



# Counterbalance valves

## Index

Hydraulic diagram	Type	Description	Maximum flow up		Maximum pressure		Page
			l/min	US gpm	bar	psi	
	VODL	Dual counterbalance valves, line mounting, cartridge construction	180	48	350	5100	101
	VODL/F	Dual counterbalance valves, face mounting, cartridge construction					
	VODL/SC						
	VODL/SC/UU	Dual counterbalance valves, line mounting	20	5.3			
	VODL/SC/C 1116		60	16			

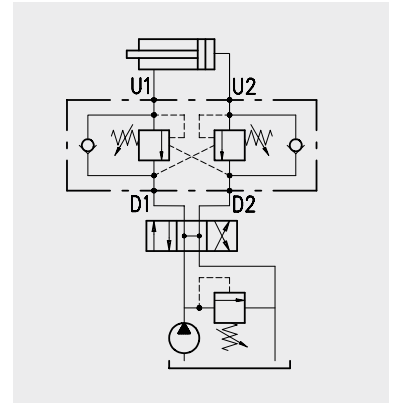
**Operation**

The oil flow is allowed from D1 (D2) to U1 (U2) and is stopped in the opposite way from U1 (U2) to D1 (D2) up to the spring setting value. Free oil flow from U1 (U2) to D1 (D2) is strictly possible when the pilot pressure in D2 and U2 (D1 and U1) is strong enough to pilot the valve poppet.

Use the following formula to assert the applicable pilot pressure:

**(valve setting - load pressure) ÷ pilot ratio = pilot pressure**

For example: If your pilot ratio is 1:4, your setting pressure is 250 bar (3600 psi) and your load pressure is 130 bar (1900 psi) then you will need 30 bar (430 psi) pilot pressure in order to displace the load [(250 bar-3600 psi - 130 bar-1900 psi) ÷ 4 = 30 bar-430 psi]. Should counterpressure arise in D1 (D2), the setting value of valve poppet (1:1 ratio) will increase and the pilot pressure be negatively affected (1:1 ratio). Lack of overcenter stability and troublesome motion even after complete valve assembly, will suggest that the valve application may require a PG version. Please contact our technical service for action.



**Performance**

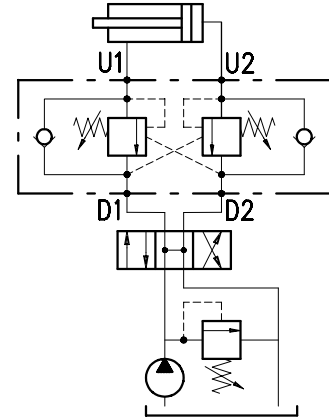
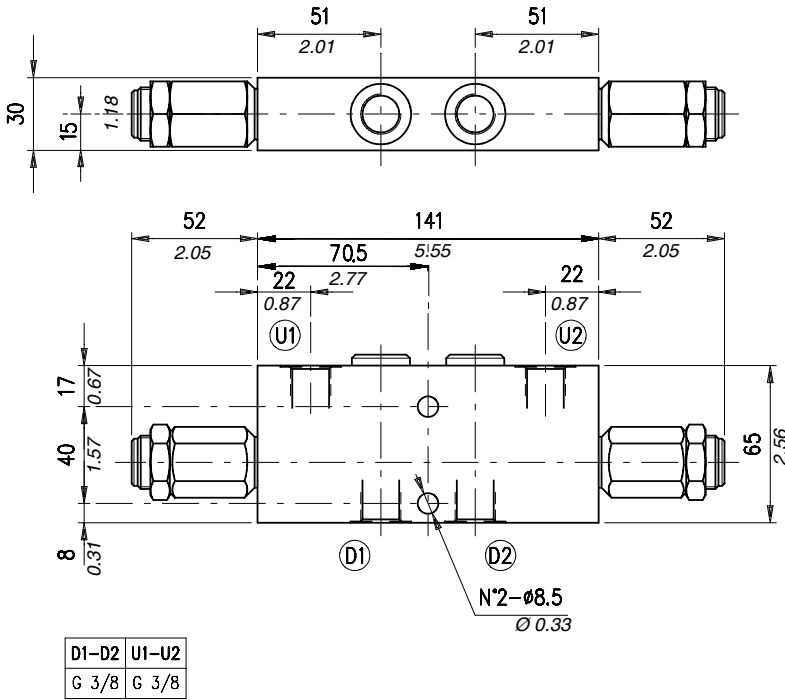
**Body valves**

Type	Max. flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight		Overcenter cartridge		
	l/min	US gpm	bar	psi				kg	lb			
VODL 38	35	9.2	210 (alum.) 350 (steel)	3050 (alum.) 5100 (steel)	5÷210 bar -72.5÷3050 psi (test setting 150 bar-2200 psi at 5 l/min.-1.3 US gpm)  50÷350 bar -725÷5100 psi (test setting 280 bar-4060 psi at 5 l/min.-1.3 US gpm)  100÷700 bar -1450÷10150 psi (test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)	0,25 cm <sup>3</sup> /min -15x10 <sup>-3</sup> in <sup>3</sup> /min (5 drops) at 210 bar -3050 psi- and 80% of the spring setting value with oil viscosity of 46 cSt.	1:4 (standard type) 1:3 (on request only)	1,23	2.71	VMPD 38		
aluminium		2,21						4.87				
steel												
VODL 12	70	18							1:7 (standard type) 1:3 (on request only)	1,58	3.48	VMPD 12
aluminium		2,83					6.24					
steel												
VODL 34 (100)	(34) 100	26			1:7 (standard type) 1:3 (on request only)	(34) 2,98	6.57	VMPD 34				
			aluminium			(34) 5,15	11.35					
	steel		(100) 4,79	10.56								
	aluminium		(100) 9,52	20.99								
steel												
VODL/F 38	35	9.2			1:4 (standard type) 1:3 (on request only)	1,20	2.64	VMPD 38				
aluminium		2,20	4.85									
steel												
VODL/F 12	70	18			1:7 (standard type) 1:3 (on request only)	1,57	3.46	VMPD 12				
			aluminium			2,81	6.19					
			steel									

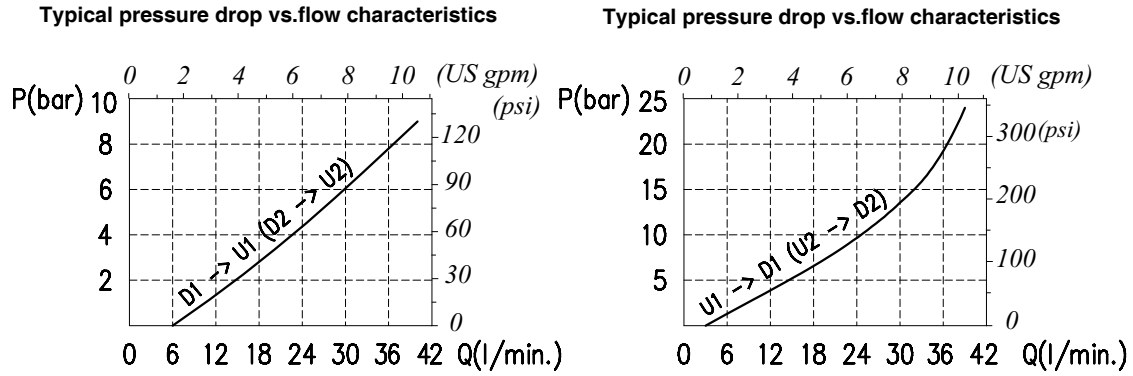
Body valves

Type	Max. flow		Maximum pressure		Application range with standard springs	Oil leakage from U1 (U2) to D1 (D2)	Pilot ratio	Weight		Overcenter cartridge
	l/min	US gpm	bar	psi				kg	lb	
VODL/F 34 (100)	(34) 100	26					1:7 (standard type) 1:3 (on request only)	(34) 2,90	6.39	VMPD 34
								aluminium		
								(34) 5,17	11.40	
								steel		
	(100) 180	48						(100) 4,76	10.49	
								aluminium		
								(100) 9,49	20.92	
								steel		
VODL/SC 38	40	11	210 (alum.)  350 (steel)	3050 (alum.)  5100 (steel)	50÷350 bar -725÷5100 psi (test setting 280 bar -4060 psi at 5 l/min.-1.3 US gpm)		1:4 (standard type) 1:3 (on request only)	1,13	2.49	-
								aluminium		
								2,16	4.76	
								steel		
VODL/SC 12	75	20			100÷700 bar -1450÷10150 psi (test setting 350 bar-5100 psi at 5 l/min.-1.3 US gpm)		1:7 (standard type) 1:3 (on request only)	1,47	3.24	-
								aluminium		
								2,89	6.37	
								steel		
VODL/SC 34	120	32					1:7 (standard type) 1:3 (on request only)	2,22	4.89	-
								aluminium		
								4,75	10.47	
								steel		
VODL/SC 100	180	48					1:7 (standard type) 1:3 (on request only)	4,28	9.43	-
								aluminium		
								9,73	21.45	
								steel		
VODL/SC/VU 14	20	5.2	350	5100	5÷210 bar -72.5÷3050 psi (test setting 150 bar -2200 psi at 5 l/min.-1.3 US gpm)		1:6	1,75	3.86	-
					50÷350 bar -725÷5100 psi (test setting 280 bar -4060 psi at 5 l/min.-1.3 US gpm)					
VODL/SC/C 1116/38	30	7.9	210 (alum. body white anodized) 350 (steel body yellow zinc plated)	3050 (alum. body white anodized) 5100 (steel body yellow zinc plated)	50÷350 bar -725÷5100 psi-; pressure increase =131 bar/turn -1900 psi (test setting 280 bar-4060 psi at 5 l/min.-1.3 US gpm)		1:4	1,1	2.42	-
					aluminium					
								2,1	4.63	
								steel		
VODL/SC/C 1116/12	60	16					1:4	1,4	3.09	-
								aluminium		
								2,8	6.17	
								steel		

**Dimensions and hydraulic circuit**

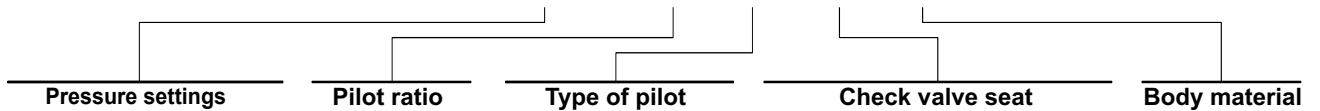


**Rating diagrams**



**Order code**

VODL 38 / □□ . S . □□ . □□ . □□ / □□



**TS** 5÷210 bar (72.5÷3050 psi)  
**TR** 50÷350 bar (725÷5100 psi)  
 (Standard)  
**TG** 100÷700 bar (1450÷10150 psi)

**p3** 1:3  
**p4** 1:4  
 (Standard) **PG** With damper

— Without damper  
 (Standard)

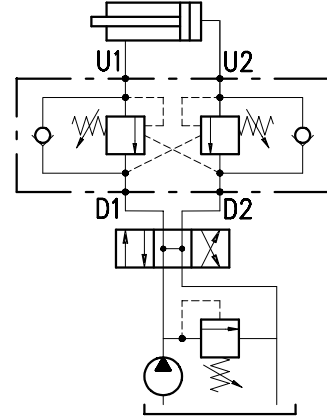
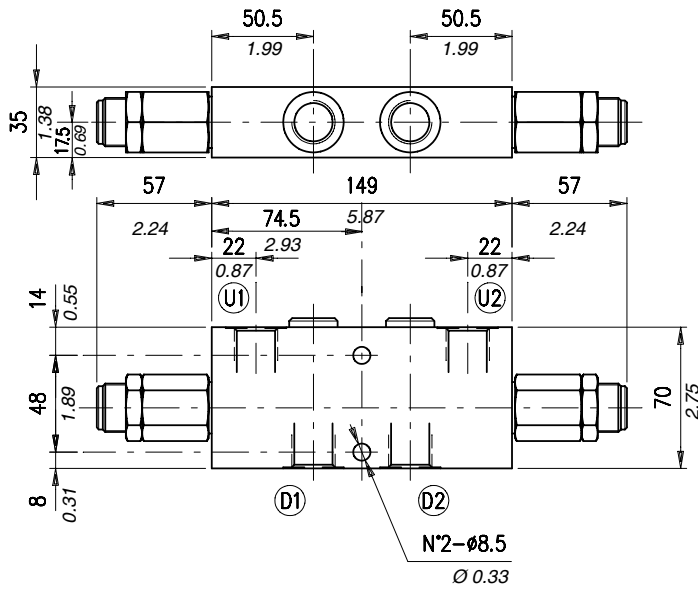
— See body  
**VRR** Hardened steel

— Aluminium  
**acSteel**

# Type VODL 12

Dual overcenter valve, line mounting, cartridge construction

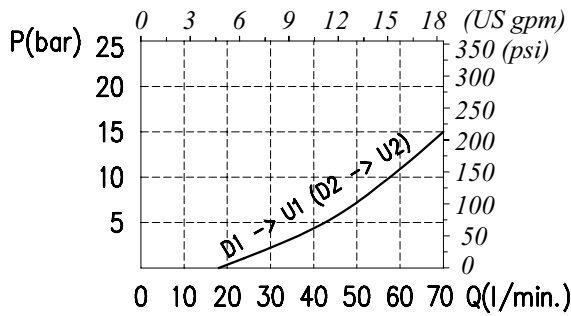
## Dimensions and hydraulic circuit



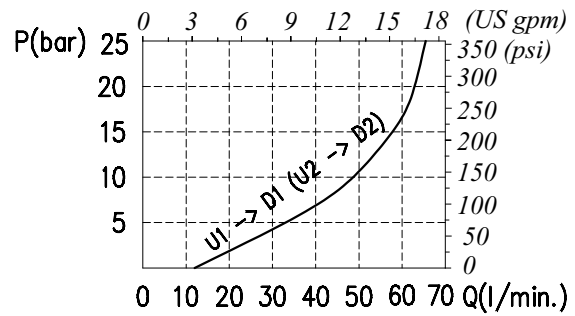
D1-D2	U1-U2
G 1/2	G 1/2

## Rating diagrams

Typical pressure drop vs. flow characteristics

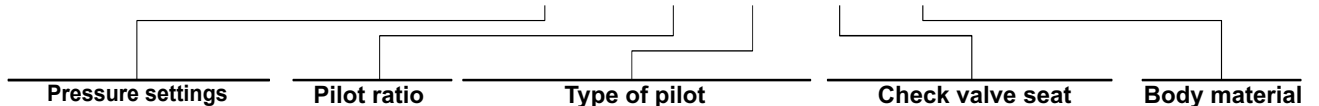


Typical pressure drop vs. flow characteristics



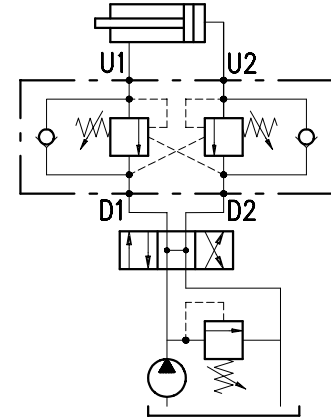
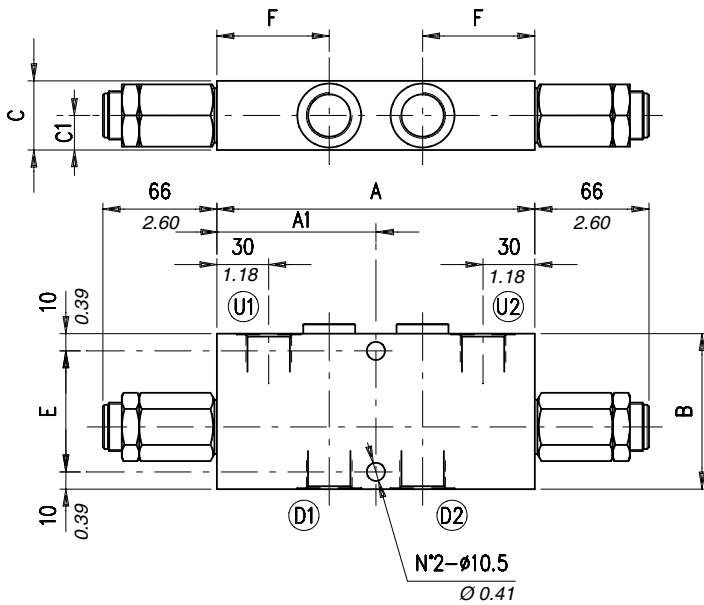
## Order code

VODL 12 / □□ . S . □□ . □□ . □□ / □□



- Pressure settings**  
**TS** 5÷210 bar (72.5÷3050 psi)  
**TR** 50÷350 bar (725÷5100 psi) (Standard)  
**TG** 100÷700 bar (1450÷10150 psi)
- Pilot ratio**  
**p3** 1:3  
**p7** 1:7 (Standard)
- Type of pilot**  
**PG** Without damper (Standard)  
**P̄G** With damper
- Check valve seat**  
**VRR** See body  
**VRR̄** Hardened steel
- Body material**  
**ac** Aluminium  
**ac̄** Steel

**Dimensions and hydraulic circuit**

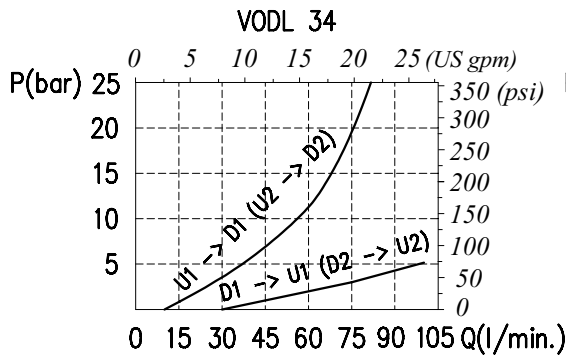


VODL	D1-D2	U1-U2	A*	A1*	B*	C*	C1*	E*	F*
34	G 3/4	G 3/4	184 - 7.24	92 - 3.62	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	65 - 2.56
100	G 1	G 1	218 - 8.58	109 - 3.62	100 - 3.93	60 - 2.36	30 - 1.18	80 - 3.15	76 - 2.99

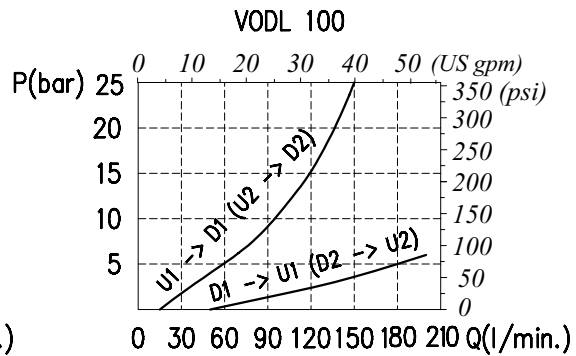
\* Dimensions are in mm - in

**Rating diagrams**

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



**Order code**

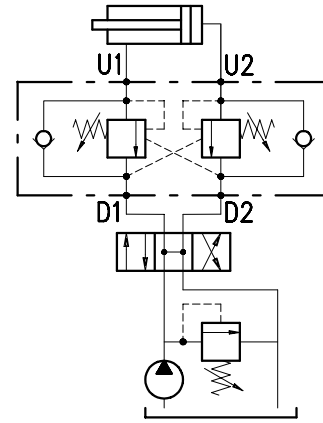
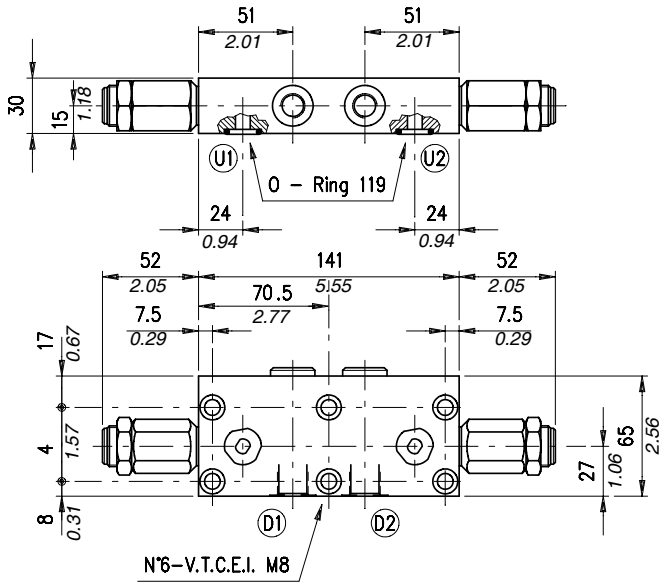
**VODL □□ / □ . S . □□ . □□ . □□ / □□**

Port size	Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
34) G 3/4 100) G 1	TS) 5÷210 bar TR) 50÷350 bar (Standard) TG) 100÷700 bar	p3) 1:3 p7) 1:7 (Standard)	- Without damper (Standard) PG) With damper	See body VRR) Hardened steel	Aluminium ac) Steel

# Type VODL/F 38

Dual overcenter valve, face mounting, cartridge construction

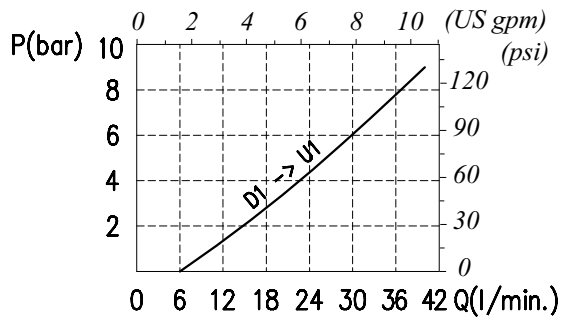
## Dimensions and hydraulic circuit



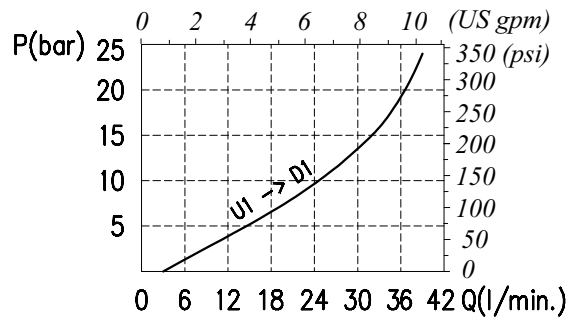
D1-D2	U1-U2*	* Dimensions are in mm - in
G 3/8	Ø8 - Ø 0.31	

## Rating diagrams

Typical pressure drop vs. flow characteristics

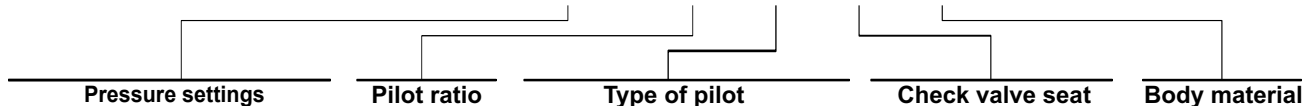


Typical pressure drop vs. flow characteristics



## Order code

VODL / F 38 / □□ . S . □□ . □□ . □□ / □□



**TS** 5÷210 bar (72.5÷3050 psi)  
**TR** 50÷350 bar (725÷5100 psi)  
 (Standard)

**TG** 100÷700 bar (1450÷10150 psi)

**p3**) 1:3  
**p4**) 1:4  
 (Standard)

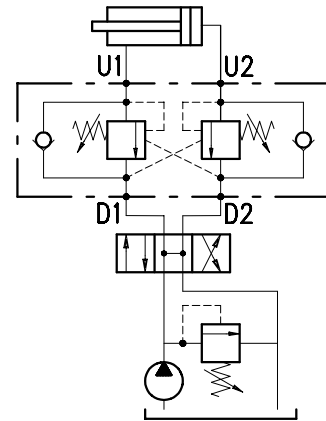
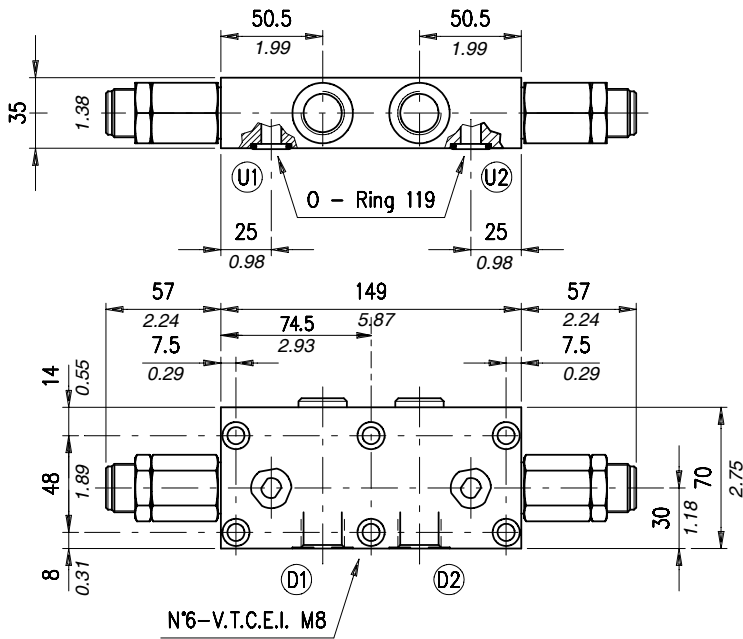
Without damper (Standard)  
**PG**) With damper

See body  
**VRR**) Hardened steel

Aluminium  
**ac** Steel



**Dimensions and hydraulic circuit**

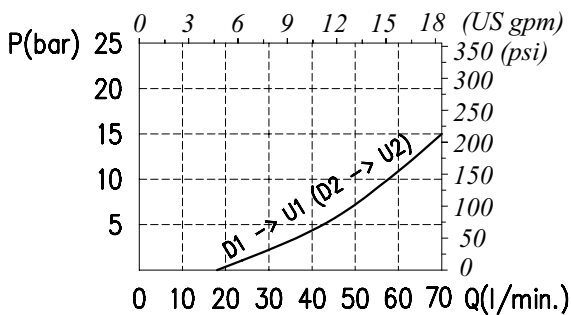


D1-D2	U1-U2*
G 1/2	∅10 - ∅0.39

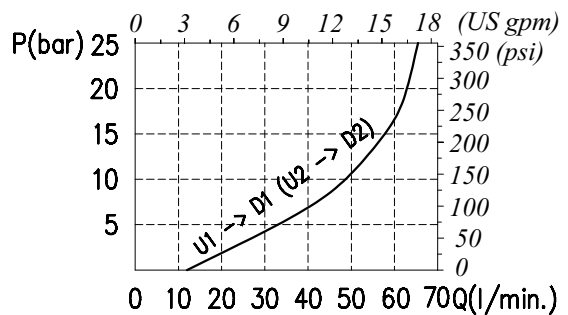
\*Dimensions are in mm - in

**Rating diagrams**

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



**Order code**

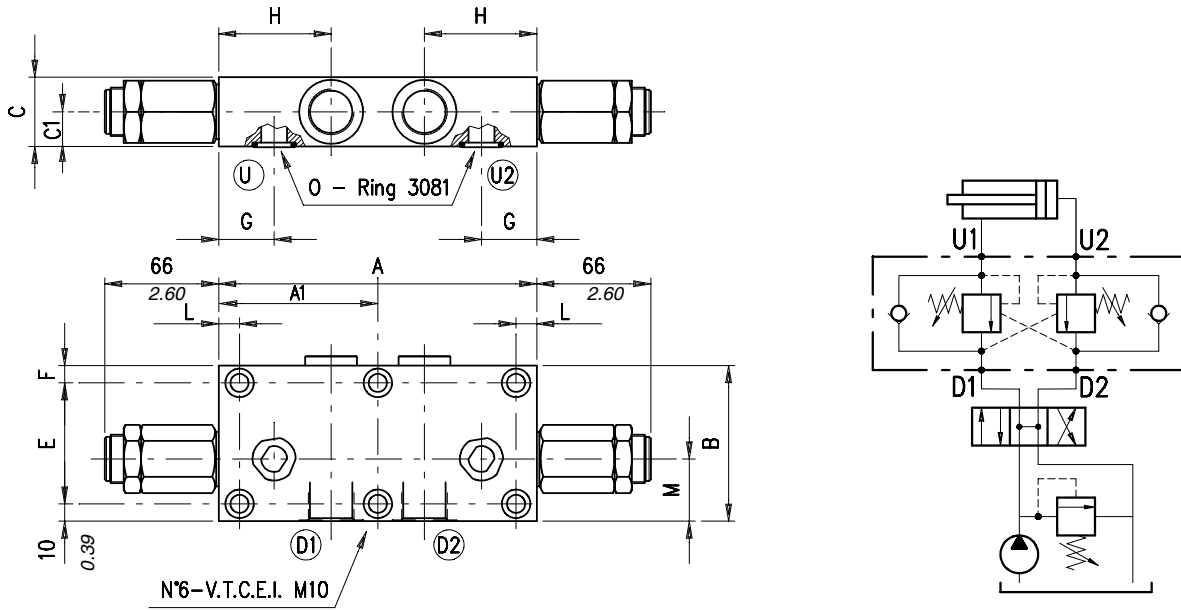
VODL / F 12 / □□ . S . □□ . □□ . □□ / □□

Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
<b>TS</b> ) 5÷210 bar (72.5÷3050 psi)	<b>p3</b> ) 1:3	- Without damper (Standard)	<b>VRR</b> ) See body	- Aluminium
<b>TR</b> ) 50÷350 bar (725÷5100 psi) (Standard)	<b>p7</b> ) 1:7 (Standard)	<b>PG</b> ) With damper		<b>ac</b> Steel
<b>TG</b> ) 100÷700 bar (1450÷10150 psi)				

# Type VODL/F 34 (100)

Dual overcenter valve, face mounting, cartridge construction

## Dimensions and hydraulic circuit

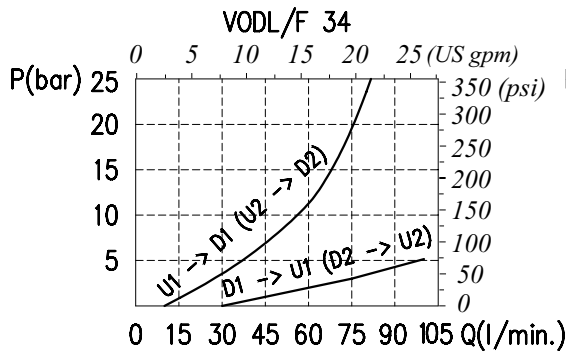


VODL/F	D1-D2	U1-U2	A*	A1*	B*	C*	C1*	E*	F*	G*	H*	*	M*
34	G 3/4	∅15 - ∅ 0.59	184 - 7.24	92 - 3.62	90 - 3.54	40 - 1.57	20 - 0.78	70 - 2.75	10 - 0.39	32 - 1.26	65 - 2.56	12 - 0.47	36 - 1.42
100	G 1	∅19 - ∅ 0.75	220 - 8.66	110 - 4.33	100 - 3.94	60 - 2.36	30 - 1.18	55 - 2.16	35 - 1.38	35 - 1.38	76 - 2.99	10 - 0.39	37 - 1.46

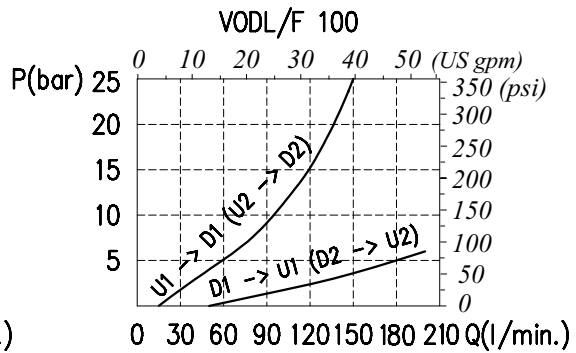
\* Dimensions are in mm - in

## Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics

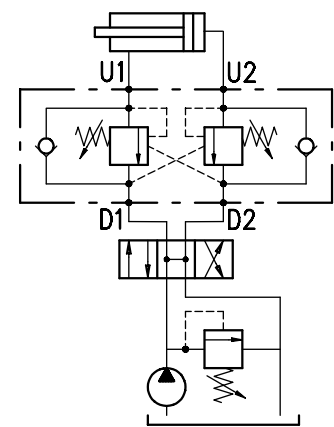
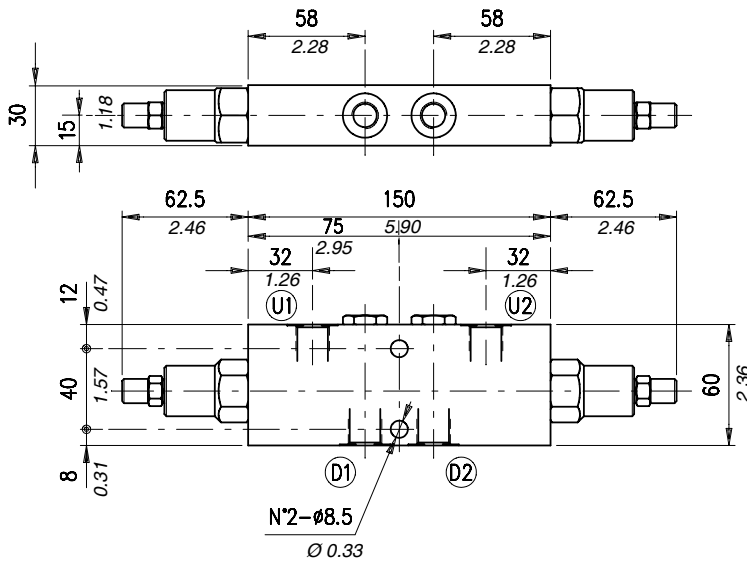


## Order code

VODL/F □□ / □ . S . □□ . □□ . □□ / □□

Port size	Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
34) G 3/4	TS) 5÷210 (72.5÷3050 psi)	p3) 1:3	- Without damper (Standard)	- See body	- Aluminium
100) G 1	TR) 50÷350 (725÷5100 psi) (Standard)	p7) 1:7 (Standard)	PG) With damper	VRR) Hardened steel	ac) Steel
	TG) 100÷700 (1450÷10150 psi)				

**Dimensions and hydraulic circuit**

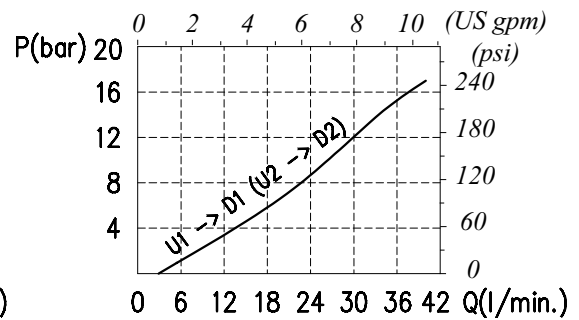
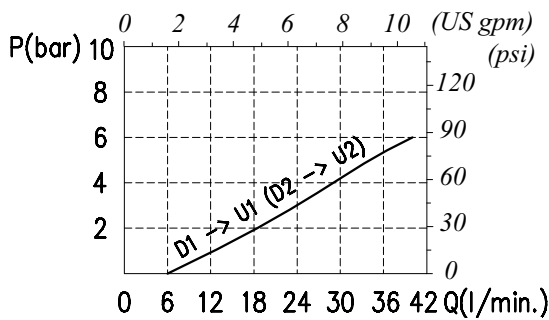


D1-D2	U1-U2
G 3/8	G 3/8

**Rating diagrams**

Typical pressure drop vs. flow characteristics

Typical pressure drop vs. flow characteristics

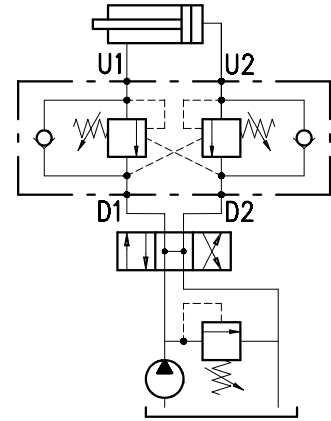
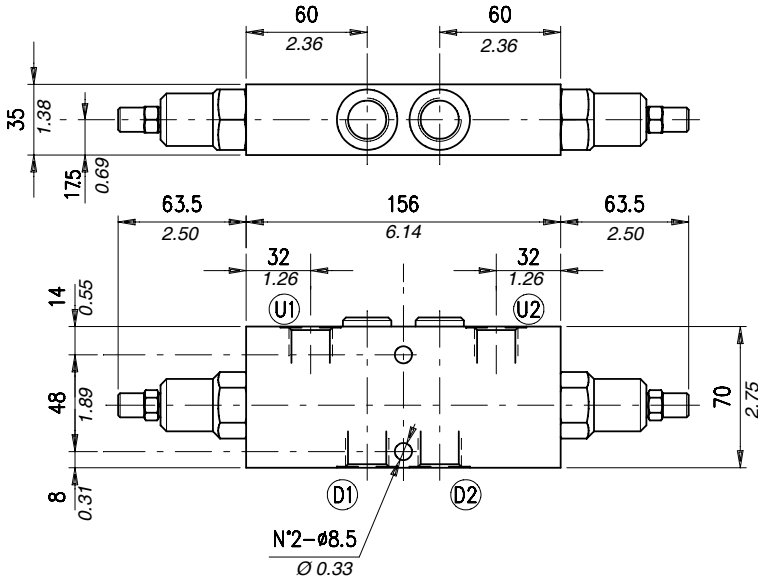


**Order code**

VODL / SC 38 / □□ . S . □□ . □□ . □□ / □□

Pressure settings	Pilot ratio	Type of pilot	Check valve seat	Body material
<b>TS</b> ) 5÷210 bar (72.5÷3050 psi)	<b>p3</b> ) 1:3	- Without damper	- See body	- Aluminium
<b>TR</b> ) 50÷350 bar (725÷5100 psi)	<b>p4</b> ) 1:4	(Standard)	<b>VRR</b> ) Hardened steel	<b>ac</b> Steel
<b>TG</b> ) 100÷700 bar (1450÷10150 psi)	(Standard)	<b>PG</b> ) With damper		

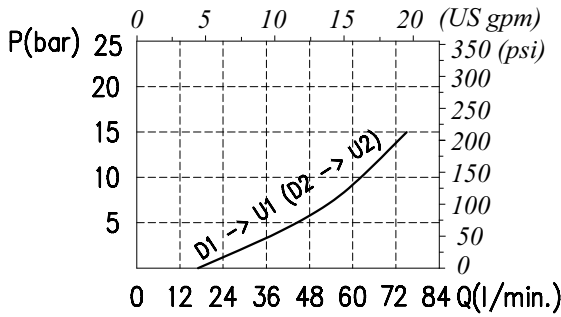
## Dimensions and hydraulic circuit



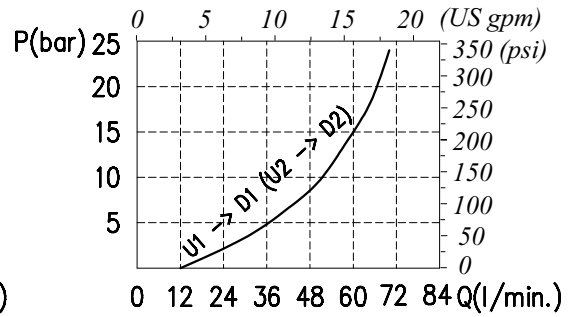
D1-D2	U1-U2
G 1/2	G 1/2

## Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



## Order code

VODL / SC 12 / □□ . S . □□ . □□ . □□ / □□

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

**TS)** 5÷210 bar (72.5÷3050 psi)

**TR)** 50÷350 bar (725÷5100 psi)  
(Standard)

**TG)** 100÷700 bar (1450÷10150 psi)

**p3)** 1:3

**p7)** 1:7

(Standard)

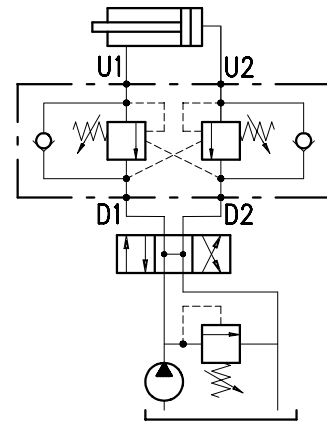
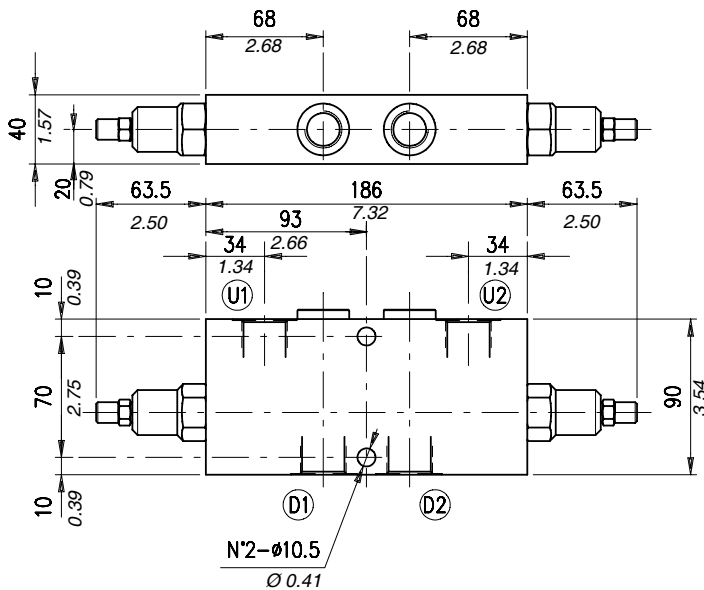
– Without damper  
(Standard)

**PG)** With damper

See body  
**VRR)** Hardened steel

– Aluminium  
**ac)** Steel

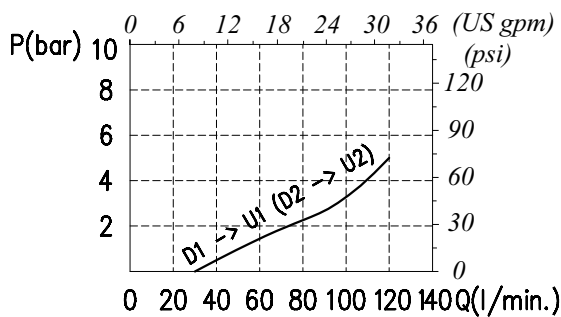
**Dimensions and hydraulic circuit**



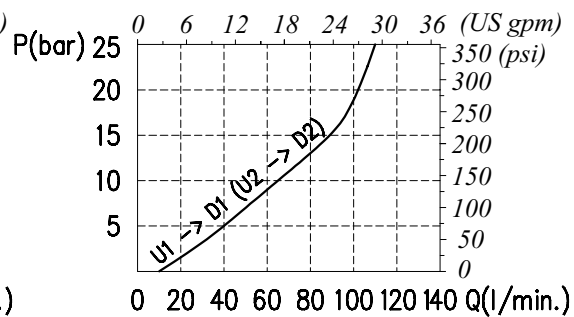
D1-D2	U1-U2
G 3/4	G 3/4

**Rating diagrams**

Typical pressure drop vs. flow characteristics

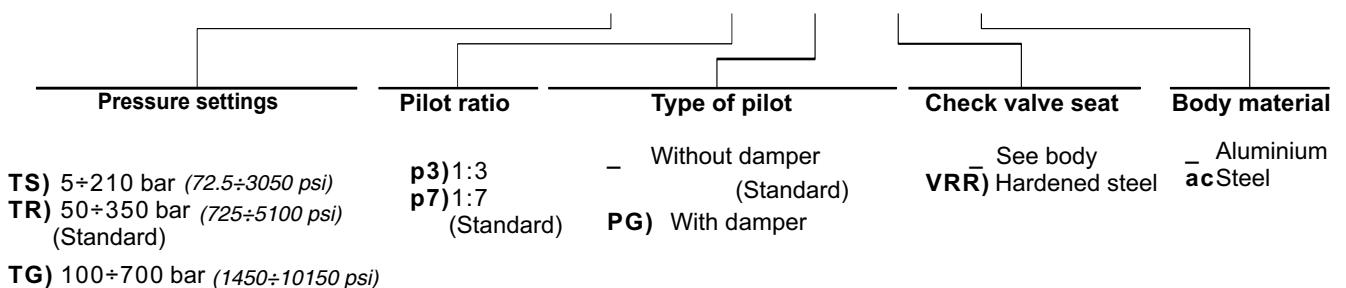


Typical pressure drop vs. flow characteristics

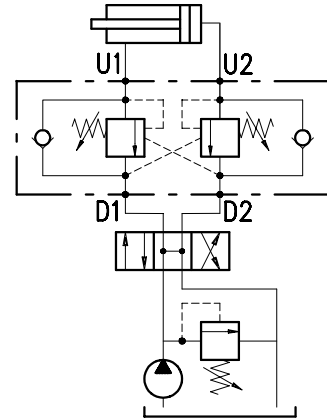
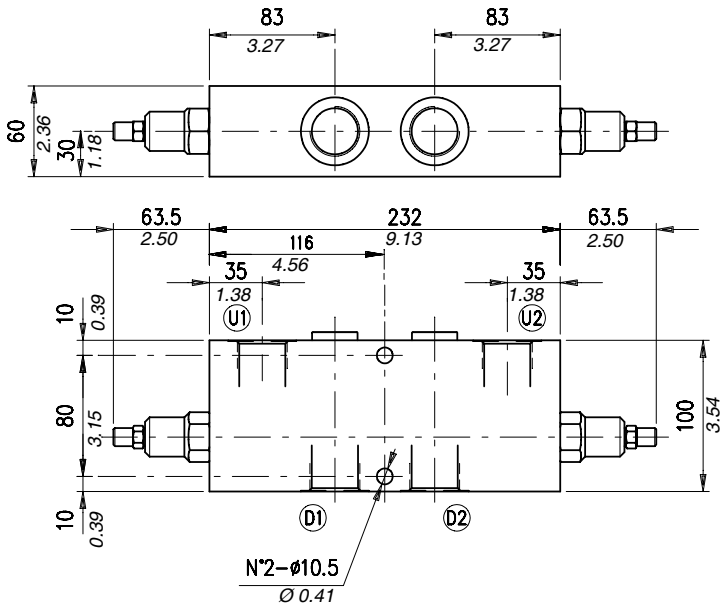


**Order code**

**VODL / SC 34 / □□ . S . □□ . □□ . □□ / □□**



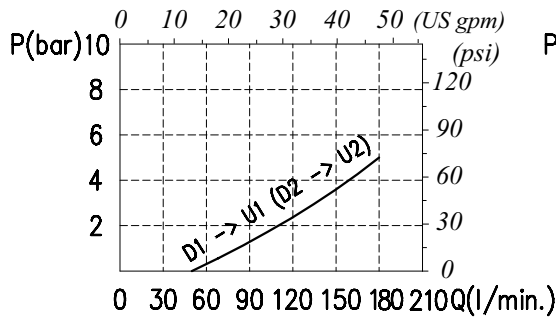
## Dimensions and hydraulic circuit



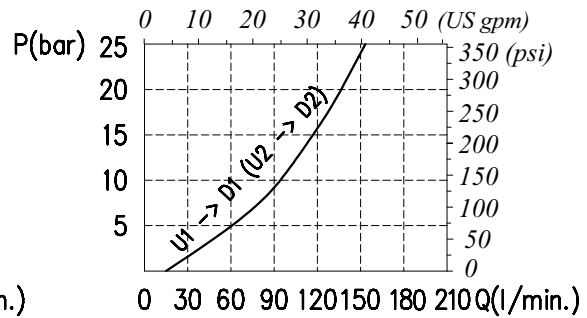
D1-D2	U1-U2
G 1	G 1

## Rating diagrams

Typical pressure drop vs. flow characteristics



Typical pressure drop vs. flow characteristics



## Order code

VODL / SC 100 / □□ . S . □□ . □□ . □□ / □□

Pressure settings

Pilot ratio

Type of pilot

Check valve seat

Body material

**TS** 5÷210 bar (72.5÷3050 psi)  
**TR** 50÷350 bar (725÷5100 psi)  
(Standard)

**TG** 100÷700 bar (1450÷10150 psi)

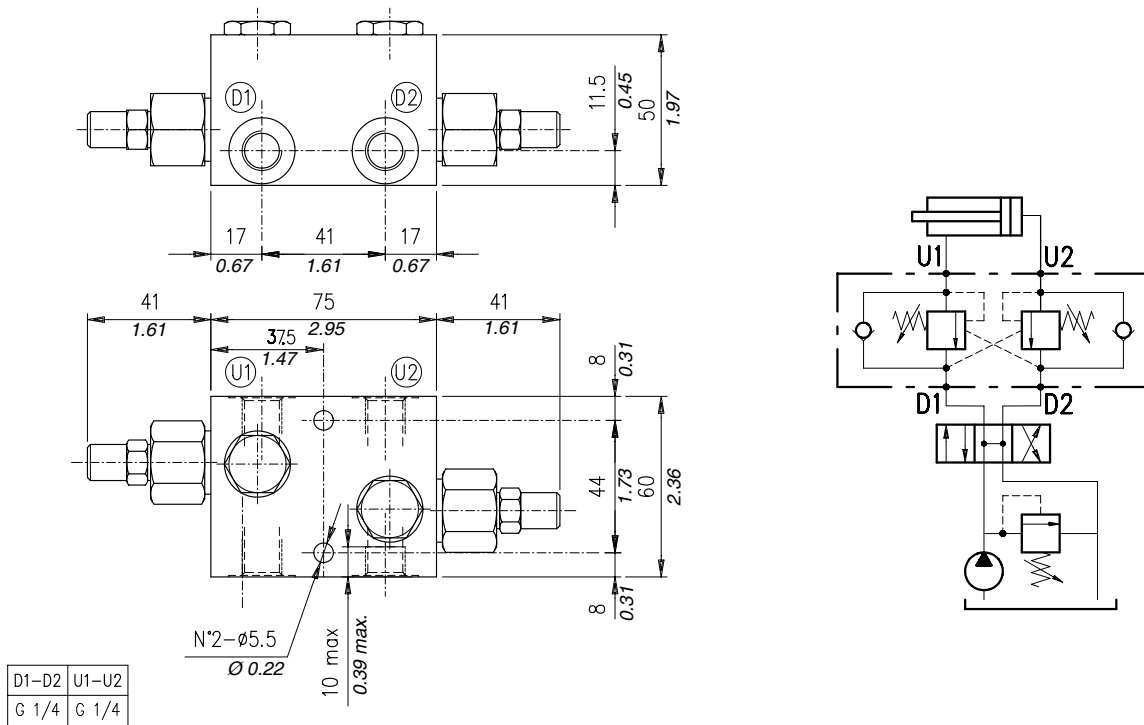
**p3** 1:3  
**p7** 1:7  
(Standard)

— Without damper  
(Standard)  
**PG** With damper

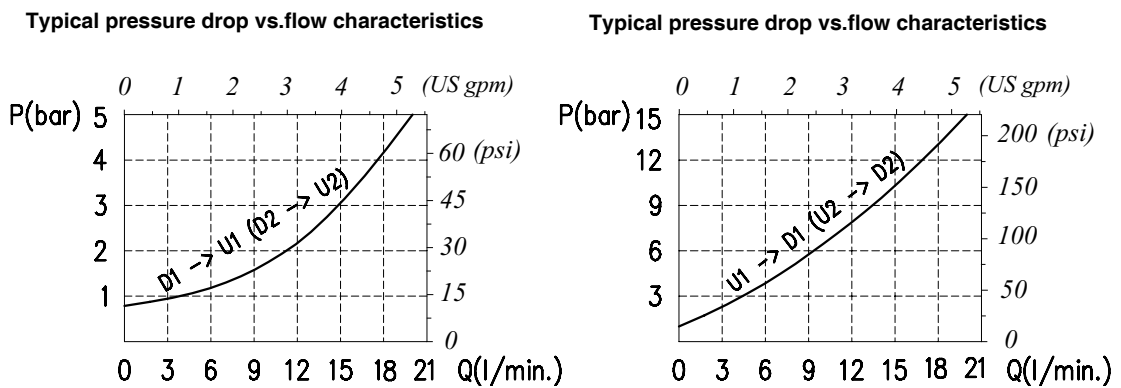
— See body  
**VRR** Hardened steel

— Aluminium  
**ac** Steel

**Dimensions and hydraulic circuit**

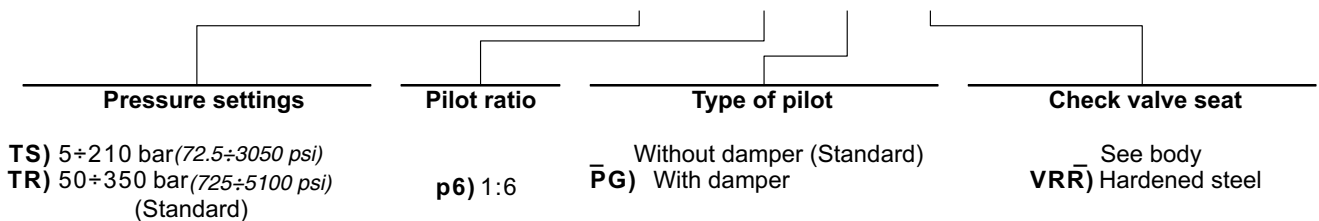


**Rating diagrams**

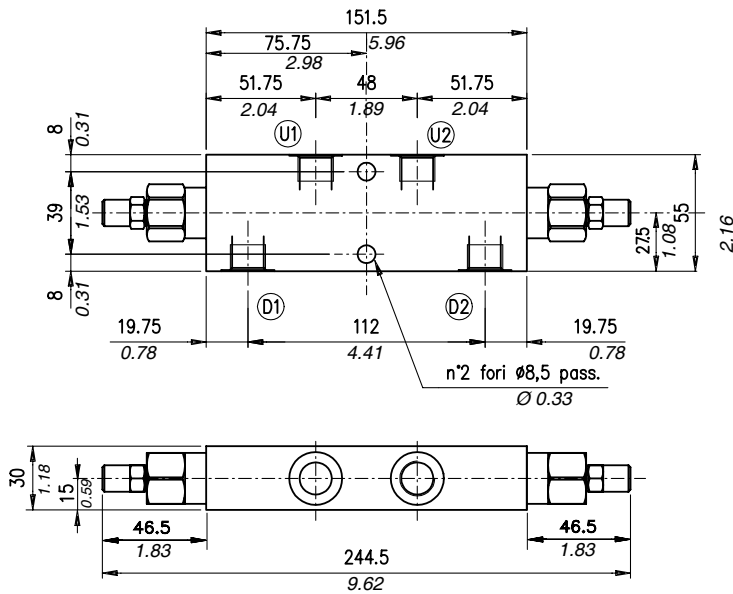


**Order code**

VODL /SC /VU 14 / □□ . S .□□ . □□ . □□ / ac

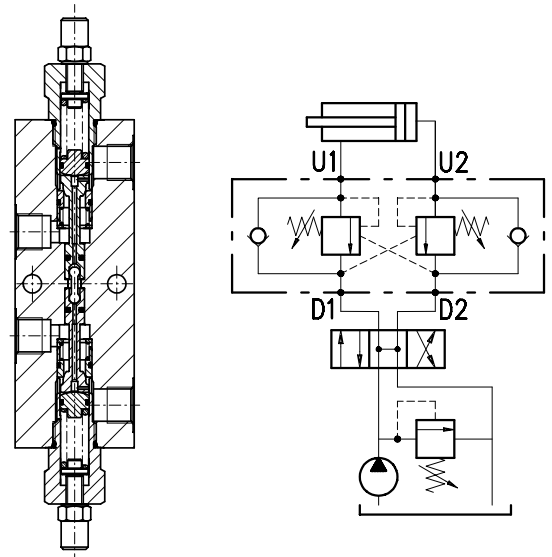


## Dimensions and hydraulic circuit

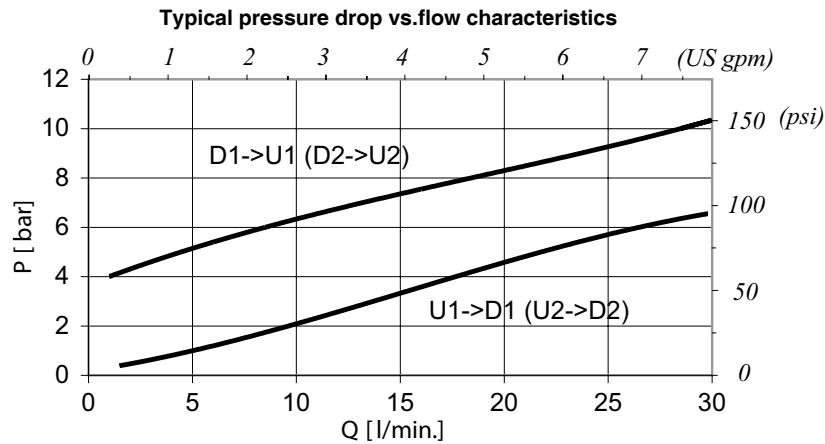


D1-D2	U1-U2
G 3/8	G 3/8

### Section



## Rating diagrams



## Order code

VODL / SC / C 1116 / 38 / □□ . S . □□ . / □□

Pressure settings

TR) 50÷350 bar (725÷5100 psi)  
(Standard)

Pilot ratio

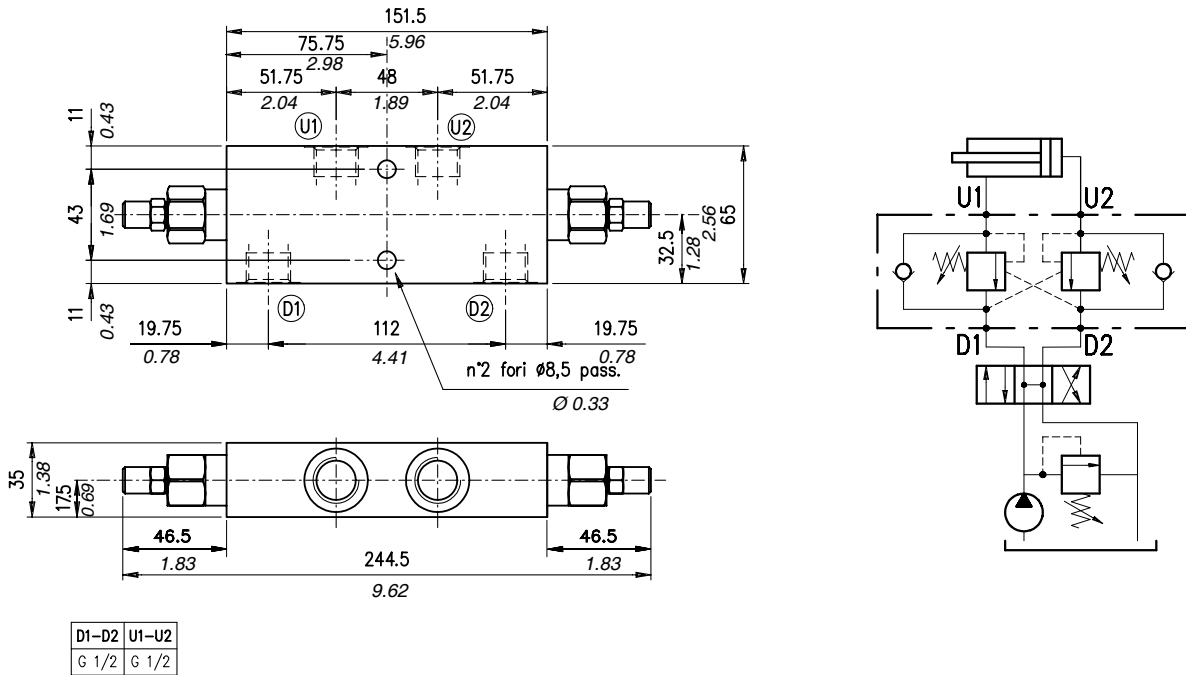
p4) 1:4  
p11) 1:11

Body material

\_ Aluminium  
ac Steel

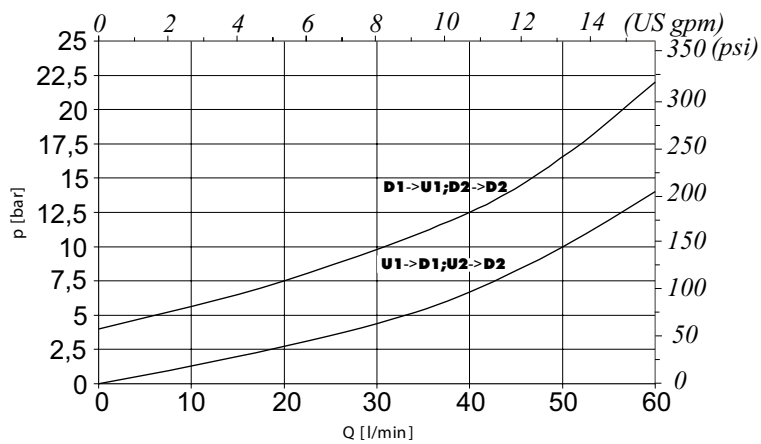


**Dimensions and hydraulic circuit**



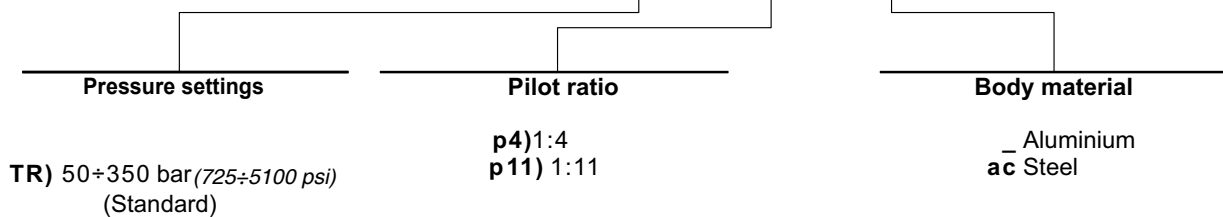
**Rating diagrams**

Typical pressure drop vs. flow characteristics

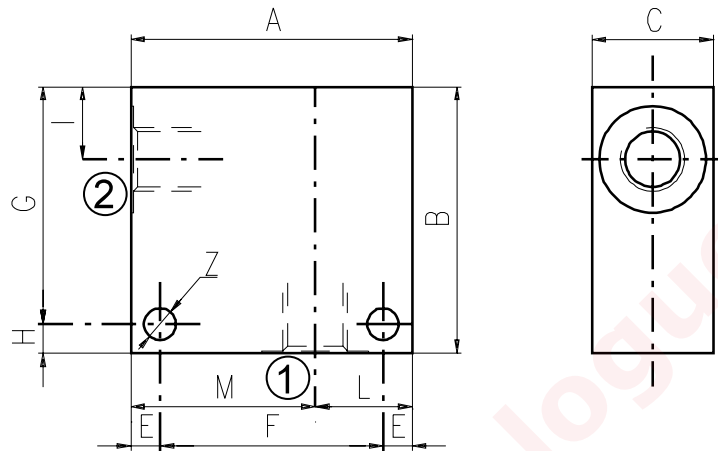


**Order code**

**VODL/SC C 1116/ 12 / □□ . S . □□ . / □□**



Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100

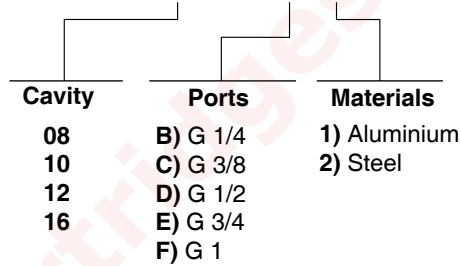


Cavity	Ports	A	B	C	E	F	G	H	I	L	M	Z	
SAE 8/2	G 1/2	mm	70	65	35	7	56	53	12	14,5	35	35	6,5
		in	2.75	2.56	1.38	0.27	2.20	2.09	0.47	0.57	1.38	1.38	0.25
	G 1/4	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
	G 3/8	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
	SAE6	mm	50	50	30	6	38	44	6	14,8	20	30	6,5
		in	1.97	1.97	1.18	0.24	1.50	1.73	0.24	0.58	0.79	1.18	0.25
SAE 10/2	G 1/4	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	G 3/8	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	G 1/2	mm	60	60	35	6	48	54	6	18,8	25	35	6,5
		in	2.36	2.36	1.38	0.24	1.89	2.12	0.24	0.74	0.98	1.38	0.25
	SAE8	mm	60	70	35	6	48	64	6	18,8	25	35	6,5
		in	2.36	2.75	1.38	0.24	1.89	2.52	0.24	0.74	0.98	1.38	0.25
	SAE10	mm	70	70	35	6	58	64	6	18,5	35	35	6,5
		in	2.75	2.75	1.38	0.24	2.28	2.52	0.24	0.73	1.38	1.38	0.25
	SAE12	mm	70	70	40	8	54	62	8	22	30	40	8,5
		in	2.75	2.75	1.57	0.31	2.12	2.44	0.31	0.87	1.18	1.57	0.33
SAE 12/2	G 1/2	mm	70	80	40	8	54	72	8	25	30	40	8,5
		in	2.75	3.15	1.57	0.31	2.12	2.83	0.31	0.98	1.18	1.57	0.33
	G 3/4	mm	70	90	40	8	54	82	8	25	30	40	8,5
		in	2.75	3.54	1.57	0.31	2.12	3.23	0.31	0.98	1.18	1.57	0.33
	SAE10	mm	70	85	40	8	54	77	8	25	30	40	8,5
		in	2.75	3.35	1.57	0.31	2.12	3.03	0.31	0.98	1.18	1.57	0.33
	SAE12	mm	70	85	40	8	54	77	8	25	30	40	8,5
		in	2.75	3.35	1.57	0.31	2.12	3.03	0.31	0.98	1.18	1.57	0.33

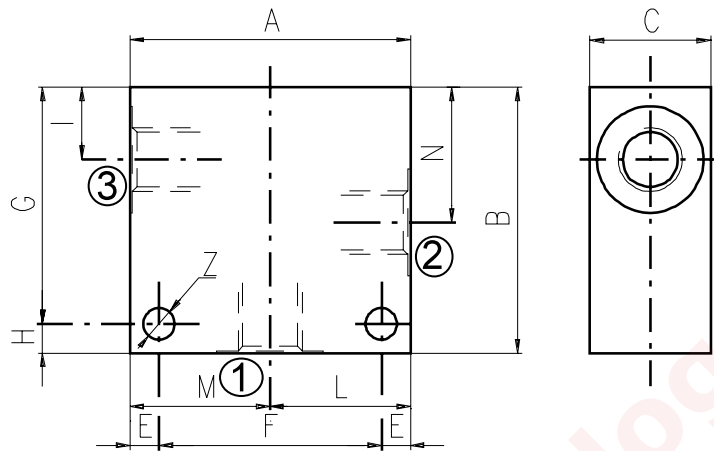
Cavity	Ports	A	B	C	E	F	G	H	I	L	M	Z	
SAE 16/2	G 1/2	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 3/4	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	G 1	mm	85	100	60	10	65	90	10	23,5	40	45	10,5
		in	3.35	3.94	2.36	0.39	2.56	3.54	0.39	0.92	1.57	1.77	0.41
	SAE12	mm	80	90	50	10	60	80	10	25	35	45	10,5
		in	3.15	3.54	1.97	0.39	2.36	3.15	0.39	0.98	1.38	1.77	0.41
	SAE16	mm	80	100	50	10	60	90	10	25	35	45	10,5
		in	3.15	3.94	1.97	0.39	2.36	3.54	0.39	0.98	1.38	1.77	0.41

Order code \_\_\_\_\_

**3/CC /- □ □ /20/□- □-1**



Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100

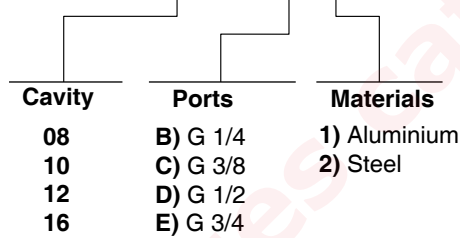


Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	Z
SAE 8/3	G 1/4	mm	60	60	30	7	46	48	12	14,8	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.58	1.18	1.18	1.14	0.25
	G 3/8	mm	60	60	30	7	46	48	12	14,5	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.57	1.18	1.18	1.14	0.25
	G 1/2	mm	70	65	35	7	56	53	12	14,5	35	35	29,1	6,5
		in	2.75	2.56	1.38	0.27	2.20	2.09	0.47	0.57	1.38	1.38	1.14	0.25
	SAE6	mm	60	60	30	7	46	48	12	14,5	30	30	29,1	6,5
		in	2.36	2.36	1.18	0.27	1.81	1.89	0.47	0.57	1.18	1.18	1.14	0.25
SAE 10/3	G 1/4	mm	60	65	35	6	48	59	6	18	30	30	34,5	7
		in	2.36	2.56	1.38	0.24	1.89	2.32	0.24	0.70	1.18	1.18	1.36	0.27
	G 3/8	mm	60	65	35	6	48	59	6	18,8	30	30	34,5	7
		in	2.36	2.56	1.38	0.24	1.89	2.32	0.24	0.74	1.18	1.18	1.36	0.27
	G 1/2	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
	SAE6	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
	SAE8	mm	65	70	35	6	53	64	6	18,8	32,5	32,5	34,5	7
		in	2.56	2.75	1.38	0.24	2.09	2.52	0.24	0.74	1.28	1.28	1.36	0.27
SAE 12/3	G 1/2	mm	70	100	40	8	54	92	8	25	35	35	53,5	8,5
		in	2.75	3.94	1.57	0.31	2.12	3.6	0.31	0.98	1.38	1.38	2.10	0.33
	G 3/4	mm	90	100	50	10	70	90	10	25,1	45	45	53,5	10,5
		in	3.54	3.94	1.97	0.39	2.75	3.54	0.39	0.99	1.77	1.77	2.11	0.41
	SAE10	mm	80	100	40	8	64	92	8	25	40	40	53,5	8,5
		in	3.15	3.94	1.57	0.31	2.52	3.6	0.31	0.98	1.57	1.57	2.11	0.33
	SAE12	mm	80	100	45	8	64	92	8	25	40	40	53,5	8,5
		in	3.15	3.94	1.77	0.31	2.52	3.6	0.31	0.98	1.57	1.57	2.11	0.33

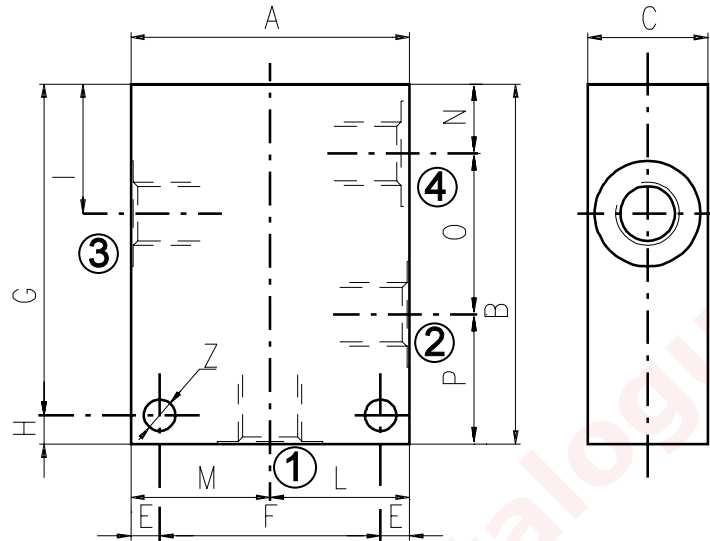
Cavity	Ports	A	B	C	E	F	G	H	I	L	M	N	Z	
SAE 16/3	G 3/4	mm	90	100	50	10	70	90	10	25,1	45	45	53,5	10,5
		in	3.54	3.94	1.97	0.39	2.75	3.54	0.39	0.99	1.77	1.77	2.11	0.41
	SAE12	mm	90	105	50	10	70	95	10	25,1	45	45	53,5	10,5
		in	3.54	4.13	1.97	0.39	2.75	3.74	0.39	0.99	1.77	1.77	2.11	0.41
	SAE16	mm	90	105	50	10	70	95	10	25,1	45	45	53,5	10,5
		in	3.54	4.13	1.97	0.39	2.75	3.74	0.39	0.99	1.77	1.77	2.11	0.41

Order code \_\_\_\_\_

3/CC /- □ □ /30/□- □-1



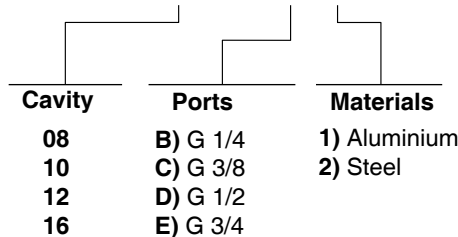
Material	Max. pressure	
	bar	psi
Alluminium	210	3050
Steel	350	5100



Cavity	Ports		A	B	C	E	F	G	H	I	L	M	N	O	P	Z
SAE 8/4	G 1/4	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	1.14	1.22	0.25
	SAE6	mm	60	75	30	7	46	63	12	29,1	30	30	14,8	29,1	31,1	6,5
		in	2.36	2.95	1.18	0.27	1.81	2.48	0.47	1.14	1.18	1.18	0.58	1.14	1.22	0.25
SAE 10/4	G 3/8	mm	60	85	35	6	48	79	6	34,5	30	30	18,8	31,7	34,5	7
		in	2.36	3.35	1.38	0.24	1.89	3.11	0.24	1.36	1.18	1.18	0.74	1.25	1.36	0.27
	G 1/2	mm	70	85	35	6	58	79	6	34,5	35	35	18,8	31,7	34,5	7
		in	2.75	3.35	1.38	0.24	2.28	3.11	0.24	1.36	1.38	1.38	0.74	1.25	1.36	0.27
	SAE6	mm	60	85	35	6	48	79	6	34,5	30	30	18,8	31,7	34,5	7
		in	2.36	3.35	1.38	0.24	1.89	3.11	0.24	1.36	1.18	1.18	0.74	1.25	1.36	0.27
SAE 12/4	G 1/2	mm	80	115	40	8	64	107	8	44	40	40	22	44,5	48,5	8,5
		in	3.15	4.53	1.57	0.31	2.52	4.21	0.31	1.73	1.57	1.57	0.87	1.75	1.9	0.33
	SAE10	mm	80	115	40	8	64	107	8	44	40	40	22	44,5	48,5	8,5
		in	3.15	4.53	1.57	0.31	2.52	4.21	0.31	1.73	1.57	1.57	0.87	1.75	1.9	0.33
SAE 16/4	G 3/4	mm	100	130	50	10	80	120	10	53,5	50	50	25,1	56,9	48	10,5
		in	3.94	5.12	1.97	0.39	3.15	4.72	0.39	2.11	1.97	1.97	0.99	2.24	1.89	0.41

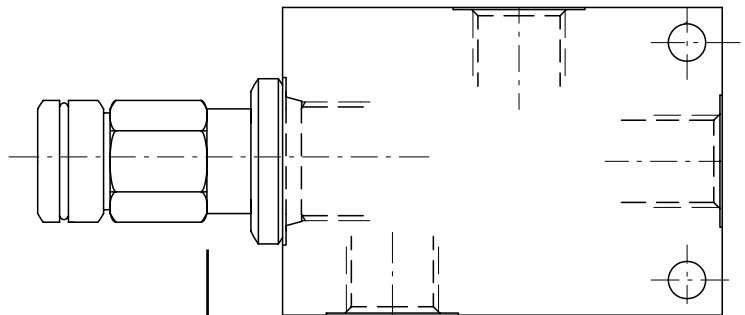
Order code

3/CC /- □ □ /40/□- □-1



# Informations

## How to order valves with body



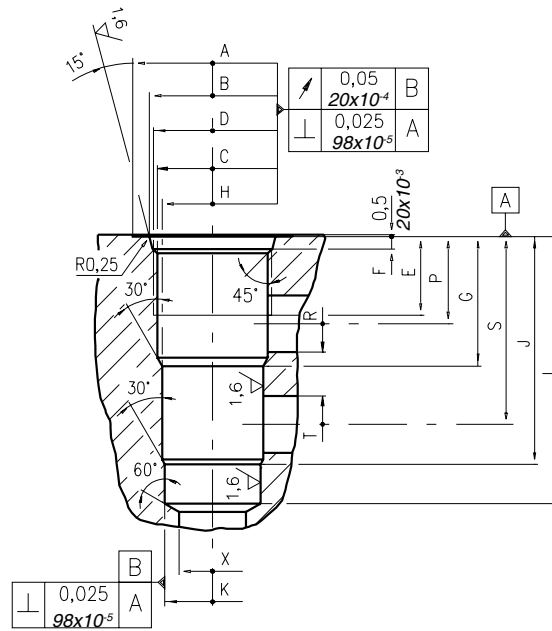
**CARTRIDGE CODE**

**BILLET CODE**

**CC-12-A/9-S-2B/**

**D- 1-1**

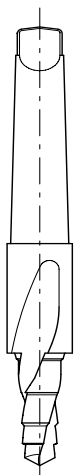
Cavity	Ports	Materials
08	B) G 1/4	1) Aluminium
10	C) G 3/8	
12	D) G 1/2	
16	E) G 3/4	
	F) G 1	
	J) SAE 6	2) Steel
	K) SAE 8	
	L) SAE 10	
	M) SAE 12	
	N) SAE 16	



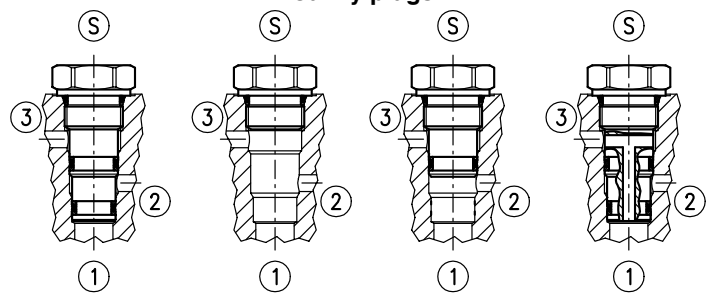
\	A	B $\pm 0,05$	C $\pm 0,05$	D	E	F	G	H $\pm 0,02$	J	K $\pm 0,02$	L	M $\pm 0,02$	N	P	R $\phi$ MAX	S	T $\phi$ MAX	U	V $\phi$ MAX	X $\phi$ MAX	Z $\phi$ MIN	Prof. Z MIN	
08/3	mm	27	20,66	17,42	3/4-16 UNF	12,50	2,5	19,10	15,90	33,30	14,30	43,30	-	-	14,30	5,50	28,60	5,50	-	-	12,50	-	-
	in	1.06	0.81	0.68		0.49	0.10	0.75	0.62	1.31	0.56	1.70			0.56	0.22	1.12	0.22			0.49		
10/3	mm	30	24,00	20,62	7/8-14 UNF	16,00	2,80	23,10	17,50	39,60	15,90	47,60	-	-	18,30	6,50	34,00	6,50	-	-	14,00	-	-
	in	1.18	0.94	0.81		0.63	0.11	0.94	0.69	1.56	0.62	1.87			0.72	0.25	1.34	0.25			0.55		
12/3	mm	38	29,23	24,73	1 1/16-12 UNF	19,00	3,56	36,60	23,82	63,50	22,25	75,40	-	-	24,50	16,00	53,00	16,00	-	-	19,00	-	-
	in	1.50	1.15	0.97		0.75	0.14	1.44	0.94	2.5	0.88	2.97			0.96	0.63	2.09	0.63			0.75		
16/3	mm	45	35,6	31,34	1 5/16-12 UNF	22,00	3,5	36,50	28,62	64,30	27,02	75,38	-	-	24,60	16,00	53,00	16,00	-	-	19,00	-	-
	in	1.77	1.40	1.23		0.87	0.14	1.44	1.13	2.53	1.06	2.97			0.97	0.63	2.09	0.63			0.75		

Cavity plugs

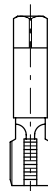
Rougher tool



Finisher tool



Tap



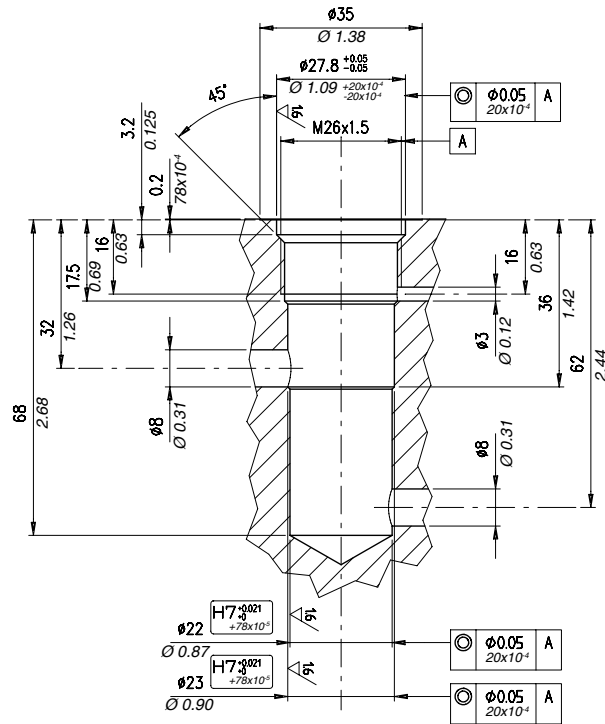
Cavity	Code number
08/3	3UT00052190
10/3	3UT00054170
12/3	3UT00054290
16/3	3UT00054470

Cavity	Code number
08/3	3UT00052740
10/3	3UT00054180
12/3	3UT00054300
16/3	3UT00054480

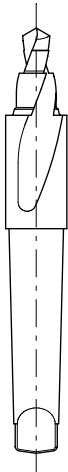
Cavity	Code number
08/3	3UT03416UNF
10/3	3UT07814UNF
12/3	3UT0111612UN
16/3	3UT0151612UN



## Dimensions



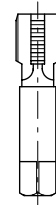
**Rougher tool**  
Cod.3UT00052430

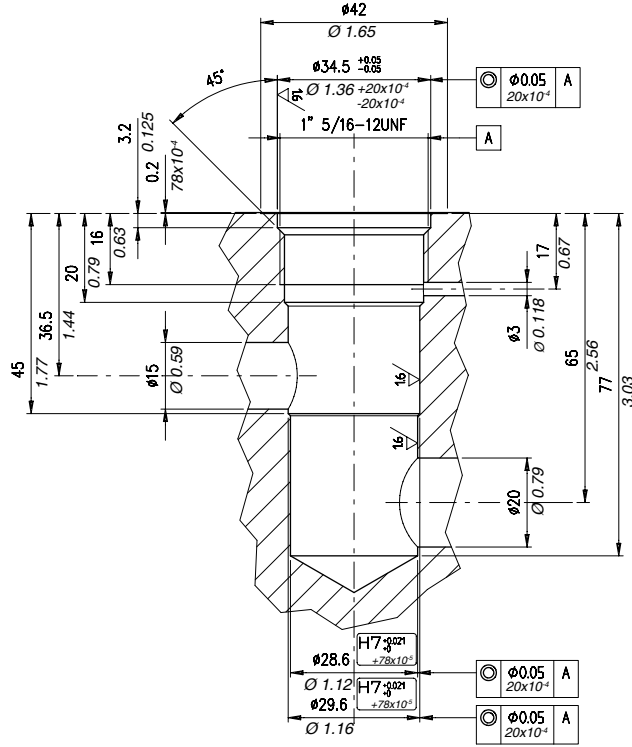


**Finisher**  
Cod.3UT00053540



**Tap**  
Cod.3UT08A26F150

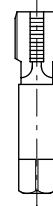
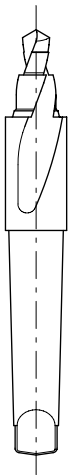




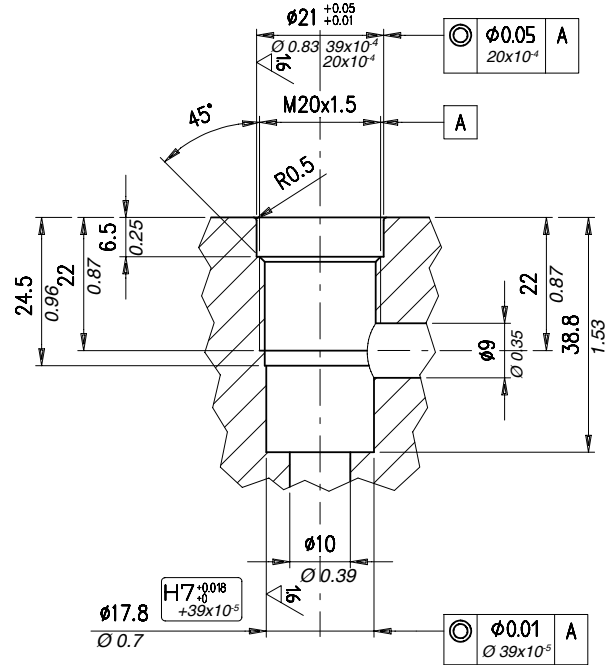
**Rougher tool**  
Cod.3UT00053530

**Finisher**  
Cod.3UT00053550

**Tap**  
Cod.3UT0151612UN

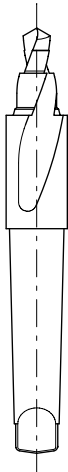


## Dimensions



Rougher tool

Cod.3UT00050050



Finisher

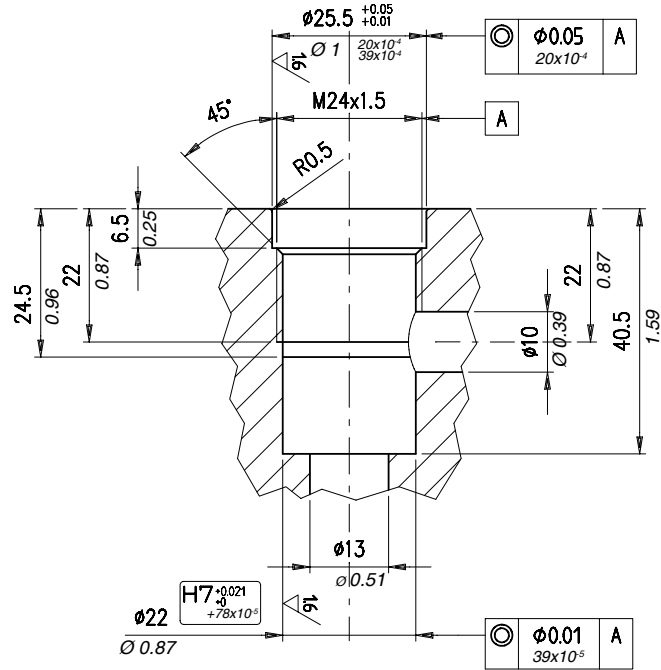
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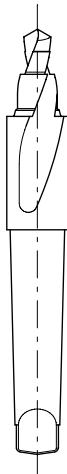
Tap

Cod.3UT08A20F150





**Rougher tool**  
Cod.3UT00050070



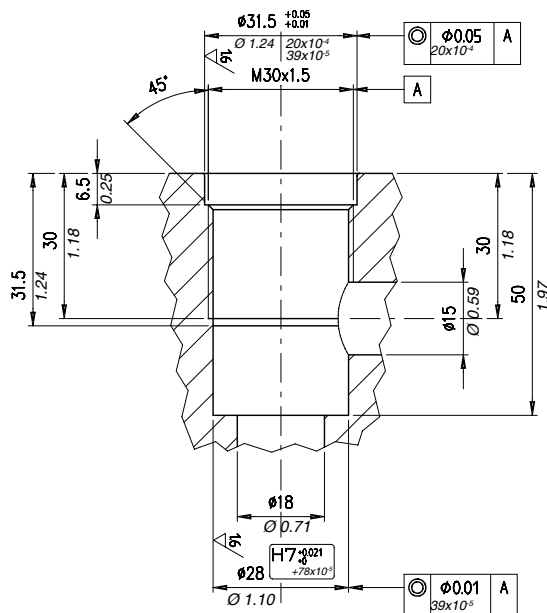
**Finisher**  
Cod.3UT06A22000P



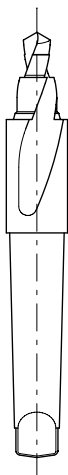
**Tap**  
Cod.3UT08A24F150



## Dimensions



**Rougher tool**  
Cod.3UT00050100



**Finisher**  
Cod.3UT06A2800P



**Tap**  
Cod.3UT08A30F150

