14.000” 115.53 lb/ft (0.820 wt) Q125XHP
Wedge-Lock SF
Connection Brief

Industry Standard Connection Qualification Testing

API RP 5C5:2017 4th ed. CAL IV

Hunting Energy Services

Connection Technology Division

www.hunting-intl.com

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An operator has requested qualification testing for the 14.000 115.53 (0.820 wall) Wedge-Lock SF connection.

The product was qualified using combined load testing under ambient temperatures, which includes tension, compression, internal pressure, external pressure and applied bending. Combined loads varied from 2,987 kips tension to 3,214 kips of compression with over 12,700 psi of internal pressure and 11,580 psi of external pressure for the various defined API load points. Bending of 10°/100ft was also tested in conjunction with the combined loads.

All required specimen geometries successfully passed the CAL IV protocol.

Specimen #	MBG	FMU	Bake	TS-B	TS- C	TS-A 90%	TS-A 95%	LL
SP1 (XH-XL)	X	X	X	X	X	X	X	X
SP2 (XH-XL)	-	X	X	X	X	X	X	X
SP3 (L-H)	-	X	X	X	X	X	X	X
SP4 (L-L)	X	X	X	X	X	X	X	X
SP5 (H-H)	X	X	-	-	-	-		X

Physical Testing Summary

Limit Load Testing of the Specimens was conducted after the required CAL IV combined load testing sequence. Failure loads included over 4,027 kips of pure tension, 1,554 kips of tension with over 18,600 psi of internal pressure, 1,650 kips of compression with over 16,600 psi of external pressure, 2,098 kips of tension with over 15,900 psi of internal pressure, and 4,000 kips of compression with over 11,700 psi if internal pressure. All limit load testing was well beyond the 100% VME failure criteria defined for the connection.

The deviations from the API RP 5C5 protocol were limited during the Cal IV qualification testing. The deviations included:

- The Specimens underwent three MBGs, instead of two MBGs as specified in API RP 5C5 CAL IV: 2017
- Series B bending was limited to 10° per 100 ft.
- Post MBG specimen gauging not to be required.
- Chamber seals leaked on SP1 and SP3.
- The initial end-cap design which utilized elastomeric seals was unable to adequately hold internal pressure due to material breakdown at higher temperatures. Hunting opted to redesign end-caps which incorporated a metal seal. The newly designed premium end-cap also had issues, primarily being too much thread interference, which lead to galling.
- Due to galling on SP2R1 and SP4 outboard pins, one side of both samples had to be re-threaded; after that, each of the samples fell below the minimum unsupported length.
- SP2 was overloaded in internal pressure due to mechanical/software issues; the sample approached 20,000 psi with no leakage detected. Hunting elected to terminate testing on this sample.

WEDGE-LOCK SF

14.000" 115.53 LB/FT (.820" Wall)
USS Q125 XHP

Pipe Body Data

Nominal OD:	14.000	in
Nominal Wall:	.820	in
Nominal Weight:	115.53	lb/ft
Plain End Weight:	115.53	lb/ft
Material Grade:	USS Q125 XHP	
Mill/Specification:	USS	
Yield Strength:	135,000	psi
Tensile Strength:	150,000	psi
Nominal ID:	12.360	in
API Drift Diameter:	12.172	in
Special Drift Diameter:	12.250	in
RBW:	90.0 %	
Body Yield:	4,584,000	lbf
Burst:	14,230	psi
Collapse:	11,580	psi

Connection Data

Standard OD:	14.280	in
Pin Bored ID:	12.365	in
Critical Section Area:	24.585	in^2
Tensile Efficiency:	72.4 %	
Compressive Efficiency:	77.9 %	
Longitudinal Yield Strength:	3,319,000	lbf
Compressive Limit:	3,569,000	lbf
Internal Pressure Rating:	14,230	psi
External Pressure Rating:	11,580	psi
Maximum Bend:	32	°/100

Operational Data

Minimum Makeup Torque:	63,600	ft*lbf
Optimum Makeup Torque:	78,700	ft*lbf
Maximum Makeup Torque:	124,300	ft*lbf
Minimum Yield:	185,000	ft*lbf
Makeup Loss:	8.60	in

Notes

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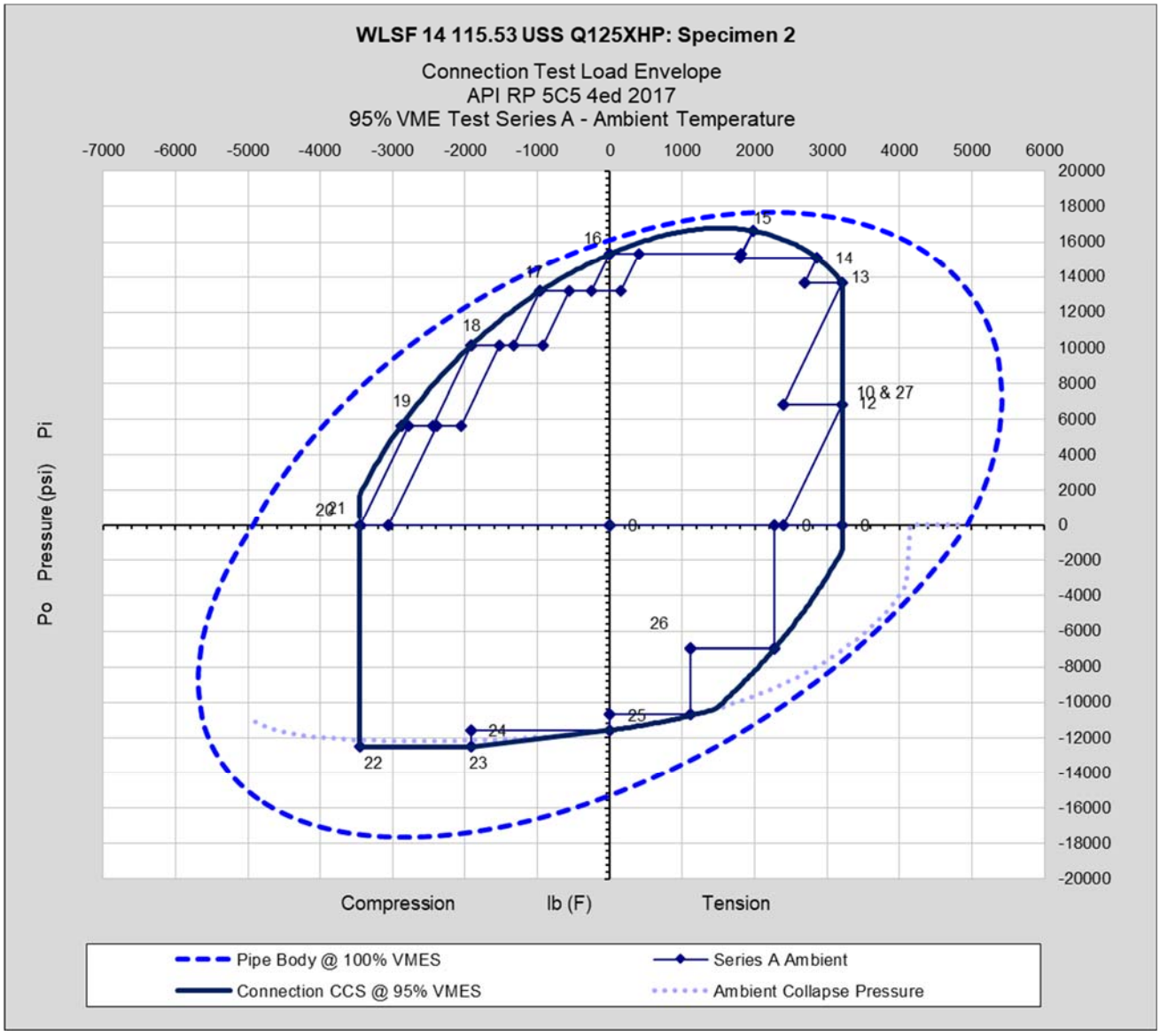

14.000” 115.53 lb/ft WLSF TLE