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UBAtc Assessment Operator:
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Technical Assessment Body issuing the European Technical Assessment: UBAtc.

UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011 and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product:	Aithon A90H
Product family to which the construction product belongs:	Fire protective products – Reactive coatings for fire protection of steel elements
Manufacturer:	Aithon Ricerche sas Address Via Roncasc 399 21020 Comabbio (Italy)
Manufacturing plant:	Aithon Ricerche production plant 01
Website:	www.aithon.eu
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	European Assessment Document (EAD): EAD 350402-00-1106
This version replaces:	ETA 13/0926 issued on 2013-06-27
This European Technical Assessment contains:	16 pages, including 2 annexes, which form an integral part of the document.

European Organisation for Technical Assessment

Legal bases and general conditions

1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:

- Regulation (EU) No 305/2011[1] of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
- Commission Implementing Regulation (EU) No 1062/2013[2] of 30 October 2013 on the format of the European Technical Assessment for construction products
- European Assessment Document: 350402-00-1106

2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.

3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.

4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.

5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.

6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.

7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.

8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.

9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use, which the manufacturer has submitted to the responsible Technical Assessment Body for the issuing of the European Technical Assessment.

10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.

11 All rights of exploitation in any form and by any means of this European Technical Assessment is reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.

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13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.

14 A European Technical Approval was issued by UBAtc on 27 June 2013.

Compared with that European Technical Approval, the current European Technical Assessment, issued on 25 January 2019,

- given that EAD 350402-00-1106 replaced ETA-Guideline 018-2 in the meantime, comprises editorial changes, made to ensure that the ETA corresponds with the requirements of the EAD;
- a new production plant replaces the 2 production facilities referred to in the European Technical Approval. The production method and quality control criteria in the new and previous manufacturing facilities correspond;
- there are no technical modifications introduced in this ETA, except some additional performances regarding the reaction to fire of the product; and
- the trade name of the product changed from 'Aithon A90' to 'Aithon A90H'

[1] OJEU, L 88 of 2011/04/04
[2] OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 General

This ETA covers a fire protective intumescent coating Aithon A90H for the protection of steel elements as described as option 3 in EAD 350402-00-1106. This ETA only covers the reactive coating Aithon A90H, but primers and/or topcaots may be required as described in this ETA. The fire protective intumescent coating Aithon A90H is intended for:

- Internal use (ETA-Guideline 018-2, type Z2)
- Internal use (ETA-Guideline 018-2, type Z1)
- External use, semi exposed including temperatures below zero but no exposure to rain and limited exposure to UV (ETA-Guideline 018-2, type Y))

When using the product in exposure types Y and Z1, the use of a PUR-based top coat is required.

Aithon A90H is intended for the fire protection of steel elements such as load-bearing steel elements, load-bearing concrete filled hollow steel columns or other steel elements. Annex 2 shows a list of the uses for which fire resistance assessment was carried out. This ETA covers assemblies installed in accordance with the provisions given in Annex 2.

The intended use of the fire protective intumescent coating Aithon A90H is to protect various sizes of structural steel beams and columns for up to a fire resistance of R120 and for design temperatures in the range of 350°C to 750°C.

Aithon A90H is a spray or brush/roller applied water based fire protective intumescent coating that provides fire resistance to structural steel elements.

Aithon A90H can be applied in one or more coats with a maximum wet layer thickness of 1,0 mm when applied by spraying or 0,76 mm when applied with a brush or roller. The applications of 2 layers with a thickness of 0,5 mm reduces the drying time and improves the layer thickness control. The resulting dry film thickness is about 70% of the wet film thickness. A next pass is only applied after sufficient drying of the previous coat.

An alkyd or PUR topcoat can be applied, depending on the exposure class. The top coats are not covered by this ETA.

The fire protective intumescent coating Aithon A90H is manufactured by Aithon Ricerche sas at the Aithon production plant 1 (identification of the plant is known at UBAtc).

1.2 Conditioning

The fire protective intumescent coating Aithon A90H is available in 20 kg plastic pails.

1.3 Ancillary products

Ancillary products referred to in this ETA, as a part of installation provisions or in the framework of determining performances (e.g. fire resistance tests), are not covered by this ETA and cannot be CE-marked on the basis of it.

When applied to shot blasted steel the fire protective intumescent coating Aithon A90H requires an alkyd primer (such as Interprime 306) or a 2-component epoxy primer (such as Interguard 269). When applied to galvanized steel, an etch primer (such as Ty-Rox) is required.

2 Specification of the intended use(s) in accordance with the applicable EAD

2.1 Intended uses

This ETA covers fire protective rendering Aithon A90H intended for:

- Internal use (ETA-Guideline 018-2, type Z2)
- Internal use (ETA-Guideline 018-2, type Z1)
- External use, semi exposed including temperatures below zero but no exposure to rain and limited exposure to UV (ETA-Guideline 018-2, type Y))

When using the product in exposure types Y and Z1, the use of a PUR-based top coat is required.

Aithon A90H is intended for the fire protection of steel elements such as load-bearing steel elements, load-bearing concrete filled hollow steel columns or other steel elements.

The provisions made in this European Technical Assessment are based on an assumed intended working life of 10 years, provided that the assembled product is subject to appropriate use and maintenance, in accordance with this ETA.

Indications given regarding the working life cannot be interpreted as a guarantee given by the producer or the UBAtc, but shall be regarded only as a means for choosing the appropriate product(s) in relation to the expected economically reasonable working life of the construction works.

2.2 Assumptions

2.2.1 Manufacturing directives

This European Technical Assessment is issued for Aithon A90H on the basis of agreed data/information, deposited with the UBAtc, which identifies the product that has been assessed. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced.

The raw materials weighed and mixed. The mix is put into pails. Each pail is marked in accordance with paragraph 6 of this ETA.

2.2.2 Installation

2.2.2.1 General

The ETA is issued under the assumption that the application of Aithon A90H shall be in accordance with the manufacturer's technical literature.

The substrate is mild steel. An alkyd or a 2-component epoxy primer is used.

The application of fire protective intumescent coating Aithon A90H is by spraying or by brush or roller. The maximum wet layer thickness is 1,0 mm (sprayed application) or 0,76 mm (applied with a brush or a roller). A next pass is only applied after sufficient drying of the previous coat.

An alkyd or PUR top coat can be applied, depending on the exposure class. This ETA covers only the fire protective coating without topcoats. coating. The top coats are not covered by this ETA.

2.2.3 Maintenance and repair

The assessment of the fitness for use is based on the assumption that necessary maintenance and repair, if required is carried out in accordance with the manufacturer's instructions during the assumed intended working life.

3 Performance of the product and references to the methods used for its assessment

3.1 Reaction to fire

The fire protective rendering Aithon A90H has a reaction to fire classification **B s1 d0** according to EN 13501-1:2007+A1:2009.

3.2 Fire resistance

The resistance to fire performance, according to EN 13501-2 is determined in accordance with the test principles defined in EN 13381-8:2008 including Annex A (slow heating curve as defined in EN 1363-2). The test data was analysed adopting the numerical regression method defined in Annex E of EN 13381-8:2010. Annex A summarises the results of the analysis.

In accordance with EAD 350402-00-1106, the fire protective intumescent coating Aithon A90H is considered as a reactive coating (option 3), a "final assembly", but some generic or specific primers and topcoats are also identified. The primers or topcoats cannot be CE marked based on this ETA.

Until the withdrawal of relevant national test and classifications standards, CE Marking will cover a finite number of variations in coating thickness subjected to a fire resistance assessment. As time progresses, the performance declaration of the fire resistance covered by the CE Marking may change and the ETA holder may incorporate the changes in this ETA by amendment or revision.

3.3 Content, emission and/or release of dangerous substances

No performance assessed.

3.4 Adhesion

No performance assessed.

3.5 Durability

Aithon A90H has been assessed for a working life of a working life of 10 years for the intended uses Z2, Z1, Y and X, provided that it is subject to appropriate use and maintenance.

The fire protective intumescent coating Aithon A90H can be used in a type Z2 exposure class without a topcoat or with an alkyd topcoat (such as Interlac 665). When used in a type X exposure class (and thus also in Type Z2 and Y), a PUR topcoat (such as Interthane 990) is required.

4 Assessment and verification of constancy of performance (AVCP) system applied

4.1 Assessment and verification of constancy of performance

4.1.1 For fire protective uses

The system of assessment and verification of constancy of performance is specified in the EC Decision 99/454/EC[3], as amended by EC Decision 2001/596/EC[4] (system 1).

4.1.2 Uses subject to reaction to fire regulations

The systems of assessment and verification of constancy of performance are specified in the EC Decision 99/454/EC, as amended by EC Decision 2001/596/EC, depending on the class(es) declared.

4.2 Responsibilities

4.2.1 Tasks of the manufacturer

4.2.1.1 Factory production control

4.2.1.1.1 General

The ETA-holder exercises permanent internal control of the production. All the elements, requirements and provisions adopted by the ETA-holder are being documented in a systematic manner in the form of written policies and procedures. This factory production control system ensures that the products are in conformity with the European Technical Assessment (ETA).

The personnel involved in the production process have been identified, sufficiently qualified and trained to operate and maintain the production equipment. Machinery equipment is being regularly maintained and this is being documented. All processes and procedures of production are being recorded at regular intervals.

The ETA-holder maintains a traceable documentation of the production process from purchasing or delivery of raw or basic raw materials up to the storage and delivery of finished products.

The factory production control system for the product includes relevant design specifications, including adequate drawings and written instructions for:

- type and quality of all materials
- packaging and transport protection

The production control system specifies how the control measures are carried out, and at which frequencies.

[3] OJ L 178, 14.7.1999, p.52
[4] OJ L 209, 2.8.2001, p.33

Products that do not comply with requirements as specified in the ETA are being separated from the conforming products and marked as such. The ETA-holder registers non-compliant production and action(-s) taken to prevent further non-conformities. External complaints are also being documented, as well as actions taken.

4.2.1.1.2 Maintenance, calibration of testing equipment

All testing equipment is being maintained, calibrated and/or checked against equipment or test specimens traceable to relevant international or nationally recognised reference test specimens (standards).

The ETA-holder ensures that handling, preservation and storage of test equipment is such that its accuracy and fitness for purpose is maintained

The calibration of all test equipment shall be repeated if any repairor failure occurs which could upset the calibration of the test equipment.

4.2.1.2 Other tasks of the ETA-holder

The following table specifies properties that should be controlled and minimum frequencies of control. The test method and threshold have been laid down in the control plan.

4.2.2 Tasks of notified bodies

4.2.2.1 Assessment of the performance of the construction product

The assessment tests have been conducted by the assessment body in accordance with EAD 350140-00-1106, chapter 2 , as relevant, and the technical assessment body has assessed the results of these tests, as part of the ETA issuing procedure. In accordance with Regulation (EU) N° 305/2011, Annex V, 1.6, notified bodies and manufacturers shall not undertake the assessment of the performance of the product.

4.2.2.2 Initial inspection of the manufacturing plant and of the factory production control system and continuous surveillance, assessment and evaluation of the factory production control system

Assessment of the factory production control system is the responsibility of the notified body.

An assessment shall be carried out of the production unit to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment shall be based on an initial inspection of the factory. The relevant production unit has been specified in the ETA.

Subsequently continuous surveillance of factory production control is necessary to ensure continuing conformity with the ETA. It is recommended that Surveillance inspections shall be conducted at least twice a year.

4.3 Other marking and/or information

Each pail is marked with the product name and a traceability code.

UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA (www.eota.eu).

This European Technical Assessment has been issued by UBAtc asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,

Peter Wouters,
director

On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,

Benny De Blaere,
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website (www.ubatc.be).

Annexes

Annex I: References

Reference number EAD 350402-00-1106 (edition 2017)
Document title Fire protective products – Reactive coatings for fire protection of steel elements.

Reference number EN 13501-1:2007 + A1:2009
Document title Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests

Reference number EN 13501-2:2003
Document title Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services

Reference number EN 13381-8:2010
Document title Test methods for determining the contribution to the fire resistance of structural members - Part 8 : Applied reactive protection to steel members

Reference number EN 1363-2:2008
Document title Fire resistance tests - Part 2 : Alternative and additional procedures

Annex II : Fire resistance performance overview

A.2.1 Overview of fire resistance performances for Aithon A90H applications

The fire protective assemblies given in Table A2.1 have been assessed within the framework of this ETA. Assemblies and applications installed according to the provisions given in this Annex 2 are covered by this ETA.

Table A2.1

Assemblies protected by Aithon A90H and assessed within the framework of this ETA	Classification according to EN 13501-2	Test Standard	Intended use category according to ETAG 018	Installation details	Date of addition to this ETA
Protection of load-bearing steel elements. Thickness of the reactive coating between 0,257 mm to 3,132 mm	Assessment: See Annex A.2.2	EN 13381-8:2008 Annex C	Type 4	Annex A.2.2	2013-06-27

Annex 2.2. Specification and assessment of fire protection of load bearing steel elements (intended use type 4) protected by Aithon A90H.

A.2.2.1 Date of addition to this ETA

This annex was added to the ETA 13/0926 on 2013-06-27. This assembly was not covered by this ETA prior to the addition of this annex.

A.2.2.2 Classification

The assembly described in this annex has been tested and assessed according to EN 13381-8:2010 and classified in accordance with EN 13501-2.

The maximum duration of the exposure to the standard time temperature curve as defined in EN 1363-1, 5.1.1, is 120 min, depending on the section factor of the load bearing steel element, the critical temperature and the thickness of Aithon A90H. The critical temperature is assessed from 350°C up to 750°C in steps of 50°C.

The assessment of the required thickness of Aithon A90H in function of the section factor, the critical temperature of the steel and the exposure time is given in A.2.2.4.

A.2.2.3 Installation requirements

A.2.2.3.1 Supporting structure

Aithon A90H is directly applicable to I-section and hollow section beams and columns, with a maximum section factor between 63 and 340 m^{-1}, exposed on 3 or 4 sides.

The data also applies to other shaped steel sections that have re-entrant details such as channels, angles and tees (also known as U, L and T shapes)

Aithon A90H is applicable to load bearing steel elements for critical steel temperatures of 350°C up to 750°C.

Specifications for the components are given in Table A.2.2.3.1

Table A.2.2.3.1

Element	Identification	Characteristics	Mounting and fixing
Load bearing steel sections	Steel, grade according to EN 10025-1 and EN 13381-8:2010	Section factor between 70 m^{-1} (1) and 320 m^{-1} I/H sections, . Protection contoured; three- or four- sided	surface of steel: see A.2.4.3.2 Surface shall be clean, dry and free of dust

(1) A steel member with section factor ≤ 63 m^{-1} shall be protected with the thickness of Aithon A90H determined for the steel member with section factor equal to 63 m^{-1} ;

A.2.2.3.2. Surface of steel members

Aithon A90H can be applied directly on primed or galvanized steel members.

A.2.2.3.3. Bonding agent prior to application of Aithon A90H

No bonding agent was applied to the bare steel surfaces before the application of Aithon A90H.

A.2.2.3.4 Fire protective coating

Aithon A90H is applied on the apparent sides of the steel member to be protected, by following its shape.

Aithon A90H is sprayed, in one or more layers, each with a maximum thickness of 1,0 mm, whatever is the required thickness. During the application, the thickness of the protective material is regularly controlled with a thickness gauge. After reaching the required thickness, it is kept without finishing.

Specifications for the components are given in Table A.2.2.3.4

Table A.2.2.3.4

Element	Identification	Characteristics	Mounting and fixing
Intumescent coating	Aithon A90H	Average thicknesses: from 0,257 to 3,132 mm, according to the assessment rules.	Sprayed, in one or more layers with maximum thickness of 1,0mm, without finishing

A.2.2.4 Assessment

A.2.2.4.1 Fire performance of Aithon A90H on steel structures

The assessment method used to assess the fire protection performances of product Aithon A90H when applied on steel structures is as follows :

Type of structure	Standard used for assessment
Steel	EN 13381-8:2010 / Annex E Numerical regression analysis

Column: 30 minutes									
Section factor up to (m^{-1})	Thickness (micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	613	257	257	257	257	257	257	257	257
65	647	272	257	257	257	257	257	257	257
70	731	332	257	257	257	257	257	257	257
75	812	391	257	257	257	257	257	257	257
80	891	447	257	257	257	257	257	257	257
85	968	502	257	257	257	257	257	257	257
90	1042	556	265	257	257	257	257	257	257
95	1115	607	305	257	257	257	257	257	257
100	1185	657	343	257	257	257	257	257	257
105	1254	706	381	257	257	257	257	257	257
110	1321	753	417	257	257	257	257	257	257
115	1386	800	452	257	257	257	257	257	257
120	1450	844	486	257	257	257	257	257	257
125	1512	888	519	278	257	257	257	257	257
130	1573	930	552	304	257	257	257	257	257
135	1632	972	583	329	257	257	257	257	257
140	1689	1012	613	353	257	257	257	257	257
145	1745	1051	643	377	257	257	257	257	257
150	1800	1089	672	400	257	257	257	257	257
155	1854	1126	700	422	257	257	257	257	257
160	1906	1163	727	444	257	257	257	257	257
165	1958	1198	754	465	257	257	257	257	257
170	2008	1233	780	486	257	257	257	257	257
175	2057	1266	805	506	257	257	257	257	257
180	2105	1299	830	525	268	257	257	257	257
185	2151	1331	854	544	283	257	257	257	257
190	2197	1363	877	563	297	257	257	257	257
195	2242	1394	900	581	312	257	257	257	257
200	2286	1424	923	599	326	257	257	257	257
205	2329	1453	945	616	339	257	257	257	257
210	2371	1482	966	633	353	257	257	257	257
215	2413	1510	987	649	366	257	257	257	257
220	2453	1537	1007	665	378	257	257	257	257
225	2493	1564	1027	681	390	257	257	257	257
230	2531	1590	1047	696	403	257	257	257	257
235	2570	1616	1066	711	414	257	257	257	257
240	2607	1642	1084	726	426	257	257	257	257
245	2644	1666	1103	740	437	257	257	257	257
250	2680	1690	1121	754	448	257	257	257	257
255	2715	1714	1138	768	459	257	257	257	257
260	2749	1737	1155	782	469	257	257	257	257
265	2783	1760	1172	795	480	257	257	257	257
270	2817	1783	1188	808	490	257	257	257	257
275	2849	1805	1205	820	500	257	257	257	257
280	2882	1826	1220	833	509	257	257	257	257
285	2913	1847	1236	845	519	257	257	257	257
290	2944	1868	1251	857	528	257	257	257	257
295	2975	1888	1266	868	537	257	257	257	257
300	3005	1908	1281	880	546	257	257	257	257
305	3034	1928	1295	891	555	257	257	257	257
310	3063	1947	1309	902	563	257	257	257	257
315	3091	1966	1323	912	571	258	257	257	257
320	3119	1985	1336	923	580	264	257	257	257
325	n/a	2003	1350	933	588	270	257	257	257
330	n/a	2021	1363	943	596	276	257	257	257
335	n/a	2038	1376	953	603	282	257	257	257
340	n/a	2055	1388	963	611	288	257	257	257

Column: 60 minutes									
Section factor up to (m^{-1})	Thickness (micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	2106	1470	1103	868	660	455	303	257	257
65	2178	1526	1149	908	695	485	329	257	257
70	2356	1661	1261	1005	779	557	392	257	257
75	2528	1792	1368	1098	860	626	452	273	257
80	2696	1919	1473	1188	938	692	510	323	257
85	2858	2042	1574	1275	1013	756	566	371	257
90	3017	2161	1671	1359	1085	818	620	417	257
95	n/a	2277	1766	1440	1155	878	672	461	276
100	n/a	2390	1857	1519	1223	935	722	504	312
105	n/a	2499	1946	1595	1289	991	771	545	347
110	n/a	2605	2032	1669	1352	1045	817	585	381
115	n/a	2709	2116	1740	1413	1097	863	624	414
120	n/a	2809	2197	1809	1473	1147	906	661	446
125	n/a	2907	2276	1877	1530	1195	949	697	476
130	n/a	3002	2353	1942	1586	1243	989	732	506
135	n/a	3095	2427	2005	1640	1288	1029	765	534
140	n/a	n/a	2500	2067	1693	1333	1067	798	562
145	n/a	n/a	2570	2126	1744	1376	1105	829	589
150	n/a	n/a	2639	2184	1793	1417	1141	860	615
155	n/a	n/a	2705	2241	1841	1458	1176	890	640
160	n/a	n/a	2770	2296	1888	1497	1210	918	664
165	n/a	n/a	2834	2349	1934	1535	1243	946	688
170	n/a	n/a	2896	2402	1978	1573	1275	974	711
175	n/a	n/a	2956	2452	2021	1609	1306	1000	733
180	n/a	n/a	3015	2502	2063	1644	1336	1026	755
185	n/a	n/a	3072	2550	2104	1678	1366	1051	776
190	n/a	n/a	n/a	2597	2143	1711	1395	1075	796
195	n/a	n/a	n/a	2643	2182	1744	1422	1098	816
200	n/a	n/a	n/a	2687	2220	1775	1450	1121	836
205	n/a	n/a	n/a	2731	2257	1806	1476	1144	854
210	n/a	n/a	n/a	2773	2293	1836	1502	1165	873
215	n/a	n/a	n/a	2815	2328	1866	1527	1187	891
220	n/a	n/a	n/a	2855	2362	1894	1552	1207	908
225	n/a	n/a	n/a	2895	2395	1922	1576	1228	925
230	n/a	n/a	n/a	2934	2428	1949	1599	1247	942
235	n/a	n/a	n/a	2972	2460	1976	1622	1266	958
240	n/a	n/a	n/a	3009	2491	2002	1644	1285	974
245	n/a	n/a	n/a	3045	2522	2027	1666	1304	989
250	n/a	n/a	n/a	3080	2551	2052	1687	1321	1004
255	n/a	n/a	n/a	3115	2580	2076	1708	1339	1019
260	n/a	n/a	n/a	n/a	2609	2100	1728	1356	1033
265	n/a	n/a	n/a	n/a	2637	2123	1748	1373	1047
270	n/a	n/a	n/a	n/a	2664	2146	1767	1389	1061
275	n/a	n/a	n/a	n/a	2691	2168	1786	1405	1074
280	n/a	n/a	n/a	n/a	2717	2190	1805	1420	1087
285	n/a	n/a	n/a	n/a	2742	2211	1823	1436	1100
290	n/a	n/a	n/a	n/a	2767	2232	1841	1451	1113
295	n/a	n/a	n/a	n/a	2792	2252	1858	1465	1125
300	n/a	n/a	n/a	n/a	2816	2272	1875	1479	1137
305	n/a	n/a	n/a	n/a	2840	2291	1892	1493	1149
310	n/a	n/a	n/a	n/a	2863	2311	1908	1507	1160
315	n/a	n/a	n/a	n/a	2885	2329	1924	1521	1172
320	n/a	n/a	n/a	n/a	2908	2348	1940	1534	1183
325	n/a	n/a	n/a	n/a	2929	2366	1955	1547	1193
330	n/a	n/a	n/a	n/a	2951	2384	1971	1559	1204
335	n/a	n/a	n/a	n/a	2972	2401	1985	1572	1214
340	n/a	n/a	n/a	n/a	2992	2418	2000	1584	1224

Column: 90 minutes									
Section factor up to (m^{-1})	**Thickness (micron) of Aithon A90H required for design temperature (°C)**								
	350	**400**	**450**	**500**	**550**	**600**	**650**	**700**	**750**
63	n/a	2693	2181	1858	1571	1284	1073	851	656
65	n/a	2779	2253	1922	1627	1333	1117	890	689
70	n/a	2989	2429	2077	1764	1453	1223	984	772
75	n/a	n/a	2599	2226	1896	1568	1326	1074	851
80	n/a	n/a	2764	2371	2023	1678	1425	1160	927
85	n/a	n/a	2923	2510	2146	1785	1520	1244	1000
90	n/a	n/a	3077	2645	2264	1887	1611	1324	1071
95	n/a	n/a	n/a	2775	2378	1987	1699	1401	1138
100	n/a	n/a	n/a	2901	2489	2082	1784	1475	1203
105	n/a	n/a	n/a	3024	2595	2175	1866	1547	1266
110	n/a	n/a	n/a	n/a	2699	2264	1946	1616	1327
115	n/a	n/a	n/a	n/a	2799	2351	2022	1683	1385
120	n/a	n/a	n/a	n/a	2896	2434	2096	1748	1442
125	n/a	n/a	n/a	n/a	2990	2515	2168	1810	1496
130	n/a	n/a	n/a	n/a	3081	2594	2237	1870	1549
135	n/a	n/a	n/a	n/a	n/a	2670	2304	1929	1600
140	n/a	n/a	n/a	n/a	n/a	2743	2370	1986	1649
145	n/a	n/a	n/a	n/a	n/a	2815	2433	2040	1697
150	n/a	n/a	n/a	n/a	n/a	2884	2494	2094	1743
155	n/a	n/a	n/a	n/a	n/a	2951	2553	2145	1788
160	n/a	n/a	n/a	n/a	n/a	3017	2611	2195	1832
165	n/a	n/a	n/a	n/a	n/a	3080	2667	2244	1874
170	n/a	n/a	n/a	n/a	n/a	n/a	2721	2291	1915
175	n/a	n/a	n/a	n/a	n/a	n/a	2774	2337	1955
180	n/a	n/a	n/a	n/a	n/a	n/a	2826	2381	1994
185	n/a	n/a	n/a	n/a	n/a	n/a	2876	2425	2031
190	n/a	n/a	n/a	n/a	n/a	n/a	2924	2467	2068
195	n/a	n/a	n/a	n/a	n/a	n/a	2972	2508	2104
200	n/a	n/a	n/a	n/a	n/a	n/a	3018	2548	2138
205	n/a	n/a	n/a	n/a	n/a	n/a	3063	2587	2172
210	n/a	n/a	n/a	n/a	n/a	n/a	3106	2624	2205
215	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2661	2237
220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2697	2268
225	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2732	2298
230	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2767	2328
235	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2800	2357
240	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2832	2385
245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2864	2413
250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2895	2440
255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2926	2466
260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2955	2491
265	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2984	2516
270	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3013	2541
275	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3040	2565
280	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3067	2588
285	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3094	2611
290	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3120	2634
295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2655
300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2677
305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2698
310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2718
315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2739
320	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2758
325	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2778
330	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2797
335	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2815
340	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2833

Column: 120 minutes									
Section factor up to (m^{-1})	Thickness (micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	n/a	n/a	n/a	2848	2481	2113	1843	1558	1305
65	n/a	n/a	n/a	2935	2559	2182	1905	1613	1354
70	n/a	n/a	n/a	n/a	2749	2349	2055	1746	1473
75	n/a	n/a	n/a	n/a	2932	2509	2200	1875	1587
80	n/a	n/a	n/a	n/a	3108	2664	2339	1998	1697
85	n/a	n/a	n/a	n/a	n/a	2813	2473	2116	1802
90	n/a	n/a	n/a	n/a	n/a	2957	2602	2231	1903
95	n/a	n/a	n/a	n/a	n/a	3095	2726	2340	2000
100	n/a	n/a	n/a	n/a	n/a	n/a	2846	2446	2094
105	n/a	n/a	n/a	n/a	n/a	n/a	2962	2549	2185
110	n/a	n/a	n/a	n/a	n/a	n/a	3074	2647	2272
115	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2742	2356
120	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2834	2437
125	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2923	2516
130	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3009	2592
135	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3093	2665
140	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2737
145	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2806
150	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2872
155	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2937
160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3000
165	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3061
170	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3120
175	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
180	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
185	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
190	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
195	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
200	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
205	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
210	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
215	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
225	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
230	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
235	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
240	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
265	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
270	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
275	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
280	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
285	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
290	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
320	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
325	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
330	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
335	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
340	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Beam: 30 minutes									
Section factor up to (m^{-1})\	Thickness (micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	614	264	264	264	264	264	264	264	264
65	648	273	264	264	264	264	264	264	264
70	731	333	264	264	264	264	264	264	264
75	813	391	264	264	264	264	264	264	264
80	891	448	264	264	264	264	264	264	264
85	968	503	264	264	264	264	264	264	264
90	1043	556	265	264	264	264	264	264	264
95	1115	608	305	264	264	264	264	264	264
100	1186	658	344	264	264	264	264	264	264
105	1255	707	381	264	264	264	264	264	264
110	1322	754	417	264	264	264	264	264	264
115	1387	800	452	264	264	264	264	264	264
120	1450	845	487	264	264	264	264	264	264
125	1512	888	520	278	264	264	264	264	264
130	1573	931	552	304	264	264	264	264	264
135	1632	972	583	329	264	264	264	264	264
140	1690	1012	614	354	264	264	264	264	264
145	1746	1051	643	377	264	264	264	264	264
150	1801	1090	672	400	264	264	264	264	264
155	1854	1127	700	423	264	264	264	264	264
160	1907	1163	728	444	264	264	264	264	264
165	1958	1198	754	466	264	264	264	264	264
170	2008	1233	780	486	264	264	264	264	264
175	2057	1267	806	506	264	264	264	264	264
180	2105	1300	830	526	268	264	264	264	264
185	2152	1332	854	545	283	264	264	264	264
190	2198	1363	878	563	298	264	264	264	264
195	2243	1394	901	582	312	264	264	264	264
200	2287	1424	923	599	326	264	264	264	264
205	2330	1453	945	617	340	264	264	264	264
210	2372	1482	966	633	353	264	264	264	264
215	2413	1510	987	650	366	264	264	264	264
220	2453	1538	1008	666	379	264	264	264	264
225	2493	1565	1028	682	391	264	264	264	264
230	2532	1591	1047	697	403	264	264	264	264
235	2570	1617	1066	712	415	264	264	264	264
240	2607	1642	1085	727	426	264	264	264	264
245	2644	1667	1103	741	437	264	264	264	264
250	2680	1691	1121	755	448	264	264	264	264
255	2715	1715	1138	769	459	264	264	264	264
260	2750	1738	1156	782	470	264	264	264	264
265	2784	1761	1172	795	480	264	264	264	264
270	2817	1783	1189	808	490	264	264	264	264
275	2850	1805	1205	821	500	264	264	264	264
280	2882	1827	1221	833	510	264	264	264	264
285	2914	1848	1236	845	519	264	264	264	264
290	2945	1868	1252	857	528	264	264	264	264
295	2975	1889	1266	869	537	264	264	264	264
300	3005	1909	1281	880	546	264	264	264	264
305	3034	1928	1295	891	555	264	264	264	264
310	3063	1948	1309	902	563	264	264	264	264
315	3092	1966	1323	913	572	264	264	264	264
320	3120	1985	1337	923	580	265	264	264	264
325	n/a	2003	1350	934	588	271	264	264	264
330	n/a	2021	1363	944	596	277	264	264	264
335	n/a	2039	1376	954	604	282	264	264	264
340	n/a	2056	1388	963	611	288	264	264	264

Beam: 60 minutes									
Section factor up to (m^{-1})	Thickness (micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	2106	1471	1104	869	661	456	303	264	264
65	2179	1526	1150	908	695	485	329	264	264
70	2356	1661	1261	1005	779	557	392	264	264
75	2529	1792	1369	1098	860	626	452	274	264
80	2696	1919	1473	1188	938	693	511	323	264
85	2859	2042	1574	1275	1013	757	567	371	264
90	3017	2162	1672	1359	1086	819	621	417	264
95	n/a	2278	1766	1441	1156	878	673	462	276
100	n/a	2390	1858	1519	1224	936	723	505	313
105	n/a	2500	1947	1595	1289	991	771	546	348
110	n/a	2606	2033	1669	1352	1045	818	586	382
115	n/a	2709	2116	1741	1414	1097	863	624	415
120	n/a	2810	2198	1810	1473	1147	907	661	446
125	n/a	2907	2276	1877	1531	1196	949	697	477
130	n/a	3002	2353	1942	1587	1243	990	732	506
135	n/a	3095	2428	2006	1641	1289	1030	766	535
140	n/a	n/a	2500	2067	1693	1333	1068	798	562
145	n/a	n/a	2571	2127	1744	1376	1105	830	589
150	n/a	n/a	2639	2185	1794	1418	1141	860	615
155	n/a	n/a	2706	2241	1842	1458	1176	890	640
160	n/a	n/a	2771	2296	1889	1498	1210	919	665
165	n/a	n/a	2834	2350	1934	1536	1243	947	688
170	n/a	n/a	2896	2402	1978	1573	1275	974	711
175	n/a	n/a	2956	2453	2021	1609	1306	1000	733
180	n/a	n/a	3015	2502	2063	1644	1337	1026	755
185	n/a	n/a	3072	2550	2104	1679	1366	1051	776
190	n/a	n/a	3128	2597	2144	1712	1395	1075	797
195	n/a	n/a	n/a	2643	2183	1744	1423	1099	817
200	n/a	n/a	n/a	2688	2220	1776	1450	1122	836
205	n/a	n/a	n/a	2731	2257	1807	1477	1144	855
210	n/a	n/a	n/a	2774	2293	1837	1502	1166	873
215	n/a	n/a	n/a	2815	2328	1866	1528	1187	891
220	n/a	n/a	n/a	2856	2362	1895	1552	1208	909
225	n/a	n/a	n/a	2896	2396	1922	1576	1228	926
230	n/a	n/a	n/a	2934	2429	1950	1599	1248	942
235	n/a	n/a	n/a	2972	2460	1976	1622	1267	958
240	n/a	n/a	n/a	3009	2492	2002	1645	1286	974
245	n/a	n/a	n/a	3045	2522	2028	1666	1304	990
250	n/a	n/a	n/a	3081	2552	2052	1688	1322	1005
255	n/a	n/a	n/a	3115	2581	2077	1708	1339	1019
260	n/a	n/a	n/a	n/a	2609	2100	1729	1356	1034
265	n/a	n/a	n/a	n/a	2637	2123	1748	1373	1048
270	n/a	n/a	n/a	n/a	2664	2146	1768	1389	1061
275	n/a	n/a	n/a	n/a	2691	2168	1787	1405	1075
280	n/a	n/a	n/a	n/a	2717	2190	1805	1421	1088
285	n/a	n/a	n/a	n/a	2743	2211	1823	1436	1101
290	n/a	n/a	n/a	n/a	2768	2232	1841	1451	1113
295	n/a	n/a	n/a	n/a	2792	2252	1859	1466	1125
300	n/a	n/a	n/a	n/a	2816	2272	1876	1480	1137
305	n/a	n/a	n/a	n/a	2840	2292	1892	1494	1149
310	n/a	n/a	n/a	n/a	2863	2311	1909	1508	1161
315	n/a	n/a	n/a	n/a	2886	2330	1925	1521	1172
320	n/a	n/a	n/a	n/a	2908	2348	1940	1534	1183
325	n/a	n/a	n/a	n/a	2930	2366	1956	1547	1194
330	n/a	n/a	n/a	n/a	2951	2384	1971	1560	1204
335	n/a	n/a	n/a	n/a	2972	2401	1986	1572	1215
340	n/a	n/a	n/a	n/a	2992	2418	2000	1584	1225

Beam: 90 minutes									
Section factor up to (m^{-1})	Thickness(micron) of Aithon A90H required for design temperature (°C)								
	350	400	450	500	550	600	650	700	750
63	n/a	2694	2181	1859	1571	1285	1073	852	656
65	n/a	2780	2253	1922	1628	1334	1117	891	690
70	n/a	2990	2429	2077	1764	1453	1224	984	772
75	n/a	n/a	2600	2227	1896	1568	1326	1074	852
80	n/a	n/a	2764	2371	2023	1679	1425	1161	928
85	n/a	n/a	2923	2511	2146	1785	1520	1244	1001
90	n/a	n/a	3078	2645	2264	1888	1612	1324	1071
95	n/a	n/a	n/a	2776	2379	1987	1700	1401	1139
100	n/a	n/a	n/a	2902	2489	2083	1785	1476	1204
105	n/a	n/a	n/a	3024	2596	2175	1867	1547	1267
110	n/a	n/a	n/a	n/a	2699	2265	1946	1617	1327
115	n/a	n/a	n/a	n/a	2799	2351	2023	1683	1386
120	n/a	n/a	n/a	n/a	2896	2435	2097	1748	1442
125	n/a	n/a	n/a	n/a	2990	2516	2168	1811	1497
130	n/a	n/a	n/a	n/a	3081	2594	2238	1871	1549
135	n/a	n/a	n/a	n/a	n/a	2670	2305	1929	1600
140	n/a	n/a	n/a	n/a	n/a	2744	2370	1986	1650
145	n/a	n/a	n/a	n/a	n/a	2815	2433	2041	1698
150	n/a	n/a	n/a	n/a	n/a	2885	2494	2094	1744
155	n/a	n/a	n/a	n/a	n/a	2952	2554	2146	1789
160	n/a	n/a	n/a	n/a	n/a	3017	2611	2196	1832
165	n/a	n/a	n/a	n/a	n/a	3081	2667	2244	1875
170	n/a	n/a	n/a	n/a	n/a	n/a	2722	2291	1916
175	n/a	n/a	n/a	n/a	n/a	n/a	2775	2337	1956
180	n/a	n/a	n/a	n/a	n/a	n/a	2826	2382	1994
185	n/a	n/a	n/a	n/a	n/a	n/a	2876	2425	2032
190	n/a	n/a	n/a	n/a	n/a	n/a	2925	2467	2068
195	n/a	n/a	n/a	n/a	n/a	n/a	2972	2508	2104
200	n/a	n/a	n/a	n/a	n/a	n/a	3018	2548	2139
205	n/a	n/a	n/a	n/a	n/a	n/a	3063	2587	2172
210	n/a	n/a	n/a	n/a	n/a	n/a	3107	2625	2205
215	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2662	2237
220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2698	2268
225	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2733	2299
230	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2767	2328
235	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2800	2357
240	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2833	2386
245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2865	2413
250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2896	2440
255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2926	2466
260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2956	2492
265	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2985	2517
270	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3013	2541
275	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3041	2565
280	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3068	2589
285	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3094	2612
290	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3120	2634
295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2656
300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2677
305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2698
310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2719
315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2739
320	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2759
325	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2778
330	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2797
335	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2816
340	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2834

Beam: 120 minutes									
Section factor up to (m^{-1})	**Thickness(micron) of Aithon A90H required for design temperature °C)**								
	350	**400**	**450**	**500**	**550**	**600**	**650**	**700**	**750**
63	n/a	n/a	n/a	2848	2482	2113	1843	1558	1306
65	n/a	n/a	n/a	2936	2560	2182	1905	1613	1355
70	n/a	n/a	n/a	n/a	2750	2349	2056	1747	1474
75	n/a	n/a	n/a	n/a	2933	2510	2200	1875	1588
80	n/a	n/a	n/a	n/a	3109	2664	2340	1998	1697
85	n/a	n/a	n/a	n/a	n/a	2814	2473	2117	1802
90	n/a	n/a	n/a	n/a	n/a	2957	2602	2231	1903
95	n/a	n/a	n/a	n/a	n/a	3096	2727	2341	2001
100	n/a	n/a	n/a	n/a	n/a	n/a	2847	2447	2095
105	n/a	n/a	n/a	n/a	n/a	n/a	2962	2549	2185
110	n/a	n/a	n/a	n/a	n/a	n/a	3074	2648	2272
115	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2743	2357
120	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2835	2438
125	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2924	2516
130	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3010	2592
135	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3093	2666
140	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2737
145	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2806
150	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2873
155	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2937
160	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3000
165	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3061
170	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3120
175	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
180	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
185	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
190	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
195	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
200	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
205	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
210	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
215	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
220	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
225	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
230	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
235	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
240	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
245	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
250	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
255	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
260	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
265	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
270	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
275	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
280	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
285	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
290	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
295	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
305	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
310	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
315	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
320	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
325	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
330	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
335	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
340	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a