



Wednesday Dec-03-2014

From:

Cameron Canada Corporation
3707 97 St.

Edmonton, Alberta, Canada
T6E 6J2
780-468-2732

www.c-a-m.com

To:

"

Subject:

Serial: 120403148

Quantity/Serial: 25

Comment:

Part Number: 5A-T3F05S20LZ3

Description: BV F05 FNPT NUTRON T3 2000 WOG SOUR LT

Sales Order: N/A

Purchase Order: N/A



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Document Summary Page

The MTR's are printed in the following order:

#	Heat #	Heat Code	Part Description	Product
1	L	LOC	Nutron T3, B3, B2, TT Sour Low Temp.	--LOC
2	Hydro Test	598	API 598	-Hydro Test
3	D93D906		BODY, 1/2" 6000 WOG T3	5A-10000532600
4	Z93D829		CAP, 1/2" FP 6000 WOG FNPT, ASTM A350 GR	5A-1020100531600
5	R6171		STEM, 1/2", ANTI-STATIC, ASTM A564 17-4	5A-11300513617001
6	S8254		BALL, 1/2", MODEL T3/B3E, ASTM A479 (LATEST	5A-11500510617015



VALVES & MEASUREMENT
Cameron Canada Corporation
3707 - 97 Street
Edmonton Alberta Canada T6E 6J2
Phone 780.463.6868
Fax 780.465.1244
www.c-a-m.com

GENERAL LETTER OF COMPLIANCE

for:

**Nutron Models
T3, B3 & B2 & TT**

Style 'L': Sour Low Temperature Service

Cameron Valves & Measurement hereby certifies that the design, fabrication, testing and quality control of the above NUTRON brand ball valves for Sour Low Temperature Service have been made in accordance with the following applicable standards (latest edition in effect at time of manufacture): API 598 (1-1/2" and smaller), API 6D (TT only), ASME B16.34, CSA Z245.15 Sour Service (2" FP and larger) and V&M Engineering Standards. As part of compliance to these specifications, the valves have been marked in accordance with MSS SP-25. The valve has also been marked "SOUR" as required by CSA Z245.15 marking requirements for Sour Service.

The materials of construction for this valve conform to the metallurgical requirements of NACE MR0175/ISO 15156:2009 (Parts 1 & 2 for Carbon & Alloy Steels in SSC Region 3 Sour Service and Parts 1 & 3 for CRA's as specified in CSA Z245.15 Chapter 13). Per NACE MR0175-2009/ISO 15156, it is the customer's/user's responsibility to ensure that the valve materials will be satisfactory in the intended service.

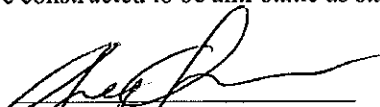
The minimum service temperature of these valves is -46°C/-50°F. Impact testing has been performed in accordance with applicable ASTM requirements and those of CSA Z245.15 for Category II M45C Service.

The 'Z' option code designation at the end of a figure number indicates that the valve meets the requirements of API-607 Fourth Edition, May 1993.

These valves (1-1/2" and larger) conform to the Pressure Equipment Directive requirements and are marked as CE certified (Certificate #8888-001-2002).

The B2 and TT valve models are constructed to be anti-static as standard.

Approved by:


Greg Ogdenko, M.Eng., P.Eng.
Engineering Manager

**VALVES & MEASUREMENT**

Cameron Canada Corporation
3707-97th St.
Edmonton Alberta Canada T6E 6J2
Phone 780.468.2732
www.c-a-m.com

CERTIFICATE OF CONFORMANCE**API 598 Pressure Testing – Carbon Steel
(2" RP and Smaller)**

COMPLIANCE: These valves are tested in accordance with Cameron Valves & Measurement's standard procedures and API Standard 598, as per the chart below.

Test durations are 15 seconds in length as a minimum. Test duration is defined as the period of inspection after the valve is fully prepared and is under full pressure.

Butt weld end valves shall be tested in accordance with the ANSI rating.

Actual test pressure is rounded to next highest increment on the gauge.

**Carbon Steel
Shell and Seat Test Pressures
(Table Based on Rating for Group 1.1 Materials per ANSI B16.34)**

Valve Class	Maximum Working Pressure	Hydrostatic Shell Test Pressure (PSI)	Air Seat Test Pressure +/- 10 PSI
150 ANSI	285	450	80
300 ANSI	740	1125	80
600 ANSI	1480	2225	80
800 ANSI	1975	3000	80
900 ANSI	2220	3350	80
1500 ANSI	3705	5575	80
2500 ANSI	6170	9275	80
275 WOG	275	425	80
720 WOG	720	1100	80
1000 WOG	1000	1500	80
1440 WOG	1440	2175	80
1500 WOG	1500	2250	80
2000 WOG	2000	3000	80
2160 WOG	2160	3250	80
3000 WOG	3000	4500	80
3600 WOG	3600	5400	80
4000 WOG	4000	6000	80
5000 WOG	5000	7500	80
6000 WOG	6000	9000	80


Greg Ogarko, Engineering Manager

Campex Inc.

PART No. 5A-10000532600 Rev. 02
 PRODUCT BODY, 1/2" 6000 WOG
 PO No. 4510362093
 QTY 4500
 MATERIAL: ASTM A350 Gr. LF2
 MS-021009-01-03 Rev.01

CHECKED BY: LIU NING
 APPROVED BY: ZHANG ZENGKUI
 REPORTED DATE: JULY 31, 2014

MS-021009-01-03 Rev.01

CHEMICAL COMPOSITION

MECHANICAL PROPERTY TEST REPORT

No.	LT/N	HT/N	QTY (PCS)	We certify that the items referenced in this document were manufactured and tested in accordance with Cameron Purchase Order requirements and EN 10204 3.1.												YIELD STRESS (Mpa)	TENSILE STRESS (Mpa)	EL (%)	ROA (%)	(J) -46°C	HB	Quenching				Tempering	
				C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	CE							Temp (°C)	Time (h)	Temp (°C)	Time (h)	Temp (°C)	Time (h)
1	D93	D906	4422	0.17	0.20	0.88	0.006	0.005	0.06	0.03	0.03	0.05	0.00	0.02	0.34	415	527	33	73	182/262/290	154/187/168	920	2	800	2	700	2
2	D93	D887	78	0.17	0.20	0.88	0.006	0.005	0.06	0.03	0.03	0.05	0.00	0.02	0.34	394	502	29	79	198/196/200	156/162/158	920	2	800	2	700	2
TOTAL			4500																								

Mechanical Property testing performed after heat treatment using standard round 2" specimen.
 Testing performed by Shandong Molong Petroleum Machinery Co., Ltd.



Campex Inc.

PART No. 5A-1020100531600 Rev. 02
 PRODUCT CAP,1/2"FP6000 WOG FNPT
 PO No. 4510292133
 QTY 534

CHECKED BY: LIU NING
 APPROVED BY: ZHANG ZENGKUI
 REPORTED DATE: APRIL 24, 2014

MATERIAL: ASTM A350 Gr. LF2 / A105N

CHEMICAL COMPOSITION

MECHANICAL PROPERTY TEST REPORT

No.	LT/N	HT/N	QTY (PCS)	We certify that the items referenced in this document were manufactured and tested in accordance with Cameron Purchase Order requirements and EN 10204 3.1.												YIELD STRESS (Mpa)	TENSILE STRESS (Mpa)	EL (%)	ROA (%)	(J) -46°C	HB	Quenching				Tempering	
				C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	CE							Temp (°C)	Time (h)	Temp (°C)	Time (h)	Temp (°C)	Time (h)
1	Z93	D829	534	0.17	0.20	0.88	0.006	0.005	0.06	0.03	0.03	0.05	0.00	0.02	0.34	381	526	32	75	224/232/236	146/158/152	920	2	800	2	700	2
TOTAL			534																								

Mechanical Property testing performed after heat treatment using standard round 2" specimen.

Testing performed by Shandong Molong Petroleum Machinery Co., Ltd.

Cameron Approved

By: 101718 Date:05/29/14 8:34



ISO 9001
No. 01 100 029186

原 璋 實 業 有 限 公 司

WON ZONE CORPORATION

3F No. 185 Chung Hwa Road Sec. 2, Chung Li City 32068, Taiwan

32068 桃園縣中壢市中華路二段 185 號 3 樓 統一編號: 16879927

Tel: +886-3-4341 325 Fax: +886-3-4341 525 E-mail: wonzone.taiwan@msa.hinet.net

CERTIFICATE OF CHEMICAL ANALYSIS AND MECHANICAL PROPERTIES	CERTIFICATE NO. 140922- 1 DATE: 22-Sep-14
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To, CAMERON CANADA CORPORATION

3707-97th Street, EDMONTON, AB T6E 6J2, CANADA

INVOICE NO. WZ-140922A

Your Order No.4510433136/471620/471657/500141/507022

MATERIAL SPECIFICATION: ASTM A-564 TYPE 630 H1150D

Q'TY	PART NAME	DRAWING No.	Heat Code	Mechanical Properties					
				Y.S.(KSI)	T.S.(KSI)	ELO.(%)	HRC	RA (%)	ft-lbf (-75°F)
				105 min	125 min	16 min	29~33	50 min	15 min
5,400	5A-11300513617001 Stem ½"	#02039	R6171	129	137	21	32	69	89/88/91
2,320	5A-11301013617001 Stem 7/8"	#02040	R6102	122	140	21	32	70	90/87/89
1,191	5A-11301513617001 Stem 1½"	#02038	FO	127	138	22	32	72	96/86/100
9	5A-11301513617001 Stem 1½"	#02038	FD	124	139	21	32	67	83/86/88
200	5A-11302013617001 Stem 2"	#02041	FH	126	138	22	33	69	92/86/88
1,400	5A-11500513617015 Ball 1/2"	#06076	S8301	130	143	22	32	66	83/78/76
180	5A-11501013617026 Ball 7/8"	#06082	S8252	119	137	23	30	69	120/105/113
317	5A-11502013617015 Ball 2"	#06080	S8306	121	135	20	32	71	72/78/80

Heat Code	Chemical Composition (%)									
	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	Nb+Ta
	0.07max	1.0max	1.0max	.030max	.040max	15-17.5	3.0-5.0	0.5 max	3.0-5.0	0.15-0.45
R6171	0.02	0.64	0.49	0.023	0.029	15.04	4.36	0.19	3.40	0.23
R6102	0.03	0.64	0.47	0.018	0.030	15.40	4.27	0.13	3.46	0.23
FO	0.02	0.63	0.51	0.023	0.029	15.17	4.32	0.18	3.40	0.23
FD	0.02	0.62	0.44	0.023	0.031	15.16	4.39	0.14	3.51	0.21
FH	0.02	0.64	0.49	0.023	0.029	15.04	4.36	0.19	3.40	0.23
S8301	0.02	0.62	0.44	0.023	0.031	15.16	4.39	0.14	3.51	0.21
S8252	0.02	0.72	0.36	0.024	0.023	15.38	4.67	0.10	3.30	0.28
S8306	0.02	0.72	0.36	0.024	0.023	15.38	4.67	0.10	3.30	0.28

Solution Treatment: 1900°F for 30 Min/Inch (Minimum of 1 Hour), Fast Air Cooling to below 90°F

Double Aged at 1150°F for 4 hours minimum and cooled to below 90°F in air

Charpy Impact Test Specimens: 10*10*55mm(Longitudinal)

Re Orig Heat #SE0302-GF0 for R6171; #SD2215-GJ0 for R6102; #SE0082-BA2 for FO; #SD2214-G701 for FD;

#SE0302-GM0 for FH; #SD2214-G90 for S8301; #9SD0304-G13 for S8252; #9SD0304-GP0 for S8306

NOTE: CERTIFICATE ACCORDING TO EN 10204/3.1B

QUALITY CONTROL INSPECTOR Sandy Yeh	MANAGER Grant Hsu
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APPROVED

By Iala at 1:07 pm, 10/15/14



ISO 9001
No. 01 100 029186

原 璋 實 業 有 限 公 司

WON ZONE CORPORATION

3F No. 185 Chung Hwa Road Sec. 2, Chung Li City 32068, Taiwan

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Tel: +886-3-4341 325 Fax: +886-3-4341 525 E-mail: wonzone.taiwan@msa.hinet.net

CERTIFICATE OF CHEMICAL ANALYSIS AND MECHANICAL PROPERTIES							CERTIFICATE NO. 140922- 7 DATE: 22-Sep-14				
To. CAMERON CANADA CORPORATION 3707-97th Street, EDMONTON, AB T6E 6J2, CANADA											
INVOICE NO. WZ-140922A							YOUR ORDER NO. 4510471657				
Material Specification: ASTM A479 type:316							Heat Treatment: Solution Annealed				
Q'TY	PART NAME	DRAWING No.	Heat Code	Mechanical Properties							
				Y.S.(Mpa)	T.S.(Mpa)	EL.O.(%)	RA(%)	HB			
2,980	5A-11500510617015 Ball ½"	#06076	S8254	<u>205 min</u> 236	<u>515 min</u> 590	<u>30 min</u> 56	<u>40 min</u> 78	 156			
Heat Code	Chemical Composition (%)										
	C	Mn	Si	S	P	Cr	Ni	Mo	N		
S8254	<u>0.08max</u> 0.029	<u>2.0max</u> 1.08	<u>1.0max</u> 0.33	<u>.030max</u> 0.001	<u>.045max</u> 0.034	<u>16-18</u> 16.30	<u>10-14</u> 10.13	<u>2.0-3.0</u> 2.04	... 0.05		
Re: Orig Heat # 9SC0103-LE2											
NOTE: CERTIFICATE ACCORDING TO EN 10204/3.1B											
QUALITY CONTROL INSPECTOR						MANAGER					
Sandy Yeh						Grant Hsu					

APPROVED

By Iala at 3:03 pm, 10/15/14