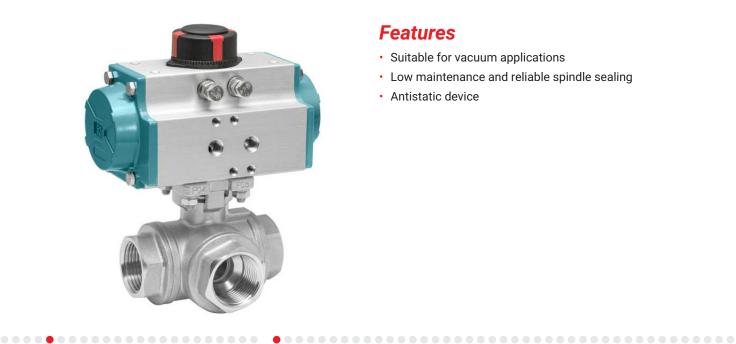


# GEMÜ B47

# Pneumatically operated 3/2-way ball valve



## **Features**

- · Suitable for vacuum applications
- · Low maintenance and reliable spindle sealing
- · Antistatic device

# **Description**

The GEMÜ B47 3/2-way metal ball valve is pneumatically operated. The seat seal is made of PTFE.

# **Technical specifications**

• Media temperature: -40 to 180 °C • Ambient temperature: -20 to 60 °C • Operating pressure: 0 to 40 bar • Nominal sizes: DN 8 to 50

• Body configurations: Multi-port body • Ball configurations: L-port | T-port · Connection types: Threaded connection

· Connection standards: DIN I NPT

• Body materials: 1.4408, investment casting material

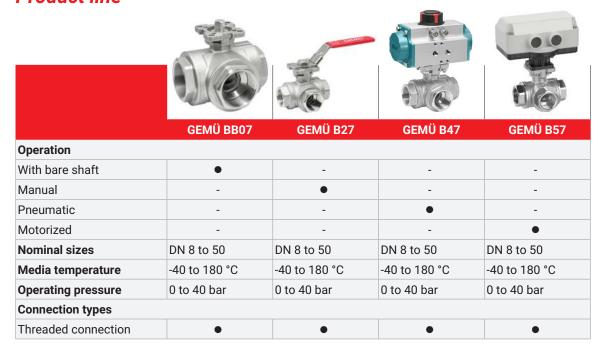
· Seal materials: PTFE Conformities: ATEX

Technical data depends on the respective configuration

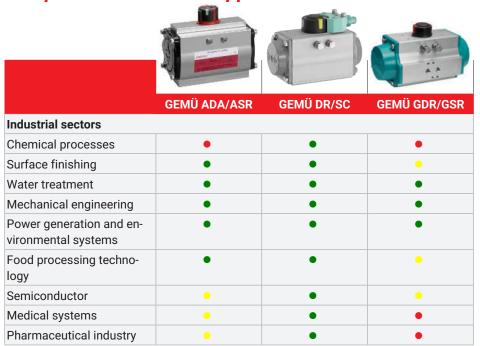




# **Product line**

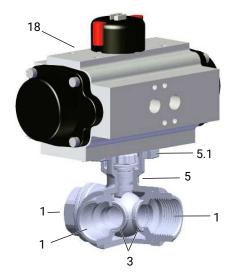


# Comparison of actuator applications



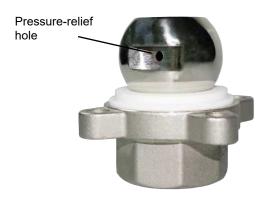
# **Product description**

## **Construction**

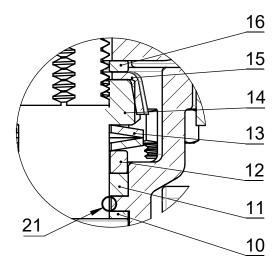


Item	Name	Materials
5	Ball valve body	1.4408 / CF8M
1	Pipe connections	1.4408 / CF8M
5.1	Mounting flange ISO 5211	1.4408 / CF8M
18	Pneumatic actuator	Aluminium
3	Seal	PTFE

### Pressure-relief hole



# The spindle seal system



Item	Name	Material
10	Seal	PTFE
11	V-ring	PTFE
12	Stainless steel sleeve	SS304-1.4301
13	Spring washer	SS304-1.4301
14	Spindle nut	A2 70
15	Сар	SS304-1.4301
16	Washer	SS304-1.4301
21	O-ring (spindle seal)	Viton

Long service life due to triple spindle seal

### - Conical spindle seal:

The seal 10 arranged at an angle of 45° effectively prevents the leakage of media when operating the spindle

#### - O-ring

Stabilising spindle seal 21 with low wear and long service life

### - Pretensioned self-adjusting spindle seal:

The spindle packing consists of several V-rings 11, a spring washer 13 and a stainless steel sleeve 12. The spring washer 13 is pretensioned via the spindle nut 14. The pretension force is distributed to the V-rings 11 via the stainless steel sleeve 12, thereby preventing the leakage of media. The pretension provides low maintenance and reliable spindle sealing even after a long service life.

# Actuator assignment

## **GEMÜ type GDR/GSR**

DN	Double acting	Code	Single acting	Code
8	GDR0050 F03/05 S11	HR05AW	-	-
10	GDR0050 F03/05 S11	HR05AW	-	-
15	GDR0050 F03/05 S11	HR05AW	-	-
20	GDR0050 F03/05 S11	HR05AW	-	-
25	GDR0050 F03/05 S11	HR05AW	GSR0115 SC5F07/10 S17	GR11SE
32	GDR0065 F05/07 S14	HR06AP	GSR0115 SC5F07/10 S17	GR11SE
40	GDR0075 F05/07 S14	HR07AP	GSR0115 SC5F07/10 S17	GR11SE
50	GDR0075 F05/07 S14	HR07AP	GSR0115 SC5F07/10 S17	GR11SE

# **GEMÜ type ADA/ASR**

DN	Double acting	Code	Single acting	Code
8	ADA0020U F04 S14S11A	BU02AA	ASR0020US08F04 S14S11A	AU02FA
10	ADA0020U F04 S14S11A	BU02AA	ASR0020US08F04 S14S11A	AU02FA
15	ADA0020U F04 S14S11A	BU02AA	ASR0040US14F04 S14S11A	AU04KA
20	ADA0020U F04 S14S11A	BU02AA	ASR0040US14F04 S14S11A	AU04KA
25	ADA0080U F05/07S17S14A	BU08AC	ASR0080US14F05/07S17S14A	AU08KC
32	ADA0080U F05/07S17S14A	BU08AC	ASR0080US14F05/07S17S14A	AU08KC
40	ADA0080U F05/07S17S14A	BU08AC	ASR0200US14F07/10S17S14A	AU20KE
50	ADA0080U F05/07S17S14A	BU08AC	ASR0200US14F07/10S17S14A	AU20KE

# **GEMÜ type DR/SC**

DN	Double acting	Code	Single acting	Code
8	DR0015U F04 S11	DU01AO	SC0030U 6F04 S11	SU03KO
10	DR0015U F04 S11	DU01AO	SC0030U 6F04 S11	SU03KO
15	DR0015U F04 S11	DU01AO	SC0100U 6F05/07S17D11	SU15KC
20	DR0015U F04 S11	DU01AO	SC0100U 6F05/07S17D11	SU15KC
25	DR0060U F05/07 S17	DU06AC	SC0100U 6F05/07S17D11	SU15KC
32	DR0060U F05/07 S17	DU06AC	SC0100U 6F05/07S17D11	SU15KC
40	DR0060U F05/07 S17	DU06AC	SC0100U 6F05/07S17D11	SU15KC
50	DR0060U F05/07 S17	DU06AC	SC0220U 6F07/10 S22	SU22KD

# **GEMÜ CONEXO**

The interaction of valve components that are equipped with RFID chips and an associated IT infrastructure actively increase process reliability.



Thanks to serialization, every valve and every relevant valve component such as the body, actuator or diaphragm, and even automation components, can be clearly traced and read using the CONEXO pen RFID reader. The CONEXO app, which can be installed on mobile devices, not only facilitates and improves the "installation qualification" process, but also makes the maintenance process much more transparent and easier to document. The app actively guides the maintenance technician through the maintenance schedule and directly provides him with all the information assigned to the valve, such as test reports, testing documentation and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and process all data.

### For further information on GEMÜ CONEXO please visit:

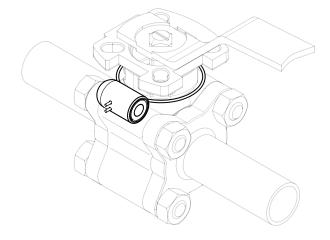
www.gemu-group.com/conexo

#### **Ordering**

GEMÜ Conexo must be ordered separately with the ordering option "CONEXO".

#### Installing the RFID chip

In the corresponding design with CONEXO, this product has an RFID chip for electronic identification purposes. The position of the RFID chip can be seen below.



# **Port positions**

# **T-port**

	CLOSED end position	OPEN end position	Condition as supplied to cus- tomer: CLOSED
Delivery condition			
Code T	1 2	1 2	1 2
Optional port position	ns, can be user adjusted		
Code 2	1 2	1 2	1 2
Code 3	1 2	1 2	1 2
Code 4	1 2	1 2	1 2

# L-port

	CLOSED end position	OPEN end position	Condition as supplied to cus- tomer: CLOSED
Delivery condition			
Code L	1 2	1 2	1 2
Optional port positio	ns, can be user adjusted		
Code 6	1 2	1 2	1 2

# **Application**

- Heating systems
- Beverage industry
- Foodstuff industry
- Chemical industry
- Drinking water installations
- Processing industry
- HVAC

# Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

Products ordered with **bold marked ordering options** are so-called preferred series. Depending on the nominal size, these are available more quickly.

### **Order codes**

1 Type	Code
Ball valve, metal, pneumatically operated, multi-port, threaded connection, aluminium double piston actuator, low-maintenance spindle seal and blow-out proof shaft, with anti-static unit	B47

2 DN	Code
DN 8	8
DN 10	10
DN 15	15
DN 20	20
DN 25	25
DN 32	32
DN 40	40
DN 50	50

3 Body/ball configuration	Code
Multi-port design, T-port, end position "Open", connection 1 and 3 open, T-port, end position "Closed", connection 1 and 2 open (For ball position see datasheet)	2
Multi-port design, T-port, end position "Open", connection 1 and 2 open, T-port, end position "Closed", connection 2 and 3 open (For ball position see datasheet)	3
Multi-port design, T-port, end position "Open", connection 2 and 3 open, T-port, end position "Closed", connection 1, 2 and 3 open open (For ball position see datasheet)	4
Multi-port design, T-port, end position "Open", connection 1 and 3 open, T-port, end position "Closed", connection 1 open (For ball position see datasheet)	6
Multi-port design, T-port, end position "Open", connection 2 and 3 open, T-port, end position "Closed", connection 1 and 3 open (For ball position see datasheet)	L
Multi-port design, T-port, end position "Open", connection 1, 2 and 3 open, T-port, end position "Closed", connection 1 and 3 open (For ball position see datasheet)	Т

4 Connection type	Code
Threaded socket DIN ISO 228	1
NPT female thread	31
5 Ball valve material	Code
1.4408 / CF8M (body, connection), 1.4401 / SS316 (ball, shaft)	37

6 Seal material	Code
PTFE	5
7 Control function	Code
Normally closed (NC)	1
Normally open (NO)	2
Double acting (DA)	3

Double acting (DA)	3
8 Actuator version	Code
Actuator GEMÜ GDR	
Actuator, pneumatic, double acting, clockwise rotation, GDR0050 F03/05 S11	HR05AW
Actuator, pneumatic, double acting, clockwise rotation, GDR0065 F05/07 S14	HR06AP
Actuator, pneumatic, double acting, clockwise rotation, GDR0075 F05/07 S14	HR07AP
Actuator GEMÜ GSR	
Actuator, pneumatic, single acting, clockwise rotation, spring closing, GSR0115 SC5F07/10 S17	GR11SE
Actuator GEMÜ ADA	
Actuator, pneumatic, double acting, clockwise rotation, ADA0020U F04 S14S11	BU02AA
Actuator, pneumatic, double acting, clockwise rotation, ADA0080U F05/07S17S14	BU08AC
Actuator GEMÜ ASR	
Actuator, pneumatic, single acting, clockwise rotation, spring closing, ASR0020US08F04 S14S11	AU02FA
Actuator, pneumatic, single acting, clockwise rotation, spring closing, ASR0040US14F04 S14S11	AU04KA
Actuator, pneumatic, single acting, clockwise rotation, spring closing, ASR0080US14F05/07S17S14	AU08KC
Actuator, pneumatic, single acting, clockwise rotation, spring closing, ASR0200US14F07/10S17S14	AU20KE
Actuator GEMÜ DR	
Actuator, pneumatic, double acting, clockwise rotation, DR0015U F04 S11	DU01AO
Actuator, pneumatic, double acting, clockwise rotation, DR0060U F05/07 S17	DU06AC
Actuator GEMÜ SC	
Actuator, pneumatic, single acting, clockwise rotation, spring closing, SC0030U 6F04 S11	SU03KO
Actuator, pneumatic, single acting, clockwise rotation, spring closing, SC0150U 6F05/07 S17	SU15KC

8 Actuator version		Code
Actuator, pneumatic, sing spring closing, SC0220U 6F07/10 S22	gle acting, clockwise rotation,	SU22KD

9 Actuator particulars	Code
Gen. industrial version, body alu, anodising layer 25-35µm, end caps alu, powder coated, shaft C steel + ENP, bolts A2	0

10 Special version	Code
Without	

10 Special version	Code
ATEX version	X

11 Type of design	Code
Standard	
Thermal separation between actuator and valve body via mounting kit, mounting kit and mounting parts in stainless steel	5227

12 CONEXO	Code
Without	
Integrated RFID chip for electronic identification and traceability	С

# **Order codes**

1 Type	B47	Ball valve, metal, pneumatically operated, multi-port, threaded connection, aluminium double piston actuator, low-maintenance spindle seal and blow-out proof shaft, with anti-static unit
2 DN	15	DN 15
3 Body/ball configuration	Т	Multi-port design, T-port, end position "Open", connection 1, 2 and 3 open, T-port, end position "Closed", connection 1 and 3 open (For ball position see datasheet)
4 Connection type	1	Threaded socket DIN ISO 228
5 Ball valve material	37	1.4408/CF8M (body, connection), 1.4401/SS316 (ball, shaft)
6 Seal material	5	PTFE
7 Control function	1	Normally closed (NC)
8 Actuator version	BU02AA	Actuator, pneumatic, double acting, clockwise rotation, ADA0020U F04 S14S11
9 Actuator particulars	0	Gen. industrial version, body alu, anodising layer 25-35µm, end caps alu, powder coated, shaft C steel + ENP, bolts A2
10 Type of design		Standard
11 Special version		Without
12 CONEXO		Without

### Technical data

### Medium

Working medium: Corrosive, inert, gaseous and liquid media and steam which have no negative impact on the phys-

ical and chemical properties of the body and seal material.

### **Temperature**

Media temperature: Connection code 17, 19, 59, -10 - 180 °C

Connection code 1, 31, 8, 11: -20 - 180 °C

For media temperatures > 100 °C, we recommend using a mounting kit with adapter between the

ball valve and the actuator.

 $-20 - 60 \,^{\circ}\text{C}$ **Ambient temperature:** 

Storage temperature:  $0 - 40 \, ^{\circ}\text{C}$ 

### **Pressure**

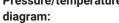
**Operating pressure:**  $0 - 40 \, \text{bar}$ 

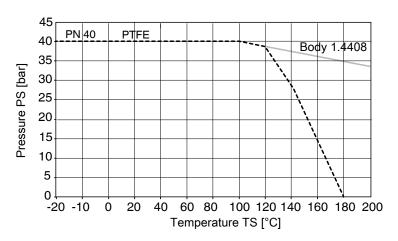
Vacuum: Can be used up to a vacuum of 50 mbar (absolute)

These values apply to room temperature and air. The values may deviate for other media and other

temperatures.

# Pressure/temperature





### Note media temperature

Pressure/temperature data in accordance with diagram refers to static operating conditions. Strongly fluctuating or fast-changing parameters can lead to a reduction of the service life. Special applications must be talked through with your technical contact person in advance.

Leakage rate according to ANSI FCI70 - B16.104 Leakage rate:

Leakage rate according to EN12266, 6 bar air, leakage rate A

Kv values:

DN	NPS	Kv values
8	1/4"	8.0
10	3/8"	8.0
15	1/2"	17.0
20	3/4"	34.0
25	1"	60.0
32	1¼"	94.0
40	1½"	213.0
50	2"	366.0

Kv values in m<sup>3</sup>/h

Control pressure: 6 to 8 bar

# **Product conformity**

Machinery Directive: 2006/42/EC

**Pressure Equipment Dir-**

ective:

2014/68/EU

**Explosion protection:** ATEX (2014/34/EU), order code Special version X

ATEX marking: Gas: 🗟 II 2G Ex h IIC T6 ... T2 Gb X

Dust: 🗟 II -/2D Ex h -/IIIC T180 °C -/Db X

## Mechanical data

**Torques:** 

DN	NPS	Torques
8	1/4"	8.0
10	3/8"	8.0
15	1/2"	10.0
20	3/4"	13.0
25	1"	19.0
32	1¼"	29.0
40	1½"	51.0
50	2"	62.0

Torques in Nm

A safety factor of 1.2 is included

With dry, non-lubricating media the breakaway torque may be increased.

Valid for clean, non-particulate and oil-free media (water, alcohol, etc.), gas or saturated steam (clean and wet). PTFE seal.

Weight:

Body

DN	NPS	Weight
8	1/4"	0.55
10	3/8"	0.55
15	1/2"	0.55
20	3/4"	0.85
25	1"	1.20
32	11/4"	2.20
40	1½"	3.40
50	2"	4.63

Weights in kg

### Actuator type GDR/GSR

Туре	GDR Double acting	GSR Single acting
0050	1.1	1.2
0065	1.5	1.8
0075	2.6	3.2
0115	8.0	10.6

Weights in kg

### Actuator type ADA/ASR

Туре	ADA Double acting	ASR Single acting
0020U	1.4	1.5
0040U	2.1	2.3
0080U	3.0	3.7
0200U	5.6	7.3

Weights in kg

### **Actuator DR/SC**

Туре	DR double acting	SC single acting
0015U	1.0	1.1
0030U	1.6	1.7
0060U	2.7	3.1
0100U	3.7	4.3
0220U	8.0	9.3

Weights in kg

90° travel:

GEMÜ GDR/GSR: ±5° adjustable (85° - 95°) GEMÜ ADA /ASR: ±5° adjustable (85° - 95°) GEMÜ DR /SC: 20° adjustable (75° - 95°)

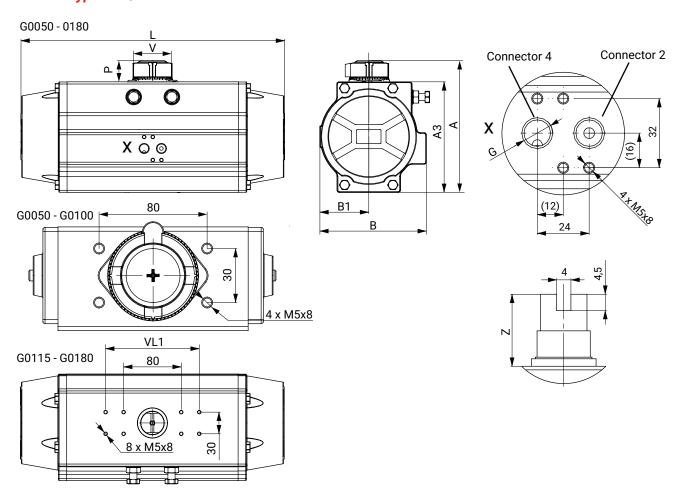
# **Dimensions**

# **Actuator dimensions**

Note on actuator mounting:

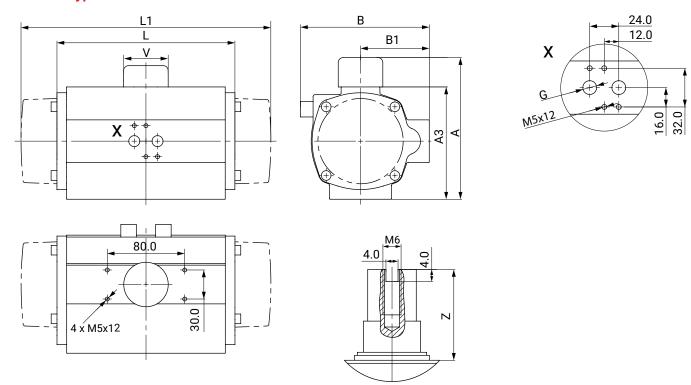
Standard mounting orientation – actuator positioned in-line with piping Only with flanged connections the actuator is mounted across the piping

### Actuator type GDR/GSR



Туре	A	A3	В	B1	V	G	Р	VL	Z		VL1
G0050	92.0	70.0	71.0	30.0	40.0	G1/8"	22.0	80.0	20.0	141.0	-
G0065	102.5	80.5	80.5	35.5	40.0	G1/8"	22.0	80.0	20.0	162.0	-
G0075	119.0	97.0	94.5	42.0	40.0	G1/8"	22.0	80.0	20.0	208.0	-
G0115	174.0	142.0	137.0	64.0	65.0	G1/4"	32.0	80.0	30.0	337.0	130.0

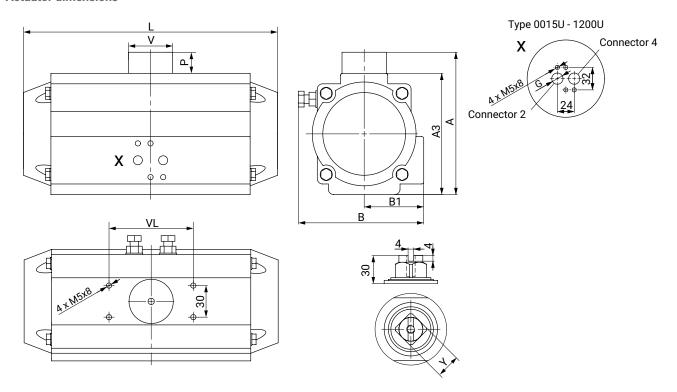
# Actuator type ADA/ASR



Туре	A	A3	В	B1	G		L1	V	Z
0020U	96.0	66.0	76.0	48.0	G1/4"	145.0	163.0	40.0	30.0
0040U	115.0	85.0	91.0	56.0	G1/4"	158.0	195.0	40.0	30.0
U080U	137.0	107.0	111.0	66.0	G1/4"	177.0	217.0	40.0	30.0
0200U	165.0	135.0	135.5	78.0	G1/4"	225.0	299.0	40.0	30.0

# Actuator type DR/SC

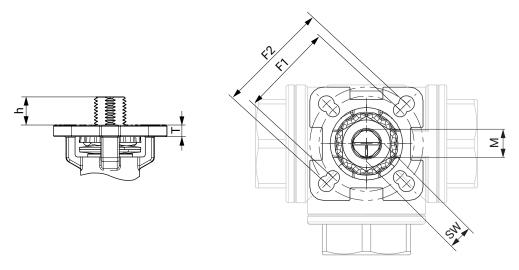
### **Actuator dimensions**



Туре	А	А3	В	B1	V	VL	G	Р	L	Υ
0015U	89.0	69.0	72.0	43.0	42.0	80.0	G1/8"	20.0	136.0	11.0
0030U	105.0	85.0	84.5	48.5	42.0	80.0	G1/8"	20.0	153.5	11.0
0060U	122.0	102.0	93.0	50.5	42.0	80.0	G1/8"	20.0	203.5	17.0
0100U	135.0	115.0	106.0	56.5	42.0	80.0	G1/8"	20.0	241.0	17.0
0150U	147.0	127.0	118.5	63.0	42.0	80.0	G1/4"	20.0	259.0	17.0
0220U	175.0	145.0	136.0	72.0	58.0	80.0	G1/4"	30.0	304.0	27.0

# **Body dimensions**

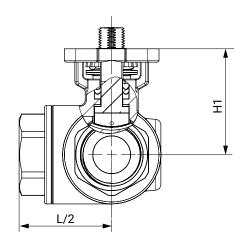
# Actuator flange

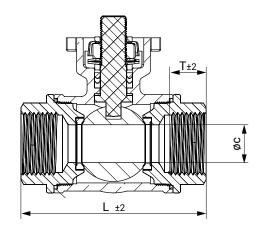


DN	G	F1	ISO 5211	F2	ISO 5211	SW	h	Т	М
8	1/4"	36.0	F03	42.0	F04	9.0	9.0	6.5	M12
10	3/8"	36.0	F03	42.0	F04	9.0	9.0	6.5	M12
15	1/2"	36.0	F03	42.0	F04	9.0	9.0	6.5	M12
20	3/4"	36.0	F03	42.0	F04	9.0	8.5	6.0	M12
25	1"	42.0	F04	50.0	F05	11.0	11.5	7.0	M14
32	1¼"	42.0	F04	50.0	F05	11.0	11.5	7.0	M14
40	1½"	50.0	F05	70.0	F07	14.0	14.0	8.5	M18
50	2"	50.0	F05	70.0	F07	14.0	14.0	8.5	M18

# **Body dimensions**

## Threaded socket (connection code 1, 31)





DN	G	ØC	H1		Т
8	1/4"	12.0	40.9	74.0	14.6
10	3/8"	12.0	43.0	74.0	14.6
15	1/2"	12.0	43.0	74.0	14.7
20	3/4"	15.0	45.0	86.0	16.7
25	1"	20.0	56.0	98.0	19.9
32	1¼"	25.0	62.0	118.0	21.9
40	1½"	32.0	74.0	130.0	22.4
50	2"	38.0	78.0	149.0	26.9

## Add-on components



#### **GEMÜ 4221**

#### Combi switchbox with integrated 3/2-way pilot valve

The GEMÜ 4221 combi switchbox with integrated 3/2-way pilot valve for pneumatically operated quarter turn actuators uses a microprocessor controlled intelligent position sensor and an analogue travel sensor system. Electrical activation and position feedback is provided via 24 V DC signals or via fieldbus (AS-Interface, DeviceNet).



### **GEMÜ LSC**

### Limit switch box for quarter turn actuators

The GEMÜ LSC limit switch box is suitable for mounting to manually and pneumatically operated quarter turn valves. It is also fitted with an optical position indicator for visual confirmation of position.



### **GEMÜ LSF**

#### Inductive dual sensor for quarter turn valves

The GEMÜ LSF inductive dual sensor is suitable for mounting to manually and pneumatically operated quarter turn valves. It is also fitted with an optical position indicator for visual confirmation of position.



#### GEMÜ 1435 ePos

### Intelligent electro-pneumatic positioner

The GEMÜ 1435 ePos digital electro-pneumatic positioner is used to control pneumatically operated process valves with single acting or double acting linear or quarter turn actuators, and detects the position of the valve using an external travel sensor. It has a robust aluminium housing with protected operating keys and an LCD display which allows the product to be individually adapted to the control task. The travel times can be set using integrated throttles. Connection and mounting to NAMUR is also possible. Therefore, the GEMÜ 1435 ePos is an optimal solution for control tasks with high requirements, especially in applications with harsh environmental conditions.



### GEMÜ 1436 cPos

### Intelligent positioner and integrated process controller

The GEMÜ 1436 cPos digital electro-pneumatic positioner has an optional integrated process controller to control pneumatically operated process valves with single acting or double acting linear or quarter turn actuators. When using the optional process controller, the signals from the sensors (e.g. flow, level, pressure, temperature) are detected and the media adjusted according to the specified set value. GEMÜ 1436 cPos has a robust aluminium housing with protected operating keys and an LCD display which allows the product to be individually adapted to complex control tasks. With additional equipment, the positioner can be used directly in fieldbus environments.



#### GEMÜ 1436 eco cPos

#### Intelligent electro-pneumatic positioner

The GEMÜ 1436 eco cPos digital electro-pneumatic positioner is used to control pneumatically operated process valves with single acting linear or quarter turn actuators. The positioner, travel sensor, switching valves and status LEDs are integrated into the robust and compact housing. Due to factory preconfiguration, this product does not require a display with operating keys. The pneumatic and electrical connections are arranged in one mounting direction to save space and enable easy access. All these features make this positioner a cost-effective solution for control tasks with basic requirements.

## **Accessories**

#### **GEMÜ ADH**

#### Mounting sleeve

The mounting sleeve accessories are available in the square and star geometry designs. These are used for the shaft and hub support for quarter turn actuators. Both sleeves have an internal square drive (please observe stated measurement dimensions here). The sleeve material is sintered metal and they are chemically nickel plated with a surface of  $25 \, \mu m$ .



#### **GEMÜ 2022**

#### Throttle valve

The GEMÜ 2022 throttle valves are available as throttle valve, throttle check valve and dual throttle check valve. In pneumatic actuators they are used to regulate the compressed air depending on the function for the supply or exhaust air and can be set independently of each other in the case of dual throttle check valves.



#### **GEMÜ 8500**

#### Electrically operated pilot solenoid valve

The GEMÜ 8500 servo assisted 3/2 or 5/2-way pilot solenoid valve is indirectly controlled. The body is made of aluminium. The plastic encapsulated coil is detachable. The piston valve has a soft elastomer seal.



### GEMÜ 8500DRN

#### Throttle plate

Throttle plates can be used to continuously adjust the travel times of pneumatic quarter turn actuators in both the "OPEN" and "CLOSED" directions independently of one another. They are installed between the NAMUR valve and the quarter turn actuator.



### **GEMÜ 1751**

### Silencer

Damping of vent hole or suction noises and coarse filtering of the suction air for pneumatic applications

### Certificates

# **Certificates**

Certificate	Standard	Item number	
3.1 Material	EN 10204	88333336	





