14th Floor, Centre Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4
Tel.: 416.734.3300
Fax: 416.231.1626
Toll Free: 1.877.682.8772

www.tssa.org

April 04, 2014

SCOTT ISLIP
ROUND ENGINEERING INC
10 SEGWUN RD
WATERDOWN ON L0R 2H8
CA

Service Request Type: BPV-Fitting Registration
Service Request No.: **1368104**
Your Reference No.: GUNTNER 300-0000282905
Registered to: GUNTNER DE MEXICO S.A. DE C.V.

Dear SCOTT ISLIP,

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

CRN No.: 0H16813.5

Main Design No.: Dwg. No. 300-0000282905, Rev. PDM, Generic design - Heat Exchanger for 80 Bar (Max. 140 tube layers x 140 tube heights x 512" long; Headers 1/2" to 4" NPS)

The stamped copy of the approved registration and the invoice are mailed separately. 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 Service Request number provided above.

Yours truly,

Mark Valcic P. Eng.
Engineer BPV
Tel.: 416-734-3494
Fax: 416-231-6183
Email: mvalcic@tssa.org

TECHNICAL STANDARDS & SAFETY AUTHORITY
14th Floor, Centre Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4

Show facsimile of manufacturer's logo or trademark, as it will appear on the fitting, in the space below

GÜNTNER

STATUTORY DECLARATION
Registration of Fittings

I, IAN RUNSEY, V.P. PRODUCT MANAGEMENT
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of GUNTNER DE MEXICO, S.A. DE C.V.
(Name of Manufacturer)

Located at Av. Rogelio Gonzalez Caballero No. 1000, Parque Industrial Stiva Aeropuerto, 66600 Apodaca, N.L., Mexico (81) 81560600 (81) 81560606
(Plant Address) (Telephone No.) (Fax No.)

☑ do solemnly declare that the fittings listed hereunder, which are subject to the ***Technical Standards and Safety Act***, Boilers and Pressure Vessels Regulation, comply with all of the requirements of ASME SECTION VIII-1
(Title of recognized North American Standard)
which specifies the dimensions, materials of construction, pressure/temperature ratings, identification marking the fittings and service;

☐ or are not covered by the provisions of a recognized North American standard and are therefore manufactured to comply with _____ as supported by the attached data which identifies the dimensions, material of construction, pressure/temperature ratings and the basis for such ratings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001 which has been verified by the following authority, TUV-SUD.

The items covered by this declaration, for which I seek registration, are category H Fittings - Heat Exchanger type fittings. In support of this application, the following information and/or test data are attached as follows:
DRAWING 300-0000282905, DESIGN CALCULATIONS
(drawings, calculations, test reports, etc.)

Declared before me at 110 W. Hillcrest Blvd. **in the** state **of** IL

the 26th **day of** November **AD 20** 13.

Commissioner for Oaths:

OFFICIAL SEAL
ANTUANETTA V THORSEN
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:02/02/16

(Printed name)

(Signature) *(Signature of Declarer)*

FOR OFFICE USE ONLY

To the best of my knowledge and belief, the application meets the requirements of the ***Technical Standards and Safety Act***, Boilers and Pressure Vessels Regulation, and CSA Standard B51 and is accepted for registration in Category H1.

CRN: 0H16813.5

Registered by: MARK VALCIC, P.ENG.

Dated: APRIL 4, 2014

NOTE: This registration expires on APRIL 4, 2014

Technical Standards and Safety Authority — Boilers and Pressure Vessels Safety Program

REGISTERED

C.R.N.: 0H16813.5

Signed:

Date: APRIL 4, 2014

PV 09553 (06/04)

BILL OF MATERIALS

POS	DESCRIPTION	IDENT.	MATERIAL	ASME STANDARD
1	HEADER	d1 x s1	STAINLESS STEEL	SA-312-304,304L,316 OR 316L
2	CONNECTION	d2 x s2	STAINLESS STEEL	SA-312-304,304L,316 OR 316L
3a	CORE TUBE OPTION 2	d3 x s3a	STAINLESS STEEL	SA-249-304,304L,316 OR 316L
3b	CORE TUBE OPTION 3	d3 x s3b	STAINLESS STEEL	SA-249-304,304L,316 OR 316L
4a	ELBOW OPTION 2	d3 x s3a	STAINLESS STEEL	SA-249-304,304L,316 OR 316L
4b	ELBOW OPTION 3	d3 x s3b	STAINLESS STEEL	SA-249-304,304L,316 OR 316L
5	HEADER FLAT PLATE	d5 X s5	STAINLESS STEEL	SA-240-304,304L,316 OR 316L
6	CAPILLAR	d6 X s6	STAINLESS STEEL	SA-249-304,304L,316 OR 316L
7	CAPILLAR PLATE	d7 X s7	STAINLESS STEEL	SA-479-304,304L,316 OR 316L
8	DISTRIBUTOR COMPLETE WITH CRN		STAINLESS STEEL	SA-182-304,304L,316 OR 316L
9	DISTRIBUTOR PIPE	d2 x s2	STAINLESS STEEL	SA-312-304,304L,316 OR 316L
10	DISTRIBUTOR FITTINGS	d2 x s2	STAINLESS STEEL	SA-403-304,304L,316 OR 316L

VALUES FOR A IN INCHES (REQUIRED WELD SIZE)

MATERIAL		CONNECTION (d2 OR d3)	HEADER NOMINAL PIPE SIZE (d1) 1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
TYPE 304, 304L SS, 316 SS OR TYPE 316L SS	d3	0.472" X 0.028" (12MM X 0.70MM)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	d3	0.591" X 0.039" (15MM X 1.00MM)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
	d3	0.591" X 0.032" (15MM X 0.80MM)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
	d2	1/2"			0.11	0.11	0.11	0.11	0.11	0.16	0.26
	d2	3/4"				0.12	0.12	0.12	0.13	0.23	0.32
	d2	1"					0.13	0.14	0.14	0.25	0.36
	d2	1-1/4"						0.14	0.14	0.32	0.44
	d2	1-1/2"							0.15	0.15	0.49
	d2	2"								0.32	0.38
	d2	2-1/2"									0.38

NOTE: CORE TUBES(d3) ATTACHED TO HEADER IN ACCORDANCE WITH FIGURE UW-16.1(W-1).

HEADER(1) AND CONNECTION(2) COMBINATIONS AND HEADER FLAT PLATE(5) DETAILS

HEADER (1) d1xs1	MAX CONNECTION SIZE (2) d2xs2	FLAT PLATE MIN. THK. TP (5) d5xs5
1/2" x 0.109"		1.058" x 0.100"
3/4" x 0.113"		1.276" x 0.130"
1" x 0.133"	1/2" x 0.109"	1.581" x 0.160"
1-1/4" x 0.140"	3/4" x 0.113"	1.940" x 0.210"
1-1/2" x 0.145"	1" x 0.133"	2.190" x 0.250"
2" x 0.154"	1-1/4" x 0.140"	2.683" x 0.320"
2-1/2" x 0.203"	1-1/2" x 0.145"	3.281" x 0.380"
3" x 0.216"	2" x 0.154"	3.932" x 0.470"
4" x 0.237"	2-1/2" x 0.203"	4.500" x 0.610"

NOTE: Available connection sizes d2 x s2 are: 1/2" x 0.109", 3/4" x 0.113", 1" x 0.133", 1-1/4" x 0.140", 2" x 0.154", 2-1/2" x 0.203"

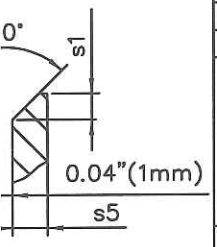
CORE TUBE (3) COMBINATIONS AND DETAILS

d3	s3a	s3b	R3	H
0.472" (12.00mm)	0.028" (0.70mm)		0.689" (17.50mm)	1.378" (35.00mm)
			0.984" (25.00mm)	
			1.575" (40.00mm)	
0.591" (15.00mm)	0.032" (0.80mm)	0.039" (1.00mm)	0.689" (17.50mm)	1.575" (40.00mm)
			0.984" (25.00mm)	

CORE TUBE(3), CAPILLAR(6) AND CAPILLAR PLATE (7) DETAILS

CORE TUBE (3) d3Xs3a	CORE TUBE (3) d3Xs3a	CORE TUBE (3) d3Xs3b	CAPILLAR (6) d6xs6	CAPILLAR PLATE (7) d7xs7
0.472" X 0.028" 12.00MM X 0.70MM			0.157" x 0.039" 4.00MM X 1.00MM	0.416" X 0.197" 10.60MM X 5MM
			0.197" X 0.039" 5.00MM X 1.00MM	
			0.236" X 0.039" 6.00MM X 1.00MM	
	0.591" X 0.032" 15.00MM X 0.80MM		0.157" x 0.039" 4.00MM X 1.00MM	0.527" X 0.197" 13.40MM X 5MM
			0.197" X 0.039" 5.00MM X 1.00MM	
			0.236" X 0.039" 6.00MM X 1.00MM	
		0.591" X 0.039" 15.00MM X 1.00MM	0.157" x 0.039" 4.00MM X 1.00MM	0.513" X 0.197" 13.00MM X 5MM
			0.197" X 0.039" 5.00MM X 1.00MM	
			0.236" X 0.039" 6.00MM X 1.00MM	

DESIGN CODE	ASME SECTION VIII-DIV.1, 2013
MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP)	1160 PSIG (80 BARG)
MAXIMUM ALLOWABLE EXTERNAL PRESSURE (MAEWP)	NONE
MAXIMUM DESIGN METAL TEMPERATURE	284°F (140°C)
MINIMUM DESIGN METAL TEMPERATURE	-148°F (-100°C)
IMPACT TEST	NOT REQUIRED ACCORDING TO UHA-51(D) FOR MATERIALS
CORROSION	ACCORDING TO UG-25(D) CORROSION IS ONLY SUPERFICIAL NATURE
NDE	NONE
HEAT TREATMENT	NONE
HYDROSTATIC TEST PRESSURE	1.3XMAWP = 1509 PSIG (104 BARG)
SERVICE	FOR NON-LETHAL SERVICE
UNIT CONTENTS	ANY REFRIGERANT ACCORDING TO SAFTEY CLASSIFICATION PER ANSI/ASHRAE 34-2001, CO2, NH3



LICENSED PROFESSIONAL ENGINEER
MARCH 3, 2014
D. S. ISLIP
PROVINCE OF ONTARIO

THIS IS PART OF CRN 0H16813.5
Technical Standards & Safety Authority
Boilers & Pressure Vessels
Safety Program

APRIL 4/14

MAX. PRESSURE 80bar 1450psi 1600psi

Descripción	Fecha	Nombre

Es: | Material: | Peso:
Pos.: | Cliente:
Cantidad:
Modelo: Heat Exchanger Stainless Steel for 80 Bar

Güntner de México S.A. de C.V. Parque Ind. Silvo, Apodaca N.L. México, www.guntner.com.mx, Tel. + 52-81818505-00, Fax + 52-81818505-05

	Fecha	Nombre
Dib.:	15.06.2011	emontalvo
Aprb.:		

INTERCAMBIADORES DE CALOR

Dibujo No.: 300-0000282905 | Revisión: PDM
Proy: | Orden: