



CERTIFICATE OF APPROVAL

No CF 5994

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

Rudolf Hensel GmbH
Lauenburger Landstraße 11
D-21039 Börnsen, Germany

TEL: +49 040 72106210

Have been assessed against the requirements of the Technical Schedule(s)
denoted below and are approved for use subject to the conditions
appended hereto:

CERTIFIED PRODUCT
HENSOTHERM® 920 KS

TECHNICAL SCHEDULE
**TS15 Intumescent Coatings
for Steelwork**

Signed and sealed for and on behalf of Warringtonfire Testing and Certification Limited

Paul Duggan
Certification Manager



Issued: 11th May 2021
Revised: 19th December 2023
Valid to: 10th May 2026



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Rudolf Hensel GmbH

HENSOTHERM® 920 KS

1. This approval relates to the use of HENSOTHERM® 920 KS for the fire protection of I/H beams, I/H columns and hollow columns. The precise scope is given in the Tables of Results which show the total dry film thickness of HENSOTHERM® 920 KS (excluding any primer and topcoat) required to provide fire resistance periods in accordance with BS476: Parts 20 and 21: 1987. The scope includes periods of fire resistance of up to 150 minutes for I/H beams and I/H columns, and up to 180 minutes for circular and rectangular/square hollow columns.
2. This certification is provided to the client for their own purposes and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.
3. The products are approved on the basis of:
 - i) Initial type testing.
 - ii) A design appraisal against TS15.
 - iii) Certification of quality management system to ISO 9001: 2015.
 - iv) Inspection and surveillance of factory production control.
 - v) Audit testing.
4. The data referring to three-sided fire exposure of beams relate to beams supporting concrete floor slabs. Separate consideration is required where this is not the case.
5. The data shown is applicable to steel sections blast cleaned to ISO 8501-1 Sa 2.5 or equivalent and primed with a suitable and compatible primer. Specifications of suitably tested and evaluated surface preparations, primers and topcoats are available from Rudolf Hensel GmbH whose responsibility is to ensure that the HENSOTHERM® 920 KS system is compatible for use in respect of both ambient and fire conditions. The nominal dry film thickness of primer and topcoat shall be applied at a nominal thickness tested unless stated otherwise in this certificate.

Data that has been independently assessed against the CERTIFIRE scheme relating to compatibility and durability for HENSOTHERM® 920 KS, is presented in Annex A.
6. The data shown is applicable to HENSOTHERM® 920 KS applied to horizontal, vertical, flexural and compression members supporting loads up to the maximum design loads specified in EN 1993-1-1.
7. Results from analysis of I/H sections are directly applicable to angles, channels and T-

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sections for the same section factor.

8. The approval relates to on-going production. The product and/or its immediate packaging shall be identified with the manufacturers' name, the product name or number, the CERTIFIRE name or name and mark, together with the CERTIFIRE certificate number and application where appropriate.
9. The data shown in the tables is based on an assessment that complies with the criteria for acceptability incorporated within the CERTIFIRE scheme.
10. For section factors below the extended minimum given in Tables of Results, the same coating thickness as that applied to the extended minimum section factor shall be applied.

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Table 1. HENSOTHERM® 920 KS

I/H Beams: 15 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ⁻¹)	300	350	400	450	500	550	600	620	650	700	750
30	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
35	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
40	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
45	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
50	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
55	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
60	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
65	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
70	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
75	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
80	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
85	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
90	0.358	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
95	0.379	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
100	0.400	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
105	0.422	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
110	0.443	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
115	0.464	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
120	0.485	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
125	0.506	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
130	0.528	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
135	0.549	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
140	0.570	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
145	0.591	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
150	0.612	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
155	0.634	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
160	0.655	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
165	0.676	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
170	0.697	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
175	0.718	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
180	0.740	0.355	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
185	0.761	0.374	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
190	0.782	0.393	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
195	0.803	0.413	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
200	0.824	0.432	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
205	0.846	0.452	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
210	0.867	0.471	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
215	0.888	0.490	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
220	0.909	0.510	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
225	0.930	0.529	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
230	0.951	0.548	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
235	0.973	0.568	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
240	0.994	0.587	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
245	1.015	0.606	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
250	1.036	0.626	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
255	1.057	0.645	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
260	1.079	0.664	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
265	1.100	0.684	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
270	1.121	0.703	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
275	1.142	0.723	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
280	1.163	0.742	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
285	1.185	0.761	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
290	1.206	0.781	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
295	1.227	0.800	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
300	1.248	0.819	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
305	1.269	0.839	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
310	1.291	0.858	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
315	1.312	0.877	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
320	1.333	0.897	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
325	1.354	0.916	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
330	1.375	0.936	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
335	1.397	0.955	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
340	1.418	0.974	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
345	1.439	0.994	0.376	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
350	1.460	1.013	0.400	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
355	1.481	1.032	0.424	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
360	1.505	1.052	0.448	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
365	1.531	1.071	0.472	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
370	1.557	1.090	0.496	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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Table 2. HENSOTHERM® 920 KS

I/H Beams: 30 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
35	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
40	0.401	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
45	0.491	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
50	0.581	0.389	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
55	0.670	0.441	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
60	0.760	0.492	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
65	0.850	0.543	0.374	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
70	0.939	0.594	0.408	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
75	1.029	0.645	0.443	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
80	1.119	0.696	0.478	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
85	1.208	0.747	0.512	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
90	1.298	0.798	0.547	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
95	1.388	0.849	0.582	0.367	0.353	0.353	0.353	0.353	0.353	0.353	0.353
100	1.477	0.901	0.617	0.393	0.353	0.353	0.353	0.353	0.353	0.353	0.353
105	1.535	0.952	0.651	0.419	0.353	0.353	0.353	0.353	0.353	0.353	0.353
110	1.588	1.003	0.686	0.444	0.353	0.353	0.353	0.353	0.353	0.353	0.353
115	1.640	1.054	0.721	0.470	0.353	0.353	0.353	0.353	0.353	0.353	0.353
120	1.693	1.105	0.756	0.496	0.353	0.353	0.353	0.353	0.353	0.353	0.353
125	1.745	1.156	0.790	0.522	0.353	0.353	0.353	0.353	0.353	0.353	0.353
130	1.797	1.207	0.825	0.548	0.353	0.353	0.353	0.353	0.353	0.353	0.353
135	1.850	1.258	0.860	0.573	0.353	0.353	0.353	0.353	0.353	0.353	0.353
140	1.902	1.309	0.894	0.599	0.376	0.353	0.353	0.353	0.353	0.353	0.353
145	1.955	1.361	0.929	0.625	0.400	0.353	0.353	0.353	0.353	0.353	0.353
150	2.006	1.412	0.964	0.651	0.424	0.353	0.353	0.353	0.353	0.353	0.353
155	2.055	1.463	0.999	0.676	0.448	0.353	0.353	0.353	0.353	0.353	0.353
160	2.103	1.512	1.033	0.702	0.472	0.353	0.353	0.353	0.353	0.353	0.353
165	2.152	1.557	1.068	0.728	0.496	0.353	0.353	0.353	0.353	0.353	0.353
170	2.200	1.603	1.103	0.754	0.520	0.353	0.353	0.353	0.353	0.353	0.353
175	2.249	1.649	1.138	0.780	0.544	0.353	0.353	0.353	0.353	0.353	0.353
180	2.297	1.695	1.172	0.805	0.568	0.353	0.353	0.353	0.353	0.353	0.353
185	2.346	1.741	1.207	0.831	0.592	0.353	0.353	0.353	0.353	0.353	0.353
190	2.395	1.787	1.242	0.857	0.616	0.353	0.353	0.353	0.353	0.353	0.353
195	2.443	1.833	1.276	0.883	0.641	0.353	0.353	0.353	0.353	0.353	0.353
200	2.492	1.879	1.311	0.908	0.665	0.359	0.353	0.353	0.353	0.353	0.353
205	2.540	1.924	1.346	0.934	0.689	0.383	0.353	0.353	0.353	0.353	0.353
210	2.589	1.970	1.381	0.960	0.713	0.408	0.353	0.353	0.353	0.353	0.353
215	2.637	2.014	1.415	0.986	0.737	0.432	0.353	0.353	0.353	0.353	0.353
220	2.686	2.056	1.450	1.012	0.761	0.456	0.353	0.353	0.353	0.353	0.353
225	2.734	2.098	1.485	1.037	0.785	0.481	0.353	0.353	0.353	0.353	0.353
230	2.783	2.139	1.508	1.063	0.809	0.505	0.353	0.353	0.353	0.353	0.353
235	2.832	2.181	1.529	1.089	0.833	0.530	0.353	0.353	0.353	0.353	0.353
240	2.880	2.222	1.550	1.115	0.857	0.554	0.353	0.353	0.353	0.353	0.353
245	2.929	2.264	1.571	1.140	0.881	0.579	0.353	0.353	0.353	0.353	0.353
250	2.977	2.306	1.592	1.166	0.905	0.603	0.353	0.353	0.353	0.353	0.353
255	3.026	2.347	1.613	1.192	0.929	0.628	0.353	0.353	0.353	0.353	0.353
260	3.074	2.389	1.634	1.218	0.953	0.652	0.353	0.353	0.353	0.353	0.353
265	3.123	2.430	1.655	1.244	0.977	0.677	0.353	0.353	0.353	0.353	0.353
270	3.171	2.472	1.676	1.269	1.001	0.701	0.353	0.353	0.353	0.353	0.353
275	3.220	2.514	1.697	1.295	1.025	0.725	0.353	0.353	0.353	0.353	0.353
280	3.268	2.555	1.718	1.321	1.049	0.750	0.353	0.353	0.353	0.353	0.353
285	3.317	2.597	1.739	1.347	1.073	0.774	0.353	0.353	0.353	0.353	0.353
290	3.366	2.638	1.760	1.372	1.097	0.799	0.353	0.353	0.353	0.353	0.353
295	3.414	2.680	1.781	1.398	1.121	0.823	0.353	0.353	0.353	0.353	0.353
300	3.463	2.722	1.802	1.424	1.145	0.848	0.353	0.353	0.353	0.353	0.353
305	3.511	2.763	1.823	1.450	1.169	0.872	0.353	0.353	0.353	0.353	0.353
310	3.560	2.805	1.843	1.476	1.193	0.897	0.353	0.353	0.353	0.353	0.353
315	3.608	2.847	1.864	1.502	1.217	0.921	0.353	0.353	0.353	0.353	0.353
320	3.657	2.888	1.885	1.529	1.241	0.946	0.353	0.353	0.353	0.353	0.353
325	3.705	2.930	1.906	1.557	1.265	0.970	0.353	0.353	0.353	0.353	0.353
330	3.754	2.971	1.927	1.584	1.289	0.994	0.375	0.353	0.353	0.353	0.353
335	3.802	3.013	1.948	1.612	1.313	1.019	0.407	0.353	0.353	0.353	0.353
340	3.851	3.055	1.969	1.639	1.337	1.043	0.439	0.353	0.353	0.353	0.353
345	3.900	3.096	1.990	1.667	1.361	1.068	0.471	0.353	0.353	0.353	0.353
350	3.948	3.138	2.040	1.694	1.386	1.092	0.504	0.359	0.353	0.353	0.353
355	3.999	3.179	2.102	1.721	1.410	1.117	0.536	0.389	0.353	0.353	0.353
360	4.052	3.221	2.163	1.749	1.434	1.141	0.568	0.420	0.353	0.353	0.353
365	4.105	3.263	2.224	1.776	1.458	1.166	0.600	0.450	0.353	0.353	0.353
370	4.158	3.304	2.286	1.804	1.482	1.190	0.633	0.480	0.353	0.353	0.353

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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Table 3. HENSOTHERM® 920 KS

I/H Beams: 45 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ⁻²)	300	350	400	450	500	550	600	620	650	700	750
30	1.324	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
35	1.324	0.437	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
40	1.324	0.549	0.392	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
45	1.324	0.660	0.471	0.366	0.353	0.353	0.353	0.353	0.353	0.353	0.353
50	1.324	0.772	0.551	0.424	0.355	0.353	0.353	0.353	0.353	0.353	0.353
55	1.454	0.883	0.630	0.481	0.397	0.353	0.353	0.353	0.353	0.353	0.353
60	1.611	0.994	0.710	0.539	0.438	0.353	0.353	0.353	0.353	0.353	0.353
65	1.774	1.106	0.789	0.596	0.480	0.365	0.353	0.353	0.353	0.353	0.353
70	1.937	1.217	0.869	0.654	0.521	0.397	0.353	0.353	0.353	0.353	0.353
75	2.051	1.329	0.949	0.712	0.563	0.429	0.353	0.353	0.353	0.353	0.353
80	2.138	1.440	1.028	0.769	0.604	0.461	0.353	0.353	0.353	0.353	0.353
85	2.224	1.526	1.108	0.827	0.646	0.493	0.368	0.353	0.353	0.353	0.353
90	2.310	1.592	1.187	0.884	0.687	0.525	0.394	0.353	0.353	0.353	0.353
95	2.396	1.657	1.267	0.942	0.729	0.557	0.421	0.366	0.353	0.353	0.353
100	2.483	1.722	1.346	1.000	0.770	0.589	0.447	0.391	0.353	0.353	0.353
105	2.569	1.787	1.426	1.057	0.812	0.621	0.473	0.415	0.353	0.353	0.353
110	2.655	1.853	1.501	1.115	0.853	0.653	0.499	0.439	0.353	0.353	0.353
115	2.741	1.918	1.557	1.173	0.894	0.685	0.525	0.464	0.375	0.353	0.353
120	2.828	1.983	1.612	1.230	0.936	0.717	0.552	0.488	0.399	0.353	0.353
125	2.914	2.050	1.668	1.288	0.977	0.749	0.578	0.512	0.422	0.353	0.353
130	3.000	2.118	1.724	1.345	1.019	0.781	0.604	0.537	0.445	0.353	0.353
135	3.087	2.186	1.780	1.403	1.060	0.813	0.630	0.561	0.468	0.353	0.353
140	3.173	2.254	1.835	1.461	1.102	0.845	0.657	0.585	0.491	0.353	0.353
145	3.259	2.321	1.891	1.516	1.143	0.877	0.683	0.610	0.515	0.353	0.353
150	3.345	2.389	1.947	1.568	1.185	0.909	0.709	0.634	0.538	0.353	0.353
155	3.432	2.457	2.002	1.621	1.226	0.941	0.735	0.658	0.561	0.353	0.353
160	3.518	2.525	2.058	1.674	1.268	0.973	0.761	0.683	0.584	0.365	0.353
165	3.604	2.593	2.113	1.726	1.309	1.005	0.788	0.707	0.607	0.387	0.353
170	3.690	2.660	2.169	1.779	1.351	1.037	0.814	0.731	0.631	0.409	0.353
175	3.777	2.728	2.224	1.832	1.392	1.069	0.840	0.756	0.654	0.432	0.353
180	3.863	2.796	2.279	1.884	1.434	1.101	0.866	0.780	0.677	0.454	0.353
185	3.949	2.864	2.335	1.937	1.475	1.133	0.893	0.804	0.700	0.476	0.353
190	4.033	2.931	2.390	1.990	1.519	1.165	0.919	0.829	0.723	0.498	0.353
195	4.071	2.999	2.445	2.043	1.566	1.197	0.945	0.853	0.746	0.520	0.353
200	4.129	3.067	2.501	2.097	1.612	1.229	0.971	0.877	0.770	0.542	0.353
205	4.187	3.135	2.556	2.152	1.659	1.261	0.998	0.902	0.793	0.564	0.353
210	4.245	3.202	2.611	2.206	1.705	1.293	1.024	0.926	0.816	0.586	0.353
215	4.303	3.270	2.667	2.260	1.751	1.325	1.050	0.950	0.839	0.608	0.353
220	4.362	3.338	2.722	2.314	1.798	1.357	1.076	0.975	0.862	0.630	0.353
225	4.420	3.406	2.778	2.368	1.844	1.389	1.102	0.999	0.886	0.653	0.353
230	4.478	3.473	2.833	2.422	1.890	1.421	1.129	1.023	0.909	0.675	0.353
235	4.536	3.541	2.888	2.476	1.937	1.453	1.155	1.047	0.932	0.697	0.353
240	4.594	3.609	2.944	2.530	1.983	1.485	1.181	1.072	0.955	0.719	0.353
245	4.652	3.677	2.999	2.584	2.036	1.511	1.207	1.096	0.978	0.741	0.353
250	4.710	3.744	3.054	2.638	2.092	1.537	1.234	1.120	1.001	0.763	0.353
255	4.768	3.812	3.110	2.692	2.149	1.562	1.260	1.145	1.025	0.785	0.353
260	4.826	3.880	3.165	2.746	2.205	1.587	1.286	1.169	1.048	0.807	0.353
265	4.885	3.948	3.220	2.800	2.261	1.612	1.312	1.193	1.071	0.829	0.353
270	4.943	4.005	3.276	2.854	2.317	1.637	1.338	1.218	1.094	0.851	0.353
275	5.001	4.059	3.331	2.908	2.373	1.662	1.365	1.242	1.117	0.873	0.353
280	5.059	4.113	3.386	2.962	2.429	1.688	1.391	1.266	1.141	0.896	0.353
285	5.117	4.167	3.442	3.016	2.485	1.713	1.417	1.291	1.164	0.918	0.353
290	5.175	4.220	3.497	3.070	2.541	1.738	1.443	1.315	1.187	0.940	0.353
295	5.233	4.274	3.553	3.124	2.597	1.763	1.470	1.339	1.210	0.962	0.353
300	5.291	4.328	3.608	3.179	2.653	1.788	1.496	1.364	1.233	0.984	0.353
305	5.350	4.382	3.663	3.233	2.709	1.813	1.525	1.388	1.257	1.006	0.353
310	5.408	4.436	3.719	3.287	2.766	1.839	1.554	1.412	1.280	1.028	0.353
315	5.466	4.489	3.774	3.341	2.822	1.864	1.583	1.437	1.303	1.050	0.353
320	5.524	4.543	3.829	3.395	2.878	1.889	1.612	1.461	1.326	1.072	0.353
325	5.582	4.597	3.885	3.449	2.934	1.914	1.641	1.485	1.349	1.094	0.362
330	5.640	4.651	3.940	3.503	2.990	1.939	1.670	1.515	1.372	1.117	0.393
335	5.698	4.704	3.993	3.557	3.046	1.964	1.699	1.547	1.396	1.139	0.425
340	5.756	4.758	4.043	3.611	3.102	1.990	1.728	1.579	1.419	1.161	0.456
345	5.814	4.812	4.094	3.665	3.158	2.016	1.757	1.611	1.442	1.183	0.488
350	5.873	4.866	4.144	3.719	3.214	2.132	1.785	1.643	1.465	1.205	0.519
355	5.931	4.920	4.194	3.773	3.270	2.210	1.814	1.675	1.488	1.227	0.551
360	6.000	4.973	4.245	3.827	3.326	2.287	1.843	1.707	1.518	1.249	0.582
365	6.097	5.027	4.295	3.881	3.383	2.365	1.872	1.739	1.549	1.271	0.614
370	6.193	5.081	4.345	3.935	3.439	2.443	1.901	1.771	1.579	1.293	0.645

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 4. HENSOTHERM® 920 KS

I/H Beams: 60 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	2.212	1.384	0.404	0.353	0.353	0.353	0.353	0.353	0.353	0.353	0.353
35	2.212	1.384	0.534	0.400	0.353	0.353	0.353	0.353	0.353	0.353	0.353
40	2.212	1.384	0.664	0.499	0.403	0.353	0.353	0.353	0.353	0.353	0.353
45	2.212	1.384	0.794	0.598	0.479	0.405	0.358	0.353	0.353	0.353	0.353
50	2.212	1.384	0.924	0.697	0.555	0.463	0.402	0.383	0.356	0.353	0.353
55	2.377	1.479	1.055	0.796	0.630	0.520	0.446	0.422	0.389	0.353	0.353
60	2.543	1.673	1.185	0.895	0.706	0.578	0.489	0.460	0.422	0.353	0.353
65	2.708	1.883	1.315	0.994	0.782	0.636	0.533	0.499	0.455	0.371	0.353
70	2.874	2.054	1.445	1.093	0.858	0.694	0.577	0.538	0.487	0.399	0.353
75	3.039	2.178	1.551	1.193	0.934	0.752	0.621	0.577	0.520	0.426	0.353
80	3.205	2.303	1.644	1.292	1.009	0.810	0.665	0.615	0.553	0.453	0.353
85	3.370	2.428	1.737	1.391	1.085	0.867	0.708	0.654	0.586	0.481	0.364
90	3.536	2.553	1.830	1.490	1.161	0.925	0.752	0.693	0.619	0.508	0.387
95	3.701	2.678	1.923	1.556	1.237	0.983	0.796	0.732	0.652	0.535	0.409
100	3.867	2.802	2.017	1.622	1.313	1.041	0.840	0.770	0.685	0.563	0.432
105	4.021	2.927	2.117	1.687	1.389	1.099	0.884	0.809	0.718	0.590	0.455
110	4.159	3.052	2.217	1.753	1.464	1.157	0.927	0.848	0.750	0.617	0.478
115	4.296	3.177	2.317	1.818	1.529	1.214	0.971	0.887	0.783	0.645	0.501
120	4.433	3.302	2.417	1.884	1.588	1.272	1.015	0.925	0.816	0.672	0.524
125	4.570	3.426	2.517	1.950	1.648	1.330	1.059	0.964	0.849	0.699	0.547
130	4.708	3.551	2.618	2.021	1.707	1.388	1.103	1.003	0.882	0.727	0.570
135	4.845	3.676	2.718	2.104	1.766	1.446	1.146	1.042	0.915	0.754	0.592
140	4.982	3.801	2.818	2.187	1.825	1.503	1.190	1.080	0.948	0.781	0.615
145	5.120	3.925	2.918	2.270	1.884	1.559	1.234	1.119	0.981	0.809	0.638
150	5.257	4.001	3.018	2.353	1.943	1.614	1.278	1.158	1.013	0.836	0.661
155	5.394	4.054	3.118	2.436	2.003	1.670	1.322	1.197	1.046	0.863	0.684
160	5.532	4.106	3.218	2.519	2.072	1.726	1.365	1.235	1.079	0.891	0.707
165	5.669	4.159	3.318	2.602	2.141	1.782	1.409	1.274	1.112	0.918	0.730
170	5.806	4.211	3.418	2.685	2.210	1.837	1.453	1.313	1.145	0.945	0.752
175	5.944	4.264	3.518	2.768	2.279	1.893	1.498	1.352	1.178	0.973	0.775
180	6.029	4.316	3.619	2.851	2.348	1.949	1.553	1.390	1.211	1.000	0.798
185	6.101	4.369	3.719	2.934	2.416	2.005	1.608	1.429	1.244	1.027	0.821
190	6.173	4.421	3.819	3.017	2.485	2.068	1.662	1.468	1.277	1.055	0.844
195	6.244	4.474	3.919	3.100	2.554	2.130	1.717	1.512	1.309	1.082	0.867
200	6.316	4.526	3.993	3.183	2.623	2.193	1.772	1.563	1.342	1.109	0.890
205	6.388	4.579	4.043	3.266	2.692	2.255	1.826	1.614	1.375	1.137	0.913
210	6.460	4.631	4.094	3.349	2.761	2.317	1.881	1.665	1.408	1.164	0.935
215	6.531	4.684	4.145	3.432	2.830	2.380	1.936	1.717	1.441	1.191	0.958
220	6.603	4.736	4.196	3.515	2.899	2.442	1.990	1.768	1.474	1.219	0.981
225	6.675	4.789	4.246	3.598	2.968	2.505	2.050	1.819	1.511	1.246	1.004
230	6.747	4.841	4.297	3.681	3.036	2.567	2.111	1.870	1.553	1.273	1.027
235	6.819	4.894	4.348	3.764	3.105	2.629	2.172	1.922	1.595	1.301	1.050
240	6.890	4.946	4.398	3.847	3.174	2.692	2.233	1.973	1.637	1.328	1.073
245	6.962	4.999	4.449	3.930	3.243	2.754	2.294	2.030	1.678	1.355	1.096
250	7.034	5.051	4.500	3.995	3.312	2.817	2.355	2.092	1.720	1.383	1.118
255	7.106	5.104	4.550	4.045	3.381	2.879	2.416	2.155	1.762	1.410	1.141
260	7.177	5.156	4.601	4.095	3.450	2.942	2.477	2.217	1.804	1.437	1.164
265	7.249	5.209	4.652	4.145	3.519	3.004	2.537	2.279	1.846	1.465	1.187
270	7.321	5.261	4.702	4.196	3.588	3.066	2.598	2.341	1.888	1.492	1.210
275	7.393	5.314	4.753	4.246	3.657	3.129	2.659	2.404	1.930	1.524	1.233
280	7.465	5.366	4.804	4.296	3.725	3.191	2.720	2.466	1.972	1.556	1.256
285	7.536	5.419	4.854	4.347	3.794	3.254	2.781	2.528	2.024	1.589	1.278
290	7.608	5.471	4.905	4.397	3.863	3.316	2.842	2.591	2.091	1.621	1.301
295	7.680	5.524	4.956	4.447	3.932	3.378	2.903	2.653	2.158	1.653	1.324
300	7.752	5.576	5.006	4.497	3.992	3.441	2.964	2.715	2.225	1.685	1.347
305	7.823	5.629	5.057	4.548	4.043	3.503	3.024	2.777	2.292	1.717	1.370
310	7.895	5.681	5.108	4.598	4.094	3.566	3.085	2.840	2.359	1.749	1.393
315	7.967	5.734	5.159	4.648	4.144	3.628	3.146	2.902	2.426	1.782	1.416
320	8.039	5.786	5.209	4.698	4.195	3.690	3.207	2.964	2.492	1.814	1.439
325	8.111	5.839	5.260	4.749	4.246	3.753	3.268	3.026	2.559	1.846	1.461
330	8.182	5.891	5.311	4.799	4.297	3.815	3.329	3.089	2.626	1.878	1.484
335	8.254	5.944	5.361	4.849	4.348	3.878	3.390	3.151	2.693	1.910	1.516
340	8.326	6.018	5.412	4.900	4.399	3.940	3.451	3.213	2.760	1.942	1.550
345	8.398	6.120	5.463	4.950	4.449	3.994	3.511	3.276	2.827	1.975	1.585
350	8.470	6.221	5.513	5.000	4.500	4.043	3.572	3.338	2.894	2.018	1.620
355	8.541	6.322	5.564	5.050	4.551	4.091	3.633	3.400	2.961	2.085	1.655
360	8.613	6.423	5.615	5.101	4.602	4.139	3.694	3.462	3.028	2.152	1.690
365	8.685	6.525	5.665	5.151	4.653	4.188	3.755	3.525	3.095	2.219	1.725
370	8.757	6.626	5.716	5.201	4.704	4.236	3.816	3.587	3.162	2.286	1.759

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 5. HENSOTHERM® 920 KS

I/H Beams: 75 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	3.380	2.140	1.342	1.122	0.376	0.353	0.353	0.353	0.353	0.353	0.353
35	3.380	2.140	1.342	1.122	0.488	0.412	0.359	0.353	0.353	0.353	0.353
40	3.380	2.140	1.342	1.122	0.600	0.501	0.431	0.408	0.376	0.353	0.353
45	3.380	2.140	1.342	1.122	0.712	0.589	0.503	0.474	0.434	0.377	0.353
50	3.380	2.140	1.342	1.122	0.825	0.678	0.576	0.541	0.493	0.422	0.364
55	3.617	2.331	1.567	1.234	0.937	0.767	0.648	0.607	0.551	0.467	0.396
60	3.855	2.521	1.817	1.353	1.049	0.856	0.720	0.674	0.609	0.511	0.429
65	4.120	2.712	2.040	1.472	1.161	0.945	0.792	0.741	0.668	0.556	0.462
70	4.410	2.903	2.196	1.602	1.273	1.033	0.864	0.807	0.726	0.600	0.494
75	4.700	3.093	2.352	1.733	1.385	1.122	0.936	0.874	0.785	0.645	0.527
80	4.990	3.284	2.507	1.865	1.495	1.211	1.008	0.940	0.843	0.689	0.560
85	5.280	3.475	2.663	1.996	1.568	1.300	1.080	1.007	0.901	0.734	0.593
90	5.570	3.665	2.819	2.126	1.640	1.389	1.152	1.074	0.960	0.779	0.625
95	5.860	3.856	2.974	2.255	1.713	1.477	1.224	1.140	1.018	0.823	0.658
100	6.028	4.031	3.130	2.385	1.785	1.545	1.296	1.207	1.077	0.868	0.691
105	6.120	4.186	3.286	2.514	1.858	1.609	1.368	1.274	1.135	0.912	0.724
110	6.211	4.341	3.442	2.644	1.930	1.673	1.440	1.340	1.193	0.957	0.756
115	6.302	4.495	3.597	2.773	2.007	1.736	1.508	1.407	1.252	1.001	0.789
120	6.394	4.650	3.753	2.903	2.117	1.800	1.564	1.473	1.310	1.046	0.822
125	6.485	4.805	3.909	3.032	2.227	1.864	1.621	1.530	1.368	1.091	0.854
130	6.576	4.959	4.011	3.162	2.338	1.928	1.677	1.583	1.427	1.135	0.887
135	6.668	5.114	4.082	3.291	2.448	1.991	1.733	1.636	1.485	1.180	0.920
140	6.759	5.269	4.152	3.421	2.559	2.080	1.790	1.689	1.536	1.224	0.953
145	6.850	5.423	4.223	3.550	2.669	2.171	1.846	1.742	1.585	1.269	0.985
150	6.942	5.578	4.294	3.680	2.780	2.261	1.902	1.795	1.635	1.313	1.018
155	7.033	5.733	4.365	3.809	2.890	2.352	1.959	1.848	1.684	1.358	1.051
160	7.124	5.887	4.436	3.939	3.001	2.443	2.022	1.902	1.734	1.403	1.084
165	7.216	6.002	4.506	4.007	3.111	2.533	2.099	1.955	1.783	1.447	1.116
170	7.307	6.069	4.577	4.059	3.222	2.624	2.175	2.012	1.833	1.492	1.149
175	7.398	6.135	4.648	4.110	3.332	2.715	2.252	2.083	1.882	1.537	1.182
180	7.490	6.201	4.719	4.162	3.442	2.805	2.328	2.154	1.932	1.583	1.215
185	7.581	6.268	4.790	4.214	3.553	2.896	2.405	2.226	1.981	1.628	1.247
190	7.672	6.334	4.860	4.266	3.663	2.987	2.481	2.297	2.043	1.673	1.280
195	7.764	6.401	4.931	4.317	3.774	3.078	2.558	2.368	2.110	1.719	1.313
200	7.855	6.467	5.002	4.369	3.884	3.168	2.634	2.440	2.177	1.764	1.345
205	7.947	6.533	5.073	4.421	3.980	3.259	2.711	2.511	2.244	1.810	1.378
210	8.038	6.600	5.144	4.473	4.033	3.350	2.787	2.583	2.311	1.855	1.411
215	8.129	6.666	5.214	4.525	4.087	3.440	2.864	2.654	2.378	1.900	1.444
220	8.221	6.733	5.285	4.576	4.140	3.531	2.940	2.725	2.445	1.946	1.476
225	8.312	6.799	5.356	4.628	4.193	3.622	3.017	2.797	2.512	1.991	1.515
230	8.403	6.865	5.427	4.680	4.247	3.712	3.093	2.868	2.579	2.053	1.559
235	8.495	6.932	5.497	4.732	4.300	3.803	3.170	2.939	2.646	2.118	1.602
240	8.586	6.998	5.568	4.783	4.353	3.894	3.246	3.011	2.713	2.182	1.646
245	8.677	7.065	5.639	4.835	4.407	3.977	3.323	3.082	2.780	2.247	1.689
250	8.769	7.131	5.710	4.887	4.460	4.030	3.399	3.153	2.847	2.311	1.733
255	8.860	7.197	5.781	4.939	4.513	4.083	3.476	3.225	2.914	2.376	1.777
260	8.951	7.264	5.851	4.991	4.567	4.136	3.552	3.296	2.981	2.440	1.820
265	9.043	7.330	5.922	5.042	4.620	4.189	3.629	3.367	3.049	2.505	1.864
270	9.134	7.397	5.998	5.094	4.673	4.242	3.705	3.439	3.116	2.569	1.908
275	9.225	7.463	6.084	5.146	4.727	4.295	3.782	3.510	3.183	2.634	1.951
280	9.317	7.530	6.170	5.198	4.780	4.348	3.858	3.581	3.250	2.698	1.995
285	9.408	7.596	6.256	5.249	4.833	4.401	3.935	3.653	3.317	2.763	2.057
290	-	7.662	6.342	5.301	4.887	4.454	3.997	3.724	3.384	2.827	2.120
295	-	7.729	6.428	5.353	4.940	4.507	4.049	3.796	3.451	2.891	2.182
300	-	7.795	6.514	5.405	4.993	4.560	4.100	3.867	3.518	2.956	2.245
305	-	7.862	6.600	5.457	5.047	4.613	4.152	3.938	3.585	3.020	2.308
310	-	7.928	6.686	5.508	5.100	4.666	4.204	3.997	3.652	3.085	2.371
315	-	7.994	6.772	5.560	5.153	4.719	4.256	4.049	3.719	3.149	2.433
320	-	8.061	6.858	5.612	5.207	4.772	4.308	4.100	3.786	3.214	2.496
325	-	8.127	6.944	5.664	5.260	4.825	4.360	4.152	3.853	3.278	2.559
330	-	8.194	7.030	5.715	5.314	4.878	4.412	4.203	3.920	3.343	2.622
335	-	8.260	7.116	5.767	5.367	4.931	4.464	4.255	3.981	3.407	2.684
340	-	8.326	7.202	5.819	5.420	4.984	4.516	4.306	4.030	3.472	2.747
345	-	8.393	7.288	5.871	5.474	5.037	4.568	4.357	4.079	3.536	2.810
350	-	8.459	7.374	5.923	5.527	5.090	4.620	4.409	4.128	3.601	2.873
355	-	8.526	7.460	5.977	5.580	5.143	4.671	4.460	4.177	3.665	2.935
360	-	8.592	7.546	6.088	5.634	5.196	4.723	4.512	4.226	3.730	2.998
365	-	8.659	7.632	6.199	5.687	5.249	4.775	4.563	4.274	3.794	3.061
370	-	8.725	7.718	6.311	5.740	5.302	4.827	4.615	4.323	3.858	3.124

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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Issued: 11th May 2021
Revised: 19th December 2023
Valid to: 10th May 2026

CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 6. HENSOTHERM® 920 KS

I/H Beams: 90 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	4.449	3.153	2.137	1.385	1.199	1.015	0.390	0.353	0.353	0.353	0.353
35	4.449	3.153	2.137	1.385	1.199	1.015	0.491	0.464	0.425	0.362	0.353
40	4.449	3.153	2.137	1.385	1.199	1.015	0.593	0.560	0.512	0.437	0.361
45	4.449	3.153	2.137	1.385	1.199	1.015	0.695	0.656	0.600	0.512	0.422
50	4.449	3.153	2.137	1.385	1.199	1.015	0.797	0.752	0.687	0.587	0.484
55	4.854	3.415	2.360	1.674	1.318	1.117	0.898	0.848	0.774	0.662	0.546
60	5.259	3.676	2.583	1.962	1.443	1.220	1.000	0.944	0.862	0.737	0.607
65	5.664	3.938	2.806	2.154	1.592	1.324	1.102	1.040	0.949	0.812	0.669
70	6.013	4.221	3.029	2.333	1.758	1.427	1.203	1.136	1.036	0.887	0.730
75	6.185	4.507	3.252	2.512	1.923	1.529	1.305	1.232	1.124	0.961	0.792
80	6.358	4.793	3.475	2.691	2.081	1.629	1.407	1.328	1.211	1.036	0.853
85	6.530	5.079	3.698	2.870	2.233	1.728	1.502	1.424	1.298	1.111	0.915
90	6.702	5.365	3.921	3.049	2.385	1.828	1.566	1.509	1.386	1.186	0.976
95	6.874	5.651	4.130	3.228	2.537	1.927	1.630	1.569	1.473	1.261	1.038
100	7.046	5.937	4.336	3.407	2.689	2.036	1.695	1.628	1.534	1.336	1.099
105	7.219	6.042	4.542	3.586	2.840	2.165	1.759	1.688	1.589	1.411	1.161
110	7.391	6.122	4.748	3.765	2.992	2.294	1.823	1.747	1.644	1.486	1.223
115	7.563	6.201	4.954	3.944	3.144	2.424	1.887	1.807	1.698	1.536	1.284
120	7.735	6.281	5.159	4.062	3.296	2.553	1.952	1.866	1.753	1.585	1.346
125	7.908	6.361	5.365	4.171	3.448	2.682	2.029	1.926	1.807	1.634	1.407
130	8.080	6.440	5.571	4.280	3.600	2.812	2.137	1.985	1.862	1.683	1.469
135	8.252	6.520	5.777	4.389	3.752	2.941	2.245	2.080	1.917	1.732	1.517
140	8.424	6.600	5.975	4.498	3.904	3.070	2.352	2.181	1.971	1.781	1.559
145	8.596	6.679	6.041	4.607	4.002	3.199	2.460	2.283	2.046	1.830	1.600
150	8.769	6.759	6.106	4.716	4.062	3.329	2.568	2.385	2.138	1.879	1.641
155	8.941	6.839	6.172	4.825	4.122	3.458	2.676	2.487	2.229	1.928	1.683
160	9.113	6.918	6.237	4.934	4.181	3.587	2.783	2.588	2.321	1.977	1.724
165	9.285	6.998	6.303	5.043	4.241	3.716	2.891	2.690	2.413	2.041	1.766
170	9.457	7.078	6.368	5.152	4.301	3.846	2.999	2.792	2.504	2.114	1.807
175	-	7.157	6.434	5.261	4.361	3.970	3.106	2.893	2.596	2.186	1.848
180	-	7.237	6.499	5.370	4.421	4.025	3.214	2.995	2.688	2.259	1.890
185	-	7.317	6.565	5.479	4.481	4.080	3.322	3.097	2.780	2.332	1.931
190	-	7.396	6.630	5.588	4.541	4.134	3.429	3.199	2.871	2.405	1.972
195	-	7.476	6.696	5.697	4.601	4.189	3.537	3.300	2.963	2.478	2.023
200	-	7.556	6.761	5.806	4.661	4.244	3.645	3.402	3.055	2.551	2.087
205	-	7.635	6.827	5.915	4.721	4.299	3.753	3.504	3.146	2.623	2.150
210	-	7.715	6.892	6.008	4.781	4.354	3.860	3.605	3.238	2.696	2.213
215	-	7.795	6.957	6.083	4.841	4.409	3.967	3.707	3.330	2.769	2.277
220	-	7.874	7.023	6.158	4.901	4.464	4.023	3.809	3.421	2.842	2.340
225	-	7.954	7.088	6.234	4.961	4.518	4.079	3.911	3.513	2.915	2.404
230	-	8.034	7.154	6.309	5.021	4.573	4.134	3.991	3.605	2.988	2.467
235	-	8.113	7.219	6.384	5.081	4.628	4.190	4.045	3.696	3.060	2.530
240	-	8.193	7.285	6.459	5.141	4.683	4.246	4.100	3.788	3.133	2.594
245	-	8.273	7.350	6.534	5.201	4.738	4.302	4.155	3.880	3.206	2.657
250	-	8.352	7.416	6.609	5.261	4.793	4.358	4.209	3.969	3.279	2.720
255	-	8.432	7.481	6.685	5.321	4.848	4.414	4.264	4.022	3.352	2.784
260	-	8.512	7.547	6.760	5.381	4.903	4.469	4.318	4.075	3.425	2.847
265	-	8.592	7.612	6.835	5.441	4.957	4.525	4.373	4.127	3.497	2.911
270	-	8.671	7.678	6.910	5.501	5.012	4.581	4.427	4.180	3.570	2.974
275	-	8.751	7.743	6.985	5.561	5.067	4.637	4.482	4.233	3.643	3.037
280	-	8.831	7.809	7.061	5.621	5.122	4.693	4.536	4.286	3.716	3.101
285	-	8.910	7.874	7.136	5.681	5.177	4.748	4.591	4.338	3.789	3.164
290	-	8.990	7.940	7.211	5.741	5.232	4.804	4.646	4.391	3.862	3.227
295	-	9.070	8.005	7.286	5.801	5.287	4.860	4.700	4.444	3.934	3.291
300	-	9.149	8.071	7.361	5.861	5.341	4.916	4.755	4.496	3.994	3.354
305	-	9.229	8.136	7.436	5.921	5.396	4.972	4.809	4.549	4.045	3.418
310	-	9.309	8.201	7.512	5.987	5.451	5.027	4.864	4.602	4.095	3.481
315	-	9.388	8.267	7.587	6.096	5.506	5.083	4.918	4.655	4.145	3.544
320	-	-	8.332	7.662	6.205	5.561	5.139	4.973	4.707	4.195	3.608
325	-	-	8.398	7.737	6.314	5.616	5.195	5.028	4.760	4.246	3.671
330	-	-	8.463	7.812	6.423	5.671	5.251	5.082	4.813	4.296	3.734
335	-	-	8.529	7.888	6.532	5.726	5.306	5.137	4.866	4.346	3.798
340	-	-	8.594	7.963	6.641	5.780	5.362	5.191	4.918	4.396	3.861
345	-	-	8.660	8.038	6.750	5.835	5.418	5.246	4.971	4.447	3.925
350	-	-	8.725	8.113	6.859	5.890	5.474	5.300	5.024	4.497	3.982
355	-	-	8.791	8.188	6.967	5.945	5.530	5.355	5.076	4.547	4.027
360	-	-	8.856	8.263	7.076	6.030	5.585	5.409	5.129	4.597	4.073
365	-	-	8.922	8.339	7.185	6.143	5.641	5.464	5.182	4.647	4.118
370	-	-	8.987	8.414	7.294	6.256	5.697	5.519	5.235	4.698	4.164

Thickness is intumescent only. Results apply to I/H-section beams with concrete slabs with 3-sided fire exposure.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 7. HENSOTHERM® 920 KS

I/H Beams: 105 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	5.796	4.026	3.041	2.142	1.448	1.262	1.119	1.078	0.449	0.378	0.353
35	5.796	4.026	3.041	2.142	1.448	1.262	1.119	1.078	0.566	0.486	0.394
40	5.796	4.026	3.041	2.142	1.448	1.262	1.119	1.078	0.684	0.594	0.491
45	5.796	4.026	3.041	2.142	1.448	1.262	1.119	1.078	0.801	0.701	0.588
50	5.796	4.026	3.041	2.142	1.448	1.262	1.119	1.078	0.919	0.809	0.685
55	6.060	4.433	3.327	2.389	1.780	1.387	1.229	1.183	1.036	0.916	0.782
60	6.325	4.840	3.612	2.637	2.064	1.536	1.340	1.289	1.154	1.024	0.880
65	6.590	5.247	3.897	2.885	2.258	1.779	1.450	1.394	1.271	1.131	0.977
70	6.854	5.654	4.218	3.133	2.452	2.013	1.584	1.499	1.389	1.239	1.074
75	7.119	6.011	4.550	3.381	2.646	2.174	1.731	1.606	1.499	1.347	1.171
80	7.384	6.189	4.882	3.629	2.840	2.335	1.879	1.713	1.564	1.454	1.268
85	7.648	6.367	5.214	3.877	3.034	2.495	2.024	1.819	1.628	1.528	1.365
90	7.913	6.545	5.546	4.124	3.228	2.656	2.161	1.926	1.692	1.585	1.462
95	8.178	6.724	5.877	4.370	3.422	2.817	2.297	2.042	1.756	1.641	1.527
100	8.442	6.902	6.044	4.617	3.616	2.977	2.434	2.175	1.820	1.698	1.579
105	8.707	7.080	6.145	4.863	3.810	3.138	2.571	2.309	1.885	1.755	1.631
110	8.972	7.258	6.247	5.110	3.995	3.299	2.707	2.442	1.949	1.811	1.682
115	9.236	7.436	6.348	5.356	4.144	3.459	2.844	2.575	2.032	1.868	1.734
120	9.501	7.615	6.449	5.603	4.292	3.620	2.981	2.709	2.164	1.925	1.785
125	-	7.793	6.550	5.849	4.441	3.781	3.117	2.842	2.297	1.981	1.837
130	-	7.971	6.651	6.006	4.589	3.941	3.254	2.975	2.429	2.067	1.888
135	-	8.149	6.752	6.074	4.738	4.040	3.391	3.109	2.562	2.163	1.940
140	-	8.328	6.853	6.142	4.887	4.127	3.528	3.242	2.694	2.258	1.992
145	-	8.506	6.954	6.210	5.035	4.214	3.664	3.375	2.827	2.354	2.064
150	-	8.684	7.056	6.278	5.184	4.302	3.801	3.509	2.960	2.450	2.139
155	-	8.862	7.157	6.346	5.332	4.389	3.938	3.642	3.092	2.546	2.214
160	-	9.040	7.258	6.413	5.481	4.476	4.010	3.775	3.225	2.642	2.288
165	-	9.219	7.359	6.481	5.630	4.564	4.067	3.909	3.357	2.738	2.363
170	-	9.397	7.460	6.549	5.778	4.651	4.123	3.997	3.490	2.834	2.438
175	-	9.575	7.561	6.617	5.927	4.738	4.179	4.053	3.622	2.929	2.512
180	-	-	7.662	6.685	6.023	4.825	4.235	4.108	3.755	3.025	2.587
185	-	-	7.763	6.753	6.096	4.913	4.291	4.163	3.887	3.121	2.662
190	-	-	7.864	6.821	6.168	5.000	4.347	4.218	3.988	3.217	2.737
195	-	-	7.966	6.889	6.241	5.087	4.403	4.274	4.043	3.313	2.811
200	-	-	8.067	6.957	6.314	5.175	4.459	4.329	4.097	3.409	2.886
205	-	-	8.168	7.025	6.387	5.262	4.515	4.384	4.152	3.504	2.961
210	-	-	8.269	7.093	6.460	5.349	4.571	4.439	4.207	3.600	3.035
215	-	-	8.370	7.160	6.533	5.436	4.627	4.495	4.261	3.696	3.110
220	-	-	8.471	7.228	6.606	5.524	4.683	4.550	4.316	3.792	3.185
225	-	-	8.572	7.296	6.679	5.611	4.739	4.605	4.370	3.888	3.259
230	-	-	8.673	7.364	6.751	5.698	4.795	4.660	4.425	3.976	3.334
235	-	-	8.775	7.432	6.824	5.786	4.852	4.716	4.480	4.029	3.409
240	-	-	8.876	7.500	6.897	5.873	4.908	4.771	4.534	4.083	3.483
245	-	-	8.977	7.568	6.970	5.960	4.964	4.826	4.589	4.136	3.558
250	-	-	9.078	7.636	7.043	6.047	5.020	4.881	4.643	4.189	3.633
255	-	-	9.179	7.704	7.116	6.135	5.076	4.936	4.698	4.243	3.707
260	-	-	9.280	7.772	7.189	6.222	5.132	4.992	4.752	4.296	3.782
265	-	-	9.381	7.840	7.262	6.309	5.188	5.047	4.807	4.349	3.857
270	-	-	-	7.907	7.334	6.396	5.244	5.102	4.862	4.403	3.931
275	-	-	-	7.975	7.407	6.483	5.300	5.157	4.916	4.456	3.993
280	-	-	-	8.043	7.480	6.571	5.356	5.213	4.971	4.509	4.043
285	-	-	-	8.111	7.553	6.658	5.412	5.268	5.025	4.563	4.093
290	-	-	-	8.179	7.626	6.745	5.468	5.323	5.080	4.616	4.143
295	-	-	-	8.247	7.699	6.832	5.524	5.378	5.135	4.669	4.193
300	-	-	-	8.315	7.772	6.919	5.580	5.434	5.189	4.723	4.244
305	-	-	-	8.383	7.845	7.007	5.637	5.489	5.244	4.776	4.294
310	-	-	-	8.451	7.917	7.094	5.693	5.544	5.298	4.830	4.344
315	-	-	-	8.519	7.990	7.181	5.749	5.599	5.353	4.883	4.394
320	-	-	-	8.587	8.063	7.268	5.805	5.655	5.407	4.936	4.444
325	-	-	-	8.655	8.136	7.356	5.861	5.710	5.462	4.990	4.494
330	-	-	-	8.722	8.209	7.443	5.917	5.765	5.517	5.043	4.544
335	-	-	-	8.790	8.282	7.530	5.974	5.820	5.571	5.096	4.594
340	-	-	-	8.858	8.355	7.617	6.032	5.876	5.626	5.150	4.644
345	-	-	-	8.926	8.427	7.704	6.089	5.931	5.680	5.203	4.695
350	-	-	-	8.994	8.500	7.792	6.146	6.002	5.735	5.256	4.745
355	-	-	-	9.062	8.573	7.879	6.203	6.057	5.790	5.310	4.795
360	-	-	-	9.130	8.646	7.966	6.260	6.112	5.844	5.363	4.845
365	-	-	-	9.198	8.719	8.053	6.317	6.167	5.899	5.416	4.895
370	-	-	-	9.266	8.792	8.140	6.374	6.222	5.953	5.470	4.945

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 8. HENSOTHERM® 920 KS

I/H Beams: 120 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	6.649	5.134	3.788	2.958	2.166	1.544	1.342	1.301	1.233	1.159	0.403
35	6.649	5.134	3.788	2.958	2.166	1.544	1.342	1.301	1.233	1.159	0.539
40	6.649	5.134	3.788	2.958	2.166	1.544	1.342	1.301	1.233	1.159	0.675
45	6.649	5.134	3.788	2.958	2.166	1.544	1.342	1.301	1.233	1.159	0.811
50	6.649	5.134	3.788	2.958	2.166	1.544	1.342	1.301	1.233	1.159	0.947
55	7.277	5.632	4.228	3.260	2.427	2.048	1.443	1.430	1.356	1.275	1.082
60	7.614	6.057	4.667	3.563	2.689	2.242	1.978	1.706	1.475	1.385	1.218
65	7.952	6.325	5.107	3.865	2.950	2.435	2.150	2.040	1.722	1.495	1.354
70	8.290	6.593	5.546	4.203	3.212	2.629	2.309	2.191	1.988	1.633	1.490
75	8.628	6.862	5.978	4.558	3.473	2.823	2.468	2.341	2.132	1.772	1.573
80	8.965	7.130	6.170	4.912	3.735	3.017	2.627	2.491	2.271	1.910	1.656
85	9.303	7.398	6.362	5.267	3.998	3.210	2.786	2.642	2.411	2.040	1.739
90	-	7.666	6.554	5.622	4.272	3.404	2.945	2.792	2.550	2.155	1.822
95	-	7.934	6.746	5.974	4.547	3.598	3.105	2.942	2.690	2.270	1.905
100	-	8.202	6.938	6.105	4.822	3.791	3.264	3.093	2.830	2.385	1.988
105	-	8.470	7.130	6.237	5.097	3.984	3.423	3.243	2.969	2.500	2.072
110	-	8.738	7.322	6.369	5.372	4.167	3.582	3.394	3.109	2.615	2.157
115	-	9.006	7.514	6.500	5.646	4.350	3.741	3.544	3.248	2.730	2.242
120	-	9.274	7.706	6.632	5.921	4.533	3.900	3.694	3.388	2.845	2.327
125	-	9.542	7.898	6.763	6.029	4.716	4.031	3.845	3.528	2.960	2.412
130	-	-	8.090	6.895	6.100	4.899	4.143	3.981	3.667	3.075	2.497
135	-	-	8.282	7.027	6.170	5.082	4.254	4.058	3.807	3.190	2.582
140	-	-	8.474	7.158	6.241	5.265	4.366	4.135	3.946	3.305	2.667
145	-	-	8.666	7.290	6.311	5.447	4.478	4.213	4.017	3.420	2.752
150	-	-	8.858	7.421	6.382	5.630	4.589	4.290	4.076	3.535	2.837
155	-	-	9.050	7.553	6.452	5.813	4.701	4.367	4.135	3.650	2.922
160	-	-	9.242	7.684	6.523	5.982	4.812	4.445	4.195	3.765	3.007
165	-	-	9.433	7.816	6.593	6.055	4.924	4.522	4.254	3.880	3.092
170	-	-	9.625	7.948	6.664	6.128	5.035	4.599	4.313	3.979	3.177
175	-	-	-	8.079	6.734	6.201	5.147	4.676	4.372	4.032	3.261
180	-	-	-	8.211	6.805	6.275	5.259	4.754	4.432	4.085	3.346
185	-	-	-	8.342	6.875	6.348	5.370	4.831	4.491	4.137	3.431
190	-	-	-	8.474	6.946	6.421	5.482	4.908	4.550	4.190	3.516
195	-	-	-	8.606	7.016	6.494	5.593	4.985	4.609	4.242	3.601
200	-	-	-	8.737	7.087	6.567	5.705	5.063	4.669	4.295	3.686
205	-	-	-	8.869	7.157	6.641	5.816	5.140	4.728	4.348	3.771
210	-	-	-	9.000	7.228	6.714	5.928	5.217	4.787	4.400	3.856
215	-	-	-	9.132	7.298	6.787	6.021	5.295	4.846	4.453	3.941
220	-	-	-	9.264	7.369	6.860	6.102	5.372	4.906	4.506	4.004
225	-	-	-	9.395	7.439	6.933	6.182	5.449	4.965	4.558	4.057
230	-	-	-	9.527	7.510	7.007	6.263	5.526	5.024	4.611	4.111
235	-	-	-	-	7.580	7.080	6.344	5.604	5.084	4.663	4.164
240	-	-	-	-	7.650	7.153	6.424	5.681	5.143	4.716	4.217
245	-	-	-	-	7.721	7.226	6.505	5.758	5.202	4.769	4.271
250	-	-	-	-	7.791	7.299	6.586	5.835	5.261	4.821	4.324
255	-	-	-	-	7.862	7.373	6.667	5.913	5.321	4.874	4.378
260	-	-	-	-	7.932	7.446	6.747	5.995	5.380	4.926	4.431
265	-	-	-	-	8.003	7.519	6.828	6.092	5.439	4.979	4.485
270	-	-	-	-	8.073	7.592	6.909	6.189	5.498	5.032	4.538
275	-	-	-	-	8.144	7.666	6.990	6.287	5.558	5.084	4.592
280	-	-	-	-	8.214	7.739	7.070	6.384	5.617	5.137	4.645
285	-	-	-	-	8.285	7.812	7.151	6.481	5.676	5.189	4.698
290	-	-	-	-	8.355	7.885	7.232	6.579	5.735	5.242	4.752
295	-	-	-	-	8.426	7.958	7.312	6.676	5.795	5.295	4.805
300	-	-	-	-	8.496	8.032	7.393	6.773	5.854	5.347	4.859
305	-	-	-	-	8.567	8.105	7.474	6.871	5.913	5.400	4.912
310	-	-	-	-	8.637	8.178	7.555	6.968	5.973	5.452	4.966
315	-	-	-	-	8.708	8.251	7.635	7.065	6.031	5.505	5.019
320	-	-	-	-	8.778	8.324	7.716	7.162	6.208	5.558	5.072
325	-	-	-	-	8.849	8.398	7.797	7.260	6.326	5.610	5.126
330	-	-	-	-	8.919	8.471	7.878	7.357	6.444	5.663	5.179
335	-	-	-	-	8.990	8.544	7.958	7.454	6.562	5.716	5.233
340	-	-	-	-	9.060	8.617	8.039	7.552	6.680	5.768	5.286
345	-	-	-	-	9.131	8.690	8.120	7.649	6.798	5.821	5.340
350	-	-	-	-	9.201	8.764	8.200	7.746	6.916	5.873	5.393
355	-	-	-	-	9.272	8.837	8.281	7.844	7.033	5.926	5.447
360	-	-	-	-	9.342	8.910	8.362	7.941	7.151	5.987	5.500
365	-	-	-	-	9.412	8.983	8.443	8.038	7.269	6.105	5.553
370	-	-	-	-	-	9.057	8.523	8.136	7.387	6.224	5.607

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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Table 9. HENSOTHERM® 920 KS

I/H Beams: 150 minutes											
Required Thickness (mm) for a Design Temperature (°C)											
Section Factor (m ²)	300	350	400	450	500	550	600	620	650	700	750
30	-	7.098	5.838	4.457	3.558	2.985	2.648	2.555	2.436	2.247	2.000
35	-	7.098	5.838	4.457	3.558	2.985	2.648	2.555	2.436	2.247	2.000
40	-	7.098	5.838	4.457	3.558	2.985	2.648	2.555	2.436	2.247	2.000
45	-	7.098	5.838	4.457	3.558	2.985	2.648	2.555	2.436	2.247	2.000
50	-	7.098	5.838	4.457	3.558	2.985	2.648	2.555	2.436	2.247	2.132
55	-	7.701	6.233	5.007	3.924	3.276	2.872	2.761	2.621	2.407	2.264
60	-	8.130	6.628	5.557	4.365	3.568	3.096	2.966	2.806	2.566	2.397
65	-	8.559	7.023	6.047	4.815	3.859	3.319	3.172	2.991	2.726	2.529
70	-	8.988	7.419	6.354	5.266	4.195	3.543	3.378	3.176	2.885	2.661
75	-	-	7.814	6.661	5.716	4.556	3.767	3.583	3.361	3.045	2.793
80	-	-	8.209	6.968	6.074	4.918	3.997	3.789	3.546	3.205	2.925
85	-	-	8.604	7.275	6.309	5.279	4.283	3.999	3.731	3.364	3.057
90	-	-	9.000	7.582	6.545	5.641	4.569	4.237	3.916	3.524	3.189
95	-	-	9.395	7.888	6.781	5.987	4.855	4.475	4.082	3.683	3.321
100	-	-	-	8.195	7.016	6.163	5.141	4.714	4.241	3.843	3.453
105	-	-	-	8.502	7.252	6.339	5.427	4.952	4.401	3.992	3.586
110	-	-	-	8.809	7.488	6.514	5.713	5.190	4.560	4.104	3.718
115	-	-	-	9.116	7.723	6.690	5.982	5.428	4.719	4.217	3.850
120	-	-	-	9.423	7.959	6.866	6.090	5.667	4.879	4.329	3.974
125	-	-	-	8.195	7.042	6.198	5.905	5.038	4.441	4.037	
130	-	-	-	8.430	7.218	6.307	6.029	5.197	4.554	4.100	
135	-	-	-	8.666	7.394	6.415	6.108	5.357	4.666	4.163	
140	-	-	-	8.902	7.570	6.523	6.187	5.516	4.779	4.226	
145	-	-	-	9.137	7.745	6.631	6.267	5.676	4.891	4.290	
150	-	-	-	9.373	7.921	6.739	6.346	5.835	5.004	4.353	
155	-	-	-	9.609	8.097	6.848	6.425	5.983	5.116	4.416	
160	-	-	-	-	8.273	6.956	6.505	6.061	5.228	4.479	
165	-	-	-	-	8.449	7.064	6.584	6.140	5.341	4.543	
170	-	-	-	-	8.625	7.172	6.663	6.218	5.453	4.606	
175	-	-	-	-	8.800	7.280	6.742	6.296	5.566	4.669	
180	-	-	-	-	8.976	7.388	6.822	6.375	5.678	4.732	
185	-	-	-	-	9.152	7.497	6.901	6.453	5.790	4.796	
190	-	-	-	-	9.328	7.605	6.980	6.531	5.903	4.859	
195	-	-	-	-	9.504	7.713	7.059	6.610	6.003	4.922	
200	-	-	-	-	-	7.821	7.139	6.688	6.082	4.985	
205	-	-	-	-	-	7.929	7.218	6.766	6.162	5.048	
210	-	-	-	-	-	8.038	7.297	6.845	6.241	5.112	
215	-	-	-	-	-	8.146	7.377	6.923	6.321	5.175	
220	-	-	-	-	-	8.254	7.456	7.001	6.400	5.238	
225	-	-	-	-	-	8.362	7.535	7.080	6.480	5.301	
230	-	-	-	-	-	8.470	7.614	7.158	6.560	5.365	
235	-	-	-	-	-	8.579	7.694	7.236	6.639	5.428	
240	-	-	-	-	-	8.687	7.773	7.315	6.719	5.491	
245	-	-	-	-	-	8.795	7.852	7.393	6.798	5.554	
250	-	-	-	-	-	8.903	7.931	7.472	6.878	5.617	
255	-	-	-	-	-	9.011	8.011	7.550	6.957	5.681	
260	-	-	-	-	-	9.119	8.090	7.628	7.037	5.744	
265	-	-	-	-	-	9.228	8.169	7.707	7.117	5.807	
270	-	-	-	-	-	9.336	8.248	7.785	7.196	5.870	
275	-	-	-	-	-	9.444	8.328	7.863	7.276	5.934	
280	-	-	-	-	-	9.552	8.407	7.942	7.355	6.011	
285	-	-	-	-	-	-	8.486	8.020	7.435	6.111	
290	-	-	-	-	-	-	8.566	8.098	7.514	6.212	
295	-	-	-	-	-	-	8.645	8.177	7.594	6.312	
300	-	-	-	-	-	-	8.724	8.255	7.674	6.412	
305	-	-	-	-	-	-	8.803	8.333	7.753	6.512	
310	-	-	-	-	-	-	8.883	8.412	7.833	6.612	
315	-	-	-	-	-	-	8.962	8.490	7.912	6.712	
320	-	-	-	-	-	-	9.041	8.568	7.992	6.813	
325	-	-	-	-	-	-	9.120	8.647	8.071	6.913	
330	-	-	-	-	-	-	9.200	8.725	8.151	7.013	
335	-	-	-	-	-	-	9.279	8.803	8.231	7.113	
340	-	-	-	-	-	-	9.358	8.882	8.310	7.213	
345	-	-	-	-	-	-	9.437	8.960	8.390	7.313	
350	-	-	-	-	-	-	-	9.038	8.469	7.413	
355	-	-	-	-	-	-	-	9.117	8.549	7.514	
360	-	-	-	-	-	-	-	9.195	8.628	7.614	
365	-	-	-	-	-	-	-	9.273	8.708	7.714	
370	-	-	-	-	-	-	-	9.352	8.788	7.814	

Thickness is intumescent only. Results apply to I/H section beams with concrete slabs with 3-sided fire exposure.

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Table 10. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 15 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
35	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
40	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
45	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
50	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
55	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
60	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
65	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
70	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
75	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
80	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
85	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
90	0.358	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
95	0.379	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
100	0.400	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
105	0.421	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
110	0.443	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
115	0.464	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
120	0.485	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
125	0.506	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
130	0.527	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
135	0.548	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
140	0.569	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
145	0.590	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
150	0.611	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
155	0.632	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
160	0.653	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
165	0.675	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
170	0.696	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
175	0.717	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
180	0.738	0.355	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
185	0.759	0.374	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
190	0.780	0.393	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
195	0.801	0.413	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
200	0.822	0.432	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
205	0.843	0.452	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
210	0.864	0.471	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
215	0.885	0.490	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
220	0.906	0.510	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
225	0.928	0.529	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
230	0.949	0.548	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
235	0.970	0.568	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
240	0.991	0.587	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
245	1.012	0.606	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
250	1.033	0.626	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
255	1.054	0.645	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
260	1.075	0.664	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
265	1.096	0.684	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
270	1.117	0.703	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
275	1.138	0.723	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
280	1.160	0.742	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
285	1.181	0.761	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
290	1.202	0.781	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
295	1.223	0.800	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
300	1.244	0.819	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
305	1.265	0.839	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
310	1.286	0.858	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
315	1.307	0.877	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
320	1.328	0.897	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
325	1.349	0.916	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
330	1.370	0.936	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
335	1.392	0.955	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
340	1.413	0.974	0.352	0.351	0.351	0.351	0.351	0.351	0.351	0.351
345	1.434	0.994	0.376	0.351	0.351	0.351	0.351	0.351	0.351	0.351
350	1.455	1.013	0.400	0.351	0.351	0.351	0.351	0.351	0.351	0.351
355	1.476	1.032	0.424	0.351	0.351	0.351	0.351	0.351	0.351	0.351
360	1.498	1.052	0.448	0.351	0.351	0.351	0.351	0.351	0.351	0.351
365	1.524	1.071	0.472	0.351	0.351	0.351	0.351	0.351	0.351	0.351
370	1.549	1.090	0.496	0.351	0.351	0.351	0.351	0.351	0.351	0.351

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 11. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 30 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
35	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
40	0.401	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
45	0.490	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
50	0.579	0.389	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
55	0.668	0.441	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
60	0.757	0.492	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
65	0.845	0.543	0.374	0.351	0.351	0.351	0.351	0.351	0.351	0.351
70	0.934	0.594	0.408	0.351	0.351	0.351	0.351	0.351	0.351	0.351
75	1.023	0.645	0.443	0.351	0.351	0.351	0.351	0.351	0.351	0.351
80	1.112	0.696	0.478	0.351	0.351	0.351	0.351	0.351	0.351	0.351
85	1.201	0.747	0.512	0.351	0.351	0.351	0.351	0.351	0.351	0.351
90	1.289	0.798	0.547	0.351	0.351	0.351	0.351	0.351	0.351	0.351
95	1.378	0.849	0.582	0.367	0.351	0.351	0.351	0.351	0.351	0.351
100	1.467	0.901	0.617	0.393	0.351	0.351	0.351	0.351	0.351	0.351
105	1.529	0.952	0.651	0.419	0.351	0.351	0.351	0.351	0.351	0.351
110	1.581	1.003	0.686	0.444	0.351	0.351	0.351	0.351	0.351	0.351
115	1.633	1.054	0.721	0.470	0.351	0.351	0.351	0.351	0.351	0.351
120	1.684	1.105	0.756	0.496	0.351	0.351	0.351	0.351	0.351	0.351
125	1.736	1.156	0.790	0.522	0.351	0.351	0.351	0.351	0.351	0.351
130	1.788	1.207	0.825	0.548	0.351	0.351	0.351	0.351	0.351	0.351
135	1.840	1.258	0.860	0.573	0.352	0.351	0.351	0.351	0.351	0.351
140	1.892	1.309	0.894	0.599	0.376	0.351	0.351	0.351	0.351	0.351
145	1.944	1.361	0.929	0.625	0.400	0.351	0.351	0.351	0.351	0.351
150	1.996	1.412	0.964	0.651	0.424	0.351	0.351	0.351	0.351	0.351
155	2.044	1.463	0.999	0.676	0.448	0.351	0.351	0.351	0.351	0.351
160	2.091	1.512	1.033	0.702	0.472	0.351	0.351	0.351	0.351	0.351
165	2.139	1.557	1.068	0.728	0.496	0.351	0.351	0.351	0.351	0.351
170	2.187	1.603	1.103	0.754	0.520	0.351	0.351	0.351	0.351	0.351
175	2.235	1.649	1.138	0.780	0.544	0.351	0.351	0.351	0.351	0.351
180	2.283	1.695	1.172	0.805	0.568	0.351	0.351	0.351	0.351	0.351
185	2.330	1.741	1.207	0.831	0.592	0.351	0.351	0.351	0.351	0.351
190	2.378	1.787	1.242	0.857	0.616	0.351	0.351	0.351	0.351	0.351
195	2.426	1.833	1.276	0.883	0.641	0.351	0.351	0.351	0.351	0.351
200	2.474	1.879	1.311	0.908	0.665	0.359	0.351	0.351	0.351	0.351
205	2.522	1.924	1.346	0.934	0.689	0.383	0.351	0.351	0.351	0.351
210	2.569	1.970	1.381	0.960	0.713	0.408	0.351	0.351	0.351	0.351
215	2.617	2.014	1.415	0.986	0.737	0.432	0.351	0.351	0.351	0.351
220	2.665	2.056	1.450	1.012	0.761	0.456	0.351	0.351	0.351	0.351
225	2.713	2.098	1.485	1.037	0.785	0.481	0.351	0.351	0.351	0.351
230	2.761	2.139	1.508	1.063	0.809	0.505	0.351	0.351	0.351	0.351
235	2.808	2.181	1.529	1.089	0.833	0.530	0.351	0.351	0.351	0.351
240	2.856	2.222	1.550	1.115	0.857	0.554	0.351	0.351	0.351	0.351
245	2.904	2.264	1.571	1.140	0.881	0.579	0.351	0.351	0.351	0.351
250	2.952	2.306	1.592	1.166	0.905	0.603	0.351	0.351	0.351	0.351
255	3.000	2.347	1.613	1.192	0.929	0.628	0.351	0.351	0.351	0.351
260	3.047	2.389	1.634	1.218	0.953	0.652	0.351	0.351	0.351	0.351
265	3.095	2.430	1.655	1.244	0.977	0.677	0.351	0.351	0.351	0.351
270	3.143	2.472	1.676	1.269	1.001	0.701	0.351	0.351	0.351	0.351
275	3.191	2.514	1.697	1.295	1.025	0.725	0.351	0.351	0.351	0.351
280	3.239	2.555	1.718	1.321	1.049	0.750	0.351	0.351	0.351	0.351
285	3.286	2.597	1.739	1.347	1.073	0.774	0.351	0.351	0.351	0.351
290	3.334	2.638	1.760	1.372	1.097	0.799	0.351	0.351	0.351	0.351
295	3.382	2.680	1.781	1.398	1.121	0.823	0.351	0.351	0.351	0.351
300	3.430	2.722	1.802	1.424	1.145	0.848	0.351	0.351	0.351	0.351
305	3.478	2.763	1.823	1.450	1.169	0.872	0.351	0.351	0.351	0.351
310	3.526	2.805	1.843	1.476	1.193	0.897	0.351	0.351	0.351	0.351
315	3.573	2.847	1.864	1.502	1.217	0.921	0.351	0.351	0.351	0.351
320	3.621	2.888	1.885	1.529	1.241	0.946	0.351	0.351	0.351	0.351
325	3.669	2.930	1.906	1.557	1.265	0.970	0.351	0.351	0.351	0.351
330	3.717	2.971	1.927	1.584	1.289	0.994	0.375	0.351	0.351	0.351
335	3.765	3.013	1.948	1.612	1.313	1.019	0.407	0.351	0.351	0.351
340	3.812	3.055	1.969	1.639	1.337	1.043	0.439	0.351	0.351	0.351
345	3.860	3.096	1.990	1.667	1.361	1.068	0.471	0.351	0.351	0.351
350	3.908	3.138	2.040	1.694	1.386	1.092	0.504	0.351	0.351	0.351
355	3.956	3.179	2.102	1.721	1.410	1.117	0.536	0.351	0.351	0.351
360	4.006	3.221	2.163	1.749	1.434	1.141	0.568	0.351	0.351	0.351
365	4.057	3.263	2.224	1.776	1.458	1.166	0.600	0.351	0.351	0.351
370	4.109	3.304	2.286	1.804	1.482	1.190	0.633	0.351	0.351	0.351

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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Table 12. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 45 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	1.317	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
35	1.317	0.437	0.351	0.351	0.351	0.351	0.351	0.351	0.351	0.351
40	1.317	0.549	0.392	0.351	0.351	0.351	0.351	0.351	0.351	0.351
45	1.317	0.660	0.471	0.366	0.351	0.351	0.351	0.351	0.351	0.351
50	1.317	0.772	0.551	0.424	0.355	0.351	0.351	0.351	0.351	0.351
55	1.447	0.883	0.630	0.481	0.397	0.351	0.351	0.351	0.351	0.351
60	1.599	0.994	0.710	0.539	0.438	0.351	0.351	0.351	0.351	0.351
65	1.758	1.106	0.789	0.596	0.480	0.365	0.351	0.351	0.351	0.351
70	1.916	1.217	0.869	0.654	0.521	0.397	0.351	0.351	0.351	0.351
75	2.037	1.329	0.949	0.712	0.563	0.429	0.351	0.351	0.351	0.351
80	2.120	1.440	1.028	0.769	0.604	0.461	0.351	0.351	0.351	0.351
85	2.203	1.526	1.108	0.827	0.646	0.493	0.368	0.351	0.351	0.351
90	2.286	1.592	1.187	0.884	0.687	0.525	0.394	0.351	0.351	0.351
95	2.368	1.657	1.267	0.942	0.729	0.557	0.421	0.351	0.351	0.351
100	2.451	1.722	1.346	1.000	0.770	0.589	0.447	0.351	0.351	0.351
105	2.534	1.787	1.426	1.057	0.812	0.621	0.473	0.351	0.351	0.351
110	2.617	1.853	1.501	1.115	0.853	0.653	0.499	0.352	0.351	0.351
115	2.700	1.918	1.557	1.173	0.894	0.685	0.525	0.375	0.351	0.351
120	2.783	1.983	1.612	1.230	0.936	0.717	0.552	0.399	0.351	0.351
125	2.866	2.050	1.668	1.288	0.977	0.749	0.578	0.422	0.351	0.351
130	2.949	2.118	1.724	1.345	1.019	0.781	0.604	0.445	0.351	0.351
135	3.032	2.186	1.780	1.403	1.060	0.813	0.630	0.468	0.351	0.351
140	3.115	2.254	1.835	1.461	1.102	0.845	0.657	0.491	0.351	0.351
145	3.198	2.321	1.891	1.516	1.143	0.877	0.683	0.515	0.351	0.351
150	3.280	2.389	1.947	1.568	1.185	0.909	0.709	0.538	0.351	0.351
155	3.363	2.457	2.002	1.621	1.226	0.941	0.735	0.561	0.351	0.351
160	3.446	2.525	2.058	1.674	1.268	0.973	0.761	0.584	0.365	0.351
165	3.529	2.593	2.113	1.726	1.309	1.005	0.788	0.607	0.387	0.351
170	3.612	2.660	2.169	1.779	1.351	1.037	0.814	0.631	0.409	0.351
175	3.695	2.728	2.224	1.832	1.392	1.069	0.840	0.654	0.432	0.351
180	3.778	2.796	2.279	1.884	1.434	1.101	0.866	0.677	0.454	0.351
185	3.861	2.864	2.335	1.937	1.475	1.133	0.893	0.700	0.476	0.351
190	3.944	2.931	2.390	1.990	1.519	1.165	0.919	0.723	0.498	0.351
195	4.008	2.999	2.445	2.043	1.566	1.197	0.945	0.746	0.520	0.351
200	4.066	3.067	2.501	2.097	1.612	1.229	0.971	0.770	0.542	0.351
205	4.123	3.135	2.556	2.152	1.659	1.261	0.998	0.793	0.564	0.351
210	4.181	3.202	2.611	2.206	1.705	1.293	1.024	0.816	0.586	0.351
215	4.239	3.270	2.667	2.260	1.751	1.325	1.050	0.839	0.608	0.351
220	4.297	3.338	2.722	2.314	1.798	1.357	1.076	0.862	0.630	0.351
225	4.354	3.406	2.778	2.368	1.844	1.389	1.102	0.886	0.653	0.351
230	4.412	3.473	2.833	2.422	1.890	1.421	1.129	0.909	0.675	0.351
235	4.470	3.541	2.888	2.476	1.937	1.453	1.155	0.932	0.697	0.351
240	4.527	3.609	2.944	2.530	1.983	1.485	1.181	0.955	0.719	0.351
245	4.585	3.677	2.999	2.584	2.036	1.511	1.207	0.978	0.741	0.351
250	4.643	3.744	3.054	2.638	2.092	1.537	1.234	1.001	0.763	0.351
255	4.700	3.812	3.110	2.692	2.149	1.562	1.260	1.025	0.785	0.351
260	4.758	3.880	3.165	2.746	2.205	1.587	1.286	1.048	0.807	0.351
265	4.816	3.948	3.220	2.800	2.261	1.612	1.312	1.071	0.829	0.351
270	4.873	4.005	3.276	2.854	2.317	1.637	1.338	1.094	0.851	0.351
275	4.931	4.059	3.331	2.908	2.373	1.662	1.365	1.117	0.873	0.351
280	4.989	4.113	3.386	2.962	2.429	1.688	1.391	1.141	0.896	0.351
285	5.046	4.167	3.442	3.016	2.485	1.713	1.417	1.164	0.918	0.351
290	5.104	4.220	3.497	3.070	2.541	1.738	1.443	1.187	0.940	0.351
295	5.162	4.274	3.553	3.124	2.597	1.763	1.470	1.210	0.962	0.351
300	5.219	4.328	3.608	3.179	2.653	1.788	1.496	1.233	0.984	0.351
305	5.277	4.382	3.663	3.233	2.709	1.813	1.525	1.257	1.006	0.351
310	5.335	4.436	3.719	3.287	2.766	1.839	1.554	1.280	1.028	0.351
315	5.392	4.489	3.774	3.341	2.822	1.864	1.583	1.303	1.050	0.351
320	5.450	4.543	3.829	3.395	2.878	1.889	1.612	1.326	1.072	0.351
325	5.508	4.597	3.885	3.449	2.934	1.914	1.641	1.349	1.094	0.362
330	5.565	4.651	3.940	3.503	2.990	1.939	1.670	1.372	1.117	0.393
335	5.623	4.704	3.993	3.557	3.046	1.964	1.699	1.396	1.139	0.425
340	5.681	4.758	4.043	3.611	3.102	1.990	1.728	1.419	1.161	0.456
345	5.739	4.812	4.094	3.665	3.158	2.014	1.757	1.442	1.183	0.488
350	5.796	4.866	4.144	3.719	3.214	2.038	1.785	1.465	1.205	0.519
355	5.854	4.920	4.194	3.773	3.270	2.062	1.814	1.488	1.227	0.551
360	5.912	4.973	4.245	3.827	3.326	2.086	1.843	1.511	1.249	0.582
365	5.969	5.027	4.295	3.881	3.383	2.109	1.872	1.534	1.271	0.614
370	6.027	5.081	4.345	3.935	3.439	2.131	1.901	1.557	1.293	0.645

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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Table 13. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 60 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	1.872	1.340	0.404	0.351	0.351	0.351	0.351	0.351	0.351	0.351
35	1.872	1.340	0.534	0.400	0.351	0.351	0.351	0.351	0.351	0.351
40	1.872	1.340	0.664	0.499	0.403	0.351	0.351	0.351	0.351	0.351
45	2.033	1.340	0.794	0.598	0.479	0.405	0.358	0.351	0.351	0.351
50	2.194	1.340	0.924	0.697	0.555	0.463	0.402	0.356	0.351	0.351
55	2.354	1.473	1.055	0.796	0.630	0.520	0.446	0.389	0.351	0.351
60	2.515	1.673	1.185	0.895	0.706	0.578	0.489	0.422	0.351	0.351
65	2.676	1.883	1.315	0.994	0.782	0.636	0.533	0.455	0.371	0.351
70	2.836	2.054	1.445	1.093	0.858	0.694	0.577	0.487	0.399	0.351
75	2.997	2.178	1.551	1.193	0.934	0.752	0.621	0.520	0.426	0.351
80	3.158	2.303	1.644	1.292	1.009	0.810	0.665	0.553	0.453	0.351
85	3.318	2.428	1.737	1.391	1.085	0.867	0.708	0.586	0.481	0.364
90	3.479	2.553	1.830	1.490	1.161	0.925	0.752	0.619	0.508	0.387
95	3.640	2.678	1.923	1.556	1.237	0.983	0.796	0.652	0.535	0.409
100	3.801	2.802	2.017	1.622	1.313	1.041	0.840	0.685	0.563	0.432
105	3.961	2.927	2.117	1.687	1.389	1.099	0.884	0.718	0.590	0.455
110	4.084	3.052	2.217	1.753	1.464	1.157	0.927	0.750	0.617	0.478
115	4.205	3.177	2.317	1.818	1.529	1.214	0.971	0.783	0.645	0.501
120	4.326	3.302	2.417	1.884	1.588	1.272	1.015	0.816	0.672	0.524
125	4.448	3.426	2.517	1.950	1.648	1.330	1.059	0.849	0.699	0.547
130	4.569	3.551	2.618	2.021	1.707	1.388	1.103	0.882	0.727	0.570
135	4.690	3.676	2.718	2.104	1.766	1.446	1.146	0.915	0.754	0.592
140	4.812	3.801	2.818	2.187	1.825	1.503	1.190	0.948	0.781	0.615
145	4.933	3.925	2.918	2.270	1.884	1.559	1.234	0.981	0.809	0.638
150	5.054	4.001	3.018	2.353	1.943	1.614	1.278	1.013	0.836	0.661
155	5.176	4.054	3.118	2.436	2.003	1.670	1.322	1.046	0.863	0.684
160	5.297	4.106	3.218	2.519	2.072	1.726	1.365	1.079	0.891	0.707
165	5.419	4.159	3.318	2.602	2.141	1.782	1.409	1.112	0.918	0.730
170	5.540	4.211	3.418	2.685	2.210	1.837	1.453	1.145	0.945	0.752
175	5.661	4.264	3.518	2.768	2.279	1.893	1.498	1.178	0.973	0.775
180	5.783	4.316	3.619	2.851	2.348	1.949	1.553	1.211	1.000	0.798
185	5.904	4.369	3.719	2.934	2.416	2.005	1.608	1.244	1.027	0.821
190	6.004	4.421	3.819	3.017	2.485	2.068	1.662	1.277	1.055	0.844
195	6.076	4.474	3.919	3.100	2.554	2.130	1.717	1.309	1.082	0.867
200	6.148	4.526	3.993	3.183	2.623	2.193	1.772	1.342	1.109	0.890
205	6.220	4.579	4.043	3.266	2.692	2.255	1.826	1.375	1.137	0.913
210	6.292	4.631	4.094	3.349	2.761	2.317	1.881	1.408	1.164	0.935
215	6.364	4.684	4.145	3.432	2.830	2.380	1.936	1.441	1.191	0.958
220	6.437	4.736	4.196	3.515	2.899	2.442	1.990	1.474	1.219	0.981
225	6.509	4.789	4.246	3.598	2.968	2.505	2.050	1.511	1.246	1.004
230	6.581	4.841	4.297	3.681	3.036	2.567	2.111	1.553	1.273	1.027
235	6.653	4.894	4.348	3.764	3.105	2.629	2.172	1.595	1.301	1.050
240	6.725	4.946	4.398	3.847	3.174	2.692	2.233	1.637	1.328	1.073
245	6.797	4.999	4.449	3.930	3.243	2.754	2.294	1.678	1.355	1.096
250	6.870	5.051	4.500	3.995	3.312	2.817	2.355	1.720	1.383	1.118
255	6.942	5.104	4.550	4.045	3.381	2.879	2.416	1.762	1.410	1.141
260	7.014	5.156	4.601	4.095	3.450	2.942	2.477	1.804	1.437	1.164
265	7.086	5.209	4.652	4.145	3.519	3.004	2.537	1.846	1.465	1.187
270	7.158	5.261	4.702	4.196	3.588	3.066	2.598	1.888	1.492	1.210
275	7.230	5.314	4.753	4.246	3.657	3.129	2.659	1.930	1.524	1.233
280	7.302	5.366	4.804	4.296	3.725	3.191	2.720	1.972	1.556	1.256
285	7.375	5.419	4.854	4.347	3.794	3.254	2.781	2.024	1.589	1.278
290	7.447	5.471	4.905	4.397	3.863	3.316	2.842	2.091	1.621	1.301
295	7.519	5.524	4.956	4.447	3.932	3.378	2.903	2.158	1.653	1.324
300	7.591	5.576	5.006	4.497	3.992	3.441	2.964	2.225	1.685	1.347
305	7.663	5.629	5.057	4.548	4.043	3.503	3.024	2.292	1.717	1.370
310	7.735	5.681	5.108	4.598	4.094	3.566	3.085	2.359	1.749	1.393
315	7.808	5.734	5.159	4.648	4.144	3.628	3.146	2.426	1.782	1.416
320	7.880	5.786	5.209	4.698	4.195	3.690	3.207	2.492	1.814	1.439
325	7.952	5.839	5.260	4.749	4.246	3.753	3.268	2.559	1.846	1.461
330	8.024	5.891	5.311	4.799	4.297	3.815	3.329	2.626	1.878	1.484
335	8.096	5.944	5.361	4.849	4.348	3.878	3.390	2.693	1.910	1.516
340	8.168	6.018	5.412	4.900	4.399	3.940	3.451	2.760	1.942	1.550
345	8.240	6.120	5.463	4.950	4.449	3.994	3.511	2.827	1.975	1.585
350	8.313	6.221	5.513	5.000	4.500	4.043	3.572	2.894	2.018	1.620
355	8.385	6.322	5.564	5.050	4.551	4.091	3.633	2.961	2.085	1.655
360	8.457	6.423	5.615	5.101	4.602	4.139	3.694	3.028	2.152	1.690
365	8.529	6.524	5.665	5.151	4.653	4.188	3.755	3.095	2.219	1.725
370	8.601	6.626	5.716	5.201	4.704	4.236	3.816	3.162	2.286	1.759

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 14. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 75 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	3.331	2.140	1.342	1.122	0.376	0.351	0.351	0.351	0.351	0.351
35	3.331	2.140	1.342	1.122	0.488	0.412	0.359	0.351	0.351	0.351
40	3.331	2.140	1.342	1.122	0.600	0.501	0.431	0.376	0.351	0.351
45	3.331	2.140	1.342	1.122	0.712	0.589	0.503	0.434	0.377	0.351
50	3.331	2.140	1.342	1.122	0.825	0.678	0.576	0.493	0.422	0.364
55	3.561	2.331	1.567	1.234	0.937	0.767	0.648	0.551	0.467	0.396
60	3.790	2.521	1.817	1.353	1.049	0.856	0.720	0.609	0.511	0.429
65	4.030	2.712	2.040	1.472	1.161	0.945	0.792	0.668	0.556	0.462
70	4.302	2.903	2.196	1.602	1.273	1.033	0.864	0.726	0.600	0.494
75	4.574	3.093	2.352	1.733	1.385	1.122	0.936	0.785	0.645	0.527
80	4.846	3.284	2.507	1.865	1.495	1.211	1.008	0.843	0.689	0.560
85	5.119	3.475	2.663	1.996	1.568	1.300	1.080	0.901	0.734	0.593
90	5.391	3.665	2.819	2.126	1.640	1.389	1.152	0.960	0.779	0.625
95	5.663	3.856	2.974	2.255	1.713	1.477	1.224	1.018	0.823	0.658
100	5.936	4.031	3.130	2.385	1.785	1.545	1.296	1.077	0.868	0.691
105	6.052	4.186	3.286	2.514	1.858	1.609	1.368	1.135	0.912	0.724
110	6.145	4.341	3.442	2.644	1.930	1.673	1.440	1.193	0.957	0.756
115	6.237	4.495	3.597	2.773	2.007	1.736	1.508	1.252	1.001	0.789
120	6.330	4.650	3.753	2.903	2.117	1.800	1.564	1.310	1.046	0.822
125	6.422	4.805	3.909	3.032	2.227	1.864	1.621	1.368	1.091	0.854
130	6.515	4.959	4.011	3.162	2.338	1.928	1.677	1.427	1.135	0.887
135	6.607	5.114	4.082	3.291	2.448	1.991	1.733	1.485	1.180	0.920
140	6.700	5.269	4.152	3.421	2.559	2.080	1.790	1.536	1.224	0.953
145	6.792	5.423	4.223	3.550	2.669	2.171	1.846	1.585	1.269	0.985
150	6.884	5.578	4.294	3.680	2.780	2.261	1.902	1.635	1.313	1.018
155	6.977	5.733	4.365	3.809	2.890	2.352	1.959	1.684	1.358	1.051
160	7.069	5.887	4.436	3.939	3.001	2.443	2.022	1.734	1.403	1.084
165	7.162	6.002	4.506	4.007	3.111	2.533	2.099	1.783	1.447	1.116
170	7.254	6.069	4.577	4.059	3.222	2.624	2.175	1.833	1.492	1.149
175	7.347	6.135	4.648	4.110	3.332	2.715	2.252	1.882	1.537	1.182
180	7.439	6.202	4.719	4.162	3.442	2.805	2.328	1.932	1.583	1.215
185	7.532	6.268	4.790	4.214	3.553	2.896	2.405	1.981	1.628	1.247
190	7.624	6.335	4.860	4.266	3.663	2.987	2.481	2.043	1.673	1.280
195	7.717	6.401	4.931	4.317	3.774	3.078	2.558	2.110	1.719	1.313
200	7.809	6.468	5.002	4.369	3.884	3.168	2.634	2.177	1.764	1.345
205	7.902	6.534	5.073	4.421	3.980	3.259	2.711	2.244	1.810	1.378
210	7.994	6.601	5.144	4.473	4.033	3.350	2.787	2.311	1.855	1.411
215	8.087	6.667	5.214	4.525	4.087	3.440	2.864	2.378	1.900	1.444
220	8.179	6.734	5.285	4.576	4.140	3.531	2.940	2.445	1.946	1.476
225	8.272	6.800	5.356	4.628	4.193	3.622	3.017	2.512	1.991	1.515
230	8.364	6.867	5.427	4.680	4.247	3.712	3.093	2.579	2.053	1.559
235	8.457	6.934	5.497	4.732	4.300	3.803	3.170	2.646	2.118	1.602
240	8.549	7.000	5.568	4.783	4.353	3.894	3.246	2.713	2.182	1.646
245	8.642	7.067	5.639	4.835	4.407	3.977	3.323	2.780	2.247	1.689
250	8.734	7.133	5.710	4.887	4.460	4.030	3.399	2.847	2.311	1.733
255	8.827	7.200	5.781	4.939	4.513	4.083	3.476	2.914	2.376	1.777
260	8.919	7.266	5.851	4.991	4.567	4.136	3.552	2.981	2.440	1.820
265	9.012	7.333	5.922	5.042	4.620	4.189	3.629	3.049	2.505	1.864
270	9.104	7.399	5.998	5.094	4.673	4.242	3.705	3.116	2.569	1.908
275	9.197	7.466	6.084	5.146	4.727	4.295	3.782	3.183	2.634	1.951
280	9.289	7.532	6.170	5.198	4.780	4.348	3.858	3.250	2.698	1.995
285	9.382	7.599	6.256	5.249	4.833	4.401	3.935	3.317	2.763	2.057
290	9.474	7.665	6.342	5.301	4.887	4.454	3.997	3.384	2.827	2.120
295	-	7.732	6.428	5.353	4.940	4.507	4.049	3.451	2.891	2.182
300	-	7.798	6.514	5.405	4.993	4.560	4.100	3.518	2.956	2.245
305	-	7.865	6.600	5.457	5.047	4.613	4.152	3.585	3.020	2.308
310	-	7.931	6.686	5.508	5.100	4.666	4.204	3.652	3.085	2.371
315	-	7.998	6.772	5.560	5.153	4.719	4.256	3.719	3.149	2.433
320	-	8.065	6.858	5.612	5.207	4.772	4.308	3.786	3.214	2.496
325	-	8.131	6.944	5.664	5.260	4.825	4.360	3.853	3.278	2.559
330	-	8.198	7.030	5.715	5.314	4.878	4.412	3.920	3.343	2.622
335	-	8.264	7.116	5.767	5.367	4.931	4.464	3.981	3.407	2.684
340	-	8.331	7.203	5.819	5.420	4.984	4.516	4.030	3.472	2.747
345	-	8.397	7.289	5.871	5.474	5.037	4.568	4.079	3.536	2.810
350	-	8.464	7.375	5.923	5.527	5.090	4.620	4.128	3.601	2.873
355	-	8.530	7.461	5.977	5.580	5.143	4.671	4.177	3.665	2.935
360	-	8.597	7.547	6.088	5.634	5.196	4.723	4.226	3.730	2.998
365	-	8.663	7.633	6.199	5.687	5.249	4.775	4.274	3.794	3.061
370	-	8.730	7.719	6.310	5.740	5.302	4.827	4.323	3.858	3.124

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 15. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 90 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	3.948	3.153	2.137	1.385	1.199	1.015	0.390	0.351	0.351	0.351
35	3.948	3.153	2.137	1.385	1.199	1.015	0.491	0.425	0.362	0.351
40	3.948	3.153	2.137	1.385	1.199	1.015	0.593	0.512	0.437	0.361
45	3.948	3.153	2.137	1.385	1.199	1.015	0.695	0.600	0.512	0.422
50	4.337	3.153	2.137	1.385	1.199	1.015	0.797	0.687	0.587	0.484
55	4.725	3.415	2.360	1.674	1.318	1.117	0.898	0.774	0.662	0.546
60	5.114	3.676	2.583	1.962	1.443	1.220	1.000	0.862	0.737	0.607
65	5.502	3.938	2.806	2.154	1.592	1.324	1.102	0.949	0.812	0.669
70	5.891	4.221	3.029	2.333	1.758	1.427	1.203	1.036	0.887	0.730
75	6.130	4.507	3.252	2.512	1.923	1.529	1.305	1.124	0.961	0.792
80	6.329	4.793	3.475	2.691	2.081	1.629	1.407	1.211	1.036	0.853
85	6.528	5.079	3.698	2.870	2.233	1.728	1.502	1.298	1.111	0.915
90	6.727	5.365	3.921	3.049	2.385	1.828	1.566	1.386	1.186	0.976
95	6.926	5.651	4.130	3.228	2.537	1.927	1.630	1.473	1.261	1.038
100	7.125	5.937	4.336	3.407	2.689	2.036	1.695	1.534	1.336	1.099
105	7.324	6.041	4.542	3.586	2.840	2.165	1.759	1.589	1.411	1.161
110	7.523	6.120	4.748	3.765	2.992	2.294	1.823	1.644	1.486	1.223
115	7.723	6.199	4.954	3.944	3.144	2.424	1.887	1.698	1.536	1.284
120	7.922	6.278	5.159	4.062	3.296	2.553	1.952	1.753	1.585	1.346
125	8.121	6.356	5.365	4.171	3.448	2.682	2.029	1.807	1.634	1.407
130	8.320	6.435	5.571	4.280	3.600	2.812	2.137	1.862	1.683	1.469
135	8.519	6.514	5.777	4.389	3.752	2.941	2.245	1.917	1.732	1.517
140	8.718	6.593	5.975	4.498	3.904	3.070	2.352	1.971	1.781	1.559
145	8.917	6.672	6.041	4.607	4.002	3.199	2.460	2.046	1.830	1.600
150	9.117	6.751	6.107	4.716	4.062	3.329	2.568	2.138	1.879	1.641
155	9.316	6.829	6.172	4.825	4.122	3.458	2.676	2.229	1.928	1.683
160	9.515	6.908	6.238	4.934	4.181	3.587	2.783	2.321	1.977	1.724
165	9.714	6.987	6.303	5.043	4.241	3.716	2.891	2.413	2.041	1.766
170	-	7.066	6.369	5.152	4.301	3.846	2.999	2.504	2.114	1.807
175	-	7.145	6.435	5.261	4.361	3.970	3.106	2.596	2.186	1.848
180	-	7.223	6.500	5.370	4.421	4.025	3.214	2.688	2.259	1.890
185	-	7.302	6.566	5.479	4.481	4.080	3.322	2.780	2.332	1.931
190	-	7.381	6.631	5.588	4.541	4.134	3.429	2.871	2.405	1.972
195	-	7.460	6.697	5.697	4.601	4.189	3.537	2.963	2.478	2.023
200	-	7.539	6.763	5.806	4.661	4.244	3.645	3.055	2.551	2.087
205	-	7.618	6.828	5.915	4.721	4.299	3.753	3.146	2.623	2.150
210	-	7.696	6.894	6.008	4.781	4.354	3.860	3.238	2.696	2.213
215	-	7.775	6.959	6.083	4.841	4.409	3.967	3.330	2.769	2.277
220	-	7.854	7.025	6.159	4.901	4.464	4.073	3.421	2.842	2.340
225	-	7.933	7.091	6.234	4.961	4.518	4.079	3.513	2.915	2.404
230	-	8.012	7.156	6.309	5.021	4.573	4.134	3.605	2.988	2.467
235	-	8.091	7.222	6.384	5.081	4.628	4.190	3.696	3.060	2.530
240	-	8.169	7.287	6.460	5.141	4.683	4.246	3.788	3.133	2.594
245	-	8.248	7.353	6.535	5.201	4.738	4.302	3.880	3.206	2.657
250	-	8.327	7.419	6.610	5.261	4.793	4.358	3.969	3.279	2.720
255	-	8.406	7.484	6.686	5.321	4.848	4.414	4.022	3.352	2.784
260	-	8.485	7.550	6.761	5.381	4.903	4.469	4.075	3.425	2.847
265	-	8.564	7.615	6.836	5.441	4.957	4.525	4.127	3.497	2.911
270	-	8.642	7.681	6.911	5.501	5.012	4.581	4.180	3.570	2.974
275	-	8.721	7.747	6.987	5.561	5.067	4.637	4.233	3.643	3.037
280	-	8.800	7.812	7.062	5.621	5.122	4.693	4.286	3.716	3.101
285	-	8.879	7.878	7.137	5.681	5.177	4.748	4.338	3.789	3.164
290	-	8.958	7.943	7.213	5.741	5.232	4.804	4.391	3.862	3.227
295	-	9.037	8.009	7.288	5.801	5.287	4.860	4.444	3.934	3.291
300	-	9.115	8.075	7.363	5.861	5.341	4.916	4.496	3.994	3.354
305	-	9.194	8.140	7.438	5.921	5.396	4.972	4.549	4.045	3.418
310	-	9.273	8.206	7.514	5.987	5.451	5.027	4.602	4.095	3.481
315	-	9.352	8.271	7.589	6.096	5.506	5.083	4.655	4.145	3.544
320	-	-	8.337	7.664	6.205	5.561	5.139	4.707	4.195	3.608
325	-	-	8.403	7.739	6.314	5.616	5.195	4.760	4.246	3.671
330	-	-	8.468	7.815	6.423	5.671	5.251	4.813	4.296	3.734
335	-	-	8.534	7.890	6.532	5.726	5.306	4.866	4.346	3.798
340	-	-	8.599	7.965	6.640	5.780	5.362	4.918	4.396	3.861
345	-	-	8.665	8.041	6.749	5.835	5.418	4.971	4.447	3.925
350	-	-	8.731	8.116	6.858	5.890	5.474	5.024	4.497	3.982
355	-	-	8.796	8.191	6.967	5.945	5.530	5.076	4.547	4.027
360	-	-	8.862	8.266	7.076	6.030	5.585	5.129	4.597	4.073
365	-	-	8.927	8.342	7.185	6.143	5.641	5.182	4.647	4.118
370	-	-	8.993	8.417	7.293	6.256	5.697	5.235	4.698	4.164

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 16. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 105 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	5.720	4.026	3.041	2.142	1.448	1.262	1.119	1.016	0.809	0.351
35	5.720	4.026	3.041	2.142	1.448	1.262	1.119	1.016	0.809	0.394
40	5.720	4.026	3.041	2.142	1.448	1.262	1.119	1.016	0.809	0.491
45	5.720	4.026	3.041	2.142	1.448	1.262	1.119	1.016	0.809	0.588
50	5.720	4.026	3.041	2.142	1.448	1.262	1.119	1.016	0.809	0.685
55	5.978	4.433	3.327	2.389	1.780	1.387	1.229	1.114	0.916	0.782
60	6.235	4.840	3.612	2.637	2.064	1.536	1.340	1.211	1.024	0.880
65	6.492	5.247	3.897	2.885	2.258	1.779	1.450	1.309	1.131	0.977
70	6.749	5.654	4.218	3.133	2.452	2.013	1.584	1.406	1.239	1.074
75	7.006	6.030	4.550	3.381	2.646	2.174	1.731	1.499	1.347	1.171
80	7.264	6.299	4.882	3.629	2.840	2.335	1.879	1.564	1.454	1.268
85	7.521	6.567	5.214	3.877	3.034	2.495	2.024	1.628	1.528	1.365
90	7.778	6.835	5.546	4.124	3.228	2.656	2.161	1.692	1.585	1.462
95	8.035	7.104	5.877	4.370	3.422	2.817	2.297	1.756	1.641	1.527
100	8.292	7.372	6.044	4.617	3.616	2.977	2.434	1.820	1.698	1.579
105	8.550	7.640	6.144	4.863	3.810	3.138	2.571	1.885	1.755	1.631
110	8.807	7.909	6.244	5.110	3.995	3.299	2.707	1.949	1.811	1.682
115	9.064	8.177	6.344	5.356	4.144	3.459	2.844	2.032	1.868	1.734
120	9.321	8.445	6.444	5.603	4.292	3.620	2.981	2.164	1.925	1.785
125	9.579	8.713	6.544	5.849	4.441	3.781	3.117	2.297	1.981	1.837
130	-	8.982	6.644	6.006	4.589	3.941	3.254	2.429	2.067	1.888
135	-	9.250	6.744	6.074	4.738	4.040	3.391	2.562	2.163	1.940
140	-	9.518	6.844	6.142	4.887	4.127	3.528	2.694	2.258	1.992
145	-	-	6.944	6.210	5.035	4.214	3.664	2.827	2.354	2.064
150	-	-	7.044	6.278	5.184	4.302	3.801	2.960	2.450	2.139
155	-	-	7.144	6.346	5.332	4.389	3.938	3.092	2.546	2.214
160	-	-	7.244	6.414	5.481	4.476	4.010	3.225	2.642	2.288
165	-	-	7.344	6.482	5.630	4.564	4.067	3.357	2.738	2.363
170	-	-	7.444	6.550	5.778	4.651	4.123	3.490	2.834	2.438
175	-	-	7.544	6.618	5.927	4.738	4.179	3.622	2.929	2.512
180	-	-	7.644	6.687	6.023	4.825	4.235	3.755	3.025	2.587
185	-	-	7.744	6.755	6.096	4.913	4.291	3.887	3.121	2.662
190	-	-	7.844	6.823	6.169	5.000	4.347	3.988	3.217	2.737
195	-	-	7.945	6.891	6.242	5.087	4.403	4.043	3.313	2.811
200	-	-	8.045	6.959	6.315	5.175	4.459	4.097	3.409	2.886
205	-	-	8.145	7.027	6.388	5.262	4.515	4.152	3.504	2.961
210	-	-	8.245	7.095	6.461	5.349	4.571	4.207	3.600	3.035
215	-	-	8.345	7.163	6.534	5.436	4.627	4.261	3.696	3.110
220	-	-	8.445	7.231	6.607	5.524	4.683	4.316	3.792	3.185
225	-	-	8.545	7.299	6.680	5.611	4.739	4.370	3.888	3.259
230	-	-	8.645	7.367	6.753	5.698	4.795	4.425	3.976	3.334
235	-	-	8.745	7.435	6.826	5.786	4.852	4.480	4.029	3.409
240	-	-	8.845	7.503	6.899	5.873	4.908	4.534	4.083	3.483
245	-	-	8.945	7.571	6.972	5.960	4.964	4.589	4.136	3.558
250	-	-	9.045	7.639	7.045	6.047	5.020	4.643	4.189	3.633
255	-	-	9.145	7.707	7.118	6.135	5.076	4.698	4.243	3.707
260	-	-	9.245	7.775	7.191	6.222	5.132	4.752	4.296	3.782
265	-	-	9.345	7.843	7.264	6.309	5.188	4.807	4.349	3.857
270	-	-	9.445	7.911	7.337	6.396	5.244	4.862	4.403	3.931
275	-	-	9.545	7.979	7.409	6.484	5.300	4.916	4.456	3.993
280	-	-	-	8.047	7.482	6.571	5.356	4.971	4.509	4.043
285	-	-	-	8.115	7.555	6.658	5.412	5.025	4.563	4.093
290	-	-	-	8.184	7.628	6.746	5.468	5.080	4.616	4.143
295	-	-	-	8.252	7.701	6.833	5.524	5.135	4.669	4.193
300	-	-	-	8.320	7.774	6.920	5.580	5.189	4.722	4.244
305	-	-	-	8.388	7.847	7.007	5.637	5.244	4.776	4.294
310	-	-	-	8.456	7.920	7.095	5.693	5.298	4.830	4.344
315	-	-	-	8.524	7.993	7.182	5.749	5.353	4.883	4.394
320	-	-	-	8.592	8.066	7.269	5.805	5.407	4.936	4.444
325	-	-	-	8.660	8.139	7.356	5.861	5.462	4.990	4.494
330	-	-	-	8.728	8.212	7.444	5.917	5.517	5.043	4.544
335	-	-	-	8.796	8.285	7.531	5.974	5.571	5.096	4.594
340	-	-	-	8.864	8.358	7.618	6.031	5.626	5.150	4.644
345	-	-	-	8.932	8.431	7.705	6.088	5.680	5.203	4.695
350	-	-	-	9.000	8.504	7.793	6.144	5.735	5.256	4.745
355	-	-	-	9.068	8.577	7.880	6.200	5.790	5.310	4.795
360	-	-	-	9.136	8.650	7.967	6.258	5.844	5.363	4.845
365	-	-	-	9.204	8.723	8.055	6.316	5.899	5.416	4.895
370	-	-	-	9.272	8.796	8.142	6.373	5.953	5.470	4.945

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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Table 17. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	I/H Columns: 120 minutes Required Thickness (mm) for a Design Temperature (°C)									
	300	350	400	450	500	550	600	650	700	750
30	6.446	5.134	3.788	2.958	2.166	1.544	1.342	1.233	1.159	0.403
35	6.446	5.134	3.788	2.958	2.166	1.544	1.342	1.233	1.159	0.539
40	6.446	5.134	3.788	2.958	2.166	1.544	1.342	1.233	1.159	0.675
45	6.446	5.134	3.788	2.958	2.166	1.544	1.342	1.233	1.159	0.811
50	6.446	5.134	3.788	2.958	2.166	1.544	1.342	1.233	1.159	0.947
55	7.076	5.632	4.228	3.260	2.427	2.048	1.443	1.356	1.275	1.082
60	7.285	6.066	4.667	3.563	2.689	2.242	1.978	1.475	1.385	1.218
65	7.694	6.360	5.107	3.865	2.950	2.435	2.150	1.722	1.495	1.354
70	8.002	6.654	5.546	4.203	3.212	2.629	2.309	1.988	1.633	1.490
75	8.311	6.948	5.981	4.558	3.473	2.823	2.468	2.132	1.772	1.573
80	8.620	7.242	6.267	4.912	3.735	3.017	2.627	2.271	1.910	1.656
85	8.929	7.536	6.554	5.267	3.998	3.210	2.786	2.411	2.040	1.739
90	9.238	7.830	6.840	5.622	4.272	3.404	2.945	2.550	2.155	1.822
95	9.546	8.124	7.127	5.974	4.547	3.598	3.105	2.690	2.270	1.905
100	-	8.418	7.413	6.122	4.822	3.791	3.264	2.830	2.385	1.988
105	-	8.712	7.700	6.270	5.097	3.984	3.423	2.969	2.500	2.072
110	-	9.006	7.986	6.418	5.372	4.167	3.582	3.109	2.615	2.157
115	-	9.300	8.273	6.565	5.646	4.350	3.741	3.248	2.730	2.242
120	-	-	8.559	6.713	5.921	4.533	3.900	3.388	2.845	2.327
125	-	-	8.846	6.861	6.030	4.716	4.031	3.528	2.960	2.412
130	-	-	9.132	7.009	6.100	4.899	4.143	3.667	3.075	2.497
135	-	-	9.419	7.157	6.171	5.082	4.254	3.807	3.190	2.582
140	-	-	9.705	7.305	6.241	5.265	4.366	3.946	3.305	2.667
145	-	-	-	7.452	6.312	5.447	4.478	4.017	3.420	2.752
150	-	-	-	7.600	6.383	5.630	4.589	4.076	3.535	2.837
155	-	-	-	7.748	6.453	5.813	4.701	4.135	3.650	2.922
160	-	-	-	7.896	6.524	5.982	4.812	4.195	3.765	3.007
165	-	-	-	8.044	6.595	6.055	4.924	4.254	3.880	3.092
170	-	-	-	8.192	6.665	6.128	5.035	4.313	3.979	3.177
175	-	-	-	8.340	6.736	6.202	5.147	4.372	4.032	3.261
180	-	-	-	8.487	6.806	6.275	5.259	4.432	4.085	3.346
185	-	-	-	8.635	6.877	6.348	5.370	4.491	4.137	3.431
190	-	-	-	8.783	6.948	6.422	5.482	4.550	4.190	3.516
195	-	-	-	8.931	7.018	6.495	5.593	4.609	4.242	3.601
200	-	-	-	9.079	7.089	6.568	5.705	4.669	4.295	3.686
205	-	-	-	9.227	7.159	6.642	5.816	4.728	4.348	3.771
210	-	-	-	9.375	7.230	6.715	5.928	4.787	4.400	3.856
215	-	-	-	9.522	7.301	6.788	6.021	4.846	4.453	3.941
220	-	-	-	9.670	7.371	6.862	6.102	4.906	4.506	4.004
225	-	-	-	-	7.442	6.935	6.183	4.965	4.558	4.057
230	-	-	-	-	7.513	7.008	6.263	5.024	4.611	4.111
235	-	-	-	-	7.583	7.082	6.344	5.084	4.663	4.164
240	-	-	-	-	7.654	7.155	6.425	5.143	4.716	4.217
245	-	-	-	-	7.724	7.228	6.506	5.202	4.769	4.271
250	-	-	-	-	7.795	7.302	6.587	5.261	4.821	4.324
255	-	-	-	-	7.866	7.375	6.667	5.321	4.874	4.378
260	-	-	-	-	7.936	7.448	6.748	5.380	4.926	4.431
265	-	-	-	-	8.007	7.522	6.829	5.439	4.979	4.485
270	-	-	-	-	8.078	7.595	6.910	5.498	5.032	4.538
275	-	-	-	-	8.148	7.668	6.991	5.558	5.084	4.592
280	-	-	-	-	8.219	7.742	7.071	5.617	5.137	4.645
285	-	-	-	-	8.289	7.815	7.152	5.676	5.189	4.698
290	-	-	-	-	8.360	7.888	7.233	5.735	5.242	4.752
295	-	-	-	-	8.431	7.962	7.314	5.795	5.295	4.805
300	-	-	-	-	8.501	8.035	7.395	5.854	5.347	4.859
305	-	-	-	-	8.572	8.108	7.475	5.913	5.400	4.912
310	-	-	-	-	8.642	8.182	7.556	5.973	5.452	4.966
315	-	-	-	-	8.713	8.255	7.637	6.030	5.505	5.019
320	-	-	-	-	8.784	8.328	7.718	6.208	5.558	5.072
325	-	-	-	-	8.854	8.402	7.799	6.326	5.610	5.126
330	-	-	-	-	8.925	8.475	7.880	6.444	5.663	5.179
335	-	-	-	-	8.996	8.548	7.960	6.561	5.716	5.233
340	-	-	-	-	9.066	8.622	8.041	6.679	5.768	5.286
345	-	-	-	-	9.137	8.695	8.122	6.797	5.821	5.340
350	-	-	-	-	9.207	8.768	8.203	6.915	5.873	5.393
355	-	-	-	-	9.278	8.842	8.284	7.032	5.926	5.447
360	-	-	-	-	9.349	8.915	8.364	7.150	5.987	5.500
365	-	-	-	-	9.419	8.988	8.445	7.268	6.105	5.553
370	-	-	-	-	-	9.062	8.526	7.386	6.224	5.607

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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Table 18. HENSOTHERM® 920 KS

I/H Columns: 150 minutes										
Required Thickness (mm) for a Design Temperature (°C)										
Section Factor (m ⁻²)	300	350	400	450	500	550	600	650	700	750
30	-	7.095	5.838	4.457	3.558	2.985	2.648	2.436	2.247	2.000
35	-	7.095	5.838	4.457	3.558	2.985	2.648	2.436	2.247	2.000
40	-	7.095	5.838	4.457	3.558	2.985	2.648	2.436	2.247	2.000
45	-	7.095	5.838	4.457	3.558	2.985	2.648	2.436	2.247	2.000
50	-	7.095	5.838	4.457	3.558	2.985	2.648	2.436	2.247	2.132
55	-	7.699	6.232	5.007	3.924	3.276	2.872	2.621	2.407	2.264
60	-	8.127	6.626	5.557	4.365	3.568	3.096	2.806	2.566	2.397
65	-	8.555	7.020	6.054	4.815	3.859	3.319	2.991	2.726	2.529
70	-	8.983	7.414	6.389	5.266	4.195	3.543	3.176	2.885	2.661
75	-	-	7.807	6.724	5.716	4.556	3.767	3.361	3.045	2.793
80	-	-	8.201	7.059	6.113	4.918	3.997	3.546	3.205	2.925
85	-	-	8.595	7.394	6.439	5.279	4.283	3.731	3.364	3.057
90	-	-	8.989	7.729	6.766	5.641	4.569	3.916	3.524	3.189
95	-	-	9.383	8.065	7.092	5.999	4.855	4.082	3.683	3.321
100	-	-	-	8.400	7.419	6.319	5.141	4.241	3.843	3.453
105	-	-	-	8.735	7.745	6.639	5.427	4.401	3.992	3.586
110	-	-	-	9.070	8.072	6.959	5.713	4.560	4.104	3.718
115	-	-	-	9.405	8.398	7.280	5.982	4.719	4.217	3.850
120	-	-	-	-	8.725	7.600	6.089	4.879	4.329	3.974
125	-	-	-	-	9.051	7.920	6.196	5.038	4.441	4.037
130	-	-	-	-	9.378	8.240	6.303	5.197	4.554	4.100
135	-	-	-	-	-	8.560	6.410	5.357	4.666	4.163
140	-	-	-	-	-	8.880	6.517	5.516	4.779	4.226
145	-	-	-	-	-	9.200	6.624	5.676	4.891	4.290
150	-	-	-	-	-	9.520	6.731	5.835	5.004	4.353
155	-	-	-	-	-	-	6.838	5.983	5.116	4.416
160	-	-	-	-	-	-	6.945	6.061	5.228	4.479
165	-	-	-	-	-	-	7.052	6.140	5.341	4.543
170	-	-	-	-	-	-	7.159	6.218	5.453	4.606
175	-	-	-	-	-	-	7.266	6.297	5.566	4.669
180	-	-	-	-	-	-	7.373	6.375	5.678	4.732
185	-	-	-	-	-	-	7.480	6.454	5.790	4.796
190	-	-	-	-	-	-	7.587	6.532	5.903	4.859
195	-	-	-	-	-	-	7.694	6.611	6.003	4.922
200	-	-	-	-	-	-	7.801	6.689	6.082	4.985
205	-	-	-	-	-	-	7.908	6.768	6.162	5.048
210	-	-	-	-	-	-	8.015	6.846	6.242	5.112
215	-	-	-	-	-	-	8.122	6.925	6.321	5.175
220	-	-	-	-	-	-	8.229	7.003	6.401	5.238
225	-	-	-	-	-	-	8.336	7.081	6.481	5.301
230	-	-	-	-	-	-	8.443	7.160	6.560	5.365
235	-	-	-	-	-	-	8.550	7.238	6.640	5.428
240	-	-	-	-	-	-	8.657	7.317	6.720	5.491
245	-	-	-	-	-	-	8.764	7.395	6.799	5.554
250	-	-	-	-	-	-	8.871	7.474	6.879	5.617
255	-	-	-	-	-	-	8.978	7.552	6.959	5.681
260	-	-	-	-	-	-	9.085	7.631	7.038	5.744
265	-	-	-	-	-	-	9.192	7.709	7.118	5.807
270	-	-	-	-	-	-	9.299	7.788	7.198	5.870
275	-	-	-	-	-	-	9.406	7.866	7.277	5.934
280	-	-	-	-	-	-	9.513	7.945	7.357	6.011
285	-	-	-	-	-	-	-	8.023	7.437	6.111
290	-	-	-	-	-	-	-	8.102	7.516	6.212
295	-	-	-	-	-	-	-	8.180	7.596	6.312
300	-	-	-	-	-	-	-	8.258	7.676	6.412
305	-	-	-	-	-	-	-	8.337	7.755	6.512
310	-	-	-	-	-	-	-	8.415	7.835	6.612
315	-	-	-	-	-	-	-	8.494	7.915	6.712
320	-	-	-	-	-	-	-	8.572	7.994	6.812
325	-	-	-	-	-	-	-	8.651	8.074	6.912
330	-	-	-	-	-	-	-	8.729	8.153	7.013
335	-	-	-	-	-	-	-	8.808	8.233	7.113
340	-	-	-	-	-	-	-	8.886	8.313	7.213
345	-	-	-	-	-	-	-	8.965	8.392	7.313
350	-	-	-	-	-	-	-	9.043	8.472	7.413
355	-	-	-	-	-	-	-	9.122	8.552	7.513
360	-	-	-	-	-	-	-	9.200	8.631	7.613
365	-	-	-	-	-	-	-	9.279	8.711	7.713
370	-	-	-	-	-	-	-	9.357	8.791	7.814

Thickness is intumescent only. Results apply to I/H section columns with 4-sided fire exposure.
Results also apply to I/H beams exposed on all 4 sides limited to a maximum protection thickness of 9.856mm.

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Issued: 11th May 2021
Revised: 19th December 2023
Valid to: 10th May 2026



CERTIFICATE No CF 5994

Rudolf Hensel GmbH

Table 24. HENSOTHERM® 920 KS

Section Factor (m ⁻²)	Hollow Columns: 90 minutes Required Thickness (mm) for a Design Temperature (°C)											
	300	350	400	450	500	520	550	600	620	650	700	750
15	1.292	0.613	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465
20	2.171	1.383	0.822	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465
25	2.745	2.153	1.436	0.879	0.511	0.465	0.465	0.465	0.465	0.465	0.465	0.465
30	3.227	2.530	2.049	1.348	0.857	0.721	0.561	0.465	0.465	0.465	0.465	0.465
35	3.708	2.817	2.357	1.818	1.203	1.032	0.857	0.588	0.474	0.465	0.465	0.465
40	4.149	3.104	2.596	2.213	1.549	1.344	1.152	0.880	0.771	0.581	0.465	0.465
45	4.570	3.391	2.853	2.341	1.895	1.655	1.448	1.171	1.073	0.894	0.465	0.465
50	4.991	3.677	3.110	2.469	2.207	1.966	1.744	1.462	1.372	1.207	0.795	0.465
55	5.411	3.996	3.368	2.723	2.341	2.227	2.040	1.754	1.671	1.521	1.128	0.465
60	5.832	4.374	3.625	2.979	2.479	2.368	2.245	2.045	1.970	1.834	1.461	0.642
65	6.314	4.753	3.885	3.235	2.698	2.526	2.363	2.228	2.206	2.147	1.793	1.076
70	6.816	5.131	4.186	3.491	2.918	2.728	2.487	2.311	2.278	2.240	2.126	1.510
75	7.319	5.509	4.487	3.748	3.137	2.930	2.664	2.394	2.351	2.302	2.224	1.944
80	7.822	5.888	4.788	3.999	3.357	3.131	2.841	2.481	2.424	2.364	2.270	2.200
85	8.325	6.093	5.088	4.247	3.576	3.333	3.019	2.619	2.513	2.427	2.317	2.235
90	8.828	6.270	5.389	4.495	3.796	3.535	3.196	2.758	2.635	2.499	2.364	2.269
95	9.330	6.445	5.690	4.743	4.007	3.736	3.373	2.896	2.756	2.597	2.411	2.304
100	-	6.622	5.971	4.991	4.213	3.935	3.551	3.035	2.878	2.694	2.458	2.338
105	-	6.799	6.153	5.239	4.420	4.127	3.728	3.173	2.999	2.792	2.530	2.372
110	-	6.975	6.335	5.487	4.627	4.320	3.904	3.312	3.121	2.889	2.612	2.407
115	-	7.152	6.517	5.735	4.833	4.512	4.078	3.450	3.242	2.987	2.693	2.441
120	-	7.328	6.698	5.973	5.040	4.705	4.251	3.589	3.364	3.084	2.775	2.482
125	-	7.505	6.880	6.166	5.247	4.897	4.424	3.727	3.486	3.181	2.857	2.566
130	-	7.681	7.062	6.358	5.453	5.090	4.597	3.866	3.607	3.279	2.939	2.651
135	-	7.858	7.244	6.550	5.660	5.282	4.771	4.047	3.729	3.376	3.020	2.735
140	-	8.034	7.426	6.742	5.867	5.475	4.944	4.227	3.850	3.474	3.102	2.819
145	-	8.210	7.607	6.934	6.075	5.668	5.117	4.407	4.037	3.571	3.194	2.904
150	-	8.387	7.789	7.126	6.285	5.860	5.290	4.587	4.232	3.669	3.266	2.988
155	-	8.563	7.971	7.319	6.494	6.069	5.464	4.768	4.427	3.766	3.347	3.072
160	-	8.740	8.153	7.511	6.703	6.289	5.637	4.948	4.623	3.864	3.429	3.157
165	-	8.916	8.334	7.703	6.913	6.509	5.810	5.128	4.818	4.106	3.511	3.241
170	-	9.093	8.516	7.895	7.122	6.730	6.000	5.308	5.013	4.349	3.593	3.325
175	-	9.269	8.698	8.087	7.332	6.950	6.241	5.489	5.208	4.591	3.674	3.409
180	-	9.446	8.880	8.279	7.541	7.171	6.483	5.669	5.404	4.833	3.756	3.494
185	-	9.622	9.061	8.471	7.750	7.391	6.725	5.849	5.599	5.076	3.838	3.578
190	-	-	9.243	8.664	7.960	7.611	6.966	6.056	5.794	5.318	4.067	3.662
195	-	-	9.425	8.856	8.169	7.832	7.208	6.292	5.997	5.561	4.365	3.747
200	-	-	9.607	9.048	8.379	8.052	7.450	6.528	6.224	5.803	4.564	3.831
205	-	-	-	9.240	8.588	8.273	7.691	6.763	6.452	6.034	4.962	4.005
210	-	-	-	9.432	8.797	8.493	7.933	6.999	6.679	6.250	5.260	4.238
215	-	-	-	9.624	9.007	8.713	8.175	7.235	6.906	6.465	5.558	4.470
220	-	-	-	-	9.216	8.934	8.416	7.470	7.134	6.681	5.857	4.702
225	-	-	-	-	9.426	9.154	8.658	7.706	7.361	6.897	6.075	4.934
230	-	-	-	-	9.635	9.375	8.900	7.941	7.588	7.112	6.261	5.166
235	-	-	-	-	-	9.595	9.141	8.177	7.816	7.328	6.448	5.398
240	-	-	-	-	-	9.815	9.383	8.413	8.043	7.544	6.634	5.630
245	-	-	-	-	-	-	9.625	8.648	8.270	7.760	6.821	5.863
250	-	-	-	-	-	-	-	8.884	8.497	7.975	7.007	6.035
255	-	-	-	-	-	-	-	9.120	8.725	8.191	7.193	6.176
260	-	-	-	-	-	-	-	9.355	8.952	8.407	7.380	6.318
265	-	-	-	-	-	-	-	9.591	9.179	8.622	7.566	6.459
270	-	-	-	-	-	-	-	-	9.407	8.838	7.753	6.600
275	-	-	-	-	-	-	-	-	9.634	9.054	7.939	6.742
280	-	-	-	-	-	-	-	-	-	9.270	8.125	6.883
285	-	-	-	-	-	-	-	-	-	9.485	8.312	7.024
290	-	-	-	-	-	-	-	-	-	9.701	8.498	7.166
295	-	-	-	-	-	-	-	-	-	-	8.685	7.307
300	-	-	-	-	-	-	-	-	-	-	8.871	7.448
305	-	-	-	-	-	-	-	-	-	-	9.057	7.590
310	-	-	-	-	-	-	-	-	-	-	9.244	7.731
315	-	-	-	-	-	-	-	-	-	-	9.430	7.872
320	-	-	-	-	-	-	-	-	-	-	9.617	8.014
325	-	-	-	-	-	-	-	-	-	-	-	8.155
330	-	-	-	-	-	-	-	-	-	-	-	8.296
335	-	-	-	-	-	-	-	-	-	-	-	8.438
340	-	-	-	-	-	-	-	-	-	-	-	8.579
345	-	-	-	-	-	-	-	-	-	-	-	8.720
350	-	-	-	-	-	-	-	-	-	-	-	8.862
355	-	-	-	-	-	-	-	-	-	-	-	9.003
360	-	-	-	-	-	-	-	-	-	-	-	9.144
365	-	-	-	-	-	-	-	-	-	-	-	9.286
370	-	-	-	-	-	-	-	-	-	-	-	9.427
375	-	-	-	-	-	-	-	-	-	-	-	9.568
380	-	-	-	-	-	-	-	-	-	-	-	9.710
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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Issued: 11th May 2021
Revised: 19th December 2023
Valid to: 10th May 2026



CERTIFICATE No CF 5994

Rudolf Hensel GmbH

Table 25. HENSOTHERM® 920 KS

Hollow Columns: 105 minutes												
Required Thickness (mm) for a Design Temperature (°C)												
Section Factor (m ⁻²)	300	350	400	450	500	520	550	600	620	650	700	750
15	1.904	1.245	0.625	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465
20	2.811	2.190	1.491	0.918	0.500	0.465	0.465	0.465	0.465	0.465	0.465	0.465
25	3.499	2.731	2.269	1.621	1.056	0.880	0.669	0.465	0.465	0.465	0.465	0.465
30	4.105	3.173	2.620	2.237	1.611	1.383	1.103	0.789	0.689	0.520	0.465	0.465
35	4.617	3.616	2.905	2.501	2.167	1.886	1.536	1.170	1.074	0.916	0.555	0.465
40	5.130	4.051	3.191	2.756	2.342	2.237	1.969	1.551	1.459	1.313	0.983	0.465
45	5.643	4.476	3.476	3.011	2.521	2.364	2.241	1.932	1.844	1.709	1.411	0.625
50	6.358	4.901	3.761	3.266	2.768	2.511	2.352	2.220	2.196	2.106	1.840	1.272
55	7.356	5.327	4.139	3.520	3.015	2.764	2.462	2.323	2.293	2.258	2.200	1.919
60	8.355	5.752	4.569	3.775	3.263	3.017	2.697	2.427	2.390	2.349	2.276	2.222
65	-	6.381	5.000	4.100	3.510	3.269	2.941	2.588	2.502	2.440	2.353	2.284
70	-	7.174	5.430	4.461	3.757	3.522	3.185	2.792	2.687	2.575	2.429	2.346
75	-	7.966	5.860	4.823	4.037	3.774	3.429	2.996	2.873	2.734	2.527	2.408
80	-	8.759	6.207	5.185	4.342	4.048	3.674	3.199	3.059	2.893	2.648	2.470
85	-	9.551	6.535	5.547	4.647	4.334	3.921	3.403	3.244	3.052	2.770	2.565
90	-	-	6.863	5.909	4.952	4.620	4.179	3.607	3.430	3.211	2.892	2.661
95	-	-	7.190	6.121	5.256	4.905	4.437	3.811	3.616	3.369	3.014	2.756
100	-	-	7.518	6.318	5.561	5.191	4.695	4.023	3.801	3.528	3.135	2.852
105	-	-	7.846	6.515	5.866	5.477	4.953	4.237	3.998	3.687	3.257	2.947
110	-	-	8.174	6.712	6.093	5.762	5.211	4.452	4.200	3.846	3.379	3.043
115	-	-	8.502	6.909	6.295	6.018	5.469	4.667	4.402	4.031	3.500	3.138
120	-	-	8.829	7.106	6.497	6.223	5.727	4.881	4.604	4.219	3.622	3.234
125	-	-	9.157	7.303	6.699	6.428	5.977	5.096	4.806	4.407	3.744	3.330
130	-	-	9.485	7.500	6.901	6.633	6.189	5.311	5.009	4.596	3.867	3.425
135	-	-	-	7.697	7.103	6.838	6.400	5.526	5.211	4.784	4.061	3.521
140	-	-	-	7.894	7.305	7.044	6.611	5.740	5.413	4.972	4.255	3.616
145	-	-	-	8.091	7.507	7.249	6.822	5.956	5.615	5.161	4.449	3.712
150	-	-	-	8.288	7.709	7.454	7.033	6.180	5.817	5.349	4.644	3.807
155	-	-	-	8.485	7.910	7.659	7.244	6.405	6.030	5.537	4.838	3.954
160	-	-	-	8.682	8.112	7.864	7.455	6.630	6.261	5.725	5.032	4.175
165	-	-	-	8.880	8.314	8.069	7.666	6.855	6.492	5.914	5.226	4.397
170	-	-	-	9.077	8.516	8.274	7.877	7.080	6.723	6.148	5.421	4.618
175	-	-	-	9.274	8.718	8.479	8.088	7.305	6.953	6.389	5.615	4.840
180	-	-	-	9.471	8.920	8.684	8.299	7.530	7.184	6.631	5.809	5.061
185	-	-	-	9.668	9.122	8.889	8.511	7.755	7.415	6.873	6.014	5.283
190	-	-	-	-	9.324	9.094	8.722	7.980	7.646	7.115	6.241	5.504
195	-	-	-	-	9.526	9.300	8.933	8.204	7.876	7.356	6.469	5.725
200	-	-	-	-	9.728	9.505	9.144	8.429	8.107	7.598	6.696	5.946
205	-	-	-	-	-	9.710	9.355	8.654	8.338	7.840	6.923	6.120
210	-	-	-	-	-	-	9.566	8.879	8.569	8.082	7.151	6.294
215	-	-	-	-	-	-	9.777	9.104	8.799	8.323	7.378	6.468
220	-	-	-	-	-	-	9.329	9.030	8.565	7.605	6.642	-
225	-	-	-	-	-	-	-	9.554	9.261	8.807	7.833	6.816
230	-	-	-	-	-	-	-	9.492	9.049	8.060	6.989	-
235	-	-	-	-	-	-	-	-	9.290	8.288	7.163	-
240	-	-	-	-	-	-	-	-	9.532	8.515	7.337	-
245	-	-	-	-	-	-	-	-	-	8.742	7.511	-
250	-	-	-	-	-	-	-	-	-	-	8.970	7.685
255	-	-	-	-	-	-	-	-	-	-	9.197	7.859
260	-	-	-	-	-	-	-	-	-	-	9.424	8.033
265	-	-	-	-	-	-	-	-	-	-	-	8.207
270	-	-	-	-	-	-	-	-	-	-	-	8.381
275	-	-	-	-	-	-	-	-	-	-	-	8.555
280	-	-	-	-	-	-	-	-	-	-	-	8.729
285	-	-	-	-	-	-	-	-	-	-	-	8.903
290	-	-	-	-	-	-	-	-	-	-	-	9.077
295	-	-	-	-	-	-	-	-	-	-	-	9.251
300	-	-	-	-	-	-	-	-	-	-	-	9.425
305	-	-	-	-	-	-	-	-	-	-	-	9.599
310	-	-	-	-	-	-	-	-	-	-	-	9.773
315	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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Issued: 11th May 2021
Revised: 19th December 2023
Valid to: 10th May 2026



CERTIFICATE No CF 5994

Rudolf Hensel GmbH

Table 26. HENSOTHERM® 920 KS

Hollow Columns: 120 minutes												
Required Thickness (mm) for a Design Temperature (°C)												
Section Factor (m ⁻²)	300	350	400	450	500	520	550	600	620	650	700	750
15	2.561	1.837	1.247	0.627	0.465	0.465	0.465	0.465	0.465	0.465	0.465	0.465
20	3.464	2.739	2.250	1.586	1.019	0.835	0.608	0.465	0.465	0.465	0.465	0.465
25	4.282	3.354	2.767	2.359	1.811	1.564	1.250	0.882	0.767	0.587	0.465	0.465
30	5.033	3.947	3.195	2.691	2.344	2.221	1.891	1.443	1.323	1.144	0.783	0.465
35	5.784	4.431	3.624	2.980	2.618	2.467	2.284	2.004	1.880	1.700	1.378	0.706
40	6.535	4.914	4.056	3.270	2.872	2.716	2.466	2.263	2.232	2.198	1.972	1.558
45	7.285	5.397	4.494	3.559	3.126	2.965	2.712	2.378	2.335	2.299	2.247	2.208
50	8.036	5.881	4.932	3.848	3.379	3.214	2.960	2.518	2.438	2.400	2.343	2.294
55	8.787	7.010	5.370	4.299	3.633	3.463	3.207	2.772	2.640	2.538	2.439	2.380
60	9.538	8.233	5.807	4.758	3.902	3.713	3.455	3.026	2.888	2.763	2.594	2.467
65	-	-	6.725	5.217	4.310	4.015	3.703	3.280	3.136	2.988	2.778	2.619
70	-	-	7.857	5.676	4.719	4.399	3.985	3.534	3.385	3.213	2.963	2.774
75	-	-	-	6.155	5.128	4.784	4.332	3.787	3.633	3.438	3.148	2.930
80	-	-	-	6.662	5.537	5.168	4.679	4.065	3.882	3.662	3.333	3.086
85	-	-	-	7.168	5.945	5.553	5.026	4.352	4.152	3.890	3.518	3.241
90	-	-	-	7.675	6.227	5.937	5.373	4.639	4.421	4.137	3.703	3.397
95	-	-	-	8.182	6.508	6.168	5.721	4.926	4.690	4.384	3.892	3.552
100	-	-	-	8.688	6.790	6.396	6.019	5.214	4.959	4.631	4.108	3.708
105	-	-	-	9.195	7.072	6.625	6.230	5.501	5.228	4.878	4.324	3.864
110	-	-	-	-	7.354	6.853	6.442	5.788	5.497	5.125	4.540	4.046
115	-	-	-	-	7.635	7.082	6.653	6.042	5.766	5.372	4.757	4.228
120	-	-	-	-	7.917	7.310	6.864	6.257	6.017	5.619	4.973	4.410
125	-	-	-	-	8.199	7.539	7.076	6.472	6.232	5.866	5.189	4.593
130	-	-	-	-	8.481	7.767	7.287	6.687	6.448	6.092	5.405	4.775
135	-	-	-	-	8.762	7.996	7.499	6.902	6.663	6.309	5.621	4.957
140	-	-	-	-	9.044	8.224	7.710	7.117	6.879	6.526	5.838	5.140
145	-	-	-	-	9.326	8.453	7.922	7.332	7.094	6.743	6.053	5.322
150	-	-	-	-	9.607	8.681	8.133	7.547	7.310	6.960	6.266	5.504
155	-	-	-	-	-	8.910	8.345	7.762	7.525	7.177	6.480	5.686
160	-	-	-	-	-	9.139	8.556	7.977	7.740	7.394	6.694	5.869
165	-	-	-	-	-	9.367	8.768	8.192	7.956	7.611	6.908	6.059
170	-	-	-	-	-	9.596	8.979	8.407	8.171	7.828	7.121	6.255
175	-	-	-	-	-	9.819	9.191	8.622	8.387	8.045	7.335	6.450
180	-	-	-	-	-	9.402	8.837	8.602	8.602	8.262	7.549	6.646
185	-	-	-	-	-	9.614	9.052	8.818	8.479	7.762	6.841	6.037
190	-	-	-	-	-	-	9.267	9.033	8.696	7.976	7.057	6.247
195	-	-	-	-	-	-	9.482	9.248	8.913	8.190	7.233	6.423
200	-	-	-	-	-	-	9.697	9.464	9.130	8.404	7.428	6.618
205	-	-	-	-	-	-	-	9.679	9.347	8.617	7.624	6.814
210	-	-	-	-	-	-	-	-	9.564	8.831	7.819	7.015
215	-	-	-	-	-	-	-	-	9.781	9.045	8.015	7.211
220	-	-	-	-	-	-	-	-	9.259	8.526	7.496	6.666
225	-	-	-	-	-	-	-	-	-	9.472	8.406	7.476
230	-	-	-	-	-	-	-	-	-	9.686	8.602	7.672
235	-	-	-	-	-	-	-	-	-	-	8.798	7.868
240	-	-	-	-	-	-	-	-	-	-	8.993	8.068
245	-	-	-	-	-	-	-	-	-	-	9.189	8.264
250	-	-	-	-	-	-	-	-	-	-	9.384	8.460
255	-	-	-	-	-	-	-	-	-	-	9.580	8.656
260	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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Valid to: 10th May 2026

CERTIFICATE No CF 5994 Rudolf Hensel GmbH

Table 27. HENSOTHERM® 920 KS

Hollow Columns: 150 minutes												
Required Thickness (mm) for a Design Temperature (°C)												
Section Factor (m ²)	300	350	400	450	500	520	550	600	620	650	700	750
15	3.631	2.935	2.437	1.807	1.238	1.028	0.653	0.465	0.465	0.465	0.465	0.465
20	-	3.867	3.194	2.721	2.343	2.173	1.778	1.282	1.132	0.923	0.531	0.465
25	-	4.667	3.936	3.274	2.813	2.674	2.492	2.208	2.068	1.822	1.494	1.028
30	-	5.466	4.720	3.827	3.224	3.050	2.817	2.531	2.448	2.365	2.274	2.227
35	-	6.266	5.504	4.301	3.636	3.426	3.141	2.806	2.726	2.647	2.565	2.493
40	-	7.065	6.288	4.770	4.067	3.801	3.465	3.082	3.003	2.919	2.815	2.725
45	-	7.865	7.072	5.239	4.521	4.238	3.789	3.357	3.279	3.191	3.065	2.957
50	-	8.664	7.856	5.707	4.976	4.687	4.211	3.632	3.556	3.462	3.315	3.189
55	-	9.464	8.640	6.688	5.430	5.136	4.661	3.932	3.832	3.734	3.565	3.421
60	-	-	9.424	8.181	5.884	5.585	5.111	4.367	4.222	4.054	3.815	3.653
65	-	-	-	-	7.256	6.171	5.561	4.802	4.626	4.419	4.121	3.890
70	-	-	-	-	8.761	7.284	6.060	5.237	5.030	4.783	4.440	4.178
75	-	-	-	-	-	8.396	6.826	5.672	5.434	5.148	4.759	4.465
80	-	-	-	-	-	-	7.593	6.118	5.838	5.512	5.078	4.753
85	-	-	-	-	-	-	8.359	6.581	6.232	5.877	5.397	5.040
90	-	-	-	-	-	-	9.125	7.045	6.622	6.198	5.716	5.328
95	-	-	-	-	-	-	-	7.509	7.011	6.511	6.004	5.616
100	-	-	-	-	-	-	-	7.973	7.401	6.823	6.216	5.903
105	-	-	-	-	-	-	-	8.436	7.791	7.135	6.429	6.107
110	-	-	-	-	-	-	-	8.900	8.180	7.447	6.641	6.298
115	-	-	-	-	-	-	-	9.364	8.570	7.760	6.854	6.489
120	-	-	-	-	-	-	-	-	8.960	8.072	7.066	6.681
125	-	-	-	-	-	-	-	-	9.350	8.384	7.279	6.872
130	-	-	-	-	-	-	-	-	-	8.697	7.491	7.063
135	-	-	-	-	-	-	-	-	-	9.009	7.704	7.254
140	-	-	-	-	-	-	-	-	-	9.321	7.916	7.445
145	-	-	-	-	-	-	-	-	-	-	8.139	7.636
150	-	-	-	-	-	-	-	-	-	-	8.341	7.827
155	-	-	-	-	-	-	-	-	-	-	8.553	8.018
160	-	-	-	-	-	-	-	-	-	-	8.766	8.209
165	-	-	-	-	-	-	-	-	-	-	8.978	8.400
170	-	-	-	-	-	-	-	-	-	-	9.191	8.592
175	-	-	-	-	-	-	-	-	-	-	9.403	8.783
180	-	-	-	-	-	-	-	-	-	-	9.616	8.974
185	-	-	-	-	-	-	-	-	-	-	-	9.165
190	-	-	-	-	-	-	-	-	-	-	-	9.356
195	-	-	-	-	-	-	-	-	-	-	-	9.547
200	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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CERTIFICATE No CF 5994

Rudolf Hensel GmbH

Table 28. HENSOTHERM® 920 KS

Section Factor (m ⁻¹)	Hollow Columns: 165 minutes Required Thickness (mm) for a Design Temperature (°C)											
	300	350	400	450	500	520	550	600	620	650	700	750
15	-	3.375	2.854	2.383	1.792	1.565	1.340	0.708	0.573	0.465	0.465	0.465
20	-	-	3.713	3.126	2.712	2.587	2.369	1.900	1.712	1.461	1.102	0.526
25	-	-	4.532	3.820	3.246	3.092	2.880	2.557	2.453	2.343	2.222	2.163
30	-	-	5.342	4.611	3.779	3.597	3.353	2.980	2.863	2.748	2.645	2.586
35	-	-	6.153	5.409	4.257	4.075	3.826	3.403	3.271	3.125	2.943	2.851
40	-	-	6.963	6.206	4.724	4.522	4.248	3.826	3.679	3.502	3.241	3.116
45	-	-	7.773	7.004	5.191	4.969	4.664	4.210	4.066	3.879	3.540	3.381
50	-	-	8.584	7.802	5.658	5.416	5.081	4.592	4.437	4.234	3.838	3.646
55	-	-	9.394	8.599	6.562	6.284	5.908	5.379	5.208	4.990	4.186	3.924
60	-	-	-	9.397	8.147	7.315	6.914	6.354	6.179	5.945	4.539	4.264
65	-	-	-	-	-	-	7.337	6.735	6.550	6.301	4.893	4.605
70	-	-	-	-	-	-	8.830	8.112	7.920	7.657	5.246	4.945
75	-	-	-	-	-	-	-	7.123	6.958	6.044	5.600	5.285
80	-	-	-	-	-	-	-	7.933	7.732	6.559	5.953	5.625
85	-	-	-	-	-	-	-	8.744	8.497	7.074	6.294	5.957
90	-	-	-	-	-	-	-	9.554	9.261	7.590	6.635	6.180
95	-	-	-	-	-	-	-	9.226	8.105	6.977	6.402	6.402
100	-	-	-	-	-	-	-	-	8.620	7.318	6.624	6.624
105	-	-	-	-	-	-	-	-	9.136	7.660	6.846	6.846
110	-	-	-	-	-	-	-	-	-	8.001	7.069	7.069
115	-	-	-	-	-	-	-	-	-	8.342	7.291	7.291
120	-	-	-	-	-	-	-	-	-	8.684	7.513	7.513
125	-	-	-	-	-	-	-	-	-	9.025	7.735	7.735
130	-	-	-	-	-	-	-	-	-	9.366	7.958	7.958
135	-	-	-	-	-	-	-	-	-	-	8.180	8.180
140	-	-	-	-	-	-	-	-	-	-	8.402	8.402
145	-	-	-	-	-	-	-	-	-	-	8.624	8.624
150	-	-	-	-	-	-	-	-	-	-	8.847	8.847
155	-	-	-	-	-	-	-	-	-	-	9.069	9.069
160	-	-	-	-	-	-	-	-	-	-	9.291	9.291
165	-	-	-	-	-	-	-	-	-	-	9.513	9.513
170	-	-	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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Rudolf Hensel GmbH

Table 29. HENSOTHERM® 920 KS

Section Factor (m ⁻¹)	Hollow Columns: 180 minutes Required Thickness (mm) for a Design Temperature (°C)											
	300	350	400	450	500	520	550	600	620	650	700	750
15	-	-	3.238	2.737	2.339	2.118	1.766	1.252	1.083	0.782	0.465	0.465
20	-	-	-	3.575	3.073	2.941	2.751	2.398	2.256	2.041	1.719	1.443
25	-	-	-	4.402	3.733	3.583	3.390	3.053	2.926	2.793	2.698	2.628
30	-	-	-	5.223	4.258	4.125	3.972	3.697	3.580	3.435	3.239	3.089
35	-	-	-	6.044	4.749	4.588	4.392	4.134	4.062	3.973	3.780	3.551
40	-	-	-	6.865	5.240	5.052	4.812	4.499	4.411	4.301	4.123	3.960
45	-	-	-	7.687	5.732	5.516	5.232	4.864	4.760	4.629	4.430	4.260
50	-	-	-	8.508	6.785	6.065	5.651	5.229	5.109	4.957	4.737	4.560
55	-	-	-	9.329	8.259	7.598	6.440	5.594	5.459	5.285	5.044	4.860
60	-	-	-	-	-	-	8.056	6.005	5.808	5.613	5.350	5.160
65	-	-	-	-	-	-	-	7.376	6.606	5.941	5.657	5.460
70	-	-	-	-	-	-	-	8.746	7.684	6.736	5.978	5.760
75	-	-	-	-	-	-	-	-	8.762	7.533	6.491	6.077
80	-	-	-	-	-	-	-	-	-	8.330	7.004	6.419
85	-	-	-	-	-	-	-	-	-	9.127	7.516	6.761
90	-	-	-	-	-	-	-	-	-	-	8.029	7.103
95	-	-	-	-	-	-	-	-	-	-	8.541	7.445
100	-	-	-	-	-	-	-	-	-	-	9.054	7.788
105	-	-	-	-	-	-	-	-	-	-	-	8.130
110	-	-	-	-	-	-	-	-	-	-	-	8.472
115	-	-	-	-	-	-	-	-	-	-	-	8.814
120	-	-	-	-	-	-	-	-	-	-	-	9.156
125	-	-	-	-	-	-	-	-	-	-	-	9.498
130	-	-	-	-	-	-	-	-	-	-	-	-
135	-	-	-	-	-	-	-	-	-	-	-	-
140	-	-	-	-	-	-	-	-	-	-	-	-
145	-	-	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-	-	-
155	-	-	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	-	-	-	-	-
165	-	-	-	-	-	-	-	-	-	-	-	-
170	-	-	-	-	-	-	-	-	-	-	-	-
175	-	-	-	-	-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-	-	-	-	-	-
185	-	-	-	-	-	-	-	-	-	-	-	-
190	-	-	-	-	-	-	-	-	-	-	-	-
195	-	-	-	-	-	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-	-	-	-	-	-
205	-	-	-	-	-	-	-	-	-	-	-	-
210	-	-	-	-	-	-	-	-	-	-	-	-
215	-	-	-	-	-	-	-	-	-	-	-	-
220	-	-	-	-	-	-	-	-	-	-	-	-
225	-	-	-	-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-	-	-	-	-
235	-	-	-	-	-	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-	-	-	-	-	-
245	-	-	-	-	-	-	-	-	-	-	-	-
250	-	-	-	-	-	-	-	-	-	-	-	-
255	-	-	-	-	-	-	-	-	-	-	-	-
260	-	-	-	-	-	-	-	-	-	-	-	-
265	-	-	-	-	-	-	-	-	-	-	-	-
270	-	-	-	-	-	-	-	-	-	-	-	-
275	-	-	-	-	-	-	-	-	-	-	-	-
280	-	-	-	-	-	-	-	-	-	-	-	-
285	-	-	-	-	-	-	-	-	-	-	-	-
290	-	-	-	-	-	-	-	-	-	-	-	-
295	-	-	-	-	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-
305	-	-	-	-	-	-	-	-	-	-	-	-
310	-	-	-	-	-	-	-	-	-	-	-	-
315	-	-	-	-	-	-	-	-	-	-	-	-
320	-	-	-	-	-	-	-	-	-	-	-	-
325	-	-	-	-	-	-	-	-	-	-	-	-
330	-	-	-	-	-	-	-	-	-	-	-	-
335	-	-	-	-	-	-	-	-	-	-	-	-
340	-	-	-	-	-	-	-	-	-	-	-	-
345	-	-	-	-	-	-	-	-	-	-	-	-
350	-	-	-	-	-	-	-	-	-	-	-	-
355	-	-	-	-	-	-	-	-	-	-	-	-
360	-	-	-	-	-	-	-	-	-	-	-	-
365	-	-	-	-	-	-	-	-	-	-	-	-
370	-	-	-	-	-	-	-	-	-	-	-	-
375	-	-	-	-	-	-	-	-	-	-	-	-
380	-	-	-	-	-	-	-	-	-	-	-	-
385	-	-	-	-	-	-	-	-	-	-	-	-
390	-	-	-	-	-	-	-	-	-	-	-	-
395	-	-	-	-	-	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-
405	-	-	-	-	-	-	-	-	-	-	-	-
410	-	-	-	-	-	-	-	-	-	-	-	-
415	-	-	-	-	-	-	-	-	-	-	-	-
420	-	-	-	-	-	-	-	-	-	-	-	-

Thickness is intumescent only. Results apply to Circular and Rectangular/Square hollow columns exposed to fire on all sides.

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Annex A – Durability HENSOTHERM® 920 KS

Each topcoat must be independently tested and assessed before it can be applied in practice.

HENSOTHERM® 920 KS has been subjected to durability evaluation to EAD 350402-00-1106: September 2017 and has been assessed as having passed the requirements with and without the following topcoat(s):

Topcoat Reference ¹	Topcoat Description	Tested Nominal Topcoat DFT (mm)	Permitted Topcoat Thickness Range (mm)		Approved Topcoat Colours	Durability Approvals Based On The Carried Out Testing			
			Minimum	Maximum ²		Type Z ₂	Type Z ₁	Type Y	Type X
No Topcoat	-	-	-	-	-	✓	✓	✓	✓
HENSOTOP 2K PU	2 component polyester	65 and 90	Manufacturer recommended ³	135	All	✓	✓	✓	✓

DFT: Dry Film Thickness

¹ The approval is limited to the specific product (trade name and type) and no generic approach is possible

² The permitted theoretical maximum DFT cannot exceed the DFT for each product as recommended by the manufacturer. The practical information given by the manufacturer must be followed

³ Tests on the product were performed using specimens with and without topcoat to demonstrate that addition of the topcoat has no influence on the insulation efficiency. The product is found to be equally suitable with and without topcoat for environmental condition Types Z₂, Z₁, Y and X where applicable. Therefore, topcoat thickness can be reduced to the minimum recommended by the manufacturer.

The steel surface shall be blast cleaned to ISO 8501-1 Sa 2.5 or equivalent and protection system shall be applied as tested in line with the manufacturer's specifications.

The manufacturer should be consulted to ensure the suitability of the protection system for the specific environment.

The categories Type X, Y, Z₁ and Z₂ are defined as:

Type X – Fire protective coatings products/kits intended for all climatic conditions (internal, semi-exposed and exposed to weather)

Type Y - Fire protective coatings products/kits intended for internal and semi-exposed conditions. "Semi-exposed" includes temperatures below 0°C, but no exposure to rain and limited or casual exposure to UV.

Type Z₁ - Fire protective coatings products/kits intended for internal conditions with humidity equal to or higher than 85% RH, excluding temperatures below 0°C.

Type Z₂ - Fire protective coatings products/kits intended for internal conditions with humidity lower than 85% RH, excluding temperatures below 0°C.

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