

NUTORK®

Actuators & Valves

CE SIL3  EAC

NSF Series Linear Type Pneumatic Actuator



NUTORK CORPORATION

Product Display



Double Acting Actuator
SM1 Central Side Mounted Manual



Double Acting Actuator
TM3 Overhead Side Mounted Manual



Single Acting Actuator
SM1 Central Side Mounted Manual



Double Acting Actuator
Stainless Steel Actuator



Double Acting Actuator
TM1 Overhead Screw Manual



Double Acting Actuator
TM2 Overhead Switching Manual



Double Acting Actuator
HD Hydraulic Manual



Double Acting Actuator
TM1 Overhead Screw Manual



Single Acting Actuator
Valve Bracket with Connecting Block



Rodless Fork Double Acting Actuator
SM1 Central Side Mounted Manual

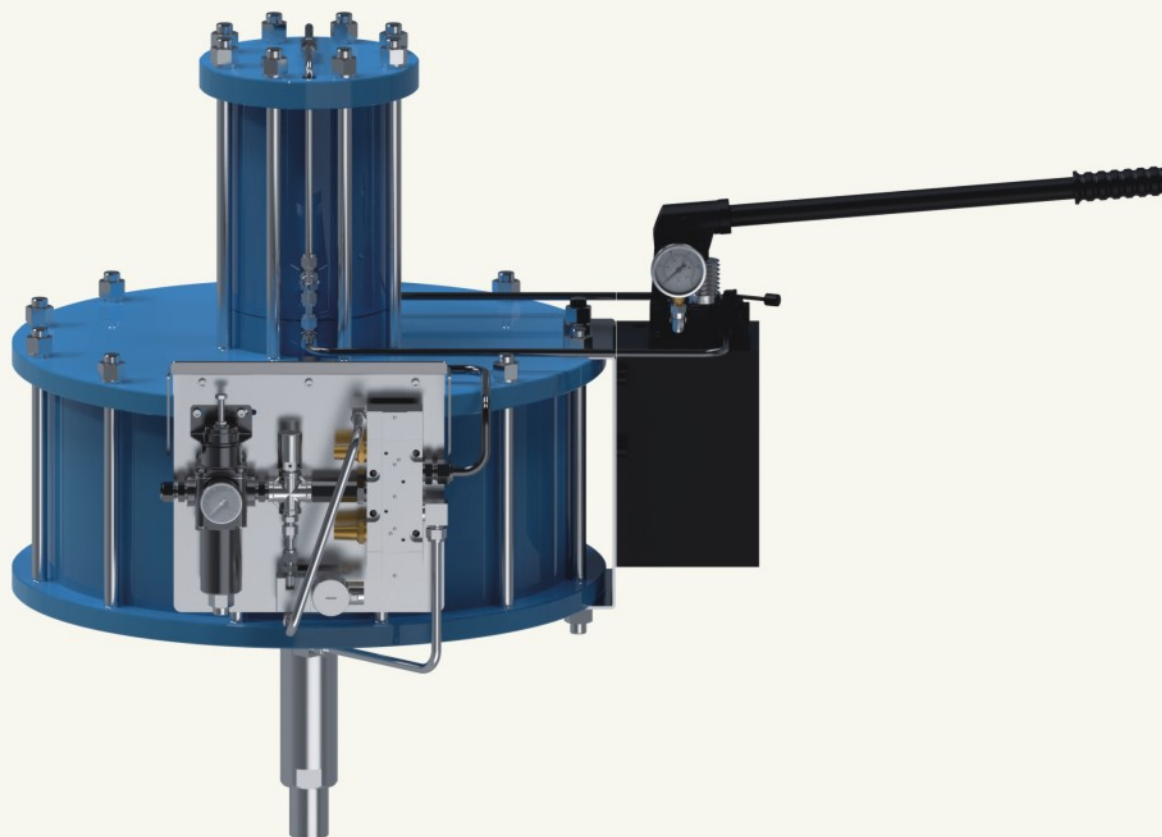


Double Acting Actuator
BA Manual Overhead
Side Mounted Turbine



200KN Linear Stroke Actuator
Thrust Test Instrument

Working Technical Conditions



Travel Adjustment Range		The stroke adjustment bolts are arranged on the upper and lower end covers to adjust the opening and closing positions of the actuator.
Working Air Supply Pressure		0.3Mpa-0.7Mpa(Special Working Pressure 0.2Mpa-1.0Mpa)
Operating Temperature	Standard	-20°C~+80°C
	High Temperature	-20°C~+200°C
	Low Temperature	-40°C~+80°C
Application Range		NSF pneumatic actuator uses purified compressed air as its working power to push the piston and drive the valve (gate valve, stop valve, spread valve, orbital ball valve, etc.) to make a linear motion perpendicular to the fluid to achieve the purpose of adjusting, opening and closing the valve.
Automatic Control Formula		NUTORK has many years of experience in pneumatic control. It can design various pneumatic connection formulas according to customer needs and select proper control accessories to meet the requirements of users.

Product Characteristics

Large Thrust Range

NSF series double-acting actuators can provide a maximum output thrust of 2000000N, and single-acting actuators can provide a maximum output thrust of 300000N (working pressure 3-7 bar)

Internal Tie Rod Cylinder Design

The cylinder with internal tie-rod design has a simple and elegant appearance. Under the same cylinder diameter, the inner tie-rod design has a smaller outer diameter than the cylinder with the outer tie-rod design. At the same time, the internal tie rod of the cylinder can support and guide the piston to prevent the cylinder from eccentric wear, so that the movement is more stable and the service life is

Various Manual Mechanisms

NUTORK has developed a variety of manual mechanisms to meet user needs, including: overhead screw manual, overhead bolt manual, overhead side turbine manual, overhead side bevel gear manual, center side bevel gear, hydraulic manual and the latest Fully sealed bevel gear side-mounted manual

Spring Design Criteria

For different types and different pressure valves, NUTORK tailors springs that can meet the thrust and stroke requirements for each valve, and has designed a set of spring standard libraries for commonly used

Customized Connection Size

The flange size of the NSF series pneumatic actuator and the valve can be customized according to the user's standard, so that the customer can install, disassemble and replace.

Protection Coat

The surface of the product is smoothed by shot blasting and polishing before spraying. The NSF series actuators are coated with epoxy zinc-rich primer and polyurethane topcoat. The thickness, firmness and anti-corrosion performance of the coat can agree to different harsh environments.

Empirical Selection Of Actuators

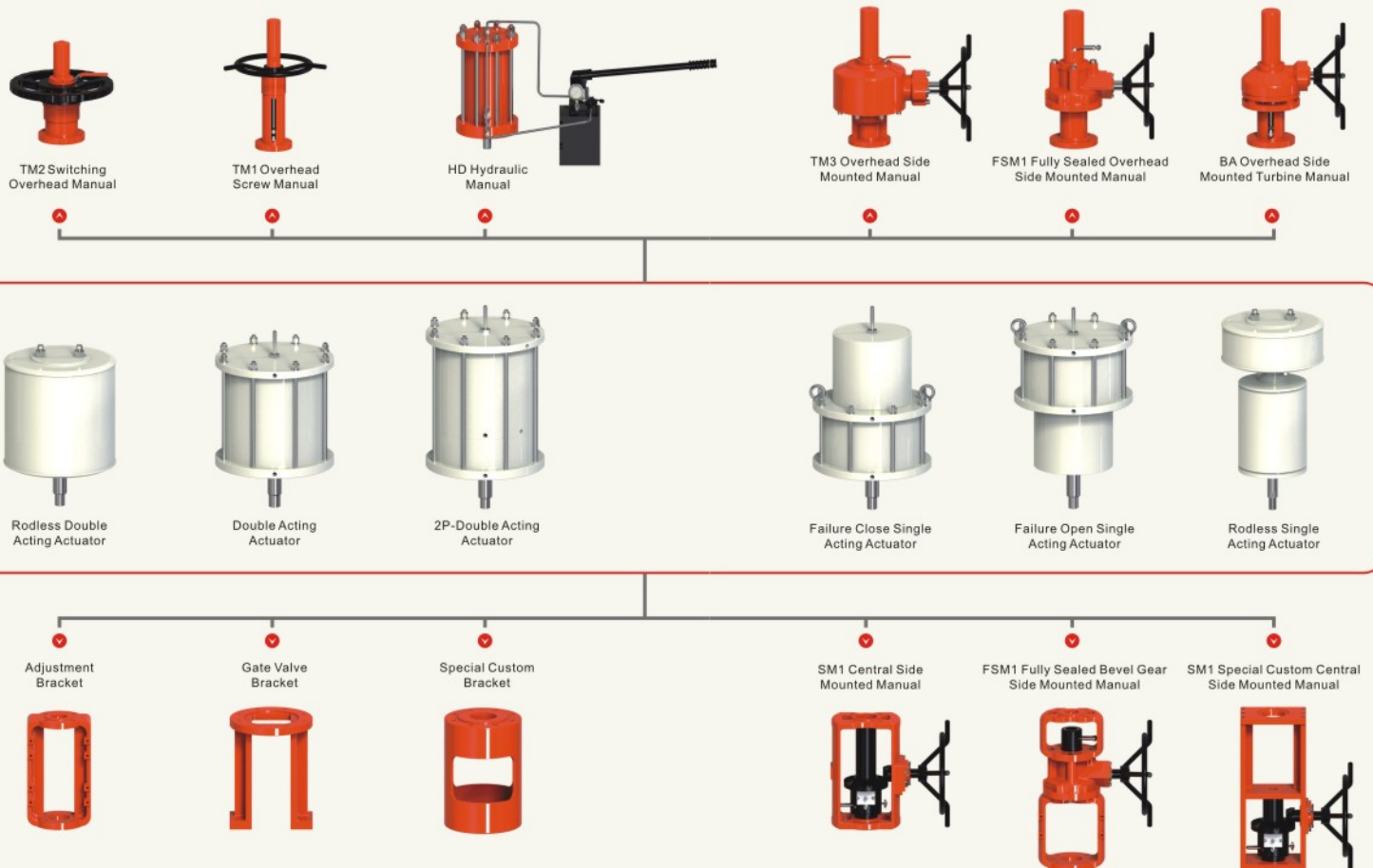
In the case of unknown valve thrust, NUTORK recommends safe cylinder selection for users' reference for different types and pressures of valves based on years of selection experience.

Ip67 Protection Rate

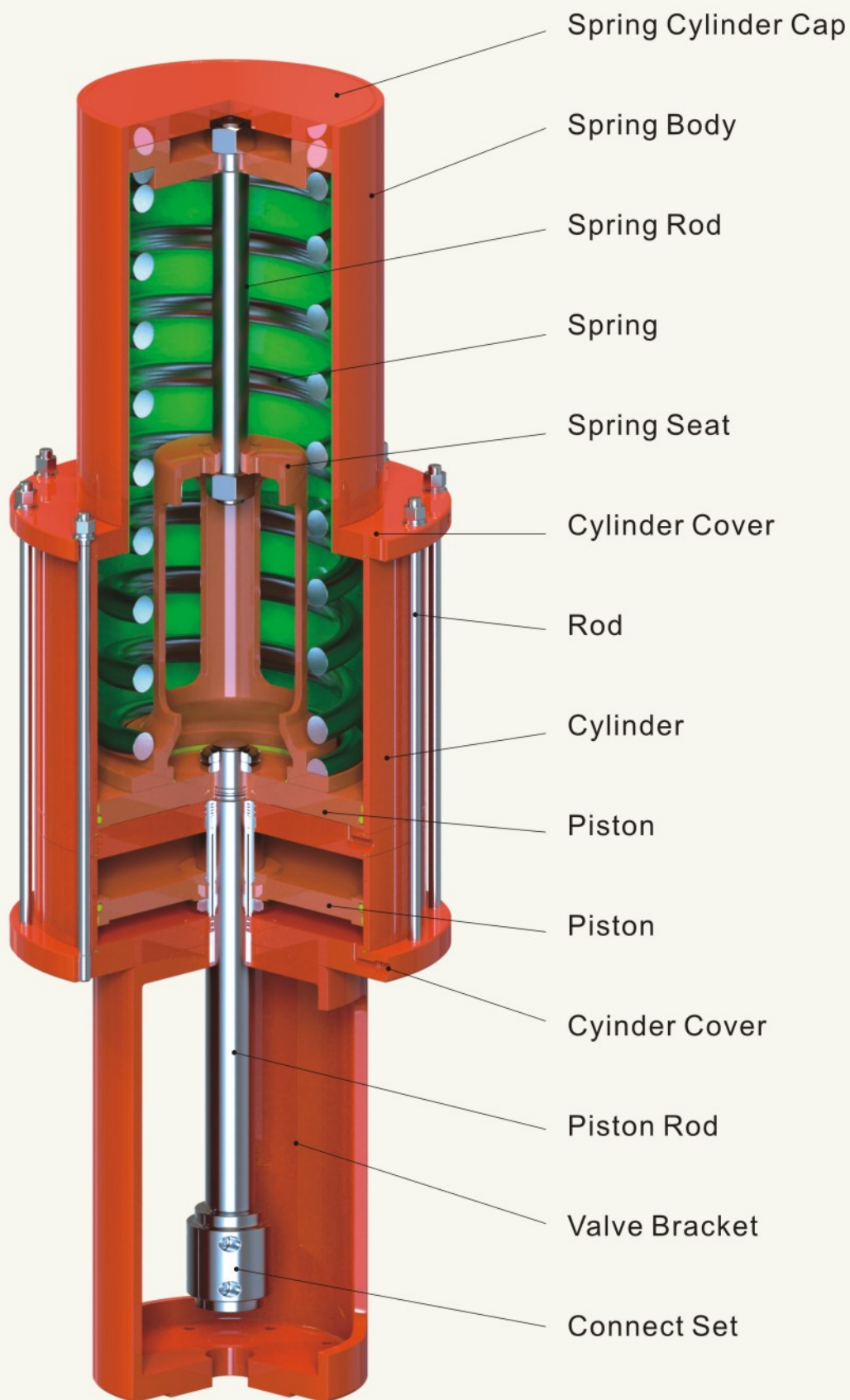
The pneumatic and manual parts of the NSF series pneumatic actuators use high-quality sealing rings, and the protection level can reach IP67, which can continue to work stably in harsh environments and climates.

Multi-Function Modules

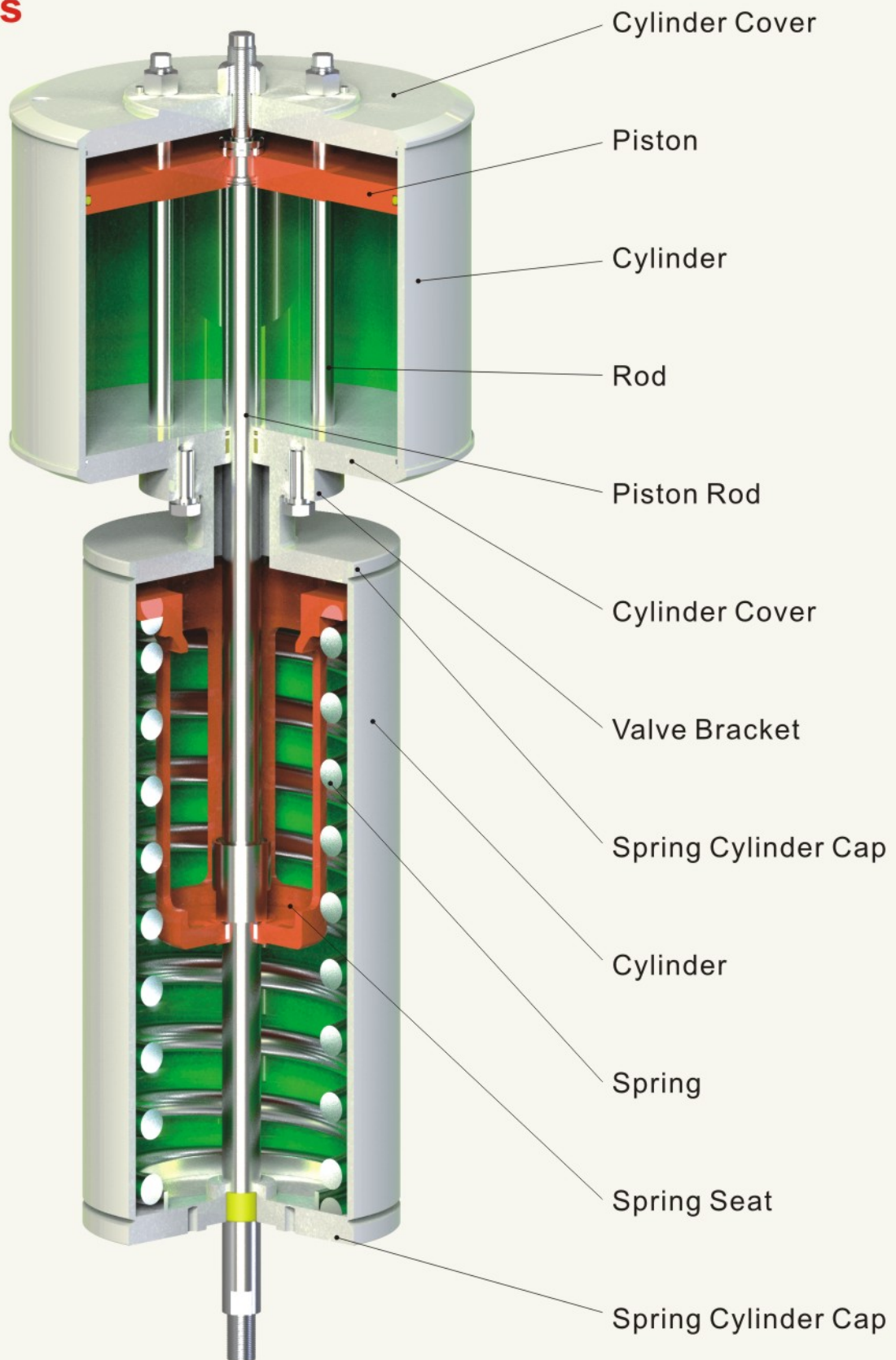
NUTORK Customize all kinds of linear pneumatic actuators according to different requirements of customers.



Product



Structures



Double Acting & Single Piston Actuator Output Thrust

Unit:N

Model	0.3Mpa on and off	0.4Mpa on and off	0.5Mpa on and off	0.6Mpa on and off
NSF60DA-1P	805	1074	1342	1611
NSF80DA-1P	1432	1909	2386	2863
NSF100DA-1P	2237	2983	3729	4475
NSF125DA-1P	3496	4661	5826	6991
NSF140DA-1P	4385	5847	7308	8770
NSF160DA-1P	5728	7636	9546	11455
NSF180DA-1P	7249	9665	12081	14497
NSF200DA-1P	8949	11932	14915	17898
NSF220DA-1P	10828	14438	18047	21656
NSF250DA-1P	13983	18644	23305	27966
NSF280DA-1P	17540	23387	29233	35080
NSF300DA-1P	20135	26847	33559	40271
NSF320DA-1P	22909	30546	38182	45818
NSF350DA-1P	27406	36542	45677	54812
NSF380DA-1P	32306	43075	53843	64612
NSF400DA-1P	35796	47728	59660	71592
NSF420DA-1P	39465	52620	65775	78930
NSF450DA-1P	45304	60406	75507	90608
NSF480DA-1P	51546	68728	85910	103092
NSF500DA-1P	55931	74575	93219	111863
NSF520DA-1P	60495	80660	100825	120990
NSF550DA-1P	67677	90236	112795	135354
NSF580DA-1P	75261	100348	125435	150522
NSF600DA-1P	80541	107388	134235	161082
NSF620DA-1P	86000	114667	143333	172000
NSF650DA-1P	94524	132665	157540	189048
NSF680DA-1P	103450	137934	172417	206900
NSF700DA-1P	109625	146167	182709	219251
NSF720DA-1P	115979	154639	193298	231958
NSF750DA-1P	125845	167794	209742	251691
NSF780DA-1P	136114	181486	226857	272229
NSF800DA-1P	143184	190912	238640	286368
NSF850DA-1P	161641	215522	269402	323282
NSF900DA-1P	181217	241623	302029	362435
NSF950DA-1P	201912	269216	336520	403824
NSF1000DA-1P	223725	298300	372875	447450
NSF1100DA-1P	270707	360943	451179	541415
NSF1200DA-1P	322164	429552	536940	644328
NSF1300DA-1P	378095	504127	630159	756191
NSF1400DA-1P	438501	584668	730835	877002
NSF1500DA-1P	503381	671175	838969	1006763

Note: The above data is for reference only, and all products are subject to the actual product, NUTORK reserves the right of final interpretation.

Double Acting & Double Piston Actuator Output Thrust

Unit:N

Model	0.3Mpa on and off	0.4Mpa on and off	0.5Mpa on and off	0.6Mpa on and off
NSF60DA-2D	1610	2148	2684	3222
NSF80DA-2D	2863	3818	4772	5726
NSF100DA-2D	4475	5966	7458	8950
NSF125DA-2D	6991	9322	11652	13982
NSF140DA-2D	8770	11694	14616	17539
NSF160DA-2D	11455	15272	19092	22910
NSF180DA-2D	14497	19330	24162	28994
NSF200DA-2D	17898	23864	29830	35796
NSF220DA-2D	21656	28876	36094	43313
NSF250DA-2D	27966	37288	46610	55932
NSF280DA-2D	35080	46774	58466	70159
NSF300DA-2D	40271	53694	67118	80542
NSF320DA-2D	45818	61092	76364	91637
NSF350DA-2D	54812	73084	91354	109625
NSF380DA-2D	64612	86150	107686	129223
NSF400DA-2D	71592	95456	119320	143184
NSF420DA-2D	78930	105240	131550	157860
NSF450DA-2D	90608	120812	151014	181217
NSF480DA-2D	103092	137456	171820	206184
NSF500DA-2D	111863	149150	186438	223726
NSF520DA-2D	120990	161320	201650	241980
NSF550DA-2D	135354	180472	225590	270708
NSF580DA-2D	150522	200696	250870	301044
NSF600DA-2D	161082	214776	268470	322164
NSF620DA-2D	172000	229334	286666	343999
NSF650DA-2D	189048	265330	315080	378096
NSF680DA-2D	206900	275868	344834	413801
NSF700DA-2D	219251	292334	365418	438502
NSF720DA-2D	231958	309277	386597	463916
NSF750DA-2D	251691	335588	419484	503381
NSF780DA-2D	272229	362971	453714	544457
NSF800DA-2D	286368	381824	477280	572736
NSF850DA-2D	323282	431044	538804	646565
NSF900DA-2D	362435	483246	604058	724870
NSF950DA-2D	403824	538432	673040	807648
NSF1000DA-2D	447450	596600	745750	894900
NSF1100DA-2D	541415	721886	902358	1082829
NSF1200DA-2D	644328	859104	1073880	1288656
NSF1300DA-2D	756191	1008254	1260318	1512381
NSF1400DA-2D	877002	1169336	1461670	1754004
NSF1500DA-2D	1006763	1342350	1677938	2013525

Remarks: This table is a 2D (two cylinders with the same stroke) double-piston cylinder thrust table 2P (two cylinders with different strokes) dual-piston cylinders are suitable for wedge gate valves, the first 40MM stroke is the thrust value of 2 cylinders, and the remaining stroke is one cylinder Thrust value.

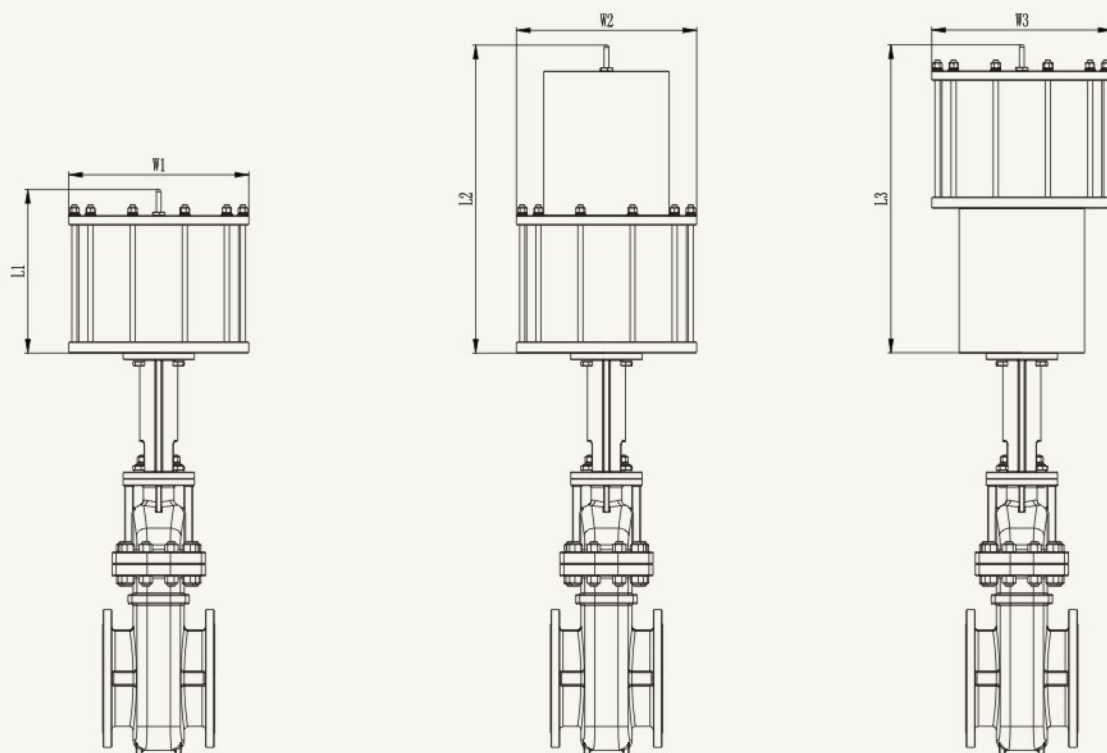
Single Acting & Single Piston Actuator Output Thrust

Unit:N

Model	0.4Mpa Air Source Pressure		0.5Mpa Air Source Pressure	
	ABTO	AETC	ABTO	AETC
NSF 60SR-1P	591	483	751	591
NSF 80SR-1P	1050	859	1336	1050
NSF100SR-1P	1641	1342	2088	1641
NSF125SR-1P	2564	2097	3262	2564
NSF140SR-1P	3216	2631	4092	3216
NSF160SR-1P	4200	3436	5346	4200
NSF180SR-1P	5316	4349	6765	5316
NSF200SR-1P	6563	5369	8352	6563
NSF220SR-1P	7941	6497	10106	7941
NSF250SR-1P	10254	8390	13051	10254
NSF280SR-1P	12863	10524	16370	12863
NSF300SR-1P	14766	12081	18793	14766
NSF320SR-1P	16800	13746	21382	16800
NSF350SR-1P	20098	16444	25579	20098
NSF380SR-1P	23691	19384	30152	23691
NSF400SR-1P	26250	21478	33410	26250
NSF420SR-1P	28941	23679	36834	28941
NSF450SR-1P	33223	27183	42284	33223
NSF480SR-1P	37801	30928	48109	37801
NSF500SR-1P	41016	33559	52203	41016
NSF520SR-1P	44363	36297	56462	44363
NSF550SR-1P	49630	40606	63165	49630
NSF580SR-1P	55191	45157	70244	55191
NSF600SR-1P	59063	48325	75172	59063
NSF620SR-1P	63067	51600	80266	63067
NSF650SR-1P	69317	56714	88223	69317
NSF680SR-1P	75864	62070	96553	75864
NSF700SR-1P	80392	65775	102317	80392
NSF720SR-1P	85051	69587	108247	85051
NSF750SR-1P	92287	75507	117455	92287
NSF780SR-1P	99817	81669	127040	99817
NSF800SR-1P	105002	85910	133638	105002
NSF850SR-1P	118537	96985	150865	118537
NSF900SR-1P	132893	108730	169136	132893
NSF950SR-1P	148069	121147	188451	148069
NSF1000SR-1P	164065	134235	208810	164065

Note: The above data is for reference only, and all products are subject to the actual product, NUTORK reserves the right of final interpretation.

Pneumatic Gate Valve - Outline Dimension Drawing

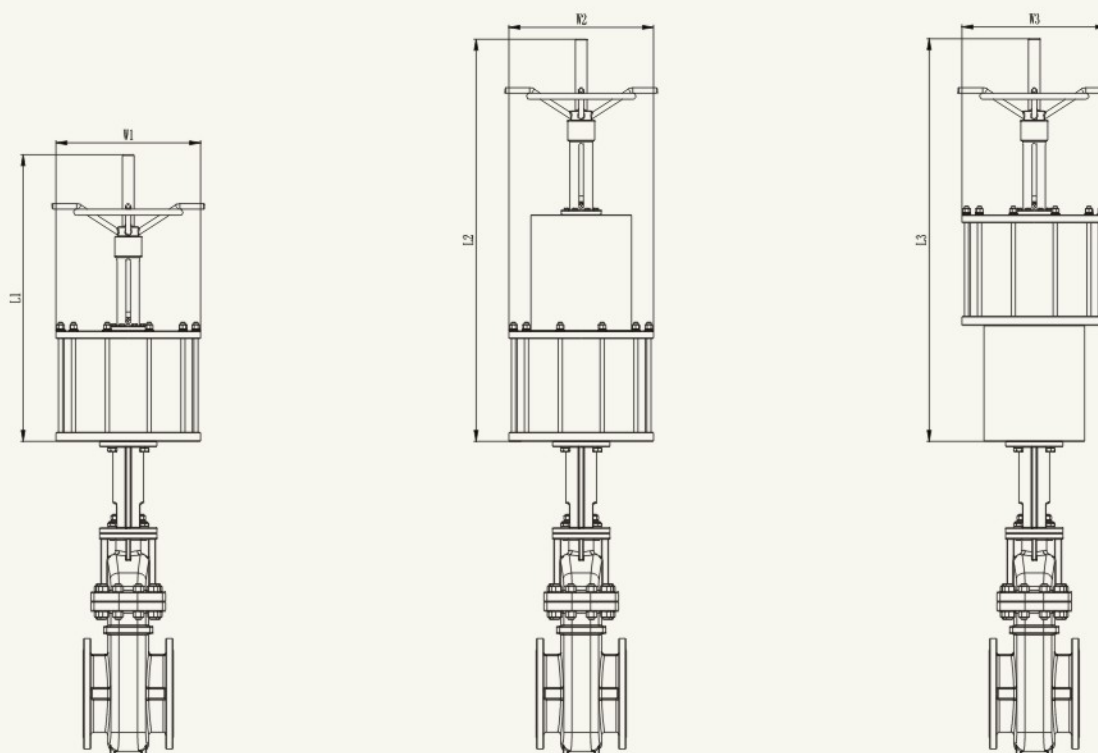


Unit:mm

Gate Valve	L1	φW1	L2	φW2	L3	φW3
Size	DA		FC		FO	
DN40	300	205	580	265	580	265
DN50	310	205	580	265	580	265
DN65	325	225	600	285	600	285
DN80	340	245	620	315	620	315
DN100	360	265	740	380	740	380
DN125	385	315	800	400	800	400
DN150	410	315	840	430	840	430
DN200	460	380	920	480	920	480
DN250	520	430	1000	530	1000	530

CAUTION: The data is for reference only. Please contact NUTORK technicians for detailed dimensions

Pneumatic Gate Valve with Manual Overhead Screw TM1 - Outline Dimension Drawing

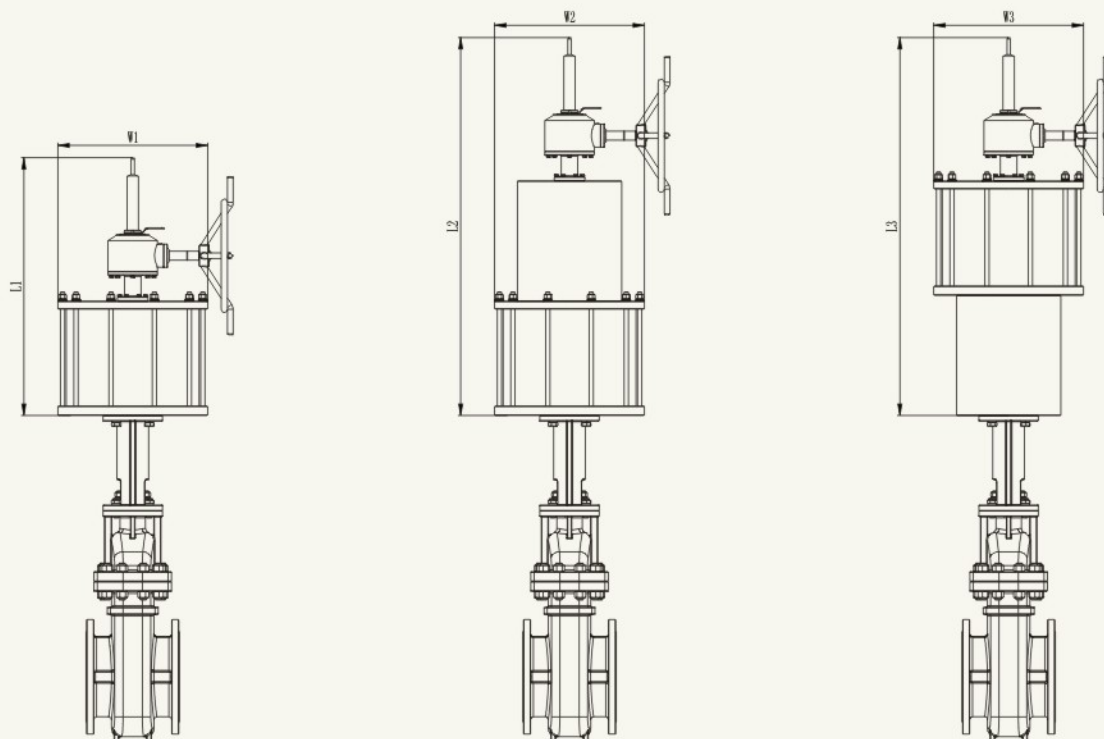


Unit:mm

Gate Valve	L1	φW1	L2	φW2	L3	φW3
Size	DA		FC		FO	
DN40	590	205	870	265	870	265
DN50	620	205	890	265	890	265
DN65	665	225	940	285	940	285
DN80	710	245	990	315	990	315
DN100	770	265	1150	380	1150	380
DN125	845	315	1260	400	1260	400
DN150	920	315	1350	430	1350	430
DN200	1070	380	1530	480	1530	480
DN250	1230	430	1710	530	1710	530

CAUTION: The data is for reference only. Please contact NUTORK technicians for detailed dimensions

Pneumatic Gate Valve with Manual Overhead Side Mounted Bevel Gear TM3 - Outline Dimension Drawing

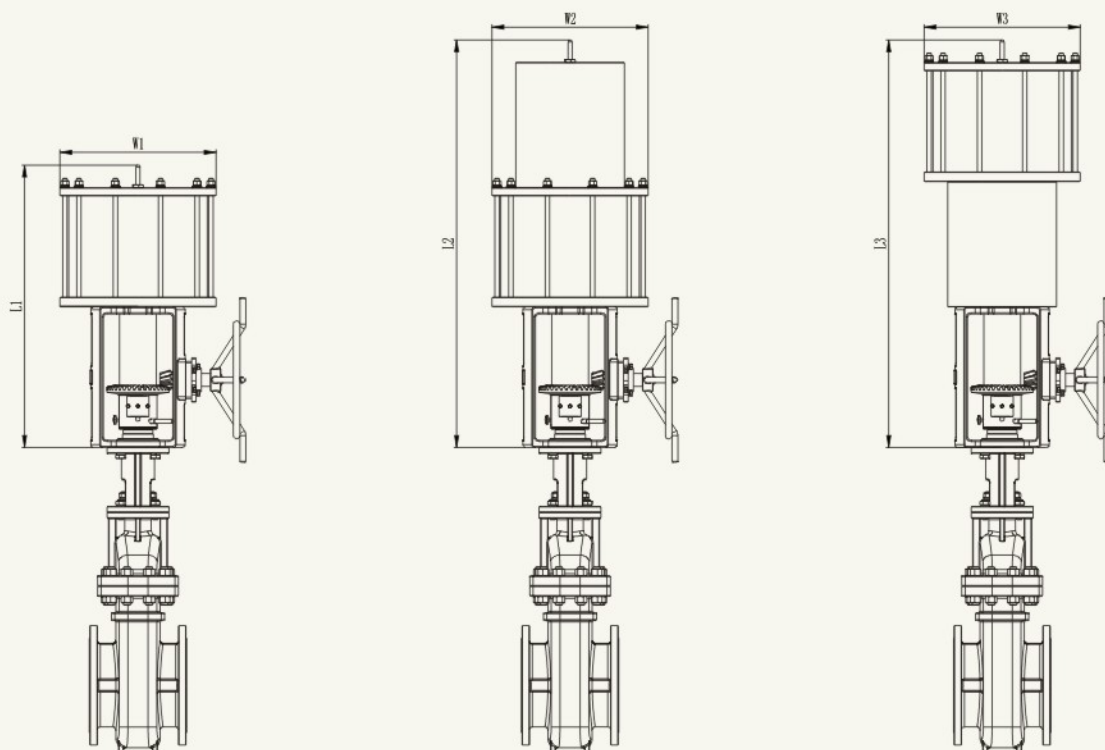


Unit:mm

Gate Valve	L1	φW1	L2	φW2	L3	φW3
Size	DA		FC		FO	
DN40	670	205	950	265	950	265
DN50	690	205	960	265	960	265
DN65	720	225	995	285	995	285
DN80	750	245	1030	315	1030	315
DN100	790	265	1170	380	1170	380
DN125	840	315	1255	400	1255	400
DN150	890	315	1320	430	1320	430
DN200	990	380	1450	480	1450	480
DN250	1100	430	1580	530	1580	530

CAUTION: The data is for reference only. Please contact NUTORK technicians for detailed dimensions

Pneumatic Gate Valve with Manual Central Side Mounted SM1 - Outline Dimension Drawing

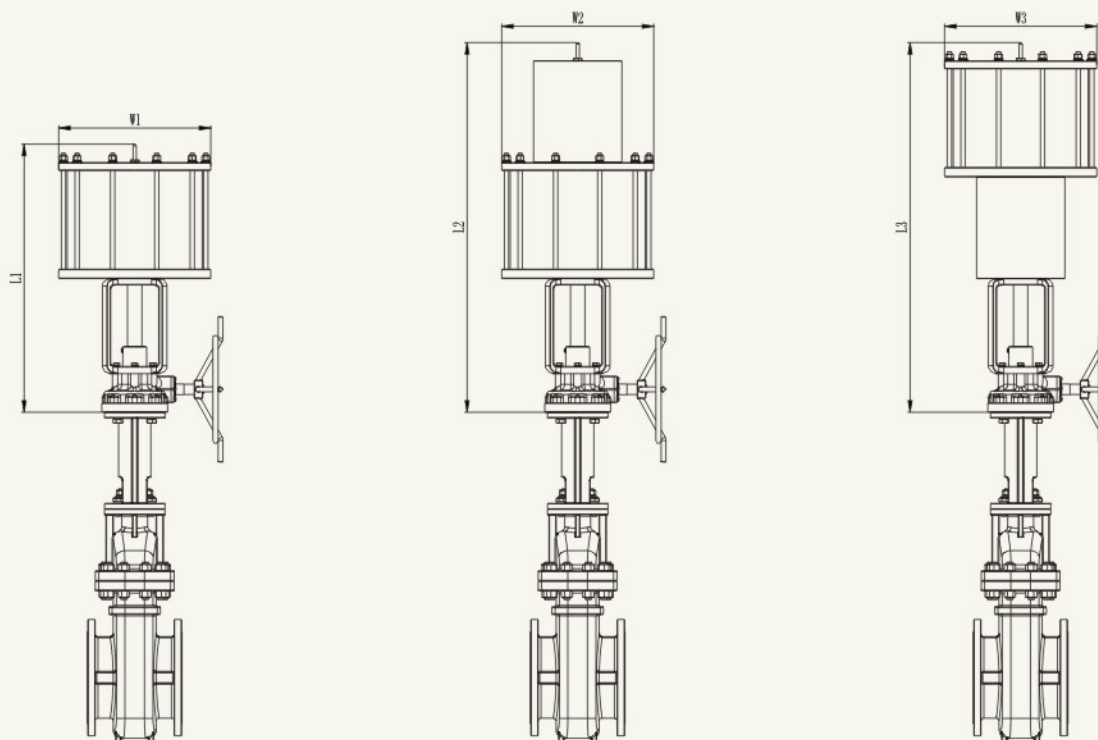


Unit:mm

Gate Valve	L1	φW1	L2	φW2	L3	φW3
Size	DA		FC		FO	
DN40	665	205	945	265	945	265
DN50	675	205	945	265	945	265
DN65	690	225	965	285	965	285
DN80	705	245	985	315	985	315
DN100	725	265	1105	380	1105	380
DN125	750	315	1165	400	1165	400
DN150	775	315	1205	430	1205	430
DN200	825	380	1285	480	1285	480
DN250	885	430	1365	530	1365	530

CAUTION: The data is for reference only. Please contact NUTORK technicians for detailed dimensions

Pneumatic Gate Valve with Fully Sealed Bevel Gear Side Mounted Manual Mechanism FSM1 - Outline Dimension Drawing

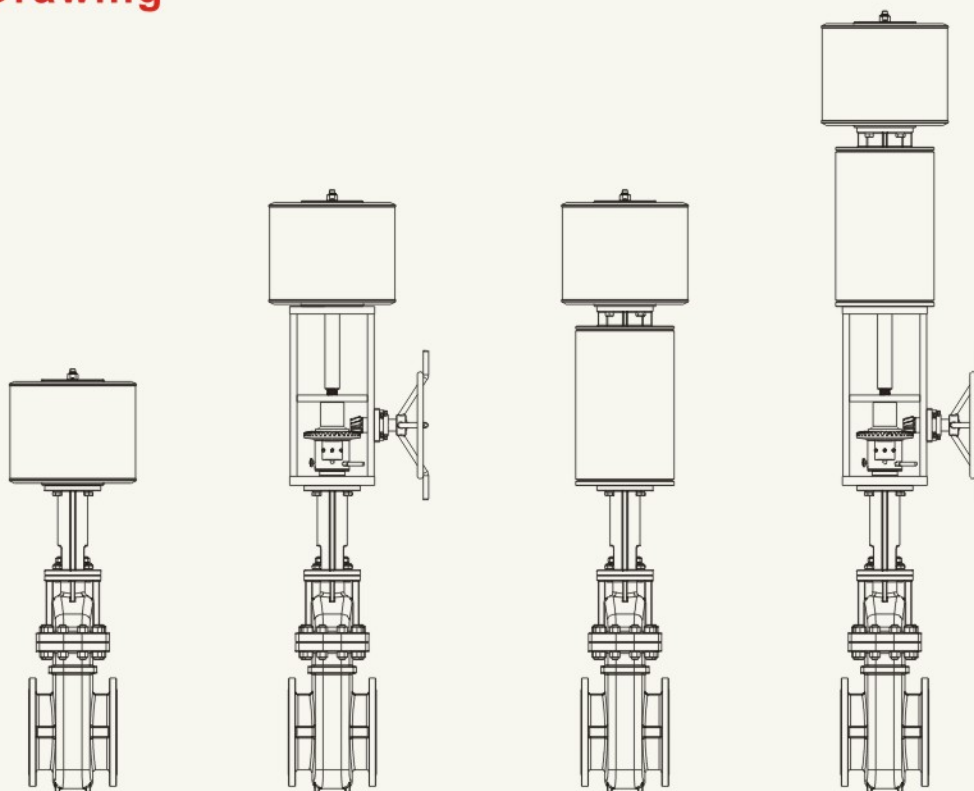


Unit:mm

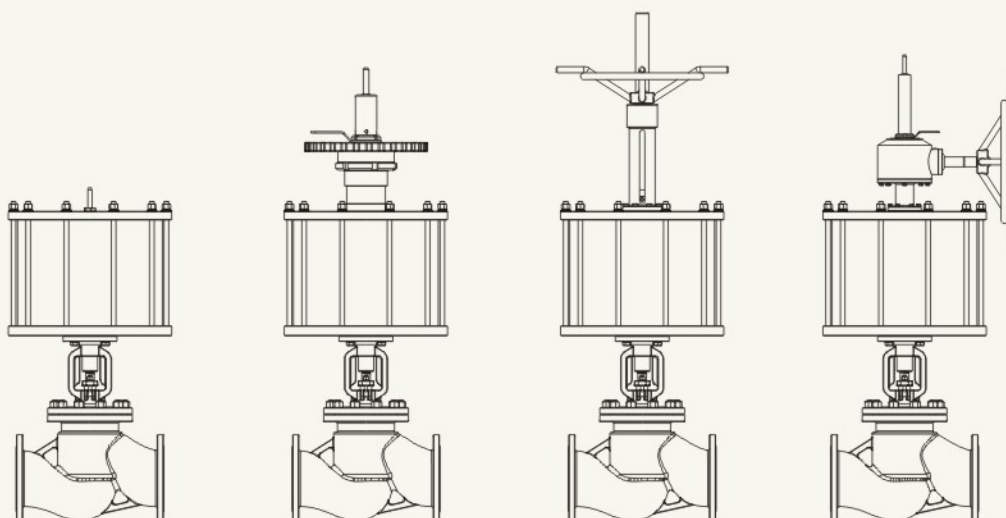
Gate Valve	L1	φW1	L2	φW2	L3	φW3
Size	DA		FC		FO	
DN40	860	205	1140	265	1140	265
DN50	870	205	1140	265	1140	265
DN65	885	225	1160	285	1160	285
DN80	890	245	1180	315	1180	315
DN100	920	265	1230	380	1230	380
DN125	945	315	1360	400	1360	400
DN150	970	315	1360	430	1360	430
DN200	1020	380	1480	480	1480	480
DN250	1080	430	1560	530	1560	530

CAUTION: The data is for reference only. Please contact NUTORK technicians for detailed dimensions

Rodless Pneumatic Gate Valve - Outline Drawing



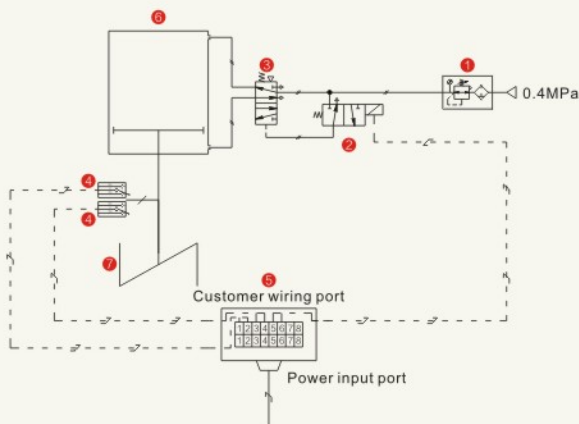
Pneumatic Globe Valve- Outline Drawing



For the appearance and connection dimensions of pneumatic valves, please contact NUTORK technicians.

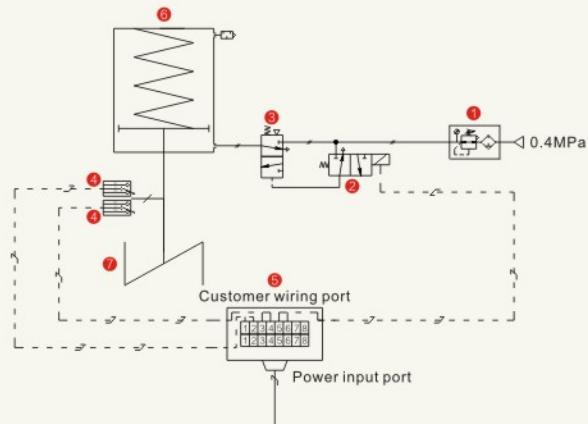
Pneumatic Control Schematic Diagram

Double Acting Switch Control Schematic Diagram



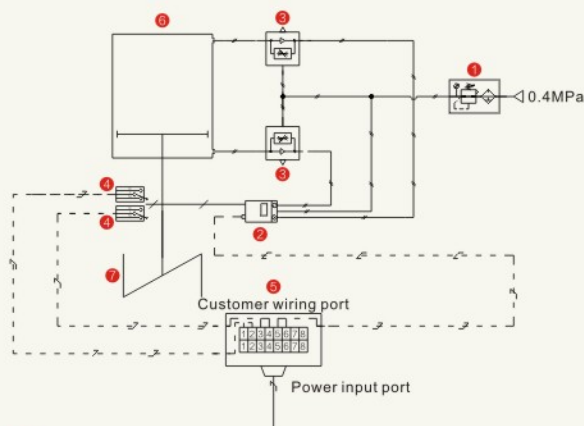
- ① Pressure Reducing Valve
- ② Solenoid Valve
- ③ Air Control Valve
- ④ Limit Switch
- ⑤ Junction Box
- ⑥ Pneumatic Actuator
- ⑦ Valve

Single Acting Switch Control Schematic Diagram



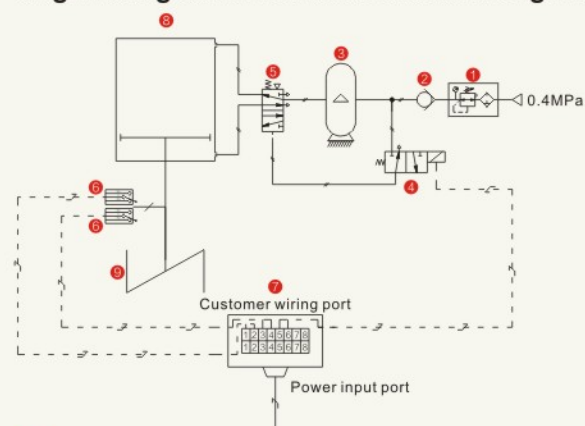
- ① Pressure Reducing Valve
- ② Solenoid Valve
- ③ Air Control Valve
- ④ Limit Switch
- ⑤ Junction Box
- ⑥ Pneumatic Actuator
- ⑦ Valve

Double Acting Regulation Control Schematic Diagram



- ① Pressure Reducing Valve
- ② Positioner
- ③ Amplifier
- ④ Limit Switch
- ⑤ Junction Box
- ⑥ Pneumatic Actuator
- ⑦ Valve

Double Acting With Storage Tanks To Achieve Single Acting Switch Control Schematic Diagram



- ① Pressure Reducing Valve
- ② Check Valve
- ③ Air Storage Tank
- ④ Solenoid Valve
- ⑤ Air Control Valve
- ⑥ Limit Switch
- ⑦ Junction Box
- ⑧ Pneumatic Actuator
- ⑨ Valve

Order Notice

NSF Series Valve Pneumatic Actuator is a complex automatic control instrument, which is composed of pneumatic actuator, valve, various pneumatic components and accessories. Users can select each component in detail according to the needs of field control, and mark it on the technical contract.

Pneumatic Actuators

Air source pressure, action mode, cylinder thrust, full travel time, connecting bracket and manual mechanism;

Valves

Specification model, nominal pressure, nominal size, valve thrust, flow medium, actual working pressure, use temperature, installation position;

Filter Pressure Reducing Valve

Brand and model, oil mist, automatic drainage, operating temperature, valve body and pressure gauge material, air source interface size;

Travel Switch

Brand and model, mechanical or proximity, DPDT or SPDT or P&F, protection level, explosion-proof level, electrical interface size, accessory material;

Solenoid Valve

Brand and model, double-acting or single-acting, single or double electric control, two-position three-way or two-position five-way, voltage, power, protection level, explosion-proof level, electrical interface size, air source interface size, operating temperature, manual operation;

Positioner

Brand and model, double-acting or single-acting, protection level, explosion-proof level, input signal, output signal, feedback signal, feedback bracket, HART module, LED display, use temperature, accessory material;

Other Annexes

Pneumatic control valve, one-way valve, quick discharge valve, speed regulating valve, lock valve, speed increasing amplifier, etc.;

Special Requirements

Material, paint, interface size, installation space, etc., please contact NUTORK sales representative;

Order Information

Example	NSF	520	FC	—	1P	—	100	—	SM2	—	JS	NSF series, 520mm bore, single action with spring normally closed type actuator, single piston motion, 100mm stroke, with SM2 side -mounted bevel gear manual mechanism, with JS manual deceleration mechanism
Series	NSF											NSF Series Linear Stroke Pneumatic Actuator
Cylinder Size	520											NUTORK The Technician Selects According To The Thrust
Working Form		DA	—									Double Acting
		FC	—									Failure Close Spring Return
		FO	—									Failure Open Spring Return
Number of Pistons		1P	—									Single Piston Movement
		2P	—									2P-Double Piston Linkage (Two Cylinders Have Different Strokes)
		2D	—									2D-Double Piston Linkage (Two Cylinders Have The Same Stroke)
Actuator Stroke		10~2000		—								NUTORK The Technicians Design According To Customer Requirements
Manual Mechanism		TM1	—									Overhead Screw Manual
		TM2	—									Switching Overhead Manual
		TM3/4/5	—									Overhead Side Mounted Bevel Gea Manual (Three Gears Are Optional)
		SM1/2/3	—									Central Side Mounted Bevel Gears Manual (Three Gears Are Optional)
		FSM1/2/3	—									Fully Sealed Bevel Gear Side Mounted Manual (Three Gears Are Optional)
		BA	—									Overhead Side Mounted Turbine Manual (Six Gears Are Optional)
		HD	—									Hvdraulic Manual (With Hvdraulic Cylinder)
Other Accessories		JS										Manual Reduction Mechanism
		ZJ										Valve Bracket
		HB										HALF Block
		GT										Gas Tank

Common Faults And Troubleshooting/After-Sales Service

Common Faults And Troubleshooting Methods

Failure Phenomenon	Check Item	Method Of Exclusion
Valve does not move	Whether the solenoid valve is normal, whether the coil is burned out, whether the solenoid valve core is stuck by dirt	Replace solenoid valve, replace coil, remove dirt
	Separately supply air to the actuator and check whether it is working properly. Open the actuator to check whether the seal is damaged and the inner surface of the cylinder is damaged	Replace the damaged seal ring, replace the cylinder
	Impurities in the valve jam the ball core	Remove impurities and replace valve parts
	The handle of the manual operating mechanism is in the manual position	Move the handle to the automatic position
Valve action is slow and crawling	Insufficient air pressure	Increase air pressure
	Pneumatic actuator thrust is too small	Increase actuator model specifications
	The valve core or other valve parts are too tight and unreasonable	Repair assembly, adjust thrust
	The air supply pipeline is blocked and the flow is too small	Eliminate blockage
No signal from echo	Signal power line, short circuit, open circuit	Repair power lines
	Inaccurate position of concave wheel	Adjust the concave wheel to the correct position
	Damaged micro switch	Replace the micro switch

After-Sales Service

The company's products will implement the "Three Guarantees" within one year from the date of leaving the factory. If customers need technical consultation or troubleshooting during order inspection and use, please contact our sales department and after-sales service. We will do so as quickly as possible. Solve your problems and meet your requirements!