

INFORMATION SHEET



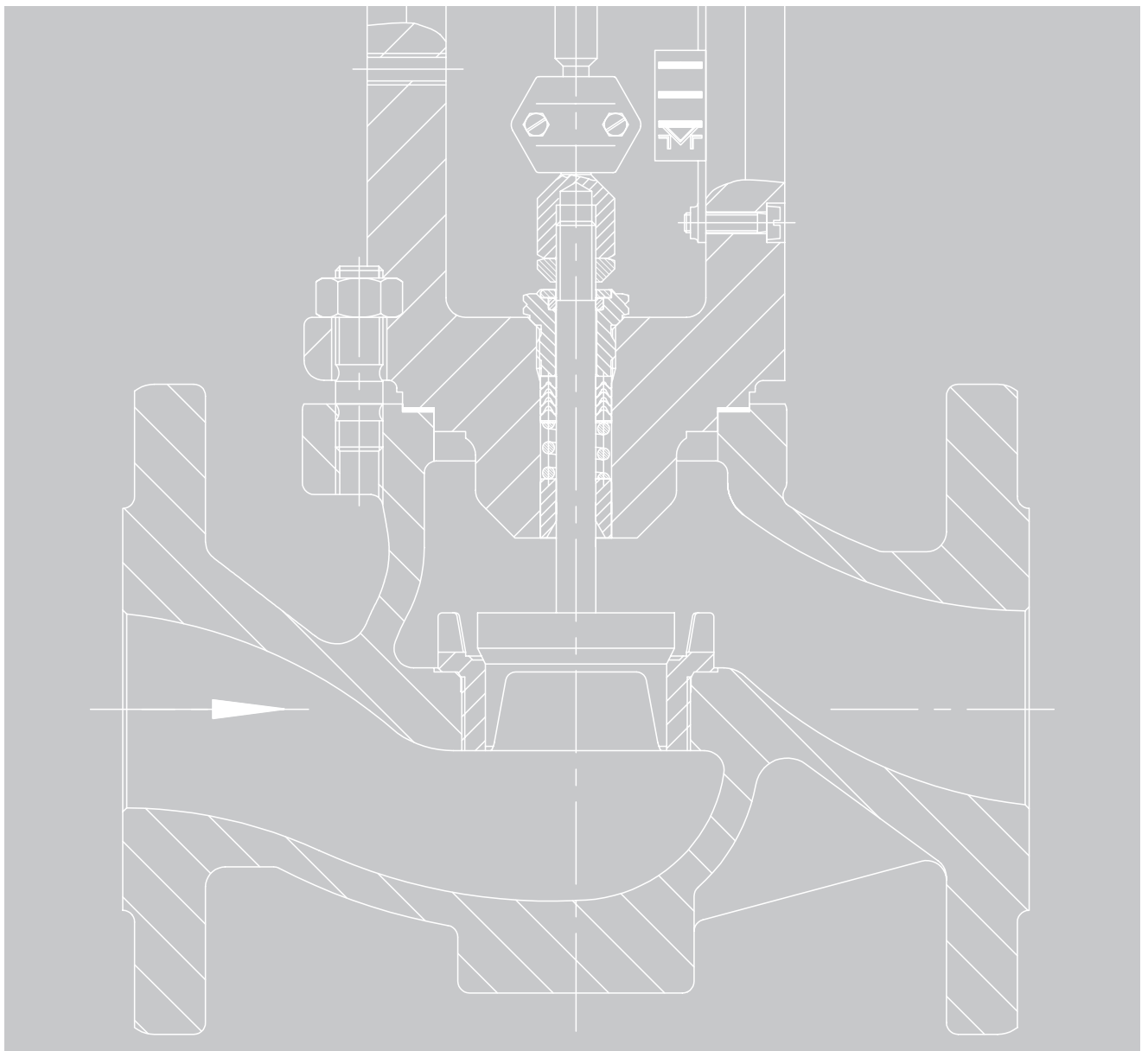
T 8000-2 EN

Electric and Pneumatic Control Valves

Series 240 • 250 • 280 • 290 • SAMSON PFEIFFER

Materials and pressure-temperature diagrams

DN 10 to 600 • PN 10 to 400 • -200 to +700 °C
NPS ¼ to 24 • Class 125 to 2500 • -328 to +1292 °F
DN 15A to 250A • JIS 10K/20K • -200 to +500 °C



Contents

1	Materials according to DIN and ANSI/ASME	3
	Table 1: Valve materials and pressure ratings – DIN versions	3
	Table 2: Valve materials and pressure ratings – ANSI versions	3
2	Pressure-temperature diagrams · DIN EN materials.....	4
2.1	Cast iron EN-GJL-250 · EN-JL1040	4
2.2	Spheroidal graphite iron EN-GJS-400-18U-LT · EN-JS1049	4
2.3	Cast steel GP240GH · 1.0619	5
2.4	Cast steel G9Ni14 · 1.5638	5
2.5	Cast steel G20Mn5 · 1.6220	6
2.6	Cast steel G17CrMo5-5 · 1.7357	6
2.7	Cast steel G17CrMo9-10 · 1.7379	7
2.8	Cast stainless steel GX5CrNiMo19-11-2 · 1.4408	7
2.9	Cast stainless steel GX5CrNiMoNb19-11-2 · 1.4581	8
2.10	Cast stainless steel GX5CrNi19-10 · 1.4308	8
2.11	Forged steel P250GH · 1.0460	9
2.12	Forged stainless steel X2CrNiMo17-12-2 · 1.4404	9
2.13	Forged stainless steel X6CrNiMoTi17-12-2 · 1.4571	10
3	Pressure-temperature diagrams · ASTM materials	11
3.1	Cast iron · A126B	11
3.2	Cast steel · A216 WCC	12
3.3	Cast steel · A217 WC6	13
3.4	Cast steel · A217 WC9	14
3.5	Cast steel · A352 LCC	15
3.6	Cast steel · A352 LC3	16
3.7	Cast stainless steel · A351 CF8M	17
3.8	Cast stainless steel · A351 CF8	18
3.9	Forged stainless steel · F316L	19
4	Permissible operating pressures	20
	Table 3: Permissible operating pressure depending on temperature · DIN versions	20
	Table 4: Permissible operating pressure depending on temperature · ANSI versions	23

1 Materials according to DIN and ANSI/ASME

The table below lists the body materials that are most frequently used at SAMSON together with their temperature ranges and possible pressure ratings.

The limits of application of these materials are specified in the associated pressure-temperature diagrams on the following pages. Details on special materials are available on request.

The restrictions specified in the data sheets also apply in addition to the pressure-temperature diagrams in this Information Sheet.

Table 1: Valve materials and pressure ratings – DIN versions

For Series 240 (•) and Series 250, 280 and 290 (x)

Material	Short name	EN material number	Temperature range in °C	PN								
				10 16	25	40	63	100	160	250	320	400
Cast iron	EN-GJL-250	EN-JL1040 (GG 25)	-10 to +300	•								
Spheroidal graphite iron	EN-GJS-400-18U-LT	EN-JS1049 (GGG 40.3)	-10 to +350	•	•							
Cast steel	GP240GH	1.0619	-29 to +400	•	•	• X	X	X	X	X	X	X
	G9Ni14	1.5638	-90 to +300	•	•	• X	X	X	X	X	X	X
	G20Mn5	1.6220	-50 to +300	•	•	• X	X	X	X	X	X	X
	G17CrMo5-5	1.7357	-10 to +500			X	X	X	X	X	X	X
	G17CrMo9-10	1.7379	-10 to +600			X	X	X	X	X	X	X
Cast stainless steel	GX5CrNiMo19-11-2	1.4408	-200 to +700	•	•	• X	X	X	X	X	X	X
	GX5CrNiMoNb19-11-2	1.4581	-10 to +550	•	•	• X	X	X	X	X	X	X
	GX5CrNi19-10	1.4308	-200 to +300	•	•	• X	X	X	X	X	X	X
Forged steel	P250GH	1.0460	-29 to +400	•	•	•						
Forged stainless steel	X2CrNiMo17-12-2	1.4404	-200 to +500	•	•	•	X	X	X	X	X	X
	X6CrNiMoTi17-12-2	1.4571	-200 to +550	•	•	•						

Table 2: Valve materials and pressure ratings – ANSI versions

For Series 240 (•) and Series 250, 280 and 290 (x)

Material	Short name	Temperature range in °C	Class								
			125	150	250	300	600	900	1500	2500	
Cast iron	A126B	-29 to +232	•		•						
Cast steel	A216 WCC	-29 to +425		•		• X	X	X	X	X	X
	A217 WC6	-29 to +500				X	X	X	X	X	
	A217 WC9	-29 to +600		•		X	X	X	X	X	
	A352 LCC	-46 to +345		•		• X	X	X	X	X	
	A352 LC3	-101 to +345		•		• X	X	X	X	X	
Cast stainless steel	A351 CF8M	-254 to +700		•		• X	X	X	X	X	
	A351 CF8	-254 to +538		•		• X	X	X	X	X	
Forged stainless steel	A316L	-254 to +538		•		•	X	X	X	X	

2 Pressure-temperature diagrams · DIN EN materials

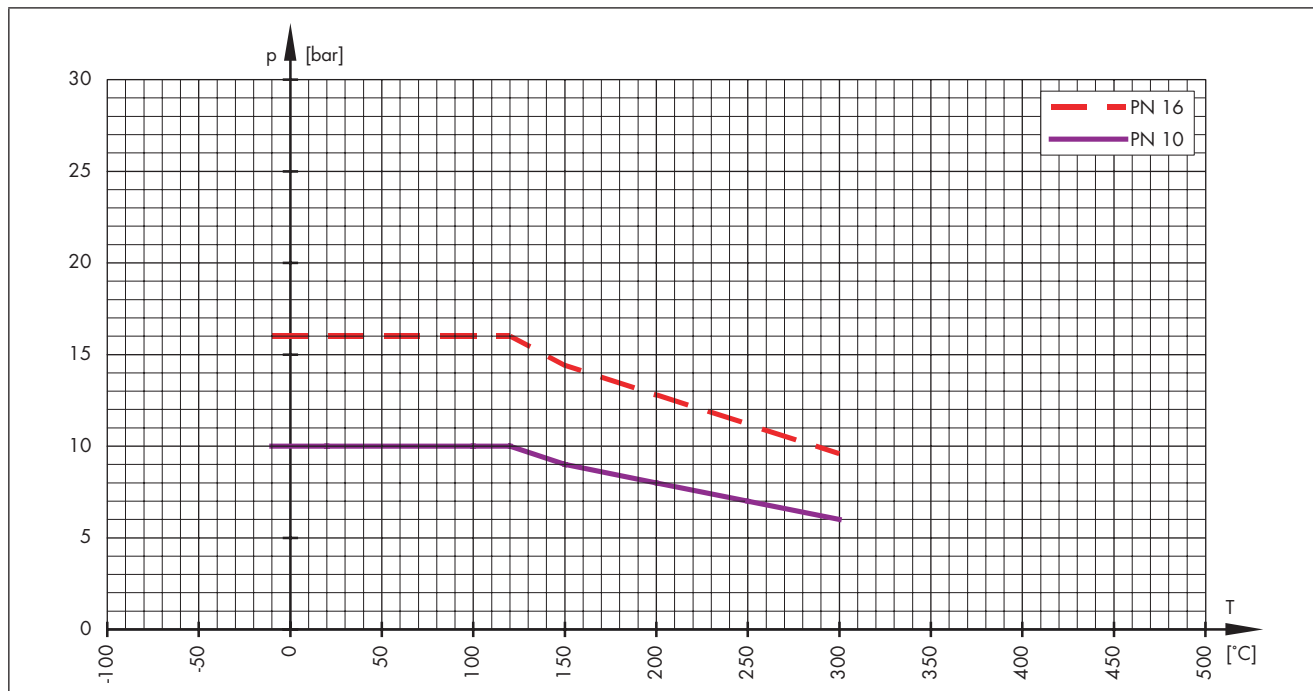
The pressure-temperature diagrams as well as the pressure and temperature specifications in the corresponding data sheets determine the maximum permissible limits of application of the valve. It is possible that these limits are restricted by factors, such as the design of the seat and plug. For typetested versions, the limits may be restricted by the applicable safety regulations.

Further details can be found in the technical data tables in the corresponding data sheet.

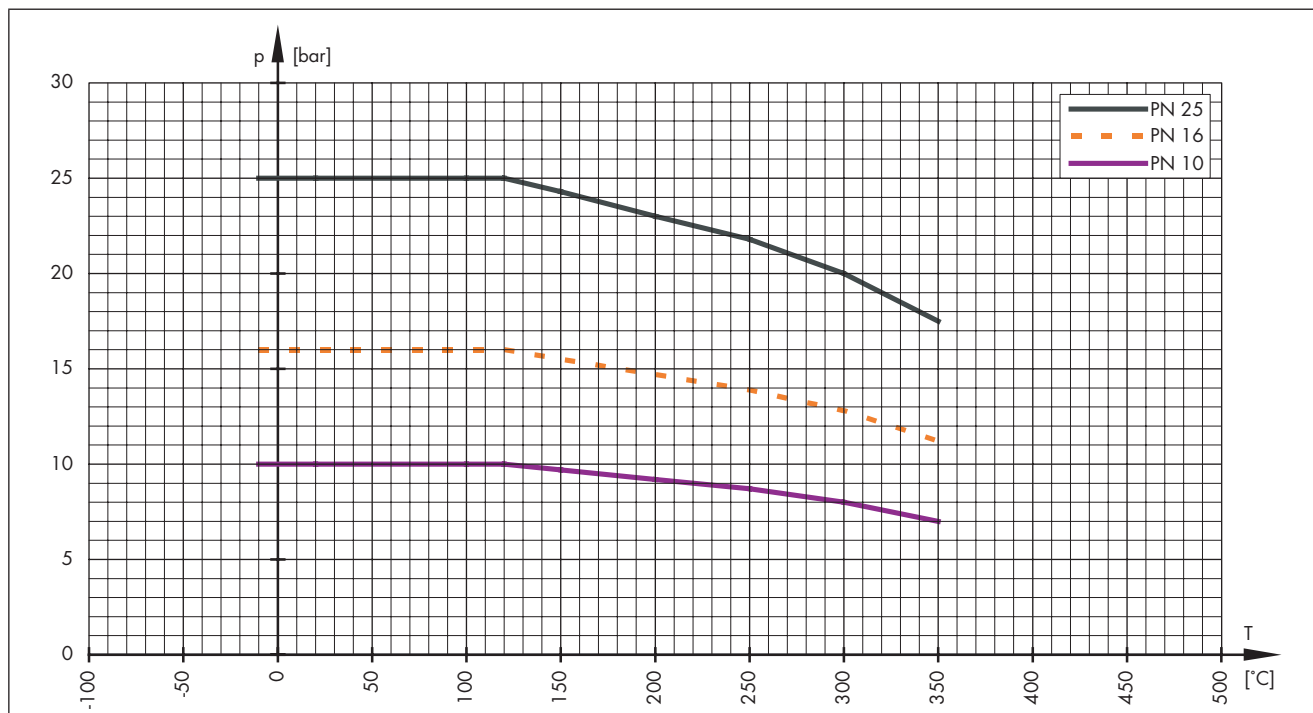
Note that the possible formation of ice on the valve body or plug stem when the medium temperature falls below 0 °C is not taken into account.

All pressures specified in bar/g.

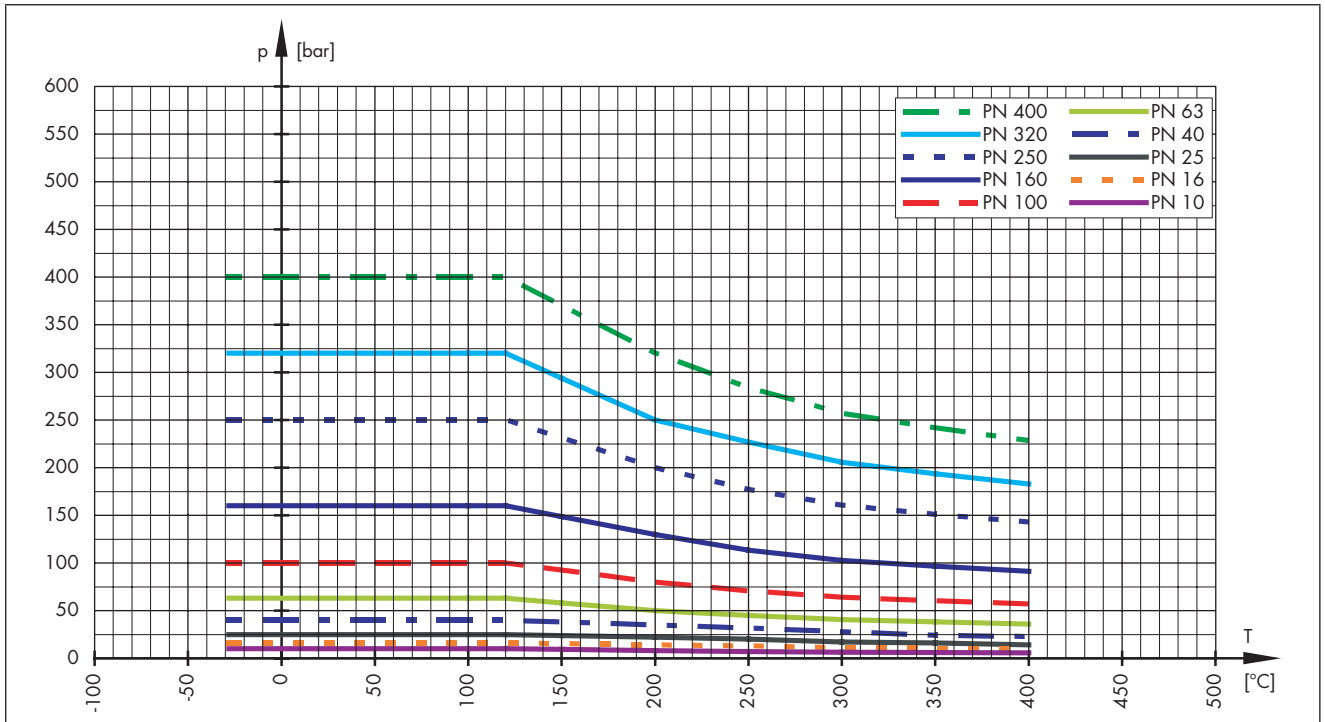
2.1 Cast iron EN-GJL-250 · EN-JL1040



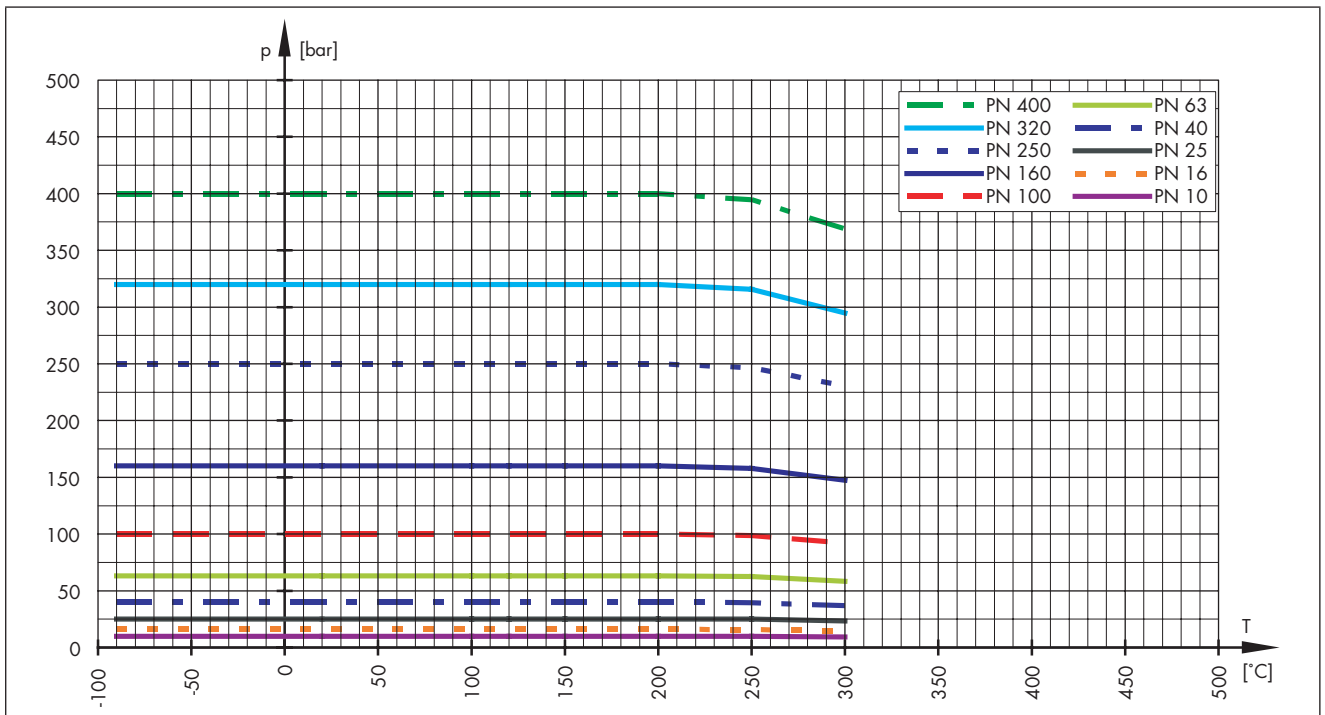
2.2 Spheroidal graphite iron EN-GJS-400-18U-LT · EN-JS1049



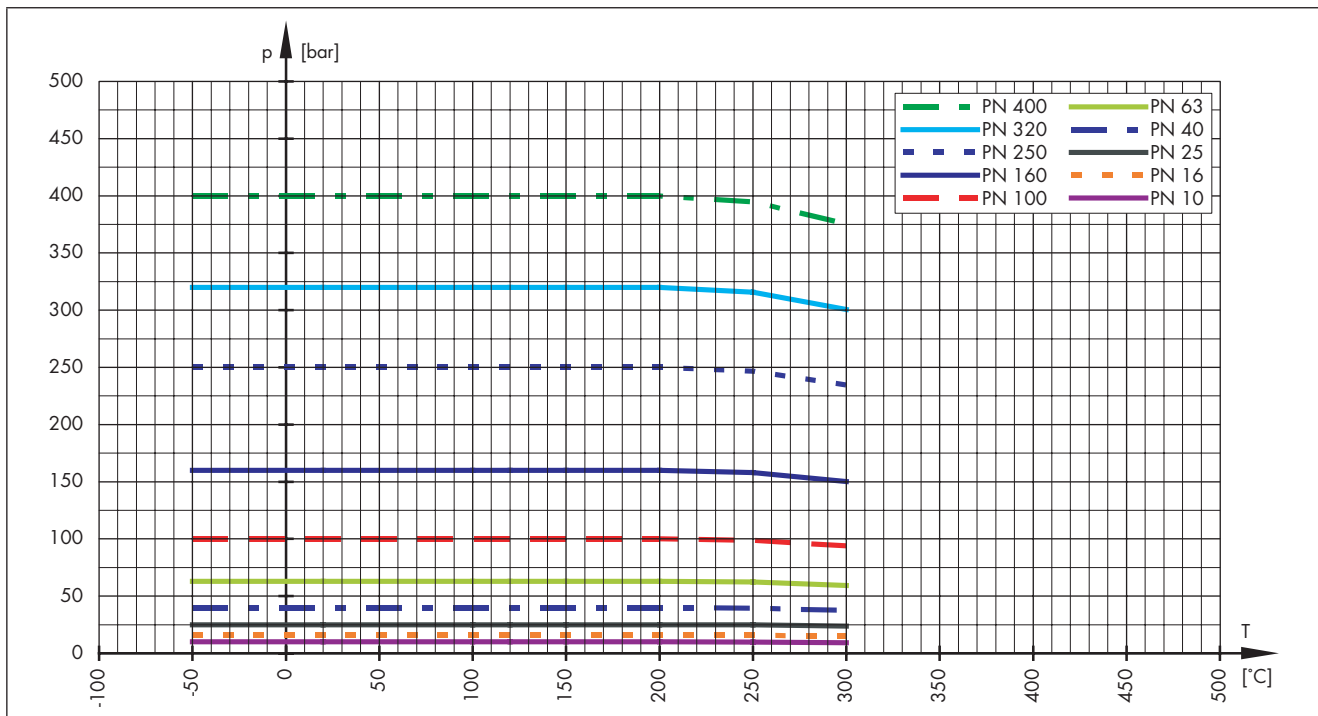
2.3 Cast steel GP240GH · 1.0619



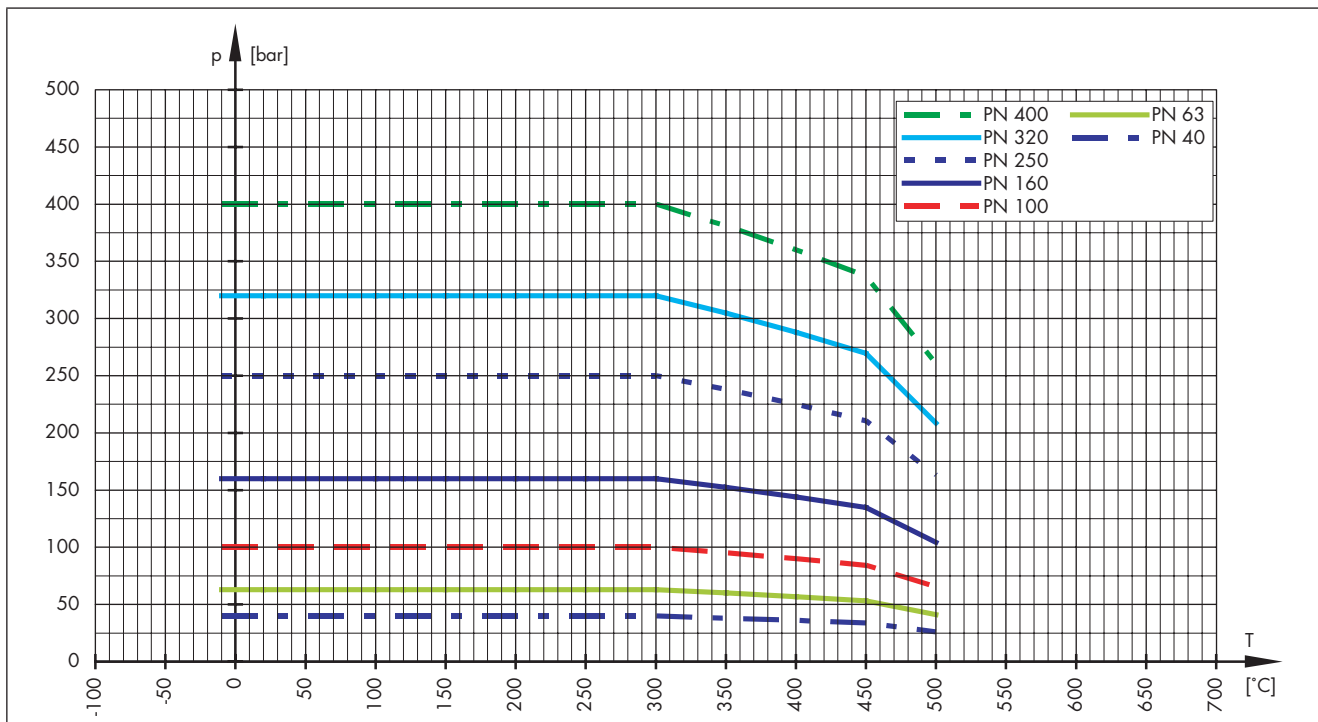
2.4 Cast steel G9Ni14 · 1.5638



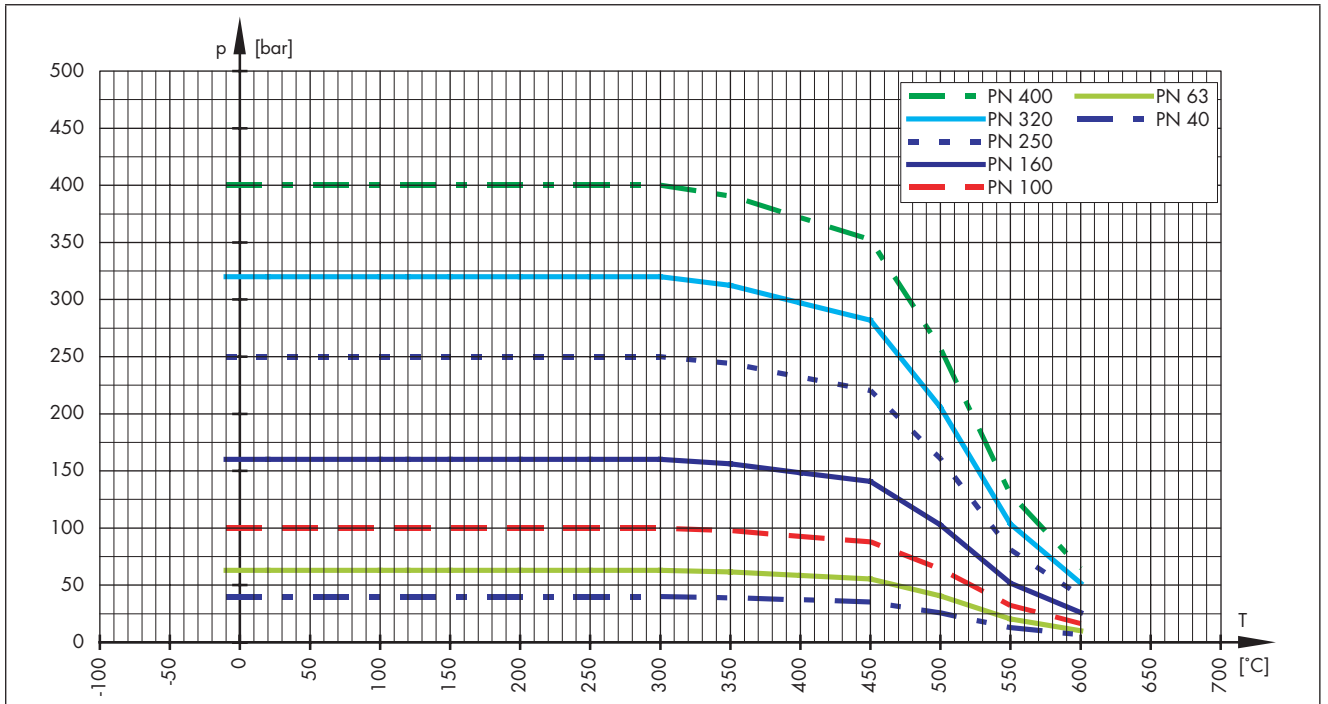
2.5 Cast steel G20Mn5 · 1.6220



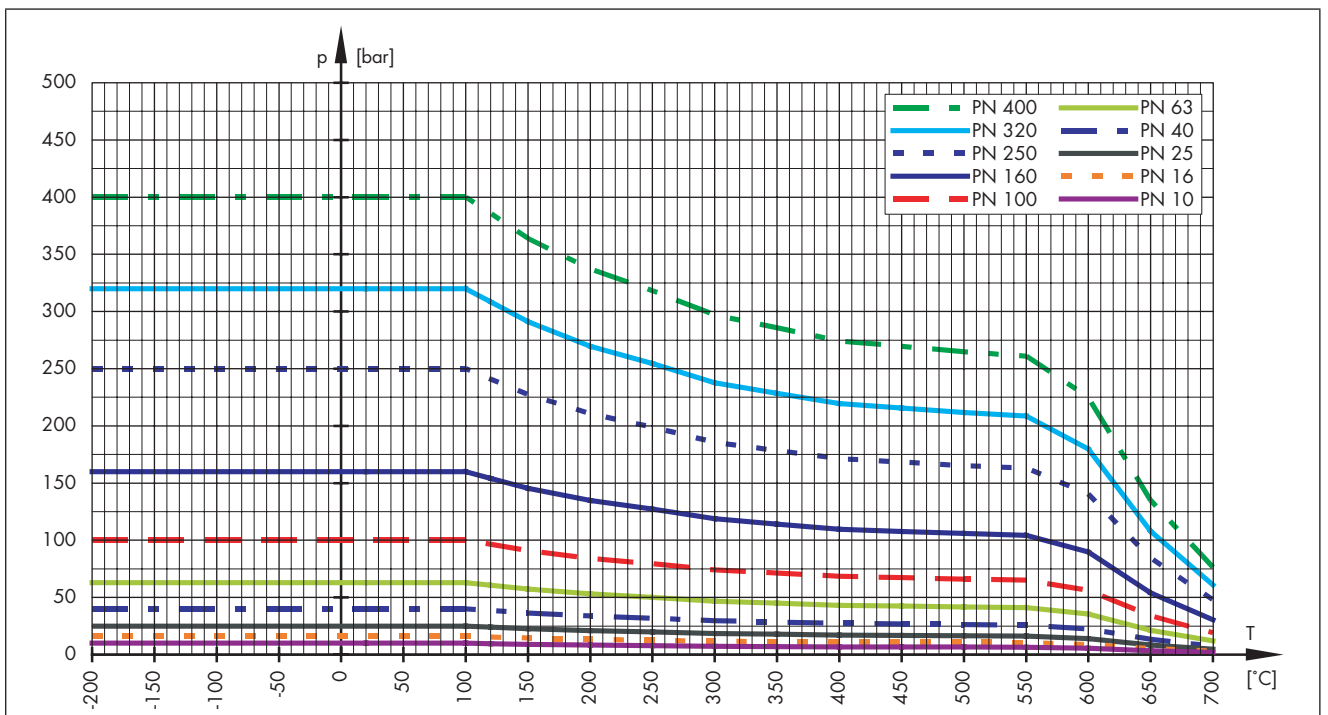
2.6 Cast steel G17CrMo5-5 · 1.7357



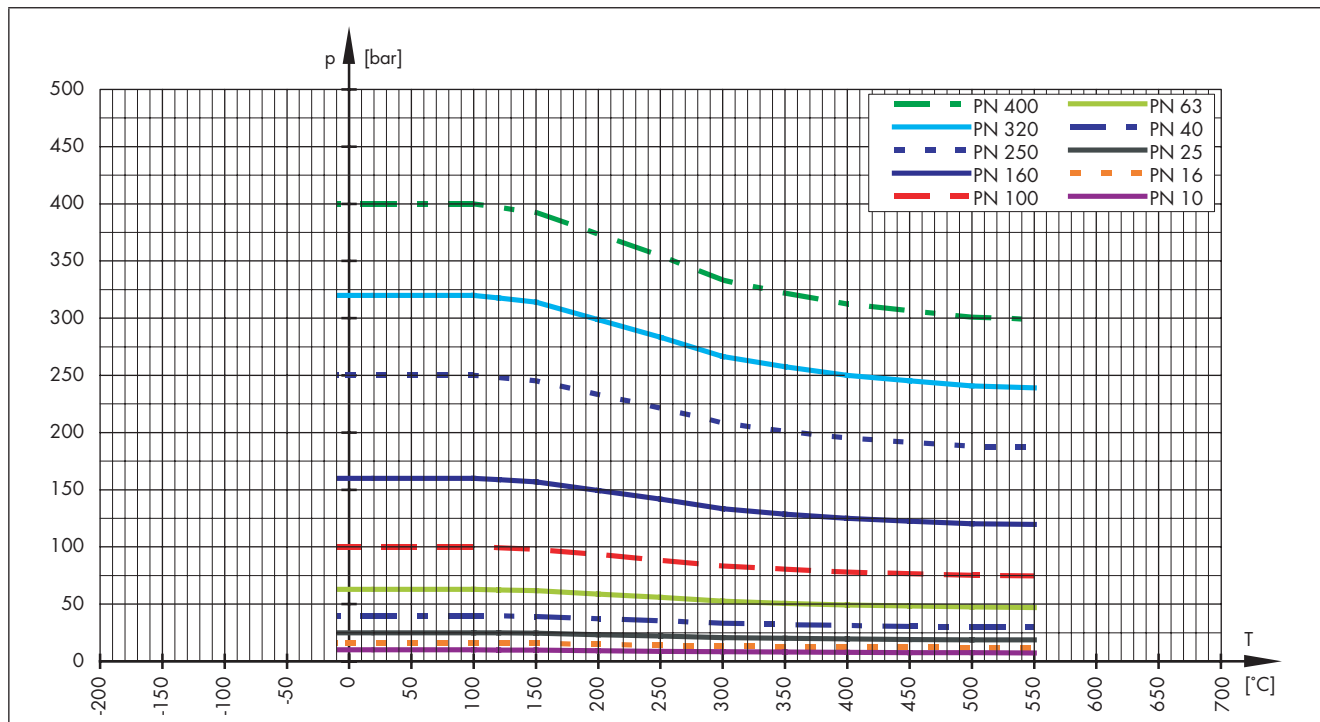
2.7 Cast steel G17CrMo9-10 · 1.7379



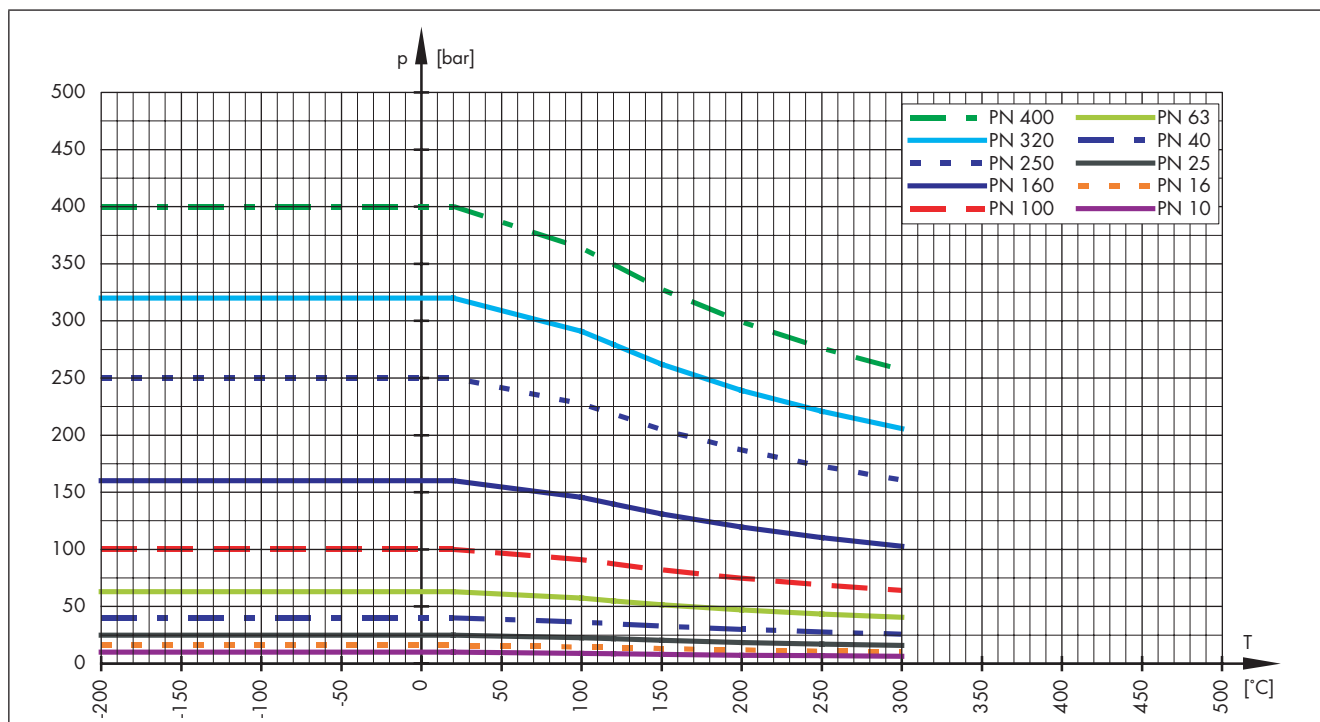
2.8 Cast stainless steel GX5CrNiMo19-11-2 · 1.4408



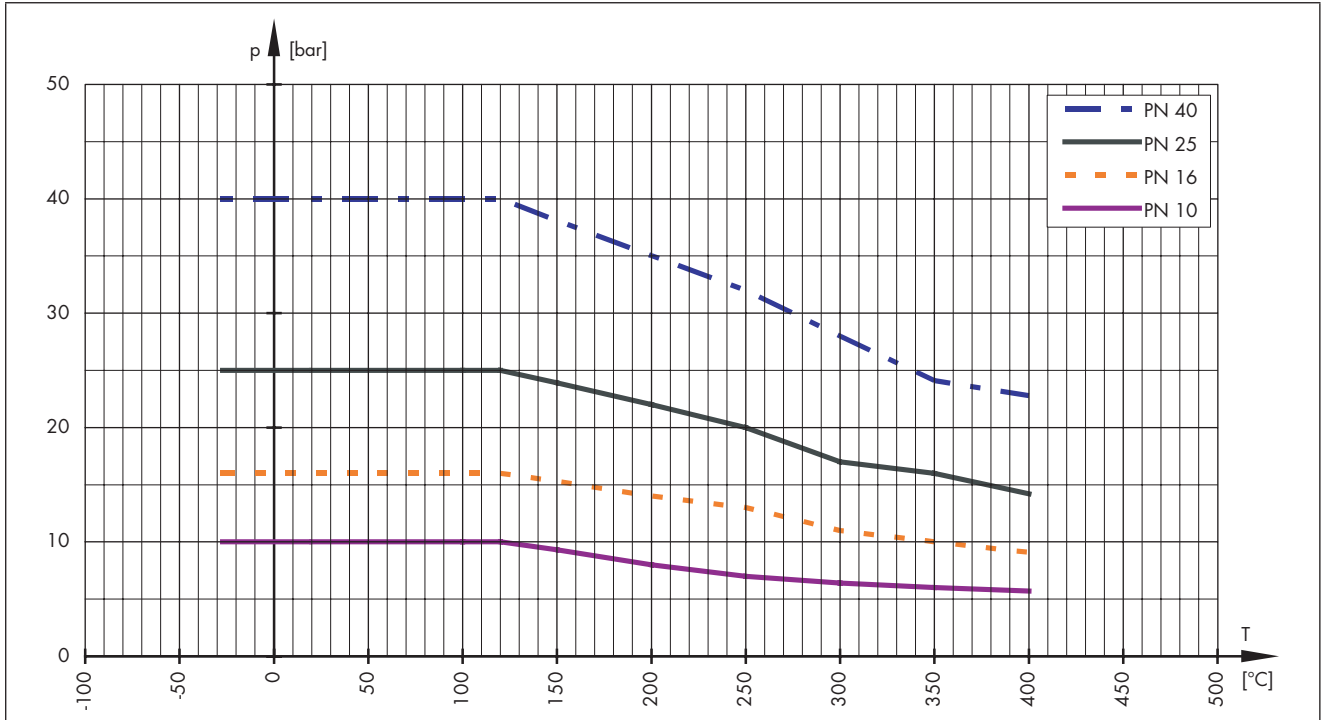
2.9 Cast stainless steel GX5CrNiMoNb19-11-2 · 1.4581



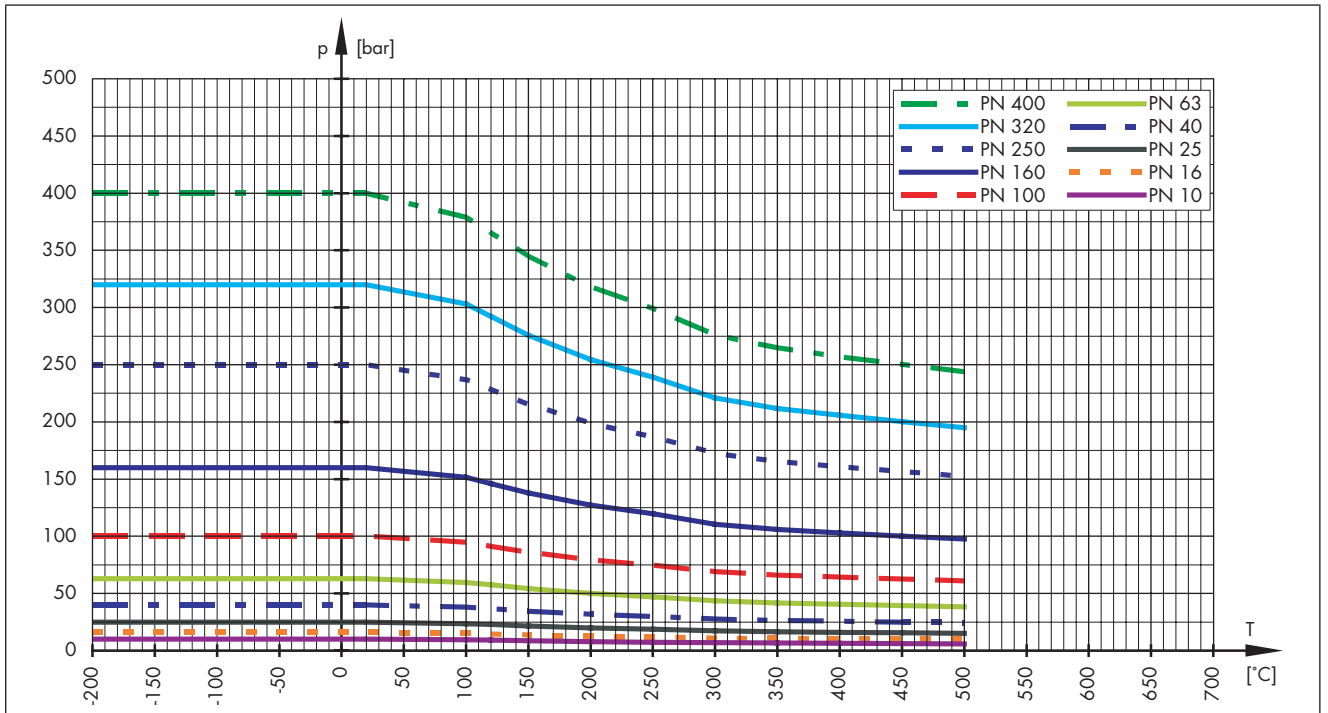
2.10 Cast stainless steel GX5CrNi19-10 · 1.4308



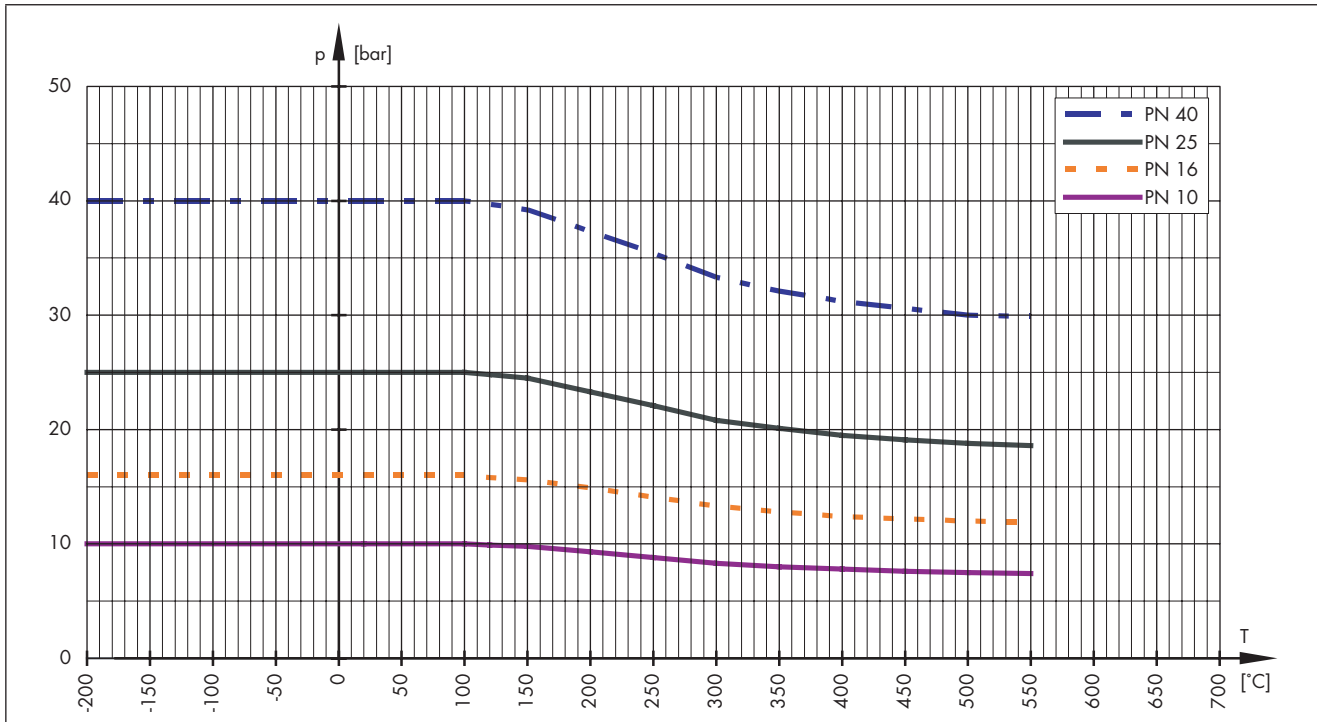
2.11 Forged steel P250GH · 1.0460



2.12 Forged stainless steel X2CrNiMo17-12-2 · 1.4404



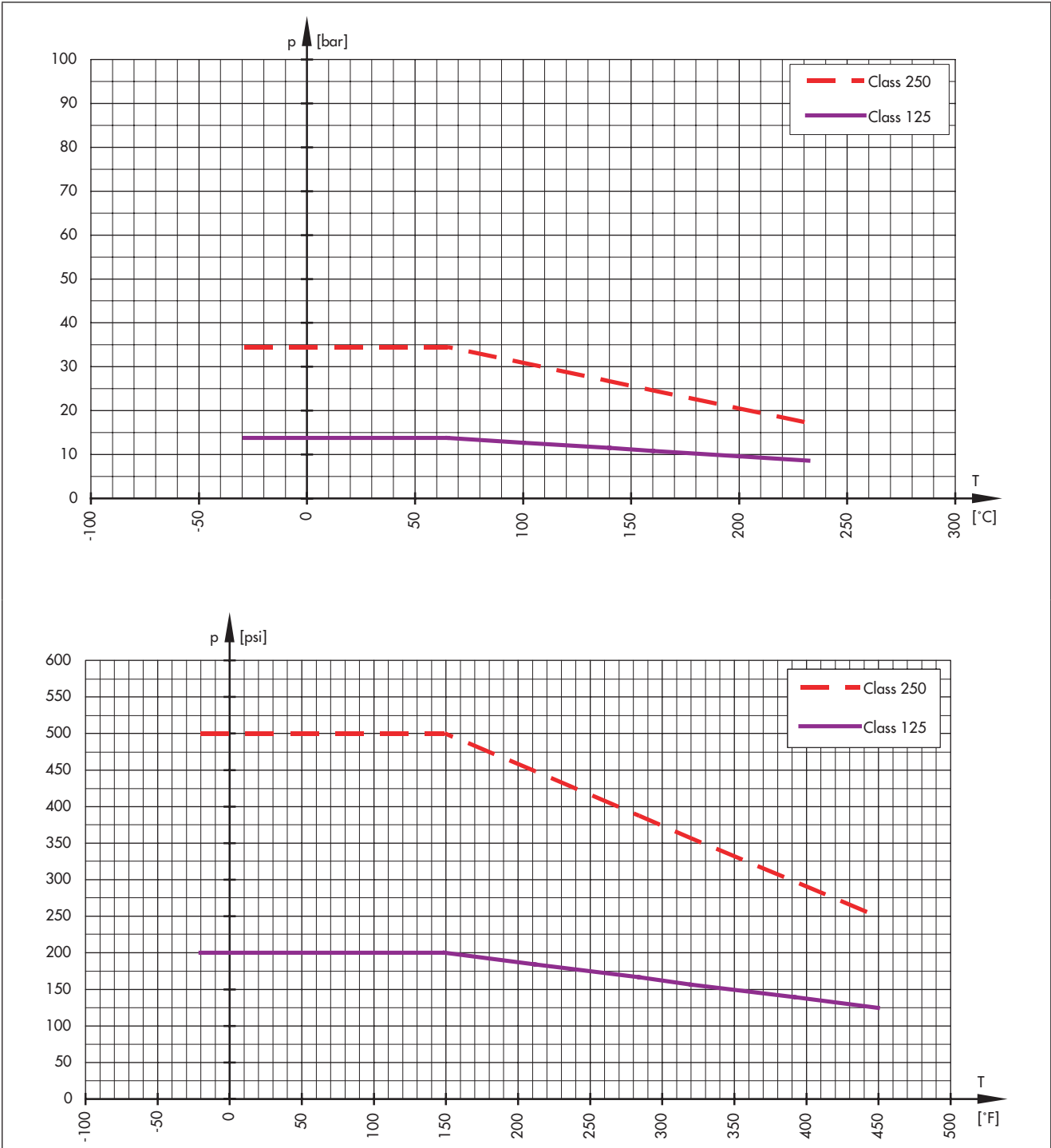
2.13 Forged stainless steel X6CrNiMoTi17-12-2 · 1.4571



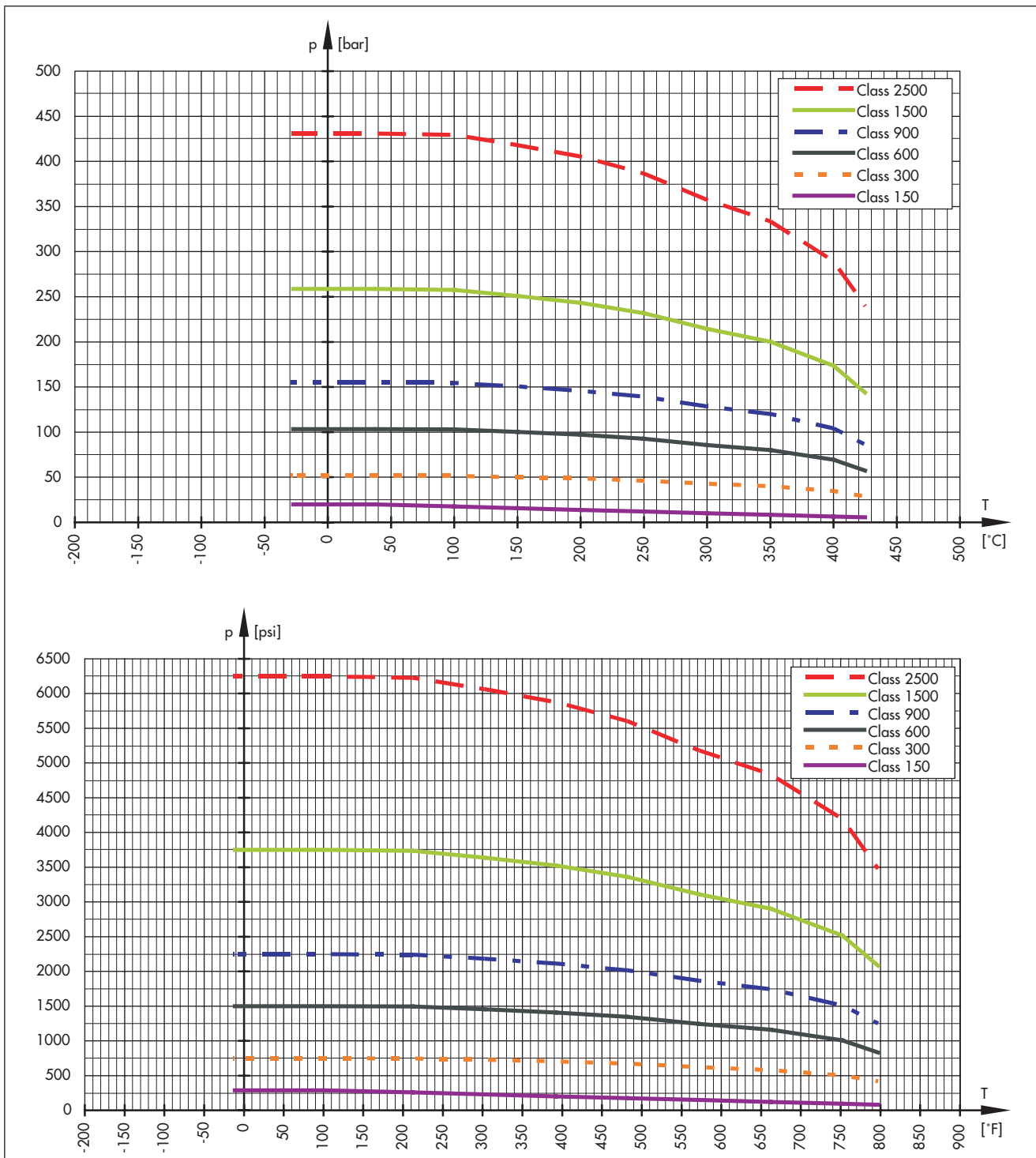
3 Pressure-temperature diagrams · ASTM materials

All pressures specified in bar/g.

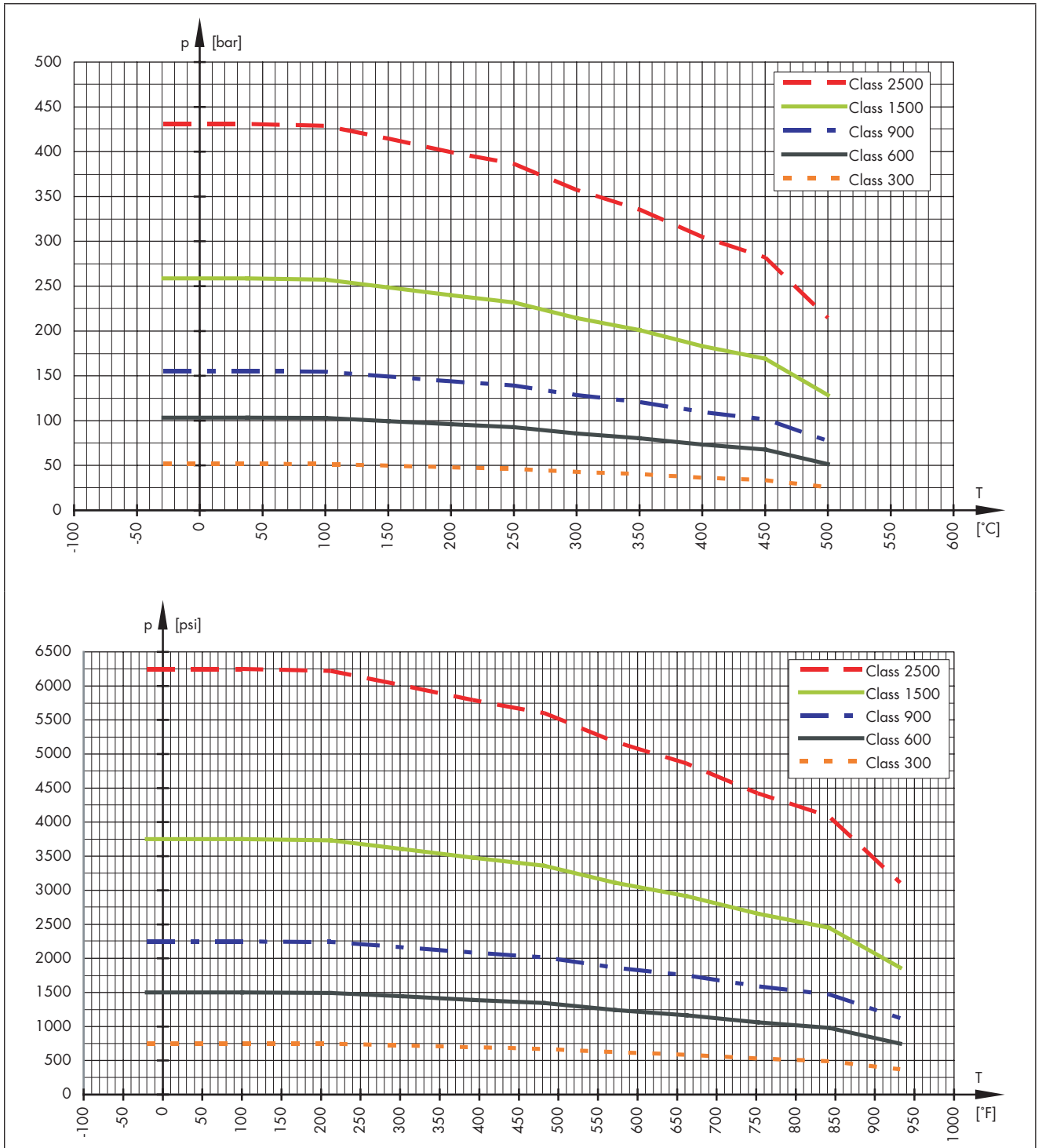
3.1 Cast iron · A126B



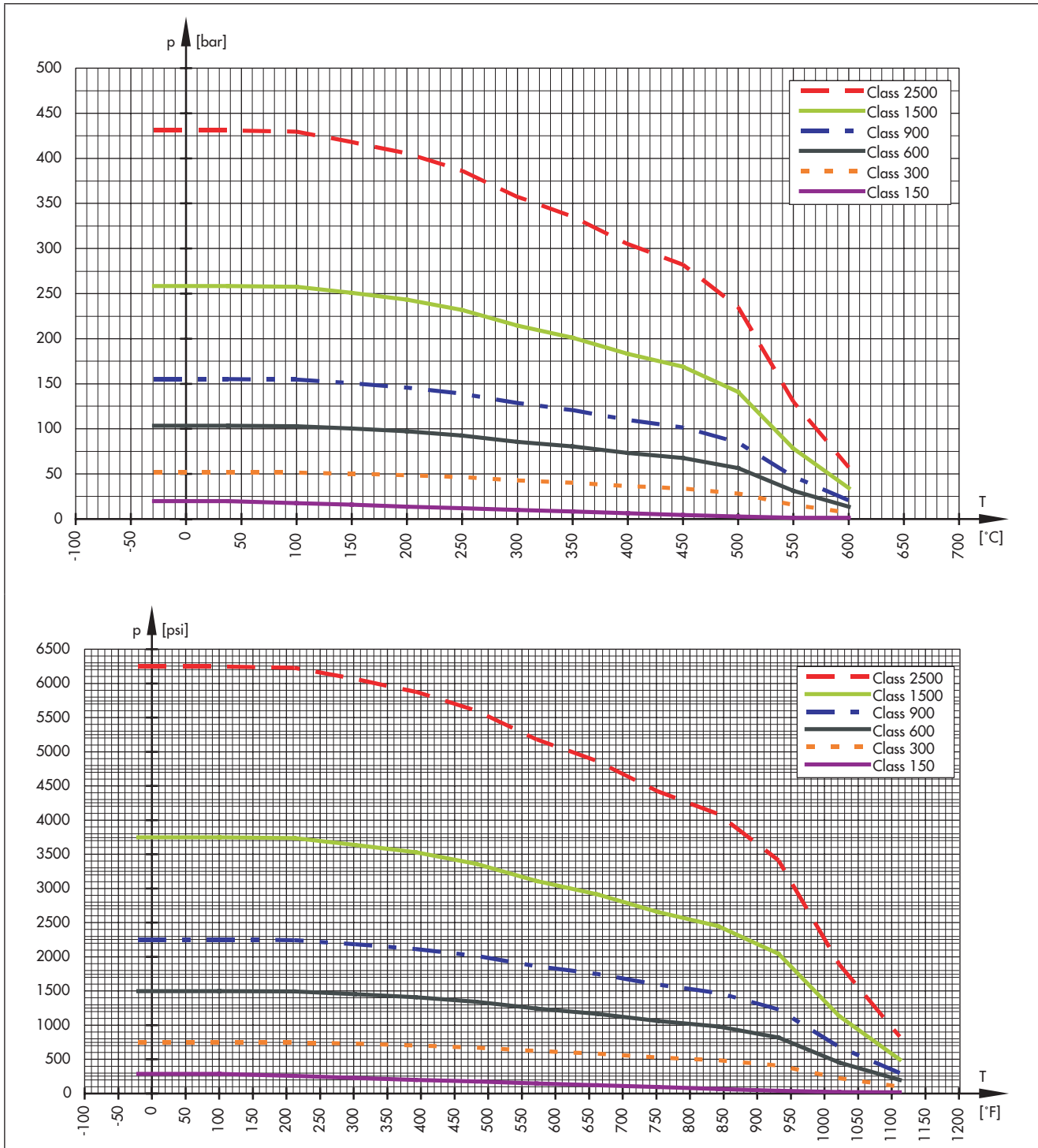
3.2 Cast steel - A216 WCC



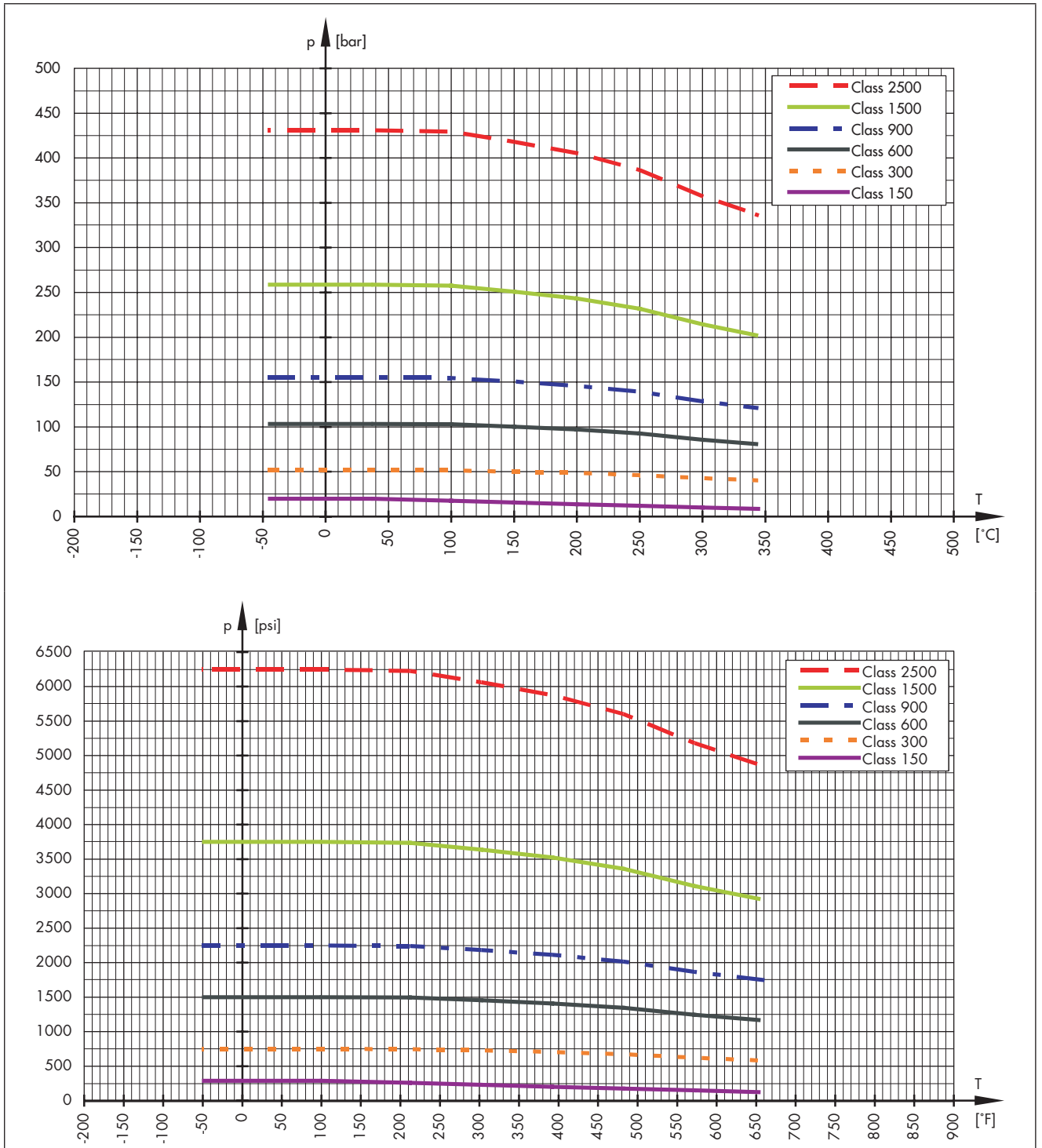
3.3 Cast steel · A217 WC6



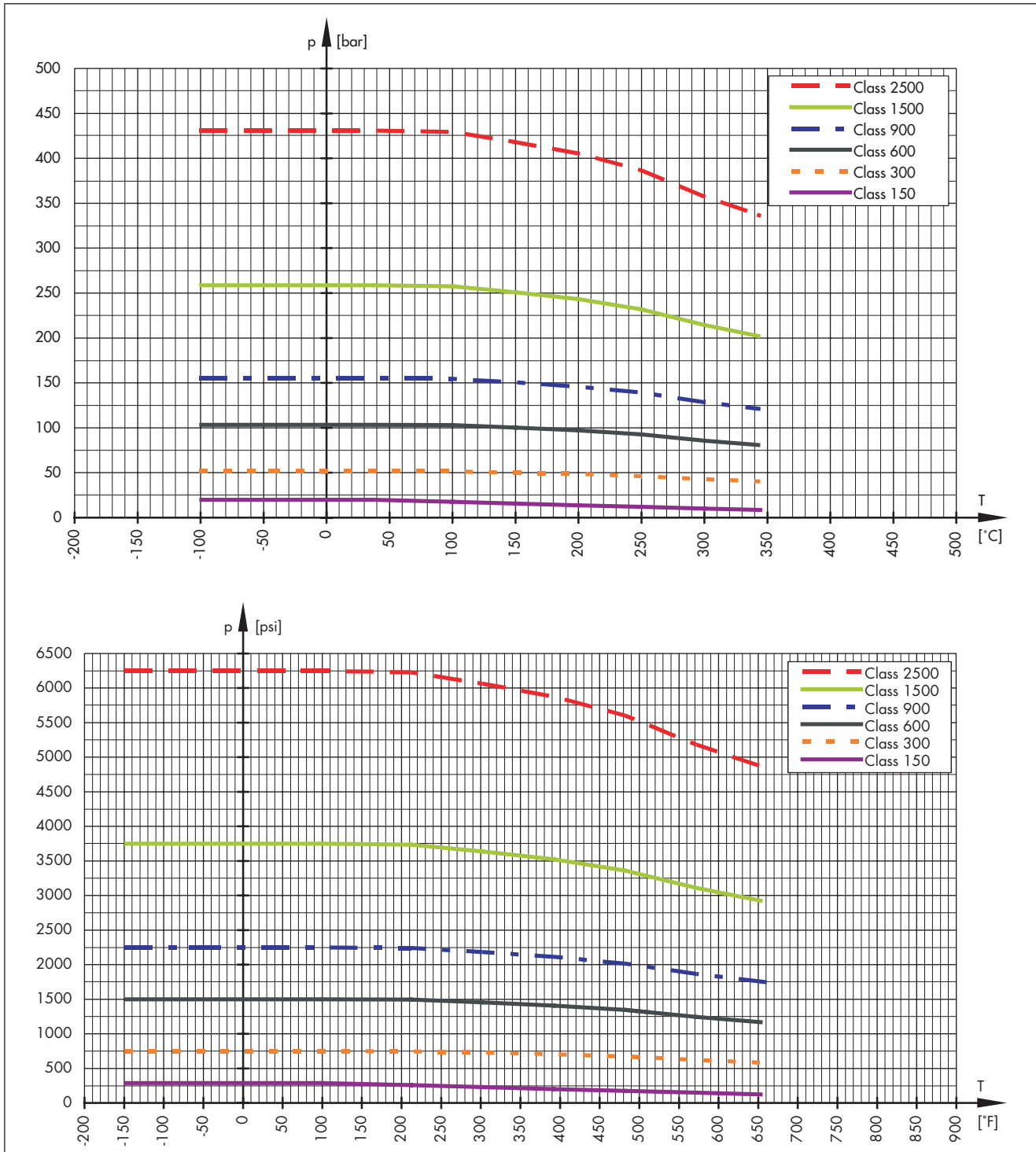
3.4 Cast steel - A217 WC9



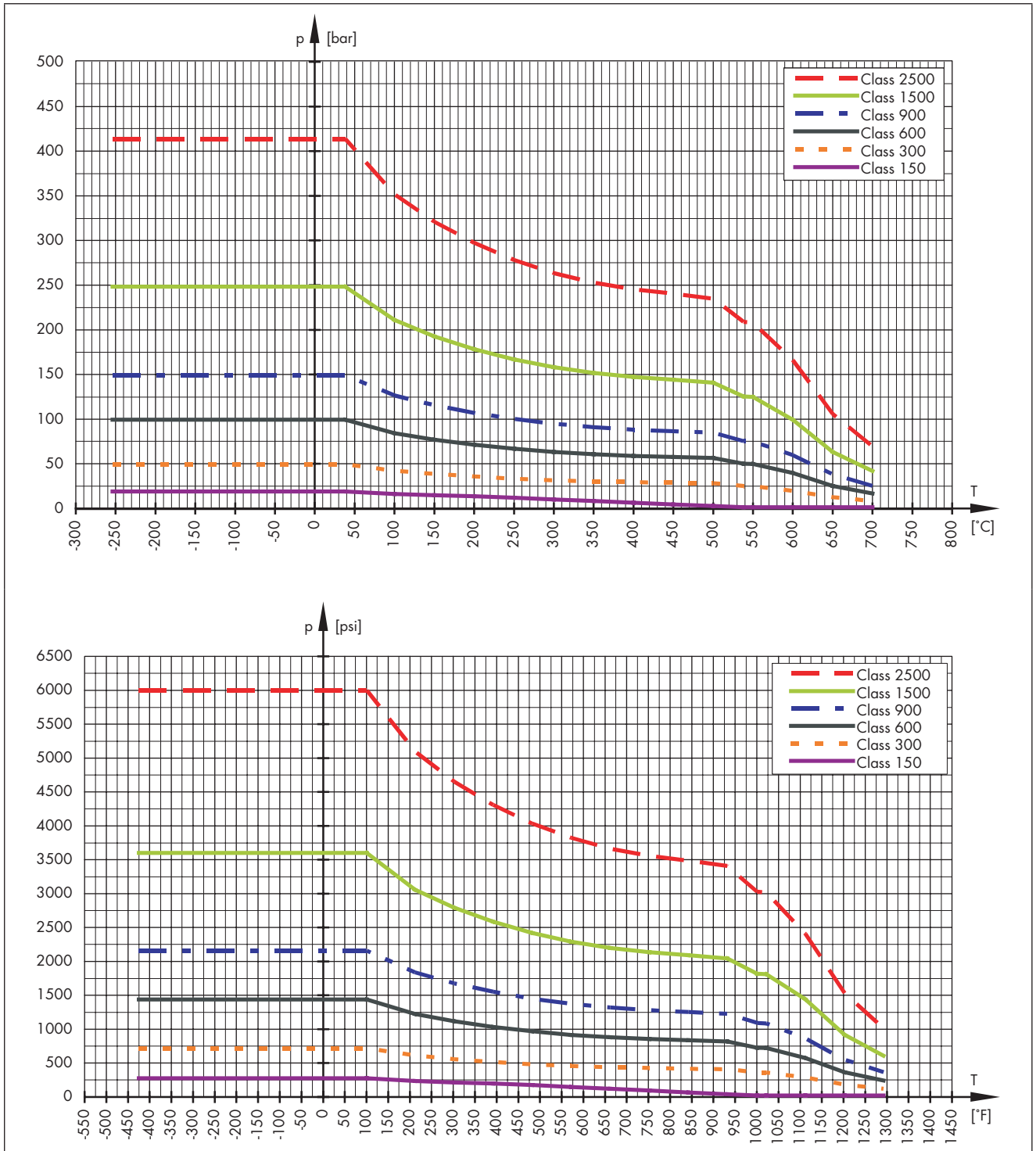
3.5 Cast steel · A352 LCC



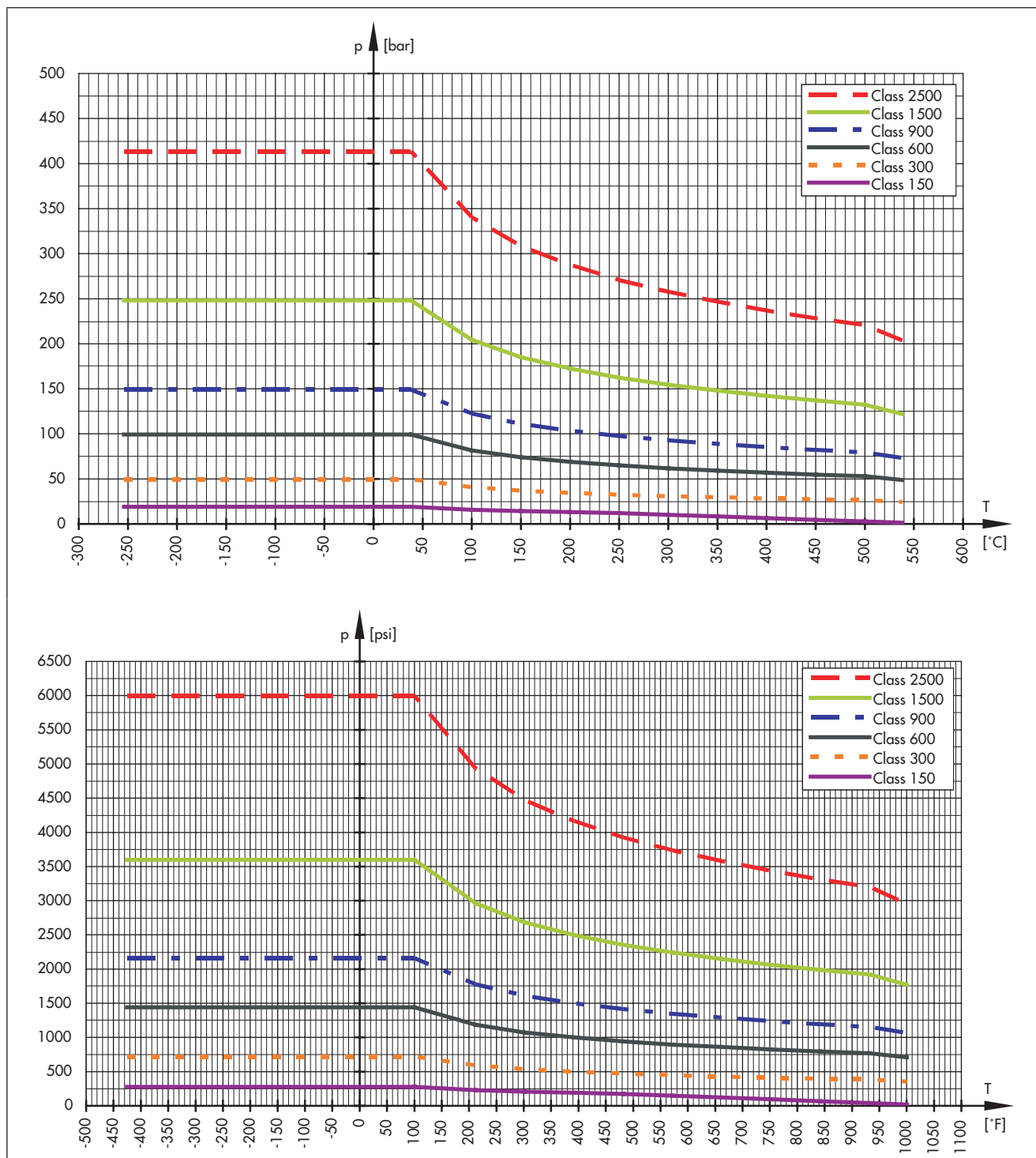
3.6 Cast steel - A352 LC3



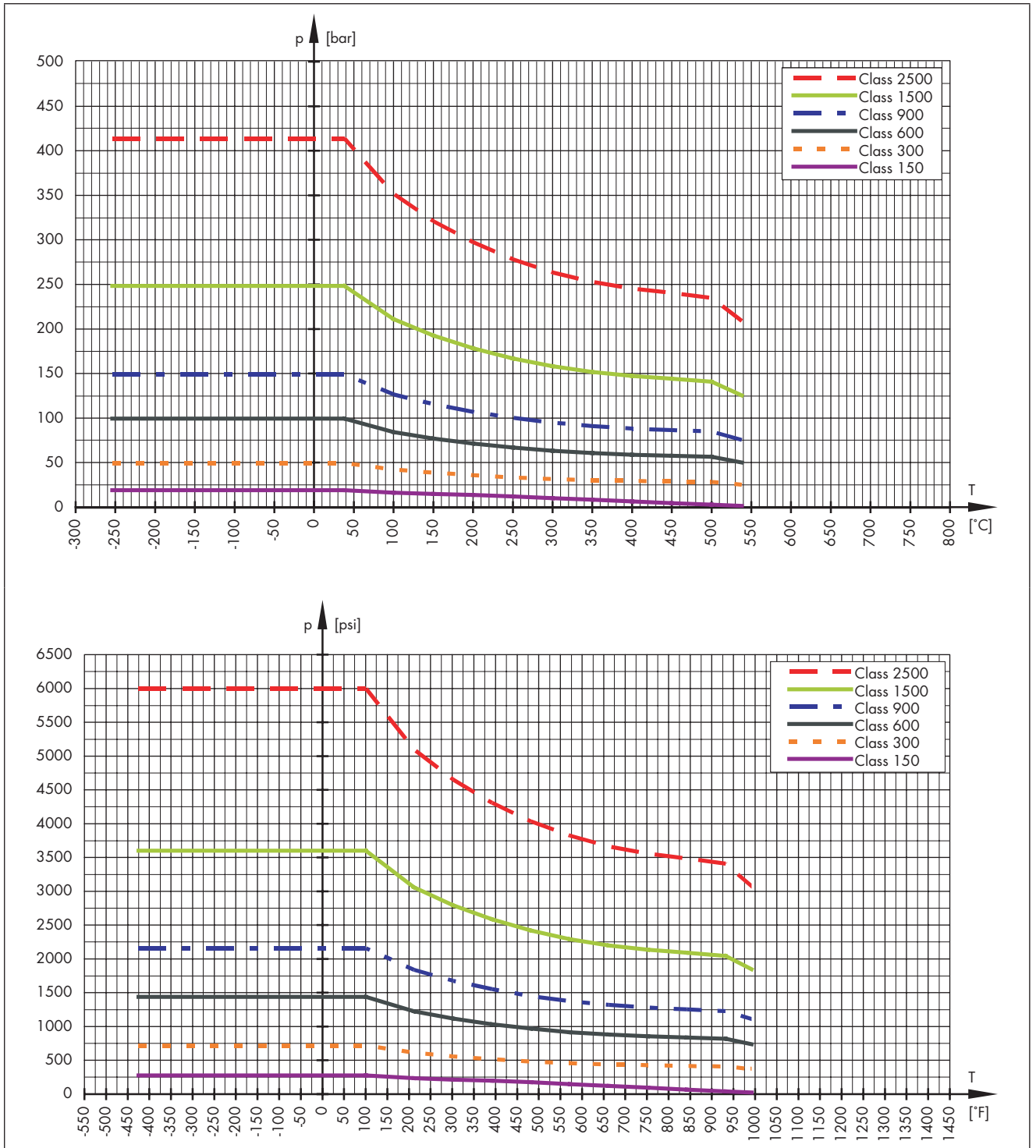
3.7 Cast stainless steel · A351 CF8M



3.8 Cast stainless steel · A351 CF8



3.9 Forged stainless steel · F316L



4 Permissible operating pressures

All pressures specified in bar/g.

Table 3: Permissible operating pressure depending on temperature · DIN versions

Pressures in bar

Cast iron EN-GJL-250 · EN-JL1040 (–10 to +300 °C)																
Temp. in °C	–10	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	9.0	8.0	7.0	6.0	–							
PN 16	16.0	16.0	16.0	16.0	14.4	12.8	11.2	9.6								
Spheroidal graphite iron EN-GJS-400-18U-LT · EN-JS1049 (–10 to +350 °C)																
Temp. in °C	–10	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	9.7	9.2	8.7	8.0	7.0	–						
PN 16	16.0	16.0	16.0	16.0	15.5	14.7	13.9	12.8	11.2							
PN 25	25.0	25.0	25.0	25.0	24.3	23.0	21.8	20.0	17.5							
Cast steel GP240GH · 1.0619 (–29 to +400 °C)																
Temp. in °C	–29	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	9.3	8.0	7.0	6.4	6.0	5.7	–					
PN 16	16.0	16.0	16.0	16.0	15.3	14.0	13.0	11.0	10.0	9.1						
PN 25	25.0	25.0	25.0	25.0	23.9	22.0	20.0	17.0	16.0	14.2						
PN 40	40.0	40.0	40.0	40.0	38.1	35.0	32.0	28.0	24.1	22.8						
PN 63	63.0	63.0	63.0	63.0	58.1	50.0	45.0	40.5	38.1	36.0						
PN 100	100.0	100.0	100.0	100.0	92.5	80.0	70.9	64.2	60.4	57.1						
PN 160	160.0	160.0	160.0	160.0	148.8	130.0	113.5	102.8	96.7	91.4						
PN 250	250.0	250.0	250.0	250.0	231.3	200.0	177.3	160.7	151.1	142.8						
PN 320	320.0	320.0	320.0	320.0	293.8	250.0	227.0	205.7	193.5	182.8						
PN 400	400.0	400.0	400.0	400.0	370.0	320.0	283.8	257.1	241.9	228.5						
Cast steel G9Ni14 · 1.5638 (–90 to +300 °C)																
Temp. in °C	–90	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	10.0	10.0	9.8	9.2	–							
PN 16	16.0	16.0	16.0	16.0	16.0	16.0	15.7	14.7								
PN 25	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.3								
PN 40	40.0	40.0	40.0	40.0	40.0	40.0	39.4	36.8								
PN 63	63.0	63.0	63.0	63.0	63.0	63.0	62.5	58.3								
PN 100	100.0	100.0	100.0	100.0	100.0	100.0	98.6	92.1								
PN 160	160.0	160.0	160.0	160.0	160.0	160.0	157.9	147.4								
PN 250	250.0	250.0	250.0	250.0	250.0	250.0	246.7	230.4								
PN 320	320.0	320.0	320.0	320.0	320.0	320.0	315.8	294.9								
PN 400	400.0	400.0	400.0	400.0	400.0	400.0	394.7	368.6								
Cast steel G20Mn5 · 1.6220 (–50 to +300 °C)																
Temp. in °C	–50	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	10.0	10.0	9.8	9.3	–							
PN 16	16.0	16.0	16.0	16.0	16.0	16.0	15.7	15.0								
PN 25	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.7								
PN 40	40.0	40.0	40.0	40.0	40.0	40.0	39.4	37.5								
PN 63	63.0	63.0	63.0	63.0	63.0	63.0	62.5	59.4								
PN 100	100.0	100.0	100.0	100.0	100.0	100.0	98.6	93.9								
PN 160	160.0	160.0	160.0	160.0	160.0	160.0	157.9	150.2								
PN 250	250.0	250.0	250.0	250.0	250.0	250.0	246.7	234.7								
PN 320	320.0	320.0	320.0	320.0	320.0	320.0	315.8	300.5								
PN 400	400.0	400.0	400.0	400.0	400.0	400.0	394.7	375.6								

Cast steel G17CrMo5-5 · 1.7357 (–10 to +500 °C)																
Temp. in °C	–10	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 40	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	38.0	36.0	33.7	26.0	–			
PN 63	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	60.0	56.7	53.1	41.1				
PN 100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.2	90.0	84.2	65.2				
PN 160	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	152.3	144.0	134.8	104.3				
PN 250	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	238.0	225.0	210.7	163.0				
PN 320	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	304.7	288.0	269.7	208.7				
PN 400	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	380.9	360.0	337.1	260.9				
Cast steel G17CrMo9-10 · 1.7379 (–10 to +600 °C)																
Temp. in °C	–10	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 40	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	39.0	37.1	35.2	25.7	12.9	6.4	–	
PN 63	63.0	63.0	63.0	63.0	63.0	63.0	63.0	63.0	61.5	58.5	55.5	40.5	20.4	10.2		
PN 100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	92.8	88.0	64.2	32.3	16.1		
PN 160	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	156.1	148.5	140.9	102.8	51.8	25.9		
PN 250	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	244.0	232.1	220.2	160.7	80.9	40.4		
PN 320	320.0	320.0	320.0	320.0	320.0	320.0	320.0	320.0	312.3	297.1	281.9	205.7	103.6	51.8		
PN 400	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	390.4	371.4	352.3	257.1	129.5	64.7		
Cast stainless steel GX5CrNiMo19-11-2 · 1.4408 (–200 to +700 °C)																
Temp. in °C	–200	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	9.6	9.0	8.4	7.9	7.4	7.1	6.8	6.7	6.6	6.5	5.6	3.4	1.9
PN 16	16.0	16.0	16.0	15.4	14.5	13.4	12.7	11.8	11.4	10.9	10.7	10.5	10.4	8.9	5.3	3.0
PN 25	25.0	25.0	25.0	24.1	22.7	21.0	19.8	18.5	17.8	17.1	16.8	16.5	16.3	14.0	8.4	4.8
PN 40	40.0	40.0	40.0	38.5	36.3	33.7	31.8	29.7	28.5	27.4	26.9	26.4	26.0	22.4	13.4	7.6
PN 63	63.0	63.0	63.0	60.7	57.3	53.1	50.1	46.8	45.0	43.2	42.4	41.7	41.1	35.4	21.2	12.0
PN 100	100.0	100.0	100.0	96.4	90.9	84.2	79.5	74.2	71.4	68.5	67.3	66.1	65.2	56.1	33.7	19.1
PN 160	160.0	160.0	160.0	154.2	145.5	134.8	127.2	118.8	114.2	109.7	107.8	105.9	104.3	89.9	53.9	30.6
PN 250	250.0	250.0	250.0	240.9	227.3	210.7	198.8	185.7	178.5	171.4	168.4	165.4	163.0	140.4	84.2	47.7
PN 320	320.0	320.0	320.0	308.4	291.0	269.7	254.4	237.7	228.5	219.4	215.6	211.8	208.7	179.8	107.9	61.1
PN 400	400.0	400.0	400.0	385.5	363.8	337.1	318.0	297.1	285.7	274.2	269.5	264.7	260.9	224.7	134.8	76.4
Cast stainless steel GX5CrNiMoNb19-11-2 · 1.4581 (–10 to +550 °C)																
Temp. in °C	–10	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	9.9	9.8	9.3	8.8	8.3	8.0	7.8	7.6	7.5	7.4	–		
PN 16	16.0	16.0	16.0	15.8	15.6	14.9	14.1	13.3	12.8	12.4	12.2	12.0	11.9			
PN 25	25.0	25.0	25.0	24.8	24.5	23.3	22.1	20.8	20.1	19.5	19.1	18.8	18.6			
PN 40	40.0	40.0	40.0	39.7	39.2	37.3	35.4	33.3	32.1	31.2	30.6	30.0	29.9			
PN 63	63.0	63.0	63.0	62.5	61.8	58.8	55.8	52.5	50.7	49.2	48.3	47.4	47.1			
PN 100	100.0	100.0	100.0	99.2	98.0	93.3	88.5	83.3	80.4	78.0	76.6	75.2	74.7			
PN 160	160.0	160.0	160.0	158.8	156.9	149.3	141.7	133.3	128.7	124.9	122.6	120.3	119.6			
PN 250	250.0	250.0	250.0	248.1	245.2	233.3	221.4	208.3	201.1	195.2	191.6	188.0	186.9			
PN 320	320.0	320.0	320.0	317.6	313.9	298.6	283.4	266.6	257.5	249.9	245.3	240.7	239.2			
PN 400	400.0	400.0	400.0	396.9	392.3	373.3	354.2	333.3	321.9	312.3	306.6	300.9	299.0			

Cast stainless steel GX5CrNi19-10 · 1.4308 (-200 to +300 °C)																
Temp. in °C	-200	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	9.0	8.6	8.1	7.4	6.9	6.4								
PN 16	16.0	16.0	14.5	13.9	13.1	11.9	11.0	10.2								
PN 25	25.0	25.0	22.7	21.8	20.4	18.6	17.2	16.0								
PN 40	40.0	40.0	36.3	34.9	32.7	29.9	27.6	25.7								
PN 63	63.0	63.0	57.3	55.0	51.6	47.1	43.5	40.5								
PN 100	100.0	100.0	90.9	87.3	81.9	74.7	69.0	64.2								
PN 160	160.0	160.0	145.5	139.7	131.0	119.6	110.4	102.8								
PN 250	250.0	250.0	227.3	218.3	204.7	186.9	172.6	160.7								
PN 320	320.0	320.0	291.0	279.4	262.0	239.2	220.9	205.7								
PN 400	400.0	400.0	363.8	349.3	327.6	299.0	276.1	257.1								
Forged steel 1.0460 (-29 to +400 °C)																
Temp. in °C	-29	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	10.0	9.3	8.0	7.0	6.4	6.0	5.7						
PN 16	16.0	16.0	16.0	16.0	15.3	14.0	13.0	11.0	10.0	9.1						
PN 25	25.0	25.0	25.0	25.0	23.9	22.0	20.0	17.0	16.0	14.2						
PN 40	40.0	40.0	40.0	40.0	38.1	35.0	32.0	28.0	24.1	22.8						
Forged stainless steel 1.4404 (-200 to +500 °C)																
Temp. in °C	-200	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	9.4	9.1	8.6	7.9	7.4	6.9	6.6	6.4	6.2	6.0				
PN 16	16.0	16.0	15.1	14.5	13.7	12.7	11.9	11.0	10.5	10.2	10.0	9.7				
PN 25	25.0	25.0	23.6	22.8	21.5	19.8	18.6	17.2	16.5	16.0	15.6	15.2				
PN 40	40.0	40.0	37.9	36.5	34.4	31.8	29.9	27.6	26.4	25.7	25.0	24.3				
PN 63	63.0	63.0	59.7	57.5	54.3	50.1	47.1	43.5	41.7	40.5	39.4	38.4				
PN 100	100.0	100.0	94.7	91.3	86.1	79.5	74.7	69.0	66.1	64.2	62.6	60.9				
PN 160	160.0	160.0	151.6	146.1	137.9	127.2	119.6	110.4	105.9	102.8	100.1	97.5				
PN 250	250.0	250.0	236.9	228.3	215.4	198.8	186.9	172.6	165.4	160.7	156.5	152.3				
PN 320	320.0	320.0	303.2	292.2	275.8	254.4	239.2	220.9	211.8	205.7	200.3	195.0				
PN 400	400.0	400.0	379.0	365.3	344.7	318.0	299.0	276.1	264.7	257.1	250.4	243.8				
Forged stainless steel 1.4571 (-200 to +550 °C)																
Temp. in °C	-200	20	100	120	150	200	250	300	350	400	450	500	550	600	650	700
PN 10	10.0	10.0	10.0	9.9	9.8	9.3	8.8	8.3	8.0	7.8	7.6	7.5	7.4			
PN 16	16.0	16.0	16.0	15.8	15.6	14.9	14.1	13.3	12.8	12.4	12.2	12.0	11.9			
PN 25	25.0	25.0	25.0	24.8	24.5	23.3	22.1	20.8	20.1	19.5	19.1	18.8	18.6			
PN 40	40.0	40.0	40.0	39.7	39.2	37.3	35.4	33.3	32.1	31.2	30.6	30.0	29.9			

Table 4: Permissible operating pressure depending on temperature · ANSI versions

Table 4.1: Temperatures in °C · Pressures in bar

Cast iron · A126B (–29 to +232 °C)																				
Temp. in °C	–29	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 125	13.8		13.8	12.7	11.1	9.6	8.6													
Class 250	34.5	–	34.5	30.9	25.6	20.5	17.2													
Cast steel · A216 WCC (–29 to +425 °C)																				
Temp. in °C	–29	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.8	19.8		17.7	15.8	13.8		12.1	10.2		8.4	6.5	5.5							
Class 300	51.7	51.7		51.5	50.2	48.6		46.3	42.9		40.0	34.7	28.8							
Class 600	103.4	103.4		103.0	100.3	97.2		92.7	85.7		80.0	69.4	57.5							
Class 900	155.1	155.1	–	154.6	150.5	145.8	–	139.0	128.6	–	120.1	104.2	86.3							
Class 1500	258.6	258.6		257.6	250.8	243.2		231.8	214.4		200.1	173.6	143.8							
Class 2500	430.9	430.9		429.4	418.1	405.4		386.2	357.1		333.5	289.3	239.7							
Cast steel · A217 WC6 (–29 to +500 °C)																				
Temp. in °C	–29	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 300	51.7	51.7		51.5	49.7	48.0		46.3	42.9		40.3	36.5		33.7	25.7					
Class 600	103.4	103.4		103.0	99.5	95.9		92.7	85.7		80.4	73.3		67.7	51.5					
Class 900	155.1	155.1	–	154.4	149.2	143.9	–	139.0	128.6	–	120.7	109.8	–	101.4	77.2					
Class 1500	258.6	258.6		257.4	248.7	239.8		231.8	214.4		201.1	183.1		169.0	128.6					
Class 2500	430.9	430.9		429.0	414.5	399.6		386.2	357.1		335.3	304.9		281.8	214.4					
Cast steel · A217 WC9 (–29 to +600 °C)																				
Temp. in °C	–29	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.8	19.8		17.7	15.8	13.8		12.1	10.2		8.4	6.5		4.6	2.8			1.4	1.4	
Class 300	51.7	51.7		51.5	50.3	48.6		46.3	42.9		40.3	36.5		33.7	28.2			15.6	6.9	
Class 600	103.4	103.4		103.0	100.3	97.2		92.7	85.7		80.4	73.3		67.7	56.5			31.3	13.8	
Class 900	155.1	155.1	–	154.6	150.6	145.8	–	139.0	128.6	–	120.7	109.8	–	101.4	84.7			46.9	20.7	
Class 1500	258.5	258.5		257.6	250.8	243.4		231.8	214.4		201.1	183.1		169.0	140.9			78.2	34.4	
Class 2500	430.9	430.9		429.4	418.2	405.4		386.2	357.1		335.3	304.9		281.8	235.0			130.3	57.4	
Cast steel · A352 LCC (–46 to +345 °C)																				
Temp. in °C	–46	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.8	19.8		17.7	15.8	13.8		12.1	10.2	8.5										
Class 300	51.7	51.7		51.5	50.2	48.6		46.3	42.9	40.3										
Class 600	103.4	103.4		103.0	100.3	97.2		92.7	85.7	80.5										
Class 900	155.1	155.1	–	154.6	150.5	145.8	–	139.0	128.6	120.9										
Class 1500	258.6	258.6		257.6	250.8	243.2		231.8	214.4	201.5										
Class 2500	430.9	430.9		429.4	418.1	405.4		386.2	357.1	335.8										
Cast steel · A352 LC3 (–101 to +345 °C)																				
Temp. in °C	–101	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.8	19.8		17.7	15.8	13.8		12.1	10.2	8.5										
Class 300	51.7	51.7		51.5	50.2	48.6		46.3	42.9	40.3										
Class 600	103.4	103.4		103.0	100.3	97.2		92.7	85.7	80.5										
Class 900	155.1	155.1	–	154.6	150.5	145.8	–	139.0	128.6	120.9										
Class 1500	258.6	258.6		257.6	250.8	243.2		231.8	214.4	201.5										
Class 2500	430.9	430.9		429.4	418.1	405.4		386.2	357.1	335.8										

Cast stainless steel - A351 CF8M (-254 to +700 °C)																				
Temp. in °C	-254	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.0	19.0	-	16.2	14.8	13.7	-	12.1	10.2	-	8.4	6.5	-	4.6	2.8	-	1.4	1.4	1.4	1.4
Class 300	49.6	49.6	-	42.2	38.5	35.7	-	33.4	31.6	-	30.3	29.4	-	28.8	28.2	-	25.0	19.9	12.7	8.4
Class 600	99.3	99.3	-	84.4	77.0	71.3	-	66.8	63.2	-	60.7	58.9	-	57.7	56.5	-	49.8	39.8	25.3	16.8
Class 900	148.9	148.9	-	126.6	115.5	107.0	-	100.1	94.9	-	91.0	88.3	-	86.5	84.7	-	74.8	59.7	38.0	25.1
Class 1500	248.2	248.2	-	211.0	192.5	178.3	-	166.9	158.1	-	151.6	147.2	-	144.2	140.9	-	124.9	99.5	63.3	41.9
Class 2500	413.7	413.7	-	351.6	320.8	297.2	-	278.1	263.5	-	252.7	245.3	-	240.4	235.0	-	208.0	165.9	105.5	69.8
Cast stainless steel - A351 CF8 (-254 to +538 °C)																				
Temp. in °C	-254	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.0	19.0	-	15.7	14.2	13.2	-	12.1	10.2	-	8.4	6.5	-	4.6	2.8	1.4	-	-	-	-
Class 300	49.6	49.6	-	40.9	37.0	34.5	-	32.5	30.9	-	29.6	28.4	-	27.4	26.5	24.4	-	-	-	-
Class 600	99.3	99.3	-	81.7	74.0	69.0	-	65.0	61.8	-	59.3	56.9	-	54.8	53.0	48.9	-	-	-	-
Class 900	148.9	148.9	-	122.6	111.0	103.4	-	97.5	92.7	-	88.9	85.3	-	82.2	79.5	73.3	-	-	-	-
Class 1500	248.2	248.2	-	204.3	185.0	172.4	-	162.4	154.6	-	148.1	142.2	-	137.0	132.4	122.1	-	-	-	-
Class 2500	413.7	413.7	-	340.4	308.4	287.3	-	270.7	257.6	-	246.9	237.0	-	228.4	220.7	203.6	-	-	-	-
Forged stainless steel - A316L (-254 to +538 °C)																				
Temp. in °C	-254	38	65	100	150	200	232	250	300	345	350	400	425	450	500	538	550	600	650	700
Class 150	19.0	19.0	-	16.2	14.8	13.7	-	12.1	10.2	-	8.4	6.5	-	4.6	2.8	1.4	-	-	-	-
Class 300	49.6	49.6	-	42.2	38.5	35.7	-	33.4	31.6	-	30.3	29.4	-	28.8	28.2	25.2	-	-	-	-
Class 600	99.3	99.3	-	84.4	77.0	71.3	-	66.8	63.2	-	60.7	58.9	-	57.7	56.5	50.0	-	-	-	-
Class 900	148.9	148.9	-	126.6	115.5	107.0	-	100.1	94.9	-	91.0	88.3	-	86.5	84.7	75.2	-	-	-	-
Class 1500	248.2	248.2	-	211.0	192.5	178.3	-	166.9	158.1	-	151.6	147.2	-	144.2	140.9	125.5	-	-	-	-
Class 2500	413.7	413.7	-	351.6	320.8	297.2	-	278.1	263.5	-	252.7	245.3	-	240.4	235.0	208.9	-	-	-	-

Table 4.2: Temperatures in °F · Pressures in psi

Cast iron · A126B (–20 to +450 °F)																					
Temp. in °F	–20	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 125	200.1		200.1	184.1	160.9	139.2	124.7														
Class 250	500.2	–	500.2	448.0	371.2	297.2	249.4														
Cast steel · A216 WCC (–20 to +797 °F)																					
Temp. in °F	–20	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 150	287.1	287.1		256.6	229.1	200.1		175.4	147.9		121.8	94.2	79.9								
Class 300	749.6	749.6		746.7	727.9	704.7		671.3	622.0		580.0	503.1	417.6								
Class 600	1499.3	1499.3	–	1493.5	1454.3	1409.4		1344.1	1242.6		1160.0	1006.3	833.7								
Class 900	2248.9	2248.9		2241.7	2182.2	2114.1		2015.5	1864.7		1741.4	1510.9	1251.3								
Class 1500	3749.7	3749.7		3735.2	3636.6	3526.4		3361.1	3108.8		2901.4	2517.2	2085.1								
Class 2500	6248.0	6248.0		6226.3	6062.4	5878.3		5599.9	5177.9		4835.7	4194.8	3475.6								
Cast steel · A217 WC6 (–20 to +932 °F)																					
Temp. in °F	–20	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 300	749.6	749.6		746.7	720.6	696.0		671.3	622.0		584.3	529.2		488.6	372.6						
Class 600	1499.3	1499.3		1493.5	1442.7	1390.5		1344.1	1242.6		1165.8	1062.8		981.6	746.7						
Class 900	2248.9	2248.9	–	2238.8	2163.4	2086.5		2015.5	1864.7		1750.1	1592.1		1470.3	1119.4						
Class 1500	3749.7	3749.7		3732.3	3606.1	3477.1		3361.1	3108.8		2915.9	2654.9		2450.5	1864.7						
Class 2500	6248.0	6248.0		6220.5	6010.2	5794.2		5599.9	5177.9		4861.8	4421.0		4086.1	3108.8						
Cast steel · A217 WC9 (–20 to +1099 °F)																					
Temp. in °F	–20	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 150	287.1	287.1		256.6	229.1	200.1		175.4	147.9		121.8	94.2		66.7	40.6			20.3	19.9		
Class 300	749.6	749.6		746.7	729.3	704.7		671.3	622.0		584.3	529.2		488.6	408.9			226.2	100.3		
Class 600	1499.3	1499.3		1493.5	1454.3	1409.4		1344.1	1242.6		1165.8	1062.8		981.6	819.2			453.8	199.5		
Class 900	2248.9	2248.9	–	2241.7	2183.7	2114.1		2015.5	1864.7		1750.1	1592.1		1470.3	1228.1			680.0	299.9		
Class 1500	3748.2	3748.2		3735.2	3636.6	3529.3		3361.1	3108.8		2915.9	2654.9		2450.5	2043.0			1133.9	498.8		
Class 2500	6248.0	6248.0		6226.3	6063.9	5878.3		5599.9	5177.9		4861.8	4421.0		4086.1	3407.5			1889.3	831.9		
Cast steel · A352 LCC (–51 to +653 °F)																					
Temp. in °F	–51	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 150	287.1	287.1		256.6	229.1	200.1		175.4	147.9	123.2											
Class 300	749.6	749.6		746.7	727.9	704.7		671.3	622.0	582.9											
Class 600	1499.3	1499.3		1493.5	1454.3	1409.4		1344.1	1242.6	1167.2											
Class 900	2248.9	2248.9	–	2241.7	2182.2	2114.1		2015.5	1864.7	1753.0											
Class 1500	3749.7	3749.7		3735.2	3636.6	3526.4		3361.1	3108.8	2921.7											
Class 2500	6248.0	6248.0		6226.3	6062.4	5878.3		5599.9	5177.9	4869.1											
Cast steel · A352 LC3 (–150 to +653 °F)																					
Temp. in °F	–150	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 150	287.1	287.1		256.6	229.1	200.1		175.4	147.9	123.2											
Class 300	749.6	749.6		746.7	727.9	704.7		671.3	622.0	582.9											
Class 600	1499.3	1499.3		1493.5	1454.3	1409.4		1344.1	1242.6	1167.2											
Class 900	2248.9	2248.9	–	2241.7	2182.2	2114.1		2015.5	1864.7	1753.0											
Class 1500	3749.7	3749.7		3735.2	3636.6	3526.4		3361.1	3108.8	2921.7											
Class 2500	6248.0	6248.0		6226.3	6062.4	5878.3		5599.9	5177.9	4869.1											
Cast stainless steel · A351 CF8M (–425 to +1292 °F)																					
Temp. in °F	–425	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292	
Class 150	275.5	275.5		234.9	214.6	198.6		175.4	147.9		121.8	94.2		66.7	40.6			20.3	20.3	20.3	20.3
Class 300	719.2	719.2		611.9	558.2	517.6		484.3	458.2		439.3	426.3		417.6	408.9			362.5	288.5	184.1	121.8
Class 600	1439.8	1439.8		1223.8	1116.5	1033.8		968.6	916.4		880.1	854.0		836.6	819.2			722.1	577.1	366.8	243.6
Class 900	2159.0	2159.0	–	1835.7	1674.7	1551.5		1451.4	1376.0		1319.5	1280.3		1254.2	1228.1			1084.6	865.6	551.0	363.9
Class 1500	3598.9	3598.9		3059.5	2791.2	2585.3		2420.0	2292.4		2198.2	2134.4		2090.9	2043.0			1811.0	1442.7	917.8	607.5
Class 2500	5998.6	5998.6		5098.2	4651.6	4309.4		4032.4	3820.7		3664.1	3556.8		3485.8	3407.5			3016.0	2405.5	1529.7	1012.1

Cast stainless steel - A351 CF8 (-425 to +1000 °F)																				
Temp. in °F	-425	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292
Class 150	275.5	275.5	-	227.6	205.9	191.4	-	175.4	147.9	-	121.8	94.25	-	66.7	40.6	20.3	-	-	-	-
Class 300	719.2	719.2	-	593.0	536.5	500.2	-	471.2	448.0	-	429.2	411.8	-	397.3	384.2	353.8	-	-	-	-
Class 600	1439.8	1439.8	-	1184.6	1073.0	1000.5	-	942.5	896.1	-	859.8	825.0	-	794.6	768.5	709.0	-	-	-	-
Class 900	2159.0	2159.0	-	1777.7	1609.5	1499.3	-	1413.7	1344.1	-	1289.0	1236.8	-	1191.9	1152.7	1062.8	-	-	-	-
Class 1500	3598.9	3598.9	-	2962.3	2682.5	2499.8	-	2354.8	2241.7	-	2147.4	2061.9	-	1986.5	1919.8	1770.4	-	-	-	-
Class 2500	5998.6	5998.6	-	4935.8	4471.8	4165.8	-	3925.1	3735.2	-	3580.0	3436.5	-	3311.8	3200.1	2952.2	-	-	-	-
Forged stainless steel - A316L (-425 to +1000 °F)																				
Temp. in °F	-425	100	149	212	302	392	450	482	572	653	662	752	797	842	932	1000	1022	1112	1202	1292
Class 150	275.5	275.5	-	234.9	214.6	198.6	-	175.4	147.9	-	121.8	94.2	-	66.7	40.6	20.3	-	-	-	-
Class 300	719.2	719.2	-	611.9	558.2	517.6	-	484.3	458.2	-	439.3	426.3	-	417.6	408.9	365.4	-	-	-	-
Class 600	1439.8	1439.8	-	1223.8	1116.5	1033.8	-	968.6	916.4	-	880.1	854.0	-	836.6	819.2	725.0	-	-	-	-
Class 900	2159.0	2159.0	-	1835.7	1674.7	1551.5	-	1451.4	1376.0	-	1319.5	1280.3	-	1254.2	1228.1	1090.4	-	-	-	-
Class 1500	3598.9	3598.9	-	3059.5	2791.2	2585.3	-	2420.0	2292.4	-	2198.2	2134.4	-	2090.9	2043.0	1819.7	-	-	-	-
Class 2500	5998.6	5998.6	-	5098.2	4651.6	4309.4	-	4032.4	3820.7	-	3664.1	3556.8	-	3485.8	3407.5	3029.0	-	-	-	-

