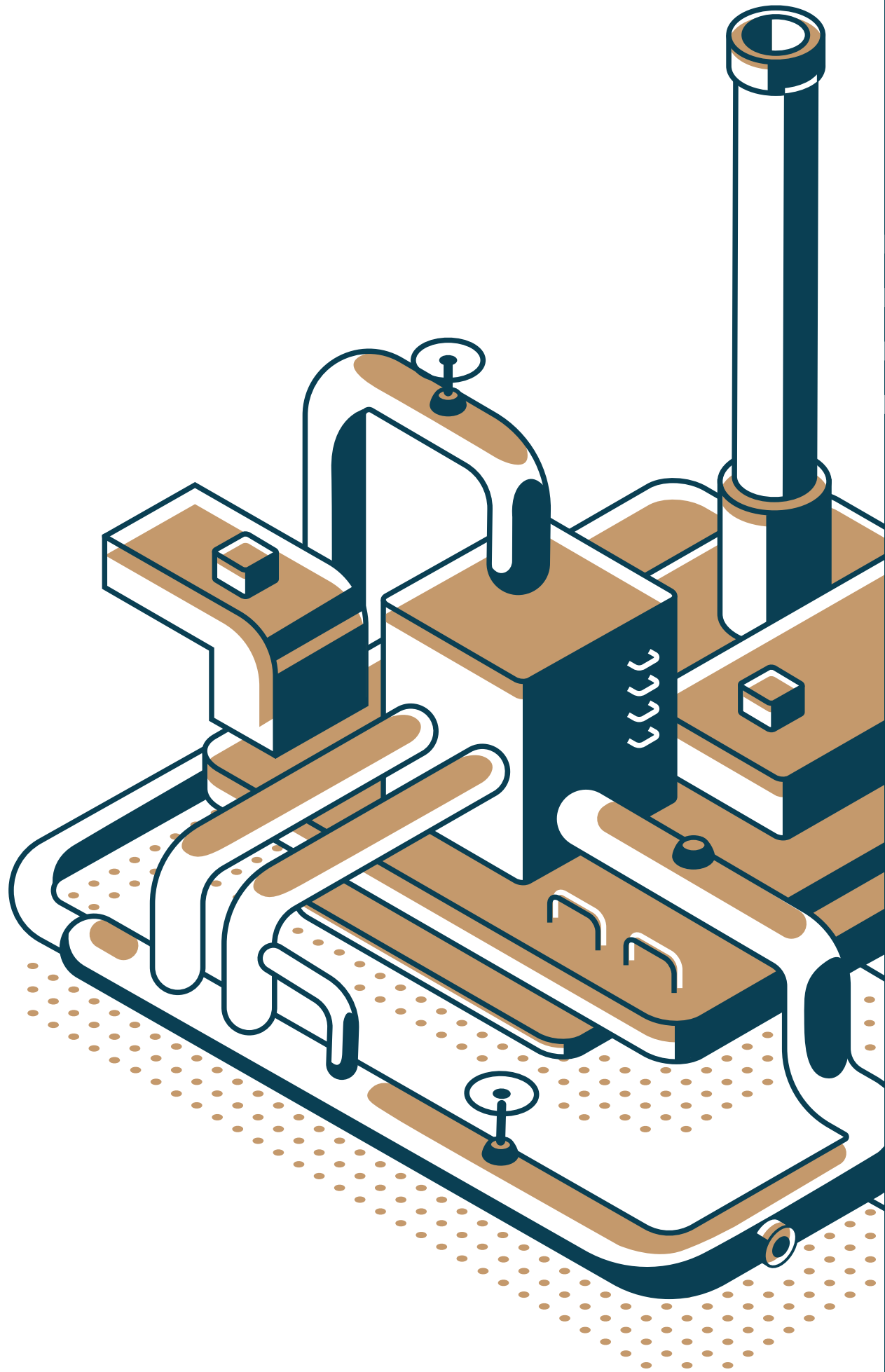




MOBIN
AUTOMATION



Design
and
production
of
various
industrial
actuators





Introduction

Andisheh Gostar Mobin (MOBIN Automation) was established in 2015 and has been active in manufacturing actuators in oil and gas industry. As a knowledge-based company we obtained the technical knowledge of manufacturing hydraulic and pneumatic actuators during these years and managed to successfully test our own designed Gas over oil and Pneumatic Actuator (Double act and Spring return). Having a professional and well-educated team, modern testing devices, and a 2000 m² workshop enable us to claim that we can compete with international renowned manufacturers.



Iran

Iran has one of the richest carbohydrates reserves around the world- first in gas and fourth in oil. The first exploration of oil in Iran, and also in the Middle East, was carried out about one hundred years ago in Masjed Soleyman. Since then oil was the main staple of the most economies in the Middle East. During these years, we cannot have a significant role in the huge market of the oil-related industries in terms of technologies, devices, and equipment. This is our belief that by our perseverance and governmental supports, domestic corporations can fill the widening gaps between local capacities and international advances.

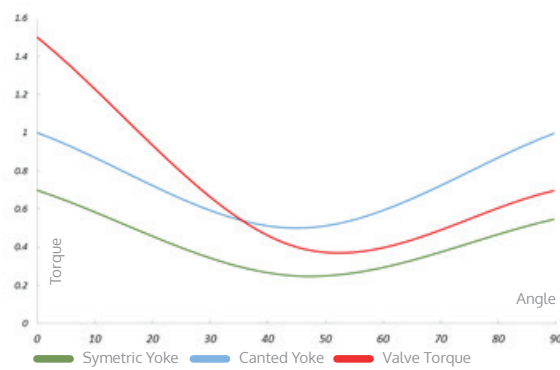


Scotch-Yoke Mechanism

This mechanism converts a linear movement into a quarter turn rotation. Based on the mechanical relations the output torque can be established versus the rotation angle showing in the below graph. As it can be understood from the graph the maximum torque values are obtained at the two ends of the stroke. The accordance of the output torque of this mechanism with the torque pattern required in most of the quarter turn valves makes this

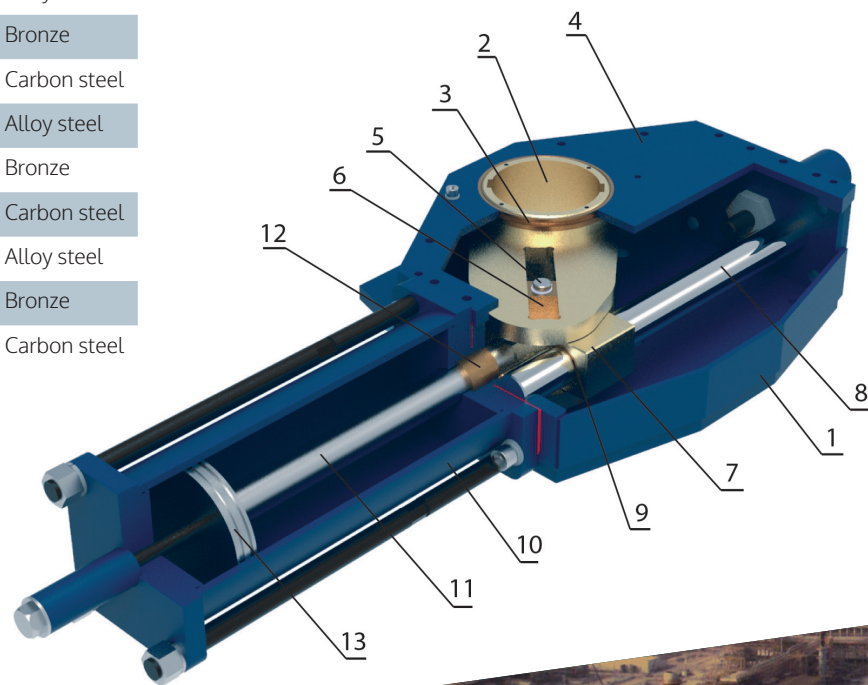
mechanism very suitable for ball, plug and butterfly valve. Driving forces are provided by pneumatic or hydraulic powers stored in cylinders. Considering the medium entering these cylinders different types of actuators can be manufactured.

Torque Comparison



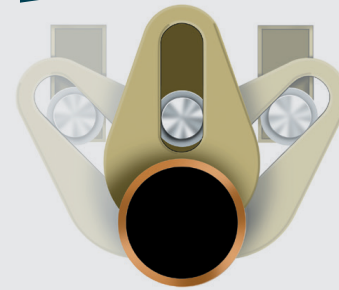
Materials specification

Item	Name	Material
1	Housing	Carbon steel
2	Yoke	Carbon steel
3	Bushing	Bronze
4	Cover	Carbon steel
5	Block pin	Alloy steel
6	Sliding Block	Bronze
7	Guide block	Carbon steel
8	Guide bar	Alloy steel
9	Bushing	Bronze
10	Cylinder tube	Carbon steel
11	Piston rod	Alloy steel
12	Bushing	Bronze
13	Piston	Carbon steel

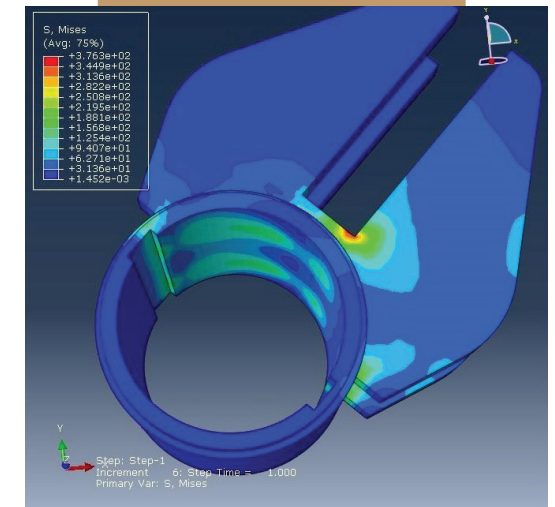
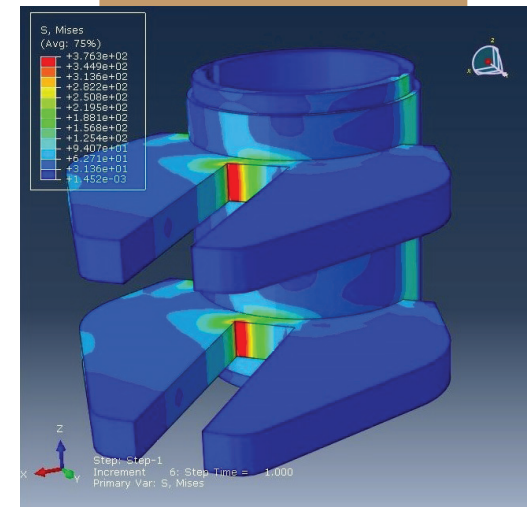
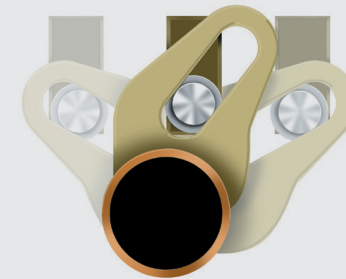


Yoke can have the symmetric or canted forms as shown in the figures. Based on theoretical formulas, in the canted form the output torque at the start of the stroke would be highest while in symmetric form the start and the end of stroke have the same output values. This capability provides wider options for sizing the actuators.

Symmetric yoke



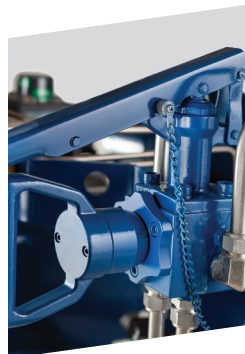
Canted Yoke



Gas over oil actuators

General applications

Gas over oil actuators are mostly utilized in gas transmission pipelines. Using the medium of the pipeline with no need to any extra power supply makes them the best choices for transmission pipelines.



08
MOBIN Automation

Technical Specifications

- Output torques: up to 300,000 N.m (higher values on request)
- Working pressure: 7 Bar up to 100 Bar (extended range on request)
- Working temperature: -20°C up to +80°C
- Supply medium: sweet gas, nitrogen, (others on request)
- Certificates: ATEX for electrical components
- Designing Standards: ASME Section VIII, Div1 for pressure vessels
- Testing Standard: IGS-M-PL-007

Features

- Canted or symmetric scotch-yoke mechanism
- Remote operation capability
- Hand pump for manual override
- Storage tank for emergency conditions
- Monitoring valve status from control room using Limit Switch device
- Torque limiting devices for restricting the output torque to prevent damage to the valve.
- Control box with operating procedures including Line Break detecting system, Emergency Shut down valve, ...

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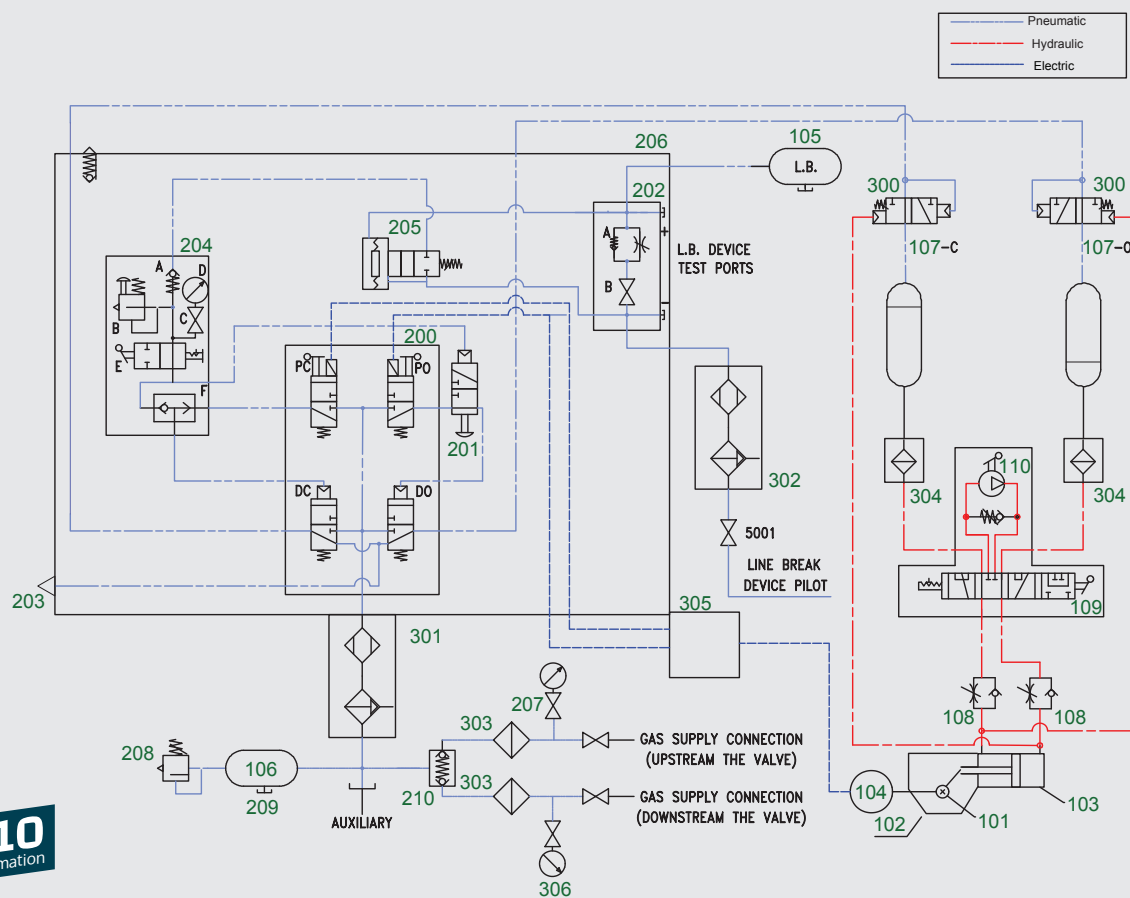
Gas over oil - Output torques

Model	MOP (bar g)	Position	Operation supply pressure(bar g)															
			20		30		40		50		60		70		80			
			OP	CL	OP	CL	OP	CL	OP	CL	OP	CL	OP	CL	OP	CL		
GPA-70S-100	35	0	1450	1490	2195	2232												
		45	925	820	1395	1266												
		90	1662	1370	2500	2070												
GPA-80S-135	50	0	3072	3130	4622	4718	6215	6310	7700	7905								
		45	1935	1769	2902	2680	3920	3518	5010	4480								
		90	3510	2915	5280	4400	7060	5869	8856	7342								
GPA-100S-175	40	0	7088	7315	10753	11000	14250	14650										
		45	4151	3795	6282	5743	8335	7720										
		90	6859	5730	10420	8610	13830	11560										
GPA-160S-175	50	0	11680	12100	17800	18200	23340	24100	29130	30101								
		45	6950	6310	10460	9480	13790	12800	18300	15905								
		90	11530	9590	17544	15560	23154	19500	28900	24515								
GPA-185S-200	65	0	17880	18100	26645	27110	35577	36254	44954	45849	53240	54200						
		45	10649	9551	15801	14490	21112	19333	26747	24944	31745	28900						
		90	17610	14940	26572	21930	35430	29352	44456	36780	53654	44100						
GPA-200S-235	80	0	27100	28480	40830	42680	54389	54968	68101	71250	81719	85616	95306	99903	109003	115091		
		45	15950	14780	23910	22251	31900	29740	39804	37100	47880	44603	55766	51984	63810	59480		
		90	26150	22241	39301	33402	52510	44590	65643	55791	78809	66970	91926	78209	105094	89416		

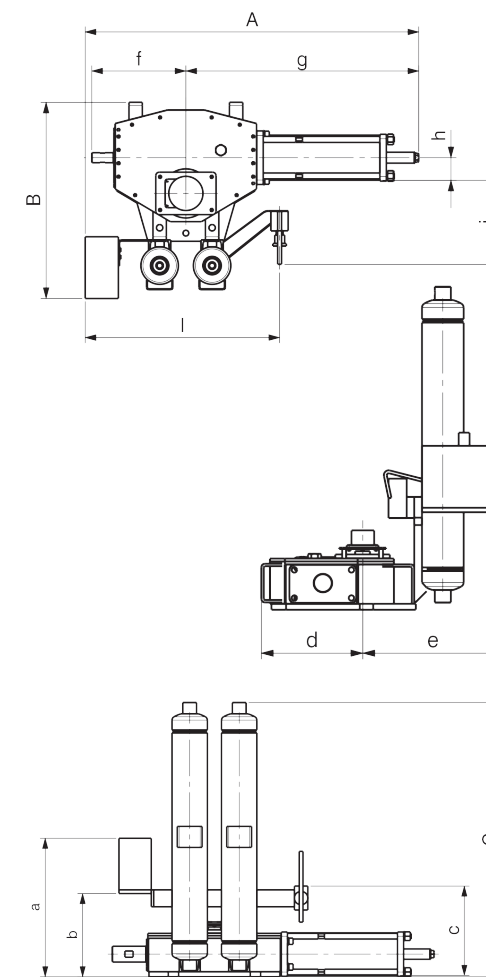
Operating diagram of Line Break Detecting Systems

The ubiquity of natural gas in almost every city, town, and even village in Iran has not been possible without a remarkably extensive pipeline network that makes the issue of safety very serious. Any failure could be resulted into catastrophic consequences. So safety measures have always been a major concern. Among these failures, the pipeline breakage would be most probable one and actuator manufacturers have designed some features for their products to respond to this need. In MOBIN gas over oil actuators a fully pneumatic solution is used for this concept. As it is shown in the operating

diagram, a pressure drop in the pipeline would cause a higher pressure of the reference tank passes through an orifice resulting into a differential pressure which could be sensed in an adjustable diaphragm valve. If the value of differential pressure in the diaphragm exceeds the preset value, the actuator will operate and close the valve. For re-opening the valve after being closed by Line Break system, the manual reset should be reset manually.



Code	Assembly Name
101	index
102	scotch yoke mechanism-Double acting
103	Hydraulic cylinder
104	Limit switch
105	Reference tank for line break device
106	Gas storage tank
107	Gas hydraulic tank
108	Unidirectional flow regulator
109	Hand operated directional control valve
110	Hand pump
200	PC 3/2N.C solenoid valve ,manual pverride(to close)
	PO 3/2N.C solenoid valve ,manual pverride(to open)
	DC 3/2N.C pneumatic pilot/spring return valve(to close)
	DO 3/2N.C pneumatic pilot/spring return valve(to open)
201	3/2N.O pneumatic pilot/Hand return valve
202	A Check valve with orifice
	B Stop valve
203	Dust excluder
204	A Check valve
	B Low pressure vent valve
	C Stop valve for pressure gage
	D Pressure gage
	E 2/2 Hand operated valve
	F Higher pressure shuttle valve
205	2/2N.C diaphragm pilot valve(adjustable)
206	Enclosure with vent valve
207	stop valve
208	Relief valve
209	Manual Drain valve
210	Higher pressure shuttle valve
300	Torque limite switch
301	Gas dehydrating filter
302	Gas dehydrating filter for LB device
303	Mechanical filter
304	Hydraulic filter
305	Terminal
306	Pressure gage



Gas over oil-dimension

Dimensions in mm

Actuator model	A	B	C	a	b	c	d	e	f	g	h	i	l
GPA-70S-100	970	631	890	526	274	450	231	323	255	561	70	375	632
GPA-80S-135	1140	700	852	581	315	493	264	356	289	671	80	401	750
GPA-100S-175	1240	769	1190	595	324	480	295	379	301	777	100	426	750
GPA-160S-175	1646	930	1316	585	319	485	393	463	403	1114	160	501	510
GPA-185S-200	1895	1180	1146	619	378	532	503	298	443	1285	185	689	568

pneumatic actuators

General applications

These actuators are manufactured in two types of double and single act. In double act ones a pneumatic cylinder is used for both rotational directions whereas on single act one the pneumatic cylinder rotates the actuator on one direction while the opposite rotational direction is carried out by the force of a spring. Generally,

the main application of Pneumatic actuators is in refineries and petrochemical plants. Their major characteristic is producing high torques in low supply pressure and can be used for both on-off and modulation applications.

Technical Specifications

Output torque

- For double act ones up to 300000 N.m
- For spring return (single act):
- Spring starting torques: 100000 N.m
- Spring Ending Torque: 60000 N.m
- (higher torques can be produced on customer's request)

Supply Medium

- Air, Nitrogen, Sweet Gas
- other mediums can be used on request)

Design pressure

- Up to 12 Bar

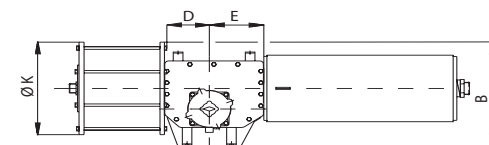
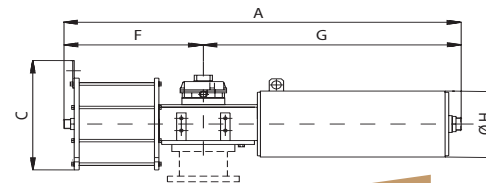
Design Temperature

- 30°C up to +100°C
- Extended range can be manufactured on request



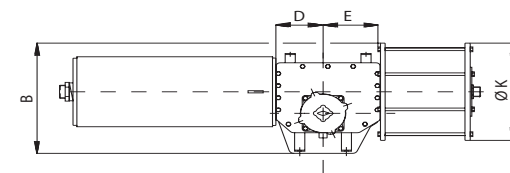
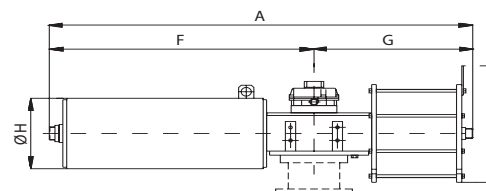
PAS-SPRING TO OPEN DIMENSIONS

Model	PAS Dimension (mm)								
	A	B	C	D	E	F	G	H	K
PAS-70S-100-100	1239	319	200	136	151	730	510	150	120
PAS-70S-100-150	1239	319	200	136	151	730	510	150	120
PAS-70S-135-100	1239	319	222	136	151	730	510	150	154
PAS-70S-135-150	1239	319	222	136	151	730	510	150	154
PAS-80S-235-200	1456	413	301	160	190	887	569	280	260
PAS-80S-235-250	1388	413	301	160	190	816	572	280	260
PAS-80S-280200	1396	423	361	160	190	816	579	280	345
PAS-80S-280-250	1520	423	387	160	190	940	580	350	345
PAS-100S-385-300	1691	510	536	187	227	1048	643	400	450
PAS-100S-385-350	1760	510	536	187	227	1117	643	322	450
PAS-100S-435-300	1691	535	579	187	227	1048	643	400	500
PAS-100S-435-350	1760	535	579	187	227	1117	643	322	500
PAS-160S-385-400	2354	600	536	285	330	1474	880	415	450
PAS-185S-485-500	2974	740	640	327	379	1958	1016	383	560



PAS-SPRING TO CLOSE DIMENSIONS

Model	PAS Dimension (mm)								
	A	B	C	D	E	F	G	H	K
PAS-70S-100-100	1239	319	200	136	151	730	510	150	120
PAS-70S-100-150	1239	319	200	136	151	730	510	150	120
PAS-70S-135-100	1239	319	222	136	151	730	510	150	154
PAS-70S-135-150	1239	319	222	136	151	730	510	150	154
PAS-80S-235-200	1456	413	301	160	190	887	569	280	260
PAS-80S-235-250	1388	413	301	160	190	816	572	280	260
PAS-80S-280200	1396	423	361	160	190	816	579	280	345
PAS-80S-280-250	1520	423	387	160	190	940	580	350	345
PAS-100S-385-300	1691	510	536	187	227	1048	643	400	450
PAS-100S-385-350	1760	510	536	187	227	1117	643	322	450
PAS-100S-435-300	1691	535	579	187	227	1048	643	400	500
PAS-100S-435-350	1760	535	579	187	227	1117	643	322	500
PAS-160S-385-400	2354	600	536	285	330	1474	880	415	450
PAS-185S-485-500	2974	740	640	327	379	1958	1016	383	560



Output Torques

SPRING RETURN PNEUMATIC ACTUATOR SPRING TO OPEN

Model				operating supply pressure (bar g)																	
	SSO	SRO	SEO	4			6			7			10			12					
				BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
PAS-70S-100-100	220	101	115	185	25	25	300	141	187	428	193	281	606	330	517	764	424	682			
PAS-70S-100-150	264	106	106	-	-	-	300	60	60	371	132	132	600	285	379	754	380	544			
PAS-70S-135-100	211	94	106	394	201	293	672	375	591	815	465	749	1235	715	1193	1511	892	1494			
PAS-70S-135-150	329	101	101	394	152	153	681	331	452	809	421	611	1232	675	1056	1510	845	1363			
PAS-80S-235-200	1033	476	574	1241	551	730	2181	1157	1754	2670	1457	2281	4136	2355	3861	5122	3012	5042			
PAS-80S-235-250	1063	624	832	801	173	133	1954	1000	1590	2412	1299	2003	3878	2197	3583	4888	3098	4680			
PAS-80S-280-200	1015	464	553	2016	1055	1571	3412	1910	3070	4092	2331	3816	6175	3604	6066	7562	4451	7560			
PAS-80S-280-250	1249	612	809	1463	901	1295	3142	1451	2785	3835	2172	3540	5922	3448	5481	7310	4291	7275			
PAS-100S-385-300	6789	2593	2856	-	-	-	5638	2621	2914	7156	3678	4853	11711	6747	10671	14747	8774	14550			
PAS-100S-385-350	7933	3324	3997	-	-	-	4492	1490	1490	6010	2897	3429	10565	5991	9247	13601	8019	13126			
PAS-100S-435-300	6770	2583	2839	4279	1175	1175	8151	4359	6120	7162	3687	4863	-	-	-	-	-	-			
PAS-100S-435-350	7914	3310	3979	-	-	-	7001	3591	4698	8942	4899	7173	14766	8792	14605	-	-	-			
PAS-160S-385-400	11473	5094	6426	-	-	-	7959	3708	4278	10511	5444	7446	18170	10513	16951	23270	13866	23287			
PAS-185S-485-500	16320	7430	9595	8120	2416	2540	17588	9603	14262	22332	12731	20129	36674	22066	37731	46052	28287	49466			

SPRING RETURN PNEUMATIC ACTUATOR SPRING TO CLOSE

Model				operating supply pressure (bar g)																	
	SSC	SRC	SEC	4			6			7			10			12					
				BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
PAS-70S-100-100	251	111	135	140	15	15	283	141	185	366	193	271	580	333	521	725	420	689			
PAS-70S-100-150	393	151	151	-	-	-	270	33	33	342	118	118	566	281	371	710	375	541			
PAS-70S-135-100	242	110	132	371	198	286	645	641	592	772	450	748	1170	704	1200	1445	885	1515			
PAS-70S-135-150	281	142	142	357	134	134	628	320	441	758	409	595	1157	659	1051	1431	835	1366			
PAS-80S-235-200	1199	563	694	1090	511	638	2025	1115	1710	2499	1420	2250	3911	2170	3869	5041	3011	4931			
PAS-80S-235-250	1439	701	951	844	352	351	1778	963	1450	2256	1266	1972	3663	2158	3580	4590	2761	4658			
PAS-80S-280-200	1182	544	672	1861	1012	1519	3195	1865	3042	3559	2283	3810	5868	3554	6097	7198	4401	4629			
PAS-80S-280-250	1413	691	934	1611	854	1239	2954	1703	2779	2940	1703	2769	5615	3397	5820	6954	4260	7352			
PAS-100S-385-300	6212	3038	3659	-	-	-	6490	2420	2589	8230	3490	4256	13420	6587	9310	-	-	-			
PAS-100S-385-350	7224	3736	4976	-	-	-	5193	1362	1366	6360	2685	3025	12115	6010	8050	-	-	-			
PAS-100S-435-300	6203	3022	3637	4956	1081	1081	9163	4175	5349	11573	5491	7474	-	-	-	-	-	-			
PAS-100S-435-350	7015	3728	4961	-	-	-	8056	3392	4110	10268	4717	6246	-	-	-	-	-	-			
PAS-160S-385-400	10867	5674	7873	-	-	-	8745	3390	3750	11568	5142	6510	20043	10245	15958	25679	13715	20580			
PAS-185S-485-500	15586	8252	11749	8750	2050	2040	20200	9170	12475	24535	12310	17786	40150	21685	33350	50700	27920	43780			

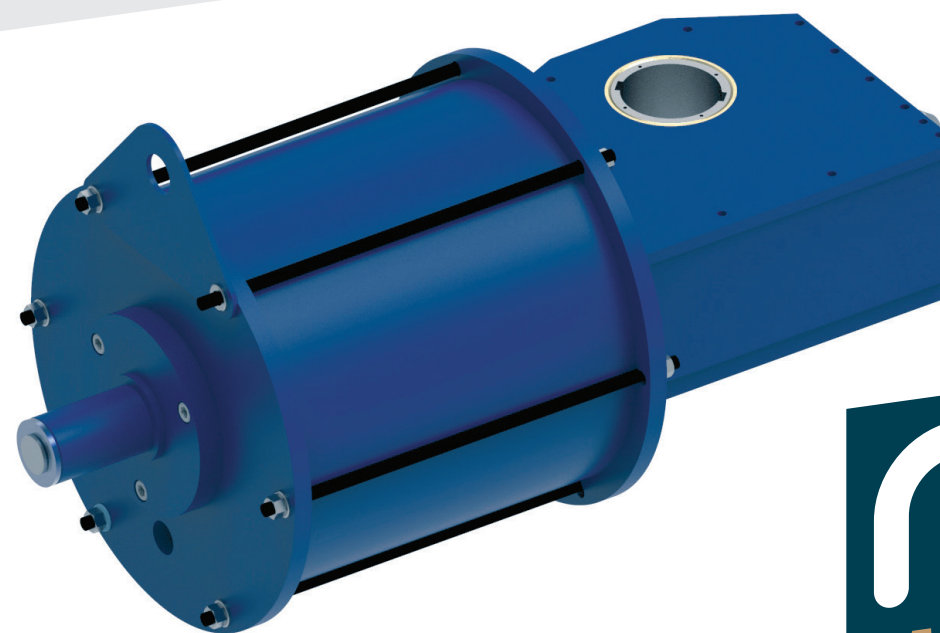
NOTES

BTC	Air break to close	SSC	Spring starting to close
RTC	Air run to close	SRC	Spring running to close
ETC	Air End to close	SEC	Spring ending to close
BTO	Air break to open	SSO	Spring starting to open
RTO	Air run to open	SRO	Spring running to open
ETO	Air end to open	SEO	Spring ending to open



Features

- Canted or symmetric Scotch yoke for different applications. It is recommended to use canted for larger valves.
- Travel stops for angular stroke adjustment between 85° and 95°
- Polished guide bar and piston rod for lowering the friction
- ENP cylinder for corrosion resistance and lowering friction
- Different manual operation like Jack screw, hand wheel and hand pump
- Solenoid valve for remote operation
- Limit Switch for monitoring the valve position from control room
- Pressure regulator, flow control and quick exhaust valve
- Storage tank according to ASME Section VIII, Div1.



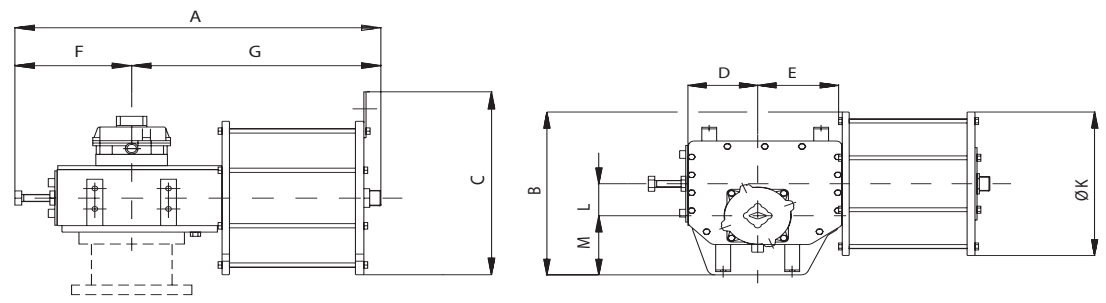
Output Torques

DOUBLE ACTING PNEUMATIC ACTUATOR SYMMETRIC YOKE DESIGN

Model	position	operating supply pressure (bar g)									
		4		6		8		10		12	
		op	cl	op	cl	op	cl	op	cl	op	cl
PAD-70S-100	0°	278	291	425	445	572	600	719	755	866	909
	45°	176	164	269	252	363	340	456	427	549	515
	90°	318	270	486	413	654	557	823	700	991	844
PAD-80S-235	0°	1823	2019	2763	3061	3703	4102	4643	5144	5582	6185
	45°	1156	1144	1752	1734	2348	2324	2944	2914	3540	3504
	90°	2085	1874	3160	2840	4235	3807	5310	4774	6385	5740
PAD-100S-335	0°	5109	5642	7729	8537	10349	11432	12970	14327	-	-
	45°	2989	2938	4521	4445	6054	5952	7587	7459	-	-
	90°	4929	4417	7457	6683	9985	8949	12513	11216	-	-
PAD-160S-385	0°	11080	12282	16734	18550	22387	24818	-	-	-	-
	45°	6570	6486	9923	9797	13275	13107	-	-	-	-
	90°	10999	9892	16611	14941	22222	19989	-	-	-	-
PAD-185S-485	0°	20625	22958	31095	34613	41566	46268	52036	57923	-	-
	45°	12253	12148	18473	18316	24693	24483	30913	30650	-	-
	90°	20553	18562	30986	27985	41419	37409	51852	46832	-	-
PAD-200S-635	0°	57752	63513	86994	95676	-	-	-	-	-	-
	45°	22574	22386	34005	33722	-	-	-	-	-	-
	90°	32551	31010	49033	46713	-	-	-	-	-	-



PAD- Dimensions



PAD- DOUBLE ACTING PNEUMATIC ACTUATOR										
Model	A	B	C	D	E	F	G	ØK	L	M
PAD-70S-100	743	319	179	136	151	221	522	120	70	119
PAD-80S-235	846	413	302	160	190	245	602	260	80	170
PAD-100S-335	989	485	477	187	227	310	680	400	100	185
PAD-160S-385	1316	600	536	285	330	391	924	450	160	215
PAD-185S-485	1497	740	639	327	379	430	1067	560	185	260
PAD-200S-635	1676	855	809	376	435	497	1179	720	200	295



Standard components

Pressure Regulator(+filter)

Pressure Regulator(+filter): Adjusts the supply pressure to a set value (used mostly in pneumatic actuators) Besides filtration, it limits the output torque of the pneumatic actuators.



Limit Switch

It is utilized to show the valve position on-site and from control rooms and should have required certificates based on customer needs like IP rating and ATEX.



Solenoid valve

It is a directional valve with electrical actuation that adds the remotely operating command to control circuits. It should have required certificates based on the customer needs like IP rating and ATEX



Safety valve

Exhausts the pressure to the atmosphere to preserve the pressure container parts in case of overpressure. (used mostly in gas over oil).



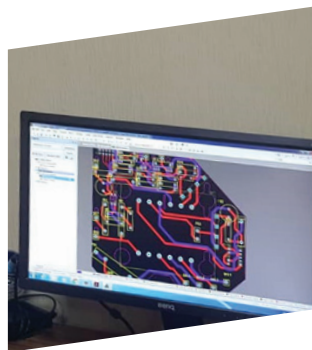
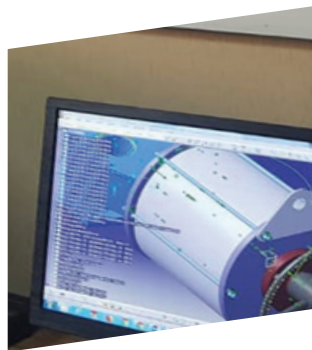
Junction Box

It is an electrical terminal for wiring and should have required certificates based on the customer needs like IP rating and ATEX.



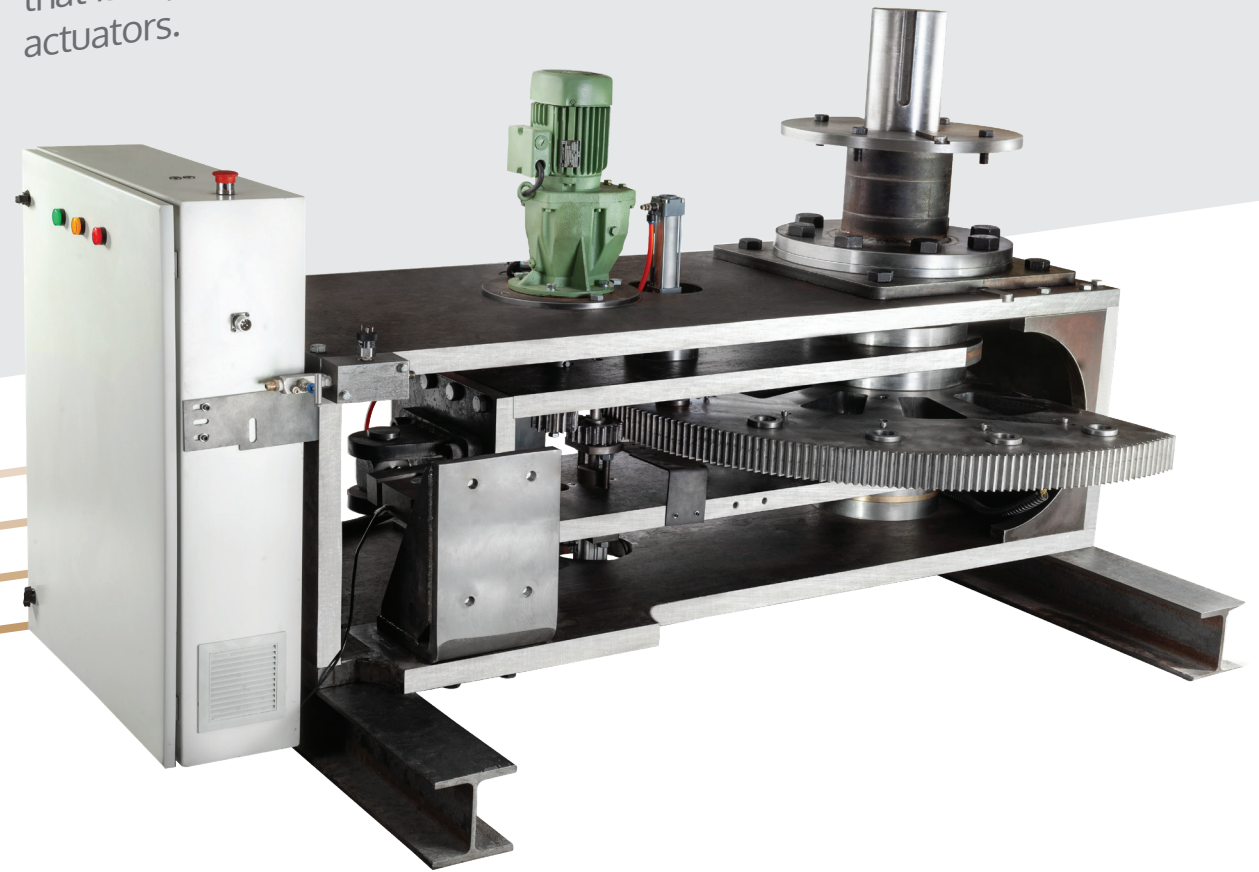
Research and Development

MOBIN has an active R&D department that works on new projects.



Testing facilities

Since the reliability and safety of the actuators are very crucial, testing equipment is very vital. The below picture shows the torque testing machine that is capable of measuring static torques of the actuators.



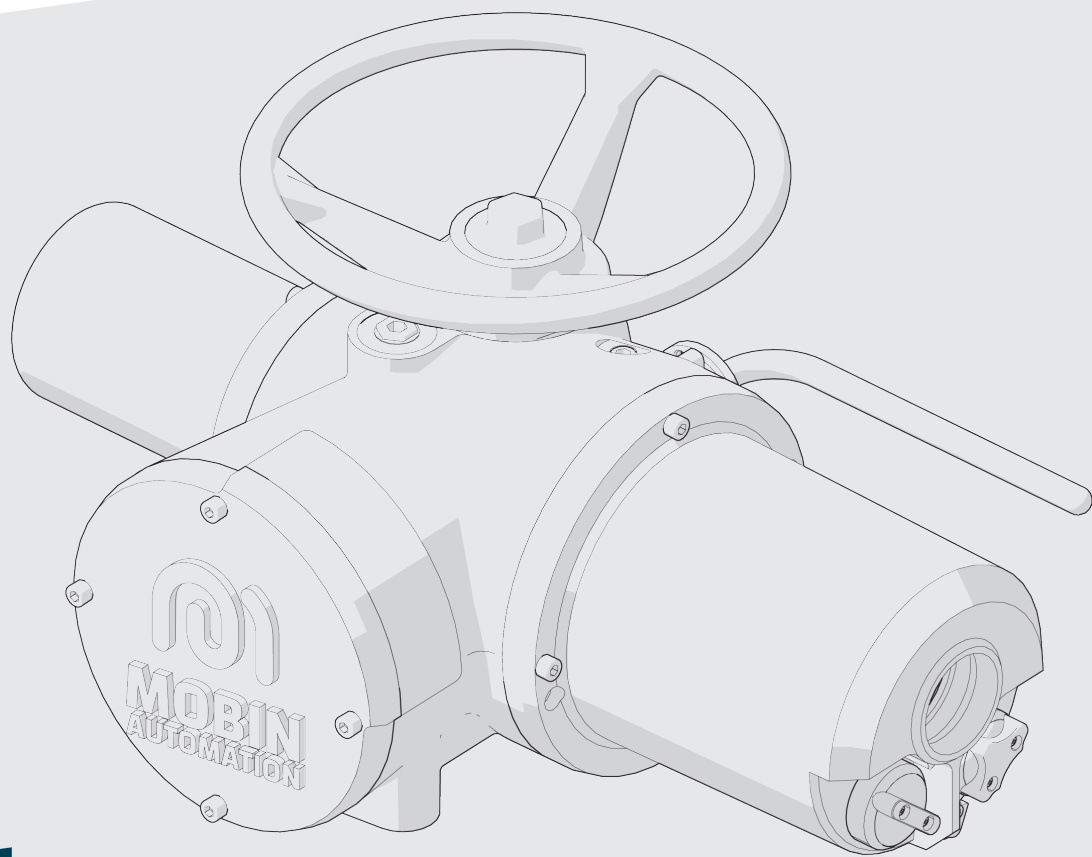
SPECIFICATIONS

- Capacity: Up to 200,000 N.m
- Number of measuring points: 5
- Control system: PLC
- Measuring technique: Using load cell

Reliable and Flexible MOBIN Electric actuator (MEA)

Due to the absence of a prestigious international brand in Iran and high demand in the domestic market, MOBIN AUTOMATION decided to manufacture electric actuators. Since in these devices the driving force of an electric motor empowers the gearbox and a complex of electric boards govern all the operations and protection features, an interdisciplinary task has been carried out with the emphasis on electrical, mechanical, computer and network engineering fields to manufacturing electric actuators.

Electric Actuators are mostly utilized in power plants, oil and gas refinery plants and petrochemical units. Using a versatile electrical controller ensures a reliable and intelligence performance for working in environments requiring a high level of safety and security. The power and efficiency of electric motors provide high value of output torques in a smaller size in comparison with other types of actuators.



SPECIFICATIONS

Output torque

- Up to 2000 N.m in multi-turn models.
- For Higher values as well as quarter turn movement.
- Suitable for part-turn valves, a gearbox should be added to MEA.
- Different torque values in a range of output speed are available.
- Sizing should be calculated based on the valve torques and operating time.

WORKING TEMPERATURE

- Standard Range: -30°C to +70°C
- Extended range can be manufactured on request

POWER SUPPLIES

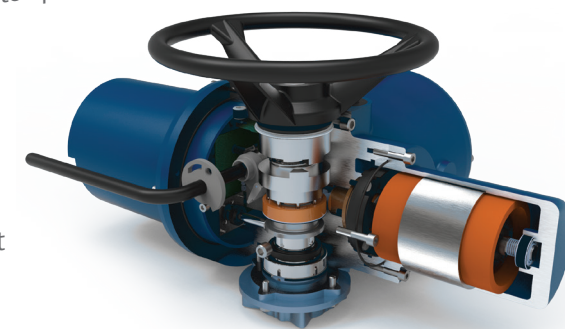
- Actuators are suitable for operation with the following three type supply.

MOTOR

3-phase

MEA are equipped with three-phase asynchronous, Squirrel cage, induction motors. In their motor standard 3-phase form they are Class F insulated and 15 minute at average load. A thermostat is sensing the motor windings thermal and tripping actuator control system.

- Class F insulated, squirrel cage motor of special high torque low inertia design
- 15 minute rated with cyclic duration factor of 25% at 33% of actuator output rated torque giving a temperature rise not exceeding that permitted for Class B insulation at standard nominal voltage
- Actuator rated up to 60 starts per hour at a rate not exceeding 600 starts per hour
- Burnout protection by embedded thermostats, with facility for bypassing under emergency shutdown control
- Motors conform to IEC34



Supply	Name	Material
3-phase	200, 220, 240, 400, 415, 440, 480, 500, 550, 660, 690	50
	208, 220, 230, 240, 380, 440, 460, 480, 575, 600	60
Single phase (AC)	110, 220, 240	50
	110, 220, 230	60
DC	24, 48, 110	-

Single-phase

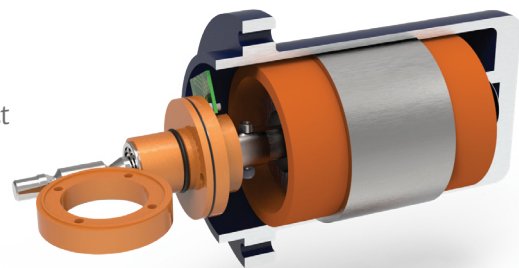
- Single-phase capacitor start/run squirrel cage induction motor
- Class F insulated, special high torque, low inertia design.
- Rating, protection and compliance as per 3-phase specification above.

DC

- Class F insulated, permanent magnet DC motor.
- Rating, protection and compliance as per 3-phase specification above.

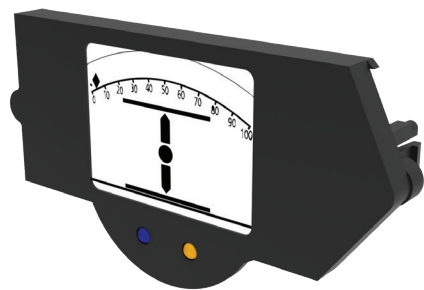
Output Torques

- Reliable and accurate torque measuring method
- Using piezo sensor to measure motor shaft thrust ensuring overload protection of actuators
- being independent of variations in frequency, voltage and temperature
- Adjustable setting for limiting torque
- Real time torque indication and recording valve operating force profiles by the data logger



POSITION MEASUREMENT

- Using Contact-less hall effect sensors to measure actuator output position
- Being direction sensitive
- Reliable and accurate sensor (resolution is less than 1°)
- using movement reading with mechanical link on the output shaft
- In case of power failure, the position is updated stored and displayed locally using battery supply

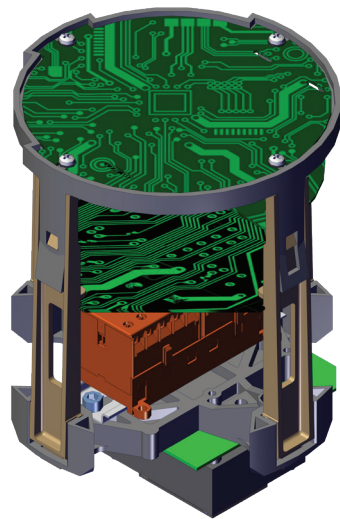


LCD

- using color TFT LCD (2.8") for user interface
- brightness up to 500 cd/m2 (typical value)
- operating at temperatures from -20°C to +70°C
- storage temperatures range from -30°C to +80°C

BATTERY

- A backup battery is installed to activate window displaying of valve status and recording valve position when power is off. When power to the actuator is isolated, all settings are retained in an EEPROM. The battery also powers the following capability:
- LCD display (low brightness)
 - Bluetooth module
 - Four latching relays



CONTROL SYSTEM FEATURES

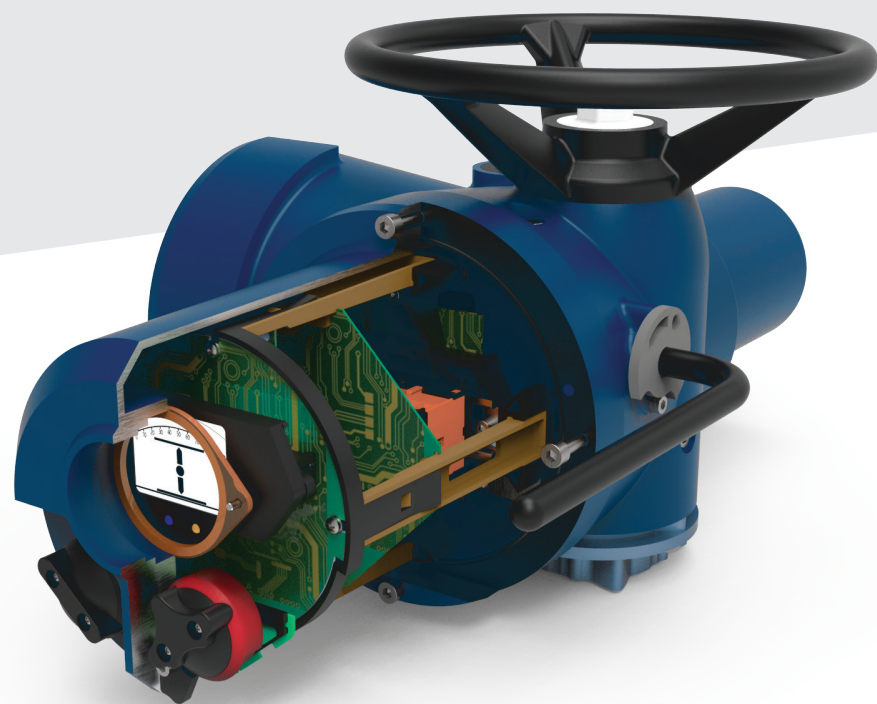
Feature	Specification
Local Control	<ul style="list-style-type: none"> Magnetically operated switches No penetration of covers Open/Close/Stop and Local/Remote selection
Remote Control	<ul style="list-style-type: none"> Open/Close/Stop/ESD/Interlock signals Optocoupler-isolated for protection
Position Sensor	<ul style="list-style-type: none"> Incremental encoder with resolution less than 1° Remains available whilst power is off
Torque Sensor	<ul style="list-style-type: none"> Using piezo sensor Measuring the output torque directly Converts torque value to a voltage signal
Set-Up	<ul style="list-style-type: none"> Set-up over Bluetooth All settings can be configured using MOBIN Setting Tool Non-intrusive; No need to remove the covers
Data Logger	<ul style="list-style-type: none"> Capturing and storing system information in a non-volatile memory with date and time Capable of saving data to PC Remains available whilst power is off
LCD Indication	<ul style="list-style-type: none"> Presenting position, torque, and set-up displays for configuration Remains available with reduced contrast whilst power is off
Micro-Controller	<ul style="list-style-type: none"> ARM Family; Widely used in industry Providing all control signals Providing all protection signals Critical functions remain available whilst power is off.
Memory	<ul style="list-style-type: none"> All settings and records are stored in a micro SD card Non-volatile; Remains available whilst power is off

MANDATORY NON-HAZARDOUS/HAZARDOUS AREA ENCLOSURES

Standard Watertight			European Hazardous Area Directive -ATEX		
Standard	Rating	Standard temperature	Directive Code	Enclosure code	Standard temperature
IEC 60529 (1989-11)	IP68 - 7metres / 72 Hrs	-30°C to +70°C	ATEX II 2GD	Exd IIB T4 Exd IIC T4	-20°C to +70°C (-4°F to +158°F)

PROTECTION AND OPERATING FEATURES

Fault/ Feature	Function
Incorrect Phase (for 3-Phase Actuators)	Ensures that the actuator always runs in the required direction
Lost Phase	Preventing operation of the actuator in case of 1 or 2 phase loss
Motor Overheating	Motor temperature is being sensed continuously using a thermostat The operation will be terminated in case of overheat detection
Obstructed Valve	The operation will be terminated when the valve meets obstructions Torque switch range can be set using the MOBIN setting tool
Jammed Valve	The motor will be de-energized if the control system detects no output movement after the receipt of open/close signal
Torque Switch Hammer	Prevents the actuator to operate in the same direction in case of meeting an obstruction. Actuator will operate in the opposite direction to move away from the obstruction.
Torque Switch Bypass	Torque switch can be bypassed in the first 5% of travel. Ensures that sticky valves will not result in torque trip.
Instantaneous Reversal	Prevents instantaneous reversals to protect the system from current surges
Emergency Shut Down	Terminates operation of the actuator. Emergency shut down has priority over any existing or applied local or remote control signal



NETWORK SYSTEM CONNECTIVITY

With the addition of an appropriate option card, the MEA can be incorporated into a number of different fieldbus control systems. The MEA can be utilized within the major open fieldbus protocols including DeviceNet and Modbus.

Modbus

- RS485, 2 wire RTU communication
- International open standard
- Single and Dual Redundant options
- Integral Repeater modules included
- Up to 115 kB

DeviceNet

- Up to 63 devices on each network
- 2 wire communication (+ 2 power wires)
- Trunk line and Drop line permitted

ACTUATOR COUPLING

For convenient valve adaptation to the actuator, the machining of the actuator attachment is in accordance with below standards:

- ISO 5210 or MSS SP-102 for multi-turn valves
- ISO 5211 or MSS SP-101 for part-turn valves





**MOBIN
AUTOMATION**

**Our skill
and
accuracy
are a
guarantee
for ongoing
flow**



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