POWERFUL DRIVE
PNEUMATIC ACTUATOR

All innovation on driving valve automation

POWER-GENEX®

INTRODUCTION

PGD / PGS series are the pneumatic actuators designed using a scotch-yoke technology from PGD / PGS 50 to 200.

Scotch-yoke technology is well-known as the most suitable actuator mechanism for valve and damper operation because it can produce a higher torque at both end positions.

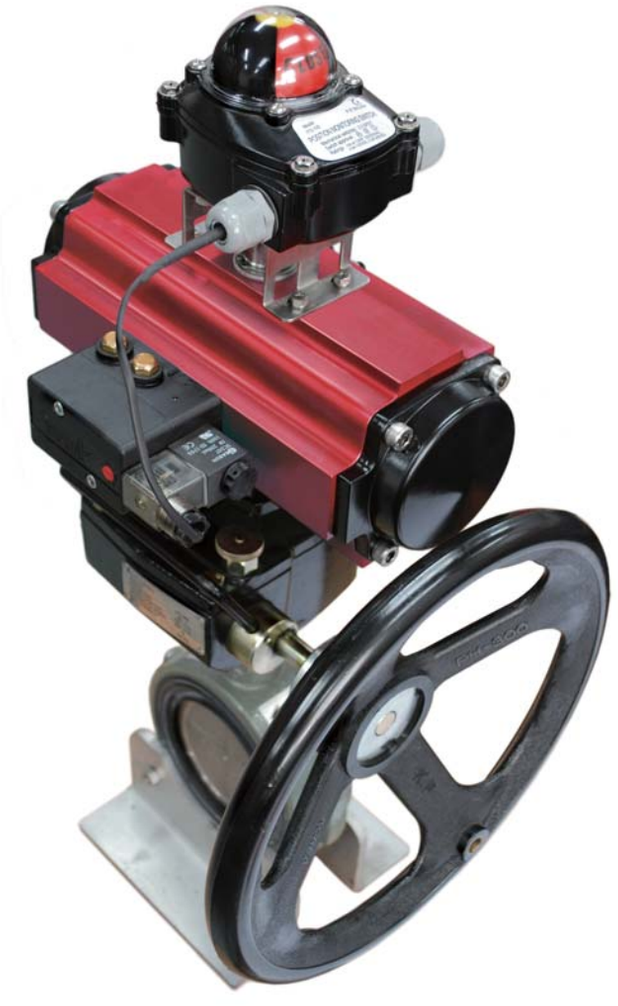
All specifications follow international standards to mount the valve accessories like solenoid valves, limit switches, valve positioners.

Torque is available from 10Nm through 4000Nm double acting and from 5Nm through 1900Nm spring return.

The operating ambient temperature range is -20°C~ +80°C as standard (For higher and lower temperature applications, please contact us before placing order).

Mounting dimensions follow standards of ISO5211, DIN3337, NAMUR and VDI/VDE3845. The drive shafts can be provided in various sizes with double square shaped female bore to accomodate valve shaft. Spring package is pre-compressed for safety. Extremely long service life and reliable performance.

POWER-GENEX Ltd. also provides LSB series limit switch boxes (weather proof, explosion proof), solenoid valves and valve positioners. Side hand-wheel and de-clutchable gear box for manual operation are also optionally available.



Position Indicator

-Flat

-Dome

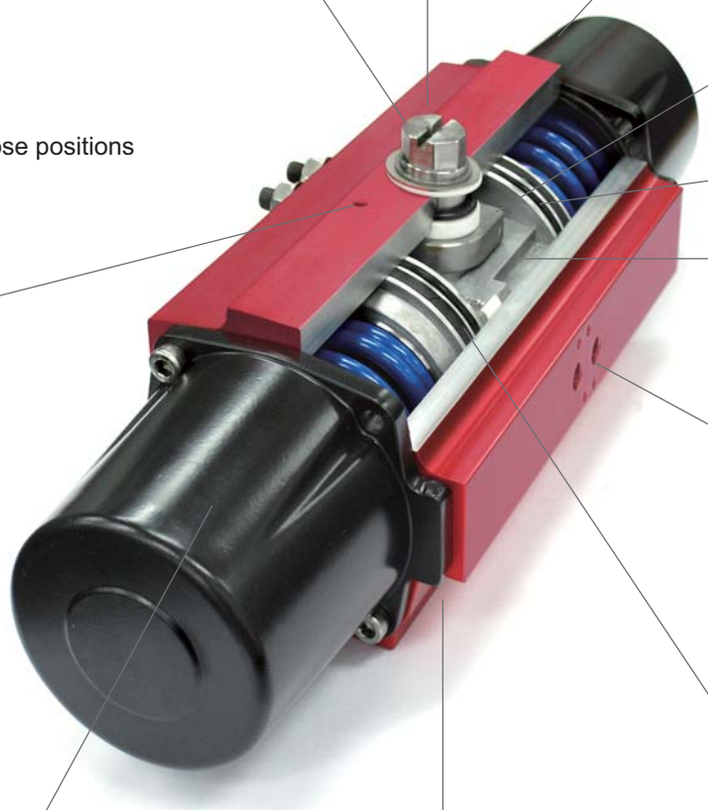
NAMUR Drive Shaft
(Hexagon or Double flat)

Cylinder
Extruded anodised aluminum

Mechanical Stopper

O-ring
Specially treated
for low friction

Center Stopper Bolt
Adjustment for open & close positions



Scotch Yoke
Hardened Scotch Yoke
power, compact unit

Mounting Holes
for Accessories

Easier Mounting Acc. to
VDI/VDE 3845 NAMUR

Direct Mounting NAMUR

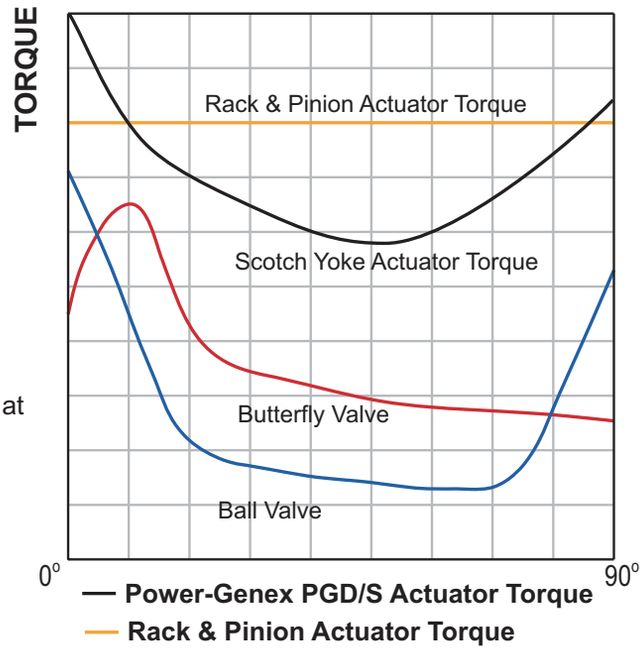
Polished surface finish
Low friction
max working life

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

FEATURES AND ADVANTAGES



Advantages (Scotch Yoke)

POWER-GENEX pneumatic actuators provide a strong torque at open and close positions. And it satisfies the required torque for practical valve operation.

- Strong torque at open and close positions
- Compact design and size
- Extremely long cyclic life
- Adjustable center stopper for both open & close positions

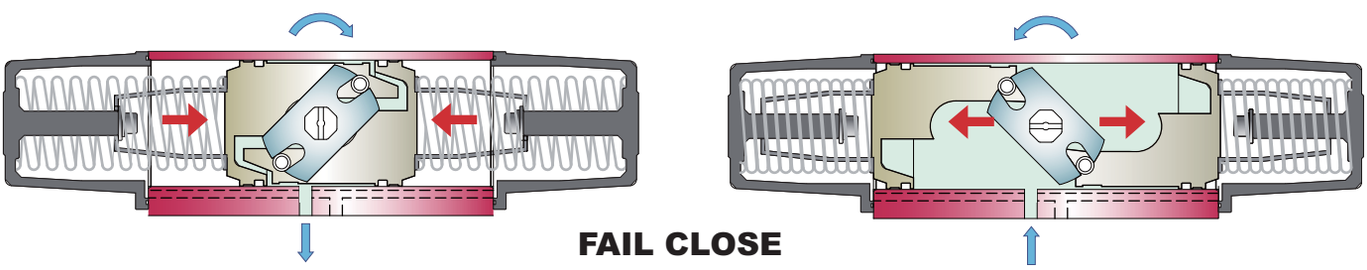
MECHANICAL MOVEMENT & POSITION INSIDE

DOUBLE ACTING

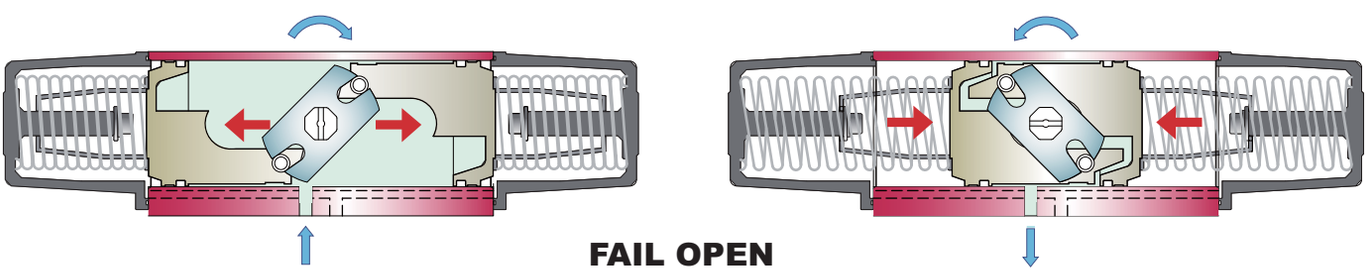
CLOSE — OPEN

SPRING RETURN

CLOSE — OPEN

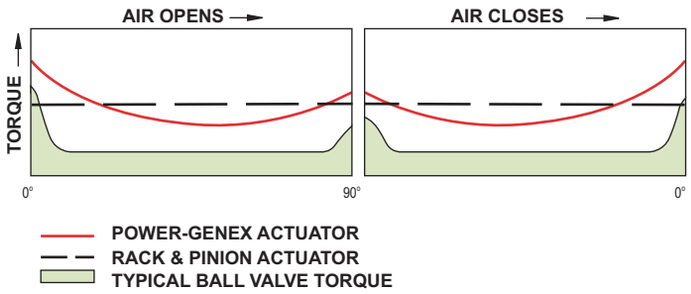


FAIL CLOSE



FAIL OPEN

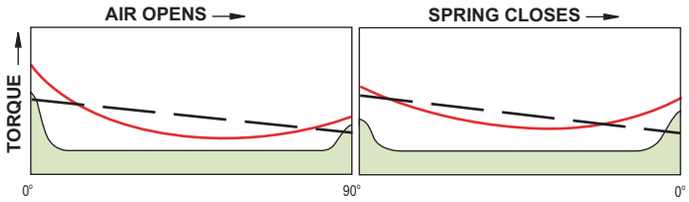
DOUBLE ACTING OUTPUT TORQUE (Nm)



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	
PGD-50	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			
PGD-70	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			
PGD-85	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			
PGD-100	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			
PGD-125	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			
PGD-160	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			
PGD-200	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)

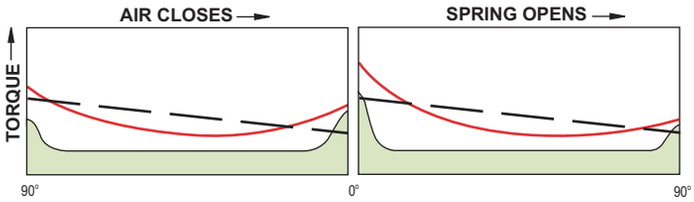


Spring Close

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)
PGS-50	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		
PGS-70	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		
PGS-85	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		
PGS-100	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		
PGS-125	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		
PGS-160	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		
PGS-200	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)



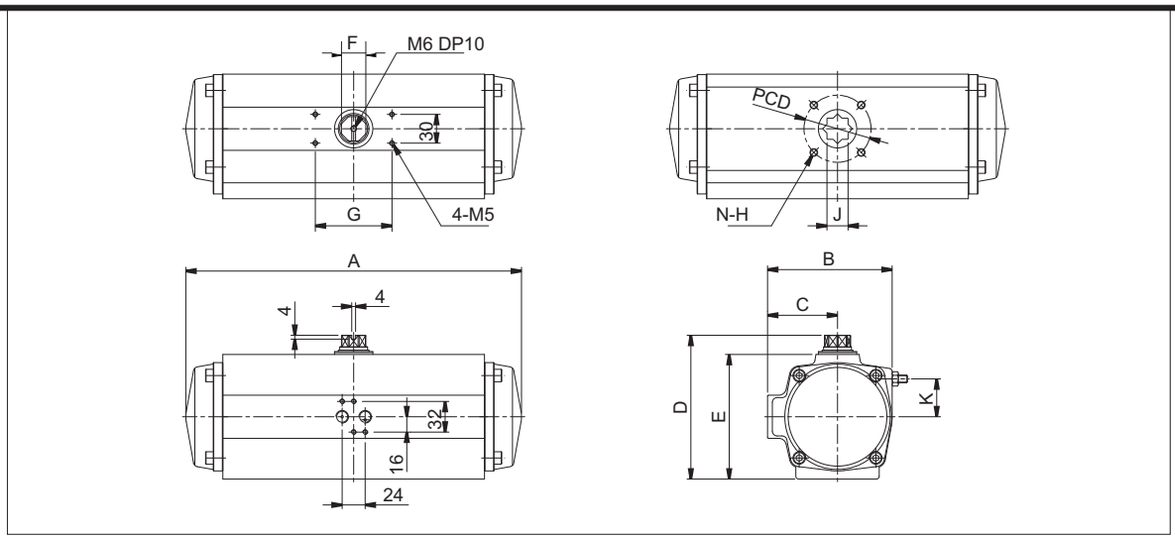
POWER-GENEX ACTUATOR
RACK & PINION ACTUATOR
TYPICAL BALL VALVE TORQUE

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)
PGS-50	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		
PGS-70	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		
PGS-85	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		
PGS-100	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		
PGS-125	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		
PGS-160	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		
PGS-200	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.

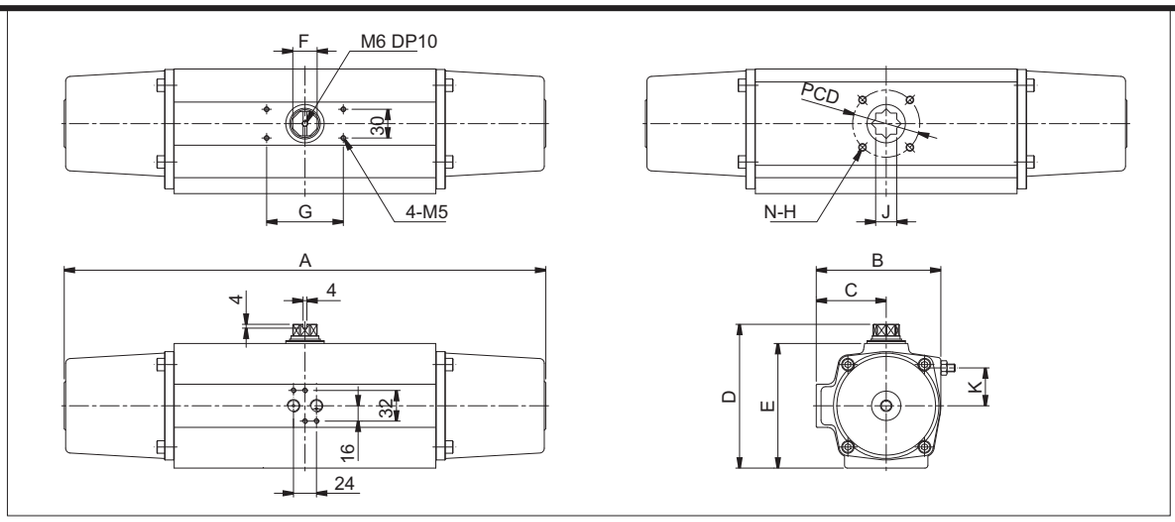
DOUBLE ACTING : PGD Series



UNIT : mm

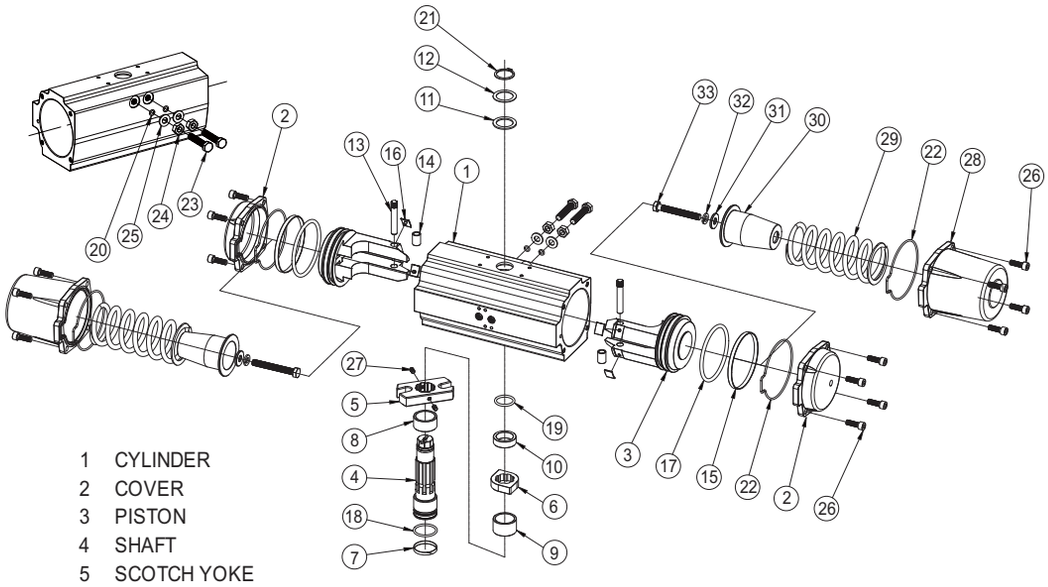
MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	WEIGHT(kg)
PGD-50	186	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11x11	15	19.5	1.6
PGD-70	255	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17x17	20	26	3
PGD-85	300	110	62	130	110	22	80	F05/F07	50/70	4-M6/M8	17x17	25	33	5
PGD-100	350	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22x22	30	39.5	7.5
PGD-125	422	159	88	182	162	28.6	80/130	F10/F12	102/125	4-M10/M12	27x27	35	47.5	11
PGD-160	510	195	105	240	210	34	80/130	F10/F14	102/140	4-M10/M16	36x36	60	62	29
PGD-200	615	243	130	292	262	42.5	80130	F12/F16	125/165	4-M12/M20	46x46	60	77.5	56

SPRING RETURN : PGS Series



UNIT : mm

MODEL	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	WEIGHT(kg)
PGS-50	255	73	42	91	71	11.4	80	F03/F05/F07	35/50/70	4-M5/M6	11x11	15	19.5	1.7
PGS-70	330	96	55	112	92	17	80	F05/F07	50/70	4-M6/M8	17x17	20	26	3.5
PGS-85	423	110	62	130	110	22	80	F05/F07	50/70	4-M6/M8	17x17	25	33	5.5
PGS-100	499	130	73	150	130	25.4	80	F07/F10	70/102	4-M8/M10	22x22	30	39.5	10
PGS-125	629	159	88	182	162	28.6	80/130	F10/F12	102/125	4-M10/M12	27x27	35	47.5	18
PGS-160	744	195	105	240	210	34	80/130	F10/F14	102/140	4-M10/M16	36x36	60	62	44
PGS-200	869	243	130	292	262	42.5	80/130	F12/F16	125/165	4-M12/M20	46x46	60	77.5	81



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

PGD-40 (RACK & PINION)

OUTPUT TORQUE

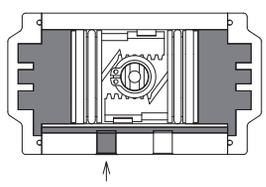
PGD-40 : DOUBLE ACTING (bar, N-m)

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

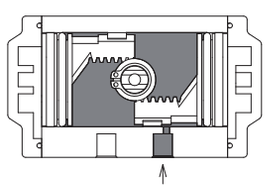
Please be sure to include appropriate safety factors
and consider various service conditions when sizing.

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

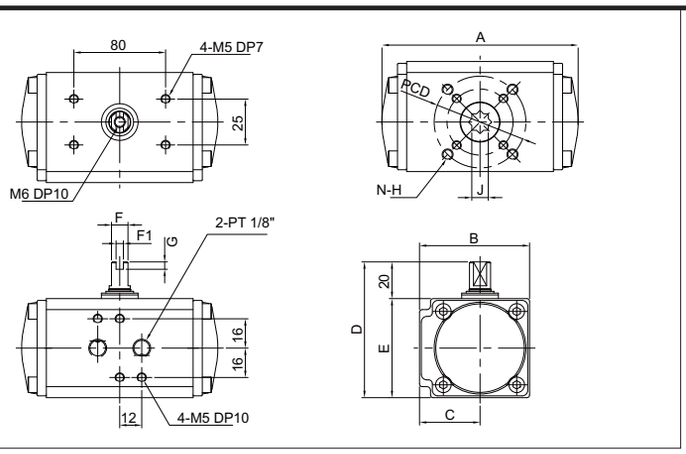
Air Volume :
0.04 Liter



Air Volume :
0.04 Liter



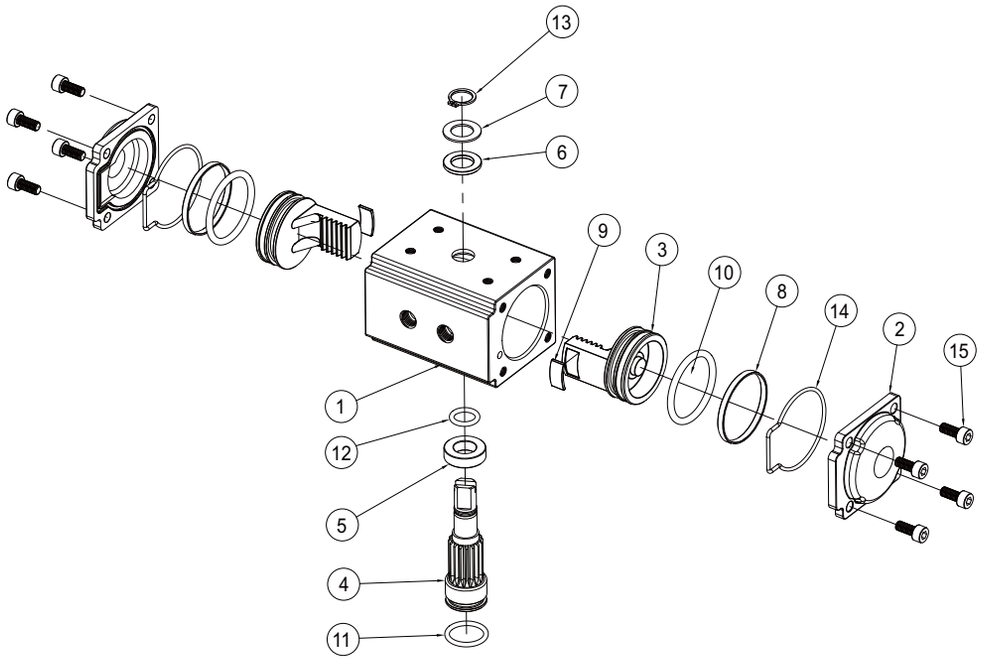
DIMENSIONS



UNIT : mm

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

PARTS



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

LSB Series Valve Monitoring Indicator

LSB-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)

LSB-300 Series (Explosion Proof)

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

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)

LSB-500 Series

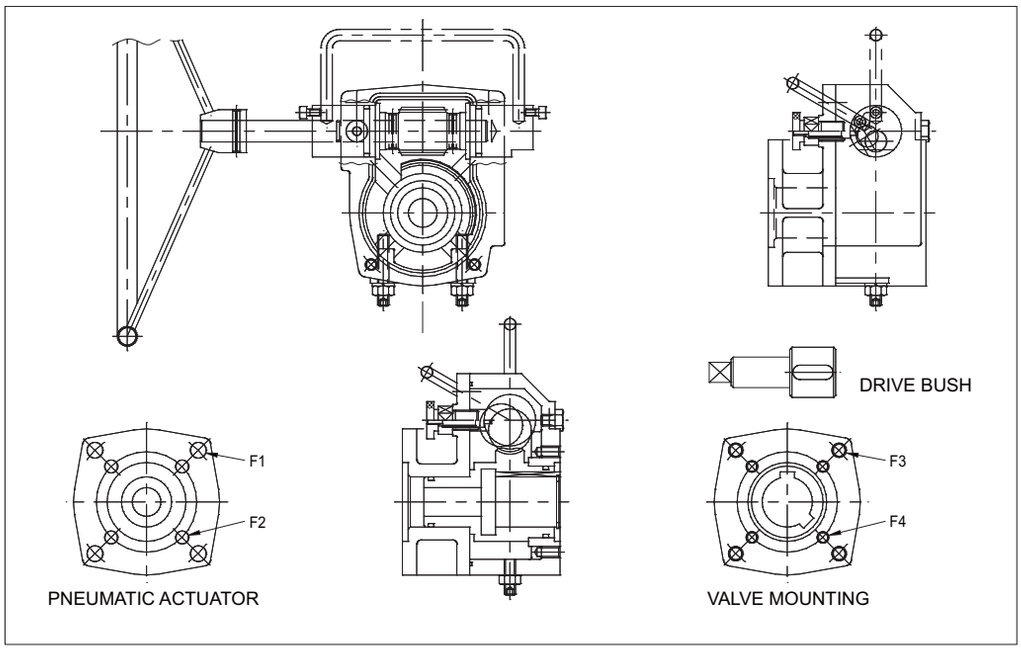
Special stainless steel housig (316L or Duplex) for extremely corrosive environmental conditions & for off-shore applications.

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

Declutchable Gear Box

-Aluminum Housing

MODEL NO		GB-050	GB-060	GB-080	GB-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(∅)	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		PGD/S 50/70/85	PGD/S 100/125	PGD-160	PGD-200, PGS-160



* Details are provided upon request.

Manual Handwheel

-For PGD/S-50 to PGD/S-200, DA and SR
-Simple and Compact in size and weight

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

Website : http://www.power-genex.com

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