



The art of power and perfection



**SY-N-series Scotch Yoke Actuator**





The art of power and perfection

ACTREG, established in 1992, is a multinational company specializing in the manufacture and sales of high quality actuators for valves requiring a rotary quarter turn movement for either On/Off or modulating duty. The expertise and know how has made ACTREG leader in actuation technology.



ACTREG provides world coverage thanks to the strategic locations of its factories and offices. The international distribution ensures quick availability and more important, personalized service for valve manufacturers, valve stocking distributors and contractors.

ESTABLISHED IN  
**1992**

INTERNATIONAL  
**Distribution**

DESIGN &  
**Quality**

PERSONALIZED  
**Service**



The art of power and perfection

We are a manufacturer of rack and pinion aluminium housing actuators with torque figures up to 6,500 Nm and scotch yoke actuators for heavy duty service up to 120,000 Nm. Our products offer reliable and dependable automation for  $\frac{1}{4}$  turn valves.

Engineered and built to withstand most of the applications and environmental conditions, the precision in design and quality provides a long and safe operational performance in valve control.

ACTREG has invested in quality assurance, state-of-the-art machining and testing facilities in order to assist customers in safely controlling their processes.

ACTREG engineers are happy to help you with your automation requirements.

A silhouette of an industrial facility, including tall chimneys and storage tanks, set against a sunset sky with orange and blue hues. The scene is reflected in water in the foreground.

# The art of power and



SCOTCH YOKE  
**Heavy duty service**

TORQUES UP TO  
**120,000 Nm**

ACTUATORS IN  
**28 different sizes**

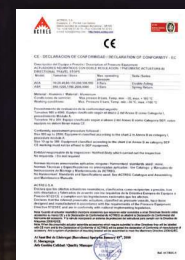
## Certificates

ACTREG,S.A. has a Quality Management System certified in accordance with the requirements of ISO 9001:2008 for the design, development, manufacturing and distribution of pneumatic actuators and accessories for valves. Certified by BVQI NO.ESPMDD005463.

In accordance with the requirements of pressure equipment directive 2014/68/EU.

All ACTREG pneumatic actuators are classified for use in potentially explosive atmospheres as Group II Category 2, suitable for zones 1, 2, 21 and 22 in accordance with Annex VIII of Directive 2014/34/EU (ATEX). Technical file is deposited to LCIE, No. LCIE 11 AR 011.

ACTREG pneumatic actuators have SIL 3 (Safety Integrity level 3) certificate. The ACTREG actuators meets manufacturer design process requirements of Safety Integrity Level (SIL) 3. This is intended to achieve sufficient integrity against systematic errors of design by the manufacturer.



# perfection

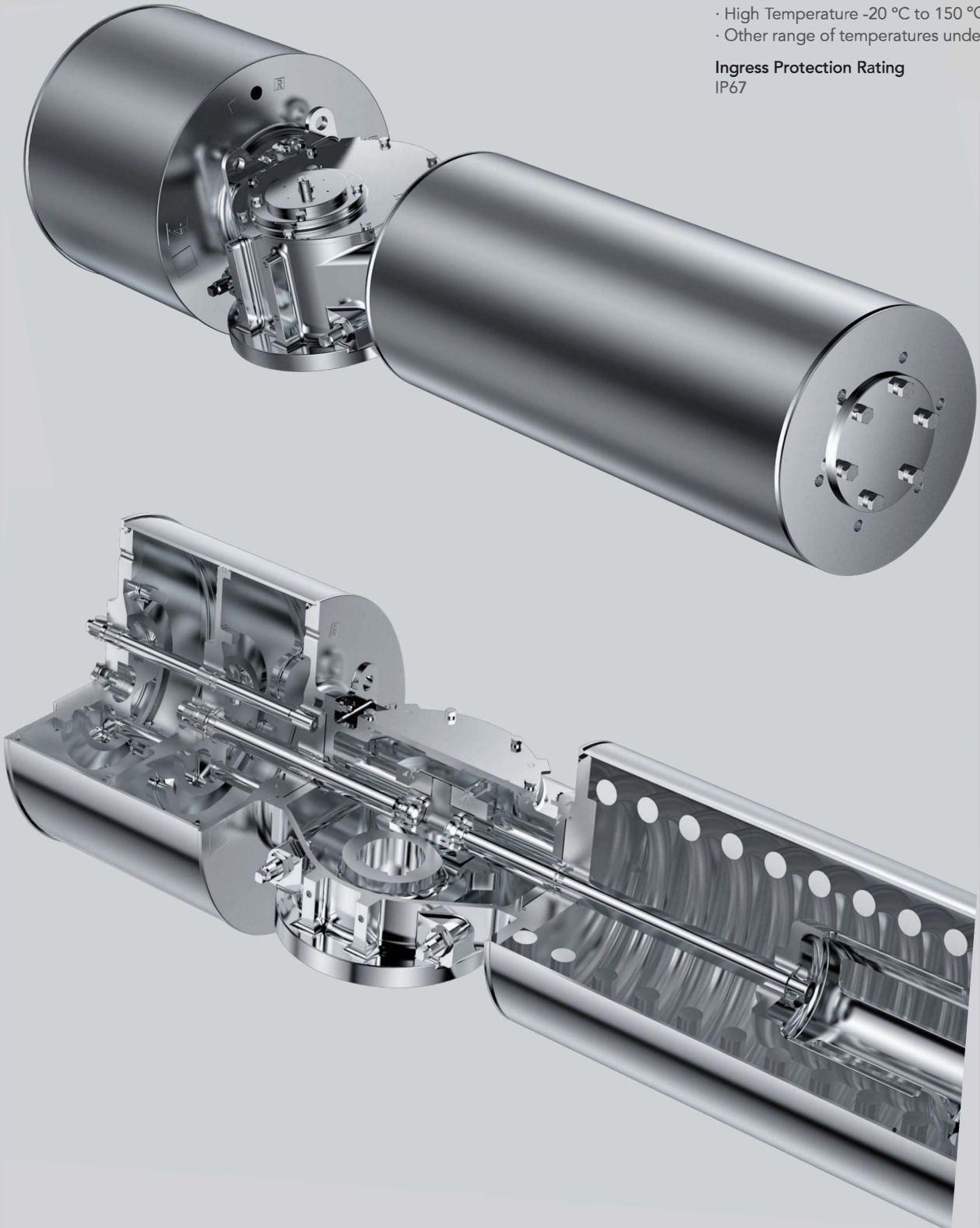
# MAIN FEATURES & CHARACTERISTICS

**Pneumatic pressure**  
Up to 8 bar

**Torque output**  
Up to 120,000 Nm

**Temperature ranges**  
· Standard -40° C to 80 °C  
· High Temperature -20 °C to 150 °C  
· Other range of temperatures under request.

**Ingress Protection Rating**  
IP67

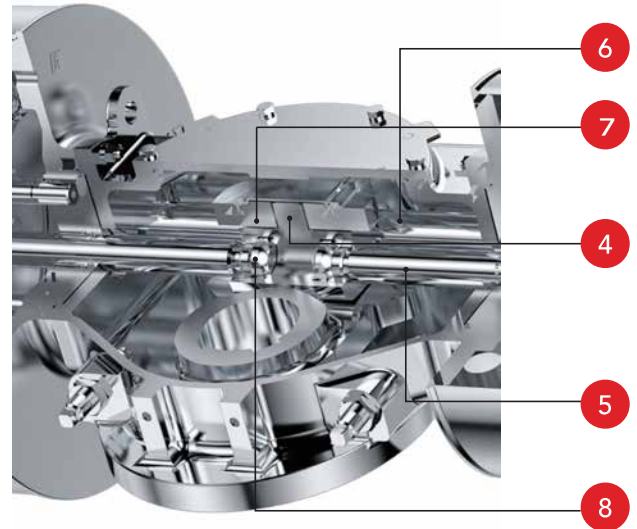


## BODY



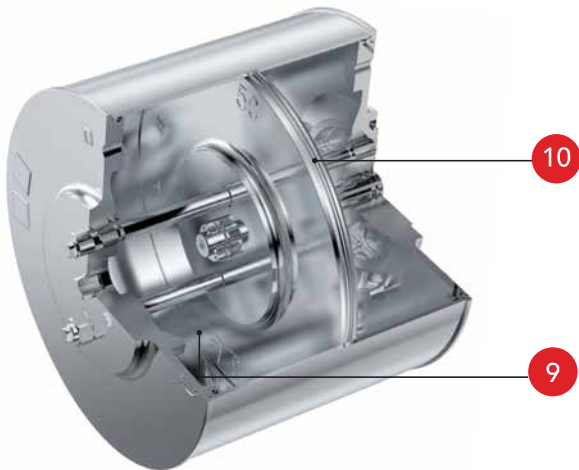
- + 7 different sizes from F14 (600 Nm) up to F48 (120.000 Nm).
- 1 Internal O-rings to ensure water ingress protection.
- 2 NAMUR standard for all sizes for assembly of switch boxes and positioners.
- 3 Threaded parts in front and the back side of the body for easy assembly of a pneumatic control panel.
- 4 Roller is used, reducing the friction between the yoke arm and pin, minimizing the wear.

## INTERNAL BODY PARTS



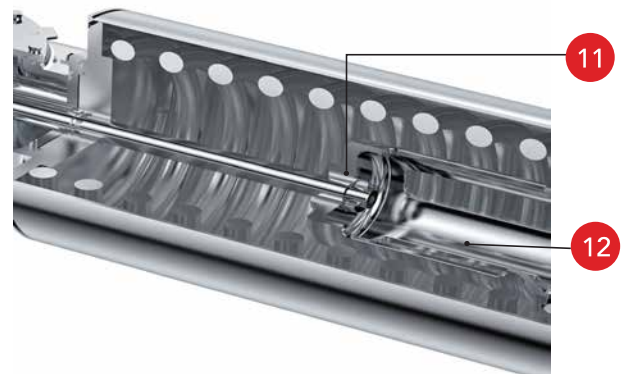
- 5 Replaceable bearings protect the sliding and rotating components, suitable for either dry or lubricated working conditions.
- 6 Hard chrome alloy steel thrust bar prevents yoke pin axial movement, transferring axial loads directly to the drive module case.
- 7 Yoke connects the piston rod with the guide block, compensating for side load deflection and reducing wear on rod, bearings and seals.
- 8 Movable joint reduced friction caused by tolerance and for easy assembly of pneumatic power module and spring module.

## PNEUMATIC CYLINDER



- 9 **PNEUMATIC CYLINDER**  
The inner surface of cylinder is coated with PTFE, to prevent resistance and self-lubricating.
- 10 **PISTONS SEALS**  
Double sealing, with O-ring and dynamic ring to prevent metal to metal contact between the piston and the cylinder.

## SPRING MODULE

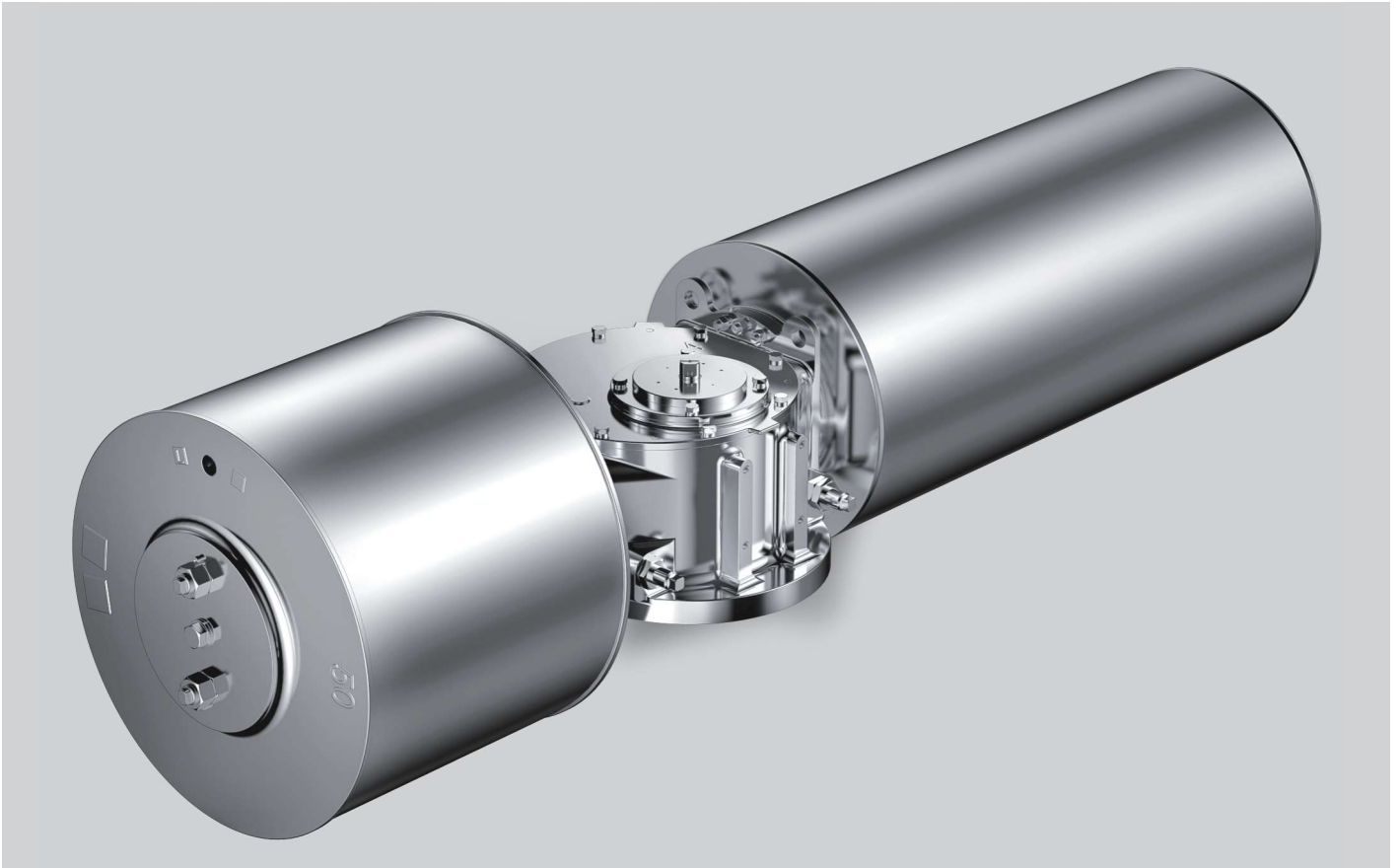


- 11 Safe spring Lock, prevents spring module detachment from the drive module.
- 12 Internal Hydraulic cylinder for manual pump override.



# CHARACTERISTICS & FEATURES

## Versatility

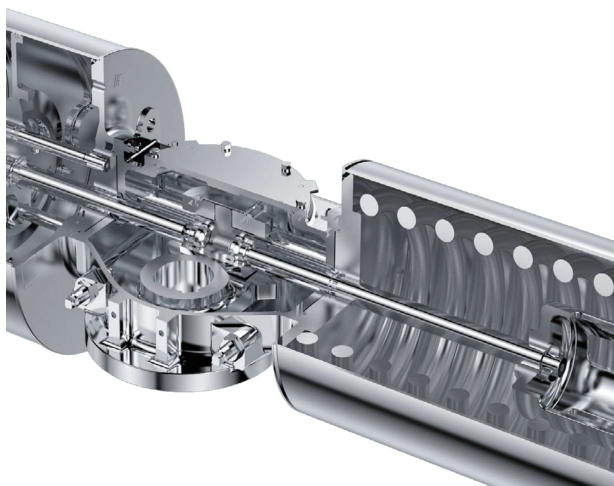


Every ACTREG SY-N series actuator is built to provide long end efficient service with minimum maintenance. The design, engineering and materials used in their construction ensure optimum performance even in the hardest environments.

Totally enclosed weatherproof centre-body and caps provided with o-rings to ensure the water ingress protection.

The centre-body has a guide that supports transverse forces of the scotch and yoke mechanism and ensures proper alignment of the piston rod.

External travel stop screws allow a precise valve angular stroke adjustment between 80° to 100°.

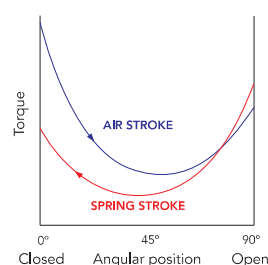


The SY-N actuators are manufactured in many different combinations of actuator sizes, cylinder diameters, and double or spring return action is available for installation on ¼ turn valves. SY-N actuators are designed for use over a wide range of pressures or temperatures.

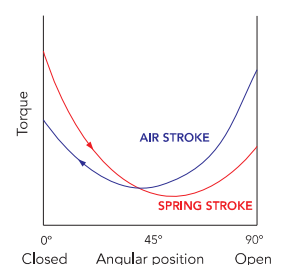
The scotch and yoke mechanism is available in symmetric design offering a more constant torque with minimum cost and weight.

The SY-N actuator is a modular design. A pneumatic or hydraulic cylinder can be attached, to either side or both sides. With a large stock of finished and semi-finished components always available, actuators can be assembled and supplied with very fast and reliable deliveries.

Symmetric yoke mechanism  
Spring to close



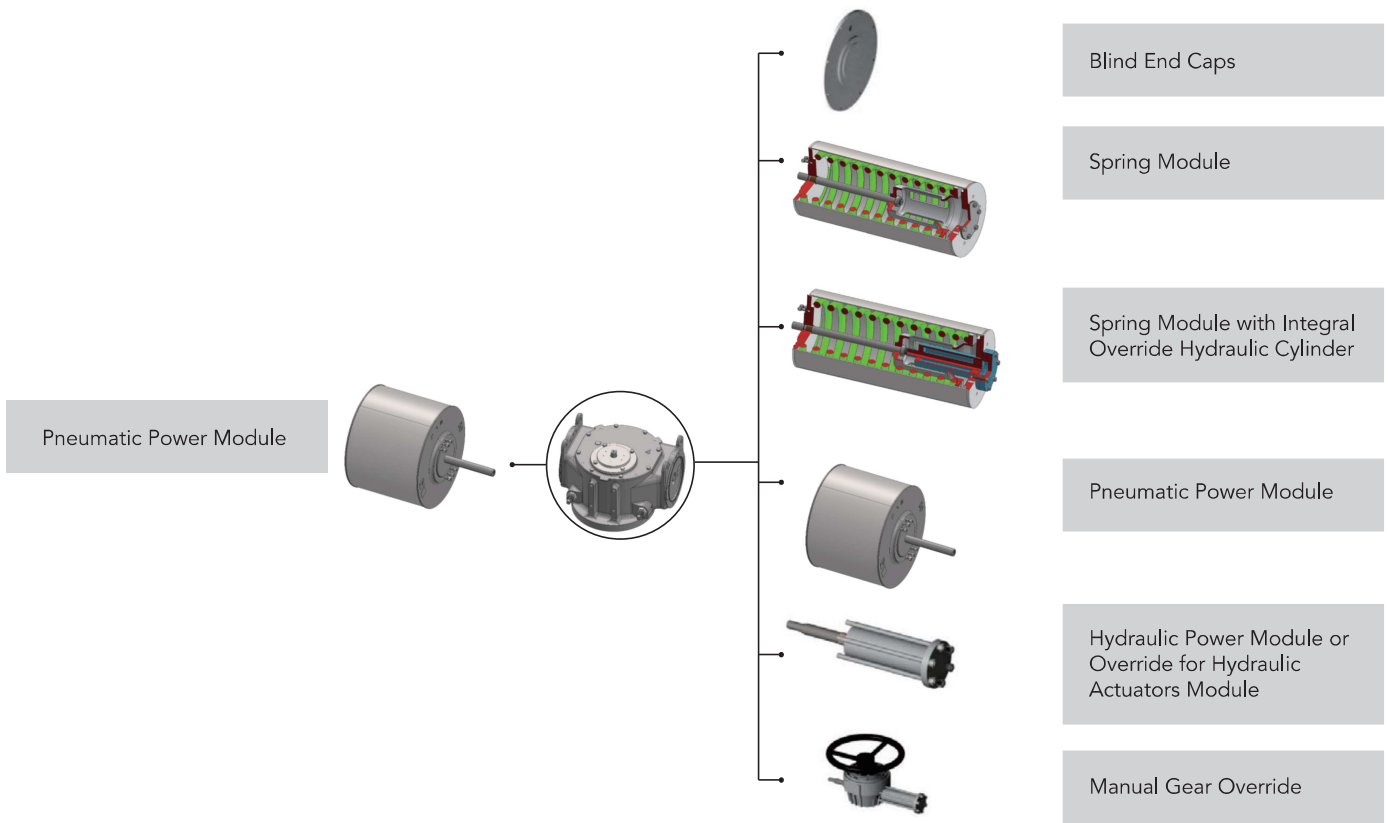
Symmetric yoke mechanism  
Spring to open





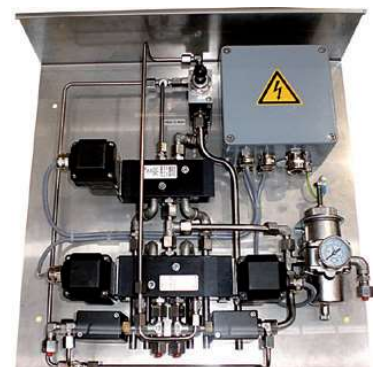
# MODULAR VERSATILITY

SY-N series actuators are the module-in design which consists of the different module. The different functions is available in the different combinations.



# CONTROL PANELS AND SPECIFIC SOLUTIONS

ACTREG has the capability to intergrate our actuators in a complete pneumatic and hydraulic control system to cover all the needs that valve automation requirements. Our engineers have a deep knowledge of controls and pneumatic and hydraulic systems.



# MAINFEATURES & CHARACTERISTICS

## Pneumatic pressure

3-8 bar

## Torque output

400 to 120,000 Nm

## Temperature ranges

- Standard -40° C to 80 °C
- High Temperature -20 °C to 150 °C
- Other range of temperatures under request.

## Configuration of manual mechanism

### Standard Configuration

Name of manual	Matching actuator model	
HG (worm gear mechanism)	SY01NF14	Double Acting
	SY01NF16	
	SY01NF25	
HY (hydraulic manual)	SY01NF30	
	SY01NF35	
	SY01NF40	
	SY01NF48	
HW (screw mechanism)	SY01NF14	Spring Return
	SY01NF16	
	SY01NF25	
HW1 (bevel gear unit)	SY01NF30	
	SY01NF35	
HY (hydraulic manual)	SY01NF40	
	SY01NF48	

### Optional Configuration

Name of manual mechanism	Matching actuator model	
HW (screw mechanism)	SY01NF14	Double Acting
	SY01NF16	
	SY01NF25	
HW1 (bevel gear unit)	SY01NF30	
	SY01NF35	
HW1 (bevel gear unit)	SY01NF25	
HY (hydraulic manual)	SY01NF35	

## CHARACTERISTICS

1. Internal o' rings to ensure water ingress protection.
2. NAMUR standard for all sizes for assembly of switch boxes and positioners.
3. Threaded parts in front and the back side of the body for easy assembly of a pneumatic control panel.
4. Round rolled is used, reducing the friction between the yoke arm and pin, minimizing the wear.
5. Replaceable bearings protect the sliding and rotating components, suitable for either dry or lubricated working conditions.
6. PTFE thrust bar prevents yoke pin axial movement, transferrin axial loads directly to the drive module case.
7. Connects the piston rod with the guide block, compensating for side load deflection and reducing wear on rod, bearings and seals.
8. The inner surface of cylinder is coated by PTFE, to prevent resistance and self-lubricating.

## VOLUME AND SIZE

No.	SPRING RETURN		DOUBLE ACTION		AIR INLET SIZE	
	Series	Consumption (L)	Series	Consumption (L)	Cylinder	Size
1	SY01NF14-200	6.8	SY01NF14-200	13.6	200	Rc 3/8"
2	SY01NF14-250	10.6	SY01NF14-250	21.2	250	Rc 1/2"
3	SY01NF14-300	15.4	SY01NF14-300	30.8	300	Rc 1/2"
4	SY01NF16-250	10.6	SY01NF14-350	36.4	350	Rc 1/2"
5	SY01NF16-300	15.4	SY01NF16-250	21.2	400	Rc 3/4"
6	SY01NF16-350	18.2	SY01NF16-300	30.8	450	Rc 3/4"
7	SY01NF16-400	21.3	SY01NF16-350	36.4	500	Rc 3/4"
8	SY01NF25-300	18.4	SY01NF16-400	42.6	600	Rc 3/4"
9	SY01NF25-350	21.7	SY01NF25-300	36.8	700	Rc 1"
10	SY01NF25-400	27.5	SY01NF25-350	43.4	800	Rc 1-1/2"
11	SY01NF25-450	34.8	SY01NF25-400	55.0	900	Rc 1-1/2"
12	SY01NF25-500	43.1	SY01NF25-450	69.6	1000	Rc 2"
13	SY01NF30-350	26.6	SY01NF25-500	86.2		
14	SY01NF30-400	33.7	SY01NF30-400	67.4		
15	SY01NF30-450	42.7	SY01NF30-450	85.4		
16	SY01NF30-500	53.0	SY01NF30-500	106.0		
17	SY01NF30-600	76.0	SY01NF30-600	152.0		
18	SY01NF35-500	59.0	SY01NF35-500	118.0		
19	SY01NF35-600	100.0	SY01NF35-600	200.0		
20	SY01NF35-700	145.0	SY01NF35-700	290.0		
21	SY01NF40-600	124.0	SY01NF35-800	378.0		
22	SY01NF40-700	180.0	SY01NF40-700	360.0		
23	SY01NF40-800	234.0	SY01NF40-800	468.0		
24	SY01NF40-900	296.0	SY01NF40-900	592.0		
25	SY01NF48-700	214.0	SY01NF48-700	428.0		
26	SY01NF48-800	275.0	SY01NF48-800	550.0		
27	SY01NF48-900	353.0	SY01NF48-900	706.0		
28	SY01NF48-1000	430.0	SY01NF48-1000	860.0		





# SPRING RETURN

ACTUATOR TORQUE OUTPUT(Nm)																								SPRING TORQUE			
Series	3 Bar			3.5 Bar			4 Bar			5 Bar			5.5 Bar			6 Bar			7 Bar			8 Bar			Start	Running	End
	Start	Running	End	Start	Running	End	Start	Running	End	Start	Running	End	Start	Running	End	Start	Running	End	Start	Running	End	Start	Running	End			
SY01NF14-200-SR4				541	258	437	713	348	608	1055	530	951	1226	620	1121	1398	710	1293	1736	889	1633	2079	1069	1974	696	342	600
SY01NF14-200-SR3													678	307	486	849	398	658	1191	578	999	1533	759	1341	1274	626	1098
SY01NF14-250-SR3				724	331	532	999	476	807	1549	766	1357	1824	912	1632	2099	1057	1907	2649	1347	2457	3199	1637	3007	1274	626	1098
SY01NF14-300-SR3	1183	574	991	1581	784	1389	1978	993	1787	2773	1413	2581	3171	1623	2979										1274	626	1098
SY01NF14-250-SR2				559	228	303	833	372	577	1383	663	1128	1659	808	1403	1933	953	1678	2484	1244	2228	3034	1534	2778	1483	721	1249
SY01NF14-300-SR2	1018	469	762	1415	680	1160	1813	889	1557	2608	1309	2352	3005	1519	2750										1483	721	1249
SY01NF14-250-SR1							645	263	350	1195	553	900	1471	698	1176	1746	844	1451	2296	1134	2001	2846	1424	2551	1691	822	1421
SY01NF14-300-SR1	830	360	535	1227	570	932	1625	780	1330	2420	1199	2125	2818	1409	2523	3215	1619	2920							1691	822	1421
SY01NF14-350-SR1	1305	611	1010	1781	862	1486	2258	1114	1963	3211	1617	2916													1691	822	1421
SY01NF16-250-SR3										1329	535	700	1668	715	1039	2008	893	1378	2686	1251	2056	3365	1609	2735	2461	1147	1886
SY01NF16-300-SR3				1369	557	739	1859	815	1230	2839	1333	2210	3329	1591	2700	3820	1850	3190	4801	2368	4171	5781	2885	5152	2461	1147	1886
SY01NF16-350-SR3	1464	606	834	2052	917	1422	2639	1227	2010	3815	1848	3185	4403	2157	3773	4991	2468	4361	6166	3088	5537				2461	1147	1886
SY01NF16-400-SR3	2591	1202	1962	3367	1611	2737	4143	2021	3513	5695	2839	5065													2461	1147	1886
SY01NF16-250-SR2													1351	542	706	1690	722	1045	2369	1080	1724	3047	1438	2402	2765	1304	2176
SY01NF16-300-SR2							1541	643	896	2522	1161	1877	3012	1419	2367	3503	1678	2858	4482	2196	3837	5463	2713	4818	2765	1304	2176
SY01NF16-350-SR2				1733	745	1089	2322	1055	1677	3498	1675	2853	4086	1986	3441	4673	2296	4028	5849	2917	5204				2765	1304	2176
SY01NF16-400-SR2	2274	1030	1629	3050	1431	2405	3826	1849	3181	5377	2668	4732	6153	3077	5508										2765	1304	2176
SY01NF16-300-SR1										1954	797	1067	2930	1196	1601	2934	1314	2048	3915	1832	3027	4896	2349	4008	3506	1636	2695
SY01NF16-350-SR1							1754	692	867	2929	1312	2043	3517	1623	2631	4105	1932	3218	5281	2553	4394				3506	1636	2695
SY01NF16-400-SR1	1706	666	819	2482	1076	1595	3257	1485	2371	4809	2304	3922	5585	2713	4698										3506	1636	2695
SY01NF25-300-SR3										2484	1037	1444	3074	1348	2034	3664	1659	2624	4842	2281	3803	6022	2904	4983	4068	1896	3119
SY01NF25-350-SR3							2244	910	1205	3658	1656	2618	4365	2029	3325	5071	2403	4032	6485	3149	5447	7900	3895	6860	4068	1896	3119
SY01NF25-400-SR3	2185	880	1147	3120	1372	2080	4052	1864	3013	5918	2849	4879	6851	3342	5811	7784	3834	6744	9650	4819	8611	11516	5804	10477	4068	1896	3119
SY01NF25-450-SR3	3712	1685	2673	4899	2312	3861	6088	2938	5048	8462	4192	7423	9650	4819	8611	10837	5446	9798							4068	1896	3119
SY01NF25-500-SR3	5442	2598	4403	6918	3377	5879	8393	4155	7355	11345	5713	10306													4068	1896	3119
SY01NF25-300-SR2													2585	1051	1397	3175	1362	1986	4353	1985	3165	5533	2606	4345	4651	2168	3565
SY01NF25-350-SR2										3169	1359	1981	4096	2038	2970	4583	2105	3394	5997	2852	4808	7411	3598	6223	4651	2168	3565
SY01NF25-400-SR2				2631	1075	1441	3563	1567	2375	5429	2552	4241	6362	3044	5174	7295	3537	6107	9162	4521	7972	11027	5507	9839	4651	2168	3565
SY01NF25-450-SR2	3223	1388	2035	4412	2015	3222	5599	2641	4411	7973	3895	6785	9161	4521	7972	10349	5148	9160							4651	2168	3565
SY01NF25-500-SR2	4954	2301	3765	6429	3080	5241	7905	3859	6716	10856	5416	9668													4651	2168	3565
SY01NF25-400-SR1							2405	862	862	4270	1847	2729	5203	2340	3662	6136	2831	4595	8003	3817	6461	9869	4802	8326	6032	2812	4624
SY01NF25-450-SR1				3252	1310	711	4440	1936	2898	6815	3190	5273	8003	3817	6460	9190	4444	7648	11564	5697	10023				6032	2812	4624
SY01NF25-500-SR1	3795	1596	2253	5270	2375	3729	6746	3153	5204	9697	4711	8156	11173	5490	9632										6032	2812	4624



# OTHER PRODUCTS



## RACK & PINION

- Compact pneumatic actuators.
- Aluminium housing.
- Rack and pinion design.
- Up to 6421 Nm.
- ATEX.
- SIL 3.
- CE.
- VDI/VDE 3845.
- ISO 5211.
- EN-15714.



## DECLUTCHABLE GEAR BOXES

- Aluminium Housing.
- Rugged construction.
- Sealed to IP-65.
- ACTREG's Actuators direct mounting.
- Compact design-low weight.
- Integral top flange.
- User friendly.
- Double adjustment stroke.



## BRACKETS AND COUPLINGS

- Stainless steel, carbon steel or other materials upon request.
- Machined for every kind of valve.



## SWITCH BOXES

- Micromechanical switches or inductive switches.
- Inductive switches for direct mounting.
- ATEX execution.
- Feedback and positioner.



## PNEUMATIC CONTROL DESIGNS

- Solenoid valves, filters, quick exhaust valves, tubing, regulators...
- Line Break systems.
- Emergency shut down systems.
- Design and manufacturing control cabinets.
- Remote control cabinets.



## SPECIAL ACTUATORS

- FIRE-proof.
- Fast acting actuators.
- 100% adjustment stroke actuators.
- Special coatings.
- Special actuators for critical applications.



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