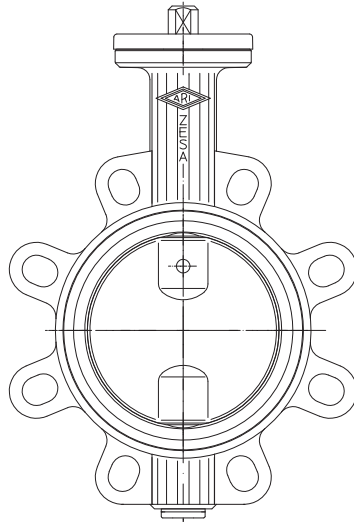


Operating and installation instructions

VFA-Butterfly valves (FRAKTA)



Series 012 - ZESA®

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1.0 General information on operating instructions

These operating instructions provide information on mounting and maintaining the fittings. Please contact the supplier or the manufacturer in case of problems which cannot be solved by reference to the operating instructions.

They are binding on the transport, storage, installation, start-up, operation, maintenance and repair.

The notes and warnings must be observed and adhered to.

- Handling and all work must be carried out by expert personnel or all activities must be supervised and checked.

It is the owner's responsibility to define areas of responsibility and competence and to monitor the personnel.

- In addition, current regional safety requirements must be applied and observed when taking the fittings out of service as well as when maintaining and repairing them.

The manufacturer reserves the right to introduce technical modifications at any time.

These Operating Instructions comply with the requirements of EU Directives.

2.0 Notes on possible dangers

2.1 Significance of symbols



Warning of general danger.


2.2 Explanatory notes on safety information

In these Operating and Installation Instructions dangers, risks and items of safety information are highlighted to attract special attention.

Information marked with the above symbol and "**ATTENTION!**" describe practices, a failure to comply with which can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

All other information not specifically emphasised such as transport, installation, operating and maintenance instructions as well as technical data (in the operating instructions, product documentation and on the device itself) must also be complied with to the fullest extent in order to avoid faults which in turn can cause serious injury to persons or damage to property.

3.0 Storage and transport

	<p>ATTENTION !</p> <ul style="list-style-type: none">- <i>Protect against external force (like impact, vibration, etc.).</i>- <i>Valve mountings such as actuators, handwheels, hoods must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.</i>- <i>Suitable materials handling and lifting equipment should be used.</i> <p><i>See catalog sheet for weights.</i></p>
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- At -20°C to +65°C.

- The paint is a base coat to protect against corrosion during transportation and storage. Do not damage paint protection.

4.0 Description

4.1 Scope of applications

Butterfly valves are used for “interruption or restriction of the flow of liquids and gases”.



ATTENTION !

- Refer to the data sheet for applications, limits on use and possibilities.
- Certain media require or preclude the use of special materials.
- The valves are designed for standard operating conditions. If conditions exceed these requirements, e.g. aggressive or abrasive media, the operator should state the higher requirements when ordering.
- Valves made from grey cast iron are not authorised for use in systems subject to TRD 110.

The information complies to the Pressure Equipment Directive 97/23/EC.

It is the responsibility of the machine planner to ensure compliance.

The special markings on the valve must be taken into account.

Refer to the catalogue sheet to see which materials are used in standard versions.

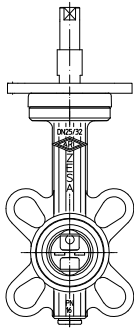
Please contact the supplier or the manufacturer if you have any questions.

4.2 Operating principles

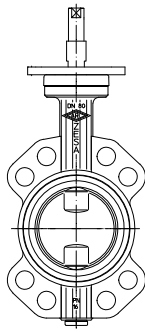
The valve is closed by turning the disc shaft clockwise.

The shaft moves through 90°.

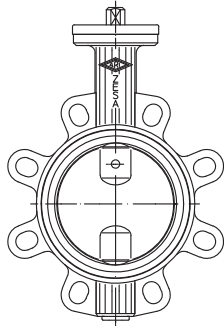
4.3 Technical data - remarks



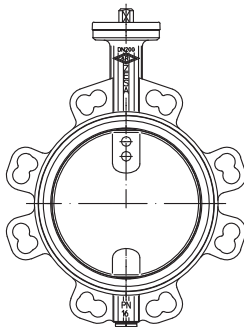
DN 25 - 65



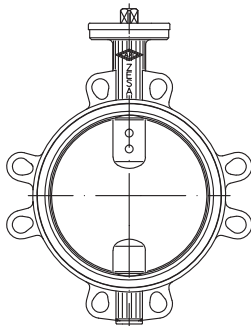
DN 80 - 100



DN 125 - 150



DN 200



DN 250 - 300

- Pressure range:** 16 bar
- Max. differential:** 12 bar (DN25-80)
6 bar (DN100-300)
- Sealing leakage test:** DIN EN 12266 Leakage rate A
(DIN 3230 T3 Leakage rate 1)
- Temperature range:** EPDM -10 °C to +130 °C
- Body material:** EN-JS1030, EN-GJS-400-15

Selection of possible applications

- Cold -and cooling water installations
- Heating installations
- Drinking water and domestic water
- Waste water
- Swimming pool-installations
- Other applications on request -

Features

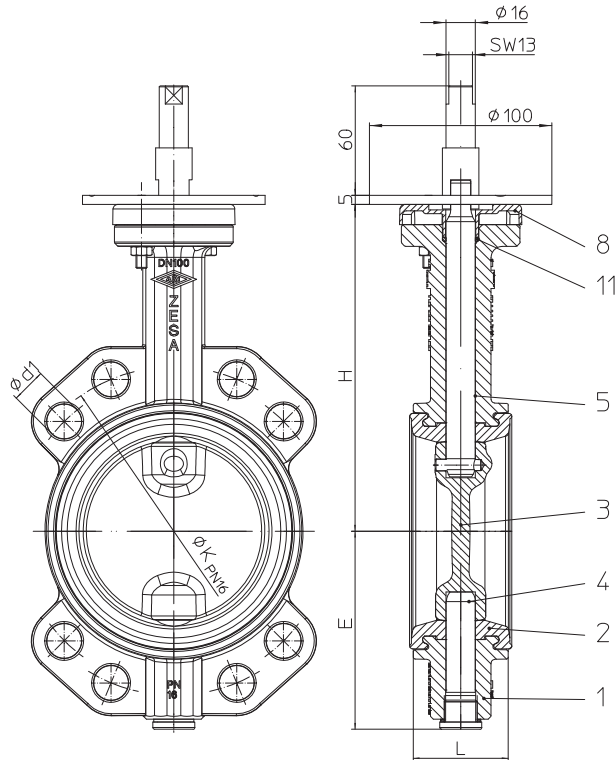
- Soft sealing
- Maintenance-free
- Good flow characteristic due to excellent Zeta-values
- Seat material EPDM (NBR, FPM on request)
- Double sealing of the flap shaft
- Disc: stainless steel (up to DN80) / EN-JS1030
- Complete insulation possible according to the german „Energy saving order - EnEV“
- Dew point barrier
- Central disc bearing
- EPDM approval for DIN DVGW Reg. Water DW-6201BR0244
- Wafer type (lug type on request)
- Nodular iron body

Pressure - temperature - ratings

Material	PN	Temperature	
		- 10°C up to 120°C	130°C
GGG-40	16	16 bar	15,8 bar

Operating range depends on existing service conditions and technical regulations.
Intermediate values for max. permissible operational pressures can be determined by linear interpolation of the given temperature / pressure chart.

4.3.1 Parts



Pos.	Description	Material, Material-No.
1	Body	EN-JS1030, EN-GJS-400-15
2	Seat	EPDM
3	Disc	DN \leq 80 GX5CrNiMoN19-11-2, 1.4581 DN100-300 EN-JS1030 with DELTA-TONE-coating
4	Pivot	X20Cr13+QT, 1.4021+QT
5	Stem	X20Cr13+QT, 1.4021+QT
8	Cap	PA6
11	O-Ring	EPDM

Information / Restrictions of technical rules to be observed!

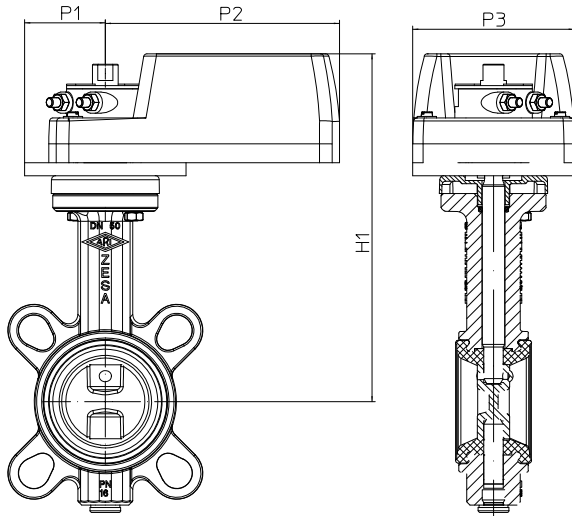
4.3.2 Dimensions

DN	L	H	E	I	SW	ϕ K	n x ϕ d1
25*	33	128	58	15	11	85	4 x ϕ 18
32*	33	128	58	15	11	100	4 x ϕ 18
40	33	134	66	15	11	110	4 x ϕ 18
50	43	140	69	15	11	125	4 x ϕ 18
65	46	150	81	15	11	145	4 x ϕ 18
80	46	158	100	15	11	160	4 x ϕ 18
100	52	179	109	15	11	180	4 x ϕ 18
125	56	196	124	18	17	210	8 x ϕ 18
150	56	212	140	18	17	240	8 x ϕ 22
200	60	246	167	18	17	295	8 x ϕ 22
250	68	273	203	24	22	355	8 x ϕ 26
300	78	302	232	24	22	410	8 x ϕ 26

* ZESA - DN 25/32 suitable for flanges PN16/DN20

4.3.3 Electric rotary actuator Type: series DA / DAL / DAG

- Enclosure IP 40
- Voltages: 230V 50/60Hz
24V AC/DC

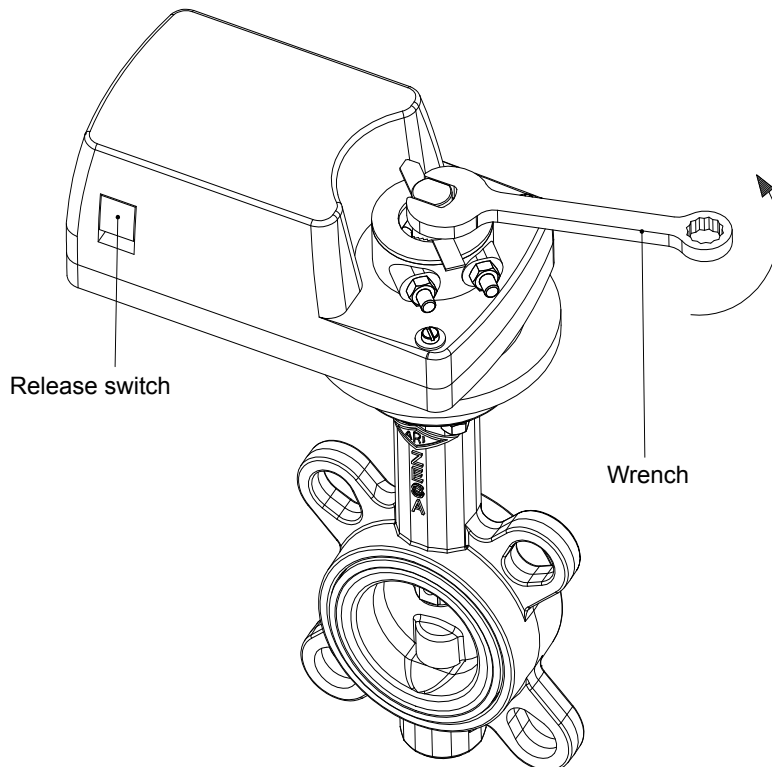


- **Accessories:**
 - Travel switch
 - Potentiometer (2000 Ohm)

For connection refer to terminal connection in the operating instructions of the actuator !

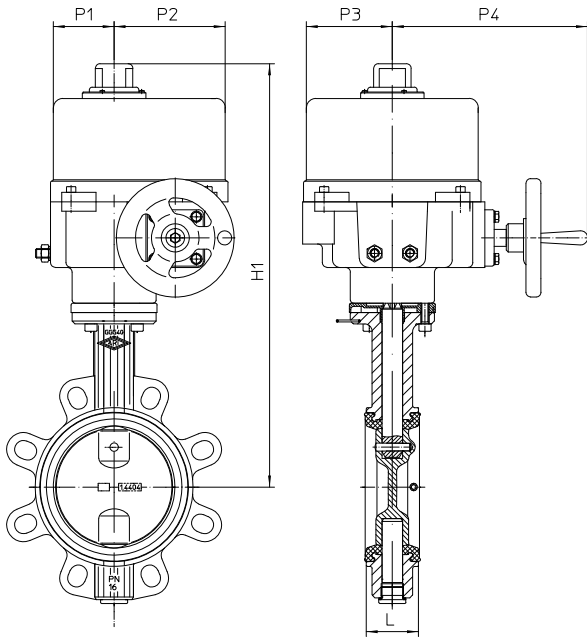
DN	25	32	40	50	65	80	100
H1	204	204	209	216	226	234	255
P1 / P2	50 / 145						
P3	100						
Type of actuator	DA...			DAL...		DAG...	
Operating time	80			125		140	
Weight ZESA (kg)	2,8	2,8	3	3,4	4	4,6	5,4

4.3.3.1 Manual operating device



- Press release switch.
- Turn the SW13 square to the pipe with a wrench.

4.3.4 Electric rotary actuator Type: ARI-OM



- Enclosure IP 67
- Temperature guard in the motor
- Voltages: 230V 50Hz, 30% ED
24V AC

- **Accessories:**
 - Travel switch
 - Potentiometer (2000 Ohm)
 - Positioner 4-20 mA

For connection refer to terminal connection in the operating instructions of the actuator !

DN	25	32	40	50	65	80	100	125	150	200	250	300
H1	278	278	284	290	300	308	379	451	467	501	592	621
P1 / P2	35 / 80						82 / 118			100 / 127		
P3 / P4	54 / 54						100 / 230			117 / 263		
Type of actuator	OM -1						OM-2		OM-3		OM-4	
Operating time	13						24		17		26	
Weight ZESA (kg)	3,8	3,8	4,0	4,4	5,0	5,6	7,4	16,0	18,0	22,0	37,3	48,8

4.3.5 Installation variations

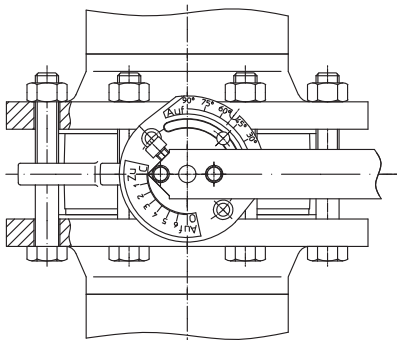


Fig. 1: ZESA-Wafer-type-valve

Welding neck flanges C
PN 16 - DIN EN1092-1/11/B1

Hexagon screw
DIN EN ISO 4016 Mat.-No. 4.6

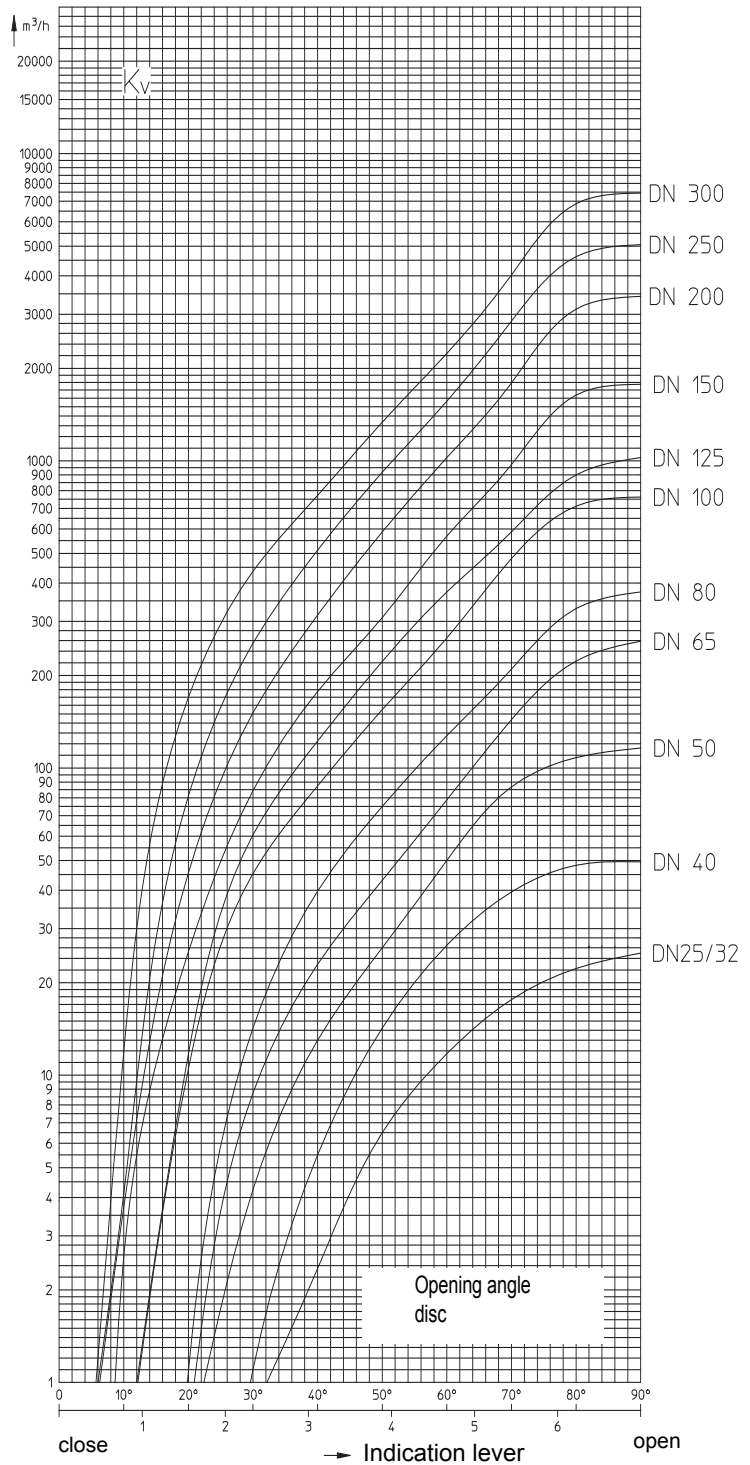
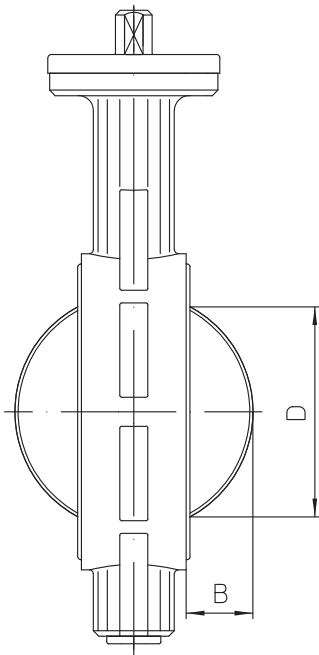
Hexagon nut
DIN EN ISO 4034 Mat.-No. 5

Dimension of hexagon screws

DN	PN 16 DIN 2633
25	4 x M12 x 90
32	4 x M16 x 90
40	4 x M16 x 90
50	4 x M16 x 100
65	4 x M16 x 110
80	8 x M16 x 110
100	8 x M16 x 120
125	8 x M16 x 130
150	8 x M20 x 130
200	12 x M20 x 140
250	12 x M24 x 160
300	12 x M24 x 170

4.3.6 Flow diagram

DN	Zeta-value	Kvs-value
25	0,93	26,0
32	2,4	26,5
40	1,7	49,6
50	0,75	116
65	0,43	259
80	0,46	377
100	0,27	763
125	0,37	1030
150	0,25	1790
200	0,21	3460
250	0,24	5070
300	0,23	7430




4.3.7 Difference between disc outside-diameter and face-to-face

DN	25 - 32	40	50	65	80	100	125	150	200	250	300
B	--	5	5	11	18	25	36	48	71	91	112
D	--	26	29	49	68	88	115	142	194	243	292

4.4 Marking

Details of the CE-marking on the valve:

 CE-marking

0525 Notified body



Manufacturer

Address of the manufacturer:

Typ Type

refer to point 11.0 Warranty / Guarantee

Bj. Year of manufacture

According to the Pressure Equipment Directive table 6, annex II, valves without safety function are only allowed to bear the CE-marking DN32 onwards.

5.0 Installation

5.1 General remarks on installation

The following points should be taken into account besides the general principles governing installation work:



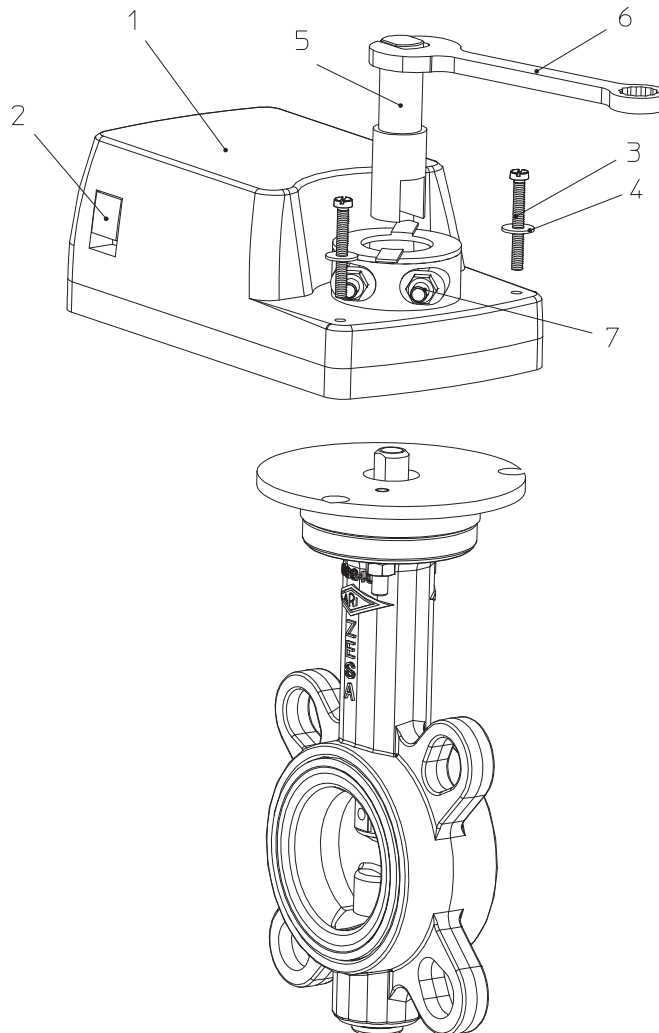
ATTENTION !

- Remove flange covers if present.
- The interior of valve and pipeline must be free from foreign particles.
- The direction of flow need not be taken into account.
- Steam line systems should be designed to prevent water accumulation.
- Lay pipelines so that damaging transverse, bending and torsional forces are avoided.
- Protect valves from dirt during construction work.
- Connection flanges must mate exactly.
- Valve mountings such as actuators, handwheels, hoods must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.
- Flooding of the butterfly valve is not permissible.
- Suitable materials handling and lifting equipment should be used.
See data sheet for weights.
- The shaft can be in any position except for DN350 up to DN600 (preferably horizontal shaft).
- No gaskets required between flanges, flexible gaskets are not allowed.
- The butterfly valve should be installed in open position, but the disc should not protrude beyond the housing.
- Large actuators with horizontal application must be supported.
- Avoid damage to the rubber sheathing during handling, storage and installation.
- Do not heat the valve (e.g. by welding, grinding, etc.) above its service temperature (refer to data sheets).
- Protect actuators from excessive ambient temperatures (refer to operating instructions for actuator).
- If the butterfly valve is in operation as a pipeend valve, regard DIN EN 294 point 5.

- Planners / construction companies or operators are responsible for positioning and installing products.

- The valves are designed for application, not influenced from weather.
- For application outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc.), special constructions or protective measures are recommended.
- **The valves are not permitted for subsurface installation.**

5.2 Installation of actuator DA / DAL / DAG



- Press release switch (Pos. 2).
- Drive the M9000-actuator (Pos. 1) into the right hand end position.
(Butterfly valve will be closed counter-clockwise).
- Fasten actuator with screws (Pos. 3) and washer (Pos. 4).



ATTENTION !

- Do not forget the washers, because the plastic body of the actuator could be damaged.

- Insert stem adapter (Pos. 5) into U-form fastener (Pos. 7) and adjust onto the 2-flat of the stem.
- Close butterfly valve with a wrench SW13.
(2-flat of the stem is square to the flow direction of the butterfly valve.)
- Fasten U-form fastener (Pos. 7).

6.0 Putting the valve into operation



ATTENTION !

- Before putting the valve into operation, check material, pressure, temperature and direction of flow.
- Regional safety instructions must be adhered to.
- Residues in piping and valves (dirt, weld beads, etc.) inevitably lead to leakage.
- Touching the valve when it is operating at high ($> 50^{\circ}\text{C}$) or low ($< 0^{\circ}\text{C}$) media temperatures can cause injury.
Affix warning notice or protective insulation as appropriate!

Before putting a new plant into operation or restarting a plant after repairs or modification, always make sure that:

- All works has been completed!
- The valve is in the correct position for its function.
- Safety devices have been attached.

7.0 Care and maintenance

Maintanance and maintenance-intervals have to be defined by the operator according to the requirements.



ATTENTION !

- It is advisable to actuate the valve at least once a month.
- When used as an end-blockage, a safety precaution (e.g. plug-in disc, blind flange etc.) is demanded by maintenance works.

8.0 Troubleshooting

In the event of malfunction or faulty operating performance check that the installation and adjustment work has been carried out and completed in accordance with these Operating Instructions.




ATTENTION !

- It is essential that the safety regulations are observed when identifying faults.

If malfunctions cannot be eliminate with the help of the following table “9.0 Troubleshooting table”, the supplier or manufacturer should be consulted.

9.0 Troubleshooting table

	<p>ATTENTION !</p> <p>- read point 10.0 and 11.0 prior to dismantling and repair work!</p> <p>- read point 6.0 before restarting the plant !</p>
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Fault	Possible cause	Corrective measures
No flow	Valve closed.	Open valve.
Little flow	Valve not sufficiently open.	Open valve.
	Strainer sieve clogged.	Clean / replace sieve.
	Piping system clogged.	Check piping system.
Valve is impossible or difficult to open or close	Service conditions (e.g. medium, temperature) outside permissible limits.	Replace valve. Consult supplier or manufacturer.
	Power failure.	Check power supply.
	Wrong direction of rotation.	Turn in correct direction (clockwise for opening).
Valve leaking	Not properly closed.	Close valve properly or readjust limit switch/stop screw.
	Pressure difference too high.	Check plant.
	Medium contaminated.	Clean valve. Install strainer sieve <i>upstream</i> of valve.
	Lining/collars (item 4.3.1, pos. 2) or valve disc (item 4.3.1, pos. 3) damaged by foreign bodies or medium	Replace valve. Consult supplier or manufacturer.
Valve with locking device cannot be opened	Locking device tightened.	Slacken locking device.

10.0 Dismantling the valve or the top part



ATTENTION !

The following points must be observed:

- *Pressureless pipe system.*
- *Medium must be cool.*
- *Plant must be drained.*
- *Purge piping systems in case of caustic, inflammable, aggressive or toxic media.*

11.0 Warranty / Guarantee

The extent and period of warranty cover are specified in the "Standard Terms and Conditions of Albert Richter GmbH & Co. KG" valid at the time of delivery or, by way of departure, in the contract of sale itself.

We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.

No warranty claims can be made for any damage caused as the result of incorrect handling or disregard of operating and installation instructions, datasheets and relevant regulations.

This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.

Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.

No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.

The warranty shall not cover maintenance work, installation of external parts, design modifications or natural wear.

Any damage incurred during transport should not be reported to us but *rather* to the competent cargo-handling depot, the railway company or carrier company immediately or else claims for replacements from these companies will be invalidated.



Technology for the Future.

GERMAN QUALITY VALVES

ARI-Armaturen Albert Richter GmbH & Co. KG, D-33756 Schloß Holte-Stukenbrock

Telephone (+49 5207) 994-0 Telefax (+49 5207) 994-158 or 159

Internet: <http://www.ari-armaturen.com> E-mail: info.vertrieb@ari-armaturen.com

12.0 EC declaration of conformity

ARI-Armaturen Albert Richter GmbH & Co. KG,
Mergelheide 56-60, D-33756 Schloß Holte-Stukenbrock

EC declaration of conformity

as defined by
the Pressure Equipment Directive 97/23/EC

Herewith we declare,

that according to the above mentioned Pressure Equipment Directive (PED) the below listed products comply and have been approved according to table 6, annex II, module H through Lloyd's Register Quality Assurance GmbH (BS-Nr. 0525), Am Sandtorkai 41, D-20457 Hamburg.

Certificate-No: 50003/1

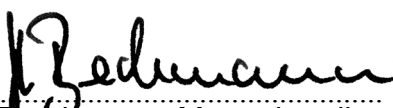
Butterfly valves ZESA® / GESA®
Type 012, 013

Butterfly valves ZIVA®-Z / ZIVA®-G
Type 014, 015

Applied standards:

DIN 3840

Schloß Holte-Stukenbrock, 11.01.2010


.....
(Eichelmann, Managing director)