

# Butterfly valves

Plastic and Metal



**GEMU**® VALVES, MEASUREMENT  
AND CONTROL SYSTEMS

## Innovative technology

GEMÜ is a leading world-wide manufacturer of high quality valves, measurement and control systems.

Fritz Müller established GEMÜ in 1964, and since then, the company developed internationally with a large number of production centres, subsidiaries and trading companies on every continent.

GEMÜ provides engineered control solutions for a large number of process and engineering plant, such as:

- Industrial plant and machine construction
- Automobile industry
- Water / waste water treatment
- Chemical industry
- Steel works
- Mining and metal extraction
- Power stations
- Petrochemical industry
- Paper industry
- Pharmaceutical and biotechnological industries
- Foodstuff and beverage industries
- Microelectronics and semiconductor industries

State-of-the-art factory equipment and machinery plus a motivated team ensure the best service through our world-wide network of distributors and stockholding subsidiaries. We are constantly making investments in order to optimise our existing products and to develop new products. Thus we can provide technical solutions for individual applications.

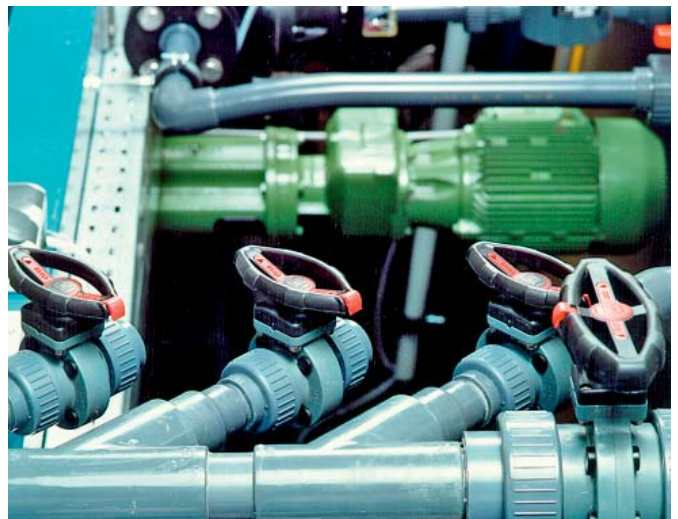
GEMÜ - your valve and instrumentation partner.



*Headquarters in Ingelfingen-Criesbach*



*Research and Development Centre in Niedernhall-Waldzimmern*



## Great variety

GEMÜ has a vast range of valves and operators for numerous applications:

- Butterfly valves in plastic DN 15 - DN 250
- Butterfly valves in metal DN 15 - DN 1400
- Check valves in plastic and metal
- Operators: manual, pneumatic and motorized
- Extensive range of accessories:
  - Pilot valves and valve manifolds
  - Electrical position indicators
  - Optical position indicators
  - Electro-pneumatic positioners and process controllers



## Metal butterfly valves DN 50 - DN 600

### GEMÜ VICTORIA

<b>Operator:</b>	<b>GEMÜ 480:</b> with bare shaft <b>GEMÜ 487:</b> manually operated <b>GEMÜ 481:</b> pneumatically operated Normally closed (NC), Normally open (NO), Double acting (DA) <b>GEMÜ 488:</b> motorized
<b>Max. operating pressure:</b>	16 bar, 10 bar
<b>Max. operating temperature:</b>	120°C (dependent on version)
<b>Seal material:</b>	EPDM, NBR, FPM, EPDM for drinking water applications
<b>Disc material:</b>	Stainless steel 1.4408, stainless steel 1.4408 Halar coated, GGG40 Epoxy coated, GGG40 Rilsan® PA 11 coated
<b>Body material:</b>	EN-GJS-400-15 (GGG 40) SG iron
<b>Body configuration:</b>	Wafer, lug, U section
<b>ATEX:</b>	available



**GEMÜ 480 VICTORIA**  
with bare shaft



**GEMÜ 487 VICTORIA**  
manually operated



**GEMÜ 481 VICTORIA**  
pneumatically operated



**GEMÜ 488 VICTORIA**  
motorized

## Metal butterfly valves DN 32 - DN 1400

### GEMÜ D480

**Operator:**

**GEMÜ D480:** with bare shaft

**GEMÜ D487:** manually operated

**GEMÜ D481:** pneumatically operated  
Normally closed (NC),  
Normally open (NO), Double acting (DA)

**GEMÜ D488:** motorized

**Max. operating pressure:** 10 bar, 16 bar (25 bar on request)

**Max. operating temperature:** -60°C bis 210°C (dependent on version)

**Seal material:**

HNBR, Butyl, Epichlorhydrine, Viton GF, EPDM, Flucast AB/P, Hypalon, EPDM (FDA), EPDM (FDA) White, EPDM (high temperature), EPDM (ACS, KTW, WRAS, W270), NBR, NBR (FDA) White, Neoprene, Silicone, Silicone (steam), Viton

**Disc material:**

CF8M / 1.4408, CF8M / 1.4408 polished, CF8M / 1.4408 Halar coated, 1.4469 Super Duplex, EN-GJS-400-15 / GGG40 Resicoat coated, EN-GJS-400-15 / GGG40 rubber lined EPDM, DIN 1705 (Rg 10), cast bronze

**Body material:**

EN-GJL-250 (GG 25), cast iron, from DN 700, EN-GJS-400-15 (GGG 40) SG iron, Epoxy coated; ASTM A351, CF8M, cast stainless steel; ASTM A216 WCB, cast steel; DIN 1705 (Rg 10), cast bronze; Steel S355J2+N, S 275 JR + Epox laminated carbon steel, EN-AC-47100, cast aluminium

**Body configuration:**

Wafer, LUG, U section



**GEMÜ D480**  
with bare shaft



**GEMÜ D487**  
manually operated



**GEMÜ D481**  
pneumatically operated

## Metal butterfly valves DN 40 - DN 900

### GEMÜ 490

<b>Operator:</b>	<b>GEMÜ 490:</b> with bare shaft <b>GEMÜ 497:</b> manually operated <b>GEMÜ 491:</b> pneumatically operated Normally closed (NC), Normally open (NO), Double acting (DA) <b>GEMÜ 498:</b> motorized
<b>Max. operating pressure:</b>	10 bar
<b>Max. operating temperature:</b>	200° C (dependent on version)
<b>Seal material:</b>	TFM™ / Silicone, TFM™ / EPDM, TFM™ / VITON
<b>Disc material:</b>	Stainless steel Duplex, PFA encapsulated, Titanium Grade 2, Hastelloy C22
<b>Body material:</b>	GGG40 Epoxy coated, Stainless steel 316L, steel S355J2G3, Duroplast (VE-CF)
<b>Body configuration:</b>	Wafer, lug
<b>ATEX:</b>	ATEX compliant version for potentially explosive areas



**GEMÜ 490**  
with bare shaft



**GEMÜ 497**  
manually operated



**GEMÜ 491**  
pneumatically operated



**GEMÜ 498**  
motorized

## Metal butterfly valves DN 15 - DN 50

### GEMÜ 411 / 415 / 428

<b>Operator:</b>	<b>GEMÜ 411:</b> manually operated
	<b>GEMÜ 415:</b> pneumatically operated Normally closed (NC), Double acting (DA)
	<b>GEMÜ 428:</b> motorized 12/24V DC, 12/24V AC 50/60 Hz, 100-250V AC 50/60 Hz
<b>Max. operating pressure:</b>	10 bar
<b>Max. operating temperature:</b>	100° C
<b>Seal material:</b>	FPM, silicone, EPDM
<b>Disc material:</b>	Brass, st. steel investment casting 1.4581
<b>Valve body material:</b>	Brass, st. steel investment casting 1.4581
<b>Connections:</b>	Brass: Threaded sockets Stainless steel: Butt weld spigots



**GEMÜ 411**  
manually operated



**GEMÜ 415**  
pneumatically operated



**GEMÜ 428**  
motorized

# Metal butterfly valves DN 50 - DN 400

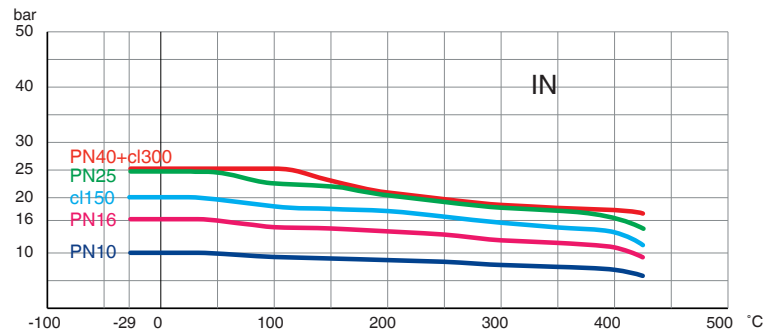
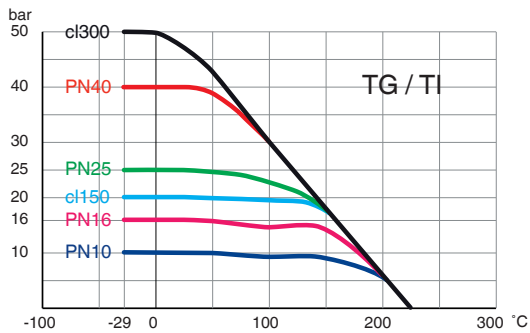
## ELARA

<b>Operator:</b>	Manual, pneumatic, motorized
<b>Voltage:</b>	12/24 V DC 50/60 Hz, 100-250 V AC 50/60 Hz
<b>Max. operating pressure:</b>	50 bar
<b>Max. operating temperature:</b>	600° C (see pressure/temperature diagram below)
<b>Max. control pressure:</b>	8 bar
<b>Seal material:</b>	PTFE seal, Fire-Safe, metal seal, PEEK
<b>Disc material:</b>	St. st. 1.4404
<b>Valve body material:</b>	Cast steel 1.1141, St. st. 1.4404
<b>Body configuration:</b>	Wafer and LUG
<b>ATEX:</b>	available

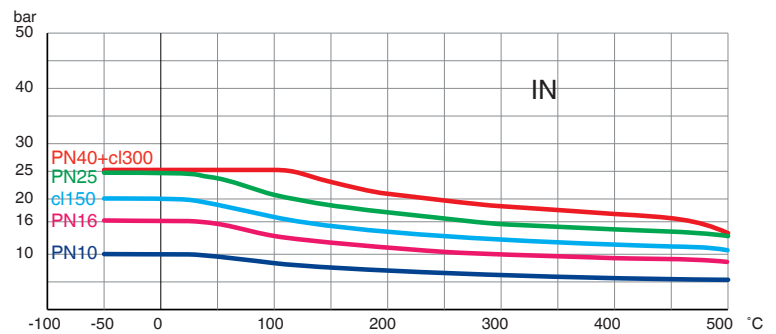
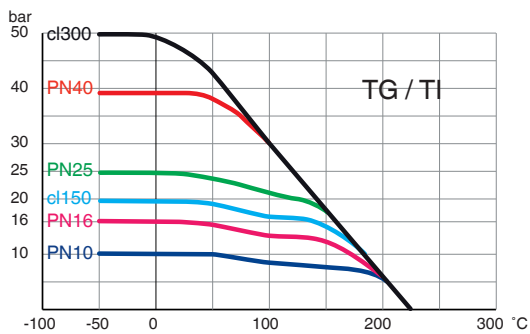


## Pressure/temperature diagram:

### Steel body (3HD)



### Stainless steel body (4C0)





## Plastic butterfly valves DN 15 - DN 100

### GEMÜ 417 / 410 / 423

<b>Operator:</b>	<b>GEMÜ 417:</b> manually operated
	<b>GEMÜ 410:</b> pneumatically operated Normally closed (NC), Double acting (DA)
	<b>GEMÜ 423:</b> motorized 12/24V DC, 12/24V AC 50/60 Hz, 100-250V AC 50/60 Hz
<b>Max. operating pressure:</b>	6 bar
<b>Max. operating temperature:</b>	60° C
<b>Seal material:</b>	FPM, EPDM
<b>Disc material:</b>	PVDF
<b>Valve body material:</b>	PVC-U
<b>Connections:</b>	Union ends with DIN insert, Union ends with inch insert



**GEMÜ 417**  
manually operated



**GEMÜ 410**  
pneumatically operated



**GEMÜ 423**  
motorized

## Plastic butterfly valves DN 65 - DN 250

### GEMÜ 450 / 451 / 457 / 463

<b>Operator:</b>	<b>GEMÜ 457:</b> manually operated
	<b>GEMÜ 450 (DN 65 - 150):</b> pneumatically operated: Normally closed (NC), Normally open (NO) (by rotating the actuator 90°), Double acting (DA)
	<b>GEMÜ 451:</b> pneumatically operated: Normally closed (NC), Normally open (NO) (by rotating the actuator 90°), Double acting (DA)
	<b>GEMÜ 463:</b> motorized (OPEN/CLOSE or for control) 24V DC, 24, 120, 230V AC 50/60 Hz
<b>Max. operating pressure:</b>	6 bar
<b>Max. operating temperature:</b>	90° C
<b>Control pressure:</b>	4 - 6 bar
<b>Seal material:</b>	NBR, FPM, EPDM
<b>Disc material:</b>	PP, stainless steel 1.4408
<b>Body material:</b>	PES
<b>Body configuration:</b>	Wafer, PN 10



**GEMÜ 450**  
pneumatically operated



**GEMÜ 451**  
pneumatically operated



**GEMÜ 463**  
motorized



**GEMÜ 457**  
manually operated

## Pneumatic actuators

### GEMÜ 9415

#### Plastic quarter turn actuator

Actuator size:	Size 0: 50 mm Size 1: 70 mm Size 2: 100 mm Size 3: 140 mm
Max. control pressure:	Size 0, 1, 2 = 6 bar, Size 3 = control function 1 (NC): 5 bar control function 3 (DA) 4 bar
Max. temp. of control medium:	60° C
Max. ambient temperature:	60° C
Control function:	Normally closed (NC), Normally open (NO), Double acting (DA)
Can be used for:	GEMÜ 410, 415, 450



Actuator size 0

### GEMÜ DR/SC

#### Metal quarter turn actuator

Actuator size:	8 Nm to 5500 Nm
Control pressure:	6 - 8 bar
Max. temp. of control medium:	80° C
Max. ambient temperature:	80° C
Control function:	Normally closed (NC), Normally open (NO) Double acting (DA) Mounting flange to DIN/ISO 5211, Interface for accessories to VDE/VDI 3845
Can be used for:	GEMÜ 451, 471, 481, D481, 491



### GEMÜ ADA/ASR

#### Metal quarter turn actuator

Actuator size:	10 Nm to 5000 Nm
Control pressure:	6 - 8 bar
Max. temp. of control medium:	100° C
Max. ambient temperature:	80° C
Control function:	Normally closed (NC), Normally open (NO) Double acting (DA) Mounting flange to DIN/ISO 5211, Interface for accessories to VDE/VDI 3845
Can be used for:	GEMÜ 471, 481, D481, 491



## Electrical position indicators for pneumatic actuators

Electrical position indicators for quarter turn valves Selection criteria	Combi switchbox	For explosion-proof areas		With proximity switches		With microswitches				
	4221	SM-N2	ES2	1229	ES2	1227	ES2	PCR	1226	1225
Travel range	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°	0 – 90°
Connection (5-pin)	M12	M 20 x 1.5	M 20 x 1.5	M 20 x 1.5	M 20 x 1.5	M 20 x 1.5	M 20 x 1.5	M 20 x 1.5	PG 13.5	PG 13.5
Programmable	●									
Mechanically adjustable		●	●	●	●	●	●	●	●	●
Field bus capable	●									
Integrated valve switching system via pilot valve	●									
Optical position indication via light emitting diodes	●	●	optional	●	optional	●	optional	optional		
Optical position indication, mechanical		●	optional	●	optional	●	optional	optional		●
Feedback OPEN or CLOSED		●		●		●			●	●
Feedback OPEN and/or CLOSED	●	●	●	●	●	●	●	●	●	●



GEMÜ 1226



GEMÜ 1227, 1229



GEMÜ ES2  
with DR/SC actuator



GEMÜ ES2 EEx i  
with DR/SC actuator



### Electrical position indicators and combi switchboxes

Complete overview of GEMÜ electrical position indicators and combi switchboxes.



GEMÜ 4221  
with DR/SC actuator

## Positioners for pneumatic actuators

### Electro-pneumatic positioners

For control requirements all pneumatically operated GEMÜ butterfly valves can be fitted with positioners and process controllers:

- GEMÜ 1435 ePos
  - GEMÜ 1436 cPos
- (other makes on request)



**GEMÜ 1435 ePos**  
with DR/SC actuator





**GEMÜ 1436 cPos**  
with DR/SC actuator



### Positioners and process controllers

Complete overview of the GEMÜ positioners.

## Overview of positioners

	<b>Electro-pneumatic positioners for pneumatic actuators</b>	
		
<b>Function / Features</b>	<b>1435 ePos</b>	<b>1436 cPos</b>
<b>Controller type</b>		
Positioner	●	●
Process controller		●
<b>Control air flow</b>		
Version 1	50 l/min	100 l/min
Version 2	90 l/min	180 l/min
<b>Operation</b>		
Local display / keypad	●	●
Status display	●	●
Web browser user		●
Field bus option (Profibus DP, Device Net)		●
<b>Signal</b>		
24V DC / 3-wire	●	●
<b>Housing</b>		
Plastic		●
Aluminium	●	
<b>Functions</b>		
Automatic initialisation	●	●
Alarm / error outputs	●	●
Min/max positions adjustable	●	●
<b>Mounting</b>		
Direct mounting to linear actuators	●	●
Remote mounting to linear actuators	●	●
Direct mounting to quarter turn actuators	●	●
Remote mounting to quarter turn actuators	●	●
<b>Control function of valve actuator</b>		
Control function 1, normally closed (NC)	●	●
Control function 2, normally open (NO)	●	●
Control function 3, double acting (DA)	●	●
Motorized actuators		

## Accessories for pneumatic actuators

### Pilot valves and valve manifolds

- GEMÜ 0322 pilot valves for single or battery mounting
- GEMÜ 0324 pilot valves for direct mounting to pneumatic butterfly valve actuators
- Valve batteries and valve manifolds
- Field bus connections AS-Interface, Profibus, DeviceNet
- GEMÜ 4221 combi switchbox with integrated 3/2-way pilot valve



### Electrical position indicators

- GEMÜ 1225 position indicator for mounting between actuator and butterfly valve. Suitable for GEMÜ butterfly valves 410, 411, 413, 415, 417, 418, 423, 428
- GEMÜ 1201 position indicator for mounting to butterfly valve GEMÜ 415 and GEMÜ 410 incl. pneum. actuator



## Motorized actuators

### GEMÜ 9428

#### Plastic quarter turn actuator, motorized (OPEN/CLOSE)

<b>Actuator version:</b>	10XX: Voltages 12V, 24V AC/DC 20XX: Voltages 100-250V, 50-60 Hz 3035: Voltages 24V, 100-250V, 50-60 Hz
<b>Max. travel:</b>	93° (nominal travel 90°)
<b>Power consumption:</b>	9.5 VA ± 10%
<b>Protection class:</b>	IP 65 acc. to DIN 40050
<b>Operating time/torque:</b>	Spur gear: Approx. 4 s/6 Nm, Planetary gear: Approx. 11 s/15 Nm
<b>Rating:</b>	Continuously rated (actuator size 1), 40% (actuator size 2)
<b>Electr. connection:</b>	2 x M20
<b>Supply voltage/ Mains frequency:</b>	12/24 V DC or 50/60 Hz, 100-250 V AC/50-60 Hz



Actuator version 10XX

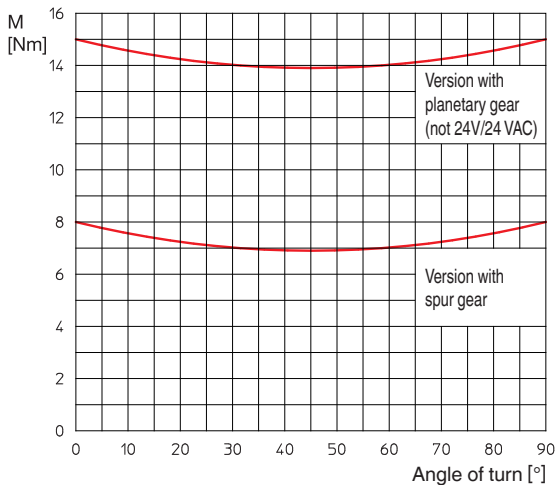


Actuator version 20XX



Actuator version 3035

#### Torque characteristic - GEMÜ 9428:



### GEMÜ 9468

#### Metal quarter turn actuator, motorized (OPEN/CLOSE or for control)

<b>Actuator size:</b>	70 Nm, 100 Nm, 200 Nm, 400 Nm
<b>Max. travel:</b>	93° (nominal travel 90°)
<b>Power consumption:</b>	9.5 VA ± 10%
<b>Protection class:</b>	IP 65 acc. to DIN 40050
<b>Operating time:</b>	15-29 sec
<b>Torque:</b>	70-400 Nm
<b>Rating:</b>	40%
<b>Electr. connection:</b>	2 x M20
<b>Supply voltage/ Mains frequency:</b>	24 V DC, 24 V AC/50-60 Hz, 120 V AC/50-60 Hz, 230 VAC/50-60 Hz





## Motorized actuators

### DEUFRA

#### OA 03-OA 15, OAP, AS 18, AS 25, ASP, AS 50, AS 80

##### 90° compact actuator, motorized

Protection class:	IP 67
Operating mode:	S4 30% (actuation), S4 50-100% (control class III)
Mech. limit switches:	± 2° adjustable
Ambient temperature:	-25°C to +80°C
Operating time/torque:	AS 18 - 5 sec/180 Nm, AS 25 - 10 sec/250 Nm ASP - 30 sec/250 Nm, AS 50 - 30 sec/500 Nm AS 80 - 30 sec/800 Nm
Supply voltage/ Mains frequency:	230 V/50 Hz, 400 V/50 Hz
Housing material:	Cast aluminium, epoxy coated

- 1 limit switch (change-over contact) for each of the "OPEN" and "CLOSED" end positions (can be adjusted over the whole travel)
- 1 torque switch (change-over contact) for each of the "Opening" and "Closing" directions
- Mechanical position indicator
- Handwheel for emergency operation
- Self-locking gear
- Temperature controller in the motor, guided potential-free at the terminals



### AUMA SA and SG series

##### 90° compact actuator, motorized

Protection class:	IP 67 acc. to EN 60529
Operating mode:	Short time operation S2 - 15 min., option : S2- 30 min.
Mech. limit switches:	± 2° adjustable
Ambient temperature:	-25°C to +80°C
Operating time/torque:	SA 07.1 - 30 Nm, SA 07.5 - 60 Nm, SA 10.1 - 120 Nm, SA 14.1 - 250 Nm, SA 14.5 - 500 Nm, SA 16.1 - 1000 Nm
Supply voltage/ Mains frequency:	220, 230, 240, 380, 400, 415, 500V/50 Hz, 440, 460V/60 Hz

- Insulation class F, 3 thermal switches
- 1 limit switch for each of the "OPEN" and "CLOSED" end positions
- 1 torque switch for each of the "OPENING" and "CLOSING" directions
- Flasher unit for travel indication
- Heating 5 - 20 W
- Handwheel for manual operation
- Valve connection to ISO 5210
- Corrosion protection KN



## Plastic and metal check valves DN 40 - DN 600

### **GEMÜ RSK in plastic** (DN 40 - 300)

Max. operating pressure:	10 bar
Seal material:	Nitrile, EPDM, FPM
Disc material:	PVC-U, grey, PP, PVDF
Valve body material:	PVC-U, grey, PP, PVDF
Body configuration:	Wafer
Spring return:	Stainless steel 1.4571, Hastelloy



### **GEMÜ ZRSK in metal**

Max. operating pressure:	16 bar
Seal material:	Nitrile, EPDM, FPM
Disc material:	Stainless steel 1.4408, stainless steel 1.4571, aluminium bronze
Valve body material:	Stainless steel 1.4408, stainless steel 1.4571, aluminium bronze, aluminium, cast bronze
Body configuration:	Wafer
Spring return:	Stainless steel 1.4571, Hastelloy



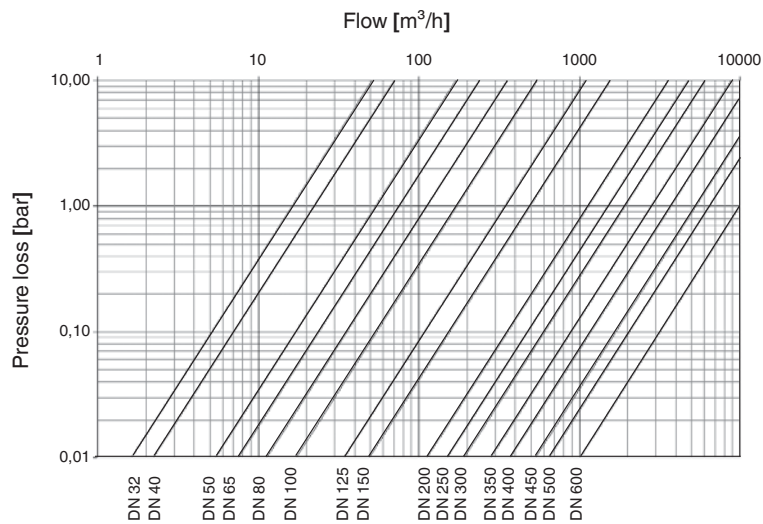
### Maximum operating pressure acc. to the Pressure Equipment Directive

DN	PVC-U		PP		PVDF		Metal	
	Liquid							
	Group 1*	Group 2**	Group 1*	Group 2**	Group 1*	Group 2**	Group 1*	Group 2**
32-50	5	5	6	6	8	8	16	16
65	5	5	6	6	8	8	16	16
80	5	5	6	6	8	8	16	16
100	5	5	6	6	8	8	16	16
125	5	5	6	6	8	8	16	16
150	5	5	6	6	8	8	10	10
200	5	5	6	6	8	8	10	10
250	5	5	6	6	8	8	10	10
300	5	5	6	6	5	5	10	10
350	3	3	4	4	5	5	10	10
400	3	3	4	4	5	5	10	10
500	3	3	4	4	5	5	10	10
600	1.5	1.5	2	2	2.5	2.5	10	10

\* explosive, flammable, poisonous, oxidising \*\* other fluids

### RSK Hydraulic characteristics:

Pressure loss



The diagram values are valid for water at 20°C.  
Please contact GEMÜ for the calculation of other fluids.



Subject to alteration · 10/2011 · 88219289

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AND CONTROL SYSTEMS

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