INTERNATIONAL STANDARD

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Safety devices for protection against excessive pressure —

Part 7: Common data

Dispositifs de sécurité pour protection contre les pressions excessives —

Partie 7: Données communes

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4126-7 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 185, *Safety devices for protection against excessive pressure*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

ISO 4126 consists of the following parts, under the general title *Safety devices for protection against excessive pressure*:

— *Part 1: Safety valves*

— *Part 2: Bursting disc safety devices*

— *Part 3: Safety valves and bursting disc safety devices in combination*

— *Part 4: Pilot-operated safety valves*

— *Part 5: Controlled safety pressure relief systems (CSPRS)*

— *Part 6: Application, selection and installation of bursting disc safety devices*

— *Part 7: Common data*

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Foreword

This document (EN ISO 4126-7:2004) has been prepared by Technical Committee CEN/TC 69 “Industrial valves”, the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 185 “Safety devices for protection against excessive pressure”.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2004 , and conflicting national standards shall be withdrawn at the latest by August 2004 .

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

This document includes a bibliography.

Annexes A and B are informative.

This European Standard for safety devices for protection against excessive pressure consists of seven parts of which this is part 7. The various parts are:

— *Part 1 : Safety valves*

— *Part 2 : Bursting disc safety devices*

— *Part 3 : Safety valves and bursting disc safety devices in combination*

— *Part 4 : Pilot operated safety valves*

— *Part 5 : Controlled Safety Pressure Relief Systems (CSPRS)*

— *Part 6 : Application, selection and installation of bursting disc safety devices*

— *Part 7 : Common data*

This Part 7 contains data, which is common to more than one of the parts of this standard to avoid unnecessary repetition. This part is referenced in the other parts of this standard where appropriate.

1 Scope

This Part of this standard contains data, which is common to more than one of the parts of this standard to avoid unnecessary repetition. This part is referenced in the other parts of this standard where appropriate.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

prEN 12516-1, *Industrial valves – Shell design strength – Part 1: Tabulation method for steel valve shells*.

ASTM A105/105M, *Specification for carbon steel forgings for piping applications.*

ASTM A106, *Specification for seamless carbon steel pipe for high-temperature service*.

ASTM A182/A182M, *Specification for forged or rolled alloy-steel pipe flanges, forged fittings and valves and parts for high temperature service.*

ASTM A203/A203M, *Specification for pressure vessel plates, Alloy steel, Nickel.*

ASTM A204/A204M, *Specification for pressure vessel plates, Alloy steel, Molybdenum*.

ASTM A216/A216M, *Specification for steel castings, Carbon suitable for fusion welding for high temperature service*.

ASTM A217/A217M, *Specification for steel castings, Martensitic stainless and alloy, For pressure containing parts suitable for high temperature service.*

ASTM A240/A240M, *Specification for chromium and chromium-nickel stainless steel plate, sheet and strip for pressure vessels and for general applications.*

ASTM A302/A302M, *Specification for pressure vessel plates, Alloy steel, Manganese-molybdenum and manganese-molybdenum—nickel*.

ASTM A312/A312M, *Specification for seamless and welded austenitic stainless steel pipes*.

ASTM A335/A335M, *Specification for seamless ferritic alloy-steel pipe for high temperature service*.

ASTM A350/A350M, *Specification for carbon and low alloy steel forgings, requiring notch toughness testing for piping components.*

ASTM A351/A351M, *Specification for castings, Austenitic, Austenitic-ferritic (duplex) for pressure containing parts*.

ASTM A352/A352M, *Specification for steel castings, Ferritic and martensitic, for pressure containing parts, Suitable for low-temperature service*.

ASTM A358/A358M, *Specification for electric-fusion-welded austenitic chromium-nickel alloy steel pipe for high temperature service.*

ASTM A369/A369M, *Specification for carbon and ferritic alloy steel forged and bored pipe for high-temperature service*.

ASTM A376/A376M, *Specification for seamless austenitic steel pipe for high-temperature central station service*.

ASTM A387/A387M, *Specification for pressure vessel plates, Alloy steel, Chromium-molybdeneum.*

ASTM A479/A479M, *Specification for stainless and steel bars and shapes for use in boilers and other pressure vessels*.

ASTM A515/A515M, *Specification for pressure vessel plates, Carbon steel, for intermediate and higher-temperature service*.

ASTM A516/A516M, *Specification for pressure vessel plates, Carbon steel, for moderate and lower-temperature service*.

ASTM A537/A537M, *Specification for pressure vessel plates, Heat-treated, Carbon-manganese-silicon steel*.

ASTM A672/A672M, *Specification for electric-fusion-welded steel pipe for high-pressure service at moderate temperatures.*

ASTM A675/A675M, *Specification for steel bars, Carbon, Hot-wrought, Special quality, Mechanical properties.*

ASTM A691/A691M, *Specification for carbon and alloy steel pipe, Electric fusion- welded for high pressure service at high temperature.*

ASTM A696/A696M, *Specification for steel bars, Carbon, Hot-wrought or cold-finished, Special quality, For pressure piping components*.

ASTM A739/A739M, *Specification for steel bars, Alloy, Hot-wrought, For elevated temperature or pressure-containing parts, Or both*.

ASTM A789/A789M, *Specification for seamless and welded ferritic/austenitic stainless steel tubing for general service*.

ASTM A790/A790M, *Specification for seamless and welded ferritic/austenitic stainless steel pipe.*

3 Non-European material groups and material temperature limitations

The temperature limitation of each ASTM material shall be as given in Table 5 and the choice of material groupings is explained in annex B.

For the purpose of determining the pressure temperature ratings for the pressure retaining components reference shall be made to prEN 12516-1.

Table 1 — Steam data

Pressure : 1-14 bar
Saturated : 220°C

Superheated steam temperature in degrees Celsius

PRESS Bar a.	SAT Temp C	Sat. steam	Temp >	100	110	120	130	140	150	160	170	180	190	200	210	220
1	99,63	1,6940	*V*	1,6960	1,7440	1,7930	1,8410	1,8890	1,9360	1,9640	2,0310	2,0780	2,1250	2,1720	2,2190	2,2660
		1,135	*k*	1,1350	1,1350	1,2266	1,3150	1,3150	1,3145	1,3140	1,3140	1,3130	1,3120	1,3110	1,3095	1,3085
		2,509	*C*	2,509	2,509	2,581	2,645	2,645	2,645	2,644	2,644	2,644	2,643	2,642	2,641	2,640
2	120,23	0,8854	*v*	-	-	-	0,8854	0,9349	0,9595	0,9840	1,0083	1,0325	1,0565	1,0804	1,1042	1,1280
		1,140	*k*	-	-	-	1,1400	1,2037	1,2690	1,3120	1,3120	1,3120	1,3110	1,3100	1,3095	1,3085
		2,513	*C*	-	-	-	2,513	2,563	2,612	6,643	2,643	2,643	2,642	2,641	2,610	2,640
3	133,54	0,6056	*v*	-	-	-	-	0,6167	0,6337	0,6506	0,6672	0,6837	0,7001	0,7164	0,7325	0,7486
		1,141	*k*	-	-	-	-	1,1380	1,1741	1,2300	1,3105	1,3100	1,3100	1,3095	1,3085	1,3080
		2,514	*C*	-	-	-	-	2,512	2,540	2,608	2,641	2,641	2,641	2,641	2,640	2,640
4	143,62	0,4622	*v*	-	-	-	-	-	0,4707	0,4837	0,4966	0,5093	0,5218	0,5343	0,5466	0,5589
		1,142	*k*	-	-	-	-	-	1,1370	1,1857	1,2620	1,3090	1,3110	1,3185	1,3070	1,3060
		2,515	*C*	-	-	-	-	-	2,511	2,549	2,607	2,641	2,642	2,647	2,639	2,639
5	151,84	0,3747	*v*	-	-	-	-	-	-	0,3835	0,3941	0,4045	0,4148	0,4250	0,435	0,445
		1,143	*k*	-	-	-	-	-	-	1,1365	1,1929	1,2620	1,3070	1,3070	1,3060	1,3055
		2,516	*C*	-	-	-	-	-	-	2,511	2,555	2,607	2,639	2,639	2,639	2,638
6	158,84	0,3155	*v*	-	-	-	-	-	-	0,3165	0,3257	0,3346	0,3434	0,3520	0,3606	0,3690
		1,144	*k*	-	-	-	-	-	-	1,1360	1,1480	1,2510	1,3050	1,3050	1,3050	1,3050
		2,517	*C*	-	-	-	-	-	-	2,510	2,520	2,599	2,638	2,638	2,638	2,638
7	164,96	0,2727	*v*	-	-	-	-	-	-	-	0,2767	0,2846	0,2923	0,2999	0,3074	0,3147
		1,143	*k*	-	-	-	-	-	-	-	1,1370	1,1769	1,2560	1,3040	1,3040	1,3040
		2,516	*C*	-	-	-	-	-	-	-	2,511	2,543	2,602	2,637	2,637	2,637
8	170,41	0,2403	*v*	-	-	-	-	-	-	-	-	0,2471	0,2540	0,2608	0,2675	0,2740
		1,142	*k*	-	-	-	-	-	-	-	-	1,137	1,1982	1,2610	1,3020	1,3020
		2,515	*C*	-	-	-	-	-	-	-	-	2,511	2,559	2,606	2,636	2.636
9	175,36	0,2148	*v*	-	-	-	-	-	-	-	-	0,2178	0,2241	0,2303	0,2364	0,2423
		1,141	*k*	-	-	-	-	-	-	-	-	1,139	1,1754	1,2540	1,3010	1,3015
		2,514	*C*	-	-	-	-	-	-	-	-	2,513	2,541	2,601	2,635	2,635
10	179,88	0,1943	*v*	-	-	-	-	-	-	-	-	0,1944	0,2002	0,2059	0,2115	0,2169
		1,140	*k*	-	-	-	-	-	-	-	-	1,140	1,1413	1,2480	1,3010	1,3010
		2,513	*C*	-	-	-	-	-	-	-	-	2,513	2,514	2,597	2,635	2,635
11	184,07	0,1774	*v*	-	-	-	-	-	-	-	-	-	0,1806	0,1859	0,1911	0,1961
		1,139	*k*	-	-	-	-	-	-	-	-	-	1,139	1,1814	1,2530	1,3005
		2,513	*C*	-	-	-	-	-	-	-	-	-	2,513	2,546	2,600	2,635
12	187,96	0,1632	*v*	-	-	-	-	-	-	-	-	-	0,1642	0,1692	0,1741	0,1788
		1,138	*k*	-	-	-	-	-	-	-	-	-	1,138	1,1565	1,2490	1,3000
		2,512	*C*	-	-	-	-	-	-	-	-	-	2,512	2,527	2,597	2,634
13	191,6	0,1511	*v*	-	-	-	-	-	-	-	-	-	-	0,1551	0,1597	0,1641
		1,137	*k*	-	-	-	-	-	-	-	-	-	-	1,137	1,1922	1,2580
		2,511	*C*	-	-	-	-	-	-	-	-	-	-	2,511	2,554	2,604
14	195	0,1407	*v*	-	-	-	-	-	-	-	-	-	-	0,1429	0,1473	0,1515
		1,136	*k*	-	-	-	-	-	-	-	-	-	-	1,135	1,1743	1,2530
		2,510	*C*	-	-	-	-	-	-	-	-	-	-	2,509	2,541	2,600

Use linear interpolation for intermediate values

"to be continued"

Table 1 — Steam data (continued)

Pressure : 1-14 bar
Saturated : 230°C – 370 °C

Superheated steam temperature in degrees Celsius

PRESS bar a.	Temp >	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370
1	*V*	2,513	2,359	2,406	2,453	2,499	2,546	2,592	2,639	2,865	2,732	2,788	2,824	2,871	2,917	2,964
	K	1,3085	1,3070	1,3060	1,3045	1,3030	1,3020	1,3010	1,3000	1,2990	1,2980	1,2970	1,2955	1,2945	1,2930	1,2905
	C	2,540	2,639	2,639	2,638	2,636	2,636	2,635	2,634	2,634	2,633	2,632	2,631	2,630	2,629	2,628
2	*V*	1,0964	1,1189	1,1414	1,1638	1,1862	1,2086	1,2309	1,2532	1,2755	1,2977	1,3199	1,3422	1,3644	1,3866	1,4087
	K	1,308	1,3065	1,3040	1,3040	1,3030	1,3015	1,3050	1,2990	1,2990	1,2990	1,2960	1,2940	1,2925	1,2910	1,2910
	C	2,640	2,639	2,637	2,637	2,636	2,635	2,638	2,634	2,634	2,634	2,631	2,630	2,629	2,628	2,628
3	*V*	0,7646	0,7805	0,7964	0,8123	0,8281	0,8438	0,8596	0,8753	0,8910	0,9066	0,9223	0,9397	0,9535	0,9691	0,9847
	K	1,3065	1,3045	1,3045	1,3040	1,3025	1,3010	1,3000	1,3000	1,2985	1,2980	1,2960	1,2950	1,2935	1,2920	1,2910
	C	2,639	2,638	2,638	2,637	2,636	2,635	2,634	2,634	2,633	2,633	2,631	2,631	2,630	2,629	2,628
4	*V*	0,5710	0,5831	0,5942	0,6072	0,6192	0,6311	0,6430	0,6549	0,6667	0,6785	0,6903	0,7021	0,7139	0,7256	0,7373
	K	1,3050	1,3075	1,3060	1,3050	1,3045	1,3020	1,3000	1,2995	1,2985	1,2975	1,2950	1,2940	1,2935	1,2920	1,2910
	C	2,638	2,640	2,639	2,638	2,638	2,636	2,634	2,634	2,633	2,633	2,631	2,630	2,630	2,629	2,628
5	*V*	0,4548	0,4647	0,4744	0,4841	0,4938	0,5034	0,5130	0,5226	0,5321	0,5416	0,5511	0,5606	0,5701	0,5795	0,5889
	K	1,3050	1,3030	1,3025	1,3025	1,3015	1,3015	1,3000	1,2990	1,2980	1,2965	1,2960	1,2945	1,2935	1,2910	1,2910
	C	2,638	2,636	2,636	2,636	2,635	2,635	2,634	2,634	2,633	2,632	2,631	2,630	2,630	2,629	2,629
6	*V*	0,3774	0,3857	0,3939	0,4021	0,4102	0,4183	0,4264	0,4344	0,4424	0,4504	0,4583	0,4663	0,4742	0,4821	0,4900
	K	1,3040	1,3040	1,3030	1,3020	1,3010	1,3005	1,3000	1,2990	1,2980	1,2970	1,2950	1,2935	1,2930	1,2920	1,2910
	C	2,637	2,637	2,636	2,636	2,635	2,635	2,634	2,634	2,633	2,632	2,631	2,630	2,629	2,629	2,628
7	*V*	0,3220	0,3292	0,3364	0,3435	0,3505	0,3575	0,3645	0,3714	0,3783	0,3852	0,3920	0,3989	0,4057	0,4125	0,4193
	K	1,3030	1,3025	1,3020	1,3015	1,3010	1,3000	1,2995	1,2990	1,2980	1,2960	1,2950	1,2940	1,2930	1,2915	1,2905
	C	2,636	2,636	2,636	2,635	2,635	2,634	2,634	2,634	2,633	2,631	2,631	2,630	2,629	2,628	2,628
8	*V*	0,2805	0,2869	0,2932	0,2995	0,3057	0,3119	0,3108	0,3241	0,3302	0,3363	0,3423	0,3483	0,3543	0,3603	0,3663
	K	1,3020	1,3020	1,3015	1,3010	1,3005	1,3000	1,2995	1,2985	1,2975	1,2960	1,2950	1,2935	1,2930	1,2915	1,2905
	C	2,636	2,636	2,635	2,635	2,635	2,634	2,634	2,633	2,633	2,631	2,631	2,630	2,629	2,628	2,628
9	*V*	0,2482	0,2539	0,2596	0,2653	0,2709	0,2764	0,2819	0,2874	0,2928	0,2983	0,3037	0,3090	0,3144	0,3197	0,3251
	K	1,3015	1,3010	1,3010	1,3005	1,3000	1,2995	1,2990	1,2985	1,2970	1,2955	1,2945	1,2930	1,2920	1,2910	1,2900
	C	2,635	2,635	2,635	2,635	2,634	2,634	2,634	2,633	2,632	2,631	2,630	2,929	2,629	2,628	2,627
10	*V*	0,2223	0,2276	0,2327	0,2379	0,2430	0,2480	0,2530	0,2580	0,2629	0,2678	0,2727	0,2776	0,2824	0,2873	0,2921
	K	1,3010	1,3010	1,3007	1,3005	1,3000	1,2995	1,2990	1,2980	1,2970	1,2960	1,2945	1,2935	1,2920	1,2910	1,2900
	C	2,635	2,635	2,635	2,635	2,634	2,634	2,634	2,633	2,632	2,631	2,630	2,630	2,628	2,628	2,627
11	*V*	0,2011	0,2060	0,2107	0,2155	0,2201	0,2248	0,2294	0,2339	0,2384	0,2429	0,2474	0,2518	0,2563	0,2607	0,2651
	K	1,3005	1,3005	1,3005	1,3000	1,2995	1,2990	1,2985	1,2970	1,2960	1,2950	1,2940	1,2930	1,2920	1,2910	1,2900
	C	2,635	2,635	2,635	2,634	2,634	2,634	2,633	2,632	2,631	2,631	2,630	2,629	2,629	2,628	2,627
12	*V*	0,1834	0,1879	0,1924	0,1968	0,2011	0,2054	0,2096	0,2139	0,2180	0,2222	0,2263	0,2304	0,2345	0,2386	0,2426
	K	1,3000	1,3000	1,3000	1,3000	1,2995	1,2990	1,2980	1,2970	1,2960	1,2950	1,2940	1,2925	1,2920	1,2910	1,2900
	C	2,634	2,634	2,634	2,634	2,634	2,634	2,633	2,632	2,631	2,631	2,630	2,629	2,629	2,628	2,627
13	*V*	0,1685	0,1727	0,1769	0,1810	0,1850	0,1890	0,1930	0,1969	0,2008	0,2046	0,2084	0,2123	0,2160	0,2198	0,2236
	K	1,3000	1,3000	1,3000	1,2995	1,2990	1,2980	1,2970	1,2965	1,2950	1,2940	1,2930	1,2920	1,2915	1,2905	1,2900
	C	2,634	2,634	2,634	2,634	2,634	2,633	2,632	2,631	2,631	2,630	2,629	2,629	2,628	2,628	2,627
14	*V*	0,1556	0,1596	0,1635	0,1674	0,1712	0,1749	0,1787	0,1823	0,1860	0,1896	0,1931	0,1967	0,2002	0,2038	0,2073
	K	1,3000	1,2995	1,2990	1,2990	1,2980	1,2980	1,2970	1,2960	1,2950	1,2945	1,2930	1,2920	1,2910	1,2905	1,2895
	C	2,634	2,634	2,634	2,634	2,633	2,633	2,632	2,631	2,631	2,630	2,629	2,629	2,628	2,628	2,627

Use linear interpolation for intermediate values

"to be continued"

Table 1 — Steam data (continued)

Pressure : 1-14 bar
Saturated : 380°C – 520 °C

Superheated steam temperature in degrees Celsius

PRESS Bar a.	**Temp >**	**380**	**390**	**400**	**410**	**420**	**430**	**440**	**450**	**460**	**470**	**480**	**490**	**500**	**510**	**520**
1	*v*	3,0100	3,0560	3,1020	3,1490	3,1950	3,2410	3,2880	3,3340	3,3800	3,4270	3,4730	3,5190	3,5650	3,6120	3,6580
	k	1,2905	1,2905	1,2880	1,2870	1,2855	1,2845	1,2830	1,2820	1,2810	1,2800	1,2788	1,2775	1,276	1,275	1,274
	C	2,628	2,628	2,626	2,625	2,624	2,623	2,622	2,621	2,621	2,620	2,619	2,618	2,617	2,616	2,616
2	*v*	1,4309	1,4531	1,4752	1,4973	1,5195	1,5416	1,5637	1,5858	1,6079	1,6300	1,6521	1,6742	1,6963	1,7184	1,7404
	k	1,2900	1,2895	1,2880	1,2870	1,2855	1,2845	1,2835	1,2825	1,2810	1,2785	1,2785	1,2775	1,2770	1,2750	1,2740
	C	2,627	2,627	2,626	2,625	2,624	2,623	2,623	2,622	2,621	2,619	2,618	2,618	2,618	2,616	2,616
3	*v*	1,0003	1,0158	1,0314	1,0469	1,0625	1,0780	1,0938	1,0900	1,1245	1,1401	1,1556	1,1710	1,8650	1,2020	1,2175
	k	1,2900	1,2890	1,2880	1,2880	1,2845	1,2840	1,2840	1,2824	1,2810	1,2796	1,2783	1,2777	1,2745	1,2750	1,2740
	C	2,627	2,626	2,626	2,626	2,623	2,623	2,623	2,622	2,621	2,620	2,619	2,618	2,616	2,616	2,616
4	*v*	0,7491	0,7608	0,7725	0,7842	0,7959	0,8076	0,8192	0,8309	0,8426	0,8542	0,8659	0,8775	0,8892	0,9008	0,9125
	k	1,2840	1,2840	1,2880	1,2870	1,2855	1,2845	1,2830	1,2820	1,2810	1,2795	1,2783	1,2775	1,2770	1,2750	1,2750
	C	2,623	2,623	6,626	2,625	2,624	2,623	2,622	2,621	2,621	2,620	2,619	2,618	2,618	2,616	2,616
5	*v*	0,5984	0,6078	0,6172	0,6266	0,6359	0,6453	0,6547	0,6640	0,6734	0,6828	0,6921	0,7014	0,7108	0,7201	0,7294
	k	1,2900	1,2890	1,2875	1,2860	1,2850	1,2845	1,2830	1,2820	1,2810	1,2790	1,2783	1,2775	1,2765	1,2750	1,2740
	C	2,627	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,621	2,619	2,619	2,618	2,617	2,616	2,616
6	*v*	0,4979	0,5057	0,5136	0,5214	0,5293	0,5371	0,5450	0,5528	0,5605	0,5684	0,5762	0,5840	0,5918	0,5996	0,6074
	k	1,2900	1,2890	1,2875	1,2860	1,2850	1,2840	1,2830	1,2820	1,2805	1,2790	1,2783	1,2775	1,2760	1,2750	1,2740
	C	2,627	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,616
7	*v*	0,4261	0,4329	0,4396	0,4464	0,4531	0,4599	0,4666	0,4733	0,4801	0,4868	0,4935	0,5002	0,5069	0,5136	0,5203
	k	1,2900	1,2880	1,2875	1,2860	1,2850	1,2840	1,2830	1,2820	1,2805	1,2790	1,2783	1,2772	1,2760	1,2750	1,2740
	C	2,627	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,616
8	*v*	0,3723	0,3782	0,3842	0,3901	0,3960	0,4019	0,4078	0,4137	0,4196	0,4255	0,4314	0,4373	0,4432	0,4490	0,4549
	k	1,2895	1,2880	1,2870	1,2860	1,2850	1,2840	1,2830	1,2820	1,2805	1,2790	1,2783	1,2775	1,2760	1,2750	1,2740
	C	2,627	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,616
9	*v*	0,3304	0,3357	0,3410	0,3463	0,3516	0,3569	0,3621	0,3674	0,3726	0,3779	0,3821	0,3884	0,3936	0,3988	0,4041
	k	1,2895	1,2880	1,2870	1,2860	1,2850	1,2840	1,2825	1,2815	1,2800	1,2790	1,2783	1,2770	1,2760	1,275	1,2740
	C	2,627	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,619	2,617	2,616	2,616
10	*v*	0,2969	0,3017	0,3065	0,3113	0,3160	0,3208	0,3256	0,3303	0,3350	0,3398	0,3445	0,3492	0,3540	0,3587	0,3634
	k	1,2880	1,2880	1,2870	1,2860	1,2850	1,2835	1,2825	1,2815	1,2800	1,2790	1,2780	1,2770	1,2760	1,2750	1,2740
	C	2,626	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,619	2,617	2,616	2,616
11	*v*	0,2694	0,2739	0,2782	0,2826	0,2870	0,2913	0,2956	0,3000	0,3043	0,3086	0,3129	0,3172	0,3215	0,3258	0,3301
	k	1,2890	1,2880	1,2870	1,2855	1,2850	1,2840	1,2825	1,2820	1,2800	1,2790	1,2780	1,2770	1,2760	1,2750	1,2735
	C	2,626	2,626	2,625	2,624	2,624	2,623	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,615
12	*v*	0,2467	0,2507	0,2547	0,2587	0,2627	0,2667	0,2707	0,2747	0,2787	0,2826	0,2866	0,2905	0,2945	0,2984	0,3024
	k	1,2890	1,2880	1,2870	1,2885	1,2845	1,2835	1,2850	1,2810	1,2800	1,2790	1,2780	1,2770	1,2760	1,2750	1,2740
	C	2,626	2,626	2,625	2,624	2,623	2,622	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,615
13	*v*	0,2273	0,2311	0,2348	0,2385	0,2422	0,2459	0,2496	0,2533	0,2570	0,2606	0,2643	0,2680	0,2716	0,2753	0,2789
	k	1,2890	1,2880	1,2870	1,2850	1,2845	1,2830	1,2825	1,2810	1,2800	1,2790	1,2780	1,2770	1,2760	1,2750	1,2740
	C	2,626	2,626	2,625	2,624	2,623	2,622	2,622	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,615
14	*v*	0,2108	0,2142	0,2177	0,2212	0,2246	0,2281	0,2315	0,2349	0,2384	0,2418	0,2452	0,2486	0,2520	0,2554	0,2588
	k	1,2880	1,2875	1,2865	1,2850	1,2840	1,2830	1,2823	1,2810	1,2800	1,2785	1,2780	1,2770	1,2760	1,2750	1,2375
	C	2,626	2,626	2,625	2,624	2,623	2,622	2,621	2,621	2,620	2,619	2,619	2,618	2,617	2,616	2,615

Use linear interpolation for intermediate values

"to be continued"

Table 1 — Steam data (continued)

Pressure : 1-14 bar
Saturated : 530°C – 600 °C

Superheated steam temperature in degrees Celsius

PRESS bar a.	Temp >	530	540	550	560	570	580	590	600
1	*v*	3,7040	3,7500	3,7970	3,8430	3,8890	3,9350	3,9810	4,0280
	k	1,2720	1,2720	1,2710	1,2700	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,613	2,612	2,611	2,611	2,610
2	*v*	1,7625	1,7846	1,8066	1,9202	1,9434	1,9666	1,9897	2,0129
	k	1,2730	1,2720	1,2710	1,2700	1,2690	1,2680	1,2680	1,2670
	C	2,615	2,614	2,613	2,613	2,612	2,611	2,611	2,611
3	*v*	1,2330	1,2485	1,2639	1,2794	1,2949	1,3103	1,3258	1,3412
	k	1,2730	1,2720	1,2710	1,2700	1,2690	1,2680	1,2670	1,2670
	C	2,615	2,614	2,613	2,613	2,612	2,611	2,611	2,617
4	*v*	0,9241	0,9357	0,9474	0,9590	0,9706	0,9822	0,9938	1,0054
	k	1,2730	1,2720	1,2710	1,2700	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,613	2,612	2,611	2,611	2,610
5	*v*	0,7388	0,7481	0,7574	0,7667	0,7760	0,7853	0,7946	0,8093
	k	1,2730	1,2720	1,2710	1,2695	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
6	*v*	0,6152	0,6230	0,6308	0,6386	0,6463	0,6541	0,6619	0,6696
	k	1,2730	1,2720	1,2705	1,2695	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
7	*v*	0,5207	0,5336	0,5403	0,5470	0,5537	0,5603	0,5670	0,5737
	k	1,2730	1,2720	1,2705	1,2695	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
8	*v*	0,4608	0,4666	0,4725	0,4783	0,4842	0,4900	0,4959	0,5017
	k	1,2730	1,2720	1,2705	1,2695	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
9	*v*	0,4093	0,4145	0,4197	0,4249	0,4301	0,4354	0,4406	0,4458
	k	1,2730	1,2720	1,2705	1,2965	1,2690	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
10	*v*	0,3681	0,3728	0,3775	0,3822	0,3869	0,3916	0,3963	0,4010
	k	1,2730	1,2720	1,2705	1,2695	1,2685	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,612	2,611	2,611	2,610
11	*v*	0,3344	0,3387	0,3430	0,3473	0,3515	0,3558	0,3601	0,3643
	k	1,2725	1,2720	1,2705	1,2695	1,2680	1,2680	1,2660	1,2660
	C	2,615	2,614	2,613	2,612	2,611	2,611	2,610	2,610
12	*v*	0,3063	0,3103	0,3142	0,3181	0,3221	0,3260	0,3299	0,3380
	k	1,2725	1,2715	1,2700	1,2695	1,2680	1,2680	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,611	2,611	2,611	2,610
13	*v*	0,2826	0,2862	0,2898	0,2935	0,2971	0,3007	0,3044	0,3080
	k	1,2725	1,2715	1,2700	1,2695	1,2680	1,2670	1,2670	1,2660
	C	2,615	2,614	2,613	2,612	2,611	2,611	2,611	2,610
14	*v*	0,2622	0,2656	0,269	0,2724	0,2757	0,2791	0,2825	0,2859
	k	1,2725	1,2720	1,2700	1,2695	1,2680	1,2670	1,2660	1,2650
	C	2,615	2,614	2,613	2,612	2,611	2,611	2,610	2,609

Use linear interpolation for intermediate values

"to be continued"

Table 1 — Steam data (continued)

Pressure : 15-32 bar
Saturated : 320°C

Superheated steam temperature in degrees Celsius

PRESS Bar a.	SAT Temp C	Sat. steam	Temp >	200	210	220	230	240	250	260	270	280	290	300	310	320
15	198,3	0,1317	*v*	0,1317	0,1317	0,1406	0,1445	0,1483	0,1520	0,1556	0,1592	0,1628	0,1663	0,1697	0,1731	0,1765
		1,135	*k*	1,133	1,133	1,3136	1,2970	1,2980	1,2980	1,2975	1,2980	1,2970	1,2965	1,2960	1,2950	1,2940
		2,509	*C*	2,508	2,508	2,644	2,632	2,633	2,633	2,633	2,633	2,632	2,632	2,631	2,631	2,630
16	201,4	0,1237	*v*	-	0,1237	0,1310	0,1347	0,1383	0,1419	0,1453	0,1487	0,1521	0,1554	0,1587	0,1619	0,1651
		1,134	*k*	-	1,133	1,1894	1,2550	1,2975	1,2970	1,2970	1,2960	1,2970	1,2960	1,2955	1,2945	1,294
		2,509	*C*	-	2,508	2,552	2,602	2,633	2,632	2,632	2,631	2,632	2,631	2,631	2,630	2,630
17	204,3	0,1166	*v*	-	0,1166	0,1225	0,1261	0,1296	0,1329	0,1362	0,1395	0,1427	0,1458	0,1489	0,1520	0,1550
		1,133	*k*	-	1,1315	1,1745	1,2500	1,2960	1,2960	1,2970	1,296	1,296	1,2950	1,2950	1,2940	1,2930
		2,508	*C*	-	2,507	2,541	2,598	2,631	2,631	2,632	2,631	2,631	2,631	2,631	2,630	2,629
18	207,1	0,1103	*v*	-	0,1103	0,1150	0,1184	0,1217	0,1250	0,1282	0,1313	0,1343	0,1373	0,1402	0,1432	0,1460
		1,132	*k*	-	1,1305	1,1513	1,2322	1,2950	1,2960	1,2960	1,2960	1,2960	1,2960	1,2940	1,2935	1,2930
		2,507	*C*	-	2,506	2,522	2,585	2,631	2,631	2,631	2,631	2,631	2,631	2,630	2,630	2,629
19	209,8	0,1047	*v*	-	0,1047	0,1047	0,1115	0,1147	0,1179	0,1209	0,1239	0,1268	0,1297	0,1325	0,1353	0,1380
		1,131	*k*	-	1,1300	1,1300	1,2133	1,2950	1,2960	1,2950	1,2950	1,2950	1,2940	1,2940	1,2935	1,2920
		2,506	*C*	-	2,505	2,505	2,571	2,631	2,631	2,631	2,631	2,631	2,630	2,630	2,630	2,629
20	212,4	0,0995	*v*	-	-	0,0995	0,1053	0,1084	0,1114	0,1144	0,1172	0,1200	0,1228	0,1255	0,1282	0,1308
		1,130	*k*	-	-	1,1295	1,1801	1,2500	1,2940	1,2940	1,2940	1,2940	1,2940	1,2930	1,2930	1,2920
		2,505	*C*	-	-	2,505	2,545	2,598	2,630	2,630	2,630	2,630	2,630	2,629	2,629	2,629
21	214,9	0,0949	*v*	-	-	0,0949	0,0997	0,1027	0,1056	0,1085	0,1112	0,1139	0,1166	0,1192	0,1217	0,1243
		1,129	*k*	-	-	1,1270	1,1672	1,2460	1,293	1,2935	1,2940	1,2935	1,293	1,293	1,2930	1,2920
		2,504	*C*	-	-	2,503	2,535	2,595	2,629	2,628	2,628	2,628	2,629	2,629	2,629	2,629
22	217,2	0,0907	*v*	-	-	0,0907	0,0946	0,9075	0,1004	0,1031	0,1058	0,1084	0,1109	0,1134	0,1159	0,1183
		1,128	*k*	-	-	1,1270	1,1410	1,2410	1,2915	1,2930	1,2930	1,2935	1,2930	1,2925	1,2920	1,2915
		2,504	*C*	-	-	2,503	2,514	2,591	2,628	2,629	2,629	2,628	2,629	2,629	2,629	2,628
23	219,6	0,0868	*v*	-	-	0,0868	0,0868	0,0928	0,0955	0,0982	0,1008	0,1033	0,1058	0,1082	0,1106	0,1129
		1,127	*k*	-	-	1,1240	1,1240	1,2094	1,2915	1,2920	1,2925	1,2925	1,2925	1,2920	1,2915	1,2915
		2,503	*C*	-	-	2,500	2,500	2,568	2,628	2,629	2,629	2,629	2,629	2,629	2,628	2,628
24	221,8	0,0832	*v*	-	-	-	0,0832	0,0884	0,0911	0,0937	0,0962	0,0986	0,1010	0,1034	0,1057	0,1079
		1,126	*k*	-	-	-	1,1230	1,1793	1,2480	1,2920	1,2925	1,2925	1,2925	1,2920	1,2915	1,2910
		2,502	*C*	-	-	-	2,500	2,544	2,597	2,629	2,629	2,629	2,629	2,629	2,628	2,628
26	226	0,0769	*v*	-	-	-	0,0769	0,0806	0,0832	0,0857	0,0881	0,0904	0,0926	0,0948	0,0970	0,0991
		1,123	*k*	-	-	-	1,1215	1,1556	1,2410	1,2905	1,2910	1,2915	1,2915	1,2920	1,2910	1,2905
		2,500	*C*	-	-	-	2,500	2,526	2,591	2,628	2,628	2,628	2,628	2,629	2,628	2,628
28	230,1	0,0714	*v*	-	-	-	-	0,0714	0,0764	0,0788	0,0811	0,0811	0,0833	0,0854	0,0875	0,0896
		1,121	*k*	-	-	-	-	1,1200	1,1837	1,2480	1,2910	1,2910	1,2910	1,2910	1,2915	1,2905
		2,498	*C*	-	-	-	-	2,497	2,548	2,597	2,628	2,628	2,628	2,628	2,628	2,628
30	233,8	0,0666	*v*	-	-	-	-	0,0666	0,0706	0,0728	0,0750	0,0771	0,0792	0,0812	0,0831	0,0850
		1,118	*k*	-	-	-	-	1,1180	1,1665	1,2420	1,2900	1,2900	1,2900	1,2905	1,2906	1,290
		2,496	*C*	-	-	-	-	2,496	2,534	2,592	2,627	2,627	2,627	2,628	2,628	2,627
32	237,5	0,0624	*v*	-	-	-	-	0,0624	0,06542,51	0,0676	0,0697	0,0717	0,0737	0,0756	0,0775	0,0793
		1,116	*k*	-	-	-	-	1,1180	1,1414	1,235	1,2880	1,2890	1,2890	1,290	1,2895	1,2900
		2,494	*C*	-	-	-	-	2,496	2,514	2,587	2,626	2,626	2,626	2,627	2,629	2,627

Use linear interpolation for intermediate values

"to be continued"