



FLOWTORQ[®]

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Pneumatic Actuators

Technical Product Catalogue

For Ball Valves, Butterfly Valves, Plug Valves and other Industrial Applications

FLOWTORQ ENGINEERING (INDIA) PVT. LTD

✉ info@flowtorq.in | info.flowtorq@gmail.com



GeM
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Ministry of MSME, Govt. of India

ISO
9001:2015



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INTRODUCTION

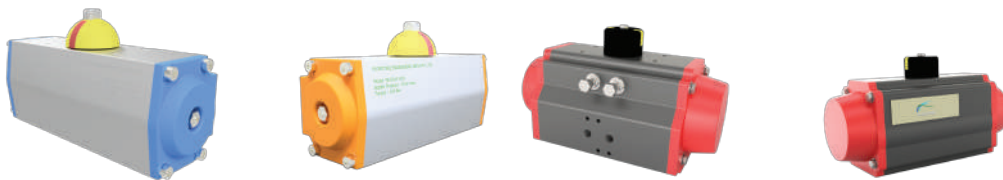
In the realm of industrial automation, the demand for precision and efficiency has never been higher. Pneumatic rotary actuators have emerged as indispensable components, driving motion control systems with unparalleled reliability and performance. Understanding their capabilities and applications is crucial for businesses striving for optimal productivity. Let's delve into the world of pneumatic rotary actuators and explore how they can revolutionize your operations.

What are Pneumatic Rotary Actuators?

Pneumatic rotary actuators are mechanical devices designed to produce rotary motion by converting compressed air energy into mechanical torque. These actuators play a pivotal role in various industries, including manufacturing, automotive, aerospace, and more. Their compact design, rapid response time, and high torque output make them ideal for a wide range of applications.

Key Features and Benefits:

1. **Precision Control:** Pneumatic rotary actuators offer precise control over angular motion, allowing for accurate positioning and repeatability.
2. **High Torque Output:** Despite their compact size, these actuators deliver substantial torque, enabling them to handle heavy loads effortlessly.
3. **Quick Response Time:** With minimal lag between input and output, pneumatic rotary actuators ensure swift and responsive motion, enhancing overall system efficiency.
4. **Durability:** Built to withstand harsh operating environments, these actuators boast exceptional durability and reliability, minimizing downtime and maintenance costs.
5. **Versatility:** From valve automation to robotics, pneumatic rotary actuators find applications in a myriad of industries, showcasing their versatility and adaptability.



ADVANTAGES & BENEFITS

Pneumatic rotary actuators offer a plethora of benefits across various industries, contributing to enhanced efficiency, productivity, and reliability in motion control systems. Here are some of the key advantages:

1. **Precise Control:** Pneumatic rotary actuators provide precise angular motion control, allowing for accurate positioning and repeatability. This precision is essential for applications requiring tight tolerances and consistent performance.
2. **High Torque Output:** Despite their compact size, pneumatic rotary actuators deliver substantial torque, enabling them to handle heavy loads with ease. This high torque output makes them suitable for tasks that demand robust force generation, such as valve operation and material handling.
3. **Rapid Response Time:** Pneumatic actuators exhibit rapid response times, translating input signals into motion swiftly. This quick response is crucial for applications where speed and agility are paramount, such as in automation and robotics.
4. **Simple Design and Operation:** Pneumatic rotary actuators feature a straightforward design and operate using compressed air, making them easy to install, maintain, and integrate into existing systems. Their simplicity reduces downtime and maintenance costs, enhancing overall operational efficiency.
5. **Durability and Reliability:** Built to withstand harsh operating environments, pneumatic rotary actuators are rugged and durable. They can endure high temperatures, humidity, dust, and vibration, ensuring consistent performance even in challenging conditions.
6. **Versatility:** Pneumatic rotary actuators find applications across a wide range of industries, including manufacturing, automotive, aerospace, and robotics. Their versatility allows them to perform various tasks such as part positioning, assembly, cutting, and gripping, making them indispensable in modern industrial settings.
7. **Cost-Effectiveness:** Pneumatic rotary actuators offer a cost-effective solution for motion control applications compared to other actuation technologies. Their relatively low initial cost, combined with minimal maintenance requirements and high reliability, results in a favorable total cost of ownership over the lifespan of the equipment.
8. **Safety:** Pneumatic systems are inherently safer than hydraulic or electric systems, as they do not involve high-voltage electricity or flammable fluids. This makes pneumatic rotary actuators suitable for use in hazardous environments or applications where safety is a primary concern.



Introduction

Benefits

Certifications

» **Heavy Duty Actuators**

Double Acting Actuators
Single Acting Actuators

» **Light Duty Actuators**

Double Acting Actuators
Single Acting Actuators

» **Accessories**

Limit Switches (Feedback Units)
Positioners
Solenoid Valves
Filter and Regulator Units

CERTIFICATE

This is to Certify that
Quality Management System
of
FLOWTORQ ENGINEERING INDIA PVT. LTD.
189 - FIRDOUS COMPLEX, NO. 201 2ND FLOOR, BEHIND INDIAN OIL PUMP,
KHANDUPADA ROAD, 4TH NIZAMPURA, BHIWANDI 421302, MAHARASHTRA, INDIA
has been independently assessed by DBS
and is compliant with the requirement of:
ISO 9001:2015
For the following scope of activities:
**DESIGN AND MANUFACTURING OF INDUSTRIAL VALVES AND PNEUMATIC
ACTUATORS FOR OIL & GAS, PETROCHEMICALS, POWER AND OTHER
PROCESS INDUSTRIES.**

Certificate Number: Q-205203093008

Date of Certification: 30th September 2023
1st Surveillance Audit Due: 29th September 2024
2nd Surveillance Audit Due: 29th September 2025
Certificate Expiry: 29th September 2026

This Certificate is property of DBS Certifications and remains valid subject to satisfactory surveillance audits.

Head of Certification

DBS CERTIFICATIONS PVT. LTD.
142, 1st Floor, Anar Endave, Paschim Vihar, Delhi-110053, (INDIA) info@dbscertification.com, www.dbscertification.com

ACCREDITED BY:
United Accreditation Foundation Inc., 409 North Center DR STE 202, Norfolk, VA 23502, United States of America

CERTIFICATE

This is to certify that

We hereby declare that the technical file of product complied with the requirement of Directive 2014/68/EU Pressure Equipment Directive.

Certificate Number: 2022051872

Manufacturer Name: **FLOWTORQ ENGINEERING INDIA PVT. LTD.**
Address: **189-FIRDOUS COMPLEX, KHANDUPADA ROAD, 201-2ND FLOOR, 4TH NIZAMPURA, BHIWANDI 421302, DIST. THANE, MAHARASHTRA STATE, INDIA**
Products: **BALL, GATE, GLOBE, CHECK, BUTTERFLY VALVES AND PNEUMATIC ACTUATORS FOR ON-OFF VALVES, DAMPERS, CONTROL VALVES**

The quality system file has been assessed, approved and is subject to continuous surveillance according to the Council Directive 2014/68/EU Pressure Equipment Directive.

This certificate is issued under the following conditions:

- It applies only to the quality system maintained in the manufacture of above referenced models and it does not substitute the design or type examination procedures, if required.
- The certificate remains valid until the manufacturing conditions or the quality systems are changed.
- The certificate validity is conditioned by positive results or surveillance audits.
- The CE mark as shown above can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of conformity and compliance with all relevant EC Directives. The statement is based on a single evaluation of one sample of above mentioned product. It does not imply an assessment of the whole production.

Date of Certification: 18th May 2022
1st Surveillance Audit Due: 17th May 2023
2nd Surveillance Audit Due: 17th May 2024
Certificate Expiry: 17th May 2025

Head of Certification

DBS CERTIFICATIONS PVT. LTD.
142, 1st Floor, Anar Endave, Paschim Vihar, Delhi-110053, (INDIA)
E-mail: info@dbscertification.com, www.dbscertification.com

फॉर्म नं. 2
Form RG - 2

भारत सरकार
Government of India
व्यापक चिह्न पंजीयन विभाग
Trade Marks Registry
व्यापक चिह्न अधिनियम, 1999
Trade Marks Act, 1999

व्यापक चिह्न के पंजीयन अधिनियम, धारा 23 (2), नियम 56 (1)
Certificate of Registration of Trade Mark, Section 23 (2), Rule 56 (1)

पंजीयन क्र. 4792312 दिनांक 23/12/2020

यह पंजीयन किताब में है कि इस पंजीयन किताब में दर्ज किया गया है, कि
यह किताब में दर्ज है कि
Certified that Trade Mark / a representative of a service, has been registered in the name of -
FLOWTORQ ENGINEERING (INDIA) PRIVATE LIMITED, 201 Indous complex, Bhiwandi, 189 khandupada
road, Bhiwandi, Maharashtra, Thane, 421302, THE TRADEMARK ACT - 1999, (Body Incorporate)

In Class 6 Usher No. 4792312 as of the date: 23 December 2020 in respect of
Common metals and their alloys, ores, Metal materials for building and construction, Transportable buildings of metal, Non-electric cables and wires of common metal, Small items of metal hardware, Metal containers for storage or transport, Sails

दिनांक 09th day of June, 2021

व्यापक चिह्न पंजीयन विभाग
Trade Marks Registry MUMBAI

भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

**UDYAM
REGISTRATION CERTIFICATE**

Our small hands to make you LARGE

UDYAM REGISTRATION NUMBER	UDYAM-MH-33-89-3018
NAME OF ENTERPRISE	MS FLOWTORQ ENGINEERING (INDIA) PRIVATE LIMITED
TYPE OF ENTERPRISE	MSME (MICRO/Small/Enterprise/Planned Year)
MAJOR ACTIVITY	MANUFACTURING
SOCIAL CATEGORY OF ENTREPRENEUR	GENERAL
NAME OF UNIT(S)	(Name of Address)
OFFICIAL ADDRESS OF ENTERPRISE	Plot Door Block No. 08, Khandupada Road, Thane, Maharashtra, India. Phone: 9822807916, Email: info@flowtorq.com
DATE OF INCUBATION / REGISTRATION OF ENTERPRISE	24/06/2020
DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS	24/06/2020

MSME	MSME	MSME	MSME
2912 - Manufacture of tools, precision and maintenance of metal machinery	29122 - Manufacture of metal pumps, compressors, fans and valves etc.	29123 - Manufacture of other pumps, compressors, fans and valves etc.	Manufacturing
7321 - Architectural and engineering activities and related technical consultancy	73212 - Architectural and engineering activities and related technical consultancy		Services

24/06/2020

प्रमाणपत्र किताब में दर्ज है कि यह पंजीयन किताब में दर्ज किया गया है कि
Practical from <http://udiyamregistration.gov.in> & Date of printing: 21/07/2021

BE A CHAMPION with the Ministry of MSME

PNEUMATIC ACTUATORS

Pneumatic rotary actuators are mechanical devices designed to produce rotary motion by converting compressed air energy into mechanical torque. These actuators play a pivotal role in various industries, including manufacturing, automotive, aerospace, and more. Their compact design, rapid response time, and high torque output make them ideal for a wide range of applications.

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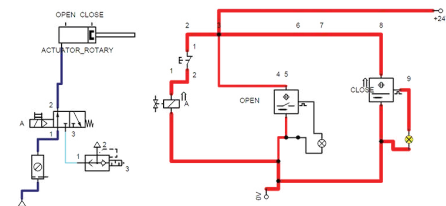
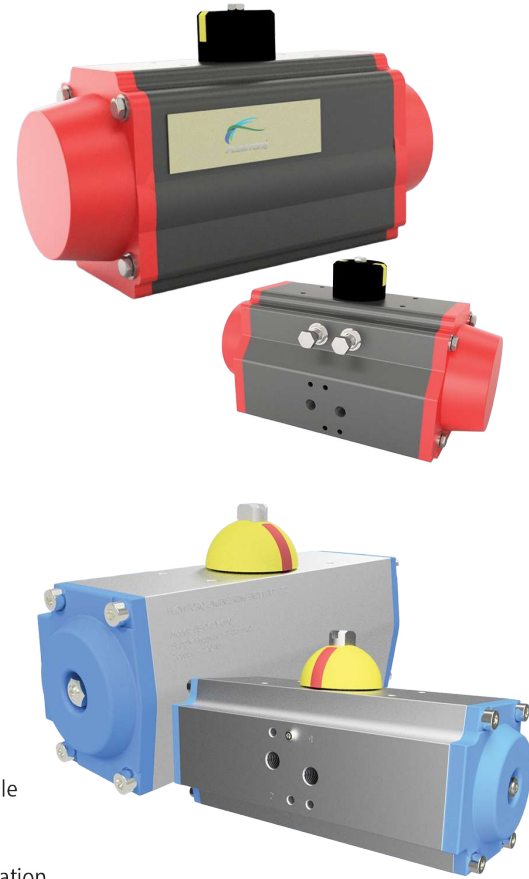
Applications Across Industries:

1. Manufacturing: Pneumatic rotary actuators drive various processes in manufacturing facilities, including assembly, packaging, and material handling, streamlining production workflows and improving throughput.
2. Automotive: In the automotive sector, these actuators power essential tasks such as part manipulation, welding, and assembly, contributing to enhanced efficiency and quality in vehicle manufacturing.
3. Aerospace: Aerospace applications demand precision and reliability, making pneumatic rotary actuators the go-to choice for tasks such as control surface actuation, landing gear operation, and payload handling.
4. Robotics: Pneumatic rotary actuators serve as the backbone of robotic systems, facilitating smooth and precise motion in robotic arms, grippers, and other automated mechanisms, enabling advanced manufacturing and assembly processes.

Optimizing Performance:

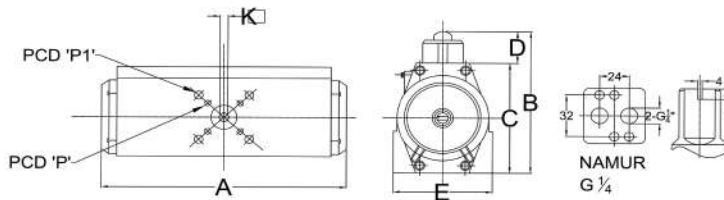
To maximize the efficiency of pneumatic rotary actuators, consider the following strategies:

1. Proper Sizing: Select actuators based on load requirements and operating conditions to ensure optimal performance and longevity.
2. Regular Maintenance: Implement a routine maintenance schedule to inspect and lubricate actuators, prolonging their service life and preventing unexpected failures.
3. Integration with Control Systems: Integrate actuators seamlessly into control systems using compatible components and software for enhanced functionality and ease of operation.
4. Monitoring and Feedback: Utilize sensors and feedback mechanisms to monitor actuator performance in real-time, allowing for proactive maintenance and troubleshooting.





DOUBLE ACTING ACTUATORS Dimensional Details



Part No.	Part Description	Material
1	Body	Aluminium Alloy
2	Piston	Aluminium Alloy
3	Shaft	EN 8
4	End Cover	Aluminium Alloy
5	Adaptor	EN 8
6	Shaft Washer	Stainless Steel
7	Position Indicator	Nylon / Plastic
8	Bolt for End Cover	Stainless Steel
9	Adjustable bolt + Nut + Washer	Stainless Steel
10	All Seals	Nitrile
11	All Guides	Derlin

RACK AND PINION ACTUATOR (DOUBLE ACTING)										
DIMENSIONS	A	B	C	D	E	PCD	PCD2	K	WEIGHT (APPROX)	AIR CONSUMPTION IN LITTER/BAR
ACTUATOR MODEL						P	P1			
F-5412-DD	110	82	54.2	28.25	45	36	50	7x7, 9x9	0.6	ON REQUEST
F-DD-49-D	130	96.5	69.5	28.29	65	36	50	9x9, 11x11	1.1	0.2
F-DD-50-D	153.5	102	74	28.45	72.8	50	70	9x9, 11x11, 13x13, 14x14	1.4	0.25
F-DD-50-D	147.5	113.6	87.5	27.4	76	50	70	9x9, 11x11, 13x13, 14x14	2.65	0.43
F-DD-75-D	188	126.5	100	28.3	83	50	70	9x9, 11x11, 13x13, 14x14, 15x15, 17x17	2.8	0.66
F-DD-83-D	170	135.5	109	28.28	83.2	50	70	11x11, 13x13, 14x14, 17x17	3.3	0.75
	265.5	145.5	117	28.26	90.9	-	70	11x11, 13x13, 14x14, 15x15, 17x17	5.05	1.37
F-DD-110-D	267	166	140	28.3	124.9	70	102	14x14, 17x17, 22x22, 27x27	7.4	2.6
F-DD-127-D	312	180	153	28.26	135	102	125	14x14, 17x17, 22x22, 27x27	10.1	3.8
F-DD-140-D	364	198	172	38.48	144	102	125	17x17, 22x22, 27x27	14	4.1
F-DD-160-D	417	228	196	39.43	161	102	125	22x22, 27x27, 36x36	20.75	7.48
F-DD-200-D	405	292	253	39.81	210.4	100x150	140	27x27, 36x36	32.6	10.03
F-DD-210-D	563.5	292	253	39.81	210.2	100x151	140	27x27, 36x36, 46x46	59	10.64
F-240-D	620	320.2	292.5	28	-	-	165	46x46	65	ON REQUEST
F-270-D	733.4	364.3	328.4	36	-	-	165	46x46	83.5	ON REQUEST
F-300-D	825	393.7	355.7	38	-	-	165	46x46	109.5	ON REQUEST
F-300-D	842.2	445.6	410.6	35	-	-	165	46x46	147.6	ON REQUEST
F-400-D	926.5	503.3	463.4	40	-	-	165	55x55	310.5	ON REQUEST

ALL DIMENSIONS ARE IN MM



DOUBLE ACTING ACTUATORS

Torque Details



DOUBLE ACTING ACTUATOR TORQUE CHART IN Nm (10Nm=1 kgfm)					
VALVE MODE	3 BAR	4 BAR	5 BAR	6 BAR	7 BAR
F-5412-DD	3.6	4.7	6	7.5	8.5
F-DD-49-D	9.5	12.6	16	19.5	22.5
F-DD-50-D	13.5	18.5	23	27.5	32
F-DD-50-D	19	25.5	32	39.5	46
F-DD-75-D	38	51	65	78	90.8
F-DD-83-D	42	56	71	85	97
F-DD-90-D	84	115.5	145	174	202
F-DD-110-D	135	170	225	265	304
F-DD-127-D	206	279	349	423	497
F-DD-140-D	301	408	514	620	694
F-DD-160-D	439	582	737	892	1064
F-DD-200-D	720	950	1182	1420	1650
F-DD-210-D	1138	1505	1900	2183	2486
F-240-D	1221	1628	2031	2445	2849
F-270-D	1958	2611	3264	3916	4569
F-300-D	2403	3205	4006	4807	5608
F-300-D	3598	4798	5998	7197	8397
F-400-D	5127	6837	8546	10255	11964

ACCESSORIES

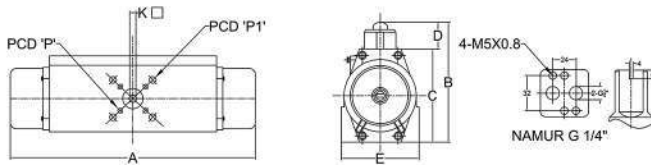
Standard accessories for these actuators include :

1. Limit Switches - Microswitch Type, Contact Type, Proximity Type
2. Positioners - SMART, HART, PNEUMATIC, ELECTRONIC
3. Air Filter Regulator
4. More accessories like air lock relay, timer, quick exhaust valve, etc can be added as per requirement.





SINGLE ACTING ACTUATORS Dimensional Details



Part No.	Part Description	Material
1	Body	Aluminium Alloy
2	Piston	Aluminium Alloy
3	Shaft	EN 8
4	End Cover	Aluminium Alloy
5	Adaptor	EN 8
6	Shaft Washer	Stainless Steel
7	Position Indicator	Nylon / Plastic
8	Bolt for End Cover	Stainless Steel
9	Adjustable bolt + Nut + Washer	Stainless Steel
10	All Seals	Nitrile
11	All Guides	Derlin
12	Spring (RH / LH)	Spring Steel

RACK AND PINION ACTUATOR (SINGLE ACTING)											
DIMENSIONS											
ACTUATOR MODEL	A	B	C	D	E	PCD	PCD2	K		WEIGHT (APPROX) K	AIR CONSUMPTION IN LITERS/BAR
						P	P1				
F-DD-49-S	140.5	98	69.5	28.29	65	36	50	9x9, 11x11		1.25	0.1
F-DD-50-S	181.1	101.5	74	28.45	72.8	50	70	9x9, 11x11, 13x13, 14x14		1.6	0.16
F-DD-63-S	196	113.5	87.5	27.4	76	50	70	9x9, 11x11, 13x13, 14x14		2.2	0.27
F-DD-75-S	254.5	126.5	100	28.3	83	50	70	9x9, 11x11, 13x13, 14x14, 15x15, 17x17		3.75	0.31
F-DD-83-S	254.5	135.4	109.4	28.28	83.2	50	70	11x11, 13x13, 14x14, 17x17		3.75	0.53
F-DD-90-S	335.4	145.4	117	28.26	90.9	-	70	11x11, 13x13, 14x14, 15x15, 17x17		6.25	0.55
F-DD-110-S	335.6	166	140	28.3	124.9	70	102	14x14, 17x17, 22x22, 27x27		9.55	1.13
F-DD-127-S	435.1	179	153	28.26	135	102	125	14x14, 17x17, 22x22, 27x27		16.15	1.5
F-DD-140-S	489.8	198	172	38.48	144	102	125	17x17, 22x22, 27x27		17.55	1.75
F-DD-160-S	626.4	228	196	39.43	161	102	125	22x22, 27x27, 36x36		37.15	3.2
F-DD-200-S	550.6	275.2	232.2	39.81	210.4	100x150	140	27x27, 36x36		40.95	7.38
F-DD-210-S	777.4	292.3	253.1	39.81	210.2	100x151	140	27x27, 36x36, 46x46		78.65	8.46
F-240-240-S	620	320.2	292.5	28	-	-	165	46x46		72.4	ON REQUEST
F-270-270-S	733.4	364.3	328.4	36	-	-	165	46x46		104.6	ON REQUEST
F-300-300-S	825	393.7	355.7	38	-	-	165	46x46		196.6	ON REQUEST
F-350-350-S	842.2	445.6	410.6	35	-	-	165	46x46		250.5	ON REQUEST
F-400-400-S	926.5	503.6	463.4	40	-	-	165	55x55		344.5	ON REQUEST

ALL DIMENSIONS ARE IN MM



SINGLE ACTING ACTUATORS TORQUE DETAILS



Torque relative to Air Pressure, Torque Values in Nm, 10 Nm = 1 kgfm													
Model	Spring Set	Spring		3 bar		4 bar		5 bar		6 bar		7 bar	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FE-DD-49-S	5	2.3	5.7	3	4	6.5	6.5	9.2	9.8	13.4	13.1	16.7	16.1
FE-DD-49-S	*R 6	2.9	7.5	1.5	2.8	4.8	5.8	7.9	8.9	11.5	12	14.9	14.8
FE-DD-49-S	7	2.6	9.4		1	3	2	6.2	4.6	9.6	7.8	13.1	10.7
FE-DD-49-S	8	2.8	10.7		1.2	1.3	2.6	4.5	5.3	8.2	8	11.5	10.7
FE-DD-49-S	9	3.1	12.8		1.5		3.4	2.6	5.6	5.8	8.1	9.2	11
FE-DD-49-S	10	7.2	15.2		0.7		1.1		4.2	2.4	7.3	5.2	10.3
FE-DD-50-S	5	s	11.5		10.5	7.1	14.5	12.1	18.8	17.2	22.8	22.5	27.4
FE-DD-50-S	*R 6	5.2	15		7.5	3.6	10.8	8.7	14	13.9	17.3	18.5	21.4
FE-DD-50-S	7	7	20		7.3	0	10.5	1.5	14.6	6.5	19.2	11.3	24.2
FE-DD-50-S	8	4.5	13.8		6.5	2.5	11.5	7.7	15.5	12.4	20.5	17.3	25.3
FE-DD-50-S	9	7	18.5		3.5		8.5	2	13	6.9	17.8	11.7	22.5
FE-DD-50-S	10	8.2	22.1				6.8		11.9	3.4	16.6	8.2	21.4

*R Recommended Model

ACTUATOR SPRING SET DETAILS

Model	FE-DD-49-S, FE-DD-83-S, FE-DD-127-S, FE-DD-50-S, FE-DD-90-S, FE-DD-63-S, FE-DD-140-S, FE-DD-110-S, FE-DD-160-S, FE-DD-75-S										FE-DD-200-S / FE-DD-210-S							
Spring Set	5	6	7	8	9	10	11	12	13	14	15	16	11	12	13	14	15	16
RH	0	1	2	1	2	2		1	2	2	2	2	0	1	2	2	2	2
LH	2	1	0	2	1	2	02	1	0	2	2	2	2	1	0	2	2	2
BIG LH								0	0	0	1	2	0	0	0	0	1	2

Torque relative to Air Pressure, Torque Values in Nm, 10 Nm = 1 kgfm													
Model	Spring Set	Spring		3 bar		4 bar		5 bar		6 bar		7 bar	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FE-DD-63-S	5	4.1	5	4.3	6.7	10.3	12.2	17.4	18	24.6	24.7	31.7	31.7
FE-DD-63-S	*R 6	6.5	8.1	3.6	6.4	10.5	13.6	17.6	20.5	24.7	27.6	31.8	34.7
FE-DD-63-S	7	11.2	17		5.3		8.6	3.9	12.7	10	18.8	16.7	25.6
FE-DD-63-S	8	10	16.7	1.5	7.5	9.2	14.6	16.4	21.4	24.1	28.3	30.8	36.5
FE-DD-63-S	9	13.6	21.5		4	4.5	11.6	11.5	18.7	18.6	25.5	25.7	33.5
FE-DD-63-S	10	15.7	24.5		2		8.6	46	15.3	11.5	22.2	18.3	29.4
FE-DD-75-S	5	8.3	18.5	17.9	24	31.8	37	44.2	51.5	54.6	65.8	62.4	79
FE-DD-75-S	6	10	25	12.9	15.6	25	29.2	32	42.8	41	57.6	50	70.9
FE-DD-75-S	*R7	14.5	30.3	6.2	15.5	13.2	29	19.8	42.7	25.9	56.5	32	70.5
FE-DD-75-S	8	20	29.7	2.5	13	17	26	30	38	43	51	54.5	63.8
FE-DD-75-S	9	24.8	35		11	12.1	24.5	24.4	37.4	35	50.2	42	63.3
FE-DD-75-S	10	25	46.9		0.7		12		11.3	24.8	24.2	37.5	50.7
FE-DD-83-S	5	7.5	14.7	32.3	36.6	46.9	50.8	61.5	64.8	76.6	79.2	91.1	93.5
FE-DD-83-S	*R 6	19.4	30	9	23.2	24.2	37.2	39.1	51.8	53.6	66.8	67.9	81.3
FE-DD-83-S	7	24.6	38.3	3.2	17.2	18.3	31.9	32.7	45.8	47.1	60.3	61.6	74.9
FE-DD-83-S	8	20.3	37.8		13.2	12.5	27.3	26.6	40.9	41.6	55.6	55.6	69.3
FE-DD-83-S	9	34.8	53.8		4.5		18.6	14.5	32.6	28.7	46.7	42.4	60.3
FE-DD-83-S	10	51	78.5		8		12.4		17.6		23.8	12.2	34.4
FE-DD-90-S	5	9	38.7	44.7	74.9	67.8	106.1	82.3	137.1	88.8	168.7	92.5	199.9
FE-DD-90-S	*R 6	22.6	67.7	8.5	56	39.6	86.5	67.6	117.5	93.4	148.3	101	180
FE-DD-90-S	7	19.9	110.8		39.5		68.8	30.1	100.7	60.2	132.3	88.6	163.4
FE-DD-90-S	a	19.2	78.9		45.5	24.5	76	55.5	104	75.5	138.5	95	167.5
FE-DD-90-S	9	21	119		35		64.5	16	92	47.2	124	79.5	153
FE-DD-90-S	10	44.1	127.4		31.5		62.8	6.2	93.2	35.4	124.6	63.4	154.2



SINGLE ACTING ACTUATORS TORQUE DETAILS



Torque relative to Air Pressure, Torque Values in Nm, 10 Nm = 1 kgfm													
Model	Spring Set	Spring		3 bar		4 bar		5 bar		6 bar		7 bar	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FE-DD-110-S	5	47	89	30	78	74	123	117	168	162	214	206	259
FE-DD-110-S	*R 6	58	117		64	41	109	ES	152	127	195	170	240
FE-DD-110-S	7	72	146		44	11	89	54	134	98	178	142	222
FE-DD-110-S	8	85	165		32		78	22	123	68	167	112	212
FE-DD-110-S	9	102	192		17		64		111	12	152	19	195
FE-DD-110-S	10	121	235				34		78	6	123	47	165
FE-DD-127-S	5	25	72	142	185	202	260	246	336	292	413	325	487
FE-DD-127-S	*R 6	70	164	36	125	111	202	135	278	248	355	302	430
FE-DD-127-S	7	107	253		85	27	154	100	223	173	297	244	371
FE-DD-127-S	8	82	187		113	72	189	153	268	203	342	233	415
FE-DD-127-S	9	144	277		70		145	43	206	62	282	*	358
FE-DD-127-S	10	150	328		42		118	14	190	87	263	16	337
FE-DD-140-S	5	58	161	153	233	248	333	300	423	335	509	370	608
FE-DD-140-S	*R 6	92	219	63	212	122	317	130	423	132	528	138	633
FE-DD-140-S	7	123	285		175	95	277	193	383	219	488	245	597
FE-DD-140-S	8	119	296	36	205	116	308	137	412	142	515	149	615
FE-DD-140-S	9	147	377		160		266	110	368	145	471	157	572
FE-DD-140-S	10	172	459		142	19	245	120	349	216	455	298	557
FE-DD-160-S	5	85	170	266	368	414	518	566	672	720	831	839	985
FE-DD-160-S	6	120	241	168	299	316	450	459	597	522	743	586	886
FE-DD-160-S	7	175	356	44	245	193	392	342	540	480	688	573	833
FE-DD-160-S	8	163	343	55	246	108	407	136	563	156	718	167	873
FE-DD-160-S	9	235	430		197	77	351	155	503	183	660	188	810
FE-DD-160-S	*R 10	231	470		171	60	309	202	455	346	604	468	741
FE-DD-200-S	12	147	251	256	495	417	739	569	977	700	1207	807	1440
FE-DD-200-S	13	208	361	201	416	370	651	530	885	676	1120	808	1358
FE-DD-200-S	R14	306	524	90	304	300	528	485	758	633	995	766	1238
FE-DD-200-S	15	345	628		245	205	470	410	700	573	922	745	1166
FE-DD-200-S	16	443	751		170	90	400	260	634	422	870	585	1099
FE-DD-210-S	11	83	244	18	1118	20	1517	***	1912	***	***	***	***
FE-DD-210-S	12	106	399	124	1082	130	1460	135	1833	139	***	145	***
FE-DD-210-S	13	116	567	141	847	197	1237	217	1636	239	***	250	***
FE-DD-210-S	14	307	815	12	680	20	1070	29	1454	30	1843	31	***
FE-DD-210-S	*R15	415	1057	4	636	7	1115	10	1385	13	1780	16	*
FE-DD-210-S	16	475	1195		600	7	995	12	1365	16	1750	*	22





SINGLE ACTING ACTUATORS TORQUE DETAILS



Air Pressure (Bar)		Output Torque of Actuator in Nm											
Value	Spring	3		4		5		6		7		Spring	Stroke
Model	Spring	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
Model	Spring	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
FE-240-S	5	924	690.5	1488.1	1154.6							468.5	702
FE-240-S	6	829.9	550.1	1294	1014.2							562.6	842.4
FE-240-S	7	736.7	409.7	1200.8	873.8							655.8	982.8
FE-240-S	8			1107.1	733.4	1571.3	1197.6					749.5	1123.2
FE-240-S	9			1013.4	593	1477.6	1057.2					843.2	1263.6
FE-240-S	10			919.7	452.6	1383.9	916.8	1848.1	1381	2312.2	1845.1	936.9	1404
FE-240-S	11							1754.4	1240.6	2218.5	1704.7	1030.6	1544.4
FE-240-S	12							1660.7	1100.2	2124.8	1564.3	1124.3	1684.8
FE-270-S	5	1299.7	971.2	1952.4	1623.9							658.5	987
FE-270-S	6	1168	773.8	1820.7	1426.5							790.2	1184.4
FE-270-S	7	1036.3	576.4	1689	1229.1							921.9	1381.8
FE-270-S	8			1557.3	1031.7	2210	1684.4					1053.6	1579.2
FE-270-S	9			1425.6	834.3	2078.3	1487					1185.3	1776.6
FE-270-S	10			1293.9	6369	1946.6	1289.6	2599.3	1942.3	3252	2595	1317	1974
FE-270-S	11					1814.9	1092.2	2467.6	1744.9	3120.3	2397.6	1448.7	2171.4
FE-270-S	12					1683.2	894.8	2335.9	1547.5	2988.6	2200.2	1580.4	2306.8
FE-300-S	5	1603	1183									800	1220
FE-300-S	6	1483	1066									920	1337
FE-300-S	7	1330	844	2132	1646							1073	1559
FE-300-S	8	1177	621	1979	1423	2780	2224					1226	1782
FE-300-S	9			1825	1201	2626	2002	3427	2803			1380	2004
FE-300-S	10			1652	977	2473	1778	3274	2579	4075	3380	1533	2228
FE-300-S	11							3121	2357	3922	3158	1686	2450
FE-300-S	12							2815	1878	3685	2679	1922	2929
FE-350-S	5	2399	1739									1199	1859
FE-350-S	6	2120	1453									1478	2145
FE-350-S	7	1874	1096	3074	2296							1724	2502
FE-350-S	8	1627	738	2827	1938	4027	3138					1971	2860
FE-350-S	9			2580	1581	3780	2781	4979	3980			2218	3217
FE-350-S	10			2335	1223	3535	2423	4734	3622	5934	4822	2463	3575
FE-350-S	11					3288	2066	4487	3265	5690	4455	2710	3932
FE-350-S	12					3120	1537	4319	2736	5519	3936	2878	4461
FE-400-S	5	3418	2479									1709	2648
FE-400-S	6	2922	1670									2205	3457
FE-400-S	7	2647	1239	4357	2949							2480	3888
FE-400-S	8	2372	806	4082	2516	5191	4225					2755	4321
FE-400-S	9			3806	2085	5515	3794	7224	5503			3031	4752
FE-400-S	10			3531	1652	5240	3361	6949	5070	8558	6779	3306	5185
FE-400-S	11							6672	4639	8381	6348	3583	5616
FE 400-S	12							6154	3899	8106	5608	4101	6356



DOUBLE & SINGLE ACTING ACTUATORS

Dimensional Details



ITEM NO	PART DESCRIPTION	MATERIAL GRAD	QT	ITEM NO	PART DESCRIPTION3	MATERIAL GRADE	QTY
1	BODY	ALUMINIUM ALLOY	1	17	CAP SCREW	STAINLESS STEEL	1
2	LEFT END CAP	ALUMINIUM ALLOY	1	18	COLOUR CODE	NYLON	2
3	DRIVE SHAFT	ALLOY STEEL	1	19	"O" RING(STOP SCREW)	NBR	2
4	RIGHT END CAP	ALUMINIUM ALLOY	1	20	"O" RING(PISTON)	NBR	2
5	OCTI-CAM	ALLOY STEEL	1	21	"O" RING(PINION BOTTOM)	NBR	1
6	THRUST BEARING(PINION TOP)	POM+PTFE	1	22	"O" RING(PINION TOP)	NBR	1
7	THRUST BEARING	POM+PTFE	1	23	BEARING (PINION TOP)	POM+PTFE	1
8	THRUST WASHER	STAINLESS STEEL	1	24	BEARING (PINION HEAD)	POM+PTFE	2
9	PISTON	ALUMINIUM ALLOY	2	25	BEARING (PINION BOTTOM)	POM+PTFE	1
10	CAP SCREW	STAINLESS STEEL	8	26	WEAR BAND	NYLON	2
11	STOP TOP SCREW	STAINLESS STEEL	2	27	SPRING SEAT	NYLON	24
12	NUT (STOP SCREW)	STAINLESS STEEL	2	28	SPRING	HIGH-CARBON STEEL	12
13	WASHER (STOP SCREW)	STAINLESS STEEL	2	29	STRAINING BEAM	COPPER PIPE	12
14	SPRING CLIP	SPRING STEEL	1	30	PLUG	NBR	2
15	POSITION INDICATOR	NYLON	1	31	"O" RING(END CAP)	NBR	2
16	INDICATOR THRUST BEARING	STAINLESS STEEL	1				

DIMENSIONAL DETAILS

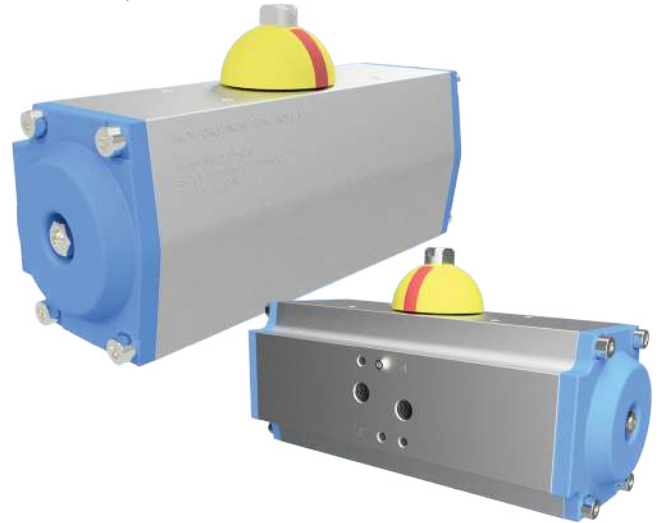
MODEL	FEPT05	FEPT06	FEPT07	FEPT08	FEPT09	FEPT10	FEPT12	FEPT14	FEPT16	FEPT19	FEPT21	FEPT24	FEPT27	FEPT30	FEPT35	FEPT40
ISO FLANGE	F03/F05	F05/F07	F05/F07	F05/F07	F07/F10	F03/F10	F07/F10	F10/F12	F10/F12	F14	F14	F16	F16	F15	F16/F25	F16/F25
A	154	176	188	211	244	277	310	394	458	523	526	602	718	760	920	940
B	73	89	101	110	118	135	157	175	198	232	257	289	326	350	410	466
C	25	25	25	25	25	25	39	39	39	39	39	30	30	30	30	30
E	13	17	17	20	20	25	27	30	30	38	38	50	50	50	50	50
F	41	47	53	57	60	64	75	75	86	103	113	130	147	174	195	260
G	30	36	43	47	50	58	67	75	86	103	113	130	147	162	190	260
L	80	80	80	80	80	80	80	130	130	130	130	130	130	130	130	130
M	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
N	4-M5x9	4-M5x10	4-M5x11	4-M5x12	4-M5x13	4-M5x14	4-M5x15	4-M5x16	4-M5x17	4-M5x18	4-M5x19	4-M5x20	4-M5x21	4-M5x22	4-M5x23	4-M5x24
O	50	70	70	70	102	102	102	125	125	140	140	165	165	165	254	254
P	4-M5x9	4-M8x12	4-M8x12	4-M8x12	4-M10x15	4-M10x15	4-M10x15	4-M12x18	4-M12x18	4-M16x24	4-M16x24	4-M20x25	4-M20x25	4-M20x25	4-M16x25	4-M20x25
O1	36	50	50	50	70	70	70	102	102	-	-	-	-	-	165	165
P1	4-M5x8	4-M6x9	4-M6x9	4-M6x9	4-M8x12	4-M8x12	4-M8x12	4-M8x15	4-M8x15	-	-	-	-	-	4-M20x25	4-M20x25
Q	11	14	14	17	17	22	22	27	27	36	36	46	46	46	46	46
V	24	24	24	24	24	24	24	24	24	24	24	24	40	40	40	40
W	36	36	36	36	36	36	36	36	36	36	36	36	45	45	45	45
Y	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M5x9	4-M6x10	4-M6x10	4-M6x10	4-M6x10
Z	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/2"	G1/2"	G1/2"

*All Dimensions are in mm





DOUBLE ACTING ACTUATORS Torque Details

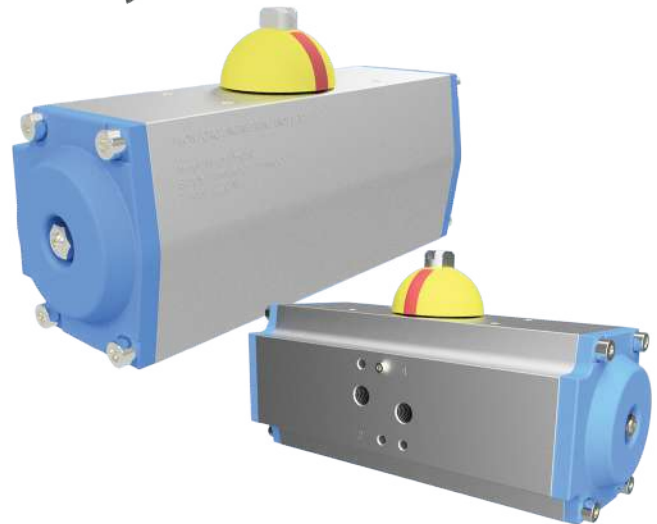


DOUBLE ACTING TORQUE DATA										
Air Supply Pressure in Bar Vs Torque Output Nm										
MODEL	2.0 BAR	2.5 BAR	3.0 BAR	4.0 BAR	4.5 BAR	5.0 BAR	5.5 BAR	6.0 BAR	7.0 BAR	8.0 BAR
FEPT052D	8	10	12	16	18	20	22	24	28	32
FEPT063D	15	18	22	29	33	36	40	44	51	58
FEPT075D	20	25	30	40	45	50	55	60	70	80
FEPT083D	31	39	47	63	70	78	86	94	111	125
FEPT092D	45	56	68	90	102	113	124	135	158	181
FEPT105D	66	83	99	132	149	165	182	198	231	264
FEPT125D	100	125	150	200	226	251	276	301	351	401
FEPT140D	171	214	256	342	385	427	470	513	598	684
FEPT160D	266	332	399	532	598	665	731	798	931	1064
FEPT190D	420	532	638	851	958	1064	1170	1277	1490	1702
FEPT210D	532	665	798	1064	1197	1330	1463	1596	1862	2128
FEPT240D	769	962	1154	1539	1731	1924	2116	2308	2693	3078
FEPT270D	1170	1462	1750	2339	2632	2924	3216	3509	4094	4579
FEPT300D	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
FEPT350D	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
FEPT400D	3256	4070	4884	6512	7326	8140	8954	9768	11396	13024





SINGLE ACTING ACTUATORS Torque Details



ACTUATOR MODEL	SPRING QUANTITY	AIR SUPPLY PRESSURE VS TORQUE OUTPUT (Nm)											
		4 BAR		5 BAR		6 BAR		7 BAR		8 BAR		SPRING RETURN TORQUE	
		0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END
FEPT052S	10	7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6	/	/	12.4	8.5
FEPT063S	10	1.4	8.2	22.8	15.6	30	22.8	37.3	30.1	44.7	37.4	20.9	13.7
FEPT075S	10	19	11.1	28.8	21.1	39	31.2	49.1	41.2	59.1	51.2	29	21.1
FEPT083S	10	31	16.6	46.7	32.3	62.4	48	78.1	63.7	93.8	79.3	46	31.6
FEPT092S	10	43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134	11.8	68.7	46.7
FEPT105S	10	68.9	33.4	102	66.5	135.1	99.6	161.8	123.1	201.2	165.7	98.4	63.3
FEPT125S	10	96	44	146	94	196	144	247	194	297	245	157	105
FEPT140S	10	170	84	226	169	314	255	427	340	512	426	258	172
FEPT160S	10	253	115	386	248	519	381	652	514	785	647	417	279
FEPT190S	10	451	233	664	446	877	658	1090	871	1302	1084	618	400
FEPT210S	10	514	304	780	570	1046	836	1312	1102	1578	1368	760	550
FEPT240S	10	718	431	1103	816	1488	1201	1872	1586	2257	1970	1108	821
FEPT270S	10	1220	767	1805	1352	2390	1937	2974	2521	3560	3107	1572	1119
FEPT300S	10	1430	695	2355	1693	2956	2221	3719	2984	4482	3747	2122	1460
FEPT350S	10	1963	787	3105	1929	4247	3071	5390	4214	6532	5356	3505	2346
FEPT400S	10	3012	1025	4640	2653	6268	4281	7895	5908	9523	7536	4938	3149

ACCESSORIES

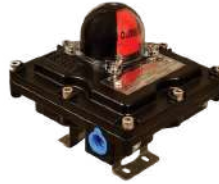
Standard accessories for these actuators include :

1. Limit Switches - Microswitch Type, Contact Type, Proximity Type
2. Positioners - SMART, HART, PNEUMATIC, ELECTRONIC
3. Air Filter Regulator
4. More accessories like air lock relay, timer, quick exhaust valve, etc can be added as per requirement.



ACCESSORIES

LIMIT SWITCHES FOR FEEDBACK:



POSITIONERS:



SOLENOID OPERATED VALVES:



AIR FILTER AND REGULATOR UNITS:





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