

## PNEUMATIC ACTUATORS CMVL B Series - Attributes of Design

CMVL Series B Pneumatic Actuators incorporate latest technology and materials, through designing, developing, testing and engineering application. We have obtained a high grade product with the characteristics of reliability, high performance, long cycle life, large adjustment, and highest levels of corrosion protection, wide selection of model with ease and economy.

### SALIENT FEATURES

#### INDICATOR AND TOP CONNECTION

Visual Position indicator as standard with NAMUR coupling including upper drilling, for easy mounting of accessories such as Limit Switch Box, Positioners, etc.

#### PINION

High-precision and integrative, made from Nickel Alloy Steel, conforms to the latest standards of ISO 5211, DIN 3337, NAMUR. The dimensions can be customized. Also available in stainless steel on request.

#### PISTONS

The twin rack pistons are made from die-casting aluminium treated with hard anodised, or made from cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation; reversing rotation by simply inverting the pistons.

#### BEARINGS & GUIDES

Made from low friction, long-life compound material, to avoid the direct contact between metals. Maintenance and replacement are easy and convenient. Inside actuator surface with smooth finish to minimize friction and maximize the actuator life.

#### O-RINGS

Standard NBR rubber O-rings provide trouble-free operation at standard temperature range of  $-20^{\circ}$  to  $+80^{\circ}\text{C}$ . For high and low temperatures, viton and silicon are offered respectively on request.

#### AIR SUPPLY CONNECTIONS

According to NAMUR standard for direct installation of Namur solenoid valves.

#### HIGH PERFORMANCE SPRINGS

Pre-loaded coated springs made from high quality material for resistant to corrosion and longer cycle life. They can be safely and easily dismantled to satisfy different requirements of torque by changing its number.

#### ACTUATOR BODY

In Aluminium Alloy, extruded to ASTM 6005, treated with hard anodised according to UNI 4522, nickel-plated (chemical nickel) or protected with epoxy-paint. External protection: resistance to corrosion of 500 h in salty fog according to ASTM B117-73.

#### END CAPS

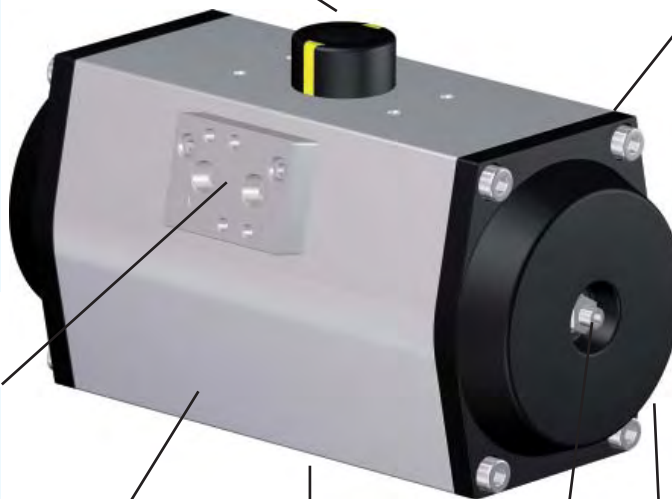
Die-cast in Aluminium Alloy, powder polyester painted.

#### TRAVEL ADJUSTMENT

External stroke adjustment screw can adjust  $\pm 4^{\circ}$  of travel at  $90^{\circ}$

#### VALVE COUPLING

Double lower drilling for most of the models, and lower female pinion key, according to ISO5211/ DIN 3337 standards, for assembly of valves with square key on line shaft.



**PNEUMATIC ACTUATORS CMVL B Series - Operating Principle - Air Consumption - Weights**

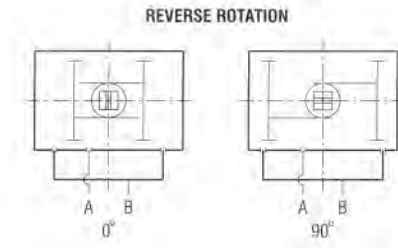
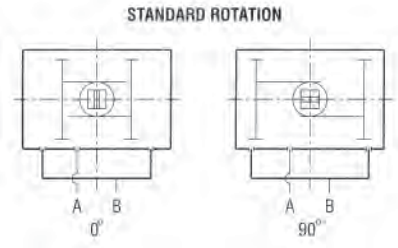
**DOUBLE ACTING TYPE**

**Standard Rotation:**

Air to port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from port B. Air to port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from port A.

**Reverse Rotation:**

Air to port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from port B. Air to port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from port A.



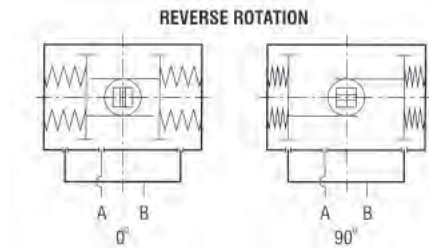
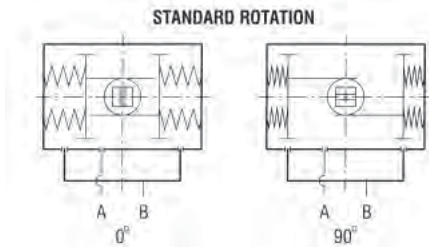
**SINGLE ACTING TYPE**

**Standard Rotation:**

Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns counterclockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

**Reverse Rotation:**

Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns clockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns counterclockwise while air is being exhausted from port A.



**Air volume (l) opening & closing: pneumatic with double acting**

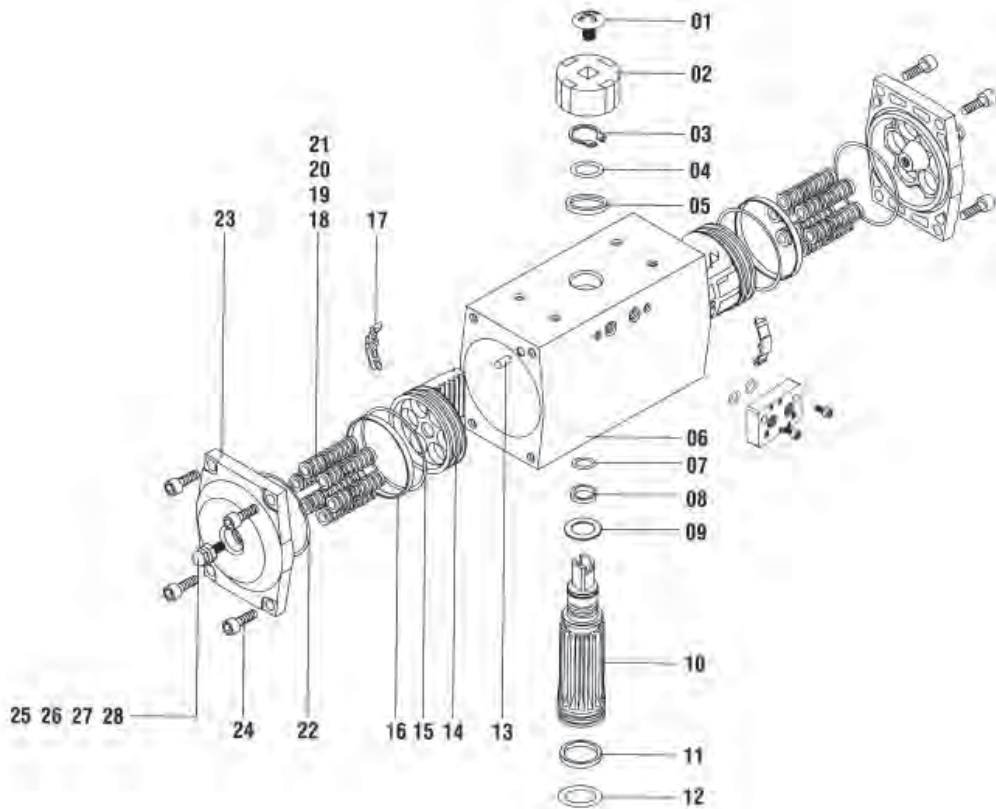
Model	B-32	B-45	B-52	B-63	B-75	B-83	B-92	B-105	B-125	B-140
Opening	0.04	0.08	0.11	0.20	0.29	0.41	0.62	0.94	1.47	2.43
Closing	0.04	0.11	0.14	0.23	0.38	0.55	0.91	1.18	1.85	3.20
Model	B-160	B-190	B-210	B-240	B-270	B-300	B-350	B-400	B-500	B-600
Opening	3.65	5.90	7.40	10.70	16.90	23.80	35.10	52.60	132.60	252.50
Closing	5.03	7.90	9.70	14.30	22.50	29.70	46.30	36	110	210

Air consumption in l/min = (Air Volume Opening (l) + Air Volume Closing (l)) x ((Air Supply (Kpa) + 101,3) / 101,3) x Action cycle times (cycles/min)

**Weights (kg)**

Model	B-32	B-45	B-52	B-63	B-75	B-83	B-92	B-105	B-125	B-140
Weight (SA)	-	1.12	1.23	1.95	2.43	3.15	5.05	6.95	9.25	15.30
Weight (DA)	0.75	1.05	1.10	1.80	2.16	2.85	4.30	6.15	8.80	12.15
Model	B-160	B-190	B-210	B-240	B-270	B-300	B-350	B-400	B-500	B-600
Weight (SA)	23.80	44.80	53.60	76.80	115.00	130.00	234.40	360.40	1110.00	2130.00
Weight (DA)	20.10	38.10	45.10	63.00	93.80	110.00	186.50	289.00	980.40	1975.00

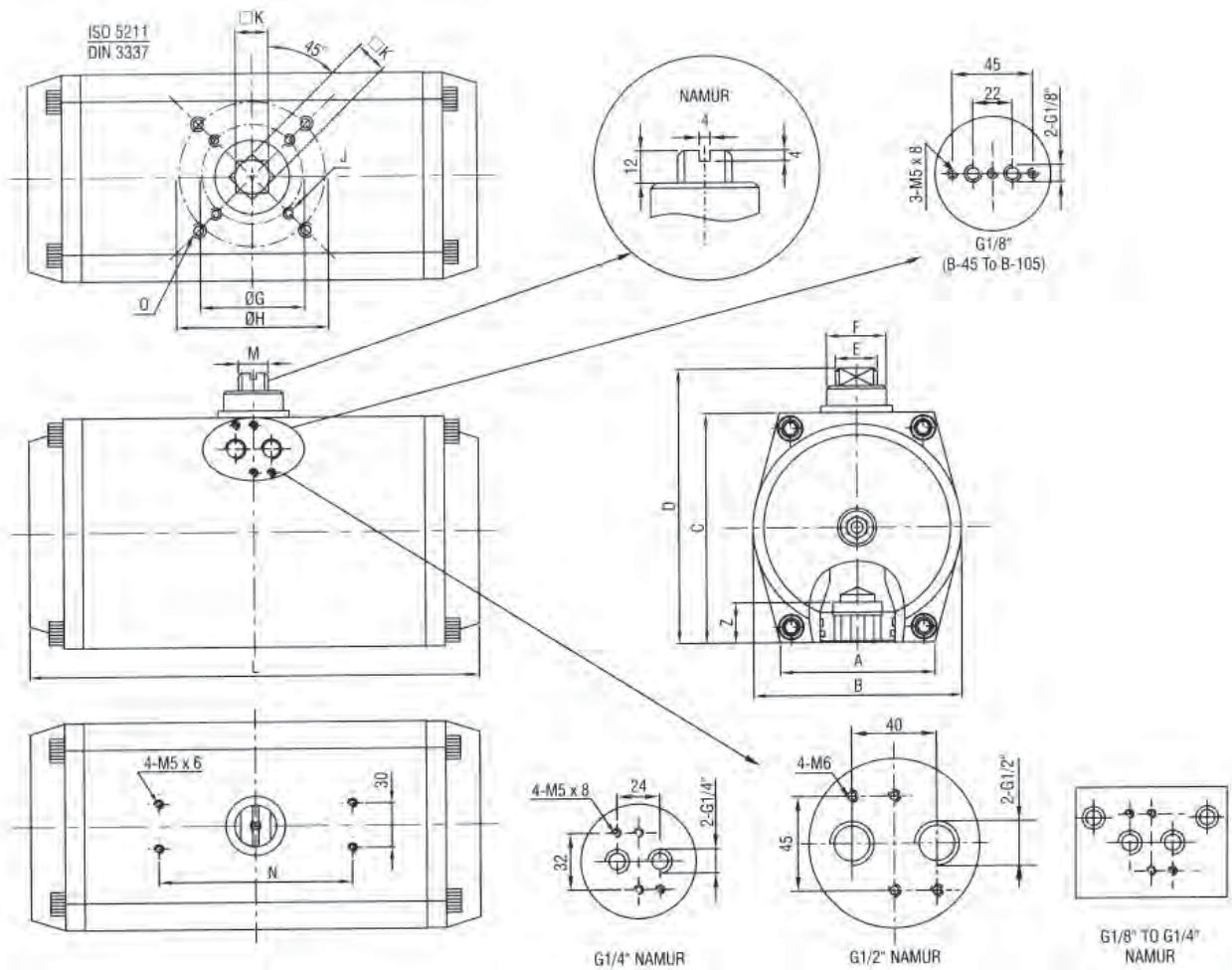
## PNEUMATIC ACTUATORS CMVL B Series - Parts and Materials



PART N°	PART NAME	QTY	MATERIALS
01	Indicator Screw	01	St. Steel with Plastic
02	Position Indicator	01	Plastic
03	Spring clip	01	St. steel 304
04	Washer	01	St. steel 304
05	Outside Washer	01	Engineering Plastic
06	Body	01	Extruded Aluminium alloy
07	O-Ring Pinion Top	01	NBR
08	Bearing Top	01	Engineering Plastic
09	Inside Washer	01	Engineering Plastic
10	Pinion	01	Alloy steel Ni Plated
11	Bearing Pinion Bottom	01	Engineering Plastic
12	O-Ring Pinion Bottom	01	NBR
13	Hole Sealant	02	NBR
14	Piston	02	Die-casting Aluminium steel
15	Piston O-Ring	02	NBR
16	Piston Bearing	02	Engineering Plastic
17	Guide Piston	02	Nylon66
18	Spring	0-12*	Spring steel
19	Spring Retainer (L)	0-12*	Nylon66
20	Spring Retainer (R)	0-12*	Nylon66
21	Retainer Connector	0-12*	Brass
22	O-Ring End-Cap	02	NBR
23	End-Cap	02	Die-casting Aluminium steel
24	End-Cap Stop Screw	08	St. steel 304
25	Adjust Screw	02	St. steel 304
26	Adjust Screw Nut	02	St. steel 304
27	Adjust Screw Washer	02	St. steel 304
28	Adjust Screw O-Ring	02	NBR

\*Depending on actuator

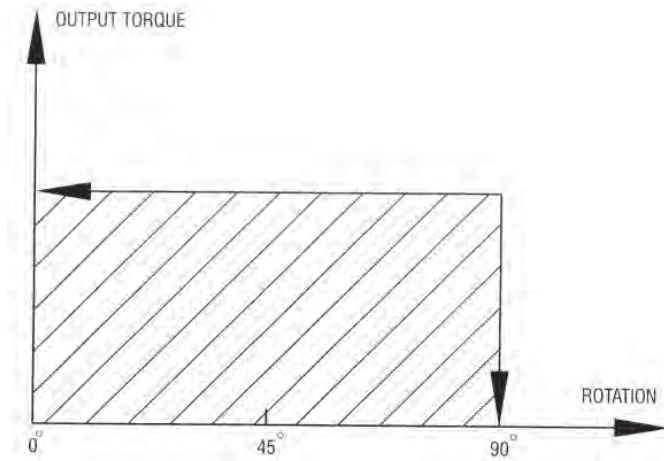
PNEUMATIC ACTUATORS CMVL B Series - Dimensions



Model	A	B	C	D	E	F	ISO5211	ØG	ØH	J	□K	L	M	N	O	Z	Air connection (NAMUR)
B-45	48	58	65	95	12	14	F03/F05	36	50	M5x8	11	146	10	80	M6x10	14	1/4"
B-52	50	59	74	104	12	14	F03/F05	36	50	M5x8	11	146	10	80	M6x10	14	1/4"
B-63	60	72	88	118	12	18	F05/F07	50	70	M6x10	14	168	10	80	M8x13	18	1/4"
B-75	65	83	100	130	12	18	F05/F07	50	70	M6x10	14	184	10	80	M8x13	18	1/4"
B-83	67	90	109	139	14	18	F05/F07	50	70	M6x10	17	204	10	80	M8x13	21	1/4"
B-92	76	104	120	150	18	25	F05/F07	50	70	M6x10	17	260	14	80	M8x13	21	1/4"
B-105	90	115	133	163	19,5	25	F07/F10	70	102	M8x13	22	268	14	80	M10x16	26	1/4"
B-125	103,5	140	155	185	28	40	F07/F10	70	102	M8x13	22	298	20	130	M10x16	26	1/4"
B-140	107	152	171,5	201,5	28	40	F10/F12	102	125	M10x16	27	390	20	130	M12x20	31	1/4"
B-160	128	175,8	197	227	36	40	F10/F12	102	125	M10x16	27	458	28	130	M12x20	31	1/4"
B-190	135	206	230	260	45	60	F14	-	140	-	36	525	32	130	M16x25	50	1/4"
B-210	135	226	255	285	45	60	F14	-	140	-	36	532	32	130	M16x25	50	1/4"
B-240	155	256	290	320	45	60	F16	-	165	-	46	602	32	130	M20x25	60	1/4"
B-270	170	289	320	350	45	60	F16	-	165	-	46	722	32	130	M20x25	60	1/2"
B-300	196	324	348	378	45	60	F16	-	165	-	46	742	32	130	M20x25	60	1/2"
B-350	220	380	408	438	45	60	F16	-	165	-	46	860	32	130	M20x25	60	1/2"

\* Dimensions are in mm

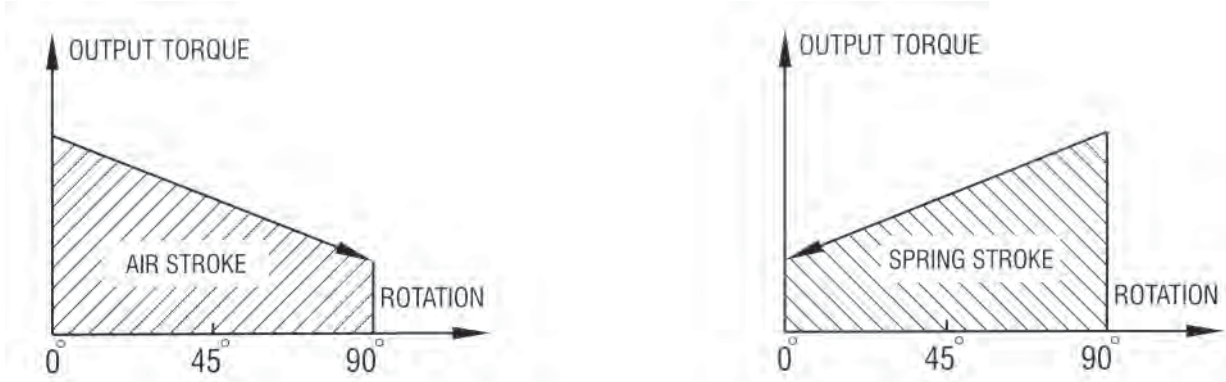
## PNEUMATIC ACTUATORS CMVL B Series - Double Acting Type - Torque Values



Model	Air supply pressure in Bar									
	2	2,5	3	4	4,5	5	5,5	6	7	8
B-032D	3,1	3,8	4,6	6,1	6,9	7,6	8,4	9,2	10,7	12
B-045D	6	7,6	9,1	12,1	13,6	15,1	16,6	18,1	21,1	24,2
B-052D	8,1	10,1	12,1	16,1	18,1	20,2	22,2	24,2	28,2	32,3
B-063D	14,2	17,8	21,3	28,4	32	35,5	39,1	42,6	49,7	56,8
B-075D	20,1	25,2	30,2	40,3	45,3	50,3	55,4	60,4	70,5	80,5
B-083D	30,8	38,5	46,2	61,6	69,4	77,1	84,8	92,5	107,9	123,3
B-092D	45,4	56,8	68,2	90,9	102,3	113,6	125	136,3	159,1	181,8
B-105D	65,8	82,2	98,7	131,6	148	164,4	180,9	197,3	230,2	263,1
B-125D	103	128	154	205	231	256	282	308	359	410
B-140D	175	219	263	351	395	439	482	526	614	702
B-160D	267	334	401	535	601	668	735	802	935	1069
B-190D	431	538	646	861	969	1077	1185	1292	1508	1723
B-210D	526	658	789	1052	1184	1316	1447	1579	1842	2105
B-240D	773	966	1160	1546	1740	1933	2126	2320	2706	3093
B-270D	1174	1468	1761	2349	2642	2936	3229	3523	4110	4697
B-300D	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
B-350D	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
B-400D	3256	4069	4883	6511	7325	8139	8953	9767	11394	13022
B-500D	8478	10598	12717	16956	19076	21195	23315	25434	29673	33912
B-600D	16278	20347	24417	32556	36625	40694	44764	48833	56972	65111

\* Torque values are in Nm

### PNEUMATIC ACTUATORS CMVL B Series - Single Acting Type - Torque Values



Model	Spring Quantity	Air pressure (bar)														Springs output		
		2,5		3		4		5		6		7		8		90°	0°	
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	Start	End	
B-45S	5	4,6	2,8														4,6	2,9
	6	3,9	1,8	5,4	3,3												5,5	3,5
	7	3,3	0,8	4,8	2,3	7,8	5,3										6,5	4,1
	8			4,2	1,3	7,2	4,3	10,2	7,3								7,4	4,6
	9					6,6	3,4	9,6	6,4	12,6	9,4						8,3	5,2
	10					6	2,4	9	5,4	12	8,4	15	11,4	18,1	14,5	9,2	5,8	
	11							8,4	4,4	11,4	7,4	14,4	10,4	17,5	13,5	10,1	6,4	
	12						7,8	3,5	10,8	6,5	13,8	9,5	16,9	12,6	11,1	7		
B-52S	5	5,7	3,6														6,2	4,2
	6	4,8	2,3	6,8	4,3												7,4	5,1
	7	3,9	1	5,9	3	9,9	7										8,6	5,9
	8			5	1,7	9	5,7	13,1	9,8								9,9	6,8
	9					8,1	4,4	12,2	8,5	16,2	12,5						11,1	7,6
	10					7,2	3,1	11,3	7,2	15,3	11,2	19,3	15,2	23,4	19,3	12,4	8,5	
	11							10,4	5,9	14,4	9,9	18,4	13,9	22,5	18	13,6	9,3	
	12						9,5	4,6	13,5	8,6	17,5	12,6	21,6	16,7	14,8	10,1		
B-63S	5	10,6	6,8														10,4	6,8
	6	9,2	4,6	12,7	8,1												12,5	8,2
	7	7,7	2,4	11,2	5,9	18,3	13										14,6	9,6
	8			9,8	3,7	16,9	10,8	24	17,9								16,7	10,9
	9					15,4	8,6	22,5	15,7	29,6	22,8						18,8	12,3
	10					14	6,4	21,1	13,5	28,2	20,6	35,3	27,7	42,4	34,8	20,9	13,7	
	11							19,7	11,3	26,8	18,4	33,9	25,5	41	32,6	22,9	15	
	12						18,2	9,1	25,3	16,3	32,4	23,3	39,5	30,4	25	16,4		
B-75S	5	14,1	10														14,5	10,5
	6	11,9	6,9	16,9	11,9												17,4	12,7
	7	9,7	3,9	14,7	8,9	24,8	19										20,3	14,8
	8			12,4	5,8	22,5	15,9	32,5	25,9								23,2	16,9
	9					20,3	12,9	30,3	22,9	40,4	33						26,1	19
	10					18,1	9,8	28,1	19,8	38,2	29,9	48,3	40	58,3	50	29	21,1	
	11							25,9	16,8	36	26,9	46,1	37	56,1	47	31,9	23,2	
	12						23,7	13,7	33,8	23,8	43,9	33,9	53,9	43,9	34,7	25,3		
B-83S	5	21,9	14,3														23	15,8
	6	18,5	9,4	26,2	17,1												27,6	19
	7	15,2	4,6	22,9	12,3	38,3	27,7										32,2	22,1
	8			19,6	7,4	35	22,8	50,5	38,3								36,8	25,3
	9					31,6	18	47,1	33,5	62,5	48,9						41,4	28,5
	10					28,3	13,2	43,8	28,7	59,2	44,1	74,6	59,5	90	74,9	46	31,6	
	11							40,5	23,8	55,9	39,2	71,3	54,6	86,7	70	50,6	34,8	
	12						37,1	19	52,5	34,4	67,9	49,8	83,3	65,2	55,2	38		

\* Torque values are in Nm

### PNEUMATIC ACTUATORS CMVL B Series - Single Acting Type - Torque Values

Model	Spring Quantity	Air pressure (Bar)														Springs output		
		2,5		3		4		5		6		7		8		90°	0°	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
B-92S	5	32,2	20,6														34,4	23,3
	6	27,3	13,4	38,7	24,8												41,2	28
	7	22,4	6,1	33,8	17,5	56,5	40,2										48,1	32,7
	8			28,9	10,3	51,6	33	74,3	55,7								55	37,3
	9					46,7	25,8	69,4	48,5	92,1	71,2						61,9	42
	10					41,8	18,5	64,5	41,2	87,2	63,9	110	86,7	132,7	109,4		68,7	46,7
	11							59,5	34	82,2	56,7	105	79,5	127,7	102,2		75,6	51,4
	12							54,6	26,8	77,3	49,5	100,1	72,3	122,8	95		82,5	56
B-105S	5	48,9	30,4														49,2	31,6
	6	42,2	20	58,7	36,5												59,1	38
	7	35,6	9,7	52,1	26,2	85	59,1										68,9	44,3
	8			45,4	15,8	78,3	48,7	111,1	81,5								78,7	50,6
	9					71,1	38,4	104,5	71,2	137,4	104,1						88,6	56,9
	10					65	28	97,8	60,8	130,7	93,7	163,6	126,6	196,5	159,5		98,4	63,3
	11							91,1	50,4	124	83,3	156,9	116,2	189,8	149,1		108,3	69,6
	12							84,5	40,1	117,4	73	150,3	105,9	183,2	138,8		118,1	75,9
B-125S	5	72,9	45,5														78,4	52,4
	6	61,9	29	87,9	55												94,1	62,8
	7	50,8	12,5	76,8	38,5	127,8	89,5										109,7	73,3
	8			65,8	22	116,8	73	167,8	124								125,4	83,8
	9					105,8	56,5	156,8	107,5	208,8	159,5						141,1	94,2
	10					94,8	40	145,8	91	197,8	143	248,8	194	299,8	245		156,8	104,7
	11							134,8	74,5	186,8	126,5	237,8	177,5	288,8	228,5		172,4	115,2
	12							123,7	58	175,7	110	226,7	161	277,7	212		188,1	125,7
B-140S	5	128,7	83,3														129	85,8
	6	110,6	56,1	154,6	100,1												154,8	102,9
	7	92,6	29	136,6	73	224,6	161										180,5	120,1
	8			118,5	45,8	206,5	133,8	294,5	221,8								206,3	137,3
	9					188,5	106,7	276,5	194,7	363,5	281,7						232,1	154,4
	10					170,4	79,5	258,4	167,5	345,4	254,5	433,4	342,5	521,4	430,5		257,9	171,6
	11							240,3	140,4	327,3	227,4	415,3	315,4	503,3	403,4		283,7	188,7
	12							222,3	113,2	309,3	200,2	397,3	288,2	485,3	376,2		309,5	205,9
B-160S	5	187	114,7														208,3	139,7
	6	157,6	70,9	224,6	137,9												250	168
	7	128,2	27	195,2	94	329,2	228										292	196
	8			165,8	50,2	299,8	184,2	432,8	317,2								333	223
	9					270,4	140,3	403,4	273,3	537,4							375	251
	10					241	96,4	374	229,5	508	363,5	641	496,5	775	630,5		417	279
	11							344,6	185,6	478,6	319,6	611,6	452,6	745,6	586,6		458	307
	12							315,2	141,7	449,2	275,7	582,2	408,7	716,2	542,7		500	335
B-190S	5	327	212														293	190
	6	285	147	393	255												352	227
	7	243	82	351	190	566	405										410	265
	8			309	125	524	340	740	556								469	303
	9					482	275	698	491	913	706						527	341
	10					440	210	656	426	871	641	1087	857	1302	1072		586	379
	11							614	361	829	576	1045	792	1260	1007		645	417
	12							572	296	787	511	1003	727	1218	942		703	455
B-210S	5	369	258														360	260
	6	311	178	442	309												432	313
	7	253	99	384	230	647	493										503	365
	8			326	150	589	413	853	677								575	417
	9					531	333	795	597	1058	860						647	469
	10					473	253	737	517	1000	780	1263	1043	1526	1306		719	521
	11							679	437	942	700	1205	963	1468	1226		791	573
	12							621	357	884	620	1147	883	1410	1146		863	625

### PNEUMATIC ACTUATORS CMVL B Series - Single Acting Type - Torque Values

Model	Spring Quantity	Air pressure (Bar)														Springs output		
		2,5		3		4		5		6		7		8		90°	0°	
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End			
B-240S	5	534	383														525	389
	6	448	266	642	460												630	467
	7	361	150	555	344	941	730										735	544
	8			469	227	855	613	1242	1000								840	622
	9					768	496	1155	883	1542	1270						945	700
	10					682	380	1069	767	1456	1154	1842	1540	2229	1927	1050	778	
	11							983	650	1370	1037	1756	1423	2143	1810	1155	855	
	12							896	533	1283	920	1669	1306	2056	1693	1260	933	
B-270S	5	879	640														745	530
	6	761	475	1054	768												894	636
	7	644	309	937	602	1525	1190										1043	742
	8			819	437	1407	1025	1994	1612								1192	848
	9					1289	859	1876	1446	2463	2033						1341	954
	10					1171	694	1758	1281	2345	1868	2932	2455	3519	3042	1490	1060	
	11							1640	1115	2227	1702	2814	2289	3401	2876	1639	1160	
	12							1523	950	2110	1537	2697	2124	3284	2711	1788	1272	
B-300S	5	1097	729														1061	730
	6	935	494	1316	875												1273	876
	7	772	258	1153	639	1916	1402										1485	1022
	8			991	403	1754	1166	2517	1929								1697	1168
	9					1592	930	2355	1693	3118	2456						1909	1314
	10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747	2122	1460	
	11							2030	1222	2793	1985	3556	2748	4319	3511	2334	1606	
	12							1868	986	2631	1749	3394	2512	4157	3275	2546	1752	
B-350S	5	1553	964														1702	1173
	6	1292	586	1863	1157												2043	1408
	7	1031	208	1602	779	2745	1922										2383	1642
	8			1341	401	2484	1544	3626	2686								2724	1877
	9					2224	1165	3366	2307	4508	3449						3064	2112
	10					1963	787	3105	1929	4247	3071	5390	4214	6532	5356	3405	2346	
	11							2844	1551	3986	2693	5129	3836	6271	4978	3745	2581	
	12							2584	1172	3726	2314	4869	3457	6011	4599	4086	2816	
B-400S	7	2028	869														2880	1837
	8	1736	411	2550	1225												3292	2100
	9			2259	768	3887	2396										3703	2362
	10			1967	311	3595	1939	5223	3567								4115	2624
	11					3303	1482	4931	3110	6559	4738						4526	2887
	12					3012	1025	4640	2653	6268	4281	7895	5908	9523	7536	4938	3149	
	13							4348	2195	5976	3823	7603	5450	9231	7078	5349	3412	
	14							4057	1738	5685	3366	7312	4993	8940	6621	5761	3674	
B-500S	5	6029	3160														6546	4021
	6	5115	1672	7234	3791												8033	4825
	7	4201	185	6320	2304	10559	6543										9372	5629
	8			5407	816	9646	5055	13885	9294								10711	6433
	9					8732	3567	12971	7806	17210	12045						12050	7237
	10					7818	2080	12057	6319	16296	10558	20535	14797	24774	19036	13389	8041	
	11							11143	4831	15382	9070	19621	13309	23860	17548	14728	8846	
	12							10229	3343	14468	7582	18707	11821	22946	16060	16067	9650	
B-600S	4	10497	3966														14743	8668
	5			12105	3940												18429	10835
	6					17782	7984										22115	13001
	7					15319	3888	23457	12026								25801	15168
8							20995	7931	29134	16070	37273	24209	45412	32348	29487	17335		

\* Torque values are in Nm

## PNEUMATIC ACTUATORS CMVL B Series - Operating Conditions and Instructions

- |                            |  |
|----------------------------|--|
| 1. Supply:                 | Dry or lubricated filtered compressed air, non-corrosive gas or oil  |
| 2. Air supply pressure:    | Double acting : 2 to 8 bar (29 to 116psi)<br>Spring return : 2 to 8 bar (29 to 116psi)<br>Highest pressure: 10 bar (145psi)  |
| 3. Operating temperature : | Standard (NBR O-ring) : -20°C to 80°C (-4°F to 176°F)<br>Low temperature(Silicone O-ring): - 35°C to 80°C (-31°F to 176°F)<br>High temperature (Viton O-ring): -15°C to 150°C (5°F to 302°F) |
| 4. Travel adjustment :     | Have adjustment range of $\pm 4^\circ$ for the rotation at 90°   |
| 5. Lubrication :           | Standard grease MoS2. Under normal operating condition, no need for additional lubricant for at least 1 Million manoeuvres   |
| 6. Application :           | Either indoor or outdoor   |

### COMMISSIONING

Remove any manual operating device from the valve, leaving the valve stem clear. Make sure that the shape of the stem fits the actuator bore and the rotation is not hindered in any way. Mount the actuator on the valve, inserting the actuator bore well on the stem. Make sure that the rotation direction is correct; in any case do not insert your hands inside the valve. We strongly suggest checking the cleanness of the air-supply pipes and ensure to that it is properly filtered. A spacer between actuator and valve will be necessary with fluids at high temperature.

### MAINTENANCE

- It is recommended that periodic checks are performed to make sure that all fasteners remain tight.
- The actuator supplied is readily lubricated and no further lubrication is required. If lubrication is deemed necessary, use MoS2 grease.
- Under certain working conditions (heavy duty, non-compatible operating media or abnormal operating conditions) internal seals should be checked periodically and replaced when necessary.
- On spring return actuators, spring fatigue may set in requiring the replacement of springs. Springs should always be replaced in full sets.
- If an actuator is properly assembled and used, it will be maintenance free, as it has been lubricated enough to last a normal working life under normal working conditions. Should it be necessary to replace the seals, our recommendation is to send it back to us for repairing and testing. On request, we can supply repair kits and

### SPRINGS MOUNTING FORM FOR SPRING RETURN ACTUATORS

