GEMÜ®

Butterfly Valve Metal

Construction

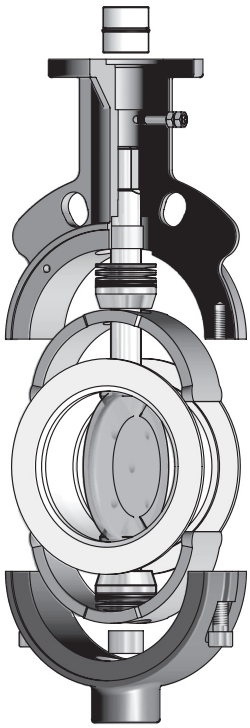
The GEMÜ 490 Edessa butterfly valve is lined with TFM™ (PTFE)/PFA to suit aggressive chemical applications. It is based on the design of concentric soft seal valves. The construction enables many possible combinations of disc, shut-off seal and body. Disc and shaft are one-piece. Different designs of body and shut-off seal are available. The wafer and lugged body versions are available in sizes DN 40 - 1200 (1½″ - 48″).

Features

- Suitable for inert and corrosive* gaseous and liquid media in the chemical industry and in water treatment
- Seal material TFM™ (FDA 21CRF 177.1550)
- Installation length acc. to ISO 5752/20, EN 558-1/20, API 609 category A
- Top flange acc. to EN ISO 5211
- Max. operating pressure 90/150 psi
- Connection standards PN 10, PN 16, ASME B16.5 cl. 150, JIS 10K
- Leak test acc. to. EN 12266-1/P12 leakage rate A
- The butterfly valve complies with the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU for fluids of group 1 and 2
- ATEX compliant version for potentially explosive areas of group II, zones 0, 1, 2 (or 20, 21 and 22) available
- “TA Luft“ certificate (German Clean Air Act) available

*see information on working medium on page 2

Exploded drawing



GEMÜ 490

GEMÜ 491

GEMÜ 497

GEMÜ 498

GEMÜ®

490, 491, 497, 498 Edessa

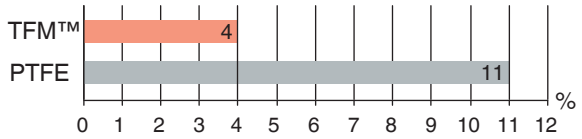
Advantages of the TFM™* (PTFE) shut-off seal

TFM™ is manufactured from PTFE and a 1% content of perfluoropropyl vinyl ether (PPVE). While the properties of conventional PTFE (excellent chemical resistance, application in a wide temperature range and resistance to embrittlement or ageing etc.) will be maintained, the PPVE additive leads to a better distribution of the PTFE particles and thus to a higher density of the molecular structure.
The following extra advantages result:

- Significantly better cold flow properties (measured as a deformation under load): Same cold flow properties as PTFE with 25% glass fibres.
- Reduced permeability or increased blocking properties.
- The smooth surface allows only slight abrasion of the shut-off seal and creates less abrasive particles in the medium.

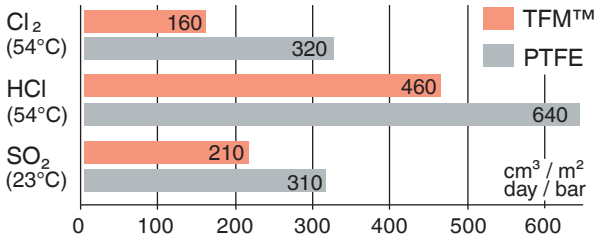
* TFM is a registered trademark of Dyneon

A: Permanent deformation after cyclic load



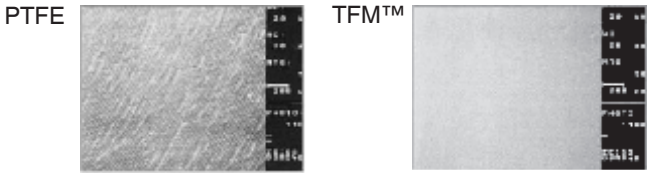
Load: 2176 psi for 100 hours, temperature 73.4 °F
Permanent deformation in %, 24 hrs after load removal

B. Permeability of various media



Permeability of TFM™ compared to conventional PTFE (thickness: 0.04 inch)

C. Surface nature at 50x magnification



Technical data

Working medium

Inert, corrosive, gaseous and liquid media which have no negative impact on the physical and chemical properties of the disc and seal material.

Max. perm. pressure of working medium

DN 40 - 450 (1½″- 18″)	150 psi
DN 500 - 600 (20″- 24″)	90 psi
DN 700 - 1200 (28″- 48″)	45 psi

Max. perm. temp. of working medium

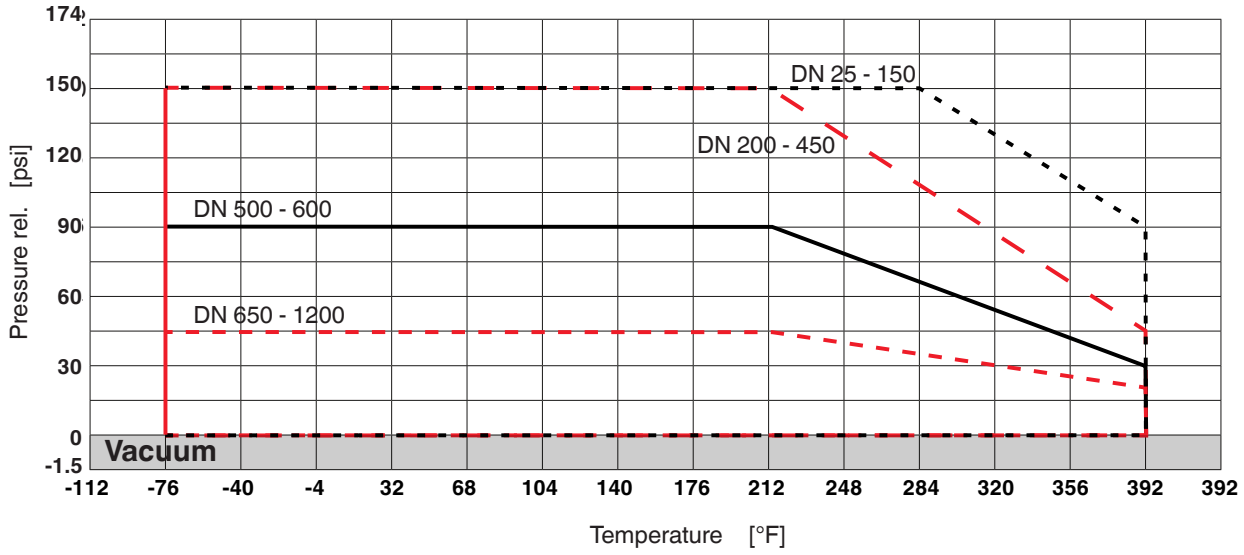
Standard TFM™ (PTFE)	-4 to 392 °F

No water hammer permissible

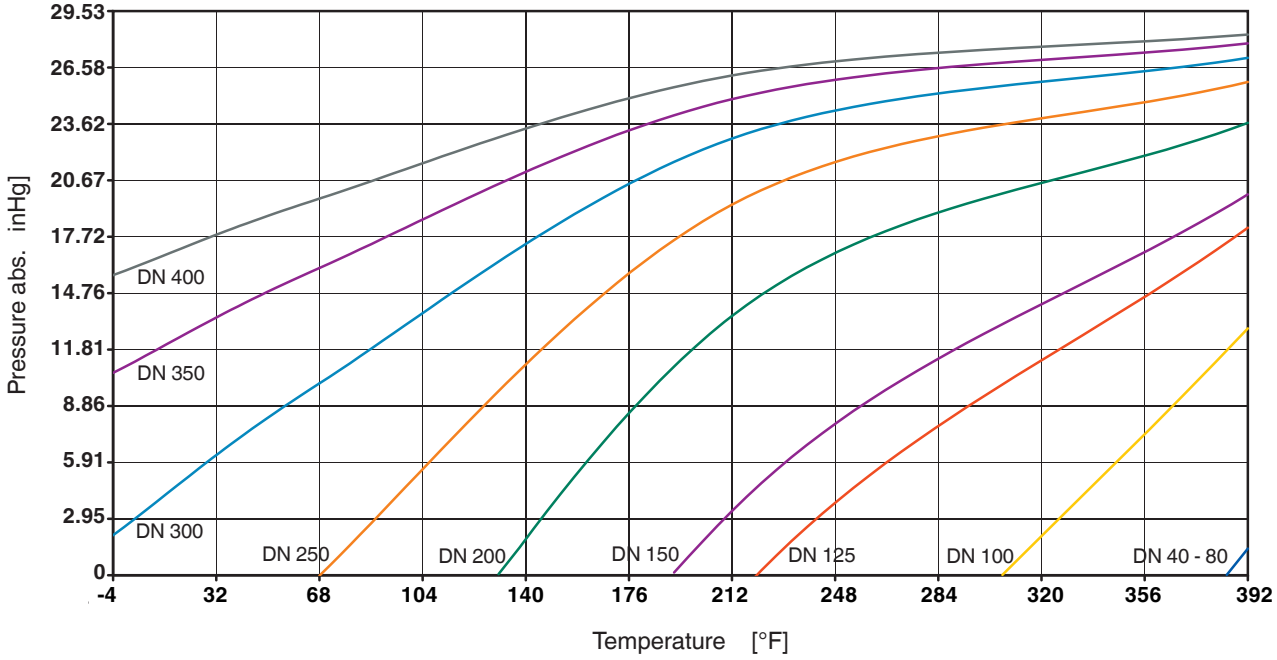
	Connection	Cv value	Weight [lbs]	
DN		[gpm]	Wafer	Lug
25	1″	32.8	-	5.73
40	1½″	119.3	5.5	5.5
50	2″	145.1	6.6	11.0
65	2½″	246.9	8.8	15.4
80	3″	372.1	11.0	17.9
100	4″	772.2	13.9	23.8
125	5″	1152.4	17.0	32.0
150	6″	1455.5	22.0	34.8
200	8″	2951.9	36.4	54.2
250	10″	4111.4	54.0	73.4
300	12″	6218.5	81.6	125.7
350	14″	9516.8	191.8	191.8
400	16″	13538.1	235.9	235.9
450	18″	18157.2	-	335.1
500	20″	22590.4	-	407.9
600	24″	29024.2	-	674.6
700	28″	36137.8	-	974.4
(750)	30″	40650.5	-	1080.3
800	32″	46553.1	-	1388.9
900	36″	65114	-	1721.8
1000	40″	73347.3	-	2085.6
(1050)	42″	82517.8	-	2171.6
1200	48″	107757		2672

Body configuration Lug (thread holes drilled through

Pressure-temperature diagram



TFM shut off seal characteristics in vacuum applications



PTFE shut off seal characteristics in vacuum applications and characteristics for nominal sizes > DN 400, on request

Technical data

Torque for actuators [in-lbs]

Initial breakaway torque*

DN	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	(750)	800	900	1000	1200
Inches	1″	1½″	2″	2½″	3″	4″	5″	6″	8″	10″	12″	14″	16″	18″	20″	24″	28″	30″	32″	36″	40″	48″
[in-lbs]	194	194	230	319	407	532	708	973	1478	2460	2947	3983	4426	5310	5753	7868	13276	17701	20357	23897	30978	42484

* The indicated initial breakaway torque includes 10 % safety margin.

Max. allowable torque

DN	25	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	(750)	800	900	1000	1200
In-ches	1″	1½″	2″	2½″	3″	4″	5″	6″	8″	10″	12″	14″	16″	18″	20″	24″	28″	30″	32″	36″	40″	48″
Disc/shaft material - Stainless steel (Code S, F, J, P, C)																						
[in-lbs]	425	425	787	787	787	1620	1620	2894	4036	5876	5876	10860	10860	25747	25747	53716	53716	91818	91818	91818	91818	91818
Disc/shaft material - Hastelloy (Code H)																						
[in-lbs]	-	275	504	504	504	1044	1044	1867	2611	4045	4045	7478	7478	17737	17737	37004	37004	63257	63257	63257	63257	-
Disc/shaft material - Titanium (Code T)																						
[in-lbs]	-	283	522	522	522	1070	1070	1912	2672	4151	4151	7664	7664	18170	18170	37908	37908	64796	64796	64796	64796	-

Availability / code - Body configuration / connection

Wafer

	Nominal size											
Flange	40	50	65	80	100	125	150	200	250	300	350	400
DIN EN 1092-1-PN10	3*	3	3	3	3	3	3	3	3	3	2*	2*
DIN EN 1092-1-PN16	3*	3	3	3	3	3	3	3	3	3	3	3*
ASME B16.5 cl. 150	D*	3	3	3	3	3	3	3	3	3	D	D*
JIS 10K	G*	G	G	G*	G*	G*	G	G*	G	G*	○	○
AS-2129 Table D	○	○	○	○	○	○	○	○	○	○	○	○
AS-2129 Table E	○	○	○	○	○	○	○	○	○	○	○	○
SANS 1123-1000/3	○	○	○	○	○	○	○	○	○	○	○	○

* Lug body drilled

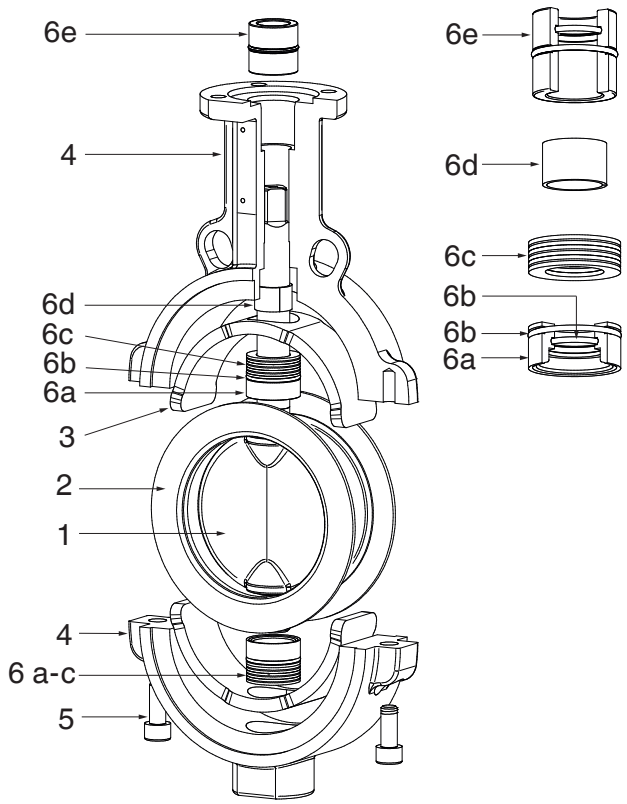
Lug

Flange	25	40	50	65	80	100	125	150	200	250	300	350
DIN EN 1092-1-PN10	3	3	3	3	3	3	3	3	2	2	2	2
DIN EN 1092-1-PN16	3	3	3	3	3	3	3	3	3*	3*	3*	3*
ASME B16.5 cl. 150	D	D	D	D	D	D	D	D	D	D	D	D
JIS 10K	G*	G*	G*	G*	G*	G*	G*	G	○	G*	○	○
AS-2129 Table D	○	○	○	○	○	○	○	○	○	○	○	○
AS-2129 Table E	○	○	○	○	○	○	○	○	○	○	○	○
SANS 1123-1000/3	○	○	○	○	○	○	○	○	○	○	○	○

Flange	400	450	500	600	700	800	900	1000	1200			
DIN EN 1092-1-PN10	2	2	2	2	2	2	2					
DIN EN 1092-1-PN16	3*	○	○	○	○	○	○					
ASME B16.5 cl. 150	D	D	D	D	○	D	D					
JIS 10K	○	○	○	○	○	○	G					
AS-2129 Table D	○	○	○	○								
AS-2129 Table E	○	○	○	○								
SANS 1123-1000/3	○	○	○	○		○						

Note: Please use a weld neck flange type 11 for all flanges.

Parts list



Item.	Designation	Material
1	Disc	see order data
2	Seal	see order data
3	Inlay	PTFE
4	2-piece body	see order data
5	Screw	
6a	Pressure packages	1.4301
6b	O-ring	FKM (Fluor-Kautschuk)
6c	Spring	1.8159
6d	DU bush	Steel, PTFE coated
6e	Bearing bush	POM, FKM (Fluorine rubber)

Order data

1 Type	Code
Butterfly valve with bare shaft	490
Butterfly valve with pneumatic actuator	491
Butterfly valve with manual operator	497
Butterfly valve with motorized actuator	498

2 Nominal size		Code
DN 25	NPS 1“	25
DN 40	NPS 1 1/2“	40
DN 50	NPS 2“	50
DN 65	NPS 2 1/2“	65
DN 80	NPS 3“	80
DN 100	NPS 4“	100
DN 125	NPS 5“	125
DN 150	NPS 6“	150
DN 200	NPS 8“	200
DN 250	NPS 10“	250
DN 300	NPS 12“	300
DN 350	NPS 14“	350
DN 400	NPS 16“	400
DN 450	NPS 18“	450
DN 500	NPS 20“	500
DN 600	NPS 24“	600
DN 700	NPS 28“	700
DN 750	NPS 30“	750
DN 800	NPS 32“	800
DN 900	NPS 36“	900
DN 1000	NPS 40“	1T0
DN 1050	NPS 42“	1T1
DN 1200	NPS 48“	1T2

Order data

3 Body configuration		Code
Wafer	(DN 50 to DN 300)	W
Lug	(DN 40 to DN 800)	L

4 Operating pressure

	Nominal size		
	25 - 450	500, 600	700 - 1200
	Code		
PS 45 psi			0
PS 90 psi		1	
PS 150 psi	2		
Standard			

5 Connection

		Nominal size			
		25-150	200-300	350-400	450-1200
		Code			
Wafer	PN 10	3	3	2	
	PN 16	3	3	3	
Lug	PN 10	3	2	2	2
	PN 16	3	3	3	3
Standard					

6 Body material	Code
EN-GJS-400-18-LT (GGG 40.3), Epoxy coated 4724.41µinch	3
Stainless steel 316L	4
Duroplast (VE-CF)	6
Steel S355J2G3	8

7 Disc/shaft material	Code
Stainless steel 1.4469, DN 40-200; Stainless steel 1.4404/316L, DN 250-900	S
Stainless steel, 1.4462 polished, DN 40-200; Ra < 0,8 µm	F
Stainless steel 1.4404/316L, polished; Ra < 0,8 µm	J
Stainless steel 1.4404/316L, electropolished; Ra < 0,4 µm	G
PFA encapsulated	P
PFA encapsulated (conductive)	C*
Titanium Grade 2	T
Hastelloy C22	H
* ATEX version (Color of the disc: black)	

8 Seal material	Code
TFM™ / Silicone	5S
TFM™ / EPDM (steam, max. 266 °F)	5E
TFM™ / FPM Steam (steam, > 266 °F)	5D
TFM™ / FPM	5F
TFM™ / Silicone (conductive)	LS*
TFM™ / EPDM (conductive)	LE*
TFM™ / FPM (conductive)	LF*
PTFE / Silicone	PS
PTFE / EPDM	PE
PTFE / FPM	PF
* ATEX version (Color of the seal: black)	

9 Control function		Code
Butterfly valve with bare shaft	type 490	F
Butterfly valve with manual operator	type 497	0
Normally closed (NC)	type 491	1
Normally open (NO)	type 491	2
Double acting (DA)	type 491	3
Normally closed (NC), actuator mounted across the piping	type 491	Q
Double acting (DA) actuator mounted across the piping	type 491	T
Normally open (NO), actuator mounted across the piping	type 491	U

10 Operator size	Code
490 (Column 10)	see page 7
491 (Column 10)	see page 8 and 10
497 (Column 10)	see page 12
498 (Column 12,13,14)	see page 15 and 16

11 Special function	Code
ATEX version (only butterfly valve with bare shaft 490)	X

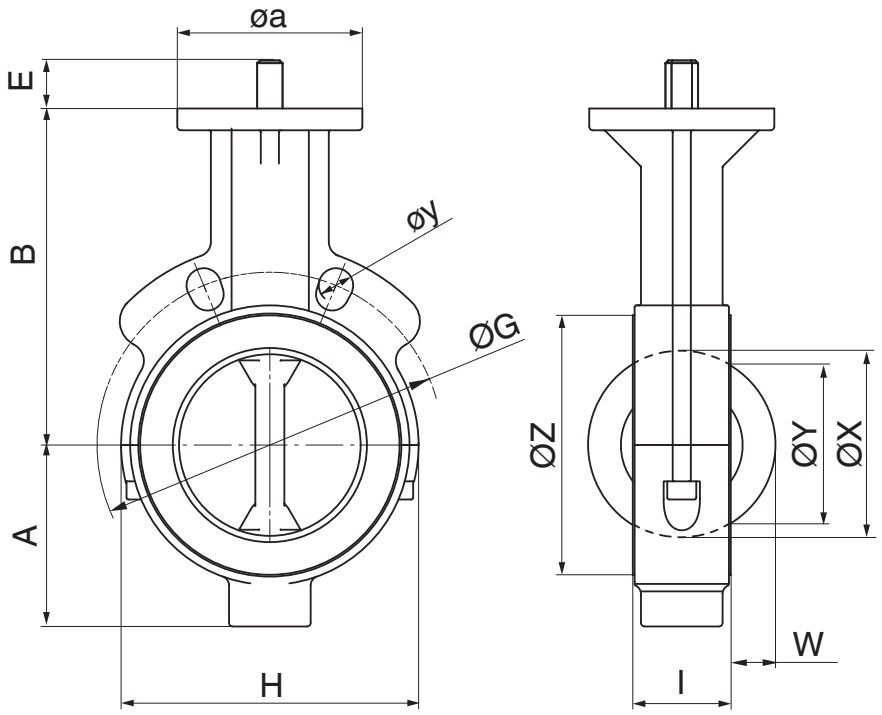
Order example	1	2	3	4	5	6	7	8	9	10	11		
Code	497	50	W	2	3	3	S	5S	0	SHL11			

Other designs and materials on request

Body dimensions [inch]

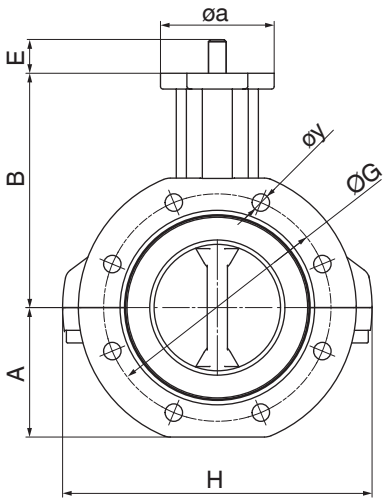
Body configuration - Wafer[1] (code W)																				
DN	INCH	A	B	E	øa	f	DIN		ASME B16.5 cl. 150		JIS 10K			H	l	W	ØX	ØY	ØZ	ISO
DIN	ASME						øy	ØG	øy	ØG	øy	ØG	n							
40[2]	1½″	2.76	3.74	0.67	2.56	0.39	4x0.71	4.33	2x0.63	3.87	0.75	4.13	4	5.59*	1.30	0.28	1.83	1.34	2.99	F05
50	2″	2.20	5.12	0.67	3.54	0.47	2x0.71	4.92	2x0.75	4.75	0.75	4.72	2	4.09	1.69	0.24	1.97	1.22	3.35	F07
65[3]	2½″	2.64	5.75	0.67	3.54	0.47	2x0.71	5.71	2x0.75	5.50	0.75	5.51	2	5.04	1.81	0.43	2.44	1.89	4.17	F07
80	3″	3.31	6.5	0.67	3.54	0.47	2x0.71	6.30	2x0.75	6.00	0.75	5.91	2	5.67	1.81	0.67	2.95	2.48	4.80	F07
100	4″	3.94	7.28	0.67	3.54	0.47	2x0.71	7.09	2x0.75	7.50	0.75	6.89	2	6.46	2.05	1.06	3.94	3.54	5.63	F07
125	5″	4.33	7.95	0.67	3.54	0.47	2x0.71	8.27	2x0.87	8.50	0.91	8.27	2	7.64	2.20	1.50	4.91	4.65	6.54	F07
150	6″	4.92	8.54	0.87	3.54	0.47	2x0.87	9.45	2x0.87	9.50	0.91	9.45	2	8.66	2.20	1.85	5.56	5.39	7.60	F07
200	8″	6.22	9.65	1.02	4.92	0.63	2x0.87	11.61	2x0.87	11.75	0.91	11.42	2	10.79	2.36	2.80	7.68	7.44	9.88	F10
250	10″	7.48	10.63	1.18	4.92	0.63	2x0.87	13.78	2x1.02	14.25	0.98	13.98	2	12.99	2.68	3.62	9.61	9.41	11.85	F10
300	12″	8.86	12.13	1.18	4.92	0.63	2x0.87	15.75	2x1.02	17.00	0.98	15.75	2	14.96	3.07	4.41	11.62	11.42	13.74	F10
350	14″	10.08	12.99	1.10	5.91	0.71	16x0.87	18.75	12x0.04″	17.52	0.98	17.52	16	22.48	3.62	4.92	13.21	12.91	16.30	F12
400	16″	11.5	14.37	1.10	5.91	0.71	16x0.87	20.28	12x0.04″	20.08	0.98	20.08	16	25.31	4.02	5.75	15.35	14.84	18.11	F12

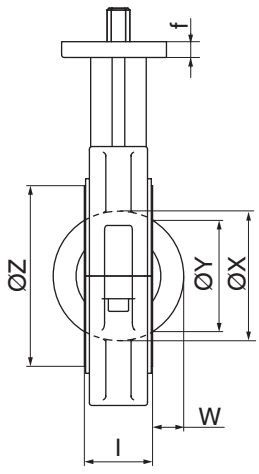
[1] Body material - Duroplast (VE-CF): Lug body configuration with machined threaded holes
[2] Lug body configuration with machined threaded holes
[3] DN 65 with 4 flange holes



Body dimensions [inch]

Body configuration Lug (code L)													
DN	INCH	A	B	E	øa	f	H	l	W	ØX	ØY	ØZ	ISO
DIN	ASME												
25	1"	2.09	3.70	0.67	2.56	0.39	5.43	1.61	0.12	DN40	0.87	2.36	F05
40	1½″	2.76	3.74	0.67	2.56	0.39	5.59	1.30	0.28	1.83	1.34	2.99	F05
50	2″	2.28	5.12	0.67	4.02	0.47	6.02	1.69	0.24	1.97	1.22	3.35	F07
65	2½″	2.56	5.75	0.67	4.02	0.47	6.81	1.81	0.43	2.44	1.89	4.17	F07
80	3″	3.46	6.50	0.67	4.02	0.47	8.27	1.81	0.67	2.95	2.48	4.80	F07
100	4″	4.02	7.28	0.67	4.02	0.47	9.65	2.05	1.06	3.94	3.54	5.63	F07
125	5″	4.57	7.95	0.67	4.02	0.47	10.71	2.20	1.50	4.91	4.65	6.54	F07
150	6″	5.00	8.54	0.87	4.02	0.47	11.61	2.20	1.85	5.56	5.39	7.60	F07
200	8″	6.30	9.65	1.02	5.98	0.63	14.33	2.36	2.80	7.68	7.44	9.88	F10
250	10″	7.60	10.63	1.18	5.98	0.63	16.97	2.68	3.62	9.61	9.41	11.85	F10
300	12″	8.94	12.13	1.10	5.98	0.63	20.12	3.07	4.41	11.62	11.42	13.74	F10
350	14″	10.08	12.99	1.10	5.98	0.71	22.48	3.62	4.92	13.21	12.91	16.30	F12
400	16″	11.50	14.37	1.46	5.98	0.71	25.31	4.02	5.75	15.35	14.84	18.11	F12
450	18″	12.24	15.75	1.46	6.89	0.79	26.93	4.49	6.46	17.24	16.42	20.28	F14
500	20″	13.39	17.13	1.85	6.89	0.79	29.33	5.00	7.24	19.35	18.78	22.44	F14
600	24″	15.67	20.08	1.85	8.27	0.79	33.98	6.06	8.46	22.83	22.05	26.46	F16
700	28″	20.12	22.68	1.85	8.27	1.38	39.37	6.06			26.61		F16
750	30″	18.98	23.94	3.54	8.27	1.38	40.94	6.06	11.38		28.19	33.50	F16
800	32″					1.38							
900	36″	22.56	26.93	3.54	11.81	1.38	48.50	6.06	14.17		33.86	40.00	F25
1000	40"	28.82	28.82	2.20	11.81	1.38	54.33	6.06	16.06	DN1000	37.68	44.09	F25
1050	42″	25.98	30.24	3.54	11.81	1.38	55.20	6.06	17.09		39.72	46.06	F25
1200	48"	35.63	35.63	2.20	11.81	1.38	60.24	6.06	20.00	DN1200	45.67	51.38	F25



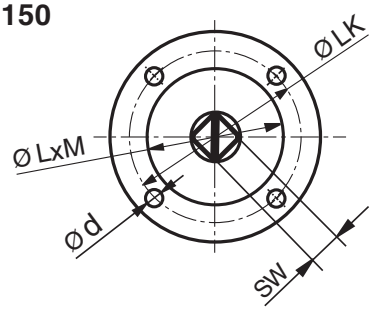


Connections									
DN	INCH	DIN		ASME B16.5 cl. 150		JIS 10K	
DIN	ASME	PN 10, 16		øy	ØG	øy	ØG
		øy	ØG				
25	1"	4x0.55	3.35	4x16	3.13	-	-
40	1½″	4xM16	4.33	4x1/2″-13UNC	3.87	4xM16	4.13
50	2″	4xM16	4.92	4x5/8″-11UNC	4.75	4xM16	4.72
65	2½″	4xM16	5.71	4x5/8″-11UNC	5.50	4xM16	5.51
80	3″	8xM16	6.30	4x5/8″-11UNC	6.00	8xM16	5.91
100	4″	8xM16	7.09	8x5/8″-11UNC	7.50	8xM20	6.89
125	5″	8xM16	8.27	8x3/4″-10UNC	8.50	8xM20	8.27
150	6″	8xM20	9.45	8x3/4″-10UNC	9.50	8xM20	9.45

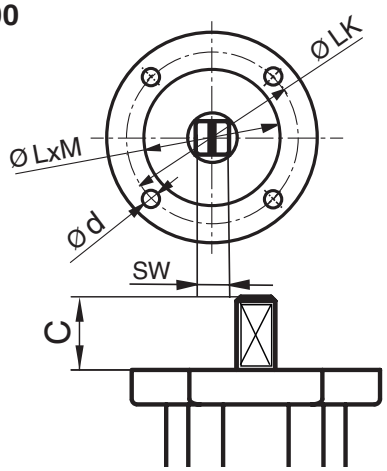
DN	INCH	DIN				ASME B16.5 cl. 150		JIS 10K	
DIN	ASME	PN 10		PN 16		øy	ØG	øy	ØG
		øy	ØG	øy	ØG				
200	8″	8xM20	11.61	12xM20	11.61	8x3/4″-10UNC	11.75	12xM20	11.42
250	10″	12xM20	13.78	12xM24	13.98	12x7/8″-9UNC	14.25	12xM22	13.98
300	12″	12xM20	15.75	12xM24	16.14	12x7/8″-9UNC	17.00	16xM22	15.75
350	14″	16xM20	18.11	16xM24	18.50	12x1″-8UNC	18.75	16xM22	17.52
400	16″	16xM24	20.28	16xM27	20.67	16x1″-8UNC	21.25	16xM24	20.08
450	18″	20xM24	22.24	-	-	16x1 1/8″-7UNC	22.75	-	-
500	20″	20xM24	24.41	-	-	20x1 1/8″-7UNC	25.00	-	-
600	24″	20xM27	28.54	-	-	20x1¼″-7UNC	29.50	-	-
700	28″	24xM27	33.07						
750	30″			-	-	28x1¼″-7UNC	36.00	-	-
800	32″								
900	36″	28xM30	41.34	-	-	32x1½″-6UNC	42.75	-	-
1000	40"	28x1.42	45.67	36x1.65	47.25	-	-		
1050	42″			-	-	36x1½″-6UNC	49.50	-	-
1200	48"	32x1.42	54.33	44x1.65	56.00	-	-		

10 Dimensions / order data - Type 490 - Butterfly valve with bare shaft

DN 40 - 150



DN 200 - 900



Operator flange									
DN	ISO	ØLK [in]	Ød [in]	f [in]	Shaft connection	SW [mm]	C [in]	ØLxM	Code
25	F05	1.97	4x0.28	0.39	D	9	0.67	36x3.5	05D9
40	F05	1.97	4x0.28	0.39	D	9	0.67	36x3,5	05D9
50	F07	2.76	4x0.35	0.47	D	11	0.67	56x3,5	07D11
65	F07	2.76	4x0.35	0.47	D	11	0.67	56x3,5	07D11
80	F07	2.76	4x0.35	0.47	D	11	0.67	56x3,5	07D11
100	F07	2.76	4x0.35	0.47	D	14	0.67	56x3,5	07D14
125	F07	2.76	4x0.35	0.47	D	14	0.67	56x3,5	07D14
150	F07	2.76	4x0.35	0.47	D	17	0.87	56x3,5	07D17
200	F10	4.02	4x0.43	0.63	L	19	1.02	71x3,5	10L19
250	F10	4.02	4x0.43	0.63	L	22	1.18	71x3,5	10L22
300	F10	4.02	4x0.43	0.63	L	22	1.18	71x3,5	10L22
350	F12	4.92	4x0.51	0.71	L	27	1.10	87x3,5	12L27
400	F12	4.92	4x0.51	0.71	L	27	1.10	87x3,5	12L27
450	F14	5.51	4x0.67	0.79	L	36	1.46	102x4,5	14L36
500	F14	5.51	4x0.67	0.79	L	36	1.46	102x4,5	14L36
600	F16	6.50	4x0.83	0.79	L	46	1.85	131x5,5	16L46
700	F16	6.50	4x0.87	1.38	L	46	1.85	131x5,5	16L46
750				1.38					
800	F25	10.00	8x0.67	1.38	L	55	2.20	202x5,5	25L56
900	F25	10.00	8x0.67	1.38	L	55	2.20	202x5,5	25L56
1000	F25	10.00	8x0.67	1.38	L	55	2.20	202x5.5	25L56
1050	F25	10.00	8x0.67	1.38	L	55	2.20	202x5.5	25L56
1200	F25	10.00	8x0.67	1.38	L	55	2.20	202x5.5	25L56

Order example	1	2	3	4	5	6	7	8	9	10	11		
Code	490	Order data butterfly valve (page 4)								07D11			

Technical data - GEMÜ 491 with pneumatic actuator type ADA/ASR

Control medium

Filtered, dry compressed air, non-corrosive medium

Temperature range

-22 ... 212 °F, other temperatures on request

Control pressure

87 - 116 psi

Angle of rotation

±5° adjustable (85° - 95°) 90°

10 Order data - GEMÜ 491 with pneumatic actuator type ADA/ASR

10 Actuator version*				
DN	Pneumatic double acting	Code	Pneumatic single acting	Code
40	ADA0020U F03F05 Y S09 A	BU02AB0	ASR0040U S14 F05 Y S14 A	AU04KB0
50	ADA0080U F05F07 Y S17 A	BU08AC0	ASR0080U S14 F05F07 Y S17 A	AU08KC0
65	ADA0080U F05F07 Y S17 A	BU08AC0	ASR0130U S14 F05F07 Y S17 A	AU13KC0
80	ADA0080U F05F07 Y S17 A	BU08AC0	ASR0130U S14 F05F07 Y S17 A	AU13KC0
100	ADA0080U F05F07 Y S17 A	BU08AC0	ASR0200U S14 F07F10 Y S17 A	AU20KE0
125	ADA0130U F05F07 Y S17 A	BU13AC0	ASR0300U S14 F07F10 Y S22 A	AU30KD0
150	ADA0130U F05F07 Y S17 A	BU13AC0	ASR0300U S14 F07F10 Y S22 A	AU30KD0
200	ADA0300U F07F10 Y S22 A	BU30AD0	ASR0850U S14 F10F12 Y S27 A	AU85KG0
250	ADA0500U F10 Y S22 A	BU50AF0	ASR1200U S14 F10F14 Y S27 A	A12UKH0
300	ADA0500U F10 Y S22 A	BU50AF0	ASR1200U S14 F10F14 Y S27 A	A12UKH0
350	ADA0850U F10F12 Y S27 A	BU85AG0	ASR1750U S14 F14 Y S36 A	A17UKK0
400	ADA0850U F10F12 Y S27 A	BU85AG0	ASR1750U S14 F14 Y S36 A	A17UKK0
450	ADA1200U F10F14 Y S36 A	B12UAH0	ASR1750U S14 F14 Y S36 A	A17UKK0
500	ADA1200U F10F14 Y S36 A	B12UAH0	ASR2100U S14 F14 Y S46 A	A21UK10
600	ADA1200U F10F14 Y S36 A	B12UAH0	ASR2100U S14 F16 Y S46A	A21UKL0

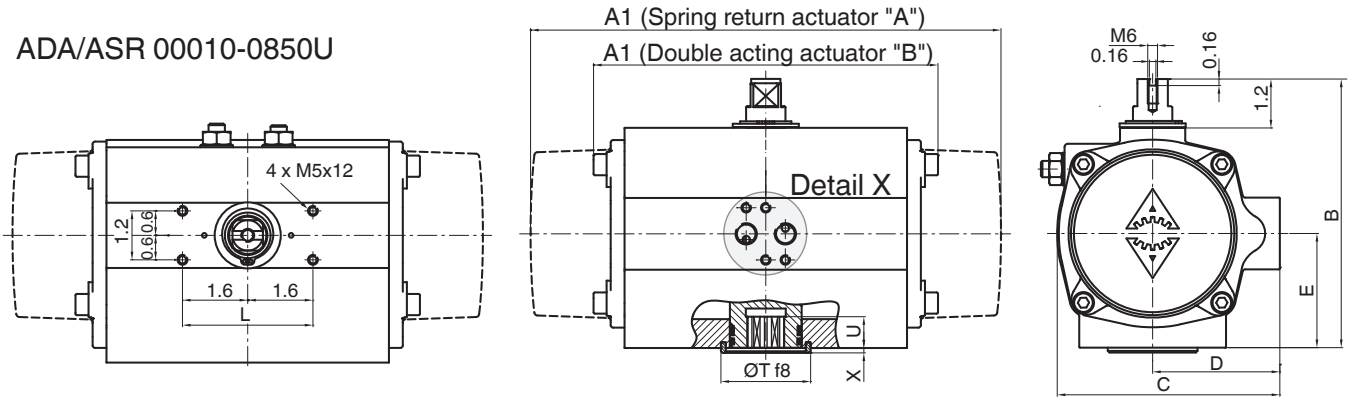
Technical data for liquids 68 to 176 °F with control pressure 87 psi

Order example	1	2	3	4	5	6	7	8	9	10			
Code	491	Order data butterfly valve (page 4)								BU85AGA			

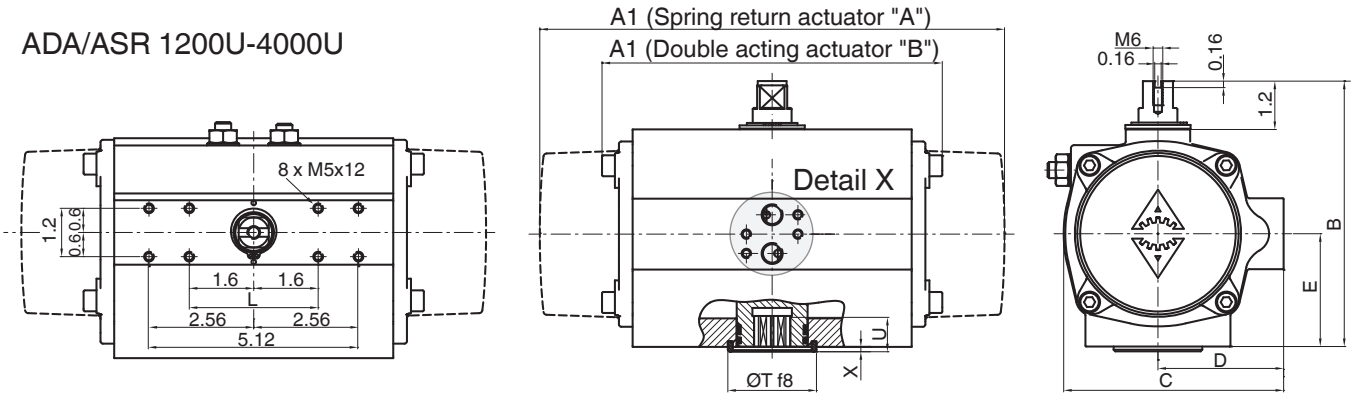
Stroke limiter on request

Actuator dimensions ADA/ASR [inch]

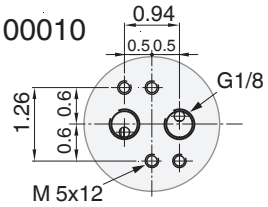
ADA/ASR 00010-0850U



ADA/ASR 1200U-4000U

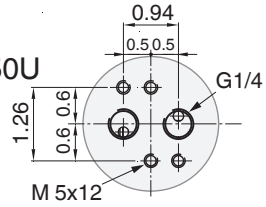


ADA 00010



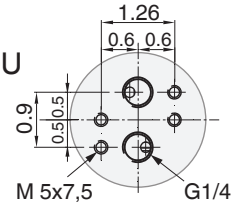
Detail X

ADA/ASR 0020U-1750U



Detail X

ADA/ASR 2100U-4000U



ADA/ASR	0020U			0040U		0080U	0130U	0200U	0300U	0500U	0850U	1200U	1750U	2100U	2500U	4000U
ISO 5211	F03/ F05	F04	F05	F04	F05	F05	F05	F07	F07	F10	F10	F10	F14	F16	F16	F16
Octagonal	9	14		14		17	17	17	22	22	27	36	36	46	46	55
Air connector	G¼			G¼		G¼	G¼	G¼	G¼	G¼	G¼	G¼	G¼	G¼	G¼	G¼
A	5.71			6.22		6.97	7.72	8.86	10.75	11.97	14.65	17.28	18.15	20.08	20.39	24.80
A1	6.42			7.68		8.54	10.16	11.77	13.72	15.63	18.62	22.05	23.66	27.64	29.06	37.01
B	3.78			4.53		5.39	5.79	6.5	7.17	7.83	8.70	9.80	11.02	12.32	15.08	17.09
C	2.99			3.58		4.37	4.80	5.33	6.00	6.81	7.54	8.37	9.55	10.89	14.02	16.34
D	1.89			2.20		2.60	2.80	3.07	3.39	3.78	4.17	4.57	5.16	5.83	6.99	8.39
E	1.34			1.77		2.17	2.36	2.76	3.15	3.35	3.86	4.49	5.12	5.79	6.95	7.91
ØT	0.98	1.38		1.38		2.17	2.17	2.17	2.76	2.76	3.35	3.94	3.94	5.12	5.12	7.87
U	0.39	0.47		0.47		0.75	0.87	0.91	0.94	1.26	1.54	1.89	1.97	1.97	2.28	2.36
Weight [lbs]																
ADA	3.09			4.6		6.6	8.4	12.3	18.7	24.7	37.3	56.9	71.6	108.0	153.4	285.3
ASR	3.31			5.1		8.2	10.6	16.1	23.8	33.9	48.9	75.6	101.4	149.9	220.2	403.2

Technical data - GEMÜ 491 with pneumatic actuator type DR/SC

Control medium

Filtered, dry compressed air, non-corrosive medium

Temperature range

-22 ... 212 °F, other temperatures on request

Control pressure

87 - 116 psi

Angle of rotation

20° adjustable (75° - 95°) 90°

10 Order data - GEMÜ 491 with pneumatic actuator type DR/SC*

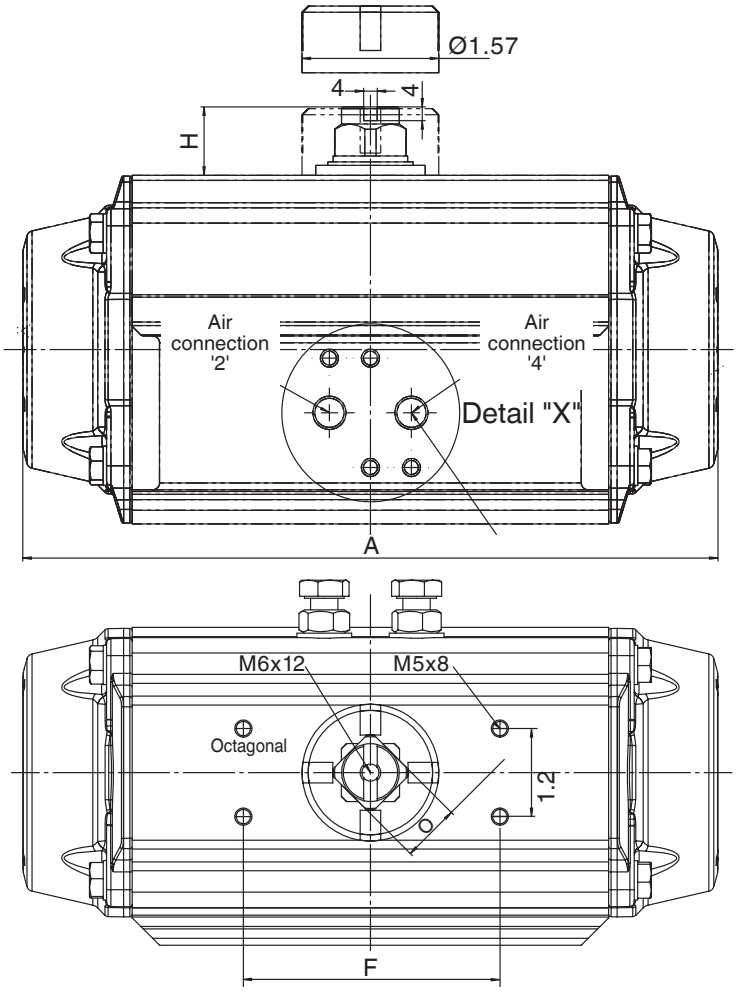
10 Actuator size				
DN	Pneumatic double acting	Code	Pneumatic single acting	Code
40	DR0015U F03F05 N S11 A	DU01AW0	SC0060U 6 F05F07 N S14 A	SU06KP0
50	DR0030U F05F07 N S14 A	DU03AP0	SC0100U 6 F05F07 N S17 A	SU10KC0
65	DR0030U F05F07 N S14 A	DU06AP0	SC0100U 6 F05F07 N S17 A	SU10KC0
80	DR0060U F05F07 N S17 A	DU06AC0	SC0100U 6 F05F07 N S17 A	SU10KC0
100	DR0060U F05F07 N S17 A	DU06AC0	SC0150U 6 F05F07 N S17 A	SU15KC0
125	DR0100U F05F07 N S17 A	DU10AC0	SC0220U 6 F07F10 N S22 A	SU22KD0
150	DR0150U F07F10 N S22 A	DU15AD0	SC0300U 6 F07F10 N S22 A	SU30KD0
200	DR0220U F07F10 N S22 A	DU22AD0	SC0450U 6 F10F12 N S27 A	SU45KG0
250	DR0300U F07F10 N S22 A	DU30AD0	SC0900U 6 F10F12 N S27 A	SU90KG0
300	DR0450U F10F12 N S27 A	DU45AG0	SC1200U 6 F10F12 N S27 A	S12UKG0
350	DR0450U F10F12 N S27 A	DU45AG0	SC1200U 6 F10F12 N S27 A	S12UKG0
400	DR0450U F10F12 N S27 A	DU45AG0	SC1200U 6 F10F12 N S27 A	S12UKG0
450	DR0900U F14 N S36 A	DU90AK0	SC2000U 6 F14 N S36 A	S20UKK0
500	DR0900U F14 N S36 A	DU90AK0	SC2000U 6 F14 N S36 A	S20UKK0
600	DR0900U F14 N S36 A	DU90AK0	SC2000U 6 F16 N S46 A	S20UKL0

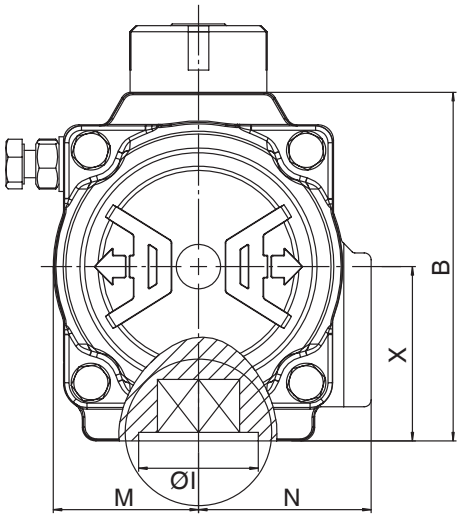
Technical data for liquids 68 to 176 °F with control pressure 87 psi

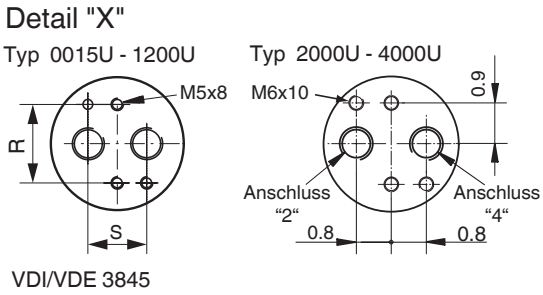
Order example	1	2	3	4	5	6	7	8	9	10			
Code	491	Order data butterfly valve (page 4)								DU15AE0			

Stroke limiter on request

Actuator dimensions DR/SC [inch]





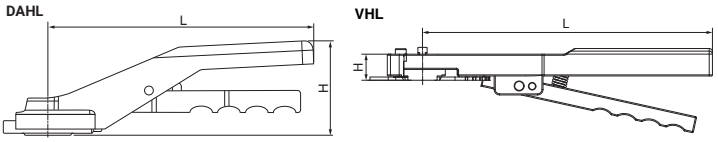


Type	0015U	0030U	0060U	0100U	0150U	0220U	0300U	0450U	0600U	0900U	1200U
ISO Flange	F04	F04 F05/07	F05/07	F05/07	F07/10	F07/10	F07/10	F10/12	F10/12	F14	F14
Octagonal	11	14	14	17	17	22	22	27	27	36	36
L	0.47	0.63	0.75	0.75	0.98	0.94	0.94	1.14	1.57	1.5	1.5
Air connector	G 1/8	G 1/8	G 1/8	G 1/8	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4
A	5.35	6.04	8.01	9.49	10.2	11.97	13.11	15.53	16.63	18.66	20.79
B	2.72	3.35	4.02	4.53	5	5.71	6.18	6.97	7.72	8.68	9.65
F	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	5.12	5.12
H	0.79	0.79	0.79	0.79	0.79	1.18	1.18	1.18	1.18	1.97	1.97
Ø I	1.18	1.38	1.38	1.57	2.17	2.17	2.17	2.76	2.76	3.94	3.94
M	1.14	1.42	1.67	1.95	2.19	2.52	2.74	3.15	3.46	3.9	4.33
N	1.69	1.91	1.99	2.22	2.48	2.83	3.03	3.39	3.66	3.98	4.39
O	0.43	0.43	0.67	0.67	0.67	1.06	1.06	1.06	1.06	1.42	1.42
R	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
S	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
h	0.02	0.02	0.02	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.08
h1	0.06	0.06	0.08	0.06	0.08	0.08	0.08	0.12	0.12	0.12	0.12
L	0.43	0.43/0.63	0.75	0.75	0.75	0.75	0.98	1.26	1.57	1.5	1.5
Weight [lbs]											
DR	2.2	3.5	5.9	8.2	11.5	17.6	21.6	30.9	39.7	52.9	75.0
SC	2.4	3.7	6.8	9.5	13.4	20.5	26.5	37.5	48.5	72.7	92.6

9 Dimensions / order data - Type 497 with manual operator [inch]

Hand lever - Aluminium

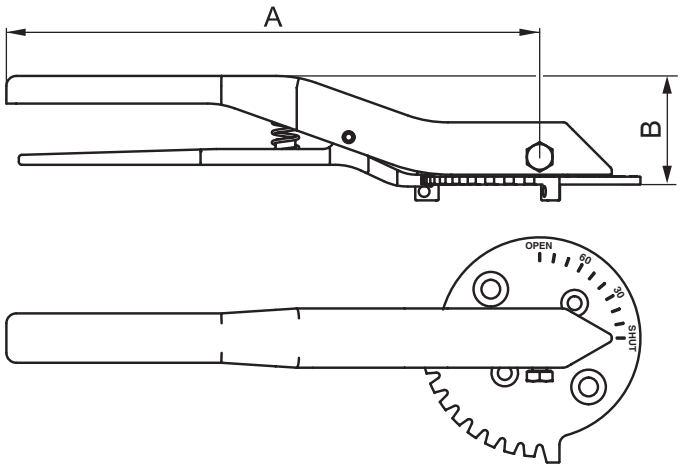
CAHL version = Latching hand lever with 10° notches



DN	Designation	Top flange	L	H	Weight [lbs]	Code
40	CAHLF0509.200	F05	7.87	2.76	0.7	CAHL09
50-80	CAHLF0711.200	F07	7.87	3.11	1.1	CAHL11
100-125	CAHLF0714.270	F07	10.63	3.23	1.3	CAHL14
150	CAHLF0717.315	F07	12.40	3.46	1.5	CAHL17

Continuously adjustable hand lever on request

Hand lever - Stainless steel



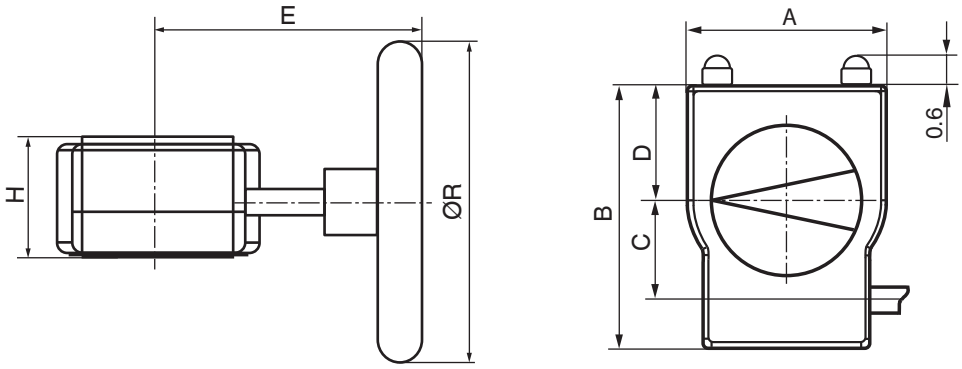
DN	Designation	Top flange	A	B	Weight [lbs]	Code
40	SHL.F0509.230	F05	9.06	1.81	0.7	SHL09
50-80	SHL.F0711.230	F07	9.06	1.81	0.7	SHL11
100-125	SHL.F0714.270	F07	10.63	2.01	3.1	SHL14
150	SHL.F0717.325	F07	12.80	2.01	5.3	SHL17
200	SHL.F1019.349	F10	13.74	2.20	5.7	SHL19
250-300	SHL.F1022.349	F10	13.74	2.20	5.7	SHL22

Material: Stainless steel (1.4308 or A2)

Order example	1	DN	2	3	4	5	6	7	8	9			
Code	497	Order data butterfly valve (page 4)								SHL11			

9 Dimensions / order data - Type 497 with manual operator [inch]

Hand wheel



DN	Order designation	A	B	C	D	E	H	øR	n*	[lbs]	Code
40	GB23205F05-F07 D9 PS100	3.15	4.49	1.67	1.89	4.13	2.09	3.94	0.39	1.8	GB232
50 - 80	GB23205F05-F07 D11 PS100	3.15	4.49	1.67	1.89	4.13	2.09	3.94	0.39	1.8	GB232
100 - 125	GB23205F05-F07 D14 PS100	3.15	4.49	1.67	1.89	4.13	2.09	3.94	0.39	1.8	GB232
150	GB23206F05-F07 D17 PS160	3.15	4.49	1.67	1.89	6.10	2.32	6.30	0.39	2.0	GB232
200	GB23208F07-F10 D19 PS200	3.94	5.16	1.97	2.20	6.69	2.64	7.87	0.36	3.1	GB232
250 - 300	GB23208F07-F10 D22 PS200	3.94	5.16	1.97	2.20	6.69	2.64	7.87	0.36	3.1	GB232
350 - 400	GB23211F10-F12 D27 SG400	5.75	6.85	2.36	3.11	7.87	3.11	15.75	0.44	5.9	GB232
450 - 500	GB23214F10-F14 D36 SG400	6.89	8.23	3.15	3.27	11.02	3.35	15.75	0.39	10.4	GB232
600	GB880 F12-F16 D46 SG400	7.87	8.90	3.39	3.94	13.35	3.66	15.75	0.37	30.9	GB880

Material: Aluminium, polyurethane coated n*= handwheel turns OPEN/CLOSED

Order example	1	DN	2	3	4	5	6	7	8	9			
Code	497	Order data butterfly valve (page 4)								GB232			

Technical data - Motorized GEMÜ actuators

Min. / max. ambient temperature

14 to 140 °F

Min. / max. storage temperature

-4 to 140 °F

Protection class to EN 60529

IP 65

Torque / Weight

Actuator version 1015	(DN 15)	2.2 lbs
Actuator version 2015	(DN 15)	2.6 lbs
Actuator version 3035	(DN 35)	5.3 lbs
Actuator version 2070	(DN 70)	10.1 lbs
Actuator version 4100	(DN 100)	24.2 lbs
Actuator version 4200	(DN 200)	24.2 lbs
Actuator version 6400	(DN 400)	30.9 lbs

Mounting position

Optional

Special feature

Standard manual override

Directives

EC Machinery Directive 98/37/EC, annex II B

EC EMC directive 89/336/EEC

Travel

Nominal travel	90°
Maximum travel	93°
Setting range limit switch min.	0 - 20°
Setting range limit switch max.	70 - 93°

Power supply

Rated voltage	24 V DC / 24 V, 120 V, 230 V, 100-250 V AC
Rated frequency (at AC rated voltage)	50/60 Hz
Voltage tolerance	+10% / -15%

Operating time

Actuator version 1015, 2015	approx. 11 sec
Actuator version 3035	approx. 15 sec
Actuator version 2070	approx. 19 sec
Actuator version 4100	approx. 20 sec
Actuator version 4200	approx. 16 sec
Actuator version 6400	approx. 29 sec

Rating

Actuator version 1015, 2015, 3035	60 %
Actuator version 1015, 2015, 3035 (voltage O4)	40 %
Actuator version 3035	60 %
Actuator version 2070	100 %
Actuator version 4100	100%
Actuator version 4200	100 %
Actuator version 6400	70 %

Material

Actuator version	1015	2015 / 3035	2070	4100, 4200
Housing base	PP (30% gr*)	PP (30% gr*)	ABS	Aluminium
Housing cover	PPO (10% gr*)	PP (30% gr*)	ABS	Aluminium
Indicator	PP-R natur	PP-R natur	PP-R natur	PMMA

*gr = glass reinforced

Power and current consumption

Actuator version	24 V DC		24 V AC		120 V AC		230 V AC		100-250 V AC
	A0/AE/AP E1/E2	00/0E/0P	A0/AE/AP E1/E2	00/0E/0P	A0/AE/AP E1/E2	00/0E/0P	A0/AE/AP E1/E2	00/0E/0P	A0/AE
	Power consumption [W]								
1015, 2015 (133 in-lbs)	30	-	40	-	-	-	-	-	-
3035 (310 in-lbs)	30	-	30	-	-	-	-	-	50
2070 (619 in-lbs)	96	63	-	63	160	-	161	-	-
4100 (886 in-lbs)	96	105	-	140	160	105	161	130	-
4200 (1770 in-lbs)	96	90	-	110	160	90	161	105	-
6400 (3540 in-lbs)	120	120	-	120	170	120	185	145	-

Correlation tables for motorized GEMÜ actuators

Actuator version / Voltage-Frequency

Actuator version	Voltage-Frequency (code)				
	C1	C4	G4	L4	O4
1015	X	-	-	-	-
2015	-	X	-	-	X
3035	X	X	-	-	X
2070	X	X	X	X	-
4100	X	X	X	X	-
4200	X	X	X	X	-
6400	X	X	X	X	-

Actuator version / Nominal size

Actuator version	DN									
	40	50	65	80	100	125	150	200	250	300
1015	X	-	-	-	-	-	-	-	-	-
2015	X	-	-	-	-	-	-	-	-	-
3035	-	X	-	-	-	-	-	-	-	-
2070	-	-	X	X	X	-	-	-	-	-
4100	-	-	-	-	-	X	-	-	-	-
4200	-	-	-	-	-	-	X	X	-	-
6400	-	-	-	-	-	-	-	-	X	X

Actuator version / Functional module

Actuator version	Functional module (code)							
	A0	AE	AP	E2	E1	00	0E	0P
1015	X	X	-	-	-	-	-	-
2015	X	X	-	-	-	-	-	-
3035	X	X	-	-	-	-	-	-
2070	X	X	X	X	X	X	X	X
4100	X	X	X	X	X	X	X	X
4200	X	X	X	X	X	X	X	X
6400	X	X	X	X	X	X	X	X

Order data - GEMÜ 498 with motorized GEMÜ actuators

12 Voltage/Frequency	Code
24V DC	C1
24V AC 50/60 Hz	C4
120V AC 50/60 Hz	G4
100 - 250V 50/60 Hz	O4
230V AC 50/60 Hz	L4

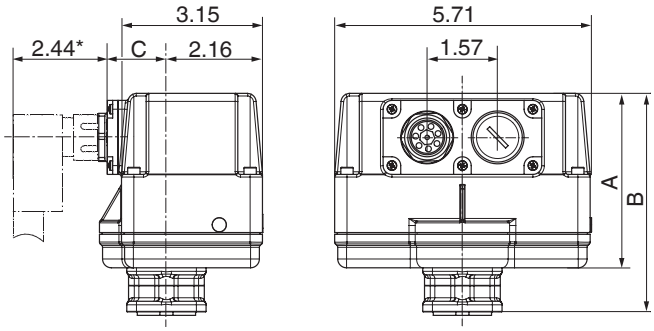
13 Functional module	Code
OPEN / CLOSE control	A0
OPEN/CLOSE control with 2 additional potential-free limit switches	AE
OPEN/CLOSE control with potentiometer output	AP
Control module; for external set value 4-20 mA	E2
Control module; for external set value 0-10V DC	E1
OPEN/CLOSE control, not reversible	00
OPEN/CLOSE control, not reversible with 2 additional potential-free limit switches	0E
OPEN/CLOSE control, not reversible with potentiometer output	0P

14 Actuator version		Code
DN 40	Torque 11.1 ftlb, operating time 11 sec; supply voltage C1	1015
DN 40	Torque 11.1 ftlb, operating time 11 sec; supply voltage C4, O4	2015
DN 50	Torque 25.8 ftlb, operating time 15 sec; supply voltage C1, C4, O4	3035
DN 65-100	Torque 51.6 ftlb, operating time 15 sec; supply voltage C1, C4, G4, L4	2070
DN 125	Torque 73.8 ftlb, operating time 20 sec; supply voltage C1, C4, G4, L4	4100
DN 150-200	Torque 147.5 ftlb, operating time 16 sec; supply voltage C1, C4, G4, L4	4200
DN 250-300	Torque 295 ftlb, operating time 29 sec; supply voltage C1, C4, G4, L4	6400

Order example	1	2	3	4	5	6	7	8			12	13	14
Code	498	Order data butterfly valve (page 4)									C1	A0	2070

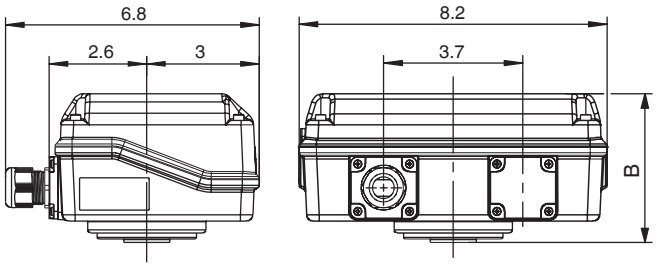
Actuator dimensions [inch]

Actuator version 1015, 2015



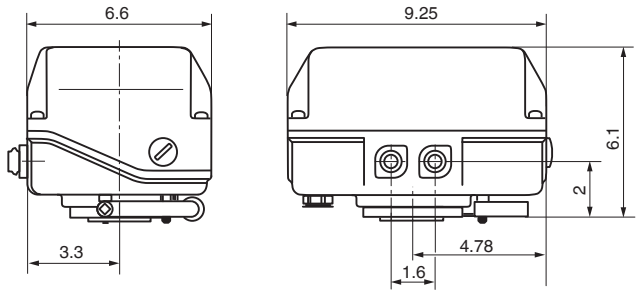
Voltage	A	B	C
24V	2.68	3.74	1.93
100V - 250V	3.7	4.76	2.09

Actuator version 3035

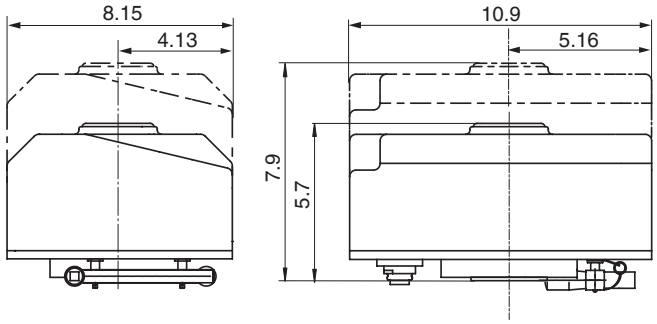


Voltage	B
24V	3.96
100V - 250V	4.9

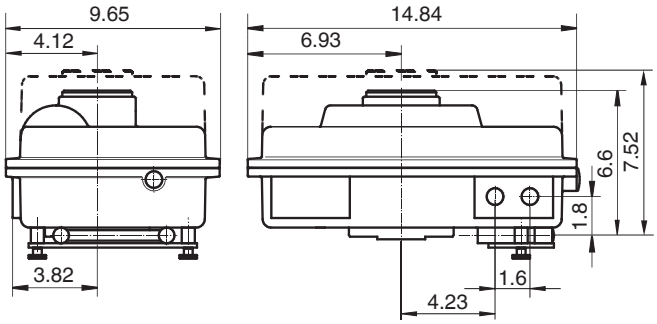
Actuator version 2070



Actuator version 4100, 4200



Actuator version 6400



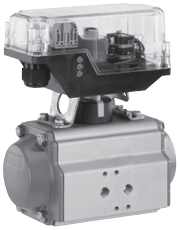
——full line ≙ overall height 1
version functional module code 00, 0E, 0P
- - - - -broken line ≙ overall height 2
version functional module code A0, AE, AP, E2, E1

Note: For connection and wiring diagrams for motorized GEMÜ actuators see data sheet

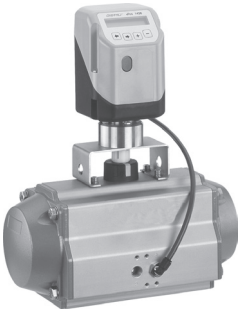
Actuator version code 1015, 2015, 3035 - Data sheet GEMÜ 9428
Actuator version code 2070, 4100, 4200, 6400 - Data sheet GEMÜ 9468

Certificate	Standard	Item number
2.1 Certificate of compliance with the order	EN 10204	88039442
2.2 Functionality	EN 10204/EN 12266-2 F20	88439527
2.2 Pressure test	EN 10204, DIN EN 12266 P10, P11, P12	88039443
3.1 Body material	EN 10204	88329322
3.1 Disc/shaft material	EN 10204	88329326
3.1 Pressure test	DIN EN 12266-1 P10, P11, P12	88337306
3.1 Layer thickness measurement		88460229
3.1 Ferrite content measurement		88548641

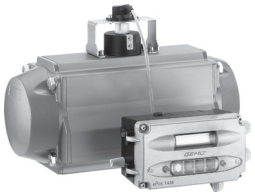
Instrumentation for quarter turn actuators



GEMÜ ES2
Electrical position indicator



GEMÜ 1436 cPos
Electro-pneumatic positioner and/or process controller



GEMÜ 1435 ePos
Electro-pneumatic positioner

GEMÜ 4221
Combi switchbox with integrated 3/2 way pilot valve

further GEMÜ metal butterfly valves

GEMÜ 4 ...Victoria DN 25 - 600
GEMÜ D4... DN 25 - 1400

GEMÜ 487
GEMÜ D487

GEMÜ 488
GEMÜ D488

GEMÜ 481
GEMÜ D481

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

GEMÜ® VALVES, MEASUREMENT AND CONTROL SYSTEMS

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