

TenarisHydril Premium Connections Approved Thread Compounds

TenarisHydril Connection	Material Group	API Modified Leaded	Lead & Zinc Free	Metal Free															
		Any API Modified(*)	Bestlife 2000® (3)	Bestlife 2000® Arctic Grade	Bestlife 2010® NM ULTRA	Bestlife 2020®	Bestlife 4040 NM	Bestlife PTC (4)	JET-LUBE® SEAL-GUARD™	JET-LUBE® SEAL-GUARD™ ECF™	JET-LUBE® RUN-N-SEAL® ARTIC	Liquid-O-Ring® 318	Liquid-O-Ring® 304	Shell Malleus 0459	Shell Malleus TC	TOPCO Green-Seal II	TOPCO Green-Seal II Thermal	TOPCO Tenaris Blue Premium Special (2)	TOPCO TK II Modified
Specific Gravity (gr./cm3)	1.97	1.25	1.20	1.28	1.19	1.20	1.10	1.28	1.28	1.23	1.16	0.98	1.50	1.63	1.08	1.12	1.25	1.92	
Torque Factor	1.00	1.00	1.00	1.00	1.10	1.00	0.90	1.00	1.00	1.20	1.01	0.60	0.95	0.93	0.74	0.74	1.00	1.10	
TSH BLUE ≤ 5 1/2"	All	0			O(***)				0										
TSH BLUE > 5 1/2"	All	0							0					0	0				
TSH BLUE/A	All	0																	
TSH BLUE TL	CSLA	0	0						0					0		0	0	0	0
TSH BLUE NF	CSLA & 13Cr	0							0					0				0	
TSH BLUE Riser	CSLA	0	0						0										
TSH BLUE Max	CSLA	0							0										
TSH BLUE QS	CSLA	0							0										
TSH BLUE HW	ALL	0							0				0	0	0				0
TSH ER	CSLA & 13Cr	0	0	0	(TF:0.9)				0	0				0		0	0	0	0
TSH MS / MS XT/XC	CSLA & 13Cr	0							0					0					0
TSH MS28 / MS28 XT/XC	ALL	0							0					0					0
TSH CCJ	CSLA	0							0										
TSH 35B	ALL	0							0					0					0
TSH 35B/A	ALL	0																	
TSH HW	ALL	0																	
TSH HWSL / NewHWSL	ALL	0																	
TSH EL	ALL	0																	
TSH SLX	ALL	0							0	0			0			0	0	0	0
TSH PH/CS Series	ALL	0							0	0			0			0	0	0	0
TSH MAC-II	ALL	0							0	0			0						
TSH WEDGE 425	ALL	0	0	0															
TSH WEDGE 441	CSLA	0	0	0															
TSH WEDGE 461	CSLA	0	0	0															
TSH WEDGE 463	CSLA	0	0	0															
Wedge Series 500™	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSH WEDGE 625	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSH WEDGE 613	ALL	0																	
TSH WEDGE 623	ALL	0																	
TSH WEDGE 624	ALL	0																	
TSH WEDGE 667	ALL	0																	
IPSCO	BPN, ULTRA™ and TORQ®	All	0	0															
API Improved	TXP BTC	CSLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TXP BTC LW	CSLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drill Pipe	TSH WT	CSLA	0						0										
Weld-on Connectors	TSH Blue Dock & TSH EasyDock	CSLA	0	0					0				0	0	0				

0 : Applicable for all the available materials for the corresponding connection.
 O : only applicable for CSLA (Carbon Steel Low Alloys) and 13% Cr materials (Super 13 Chrome materials are not included).

How to applied the Torque Factor:
 Example: (7" x 26.0# N80 TenarisHydril Blue® using Best-O-Life PTC Thread Compound):

Torque Factor Interpretation:
 Tabulated Torque Value (1) * Torque Factor = Applicable Torque Value.
 9010 ft-lb * 0.9 = 8100 ft-lb (50 ft-lb rounding is allowed)

- (*) Any brand that fulfils the chemical composition stated in API RP 5A3 Annex A, including Bestlife 72733 / 72732 or JET-LUBE® API Modified.
- (**) Wedge Family torque factor equals to 1.00 for all the Dope-Connection Available combination
- (***) Dope only applicable for 4 1/2" and 5 1/2" casing products.
- Standard Thread compound used by Tenaris
- Connection designed for Dopeless®, Dope version only available upon specific request.
- For TSH Blue/A and TSH 35B/A only Bestlife™ 72733 shall be used.
- (1) Torque obtained from the Technical Data Sheet on the Tenaris.com site (<http://dcp.tenaris.com/>)
- (2) For Thermal Operation shall be applied TOPCO Tenaris Blue Premium Special.
- (3) Also valid for equivalent thread compound formulation (CRASSUS TC API PLUS)
- (4) Also valid for equivalent thread compound formulation (CRASSUS TC Premium)

NOTE 1: Tenaris Affiliates shall use *PRD06211 "Definition of Thread Compound to be used by Tenaris units"*.
NOTE 2: For other thread compounds not included in the list, contact MASE through TLN for Licensees or licensees@oilfield.tenaris.com for others. Other compounds would require full scale testing to determine their approval and torque factor.

Yellow-shaded corresponds to Modified from Previous document Revision.

Thread compounds eliminated from previous version:
 Jet-Lube Enviro-Safe™, Jet-Lube® Steam Chief™, Mercasol 633 SR (MMW), Weatherford ELS325AG.

IDM Code: FTD29356