6301 W TYPE CAST IRON SAFETY VALVES

FEATURES

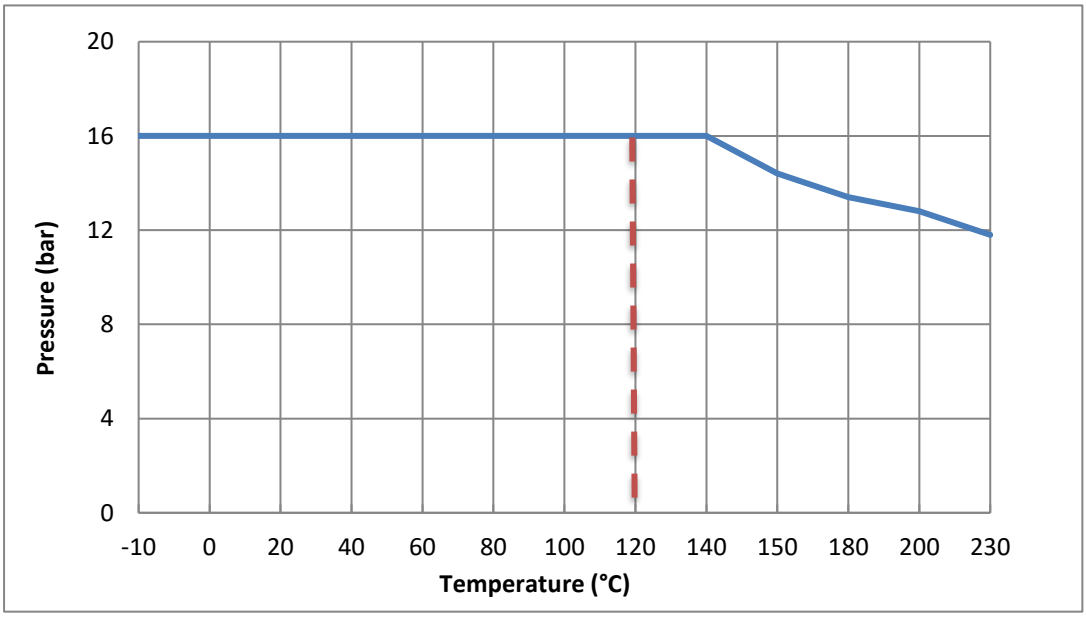
The type 6301 W safety valve is a device for the protection of water tanks and hot water generators. It operates automatically and closes when pressure conditions return to normal. The 6301 W safety valve is a spring-loaded type safety valve, with offset orifices and instantaneous exhaust, made of cast iron of pressure class PN 16. As a standard, it is delivered sealed with a closed cover, a leak-tight plug, and a test lever. The seat undergoes a thermal hardening that ensures a high resistance to erosion and the EPDM-span valve an excellent sealing. The 6301 W safety valve is approved by TÜV and Veritas. Calibration certificate and manufacturer dossier according to the 20th of November 2017 order concerning the monitoring of safety valve upon simple request.

AVAILABLES MODELS

6301 W : DN 20 to DN 150.
Connection with PN 16 flanges and PN 10/16 outlet flanges.

LIMITS OF USE

Fluid WP :	10 bar
Test pressure	15 bar
Fluid WT° :	-10° C / +120° C



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HYDRAULIC FEATURES

Inlet DN	20	25	32	40	50	65	80	100	125	150
Outlet DN	32	40	50	65	80	100	125	150	200	250
Do orifice (mm)	16	20	25	32	40	50	63	77	93	110
Calibration minimum (bar)	0,5									
Calibration maximum (bar)	10	10	10	10	10	10	10	10	10	10

	Fluid	**Calibration pressure**	**Coefficient**
Flow-rate coefficient	**Gas and steam**	≤ 1,4 bar	0,72
	Gas and steam	> 1,4 bar	0,78
	Liquids b1= 0,1 bar	≤ 1 bar	0,5
	Liquids for b1= 10%	> 1 bar	0,5

For usual fluids (water, compressed air and steam), please refer to our flow-rate graphs.

DIRECTIVES AND MANUFACTURING STANDARDS

OBJET	**Standard**	**O.N.**
Pressure Equipment Directive 2014/68/EC	Category IV	CE 0045
Construction standard	ISO 4126-1	
Approval for Russia	GOST-R	
TÜV approval	SV 96.894	
VERITAS (Use at sea and offshore)	22324592B00	
Flange connections:	EN 1092-1	

CALIBRATION CERTIFICATE – TEST AND MATERIAL

EN 10 204 3.1 certificate for calibration and standard compliance, with the serial number engraved on the safety valve.

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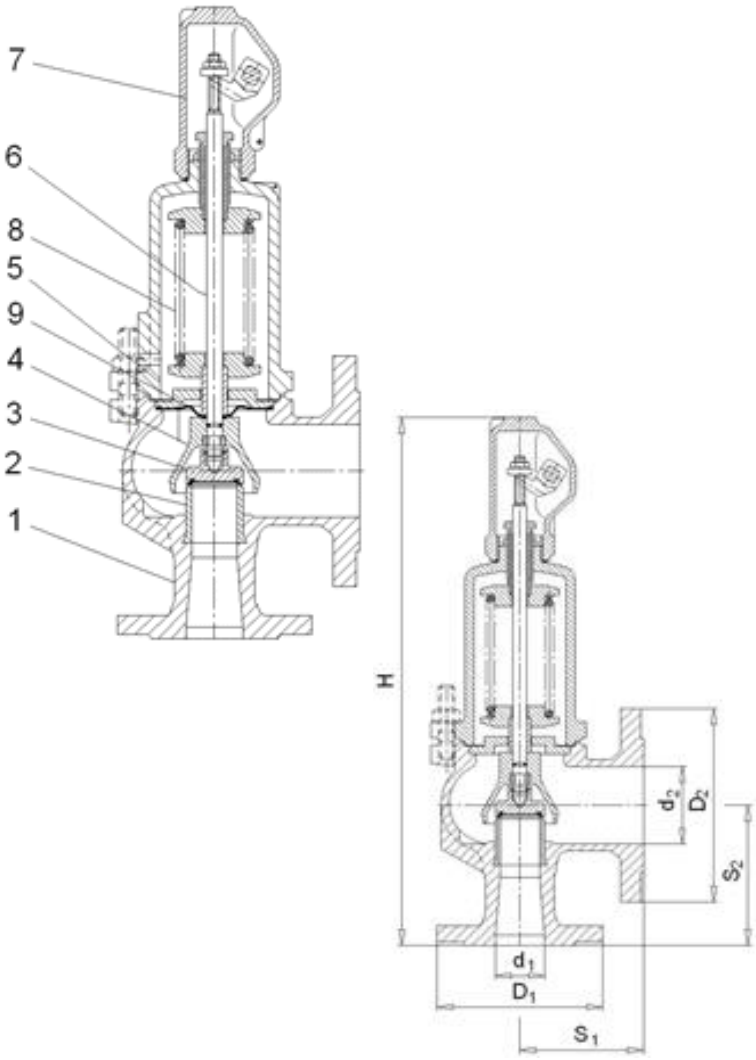
CONSTRUCTION

No.	Name	Material
1	Body	EN GLJ 250 cast iron
2	Seat	X39 Cr Mo 17-1
3	Disc	X6 Cr Ni Ti 18 + EPDM
4	Bell	EN GJS 400-15 cast iron
5	Bonnet	EN GJS 400-15 cast iron
6	Spindle	X20 Cr13
7	Cap	EN GJS 400-15 cast iron
8	Spring	Alloy steel
9	Membrane	EPDM



DIMENSIONS (mm) AND WEIGHT (Kg)

DN	d1	d2	Fo (mm²)	D1 (Ø Inlet flange)	D2 (Ø Outlel flange)		S1	S2	H	Weight (Kg)
				PN 16	PN 10	PN 16				
20	20	32	201	105	140		85	95	345	7,5
25	25	40	314	115	150		95	105	395	9
32	32	50	491	140	165		100	110	420	13
40	40	65	804	150	185		115	130	495	19
50	50	80	1257	165	200		125	145	550	25
65	65	100	1964	185	220		140	150	660	37
80	80	125	3117	200	250		155	170	710	52
100	100	150	4657	220	285		175	180	810	77
125	125	200	6793	250	340		215	220	860	90
150	150	250	9503	285	395	405	225	245	990	140

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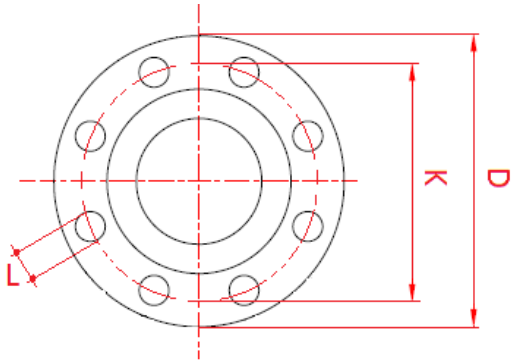
DN (Inlet/Outlet)		D	K	L	Qty	ø	ISO PN 10/16 flange dimensions
20	PN 10/16	105	75	14	4	M12	
25	PN 10/16	115	85	14	4	M12	
32	PN 10/16	140	100	19	4	M16	
40	PN 10/16	150	110	19	4	M16	
50	PN 10/16	165	125	19	4	M16	
65	PN 10/16	185	145	19	4	M16	
80	PN 10/16	200	160	19	8	M16	
100	PN 10/16	220	180	19	8	M16	
125	PN 10/16	250	210	19	8	M16	
150	PN 10/16	285	240	23	8	M20	
200	PN 10/16	340	295	23	8	M20	
250	PN 10	395	350	23	12	M20	
	PN 16	405	355	28	12	M24	

INSTALLATION

The safety valve has to be positioned as close as possible to the volume to protect. It must always be installed,in the vertical position. No valve must be installed in-between the volume to protect and the safety valve. The outlet flange of the safety valve must not support the exhaust piping. No foreign body must block the discharge orifice of the safety valve. The exhaust has to be connected to piping without counter-pressure, discharging into a hazard free location. The safety valve installation and servicing have to be carried out according to state-of-the-art rules, following the instruction leaflet provided with the device.

6301 W TYPE CAST IRON SAFETY VALVES

WATER FLOW-RATE IN kg/h AT 20°C (According to the ISO 4126-1 standard)

	DN / Flow-rate (kg/h)							
P (bar)	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**
0,45	3 791	5 922	9 260	15 163	23 707	37 041	58 787	87 831
0,5	3 959	6 185	9 672	15 838	24 761	38 688	61 401	91 737
0,55	4 121	6 438	10 067	16 484	25 772	40 268	63 908	95 483
0,6	4 277	6 681	10 447	17 107	26 745	41 788	66 320	99 087
0,7	4 572	7 142	11 168	18 288	28 592	44 673	70 899	105 928
0,8	4 849	7 576	11 846	19 397	30 326	47 383	75 200	112 354
0,9	5 112	7 985	12 487	20 446	31 967	49 946	79 268	118 432
1	5 366	8 375	13 096	21 444	33 527	52 384	83 137	124 212
1,1	5 623	8 784	13 735	22 491	35 163	54 941	87 195	130 275
1,2	5 873	9 174	14 346	23 491	36 727	57 384	91 072	136 067
1,3	6 113	9 549	14 932	24 450	38 226	59 727	94 791	141 624
1,4	6 343	9 909	15 495	25 373	39 670	61 982	98 369	146 970
1,6	6 781	10 594	16 565	27 125	42 408	66 261	105 161	157 117
1,8	7 193	11 236	17 570	28 771	44 981	70 281	111 540	166 648
2	7 582	11 844	18 521	30 327	47 414	74 082	117 573	175 662
2,2	7 952	12 422	19 425	31 807	49 728	77 698	123 312	184 236
2,4	8 305	12 975	20 288	33 221	51 940	81 153	128 795	192 428
2,6	8 645	13 504	21 117	34 578	54 060	84 467	134 054	200 286
2,8	8 971	14 014	21 914	35 883	56 101	87 655	139 115	207 847
3	9 286	14 506	22 683	37 143	58 070	90 732	143 997	215 142
3,6	10 172	15 891	24 848	40 688	63 163	99 392	157 741	235 676
4	10 722	16 750	26 192	42 889	67 054	104 768	166 274	248 424
4,5	11 373	17 766	27 781	45 490	71 121	111 123	176 360	263 494
5	11 988	18 727	29 284	47 951	74 968	117 134	185 900	277 747
5,5	12 573	19 641	30 713	50 292	78 627	122 851	194 974	291 303
6	13 132	20 515	32 079	52 528	82 124	128 314	203 643	304 256
6,5	13 668	21 352	33 388	54 673	85 477	133 554	211 959	316 680
7	14 184	22 158	34 649	56 737	88 704	138 595	219 960	328 634
8	15 163	23 688	37 041	60 654	94 828	148 164	235 147	351 325
9	16 083	25 125	39 288	64 333	100 581	157 152	249 411	372 636
10	16 953	26 484	41 413	67 813	106 022	165 654	262 903	392 795

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6301 W TYPE CAST IRON SAFETY VALVES

80°C HOT WATER FLOW-RATE IN kW at 20°k (According to the ISO 4126-1 standard)

	DN / Flow-rate (kW/h)							
P (bar)	**20**	**25**	**32**	**40**	**50**	**65**	**80**	**100**
0,45	88	138	215	352	551	860	1 365	2 040
0,5	92	144	225	368	575	898	1 426	2 130
0,55	96	150	234	383	598	935	1 484	2 217
0,6	99	155	243	397	621	970	1 540	2 301
0,7	106	166	259	425	664	1 037	1 646	2 460
0,8	113	176	275	450	704	1 100	1 746	2 609
0,9	119	185	290	475	742	1 160	1 841	2 750
1	125	194	304	498	779	1 216	1 931	2 884
1,1	131	204	319	522	817	1 276	2 025	3 025
1,2	136	213	333	546	853	1 333	2 115	3 160
1,3	142	222	347	568	888	1 387	2 201	3 289
1,4	147	230	360	589	921	1 439	2 284	3 413
1,6	157	246	385	630	985	1 539	2 442	3 649
1,8	167	261	408	668	1 045	1 632	2 590	3 870
2	176	275	430	704	1 101	1 720	2 730	4 079
2,2	185	288	451	739	1 155	1 804	2 864	4 278
2,4	193	301	471	771	1 206	1 885	2 991	4 469
2,6	201	314	490	803	1 255	1 962	3 113	4 651
2,8	208	325	509	833	1 303	2 036	3 231	4 827
3	216	337	527	863	1 349	2 107	3 344	4 996
3,6	236	369	577	945	1 467	2 308	3 663	5 473
4	249	389	608	996	1 557	2 433	3 861	5 769
4,5	264	413	645	1 056	1 652	2 581	4 095	6 119
5	278	435	680	1 114	1 741	2 720	4 317	6 450
5,5	292	456	713	1 168	1 826	2 853	4 528	6 765
6	305	476	745	1 220	1 907	2 980	4 729	7 066
6,5	317	496	775	1 270	1 985	3 101	4 922	7 354
7	329	515	805	1 318	2 060	3 218	5 108	7 632
8	352	550	860	1 409	2 202	3 441	5 461	8 159
9	373	583	912	1 494	2 336	3 649	5 792	8 653
10	394	615	962	1 575	2 462	3 847	6 105	9 122

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INSTALLATION AND SERVICING REGULATION

1 - DESCRIPTION

1.1 The SERIE 6300 spring loaded safety valves are designed for steam, gas, and liquids, except the "W" series which can only be used on compatible liquids. They provide ultimate protection to devices under pressure. They are able to guarantee that the internal pressure does not exceed the authorized maximum, even if other safety systems installed upstream are faulty, insofar as they have been sized correctly.

1.2 The SERIE 6300 safety valves are made of cast iron, carbon steel or stainless steel. All safety valves are calibrated and lead sealed by us, for maximum safety and minimum maintenance.

1.3 As a standard solution, the 6300 safety valves are delivered with closed bonnet, leak tight plug and test lever. Other models are available upon request. The operation of the 6300 safety valves is of the “instantaneous exhaust” type which is particularly recommended on steam generators or gas containing enclosures. A model with progressive exhaust is available upon request.

1.4 The safety valve body has a boss which can be pierced to create a purging orifice for the downstream pipe.

2 - GUARANTEE

2.1 Before any contact with our services, please identify the type of safety valve and the individual number engraved on the safety valve body.

2.2 SERIE 6300 safety valves have a 12-month guarantee, as of the delivery date. Parts admitted as faulty by an assessment at our factory, will be replaced at our expense. Complaints resulting from the incorrect use, modification of the safety valve, a leak following the passage of impurities, shall not be accepted.

3 - TRANSPORT, INSPECTION AT ACCEPTANCE AND STORAGE

3.1 CAUTION: The safety valve can be damaged by vibrations, impacts and the contact with impurities. For this reason, the safety valve has to be handled with precaution, without removing the protective plugs before installation, and without manoeuvring the test lever.

3.2 At acceptance, check that:

- the packaging is in good condition,
- the delivered safety valve is as ordered,
- the equipment has not been damaged,
- the safety valve is delivered with a calibration certificate whose number must match that engraved on the safety valve body.

3.3 It is recommended to install the safety valve as of acceptance and not to leave it unused. If the equipment has to be stored, it must be in a dry place protected from the weather.

4 - PRECAUTIONS FOR OPERATION

4.1 Before installing, make sure that the installation is completely depressurized and brought to ambient temperature.

4.2 Any adjustment or any modification can only be made by technicians qualified for safety valves.

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4.3 CAUTION WITH TOXIC GASES
If the safety valve is installed on an acid tank, wear gloves and safety glasses, and any other personal protection needed.

4.4 The safety valve cannot be commissioned unless it has been calibrated, lead sealed and certified by SECTORIEL or a body specially authorized to this end. The calibration certificate bears the indication of the exact pressure of its calibration.

4.5 When a safety valve with free exhaust in operation, has to be tested, make sure beforehand that nobody stays in the way of the exhaust. Do not let toxic, explosive or flammable products discharge into the atmosphere. Before testing, schedule a controlled degassing procedure in a confined volume.

4.6 Do not perform work on the safety valve, do not break its lead seal, and do not modify its calibration pressure.

4.7 Do not subject the safety valve to a hot or cold shock.

4.8 In case of malfunctioning, contact SECTORIEL immediately.

4.9 CAUTION: ONLY STAINLESS STEEL SAFETY VALVES MUST BE INSTALLED IN A CORROSIVE ENVIRONMENT.

4.10 The type of connection has to match the piping class of the installation.

4.11 If the safety valve discharges directly into the atmosphere, direct the exhaust so as not to cause any damage to equipment or persons.

5 - INSTALLATION
5.1 Check that the lead seal has not been damaged.

5.2 6300 safety valves have to be installed in the vertical position with the bonnet upwards, as close as possible to the volume to protect.

5.3 The inlet piping has to be as short as possible, with a diameter equal to or greater than that of the inlet flange of the safety valve, and with a length which cannot cause any pressure drop of more than 3% of the initial opening pressure, considering the maximum flow-rate to discharge.

5.4 6300 safety valves have metal-metal sealing which can be damaged by the entry of impurities between the seat and the disc. Pipes and tanks must be cleaned beforehand with the utmost care.

5.5 Be careful not to damage the seats, remove the protective plugs and install the safety valve on the installation according to its type of connection.

5.6 No isolation valve shall be placed in-between the volume to protect and the safety valve.

5.7 No fitting with a DN smaller than the DN of the inlet of the safety valve,shall be placed in-between the safety valve and the volume to protect.

5.8 Make sure that the discharge piping discharges into a location free of hazards for personnel and the environment.

5.9 If the safety valve exhaust has to be connected to a piping, make sure that the latter is as short as possible so as to create just a minimum counter-pressure.

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5.10 The piping connected to a channeled exhaust safety valve should not be supported by the safety valve itself. Otherwise, leaks may occur.

5.11 If a hydrostatic test of the installation has to be carried out after the safety valve is installed, it is preferable to remove it and replace it with a blind flange. Otherwise, close the safety valve disc with a mechanical stop. Do not forget to remove this stop after the test.

6 - CLEANING AND LUBRICATION

6.1 SERIE 6300 safety valves are designed not to require any lubrication.

6.2 Keep the safety valve clean and in running order. Check, in particular, that the exhaust stays clear and that no foreign body blocks the discharge piping.

7 - USUAL MAINTENANCE

7.1 The safety valve is a sensitive safety element which has to be checked periodically In case of reported malfunctioning, please contact SECTORIEL.

7.2 CAUTION: SECTORIEL is no longer responsible for the proper operation of a safety valve which has been disassembled, modified or re-calibrated by a person not authorized by SECTORIEL.

8 - PERIODIC INSPECTION

8.1 To make sure that the safety valve is still operating, it has to be tested periodically. To carry out this test, the lever can be manually actuated, briefly. To protect the installation during this test, the test pressure must stay between 80 and 90% of the calibration pressure. The safety valve has to be wide open to allow a significant flow-rate to circulate.
At re-closing, make sure that the seat is again leak-tight. Caution, never manoeuvre the test lever under no-load.

8.2 If the safety valve has to be removed, the servicing and, if needed, the re-calibration of the safety valve have to be entrusted exclusively to a workshop qualified for this operation. The safety valve re-calibration has to be carried out on a test bench equipped with an inspected pressure gauge. In case of a leaking seat, grinding may be necessary. Please contact us.

8.3 For use on gas or steam on installations located on the French territory, comply with the prescriptions of the order of 20th November 2017 concerning the monitoring of safety valves.

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