

TOP-QUALITY
PNEUMATIC ACTUATOR



Siemens i-to-K



PDS series Pneumatic Actuators are designed using Scotch-Yoke technology from PDS 50 to the largest of PDS 200. Scotch-Yoke technology is well known to all users as the most suitable actuator mechanism for valve and damper operation as it produces higher torque at both end positions.

Specification of PDS actuators follow international standards for faster and easier mounting of accessories like Solenoid valves, Limit switches, Positioners etc.

Ranges available are 10Nm through 4000Nm double acting, and 5Nm through 1900Nm spring return.

Max. operating temperature is -20°C ~ 80°C as standard (For higher and lower temperature applications please consult manufacturer before placing order).

Mounting dimensions follow ISO5211, DIN3337, NAMUR, VDI/VDE3845 standards,

The drive shafts come in various sizes with double square shaped female bore for accommodating valve shaft,

Spring package is pre-compressed for increased safety,

Extremely long service life and reliable performance.

SUSIN I-TORK also provides ITS series limit switch boxes (weather proof, explosion proof), solenoid valves, positioners for modulating services and other pneumatic components.

Side hand-wheel and de-clutchable gear box for manual operation are also options in the SUSIN I-TORK product range.



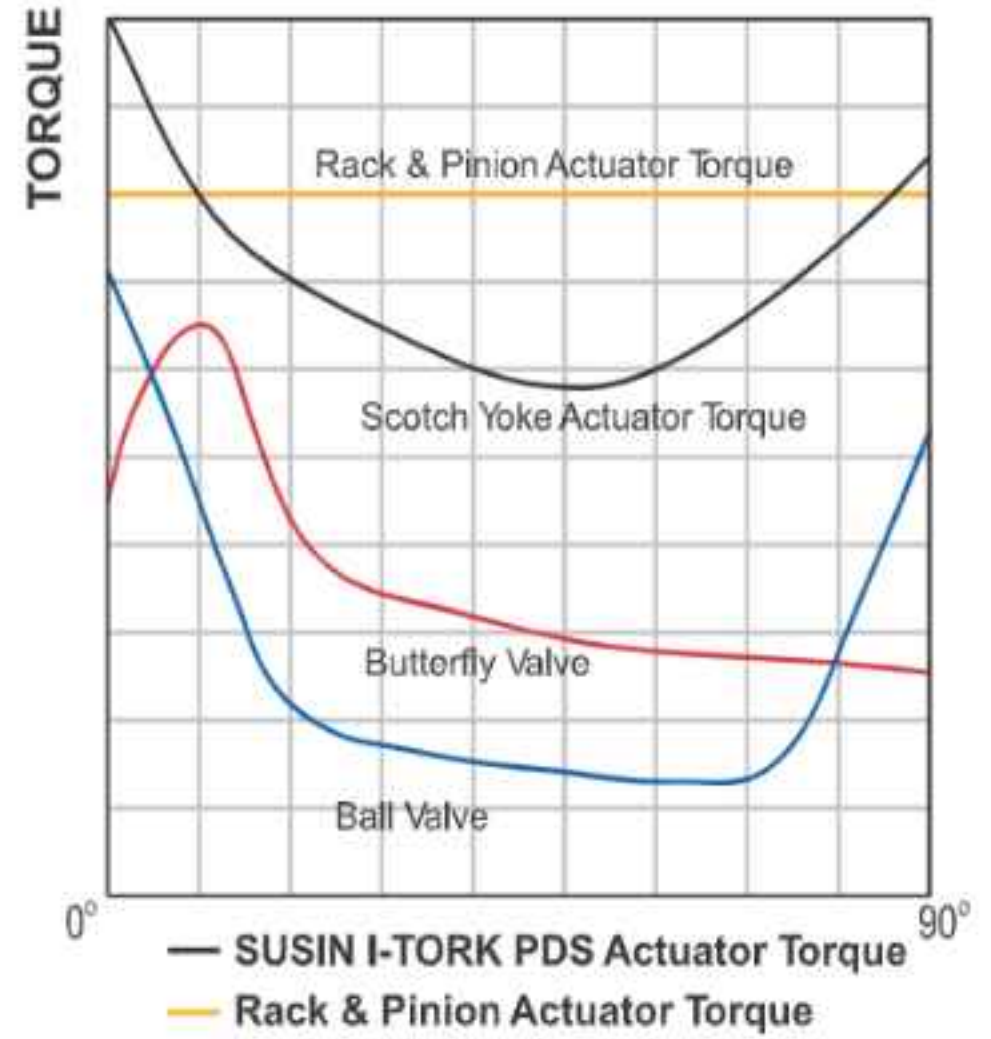




Advantage (Scotch Yoke)

The SUSIN I-TORK actuators provide increased torque at the open and close position, this closely matches the required torque for practical valve operation.

- Increased torque at the open and close position.
- Compact design and size
- Extremely long cyclic life
- Adjustable center stopper for both open & close position

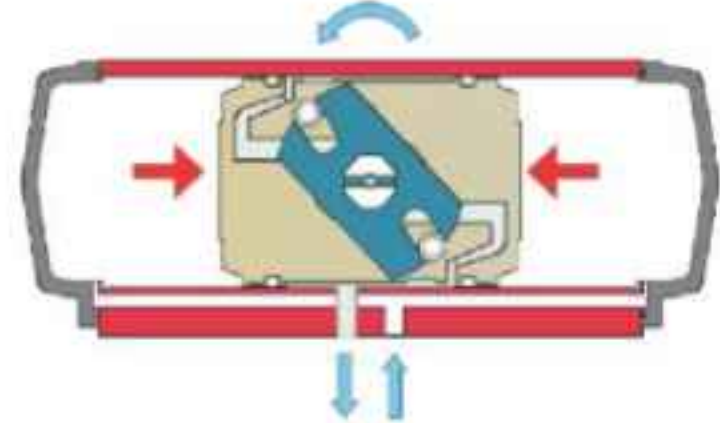
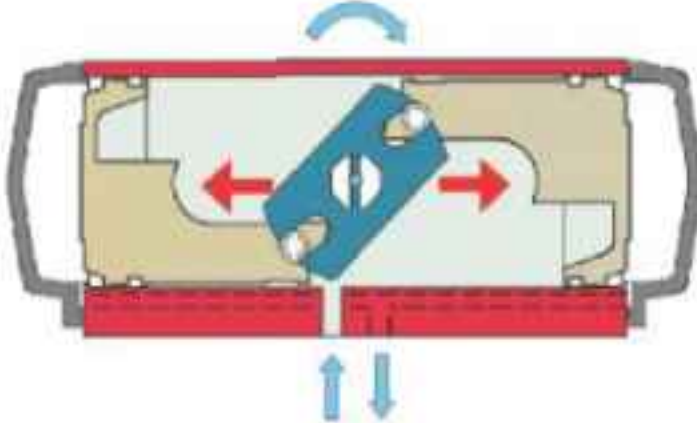


MECHANICAL MOVEMENT & POSITION INSIDE

DOUBLE ACTING

CLOSE

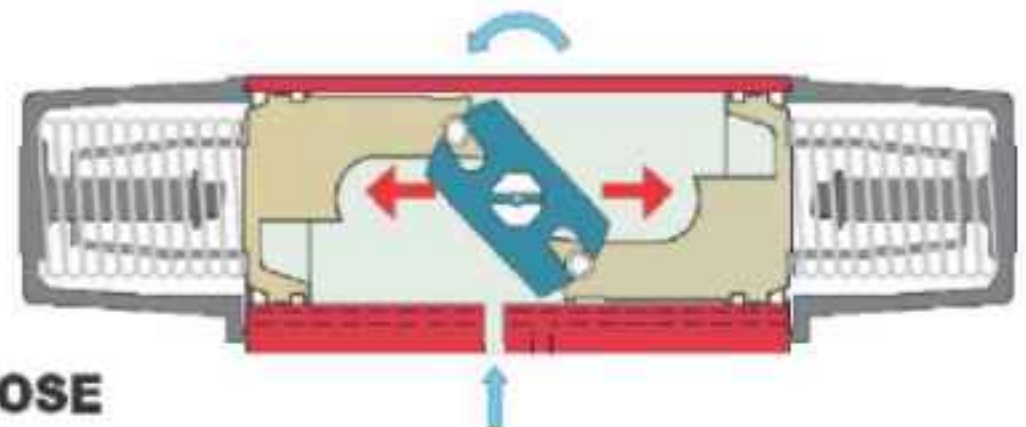
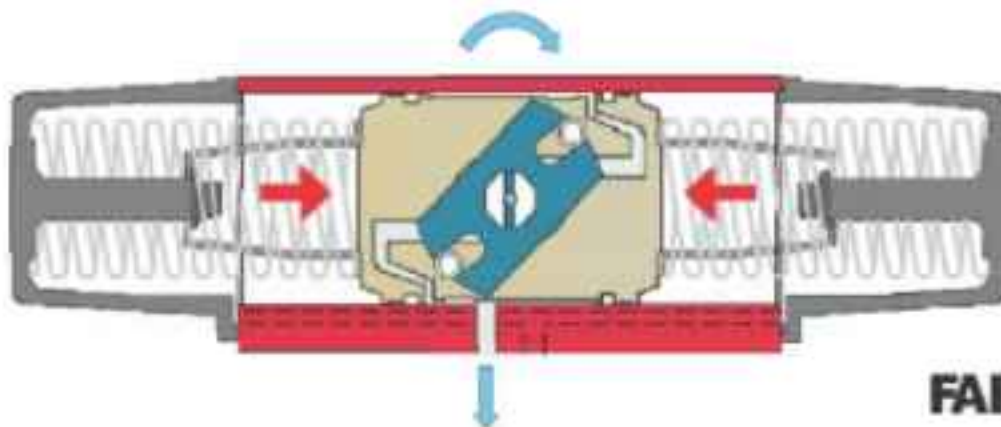
OPEN



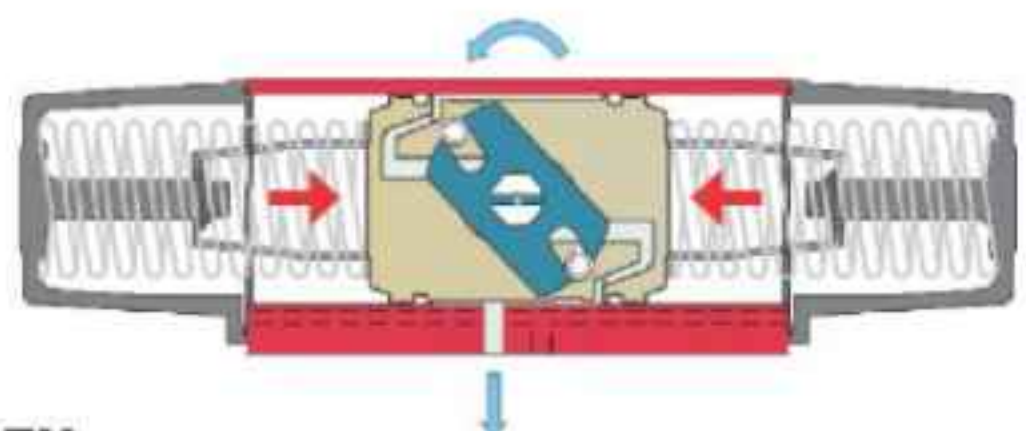
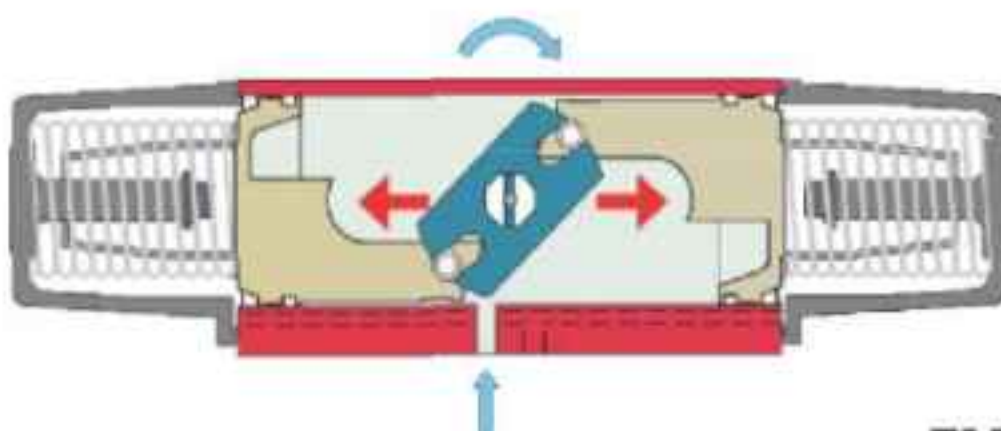
SPRING RETURN

CLOSE

OPEN

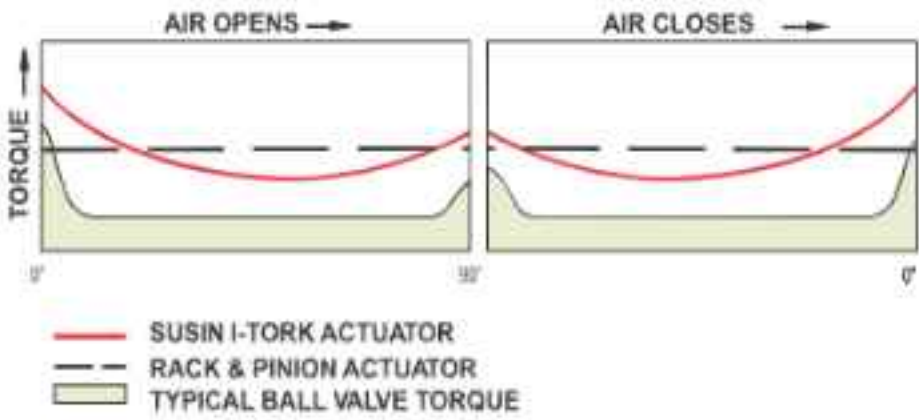


FAIL CLOSE



FAIL OPEN

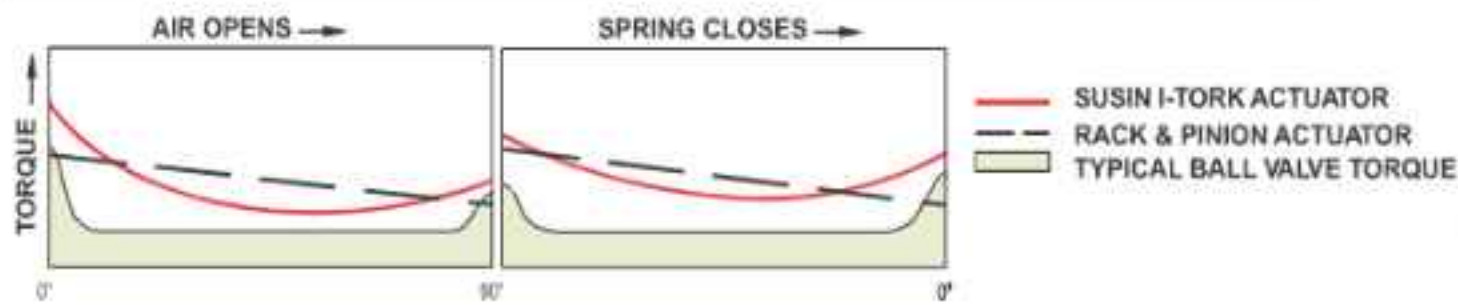
DOUBLE ACTING OUTPUT TORQUE (Nm)



MODEL	Angle	2.8 bar 40 psi	3.5 bar 50 psi	4.2 bar 61 psi	5.5 bar 80 psi	6 bar 87 psi	7 bar 100 psi	8 bar 116 psi	Air Consumption (L, at 5.5 bar)		Operating Time (Sec., at 5.5bar)
									OPEN	CLOSE	
PD45	0°	12	16	20	26	28	34	38	0.12	0.12	< 0.3
	45°	5	7	9	11	12	14	16			
	90°	8	12	15	18	20	23	27			
PD50	0°	27	34	41	54	59	69	79	0.16	0.16	< 0.3
	45°	12	15	17	23	25	29	33			
	90°	19	24	29	38	42	48	55			
PD55	0°	27	45	56	73	80	94	107	0.34	0.34	< 0.4
	45°	15	18	23	30	33	37	44			
	90°	25	32	39	51	57	65	75			
PD70	0°	76	95	114	149	163	190	217	0.46	0.46	< 0.6
	45°	32	40	48	62	68	79	90			
	90°	53	66	78	104	114	133	152			
PD75	0°	112	141	170	223	243	284	324	0.99	0.96	< 0.9
	45°	47	58	70	93	101	117	134			
	90°	78	98	119	155	170	198	226			
PD85	0°	141	176	212	277	302	353	403	0.8	0.8	< 1.0
	45°	59	74	89	116	127	148	169			
	90°	99	123	148	194	212	247	282			
PD100	0°	229	286	343	449	490	571	653	1.32	1.28	< 2.0
	45°	96	120	144	188	205	239	273			
	90°	160	200	240	314	343	400	457			
PD125	0°	438	547	657	860	938	1,095	1,250	2.49	2.42	< 3.0
	45°	182	228	273	358	390	456	521			
	90°	306	383	460	602	657	766	876			
PD160	0°	850	1,062	1,274	1,668	1,820	2,124	2,427	4.52	4.61	< 5.0
	45°	355	444	533	698	761	888	1,015			
	90°	595	744	892	1,168	1,275	1,487	1,700			
PD200	0°	1,622	2,028	2,433	3,187	3,476	4,056	4,635	9.07	9.21	< 6.0
	45°	679	848	1,018	1,333	1,454	1,697	1,939			
	90°	1,136	1,420	1,704	2,231	2,434	2,840	3,245			

*Please be sure to include appropriate torque safety factors and variable service conditions when sizing.

SPRING RETURN OUTPUT TORQUE (Nm)

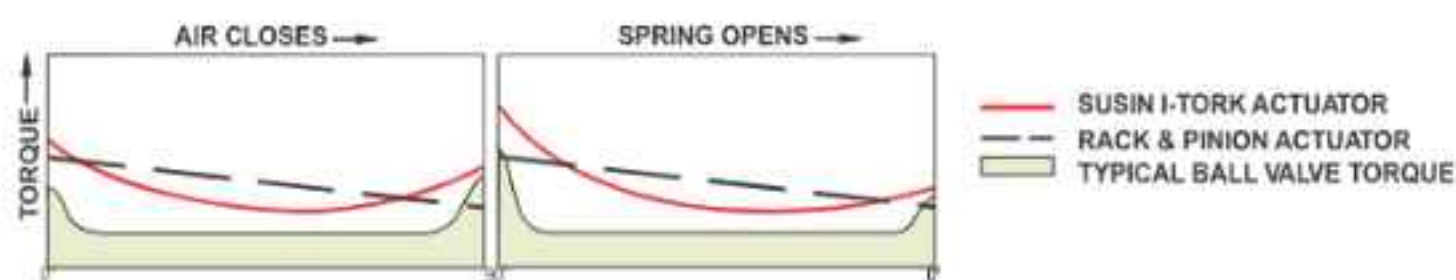


Spring Close

MODEL	Function	Angle	4.2 bar 60 psi	5.5 bar 80 psi	6 bar 87 psi	7 bar 100 psi	Air Consumption (L, at 5.5 bar)	Operating Time (Sec., at 5.5bar)
PS45	Air open	0°	12.0	17.1	18.5	20.5	0.12	< 0.3
		55°	4.0	5.1	5.8	6.4		
		90°	5.1	5.9	6.7	7.6		
	Spring close	90°	9.1	12.3	13.1	15.1		
		35°	4.3	5.5	6.5	7.3		
		0°	7.4	8.7	9.8	11.9		
PS50	Air open	0°	25.8	34.6	37.6	42.5	0.16	< 0.3
		55°	8.3	11.1	12.0	13.4		
		90°	10.0	13.1	14.2	15.4		
	Spring close	90°	18.6	25.0	27.3	32.2		
		35°	9.0	12.0	13.1	15.5		
		0°	15.2	18.9	21.7	25.6		
PS55	Air open	0°	33.1	45.1	48.4	55.2	0.34	< 0.4
		55°	11.0	13.7	14.9	16.9		
		90°	31.7	18.0	19.8	21.9		
	Spring close	90°	23.7	32.1	35.4	41.1		
		35°	11.9	16.2	17.6	20.8		
		0°	20.8	27.2	30.4	36.2		
PS70	Air open	0°	68.3	92.3	98.9	112.3	0.46	< 0.6
		55°	21.9	29.0	31.6	35.4		
		90°	29.0	38.0	41.7	46.2		
	Spring close	90°	49.5	66.7	72.1	84.6		
		35°	25.7	34.3	37.4	43.8		
		0°	43.8	57.2	63.6	74.6		
PS75	Air open	0°	106.4	141.7	154.2	178.1	0.96	< 0.9
		55°	31.5	41.8	45.1	53.2		
		90°	39.7	52.2	56.8	66.5		
	Spring close	90°	77.0	103.2	112.4	127.8		
		35°	37.8	51.2	55.8	64.2		
		0°	59.7	80.9	88.1	100.8		
PS85	Air open	0°	131.9	176.2	187.9	216.7	0.79	< 1.0
		55°	40.1	53.4	57.9	66.9		
		90°	50.4	67.0	72.5	83.9		
	Spring close	90°	95.7	127.8	139.3	159.5		
		35°	48.4	64.5	70.4	80.6		
		0°	76.7	101.9	114.6	131.0		
PS100	Air open	0°	214.6	286.8	311.2	359.6	1.28	< 2.0
		55°	64.7	86.1	93.4	108.4		
		90°	80.5	106.7	115.7	134.9		
	Spring close	90°	156.0	208.7	227.2	259.2		
		35°	78.6	104.9	114.3	130.3		
		0°	123.2	163.5	178.5	203.3		
PS125	Air open	0°	412.5	552.4	601.3	689.3	2.42	< 3.0
		55°	115.9	164.9	189.4	217.2		
		90°	132.3	202.8	247.1	283.4		
	Spring close	90°	320.7	401.1	408.7	471.5		
		35°	158.4	200.9	208.4	240.0		
		0°	234.2	309.8	336.4	388.5		
PS160	Air open	0°	802.5	1,075.6	1,189.6	1,373.0	4.61	< 5.0
		55°	239.6	319.5	341.8	395.8		
		90°	294.8	390.9	401.8	467.1		
	Spring close	90°	584.0	780.8	872.5	997.6		
		35°	292.7	390.2	429.9	491.3		
		0°	452.6	579.9	630.3	718.8		
PS200	Air open	0°	1,561.3	2,079.9	2,272.7	2,603.4	9.21	< 6.0
		55°	452.2	607.9	660.3	747.3		
		90°	536.6	729.5	786.7	877.1		
	Spring close	90°	1,141.7	1,508.2	1,646.9	1,920.1		
		35°	564.3	747.4	813.6	946.8		
		0°	835.6	1,115.9	1,202.8	1,391.4		

*Please be sure to include appropriate safety factors and various service conditions when sizing.

SPRING RETURN OUTPUT TORQUE (Nm)

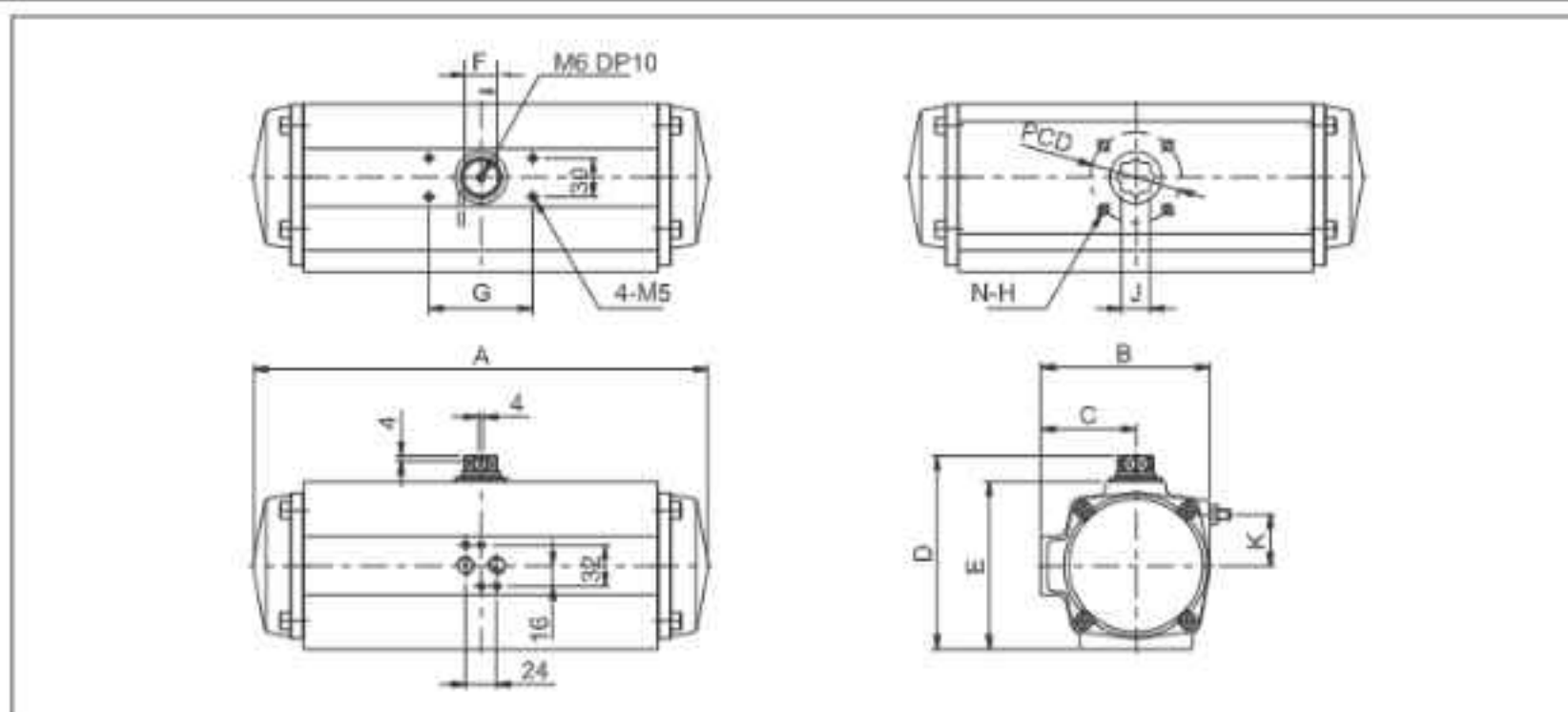


Spring Open

MODEL	Function	Angle	4.2 bar 60 psi	5.5 bar 80 psi	6 bar 87 psi	7 bar 100 psi	Air Consumption (L, at 5.5 bar)	Operating Time (Sec., at 5.5bar)
PS45	Air open	90°	7.9	11.75	12.85	14.5	0.12	< 0.3
		55°	3.9	5.12	5.78	6.24		
		0°	6.87	8.98	9.65	10.78		
	Spring close	0°	12.79	17.32	18.92	22.3		
		35°	3.9	5.1	5.78	6.45		
		90°	4.95	6.34	7.15	8.55		
PS50	Air open	90°	17.9	24.2	26.3	29.8	0.16	< 0.3
		55°	8.3	11.1	12.0	13.4		
		0°	14.3	18.7	20.3	22.0		
	Spring close	0°	26.5	35.7	39.0	46.1		
		35°	8.3	11.0	12.0	14.1		
		90°	10.7	13.9	15.2	17.9		
PS55	Air open	90°	22.78	31.2	33.46	37.8	0.34	< 0.4
		55°	10.65	14.6	15.2	17.65		
		0°	19.8	26.2	28.6	31.7		
	Spring close	0°	34.55	46.57	50.2	58.9		
		35°	10.8	14.4	15.78	17.9		
		90°	14.67	19.45	21.1	25.2		
PS70	Air open	90°	47.8	64.6	69.3	78.6	0.46	< 0.6
		55°	22.7	30.4	32.8	36.9		
		0°	41.4	54.2	59.6	66.0		
	Spring close	0°	70.7	95.3	103.0	120.8		
		35°	22.9	30.3	33.3	39.0		
		90°	30.7	40.1	44.6	52.2		
PS75	Air open	90°	73.85	98.75	107.54	124.8	0.99	< 0.9
		55°	33.1	43.45	48.25	56.3		
		0°	55.95	75.45	81.34	95.13		
	Spring close	0°	110.5	147.1	161.1	183.8		
		35°	32.9	44.15	48.12	55.23		
		90°	42.1	56.35	61.3	69.87		
PS85	Air open	90°	92.4	123.4	131.6	151.7	0.8	< 1.0
		55°	42.3	56.4	61.2	70.6		
		0°	72.0	95.6	103.5	119.8		
	Spring close	0°	136.6	182.5	199.0	227.8		
		35°	42.1	56.1	61.2	70.0		
		90°	53.7	71.4	80.2	91.7		
PS100	Air open	90°	150.3	200.8	217.9	251.8	1.32	< 2.0
		55°	68.5	91.3	99.1	114.8		
		0°	114.9	152.3	165.3	192.7		
	Spring close	0°	222.8	298.0	324.4	370.2		
		35°	68.2	90.9	99.0	112.9		
		90°	86.2	114.5	125.0	142.4		
PS125	Air open	90°	288.8	386.8	421.0	482.6	2.49	< 3.0
		55°	125.6	175.2	191.1	219.1		
		0°	188.9	289.7	352.9	404.8		
	Spring close	0°	458.0	572.9	585.1	673.4		
		35°	135.1	173.5	189.4	218.3		
		90°	164.0	217.0	235.6	272.1		
PS160	Air open	90°	561.9	753.1	832.9	961.4	4.52	< 5.0
		55°	254.5	339.9	367.7	425.3		
		0°	421.0	558.3	573.8	667.0		
	Spring close	0°	834.1	1115.1	1246.1	1424.8		
		35°	255.9	340.6	372.4	425.4		
		90°	316.9	418.6	441.4	503.3		
PS200	Air open	90°	1093.2	1456.4	1591.3	1822.9	9.07	< 6.0
		55°	485.1	650.2	707.6	804.1		
		0°	766.4	1041.9	1123.5	1252.7		
	Spring close	0°	1630.5	2154.0	2352.0	2742.2		
		35°	481.5	639.3	693.9	806.1		
		90°	585.1	781.4	842.2	974.3		

*Please be sure to include appropriate safety factors and various service conditions when sizing.

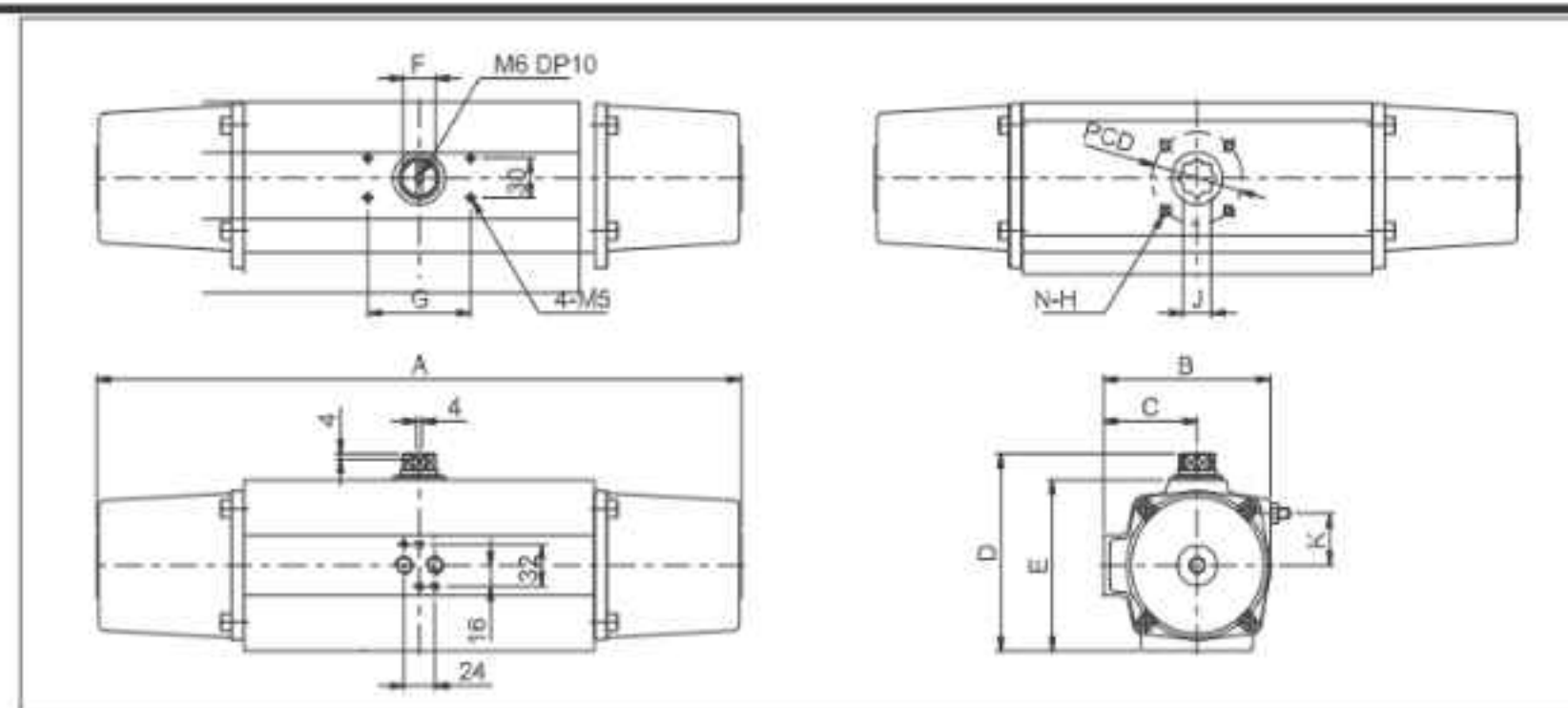
DOUBLE ACTING : PD Series



UNIT : mm

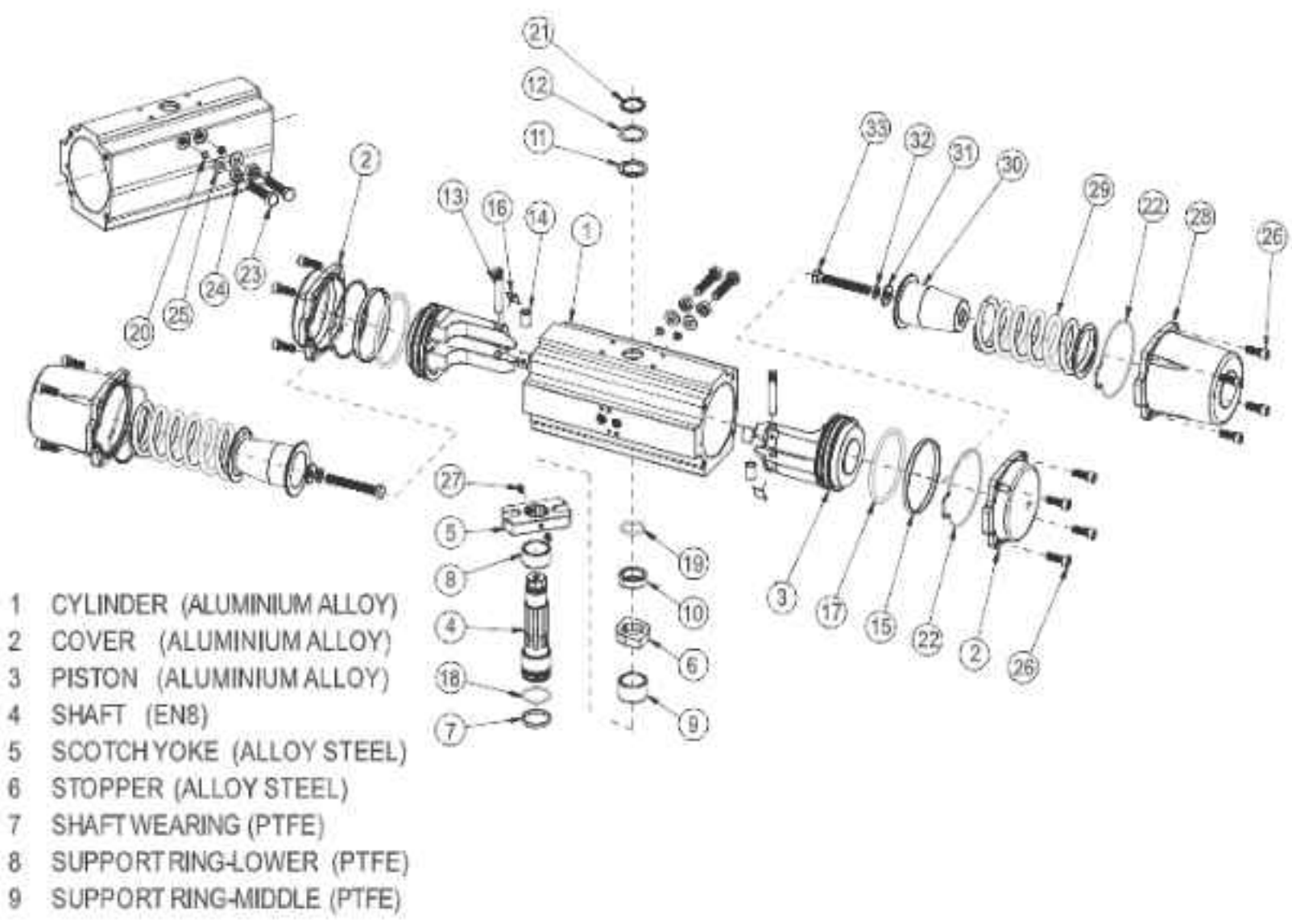
MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	
PD45	159	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11X11	15	19.5	1.3
PD50	186	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11X11	15	19.5	1.6
PD55	201	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17X17	20	26	2.4
PD70	255	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17X17	20	26	3
PD75	270	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22X22	30	39.5	6
PD85	300	110	62	130	110	22	80	F05/F07	50/70	4-M6/M8	17X17	25	33	5
PD100	350	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22X22	30	39.5	7.5
PD125	412	159	88	182	162	28.6	80	F10/F12	102/125	4-M10/M12	27X27	35	47.5	11
PD160	510	195	105	240	210	34	80/130	F10/F14	102/140	4-M10/M16	36X36	60	62	26
PD200	625	243	130	292	262	42.5	80/130	F12/F16	125/165	4-M12/M20	46X46	60	77.5	43

SPRING RETURN : PS Series



UNIT : mm

MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	WEIGHT (Kg)
PS45	226	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11X11	15	19.5	1.5
PS50	255	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11X11	15	19.5	1.7
PS55	281	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17X17	20	26	2.9
PS70	330	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17X17	20	26	3.5
PS75	422	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22X22	30	39.5	7.5
PS85	423	110	62	130	110	22	80	F05/F07	50/70	4-M6/M8	17X17	25	33	5.5
PS100	499	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22X22	30	39.5	10
PS125	629	159	88	182	162	28.6	80	F10/F12	102/125	4-M10/M12	27X27	35	47.5	18
PS160	744	195	105	240	210	34	80/130	F10/F14	102/140	4-M10/M16	36X36	60	62	35.5
PS200	869	243	130	292	262	42.5	80/130	F12/F16	125/165	4-M12/M20	46X46	60	77.5	73



- 10 SUPPORT RING-UPPER (PTFE)
- 11 THRUST WASHER (PTFE)
- 12 WASHER (SS)
- 13 ROLLER PIN (SS)
- 14 ROLLER (SS)
- 15 PISTON GUIDE PAD (PTFE)
- 16 SUPPORT BAND (PTFE)
- 17 O-RING (NBR)
- 18 O-RING (NBR)
- 19 O-RING (NBR)
- 20 O-RING (NBR)
- 21 SNAP RING (SS)
- 22 O-RING (NBR)
- 23 ADJUST BOLT (SS)
- 24 ADJUST NUT (SS)
- 25 WASHER (SS)
- 26 HEX.HEAD SOCKET BOLT (SS)
- 27 SET SCREW (SS)
- 28 SPRING RETURN COVER (ALUMINIUM ALLOY)
- 29 SPRING (SPRING STEEL)
- 30 SPRING RETAINER (SS)
- 31 PLANE WASHER (SS)
- 32 SPRING WASHER (SS)
- 33 PRE TENSION BOLT (SS)

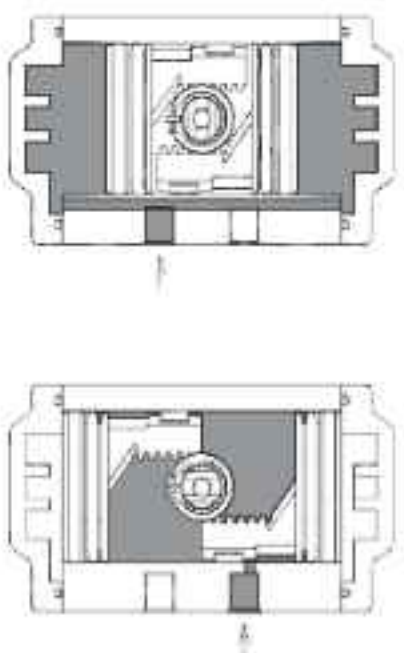
- 1 CYLINDER (ALUMINIUM ALLOY)
- 2 COVER (ALUMINIUM ALLOY)
- 3 PISTON (ALUMINIUM ALLOY)
- 4 SHAFT (EN8)
- 5 SCOTCH YOKE (ALLOY STEEL)
- 6 STOPPER (ALLOY STEEL)
- 7 SHAFT WEARING (PTFE)
- 8 SUPPORT RING-LOWER (PTFE)
- 9 SUPPORT RING-MIDDLE (PTFE)

PD40 (RACK & PINION)
OUTPUT TORQUE

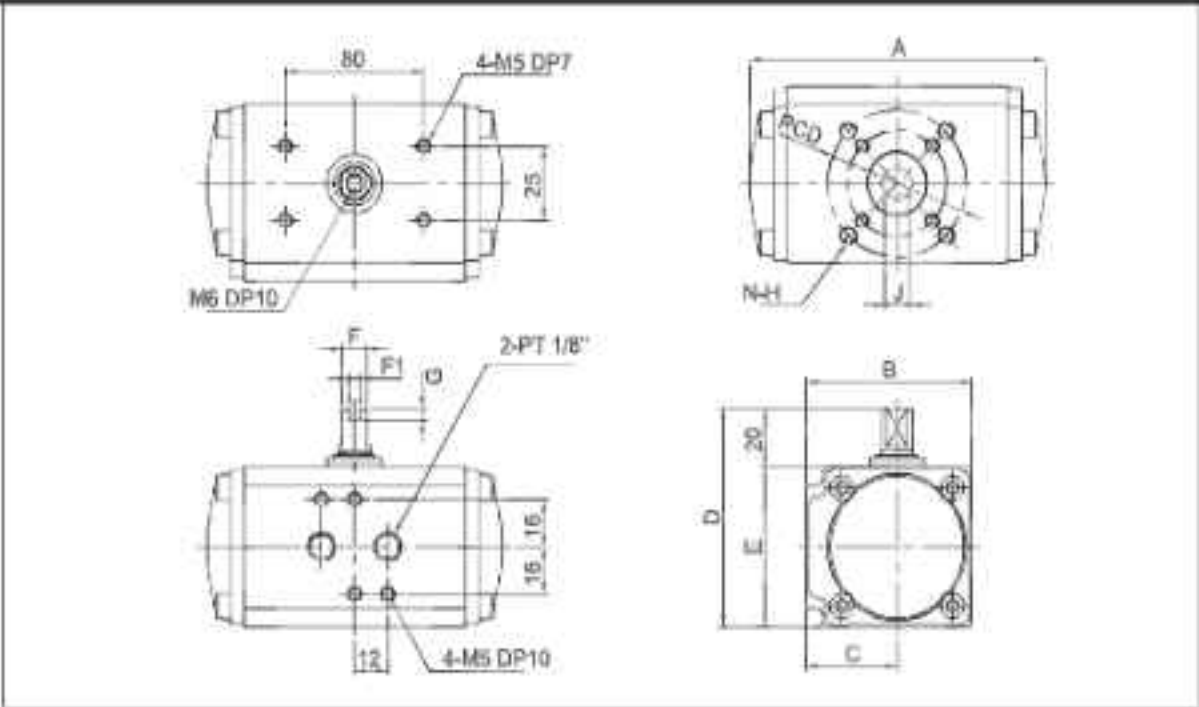
TORQUE (Nm)									
PD40	PRESSURE	2.8	3.5	4.2	5.5	6	7	8	
	TORQUE	5.6	7	8.4	11	12	14	16	
PS40	PRESSURE	3.4		4.1		4.8			
	ANGLE	0°	90°	0°	90°	0°	90°		
	AIR	3.2	1.9	4.3	3.4	5.7	4.5		
	SPRING	4.7	3.6	4.7	3.8	4.7	3.6		

Please be sure to include appropriate safety factors and various service conditions when sizing.

AIR CONSUMPTION (L, at 5.5 bar)	OPERATING TIME (Sec., at 5.5bar)
0.04	< 0.3

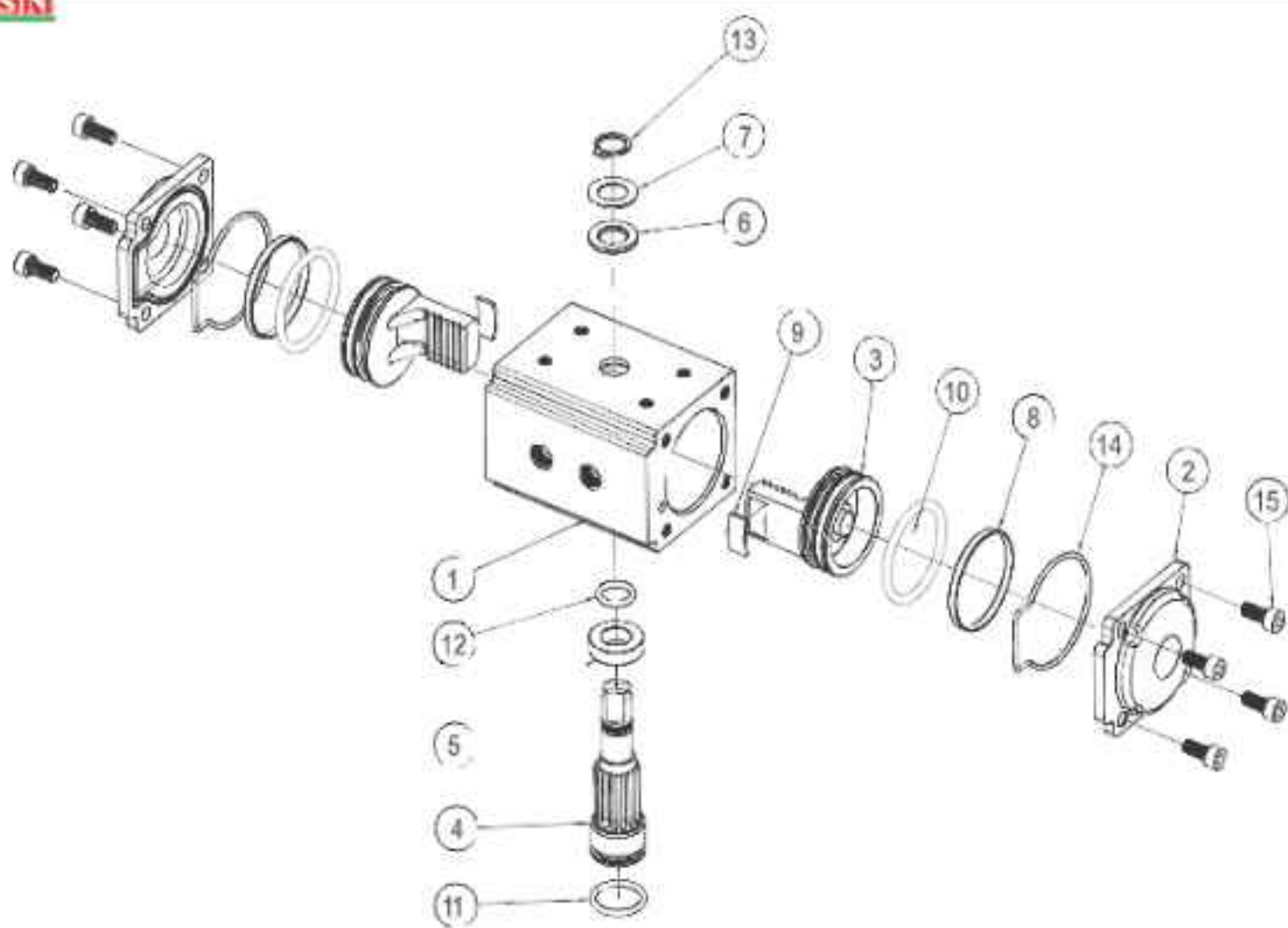


DIMENSIONS



MODEL	A	B	C	D	E	F	F1	G	ISO5211	PCD	N-H	J	DP	WEIGHT
PD40/PS40	107	60	33	74	54	9	4	4	F03/F05	35/50	4-M5/M6	9x9	11	1.1

EXPLODED VIEW



- 1 CYLINDER (ALUMINIUM ALLOY)
- 2 COVER (ALUMINIUM ALLOY)
- 3 PISTON (ALUMINIUM ALLOY)
- 4 SHAFT (EN8)
- 5 SUPPORT RING-UPPER (PTFE)
- 6 THRUST WASHER (PTFE)
- 7 WASHER (SS)
- 8 SUPPORT BAND (PTFE)
- 9 PISTON GUIDE PAD (PTFE)
- 10 O-RING (NBR)
- 11 O-RING (NBR)
- 12 O-RING (NBR)
- 13 SNAP RING (SS)
- 14 O-RING (NBR)
- 15 SUS WRENCH BOLT (SS)

ACCESSORIES

ITS Series Position Monitoring Switch Box

ITS 100 Series (Weather Proof)



SPECIFICATION	STANDARD OPTION
Enclosure	Weather proof IP67, O-ring sealed
Outside coating	Epoxy-Polyester inside and outside
Ambient temperature	-20°C ~ +80°C
Cable entries	2 - PT1/2", other standard threads
Terminal block	8 nos of terminal strips
Position indicator	Dome type 0°~90°
Mounting bracket	Stainless steel acc. to VDI/VDE 3845, NAMUR, SS1, SS2 as standard
Switches(Sensors)	2-SPDT mechanical switch(Form C)

ITS 300 Series (Explosion Proof)

Suitable for valves and actuators in hazardous area applications conforms to EN50014 and 50018, also suitable in Zone 1 and 2

Ex d : IECEEx, GOST_R/RTN certified



SPECIFICATION	STANDARD OPTION
Enclosure	Explosion proof Ex d IIC T6, IP67, O-ring sealed
Outside coating	Epoxy-Polyester outside against corrosion
Ambient temperature	-20°C ~ +80°C
Cable entries	2 - PF3/4", other standard threads
Terminal block	8 nos of terminal strips
Position indicator	Dome type 0°~90°
Mounting bracket	Stainless steel acc. to VDI/VDE 3845, NAMUR, SS1, SS2 as standard
Switches(Sensors)	2-SPDT mechanical switch(Form C)

ITS 500 Series

Special stainless steel housig (316L or Duplex) for extremely corrosive environmental conditions & for off-shore applications.

Other specifications are shared with the ITS 300 series except for enclosure & coating.

Ex d : IECEEx, GOST_R/RTN certified



Electro-Pneumatic Positioner



EPL (Linear Type)



EPR (Rotary Type)

EPL / EPR (Mechanical Type)

FEATURE

- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included

*Options available

- Position transmitter (4-20mA output signal)
- Two limit switches (open and close)

SSL / SSR (Electronic Smart Type)

FEATURE

- Auto-calibration for optimum conditions
- Easy operation with four key pads and full text graphical LCD
- Single and double acting actuators
- Pressure regulator built in to eliminate variations in supply air pressure
- Economical energy saving
- Mounting on linear actuators according to IEC 534
- Mounting on rotary actuators according to VDI / VDE 3845

*Options available

- Position transmitter (4-20mA output signal)
- Gauge block with two stainless pressure gauges
- Explosion proof type (Ex d IIB T6, Exia IIC T6)
- HART communication (FSK)



SSL (Linear Type)



SSR (Rotary Type)



IPC

IPC (I/P CONVERTER)

FEATURE

- Pressure regulator built in to eliminate variations in supply air pressure
- Low air consumption due to piezo electric micro-valve
- Explosion proof type (please contact for details)

Solenoid Valve

Our next generation I-Tork solenoid valves, Specifically engineered to pilot pneumatic process valve actuators, with improved design and added valuable features.

The unique design of the I-Tork solenoid valve redirects the instrument air contained in the pressurized chamber to the actuator's spring chamber during the spring stroke, thus preventing external air from being sucked in.

5/2 function or 3/2 function selectable via 180° turn of the patented rotary sealing plate.

Direct NAMUR standard mounting.



- Weather proof IP65
- NEMA types 1, 2, 3, 3S, 4 and 4X & CE Certified
- ATEX Ex Series
- Ex-Proof Series
- Intrinsically Safe Series
- Standard Series

Electrical

Voltage (+/-10%) : 12VDC & 24 VDC, 24VAC, 120VAC & 240VAC, 50/60Hz
(other voltages are available on request)

Duty Cycle : 100% continuous Service

Construction

Valve Body : Reinforced Polyimide (PA)

Sealing Material : Proprietary Elastomer

Intel Port : 1/4" NPT or G1/4" MS Sinc Plated

Temperature Range : -40°C to 50°C

Pressure : 2.5 to 8 bar

Response : 20 ms (on) 40 ms (off)

Air Flow : Cv>1.1

Media : Lubricated and non lubricated air, Instrument air, Nitrogen

Declutchable Gear Box

-Aluminum Housing

MODEL NO		ITG 050	ITG 060	ITG 080	ITG 090
Output Torque		500 Nm	1000 Nm	2000 Nm	3000 Nm
Top Flange (ISO 5211)		F07 / F10	F10 / F12	F12 (F14)	F14
Reduction Ratio		40 : 1	45 : 1	48 : 1	50 : 1
Mechanical Advantage		12	13.5	14.4	14.4
Number of Handwheel Turns		10 Turn	11.3 Turn	12 Turn	13 Turn
Available Max. (Valve Shaft)	Diameter(Ø)	22	32	40	50
	Square(▣)	17	27	36	46
	Two Flat	17	27	36	46
Handwheel Diameter		250	350	450	550
Bottom Flange (ISO 5211)		F07 / F10	F10 / F12	F12 (F14)	F16
Weight		5.5 Kg	7.5 Kg	13.5 Kg	30 Kg
Applicable Peumatic Actuator		PD50/70/85, PS50/70/85	PD100/125, PS100/125	PD160	PD200, PS160



ITG series are rugged, industrial grade manual overrides, manufactured with aluminum housing. All models in this series feature high performance gears and a powder coated finish.

FEATURES

- Cast Aluminum body
- EN8 gears & internal components
- Declutchable handwheel
- Mounting flanges conforming to ISO5211
- Detachable drive bush

Jack Screw Type



- For PDS50 to PDS200, DA and SR
- Simple and Compact in size and weight

CERTIFICATE AND APPROVALS



A joint venture with I-Tork Controls Ltd, Korea



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