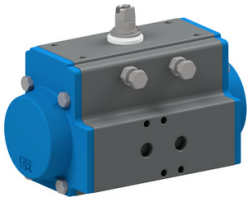
Partnership. With Guarantee.

Pneumatic rotary actuator according to ISO 5211 Series PAD, PAS

PAD032



PAD/PAS052...330

PAD052...160-R
PAD052...160-180

Design type	Piston actuator with 2 opposed pistons, elastic sealing, actuator in all details in accordance with ISO 5211 or NAMUR recommendations, End positions adjustable on both sides +/-5°, Piston diameter 32...330mm
Function	Piston diameter 32mm: available in double-acting Version 0...90° Piston diameter 52...330mm: available in double-acting 0...90° or rather 0...180° or single-acting Version 0...90°
Actuation	pneumatic
Connection	Piston diameter 32mm: Female thread to ISO7/1 Piston diameter 52...330mm: Female thread to ISO7/1, NAMUR valve direct flange-mountable
Materials Standard version	Aluminium hard anodized, Steel pinion nickel-plated, Piston guide POM, Seals NBR
Medium temperature	-20...+80°C
Ambient temperature	-20...+80°C
Operating pressure range	1...8bar
Control medium	filtered and lubricated or non-lubricated compressed air
End-position cushioning	none, the actuator is not able to absorb mass
Mounting type	above flange pattern after ISO 5211, F03...F25
Mounting position	any
Approvals	ATEX II 2G Ex h IIC T6...T3 Gb / II 2D Ex h IIIC T85°C...T200°C Db, SIL3 (32-270)
Special version	Pinion in stainless steel, PTFE-coated actuator, Nickel-plated actuator, Medium temperatures and Ambient temperatures from -40...+80°C, or rather -20...+150°C
Accessories	Piston diameter 32mm: Adjustment of the switching speed Piston diameter 53...330mm: assembled manual, pneumatic or electric control valve, electrical end position feedback, Positioner in I/P or P/P Version, Adjustment of the switching speed
Ordering note	Please also specify control pressure and operating temperature when ordering.

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Type code

		PA	S	100	5	-	180	HS
Type	Double-acting	D						
	Single-acting	S						
Piston diameter	32mm			032				
	52mm			052				
	63mm			063				
	75mm			075				
	85mm			085				
	100mm			100				
	115mm			115				
	125mm			125				
	140mm			140				
	160mm			160				
	180mm			180				
	200mm			200				
	230mm			230				
	270mm			270				
	330mm			330				
Spring set	none spring set (Leave blank)							
	Spring set 01				1			
	Spring set 02				2			
	Spring set 03				3			
	Spring set 04				4			
	Spring set 05				5			
	Spring set 06				6			
	Spring set 07				7			
	Spring set 08				8			
Special versions	Rotation angle 180°						180	
	Medium temperature/Ambient temperature -20...150°C - Seals FKM						H	
	Medium temperature/Ambient temperature -40...+80°C - Seals Silicone						L	
	Actuator nickel-plated						N	
	Actuator PTFE coated						P	
	Rotation angle adjustable						R	
	Pinion in stainless steel 1.4305						S	
	US-Version NPT / UNF						U	

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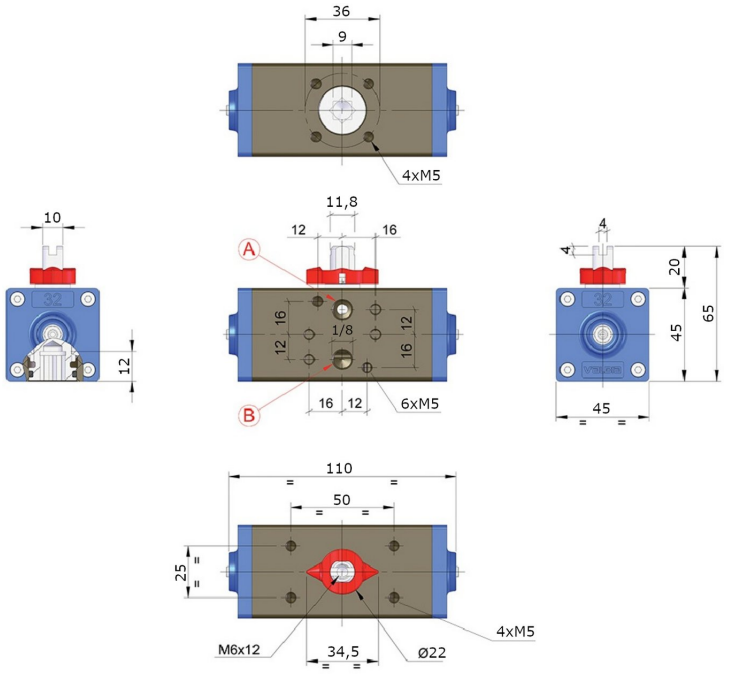
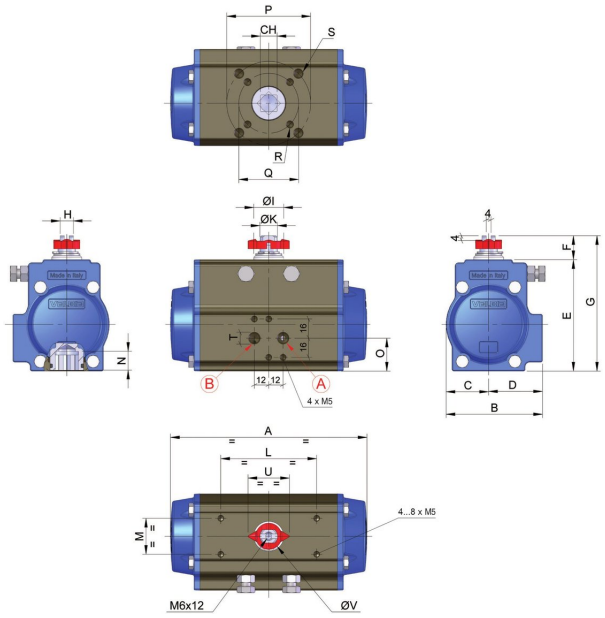
Dimensions PAD032



A Counterclockwise direction of rotation B Direction of rotation clockwise

Dimensions PAD052...PAD230 and PAS052...PAS230



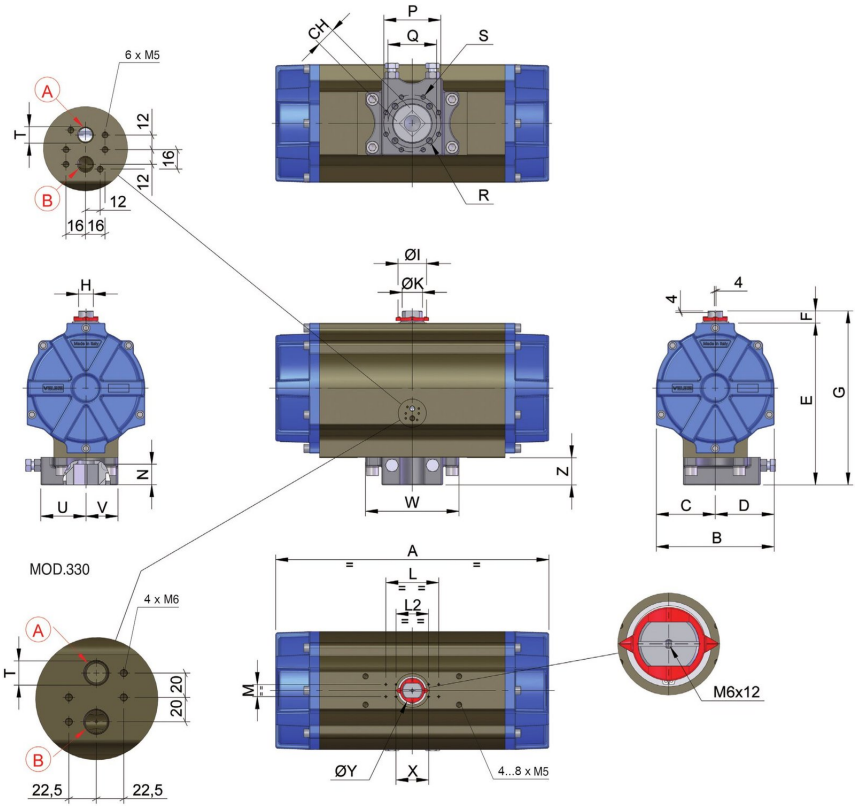
A Counterclockwise direction of rotation B Direction of rotation clockwise

CH	A	B	C	D	E	F	G	H	ØI	J	ØK	L	M	N	Type single-acting	Type double-acting
11	141	71	30	41	81,5	20	101,5	9	21	8	12	80	30	12	PAS052	PAD052
14	164	80,5	35,5	45	93	20	113	11	25	8	15	80	30	16	PAS063	PAD063
17	210	94,5	42	52,5	111	20	131	13	29	8	19	80	30	19	PAS075	PAD075
17	240,5	106	47,5	58,5	125	20	145	15	35	8	22	80	30	19	PAS085	PAD085
17	275	123	55	68	138	20	158	15	35	8	22	80	30	20,5	PAS100	PAD100
22	333	137	64	73	162,5	30	192,5	22	49	14	32	80/130	30	24	PAS115	PAD115
22	372	148	68	80	174,5	30	204,5	22	49	14	32	80/130	30	24	PAS125	PAD125
27	435	164	76,5	87	197	30	227	24	49	16	35	80/130	30	29	PAS140	PAD140
27	500	186	87	99	221	30	251	30	57	16	40	80/130	30	32	PAS160	PAD160
36	493	213	98	115	253	30	283	36	62	16	45	80/130	30	43	PAS180	PAD180
36	578,5	217	108	109	275	30	308	36	67	16	50	80/130	30	37	PAS200	PAD200
46*	690	248,5	124	124,5	325	30	355	36	67	16	50	80/130	30	50	PAS230	PAD230

*Square diagonal - no star

O	P	Q	R	S	T ISO 7/1	Weight [approx. kg]		Flange ISO 5211	Type single-acting	Type double-acting
						PAD	PAS			
26,5	50	36	M5x7,5	M6x9	G1/8"	1,2	1,3	F03/F05	PAS052	PAD052
27,5	70	50	M6x8	M8x12	G1/8"	1,7	2,0	F05/F07	PAS063	PAD063
35	70	50	M6x8	M8x12	G1/8"	2,8	3,4	F05/F07	PAS075	PAD075
42	70	50	M6x8	M8x12	G1/8"	3,9	4,8	F05/F07	PAS085	PAD085
50	102	70	M8x8	M10x14	G1/4"	5,5	7,0	F07/F10	PAS100	PAD100
50	102	70	M8x12	M10x15	G1/4"	8,9	11,5	F07/F10	PAS115	PAD115
61	102	70	M8x12	M10x15	G1/4"	10,8	14,1	F07/F10	PAS125	PAD125
71	125	102	M10x15	M12x18	G1/4"	16,3	21,8	F10/F12	PAS140	PAD140
80	125	102	M10x14	M12x17	G1/4"	21,8	29,6	F10/F12	PAS160	PAD160
99	140	102	M10x15	M16x25	G1/4"	29,0	39,9	F10/F14	PAS180	PAD180
78	140	-	-	M16x24	G1/4"	37,0	55,0	F14	PAS200	PAD200
92	165	-	-	M20x29	G1/4"	58,5	71,0	F16	PAS230	PAD230

Dimensions PAD270, PAD330, PAS270 and PAS330



A Counterclockwise direction of rotation B Direction of rotation clockwise

CH	A	B	C	D	E	F	G	H	ØI	J	ØK	L	L2	M	N	Type single-acting	Type double-acting
46	672	290	145	145	399	30	429	36	70	20	50	130	80	30	50	PAS270	PAD270
55	881	402	201	201	505	50	555	36	109	20	50	130	-	30	62	PAS330	PAD330

P	Q	R	S	T ISO 7/1	U	V	W	X	ØY	Z	Weight [approx. kg]		Flange ISO 5211	Type single-acting	Type double-acting
											PAD	PAS			
-	165	M20x30	-	G1/4"	111	79	230	80,5	60	68	83	100	F16	PAS270	PAD270
254	165	M20x30	M16x26	G1/2"	135	135	356	80,5	60	95	168	209	F16/F25	PAS330	PAD330

Dimensions PAD052...PAD160 - Rotation angle 180°

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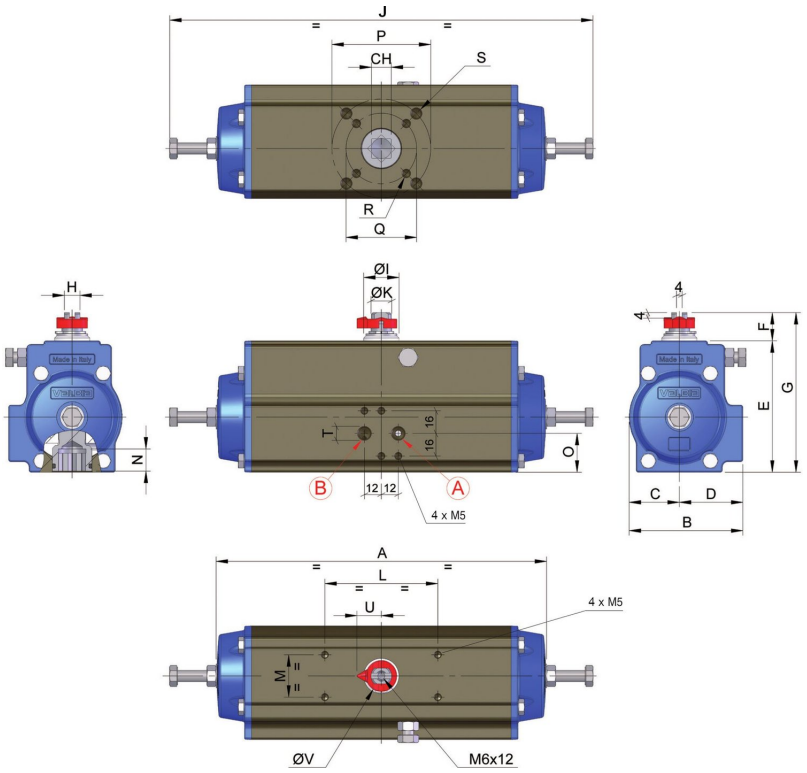

A Counterclockwise direction of rotation B Direction of rotation clockwise

CH	A	B	C	D	E	F	G	H	ØI	approx. J	ØK	L	M	N	Type double-acting
11	197	71	30	41	81,5	20	101,5	10	21	281	12	80	30	12	PAD052-180
14	233	80,5	35,5	45	93	20	113	11	25	314	15	80	30	16	PAD063-180
17	298	94,5	42	52,5	111	20	131	13	29	379	19	80	30	19	PAD075-180
17	341	106	47,5	58,5	125	20	145	15	35	500	22	80	30	19	PAD085-180
17	388	123	55	68	137,8	20	157,8	15	35	534	22	80	30	20,5	PAD100-180
22	477	137	64	73	162,4	30	192,4	22	49	608	32	80/130	30	24	PAD115-180
22	537	148	68	80	174,4	30	204,4	22	49	744	32	80/130	30	24	PAD125-180
27	610	164	76,5	87,5	197	30	227	24	49	787	35	80/130	30	29	PAD140-180
27	644	186	87	99	221	30	251	30	57	767	40	80/130	30	32	PAD160-180

O	P	Q	R	S	T ISO 7/1	Weight [approx. kg]	Flange ISO 5211	Type double-acting
26,5	50	36	M5x7,5	M6x9	1/8"	1,7	F03/F05	PAD052-180
27,5	70	50	M6x8	M8x12	1/8"	2,5	F05/F07	PAD063-180
35	70	50	M6x8	M8x12	1/8"	4,2	F05/F07	PAD075-180
42	70	50	M6x8	M8x12	1/8"	6	F05/F07	PAD085-180
50	102	70	M6x8	M10x14	1/4"	8,6	F07/F10	PAD100-180
50	102	70	M8x12	M10x15	1/4"	13,7	F07/F10	PAD115-180
61	102	70	M8x12	M10x14	1/4"	17,5	F07/F10	PAD125-180
71	125	102	M10x15	M12x18	1/4"	25	F10/F12	PAD140-180
80	125	102	M10x14	M12x17	1/4"	31,2	F10/F12	PAD160-180

Torques for double-acting rotary actuators at various control pressures

Type	Torque in newton metres [Nm]							
	2,5 bar	3 bar	4 bar	5 bar	5,5 bar	6 bar	7 bar	8 bar
PAD032	3,5	4,2	6	7,5	8	9	10	11,5
PAD052	9	11	14,5	18,5	20	22	26	30
PAD063	15,5	19	26	33	36	39,5	46,5	53,5
PAD075	29	35	47,5	60	66	72	84,5	97
PAD085	41,5	50,5	68,5	87	96	105	123	141
PAD100	66	80	108	136	150	164,5	193	221
PAD115	109	132	179	226	249	272	319	366
PAD125	143,5	174	235	297	327	358	419	481
PAD140	205	246	328	410	451	493	575	657
PAD160	287	344	458	573	630	688	802	917
PAD180	395	474	632	789	868	947	1105	1263
PAD200	532	638	851	1063	1170	1276	1489	1701
PAD230	879	1055	1406	1758	1934	2109	2461	2812
PAD270	1292	1550	2067	2584	2842	3101	3617	4134
PAD330	229	2759	3679	4599	5059	5519	6438	7358

Torques for single-acting rotary actuators at various control pressures

Type	Torque in newton metres [Nm]									
	3 bar	Spring set	4 bar	Spring set	5,5 bar	Spring set	6 bar	Spring set	7 bar	Spring set
PAS052	3,5	01	4,8	03	6,2	05	8,1	05	8,1	05
PAS063	5	01	7,9	03	10,6	05	12,5	05	12,5	05
PAS075	10,1	01	13,8	03	17,5	05	23,2	05	23,2	05
PAS085	16,1	01	21,3	03	28,7	05	36,3	05	36,3	05
PAS100	24,2	01	33,3	03	42,3	05	55,2	05	55,2	05
PAS115	41	01	54,7	03	71,1	05	90,4	05	90,4	05
PAS125	51,9	01	63,9	03	88,1	05	118,8	05	119,2	05
PAS140	77	01	86	03	114	05	155	05	164	05
PAS160	119	02	148	04	202	05	239	06	268	06
PAS180	160	02	196	04	262	05	333	06	364	06
PAS200	237	02	295	04	406	05	458	06	507	06
PAS230	348	01	466	02	661	05	694	06	777	06
PAS270	588	02	785	04	1076	07	1177	08	1214	08
PAS330	1010	02	1347	04	1853	07	2021	08	2121	08

The type designation must be supplemented with the spring set No. (see Order code). The specified torques are minimum torques. The closing and opening torque are different.

Air consumption in Nl/stroke

Type	Piston diameter [mm]														
	32	52	63	75	85	100	115	125	140	160	180	200	230	270	330
Counterclockwise rotation PAD/PAS	0,04	0,10	0,19	0,36	0,51	0,79	1,29	1,63	2,26	3,61	4,63	5,70	10,68	15,0	25,5
Clockwise rotation PAD	0,03	0,13	0,23	0,44	0,64	1,00	1,71	2,21	3,16	5,02	6,60	10,55	15,05	17,8	44,2
Counterclockwise rotation PAD-180	-	0,17	0,33	0,60	0,90	1,37	2,13	2,90	4,90	5,40	-	-	-	-	-
Clockwise rotation PAD-180	-	0,16	0,29	0,56	0,83	1,32	2,25	3,00	3,90	6,32	-	-	-	-	-

To determine the air consumption, the air consumption must be multiplied by the absolute pressure and the number of strokes per minute.

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Actuation time approx. [s]

Type	Piston diameter [mm]														
	32	52	63	75	85	100	115	125	140	160	180	200	230	270	330
Counterclockwise rotation PAD	0,03	007	0,11	0,18	0,36	0,38	0,60	0,80	1,13	1,43	1,99	3,08	4,15	6,16	5,50
Clockwise rotation PAD	0,03	0,05	0,10	0,15	0,25	0,34	0,54	0,70	0,94	1,25	1,80	2,41	3,80	5,47	5,50
Counterclockwise rotation PAS	-	0,07	0,13	0,32	0,32	0,54	0,92	1,20	1,64	2,27	3,08	3,58	6,20	8,97	6,40
Clockwise rotation PAS	-	0,07	0,13	0,22	0,30	0,48	0,75	0,94	1,25	1,60	2,38	2,80	5,40	6,62	7,40
Counterclockwise rotation PAD-180	-	0,08	0,14	0,34	0,42	0,64	1,11	1,87	2,95	3,03	-	-	-	-	-
Clockwise rotation PAD-180	-	0,08	0,12	0,25	0,39	0,62	1,08	1,13	2,03	2,29	-	-	-	-	-
Actuation time at 6 bar control pressure and without mounted pilot valve.															

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