



FRISA FORJADOS, S. A. DE C. V.

Valentín G. Rivero No. 127 Col. Los Treviño
 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 336-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 169938

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	21/12/2000	15005283-000 OP	FOR00415	120160
Description ROLLED RING 30.750" X 18.375" X 8.250" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

HEAT: 87758 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	C %	Mn %	P %	S %	SI %	NI %	Cr %	Mo %
87758	0.1990 ✓	1.1200 ✓	0.0090 ✓	0.0010 ✓	0.2300 ✓	0.0400 ✓	0.0600 ✓	0.0410 ✓
	Cu %	V %	Nb %	Al %	Cr+Mo	NI+Cr+Mo+Cu	CE %	
	0.1370 ✓	0.0020 ✓	0.0010 ✓	0.0201 ✓	0.1010 ✓	0.2780 ✓	0.4181 ✓	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000 ✓	73720 ✓	35 ✓	89 ✓	152 ✓	149 ✓	110 ✓	0.077 ✓	45 ✓	-20 ✓
						140 ✓	77 ✓	0.058 ✓	27 ✓	
						99 ✓	99 ✓	0.068 ✓	48 ✓	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM ✓	1652	6.00	AIR	

QC APPROVED
 DATE: 1/9/01
 INSPECTED BY: [Signature]
 COMMENTS: [Signature]

0956101
 1/9/01

0956101

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NUMA FR-0511



QUALITY ASSURANCE



FRISA FORJADOS, S. A. DE C. V.

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CERTIFIED COMPANY
ISO 9002

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Spec: BI-A105-MS R.1

Pag. 1 / 1

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	Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+Cu	CE %	
	0.1370 ✓	0.0020 ✓	0.0010 ✓	0.0201 ✓	0.1010 ✓	0.2780 ✓	0.4181 ✓	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000 ✓	73720 ✓	35 ✓	69 ✓	152 ✓	140 ✓	77 ✓	0.058 ✓	27 ✓	-20 ✓
						149 ✓	99 ✓	0.068 ✓	48 ✓	
							110 ✓	0.077 ✓	45 ✓	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM ✓	1652	6.00	AIR	

QC APPROVED

DATE: 1/9/01

INSPECTED BY: [Signature]

COMMENTS:

0956102

0956102

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NUMA FRI-0511



QUALITY ASSURANCE



FRISA FORJADOS, S. A. DE C. V.

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 Fax: 52(8) 336-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 169940

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	21/12/2000	15005283-000 OP	FOR00414	120161
Description ROLLED RING 30.750" X 18.375" X 6.500" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

HEAT: 87758 (2/2) PCS
CHEMICAL ANALYSIS

Heat No.	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
87758	0.1990	1.1200	0.0090	0.0010	0.2300	0.0400	0.0600	0.0410
	Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+ Cu	CE %	
Check	0.1370	0.0020	0.0010	0.0201	0.1010	0.2780	0.4181	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000	73720	35	69	152	152	110	0.077	45	-20
						149 ✓	77	0.058	27	
							99	0.068	48	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM	1652	6.00	AIR	

QC APPROVED

DATE: 1/5/01

INSPECTED BY: _____

COMMENTS: _____

0956201

0956201

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE
 NUMA PRI-0611



QUALITY ASSURANCE



FRISA FORJADOS, S. A. DE C. V.

Valentín G. Rivero No. 127 Col. Los Treviño
 C.P. 86350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 336-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 169940

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	21/12/2000	15005283-000 OP	FOR00414	120161
Description ROLLED RING 30.750" X 18.375" X 6.500" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

HEAT: 87758 (2/2) PCS
CHEMICAL ANALYSIS

Heat No.	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
87758	0.1990	1.1200	0.0090	0.0010	0.2300	0.0400	0.0600	0.0410
	Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+Cu	CE %	
Check	0.1370	0.0020	0.0010	0.0201	0.1010	0.2780	0.4181	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000	73720	35	69	152	152	110	0.077	45	-20
						149 ✓	99	0.068	48	
							77	0.058	27	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM	1652	6.00	AIR	

QC APPROVED

DATE: 1/9/01

INSPECTED BY: _____

COMMENTS: _____



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 NUMA FR1-0611

QUALITY ASSURANCE

0956200



FRISA FORJADOS, S. A. DE C. V.

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 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 336-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 170262

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-4140-MS R.0

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	9/01/2001	15005283-000 OP	FOR00760	120162
Description ROLLED RING 21.750" X 18.375" X 8.750" MELTING PRACTICE: E. F. V. D. QTC SIZE (4" X 4" X 10")				

HEAT: F8222 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	Ladle	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
F8222		0.4150 ✓	0.7980 ✓	0.0120 ✓	0.0200 ✓	0.2340 ✓	0.1280	0.9630 ✓	0.1740 ✓
	Ladle	Cu %	V %	Al %					
		0.1140	0.0040	0.0230					

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (R/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49861	90440 ✓	115440 ✓	23 ✓	62 ✓	262 ✓	285 ✓	34	0.015	42	-20 ✓
						269 ✓	36	0.017	40	
						35 ✓	35	0.017	34	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49817	NORM	1652	3.00	AIR	
2 PCS	49860	AUSTENIT ✓	1562	3.00	POLYMER	
2 PCS	49861	TEMPERED	1166	5.00	AIR	

QC APPROVED
 DATE: 1/15/01
 INSPECTED BY: [Signature]
 COMMENTS:

JAN 15 2001 10:15 AM
 0963001



WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NUMA-FR1-0511

QUALITY ASSURANCE



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 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 170262

Customer: **BIG INCH MARINE SYSTEMS, INC.**

Spec: **BI-4140-MS R.0**

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	9/01/2001	15005283-000 OP	FOR00760	120162

Description	ROLLED RING 21.750" X 18.375" X 8.750" MELTING PRACTICE: E. F. V. D. QTC SIZE (4" X 4" X 10")
--------------------	--

HEAT: F8222 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	Ladle	C %	Mn %	P %	S %	Si %	NI %	Cr %	Mo %
F8222		0.4150 ✓	0.7980 ✓	0.0120 ✓	0.0200 ✓	0.2340 ✓	0.1280	0.9630 ✓	0.1740 ✓
	Ladle	Cu %	V %	Al %					
		0.1140	0.0040	0.0230					

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49861	90440 ✓	115440 ✓	23 ✓	62 ✓	262 ✓	269 ✓	36 ✓	0.017	40	
							35 ✓	0.017	34	
							34	0.015	42	-20 ✓

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49817	NORM	1652	3.00	AIR	
2 PCS	49860	AUSTENIT ✓	1562	3.00	POLYMER	
2 PCS	49861	TEMPERED	1166	5.00	AIR	

QC APPROVED
 DATE: 1/18/01
 INSPECTED BY: [Signature]
 COMMENTS:

ANALYTICAL LAB
PROS
 ANALYTICAL LAB

0963002

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 ALL MATERIALS ARE MERCURY FREE
 NUM.A.FRI-0511



QUALITY ASSURANCE



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 Fax: 52(8) 338-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 169941

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	21/12/2000	15005283-000 OP	FOR00396	120164
Description ROLLED RING 29.000" X 18.375" X 7.375" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

HEAT: 87758 (2/2) PCS
CHEMICAL ANALYSIS


Heat No.	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
87758	0.1990	1.1200	0.0090	0.0010	0.2300	0.0400	0.0600	0.0410
	Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+Cu	CE %	
Check	0.1370	0.0020	0.0010	0.0201	0.1010	0.2780	0.4181	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000	73720	35	69	152	152	110	0.077	45	-20
						149 ✓	99	0.068	48	
							77	0.058	27	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM	1652	6.00	AIR	

QC APPROVED
 DATE: 1/9/01
 INSPECTED BY: 
 COMMENTS:



0956301

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 ALL MATERIALS ARE MERCURY FREE
 NUMA FRI 0511

QUALITY ASSURANCE



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 Fax: 52(8) 336-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 169941

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Spec: BI-A105-MS R.1

Pag. 1 / 1

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CHEMICAL ANALYSIS

Heat No.	C %	Mn %	P %	S %	SI %	Ni %	Cr %	Mo %
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	Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+ Cu	CE %	
	0.1370	0.0020	0.0010	0.0201	0.1010	0.2780	0.4181	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49623	46000	73720	35	89	152	152	110	0.077	45	-20
						149 ✓	77	0.058	27	
							99	0.068	48	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49623	NORM	1652	6.00	AIR	

QC APPROVED

DATE: 1/9/01

INSPECTED BY: _____

COMMENTS: _____



0956302

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NMLA FRJ-0511

QUALITY ASSURANCE



TEST CERTIFICATE

FILE NO: 7662-04-10
DATE: 01/29/99
MILL ORDER NO: J3115-003

CUSTOMER P.O.: 1600865 1/2
DESCRIPTION: 1 - RECTANGLE .75 --A-- 96 --K-- 480

SEND TO: THYSEN STEEL GROUP WEST D L S
2700 POST OAK BLVD
SUITE 1100
HOUSTON TX 77056

SHIP TO: THYSEN STEEL GROUP WEST D L S
C/O FORTY RAIL SERVICES
PORT OF HOUSTON
PTRA SPUR 23435
HOUSTON TX 77056

ASME SA516 GR 70 YR 96A

MATERIAL PRODUCED UNDER A CERTIFIED QUALITY MGMT SYSTEM COMPLYING WITH ISO 9002 ABS-QE CERT. NO. 30130

CHEMICAL ANALYSIS

MELT/SLAB	C	MN	P	S	CU	SI	NI	GR	MO	V	TI	B	CB	OTHER TESTS PERFORMED
0703 /3AA	.22	1.10	.016	.026	.24	.23	.16	.22	.06	.004			.001	GS 7-8
A0703														

TENSILES

VLD TENS (PSI X 100)	% ELONG	% RA	TYPE	TEMP	FT LBS	CHARPY V IMPACTS	FULL	BILATERAL EXPANSION	% SHEAR
557 820	26.0		BL	-50F	30 44 48				

INFORMATION

WEIGHT PER PIECE = 9801 LBS. 4455 KG.
WELD REPAIR HAS BEEN PERFORMED BY LUKEM.S.
ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN U.S.A.
ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN U.S.A.
7/L 240350 TTPX 81062

0163205

Quality Assurance Laboratory



TEST CERTIFICATE

FRAGE NUM. U.S. WT. U.S.A.
 FILE NO: 7862-04-10
 DATE: 01/29/99
 MAIL ORDER NO: 33115-003

CUSTOMER P.O.: 1600865 1/2
 DESCRIPTION: 1 - RECTANGLE .75 - A - 96 - X - 480

SEND TO:
 THYSSEN STEEL GROUP WEST D L S
 2700 POST OAK BLVD
 SUITE 1100
 HOUSTON TX 77056

SHIP TO:
 THYSSEN STEEL GROUP WEST D L S
 C/O PORT RAIL SERVICES
 PDART OF HOUSTON
 PTRR SPUR 23435
 HOUSTON TX 77056

TK 77056

TK 77056

TK 77056

ASME SA516 GR 70 YR 96A

ASME SA516 GR 70 YR 90

MATERIAL PRODUCED UNDER A CERTIFIED QUALITY MGMT SYSTEM COMPLYING WITH ISU 9002 ABS-QE CERT. NO. 30130

CHEMICAL ANALYSIS

MELT/SLAB	C	MIN	P	S	CU	SI	NI	CR	MO	V	TI	B	CA	OTHER TESTS PERFORMED
0703	73AA	.22	1.10	.016	.026	.24	.23	.16	.22	.06	.004		.001	GS 7-6
R0703														

TENSILES		CHARPY V IMPACTS		FULL	
VLD (PSI)	TENS (% ELONG)	TEMP	FT LBS	W/LAT LATERAL EXPANSION	% SHEAR
55T	820	26.0	30	44	68

INFORMATION

WEIGHT PER PIECE = 9801 LBS. 4455 KG.
 WELD REPAIR WAS PERFORMED BY LUKENS.
 ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN U.S.A.
 ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN U.S.A.
 1/2 240350 1TPX 81062

0963276

Quality Assurance Laboratory

T12609-26011

Jindal United Steel Corp.
5200 E. McKinney Rd.
Baytown, TX 77520

METALLURGICAL TEST REPORT

This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications.

Approved by: John S. Lantz, P.E.

Final Manufactured in the U.S.A.
Shipping Method: Truck

Sold To: Chapel Steel Co.
P.O. Box 1331
414 Commerce Dr., Suite 150
Fort Washington, PA, 19024

Order No. 200290-0
P.O. Desc.

Order No. 401490
Shipper No. T12609

Ship To: Chapel Steel Co.
6400 N. Houston Eastlyn Rd.
Houston, TX 77061

P.O. Number: 5090533

ENR 01 M.L.L. / Certified T.T. faced to customer.

Specifications: Carbon Plate ASME SA312-98 Edition Q70 P70
Normalized LCVN per SA312-98 Table A.1.1.5- Dual Certified to Grade
63. All Material Certified to DIN 10087 1.1 B / EN10028 3.1 B A3N
3.010 M.L.L.

Item No.	Material Description		Quantity	Weight	Heat No.	Yield St.			Tensile	Elongation	Reduction of Area	Flare
	Thickness	Width				Length	Min	Max				
01	1.625	96	408	21256	502611	158	48.7	74.6	28.0%	41-15-35	11497 Per 98 Mils.	
Yield Strength Determined at 0.1%	502611	25	1.11	.007	.26	.910	.010	.020	<0.10	.035	<0.10	<.005



0963305

CHAPEL STEEL CO.

DATE: 10/24/00

TIME: 10:28

SCALE: 1:1

TI 2008-26011

10/24/00 09:00 FAX 205 854 3899

Jindal United Steel Corp.
 5200 E. McKinney Rd.
 Baytown, TX 77520

METALLURGICAL TEST REPORT

Sold To: Chapel Steel Co. P.O. Box 1337 414 Commerce Dr., Selma 190 Fort Washington, PA 19024		Ship To: Chapel Steel Co. 628 N. Meadows Lanes EA Houston, TX 77061		Order No.: 200009-03 P.O. Number: 1004933		Item Manufactured in the U.S.A. Shipping Method: Truck	
Specifications: Carbon Plate ASME SA312-28, Grades Q70 FVQ Normalized 1/2" N per SA28-5.3 Table A.1.5. Dual Certified to Grade 65. All Material Certified to: D991009 3.1.B / EN10201 3.1.B A1B S.910 max.							
Material Description Thickness: 96 Width: 488 Length: 488		Quantity 1		Weight 31236		Test No. 502611	
Chemical Analysis C: .25 Mn: 1.11 P: .014 S: .007 Si: .26		Yield Strength 502611 in load at 0.1%		Tensile 502611 in load at 0.1%		Impact 502611 Charpy V	
Yield Strength 502611 in load at 0.1%		Tensile 502611 in load at 0.1%		Impact 502611 Charpy V		Hardness 502611 Rockwell C	

This is to certify that the product described herein was manufactured, sampled, and tested in accordance with the specifications and requirements in such specifications.

Approved by: John P. Lutz P.E.



Form No. 50013 Issued 10/00 by SAE

0963306



FRISA FORJADOS, S. A. DE C. V.

Valentin G. Rivero No. 127 Col. Los Treviño
 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 338-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 170759

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	23/01/2001	15005554-000 OP	0	120864
Description ROLLED RING 30.750" X 29.000" X 4.250" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

Tab 00011

HEAT: 87170 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	Ladle	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
87170		0.2000	1.1600	0.0090	0.0013	0.2500	0.0400	0.0700	0.0290
		Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+ Cu	CE %	
	Ladle	0.1150	0.0000	0.0000	0.0210	0.0990	0.2540	0.4235	

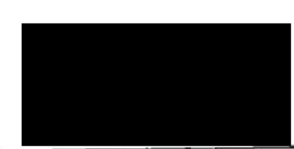
MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
50194	45000	74260	35	71	149	156	122	0.075	36	-20
							128	0.078	36	
							152	0.065	33	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	50194	✓ NORM	1652	3.00	AIR	

QC APPROVED
 DATE: 1/30/2001
 INSPECTED BY: _____
 COMMENTS: _____



098960

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NUM A FR1-0511

QUALITY ASSURANCE



FRISA FORJADOS, S. A. DE C. V.

Valentin G. Rivas No. 127 Col. Los Treviño
 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 336-3580
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. 170759

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-A105-MS R.1

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	23/01/2001	15005554-000 OP	0	120864
Description ROLLED RING 30.750" X 29.000" X 4.250" MELTING PRACTICE: E. F. A. O. D. QTC SIZE (4" X 4" X 10")				

Tab 02011

HEAT: 87170 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	Ladle	C %	Mn %	P %	S %	Si %	Ni %	Cr %	Mo %
87170		0.2000	1.1600	0.0090	0.0013	0.2500	0.0400	0.0700	0.0290
		Cu %	V %	Nb %	Al %	Cr+Mo	Ni+Cr+Mo+ Cu	CE %	
	Ladle	0.1150	0.0000	0.0000	0.0210	0.0990	0.2540	0.4235	

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
							128	0.078	36	
							152	0.065	33	
50194	45000	74260	35	71	149	156	122	0.075	36	-20

HEAT TREATMENT

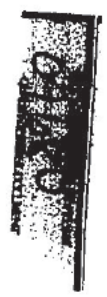
Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	50194	✓ NORM	1652	3.00	AIR	

QC APPROVED

DATE: 1/30/2001

INSPECTED BY: _____

COMMENTS: _____



0968002

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE
 NUMA FR-0311

QUALITY ASSURANCE



FRISA FORJADOS, S. A. DE C. V.

Valentin G. Rivero No. 127 Col. Los Treviño
 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 338-3560
 Sta. Catarina, N. L., México

CERTIFIED COMPANY
ISO 9002

Material Test Report No. i70565

Customer: **BIG INCH MARINE SYSTEMS, INC.**

Spec: **BI-4130-75-MS R.2**

Qty	Date	P.O. Number	Part No.	Job Order
2	16/01/2001	15005283-000 OP	FOR00313	120163
Description ROLLED RING 23.000" X 18.375" X 10.500" MELTING PRACTICE: E. F. V. D. QTC SIZE (4" X 4" X 10") API 6A PLS 3				

HEAT: F5742 (2/2) PCS
CHEMICAL ANALYSIS

Heat No.	Ladle	C % ✓	Mn % ✓	P % ✓	S % ✓	Si % ✓	Ni %	Cr % ✓	Mo % ✓
F5742		0.3150	0.5360	0.0140	0.0030	0.2490	0.1900	1.0420	0.2110
	Ladle	Cu %	V %	Al %	CE %				
		0.1590	0.0380	0.0180	0.024				

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI) ✓	Tensile Strength (PSI) ✓	Elong. % (2") ✓	A.R. (%) ✓	Hardness BHN QTC ✓	Hardness BHN PCS ✓	CVN (ft/lb) ✓	Lat. Exp. (IN)	Shear %	Test Temp. (°F) ✓
					235	217	135	0.066	77	
					235	223	123	0.066	71	
49970	85500	108000	24	73	235	223	120	0.064	71	-20

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
✓ 2 PCS	49817	NORM	1652	3.00	AIR	
2 PCS	49969	AUSTENIT	1652	3.00	WATER	
2 PCS	49970	TEMPERED	1256	5.00	AIR	

QC APPROVED
 DATE: 1/30/2001
 INSPECTED BY: [Signature]
 COMMENTS: API 95K



09165207



QUALITY ASSURANCE

WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA
 ALL MATERIALS ARE MERCURY FREE
 NUM A FRU 011



FRISA FORJADOS, S. A. DE C. V.

Valentin G. Rivero No. 127 Col. Los Treviño
 C.P. 66350 Tels. 52(8) 153-0321, 153-0302
 Fax: 52(8) 336-3580
 Sta. Catarina, N. L., México

CERTIFIED COMPANY

ISO 9002

Material Test Report No. 170505

Customer: BIG INCH MARINE SYSTEMS, INC.

Spec: BI-4130-75-MS R.2

Pag. 1 / 1

Qty	Date	P.O. Number	Part No.	Job Order
2	16/01/2001	15005283-000 OP	FOR00313	120163
Description ROLLED RING 23.000" X 18.375" X 10.500" MELTING PRACTICE: E. F. V. D. QTC SIZE (4" X 4" X 10") API 6A PLS 3				

HEAT: F5742 (2/2) PCS

CHEMICAL ANALYSIS

Heat No.	Ladle	C %	Mn %	P %	S %	SI %	NI %	Cr %	Mo %
F5742		0.3150	0.5360	0.0140	0.0030	0.2490	0.1900	1.0420	0.2110
	Ladle	Cu %	V %	Al %	CE %				
		0.1590	0.0350	0.0180					

MECHANICAL PROPERTIES

Heat Treat Lot No.	Yield Strength (PSI)	Tensile Strength (PSI)	Elong. % (2")	A.R. (%)	Hardness BHN QTC	Hardness BHN PCS	CVN (ft/lb)	Lat. Exp. (IN)	Shear %	Test. Temp. (°F)
49970	85500	108000	24	73	235	223	120	0.064	71	-20
					235	217	123	0.066	71	
							135	0.066	77	

HEAT TREATMENT

Quantity	Heat Treat Lot No.	Heat Treatment	Temperature (°F)	Time at Temp (Hrs)	Cooling Medium	Quench. M. Temp. (°F)
2 PCS	49817	NORM	1652	3.00	AIR	
2 PCS	49969	AUSTENIT	1652	3.00	WATER	
2 PCS	49970	TEMPERED	1256	5.00	AIR	

QC APPROVED
 DATE: 1/30/2001
 INSPECTED BY: [Signature]
 COMMENTS: API 95K

[Vertical stamp]

091652002



WE HEREBY CERTIFY THAT ALL TEST RESULTS AND PROCESS INFORMATION CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY.

NO WELDING REPAIRS IS ALLOWED AND USED IN FRISA ALL MATERIALS ARE MERCURY FREE
 NUM A FRU-011

QUALITY ASSURANCE

Forged Products, Inc.
 6505 N. HOUSTON-ROSSLYN ROAD
 HOUSTON, TEXAS 77091 PHONE (713) 482-3416



CERTIFIED TEST REPORT

"CORRECTED COPY" *SKT 1/20/01*


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BIG INCH MARINE SYSTEMS, INC.
 12235 FM 529
 HOUSTON, TEXAS 77041-2806

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SAME
 C/O BREAUX MACHINE
 13842 HIRSCHFIELD
 TOMBALL, TEXAS

DATE SHIPPED 01-11-01		CUSTOMER'S ORDER NO. 15005328-001-OP ITEM 1		SHIPPED VIA	
QTY	JOB #	PC #	HEAT CODE	DESCRIPTION	PC
2	65243		H8412	ROUGH FORGE TO FINISH: 31"OD X 17 1/4"ID X 35 1/4"LG MATERIAL: 1026MOD, EF-VD SUPPLIED IN COMPLIANCE WITH THE FOLLOWING BI-A105-MS REV. 1 NORMALIZED PART NO.: FOR00427 BHN: 170 (1) ✓ 174 (1)	1

QC APPROVED
 DATE: 2/8/2001
 INSPECTED BY: 
 COMMENTS:

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT. CERTIFICATION NO.

	TIME AT HEAT	COOLANT	HARDNESS CHECK:
ANNEALED	°F		--FORGINGS & QTC QTC (4x4x8"LG)
NORMALIZED ✓	1650	AIR	
QUENCHED	°F		
DRAWN	°F		
DRAWN	°F		
STRESS RELIEVED	°F		

HARDNESS RANGE

CHEMICAL ANALYSIS

HEAT NO.	MILL SOURCE	C ✓	MN ✓	P ✓	S ✓	S ✓	NI ✓	CR ✓	MO ✓	V ✓	AL ✓	CU ✓	CB ✓
1 H8412	ELLWOOD	.16	1.27	.012	.011	.30	.06	.10	.02	.003	.041	.12	.002
2													
3	CE = .41												

PHYSICAL PROPERTIES

YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	ELONG (%)	RED. OF AREA (%)	HARDNESS	TYPE CHARPY	TEMP. (F°)	ABSRB. ENERGY FT./LBS.	LATERAL EXP. (MILS)	SHEAR (%)
1 54,500 ✓	76,000 ✓	32.8 ✓	66.7 ✓	BHN: 152	CVN	-20F ✓	93/83/60 ✓	67	70
2		2" GAGE LENGTH		152				64	60
3		DIA. + .499						47	50

MISCELLANEOUS TESTING


TYPE OF TEST	G/S
1	
2	
3	

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____ 19 _____

 NOTARY PUBLIC

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS, INC. AND THAT THIS STEEL WAS MANUFACTURED AND FORGED IN THE

 1/11/01

Forged Products, Inc.

8505 N. HOUSTON-ROSSLYN ROAD
HOUSTON, TEXAS 77091 PHONE (713) 462-3416



CERTIFIED TEST REPORT

"CORRECTED COPY" *2/30/01*

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BIG INCH MARINE SYSTEMS, INC.
12235 FM 529
HOUSTON, TEXAS 77041-2806

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SAME
C/O BREAUX MACHINE
13842 HIRSCHFIELD
TOMBALL, TEXAS

DATE SHIPPED 01-11-01		CUSTOMER'S ORDER NO. 15005328-001-OP ITEM 1		SHIPPED VIA	
QTY	JOB #	PC #	HEAT CODE	DESCRIPTION	
2	65243		H8412	ROUGH FORGE TO FINISH: 31"OD X 17 1/4"ID X 35 1/4"LG MATERIAL: 1026MOD, EF-VD SUPPLIED IN COMPLIANCE WITH THE FOLLOWING BI-A105-MS REV. 1 NORMALIZED PART NO.: FCR00427 BHN: 170 (1) ✓ 174 (1)	

QC APPROVED
DATE: 2/8/2001
INSPECTED BY: [Signature]
COMMENTS:

WE HEREBY CERTIFY THAT THE PARTS DESCRIBED WERE GIVEN THE FOLLOWING HEAT TREATMENT.

	TIME AT HEAT	COOLANT	HARDNESS CHECK:
ANNEALED			--FORGINGS & QTC QTC (4x4x8"LG)
NORMALIZED ✓	1650	AIR	
QUENCHED			
DRAWN			
DRAWN			
STRESS RELIEVED			

CHEMICAL ANALYSIS

HEAT NO.	MILL SOURCE	C ✓	MN ✓	P ✓	S ✓	S ✓	NI ✓	CR ✓	MO ✓	V ✓	AL ✓	CU ✓	CB ✓
1 H8412	ELLWOOD	.16	1.27	.012	.011	.30	.06	.10	.02	.003	.041	.12	.002
2													
3	CE = .41												

PHYSICAL PROPERTIES

YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	ELONG (%)	RED. OF AREA (%)	HARDNESS	TYPE CHARPY	TEMP. (F°)	ABSRB. ENERGY FT. / LBS.	LATERAL EXP. (MILS)	SHEAR (%)
1 54,500 ✓	76,000 ✓	32.8 ✓	66.7 ✓	BHN: 152 ✓	CVN	-20F ✓	93/83/60 ✓	67	70
2		2" GAGE LENGTH		152				64	60
3		DIA. + .499						47	50

MISCELLANEOUS TESTING

TYPE OF TEST	Q/S
1	
2	
3	

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____ 19 _____

NOTARY PUBLIC

I CERTIFY THAT THIS IS A TRUE COPY OF ORIGINAL TEST SHEET NOW ON FILE AT THE OFFICE OF FORGED PRODUCTS, INC. AND _____ ED IN THE _____

2/11/01

09619
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