ROTARY **ACTUATOR ECF/ SSF SERIES**

ECF/SSF : 08 : 11

ATEX

CE

SIL3

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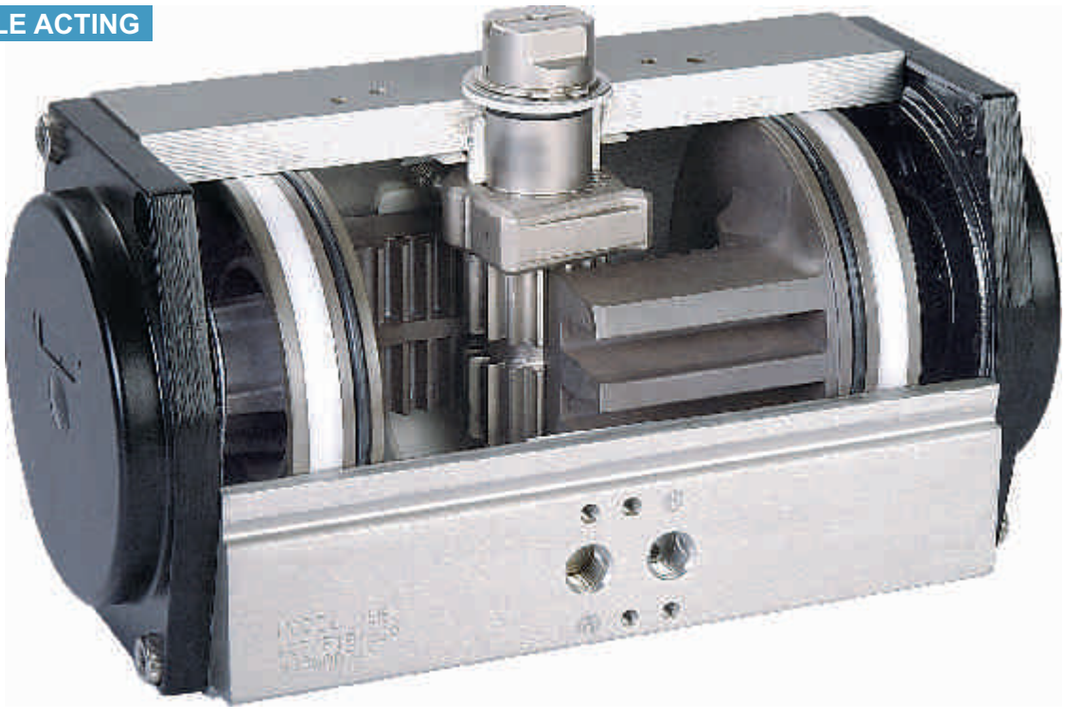
ECF **ACTUATOR**

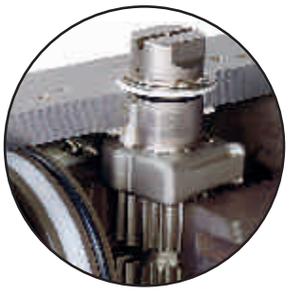
WITH THE TRADITION OF CONSTANT INNOVATION AND VIRTUE IN ENGINEERING, ROTEX... BODY DOUBLE RACK AND PINION ACTUATOR SERIES "ECF"

FEATURES

- Double rack and pinion construction
- Hard anodized body providing high corrosion resistance
- The pinion is supported on a large area of polyacetal bearings
- Maximum working pressure 8 bar, contact ROTEX for higher working pressure
- Additional lubrication is not required
- Temperature range
  NBR -20 °C to +80 °C
  PE -40 °C to +110 °C
- Life more than 1 million cycles
- Anti blow-out pinion
- Convertible to Single Acting by just adding springs

DOUBLE ACTING





END STROKE (0°)

- Ideal for setting the closed position of the Butterfly Valve
- Set the closing position against the pinion
- 10° over travel setting possible for closing
- Strong machined cam for locking
- 5° Under traveling can be adjusted

END STROKE (90°)

- Setting the perfect opening and closing of the Ball Valve, will ensure a long life of the Ball Valve seats
- Extremely important for Pipe line pigging application
- +10°over travel setting possible for opening
- 5° Under traveling can be adjusted

ANTI BLOWOUT

- Integral strong Aluminium key provides firm locking of the pinion, thus eliminating movement under pressure
- Acts like internal bearing to avoid interference of rack and pinion

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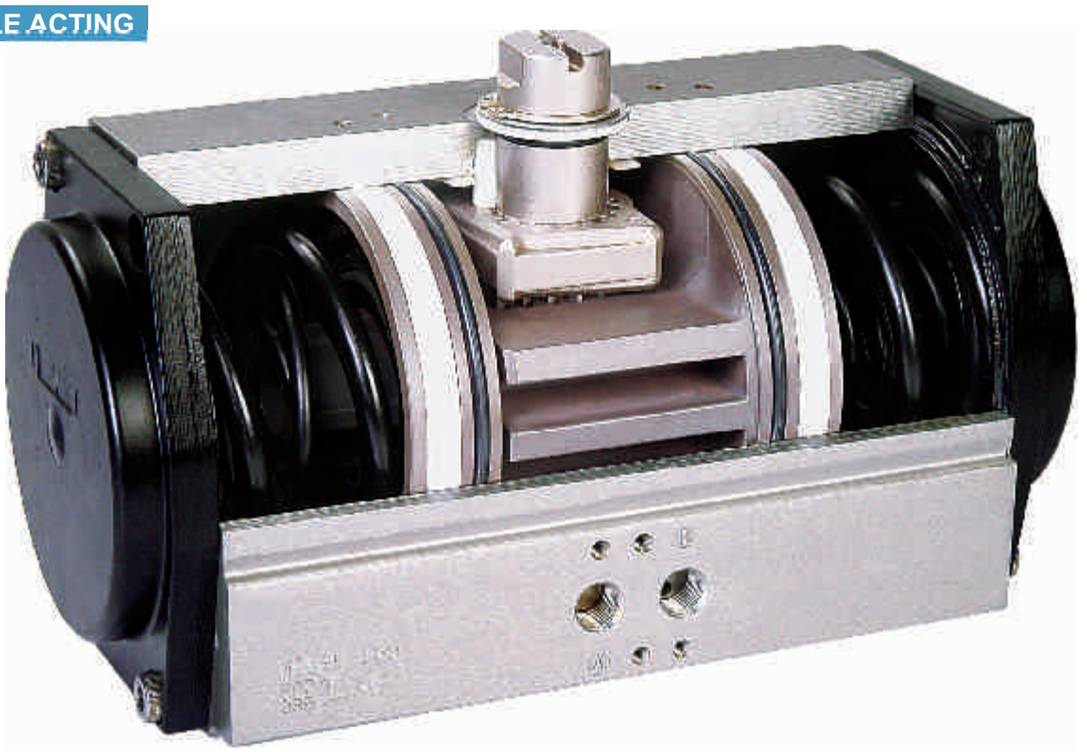
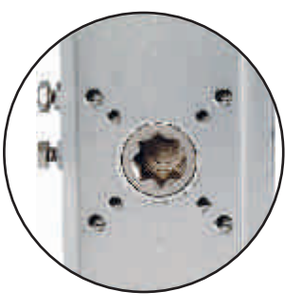
ECF **ACTUATOR**

...BRINGS, A NEW GENERATION, COMPACT EXTRUDED, ALUMINIUM HARD ANODIZED

- Unique Spring Retainer construction
- Eliminates the use of special tools and keys
- No lubrication required for springs
- Safe handling & dismantling
- Pre-compressed Springs enhances the life of it
- Modular spring construction permits combination of springs to generate optimum torque
- Easy assembling & dismantling of various combination of spring sets

SINGLE ACTING





LARGE BEARINGS

- Large bearing area to reduce load
- High tech polymer for low friction
- Triple point bearings one on top of rack, second on piston OD, third by piston key rolling on pinion

ISO PAD

- Valve mounting as per ISO 5211 with an additional one higher size pad
- Standardisation of mounting accessories
- ISO centering ring for precise location
- Octagonal drive shaft for ease of mounting

SPRING

- Gr.III epoxy coated Springs having high corrosion resistance
- Modular spring set catering to various valve torque characteristics
- Non buckling modular spring design

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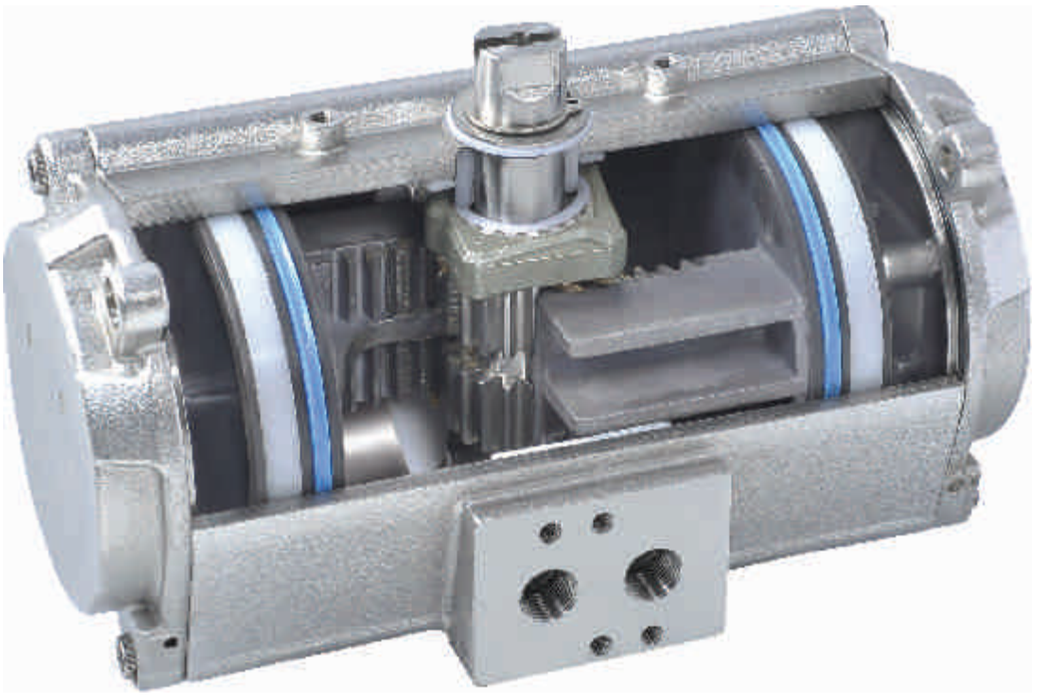
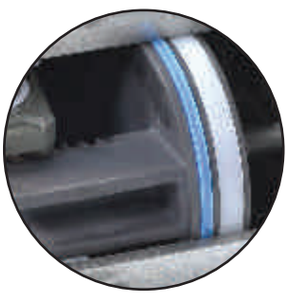
SSF SERIES

STAINLESS STEEL ACTUATOR

FEATURES

- Double rack and pinion contruction
- CF8M material for high corrosion resistance
- The pinion and pistons are supported on polyacetal bearings
- Maximum Working Pressure 8 bar
- Additional lubrication is not required
- Temperature range
  NBR -20 °C to +80 °C
  PE -40 °C to 110 °C
- Life more than 1 million cycles
- Anti blow-out pinion
- Unique spring retainer construction
- Convertible to Single Acting just by adding springs





CF8M BODY, COVER

- High grade Casting
- Body bore Honed for smooth finish and long life of seals
- No crevices for easy cleaning, avoiding bacterial growth

INTERNALS

- All internals are direct replacement to ECF
- All the seals are common for ECF, SSF
- Springs & Spring rating are as per the ECF

PISTON WITH RACK

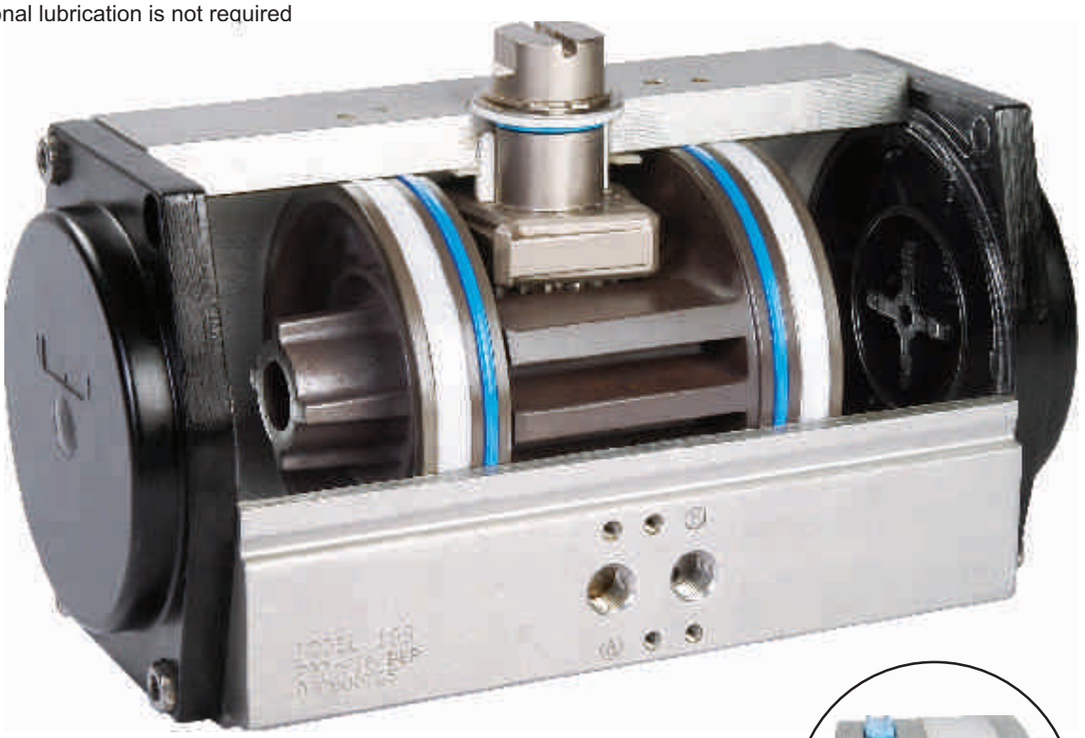
- Double rack and pinion construction
- Hard Anodized pistons
- CF8M piston on request
- NBR as standard and PE on request

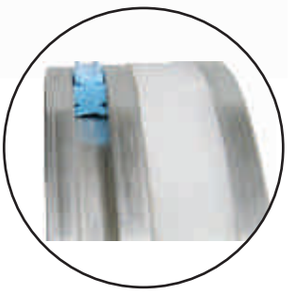
ECF **ACTUATOR**

SUPER SEAL

OPTIONAL

- Polyethylene seals for an extremely long life
- Low friction, areas retaining grooves provides non stick slip movement
- Life over 3 million cycles
- The groove design is common for NBR & PE seals.
- The alternative seals can be installed at later date.
- Highly recommended for high cyclic operation application
- Additional lubrication is not required





APPLICATION

- Low temperature range : -55 °C, Needs low temperature grease
- High temperature range : +110 °C
- Non lubricated media like dry nitrogen
- Hydraulic media can be used up to 12 bar
- Can handle dirt & moisture

PROPERTIES

- Needs proficiency in Installation
- Due to higher hardness of material leakage up to 0.001 N ℓ / min can be observed

'V' SEAL

- Unique 'v' seal
- Low on co-efficient of friction
- Long life, no lubrication needed
- Excellent response to control valve positioning due to low friction
- Body bore finish
  Ra < 0.2 µ
  Rp < 2.0 µ

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ROTARY ACTUATOR CORROSION PROTECTION OPTIONS

Body:

Hard Anodized Aluminium: (Standard)

- Special Aluminium alloy is used as a base metal
- Hard Anodizing of Aluminium results in better corrosion protection, surface hardness and superior wear resistance
- 50 µm thickness of the controlled oxidized surface of the alloy comprises primarily of Aluminium trioxide (Al_2O_3) crystals along with Magnesium, Tungsten Oxides which make the surface chemically inert and extremely hard (in excess of 45º Rc)
- The surface can withstand all environmental oxidations including, those of saline, except strong alkaline by the surface (Refer the technical document for more information)
- The oxidized Aluminium base metal cannot be peeled, making it an extremely stable surface treatment

Electroless Nickel Treatment: 'EN'

Nickel is deposited on the aluminium surface by its chemical reaction on the body, which is hard Anodized. This treatment covers the crevices including the threads and the passage hole making the surface absolutely non-porous and corrosion free. Superior corrosion resistance as compared to Hard Anodizing, makes this treatment a suitable choice for corrosive environments. Ideal for external wash.

Epoxy Coated Actuator: 'CL'

The two pack epoxy coating is done on a Hard Anodized surface of the Aluminium body by the spray technique. It produces a 30µ - 40µ thick layer (only external surfaces). This epoxy coating helps in protecting the actuator from extremely corrosive environments. Choose this option specially for alkaline environments. It is also suitable for environments like Ammonia, Ammonia Liquor etc. ROTEX guarantees 500 hrs. salt spray test.

Pinion:

Electroless Nickel Plated: (Standard)

Standard surface treatment given to the pinion shaft of Steel (EN 8). Adequate for most applications including corrosive environments. The Square drive is machined to meet the close tolerances.

Stainless Steel: '8/8M'

Optionally available for aggressive environments. Pinion can also be supplied in SS304/SS316.

DOUBLE ACTING TORQUE ECF/ SSF IN Nm

TORQUE Nm (10 Nm = 1 kgm)

Air pressure / MODEL	3 bar	4 bar	5 bar	6 bar	7 bar
ECF 32	4	5	7	8	10
ECF 40	10	13	16	20	23
ECF 50	15	19	24	29	33
ECF 63	29	39	48	59	68
ECF 80	48	64	80	96	112
ECF 90	75	100	125	150	175
ECF 100	102	136	170	204	238
ECF 110	127	169	212	254	297
ECF 125	175	233	292	350	408
ECF 150	293	390	488	586	684
ECF 175	429	573	716	860	1000
ECF 200	696	928	1160	1390	1625
ECF 250	1130	1510	1890	2265	2640
ECF 300	1630	2170	2715	3260	3800
ECF 350	2190	2920	3650	4380	5110

TECHNICAL INFORMATION (ECF)

AIR CONSUMPTION

AIR CONSUMPTION (in litre A.N.R/ bar 90° STROKE)			
MODEL		PISTON INWARD STROKE	PISTON OUTWARD STROKE
		Litre/ bar	Litre/ bar
ECF 32	32E	0.12	0.09
ECF 40	40E	0.15	0.11
ECF 50	50E	0.26	0.18
ECF 63	63E	0.37	0.28
ECF 80	80E	0.70	0.41
ECF 90	90E	1.14	0.69
ECF 100	100E	1.36	0.92
ECF 110	110E	1.87	1.18
ECF 125	125E	2.24	1.69
ECF 150	150E	3.97	2.75
ECF 175	175E	5.45	4.70
ECF 200	200E	11.76	6.80
ECF 250	250E	13.75	10.20
ECF 300	300E	31.50	16.30
ECF 350	350E	37.00	25.70

WEIGHT

WEIGHT (in kg)		
MODEL	DOUBLE ACTING	SINGLE ACTING
ECF 32	0.750	0.850
ECF 40	1.400	1.600
ECF 50	1.700	1.950
ECF 63	2.650	3.000
ECF 80	3.700	4.300
ECF 90	6.000	7.500
ECF 100	7.300	9.000
ECF 110	7.500	10.350
ECF 125	9.000	12.000
ECF 150	14.500	20.700
ECF 175	20.500	27.600
ECF 200	33.000	51.000
ECF 250	48.000	69.000
ECF 300	60.000	111.000
ECF 350	77.000	133.000

For Double Acting, the total Air Consumption is sum of Inward & Outward Stroke Air Consumption. For Single Acting only Outward Stroke Air Consumption

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SINGLE ACTING TORQUE (ECF/ SSF) IN Nm

SIZE	SET NO.	SPRING		3 bar		4 bar		5 bar		6 bar	
		MIN	MAX	Air min.	Air max.	Air min.	Air max.	Air min.	Air max.	Air min.	Air max.
ECF 32E	6	2	3	1	2	2	3	4	5	5	6
	7	3	4	-	-	1	3	3	4	4	6
	8	3	5	-	-	1	2	2	4	3	5
ECF 40E	5	5	7	3	5	6	8	9	12	13	15
	6	5	8	2	5	5	8	9	11	12	15
	7	6	10	-	-	4	7	7	10	10	14
	8	8	12	-	-	2	6	5	9	8	12
ECF 50E	5	7	10	4	7	9	12	13	17	18	21
	6	8	11	3	7	8	11	13	16	17	21
	7	9	13	-	-	6	10	10	15	15	19
	8	11	16	-	-	3	8	7	13	12	17
ECF 63E	5	15	22	7	15	17	25	27	34	37	44
	6	15	23	6	14	16	24	26	34	36	43
	7	19	28	-	-	11	21	21	30	31	40
	8	23	34	-	-	5	17	15	26	25	36
ECF 80E	11	17	25	22	31	38	47	54	62	70	78
	16	22	33	15	26	30	41	46	57	62	73
	18	24	35	12	24	28	40	44	56	60	72
	22	28	42	6	20	22	35	37	51	53	67
	24	32	47	-	-	16	32	32	48	48	64
	26	37	55	-	-	8	27	24	42	40	58
ECF 90E	11	26	39	34	47	58	71	82	95	106	119
	16	34	50	22	39	46	63	70	87	95	111
	18	36	54	19	36	43	61	67	85	91	109
	22	43	64	9	30	33	54	57	78	81	102
	24	48	72	-	-	25	48	49	72	73	97
	26	56	84	-	-	13	40	37	65	61	89
ECF 100E	11	37	55	48	66	82	100	116	134	151	169
	16	48	71	31	55	65	89	100	123	134	157
	18	51	76	26	52	61	86	95	120	129	154
	22	60	90	12	42	47	76	81	110	115	145
	24	68	102	-	-	35	68	69	103	103	137
	26	80	119	-	-	18	57	52	91	86	126
ECF 110E	11	45	68	60	82	102	124	144	167	187	209
	16	59	88	39	68	81	111	124	153	166	196
	18	63	94	33	64	75	107	118	149	160	192
	22	75	112	15	52	58	95	100	137	143	180
	24	85	127	-	-	43	85	85	127	128	170
	26	99	148	-	-	22	71	65	114	107	156
ECF 125E	11	62	93	82	113	140	171	199	229	257	288
	16	81	122	53	94	112	152	170	210	229	269
	18	87	130	45	88	104	147	162	205	220	264
	22	103	154	21	72	79	131	138	189	196	247
	24	117	174	-	-	59	117	117	175	176	234
	26	136	203	-	-	31	98	89	156	147	215
ECF 150E	33	99	147	146	194	243	292	341	390	439	487
	54	139	209	84	154	182	252	280	350	377	447
	57	143	217	76	150	174	248	271	346	369	443
	74	181	274	19	112	117	210	215	307	312	405
	79	209	314	-	-	76	181	174	279	272	377
	80	221	334	-	-	57	169	154	267	252	365
ECF 175E	33	144	220	210	285	353	429	496	572	640	715
	54	200	308	121	230	265	373	408	516	551	660
	57	203	317	112	226	256	370	399	513	542	656
	74	259	402	28	171	171	314	314	457	458	600
	79	303	466	-	-	107	270	250	413	394	556
	80	318	492	-	-	81	255	224	398	367	541
ECF 200E	33	251	371	326	446	558	678	790	911	1023	1143
	54	359	529	167	337	400	569	632	802	864	1034
	57	367	546	151	329	383	561	615	794	847	1026
	74	461	681	16	236	248	468	481	700	713	932
	79	533	790	-	-	139	396	371	628	604	860
	80	566	838	-	-	91	363	323	595	555	828
ECF 250E	33	348	584	548	784	925	1161	1302	1539	1680	1916
	54	495	830	302	638	680	1015	1057	1392	1434	1770
	57	511	858	274	622	652	999	1029	1376	1406	1754
	74	656	1096	36	476	413	853	791	1231	1168	1608
	79	744	1248	-	-	262	765	639	1143	1016	1520
	60	791	1327	-	-	182	718	560	1095	937	1473
ECF 300E	33	570	850	779	1060	1322	1603	1865	2146	2409	2689
	54	791	1181	449	839	992	1382	1535	1925	2078	2468
	57	822	1228	402	807	945	1350	1488	1894	2031	2437
	74	1038	1549	80	592	623	1135	1166	1678	1710	2221
	79	1189	1776	-	-	397	984	940	1527	1483	2070
	80	1265	1889	-	-	283	908	827	1451	1370	1994
ECF 350E	33	785	1152	1021	1387	1745	2112	2470	2836	3194	3560
	54	1126	1646	526	1047	1250	1771	1975	2495	2699	3219
	57	1183	1724	449	990	1173	1714	1897	2438	2622	3163
	74	1470	2152	20	703	745	1427	1469	2151	2193	2875
	79	1686	2469	-		428	1211	1152	1935	1877	2659
	80	1802	2634	-		263	1095	987	1819	1711	2543

The above torque combinations are most commonly used. Contact ROTEX for other combinations to select most optimum Actuator.
SPRING MAX = Spring Start, SPRING MIN = Spring End

TECHNICAL INFORMATION (SSF)

AIR CONSUMPTION

AIR CONSUMPTION (in litre A.N.R/ bar 90° STROKE)			
MODEL		PISTON INWARD STROKE	PISTON OUTWARD STROKE
		Litre/ bar	Litre/ bar
SSF 32	32E	0.12	0.09
SSF 40	40E	0.15	0.11
SSF 50	50E	0.26	0.18
SSF 63	63E	0.37	0.28
SSF 80	80E	0.70	0.41
SSF 90	90E	1.14	0.69
SSF 100	100E	1.36	0.92
SSF 110	110E	1.87	1.18
SSF 125	125E	2.24	1.69
SSF 150	150E	3.97	2.75
SSF 175	175E	5.45	4.70
SSF 200	200E	11.76	6.80
SSF 250	250E	13.75	10.20
SSF 300	300E	31.50	16.30
SSF 350	350E	37.00	25.70

WEIGHT

WEIGHT in kg.		
MODEL	DOUBLE ACTING	SINGLE ACTING
SSF 32	1.76	1.86
SSF 40	2.53	2.75
SSF 50	2.90	3.12
SSF 63	4.14	4.50
SSF 80	5.61	6.32
SSF 90	8.41	10.10
SSF 100	11.79	13.80
SSF 110	16.10	18.40
SSF 125	19.30	21.80
SSF 150	25.70	29.70
SSF 175	34.00	39.00
SSF 200	69.00	87.00
SSF 250	115.00	136.00
SSF 300	145.00	195.00
SSF 350	192.00	256.00

For Double Acting, the total Air Consumption is sum of Inward & Outward Stroke Air Consumption. For Single Acting only Outward Stroke Air Consumption

SPRING SETS CODE (ECF/ SSF)

FOR ECF/ SSF 32 - 63

SPRING SET	INNER SPRING	OUTER SPRING
5	0	2
6	2	1
7	1	2
8	2	2

FOR ECF/ SSF 80 - 125

SPRING SET	INNER SPRING	MIDDLE SPRING	OUTER SPRING
11	2	0	1
16	2	1	1
18	1	2	1
22	1	1	2
24	2	1	2
26	2	2	2

FOR ECF/ SSF 150 - 350

SPRING SET	INNER SPRING	MIDDLE SPRING	MID. OUTER SPRING	OUTER SPRING
33	0	1	1	1
54	1	1	2	1
57	2	2	1	1
74	2	0	2	2
79	1	2	2	2
80	2	2	2	2

NOTE : Request for the complete spring code chart. Each Actuator can have a combination of spring code equal to the max. Spring set number e.g. ECF 100 can have spring torque variations up to 26

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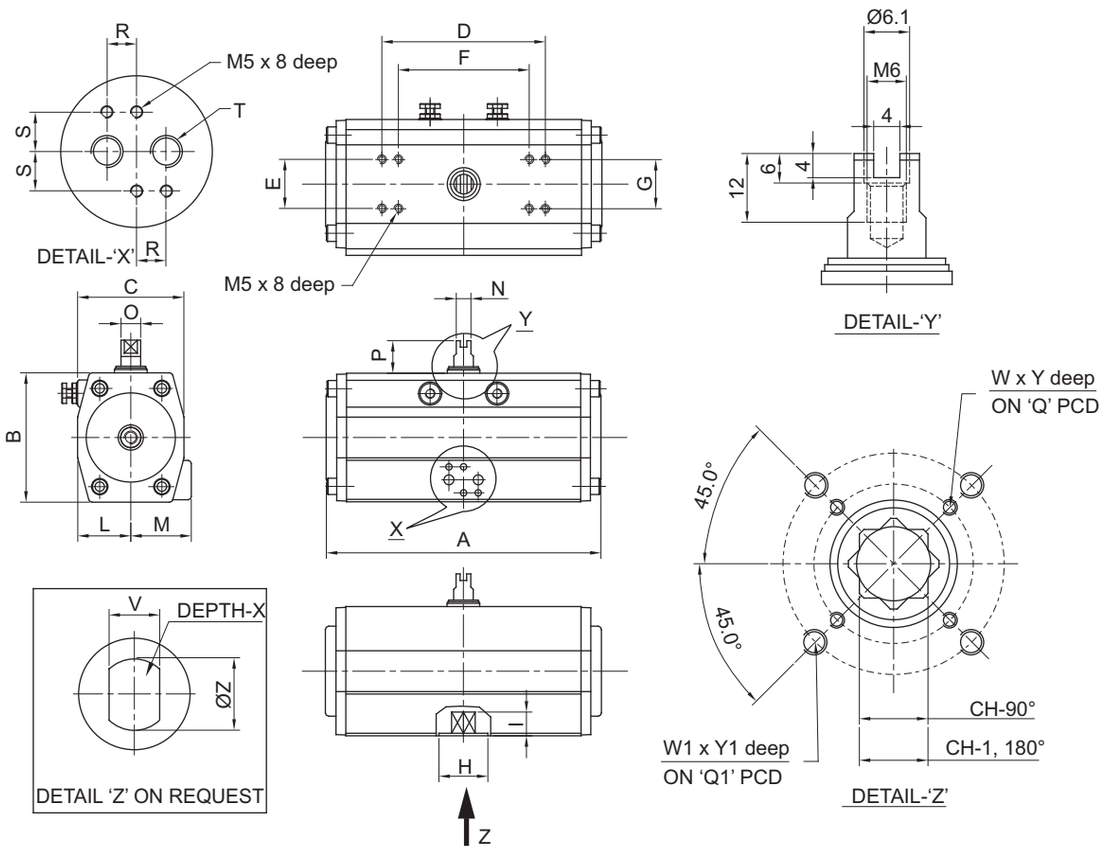
ECF **ACTUATOR**

DOUBLE ACTING / SINGLE ACTING 90° AND 180°

DIMENSIONAL DETAILS

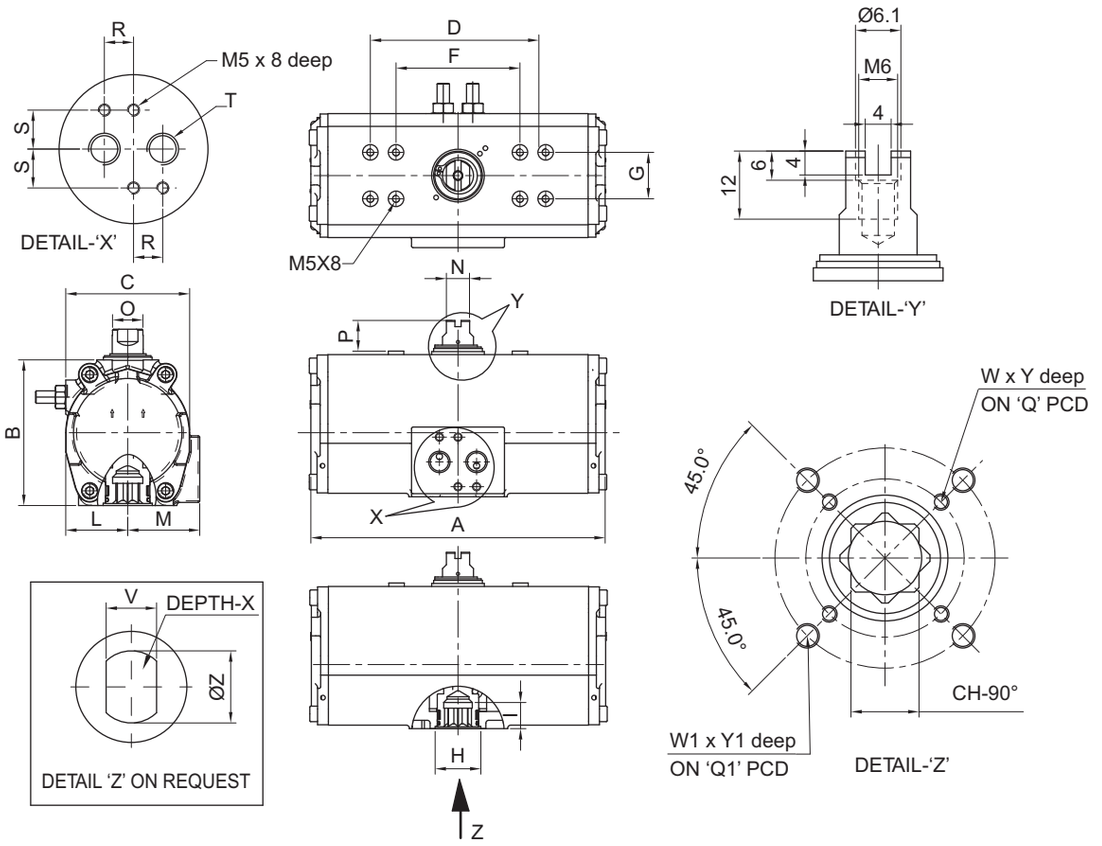


ACTUATOR MODEL	ECF32 ECF32E	ECF40 ECF40E	ECF50 ECF50E	ECF63 ECF63E	ECF80 ECF80E	ECF90 ECF90E	ECF100 ECF100E	ECF110 ECF110E	ECF125 ECF125E	ECF150 ECF150E	ECF175 ECF175E	ECF200 ECF200E	ECF250 ECF250E	ECF300 ECF300E	ECF350 ECF350E
A	138	141	169	197	218	233	272	294	338	365	495	550	695	634	773
B	49	79	79	94	110	140	140	154	154	188	188	253	253	360	360
C	56	65	65	80	97	122	122	142	142	174	174	264	264	373	373
D	-	-	-	-	-	-	-	130	130	130	130	130	130	130	130
F	50	80	80	80	80	80	80	80	80	80	80	-	-	-	-
G	25	30	30	30	30	30	30	30	30	30	30	30	30	30	30
H	24	30	30	32	40	40	48	48	60	65	90	90	122	90	122
I	11	14	14	17	19	19	25	25	25	33	45	55	55	55	57
L	25	32.5	32.5	40	48	61	61	71	71	87	87	132	132	186.5	186.5
M	31	39	39	46.5	54.5	64	64	74	74	90	90	157	157	206.5	206.5
N A/F	8	8	8	15	15	15	25	15	25	25	46	55	55	55	55
O	10	10	10	20	20	20	30	20	30	30	50	60	60	60	60
P	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30
Q	36	36	36	50	50	50	70	70	70	102	102	102	-	-	-
Q1	-	50	50	70	70	70	102	102	102	125	125	140	140	165	165
ISO	F03	F03	F03	F05	F05	F05	F07	F07	F07	F10	F10	F10	-	-	-
FLANGE	-	F05	F05	F07	F07	F07	F10	F10	F10	F12	F12	F14	F14	F16	F16
R	12	12	12	12	12	12	12	12	12	12	12	12	12	20	20
S	16	16	16	16	16	16	16	16	16	16	16	16	16	22.5	22.5
T	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"
CH-90°	9	11	11	14	17	17	22	22	22	27	27	36	46	55	55
W	M5	M5	M5	M6	M6	M6	M8	M8	M8	M10	M10	M10	-	-	-
Y	8	8	8	8	8	8	12	10	11	13	13	12	-	-	-
W1	-	M6	M6	M8	M8	M8	M10	M10	M10	M12	M12	M16	M16	M20	M20
Y1	-	8	8	10	10	10	12	13	13	16	16	16	20	20	20
													12 - 60 -00 - 000. R5		

SSF SERIES

DOUBLE ACTING / SINGLE ACTING 90° AND 180°

DIMENSIONAL DETAILS



ACTUATOR MODEL	SSF32 SSF32E	SSF40 SSF40E	SSF50 SSF50E	SSF63 SSF63E	SSF80 SSF80E	SSF90 SSF90E	SSF100 SSF100E	SSF110 SSF110E	SSF125 SSF125E	SSF150 SSF150E	SSF175 SSF175E	SSF200 SSF200E	SSF250 SSF250E	SSF300 SSF300E	SSF350 SSF350E
A	138	141	169	197	218	233	272	294	338	365	495	550	695	634	773
B	49	79	79	94	110	140	140	154	154	188	188	253	253	360	360
C	56	65	65	80	97	122	122	142	142	174	174	264	264	373	373
D	-	-	-	-	-	-	-	130	130	130	130	130	130	130	130
F	50	80	80	80	80	80	80	80	80	80	80	-	-	-	-
G	25	30	30	30	30	30	30	30	30	30	30	30	30	30	30
H	24	30	30	32	40	40	48	48	60	65	90	90	122	90	122
I	11	14	14	17	19	19	25	25	25	33	45	55	55	55	57
L	25	32.5	32.5	40	48	61	61	71	71	87	87	132	132	186.5	186.5
M	31	39	39	46.5	54.5	64	64	74	74	90	90	157	157	206.5	206.5
N A/F	8	8	13	15	15	15	25	15	25	25	46	55	55	55	55
O	10	10	17	20	20	20	30	20	30	30	50	60	60	60	60
P	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30
Q	36	36	36	50	50	50	70	70	70	102	102	102	-	-	-
Q1	-	50	50	70	70	70	102	102	102	125	125	140	140	165	165
ISO	F03	F03	F03	F05	F05	F05	F07	F07	F07	F10	F10	F10	-	-	-
FLANGE	-	F05	F05	F07	F07	F07	F10	F10	F10	F12	F12	F14	F14	F16	F16
R	12	12	12	12	12	12	12	12	12	12	12	12	12	20	20
S	16	16	16	16	16	16	16	16	16	16	16	16	16	22.5	22.5
T	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/2"	1/2"
CH-90°	9	11	11	14	17	17	22	22	22	27	27	36	46	46	55
W	M5	M5	M5	M6	M6	M6	M8	M8	M8	M10	M10	M10	-	-	-
Y	8	8	8	8	8	8	12	10	11	13	13	12	-	-	-
W1	-	M6	M6	M8	M8	M8	M10	M10	M10	M12	M12	M16	M16	M20	M20
Y1	-	8	8	10	10	10	12	13	13	16	16	16	20	20	20
													12 - 60 -00 - 000. R0		

ROTEX
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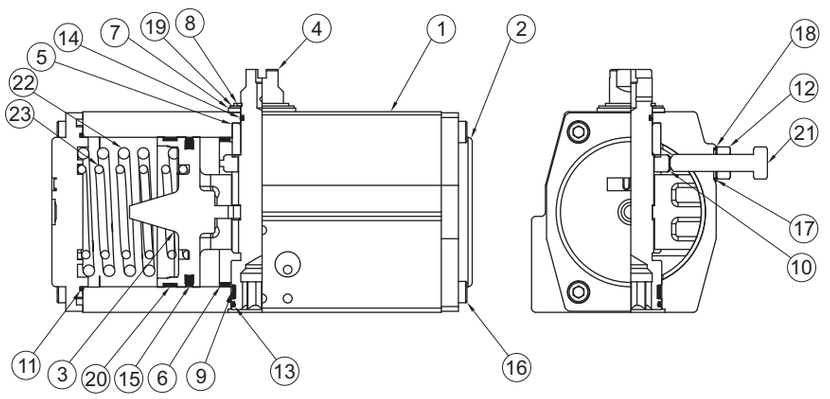
ECF SERIES - MATERIAL OF CONSTRUCTION

CROSS SECTION DRAWING



PART LIST

S.N.	PART DESCRIPTION	QTY	MATERIAL
12	LOCK NUT	2	AISI 304
11	COVER SEAL	2	NBR
10	CAM INSERT	1	CAST CARBON STEEL
9	PINION BEARING	1	POLYACETAL
8	EXTERNAL CIRCLIP	1	SPRING STEEL
7	WASHER	1	POLYACETAL
6	CENTER BORE SLEEVE	1	POLYACETAL
5	PINION BEARING	1	POLYACETAL
4	PINION	1	STEEL
3	PISTON WITH RACK	2	ALUMINIUM
2	COVER	2	ALUMINIUM
1	BODY	1	ALUMINIUM ALLOY

S.N.	DESCRIPTION	QTY	MATERIAL
23	INNER SPRING	2	SPRING STEEL GRADE 3
22	OUTER SPRING	2	SPRING STEEL GRADE 3
21	STROKE ADJUSTMENT SCREW	2	HGA STEEL/ SS304
20	PISTON BEARING	2	POLYACETAL
19	WASHER	1	AISI 304
18	WASHER	2	AISI 304
17	O RING	2	NBR
16	HEX SOCKET SCREW	8	AISI 304
15	PISTON SEAL	2	NBR
14	PINION SEAL	1	NBR
13	PINION SEAL	1	NBR

* THE NUMBER OF SPRINGS VARY WITH SIZE OF THE ACTUATOR AND THE SPRING SET SELECTED.

ORDERING CODE

MODEL

DOUBLE ACTING	SINGLE ACTING
ECF32	ECF32E
ECF40	ECF40E
ECF50	ECF50E
ECF63	ECF63E
ECF80	ECF80E
ECF90	ECF90E
ECF100	ECF100E
ECF110	ECF110E
ECF125	ECF125E
ECF150	ECF150E
ECF175	ECF175E
ECF200	ECF200E
ECF250	ECF250E
ECF300	ECF300E
ECF350	ECF350E

a

SPRING SET	
E	--

b

ROTATION	CODE
90 CCW	※
90 CW	CW
180 CCW	180
180 CW	180 CW

c

PROTECTION	CODE
HARD ANODIZED	※
ELECTRO PROCESS NICKEL	EN
EPOXY COATED	CL

d

PINION MATERIAL	CODE
STEEL (EN8)	※
SS304	8
SS316	8M

e

SEALS	CODE
NBR	※
POLYETHYLENE	PE
Viton	AV

f

SPECIAL MODEL	CODE
NIL	※
3 POSITION MECHANICAL	SUT
3 POSITION ELECTRICAL	SUEL

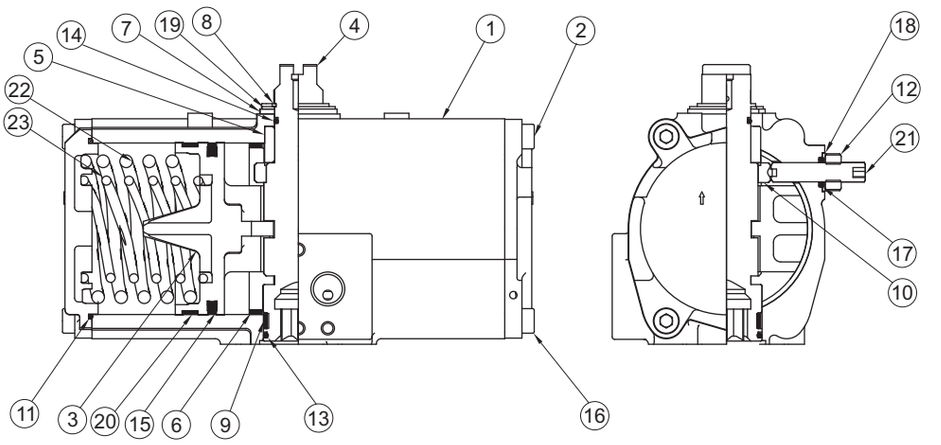
Use : ※ : Default
(CW) : Clockwise, fail safe open
(CCW) : Counter Clockwise, fail safe close

ORDERING EXAMPLE

ECF 63
Double Acting Actuator
ECF 63 E-7
Single Acting Actuator model ECF - 63 with spring set 7

SSF SERIES - MATERIAL OF CONSTRUCTION

CROSS SECTION DRAWING



PART LIST

S.N.	PART DESCRIPTION	QTY	MATERIAL
12	LOCK NUT	2	AISI 304
11	COVER SEAL	2	NBR
10	CAM INSERT	1	CAST CARBON STEEL
9	PINION BEARING	1	POLYACETAL
8	EXTERNAL CIRCLIP	1	SPRING STEEL
7	WASHER	1	POLYACETAL
6	CENTER BORE SLEEVE	1	POLYACETAL
5	PINION BEARING	1	POLYACETAL
4	PINION	1	STEEL
3	PISTON WITH RACK	2	ALUMINIUM
2	COVER	2	AISI 316
1	BODY	1	AISI 316

S.N.	DESCRIPTION	QTY	MATERIAL
23	INNER SPRING	2	SPRING STEEL GRADE 3
22	OUTER SPRING	2	SPRING STEEL GRADE 3
21	STROKE ADJUSTMENT SCREW	2	SS2205/ SS304
20	PISTON BEARING	2	POLYACETAL
19	WASHER	1	AISI 304
18	WASHER	2	AISI 304
17	O RING	2	NBR
16	HEX SOCKET SCREW	8	AISI 304
15	PISTON SEAL	2	NBR
14	PINION SEAL	1	NBR
13	PINION SEAL	1	NBR

* THE NUMBER OF SPRINGS VARY WITH SIZE OF THE ACTUATOR AND THE SPRING SET SELECTED.

ORDERING CODE

MODEL

DOUBLE ACTING	SINGLE ACTING
SSF32	SSF32E
SSF40	SSF40E
SSF50	SSF50E
SSF63	SSF63E
SSF80	SSF80E
SSF90	SSF90E
SSF100	SSF100E
SSF110	SSF110E
SSF125	SSF125E
SSF150	SSF150E
SSF175	SSF175E
SSF200	SSF200E
SSF250	SSF250E
SSF300	SSF300E
SSF350	SSF350E

a

SPRING SET
E --

b

ROTATION	CODE
90 CCW	※
90 CW	CW
180 CCW	180
180 CW	180 CW

c

PISTON WITH RACK AND PINION	CODE
HARD ANODIZED	※
CF8M	F

d

PINION MATERIAL	CODE
SS316	※

e

SEALS	CODE
NBR	※
POLYETHYLENE	PE
Viton	AV

f

SPECIAL MODEL	CODE
NIL	※
3 POSITION MECHANICAL	SUT
3 POSITION ELECTRICAL	SUEL

Use : ※ : Default
(CW) : Clockwise, fail safe open
(CCW) : Counter Clockwise, fail safe close

ORDERING EXAMPLE

SSF63 E8-F-PE
SSF63, Spring return with spring set 8, with stainless steel piston with polyethylene seals.

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3 POSITION ROTARY ACTUATOR

SPRING RETURN CONTROLLED BY LIMIT SWITCH

FEATURES

- The Actuator is suitable for coarse - fine adjustment, typically for batching operations or processes
- The Actuator has to be spring return
- The operation sequences fixed from full open, partial open to full close
- Infinite intermediate positions are possible with the limit switch
- It can be fine tuned to the application easily
- The settings can be changed at site with ease, by simply adjusting the third cam provided
- It is applicable for 90° or 180°
  Any ROTEX spring return Actuator can be converted into this arrangement by adding ROTEX limit switch along with ROTEX NAMUR valve type 30138
- The accuracy and repeatability depends upon the air pressure variation, change in the torque of ball valve, change in density and the pressure of media, etc... expected range 3% with all considerations
- Refer the Dimension table on page 10
- Refer the Spring Torque tables on page 8

3 POSITION ROTARY ACTUATOR

DOUBLE ACTING/SINGLE ACTING

3 POSITION MECHANICAL STOPPER

FEATURES

- The Actuator is suitable for coarse - fine adjustment, typically for batching operations or processes
- The Actuator has to be Double Acting
- The repeatability is 100% since stopping is by mechanical stoppers. It is suitable for application calling for the precise fine-coarse adjustment like liquid filling system
- The Actuator can be switched to one, position from any other position very easily with the solenoid control. The 3rd position is achieved by the mechanical stopping of the piston movement, in the return stroke by pneumatic stopper pistons
- The Intermediate position is present at 20% opening. The opening can be adjusted as required by the set screw. This is field adjustable
- The Actuator as a standard, works in reverse action, as opposed to conventional configuration i.e. piston inward stroke opens the valve, and piston outward stroke closes the valve
- The End Stops (+/- 10 °C) are provided on the closing and opening side of the Actuator for setting valve closing precisely
- The springs can be provided to bring actuator to mid position as a standard (optional attachment)
- For the dimension details, contact ROTEX
- Refer the spring torque tables on page 7,8

180 DEGREE ROTARY ACTUATOR

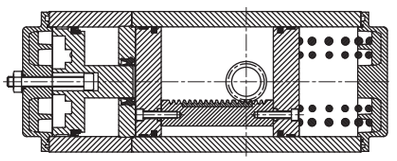
FEATURES

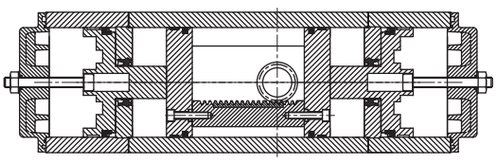
- Ideal for line size above 50 NB
- Compact and light construction
- Tight shut off available for longer seat life, with the end stroke adjustment of the Actuator

DOUBLE ACTING / SINGLE ACTING

FEATURES

- Suitable typically for 3 way valves, requiring ON-OFF operation. It is available in both Single Acting (spring return) or Double Acting versions
- The Single Acting 180° Actuator can provide centre off for the 3 way ball valve, bottom entry by choosing the option, of 3 position
- It can be converted to 3 position 0 - 90° - 180° Actuator for 3 way valves using ROTEX Limit Switch and NAMUR valve type 30138
- The end stop adjustment is provided for opening and closing direction as a standard
- Actuator mounting is as per ISO 5211 and accessories to NAMUR
- For weight and air consumption data, refer table on page 7 Refer dimension on page 10
- 180° Actuator has 50% of torque value, of that of 90°Actuator





REGULATING ACTUATOR

PNEUMATIC POSITIONER

ELECTRO PNEUMATIC POSITIONER

FEATURES

- Backlash free operation between rack and pinion makes ROTEX Actuator suitable for regulation duty coupled along with positioner (pneumatic or Electro-Pneumatic)
- Long life of the Actuator seals, the non wearing characteristic of the mechanical parts ensure that the control action is maintained, over the life time of the Actuator
- It can be coupled along with the various types of valves (Ball, V Port Ball or Plug, Segment Ball, Butterfly, Plug) or louvers and dampers for variety of applications
- Typical control schemes along with the regulating Actuator includes provisions for:

1. Air failure safety includes stay-put or fail safe operation, like full close or full open
2. Power failure safety, including stay-put or fail safe operation, like full close or full open
3. Both air & power failure safety, including above

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ECF **ACTUATOR**

BALL VALVE WITH ROTARY ACTUATOR

FEATURES

- Well aligned assembly
- Accurately machined bracket and coupler. Perfect location
- Ease in dismounting even without affecting valve functional position
- Longer life due to extra over travel

DESIGN

- Standard Non fire safe
- Fire safe as per BS: 5351 Fire tested as API 607 1993, 4th edition

DESIGN

- Floating ball/trunion mounted ball valve
- Top entry ball valve

DESIGN

- Single piece
- Two piece
- Three piece
- 3 way “T” port
- 4 way

DESIGN

- Two piece
- Screwed #800 to #2500
- Socket weld #800 to #2500
- Butt weld #800 to #2500
- Flanged #150 to #2500
- Lined valve
- V-notch valve
- Jacketed valve

MATERIAL

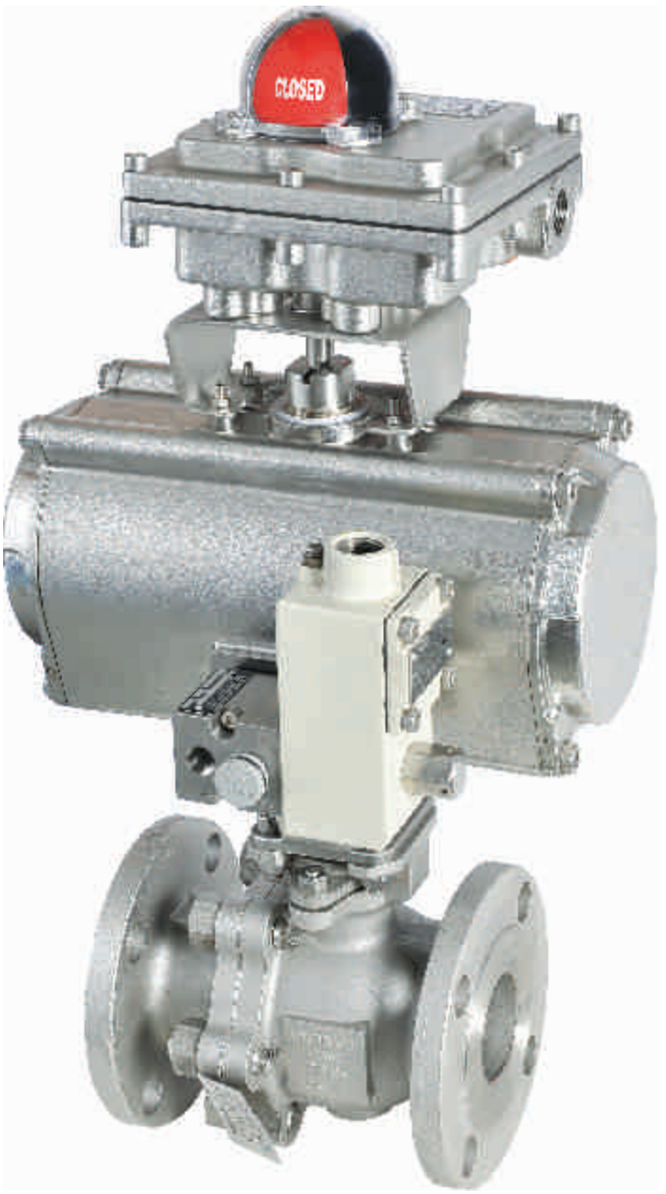
- Forged steel/ Stainless steel Cast steel/ Stainless steel
- Alloy steel
- Special materials on request

OTHER

- Metal seated
- Plastic body valve
- Cryogenic valve
- Sanitary/food grade valve
- Double block & bleed type

SSF ACTUATOR

BALL VALVE WITH ROTARY ACTUATOR



FEATURES

- Well aligned assembly
- Accurately machined bracket and coupler. Perfect location
- Ease in dismounting even without affecting valve functional position
- Longer life due to extra over travel

DESIGN

- Standard Non fire safe
- Fire safe as per BS: 5351 Fire tested as API 607 1993, 4th edition

DESIGN

- Floating ball/ trunion mounted ball valve
- Top entry ball valve

DESIGN

- Single piece
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- 3 way “T” Port
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DESIGN

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- Screwed #800 to #2500
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- Butt weld #800 to #2500
- Flanged #150 to #2500
- Lined valve
- V-notch valve
- Jacketed valve

MATERIAL

- Forged steel/ Stainless steel Cast steel/ Stainless steel
- Alloy steel
- Special materials on request

OTHER

- Metal seated
- Plastic body valve
- Cryogenic valve
- Sanitary/ food grade valve
- Double block & bleed type

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ECF **ACTUATOR**

BUTTERFLY VALVE WITH ROTARY ACTUATOR

FEATURES

- Ideal for clean fluids and line size above 50 NB
- Tight shut off available
- Longer seat life with the end stroke adjustment of the actuator
- Suitable for control duty

DESIGN

- As per AWWA: C504 and BS : 5155

TYPE

- Centreline
- Double eccentric, high performance type
- Triple eccentric for light shutoff

CONSTRUCTION

- Single body/ split body wafer type
- Single body/ split body lug type
- Single body/ split bod flanged type

END CONNECTION

- Wafer type/ lug type in rating PN6, PN10, PN16, PN25, PN40, PN100, PN200, PN400
- Flanged type in rating #150 #300 #600

MATERIAL

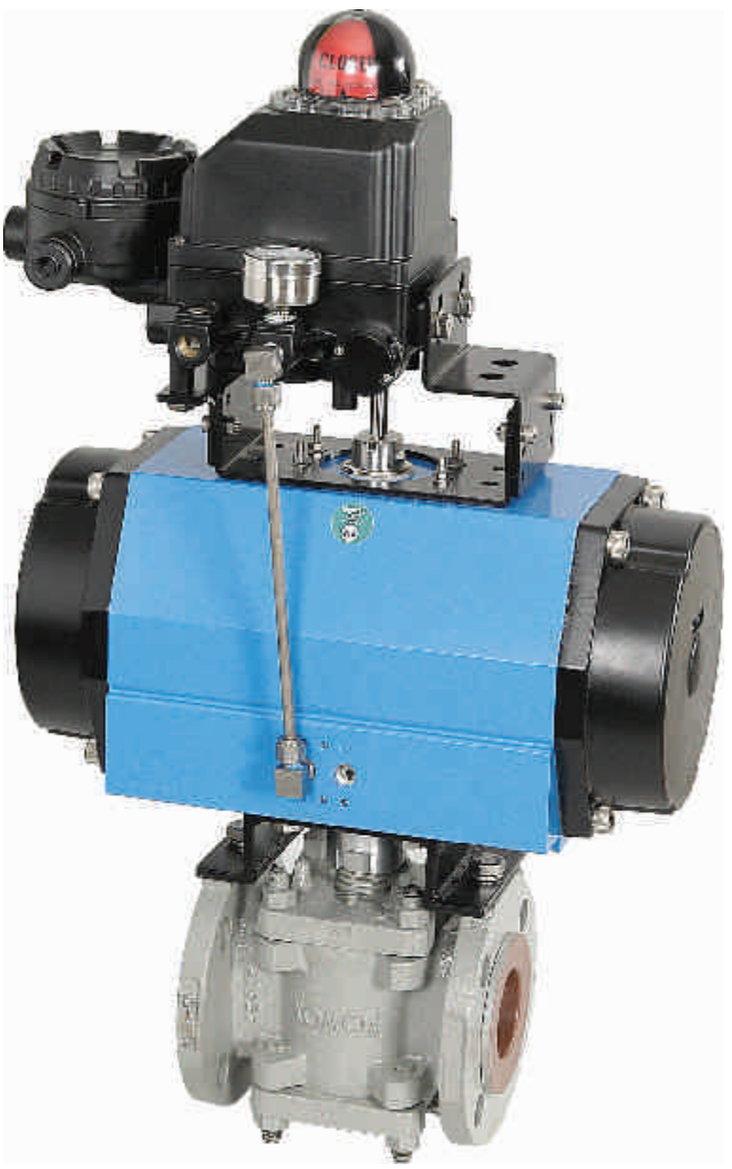
- Cast Iron, Ductile Iron , Cast Carbon Steel
- Cast Stainless Steel
- Special material on request

OTHER

- Metal Seal Dampers (Leakage class II)
- Metal seated tight shut off
- Fire safe Butterfly Valve
- Lined Butterfly Valve
- Sanitary service Butterfly Valve

ECF **ACTUATOR**

PLUG VALVE WITH ROTARY ACTUATOR



FEATURES

- Ideally suited to aggressive corrosive and potentially hazardous media
- Absolute tight shut off in case of sleeved plug valve
- Long life due to taper plug construction
- Frequent operations possible.
- Longer life
- Suited for slurry application
- Line plug valve suited for corrosive service On/ Off or Control duty

DESIGN

- As per BS:5353 (Sleeved plug valve)
- Fire safe as per API6D. Fire tested to API6FA

TYPE

- Lubricated, taper plug valve
- Pressure balanced, inverted Plug valve
- Sleeved Plug valve

CONSTRUCTION

- 2 way
- 3 way side entry/ bottom entry
- 4 way
- 5 way bottom entry

END CONNECTION

- Screwed #800 to #2500
- Socket weld #800 to #2500
- Buttweld #800 to #2500
- Flanged #800 to #2500

MATERIAL

- Cast iron
- Ductile iron
- Cast steel/ Cast Stainless steel
- Alloy steel
- Special materials on request

OTHERS

- lined plug valve
- V-port plug valve
- Jacketed plug valve
- Sanitary service valve

ROTEX

Engineering For The Future

ECF/ SSF - 0811 - M3 DESIGN : Media Inc. Ph. : +91-265-2422835

ROTEX MANUFACTURERS & ENGINEERS PRIVATE LIMITED
Manpada Road, Dombivli (East) - 421 204
Maharashtra, INDIA.
Ph. : +91 251 2871033/ 2871390
2871989/ 2870890
Fax : +91 251 2871191
E-mail : rotexdbl@rotexindia.com

ROTEX AUTOMATION LIMITED
UNIT 1
987/ 11, GIDC, Makarpura
Vadodara - 390 010
Gujarat, INDIA.
Ph. : +91 265 2638136/ 2638795/ 2638746
Fax : +91 265 2638130
E-mail : rotexbrd@rotexindia.com

UNIT 2
C-1, B/ 1501, 4 & 5, GIDC
Vithal Udyognagar - 388 121
Gujarat, INDIA.
Ph. : +91 2692 236224/ 236292/ 236399
Fax : +91 2692 236442
E-mail : rotexvun@rotexindia.com

Website : www.rotexindia.com