

VPR PRESSURE CONTROL VALVE

- Valve blade has very small hysteresis
- Excellent repeatability for fine pressure control
- External Air Tight to DIN 24194 Part 4
- Shut off Air Tight to DIN 1946 Part 4
- Heavy duty Blade Seal
- 12 mm Ø solid drive shaft for fast speed
- Max. speed 0..90° rotation is 1s
- Shaft bearing bushes for low rotation torque
- Body lip seals for easy site installation
- CMR fast actuators also for outdoor IP65
- DPC controller can be factory fitted
- 24 month warranty
- 30 Years field application experience



VPR Valve with with DPC Motor Bracket

Valve Body Construction

The CMR VPR Pressure Control Valve is manufactured to the highest engineering precision with CNC machines.

The valve is nudged out as a flat sheet from galvanised senzimir sheet metal with all cut outs for the damper and the blade axle. The flat plate is then formed into a precision round body and the edges are butt laser welded with a CNC Laser, which provides a perfect seal without the need for anti corrosion paint.

The damper blade consists of two metal round plates which sandwich a silicone disc seal.

A 12mmØ axle is fitted with heavy duty clamps onto the blades and is then embedded into air tight bearing bushes on both sides of the valve to provide smooth action with very low torque.

The blade and axle are designed for very fast motor rotation i.e. 1 second from open to closed position.

With such high speeds, the axle will withstand the enormous torque which develops on the shaft when turning from open to close in small steps to provide high accuracy control without a fluctuating Hysteresis.

VPR Pressure Control Valve with Industrial AST-320 IP65 fast Actuator 0-90°



VPR CONTROL VALVE SPECIFICATIONS

Selection of Pressure Control Damper

It is essential to determine the air volume during the design stage. Normally there is a minimum and a maximum volume which has to be controlled.

The duct area should be calculated so that the velocity is approximately 2.5m/s at the minimum volume and preferably 5m/s at the operating point if possible. If the velocity is more than 5m/s at the maximum volume then the noise level criteria needs to be considered. The maximum velocity should not exceed 9m/s as the duct resistance shall increase and the overall energy consumption shall go up. Use selection Table on page 3.

The VPR Pressure Valve is equipped with the 'A' bracket making it a VPR-A. It has double damper blades with an embedded silicone seal. Other materials are available on request.

The heavy duty drive shaft which is bolted firmly to the valve blade is designed to withstand the very high momentary torque developed by the fast actuator. The shaft is guided by sealed bearing bushes on either side of the valve body.

Installation

The VPR Pressure Valve works in any position provided it is used in non condensing conditions. It is best if the blades and actuator are positioned horizontally rather than having the actuator hanging down. This way, the weight is reduced on the side seals and provides a long term efficient operation. It is also easier for the maintenance engineers to replace an actuator. When the damper is installed, care must be taken to leave sufficient space for the engineers to inspect and replace the motor. A minimum of 500mm should be kept free.

Hysteresis

The VPR Control Valves have a very low hysteresis due to the sturdy single blade construction and therefore the damper can be moved very accurately to a control position.

Maintenance

The VPR Pressure Control Valve is maintenance free.

Materials

VPR Valve Body	- Galvanised Sheet Metal
Blade/Seal	- Galvanised Sheet Metal/Silicone
Drive Shaft	- Zinc Plated Steel
Drive Shaft Seal	- 'O'Rings
Bearing Bushes	- Brass
Outer Duct Seals	- Pressed in Rubber
Actuator Brackets 'A'	- Galvanised Sheet Metal

Valve sizes see table on right.

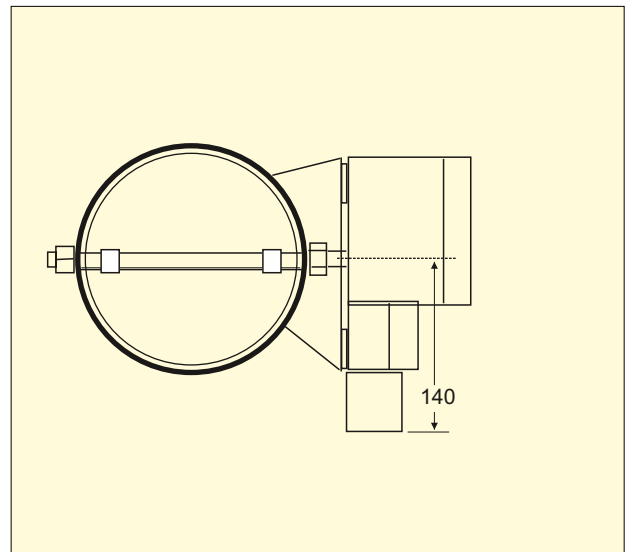
Valve diameters are sized to fit into standard round spiral duct. The Part No. starting with VPR-A has a DPC/Actuator bracket. Alternative Brackets on request.

Specifications

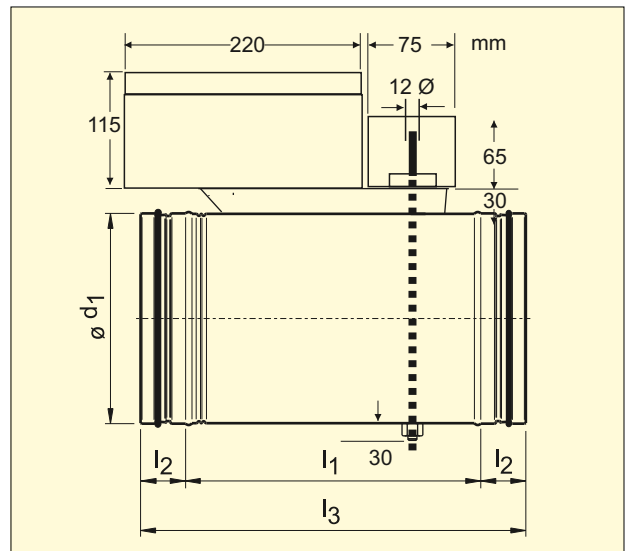
Recommended minimum air velocity is	2.5 m/s
Recommended operating air velocity is	5 m/s
Maximum recommended air velocity is	9 m/s

Humidity 10% to 90% non condensing.

Operating Temperature (dry condition) -20 to 80°C



VPR-A Valve with DPC and Actuator Dimensions



VPR-A Valve with DPC Controller Dimensions

VPR-A Valve dimensions					
Size \varnothing	Stock Code	L1	L2	L3	
100 mm	VPR-A-100	290	40	370	
125 mm	VPR-A-125	290	40	370	
140 mm	VPR-A-140	290	40	370	
150 mm	VPR-A-150	290	40	370	
160 mm	VPR-A-160	300	40	380	
180 mm	VPR-A-180	310	40	390	
200 mm	VPR-A-200	320	40	400	
224 mm	VPR-A-224	345	40	425	
250 mm	VPR-A-250	355	40	435	
280 mm	VPR-A-280	385	60	505	
315 mm	VPR-A-315	415	60	535	
355 mm	VPR-A-355	485	60	605	
400 mm	VPR-A-400	505	80	665	
450 mm	VPR-A-450	582	80	742	
500 mm	VPR-A-500	692	80	852	
560 mm	VPR-A-560	732	80	892	
630 mm	VPR-A-630	792	80	962	

VPR SELECTIONS AND NOISE LEVELS

Part Number Selection Table 1

Part Number	Description	Size	Length	Area	Volume	Volume	Volume	Volume	Volume	Volume
		DN	L3		at 3m/s	at 5m/s	at 9m/s	at 3m/s	at 5m/s	at 9m/s
		mm	mm	m2	m3/s	m3/s	m3/s	m3/h	m3/h	m3/h
VPR-A-100	100mm Pressure Valve with DPC Bracket	100	370	0.00786	0.024	0.039	0.071	85	141	255
VPR-A-125	125mm Pressure Valve with DPC Bracket	125	370	0.01227	0.037	0.061	0.110	133	221	398
VPR-A-140	140mm Pressure Valve with DPC Bracket	140	370	0.01540	0.046	0.077	0.139	166	277	499
VPR-A-150	150mm Pressure Valve with DPC Bracket	150	370	0.01767	0.053	0.088	0.159	191	318	573
VPR-A-160	160mm Pressure Valve with DPC Bracket	160	380	0.02011	0.060	0.101	0.181	217	362	652
VPR-A-180	180mm Pressure Valve with DPC Bracket	180	390	0.02545	0.076	0.127	0.229	275	458	825
VPR-A-200	200mm Pressure Valve with DPC Bracket	200	400	0.03142	0.094	0.157	0.283	339	566	1018
VPR-A-224	224mm Pressure Valve with DPC Bracket	224	425	0.03941	0.118	0.197	0.355	426	709	1277
VPR-A-250	250mm Pressure Valve with DPC Bracket	250	435	0.04909	0.147	0.245	0.442	530	884	1591
VPR-A-280	280mm Pressure Valve with DPC Bracket	280	505	0.06158	0.185	0.308	0.554	665	1108	1995
VPR-A-315	315mm Pressure Valve with DPC Bracket	315	535	0.07794	0.234	0.390	0.701	842	1403	2525
VPR-A-355	355mm Pressure Valve with DPC Bracket	355	605	0.09899	0.297	0.495	0.891	1069	1782	3207
VPR-A-400	400mm Pressure Valve with DPC Bracket	400	665	0.12568	0.377	0.628	1.131	1357	2262	4072
VPR-A-450	450mm Pressure Valve with DPC Bracket	450	742	0.15906	0.477	0.795	1.432	1718	2863	5154
VPR-A-500	500mm Pressure Valve with DPC Bracket	500	852	0.19638	0.589	0.982	1.767	2121	3535	6363
VPR-A-560	560mm Pressure Valve with DPC Bracket	560	892	0.24633	0.739	1.232	2.217	2660	4434	7981
VPR-A-630	630mm Pressure Valve with DPC Bracket	630	952	0.31176	0.935	1.559	2.806	3367	5612	10101

The Part Number is made of the Type i.e. VPR-A 100 is the diameter

Noise Levels

Valve Size Ø	Velocity m/s	Volume m3/h	Static Pressure at Venturi in Pa											Static Pressure at Venturi in Pa											Static Pressure at Venturi in Pa										
			100 Pa											250 Pa											500 Pa										
			LW (dB/Octave)	Power level										Sum dB(A)	LW (dB/Octave)	Power level									Sum dB(A)	LW (dB/Octave)	Power level								Sum dB(A)
100	2	57	59	53	47	41	35	29	21	17	13	43	64	58	52	46	41	35	27	22	19	49	68	62	57	51	45	39	31	26	53				
	5	141	68	62	56	50	44	39	33	26	22	52	74	68	62	56	50	44	38	31	26	22	58	78	72	66	60	54	48	42	36	62			
	7.5	212	72	66	60	54	49	41	35	30	25	57	78	72	66	60	54	48	42	36	30	25	62	82	76	70	64	58	52	47	40	66			
	10	283	75	69	63	57	52	46	40	33	28	60	81	75	69	63	57	51	45	39	33	28	65	85	79	73	67	61	55	50	43	69			
125	2	88	60	54	48	42	37	31	23	18	14	45	66	60	54	48	42	36	28	24	20	50	70	64	58	52	46	40	33	28	54				
	5	221	69	64	58	52	46	40	34	27	22	54	75	69	63	57	51	46	40	33	27	22	60	79	73	67	62	56	50	44	37	64			
	7.5	331	74	68	62	56	50	42	38	31	25	58	79	73	67	62	56	50	44	37	31	25	64	83	77	72	66	60	54	48	41	68			
	10	442	77	71	65	59	53	47	41	34	28	61	82	76	70	64	59	53	47	40	34	28	67	86	80	75	69	63	57	51	44	71			
140	2	111	61	55	49	43	37	31	24	19	14	45	66	61	55	49	43	37	29	24	20	51	71	65	59	53	47	41	33	29	55				
	5	277	70	64	58	53	47	41	35	28	22	55	76	70	64	58	52	46	41	34	28	22	60	80	74	68	62	56	51	45	38	65			
	7.5	416	74	68	63	57	51	45	39	32	26	59	80	74	68	62	56	51	45	38	32	26	64	84	78	72	66	61	55	49	42	69			
	10	554	77	71	66	60	54	48	42	35	29	62	83	77	71	65	59	53	48	41	35	29	67	87	81	75	69	64	58	52	45	72			
160	2	145	62	56	50	44	38	32	25	20	15	46	67	61	56	50	44	38	30	25	20	52	71	66	60	54	48	42	34	29	56				
	5	362	71	65	59	53	48	42	36	29	23	56	77	71	65	59	53	47	41	35	29	23	61	81	75	69	63	57	51	46	39	65			
	7.5	543	75	69	63	58	52	46	40	33	27	60	81	75	69	63	57	51	46	39	33	27	65	85	79	73	67	62	56	50	43	70			
	10	724	78	72	66	61	55	49	43	36	30	63	84	78	72	66	60	54	49	42	36	30	68	88	82	76	70	64	59	53	46	73			
180	2	183	62	57	51	45	39	33	25	20	15	47	68	62	56	50	45	39	31	26	21	16	53	72	66	61	55	49	43	35	30	57			
	5	458	72	66	60	54	48	42	37	30	24	58	77	72	66	60	54	48	42	35	29	23	62	82	76	70	64	58	52	46	40	66			
	7.5	687	76	70	64	58	53	47	41	34	28	61	82	76	70	64	58	52	46	40	34	28	66	86	80	74	68	62	56	51	44	70			
	10	916	79	73	67	61	55	50	44	37	31	64	85	79	73	67	61	55	49	42	36	30	69	89	83	77	71	65	59	54	47	73			
200	2	226	63	57	51	46	40	34	26	21	16	48	69	63	57	51	45	39	32	27	22	17	53	73	67	61	55	49	44	36	31	58			
	5	565	73	67	61	55	49	43	37	30	24	57	78	72	66	61	55	49	43	36	30	24	63	82	76	71	65	59	53	47	40	67			
	7.5	848	77	71	65	59	53	47	42	35	29	61	82	76	71	65	59	53	47	40	34	28	67	87	81	75	69	63	57	51	44	71			
	10	1131	80	74	68	62	58	50	44	38	32	64	85	79	74	68	62	56	50	43	37	31	70	89	84	78	72	66	60	54	47	74			
250	2	353	65	59	53	47	41	35	27	23	18	49	70	64	59	53	47	41	33	28	23	18	55	74	69	63	57	51	45	37	32	59			
	5	884	74	68	62	56	51	45	39	32	26	59	80	74	68	62	56	50	44	38	32	26	64	84	78	72	66	60	54	49	42	68			
	7.5	1325	78	72	68	61	58	49	43	36	30	63	84	78	72	66	60	54	49	42	36	30	68	88	82	76	70	65	59	53	46	73			
	10	1767	81	75	69	64	58	52	46	39	33	66	87	81	75	69	63	57	52	45	39	33	71	91	85	79	73	67	62	56	49	76			
315	2	561	66	60	55	49	43	37	29	24	19	51	72	66	60	54	48	42	35	30	25	20	56	76	70	64	58	53	47	39	34	61			
	5	1403	76	70	64	58	52	46	40	34	28	60	81	75	69	64	58	52	46	39	33	27	66	85	80	74	68	62	56	50	43	70			
	7.5	2104	80	74	68	62	56	50	45	38	32	64	85	79	74	68	62	56	50	43	37	31	70	90	84	78	72	66	60	54	47	74			
	10	2806	83	77	71	65	59	53	47	41	35	67	88	82	77	71	65	59	53	46	40	34	73	93	87	81	75	69	63	57	50	77			
355	2	713	67	61	55	49	44	38	30	25	20	52	73	67	61	55	49	43	35	31	26	21	57	77	71	65	59	53	47	40	35	61			
	5	1782	76	71	65	59	53	47	41	34	28	61	82	76	70	64	58	53	47	40	34	28	67	86	80	74	69	63	57	51	44	71			
	7.5	2672	81	75	69	63	57	51	45	38	32	65	86	80	74	69	63	57	51	44	38	32	71	90	84	79	73	67	61	55	48	75			
	10	3563	84	78	72	66	60	54	48	41	35	68	89	83	77	71	66	60	54	47	41	35	74	93	87	82	76	70	64	58	51	78			
400	2	905	68	62	56	50	44	38	31	26	21	52	73	68	62	56	50	44	36	31	26	21	58	78	72	66	60	54	48	40	36	62			
	5	2262	77	71	65	60	54	48	42	35	29	62	83	77	71	65	59	53	48	41	35	29	67	87	81	75	69	63	58	52	45	72			
	7.5	3393	81	75	70	64	58	52	46	39	33	66	87	81	75	69	63	58	52	45	39	33	72	91	85	79	74	68	62	56	49	76			
	10	4524	84	78	73	67	61	55	49	42	36	69	90	84	78	72	66	60	55	48	42	36	74	94	88	82	76	71	65	59	52	79			

Noise Levels on larger Sizes are available on request.