



**Drill Pipe Specs**  
**Size & Weight: 4-1/2" 16.60 IU**  
 Grade: G-105  
 Range: III  
 Connection: 430 Duo

**Tube**

	New		Premium	
OD	4.500 in	114.30 mm	4.365 in	110.87 mm
Wall thickness	0.337 in	8.56 mm	0.270 in	6.86 mm
ID	3.826 in	97.18 mm	3.826 in	97.18 mm
Torsional strength	43,100 ft-lbs	58,436 N-m	33,800 ft-lbs	45,827 N-m
80% Torsional strength	34,500 ft-lbs	46,776 N-m	27,000 ft-lbs	36,607 N-m
Tensile strength	462,800 lbs	205,864 daN	364,200 lbs	162,004 daN
Internal Pressure capacity	13,761 psi	94,879 kPa	12,581 psi	86,743 kPa
Collapse capacity	14,549 psi	100,312 kPa	7,724 psi	53,255 kPa
Cross sectional area body	4.407 in <sup>2</sup>	2,843 mm <sup>2</sup>	3.469 in <sup>2</sup>	2,238 mm <sup>2</sup>
Cross sectional area OD	15.904 in <sup>2</sup>	10,261 mm <sup>2</sup>	14.966 in <sup>2</sup>	9,655 mm <sup>2</sup>
Cross sectional area ID	11.497 in <sup>2</sup>	7,417 mm <sup>2</sup>	11.497 in <sup>2</sup>	7,417 mm <sup>2</sup>
Section modulus	4.271 in <sup>3</sup>	69,989 mm <sup>3</sup>	3.347 in <sup>3</sup>	54,848 mm <sup>3</sup>
Polar section modulus	8.543 in <sup>3</sup>	139,995 mm <sup>3</sup>	6.694 in <sup>3</sup>	109,695 mm <sup>3</sup>

**Tool Joint**

	New			
Yield Strength	120,000	psi	827,371	kPa
OD	5.250	in	133.35	mm
ID	3.000	in	76.20	mm
Pin length	9.0	in	228.60	mm
Box length	11.5	in	292.10	mm
Torsional Strength	40,000	ft-lbs	52,233	N-m
Recommended Make-up Torque	24,000	ft-lbs	32,540	N-m
Tensile strength	763,200	lbs	339,489	daN

**Drill Pipe Assembly with Connection**

Adjusted weight	16.93	lbs/ft	25.19	kg/m
Approximate length	43.00	ft	13.11	m
Fluid displacement	0.259	gal/ft	0.003217	m <sup>3</sup> /m
Fluid capacity	0.581	gal/ft	0.007216	m <sup>3</sup> /m
Drift size	2.875	in	73.03	mm

**Drill Pipe Bend Radius**

Based on Bending Stress at Pipe OD	12,000	psi	82,737	kPa
Radius of Curvature (R @ OD of Pipe)	468.80	ft	142.89	m
BUR (Dogleg)	12.200	deg/100ft	12.008	deg/30m

While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. Empire Tool Company Ltd. cannot assume responsibility for the results obtained through the use of this material. No expressed or implied warranty is intended. All torques are based on a 1.0 friction factor.

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