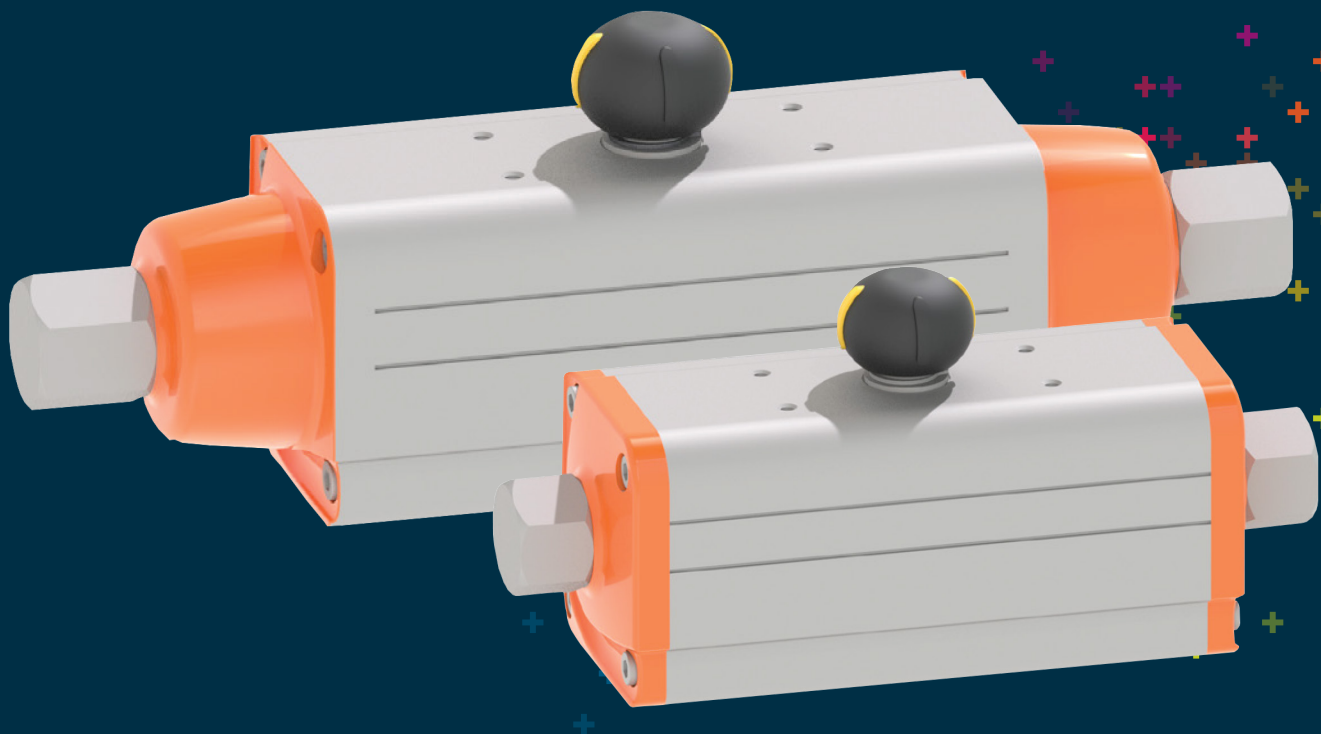


Pneumatic Actuator PA30–70



General

- Torque Range: 11–177.1 ft-lb
- Action: Fail close, fail close, double acting
- Type: Scotch yoke
- Lubrication: Self lubricating strips
- Housing Material: Anodized Aluminum
- Housing: Rolled cylinder
- Position Indicator: Optical, integrated
- Stroke Limiter: $\pm 10^\circ$

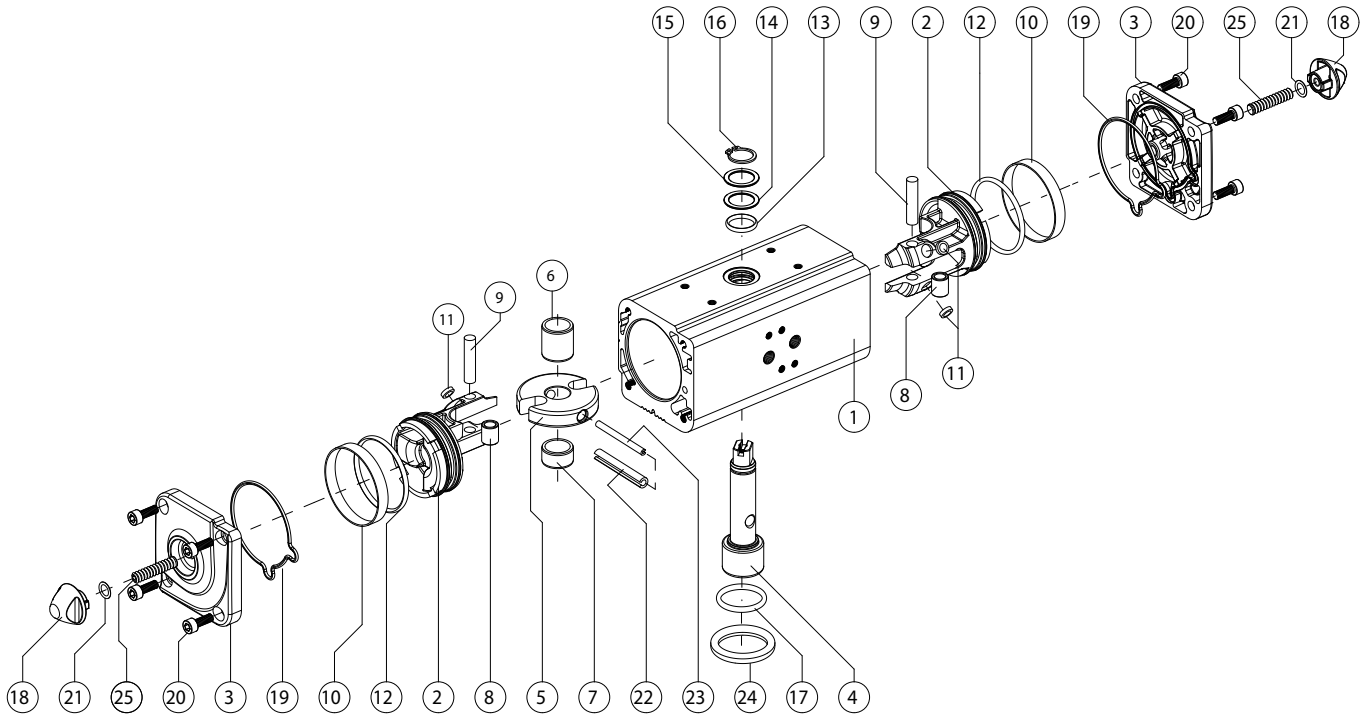
Key Compliance

- Mount: DIN/ISO 5211
- Drive: DIN 3337
- Accessories Mount: VDI/VDE 3845
- Pneumatic Port Mount: NAMUR (PA60-80 FC/FO, PA70-90 DA)
- Pneumatic Port Threads: ISO 228
- Machinery Directive: 2006/42/EC Appendix VII Part B
- Safety in Terminology, Methodology: DIN EN ISO 12100-1
- Safety in Technical Principles: DIN EN ISO 12100-2
- Permitted Tolerance: DIN 7168

Sample Specification

The PA30–PA70 Pneumatic Actuators shall be of scotch yoke design with options for fail-safe to close, fail-safe to open and double acting functionalities. The actuator housing shall be anodized aluminum with aluminum end caps that are bolted to the actuator housing to create a pressure tight seal and secure any spring packs. All variants shall feature a stroke limiter of $\pm 10^\circ$. The actuator top mount shall be NAMUR compliant with an optical position indicator utilizing colored tabs with four insert positions stationed 90° apart. The pneumatic connection ports shall be threaded BSP and fail-safe variants shall utilize a pneumatic exhaust port insert. The actuator base mount shall be of standard F0 pattern per DIN ISO 5211 and the drive shall be a metric double square. Actuator information shall be laser engraved onto a name plate mounted on the side of the actuator. All actuators shall be manufactured under ISO 9001 for Quality and ISO14001 for Environmental Management.

Components



Components

Part	Description	Material	Part	Description	Material
1	Cylinder	Aluminum alloy	14	External support ring	Acetalic resins
2	Piston	Aluminum alloy	15	Washer	Stainless steel
3	Cap	Aluminum alloy	16	Seeger	Stainless steel
4	Shaft	Stainless steel	17	O-ring (lower sealing shaft)	FKM
5	Scotch yoke	Steel alloy	18	Nut	Aluminum alloy
6	Support bushing	Acetalic resin	19	End-cap O-ring	NBR
7	Shaft support	Acetalic resin	20	Screws	Stainless steel
8	Bushing	Steel alloy	21	O-ring	NBR
9	Rotative sleeve	Steel alloy	22	External elastic yoke pin	Steel alloy
10	Dynamic seal	Polyurethan	23	Internal elastic yoke pin	Steel alloy
11	Piston support	PTFE caric carbo-grafite	24	Centering ring	Aluminum alloy
12	O-ring	NBR	25	Stroke adjustment screw	Stainless steel
13	O-ring (upper sealing shaft)	FKM			

Key Design Features

The PA30-70 Pneumatic Actuator Family offers several design features to improve performance and benefit end users. The piston seal (19. above) is self-lubricating to prevent the piston from sticking to the actuator housing even in extremely low cycle count applications. The scotch yoke design reduces friction between internal components and required piston surface area, reducing the overall footprint and weight of the actuator when compared to rack and pinion style actuators of similar size. The housing (16. above) is manufactured with rolled aluminum, reducing the surface roughness resulting in smooth actuation cycles and further preventing the piston from sticking.

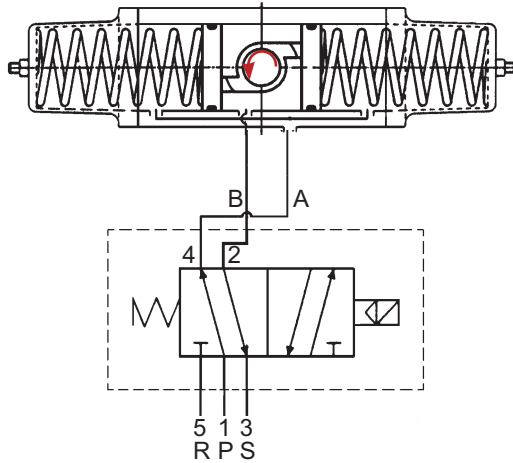


Technical Data

Control Diagrams

Red arrow indicating rotation direction when actuated.
Spring return versions shown in fail position. Double acting version shown in closed position. Actuator top shown.

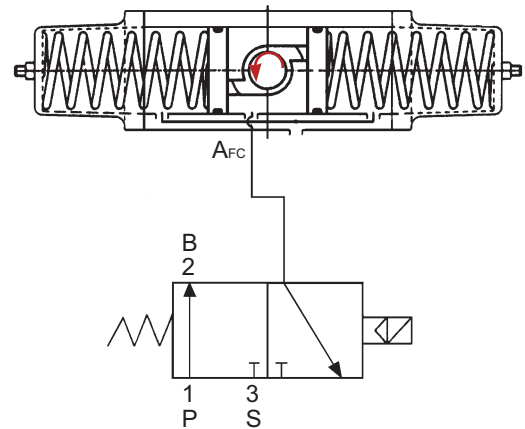
Double Acting: 5/2 Solenoid



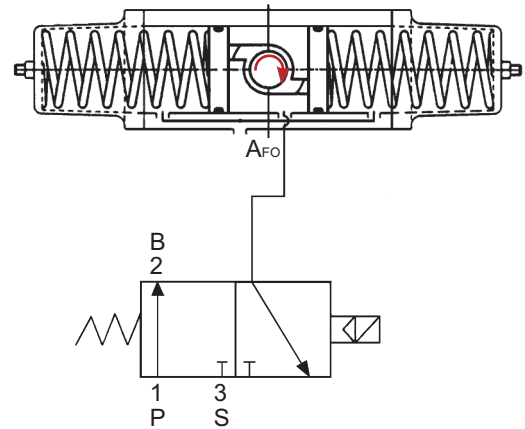
Control Media Volume and Weight

Size	Action	Volume (dm ³)	Weight (lb)
PA30	FC/FO	0.16	4.4
PA35	FC/FO	0.25	5.3
PA40	FC/FO	0.33	7.7
PA45	FC/FO	0.51	10.1
PA50	FC/FO	0.7	14.7
PA55	FC/FO	1.02	20.7
PA60	FC/FO	1.38	24.2
PA65	FC/FO	2.02	35
PA70	FC/FO	2.69	42.2
PA30	DA	0.15	2.2
PA35	DA	0.22	2.8
PA40	DA	0.28	3.4
PA45	DA	0.43	4.1
PA50	DA	0.59	6.2
PA55	DA	0.87	7.5
PA60	DA	1.18	11.7
PA65	DA	1.74	15.8
PA70	DA	2.38	18.5

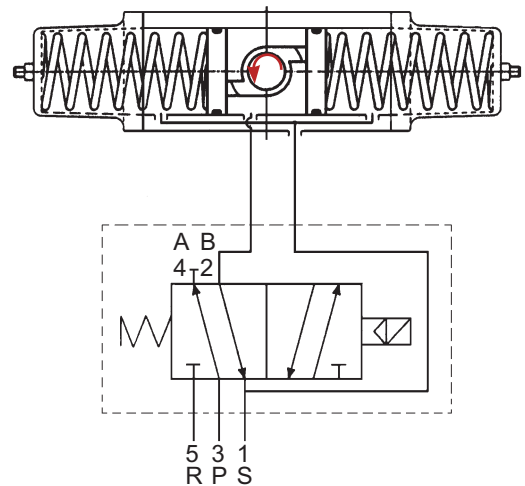
Fail Close: 3/2 Solenoid



Fail Open: 3/2 Solenoid



Spring Return: 5/2 Solenoid Fail close version shown



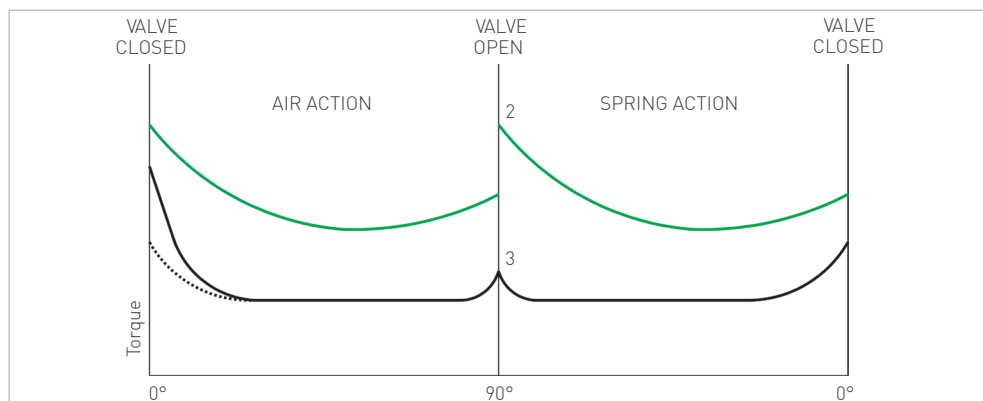
Spring Return Torque Specification

The following tables are shown in foot-pounds unless otherwise specified

Output Torque

Type	Operating Angle	40 psi Control Pressure		60 psi Control Pressure		80 psi Control Pressure	
		Air	Spring	Air	Spring	Air	Spring
PA30	0°	10.8	7.4	16.2	11.1	21.5	14.8
	45°	5.5	5.5	8.3	8.3	11.1	11.1
	90°	7.4	10.8	11.1	16.2	14.8	21.5
PA35	0°	19.2	12.9	28.8	19.2	38.4	25.8
	45°	9.6	9.6	14.4	14.4	19.2	19.2
	90°	12.9	19.2	19.2	28.8	25.8	38.4
PA40	0°	20.9	14.8	31.3	22.1	41.7	29.5
	45°	11.1	11.1	16.6	16.6	22.1	22.1
	90°	14.8	20.9	22.1	31.3	29.5	41.7
PA45	0°	30.8	22.1	46.2	33.2	61.7	44.3
	45°	16.4	16.4	24.6	24.6	32.8	32.8
	90°	22.1	30.8	33.2	46.2	44.3	61.7
PA50	0°	41.7	29.5	62.5	44.3	83.3	59.0
	45°	22.1	22.1	33.2	33.2	44.3	44.3
	90°	29.5	41.7	44.3	62.5	59.0	9.5
PA55	0°	62.5	44.3	93.8	66.4	125.1	88.5
	45°	33.2	33.2	49.8	49.8	66.4	66.4
	90°	44.3	62.5	66.4	93.8	88.5	125.1
PA60	0°	84.5	59.0	126.7	88.5	168.9	118.0
	45°	44.3	44.3	66.4	66.4	88.5	88.5
	90°	59.0	84.5	88.5	126.7	118.0	168.9
PA65	0°	126.9	27.4	190.3	132.8	253.7	177.0
	45°	66.4	66.4	99.6	99.6	132.8	132.8
	90°	88.5	126.9	132.8	190.3	177.0	253.7
PA70	0°	156.2	118.0	234.2	177.0	312.4	236.0
	45°	88.5	88.5	132.8	132.8	177.0	177.0
	90°	118.0	156.2	177.0	234.2	236.0	312.4

Torque Characteristics



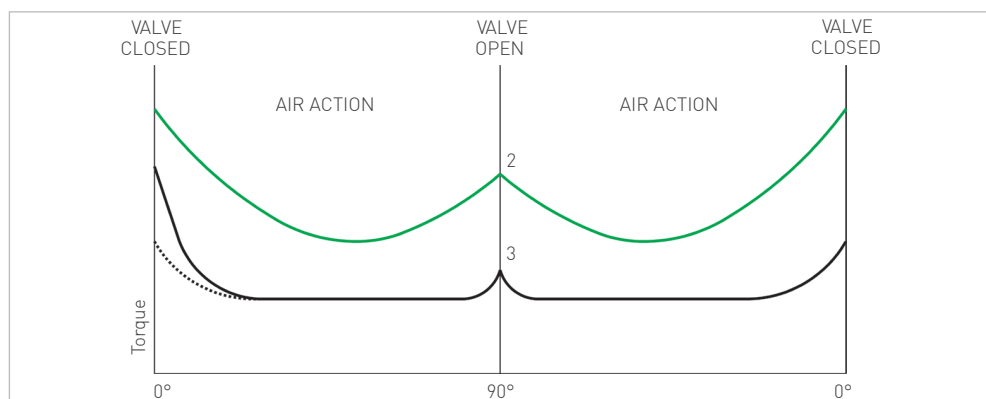
Double Acting Torque Specification

The following tables are shown in foot-pounds unless otherwise specified

Output Torque

Type	Operating Angle	Control Pressure					
		44 psi	58 psi	73 psi	80 psi	87 psi	101 psi
PA30	0°	11.9	15.8	19.8	22.1	23.7	27.7
	45°	5.9	7.9	9.9	11.1	11.9	13.9
	90°	8.9	11.9	14.8	16.6	17.8	20.7
PA35	0°	17.8	23.7	29.6	33.2	35.6	41.5
	45°	8.9	11.9	14.8	16.6	17.8	20.7
	90°	13.3	17.8	22.3	24.9	26.7	31.1
PA40	0°	23.7	31.6	39.5	44.3	47.4	55.3
	45°	11.9	15.8	19.8	22.1	23.7	27.7
	90°	17.8	23.7	29.6	33.2	35.6	41.5
PA45	0°	41.9	55.8	69.8	78.2	83.8	97.7
	45°	20.9	28.0	34.9	39.1	41.9	48.9
	90°	31.6	42.1	52.7	59.0	63.2	73.8
PA50	0°	47.4	63.2	79.0	88.5	94.9	110.6
	45°	23.7	31.6	39.5	44.3	47.4	55.3
	90°	35.6	47.4	59.3	66.4	71.1	83.0
PA55	0°	71.1	94.9	118.5	132.8	142.3	166.0
	45°	35.6	47.4	59.3	66.4	71.1	83.0
	90°	53.3	71.1	88.9	99.6	106.7	124.5
PA60	0°	94.9	126.4	158.1	177.0	189.6	221.3
	45°	47.4	63.2	79.0	88.5	94.9	110.6
	90°	71.1	94.9	118.5	132.8	142.3	166.0
PA65	0°	142.3	189.6	237.1	265.5	284.5	331.9
	45°	71.1	94.9	118.5	132.8	142.3	166.0
	90°	106.7	142.3	177.8	199.1	213.4	248.9
PA70	0°	189.6	252.9	316.1	354.0	379.3	442.5
	45°	94.9	126.4	158.1	177.0	189.6	221.3
	90°	142.3	189.6	237.1	265.5	284.5	331.9

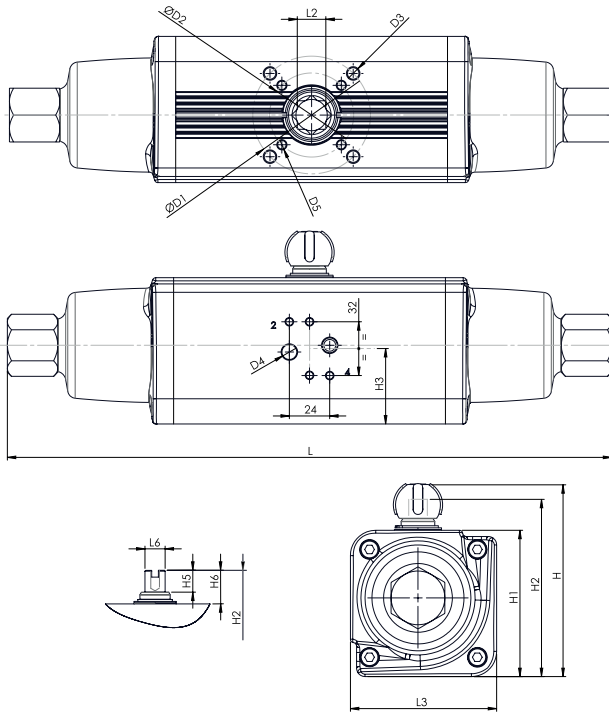
Torque Characteristics



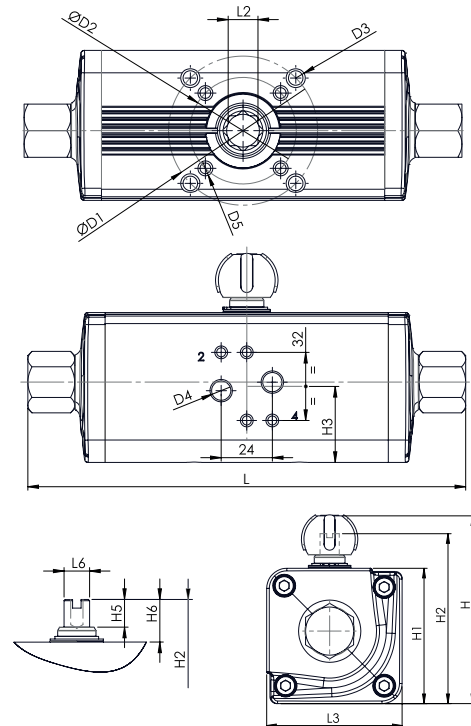
Dimensions

The following tables are shown in millimeters unless otherwise specified

Single-acting (FC/FO)



Double acting (DA)



Single Acting (FC/FO)

Size	ISO	D1	D2	D3	D4	D5	H	H1	H2	H3	H5	H6	L	L2	L3	L6
PA30	F05/07	70	50	M8x12	1/8"	M6x9	98	70	90	36	13	20	274.4	14	70.4	10
PA35	F05/07	70	50	M8x12	1/8"	M6x9	111	83	103	43	13	20	325.2	17	83.3	12
PA40	F05/07	70	50	M8x12	1/8"	M6x9	115	87	107	45	13	20	359.5	17	87	12
PA45	F07/10	102	70	M10x15	1/8"	M8x12	150	108	138	55	16	30	418	22	107.5	15
PA50	F07/10	102	70	M10x15	1/8"	M8x12	153	111	141	58	17	30	433.9	22	111.1	15
PA55	F07/10	102	70	M10x15	1/8"	M8x12	160	118	148	60	19	30	498.3	22	118	19
PA60	F10/12	125	102	M12x18	1/4"	M10x15	177	135	165	57	19	30	547.3	27	134.9	19
PA65	F10/12	125	102	M12x18	1/4"	M10x15	190	148	178	62	20	30	646	27	148	22
PA70	F10/12	125	102	M12x18	1/4"	M10x15	210	168	198	78	20	30	681	36	168	24

Double Acting (DA)

Size	ISO	D1	D2	D3	D4	D5	H	H1	H2	H3	H5	H6	L	L2	L3	L6
PA30	F03/05	50	36	M6x9	1/8"	M5x8	87	59	79	30	10	20	274.4	14	70.4	10
PA35	F03/05	50	36	M6x9	1/8"	M5x8	92	65	85	33	13	20	325.2	17	83.3	12
PA40	F05/07	70	50	M8x12	1/8"	M6x9	98	70	90	36	13	20	359.5	17	87	12
PA45	F05/07	70	50	M8x12	1/8"	M6x9	111	83	103	43	13	20	418	22	107.5	15
PA50	F05/07	70	50	M8x12	1/8"	M6x9	115	87	107	45	13	20	433.9	22	111.1	15
PA55	F07/10	102	70	M10x15	1/8"	M8x12	150	108	138	55	16	30	498.3	22	118	19
PA60	F07/10	102	70	M10x15	1/8"	M8x12	153	111	141	58	17	30	547.3	27	134.9	19
PA65	F07/10	102	70	M10x15	1/8"	M8x12	160	118	148	60	19	30	646	27	148	22
PA70	F10/12	125	102	M12x18	1/4"	M10x15	177	135	165	57	19	30	681	36	168	24