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Mfr. Representative:

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Date: 05.	Jun	16
Date: O5	Tah	16

# FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

_			-l ·'*	and have		Schrade	er Apparate	bau Gmbl	I, Schleeb	ergstrasse 1	2, Enn	igerloh 5	9320, Ge	rmany		
1.	ivianutact	ured an	a certifi	ed by			di la ser sersa									
2.	Manufact	ured fo				Evonik	Degussa C	orporation	, PO Box	ess of Manufact 868, US-The		AL 3659	0			
					(Name and address of Purchaser) Evonik Corporation, Mobile, 4201 Degussa Road, US-Theodore AL 36582											
				lorizontal					(Name and a					13-01		
4.	Туре			i), vertical, or	sphere)				sel, heat exc	h., etc.)		(P	Vlanufacture		number)	
		n.a.				214-0451-24-	001 Rev_5					10			2015	
		(CRN)				(Drawing n	number)				Nationa	l Board nui	mber)		(Year bui	ilt)
				, Div. 1 _	[Edition and	Edition 2013 Addenda, if appl	licable (date)]			n.a. Case number)					er UG-120(d)]	
						essels, jacke 1						s, or cha 1881	mber of	multicl	namber ve —	essels.
		Course(	_	1		Vlaterial		Thickness	-	Long, Joint (Ca	_	Circum	Joint (Cat. A	, B & C)	Heat Treat	ment
No.	T Diss	neter		ength		Grade or Type	No		_	Trull Coot	Eff.	Туре	Full, Spot, None	_	Temp.	Time
1	-	762.0	_	881		240 316L	8	_	_		0.85	1	spot	0.85	n.a.	n.a.
2	0.0	702,0														
=	-		_				Rody Flanc	es on Shells								
_							Body Flang	jes on Shens					Bolting			
No.	Туре	ID	OD	Flange Thk	Min Hub Thk	Material	I Ho	w Attached	Location	Num & Size	Boltin	ng Material		asher ID, thk)	Washer 1	Materia
n,a,		_					-				+		-			
					1											
7.	Heads: (a	) <u>n.a.</u>	(Mate	rial spec. nur	nber, grade or	type) (H.T. — tir	ne and temp.)		(b)	(Material s	рес. пип	ber, grade	or type) (H.	T. — time	and temp.)	
	T			kness	1	Radius		1	Usmin	Flat		Side to P	ressure		Category A	
	Location ( Bottom, E		Min	Corr.	Crown	Knuckle	Elliptical Ratio	Conical Apex Angle	Hemis, Radius		r C	onvex	Concave	Туре	Full, Spot, None	Eff.
(a)	n.a.	_	-													
(b)	1															
	•						Body Fl	anges on He	ads							
	T	1					Dody						Bolting			
(a)	Location	Туре	ID	OD	Flange Thk	Min Hub Thk	Material	l Ho	w Attached	Num & Size	Bolt	ting Materi		Washer D, ID, thk)	Washer	r Materia
(b)								30,0			RE					
0	Type of ja	ankat			n.a.			lac	ket closu	re			n.a.			
о.	Type of Ja	icket							KGI CIOSUI			Describe a	s ogee and			
	If bar, giv	e dime	nsions					n.a.						ited, de	scribe or	
9.	MAWP -	3,1 ba		1 bar External)	at max. tei	11D	50 °C	250 °C (External)	_ Min.	design meta	al tem	p	-29 °C	at	3,1 b	ar
10.	Impact te		, ,,	External	No, e	xempted as p	per UHA-51	(d)			at test	t temper	ature of		n.a.	
					No.	or no and the co		Proof	toot			r	ı.a.			
				test press				F1001	.651							
				0 316L	ube sectio	OD 762,0			20			0			welded	
12.	Tubeshe	et (Stat		sterial spec. n	o.)] [Diar	neter (subject to	press )]		nal thickness	1)		rr. allow.)		(Attachm	ent (welded o	r bolted
		(5)		.a. erial spec. no	11	n.a. (Diameter)			n.a.		n.	allow)			n.a.	
		IHIO	anno imat													
13	Tubes		213 TP3		1/1	25,4			thickness)			13			straight e (straight or	

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Mfr. Representative: Authorized Inspector:

Date: 05 Jan 16

#### FORM U-1 (Cont'd)

Items 14–18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

Course(s)				Material			Thickness		Lo	Long. Joint (Cat. A) Circu			Joint (Cat. A	, B & C)	Heat Trea	itment	
No. Diameter				Spec./Grade or Type			Nom. Co		Туре	Full, Spot, None	Eff.	Туре	Full, Spot, None	t, Eff	Temp.	Time	
	na																
-			-														
							Body Flan	ges on Shell	5								
	-											-		Bolting		-	
No.	Туре	iD	OD	Flange Thk	Min Hub Thk	Material	Ho	w Attached	Locatio	п	Num & Size	Boltin	g Material	(OD,	asher ID, thk)	Washer	Materi
1	WN	746,0	762,0	137	8	SA-182 F31	6L	welded	Left		24 - 1"	SA-	-193 B7	47 .	26,2	Stainle	ss Ste
2	WN	746,0	762,0	137	8	SA-182 F31	6L	welded	Right	-	24 - 1"	SA	-193 B7	47 ,	26,2	Stainle	ss Stee
5. H	leads: (a	)			n.a.				(b)					ı.a.			
			(Mater	rial spec. пил	ber, grade, or t	ype) (H.T. — tim	e and temp	)			(Material sp	ec, num	nber, grade	e, or type) (F	I.T. — tim	and temp.	
	Location (Top,		Thic	Thickness Radius			Elliptical	Elliptical Conical Hemis.	nis.	Flat	Side to Pressure			Category			
	Bottom, E		Min,	Corr.	Crown	Knuckle	Ratio	Apex Ang		lius	Diameter	C	опуех	Concave	Туре	Full, Spo None	t, Eff.
(a)																	+
(b)					1		1			-		_				1	
							Body F	anges on He	ads								
			11							-		1		Bolting	Vasher		_
	Location	Type	ID	OD	Flange Thk M	1in Hub Thk	Materia	) Ho	w Attache	bs	Num & Size	Bolti	ing Materia		, ID, thk)	Washe	r Mater
(a)										+		-			_	_	_
(b)		1				050.00		050.80					20		_	10,3 ba	
6. N	1AWP _	(Internal)		0 bar a	t max. temp	O. 250 °C		250 °C (External)	Min.	desig	gn metal te	mp	-23	, 0	_ at	10,0 00	
7 In	npact tes	t				mpted as pe					a	test 1	tempera	ture of		n.a.	
				[]	ndicate yes or r	o and the comp	onent(s) im	pact tested)					n	.a.			
					rer	nydro.: 20,3 b	Jai	_ Proof to	est				- "	.a.			
_	Purpose	napectic			70 Openings	Mat	erial	Nozzle Thickn		nickne	ess Reinfo	rcemen	, A	Attachment I	Details	Loca	ation
	let, Outlet, Irain, etc.)	,		ameter or Size	Туре	Nozzle	Fla	nge	Nom.	Co		terial	No		Flange	1	Open.)
														40.44			

Purpose		Diameter		Mate	Nozzle Thickness		Reinforcement	Attachment Details		Location	
(Inlet, Outlet, Drain, etc.)	No.	or Size	Туре	Nozzle	Flange	Nom.	Corr.	Material	Nozzle	Flange	(Insp. Open.)
inlet A2 ; Outlet B3	2	NPS 4	#150	SA-312 TP316L	SA-182 F316L	6,02	0	SA-240 316L	UW-16.1(k	Wld.	
Outlet B2	1	NPS 1	#150	SA-312 TP316L	SA-182 F316L	3,38	0	Integral	UW-16.1(c	Wld.	
Outlet B1	1	NPS 1 1/2	#150	SA-312 TP316L	SA-182 F316L	3,68	0	Integral	UW-16.1(c	Wld.	
Drain D1 ; Vent V1	2	NPS 1	#150	SA-312 TP316L	SA-182 F316L	3,38	0	Integral	UW-16.1(k	Wld	
T1	1	NPS 1 1/2	#150	SA-312 TP316L	SA-182 F316L	3,68	0	Integral	UW-16.1(c	Wld.	
Z1	1	NPS 48	#150	SA-240 316L	SA-182 F316L	10,0	0	Integral	UW-16.1(c	Wld	12-1
Z2	1	NPS 6	#150	SA-312 TP316L	SA-182 F316L	7,11	0	Integral	UW-16.1(c	Wld.	

20. Supports: Skirt No (Yes or no) Lugs 4 (Number) Legs n.a. (Number) Others 2 x Saddle Supports Attached Welded to shell and flanges (Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report (list the name of part, item number, Manufacturer's name, and identifying number):

n.a.

#### 22. Remarks

For non-corrosive service only. Safety valve is not in scope of supply of Schrader. All units are in [mm] unless otherwise stated. Spot RT performed according to UW-11(b) and UW-11(a)(5)(b) (RT4). E Shell = 0,85. No PWHT required. Impact testing exempted as per UHA-51(d).

National Board Number:

Mfr. Representative: \_\_\_\_\_\_
Authorized Inspector: \_\_\_\_

Date: 05 Jun 16

#### FORM U-1 (Cont'd)

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 vessel
conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.
U Certificate of Authorization Number U - 51,435 Expires Sept. 11, 2018
Date Jun 05.16 Name Schrader Apparation amb V Signed (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  TÜV NORD Systems GmbH & Co. KG  of Essen, Germany
have inspected the pressure vessel described in this Manufacturer's Data Report on
state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel 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 pressure vessel 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 properly damage or a loss of any kind arising from or connected with this inspection.
Date Jan. 05, 2016 Signed Commissions NB #15644 / A  (National Board (incl. endorsements))
CERTIFICATÉ 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 Number Expires
Date Name Signed(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 pressure vessel
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 and assembled this pressure vessel in accordance
with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydro-
static test of By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or
implied, concerning the pressure vessel 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

## 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

Manufactured and c	ertified bySc	hrader Apparatebau GmbH, Schleeberg	strasse 12, Ennigerion 59320, Germ	any
		(Name and address		
Manufactured for	E	ronik Degussa Corporation, PO Box 868		
	F:-	(Name and address of Purct onik Corporation, Mobile, 4201 Degussa		
Location of installat	ionEv	Onlik Corporation, Wobile, 4201 Degussa (Name and addre		
			10913	04
Туре	horizontal	Heat exchanger (Tank, separator, heat exch., etc.)	(Manufacturer's	
(Но	rizontal, vertical, or sphere)			
n.a.		51-24-001 R, 5	10	2015
(CRN)	(Dra	wing number)	(National Board number)	(Year built)
Data Report Item Number		Remarks		
19	Nozzle P1 ; No. 1 ; NPS 3 ; #150 ;	Material - Nozzle : SA-312 TP316L ; Material	- Flange : SA-182 F316L ; Nozzle Thickn	ess: 5,49 mm; Corr
		Attachment Detail : Nozzle UW-16.1(c) , Flan		
				ana : 3 01 mm : Corr
		Material - Nozzle : SA-312 TP316L ; Material		ess . 3,81 mm ; Com
	Reinforcement Material : Integral ;	Attachment Detail : Nozzle UW-16_1(c) , Flan	ge welded ; Location : -	
	-			
			a a	
	-			
	-			
	- /			
		51.425	September 1	1 2018
ificate of Authorizati	on: TypeNo	o 51,435 Ex	pires	1, 2016
11	-1 - 1	11-10-10	LaN1	
05, Jan 66 N	ame Schlupp  (Authorize	aralebour Gusb 14	Signed	
0	11	(Manufacturer)	Y/ (Repr	esentative)
16 7. 16	(11)	TOV MORD	100 1100 111	10
IN VILLED M	ame Schulpp	Commis	ssions <u>VB # 15644</u> [National Board (incl. e	11

### FORM U-5 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET

SHELL-AND-TUBE HEAT EXCHANGERS
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

Manufactured ar	nd certified by	50	naver Apparate	suau Gilibiri, Schi	eenerysii asse	12, Ennigerloh 5	oozo, comiany
. Manufactured fo	г	E	vonik Degussa			acturer) heodore AL 3659	0
		Ev	onik Corporatio			US-Theodore AL	36582
. Location of insta	llation				and address)		
. Type	Horizontal			0913-01		-	n.a.
(Horiz	ontal, vertical, or sph		(Manufact	urer's serial number)			(CRN)
	I-24-001 Rev. 5 wing number)			(National Board numb	or)	_	2015 (Year built)
(Drai	wing number)						11000 00007
			D SHELL-AND-1	UBE HEAT EXCHA	INGER DATA		
	Design/Oper Rai	ating Pressure nges	Max	rimum Design/Operat	ing Metal Tempera	ature	Axial Differential Therma
Name of Condition	Shell Side (min./max.)	Tube Side (min_/max.)	Shell	Channel	Tubes	Tubesheet	Expansion Range (min./max.)
	(units)	(units)	(units)	(units)	(units)	(units)	(units)
Design	-1 / +3,1 bar	-1 / +10,3 bar	250 °C	250 °C	250 °C	250 °C	0
						-	
ata Report Item Nu	ımber			Re	emarks		
	-						
artificate of Acat	ization: Time	U	No	51,485	Expires	Se	ptember 11, 2018
ertificate of Author			No.		11	1	001/
ate OS-Jan 16	Name Sc	hiader A	Protule (Manufactured)	boy Grant	Si Si	gned	(Representative)
05 Jan 16	Name Sch	1000	TOVNORD	a) h		NB# 156	64/1
ate 05 Jan 16	Name John	rapp.	7	/_/	Commissions	100 110	