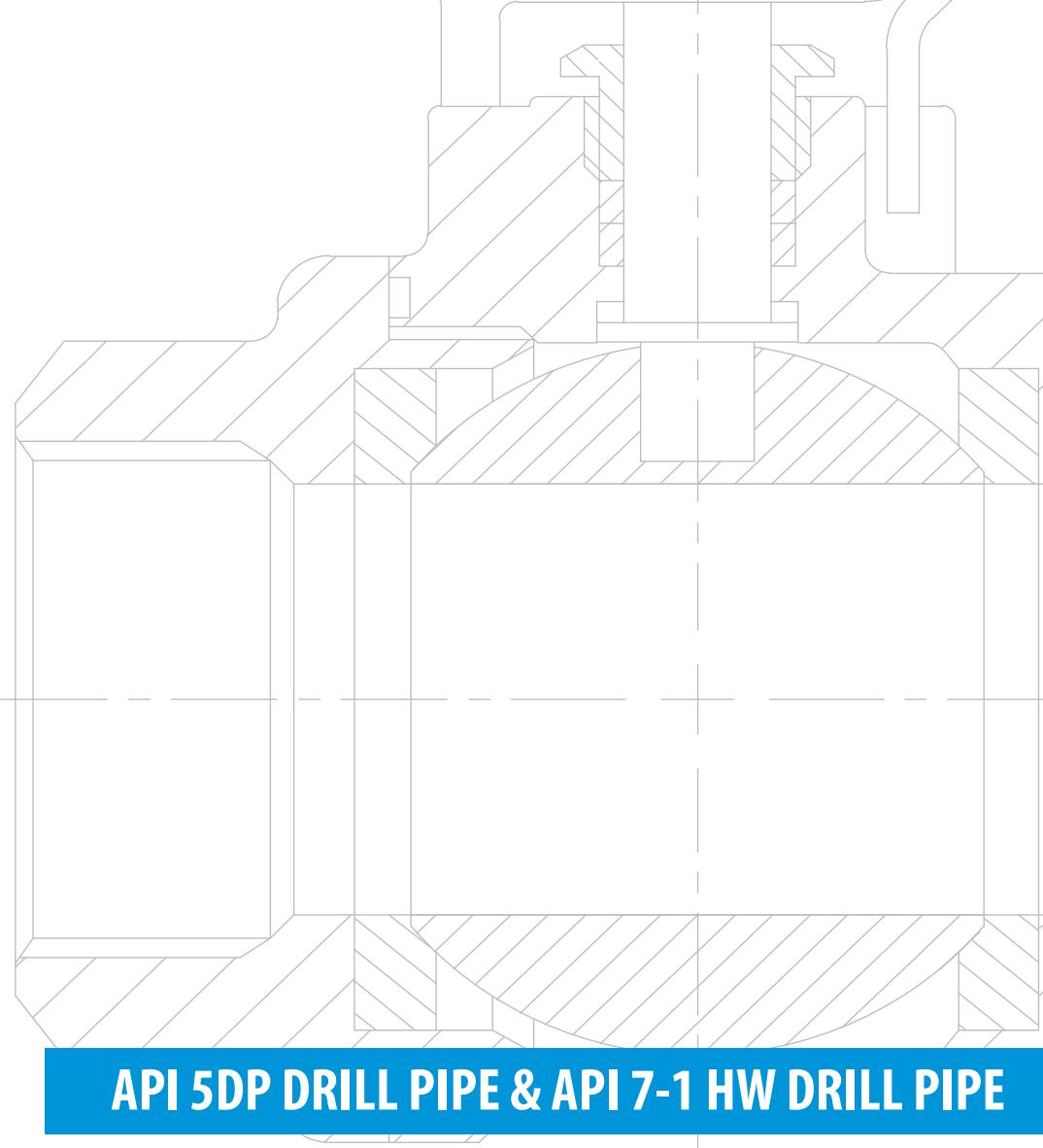




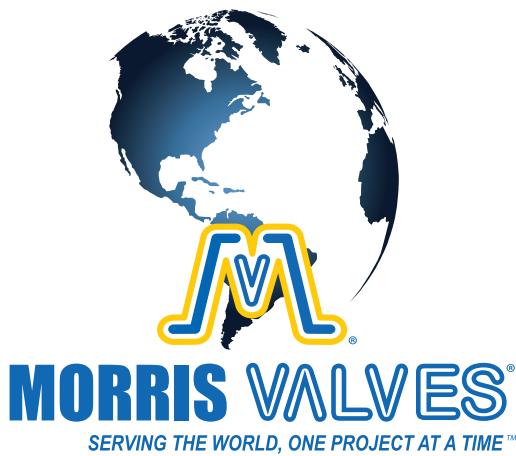
MORRIS VALVES®

SERVING THE WORLD, ONE PROJECT AT A TIME™



API 5DP DRILL PIPE & API 7-1 HW DRILL PIPE

www.morrisvalve.com



In 1984, our journey into the business of repairing valves and industrial instrumentation began. That journey has led us to represent and service well known American brands and companies. In early 2000, our experience and growing passion for the valve industry encouraged our decision to launch our own brand, Morris Valves. Starting with the highly requested Ball Valves, the brand has been based on the principal of quality and performance to match our customers' needs. Our high standards of production later lead us to incorporate other models such as Gate Valve and Check Valves to our production. These additions were carefully selected to match our Standard of Quality. Our success has been driven by our belief of "Tradition with Quality" in everything we do. Our products are developed with that belief which drives our growth and guides the service we provide to our customers.

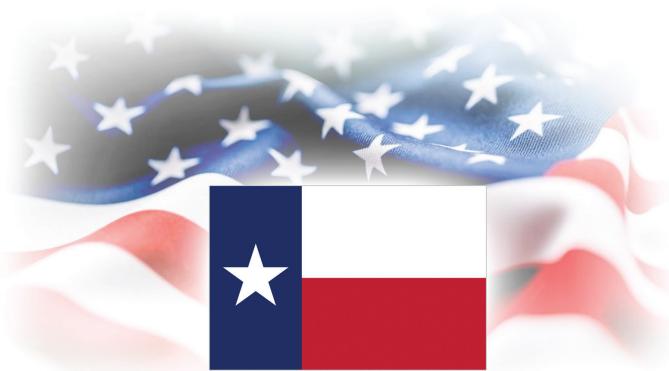
Contacts

Address: 13548 Cedar Hill Rd., Montgomery, TX. 77356, USA.

Telephone: +1 (832) 666-5576

Cel: +1 (832) 983 – 0744

Email: sales@morrisvalve.com



Vision

Our vision is to be amongst the leading corporations in the supply of goods and services related to valves, their components and industrial equipment in general. We want to conquer new markets in conformity with international standards and remain committed to customer satisfaction, the welfare of our company and the sustainability our planet.

Mission

Our mission is to use our highly trained, highly focused, and extremely motivated staff to work with manufacturers who value quality and have the vision for new development and product applications to ensure the timely provision of goods and services related to valves, their components and industrial equipment in general. We maintain a rigorous standard of customer satisfaction, which will provide for the welfare of the company, the welfare of the countries we serve, and most importantly the sustainability of the planet.

"Serving the world, one project at a time"

United States of America

United States Patent and Trademark Office



Reg. No. 4,840,307

MORRIS VALVES, INC. (FLORIDA CORPORATION)
5590 N.W. 84TH AVE.
MIAMI, FL 33166

Registered Oct. 27, 2015

Int. Cl.: 6

FOR: METAL PIPES AND METAL FITTINGS THEREFOR; METAL TUBES AND METAL FITTINGS THEREFOR, IN CLASS 6 (U.S. CLS. 2, 12, 13, 14, 23, 25 AND 50).

TRADEMARK

FIRST USE 2-11-2015; IN COMMERCE 2-11-2015.

PRINCIPAL REGISTER

OWNER OF U.S. REG. NO. 4,241,186.

THE COLOR(S) YELLOW, WHITE, AND BLUE IS/ARE CLAIMED AS A FEATURE OF THE MARK.

THE MARK CONSISTS OF A STYLIZED WHITE LETTER "V" WITH A BLUE OUTLINE INSIDE OF A STYLIZED LETTER "M" IN BLUE OUTLINED WITH YELLOW. THE BACKGROUND OF THE MARK IS WHITE.

SER. NO. 86-543,795, FILED 2-24-2015.

MARIE MILONE, EXAMINING ATTORNEY



Michelle K. Lee

Director of the United States
Patent and Trademark Office

API 5DP Drill Pipe for Oil & Gas

Drill pipes are steel tubular fitted with threaded ends called Tool Joints, which are commonly used in tension in the top part of the drill string to "pump fluid and transmit torque to the bit". The DRILL STRING is the drill pipe with the tool joints attached.

The drill pipe connects the rig surface equipment with the bottom hole assembly and the bit, both to pump drilling fluid to the bit and to be able to raise, lower and rotate the bottom hole assembly and bit.

High Strength Drill Pipe – Because of deeper drilling and higher stress levels, grades of drill pipe stronger than Grade E-75 have been developed. Grades and minimum tensile yield strengths are:

Drill Pipe Grade Minimum Tensile Yield Strength

X-95 95,000

G-105 105,000

S-135 135,000

V-150* 150,000

*V-150 is not a standard API grade but is listed as the next higher grade above S-135.

Markings on Tool Joints for Identification of Drill String Components.-

MONTH AND YEAR WELDED

_____ Month _____ Year _____

DRILL PIPE GRADE CODE

Grade Symbol

E-75 E

X-95 X

G-105 G

S-135 S

V150 V

SAMPLE MARKINGS AT BASE OF PIN

| | | | | |
|----|---|----|---|---|
| 1 | 2 | 3 | 4 | 5 |
| ZZ | 6 | 70 | N | E |

1-Company Symbol

ZZ Company (Fictional for example only. Various tool joint manufacturers' symbols are illustrated in a chart in Section 1, Page 8.)

2-Month Welded

6-June

3-Year Welded

70-1970

4-Pipe Manufacturer

N-United States Steel Company

5-Drill Pipe Grade: E-Grade E-75 Drill Pipe

| DRILL PIPE SPECIFICATIONS | | | | | | | | | | |
|---------------------------|-----------|-----------------|-------|----------|----------------------|-----------------|-----------|----------|----------------------|----------------------|
| DRILL PIPE (TUBE) | | | | | TOOL JOINT | | | | | |
| SIZE | | UPSET ENDS TYPE | GRADE | W.T (In) | NOMINAL WEIGHT LB/Ft | CONNECTION TYPE | O. D (In) | I.D (In) | PIN TONG1 SPACE (In) | BOX TONG1 SPACE (In) |
| O. D (In) | I. D (In) | | | | | | | | | |
| 2-3/8 | 1.815 | EU | E-75 | 0.280 | 6.65 | NC26 | 3-3/8 | 1-3/4 | 9 | 10 |
| | 1.815 | | X-95 | | | | 3-3/8 | | 9 | 10 |
| | 1.815 | | G-105 | | | | 3-3/8 | | 9 | 10 |
| | 1.815 | | S-135 | | | | 3-5/8 | | 9 | 10 |
| 2-7/8 | 2.151 | EU | E-75 | 0.362 | 10.40 | NC31 | 4-1/8 | 2-1/8 | 9 | 11 |
| | 2.151 | | X-95 | | | | 4-1/8 | | 9 | 11 |
| | 2.151 | | G-105 | | | | 4-1/8 | | 9 | 11 |
| | 2.151 | | S-135 | | | | 4-3/8 | | 9 | 11 |
| 3-1/2 | 2.764 | EU | E-75 | 0.368 | 13.30 | NC38 | 4-3/4 | 2-11/16 | 10 | 12-1/2 |
| | 2.764 | | X-95 | | | | 5 | 2-9/16 | 10 | 12-1/2 |
| | 2.764 | | G-105 | | | | 5 | 2-7/16 | 10 | 12-1/2 |
| | 2.764 | | S-135 | | | | 5 | 2-1/8 | 10 | 12-1/2 |
| | 2.602 | EU | E-75 | 0.449 | 15.50 | NC38 | 5 | 2-9/16 | 10 | 12-1/2 |
| | 2.602 | | X-95 | | | | 5 | 2-7/16 | 10 | 12-1/2 |
| | 2.602 | | G-105 | | | | 5 | 2-1/8 | 10 | 12-1/2 |
| | 2.602 | | S-135 | | | | 5-1/2 | 2-1/4 | 9 | 12 |
| 4 | 3.240 | IU | E-75 | 0.330 | 14.00 | NC40 | 5-1/4 | 2-13/16 | 9 | 12 |
| | 3.240 | | X-95 | | | | 5-1/4 | 2-11/16 | 9 | 12 |
| | 3.240 | | G-105 | | | | 5-1/2 | 2-7/16 | 9 | 12 |
| | 3.240 | | S-135 | | | | 5-1/2 | 2-7/16 | 9 | 12 |
| | 3.240 | EU | E-75 | 0.330 | 14.00 | NC46 | 6 | 3-1/4 | 9 | 12 |
| | 3.240 | | X-95 | | | | 6 | 3-1/4 | 9 | 12 |
| | 3.240 | | G-105 | | | | 6 | 3-1/4 | 9 | 12 |
| | 3.240 | | S-135 | | | | 6 | 3 | 9 | 12 |
| | 3.240 | IU | E-75 | 0.380 | 15.70 | NC40 | 5-1/4 | 2-11/16 | 9 | 12 |
| | 3.240 | | X-95 | | | | 5-1/4 | 2-7/16 | 9 | 12 |
| | 3.240 | | G-105 | | | | 5-1/4 | 2-7/16 | 9 | 12 |
| | 3.240 | | S-135 | | | | 5-1/2 | 2 | 9 | 12 |
| | 3.240 | EU | E-75 | 0.380 | 15.70 | NC46 | 6 | 3-1/4 | 9 | 12 |
| | 3.240 | | X-95 | | | | 6 | 3-1/4 | 9 | 12 |
| | 3.240 | | G-105 | | | | 6 | 3 | 9 | 12 |
| | 3.240 | | S-135 | | | | 6 | 3 | 9 | 12 |
| 4-1/2 | 3.826 | IEU | E-75 | 0.337 | 16.60 | NC46 | 6-1/4 | 3 | 9 | 12 |
| | 3.826 | | X-95 | | | | 6-1/4 | 3-1/4 | 9 | 12 |
| | 3.826 | | G-105 | | | | 6-1/4 | 3 | 9 | 12 |
| | 3.826 | | S-135 | | | | 6-1/4 | 2-3/4 | 9 | 12 |
| | 3.826 | EU | E-75 | 0.337 | 16.60 | NC50 | 6-5/8 | 3-3/4 | 9 | 12 |
| | 3.826 | | X-95 | | | | 6-5/8 | 3-3/4 | 9 | 12 |
| | 3.826 | | G-105 | | | | 6-5/8 | 3-3/4 | 9 | 12 |
| | 3.826 | | S-135 | | | | 6-5/8 | 3-1/2 | 9 | 12 |
| 3.640 | 3.640 | IEU | E-75 | 0.430 | 20.00 | NC46 | 6-1/4 | 3 | 9 | 12 |
| | 3.640 | | X-95 | | | | 6-1/4 | 2-3/4 | 9 | 12 |
| | 3.640 | | G-105 | | | | 6-1/4 | 2-1/2 | 9 | 12 |
| | 3.640 | | S-135 | | | | 6-1/4 | 2-1/4 | 9 | 12 |
| | 3.640 | EU | E-75 | 0.430 | 20.00 | NC50 | 6-5/8 | 3-1/2 | 9 | 12 |
| | 3.640 | | X-95 | | | | 6-5/8 | 3-1/2 | 9 | 12 |
| | 3.640 | | G-105 | | | | 6-5/8 | 3 | 9 | 12 |
| | 3.640 | | S-135 | | | | 6-5/8 | 3-1/2 | 9 | 12 |

| DRILL PIPE SPECIFICATIONS | | | | | | | | | | |
|---------------------------|---------------|-----------------------|-------|-------------|----------------------------|--------------------|---------------|--------------|----------------------------|----------------------------|
| SIZE | | DRILL PIPE (TUBE) | | | | TOOL JOINT | | | | |
| O. D. (In) | I. D. (In) | UPSET ENDS TYPE | GRADE | W.T (In) | NOMINAL WEIGHT LB/Ft | CONNECTION TYPE | O. D. (In) | I.D. (In) | PIN TONG1 SPACE (In) | BOX TONG1 SPACE (In) |
| 5 | 4.276 | IEU | E-75 | 0.362 | 19.50 | NC50 | 6-5/8 | 3-3/4 | 9 | 12 |
| | 4.276 | IEU | X-95 | | | NC50 | 6-5/8 | 3-1/2 | 9 | 12 |
| | 4.276 | IEU | G-105 | | | NC50 | 6-5/8 | 3-1/4 | 9 | 12 |
| | 4.276 | IEU | S-135 | | | NC50 | 6-5/8 | 2-3/4 | 9 | 12 |
| | 4.276 | IEU | E-75 | | | 5-1/2 FH | 7 | 3-3/4 | 10 | 12 |
| | 4.276 | IEU | X-95 | | | 5-1/2 FH | 7 | 3-3/4 | 10 | 12 |
| | 4.276 | IEU | G-105 | | | 5-1/2 FH | 7 | 3-3/4 | 10 | 12 |
| | 4.276 | IEU | S-135 | | | 5-1/2 FH | 7-1/4 | 3-1/2 | 10 | 12 |
| | 4.000 | IEU | E-75 | 0.500 | 25.60 | NC50 | 6-5/8 | 3-1/2 | 9 | 12 |
| | 4.000 | IEU | X-95 | | | NC50 | 6-5/8 | 3 | 9 | 12 |
| | 4.000 | IEU | G-105 | | | NC50 | 6-5/8 | 2-3/4 | 9 | 12 |
| | 4.000 | IEU | S-135 | | | NC50 | 6-5/8 | 2-3/4 | 9 | 12 |
| | 4.000 | IEU | E-75 | | | 5-1/2 FH | 7 | 3-1/2 | 10 | 12 |
| | 4.000 | IEU | X-95 | | | 5-1/2 FH | 7 | 3-1/2 | 10 | 12 |
| | 4.000 | IEU | G-105 | | | 5-1/2 FH | 7-1/4 | 3-1/2 | 10 | 12 |
| | 4.000 | IEU | S-135 | | | 5-1/2 FH | 7-1/4 | 3-1/4 | 10 | 12 |
| 5-1/2 | 4.778 | IEU | E-75 | 0.361 | 21.90 | 5-1/2 FH | 7 | 4 | 10 | 12 |
| | 4.778 | IEU | X-95 | | | 5-1/2 FH | 7 | 3-3/4 | 10 | 12 |
| | 4.778 | IEU | G-105 | | | 5-1/2 FH | 7-1/4 | 3-1/2 | 10 | 12 |
| | 4.778 | IEU | S-135 | | | 5-1/2 FH | 7-1/2 | 3 | 10 | 12 |
| | 4.670 | IEU | E-75 | 0.415 | 24.70 | 5-1/2 FH | 7 | 4 | 10 | 12 |
| | 4.670 | IEU | X-95 | | | 5-1/2 FH | 7-1/4 | 3-1/2 | 10 | 12 |
| | 4.670 | IEU | G-105 | | | 5-1/2 FH | 7-1/4 | 3-1/2 | 10 | 12 |
| | 4.670 | IEU | S-135 | | | 5-1/2 FH | 7-1/2 | 3 | 10 | 12 |
| 6-5/8 | 5.965 | IEU | E-75 | 0.362 | 25.20 | 6-5/8 FH | 8 | 5 | 10 | 13 |
| | 5.965 | IEU | X-95 | 0.362 | | 6-5/8 FH | 8 | 5 | 10 | 13 |
| | 5.965 | IEU | G-105 | 0.362 | | 6-5/8 FH | 8-1/4 | 4-3/4 | 10 | 13 |
| | 5.965 | IEU | S-135 | 0.362 | | 6-5/8 FH | 8-1/2 | 4-1/4 | 10 | 13 |
| | 5.901 | IEU | E-75 | 0.362 | 27.70 | 6-5/8 FH | 8 | 5 | 10 | 13 |
| | 5.901 | IEU | X-95 | 0.362 | | 6-5/8 FH | 8-1/4 | 4-3/4 | 10 | 13 |
| | 5.901 | IEU | G-105 | 0.362 | | 6-5/8 FH | 8-1/4 | 4-3/4 | 10 | 13 |
| | 5.901 | IEU | S-135 | 0.362 | | 6-5/8 FH | 8-1/2 | 4-1/4 | 10 | 13 |

1=2" longer than standard

Grades and Lengths of Steel Drill Pipe

Drill pipe is furnished in the following API length ranges:

Range 1 18 ft. to 22 ft.

Range 2 27 ft. to 30 ft.

Range 3 38 ft. to 45 ft.



| Dimensions and Performance Properties. PIPE DATA | | | | | | | | | | | | | |
|--|-----------|-----------------|-------|----------|----------------------|--------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------|--------------------------|--|--|
| SIZE | | UPSET ENDS TYPE | GRADE | W.T (in) | NOMINAL WEIGHT LB/Ft | Torsional Yield Strength Lb-Ft | Tensile Yield Strength Lb | Internal Pressure Psi | Collapse Pressure Psi | Pipe Body Section Area sq in. | Pipe Body Section cu in. | Pipe Body Polar Section Modulus cu in. | |
| O. D (in) | I. D (in) | | | | | | | | | | | | |
| 2-3/8 | 1.815 | EU | E-75 | 0.280 | 6.65 | 6,300 | 138,200 | 15,474 | 15,599 | 1.843 | 0.867 | 1.733 | |
| | 1.815 | | X-95 | 0.280 | 6.65 | 7,900 | 175,000 | 19,600 | 19,759 | | | | |
| | 1.815 | | G-105 | 0.280 | 6.65 | 8,800 | 193,500 | 21,663 | 21,839 | | | | |
| | 1.815 | | S-135 | 0.280 | 6.65 | 11,300 | 248,800 | 27,853 | 28,079 | | | | |
| | 1.815 | | Z-140 | 0.280 | 6.65 | 11,700 | 258,000 | 28,884 | 29,119 | | | | |
| | 1.815 | | V-150 | 0.280 | 6.65 | 12,500 | 276,400 | 30,947 | 31,199 | | | | |
| 2-7/8 | 2.151 | EU/IU | E-75 | 0.362 | 10.40 | 11,600 | 214,300 | 16,526 | 16,509 | 1.812 | 1.121 | 2.241 | |
| | 2.151 | | X-95 | 0.362 | 10.40 | 14,600 | 271,500 | 20,933 | 20,911 | | | | |
| | 2.151 | | G-105 | 0.362 | 10.40 | 16,200 | 300,100 | 23,137 | 23,112 | | | | |
| | 2.151 | | S-135 | 0.362 | 10.40 | 20,800 | 385,800 | 29,747 | 29,716 | | | | |
| | 2.151 | | Z-140 | 0.362 | 10.40 | 15,100 | 253,700 | 18,492 | 17,500 | | | | |
| | 2.151 | | V-150 | 0.362 | 10.40 | 16,200 | 271,800 | 19,813 | 18,398 | | | | |
| 3-1/2 | 2.764 | EU/IU | E-75 | 0.368 | 13.30 | 18,600 | 271,600 | 13,800 | 14,113 | 2.590 | 1.961 | 3.923 | |
| | 2.764 | | X-95 | 0.368 | 13.30 | 23,500 | 344,00 | 17,480 | 17,877 | | | | |
| | 2.764 | | G-105 | 0.368 | 13.30 | 26,000 | 380,200 | 19,320 | 19,758 | | | | |
| | 2.764 | | S-135 | 0.368 | 13.30 | 33,400 | 488,800 | 24,840 | 25,404 | | | | |
| | 2.764 | | Z-140 | 0.368 | 13.30 | 26,400 | 362,600 | 17,780 | 16,158 | | | | |
| | 2.764 | | V-150 | 0.368 | 13.30 | 28,300 | 88,500 | 19,050 | 16,943 | | | | |
| | 2.602 | EU | E-75 | 0.449 | 15.50 | 21,100 | 322,800 | 16,838 | 16,774 | 2.602 | 4.304 | 2.923 | |
| | 2.602 | | X-95 | 0.449 | 15.50 | 26,700 | 408,800 | 21,328 | 21,247 | | | | |
| | 2.602 | | G-105 | 0.449 | 15.50 | 29,500 | 451,900 | 23,573 | 23,4484 | | | | |
| | 2.602 | | S-135 | 0.449 | 15.50 | 38,000 | 581,000 | 30,308 | 30,194 | | | | |
| | 2.602 | | Z-140 | 0.449 | 15.50 | 34,600 | 506,900 | 25,760 | 26,345 | | | | |
| | 2.602 | | V-150 | 0.449 | 15.50 | 37,100 | 543,100 | 27,600 | 28,226 | | | | |
| 4 | 3.476 | IU | E-75 | 0.262 | 11.85 | 19,500 | 230,800 | 8,597 | 8,381 | 3.077 | 2.700 | 5.400 | |
| | 3.476 | | X-95 | 0.262 | 11.85 | 24,700 | 292,300 | 10,889 | 9,978 | | | | |
| | 3.476 | | G-105 | 0.262 | 11.85 | 27,300 | 323,100 | 12,036 | 10,708 | | | | |
| | 3.476 | | S-135 | 0.262 | 11.85 | 35,100 | 415,400 | 15,474 | 12,618 | | | | |
| | 3.476 | | Z-140 | 0.262 | 11.85 | 36,400 | 430,700 | 16,048 | 12,894 | | | | |
| | 3.476 | | V-150 | 0.262 | 11.85 | 38,900 | 461,500 | 17,194 | 13,404 | | | | |
| | 3.240 | EU/IU | E-75 | 0.330 | 14.00 | 23,300 | 285,400 | 10,828 | 11,354 | 3.805 | 3.229 | 6.458 | |
| | 3.240 | | X-95 | 0.330 | 14.00 | 29,500 | 361,500 | 13,716 | 14,382 | | | | |
| | 3.240 | | G-105 | 0.330 | 14.00 | 32,600 | 399,500 | 15,159 | 15,896 | | | | |
| | 3.240 | | S-135 | 0.330 | 14.00 | 41,900 | 513,600 | 19,491 | 20,141 | | | | |
| | 3.240 | | Z-140 | 0.330 | 14.00 | 43,500 | 532,700 | 20,213 | 20,742 | | | | |
| | 3.240 | | V-150 | 0.330 | 14.00 | 46,600 | 570,700 | 21,656 | 21,912 | | | | |
| | 3.240 | EU/IU | E-75 | 0.380 | 15.70 | 25,800 | 324,100 | 12,469 | 12,896 | 4.322 | 3.578 | 7.157 | |
| | 3.240 | | X-95 | 0.380 | 15.70 | 32,700 | 410,500 | 15,794 | 16,335 | | | | |
| | 3.240 | | G-105 | 0.380 | 15.70 | 36,100 | 453,800 | 17,456 | 18,055 | | | | |
| | 3.240 | | S-135 | 0.380 | 15.70 | 46,500 | 583,400 | 22,444 | 23,213 | | | | |
| | 3.240 | | Z-140 | 0.380 | 15.70 | 36,400 | 430,700 | 23,275 | 24,073 | | | | |
| | 3.240 | | V-150 | 0.380 | 15.70 | 38,900 | 461,500 | 24,938 | 25,793 | | | | |
| 4-1/2 | 3.826 | EU/IU | E-75 | 0.337 | 16.60 | 30,800 | 330,600 | 9,829 | 10,392 | 4.407 | 4.271 | 8.543 | |
| | 3.826 | | X-95 | 0.337 | 16.60 | 39,000 | 418,700 | 12,450 | 12,765 | | | | |
| | 3.826 | | G-105 | 0.337 | 16.60 | 43,100 | 462,800 | 13,761 | 13,825 | | | | |
| | 3.826 | | S-135 | 0.337 | 16.60 | 55,500 | 595,000 | 17,693 | 16,773 | | | | |
| | 3.826 | | Z-140 | 0.337 | 16.60 | 57,500 | 617,000 | 18,348 | 17,228 | | | | |
| | 3.826 | | V-150 | 0.337 | 16.60 | 61,600 | 661,100 | 19,658 | 18,103 | | | | |
| | 3.240 | EU/IU | E-75 | 0.430 | 20.00 | 36,900 | 412,400 | 10,232 | 12,542 | 5.498 | 5.116 | 10.232 | |
| | 3.240 | | X-95 | 0.430 | 20.00 | 46,700 | 522,300 | 10,232 | 15,886 | | | | |
| | 3.640 | | G-105 | 0.430 | 20.00 | 51,700 | 577,300 | 10,232 | 17,558 | | | | |
| | 3.640 | | S-135 | 0.430 | 20.00 | 66,400 | 742,200 | 10,232 | 22,575 | | | | |
| | 3.640 | | Z-140 | 0.430 | 20.00 | 68,900 | 769,700 | 10,232 | 23,411 | | | | |
| | 3.640 | | V-150 | 0.430 | 20.00 | 73,800 | 824,700 | 10,232 | 25,083 | | | | |

| Dimensions and Performance Properties. PIPE DATA | | | | | | | | | | | | |
|--|--------------|-----------------------|-------|-------------|----------------------------|---|------------------------------------|-----------------------------|-----------------------------|--|--------------------------------|--|
| SIZE | | UPSET ENDS TYPE | GRADE | W.T (In) | NOMINAL WEIGHT LB/Ft | Torsional Yield Strength Lb-Ft | Tensile Yield Strength Lb | Internal Pressure Psi | Collapse Pressure Psi | Pipe Body Section Area sq in. | Pipe Body Section cu in. | Pipe Body Polar Section Modulus cu in. |
| O. D (In) | I. D (In) | | | | | | | | | | | |
| 5 | 4.276 | IEU | E-75 | 0.362 | 19.50 | 41,200 | 395,600 | 9,503 | 9,962 | 5.275 | 5.708 | 11.415 |
| | 4.276 | | X-95 | 0.362 | 19.50 | 52,100 | 501,100 | 12,037 | 12,026 | | | |
| | 4.276 | | G-105 | 0.362 | 19.50 | 57,600 | 553,800 | 13,304 | 12,999 | | | |
| | 4.276 | | S-135 | 0.362 | 19.50 | 74,100 | 712,100 | 17,105 | 15,672 | | | |
| | 4.276 | | Z-140 | 0.362 | 19.50 | 76,800 | 738,400 | 17,738 | 16,079 | | | |
| | 4.276 | | V-150 | 0.362 | 19.50 | 82,300 | 791,200 | 19,005 | 16,858 | | | |
| | 4.000 | | E-75 | 0.500 | 25.60 | 52,300 | 530,100 | 13,125 | 13,500 | | | |
| 5-1/2 | 4.000 | IEU | X-95 | 0.500 | 25.60 | 66,200 | 671,500 | 16,625 | 17,100 | 7.069 | 7.245 | 14.491 |
| | 4.000 | | G-105 | 0.500 | 25.60 | 73,200 | 742,200 | 18,375 | 18,900 | | | |
| | 4.000 | | S-135 | 0.500 | 25.60 | 94,100 | 954,300 | 23,625 | 24,300 | | | |
| | 4.000 | | Z-140 | 0.500 | 25.60 | 97,500 | 989,600 | 24,500 | 25,200 | | | |
| | 4.000 | | V-150 | 0.500 | 25.60 | 104,500 | 1,060,300 | 26,250 | 27,000 | | | |
| | 4.778 | IEU | E-75 | 0.361 | 21.90 | 50,700 | 437,100 | 8,413 | 8,615 | 5.828 | 7.031 | 14.062 |
| | 4.778 | | X-95 | 0.361 | 21.90 | 64,200 | 553,700 | 10,019 | 10,912 | | | |
| | 4.778 | | G-105 | 0.361 | 21.90 | 71,000 | 612,000 | 10,753 | 12,061 | | | |
| | 4.778 | | S-135 | 0.361 | 21.90 | 91,300 | 786,800 | 12,679 | 15,507 | | | |
| | 4.778 | | Z-140 | 0.361 | 21.90 | 94,700 | 816,000 | 12,957 | 16,081 | | | |
| | 4.778 | | V-150 | 0.361 | 21.90 | 101,400 | 874,200 | 13,473 | 17,230 | | | |
| | 4.670 | IEU | E-75 | 0.415 | 24.70 | 71,700 | 629,800 | 10,464 | 9,903 | 6.630 | 7.844 | 15.688 |
| | 4.670 | | X-95 | 0.415 | 24.70 | 101,800 | 895,000 | 12,933 | 12,544 | | | |
| | 4.670 | | G-105 | 0.415 | 24.70 | 79,200 | 696,100 | 14,013 | 13,865 | | | |
| | 4.670 | | S-135 | 0.415 | 24.70 | 101,800 | 895,000 | 17,023 | 17,826 | | | |
| | 4.670 | | Z-140 | 0.415 | 24.70 | 105,600 | 928,100 | 17,489 | 18,486 | | | |
| | 4.670 | | V-150 | 0.415 | 24.70 | 113,100 | 994,400 | 18,386 | 19,807 | | | |
| | 5.153 | IEU | E-75 | 0.361 | 23.40 | 58,600 | 469,000 | 7,453 | 8,065 | 6.254 | 8.125 | 16.251 |
| | 5.153 | | X-95 | 0.361 | 23.40 | 74,200 | 594,100 | 8,775 | 10,216 | | | |
| | 5.153 | | G-105 | 0.361 | 23.40 | 82,000 | 656,600 | 9,362 | 11,291 | | | |
| | 5.153 | | S-135 | 0.361 | 23.40 | 105,500 | 844,200 | 10,825 | 14,517 | | | |
| | 5.153 | | Z-140 | 0.361 | 23.40 | 109,400 | 875,500 | 11,023 | 15,054 | | | |
| | 5.153 | | V-150 | 0.361 | 23.40 | 117,200 | 938,000 | 11,376 | 16,130 | | | |
| | 5.045 | IEU | E-75 | 0.415 | 26.30 | 65,500 | 533,900 | 9,558 | 9,271 | 7.119 | 9.083 | 18.165 |
| | 5.045 | | X-95 | 0.415 | 26.30 | 83,000 | 676,300 | 11,503 | 11,744 | | | |
| | 5.045 | | G-105 | 0.415 | 26.30 | 91,700 | 747,400 | 12,414 | 12,980 | | | |
| | 5.045 | | S-135 | 0.415 | 26.30 | 117,900 | 961,000 | 14,892 | 16,688 | | | |
| | 5.045 | | Z-140 | 0.415 | 26.30 | 122,300 | 996,600 | 15,266 | 17,306 | | | |
| | 5.045 | | V-150 | 0.415 | 26.30 | 131,000 | 1,067,800 | 15,976 | 18,543 | | | |
| | 5.965 | IEU | E-75 | 0.330 | 25.20 | 70,600 | 489,500 | 4,788 | 6,538 | 6.526 | 9.786 | 19.572 |
| | 5.965 | | X-95 | 0.330 | 25.20 | 89,400 | 620,000 | 5,321 | 8,281 | | | |
| | 5.965 | | G-105 | 0.330 | 25.20 | 98,800 | 685,200 | 5,500 | 9,153 | | | |
| | 5.965 | | S-135 | 0.330 | 25.20 | 127,000 | 881,000 | 6,036 | 11,768 | | | |
| | 5.965 | | Z-140 | 0.330 | 25.20 | 131,700 | 913,700 | 6,121 | 12,204 | | | |
| | 5.965 | | V-150 | 0.330 | 25.20 | 141,200 | 978,900 | 6,260 | 13,075 | | | |
| | 5.901 | IEU | E-75 | 0.362 | 27.70 | 76,300 | 534,200 | 5,894 | 7,172 | 7.123 | 10.578 | 21.156 |
| | 5.901 | | X-95 | 0.362 | 27.70 | 96,600 | 676,700 | 6,755 | 9,084 | | | |
| | 5.901 | | G-105 | 0.362 | 27.70 | 106,800 | 747,900 | 7,103 | 10,040 | | | |
| | 5.901 | | S-135 | 0.362 | 27.70 | 137,300 | 961,600 | 7,813 | 12,909 | | | |
| | 5.901 | | Z-140 | 0.362 | 27.70 | 142,400 | 997,200 | 7,881 | 13,387 | | | |
| | 5.901 | | V-150 | 0.362 | 27.70 | 152,600 | 1,068,400 | 7,970 | 14,343 | | | |

OCTG - Heavy Weight Drill Pipe (HWDP)

A Heavy Weight Drill Pipe (HWDP) is a tubular pipe that adds weight or acts as a transitional piece in the drill string, looks like a normal drill pipe except for an upset centered along the tube which helps to prevent excessive buckling. HWDP, As a transitional section of the drill string, it is placed between the drill collar and standard drill pipe to reduce fatigue failures, typically between the stiff and rigid drill collars and the relatively light and flexible drill pipe joints to reduce fatigue failures directly above the bottom hole assembly.

In other applications the HWDP is used as an additional weight to weigh down the drill string. Its wall thickness is up to 3 times that of a similar-sized normal drill pipe..

HWDP is used most commonly in directional drilling because it bends more easily and helps to control torque and fatigue in high-angle operations.

HWDP is manufactured in accordance with API Spec. 7/7-1 guidelines.



HWDP Specifications

Conventional Heavy Weight Drill Pipes come in two configurations: Welded and Integral.

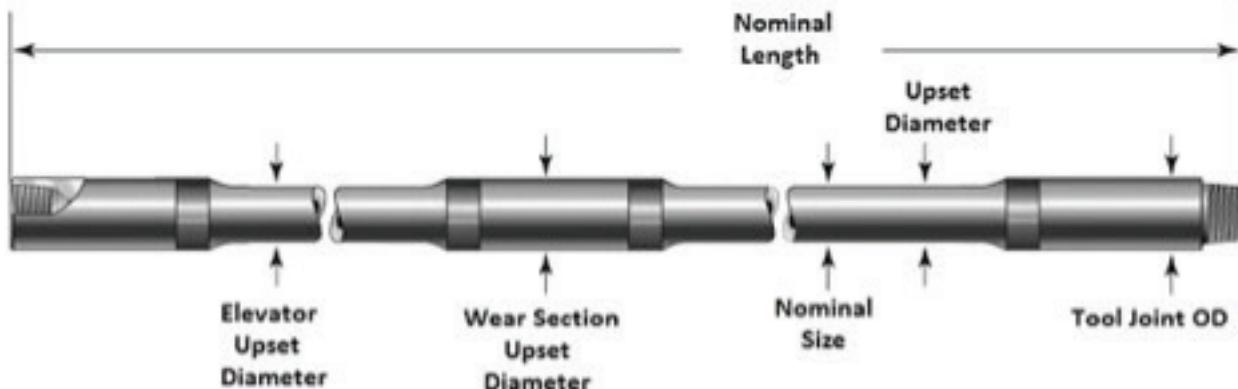
The **welded configuration** is manufactured by friction welding of extra long tool joints to a thick well tube while the **Integral configuration** is machined from a solid bar of AISI4145H alloy steel.

An additional option is the **Heavyweight Spiral Drill Pipe**, which has spiral grooves cut into the external surface for reduced differential sticking and improved hole-cleaning.

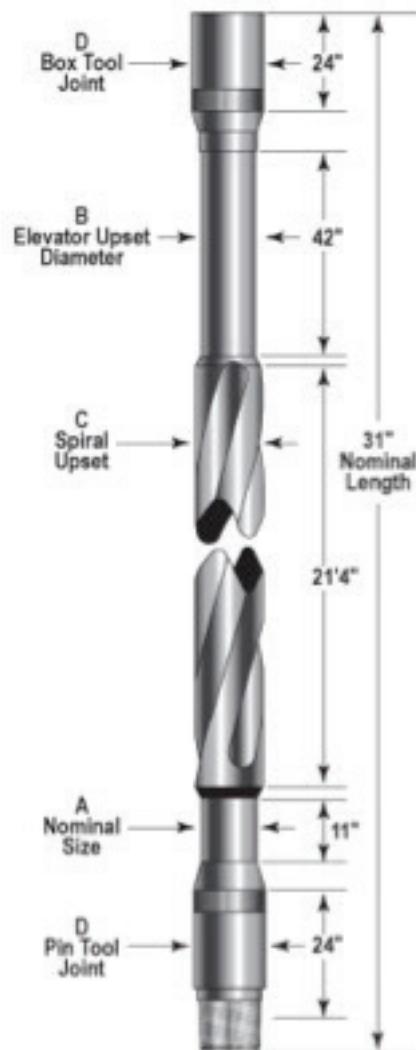
Products are manufactured to API Spec.7/ 7-1 where applicable and can come customized with additional features and proprietary connections of leading manufacturers per your requirements.

| Nominal Size (Tube OD) | Tube | | | Tool Joint (in) | | |
|---------------------------|------------|-------------------|-----------------|---------------------------|-----------------|-------------|
| | ID (in) | Elevator Upset | Center Upset | Connection Type & Size | O. D (in) | I.D (in) |
| 2-7/8 | 1-1/2 | 2-15/16 | 3-5/16 | NC 26 (2-3/8 IF) | 3-3/8 | 1-1/2 |
| 3-1/2 | 2-1/16 | 3-7/8 | 4 | NC 38 (3-1/2 IF) | 4-3/4 (4-7/8,5) | 2-1/16 |
| 3-1/2 | 2-1/4 | 3-7/8 | 4 | NC 38 (3-1/2 IF) | 4-3/4 (4-7/8,5) | 2-1/4 |
| 4 | 2-9/16 | 4-3/16 | 4-1/2 | NC 40 (4FH) | 5-1/4 | 2-9/16 |
| 4 | 2-1/2 | 4-3/16 | 4-1/2 | NC 40 (4FH) | 5-1/4 | 2-1/2 |
| 4-1/2 | 2-3/4 | 4-11/16 | 5 | NC 46 (4 IF) | 6-1/4 | 2-3/4 |
| 4-1/2 | 2-11/16 | 4-11/16 | 5 | NC 46 (4 IF) | 6-1/4 | 2-3/4 |
| 4-1/2 | 2-13/16 | 4-11/16 | 5 | NC 46 (4 IF) | 6-1/4 | 2-3/4 |
| 5 | 3 | 5-1/8 | 5-1/2 | NC 50 (4-1/2 IF) | 6-5/8 | 3 |
| 5-1/2 | 3-1/4 | 5-11/16 | 6 | 5-1/2 FH | 7 (7-1/4,7-1/2) | 3-1/4 |
| 5-1/2 | 3-3/8 | 5-11/16 | 6 | 5-1/2 FH | 7 (7-1/4,7-1/2) | 3-3/8 |
| 5-1/2 | 3-7/8 | 5-11/16 | 6 | 5-1/2 FH | 7 (7-1/4,7-1/2) | 3-3/8 |
| 5-1/2 | 4 | 5-11/16 | 6 | 5-1/2 FH | 7 (7-1/4,7-1/2) | 4 |
| 6-5/8 | 4 | 6-15/16 | 7-1/8 | 6-5/8 FH | 8 (8-1/4,8-1/2) | 4 |
| 6-5/8 | 4-1/2 | 6-15/16 | 7-1/8 | 6-5/8 FH | 8 (8-1/4,8-1/2) | 4-1/2 |
| 6-5/8 | 5 | 6-15/16 | 7-1/8 | 6-5/8 FH | 8 (8-1/4,8-1/2) | 5 |

| | |
|--|--|
| Standard Features | API Bore Back Box Connection API Stress Relief Grooved Pin Cold Rolled Thread Roots Phosphate coated connections |
| Options | Internal Plastic Coating Hard band Type especially on box and pin tool joint Proprietary Connections Make and Break Test |
| Protection Mill Test Certificates | Pressed steel thread protectors Issued in accordance with API Spec 7/7-1 and API RP7G . Third Party Inspection can be performed on request at buyer's care and expense. Issued in accordance with API Spec 7/7-1 and API RP7G . |



HEAIVY WEIGHT DRILL PIPE



SPIRAL HEAVY WEIGHT DRILL PIPE





A Tradition of Quality

*Our passion is to develop
solutions for difficult situations in
Industrial Applications, no matter
how large or small the project.*

"Serving the world, one project at a time"

