

**FT**® **FORCE & TORQUE**



**P Series Stainless Steel Actuator**  
**P系列不锈钢气动执行器**



**无锡福斯拓科科技有限公司**  
**WUXI FORCE & TORQUE TECHNOLOGY CO., LTD.**

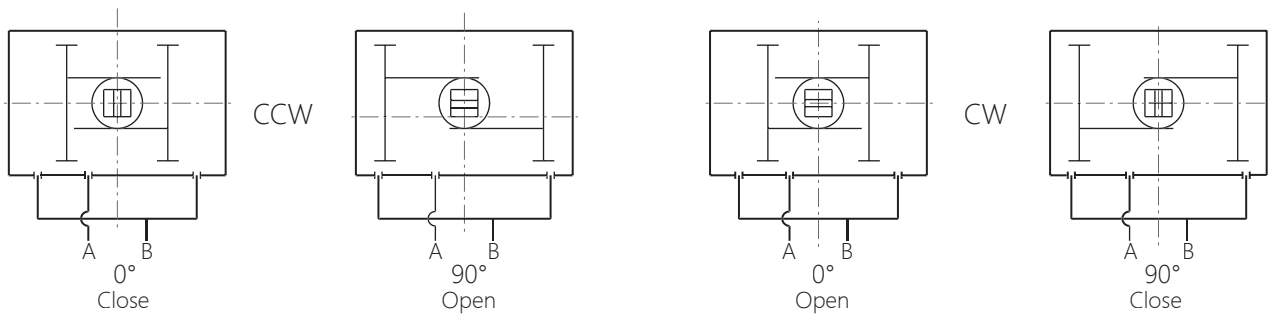
## 性能特点 Performance Characteristics

- P系列不锈钢执行器凭借紧凑的结构，可靠的设计，实现了技术创新，具有生产高效，性能可靠的特点。所有型号均适用于开/关和调节应用。
  - P系列不锈钢执行器适用于在恶劣，腐蚀性工况中驱动蝶阀，球阀和旋塞阀。CF8/CF8M不锈钢结构具有极佳的内部和外部耐腐蚀性能，确保执行器优选应用于船舶，化工，采矿，卫生，食品和饮料以及制药行业。
  - **NAMUR标准安装：** P系列不锈钢执行器符合用于配件安装的NAMUR标准（VDI / VDE 3845）。NAMUR安装面设计，可直接安装附件（限位开关和定位器等）以及控制件，无需额外管路及接头。
  - **耐腐蚀材料：** 所有外部组件均为300系列不锈钢。弹簧钢丝采用特氟龙喷涂以提高内部耐腐蚀性。
  - **双向行程限位：** 两个独立的行程调节螺钉可精确调节 $\pm 5^\circ$ 的开关位置。
  - **正反作用可切换：** 只需将活塞旋转 $180^\circ$ ，即可完成正反作用形式切换。
  - **互换性：** 一种设计最大化实现单作用和双作用执行器相互转换。
  - **多弹簧设计：** 大大减少了零件数量，并实现了最大的弹簧规和循环寿命。
  - **选型范围广：** 多种规格型号供选配最合适的执行器。
  - **ISO阀门安装：** 执行器符合ISO5211标准，可直接安装在阀门上，无需支架或适配器。中轴孔八角连接设计为标准配置。
  - **位置指示器：** 在整个行程范围内，阀门位置清晰可见。
- P Series Stainless Steel Actuator are constructed with a compact and reliable design to offer innovative, efficient and high performance. All models are suitable for both on/off and control applications.
- P Series Stainless Steel Actuator is well suited for automating butterfly, ball, and plug valves in harsh, corrosive environments. The CF8/CF8M Stainless Steel construction provide perfect internal and external corrosion resistance, ensuring the actuators ideal for marine, chemical, mining, sanitary, food and beverage and pharmaceutical applications.
- **NAMUR Mounting:** P Series Stainless Steel Actuator meet NAMUR standards (VDI/VDE 3845) for accessory mounting. The NAMUR mounting patterns allows for the direct mounting with both accessories such as limit switches and positioners ect. and controls without additional tubing or fittings.
  - **Corrosion Resistant Materials:** All external components are 300 series stainless steel. The wire of springs is coated by teflon painting for internal corrosion resistance.
  - **Bi-directional Travel Stops:** The two independent external travel stops allow for adjustment of both clockwise and counterclockwise positions at $\pm 5^\circ$  overtravel in each direction.
  - **Field Reversible Action:** Direct and reverse actions accomplished by simply rotating the pistons  $180^\circ$ .
  - **Interchangeability:** One design for spring return and double acting actuators allows for maximum interchangeability.
  - **Concentric Nested Spring Design:** Significantly reduces the number of parts and allows for maximum spring gage and cycle life.
  - **Wide Size Range:** Wide size range offers optimum actuator sizing.
  - **ISO Valve Mounting Pattern:** Actuators conformed with ISO5211 standards for mounting directly to valves without additional brackets or adapters. The double square shaft is standard.
  - **Position indicator:** The position indicator provides clearly visible indication of valve position through the full range of travel.



## 工作原理 Operating Principle

### 双作用执行器 Double Acting Actuators



A口进气，压缩空气推动活塞向外运动，使执行器输出轴逆时针旋转(0°→90°)，B口排气。

B口进气，压缩空气推动活塞向内运动，使执行器输出轴顺时针旋转(90°→0°)，A口排气。

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.

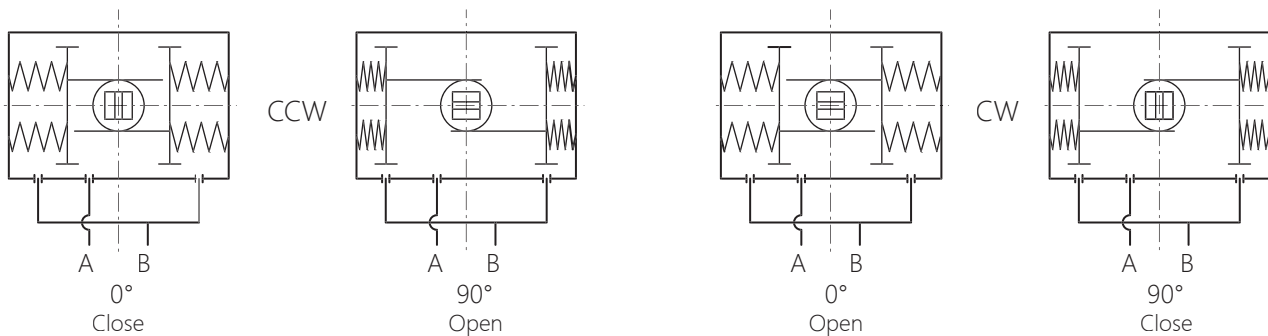
A口进气，压缩空气推动活塞向外运动，使执行器输出轴顺时针旋转(90°→0°)，B口排气。

B口进气，压缩空气推动活塞向内运动，使执行器输出轴逆时针旋转(0°→90°)，A口排气。

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.

### 单作用执行器 Spring Return Actuators



A口进气，压缩空气克服弹簧力，推动活塞向外运动，执行器输出轴逆时针转动(0°→90°)，B口排气；

执行器失气，活塞在弹簧力的作用下向内运动，执行器输出轴顺时针转动(90°→0°)，A口排气。

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.

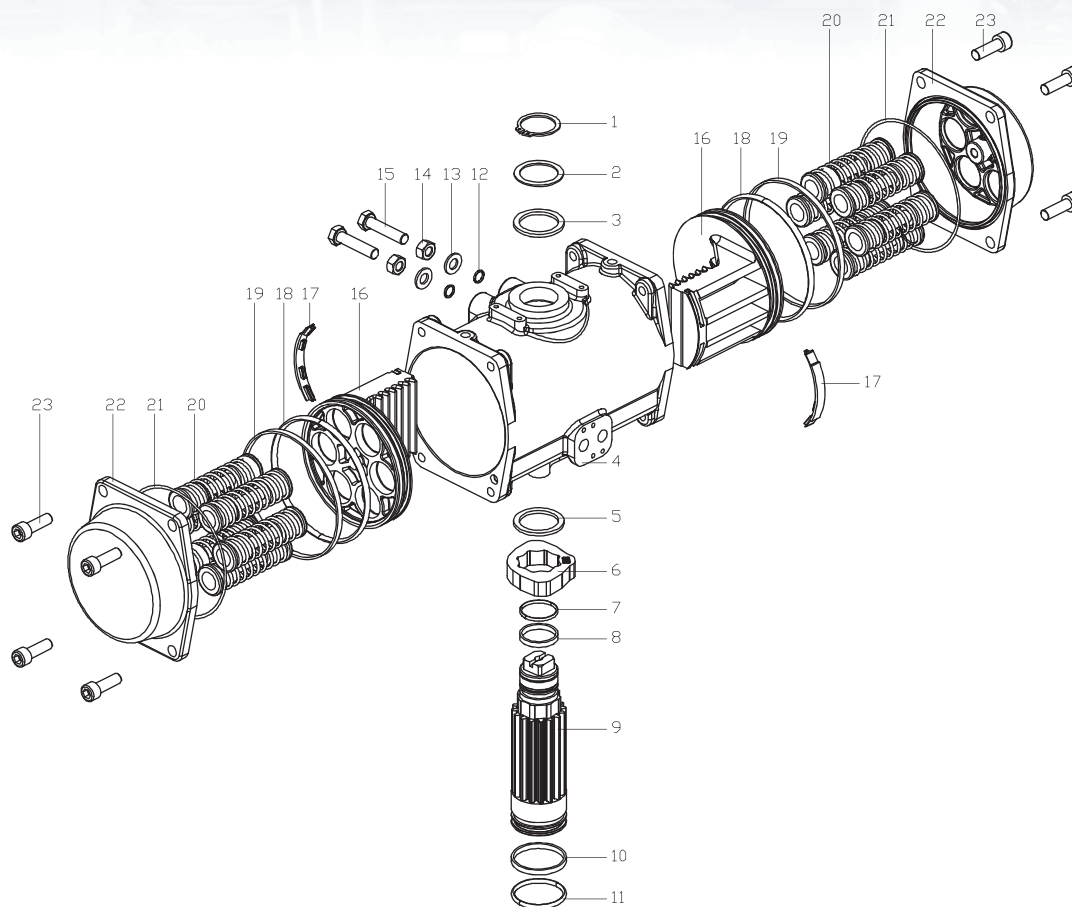
A口进气，压缩空气克服弹簧力，推动活塞向外运动，执行器输出轴顺时针转动(90°→0°)，B口排气；

执行器失气，活塞在弹簧力的作用下向内运动，执行器输出轴逆时针转动(0°→90°)，A口排气。

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.

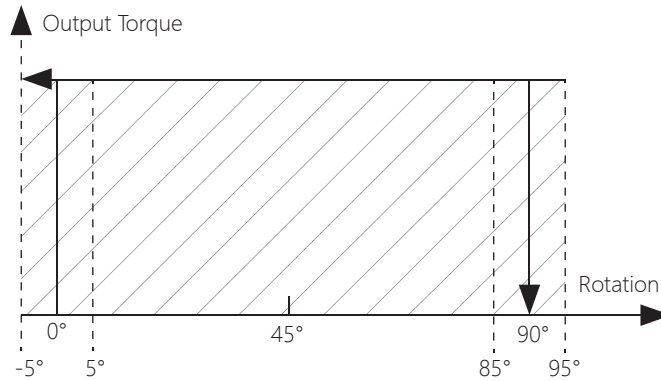
Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.





序号 No.	名称 Description	数量 Qty.	材料 Standards Material	可选材料Optional
1	卡簧 Spring Clip	1	SUS304	SUS316
2	垫圈 Thrust Washer	1	SUS304	SUS316
3	外垫片 Outside Washer	1	工程塑料 Engineering Plastics	
4	缸体 Body	1	CF8	CF8M/CF3M
5	内垫片 Inside Washer	1	工程塑料 Engineering Plastics	
6	凸轮 Cam	1	锻钢+镀镍 Forged Steel With Nickel Plated	
7	上轴轴承 Bearing(Pinion Top)	1	工程塑料 Engineering Plastics	
8	上轴"O"型圈 O-ring(Pinion Top)	1	丁腈橡胶 NBR	氟橡胶/硅橡胶Viton/Silicone
9	齿轴 Pinion	1	SUS304	SUS316
10	下轴轴承 Bearing(Pinion bottom)	1	工程塑料 Engineering Plastics	
11	下轴"O"型圈 O-ring(Pinion Bottom)	1	丁腈橡胶 NBR	氟橡胶/硅橡胶Viton/Silicone
12	调节螺钉"O"型圈 O-ring(Adjust Screw)	2	丁腈橡胶 NBR	氟橡胶/硅橡胶Viton/Silicone
13	调节螺栓垫片 Adjustment Screw Washer	2	SUS304	SUS316
14	调节螺钉螺母 Nut(Adjust Screw)	2	SUS304	SUS316
15	调节螺栓 Adjust Screw	2	SUS304	SUS316
16	活塞 Piston	2	ADC12	
17	活塞导板 Guide(Piston)	2	工程塑料 Engineering Plastics	
18	活塞轴承 Bearing(Piston)	2	工程塑料 Engineering Plastics	
19	活塞"O"形圈 O-ring(Piston)	2	丁腈橡胶 NBR	氟橡胶/硅橡胶Viton/Silicone
20	弹簧 Spring	0-12	弹簧钢 Sprign Steel	
21	端盖"O"型圈 O-ring (End Cap)	2	丁腈橡胶 NBR	氟橡胶/硅橡胶Viton/Silicone
22	端盖 End-Cap	2	CF8	CF8M/CF3M
23	端盖螺栓 Cap Screw	8	SUS304	SUS316

## 双作用扭矩 Output Torque with Double Acting



unit: Nm

型号Model	气源压力Air supply pressure (Unit: bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
PRD052	8	10	12	16	18	20	22	24	28	32
PRD063	15	18	22	29	33	36	40	44	51	58
PRD075	20	25	30	40	45	50	55	60	70	80
PRD083	31	39	47	63	70	78	86	94	110	125
PRD092	45	56	68	90	102	113	124	135	158	181
PRD105	66	83	99	132	149	165	182	198	231	264
PRD125	100	125	150	200	226	251	276	301	351	401
PRD140	171	214	256	342	385	427	470	513	598	684
PRD160	266	332	399	532	598	665	731	798	931	1064
PRD190	426	532	638	851	958	1064	1170	1277	1490	1702
PRD210	532	665	798	1064	1197	1330	1463	1596	1862	2128
PRD240	769	962	1154	1539	1731	1924	2116	2308	2693	3078
PRD270	1170	1462	1754	2339	2632	2924	3216	3509	4094	4679

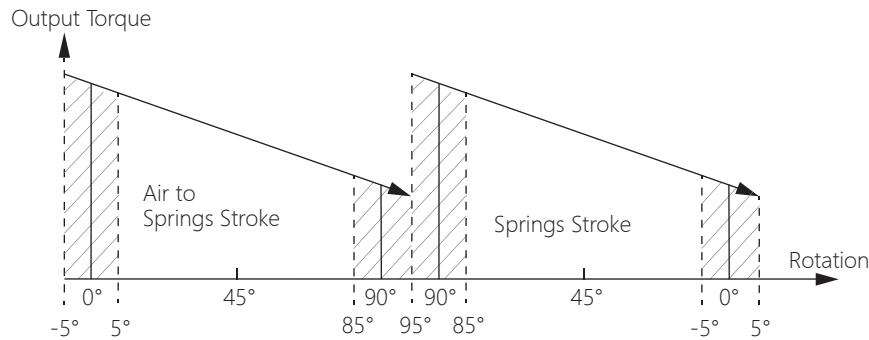
## 工作技术条件 Operating conditions

1. 使用介质：压缩空气、无腐蚀性气体和油；
2. 压力范围：双作用2~8巴（Bar），单作用2~8巴（Bar）
3. 工作温度：标准型（使用丁腈橡胶O型圈）-20℃~+80℃  
低温型（使用低温丁腈橡胶O型圈）-40℃~+80℃  
高温型（使用氟橡胶O型圈）-15℃~+150℃
4. 行程调整：活塞在两端位置有±5°的可调范围；
5. 润 滑：在正常工作条件下，不需添加润滑剂；
6. 安 装：适合室内或室外安装；
7. 最高使用压力：输入气压不超过10巴。

1. Operating media  
Dry or lubricated air, the non-corrosive gases or oil.
2. Air supply pressure  
Double acting: 2 ~ 8 Bar; Spring return: 2 ~ 8 Bar
3. Operating temperature  
Standard: -20°C ~ +80°C  
Low temperature: -40°C ~ +80°C  
High temperature: -15°C ~ +150°C
4. Travel adjustment  
Adjustment range of ±5° when the pistons at the sides.
5. Lubrication  
Under normal operating condition, need not accrete lubricant
6. Application  
Either indoor or outdoor
7. Highest pressure  
The maximum input pressure is 10 Bar



### 单作用扭矩 Output Torque with Spring Return



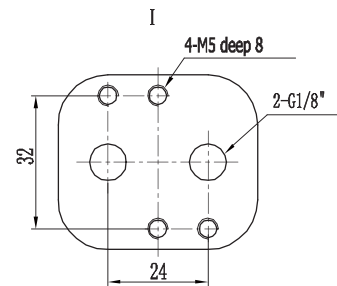
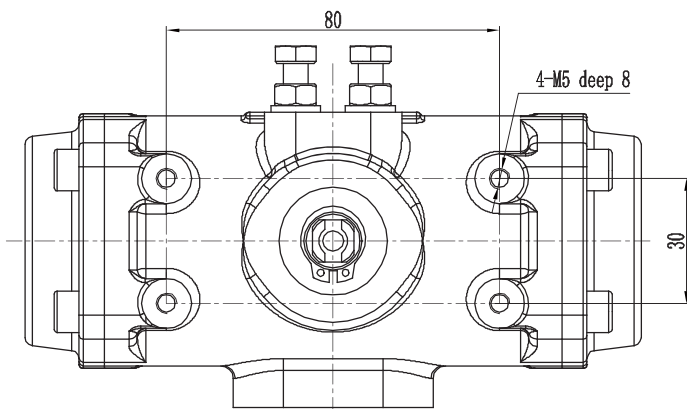
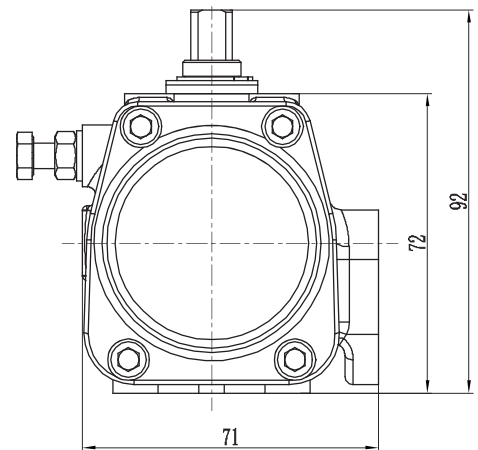
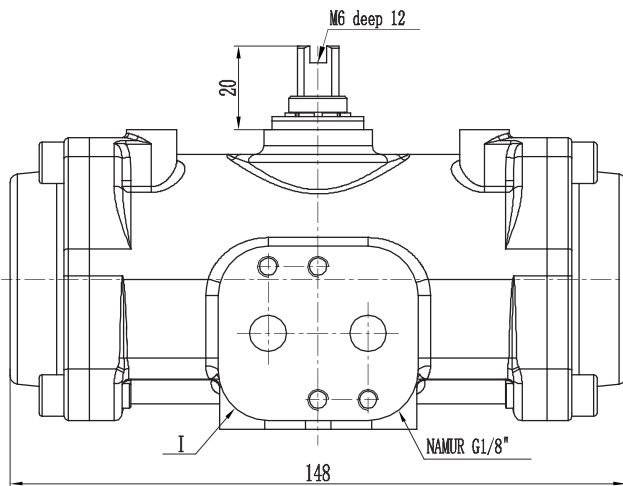
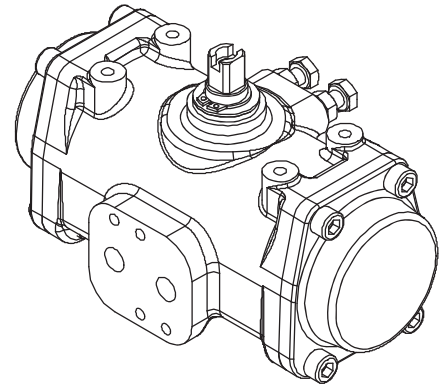
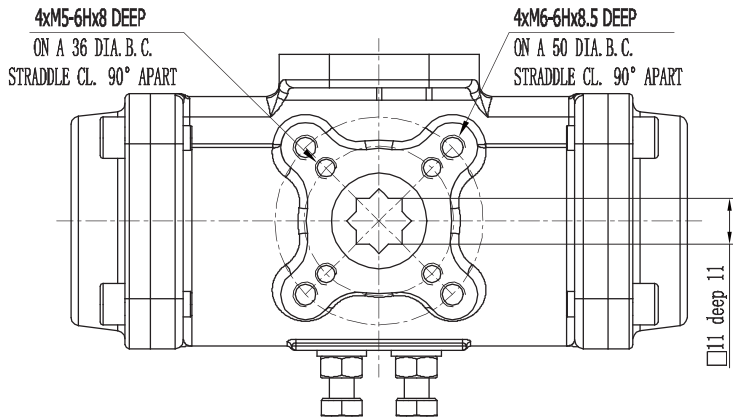
unit: Nm

		输出扭矩Output torque of air to springs														Springs' output	
气压Air pressure	Spring	2.5BAR		3BAR		4BAR		5BAR		6BAR		7BAR		8BAR			
型号Model	Qty.	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	90° Start	0° End
PRS052	K5	5.7	3.8	7.6	5.7											6.2	4.3
	K6	4.9	2.5	6.9	4.5	10.9	8.5									7.4	5.0
	K7	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4							8.6	5.9
	K8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1					9.9	6.7
	K9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8			11.1	7.6
	K10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6			12.4	8.5
	K11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3	13.6	9.3
K12							9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1	14.8	10.2	
PRS063	K5	11.4	7.7	15.0	11.4	22.3	14.9									10.4	6.8
	K6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9							12.5	8.2
	K7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9							14.6	9.6
	K8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3			16.7	10.9
	K9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2			18.8	12.3
	K10					1.4	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4	20.9	13.7
	K11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3	22.9	15.0
K12							20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25.0	16.4	
PRS075	K5	14.5	10.6	19.4	15.5	29.5	25.7									14.5	10.5
	K6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8							17.4	12.7
	K7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9							20.3	14.8
	K8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0			23.2	16.9
	K9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2			26.1	19.0
	K10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2	29.0	21.1
	K11							27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4	31.9	23.2
K12							24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4	34.7	25.3	
PRS083	K5	23.3	16.1	31.1	24.0	46.8	39.7									23.0	15.8
	K6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7							27.6	19.0
	K7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2							32.2	22.1
	K8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9			36.8	25.3
	K9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3			41.4	28.5
	K10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3	46.0	31.6
	K11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8	50.6	34.8
K12							40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2	55.2	38.0	
PRS092	K5	33.1	22.0	44.2	33.2	66.8	55.9									34.4	23.3
	K6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6							41.2	28.0
	K7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7							48.1	32.7
	K8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0			55.0	37.3
	K9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1			61.9	42.0
	K10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8	68.7	46.7
	K11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0	75.6	51.4
K12							56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1	82.5	56.0	
PRS105	K5	51.0	33.4	67.5	49.9	100.6	83.0									49.2	31.6
	K6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2							59.1	38.0
	K7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4							68.9	44.3
	K8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7			78.7	50.6
	K9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9			88.6	56.9
	K10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7	98.4	63.3
	K11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2	108.3	69.6
K12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9	

unit: Nm

气压Air pressure		输出扭矩Output torque of air to springs														Springs' output	
型号Model	Spring Qty.	2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		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		
PRS125	K5	73	47	98	72	148	122									79	52
	K6	63	31	88	56	138	107	188	157							94	63
	K7	52	15	77	40	127	90	178	141							110	73
	K8			67	25	117	75	167	125	217	176	268	226			125	84
	K9					107	59	157	109	207	159	257	210			141	94
	K10					96	44	146	94	196	144	247	194	297	245	157	105
	K11							136	78	186	128	236	178	286	228	173	115
K12							125	63	176	113	226	163	276	213	188	125	
PRS140	K5	128	85	171	127	256	213									129	86
	K6	111	59	154	102	239	187	325	273							155	103
	K7	94	33	137	76	222	162	308	247							181	120
	K8			120	50	205	136	291	221	376	307	462	392			206	137
	K9					187	110	273	196	358	281	444	367			232	155
	K10					170	84	256	169	341	255	427	340	512	426	258	172
	K11							238	143	324	229	409	314	495	400	284	189
K12							221	118	307	203	392	289	478	374	310	206	
PRS160	K5	193	124	259	191	392	324									208	140
	K6	165	83	232	149	365	282	498	415							250	168
	K7	137	41	203	107	336	240	469	373							292	196
	K8			176	66	309	199	442	237	575	465	708	598			333	223
	K9					280	157	413	290	546	423	679	556			375	251
	K10					253	115	386	248	519	381	652	514	785	647	417	279
	K11							358	207	491	340	624	473	757	606	458	307
K12							330	165	463	298	596	431	729	564	500	335	
PRS190	K5	332	222	438	329	651	542									309	200
	K6	292	161	398	267	611	480	824	693							371	240
	K7	252	99	358	205	571	418	784	631							433	280
	K8			318	143	531	356	744	569	957	782	1169	995			495	320
	K9					491	295	704	507	917	720	1130	933			557	360
	K10					451	233	664	446	877	658	1090	871	1302	1084	618	400
	K11							624	384	837	597	1050	809	1263	1022	680	440
K12							584	322	797	535	1010	748	1223	960	742	480	
PRS210	K5	390	285	523	418	789	684									380	275
	K6	335	209	468	342	734	608	1000	874							456	330
	K7	280	133	413	266	679	532	945	798							532	385
	K8			358	190	624	456	890	722	1156	988	1422	1254			608	440
	K9					569	380	835	646	1101	912	1367	1178			684	495
	K10					514	304	780	570	1046	836	1312	1102	1578	1368	760	550
	K11							725	494	991	760	1257	1026	1523	1292	836	605
K12							670	418	936	684	1202	950	1468	1216	912	660	
PRS240	K5	552	409	744	600	1129	985									554	410
	K6	470	297	662	489	1047	874	1432	1259							665	492
	K7	388	187	580	379	964	764	1349	1149							775	575
	K8			498	268	883	653	1267	1037	1652	1422	2037	1807			886	656
	K9					800	542	1185	926	1569	1311	1954	1696			998	739
	K10					718	431	1103	816	1488	1201	1872	1586	2257	1970	1108	821
	K11							1021	705	1406	1090	1791	1474	2176	1859	1219	903
K12							939	594	1323	979	1708	1363	2093	1748	1330	985	
PRS270	K5	903	675	1195	968	1779	1552									787	560
	K6	790	519	1083	811	1667	1396	2252	1981							943	672
	K7	679	361	972	654	1556	1238	2141	1823							1101	783
	K8			860	497	1444	1081	2029	1666	2614	2252	3199	2836			1258	895
	K9					1332	923	1917	1509	2502	2094	3087	2678			1416	1007
	K10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107	1572	1119
	K11							1693	1194	2278	1779	2862	2364	3448	2949	1730	1231
K12							1582	1037	2167	1623	2751	2207	3336	2792	1887	1342	

**PRD(S)052外型尺寸 Dimension**

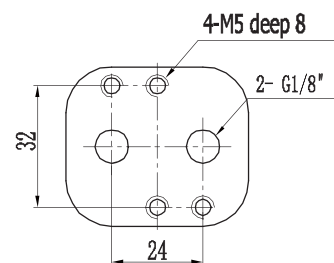
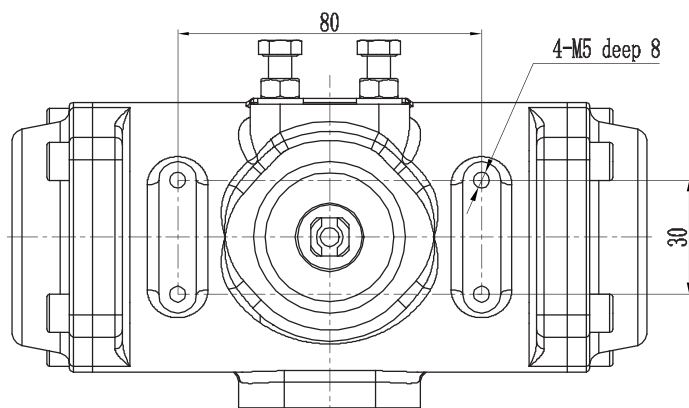
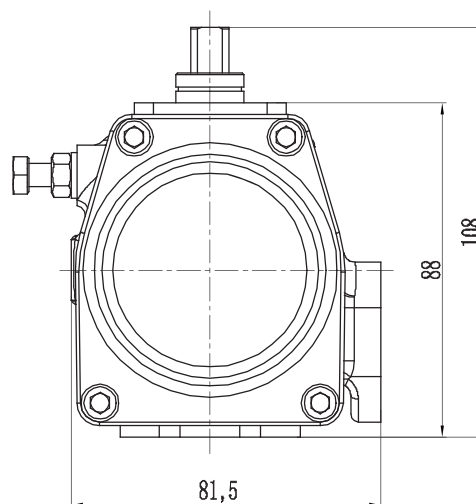
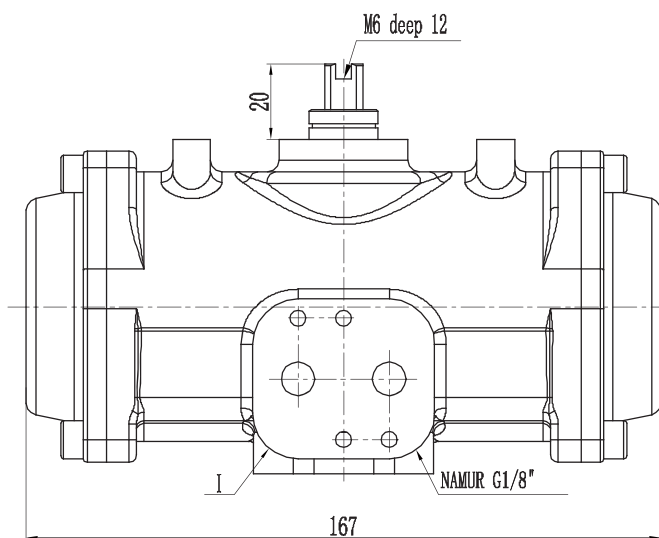
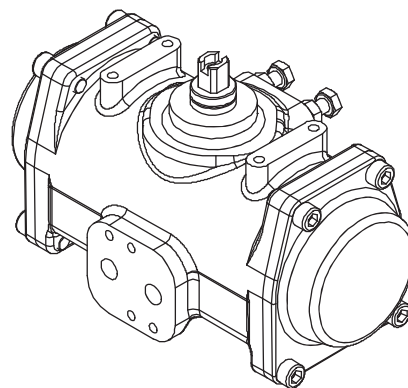
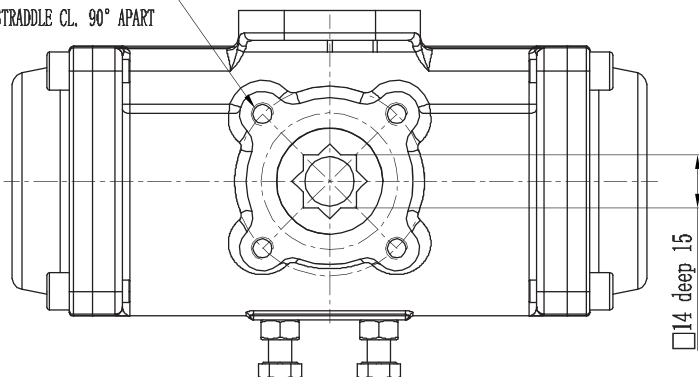


G1/8" NAMUR STANDARD



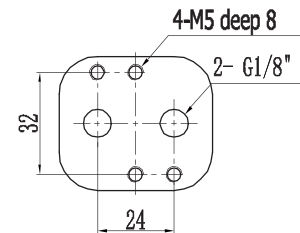
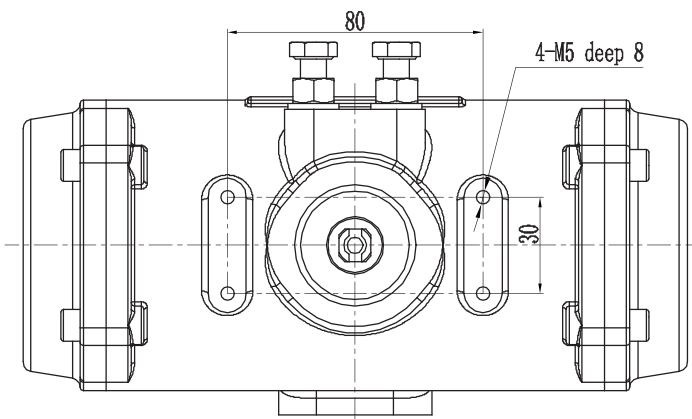
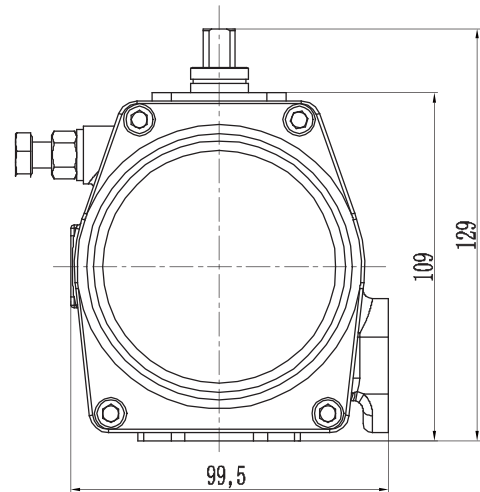
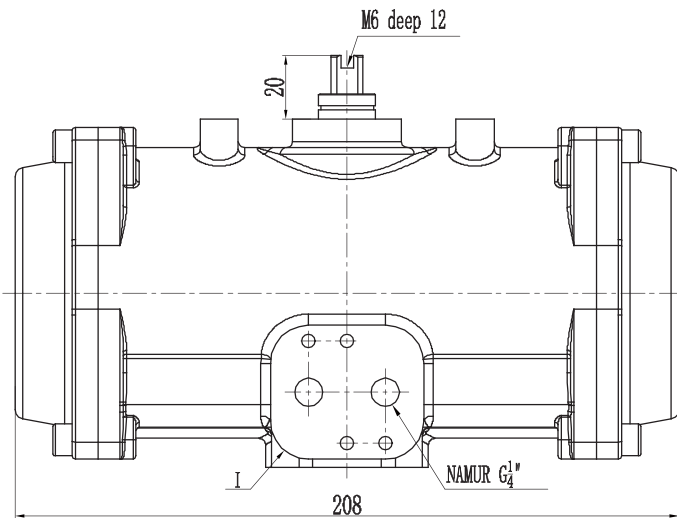
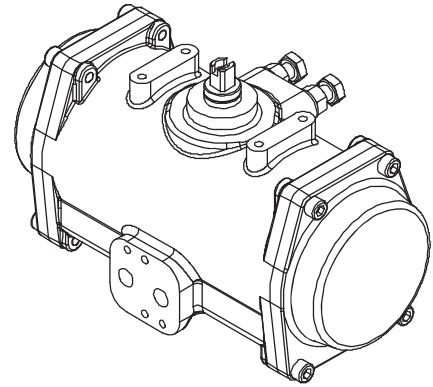
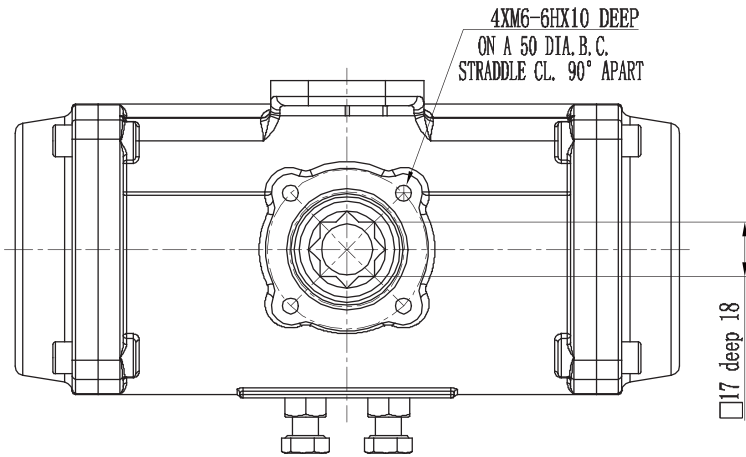
## PRD(S)063外型尺寸 Dimension

4xM6-6Hx10 DEEP  
ON A 50 DIA. B. C.  
STRADDLE CL. 90° APART



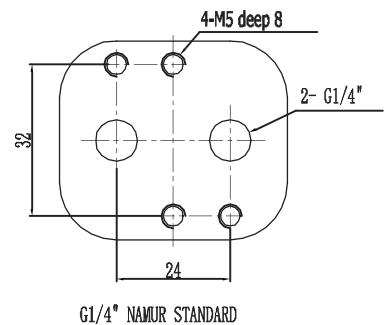
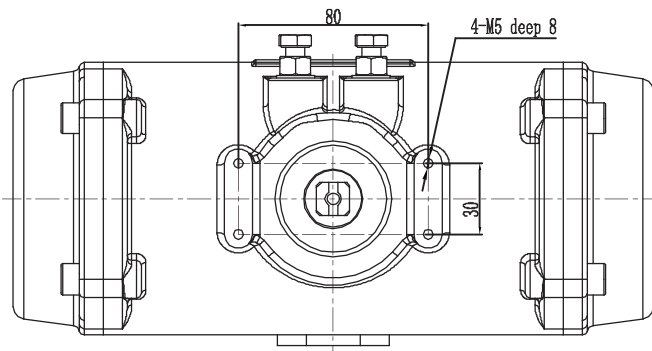
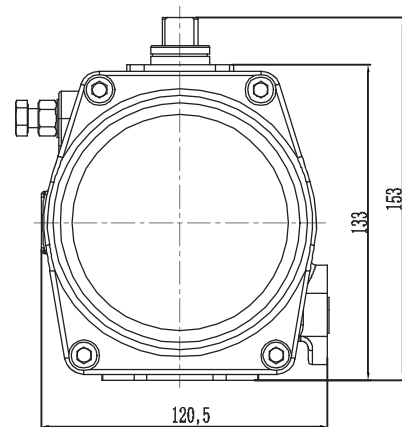
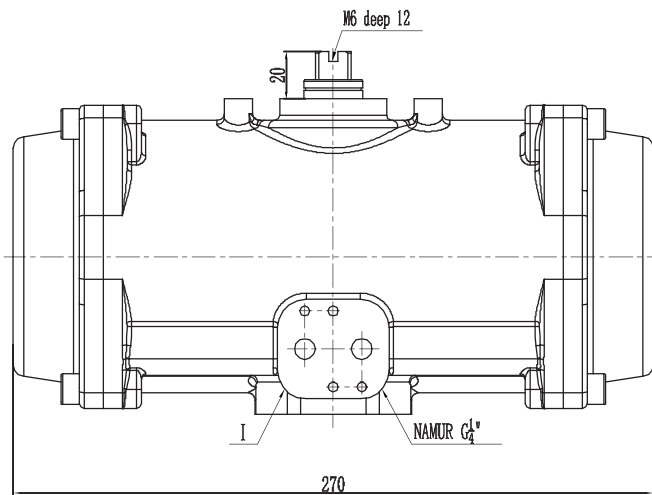
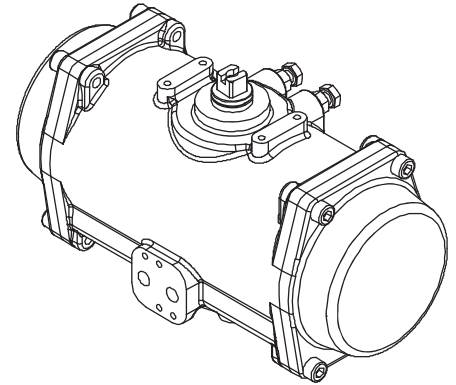
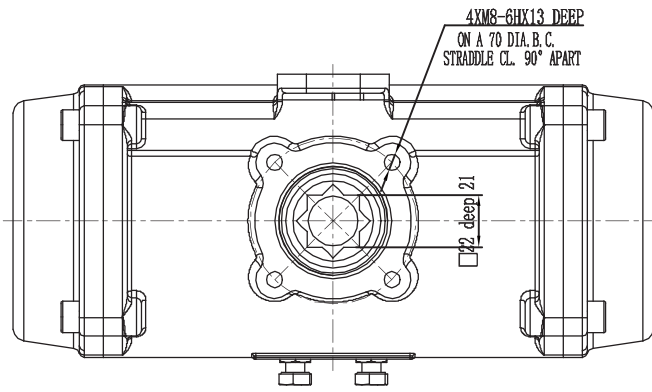
G1/8" NAMUR STANDARD

**PRD(S)083外型尺寸 Dimension**

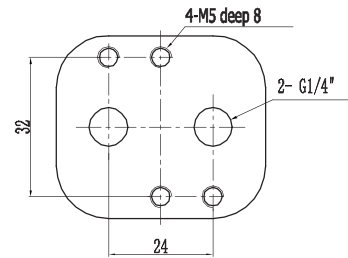
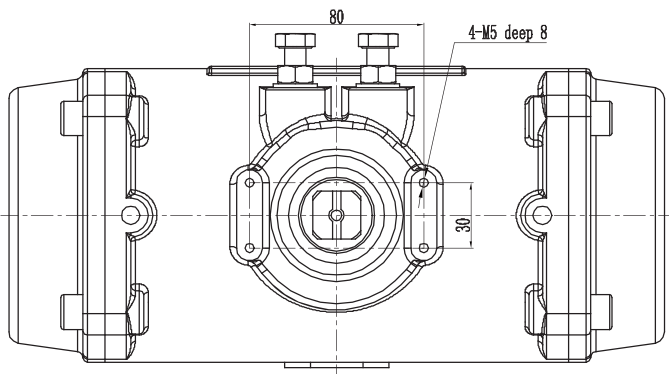
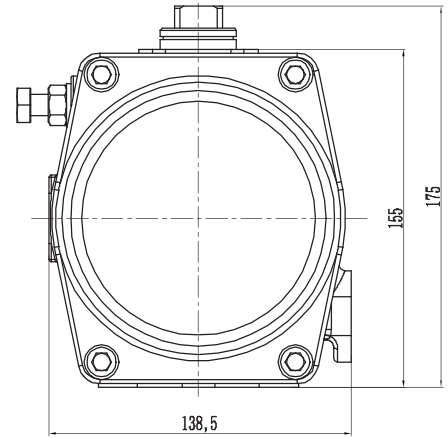
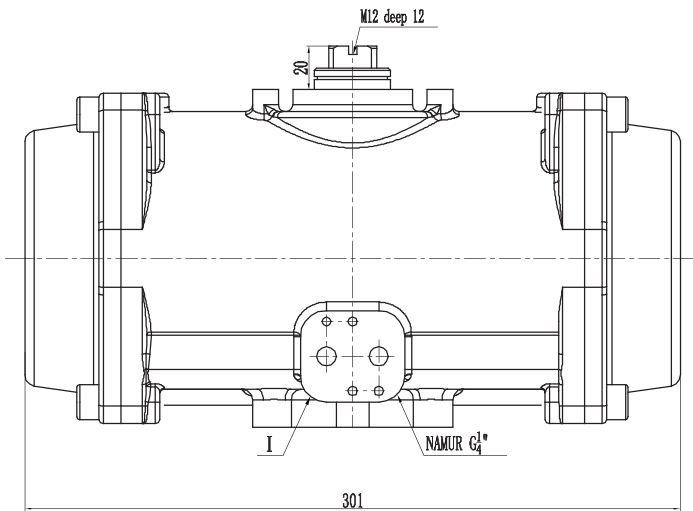
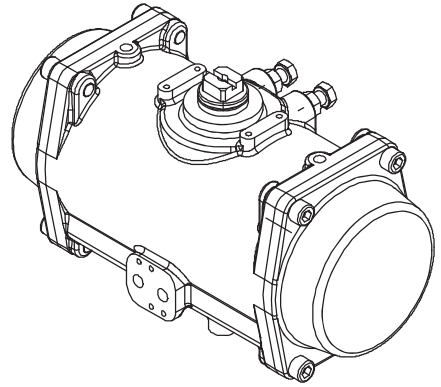
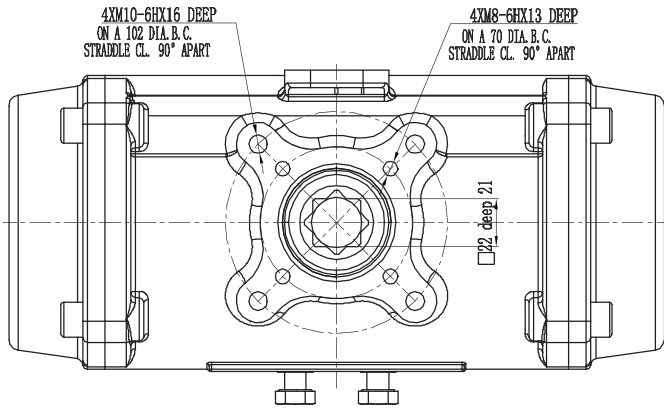


G1/4" NAMUR STANDARD

**PRD(S)105外型尺寸 Dimension**



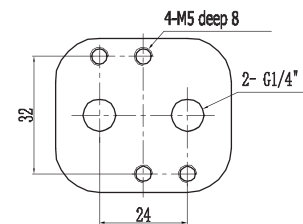
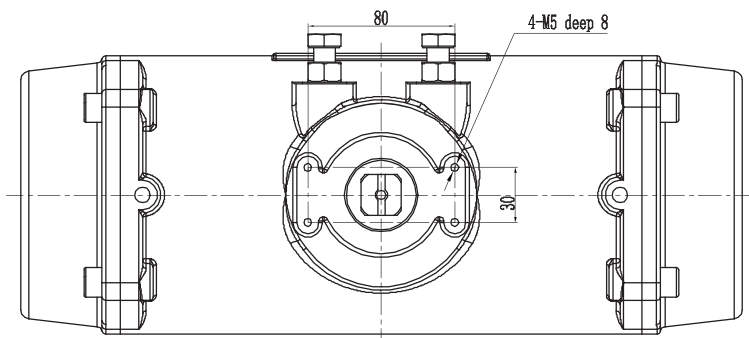
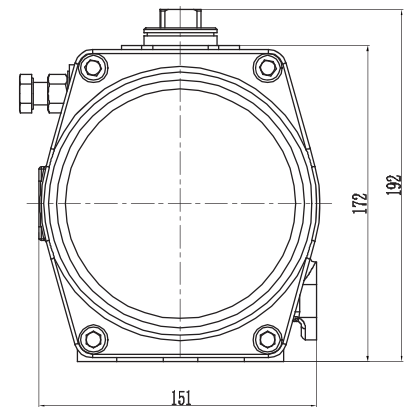
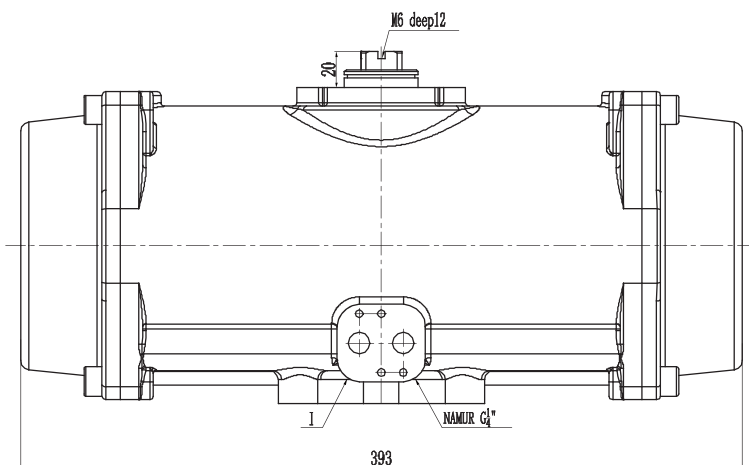
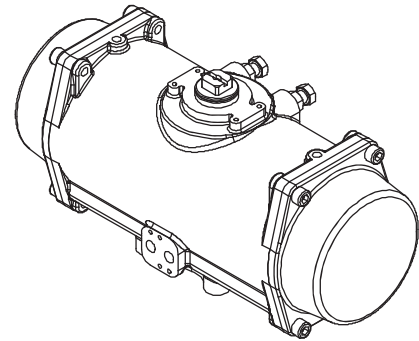
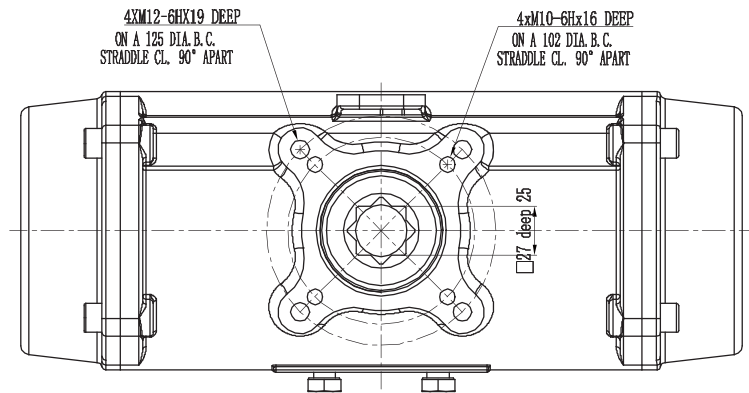
**PRD(S)125外型尺寸 Dimension**



G1/4" NAMUR STANDARD

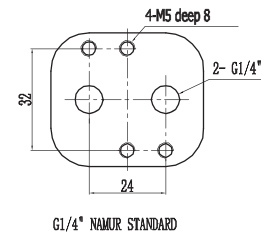
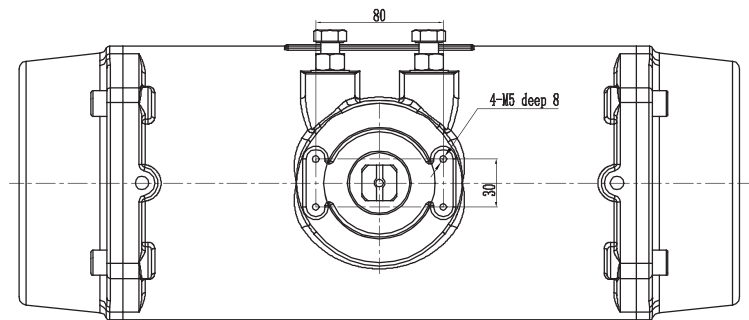
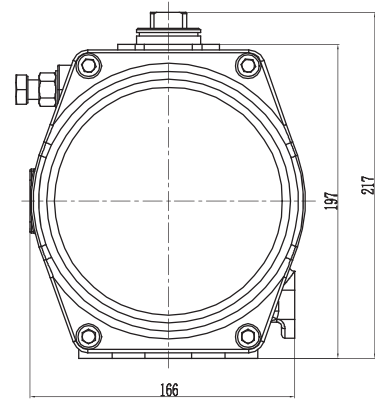
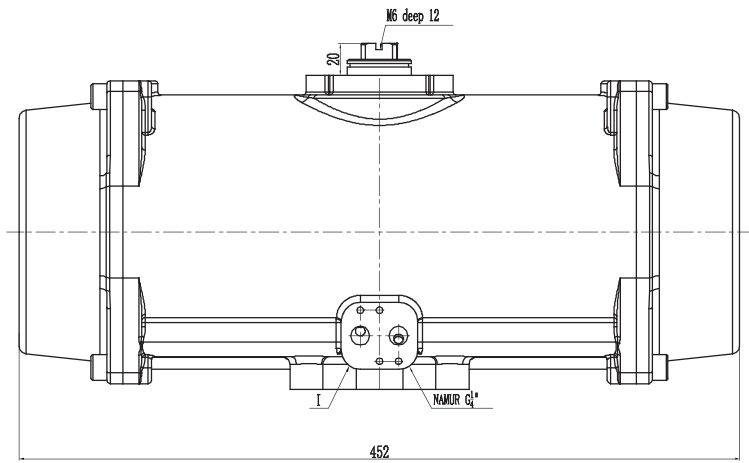
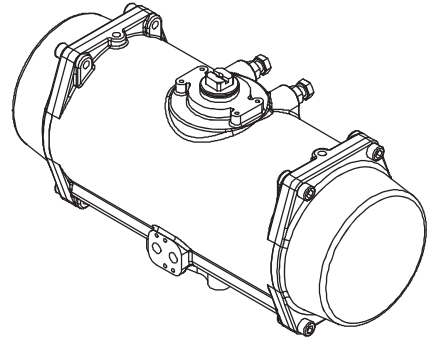
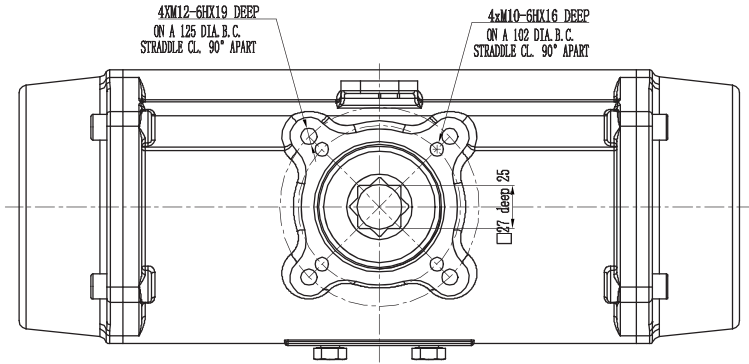


## PRD(S)140外型尺寸 Dimension



G1/4" NAMUR STANDARD

**PRD(S)160外型尺寸 Dimension**



### PRD(S)210外型尺寸 Dimension

