

Valves, Actuators, Accessories

>>>>>>>>> **ABB INTERNATIONAL INC.**

Pneumatic Actuaotrs



ABB INTERNATIONAL INC.

Pneumatic actuators

ABB pneumatic actuators are suitable for applications that require rotary or linear motion for the positioning of air dampers, fan inlet vanes, louvers, diverters, lever operated ball or butterfly valves, turbine governors, fluid drives and any other similar final control elements.

WARNING notices as used in this manual apply to hazards or unsafe practices which could result in personal injury or death.

CAUTION notices apply to hazards or unsafe practices which could result in property damage.

NOTES highlight procedures and contain information which assist the operator in understanding the information contained in this manual.

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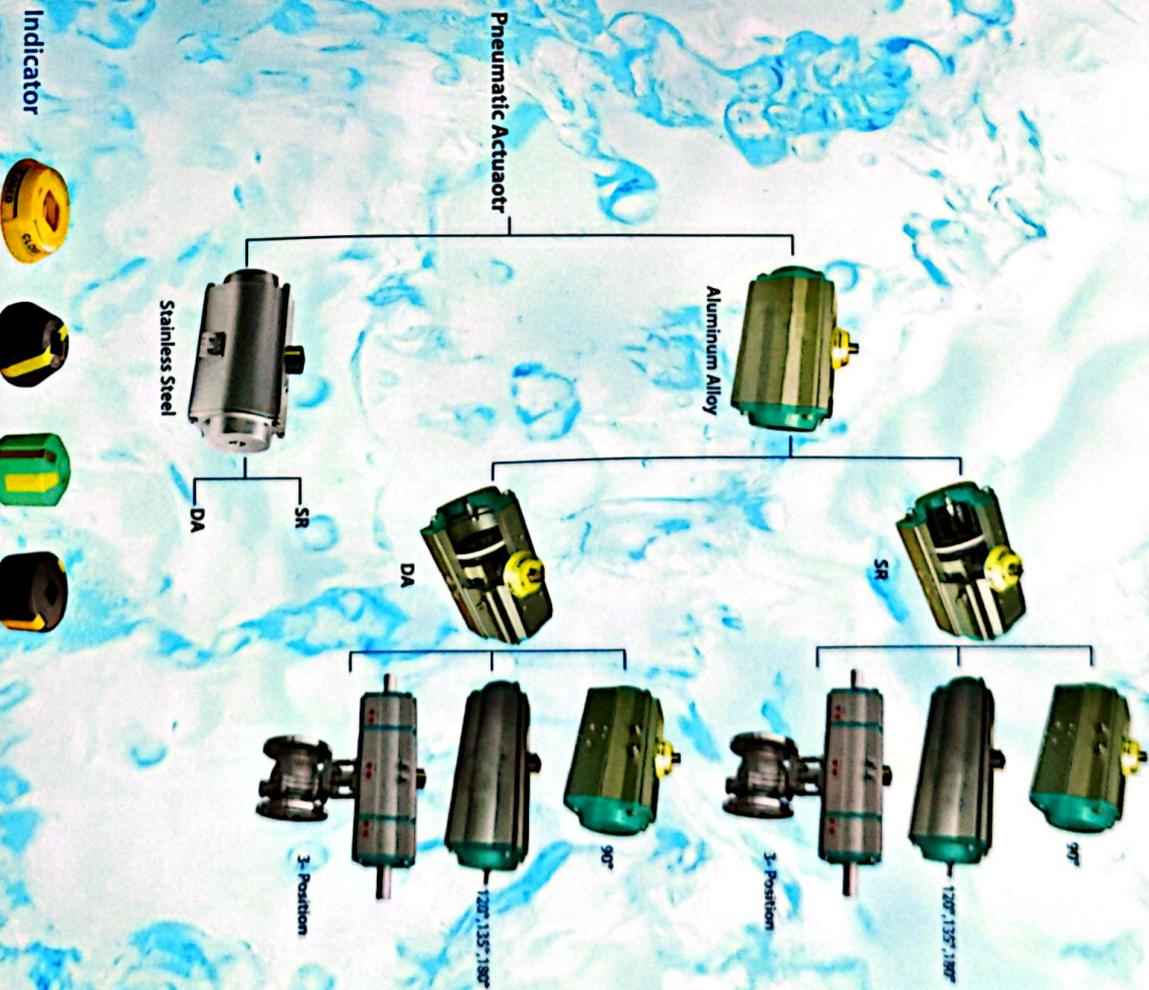
WARNING

INSTRUCTION MANUALS

Do not install, maintain or operate this equipment without reading, understanding and following the proper ABB Inc. instructions and manuals; otherwise injury or damage may result.

POSSIBLE PROCESS UPSETS

Operation and maintenance must be performed only by qualified personnel and only after securing equipment controlled by this product. Adjusting or removing this product while it is in the system may upset the process being controlled. Some process upsets may cause injury or damage.



1. Hard anodized body

According to the different requirements, the extruded aluminum alloy ASTM6005 Body can be treated with hard anodized, powder polyester painted (different colours is available such as blue, orange, yellow etc), PTFE or Nickel plated.

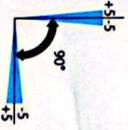
2. Rack pistons

The twin rack pistons are made from Die-casting aluminum treated with Hard anodized or made from Cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the pistons.



3. Travel stop adjustments

The two independent external travel stop adjustment bolts can adjust $\pm 5^\circ$ at both open and close directions easily and precisely.



4. O-rings

NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature applications Viton or Silicone.

5. Pinion

The pinion is high-precision and integrative, made from the latest standard alloy steel, full conform to the latest standards of ISO5211, DIN3337, NAMUR. The dimensions can be customized and the stainless steel is available.

6. End caps

Die-casting aluminum powder polyester painted in different colours, PTFE or Nickel plated.

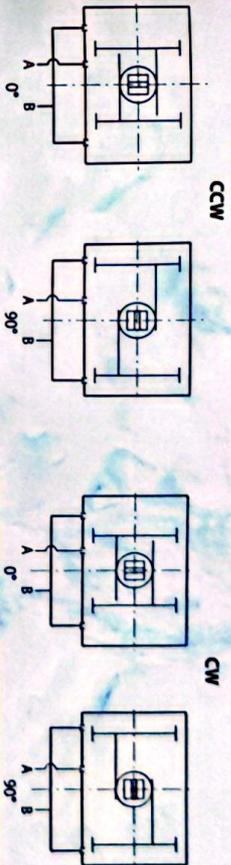
7. High performance springs

Preloaded coating springs are made from the high quality material for resistant to corrosion and longer service life, which can be demounted safely and conveniently to satisfy different requirements of torque by changing quantity of springs.

8. Bearings & Guides

Made from low friction, long-life compound material to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

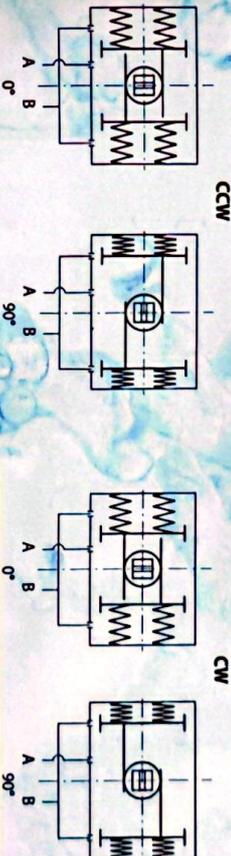
Double Acting Actuators



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.

Spring Return Actuators



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.

Operating Conditions

1. Operating media

Dry or lubricated air or the non-corrosive gases

The maximum particle diameter must less than 30 μm

2. Air supply pressure

The minimum supply pressure is 2.5 Bar

The maximum supply pressure is 8 Bar

3. Operating temperature

Standard: -20°C ~ $+80^\circ\text{C}$

Low temperature: -35°C ~ $+80^\circ\text{C}$

High temperature: -15°C ~ $+150^\circ\text{C}$

4. Travel adjustment

Have adjustment range of $\pm 5^\circ$ for the rotation at 0° and 90°

5. Application

Either indoor or outdoor

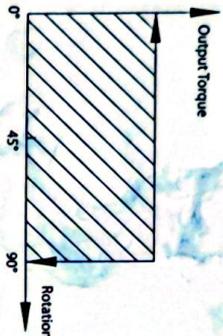
Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B.

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

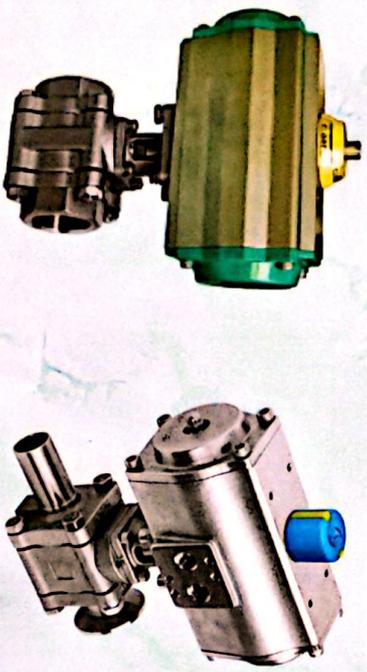
Air to port B forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.

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.

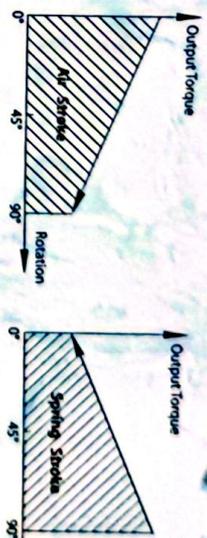
Output Torque of Double Acting Actuators



Model	Air supply pressure (Unit: bar)								Unit: Nm	
	2	2.5	3	4	4.5	5	5.5	6		
DP007DA	3.1	3.8	4.6	6.1	6.9	7.6	8.4	9.2	10.7	12.2
DP012DA	4.8	6	7.2	9.6	10.8	12	13.2	14.4	16.8	19.2
DP020DA	8.0	10.0	12.0	16.0	18.0	20.0	21.9	23.9	27.9	31.9
DP035DA	14.6	18.2	21.9	29.2	32.8	36.5	40.1	43.8	51.1	58.4
DP050DA	20.1	25.1	30.1	40.1	45.1	50.2	55.2	60.2	70.2	80.3
DP075DA	31.4	39.2	47.0	62.7	70.5	78.4	86.2	94.1	109.7	125.4
DP110DA	45.1	56.4	67.7	90.3	101.6	112.9	124.1	135.4	158.0	180.6
DP160DA	66.1	82.7	99.2	132.2	148.8	165.3	181.8	198.4	231.4	264.5
DP235DA	100.3	125.4	150.5	200.6	225.7	250.8	275.9	301.0	351.1	401.3
DP435DA	171.0	213.8	256.5	342.0	384.8	427.5	470.3	513.0	598.5	684.0
DP665DA	266.0	332.5	399.0	532.0	598.5	665.0	731.5	798.0	931.0	1064.0
DP1000DA	423.6	532.0	638.4	851.2	957.6	1064.0	1170.4	1276.8	1489.6	1702.4
DP1200DA	532.0	665.0	798.0	1064.0	1197.0	1330.0	1463.0	1596.0	1862.0	2128.0
DP1800DA	769.5	961.9	1154.3	1539.0	1731.4	1923.8	2116.1	2308.5	2693.3	3078.0
DP2700DA	1169.6	1462.1	1754.5	2339.3	2631.7	2924.1	3216.5	3508.9	4093.7	4678.6
DP3800DA	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
DP5700DA	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
DP8000DA	3256	4070	4884	6512	7326	8140	8954	9768	11396	13024

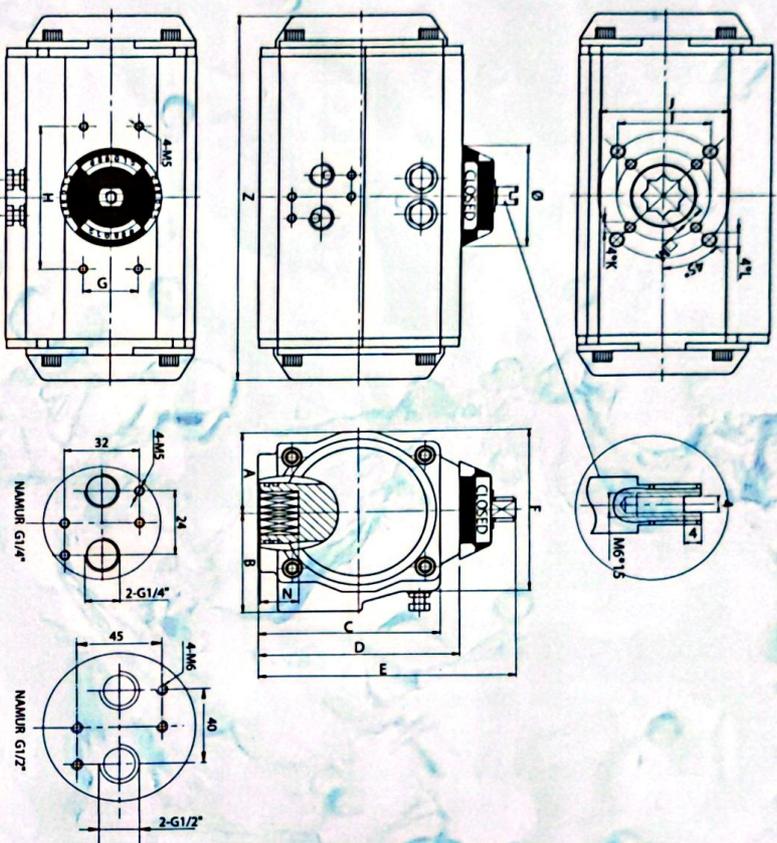


Output Torque of Spring Return Actuators



Model	Output torque of air to springs												Unit: Nm	
	2.5BAR		3BAR		4BAR		5BAR		6BAR		7BAR			8BAR
Spring On	90° Start	90° End	90° Start	90° End	90° Start	90° End	90° Start	90° End	90° Start	90° End	90° Start	90° End	90° Start	90° End
DP020SR	K5 5.7	3.8	2.5	6.9	4.5	5.7	10.9	7.3	14.0	10.4	17.2	14.1	30.3	16.8
DP035SR	K6 4.9	2.5	1.3	6.0	3.3	9.8	6.0	13.2	9.7	16.5	12.8	20.3	16.8	24.6
DP050SR	K7 4.0	1.3	0.8	5.2	2.0	8.3	4.8	11.2	7.9	14.5	11.6	19.5	15.6	22.6
DP075SR	K8	4.3	0.8	4.3	0.8	7.4	3.6	10.9	7.4	13.6	10.4	18.6	14.5	21.6
DP110SR	K9	6.6	2.3	6.6	2.3	10.9	4.2	13.8	9.1	17.8	12.2	21.8	17.1	24.6
DP160SR	K10	11.4	7.7	15.0	11.4	22.3	14.9	28.3	23.9	37.0	40.1	44.3	51.2	57.2
DP235SR	K11	10.1	5.7	13.6	9.3	20.9	16.6	26.8	21.9	34.9	34.9	41.2	47.0	51.2
DP435SR	K12	12.4	7.6	17.3	12.6	27.4	25.3	37.5	35.8	43.2	47.0	51.2	57.2	63.2
DP665SR	K13	10.4	4.8	15.2	9.7	25.3	19.9	35.5	29.9	43.2	47.0	51.2	57.2	63.2
DP1000SR	K14	10.4	4.8	15.2	9.7	25.3	19.9	35.5	29.9	43.2	47.0	51.2	57.2	63.2
DP1200SR	K15	14.5	10.6	19.4	15.5	29.5	25.7	41.1	37.0	51.2	51.2	57.2	63.2	69.2
DP1800SR	K16	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7	68.8	68.8	72.9	78.9	84.9
DP2700SR	K17	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7	68.8	68.8	72.9	78.9	84.9
DP3800SR	K18	23.3	16.1	31.1	24.0	46.8	39.7	64.8	56.2	73.6	73.6	78.9	84.9	90.9
DP5700SR	K19	23.3	16.1	31.1	24.0	46.8	39.7	64.8	56.2	73.6	73.6	78.9	84.9	90.9
DP8000SR	K20	23.3	16.1	31.1	24.0	46.8	39.7	64.8	56.2	73.6	73.6	78.9	84.9	90.9
DP110SR	K21	33.1	22.0	44.2	33.2	66.8	55.9	84.8	71.6	98.1	101.9	105.0	111.8	118.1
DP160SR	K22	33.1	22.0	44.2	33.2	66.8	55.9	84.8	71.6	98.1	101.9	105.0	111.8	118.1
DP235SR	K23	33.1	22.0	44.2	33.2	66.8	55.9	84.8	71.6	98.1	101.9	105.0	111.8	118.1
DP435SR	K24	33.1	22.0	44.2	33.2	66.8	55.9	84.8	71.6	98.1	101.9	105.0	111.8	118.1
DP665SR	K25	51.0	33.4	67.5	49.9	100.6	83.0	127.3	106.2	147.7	119.6	152.7	124.9	165.7
DP1000SR	K26	44.7	23.5	61.1	40.0	94.2	79.2	121.0	96.4	132.7	111.3	142.9	111.3	152.7
DP1200SR	K27	44.7	23.5	61.1	40.0	94.2	79.2	121.0	96.4	132.7	111.3	142.9	111.3	152.7
DP1800SR	K28	38.4	13.7	54.9	30.3	87.9	63.4	114.7	86.5	114.7	109.8	132.6	109.8	132.6
DP2700SR	K29	38.4	13.7	54.9	30.3	87.9	63.4	114.7	86.5	114.7	109.8	132.6	109.8	132.6
DP3800SR	K30	38.4	13.7	54.9	30.3	87.9	63.4	114.7	86.5	114.7	109.8	132.6	109.8	132.6
DP5700SR	K31	73	47	88	56	138	112	188	157	217	176	246	197	267
DP8000SR	K32	73	47	88	56	138	112	188	157	217	176	246	197	267
DP110SR	K33	85	51	102	67	154	122	217	176	246	197	267	217	267
DP160SR	K34	85	51	102	67	154	122	217	176	246	197	267	217	267
DP235SR	K35	128	85	121	77	235	187	324	273	423	347	483	392	512
DP435SR	K36	128	85	121	77	235	187	324	273	423	347	483	392	512
DP665SR	K37	128	85	121	77	235	187	324	273	423	347	483	392	512
DP1000SR	K38	128	85	121	77	235	187	324	273	423	347	483	392	512
DP1200SR	K39	128	85	121	77	235	187	324	273	423	347	483	392	512
DP1800SR	K40	128	85	121	77	235	187	324	273	423	347	483	392	512
DP2700SR	K41	128	85	121	77	235	187	324	273	423	347	483	392	512
DP3800SR	K42	128	85	121	77	235	187	324	273	423	347	483	392	512
DP5700SR	K43	128	85	121	77	235	187	324	273	423	347	483	392	512
DP8000SR	K44	128	85	121	77	235	187	324	273	423	347	483	392	512

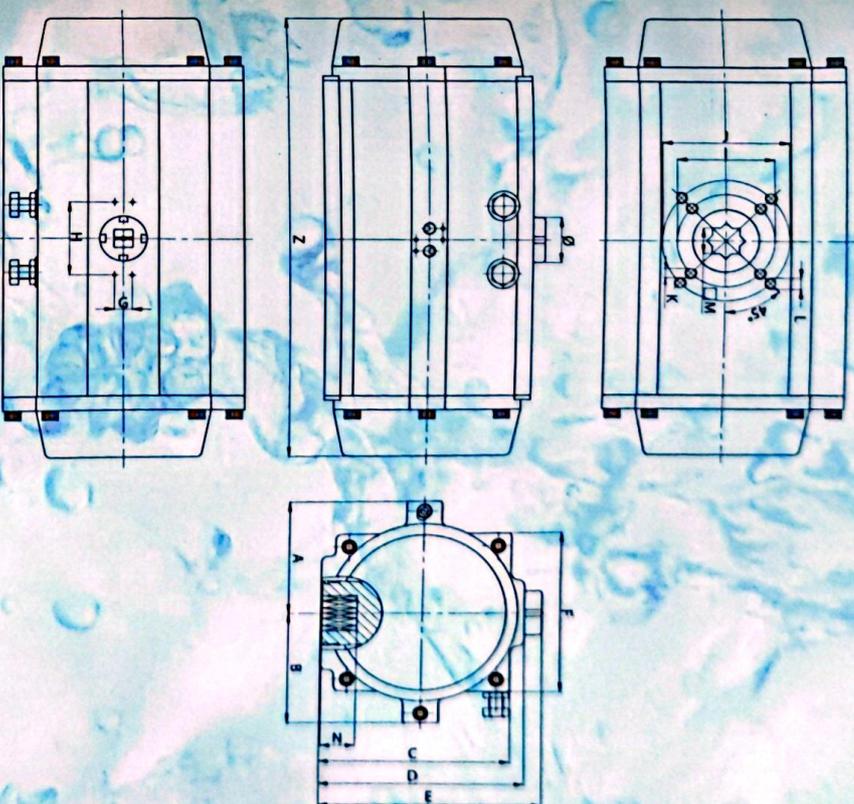
Dimension of DP020DA~DP2700DA



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Ø	Air Connection
DP020	30	41.5	65.5	72	102	65	30	80	Ø36	Ø50	M5x8	M6x10	11	14	147	Ø56	NAMUR G1/4"
DP035	36	47	81	87.5	117.5	72	30	80	Ø50	Ø70	M6x10	M8x13	14	18	168	Ø56	NAMUR G1/4"
DP050	42	53	94	99.5	129.5	81	30	80	Ø50	Ø70	M6x10	M8x13	14	18	184	Ø56	NAMUR G1/4"
DP075	46	57	98.5	104.7	138.7	92	30	80	Ø50	Ø70	M6x10	M8x13	17	21	204	Ø56	NAMUR G1/4"
DP110	50	58.5	111	116.5	146.5	98	30	80	Ø50	Ø70	M6x10	M8x13	17	21	262	Ø56	NAMUR G1/4"
DP160	57.5	64	122.5	133	163	109.5	30	80	Ø70	Ø102	M8x13	M10x16	22	26	268	Ø56	NAMUR G1/4"
DP255	67.5	74.5	145.5	155	185	127.5	30	80	Ø70	Ø102	M8x13	M10x16	22	26	301	Ø68	NAMUR G1/4"
DP435	75	77	161	172	202	137.5	30	80	Ø70	Ø125	M10x16	M12x20	27	31	390	Ø68	NAMUR G1/4"
DP665	87	87	184	197	227	158	30	80	Ø102	Ø140	M10x16	M12x20	36	40	525	Ø91	NAMUR G1/4"
DP1000	103	103	213	230	260	189	30	130	Ø140	Ø140	M16x25	M20x25	46	50	602	Ø91	NAMUR G1/4"
DP1200	113	113	235.5	255	285	210	30	130	Ø140	Ø140	M16x25	M20x25	46	50	602	Ø91	NAMUR G1/4"
DP1800	130	130	264.5	289	319	245	30	130	Ø165	Ø165	M20x25	M20x25	46	50	602	Ø91	NAMUR G1/4"
DP2700	147	147	299	326	356	273	30	130	Ø165	Ø165	M20x25	M20x25	46	50	722	Ø91	NAMUR G1/2"

Unit:mm

Dimension of DP3800DA~DP8000DA



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Ø	Air Connection
DP3800	203	203	324	348	378	290	30	130	Ø165	Ø215	4-M20x25	4-M20x25	46	60	772	Ø80	NAMUR G1/2"
DP5700	230	230	380	410	440	336	30	130	Ø165	Ø215	4-M20x25	4-M20x25	46	60	870	Ø80	NAMUR G1/2"
DP8000	258	258	450	480	510	360	30	130	Ø165	Ø254	4-M20x25	8-M16x25	55	60	930	Ø80	NAMUR G1/2"

Unit:mm

Cylinder

Model	DP007	DP012	DP020	DP035	DP050	DP075	DP075	DP110	DP160	DP255
Cylinder	Ø32	Ø40	Ø52	Ø63	Ø75	Ø83	Ø92	Ø105	Ø125	Ø125

Model	DP435	DP665	DP1000	DP1200	DP1800	DP2700	DP3800	DP5700	DP8000
Cylinder	Ø140	Ø160	Ø190	Ø210	Ø240	Ø270	Ø300	Ø350	Ø400

Unit:mm



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