

Construction

This pneumatic quarter turn actuator works according to the double piston rack and pinion principle, and is available as a double acting (ADA) or single acting (ASR) version. It is ideal for mounting on butterfly valves and ball valves with standardised interfaces in accordance with ISO 5211 or DIN 3337 (F03-F25). To attach accessories, defined mounting facilities are also available in accordance with VDI/VDE 3845 and NAMUR (control air connector).

Features

Housing

- **Version A:** The aluminium housing is hard-anodised on both the inside and the outside. This treatment means that the surface will be extremely abrasion-resistant (which leads to reduced wear of the adjacent, dynamic components). In addition, this means that a good level of resistance against external environmental influences (e.g. industrial atmosphere) can be achieved. The end caps are provided with an epoxy coating (80-90 µm).
- **Version F:** The aluminium housing and the end caps are provided with a high-quality epoxy coating (80-90 µm). Shaft and screws are made of stainless steel. This achieves an excellent level of corrosion protection. This type of coating has been tried and tested in the offshore sector and in buildings that have permanent condensation and severe air pollution, among others.


Optical position indicator

The multifunction indicator is used as an optical position indicator. It can also be used to operate mechanical or inductive switches for the electronic position feedback.

Setting end positions

The setting range is $\pm 5^\circ$ (85° to 95°). This adjustment facility has been designed to be extremely easy to operate and is implemented using a precise cam system. The settings can be implemented without removing the actuator. By using a stroke limiter (optional), the end positions can be set variably between 0° and 90°.

Advantages

- Robust design
- Low-wear
- High cycle duties
- Reliable and proven actuator design
- Flexible and versatile
- Simple installation
- Easy setting of switch points
- ATEX version  II 2G/D c LCIE 05 AR 022 (optional)
- SIL 3 certified
- Actuator in accordance with EN ISO 15714-3



**GEMÜ ADA
with electrical position
indicator GEMÜ LSF**

Technical data

Control medium

Filtered, dry compressed air, non-corrosive medium

Control pressure

6 - 8 bar

Temperature range

-30 to +100 °C, other temperatures on request

Angle of rotation

(± 5° adjustable), (85°- 95°)

90°

Weight [kg]

Typ	00010	0020U	0040U	0080U	0130U	0200U	0300U	0500U	0850U	1200U	1750U	2100U	2500U	4000U
ADA	0.6	1.4	2.1	3.0	3.8	5.6	8.5	11.2	16.9	25.8	32.5	49.7	69.6	129.4
ASR	-	1.5	2.3	3.7	4.8	7.3	10.8	15.4	22.2	34.3	46.0	68.0	99.9	182.9

Single acting actuators		Double acting actuators				
Order code	Actuator code	Order code	Actuator code	EN ISO 5211		
				Flange type	Hub	SW
-	-	ADA00010 F03Y S09A	BO01AT0	F03	S	9
-	-	ADA00010 F04Y S09A	BO01AZ0	F04	S	9
ASR0020U S08 F03F05Y S09A	AU02FN0	ADA0020U F03F05Y S09A	BU02AN0	F03/F05	S	9
ASR0020U S08 F04Y S14A	AU02FA0	ADA0020U F04Y S14A	BU02AA0	F04	S	14
ASR0020U S08 F05Y S14A	AU02FB0	ADA0020U F05Y S14A	BU02AB0	F05	S	14
ASR0040U S14 F04Y S14/S11A	AU04KA0	ADA0040U F04Y S14/S11A	BU04AA0	F04	S	14
ASR0040U S14 F05Y S14/S11A	AU04KB0	ADA0040U F05Y S14/S11A	BU04AB0	F05	S	14
ASR0080U S14 F05F07Y S17/S14A	AU08KC0	ADA0080U F05F07Y S17/S14A	BU08AC0	F05/F07	S	17
ASR0130U S14 F05F07Y S17/S14A	AU13KC0	ADA0130U F05F07Y S17/S14A	BU13AC0	F05/F07	S	17
ASR0200U S14 F07F10Y S17/S14A	AU20KE0	ADA0200U F07F10Y S17/S14A	BU20AE0	F07/F10	S	17
ASR0300U S14 F07F10Y S 22A	AU30KD0	ADA0300U F07F10Y S22A	BU30AD0	F07/F10	S	22
ASR0500U S14 F10Y S22A	AU50KF0	ADA0500U F10Y S22A	BU50AF0	F10	S	22
ASR0850U S14 F10F12Y S27A	AU85KG0	ADA0850U F10F12Y S27A	BU85AG0	F10/F12	S	27
ASR1200U S14 F10F12Y S27A	A12UKG0	ADA1200U F10F12Y S27A	B12UAG0	F10/F12	S	27
ASR1200U S14 F10F14Y S36A	A12UKH0	ADA1200U F10F14Y S36A	B12UAH0	F10/F14	S	36
ASR1750U S14 F14Y S36A	A17UKK0	ADA1750U F14Y S36A	B17UKK0	F14	S	36
ASR2100U S14 F14Y S36A	A21UKK0	ADA2100U F14Y S36A	B21UAK0	F14	S	36
ASR2100U S14 F16Y S46A	A21UKL0	ADA2100U F16Y S46A	B21UAL0	F16	S	46
ASR2500U S14 F14Y S36A	A25UKK0	ADA2500U F14Y S36A	B25UAK0	F14	S	36
ASR2500U S14 F16 Y S46 A	A25UKL0	ADA2500U F16 Y S46 A	B25UAL0	F16	S	46
ASR4000U S14 F16F25 Y S55 A	A40UKM0	ADA4000U F16F25 Y S55 A	B40UAM0	F16/F25	S	55

Type	Air volume [L]		Switching time* [Sec.]			
	opening	closing	ADA opening	ADA closing	ASR opening	ASR closing
00010	0.04	0.03	0.03	0.07	-	-
0020U	0.13	0.09	0.04	0.09	0.12	0.18
0040U	0.27	0.23	0.08	0.08	0.20	0.29
0080U	0.64	0.47	0.11	0.10	0.27	0.40
0130U	0.77	0.76	0.15	0.15	0.32	0.50
0200U	1.19	1.20	0.15	0.22	0.50	0.60
0300U	1.96	1.73	0.30	0.40	0.70	0.85
0500U	2.95	2.74	0.40	0.50	0.90	1.10
0850U	4.70	3.86	0.80	0.90	2.20	2.60
1200U	6.95	4.64	1.20	1.50	2.30	2.80
1750U	9.80	9.30	1.80	2.00	2.80	3.20
2100U	11.60	10.20	2.30	2.60	3.30	3.70
2500U	15.60	14.40	2.80	3.10	3.80	4.20
4000U	24.00	22.50	3.00	3.50	4.30	5.00

* Note: (A) The above switching times of the actuator were determined under the following test conditions:

(1) room temperature, (2) travel range 90°, (3) solenoid valve with ø 4 mm and flow Qn 400L/min., (4) internal ø 8 mm.
(5) Medium: lubricated air, (6) air pressure 5.5 bar (79.95 Psi), (7) actuator without external stress.

Attention : The switching times may be different under different conditions of use.

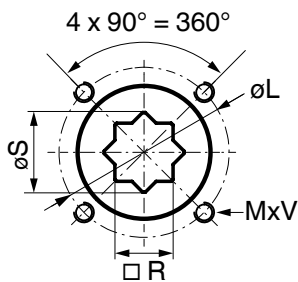
Technical data

Torques for double acting actuators - ADA [Nm]

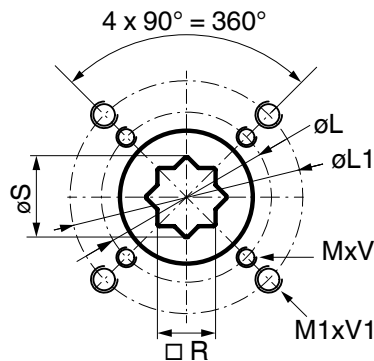
Type	3 bar	3.5 bar	4 bar	4.5 bar	5 bar	5.5 bar	6 bar	6.5 bar	7 bar	8 bar	Weight [kg]
00010	6.0	8.0	9.0	10.0	11.0	11.5	12.0	12.0	13.0	14.0	0.6
0020U	9.7	11.4	13.0	14.6	16.2	17.8	19.5	21.1	23.0	26.0	1.4
0040U	20.3	23.7	27.1	30.5	33.9	37.3	41.0	44.0	47.0	54.0	2.1
0080U	38.5	44.9	51.3	57.7	64.1	70.5	77.0	83.0	90.0	103.0	3.0
0130U	59.1	68.9	78.7	88.6	98.4	108.3	118.0	128.0	138.0	157.0	3.8
0200U	88.0	102.0	117.0	131.0	146.0	161.0	175.0	190.0	205.0	234.0	5.6
0300U	145.0	170.0	194.0	218.0	242.0	267.0	291.0	315.0	339.0	388.0	8.5
0500U	217.0	253.0	289.0	325.0	361.0	397.0	433.0	469.0	505.0	577.0	11.2
0850U	359.0	419.0	479.0	538.0	598.0	658.0	718.0	778.0	837.0	957.0	16.9
1200U	519.0	606.0	692.0	779.0	865.0	952.0	1038.0	1125.0	1211.0	1384.0	25.8
1750U	707.0	824.0	942.0	1060.0	1178.0	1295.0	1413.0	1531.0	1649.0	1884.0	32.5
2100U	1086.0	1267.0	1448.0	1629.0	1810.0	1991.0	2172.0	2353.0	2534.0	2869.0	49.0
2500U	1730.0	2019.0	2307.0	2596.0	2884.0	3172.0	3461.0	3749.0	4038.0	4614.0	69.6
4000U	2408.0	2809.0	3210.0	3612.0	4013.0	4414.0	4816.0	5217.0	5618.0	6421.0	129.4

Connection dimensions [mm]

ADA/ASR 00010, 0020U, 0040U,
0500U, 1750U, 2100U,
2500U

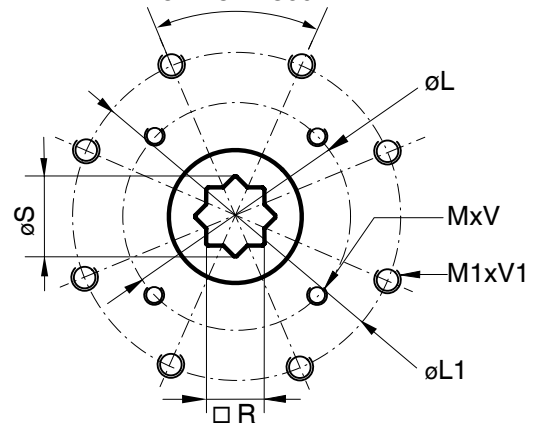


ADA/ASR 0020U, 0080U, 0130U,
0300U, 0850U, 1200U



ADA/ASR 4000U

8 x 45° = 360°

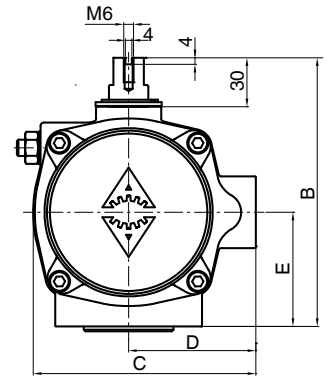
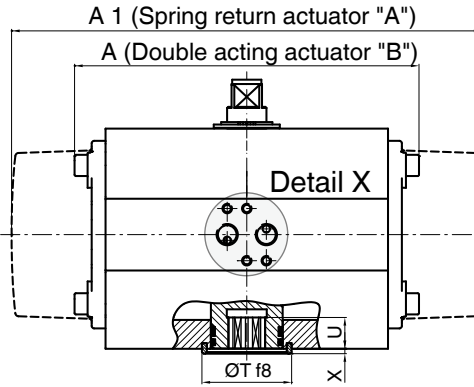
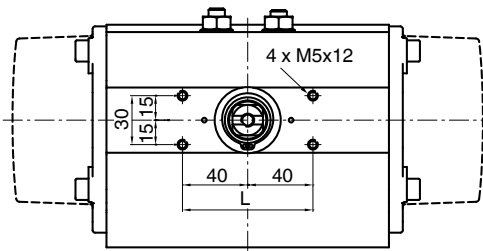


Connection ISO 5211

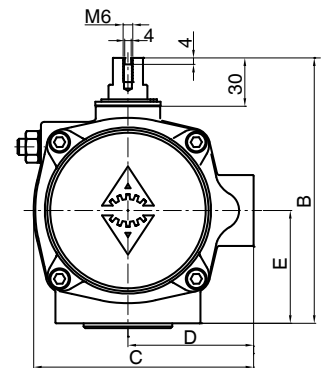
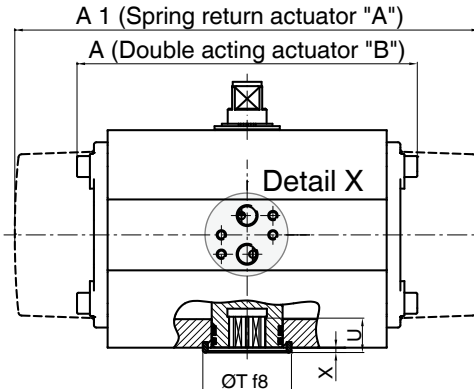
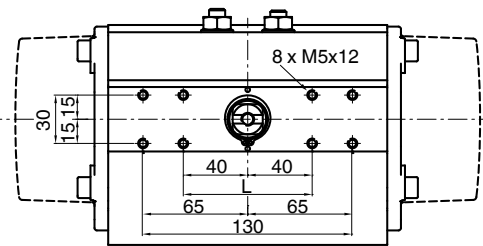
ADA/ASR	□ R	∅ S	ISO 5211	∅ L	M x V	ISO 5211	∅ L1	M1 x V1
00010	9	12.1	F03	36	M5x8	-	-	-
00010	9	12.1	F04	42	M5x8	-	-	-
0020U	9	12.5	F03	36	M5x8	F05	50	M6x10
0020U	14	18.1	F04	42	M5x8	-	-	-
0020U	14	18.1	F05	50	M6x10	-	-	-
0040U	14	18.1	F04	42	M5x10	-	-	-
0040U	14	18.1	F05	50	M6x10	-	-	-
0080U	17	22.5	F05	50	M6x10	F07	70	M8x16
0130U	17	22.5	F05	50	M6x10	F07	70	M8x16
0200U	17	22.5	F07	70	M8x16	F10	102	M10x16
0300U	22	28.5	F07	70	M8x16	F10	102	M10x16
0500U	22	28.5	F10	102	M10x16	-	-	-
0850U	27	36.5	F10	102	M10x17	F12	125	M12x20
1200U	27	36.5	F10	102	M10x17	F12	125	M12x20
1200U	36	48.5	F10	102	M10x17	F14	140	M16x20
1750U	36	48.5	F14	140	M16x26	-	-	-
2100U	36	48.5	F14	140	M16x26	-	-	-
2100U	46	60.2	F16	165	M20x29	-	-	-
2500U	36	48.5	F14	140	M16x26	-	-	-
2500U	46	60.2	F16	165	M20x29	-	-	-
4000U	55	72.5	F16	165	M20x30	F25	254	M16x30

Actuator dimensions ADA/ASR [mm]

ADA/ASR 00010-0850U

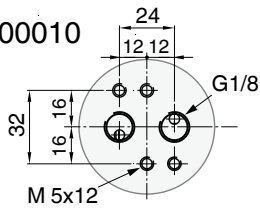


ADA/ASR 1200U-4000U

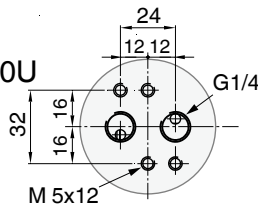


Detail X

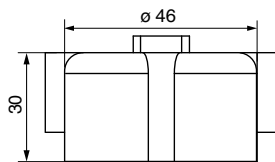
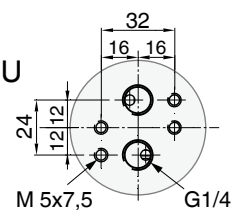
ADA 00010



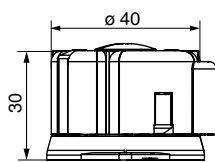
ADA/ASR 0020U-1750U



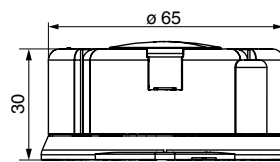
ADA/ASR 2100U-4000U



ADA 00010



ADA/ASR 0020U - 0850U

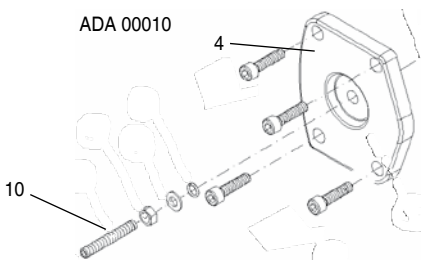
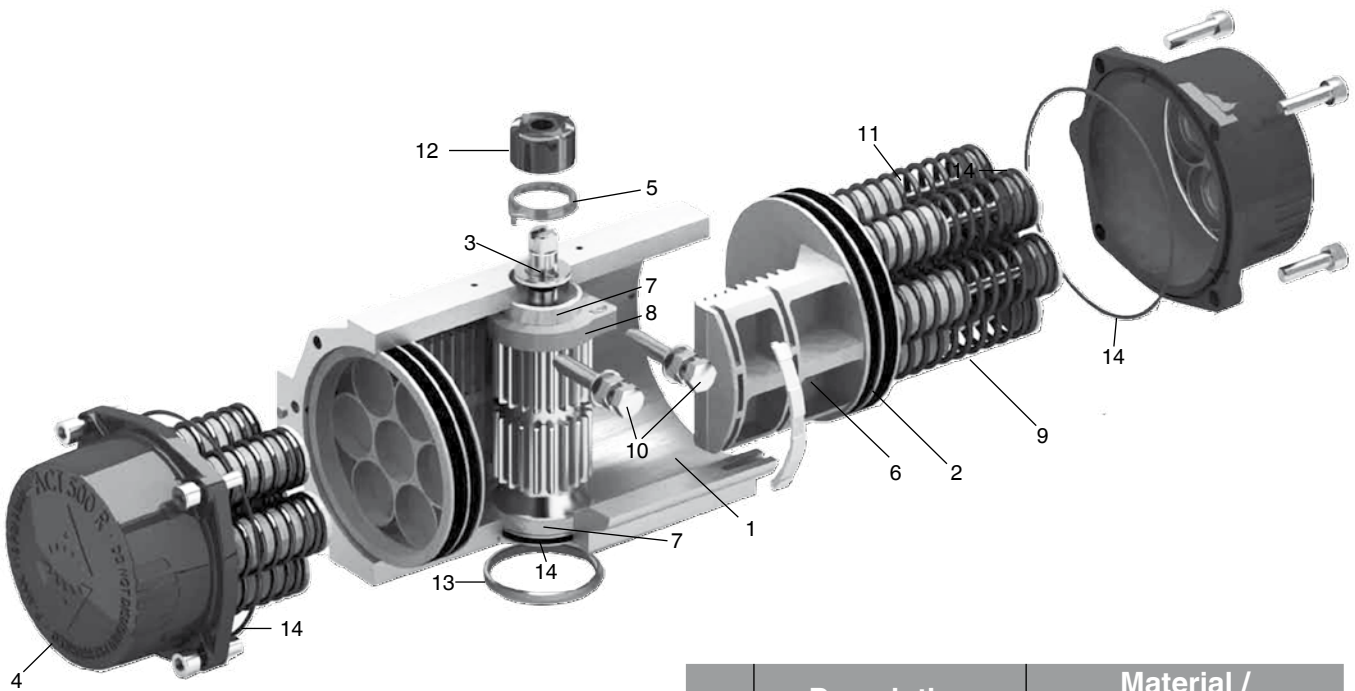


ADA/ASR 1200U - 4000U

ADA/ASR	00010	0020U		0040U	0080U	0130U	0200U	0300U	0500U	0850U	1200U		1750U	2100U	2500U	4000U
ISO 5211	F03 F04	F03 / F05	F04 F05	F04 F05	F05 / F07	F05 / F07	F07 / F10	F07 / F10	F10	F10 / F12	F10 / F12	F10 / F14	F14	F16	F14 F16	F16 / F25
Octagonal	9	9	14	14	17 (14)	17 (14)	17 (14)	22	22	27	27	36	36	46	36 46	55
Air connector	G 1/8	G 1/4		G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4		G 1/4	G 1/4	G 1/4	G 1/4
A	-	145	158	177	196	225	273	304	372	439	461	510	518	630		
A1	100	163	195	217	258	299	348.5	397	473	560	601	702	738	940		
B	76	96	115	137	147	165	182	199	221	249	280	313	383	434		
C	56	76	91	111	122	135.5	152.5	173	191.5	212.5	242.5	276.5	356	415		
D	33	48	56	66	71	78	86	96	106	116	131	148	177.5	213		
E	23	34	45	55	60	70	80	85	98	114	130	147	176.5	201		
L	50	80	80	80	80	80	80	80	80	80	80	80	80	80		
ØT	-	25	35	35	55	55	55	70	70	85	100	100	130	130	200	
U	12	10	12	12	19	22	23	24	32	39	48	50	50	58	60	
X	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	

(14) with adapter sleeve

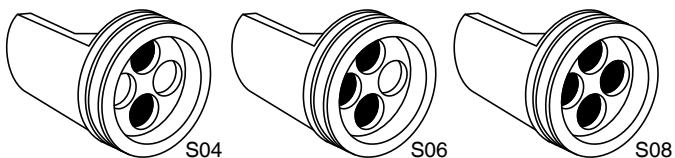
Standard actuator



	Description	Material / Specification
1	Housing	Aluminium
2	Piston	Aluminium
3	Shaft	C-steel, nickel coated
4	End caps	Aluminium, epoxy coated
5	Thrust washer	Polyamide PA 6.6
6	Sliding piston	Polyamide PA 6.6, 30% glass reinforced
7	Bearing	Polyamide PA 6.6
8	Setting of end positions	ASTM A 105
9	Spring sets	Polyamide PA 6.6
10	Adjusting screws	Stainless steel
11	Springs	DIN 2076 D-5.6
12	Position indicator	Polypropylene
13	Centring ring	Cast steel, nickel-plated
14	O-rings	NBR

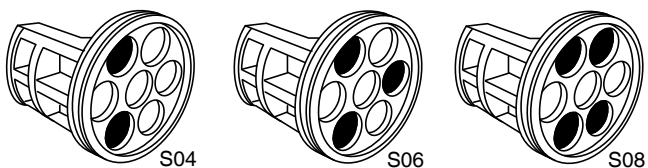
Spring configuration

ASR 0020U

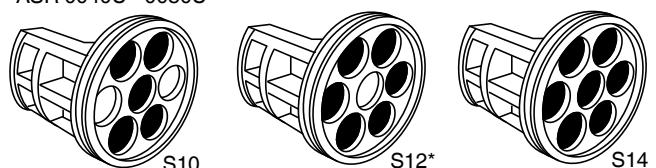


● with spring
○ without spring

ASR 0040U - 4000U

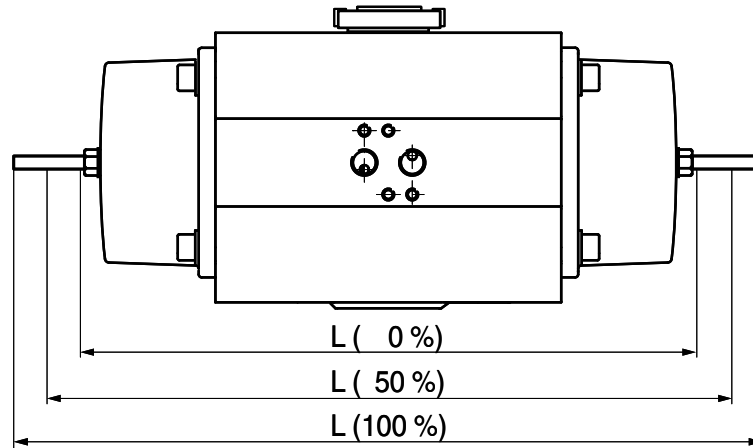


ASR 0040U - 0080U



*S12 - max. spring configuration of single acting actuators with stroke limiter

Actuator with stroke limiter



Actuator with end position setting possibility (100%) dependent on angle of rotation

Length	ADA (double acting)													
	[mm]	00010	0020U	0040U	0080U	0130U	0200U	0300U	0500U	0850U	1200U	1750U	2100U	2500U
L (0 %)	NL	77	180	208	220	254	313	324	398	459	487	550	570	678
L (50 %)	NL	96	202	232	248	285	352	367	453	522	550	626	645	725
L (100 %)	NL	115	224	255	277	317	392	410	508	585	613	701	721	772
	ASR* (single acting)													
L (0 %)	-	194	220	250	300	334	393	436	500	599	647	751	796	998
L (50 %)	-	213	242	274	328	365	432	479	555	662	710	827	871	1045
L (100 %)	-	232	264	297	357	397	472	522	610	725	773	902	947	1092

* ASR with stroke limiter: max. number of springs S12

Order data

1 Type	Code
Double acting	ADA
Single acting	ASR

2 Actuator size					Code
(standard torques [Nm] at 6 bar control pressure)					
ADA [Nm]	ASR [Nm]		Spring Stroke		
	0°	90°	0°	90°	
12	-	-	-	-	00010
19.5	12	7	9	15	0020U
41	26	17	17	28	0040U
77	51	37	30	47	0080U
118	80	64	45	64	0130U
175	113	84	73	107	0200U
291	190	126	119	193	0300U
433	283	205	177	268	0500U
718	488	367	271	412	0850U
1038	698	502	400	631	1200U
1413	877	578	631	983	1750U
2172	1276	825	896	1347	2100U
3461	2454	1861	1184	1882	2500U
4816	3312	2142	1769	3145	4000U

Please refer to tables on pages 3 - 5

3 Springs per side (F/S)	Code
Double acting	-
Single acting - for correlation see table on pages 3/4	1 - 12

4 Connection size	Code
Flange type F03/F05	F03/F05
Flange type F04	F04
Flange type F05	F05
Flange type F05/F07	F05/F07
Flange type F07/F10	F07/F10
Flange type F10	F10
Flange type F10/F12	F10/F12
Flange type F10/F14	F10/F14
Flange type F14	F14
Flange type F16	F16
Flange type F16/F25	F16/F25
See table page 2	

5 Location spigot	Code
With	Y

6 Hub	Code
Star (double-square) - Standard	S

7 Wrench size	Code
Wrench size SW	9 - 55
See table page 2	

8 Coating	Code
Housing anodized / end caps epoxy coated (80 - 90 µm)	A
Housing / end caps, epoxy coated (80 - 90 µm), shaft stainless steel A 316	F

9 Stroke limiter (optional)	Code
Stroke limiter	H

10 Special function	Code
ATEX	X

Order example	1	2	3	4	5	6	7	8	9	10
Code	ADA	0080U	-	F05/F07	Y	S	17	A	-	-

For further actuators, accessories and other products, please see our Product Range catalogue and Price List.
Contact GEMÜ.

GEMÜ VALVES, MEASUREMENT AND CONTROL SYSTEMS

