FULL LIFT SAFETY VALVE zARMAK

PN16

Body material A (EN-GJL-250)
-10°C ÷ +300°C
Acc. to EN ISO 4126

CE 0343

610 630 570

PN16

Body material B (EN-GJS-400-15)
-10°C ÷ +200°C
Acc. to EN ISO 4126

CE 0343

775

PN40

Body material C (EN-GJS-400-18)
-10°C ÷ +350°C
Acc. to EN ISO 4126

CE 0343

610 630

PN40

Body material F (GP240GH)
-40°C ÷ +450°C
Acc. to EN ISO 4126

CE 0343

610 630 570 650

PN40

Body material R (GX5CrNi19-10)
-196°C ÷ +300°C
Acc. to EN ISO 4126

CE 0343

630 570 650

PN63

Body material F (GP240GH)
-40°C ÷ +450°C
Acc. to EN ISO 4126

CE 0343

610 630 650 670 613 673 614 674

PN100

Body material F (GP240GH)
-40°C ÷ +450°C
Acc. to EN ISO 4126

CE 0343

610 630 650 670 613 673 614 674

Data given can be changed without notice

Edition 04/2022

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Contents

PN16

PN40

PN63

PN100

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Other data

Capacity table

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PN16

610, 630

Full lift spring flanged safety valves

610
Type
01

630
Type
01 – 08
51 – 58

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	REFRIGERATION AND AIR CONDITIONING	GAS	POWER ENGINEERING
610 630	630	630	610 630	630	610 630	610 630

Media

DRINKING WATER	SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
630	630	630	630	610 630	610 630	610 630

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Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
610A C	01	-1	6101	A	EN-GJL-250	C 16/10	20x32 ÷ 150x250	-10°C ÷ +300°C	⭘	⭘
		-2	6101.11A				20x32 ÷ 100x150	-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		
630A C	01, 02, 03, 04 05, 06, 07 ,08	-1	6301				20x32 ÷ 150x250	-10°C ÷ +300°C		
		-2	6301.11A				20x32 ÷ 100x150	-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		
	01	-4	6301M							
	51, 52, 55, 57	-1	-				20x32 ÷ 40x65	-10°C ÷ +300°C		
	53, 54, 56, 58						20x32 ÷ 50x80			

End type	Types		Sealing	
⭘ Flanged end	01	Standard type for steam, gases	-1	metal-metal
	02	Gastight type for steam, gases	-2	NBR
	03	Type with reduced lift for liquids, steam and gases	-3	EPDM
	04	Gastight type with reduced lift for liquids, steam and gases	-4	Membranowy (EPDM)
	05	Marine type for steam, gases		
	06	Marine type with reduced lift for liquids, steam and gases		
	07	Marine gastight type for steam and gases		
	08	Marine type with reduced lift, gas-tight for liquids, steam and gases		
	51	Standard type, with extended seat, for steam and gases		
	52	Gastight type, with extended seat, for steam and gases		
	53	Type with extended seat for liquids and steam-water mixture		
	54	Gastight type with extended seat for liquids and steam-water mixture		
	55	Marine type with extended seat for steam and gases		
	56	Marine type, gastight, with extended seat for liquids and steam-water mixture		
	57	Marine type, gastight, with extended seat for steam and gases		
	58	Marine type, gastight, with extended seat for liquids and steam-water mixture		

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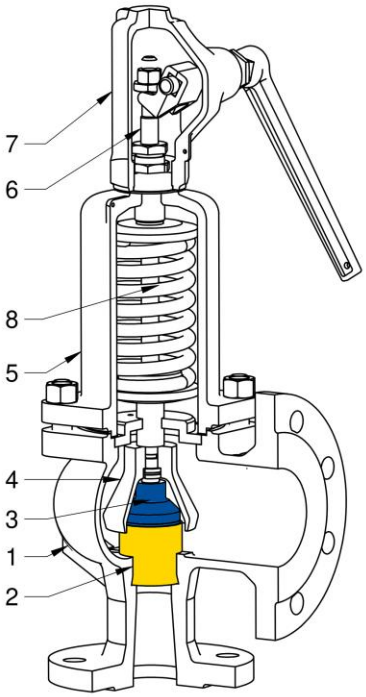
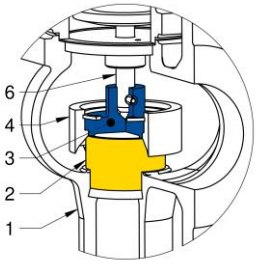
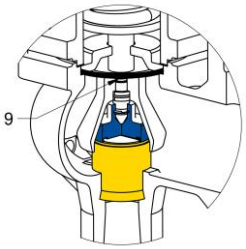
Materials





630
Type 51-58



630
Type: 01
Sealing -4

No.	Body material →			A
	Part	Type		610A C 630A C
1	Body	01-08 51-58	-1, -2, -3, -4	EN-GJL-250 5.1301
2	Seat	01-08 51-58	-1, -2, -3, -4	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
3	Disc	01-08 51-58	-1	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
		01-08	-2	X6CrNiTi18-10/NBR 1.4541/NBR
		01-08	-3	X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2, -3, -4	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
		51-58	-1	X20Cr13 1.4021
5	Bonnet	01-08 51-58	-1, -2, -3, -4	EN-GJL-250 / EN-GJS-400-15 5.1301 / 5.3106
6	Stem	01-04 51-54	-1, -2, -3, -4	X20Cr13 1.4021
		05-08 55-58		X17CrNi16-2 1.4057
7	Cap	01-08 51-58	-1, -2, -3, -4	EN-GJL-250 / EN-GJS-400-15 5.1301 / 5.3106
8	Spring	01-08 51-58	-1, -2, -3, -4	51CrV4 / FDSiCr * 1.8159 / -
9	Membrane	01	-4	EPDM

* Springs with wire diameter Φ6, of patented wire, max. operating temperature then is 250°C (details in the table: Pressure ranges)

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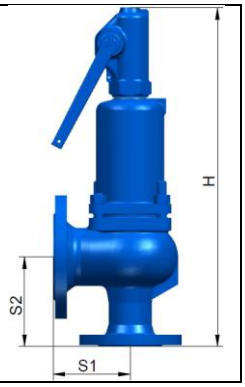
Dimensions

Body material: **A**		d_1 x d_2									
		610, 630									
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
d_o (mm)	01-08	16	20	25	32	40	50	63	77	93	110
	51-58	18	23	29	37	46					
A (mm^2)	01-08	201	314	491	804	1257	1964	3117	4657	6793	9503
	51-58	254	416	661	1075	1662					
S_1 (mm)	01-08 51-58	85	95	100	115	125	140	155	175	215	225
S_2 (mm)		95	105	110	130	145	150	170	180	220	245
H (mm)		345	395	420	495	550	660	710	810	860	990



Set pressure

Body material: **A**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
P_{min} (bar)	01-08	-1, -4	0,45									
	01-08	-2, -3	1									
	51, 52, 55, 57	-1	0,45									
	53, 54, 56, 58	-1	0,45									
P_{max} (bar)	01-08	-1	16								12,5	10
	01-08	-2, -3	16									
	01	-4	10									
	51, 52, 55, 57	-1	16									
	53, 54, 56, 58	-1	16									

Flange drilling

610A C, 630A C		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
Inlet	Standard	PN16									
	Optional PN*	PN10									
	Optional ANSI*	Class150					Class150**				Class150
Outlet	Standard	PN10									
	Optional PN	PN16									
	Optional ANSI	Class150			Class150**				Class150**		

* After agreement with the manufacturer, if the setting pressure allows

** Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-2)

Standard and optional PN flanges drilled acc. EN 1092-2.

Discharge coefficients

			Steam and gases(S/G)									
			DN (d_1 x d_2)									
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
610A C	01	b_1 = 0,1 bar for p ≤ 1 bar	0,72									
		b_1 = 10% for 1 < p ≤ 1,4 bar										
		b_1 = 10% for p > 1,4 bar	0,78									
630A C	01, 02, 05, 07	b_1 = 0,1 bar for p ≤ 1 bar	0,72									
		b_1 = 10% for 1 < p ≤ 1,4 bar										
		b_1 = 10% for p > 1,4 bar	0,78									
	03, 04, 06, 08	b_1 = 10%	0,36									
	51, 52, 55, 57	b_1 = 0,1 bar for p ≤ 1 bar	Acc. to the diagram1									
		b_1 = 10% for 1 < p ≤ 3 bar										
		b_1 = 10% for p > 3 bar	0,801									
	53, 54, 56, 58	b_1 = 0,1 bar for p ≤ 1 bar	0,800 Permissible value of the coefficient for steam and gases for two-phase flow capacity calculations					-				
		b_1 = 10% for p > 1 bar										

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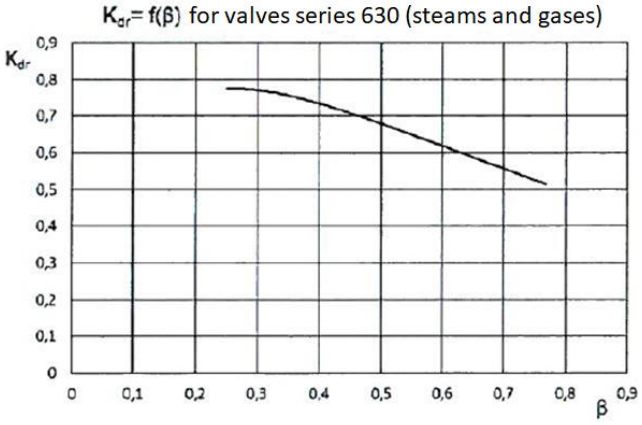

Diagram 1

Dependence of the discharge coefficient Kdr on the ratio of absolute pressures behind and before the valve

For safety valves:

630 DN 20-40 type 51-1, 52-1, 55-1, 57-1

			Liquids (L)								
			DN (d_1 x d_2)								
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
630A C	03, 04, 06, 08	b_1 = 0,1 bar for p ≤ 1 bar	0,28									
		b_1 = 10% for p > 1 bar										
	01-4	b_1 = 0,1 bar for p ≤ 1 bar	0,5									
		b_1 = 10% for p > 1 bar										
	53, 54, 56, 58	b_1 = 0,1 bar for p ≤ 1 bar	0,555				0,515					
		b_1 = 10% for p > 1 bar										

Pressure-temperature ratings

	PN		-10°C	RT	50°C	100°C	150°C	200°C	250°C	300°C
EN-GJL-250	16	bar	16	16	16	16	14,4	12,8	11,2	9,6

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570

Full lift flanged weight safety valves

570
Type
01, 02

Application

Industries

INDUSTRY | HEATING | GAS | POWER ENGINEERING | REFRIGERATION AND AIR CONDITIONING

Media

STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
570	01, 02	-1	5701	**A**	EN-GJL-250	**C** 16/10	20x32 ÷ 150x250	-10°C ÷ +300°C		

End type	Types	Sealing
Flanged end	01 Standard type for steam and gases 02 Gastight type for steam, gases	-1 metal-metal

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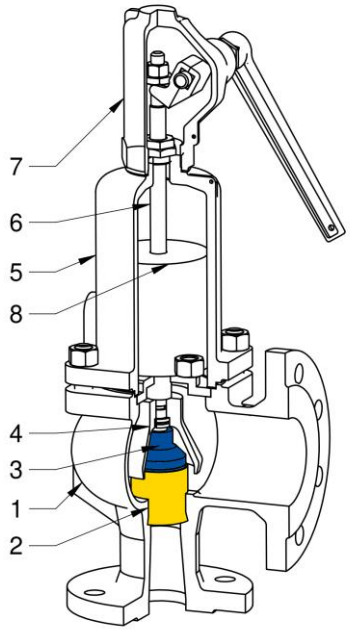
Materials

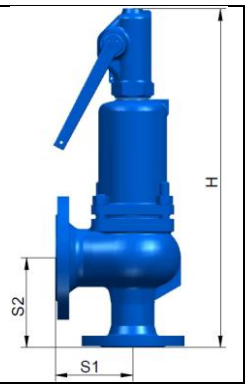


No.	Body material →		A
	Part	Type	570AC
1	Body	01, 02 -1	EN-GJL-250 5.1301
2	Seat		X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
3	Disc		X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
4	Bell		EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet		EN-GJL-250 / EN-GJS-400-15 5.1301 / 5.3106
6	Stem		X20Cr13 1.4021
7	Cap		EN-GJL-250 / EN-GJS-400-15 5.1301 / 5.3106
8	Weight		Carbon steel
	Insert[1]		P245GH 1.0352

[1] Used as an option for individual DNs in pressure ranges in which the standard version does not accommodate the weight associated with the appropriate pressure.

Dimensions

Body material: A		$d_1 \times d_2$									
		570									
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
d_o (mm)	01, 02	16	20	25	32	40	50	63	77	93	110
A (mm^2)		201	314	491	804	1257	1964	3117	4657	6793	9503
S_1 (mm)		85	95	100	115	125	140	155	175	215	225
S_2 (mm)		95	105	110	130	145	150	170	180	220	245
H (mm)		345	395	420	495	550	660	710	810	860	990
H (mm) with insert		405	465	495	585	655	770	840	955	970	



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Set pressure

Body material: **A**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
P_{min} (bar)	01, 02	-1	0,1									
P_{max} (bar)			0,7									

Flange drilling

570A C		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
Inlet	Standard	PN16									
	Optional PN*	PN10									
	Optional ANSI*	Class150					Class150**				Class150
Outlet	Standard	PN10									
	Optional PN	PN16									
	Optional ANSI	Class150			Class150**				Class150**		

* After agreement with the manufacturer, if the setting pressure allows

** Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-2)

Standard and optional PN flanges drilled acc. EN 1092-2.

Discharge coefficients

			Steam and gases(S/G)									
			DN (d_1 x d_2)									
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
570A C	01, 02	b_1 = 0,1 bar	0,50							0,46		

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775

Full lift spring safety valves with threaded ends

775
Type
01 - 08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | POWER ENGINEERING

Media

GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
775	01 - 08	-1	775	**B**	EN-GJS-400-15	**C** 16/10	20x32 ÷ 32x50	-10°C ÷ +200°C		

End type	Types		Sealing	
Threaded ends	01	Standard type for steam, gases	-1	metal-metal
	02	Gastight type for steam, gases		
	03	Type with reduced lift for liquids, steam and gases		
	04	Gastight type with reduced lift for liquids, steam and gases		
	05	Marine type for steam, gases		
	06	Marine type with reduced lift for liquids, steam and gases		
	07	Marine gastight type for steam and gases		
	08	Marine type with reduced lift, gas-tight for liquids, steam and gases		

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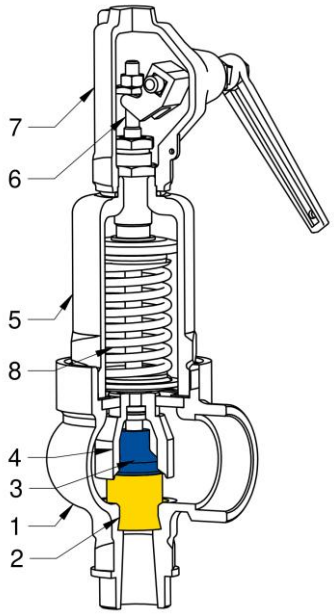
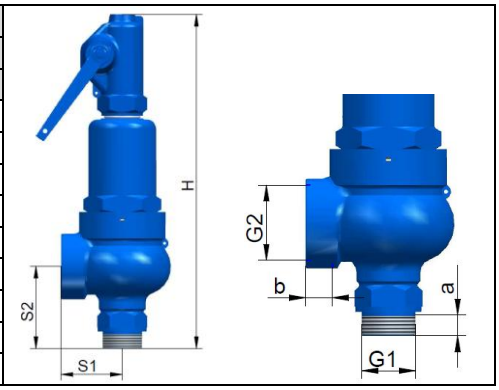
Materials



No.	Body material →			B
	Part	Type		775B C
1	Body	01-08	-1	EN-GJS-400-15 5.3106
2	Seat	01-08		X39CrMo17-1 1.4122
3	Disc	01-08		X39CrMo17-1 1.4122
4	Bell	01-04		X20Cr13 1.4021
		05-08		X17CrNi16-2 1.4057
5	Bonnet	01-08		EN-GJS-400-15 5.3106
6	Stem	01-04		X20Cr13 1.4021
		05-08		X17CrNi16-2 1.4057
7	Cap	01-08		EN-GJS-400-15 5.3106
8	Spring	01-08		51CrV4 / FDSiCr 1.8159 / -

Dimensions

Body material: **B**		d_1 x d_2		
		775		
		20x32	25x40	32x50
d_o (mm)	01-08	16	20	25
A (mm²)		201	314	491
G_1 (cal)		¾	1	1¼
a (mm)		15	18	19
G_2 (cal)		1¼	1½	2
b (mm)		18	20	22
S_1 (mm)		50	54	65
S_2 (mm)		71	80	88
H (mm)		298	328	357



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Set pressure

Body material: **B**			20x32	25x40	32x50
P_{min} (bar)	01-08	-1	1,5		
P_{max} (bar)			16		

Discharge coefficients

			Steam and gases(S/G)		
			DN (d_1 x d_2)		
Figure	Type	Pressure	20x32	25x40	32x50
775B C	01, 02, 05, 07	b_1 = 10% for p ≤ 1 < 4,0 bar	0,60	0,63	0,66
		b_1 = 10% for 4 ≤ p ≤ 16 bar	0,66	0,68	0,72
	02, 03, 06, 08	b_1 = 10% for p ≤ 1 < 4,0 bar	0,30	0,36	0,48
		b_1 = 10% for 4 ≤ p ≤ 16 bar	0,33		0,52

			Liquids (L)		
			DN (d_1 x d_2)		
Figure	Type	Pressure	20x32	25x40	32x50
775B C	02, 03, 06, 08	b_1 = 10%	0,26	0,29	0,36

Pressure-temperature ratings

	PN		**-10°C**	**RT**	**50 °C**	**100 °C**	**150 °C**	**200 °C**
EN-GJS-400-15	16	bar	16	16	16	16	15,5	14,7

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PN40

610, 630

Full lift spring flanged safety valves

610
Type
01

Body material:
C, F

610
Type
01

Body material:
F

630
Type
01 – 08
51 – 58
Body material:
C, F, R

630
Type
01 – 08

Body material:
F

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	REFRIGERATION AND AIR CONDITIONING	GAS	POWER ENGINEERING
610 630	630	630	610 630	630	610 630	610 630

Media

DRINKING WATER	SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
630	630	630	630	610 630	610 630	610 630

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Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
610C E	01	-1	6101S	C	EN-GJS-400-18-LT	E 40/10	20x32 ÷ 100x150	-10°C ÷ +350°C	○	○
		-2	6101S.11A					-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		
610F E		-1	6102	F	GP240GH		20x32 ÷ 150x250	-40°C ÷ +450°C		
630C E	01, 02, 03, 04 05, 06, 07 ,08	-1	6301S	C	EN-GJS-400-18-LT		20x32 ÷ 100x150	-10°C ÷ +350°C		
		-2	6301S.11A					-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		
	51, 52, 55, 57	-1	-				20x32 ÷ 40x65	-10°C ÷ +350°C		
	53, 54, 56, 58						20x32 ÷ 50x80			
630F E	01, 02, 03, 04 05, 06, 07 ,08	-1	6302	F	GP240GH		20x32 ÷ 150x250	-40°C ÷ +400°C		
		-2	6302.11A				20x32 ÷ 100x150	-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		
	01	-4	6302M							
	51, 52, 55, 57	-1	-				20x32 ÷ 40x65	-40°C ÷ +400°C		
	53, 54, 56, 58						20x32 ÷ 50x80			
630R E	02, 04	-1	6302CrNi	R	GX5CrNi19-10		20x32 ÷ 100x150	-196°C ÷ +300°C		
	51, 52		-				20x32 ÷ 40x65			
	54						20x32 ÷ 50x80			

End type		Types		Sealing	
○	Flanged end	01	Standard type for steam, gases	-1	metal-metal
		02	Gastight type for steam, gases	-2	NBR
		03	Type with reduced lift for liquids, steam and gases	-3	EPDM
		04	Gastight type with reduced lift for liquids, steam and gases	-4	membrane (EPDM)
		05	Marine type for steam, gases		
		06	Marine type with reduced lift for liquids, steam and gases		
		07	Marine gastight type for steam and gases		
		08	Marine type with reduced lift, gas-tight for liquids, steam and gases		
		51	Standard type, with extended seat, for steam and gases		
		52	Gastight type, with extended seat, for steam and gases		
		53	Type with extended seat for liquids and steam-water mixture		
		54	Gastight type with extended seat for liquids and steam-water mixture		
		55	Marine type with extended seat for steam and gases		
		56	Marine type, gastight, with extended seat for liquids and steam-water mixture		
		57	Marine type, gastight, with extended seat for steam and gases		
		58	Marine type, gastight, with extended seat for liquids and steam-water mixture		

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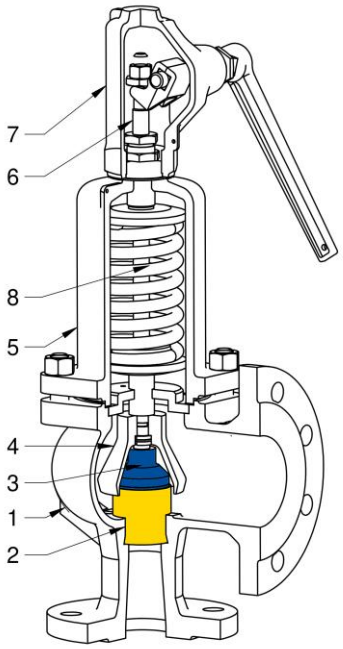
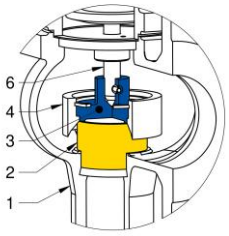
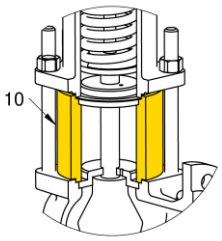
Materials

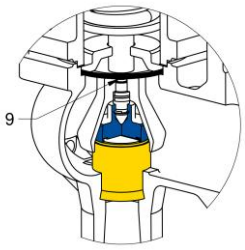




630
Type 51-58



610, 630
Type 01-08



630
Type: 01
Sealing -4

No.	Body material →			C	F	R
	Part	Type		610C E 630C E	610F E 630F E	630R E
1	Body	01-08 51-58	-1, -2, -3, -4	EN-GJS-400-18-LT 5.3103	GP240GH 1.0619	GX5CrNi19-10 1.4308
2	Seat	01-08 51-58	-1, -2, -3, -4	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057		X6CrNiTi18-10 1.4541
3	Disc	01-08 51-58	-1	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057		X6CrNiTi18-10 1.4541
		01-08	-2	X6CrNiTi18-10/NBR 1.4541/NBR		
		01-08	-3	X6CrNiTi18-10/EPDM 1.4541/EPDM		
4	Bell	01-08	-1, -2, -3, -4	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021		X6CrNiTi18-10 1.4541
		51-58	-1	X20Cr13 1.4021		
5	Bonnet	01-08 51-58	-1	EN-GJS-400-15 5.3106	GP240GH 1.0619	GX5CrNi19-10 1.4308
		01-08	-2, -3, -4		EN-GJS-400-15 5.3106	
6	Stem	01-04 51-54	-1, -2, -3, -4	X20Cr13 1.4021		X6CrNiTi18-10 1.4541
		05-08 55-58		X17CrNi16-2 1.4057		
7	Cap	01-08 51-58	-1, -2, -3, -4	EN-GJS-400-15 5.3106		GX5CrNi19-10 1.4308
8	Spring	01-08	-1, -2, -3, -4	51CrV4 / FDSiCr * 1.8159 / -		X10CrNi18-10 1.4310
		51-58	-1			51CrV4 / FDSiCr *;** 1.8159 / -
9	Membrane	01	-4		EPDM	
10	Insert	01-08	-1		P245GH / 13CrMo4-5 1.0352 / 1.7335	

* Springs with wire diameter Φ6, of patented wire, max. operating temperature then is 250°C (details in the table: Pressure ranges)
** Valve springs 630R E type 51, 52, 53, 54 – nickel-plated

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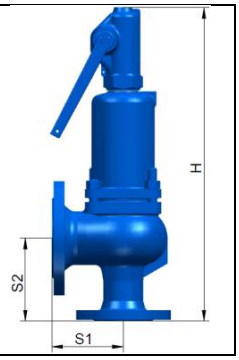
Dimensions

Body material: **C, F, R**		d_1 x d_2									
		610, 630									
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
d_o (mm)	01-08	16	20	25	32	40	50	63	77	93	110
	51-58	18	23	29	37	46					
A (mm^2)	01-08	201	314	491	804	1257	1964	3117	4657	6793	9503
	51-58	254	416	661	1075	1662					
S_1 (mm)	01-08 51-58	85	95	100	115	125	140	155	175	215	225
S_2 (mm)		95	105	110	130	145	150	170	180	220	245
H (mm)		345	395	420	495	550	660	710	810	860	990
H (mm) with insert	01-08	405	465	495	585	655	770	840	955	970	



Set pressure

Body material: **C**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1,	0,45							
	01-08	-2, -3	1							
	51, 52, 55, 57	-1	0,45							
	53, 54, 56, 58	-1	0,45							
P_{max} (bar)	01-08	-1, -2, -3	40			32			25	20
	51, 52, 55, 57	-1	25							
	53, 54, 56, 58	-1	25							

Body material: **F**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
P_{min} (bar)	01-08	-1, -4	0,45									
	01-08	-2, -3	1									
	51, 52, 55, 57	-1	0,45									
	53, 54, 56, 58	-1	0,45									
P_{max} (bar)	01-08	-1	40			32			25	20	12,5	10
	01-08	-2, -3	40			32			25	20		
	01	-4	10									
	51, 52, 55, 57	-1	25									
	53, 54, 56, 58	-1	25									

Body material: **R**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1	0,5							
	51, 52	-1	0,45							
	53, 54	-1	0,45							
P_{max} (bar)	01-04	-1	40			32			25	20
	51, 52	-1	25							
	53, 54	-1	25							

Flange drilling

610CE, 630C E 610F E, 630F E 630RE		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
Inlet	Standard	PN40									
	Optional PN*	PN16, PN10									
	Optional ANSI*	class150		class150 class300**	class150	class150 class300**	class150				
Outlet	Standard	PN10									
	Optional PN	PN16									
	Optional ANSI	class150			class150**				class150**		

* After agreement with the manufacturer, if the setting pressure allows

** Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-1 [FE] [RE] or EN-1092-2[CE])

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Discharge coefficients

			Steam and gases(S/G)									
			DN (d_1 x d_2)									
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
610C E 610F E	01	b_1 = 0,1 bar for p ≤ 1 bar	0,72									
		b_1 = 10% for 1 < p ≤ 1,4 bar										
		b_1 = 10% for p > 1,4 bar	0,78									
630C E 630F E 630R E	01, 02, 05, 07	b_1 = 0,1 bar for p ≤ 1 bar	0,72									
		b_1 = 10% for 1 < p ≤ 1,4 bar										
		b_1 = 10% for p > 1,4 bar	0,78									
	03, 04, 06, 08	b_1 = 10%	0,36									
	51, 52, 55, 57	b_1 = 0,1 bar for p ≤ 1 bar	Acc. to the diagram2									
		b_1 = 10% for 1 < p ≤ 3 bar										
		b_1 = 10% for p > 3 bar	0,801									
	53, 54, 56, 58	b_1 = 0,1 bar for p ≤ 1 bar	0,800 Permissible value of the coefficient for steam and gases for two-phase flow capacity calculations									
		b_1 = 10% for p > 1 bar										

Kdr=f(b) for series 630 valves (steams and gases)

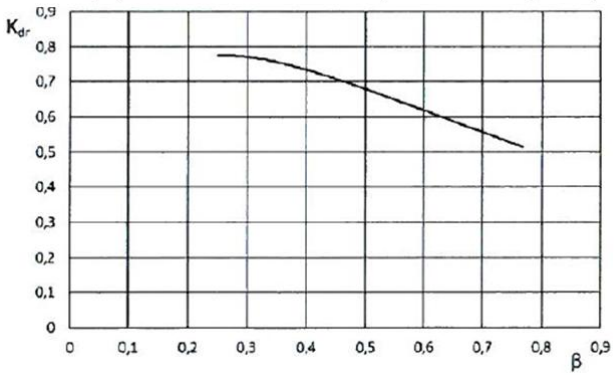

Diagram 2

Dependence of the discharge coefficient Kdr on the ratio of absolute pressures behind and before the valve

For valve:

630 DN 20-40 type 51-1, 52-1, 55-1, 57-1

			Liquids (L)								
			DN (d_1 x d_2)								
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
630C E 630F E 630R E	03, 04, 06, 08	b_1 = 0,1 bar for p ≤ 1 bar	0,28									
		b_1 = 10% for p > 1 bar										
630F E	01-4	b_1 = 0,1 bar for p ≤ 1 bar	0,5									
		b_1 = 10% for p > 1 bar										
630C E 630F E 630R E	53, 54, 56, 58	b_1 = 0,1 bar for p ≤ 1 bar	0,555				0,515					
		b_1 = 10% for p > 1 bar										

Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C	450 °C
EN-GJS-400-18-LT	40	bar	40	40	40	40	38,8	36,8	34,8	32	28		
GP240GH			30	40	40	40	38,1	35	32	28	25,7	23,8	18,0
GX5CrNi19-10			38	37,6	35,6	27,6	24,9	22,6	21	19,6			

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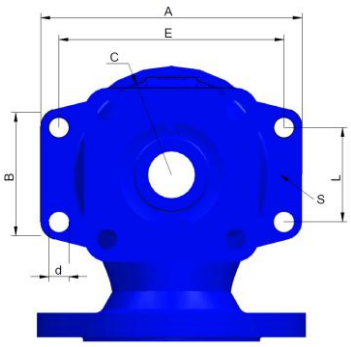
Dimension of supported lug

Body material: **F, R**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	180	84	134	65	155	14	10
50x80	210	93	160	70	180	14	12
65x100	245	94	196	70	215	14	12
80x125	300	100	240	90	270	18	15
100x150	320	160	280	130	285	18	15
125x200	365	120	300	90	330	18	15
150x250	415	150	360	120	380	18	15



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570

Full lift flanged weight safety valves

570
Type
01, 02

Application

Industries

INDUSTRY | HEATING | GAS | POWER ENGINEERING | REFRIGERATION AND AIR CONDITIONING

Media

STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
570	01, 02	-1	5702	F	GP240GH	E 40/10	20x32 ÷ 150x250	-40°C ÷ +400°C	○	○
			5702CrNi	R	GX5CrNi19-10		20x32 ÷ 100x150	-196°C ÷ +300°C		

End type	Types	Sealing
○ Flanged end	01 Standard type for steam, gases 02 Gastight type for steam, gases	-1 metal-metal

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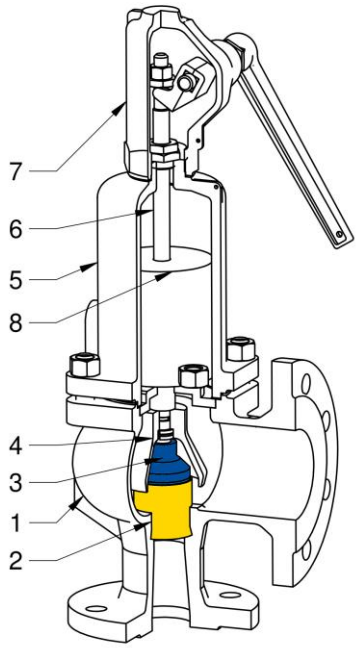
Materials

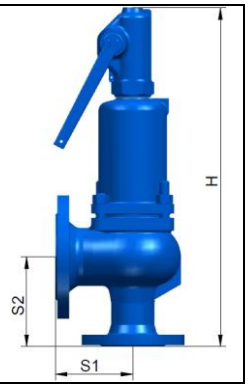


No.	Body material →		F	R
	Part	Type	570F E	570R E
1	Body	01, 02 -1	GP240GH 1.0619	GX5CrNi19-10 1.4308
2	Seat		X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057	X6CrNiTi18-10 1.4541
3	Disc		X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057	X6CrNiTi18-10 1.4541
4	Bell		EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021	X6CrNiTi18-10 1.4541
5	Bonnet		EN-GJS-400-15 5.3106	GX5CrNi19-10 1.4308
6	Stem		X20Cr13 1.4021	X6CrNiTi18-10 1.4541
7	Cap		EN-GJS-400-15 5.3106	GX5CrNi19-10 1.4308
8	Weight		Stal węglowa	Stal nierdzewna
	Insert[1]		P245GH 1.0352	Stal nierdzewna

[1] Used as an option for individual DNs in pressure ranges in which the standard version does not accommodate the weight associated with the appropriate pressure

Dimensions

Body material: **F, R**		d_1 x d_2									
		570									
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
d_o (mm)	01, 02	16	20	25	32	40	50	63	77	93	110
A (mm^2)		201	314	491	804	1257	1964	3117	4657	6793	9503
S_1 (mm)		85	95	100	115	125	140	155	175	215	225
S_2 (mm)		95	105	110	130	145	150	170	180	220	245
H (mm)		345	395	420	495	550	660	710	810	860	990
H (mm) with insert		405	465	495	585	655	770	840	955	970	



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Set pressure

Body material: **F**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
P_{min} (bar)	01, 02	-1	0,1									
P_{max} (bar)			0,7									

Body material: **R**			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01, 02	-1	0,1							
P_{max} (bar)			0,7							

Flange drilling

570F E, 570R E		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
Inlet	Standard	PN16									
	Optional PN	PN10									
	Optional ANSI*	Class150					Class150**				Class150
Outlet	Standard	PN10									
	Optional PN	PN16									
	Optional ANSI	Class150			Class150**				Class150**		

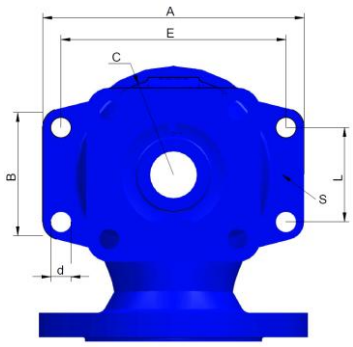
* Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-1)
Standard and optional flange drilled acc. EN 1092-1.

Discharge coefficients

			Steam and gases(S/G)									
			DN (d_1 x d_2)									
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
570F E	01, 02	b_1 = 0,1 bar	0,50							0,46		

Dimension of supported lug

Body material: **F, R**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	180	84	134	65	155	14	10
50x80	210	93	160	70	180	14	12
65x100	245	94	196	70	215	14	12
80x125	300	100	240	90	270	18	15
100x150	320	160	280	130	285	18	15
125x200	365	120	300	90	330	18	15
150x250	415	150	360	120	380	18	15



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650

Full-lift spring safety valves with threaded ends

650
Type
01-08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | PETROCHEMICAL INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | GAS | POWER ENGINEERING

Media

DRINKING WATER | SEWAGE | GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
650	01 - 08	-1	6302.01	F	GP240GH	E 40/10	20x32 ÷ 50x80	-40°C ÷ +400°C		
		-2	6302.01.11A					-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		
	01 - 04	-1	6302.01CrNi	R	GX5CrNi19-10			-196°C ÷ +300°C		

End type	Types		Sealing	
Threaded ends	01	Standard type for steam, gases	-1	metal-metal
	02	Gastight type for steam, gases	-2	NBR
	03	Type with reduced lift for liquids, steam and gases	-3	EPDM
	04	Gastight type with reduced lift for liquids, steam and gases		
	05	Marine type for steam, gases		
	06	Marine type with reduced lift for liquids, steam and gases		
	07	Marine gastight type for steam and gases		
	08	Marine type with reduced lift, gas-tight for liquids, steam and gases		

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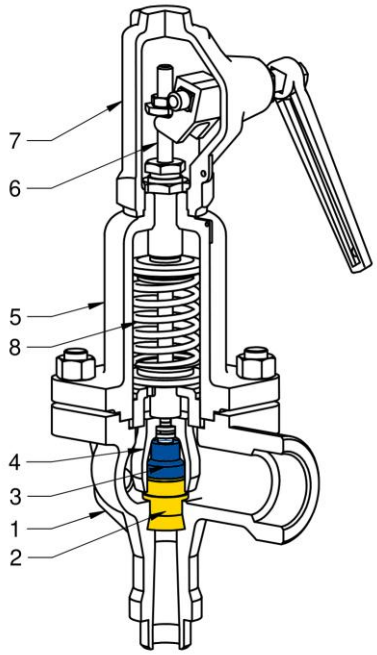
Materials



No.	Body material →			F	R
	Part	Type		650F E	650R E
1	Body	01-08	-1, -2, -3	GP240GH 1.0619	GX5CrNi19-10 1.4308
2	Seat	01-08	-1, -2, -3	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057	X6CrNiTi18-10 1.4541
3	Disc	01-08	-1	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057	X6CrNiTi18-10 1.4541
		01-08	-2	X6CrNiTi18-10/NBR 1.4541/NBR	
		01-08	-3	X6CrNiTi18-10/EPDM 1.4541/EPDM	
4	Bell	01-08	-1, -2, -3	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021	X6CrNiTi18-10 1.4541
5	Bonnet	01-08	-1	GP240GH 1.0619	GX5CrNi19-10 1.4308
			-2, -3	EN-GJS-400-15 5.3106	
6	Stem	01-04	-1, -2, -3	X20Cr13 1.4021	X6CrNiTi18-10 1.4541
		05-08		X17CrNi16-2 1.4057	-
7	Cap	01-08	-1, -2, -3	EN-GJS-400-15 5.3106	GX5CrNi19-10 1.4308
8	Spring	01-08	-1, -2, -3	51CrV4 / FDSiCr * 1.8159 / -	X10CrNi18-10 1.4310

* Springs with wire diameter Φ6, of patented wire, max. operating temperature then is 250°C (details in the table: Pressure ranges)

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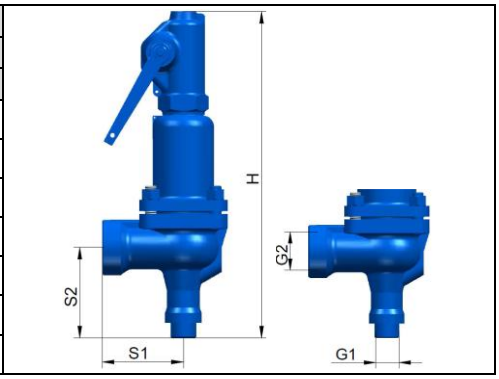
Dimensions

Body material: **F, R**		d_1 x d_2				
		650				
		20x32	25x40	32x50	40x65	50x80
d_o (mm)	01-08	16	20	25	32	40
A (mm^2)		201	314	491	804	1257
G_1 (cal)		¾	1	1¼	2	2¼
G_2 (cal)		1¼	1½	2	2½	3
S_1 (mm)		85	95	100	115	125
S_2 (mm)		95	105	110	130	145
H (mm)		345	395	420	495	550



Set pressure

Body material: **F**			20x32	25x40	32x50	40x65	50x80
P_{min} (bar)	01-08	-1	0,45				
		-2, -3	1				
P_{max} (bar)	01-08	-1	40			32	
		-2, -3					

Body material: **R**			20x32	25x40	32x50	40x65	50x80
P_{min} (bar)	01-04	-1	0,5				
P_{max} (bar)	01-04	-1	40			32	

Discharge coefficients

			Steam and gases(S/G)				
			DN (d_1 x d_2)				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
650F E 650R E	01, 02, 05, 07	b_1 = 0,1 bar for p ≤ 1 bar	0,72				
		b_1 = 10% for 1 < p ≤ 1,4 bar					
		b_1 = 10% for p > 1,4 bar	0,78				
	03, 04, 06, 08	b_1 = 10%	0,36				

			Liquids (L)				
			DN (d_1 x d_2)				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
650F E 650R E	03, 04, 06, 08	b_1 = 0,1 bar for p ≤ 1 bar	0,28				
		b_1 = 10% for p > 1 bar					

Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
GP240GH	E	40 bar	30	40	40	40	38,1	35	32	28	25,7	23,8
GX5CrNi19-10			38	37,6	35,6	27,6	24,9	22,6	21	19,6		

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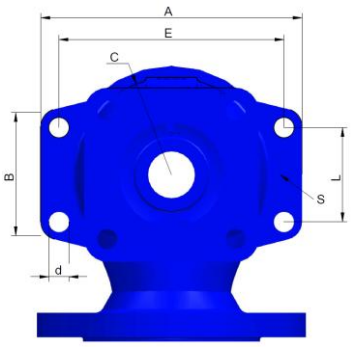
Dimension of supported lug

Body material: **F, R**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	180	84	134	65	155	14	10
50x80	210	93	160	70	180	14	12



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PN63

610, 630

Full lift spring flanged safety valves

610
Type
01

610
Type
01

630
Type
01 – 08

630
Type
01 – 08

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	REFRIGERATION AND AIR CONDITIONING	GAS	POWER ENGINEERING
610 630	630	630	610 630	630	610 630	610 630

Media

DRINKING WATER	SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
630	630	630	630	610 630	610 630	610 630

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
610F F	01	-1	6103	F	GP240GH	F 63/40*	20x32 ÷ 400x500	-40°C ÷ +450°C		
630F F	01, 02, 03, 04 05, 06, 07, 08	-1	6303					-40°C ÷ +400°C		
		-2	6303.11A				20x32 ÷ 100x150	-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		

* Depending on the valve diameter, the drilling may be different according to the flage drilling table

End type

Flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

Data given can be changed without notice

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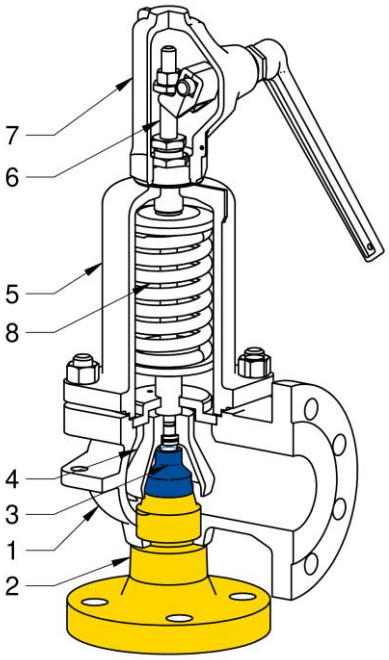
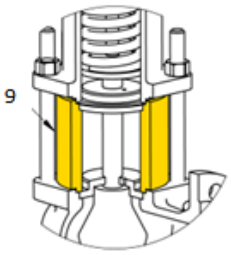
Materials





Type with insert
610, 630

No.	Body material →				F
	Part	Type		DN	610F F 630F F
1	Body	01-08	-1, -2, -3	20 - 400	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2, -3	20 – 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
			-1	125 - 400	GP240GH 1.0619
3	Disc	01-08	-1	20 - 200	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
				200 - 400	GX5CrNi19-10 1.4308
			-2	20 – 100	X6CrNiTi18-10/NBR 1.4541/NBR
			-3	20 – 100	X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2, -3	20 - 150	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
			-1	200 - 400	GP240GH 1.0619
5	Bonnet	01-08	-1, -2, -3	20 - 400	GP240GH 1.0619
6	Stem	01-04	-1, -2, -3	20 - 400	X20Cr13 1.4021
		05-08		20 - 400	X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2, -3	20 - 150	EN-GJS-400-15 5.3106
			-1	200 - 400	GP240GH 1.0619
8	Spring	01-08	-1, -2, -3	20 - 400	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	20 - 400	P245GH / 13CrMo4-5 1.0352 / 1.7335

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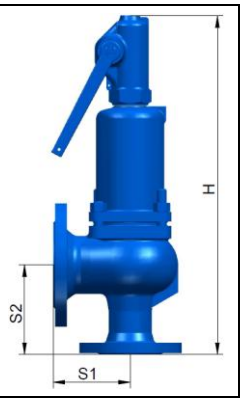
Dimensions

Body material: **F**		d_1 x d_2												
		610, 630												
		20x 32	25x 40	32x 50	40x 65	50x 80	65x 100	80x 125	100x 150	125x 200	150x 250	200x 300	300x 400	400x 500
d_o (mm)	01-08	16	20	25	32	40	50	63	77	93	110	155	220	280
A (mm^2)		201	314	491	804	1257	1964	3117	4657	6793	9503	18870	38010	61575
S_1 (mm)		95	100	110	130	145	155	190	210	215	225	265	335	375
S_2 (mm)		110	110	115	140	150	160	180	200	220	245	290	370	415
H (mm)		400	420	475	535	650	685	790	940	980	1020	1210	1480	1650
H (mm) with insert		470	495	560	640	760	815	935	*					



* After agreement with the manufacturer

Set pressure

610F F, 630F F			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
P_{min} (bar)	01-08	-1	38			30			23	18	12	9,5	0,45	0,3	0,25
		-2, -3													
P_{max} (bar)		-1	62			50			40	32	25	16	10	7	4,5
		-2, -3													

Flange drilling

610F F, 630F F		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
Inlet	Standard	PN63									PN40	PN25		
	Optional PN*	PN100, PN40						PN100, PN40, PN25			PN16 PN25	PN16, PN10		
	Optional ANSI*	class300, class600									class150 class300	Class150		
Outlet	Standard	PN40								PN25	PN16	PN10		
	Optional PN	PN25								PN10				
	Optional ANSI	Class300**		Class300**								Class150**		

* After agreement with the manufacturer, if the setting pressure allows

** Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-1)

Discharge coefficients

			Steam and gases(S/G)												
			DN (d_1 x d_2)												
			610, 630												
Figure	Type	Pressure	20x 32	25x 40	32x 50	40x 65	50x 80	65x 100	80x 125	100x 150	125x 200	150x 250	200x 300	300x 400	400x 500
610F F	01	b_1 = 0,1 bar for p ≤ 1 bar											0,70	0,54	
		b_1 = 10% for 1 < p ≤ 1,4 bar													
		b_1 = 10% for p > 1,4 bar	0,78										0,74	0,70	
630F F	01, 02, 05, 07	b_1 = 0,1 bar for p ≤ 1 bar											0,70	0,54	
		b_1 = 10% for 1 < p ≤ 1,4 bar													
		b_1 = 10% for p > 1,4 bar	0,78										0,74	0,70	
	03, 04, 06, 08	b_1 = 10%	0,36												

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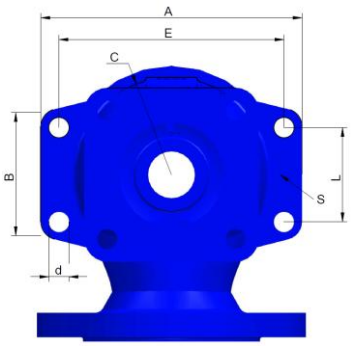
			Liquids (L)												
			DN (d_1 x d_2)												
			630												
Figure	Type	Pressure	20x 32	25x 40	32x 50	40x 65	50x 80	65x 100	80x 125	100x 150	125x 200	150x 250	200x 300	300x 400	400x 500
630F F	03, 04 06, 08	b_1 = 0,1 bar for p ≤ 1 bar											0,01		
		b1 = 10% p > 1 bar													
		b1 = 10%	0,28												

Dimension of supported lug

Body material: **F**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		
125x200	365		300		330		
150x250	415	150	360	120	380		
200 x 300	510	180	450	150	470	23	20
300 x 400	695	210	600	180	655		
400x 500	800	230	715	200	760		



Pressure-temperature ratings

	PN		**-40°C**	**RT**	**50°C**	**100°C**	**150°C**	**200°C**	**250°C**	**300°C**	**350°C**	**400°C**	**450°C**
13CrMo4-5	63	bar	63	63	63	63	63	63	63	63	57	54	47

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613, 673

Full-lift spring safety valves with welding ends

613
Type
01

613
Type
01

673
Type
01 – 08

673
Type
01 – 08

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	GAS	POWER ENGINEERING
613 673	673	673	613 673	613 673	613 673

Media

SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
673	673	673	613 673	613 673	613 673

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
613F F	01	-1	6103.03	F	GP240GH	F 63/40	20x32 ÷ 100x150	-40°C ÷ +450°C	✸	✸
673F F	01, 02, 03, 04 05, 06, 07, 08	-1	6303.03					-40°C ÷ +400°C		

End type

✸ Welding ends

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1 metal-metal

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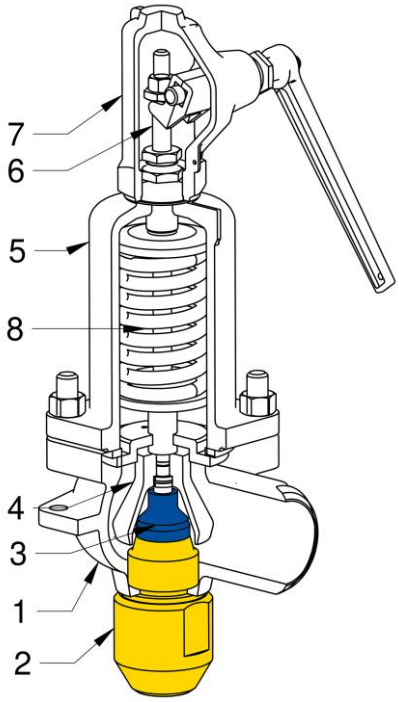
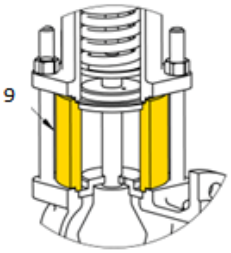
Materials





Type with insert
613, 673

No.	Body material →				F
	Part	Type		DN	613F F 673F F
1	Body	01-08	-1	20 - 100	GP240GH 1.0619
2	Inlet nozzle	01-08	-1	20 – 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	20 – 100	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
4	Bell	01-08	-1	20 – 100	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1	20 – 100	GP240GH 1.0619
6	Stem	01-04	-1	20 – 100	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1	20 – 100	EN-GJS-400-15 5.3106
8	Spring	01-08	-1	20 – 100	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	20 – 100	P245GH / 13CrMo4-5 1.0352 / 1.7335

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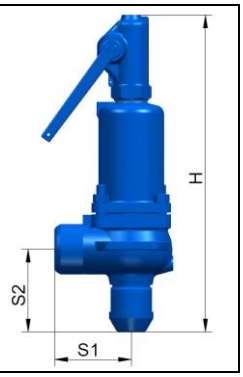
Dimensions

Body material: F		d_1 x d_2							
		613, 673							
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
d_o (mm)	01-08	16	20	25	32	40	50	63	77
A (mm^2)		201	314	491	804	1257	1964	3117	4657
S_1 (mm)		95	100	110	130	145	155	190	210
S_2 (mm)		110	110	115	140	150	160	180	200
H (mm)		400	420	475	535	650	685	790	940
H (mm) with insert		470	495	560	640	760	815	935	*



* After agreement with the manufacturer

Set pressure

613F F, 673F F			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1	38			30			23	18
P_{max} (bar)			62			50			40	32

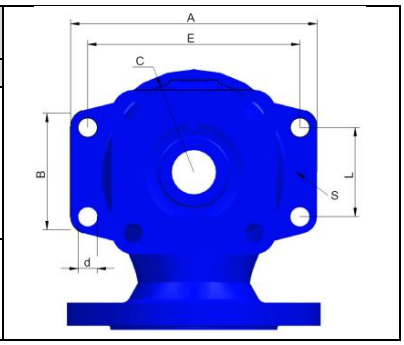
Discharge coefficients

			Steam and gases(S/G)							
			DN (d_1 x d_2)							
			613, 673							
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
613F F	01	b_1 = 10%	0,78							
673F F	01, 02, 05, 07	b_1 = 10%	0,78							
	03, 04, 06, 08	b_1 = 10%	0,36							

			Liquids (L)							
			DN (d_1 x d_2)							
			673							
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
673F F	03, 04, 06, 08	b1 = 10%	0,28							

Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C	450 °C
13CrMo4-5	63	bar	63	63	63	63	63	63	63	63	57	54	47

Data given can be changed without notice

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614, 674

Full-lift spring safety valves with welding end (inlet) flanged end (outlet)

614
Type
01

614
Type
01

674
Type
01 – 08

674
Type
01 – 08

Application

Industries

INDUSTRY
614
674

SHIPBUILDING INDUSTRY
674

PETROCHEMICAL INDUSTRY
674

HEATING
614
674

GAS
614
674

POWER ENGINEERING
614
674

Media

SEWAGE
674

GLYCOL
674

INDUSTRY WATER
674

STEAM
614
674

COMPRESSED AIR
614
674

NEUTRAL FLUIDS
614
674

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
614F F	01	-1	6103.04	F	GP240GH	F 63/40	20x32 ÷ 100x150	-40°C ÷ +450°C		
674F F	01, 02, 03, 04 05, 06, 07, 08	-1	6303.04					-40°C ÷ +400°C		

End type

- welding ends
- flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal

Data given can be changed without notice

Edition 04/2022

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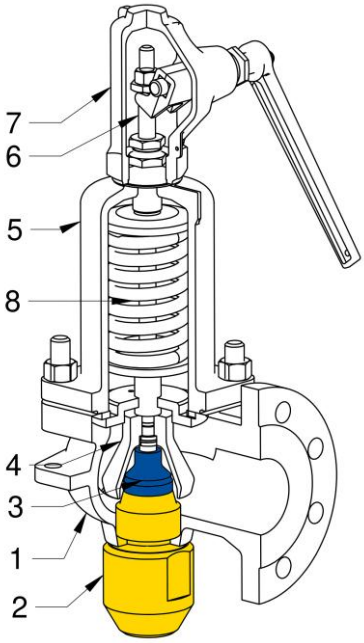
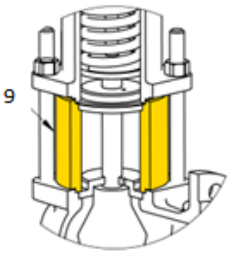
Materials





Type with insert
614, 674

No.	Body material →				F
	Part	Type		DN	614F F 674F F
1	Body	01-08	-1	20 - 100	GP240GH 1.0619
2	Inlet nozzle	01-08	-1	20 – 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	20 – 100	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
4	Bell	01-08	-1	20 – 100	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1	20 – 100	GP240GH 1.0619
6	Stem	01-04	-1	20 – 100	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1	20 – 100	EN-GJS-400-15 5.3106
8	Spring	01-08	-1	20 – 100	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	20 – 100	P245GH / 13CrMo4-5 1.0352 / 1.7335

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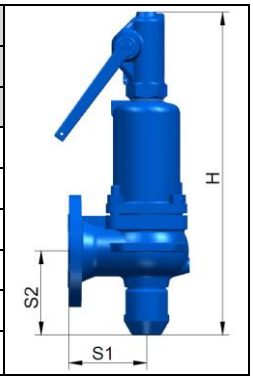
Dimensions

Body material: F		$d_1 \times d_2$							
		614, 674							
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
d_o (mm)	01-08	16	20	25	32	40	50	63	77
A (mm^2)		201	314	491	804	1257	1964	3117	4657
S_1 (mm)		95	100	110	130	145	155	190	210
S_2 (mm)		110	110	115	140	150	160	180	200
H (mm)		400	420	475	535	650	685	790	940
H (mm) with insert		470	495	560	640	760	815	935	*



* After agreement with the manufacturer

Set pressure

614F F, 674F F			20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1	38			30			23	18
P_{max} (bar)			62			50			40	32

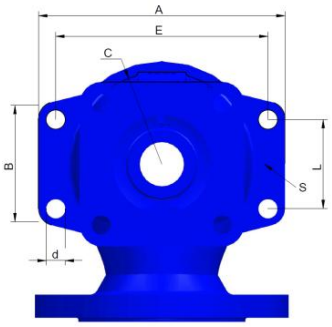
Discharge coefficients

			Steam and gases(S/G)							
			DN ($d_1 \times d_2$)							
			614, 674							
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
614F F	01	b_1 = 10%	0,78							
674F F	01, 02, 05, 07	b_1 = 10%	0,78							
	03, 04, 06, 08	b_1 = 10%	0,36							

			Liquids (L)							
			DN ($d_1 \times d_2$)							
			674							
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
674F F	03, 04, 06, 08	b1 = 10%	0,28							

Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
$d_1 \times d_2$	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C	450 °C
13CrMo4-5	63	bar	63	63	63	63	63	63	63	63	57	54	47

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650

Full-lift spring safety valves with treaded ends

650
Type
01 - 08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | PETROCHEMICAL INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | GAS | POWER ENGINEERING

Media

DRINKING WATER | SEWAGE | GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
650F F	01 - 08	-1	6303.01	F	GP240GH	F 63/40	20x32 ÷ 50x80	-40°C ÷ +400°C		
		-2	6303.01.11A					-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		

End type

Threaded ends

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

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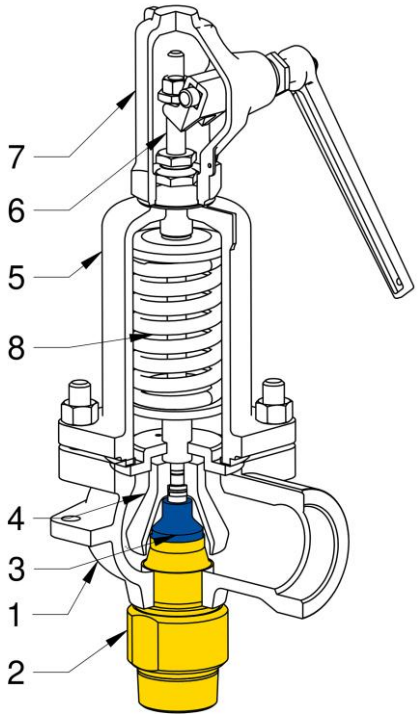
Materials



No.	Body material →				F
	Part	Type		DN	650F F
1	Body	01-08	-1, -2 ,-3	20 - 50	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2 ,-3	20 - 50	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	20 - 50	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
			-2		X6CrNiTi18-10/NBR 1.4541/NBR
			-3		X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2 ,-3	20 - 50	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1, -2 ,-3	20 - 50	GP240GH 1.0619
6	Stem	01-04	-1, -2 ,-3	20 - 50	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2 ,-3	20 - 50	EN-GJS-400-15 5.3106
8	Spring	01-08	-1, -2 ,-3	20 - 50	51CrV4 / FDSiCr 1.8159 / -

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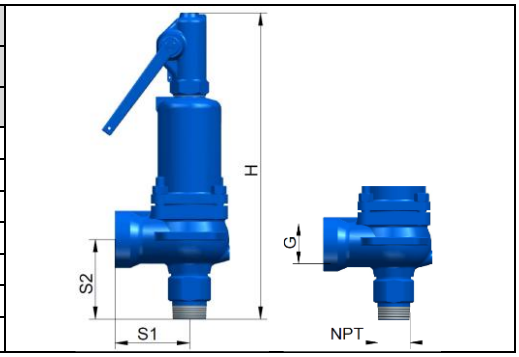
Dimensions

Body material: F		d_1 x d_2				
		650				
		20x32	25x40	32x50	40x65	50x80
d_o (mm)	01-08	16	20	25	32	40
A (mm^2)		201	314	491	804	1257
NPT (cal)		1	1¼	1½	2	2½
G (cal)		1¼	1½	2	2½	3
S_1 (mm)		95	100	110	130	145
S_2 (mm)		110	110	115	140	150
H (mm)		400	420	475	535	650



Set pressure

650F F			20x32	25x40	32x50	40x65	50x80
P_{min} (bar)	01-08	-1, -2, -3	38			30	
P_{max} (bar)			62			50	

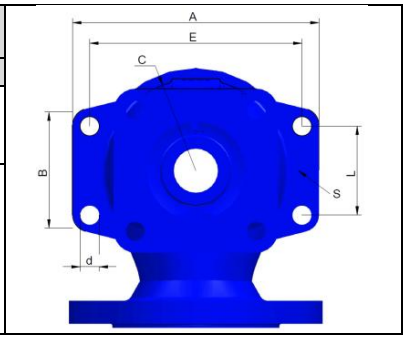
Discharge coefficients

			Steam and gases(S/G)				
			DN (d_1 x d_2)				
			650				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
650F F	01, 02, 05, 07	b_1 = 10%	0,78				
	03, 04, 06, 08	b_1 = 10%	0,36				

			Liquids (L)				
			DN (d_1 x d_2)				
			650				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
650F F	03, 04, 06, 08	b1 = 10%	0,28				

Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
13CrMo4-5	63	bar	63	63	63	63	63	63	63	63	57	54

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670

Full-lift spring safety valves with threaded end (inlet) flanged end (outlet)

670
Type
01 - 08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | PETROCHEMICAL INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | GAS | POWER ENGINEERING

Media

DRINKING WATER | SEWAGE | GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
670F F	01 - 08	-1	6303.02	F	GP240GH	F 63/40	20x32 ÷ 50x80	-40°C ÷ +400°C		
		-2	6303.02.11A					-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		

End type

Threaded end

Flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

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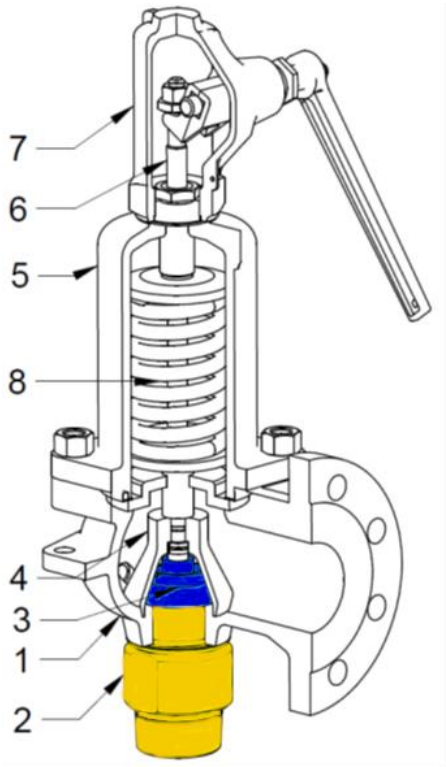
Materials



No.	Body material →				F
	Part	Type		DN	670F F
1	Body	01-08	-1, -2 ,-3	20 - 50	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2 ,-3	20 - 50	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	20 - 50	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
			-2		X6CrNiTi18-10/NBR 1.4541/NBR
			-3		X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2 ,-3	20 - 50	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1, -2 ,-3	20 - 50	GP240GH 1.0619
6	Stem	01-04	-1, -2 ,-3	20 - 50	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2 ,-3	20 - 50	EN-GJS-400-15 5.3106
8	Spring	01-08	-1, -2 ,-3	20 - 50	51CrV4 / FDSiCr 1.8159 / -

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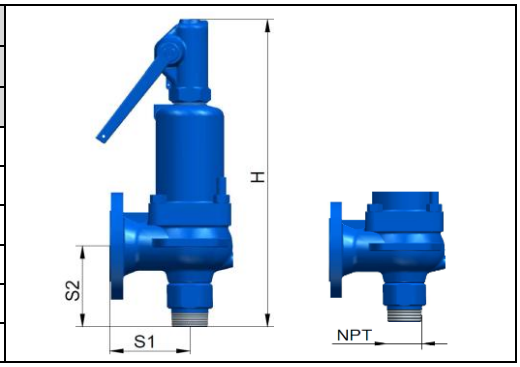
Dimensions

Body material: **F**		d_1 x d_2				
		670				
		20x32	25x40	32x50	40x65	50x80
d_o (mm)	01-08	16	20	25	32	40
A (mm^2)		201	314	491	804	1257
NPT (cal)		1	1¼	1½	2	2½
S_1 (mm)		95	100	110	130	145
S_2 (mm)		110	110	115	140	150
H (mm)		400	420	475	535	650



Set pressure

670F F			20x32	25x40	32x50	40x65	50x80
P_{min} (bar)	01-08	-1, -2, -3	38			30	
P_{max} (bar)			62			50	

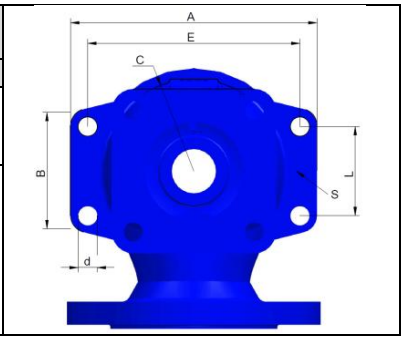
Discharge coefficients

			Steam and gases(S/G)				
			DN (d_1 x d_2)				
			670				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
670F F	01, 02, 05, 07	b_1 = 10%	0,78				
	03, 04, 06, 08	b_1 = 10%	0,36				

			Liquids (L)				
			DN (d_1 x d_2)				
			670				
Figure	Type	Pressure	20x32	25x40	32x50	40x65	50x80
670F F	03, 04, 06, 08	b1 = 10%	0,28				

Dimension of supported lug

Body material: **F**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		



Pressure-temperature ratings

	PN		**-40°C**	**RT**	**50 °C**	**100 °C**	**150 °C**	**200 °C**	**250 °C**	**300 °C**	**350 °C**	**400 °C**
13CrMo4-5	63	bar	63	63	63	63	63	63	63	63	57	54

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PN100

610, 630

Full lift spring flanged safety valves

610
Type
01

610
Type
01

630
Type
01 – 08

630
Type
01 – 08

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	REFRIGERATION AND AIR CONDITIONING	GAS	POWER ENGINEERING
610 630	630	630	610 630	630	610 630	610 630

Media

DRINKING WATER	SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
630	630	630	630	610 630	610 630	610 630

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
610F G	01	-1	6104	F	GP240GH	G 100/40*	25x40 ÷ 100x150	-40°C ÷ +450°C		
630F G	01, 02, 03, 04 05, 06, 07, 08	-1	6304					-40°C ÷ +400°C		
		-2	6304.11A					-10°C ÷ +90°C		
		-3						-10°C ÷ +120°C		

* Depending on the valve diameter, the drilling may be different according to the flage drilling table

End type

Flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

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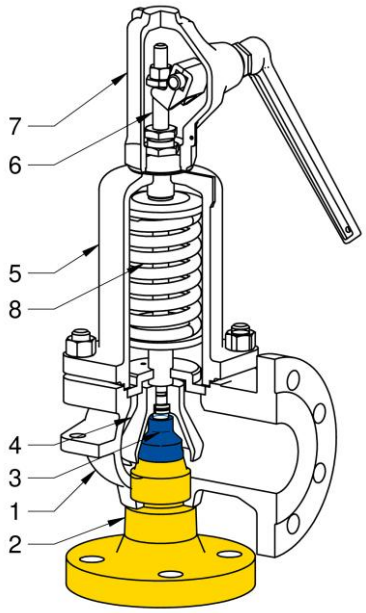
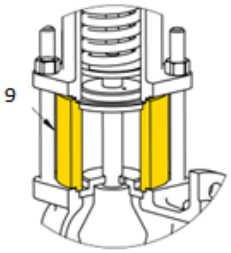
Materials





Type with insert
610, 630

No.	Body material →				F
	Part	Type		DN	610F G 630F G
1	Body	01-08	-1, -2, -3	25 - 100	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2, -3	25 - 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	25 - 100	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
			-2	25 - 100	X6CrNiTi18-10/NBR 1.4541/NBR
			-3	25 - 100	X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2, -3	25 - 100	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1, -2, -3	25 - 100	GP240GH 1.0619
6	Stem	01-04	-1, -2, -3	25 - 100	X20Cr13 1.4021
		05-08		25 - 100	X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2, -3	25 - 100	EN-GJS-400-15 5.3106
8	Spring	01-08	-1, -2, -3	25 - 100	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	25 - 100	P245GH / 13CrMo4-5 1.0352 / 1.7335

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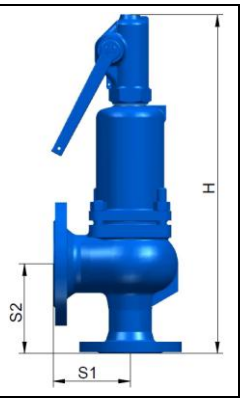
Dimensions

Body material: **F**		d_1 x d_2						
		610, 630						
		25x40	32x50	40x65	50x80	65x100	80x125	100x150
d_o (mm)	01-08	16	20	25	32	40	50	63
A (mm^2)		201	314	491	804	1257	1963	3117
S_1 (mm)		100	110	130	145	155	190	210
S_2 (mm)		120	125	140	150	165	185	200
H (mm)		430	485	535	650	685	795	940
H (mm) with insert		505	570	640	760	812	940	*



* After agreement with the manufacturer

Set pressure

610F G; 630F G			25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1,	60		48			38	30
		-2, -3							
P_{max} (bar)		-1	95					78	62
		-2, -3							

Flange drilling

610F G; 630F G		25x40	32x50	40x65	50x80	65x100	80x125	100x150
Inlet	**Standard**	**PN100**						**PN63**
	Optional PN*			PN63				PN40
	Optional ANSI*	Class600					Class300, class600	
Outlet	**Standard**	**PN40**						
	Optional PN							
	Optional ANSI		Class300**					

* After agreement with the manufacturer, if the setting pressure allows

** Possibility of Type except for the flange thickness (thickness as for the standard flange according to EN-1092-1)

Discharge coefficients

			Steam and gases(S/G)						
			DN (d_1 x d_2)						
			610, 630						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
610F G	01	b_1 = 10%	0,78						
630F G	01, 02, 05, 07		0,78						
	03, 04, 06, 08		0,36						

			Liquids (L)						
			DN (d_1 x d_2)						
			630						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
630F G	03, 04, 06, 08	b_1 = 10%	0,28						

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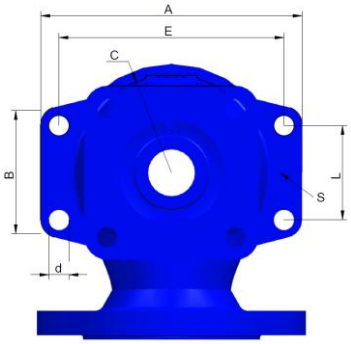
Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C	450 °C
13CrMo4-5	100	bar	100	100	100	100	100	100	100	100	90	86	75

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613, 673

Full-lift spring safety valves with welding ends

613
Type
01

613
Type
01

673
Type
01 – 08

673
Type
01 – 08

Application

Industries

INDUSTRY	SHIPBUILDING INDUSTRY	PETROCHEMICAL INDUSTRY	HEATING	GAS	POWER ENGINEERING
613 673	673	673	613 673	613 673	613 673

Media

SEWAGE	GLYCOL	INDUSTRY WATER	STEAM	COMPRESSED AIR	NEUTRAL FLUIDS
673	673	673	613 673	613 673	613 673

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
613F G	01	-1	6104.03	F	GP240GH	G 100/40	25x40 ÷ 100x150	-40°C ÷ +450°C		
673F G	01, 02, 03, 04 05, 06, 07, 08	-1	6304.03					-40°C ÷ +400°C		

End type

Welding ends

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal

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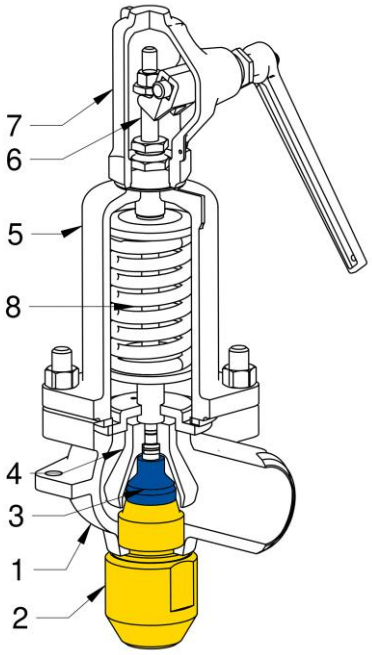
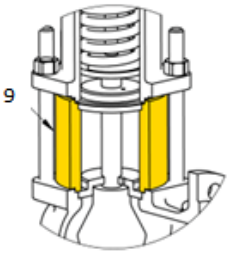
Materials



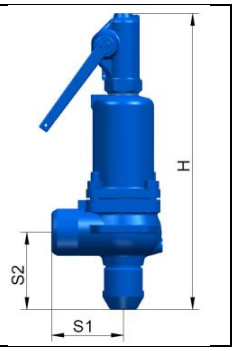


Type with insert
613, 673

No.	Body material →				F
	Part	Type		DN	613F G 673F G
1	Body	01-08	-1	25 - 100	GP240GH 1.0619
2	Inlet nozzle	01-08	-1	25 - 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	25 - 100	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
4	Bell	01-08	-1	25 - 100	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1	25 - 100	GP240GH 1.0619
6	Stem	01-04	-1	25 - 100	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1	25 - 100	EN-GJS-400-15 5.3106
8	Spring	01-08	-1	25 - 100	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	25 - 100	P245GH / 13CrMo4-5 1.0352 / 1.7335

Dimensions

Body material: F		d_1 x d_2						
		613, 673						
		25x40	32x50	40x65	50x80	65x100	80x125	100x150
d_o (mm)	01-08	16	20	25	32	40	50	63
A (mm^2)		201	314	491	804	1257	1963	3117
S_1 (mm)		100	110	130	145	155	190	210
S_2 (mm)		120	125	140	150	165	185	200
H (mm)		430	485	535	650	685	795	940
H (mm) with insert		505	570	640	760	812	940	*



* After agreement with the manufacturer

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Set pressure

613F G; 673F G			25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1,	60		48			38	30
P_{max} (bar)		-1	95					78	62

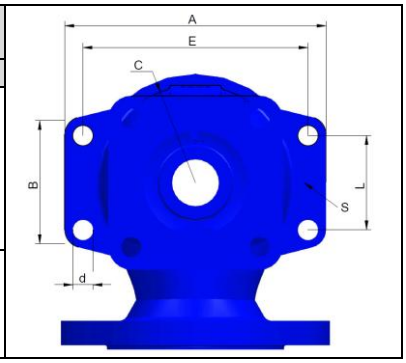
Discharge coefficients

			Steam and gases(S/G)						
			DN (d_1 x d_2)						
			613, 673						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
613F G	01	b_1 = 10%	0,78						
673F G	01, 02, 05, 07		0,78						
	03, 04, 06, 08		0,36						

			Liquids (L)						
			DN (d_1 x d_2)						
			673						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
673F G	03, 04, 06, 08	b_1 = 10%	0,28						

Dimension of supported lug

Body material: **F**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		



Pressure-temperature ratings

	PN		**-40°C**	**RT**	**50°C**	**100°C**	**150°C**	**200°C**	**250°C**	**300°C**	**350°C**	**400°C**	**450°C**
13CrMo4-5	100	bar	100	100	100	100	100	100	100	100	90	86	75

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614, 674

Full-lift spring safety valve with welding end (inlet) flanged end (outlet)

614
Type
01

614
Type
01

674
Type
01 – 08

674
Type
01 – 08

Application

Industries

INDUSTRY
614
674

SHIPBUILDING INDUSTRY
674

PETROCHEMICAL INDUSTRY
674

HEATING
614
674

GAS
614
674

POWER ENGINEERING
614
674

Media

SEWAGE
673

GLYCOL
674

INDUSTRY WATER
674

STEAM
614
674

COMPRESSED AIR
614
674

NEUTRAL FLUIDS
614
674

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
614F F	01	-1	6104.04	F	GP240GH	F 100/40	25x40 ÷ 100x150	-40°C ÷ +450°C		
674F F	01, 02, 03, 04 05, 06, 07, 08	-1	6304.04					-40°C ÷ +400°C		

End type

Welding end

Flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal

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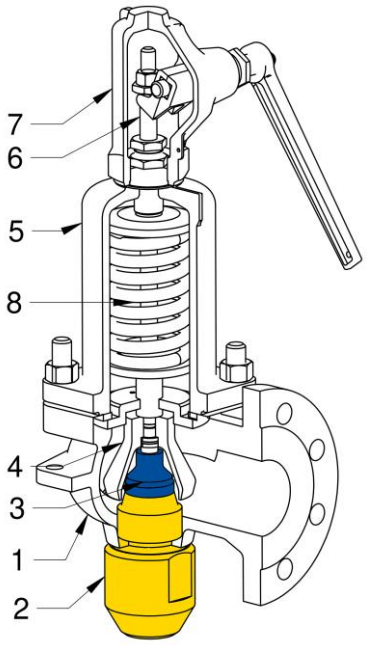
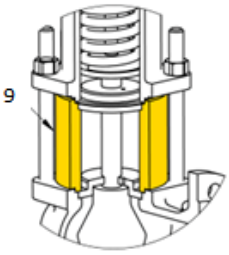
Materials



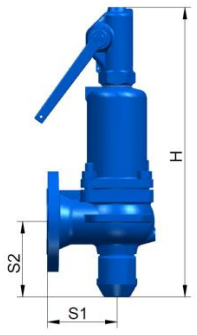


Type with insert
614, 674

No.	Body material →				F
	Part	Type		DN	614F G 674F G
1	Body	01-08	-1	25 - 100	GP240GH 1.0619
2	Inlet nozzle	01-08	-1	25 - 100	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	25 - 100	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
4	Bell	01-08	-1	25 - 100	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1	25 - 100	GP240GH 1.0619
6	Stem	01-04	-1	25 - 100	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1	25 - 100	EN-GJS-400-15 5.3106
8	Spring	01-08	-1	25 - 100	51CrV4 / FDSiCr 1.8159 / -
9	Insert	01-08	-1	25 - 100	P245GH / 13CrMo4-5 1.0352 / 1.7335

Dimensions

Body material: F		d_1 x d_2						
		614, 674						
		25x40	32x50	40x65	50x80	65x100	80x125	100x150
d_o (mm)	01-08	16	20	25	32	40	50	63
A (mm^2)		201	314	491	804	1257	1963	3117
S_1 (mm)		100	110	130	145	155	190	210
S_2 (mm)		120	125	140	150	165	185	200
H (mm)		430	485	535	650	685	795	940
H (mm) with insert		505	570	640	760	812	940	*



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Set pressure

614F G; 674F G			25x40	32x50	40x65	50x80	65x100	80x125	100x150
P_{min} (bar)	01-08	-1,	60		48			38	30
P_{max} (bar)		-1	95					78	62

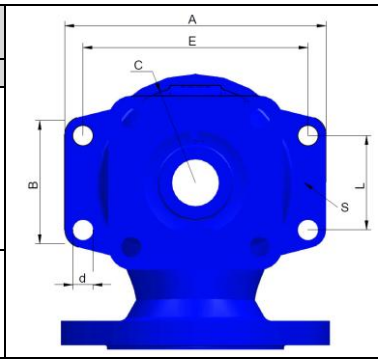
Discharge coefficients

			Steam and gases(S/G)						
			DN (d_1 x d_2)						
			614, 674						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
614F G	01	b_1 = 10%	0,78						
674F G	01, 02, 05, 07		0,78						
	03, 04, 06, 08		0,36						

			Liquids (L)						
			DN (d_1 x d_2)						
			674						
Figure	Type	Pressure	25x40	32x50	40x65	50x80	65x100	80x125	100x150
674F G	03, 04, 06, 08	b_1 = 10%	0,28						

Dimension of supported lug

Body material: **F**	**A**	**B**	**C**	**L**	**E**	**d**	**s**
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		
65x100	250		205		220		
80x125	295	120	240	90	260	18	15
100x150	320		265		285		



Pressure-temperature ratings

	PN		**-40°C**	**RT**	**50°C**	**100°C**	**150°C**	**200°C**	**250°C**	**300°C**	**350°C**	**400°C**	**450°C**
13CrMo4-5	100	bar	100	100	100	100	100	100	100	100	90	86	75

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650

Full-lift spring safety valve with threaded ends

650
Type
01 - 08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | PETROCHEMICAL INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | GAS | POWER ENGINEERING

Media

DRINKING WATER | SEWAGE | GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
650F G	01 - 08	-1	6304.01	F	GP240GH	F 100/40	25x40 ÷ 50x80	-40°C ÷ +400°C		
		-2	6304.01.11A					-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		

End type

Threaded end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

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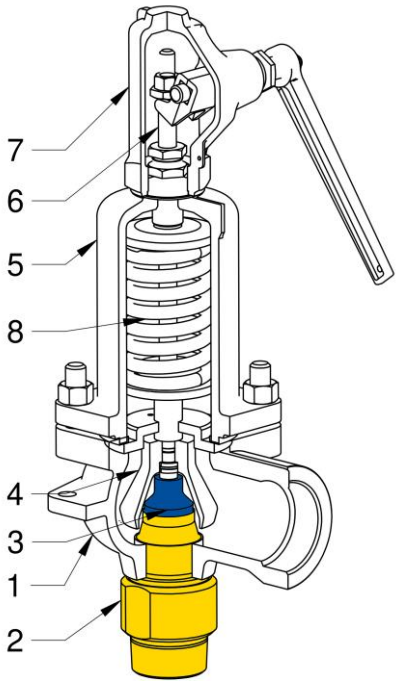
Materials



No.	Body material →				F
	Part	Type		DN	650F F
1	Body	01-08	-1, -2 ,-3	25 - 50	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2 ,-3	25 - 50	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	25 - 50	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
			-2		X6CrNiTi18-10/NBR 1.4541/NBR
			-3		X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2 ,-3	25 - 50	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1, -2 ,-3	25 - 50	GP240GH 1.0619
6	Stem	01-04	-1, -2 ,-3	25 - 50	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2 ,-3	25 - 50	EN-GJS-400-15 5.3106
8	Spring	01-08	-1, -2 ,-3	25 - 50	51CrV4 / FDSiCr 1.8159 / -

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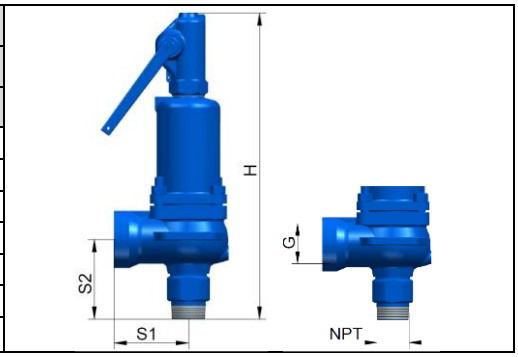
Dimensions

Body material: F		d_1 x d_2			
		650			
		25x40	32x50	40x65	50x80
d_o (mm)	01-08	16	20	25	32
A (mm^2)		201	314	491	804
NPT (cal)		1¼	1½	2	2½
G (cal)		1½	2	2½	3
S_1 (mm)		100	110	130	145
S_2 (mm)		120	125	140	150
H (mm)		430	485	535	650



Set pressure

650F G			25x40	32x50	40x65	50x80
P_{min} (bar)	01-08	-1, -2, -3	60		48	
P_{max} (bar)			95			

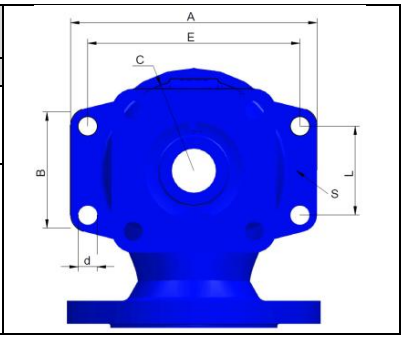
Discharge coefficients

			Steam and gases (S/G)			
			DN (d_1 x d_2)			
			650			
Figure	Type	Pressure	25x40	32x50	40x65	50x80
650F G	01, 02, 05, 07	b_1 = 10%	0,78			
	03, 04, 06, 08	b_1 = 10%	0,36			

			Liquids (L)			
			DN (d_1 x d_2)			
			650			
Figure	Type	Pressure	25x40	32x50	40x65	50x80
650F G	03, 04, 06, 08	b1 = 10%	0,28			

Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
13CrMo4-5	100	bar	100	100	100	100	100	100	100	100	90	86

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670

Full-lift spring safety valve with threaded end (inlet) flanged end (outlet)

670
Type
01 - 08

Application

Industries

INDUSTRY | SHIPBUILDING INDUSTRY | PETROCHEMICAL INDUSTRY | HEATING | REFRIGERATION AND AIR CONDITIONING | GAS | POWER ENGINEERING

Media

DRINKING WATER | SEWAGE | GLYCOL | INDUSTRY WATER | STEAM | COMPRESSED AIR | NEUTRAL FLUIDS

Technical data

Figure	Type	Sealing	Ex	Body material		PN	DN	Temperature range	Ends	
									Inlet	Outlet
670F G	01 - 08	-1	6304.02	F	GP240GH	G 100/40	25x40 ÷ 50x80	-40°C ÷ +400°C		
		-2	6304.02.11A					-40°C ÷ +90°C		
		-3						-40°C ÷ +120°C		

End type

- Threaded end
- Flanged end

Types

01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases

Sealing

-1	metal-metal
-2	NBR
-3	EPDM

Data given can be changed without notice

Edition 04/2022

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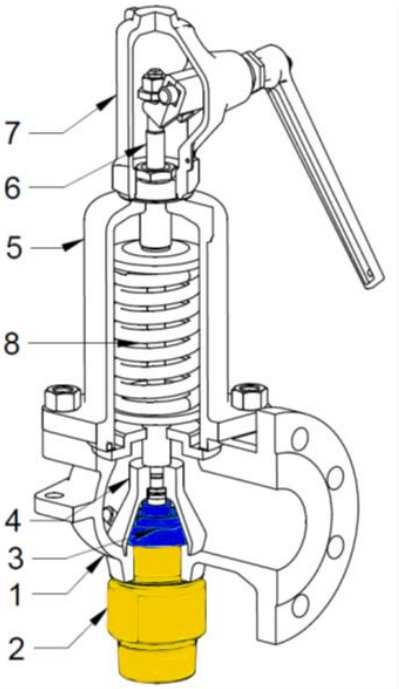
Materials



No.	Body material →				F
	Part	Type		DN	670F G
1	Body	01-08	-1, -2 ,-3	25 - 50	GP240GH 1.0619
2	Inlet nozzle	01-08	-1, -2 ,-3	25 - 50	C22, P355N, 13CrMo4-5 1.0402, 1.0473, 1.7335
3	Disc	01-08	-1	25 - 50	X39CrMo17-1 / X17CrNi16-2 1.4122 / 1.4057
			-2		X6CrNiTi18-10/NBR 1.4541/NBR
			-3		X6CrNiTi18-10/EPDM 1.4541/EPDM
4	Bell	01-08	-1, -2 ,-3	25 - 50	EN-GJS-400-15 / X20Cr13 5.3106 / 1.4021
5	Bonnet	01-08	-1, -2 ,-3	25 - 50	GP240GH 1.0619
6	Stem	01-04	-1, -2 ,-3	25 - 50	X20Cr13 1.4021
		05-08			X17CrNi16-2 1.4057
7	Cap	01-08	-1, -2 ,-3	25 - 50	EN-GJS-400-15 5.3106
8	Spring	01-08	-1, -2 ,-3	25 - 50	51CrV4 / FDSiCr 1.8159 / -

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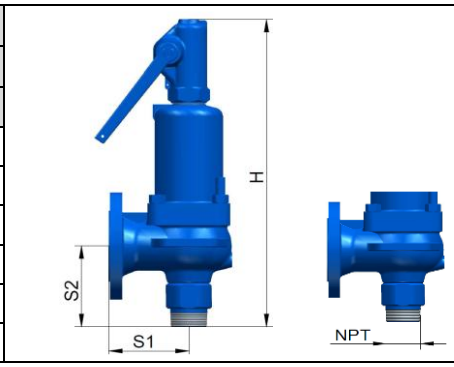
Dimensions

Body material: F		d_1 x d_2			
		670			
		25x40	32x50	40x65	50x80
d_o (mm)	01-08	16	20	25	32
A (mm^2)		201	314	491	804
NPT (cal)		1¼	1½	2	2½
S_1 (mm)		100	110	130	145
S_2 (mm)		120	125	140	150
H (mm)		430	485	535	650



Set pressure

670F G			25x40	32x50	40x65	50x80
P_{min} (bar)	01-08	-1, -2, -3	60		48	
P_{max} (bar)			95			

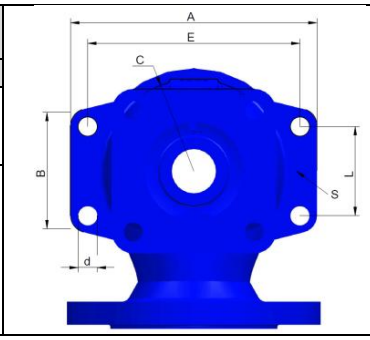
Discharge coefficients

			Steam and gases(S/G)			
			DN (d_1 x d_2)			
			670			
Figure	Type	Pressure	25x40	32x50	40x65	50x80
670F G	01, 02, 05, 07	b_1 = 10%	0,78			
	03, 04, 06, 08	b_1 = 10%	0,36			

			Liquids (L)			
			DN (d_1 x d_2)			
			670			
Figure	Type	Pressure	25x40	32x50	40x65	50x80
670F G	03, 04, 06, 08	b1 = 10%	0,28			

Dimension of supported lug

Body material: F	A	B	C	L	E	d	s
d_1 x d_2	[mm]						
40x65	186	93	140	70	156	14	12
50x80	210	95	165		180		



Pressure-temperature ratings

	PN		-40°C	RT	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
13CrMo4-5	100	bar	100	100	100	100	100	100	100	100	90	86

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Common information

Capacity tables

570

Capacity tables for safety valves PN16, PN40
Type 01, 02 Sealing: -1

DNxDN PN16, PN40 Type: AC, FE, RE	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
A - actual Orifice area [mm²]	201	314	491	804	1 257	1 964	3 117	4 657	6 793	9 503
Pressure at the beginning of opening bar (g)	**Air 20°C [kg/h] in accordance with EN-ISO 4126-7:2013**									
0,10	78,3	122	191	313	490	765	1 215	1 670	2 435	3 407
0,15	87,4	137	214	350	547	854	1 356	1 863	2 718	3 803
0,20	95,6	149	234	382	598	934	1 482	2 038	2 972	4 158
0,25	103	161	252	412	645	1 007	1 598	2 197	3 205	4 483
0,30	110	172	269	440	688	1 075	1 706	2 345	3 420	4 785
0,35	116	182	285	466	728	1 138	1 806	2 483	3 621	5 066
0,40	123	191	299	490	766	1 198	1 901	2 612	3 811	5 331
0,45	128	200	313	513	803	1 254	1 990	2 735	3 990	5 582
0,50	134	209	327	535	837	1 307	2 075	2 852	4 160	5 820
0,55	139	217	340	556	870	1 359	2 156	2 964	4 323	6 048
0,60	144	225	352	576	901	1 408	2 234	3 070	4 479	6 266
0,65	149	233	364	595	931	1 455	2 308	3 173	4 628	6 475
0,70	153	240	375	614	960	1 500	2 380	3 272	4 772	6 676
Pressure at the beginning of opening bar (g)	**Saturated steam [kg/h] in accordance with EN-ISO 4126-7:2013**									
0,10	51,8	80,9	126	207	324	506	803	1 104	1 610	2 252
0,15	57,1	89,2	139	228	357	558	885	1 217	1 775	2 483
0,20	61,8	96,5	151	247	386	603	958	1 316	1 920	2 686
0,25	66,0	103	161	264	413	645	1 023	1 406	2 051	2 869
0,30	69,8	109	171	279	437	682	1 083	1 488	2 171	3 037
0,35	73,4	115	179	294	459	717	1 139	1 565	2 283	3 194
0,40	76,8	120	188	307	480	751	1 191	1 638	2 389	3 342
0,45	80,1	125	196	320	501	782	1 242	1 707	2 490	3 483
0,50	83,2	130	203	333	520	813	1 291	1 774	2 588	3 620
0,55	86,3	135	211	345	540	843	1 338	1 839	2 683	3 753
0,60	89,3	140	218	357	559	873	1 385	1 904	2 777	3 885
0,65	92,3	144	226	369	577	902	1 432	1 968	2 871	4 016
0,70	95,4	149	233	382	597	932	1 480	2 034	2 967	4 151
Pressure at the beginning of opening bar (g)	**Saturated steam [kW] according to formula 1 (p. 60)**									
0,10	34	54	84	138	216	337	534	734	1071	1498
0,15	38	59	92	150	236	368	584	803	1172	1639
0,20	41	63	99	162	253	395	628	863	1259	1762
0,25	43	67	105	172	269	421	667	917	1338	1871
0,30	45	71	111	181	284	443	703	966	1410	1972
0,35	47	74	116	190	297	464	737	1012	1477	2066
0,40	49	77	121	198	309	484	768	1056	1540	2154
0,45	51	80	126	206	322	502	798	1097	1600	2238
0,50	53	83	130	213	333	521	827	1136	1658	2319
0,55	55	86	135	220	345	539	855	1175	1714	2398
0,60	57	89	139	227	356	556	883	1213	1770	2476
0,65	59	92	144	235	367	573	910	1251	1825	2552
0,70	60	94	148	242	379	591	939	1290	1882	2632

Formula 1 $$m = 3600 \cdot \frac{N}{r}$$

m [kg/h] Required capacity of the safety valve
N [kW] Maximum thermal power
R [kJ/kg] Enthalpy of evaporation

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610, 613, 614, 630, 650, 670, 673, 674

Capacity tables for safety valves PN16, PN40, PN63, PN100

Type 01, 02, 05, 07 Sealing: -1, -2, -3

DNxDN PN100 Type FG	25x40	32x50	40x65	50x80	65x100	80x125	100x150						
DNxDN PN16, PN40, PN63 Type AC, CE; FE, RE, FF	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
A - actual Orifice area [mm²]	201	314	491	804	1 257	1 964	3 117	4 657	6 793	9 503	18 870	38 010	61 575
Pressure at the beginning of opening bar (g)	Air 20°C [kg/h] in accordance with EN-ISO 4126-7:2013												
0,45	185	289	451	739	1156	1806	2866	4281	6245	8737	16866	26208	42457
0,50	193	301	471	771	1205	1883	2988	4464	6512	9110	17587	27328	44270
0,55	200	313	489	801	1252	1956	3105	4639	6766	9466	18274	28396	46001
0,60	207	324	507	830	1297	2027	3217	4806	7010	9807	18933	29419	47659
0,70	221	345	540	884	1382	2160	3428	5121	7470	10450	20174	31348	50783
0,80	234	365	571	935	1461	2283	3624	5414	7898	11049	21330	33144	53693
0,90	246	384	601	984	1538	2404	3815	5699	8314	11630	22452	34889	56519
1,00	258	404	631	1033	1615	2524	4005	5984	8729	12212	23575	36633	59344
1,10	272	425	664	1087	1700	2656	4215	6298	9186	12851	24810	38552	62453
1,20	285	446	697	1141	1785	2788	4425	6611	9644	13491	26045	40471	65562
1,30	299	467	730	1196	1869	2920	4635	6925	10101	14131	27280	42390	68670
1,40	312	488	763	1250	1954	3053	4845	7238	10558	14770	28515	44309	71779
1,60	368	575	898	1471	2300	3593	5703	8521	12429	17387	32755	62412	101105
1,80	397	620	970	1588	2483	3880	6158	9200	13419	18773	35366	67387	109165
2,00	426	666	1042	1706	2667	4166	6612	9879	14410	20159	37977	72362	117224
2,20	456	712	1113	1823	2850	4453	7067	10558	15401	21545	40588	77337	125283
2,40	485	758	1185	1940	3033	4739	7521	11237	16392	22931	43198	82311	133342
2,60	514	803	1256	2057	3216	5026	7976	11917	17382	24317	45809	87286	141401
2,80	544	849	1328	2175	3400	5312	8431	12596	18373	25703	48420	92261	149460
3,00	573	895	1400	2292	3583	5598	8885	13275	19364	27089	51031	97236	157519
3,50	646	1010	1579	2585	4041	6315	10022	14973	21840	30553	57558	109673	177667
4,00	720	1124	1758	2878	4500	7031	11158	16671	24317	34018	64086	122110	197815
4,50	793	1239	1937	3171	4958	7747	12295	18369	26794	37483	70613	134548	217963
5,00	866	1353	2116	3464	5416	8463	13431	20067	29271	40948	77140	146985	
5,50	939	1467	2295	3758	5875	9179	14567	21765	31747	44413	83667	159422	
6,00	1013	1582	2474	4051	6333	9895	15704	23463	34224	47878	90195	171859	
6,50	1086	1696	2653	4344	6791	10611	16840	25161	36701	51342	96722	184296	
7,00	1159	1811	2832	4637	7250	11327	17977	26859	39178	54807	103249	196733	
8,00	1306	2040	3190	5223	8166	12759	20250	30254	44131	61737	116303		
9,00	1452	2269	3548	5810	9083	14191	22523	33650	49085	68666	129358		
10,00	1599	2498	3906	6396	9999	15624	24796	37046	54038	75596	142412		
11,00	1746	2727	4264	6982	10916	17056	27069	40442	58992	82526			
12,00	1892	2956	4622	7568	11833	18488	29342	43838	63945	89455			
14,00	2185	3414	5338	8741	13666	21352	33887	50630	73852	103315			
16,00	2478	3872	6054	9913	15499	24217	38433	57422	83759	117174			
18,00	2772	4330	6770	11086	17332	27081	42979	64214	93666				
20,00	3065	4788	7486	12259	19166	29945	47525	71005	103573				
23,00	3504	5474	8560	14017	21915	34242	54344	81193	118434				
25,00	3798	5932	9276	15190	23749	37106	58890	87985	128341				
30,00	4530	7077	11067	18121	28332	44267	70254	104965					
32,00	4823	7535	11783	19294	30165	47131	74800	111756					
38,00	5703	8909	13931	22812	35665	55724	88438						
40,00	5996	9367	14647	23984	37498	58588	92984						
45,00	6729	10512	16437	26916	42081	65749	104348						
50,00	7462	11657	18227	29847	46664	72910	115713						
55,00	8195	12802	20018	32778	51247	80071	127078						
62,00	9221	14404	22524	36882	57663	90096	142988						
65,00	9660	15091	23598	38641	60413	94392							
70,00	10393	16236	25388	41573	64996	101553							
78,00	11566	18068	28253	46263	72329	113010							
86,00	12738	19900	31117	50953	79662								
95,00	14057	21960	34339	56230	87911								

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DNxDN PN16, PN40, PN63 Type AC, CE; FE, RE, FF	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
A - actual Orifice area [mm^2]	201	314	491	804	1 257	1 964	3 117	4 657	6 793	9 503	18 870	38 010	61 575
Pressure at the beginning of opening bar (g)	**Saturated steam [kg/h] in accordance with EN-ISO 4126-7:2013**												
0,45	115	180	282	461	721	1127	1788	2672	3897	5452	10525	16355	26494
0,50	120	187	293	479	749	1171	1858	2777	4050	5666	10938	16997	27534
0,55	124	194	304	497	777	1214	1927	2879	4199	5875	11342	17624	28550
0,60	129	201	314	514	804	1257	1994	2980	4347	6081	11739	18241	29550
0,70	137	215	336	550	859	1343	2131	3184	4644	6497	12543	19491	31574
0,80	147	230	359	588	919	1436	2280	3406	4968	6950	13417	20849	33775
0,90	158	246	385	630	985	1540	2444	3651	5326	7450	14383	22350	36206
1,00	164	256	401	656	1026	1603	2545	3802	5546	7758	14977	23273	37702
1,10	171	268	419	686	1072	1675	2659	3972	5794	8106	15649	24317	39392
1,20	179	280	437	716	1120	1749	2776	4148	6051	8465	16341	25393	41135
1,30	187	292	457	748	1169	1826	2898	4330	6316	8836	17058	26506	42940
1,40	195	305	476	780	1220	1906	3025	4519	6592	9221	17802	27663	44813
1,60	230	360	562	921	1439	2249	3569	5332	7778	10881	20497	39056	63270
1,80	251	392	613	1004	1569	2452	3891	5813	8480	11863	22347	42581	68981
2,00	268	418	654	1071	1674	2615	4150	6201	9045	12654	23838	45421	73581
2,20	285	445	695	1138	1780	2781	4413	6594	9618	13456	25349	48300	78244
2,40	303	473	739	1210	1892	2956	4691	7009	10224	14303	26944	51340	83170
2,60	322	502	786	1286	2011	3142	4987	7451	10868	15204	28642	54576	88411
2,80	340	532	831	1361	2128	3326	5278	7885	11502	16091	30313	57759	93568
3,00	357	558	872	1428	2233	3489	5537	8273	12067	16881	31802	60596	98164
3,50	402	628	982	1609	2515	3929	6236	9317	13591	19012	35817	68246	110557
4,00	446	697	1090	1784	2790	4359	6918	10336	15077	21092	39734	75710	122647
4,50	492	768	1201	1967	3075	4805	7626	11393	16619	23249	43798	83454	135193
5,00	535	835	1306	2139	3344	5225	8292	12389	18072	25282	47627	90750	
5,50	580	906	1417	2320	3627	5667	8993	13437	19600	27419	51653	98421	
6,00	623	973	1521	2491	3895	6086	9658	14430	21049	29446	55473	105699	
6,50	667	1042	1630	2669	4173	6520	10348	15461	22553	31550	59436	113250	
7,00	711	1110	1736	2843	4445	6945	11021	16467	24019	33602	63301	120615	
8,00	798	1247	1950	3193	4993	7801	12381	18498	26982	37746	71108		
9,00	886	1384	2165	3545	5542	8659	13742	20531	29948	41896	78926		
10,00	974	1521	2378	3894	6089	9513	15098	22558	32904	46031	86716		
11,00	1060	1657	2590	4242	6631	10361	16444	24568	35837	50134			
12,00	1147	1792	2802	4588	7173	11208	17787	26575	38764	54229			
14,00	1321	2063	3227	5283	8260	12906	20483	30603	44639	62447			
16,00	1494	2334	3650	5976	9344	14599	23169	34616	50494	70638			
18,00	1668	2605	4074	6671	10429	16295	25861	38638	56360				
20,00	1842	2877	4499	7366	11517	17995	28559	42669	62239				
23,00	2101	3282	5132	8403	13138	20527	32578	48673	70998				
25,00	2275	3553	5556	9098	14224	22225	35272	52699	76871				
30,00	2711	4235	6622	10843	16953	26488	42038	62808					
32,00	2884	4506	7046	11538	18038	28184	44730	66830					
38,00	3407	5322	8322	13627	21305	33288	52830						
40,00	3583	5597	8752	14331	22406	35008	55560						
45,00	4026	6289	9834	16102	25175	39334	62426						
50,00	4462	6971	10900	17848	27905	43600	69196						
55,00	4913	7675	12001	19651	30723	48003	76184						
62,00	5532	8643	13515	22130	34598	54058	85794						
65,00	5795	9053	14156	23181	36242	56626							
70,00	6247	9758	15259	24986	39064	61036							
78,00	6971	10891	17029	27885	43597	68118							
86,00	7698	12026	18806	30794	48144								
95,00	8540	13341	20862	34161	53408								

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610, 613, 614, 630, 650, 670, 673, 674

Capacity tables for safety valves PN16, PN40, PN63, PN100
Type 01, 02, 05, 07 Sealing: -1, -2, -3

DNxDN PN100 Type FG	25x40	32x50	40x65	50x80	65x100	80x125	100x150						
DNxDN PN16, PN40, PN63 Type AC, CE; FE, RE, FF	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
A - actual Orifice area [mm^2]	201	314	491	804	1 257	1 964	3 117	4 657	6 793	9 503	18 870	38 010	61 575
Pressure at the beginning of opening bar (g)	**Saturated steam [kW] according to formula 1 (p. 60)**												
0,50	77	120	188	307	480	750	1190	1779	2594	3629	7006	10888	17637
0,60	82	128	200	328	512	801	1271	1899	2770	3875	7480	11624	18830
0,70	87	136	213	349	545	852	1351	2019	2945	4120	7954	12361	20023
0,80	93	145	227	371	581	907	1440	2151	3138	4390	8475	13170	21335
0,90	99	155	242	396	620	969	1538	2297	3351	4687	9049	14062	22780
1,00	103	160	251	411	643	1005	1596	2384	3477	4864	9390	14591	23637
1,10	107	168	262	429	670	1047	1662	2483	3621	5066	9781	15198	24620
1,20	112	174	272	446	698	1090	1730	2584	3770	5274	10181	15821	25629
1,30	116	181	284	465	726	1134	1800	2689	3923	5488	10595	16463	26671
1,40	121	189	295	483	756	1181	1874	2799	4083	5712	11027	17136	27759
1,60	142	222	346	567	886	1385	2198	3284	4790	6701	12623	24052	38964
1,80	154	241	376	616	963	1505	2388	3567	5203	7279	13712	26128	42328
2,00	164	255	400	655	1023	1598	2536	3790	5528	7733	14568	27757	44966
2,20	173	271	423	693	1083	1693	2686	4013	5854	8189	15428	29396	47620
2,40	184	287	448	734	1147	1792	2845	4250	6200	8673	16339	31132	50433
2,60	195	303	475	777	1216	1899	3014	4504	6569	9190	17312	32988	53440
2,80	205	320	500	820	1282	2003	3179	4749	6927	9690	18255	34784	56349
3,00	214	335	523	857	1340	2094	3324	4966	7244	10133	19090	36374	58926
3,50	240	374	585	959	1499	2341	3716	5551	8098	11328	21341	40663	65874
4,00	264	413	645	1056	1652	2580	4095	6118	8925	12485	23520	44816	72600
4,50	289	452	706	1157	1808	2826	4485	6700	9773	13672	25756	49076	79501
5,00	313	488	764	1251	1956	3057	4851	7248	10572	14790	27862	53089	
6,00	360	563	880	1441	2254	3521	5588	8349	12179	17038	32097	61159	
7,00	408	636	995	1630	2548	3982	6319	9441	13771	19265	36293	69153	
8,00	454	709	1108	1815	2838	4434	7037	10513	15335	21452	40413		
9,00	499	780	1220	1998	3124	4880	7745	11571	16879	23613	44484		
10,00	545	850	1330	2177	3405	5319	8442	12614	18399	25739	48489		
11,00	589	920	1438	2355	3682	5753	9131	13642	19899	27838			
12,00	633	989	1546	2531	3957	6183	9812	14661	21385	29916			
14,00	719	1123	1756	2875	4495	7023	11146	16653	24291	33982			
16,00	803	1255	1963	3214	5025	7851	12460	18616	27155	37988			
18,00	886	1384	2165	3545	5542	8659	13742	20532	29949				
20,00	968	1512	2364	3871	6053	9457	15009	22425	32710				
25,00	1167	1822	2849	4665	7294	11396	18087	27023	39418				
30,00	1355	2116	3309	5418	8472	13237	21007	31387					
32,00	1428	2230	3488	5711	8929	13951	22141	33081					
38,00	1640	2562	4006	6560	10256	16024	25432						
40,00	1710	2671	4177	6839	10693	16707	26514						
45,00	1879	2935	4589	7514	11748	18356	29132						
50,00	2038	3183	4978	8151	12743	19911	31600						
55,00	2396	3743	5853	9584	14983	23410	37154						
62,00	1640	2562	4006	6560	10256	16024	25432						
70,00	2613	4082	6383	10452	16342	25533							
78,00	2804	4381	6849	11216	17536	27399							
86,00	3006	4697	7345	12027	18803								
95,00	3205	5007	7829	12820	20043								

Data given can be changed without notice **Edition 04/2022**

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630, 650, 670, 673, 674

Capacity tables for safety valves PN16, PN40, PN63, PN100

Type 03, 04, 06, 08 Sealing: -1, -2, -3

DNxDN PN100 Type FG	25x40	32x50	40x65	50x80	65x100	80x125	100x150						
DNxDN PN16, PN40, PN63 Type AC, CE; FE, RE, FF	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
A - actual Orifice area [mm²]	201	314	491	804	1 257	1 964	3 117	4 657	6 793	9 503	18 870	38 010	61 575
Pressure at the beginning of opening bar (g)	Water 20°C [kg/h] in accordance with EN-ISO 4126-7:2013												
0,45	2015	3148	4922	8060	12601	19688	31247	46685	68097	95264	7002	14157	22985
0,50	2124	3318	5188	8496	13283	20753	32937	49210	71781	100417	7317	14793	24016
0,55	2228	3480	5442	8910	13931	21766	34545	51612	75285	105319	7619	15403	25005
0,60	2327	3635	5684	9307	14550	22734	36081	53907	78632	110002	7910	15990	25956
0,70	2513	3926	6139	10052	15716	24556	38972	58226	84932	118815	8463	17104	27763
0,80	2687	4197	6563	10746	16801	26251	41662	62246	90797	127019	8981	18151	29460
0,90	2850	4452	6961	11398	17820	27844	44190	66022	96304	134724	9472	19141	31066
1,00	3004	4692	7337	12015	18784	29350	46580	69594	101514	142012	9939	20083	32594
1,10	3150	4921	7696	12601	19701	30782	48854	72990	106469	148943	10429	21071	34196
1,20	3290	5140	8038	13162	20577	32151	51026	76236	111203	155566	10897	22016	35727
1,30	3425	5350	8366	13699	21418	33464	53109	79349	115743	161918	11346	22922	37196
1,40	3554	5552	8682	14216	22226	34727	55114	82344	120113	168030	11779	23794	38610
1,60	3799	5935	9281	15198	23761	37125	58920	88030	128406	179632	12599	25449	41294
1,80	4030	6295	9844	16120	25202	39377	62494	93370	136195	190529	13370	27004	43815
2,00	4248	6636	10377	16992	26565	41507	65874	98420	143562	200835	14100	28475	46200
2,20	4455	6960	10883	17821	27862	43533	69089	103224	150569	210637	14793	29874	48468
2,40	4653	7269	11367	18613	29101	45468	72162	107814	157264	220003	15456	31212	50636
2,60	4843	7566	11831	19373	30289	47325	75108	112216	163686	228987	16093	32494	52716
2,80	5026	7852	12278	20105	31432	49112	77943	116452	169865	237631	16705	33729	54717
3,00	5203	8127	12709	20810	32536	50835	80679	120540	175827	245971	17295	34920	56648
3,50	5619	8779	13727	22478	35142	54908	87143	130198	189915	265679	18691	37736	61212
4,00	6007	9385	14675	24030	37569	58700	93160	139187	203027	284023	19991	40357	65693
4,50	6372	9954	15565	25487	39848	62260	98811	147630	215343	301252	21212	42819	69678
5,00	6717	10492	16407	26866	42003	65628	104156	155616	226992	317548	22367	45148	
5,50	7044	11005	17208	28177	44053	68831	109240	163212	238071	333047	23466	47364	
6,00	7358	11494	17973	29430	46012	71892	114097	170469	248657	347856	24516	49481	
6,50	7654	11957	18698	30617	47867	74790	118697	177341	258681	361879	25524	51694	
7,00	7943	12409	19403	31772	49674	77613	123177	184035	268446	375539	26493	53646	
8,00	8492	13265	20743	33966	53104	82972	131682	196742	286980	401468	28333		
9,00	9007	14070	22001	36027	56325	88005	139670	208676	304389	425821	30062		
10,00	9494	14831	23191	37975	59372	92766	147225	219964	320854	448855	31697		
11,00	9957	15555	24323	39829	62270	97293	154411	230700	336514	470763			
12,00	10400	16247	25405	41600	65039	101620	161277	240959	351478	491696			
14,00	11233	17548	27440	44933	70250	109762	174199	260265	379639	531093			
16,00	12009	18760	29335	48035	75100	117340	186227	278235	405851	567762			
18,00	12737	19898	31115	50949	79656	124458	197523	295113	430470				
20,00	13426	20974	32798	53705	83965	131190	208208	311076	453756				
23,00	14398	22493	35172	57592	90042	140686	223278	333592	486599				
25,00	15011	23450	36669	60044	93875	146675	232784	347794	507314				
30,00	16444	25688	40169	65775	102835	160675	255002	380989					
32,00	16983	26531	41486	67932	106208	165944	263365	393484					
38,00	18507	28911	45208	74028	115737	180833	286995						
40,00	18988	29662	46383	75951	118744	185531	294451						
45,00	20139	31462	49196	80558	125947	196786	312312						
50,00	21229	33163	51858	84915	132760	207430	329206						
55,00	22265	34782	54389	89060	139239	217555	345274						
62,00	23639	36929	57746	94558	147835	230985	366588						
65,00	24205	37812	59127	96818	151369	236507							
70,00	25118	39240	61359	100473	157083	245435							
78,00	26515	41421	64770	106059	165817	259080							
86,00	27841	43494	68011	111366	174113								
95,00	29262	45713	71481	117048	182996								

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Capacity tables for safety valves PN16, PN40

Type 01 Sealing: -4

DNxDN PN16, PN40* Type AC, FE	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
A - actual Orifice area [mm²]	201	314	491	804	1 257	1 964	3 117	4 657
Pressure at the beginning of opening bar (g)	Air 20°C [kg/h] in accordance with EN-ISO 4126-7:2013							
0,45	185	289	451	739	1156	1806	2866	4281
0,50	193	301	471	771	1205	1883	2988	4464
0,55	200	313	489	801	1252	1956	3105	4639
0,60	207	324	507	830	1297	2027	3217	4806
0,65	214	335	524	857	1341	2095	3324	4967
0,70	221	345	540	884	1382	2160	3428	5121
0,75	227	355	556	910	1423	2223	3527	5270
0,80	234	365	571	935	1461	2283	3624	5414
0,85	240	375	586	959	1500	2344	3719	5557
0,90	246	384	601	984	1538	2404	3815	5699
0,95	252	394	616	1009	1577	2464	3910	5842
1,00	258	404	631	1033	1615	2524	4005	5984
1,10	272	425	664	1087	1700	2656	4215	6298
1,20	285	446	697	1141	1785	2788	4425	6611
1,30	299	467	730	1196	1869	2920	4635	6925
1,40	312	488	763	1250	1954	3053	4845	7238
1,50	353	552	863	1412	2208	3450	5476	8181
1,60	368	575	898	1471	2300	3593	5703	8521
1,70	382	597	934	1530	2392	3737	5930	8860
1,80	397	620	970	1588	2483	3880	6158	9200
1,90	412	643	1006	1647	2575	4023	6385	9539
2,00	426	666	1042	1706	2667	4166	6612	9879
2,20	456	712	1113	1823	2850	4453	7067	10558
2,40	485	758	1185	1940	3033	4739	7521	11237
2,60	514	803	1256	2057	3216	5026	7976	11917
2,80	544	849	1328	2175	3400	5312	8431	12596
3,00	573	895	1400	2292	3583	5598	8885	13275
3,20	602	941	1471	2409	3766	5885	9340	13954
3,40	632	987	1543	2526	3950	6171	9794	14633
3,60	661	1032	1614	2644	4133	6458	10249	15312
3,80	690	1078	1686	2761	4316	6744	10703	15992
4,00	720	1124	1758	2878	4500	7031	11158	16671
4,50	793	1239	1937	3171	4958	7747	12295	18369
5,00	866	1353	2116	3464	5416	8463	13431	20067
5,50	939	1467	2295	3758	5875	9179	14567	21765
6,00	1013	1582	2474	4051	6333	9895	15704	23463
6,50	1086	1696	2653	4344	6791	10611	16840	25161
7,00	1159	1811	2832	4637	7250	11327	17977	26859
7,50	1233	1925	3011	4930	7708	12043	19113	28557
8,00	1306	2040	3190	5223	8166	12759	20250	30254
8,50	1379	2154	3369	5516	8624	13475	21386	31952
9,00	1452	2269	3548	5810	9083	14191	22523	33650
10,00	1599	2498	3906	6396	9999	15624	24796	37047

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Capacity tables for safety valves PN16, PN40

Type 01 Sealing: -4

DNxDN PN16, PN40* Type AC, FE	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
A - actual Orifice area [mm²]	201	314	491	804	1 257	1 964	3 117	4 657
Pressure at the beginning of opening bar (g)	Water 20°C [kg/h] in accordance with EN-ISO 4126-7:2013							
0,45	3791	5922	9260	15163	23707	37041	58787	87831
0,50	3959	6185	9672	15838	24761	38688	61401	91737
0,55	4121	6438	10067	16484	25772	40268	63908	95483
0,60	4277	6681	10447	17107	26745	41788	66320	99087
0,65	4427	6915	10814	17707	27684	43255	68648	102565
0,70	4572	7142	11168	18288	28592	44673	70899	105928
0,75	4713	7362	11512	18851	29472	46048	73081	109188
0,80	4849	7576	11846	19397	30326	47383	75200	112354
0,85	4982	7783	12170	19929	31157	48682	77261	115433
0,90	5112	7985	12487	20446	31967	49946	79268	118432
0,95	5238	8182	12795	20951	32756	51180	81226	121356
1,00	5361	8375	13096	21444	33527	52384	83137	124212
1,10	5623	8784	13735	22491	35163	54941	87195	130275
1,20	5873	9174	14346	23491	36727	57384	91072	136067
1,30	6113	9549	14932	24450	38226	59727	94791	141624
1,40	6343	9909	15495	25373	39670	61982	98369	146970
1,50	6566	10257	16039	26264	41062	64157	101822	152128
1,60	6781	10594	16565	27125	42408	66261	105161	157117
1,70	6990	10920	17075	27960	43714	68300	108397	161953
1,80	7193	11236	17570	28771	44981	70281	111540	166648
1,90	7390	11544	18052	29559	46214	72206	114596	171214
2,00	7582	11844	18521	30327	47414	74082	117573	175662
2,20	7952	12422	19425	31807	49728	77698	123312	184236
2,40	8305	12975	20288	33221	51940	81153	128795	192428
2,60	8645	13504	21117	34578	54060	84467	134054	200286
2,80	8971	14014	21914	35883	56101	87655	139115	207847
3,00	9286	14506	22683	37143	58070	90732	143997	215142
3,20	9590	14982	23427	38361	59975	93707	148720	222197
3,40	9885	15443	24148	39541	61820	96591	153297	229036
3,60	10172	15891	24848	40688	63613	99392	157741	235676
3,80	10451	16326	25529	41803	65356	102115	162064	242134
4,00	10722	16750	26192	42889	67054	104768	166274	248424
4,50	11373	17766	27781	45490	71121	111123	176360	263494
5,00	11988	18727	29284	47951	74968	117134	185900	277747
5,50	12573	19641	30713	50292	78627	122851	194974	291303
6,00	13132	20515	32079	52528	82124	128314	203643	304256
6,50	13668	21352	33388	54673	85477	133554	211959	316680
7,00	14184	22158	34649	56737	88704	138595	219960	328634
7,50	14682	22936	35865	58728	91817	143460	227680	340169
8,00	15163	23688	37041	60654	94828	148164	235147	351325
8,50	15630	24417	38181	62521	97747	152724	242384	362137
9,00	16083	25125	39288	64333	100581	157152	249411	372636
10,00	16953	26484	41413	67813	106022	165654	262903	392795

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Capacity tables for safety valves PN16, PN40

Type 01 Sealing: -4

DNxDN PN16, PN40* Type AC, FE	20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
A - actual Orifice area [mm^2]	201	314	491	804	1 257	1 964	3 117	4 657
Pressure at the beginning of opening bar (g)	Saturated steam [kW] according to TRD 721 point 6							
1	109,7	171,4	268,1	439,0	686,3	1072,3	1701,9	2542,7
1,5	134,8	210,6	329,4	539,3	843,2	1317,5	2090,9	3123,9
2	161,5	252,3	394,5	645,9	1009,9	1577,9	2504,2	3741,4
2,5	186,6	291,5	455,7	746,3	1166,7	1823,0	2893,2	4322,6
3	211,7	330,6	517,0	846,6	1323,6	2068,1	3282,2	4903,8
3,5	235,2	367,4	574,5	940,7	1470,7	2297,9	3646,9	5448,7
4	260,3	406,6	635,7	1041,0	1627,6	2543,0	4035,9	6029,9
4,5	283,8	443,3	693,2	1135,1	1774,6	2772,8	4400,6	6574,8
5	307,3	480,0	750,6	1229,2	1921,7	3002,6	4765,3	7119,6
6	354,3	553,5	865,5	1417,3	2215,8	3462,1	5494,6	8209,4
7	401,4	627,0	980,4	1605,4	2510,0	3921,7	6224,0	9299,1
8	446,8	698,0	1091,5	1787,3	2794,3	4366,0	6929,1	10352,5
9	490,7	766,6	1198,7	1962,9	3068,8	4794,9	7609,8	11369,6
10	536,2	837,6	1309,8	2144,8	3353,2	5239,2	8314,9	12423,0

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Capacity tables for safety valves PN16, PN40
Type 51, 52, 55, 57 Sealing: -1

DNxDN PN16, PN40 Type: AC, CE, FE, RE	20x32	25x40	32x50	40x65
A - actual Orifice area [mm²]	254	416	661	1075
Pressure at the beginning of opening bar (g)	Air 20°C [kg/h] in accordance with EN-ISO 4126-7:2013			
0,45	182	297	473	769
0,50	196	321	510	830
0,55	204	334	530	863
0,60	218	358	568	218
0,70	241	394	626	1 018
0,80	267	437	694	1 128
0,90	289	474	753	1 224
1,00	308	505	802	1 305
1,10	334	547	869	1 413
1,20	351	574	912	1 484
1,30	372	610	969	1 576
1,40	395	647	1 027	1 671
1,60	441	722	1 147	1 866
1,80	482	790	1 256	2 042
2,00	525	860	1 366	2 222
2,20	568	931	1 479	2 406
2,40	605	991	1 575	2 561
2,60	650	1 064	1 691	2 751
2,80	687	1 125	1 788	2 908
3,00	744	1 218	1 935	3 147
3,50	839	1 374	2 182	3 549
4,00	934	1 529	2 430	3 952
4,50	1 029	1 685	2 677	4 354
5,00	1 124	1 841	2 925	4 757
5,50	1 219	1 997	3 172	5 159
6,00	1 314	2 152	3 420	5 562
6,50	1 409	2 308	3 667	5 964
7,00	1 504	2 464	3 915	6 367
8,00	1 695	2 775	4 410	7 172
9,00	1 885	3 087	4 905	7 977
10,00	2 075	3 398	5 400	8 782
11,00	2 265	3 710	5 895	9 587
12,00	2 455	4 021	6 390	10 392
14,00	2 836	4 644	7 380	12 002
16,00	3 216	5 267	8 370	13 612
18,00	3 597	5 890	9 360	15 222
20,00	3 977	6 514	10 350	16 832
23,00	4 548	7 448	11 835	19 247
25,00	4 928	8 071	12 825	20 857

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Capacity tables for safety valves PN16, PN40
Type 51, 52, 55, 57 Sealing: -1

DNxDN PN16, PN40 Type: AC, CE, FE, RE	20x32	25x40	32x50	40x65
A - actual Orifice area [mm²]	254	416	661	1075
Pressure at the beginning of opening bar (g)	Saturated steam [kg/h] in accordance with EN-ISO 4126-7:2013			
0,45	113	186	295	480
0,50	122	200	317	516
0,55	126	207	329	535
0,60	135	222	352	573
0,70	150	245	389	633
0,80	168	275	436	710
0,90	185	303	482	784
1,00	196	321	510	829
1,10	211	345	548	891
1,20	220	360	572	931
1,30	233	381	606	986
1,40	246	404	641	1 043
1,60	276	452	718	1 168
1,80	305	499	793	1 290
2,00	330	540	858	1 395
2,20	355	581	924	1 503
2,40	377	618	982	1 597
2,60	406	666	1 058	1 720
2,80	430	704	1 119	1 820
3,00	463	759	1 206	1 961
3,50	522	855	1 358	2 209
4,00	579	948	1 507	2 450
4,50	638	1 045	1 661	2 701
5,00	694	1 137	1 806	2 937
5,50	753	1 233	1 959	3 185
6,00	808	1 324	2 103	3 421
6,50	866	1 418	2 254	3 665
7,00	922	1 511	2 400	3 903
8,00	1 036	1 697	2 696	4 385
9,00	1 150	1 883	2 993	4 867
10,00	1 263	2 069	3 288	5 347
11,00	1 376	2 254	3 581	5 824
12,00	1 488	2 438	3 874	6 300
14,00	1 714	2 807	4 461	7 254
16,00	1 939	3 175	5 046	8 206
18,00	2 164	3 544	5 632	9 159
20,00	2 390	3 914	6 219	10 115
23,00	2 726	4 465	7 095	11 538
25,00	2 952	4 834	7 681	12 492

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Capacity tables for safety valves PN16, PN40
Type 51, 52, 55, 57 Sealing: -1

DNxDN PN16, PN40 Type: AC, CE, FE, RE	20x32	25x40	32x50	40x65
A - actual Orifice area [mm²]	254	416	661	1075
Pressure at the beginning of opening bar (g)	Saturated steam [kW] according to formula 1 (p. 60)			
0,50	78	128	203	331
0,60	86	141	224	365
0,70	95	155	247	401
0,80	106	174	275	448
0,90	116	191	303	493
1,00	123	201	320	520
1,10	132	216	343	557
1,20	137	224	356	580
1,30	145	237	376	612
1,40	152	250	397	646
1,60	170	278	442	719
1,80	187	306	487	792
2,00	202	330	524	853
2,20	216	354	562	915
2,40	229	375	595	968
2,60	245	403	640	1040
2,80	259	424	674	1096
3,00	278	456	724	1177
3,50	311	509	809	1316
4,00	343	561	892	1450
4,50	375	615	977	1588
5,00	406	665	1057	1718
6,00	468	766	1217	1979
7,00	529	866	1376	2238
8,00	589	964	1532	2492
9,00	648	1061	1687	2743
10,00	706	1157	1839	2990
11,00	764	1252	1988	3234
12,00	821	1345	2137	3476
14,00	933	1527	2428	3947
16,00	1043	1707	2714	4413
18,00	1150	1883	2993	4867
20,00	1256	2057	3268	5316
25,00	1514	2479	3939	6406

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Capacity tables for safety valves PN16, PN40
Type 53, 54, 56, 58 Sealing: -1

DNxDN PN16, PN40 Type: AC, CE, FE, RE	20x32	25x40	32x50	40x65	50x80
A - actual Orifice area [mm²]	254	416	661	1075	1662
Pressure at the beginning of opening bar (g)	Water 20°C [kg/h] in accordance with EN-ISO 4126-7:2013				
0,45	5 317	8 709	13 838	22 505	32 286
0,50	5 554	9 096	14 453	23 505	33 721
0,55	5 781	9 467	15 043	24 465	35 098
0,60	5 999	9 825	15 611	25 389	36 423
0,70	6 413	10 503	16 689	27 142	38 938
0,80	6 802	11 140	17 701	28 788	41 300
0,90	7 170	11 743	18 659	30 345	43 534
1,00	7 520	12 316	19 570	31 827	45 659
1,10	7 887	12 917	20 525	33 380	47 887
1,20	8 238	13 492	21 437	34 864	50 017
1,30	8 574	14 043	22 313	36 288	52 059
1,40	8 898	14 573	23 155	37 658	54 024
1,60	9 512	15 579	24 754	40 258	57 754
1,80	10 089	16 524	26 255	42 700	61 258
2,00	10 635	17 418	27 676	45 009	64 571
2,20	11 154	18 268	29 026	47 206	67 723
2,40	11 650	19 080	30 317	49 305	70 735
2,60	12 126	19 859	31 555	51 319	73 623
2,80	12 583	20 609	32 746	53 256	76 402
3,00	13 025	21 332	33 896	55 125	79 084
3,50	14 069	23 041	36 611	59 542	85 420
4,00	15 040	24 632	39 139	63 653	91 318
4,50	15 952	26 126	41 513	67 514	96 857
5,00	16 815	27 540	43 759	71 166	102 096
5,50	17 636	28 884	45 895	74 640	107 080
6,00	18 420	30 168	47 936	77 959	111 841
6,50	19 172	31 400	49 893	81 142	116 408
7,00	19 896	32 585	51 776	84 205	120 802
8,00	21 270	34 835	55 351	90 019	129 143
9,00	22 560	36 948	58 709	95 480	136 977
10,00	23 780	38 947	61 885	100 644	144 386
11,00	24 941	40 848	64 905	105 557	151 434
12,00	26 050	42 664	67 791	110 250	158 167
14,00	28 137	46 083	73 223	119 084	170 840
16,00	30 080	49 264	78 278	127 306	182 636
18,00	31 904	52 253	83 027	135 028	193 714
20,00	33 630	55 079	87 518	142 332	204 193
23,00	36 064	59 066	93 853	152 635	218 973
25,00	37 600	61 581	97 848	159 133	228 295

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Capacity tables for safety valves PN16

Type 01, 02, 05, 07 Sealing: -1

DNxDN PN16	20x32	25x40	32x50
A - actual Orifice area [mm²]	201	314	491
Pressure at the beginning of opening bar (g)	Air 20°C [kg/h] in accordance with EN-ISO 4126-7:2013		
1,50	272	446	730
1,60	283	464	760
1,70	294	483	790
1,80	305	501	821
1,90	317	520	851
2,00	328	538	881
2,10	339	556	912
2,20	351	575	942
2,30	362	593	972
2,40	373	612	1 003
2,50	384	630	1 033
2,60	396	649	1 063
2,80	418	686	1 124
3,00	441	723	1 184
3,20	463	760	1 245
3,40	486	797	1 305
3,60	508	834	1 366
3,80	531	871	1 427
4,00	609	980	1 622
4,20	634	1 020	1 689
4,40	658	1 060	1 755
4,60	683	1 100	1 821
4,80	708	1 140	1 887
5,00	733	1 180	1 953
5,50	795	1 279	2 118
6,00	857	1 379	2 283
6,50	919	1 479	2 449
7,00	981	1 579	2 614
7,50	1 043	1 679	2 779
8,00	1 105	1 778	2 944
8,50	1 167	1 878	3 110
9,00	1 229	1 978	3 275
9,50	1 291	2 078	3 440
10,00	1 353	2 178	3 605
10,50	1 415	2 277	3 771
11,00	1 477	2 377	3 936
11,50	1 539	2 477	4 101
12,00	1 601	2 577	4 266
12,50	1 663	2 677	4 432
13,00	1 725	2 776	4 597
14,00	1 849	2 976	4 927
15,00	1 973	3 176	5 258
16,00	2 097	3 375	5 588

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Capacity tables for safety valves PN16

Type 01, 02, 05, 07 Sealing: -1

DNxDN PN16	20x32	25x40	32x50
A - actual Orifice area [mm²]	201	314	491
Pressure at the beginning of opening bar (g)	Saturated steam [kg/h] in accordance with EN-ISO 4126-7:2013		
1,50	170	278	456
1,60	177	290	476
1,70	185	303	497
1,80	193	317	519
1,90	200	327	536
2,00	206	338	553
2,10	212	348	571
2,20	219	359	588
2,30	226	370	607
2,40	233	382	625
2,50	240	394	645
2,60	247	406	665
2,80	262	429	703
3,00	275	451	738
3,20	288	472	774
3,40	302	495	812
3,60	317	520	851
3,80	330	541	887
4,00	377	608	1 006
4,20	392	632	1 046
4,40	408	657	1 087
4,60	424	682	1 129
4,80	438	705	1 167
5,00	452	728	1 206
5,50	491	790	1 308
6,00	527	848	1 404
6,50	565	909	1 505
7,00	601	968	1 603
7,50	639	1 028	1 702
8,00	676	1 087	1 800
8,50	712	1 147	1 898
9,00	750	1 207	1 998
9,50	786	1 266	2 095
10,00	824	1 326	2 195
10,50	860	1 384	2 292
11,00	897	1 444	2 391
11,50	934	1 503	2 488
12,00	971	1 562	2 586
12,50	1 007	1 621	2 684
13,00	1 044	1 680	2 782
14,00	1 118	1 799	2 978
15,00	1 191	1 917	3 174
16,00	1 264	2 035	3 369

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Capacity tables for safety valves PN16
Type 01, 02, 05, 07 Sealing: -1

DNxDN PN16	20x32	25x40	32x50
A - actual Orifice area [mm²]	201	314	491
Pressure at the beginning of opening bar (g)	Saturated steam [kW] according to formula 1 (p. 60)		
1,5	105	172	282
1,6	109	179	293
1,8	118	195	318
2,0	126	207	338
2,2	133	218	358
2,4	141	232	379
2,6	149	245	402
2,8	158	258	423
3,0	165	271	443
3,2	172	283	463
3,4	180	295	485
3,6	189	309	506
3,8	196	321	527
4,0	223	360	595
4,5	240	386	639
5,0	264	426	706
5,5	286	460	761
6,0	305	491	812
6,5	325	524	867
7,0	345	555	919
7,5	365	587	972
8,0	384	618	1023
8,5	402	647	1071
9,0	423	680	1126
9,5	441	710	1176
10,0	462	744	1231
10,5	480	772	1278
11,0	498	802	1328
11,5	517	832	1377
12,0	536	862	1427
12,5	553	891	1475
13,0	572	921	1525
14,0	608	979	1621
15,0	644	1037	1717
16,0	680	1094	1812

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Capacity tables for safety valves PN16

Type 03, 04, 06, 08 Sealing: -1

DNxDN PN16	20x32	25x40	32x50
A - actual Orifice area [mm²]	201	314	491
Pressure at the beginning of opening bar (g)	Water 20°C [kg/h] in accordance with EN-ISO 4126-7:2013		
1,50	3 401	5 949	11 548
1,60	3 513	6 144	11 927
1,70	3 621	6 333	12 294
1,80	3 740	6 517	12 651
1,90	3 843	6 696	12 997
2,00	3 943	6 870	13 335
2,10	4 040	7 039	13 664
2,20	4 135	7 205	13 986
2,30	4 228	7 367	14 300
2,40	4 319	7 525	14 608
2,50	4 408	7 680	14 909
2,60	4 495	7 833	15 204
2,80	4 665	8 128	15 778
3,00	4 829	8 413	16 332
3,20	4 987	8 689	16 867
3,40	5 140	8 957	17 386
3,60	5 289	9 217	17 891
3,80	5 434	9 469	18 381
4,00	5 576	9 715	18 858
4,20	5 713	9 955	19 324
4,40	5 848	10 189	19 779
4,60	5 979	10 418	20 223
4,80	6 108	10 642	20 658
5,00	6 234	10 862	21 084
5,50	6 538	11 392	22 113
6,00	6 829	11 898	23 097
6,50	7 107	12 384	24 040
7,00	7 376	12 852	24 947
7,50	7 635	13 303	25 823
8,00	7 885	13 739	26 670
8,50	8 128	14 162	27 490
9,00	8 363	14 573	28 287
9,50	8 592	14 972	29 063
10,00	8 816	15 361	29 818
10,50	9 033	15 740	30 554
11,00	9 246	16 111	31 273
11,50	9 454	16 473	31 976
12,00	9 657	16 827	32 663
12,50	9 856	17 174	33 337
13,00	10 051	17 514	33 997
14,00	10 431	18 175	35 281
15,00	10 797	18 813	36 519
16,00	11 151	19 430	37 717

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Spring ranges

Valve type	610A C, 630A C	610C E, 610F E, 630C E, 630F E, 650F E	630R E, 650R E
Type	01-08		
	[bar]		
20x32	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32; 30…40	0,5…1,5; 1,5…5; 5…10; 10…18; 18…40
25x40	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32; 30…40	
32x50	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32; 30…40	
40x65	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32	0,5…1,5; 1,5…5; 5…10; 10…18; 18…32
50x80	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32	
65x100	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25; 23…32	
80x125	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20; 18…25	0,5…1,5; 1,5…5; 5…10; 10…16; 18…25
100x150		0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5; 12…16; 15…20	0,5…1,5; 1,5…5; 5…10; 10…18; 15…20
125x200	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10; 9,5…12,5		-
150x250	0,45…0,68; 0,66…1,0; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5,0; 4,8…6,3; 6,0…8,0; 7,5…10		

Valve type	630A C	630C E, 630F E	630R E
Type	51, 52, 55, 57		
	[bar]		
20x32	0,45…0,68; 0,7…1,0; 0,9…1,35; 1,15…1,6; 1,5…2,5; 2,3…3,5; 3,0…4,3; 3,6…7,5; 4,7…9,0; 7,8…12,5; 8,0…13,8; 13,4…16,0	0,45…0,68; 0,7…1,0; 0,9…1,35; 1,15…1,6; 1,5…2,5; 2,3…3,5; 3,0…4,3; 3,6…7,5; 4,7…9,0; 7,8…12,5; 8,0…13,8; 13,4…18,5; 15,5…23,0; 22,8….25,0	0,45…0,68; 0,7…1,0; 0,9…1,35; 1,15…1,6; 1,5…2,5; 2,3…3,5; 3,0…4,3; 3,6…7,5; 4,7…9,0; 7,8…12,5; 8,0…13,8; 13,4…18,5; 15,5…23,0; 22,8….25,0
25x40	0,45…0,8; 0,7…1,2; 0,9…1,5, 1,4…1,9; 1,7…3,6; 3,5…5,0; 4,5…8,0; 7,5…11,5; 10,0…14,5; 14,0…16,0	0,45…0,8; 0,7…1,2; 0,9…1,5, 1,4…1,9; 1,7…3,6; 3,5…5,0; 4,5…8,0; 7,5…11,5; 10,0…14,5; 14,0…19,0; 18,5…21,5; 21,0…25,0	0,45…0,8; 0,7…1,2; 0,9…1,5, 1,4…1,9; 1,7…3,6; 3,5…5,0; 4,5…8,0; 7,5…11,5; 10,0…14,5; 14,0…19,0; 18,5…21,5; 21,0…25,0
32x50	0,45…0,9; 0,85…1,35; 1,3…1,8; 1,7…2,3; 2,2…3,0; 2,9…3,8; 3,75…6,5; 6,3…8,0; 7,8…10,0; 9,8…14,0; 13,8…16,0	0,45…0,9; 0,85…1,35; 1,3…1,8; 1,7…2,3; 2,2…3,0; 2,9…3,8; 3,75…6,5; 6,3…8,0; 7,8…10,0; 9,8…14,0; 13,8…17,7; 17,5…22,0; 21,8…25,0	0,45…0,9; 0,85…1,35; 1,3…1,8; 1,7…2,3; 2,2…3,0; 2,9…3,8; 3,75…6,5; 6,3…8,0; 7,8…10,0; 9,8…14,0; 13,8…17,7; 17,5…22,0; 21,8…25,0
40x65	0,45…0,6; 0,56…0,9; 0,8…1,05; 1,0…1,4; 1,35…1,85; 1,8…2,6; 2,55…3,9; 3,8…4,9; 4,8…8,0; 7,9…12,0; 11,9…15,0; 14,9…16,0	0,45…0,6; 0,56…0,9; 0,8…1,05; 1,0…1,4; 1,35…1,85; 1,8…2,6; 2,55…3,9; 3,8…4,9; 4,8…8,0; 7,9…12,0; 11,9…15,0; 14,9…17,8; 17,7…21,0; 20,7….25,0	0,45…0,6; 0,56…0,9; 0,8…1,05; 1,0…1,4; 1,35…1,85; 1,8…2,6; 2,55…3,9; 3,8…4,9; 4,8…8,0; 7,9…12,0; 11,9…15,0; 14,9…17,8; 17,7…21,0; 20,7….25,0

Valve type	630A C	630C E, 630F E	630R E
Type	53, 54, 56, 58		
	[bar]		
20x32	0,45…0,6; 0,55…0,9; 0,8…1,4; 1,3…2,0; 1,9…2,8; 2,6…3,8; 3,6…4,8; 4,5…7,5; 7,0…12,0; 11,5…14,0; 13,5…16,0	0,45…0,6; 0,55…0,9; 0,8…1,4; 1,3…2,0; 1,9…2,8; 2,6…3,8; 3,6…4,8; 4,5…7,5; 7,0…12,0; 11,5…14,0; 13,5…16,0; 15,0…20,0; 18,0…25,0	0,45…0,6; 0,55…0,9; 0,8…1,4; 1,3…2,0; 1,9…2,8; 2,6…3,8; 3,6…4,8; 4,5…7,5; 7,0…12,0; 11,5…14,0; 13,5…16,0; 15,0…20,0; 18,0…25,0

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25x40	0,45…0,56; 0,55…1,0; 0,9…1,4; 1,2…1,8; 1,7…2,6; 2,5…3,6; 3,5…4,5; 4,4…5,5; 5,3…6,5; 6,2…10,0; 9,5…12,5; 12,0…16,0	0,45…0,56; 0,55…1,0; 0,9…1,4; 1,2…1,8; 1,7…2,6; 2,5…3,6; 3,5…4,5; 4,4…5,5; 5,3…6,5; 6,2…10,0; 9,5…12,5; 12,0…16,0; 15,0…19,0; 18,5…25,0	0,45…0,56; 0,55…1,0; 0,9…1,4; 1,2…1,8; 1,7…2,6; 2,5…3,6; 3,5…4,5; 4,4…5,5; 5,3…6,5; 6,2…10,0; 9,5…12,5; 12,0…16,0; 15,0…19,0; 18,5…25,0
32x50	0,45…0,8; 0,75…1,4; 1,35…1,8; 1,7…2,2; 2,0…2,8; 2,6…4,0; 3,6…5,0; 4,6…7,0; 6,5…8,0; 7,5…9,5; 9,0…14,5; 14,0…16,0	0,45…0,8; 0,75…1,4; 1,35…1,8; 1,7…2,2; 2,0…2,8; 2,6…4,0; 3,6…5,0; 4,6…7,0; 6,5…8,0; 7,5…9,5; 9,0…14,5; 14,0…25,0	0,45…0,8; 0,75…1,4; 1,35…1,8; 1,7…2,2; 2,0…2,8; 2,6…4,0; 3,6…5,0; 4,6…7,0; 6,5…8,0; 7,5…9,5; 9,0…14,5; 14,0…25,0
40x65	0,45…1,0; 0,9…1,6; 1,5…2,0; 1,9…2,4; 2,3…3,4; 3,3…6,3; 6,0…10,3; 10,0…16,0	0,45…1,0; 0,9…1,6; 1,5…2,0; 1,9…2,4; 2,3…3,4; 3,3…6,3; 6,0…10,3; 10,0…18,0; 17,5…23,5; 23,0…25,0	0,45…1,0; 0,9…1,6; 1,5…2,0; 1,9…2,4; 2,3…3,4; 3,3…6,3; 6,0…10,3; 10,0…18,0; 17,5…23,5; 23,0…25,0
50x80	0,45…0,8; 0,7…1,2; 1,1…1,6; 1,5…2,3; 2,2…3,0; 2,9…3,6; 3,5…5,0; 4,5…6,5; 6,1…8,5; 8,0…10,5; 10,0…14,0; 13,0…16,0	0,45…0,8; 0,7…1,2; 1,1…1,6; 1,5…2,3; 2,2…3,0; 2,9…3,6; 3,5…5,0; 4,5…6,5; 6,1…8,5; 8,0…10,5; 10,0…14,0; 13,0…22,0; 21,9…25,0	0,45…0,8; 0,7…1,2; 1,1…1,6; 1,5…2,3; 2,2…3,0; 2,9…3,6; 3,5…5,0; 4,5…6,5; 6,1…8,5; 8,0…10,5; 10,0…14,0; 13,0…22,0; 21,9…25,0

Valve type	**610, 613, 614, 630, 650, 670, 673, 674**	
Type	**F F**	**F G**
	01, 02, 03, 04, 05, 06, 07, 08	
	[bar]	
20x32	38…50; 48…62	
25x40		60…78; 75…95
32x50		
40x65	30…40; 38…50	48…62; 60…78; 75…95
50x80		
65x100		
80x125	23…32; 30…40	38…50; 48…62; 60…78
100x150	18…25; 23…32	30…40; 38…50; 48…62
125x200	12…16; 15…20; 18…25	
150x250	9,5…12,5; 12…16	
200x300	0,45…0,68; 0,66…1; 0,95…1,4; 1,3…1,9; 1,8…2,6; 2,5…3,6; 3,5…5; 4,8…6,3; 6,0…8,0; 7,5…10	
300x400	0,3…0,42; 04…0,55; 0,52…07; 065…0,9; 0,8…1,1; 1,0…1,4; 1,3…1,8; 1,7…2,3; 2,2…3,0; 2,9…3,8; 3,7…4,8; 4,7…6,0; 5,6…7,0	
400x500	0,25…0,28; 0,28…0,31; 0,31…0,36; 0,36…0,42; 0,42…0,5; 0,5…0,6; 0,6…0,7; 0,7…0,8; 0,8…0,95; 0,95…1,1; 1,1…1,3; 1,3…1,7; 1,7…2,2; 2,2….2,8; 2,8…3,5; 3,5…4,2; 4,2…4,5	

Valve type	**775B C**	
Type	**01, 02, 05, 07**	**03, 04, 06, 08**
	[bar]	
20x32	1,5…1,65; 1,6…1,85; 1,8…2,3; 2,0…2,5; 2,3…3,0; 2,95…3,65; 3,5…4,1; 4,0…4,5; 4,4…5,2; 5,1…6,2; 6,1…8,1; 7,5…11,0; 10,8…12,9; 12,5…16,0	1,5…1,75; 1,7…2,1; 2,0…4,0; 3,9…5,5; 5,4…7,0; 6,9…11,0; 10,9…16,0
25x40	1,5…2,2; 2,0…2,65; 2,5…4,5; 4,0…6,0; 5,5…7,0; 6,5…10,0; 9,5…16,0	1,5…1,9; 2,0…3,5; 3,2…5,0; 4,8…6,3; 6,0…8,0; 7,5…10,0; 9,8…12,5; 12,0…16,0
32x50	1,5…1,9; 1,8…2,5; 2,4…3,2; 3,0…4,0; 3,8…5,0; 4,8…6,3; 6,0…7,5; 7,0…8,5; 8,0…12,5; 12,0…16,0	1,5…2,3; 2,2…2,6; 2,5…3,7; 3,6…4,4; 4,2…6,0; 5,8…8,0; 7,5…10,0; 9,5…12,5; 12,0…16,0

Springs made of SM / SH material are marked in blue - the maximum operating temperature of the valve is 250°C

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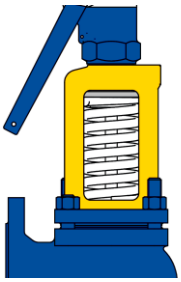
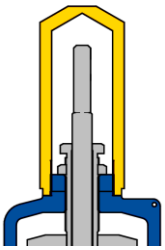
Available options

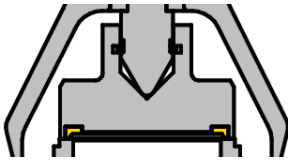


Open Bonnet

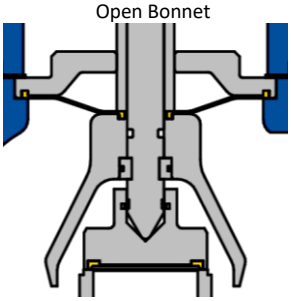
Insert



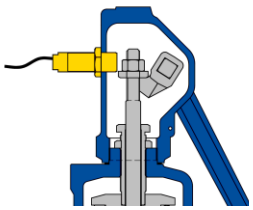
Leverless type



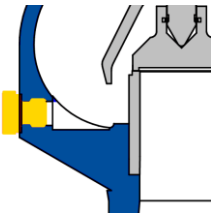
Soft sealing type (-2, -3)



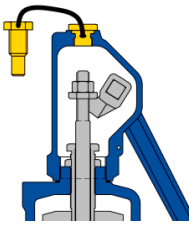
Type with membrane (01-4)



Type with inductive sensor



Type with drain plug



Type with test gag

Valve type	570			610			613	614	630				650		670		673	674	775
	A	C	R	A	C	F	F		A	C	F	R	F	R	F	R	F		B
Drain plug	✓									✓									✗
Open Bonnet	✗					✓								✗					
Insert	✓			✗			✓		✗		✓			✗			✓		✗
Leverless type										✓									
Inductive sensor		✓					✓		✓		✓	✓	✓	✓	✓	✓	✓		✓
Test gag	Standard type											✓							
Soft sealing	✗			✓			✗			✓		✗	✓	✗	✓			✗	
Type with membrane				✗					✓	✗	✓					✗			
Stellite type		✗					✓		✗		✓	✗	✓	✗	✓	✗	✓		✗

✓ Avaliable option

✓ Avaliable option – see note 2

✓ Avaliable option – see note 3

✗ Unavaliable option

[1] If the maximum operating temperature of the sensor allows it

[2] For pressure PN63 (F) and PN100 (G), only disc is stellited. For PN40 (E) seat and disc are stellited.

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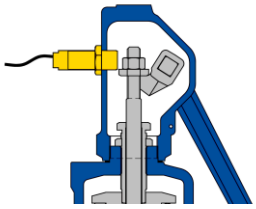
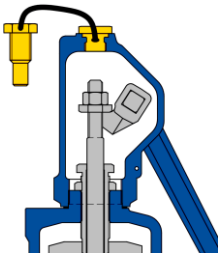


Operating range:
depending on valve type and diameter
Supply voltage:
10 ÷ 30 V [DC]
Level of protection:
IP67, IP68 (depending on sensor type)
Working temperature:
-25 ÷ 70°C
Other upon agreement with the manufacturer
Standard cable length
2000 mm

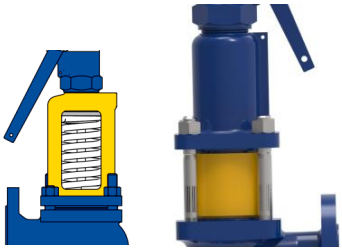


Test gag is for:

- ✓ doing pressure tests in the installation without dismantling the safety valve
- ✓ For 570 valves, it is always used to protect the closing elements during transport

It prevents the opening elements from lifting and keeps the safety valve tight when the system pressure exceeds the set pressure.

After the installation has been pressure tested, the test gag must be removed, otherwise the safety valve cannot protect the installation against unacceptable overpressure!



The type with an open Bonnet is used only for gases (including steam) and is recommended for valves above 300°C.
For valves above 350°C, it is recommended to use an insulating insert (gases and liquids)

CDTP

When "cold setting" valves at operating temperatures above 100°C (e.g. on a test stand using compressed air), corrections for the operating temperature and static backpressure should be taken into account.

Set pressure is corrected for static backpressure based on the formula:

$$p_n = p_{po} \cdot K_1 - p_b$$

Where:
p_n – set pressure (CTDP) – to be set on a test stand
p_{po} – pressure at the beginning of bar opening in the operating conditions of the installation
K_1 – temperature correction coefficient
p_b – static back pressure

The setting should be adjusted according to the media given in the table below:

Working medium temperature °C	K_1
Up to 100	1,00
100 – 250	1,02
250 - 500	1,03
over 500	1,04

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Valve weight

PN16 – PN40

Figure	Body material	d_1 x d_2									
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
		Weight [kg][3]									
570[4]	A	8,0	10,0	15,0	22,0	30,0	42,0	60,0	90,0	125,0	170,0
	F	9,0	11,0	16,0	25,0	35,0	47,0	65,0	95,0	130,0	175,0
	R										
610, 630	A	7,5	9,0	13,0	19,0	25,0	37,0	52,0	77,0	90,0	140,0
	C										
	F	8,0	10,0	14,0	20,0	27,0	39,0	55,0	82,0	100,0	155,0
	R										
650	F, R	6,5	8,5	12,0	16,0	23,0					
775	B	3,4	4,1	5,4							

PN63

Figure	Body material	d_1 x d_2											
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
		Weight [kg][4]												
610, 630	F	12,0	14,0	20,0	28,0	40,0	50,0	80,0	130,0	150,0	180,0	300,0	470,0	550,0
613, 673		10,5	12,5	18,0	25,5	36,0	45,0	74,0	123,0					
614, 674		11,5	13,5	19,2	26,8	38,5	48,0	77,0	126,5					
650		10,5	12,5	18,0	25,5	36,0								
670		11,5	13,5	19,2	26,8	38,5								

PN100

Figure	Body material	d_1 x d_2											
		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
		Weight [kg][4]												
610, 630	F	12,0	14,0	20,0	28,0	40,0	50,0	80,0	130,0	150,0	180,0	300,0	470,0	550,0
613, 673		10,5	12,5	18,0	25,5	36,0	45,0	74,0	123,0					
614, 674		11,5	13,5	19,2	26,8	38,5	48,0	77,0	126,5					
650		10,5	12,5	18,0	25,5	36,0								
670		11,5	13,5	19,2	26,8	38,5								

[3] The given weights refer to the standard valve version. They do not include versions with an insulating insert (it relates also to Fig. 570)
[4] The weight of the whole valve depends on the weight of the weight (valve settings). The given weights are maximum.

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CE 0343

ATEX

II 2G Ex h IIC TX Gb

For valve:
630AC, 630CE, 630FE
Type: 02-1, 04-1, 07-1, 08-1, 52-1, 54-1, 57-1, 58-1
630FF, 630FG, 650FE, 650FF, 650FG, 670FF, 670FG, 673FF, 673FG, 674FF, 674FG
Type: 02-1, 04-1, 07-1, 08-1
630RE
Type: 02-1, 04-1, 52-1, 54-1
650RE
Type: 02-1, 04-1
775B C
Type: 02-1, 04-1, 07-1, 08-1

Hygienic certificate for drinking water

For valve:
630AC, 630CE, 630FE, 630RE, 630FF, 630FG, 650FE, 775BC

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Selection program

The selection program is a program developed by ZETKAMA for performing safety valve calculations. It allows for calculating safety valves in accordance with the following standards and codes:

- EN ISO 4126-7
- API 520

The programme is available at: http://zetkama1.sajsoft.pl/

Required data for valve calculations

Steam and gases **S/G**	Set pressure [bar], back pressure [bar], type of back pressure (constant/variable), mass flow [kg/h], Media and its data: molar mass [kg/kmol], isentropic exponent Cp/Cv, compressibility coefficient, temperature [°C]
Liquids **L**	Set pressure [bar], back pressure [bar], type of back pressure (constant/variable), mass flow [kg/h], Media and its data: density [kg/m3], viscosity, temperature [°C]

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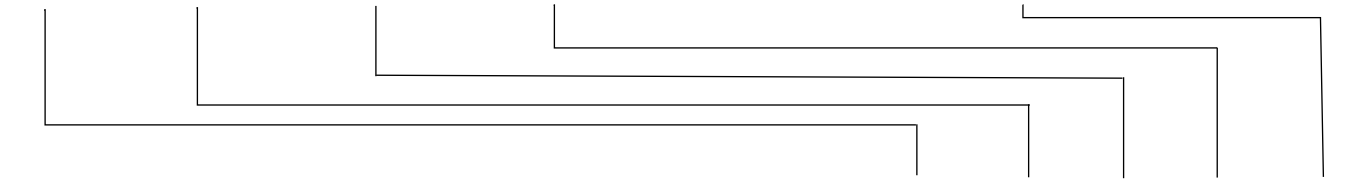
Ordering

Figure	Body material	Nominal diameter	Nominal pressure	Type
630	A grey cast iron EN-GJL-250	20-150 mm	C 16 bar	01-1 Standard type for steam, gases, sealing metal/metal



Order example by index	630	A	050	C	011

Full-lift spring flanged safety valve	**630**
Grey cast iron EN-GJL-250	**A**
Nominal diameter (mm)	**050**
Nominal pressure PN 16	**C**
Standard type for steam, gases, sealing metal/metal	**011**

Types

	Type
01	Standard type for steam, gases
02	Gastight type for steam, gases
03	Type with reduced lift for liquids, steam and gases
04	Gastight type with reduced lift for liquids, steam and gases
05	Marine type for steam, gases
06	Marine type with reduced lift for liquids, steam and gases
07	Marine gastight type for steam and gases
08	Marine type with reduced lift, gas-tight for liquids, steam and gases
51	Standard type, with extended seat, for steam and gases
52	Gastight type, with extended seat, for steam and gases
53	Type with extended seat for liquids and steam-Water mixture
54	Gastight type with extended seat for liquids and steam-Water mixture
55	Marine type with extended seat for steam and gases
56	Marine type, gastight, with extended seat for liquids and steam-Water mixture
57	Marine type, gastight, with extended seat for steam and gases
58	Marine type, gastight, with extended seat for liquids and steam-Water mixture

	Sealing
-1	metal-metal
-2	NBR
-3	EPDM
-4	Membranowy (EPDM)

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PN16

Material		EN-GJL-250									
Mark		A									
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
570	01-1	570A020C011	570A025C011	570A032C011	570A040C011	570A050C011	570A065C011	570A080C011	570A100C011	570A125C011	570A150C011
	02-1	570A020C021	570A025C021	570A032C021	570A040C021	570A050C021	570A065C021	570A080C021	570A100C021	570A125C021	570A150C021
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
610	01-1	610A020C011	610A025C011	610A032C011	610A040C011	610A050C011	610A065C011	610A080C011	610A100C011	610A125C011	610A150C011
	01-2	610A020C012	610A025C012	610A032C012	610A040C012	610A050C012	610A065C012	610A080C012	610A100C012		
	01-3	610A020C013	610A025C013	610A032C013	610A040C013	610A050C013	610A065C013	610A080C013	610A100C013		
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
630	01-1	630A020C011	630A025C011	630A032C011	630A040C011	630A050C011	630A065C011	630A080C011	630A100C011	630A125C011	630A150C011
	01-2	630A020C012	630A025C012	630A032C012	630A040C012	630A050C012	630A065C012	630A080C012	630A100C012		
	01-3	630A020C013	630A025C013	630A032C013	630A040C013	630A050C013	630A065C013	630A080C013	630A100C013		
	01-4	630A020C014	630A025C014	630A032C014	630A040C014	630A050C014	630A065C014	630A080C014	630A100C014		
	02-1	630A020C021	630A025C021	630A032C021	630A040C021	630A050C021	630A065C021	630A080C021	630A100C021	630A125C021	630A150C021
	02-2	630A020C022	630A025C022	630A032C022	630A040C022	630A050C022	630A065C022	630A080C022	630A100C022		
	02-3	630A020C023	630A025C023	630A032C023	630A040C023	630A050C023	630A065C023	630A080C023	630A100C023		
	03-1	630A020C031	630A025C031	630A032C031	630A040C031	630A050C031	630A065C031	630A080C031	630A100C031	630A125C031	630A150C031
	03-2	630A020C032	630A025C032	630A032C032	630A040C032	630A050C032	630A065C032	630A080C032	630A100C032		
	03-3	630A020C033	630A025C033	630A032C033	630A040C033	630A050C033	630A065C033	630A080C033	630A100C033		
	04-1	630A020C041	630A025C041	630A032C041	630A040C041	630A050C041	630A065C041	630A080C041	630A100C041	630A125C041	630A150C041
	04-2	630A020C042	630A025C042	630A032C042	630A040C042	630A050C042	630A065C042	630A080C042	630A100C042		
	04-3	630A020C043	630A025C043	630A032C043	630A040C043	630A050C043	630A065C043	630A080C043	630A100C043		
	05-1	630A020C051	630A025C051	630A032C051	630A040C051	630A050C051	630A065C051	630A080C051	630A100C051	630A125C051	630A150C051
	05-2	630A020C052	630A025C052	630A032C052	630A040C052	630A050C052	630A065C052	630A080C052	630A100C052		
	05-3	630A020C053	630A025C053	630A032C053	630A040C053	630A050C053	630A065C053	630A080C053	630A100C053		
	06-1	630A020C061	630A025C061	630A032C061	630A040C061	630A050C061	630A065C061	630A080C061	630A100C061	630A125C061	630A150C061
	06-2	630A020C062	630A025C062	630A032C062	630A040C062	630A050C062	630A065C062	630A080C062	630A100C062		
	06-3	630A020C063	630A025C063	630A032C063	630A040C063	630A050C063	630A065C063	630A080C063	630A100C063		
	07-1	630A020C071	630A025C071	630A032C071	630A040C071	630A050C071	630A065C071	630A080C071	630A100C071	630A125C071	630A150C071
	07-2	630A020C072	630A025C072	630A032C072	630A040C072	630A050C072	630A065C072	630A080C072	630A100C072		
	07-3	630A020C073	630A025C073	630A032C073	630A040C073	630A050C073	630A065C073	630A080C073	630A100C073		
	08-1	630A020C081	630A025C081	630A032C081	630A040C081	630A050C081	630A065C081	630A080C081	630A100C081	630A125C081	630A150C081
	08-2	630A020C082	630A025C082	630A032C082	630A040C082	630A050C082	630A065C082	630A080C082	630A100C082		
	08-3	630A020C083	630A025C083	630A032C083	630A040C083	630A050C083	630A065C083	630A080C083	630A100C083		
	51-1	630A020C511	630A025C511	630A032C511	630A040C511						
	52-1	630A020C521	630A025C521	630A032C521	630A040C521						
	53-1	630A020C531	630A025C531	630A032C531	630A040C531	630A050C531					
	54-1	630A020C541	630A025C541	630A032C541	630A040C541	630A050C541					
	55-1	630A020C551	630A025C551	630A032C551	630A040C551						
	56-1	630A020C561	630A025C561	630A032C561	630A040C561	630A050C561					
	57-1	630A020C571	630A025C571	630A032C571	630A040C571						
	58-1	630A020C581	630A025C581	630A032C581	630A040C581	630A050C581					

Material		EN-GJS-400-15		
Mark		B		
DN →		20x32	25x40	32x50
775	01-1	775B020C011	775B025C011	775B032C011
	02-1	775B020C021	775B025C021	775B032C021
	03-1	775B020C031	775B025C031	775B032C031
	04-1	775B020C041	775B025C041	775B032C041
	05-1	775B020C051	775B025C051	775B032C051
	06-1	775B020C061	775B025C061	775B032C061
	07-1	775B020C071	775B025C071	775B032C071
	08-1	775B020C081	775B025C081	775B032C081

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PN40

Material		EN-GJS-400-18							
Mark		C							
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
610	01-1	610C020E011	610C025E011	610C032E011	610C040E011	610C050E011	610C065E011	610C080E011	610C100E011
	01-2	610C020E012	610C025E012	610C032E012	610C040E012	610C050E012	610C065E012	610C080E012	610C100E012
	01-3	610C020E013	610C025E013	610C032E013	610C040E013	610C050E013	610C065E013	610C080E013	610C100E013
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
630	01-1	630C020E011	630C025E011	630C032E011	630C040E011	630C050E011	630C065E011	630C080E011	630C100E011
	01-2	630C020E012	630C025E012	630C032E012	630C040E012	630C050E012	630C065E012	630C080E012	630C100E012
	01-3	630C020E013	630C025E013	630C032E013	630C040E013	630C050E013	630C065E013	630C080E013	630C100E013
	02-1	630C020E021	630C025E021	630C032E021	630C040E021	630C050E021	630C065E021	630C080E021	630C100E021
	02-2	630C020E022	630C025E022	630C032E022	630C040E022	630C050E022	630C065E022	630C080E022	630C100E022
	02-3	630C020E023	630C025E023	630C032E023	630C040E023	630C050E023	630C065E023	630C080E023	630C100E023
	03-1	630C020E031	630C025E031	630C032E031	630C040E031	630C050E031	630C065E031	630C080E031	630C100E031
	03-2	630C020E032	630C025E032	630C032E032	630C040E032	630C050E032	630C065E032	630C080E032	630C100E032
	03-3	630C020E033	630C025E033	630C032E033	630C040E033	630C050E033	630C065E033	630C080E033	630C100E033
	04-1	630C020E041	630C025E041	630C032E041	630C040E041	630C050E041	630C065E041	630C080E041	630C100E041
	04-2	630C020E042	630C025E042	630C032E042	630C040E042	630C050E042	630C065E042	630C080E042	630C100E042
	04-3	630C020E043	630C025E043	630C032E043	630C040E043	630C050E043	630C065E043	630C080E043	630C100E043
	05-1	630C020E051	630C025E051	630C032E051	630C040E051	630C050E051	630C065E051	630C080E051	630C100E051
	05-2	630C020E052	630C025E052	630C032E052	630C040E052	630C050E052	630C065E052	630C080E052	630C100E052
	05-3	630C020E053	630C025E053	630C032E053	630C040E053	630C050E053	630C065E053	630C080E053	630C100E053
	06-1	630C020E061	630C025E061	630C032E061	630C040E061	630C050E061	630C065E061	630C080E061	630C100E061
	06-2	630C020E062	630C025E062	630C032E062	630C040E062	630C050E062	630C065E062	630C080E062	630C100E062
	06-3	630C020E063	630C025E063	630C032E063	630C040E063	630C050E063	630C065E063	630C080E063	630C100E063
	07-1	630C020E071	630C025E071	630C032E071	630C040E071	630C050E071	630C065E071	630C080E071	630C100E071
	07-2	630C020E072	630C025E072	630C032E072	630C040E072	630C050E072	630C065E072	630C080E072	630C100E072
	07-3	630C020E073	630C025E073	630C032E073	630C040E073	630C050E073	630C065E073	630C080E073	630C100E073
	08-1	630C020E081	630C025E081	630C032E081	630C040E081	630C050E081	630C065E081	630C080E081	630C100E081
	08-2	630C020E082	630C025E082	630C032E082	630C040E082	630C050E082	630C065E082	630C080E082	630C100E082
	08-3	630C020E083	630C025E083	630C032E083	630C040E083	630C050E083	630C065E083	630C080E083	630C100E083
	51-1	630C020E511	630C025E511	630C032E511	630C040E511				
	52-1	630C020E521	630C025E521	630C032E521	630C040E521				
	53-1	630C020E531	630C025E531	630C032E531	630C040E531	630C050E531			
	54-1	630C020E541	630C025E541	630C032E541	630C040E541	630C050E541			
	55-1	630C020E551	630C025E551	630C032E551	630C040E551				
	56-1	630C020E561	630C025E561	630C032E561	630C040E561	630C050E561			
	57-1	630C020E571	630C025E571	630C032E571	630C040E571				
	58-1	630C020E581	630C025E581	630C032E581	630C040E581	630C050E581			

Material		GP240GH									
Mark		F									
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
570	01-1	570F020E011	570F025E011	570F032E011	570F040E011	570F050E011	570F065E011	570F080E011	570F100E011	570F125E011	570F150E011
	02-1	570F020E021	570F025E021	570F032E021	570F040E021	570F050E021	570F065E021	570F080E021	570F100E021	570F125E021	570F150E021
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
610	01-1	610F020E011	610F025E011	610F032E011	610F040E011	610F050E011	610F065E011	610F080E011	610F100E011	610F125E011	610F150E011
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250
630	01-1	630F020E011	630F025E011	630F032E011	630F040E011	630F050E011	630F065E011	630F080E011	630F100E011	630F125E011	630F150E011
	01-2	630F020E012	630F025E012	630F032E012	630F040E012	630F050E012	630F065E012	630F080E012	630F100E012		
	01-3	630F020E013	630F025E013	630F032E013	630F040E013	630F050E013	630F065E013	630F080E013	630F100E013		
	01-4	630F020E014	630F025E014	630F032E014	630F040E014	630F050E014	630F065E014	630F080E014	630F100E014		
	02-1	630F020E021	630F025E021	630F032E021	630F040E021	630F050E021	630F065E021	630F080E021	630F100E021	630F125E021	630F150E021
	02-2	630F020E022	630F025E022	630F032E022	630F040E022	630F050E022	630F065E022	630F080E022	630F100E022		
	02-3	630F020E023	630F025E023	630F032E023	630F040E023	630F050E023	630F065E023	630F080E023	630F100E023		
	03-1	630F020E031	630F025E031	630F032E031	630F040E031	630F050E031	630F065E031	630F080E031	630F100E031	630F125E031	630F150E031
	03-2	630F020E032	630F025E032	630F032E032	630F040E032	630F050E032	630F065E032	630F080E032	630F100E032		
	03-3	630F020E033	630F025E033	630F032E033	630F040E033	630F050E033	630F065E033	630F080E033	630F100E033		
	04-1	630F020E041	630F025E041	630F032E041	630F040E041	630F050E041	630F065E041	630F080E041	630F100E041	630F125E041	630F150E041
	04-2	630F020E042	630F025E042	630F032E042	630F040E042	630F050E042	630F065E042	630F080E042	630F100E042		
	04-3	630F020E043	630F025E043	630F032E043	630F040E043	630F050E043	630F065E043	630F080E043	630F100E043		
	05-1	630F020E051	630F025E051	630F032E051	630F040E051	630F050E051	630F065E051	630F080E051	630F100E051	630F125E051	630F150E051
	05-2	630F020E052	630F025E052	630F032E052	630F040E052	630F050E052	630F065E052	630F080E052	630F100E052		

Data given can be changed without notice

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	05-3	630F020E053	630F025E053	630F032E053	630F040E053	630F050E053	630F065E053	630F080E053	630F100E053			
	06-1	630F020E061	630F025E061	630F032E061	630F040E061	630F050E061	630F065E061	630F080E061	630F100E061	630F125E061	630F150E061	
	06-2	630F020E062	630F025E062	630F032E062	630F040E062	630F050E062	630F065E062	630F080E062	630F100E062			
	06-3	630F020E063	630F025E063	630F032E063	630F040E063	630F050E063	630F065E063	630F080E063	630F100E063			
	07-1	630F020E071	630F025E071	630F032E071	630F040E071	630F050E071	630F065E071	630F080E071	630F100E071	630F125E071	630F150E071	
	07-2	630F020E072	630F025E072	630F032E072	630F040E072	630F050E072	630F065E072	630F080E072	630F100E072			
	07-3	630F020E073	630F025E073	630F032E073	630F040E073	630F050E073	630F065E073	630F080E073	630F100E073			
	08-1	630F020E081	630F025E081	630F032E081	630F040E081	630F050E081	630F065E081	630F080E081	630F100E081	630F125E081	630F150E081	
	08-2	630F020E082	630F025E082	630F032E082	630F040E082	630F050E082	630F065E082	630F080E082	630F100E082			
	08-3	630F020E083	630F025E083	630F032E083	630F040E083	630F050E083	630F065E083	630F080E083	630F100E083			
	51-1	630F020E511	630F025E511	630F032E511	630F040E511							
	52-1	630F020E521	630F025E521	630F032E521	630F040E521							
	53-1	630F020E531	630F025E531	630F032E531	630F040E531	630F050E531						
	54-1	630F020E541	630F025E541	630F032E541	630F040E541	630F050E541						
	55-1	630F020E551	630F025E551	630F032E551	630F040E551							
	56-1	630F020E561	630F025E561	630F032E561	630F040E561	630F050E561						
	57-1	630F020E571	630F025E571	630F032E571	630F040E571							
	58-1	630F020E581	630F025E581	630F032E581	630F040E581	630F050E581						
DN →		20x32	25x40	32x50	40x65	50x80						
	01-1	650F020E011	650F025E011	650F032E011	650F040E011	650F050E011						
	01-2	650F020E012	650F025E012	650F032E012	650F040E012	650F050E012						
	01-3	650F020E013	650F025E013	650F032E013	650F040E013	650F050E013						
	02-1	650F020E021	650F025E021	650F032E021	650F040E021	650F050E021						
	02-2	650F020E022	650F025E022	650F032E022	650F040E022	650F050E022						
	02-3	650F020E023	650F025E023	650F032E023	650F040E023	650F050E023						
	03-1	650F020E031	650F025E031	650F032E031	650F040E031	650F050E031						
	03-2	650F020E032	650F025E032	650F032E032	650F040E032	650F050E032						
	03-3	650F020E033	650F025E033	650F032E033	650F040E033	650F050E033						
	04-1	650F020E041	650F025E041	650F032E041	650F040E041	650F050E041						
	04-2	650F020E042	650F025E042	650F032E042	650F040E042	650F050E042						
	04-3	650F020E043	650F025E043	650F032E043	650F040E043	650F050E043						
650	05-1	650F020E051	650F025E051	650F032E051	650F040E051	650F050E051						
	05-2	650F020E052	650F025E052	650F032E052	650F040E052	650F050E052						
	05-3	650F020E053	650F025E053	650F032E053	650F040E053	650F050E053						
	06-1	650F020E061	650F025E061	650F032E061	650F040E061	650F050E061						
	06-2	650F020E062	650F025E062	650F032E062	650F040E062	650F050E062						
	06-3	650F020E063	650F025E063	650F032E063	650F040E063	650F050E063						
	07-1	650F020E071	650F025E071	650F032E071	650F040E071	650F050E071						
	07-2	650F020E072	650F025E072	650F032E072	650F040E072	650F050E072						
	07-3	650F020E073	650F025E073	650F032E073	650F040E073	650F050E073						
	08-1	650F020E081	650F025E081	650F032E081	650F040E081	650F050E081						
	08-2	650F020E082	650F025E082	650F032E082	650F040E082	650F050E082						
	08-3	650F020E083	650F025E083	650F032E083	650F040E083	650F050E083						

Material		GX5CrNi19-10							
Mark		R							
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
570	01-1	570R020E011	570R025E011	570R020E011	570R040E011	570R050E011	570R065E011	570R080E011	570R100E011
	02-1	570R020E021	570R025E021	570R020E021	570R040E021	570R050E021	570R065E021	570R080E021	570R100E021
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
630	02-1	630R020E021	630R025E021	630R032E021	630R040E021	630R050E021	630R065E021	630R080E021	630R100E021
	04-1	630R020E041	630R025E041	630R032E041	630R040E041	630R050E041	630R065E041	630R080E041	630R100E041
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
650	02-1	650R020E021	650R025E021	650R032E021	650R040E021	650R050E021			
	04-1	650R020E041	650R025E041	650R032E041	650R040E041	650R050E041			

PN63

Material		GP240GH											
Mark		F											
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
610	01-1	610F020F011	610F025F011	610F032F011	610F040F011	610F050F011	610F065F011	610F080F011	610F100F011	610F125F011	610F150F011	610F200F011	610F300F011	610F400F011
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150					
613	01-1	613F020F011	613F025F011	613F032F011	613F040F011	613F050F011	613F065F011	613F080F011	613F100F011					
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150					

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613	01-1	614F020F011	614F025F011	614F032F011	614F040F011	614F050F011	614F065F011	614F080F011	614F100F011					
DN →		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150	125x200	150x250	200x300	300x400	400x500
630	01-1	630F020F011	630F025F011	630F032F011	630F040F011	630F050F011	630F065F011	630F080F011	630F100F011	630F125F011	630F150F011	630F200F011	630F300F011	630F400F011
	01-2	630F020F012	630F025F012	630F032F012	630F040F012	630F050F012	630F065F012	630F080F012	630F100F012					
	01-3	630F020F013	630F025F013	630F032F013	630F040F013	630F050F013	630F065F013	630F080F013	630F100F013					
	02-1	630F020F021	630F025F021	630F032F021	630F040F021	630F050F021	630F065F021	630F080F021	630F100F021	630F125F021	630F150F021	630F200F021	630F300F021	630F400F021
	02-2	630F020F022	630F025F022	630F032F022	630F040F022	630F050F022	630F065F022	630F080F022	630F100F022					
	02-3	630F020F023	630F025F023	630F032F023	630F040F023	630F050F023	630F065F023	630F080F023	630F100F023					
	03-1	630F020F031	630F025F031	630F032F031	630F040F031	630F050F031	630F065F031	630F080F031	630F100F031	630F125F031	630F150F031	630F200F031	630F300F031	630F400F031
	03-2	630F020F032	630F025F032	630F032F032	630F040F032	630F050F032	630F065F032	630F080F032	630F100F032					
	03-3	630F020F033	630F025F033	630F032F033	630F040F033	630F050F033	630F065F033	630F080F033	630F100F033					
	04-1	630F020F041	630F025F041	630F032F041	630F040F041	630F050F041	630F065F041	630F080F041	630F100F041	630F125F041	630F150F041	630F200F041	630F300F041	630F400F041
	04-2	630F020F042	630F025F042	630F032F042	630F040F042	630F050F042	630F065F042	630F080F042	630F100F042					
	04-3	630F020F043	630F025F043	630F032F043	630F040F043	630F050F043	630F065F043	630F080F043	630F100F043					
	05-1	630F020F051	630F025F051	630F032F051	630F040F051	630F050F051	630F065F051	630F080F051	630F100F051	630F125F051	630F150F051	630F200F051	630F300F051	630F400F051
	05-2	630F020F052	630F025F052	630F032F052	630F040F052	630F050F052	630F065F052	630F080F052	630F100F052					
	05-3	630F020F053	630F025F053	630F032F053	630F040F053	630F050F053	630F065F053	630F080F053	630F100F053					
	06-1	630F020F061	630F025F061	630F032F061	630F040F061	630F050F061	630F065F061	630F080F061	630F100F061	630F125F061	630F150F061	630F200F061	630F300F061	630F400F061
	06-2	630F020F062	630F025F062	630F032F062	630F040F062	630F050F062	630F065F062	630F080F062	630F100F062					
	06-3	630F020F063	630F025F063	630F032F063	630F040F063	630F050F063	630F065F063	630F080F063	630F100F063					
	07-1	630F020F071	630F025F071	630F032F071	630F040F071	630F050F071	630F065F071	630F080F071	630F100F071	630F125F071	630F150F071	630F200F071	630F300F071	630F400F071
	07-2	630F020F072	630F025F072	630F032F072	630F040F072	630F050F072	630F065F072	630F080F072	630F100F072					
	07-3	630F020F073	630F025F073	630F032F073	630F040F073	630F050F073	630F065F073	630F080F073	630F100F073					
	08-1	630F020F081	630F025F081	630F032F081	630F040F081	630F050F081	630F065F081	630F080F081	630F100F081	630F125F081	630F150F081	630F200F081	630F300F081	630F400F081
	08-2	630F020F082	630F025F082	630F032F082	630F040F082	630F050F082	630F065F082	630F080F082	630F100F082					
	08-3	630F020F083	630F025F083	630F032F083	630F040F083	630F050F083	630F065F083	630F080F083	630F100F083					

DN →		20x32	25x40	32x50	40x65	50x80
650	01-1	650F020F011	650F025F011	650F032F011	650F040F011	650F050F011
	01-2	650F020F012	650F025F012	650F032F012	650F040F012	650F050F012
	01-3	650F020F013	650F025F013	650F032F013	650F040F013	650F050F013
	02-1	650F020F021	650F025F021	650F032F021	650F040F021	650F050F021
	02-2	650F020F022	650F025F022	650F032F022	650F040F022	650F050F022
	02-3	650F020F023	650F025F023	650F032F023	650F040F023	650F050F023
	03-1	650F020F031	650F025F031	650F032F031	650F040F031	650F050F031
	03-2	650F020F032	650F025F032	650F032F032	650F040F032	650F050F032
	03-3	650F020F033	650F025F033	650F032F033	650F040F033	650F050F033
	04-1	650F020F041	650F025F041	650F032F041	650F040F041	650F050F041
	04-2	650F020F042	650F025F042	650F032F042	650F040F042	650F050F042
	04-3	650F020F043	650F025F043	650F032F043	650F040F043	650F050F043
	05-1	650F020F051	650F025F051	650F032F051	650F040F051	650F050F051
	05-2	650F020F052	650F025F052	650F032F052	650F040F052	650F050F052
	05-3	650F020F053	650F025F053	650F032F053	650F040F053	650F050F053
	06-1	650F020F061	650F025F061	650F032F061	650F040F061	650F050F061
	06-2	650F020F062	650F025F062	650F032F062	650F040F062	650F050F062
	06-3	650F020F063	650F025F063	650F032F063	650F040F063	650F050F063
	07-1	650F020F071	650F025F071	650F032F071	650F040F071	650F050F071
	07-2	650F020F072	650F025F072	650F032F072	650F040F072	650F050F072
	07-3	650F020F073	650F025F073	650F032F073	650F040F073	650F050F073
	08-1	650F020F081	650F025F081	650F032F081	650F040F081	650F050F081
	08-2	650F020F082	650F025F082	650F032F082	650F040F082	650F050F082
	08-3	650F020F083	650F025F083	650F032F083	650F040F083	650F050F083

DN →		20x32	25x40	32x50	40x65	50x80
670	01-1	670F020F011	670F025F011	670F032F011	670F040F011	670F050F011
	01-2	670F020F012	670F025F012	670F032F012	670F040F012	670F050F012
	01-3	670F020F013	670F025F013	670F032F013	670F040F013	670F050F013
	02-1	670F020F021	670F025F021	670F032F021	670F040F021	670F050F021
	02-2	670F020F022	670F025F022	670F032F022	670F040F022	670F050F022
	02-3	670F020F023	670F025F023	670F032F023	670F040F023	670F050F023
	03-1	670F020F031	670F025F031	670F032F031	670F040F031	670F050F031
	03-2	670F020F032	670F025F032	670F032F032	670F040F032	670F050F032
	03-3	670F020F033	670F025F033	670F032F033	670F040F033	670F050F033
	04-1	670F020F041	670F025F041	670F032F041	670F040F041	670F050F041
	04-2	670F020F042	670F025F042	670F032F042	670F040F042	670F050F042
	04-3	670F020F043	670F025F043	670F032F043	670F040F043	670F050F043
	05-1	670F020F051	670F025F051	670F032F051	670F040F051	670F050F051

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	05-2	670F020F052	670F025F052	670F032F052	670F040F052	670F050F052			
	05-3	670F020F053	670F025F053	670F032F053	670F040F053	670F050F053			
	06-1	670F020F061	670F025F061	670F032F061	670F040F061	670F050F061			
	06-2	670F020F062	670F025F062	670F032F062	670F040F062	670F050F062			
	06-3	670F020F063	670F025F063	670F032F063	670F040F063	670F050F063			
	07-1	670F020F071	670F025F071	670F032F071	670F040F071	670F050F071			
	07-2	670F020F072	670F025F072	670F032F072	670F040F072	670F050F072			
	07-3	670F020F073	670F025F073	670F032F073	670F040F073	670F050F073			
	08-1	670F020F081	670F025F081	670F032F081	670F040F081	670F050F081			
	08-2	670F020F082	670F025F082	670F032F082	670F040F082	670F050F082			
	08-3	670F020F083	670F025F083	670F032F083	670F040F083	670F050F083			
DN ⟶		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
673	01-1	673F020F011	673F025F011	673F020F011	673F040F011	673F050F011	673F065F011	673F080F011	673F100F011
	02-1	673F020F021	673F025F021	673F020F021	673F040F021	673F050F021	673F065F021	673F080F021	673F100F021
	03-1	673F020F031	673F025F031	673F020F031	673F040F031	673F050F031	673F065F031	673F080F031	673F100F031
	04-1	673F020F041	673F025F041	673F020F041	673F040F041	673F050F041	673F065F041	673F080F041	673F100F041
	05-1	673F020F051	673F025F051	673F020F051	673F040F051	673F050F051	673F065F051	673F080F051	673F100F051
	06-1	673F020F061	673F025F061	673F020F061	673F040F061	673F050F061	673F065F061	673F080F061	673F100F061
	07-1	673F020F071	673F025F071	673F020F071	673F040F071	673F050F071	673F065F071	673F080F071	673F100F071
	08-1	673F020F081	673F025F081	673F020F081	673F040F081	673F050F081	673F065F081	673F080F081	673F100F081
DN ⟶		20x32	25x40	32x50	40x65	50x80	65x100	80x125	100x150
674	01-1	674F020F011	674F025F011	674F020F011	674F040F011	674F050F011	674F065F011	674F080F011	674F100F011
	02-1	674F020F021	674F025F021	674F020F021	674F040F021	674F050F021	674F065F021	674F080F021	674F100F021
	03-1	674F020F031	674F025F031	674F020F031	674F040F031	674F050F031	674F065F031	674F080F031	674F100F031
	04-1	674F020F041	674F025F041	674F020F041	674F040F041	674F050F041	674F065F041	674F080F041	674F100F041
	05-1	674F020F051	674F025F051	674F020F051	674F040F051	674F050F051	674F065F051	674F080F051	674F100F051
	06-1	674F020F061	674F025F061	674F020F061	674F040F061	674F050F061	674F065F061	674F080F061	674F100F061
	07-1	674F020F071	674F025F071	674F020F071	674F040F071	674F050F071	674F065F071	674F080F071	674F100F071
	08-1	674F020F081	674F025F081	674F020F081	674F040F081	674F050F081	674F065F081	674F080F081	674F100F081

PN100

Material		GP240GH						
Mark		F						
DN ⟶		25x40	32x50	40x65	50x80	65x100	80x125	100x150
610	01-1	610F025F011	610F020F011	610F040F011	610F050F011	610F065F011	610F080F011	610F100F011
DN ⟶		25x40	32x50	40x65	50x80	65x100	80x125	100x150
613	01-1	613F025F011	613F020F011	613F040F011	613F050F011	613F065F011	613F080F011	613F100F011
DN ⟶		25x40	32x50	40x65	50x80	65x100	80x125	100x150
614	01-1	614F025F011	614F020F011	614F040F011	614F050F011	614F065F011	614F080F011	614F100F011
DN ⟶		25x40	32x50	40x65	50x80	65x100	80x125	100x150
630	01-1	630F025G011	630F032G011	630F040G011	630F050G011	630F065G011	630F080G011	630F100G011
	01-2	630F025G012	630F032G012	630F040G012	630F050G012	630F065G012	630F080G012	630F100G012
	01-3	630F025G013	630F032G013	630F040G013	630F050G013	630F065G013	630F080G013	630F100G013
	02-1	630F025G021	630F032G021	630F040G021	630F050G021	630F065G021	630F080G021	630F100G021
	02-2	630F025G022	630F032G022	630F040G022	630F050G022	630F065G022	630F080G022	630F100G022
	02-3	630F025G023	630F032G023	630F040G023	630F050G023	630F065G023	630F080G023	630F100G023
	03-1	630F025G031	630F032G031	630F040G031	630F050G031	630F065G031	630F080G031	630F100G031
	03-2	630F025G032	630F032G032	630F040G032	630F050G032	630F065G032	630F080G032	630F100G032
	03-3	630F025G033	630F032G033	630F040G033	630F050G033	630F065G033	630F080G033	630F100G033
	04-1	630F025G041	630F032G041	630F040G041	630F050G041	630F065G041	630F080G041	630F100G041
	04-2	630F025G042	630F032G042	630F040G042	630F050G042	630F065G042	630F080G042	630F100G042
	04-3	630F025G043	630F032G043	630F040G043	630F050G043	630F065G043	630F080G043	630F100G043
	05-1	630F025G051	630F032G051	630F040G051	630F050G051	630F065G051	630F080G051	630F100G051
	05-2	630F025F052	630F032F052	630F040F052	630F050F052	630F065F052	630F080F052	630F100F052
	05-3	630F025F053	630F032F053	630F040F053	630F050F053	630F065F053	630F080F053	630F100F053
	06-1	630F025F061	630F032F061	630F040F061	630F050F061	630F065F061	630F080F061	630F100F061
	06-2	630F025F062	630F032F062	630F040F062	630F050F062	630F065F062	630F080F062	630F100F062
	06-3	630F025F063	630F032F063	630F040F063	630F050F063	630F065F063	630F080F063	630F100F063
	07-1	630F025F071	630F032F071	630F040F071	630F050F071	630F065F071	630F080F071	630F100F071
	07-2	630F025F072	630F032F072	630F040F072	630F050F072	630F065F072	630F080F072	630F100F072
	07-3	630F025F073	630F032F073	630F040F073	630F050F073	630F065F073	630F080F073	630F100F073
	08-1	630F025F081	630F032F081	630F040F081	630F050F081	630F065F081	630F080F081	630F100F081
	08-2	630F025F082	630F032F082	630F040F082	630F050F082	630F065F082	630F080F082	630F100F082
	08-3	630F025F083	630F032F083	630F040F083	630F050F083	630F065F083	630F080F083	630F100F083

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DN →		25x40	32x50	40x65	50x80
650	01-1	650F025G011	650F032G011	650F040G011	650F050G011
	01-2	650F025G012	650F032G012	650F040G012	650F050G012
	01-3	650F025G013	650F032G013	650F040G013	650F050G013
	02-1	650F025G021	650F032G021	650F040G021	650F050G021
	02-2	650F025G022	650F032G022	650F040G022	650F050G022
	02-3	650F025G023	650F032G023	650F040G023	650F050G023
	03-1	650F025G031	650F032G031	650F040G031	650F050G031
	03-2	650F025G032	650F032G032	650F040G032	650F050G032
	03-3	650F025G033	650F032G033	650F040G033	650F050G033
	04-1	650F025G041	650F032G041	650F040G041	650F050G041
	04-2	650F025G042	650F032G042	650F040G042	650F050G042
	04-3	650F025G043	650F032G043	650F040G043	650F050G043
	05-1	650F025G051	650F032G051	650F040G051	650F050G051
	05-2	650F025F052	650F032F052	650F040F052	650F050F052
	05-3	650F025F053	650F032F053	650F040F053	650F050F053
	06-1	650F025F061	650F032F061	650F040F061	650F050F061
	06-2	650F025F062	650F032F062	650F040F062	650F050F062
	06-3	650F025F063	650F032F063	650F040F063	650F050F063
	07-1	650F025F071	650F032F071	650F040F071	650F050F071
	07-2	650F025F072	650F032F072	650F040F072	650F050F072
	07-3	650F025F073	650F032F073	650F040F073	650F050F073
	08-1	650F025F081	650F032F081	650F040F081	650F050F081
	08-2	650F025F082	650F032F082	650F040F082	650F050F082
	08-3	650F025F083	650F032F083	650F040F083	650F050F083

DN →		25x40	32x50	40x65	50x80
670	01-1	670F025G011	670F032G011	670F040G011	670F050G011
	01-2	670F025G012	670F032G012	670F040G012	670F050G012
	01-3	670F025G013	670F032G013	670F040G013	670F050G013
	02-1	670F025G021	670F032G021	670F040G021	670F050G021
	02-2	670F025G022	670F032G022	670F040G022	670F050G022
	02-3	670F025G023	670F032G023	670F040G023	670F050G023
	03-1	670F025G031	670F032G031	670F040G031	670F050G031
	03-2	670F025G032	670F032G032	670F040G032	670F050G032
	03-3	670F025G033	670F032G033	670F040G033	670F050G033
	04-1	670F025G041	670F032G041	670F040G041	670F050G041
	04-2	670F025G042	670F032G042	670F040G042	670F050G042
	04-3	670F025G043	670F032G043	670F040G043	670F050G043
	05-1	670F025G051	670F032G051	670F040G051	670F050G051
	05-2	670F025F052	670F032F052	670F040F052	670F050F052
	05-3	670F025F053	670F032F053	670F040F053	670F050F053
	06-1	670F025F061	670F032F061	670F040F061	670F050F061
	06-2	670F025F062	670F032F062	670F040F062	670F050F062
	06-3	670F025F063	670F032F063	670F040F063	670F050F063
	07-1	670F025F071	670F032F071	670F040F071	670F050F071
	07-2	670F025F072	670F032F072	670F040F072	670F050F072
	07-3	670F025F073	670F032F073	670F040F073	670F050F073
	08-1	670F025F081	670F032F081	670F040F081	670F050F081
	08-2	670F025F082	670F032F082	670F040F082	670F050F082
	08-3	670F025F083	670F032F083	670F040F083	670F050F083

DN →		25x40	32x50	40x65	50x80	65x100	80x125	100x150
673	01-1	673F025G011	673F032G011	673F040G011	673F050G011	673F065G011	673F080G011	673F100G011
	02-1	673F025G021	673F032G021	673F040G021	673F050G021	673F065G021	673F080G021	673F100G021
	03-1	673F025G031	673F032G031	673F040G031	673F050G031	673F065G031	673F080G031	673F100G031
	04-1	673F025G041	673F032G041	673F040G041	673F050G041	673F065G041	673F080G041	673F100G041
	05-1	673F025G051	673F032G051	673F040G051	673F050G051	673F065G051	673F080G051	673F100G051
	06-1	673F025F061	673F032F061	673F040F061	673F050F061	673F065F061	673F080F061	673F100F061
	07-1	673F025F071	673F032F071	673F040F071	673F050F071	673F065F071	673F080F071	673F100F071
	08-1	673F025F081	673F032F081	673F040F081	673F050F081	673F065F081	673F080F081	673F100F081

DN →		25x40	32x50	40x65	50x80	65x100	80x125	100x150
674	01-1	674F025G011	674F032G011	674F040G011	674F050G011	674F065G011	674F080G011	674F100G011
	02-1	674F025G021	674F032G021	674F040G021	674F050G021	674F065G021	674F080G021	674F100G021
	03-1	674F025G031	674F032G031	674F040G031	674F050G031	674F065G031	674F080G031	674F100G031
	04-1	674F025G041	674F032G041	674F040G041	674F050G041	674F065G041	674F080G041	674F100G041
	05-1	674F025G051	674F032G051	674F040G051	674F050G051	674F065G051	674F080G051	674F100G051

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	06-1	674F025F061	674F032F061	674F040F061	674F050F061	674F065F061	674F080F061	674F100F061
	07-1	674F025F071	674F032F071	674F040F071	674F050F071	674F065F071	674F080F071	674F100F071
	08-1	674F025F081	674F032F081	674F040F081	674F050F081	674F065F081	674F080F081	674F100F081

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