

Products for mobile hydraulic applications

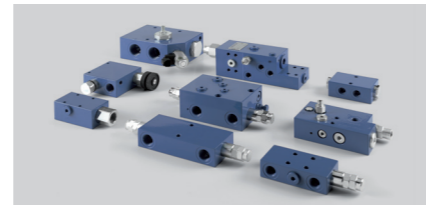
Mechanical and Electric Cartridge Valves

Pressure control valves	p_{max}	350 bar
Counter balance valves	Q_{max}	300 L/min
Directional control valves	Ports	up to SAE 20
Flow control valves		



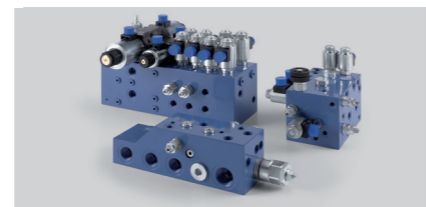
Parts-in-Body Valves

Load holding / Motion control valves	p_{max}	420 bar
Boom lowering control valves	Q_{max}	500 L/min
PO check valves	Ports	up to 1 1/4 SAE6000
Pressure control valves		
Flow control valves		



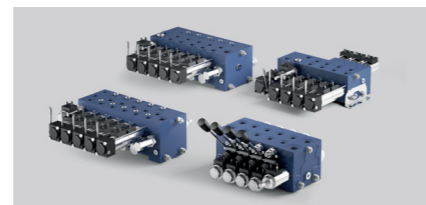
Hydraulic Integrated Circuits

Weight lifting	p_{max}	350 bar
Earth moving	Q_{max}	200 L/min
Agricultural vehicles		
Industrial vehicles		



Directional Control Valves

Flow sensing	p_{max}	350 bar
Load sensing	Q_{max}	70 L/min
Load independent	Ports	BSP 3/8"



Directional control valves catalogue NVE4

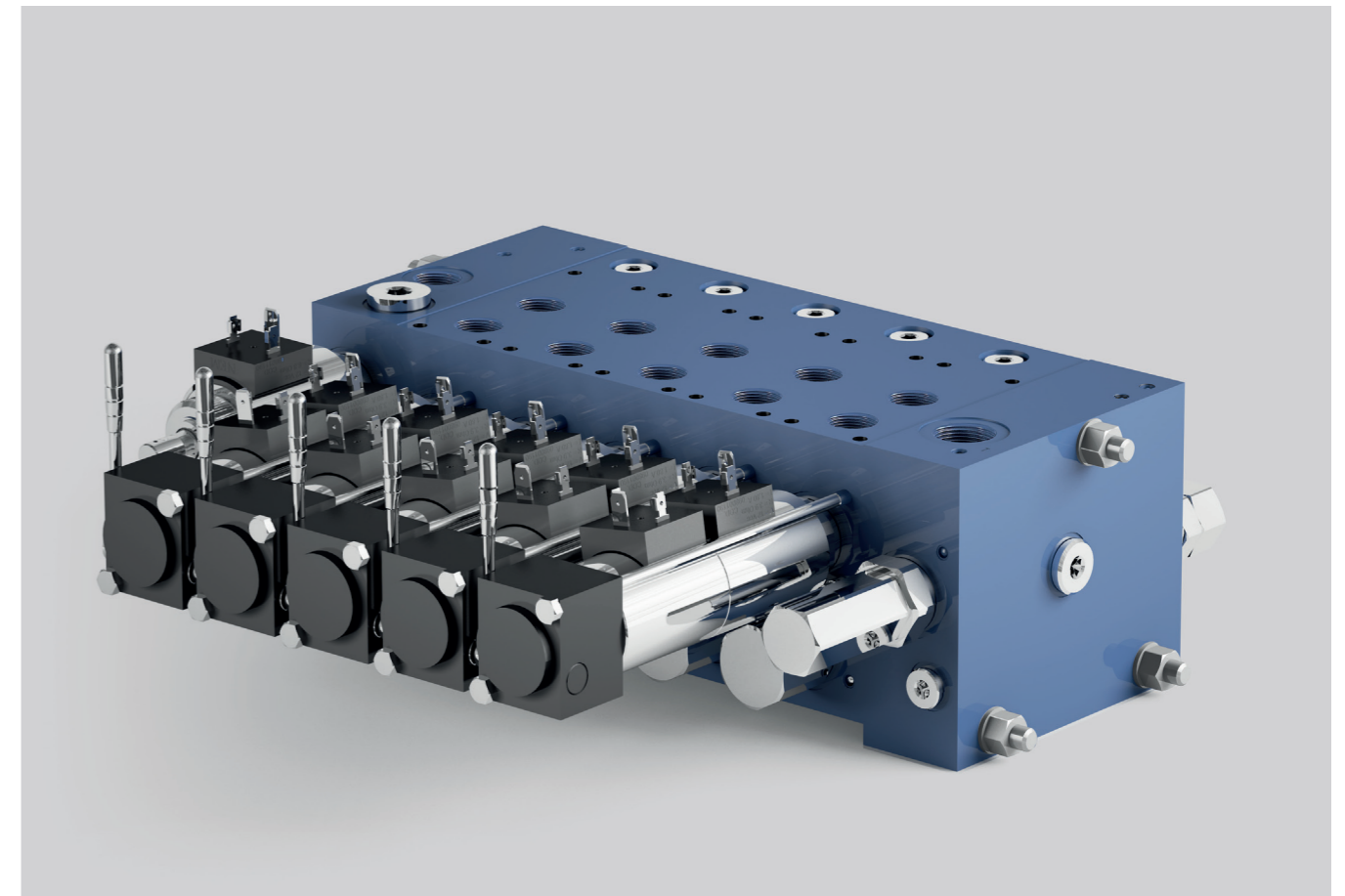


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Company profile

NEM, founded in 1995, is a valve manufacturer specialising in the development of hydraulic solutions for mobile, agricultural and industrial applications.

Our goal is to be a reliable partner, providing for our customers a state of the art service, delivered by highly qualified technical staff, to achieve customized solutions.

At NEM we are aware that the future of the hydraulic industry is in system engineering. We are therefore developing and manufacturing top quality products, which can be fully integrated into many different applications. NEM components ensure the highest level of performance and safety in any application; this, together with our focus on innovation, has gained us the trust and appreciation of leading machine manufacturers worldwide.

NEM firmly believes that its internal synergy ensures that all customers receive the most efficient and effective service. This is why, each and every day, we explore advances in industry related knowledge, discuss solutions, and bring into play all our expertise to ensure we are utilizing the most advanced technologies.

In order to provide our customers with the highest possible quality, NEM employs some of the most skilled professionals within the industry, who work state of the art equipment and processes. This guarantees perfect functionality of components and systems produced at our facilities.

NEM's philosophy has always been quality driven, with the customer first in mind. At NEM we understand that human capital is the most important resource and main reason for our joint success. Our company believes in people, in their talents and their personal expertise.

We source raw material and parts, develop and design components and systems, machine them using processes such as turning, grinding, lapping, drilling, honing, heat treatment, assemble and test and finally deliver to our customer's specifications.

It's our responsibility to take care of our customers as well as ensure total quality.

NEM's capabilities cover a wide spectrum of control technologies by combining mechanics, electrics and electronics to supply perfect hydraulic operating components and systems.

Hundreds of customers in many industries trust us and have taken advantage of our expertise. Our applications can be found all over the globe, under the heaviest working conditions.

It goes without saying that in NEM people go the extra mile in order to satisfy our customers and the customer of our customers.

You are kindly invited to meet the people at NEM who listen and who deliver for the benefit of our customers.

Mechanical and Electrical Cartridge Valves

Pressure control valves
Counterbalance valves
Directional control valves
Flow control valves

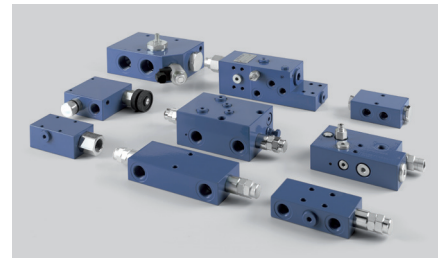
p_{\max} 350 bar
 Q_{\max} 300 L/min
Cavity up to SAE 20



Parts-in-Body Valves

Load holding / Motion control valves
Boom lowering control valves
PO check valves
Pressure control valves
Flow control valves

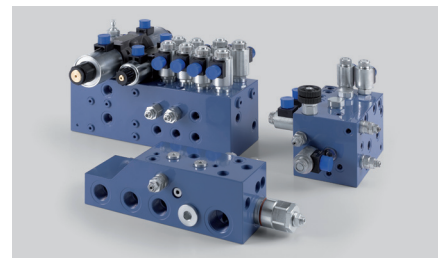
p_{\max} 420 bar
 Q_{\max} 500 L/min
Ports up to 1 $\frac{1}{4}$ SAE6000



Hydraulic Integrated Circuits

Weight lifting
Earth moving
Agricultural vehicles
Industrial vehicles

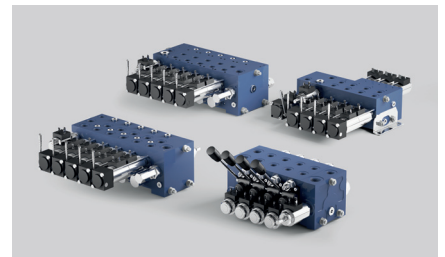
p_{\max} 350 bar
 Q_{\max} 200 L/min



Directional Control Valves

Flow sensing (patented)
Load sensing
Load independent

p_{\max} 350 bar
 Q_{\max} 70 L/min
Ports BSP 3/8"



General features	NVE4	NVE3	NVD2	NVS3
BODY MATERIAL				
Steel	x	(x)		
Cast iron			x	
Aluminum	x	x		x
Working section number	1-10	1-10	1-10	1-10
MAXIMUM PRESSURE				
Maximum working pressure (bar)	250 (350) ¹⁾	250 (350) ¹⁾	350	210
Maximum back pressure on port T	20	20	10	10
MAXIMUM FLOW				
Maximum inlet flow (L/min)	70	50	50	30
Maximum regulated flow on port A & B (L/min)	35	30	40	30
PUMP				
Configuration for fixed displacement pump	x	x	x	x
Configuration for variable displacement pump	x	x	x	(x)

Option chart	NVE4	NVE3	NVD2	NVS3
LS Signal pressure relief valve	x			
Pump pressure relief valve	x	x	x	x
LS signal dump valve	x			
Pump dump valve (electric 12/24 Vdc)	x	x	x	x
Pump hydraulic dump valve	x	x	x	
SPOOL				
Manual levers	x	x	x	x
Proportional electro-hydraulic actuation 12-24 Vdc	x	x	x	x
On/off electro-hydraulic actuation 12-24 Vdc	x	x	x	x
Open centre spools (A/B to T in neutral position)	x	x	x	x
Closed centre spools (A/B closed in neutral position)	x		x	x
Spools displacement sensor	on development	on development	x	on development
CAN BUS interface actuation	on development	on development	on development	on development
PORT RELIEF VALVE				
Direct operated antishock valve	x	x	x	x
Plug	x	x	x	x

x = available

(x) = available on request

1) Maximum working pressure 350 bar for steel body



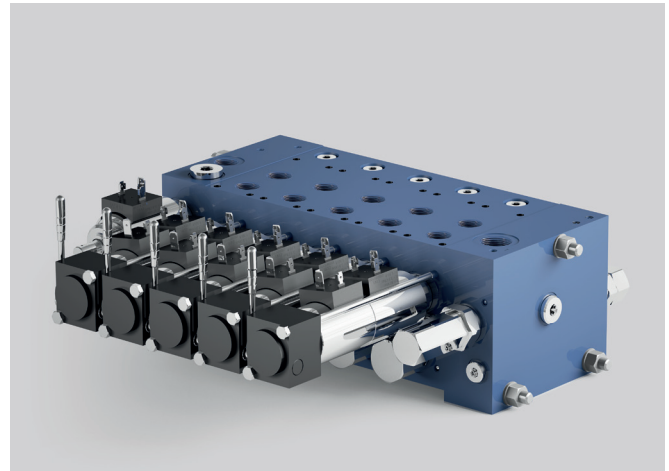
NVE4 Load independent directional control valve

NVE4 general features

- Modular design
- Anodized aluminum
- Steel
- Maximum inlet flow 70 L/min
- Maximum regulated flow 35 L/min
- Inlet flow compensation
- Load independent flow regulation
- Simultaneous movements
- Maximum working pressure up to 350 bar (steel body)
- SAE 10/4 electro proportional and ON-OFF directional valves
- Port relief valves
- Manual levers
- Levers sensor switches
- Spools: A/B to T and A/B closed in neutral position
- Dump valve built in inlet section
- Possible to install modular valves on the working port
- Open and Closed center configurations:
 - Open center for fixed displacement pumps
 - Closed center for variable displacement pump

Advantages

- Compact design
- Light weight (aluminium body)
- Up to 10 work sections
- Flexible hydraulic circuit configuration
- Easy customization
- Safety options
- Energy saving



Starting from its light and compact architecture, NVE4 valve guarantees the best results in terms of precision and movement control in any application and has been specially designed for lifting machines.

NVE4 is a compact electro-proportional actuated load independent directional control valve, designed to control a maximum inlet flow of 70 L/min and to regulate a maximum flow of 35 L/min on the working sections.

Many features in addition to countless configuration options make NVE4 highly flexible and easily adaptable to the different applications range.

By means of the pressure compensation principle, the NVE4 keeps the ΔP constant through cartridge spool control; flow rate regulation and consequently motion control is entirely independent from any load variation. In addition to the obvious benefits in regulation, the system also allows significant energy saving.

The architecture is based on the combination of SAE 10 DCV cartridges screwed into aluminum or steel bodies. Different maximum flow sizing are available for the different maximum speed regulation of actuators.

The inlet elements can be configured with different types of pressure relief valves and dump valves. Thanks to his modular design it is possible to assemble up to 10 sections of 4 way 3 position proportional solenoid valves arranged in parallel.

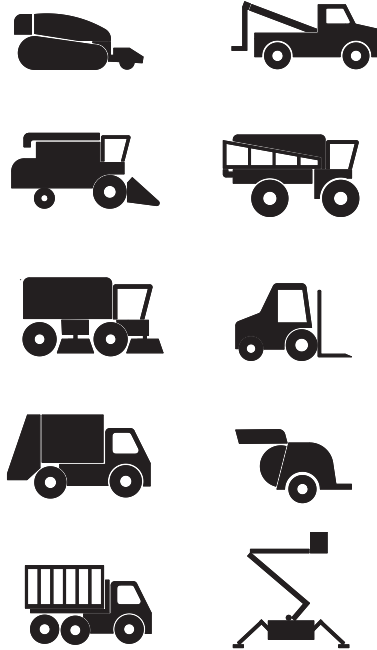
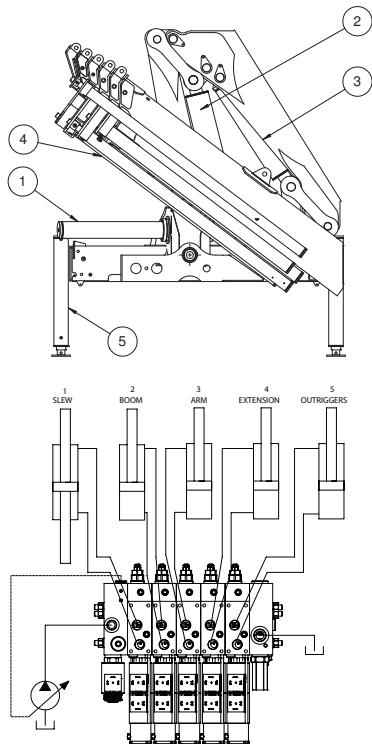
NVE4 Valve, offers features like A/B closed center spools and modular valves to be installed on the working ports, e.g. pilot operated check valves, counterbalance valves and many other safety options.

Thanks to its internal design, NVE4 also allows to reduce the impact of the stand-by pressure (energy saving) by taking advantage from its drain line configuration.



Applications

NVE3 typical application: aerial platforms

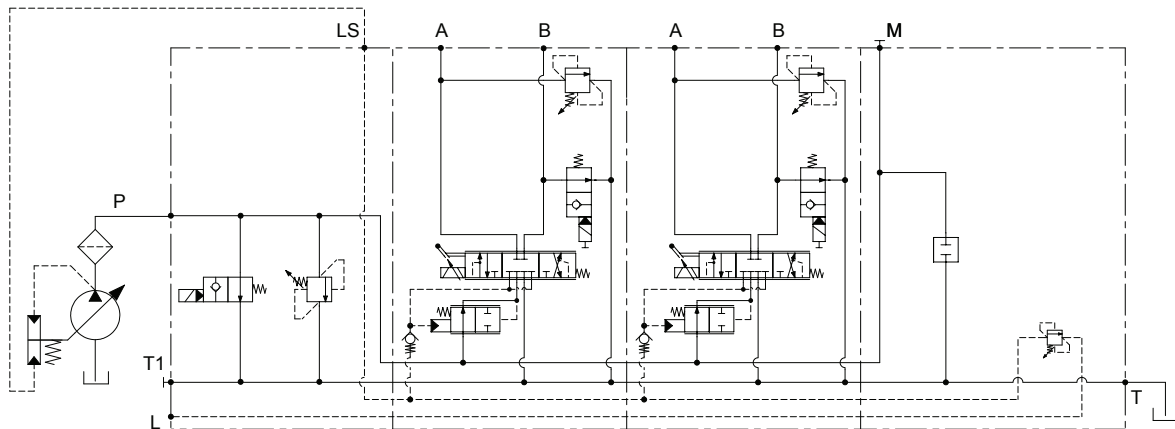


Technical data

Maximum inlet flow	L/min	70
Maximum regulated flow on ports A & B	L/min	35
Maximum working pressure	bar	250 350 with steel body
Maximum back pressure on port T	bar	20
Maximum back pressure on port L	bar	1
Work sections		10
Mounting type		With or without mounting brackets with fixing holes
Mounting position		Any
Ambient temperature	°C	-20 to 40
Seals		NBR or PTFE
Hydraulic fluid		Mineral oil HLP to DIN 51524
Fluid temperature range	°C	-20 to 80
Viscosity range	mm/s ²	10 to 460
Contamination level		NAS 1638 class 9 (20/18/15 ISO 4406:1999)
Filtration degree	µm	20
Filtration level	β_{20}	≥ 75

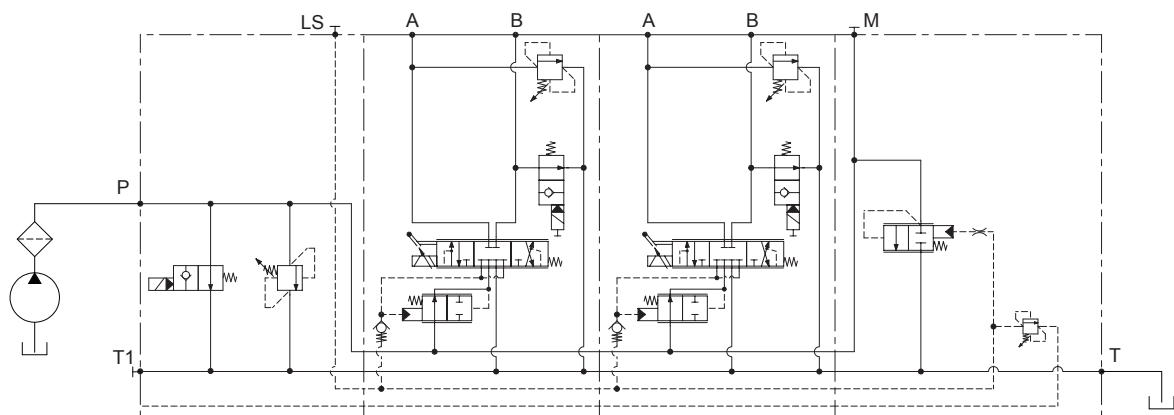
Closed center layout

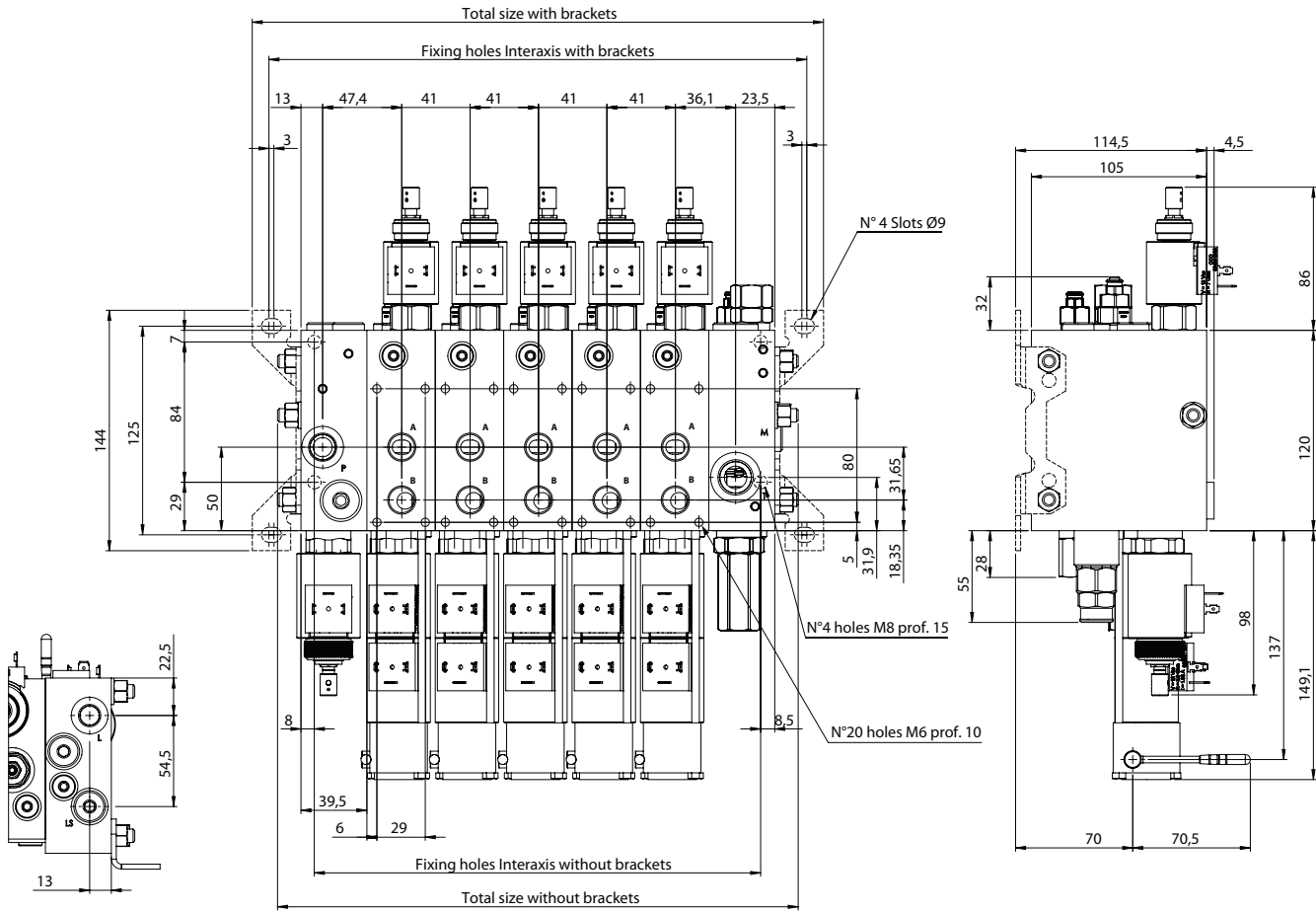
Closed center for variable displacement pump



Open center layout

Open center for fixed displacement pump





TOTAL SIZE [mm]

	NVE4/1	NVE4/2	NVE4/3	NVE4/4	NVE4/5	NVE4/6	NVE4/7	NVE4/8
With brackets	178,5	219,5	260,5	301,5	342,5	383,5	424,5	465,5
Without brackets	148	189	230	371	312	353	394	435

FIXING HOLES INTERAXIS [mm]

	NVE4/1	NVE4/2	NVE4/3	NVE4/4	NVE4/5	NVE4/6	NVE4/7	NVE4/8
With brackets	155,5	196,5	237,5	278,5	219,5	360,5	401,5	443,5
Without brackets	103,5	144,5	185,5	226,5	267,5	308,5	349,5	390,5

SINGLE SECTION WEIGHT [kg]

Inlet	Working	Outlet
2,2	2,9	2

TOTAL WEIGHT [kg]

NVE4/1	NVE4/2	NVE4/3	NVE4/4	NVE4/5	NVE4/6	NVE4/7	NVE4/8
7,1	10	12,9	15,8	18,7	21,6	24,5	27,4

STANDARD PORTS SIZE [BSPP (ISO-228)]

Inlet port P	User port A	User port B	Outlet port T	Port LS	Port M
3/8" BSPP	3/8" BSPP	3/8" BSPP	1/2" BSPP	1/4" BSPP	1/4" BSPP

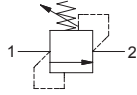
PORTS SIZE [SAE (ASME B1.1-2003)]

Inlet port P	User port A	User port B	Outlet port T	Port LS	Port M
3/4-16 UNF-2B (SAE 8)	3/4-16 UNF-2B (SAE 8)	3/4-16 UNF-2B (SAE 8)	7/8-14 UNF-2B (SAE 10)	5/8-18 UNF-2B (SAE 6)	5/8-18 UNF-2B (SAE 6)



General performance characteristics

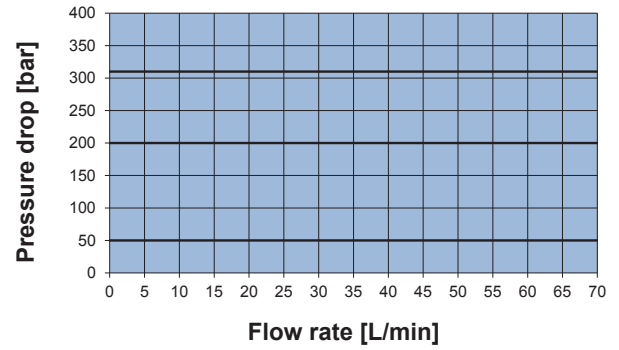
NVE4 RELIEF BEHAVIOR



The NVE4 relief behavior is obtained by crossing the characteristic of inlet pressure compensator, the main relief valve and the signal relief valve.

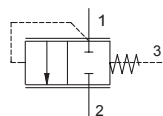
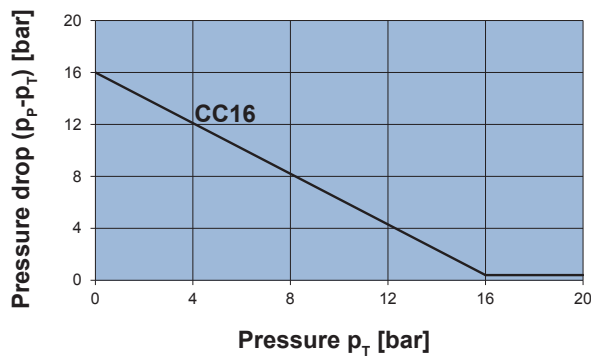
NB: the signal relief valve must be calibrated about 20 bar less than the main relief valve

MAIN RELIEF VALVES PRESSURE DROP CHARACTERISTIC



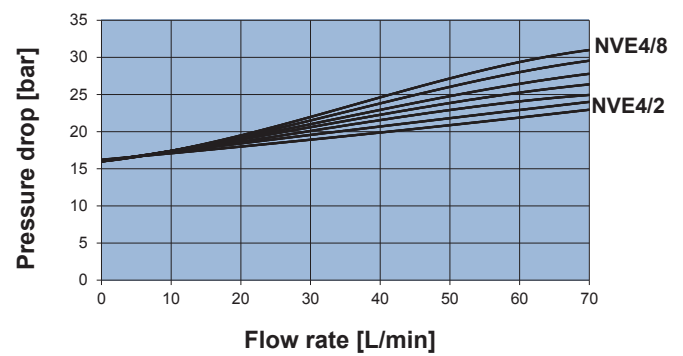
NVE4 INLET PRESSURE COMPENSATOR BEHAVIOR

NVE4 STAND-BY COMPENSATOR CHARACTERISTIC

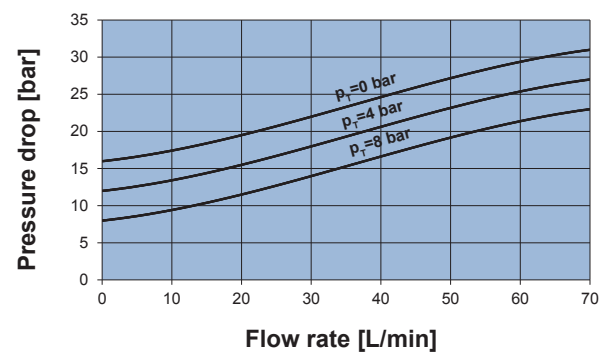


Thanks to the internal configuration of NVE4, the stand-by pressure drop decreases with increasing the back pressure on port T, see *NVE4 stand-by characteristic graph*, that is referred to the CC16 compensator option.

INLET PRESSURE COMPENSATOR CHARACTERISTIC



STAND-BY CHARACTERISTIC OF INLET PRESSURE COMPENSATOR (NVE4/8)



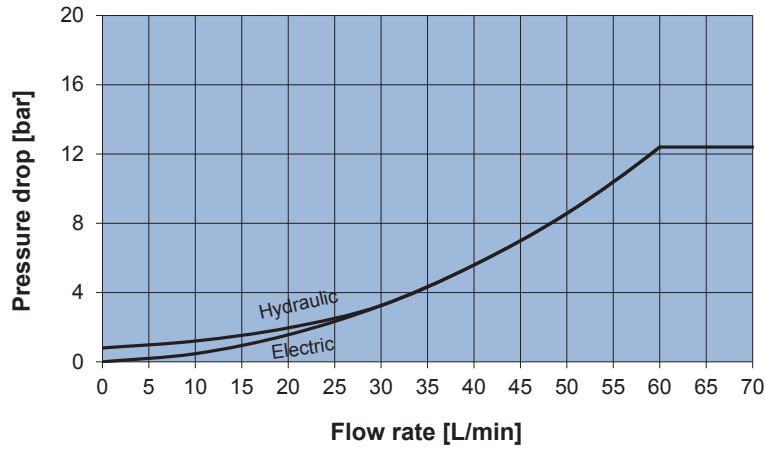
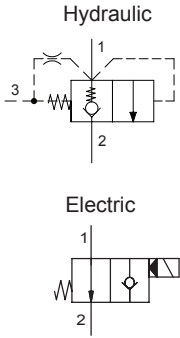
Note:

Technical data and diagrams are measured with mineral oil HLP to DIN 51524 of 46 cSt and at 40 °C oil temperature.

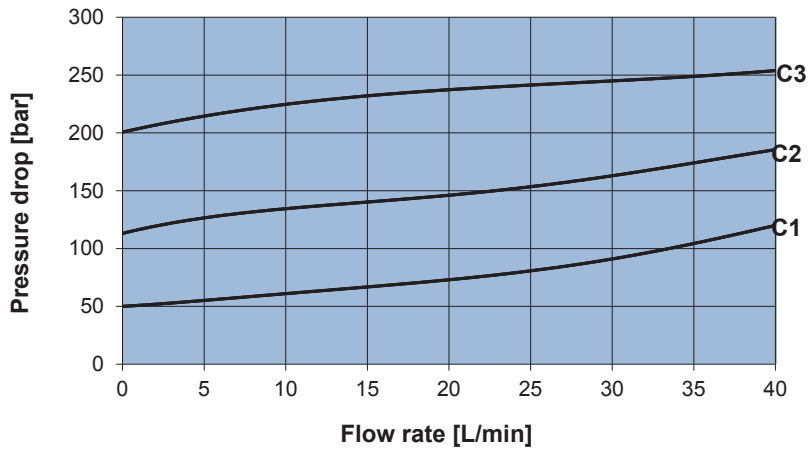
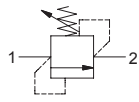


General performance characteristics

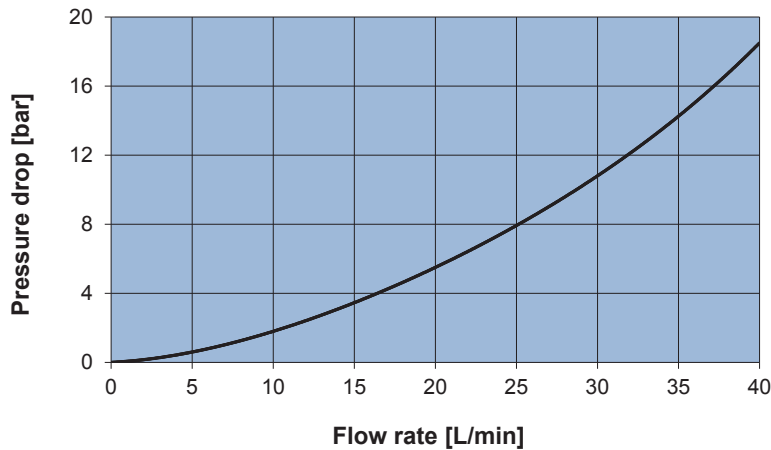
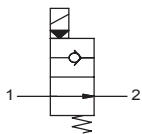
INLET DUMP LINE PRESSURE DROP CHARACTERISTIC



ANTI-SHOCK CHARACTERISTICS



PORT DUMP VALVES CHARACTERISTICS

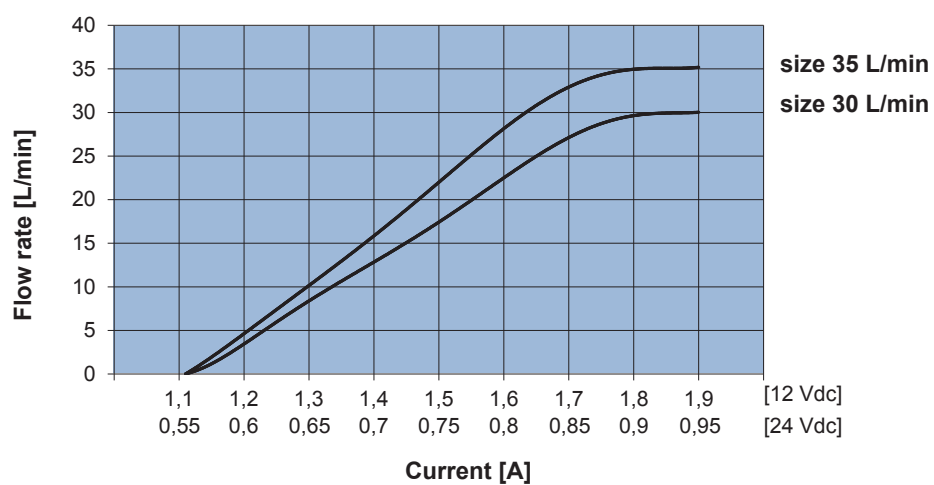
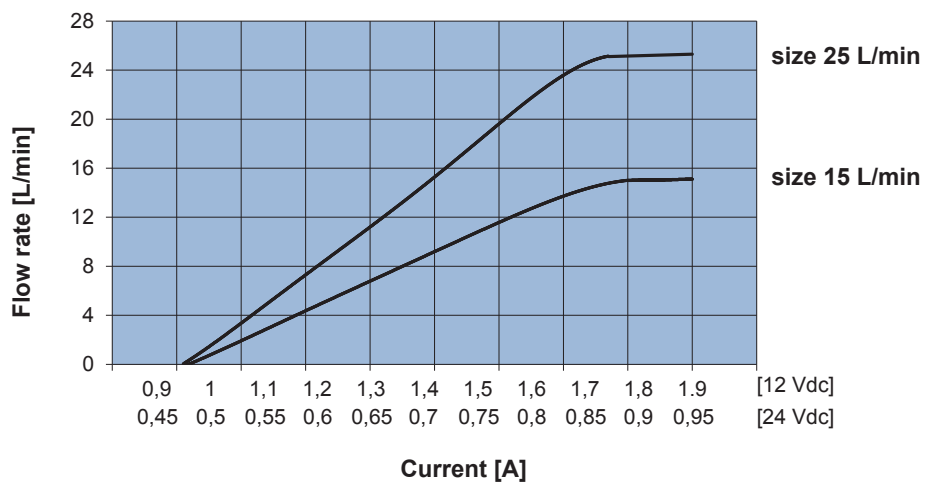
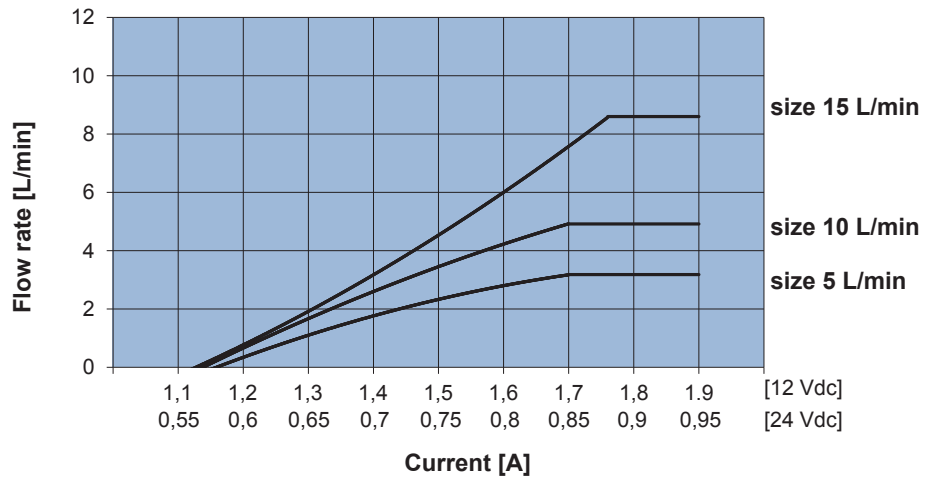


Note:

Technical data and diagrams are measured with mineral oil HLP to DIN 51524 of 46 cSt and at 40 °C oil temperature.



Spool metering graphs



Note:
Technical data and diagrams are measured with mineral oil HLP to DIN 51524 of 46 cSt and at 40 °C oil temperature.



Ordering string example

NVE4/3

→ **PRODUCT TYPE:**

NVE4
/3

Product type
Working section number

1 ILG38 - VM3(210) - DV2(C12D) - OC

→ **INLET ARRANGEMENT:**

page 13

2 W2G38 - C14 - 2EPL(S12D) - 31 - 1A0 - A/C2(200P) - B/NA4(D12D)

→ **WORK SECTION ARRANGEMENT:**

page 19

3 ORG12 - CC16 - RV2(190)

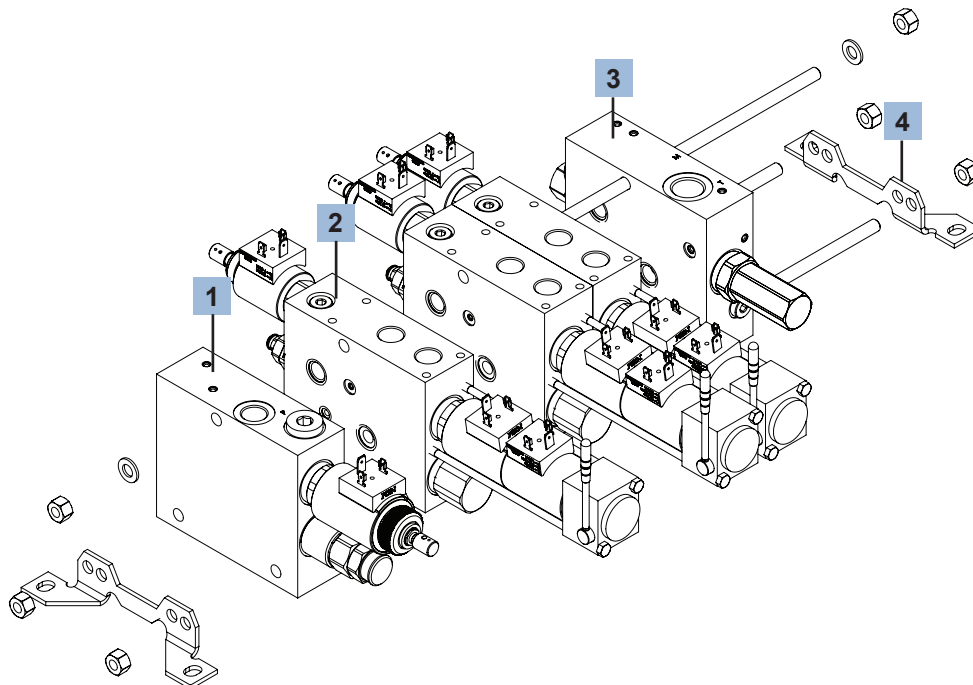
→ **OUTLET ARRANGEMENT:**

page 27

4 WB

→ **MOUNTING:**

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Note: order row 2 must be repeated for each work section

Inlet section

IL G38 - VM3(210) - DV2 (C12D) - OC

1+2 HOUSING + PORT P and PORT T1 TYPE

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ILG38	Left inlet with port P and T1 type GAS 3/8" BSPP
IRG38	Right inlet with port P and T1 type GAS 3/8" BSPP
ILU08	Left inlet with port P and T1 type SAE8 3/4-16 UNF-2B (SAE8)
IRU08	Right inlet with port P and T1 type SAE8 3/4-16 UNF-2B (SAE8)
ILSG38	Left inlet in steel with port P and T1 type GAS 3/8" BSPP
IRSU08	Right in steel- inlet with port P and T1 type SAE8 3/4-16 UNF-2B (SAE8)
...	

3 PRESSURE RELIEF VALVE

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VM1(...)	Pressure relief valve with setting range 40 to 140 bar
VM2(...)	Pressure relief valve with setting range 120 to 250 bar
VM3(...)	Pressure relief valve with setting range 220 to 410 bar
MRP	Hydraulic pilot relief valve
SVM	Plug, all port closed

4 DUMP VALVE

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DVP	Dump valve Plug
DV0	Hydraulic pilot operated dump valve
DV1	Electric dump valve without emergency operation
DV2	Electric dump valve with push button emergency
DV3	Electric dump valve with push and twist emergency

5 DUMP VALVE COIL

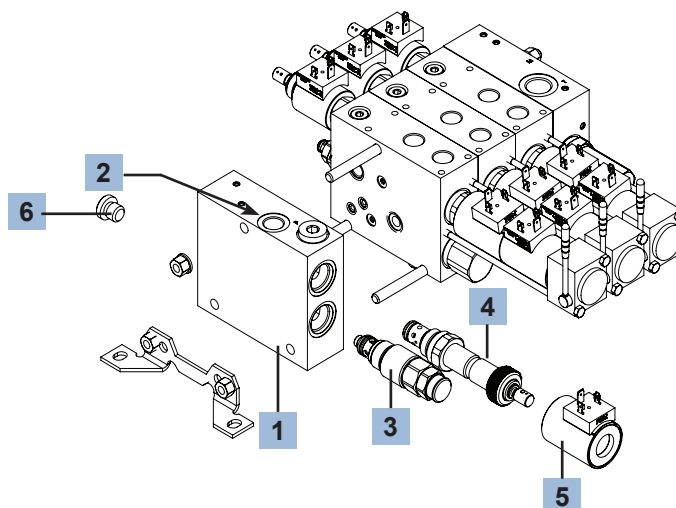
page 17

C12D	Coil 12 V, connector DIN 43650, standard circuit
C12A	Coil 12 V, connector AMP-JUNIOR, circuit with diode
C12S	Coil 12 V, connector DEUTSCH DT4, circuit with diode
C24D	Coil 24 V, connector DIN 43650, standard circuit
C24A	Coil 24 V, connector AMP-JUNIOR, circuit with diode
C24S	Coil 24 V, connector DEUTSCH DT4, circuit with diode

6 PORT LOCATION

page 18

OC	Open center for fixed displacement pump
CC	Closed center for variable displacement pump

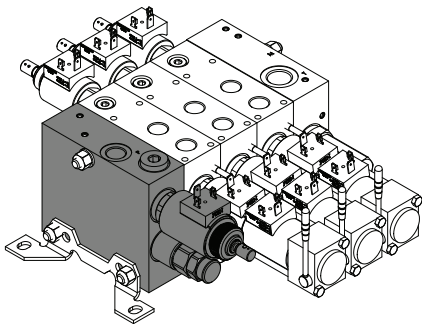


1. Housing

IL G38 - VM3(210) - DV2 (C12D) - OC

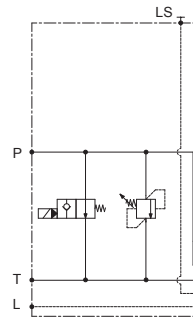
IL

LEFT inlet section
(with respect to the lever side)



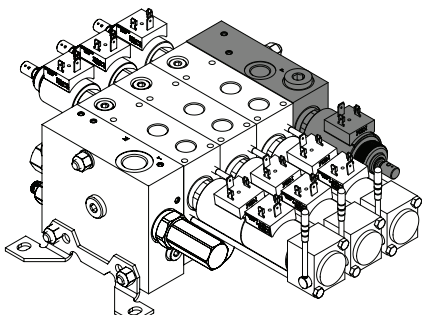
ILS

LEFT inlet section in steel
(with respect to the lever side)



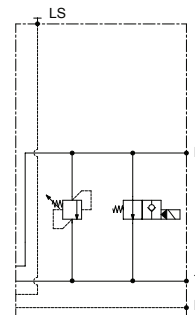
IR

RIGHT inlet section
(with respect to the lever side)



IRS

RIGHT inlet section in steel
(with respect to the lever side)



2. Port P and T1 type

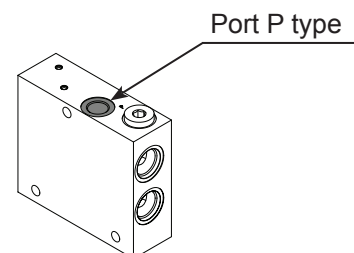
IL G38 - VM3(210) - DV2 (C12D) - OC

G38

Port **P** and **T1** G3/8" BSPP
ports size ISO-228

U08

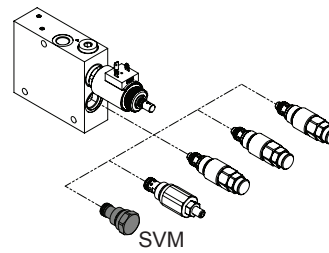
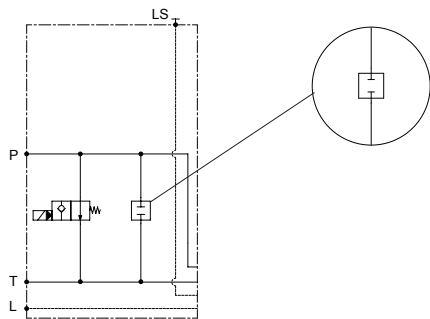
Port **P** and **T1** 3/4-16 UNF-2B
port size SAE 8 (ASME B1.1-2003)



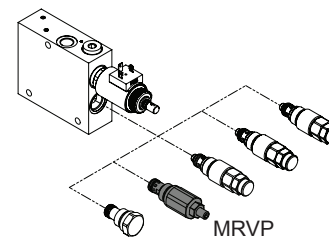
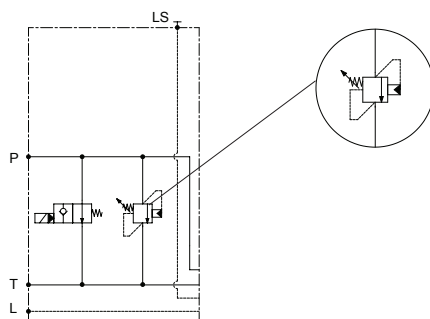
3. Pressure relief valve

IL G38 - VM3(210) - DV2 (C12D) - OC

SVM Plug, all port closed



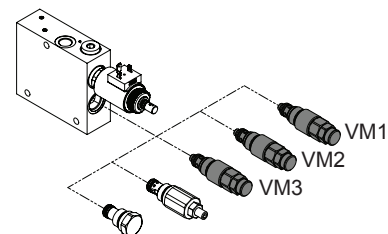
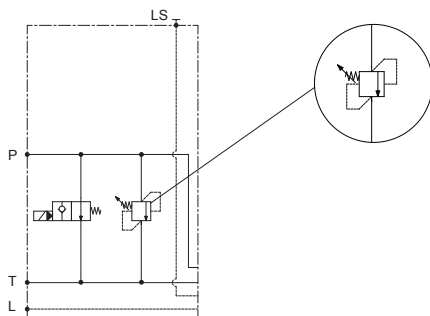
MRP hydraulic pilot relief valve



VM1(...) Relief valve with spring 1, cracking pressure (40÷140)

VM2(...) Relief valve with spring 2, cracking pressure (120÷250)

VM3(...) Relief valve with spring 3, cracking pressure (220÷350¹⁾)

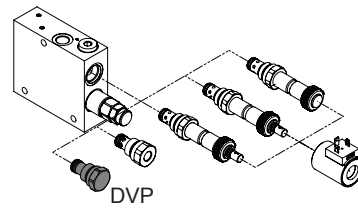
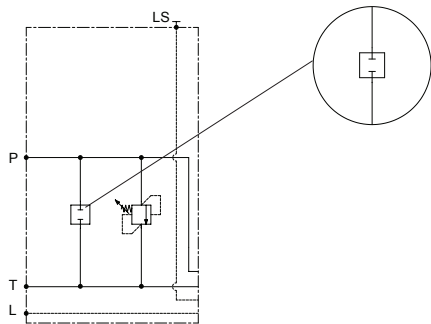


Note: If the input flow is not specified, the relief will be calibrated with a reference flow rate of 30L/min
¹⁾ Cracking pressure max 410 bar

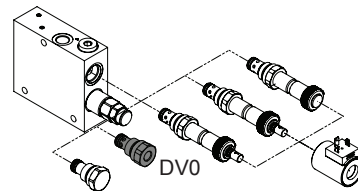
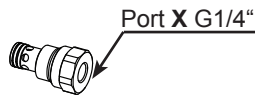
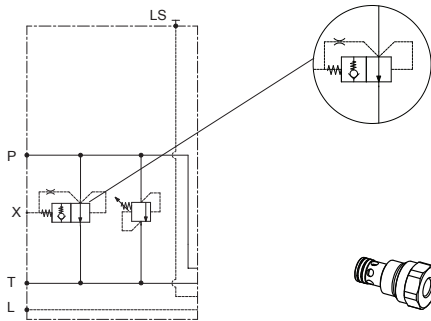
4. Dump valve

IL G38 - VM3(210) - DV2(C12D) - OC

DVP Plug (all port closed)



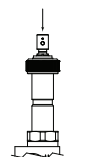
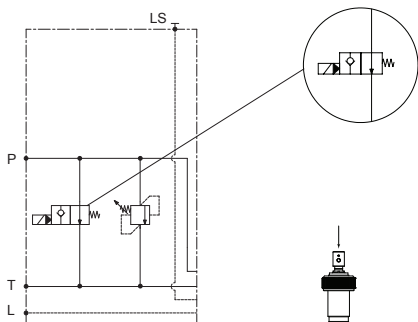
DV0 Hydraulic pilot operated dump valve



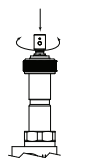
DV1(...) Electric dump valve without emergency operation

DV2(...) Electric dump valve with push button emergency

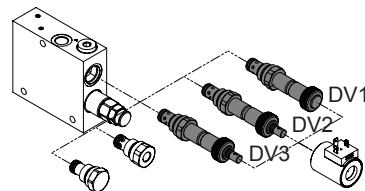
DV3(...) Electric dump valve with push and twist emergency



DV2
push button

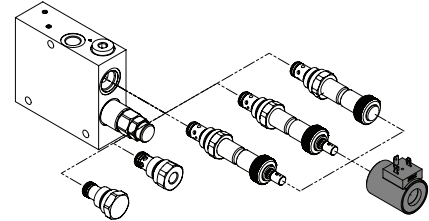
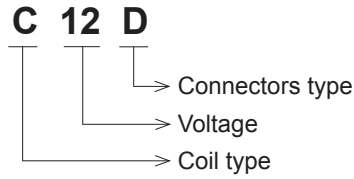


DV3
push and twist

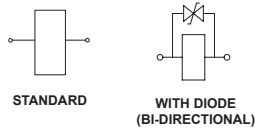


5. Dump valve coil

IL G38 - VM3(210) - DV2 (C12D) - OC

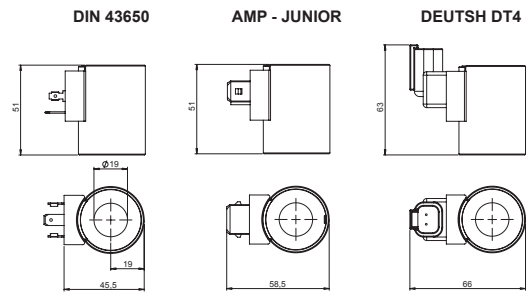


ELECTRIC CIRCUITS



On-off coil

Wire insulation class	H(>185 °C)
ED	100%
Coil power at 20 °C	24 W
Ambient temperature	-20 +40 °C
Weight	0,28 Kg



Order code	Connector	Protection class	Coil thermal insulation class	Voltage [V]	Resistance [Ω]	Circuit	NEM code
C12D	DIN 43650	IP65	H	12	6,8	STANDARD	098011190
C24D				24	24		098012190
C12S	DEUTSCH DT4	IP67	F	12	6,8	WITH DIODE	098111190
C24S				24	24		098112190
C12A	AMP - JUNIOR	IP65	F	12	6,8	WITH DIODE	098211190
C24A				24	24		098212190

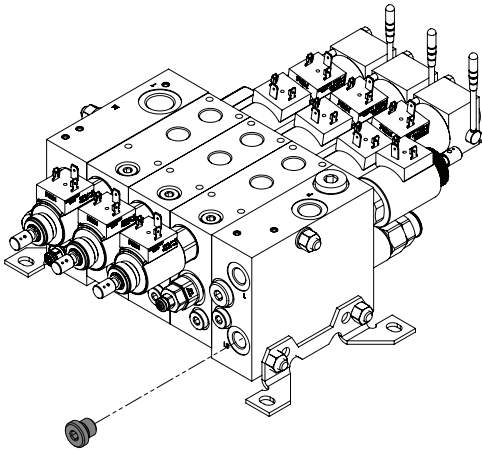


6. Port location

IL G38 - VM3(210) - DV2 (C12D) - OC

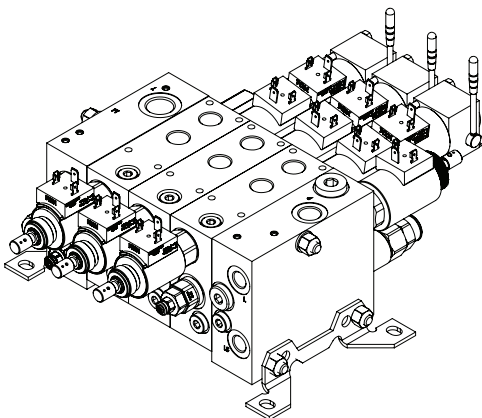
OC

Open center layout for fixed displacement pump



CC

Closed center layout for variable displacement pump



Work section

W2 G38 - C14 - 2EPL (S12D) - 31 - 1A0 - A/ C2(200P) - B/ NA4 (D12D)

1+2 HOUSING + PORTS A and B TYPE

page 20

W1G38	Work section without auxiliary valves, port A and B type GAS 3/8" BSPP
W2G38	Work section with auxiliary valves, port A and B type GAS 3/8" BSPP
W1U08	Work section without auxiliary valves, port A and B type SAE8 3/4-16 UNF-2B
W1SG38	Work section in steel without auxiliary valves, port A and B type GAS 3/8" BSPP
...	

3 PRESSURE COMPENSATOR

page 21

C00	By-pass plug
C14	Local compensator, cracking pressure 14 bar
...	

4 DIRECTIONAL CARTRIDGE

page 22

1CPL	Proportional cartridge scheme 1 (max.regulated flow = 15 L/min),with lever predisposition
2DPL	Proportional cartridge scheme 2 (max.regulated flow = 25 L/min),with lever predisposition
1CP0	On/off directional cartridge scheme 1 (regulated flow = 15 L/min),no lever predisposition
2DP0	On/off directional cartridge scheme 2 (regulated flow = 25 L/min),no lever predisposition
...	

5 DIRECTIONAL CARTRIDGE COIL

page 23

S12D	Proportional coil 12 V, connector DIN 43650
S12A	Proportional coil 12 V, connector AMP-JUNIOR, circuit with diode
S12S	Proportional coil 12 V, connector DEUTSCH DT4, circuit with diode
S24D	Proportional coil 24 V, connector DIN 43650
C12D	On/off coil 12 V, connector DIN 43650
...	

6 COIL CONNECTOR ORIENTATION

page 24

31	Orientation of cartridge coil (coil up)
...	

7 CONTROL TYPE

page 25

1A0	Emergency operation with high lever on the left, no position transducer
1B0	Emergency operation with lower lever on the left, no position transducer
...	

8 AUXILIARY VALVE SIDE A

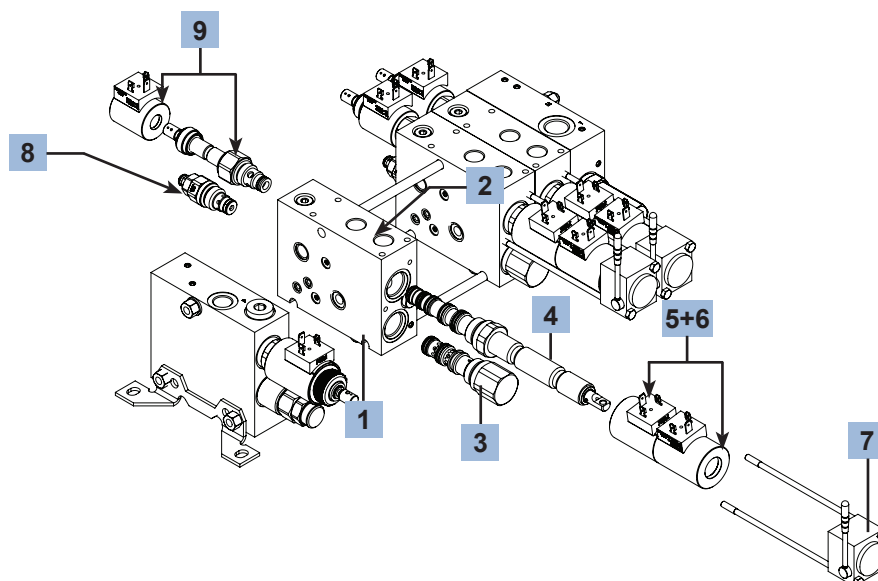
page 26

A/C2(...)	Anti-shock valve side A
A/NA4(D12D)	Dump valve and on/off coil side A
...	

9 AUXILIARY VALVE SIDE B

page 26

B/C2(...)	Anti-shock valve side B
B/NA4(D12D)	Dump valve and on/off coil side B
...	

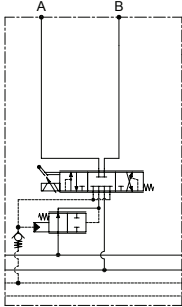


1. Housing

W2 G38 - C14 - 2EPL (S12D) - 31 - 1A0 - A/ C2(200P) - B/ NA4 (D12D)

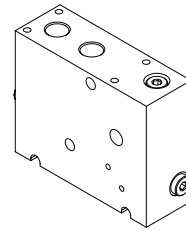
W1

Housing **WITHOUT** anti-shock and/or dump valve cavities



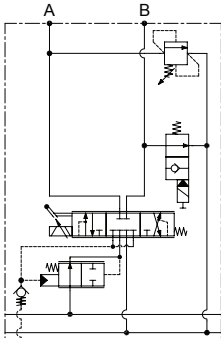
W1S

Housing in steel **WITHOUT** anti-shock and/or dump valve cavities



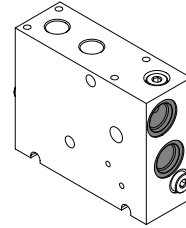
W2

Housing **WITH** anti-shock and/or dump valve cavities



W2S

Housing in steel **WITH** anti-shock and/or dump valve cavities



2. Port A and B type

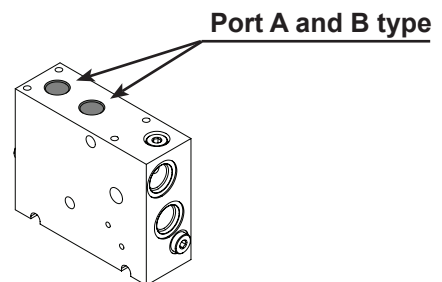
W2 G38 - C14 - 2EPL (S12D) - 31 - UL0 - A/ C2(200P) - B/ NA4 (D12D)

G38

Port **A** and **B** G3/8" BSPP ports size ISO-228

U08

Port **A** and **B** 3/4-16 UNF-2B port size SAE 8 (ASME B1.1-2003)



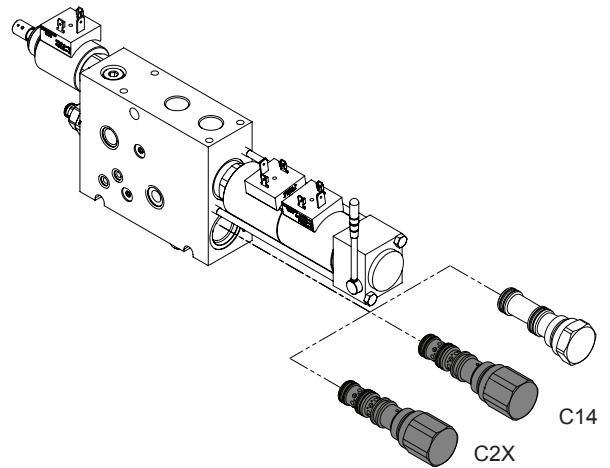
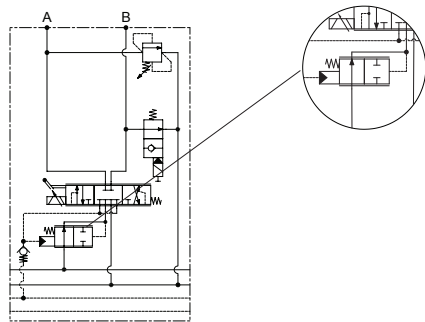
3. Hydraulic pressure compensator

W2 G38 - **C14** - 2EPL (S12D) - 31 - 1A0 - A/ C2(200P) - B/ NA4 (D12D)

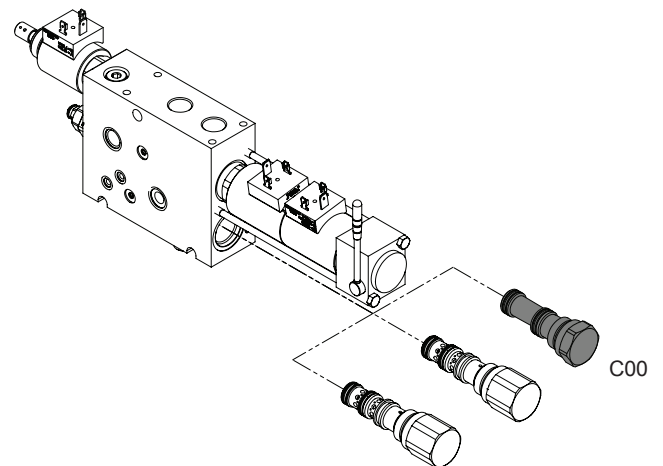
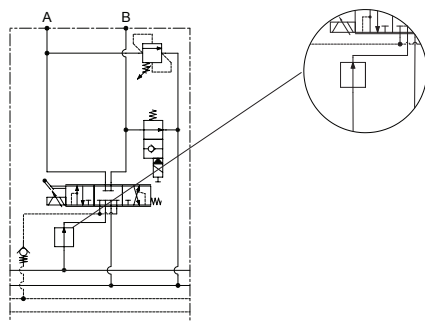
C02 Local compensator, cracking pressure 2 bar

C14 Local compensator, cracking pressure 14 bar

C2X Local compensator, cracking pressure 11 bar

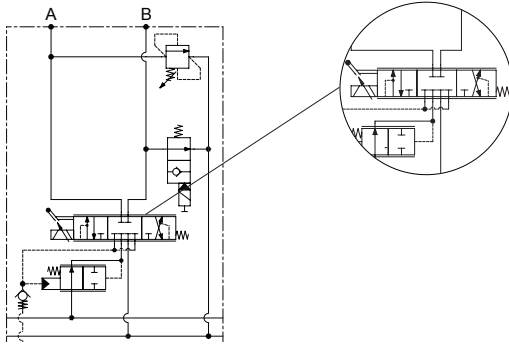


C00 Without local compensator



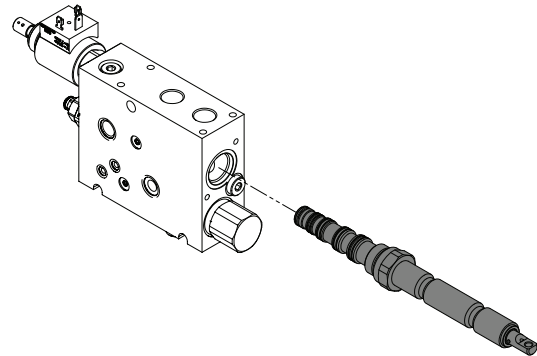
4. Directional cartridge

W2 G38 - C14 - **2EPL** (S12D) - 31 - 1A0 - A/ C2 (200P)- B/ NA4 (D12D)



2 E P L

- Leverage predisposition
- Type
- Regulated flow size
- Scheme

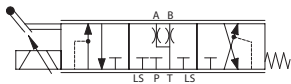


Regulated flow size [L/min]	Cartridge size	Local compensator	Inlet ¹⁾ compensator
3	A	C02	CC16
5	A	C14	CC16
10	B	C14	CC16
15	C	C14	CC16
25	D	C14	CC16
30	E	C14	CC16
35	E	C2X	C12X

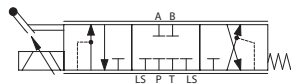
²⁾ For the inlet compensator see page 27

Scheme

1 Open centre
(A/B to T in neutral position)



2 Closed centre
(A/B to T in neutral position)



Cartridge size

A 3 ÷ 5 L/min

B 10 L/min

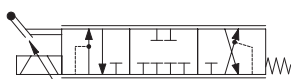
C 15 L/min

D 25 L/min

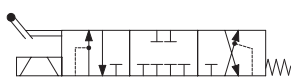
E 30 ÷ 35 L/min

Type

P Proportional cartridge



N On/off cartridge

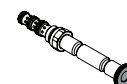


Control predisposition

L²⁾ With control predisposition



0 Without control predisposition

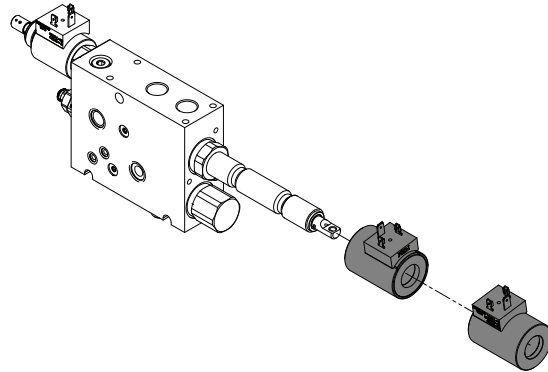
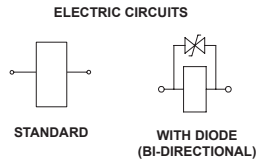
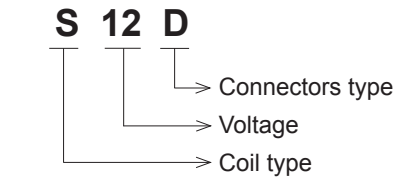


²⁾ Necessary to select control type option, see page 25



5. Directional cartridge coil

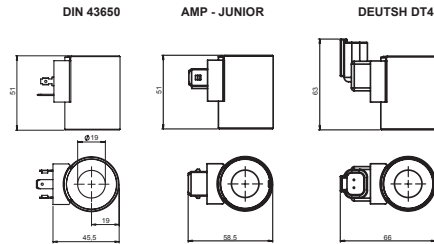
W2 G38 - C14 - 2EPL (S12D) - 31 - 1A0 - A/ C2(200P) - B/ NA4 (D12D)



Proportional coil

Available only for proportional cartridges

Wire insulation class	H(>185 °C)
ED	100%
Coil power at 20 °C	36 W
Max current at 24 Vdc	0,9 A
Max current at 12 Vdc	1,9 A
PWM	120 Hz
Ambient temperature	-20 +40 °C
Weight	0,28 Kg

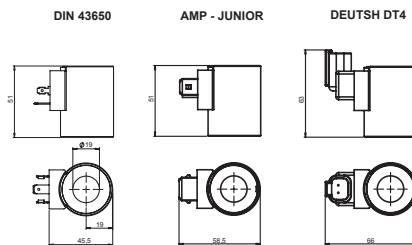


Order code	Connector	Protection class	Coil thermal insulation class	Voltage [V]	Resistance [Ω]	Circuit	NEM code
S12D	DIN 43650	IP65	H	12	3,9	STANDARD	098001190
S24D				24	14,5		
S12S	DEUTSCH DT4	IP65	F	12	3,9	WITH DIODE	098101190
S24S				24	14,5		
S12A	AMP - JUNIOR	IP65	F	12	3,9	WITH DIODE	098201190
S24A				24	14,5		

On-off coil

Available only for on-off cartridges

Wire insulation class	H(>185 °C)
ED	100%
Coil power at 20 °C	24 W
Ambient temperature	-20 +40 °C
Weight	0,28 Kg

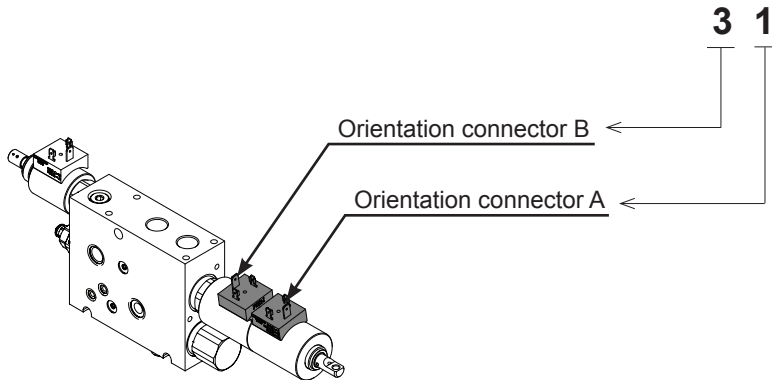


Order code	Connector	Protection class	Coil thermal insulation class	Voltage [V]	Resistance [Ω]	Circuit	NEM code
C12D	DIN 43650	IP65	H	12	6,8	STANDARD	098011190
C24D				24	24		
C12S	DEUTSCH DT4	IP65	F	12	6,8	WITH DIODE	098111190
C24S				24	24		
C12A	AMP - JUNIOR	IP65	F	12	6,8	WITH DIODE	098211190
C24A				24	24		

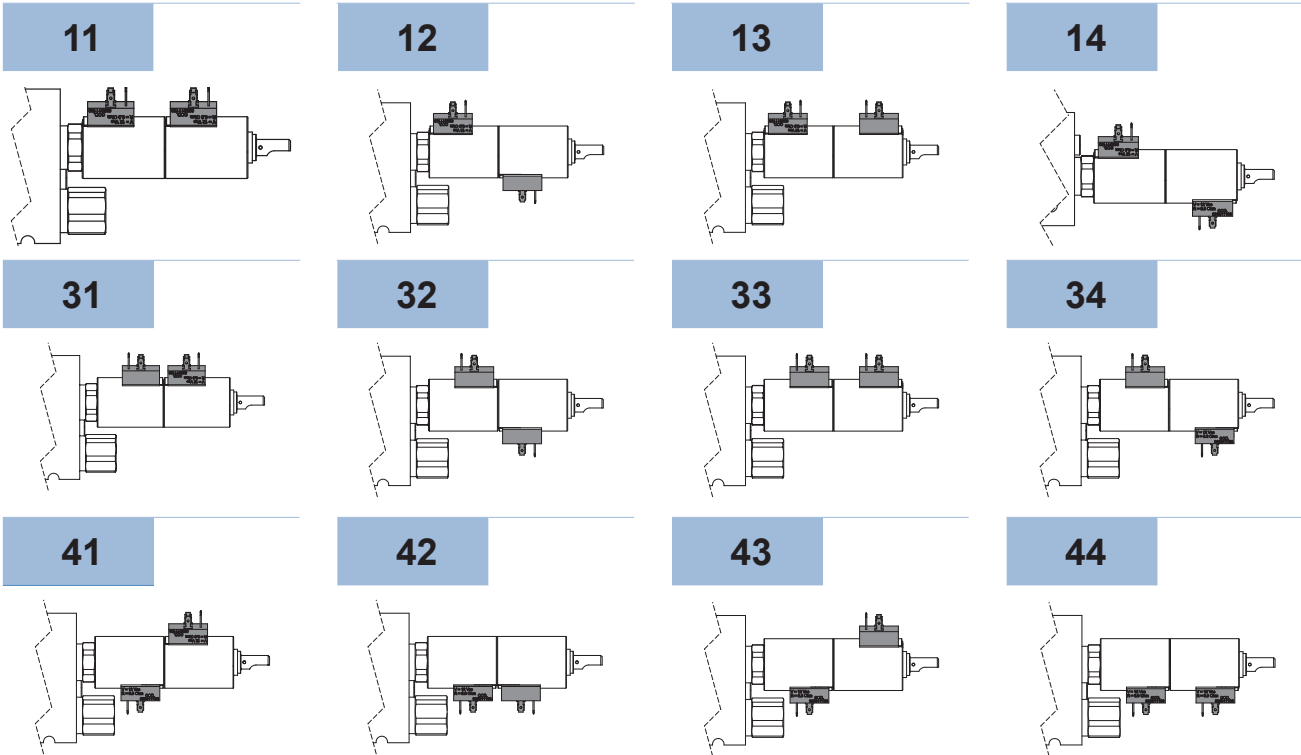


6. Coil connectors orientation

W2 G38 - C14 - 2EPL (S12D) - **31** - 1A0- A/ C2(200P) - B/ NA4 (D12D)

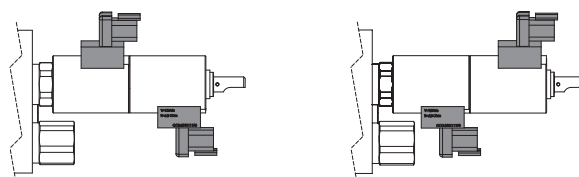


Coil connector orientation



All the previous options available also for AMP-Junior type

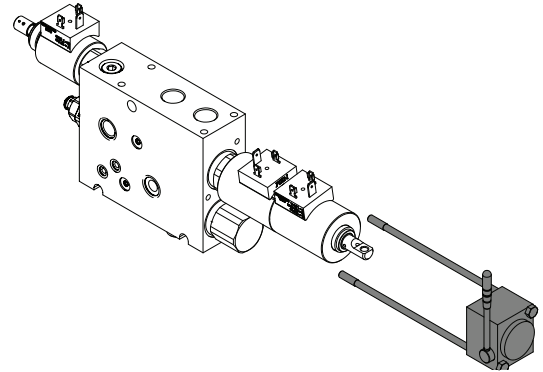
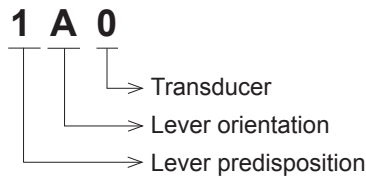
For DEUTSCH DT4 type, options 34 and 43 available only (see the images below)



7. Control type¹⁾

W2 G38 - C14- 2EPL (S12D) - 31 - **1A0** - A/ C2(200P) - B/ NA4 (D12D)

¹⁾ Necessary to select cartridge with leverage predisposition.
If cartridge without lever predisposition as been select,
then select the 000 control type option



Lever predisposition

0 Command without lever

Handle rod must be ordered separately (code: 3032060750)

1 Command with lever

Lever orientation

A Command with high lever on the left

C Command with high lever on the right

B Command with lower lever on the left

D Command with lower lever on the right

Transducer

0 Without transducer

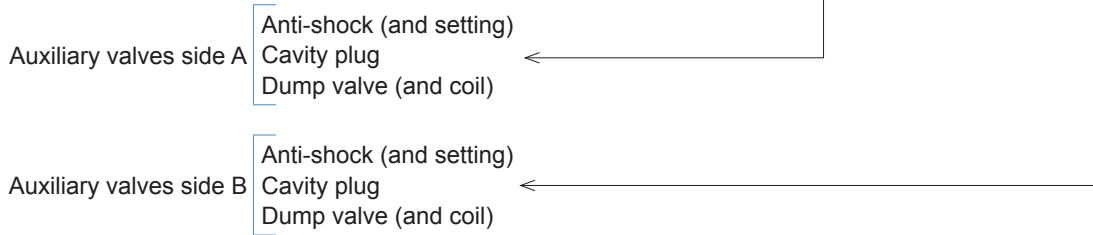
1 With position transducer

For position transducer contact NEM customer care



8-9. Auxiliary valves

W2 G38 - C14 - 2EPL (S12D) - 31 - 1A0 - A/ C2 (200 P) - B/ NA4 (D12D)



Anti-shock

C1(...)	Cracking pressure (20÷120 P) or full flow setting ¹⁾ (60÷100 Q)
C2(...)	Cracking pressure (121÷170 P) or full flow setting (101÷180 Q)
C3(...)	Cracking pressure (171÷250 ²⁾ P) or full flow setting (181÷ 250 ²⁾ Q)

¹⁾ Referred to the maximum capacity of the cartridge
²⁾ Pressure setting max 350 bar

Setting type

Specify the setting type

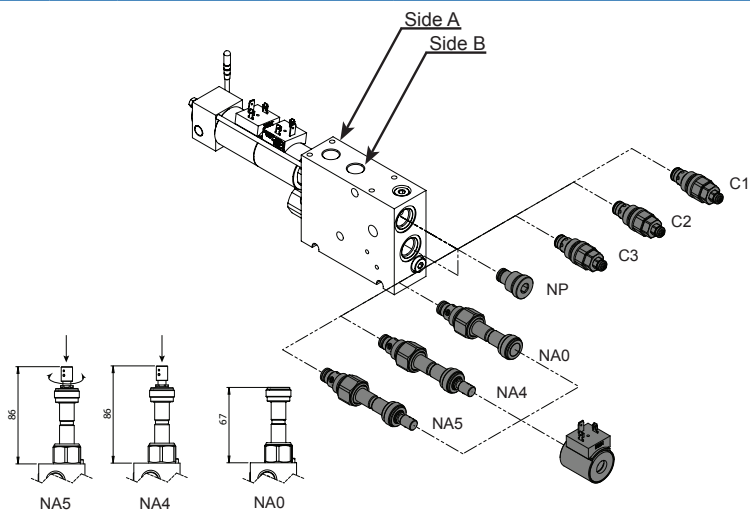
P	Cracking pressure
Q	Full flow

Cavity plug

NP	Plug (without valve)
-----------	----------------------

Dump valve

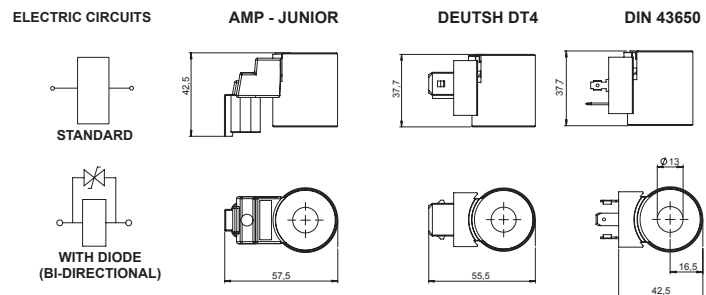
NA0(...)	Electric dump valve without emergency operation
NA4(...)	Electric dump valve with push button emergency
NA5(...)	Electric dump valve with push and twist emergency



Dump valve coil

On-off

Wire insulation class	H(>185 °C)
ED	100%
Coil power at 20 °C	20,5 W
Ambient temperature	-20 +40 °C
Weight	0,16 Kg



Order code	Connector	Protection class	Coil thermal insulation class	Voltage [V]	Resistance [Ω]	Circuit	NEM code
D12D	DIN 43650	IP65	H	12	7	STANDARD	094001000
D24D				24	28	094002000	
D12S	DEUTSCH DT4	IP67	H	12	7	WITH DIODE	094101000
D24S				24	28	094102000	
D12A	AMP - JUNIOR	IP65	H	12	7	STANDARD	094201000
D24A				24	28	094202000	



Outlet section

OR G12 - CC16 - RV(190)

1+2 HOUSING + PORT P and PORT T1 TYPE

page 28

ORG12	Right outlet, port T type GAS 1/2" BSPP
OLG12	Left outlet, port T type GAS 1/2" BSPP
ORU10	Right outlet, port T type SAE 10, 7/8-14 UNF-2B
OLU10	Left outlet, port T type SAE 10, 7/8-14 UNF-2B
ORSG12	Right outlet in steel, port T type GAS 1/2" BSPP
OLSG12	Left outlet in steel, port T type GAS 1/2" BSPP
ORSU10	Right outlet in steel, port T type SAE 10, 7/8-14 UNF-2B
OLSU10	Left outlet in steel, port T type SAE 10, 7/8-14 UNF-2B

3 PRESSURE COMPENSATOR

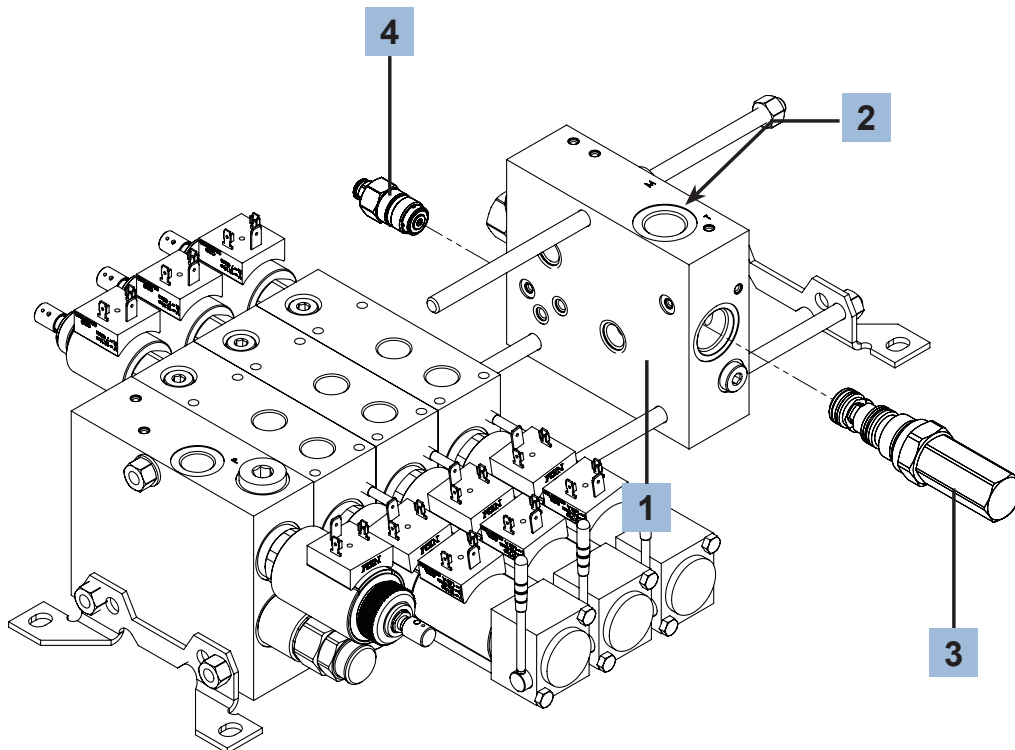
page 29

C00	By pass plug
CL	Hydraulic pressure compensator

4 Signal relief valve

page 30

RV1(...)	Relief valve with spring 1, cracking pressure (30÷100)
RV2(...)	Relief valve with spring 1, cracking pressure (100÷250)
RV3(...)	Relief valve with spring 1, cracking pressure (250÷400)



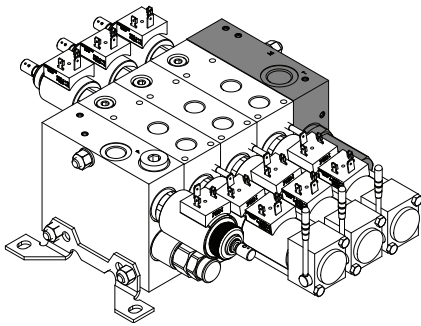
1. Housing

OR G12 - CC16 - RV(190)

Available combinations	IL	IR	OL	OR
IL - OR	x			x
IR - OL		x	x	

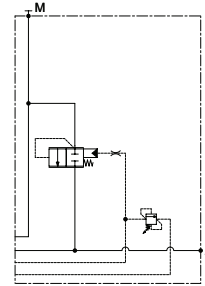
OR

RIGHT outlet section
(with respect to the lever side)



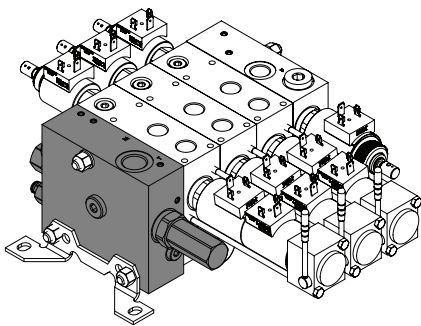
ORS

RIGHT outlet section in steel
(with respect to the lever side)



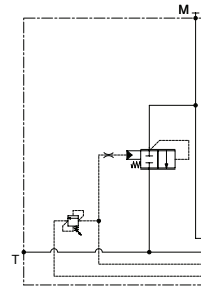
OL

LEFT outlet section
(with respect to the lever side)



OLS

LEFT outlet section in steel
(with respect to the lever side)



2. Port T type

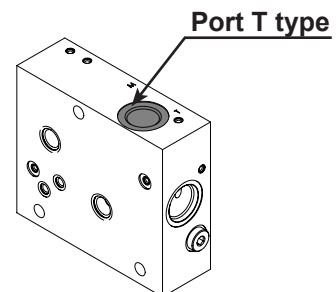
OR G12 - CC16 - RV(190)

G12

Port T G1/2" BSPP
ports size ISO-228

U10

Port T 7/8-14 UNF-2B
port size SAE 10 (ASME B1.1-2003)



3. Hydraulic compensator¹⁾

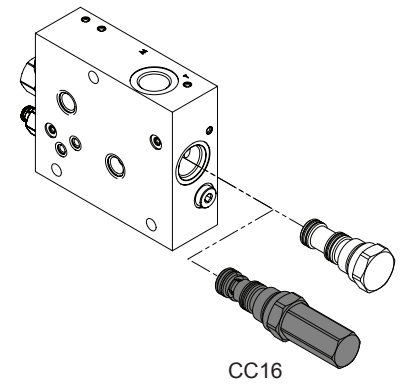
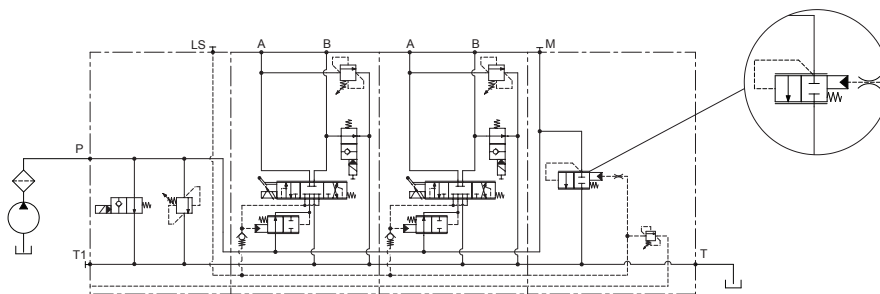
OR G12 - CC16 - RV(190)

¹⁾ to set the correct flow rate, see page 22

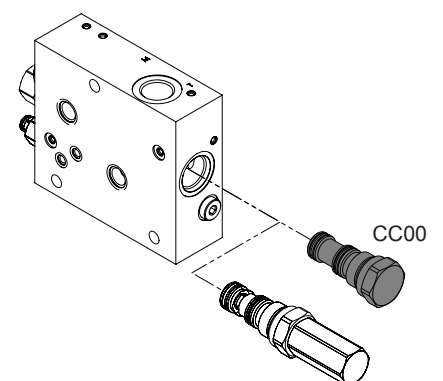
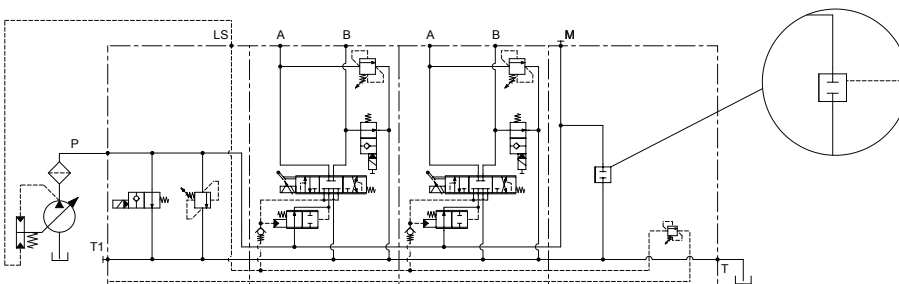
Available combination	OC	CC
CC16	x	
C12X	x	
CC00		x

CC16 Pressure setting 16 bar

C12X Pressure setting 12 bar



CC00 Plug for closed center layout



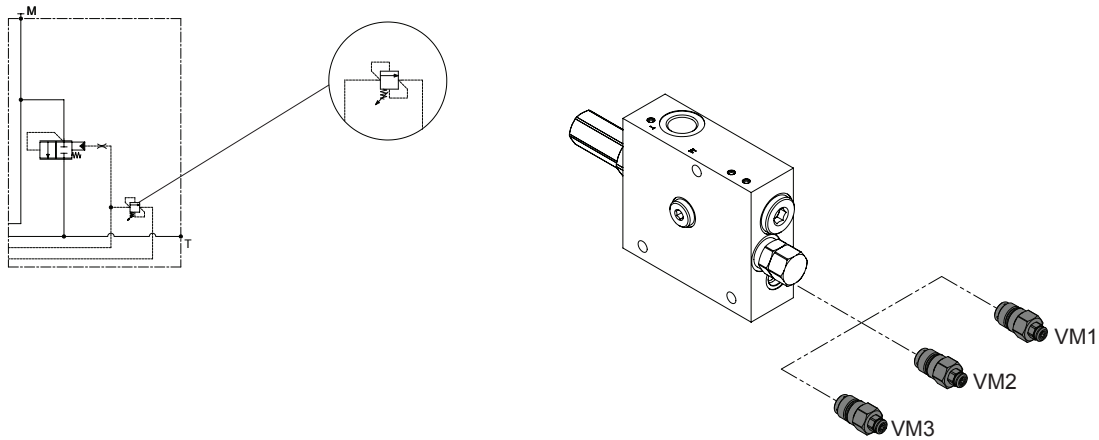
4. Signal relief valve

OR G12 - CC16 - RV(190)

RV1(...) Relief valve with spring 1, cracking pressure (30÷100)

RV2(...) Relief valve with spring 2, cracking pressure (100÷250)

RV3(...) Relief valve with spring 3, cracking pressure (250÷400)¹⁾



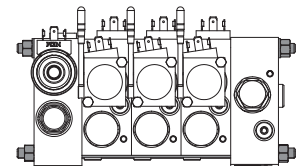
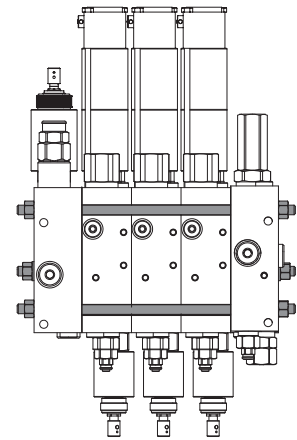
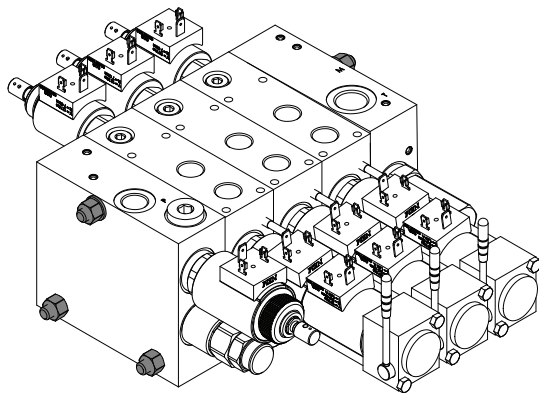
Note: we recommend a calibration of 20 bar less than that of the main relief valve

¹⁾For the aluminum body the maximum working pressure is 250 bar for the steel body 350 bar

Mounting type

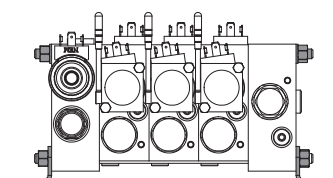
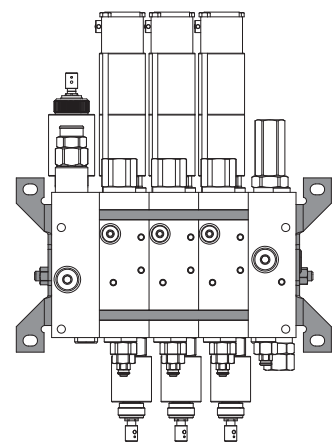
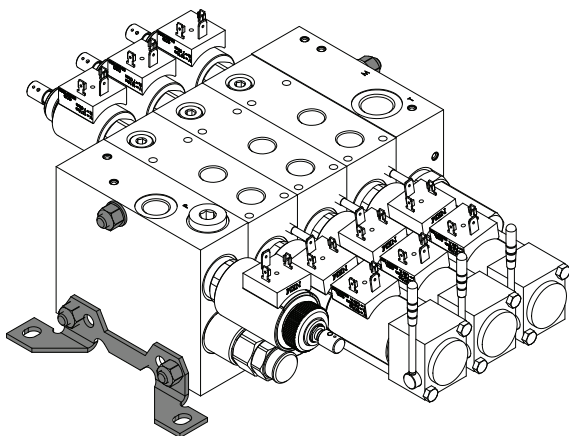
NB

Without brackets



WB

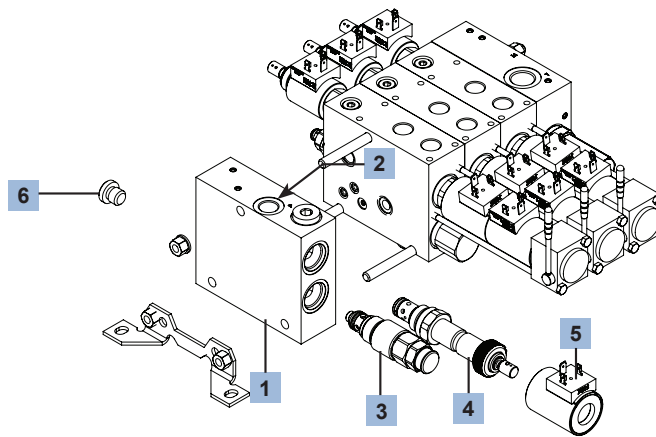
With brackets



NVE4
SPARE PARTS



Inlet section - spare parts



Inlet ordering code example

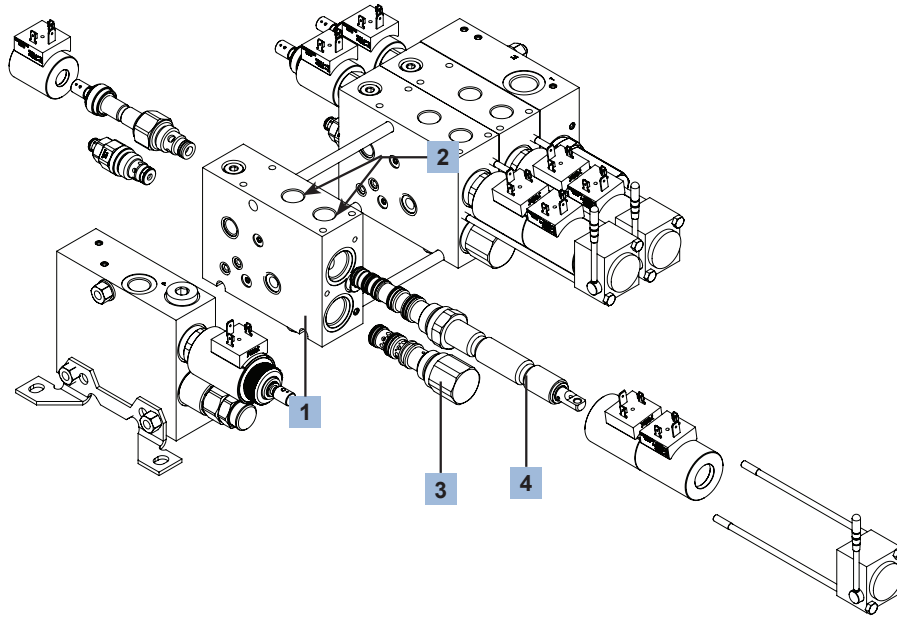
ILG38-VM3(210)-DV2(C12D)-OC

Ordering code

1+2	Inlet module (with respect to the lever side) Left inlet (port P and T1 type GAS 3/8" BSPP) Right inlet (port P and T1 type GAS 3/8" BSPP) Left inlet (port P and T1 type (SAE 8, 3/4-16 UNF-2B) Right inlet (port P and T1 type (SAE 8, 3/4-16 UNF-2B) Left inlet in steel (port P and T1 type GAS 3/8" BSPP) Right inlet in steel (port P and T1 type GAS 3/8" BSPP) Left inlet in steel (port P and T1 type (SAE 8, 3/4-16 UNF-2B) Right inlet in steel (port P and T1 type (SAE 8, 3/4-16 UNF-2B)	ILG38 IRG38 ILU08 IRU08 ILSG38 IRSG38 ILSU08 IRSU08	5NVE4100000 on request on request on request on request on request on request on request
3	Pressure relief valve (spring type and setting) Plug (without pressure relief valve) Hydraulic pilot relief valve Pressure setting range 50 to 120 bar, setting at (...) Pressure setting range 120 to 200 bar, setting at (...) Pressure setting range 200 to 250 ¹⁾ bar, setting at (...) <small>Note: the Main Relief Valve setting is referred to the selected Inlet flow</small> <small>¹⁾Cracking pressure max 350 bar</small>	SVM MRP VM1(...) VM2(...) VM3(...)	9273274600 0033030000 0023310000 0023320000 0023330000
4	Dump valve Plug (without dump valve) Hydraulic pilot operated dump valve Electric dump valve without emergency operation Electric dump valve with push button emergency Electric dump valve with push and twist emergency	DVP DV0 DV1 DV2 DV3	9273274600 0203002600 0553010000 0553010400 0553010500
5	Coil 12 V, connector DIN 43650 24 V, connector DIN 43650 12 V, connector DEUTSCH DT4, circuit with diode 24 V, connector DEUTSCH DT4, circuit with diode 12 V, connector AMP-JUNIOR, circuit with diode 24 V, connector AMP-JUNIOR, circuit with diode <small>(dump valve coil, not present if DVP or DV4 option has been selected)</small>	C12D C24D C12S C24S C12A C24A	098011190 098012190 098111190 098112190 098211190 098212190
6	Port location Open center layout, GAS version Open center layout, SAE version	OC	4275131501 on request



Work section - spare parts



Work ordering code example

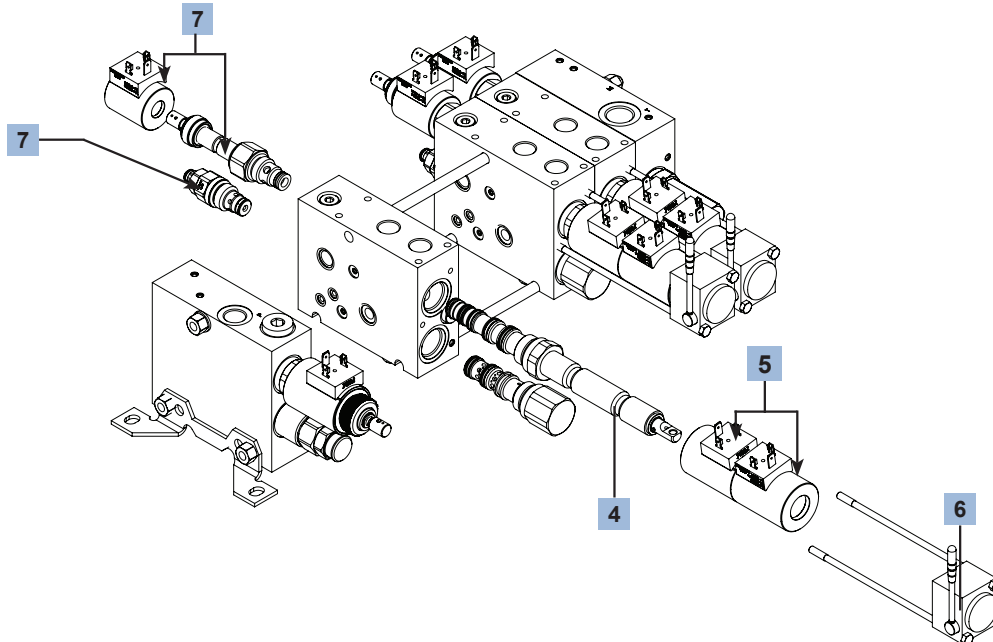
W2G38-CL-25PL(S12D)-31-1A0-A/C2(200P)-B/NA4(D12D)

Ordering code

1+2	Work module		
	Without auxiliary valves, port A,B type GAS 3/8" BSPP	W1G38	on request
	With auxiliary valves, port A,B type GAS 3/8" BSPP	W2G38	5NVE41000002
	Without auxiliary valves, port A,B type SAE 8, 3/4-16 UNF-2B	W1U08	on request
	With auxiliary valves, port A,B type SAE 8, 3/4-16 UNF-2B	W2U08	on request
	In steel, without auxiliary valves, port A,B type GAS 3/8" BSPP	W1SG38	on request
	In steel, with auxiliary valves, port A,B type GAS 3/8" BSPP	W2SG38	on request
	In steel, without auxiliary valves, port A,B type SAE 8, 3/4-16 UNF-2B	W1SU08	on request
	In steel, with auxiliary valves, port A,B type SAE 8, 3/4-16 UNF-2B	W2SU08	on request
3	Hydraulic pressure compensator		
	By pass plug	C00	9273277601
	Cracking pressure 14 bar	C14	024310230001
	Cracking pressure 11 bar	C2X	RS16037680
4	Directional cartridge		
	5 L/min proportional type, scheme 1 with lever predisposition	1APL	04P310020005
	5 L/min proportional type, scheme 1 without lever predisposition	1AP0	on request
	5 L/min proportional type, scheme 2 with lever predisposition	2APL	04P320020005
	5 L/min proportional type, scheme 2 without lever predisposition	2AP0	on request
	10 L/min proportional type, scheme 1 with lever predisposition	1BPL	04P310020010
	10 L/min proportional type, scheme 1 without lever predisposition	1BP0	on request
	10 L/min proportional type, scheme 2 with lever predisposition	2BPL	04P320020010
	10 L/min proportional type, scheme 2 without lever predisposition	2BP0	on request
	15 L/min proportional type, scheme 1 with lever predisposition	1CPL	04P310020015
	15 L/min proportional type, scheme 1 without lever predisposition	1CP0	on request
	15 L/min proportional type, scheme 2 with lever predisposition	2CPL	04P320020015
	15 L/min proportional type, scheme 2 without lever predisposition	2CP0	on request
	25 L/min proportional type, scheme 1 with lever predisposition	1DPL	04P310020025
	25 L/min proportional type, scheme 1 without lever predisposition	1DP0	on request
	25 L/min proportional type, scheme 2 with lever predisposition	2DPL	04P320020025
	25 L/min proportional type, scheme 2 without lever predisposition	2DP0	on request
	30 L/min proportional type, scheme 1 with lever predisposition	1EPL	04P310020030
	30 L/min proportional type, scheme 1 without lever predisposition	1EP0	on request
	30 L/min proportional type, scheme 2 with lever predisposition	2EPL	04P320020030
	30 L/min proportional type, scheme 2 without lever predisposition	2EP0	on request



Work section - spare parts



- 5 L/min on/off type, scheme 1 with lever predisposition
- 5 L/min on/off type, scheme 1 without lever predisposition
- 5 L/min on/off type, scheme 2 with lever predisposition
- 5 L/min on/off type, scheme 2 without lever predisposition
- 10 L/min on/off type, scheme 1 with lever predisposition
- 10 L/min on/off type, scheme 1 without lever predisposition
- 10 L/min on/off type, scheme 2 with lever predisposition
- 10 L/min on/off type, scheme 2 without lever predisposition
- 15 L/min on/off type, scheme 1 with lever predisposition
- 15 L/min on/off type, scheme 1 without lever predisposition
- 15 L/min on/off type, scheme 2 with lever predisposition
- 15 L/min on/off type, scheme 2 without lever predisposition
- 25 L/min on/off type, scheme 1 with lever predisposition
- 25 L/min on/off type, scheme 1 without lever predisposition
- 25 L/min on/off type, scheme 2 with lever predisposition
- 25 L/min on/off type, scheme 2 without lever predisposition

	<u>Ordering code</u>
1ANL	04N310020005
1AN0	on request
2ANL	04N320020005
2AN0	on request
1BNL	04N310020010
1BN0	on request
2BNL	04N320020010
2BN0	on request
1CNL	04N310020015
1CN0	on request
2CNL	04N320020015
2CN0	on request
1DNL	04N310020025
1DN0	on request
2DNL	04N320020025
2DN0	on request

5 Directional cartridge coil

- 12 V, connector DIN 43650
- 24 V, connector DIN 43650
- 12 V, connector DEUTSCH DT4, circuit with diode
- 24 V, connector DEUTSCH DT4, circuit with diode
- 12 V, connector AMP-JUNIOR, circuit with diode
- 24 V, connector AMP-JUNIOR, circuit with diode

Proportional

S12D	098001190
S24D	098002190
S12S	098101190
S24S	098102190
S12A	098201190
S24A	098202190

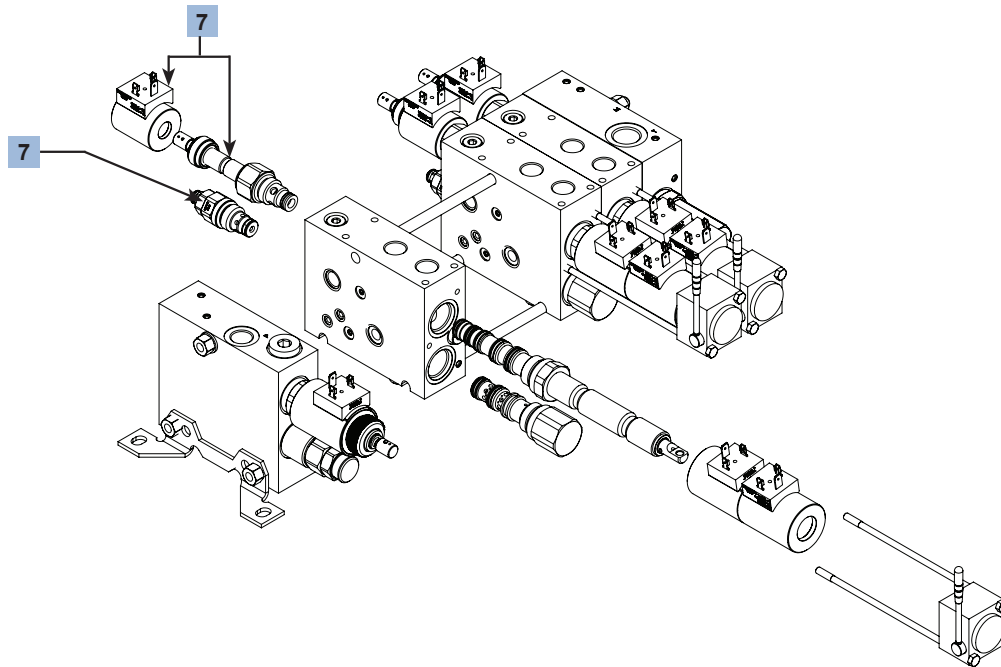
- 12 V, connector DIN 43650
- 24 V, connector DIN 43650
- 12 V, connector DEUTSCH DT4, circuit with diode
- 24 V, connector DEUTSCH DT4, circuit with diode
- 12 V, connector AMP-JUNIOR, circuit with diode
- 24 V, connector AMP-JUNIOR, circuit with diode

On/off

C12D	098011190
C24D	098012190
C12S	098111190
C24S	098112190
C12A	098211190
C24A	098212190



Work section - spare parts



Ordering code

6 Control type

- Command with high lever on the left
- Command with lower lever on the left
- Command with high lever on the right
- Command with lower lever on the right

1A	0013000010
1B	0013000013
1C	0013000013
1D	0013000010

7 Auxiliary valves

- Anti-shock with spring 1 setting range (20 P÷ 120 P) or (60 Q÷ 100 Q)
- Anti-shock with spring 2 setting range (121 P÷ 170 P) or (101 Q÷ 180 Q)
- Anti-shock with spring 3 setting range (171 P÷ 250¹P) or (181 P÷ 250¹Q)
- Plug
- Electric dump valve without emergency operation
- Electric dump valve with push button emergency
- Electric dump valve with push and twist emergency
- Dump valve coil, 12 V, connector DIN 43650
- Dump valve coil, 24 V, connector DIN 43650
- Dump valve coil, 12 V, connector DEUTSCH DT4, circuit with diode
- Dump valve coil, 24 V, connector DEUTSCH DT4, circuit with diode
- Dump valve coil, 12 V, connector AMP-JUNIOR
- Dump valve coil, 24 V, connector AMP-JUNIOR

Side A

- C1(...)**
- C2(...)**
- C3(...)**
- NP**
- NA0**
- NA4**
- NA5**

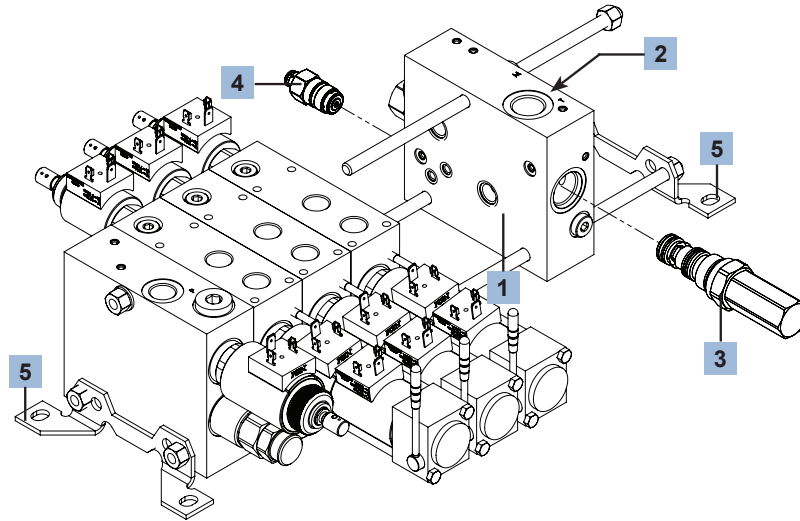
Side B

- C1(...)**
- C2(...)**
- C3(...)**
- NP**
- NA0**
- NA4**
- NA5**

D12D	D12D	094001000
D24D	D24D	094002000
D12S	D12S	094101000
D24S	D24S	094102000
D12A	D12A	094201000
D24A	D24A	094202000



Outlet section and mounting - spare parts



Outlet ordering code example

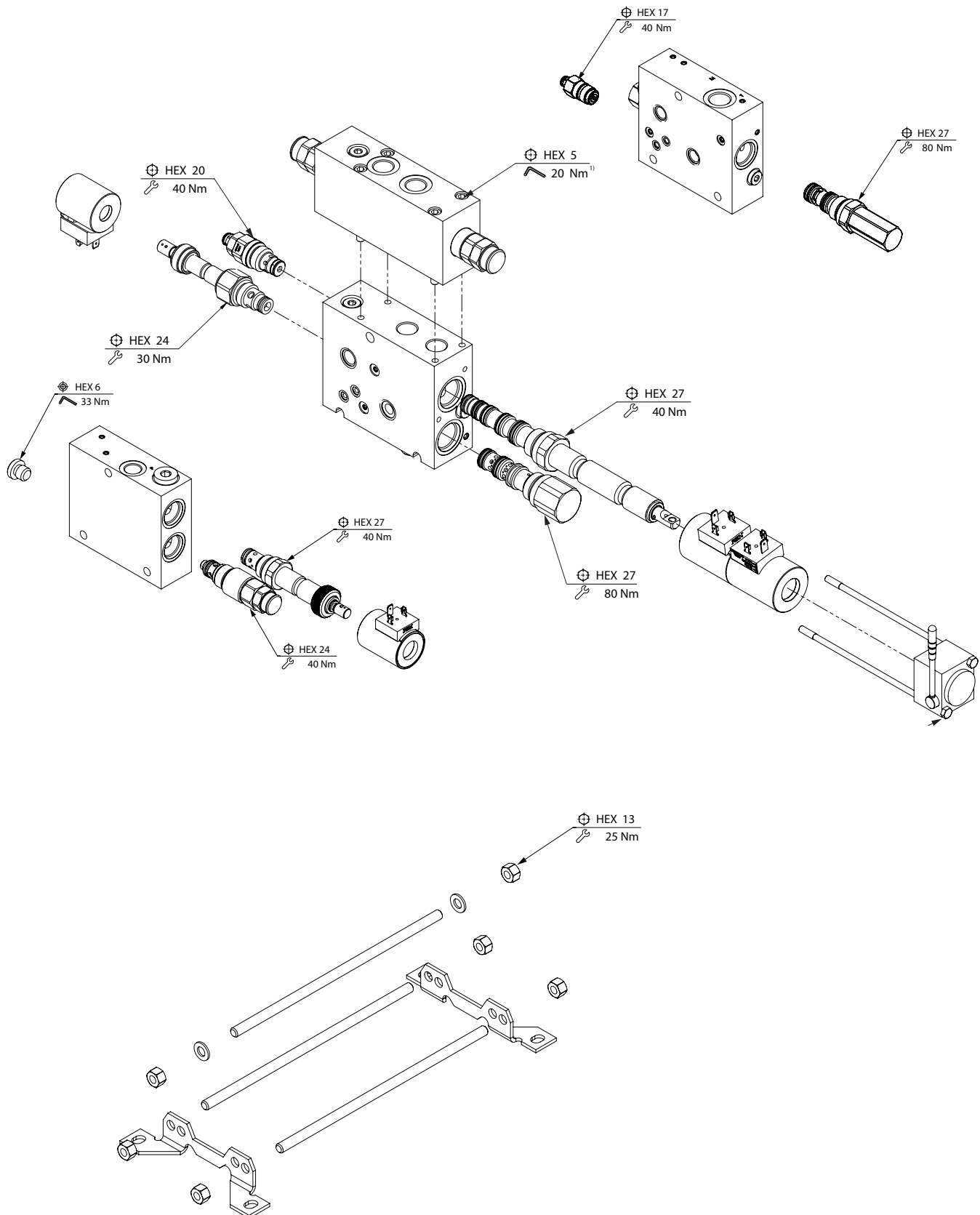
ORG12-CC16-RV2(190)

Ordering code

1+2	Outlet module (with respect to the lever side)		
	Right outlet, port T type GAS 1/2" BSPP	ORG12	5NVE4100004
	Left outlet, port T type GAS 1/2" BSPP	OLG12	on request
	Right outlet, port T type SAE 10, 7/8-14 UNF-2B	ORU10	on request
	Left outlet, port T type SAE 10, 7/8-14 UNF-2B	OLU10	on request
	Right outlet in steel, port T type GAS 1/2" BSPP	ORSG12	on request
	Left outlet in steel, port T type GAS 1/2" BSPP	OLSG12	on request
	Right outlet in steel, port T type SAE 10, 7/8-14 UNF-2B	ORSU10	on request
	Left outlet in steel, port T type SAE 10, 7/8-14 UNF-2B	OLSU10	on request
3	Hydraulic compensator (Pre-charge setting)		
	Plug for closed center layout	CC00	9273276130
	Pressure setting 16 bar	CC16	0203002500
	Pressure setting 12 bar	C12X	on request
4	Signal relief valve		
	Pressure setting range 30 to 100 bar, setting at (...)	RV1(...)	00210100E0
	Pressure setting range 100 to 250 bar, setting at (...)	RV2(...)	00210200E0
	Pressure setting range 250 to 400 bar, setting at (...)	RV3(...)	00210300E0
5	Mounting		
	Without brackets for 2 section NVE4	NB/2	9NVE404002
	Without brackets for 3 section NVE4	NB/3	9NVE404003
	Without brackets for 4 section NVE4	NB/4	9NVE404004
	Without brackets for 5 section NVE4	NB/5	9NVE404005
	Without brackets for 6 section NVE4	NB/6	9NVE404006
	Without brackets for 7 section NVE4	NB/7	9NVE404007
	Without brackets for 8 section NVE4	NB/8	9NVE404008
	With brackets for 2 section NVE4	WB/2	9NVE404102
	With brackets for 3 section NVE4	WB/3	9NVE404103
	With brackets for 4 section NVE4	WB/4	9NVE404104
	With brackets for 5 section NVE4	WB/5	9NVE404105
	With brackets for 6 section NVE4	WB/6	9NVE404106
	With brackets for 7 section NVE4	WB/7	9NVE404107
	With brackets for 8 section NVE4	WB/8	9NVE404108
	Plug		
	Plug port M GAS 1/4" BSPP		4275131501
	Plug port M SAE 6 5/8-18 UNF-2B		4275141200



General tightening torques



¹⁾For steel bodies, tighten to 8 Nm

Inlet flow

Application

Number of sections

Customer

Mounting type

Inlet section

Housing	Port type	Pressure relief valve	Pressure setting	Dump valve	Dump valve coil	Port location
		-	() -		() -	

Work sections

N°	Housing	Port type	Local compensator	Directional cartridge	cartridge coil	connector orientation	Control type	Aux valve side A	Aux valve side B
1		-	-	()	-	-	-A/	()	-B/ ()
2		-	-	()	-	-	-A/	()	B/ ()
3		-	-	()	-	-	-A/	()	B/ ()
4		-	-	()	-	-	-A/	()	B/ ()
5		-	-	()	-	-	-A/	()	B/ ()
6		-	-	()	-	-	-A/	()	B/ ()
7		-	-	()	-	-	-A/	()	B/ ()
8		-	-	()	-	-	-A/	()	B/ ()
9		-	-	()	-	-	-A/	()	B/ ()
10		-	-	()	-	-	-A/	()	B/ ()

Outlet section

Housing	Port type	Hydraulic compensator	Signal relief valve	Pressure setting
		-	-	()





**TECHNICAL SPECIFICATIONS
AND GENERAL CONDITIONS**

Technical specifications

Filtration

The state of oil used for hydraulic systems and machines is one of the main factors for proper use and performance. Use of excessive dirty oil may lead to earlier wearing of parts and components, faster hardening and thus functional troubles of your equipment. Due Filtration is a must to assure top efficiency and life of your hydraulic equipment. Selection of the most suitable filtration systems must be done according to the technical features of your equipment. However, the following table provides most current oil recommendations.

Disposal indications

All products, protections, plugs and packaging material at the end of their utilization have to be disposed in according with the regulations in force.

Temperature limits

Ambient temperature:
from -20° C to +40°C

Oil temperature:
from -20° C to +80°C

Polluting class ISO 4406

With two figures respectively showing the quantity of 5 and 15µ or larger particles in 1 ml oil.

Polluting class NAS 1653

Expressed with one figure showing the quantity of variable size particles in 100 ml oil.

Back up rings

Made out of poly-tetrafluoroethylene (PTFE).

Q - RINGS: special sealing gaskets with 4 shaped lobes designed to prevent gaskets pull-off chances in case of dynamic applications. All O-rings are made out of Acrylonitril-Butadiene (NBR).

Test curves

All diagrams in this catalogue report performance curves obtained by use of mineral oil at ISO viscosity VG46 and at 40° C temperature.

Hydraulic oils

The use of mineral based oil is recommended (like HLP to DIN 51524). All performances and calibrations are carried out by using hydraulic oil with approximate viscosity of 46 cSt at 40° C.

Viscosity class

Normally expressed as ISO-VG in accordance to ISO DIN standards. Average viscosity is figured at 40°C (mm²/s or centistokes - cSt). Recommended oil viscosity for NEM parts is: from 10 cSt to 460 cSt.

Design and installation work

Valves and manifolds in this catalogue are very versatile. In fact, the use on equipment complying with the European regulation no. 89/392 and following amendements is strictly recommended. No installation should be done on equipment without above mentioned European approval.

All NEM valves and manifolds are tested after assembly. Technical features and operation limits are statistically verified.

The customer is always ultimately responsible for the choice and final use of the product.

Materials

The valves are made out high quality steel, while all movable parts are hardened and rectified.

Manifolds are produced in steel or aluminum in relation to the max working pressure

Sealing

O-RING. made out of butadiene/acrylonitril(BUNA N or NBR according to ASTM standards). The ASTM standards D76 set a brittleness safety temperature of -30°C +125° C. For use at higher temperature consult our technical office.

Cartridge valve installation

PLEASE CAREFULLY READ THESE INSTRUCTIONS BEFORE VALVE INSTALLATION

Check-up general valve conditions and make sure there is no dirt. Check-up gaskets and seals conditions identifying their exact location. Lubricate the seals. First hand screw the cartridge in. Tightening should be performed according to the technical data listed for each product.

Storage

Keep valves away and protected from the sunlight and any other heat/ozone source. Make sure that an ideal storage temperature of -20 :+40°C is available.



1. General

1.1 These general conditions are applicable to all the supplies which NEM s.r.l. will carry out, on the base of purchasing orders forwarded from the Customer.

1.2 Terms like EXW, DDP and so on are referred to the so called Incoterms published by the International Chamber of Commerce, current at the date of conclusion of these General Conditions.

2. Purchasing orders management

2.1 Purchasing orders are binding for NEM s.r.l. only if confirmed in writing with order confirmations.

2.2 NEM s.r.l. engages itself to supply goods up to the order confirmations.

2.3 Any complaints regarding the content of the order confirmation must be notified in writing to NEM s.r.l. by 5 days and no later than the forwarding of the order confirmation.

2.4 The Customer undertakes to pay the goods supplied by NEM s.r.l., according to the prices listed on the order confirmation.

3. Payment conditions

3.1 The Parties agree upon the payment conditions at the beginning of the supply.

3.2 In case of delay of payment, NEM s.r.l. will have the right to request of moratory interests equal to the Euribor, increased by 2 points.

3.3 In case of delay of payment, NEM s.r.l. will have the right to not execute the eventual purchasing orders in progress, even if confirmed.

4. Delivery and shipment

4.1 The supply of the goods will always be Ex-Works, even in the case that NEM s.r.l. had agreed with the Customer that NEM s.r.l. takes care of the shipment, or part of it.

4.2 In any case, the risks about perishment or damage of the goods will pass to the Customer, at latest, when the goods are delivered to the first carrier.

5. characteristics of products

5.1 NEM s.r.l. engages itself to supply good quality products, up to the technical specifications contained in technical schedules or in the catalogue.

5.2 NEM s.r.l. reserves the exclusive right to make any change to the products, which, without altering their essential features, appear to be necessary or suitable.

6. Complaints

6.1 The complaints regarding the apparent defects of the Products (such as, for instance, the packing, quantity, number or exterior features of the Products) must be notified in writing to NEM s.r.l. by 7 days and no later upon the receipt of the goods. Failing such notification, the Customer's right to claim the above defects will be forfeited.

6.2 The hidden defects (defects which cannot be discovered by the Customer on the basis of a careful inspection upon the receipt) shall be notified in writing to NEM s.r.l. by 7 days and no later from the discovery of the defects, and in any case no later than 18 months from the delivery of the Goods. Failing such notification, the Customer's right to claim the above defects will be forfeited.

6.3 It's agreed that, even in case of any complaint or objection, the Customer will not have the right to suspend or delay the payments due to NEM s.r.l., as well as payment of any other supplies.

7. Warranty

7.1 In case of any defects, lack of quality or non-conformity of the supplied Products, NEM s.r.l., at its exclusive choice, engages itself to replace or repair the defective Products provided such defects or non-conformity have been timely notified in writing to NEM s.r.l., in accordance to point nr. 6, by 18 months from the delivery of the Goods and no later.

7.2 Products repaired or replaces under warranty as above described are submitted to the same guarantee, for a period of 18 months from the date of repair or replacement.

7.3 Except in case of fraud or gross negligence, in case of defects, lack of quality or non-conformity, NEM s.r.l. undertakes only to repair or replace the defective Products, in accordance to what above described.

7.4 This guarantee (i.e. the obligation of repairing or replacing the Products) is in lieu of any other legal guarantee or liability of the Supplier, with the exclusion of any other guarantee or liability – whether contractual or non-contractual – in connection with the Products supplied (i.e. compensation for damages, loss of profit, recall campaigns, ...).

7.5 NEM s.r.l. is covered by appropriate policy of Product Legal Liability.

8. Retention of title

8.1 The Goods supplied by NEM s.r.l. remain property of NEM s.r.l. until the complete payment of the supply is received.

9. Secrecy bond

9.1 NEM s.r.l. engages itself to treat as highly confidential all the technical or commercial information should learnt from the Customer, which are not already of public divulgence.

10. Patents

10.1 Except preventive written authorization of NEM s.r.l., the Customer cannot use the supplied Products, or part of them, or the descriptions or the drawings of them – whether registered patented or not – to project or make similar goods.

10.2 Even in case of preventive written authorization of NEM s.r.l., all the patents, labels and registered design, royalties and intellectual property rights related or in connection with Products supplied by NEM s.r.l., are and remain property of NEM s.r.l. The Customer undertakes to treat all of them as highly confidential.

11. Applicable law and jurisdiction

11.1 The supplies carried out by NEM S.r.l. are governed by these present General Conditions and, for what here not expressly provided, by the Italian Law.

11.2 The competent Law Courts of Reggio Emilia have the exclusive jurisdiction in any controversies regarding the supplies of Products by NEM s.r.l., or from the supplies arising out or to the supplies connected, in which NEM s.r.l. is part.