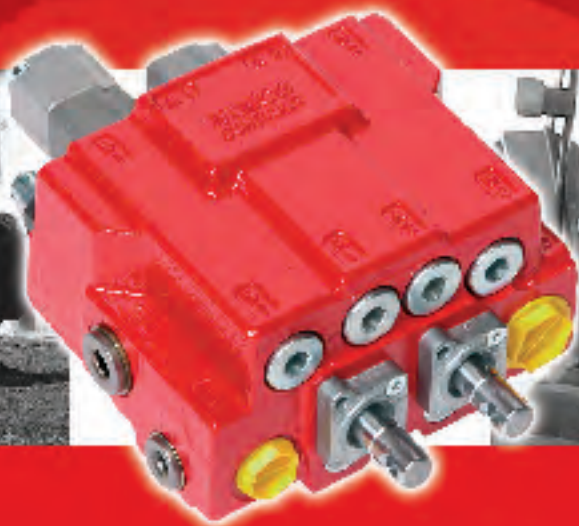
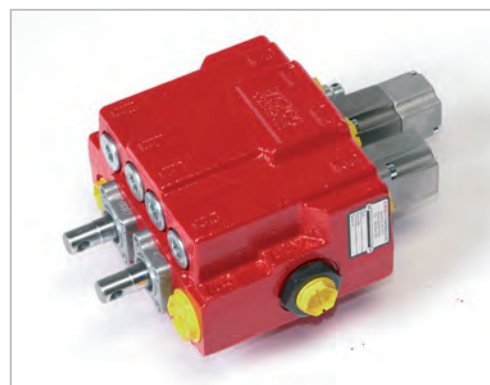


**DIRECTIONAL CONTROL VALVE  
SERIES CV 452**



**nimco**  
hydraulic systems

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**The CV 452** is a modular 2-spool monoblock valve produced in three model designs: open center, constant pressure and load-sensing. The open center and constant pressure designs can be serial connected to achieve additional spool functions by using a high pressure carry-over fitting. The valve is designed for a maximum working pressure of 320 bar (4600 psi) with a recommended flow from 15 to 110 l/min (4-29 USgpm).

**The CV 452** valve offers optimized characteristics with regard to function, capacity and quality. It is designed with the machine builder's high demands of cost effectiveness, function and need of exceptionally good load maneuverability in mind. It is particularly suitable for use on modern agricultural or construction loaders and other equipment where precise load control is required.

The uniquely designed valve body casting results in exceptionally low pressure drops leading to improved performance and longer life not only of the control valve but also of the other components in the hydraulic system.

**The CV 452** is manufactured using the highest quality cast iron which in combination with NIMCO's advanced machining and control methods assures the precise accuracy of every component. Each valve is tested and the results documented prior to shipment.

**The CV 452CP Constant Pressure** is used in systems where there is a higher demand for parallel control of the function.

**The CV 452LS Load-sensing** can be used with either a variable or a fixed pump. The extraordinary good parallel control of the functions is achieved in both versions. However, the main reason for using LS-system, energy-saving, is lost when a fixed pump is used.

#### **Easy assembly -The NIMCO concept**

As the cylinder ports are all located in-line with the spools, all plumbing and controls can be done from one side. The valve has two inlet and outlet ports allowing alternative connections that allow for simplified plumbing in less space. It also allows for the use of quick couplers to be assembled directly on to the valve.

#### **Minimized spool leakage.**

Hard chromium plated spools and a specially developed honing method provide for absolute minimum spool leakage of the valve.

**Excellent load control.**

CV452 spools are designed to provide optimum control characteristics over the valve's entire flow range.

**Full utilization of the spool stroke.**

Optimized metering grooves are integrated in each spool and the precise machining of every component allows the entire stroke of the spool to be used. This allows full control of the load whether the operator is using very little or full flow capacity. In addition, the movement of any spool in any direction will give the same speed of machine function, enhancing safety and reliability. Load holding check valves are integrated in each section.

**Multifunctional control.**

Both spools can be operated at the same time even when very large differences in load are at hand due to the NIMCO's unique spool and internal valve design.

**Uniform and low lever forces.**

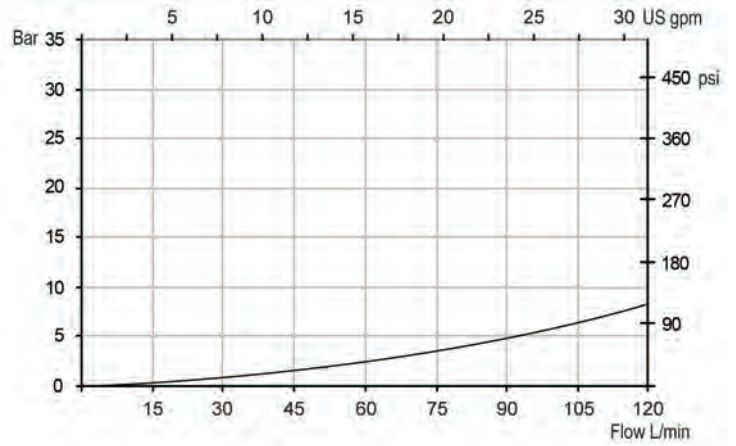
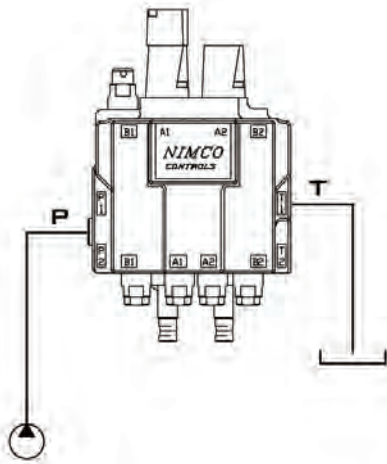
By combining the unique design features of the valve body and the spools, an excellent balance of the dynamic forces is achieved throughout the entire pressure and flow range. This keeps spring forces at a minimum and makes the valve very easy to operate by hand lever as well as with cables up to 3500 mm (138 inch) length.

**Wide range of accessories.**

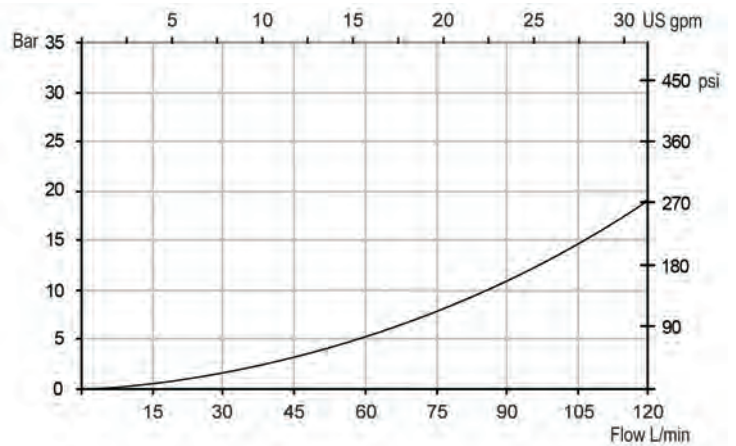
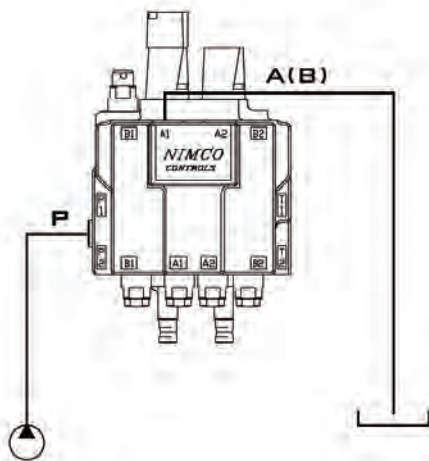
A wide range of spool and remote controls such as single or joystick cable controls, pneumatic, electro-hydraulic proportional, or electrical on/off controls are available. A special quick-connection system is available for the CV 452, allowing for easy and fast change over of a front end loader from one tractor to another without having to individually connect and disconnect each coupling.

<b>Max Pressure Setting</b>	<b>bar</b>	<b>psi</b>
Main relief valve	320	4600
Port relief valve	330	4700
Tank line	10	145
<b>Flow rates</b>	<b>l/min</b>	<b>USgpm</b>
Max for the valve	110	29
<b>Temperature Range</b>	<b>° C</b>	<b>°F</b>
Fluid mineral oil	-40 to +80	-40 to +176
<b>Spool Leakage</b>	<b>cm<sup>3</sup>/min</b>	<b>inch<sup>3</sup>/min</b>
100 bar (1450 psi) and 25 mm <sup>2</sup> /s (cSt) (117SSU) viscosity A and B port	0.8 - 2	0.05 - 0.12
<b>Filtration</b>		
Contamination level equal to or better than	18/14 according to ISO 4406	NAS 1638-class 10
<b>Viscosity</b>	<b>mm<sup>2</sup>/s (cSt)</b>	<b>SSU</b>
Recommended operating viscosity range	10-400	47 - 1875
Start viscosity up to	1000	4687
<b>Weight</b>	<b>kg</b>	<b>lbs</b>
CV452	12	26,5
<b>Operating force on the spool</b>	<b>N</b>	<b>lbf</b>
Spring centred	140	31
Detent in	330	74
Detent out	90	20

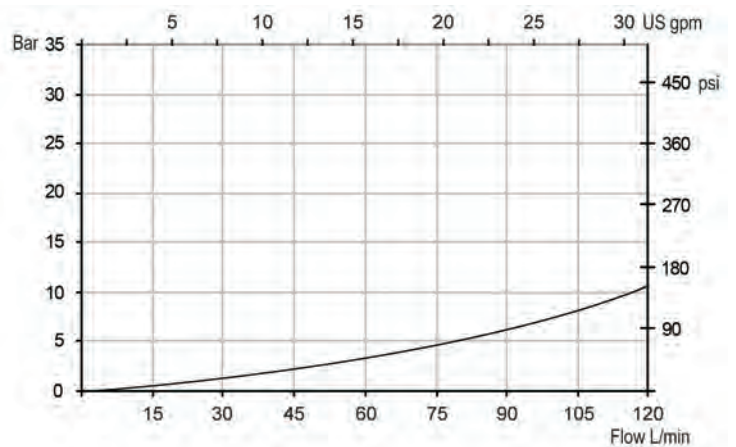
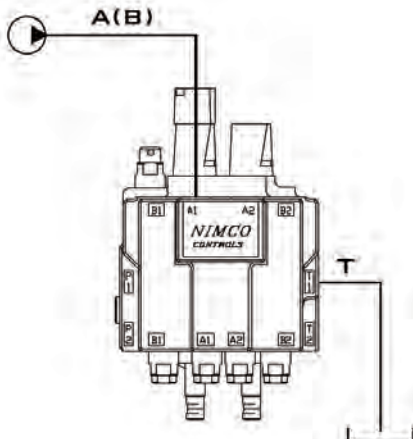
**PRESSURE DROP P→T**



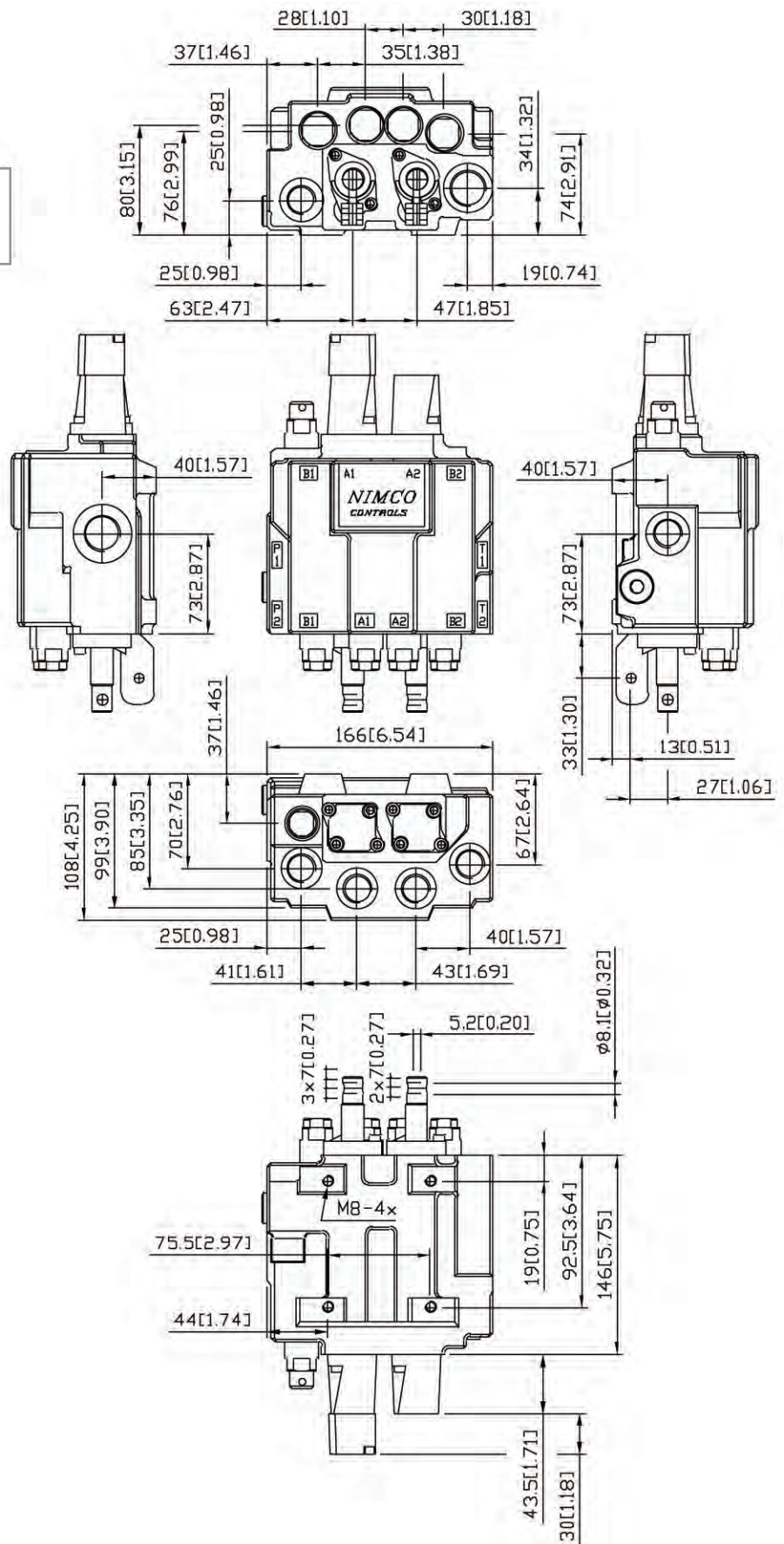
**PRESSURE DROP P→A(B)**



**PRESSURE DROP A(B)→T**



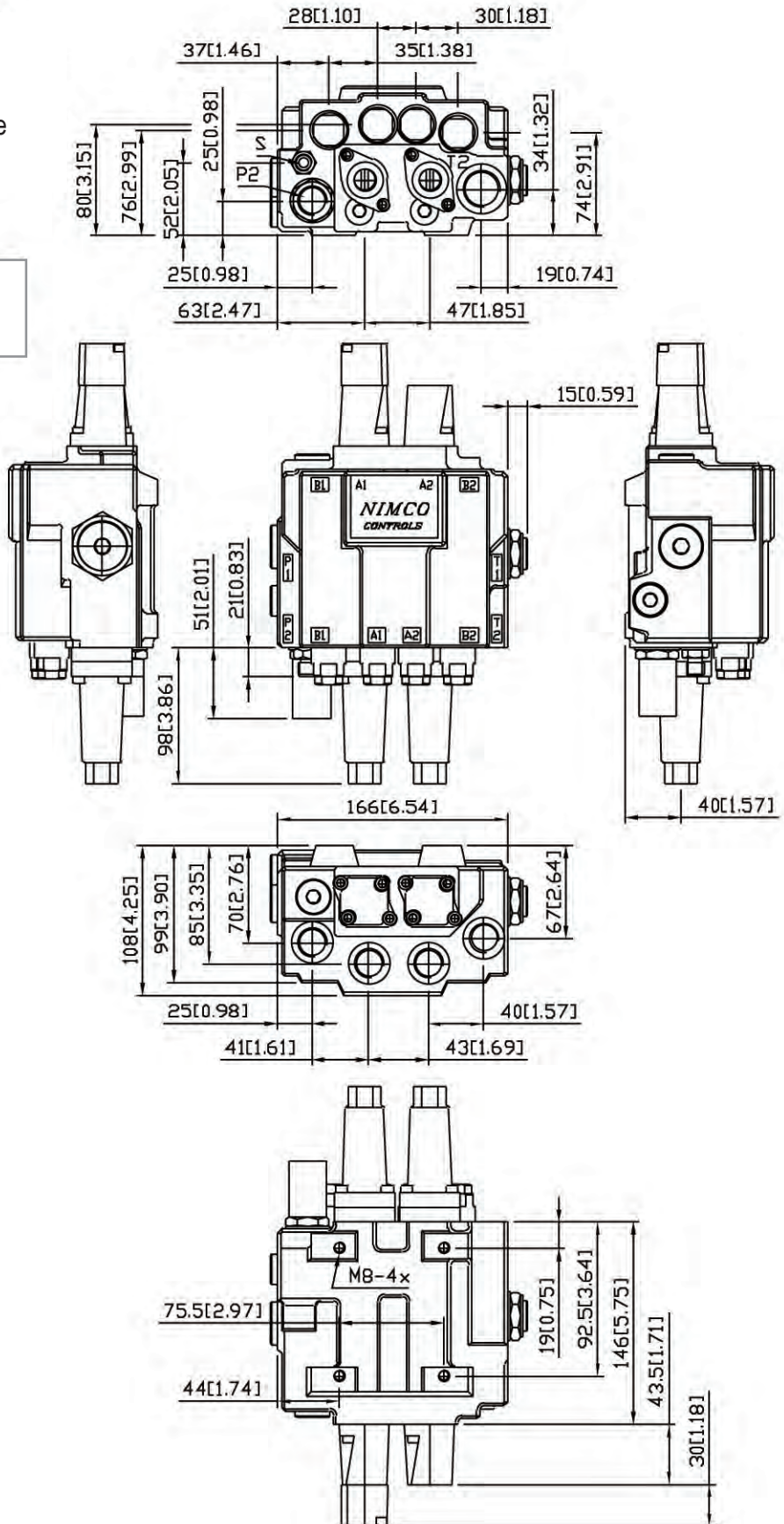
The dimensions outside the brackets are in mm and the dimensions inside are in inches.



Port size	BSP	Metric	SAE
A, A2, B1, B2	1/2"	M18 x 1.5	3/4-16 SAE8
P1, P2	1/2"	M18 x 1.5	3/4-16 SAE8
T1, T2	3/4"	M22 x 1.5	11/16-12 SAE12

Please note that this LS valve is shown with optional cable adapters and high pressure carry-over (Power Beyond) assembled on to the valve for measurement purposes.

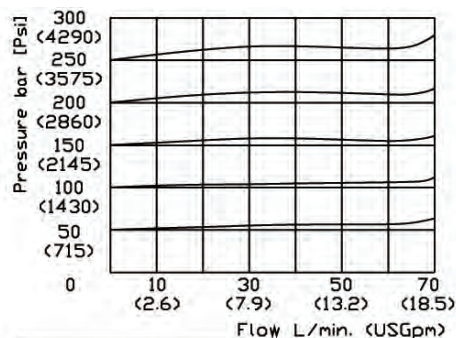
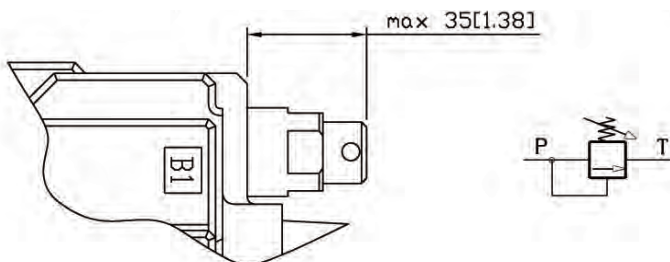
The dimensions outside the brackets are in mm and the dimensions inside are in inches.



Port size	BSP	Metric	SAE
A, A2, B1, B2	1/2"	M18 x 1.5	3/4-16 SAE8
P2	1/2"	M18 x 1.5	3/4-16 SAE8
T2	3/4"	M22 x 1.5	11/16-12 SAE12
S	1/4"	M12 x 1.5	7/16-20 SAE4



**Main relief valve.** Differential operated relief valve for the main circuit. Adjustable from 35 to 320 bar (500-4600 psi).

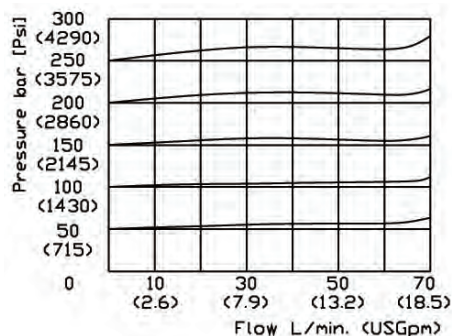
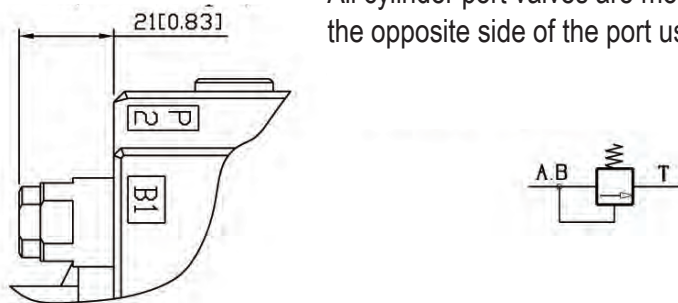


**Order code: RV+pressure setting**

**Cylinder port mounted secondary valves.**

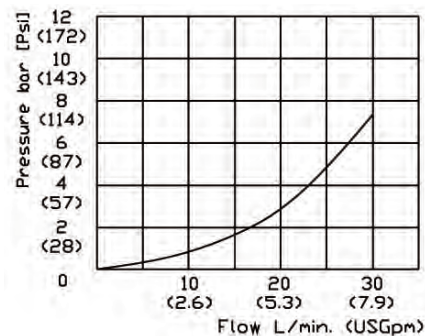
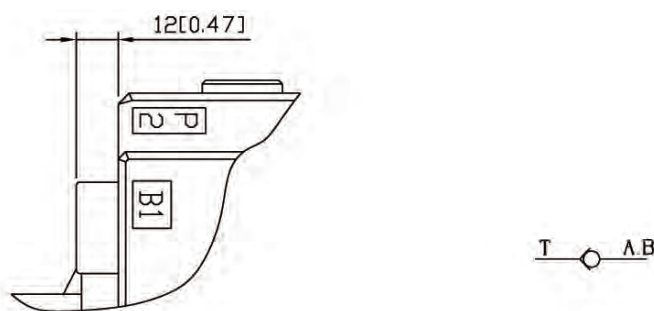
**Relief valve.** Differential operated port relief valve preventing pressure peaks. Fixed pressure setting from 35 to 330 bar (500-4700 psi).

All cylinder port valves are mounted on the opposite side of the port used.



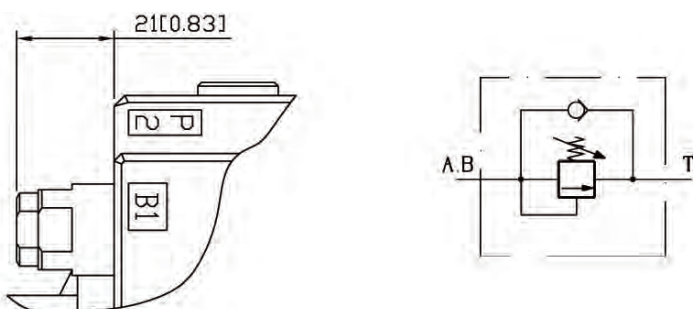
**Order code: C+pressure setting**

**Anti-cavitation valve.** Check valve used to level negative pressures that can occur in the cylinder ports.



**Order code: A**

**Relief anti-cavitation valve.** Works as both port relief and anti-cavitation valve.



Characteristics according to C and A.

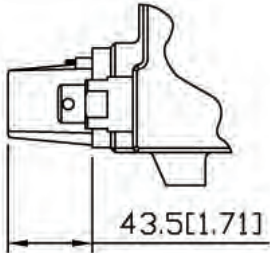
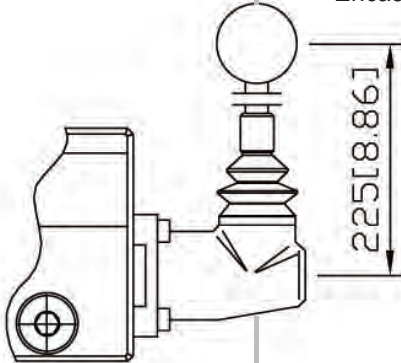
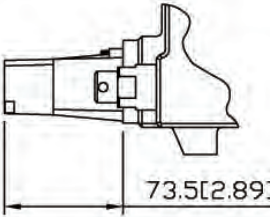
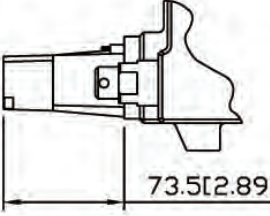
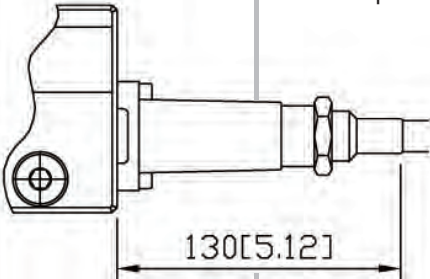
**Order code: RV+pressure setting**

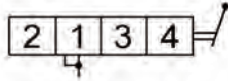
Graphs valid for 25 mm<sup>2</sup>/s (cSt.)  
(117 SSU) and 70 bar (1000 psi)

All of NIMCO's spools are designed for specific flow rates in order to achieve optimal control characteristics and to fully utilize the spool's entire stroke. By optimizing the balance between spools and valve housing, spring forces are minimized and exact maneuvering is achieved.

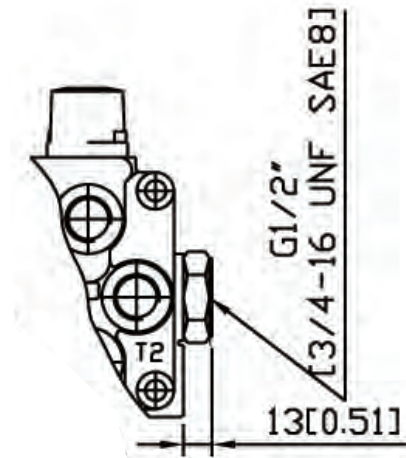
Besides the standard spools listed there are also special spools available. For further information concerning these types please contact your Nimco representative.

Spool type	Symbol		Order code Standard spool	Part No.
Double acting		1R	3B-45122	
Single acting		2R	3B-45124	
LS-spool		1LS	4S-45125	
Double acting with float position		3R	3B-4548	
LS-spool with float position		3LS	4S-4752	
Single acting with float position		7R	3B-4551	

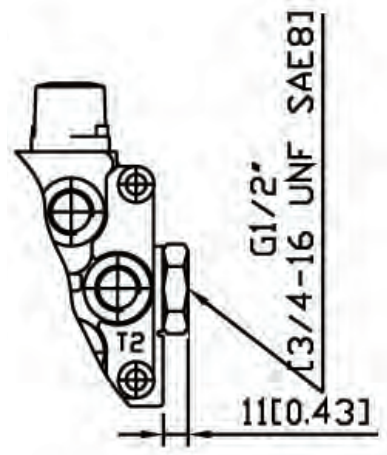
Code	Type	A-side	B-side	Type	Code
9	Spring centered.	 <p>43.5[1.71]</p>	 <p>Hand lever vertical. Encased.</p> <p>225[8.86]</p>		S5
11	Spring centered. Detent in position 4.	 <p>73.5[2.89]</p>			
18	Spring centered. Detent in position 4. Regenerative stroke indication.	 <p>73.5[2.89]</p>	 <p>Wire control for all spools.</p> <p>130[5.12]</p>		3W



**High pressure carry-over adaptor (Power Beyond),** must be installed in the T1-port when two or more valves are used in the same circuit. T2 must then be connected to tank. For B and CP.

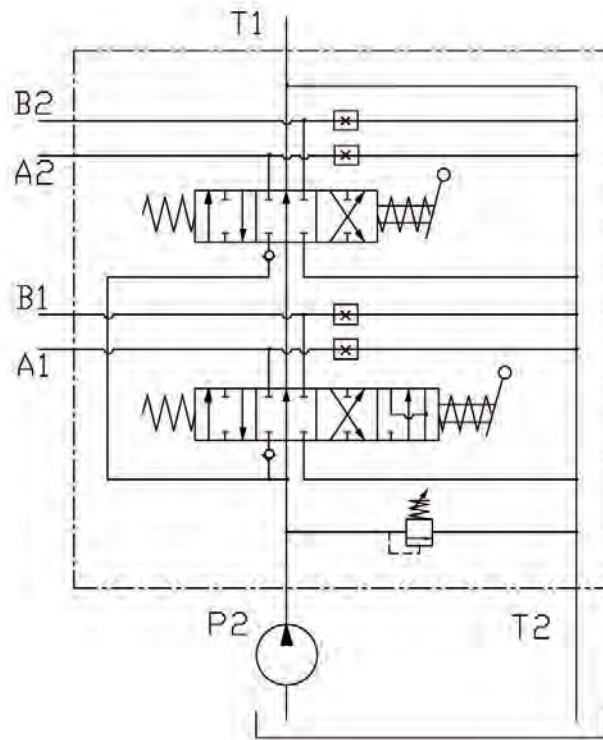


**Tank port reduction adaptor,** can be installed in the T1 port when the thread size is to be reduced.

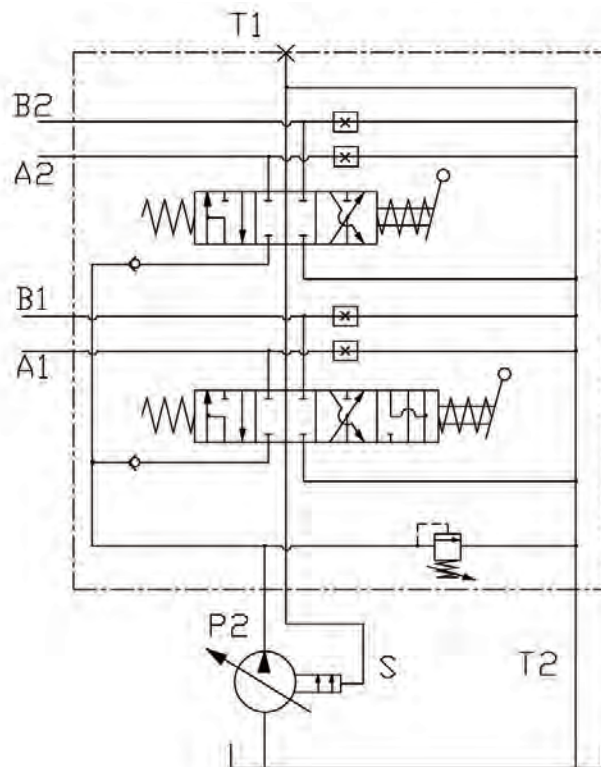


**Remote wire control WK-300 for spool control 3W** is available as a bankable single control unit as well as a joystick for dual spool control. Please refer to WK-300's separate data sheet for detailed information.

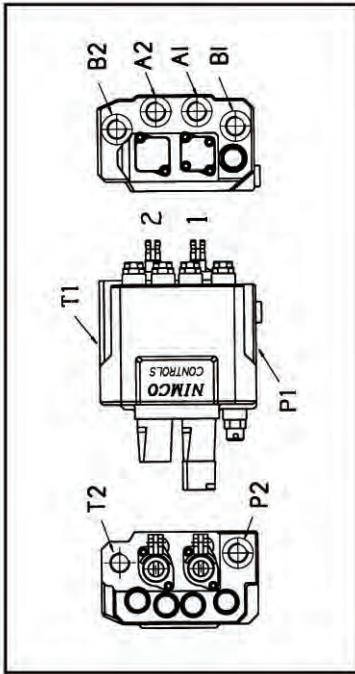




**OPEN CENTER**

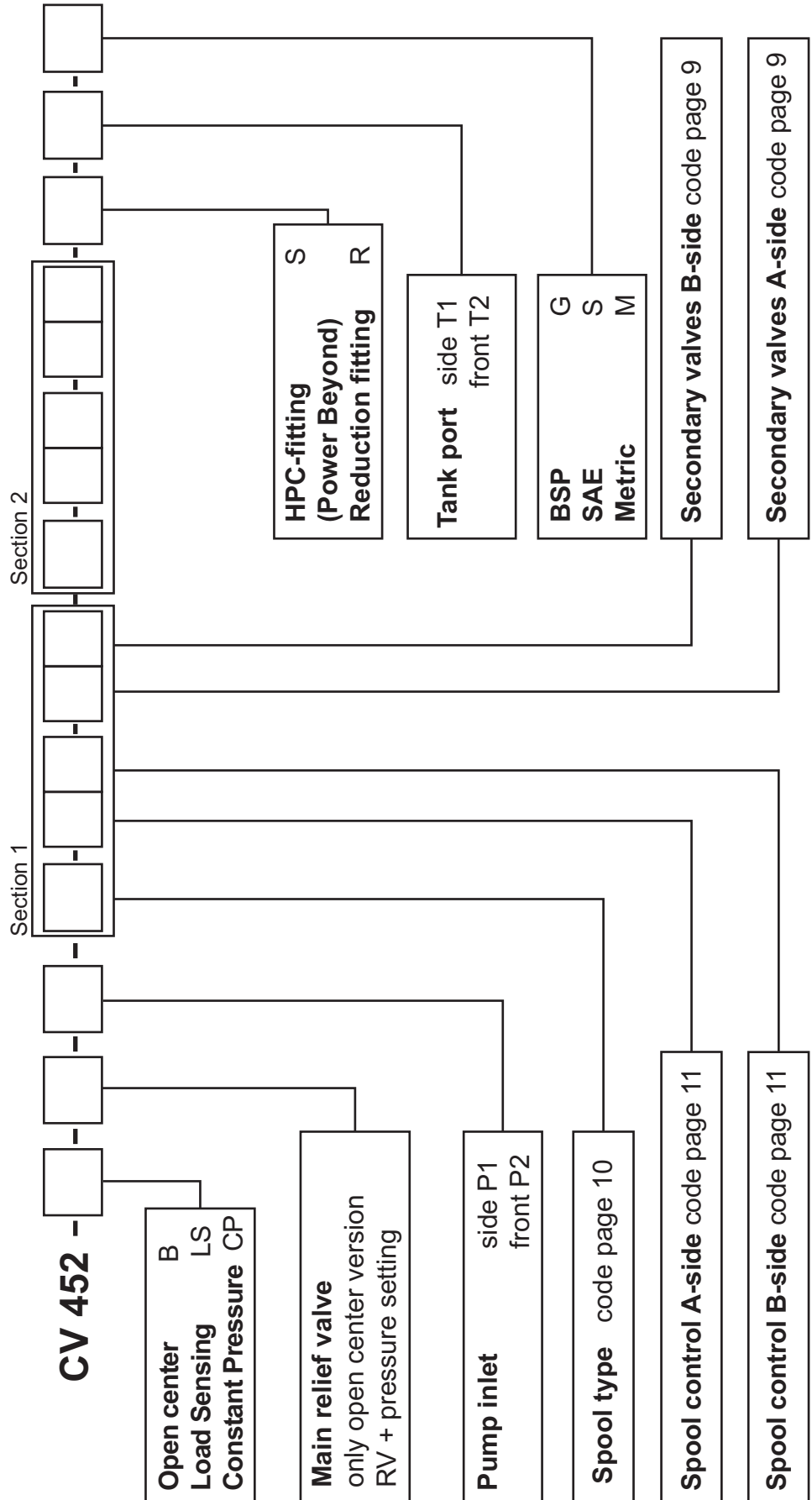


**LOAD SENSING**



Copy this page and use as technical order form.

Set at the through flow 50 l/min (16 USGpm). Please indicate if you want the pressure to be set at other through flow.



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# nimco

hydraulic systems

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