

NVD2 Series

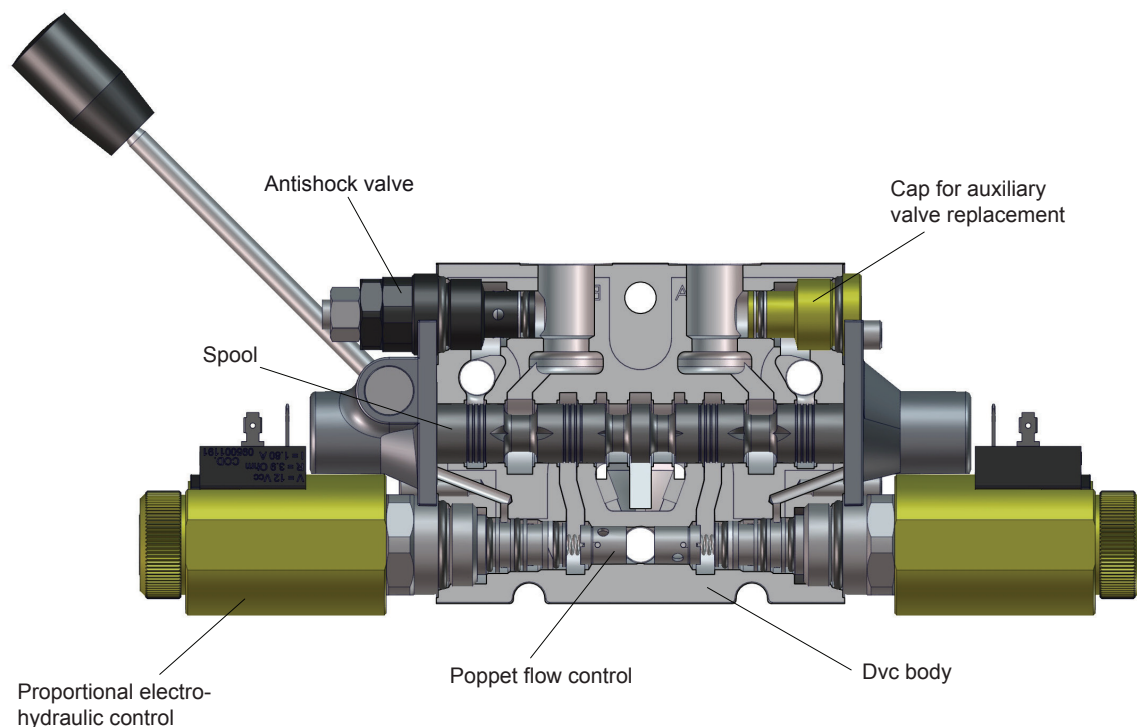
Sectional Directional Control Valve



FUNCTIONAL CONCEPT

Universal products and solutions for lifting machine

NVD2 is a highly innovative DVC (Directional Control Valve), which paves the way into the world of proportional valves. NVD2 technology (patented) impressively joins constructive simplicity and high functional performance; a simple and compact design, typical of the more traditional open-centre directional valves, it is associated with an extremely precise control, independent from the loading conditions and simultaneous movements. This DVC is especially efficient if electrically operated. It reaches its maximum potentials when used in combination with radio control or electronic control devices. NVD2 distributor is sold either in its version for fixed-cc pump (standard version on the catalogue) or in its version for variable-cc pumps (ask NEM S.p.A. for further information). In case of fixed-cc pump, the typical structure with neutral channel allows, differently from Load Sensing systems, to have less loading losses at stand-by conditions. The geometry of NVD2, compact and robust, ensures its high reliability and a considerable reduction of failures.



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GENERAL FEATURES

FILTERING

The conditions of the fluid used in oil hydraulic systems are very important. If too contaminated, it will wear the parts, make the oil age more rapidly and therefore the machine will not work efficiently. Filtering is important in order to guarantee the best operations and long life of oil hydraulic equipment. Filtering devices must be chosen according to the characteristics of the system. In general, follow the table underneath for choosing the filters.

HYDRAULICS OILS

It is recommended to use **mineral-base oils** with physical-chemical properties suitable for oil hydraulic systems (i.e. HLP in accordance with DIN 51524). All functional tests and calibrations are performed with 46 CSt viscosity oil at 40° C temperature.

VISCOSITY CLASS

According to ISO DIN standards, it is expressed with ISO - VG, which defines average viscosity at 40° C (mm²/s or centistokes - cSt). The viscosity recommended for the correct operations of NEM parts is: **from 15 cSt to 250 cSt.**

 NEM-HYDRAULICS.COM					Table: Choosing the type of filtration				
Type of system	Nominal filtration micron	Absolute filtering (β _x ≥75) second ISO 4572	Contamination class						
			ISO4406	NAS1653					
High pressure (>200 bar) proportional valves, vulnerable to contamination	5	X=5.....10	17/14	8					
Average pressure systems (<200 bar)	10	X=10.....15	18/14	9					

CONTAMINATION CLASS IN ACCORDANCE WITH ISO 4406

These two numbers respectively define the quantity of particles with diameter more than 5 and 15 micron in 1ml of oil.

MATERIALS

The valves are made of high quality steel, with the moving parts hardened and rectified or lapped.
The bodies are made of aluminium or steel, depending on the maximum operating pressure.

TYPES OF WASHER

O-Ring. These are mixes of butadiene/acrylonitrile (BUNA - N or NBR in accordance with ASTM standard). The ASTM D 76 standard defines embrittlement temperature (-30° C +125°C). For higher temperature please contact our Technical Department.

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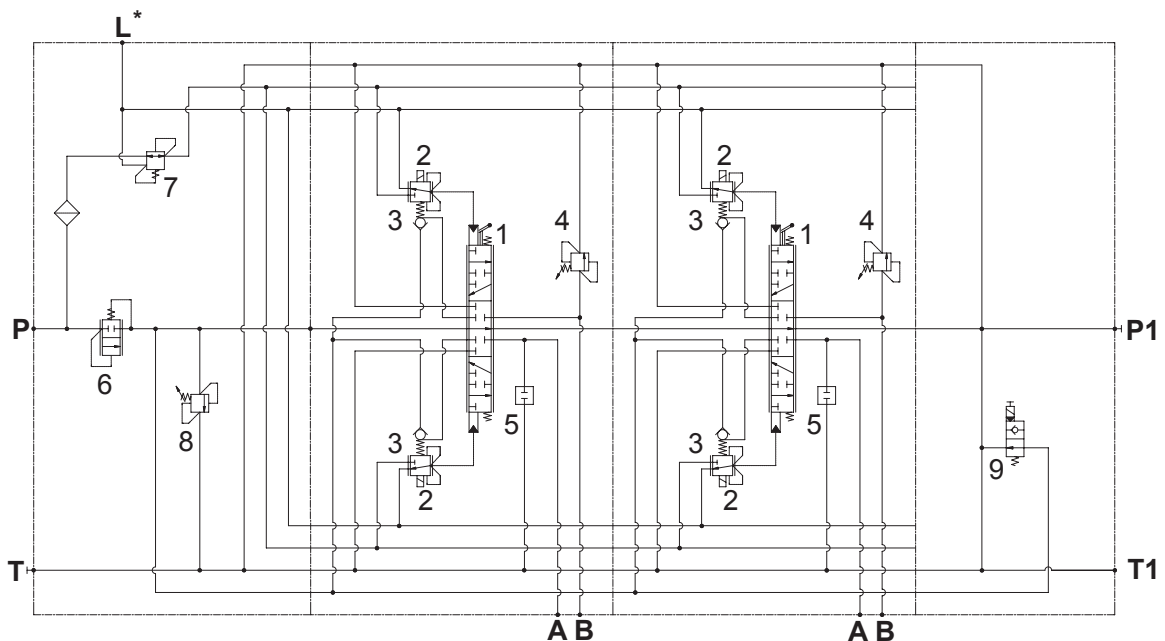


FUNCTIONAL CONCEPT

Hydraulic layout

The hydraulic layout of NEM-NVD2 proportional DCV looks like any normal open-centre distributor.

The technological feature that makes its operational concept similar to a Load Sensing distributor is the fact that, being electrically operated, it controls its flow independently of the loading conditions and the simultaneous movements it is performing.



- 1 – Spool activated by proportional electro-hydraulic control
- 2 – Proportional electro-hydraulic control
- 3 – Poppet control flow on the section
- 4 – Antishock valve

- 5 – Cap for antishock valve replacement
- 6 – Pre-loading valve
- 7 – Pressure-reducing valve
- 8 – General relief valve
- 9 – Electric dump valve

*Note: Connect L to tank

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GENERAL TECHNICAL FEATURES

General technical features

- Rated capacity in P, P1.....**50 l/min**
- Working section capacity (A-B).....**40 l/min**
- Maximum operating pressure.....**350 bar**
- Maximum back pressure.....**20 bar**
- Maximum work sections.....**1 - 8**
- Spool stroke.....**5.5 + 5.5 mm**
- Lever adjustment.....**+19° / -19°**
- Dead band.....**1 + 1 mm**
- Cursor span.....**40 mm**
- Work temperature.....**-25°C / +80°C**
- Kinematic viscosity.....**10 mm² /s - 460 mm² /s**
- Degree of contamination.....**NAS1638 class 9 (19/16 ISO-4406)**
- Recommended filtering level.....**β 10°75**
- Internal filter (reducing valve).....**30 μm**
- Spool operating force.....**8 - 28 daN**
- Working temperature.....**-25°C / +80°C**
- General filtering.....**see page 27**

Features of proportional electro-hydraulic control

- Power supply pressure.....**18 bar**
- Maximum back pressure on L (connect to tank).....**1 bar**
- Recommended PWM frequency.....**60 - 90 Hz**
- Voltage.....**12 VDC / 24 VDC**
- Coil resistance.....**3.9 Ω / 15.5 Ω**
- Maximum current supply: duty-cycle 100%.....**1.8 A / 0.9 A**

Installation requirements

It is recommended installing a pressure filter with a filtration degree equal to 20 μm.

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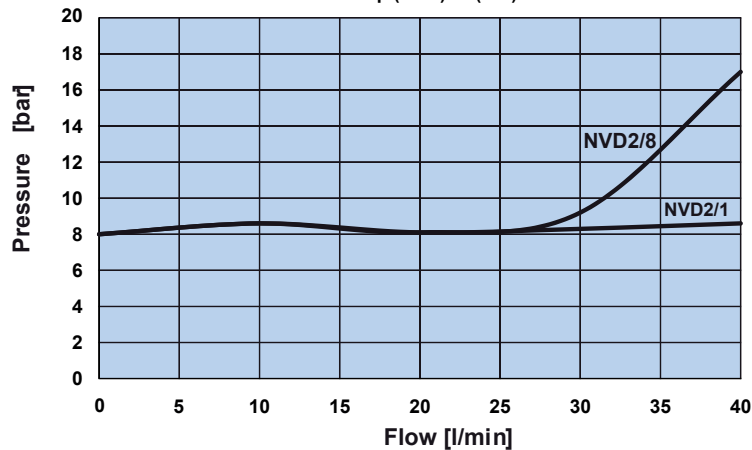
Sectional Directional Control Valve



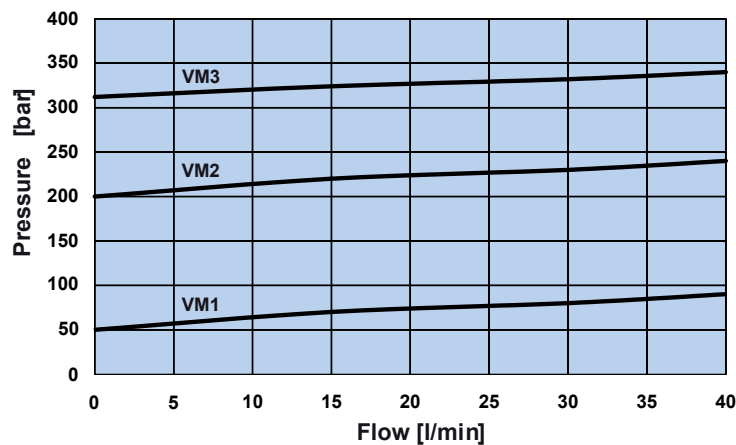
CHARTS

PRESSURE DROP (P/ T)

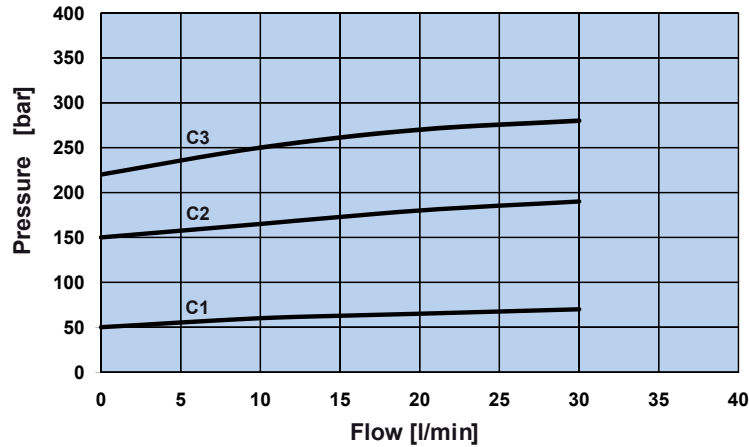
curve of Δp (P-T1) or (P-T)



RELIEF VALVE FEATURES



ANTISHOCK VALVE FEATURES

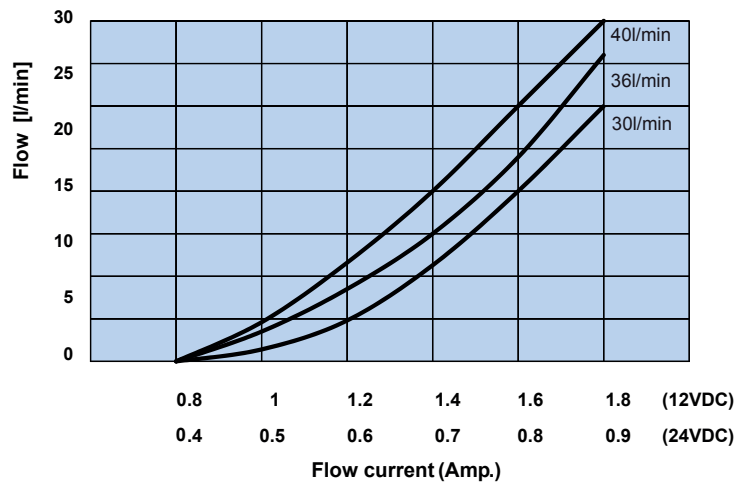
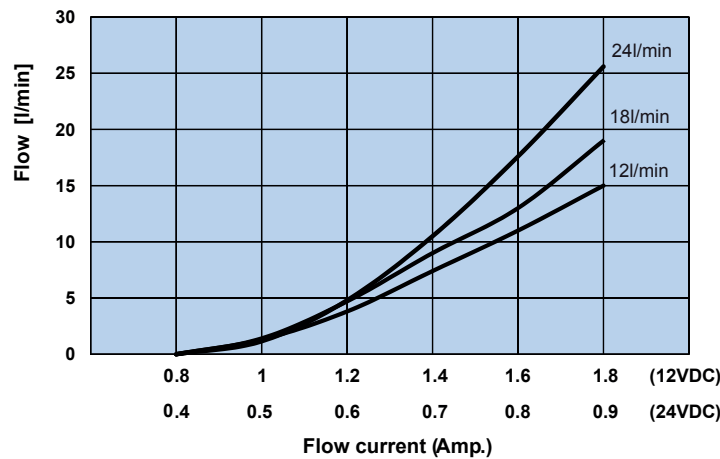
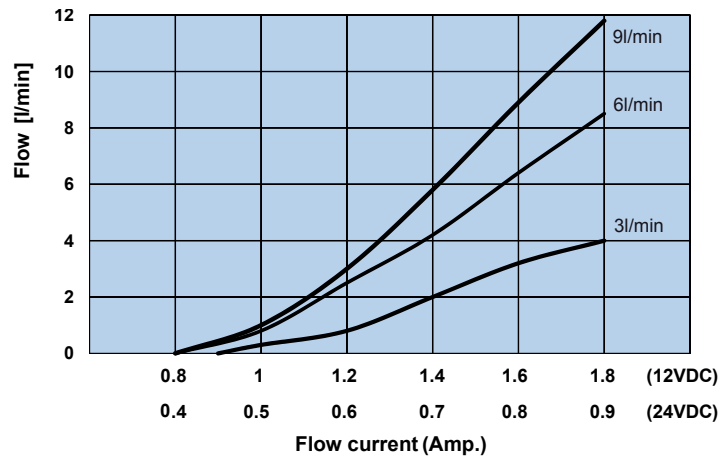


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POPPET FLOW CONTROL CHARTS

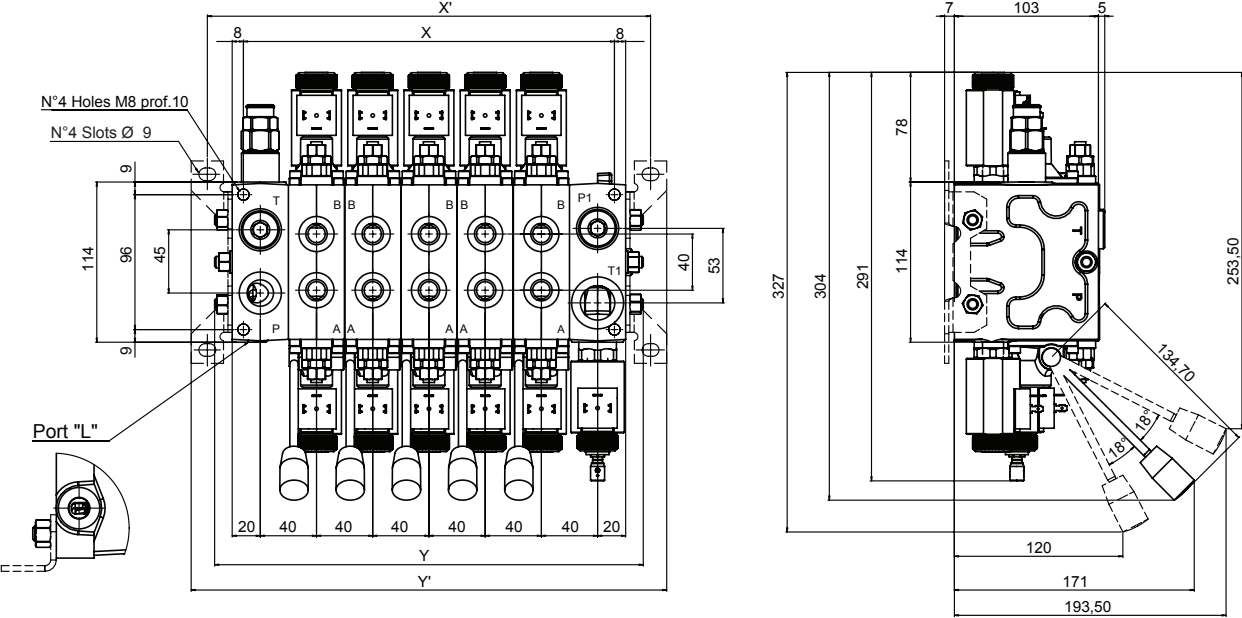


NVD2 Series

Sectional Directional Control Valve



OVERAL DIMENSIONS AND PORTS SIZE



***Note:** L (drain line for proportional control valves)
To be necessarily connected to tank with maximum back-pressure 1 bar.

THREADING

CODE	PORTS	Inlet (P)	Ports (A-B)	Carry Over (P1)	Outlet (T)	Outlet (T1)	Drain (L)
G	Threads (BSP) ISO-228	1/2" BSP	3/8" BSP	1/2" BSP	1/2" BSP	3/4" BSP	1/4" BSP

DIMENSIONS WITHOUT BRACKETS

TYPE	NVD2/1	NVD2/2	NVD2/3	NVD2/4	NVD2/5	NVD2/6	NVD2/7	NVD2/8
X (mm)	104	144	184	224	264	304	344	384
Y (mm)	145	185	225	265	305	345	385	430

DIMENSIONS WITH BRACKETS

TYPE	NVD2/1	NVD2/2	NVD2/3	NVD2/4	NVD2/5	NVD2/6	NVD2/7	NVD2/8
X' (mm)	155.5	195.5	235.5	275.5	315.5	355.5	395.5	435.5
Y' (mm)	178.5	218.5	258.5	298.5	338.5	378.5	418.5	458.5

WEIGHTS

TYPE	NVD2/1	NVD2/2	NVD2/3	NVD2/4	NVD2/5	NVD2/6	NVD2/7	NVD2/8
Kg	10,2	13,7	17,2	20,7	24,2	27,7	31,2	34,7

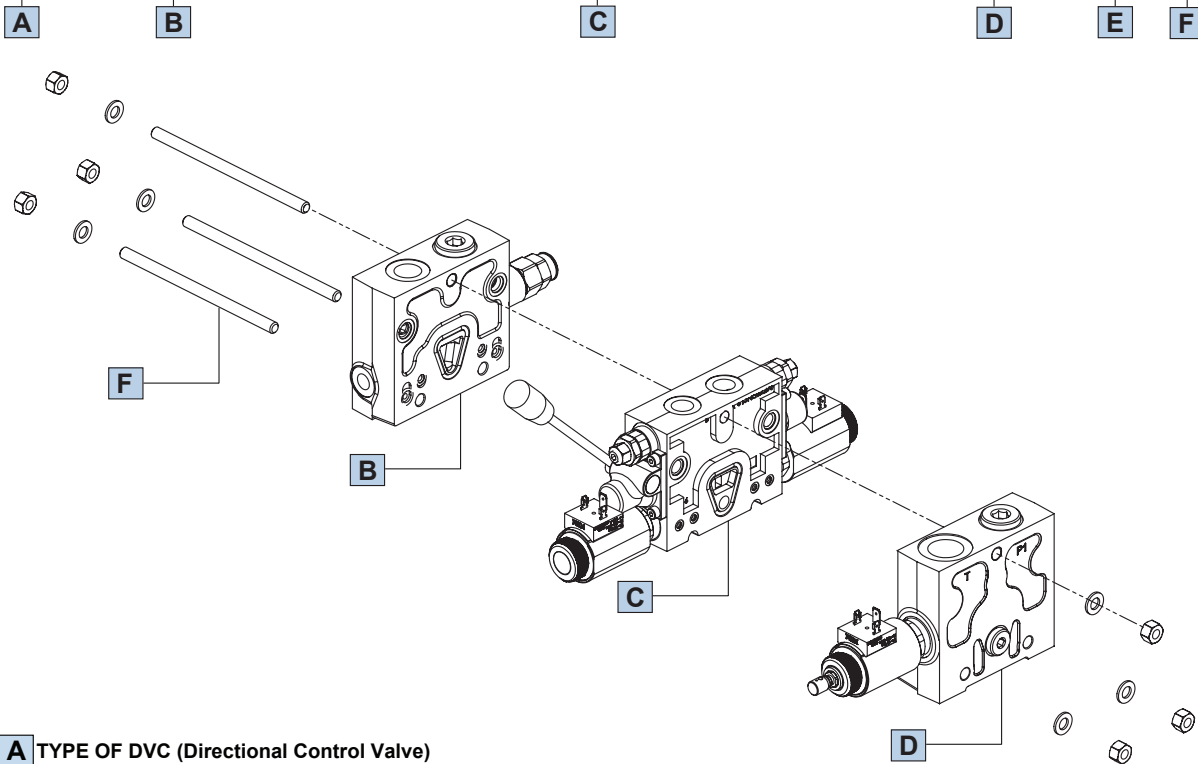
NVD2 Series

Sectional Directional Control Valve



ORDER EXAMPLE

NVD2/1 IL-VM2 (180)-VP-VR D1-W001A - A12/B24 - XE - M12D - H05 - F01 - C2A (180)/TCB ZN - EV - C12D U1-G SS



A TYPE OF DVC (Directional Control Valve)

NVD2 = product name
/1 = number of work sections

B SELECTION OF INLET MODULE

IL = inlet side
VM2 (180) = type and calibration of general relief valve (180 bar)
VP = pre-loading valve
VR = reducing valve

C SELECTION OF WORK SECTION*

D1 = setting of work section
W001A = cursor
A12/B24 = shutters
XE = electro-hydraulic control valve
M12D = proportional coil
H05 = level control
F01 = centering kit.
C2A (180)/TCB = auxiliary valves

D SELECTION OF OUTLET MODULE

ZN = closure module
EV = dump valve
C12D = on/off coil

E SELECTION OF INLET - OUTLET AND PORTS SIZE

U1 = input and output positions
G = threading

F TYPE OF FIXING

SS = without brackets
CS = with brackets

* "C" ACRONYM MUST BE REPEATED, STARTING FROM THE INPUT MODULE, AS MANY TIMES AS THE SECTIONS COMPOSING THE DISTRIBUTOR.

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Sectional Directional Control Valve

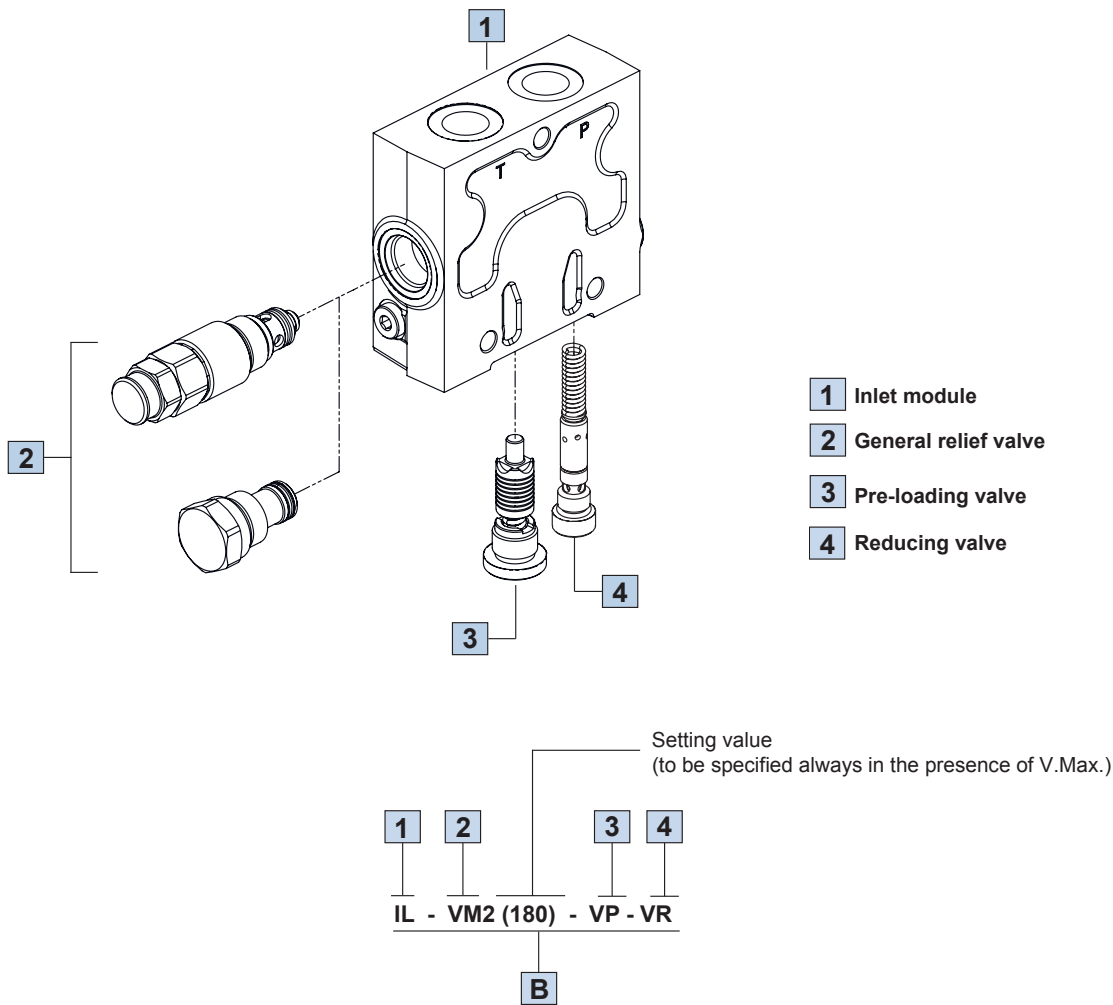


INLET MODULE

DESCRIPTION

NVD2 inlet module has a P power supply connection and a T connection so that the connection to the tank can be easily chosen either at the DVC inlet or outlet. The module is equipped with a general relief valve and it integrates the pressure reducing valve (18 bar) for power supply to the proportional electro-hydraulic controls. The pressure-reducing valve is equipped with a 30 μ filter for the protection of proportional electro-valves. At user's choice, the input module can host a pre-loading valve. This device is used to keep the standby pressure at a suitable level in order to have a quick reaction by the proportional electro-hydraulic controls.

Order example:



NVD2 Series

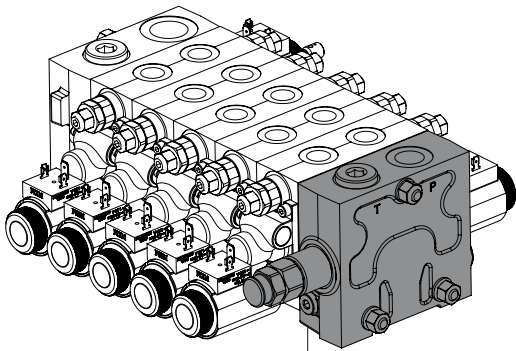
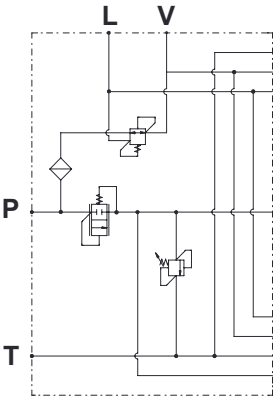
Sectional Directional Control Valve



INLET MODULE

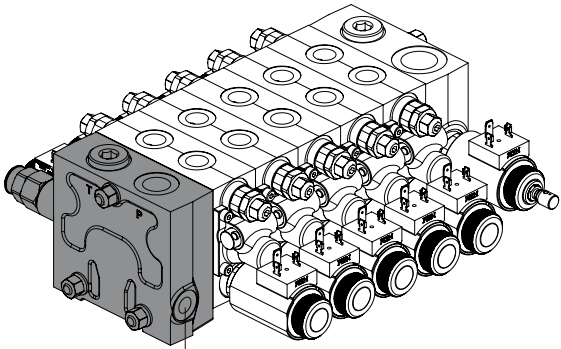
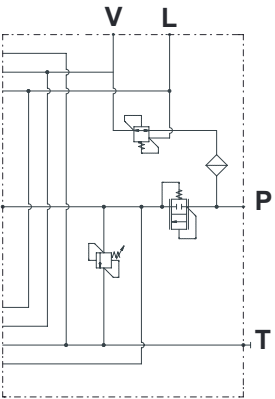
1. SIDE INLET MODULE

IL



V port
(reduced-pressure G 1/8)

IR



L port
(drain line connected to tank)

NVD2 Series

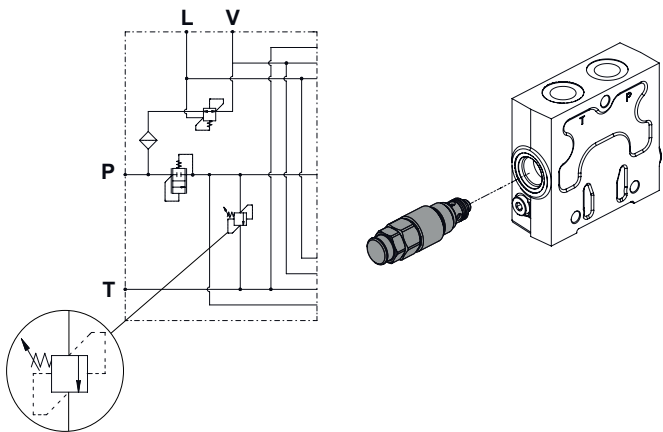
Sectional Directional Control Valve



INLET MODULE

2. TYPE AND SETTING OF GENERAL RELIEF VALVE

VM

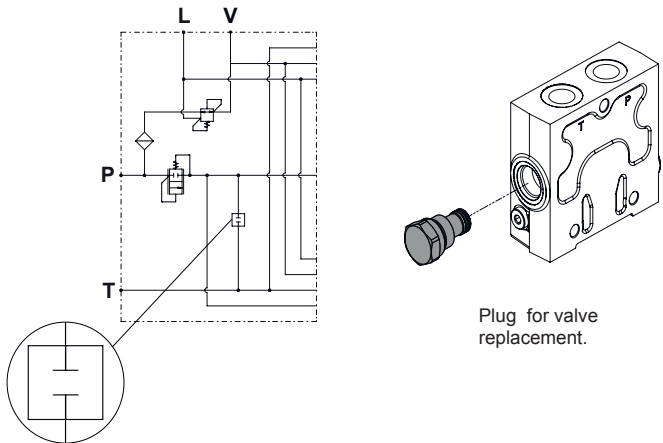


ACRONYM	DESCRIPTION	SETTING RANGE
VM1	Direct relief valve	Spring 1 40-140 bar
VM2	Direct relief valve	Spring 2 120-250 bar
VM3	Direct relief valve	Spring 3 220-410 bar

Tamper proof cap code 9021030190

Note:
- Tamper proof caps to be ordered separately

SVM



Plug for valve replacement.

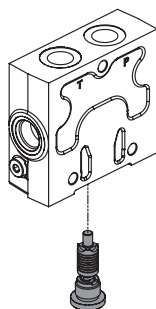
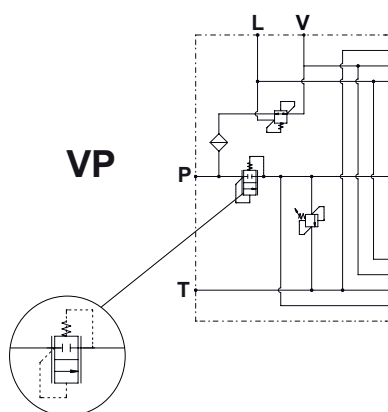
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Sectional Directional Control Valve



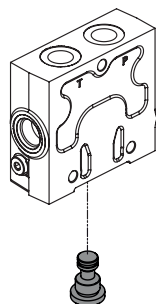
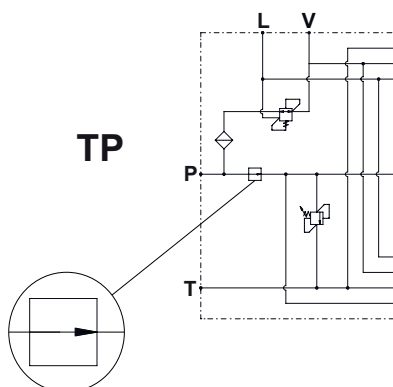
INLET MODULE

3. PRELOADING VALVE



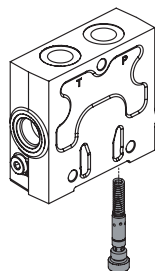
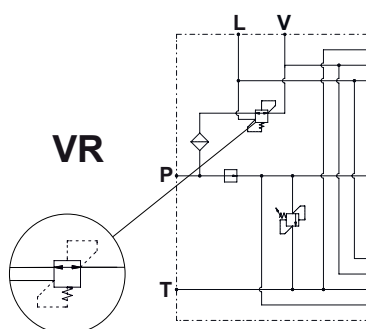
Inlet module with
preloading valve

Recommended for
inlet flow less than
25 l/min.



Inlet module without
preloading valve

4. PRESSURE REDUCING VALVE



Inlet module
with reducing valve

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Sectional Directional Control Valve

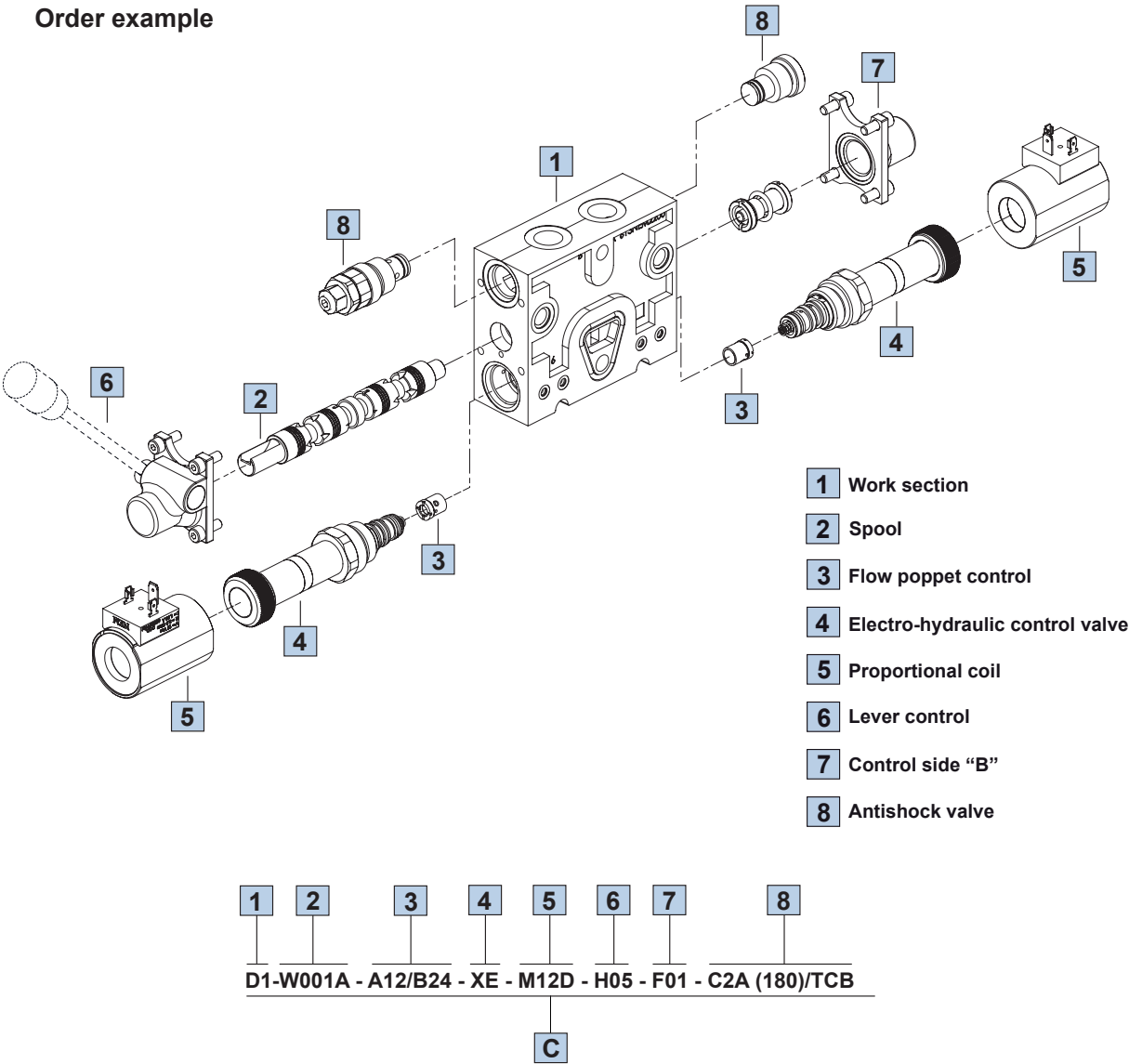


WORK SECTION

DESCRIPTION

NVD2 work section consists of a spool and the electro proportional valves are related lever-kit, control-kit, antishock valves and electro-hydraulic control valves. The latter are placed in the lower part of the section and the flow poppet control can be reached by disassembling them. In order to guarantee maximum functionality, the parts must be duly chosen according to the features of the system. The spool must be proportional to the pump capacity, while the flow poppet must be proportional to the desired flow capacity on A and B ports, which may be different along the same section (i.e. A12/ B24).

Order example



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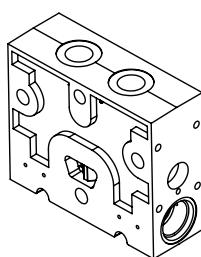
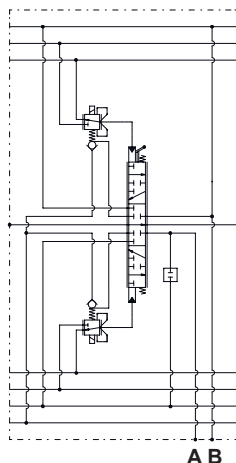
Sectional Directional Control Valve



WORK SECTION

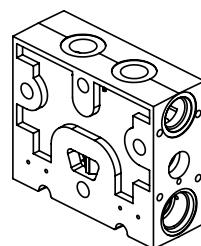
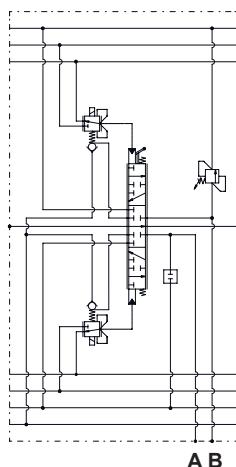
1. SETTING OF WORK SECTION

D1



Work section without
antishock valves

D2



Work section with
antishock valves

NVD2 Series

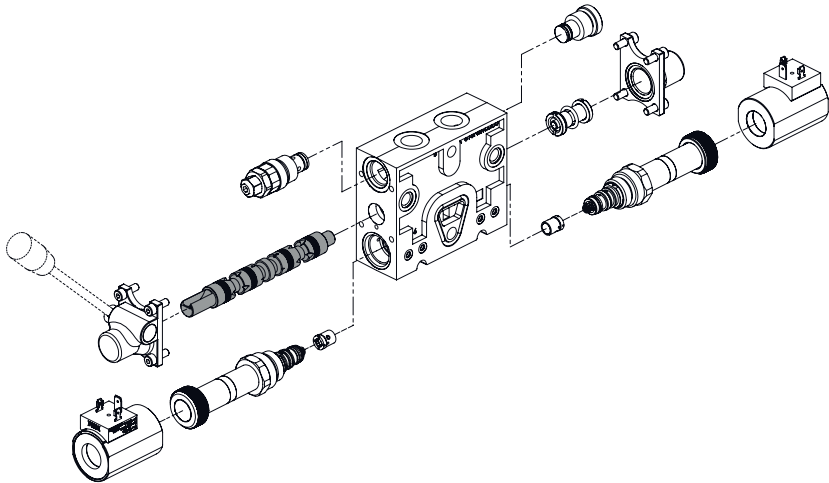
Sectional Directional Control Valve



WORK SECTION

2. SPOOL

W001 **A**
Layout Capacity



Spool layout

W001		Double effect spool, 3 positions with A and B closed in central position
W002		Double effect spool, 3 positions with A and B discharging in central position
W002J		Double effect spool, 3 positions with A and B partially discharging in central position
W002K		Double effect spool, 3 positions with A partially discharging and B closed in central position
W002Y		Double effect spool, 3 positions with A closed and B partially discharging in central position
W003		Double effect spool, 3 positions with A discharging and B closed in central position
W004		Double effect spool, 3 positions with A closed and B discharging in central position

Spool capacity

A Capacity 40 litres **B** Capacity 20 litres **C** Capacity 10 litres **F** Capacity 30 litres

Note:
- The spool capacity has to be the same as the pump capacity, ± 5 l/min.
(i.e: 13 litre pump, 10 litre cursor.)

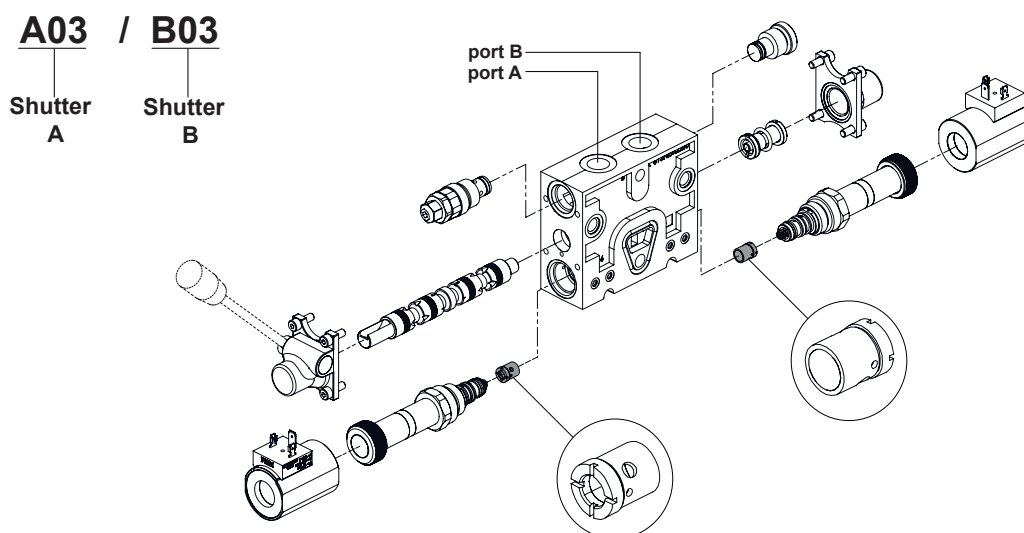
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Sectional Directional Control Valve



WORK SECTION

3. SHUTTERS



A03	Flow poppet control for capacity up to 3 l/min on port A
B03	Flow poppet control for capacity up to 3 l/min on port B
A06	Flow poppet control for capacity up to 6 l/min on port A
B06	Flow poppet control for capacity up to 6 l/min on port B
A09	Flow poppet control for capacity up to 9 l/min on port A
B09	Flow poppet control for capacity up to 9 l/min on port B
A12	Flow poppet control for capacity up to 12 l/min on port A
B12	Flow poppet control for capacity up to 12 l/min on port B
A18	Flow poppet control for capacity up to 18 l/min on port A
B18	Flow poppet control for capacity up to 18 l/min on port B
A24	Flow poppet control for capacity up to 24 l/min on port A
B24	Flow poppet control for capacity up to 24 l/min on port B
A30	Flow poppet control for capacity up to 30 l/min on port A
B30	Flow poppet control for capacity up to 30 l/min on port B
A36	Flow poppet control for capacity up to 36 l/min on port A
B36	Flow poppet control for capacity up to 36 l/min on port B
A40	Flow poppet control for capacity up to 40 l/min on port A
B40	Flow poppet control for capacity up to 40 l/min on port B

Note: Chose the shutters whose capacity is as close as possible to the capacity required for A and B; it is possible to choose different capacity for the two ports (i.e A12/B24)

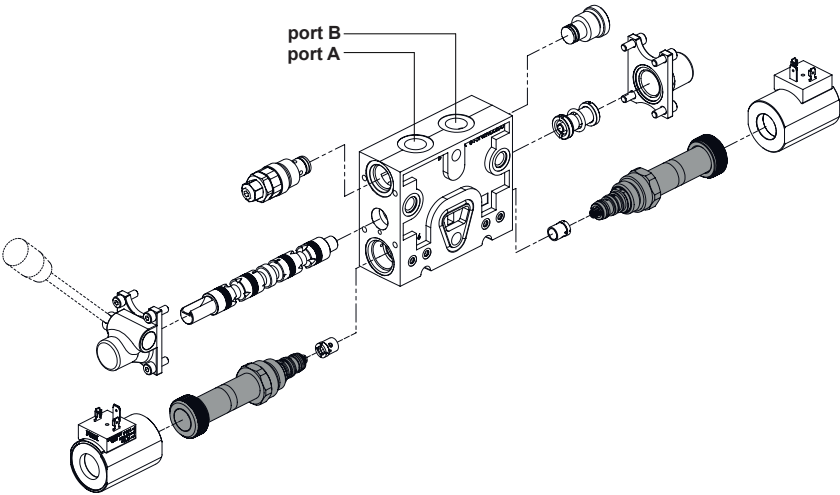
NVD2 Series

Sectional Directional Control Valve



WORK SECTION

4. ELECTRO-HYDRAULIC CONTROL VALVE



- XE**

Proportional valve for electro-hydraulic control on both ports (A and B)
- XT**

Plug for valve replacement on both ports (A and B)
- XA**

Proportional valve on port A
Replacement plug on port B
- XB**

Replacement plug on port A
Proportional valve on port B

Proportional electro-hydraulic control

Proportional electro-valves of NVD2 must be supplied with PWM. By adjusting the maximum current value, it is possible to finely set the maximum flow to be supplied to each port. In order to reduce control hysteresis as much as possible and guarantee the most reactive operation, it is recommended to set the PWM carrier frequency at 60 Hz and anyhow not exceed 90 Hz.

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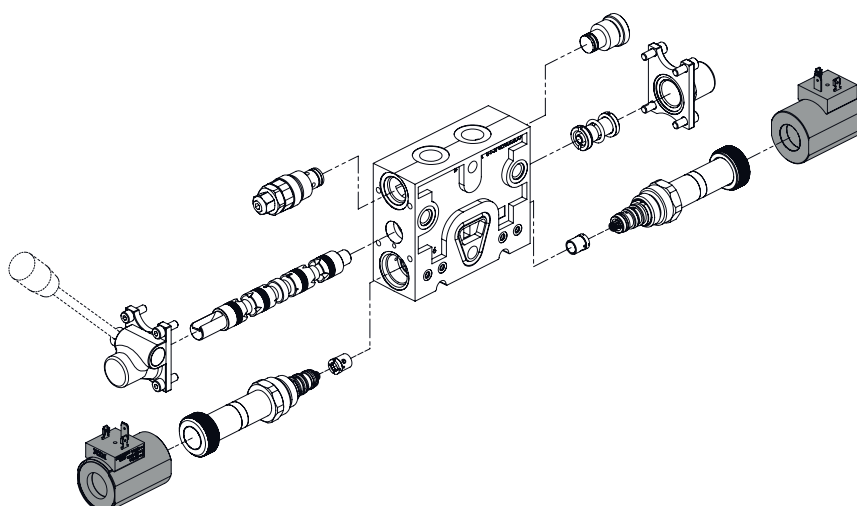
Sectional Directional Control Valve



WORK SECTION

5. PROPORTIONAL COIL

- Wire insulation class. H (>185°C)
- ED. 100%
- Coil power at 20° C 36 W
- Maximum current $1,8 \pm 10\% \text{ A (12 V dc)}$
 $0,9 \pm 10\% \text{ A (24 V dc)}$
- Room temperature -20 +40° C
- Weight 0,28 Kg



ACRONYM	CONNECTOR	PROTECTION DEGREE	CLASS OF COIL THERMAL INSULATION	VOLTAGE [V]	RESISTANCE [Ω]	CIRCUIT
M12D	DIN 43650	IP65*	H	12 V dc	3,9	STANDARD
M24D	DIN 43650	IP65*	H	24 V dc	14,5	STANDARD
M12S	DEUTSCH	IP67*	H	12 V dc	3,9	STANDARD
M24S	DEUTSCH	IP67*	H	24 V dc	14,5	STANDARD
M12A	AMP JUNIOR	IP67*	H	12 V dc	3,9	STANDARD
M24A	AMP JUNIOR	IP67*	H	24 V dc	14,5	STANDARD

* Protection degree with connector assembled

Nota: For different type of connectors ask NEM S.p.a Technical Department

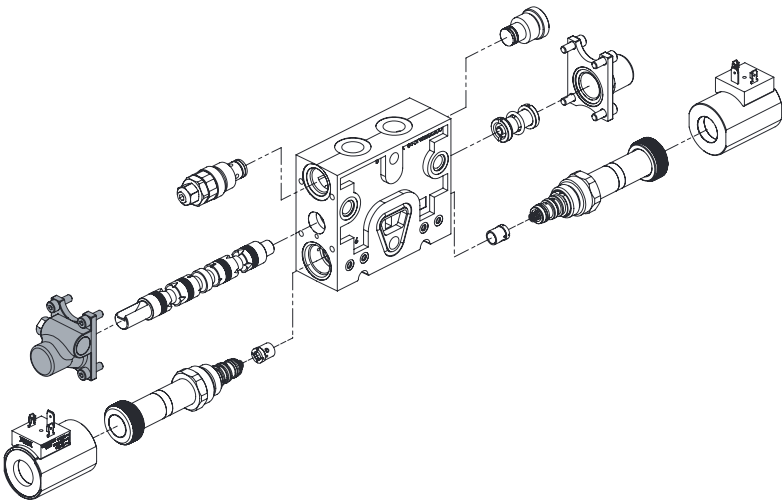
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Sectional Directional Control Valve



WORK SECTION

6. LEVER

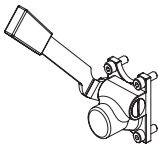


H00



Control without lever

H10



Control with high 45°
fixed lever

H05

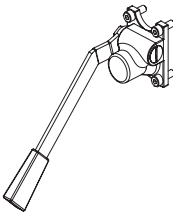


Control with high 45°
threaded M6 lever, it can be
disassembled



NB: the handle rod has to
be ordered separately
(cod.9032061200)

H15



Control with low
45° fixed lever

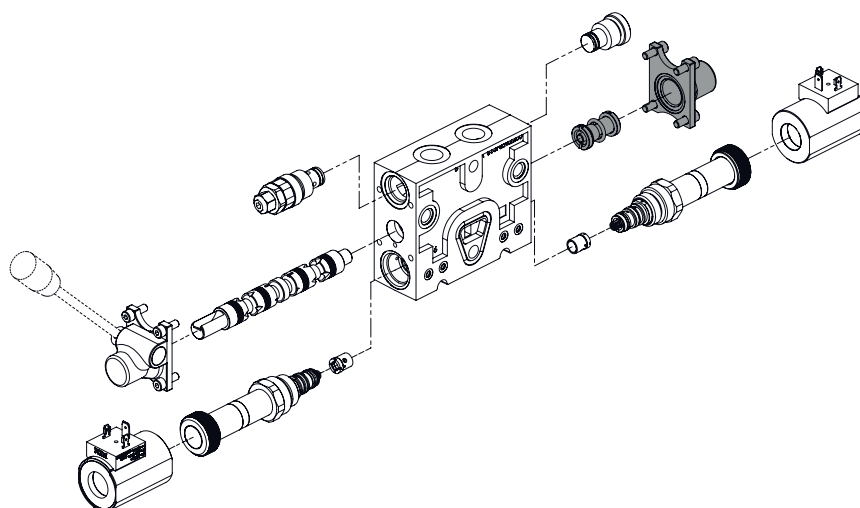
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Sectional Directional Control Valve



WORK SECTION

7. SPOOL CENTERING

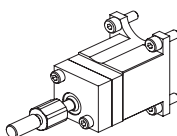


F01



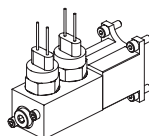
3 positions,
spring centering kit

F02



3 positions,
spring centering
kit with rod for
double control

F03



3 positions spring
centering with on/off
position sensors*

* Sensors Features: *Sphere-shaped position sensor, usually closed with Packard Metri-pack wires and male connect*

- current range: 0.1-5.0 Amp DC
- voltage range: 5.0-24.0 Vdc
- temperature range: -30 a + 120 °C
- connector: Packard Metri-pack
- NC contact

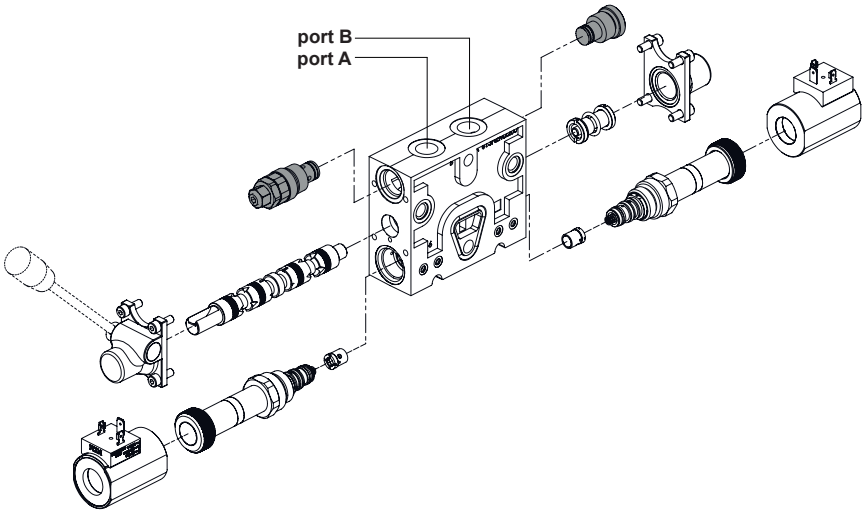
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WORK SECTION

8. ANTISHOCK VALVE



C1			Spring 1 20-100 bar.
C2			Spring 2 40-220 bar.
C3			Spring 3 50-350 bar.
TC			Plug for valve replacement

Tamper-proof cap code 9021015101

Note :
- Show the desired calibration for both inlets into brackets (Is. C1A(50) / TCB).
- Tamper proof caps to be ordered separately.

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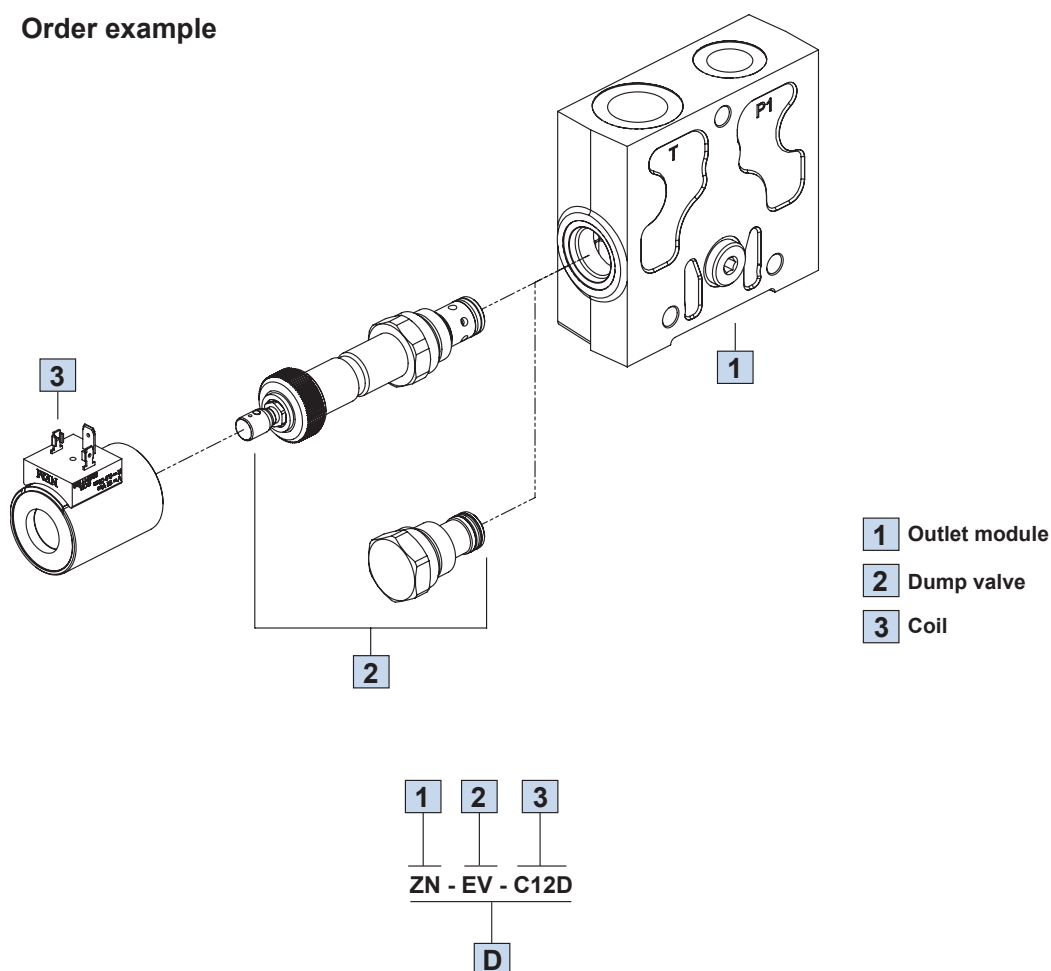


OUTLET MODULE

DESCRIPTION

The NVD2 output side, as well as having two doors for distributor discharge, gives the possibility to insert a general dump electrovalve that, in the absence of power supply, ensures that the entire distributor does not operate. Besides, the module can be reset in order to have double output (carry-over connection with other hydraulic devices).

Order example



NVD2 Series

Sectional Directional Control Valve

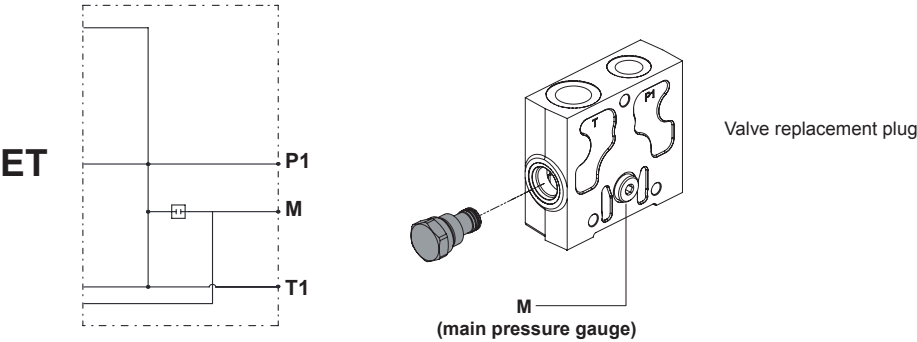
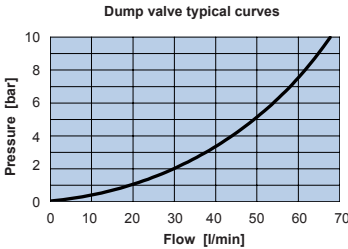
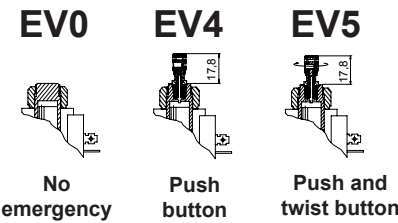
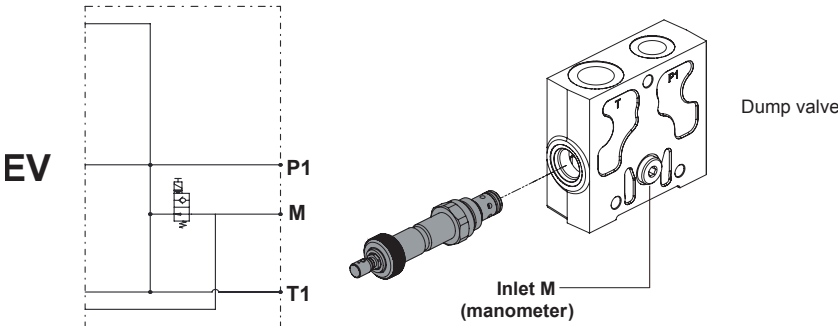


OUTLET MODULE

1. OUTLET MODULE

ZN Closure module for settings with external drainage

2. DUMP VALVE



NVD2 Series

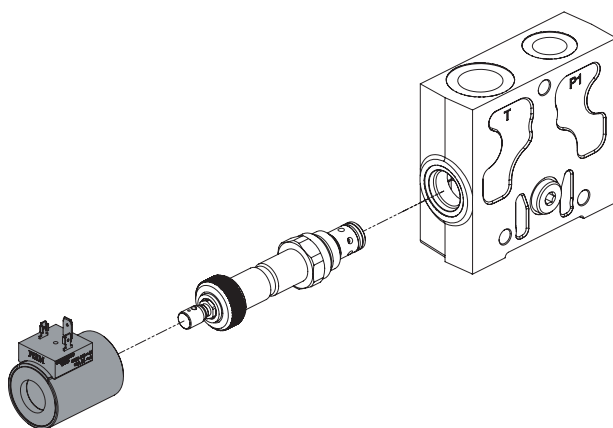
Sectional Directional Control Valve



OUTLET MODULE

3. COIL

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



ACRONYM	CONNECTOR	DEGREE OF PROTECTION	COIL THERMAL INSULATION CLASS	VOLTAGE [V]	RESISTANCE [Ω]	CIRCUIT
C12D	DIN 43650	IP65*	H	12 V dc	6,8	STANDARD
C24D	DIN 43650	IP65*	H	24 V dc	24	STANDARD
C12S	DEUTSCH	IP67*	H	12 V dc	6,8	STANDARD
C24S	DEUTSCH	IP67*	H	24 V dc	24	STANDARD
C12A	AMP JUNIOR	IP67*	H	12 V dc	6,8	STANDARD
C24A	AMP JUNIOR	IP67*	H	24 V dc	24	STANDARD

* Degree of protection with connector assembled

Note: For different type of connectors ask Cross Hydraulics Technical Department.

NVD2 Series

Sectional Directional Control Valve

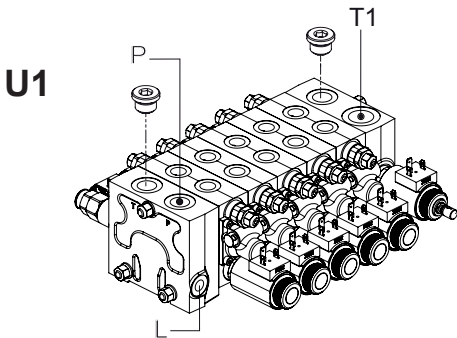


INLET-OUTLET POSITION AND PORTS SIZE

POSITIONS AND PORT SIZE

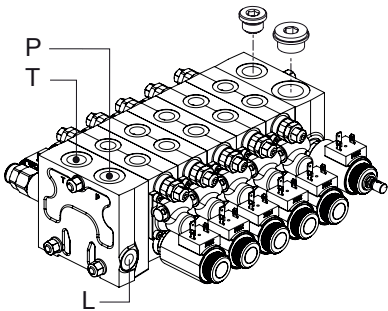
U1
Connection
P-T

G
Port size



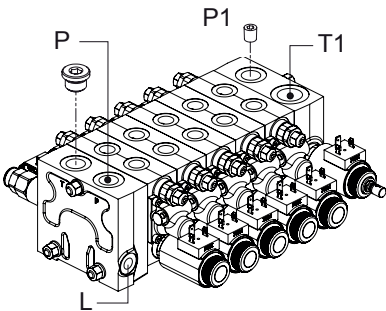
Delivery on (P)
Discharge on (T1)

U2



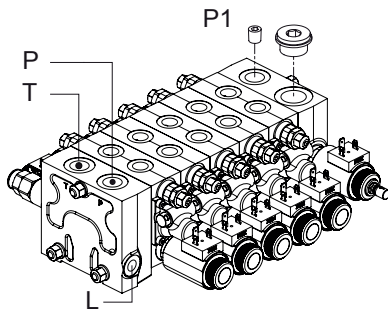
Delivery (P)
Discharge on (T)

U3



Delivery (P)
Discharge (T1)
Carry-over (P1)

U4



Delivery (P)
Discharge (T)
Carry Over (P1)

THREADING

ACRONYMS	EMPLOYMENT	Input (P)	Inlets (A-B)	Carry Over (P1)	Discharge (T)	Discharge (T1)	Drainage (L)
G	threading (BSP) ISO-228	1/2" BSP	3/8" BSP	1/2" BSP	1/2" BSP	3/4" BSP	1/4" BSP

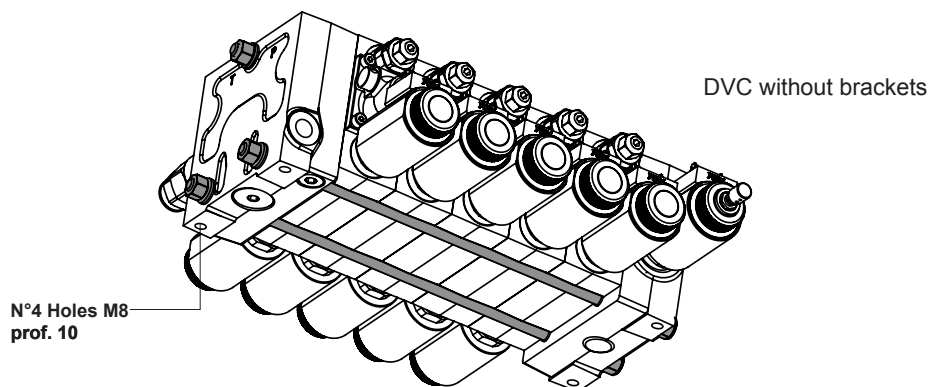
NVD2 Series

Sectional Directional Control Valve

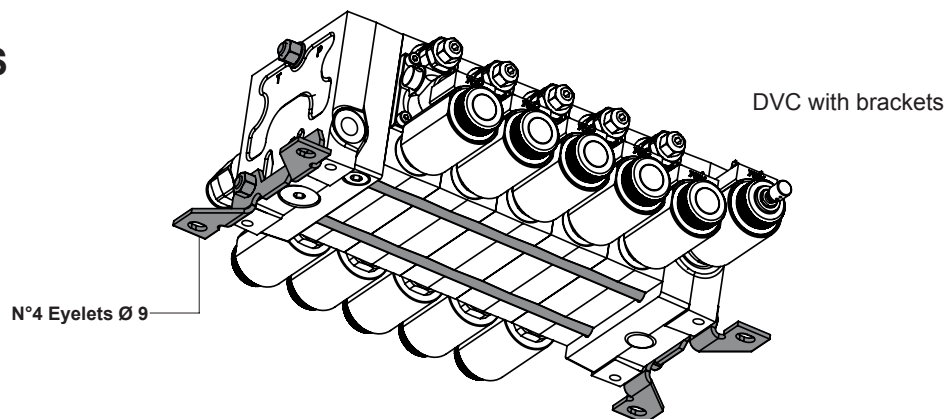


TYPE OF FIXING

SS



CS



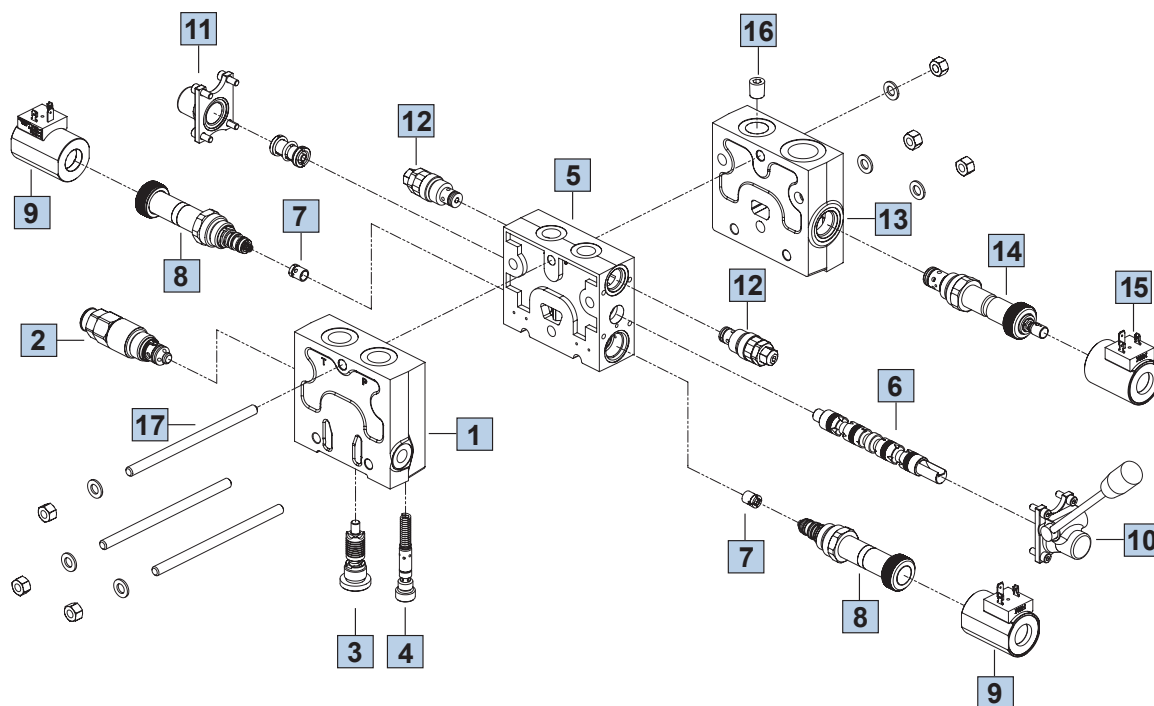
Note: You can see distances size of fixing hole at page nr.7

NVD2 Series

Sectional Directional Control Valve



SPARE PARTS CODE



INLET MODULE

1. INLET MODULE

TYPE	CODE	DESCRIPTION
IL	913NEM4010	Left-input module Kit
IR	913NEM4010	Right-input module Kit

2. GENERAL RELIEF VALVE

TYPE	CODE	DESCRIPTION
VM1	0023310000	Relief valve 40-140 bar
VM2	0023320000	Relief valve 120-250 bar
VM3	0023330000	Relief valve 220-410 bar
SVM	9273274600	Kit with plug for relief valve replacement

3. PRECHARGE VALVE

TYPE	CODE	DESCRIPTION
VP	N320271002	Precharge valve
SP	N320271003	Kit with plug for replacement of precharge valve

4. REDUCING VALVE

TYPE	CODE	DESCRIPTION
VR	N320271001	Reducing valve

WORK SECTION

5. WORK SECTION

TYPE	CODE	DESCRIPTION
D1	913NEM5000	Kit for work section without antishock valve
D2	913NEM5010	Kit for work section with antishock valve

6. CURSOR

TYPE	CODE	DESCRIPTION
W001A	3114160101	Duoble effect spool, 3 positions with A and B closed in neutral position 40 l/min flow.
W001B	3114160107	Duoble effect spool, 3 positions with A and B closed in neutral position 20 l/min flow.
W001C	3114160106	Double effect spool, 3 positions with A and B closed in neutral position 10 l/min flow.
W001F	3114160100	Double effect spool, 3 positions with A and B closed in neutral position 30 l/min flow.

NVD2 Series

Sectional Directional Control Valve



SPARE PARTS CODE

6. CURSOR

TYPE	CODE	DESCRIPTION
W002A	3114160105	Double effect cursor, 3 positions with A and B open in central position for 40 l/min flow.
W002B	3114160111	Double effect cursor, 3 positions with A and B open in central position for 20 l/min flow.
W002C	3114160110	Double effect cursor, 3 position with A and B open in central position 10 l/min flow.
W002F	3114160103	Double effect cursor, 3 position with A and B open in central position 30 l/min flow.
W002JA	3114160102	Double effect cursor, 3 position with A and B partially open in central position for 40 l/min flow.
W002JB	3114160109	Double effect cursor, 3 position with A and B partially open in central position for 20 l/min flow.
W002JC	3114160108	Double effect cursor, 3 position with A and B partially open in central position for 10 l/min flow.
W002JF	3114160104	Double effect cursor, 3 position with A and B partially open in central position for 30 l/min.

7. SHUTTERS

TYPE	CODE	DESCRIPTION
03	3207111307	Poppet flow control 3 l/min
06	3207111306	Poppet flow control 6 l/min
09	3207111309	Poppet flow control 9 l/min
12	3207111300	Poppet flow control 12 l/min
18	3207111308	Poppet flow control 18 l/min
24	3207111301	Poppet flow control 24 l/min
30	3207111312	Poppet flow control 30 l/min
36	3207111302	Poppet flow control 36 l/min
40	3207111304	Poppet flow control 40 l/min

8. ELECTROHYDRAULIC VALVE

TYPE	CODE	DESCRIPTION
XE	0PNV200004	Electrohydraulic valve
XT	9275225000	Kit of electrohydraulic replacement cap

9. COIL

TYPE	CODE	DESCRIPTION
M12D	095001191	Coil CT9500 12Vdc DIN
M24D	095002191	Coil CT9500 24Vdc DIN
M12S	095111190	Deutsch DT A
M24S	095112190	Deutsch DT A
M12A	095211190	AMP Junior
M24A	095212190	AMP Junior

10. LEVER

TYPE	CODE	DESCRIPTION
H00	9231400340	Kit without lever
H05	9228130357	Kit without M6 lever
	9032061200	Auction with handle be order separately
H10	9038031322	Kit with 45° high lever
H15	9038031522	Kit with 45° low lever

11. CONTROL FOR "B" INLET

TYPE	CODE	DESCRIPTION
F01	9231400340	Kit standard
F02	9231400501	Kit double control
F03	9231400504	Kit position sensors

12. AUXILIARY VALVES

TYPE	CODE	DESCRIPTION
C1	0022010000	Relief valve 20-100 bar
C2	0022020000	Relief valve 40-220 bar
C3	0022030000	Relief valve 50-350 bar
TC	9273193600	Kit with plug for replacement of antishock valve

OUTLET MODULE

13. CLOSURE MODULE

TYPE	CODE	DESCRIPTION
ZN	913NEM6010	Closure module kit for external drainage

14. DUMP VALVE

TYPE	CODE	DESCRIPTION
EV0	0553010000	Dump valve No emergency
EV4	0553010400	Dump valve Em. Push
EV5	0553010500	Em. dump valve Push & Twist
ET	9273274600	Kit with plug for dump valve replacement

NVD2 Series

Sectional Directional Control Valve



SPARE PARTS CODE

15. COIL

TYPE	CODE	DESCRIPTION
C12D	098011190	Coil CT9801 12Vdc din 24W
C24D	098012190	Coil CT9801 24Vdc din 24W
C12D	098111191	Deutsch DT A
C24D	098112190	Deutsch DT A
C12D	098211191	AMP Junior
C24D	098212190	AMP Junior

16. CARRY OVER

CODE	DESCRIPTION
4293130130	Plug for Carry-over function

CONNECTION CAPS

CODE	DESCRIPTION
4275211802	Plug for P - T - P1 connections
4275161402	Plug for A - B connections
4275272000 + 4343272500	Plug + Washer for T1 connection
4275131501	Plug for L connection

17. TIE ROD KIT

CODE	DESCRIPTION
9296081401	Tie rod kit N°1 section without brackets
9296081801	Tie rod kit N°2 section without brackets
9296082201	Tie rod kit N°3 section without brackets
9296082601	Tie rod kit N°4 section without brackets
9296083001	Tie rod kit N°5 section without brackets
9296083401	Tie rod kit N°6 section without brackets
9296083801	Tie rod kit N°7 section without brackets
9296084201	Tie rod kit N°8 section without brackets
9296081402	Tie rod kit N°1 section with brackets
9296081802	Tie rod kit N°2 section with brackets
9296082202	Tie rod kit N°3 section with brackets
9296082602	Tie rod kit N°4 section with brackets
9296083002	Tie rod kit N°5 section with brackets
9296083402	Tie rod kit N°6 section with brackets
9296083802	Tie rod kit N°7 section with brackets
9296084202	Tie rod kit N°8 section with brackets

SEALS KIT

CODE	DESCRIPTION
9NVD20000001	Seals kit x input section
9NVD20000003	Seals kit x intermediate section
9NVD20000004	Seals kit x general relief valve
9NVD20000005	Seals kit x reducing valve and precharge valve
9NVD20000006	Seals kit x antishock valve
9NVD20000007	Seals kit x all closed 10/2 cap replacement
9NVD20000008	Seals kit x pilot valve
9NVD20000009	Seals kit x pilot valve replacement cap
9NVD20000010	Seals kit x dump valve