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P.O. Box 8768, Houston, Texas 77249-8768
Tel: (713) 692-9151 Fax: (713) 696-6205

Attention: Sam Reese

Sunshine Enterprise, Inc.

2005 Fletcher Creek Dr.

Memphis, TN 38133

P: (901) 452-0188 / F: 901/452-8688

W/O. No.: SUN088-10-07-95830-2

P.O. No.:

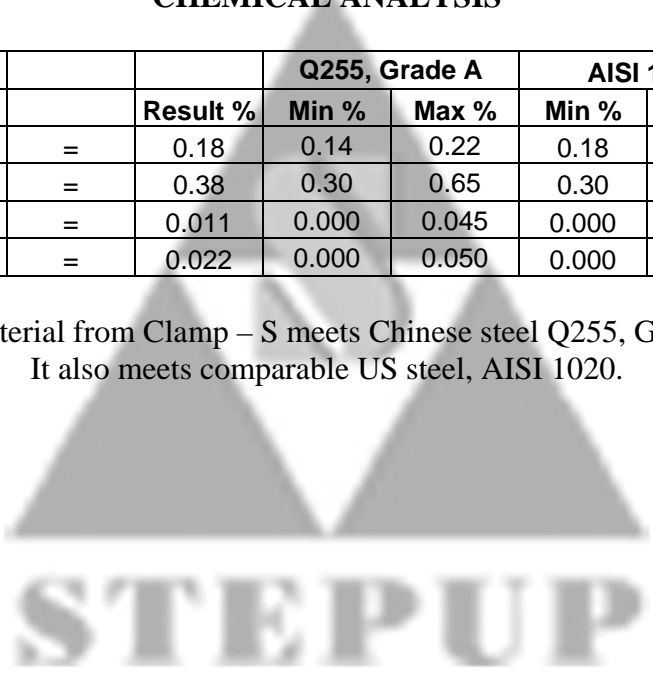
Report Date: 10/11/2005

Identification: CLAMP - S
Description: Swivel Coupler

CHEMICAL ANALYSIS

Element	=	Result %	Q255, Grade A		AISI 1020	
			Min %	Max %	Min %	Max %
C	=	0.18	0.14	0.22	0.18	0.23
Mn	=	0.38	0.30	0.65	0.30	0.60
P	=	0.011	0.000	0.045	0.000	0.040
S	=	0.022	0.000	0.050	0.000	0.050

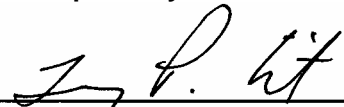
The material from Clamp – S meets Chinese steel Q255, Grade A.
It also meets comparable US steel, AISI 1020.



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Stork SWL, is an operating unit of Stork Materials Technology B.V., Amsterdam, The Netherlands, which is a member of the Stork group

Respectfully Submitted


Terry Wilt
Manager, Product Evaluation

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Identification: Clamp – S: Swivel Couplers
Test Method: EN74
Quantity: 2

Hexagonal head of clamp bolts are tightened to 38 ft. lbs. prior to loading for all tests.

SLIP LOAD

Coupler #	Slip Load (measured after 0.275" travel)
1	10,514 lbs.
2	8,345 lbs.
Average	9,430 lbs.

With 4:1 safety factor, the average slip load value is 2,357 lbs.

ULTIMATE LOAD

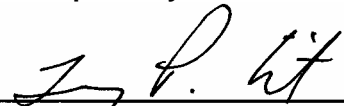
Coupler #	Ultimate Load	Failure Mode
1	16,000 lbs.	Center swivel and deformation of 1 pivot pin
2	9,779 lbs.	Forging around pivot pin
Average	12,890 lbs.	---

With 4:1 safety factor, the average ultimate load value is 3,223 lbs.

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Swivel coupler test configuration



Swivel #1. Ultimate failure at 16,000 lbs.



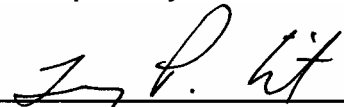
Swivel #2. Ultimate failure at 9,779 lbs.



Swivel #2, failure of forging around pivot pin

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