

Model 1216**ΒΑΛΒΙΔΕΣ ΑΣΦΑΛΕΙΑΣ ΑΝΟΞΕΙΑΩΤΕΣ****Description**

Type	Safety and Relief valve
Connections	Threaded BSP / NPT
Rating	PN-40
Material	Stainless steel 316 L
Temperature range	-10 to +350°C
Cryogenic service until	-196°C

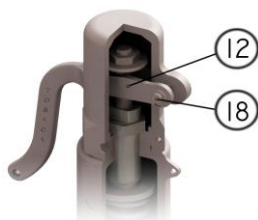
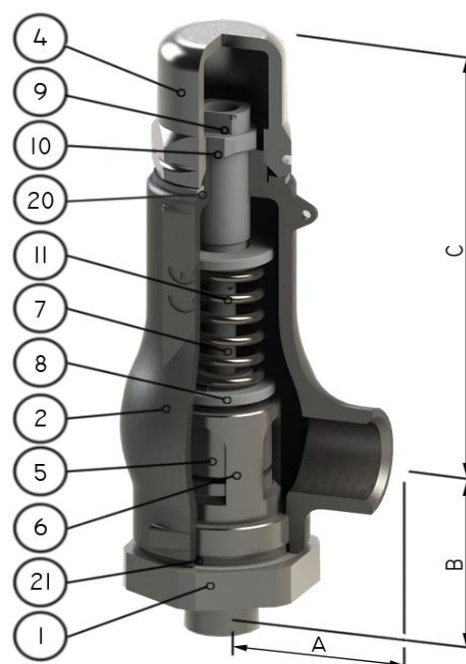
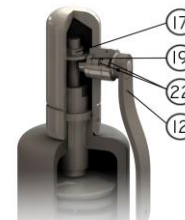
Requirements

Calculation	EN-4126-1 / 7
Design	EN-12516-1, EN-4126-1 / 7 DIN 259 and ANSI B2.1
Materials	EN
Inspection	EN-4126-1 / 7

Construction and materials

Item	Description	Material	
		Standard	Cryogenic
1	Nozzle	A351 CF-3M	A351 CF-3M
2	Body	A351 CF-3M	A351 CF-3M
4	Cap	A351 CF-8	A351 CF-8
5	Disc	AISI-316L	AISI-316L
6	Guide	A351 CF-3M	A351 CF-3M
7	Push Road	AISI-316L	AISI-316L
8	Spring Button	AISI-303	AISI-303
9	Ajusting Screw	AISI-303	AISI-303
10	Tensor Nut	AISI-303	AISI-303
11	Spring	AISI-302	17 / 7PH
12	Lever	A351 CF-8	A351 CF-8
17	Release nut	AISI-316	AISI-316
18	Lever axis	AISI-303	AISI-303
19	Packing lever axis	AISI-303	AISI-303
20	Gasket	PTFE	PTFE
21	Gasket	PTFE	PTFE
22	Gasket	Viton	PTFE
28	Soft seat	Viton / PTFE	Metal

 Recommended spare parts

Lifting device**Sealed packing lever****Soft seat****Technical information**

Applications	Steam, gases, vapours and liquids
Min. Set pressure	0,2 barg
Overpressure	10%
Blowdown	Gases 10%, liquids 20%
Tolerance Set pressure	± 3%
Discharge coefficients	k= 0,55 for gases k= 0,48 for liquids

Dimensions

Inlet	Outlet	Orifice	Area (mm ²)	A (mm)	B (mm)	C (mm)	Weight (kg)
1/2"	3/4"	13	133	45	57	155	2,2
1/2"	1"	13	133	45	57	155	2,2
3/4"	1"	14	154	45	57	155	2,2
1"	1"	16	201	45	60	155	2,2
1"	1 1/4"	16	201	45	61	155	2,3
1"	2"	22	380	62	87	234	4,5
1 1/4"	1 1/4"	18	254	45	62	155	2,4
1 1/2"	2"	28	616	62	89	234	4,6
2"	2"	32	804	62	93	234	5,1

**CHRYSSAFIDIS**

Model 1216

Capacity AIR / Caudal de aire (kg/h)

TOSACA
 Safety relief valves

Set Press (barg)	Orifice / Orificio (mm)										
	6	9	13	14	15	16	18	20	22	28	32
0,2	16	37	76	89	102	116	146	181	219	354	462
0,5	21	46	97	112	129	147	186	229	277	449	586
1	28	63	131	152	174	198	251	310	375	607	793
2	42	95	199	231	265	301	381	471	570	923	1.205
3	57	128	267	310	355	404	512	632	765	1.239	1.618
4	71	161	335	389	446	508	642	793	960	1.555	2.030
5	86	193	403	468	537	611	773	954	1.155	1.870	2.443
6	100	226	471	547	627	714	904	1.115	1.350	2.186	2.856
7	115	259	539	626	718	817	1.034	1.277	1.545	2.502	3.268
8	129	291	607	705	809	920	1.165	1.438	1.740	2.818	3.681
9	144	324	676	784	899	1.023	1.295	1.599	1.935	3.134	4.093
10	158	356	744	862	990	1.127	1.426	1.760	2.130	3.450	4.506
11	173	389	812	941	1.081	1.230	1.556	1.921	2.325	3.766	4.919
12	187	422	880	1.020	1.171	1.333	1.687	2.083	2.520	4.082	5.331
13	202	454	948	1.099	1.262	1.436	1.817	2.244	2.715	4.398	5.744
14	216	487	1.016	1.178	1.353	1.539	1.948	2.405	2.910	4.714	6.157
15	231	520	1.084	1.257	1.443	1.642	2.079	2.566	3.105	5.029	6.569
16	245	552	1.152	1.336	1.534	1.745	2.209	2.727	3.300	5.345	6.982
17	260	585	1.220	1.415	1.625	1.849	2.340	2.888	3.495	5.661	7.394
18	274	618	1.288	1.494	1.715	1.952	2.470	3.050	3.690	5.977	7.807
19	289	650	1.357	1.573	1.806	2.055	2.601	3.211	3.885	6.293	8.220
20	303	683	1.425	1.652	1.897	2.158	2.731	3.372	4.080	6.609	8.632
22	332	748	1.561	1.810	2.078	2.364	2.992	3.694	4.470	7.241	9.457
24	361	813	1.697	1.968	2.259	2.571	3.253	4.017	4.860	7.873	10.283
26	391	879	1.833	2.126	2.441	2.777	3.515	4.339	5.250	8.504	11.108
28	420	944	1.969	2.284	2.622	2.983	3.776	4.661	5.640	9.136	11.933
30	449	1.009	2.106	2.442	2.803	3.190	4.037	4.984	6.030	9.768	12.758
32	478	1.074	2.242	2.600	2.985	3.396	4.298	5.306	6.420	10.400	13.584
34	507	1.140	2.378	2.758	3.166	3.602	4.559	5.628	6.810	11.032	14.409
36	536	1.205	2.514	2.916	3.347	3.808	4.820	5.951	7.200	11.664	15.234
38	565	1.270	2.650	3.074	3.529	4.015	5.081	6.273	7.590	12.295	16.059
40	594	1.336	2.787	3.232	3.710	4.221	5.342	6.595	7.981	12.927	16.884
50	739	1.662				5.253	6.648	8.207	9.931		
60	884	1.988				6.284	7.953	9.819	11.881		
70	1.029	2.315				7.316	9.259	11.431	13.831		
80	1.174	2.641				8.347	10.564	13.043	15.781		
90	1.319	2.967				9.379	11.870	14.654	17.732		
100	1.464	3.294				10.410	13.175	16.266	19.682		
120	1.754	3.947									
140	2.044	4.599									
160	2.334	5.252									
180	2.624	5.905									
200	2.915	6.558									
220	3.205	7.210									
240	3.495	7.863									
260	3.785	8.516									
280	4.075	9.169									
300	4.365	9.822									

E 2013

Flow capacity / Caudal de aire (kg/h)

Overpressure / Sobrepresión 10%

Temperature / Temperatura 20° C

Calculation according / Calculos según ISO EN 4126-1 / API 520


CHRYSSAFIDIS

Model 1216

Capacity SATURATED STEAM / Caudal Vapor saturado (kg/h)

TOSACA
Safety relief valves

Set Press (barg)	Orifice / Orificio (mm)										
	6	9	13	14	15	16	18	20	22	28	32
0,2	10	23	47	55	63	72	91	112	135	219	286
0,5	13	29	60	69	80	91	115	142	172	278	363
1	17	39	81	94	108	123	155	192	232	376	491
2	26	59	123	143	164	187	236	291	353	571	746
3	35	79	165	192	220	250	317	391	473	767	1.002
4	44	99	207	241	276	314	398	491	594	962	1.257
5	53	120	250	290	332	378	479	591	715	1.158	1.512
6	62	140	292	338	388	442	559	691	836	1.354	1.768
7	71	160	334	387	445	506	640	790	956	1.549	2.023
8	80	180	376	436	501	570	721	890	1.077	1.745	2.279
9	89	200	418	485	557	634	802	990	1.198	1.940	2.534
10	98	221	460	534	613	697	883	1.090	1.319	2.136	2.790
11	107	241	503	583	669	761	964	1.190	1.439	2.331	3.045
12	116	261	545	632	725	825	1.044	1.289	1.560	2.527	3.301
13	125	281	587	681	781	889	1.125	1.389	1.681	2.723	3.556
14	134	301	629	730	837	953	1.206	1.489	1.802	2.918	3.812
15	143	322	671	778	894	1.017	1.287	1.589	1.922	3.114	4.067
16	152	342	713	827	950	1.081	1.368	1.688	2.043	3.309	4.322
17	161	362	756	876	1.006	1.144	1.448	1.788	2.164	3.505	4.578
18	170	382	798	925	1.062	1.208	1.529	1.888	2.285	3.701	4.833
19	179	403	840	974	1.118	1.272	1.610	1.988	2.405	3.896	5.089
20	188	423	882	1.023	1.174	1.336	1.691	2.088	2.526	4.092	5.344
22	206	463	966	1.121	1.287	1.464	1.853	2.287	2.767	4.483	5.855
24	224	504	1.051	1.218	1.399	1.592	2.014	2.487	3.009	4.874	6.366
26	242	544	1.135	1.316	1.511	1.719	2.176	2.686	3.250	5.265	6.877
28	260	584	1.219	1.414	1.623	1.847	2.338	2.886	3.492	5.656	7.388
30	278	625	1.304	1.512	1.736	1.975	2.499	3.085	3.733	6.047	7.899
32	296	665	1.388	1.610	1.848	2.102	2.661	3.285	3.975	6.439	8.410
34	314	706	1.472	1.707	1.960	2.230	2.823	3.485	4.216	6.830	8.921
36	332	746	1.557	1.805	2.072	2.358	2.984	3.684	4.458	7.221	9.431
38	350	786	1.641	1.903	2.185	2.486	3.146	3.884	4.699	7.612	9.942
40	367	827	1.725	2.001	2.297	2.613	3.307	4.083	4.941	8.003	10.453
50	457	1.029				3.252	4.116	5.081	6.148		
60	547	1.231				3.891	4.924	6.079	7.356		
70	637	1.433				4.529	5.732	7.077	8.563		
80	727	1.635				5.168	6.540	8.075	9.770		
90	817	1.837				5.806	7.349	9.073	10.978		
100	906	2.039				6.445	8.157	10.070	12.185		
120	1.086	2.443									
140	1.266	2.848									
160	1.445	3.252									
180	1.625	3.656									
200	1.804	4.060									

E 2013

Flow capacity / Caudal (kg/h)

Overpressure / Sobrepresión 10%

Calculation according / Calculos según ISO EN 4126-1 / API 520


CHRYSSAFIDIS

Model 1216
Capacity WATER / Caudal de Agua (kg/h)

TOSACA
 Safety relief valves

Set Press (barg)	Orifice / Orificio (mm)										
	6	9	13	14	15	16	18	20	22	28	32
0,2	324	729	1.521	1.765	2.026	2.305	2.917	3.601	4.357	7.058	9.219
0,5	512	1.153	2.406	2.790	3.203	3.644	4.612	5.694	6.890	11.160	14.576
1	725	1.631	3.402	3.946	4.529	5.154	6.522	8.052	9.743	15.783	20.614
2	1.025	2.306	4.811	5.580	6.406	7.288	9.224	11.388	13.779	22.320	29.153
3	1.255	2.824	5.893	6.834	7.845	8.926	11.297	13.947	16.876	27.336	35.705
4	1.449	3.261	6.804	7.891	9.059	10.307	13.045	16.105	19.487	31.565	41.228
5	1.621	3.646	7.607	8.823	10.128	11.524	14.585	18.006	21.787	35.291	46.095
6	1.775	3.994	8.334	9.665	11.095	12.624	15.977	19.724	23.866	38.660	50.494
7	1.917	4.314	9.001	10.439	11.984	13.635	17.257	21.305	25.779	41.757	54.540
8	2.050	4.612	9.623	11.160	12.811	14.576	18.448	22.776	27.559	44.640	58.306
9	2.174	4.892	10.206	11.837	13.588	15.461	19.567	24.157	29.230	47.348	61.842
10	2.292	5.156	10.759	12.477	14.323	16.297	20.626	25.464	30.811	49.909	65.188
11	2.404	5.408	11.284	13.086	15.023	17.092	21.633	26.707	32.315	52.345	68.369
12	2.510	5.649	11.785	13.668	15.691	17.852	22.594	27.894	33.752	54.673	71.410
13	2.613	5.879	12.267	14.226	16.331	18.581	23.517	29.033	35.130	56.905	74.325
14	2.712	6.101	12.730	14.763	16.948	19.283	24.405	30.129	36.456	59.054	77.131
15	2.807	6.315	13.176	15.282	17.543	19.960	25.261	31.187	37.736	61.126	79.838
16	2.899	6.522	13.609	15.783	18.118	20.614	26.090	32.210	38.974	63.131	82.457
17	2.988	6.723	14.027	16.268	18.676	21.249	26.893	33.201	40.173	65.074	84.994
18	3.075	6.918	14.434	16.740	19.217	21.865	27.672	34.163	41.338	66.960	87.458
19	3.159	7.108	14.830	17.199	19.744	22.464	28.431	35.100	42.471	68.795	89.855
20	3.241	7.292	15.215	17.646	20.256	23.047	29.169	36.011	43.574	70.582	92.189
22	3.399	7.648	15.957	18.507	21.245	24.172	30.593	37.769	45.701	74.027	96.689
24	3.550	7.988	16.667	19.330	22.190	25.247	31.953	39.449	47.733	77.319	100.988
26	3.695	8.315	17.348	20.119	23.096	26.278	33.258	41.059	49.682	80.476	105.112
28	3.835	8.628	18.002	20.879	23.968	27.270	34.514	42.609	51.557	83.514	109.080
30	3.969	8.931	18.634	21.611	24.809	28.227	35.725	44.105	53.367	86.445	112.908
32	4.100	9.224	19.245	22.320	25.623	29.153	36.897	45.551	55.117	89.281	116.611
34	4.226	9.508	19.838	23.007	26.411	30.050	38.032	46.953	56.813	92.028	120.200
36	4.348	9.784	20.413	23.674	27.177	30.921	39.135	48.314	58.460	94.696	123.685
38	4.467	10.052	20.972	24.323	27.922	31.769	40.207	49.638	60.062	97.291	127.074
40	4.584	10.313	21.517	24.955	28.647	32.594	41.252	50.928	61.623	99.819	130.375
50	5.125	11.530				36.441	46.121	56.939	68.896		
60	5.614	12.631				39.919	50.523	62.374	75.472		
70	6.063	13.643				43.118	54.571	67.371	81.519		
80	6.482	14.585				46.095	58.339	72.023	87.148		
90	6.875	15.469				48.891	61.877	76.392	92.434		
100	7.247	16.306				51.535	65.224	80.524	97.434		
120	7.939	17.862									
140	8.575	19.294									
160	9.167	20.626									
180	9.723	21.877									
200	10.249	23.060									
220	10.749	24.186									
240	11.227	25.261									
260	11.686	26.293									
280	12.127	27.285									
300	12.552	28.243									

E 2013

Flow capacity / Caudal (kg/h)

Overpressure / Sobrepresión 10%

Calculation according / Calculos según ISO EN 4126-1 / API 520



CHRYSSAFIDIS



SELECCIÓN DE MUELLE / SPRING SELECTION

SERIE 1216F

SERIE 1216F Stainless steel/ Acero inoxidable / Inconel X 750 / 17/7PH

Rev. 5 Oct 2012

SPRING RESORTE					DN															
Codigo Code	A mm	Di mm	H mm	Espiras Spires	Max. Set pressure															
					1/2"	3/4"	1/2"	1"	3/4"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	1"	2"	1 1/2"	2"	2"
					bar	bar			bar		bar	bar	bar	bar	bar	bar	bar	bar	bar	
M2160	2	18	50	7	0,2	1	0,2	1			0,2	1	0,2	1	0,2	1				
M2165	2,5	18	50	7	1,1	2	1,1	2			1,1	2	1,1	2	1,1	2				
M2170	3	18	50	7	2,1	4	2,1	4			2,1	4	2,1	4	2,1	4				
M2175	4	18	50	7	4,1	10	4,1	11			4,1	8,6	4,1	10	4,1	10				
M2180	5	18	50	6	10,1	22	11,1	22			8,7	22	8,7	22	10,1	22	10,1	22		
M2187	5,5	18	54	6	22,1	40	22,1	40			22,1	40	22,1	40	22,1	40	22,1	40		
M2200	3	30	98	10											0,2	0,8	0,2	0,8	0,2	0,8
M2205	4	30	98	9											0,9	2	0,9	2	0,9	2
M2210	5	30	98	10											2,1	4	2,1	4	2,1	4
M2215	6	30	98	10											4,1	8	4,1	8	4,1	8
M2216	7	30	98	9											8,1	14	8,1	14	8,1	14
M2220	8	26	95	8											14,1	30	14,1	30	14,1	30
M2115	9	22	95	8											30,1	35	30,1	35	30,1	35

TEMPERATURE	° C
17 / 7PH	-196
A.C./ Carbon steel	180
S.S. AISI-302	240
Inconel X 750	450

