



**ORVAL**  
HYDRAULIC

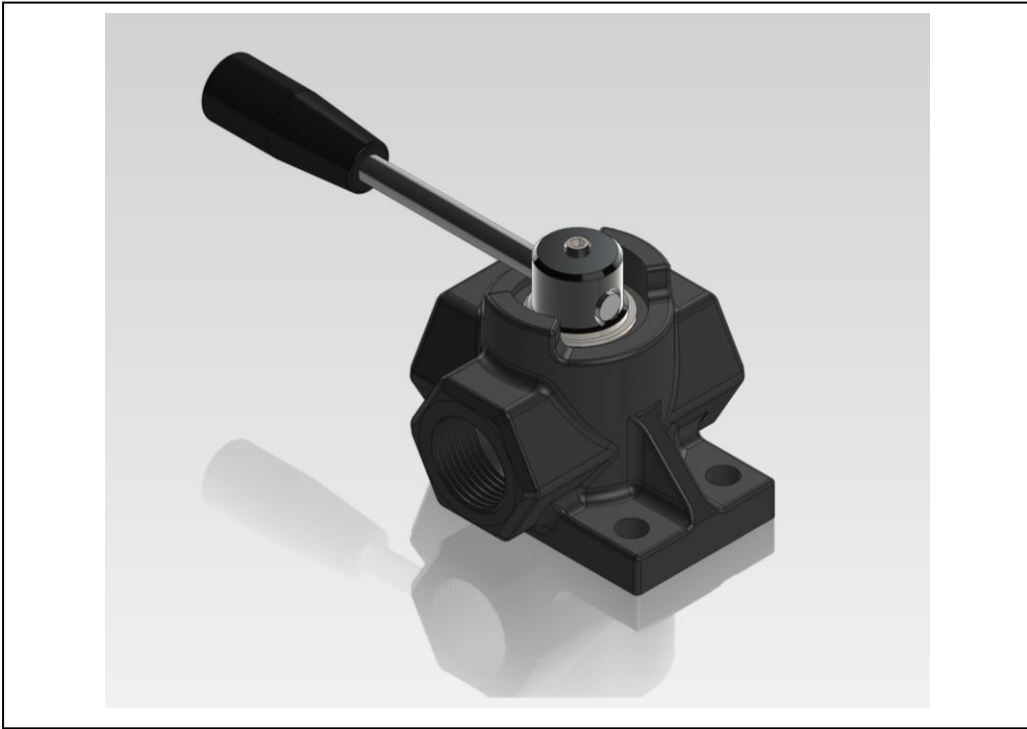


ROTARY  
CONTROL VALVES

**ORV-V**

DETAILED TECHNICAL CATALOGUE





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**Additional Informations**

**Note:**This catalog shows the product in the most standard configurations. For Other Configurations, more detailed information or special request, Please contact Customer Service Dept.

**Warning!** :All specifications of this catalog refer to the standard product at this date (03/2013) . ORVAL, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

**ORVAL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN INCORRECT USE OF THE PRODUCT.**

## Working Conditions

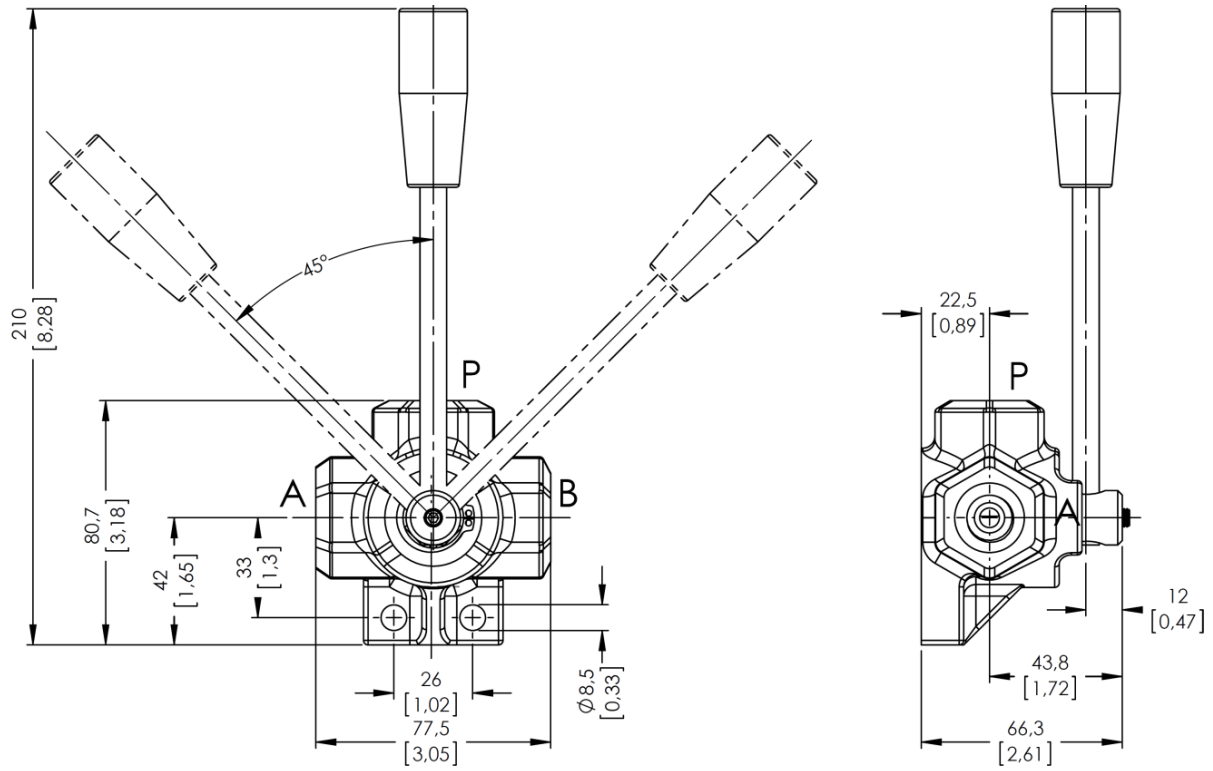
MODEL	V60	V90	V140	V200
Nominal Flow Rating / Displacement	60 l/min 21 U.S.G.P.M	90 l/min 21 U.S.G.P.M	140 l/min 21 U.S.G.P.M	200 l/min 21 U.S.G.P.M
Maximum Operating Pressure	315 Bar 4600 PSI	315 Bar 4600 PSI	315 Bar 4600 PSI	250 Bar 3600 PSI
Number of Available Ways	3	3	3	3
Oil Temperature with NBR Seals	-20 to 80 °C (-4 to 176 F °)			
with FPM (Viton) Seals	-20 to 100 °C (-4 to 212 F °)			
Oil Viskosity – Operating Range	From 10 to 75 mm <sup>2</sup> /s - 10 / 400 mm <sup>2</sup> /s			
Minumum / Maximum	From 10 to 75 cSt - 10 / 400 cSt			
Oil Filtration	≤30 μ			
Ambiant Temperature Range	-35 to 60 °C - (-31 to 140 F °)			
Internal Leakage (at 100 bar (1450 PSI), 40°C - (110 F°), 46 cSt. A(B)-T	3 cm <sup>3</sup> /min		0,18 in <sup>3</sup> /min	
Max. Level Of Contamination	19/16 - ISO 4406			

Not: This catalogue shows technical specifications measured with mineral oil of 46 mm<sup>2</sup>/s-46 cSt viscosity at 40 C° temperature. V Rotary spool diverter valve position cannot be changed when valve is pressurized.

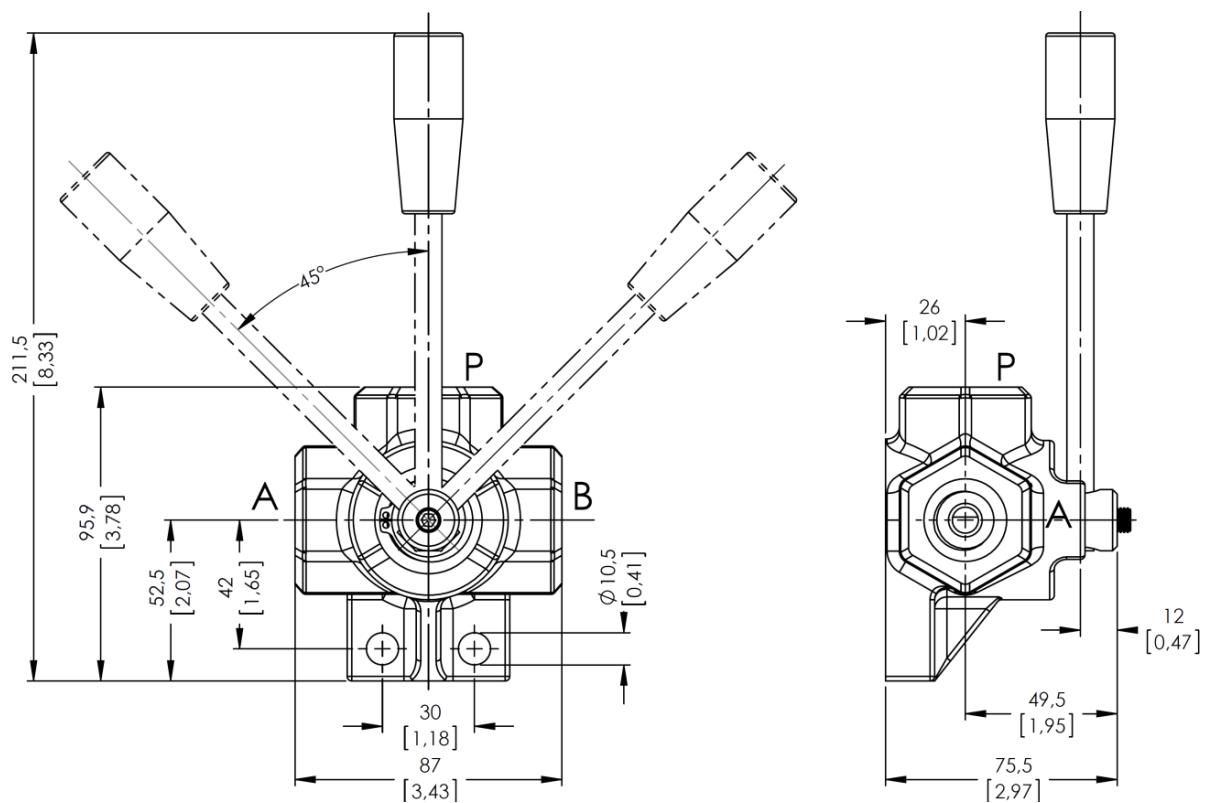
Model	PORTS THREADS And STANDART THREADS		
	BSP (Iso 228)	UN-UNF (Iso 11926-1)	Metric (Iso 262)
<b>V 60</b>	G 3/8	3/4 - 16 UNF	M18x1.5
<b>V 90</b>	G 1/2	7/8 - 14 UNF	M22x1,5
<b>V 140</b>	G 3/4	1 1/16 – 12 UNF	M27x2
<b>V 200</b>	G 1	1 5/16 – 12 UNF	-

## Dimensional Data

### 3 – Way V 60/3 valve

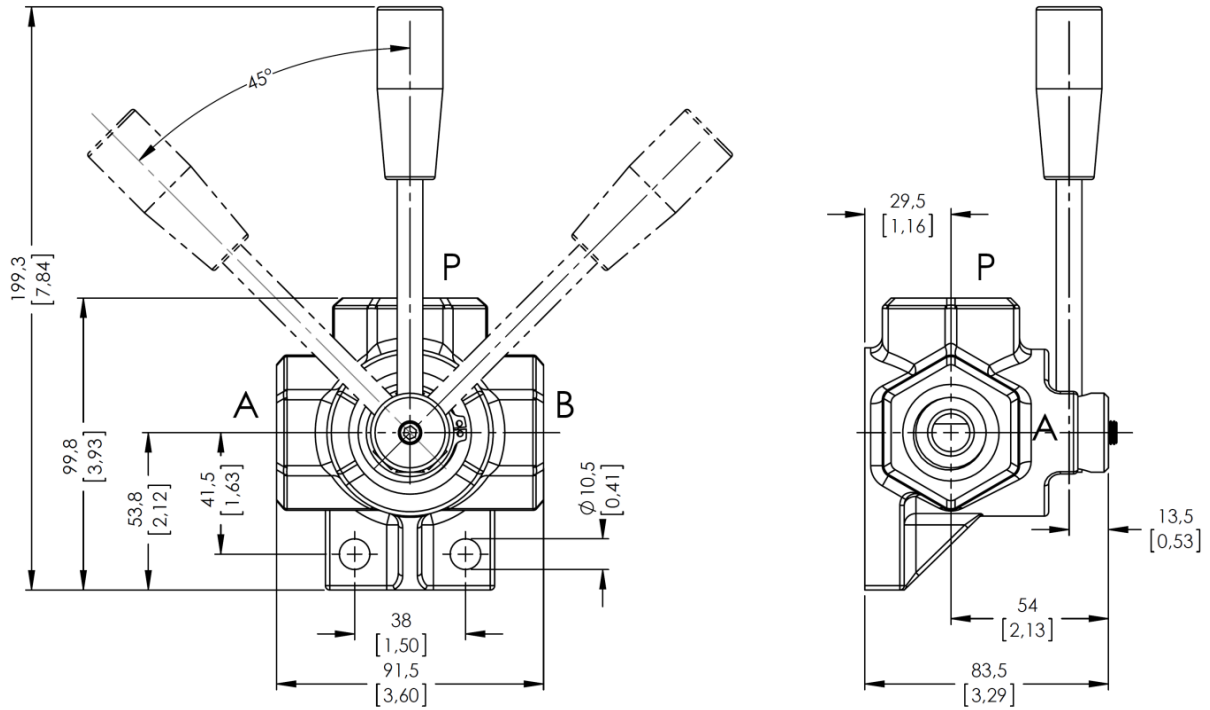


### 3 – Way V 90/3 valve

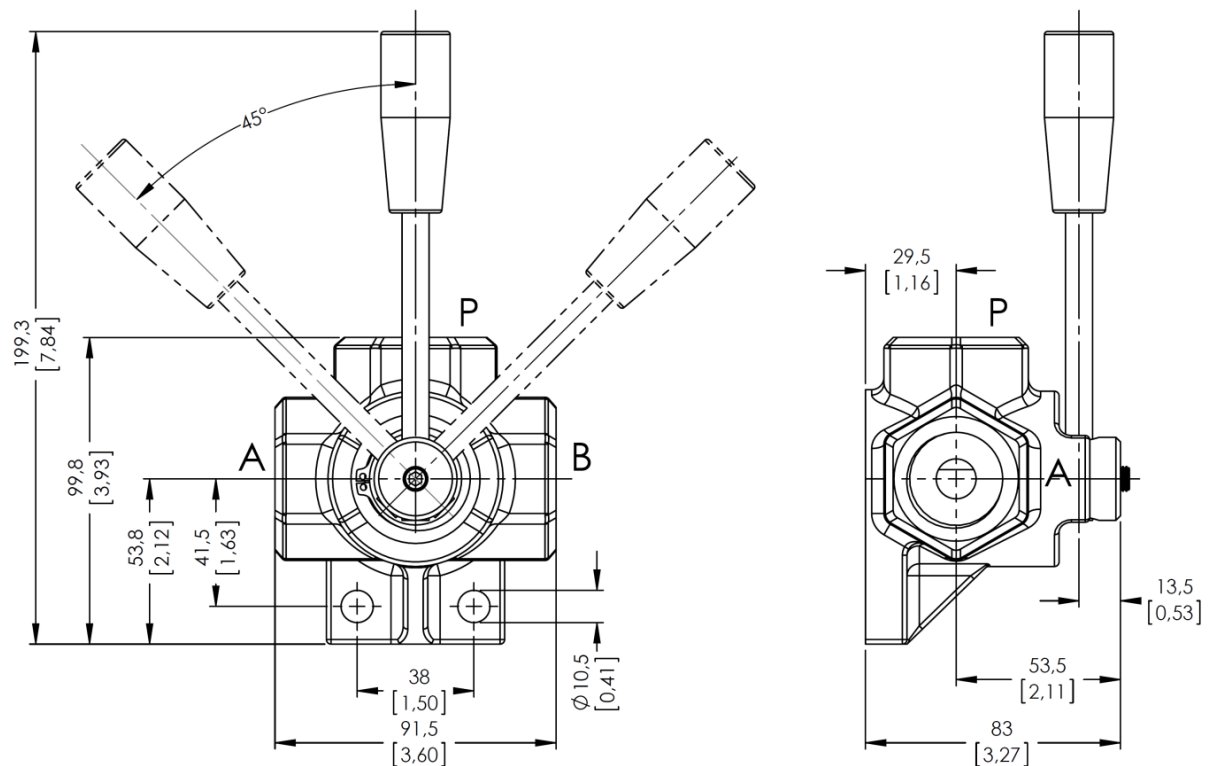


## Dimensional Danta

### 3 – Way V 140/3 valve

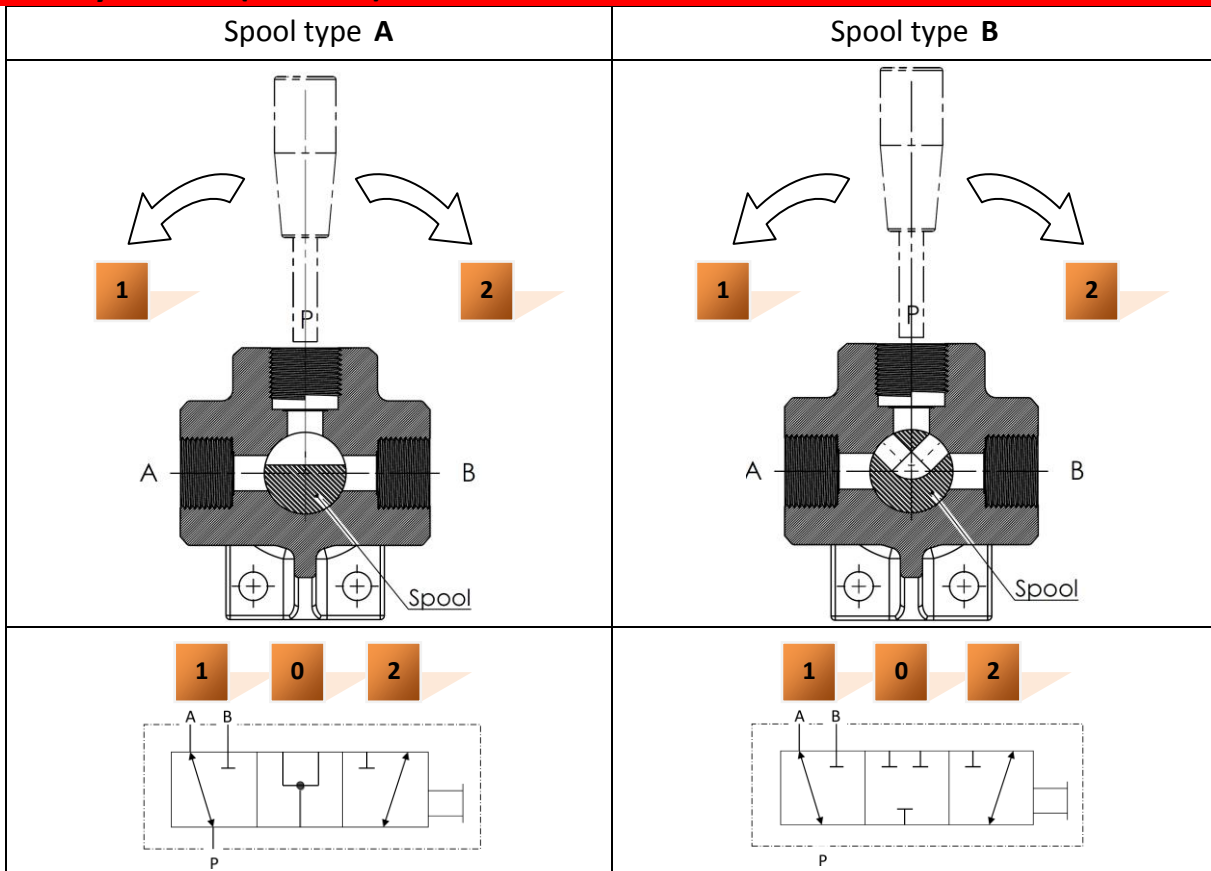


### 3 – Way V 200/3 valve



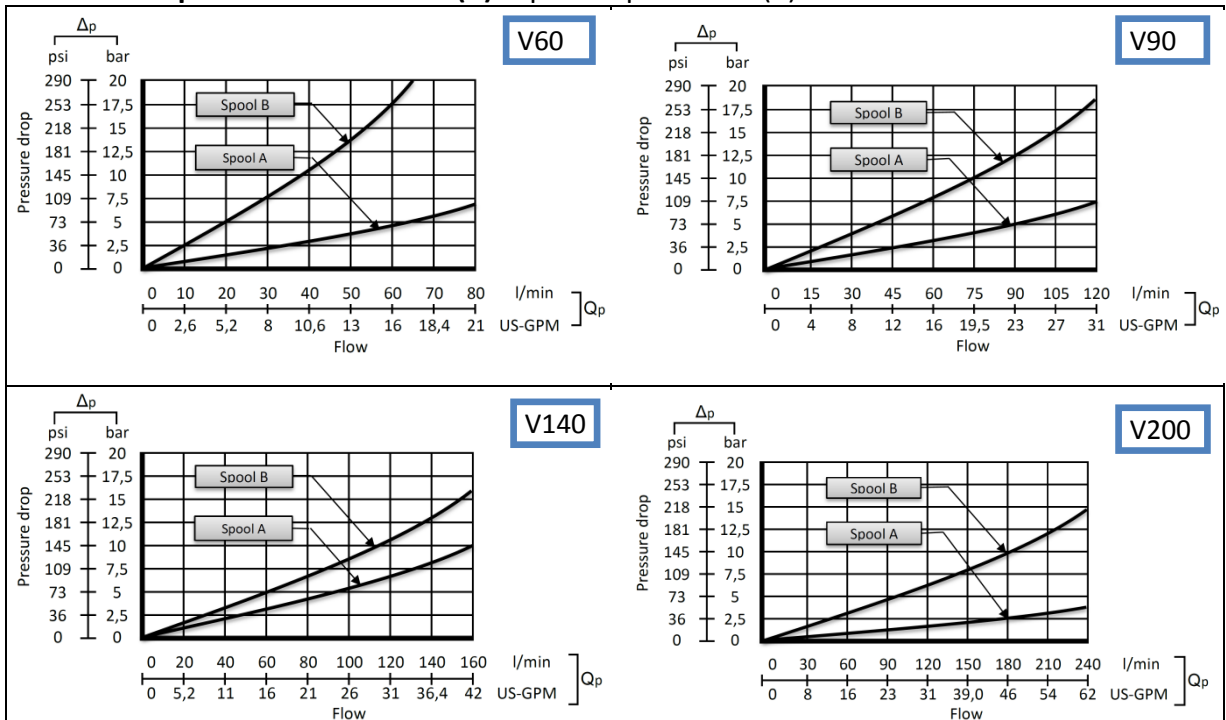
## Hydraulic Circuit

### 3-Way valve - (V Series)



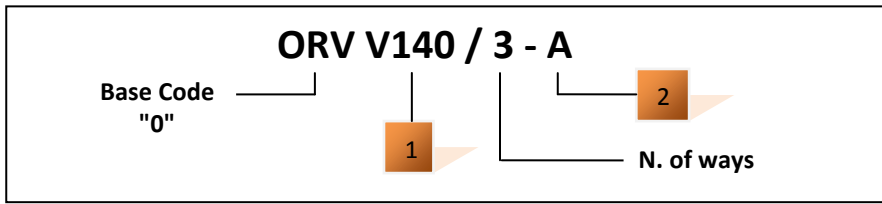
### Performance Data And Curve

Pressure drop versus flow P → A (B) : spool in position 1 (2)



## Ordering Codes

### Order example



### 1-Body

V 60	= 3/8" Output – 60 lt Body	(1BV60100)
V 90	= 1/2" Output – 90 lt Body	(1BV90100)
V 140	= 3/4" Output – 140 lt Body	(1BV140100)
V 200	= 1" Output – 200 lt Body	(1BV20 0100)

### 2-Spool

V60 - A	= Open Center	(2O60100)
V60 - B	= Closed Center	(2C60100)
V90 - A	= Open Center	(2O90100)
V90 - B	= Closed Center	(2C90100)
V140/V200 - A	= Open Center	(2O140100)
V140/V200 - B	= Closed Center	(2C140100)

### 3-4 O-ring

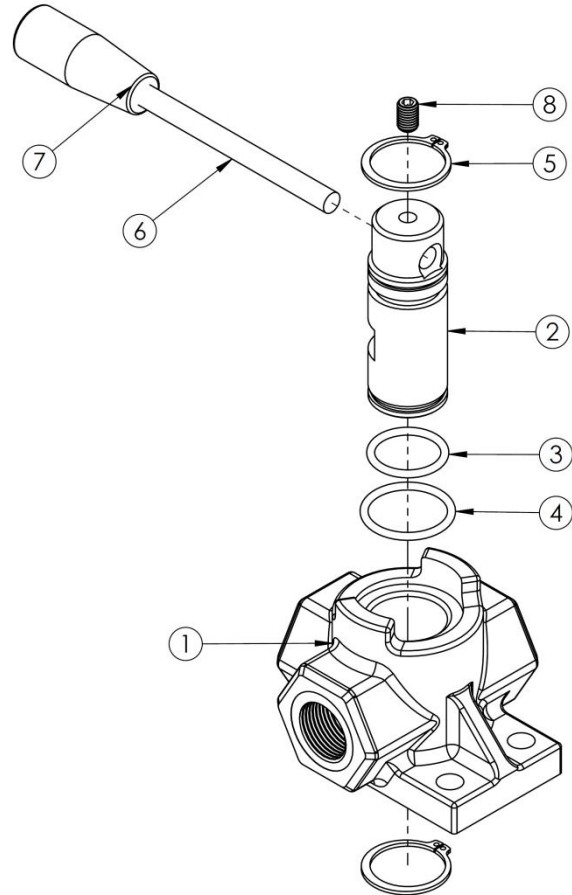
<b>V60 Series</b>		
16x3 and 20x3 O-rings		(3SO60100)
<b>V90 Series</b>		
19x3 and 24x3 O-rings		(3SO90100)
<b>V140 Series</b>		
25x3 and 30x3 O-rings		(3SO14100)
<b>V200 Series</b>		
25x3 and 30x3 O-rings		(3SO20100)

### 5- Circlip

<b>V60 Series</b>		
20x1,2		(3SO80100)
<b>V90 Series</b>		
24x1,2		(3TO80100)
<b>V140 Series</b>		
30x1,5		(3TCO80100)
<b>V200 Series</b>		
30x1,5		(3TCO80100)

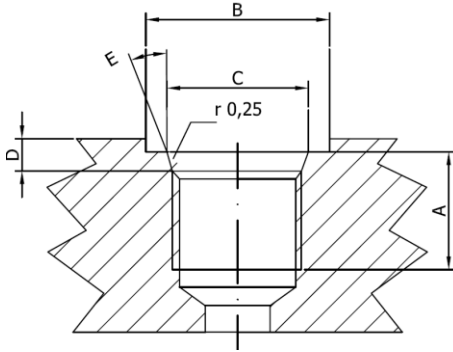
### 6-7- HandLevel

L =Standard HandLever (L=120mmxM8) -		(7L040100)
8-V60 Series = M6x10		(8S060100)
V90, V140, V200 = M8x200		(8S090100)

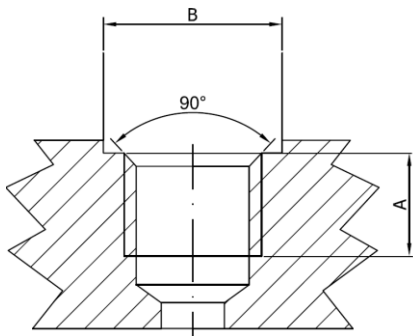


## Technical Data

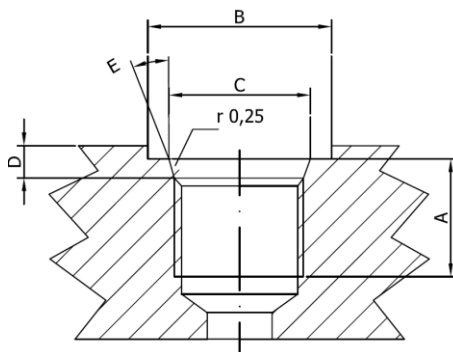
### Ports Dimensional Data



SAE UN-UNF (ISO 725)							
Dimensions		7/8-14 UNF SAE10		1"1/16-12 UN SAE12		1"5/16-12 UN SAE16	
mm	in						
A		17	0,67	20	0,79	20	0,79
B		34	1,34	41	1,61	49	1,92
C		23,9	0,94	29,2	1,15	35,5	1,40
D		2,5	0,10	3,3	0,13	3,3	0,13
E		15°		15°		15°	



BSP (ISO 228)							
Dimensions		G 1/2"		G 3/4		G 1	
mm	in						
A		16	0,63	18	0,71	20	0,79
B		27	1,06	33	1,30	40	1,57



METRIC (ISO 262)							
Dimensions		M22x1,5 ISO 262		M27x2 ISO 262			
mm	in						
A		16	0,63	18	0,71		
B		31,5	1,24	37,7	1,48		



