

PROCEDURES

STEEL PIPE ELECTRIC ARC WELDING - PROCESS

4.0 PURPOSE

All welding to be performed on the Operator's natural gas facilities shall be performed by qualified welders and shall conform to the following qualified Shielded Metal Arch Welding (SMAW) procedures:

4.1 SCOPE

Procedure No.	Shield Metal Arc Welding
	Procedure Description
1	Butt/Fixed /Cellulose - 42,000# and under - less than 2.375 - .188 through .750
2	Butt/Fixed /Cellulose - 42,000# and under - 2.375 through 12.750 - .188 through .750
3	Butt/Fixed/Cellulose - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
4	Butt/Fixed/Cellulose- 42,000# and under - 2.375 through 12.750 - .188 through .750 - Back Weld
5	Butt/Fixed/Cellulose - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
6	Butt/Fixed/Cellulose - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750 - Back Weld
7	Butt/Fixed/Cellulose - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750 - Back Weld
8	Butt/Fixed/Cellulose- 42,000# and under - less than 2.375 - .188 through .750
9	Butt/Rolled/Cellulose - 42,000# and under - 2.375 through 12.750 - .188 through .750
10	Butt/Roller/Cellulose - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
11	Butt/Rolled/Cellulose - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
12	Butt//Fixed/Low Hydrogen - 42,000# and under - less than 2.375 - .188 through .750
13	Butt//Fixed/Low Hydrogen - 42,000# and under - 2.375 through 12.750 - .188 through .750
14	Butt//Fixed/Low Hydrogen - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
15	Butt//Fixed/Low Hydrogen - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
16	Fillet/Rolled/Cellulose/Non-Beveled - 42,000# and under - less than 2.375 - .188 through .750
17	Fillet/Fixed/Cellulose/Non-Beveled - 42,000# and under - less than 2.375 .188 through .750
18	Fillet/Fixed/Cellulose/Non-Beveled - 42,000# and under - 2.375 through 12.750 - .188 through .750
19	Fillet/Fixed/Cellulose/Non-Beveled - above 42,000# up to and including 60,000# -

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	2.375 through 12.750 - .188 through .750
20	Fillet/Fixed/Cellulose/Non-Beveled - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
21	Fillet/Rolled/Cellulose/Beveled - 42,000# and under - less than 2.375 - .188 through .750
22	Fillet/Fixed/Cellulose (2)-Low Hydrogen (1+)/Non-Beveled - 42,000# and under - 2.375 through 12.750 - .188 through .750
23	Fillet/Fixed/Cellulose (2)-Low Hydrogen (1+)/Non-Beveled - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
24	Fillet/Fixed/Cellulose (2)-Low Hydrogen (1+)/Non-Beveled - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
25	Fillet/Fixed/Cellulose/Beveled - 42,000# and under - less than 2.375 - .188 through .750
26	Fillet/Fixed/Cellulose/Beveled - 42,000# and under - 2.375 through 12.750 - .188 through .750
27	Fillet/Fixed/Cellulose/Beveled - above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
28	Fillet/Fixed/Cellulose/Beveled - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
29	Fillet/Fixed/Low Hydrogen/Non-Beveled - 42,000# and under - less than 2.375 - .188 through .750
30	Fillet/Fixed/Low Hydrogen/Non-Beveled - Non-Beveled - 42,000# and under - 2.375 through 12.750 - .188 through .750
31	Fillet/Fixed/Low Hydrogen/Non-Beveled- above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
32	Fillet/Fixed/Low Hydrogen/Non-Beveled - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
33	Fillet/Fixed/Low Hydrogen/Beveled - 42,000# and under - less than 2.375 - .188 through .750
34	Fillet/Fixed/Low Hydrogen/Beveled - 42,000# and under - 2.375 through 12.750 - .188 through .750
35	Fillet/Fixed/Low Hydrogen/Beveled - above 42,000# up to and including 60,000# - less than 2.375 - .188 through .750
36	Fillet/Fixed/Low Hydrogen/Beveled- above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
37	Fillet/Fixed/Low Hydrogen/Beveled - 42,000# and under welded to above 42,000# up to and including 60,000# - 2.375 through 12.750 - .188 through .750
38	Butt/Fixed/Cellulose – 42,000# and under – 2.375 through 12,750 - .188 through .750
39	Fillet/Fixed/Cellulose/Beveled – 42,000# and under – 2.375 through 12,750 – .188 through .750

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4.2 WELDING PROCEDURES

Procedures developed and qualified by Sunrise Engineering, Inc. in conformance with API 1104.