

4 1/2" – DELTA™ 425 – 5.375" OD X 3.000" ID – DRILL PIPE

TUBE / PIPE BODY	NOMINAL	
PIPE BODY OD	4.500	in
PIPE BODY ID	3.826	in
WEIGHT	16.60	lbs/ft
WALL THICKNESS	0.337	in
GRADE	S-135	
TYPE OF UPSET	IEU	
MAXIMUM UPSET OD	4.688	in
RANGE	2	

TOOL JOINT SPECIFICATIONS	NOMINAL	
TOOL JOINT DESCRIPTION	DELTA™ 425	
TOOL JOINT OD	5.375	in
TOOL JOINT ID	3.000	in
PIN TONG LENGTH	12	in
BOX TONG LENGTH	17	in
TOOL JOINT SMYS	130,000	psi
DRIFT	2.875	in
TOOL JOINT TORSIONAL	43,300	ft-lbs

PIPE BODY PERFORMANCE	INSPECTION CLASS	
	NOMINAL	API PREMIUM 80%
REMAINING BODY WALL (RBW)	0.337	0.270 in
BURST PRESSURE*	17,693	16,176 psi
COLLAPSE PRESSURE*	16,771	10,961 psi
SLIP CRUSHING CAPACITY*	431,577	342,982 lbs
- ASSUMED SLIP LENGTH		16.5 in
- ASSUMED TRANSVERSE LOAD FACTOR (K)		4.2
ADJUSTED WEIGHT**		19.48 lbs/ft
FLUID DISPLACEMENT**		0.0071 bbls/ft
FLUID CAPACITY**		0.0133 bbls/ft
TUBE TENSILE		468,296 lbs
TUBE TORSIONAL		43,450 ft-lbs



NOMINAL BURST CALCULATED AT 87.5% RBW PER API
 *WITH NO AXIAL LOAD OR BENDING IN STRING
 **BEST ESTIMATE

MAKEUP TORQUE SPECIFICATIONS	THREAD COMPOUND FRICTION FACTOR	
	1.00 FF	1.15 FF*
MAXIMUM MAKEUP TORQUE	30,300 ² ft-lbs	34,800 ^{2*} ft-lbs
MINIMUM MAKEUP TORQUE	21,600 ft-lbs	24,840 [†] ft-lbs
TOOL JOINT TORSIONAL	43,259 ft-lbs	49,748 [†] ft-lbs
CONNECTION TENSILE (AT MIN MAKEUP TORQUE)	786,354 lbs	
CONNECTION TENSILE (AT MAX MAKEUP TORQUE)	482,858 lbs	

²NOV GRANT PRIDECO EXTENDED MUT APPLIED.
²EXTENDED MAKEUP TORQUE AS DEFINED IN NOV GRANT PRIDECO PRODUCT BULLETIN PR-43.1-2017JAN26-EXT – AVAILABLE UPON REQUEST.
[†]FRICTION FACTOR ADJUSTMENT BASED ON USING COPPER BASED THREAD COMPOUND WITH A FRICTION FACTOR OF 1.15.
 *WHEN APPLYING A 1.15 FF THREAD COMPOUND THE TOOL JOINT TORSIONAL STRENGTH WILL INCREASE BY AN ADDITIONAL 15%.

- MAXIMUM MAKEUP TORQUE SHOULD BE USED WHEN POSSIBLE.
- IT IS RECOMMENDED THAT DRILLING TORQUE SHOULD NOT EXCEED 80% OF MAKEUP TORQUE.

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Start saving time and money today!

To order your 4 1/2", Delta™425 Drill Pipe for your offshore & land needs, or for further information, please contact:

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Drill Pipe Performance Sheet (1.0 FF)

10/28/2020

Pipe Body Specification		
Pipe Body OD	in	4.5
Pipe Body Wall Thickness - Nominal Weight		0.337 in - 16.6 lb/ft
Pipe Body Grade		S135
Drill Pipe Length		Range 2
- Max	ft	32.0
- Min	ft	31.0
Type of Upset		IEU
Max Upset OD	in	4.6
Tong Length includes hardbanding if applicable		

Pipe Body Performance			
		Nominal	API Premium 80% Inspection Class
Burst Pressure *	psi	17,690	16,200
Collapse Pressure *	psi	16,770	10,960
Slip Crushing Capacity *	lbs	431,600	343,000
- Assumed Slip Length	in		16.5
- Assumed Transverse Load Factor (K)			4.2
Adjusted Weight **		lbs/ft	19.42
Fluid Displacement **		US gal/ft	0.3
		Bbls/ft	0.0071
Fluid Capacity **		US gal/ft	0.56
		Bbls/ft	0.0133
* With no axial load or bending in string		** Best estimate with coating	
Note: Oil field barrel equivalent to 42 US gal		Note: Nominal burst calculated at 87.5% RBW per API	

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Tool Joint Specification		
Connection Type and Size		Delta™ 425
Benchmark		GPmark™ +
SmoothEdge™ Height per side	in	N/A
Tool Joint SMYS	psi	130,000
Connection OD	in	5.375
Connection ID	in	3.0
Pin Tong Length	in	12.0
Box Tong Length	in	17.0
Thread Compound Friction Factor (FF)		1.0

Tool Joint Performance		
Max Make-Up Torque (Recommended)	ft-lbs	30,300¹
Min Make-Up Torque	ft-lbs	21,600
Min TJ OD (API Premium)	in	4.99
Min TJ OD for Counterbore	in	4.914
Drift Size	in	2.875
The maximum make-up torque should be applied when possible. To maximize connection operational tensile, a MUT (T4) = 22,100 should be applied.		
1. Extended MUT applied.		

Advisories and Warnings for Drill Pipe	
Advisories:	
- Connection torsional strength is less than 80% pipe body torsional strength.	
- Connection tensile at Maximum MUT is less than new pipe body tensile, a lower MUT (but not less than Minimum MUT) should be considered.	
- Elevator capacity is less than new tube tensile. Consider increasing tool joint OD or adding SmoothEdge Option.	
Warnings:	

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Drill Pipe Performance Sheet (1.0 FF)

10/28/2020

Combined Loading for Drill Pipe			
Connection: Delta™ 425 5.375" x 3.0" (130 KSI SMYS) Friction Factor: 1.0			
Pipe: 4.5" OD 0.337" Wall Thickness S135 80% Inspection Class			
At Max MUT (30300 ft-lbs)		At Min MUT (21600 ft-lbs)	
Operational Torque(ft-lbs)	Assembly Max Tension(lbs)	Operational Torque(ft-lbs)	Assembly Max Tension(lbs)
0	468300	0	468300
1400	468100	900	468200
2900	467300	1900	467800
4300	466000	2800	467300
5700	464200	3800	466500
7100	462000	4700	465500
8600	459000	5700	464200
10000	455700	6600	462900
11400	451900	7500	461300
12800	447500	8500	459200
14300	442200	9400	457200
15700	436700	10400	454700
17100	430500	11300	452200
18500	423700	12300	449100
20000	415700	13200	446200
21400	407600	14200	442600
22800	398600	15100	439100
24300	388200	16000	435400
25700	377600	17000	431000
27100	366100	17900	426700

Connection Wear Table		
Connection: Delta™ 425 5.375" x 3.0" (130 KSI SMYS) Friction Factor: 1.0		
Tool Joint OD (in)	Max MUT(ft-lbs)	Min MUT(ft-lbs)
5.375	30300	21600
5.333	30300	21600
5.291	30300	21600
5.249	30300	21600
5.207	30100	21500
5.165	29000	20700
5.124	27800	19900
5.082	26700	19100
5.04	25600	18300
4.998	24500	17500
4.956	23500	16800
4.914	22400	16000

Elevator Capacity		
Elevator Bore Diameter: 4.69375" Elevator SMYS: 110,100 psi Box Taper Angle: 18 deg		
Connection: Delta™ 425 4.5" 0.337" wall IEU S135		
Tool Joint OD (in.)	Elevator Hoist Capacity (lbs)	
	No Wear	1/32" Wear Factor
5.375	593100	567700
5.333	554300	528800
5.291	515700	490200
5.249	477400	451900
5.207	439400	414000
5.165	401700	376300
5.124	365300	339800
5.082	328200	302700
5.04	291400	266000
4.998	255000	229500
4.956	218800	193400
4.914	183000	157500

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