POFCO

TOP-QUALITY
PNEUMATIC ACTUATOR

INNOBIZ
기술혁신형중소기업

INTERNATIONAL
BS EN ISO 9001:2000
UKAS QUALITY MANAGEMENT

CE KTL

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.

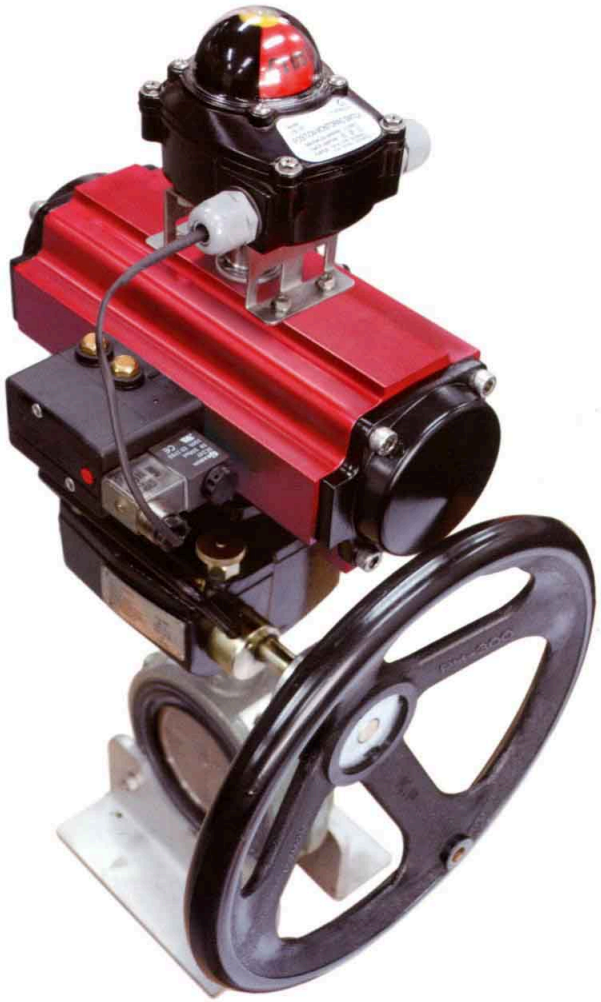
Specification of PDS actuators follow international standards for faster and easier mounting of accessories like Solenoid valves, limit switches, positioners etc.

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

The range of ambient temperature for standard operation 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 accomodating valve shaft,
Spring package is pre-compressed for increased safety,
Extremely long service life and reliable performance.

I-TORK Controls Ltd. also provides ITS series limit switch boxes (weather proof, explosion proof), solenoid valves, positioners for modulating services and other pneumatic accessories.
Side hand-wheel and de-clutchable gear box for manual operation are also options available in the I-TORK product range.



POFCO

Position Indicator

-Flat

-Dome

NAMUR Drive Shaft
(Hexagon or Double flat)

Cylinder
Extruded anodised aluminum

Mechanical Stopper

Center Stopper Bolt
Adjustment for open & close positions

O-ring
Specially treated
for low friction

Scotch Yoke
Hardened Scotch Yoke
power, compact unit

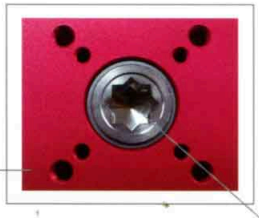
Mounting Holes
for Accessories

Easier Mounting Acc. to
VDI/VDE 3845 NAMUR

Direct Mounting NAMUR

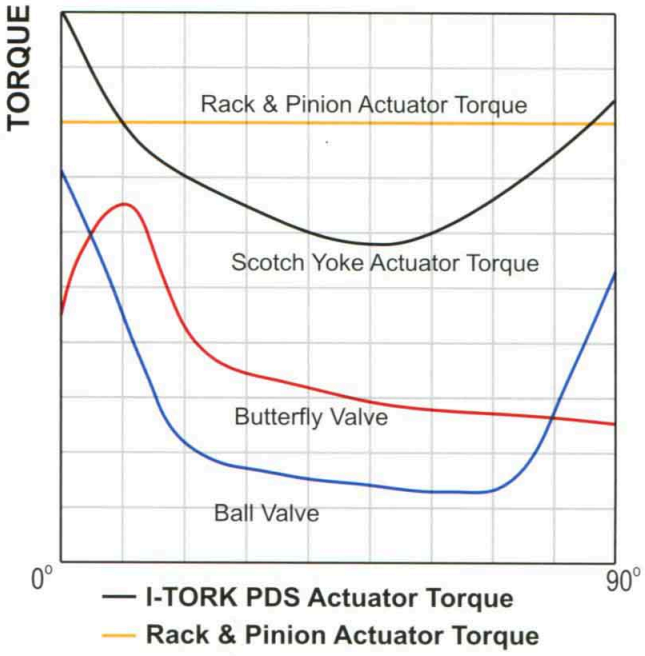
Polished surface finish
Low friction
max working life

Spring Pack
Pre-compressed for increased safety



Mounting Holes
Acc. to International standard
ISO 5211, DIN 3337, NAMUR

Double square drive shaft
ISO 5211 NAMUR



Advantage (Scotch Yoke)

The I-TORK actuators provide increased torque at 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 positions

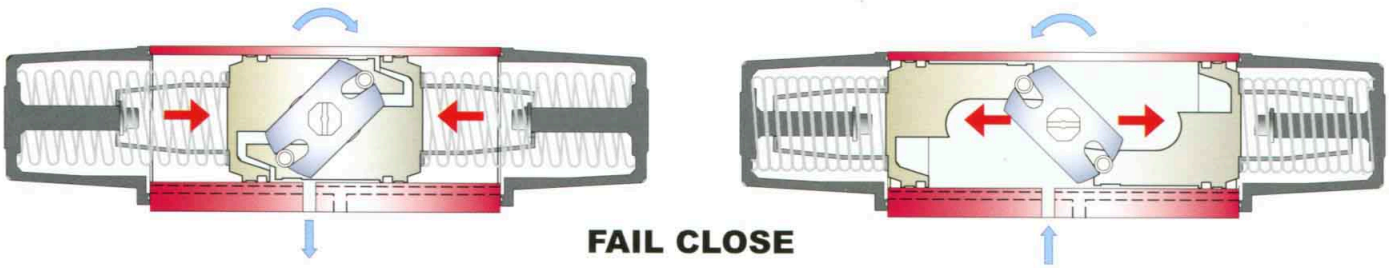
MECHANICAL MOVEMENT & POSITION INSIDE

DOUBLE ACTING

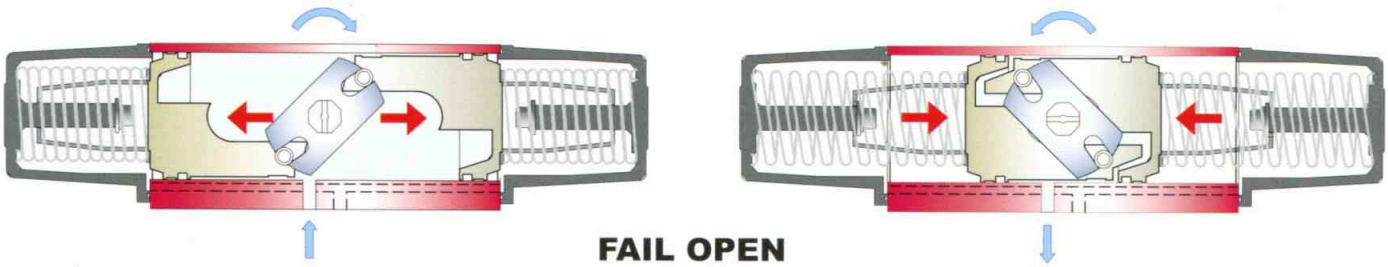
CLOSE — OPEN

SPRING RETURN

CLOSE — OPEN

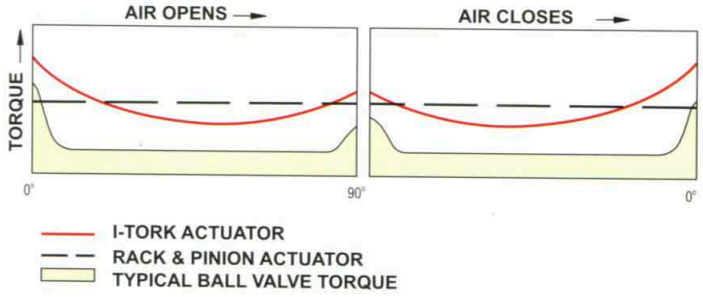


FAIL CLOSE



FAIL OPEN

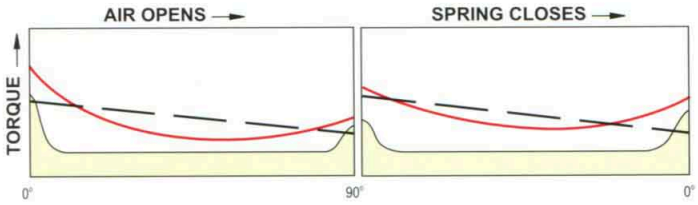
DOUBLE ACTING OUTPUT TORQUE (Nm)



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	
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			
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			
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 consider variable service conditions when sizing.

SPRING RETURN OUTPUT TORQUE (Nm)

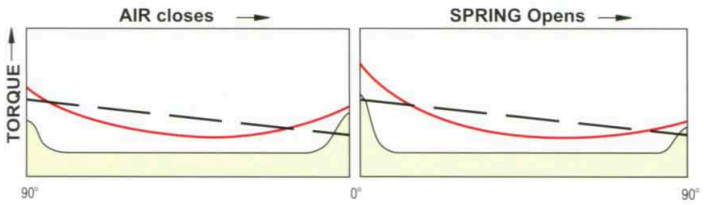


Spring Close

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)
PS50	Air to open	0°	25.6	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 to close	90°	18.6	25.0	27.3	32.2		
		35°	9.0	12.0	13.1	15.5		
		0°	15.2	19.9	21.7	25.6		
PS70	Air to 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 to 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		
PS85	Air to 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 to 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 to 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 to 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 to 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 to close	90°	320.7	401.1	409.7	471.5		
		35°	158.4	200.9	208.4	240.0		
		0°	234.2	309.8	336.4	388.5		
PS160	Air to 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 to 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 to 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 to 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 torque safety factors and consider variable service conditions when sizing.

SPRING RETURN OUTPUT TORQUE (Nm)



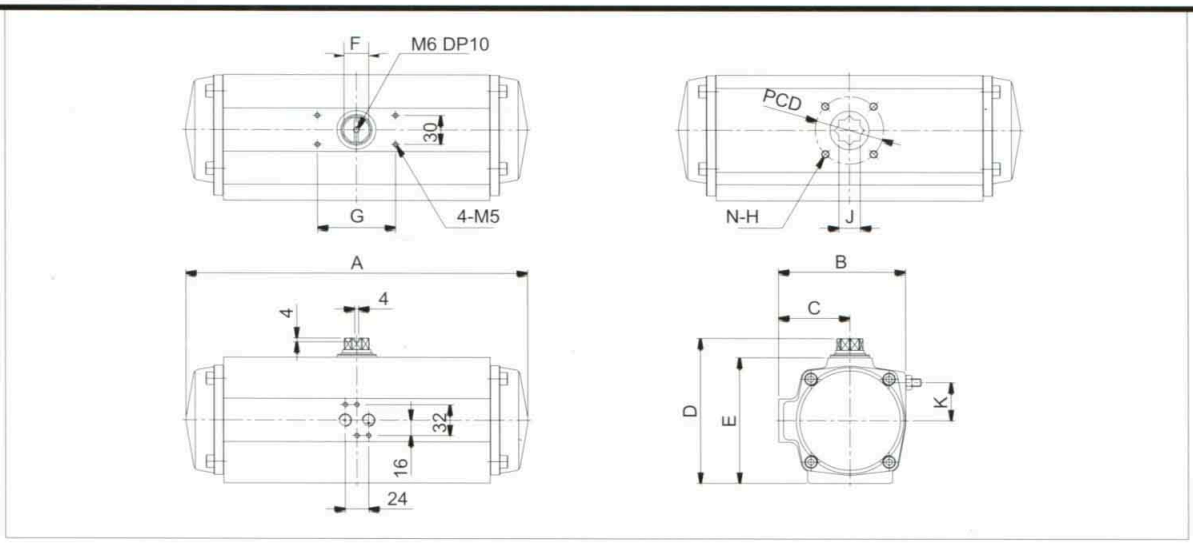
I-TORK ACTUATOR
RACK & PINION ACTUATOR
TYPICAL BALL VALVE TORQUE

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)
PS50	Air to close	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 to open	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		
PS70	Air to close	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 to open	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		
PS85	Air to close	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 to open	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 to close	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 to open	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 to close	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 to open	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 to close	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 to open	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 to close	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 to open	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 consider various service conditions when sizing.

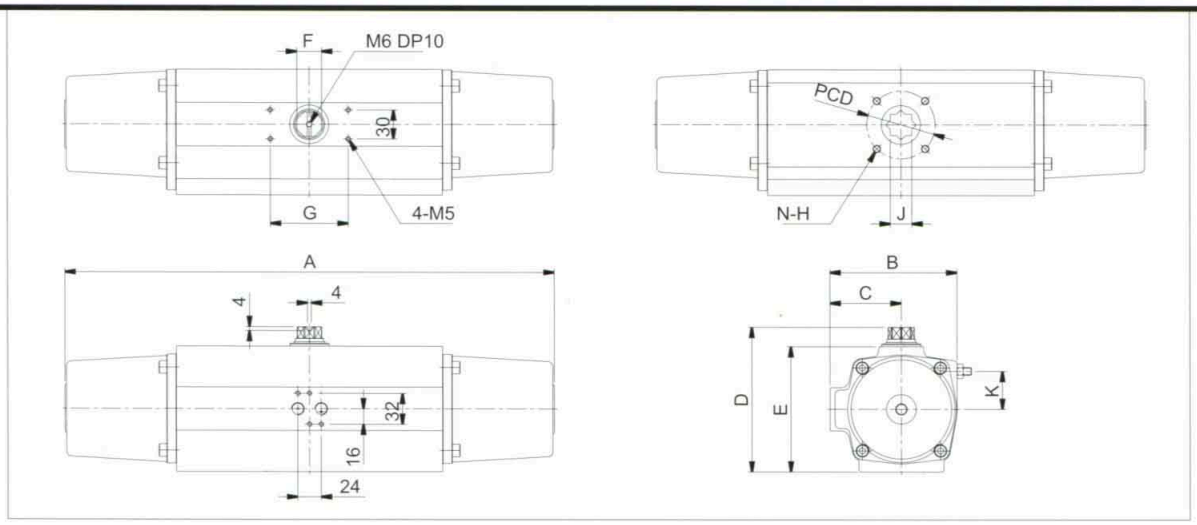
DOUBLE ACTING : PD Series



UNIT : mm

MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	WEIGHT(kg)
PD50	186	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11x11	15	19.5	1.6
PD70	255	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17x17	20	26	3
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	422	159	88	182	162	28.6	80/130	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	29
PD200	615	243	130	292	262	42.5	80130	F12/F16	125/165	4-M12/M20	46x46	60	77.5	56

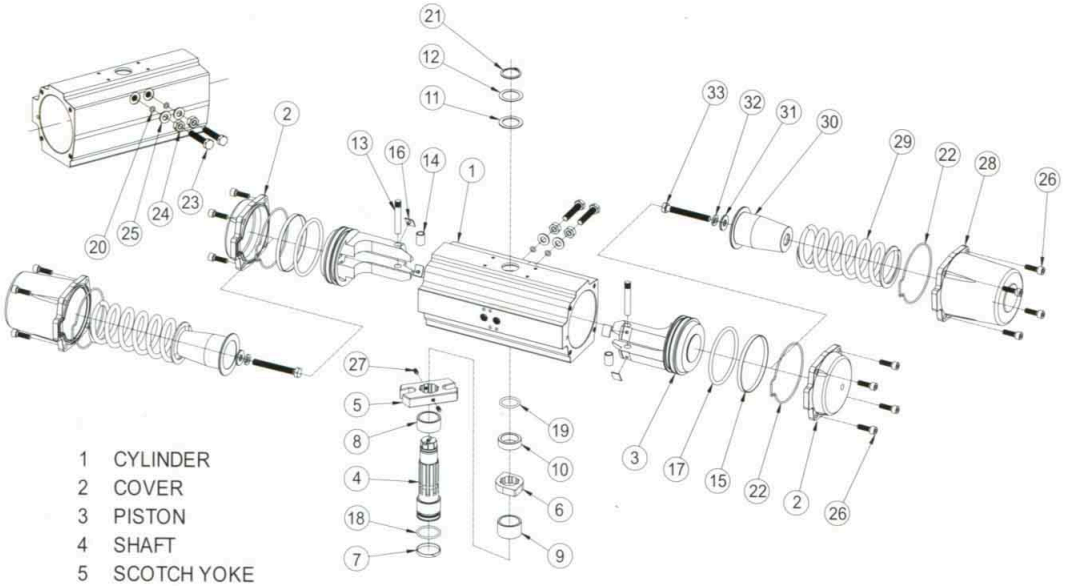
SPRING RETURN : PS Series



UNIT : mm

MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	WEIGHT(kg)
PS50	255	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11x11	15	19.5	1.7
PS70	330	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17x17	20	26	3.5
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	80/130	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	44
PS200	869	243	130	292	262	42.5	80/130	F12/F16	125/165	4-M12/M20	46x46	60	77.5	81

EXPLODED VIEW



1 CYLINDER
2 COVER
3 PISTON
4 SHAFT
5 SCOTCH YOKE
6 STOPPER
7 SHAFT BEARING
8 SUPPORT RING - LOWER
9 SUPPORT RING - MIDDLE
10 SUPPORT RING - UPPER
11 THRUST WASHER
12 WASHER - SHAFT
13 ROLLER PIN
14 ROLLER
15 PISTON GUIDE PAD
16 SUPPORT BAND
17 O-RING - PISTON
18 O-RING - SHAFT, LOWER
19 O-RING - SHAFT, UPPER
20 O-RING - STOPPER
21 SNAP RING
22 O-RING - COVER
23 ADJUST BOLT
24 ADJUST NUT
25 WASHER-STOPPER
26 HEX.HEAD SOCKET BOLT
27 SET SCREW
28 SPRING RETURN COVER
29 SPRING
30 SPRING RETAINER
31 PLANE WASHER
32 SPRING WASHER
33 PRE TENSION BOLT

PD40 (RACK & PINION)

OUTPUT TORQUE

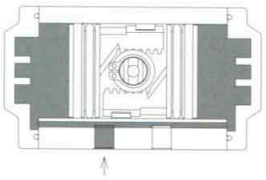
PD40 : DOUBLE ACTING (bar, N-m)

PRESSURE	2.8	3.5	4.2	5.5	6	7	8
TORQUE	5.6	7	8.4	11	12	14	16

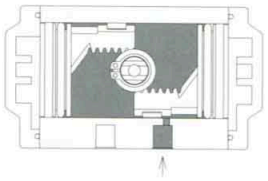
Please be sure to include appropriate safety factors and consider various service conditions when sizing.

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

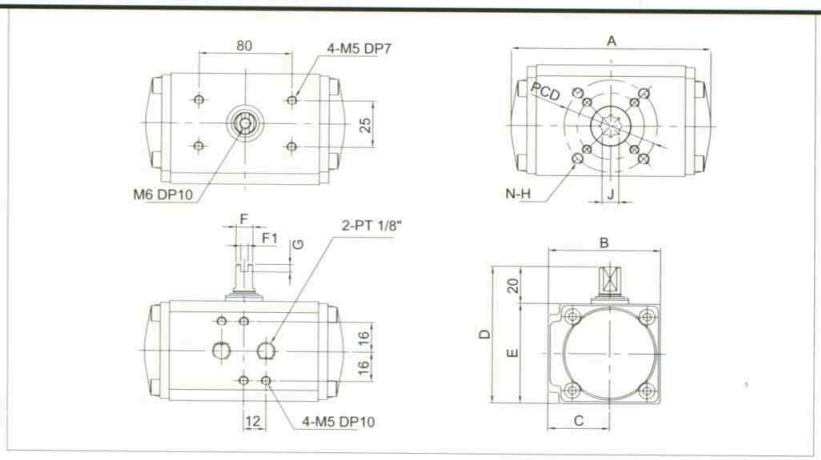
Air Volume : 0.04 Liter



Air Volume : 0.04 Liter



DIMENSIONS

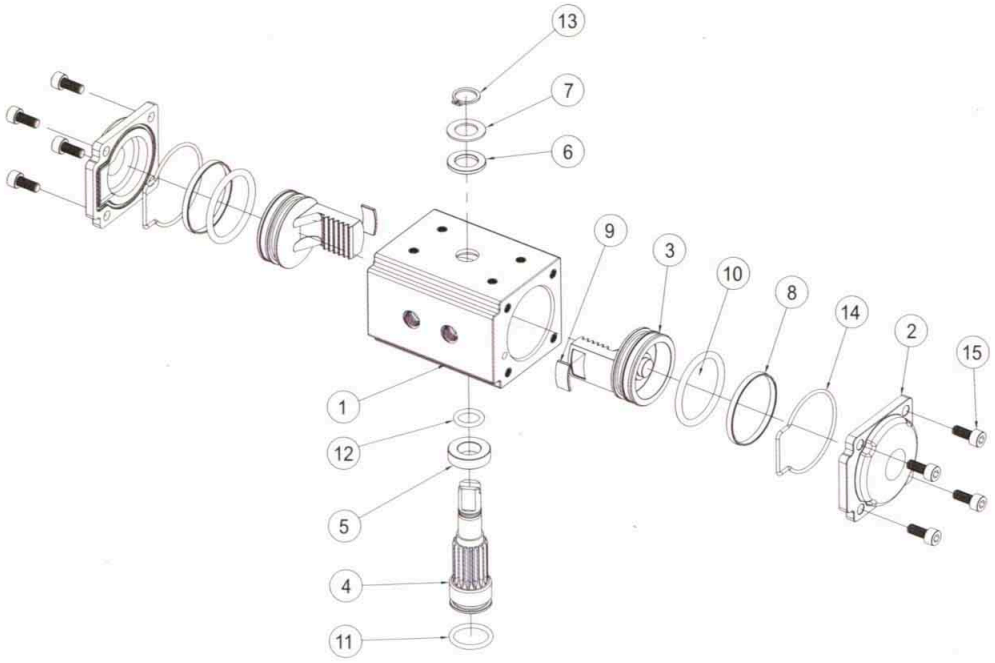


UNIT : mm

MODEL	A	B	C	D	E	F	F1	G	ISO5211	PCD	N-H	J	DP	WEIGHT(kg)
PD 40	107	60	33	74	54	9	4	4	F03/F05	35/50	4-M5/M6	9x9	11	1.1

EXPLODED VIEW

POFCO



1 CYLINDER
2 COVER
3 PISTON
4 SHAFT
5 SUPPORT RING-UPPER
6 THRUST WASHER
7 WASHER - SHAFT
8 SUPPORT BAND
9 PISTON GUIDE PAD
10 O-RING - PISTON
11 O-RING - SHAFT, LOWER
12 O-RING - SHAFT, UPPER
13 SNAP RING
14 O-RING - COVER
15 SUS WRENCH BOLT

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 : IECEx, 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 ~ +60°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 extremly corrosive environmental conditions & for off-shore applications.

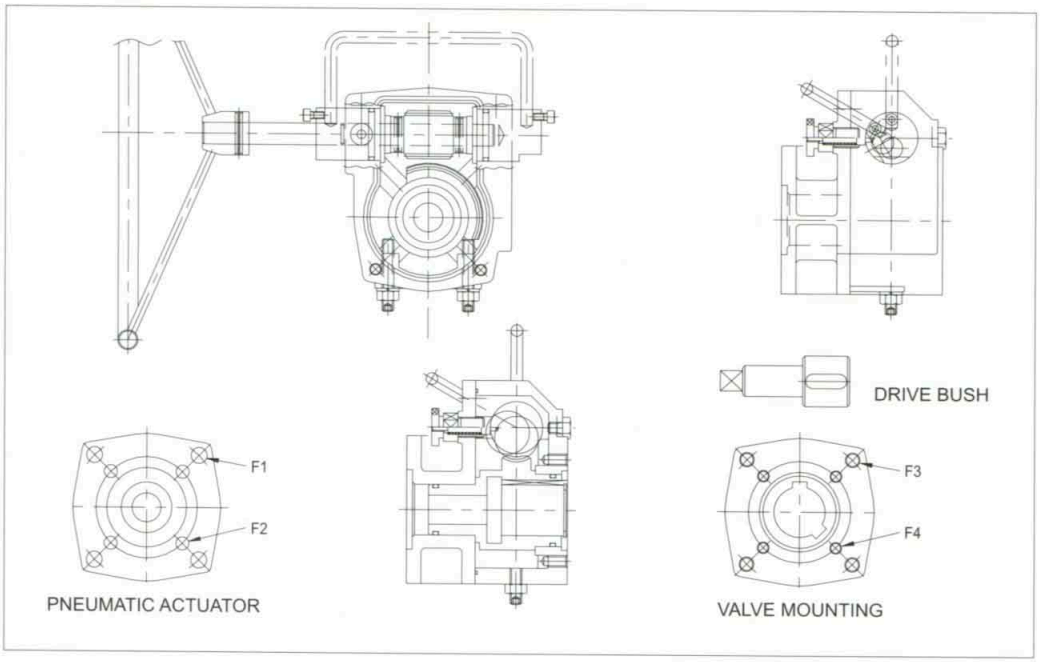
Other specifications are shared with the ITS 300 series except for enclosure & coating.

Ex d : IECEx, GOST_R/RTN certified

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) (F1/F2)		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



* Details are provided upon request.

Manual Handwheel

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

* The details of this catalog are subject to change without prior notification.

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