

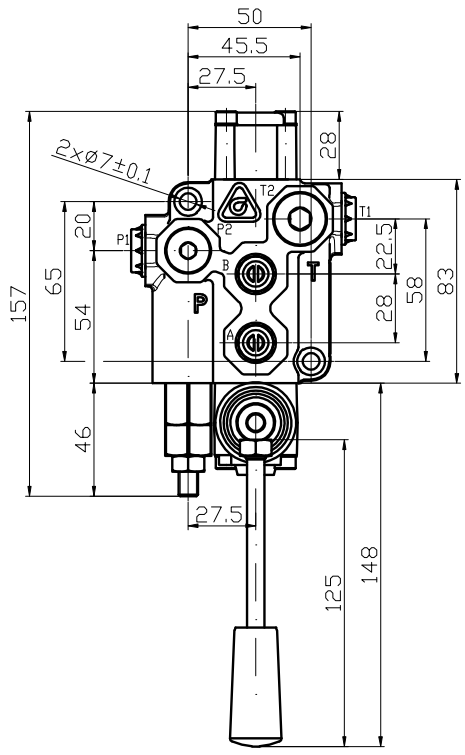
## TECHNICAL DATA

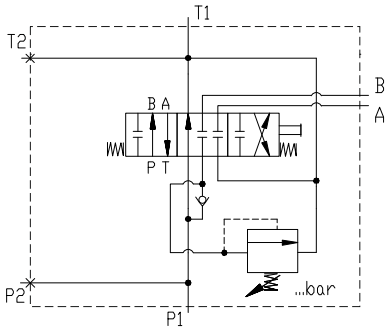
| | |
|---|---|
| Rated flow | 20 l/min |
| Max. pressure | P=250 bar; T=30 bar; A,B= 250 bar |
| Spool stroke | ±3,5 mm |
| Working temperature range | -15...+80 °C |
| Working liquid | hydraulic oil HLP DIN51524 |
| Liquid viscosity | 15...300cSt |
| Nominal filtration | ISO4406: 19/16 (recommended 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

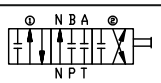
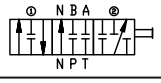
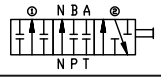
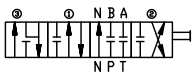
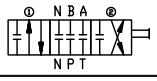
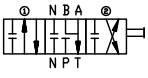
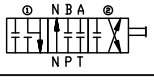
| Code | application |
|---|---|
| N | normal |
| T | tropical |

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

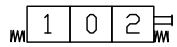
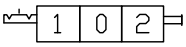
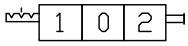
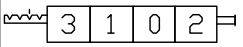
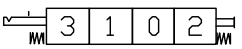
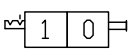
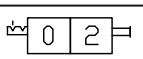
| relief valve | Code |
|---|---|
| setting range 5...250bar. (example of required settings 180bar.) | Q<br>Q180 |
| shut-off plug installed | K |

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

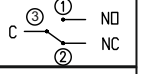
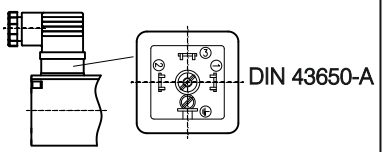
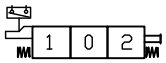
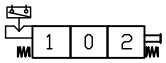
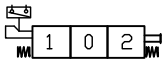
| Code | hydraulic power output |
|---|---|
| R | open center (port P connected to T - short plug) |
| W | closed center (port T1 plugged - long plug) |
| C | carry over (T1 - with power beyond sleeve) |

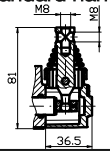
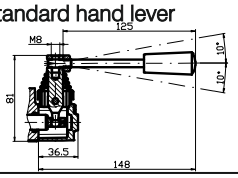
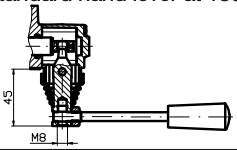
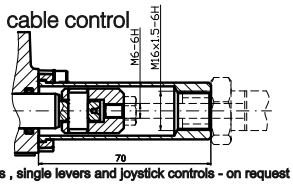
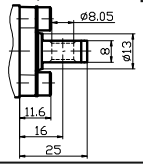
| spools | Code |
|---|---|
|  | 1 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 5* |
|  | 6 |
|  | 7 |
|  | 8* |

* 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 | 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 |
|---|---|
| |   |
| |   |
| 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 RM25

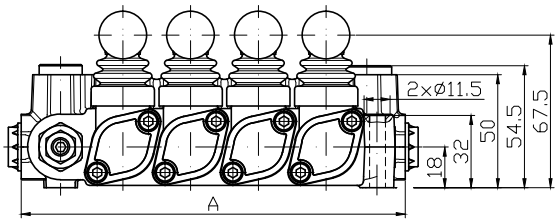
## GENERAL DESCRIPTION

Hydraulic valve RM25 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM25 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 RM25 provides parallel distribution of the working fluid 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 and detents.

## TECHNICAL DATA

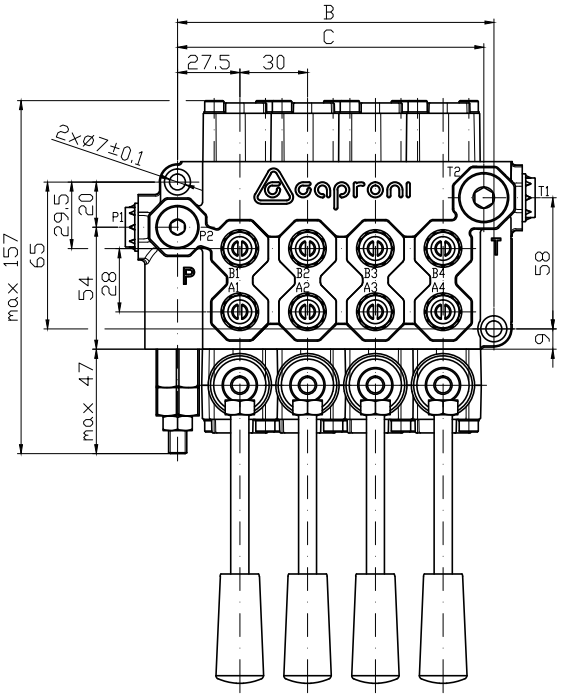
| | |
|---|---|
| Rated flow | 25 l/min |
| Max. pressure | P=250 bar; T=30 bar; A,B= 250 bar |
| Spool stroke | ±3,5 mm |
| Working temperature range | -15...+80 °C |
| Working liquid | hydraulic oil HLP DIN51524 |
| Liquid viscosity | 15...300cSt |
| Nominal filtration | ISO4406: 19/16 (recommended 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 |

## DIMENSIONS

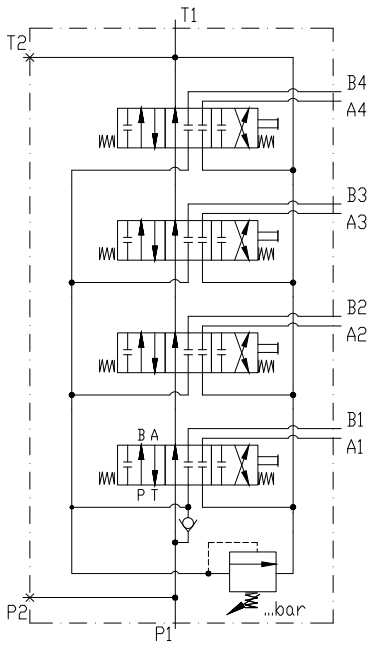



RM25P/04/Q/4x/1CLA1/R/P1T1/G/N

| Type | A | B | C | Weight, kg |
|---|---|---|---|---|
| RM25 | 80 | 50 | 45.5 | 1.7 |
| RM25P/04 | 170 | 140 | 135.5 | 4.4 |




STANDARD PARALLEL CIRCUIT



# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM25

## ORDERING CODE

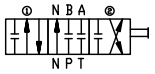
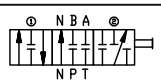
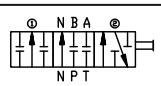
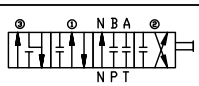
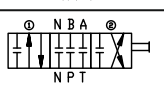
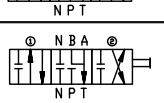
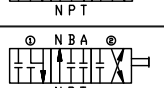
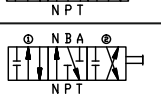
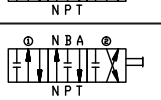
RM25P / 0 4 / Q / 1 CL A 1 E1 / R / P1T1 / G / N

parallel connection *for RM25 - omit*

| common check valve | Code |
|---|---|
| with check valve *for RM25 - omit* | 0 |
| without check valve | N |

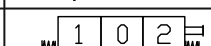
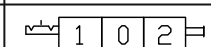
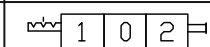
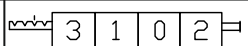
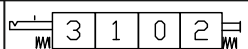
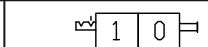
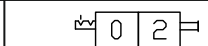
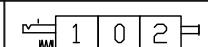
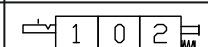
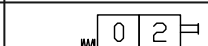
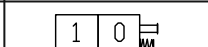
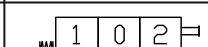
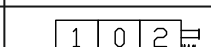
number of the spools *for RM25 - omit*

| relief valve | Code |
|---|---|
| setting range 30...250bar. (example of required settings 180bar.) | Q<br>Q180 |
| shut-off plug installed | K |

| spools | Code |
|---|---|
|  | 1 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 5* |
|  | 6 |
|  | 7 |
|  | 8* |
|  | 12 |
|  | 13 |

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

| Code | operation control |
|---|---|
| C<br>CL<br>CLO<br>CLR<br>CLS<br>H<br>Z<br>J... | see page 5/42 |

| Code | spool control |
|---|---|
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |

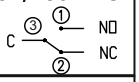
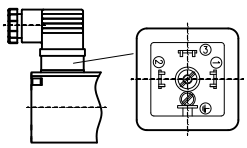
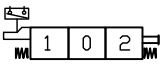
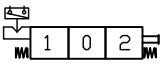
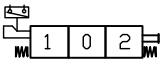
| Code | lever position |
|---|---|
| A | at port side A(standard) |
| B | at port side B |

| Code | application |
|---|---|
| N | normal |
| T | tropical |

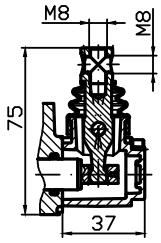
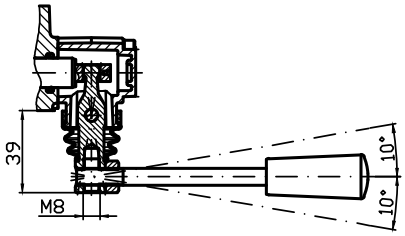
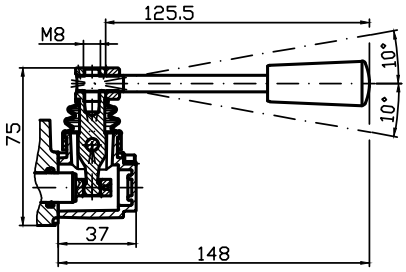
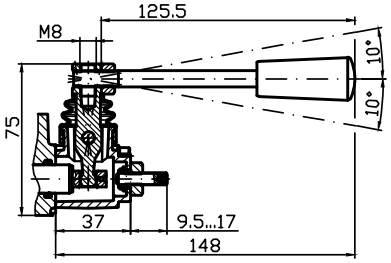
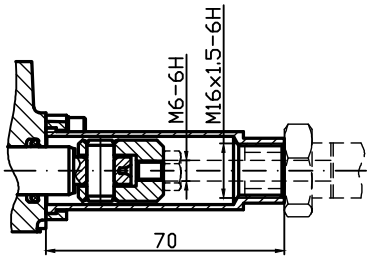
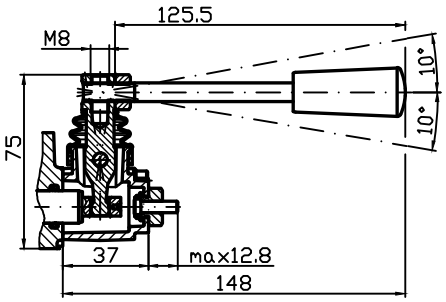
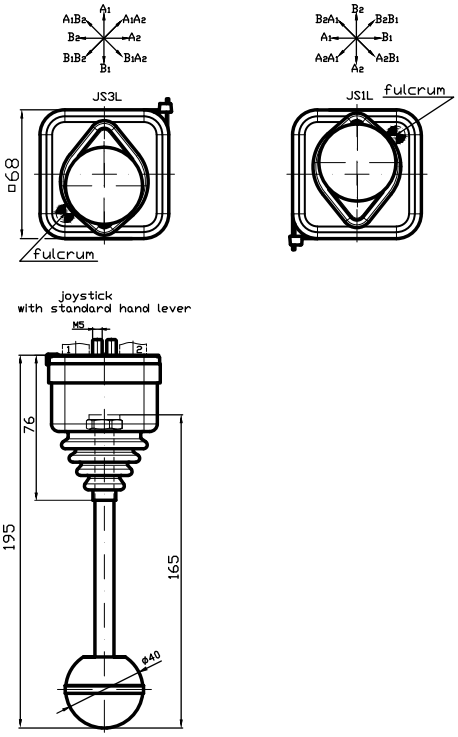
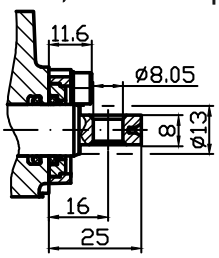
| standard port threads | | |
|---|---|---|
| Code | P1 , T1 , T2 | P2 , A , B |
| G | G3/8"-A | G1/4"-A |
| G3/8 | G3/8"-A | G3/8"-A |

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

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

## 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 cable control   Cables , single levers and joystick controls - on request | H | with limit switch   | CLS |
| with joystick   | JS... | without lever , with dust-proof plate   | Z |

# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM35

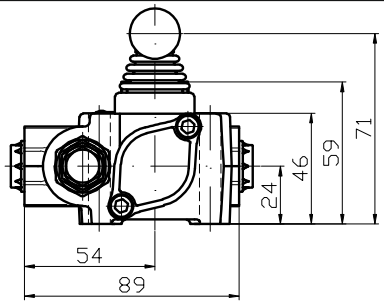
## GENERAL DESCRIPTION

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 is different control options: spring–centering in “neutral” position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

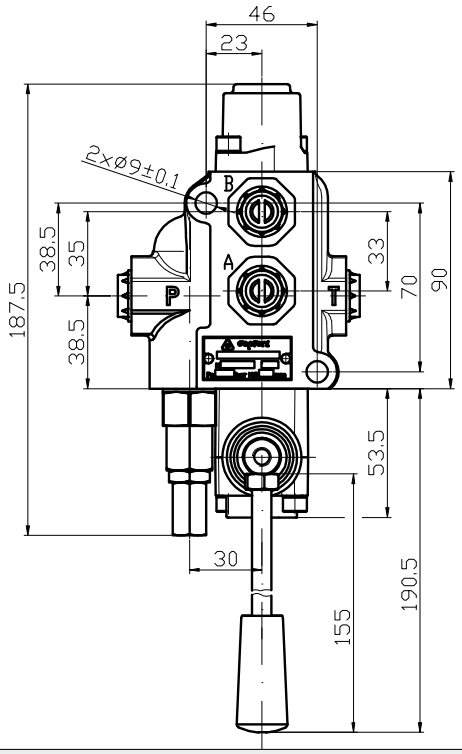
## TECHNICAL DATA

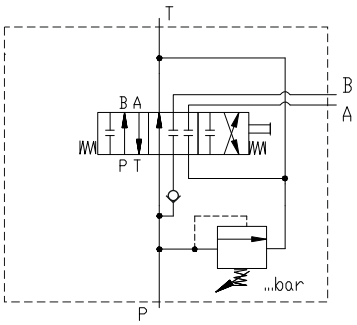
| | |
|---|---|
| Rated flow | 35 l/min |
| Max. pressure | P=250 bar; T=50 bar; A,B= 300 bar |
| Spool stroke | ±6 mm |
| Working temperature range | -15...+80 °C |
| Working liquid | hydraulic oil HLP DIN51524 |
| Liquid viscosity | 15...300cSt |
| Nominal filtration | ISO4406: 19/16 (recommended filter 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



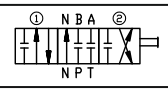
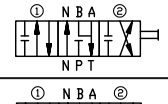
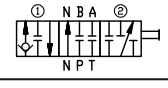
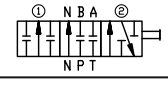
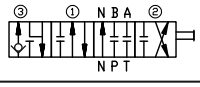
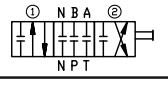
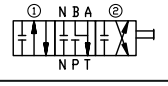
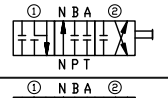
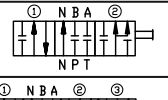
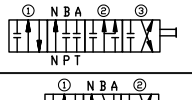
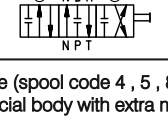
## ORDERING CODE

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

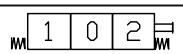
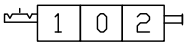
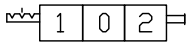
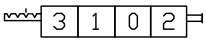
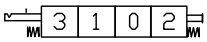
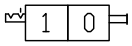
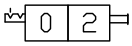
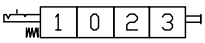
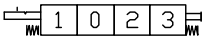
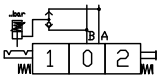
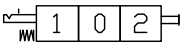
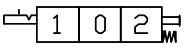
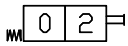
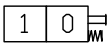
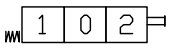
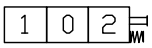
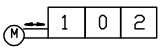
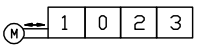
| type of control | Code |
|---|---|
| without control | omit |
| ON-OFF internal electro-hydraulic | EHI |
| ON-OFF external electro-hydraulic | EHE |
| ON-OFF electro-pneumatic | EPC |
| ON-OFF hydraulic | HC |
| ON-OFF pneumatic | PC |

with check valve - omit
without check valve - N

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

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

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

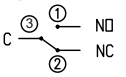
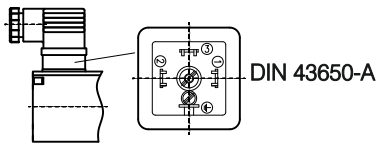
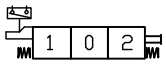
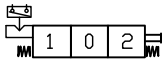
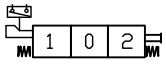
| Code | spool control |
|---|---|
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 9 |  |
| 10 |  |
| 11* |  <br>Adjustment range of automatic kick-out feature - 60...180bar |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| SD1 |  |
| SD10 |  |

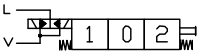
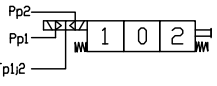
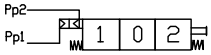
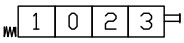
| Code | lever position |
|---|---|
| A | at port side A(standard) |
| B | at port side B |

| Code | operation control |
|---|---|
| C<br>CL<br>CLO<br>CLR<br>CLS<br>SHL<br>SVL<br>CP<br>H<br>Z | see page 8/42 |

| standard port threads | |
|---|---|
| Code | P , T , A , B |
| M | M18x1,5-6H |
| G | G3/8"-A |
| U | 3/4-16UNF-2B |

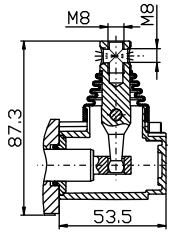
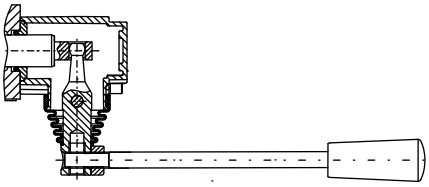
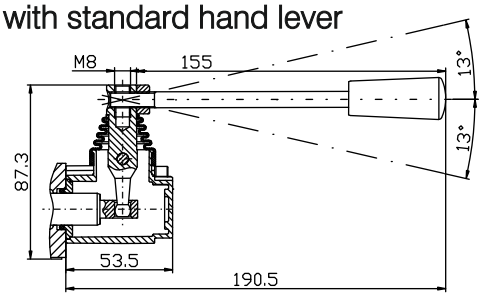
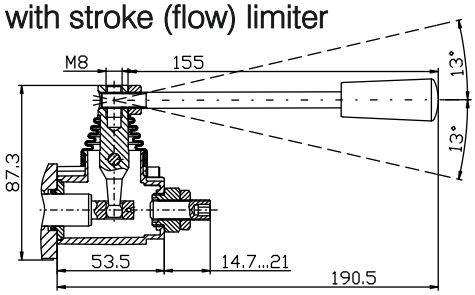
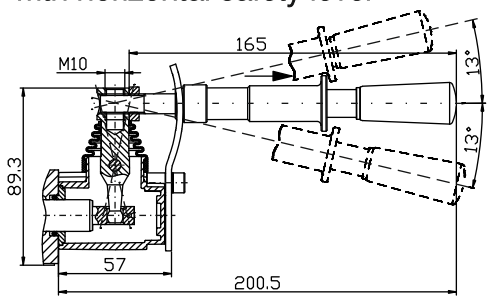
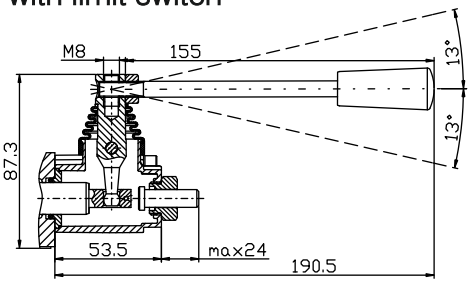
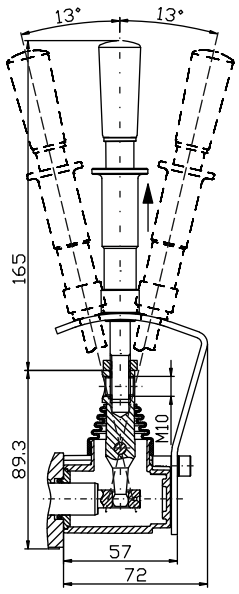
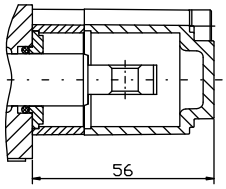
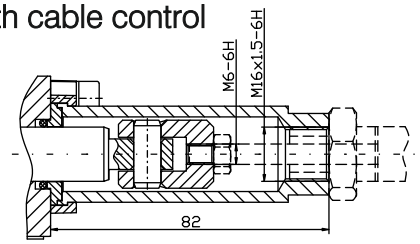
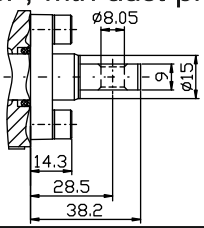
| Code | application |
|---|---|
| N | normal |
| T | tropical |

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

| Code | spool control | |
|---|---|---|
| 20-12<br>20-24<br>20-11<br>20-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC | ON-OFF EHI & EHE  |
| 30-12<br>30-24<br>30-11<br>30-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC | ON-OFF EPC  |
| 32 | | ON-OFF HC & PC  |
| 19 | |  |

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

## 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 RM40

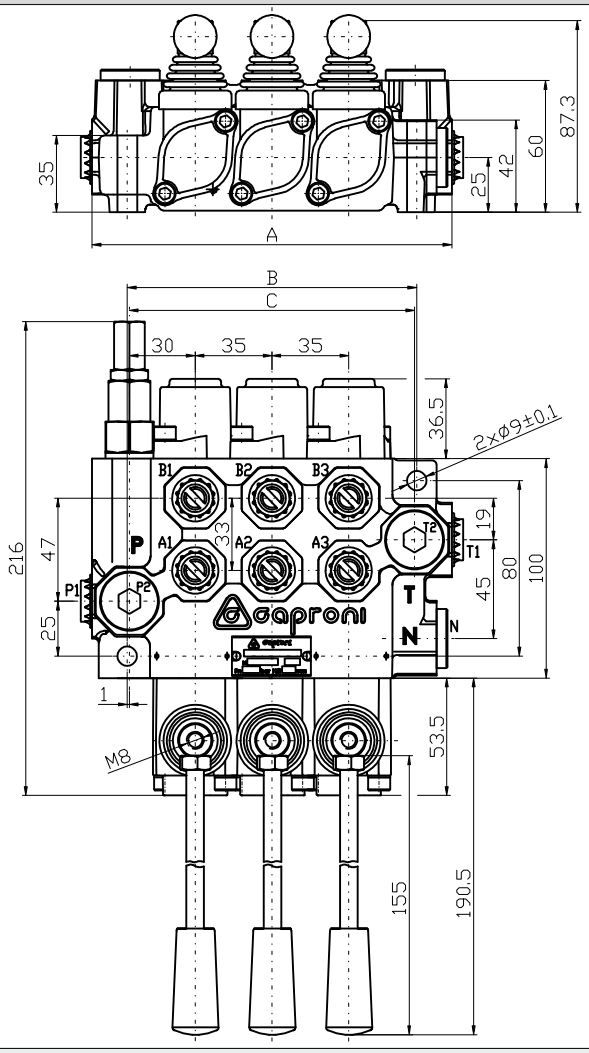
## GENERAL DESCRIPTION

Hydraulic valve RM40 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM40 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 RM40 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, pneumatic, electro-hydraulic and electro-pneumatic 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 |

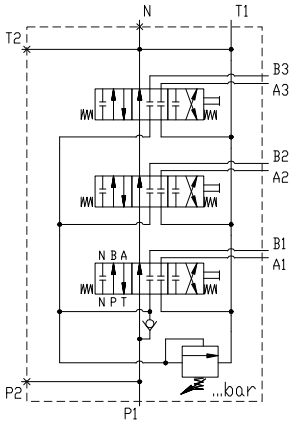
## DIMENSIONS




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 |
| RM40P/08 | 339 | 307 | 305 | 13.4 |

STANDARD PARALLEL CIRCUIT



## ORDERING CODE

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

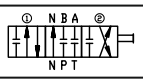
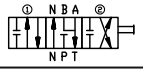
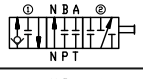
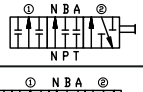
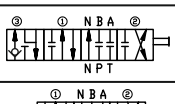
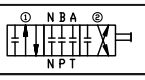
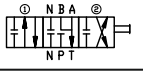
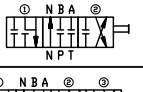
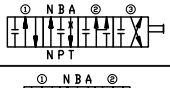
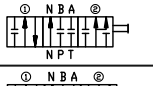
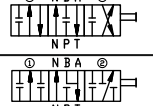
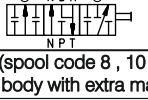
parallel connection *for RM40 - omit*

| 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 |

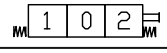
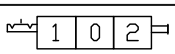
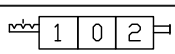
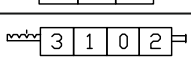
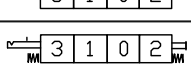
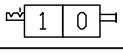
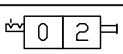
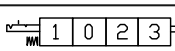
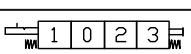
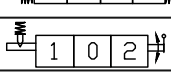
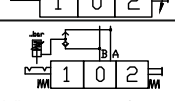
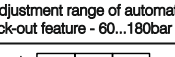
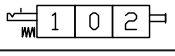
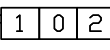
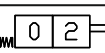
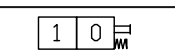
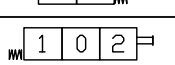
| common check valve | Code |
|---|---|
| with check valve *for RM40 - omit* | 0 |
| without check valve | N |

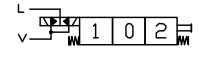
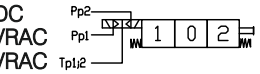
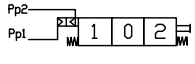
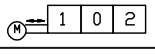
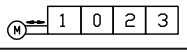
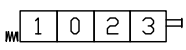
number of the spools *for RM40 - omit*

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

| spools | Code |
|---|---|
|  | 1 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 5 |
|  | 6 |
|  | 7 |
|  | 8* |
|  | 10* |
|  | 11* |
|  | 12 |
|  | 13 |
|  | 15 |

* The scheme (spool code 8 , 10 , 11 and 15) needs special body with extra machining.

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

| Code | spool control |
|---|---|
| 20-12<br>20-24<br>20-11<br>20-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EHI & EHE  |
| 30-12<br>30-24<br>30-11<br>30-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EPC  |
| 32 | ON-OFF HC & PC  |
| SD1 |  |
| SD10 |  |
| 19 |  |

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

| Code | operation control |
|---|---|
| C<br>CL<br>CLO<br>CLR<br>CLS<br>CP<br>H<br>Z | see page 3/6 |
| J... | see page 4/6 |

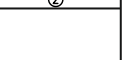
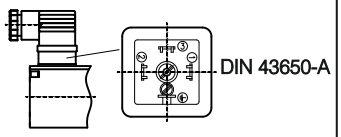
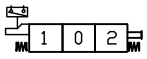
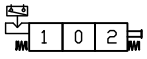
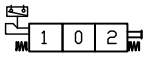
| Code | lever position |
|---|---|
| A | at port side A (standard) |
| B | at port side B |

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

| 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 |

| 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 | | |

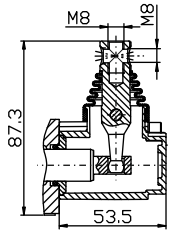
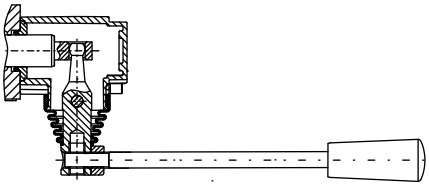
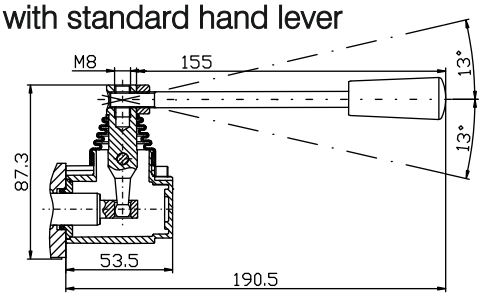
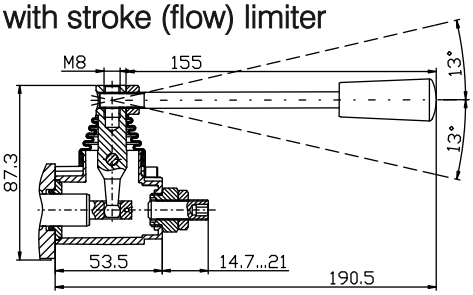
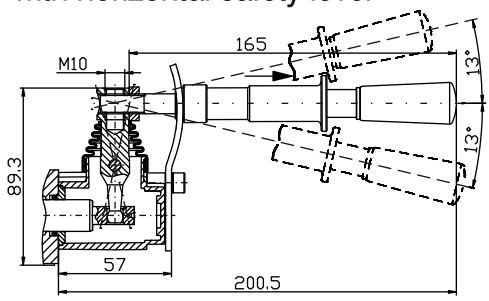
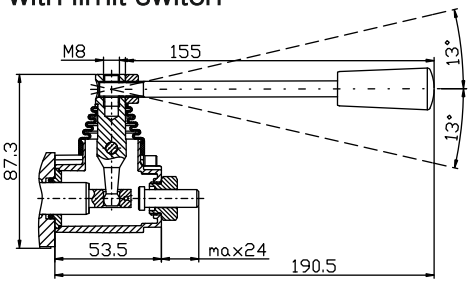
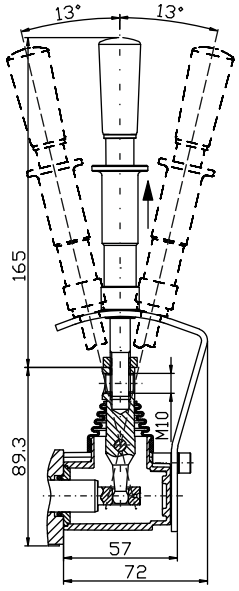
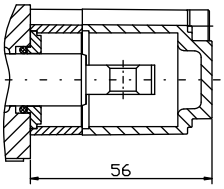
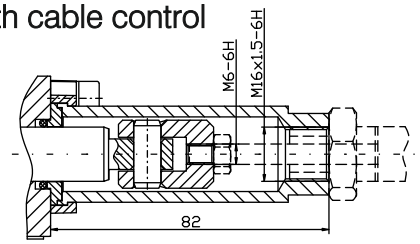
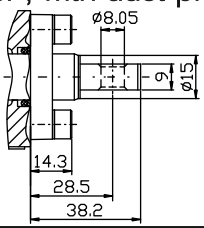
| Code | application |
|---|---|
| N | normal |
| T | tropical |

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

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

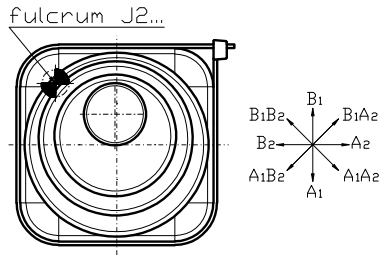
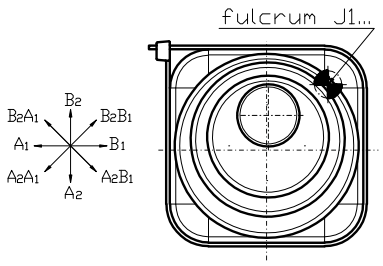
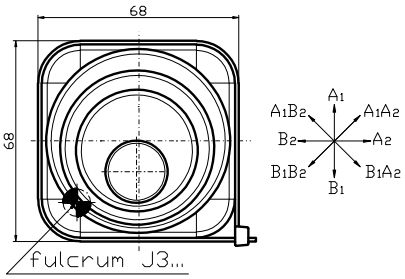
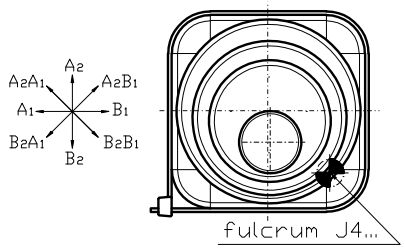
*** See page 6/6

## 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 |

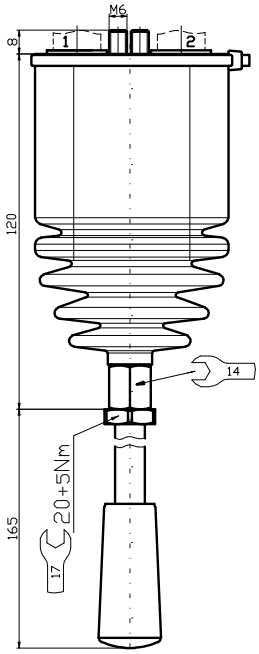
## OPERATION CONTROL

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

| | Code | | Code |
|---|---|---|---|
|  | J2... |  | J1... |
|  | J3... |  | J4... |

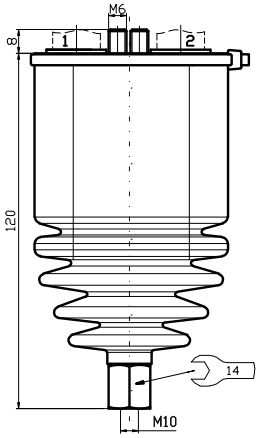
joystick
with standard hand lever

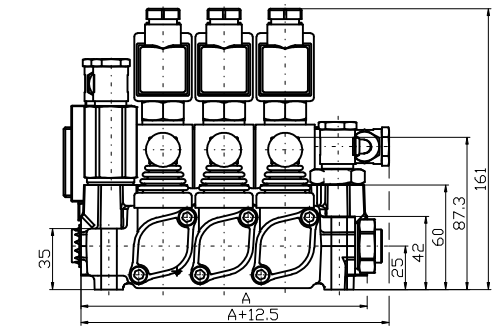
**Code:** J1L ; J2L ; J3L ; J4L

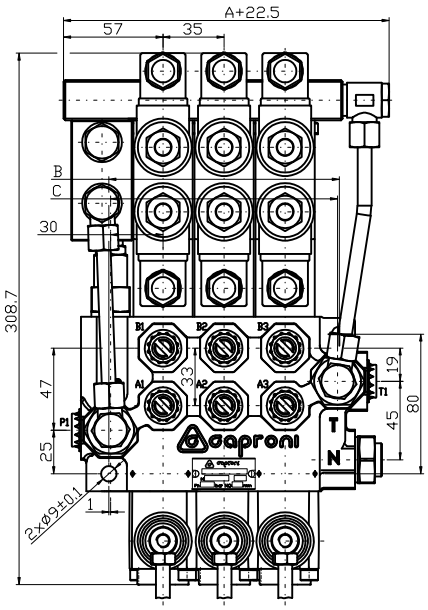



joystick
without standard hand lever

**Code:** J1 ; J2 ; J3 ; J4





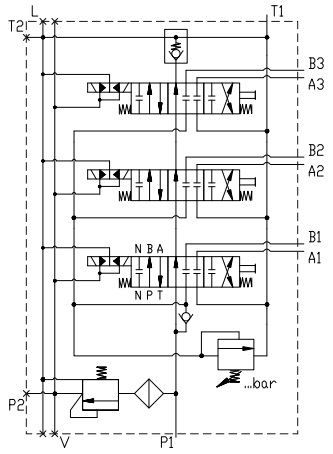



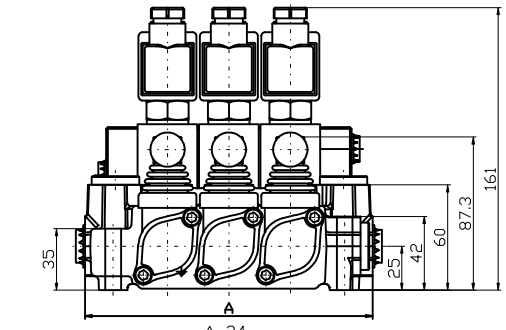

RM40PEHI/03/Q/3x/1CLA20-24/R/P1T1/G/N

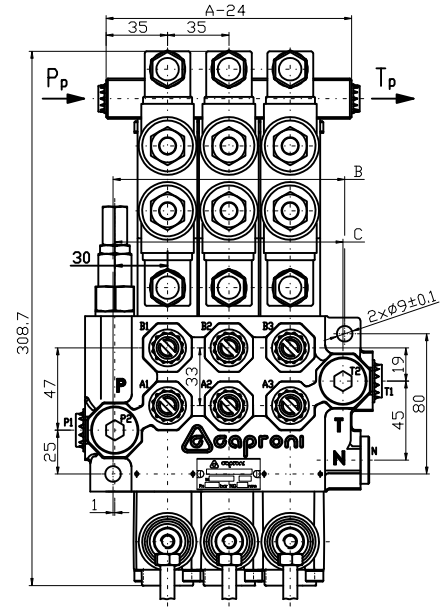
On/Off electrohydraulic control (internal) operating features:

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

Scheme



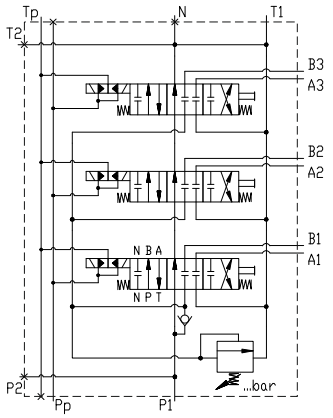




RM40PEHE/03/Q/3x/1CLA20-24/R/P1T1/G/N

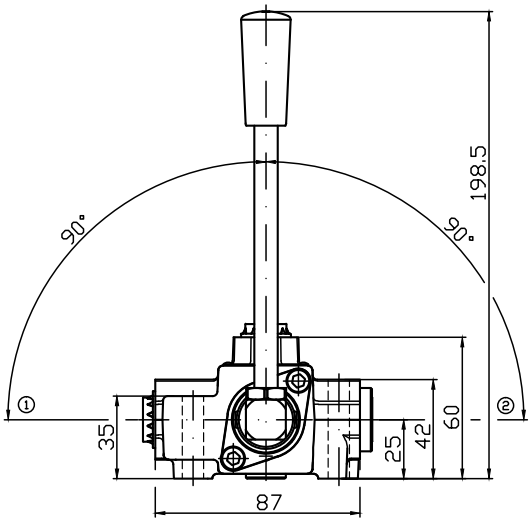
On/Off electrohydraulic control (external) operating features:

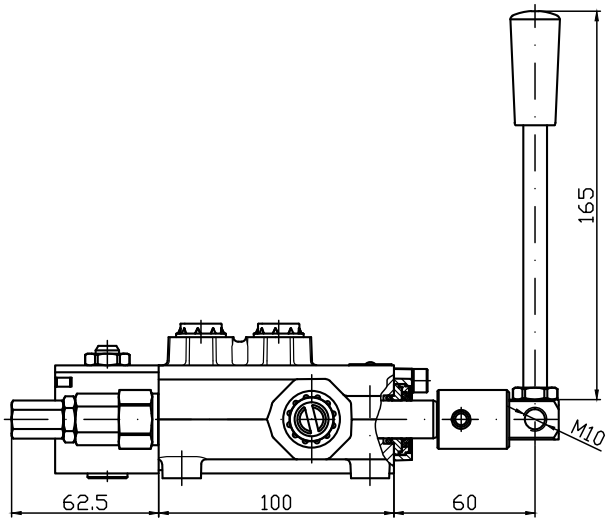
Pilot pressure Pp - 10...50 bar
Max. pilot flow - 8 l/min
Filtration - 25 $\mu$m
Coil - 18W , duty cycle ED 100%
Voltage options - 12V DC , 24V DC , 110V RAC , 220V RAC
Pp , Tp - G1/4

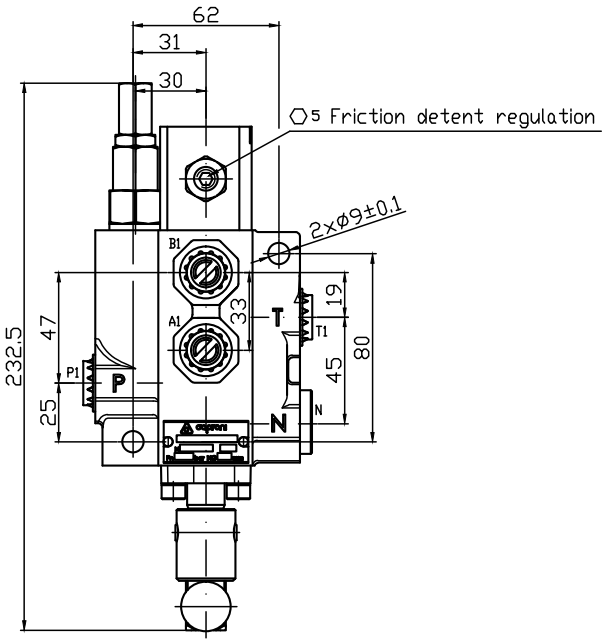
Scheme



RM40/Q/1LPRZRLAR/R/P1T1/G/T

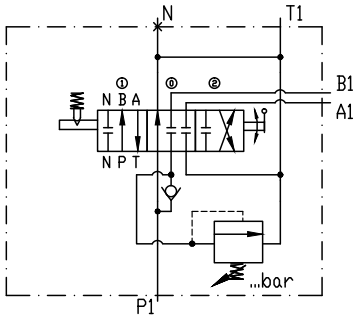



Rotary control valve:
Smooth positioning the rotary lever in a set position by friction detent with notch in the neutral position
The rotary control valve provide good speed control for hydraulic motors (winch applications).
Available for marine applications – stainless steel spool and lever, all other parts – painted.

Scheme



# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RM80

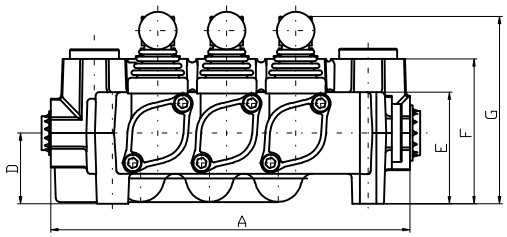
## GENERAL DESCRIPTION

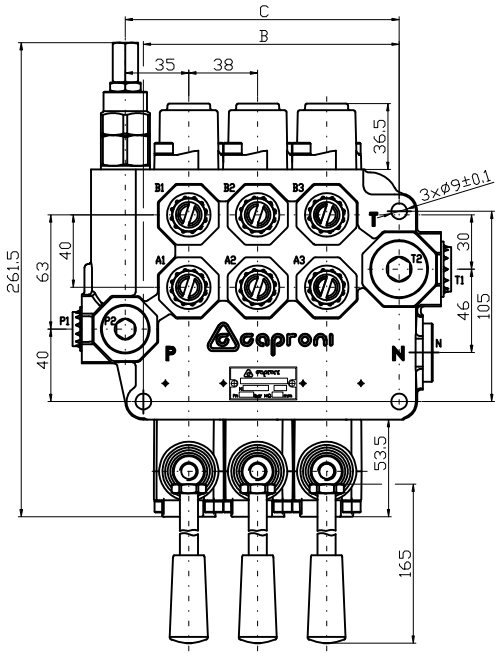
Hydraulic valve RM80 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. The valve RM80 is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.
The valve assembly consists of:
A body with integrated 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

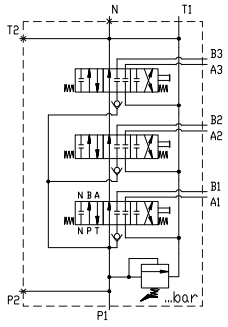


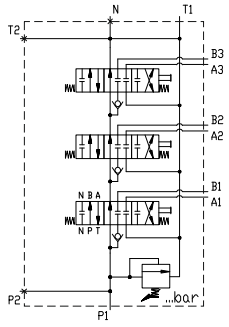

RM80P/3/Q/3x/1CLA1/R/P1T1/G/N

| 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 |

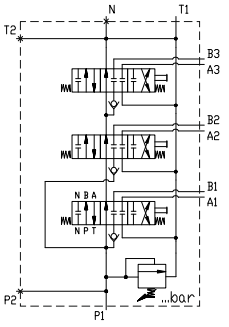
STANDARD PARALLEL CIRCUIT




STANDARD SERIES CIRCUIT




TANDEM CIRCUIT



## ORDERING CODE

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

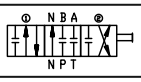
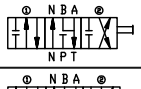
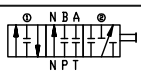
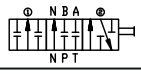
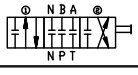
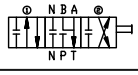
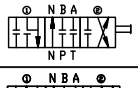
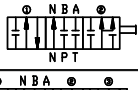
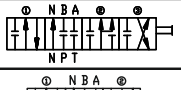
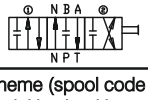
| type of connection | Code |
|---|---|
| *for RM80* | *omit* |
| Parallel | P |
| Series* | S |
| Tandem (P+S)* | T |

* 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<br>Q180 |
| shut-off plug installed | K |

| 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<br>CL<br>CLO<br>CLR<br>CLS<br>CP<br>H<br>Z | see page 17/42 |
| J... | see page 18/42 |

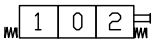
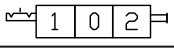
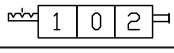
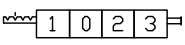
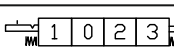
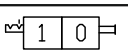
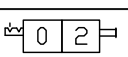
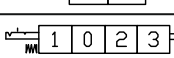
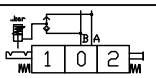
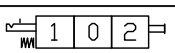
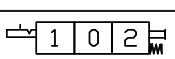
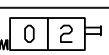
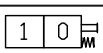
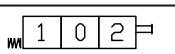
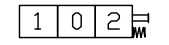
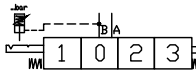
| Code | lever position |
|---|---|
| A | at port side A (standard) |
| B | at port side B |

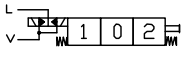
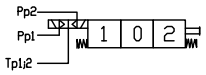
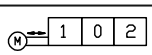
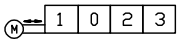
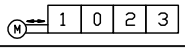
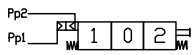
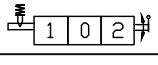
| Code | hydraulic power output |
|---|---|
| R | open center (port N connected to T - short plug) |
| W | closed center (port N plugged - long plug) |
| C | carry over (port N - with power beyond sleeve) |
| CS | short carry over connection |

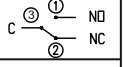
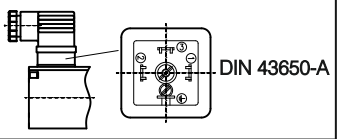
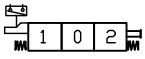
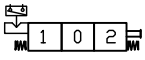
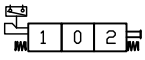
| standard port threads | | |
|---|---|---|
| Code | P1 , P2 , A , B | T1 , T2 , N |
| M | M22x1,5-6H | M26x1,5-6H |
| G | G1/2"-A | G3/4"-A |
| U | 7/8-14UNF-2B | 1 1/16-12UN-2B |

| Code | application |
|---|---|
| N | normal |
| T | tropical |

| Code | 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* |  <br>Adjustment range of automatic kick-out feature - 60...180bar |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 19* |  <br>Adjustment range of automatic kick-out feature - 60...180bar |

| Code | spool control |
|---|---|
| 20-12<br>20-24<br>20-11<br>20-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EHI & EHE  |
| 30-12<br>30-24<br>30-11<br>30-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EPC  |
| SD1 |  |
| SD5 |  |
| SD10 |  |
| 32 | ON-OFF HC & PC  |
| R*** |  |

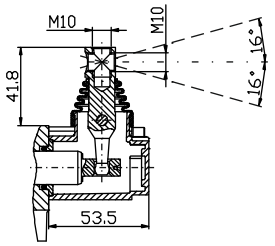
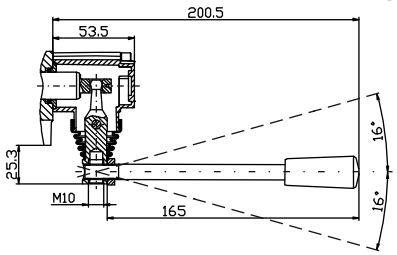
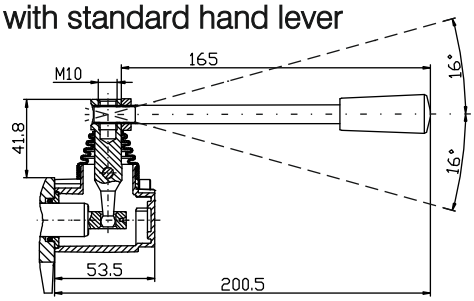
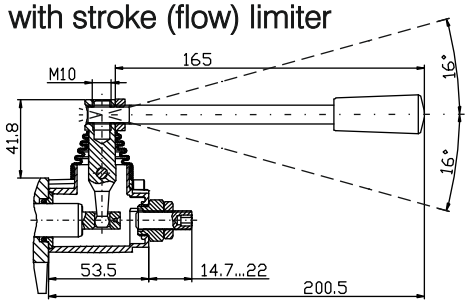
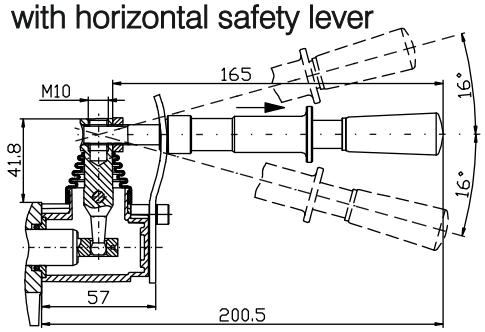
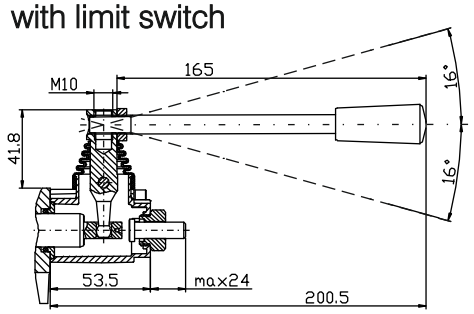
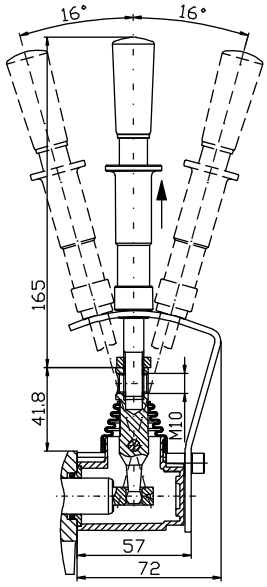
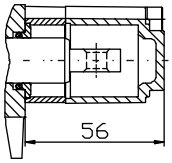
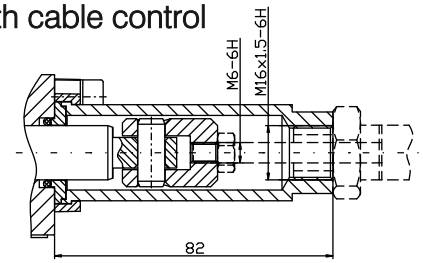
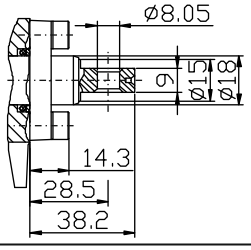
| micro switch: max. current/voltage - 5A/250V AC protection - IP67 contact configuration  | |
|---|---|
| Code |  DIN 43650-A |
| omit | without microswitch |
| E1 |  |
| E2 |  |
| E3 |  |

* The kit (spool control code 11 and 19) need special spool.

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

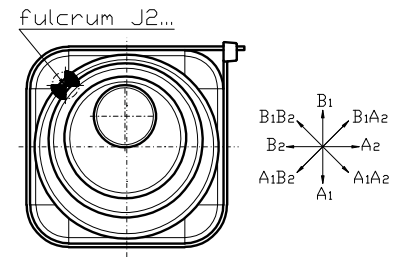
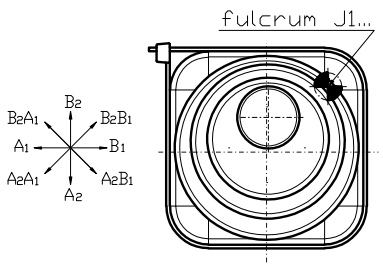
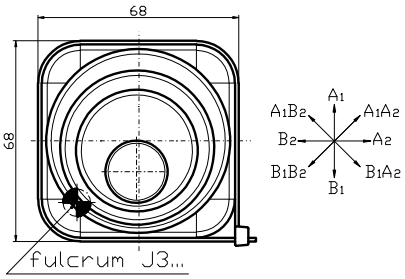
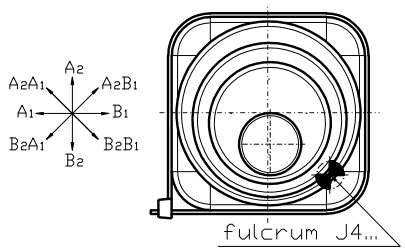
*** See page 20/42

## 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 |

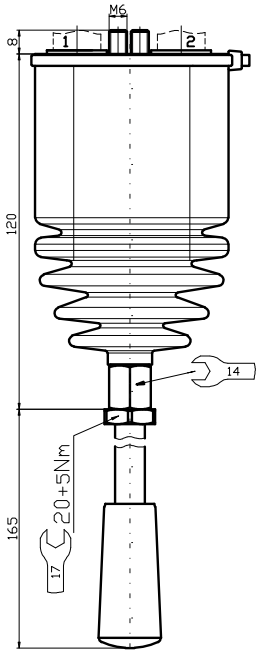
## OPERATION CONTROL

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

| | Code | | Code |
|---|---|---|---|
|  | J2... |  | J1... |
|  | J3... |  | J4... |

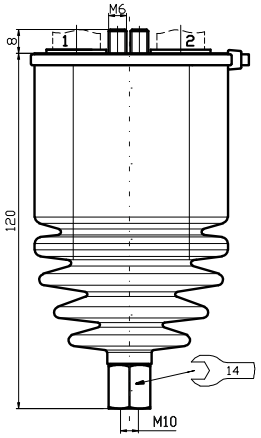
### joystick with standard hand lever

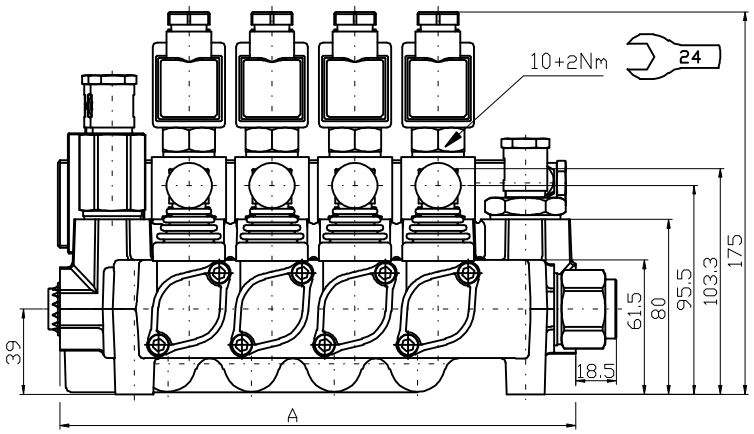
**Code:** J1L ; J2L ; J3L ; J4L




### joystick without standard hand lever

**Code:** J1 ; J2 ; J3 ; J4

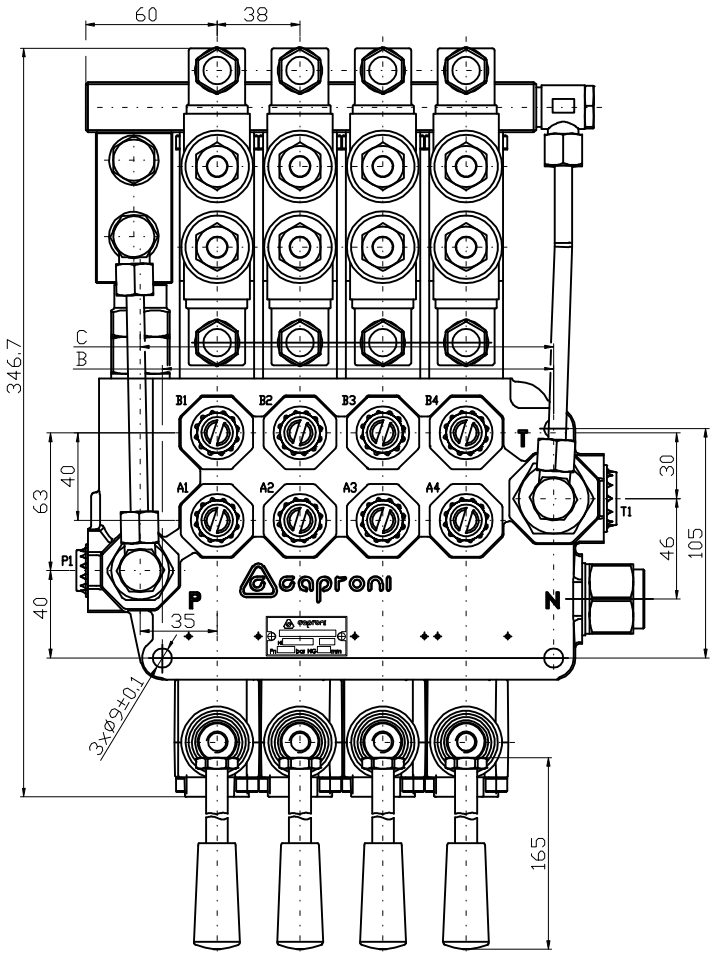




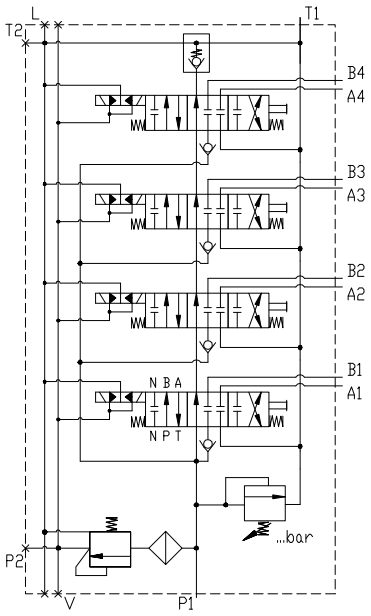

RM80PEHI/4/Q/4x/1CLA20-24/R/P1T1/G/N

On/Off electrohydraulic control (internal) operating features:

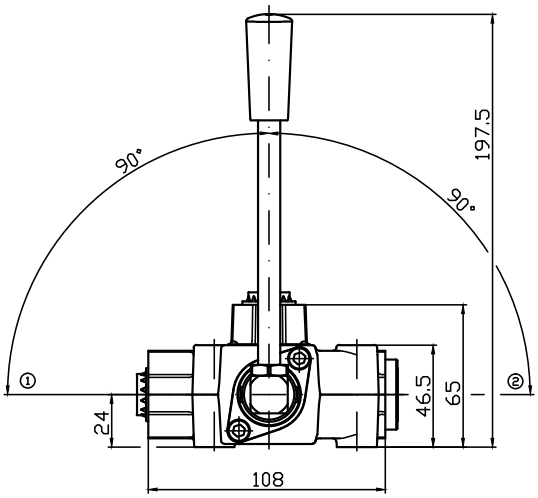
Pilot pressure - 10...50 bar
Max. pilot flow - 8 l/min
Filtration - 25 mm
Coil - 18W , duty cycle ED 100%
Voltage options - 12V DC , 24V DC , 110V RAC , 220V RAC
Integrated back pressure valve

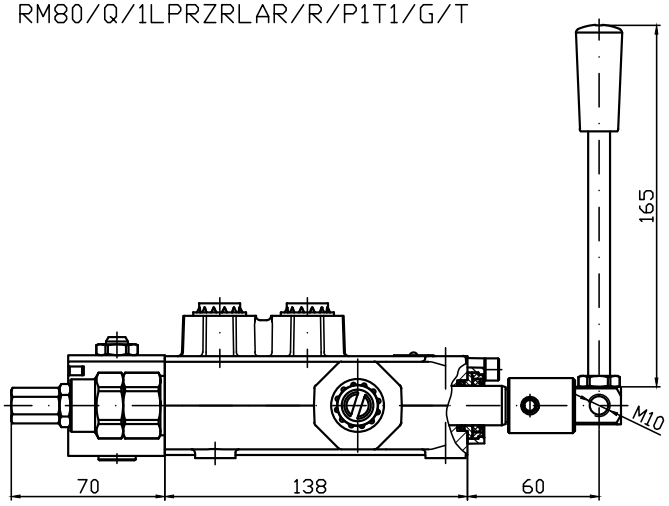


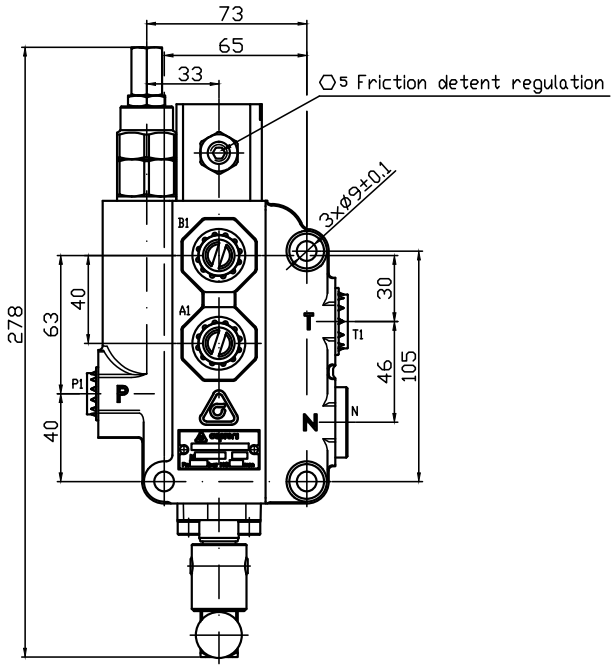

Scheme



RM80/Q/1LPRZRLAR/R/P1T1/G/T

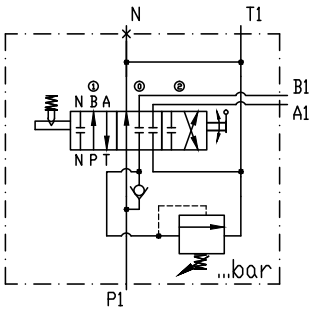



Rotary control valve:
Smooth positioning the rotary lever in a set position by friction detent with notch in the neutral position
The rotary control valve provide good speed control for hydraulic motors (winch applications).
Available for marine applications – stainless steel spool and lever, all other parts – painted.

Scheme



## GENERAL DESCRIPTION

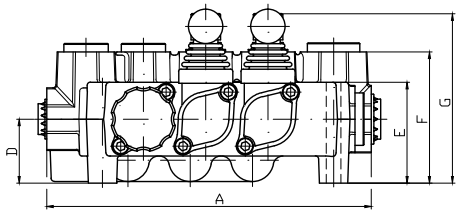
Hydraulic valve RMF80 provides change of fluid flow direction , hydro-systems pressure restriction , pump unloading in neutral position of the spools. Integrated pressure compensated flow control valve provide flow adjustment of the priority flow(PF) and exceeding flow (EF) is sent to tank. Best performance 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

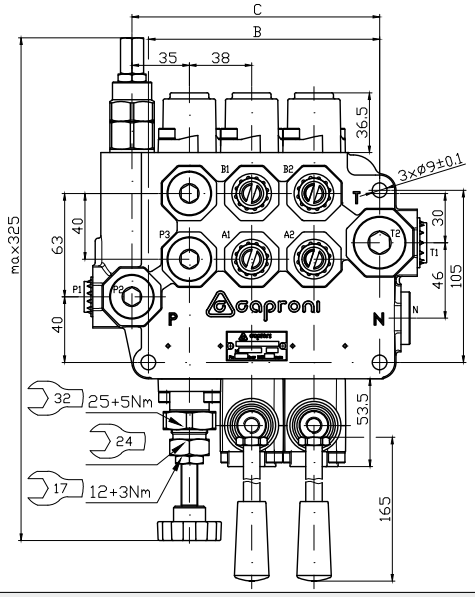
| | |
|---|---|
| Rated flow | 80 l/min |
| Max. inlet flow rate | 95 l/min |
| Flow control valve setting range | 5...80 l/min. |
| Max. pressure | P=250 bar; T=50 bar; A,B= 300 bar |
| Spool stroke | ±7 mm |
| Working temperature range | -15...+80 °C |
| Working liquid | hydraulic oil HLP DIN51524 |
| 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

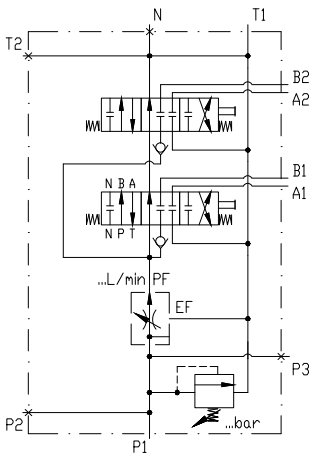
RMF80/2/Q/F/2x/1CLA1/R/P1T1/G/N

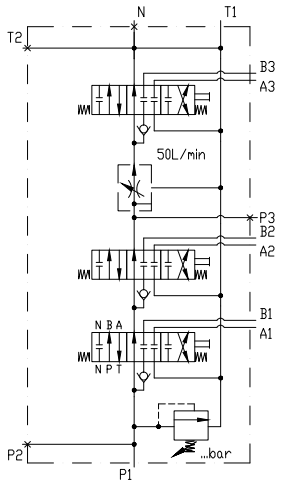



| Type | A | B | C | D | E | F | G | Weight, kg |
|---|---|---|---|---|---|---|---|---|
| RMF80 | 160 | 103 | 113 | 39 | 61.5 | 80 | 103.3 | 7.4 |
| RMF80P/2 | 198 | 141 | 151 | | | | | 9.7 |
| RMF80P/3 | 236 | 179 | 189 | | | | | 12.0 |
| RMF80P/4 | 274 | 217 | 227 | | | | | 14.3 |
| RMF80P/5 | 312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




STANDARD PARALLEL CIRCUIT




RMF80/3/Q/2x/1CLA1/F50/1CLA1/R/P1T1/G/N

# ORDERING CODE

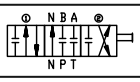
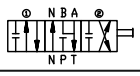
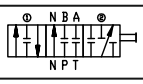
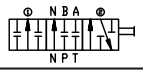
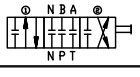
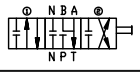
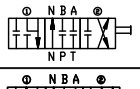
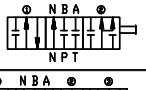
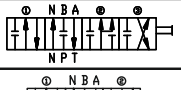
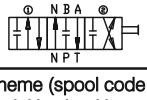
RMF80EHI / 3 / Q / F / 1 CL A 1 E1** / R / P1T1 / G / N

| 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<br>Q180 |
| shut-off plug installed | K |

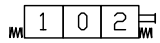
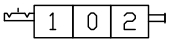
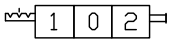
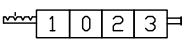
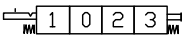
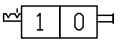
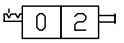
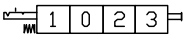
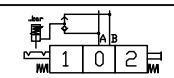
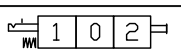
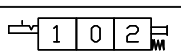
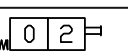
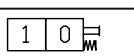
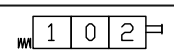
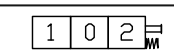
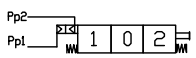
| flow control valve | Code |
|---|---|
| setting range 5...80 l/min | F |
| required setting 60 l/min | F60 |

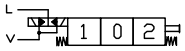
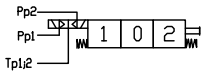
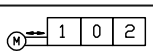
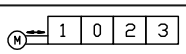
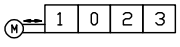
| spools | Code |
|---|---|
|  | 1 |
|  | 2 |
|  | 3 |
|  | 4 |
|  | 5 |
|  | 6 |
|  | 7 |
|  | 8* |
|  | 9* |
|  | 10 |
|  | 12 |
|  | 13 |

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

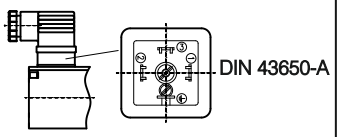
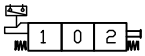
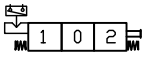
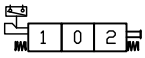
| Code | operation control |
|---|---|
| C<br>CL<br>CLO<br>CLR<br>CLS<br>CP<br>H<br>Z | see page 23/42 |
| J... | see page 24/42 |

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

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

| Code | spool control |
|---|---|
| 20-12<br>20-24<br>20-11<br>20-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EHI & EHE<br>  |
| 30-12<br>30-24<br>30-11<br>30-22 | 12VDC<br>24VDC<br>110VRAC<br>220VRAC<br>ON-OFF EPC<br>  |
| 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 | used conn. ports |
|---|---|
| P1T1 | P1 and T1 |
| P1T2 | P1 and T2 |
| P2T1 | P2 and T1 |
| P2T2 | P2 and T2 |

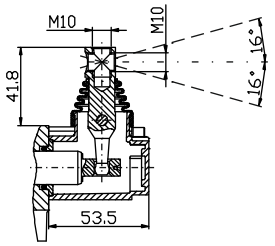
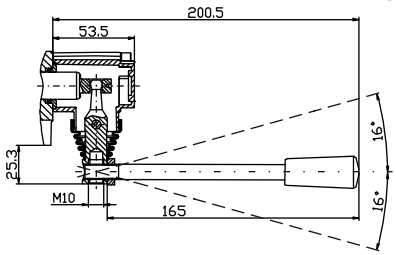
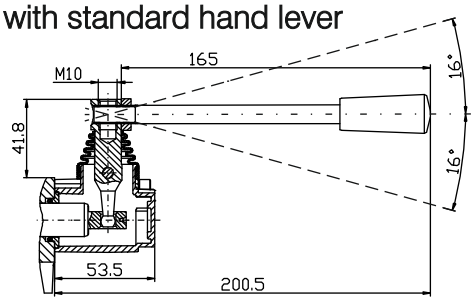
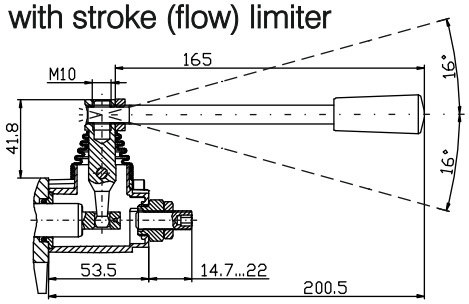
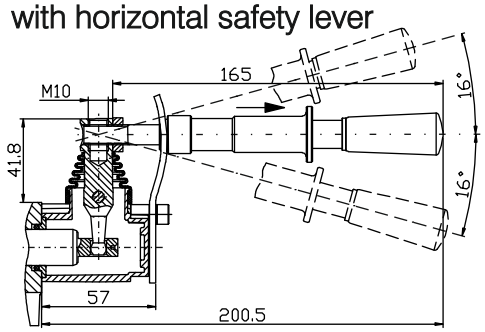
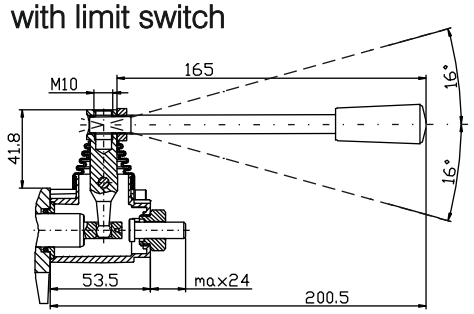
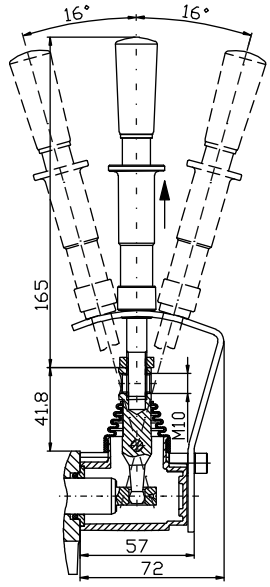
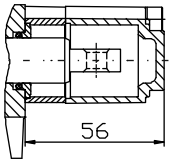
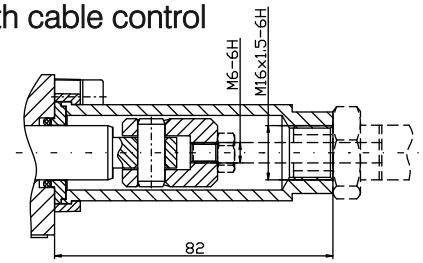
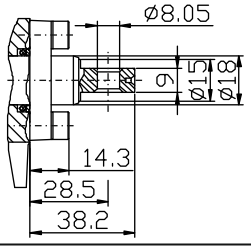
| Code | hydraulic power output |
|---|---|
| R | open center (port N connected to T - short plug) |
| W | closed center (port N plugged - long plug) |
| C | carry over (port N - with power beyond sleeve) |

| 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 |

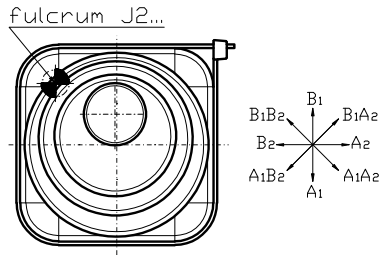
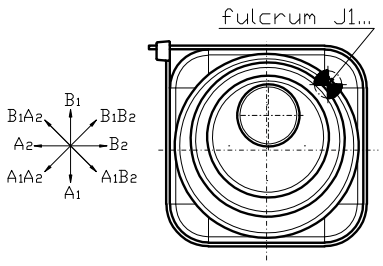
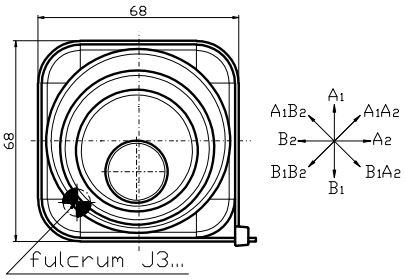
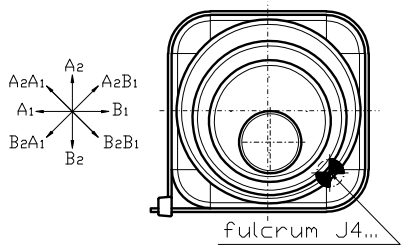
** Repeat for each spool. In case of identical spools ordering code example is:
RMF80 / 3 / Q / F / 3x / 1CL A1 / R / P1T1 / G / N

## 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 |

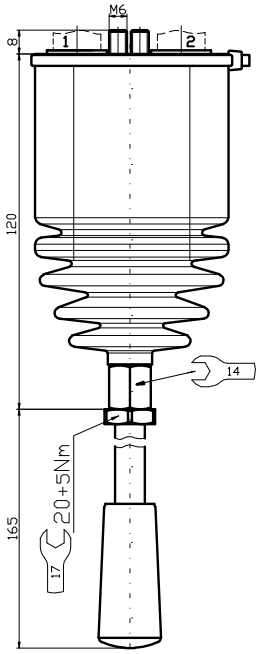
## OPERATION CONTROL

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

| | Code | | Code |
|---|---|---|---|
|  | J2... |  | J1... |
|  | J3... |  | J4... |

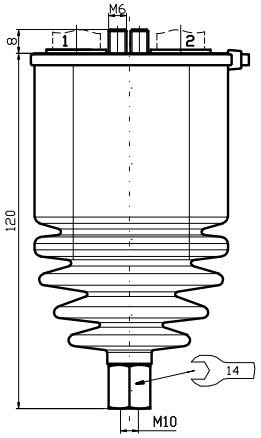
### joystick with standard hand lever

**Code:** J1L ; J2L ; J3L ; J4L




### joystick without standard hand lever

**Code:** J1 ; J2 ; J3 ; J4



# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE RMD90

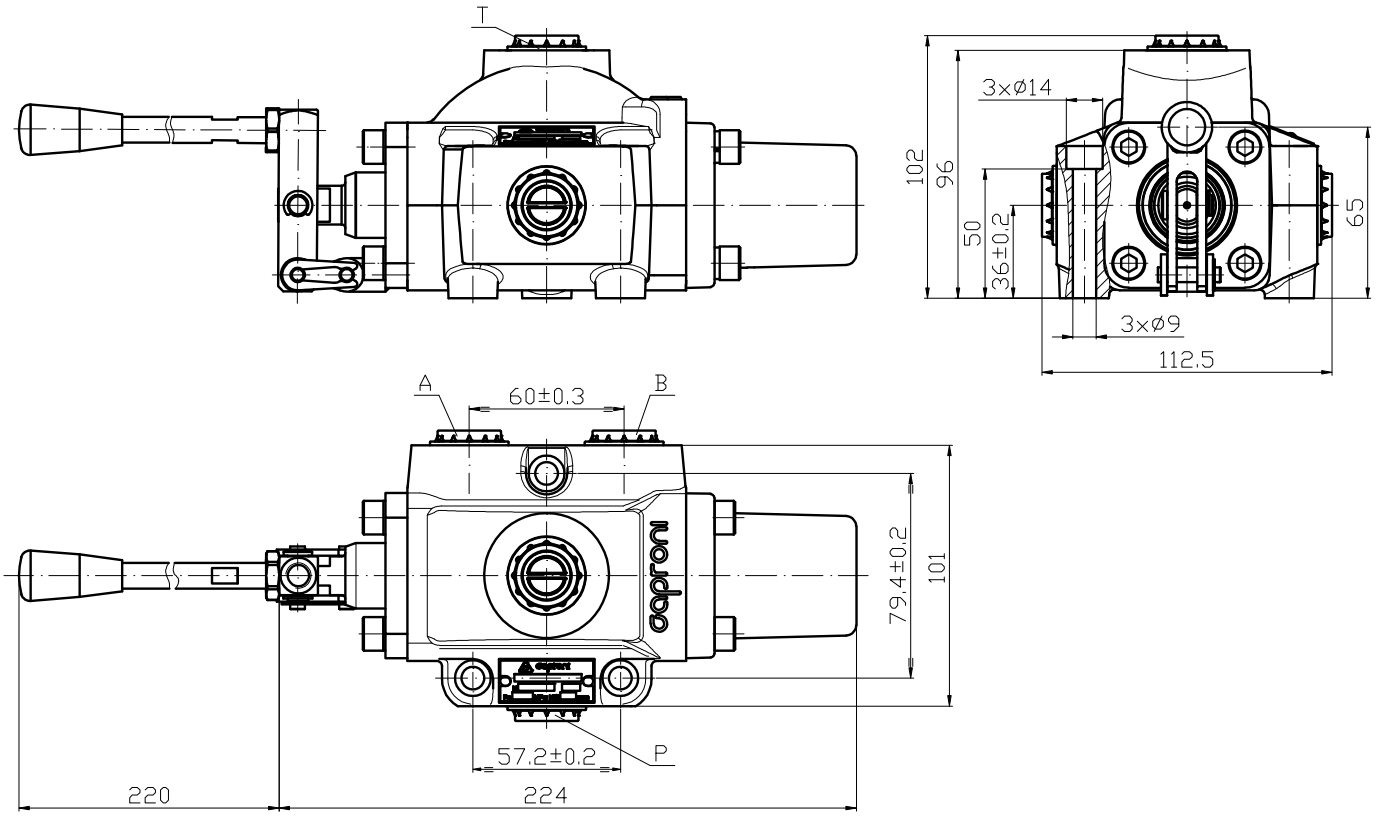
## GENERAL DESCRIPTION

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

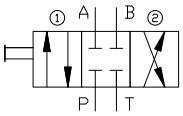
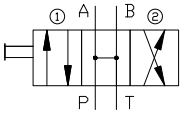
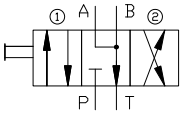
| | |
|---|---|
| Weight | 5.7kg |
| Nominal flow | 90 l/min |
| Maximal flow | 150 l/min |
| Nominal pressure | 16 MPa |
| Maximal pressure | 20 MPa |
| Working stroke of the spool | ±8 mm |
| Spool leakage at p=100bar t=40°C and viscosity 36cSt | 25 $cm^3$/min |
| Working fluid-hydraulic oil with parameters: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

## DIMENSIONS



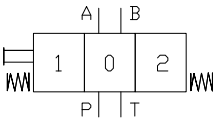
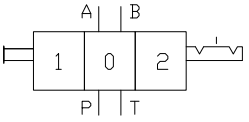
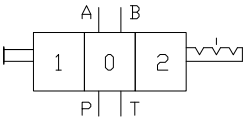
## ORDERING CODE

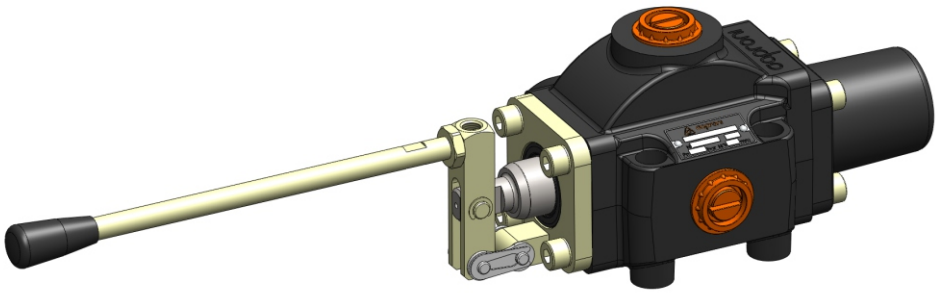
RMD90 - 1 DL 1 G

| | 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 |  |

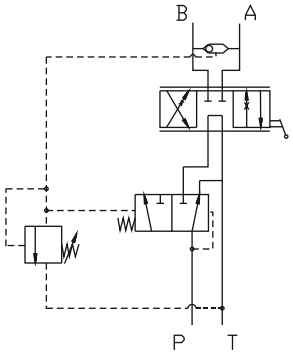


# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRP70

## 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:

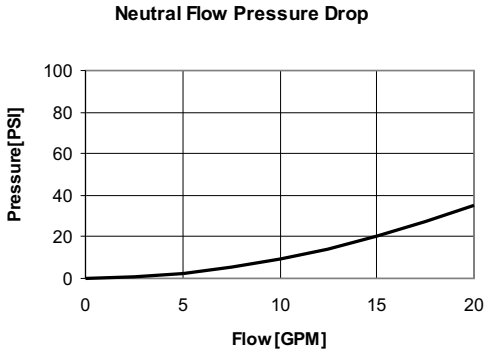



## TECHNICAL DATA

| 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

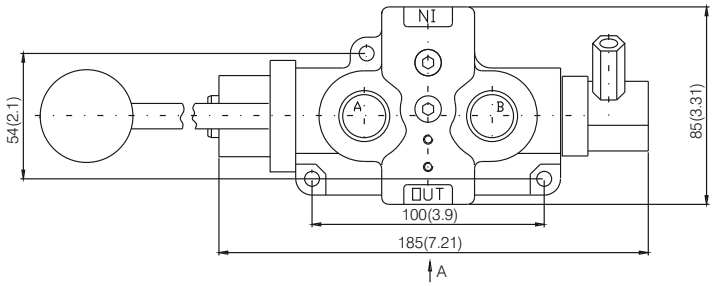
**CONDITIONS:**
**ΔP=f(Q)**
**36 cSt oil viscosity**
**T=40°C(104°F)**

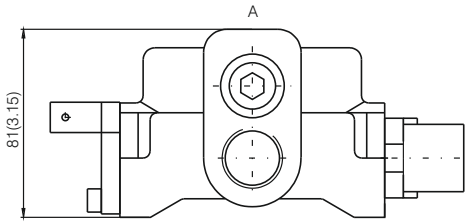



In this curve the pressure difference between the inlet and outlet is shown.

## DIMENSIONS

All dimensions are in mm (in).

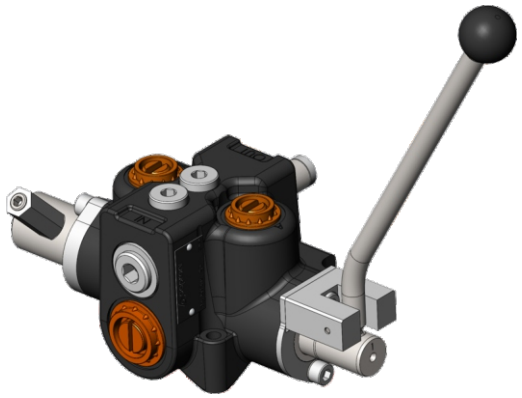


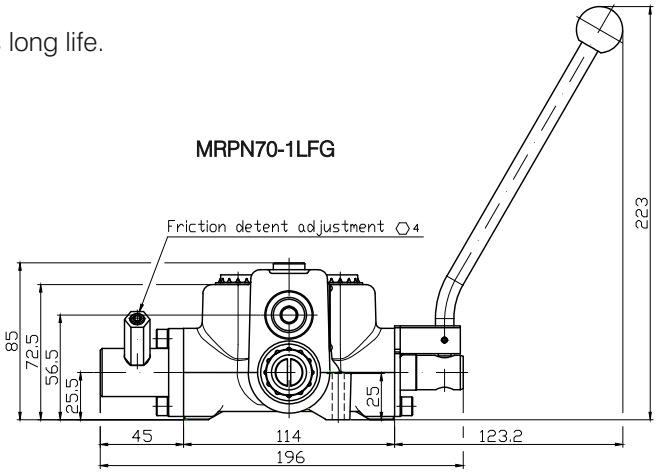
# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRPN70

## GENERAL DESCRIPTION

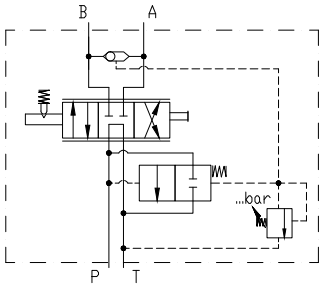
1. The valve type MRPN70 incorporates the features of a 4-way directional control valve , an adjustable full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package.
2. Less fittings and plumbing , eliminates leakage points.
3. 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.

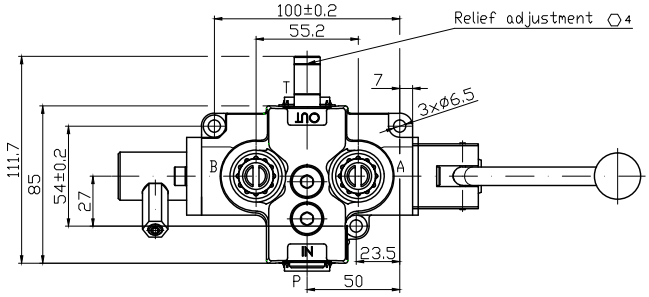


MRPN70-1LFG




Hydraulic scheme:




## TECHNICAL DATA

| DATA | UNIT | VALUE/RANGE |
|---|---|---|
| Rated flow | l/min | 70 |
| Rated pressure P , A & B<br>T | bar | 210<br>30 |
| Pressure control valve setting range | bar | 30...300 |
| Spool working stroke | mm | ±6,5 |
| Working liquid - hydraulic oils with parameters: -viscosity<br>-recommended viscosity<br>-temperature<br>-degree of filtration | <br>$mm^2$/sec (cSt)<br>$mm^2$/sec (cSt)<br>°C<br>mm | <br>15...300<br>20...80<br>-20...+80<br>0,025 |
| Leakage at p=100bar t=40°C ; 46cSt | cc/min | 25 |
| Weight | kg | 3,3 |

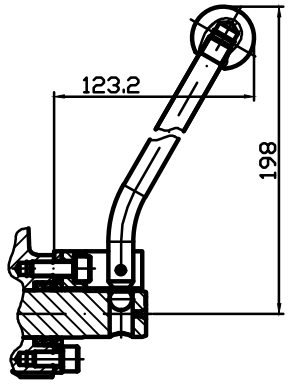
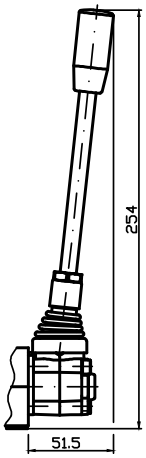
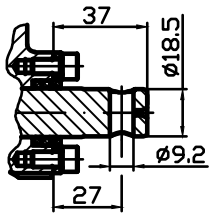
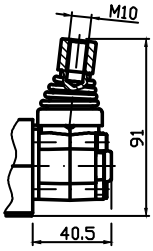
## ORDERING CODE

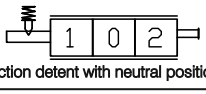
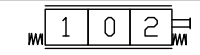
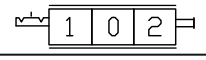
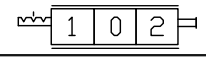
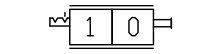
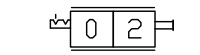
MRPN70 - 1 L F G T

| spools | Code |
|---|---|
|  | 1 |
|  | 2 |

| standard port threads | | |
|---|---|---|
| Code | P , T | A , B |
| G | G3/4” | G1/2” |
| N | 3/4”-14NPT | 1/2”-14NPT |
| U | 1”1/16-12UN | 7/8”-14UNF |

| Code | application |
|---|---|
| omit | Normal |
| T | Tropical<br>(Stainless Steel Spool and Lever , Painted Body) |
| S | Marine applications and sea conditions<br>(Stainless Steel Spool and Lever , all other exposed parts - painted with Marine type paint) |

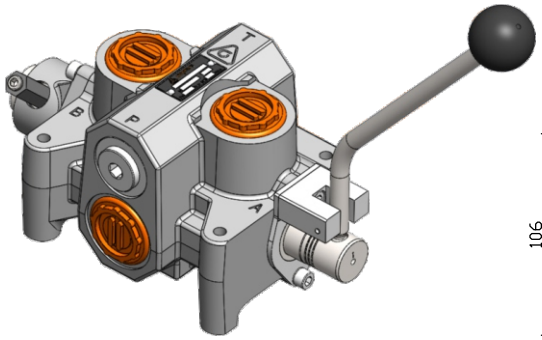
| operation control | Code | Code | operation control |
|---|---|---|---|
| with standard hand lever<br>  | L | CL | with cap, with hand lever<br>  |
| without lever with dust-proof plate<br>  | Z | C | with cap, without lever<br>  |

| Code | spool control |
|---|---|
| F |  <br>Friction detent with neutral position detent |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

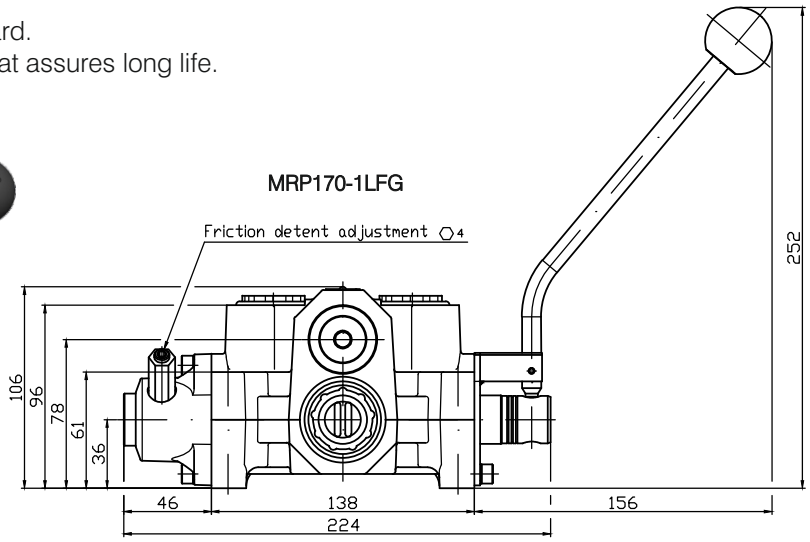
# MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRP170

## GENERAL DESCRIPTION

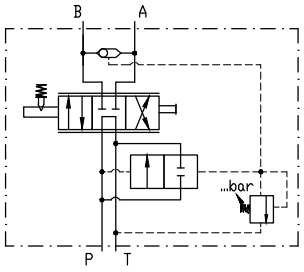
1. The valve type MRP170 incorporates the features of a 4-way directional control valve , an adjustable full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package.
2. Less fittings and plumbing , eliminates leakage points.
3. 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.

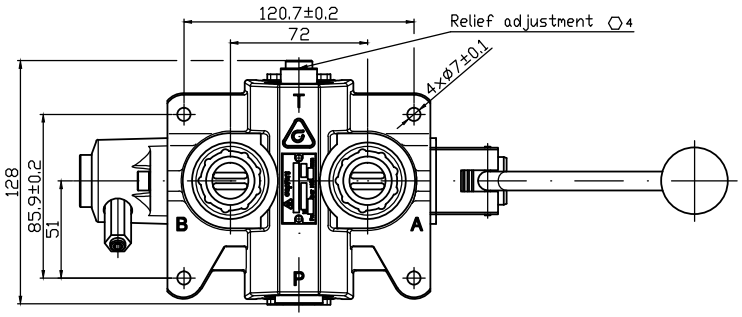


MRP170-1LFG




Hydraulic scheme:




## TECHNICAL DATA

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

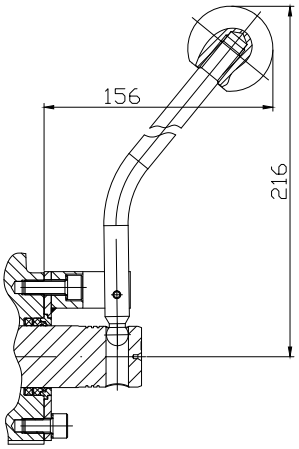
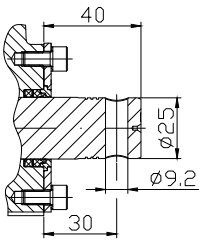
## ORDERING CODE

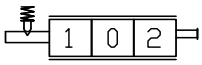
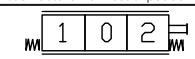
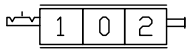
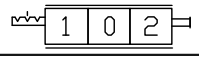
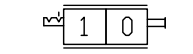
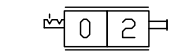
MRP170 - 1 L F G T

| spools | Code |
|---|---|
|  | 1 |
|  | 2 |

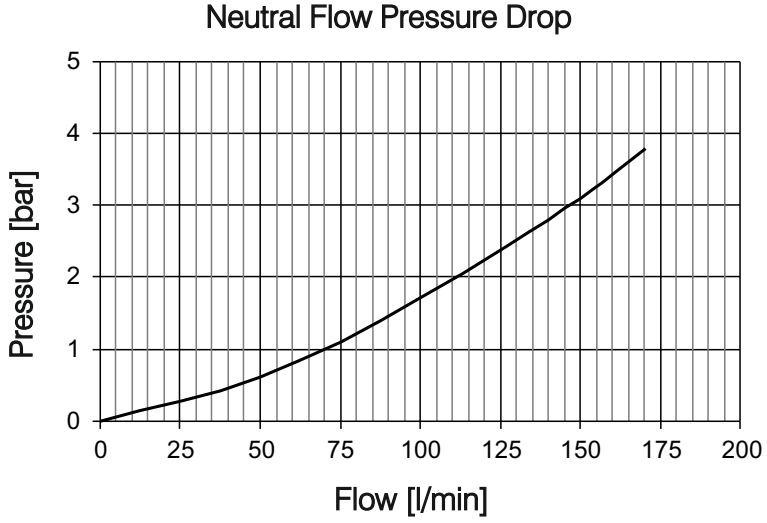
| Code | application |
|---|---|
| omit | Normal |
| T | Tropical (Stainless Steel Spool and Lever , Painted Body) |

| 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 |

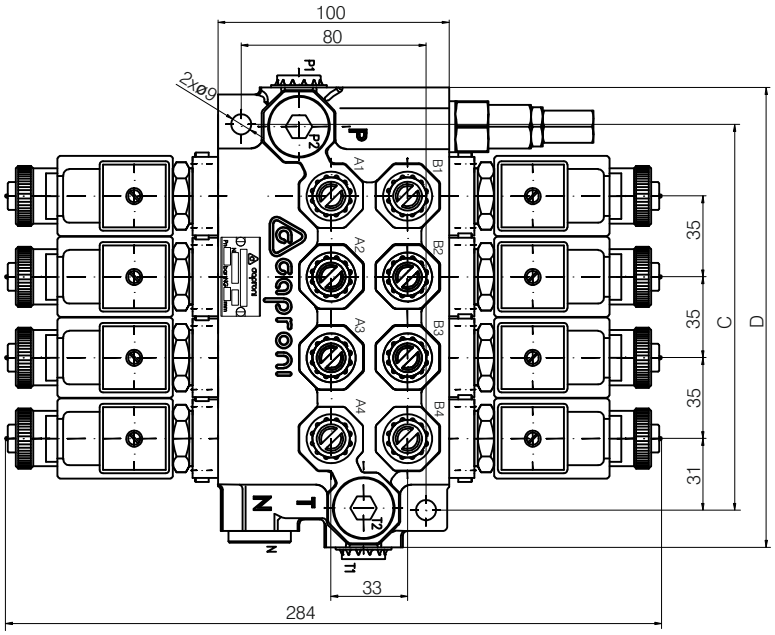
| Code | spool control |
|---|---|
| F |  Friction detent with neutral position detent |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

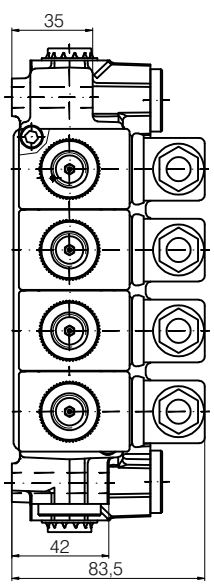
## PERFORMANCE CURVE



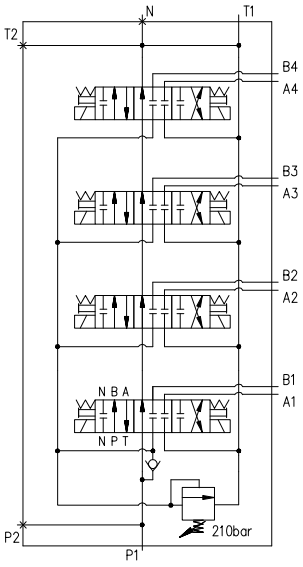

**CONDITIONS:**
**ΔP=f(Q)**
**36 cSt oil viscosity**
**T=40°C(104°F)**

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

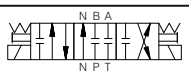
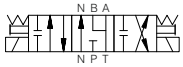
RME40P / 0 4 / Q / 1** / R / P1T1 / G / N / 24D

| 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) | | $cm^3/min$ | 30 |

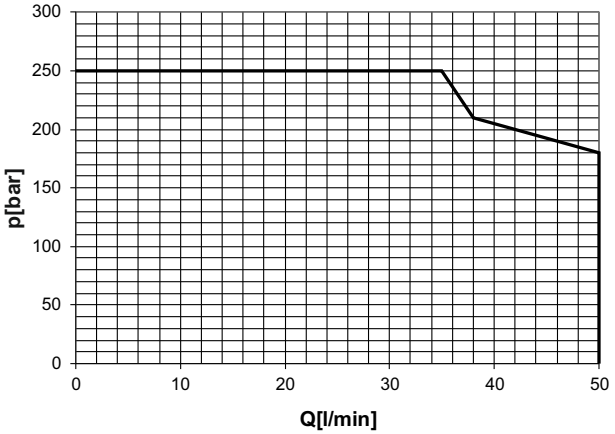
### ELECTRICAL

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

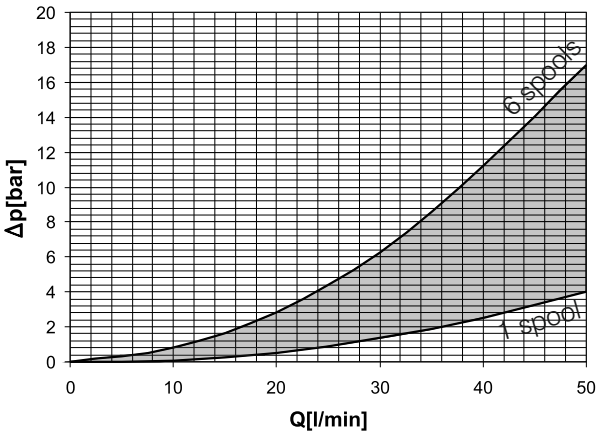
## CHARACTERISTICS

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

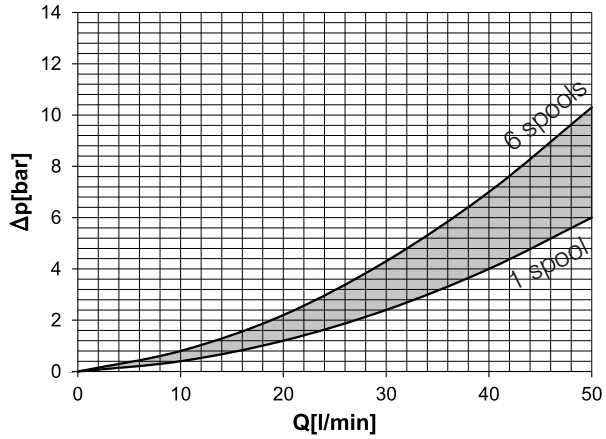
Functional limit



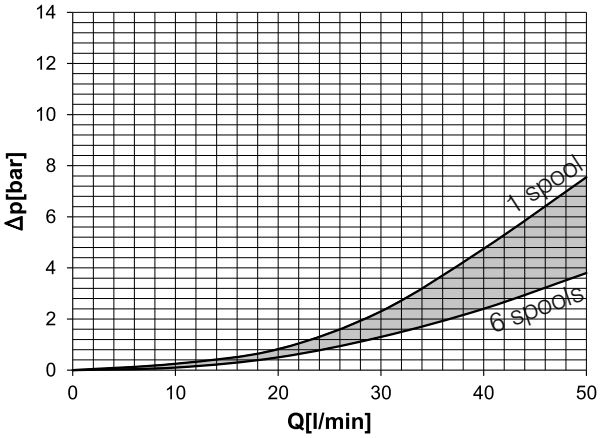

Pressure drop P to T



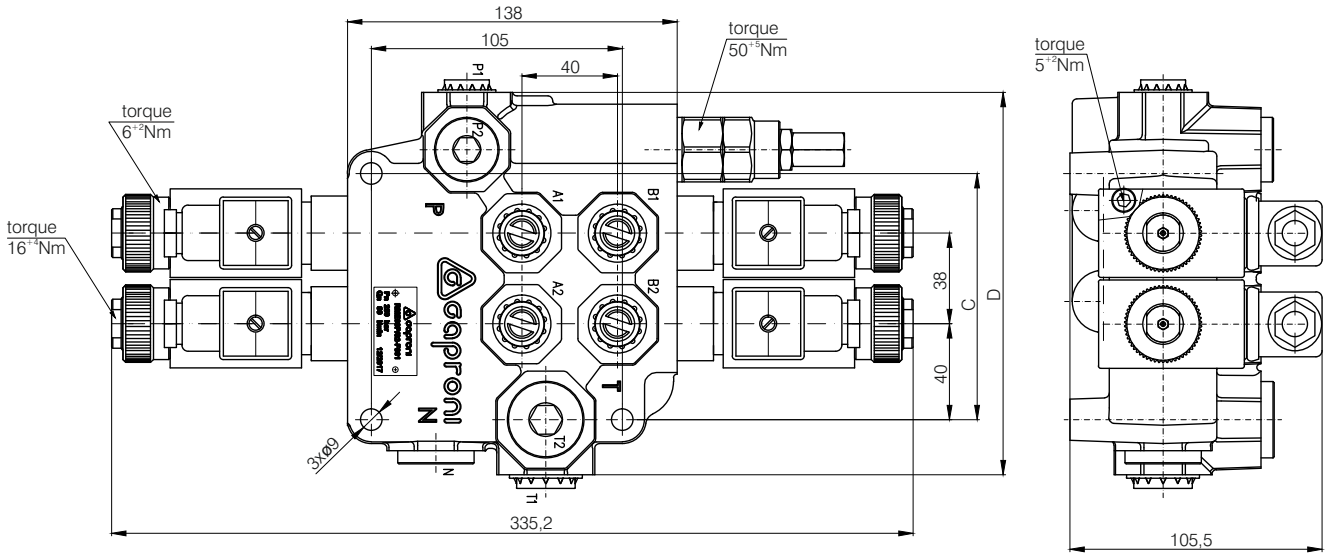

Pressure drop P to A&B



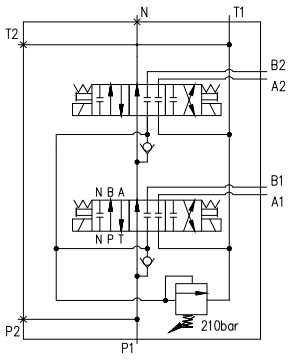

Pressure drop A&B to T

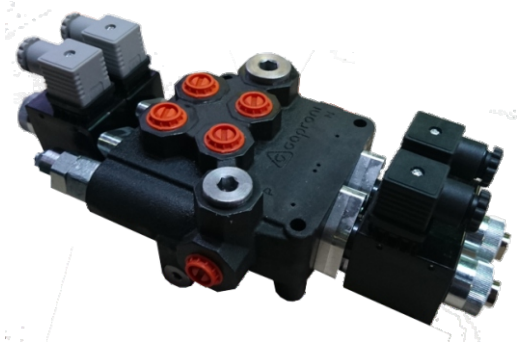


RME80P/02/Q210/2x/1/R/P1T1/G/N/24D - example




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 |

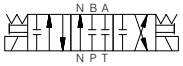
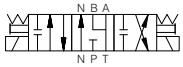
## ORDERING CODE

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<br>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) | | $cm^3/min$ | 40 |

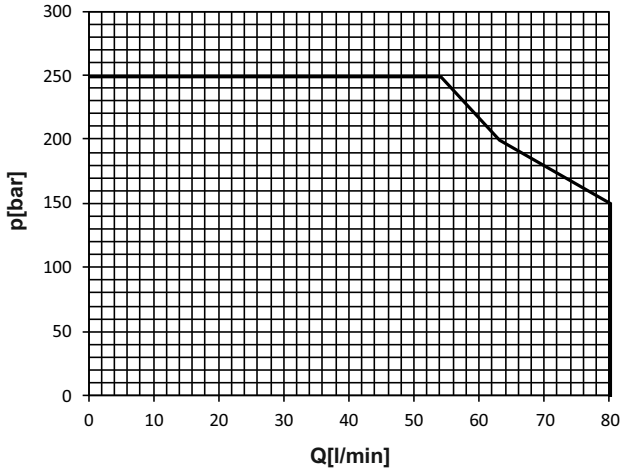
### ELECTRICAL

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

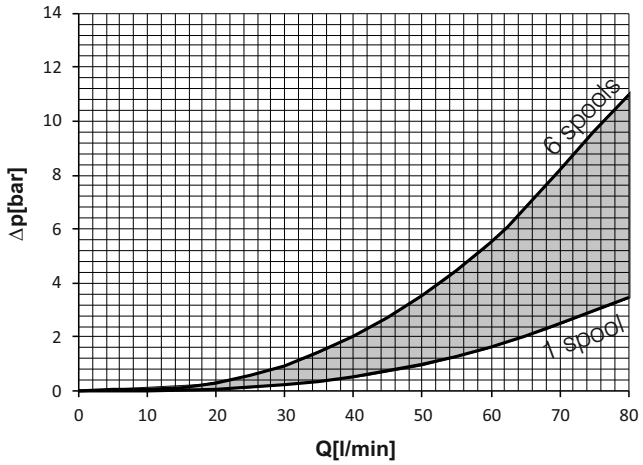
## CHARACTERISTICS

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

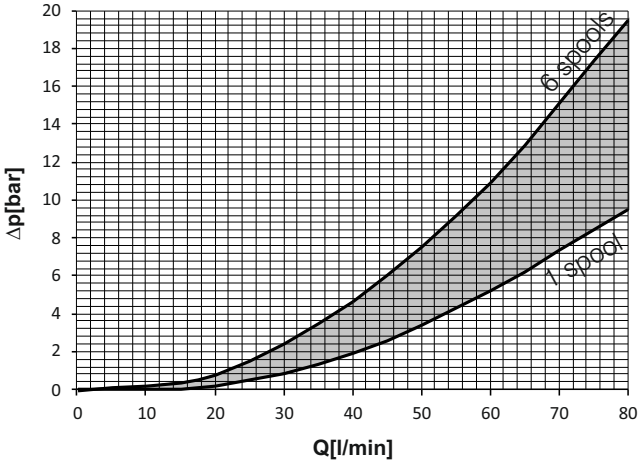
Functional limit



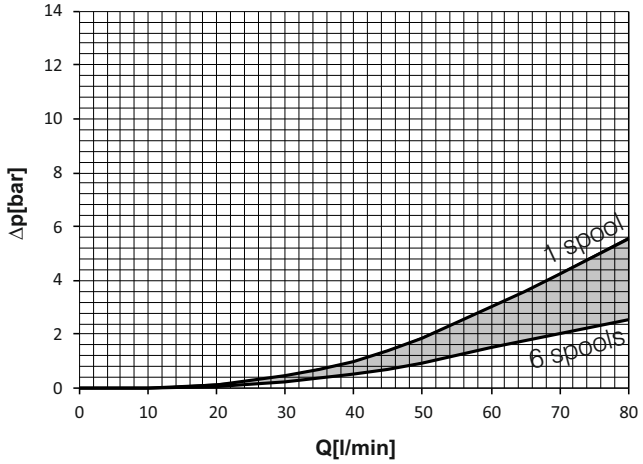

Pressure drop P to T



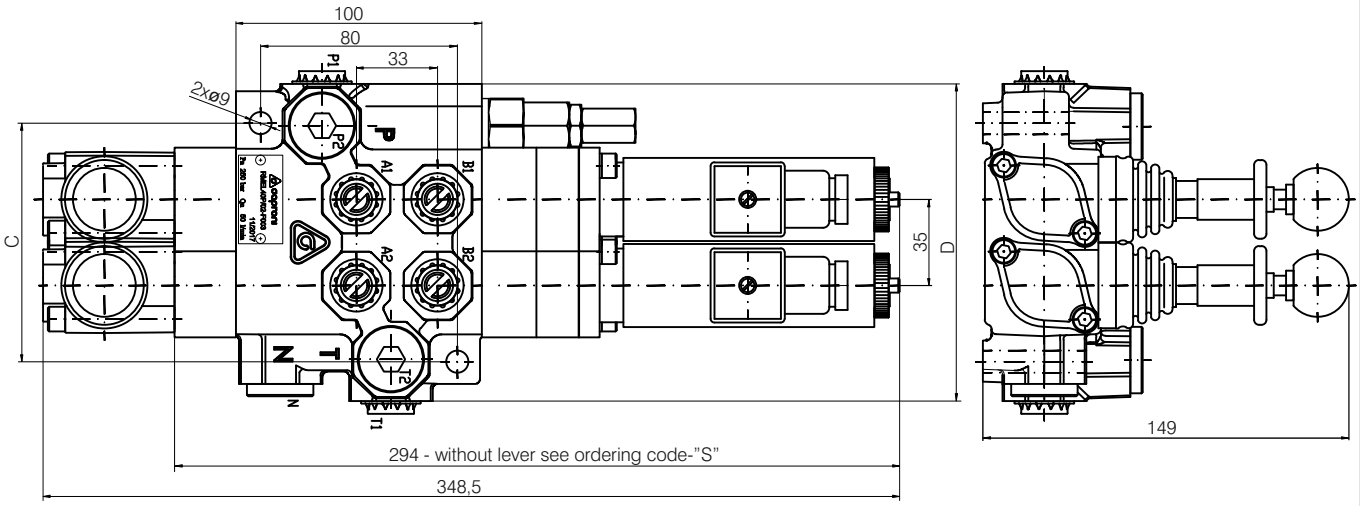

Pressure drop P to A&B



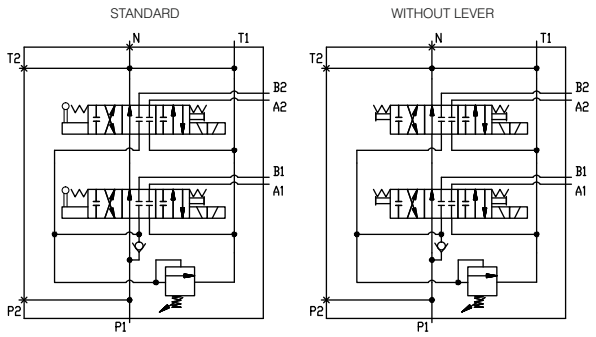

Pressure drop A&B to T



RMEL40P/02/Q210/2x/1/R/P1T1/G/N/24D - example




HYDRAULIC SCHEME




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

## ORDERING CODE

RMEL40P / 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 |

| Code | emergency lever |
|---|---|
| | with lever(standard)- without code |
| S | without lever-end cap |

| 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:
RMEL40P / 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 | 3,850 |
| | 2 spools | | 4,960 |
| | 3 spools | | 5,900 |
| | 4 spools | | 6,760 |
| | 5 spools | | 7,800 |
| | 6 spools | | 8,760 |

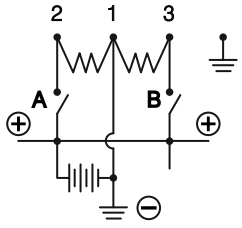
### HYDRAULIC

| | | | |
|---|---|---|---|
| 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) | | $cm^3/min$ | 30 |

### ELECTRICAL

| | | | |
|---|---|---|---|
| Cyclic duration | | % | ED100 |
| Waterproof | | | IP65 |
| Available voltages | | V | 12DC / 24DC |
| Voltage tolerance | | % | ±10 |
| Power consumption | | W | 54 |

## ELECTRIC WIRING

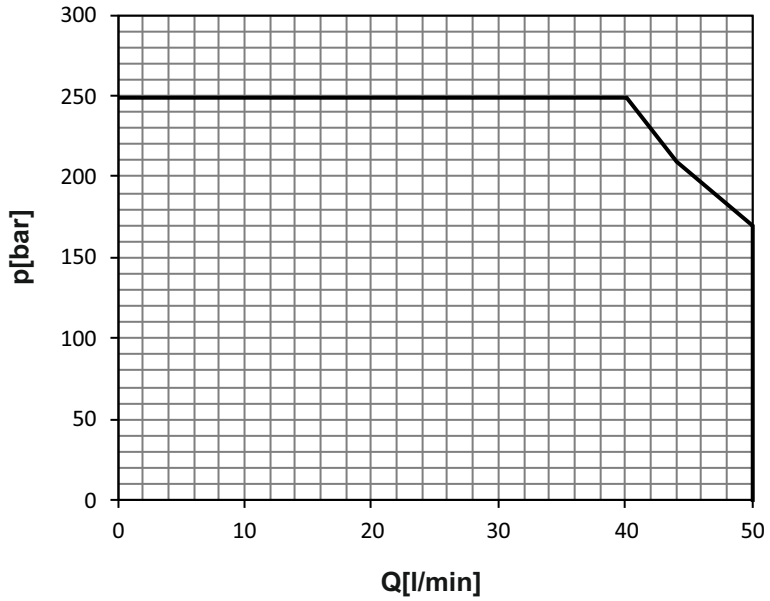




| connection | |
|---|---|
| 1-2 | solenoid pull / P to A resp. B to T |
| 1-3 | solenoid push / P to B resp. A to T |

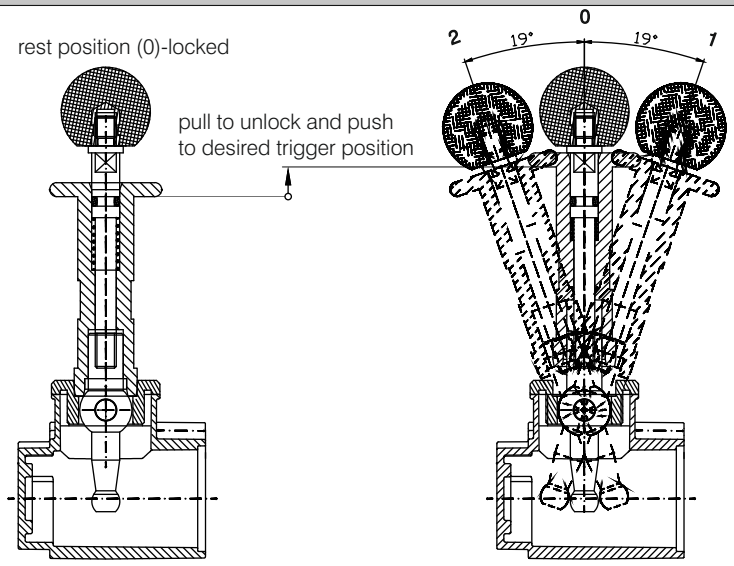
## CHARACTERISTICS

Measured with hydraulic oil - ISO VG32 , t=45±5°C

Functional limit

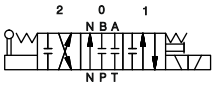



## EMERGENCY LEVER

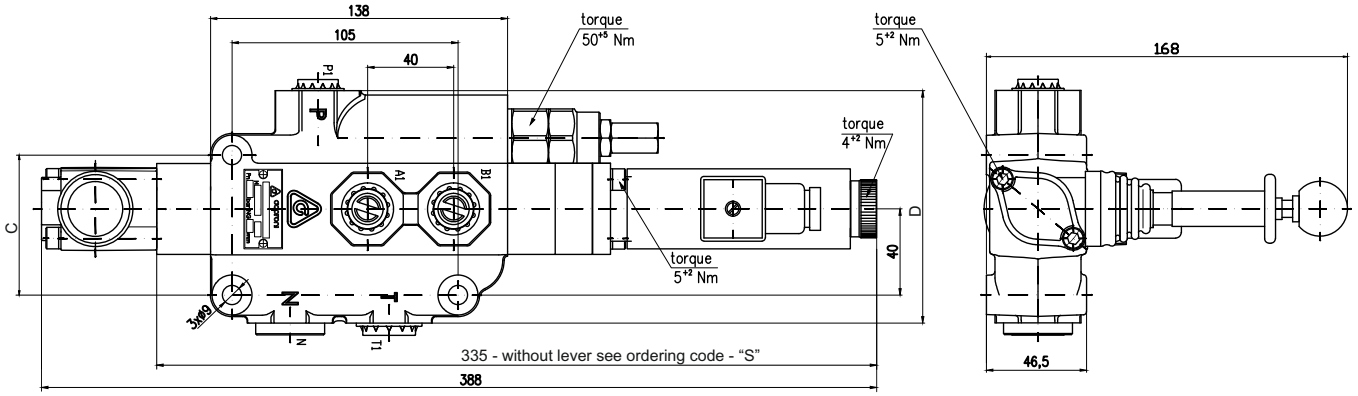



Only the rest position is locked !

The lever was designed as emergency lever - in case of electric power failure and is not recommended for continuous use !

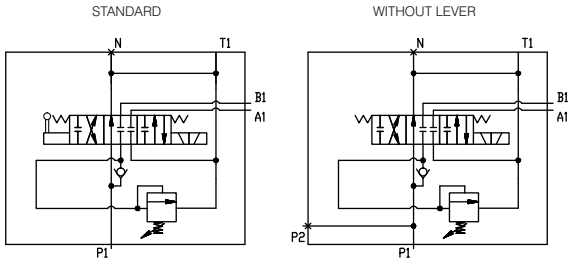


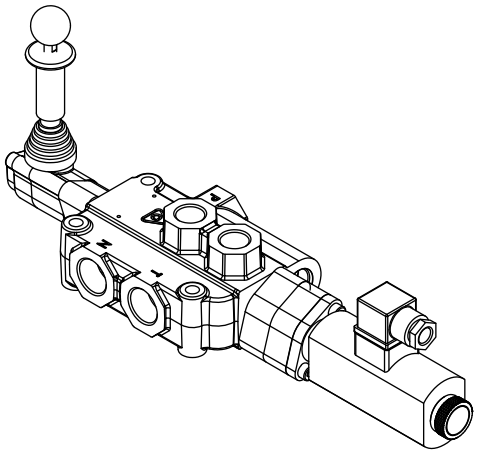
RMEL80/Q210/1/R/P1T1/G/N/24D - example




| 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 |

HYDRAULIC SCHEME



## ORDERING CODE

RMEL80P / 4 / 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 5...250bar | Q |
| (example of required settings 180bar) | Q180 |
| without valve-shut-off plug installed | K |

| spools | Code |
|---|---|
|  | 1 |
|  | 2 |



| 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 | application |
|---|---|
| N | normal |
| T | tropical |

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

| Code | emergency lever |
|---|---|
| | with lever(standard)- without code |
| S | without lever-end cap |

| 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 | 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:
RMEL80P / 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 | 5,900 |
| | 2 spools | | 8,200 |
| | 3 spools | | 9,600 |
| | 4 spools | | 11,000 |
| | 5 spools | | 12,600 |
| | 6 spools | | 14,000 |

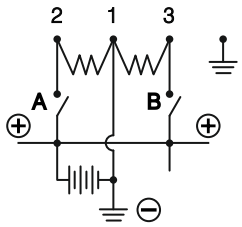
### HYDRAULIC

| | | | |
|---|---|---|---|
| Max. pressure | port P , A & B | MPa | 25 |
| | port T | MPa | 5 |
| Max. flow | | 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) | | $cm^3/min$ | 40 |

### ELECTRICAL

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

## ELECTRIC WIRING

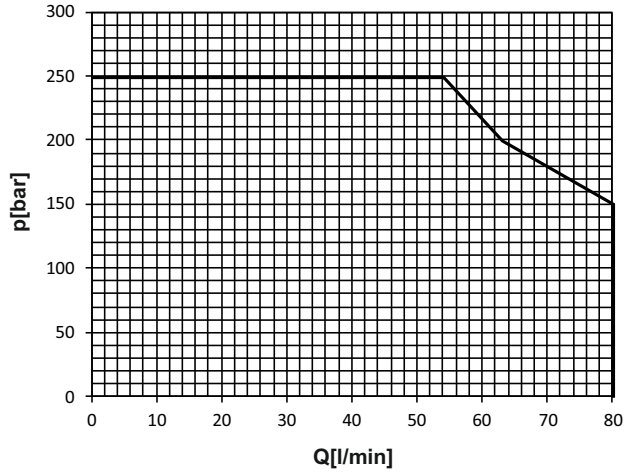




| connection | |
|---|---|
| 1-2 | solenoid pull / P to A resp. B to T |
| 1-3 | solenoid push / P to B resp. A to T |

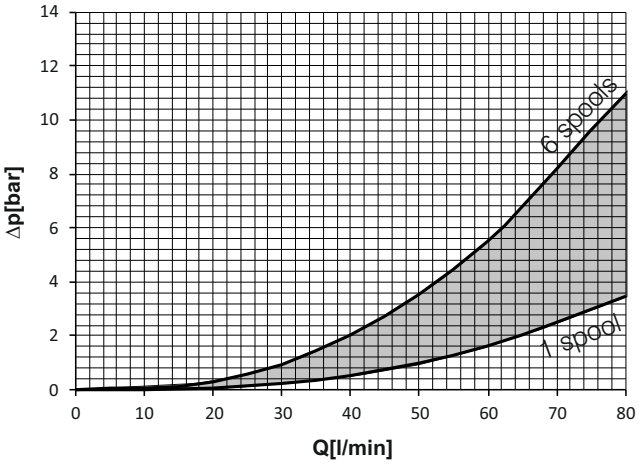
## CHARACTERISTICS

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

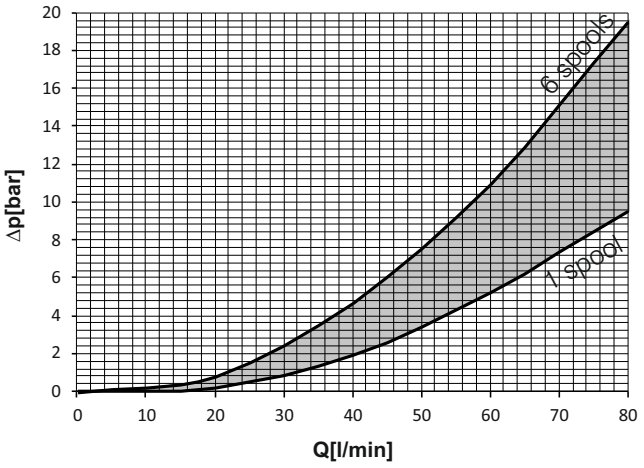
Functional limit



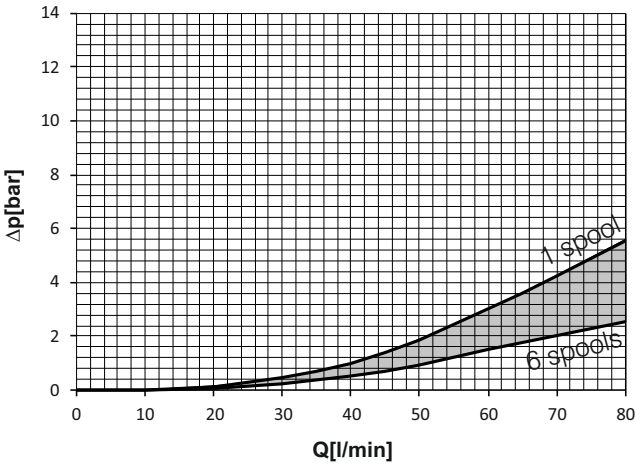

Pressure drop P to T



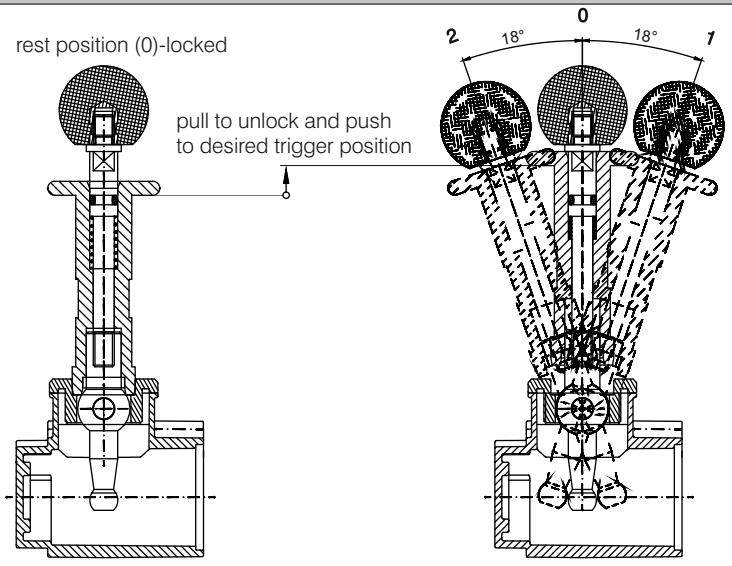

Pressure drop P to A&B




Pressure drop A&B to T

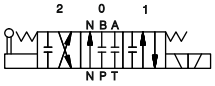


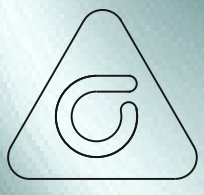

## EMERGENCY LEVER




Only the rest position is locked !

The lever was designed as emergency lever - in case of electric power failure and is not recommended for continuous use !





caproni

BULGARIA JOINT-STOCK COMPANY

BULGARIA , 6100 KAZANLAK , 45 STOLETOV STR.
TEL.:+359/431/62 229 , +359/431/6132 ,
FAX:+359/431/62 230 , +359/431/63 134
E-MAIL:CAPRONI@CAPRONI.BG , WEB:HTTP://WWW.CAPRONI.BG