

# Hevi-Wate Transition Drill Pipe — Standard and Spiral

The industry standard for intermediate-weight drill stem.

DRILCO Hevi-Wate\* transition drill pipe is the industry standard for an intermediate-weight drill stem member and is available in standard, spiral, and nonmagnetic designs, making it useful in a number of applications. It is designed and built with drill pipe dimensions for easier handling by the rig crew, and uses a unique center upset wear pad or spiral to increase tube life while reducing hole drag and differential sticking problems.

## HEVI-WATE TRANSITION DRILL PIPE SPECIFICATIONS—STANDARD AND SPIRAL

Nominal Tube Size, in.	Nominal Tube Dimensions			Center Upset Elevator Upset		Mechanical Properties Tube Section		Connection Size and Type	OD, in.	ID, in.	Tensile Yield, lbm
	ID, in.	Wall Thickness, in.	Area, in. <sup>2</sup>	OD, in.	OD, in.	Tensile Yield, lbm	Torsional Yield, ft.lbm				
3½	2¼	0.625	5.645	4	3⅝	738,647	19,174	NC 38 (3½ IF)	4¾	2⅝	800,201
4	2⅞ <sub>16</sub>	0.719	7.410	4½	4⅞	780,201	25,664	NC 40 (4 FH)	5¼	2 <sup>11</sup> / <sub>16</sub>	841,107
4½	2¾	0.875	9.965	5	4⅞	1,120,317	41,837	NC 46 (4 IF)	6¼	2⅞	1,210,776
5	3	1.000	12.566	5½	5⅞	1,380,225	55,984	NC 50 (4½ IF)	6⅝	3 <sup>1</sup> / <sub>16</sub>	1,459,869
5½	3⅝	1.063	14.812	6	5⅞	1,619,231	62,903	5½ FH	7	3½	1,754,167
6⅝	4½	1.063	18.567	7⅞	6¾	1,788,591	87,856	6⅝ FH	8	4⅝	1,937,641

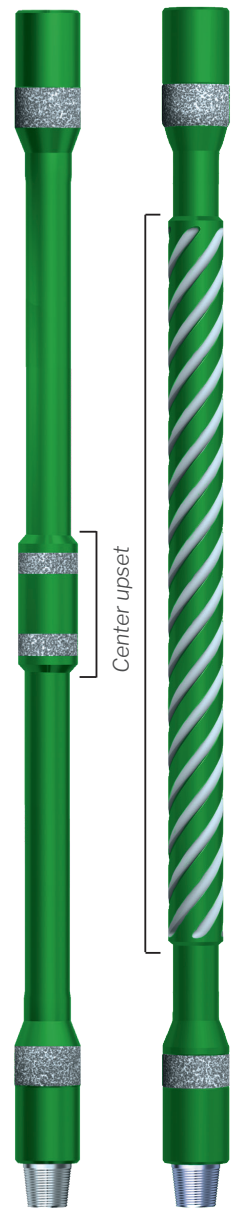
## HEVI-WATE TRANSITION DRILL PIPE SPECIFICATIONS—STANDARD AND SPIRAL cont.

Nominal Size, in.	Tool Joint			Approximate Overall Length, ft
	Torsional Yield, ft.lbm	Makeup Torque, ft. lbm	Approximate Overall Length of Pin/Box, in.	
3½	20,772	10,000	33/30	31
4	27,659	13,300	33/30	31
4½	60,541	21,800	33/30	31
5	60,677	29,200	33/30	31
5½	68,145	32,800	33/30	31
6⅝	95,178	45,800	30/30	31

## HEVI-WATE TRANSITION DRILL PIPE BENDING STRENGTH RATIOS

Hevi-Wate Transition Drill Pipe Size, in.	Maximum Drill Collar Size†, in.	Bending Strength Ratios
3½	5¾ × 2¼	18.2/3.5 = 5.2:1
4	6½ × 2¼	26.5/5.2 = 5.1:1
4½	7½ × 2 <sup>13</sup> / <sub>16</sub>	36.5/7.7 = 4.7:1
5	8¾ × 2 <sup>13</sup> / <sub>16</sub>	54.3/10.7 = 5.1:1
5½	9 × 2 <sup>13</sup> / <sub>16</sub>	70.8/14 = 5.1:1
6⅝	10½ × 3	113/22.4 = 5.0:1

† Indicates the largest size drill collar to be run directly below the Hevi-Wate transition drill pipe. If drill collars larger than the maximum size shown are to be used, run at least three collars of the maximum size shown between the large drill collar and the Hevi-Wate transition drill pipe.



Standard Hevi-Wate\* transition drill pipe, left, and spiraled Hevi-Wate transition drill pipe, right

# Hevi-Wate Transition Drill Pipe — Standard and Spiral

## HEVI-WATE TRANSITION DRILL PIPE WEIGHT AND CENTER UPSET SPECIFICATIONS

Nominal Size, in.	Spiral Hevi-Wate Transition Drill Pipe			Standard Hevi-Wate Transition Drill Pipe		
	Approximate Weight, Including Tube and Joints, lbm		Center Upset Length, ft	Approximate Weight, Including Tube and Joints, lbm		Center Upset Length, in.
	lbm.ft	lbm.Jt 31 ft		lbm.ft	lbm.Jt 31 ft	
3½	27.5	873	18.5	23.4	753	26
4	34.3	1,281	18.5	29.9	991	26
4½	46.5	1,380	18.5	41.1	1,232	26
5	55.4	1,843	18.5	50.1	1,707	26
5½	63.8	2,094	18.5	57.6	1,945	26
6⅝	77.7	2,118	18.5	71.3	2,418	26

## HEVI-WATE TRANSITION DRILL PIPE VS. MAXIMUM HOLE SIZE

Hevi-Wate Transition Drill Pipe Size, in.	Maximum Hole Size, in.
3½	7
4	8⅝
4½	9⅞
5	10⅞
5½	11
6⅝	13½

## Features

- Materials can be specified for conformance to standard industry requirements, such as NS-1 and individual customer specifications.
- Long tool joints provide ample space to recut connections, reduce OD wear rate, and extend service life.
- A unique center upset or wear pad protects the tube from OD wear and increases tube life by keeping it away from the borehole wall while reducing hole drag and the risk of differential sticking.
- The API bore back box is standard for the box connection on 4 inch Hevi-Wate drill pipe and larger, helping to extend the service life of connections.
- Cold rolling the thread roots on all Hevi-Wate drill pipe connections increases the connection's ability to resist fatigue cracking.
- Hevi-Wate drill pipe can be picked up with the drill pipe elevators for fast, efficient handling on the rig floor.

## Optional features

- Hardbanding placed on the tool joints and center wear pad will increase abrasion resistance and extend service life.
- An API stress-relief groove can be placed on the pin connections for 4 inch joints and larger.

## Applications

### Directional Drilling

- Hevi-Wate drill pipe can serve as an effective weight-on-bit member in extended-reach, horizontal, and conventional directional wells.
- It improves directional control because of reduced torque and drag.
- The center upset also helps reduce the risk of differential sticking.

### Vertical Drilling

- When drilling vertical wells, Hevi-Wate drill pipe can serve as an active weight-on-bit member in place of a portion of the drill collar string to reduce torque and shorten trip time.
- It can provide a portion of the anticipated drilling weight when using soft-formation PDC bits.

**Note:** Hevi-Wate drill pipe should not be used to provide weight-on-bit in vertical holes larger than those listed in the accompanying table.

### Transition Zone

- By running 18 to 21 joints of Hevi-Wate drill pipe above drill collars, the risk of drill pipe fatigue failure is reduced.

### Tapered Drill Strings

- Hevi-Wate drill pipe is recommended for use in the crossover area of a drill string when the bending strength ratio (ratio of I/C or section modulus) between the drill collars and the drill pipe exceeds 5.5. It will

provide a gradual transition in stiffness between the drill collars and drill pipe, reducing fatigue damage to the drill pipe. Refer to the table "Bending Strength Ratios" to find the maximum drill collar size that can be run directly below Hevi-Wate drill pipe, and to the "DRILCO Drilling Assembly Handbook" for additional information.

## Remedial Operations

- Hevi-Wate drill pipe provides the weight required in milling, underreaming, and hole-opening operations.

## Jar Placement

- It is well suited for jar placement. Use a sufficient number of joints below the jar to ensure that the jar is not in the transition zone, and 20% of the recommended jar overpull as hammer weight above the jar in areas where differential sticking is a problem. Consult a DRILCO representative for additional information and placement recommendations.

## Hydraulic Improvements

- Hevi-Wate drill pipe can reduce drill string pressure losses when it replaces part of the drill collar string in hole sizes ranging from 6 to 8¾ in., where drill collar bore size is relatively small.

## Standard Hardbanding

A variety of abrasion-resistant materials are available for application. Contact a DRILCO representative for more information. Standard hardbanding consists of several applications:

- Pin-5 in. of hardmetal applied flush with the OD at the pin end.
- Box-4 in. of hardmetal applied flush with the OD on the box end.  
**Optional: 1 in. on the taper at the box end in addition to the 4 in. on the OD.**
- Center upset-Two 3 in. bands applied to each end at upset OD.

See the Machine Shop Services section of this catalog for details.

## Nonmagnetic Hevi-Wate Transition Drill Pipe

Nonmagnetic Hevi-Wate transition drill pipe enables MWD tools to be isolated from the undesirable effects of drill string magnetic interference. This intermediate-weight drill string member is manufactured with stringent material specifications to ensure the low magnetic permeability required for nonmagnetic downhole drilling tools. It has corresponding drill pipe dimensions and can be picked up with the drill pipe elevators for fast, efficient handling on the rig floor. Nonmagnetic Hevi-Wate drill pipe is a special-order product to meet specific requirements. Please consult your local DRILCO representative for further details.