

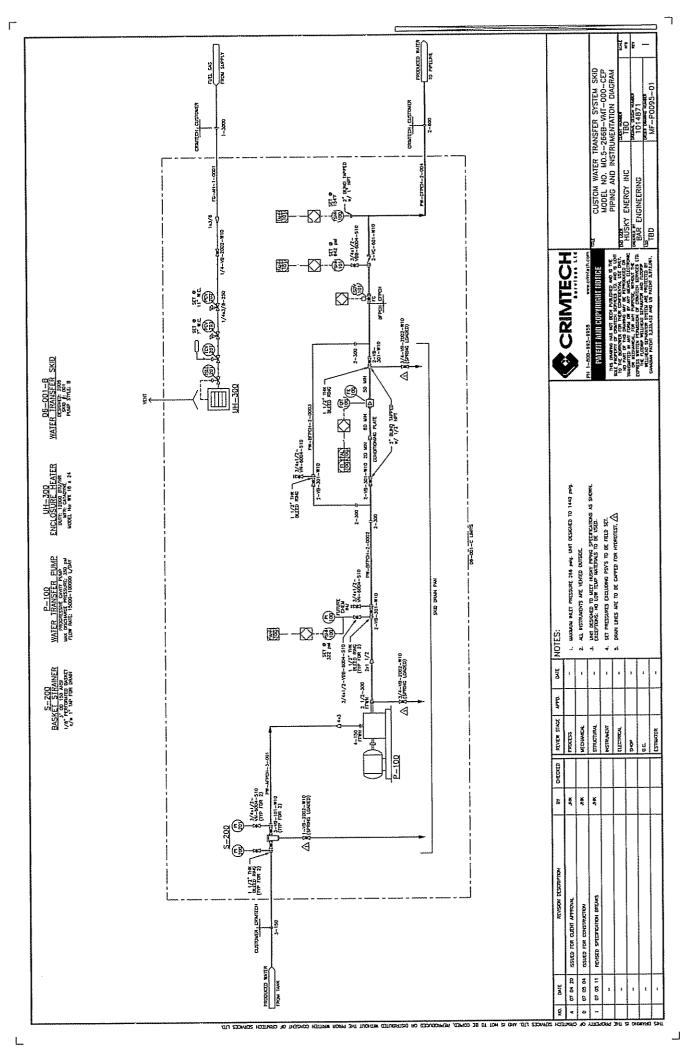
Quality Control Manual

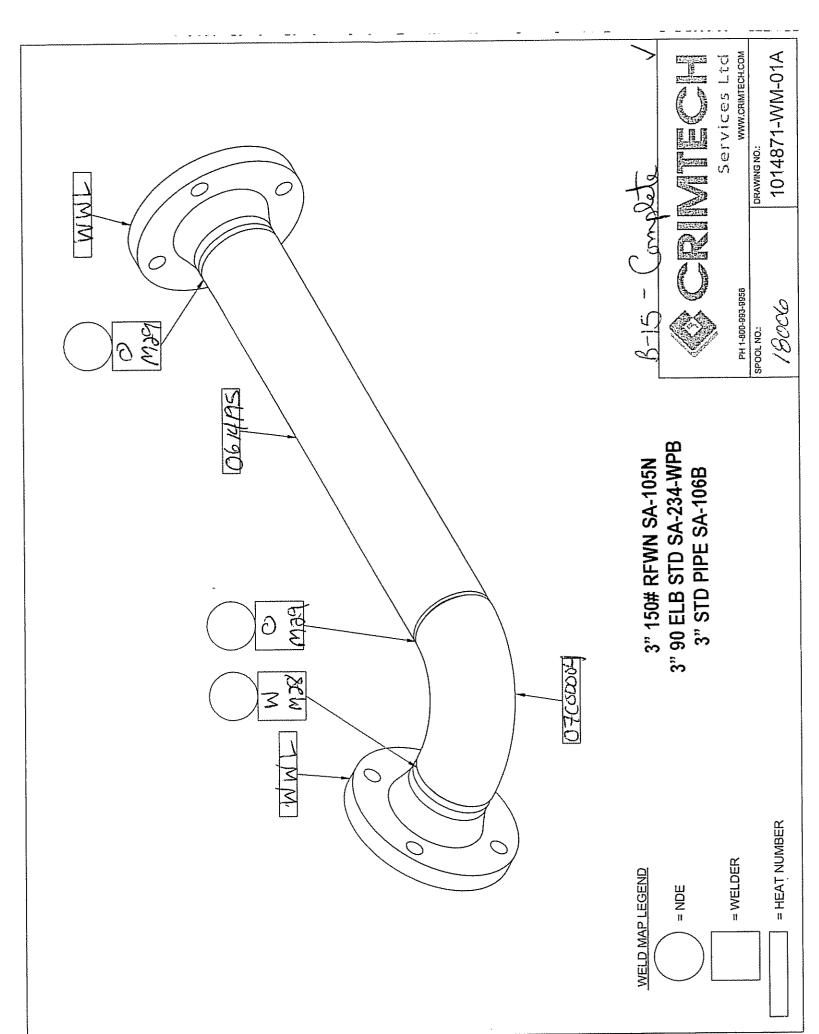
For Model MO.5-266B-VMT-000-CEP S/N: CSN10488 Husky Energy Inc. Project No: P0095

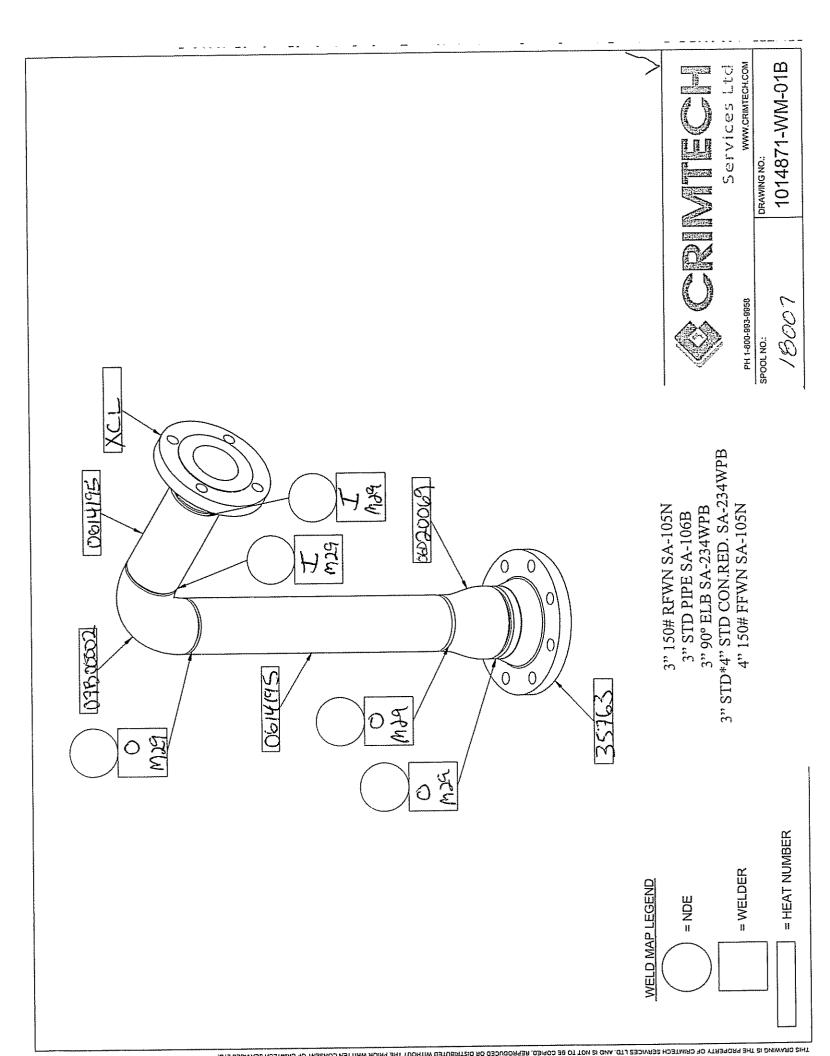
> Crimtech Services Ltd. #45, 27429 Township Road 374 Red Deer County, Alberta T4S 2H4

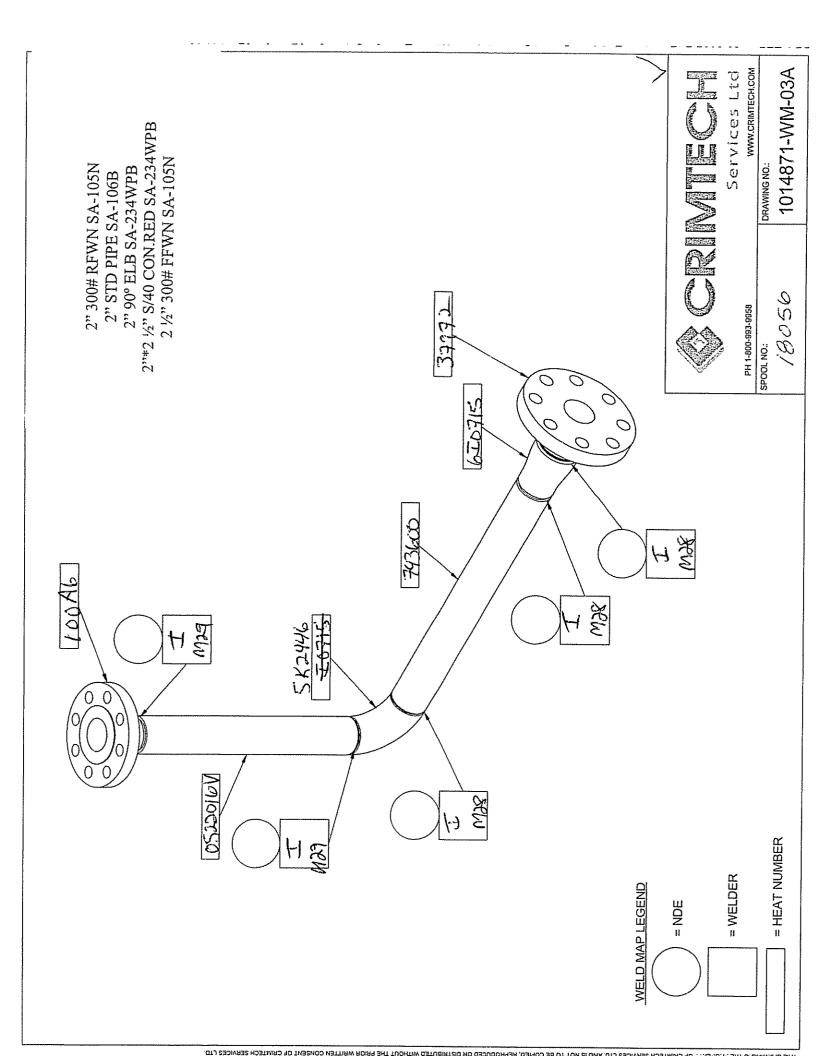
Phone No. (403) 342-7579

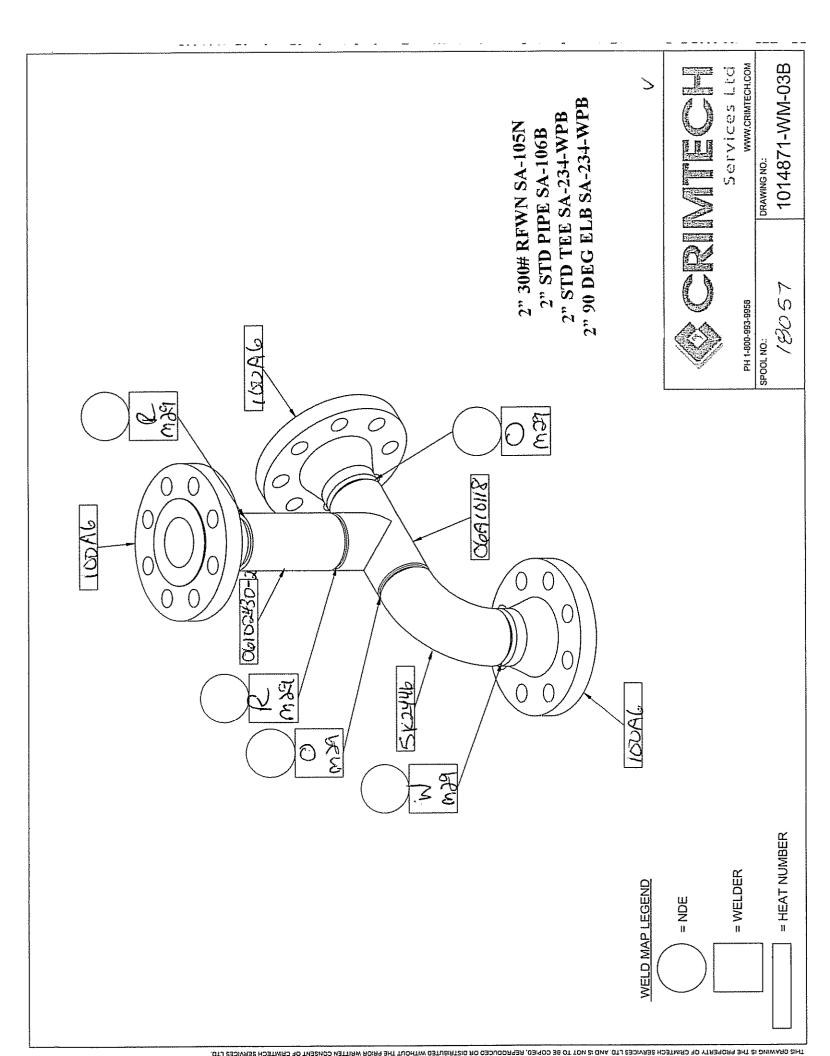
Fax. No. (403) 342-6929

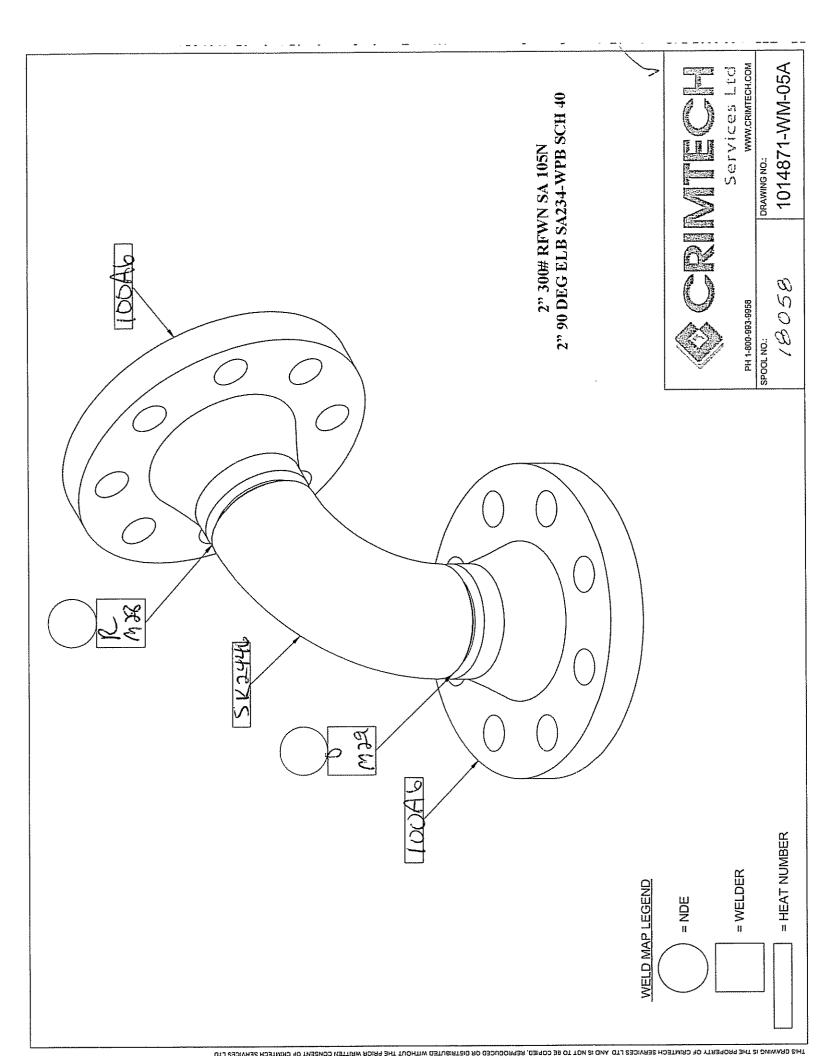


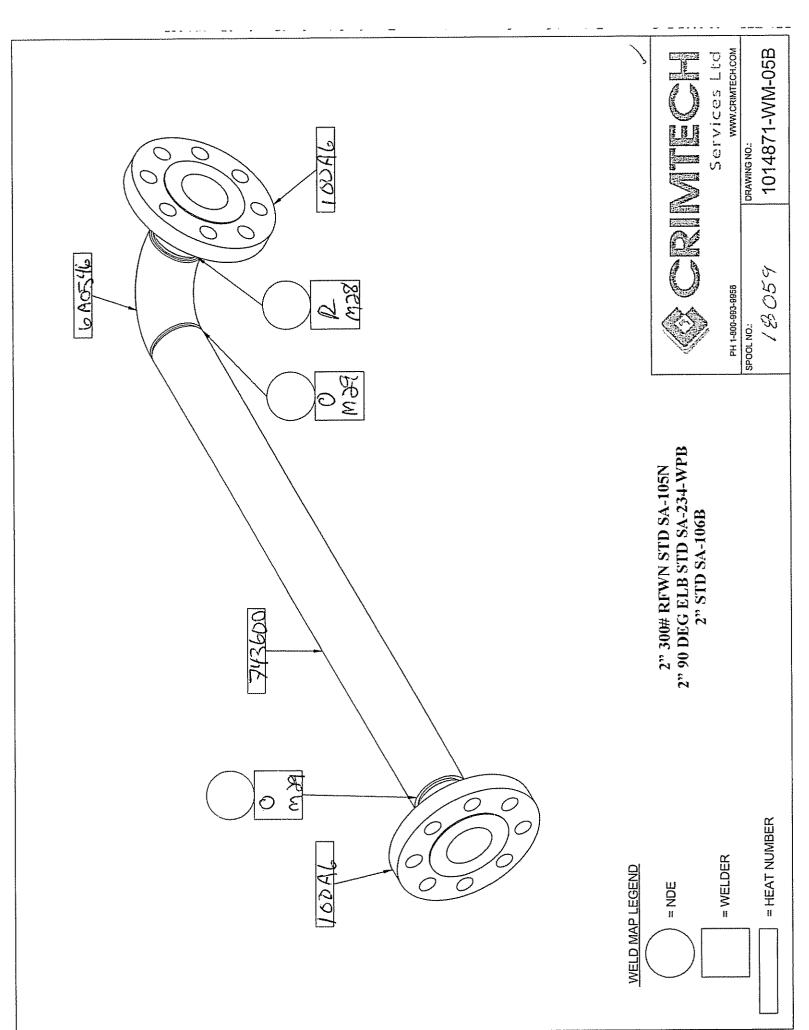


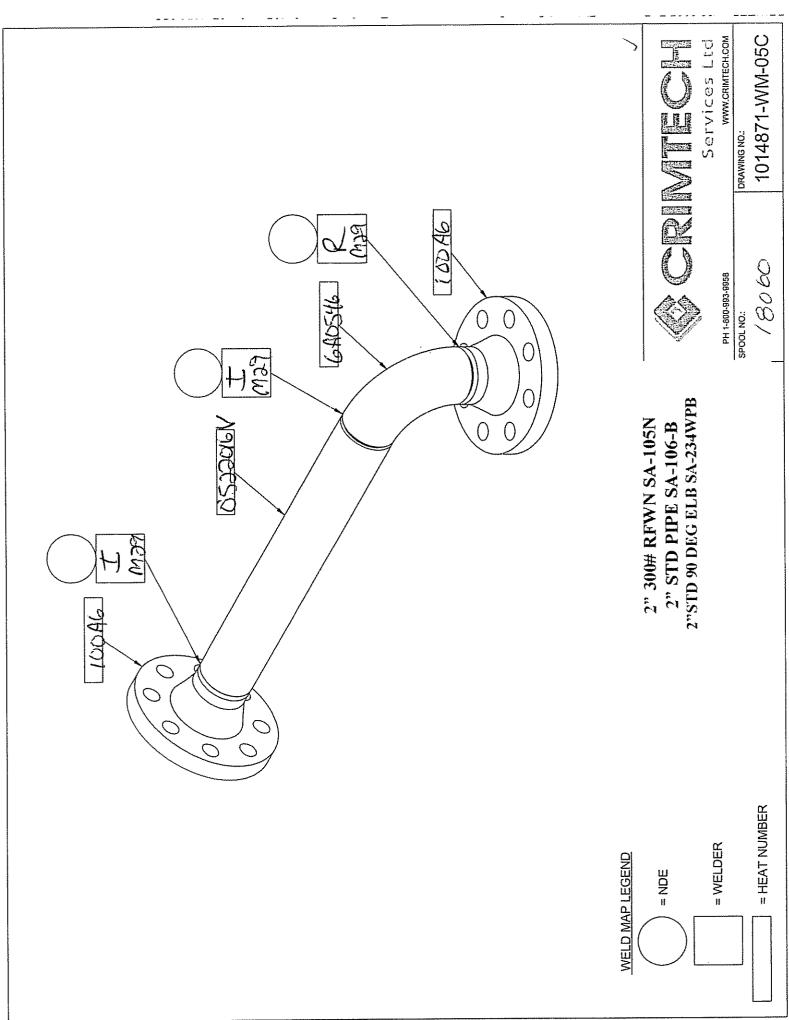


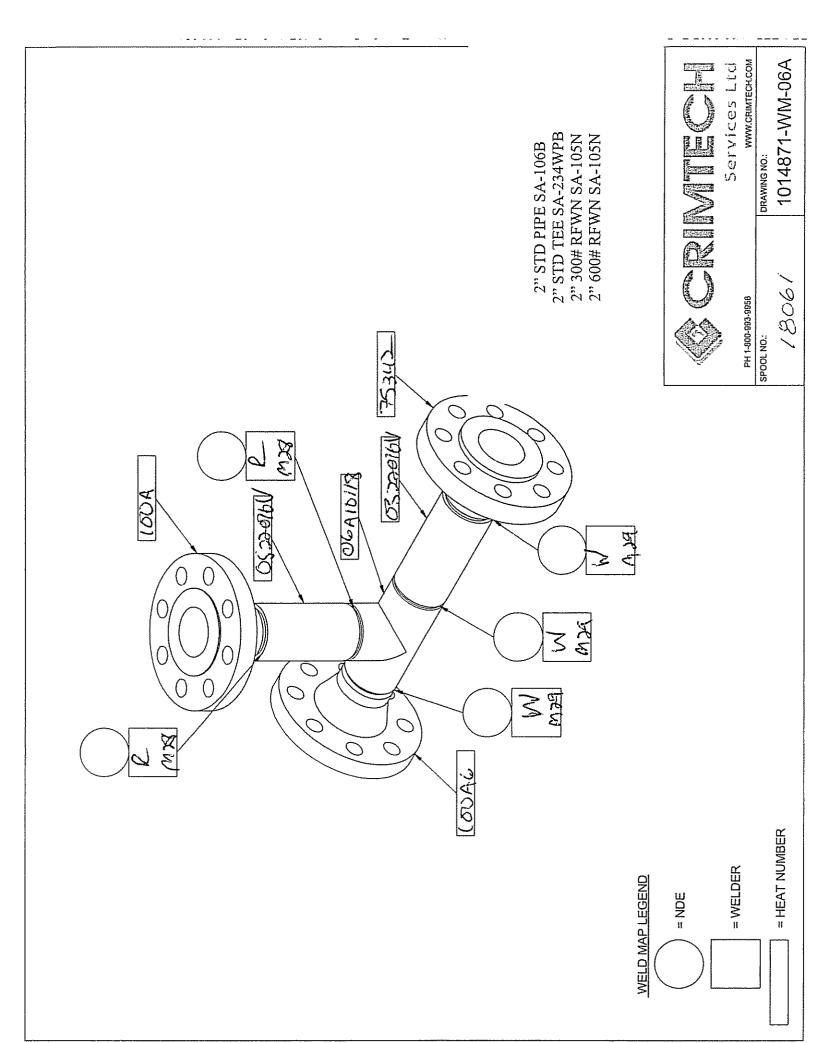












WWW.CRIMTECH.COM 1014871-WM-06B

Services Ltd

18126

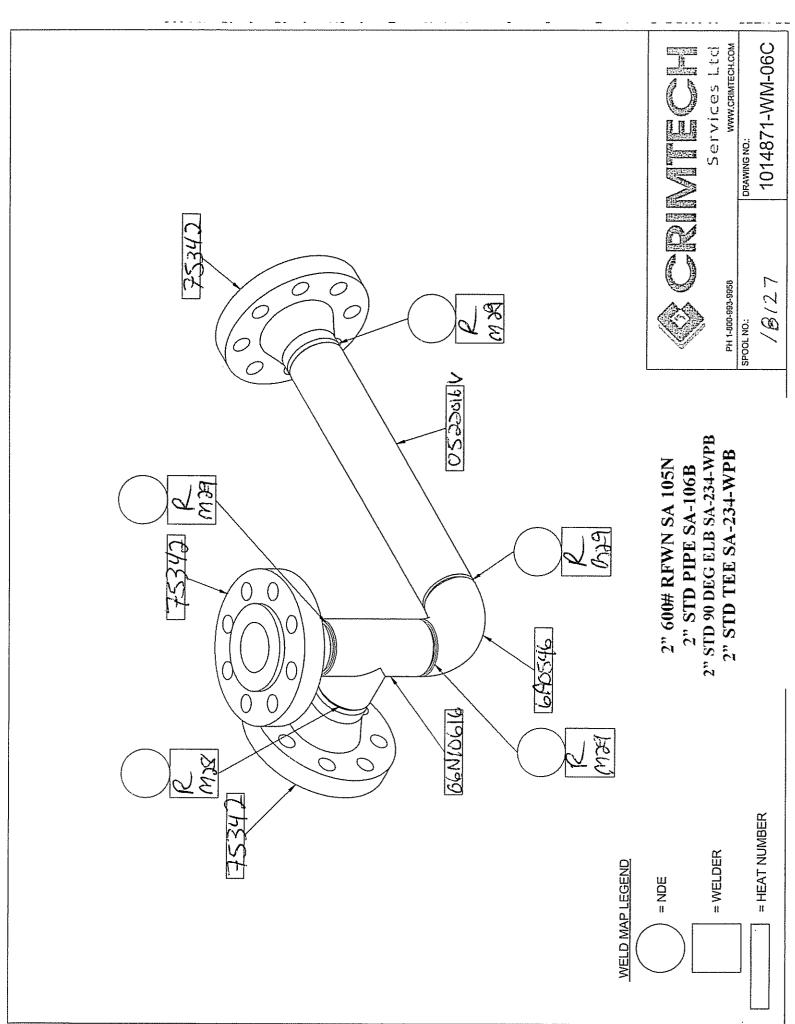
PH 1-600-993-9958 SPOOL NO.:

2"600# RFWN SA-105N 2" STD PIPE SA-106B SS W

> = WELDER = NDE

WELD MAP LEGEND

= HEAT NUMBER



orm # QCF216 Revision: 0

CRIMTECH SERVICES LTD. PNEUMATIC TEST REPORT



CSN 10488

Client:	Husky Energy Inc	_ Date:	July 5, 2007			
Project:	P0095					
Description of	Product: Fuel gas piping a	ıs per draeing	1014871-PS-09 Rev.1			
Test Medium:	Air/ Nitrogen	NAMES				
Test Pressure:	165 psi					
Hold Time at T	est Pressure: 15 minutes	minimum				
Crimtech Qual	ity Control Inspector:	Damb	l.			
Client Represe	entative:	3				
Comments:	All connections were spraye	ed with a water	soap solution. There were no visible			
leaks at time of test. All functions correct.						

Preformed by:	Crimtech Services Ltd.	Date:	June 1, 2007
Project Name:	Water Transfer systems	Location of Installation:	Unknown
Design Code :	CSA Z662	Test Pressure :	428 psi
Gauge SN:	CT-1000	Chart Recorder SN:	DOBEC-883847
Test Start Time	AM PM	Test finish Time	AM PM
Description of tested	items:		
Work order Number:	310359		
Spool Serial Number	rs:		
18009 18011 18005 18013 18003 18001 18007 18012 18008 18010 18006 18000 18002 18004			
			Batch 9-15

Crimtech QC representative Client representative Signature Date Date Date

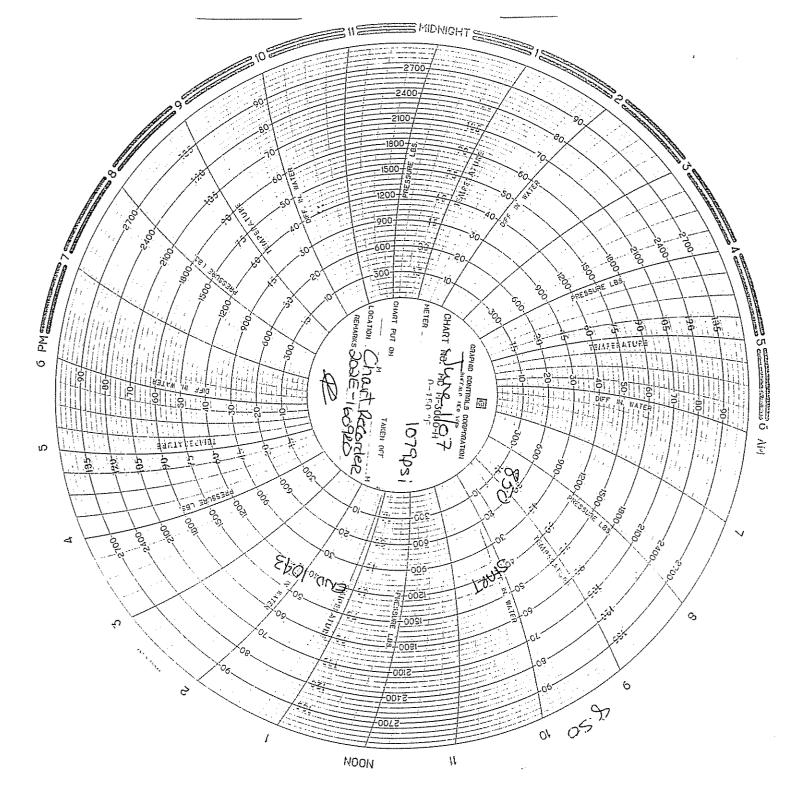
Preformed by:	Crimtech Services Ltd.	Date:	June 1, 2007
Project Name:	Water Transfer systems	Location of Installation:	Unknown
Design Code :	CSA Z662	Test Pressure :	1079 psi
Gauge SN:	203CA1-2-1 203C41-2-3	Chart Recorder SN:	202E-160920
Test Start Time	AM PM	Test finish Time	AM PM
Description of tested	items:		
·			
Work order Number:	310359		
Spool Serial Number	·s:	10054	
18076		18051 18055	
18073		18050	
18074 18068		18062	
18075		18053	
18063		18059	
18038		18043	
18044		18057	
18046		18042	
18071		18045	
18072		18040	
18078		18039	
18079		18060	
18054		18058	
18065		18047	
18077		18041	
18069		18049 18048	
18067 18070		18052	
18066		18061	
18064		18056	
1000			
		Batch 9-15	

Crimtech QC representative Client

representative

Signature

Signature



Preformed by:	Crimtech Services Ltd.	Date:	June 1 2007		
Project Name:	Water Transfer systems	Location of Installation:	Unknown		
Design Code :	CSA Z662	Test Pressure :	2160 psi		
Gauge SN:	E 4 386	Chart Recorder SN:	JUNE - 032838		
Test Start Time	AM PM	Test finish Time	AM PM		

Description of tested items:

Work order Number: 310359

Spool Serial Numbers:

18133

18132

18125

18125

18128

18123

18122 18126

18129

18124

18131

18127

18120

18130

Batch 9-15

Crimtech QC representative Client

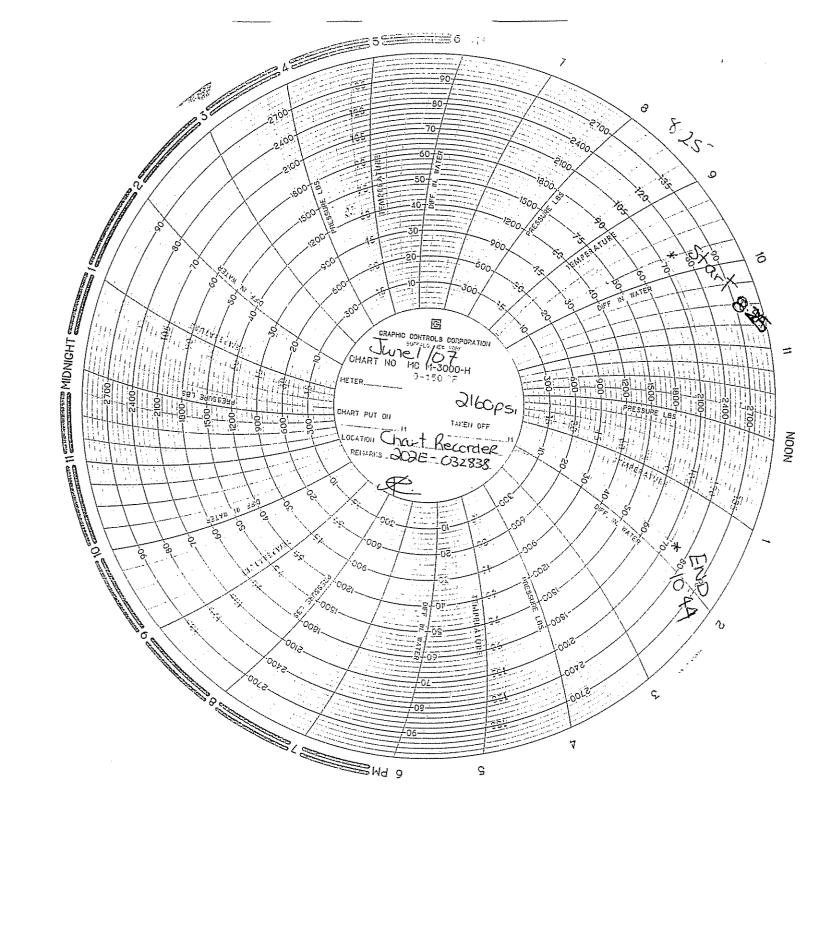
representative

Signature XLa Comocy

Signature

Date Jurel (17)

Date per 1/0)



Preformed by:	Crimtech Services Ltd.	Date:	June 14, 2007
Project Name:	Water Transfer systems		Unknown
Design Code :	CSA Z662	Test Pressure :	428 psi
Gauge SN:	CT-1001	Chart Recorder SN:	202EC 883847
Test Start Time	AM PM	Test finish Time	AM PM

Description of tested items:

Work order Number: Piping as per drawings 1014871-PS-02 Rev. 1

Batch 1 - 15/ CSN10474 - CSN10488

Crimtech QC representative Client

representative

Signature

Signature Kula Contra

Preformed by:	Crimtech Services Ltd.	Date:	July 4, 2007		
Project Name:	Water Transfer systems	Location of Installation:	Unknown		
Design Code :	CSA Z662	Test Pressure :	1079 psi		
Gauge SN:	203041-2-1	Chart Recorder SN:	202E 032838		
Test Start Time	830 AM)PM	Test finish Time	12:30 AMPM		

Description of tested items:

Work order Number: Piping as per drawings 1014871-PS-04 Rev. 2

Batch 1 - 15/ CSN10474 - CSN10488

Crimtech QC representative Client representative

Kyla Conroy

Signature /

Signature

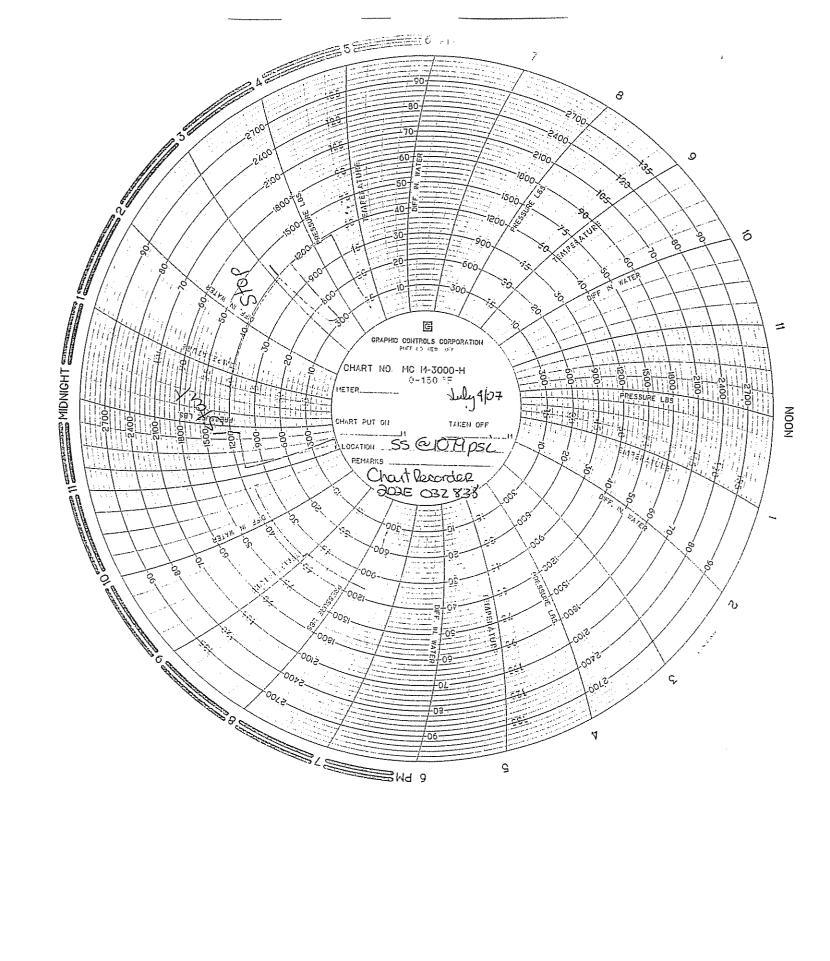
\/Date

July 4, 2007

Date

July 4, 2007

CSN-10474-10488



Preformed by:	Crimtech Services Ltd.	Date:	June 14, 2007
Project Name:	Water Transfer systems	Location of Installation:	Unknown
Design Code :	CSA Z662	Test Pressure :	1079 psi
Gauge SN:	203041-2-3	Chart Recorder SN:	202E 160920
Test Start Time	AM PM	Test finish Time	AM PM

Description of tested items:

Work order Number: Piping as per drawings 1014871-PS-07 Rev. 1 & 104871-PS-08 Rev. 1

Batch 1 - 15/ CSN10474 - CSN10488

Crimtech QC representative Client representative

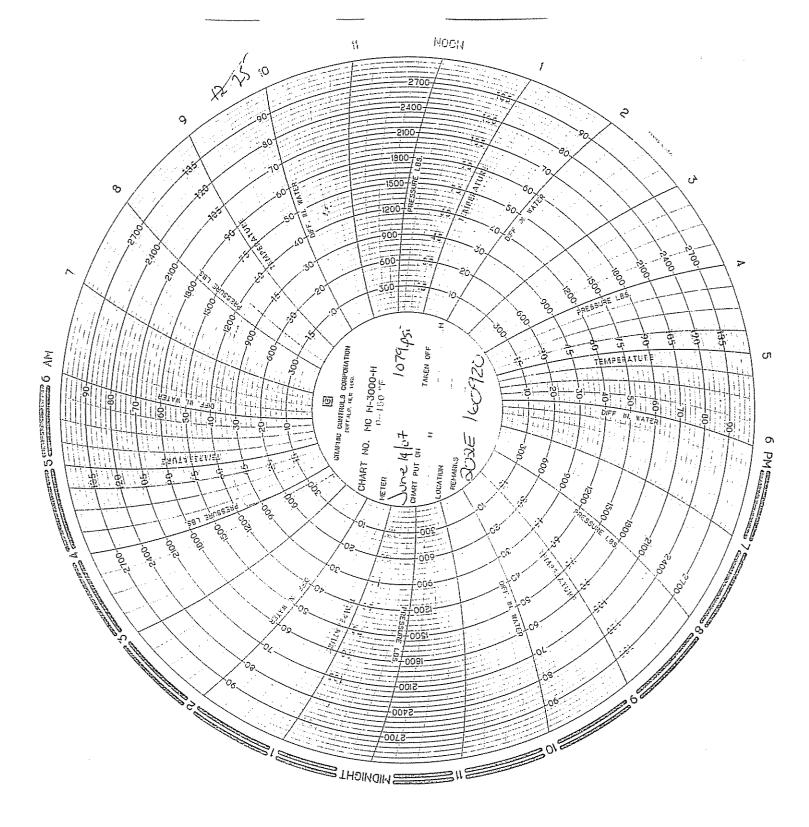
____ Signature 🗡

KEVIN FLOOTUS Signature

Data

7

Date Aue





RADIOGRAPHY INSPECTION REPORT

Date: MAY- 22-2007	ASSORTED FABRICATION	Page: / of							
CLIENT: (RIMTFCH ECHO JOB #:									
CONTRACTOR: AS Above.									
	YARD. PROJECT: -								
CLIENT JOB # (P.O., Job #, AFE, etc.):	NO# 310359								
MATERIAL: P CODE(S)	: CSA 7662-133 Sweet								
SOURCE Ir 192 Size 3 2 mm SCREENS	IS: 0010 Pb F & B FILM: FUJ. & SFD: 2 TY STRIP ACCURACY: CAL D.	.375 OFD: , , 54 SOD: 2-221							
VERIFIED DENSITOMETER / DENSIT		ATE: 34.5 1216 3.224 4.263							
IP - Incomplete Penetration BT - Burn Throi		1 - Slight WS - Welder Symbol							
LF - Lack of Fusion S - Slag CK - Crack P - Porosity	IC - Internal Concavity HL - High / Low IUC - Internal Undercut EUC - External Undercut	2 - Moderate ACC - Accept							
V - Visual Inspection	T - Technique (See Back) O - Other INTERPRETATIONS								
FILM# SIZE SCH WS T	the facility of the control of the second of	; SM COMMENTS ACC REJ							
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	181								
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6 6 3 STD R	2024 179								
7 7 7 2" 500 1	1811								
8 8 2" Sm A	180								
9 1 9 2" STD A	186	17							
10 X10 3" STO R	179	96							
11 1 2" 572 12	1810	05 /							
12 2 Srn 13	1810	05/11/11/11/11/11/11/11/11/11/11							
13 3 3 570 1	10/6 180								
14 4 2" 576 A		05							
15 5 2" STD A	10910 1810	,5							
16 V 6 4" 570 W	179								
17 x 17 3" STO W	179								
18 V 5 3" 5m 1		98							
19 x-19 2" 510 A	180								
<u> </u>	1021/2/26 179								
WELD or FILM QUANTITY	JULIAN LOMOND	Regular Hours							
11 X 2"Wein's	Overtime Hours								
CGSB#9584 CGSBRTII Sub/Man Day —									
I X 4" WCID'S SNT-TC-1A RT II/MT II Kilometers									
Clical Representative:	Technician:	Assistant: Dicks = \$561.00							
	Esta NIDE In Day Dear Alberta								

Phone: (403) 347-7042 • Fax: (403) 347-7052 • echonde@telus.net



RADIOGRAPHY INSPECTION REPORT

Date:	MA	Уá	14/	01	<i></i>			***************************************	\leq	<u>6</u>	62)	51	000	24/	NG	/ 7.			Pa	ge:	of	α	
CLIE	VT:	CRI	MIE	EC	H		SE.	RI	110	E	5									ECHO JOB #:				
Date: MAY 24/07 Z662 SPOOLING. Page: of 2 CLIENT: CRIMTECH SERVICES ECHO JOB #: CONTRACTOR: AS ABOVE																								
LOCATION: RED DEER SHOP. PROJECT:																								
CLIE	NT JOB #	(P.O., .)	lob #, A	FΕ, e	(c.)	: <i>t</i>	Jo	#	310	13	3	9												
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CK - C V - Vist	rack ual Inspectio	n	- "1 	Porosi	()	o de la compania de	90.AP.				(See	ercut Back)	`	mark and the	0 -	Other		al Undercut	3 - Severe	REJ - Re	ject		
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8	28			A												٠			18099	FILM MARIL Q	Gen.		/	
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18	38			A		***************************************													18100					
19	39			u)														18093			$\overline{}$	•	
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W	ELD or	FILM	QUAN	TITY	7							S	ľΑΝ	1P						Regular Hours	6	 	1	
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2	-4	"W	ELDS	<u> </u>					(CG	SB	R	П	7 N	иΤΙ	I				Sub / Man Day				
								\$	SN	T-T	`C-:	lA	R	TII	/ N	1TI	J.		<u> </u>	Kilometers				
Client Representative: Technician: Assistant:																								
DANNY J.																								

Echo NDE Inc., Red Deer, Alberta
Phone: (403) 347-7042 • Fax: (403) 347-7052 • echonde@telus.net



RADIOGRAPHY INSPECTION REPORT Date: MAY 2662 SpooLING of 2Page: CLIENT: SERVICES ECHO JOB #: CONTRACTOR: LOCATION: PROJECT: CLIENT JOB # (P.O., Job #, AFE, etc.): MATERIAL: CODE(S): SOURCE Ir 192 | Size 3 2 mm SCREENS: 0.010" Pb F & B FILM: FUT 80 SFD: CONTACT OFD: SOD: -VERIFIED DENSITOMETER / DENSITY STRIP ACCURACY: 0 CAL. DATE: ABBRIEVIATIONS IP - Incomplete Penetration BT - Burn Through S - Slag P - Porosity EP - Excess Penetration LC - Low Cover HL - High / Low 1 - Slight WS - Welder Symbol LF - Lack of Fusion IC - Internal Concavity 2 - Moderate ACC - Accept REJ - Reject CK - Crack V - Visual Inspection IUC - Internal Undercut EUC - External Undercut 3 - Severe T - Technique (See Back) O - Other INTERPRETATIONS: FILM# WS T IP LF CK P S BT EP IC LCHL IUC EUC O SIZE SCH # COMMENTS ACC REI W 1 R 2 3 4 5 6 7 8 Α 9 10 0 11 12 0 13 14 15 16 17 18 19 STAMP WELD or FILM QUANTITY Regular Hours GORD BOS #11303 **Overtime Hours** CGSB RTII/MTII SEE Pla. Sub / Man Day SNT-TC-1A RTII/MTII Kilometers Cliem Representative: Technician: Assistant:

Echo NDE Inc., Red Deer, Alberta

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RADIOGRAPHY INSPECTION REPORT

Date: MAY 25,2007		Page: of								
CLIENT: CRIMTECH		ECHO JOB #:								
CONTRACTOR: SAME AS ABOVE										
LOCATION: RED DEER SHOP PROJECT: ASSORTED PIPING										
CLIENT JOB # (PO, Job #, AFE, etc.): $\omega 0^{\#} 3/03.59$ SF0: $\omega \nu \tau \alpha c \tau$										
MATERIAL: (.5, CODE(S): (S	A 2662-03 SWEET SED 2375	OFP: -154" SOP: 2.221"								
SOURCE IT 192 Size 3 2 min SCREENS: 0 010 Pb F & B FILM: FUSI SO SFD 3.5 OFD: 216 SOD: 3.28										
VERIFIED DENSITOMETER / DENSITY ST										
	ABBRIEVIATIONS	1 - Slight WS - Welder Symbol								
IP - Incomplete Penetration LF - Lack of Fusion CK - Crack BT - Burn Through S - Slag P - Porosity	EP - Excess Penetration LC - Low Cover IC - Internal Concavity HL - High / Low IUC - Internal Undercut EUC - External Undercut	2 - Moderate ACC - Accept 3 - Severe REJ - Reject								
V - Visual Inspection	T - Technique (See Back) O - Other INTERPRETATIONS									
FILM# SIZE SCH WS T IP I	FCK P S BT EP IC LC HL IUC EUC O SPOOL	COMMENTS ACC REJ								
		COMMENTO								
	15051 513cm 15081									
	18069 18069 18069									
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8 X62	61,3-5,6-8,11-12,11-12,14-21 cm 18011 6717-1670 18011									
9 Xò3 4,"	15011									
10 X 69 2" 0	15/30									
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20	STAMP	· · · · · · · · · · · · · · · · · · ·								
WELD or FILM QUANTITY	DAVID HERNANDEZ # 11988	Regular Hours 4 HRS								
6 2 WELD	CGSB RT II / MT II	Overtime Hours —								
4 3 WELD	SNT - TC - IA RT II / MT II	Sub / Man Day								
Client Representative Techni	cian: Assistant:	Kilometers — EST COST 3								
Lest bours s	A Land A Library	EST WST: IN DKKS \$516°+457								

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RADIOGRAPHY INSPECTION REPORT

Date: MAY 29/07	Page: / of 2							
CLIENT: CRIMTECH SI	ASS'T FABRICATION ERVICES LTD.	есно JOB #: <i>0366</i>						
CONTRACTOR: SAME AS ABOUE								
LOCATION: RED DEER S	HOP PROJECT:							
CLIENT JOB # (PO, Job #, AFE, etc.):	Vo#310359							
MATERIAL: C, S, CODE(S):	CSA Z-662-03 SWEET							
SOURCE ir 192 Size 3 2 mm SCREENS: 0	OIO PAFAB FILM: FUJT 80 SFD: CO	WTACT OFD: - SOD: -						
VERIFIED DENSITOMETER / DENSITY								
	ABBRIEVIATIONS							
IP - Incomplete Penetration LF - Lack of Fusion S - Slag P - P - Slag	EP - Excess Penetration LC - Low Cover IC - Internal Concavity HL - High / Low IUC - Internal Undercut EUC - External Undercut	1 - Slight WS - Welder Symbol 2 - Moderate ACC - Accept 3 - Severe REJ - Reject						
CK - Crack P - Porosity V - Visual Inspection	T - Technique (See Back) O - Other	3 - Severe REJ - Reject						
	INTERPRETATIONS:							
	LF CK P S BT EP IC LC HL IUC EUC O	COMMENTS ACC RE						
1 X-57 3" STD RRT	(1)4cm SPC	10L 5/N 18012 V						
2 58 3" R		18012						
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5 66 d A		180//						
6 67 0		18132						
7 68 0	(1) 15cm	18/32						
8 7/ R	(Ullican in the second	18129 V						
9 72		18129						
10 73 4 1 1		18038						
11 74 2/2 1	(1)4cm	18038						
12 75 d W	(1) [2cm (1) 5cm	18077						
13 76 0	FILMMARK @ 5cm	18038						
14 77 0	11/8cm	18038						
15 1 /8 1 1 0 1		18129						
16 79 R	(1)2cm	18129						
17 80 /	() 20cm	18053						
	(1) 8 cm	18066						
19 82 W		18053						
20 V 83 V V WV	STIMP	1 1/8053						
WELD or FILM QUANTITY STAMP Regular Hours 5/2REG								
30 -2" WELDS	KYLE BRUNS #10294	Overtime Hours -						
	CGSB RTII / MTII	Sub / Man Day						
SNT-TC-1A RTII / MTII Kilometers —								
Client Representative Tec	inician:	ADRIAN H.						
The transfer of the transfer o								

Echo NDE Inc , Red Deer, Alberta
Phone: (403) 347-7042 • Fax: (403) 347-7052 • echonde@telus.net



RADIOGRAPHY INSPECTION REPORT

Date: MAY 29/07	ASS'T FA	BRICATION	Page: 2 of 2						
CLIENT: CRIMTECH	SERVICES LTD.		ECHO JOB #: 1) 3/6						
CONTRACTOR: SAME AS ABOVE									
LOCATION: RED DEER		PROJECT:							
CLIENT JOB # (P.O., Job #, AFE, etc.	1: WO # 310359								
MATERIAL: C,S CODE	(S): CSA Z-662-03 SI	WEFT							
SOURCE Ir 192 Size 3 2 mm SCREE	ENS: 0.010" Pb F & B FILM: FUTT		7 OFD: - SOD: -						
VERIFIED DENSITOMETER / DENS		CAL DATE:							
	ABBRIEVIAT	TIONS							
IP - Incomplete Penetration LF - Lack of Fusion CK - Crack BT - Burn Th S - Slag P - Porosity	IC - Internal Concavity	HL - High / Low	1 - Slight WS - Welder Symbol 2 - Moderate ACC - Accept						
CK - Crack P - Porosity V - Visual Inspection	T - Technique (See Back)	EUC - External Undercut O - Other	3 - Severe REJ - Reject						
	INTERPRETA	5.8 5.008 350.00 000							
FILM# SIZE SCH WS		UC EUC O	COMMENTS ACC RE						
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5									
6 REPATRS									
NONIA SIUK		SPOOL	5/N 18069 V						
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12X6/R2 3" STD 1	7 (1)9cm Ev.C	(3) 4505 POOL:	5/N 18011 X						
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14									
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20									
WELD or FILM QUANTITY	STAMP		Regular Hours						
KYLE BRUNS #10294 Overtime Hours — CGSB RTII / MTII									
SEE PACE /	Sub / Man Day								
Cliqui KepeSIntatM:	SNT-TC-1A RTII / N		Kilometers						
Technician: Assistant: ADRTAN H. SEE PACE!									
	Echo NDE Inc., Red Do	eer, Alberta	AN TO DEE PAGE						
Phone: (403) 347-7042 • Fax: (403) 347-7052 • echonde@telus.net									



RADIOGRAPHY INSPECTION REPORT

Date:	May.	. 31	1-20	0 6	2			A.	22	<u>اري</u>	ar	E	0		5	80	04	Z	NG	Pag	ge: / of	2	
CLIEN	II: (] iZ	Im 7	ECH	,				·····												ECHO JOB #:	·		
CONT	RACTOR	: As	SAB	Q:17-	٠ ٢																		
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CLIEN	NT JOB#	(P.O., Je	ob #, AFE	, etc):	L	<u>ر</u>) #	: '	31	10	3	5	9									
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SOUR	CE 1r 192	Size 3	2 mm SC	CREE	NS						FIL	M:	F	i.	<u> </u>	۽ بيڪ			SFD: 23.25	OFD: 15	نري SOD:	22	21
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					Pho	ne:	(40)3) 3	347-°										echonde@telus	net			

WELDING PROCEDURE	SPECIFICATION N	10.:		CRIM-3 (REV. 1)
WELDING PROCEDURE	QUALIFICATION F	RECORD I	NO.(S):	MIL-3-1, MIL-3-2
	QUALIFIE	D FOR		
Base Metal (Typical): Process(es): Position: Filler Metal:	GMAW / SMAW ALL POSITIONS		weid Types: Diameter:	516 Gr. 70, etc.) GROOVE & FILLET ALL DIAMETERS
BASE METAL CONDITIO	NS & GROOVE TH	ICKNESS	RANGE QU	IALIFIED:
STANDARD APPLICATIONS BASE METAL THICKNESS I		4.8 to 38	.1 mm (0.188	to 1.50 in.) inclusive
COMBINED DEPOSITED W ASME B31.1 ASME B31.3 ASME SECT. VIII, DI		<u>19.1 mm</u> 19.1 mm		aximum aximum ximum
ALBERTA BOILERS SAFETY PROVINCE OF ALI SAFETY CODES WELDING PROCEDI Reg. No. WP. 1861. Spec No. CRIM- Weld Process GMAM Matl. Gr. P No. 10 P No. Elec. Gr. F No. 6+4 A No. Th. Qual. For 38.1 mm. PWH FR 70 S - 6 ELECT RO WELD	BERTA ACT JRE 3 (REVI) / SMAW 4 +1 T NO DE DEBERG, P.ENG. MG SPECIALIST			
PROVINCIAL REGIS	STRATION			

CRIMTECH SERVICES LTD. WELDER'S LOG SHEET



	Symbol Brocess	Base	Filler	Backing	Minimi	Deposit	Positions	Uphill	Cored	insert	Backing	GTAW	GMAW	Expiry Date
3			Metal "F" Number(s)		m 0D (in.)	Thicknes				·	Gas	Current	X-Fer	P.Q. Card MM/DD/YYYY
1	SMAW	P1-P11	F3/F4	F3-W/WO F4-W	=	F3-0.25" F4-0.616"	All	Uphill	N/A	N/A	N/A	N/A	N/A	5/12/2008
	GMAW SMAW	P1-P11	F6/F4	F6-W/WO F4-W	-	F6-0.110" F4-0.487"	F6 0-45° F4 Flat	N/A	N/A	N/A	N/A	N/A	Short Circuit	5/12/2008
	SMAW	P1-P11	4년	WTH	2 7/8"	MTBW	FLAT	N/A	N/A	N/A	N/A	N/A	N/A	10/2/2008
1														
L L	SMAW	P1-P11	F3/F4	F3.W/WO F4. W	ŧ	F3-0.188" F4-0.5846"	All	Uphill	N/A	N/A	N/A	N/A	N/A	12/13/2007
	GMAW SMAW	7 P1-P11	F6/F4	F6-W/WO F4-W	₹~	F6-0.130" F4-0.433"	F6 0-45° F4 Flat	N/A	N/A	N/A	N/A	N/A	Short Circuit	4/28/2008
	GMAW FCAW	P1-P11	F6/F6	G-W/WO FCAW-W	-	GMAW- 0.1105"	GMAW 0-45° FCAW- Flat	N/A	N/A	N/A	N/A	N/A	Short Circuit	12/13/2007
	SMAW	P1-P11	F4	WITH	2 7/8"	MTBW	FLAT	N/A	N/A	N/A	N/A	N/A	N/A	9/28/2008
1														
l٥	SMAW	P1-P11	F3/F4	F3.W/WO	+	F3-0.188" F4-0.500"	A	Uphill	N/A	N/A	N/A	N/A	N/A	1/17/2008
	GMAW SMAW	/ P1-P11	F6/F4	F6-W/WO	-	F6-0.110" F4-0.236"	F6 0-45° F4 Flat	N/A	N/A	N/A	N/A	N/A	Short Circuit	1/17/2008
	SMAW	P1-P11	F4	WITH	2 7/8"	MTBW	FLAT	N/A	N/A	N/A	N/A	N/A	N/A	9/29/2008
1														
Ì≥	SMAW	P1-P11	F3/F4	F3-W/WO F4- W	1.00	F3-0.188" F4-0.684"	₩	Uphill	N/A	N/A	N/A	N/A	N/A	7/14/2008
1	GMAW SMAW	v P1-P11	F6/F4	F6-W/WO F4.W	1.00	F6-0.110" F4-0.236"	F6 0-45° F4 Flat	N/A	N/A	N/A	N/A	N/A	Short Circuit	7/21/2008
1	SMAW	P1-P11	F4	WITH	2 7/8"	MTBW	FLAT	ΝΑ	N/A	N/A	N/A	N/A	N/A	9/29/2008
ဟ	SAW	P1-P1	F6	MITH	2.875"	MTBW	FLAT	N/A	N/A	N/A	N/A	N/A	N/A	5/11/2008
2	CAM	040	ш	MITH	7 875"	MTRW	FIAT	N/A	N/A	A/N	N/A	A/N	N/A	5/11/2008
_	200				20.3									
	SMAW	P1-P11	F3/F4	F3-W/WO F4. W	1.00	F3-0.188" F4-0.684"	Α	Uphill	N/A	N/A	N/A	N/A	N/A	9/19/2007
1	GMAW SMAW	w P1-P11	F6/F4	F6-W/WO	1.00	F6-0.110"	F6 0-45°	N/A	N/A	N/A	N/A	N/A	Short Circuit	9/19/2007
-		1		AA-4-		0.2.0.1								

8/24/2007

10/2/2008

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FLAT

MTBW

2 7/8"

WITH

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P1-P11

SMAW

W-8184

SMAW P1-P11 F6/F4 F4-W 1.00 F4-D10
P1-P11 F3/F4 F3-WW P1-P11 F5/F4 F5-WW P1-P11 F5/F4 F5
P1-P11 F3/F4 F3-WWO F3-0-169° F6 D-45° N/A N/A
P1-P11 F3/F4 F3-WW 1.00 F3-0.184° Ali Uphili N/A
P1-P11 F6/F4 F6-WNO 1.00 F6-0.16°
P1-P11 F3/F4 F3/WW P1/D1 F3/F4 F4/WW P1/D1 P3/F4 F4/WW P1/D1 P1/D1 P3/F4 F4/WW P1/D1 P3/F4 P3/
P1-P11 F3/F4 F3-WWO 1.00 F4-0616 All Uphill N/A
P1-P11 F6/F4 F3-WM 1.00 F3-045° All Uphill N/A N
P1-P11 F6/F4 F6-WWO 1.00 F6-0.43° F6 0-46° N/A N/A
P1-P11 F3/F4 F3-WWW F4-0.516" Ali Uphili N/A
P1-P11 F3/F4 F3-W/WO 1.00 F4-0.516° All Uphill N/A N/A
P1-P11 F3/F4 F3-WW 1.00 F4-0.816° All Uphill N/A
P1-P11 F6/F4 F6-WiWo T-0.0 F-0.110 F6 0-45° N/A N/
P1-P11 F6/F4 F6-WWW 27/8" WTBW FLAT N/A
P1-P11 F6/F4 F6-WWV 1.00 F6-0.15° F6 Fiat N/A N/A N/A N/A Short Circuit F6 C-45° N/A N/A N/A N/A Short Circuit F6/F4 F6-WWW 1.00 F4-0.23° F4 Fiat N/A N/A N/A N/A N/A Short Circuit F6/F4 F6-WWW 1.00 F4-0.23° F4 Fiat N/A
P1-P11 F6/F4 F6-WWO 1.00 F4-0.316" F6 0-45° N/A N/A N/A N/A N/A Short Circuit F6 0-45° F4 Fiat N/A N/A N/A N/A Short Circuit F6 0-45° F4 Fiat N/A N/A N/A N/A N/A Short Circuit F6 0-45° F4 Fiat N/A
P1-P11 F6/F4 F6-WiWO F4-0.236* F6 0-45° F4 Flat N/A
P1-P11 F6/F4 F6-WiWO F4-W 1.00 F4.0.236" F4-Flat F6 0-45" F4 Flat N/A
P1-P11 F6/F4 F6-WWO F4-0.110* F6 0-45° F4 Flat N/A <
P1-P11 F6/F4 F6-WWO F4-0.236* F6 0-45° F4 Flat N/A <
P1-P11 F-6 With 27/8" MTBW Flat N/A
P1-P11 F-6 With 2 7/8" MTBW Flat N/A
P1-P11 F-6 With 27/8" MTBW Flat N/A
P1-P11 F-6 With 27/8" MTBW Flat N/A

Heath Oblygor 34 Sto A06

Name of Customer, CB PRANKLIN P,O.NO.: PO.1590095-OS-4900-A Contract No.: 06HGC09544 LICNO, 6FAHDS-00632

HINGYANG VALM STEEL TUBE GO, LTD

Ackl: 10 Dalivingun, Hengyang City, Hunan, China Tel and Fax: +85 734 8873739 8872942

> DESCRIPTION, SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS LISE TOTAL: 1759PIECES, STBUNDLES, 115.391MT, 35180FT

421001 Care ij MILL TEST REPORT Date: NOV. 14. 2006 CERTIFICATE NO. 0504056 ACTUAL WEIGHTHAT] Š Š 죍 3 QUANTITY 31, 349 20,673 16.53 20, 29 CMT 17, 418 9, 131 13740 FUET 4230 200 28675 spec, astn astb.2002/a1068-2002a, aske sastbjaa1068-2004, ap alriza, psl1-2004, nace mr-0175-1990 MECES 240 289 218 S **LARDNESS** CHEMICAL 0.008 2 BUNDLES BEPACI. 34 2"+0, 154"+20FT 3*40, 216"*20FT 4 *0. 237 *20FT 2**0.218**20FT 3 40, 300° • 20FT 4 *0. S37 *20F 0.18 8 8 ELONGATION SIZE ULTRASONIC TEST NONDESTRUCTIVE TEST Ş 2 2 ¥ ž YIELD STRENGTH 44950 44950 61475 50750 62200 50025 EDOY CURRENT (EST STEEL. GRADE BYX42 B/X42 B/X42 B/X42 농동 동동 06109340-3 HEAT 06228765ob (PSI) TENSILE STRENGTH 0814195 0614290 89 0614287 COLD-DRAWING MOTE) COLD-DRAWNETBOT DELIVERY 79025 69500 79025 HOTFOLLED HOTACLES HOTROLLED HOT-ROLLED 967101005 56Y100532 56Y200435 967400606 98/101106 867301203 BATCH ğ 2

REMARKS: 1. We harely certify than the material has been one extended, ampled, and sad imposed in accordance with the required standards.

Properties cumpilance to DTM 50049 3.1.B/UNI EN 10204 3.18.

3. BRINELL (Rockwell hardness certified to NACE MR-0175-99,

4. SPECIMEN SIZE: (Pipe end. Longitudinal, Gauge Length-27)

A. For pipes & In Italiangly specimen were used:

B. For pipes > 1" tengitudinal strip specimen were used: the width of the gauge length portion is 3/4".

5. MATERIALS CONF IRM TO ANST B36.10, A510/A510M

QUALITY MANAGER: PER

SEC. II, 20<u>04</u> EDITION , 20<u>06</u>ADDENDA CRIMTECH SERVICES LTD. MATERIAL CONFORMS TO: ASME

MAY 17 2007

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Р.О. В.

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Stahl/Rohr

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D35/2/

ISO/TS 16949 (ISO 5001) DNV CERT-13765-2303 PED 97/23/EC TÛV Cen 07 202 4111/2/3001/I/H

Warmrohrverk Dinslaken

Hersteller:

Vo. du cenificat: Inspection No.: PrüFN. 65-332351/001/P 06-5611 / 104842 Dokument-Nr.: Document No.: ABNAHMEPRÜFZEUGNIS EN 10204-3,1 nispection certificate en 102431

Purchase Order No.: Kunden-Bestell-Mr.: No. du document: Portion State Could - Postict 1550 - 2573 Professor - Carallel CERTIFICAT DE RECEPTION EN 10204-3.1 EN 10204:2205-01

6903 - 72nd Ave., EDMONTON, AB T6B 3A5 KANADA BHD Tubular Ltd.

Stamp of the inspection representative: Stempel des Abnahmabeauftragten: Marque du producteur: Manufacturer's brand: Timbre du contrôleur: Herstellerzeichen: Wantracturer: Producteur; 1142713 6513521 NAHILOSE STÄHLROHRE SEAMLESS STEEL TUBES No. d'avis d'expédition: No. de commande du client No. de commande Benteler Benteler Auftrags-Nr.: Versandanzeigen-Nr.: Bernteler Order No .: Dispatch Note No.: Produkt: Product Produit:

₹

ELECTRIC FURNACE Procédé d'élaboration de l'acier: FOUR ELECTRIQUE ELEKTROSTAHL Stahlerschmelzungsverfahren: Steelmaking process: TUBES D' ACIER SANS SOUDURE

106-2004b, S5, ASME SA-106, ASME Section II Part A Edition 2004 Addenda 2005, S5, NACE MR0175/ISO OSA Standard Z245.1-02 Category I, API Specification 5L Forty-Third Edition, March 2004, PSL 1; ASTM-A 15156-1:2001, NACE MR0175/ISO 15156-2:2003. Lieferbedingungen: Conditions de livraison: Terms of delivery:

ASIME B36.10M-2004, ASIME SA-530, ASIME Section II Part A Edition 2004 Addenda 2005, ASTIM-A 530-2004a CRIMTECH SERVICES LTD Maße - Toleranzen: Dimensions-tolorances: Dimensions-tolérances:

SEC. II, 2004 EDITION, 2000 ADDENDA MATERIAL CONFORMS TO: ASME MAY 15 2007 P.O. No. BV: th it GRADE 290, GRADE B, GRADE X 42 see attachment product marking Hot rolled Produktkennzeichnung: Marquage du produít Delivery condition: Lieferzustand: Product marking: État de livraison: Nuance d'acier: Stahlsorte: Steel grade:

Vielfachlânge Multiple lengths Longueurs mult Série de no. des tubes Rohr-Nr.-Gruppe Tube number group Pression d'épreuve Test pressure Prüfdruck Schmelzen-Nr. No.de.coulée Heat No. Gewicht Weight Poids Longueur Länge Length Dimensions Dimensions Maße Number Nombre Stück Pos. Poste EeE

Ю ហ 207 203 bar 743600 743597 45450 41667 11618,18 12626,67 feet teet 40 40 "Z" NPS * Sched. 2" NPS * Sched. 18 FT - 22 FT FT - 42 FT 8 0001 545 304 2000

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derfater Stafr/Rola Gmohi 33043 Paderborn Portfach 13 40 Cautschland

Tel.: +49.5254.81-0 Fax: +49.5254.13666

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Remader Statistical Garbiti	いられること	
49 5254.13		StahlRohr
ABNAHMEPRÜFZEUGNIS EN 10204-3.1 enspection de reception en 10204-3.1 certificat de reception en 10204-3.1	Dokument-Nr.: 65-332351/001/F Prüf-Nr.: Eccument No.: Inspection No.: No. du certificet:	Blatt: 21 Page: Page:
Pos. Stück Maße frem Number Dimensions	Länge Gewicht Schmelzen-Nr. Prüfdruck Length Weight Heat No. Test pressure	Rofir-NrGruppe Vielfachlänge Tuoe number group fläutipte fengalis

							***************************************						11.
	Action.	Shora					l änge	Gewicht	Schmelzen-Nr.	 Prüfdruck 		Rohr-NrGruppe	Vielfachlange
5	Stable		į.				l ength	Weiam	Heat No.	Test pressure		Tube number group	linatiple lengths
	Manuel Ma Manuel Ma Manuel Ma Manuel Ma Manuel Ma Ma Manuel Ma Ma Ma Ma Ma Ma M		<u>n</u>				in the second	Poide	No. de coulée	Pression d'épreuve		Série de no. des tubes	Longueurs multi
Poste	Nombre	Dimensions	Z.										
					feet		feet	lbs	***************************************	bar	S		7744444
0003	0003 1336	2" NPS	NPS * Sched. 80	d. 80			26260,66	131140	743450	207	ហ		
		18 FT	FT - 22 FT				S SECTION AND ADMINISTRATION AND	*	in the second se				
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		18 FT	18 FT - 22 FT				100 April 100 Ap	ili. Mate Mate				The second secon	
9000	0006 282	4" NPS	NPS * Sched.	d. 80			6139,37	91496	534401	207	ហ		
		18 FT	FT - 22 FT				F	id:					
			Minterferin				12.11 12.11 12.11 12.11 12.11 13.11 14.11	7) t 1: 3- 1: 1:					
Schme	stenanaly:	se [%] //	Reat analysis	Schmelzenanalyse [%] / Next analysis [%] / Analyse sur coulée [%]	sur coulée (%	I		1 (1) 1 (1) 2 (1) 2 (1)					
Pos.	Schmelzen-Nr.	en-Nr.						3 - CC 2 - CC 2 - CC 2 - CC		Ĉ	00	636	۵
men.	Heat No.		ပ	ហ៊		<u>a</u>	O dia s			3	Ð		Ð
Poste	No, de coulée	ilée								***************************************			
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0000	743597		0.135	0.203	0.81	0,009	0,003 \$ 0,16		0,04: 0,13	0,17	100,0	0,010 0,0	0,003 0,0002
9			* :	2 2 4 5					The state of the s				

0,220

0,130 0,140

743656 534401

9000 0004

0003 743450

0,0002

0,003 0,003 0,003

0,002 0,001

0,18 0,13 0,18

0,15 60,0 0,12

0,15 0,09

0,02 0,04

0,04

0,003 1 0,16

0,004 0,004

> 0,007 0,008

0,010

0,81 0,82 0,79

0.197 0,200

0.130

s sofii

0,010 0,010

0,010

0,001

0,0002 0,0001

Cr+Cu+Mo+Ni+V<=1,00 %

ormele	Formelergebnisse / Formula results / Résultats des formules	ats des formules			
Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
tte:m	Heat No.	1. Famula	2. Formula	3. Formula	
Poste	No. de coulée	1. Formule	2. Formule	3, Formule	4. Formule
1000	0001 743600	0,330	808'0	6,074	0,491
0002	0002 743597	0,330	608'0	6,000 :1, 0,501	0,501
3003	0003 743450	0,325	0,293	6,231	0,522

^{1.} Formel: 2. Formel:

^{3.} Formel: 4. Formel:

Marie Comment

Stahl/Rohr

, Benneler Stahl/Rofar Gralofi Postfach 13 40 33043 Paderborn Deutschland

4	161.: +49.5254.81-0 rax; +49.5254.13555						
ABNA	ABNAHMEPRÜFZEUGNIS EN 10204-3.1 bispection certificate en 10204-3.1 certificat de reception en 10204-3.1	0204-3.1	Dokument Nr.: Becoment No.: No. du document:		65-332351/001/P	Průř-Mr.: brspecžón Wo.: Po, du ceráficat: P	Blatt 3/ Page: Page:
Formel	Formelergebnisse / Formula results / Résultats des formules	ats des formules			**************************************		
Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel		
Щещ	Heat No.	1. Formata	2 Formula	3. Formula	4. Formula		
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4, Formule		***************************************
0004	0004 743656	0,304	0,276	6,308	0,331		
9000	0006 534401	0,332	0,312	5,643	0,501		
	The second secon		***************************************				
Produk	Produktanalyse [%] / Broduct emalysis 1991 / Analyse sur produit [%]	Analyse sur produit [9	28	i s			
	The state of the s						

Produk	tanalyse [%] 1	Product enaly	Produktanalyse [%] / Product analysis [%] / Analyse sur produkt [%]	sur produit [%]		11							
Pos.	Pos. Schmelzen-Nr. tem Heat No.	÷ O	Ü	Bung	o.	es e	# #	98	N.	50	>	NB	•
1000	743600	130 J.30	- \$10001-0743600000 00th 00130006005.1900	0,81.	7600.0	0,0024	7,097,0	150,037	7.9T.0.0.	0,81,60, 0,009,600,0,002,60,0,160,00,03,400,0,160,00,160,00,170, 00,0020,0000000000000000000000000000	0,002	0.010	
1000	0001 743600	0,130	70,130 E 0,190		0,009	0,002	0.16	.0.03	0,15	0,82 0,009 0,002 0,16 0,03 0,15 0,17 0,002 0,010	0,002	0,010	

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23	TOP TO TO TO TOP TO		7		7		1		<i>Y</i>		,	,	***************************************	
1000	743600	> 0001 743600 00 0000 1300 00100 190 0081 00 0100 0009 00	/ 06T 0 U	0,81.		10,002 6 10,156 60 10,03 6, 10 0, 16 6 10 10, 17 1	1,166/	160 , 03 L	0.16.	0,17	0,002	0.010	20,002 de 0,010 m 0,002 m 0,0004	0,0004
1000	0001 743600	0,130	70,130 E 0,190 0,82	0,82	600'0	0,002 0,16 0,03	1.6	.0,03	0,15	0,17	0,002	0,010	0,002	0,0003
0000	0002 743597	0,130	0,190	0,81	600'0	0,002票 0,16	, 16	0,03	0,16	0,17	0,002	0,010	0,002	0,0003
0002	0002 743597	0,130	0,130 0,190 0,81	0,81	600'0	91,000 建200,0	91,	0,03	0,15	0,17	0,002	0,010	0,002	0,0002
0003	0003 743450	,0,140	0,140 0,220	0,77	0,012	0,007 🖺 0	0.15	0,04	0,13	0,19	0,003	0,006	0,003	0,0004
0003	0003 743450	0,140	0,140 0,220	0,77	0,012	0,006 \$ 0,15.	1,15	0,04	0,13	0,19	0,003	0,006	0,003	0,0004
000	0004 743656	0,130	0,130 0,180	0,82	0,007	0,002 % 0	0,1,0	0,02	80'0	0,13	0,001	0,010	0,002	0,0002
0004	0004 743656	0,130	081,0	0,82	0,007	0,002 🐺 0	0,10	0,02	0,08	0,13	0,001	0,010	0,002	0,0002
9000	0006 534401	0,150	0,150 0,200	0,82	600'0	0,003 🛱 0	0,17	0,04	0,13	0,18	0,002	0,010	0,003	0,0005
9000	0006 534401	0,140	0,140 0,200 0,83	0,83	600'0	0,002 H 0	0,17	0,04	0,13	0,18	0,002	0,010	0,002	0,0004

1, Formet:
2. Formet:
3. Formet:
4. Formet:

CE IW=C+(Wn/6)+((Cr+Wo+V)/5)+((Cu+Ni)/15)<=0,40 %
CEV=C+F*((Mn/6)+(Si/24)+(Cu/15)+(Ni/20)+((Cr+Wo+V+Nb)/5) +(5*B)) <=0,40
Mn/C>=3/1
Cr+Cu+Wo+Ni+V<=1,00 %

Formelergebnisse / Formula results / Résultats des formules

Pos.	Pos. Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
ltem	Heat No.	1. Formufa	2. Formula	3. Formula	4. Formula
Posté	e No, de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0001	0001 743600	0,325	0,294	6,231	0,522
0001	0001 743600	0,326	0,294	6,308	0,512

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Bemeler Stanilinon Canali

11/1

Postrach 13 40 32043 Paderborn Deutschland	Postrach 13 40 32043 Paderborn Deutschland			:			Stahlikohr	7
Tel.: +46	Tel.: +49,5254.81-0 Fax: +49,5254,13656						1	1
ABNA	ABNAHMEPRÜFZEUGNIS EN 10204-3.1	6204-3.1	Dokument-Nr.:	65-33	65-332351/001/P	Prūfint: Itspection No.:	Blatt: 4/ Page:	5
CERTIFIC	INSPECTION CERTERCARE EN 1028-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1		No. du document:	41 - 414		No. du certificat:	Fage:	
Formelk	Formelergebnisse / Formula results / Résultats des jormules	ts des formules						1
Pos.	Schmeizen-Nr	1. Formei	2. Formel		4. Formel			
TE TE	Heat No.	1. Formela	2 Formula	3. Formula	4. Farmula			
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule		List the state of	١
0005	743597	0,325	0,293	6,231	0,522	A A A A A A A A A A A A A A A A A A A		1
0002	743597	0,325	0,293	6,231	0,512	- Hard and Aller Andrews and Andrews and Aller A	The second secon	1
0003	743450	0,328	0,309	5,500	0,513			1
0003	743450	0,328	0,309	0.0515	0,513			ı
0004	743656	0,305	0,277	8,308	0,331		The service designation of the service designati	1
0004	743656	0,305	0,277	6,308	0,331	- 100 - 1000000000000000000000000000000	an meneroth file (the file and the file and	ł
9000	534401	0,350	0,335	5,467	0,522			i
9000	534401	0,341	0,320	5,929	0,522	**************************************	TO COMMENT AND THE PROPERTY OF	1
Dacyton	Daifearachtailees Tractorouthe Décultate des accele	AC 3 L		holy retired				

Prüfergebnisse / Testresults / Résultats des essais

Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds. Test pressure/Time-record The tubes have been submitted to a leak tightness test by: Die Rohre sind auf Dichtheit geprüft durch:

PASSED

PASSED

Vérification des dimensions: Dimensions examination: Maßkontrolle:

PASSED

Les tubes ont passé un contrôle d'étanchéité par

Essai de cintrage: Biegeversuch: Bending test: PASSED Augensichtkontrolle: Visual inspections: Examen visuel:

Pos. / Item / Poste: 0001, 0002, 0003

PASSED Pos. / Nem / Poste: 0004, 0006 Essai d'aplatissement: Ringfaltversuch: Flattening test:

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths. L'echantillonage etait realise aux longueurs multiples.

(ECTOR)

StahliRohr

Tel.: +49.5254.81-0 Fax: +49.5254.13665

Bertaler StahilRoin Gracia

Postiach 13 40. 33043 Paderborn

Deutschland

Re/Rm Refirm Re/Rm 5 Blatt: Page: Pege: Coefficient de striction Einschnürung Area reduction 1. Formel 1. Formula 1. Formule inspaction No.: No. du certificat: Allongement Prüf-Mr.: Dehnung Elongation 43,00 37,00 41,00 37,00 36,00 37,00 42,00 41,00 40,00 38,00 OE NIM A2" Résistance à la traction Tensile strength Zugiestigkeit 65-332351/001/P HE 415-760 MPa 99 표 487 4 9 9 497 471 479 171 476 ...486 491 Zugversuch Streifenprobe / Tensile test Suip test specimen / Essal de traction Bande decoupee sur tube Streckgrenze Limite élastique ₹ Yield strength ... tur mili i ji k ه د شر چې £. 4 4 4 5 290-495 ReH MPa 390 379 38⊈ 372 369 375 348 340 357 345 Dokument-Nr.: Decument No.: No. du document: MAX 250 Dimensions de l'éprouv. 136 Probenabmessung 137 141 133 139 3,80 3,80 3,80 3,80 5,50 5,50 5,50 5,50 .8,50 8,50 또 Specimen dimensions 19,00° X 19,00 X **þ**4 × **>**4 54 M × × **>**4 19,00 19,00 19,00 19,00 25,40 25,40 Hardness 25,40 25,40 Härte Dureté 記り E ABNAHWEPRÜFZEUGNIS EN 10204-3.1 Schmeizen-Nr. Schmelzen-Nr. No. de l'éprouvette No. de coulée Härteprüfung / Mardness test / Essai de dureté No. de coulée 743600 743600 743450 743597 743597 743450 743656 743656 534401 534401 743600 743656 Meat No. 743597 743450 534401 Heat No. CERTIFICAT DE RECEPTION EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 No. de l'éprouv. Proben-Nr. Specimen No. Specimen No. Proben-Nr. T00000: 00000 T00000 00000 00000 000000 100000 000000 100000 000000 100000 00000 100000 100000 00000 Anforderungen Anforderungen Requirements Requirements T000 Exgences Exigences 0001 1000 0002 0003 0003 0002 0004 0004 9000 9000 0002 Pos. Poste 0003 0004 9.000 Poste Pos. ftem Eag

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Deutschland Tel.: +49.5264.81-0 Fax: +49.5254.13666 Berneler Stein/Rohr Grabh

Postfach 13 40 330x3 Paderborn

Stahl/Rohr

WHITE AND ADDRESS OF THE PARTY						
ABNAHMEPRÜFZEUGNIS EN 10264-3.1 Inspection certificate en 102943.1 Certificat de reception en 102043.1	Dokument No.: Bocument No.: No. du document:	65-332351/001/P	Průř-Nr.: Inspertion Ro.: No. du certificat:		Blatt: 6/ Page: Page:	r»
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Item Your reference Customer's Mazerial No. Purchase Order No. Poste Votre référence No. de matière du client No. de commande du client 0001 P.O. 104842 06-5611 / 104842 0003 P.O. 104842 06-5611 / 104842 0004 P.O. 104842 06-5611 / 104842 0006 P.O. 104842 06-5611 / 104842 0006 P.O. 104842 06-5611 / 104842	Pos.	Ihr Zeichen	Kundenmaterial	Kundenbestell-Nr.	
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Pos. /tem / Poste; 0001, 0003, 0003, 0002, 0002, 0002, 0003, 0002, 0002 NACE Standard: Hardness acc; to NACE MR0175/ISO 15156; HRC max 22., 正的 material meets the requirements of NACE MR0103; Certificate remarks: This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-02 meets the requirement for micro hardness of max, 248 HV 500.; Bend test: mandrel diameter 12D, bending angle 90 degree

Pos. / Item / Poste: 0004, 0006, 0006, 0006

NACE Standard: Hardness acc. to NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103; Certificate remarks: This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-02 meets the requirement for micro hardness of max: 248 HV 500.

Beiblaff Produktkennzeichnung / Attachment product marking / Supplément marquage du produkt

Produktkennzeichnung Produktkennzeichnung Marquage du produit Pos. Poste ltern

0001, 0002, 0003, 0004, 0006

BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 104842 FK = Febtkennzeichnung, colour marking, marquege par cowleur FS = Farbschablonierung, paint stencilling, marquage par polmure FSD = Farbschahldrucker, Colour let printer, Impriments à iet d'encra de cculeur LS = Làngsschablonierung, longitudinal stancilling, marquage sur cérquette PS = Pragestempel, die stamp, marquage par poinçonnage TS = Timenstrahlkennzeichnung, lok iet spray marking, emprimante à jet d'encre

Same.

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Page: Blatt:

Stabil/Rohr

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1 INSPECTION CERTIFICATE EN 10234-3.1

Tei.: +49.5254.81-0 Fax: +49.5254,13566

Centelor Stahl/Rein: GasSH

33043 Paderborn Postfach 13 40 Deutschland

Mr Seelbach, Tel.: 05254/81-4281, Fax: 4289 Dokument-Nr.: No. du document: Document No.: Verkäufer(in) / Salasman/woman in charge / Personne chargée ;

Praf-Nr.: 65-332351/001/P

Inspection No.: No. du ceraficat:

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Manual W **CLAUTATISSTEL** Inspection represen Abnahmeþeauft

Dińslaken, 16.05.2006, TEL.: 02064.623-538 FAX: 02064.623-539

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen.Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig. We certifv that the supplied products comply with the order specification.This document was prepared by means of electronic data processing and is valid without signature. Contraleur ROLF TRITITE

Nous attestons que les produits livrés sont conformes aux stipulations de le commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.

Contract No: 05HGC01002-1

LC NO. N.II.C.

ORDER NO.: /P.O.NO.: 05HGC01002-1

TOTAL: 3518PIECES, 109BUNDLES, 228,909MT, 76460 FT DESCRIPTION: SEAMLESS CARBON STEEL PIPE

Name of Customer: IMEX

HUNAN HENGYANG STEEL TUBE (GROUP) CO., LTD MILL CERTIFICATE

Date: APR. 25, 2005 Page: 3/5

Add: 10 Dalixıncun, Hengyang City, Hunan, China Tel and Fax: +86 734 8873739 8872942 6993 Cable:

421001 P.C.

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4O: 0504049	ACTUAL.	WEIGHT(MT)	25%	7 /	327	252	\ 	140	8,08	100	1952	8			,	T	il. (I	T		1		TEST	OK	OK OK	OK OK							人手程生工	A CONTROLL - 15 16 12
CERTIFICATE NO: 0504049	OHANTITY	(MT)	24. 240	20. 661	11. 192	30, 528	30, 528	33.085	14.853	10.000	10. 331 96. 695	.0.	\ \ \ \ \	ט טט ט	0.001	0.001	0.001	0.010	0. 002	0.000	0.001	0.001	0.003	0.002	TEST				ğ	Σ	30	48	5 3	4 3	¥ 8	まく 5
90,	1	프	14640	12480	6760	8880	8880	9620	2160	3800	3000	OFFICE OFFICE	_	7 90 0	20.0	30.0	3 5	0.02 0.01	0.04	0.09	十	35	-+-	0.04	HYDIKOSTATIC	2800 PSI	2800 PSI	2800 PSI	2800 PSI	190000	10000	2000 001	7800 FSI	2800 PSI	2800 PSI	78UU r.ə.
CE 110 0175.10	API 3L BIA42-2000, NACE MIN-0113-1353	PIECES	732	624	691	444	444	481	108	180	190	1	ı	5	1_	0 :	CT '0	+	0.10	0.14	0, 10	0. 12	3 6	0.16	HARDNESS H	HRC 7.5	18C 6 5	HRC 6.0	159	١	-	1	- 1	- 1	- 1	9 162
AM DOOR CAN	1742-Zuuu, NA	BUNDLES	12	10	2	12	12	13	9	01	0.5	61	CHE		0.015	0.012	7	7	0.010 0.005	-	-1	0.011 0.006	-	0.022 0.009					=	911		2	=	# 1	# !!	H
	. 1		R	75	RL	RL	RL	RL	RI,	RI,	RL	R.	ļ.	7	v 0. 27 v	0.27		0.22	0.39	0.3	0.20	힉	0.31	0.26		INTAC										
r i	ASME SA53B-2001/SA106B-99,	SIZE	2 STD BE SRI	2 STD BE S	2"STD BE DRL	3 STD BE S	3 STD BE S	3"STD BE S	3"STD BE DRL	4"STD BE SRL	4"STD BE SRL	4"STD BE DRL	4	ULTRASONIC TEST C	0, 22 'v	0.23	0.22	0.27	0.24	0.25	0. 23	0.24	0.24		(%) 9	ELUNGA HUN	0000	63.0	20	30	32	30	29	35	33	31
		STEEL	X47	X47	74.7	X42	X42	X42	X42	X42	X42	- 1	티	EDDY CURRENT TEST ULTRAS	OK	OK	OK	OK.	OK	QK V	OK	OK	OK	OK.	o s (PSI)	YIELD STRENGIH	V-03590	54375	62866	54375	52925	52200	53650	54375	55100	52200
ECES, 109BUNDL	ASTM A53B-2001/A106B-99,	HEAT	EV	0522309	0522303	0522535	0522647	0522645	0511371	0511467	0522655	0521839			_										<u> </u>	E	63375 (17. Sec. 12. S	84100	86275	83375	81200	80475	81925	84100	84825	0475
OTAL: 3518PI	SPEC: ASTM	BATCH NO	ğ	4	4	<u> </u>	+	954202008	+	↓ _	954202016	8	_	_	Ĺ	HOT-ROLLED	HOT-ROLLED	HOT-ROLLED	L	HOT-ROLLED	-	_	HOT-ROLLED	L	<u> </u>	_					8	8(
FĹ	S	<u>N</u>		Ϊ.	15		1	<u>l</u> .	12	22	Ļ	12	2	<u> </u>	188	L_	13	8	<u>İ</u> .]7	22	<u> </u>	133	2		188			29	<u> </u>		21	22	<u></u>	23

REMARKS: 1. We hereby certify that the material has been manufactured, sampled, tested and inspected in accordance with the required standards. Properties compliance to DIN 50049 3.1.B/UNI EN 10204 3.1B.

3. BRINELL /Rockwell hardness certified to NACE MR-0175-99.

4. SPECIMEN SIZE: (Pipe end, Longitudinal, Gauge Length=2")

B. For pipes > 1" longitudinal strip specimen were used; the width of the gauge length portion is 3/4". A. For pipes≤1" full length specimen were used;

5. Origin: Made in China.

QUALITY MANAGER \mathbf{B} VERIFIED

WESTLUND

3" StO AIOC HELLE OGIO3430-2 SAIOEB

COMPACT NO.: 46HGC08487-1 L/C NO. 6FALIDS-00631

Name of Customers P.O.NO.:

DESCRIPTION, SEANLESS CARBON STEEL PIPE FOR OIL AND GAS USE TOTAL, 1146PH;CLS, 926UNDLES, 187.46BMT, 8558BFT

*

JAN U. 1 2017 REHGYANG VALIN STEEL TUBE CO., 170

MILL TEST REPORT

Add: 10 Dalivincus, Hengrang Clty, Human, China Tel and Fox: +86 734 8873739 8872942

5993 421001 Carle Date: NOV, 10, 2006 Page: 1/3

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6-15-5		7.1	-								COMPOSITION	ا N	2000		Т		200		- 1		<u> </u>	HYDROSTATIC	TEST	3000 PS	, 3000 PSI	3000 PSt	3000 PS	200	3007	3000 PS	3000 PS	3000 PS
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4, NACE	ES	1							-		CHEMICAL	s	2000 / 5000		0,005 0.07	0.007 0.08		0.007 0.08		ł	0.006 0.08	HARDNESS		L.		HEK	18K 3.0		HK 4.0	五.5.0		南十.5
54.1-200	BUNDLES	S	o,	6	10.	02	12	10	10	10			0.012 × 0.6	0.013 0.0	0.011	7		0.006 0.0	l	_	0.013 0.0	_	_	,		-						
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APIS		T. 13	FT 113						١.	l.		ŝ	0.45 \$ 0.82	0,46	0.47	0.48	95'0	0,46	21.0	0.49	0.46		-									
35-2004	SIZE	2"=0, 151" #20FT 113- 1.3	2"+0, 151"+20FT	2*+0. 161*+10FT	2**0.218"*20FT	218**20	2187+20	2"*0.218"*20FT	2 *0.218 *20FI	2"+0.218"+20FT		J.	(0.17 /	0.18	0.20	0.17	0.18	0.17	0.19	0.20	0.20	GE.	ELONGATION	7 5 28	3.0 3.0	31.0	31.0	36.5	31.0	32.0	30.5	36, 5
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opec _{i (} aatin abie-1002/a1018-2002-) asme badibra1065-2004, api sukkaz, pola-2004, nace medite-1289	STEFI. GRADE	B. Y.12	B/X·IZ	B/X/II	B/X/2	Г	8/3/12	B/X:12	B/X12	B/X42	NONDESTRUCTIVE TEST	WTTEST	Service Const									0.8 (PSI)	YIELD STRENOTH	14225	44225	60750	45675	44950	45575	46400	14225	12775
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TN ASS	<u>ج</u> ج	55Y100534 06102	567100538 GE102		1	1	i	Q-123 QX	567200508 04208766 3	56Y300478 DK		CONDITION	COCD-DRAWN(TROC)	COCD-DRAWING PROC.	HOT-KOLLED	COLD-DAAWH ROT	COLD-DRAWN(NOT)	COLD DRAWNITEDE	COLD-DRAWN[700C)	COLD-DRAWATHOUT	CCLE-DRASMETED C	db (PSI)	TENSILE STREN	→ 10183 - × 10150 →	65183	75400	70025	00969	70325	71050	09189	55975
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8	8		1	l	۳,	l		L	1	[ᅙ	-		8	00	_	L]		i	Ŀ	Ş	12.3	1	~	-		L	L	L	L

REMARKS) 1. We hardly certify that the centrich has been mental excepted, executant improved the accordance with the required mentaled. 2. Properties compiliance to DIN 50049 3.1.B/UNI EN 10204 3.1B.

20 HEDITION, 20 KADDENE

MAY 15 2007

S

P.O. No.

QUALITY MANAGER CALL BY.

MTECH SERVICES LTD. ERIAL CONFORMS TO: ASME

> 4. SPECIMEN SIZE: (Plps ead, Longitudinal, Gouge Longite 1.) 3. BRINELL./Rockwell handness certified to NACE MR-0175-99.

A. For papes 6.1" that length specimen went used:

B. For pipes > 1" longitudinal strip specimen were used; the width of the grauge length ponion is 1/4",

5. Origin: Made in Chita.

&MATERIALS CONFIRM TO ANSI B36,10.A-530/A-530/A

SPI

MAVERICK PONOKA

17:00 MAY-15-2007

4" 150 STD WNFF SA105N HT#35763

METALFAR

PRODOTTI INDUSTRIALI S.P.A. 23861 CESANA BRIANZA (LC) ITALY Tel. 031.65544 - Fex 031.655149 MATERIAL TEST DEPARTMENT SALA PROVE ED ANALISI MATERIALI

COMPANY
WITH QUALITY MANAGEMENT CASTLE HOUSE -STATION ROAD
SYSTEM CENTIFIED BY DIV
= ISO 9001:2000 =

8

CERTIFICATO DI COLLAUDO INSPECTION CERTIFICATE EN 10204/3.1

29/06/2005 28/06/2005 HI. 2439/ INVOICE / FATURA: 2244/ S.: 42137 DEL. NOTE / BOLLS: 3906/

28/06/2005

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DESCRIPTION DESCRIZIONE		22	0.110 0.160 0.070	0.120	BEND TEST	/ E.0.0.0 E.0.0.0			CRIMTECH SERVICES LTI MATERIAL CONFORMS TO: ASM EC. II, 2004 EDITION, 2006 ADDER MAY 15 2007	QUALITY	BRACCHI
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i i	. STD	% 5		0.017	REXCEDS OF JUES C	59.0 59.0 65.0	56.0	E TO	RIAL COL	الحكسد ا	1
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YOUR P.O. O	16887*CT 16887*CT 16887*CT 16887*CT 16887*CT	M.K. ARA?	ASTR -A 105 ASTR A 105 ASTR A 105	ASTK A 105 ASTK A 105 ASTK A 105	TEST SPECIMEN	126.60 126.60 126.60	126.60 126.60		ASTH/ASKE ASTH/ASKE ASTH/ASKE ASTH/ASKE ASTH/ASKE ASTH/ASKE		WITH N
TTEM YOU POS. US. C	0002 168 0016 168 0005 168 0005 168 0005 168	# SS		0005 AS 0005 AS 0006 AS	POS. SEC	<u> </u>	0005 1 0006 1	ITEM POS.			NCE W
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-0	35763 35728 73623 70009 70009 37856	-8	35763.21.22 35728 73623	70009 70009 37856	- 5	35763 35728 73623	70009 37856	- B	35763 35728 73623 70009 37856		
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₩8		₹8			<u> </u>	<u> </u>		1 2 8 8	***************************************	HOTE	Σ





Material Test Report

Heat Code: XCL

An Ameri-Forge Group Company 13770 Industrial Rd., Houston, TX 77015

Spec: ASTM A 105/A 105M-03/ASME SA 105/SA 105M-04 Normalized 7533993

Element (%wt)	Ladle Pro	duct EPCRA CAS#	Element (%wt)	Ladie Produc	t EPCRA CAS#
C Carbon Mn Hanganese P Promphorous S Sciphor Si Salinon Cu Copper	0 21 v 0 90 v 0 000 v 0 015 v 0 .20 v 0 .27 v	✓ 7439-96-5 ✓ 7440:50 8	Hi Hicke) Or Chroniky Ho Molybdenom V Vensdium Cb Columbium C.E.	0.03 0.02 0.002 0.002 0.40	√ 7445-02-0 √ 7445-47-3
Test Lab Test Bor Sizo	Mechanical	AFG SACRIFICIAL PIECE	Norm Temp. (F)		1.675 1.0
EBW		: 49-152 <i>y</i>	Norm Cocling Type	7	RIR

		•	
Test Lab	AFG	Norm Temp (F)	1675
Test Bar Size	SACRIFICIAL PIECE	Norm (Hrs)	1 O
EBW	149-152/	Norm. Cocling Type	AIR
Elg (8)	33.0 🗸	Morm Location	AFG
Eh (€)	63.0		
Tensile Specimen Size (in)	0.248 /		Other
Tensile (ksi)	79.8 🗸	Country of Crigin	usa (US)
Yield (ksi)	51.4	EF	Y
Gauge Longth	1.00		
		CRIMTECH	SERVICES LTD.
		MATERIAL COL	NFORMS TO: ASME
		SEC 11, 2014 EDI	TION, 20 ADDENDA
		MAY	2 9 2007
		."	,
		12 (4)	 -
		Cy: Let	(

No Weld repair performed. Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating Elongation taken from a round specimen. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Yield strength was determined using the 0-2% offset method.

P.O. No.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1980) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility along to determine whether your facility is required to submit a Toxic Release Inventory Report under EPCRA Section 313.

Certification No: 113082
Certification Date: 3/22/2007

This report is issued in compliance with the requirements of EN10204 3 1 / ISO 10474 3.1 \pm

Kevin Papich - Tech. Svcs Manager

Po#130'244





Material Test Report

Heat Code: www.

An Ameri-Forge Group Company 13770 Industrial Rd , Houston, TX 77015

Spec: ASTM A 105/A 105M-03/ASME SA 105/SA 105M-04 Normalized 7533993

Elen	rent (%wt)	Ladlo i	^o roduct	EPCRA	CAS#	Elem	ent	(%wt)	Ladio	Product	EPCRA	CAS#
C Mn P S Si	Carbon Hanganese Phosphorous Sulphur Silicon	0.20 0.87 0.011 0.014 0.19		√ 74	139-96-5	Ni Cr Mo V Cb	Mickel Chromi Molybd Vanadi Columb	um enum um	0.09 / 0.08 / 0.021 / 0.002 /	<i>'</i>		7440-02-0 7440-47-3
Cu	Copper	0.37		√ 7/	440-50-8	C.E.			0.40			

Mechanic	al .	Hoat	Troat
Test Lab	AFG	Norm, Temp. (F)	1675
Test Bar Size	SACRIFICIAL PIECE	Norm, (Hrs)	4.0
нви	156-156	Norm. Cooling Type	AIR
Elg (%)	31.0 🗸	Norm, Location	AFG
RA (%)	63.0		
Tensile Specimen Size (in)	0.250	0:	ther
Tensile (ksi)	77.3 🗸	Country of Origin	USA (US)
Yield (ksi)	48.1 🗸	EF	Y
Gauge Length	1.00	•	
	;	CRIMTECH SEF MATERIAL CONFO SEC. II, 20 ABOUTION MAY 15	RMS TO: ASME I, 20 <u>Ø</u> 2ADDENDA
		By: <u>NULT</u>	
		P.O. No.	

No Weld repair performed. Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Yield strength was determined using the 0.2% offset method.

EPCRA Supplier Notification: This product may contain one or more toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1989) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a chockmark in the "EPCRA" returns and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility atone to determine whether your facility is required to submit a Toxic Release inventory Report under EPCRA Section 313.

Certification No.:

113079

Certification Date:

3/22/2007

This report is issued in compliance with the requirements of EN10204 3 1 / ISO 10474 3 1.b

- X : 8 (P) ()

Kevin Papich - Tech Svcs. Manager

412, 011 JOUT KTWIN H7#37972

Pot GOSH

INSPECTION CERTIFICATE EN 10204/3.1

CERTIFICATO DI COLLAUDO

£291/ 3846/ IRVOICE I FATTURA

78/11/1/2006 27/11/1/2006 27/11/2006 DEL. HOTE / ROLLA: 0151/ s.: 48030 PAG:

TRANS AN PIPING PRODUCTS LTD 7025 4ffH STREET SE 72C428 CALGARY-ALBERTA COMPANY
WITH QUALITY MANAGEMENT 7|
SYSTEM CERTIFIED BY DIVY
= ISO 9001; 2000 =

23861 CESANA BRIANZA (LC) ITALY Tel. 031.655441 - Fax 031,655149

MATERIAL TEST DEPARTMENT SALA PROVE ED ANALISI MATERIALI

METALFAR PRODOTTI INDUSTRIALI S.P.A.

	The second secon	DESCRIPTION
		QUANTITY
		THEM YOUR P.O. OUR REFERENCE QUANTITY
AMALISI MATERIALI		YOUR P.O.
ANALISI MATE		TEM
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VISUAL & DIMENSIONAL		ORIGIN	RUROPE RUROPE RUROPE RUROPE	OUR	· V
SUAL & DIMENSIONAL		*	¥3.	YELD POINT SWINGLIND From 7 1.85	00000
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_ 5	ATISH ATISH ATISH ATISH ATISH	N %	0.025 0.005 0.005 0.025 0.025 0.028	*	
	2000000	M %	0.000 0.000 0.000 0.000 0.000 0.000	Suns Found C:-5 o:-	
DIM, ACCORDANCE TO DIM, IN ACCORDO A	B16.5 B16.5 B16.5 B16.5 B16.5	₩ % %	0.001 0.002 0.000 0.001 0.001		8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
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-	ASHE ASHE ASKE ASKE ASHE	% ng	0.200 0.170 0.170 0.150 0.200	IMPACT TEST - Reulings Jours I cm	73 88 88 79 98 68 67 70 70 70 70 70 70 70 70 70 70 70 70 70
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z		M %	0.050 0.050 0.050 0.050 0.050	Schenan Schenan	
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	BOSSED 300 BP 4" S/O 150 BP 4" K/A 300 BP 2.1/2" STD K/A 2500RTJ 2"KIS 50.CUT K/A 1500 RTJ 2" I60 K/A 500 RF 2" KS	2, 50	0.012 0.021 0.021 0.012 0.010	Contractors (60.0 60.0 57.0 57.0 60.0
	BOSSED 300 RP 4" S/O 150 RP 4" K/H 300 RP 2.1/2" S K/H 2500RTJ 2*KS 50 K/H 550 RFJ 2" 160 K/H 500 RFJ 2" 150	Mn %	0.150 0.990 0.100 0.11.0		20.0 22.0 28.0 32.0
		* 55	0.220 0.210 0.270 0.220 0.220 0.250	Allugamento 5.2	542 535 528 528 528 534 534
QUANTITY	V	% 2	0.190 0.195 0.190 0.190 0.190	FRENT STREAM STOMOSTON (Dilang Streams) 5.2	
OUR REFERENCE NS. ORDINE	06003732 0075 06003388 0131 06002074 0060 06003732 0090		1112	YIELD POORT Snewaresta Risn's 81%	369.0 348.0 342.0 372.0
		HATERIAL MATERIALE	A 105 A 105 A 105 A 105 A 105 A 105 A 105 A 105	ECIMEN ITA ma LERGIT LERGIT	50.80 50.80 50.80 50.80 50.80
YOUR P.O.	C106-721 C106-721 C106-174 C106-444 C106-771		ASTR A ASTR A ASTR A ASTR A ASTR A ASTR A ASTR A	TEST SPECIMEN SECTION LENGTH SECTION LENGTH	126.60 126.60 126.60 126.60 126.60
POS.	0058 0124 0026 0053 0083 0083	MEN PCS.	0068 0124 0026 0053 0083 0083	TEM POS.	0068 0124 0026 0053 0083
HEAT COLATA	31525. 36207 3772. 31526. 36555.	HEAT COLATA	31525. 36207 31972 31526. 36555.	HEAT	11525. 36207 37972. 31526. 36555.
HEAT CODE COD. COLATA	.	HEAT CODE COD. COLATA	A	HEAT CODE COD COLATA	

MATERIAL IN ACCORDANCE TO MATERIALF IN ACCORDO A ASTWASHR A 350/SA 350 M - 04a ASTWASHR A 105/SA 105 M - 05 ASTWASHR A 105/SA 105 M - 05 ASTWASHR A 350/SA 350 M - 04a ASTWASHR A 350/SA 350 M - 04a ASTWASHR A 105/SA 105 M - 04 20° 0068 0124 0026 0053 0083 HEAT 31525. 36207 31972 31526. 36555. HEAT COBE COR COLATA

BLECTRIC PURNACE BLECTRIC PURNACE

SLECTRIC FURNACE PURHICE

HOBKALIZED AT 920 C - CODLED IN STILL AIR HORKALIZED AT 920 C - CODLED IN STILL AIR HORKALIZED AT 930 C - CODLED IN STILL AIR HORKALIZED AT 930 C - CODLED IN STILL AIR HORKALIZED AT 920 C - CODLED IN STILL AIR

REACTRIC PURNACE

ROBNALIZED

HEAT TREATMENT TRATTAMENTO TERMICO

BLECTRIC FURNACE BLECTRIC FURNACE

MAKUTACTURER'S SYMBOL JUKCHO PRODUZONE

INSPECTION AUTHORITY
ENTE IF FIGURE COLLAIRS

(<u>F</u>)

MATERIAL IN ACCORDANCE WITH NACE MR-0175/2068IMTECH SERVICES 17790 CONTROLL DEPARTMENT FLAVIO MATERIAL CONFORMS TORRADOTHI SEC. II, 20<u>09</u> EDITION , 20<mark>04</mark>ADDENDA

101E

PRODUCTS

37972

MAY 15 2007 E P P.O. No.

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Machined to FF

TRANS AM PIPING #: HEAT NUMBER TRANS AM PI

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BX:

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S-1/S" CL 300 W/N FLANGE RF STD



2"300# S40 AFWN SA105N HT# 100A6

E UULMA	ો	7 Zabilaga, 3 - Apdr. 14 Z0500 Olfvill (Glpuzkoa) SPAIN Tel. 24 - 943 790 632 Prz 24 - 843 781 823 E-mait "fras @afraspiping.com	52579	Departatento quality assurance Sacton Department	RESNENCIA MEDA H H H H H H H H H H H H H H H H H H H	150		Las dingarboras y la condicida superdicibi se hallanni asdefactorias	- Carestados esto auraso bardados romos como monostramos. - Les dimensidoss es estas de scribco sont sestificianis	Los mainriles chicos camples las normas aptrables - Namiractum graptituments ero satished - Las normes applicables sour respectors - EL (NSPECTOR Mens hisperter - Linspector	ULIMA ECHANAS. COOP.
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CERTIFICADO DE INSPECCION Works Certificato - Certificat d'Usine	N.*				CRESERVACIOU Remerke Observatoris	N. N. N. N. N. N. N. N. N. N. N. N. N. N	2	EL MARKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE	465 A68	0.050 0.007	
FICADO DE Certificate - C	30/05/2006	66-7						R'S LADLE AN	W.W.	0.080 0.080 0.070 0.150	
CERTI	FECHA:	SU PEDIDO M.* Your Order Ma 4878574-00 Volye Cife. M.*		NACE MR-01-75/03 CSA - ZZ45.12-05	DESCRIPCION Description Description	NSOI NSOI	. NS	STEEL MARKE	* 5 % S	0.005 0.080 0.080 0.030 0.030 0.080 0.080 0.080 0.080 0.080	
		S US Year		W)	GRZ48 UAT	VM 2 160LB S40 RF A105N SW 34 150LB S80 RF A105N NM 2 AMI R S40 RF A105N	BLIND & SCOLB RTJ A105N	COMPOSICION ORIMICA - STE	80	0.010	
(REDMONTON)	362	FLANGES	ASME B16.5-96 cables		cumbao Quentito	538 WM 2 1		ACISORINO	** ** ***		
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C) GBSERVACIONES: M_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR Remarks
Observations

THE RESOLUTION, 2006 ADDENDA

MAY 18 2007

Post (2024)

2" STD BOOTERFINN SAIDS HT#753+2

METALFAR

PRODOTTI INDUSTRIALI S.P.A. 23861 CESANA BRIANZA (LC) ITALY Tel 031.655441 - Fax 031.655149 MATERIAL TEST DEPARTMENT

COMPANY
WITH QUALITY MANAGEMENT CASTER HOUSE - STATION ROAD
SYSTEM CERTIFIED BY DAY
= ISO 9001:2000 =

CERTIFICATO DI COLLAUDO

INSPECTION CERTIFICATE EN 10204/3.1

30/01/2006 27/01/2006 N. 353/ UPA: 277/ S.: 4(348 INVOICE / FATTURA:

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PAGA 15

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LF2: MATER X20	LF2: CHARPY TEST MATERIAL IN ACCOR X20 -2006	SPEC	TEST SPECIMEN RESULT ACCORDANCE WITH NACE		AS 10X10mm MR-0175/200	mm 2003			BRAC	HI F	BRACCHI FLAWINO. No.). No.			(MF)	***************************************		
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3" 540 90" ELIBOW SAZ34 WP13 Po# 130244 HT#07CO@do4

(BKL)

INSPECTION CERTIFICATE

58 Soi Watkrunai, Bangkru, Prapadaeng, Certificate No. Samuprakam, 10130 Thailand. Thai Benkun Co., Ltd.

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TO EN10204 3.1 Job No.

Purchaser : CCTF CORPORATION

Purchase Order No.

E-No.		Purchase Order No.	rder No.	Jol	Job No.									۵		Cellificate No.
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(Note 1) A: Hot formed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR, Air Cooling 'N: Normalizing 910°Cx0.5 HR, Air Cooling Picture 1) A: Hot formed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR, Air Cooling

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

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

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Quality Assurance Manager Thai Benkan Co. 11d.

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CRIMTECH SERVICES LTD. MATERIAL CONFORMS TO: ASME

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Material Heat No.

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HEAT::07B00002 SKU: 7510381 DESC: 3 STD LR 90 WELD ELL WPB



INSPECTION CERTIFICATE

TO EN10204 3.1

Joh No.

Purchase Order No.

Purchuser: CCIF CORPORATION

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58 Soi Warkrunai, Bangkru, Prapsdaeng, Certificate No. Sarautpakan, 10130 Thelland Thai Benkan Co., Ltd. Σ

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T- 2007200171 05/03/2007 Α

Dimensional Inspection Good Visual Examination Symbol No. 7510420 7511299 7510462 7510381 7510462 Good ū. Heat Treatment (Note 1) Specification for Inspection Cresion Test "T 낊 ⋖. Ŧ, Œ ď . Վ KSME 816 9-2003 S 391/1,000 121/320 129/640 19/640 Quantity 500 일,,일 9 × 0001 1 X 1000 , 001 100 ž CSA 2245.11 GR241 CAT I HACE MR0175-2003 Made from Seamless Pipe Astri A234-059/ASME SA234 WP6 Specification for Material | X | 100 ڻ ľ Chemical Composition & х 100 Z Product & Size × 100 Ü 90 EL WPB 4 S40 90 EL WPB 6 S40 90 EL WPB 3 S40 45 EL WPB 6 S40 90 EL WPB 6 S40 0001 1000 001 001 001 Si Ma Hear Identification No.1 MEG. No. 07800005 07B00008 07A00039 07A00052 07800002 Specification

Rose 1) A. Hoi formed with final temperature beinean 620/C-980C, Air Cooling N. Normalidang 910/Cx03/IR. Air Ccoling "N. Normalidang 910/Cx03/IR. Air Ccoling" N. Normalidang 910/Cx03/IR. Air Ccoling (Specificators for rosakris) small from place 5. 34/18/Relieving 675/Cx03/IR. Air Ccoling 絽 0 0 14 7 20 19 **J6KB407**

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We fetely certify that the product described herein has been manufactured in eccodance with the specifications concerned and also with the purclined's requirements and that the test results shown herein are certect.

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Quality Assurance Manager Thai Benkan Co., Ltd.



HT 5K2446

ORDER NO: 5208/1402598OR2100 DATE: 2006 - 01 · 27 P.I. NO: 5304-3 CERTIFI, NO: 046 RIGID INDUSTRIES CO. LTD. INSPECTION CERTIFICATE 8. MEI-CHUNG RD. NIAO-SONG, KAOHSIUNG HSIEN, 83301 TAIWAN TEL: 886-77310527~8 FAX: 886-77315887 CSA Z245.11 Gr.241 Cat I ASTM A106 Gr.B / JIS G3103 SB410 FASTM A234 WPB-02 ASME SA234 WPB-01 PURCHASER SEYBOLD MATERIALS STANDARD

INSP	SPEC. AS	ASME B16.9 - 01	1.01			AC	CORDIN	G TO E	N1020	4/DIN50	ACCORDING TO EN10204/DIN50049/3.1B	-	- I	CERIFI. NO: U46	U4b			_
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INSPECTION CERTIFICATE Rigin

INDUSTRIES CO., LTD 8. MEI-CHUNG RD, NIAO-SONG

KAOHSIÜNG HSIEN, 83301 TAIWAN TEL: 886-77310527~8 FAX: 886-77315887

ACCORDING TO EN10204/DIN50049/3.1B

ASTM A106 Gr.B / JIS G3103 SB410 ASME B16.9 - 01

INSP. SPEC. MATERIALS

CSA Z245.11 Gi.241 Cal

ASME SA234 WPB-01 ASTM A234 WPB-02

STANDARD

SEYBOLD

PURCHASER

DATE: 2005 - 01

5208/1402598OR2100 5,104-3 P.I. NO: ORDER NO:

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MAINAGER OF G.A. DEPT.

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 62012-98012, AIR COOLING N: NORMALIZING AT TEMPERATURE 880CX0.5HR,AIR COOLING.

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIM HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIM ARE CORRECT. NACE MR-01-75 & NACE MR 0103 : SATISFACTORY



SEC. II. 2004EDITION 2006ACCENE MATERIAL CONFORMS TO: ASM (Note 1) A: Hot farmed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR. Air Cooling *N: Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) S: Spress Relieving 675°Cx0.5 HR. Air Cooling Dimensional Inspection CRIMTECH SERVICES LT 58 Soi Warkrunai, Bangkru, Prapadaeng, Good MAY 15 2007 Certificate No. Samutprakam, 10130 Thailand. T- 2006201017 (BKL) Thai Benkan Co., Ltd. HARDNESS MAX 197 HB: GOOD Visual Examination Symbol No. Good PO No. 7511736 18/10/2006 Σ 30 Ω % Щ 61 Heat Treatment (Note 1) Specification for Inspection Tension Test *2 415 655 Ţ 484 S ASME B16.9-2003 ÆPa. INSPECTION CERTIFICATE 313 249 Ş 276/500 Quantity Ü TO EN10204 3.1 23 ź X 1000 1000 20 0 (I.*:F) 2 8 × 100 Mo 2 / 4 / 0 / 5 CSA 2245,11 GR241 CAT1 NACE MR0175-2003 Made from Seamless Pipe ASTM A234-05a/ASME SA234 WPB Specification for Material 00I × 히 9 Chemical Composition % x 1000 x Z \$ Product & Size 2.7 ថី 40 Job No. 1000 28 T WPB 2 S40 1000 19 / 21 / 55 / 13 / 2 | x | 100 106 Min Purchase Order No. 29 × 8 1 ij MFG. No. (Heat Identification No.) 06A10118 4877569 . 100 Purchaser : CCTF CORPORATION 23 Ç Material Heat No. Specification J5K5221 Max. Min. MA-709 E-No. Š. d 47 4 10 m

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Quality Assurance Manager Thai Benkan Co.,

CLE = C+Mn/0+(Cr+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:

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also with the purchaser's requirements and that the test results shown herein are correct.

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3" S40 SAZ34 WPPS TEC H7#06N10616

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INSPECTION CERTIFICATE

58 Soi Watkrunai, Bangkru, Prapadaeng, Certificate No. Samutprakam, 10130 Thailand. Thai Benkan Co., Ltd.

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>-Σ Ω TO EN10204 3.1 Job No.

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	4	_			Σ	_	63	3	4	5	

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned GOOD I also with the purchaser's requirements and that the test results shown herein are correct.

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

1 . FT elimbalized well thirbness in wen # 7 . VC Vield elemanth TC - Tenrile steenarth E . Elannation

Quality Assurance Manager Thai Benkan Co., I

32

4"x3" SAZ34WPB S40 RC PO #130244

HT# 06173 0069

INSPECTION CERTIFICATE

Purchaser: CCTF CORPORATION

58 Soi Watkrunai, Bangkru, Prapadaeng, Samurprakarn, 10130 Thailand. Thai Benkan Co., Ltd.

(BKL)

Certificate No. Σ

Ω TO EN10204 3.1 Job No. Purchase Order No. E-No.

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No.		MFG. No. (Heat Identification No.)	CSA	ASTM A234-(CSA Z245.11 GR241		ASTM A234-05a/ASME-SA234 WPB	34 WPB 1R0175-2	003			ASME B16.9-2003	6.9-2003	***************************************	Good	Good
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4				,	-	2	m	4	2	Note 1)

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

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

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

Ve hereby certify that the product described herein has been manufactured in accordance with the specifications concerned d also with the purchaser's requirements and that the test results shown herein are correct.

Quality Assurance Manager Thai Benkan Co. 1

be

Conc 10130144 CXC STO UPB

> SEYBOLD PURCHASER:

ASME SA234 WPB-06.

STANDARD

PLGID INDUSTRIES CO., LTD. INSPECTION CERTIFICATE

ORDER NO: 6091/4021744 8. MEH-CHUNG RD. NIAO-SONG, KAOHSIUNG HSIEN, 83301 TAIWAN TEL: 886-77310527~8 FAX: 886-77315887

DATE: 2007 - 01

P.I. NO: 6J18-1

CERTIFI, NO: 037

ASTM A106 Gr. B / JIS G3103 SB410 ASME B16.9 - 03 INSP. SPEC. MATERIALS

ACCORDING TO EN10204/DIN50049/3.1

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NACE MR-01-75 & NACE MR 0103 : SATISFACTORY
WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE
WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE
TEST RESULTS SHOWN HEREIN ARE CORRECT.

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.

N: NORMALIZING AT TEMPERATURE 880°CX0.5HR,AIR COOLING.

MANAGER OF Q.A. DEPT.

10488



Abnahmeprüfzeugnis nach EN 10204 - 3.1 Inspection certificate acc. to EN 10204 - 3.1

Zeugnis-Nr./Certificate No. CA - 49333950 Seite/Page 1 von/of 1

Es wird bescheinigt, dass die gelieferten Erzeugnisse den Vereinbarungen bei der Bestellung entsprechen. Darüber hinaus wird bescheinigt, dass bei der Herstellung der nachstehend aufgeführten Erzeugnisse die vorgeschriebenen Prüfungen und/oder die zusätzlich aufgeführten Prüfungen nach den bestehenden Prüfvorgaben durchgeführt und die erforderlichen Freigaben erteilt wurden. Die unten aufgeführten Prüfungen wurden unter Aufsicht einer dazu autorisierten, unabhängigen Stelle durchgeführt.

It is certified that the products supplied are in compliance with the requirements of the order. Furthermore, it is confirmed that during the manufacturing of the subsequently listed products the specified inspections and/or the additionally ordered tests have been performed according to the valid procedures and the necessary releases have been given. The subsequently listed inspections have been performed by especially authorized personal.

Kunde/Customer : -

Kunden Bestell-Nr./Customer Order No. : -

E+H-Auftrags-Nr./E+H Order No. : 46550000

Pos./Item	Menge/Qty.	Produktbezeichnung/Description	
250	1	72F15-SM0AA4PAB4AA PROWIRL 72 F 1/2" S/N.: 93038D16000 Tag-Nr.: FQIT-100	

Abnahmeprüfzeugnis nach EN 10204 - 3.1/Inspection Certificates acc. to EN 10204 - 3.1:

Grundkörper/Meter body: D726, Uni Deritend

Prozessanschluss/Process connection: 192106, Neumayer

Schraube/Screw: CR (M5X12), Bossard AG

Elektroden/Electrodes: 242904, 242343, Kurt Schneider AG

Datum/Date 05-11-2007

Jeff Griffin

Endress+Hauser Flowtec, Division USA Greenwood, IN 46143 USA

Abnahmebeauftragter Inspector

Dieses Dokument wurde elektronisch nach EN 10204 erstellt und ist ohne Unterschrift gültig. This document was generated electronically acc. to EN 10204 and is valid without signature.

Umstempelungsbescheinigung von Werkstoffen mit Abnahmeprüfzeugnis nach EN 10204-3.1

Endress+Hauser

People for Process Automation

(SVTI-Zulassung-Nr. 400113) Confirmation of Heat No. Transfer of Material with Inspection Certificate acc. to EN 10204-3.1

(SVTI Permission No. 400113)

(unde/Besteller: Client/Purchaser:	,.	Endress+Hauser Flowtec AG			ΞÓ	Unsere Beleg-Nr.: Our Reference No.:	10024804	**************************************
3+H-ldentNr./Teil: 3+H ldent No./Part:		Prozessanschluss/Process connection	ction		¥3	Auftr./Bestell-Nr.: Com./Order No.:	***	
Gegenstand: Object:	: P = Bleche P = Plates	F = Schmiedestücke F = Forging Pieces	T = Rohre R = Stäbe T = Tubes R = Rods	Zeugnis Certificate	Neue Stempelung auf Lieferung New Stamp of Delivery	uf Lieferung 7ery		
4444	Benennung Description	Abmessung Dimensions	Hersteller Manufacturer	Nr. No. Type	Werkstoff Sci Material Grade He	Schmelze-Nr. Heat No.	Probe-Nr. oder Code Test No. or Code	Prüferstempel Inspectors Stamp
	Prozessanschluss/Process connection	1/2" CL300 SC40 V/TM/US E+H Rowtec AG	E+H Flowtec AG	5034234/10 3.1B	1,4404/F316/F316 L	92106	261918	MM

Anlagen: Enciosures:	Zeugnis(se) Certificate(s)	Ort: Place: Re	Datum: Reinach Date: 1	Unterschrift: 19.03.2007 Signature:	taut t	Firma: Company:	Endress+Hauser Flowtec AG CH-4153 Remach	wtec AG

Wir bestätigen, dass die Umstempelung gemäss obriger Liste im Einvernehmen mit dem SVTI durch einen unserer Sachverständigen erfolgte. We confirm that the heat no. transfer for the above mentioned material has been performed by our specialists, in conformance with SVTI.

T/R/006A(1)

Inspection Certificate (EN10204/3.1B)

ENDRESS + HAUSER FLOWTEC (I) PVT.LTD

Inspection No : 40993/8.8.06

AURANGABAD

Part

Page :

1 of 2

Manufacturer:

Uni Deritend Limited

S V Road, Manpada, Thane 400 607, India

Phone :2 589 0112,2 589 0114,2 589 0115, 2589 0088, 2589 0685

Fax : (91-22) 2589 1089 E-Mail: udl@bom5.vsnl.net in

Article

Investment Castings

Order No :

AO1/2046002099,20137135

Date

8.5.06,14.7.06

INV.NO. & Dt.

321/06-07 DT 8.8.06

Technical Specifications / Requirements:

32

Material: Cast Stainless Steel

ASTM

According to :

A 351 Gr CF3M Edition

2000

Delivery Condition: UnMachined Melting Process :

Marking

Induction Melting Heat No., Brand of the manufacturer, Material

Brand of the Manufacturer: U

Inspector's stamp

: U1

Extent of Delivery:

Item No of No. **Pieces** Article

Heat No

Test

No

Works Code: 26-E-16

METER BODY PW F 15 W/O FL

330500-0000 INDEX-D (50104934)

D726

Chemical Analysis:

•	OHOHHOUL.		• •									
	Heat No.	Ç	Si	Mn	P	S	Cr	Ni	Мо	٧	Nb	
	Specifie				:							
	d:					t						
	Min:					:	17.0	9.0	2.0		ar in	
	Max:	0.03	1.5	1.5	0.040	0.040	20.0	13.0	3.0			
	D726	0.028	0.83	0.88	0.019	0.012	17.76	9.38	2.18	-	-	
						•						

The requirements are fulfilled as per Annex:

Place: Thane

Date:

8.8.06

Annexes:



TEST RESULTS

EN 10204/3.1B

T/R/006A(2)

Unl Deritend Limited

S V Road, Manpada, Thane 400 607, India.

Phone :2 589 0112,2 589 0114,2 589 0115, 2589 0088, 2589 0685

: (91-22) 2589 1089 E-Mail: udl@bom5 vsnl.net.in

Works Code 26E16

METER BODY PW F 15 W/O FL 330500-0000 INDEX-D (50104934) Article

Annex : Inspection No. : 40993/8.8.06

> ent Temp.

Mechani	ical Tes	ets :								Part	:	Page	::2	of 2
1 Tank		m of cimen		Specime	en	est veratur	Point oof	sile ngth	Elongation	uction of Area	1 = (J) Energy 2 = (J/cm²) In 3 = (%) Cryst	pact Stren	gth	
Test No./ Heat No	Thick- ness Dia	Wldth	ocation	Direction	Position	Temp	Yeild	Tens	<u> </u>	Reduction Area	4 = (mm 10²) 5 = (%) 6 = Hardness	} Expans		
			ت	۵	u.			Rm	Α	Z				
	mm	mm	}		1	*C	. Мра	Mpa	%	%		Values		
1		1							:		1	5	3	Σ√-n i
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D726	6.25	l -	:	Integr	al	Ambi-	293.2	514.8	45.60	**	127,128,124	126.33		

Heat treatment: Solution annealing

Radiography: Satisfactory - within acceptance level

Liquid penetrant test: Satisfactory

Severity level S2/V3 according to DIN 1690 part 2 - confirmed

Castings are in pickled condition

Date: 8,8.06 Place: Thane



NEUMAVER



Firma Dynafiex Kägenstrasse 14

CH 4153 Reinach BL1

ABNAHMEPRÜFZEUGNIS DIN 50049 / EN 10204 3.1

Inspektioncertificate / Certifikat de réception Herstellerzulassung TÜV nach AD 2000 und PED-97/23/EG Anhang 1, Absatz3 liegt vor.

Stempel des Herstellers Mark of fectory Polnoon missind



Stempel der Warkprüfstells Atark of faciory's Inspection Polopori de réception d'unine

Pos.: 1 von 1

Komm. Hr. / works-No / Noise rél. thre Bestellung / Your order / Votre commende Bestelles / manager / lo commeltant Teg / Date / Date 0671365 v. 10.10.06 09.11.2006 5034234/10 Dynaflex Antordenungen I Requirements / Valours demandés Menge/B Gegenstand / Atticle / Designation du produit AD2000-W2/W9/W10; ASTM A182; NACE WN Rohl. 600lb 1/2" RTJ alls, ohne M'loch 100 MR 0175 Yelle Hr. | Article No. Eszauuntatorm / Product / Prodult Werksteff (Norm) / Majerial correspondent / Majérial correspondent R04 00 22106 1.4404/ F316L/ F316 Gesenkschmiedestück Maile und Lage der Probe Dimensions and Pusitos of fast piece Dimensions et Position de l'éprouvette Prüfergebnisse Zugfestigkeit Tensile strength Plásistance é le tracia Minne En Kerbechlagerbeit nach EN 19946 Imp. Strength Résilience J/ RT Prabe Specimen Eprouvelle Nr/No Histo Hardnoss Durell HB 10/3000 Strackgranza Yield point Limte d'élesticité Rp = 0,2% M/max* q/t Rp = 1.0 % Gollwan 60 235 190 225 490 35 690 52 69 265 / 278 / 241 261918 163 251 293 548 164

Denietkungen / Ramarks / Rentarques

Wärmebehandlung: lösungsgeglüht: 1050°C, Wasser, Heat treatment: 1050°C quenching in water, 100% Werkstoffverwechslungsprüfung spectralanalytisch durchgeführt: o.B., 100% control of material identity produced by spectroscopic method: a.r. Prüfung auf Beständigkeit gegen Interkristalline Korrosion n. EN ISO 3651-2 durchgeführt: Material ist IK-beständig, Intercristalline corrosion has been carried out acc. EN ISO 3651-2: no cracks

	Schmeize Hoai Cheigo Ni No	C II %	SI Nb %	Mn V %	P #	B Cu ≸	Cr B ≪	[¥] Ca	MI *	AI ×	
•	192106	0,013	0,620	1,320	0,024	0,012	16,910	2,030	11,290		
		0,008			0,039	0,200		0,002			

Werkstoff und Ausführung das Produkte eitnemen mit den vertraglich veränbarten Angaben überein. Die Anelys zwerte stämmen mit den vertraglich veränbarten Angaben überein. Die Anelys zwerte stämmen mit dem Ursprungszerignis über eine Stelleng und Mallarifikung ohne Beenstandung.

Mellend land produkts are cervinsponding in the indications in our contract. The values of the anelyse conseponds in the produkt consepondent's las videoblons dem notes contract las indications de lanelyse consepondent au certificate dienge de lanelyse de Laten.

RICHARD HEUMAYER
Abnahmebeeufbagter

Grenzer Leiter OM

Das Zeugnis ist EDV- technisch erstellt und ohne Unterschrift gültig.
Die Dokumentensicherheit bei Maliversand wurde mit dem TÜV abgestimmt und bestätigt





 Date / Datum : 17/01/2006	Certificato di collaudo secondo EN10204:04/3,1
Certificate / Zeugnis : 41	AbnahmeprüfZeugnls EN10204:04/3.1
	Reference-Gode PED-97/23/UE-ADW0/TRD/400-106/Iso3506-AD-W2-
 Customer / Besteller: 0579 BOSSARD CH	Anforderungen nach PED 97/23/UE-ADW0/TRD/100-106/Iso3506-AD-W2
 	With Tüv Rheinland e V Approval :01202926/Q-02-0028 15/05/2002
	Mit Zustimmung des Tuv Rheinland e V :01202926/Q-02-0028 15/05/2002

				Spe	cification .	/ Umfang de	r Lieferun	9			
	Stück Quantity	Abmessung Size of Product	DIN	ISO	ואט	Lotto N*	Werkstoff Material	Kenzelchnung Marking	N° Bestellung N° order	N° Rechnung N° invoice	Lieferzeit Deliv Time
1	54500	M5X12	912			53627-A0	A4	CR A4-70	5562841	83-7	16/01/2006
2		J									

Chemical composition are taken from the specification of the Manufacter
Chemische Zusammensetzung wurde von den Herstellemachweisen antnommen

	Chargen CASTING	C %	Si %	Mn %	P %	5 %	Cr %	Mo %	NI %	Cu %	Ti %	V %	Al %	N %	W %
1	5VE4	0,027	0,716	1,669	0,033	0,003	17,136		11,106		0,005	0	0	0,039	0
2			1							······································	i			:	

				Mechan	ical Pro	perties /	Mechar	ische	Eige	nscha	flen			
	Streckg			aligkeit		hdehnung	•			tegrad rdness	······························	Bruchein	T FestigKeit	Verdichtbarkeit Compression
	Yeld s Rp 0,2%	tress N/mm2	N lensi	le stress N/mm2	Eiong L1	ation valu	AL.	HV	НВ	HRB	HRC	Striction	Res Torsion	Test
1	12.930,0	910,6	14.868,8	1.047,1			2,2	1			ļ		[;

Visual Control / Besichtigung: O.K.

Dimentional control / Sichtkontrolle: O.K.

NOTE: AD 2000 W0 (W10)

Technician / Prüfer: Cattinori Marinella
Responsabile garanzia qualità / Quality inspector Cattinori Monica
(Laboratorio Prove Meccaniche)

Technician / Prüfer: Cattinori Marinella
Responsabile garanzia qualità / Quality inspector Cattinori Monica
(Laboratorio Prove Meccaniche)

3.1 002 142/06

3608 Thun / Allmendingen Kurt Schneider AG Tempelstrasse 1



SVTI - Zulassung : KIS.PQ.400101

Umstempelungsbescheinigung von Werkstoffen mit Gütenachweis Besteller: Endress + Hauser Flowtec AG

Nr: 07012201

CH - 4153 Reinach

Kontroll stempel **(E) (E)** 607402840 611701950 Probe - Nr. Schmelze - Nr. Neue Stempelung auf Lieferung 242343 242904 Werkstoffe 1.4301 1.4435 3.1B 3.1B 것 Zeugnis 385396/ 2006 403105/ MEST MEST 2006 ž Acciaierie Valbruna Acciaierie Valbruna Hersteller F = Schmiedestücke Membrane eingeschr. in Elektrode * P = Bleche T = Rohre Liefer - Abmessungen Elektrode PW 77/72 Gegenstand Benernung PW 77

KURT SCHWEIDER AG Firmenstempel / Unterschrift:_ Anlagen :2 Zeugnis (se) Ort : Thun / Allmendingen Datum : 22, Januar 2007

Wir bescheinigen, dass die Umstempelung gemäss obiger Liste durch unseren Sachverständigen erfolgte.

Temperantk Temperature 1-3608 THUM ALLMENDINGEN Tel 033 334 70 20 Fax 033 834 70 30

Acciaierie Valbruna s.p.A.





CERTIFICATO DI COLLAUDO **ABNAHMEPRUEFZEUGNIS** INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204, 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l. Stab : 39100 BOLZANO (Italia) - Via A. Volla, 4 Cliente / Equation/Purchasence and VALBRUNA AG NEUENBURGSTRASSE 54 POSTFACH 212 03282-BARGEN BEI AARBERG-CH

Produtiore: ACCIAIERIE VALBRUNA S.P.A. Platsial eritomutaine produttica

Oggetto Prove: - Abgeschreckt Geschaelt Profespiratendien Inspectod Finlands

Avviso di Spedizione: D-VI05024424 Listeranzega/Pading 21/8.L

Ordina nr: 609003939

Tipo di Elaborazione: E+AOD

Erschmelzungs kritistijing process tido de distriction

Certificato nr: MEST403105/2006/

Conferma ordine nr: E106007782

Marchio di Fabbrica: MissGrid di nabbitu Zeichundes thifemniches Trade mark Sigle de fusike produtice

Punzone del Collaudatore; Siempel des Vierkasachversländigen Inspectur's stamp Poingon de Fessèreu



Specifiche: Anladerungen / Requirements / Eulgences VAL AD-W2 2005 1.4301/1.4307 A AD 2000-M. W 2 2003. 1.4307 A (1) ASME SA479 2004 S30400 A (2) ASTM A276 2006 S30403 A DIN 17440 96 1 4301 EN 10272 2000 1.4301 EN 10272 2000 1,4301 NACE MR0175° 2003 S30403 A (5) (0) ACCORDING TO DIN 17440,96 - EN 10272.2000 (2) SEC.II PT.A 2004 EDITION ADD.2005 (4) * ISO 15156-3

AD 2000-M W 10 2003 AISI 304 ASME SA479 2004 S30403 A (3) ASTM A479 2006 S30400 A EN 10088-3 2005 1.4301 A EN 10272 2000 1.4307

AD 2000-M W 2 2003. 1.4301 A (0) AISI 304L ASTM A276 2006 S30400 A ASTM A479 2006 S30403 EN 1008B-3 2005 1.4307 A NACE MR0175* 2003 S30400 A (4)

(1) ACCORDING TO EN 10272,2000 (3) SEC.II PT.A 2004 EDITION ADD 2005 (5) * ISO 15156-3

Qualità: 1.4301/1.4307

Merca: MVAISL MAXIVAL Markenbreakchungtungthunghung

Punzonatura: 1.4301/1.4307

Pos., n Pos., n Rem or, Ni., de poi	Coggetto Gegenstend Product description Descrip, du produit	Dimensioni - mm Abmassungen Dimession Dimension	Tolleranza Tollerana Allowanca Tollelanco	Lunghezza - mm	Colata Scrimptre Heat	Pozzi Siúchzahi Pioces	Peso - KG Grucht Welchi	Lollo nr.	
0020	Rund	45,000	K12-MIN	6000 / 6040	Couts C40004	Pleces	Poids	Leinr. Leinr.	
Sono sla	te soddisfatto tutti	B la condizioni right-ut-		200010040	242904	[]	2124,0	611701950	

SONO Sidite Soddisiallo Lutte le Condizioni richieste Die gesteten Ankuderungen eind it, Ankape sidit, The material has been kunished in accordance with the requirements Le material à eté trouvé conforme aux exigences

Controllo antimos colanza: OK Verwechs/unoprolung: spectralunslyssch durchgolüht Antimising issing pertormed: OK Controlla antimatings sitteraus.

Controllo visivo e dimensionale: soddisfa le esigenze: Beskistjoste und Autrestung: obre Beenstandung Vistal Impedice and dimensional electrosistacion Contra visuel el dimensiona: esistellare

TEST	Provella/Probests Septiment/Species Law Rows, Brets Dian, Dobs Von Dian, Dianous Ling, dam onle Imm	°C	Posts, Sangin	Snervamento Yesi sons Hp 0,2% N/mm2	Snervamento Speciporas Yanazani Linta sheripo Rp 1% N/mm2	Resistenza Tyratana	Erch (b)	jamento orince guine E 4d %	Ebus Sohat	izione licing licing RA	T F	Tesilien Konungua Monteca KV	¥.	<u> </u>	Dulezza Krosu Kros K Ko K Ko K Ko K Ko K K Ko K K K K K	
Ard	ori richiasti 1	m ma	1	205	230	515 680	45	40	-	50		100			-	
B C D	10 10 10	20 20 20 20		323 325 320 328	359 360 355 359	625 628 620 631	57 58 56 57	59 60 58 59	67 68 66 67	67 68 66 67	223 225 221 223	225 228 220 225	219 229 215 219	182 184 180 182	215	

Korngroesse nach ASTM E112

#]L=longi)udiniteAkngs, O=li asvursala-busi. Y=Tasgenzikb\angeniizi

Analisi chimica

•		,,					and a supply	MAINT CARDS IN	コミロジにん! 人りまかむ	VANAIVa a chima	****						
	Colata Mesi Schmelzo Couke	min • max 0,030	1,00	2,00	18.00 16,50	0,00	0.045	l: .	0,100	^		·]		I	I	1
ļ	040004	C %	SI %	Mn %	T, 75	NI%	P%	S %	N %				-	!	-	·	l
L	242904	0,017	0,54	1,75	18,20	8,25	0,028	0,030	0,089								l

Korrosion nach EN ISO 3651-2A Sensibilisierung : T1 : OK Corrosion test per EN ISO 3651-2A sensitized T1 : OK

Temperaturgeregelt warmumgeformt

Im Einvernehmen mit TUV BAYERN (Juli 1972).

Gegenzelchnungsverzicht durch TUV BAYERN (21.05.1979). Melted and manufactured in Italy No wolding or wold repair

Material free from Mercury or radio-activity contamination The Quality Management System is Centiled acc. Pressure Equipment Directive [97/23/EC] Annex 1,s.,4.5 by TUEV and LLOYD'S

il collaudatora di stabilimento / dar Warkssachverständigo/ Works Inspector / L'agent d'usine Vicenza,04/10/06 M. Rizzoty of LUAS Pagina - 1di 1

Acciaierie Valbruna s.p.A.





CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE **CERTIFICAT DE RECEPTION** EN 10204, 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l. Stab.; 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Bestelle / Purchase / Cliente VALBRUNA AG

NEUENBURGSTRASSE 54 POSTFACH 212 03282-BARGEN BEI AARBERG-CH

Produttore: ACCIAIERIE VALBRUNA S.P.A.

Oggatio Prove: - Abgeschreckt Geschaelt

Avviso di Spedizione: D-VI06020336 Determiniparading turit.

Ordine nr: 603003572

Tipe di Elaborazione: E+AOD ale'h abold-sacoro gnöishf-hasgranken Certificato nr: MEST385396/2006/

Conferma ordine nr: El06002713 Werke/Our Order/Retra:

Matchio di Fabbilca: Zeichen des Liefermenkes Trade mark Sigle de fusine produtice

Punzone del Cellaudatore: Etempel des Werkusschwerständigen Inspector is stamp/Poinçon de Fassayeur



Specifiche: Antorderungen / Requirements / Exigences VAL AD-W2 2005 1.4435 A AD 2000-M. W 2 2003 1.4435 A (0) EN 10088-3 2005 1.4435 A FERRITE <0,5 2003.

(0) ACCORDING TO DIN 17440.06 - EN 10272.2000 (2) * ISO 15156-3

BN 2 97 1.4435 A ASME SA479 2004 S31600/03 A (1) EN 10272 2000 1.4435

AD 2000-M. W 10 2003 . DIN 17440 96 1.4435 NACE MR0175* 2003 S31600/03 (2)

(1) SEC II PT A 2004 EDITION ADD 2005

Qualitá: 1.4435

Marca: MVAPMLD2 MAXIVAL

Punzonatura: 1.4435

Pos. mr.	Oggetto	Dimensioni - mm	Tollerariza	Lunghezza - mm	Cointa	Pezzi	Pesc - KG	Lotto nr. Losnr. Lotnr. Lot nr.
Pos. mr.	Gegenetand	Almesungen	Toserariz	Lunge	Echmetre	Stickrais	Gewicht	
Rem rr.	Product description	Dimension	Altowance	Length	Heat	Pieces	Weight	
Hr. de poste	Descrip, du produit	Dimension	Tolerance	Lungueer	Coulée	Pieces	Poids	
0010	Rund	26,000	H12-MIN	5410/5410	242343		1428,0	607402840

Sono state accidinate tritle to condizioni richieste De petaten Arboterungen sind R. Arisge eribii. The material has been sampled in accordance with the requirements to material a sid books confirme aux experiments.

Controllo antimescolanza: OK Verreschulungstillung: spectralanslysisch d Antenium iesting parformed: OK Controlle antimelange tall / i.e.s.

Controllo visivo e dimensionale: soddista le esigenze: Basichthoung und Ausmessung: ohne Beanstandung Visual inspection and dimensional phecks:satisfactory

						R			CONTR	Om Abstrict Of City	INDIDENTIFY FE	TIE SOTO BLAC				
TEST	Provettal/resectals Reschangements Ling than these, Brate Dient, Diese 196th Deet, Triolense Ling these, spele	°C	Posts. Danski Postson	Snorvamento Smecigrania Vind States 1940 shellaria Rp 0,2% N/mm2	Snervamento Syndomia Valdaria Hp 1% N/mm2	Resistenza Zegentous Tenda strench Aminimos d'recon Rm N/mm2	Briche Sion Aller AS	emento hiture siden paret E 4d	Einect Fleducti	ziono natura en al area tiles FA	i k	esillen:	refi	ſ	DUTOZZB Hante Hantson Dweb HB	
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ومختصفية ا	ri richiesti 1	m ma		205	235	515 690	40	30	-	40		100			215	
Α	10	20	L	253	286	578	63	65	75	75	240	243	240	182	Π	
8	10	20	L.	250	284	576	63	65	75	75	247	242	240	0		
С	10	20	L	250	283	575	62	64	74	74	246	244	241	o		

Korngroesse nach ASTM E112

5-TEST C

DELTA FERRIT

0,2 - TEST C

fjl.»long tudinslettings, O-irasversalektuer. T-Tangenzieletungertiel

Analisi chimica

Colata Alest 6denetre/Coulto	min - max 0,030	1,00	2,00	17,00 18,00	2,50 3,00	12,50 14,00	0,050	- 0,045		- 0,100	•	-	-	-	:
	C%	Si %	Mn %	Cr %	Mo %	NI %	Π%	P%	S%	N %		***************************************			
242343	0,018	0,37	1,24	17,57	2,66	12,67	0,045	0,031	0,022	0,082					

I.Korrosion nach EN ISO 3651-2A Sensiblilsierung: T1: OK

Corrosion test per EN ISO 3651-2A sensitized T1 : OK

Abgeschreckt 1070°C/H2O.

Im Einvernehmen mit TUV BAYERN (Juli 1972).

Gegenzeichnungsverzicht durch TUV BAYERN (21.05.1979).

Molled and manufactured in Italy No welding or weld repair Material free from Mercury or radio-activity contamination The Quality Management System is Contilled acc. Pressure Equipment Directive (97/23/EC) Annex 1,5,4,3 by TUEV and LLOYD'S

li collaudatore di stabilimento / der Werkesachverständige/ Works Inspector / L'agent d'usine Vicenza,27/07/06 Pagina - 1 di 1 M. Flizzotty Kul



Abnahmeprüfzeugnis nach EN 10204 - 3.1 Inspection certificate acc. to EN 10204 - 3.1

Zeugnis-Nr./Certificate No. CA - 49333950 Seite/Page 1 von/of 1

Es wird bescheinigt, dass die gelieferten Erzeugnisse den Vereinbarungen bei der Bestellung entsprechen. Darüber hinaus wird bescheinigt, dass bei der Herstellung der nachstehend aufgeführten Erzeugnisse die vorgeschriebenen Prüfungen und/oder die zusätzlich aufgeführten Prüfungen nach den bestehenden Prüfvorgaben durchgeführt und die erforderlichen Freigaben erteilt wurden. Die unten aufgeführten Prüfungen wurden unter Aufsicht einer dazu autorisierten, unabhängigen Stelle durchgeführt.

It is certified that the products supplied are in compliance with the requirements of the order. Furthermore, it is confirmed that during the manufacturing of the subsequently listed products the specified inspections and/or the additionally ordered tests have been performed according to the valid procedures and the necessary releases have been given. The subsequently listed inspections have been performed by especially authorized personal.

Kunde/Customer :

Kunden Bestell-Nr./Customer Order No. : -

E+H-Auftrags-Nr./E+H Order No. : 46550000

Pos./Item	Menge/Qty.	Produktbezeichnung/Description	
250	1	72F15-SM0AA4PAB4AA PROWIRL 72 F 1/2" S/N.: 93038D16000 Tag-Nr.: FQIT-100	

Drucktest Messsystem/Pressure Test Measuring System:

Druck/Pressure: 100 bar, Dauer/Duration: 3' 00", Medium/Fluid: Wasser/Water.

Alle Tests wurden mit Erfolg bestanden./All tests were passed successfully.

Datum/Date 05-11-2007

leff Griffin

Endress+Hauser Flowtec, Division USA Greenwood, IN 46143 USA Abnahmebeauftragter

Inspector



People for Process Automation

Flow Calibration with Adjustment

30100955-1682032

46550000	FCP-20 SMALL	
Purchase order number	Calibration rig	
CA-49333950-250 / Endress+Hauser Flowtec	21.64712 GPM	(≙ 100%)
Order N°/Manufacturer	Calibrated full scale	
72F15-SM0AA4PAB4AA	Calibration Interface	
Order code	Calibrated output	
PROWIRL 72 F 1/2"	423.84 Imp./dm ³	
Transmitter/Sensor	Calibration factor	
93038D16000	72.6 °F	
Serial N ^o	Water temperature	
FQIT-100		

F	Flow	Flow	Duration	V target	V meas	Δ o.r *	Outp **	Measured error % o.t.
	%	[GPM]	[sec]	(US GAL)	(US GAL)	[%]	(mA)	
2	29.8	6.46	30 6	3.2974	3.3037	0.19	8.78	2-
4	12.9	9.28	30.6	4 7393	4.7467	0.16	10.87	Tolerance limit
7	75.5	16.3	30.6	8.3283	8.3031	-0.30	16 04	{±0.75% o.r.}
1 7	75.8	16.4	30.6	8.3761	8.3653	-0.13	16.11	
ĺ	-	•••	-	-	-	***	-	0
	- :		_	-	-	-	-	
	-	***	-	-	-	-	-	-1-
	-	-	-	-	-	••	-	
ŀ	-		-	-	-	••	-	-2-
	-	-	-	-	- :	-	-	0 10 20 30 40 50 60 70 80 90 Flow [%]

or ; of rate

Tag Nº

For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics. The calibration is traceable to the NIST through standards certified at preset intervals.

05-16-2007 Date of calibration

Endress+Hauser Flowtec, Division USA 2330 Endress Place Greenwood, IN 46143 John Monaghan

John Mnaghen

Operator

Certified acc. to MIL-STD-45662A ISO 9001, Reg.-N° 030502 2

^{**}Calculated value (4 - 20 mA)



Parameter Setting

1682032

46550000	PROWIRL 72 F
Purchase order number	Transmitter/Sensor
CA-49333950-250 / Endress+Hauser Flowtec	1/2"
Order №/Manufacturer	Nominal diameter
72F15-SM0AA4PAB4AA	FOIT-100
Order code	Tag N°

93038D16000 Serial Nº

V1.03.00 Device Software Application liquid Volume Flow Meas Unit Type 1 lb/ft3 Operation Density Reference Density 1 lb/ft3 312 Meter Body MB

Current Output 1 Value for 20mA Current Span

22 USgal/min 4-20mA HART US

Impulse Output 1 Pulse Value Output Signal

1.32086 gal/P PASSIVE/POSITIVE

The above parameters are set according to your order. Please refer to the Operating Manual for any parameters not mentioned

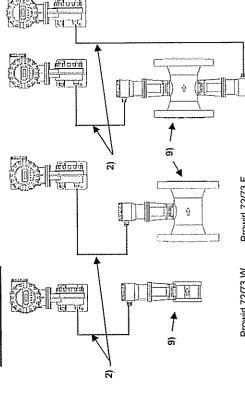
05-16-2007

Date

Endress+Hauser Flowtec, Division USA 2330 Endress Place Greenwood, IN 46143

Class I Division 1 Groups ABCD or Class I Zone 1 Group IIC Class II Division 1 Groups EFG Class III

Remote version



Prowirt 72/73 F Prowirl 72/73 W

Sensor.

PROWIRL 7** ** ** 1*** N****, PROWIRL 7** ** 2*** PROWIRL 7** ** 3*** N***** PROWIRL 7** **. **6***N****, PROWIRL 7** **. **7***N***** PROWIRL 7" "-"4""N"""

		3)	
	T6 2)	T5 2)	T4	T3	T2	11
Ta = 104 F	176°F	203°F	266°F	374°F	554°F	824°F
Ta = 140°F	-	203°F	266°F	374°F	554°F	824°F
Ta = 185°F	1	****	266°F	374°F	554°F	824°F

ature	T3 T2	374°F 536°F	374°F 536°F	374°F 536°F	
Aax. medium temperature	T4	266°F 3	266°F 3	266°F 3	
Мах. те	T52)	203°F	203°F	means	
	T6 2)	176°F	1	-	
		Ta = 104°F	Ta = 140°F	Ta = 185°F	

Transmitter

TR 21 | TS 21 | TA -PROWIRL 7** *******P*****

11	140°F
13.6	140°F
(70)	104°F
	Ta=

Compact version



		Max	. medium	temperature	ure	
	T6 2)	T5 2)	T4	T3	T2	ī
Ta = 104°F	1.971	203°F	266°F	374°F	554°F	824°F
Ta = 140°F	1	203°F	266°F	374°F	554°F	824°F

Prowirl 72/73 W

М

6

		Max. me	Max. medium temperature	perature	
	T6 2)	T5 2)	T 4	13	12
Ta = 104°F	176°F	203°F	266°F	374°F	3.9ES
Ta = 140°F	-	203°F	266°F	374°F	536°F

Notes:

Assignment of Control Drawings:

Drawing-No.	Model Codes:
FES0077 A	Prowid 7** ** *****
FES0077-0001 A	FES0077-0001 A Prowid 7** **_*****P****A, Prowid 7** **_****P****W,
	Prowid 7** *********************************

Prowirl 72/73 F

6

- Max. cable length for intrinsically safe installation 100m for using cable parameters 8
- L_{Cabte} = 1mH/km / 0.3.d-l/ft and C_{Cabte} = 1*d*-f/km / 300*a*f-/ft Temperature class T6 and T5 is not allowed for versions of Profibus PA and Fieldbus Foundation 3
 - Caution: Use supply wires suitable for 50°F above maximum ambient temperature

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Prowirl 72/73 F

(Dualsensor)

- Caution: Surface temperature of transmitter enclosure can exceed 158°F depending on ambient temperature or medium temperature **€** €
 - The Prowirl 72/73 is Factory Sealed. This means that a conduit seal is not required Dust tight seals must be used at conduit entries for Class II and III installation ô
 - within 18 inches (450mm) of the enclosure.
- Prowirl 72 and Prowirl 73 transmitter is intended for installation to Service Interface FXA 193 when using the PROLINE EX-ZWEIL, EITER-KABEL (blue cable) The Prowid 72/73 is a Dual Seal Device in accordance to ANSI/ISA-12.27.01-2003 € 8
 - Sensor of remote version and interior of measuning tube of remote and compact versions are permissible for use in Zone 0 ති

Ersetzt durch

Alle gesatzichen Urheberrachte vorbehalten.

A 10.12.03 / Bn F

Aenderunger

Prowirl 72/73 F

(Dualsensor)

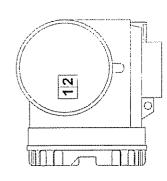
9	Diese Zeichnung darf ohne unsere	aua		
	Genehmgung weder vervielfälligt werden	igt werden	Ersatz für:	
	noch dritten Personen und Konkurrenzfirmen	kurrenzfirmen	Ersteller: FES/Bn	£
ш	zugängig gemacht werden.		File: M:VZEICHNGL., V031210c	IGL. 10312100
FM CONTROL DRAWING		Massstab	Gezeichnet 08.09.03	08.09.03
PROWIRL 72, PROWIRL 73 (XP-version)	-version)		Geprüft	
Compact Version, Remote version	-		Ex-geprüft 10.12.03	10.12.03
			Getahan	

A.doc 1D 1112



FES0077 A

Class I Division 1 Groups ABCD or Class I Zone 1 Group IIC Class II Division 1 Groups EFG Class III





Prowiri 7* ** ******A

Division 1 and Division 2 installation

U ≤ 36 Vdc U_{max} = 250 Vdc 4 ... 20 mA (max. 25 mA) Terminal 1 and 2
 Supply voltage: Signal current:

Division 1 and Division 2 installation ≤ 36 Vdc = 250 Vdc 2) Terminal 1 and 2 Supply voltage:

Division 1 and Division 2 installation

4 ... 20 mA (max. 25 mA) U ≤ 36 Vdc U_{max} = 250 Vdc U_{max} = 250 Vdc ≤ 30 mA U ≤ 30 V 3) Terminal 1 and 2 Supply voltage: 4) Terminal 3 and 4 Signal current: Signal current: Pulse Output:

Class II, III installation 5) Transmitter circuit wiring

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Transmitter circuit wiring in conduit in accordance with the NEC ANSI/NFPA 70

Note: 6)

- Installation of transmitter circuit wiring according to National Electrical
 - Code using threaded conduit.

 WARNING Terminal compar 2
- WARNING Terminal compartment.

 KEEP COVER TIGHT WHEN CIRCUITS ARE ALIVE OR THE AREA IS KNOWN TO BE HAZARDOUS
 Control room equipment may not use or generate over 250Vrms.

 WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR
 INSTRINSIC SAFETY.

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FM CONTROL DRAWING		4WIN	lo				Massstab	Gezeichnet 08.09.03 Bn	08.09.03	Bn
PROWIRL 72, PROWIRL 73 (XP-version)	8	WIR.		ر ر	X P	version)		Geprüft		
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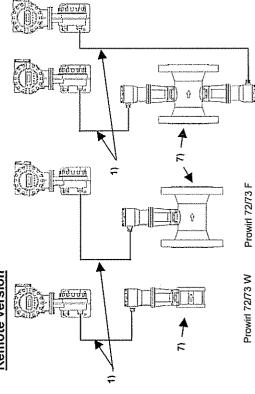


Flowtec AG, Kaegenstrasse 7, CH-4153 Reinach BL1. Postfach

FES0077-0001 A

Class I Division 1 Groups ABCD or Class I Zone 1 Group IIC Class II Division 1 Groups EFG Class III

Remote version



Sensor

	T6 2)	T5 2)	7	Ξ	T2	F
Ta = 40°C	30°C	၁ <u>.</u> ၁	130°C	190°C	290°C	440°C
Ta ≈ 60°C	l	95°C	130°C	190°C	290°C	440°C
Ta = 85°C	***	*****	130°C	190°C	290°C	440°C

		Мах те	Max. medium temperature	perature	
	T62)	T5 2)	7	13	T2 - T1
Ta = 40°C	೨ <u>,</u> 08	35°C	130°C	190°C	280°C
Ta = 60°C	****	95°C	130°C	190°C	280°C
Ta = 85°C	****	****	130°C	190°C	280°C

Transmitter

re resettpenter. PROWIRL 7**

	10.2)	(2.01	14-11
Ta=	40°C	_ ລູດ9	၁့09

Compact version

		Way	Max, medium temperature	temperat	iure	
	T6 2)	T5 2)	T4	Ξ3		F
Ta = 40°C	30°C	95°C	130°C	190°C	290°C	440°C
Ta = 60°C	I	95°C	130°C	190°C	290°C	440°C

Prowirl 72/73 W

1/1

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		Max. me	Wax. medium temperature	perature	
	T6 2)	T5 2)	T4	Т3	T2 - T1
Ta = 40°C	80°C	95°C	130°C	190°C	280°C
Ta = 60°C		95°C	130°C	190°C	280°C

Notes:

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Applicable Control Drawings **=**

Urawing-No.	Model Codes:	
FES0076 A	Prowif 7** **_*******	
FES0076-0001 A	FES0076-0001 A Prowid 7** ** ******P****A, Prowirl 7** ** ********W,	
	Prowirl 7** ** ******************************	

Prowirl 72/73 F

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Prowirl 72/73 F

(Dualsensor)

Max. cable length for intrinsically safe installation of remote sensor is 100m for using ล

cable parameters L_{Cable} = 1mH/km and C_{Cable} = 1μF/km Temperature class T6 and T5 is not allowed for versions of Profibus PA and Fieldbus ନ

Foundation

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ambient temperature or medium temperature Dust tight seals must be used at conduit entries for Class II and III installation

The Prowirl 72/73 is Factory Sealed. This means that a conduit seal is not required within 18 inches (450mm) of the enclosure. 6 F

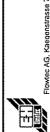
Prowirl 72 and Prowirl 73 transmitter is intended for installation to Service Interface FXA 193 when using the PROLINE EX-ZWEILEITER-KABEL (blue cable) Sensor of remote version and interior of measuring tube of remote and compact version 8

Prowirl 72/73 F

(Dualsensor)

are permissible for use in Zone 0 6

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PROWIRL 72, PROWIRL 73 (XP-version)	8	JWIRL 7	3 (XP.	-version)		Geprüft		
Compact Version, Remote version		Remote	version	74.00	·	Ex-geprüft	10.12.03	Bn
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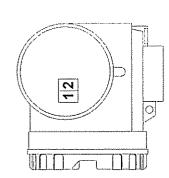


FES0076

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Class I Division 1 Groups ABCD or Class I Zone 1 Group IIC Class II Division 1 Groups EFG

Class III



Division 1 and Division 2 installation

 $U \le 36 \text{ Vdc}$ $U_{max} = 250 \text{ Vdc}$ Supply voltage:

4 ... 20 mA (max. 25 mA) Signal current:

Prowiri 7* **-*****P****H and Prowiri 7* **-******P****K

Division 1 and Division 2 installation ≤ 36 Vdc = 250 Vdc U_{max} 2) Terminal 1 and 2 Supply voltage:

Prowirl 7* **-*****W

Division 1 and Division 2 installation

J ≤ 36 Vdc J_{max} = 250 Vdc 4 ... 20 mA (max. 25 mA) \supset 3) Terminal 1 and 2 Supply voltage:

34

7

Signal current: 4) Terminal 3 and 4

U ≤ 30 V U_{max} = 250 Vdc ≤ 30 mA Pulse Output:

Signal current:

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Transmitter circuit wiring in conduit in accordance with the Canadian Electrical Code. Class II, III installation 5) Transmitter circuit wiring

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CSA CONTROL DRAWING	□	RAWIN	10			Massstab	Massstab Gezeichnet 18.6.03 Bn	18.6.03	Bn
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Installation of transmitter circuit wining according to Canadian Electrical Code using threaded conduit.

WARNING Terminal compartment:

Notes: 6) Install

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WARNING Terminal compartment:
KEEP COVER TIGHT WHEN CIRCUITS ARE ALIVE
OR THE AREA IS KNOWN TO BE HAZARDOUS
Control room equipment may not use or generate over 250Vms.
WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR
INSTRINSIC SAFETY.

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PROWIRL 72, PROWIRL 73 (XP-version)

FES0076-0001 A

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10.12.03

Ex-geprüft Gesehen

lowtec AG. Kaegenstrasse 7, CH-4153 Reinach BL1, Postfach