GEMÜ®

Pressure retaining valve, Plastic

Construction

The GEMÜ N086, N186 and N786 pressure retaining valves are used to provide a constant back pressure in process plant. If the inlet pressure rises above a preset value, the diaphragm is raised against the spring force. The valve opens and the excess pressure can escape into the outlet line. If the pressure on the inlet side is reduced, the valve closes as the spring force pushes the diaphragm against the seal seat. The spring force can be adjusted as required using a set screw and secured with the lock nut.

Technical specifications*

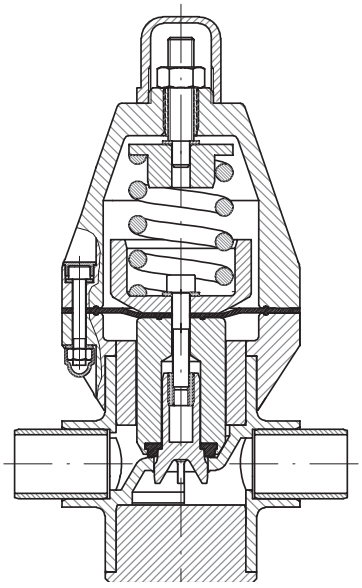
- Nominal sizes: DN 10 to DN 100
- Connections: Spigots, flanges, union ends with insert
- Body materials: PVC-U, PP-B, PVDF
- Seal materials: EPDM, PTFE
- Media temperature: -4 °F to 212 °F
- Setting range: 7.3 to 150 psi

Advantages

- The working pressure can be very easily adjusted using a set screw and secured with the integrated lock nut. If required, the setting that has been made can be lead sealed.
- The flow-efficient design of the valve body ensures good flow rate values.
- Control errors are kept to a minimum due to the large control face and the spiral spring.
- The actuator is hermetically separated from the medium.

*Dependent on version and/or operating parameters

Sectional view



GEMÜ®

N086, N186, N786

Technical data

Working medium

Corrosive, inert, liquid media which have no negative impact on the physical and chemical properties of the body and seal material.Approved for fluids of Group 1 in accordance with directive 97/23/EC Article 9 whose steam pressure at the permissible maximum temperature is a maximum of 7.3 psi above the normal atmospheric pressure (15 psi).

Working medium temperature

Valve body PVC-U	50 to 140 °F
Valve body PP-B	41 to 176 °F
Valve body PVDF	-4 to 212 °F

The permissible operating pressure depends on the working medium temperature.

Ambient conditions

Ambient temperature	max. 140 °F

Technical data

Type	Nominal size	PN	Setting range [psi]
GEMÜ N186	DN 10 - 50	10	7.3 - 150
GEMÜ N086	DN 65 - 80	6	15 - 90
	DN 100	4	15 - 60
GEMÜ N786	DN 10 - 25	10	7.3 - 150
	DN 32 - 40	4	7.3 - 60

Pressure / temperature correlation for N186 (DN 10 - DN 50), N786 (DN 10 - DN 25)

Temperature in °F (plastic body)		-4	14	32	41	50	68	77	86	104	122	140	158	176	194	212
Valve body material		Permissible operating pressure in psi														
PVC-U	Code 1	-	-	-	-	150	150	150	120	90	51	22	-	-	-	-
PP-B	Code 5	-	-	-	150	150	150	150	123	105	80	60	39	22	-	-
PVDF	Code 20	150	150	150	150	150	150	150	131	120	105	91	78	68	52	36

Data for extended temperature ranges on request. Please note that the ambient temperature and medium temperature generate a combined temperature at the valve body which must not exceed the above values.

Pressure / temperature correlation for N086 (DN 65 - DN 80)

Temperature in °F (plastic body)		-4	14	32	41	50	68	77	86	104	122	140	158	176	194	212
Valve body material		Permissible operating pressure in psi														
PVC-U	Code 1	-	-	-	-	90	90	90	70	52	30	190	-	-	-	-
PP-B	Code 5	-	-	-	90	90	90	90	74	61	48	508	23	13.1	-	-
PVDF	Code 20	90	90	90	90	90	90	90	78	70	62	798	47	41	31	22

Data for extended temperature ranges on request. Please note that the ambient temperature and medium temperature generate a combined temperature at the valve body which must not exceed the above values.

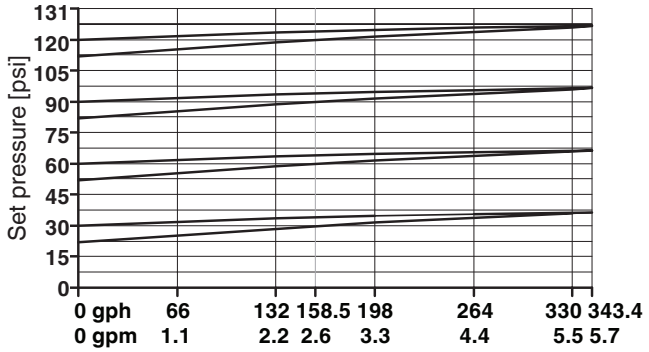
Pressure / temperature correlation for N086 (DN 100), N786 (DN 32 - DN 40)

Temperature in °F (plastic body)		-4	14	32	41	50	68	77	86	104	122	140	158	176	194	212
Valve body material		Permissible operating pressure in psi														
PVC-U	Code 1	-	-	-	-	60	60	60	46	35	20	8.7	-	-	-	-
PP-B	Code 5	-	-	-	60	60	60	60	49	41	32	23	16	8.7	-	-
PVDF	Code 20	60	60	60	60	60	60	60	52	46	41	37	31	27	21	15

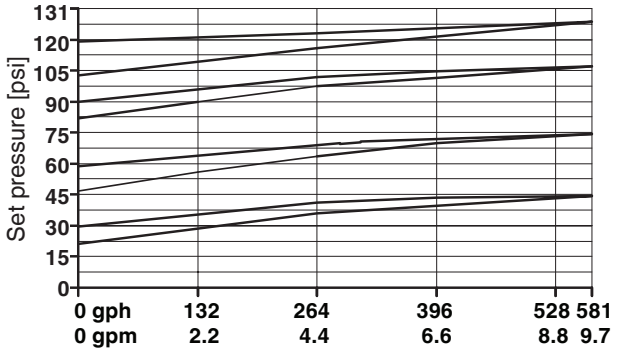
Data for extended temperature ranges on request. Please note that the ambient temperature and medium temperature generate a combined temperature at the valve body which must not exceed the above values.

Diagrams - N186

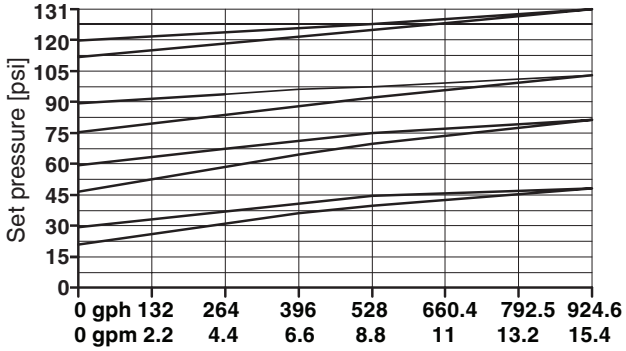
DN 10 - 15



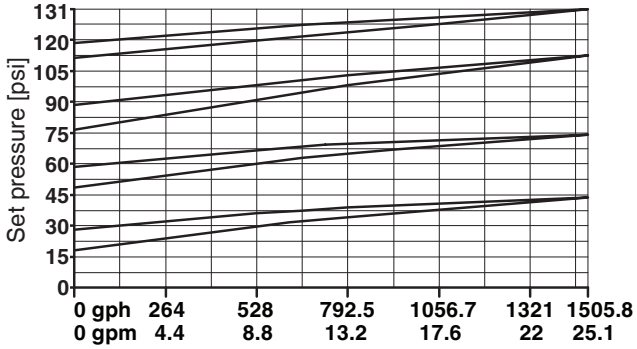
DN 20



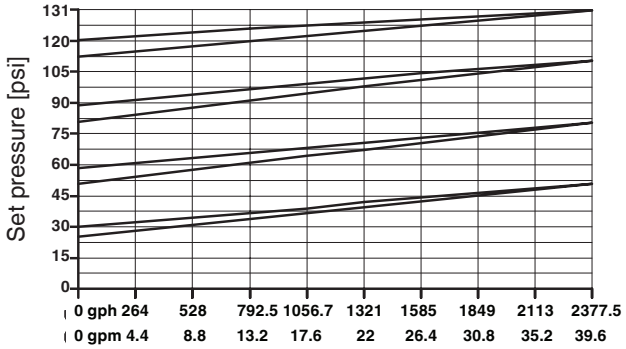
DN 25



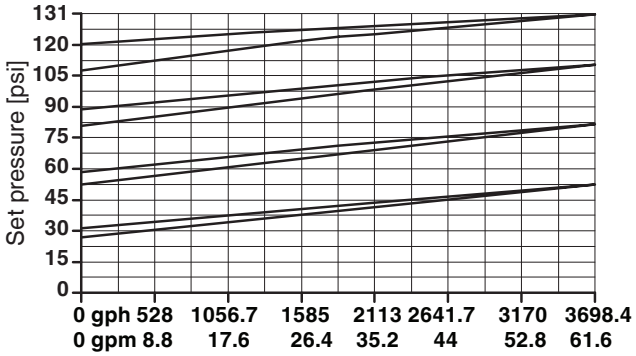
DN 32



DN 40



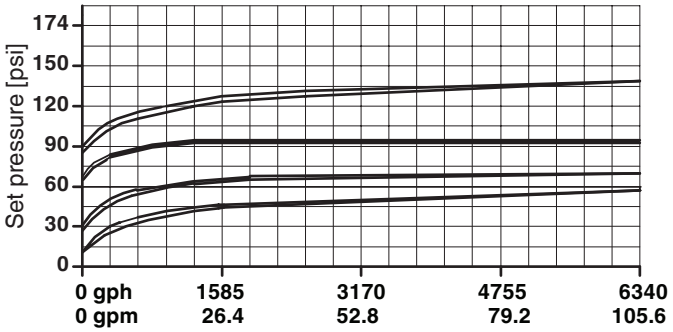
DN 50



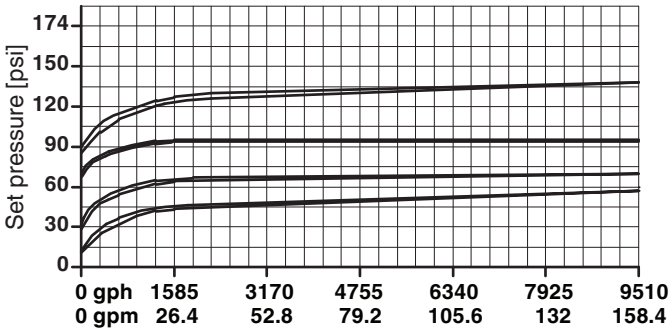
The characteristics in the diagrams show the pressure drop of the set pressure from 0 to max. permissible flow.
The upper line shows the progression of the opening pressure, the lower line shows the progression of the closing pressure.
All characteristics relate to water at 68 °F.

Diagrams - N086

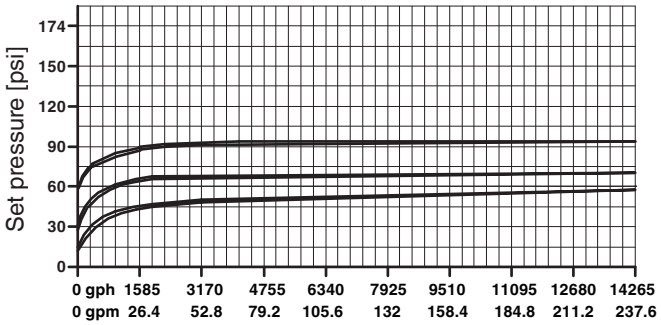
DN 65



DN 80



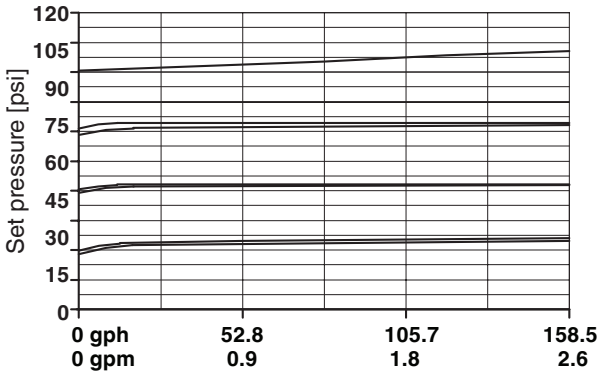
DN 100



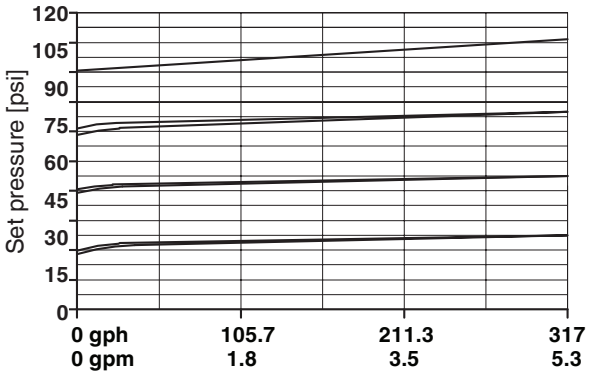
The characteristics in the diagrams show the pressure drop of the set pressure from 0 to max. permissible flow.
The upper line shows the progression of the opening pressure, the lower line shows the progression of the closing pressure.
All characteristics relate to water at 68 °F.

Diagrams - N786

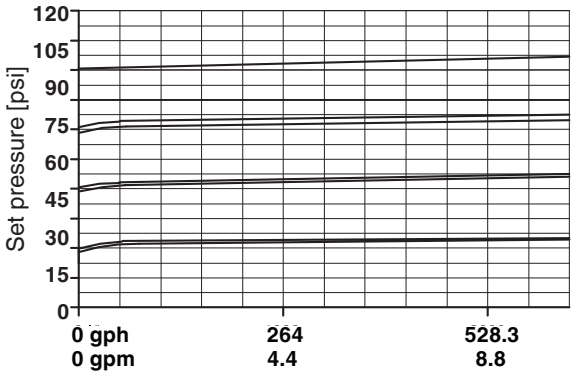
DN 10



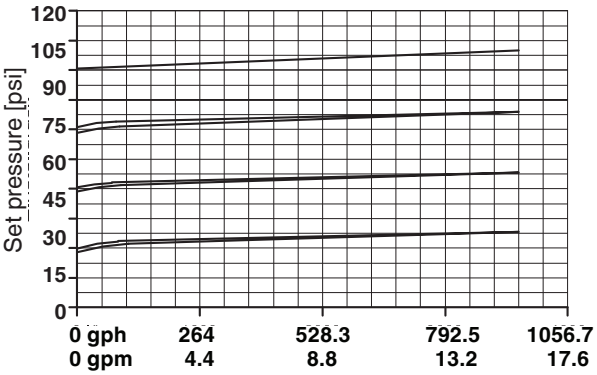
DN 15



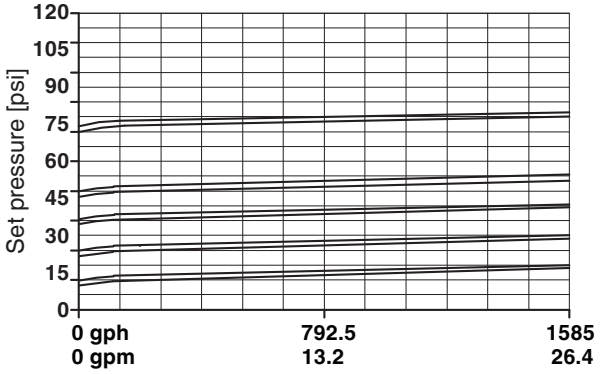
DN 20



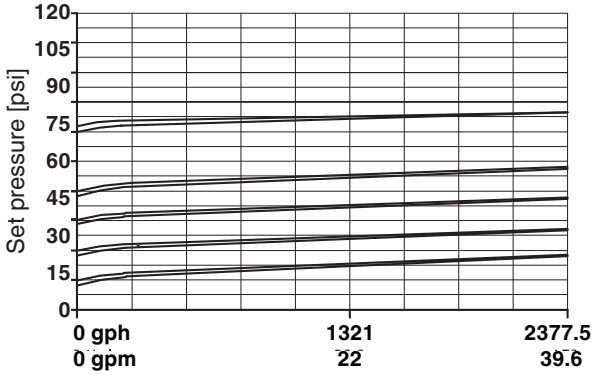
DN 25



DN 32



DN 40



The characteristics in the diagrams show the pressure drop of the set pressure from 0 to max. permissible flow.
The upper line shows the progression of the opening pressure, the lower line shows the progression of the closing pressure.
All characteristics relate to water at 68 °F.

Order data

Valve type		Code
Pressure retaining valve	DN 65 - DN 100	N086
Pressure retaining valve	DN 10 - DN 50	N186
Pressure retaining valve	DN 10 - DN 40	N786

Valve body material	Code
PVC-U, grey	1
PVDF	20
PP-B	B5

Body configuration	Code
2/2-way body	D

Diaphragm material	Code
EPDM	14
PTFE/EPDM, PTFE laminated	52

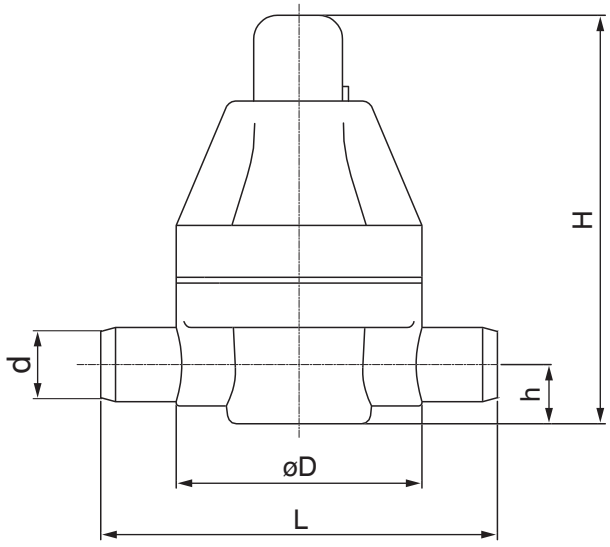
Connection	Code
Spigots DIN	0
Flanges EN 1092 / PN10 / form B, length EN 558, series 1, ISO 5752, basic series 1	4
Union ends with DIN insert (socket)	7
Spigots for IR butt welding	20
Union ends with DIN insert (for IR butt welding)	78
For overview of available valve bodies see page 9	

Order example	N186	25	D	0	1	14
Type	N186					
Nominal size		25				
Body configuration (code)			D			
Connection (code)				0		
Valve body material (code)					1	
Diaphragm material (code)						14

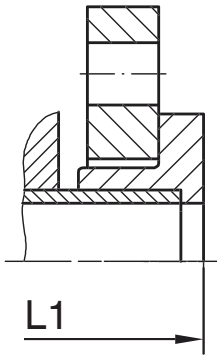
Dimensions [inch]

N086, N186													
DN	d	L		L1			L2			ø D	h	h1	H
		Connection code 0	Connection code 20	Connection code 4			Connection code 7, 78						
		Material code 1, 20, B5	Material code 20, B5	Material code 1	Material code 20	Material code B5	Material code 1	Material code 20	Material code B5				
10	0.63	5.28	6.22	5.51	6.61	-	6.06	7.09	7.09	3.27	0.79	0.79	5.39
15	0.79	5.28	6.22	5.51	6.61	6.61	6.06	7.17	7.17	3.27	0.79	0.79	5.39
20	0.98	5.28	6.22	5.51	6.61	6.61	6.06	7.17	7.17	3.27	0.79	0.79	5.39
25	1.26	6.85	7.8	7.09	8.19	8.19	7.64	8.74	8.74	4.41	1.06	1.06	7.83
32	1.57	6.85	7.95	7.09	8.35	8.35	7.8	9.06	9.06	4.41	1.06	1.06	7.83
40	1.97	8.82	10.08	9.06	10.47	10.47	9.92	11.34	11.34	6.5	1.69	1.69	11.42
50	2.48	9.61	10.08	9.84	10.47	10.47	11.02	11.65	11.65	6.5	1.69	1.69	11.42
65	2.95	11.18	11.18	11.42	-	11.57	12.6	-	12.6	7.09	1.87	4.61	10.83
80	3.54	14.17	14.17	14.57	-	14.72	15.59	-	15.59	9.84	2.17	6.1	16.14
100	4.33	14.96	14.96	15.35	-	15.51	15.83	-	16.69	9.84	2.76	7.09	19.09

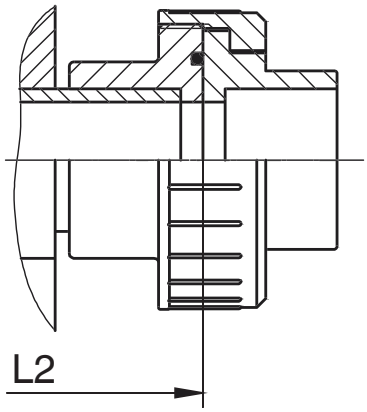
Code 0, 20



Code 4



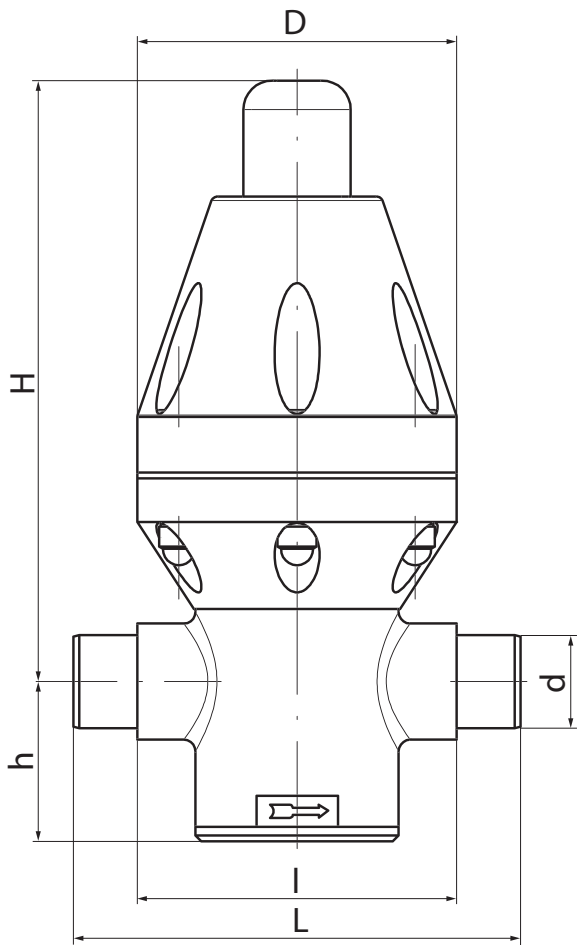
Code 7, 78



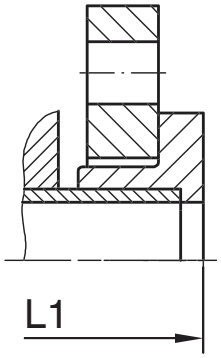
Dimensions [inch]

N786									
DN	d	L		L1	L2	l	H	h	D
		Code 0	Code 20	Code 4	Code 7, 78				
10	0.63	5.28	-	5.51	6.06	4.02	5.43	1.5	3.27
15	0.79	5.28	6.77	5.51	6.06	4.02	5.43	1.5	3.27
20	0.98	6.06	7.48	6.3	6.85	4.33	7.87	2.17	4.41
25	1.26	6.06	7.48	6.3	6.85	4.33	7.87	2.17	4.41
32	1.57	8.82	10.31	9.06	9.76	6.38	9.76	3.35	6.5
40	1.97	8.82	10.31	9.06	9.92	6.38	9.76	3.35	6.5

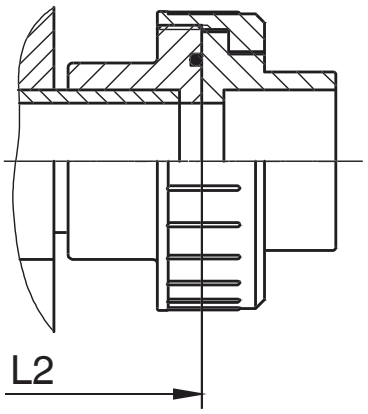
Code 0, 20



Code 4



Code 7, 78



Overview of valve bodies for N186, N786						
Connection code	**0**	**4**		**7**	**20**	**78**
Material code	**1, 20, B5**	**1, 20**	**B5**	**1, 20, B5**	**20, B5**	**20, B5**
DN						
10	X	X	-	X	-	-
15	X	X	X	X	X	X
20	X	X	X	X	X	X
25	X	X	X	X	X	X
32	X	X	X	X	X	X
40	X	X	X	X	X	X
50*	X	X	X	X	X	X

* DN 50 not for GEMÜ N786

Overview of valve bodies for N086						
Connection code	**0**		**4**		**20**	
Material code	**1, B5**	**20**	**1, B5**	**20**	**B5**	**20**
DN						
65	X	X	X	X	X	X
80	X	-	X	-	X	-
100	X	-	X	-	X	-

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Should there be any doubts or misunderstandings, the German version of this data sheet is the authoritative document!

Subject to alteration · 01/2020

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