



345 Carlingview Drive
Toronto, Ontario M9W 6N9
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Fax: 416.231.1626
Toll Free: 1.877.682.8772
www.tssa.org

May 30, 2023

ALFA LAVAL INC.
101 MILNER AVE
SCARBOROUGH ON M1S 4S6
CANADA

Workorder Type: Registration - Heat Exchanger (Conventional)
Workorder No: 8280375
Your Reference No.: TK20-FX_class300
Registered to: ALFA LAVAL LUND AB

Dear ZORAN JAKOVLJEVIC,

Technical Standards and Safety Authority (TSSA) is pleased to inform you that your submission has been reviewed and registered as follows:

CRN : R9304.5
Main Design No.: 3490024064 Rev. 00

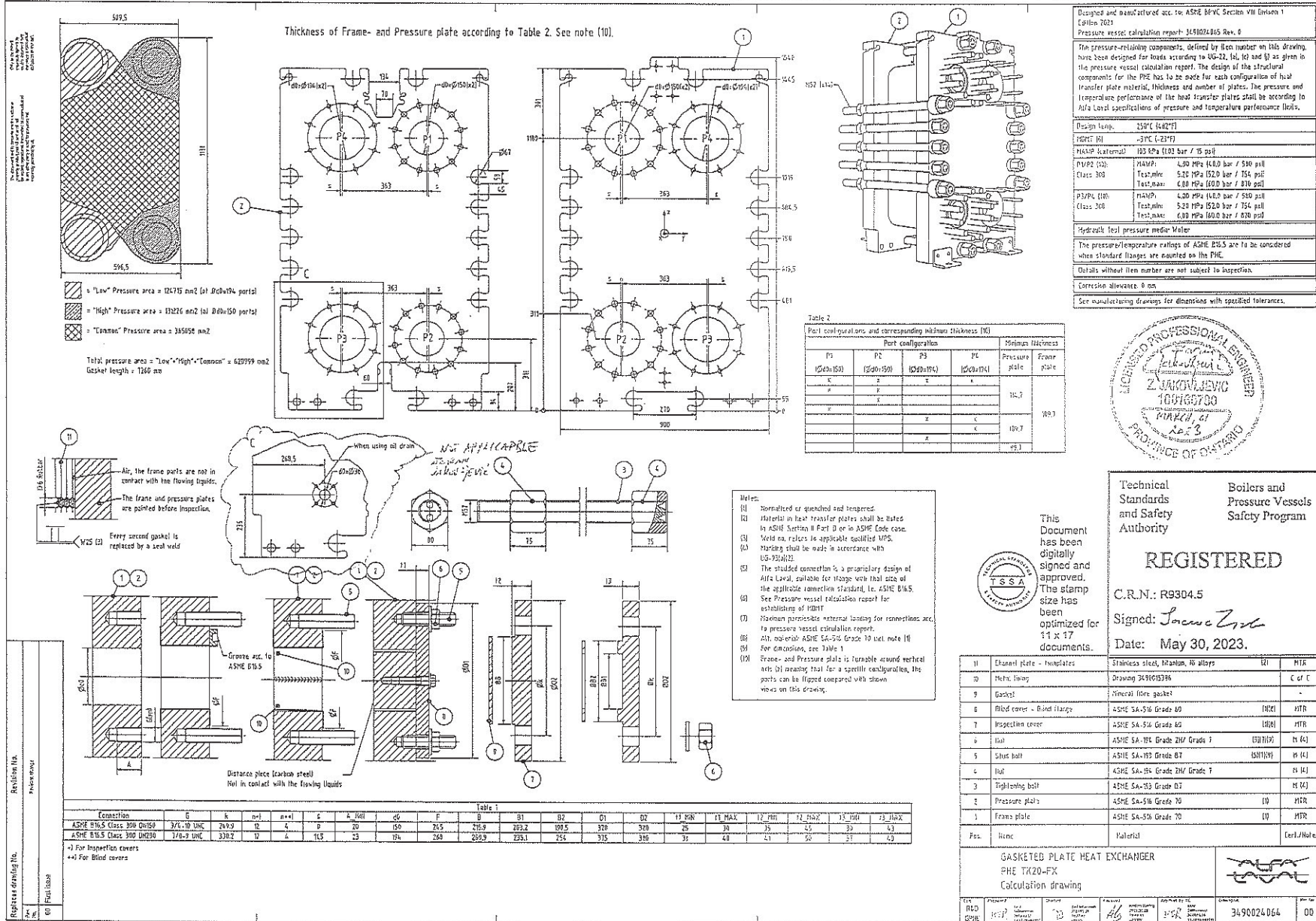
The stamped copy of the approved registration and the invoice are mailed separately (There will be no hard copies for electronic submissions). Should you have any questions or require further assistance, please contact a Customer Service Advisor at 1.877.682.TSSA (8772) or e-mail customerservices@tssa.org. We will be happy to assist you. When contacting TSSA regarding this file, please refer to the Work Order number provided above.

Yours truly,

Zivko Gacevic

Zivko Gacevic , P. Eng.
Engineer, BPV
Tel : . +1 416-734-3429
Email : zgacevic@tssa.org

Kel-Gor Q.A. Receiving			
Kel-Gor Job No. <u>24-1001</u>			
Verified To	☒	☒	☒
Date	<u>May 20 2023</u>	<u>20</u>	<u>23</u>
Signed	<u>[Signature]</u>		
Kel-Gor Q.A. Receiving			
Kel-Gor Job No. _____			
Verified To	☐	☐	☐
Code	_____	Ed.	_____
Date	_____		
Signed	_____		



Montréal, le 2 juillet 2023.

MR. ZORAN JAKOVLJEVIC
ALFA LAVAL INC.
101 MILNER
SCARBOROUGH ONTARIO
CANADA M1S 4S6

Manufacturer : ALFA LAVAL INC.
5400 INTERNATIONAL TRADE DRIVE
RICHMOND VIRGINIA
U.S.A. 23231

OUR REFERENCE : 945811
Design number : 3490024064 R0

Subject: Design registration confirmation

Hi,

We wish to inform you that your design registration application has been evaluated and that it was registered under the following Canadian Registration Number (CRN): **R09304.56**.

The following is a reminder of your obligations regarding certain requirements of the regulation respecting pressure vessels, and the referenced codes and standards:

- The manufacturer must maintain a valid quality control program to manufacture equipment according to the CRN.
- The CRN remains valid as long as there are no changes to the design calculations that might affect the pressure boundary. The design registration of fittings expires 10 years after acceptance. It must, therefore, be resubmitted for validation.
- The manufacturer shall submit a copy of the *Manufacturer's Data Report* to us for each equipment manufactured according to this CRN within 30 days following the signing of this report.
- The drawing number and the revision number registered under this CRN must be indicated on the *Manufacturer's Data Report* for equipment manufactured according to the CRN.

This notice of approval does not relieve the manufacturer of their responsibilities with respect to the design or fabrication of equipment manufactured according to this CRN.

Yours sincerely,

Bureau d'expertise et d'homologation en équipements sous pression

Montréal, 2 juillet 2023.

MONSIEUR ZORAN JAKOVLJEVIC
ALFA LAVAL INC.
101 MILNER
SCARBOROUGH ONTARIO
CANADA M1S 4S6

Fabricant : ALFA LAVAL INC.
5400 INTERNATIONAL TRADE DRIVE
RICHMOND VIRGINIA
U.S.A. 23231

Numéro de dossier : 945811
Numéro(s) de dessin(s) : 3490024064 R0

Objet : Enregistrement des plans et devis – Confirmation de l'enregistrement

Bonjour,

Nous vous informons que votre demande d'enregistrement de plans et devis a été traitée et que cette conception a été enregistrée sous le numéro d'enregistrement canadien (NEC\CRN) suivant : **R09304.56**.

Nous portons votre attention sur certaines exigences réglementaires concernant les installations sous pression, ainsi que des codes et normes qui y sont associés :

- ▣ Le fabricant doit maintenir un programme de contrôle de la qualité valide pour fabriquer un équipement selon ce NEC;
- ▣ Ce numéro d'enregistrement demeure valide tant et aussi longtemps que les paramètres de conception demeurent inchangés. Dans le cas d'accessoires, l'enregistrement est valide pour une durée de 10 ans à partir de la date d'enregistrement. Les documents de conception doivent alors être resoumis pour validation;
- ▣ Le fabricant doit nous transmettre une copie de la *Déclaration de conformité du constructeur (Manufacturer's Data Report)* pour chaque appareil ou chaudière fabriqué selon ce NEC dans les 30 jours suivant la signature de cette déclaration;
- ▣ Le numéro de dessin enregistré et le numéro de révision doivent être indiqués sur la déclaration de conformité pour les équipements fabriqués selon ce NEC.

Le présent avis d'approbation ne dégage pas le fabricant de ses responsabilités quant à la conception ou à la construction des équipements ou d'accessoires fabriqués selon un NEC.

Salutations distinguées

Bureau d'expertise et d'homologation en équipements sous pression



Report

Alfa Laval Technologies AB

Certificate of cleanliness of Gasketed Plate Heat Exchangers	Doc. No. B23-653020-170	Rev. 0
	Date 2023-12-05	
	Page 1/1	

Alfa Laval Order No. B23-653020	Customer Name Cummins
Alfa Laval Serial No. AAM1007904 to AAM1007905	Customer PO No. 10135540
Alfa Laval Equipment Type TK20-BWFX	Customer Tag/Item No. HX-4025
	Project --

Cleaning Procedure

We hereby certify that the Gasketed Plate Heat Exchangers have been manufactured, cleaned, visually inspected and handled in accordance with procedure K-302 rev 0.

Result

Accepted without remarks.

K	Receiving
F	24-1001
A	PO ☒ ☐
L	MAR 20 2024 Mts Spec
S	H. F. J.
K	Receiving
K	
V	☐ ☐ ☐
C	Is Spec Code
D	1.
S	

Signature and date	
Matilda Cortes Rosenbäck	Digitally signed by Matilda Cortes Rosenbäck Date: 2024.04.02 12:55:55 +02'00'

Mfg Representative:
Authorized Inspector:

Date: December 5, 2023
Date: December 5, 2023

FORM U-1P MANUFACTURER'S DATA REPORT FOR PLATE HEAT EXCHANGERS
As Required by the Provisions of the ASME Boiler and
Pressure Vessel Code Rules, Section VIII, Division 1

Page 1 of 2

1. Manufactured and certified by Alfa Laval Technologies AB, Rudeboksvagen 1, SE-226 55 Lund, Sweden
(Name and address of Manufacturer)
2. Manufactured for Alfa Laval Benelux B.V., P O BOX 9377, 4801, LJ BREDA, Netherland
(Name and address of Purchaser)
3. Location of installation Unknown
4. Type Vertical Gasketed AAM1007904/-7905 R9304.5C B23-653020-12 Rev. 2
(Horizontal or vertical) (Gasketed, serraweld, brazed) (Manufacturer's serial no) (CRN) (Drawing no.)
5. ASME Code Section VIII, Div. 1 2021 Ed. 2766 N/A 2023 4696-4697
(Edition (Year)) (Code Case number) (Special Service per UG-120(d)) (Year built) (National Board no.)
6. Endplates: (a) SA-516 Grade 70 (b) SA-516 Grade 70 (c) N/A
(Fixed material) (Moveable material) (Other material)

No.	Quantity	Width	Length	Thickness	Corr. Allow.	Heat Treat	Temp.	Time
(a)	1	900 mm	1560 mm	110 mm	0 mm	None	N/A	N/A
(b)	1	900 mm	1490 mm	100 mm	0 mm	None	N/A	N/A
-	-	-	-	-	-	-	-	-

7. Frame compression bolts and nuts Nos. 14, Metric M52, Bolts SA-193 Grade B7 and Nuts SA-194 Grade 2H
(Quantity, diameter, material specification, and grade)
8. Impact Test No, exempted per UCS-66(a), Fig UCS-66 General note (c)
(Indicate yes or no and the component(s) impact tested)
9. Heat transfer plates M SA-240 Type 316 0.8 mm (0.0315 in.) 25 / 158 cassettes
(Plate Model) (Material specification and grade) (Thickness) (Minimum/maximum quantity of plates for frame)
- 125 cassettes 836 mm 819 mm
(Quantity of plates pressure tested) (Minimum tightening dimension) (Maximum tightening dimension)
10. Chamber 1, MAWP See 15 at max. temp See 15, See 15 MDMT at See 15 Hydro/pneu.test press. See 15
11. Chamber 2, MAWP See 15 at max. temp See 15, See 15 MDMT at See 15 Hydro/pneu.test press. See 15
12. Nozzles, connections, inspections, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc)	Qty.	Dia or Size	Type	Material		Flange Rating	Nozzle Thickness		How Attached		Location (Insp. Open.)
				Nozzle	Flange		Nom.	C.A.	Nozzle	Flange	
Primary Inlet	1	DN 150	Studs	N/A	N/A	#300	N/A	N/A	N/A	See 15	N/A
Primary Outlet	1	DN 150	Studs	N/A	N/A	#300	N/A	N/A	N/A	See 15	N/A
Secondary Inlet	1	DN 200	Studs	N/A	N/A	#300	N/A	N/A	N/A	See 15	N/A
Secondary Outlet	1	DN 200	Studs	N/A	N/A	#300	N/A	N/A	N/A	See 15	N/A

13. Supports: Lugs N/A Legs Feet 5 Others N/A Attached Bolted to heads
(Quantity) (Quantity) (Describe) (Where and how)
14. Manufacturer's Partial Data Reports properly identifying and signed by Commissioned Inspectors have been furnished for the following items of the report (list the name of the part, item number, and Manufacturer's name and identifying number): N/A

15. Remarks

Manufacturer's model number TK20-BWFX. Additional information, see attached U-4 Form.
Design is covered by CRN approved drawing 3490024064 Rev 0
Heat transfer plates are cassettes that consists of two pieces of 0.8 mm plates welded together.

Classified by Alfa Laval as: Business

Kel-Gor Q.A. Receiving
Kel-Gor Job No. 24-1001
Verified To ☒ ☐ ☐
Date 12/05/23 P.D. Mils. Spec.
Signed LF
Kel-Gor Q.A. Receiving
Kel-Gor Job No. _____
Verified To ☐ ☐ ☐
Code _____ Ed. _____
Date _____
Signed _____

Manufactured by Alfa Laval Technologies AB, Rudeboksvagen 1, SE-226 55 Lund, Sweden

Page 2 of 2

Manufacturer's Serial No. AAM1007904/-7905

CRN R9304.5C

National Board No. 4696-4697

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements in this report are correct and that all details of design, material, construction and workmanship of this plate and frame heat exchanger conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.

U Certificate of Authorization Number 20,988 Expires December 29, 2024

Date December 5, 2023 Name Alfa Laval Technologies AB Signed 

(Manufacturer)

(Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by

LRQA Verification Limited. of UK

have inspected the plate and frame heat exchanger described in this Manufacturer's Data Report on December 5, 2023, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this plate and frame heat exchanger in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the plate and frame heat exchanger described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date December 5, 2023 Signed  Commissions AI Comm. No. 11500

(Authorized Inspector)

(National Board Authorized Inspector Commission number)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements in this report are correct and that the field assembly construction of all parts of this vessel conforms with the Requirements of ASME BOILER AND PRESSURE VESSEL CODE Section VIII, Division 1.

U Certificate of Authorization No. _____ Expires _____

Date _____ Name _____ Signed _____

(Assembler)

(Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by

of _____, have compared the statements in this Manufacturer's Data Report with the described plate and

frame heat exchanger and state that parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed this plate and frame heat exchanger in accordance with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the plate and frame heat exchanger described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ Signed _____ Commissions _____

(Authorized Inspector)

(National Board Authorized Inspector Commission number)

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Alfa Laval Technologies AB, Rudeboksvagen 1, SE-226 55 Lund, Sweden
(Name and address of Manufacturer)
2. Manufactured for Alfa Laval Benelux B.V., P O BOX 9377, 4801, LJ BREDA, Netherland
(Name and address of Purchaser)
3. Location of Installation Unknown
(Name and address)
4. Type Vertical Plate Heat Exchanger AAM1007904/-7905
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)
R9304.5C B23-653020-12 Rev. 2 4696-4697 2023
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks																								
Form U-1P																									
Items 10 & 11	The following pressures/temperatures apply: <table border="1"><thead><tr><th></th><th>Primary Side (S4-S3)</th><th>Secondary Side (S2-S1)</th></tr></thead><tbody><tr><td>MAWP, internal</td><td>4000 kPa (40.0 bar)</td><td>4000 kPa (40.0 bar)</td></tr><tr><td>at Temperature</td><td>100 °C</td><td>100 °C</td></tr><tr><td>MAWP, external</td><td>100 kPa (1.0 bar)</td><td>100 kPa (1.0 bar)</td></tr><tr><td>at Temperature</td><td>100 °C</td><td>100 °C</td></tr><tr><td>MDMT</td><td>0 °C</td><td>0 °C</td></tr><tr><td>at MAWP</td><td>4000 kPa (40.0 bar)</td><td>4000 kPa (40.0 bar)</td></tr><tr><td>Hydro Test Pressure</td><td>5200 kPa (52.0 bar)</td><td>5200 kPa (52.0 bar)</td></tr></tbody></table>		Primary Side (S4-S3)	Secondary Side (S2-S1)	MAWP, internal	4000 kPa (40.0 bar)	4000 kPa (40.0 bar)	at Temperature	100 °C	100 °C	MAWP, external	100 kPa (1.0 bar)	100 kPa (1.0 bar)	at Temperature	100 °C	100 °C	MDMT	0 °C	0 °C	at MAWP	4000 kPa (40.0 bar)	4000 kPa (40.0 bar)	Hydro Test Pressure	5200 kPa (52.0 bar)	5200 kPa (52.0 bar)
	Primary Side (S4-S3)	Secondary Side (S2-S1)																							
MAWP, internal	4000 kPa (40.0 bar)	4000 kPa (40.0 bar)																							
at Temperature	100 °C	100 °C																							
MAWP, external	100 kPa (1.0 bar)	100 kPa (1.0 bar)																							
at Temperature	100 °C	100 °C																							
MDMT	0 °C	0 °C																							
at MAWP	4000 kPa (40.0 bar)	4000 kPa (40.0 bar)																							
Hydro Test Pressure	5200 kPa (52.0 bar)	5200 kPa (52.0 bar)																							
Item 12	S1, S2: Studded connections suitable for DN200 ASME B16.5 #300 Flanges, each provided with 12 pcs 7/8" SA193-B7 Stud Bolts																								
Item 12	S3, S4: Studded connections suitable for DN150 ASME B16.5 #300 Flanges, each provided with 12 pcs 3/4" SA-193-B7 Stud Bolts																								
Item 15	U-2 (b) (1) Design requirements according to (a)(2)(-a): Yes ☒ No ☐ Superimposed static reactions Yes ☐ No ☒ Cyclic or dynamic reactions Yes ☐ No ☒ Loadings due to wind, snow, or seismic reactions Yes ☐ No ☒ Impact reactions Yes ☐ No ☒ Temperature effects Yes ☐ No ☒ Abnormal pressures Prior to placing the vessel in service it shall be provided with pressure relief device by the user. Volume: 362 l Distance between flat heads = Minimum tightening dimension in Item 9. Heat/Identification numbers for Heat-transfer Plates: 119013, 0462984, 2MWM 0468916																								

Certificate of Authorization: Type: U No. 20,988 Expires December 29, 2024
Date December 5, 2023 Name Alfa Laval Technologies AB Signed [Signature]
(Manufacturer) (Representative)
Date December 5, 2023 Signed [Signature] Commissions AI Comm. No. 11500
(Authorized Inspector) (National Board Authorized Inspector Commission number)

 Aperam - Stainless France Aperam Gueugnon 71130 Gueugnon FRANCE		MILL CERTIFICATE BS EN 10204/3.1 CERTIFICAT DE RECEPTION NF EN 10204/3.1 ABNAHMEPRUEFZEUGNIS DIN EN 10204/3.1										N-Nr-N 21G0694020-01 V01									
		A02 Ausgestellt im Einvernehmen mit dem TÜV SÜD - Auf Gegenzeichnung wird verzichtet Issued in accordance with TÜV SÜD - Verification is not required Etabli en accord avec le TÜV SÜD - Dispense de contresignature AD 2000 Merkblatt W0 - PED 2014/68 EU Annex I Point 4.3										MATERIAL CHECKED AGAINST ASME II PART A EDITION 21 Date <u>23-12-01</u> Sign. 									
A01 ISO 9001:2015 - IATF 16949:2016 - ISO 14001:2015		A08 Product - Produit - Erzeugnis COLD-ROLLED COIL BOBINE LAMINEE A FROID KALTGEWALZTES BAND		A03 Manufacturer's works order number N° de la commande usine productrice Werksauftragsnummer 80694942/01-81883/1		A04 Surveyor's mark Cachet de l'expert Stempel des Werksachverständigen 		A05 Purchaser and/or consignee Client et/ou destinataire Besteller und/oder Empfänger Alfa Laval Lund AB Rudeboks vägen 1 221 00 LUND SUEDE		A06 Purchaser's order number N° de commande client Kundenbestellnummer OMCP-196319		A07 Customer article number N° article client Artikelnummer des Kunden 372881 5099									
B02 Steel designation Désignation de l'acier Stahlbezeichnung EN 10028-7 / 16 - W2 - 1.4404 - 1.4401 ASME SA 240 / 19 - TYPE 316L - TYPE 316 ASTM A 240 / 20 - TYPE 316L - TYPE 316 EN 10088-2 / 14 - 1.4404 - 1.4401		B03 Finish Présentation Ausführung 2B 2B 2B 2B		C70 Steelmaking process Mode d'élaboration de l'acier - Stahlherstellungsverfahren Prod.proces: Electric arc furnace - VOD/AOD - Continuous casting Proc.fabric.: Four à arc - VOD/AOD - Coulée continue Fertigungsablauf: Elektro-Ofen - VOD/AOD - Stranggussanlage		C71 Any supplementary requirements Prescriptions supplémentaires - Zusätzliche Anforderungen AL1112359-63/11-2349-63/1		C72 Product delivery condition Etat de livraison du produit - Lieferzustand Solution annealing Hypertrempe : 1040 C MINI Lösungsglühen Forced Air Air forcé Gebläse Luft		B04 CORR. TEST: ASTM A 262-E: OK NACE MR 0175 / ISO 15156-1 / ISO 15156-3 -- NACE MR 0103 / ISO 17945 ATTESTATION PED 2014/68/EU PAR TUV SUD		Z06									
B07 Identification of the product Identification du produit - Identifizierung des Erzeugnisses MELTED IN BELGIUM, MADE IN FRANCE		B08 Dimensions Dimensions - Abmessungen Thickness Épaisseur - Staerke 0,800 mm		B09 Width Largeur - Breite 625,00 mm		B10 Length Longueur - Laenge		B11 Number of pieces Nb de pièces - Stueckzahl 2		B12 Net weight Poids net - netto Gewicht 7116 KGS											
CHEMICAL ANALYSIS - ANALYSE CHIMIQUE - CHEMISCHE ZUSAMMENSETZUNG																					
C Required - Exigé %mini Anforderung. %maxi		Si 0,75		Mn 2,00		Ni 10,00 13,00		Cr 16,50 18,00		Mo 2,000 2,500		Ti 0,100		S 0,0150		P 0,045		Co 0,328			
C71 Cast Analysis Analyse coulée Analyse Schmelze		C72 0,023		C73 0,47		C74 1,27		C75 10,07		C76 16,67		C77 2,040		C78 0,045		C79 0,0016		C80 0,029		C81 0,328	
Positive material identification carried out : OK Tests de vérification de la conformité de la nuance fournie : OK Verwechslungsprüfung wurde durchgeführt : OK														D52							
Location (1)		MECHANICAL PROPERTIES - PROPRIETES MECANQUES - MECHANISCHE WERTE										ISO 6892-1 B / A-SA 370		C20							
Direction (2)		Room temperature - Température ambiante - Raumtemperatur										Test temperature (°C) :		C03							
Required Exigé Anforderung		Yield or proof strength Limite d'élasticité Dehngrenze		Tensile Strength Résistance à la traction Zugfestigkeit		Elongation after fracture Allongement après rupt. Bruchdehnung		Hardness Dureté Härte		Yield or proof strength Limite d'élasticité Dehngrenze		Tensile str. Résist. MPa Zugfestigkeit		Elongation % Allongement. Bruchdehnung							
mini maxi		Rp0.2% 240 350		Rp1% 270		Rm 530 680		50mm 45 80mm 45		HBW1 130 180		Rp0.2% Rp1% Rm		C11 C14 C12 C13 C15 C31 C16 C17 C18							
3 T 2 T		Obtained Obtenu Ergebnisse		287 318		596		54 54		155 156		C19		C19							
Impact strength test Essai de résilience Kerbschlagzähigkeitstest		C40 t(°C)		C44		Corrosion test Test de corrosion Korrosionstest		GRAIN ASTM E 112		7,8		C50 C51 C52 C53 C54 C55		C57							
Location of the sample (1) Emplacement de l'échantillon Lage des Probenabschnittes 1. Front - Début - Anfang 2. Back - Fin - Ende 3. Middle - Milieu - Mitte		The delivery is in accordance with the order La fourniture est conforme aux exigences de la commande Die Lieferung entspricht den Bestellbedingungen		Packing list Avis d'expédition 210727G01488-101132		Organisation inspection Organisme et/ou service contrôle Ueberwachungsabteilung		Customer Quality 02/08/2021		The Inspector Le responsable Der Werksachverständige		Romain GERARD		Kel-Gor Q.A. Receiving Kel-Gor Job No. 24-1001 Verified To ☒ ☐ ☐ Date <u>2021-12-01</u> Signed 							
Direction of the test pieces (2) Orientation des éprouvettes Probenrichtung T. Transverse - Travers - Quer L. Longitudinal - Long - Laengs		Marking, inspection and measurement : without objection Contrôle de marquage, d'aspect et de dimensions : satisfaisants Prüfung der Stempelung, des Oberflächenaspekts und der Abmessungen : ohne Beanstandung		D01		Internal cleanliness:		A: B: C: D:		Kel-Gor Q.A. Receiving Kel-Gor Job No. _____ Verified To ☐ ☐ ☐ Code _____ Ed. _____ Date _____ Signed 		Kel-Gor Q.A. Receiving Kel-Gor Job No. _____ Verified To ☐ ☐ ☐ Code _____ Ed. _____ Date _____ Signed 									

INSPECTION CERTIFICATE

(according to DIN EN 10204, type 3.1)

Manufacturer:
Otelinox S.A.

Strada Soseaua Gaesti no. 16
Targoviste, 130087
Dambovita, Romania

No: 0042159879



A subsidiary of SAMSUNG C&T

MANAGEMENT SYSTEMS CERTIFIED
ACCORDING TO ISO 9001 & IATF 16949,
ISO 14001, ISO 45001
LABORATORY ACCREDITED ACCORDING TO ISO/IEC 17025

Customer: ALFA LAVAL LUND AB

Customer Ord.No.: OMCP-198186

Product: Strips

Steel grade: TYPE 316L AL111 2359-63 R11 / 1.4404/2B
TYPE 316 AL111 2349-63 R16 / 1.4401/2B

Melting process: E

Specification: AD2000W2; PED 2014/68/EU; EN 10088-2/14; EN 10028-7/16; ASTM A 240M/19; ASME SA240/19;
ISO 15156-3:2015(E) -NACE:MR0175 & MR0103

Coil No	Heat No	Weight (kg)	Std	Chemical analysis (%)											
				C	Mn	Si	P	S	Cr	Ni	Mo	Ti	N	Cu	Al
1L25/52-218268/A/2	0462984	3432.000		0.018	1.120	0.340	0.030	0.0010	16.770	10.050	2.030	xxxx	0.043	xxxx	xxxx
1L25/52-218268/B/1	0462984	3480.000		0.018	1.120	0.340	0.030	0.0010	16.770	10.050	2.030	xxxx	0.043	xxxx	xxxx

Surface and dimensional control, material identity test, intercrystalline corrosion acc. to DIN EN ISO 3651/2-A:OK

Ra=0.16/0.17 microns; PREN=24.157

Extent of delivery				Test Results											
Coil No	Dimensions (mm)	Pallet No	Packing List No	Test No	Pos	Std	0.2%Y Str (N/mm2)	1%Y Str (N/mm2)	T/S (N/mm2)	Elong (A80%)	Elong (A50%)	Elong (A10%)	HV HRE	Bending Test	Grain Size
1L25/52-218268/A/2	0.78 X 625 Slit	1000619755	42159879	567	T		317.0	345.0	619.0	52.0	53.0	xxxx	161.0 82.0	xxxx	7.50
				568	B		314.0	342.0	614.0	52.0	53.0	xxxx	159.0 81.5	xxxx	7.50
1L25/52-218268/B/1	0.78 X 625 Slit	1000619756	42159879	567	T		317.0	345.0	619.0	52.0	53.0	xxxx	161.0 82.0	xxxx	7.50
				568	B		314.0	342.0	614.0	52.0	53.0	xxxx	159.0 81.5	xxxx	7.50

Heat treatment: 1080 °C/ Air cooling

T = Top B = Bottom

Sample direction: transversal

MATERIAL CHECKED AGAINST
ASME II PART A EDITION 21

Date 23-12-01 Sign. [Signature]

Delivered product is in conformity with order requirements.
Marking: Producer Trade Mark, Material, Heat No., Coil-No.:

Issued in agreement with TÜV SÜD Industrie Service GmbH (10/2002)

QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036 (Certification no. DGR-0036-QS-W 23/2002/MUC-001)

WORK INSPECTOR
CUTA VICTORIA

IL-CQ-1

Targoviste, 24.09.2021

[Signature]





Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23011/29 - BL23052-26 - 237168

ALFA LAVAL TECHNOLOGIES AB

 RUDEBOKSVAGEN
 PO BOX 74
 SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-423098

Poste/item 1 STUD(TF) 3/4" 10 UNC x 120 ENISO
 Qte/Qty 1 040 898-1 CL8.8 ASME SA193 B7 ADW7
 COAT:ZN ENISO 4042 A9F(10micr.min.)
 Part 1644181-05/13
 Plan 1644181 rev 12

- STUD(TF) 3/4"
 Heat :
 217437

Normes/Standard : ASME SA193 GRADE B7-EN ISO 898-1 CLASSE 8.8 ADW7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P	Cr	Mo	B
0.4	0.82	0.28	0.002	0.012	1.04	0.233	0.0002

CARACTERISTIQUES MECANIKES/MECHANICAL TEST

TEST n°1	Rm MPa	Rp0.2% MPa	A% 5d	A% 4D	Z%	HB	KV +20°C Joules
	973	886	22.6	21.2	60.5	304	110/112/108
TEST n°125162	Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%	HB	
	1048	926	20.52	17.79	54.95	318	
TEST n°125163	HB	KV +20°C Joules					
	318	92/92/92					
TEST n°125164	Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%	HB	
	935	797	22.96	21.23	55.85	292	
TEST n°125165	HB	KV +20°C Joules					
	292	96/96/97					
TEST n°125166	KV -50°C Joules						
	92/95/98						
TEST n°125167	Rm 300°C MPa	Rp0.2% 300°C MPa	A% 5d 300°C	Z% 300°C			
	877	665	18.5	57			
TEST n°1	REV. T° C						
	655						
TEST n°125162	REV. T° C						
	655						
TEST n°125164	REV. T° C						
	655						

**Beck-Crespel**

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23011/29 - BL23052-26 - 237168

ALFA LAVAL TECHNOLOGIES ABRUDEBOKSVAGEN
PO BOX 74
SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-423098

Goods are in conformity to: EN ISO 898-1 CLASSE 8.8 ADW7-ASME SA193 GRADE B7 EDITION 2017
Material in conformity To PED 2014/68/EU
Delivery state : Quenched and Tempered
Visual and dimensional control : Conform
Macroetch Examination : Conform
Marks on studbolt : BC - B7 - 8.8
On labels : 217437
V X PS <= 5000 With the approval of the TÜV RHEINLAND 01 202 F/Q-06 00121
See PV TÜV N° 21001/69-189346

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.

This test certificate applies only to the items, designation and quantities as described above.

22/02/2023

David COEURET
QC Technician
dcoeuret@beckcrespel.fr**MATERIAL CHECKED AGAINST
ASME II PART A EDITION 21**Date 23-12-01 Sign.



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23067/23 - BL23129-9 - 259409

ALFA LAVAL TECHNOLOGIES AB

RUDEBOKSVAGEN

PO BOX 74

SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-429852

Poste/Item 1 STUD(TF) 7/8" 9 UNC x 140 ENISO
Qte/Qty 450 898-1 CL8.8 ASME SA193 B7 ADW7
COATZN ENISO 4042 A9F(10micr.min.)
Part nr 1644181-10/13
Plan 1644181 rev 12

- STUD 7/8"
Heat :
018060

Normes/Standard : ASME SA193 GRADE B7-EN ISO 898-1 CLASSE 8.8 ADW7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P	Cr	Mo	B
0.43	0.846	0.294	0.0043	0.011	1.039	0.224	0.0001

CARACTERISTIQUES MECANIKES/MECHANICAL TEST

TEST n°1	Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%	HB	KV +20°C Joules
	1054	866.5	18.8	16.8	56	312	92/93/90
TEST n°29869	Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%		
	1045	850	18.45	15.3	54.22		
TEST n°29870	Rm MPa	Rp0.2% MPa	A% 5d	A% 4D	Z%		
	1056	872	15.15	21.3	57		
TEST n°29871	KV +20°C Joules						
	91/85/93						
TEST n°29872	KV +20°C Joules						
	85/89/93						
TEST n°29873	KV -50°C Joules						
	59/60/59						
TEST n°29874	Rm 300°C MPa	Rp0.2% 300°C MPa	A% 5d 300°C	Z% 300°C			
	1016	734	14.3	43.71			
TEST n°1	REV. T°C						
	610						

Goods are in conformity to: EN ISO 898-1 CLASSE 8.8 ADW7-ASME SA193 GRADE B7 EDITION 2017

Material in conformity to PED 2014/68/EU

Delivery state : Quenched and Tempered

Visual and dimensional control : Conform

Macroetch Examination : Conform

Marks on studbolt : BC - B7 - 8.8

On labels : 018060

V X PS <= 5000 With the approval of the TÜV RHEINLAND 01 202 F/Q-06 00121

See PV TUV N° 8121028740



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23067/23 - BL23129-9 - 259409

ALFA LAVAL TECHNOLOGIES AB

RUDEBOKSVAGEN

PO BOX 74

SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-429852

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.

This test certificate applies only to the items, designation and quantities as described above.

09/05/2023

David COEURET

QC Technician

dcoeuret@beckcrespel.fr

MATERIAL CHECKED AGAINST
ASME II PART A EDITION 21

Date 23-12-01 Sign.



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23110/33 - BL23129-12 - 259408

ALFA LAVAL TECHNOLOGIES AB

RUDEBOKSVAGEN

PO BOX 74

SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-434672

Poste/Item 1 NUT M52 X 5 (80x75)
Qte/Qty 140 EN ISO 898-2 CL8/ASME SA 194-2H
COAT. ZN 20 - PART 3350026846/05
PLAN 82300176 REV.04

NUT M 52
Heat :
1225380

Normes/Standard : ASME SA194-2H -EN ISO 898-2 CL8 ADW7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P			
0.48	0.73	0.18	0.014	0.006			

CARACTERISTIQUES MECANIKES/MECHANICAL TEST

TEST n°1	HB-24H 540°C	HB/ HBw					
	255/255	245/286					

ELABORATION

TEST n°1	REV. T° C						
	570						

Goods are in conformity to: ASME SA194 GRADE 2H EDITION 2021-EN ISO 898-2 CL 8 ADW7
Material in conformity To PED 2014/68/EU

Delivery state : Quenched and tempered
Widening test : Conform
Proof load test : Not required
Visual and dimensional control : Conform
Macroetch Examination : Conform
Marking on nuts : BC 2H 8 + Heat code 1ECF

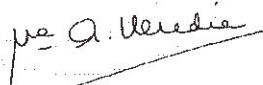
SEE TÜV PV N°23001/59-236971

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.

This test certificate applies only to the items, designation and quantities as described above.

09/05/2023

David COEURET
QC Technician
dcoeuret@beckcrespel.fr

ACERINOX EUROPA FABRICA DEL CAÑO DE C. KRAHMAN PALMONES (LOS BARATOS) TQNO. (34) - 356 62 93 00 FAX (34) - 356 62 92 11 T. S. BOX 03 11310 LOS BARATOS (CADIZ) ESPAÑA		 by Accredited Body		INSPECTION CERTIFICATE ABNAHMEPRÜFZEUGNIS 3.1									
ACCORDING TO EN 10204				CERTIFICATE N° 73 2023 1079 30002 *									
CUSTOMER KONST ALFA LAVAL TECHNOLOGIES AB NÖBBELÖVS MOSSAVÄG				OUR ORDER N° UNSERE AUFTR. MA 6562				YOUR ORDER N° IHRER BESTELL. OMCP212765					
TRADE MARK STAMP DES HERSTELL. 				INSPECTOR'S STAMP STAMP DES WERKSACHVERSTÄNDIGEN 4511				STEELMAKING PROCESS HERSTELLUNGSPROZESS A.O.D.					
REQUIREMENTS ANFORDERUNGEN EN 10028-7/TRD 100/AD-2000-MERKBLATT W0/W2/W10 PED2014/68/EU EN 10088-2:2014 ASTM A240Ed22/A480Ed22-ASME SecIIA SA240/SA480Ed21 EN 10088-2:2014 ASTM A240Ed22/A480Ed22-ASME SecIIA SA240/SA480Ed21				INTERGRANULAR CORROSION INTERKRISTALLINE KORROSION EN ISO 3651-2 EN ISO 3651-2 ASTM-A-262 PRACTICA E EN ISO 3651-2 ASTM-A-262 PRACTICA E				GRADE WERKSTOFF Axx 240 1.4404/1.4401 Axx 240 1.4401 Axx 240 316 Axx 240 1.4404 Axx 240 316L					
FINISH AUSFÜHRUNG 2B 2B 2B 2B 2B													
COIL / BOX COIL/KISTE		CONTENT INHALT		DIMENSIONS (mm) ABMESSUNGEN			MARKS POS.		QUANTITY STÜCKZAHL		TEST N° PROBE NR.		
032MWMMA1		032MWM A		THICKNESS DICKE 0,800			WIDTH BREITE 625,00		LENGTH LÄNGE		1 032MWM C		
CHEMICAL ANALYSIS / CHEMISCH ZUSAMMENSETZUNG													
HEAT N° SCHMELZE NR.		C	CR	MN	MO	N	NI	P	S	SI			
2MWM		0,013	16,855	1,295	2,060	0,045	10,075	0,034	0,005	0,450			
MECHANICAL PROPERTIES / MECHANISCHE EIGENSCHAFTEN													
TEST N° PROBE N.		TYP S11	Rm N/mm2	Rp 0.2 N/mm2	Rp 1.0 N/mm2	A50 %	A80 %	G.S.	HB				
032MWM		C T	630,31	306,40	332,23	48,67	52,67	9,00	165,00				
032MWM		F T							164,00				
REMARKS / BEOBACHTUNGEN													
Spectrochemical identity test O.K. Heat treatment: 1050-1100°C. Cooling with air. Issued in agreement with TÜV SÜD Industrie Service GmbH (02/1983). The delivery is in accordance with the order Temperatura de hipertemple entre 1050 y 1100 ° C. NACE-MR0175/ISO 15156-3:2015;NACE MR0103:2012/ISO 17945:2015 (Chem & Mech only). QUALITY ASSURANCE SYSTEM IN ACCORDANCE WITH THE PRESSURE EQUIPMENT DIRECTIVE 97/27/PED MATERIAL COMPLIES WITH NORSOK M-360 MDS S15 Equipment Directive PED 2014/68/EU Material complies with NORSOK M-630 MDS S01.													
SURFACE AND DIMENSIONAL CONTROL OBERFLÄCHEN- UND ABMESSUNGSKONTROLLE													
SATISFACTORY OHNE BEANSTANDUNG													
WORK INSPECTOR WERKSACHVERSTÄNDIGER													
 A. Heredia													
Palmones, 5 Julio 2023													

INSPECTION CERTIFICATE

(according to DIN EN 10204, type 3.1)

Manufacturer:
Otelinox S.A.

Strada Soseaua Gaesti no. 16
Targoviste, 130087
Dambovita, Romania

No: 0042190370



A subsidiary of SAMSUNG C&T

MANAGEMENT SYSTEMS CERTIFIED
ACCORDING TO ISO 9001 & IATF 16949,
ISO 14001, ISO 45001
LABORATORY ACCREDITED ACCORDING TO ISO/IEC 17025

Customer: ALFA LAVAL TECHNOLOGIES AB
Customer Ord.No.: OMCP-213815
Product: Strip
Steel grade: TYPE 316L AL111 2359-63 R12 /1.4404/2B
TYPE 316 AL111 2349-63 R17 / 1.4401/2B
Melting process: E
Specification: AD2000W2; PED 2014/68/EU; EN 10088-2/14; EN 10028-7/16; ASTM A 240M/22; ASME SA240/21;
ISO 15156-3:2015(E) -NACE:MR0175 & MR0103

Coil No	Heat No	Weight (kg)	Std	Chemical analysis (%)											
				C	Mn	Si	P	S	Cr	Ni	Mo	Ti	N	Cu	Al
1L28/12-236262/B/A/1	0468916	3848.000		0.021	1.130	0.300	0.032	0.0010	16.890	10.100	2.010	xxxx	0.045	xxxx	xxxx

Surface and dimensional control, material identity test, intercrystalline corrosion acc. to DIN EN ISO 3651/2-A: O.K

Ra=0.18/0.18 microns; PREN=24.243

Extent of delivery				Test Results											
Coil No	Dimensions (mm)	Pallet No	Packing List No	Test No	Pos	Std	0.2%Y Str (N/mm2)	1%Y Str (N/mm2)	T/S (N/mm2)	Elong (A80%)	Elong (A50%)	Elong (A10%)	HV HRB	Bending Test	Grain Size
1L28/12-236262/B/A/1	0.78 X 625 Slit	1000726719	42190370	731	T		297.0	325.0	608.0	50.5	51.5	xxxx	154.0 80.0	xxxx	7.50
				732	B		298.0	328.0	610.0	51.0	52.0	xxxx	155.0 80.5	xxxx	7.50

Heat treatment: 1080 °C/ Air cooling

T = Top B = Bottom Sample direction: transversal

Delivered product is in conformity with order requirements.
Marking: Producer Trade Mark, Material, Heat No., Coil-No.

Issued in agreement with TÜV SÜD Industrie Service GmbH (10/2002)
QS approved acc. to PED, Annex I, Para. 4.3 by Notified Body 0036
(Certification no. DGR-0036-QS-W 23/2002/MUC-002)

WORK INSPECTOR
CUTA VICTORIA



IL-CQ-1

Targoviste, 09.08.2023



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23166/38 - BL23242-8 - 271849

ALFA LAVAL TECHNOLOGIES AB

RUDEBOKSVAGEN
PO BOX 74
SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCf-440901

Poste/Item 2 TBOLT M52X1877(LT=1950) EN10269
Qte/Qty 8 42CRMO4/SA193 B7 +1 NUT M52(80x75)
ENISO 898-2 CL8/SA194 2HADW7 ZN25
REF 3350027120/00- DWG 3490013135/0
3350026954/00 + 3350026846/04

- TBOLT M 52
Heat :
48642

Normes/Standard : 42CrMo4 NF EN 10269 - ASME SA 193 B7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P	Cr	Mo	
0.39	0.86	0.25	0.006	0.006	1.06	0.23	

CARACTERISTIQUES MECANIQUES/MECHANICAL TEST

TEST n°1

Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%	HB	KV +20°C Joules	
922	792	20.2	14	62	275	118/113/115	

ELABORATION

TEST n°1

REV. T° C							
660							

MATERIAL ACCORDING TO STANDARD ASME EDITION 2021
SPECIFICATION ALFA LAVAL MATIERE AL111-2244-78

Mill Certificate : OVAKO N° 488495
Delivery state : Quenched and tempered
Macroetch examination : Conform
Visual and dimensional control : conform
Marks : BC 1.7225 B7 + Heat code : 1EVW

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.

This test certificate applies only to the items, designation and quantities as described above.

30/08/2023

David COEURET
QC TECHNICIAN
dcoeuret@beckcrespel.fr



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23166/38 - BL23242-8 - 271848

ALFA LAVAL TECHNOLOGIES AB

 RUDEBOKSVAGEN
 PO BOX 74
 SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-440901

Poste/Item 2 TBOLT M52X1877(LT=1950) EN10269
 Qte/Qty 8 42CRMO4/SA193 B7 +1 NUT M52(80x75)
 ENISO 898-2 CL8/SA194 2H ADW7 ZN25
 REF 3350027120/00- DWG 3490013135/0
 3350026954/00 + 3350026846/04

- NUT M 52
 Heat :
 1225380

Normes/Standard : ASME SA194-2H -EN ISO 898-2 CL8 ADW7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P			
0.48	0.73	0.18	0.014	0.008			

CARACTERISTIQUES MECANIKES/MECHANICAL TEST

TEST n°1

HB-24H 540°C	HB/ HBw						
255/255	245/286						

ELABORATION

TEST n°1

REV. T°C							
570							

Goods are in conformity to: ASME SA194 GRADE 2H EDITION 2021-EN ISO 898-2 CL 8 ADW7
 Material in conformity To PED 2014/68/EU

Delivery state : Quenched and tempered
 Widening test : Conform
 Proof load test : Not required
 Visual and dimensional control : Conform
 Macroetch Examination : Conform
 Marking on nuts : BC 2H 8 + Heat code 1ECF

SEE TÜV PV N°23001/59-236971

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.
 This test certificate applies only to the items, designation and quantities as described above.

30/08/2023

David COEURET
 QC TECHNICIAN
 dcoeuret@beckcrespel.fr



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23166/38 - BL23242-8 - 271847

ALFA LAVAL TECHNOLOGIES AB

 RUDEBOKSVAGEN
 PO BOX 74
 SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-440901

Poste/Item 1 TBOLT M52X1577(LT 1650) EN10269
 Qte/Qty 20 42CrMo4 SA193B7 +1 NUT
 EN ISO 898-2 CL8/SA194 2H ZN ADW7
 3350027119/00 DWG 3490013135/0
 3350026953/00+3350026846/04

- TBOLT M 52
 Heat :
 48642

Normes/Standard : 42CrMo4 NF EN 10269 - ASME SA 193 B7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P	Cr	Mo
0.39	0.86	0.25	0.005	0.005	1.06	0.23

CARACTERISTIQUES MECANIQUES/MECHANICAL TEST

TEST n°1

Rm MPa	Rp0.2% MPa	A% 4D	A% 5d	Z%	HB	KV +20°C Joules
922	792	20.2	14	62	275	118/113/115

ELABORATION

TEST n°1

REV. T° C						
660						

MATERIAL ACCORDING TO STANDARD ASME EDITION 2021
 SPECIFICATION ALFA LAVAL MATIERE AL111-2244-78

Mill Certificate : OVAKO N° 488495
 Delivery state : Quenched and tempered
 Macroetch examination : Conform
 Visual and dimensional control : conform
 Marks : BC 1.7225 B7 + Heat code : 1EVW

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.

This test certificate applies only to the items, designation and quantities as described above.

30/08/2023

David COEURET
 QC TECHNICIAN
 dcoeuret@beckcrespel.fr



Beck-Crespel

A Beck Industries Company

Certificat d'essais / Test Certificate NFEN 10204.3.1

NR 23166/38 - BL23242-8 - 271846

ALFA LAVAL TECHNOLOGIES AB

 RUDEBOKSVAGEN
 PO BOX 74
 SE - 221 00 LUND (SWEDEN)

VOTRE/YOUR REF N° OMCF-440901

Poste/Item 1 TBOLT M52X1577(LT 1650) EN10269
 Qte/Qty 20 42CrMo4 SA193B7 +1 NUT
 EN ISO 898-2 CL8/SA194 2H ZN ADW7
 3350027119/00 DWG 3490013135/0
 3350026953/00+3350026846/04

 NUT M 52
 Heat :
 1225380

Normes/Standard : ASME SA194-2H -EN ISO 898-2 CL8 ADW7

ANALYSE/HEAT ANALYSIS

C	Mn	Si	S	P			
0.48	0.73	0.18	0.014	0.006			

CARACTERISTIQUES MECANIQUES/MECHANICAL TEST

TEST n°1	HB-24H 540°C	HB/ HBW					
	255/255	245/206					

ELABORATION

TEST n°1	REV T°C						
	570						

Goods are in conformity to: ASME SA194 GRADE 2H EDITION 2021-EN ISO 898-2 CL 8 ADW7
 Material in conformity To PED 2014/68/EU

Delivery state : Quenched and tempered
 Widening test : Conform
 Proof load test : Not required
 Visual and dimensional control : Conform
 Macroetch Examination : Conform
 Marking on nuts : BC 2H 8 + Heat code 1ECF

SEE TÜV PV N°23001/59-236971

We, the undersigned BECK CRESPEL, hereby certify that the supplied products are fully in accordance with the requirements of the order.
 This test certificate applies only to the items, designation and quantities as described above.

30/08/2023

David COEURET
 QC TECHNICIAN
 dcoeuret@beckcrespel.fr

SSAB

VASTAANOTTOTODISTUS INSPECTION CERTIFICATE

1/3

96688L-001

04.09.2023

ASME SA-20/2021/ASTM A20/2019

Tilaja Purchaser
ALFA LAVAL TECHNOLOGIES AB
BOX 74

221 00 LUND SWEDEN

Tilaus nro Order No.

OMCF-440897

Tilausvahvistus Order Confirmation

96688L

Vastaanottaja Consignee
ALFA LAVAL TECHNOLOGIES AB
NÖBBELOVS MOSSAVÄG/GF1

221 00 LUND SWEDEN

Asiakkaan merkki Shipping mark

SECKIN AKGUEL ERBAS

Päivämäärä Date

05.09.2023

Valmistajan merkki

Mark of the Manufacturer



Todistus Certificate

3B7

Laatumerkintä Quality Marking

SA516GR70MT ZT

Tarkastajan leima

Stamp of Inspector

Mxx

Toimitustyyppi Delivery type

TOTAL DELIVERY

Sulatus nro levy nro Cast No. Plate No.

XXXXX XXX XX XXX

Vastaanottajan leima

Stamp of Surveyor

Muut leimaukset

Other Stamps

Tuote Product

HEAVY PLATES

Laji Grade

SA516 GR 70 MT ZT ASME SA-516-2021

Laatuselvitys Quality Specifications

PRESS.VESSEL STEEL ASME CODE SEC II ED 2021 SA20

Toleranssit Tolerances

ASME SA-20, 2021

Tekniset vaatimukset ja/tai viralliset määräykset Technical terms of Delivery and/or Official Regulations

Positio Item	Mitat mm Dimensions mm	Merkki Mark	Kpl Pcs	Paino kg Weight kg	Sulatus levy nro Cast plate No	SP nro SP No	UT	MT	Turvamerkki Safety mark
-----------------	---------------------------	----------------	------------	-----------------------	-----------------------------------	-----------------	----	----	----------------------------

NORM.PRECISION FLAME CUT STEEL PLATES FOR STEEL CONSTR.

ACC.TO SPEC.AL 111 1430-64 REV.7.ALL LIMITATIONS OF SA20 § 5.3 HAVE BEEN MET. MACHINED DRAWING: 3490021701-21 REV 02, ART.NO: B3350048901.

SURFACE CONDITION EN 10 163-2:2005 CLASS B3

ULTRASONIC TESTING ASME SA 578:2021 LEVEL C, S1

020 110.00 X3490021701-02 B23-653020-437828/ADE OMC-440897 GF1 2 2062 32194 321 321 U

*** 2 2062

Raahe Steel Works

Täten todistamme, että toimitus on tilausvahvistuksen mukainen.

We hereby certify that the material described above has been tested and complies with the terms of the order confirmation.

Testaus ja tarkastus Testing and Inspection

MINNA VALKAMA

Valtuutettu tarkastaja Authorized inspection representative

Yhtiön nimi Company Name: SSAB Europe Oy
Kotipaikka Registered Office: HÄMEENLINNA

Osoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLAND

Puhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7

RTX00

AL Lund AB TO-no 1076772 SELUKNA 2023-09-12



AINESTODISTUS TEST REPORT

ASME SA-20/2021/ASTM A20/2019

2/3

96688L-001

04.09.2023

Tilaja Purchaser
ALFA LAVAL TECHNOLOGIES AB
BOX 74

221 00 LUND SWEDEN

Tilauksen nro Order No.

OMCF-440897

Tilauksen vahvistus Order Confirmation

96688L

Vastaanottaja Consignee
ALFA LAVAL TECHNOLOGIES AB
NÖBBELOVS MOSSAVÄG/GF1

221 00 LUND SWEDEN

Asiakkaan merkki Shipping mark

SECKIN AKGUEL ERBAS

Päivämäärä Date

05.09.2023

VJS

Valmistajan merkki

Mark of the Manufacturer



Laji Grade
SA516 GR 70 MT ZT

Lisävaatimukset Additional requirements

Jatkuvavalettua happiterästä
Oxygen steel, continuous casting

Laatuselvitys Quality Specifications

Fully killed, Fine grain practiced

PRESS.VESSEL STEEL ASME CODE SEC II ED 2021 SA20

N 900C,T=1.1(MIN)XTHICKN(MM)

Pos. Item	Sulatus, kera nro Cast, test No	T-tila Cond	Tensile test																	Taivutuskoe Bend test		Huom Nb	Päästö Tempering °C		
			K2	°C	RP02 MPa	RT05 MPa	REL MPa	REH MPa	RM MPa		A %		RE / RM	RM * A5	RAZ %		Keskiaarvo Average	K5	D = X t						
020	32194 321	N	J1		323					514				26											
			1W																	30					
			5W																	35					

K2: J1=BOTTOM,TRANSV. 1W=RAZ %, TOP, A/SA770 5W=RAZ %, BOT, A/SA770

N =NORMALIZED

Raahe Steel Works

Täten todistamme, että toimitus on tilausvahvistuksen mukainen.
We hereby certify that the material described above has been tested and complies with the terms of the order confirmation.

Testaus ja tarkastus Testing and Inspection

MINNA VALKAMA

Valtuutettu tarkastaja Authorized inspection representative

Yhtiön nimi Company Name: SSAB Europe Oy
Kotipaikka Registered Office: HAMEENLINNA

Osoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLAND

Puhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7



ANALYYSITODISTUS ANALYSIS CERTIFICATE
ANALYSEBESCHEINIGUNG COMPOSITIO CHIMIQUE CERTIFICAT

3/3

96688L-001

04.09.2023

Sulatus nro Cast No Schmelzen Nr. No de coulée	Koe nro Test No Prüf Nr. Essai No	Positio Item Pos. Poste	Cekv Ceq Câq Cég Cekv	Analys %	Chemical composition %	Chemisch Zusammensetzung %	Composition Chimique %	(*=ppm)												Päivämäärä Date Datum Date	
32194		020	.43	.217	.37	1.18	.010	.003	.039	.016	.012	.004	.009	0.04	0.04	.002	.001	.0002		05.09.2023	VJS
				C	SI	MN	P	S	AL	NB	V	TI	CU	CR	NI	MO	CA	B			

CEQ=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Raahe Steel Works

Testaus ja tarkastus
Prüfung und Kontrolle

Testing and Inspection
Essais et Contrôle

SSAB Europe Oy, Raahe Steel Works testing laboratories T002 and T010 are accredited by the FINAS accreditation service, accreditation requirement SFS-EN ISO/IEC 17025.

Steel manufactured and supplied by Raahe Steel Works is free from radiation.

MINNA VALKAMA

Valtuutettu tarkastaja
Sachverständiger

Authorized inspection representative
Inspector autorisé

Yhtiön nimi Company Name: SSAB Europe Oy
Kotipaikka Registered Office: HÄMEENLINNA

Osoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLAND

Puhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7

AL Lund AB TQ-no 1076772 SELUKNA 2023-09-12



ULTRAÄÄNITARKASTUSPÖYTÄKIRJA / ULTRASONIC TEST REPORT

nro / no 44654



Levy nro / Plate no / Kohde / Object 32194 321	Osalevyt / Part plates / Kpl / Piece 11	Tilaus / Order 37168L / 020	Laatu / Steel grade SA516 GR 70 MT ZT
Levykoko / Size 110.00 x 1860 x 4750	Pinnanlaatu / Surface finish Valssattu / As rolled	Lämpökäsittelyt / Heat treatment ---	
Tarkastusohje / Inspection procedure A653	Tarkastusluokka / Inspection class C S1	Tarkastusstandardi / Inspection standard ASME SA-578/ASME SA-578M:2021 Level C S1	
Ultraäänilaite / Ultrasonic equipment Krautkrämer USM 100 No: 3	Luotain / Probe SEB 4 Ø 24 mm 4 MHz	Nro / No 33	Laite ja luotaimet tarkastettu SFS-EN ISO 22232-3 mukaisesti / Equipment and probes checked according to SFS-EN ISO 22232-3
Perusvahvistus [dB] / Calibration gain [dB] 49	Keskialueen tarkastus / The body inspection 100% Tarkastus/Inspection	100 % tarkastetun reunan-alueen leveys/Width of 100 % edge testing -	
Kalibrointi / Calibration Takaseinäkaiku/Back wall echo	Lisävaatimukset / Extra requirements	Huomautus / Notify	
Lisävahvistus [dB] / Extra gain [dB] 6			
Pinta-alan määrittäminen / Method for sizing of discontinuities ASME			
Siirtymiskorjaus [dB] / Transfer correction [dB] -			
Kytkeäaine / Coupling media water			
Tulokset / Results			
Tarkastustulokset / Result of inspection ☒ Hyväksytty / Accepted ☐ Hylätty / Rejected			
Levyyn leimattu UT-luokka / Inspection class stamped on the plate			
Pvm ja paikka / Date and place 18.07.2023 Raahe	Tarkastaja / Inspector Sari Lunke	Allekirjoitus / Signature 	Pätevyys / Competence EN ISO 9712 No.7799-UT2
Pvm ja paikka / Date and place 19.07.2023 Raahe	Hyväksyjä / Acceptor Antti Heikkilä	Allekirjoitus / Signature 	Pätevyys / Competence EN ISO 9712 No.6994-UT2

SSAB

VASTAANOTTOTODISTUS INSPECTION CERTIFICATE

ASME SA-20/2021/ASTM A20/2019

1/3

96688K-001

28.08.2023

Tilaja Purchaser
ALFA LAVAL TECHNOLOGIES AB
BOX 74

221 00 LUND SWEDEN

Tilaus nro Order No.

OMCF-440897

Tilau vahvistus Order Confirmation

96688K

Vastaanottaja Consignee
ALFA LAVAL TECHNOLOGIES AB
NÖBBELÖVS MOSSAVÄG/GF1

221 00 LUND SWEDEN

Asiakkaan merkki Shipping mark

SECKIN AKGUEL ERBAS

Päivämäärä Date

29.08.2023

Valmistajan merkki

Mark of the Manufacturer



Todistus Certificate

3B7

Laatumerkintä Quality Marking

SA516GR70MT ZT

Tarkastajan leima

Stamp of Inspector

Mxx

Vastaanottajan leima

Stamp of Surveyor

Muut leimaukset

Other Stamps

Toimitustyyppi Delivery type

TOTAL DELIVERY

Sulatus nro levy nro Cast No. Plate No.

XXXXXX XXX XX XXX

Toleranssit Tolerances

ASME SA-20, 2021

Tekniset vaatimukset ja/tai viralliset määräykset Technical terms of Delivery and/or Official Regulations

Tuote Product

HEAVY PLATES

Laji Grade

SA516 GR 70 MT ZT ASME SA-516-2021

Laatuselvitys Quality Specifications

PRESS.VESSEL STEEL ASME CODE SEC II ED 2021 SA20

Posilto Item	Mitat mm Dimensions mm	Merkki Marke
-----------------	---------------------------	-----------------

Kpl Pcs	Paino kg Weight kg	Sulatus levy nro Cast plate No	SP nro SP No	UT UT	MT MT	Turvamerkki Safety mark
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NORM.PRECISION FLAME CUT STEEL STRUCTURES FOR STEEL CONSTR.

ACC.TO SPEC.AL 111 1430-64 REV.7.ALL LIMITATIONS OF SA20 § 5.3 HAVE BEEN MET. ART.NO: 3350038343.

SURFACE CONDITION EN 10 163-2:2005 CLASS B3

ULTRASONIC TESTING ASME SA 578:2021 LEVEL C, S1

010	100.00	X3490021678-01	B23-653020-437828/ADE	OMCF-440897	GF1	2	1944	23343	033	033	U
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2

1944

Raahe Steel Works

Täten todistamme, että toimitus on tilau vahvistuksen mukainen.
We hereby certify that the material described above has been tested and complies with the terms of the order confirmation.

Testaus ja tarkastus Testing and Inspection

Minna Valkama

MINNA VALKAMA

Valtuutettu tarkastaja Authorized inspection representative

Yhtiön nimi Company Name: SSAB Europe Oy
Kotipaikka Registered Office: HAMEENLINNA

Osoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLAND

Puhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7



AINESTODISTUS TEST REPORT

ASME SA-20/2021/ASTM A20/2019

2/3

96688K-001

28.08.2023

Tilaja Purchaser
ALFA LAVAL TECHNOLOGIES AB
BOX 74

221 00 LUND SWEDEN

Tilaus nro Order No.

OMCF-440897

Tilauksen vahvistus Order Confirmation

96688K

Vastaanottaja Consignee
ALFA LAVAL TECHNOLOGIES AB
NÖBBELÖVS MOSSAVÄG/GF1

221 00 LUND SWEDEN

Asiakkaan merkki Shipping mark

SECKIN AKGUEL ERBAS

Päivämäärä Date

29.08.2023

AMH

Valmistajan merkki

Mark of the Manufacturer

Laji Grade
SA516 GR 70 MT ZT

Lisävaatimukset Additional requirements

Jatkuvavalettua happiterästä
Oxygen steel, continuous casting

Laatuselvitys Quality Specifications

Fully killed, Fine grain practiced

PRESS.VESSEL STEEL ASME CODE SEC II ED 2021 SA20

N 900C,T=1.1(MIN)XTHICKN(MM)

Pos. Item	Sulatus, kera nro Cast. test No	T-tila Cond	Tensile test													Taivutuskoe Bend test		Huom Nb	Päästö Tempering °C
			K2	°C	RP02 MPa	RT05 MPa	REL MPa	REH MPa	1	RM MPa 2	3	A % 50 80 200	RE / RM	RM * A5	1	RAZ % 2 3	Keskiarvo Average		
010	23343 033	N	J1		316					500			28					61	
			1W															39	
			5W																

K2: J1=BOTTOM,TRANSV. 1W=RAZ %, TOP, A/SA770 5W=RAZ %, BOT, A/SA770

N =NORMALIZED

Raabe Steel Works

Täten todistamme, että toimitus on tilausvahvistuksen mukainen.
We hereby certify that the material described above has been tested and complies with the terms of the order confirmation.

Testaus ja tarkastus Testing and Inspection

MINNA VALKAMA

Valtuutettu tarkastaja Authorized inspection representative

Yhtiön nimi Company Name: SSAB Europe Oy
Kolipaikka Registered Office: HÄMEENLINNAOsoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLANDPuhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7



ANALYYSITODISTUS ANALYSIS CERTIFICATE
ANALYSEBESCHEINIGUNG COMPOSITIO CHIMIQUE CERTIFICAT

3/3

96688K-001

28.08.2023

Sulatus nro Cast No Schmelzen Nr. No de coulén	Koe nro Test No Prüf Nr. Essai No	Positio Item Pos. Poste	Cekv Ceq Câq Cég Cekv	Analyyksi % Chemical composition % Chemisch Zusammensetzung % Composition Chimique % (*=ppm)														Päivämäärä Date Datum Date	
				C	SI	MN	P	S	AL	NB	V	TI	CU	CR	NI	MO	CA	B	
23343		010	.40	.203	.38	1.14	.005	.001	.038	.016	.005	.002	.009	0.03	0.04	.002	.001	.0003	AMH

CEQ=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Raahe Steel Works

Testaus ja tarkastus
Prüfung und Kontrolle

Testing and Inspection
Essais et Contrôle

SSAB Europe Oy, Raahe Steel Works testing laboratories T002 and T010 are accredited by the FINAS accreditation service, accreditation requirement SFS-EN ISO/IEC 17025.

Steel manufactured and supplied by Raahe Steel Works is free from radiation.

MINNA VALKAMA

Valtuutettu tarkastaja
Sachverständiger

Authorized inspection representative
Inspector autorisé

Yhtiön nimi Company Name: SSAB Europe Oy
Kotipaikka Registered Office: HÄMEENLINNA

Osoite Address: PL 93, P.O Box 93
FI-92101 RAAHE, FINLAND

Puhelin Telephone: 020 5911
+358 20 5911

Y-tunnus Business ID: 2389445-7

AL Lund AB TQ-no 1077364 SELLED 2023-08-25



ULTRAÄÄNITARKASTUSPÖYTÄKIRJA / ULTRASONIC TEST REPORT

nro / no 36683



Levy nro / Plate no / Kohde / Object 23343 033	Osalevyt / Part plates / Kpl / Piece 11	Tilaus / Order 34333K / 010	Laatu / Steel grade SA516 GR 70 MT ZT
Levykoko / Size 100.00 x 2000 x 5200	Pinnanlaatu / Surface finish Valssattu / As rolled	Lämpökäsittelytila / Heat treatment --	
Tarkastusohje / Inspection procedure A653	Tarkastusluokka / Inspection class C S1	Tarkastusstandardi / Inspection standard ASME SA-578/ASME SA-578M:2021 Level C S1	
Ultraäänilaite / Ultrasonic equipment KRAUTKRAMER USM 35 No: 4	Luotain / Probe SEB 4 Ø 24 mm 4 MHz	Nro / No 31	Laite ja luotaimet tarkastettu SFS-EN ISO 22232-3 mukaisesti / Equipment and probes checked according to SFS-EN ISO 22232-3
Perusvahvistus [dB] / Calibration gain [dB] 45	Keski alueen tarkastus / The body inspection 100% Tarkastus/Inspection	100 % tarkastetun reuna-alueen leveys/Width of 100 % edge testing -	
Kalibrointi / Calibration Takaseinäkaiku/Back wall echo	Lisävaatimukset / Extra requirements	Huomautus / Notify	
Lisä vahvistus [dB] / Extra gain [dB] 6			
Pinta-alan määrittäminen menetelmä / Method for sizing of discontinuities ASME			
Siirtymiskorjaus [dB] / Transfer correction [dB] -			
Kytkeäaine / Coupling media water			
Tulokset / Results			
Tarkastustulokset / Result of inspection ☒ Hyväksytty / Accepted ☐ Hylätty / Rejected			
Levyyn leimattu UT-luokka / Inspection class stamped on the plate			
Pvm ja paikka / Date and place 07.11.2022 Raahe	Tarkastaja / Inspector Aki Haikola	Allekirjoitus / Signature 	Pätevyys / Competence EN ISO 9712 No.16175-UT2
Pvm ja paikka / Date and place 08.11.2022 Raahe	Hyväksyjä / Acceptor Tuomo Pitkänen	Allekirjoitus / Signature 	Pätevyys / Competence SNT-TC-1A-Level 2 UT

Plate Heat Exchanger Certificate



Page 1(1)

Type	Serial no.	Manufacturing year
TK20-BWFX	AAM1007904	2023
Supplier	Customer	
Alfa Laval Benelux Peter Peeters	Alfa Laval Benelux BV	

Order references and pressure vessel data		Side1	Side2
Suppliers Order No.	P802994 / HX-4025	Design pressure (bar)	-1.0 / 40.0
Manufacturers Order no.	B23-653020	Design temp (C)	0.0 / 100.0
Assembly drawing no.	AAM1007904	Volume (L)	178
		Heat load (kW)	8127
		Heating surface (m²)	103.90
Calculation drawing no.	Type registration no.		
3490015486-7	-		

List of materials			
Article	Material specification	Identification / Heat no.	TQ no.
END CASSETTE 1	EN 10028-7 1.4401/SA240 316	119013	1044316
END CASSETTE 2	EN 10028-7 1.4401/SA240 316	0462984	1046360
STUD BOLT	EN ISO 898-1 8.8/SA193 B7	217437	1068417
STUD BOLT	EN ISO 898-1 8.8/SA193 B7/ADW7	018060	1071409
NUT	EN ISO 898-2 8/SA194 2H	1ECF	1071411
CHANNEL CASSETTE	EN 10028-7 1.4401/SA240 316	2MWM	1073991
END CASSETTE 2	EN 10028-7 1.4401/SA240 316	0468916	1075366
TIGHTENING BOLT	EN ISO 898-2/SA193 B7/10269/SA194 2H	1EVW/1ECF	1076447
TIGHTENING BOLT	EN ISO 898-2/SA193 B7/10269/SA194 2H	1EVW/1ECF	1076448
FRAME PLATE	ASME SA516 70 MT LTV ZT	32194-321	1076772
PRESSURE PLATE BLANK	ASME SA516 70 MT LTV ZT	23343-033	1077364
GASKET	EPDMC	-	-

Pressure test according to procedure K206		Side1	Side2
Test pressure (bar)		52.0	52.0
Hold time (min)		30	30

Manufacturer

Alfa Laval Technologies AB, Sweden 2023-12-05

Quality Control Department

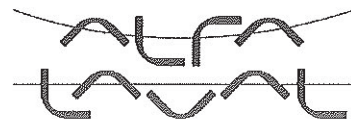
Certification

Design drawing and strength calculation reviewed and approved by the Design Manager of Alfa Laval Technologies AB, Sweden. Review of manufacturing documents, material identification, manufacturing, testing, internal and external inspection has been done in accordance with existing requirements. The result was accepted.

Kel-Gor Q.A. Receiving
Kel-Gor Job No. 24-1001
Verified To ☒ ☒ ☒
Date MAR 20 25
Signed H. H. H.
Kel-Gor Q.A. Receiving
Kel-Gor Job No. _____
Verified To ☐ ☐ ☐
Code _____ Ed. _____
Date _____
Signed _____

Alfa Laval Technologies AB Box 74 SE-221 00 LUND, Sweden www.alfalaval.com VAT number: SE556016864201 Reg. number: 556016-8642 EORI number: SE 5560168642	Telephone +46 46 36 65 00 Telefax +46 46 30 50 90	Bank Giro 689-4638	Bank SE Banken, Stockholm, Sweden BIC code ESSESESS	IBAN code SEK SE48 5000 0000 0594 7100 0297 IBAN code EUR SE09 5000 0000 0594 7820 1794 IBAN code USD SE60 5000 0000 0550 1829 3942
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Plate Heat Exchanger Certificate



Page 1(1)

Type	Serial no.	Manufacturing year
TK20-BWFX	AAM1007905	2023
Supplier	Customer	
Alfa Laval Benelux Peter Peeters	Alfa Laval Benelux BV	

Order references and pressure vessel data		Side1	Side2
Suppliers Order No.	P802994 / HX-4025	Design pressure (bar)	-1.0 / 40.0
Manufacturers Order no.	B23-653020	Design temp (C)	0.0 / 100.0
Assembly drawing no.	AAM1007905	Volume (L)	178
		Heat load (kW)	8127
		Heating surface (m²)	103.90
Calculation drawing no.	Type registration no.		
3490015486-7	-		

List of materials

Article	Material specification	Identification / Heat no.	TQ no.
END CASSETTE 1	EN 10028-7 1.4401/SA240 316	119013	1044316
END CASSETTE 2	EN 10028-7 1.4401/SA240 316	0462984	1046360
STUD BOLT	EN ISO 898-1 8.8/SA193 B7	217437	1068417
STUD BOLT	EN ISO 898-1 8.8/SA193 B7/ADW7	018060	1071409
NUT	EN ISO 898-2 8/SA194 2H	1ECF	1071411
CHANNEL CASSETTE	EN 10028-7 1.4401/SA240 316	2MWM	1073991
END CASSETTE 2	EN 10028-7 1.4401/SA240 316	0468916	1075366
TIGHTENING BOLT	EN ISO 898-2/SA193 B7/10269/SA194 2H	1EVW/1ECF	1076447
TIGHTENING BOLT	EN ISO 898-2/SA193 B7/10269/SA194 2H	1EVW/1ECF	1076448
FRAME PLATE	ASME SA516 70 MT LTV ZT	32194-321	1076772
PRESSURE PLATE BLANK	ASME SA516 70 MT LTV ZT	23343-033	1077364
GASKET	EPDMC	-	-

Pressure test according to procedure K206	Side1	Side2
Test pressure (bar)	52.0	52.0
Hold time (min)	30	30

Manufacturer

Alfa Laval Technologies AB, Sweden 2023-12-05

Quality Control Department

Certification

Design drawing and strength calculation reviewed and approved by the Design Manager of Alfa Laval Technologies AB, Sweden. Review of manufacturing documents, material identification, manufacturing, testing, internal and external inspection has been done in accordance with existing requirements. The result was accepted.

Alfa Laval Technologies AB Box 74 SE-221 00 LUND, Sweden www.alfalaval.com VAT number: SE556016864201 Reg. number: 556016-8642 EORI number: SE 5560168642	Telephone +46 46 36 65 00 Telefax +46 46 30 50 90	Bank Giro 689-4638	Bank SE Banken, Stockholm, Sweden BIC code ESSESESS	IBAN code SEK SE48 5000 0000 0594 7100 0297 IBAN code EUR SE09 5000 0000 0594 7820 1794 IBAN code USD SE60 5000 0000 0550 1829 3942
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AAM1007904

**Alfa Laval, Plate Heat Exchanger
Channel Plate Installation Description**

2023-06-02

Customer: Alfa Laval Benelux BV
Model : TK20-BWFX
Customer PO: 10135540

SU Order No: B23-653020-10
Serial No: AAM1007904 to AAM1007905

Plate material and Thickness: ALLOY 316L 0.80 mm

A Dimension: 827 mm

Grouping:	Hot side 1*125HW	Cold side 1*124HG
Sealing material:	CR Clip-on	EPDMC ClipGrip™
Port Locations:	S4 -> S3	S2 -> S1

Connection material: Stainless steel Stainless steel

Port hole with flow on the gasketed side: U

Port hole sealed with O-ring: O

Plates are assembled with the gasket side facing the pressure plate.

Plate no.	Plate code no.	Plate Pattern	Punched corner of the plate				Flow direction on the gasket side of the plate
			upper left	lower left	lower right	upper right	
			S1	S2	S3	S4	
			=<=	=>=	=>=	=<=	
		FRAME PLATE					
		3350019044	O	O	O	O	
		W	O	O	U --<---	U	Down
1	39512260 63	TK20 BW2 A	U --<---	U	O	O	Up
		W	O	O	U --<---	U	Down
2	39512260 03	TK20 BW2 A	U --<---	U	O	O	Up
		W	O	O	U --<---	U	Down
3	39512260 03	TK20 BW2 A	U --<---	U	O	O	Up
4,	5, ..., 122	39512260 03 TK20 BW2 A					
		W	O	O	U --<---	U	Down
123	39512260 03	TK20 BW2 A	U --<---	U	O	O	Up
		W	O	O	U --<---	U	Down
124	39512260 03	TK20 BW2 A	U --<---	U	O	O	Up
		W	O	O	U --<---	U	Down
125	39512260 96	TK20 BW2 A					
		PRESSURE PLATE					
			T1	T2	T3	T4	

Article No:	Quantity:	Total
3350019044	1	8
39512260 63	1	8
39512260 03	123	984
39512260 96	1	8
	126	1008

Kel-Gor Q.A. Receiving			
Kel-Gor Job No. <u>24-1001</u>			
Verified To	☒	☒	☒
Date	<u>1 MAR 2025</u>	P.O.	Mtis Spec
Signed	<u>IF</u>		
Kel-Gor Q.A. Receiving			
Kel-Gor Job No. _____			
Verified To	☐	☐	☐
Code	_____	Ed.	_____
Date	_____		
Signed	_____		