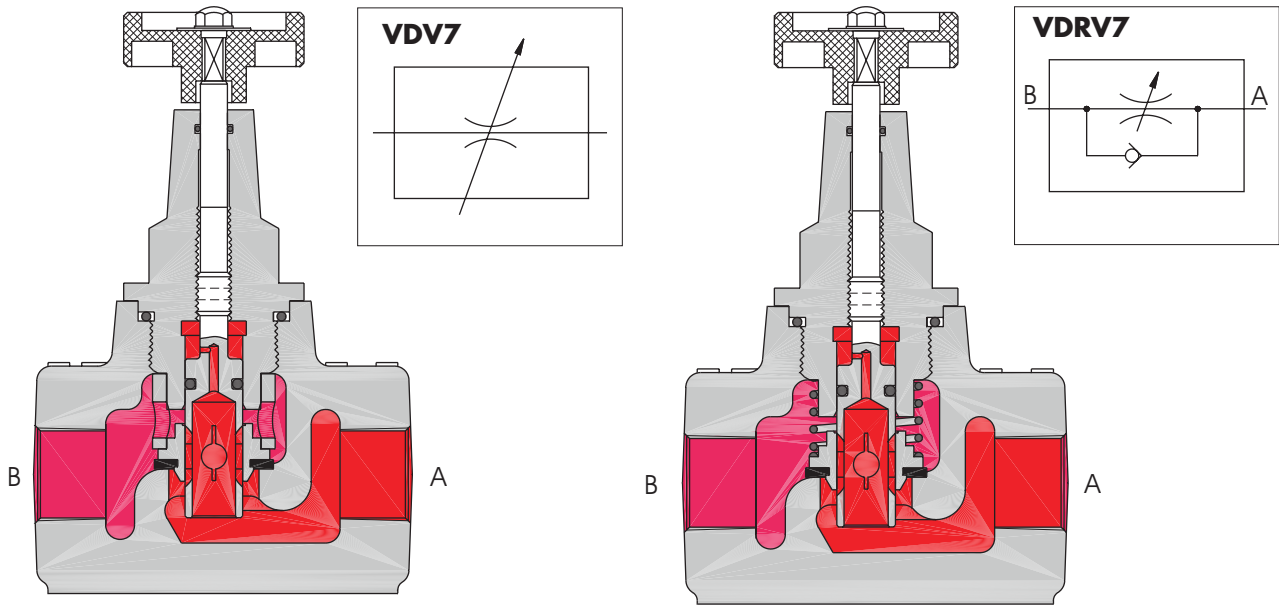


Veljan Throttle Valves VDV7 and Throttle Valves with integral Check Valves VDRV7 are for various applications requiring flow regulation without pressure compensation. In a circuit where the line pressure is almost steady and small function of oil flow due to pressure changes is permitted, the usage of this valve is ideally recommended. The integrated check valve allows reversed free flow from outlet port to inlet port. These valves are not intended for use as shut-off valves.

For accurate control, pressure and temperature compensation is essential and for the same usage of Flow Control Valve Series V2F1C is ideal. Contact **VELJAN** for further information.



## SPECIFICATION

### General

Type	: Throttle Valve VDV7	$\frac{3}{4}$ " & 1"	: 500 cc/min at 3000 psi (210 bar)
	: Throttle with integral check Valve VDRV7		900 cc/min at 5000 psi (350 bar)
Design	: Spool Type valve with metering groove		
Type of mounting	: Subplate / Threaded		
Type of port	: Threads in subplate / threads in body	$1\frac{1}{4}$ " &	: 800 cc/min at
Connections		$1\frac{1}{2}$ "	3000 psi (210 bar)
Port sizes	: Subplate mounting - $\frac{1}{2}$ ", 1", $1\frac{1}{2}$ "		1300 cc/min at
	: B.S.P.P.& NPTF threaded - $\frac{3}{8}$ ", $\frac{1}{2}$ "		5000 psi (350 bar)
	: $\frac{3}{4}$ " or 1", $1\frac{1}{4}$ " or $1\frac{1}{2}$ "	Nominal flow	: $\frac{3}{8}$ " & $1\frac{1}{2}$ " : 25 (95)
Direction of flow	: VDV7 B → A (metered flow on either way)	gpm (lpm)	$\frac{3}{4}$ " & 1" : 50 (190)
	: VDRV7 B → A (metered flow)		$1\frac{1}{4}$ " & $1\frac{1}{2}$ " : 119 (450)
	: A → B (free flow)	Fluid Temperature	: -18°C...+80°C (0°F...+176°F)
Ambient temperature	: -20°C...+ 60°C (-4°F...+140°F)	Range	
Special working conditions	: Consult <b>VELJAN</b>	Viscosity range	: Unlimited

### Hydraulics

Operating Pressure	: Minimum - 0 psi (0 bar)	Type of actuator	: Manual
Range (inlet or outlet)	: Maximum - 5000 psi (350 bar)	Adjustment	: Manual
Cracking pressure	: 2 bar approximately only for VDRV7	Operating Torque	: 300 N-cm at 210 bar (3000 psi) (adjustment should not be done under pressure beyond 210 bar (3000 psi))
Leakage when Fully closed	: $\frac{3}{8}$ " & $1\frac{1}{2}$ " : 300 cc/min at 3000 psi (210 bar)	Stroke	: $\frac{3}{8}$ " & $1\frac{1}{2}$ " : 14.0 mm
	: 600 cc/min at 5000 psi (350 bar)		$\frac{3}{4}$ " & 1" : 13.5 mm
			$1\frac{1}{4}$ " & $1\frac{1}{2}$ " : 15.0 mm

### ORDERING CODE

**B / VDRV7 - 08 - 3 1 1 00**

B.S.P.P. Threads (connections)  
NPTF = Standard (code omitted)

**Series**  
VDRV7 = Throttle valve with integral check valve  
VDV7 = Throttle valve

**Nominal size**  
06 = 3/8"      16 = 1"  
08 = 1/2"      20 = 1 1/4"  
12 = 3/4"      24 = 1 1/2"

**Max. Operating pressure**  
3 = 3000 psi (210 bar)  
5 = 5000 psi (350 bar)

**Special fluids**  
(further information required)

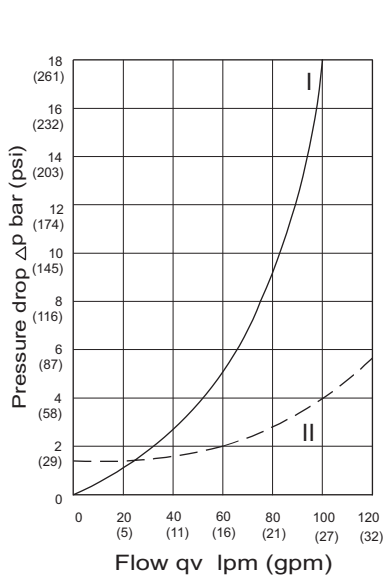
**Connections**  
00 = None  
(subplate to be ordered separately)

**Adjustment**  
1 = Without adjusting scale  
2 = With adjusting scale

**Type of mounting**  
1 = Pipe threaded  
3 = Subplate mounted (only for nominal sizes 1/2", 1", 1 1/2")

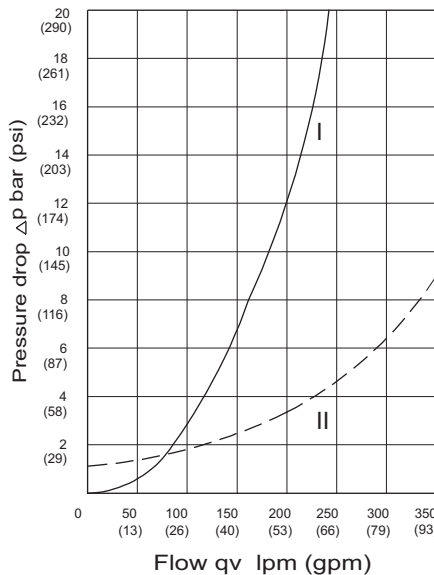
### PERFORMANCE CURVES

$\Delta p - q_v$  - Characteristics



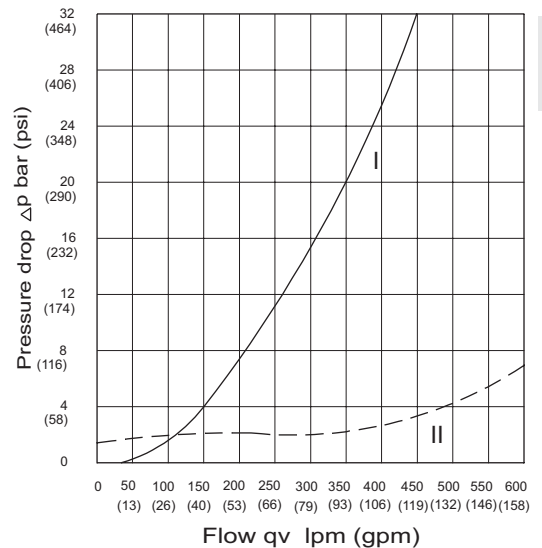
Curve - I  
VDV7 -06/08 & VDRV7 -06/08  
Direction of flow : B → A  
Throttle open

Curve - II  
VDRV7 -06/08  
Direction of flow : A → B  
Throttle closed



Curve - I  
VDV7 -12/16 & VDRV7 -12/16  
Direction of flow : B → A  
Throttle open

Curve - II  
VDRV7 -12/16  
Direction of flow : A → B  
Throttle closed

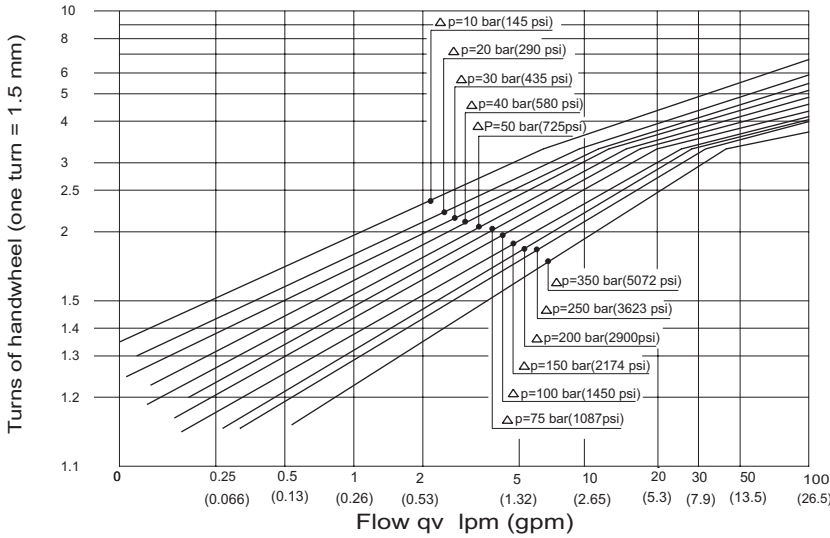


Curve - I  
VDV7 -20/24 & VDRV7 -20/24  
Direction of flow : B → A  
Throttle open

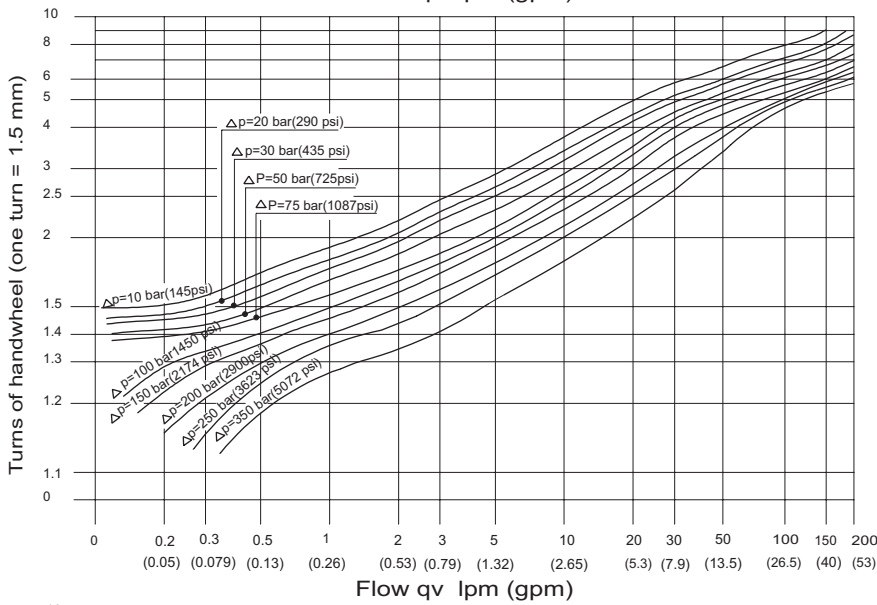
Curve - II  
VDRV7 -20/24  
Direction of flow : A → B  
Throttle closed



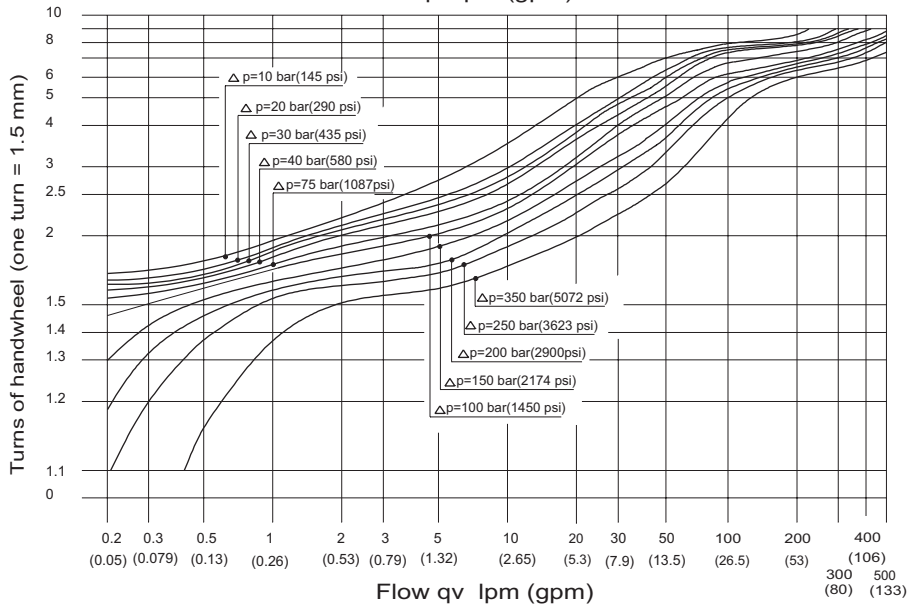
### Stroke Vs Flow characteristics



VDV7-06/08 & VDRV7 -06/08  
Direction of flow B → A



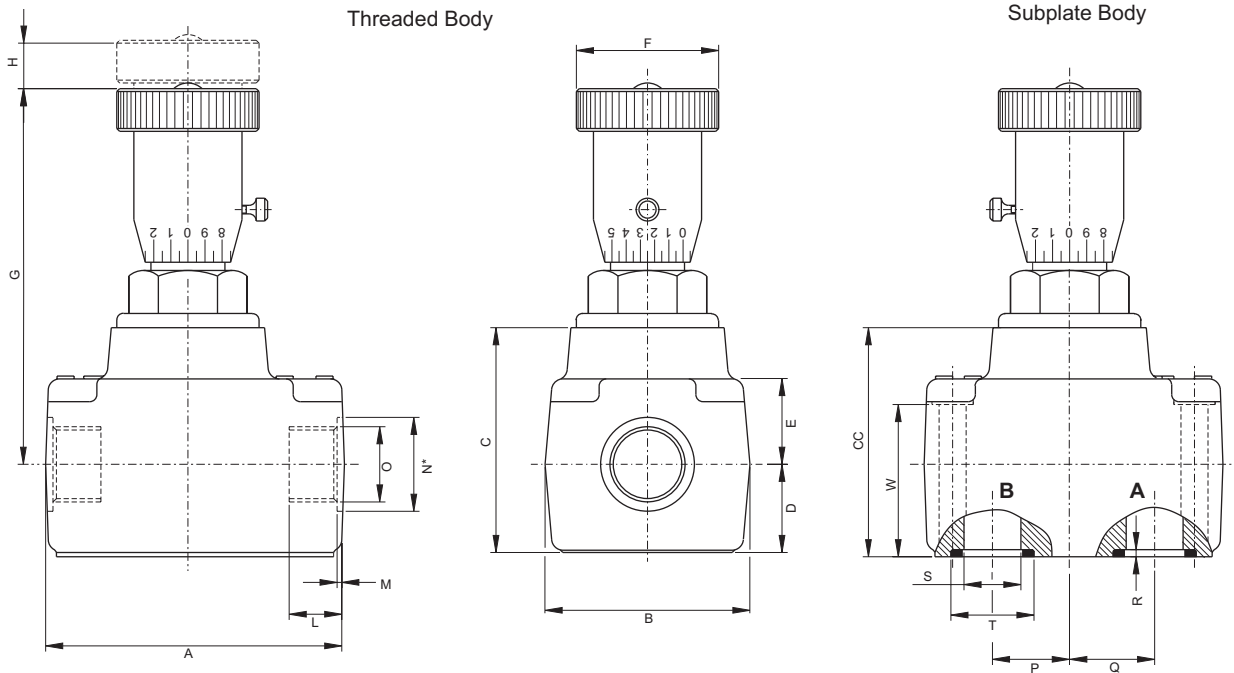
VDV7-12/16 & VDRV7 -12/16  
Direction of flow B → A



VDV7-20/24 & VDRV7 -20/24  
Direction of flow B → A



### THROTTLE VALVE WITH ADJUSTING SCALE



\* B.S.P.P. Threads only

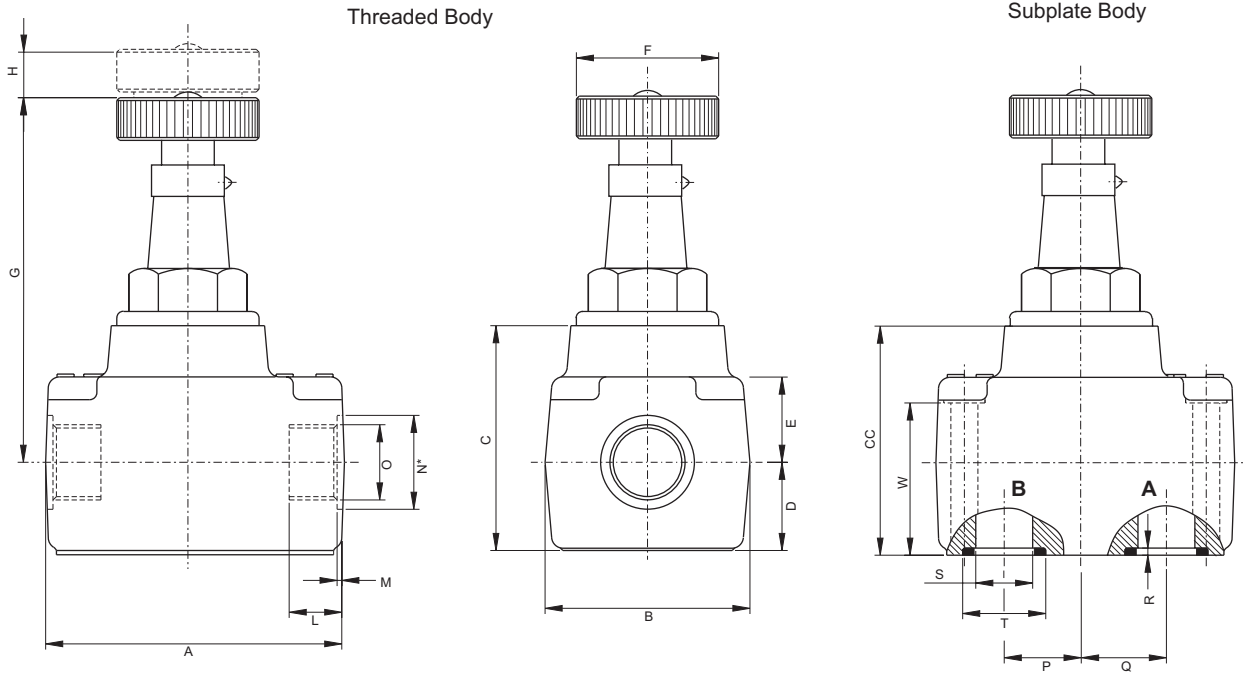
### VDV7 & VDRV7

Dimensions

Nominal size	O	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	CC
in 06	3/8"	3.347	2.166	2.599	0.906	0.788	1.969	4.685	0.473	1.575	1.772	0.65	0.059	0.906	0.827	1.024	0.079	0.492	0.725	0.276	0.433	1.378	1.496	1.26	1.457	2.52
mm		85	55	66	23	20	50	119	12	40	45	16.5	1.5	23	21	26	2	12.5	18.4	7	11	35	38	32	37	64
in 08	1/2"	3.347	2.166	2.599	0.906	0.788	1.969	4.685	0.473	1.575	1.772	0.65	0.079	1.063	0.827	1.024	0.079	0.492	0.725	0.276	0.433	1.378	1.496	1.26	1.457	2.52
mm		85	55	66	23	20	50	119	12	40	45	16.5	2	27	21	26	2	12.5	18.4	7	11	35	38	32	37	64
in 12	3/4"	4.134	2.835	3.189	1.3	1.18	1.969	4.961	0.532	1.969	2.166	0.807	0.079	1.3	1.024	1.221	0.099	0.788	1.162	0.374	0.571	2.087	1.969	1.575	1.772	3.111
mm		105	72	81	33	30	50	126	13.5	50	55	20.5	2	33	26	31	2.5	20	29.5	9.5	14.5	53	50	40	45	79
in 16	1"	4.134	2.835	3.189	1.3	1.18	1.969	4.961	0.532	1.969	2.166	0.807	0.079	1.575	1.024	1.221	0.099	0.788	1.162	0.374	0.571	2.087	1.969	1.575	1.772	3.111
mm		105	72	81	33	30	50	126	13.5	50	55	20.5	2	40	26	31	2.5	20	29.5	9.5	14.5	53	50	40	45	79
in 20	1 1/4"	5.709	3.937	4.095	1.614	1.457	1.969	5.748	0.591	2.756	2.953	0.985	0.079	1.969	1.575	1.772	0.099	1.024	1.528	0.453	0.689	2.599	2.835	2.245	2.441	4.016
mm		145	100	104	41	37	50	146	15	70	75	25	2	50	40	45	2.5	28	38.8	11.5	17.5	66	72	57	62	102
in 24	1 1/2"	5.709	3.937	4.095	1.614	1.457	1.969	5.748	0.591	2.756	2.953	0.985	0.079	2.205	1.575	1.772	0.099	1.024	1.528	0.453	0.689	2.599	2.835	2.245	2.441	4.016
mm		145	100	104	41	37	50	146	15	70	75	25	2	56	40	45	2.5	28	38.8	11.5	17.5	66	72	57	62	102



**THROTTLE VALVE WITHOUT ADJUSTING SCALE**



\* B.S.P.P. Threads only

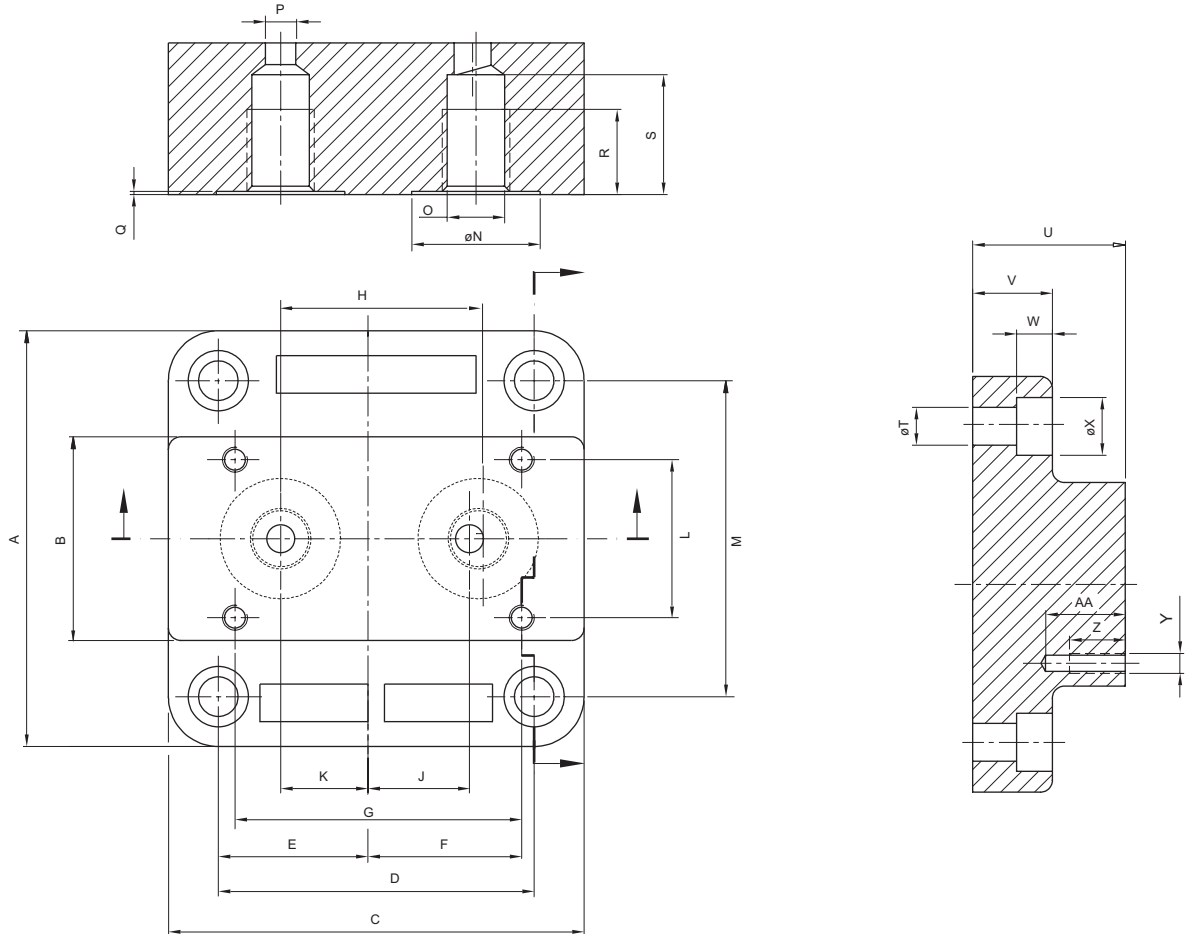
FC

**VDV7 & VDRV7**

Dimensions

Nominal size	O	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	CC
in 06	3/8"	3.347	2.166	2.599	0.906	0.788	1.969	4.606	0.551	1.575	1.772	0.65	0.059	0.906	0.827	1.024	0.079	0.492	0.725	0.276	0.433	1.378	1.496	1.26	1.457	2.52
mm	3/8"	85	55	66	23	20	50	117	14	40	45	16.5	1.5	23	21	26	2	12.5	18.4	7	11	35	38	32	37	64
in 08	1/2"	3.347	2.166	2.599	0.906	0.788	1.969	4.606	0.551	1.575	1.772	0.65	0.079	1.063	0.827	1.024	0.079	0.492	0.725	0.276	0.433	1.378	1.496	1.26	1.457	2.52
mm	1/2"	85	55	66	23	20	50	117	14	40	45	16.5	2	27	21	26	2	12.5	18.4	7	11	35	38	32	37	64
in 12	3/4"	4.134	2.835	3.189	1.3	1.18	1.969	4.961	0.532	1.969	2.166	0.807	0.079	1.3	1.024	1.221	0.099	0.788	1.162	0.374	0.571	2.087	1.969	1.575	1.772	3.111
mm	3/4"	105	72	81	33	30	50	126	13.5	50	55	20.5	2	33	26	31	2.5	20	29.5	9.5	14.5	53	50	40	45	79
in 16	1"	4.134	2.835	3.189	1.3	1.18	1.969	4.961	0.532	1.969	2.166	0.807	0.079	1.575	1.024	1.221	0.099	0.788	1.162	0.374	0.571	2.087	1.969	1.575	1.772	3.111
mm	1"	105	72	81	33	30	50	126	13.5	50	55	20.5	2	40	26	31	2.5	20	29.5	9.5	14.5	53	50	40	45	79
in 20	1 1/4"	5.709	3.937	4.095	1.614	1.457	1.969	5.748	0.591	2.756	2.953	0.985	0.079	1.969	1.575	1.772	0.099	1.024	1.528	0.453	0.689	2.599	2.835	2.245	2.441	4.016
mm	1 1/4"	145	100	104	41	37	50	146	15	70	75	25	2	50	40	45	2.5	28	38.8	11.5	17.5	66	72	57	62	102
in 24	1 1/2"	5.709	3.937	4.095	1.614	1.457	1.969	5.748	0.591	2.756	2.953	0.985	0.079	2.205	1.575	1.772	0.099	1.024	1.528	0.453	0.689	2.599	2.835	2.245	2.441	4.016
mm	1 1/2"	145	100	104	41	37	50	146	15	70	75	25	2	56	40	45	2.5	28	38.8	11.5	17.5	66	72	57	62	102

**SUBPLATE FOR VDV7/VDRV7**



**Dimensions**

	Model number	O	A	B	C	D	E	F	G	H	J	K	L	M	øN	øP	Q	R	S	øT	U	V	W	øX	Y	Z	AA	AC
in mm	VSS-B-08-G102 1/2" B.S.P.P	3.93 100	1.93 49	3.93 100	2.99 76	1.42 36	1.46 37	2.72 69	1.85 47	1.02 26	0.83 21	1.5 38	2.99 76	1.26 32	0.49 12.5	0.02 0.5	0.69 17.5	0.989 25	0.37 9.5	1.5 38	0.79 20	0.35 9	0.57 14.5	M6	14	0.55 20	0.79 12	0.47
in mm	VSS-P-08-G102 1/2" NPTF	3.93 100	1.93 49	3.93 100	2.99 76	1.42 36	1.46 37	2.72 69	1.85 47	1.02 26	0.83 21	1.5 38	2.99 76	-	0.49 12.5	-	0.87 22.2	1.2 30.5	0.37 9.5	1.5 38	0.79 20	0.35 9	0.57 14.5	M6	14	0.55 20	0.79 12	0.47
in mm	VSS-B-16-G103 1" B.S.P.P	4.13 105	2.51 64	5.28 134	4.3 110	2.05 52	1.77 45	3.35 85	2.36 60	1.22 31	1.02 26	1.97 50	3.35 85	1.69 43	0.79 20	0.02 0.5	0.89 22.5	1.12 28.5	0.37 9.5	1.69 43	0.79 20	0.35 9	0.57 14.5	M8	14	0.55 20	0.79 12	0.47
in mm	VSS-P-16-G103 1" NPTF	4.13 105	2.51 64	5.28 134	4.3 110	2.05 52	1.77 45	3.35 85	2.24 57	1.22 31	1.02 26	1.97 50	3.35 85	-	0.79 20	-	1.09 27.8	1.44 36.5	0.37 9.5	1.69 43	0.79 20	0.35 9	0.57 14.5	M8	14	0.55 20	0.79 12	0.47
in mm	VSS-B-24-G104 1 1/2" B.S.P.P	5.31 135	3.46 88	6.85 174	5.9 150	2.87 73	2.44 62	4.69 119	3.35 85	1.77 45	1.57 40	2.83 72	4.52 115	2.24 57	1.1 28	0.02 0.5	1.04 26.5	1.32 34.5	0.37 9.5	1.77 45	0.79 20	0.35 9	0.57 14.5	M10	18	0.71 25	0.98 12	0.47
in mm	VSS-P-24-G104 1 1/2" NPTF	5.31 135	3.46 88	6.85 174	5.9 150	2.87 73	2.44 62	4.69 119	3.35 85	1.77 45	1.57 40	2.83 72	4.52 115	-	1.1 28	0.02 0.5	1.13 28.6	1.5 38	0.37 9.5	1.77 45	0.79 20	0.35 9	0.57 14.5	M10	18	0.71 25	0.98 12	0.47

Port Sizes	Order No	Model No			Mounting screws * (4)	
		VDV/VDRV7 - 08	VDV/VDRV7 - 16	VDV/VDRV7 - 24	Dimensions	Order No
1/2" B.S.P.P	VS16 - 39066	VSS-B-08-G 102			M6 x 45 DIN 912	V700-71416
1/2" NPTF	VS16 - 39064	VSS-P-08-G 102				
1" B.S.P.P	VS16 - 39082		VSS - B - 08 - G 103		M8 x 60 DIN 912	V700-71433
1" NPTF	VS16 - 39081		VSS - P - 08 - G 103			
1 1/2" B.S.P.P	VS16 - 39090			VSS-B-08-G 104	M10 x 80 DIN 912	V700-71452
1 1/2" NPTF	VS16 - 39089			VSS-P-08-G 104		

\* Mounting screws are included in subplate order.  
For valves ordered without subplate, mounting screws must be ordered separately.