



Caproni



MONOBLOCK DIRECTIONAL CONTROL VALVES

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GENERAL DESCRIPTION

Document: MDCV-1-Apr 2013

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 consist of:

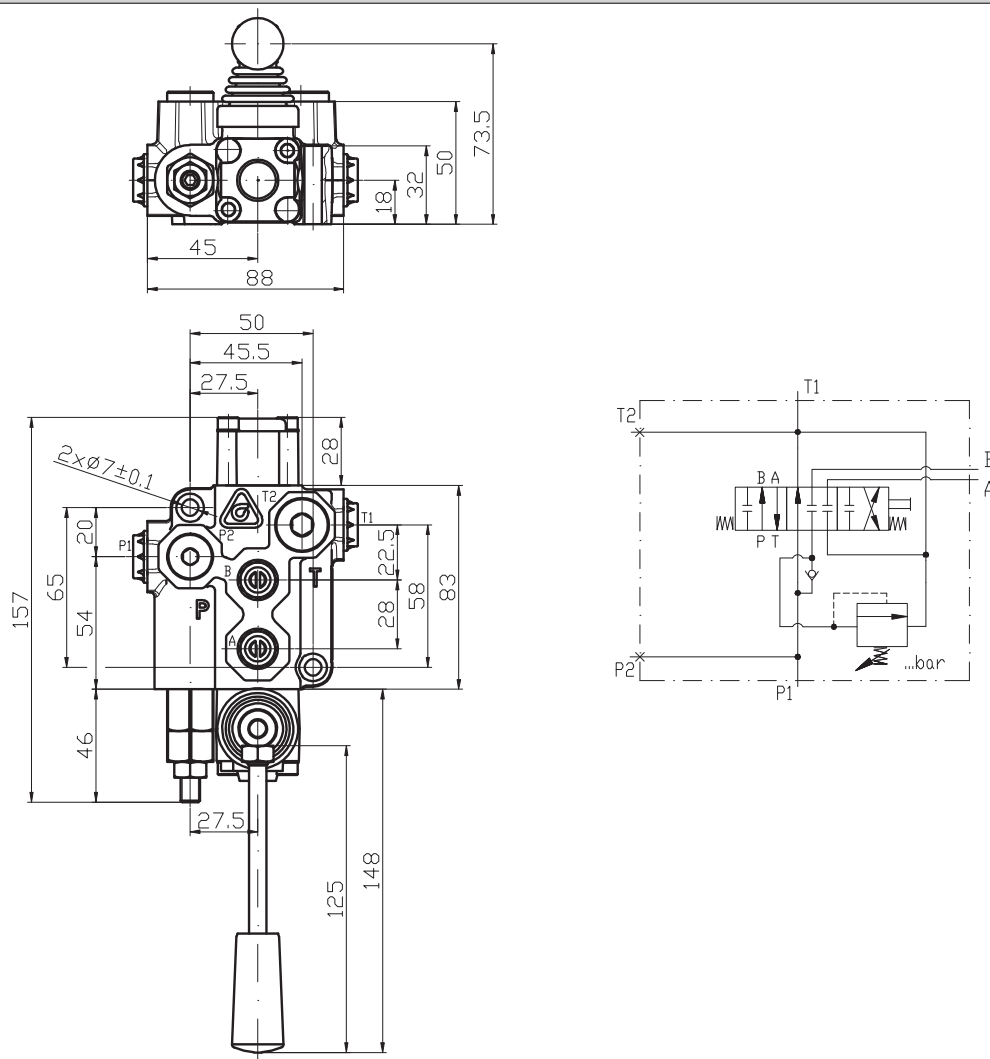
A body with integrated relief and check valve, spool, control and spring-centering group of the spool. The valve RM20 provides direct passing of the flow from the pump line to the tank at neutral position (open center).

Options "closed centre" and "carry over" are possible with additional adapters. There is 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. 8cm ³ /min; max 2cm ³ /min (special version)
Actuating force	less than 150N
Weight	1,7kg

DIMENSIONS



ORDERING CODE

RM20 / N / Q / 1 CLA 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
shut-off plug installed	K

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

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 control 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 	H	without lever, with dust-proof plate 	Z		

Cables, single levers and joystick controls - on request

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 consist of:

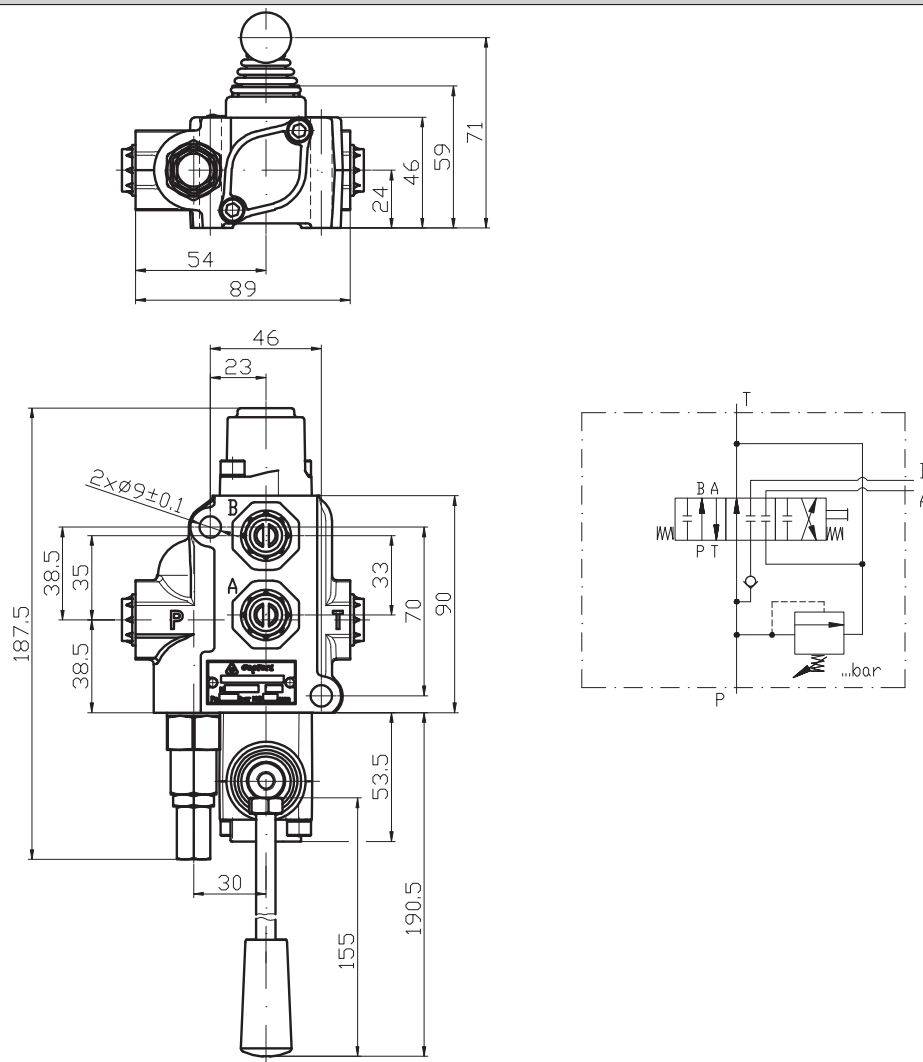
A body with integrated relief and check valve, spool, control and spring-centering group of the spool.

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. 8cm ³ /min; max 2cm ³ /min (special version)
Actuating force	less than 200N
Weight	2,2kg

DIMENSIONS


ORDERING CODE

RM35 / N / Q / 1 CL A 1 E1 / G / N

with check valve - omit
without check valve - N

Code	application
N	normal
T	tropical

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

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

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

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

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
without standard hand lever 	C	with cable control 	H
with standard hand lever 	CL	without lever, with dust-proof plate 	Z
with standard hand lever at 180° 	CLO		

GENERAL DESCRIPTION

Hydraulic valve RM40P provides change of fluid flow direction, hydro-systems pressure restriction, pump unloading in neutral position of the spools. The valve RM40P is designed to be integrated in hydraulic systems of Mobile and Industrial Machines.

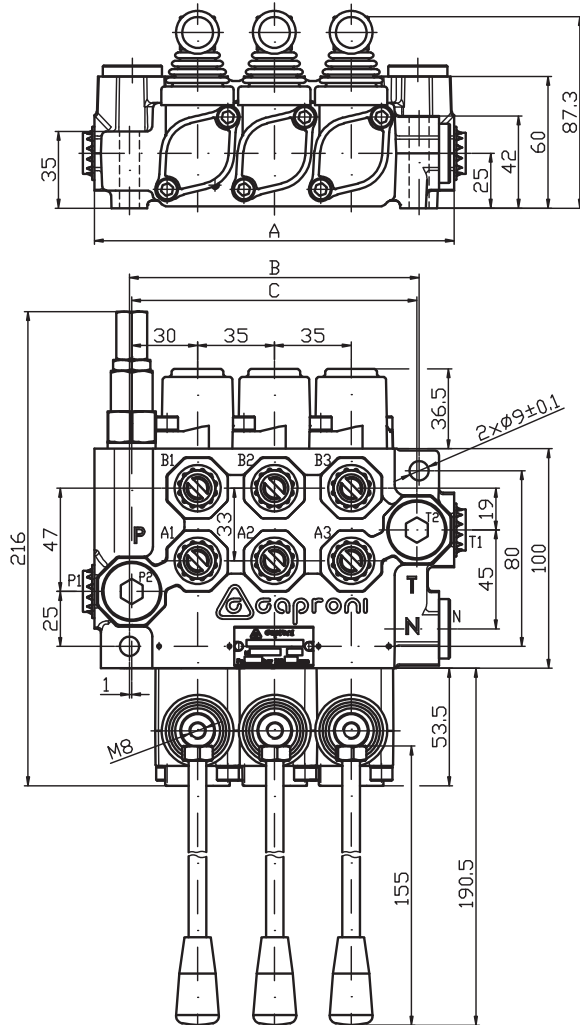
The valve assembly consists of:

A body with integrated relief and check valves, spools, control and spring-centering group of the spools. The valve RM40P provides parallel distribution of the working liquid and direct passing of the flow from the pump line to the tank at neutral position (open center). Options "closed centre" and "carry over" are possible with additional adapters. There are different control options: spring-centering in "neutral" position, detent, automatic kick-out, hydraulic and electro-hydraulic control.

TECHNICAL DATA

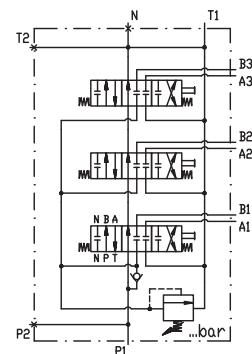
Rated flow	40 l/min
Max. pressure	P=250 bar; T=50 bar; A,B= 300 bar
Spool stroke	±6 mm
Working temperature range	-15...+80 °C
Working liquid	hydraulic oil HLP DIN51524
Liquid viscosity	15...300cSt
Nominal filtration	ISO4406: 19/16 (recommended filter element - 0,025mm mesh)
Internal leakage at 120 bar, t=40°C and viscosity 46cSt	max. 8cm ³ /min; max 2cm ³ /min (special version)
Actuating force	less than 200N

DIMENSIONS



Type	A	B	C	Weight, kg
RM40	87	62	-	2.6
RM40P/02	129	97	95	4.5
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

STANDARD PARALLEL CIRCUIT



ORDERING CODE

RM40P / 0 3 / Q / 1 CL A 1 E1 / R / P1T1 / G / N

parallel connection
for RM40 - omit

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)	Q180
shut-off plug installed	K

spools	Code
	1
	2
	3
	4
	5
	6
	7
	8*

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

Code	application
N	normal
T	tropical

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

Code	spool control
1	
2	
3	
4	
5	
6	
7	

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

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

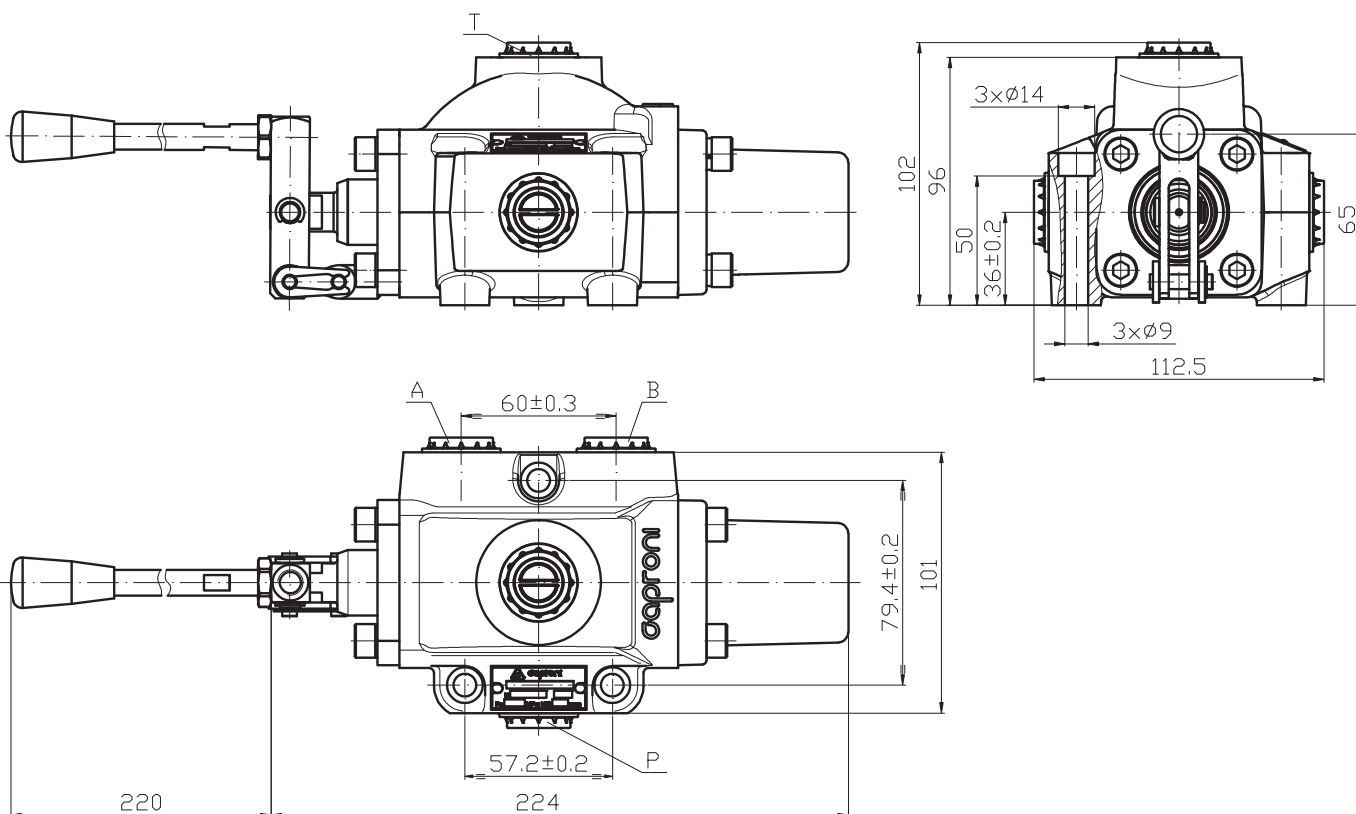
operation control	Code	operation control	Code	operation control	Code
without standard hand lever 	C	with standard hand lever 	CL	with standard hand lever at 180° 	CLO
with cable control 	H	without lever, with dust-proof plate 	Z	** Repeat for each spool. In case of identical spools example ordering code is: RM40P / 03 / Q / 3x / 1CL A1 / R / P1T1 / G / N	

GENERAL DESCRIPTION

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

TECHNICAL DATA

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

DIMENSIONS


ORDERING CODE

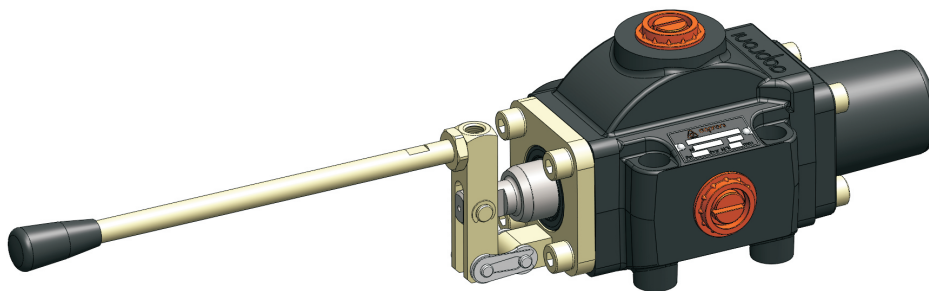
RMD90 - 1 DL 1 G

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

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

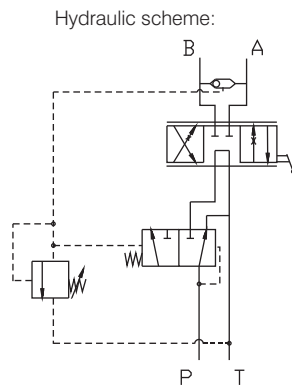
Lever :	with lever without lever	Code DL D
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Code 1	Spring return to neutral	
Code 2	Detent in position 1 and 2	
Code 3	Detent in three positions	



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).

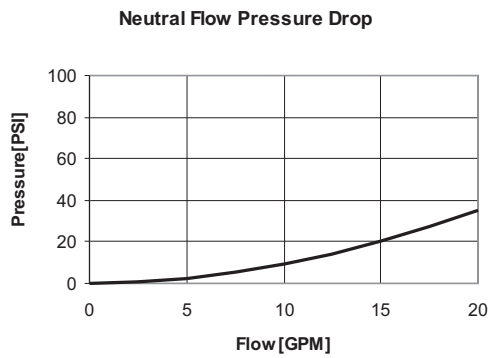


TECHNICAL DATA

DATA	UNIT	VALUE/RANGE
Rated flow	l/min (US GPM)	70 (18)
Rated pressure	bar (PSI)	210 (3000)
Standard port size: Inlet & outlet work ports A & B	BSP BSP	3/4" 1/2"
Working liquid - hydraulic oils with parameters: -viscosity -recommended viscosity -temperature -degree of filtration	mm ² /sec (cSt) mm ² /sec (cSt) °C (°F) mm (in)	15...300 20...80 -20...+80 (-4...+176) 0.025 (9.8 10 ⁻⁴)
Leakage at p=100bar t=40oC ; 36cSt	cc/min	15

PERFORMANCE CURVE

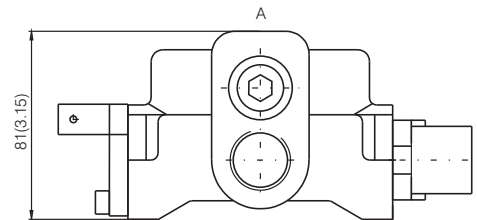
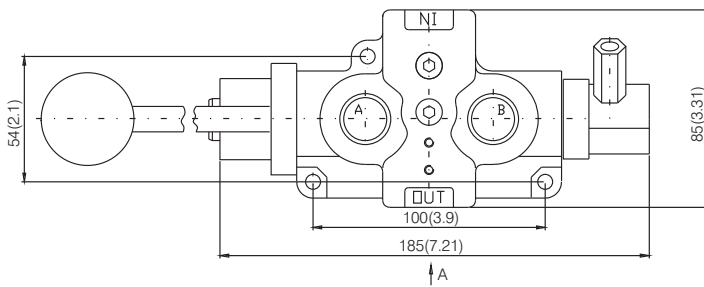
CONDITIONS:
 $\Delta P=f(Q)$
 36 cSt oil viscosity
 T=40°C(104°F)



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

DIMENSIONS

All dimensions are in mm (in).





caproni

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