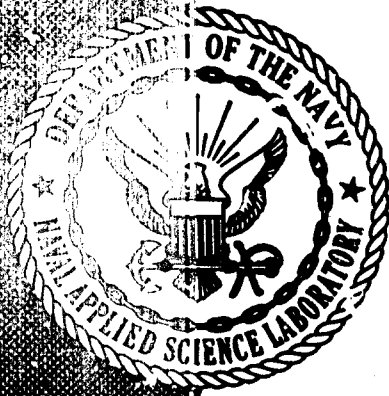


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BIBLIOGRAPHY AND INDEX OF
NAVAL APPLIED SCIENCE LABORATORY
TECHNICAL REPORTS ON HIGH STRENGTH STEELS

Lab. Project 9300-1, Progress Report 5

Task Area SF-020-01-01, Work Unit 0722

Task Area SF-020-01-02, Work Unit 0855

Task Area SF-013-03-02, Work Unit 2025

14 FEBRUARY 1967

F. Ginsberg

I. L. Stern

TECHNICAL REPORT

U. S. NAVAL APPLIED SCIENCE LABORATORY

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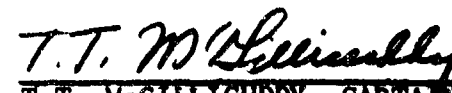
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U. S. NAVAL APPLIED SCIENCE LABORATORY
FLUSHING AND WASHINGTON AVENUES
BROOKLYN, NEW YORK 11251

PREFACE

1. In connection with its development work on high strength steels, the U.S. Naval Applied Science Laboratory has issued reports covering a broad range of information pertinent to fabrication of steels in the 80,000 to 210,000 psi yield strength range, with emphasis on HY-80 and HY-130 steel weldments.
2. The work represented by these reports is concerned with the transfer of basic laboratory data to production applications. Primary areas of concern are weldability, welding procedures and materials, static and dynamic mechanical properties (including large scale fatigue), explosion bulge properties, forming, stress relieving and residual stress measurements.
3. To facilitate utilization of the data developed, the information has been arranged as follows:
 - a. A bibliography containing a listing of reports by title and date and a short description of content.
 - b. A detailed subject index.
 - c. Identification of commercial activity participants, when applicable.
4. This document was prepared with the contract assistance of the Engineering Societies Library of New York, New York.

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Evaluation of experimental submerged arc wire and flux by
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- TM 2 10/17/63
Effect of Embrittled 110-18 Weld Metal on the Fatigue Life of HY-80
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Effects of welding on the fatigue properties of HY-80.
- TM 3 11/5/63
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- TM 4 11/12/63
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- TM 5 12/11/63
Semi-Automatic Inert-Gas Metal Arc (MIG) Welding of HY-80, Linde
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- TM 6 11/26/63
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- TM 8 1/30/64
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- TM 9 2/13/64
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- TM 10 6/1/64
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- TM 12 8/7/65
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- TM 13 7/27/64
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- TM 14 9/10/64
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- TM 16 8/11/64
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- TM 17 10/15/64
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- TM 19 12/14/64
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- TM 21 11/10/64
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- TM 22 11/25/64
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- TM 24 1/18/65
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- TM 25 1/22/65
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- TM 26 2/2/65
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- TM 28 3/2/65
HY-180/210 Steels; Investigation of HP 9-4-25 Weld Deposit.
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- TM 29 4/1/65
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- TM 31 6/14/65
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- TM 32 7/9/65
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 vironmental Stress Cracking of High Strength Alloys.
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- TM 33 6/28/65
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- TM 34 8/11/65
 NASL Mechanical Peening Procedure for Improvement of Fatigue
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 Influence of mechanical peening on fatigue life of HY-80 butt
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- TM 35 6/25/65
 Development of the NASL Circular Fillet Weldability (NCFW) Test.
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- TM 36 6/29/65
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- TM 37 10/14/65
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- TM 37 8/31/65
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- TM 39 9/16/65
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- TM 40 12/13/65
Fatigue Life of HY-130/150 Steel Base Plates.
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- TM 41 5/31/66
MIG and TIG Welding of HY-130/150 Steels (As Welded and Stress Relieved Weldments).
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- TM 42 6/1/66
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- TM 43 6/14/66
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- TM 44 6/17/66
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- TM 45 7/5/66
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- TM 46 7/1/66
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- TM 48 6/24/66
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- TM 49 8/11/66
Weldability of HY-130/150 Steel Covered Electrodes.
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- TM 50 8/22/66
Investigation of 12% Nickel Maraging Steels and Filler Wire System for High Strength Steel Fabrication.
Study of weldment properties obtained with various experimental 12% nickel maraging steels and filler wires.
- TM 51 10/3/66
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- TM 52 9/2/66
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- PR2 1/13/65
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- PR3 8/2/65
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Development of repair welding procedure for high strength, Class I, steel shafting with adequate static and fatigue properties.

PR 2 8/31/65

Weldability of Nickel Modified Hadfield Steel Chain Links.

Suitability of automatic flash butt welding nickel modified Hadfield steel chain links; development of manual welding procedure for field repairs.

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Procedures for Minimizing the "As-Welded" Hardness of the Heat Affected Zones in Hardenable Steels.

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Weldability and Fatigue Properties of HY-80 Alloy Structural Steel Plate.

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PR 2 10/15/62

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- PR 1 9/9/59
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- PR 2 4/15/60
Effects of Welding on Fatigue Properties of HY-80 Steel.
Data on fatigue tests of tee-weld plate type specimens. Also ultrasonic, magnetic particle inspection and microscopic examination.
- PR 3 7/17/61
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Fatigue studies on tee-fillet and butt-welds. Also data on effects of corrosion on fatigue life of tee-fillet welded specimens.
- PR 4 4/23/62
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Fatigue studies at various stress levels. Also tensile and Charpy V-notch data.
- PR 5 12/17/62
Effects of Welding on the Fatigue Properties of High Yield Strength Steels; British QT-35 Tee Fillet Welded Plate-Report on Fatigue.
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- PR 6 1/3/63
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- PR 7 6/28/63
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- 9/16/63
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HY-80 (Spec. MIL-S-16216); Determination of Effects of Weld Fabrication Variables on Mechanical Properties of Weldments.

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70# STS Plate Welded with Grade 110-18 Electrodes, Explosion Bulge
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6285-14

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6285-15

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6285-17

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HY-80 Submerged Arc Weldments Fabricated with Experimental Flux L-732 and Experimental Filler Wire 14N, Battelle Memorial Institute, Columbus, Ohio, Fabricator, Explosion Bulge Test of.

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Canada, Supplier of Cast Billet; Curtiss Wright Corp., Metals
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6285-27

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9300-1 TM50 12% nickel maraging steels : Filler wire system

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9300-1 TM21 12% nickel maraging steel-filler wire system

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BACKING STRAPS

6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties
6285-12 PR1 STS weldments : Explosion bulge tests
6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

BALDWIN, MODEL 120, STRAIN INDICATOR

9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars

BALDWIN, TYPE N, STRAIN INDICATOR

9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80

BALDWIN-SOUTHWARK UNIVERSAL TESTING MACHINE

9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions

BAUSCHINGER EFFECT

9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars

BAUSCHINGER EFFECT (continued)

- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section
extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel
tee-bars
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 :
Tee-bars

Bend machine, Manlabs slow see MANLABS SLOW BEND MACHINE, MODEL SB-750

BEND TESTS see also subdivision MECHANICAL PROPERTIES under various
types of ELECTRODES and STEELS and under FILLER METAL and
WELD DEPOSITS

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire :
Explosion bulge
- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 :
Tee-bars
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM13 NP-150 steel-filler wire system
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel
tee-bars
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
Filler wire (LLR1)
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel
tee-bars
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
welds
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM38 Peening : Properties : HY-80/MIL-11018 weldments
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high strength steels : Environmental stress
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 :
Tee-bars
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests :
Heat treatable electrodes
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing

BITHERMAL WELDS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi
yield strength steels : Controlled thermal severity (CTS) test

"BLAST-SEEL" PRIMER

6160-7 FR "Blast-Seel" : Wheelabrator Corp.: Pre-weld primer :
HY-80

Butt welding see WELDING PROCESSES -- FLASH BUTT

BUTT WELDS

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :
Butt weldments

9300-1 TM3 Short arc MIG : Vertical position welding : HY-80

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire

9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt
weldments

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)

9300-1 TM9 Explosion crack-starter : CVA 66 : STS

9300-1 TM12 "Narrow-Gap" welds : HY-80

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section
single and double weld joint design

9300-1 TM21 12% nickel maraging steel-filler wire system

9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
Filler wire (LLR1)

9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80

9300-1 TM30 HY-180/210 : HP 9-4-25 : 7- $\frac{1}{2}$ Ni-4Co-Cr, Mo weld deposits

9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
welds

9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments

9300-1 TM39 Crack growth properties : HY-80, HY-100, HY-130/150 :
Sea water environment

9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress
relieved

9300-1 TM42 MIG welding : HY-130/150

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type
steel weldment

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 TM50 12% nickel maraging steels : Filler wire system

9300-1 TM51 Corrosion fatigue : Stress corrosion properties :
HY-130/150

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-1 PR3 Welding electrodes : HY-100

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting

6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and
fillet weld

6160-2 PR3 Welding : Fatigue properties : HY-80

6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

BUTT WELDS (continued)

- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee fillet : Ground tee fillet welds
 6285-1 PR1 HY-80 and HY-100 : Weldability
 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties
 6285-4 FR Weldability : Cast HY-80
 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties
 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)
 6285-12 PR1 STS weldments : Explosion bulge tests
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

CTS weldability test see CONTROLLED THERMAL SEVERITY (CTS)

CVA-63 FLIGHT DECK

- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

CVA-64 FLIGHT DECK

- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

CVA-66 FLIGHT DECK

- 9300-1 TM9 Explosion crack-starter : CVA-66 : STS

Castings see STEELS -- HY-80, CAST; TEE-SECTIONS -- CAST

CHAIN LINKS

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

CHARPY V-NOTCH see also subdivision MECHANICAL PROPERTIES under various types of STEELS, FILLER METAL, WELD DEPOSITS, ELECTRODES

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge
 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
 9300-1 TM9 Explosion crack-starter : CVA-66 : STS
 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM13 HP-150 steel-filler wire system
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
 9300-1 TM21 12% nickel maraging steel-filler wire system
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)
 9300-1 TM23 Welding : HY-100
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit
 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7/2 Ni-4Co-Cr, No weld deposits
 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed

CHARPY V-NOTCH (continued)

- 9300-1 TM41 MIG and TIG welding : HY-130/150 welds : As welded :
Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and
weld metal
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel
weldment
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6285-3 FR Mechanical properties : In... alloys : Explosion bulge tests :
Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding
process
- 6285-5S FR Explosion bulge performance : Mechanical properties :
HY-80 weldments : Electro-slag process
- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 PR2 Notch toughness properties : MIL-260 welds : STS plate
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged
arc process
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge
properties
- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)
- 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical
position : MIG process
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge
testing
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion
crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests
- 6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion
bulge tests
- 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal-Processing Div. :
Forged billet : Crucible Steel of Canada, Ltd.

CHARPY V-NOTCH (continued)

- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp., Metals Processing Division : Explosion bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Chemical analysis see subdivision CHEMICAL ANALYSIS under types of ELECTRODES and STEELS and under FILLER METAL, TEE-SECTIONS, TITANIUM ALLOYS and WELD DEPOSITS

CIRCULAR FILLET WELDABILITY (NCFW) TEST

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
 - 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 - 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- Coatings see PRIMERS (COATINGS)

COLD FORMING

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

Cold laps see WELDS -- FUSION INCOMPLETE

Cold working see COLD FORMING

COMPRESSION

- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression

CONTROLLED THERMAL SEVERITY (CTS)

- 9300-1 TM20 HY-130/150
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires

CORROSION (AIR)

- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150

Corrosion -- Environmental stress see STRESS CORROSION

Corrosion screening test, Environmental stress see ENVIRONMENTAL STRESS CORROSION SCREENING TEST

CORROSION (SEA WATER)

- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-2 PR3 Welding : Fatigue properties : HY-80

Corrosion -- Stress see STRESS CORROSION

Covered electrodes see ELECTRODES -- COVERED

Cracking -- Delayed see CRACKING -- RESTRAINT

CRACKING -- RESTRAINT

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test

Cracking test, Environmental stress see ENVIRONMENTAL STRESS CORROSION SCREENING TEST; TEAR TEST

CRACKING -- THERMAL

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

CURVED BEAMS

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

DATMOBAS hole drilling technique see STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD

David Taylor Model Basin hole drilling technique see STRESSES, RESIDUAL --
MEASUREMENT -- HOLE DRILLING METHOD

Delayed cracking see CRACKING -- RESTRAINT

Deposited metal see WELD DEPOSITS

DISCONTINUITY

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

DISTORTION MEASUREMENT

9300-1 TM46 Optical autocollimation method : Stress-relief treatments : High-strength steel weldments

DROP WEIGHT (NDT)

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit

9300-1 TM38 Peening ; Properties : HY-80/MIL-110-18 weldments

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-4 FR Weldability : Cast HY-80

6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plate : Birdsboro Corp.

6285-15 FR British steel QT-35 weldments : Explosion bulge testing

6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.

6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing

6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp., Metals Processing Division : Explosion bulge tests

6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Dynamic beam fatigue tests see FATIGUE TESTS -- DYNAMIC BEAM

Electric furnace melting see MELTING PROCESSES -- ELECTRIC FURNACE

ELECTRODES see also FILLER METAL; WELD DEPOSITS

ELECTRODES -- COVERED

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
 9300-1 TM23 Welding : HY-100
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 9300-1 TM35 NASL circular fillet weldability (NCFW) test
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
 9300-1 PR3 Welding electrodes : HY-100
 6285-12 PF1 STS weldments : Explosion bulge tests

ELECTRODES -- ELECTRIC FURNACE MELTED CORE WIRE

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

ELECTRODES -- HEAT TREATABLE

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

ELECTRODES -- VACUUM INDUCTION MELTED CORE WIRE

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

ELECTRODES -- 14N

6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute

ELECTRODES -- 195W (NICKEL, CHROMIUM, MANGANESE)

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

ELECTRODES -- A632

6285-12 PR1 STS weldments : Explosion bulge tests
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

ELECTRODES -- L-100

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

ELECTRODES -- L-100 -- CHEMICAL ANALYSIS

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

ELECTRODES -- L-103 OXWELD

9300-1 TM12 "Narrow-Gap" welds : HY-80

ELECTRODES -- LL1

9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge

ELECTRODES -- LLR1

- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
Filler wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

ELECTRODES -- LLR1 -- CHEMICAL ANALYSIS

- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
Filler wire (LLR1)

ELECTRODES -- LINDE 103

- 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire

ELECTRODES -- M188

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test

ELECTRODES -- MIL-110-18

- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :
Butt weldments
- 9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt
weldments
- 9300-1 TM9 Explosion crack starter : CVA-66 : STS
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM12 "Narrow-Gap" welds : HY-80
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet
welded plates
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
welds
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
Sea water environment
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting
- FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable
steels
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-7 FR "Blast Seal" : Wheelabrator Corp. : Pre-weld primer : HY-80
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical
properties
- 6285-4 FR Weldability : Cast HY-80

ELECTRODES -- MIL-110-18 (continued)

- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties
- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

ELECTRODES -- MIL-120-18

- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

ELECTRODES -- MIL-130-18

- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

ELECTRODES -- MIL-260

- 6285-6 PR1 STS plating : Grade 260 electrodes : Explosion evaluation
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

ELECTRODES -- MIL-310

- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests

ELECTRODES -- MIL-8018

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

ELECTRODES -- MIL-9018

- 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties

ELECTRODES -- OXWELD 103

- 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode (Oxweld 103) : Linde Co. : Explosion bulge tests

ELECTRODES -- 7½%Ni-4Co

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7½Ni-4Co-Cr, Mo weld deposits

ELECTRODES -- 7½%Ni-4Co -- CHEMICAL ANALYSIS

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7½Ni-4Co-Cr, Mo weld deposits

ELECTRODES -- 7½%Ni-4Co -- MECHANICAL PROPERTIES

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7½Ni-4Co-Cr, Mo weld deposits

ELECTRODES -- 7½%Ni-4Co-Cr, Mo

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7½Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel alloy weldments

ELECTRODES -- 12% NICKEL MARAGING

- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM50 12% nickel maraging steels : Filler wire system

ELECTRODES -- 12% NICKEL MARAGING -- CHEMICAL ANALYSIS

- 9300-1 TM21 12% nickel maraging steel-filler-wire system
 9300-1 TM50 12% nickel maraging steels : Filler wire system

Electro-slag welding see WELDING PROCESSES -- ELECTRO-SLAG

EMBRITTLEMENT

- 9300-1 TM2 Embrittled : 110-18 : Fatigue life : HY-80 : Butt weldments
 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet weld

Environmental stress corrosion see STRESS CORROSION

ENVIRONMENTAL STRESS CORROSION SCREENING TEST see also TEAR TEST

- 9300-1 TM32 High-strength alloys : Environmental stress cracking
 9300-1 TM44 Screening high-strength steels : Environmental stress cracking

Environmental stress cracking test see TEAR TEST

Explosion bulge tests see EXPLOSION CRACK STARTER, BULGE

EXPLOSION CRACK STARTER, BULGE

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge
 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
 9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
 9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
 9300-1 TM9 Explosion crack-starter : CVA-66 : STS
 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM12 "Narrow-Gap" welds : HY-80
 9300-1 TM13 HP-150 steel-filler wire system
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)
 9300-1 TM23 Welding : HY-100
 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
 9300-1 TM42 MIG welding : HY-130/150
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
 9300-1 PR3 Welding electrodes : HY-100
 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical properties
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80 .
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process

EXPLOSION CRACK STARTER, BULGE (continued)

- 6285-5S FR Explosion bulge performance : Mechanical properties :
HY-80 weldments : Electro-slag process
- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged
arc process
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge
properties
- 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical
position : MIG process
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge
testing
- 6285-12 PR1 STS weldments : Explosion bulge tests
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion
crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A FR Cast HY-80 steel plate : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)
- 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :
Experimental filler wire 14N : Battelle Memorial Institute
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion
bulge tests
- 6285-22 FR Forgings : HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. :
Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet :
Curtiss-Wright Corp. Metals Processing Division : Explosion bulge
tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Process-
ing Division : Isaacson Iron Works : Forged billet : Explosion
bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals
Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

Extruded tee-sections see TEE-SECTIONS -- EXTRUDED

FTE TEMPERATURE

- 6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
- 6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge
properties
- 6285-12 FR Notched-toughness properties : STS weldments : Explosion
crack-starter tests
- 6285-16 HY-150 steel plate : Explosion bulge (crack-starter)

FATIGUE

- 9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :
Butt weldments
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt
weldments
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet
welded plates
- 9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel
tee-fillet welded plates mechanically peened
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
welds
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM43 Fatigue life : HY-130/150
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet
welds
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR2 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
welded plate
- 6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast
plate butt welds : Peened tee-fillet : Ground tee-fillet welds

Fatigue pre-crack machine, Manlabs see MANLABS FATIGUE PRE-CRACK MACHINE,
MODEL FCM-300B

FATIGUE TESTS -- DYNAMIC BEAM

- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80

FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled
section single and double weld joint design
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet
welded plates
- 9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel
tee-fillet welded plates mechanically peened
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
welds

FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE (continued)

- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
Sea water environment
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties :
HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM5 Overstrain : Residual stresses : Fatigue
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 tee-fillet
welded plate

FILLER METAL see also ELECTRODES; WELD DEPOSITS

- 9300-1 TM23 Welding : HY-100
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and
weld metal
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

FILLER METAL -- CHEMICAL ANALYSIS

- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress
relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type
steel weldment
- 6285-5S FR Explosion bulge performance : Mechanical properties :
HY-80 weldments : Electro-slag process

FILLER METAL -- MECHANICAL PROPERTIES

- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged
arc process

Filler wire see ELECTRODES; FILLER METAL

FILLET WELDS see also TEE-FILLET WELDS

- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

FILLET WELDS (continued)

- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
 6160-7 FR "Blast Seel" : Wheelabrator Corp. : Pre-weld primer :
 HY-80

FLAME CUTTING

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel
 tee-bars
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel
 tee-bars

Flash butt welding see WELDING PROCESSES -- FLASH BUTT

Flat position welding see WELDING POSITION -- FLAT

FLUX

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire :
 Explosion bulge
 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged
 arc process
 6285-17 FR HY-80 submerged arc weldment : Experimental flux L-732 :
 Experimental filler wire 14N : Battelle Memorial Institute
 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode
 (Oxweld 103) : Linde Co. : Explosion bulge tests

Forgings see STEELS -- HY-80, FORGED

Forming see COLD FORMING

Fusion incomplete in welds see WELDS -- FUSION INCOMPLETE

Gas metal arc welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

Gas -- Shielding see SHIELDING GAS

GRINDING

- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
 9300-1 TM21 12% nickel maraging steel-filler wire system
 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
 welds
 9300-1 TM42 MIG welding : HY-130/150
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
 9300-23 TM5 Overstrain : Residual stresses : Fatigue
 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast
 plate butt welds : Peened tee-fillet : Ground tee-fillet welds

GROOVE WELDS

- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge
 tests : Heat treatable electrodes

H-SECTIONS

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars

HAZ see HEAT AFFECTED ZONE (HAZ)

HP 9-4-25 see STEELS -- HY-180/210, WROUGHT

HP-150 see STEELS -- HP-150, WROUGHT

HTS see STEELS -- HTS, WROUGHT

HY-80 see STEELS -- HY-80

HY-100 see STEELS -- HY-100

HY-130/150 see STEELS -- HY-130/150

HY-150 see STEELS -- HY-130/150

Hadfield steels see STEELS -- HADFIELD, NICKEL MODIFIED

HARDNESS

- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-13 weldments
 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 9300-1 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
 FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels
 6160-1 PR1 Weldability : Fatigue properties : HY-80
 6285-1 PR1 HY-80 and HY-100 : Weldability
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80

HARDNESS TESTS -- KNOOP

- 6285-4 FR Weldability : Cast HY-80

HARDNESS TESTS -- ROCKWELL

- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

HARDNESS TESTS -- VICKERS

- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80

HEAT AFFECTED ZONE (HAZ)

- 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
 9300-1 TM9 Explosion crack starter : CVA66 : STS
 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 9300-1 TM35 NASL circular fillet weldability (NCFW) test
 9300-1 TM42 MIG welding : HY-130/150
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
 FSP-1 FR "As-welded" hardness : Heat affected zones : Hardenable steels
 6160-1 PR1 Weldability : Fatigue properties : HY-80
 6285-1 PR1 HY-80 and HY-100 : Weldability
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process
 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 : Experimental filler wire 14N : Battelle Memorial Institute
 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode (Oxweld 103) : Linde Co. : Explosion bulge tests
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

Heat treatable electrodes see ELECTRODES -- HEAT TREATABLE

Heat treatment, Post-weld see POST-WELD HEAT TREATMENT

Hole drilling for measuring residual stresses see STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD

Horizontal position welding see WELDING POSITION -- HORIZONTAL

Hydrostatic plate fatigue tests see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

I-N 100 see STEELS -- I-N 100, WROUGHT

Impact testing machine see RIEHLE IMPACT TESTING MACHINE

Impact tests see CHARPY V NOTCH

KEYHOLE SLOTTED PLATE RESTRAINT

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 PR4 Weldability: HY-130/150 steel and MIG filler wires

Knoop hardness tests see HARDNESS TESTS -- KNOOP

L-100 see ELECTRODES -- L-100

L-103 Oxweld see ELECTRODES -- L-103 OXWELD

LL1 see ELECTRODES -- LL1

LLR1 see ELECTRODES -- LLR1

Lan-Cer-Amp see RARE EARTH ADDITION (LAN-CER-AMP)

Linde 103 see ELECTRODES -- LINDE 103

Linde A405 see SHIELDING GAS -- A405 (LINDE)

Links, Chain see CHAIN LINKS

LOW-MU PERMEABILITY INDICATOR

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

M188 see ELECTRODES-- M188

MIG welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

MIG short arc welding see WELDING PROCESSES -- MIG SHORT ARC

MIL-110-18 see ELECTRODES -- MIL-110-18

MIL-120-18 see ELECTRODES -- MIL-120-18

MIL-130-18 see ELECTRODES -- MIL-130-18

MIL-260 see ELECTRODES -- MIL-260

MIL-310 see ELECTRODES -- MIL-310

MIL-8018 see ELECTRODES -- MIL-8018

MIL-9018 see ELECTRODES -- MIL-9018

Magnetic particle welding inspection see WELDING INSPECTION -- MAGNETIC
PARTICLE

MANLABS FATIGUE PRE-CRACK MACHINE, MODEL FCM-300B

9300-1 TM44 Screening high strength steels : Environmental stress
cracking

MANLABS SLOW BEND MACHINE, MODEL SB-750

9300-1 TM44 Screening high strength steels : Environmental stress
cracking

Maraging steels see STEELS -- 12% NICKEL MARAGING, WROUGHT; ELECTRODES --
12% NICKEL MARAGING

Mechanical properties see BEND TESTS; CHARPY V NOTCH; TENSILE PROPERTIES;
also subdivision MECHANICAL PROPERTIES under types of
ELECTRODES and STEELS and under FILLER METAL, TEE-SECTIONS,
TITANIUM ALLOYS and WELD DEPOSITS

MELTING PROCESSES -- ELECTRIC FURNACE
9300-1 TM20 HY-130/150

MELTING PROCESSES -- VACUUM ARC
9300-1 TM13 HP150 steel-filler wire system
9300-1 TM20 HY-130/150

Metal-inert-gas welding see WELDING PROCESSES -- MIG (METAL-INERT-GAS)

Metallic arc welding see WELDING PROCESSES -- METALLIC ARC

Metallographic welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

Micro-hardness see HARDNESS

Microscopic welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

Microstructure welding inspection see WELDING INSPECTION -- METALLOGRAPHIC

NASL circular fillet weldability test see CIRCULAR FILLET WELDABILITY
(NCFW) TEST

NCFW test see CIRCULAR FILLET WELDABILITY (NCFW) TEST

NDT see DROP WEIGHT (NDT)

"NARROW-GAP" WELDS
9300-1 TM12 "Narrow-Gap" welds : HY-80

Navy tear test see TEAR TEST

Nil-ductility transition temperature see DROP WEIGHT (NDT)

NITRIDING

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)

Oil inspection of welding see WELDING INSPECTION -- OIL PENETRATION

Optical autocollimation method see AUTOCOLLIMATION METHOD FOR MEASURING
ANGULAR DISTORTION

OSCILLOGRAPHS

9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)

Overhead position welding see WELDING POSITION -- OVERHEAD

OVERSTRAIN

9300-23 TM5 Overstrain : Residual stresses and fatigue

Oxweld 103 see ELECTRODES -- OXWELD 103

Oxweld L-103 see ELECTRODES -- L-103 OXWELD

PEENING see also SHOT PEENING

9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments

9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit

9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds

9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments

9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment

9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80

9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80

9300-23 TM5 Overstrain : Residual stresses and fatigue

6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds

Permeability indicator see LOW-MU PERMEABILITY INDICATOR

PICKLING

9300-1 PR2 Pickling and Surface Pitting:HY-80/100

Plate fatigue machines see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

Pneumatic plate fatigue tests see FATIGUE TESTS -- HYDROSTATIC OR PNEUMATIC PLATE

POLISHING

9300-23 TM5 Overstrain : Residual stresses and fatigue

POST-WELD HEAT TREATMENT

FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process

6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

PRIMERS (COATINGS)

6160-7 FR "Blast-Seel" : Wheelabrator Corp. : Pre-weld primer : HY-80

Pulsed arc welding see WELDING PROCESSES -- PULSED ARC

QT-35 see STEELS -- QT-35 (BRITISH), WROUGHT

QUENCHING

6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

Radiographic welding inspection see WELDING INSPECTION -- RADIOGRAPHIC

RARE EARTH ADDITION (LAN-CER-AMP)

6285-1 PR1 HY-80 and HY-100 : Weldability

RARE EARTH ADDITION (LAN-CER-AMP) -- CHEMICAL ANALYSIS
6285-1 PR1 HY-80 and HY-100 : Weldability

Repaired welds see WELDS -- REPAIR

Residual stresses see STRESSES, RESIDUAL

Restraint cracking see CRACKING -- RESTRAINT

RIEHLE IMPACT TESTING MACHINE

9300-1 TM17 Cold-forming properties : HY-80 steel tee-section
extrusions

Rockwell hardness tests see HARDNESS TESTS -- ROCKWELL

Roll formed steel see STEELS -- HY-80, ROLLED; STEELS -- HY-100, ROLLED

Rolled tee-sections see TEE-SECTIONS -- ROLLED

STS see STEELS -- STS, WROUGHT

SANDING

9300-23 TM5 Overstrain : Residual stresses and fatigue

Sea water corrosion see CORROSION (SEA WATER)

Semiautomatic welding see WELDING -- SEMIAUTOMATIC

SHAFTS -- WELDING

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
steel shafting

SHIELDING GAS -- A405 (LINDE)

9300-1 TM13 HP-150 steel-filler wire system

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

9300-1 TM35 NASL circular fillet weldability (NCFW) test

SHIELDING GAS -- ARGON

9300-1 TM50 12% nickel maraging steels : Filler wire system

SHIELDING GAS -- ARGON + 0.1% OXYGEN

9300-1 TM50 12% nickel maraging steels : Filler wire system

SHIELDING GAS -- ARGON + 1% OXYGEN

9300-1 TM13 HP150 steel-filler wire system

9300-1 TM21 12% nickel maraging steel-filler wire system

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
Sea water environment

Short arc MIG welding see WELDING PROCESSES -- MIG SHORT ARC

SHOT PEENING see also PEENING

9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
 9300-23 TM5 Overstrain : Residual stresses and fatigue
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

Side bend tests see BEND TESTS

STEELS -- CLASS 1, NI-MO (MIL-S-23284)

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

STEELS -- CLASS 1, NI-MO (MIL-S-23284) -- CHEMICAL ANALYSIS

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

STEELS -- CLASS 1, NI-MO (MIL-S-23284) -- MECHANICAL PROPERTIES

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890)

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890) -- CHEMICAL ANALYSIS

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

STEELS -- CLASS AN AND HG (MIL-S-890) -- MECHANICAL PROPERTIES

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting

Steels -- HP 9-4-25 see STEELS -- HY-180/210, WROUGHT

STEELS -- HP-150, WROUGHT

9300-1 TM13 HP150 steel-filler wire system
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
 Filler wire (LLR1)
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
 strength steels : Controlled thermal severity (CTS) test

STEELS -- HP-150, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM13 HP150 steel-filler wire system
 9300-1 TM20 HY-130/150
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
 Filler wire (LLR1)
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
 strength steels : Controlled thermal severity (CTS) test

STEELS -- HP-150, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM13 HP150 steel-filler wire system
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
 strength steels : Controlled thermal severity (CTS) test

STEELS -- HTS, WROUGHT

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HTS, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HTS, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-80, CAST

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

6285-19 FR HY-80 castings : Bonney-Floyd Co. : Explosion bulge tests

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

STEELS -- HY-80, CAST -- CHEMICAL ANALYSIS

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co.

6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry

6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

6285-28 FR Cast HY-80 steel plates : Standard Steel Works

STEELS -- HY-80, CAST -- MECHANICAL PROPERTIES

9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design

6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

6285-4 FR Weldability : Cast HY-80

6285-13 FR Cast HY-80 : American Brake Shoe Co.

6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing

6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.

6285-19A Cast HY-80 steel plates : Bonney-Floyd Co.

STEELS -- HY-80, CAST -- MECHANICAL PROPERTIES (continued)

- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY-80 steel plates : Standard Steel Works

STEELS -- HY-80, FORGED

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

STEELS -- HY-80, FORGED -- CHEMICAL ANALYSIS

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

STEELS -- HY-80, FORGED -- MECHANICAL PROPERTIES

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests

STEELS -- HY-80, ROLLED

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds
- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-18 PR1 Forgings of HY-80 : Midvale-Heppenstall Co.
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

STEELS -- HY-80, ROLLED -- CHEMICAL ANALYSIS

- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design
6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

STEELS -- HY-80, ROLLED -- MECHANICAL PROPERTIES

- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate butt welds : Peened tee-fillet : Ground tee-fillet welds
6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests
6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.

STEELS -- HY-80, WROUGHT

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LL1 wire : Explosion bulge
9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 : Butt weldments
9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
9300-1 TM12 "Narrow-Gap" welds : HY-80
9300-1 TM17 Cold-forming properties : HY-80 steel tee section extrusions
9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit
9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
9300-1 TM31 Effect of welding : Fatigue properties : HY-100 steel tee-fillet welded plates mechanically peened
9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
9300-1 TM35 NASL circular fillet weldability (NCFW) test
9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
9300-1 TM43 Fatigue life : HY-130/150
9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
9300-1 PR3 Welding electrodes : HY-100
9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
9300-23 TM5 Overstrain : Residual stresses and fatigue
FSP-41 FR "As-welded" hardness : Heat affected zone : Hardenable steels
6160-1 PR1 Weldability : Fatigue properties : HY-80
6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet weld

STEELS -- HY-80, WROUGHT (continued)

- 6160-2 PR1 Welding : Fatigue properties : HY-80
 6160-2 PR2 Welding : Fatigue properties : HY-80
 6160-2 PR3 Welding : Fatigue properties : HY-80
 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
 welded plate
 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast
 plate butt welds : Peened tee-fillet : Ground tee-fillet welds
 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
 6160-7 FR "Blast-Seel" : Wheelabrator Corp. : Pre-weld primer : HY-80
 6285-1 PR1 HY-80 and HY-100 : Weldability
 6285-1 PR2 HY-80 plate : Weld fabrication variables : Mechanical
 properties
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge
 tests : Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding
 process
 6285-5S FR Explosion bulge performance : Mechanical properties :
 HY-80 weldments : Electro-slag process
 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged
 arc process
 6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical
 position : MIG process
 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :
 Experimental filler wire 14N : Battelle Memorial Institute
 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode
 Oxweld 103 : Linde Co. : Explosion bulge tests

STEELS -- HY-80, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : L11 wire :
 Explosion bulge
 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt
 weldments
 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
 9300-1 TM24 Mechanical peening : Nil-ductility transition tempera-
 ture : HY-80 : MIL-110-18 weld deposit
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
 strength steels : Controlled thermal severity (CTS) test
 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt
 welds
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
 6160-2 PR1 Welding : Fatigue properties : HY-80
 6160-2 PR3 Welding : Fatigue properties : HY-80
 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
 welded plate
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :
 Compression

STEELS -- HY-80, WROUGHT -- CHEMICAL ANALYSIS (continued)

- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

STEELS -- HY-80, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM1 HY-80 : Submerged arc weldment : A309 flux : LLL wire : Explosion bulge
- 9300-1 TM3 Short arc MIG : Vertical position welding : HY-80
- 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt weldments
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM24 Mechanical peening : Nil-ductility transition temperature : HY-80 : MIL-110-18 weld deposit
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet welded plate
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression
- 6285-1 PR1 HY-80 and HY-100 : Weldability
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process
- 6285-7 FR Explosion bulge performance : HY-80 weldments : Submerged arc process

STEELS -- HY-80 (HIGH CARBON), WROUGHT

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-80 (HIGH CARBON), WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-80 (HIGH CARBON), WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

STEELS -- HY-100, ROLLED

- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

STEELS -- HY-100, ROLLED -- CHEMICAL ANALYSIS

- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

STEELS -- HY-100, ROLLED -- MECHANICAL PROPERTIES

- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

STEELS -- HY-100, WROUGHT

- 9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM23 Welding : HY-100
 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
 9300-1 PR3 Welding electrodes : HY-100
 6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM23 Welding : HY-100
 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 9300-1 PR3 Welding electrodes : HY-100
 6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM23 Welding : HY-100
 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet welded plates
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 6285-1 PR HY-80 and HY-100 : Weldability

STEELS -- HY-100, WROUGHT -- WELDMENT CRITERIA

- 9300-1 PR3 Welding electrodes : HY-100

STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT

- 6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT -- CHEMICAL ANALYSIS

6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-100 (RARE EARTH ADDITION), WROUGHT -- MECHANICAL PROPERTIES

6285-1 PR1 HY-80 and HY-100 : Weldability

STEELS -- HY-130/150, WROUGHT

- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM43 Fatigue life : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM46 Optical autocollimation method : Stress-relief treatments : High-strength steel weldments
- 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and weld metal
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

STEELS -- HY-130/150, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM20 HY-130/150
- 9300-1 TM22 Properties : 130-150,000 psi : Steel weldments : Filler wire (LLR1)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

STEELS -- HY-130/150, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM32 High-strength alloys : Environmental stress cracking

STEELS -- HY-130/150, WROUGHT -- MECHANICAL PROPERTIES (continued)

- 9300-1 TM35 NASL circular fillet weldability (NCFW) test
- 9300-1 TM40 Fatigue life : HY-130/150
- 9300-1 TM41 MIG and TIG welding : HY-130/150 steels : As welded :
Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM44 Screening high-strength steels : Environmental stress
cracking
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

Steels -- HY-150 see STEELS -- HY-130/150, WROUGHT

STEELS -- HY-180/210, WROUGHT

- 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel
weldment

STEELS -- HY-180/210, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel
weldment

STEELS -- HY-180/210, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM28 HY-180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel
alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel
weldment

STEELS -- HADFIELD, NICKEL MODIFIED

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- HADFIELD, NICKEL MODIFIED -- CHEMICAL ANALYSIS

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- HADFIELD, NICKEL MODIFIED -- MECHANICAL PROPERTIES

- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

STEELS -- I-N 100, WROUGHT

- 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

STEELS -- I-N 100, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

STEELS -- I-N 100, WROUGHT -- MECHANICAL PROPERTIES

9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test

Steels -- Nitrided see NITRIDING ; Pickling see PICKLING

STEELS -- QT-35 (BRITISH), WROUGHT

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
welded plate
6285-15 FR British steel QT-35 weldments : Explosion bulge testing

STEELS -- QT-35 (BRITISH), WROUGHT -- CHEMICAL ANALYSIS

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
welded plate
6285-15 FR British steel QT-35 weldments : Explosion bulge testing

STEELS -- QT-35 (BRITISH), WROUGHT -- MECHANICAL PROPERTIES

6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
welded plate

STEELS -- STS, WROUGHT

9300-1 TM4 Explosion bulge properties : 110-18 : STS : HY-100
9300-1 TM9 Explosion crack-starter : CVA-66 : STS
9300-1 TM10 Properties : 110-18 : STS : HY-100
9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
9300-1 TM35 NASL circular fillet weldability test
9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
9300-1 PR3 Welding electrodes : HY-100
6285-6 PR1 STS plating : Grade 260 electrode : Explosion evaluation
6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge
properties
6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)
6285-12 PR1 STS weldments : Explosion bulge tests
6285-12 FR Notch-toughness properties : STS weldments : Explosion
crack-starter tests
6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

STEELS -- STS, WROUGHT -- CHEMICAL ANALYSIS

9300-1 TM10 Properties : 110-18 : STS : HY-100
9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
strength steels : Controlled thermal severity (CTS) test
9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
9300-1 PR3 Welding electrodes : HY-100
6285-12 FR Notch-toughness properties : STS weldments : Explosion
crack-starter test

STEELS -- STS, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM10 Properties ; 110-18 : STS : HY-100
 - 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
 - 9300-1 TM35 NASL circular fillet weldability (NCFW) test
 - 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
 - 9300-1 PR4 Weldability : HY-130/150 steel and MIG filler wires
- Steels -- WEL-TEN 100 N see STEELS -- I-N 100, WROUGHT

Steels -- 5% nickel see STEELS -- HY-130/150, WROUGHT

Steels -- 9Ni-4Co see STEELS -- HY-180/210, WROUGHT

STEELS -- 12% NICKEL MARAGING, WROUGHT

- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM50 12% nickel maraging steels : Filler wire system

STEELS -- 12% NICKEL MARAGING, WROUGHT -- CHEMICAL ANALYSIS

- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM50 12% nickel maraging steels : Filler wire system

STEELS -- 12% NICKEL MARAGING, WROUGHT -- MECHANICAL PROPERTIES

- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM44 Screening high-strength steels : Environmental stress cracking
- 9300-1 TM50 12% nickel maraging steels : Filler wire system

STRAIN GAGES

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM18 Grinding : Shot peening : Fatigue life : Tee weldments
- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section single and double weld joint design
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 : Sea water environment
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 : Compression
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
- 6285-4 FR Weldability : Cast HY-80

Strain indicators see BALDWIN, MODEL 120, STRAIN INDICATOR; BALDWIN, TYPE N, STRAIN INDICATOR

STRESS CORROSION

- 9300-1 TM32 High-strength alloys : Environmental stress cracking
 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
 Sea water environment
 9300-1 TM44 Screening high-strength steels : Environmental stress
 cracking
 9300-1 TM51 Corrosion fatigue : Stress corrosion properties : HY-130/150
 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

Stress corrosion screening test see ENVIRONMENTAL STRESS CORROSION SCREEN-
 ING TEST

Stress cracking test, Environmental see TEAR TEST

STRESS RELIEVING

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel
 tee-bars
 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section
 extrusions
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel
 tee-bars
 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical
 properties : HY-100 steel tee-beams hot rolled, extruded and cold-
 formed
 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress
 relieved
 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :
 High-strength steel weldments
 9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and
 weld metal
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :
 Experimental filler wire 14N : Battelle Memorial Institute

STRESSES, RESIDUAL

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 : Tee-bars
 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel
 tee-bars
 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
 Sea water environment
 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :
 High-strength steel weldments
 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
 9300-23 TM5 Overstrain : Residual stresses and fatigue
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :
 Compression
 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

STRESSES, RESIDUAL -- MEASUREMENT -- HOLE DRILLING METHOD

- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
Sea water environment
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue

Submerged arc welding see WELDING PROCESSES -- SUBMERGED ARC

TIG welding see WELDING PROCESSES -- TIG (TUNGSTEN-INERT-GAS)

TEAR TEST see also ENVIRONMENTAL STRESS CORROSION SCREENING TEST

- 9300-1 TM32 High-strength alloys : Environmental stress cracking

Tee-bars see TEE-SECTIONS

Tee-beams see TEE-SECTIONS

TEE-FILLET WELDS see also FILLET WELDS

- 9300-1 TM18 Grinding ; Shot peening : Fatigue life : Tee weldments
- 9300-1 TM26 Welding : Fatigue properties : HY-100 steel tee-fillet
welded plates
- 9300-1 TM34 Mechanical peening : Fatigue properties : HY-80 butt welds
- 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
- 9300-1 TM39 Crack growth properties : HY-80, HY-100 and HY-130/150 :
Sea water environment
- 9300-1 TM46 Optical autocollimation method : Stress-relief treatments :
High-strength steel weldments
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-23 TM5 Overstrain : Residual stresses and fatigue
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-1 PR2 Weld flaws : Fatigue properties : HY-80 : Butt and fillet
weld
- 6160-2 PR1 Welding : Fatigue properties : HY-80
- 6160-2 PR3 Welding : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate
- 6160-2 PR5 Welding : Fatigue properties : British QT-35 : Tee-fillet
welded plate
- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :
Compression
- 6160-2 Fatigue : Iron base alloys : HY-80 : Rolled plate to cast plate
butt welds : Peened tee-fillet : Ground tee-fillet welds

TEE-SECTIONS -- CAST

- 9300-1 TM19 Fatigue : HY-80 : Cast tees butt welded to rolled section
single and double weld joint design
- 6160-2 PR7 Fatigue : Iron base alloys : HY-80 : Cast tee

TEE-SECTIONS -- EXTRUDED

- 9300-1 TM6 Residual stresses : Extruded : Cold-formed : HY-80 :
Tee-bars
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel
tee-bars
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions

TEE-SECTIONS -- EXTRUDED (continued)

- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

TEE-SECTIONS -- EXTRUDED -- CHEMICAL ANALYSIS

- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

TEE-SECTIONS -- EXTRUDED -- MECHANICAL PROPERTIES

- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. : Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet : Curtiss-Wright Corp. Metals Processing Division : Explosion bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Processing Division : Isaacson Iron Works : Forged billet : Explosion bulge tests
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals Processing Division : American Steel Foundries : Cast billet

TEE-SECTIONS -- ROLLED

- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

TEE-SECTIONS -- ROLLED -- MECHANICAL PROPERTIES

- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold-formed
- 6285-21 FR Hot rolled (HY-80) : Bethlehem Steel Co. : Explosion bulge tests

TEE WELDS

- 9300-1 TM42 MIG welding : HY-130/150
- 6160-2 PR2 Welding : Fatigue properties : HY-80
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars

TEMPERING

- 6285-16 FR HY-150 steel plate : Explosion bulge (crack-starter)

TENSILE PROPERTIES see also subdivision MECHANICAL PROPERTIES under types of ELECTRODES and STEELS

- 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
- 9300-1 TM10 Properties : 110-18 : STS : HY-100
- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM14 Effects of forming : Cold-formed HY-80 rolled-steel tee-bars
- 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
- 9300-1 TM17 Cold-forming properties : HY-80 steel tee-section extrusions
- 9300-1 TM21 12% nickel maraging steel-filler wire system
- 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments : Filler wire (ILLR1)
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
- 9300-1 TM27 Effects of forming : Cold-formed HY-100 rolled-steel tee-bars
- 9300-1 TM28 HY 180/210 : HP 9-4-25 weld deposit
- 9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits
- 9300-1 TM33 Stress relieving : Toughness (Charpy V) : Mechanical properties : HY-100 steel tee-beams hot rolled, extruded and cold formed
- 9300-1 TM37 Forming : Cold-formed HY-100 extruded steel tee-bars
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR1 Peening : Improvement : Fatigue properties : HY-80
- 9300-1 PR3 Welding electrodes : HY-100
- 9300-23 TM2 Residual stresses : Tee-fillet welds : HY-80
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links
- 6160-1 PR1 Weldability : Fatigue properties : HY-80
- 6160-2 PR4 Welding : Fatigue properties : HY-80 : Virgin plate

TENSILE PROPERTIES (continued)

- 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :
Compression
- 6160-6 PR1 Residual stresses : Extruded : Cold-formed HY-80 : Tee-bars
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge
tests : Heat treatable electrodes
- 6285-4 FR Weldability : Cast HY-80
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding
process
- 6285-5S FR Explosion bulge performance : Mechanical properties :
HY-80 weldments : Electro-slag process
- 6285-6 PR2 Notch-toughness properties : MIL-260 welds : S plate
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion
crack-starter tests
- 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
- 6285-14A Cast HY-80 steel plates : Birdsboro Corp.
- 6285-15 FR British steel QT-35 weldments : Explosion bulge testing
- 6285-16 FR HY-150 steel plate : Explosion bulge (crack starter)
- 6285-19A FR Cast HY-80 steel plates : Bonney-Floyd Co
- 6285-20 FR HY-80 submerged-arc : Flux (Unionmelt 103) : Electrode
(Oxweld 103) : Linde Co. : Explosion bulge tests
- 6285-22 FR Forgings, HY-80 : Ladish Co. : Explosion bulge testing
- 6285-23 PR1 HY-80 extrusions : Curtiss-Wright Metal Processing Div. :
Forged billet : Crucible Steel of Canada, Ltd.
- 6285-23 PR2 Extrusions, HY-80 : Atlas Welland Co. : Cast billet :
Curtiss-Wright Corp., Metals Processing Division : Explosion
bulge tests
- 6285-23 FR Extrusions, HY-80 : Curtiss-Wright Corp., Metals Process-
ing Division : Isaacson Iron Works : Forged billet : Explosion
bulge tests
- 6285-24 Rolled HY-80 : Sheffield Division, Armco Steel Corp.
- 6285-25 FR HY-100 : Rolled steel : Armco-Sheffield steel
- 6285-26 FR Cast HY-80 steel plates : Lebanon Steel Foundry
- 6285-27 FR HY-80 steel extrusions : Curtiss-Wright Corp., Metals
Processing Division : American Steel Foundries : Cast billet
- 6285-28 FR Cast HY 80 steel plates : Standard Steel Works

Thermal cracking see CRACKING -- THERMAL

Thermal treatment, Post-weld see POST-WELD HEAT TREATMENT

TITANIUM ALLOYS -- Ti-6Al-2.25Mo

9300-1 TM32 High-strength alloys : Environmental stress cracking

TITANIUM ALLOYS -- Ti-6Al-2.25Mo -- CHEMICAL ANALYSIS

9300-1 TM32 High-strength alloys : Environmental stress cracking

TITANIUM ALLOYS -- Ti-6Al-2.25Mo -- MECHANICAL PROPERTIES

9300-1 TM32 High-strength alloys : Environmental stress cracking

TITANIUM ALLOYS -- Ti-721

9300-1 TM32 High-strength alloys : Environmental stress cracking

TITANIUM ALLOYS -- Ti-721 -- CHEMICAL ANALYSIS

9300-1 TM32 High-strength alloys : Environmental stress cracking

TITANIUM ALLOYS -- Ti-721 -- MECHANICAL PROPERTIES

9300-1 TM32 High-strength alloys : Environmental stress cracking

TORSION

9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting

Toughness tests see CHARPY V NOTCH

TRITHERMAL WELDS

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

Tungsten-inert-gas welding see WELDING PROCESSES -- TIG (TUNGSTEN-INERT-GAS)Ultrasonic welding inspection see WELDING INSPECTION -- ULTRASONICUndercut welds see WELDS -- UNDERCUTVacuum arc melting see MELTING PROCESSES -- VACUUM ARCVertical position welding see WELDING POSITION -- VERTICALVickers hardness tests see HARDNESS TESTS -- VICKERSWEL-TEN 100 N see STEELS -- I-N 100, WROUGHTWELD DEPOSITS see also ELECTRODES; FILLER METAL

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :

Butt weldments

9300-1 TM10 Properties : 110-18 : STS : HY-100

9300-1 TM28 HY 180/210 : HP 9-4-25 weld deposit

9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test

9300-1 TM30 HY-180/210 : HP 9-4-25 : 7-1/2Ni-4Co-Cr, Mo weld deposits

9300-1 TM35 NASL circular fillet weldability (NCFW) test

9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved

9300-1 TM42 MIG welding : HY-130/150

9300-1 TM47 Stress relief : Toughness : HY-130/150 base plate and weld metal

9300-1 TM49 Weldability : HY-130/150 steel covered electrodes

9300-1 TM50 12% nickel maraging steels : Filler wire system

9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150

9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes

6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate

6285-8 FR STS plate : Grade 110-18 electrodes : Explosion bulge properties

6285-9 FR Notch-toughness properties : Welds : CVA-63 (Kitty Hawk)

6285-10 FR Explosion bulge performance : HY-80 weldments : Vertical position : MIG process

WELD DEPOSITS (continued)

- 6285-11 FR Forged HY-80 : Isaacson Iron Works : Explosion bulge testing
- 6285-12 FR Notch-toughness properties : STS weldments : Explosion crack-starter tests
- 6285-13 FR Cast HY-80 : American Brake Shoe Co.
- 6285-14A FR Cast HY-80 steel plates : Birdsboro Corp.
- 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

WELD DEPOSITS -- CHEMICAL ANALYSIS

- 9300-1 TM13 HP-150 steel-filler wire system
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-1 PR3 Welding electrodes : HY-100
- 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests : Heat treatable electrodes
- 6285-5 FR Explosion bulge properties : HY-30 : Electro-slag welding process

WELD DEPOSITS -- MECHANICAL PROPERTIES

- 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
- 9300-1 TM23 Welding : HY-100
- 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield strength steels : Controlled thermal severity (CTS) test
- 9300-1 TM41 MIG and TIG welding : HY-130/150 : As welded : Stress relieved
- 9300-1 TM42 MIG welding : HY-130/150
- 9300-1 TM49 Weldability : HY-130/150 steel covered electrodes
- 9300-1 TM50 12% nickel maraging steels : Filler wire system
- 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
- 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum steel shafting
- 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding process
- 6285-5S FR Explosion bulge performance : Mechanical properties : HY-80 weldments : Electro-slag process

Weld metal see WELD DEPOSITS

Weldability: see appropriate steel alloys

WELDING -- AUTOMATIC

- 9300-1 TM12 "Narrow-Gap" welds : HY-80
- 9300-1 TM36 HY-180/210 : Explosion bulge testing : 9Ni-4Co steel alloy weldments
- 9300-1 TM48 HY-180/210 : Explosion bulge testing : 9Ni-4Co type steel weldment
- 9300-39 PR2 Weldability : Nickel modified Hadfield steel chain links

WELDING -- SEMIAUTOMATIC

9300-1 TM5 Semi-automatic : MIG : HY-80 : Linde 103 filler wire
 6285-12 PR1 STS weldments : Explosion bulge tests
 6285-12 FR Notch-toughness properties : STS weldments : Explosion
 crack-starter tests

WELDING INSPECTION -- MAGNETIC PARTICLE

9300-1 TM2 Embrittled 110-18 weld metal : Fatigue life : HY-80 :
 Butt weldments
 9300-1 TM3 Short arc M.I.G. : Vertical position welding : HY-80
 9300-1 TM7 Fatigue : Explosion bulge properties : HY-80 : Butt
 weldments
 9300-1 TM8 Weldability : I-N 100 (135,000 psi yield strength)
 9300-1 TM10 Properties : 110-18 : STS : HY-100
 9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM22 Properties : 130 to 150,000 psi : Steel weldments :
 Filler wire (LLR1)
 9300-1 TM25 Short arc MIG : Out-of-position welding : HY-80
 9300-1 TM35 NASL circular fillet weldability (NCFW) test
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
 9300-1 TM42 MIG welding : HY-130/150
 9300-1 TM45 Pulsed arc process : Welding : HY-80 : HY-130/150 (5% Ni)
 9300-1 TM52 Covered electrode : Metallic arc welding : HY-130/150
 9300-1 PR3 Welding electrodes : HY-100
 6160-2 PR2 Welding : Fatigue properties : HY-80
 6285-3 FR Mechanical properties : Iron alloys : Explosion bulge tests :
 Heat treatable electrodes
 6285-4 FR Weldability : Cast HY-80
 6285-5 FR Explosion bulge properties : HY-80 : Electro-slag welding
 process
 6285-6 PR2 Notch-toughness properties : MIL-260 welds : STS plate
 6285-12 FR Notch-toughness properties : STS weldments : Explosion
 crack-starter tests
 6285-14 FR Cast HY-80 : Birdsboro Corp. : Explosion bulge testing
 6285-17 FR HY-80 submerged arc weldments : Experimental flux L-732 :
 Experimental filler wire 14N : Battelle Memorial Institute
 6285-20 FR HY-80 submerged arc : Flux (Unionmelt 103) : Electrode
 (Oxweld 103) : Linde Co. : Explosion bulge tests

WELDING INSPECTION -- METALLOGRAPHIC

9300-1 TM16 Properties : I-N 100 (135,000 psi yield strength)
 9300-1 TM29 Comparative weldability : 50,000 to 150,000 psi yield
 strength steels : Controlled thermal severity (CTS) test
 9300-1 TM38 Peening : Properties : HY-80/MIL-110-18 weldments
 9300-1 TM50 12% nickel maraging steels : Filler wire system
 9300-39 PR1 Welding repair procedure : Class 1, nickel-molybdenum
 steel shafting
 6160-2 PR2 Welding : Fatigue properties : HY-80
 6160-2 PR6 Fatigue : Iron base alloys : Tee-fillet welds : HY-80 :
 Compression
 6285-1 PR1 HY-80 and HY-100 : Weldability
 6285-4 FR Weldability : Cast HY-80
 6285-25 FR HY-100 : Rolled plate : Armco-Sheffield steel

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UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body, abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U. S. Naval Applied Science Laboratory Flushing and Washington Avenues Brooklyn, New York 11251		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
3. REPORT TITLE Bibliography and Index of Naval Applied Science Laboratory Technical Reports on High Strength Steels			
4. DESCRIPTIVE NOTES (Type of report and, inclusive dates) Lab. Project 9300-1, Progress Report 5, 1959-1966			
5. AUTHOR(S) (First name, middle initial, last name) Frank Ginsberg Irving L. Stern			
6. REPORT DATE 14 February 1967	7a. TOTAL NO. OF PAGES 60	7b. NO. OF REFS -	
8a. CONTRACT OR GRANT NO. 8 PROJECT NO. 9300-1 Task Area SF-020-01-01, Work Unit 0722 Task Area SF-020-01-02, Work Unit 0855 Task Area SF-013-03-02, Work Unit 2025		9a. ORIGINATOR'S REPORT NUMBER(S)	
		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
10. DISTRIBUTION STATEMENT Distribution of this document is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY Naval Ship Systems Command Washington, D. C. 20360	
13. ABSTRACT A bibliography and subject index have been prepared of Naval Applied Science Laboratory technical reports covering pertinent information on 80,000 psi to 210,000 psi yield strength steels, with emphasis on HY-80 and HY-130 weldments. Work in these reports deals with transfer of basic laboratory data to production applications. Primary areas of concern are weldability, welding procedures and materials, static and dynamic mechanical properties (including large scale fatigue), explosion bulge, forming, stress relieving and residual stresses.			

UNCLASSIFIED

Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Naval Applied Science Laboratory Technical Reports Bibliography Subject Index 80,000 psi to 210,000 psi Yield Strength Steels HY-80 Weldments HY-130 Weldments Weldability Welding Procedures Static and Dynamic Mechanical Properties Explosion Bulge Forming Stress Relieving Residual Stress						