



SEMI
PREMIUM CONNECTIONS

 **FIELD TESTED. FIELD PROVEN.**

**FIELD TESTED.
FIELD PROVEN.**



CONTACT

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TECHNICAL SUPPORT

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EXPERIENCE TRUE INNOVATION

BK is a third-generation, semi-premium connection,
Designed for HIGH TORQUE frac strings.

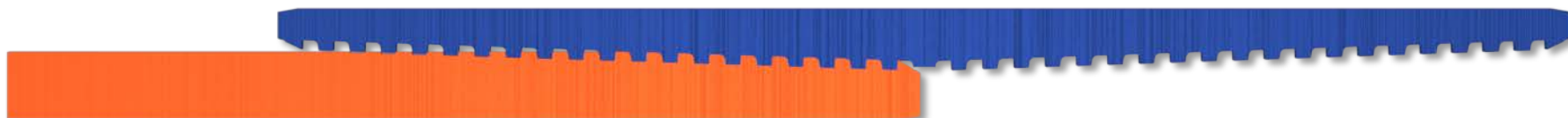




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BUTTRESS COMPATIBLE

For cost savings on hangers, float shoes, float collars, crossovers and custom tools.

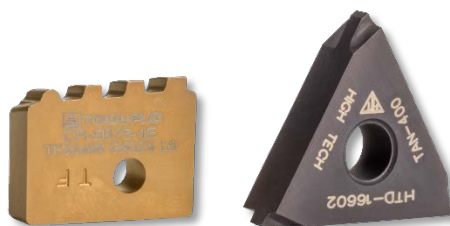
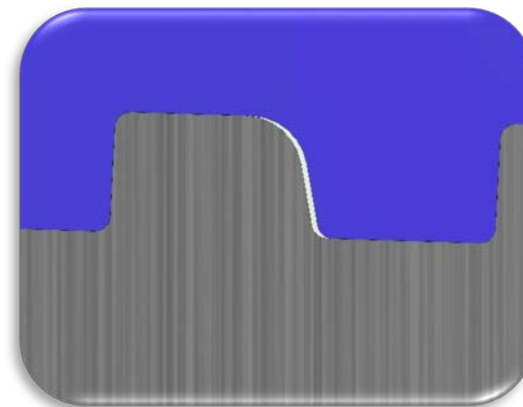
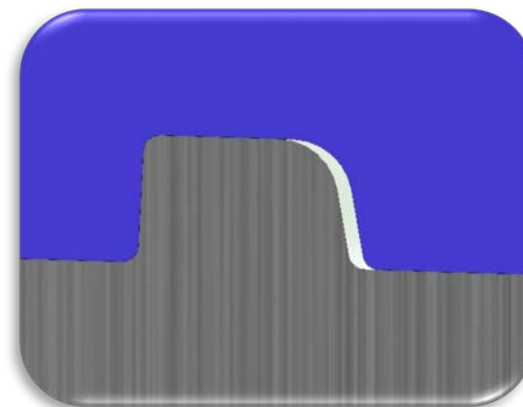


BETTER BUTTRESS SEALING

Modified buttress thread for tighter thread Sealing and pin nose seal stabilization.

THEIRS API Thread Tolerance - Verified fit of several major insert manufacturers.

OURS Minimizes thread gap for better thread sealing. **Custom Premium Insert.**



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FIRST GENERATION

Steam Injection and Steam Assisted Gravity Drain Wells. Needed torque for installation and sealing. Needed pin nose contact for compressive strength due to thermal stresses.

SECOND GENERATION

Drilling with casing Wells. Needed torque and fatigue life for installation. Vertical and not very deep.

THIRD GENERATION



Horizontal Wells. Need torque for installation. Need hoop strength and better sealing for high frac pressures. Need fatigue life for rotating during installation through a curved bore.

—FIELD PROVEN.—

100%

FRAC STRENGTH

Tensile , compressive and pressure strength for high pressure frac jobs

20+

WELLS PER MONTH

Servicing over 20+ wells monthly

8K+

MONTHLY INSTALLS

Over 8,000 couplings installed each month

12 MIL+

FEET INSTALLED

Over 12 million feet of couplings have been installed overall

BETTER BUTTRESS PIPE THREADS FOR SEALING

Modified buttress thread for tighter thread sealing and pin nose seal stabilization.

- More threads for sealing than API tolerances provide.
- Tighter tolerances on lead, taper and pitch diameter.
- Aggressive de-burr for trouble free make-ups.



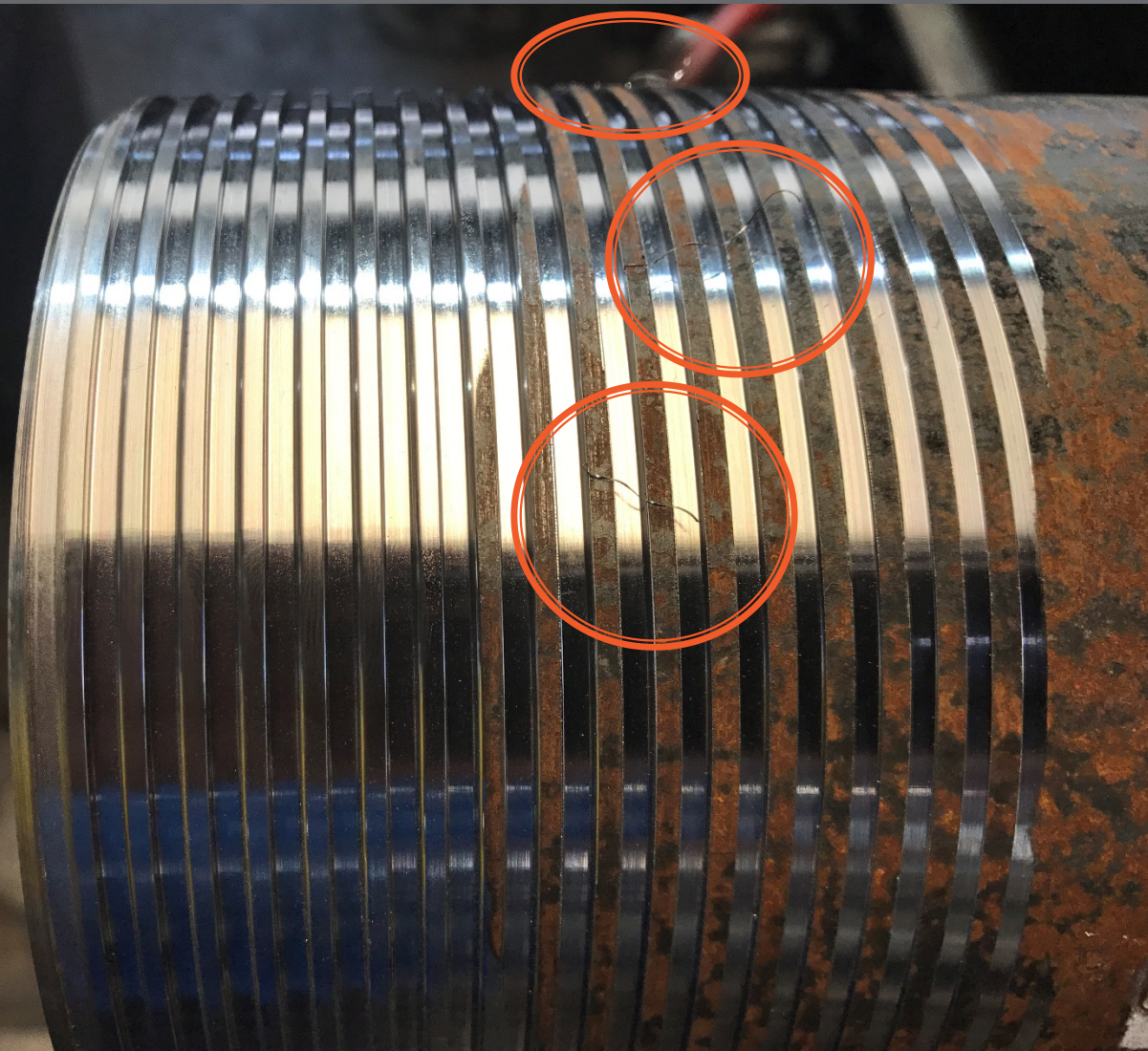
✱ **Black Crested Threads provide a leak path.**



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Burrs and Shavings.

Burrs commonly form in the runout / black crested pin thread region. They are a major cause of galling and rough coupling make ups. They also form on the pin nose. Most shops make no effort to remove these.





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Deburring.

Deburring the runout/black crested threads and the pin nose is crucial to a trouble free make up. It ensures that the connection shoulders with a lower torque and can be made up multiple times without galling. This step is usually only performed on premium threads.



Saves End Users Time and Money

It requires time, tools and resources to deburr, which is why it is often skipped on semi premium. Without a deburr the cost is passed onto the end user who has to remake joints or lay down joints on a lousy make up. Deburred threads can be run faster (RPM) without galling.





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FAST & CONSISTENT SHOULDER TORQUE INSTALLATION

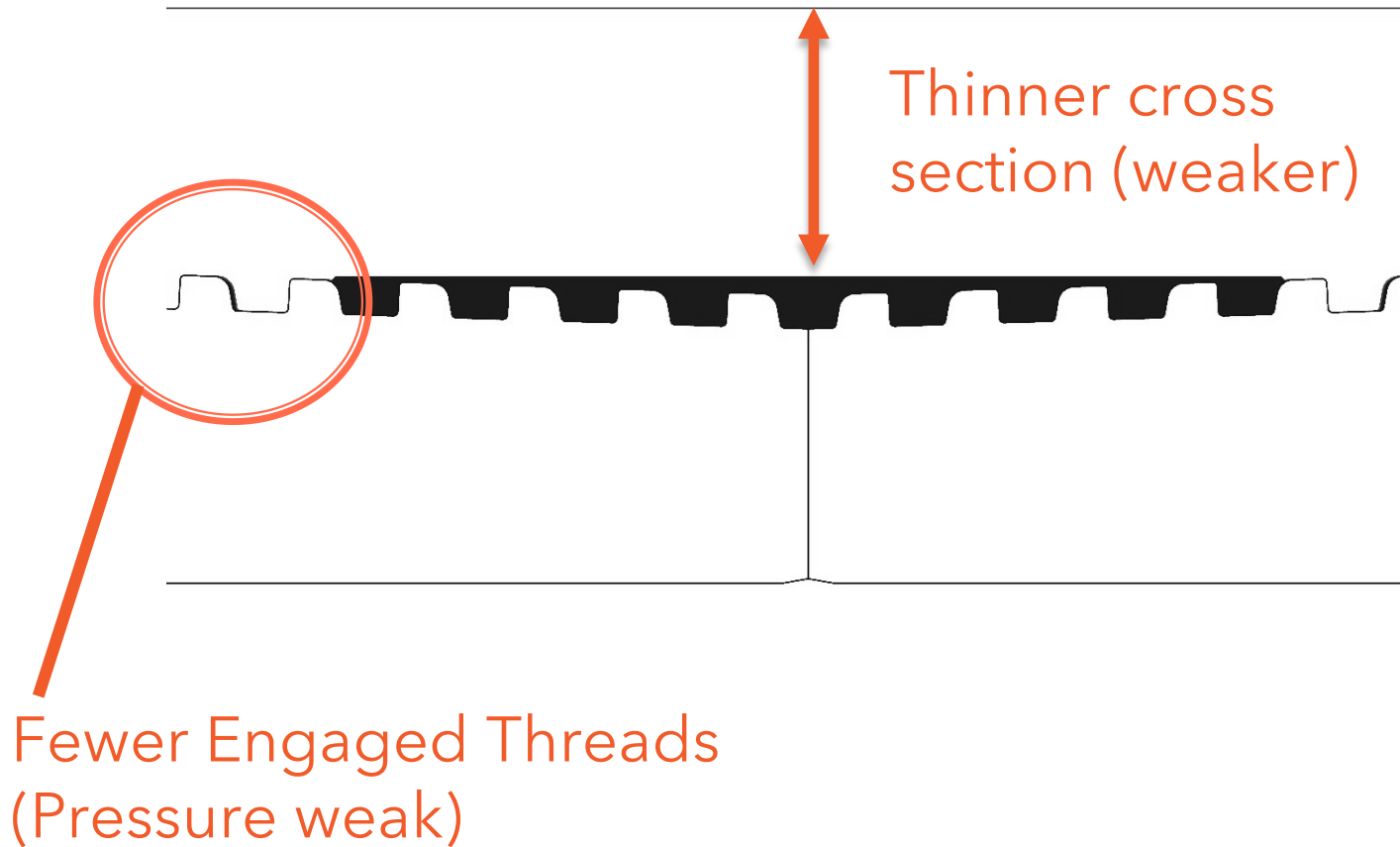
Better threading techniques and coupling coatings allow for a quick low cost installation. The BK will run quickly, reducing the run time per well.



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First Generation Relief Groove



Dark Areas indicate unengaged thread regions





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BK ADVANCED RELIEF GROOVE

Ensures more threads are engaged for maximum sealing. The thicker midpoint cross sectional area provides additional coupling strength.



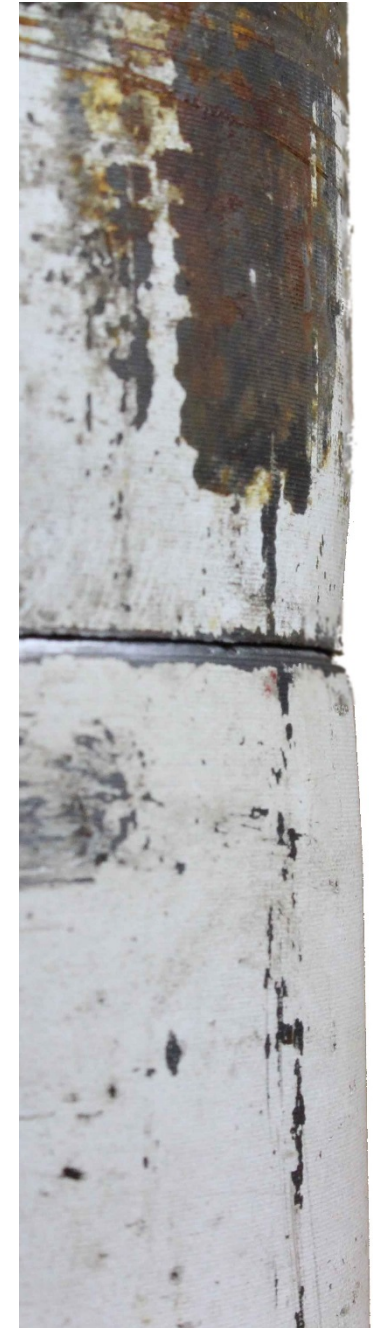
BK RELIEF GROOVE



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Types of Semi Premium Failures - Over Torque Split

The Coupling parts at the center from too much torque, load or combination of both.



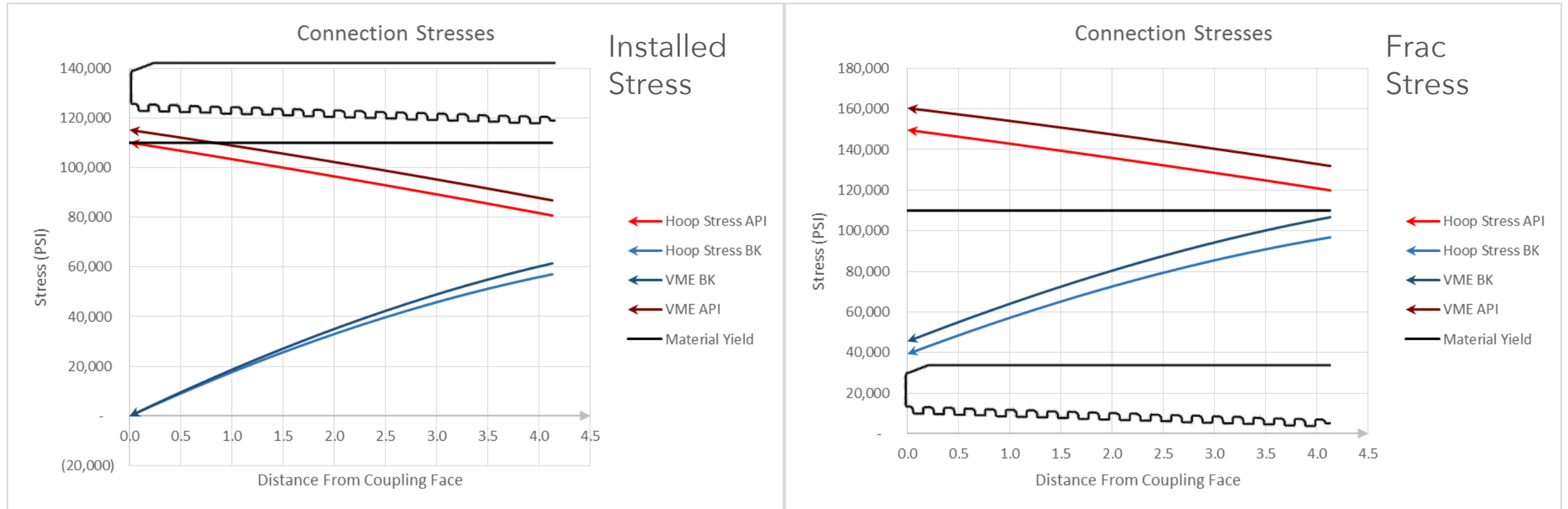
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STRENGTH

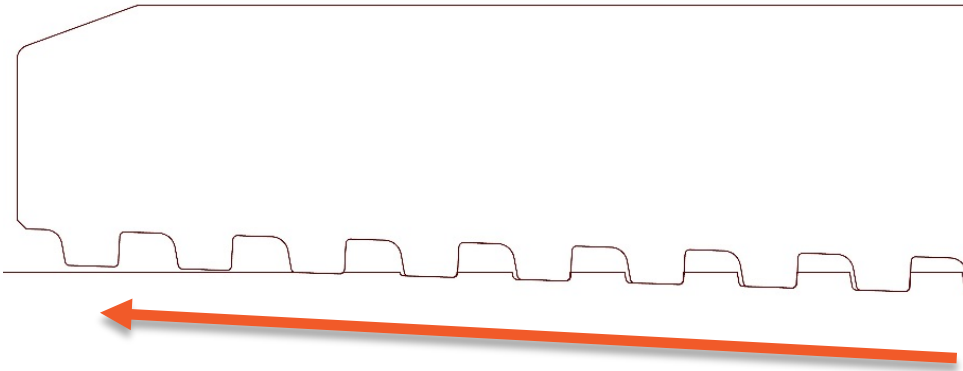
A low hoop stress design reduces the chance of coupling splits and leaks from high frac pressures. Stress is kept below material yield strength.



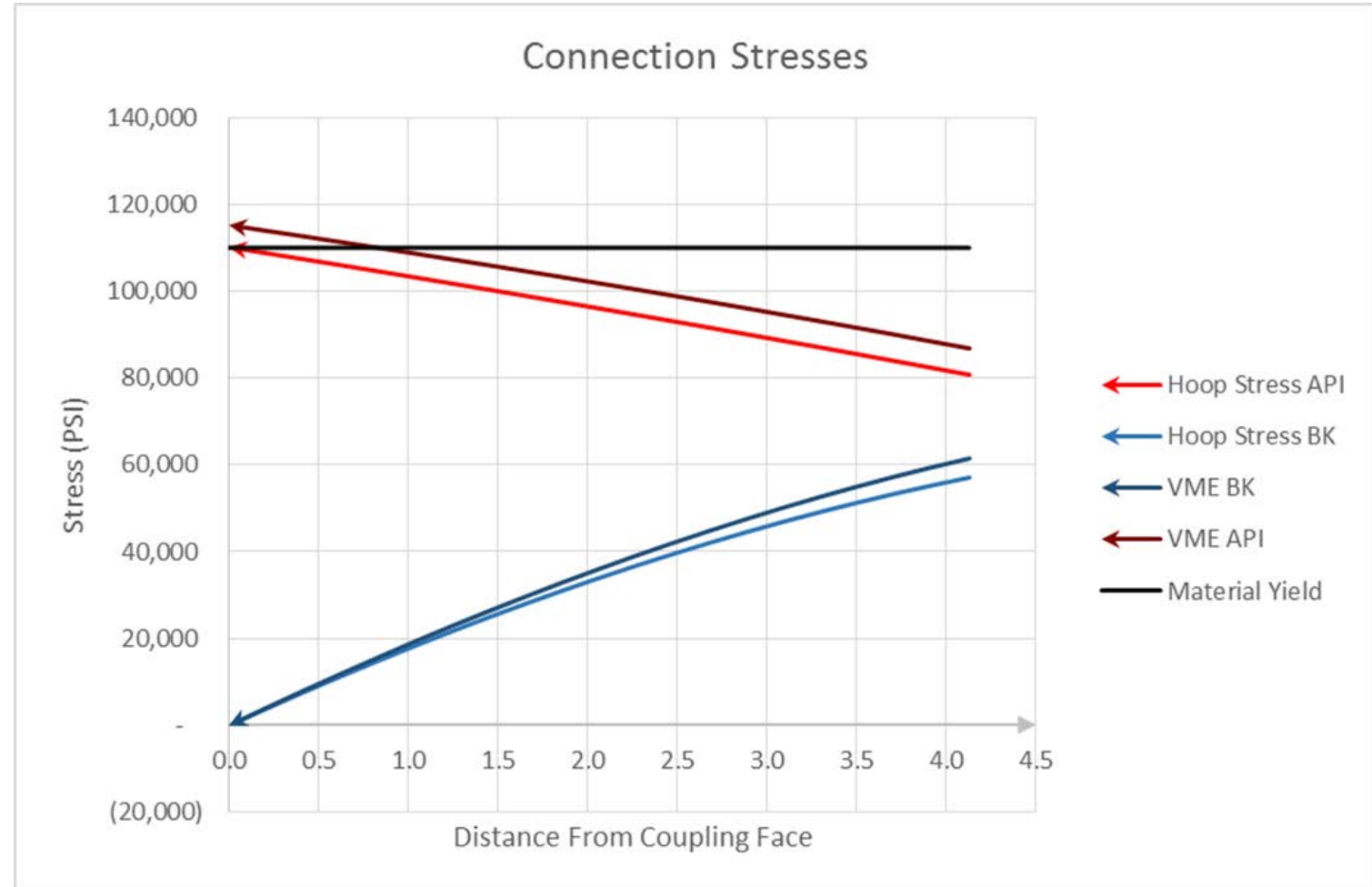
The coupling will return to its original shape after the frac without deformations that accelerate corrosion and crack growth.



HIGH RPM FATIGUE RESISTANCE FROM LOW STRESS RUNOUT THREADS

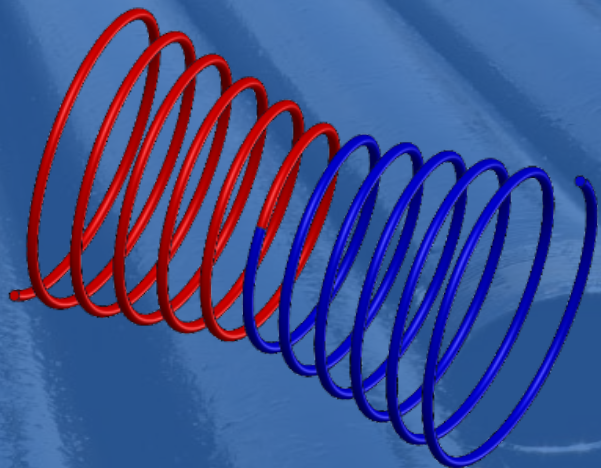


Extends the time it can be rotated through a dogleg at high RPM.



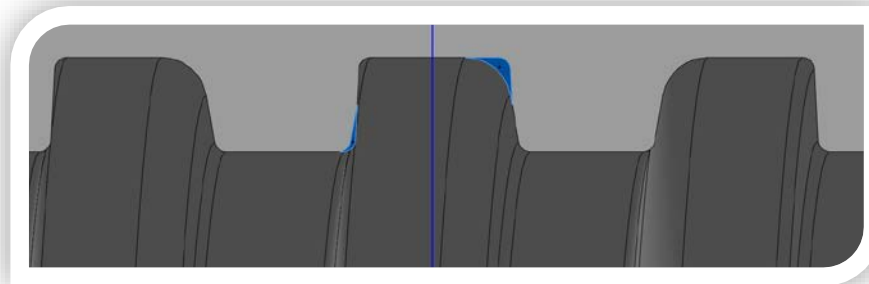


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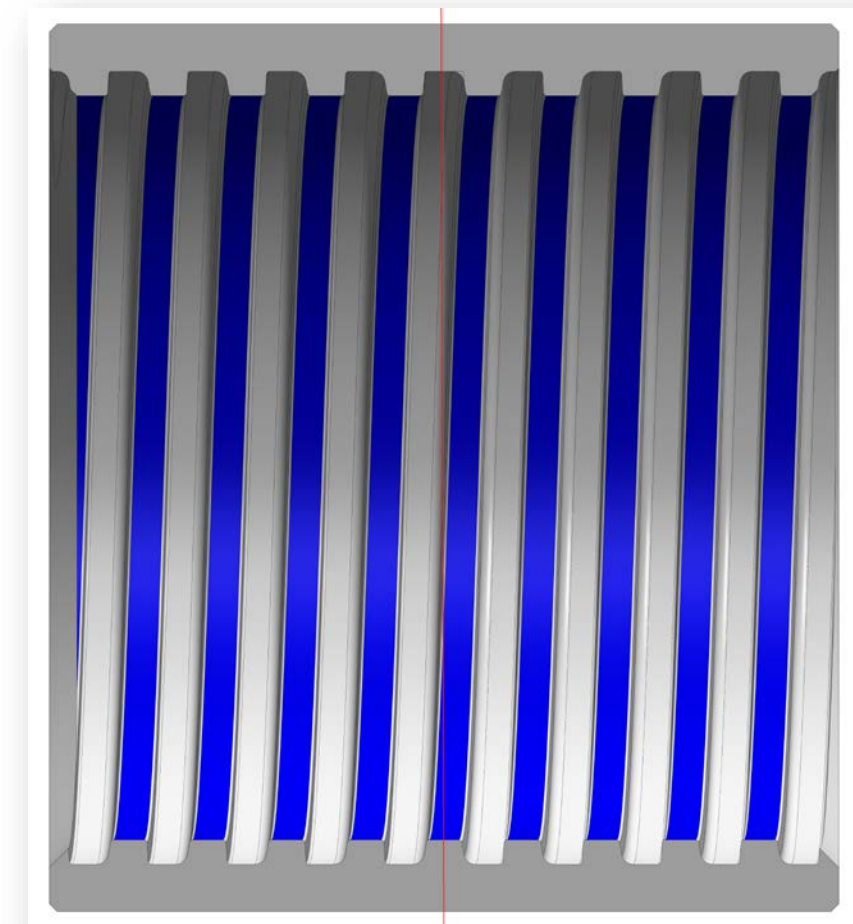
US Patent No.
9,261,207 &
9,261,208

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THREAD INTERLOCK

The pin tooth will lock up past center as it is forced into groove that is it's mirror image. The connection acts like a shouldered coupling.



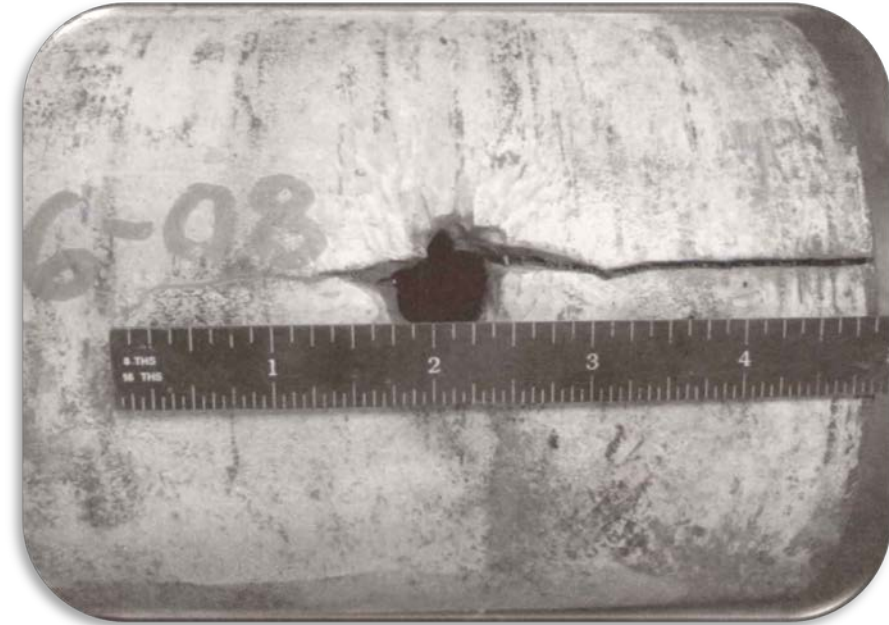
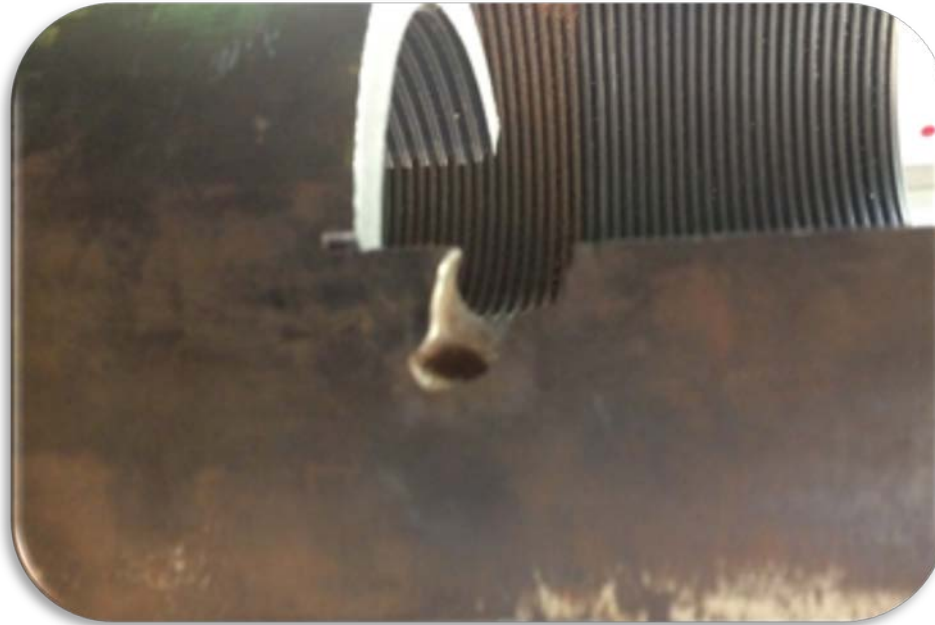
HELICALLY ALIGNED ROOTS

The coupling thread roots are cut so they perfectly overlap at the center of the coupling. This alignment ensures the pin thread crests are always in a groove if they rotate past the coupling center.



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The thread interlock acts as an anti-rotation mechanism. It was designed to prevent the coupling from splitting or cracking. Many semi premium connections cross thread when rotated past the center.



The pin tooth crest can ride on top of the box tooth crest past the coupling center; the cross threading leads to a crack initiated washout.

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TORQUE

The BK has better high torque running characteristics which will keep the coupling intact past pin nose yield. The strength comes from more engaged threads with a thicker center.



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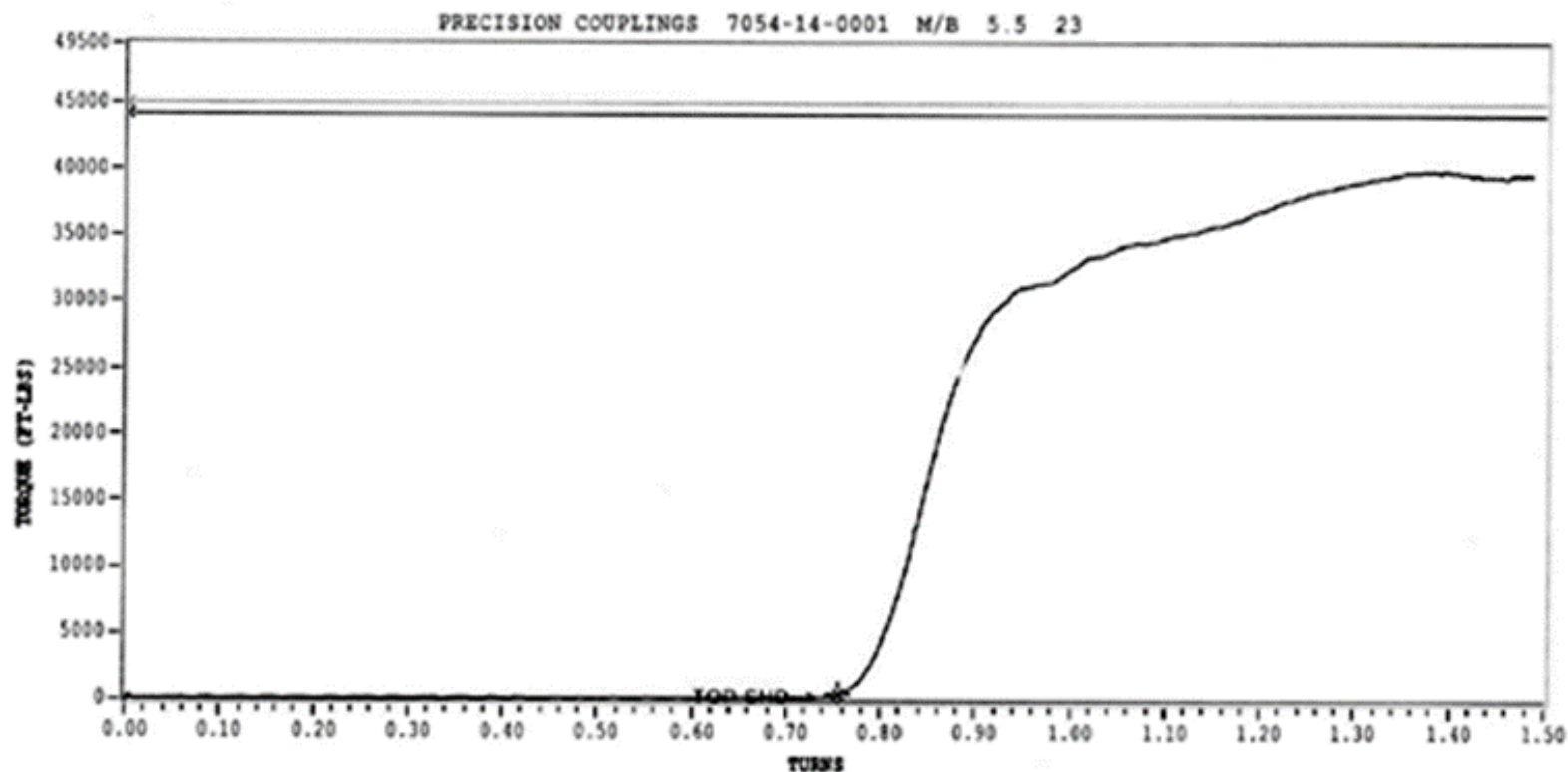
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Over-Torque



FRANK'S

PPI
Mechanical Testing
Services LLC



TIME OF MAKE UP :	2:16 PM	DATE OF MAKE UP :	Thursday, October 30, 2014
MAXIMUM TORQUE :	40032 FT-LBS	MAXIMUM TURNS :	1.487 TURNS
SHOULDER TORQUE :	544 FT-LBS	SHOULDER TURNS :	0.757 TURNS
DELTA TORQUE :	39488 FT-LBS	DELTA TURNS :	0.730 TURNS
FILE NUMBER :	----->>> 13		JOINT STATUS :
JOINT NUMBER J251E COUPLING NUMBER 4B OVER TORQUE MAKEUP		ACCEPT	



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RELIABLE MATERIALS

Unlike first generation drilling with casing connections, the BK addresses the problems that have caused couplings to fail.

ELEMENTS OF MATERIAL FAILURES

HYDROGEN
SALTWATER
ACID
EXPOSURE TIME &
TEMP.
H₂S

ENVIROMENTAL

STRESS

+ 80% YIELD STRENGTH
BAD MAKE-UP & CROSS THREADING
FRAC PRESSURE
HIGH HOOP STRESS

MATERIAL
PROPERTIES

BRITTLENESS
STEEL CHEMISTRY

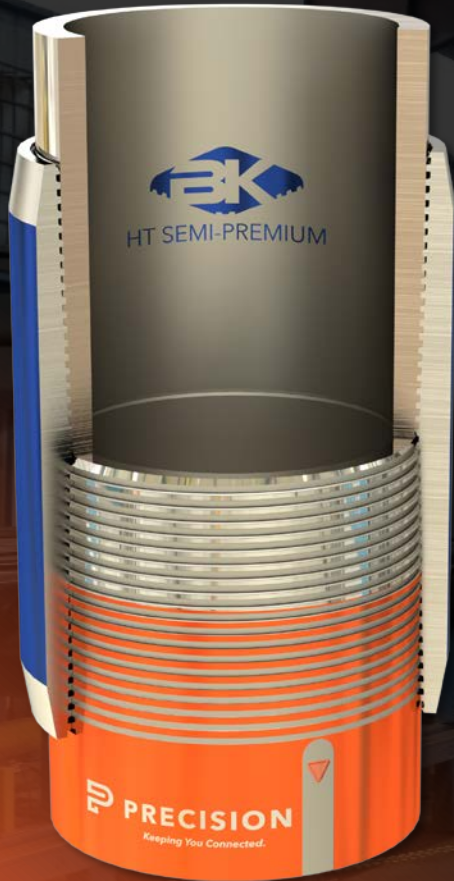
BK® SAVES YOU TIME & MONEY.

Operates quickly and smoothly, reducing your runtime per well, and overall production costs.

BK-HT

**TOUGHER, THICKER AND
BUILT TO LAST.**

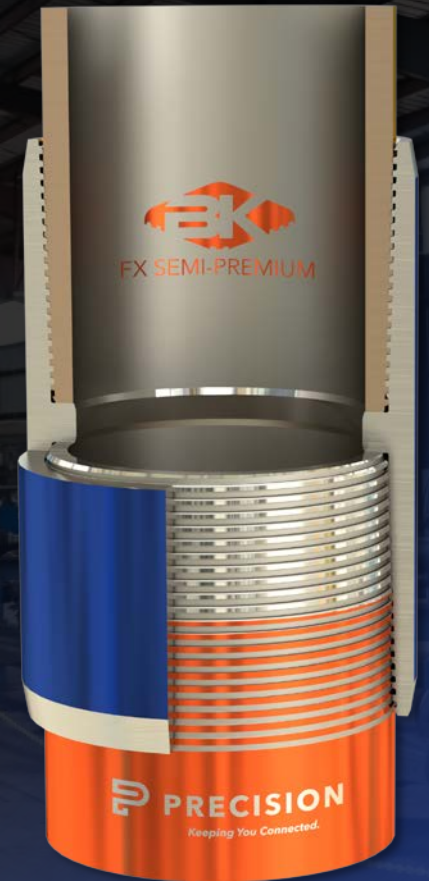
The BK-HT uses a thicker coupling with a larger OD to increase strength and torque resistance. A thicker coupling is stiffer and will stretch less axially and radially as the pin noses react to torque.



BK-FX

**STRONGER, RELIABLE AND
MORE EFFICIENT.**

The BK-FX has an integral shoulder and uses a thicker coupling with a larger OD to increase strength and torque resistance. The FX also provides more strength when utilizing high-collapse or enhanced burst strength.



BK Product Variations



BK

- Standard API Coupling Diameter
- Good Clearance
- High Torque



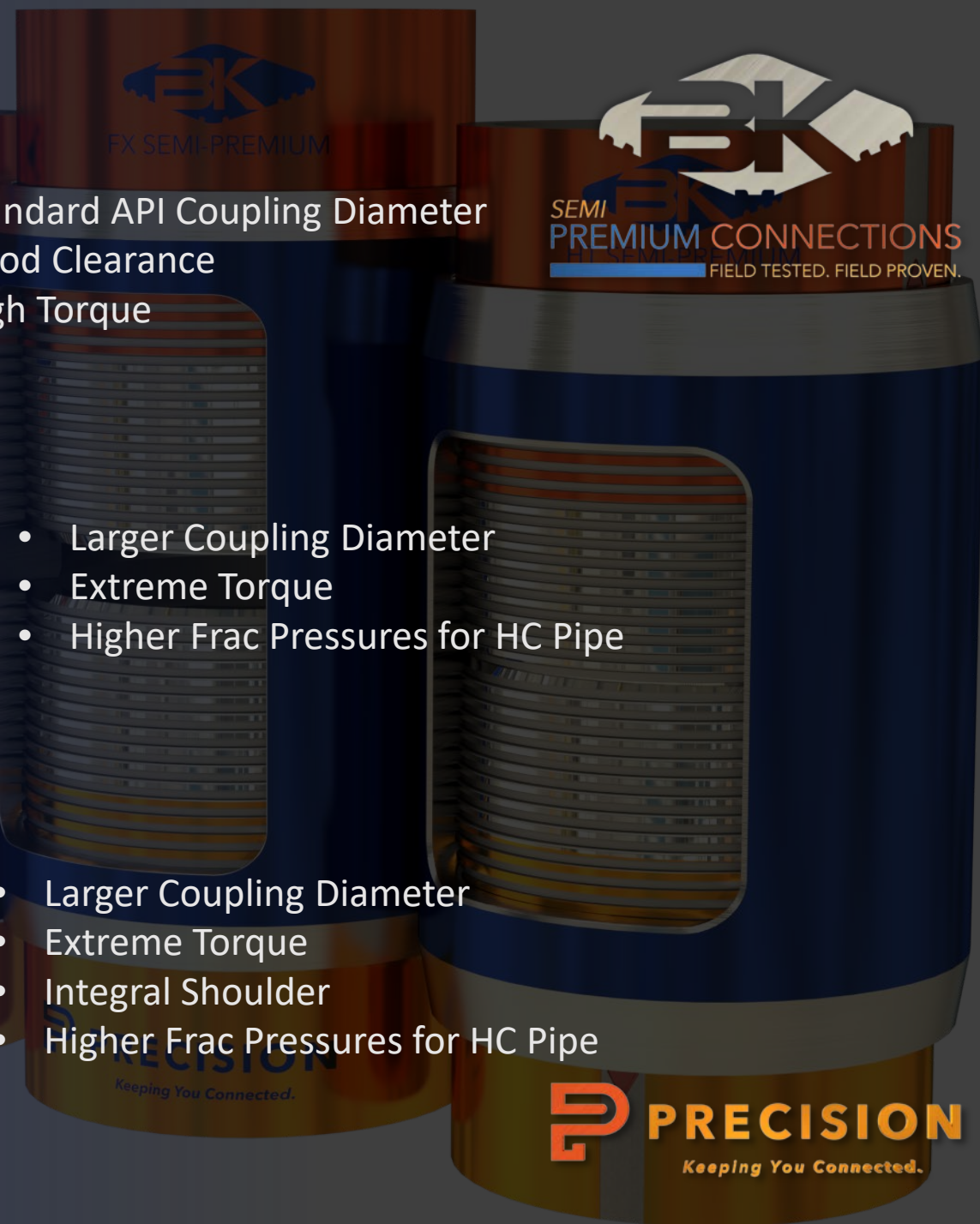
-HT

- Larger Coupling Diameter
- Extreme Torque
- Higher Frac Pressures for HC Pipe



-FX

- Larger Coupling Diameter
- Extreme Torque
- Integral Shoulder
- Higher Frac Pressures for HC Pipe



SPECIFICATIONS

Size	Weight	Wall	Drift Dia.	Grade	Coupling Dia.	Pipe & Connection ID	Coupling Length	Make Up Loss	Torque (ft-lbf)		Yield Strength (x 1000lbs)		Yield Pressure (PSI)	
									Optimum	Yield	Tensile	Compression	Internal	Collapse
4.5	11.60	0.250	3.875	L-80	5.000	4.000	7.875	3.938	2,150	5,950	267	267	7,780	6,350
4.5	11.60	0.250	3.875	HC P-110	5.000	4.000	7.875	3.938	2,950	8,200	367	367	10,690	8,830
4.5	13.50	0.290	3.795	L-80	5.000	3.920	7.875	3.938	2,800	7,800	307	307	9,020	8,540
4.5	13.50	0.290	3.795	HC P-110	5.000	3.920	7.875	3.938	3,850	10,750	422	422	12,410	11,810
4.5	15.10	0.337	3.701	L-80	5.000	3.826	7.875	3.938	3,600	9,950	353	353	10,480	11,080
4.5	15.10	0.337	3.701	HC P-110	5.000	3.826	7.875	3.938	4,950	13,700	485	485	14,420	15,130
5	18.00	0.362	4.151	L-80	5.563	4.276	8.125	4.063	4,950	13,800	422	422	10,140	10,490
5	18.00	0.362	4.151	HC P-110	5.563	4.276	8.125	4.063	6,850	19,000	580	580	13,940	14,360
5	21.40	0.437	4.001	L-80	5.563	4.126	8.125	4.063	6,650	18,500	446	446	12,240	12,760
5	21.40	0.437	4.001	HC P-110	5.563	4.126	8.125	4.063	9,150	25,450	613	613	16,820	18,870
5.5	17.00	0.304	4.767	L-80	6.050	4.892	8.250	4.125	4,500	12,450	397	397	7,740	6,290
5.5	17.00	0.304	4.767	HC P-110	6.050	4.892	8.250	4.125	6,150	17,100	546	546	10,640	8,730
5.5	20.00	0.361	4.653	L-80	6.050	4.778	8.250	4.125	6,000	16,750	466	466	9,190	8,830
5.5	20.00	0.361	4.653	HC P-110	6.050	4.778	8.250	4.125	8,300	23,000	641	641	12,640	12,200
5.5	23.00	0.415	4.545	L-80	6.050	4.670	8.250	4.125	7,300	20,200	483	483	10,560	11,160
5.5	23.00	0.415	4.545	HC P-110	6.050	4.670	8.250	4.125	10,000	27,800	664	664	14,530	15,310
7	26.00	0.362	6.151	L-80	7.875	6.276	9.000	4.500	9,300	25,800	604	604	7,240	5,410
7	26.00	0.362	6.151	HC P-110	7.875	6.276	9.000	4.500	12,800	35,500	830	830	9,960	7,540
7	29.00	0.408	6.059	L-80	7.875	6.184	9.000	4.500	11,150	30,900	676	676	8,160	7,030
7	29.00	0.408	6.059	HC P-110	7.875	6.184	9.000	4.500	15,300	42,500	929	929	11,220	9,750
7	32.00	0.453	6.000	L-80	7.875	6.094	9.000	4.500	12,850	35,650	745	745	9,060	8,600
7	32.00	0.453	6.000	HC P-110	7.875	6.094	9.000	4.500	17,650	49,000	1025	1025	12,460	11,890
9.625	36.00	0.352	8.765	J-55	10.625	8.921	9.625	4.813	11,000	30,500	564	564	3,520	2,020
9.625	40.00	0.395	8.679	L-80	10.625	8.835	9.625	4.813	19,600	54,450	916	916	5,750	3,090
9.625	43.50	0.435	8.599	L-80	10.625	8.755	9.625	4.813	20,000	63,250	1005	1005	6,330	3,810
9.625	47.00	0.472	8.525	L-80	10.625	8.681	9.625	4.813	20,000	71,350	1086	1086	6,870	4,750

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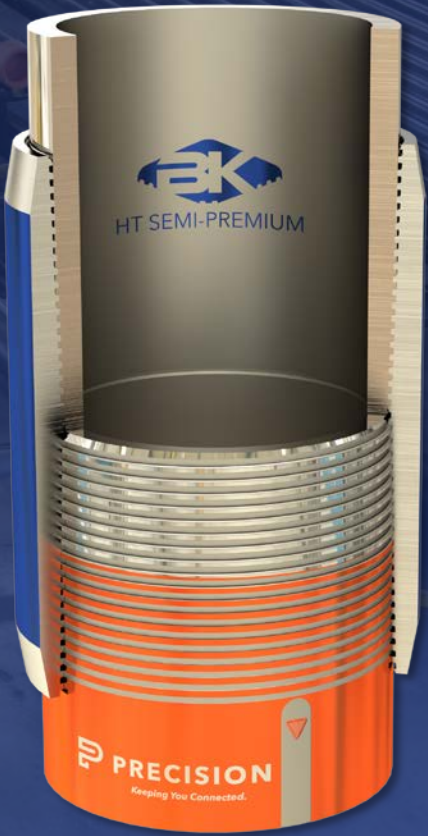


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