

TEST REPORT

TESTED FOR: TRU-WELD DIVISION
TFP CORPORATION
PO BOX 702
460 LAKE ROAD
MEDINA, OHIO 44256

PROJECT: RE-QUALIFICATION TESTS
WELD STUDS

DATE: JUNE 8, 2006

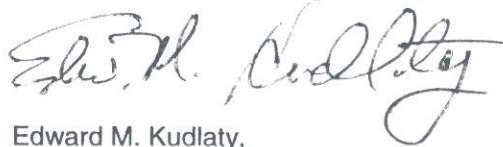
OUR REPORT NO.: 138-68016

On May 3 and 4, 2006 our representative (Larry Mach) was at TFP Corporation to witness the welding and testing of 3/8", 1/2", 5/8", 3/4", and 7/8" diameter weld studs.

The welding and testing were conducted in accordance with the AWS Structural Code, D1.1, Section 7 and Annex G.

Data pertinent to material used, welding and test results are contained in the accompanying reports.

Respectfully submitted,
Professional Service Industries, Inc.



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TRU-WELD
3/8" DIAMETER WELD STUDS

QUALIFICATION TESTS

I. PURPOSE

To test and re-qualify Tru-Weld 3/8" diameter weld studs for weldability and physical properties per AWS D1.1, Section 7 and Annex G.

II. EQUIPMENT AND MATERIALS

Prior to automatic stud welding the proper equipment is to be selected based on the diameter of the stud to be welded and the conditions under which the stud is to be welded.

Based on the optimum time and current requirements for a specific diameter stud the stud welding equipment chosen must have sufficient current output and time control to achieve an acceptable weld per AWS D1.1 Section 7.7.

III. PROCEDURE AND RESULTS

Specimens were prepared by welding the 3/8" diameter stud to the 1/2" x 2-1/2" x 2-1/2" mild steel plates.

Weldability was evaluated by testing specimens specified in AWS D1.1 and Annex G.

IV. CONCLUSIONS

1. Weldability of Tru-Weld 3/8" diameter studs was established by the ability of the weld to consistently develop the full strength during the stud- bending test.
2. Physical and chemical properties of the subject studs conform to the requirements of ASTM-A-108 carbon steel bars.
3. Results of the Mechanical Properties and Chemical Analysis of the studs and plates used in these tests are show in the attached test data forms.

TABLE I

MECHANICAL PROPERTIES OF TRU-WELD 3/8" DEFORMED BAR

HEAT NUMBER	F149699-6
AISI GRADE	C1018
TENSILE	95973 PSI
YIELD	81487 PSI

TABLE II

CHEMICAL PROPERTIES OF TRU-WELD 3/8" DEFORMED BAR

HEAT NUMBER	F149699-6
CARBON	.170
MANGANESE	.700
SULFUR	.020
SILICON	.190

TABLE III

MECHANICAL ANALYSIS OF BASE PLATES (A36)

HEAT NUMBER	N545509
CARBON	.170
MANGANESE	.590
PHOSPHORUS	.023
SULFUR	.042

STUD BASE QUALIFICATION TEST
 3/10/2006
 10% BELOW OPTIMUM

OPTIMUM TIME .350 SECONDS
 OPTIMUM CURRENT 600 AMPS

SPECIMEN #	SIZE	TIME	AMPS	BEND TEST	LOCATION OF FAILURE	TENSILE	YIELD
1	RB 3/8 X 12-1/8	0.350	544	PASSED	SHANK		
2	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
3	RB 3/8 X 12-1/8	0.350	541	PASSED	SHANK		
4	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
5	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
6	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
7	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
8	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
9	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
10	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
11	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
12	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
13	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
14	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
15	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
16	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
17	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
18	RB 3/8 X 12-1/8	0.350	540	PASSED	SHANK		
19	RB 3/8 X 12-1/8	0.350	544	PASSED	SHANK		
20	RB 3/8 X 12-1/8	0.350	544	PASSED	SHANK		
21	RB 3/8 X 12-1/8	0.350	540		SHANK	99143	
22	RB 3/8 X 12-1/8	0.350	540		SHANK	97785	88278
23	RB 3/8 X 12-1/8	0.350	540		SHANK	98464	
24	RB 3/8 X 12-1/8	0.350	540		SHANK	99143	
25	RB 3/8 X 12-1/8	0.350	540		SHANK	98464	
26	RB 3/8 X 12-1/8	0.350	540		SHANK	98690	
27	RB 3/8 X 12-1/8	0.350	540		SHANK	98238	
28	RB 3/8 X 12-1/8	0.350	540		SHANK	95069	
29	RB 3/8 X 12-1/8	0.350	540		SHANK	92805	
30	RB 3/8 X 12-1/8	0.350	540		SHANK	99369	