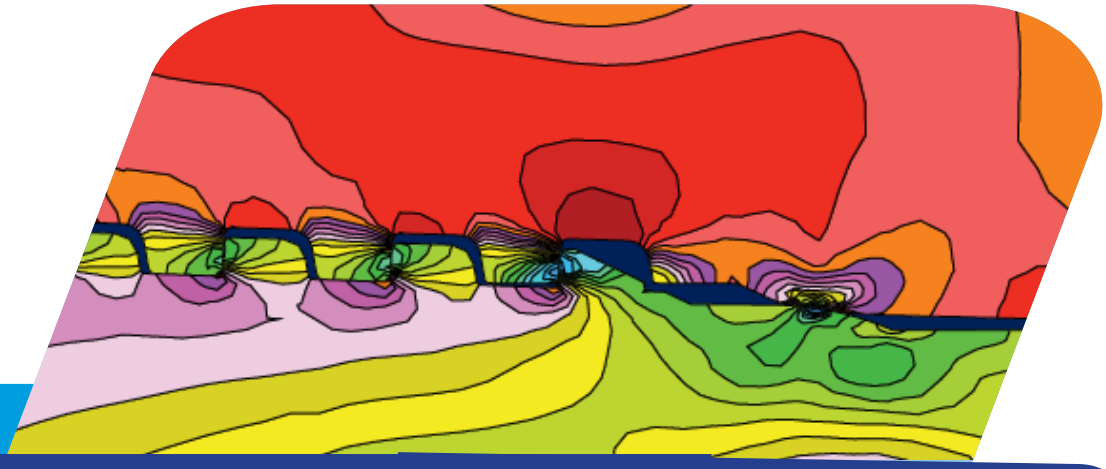
HSC
High
Sealed
& Coupled



HICOM™

THE ULTIMATE
HIGH COMPRESSION
PREMIUM CONNECTION

hsctubular.com

COMPANY PROFILE

HSC® (High Sealed & Coupled) was established in 1990 from a group of experts and engineers consisting of substantial experience in the Oil Country Tubular Goods (OCTG) business. Today, HSC® is one of the world's major market leaders in the manufacture and supply of first class quality OCTG seamless Premium tubing and casing. HSC® is the solution to all your tubular requirements for the oil and natural gas industry.

THE CONTENTS

ABOUT HSC®

HSC® team is the third generation of experts in the Steel and Oil & Gas Industry. HSC® focuses primarily on Oil Country Tubular Goods and has developed products and solutions for the Oil & Gas market that have been widely successful.

By investing in people, HSC® has developed a team of leading experts in the OCTG field constantly innovating to ensure that our clients are getting the best quality products and a reliable delivery to ensure the most effective operations.

HSC® has been manufacturing and supplying its customers with the highest quality patented premium products in addition to all API approved thread designs complying with the latest edition of API5CT. The HSC® Premium products have been deployed in over 3000 wells. This translates into more than 1.5 million HSC® Premium Connections operating in wells throughout many of the world's major oil and gas fields.

HSC® has a total annual capacity of over 1 million MT of fully finished HSC® products.

In addition to the licensee network based in the USA, Europe, Singapore, Middle East and China, in 2007 the HSC® group built a 300,000 MT capacity mill in Chendgu, China to ensure on-time deliveries and state-of-the-art service to its customers.

Manufacturing is the core of our business and we pride ourselves to be one of the largest and most reliable exporters of OCTG in China. HSC® offers a complete range of sizes, weights and grades, from 1.315" tubing through to 24" casing as well as wide range of special alloys, sour service, stainless steels and specific grades tailored for all our customer's requirements. HSC® keeps on developing its capacity to deliver its client with the best product and the best services.

OUR VALUES

QUALITY - We believe in setting and maintaining high standards by aiming for excellence in everything that we do.

EFFICIENCY - We are committed to efficiency and performance in all aspects of our business.

DELIVERY - We deliver value and we operate truthfully under any circumstances.

WE INVEST IN PEOPLE

MISSION

We aspire to serve our clients by offering the best quality products, experience and value.
Innovation and expertise are at the heart of everything we do with process-control abilities beyond the requirements of the market.

WE HELP OUR CUSTOMERS TO MAKE THE RIGHT CONNECTIONS AND MEET THE CHALLENGES OF TOMORROW.

WE MAKE CONNECTIONS WITH EXCEPTIONAL PEOPLE.

VISION

In a constantly evolving Oil and Gas industry, we engage with the best people today to meet the challenges of tomorrow.
What sets us apart is our technology and the reliability of our exceptional products.

THE HICOM™ PREMIUM CONNECTION

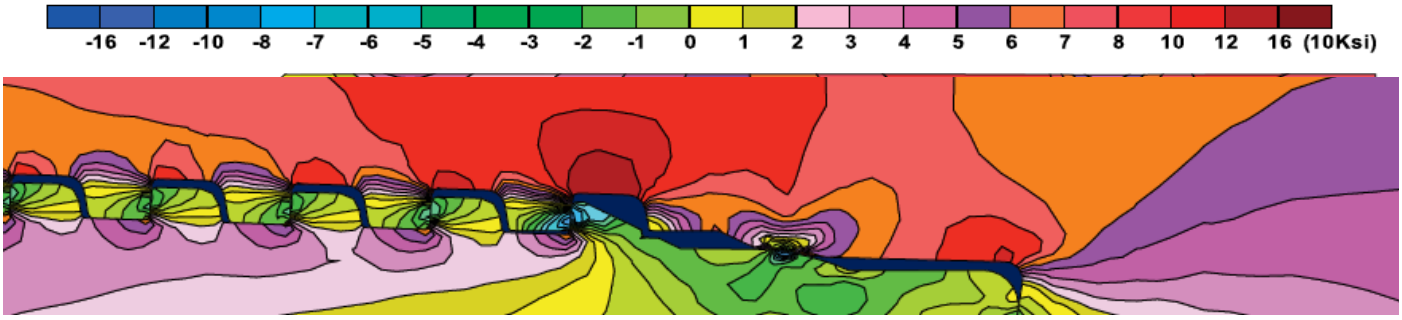
HSC®'S LATEST THREADED AND COUPLED PREMIUM CONNECTION HAS BEEN DESIGNED FOR THE MOST EXTREME WELL CONDITIONS EXPERIENCED IN THE OIL AND GAS INDUSTRY.

THE BEST CONNECTION FOR HIGHLY DEVIATED WELLS

HICOM™ ensures connection integrity in highly deviated wells , horizontal wells and shale gas.

TESTED & RATED

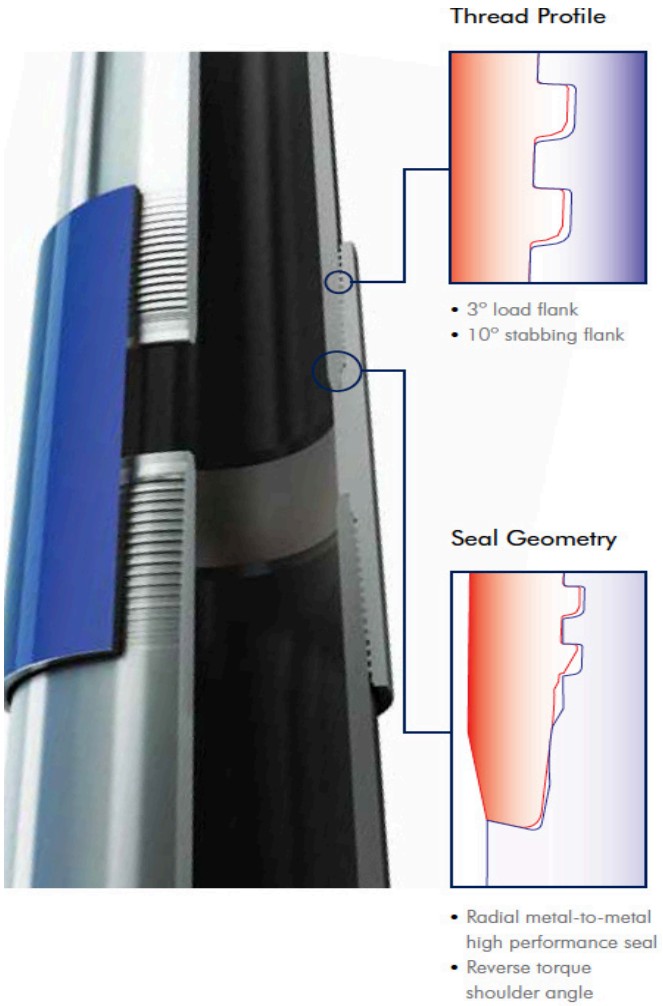
ISO 13679 CAL IV qualified and rated.
All CAL IV testing witnessed and certified by "DET NORSKE VERITAS" (DNV).
Independently tested at the world-recognised Oil States Industries (UK)Limited.



The HICOM™ Premium Connection has been successfully mechanically tested in full compliance (including failure tests) with the most severe and demanding requirements of the internationally recognised ISO 13679 CAL IV.

HICOM™ is the solution to the oil and gas industry's ever-evolving need for more challenging applications, including shale gas and horizontal wells.

DESIGN FEATURES



PATENTED DESIGN

Patented worldwide, the HICOM™ unique design provides the ultimate gas-tight seal under the most hostile operational conditions, while maintaining the ability to repeat make-and-breaks with an increased resistance to galling.

Designed and developped by HSC® for the most extreme well condtions experienced in the oil and gas industry, the HICOM™ Premium Connection has been tested and rated up to 100% compression and tensile efficiency.

Available in sizes from
2 3/8" through to 14"

- ISO 13679 CAL IV qualified (to ISO's maximum requirement)
- 100% compression rated (2 3/8" - 8 5/8")
- 80% compression rated (9 5/8" - 14")
- 100% tensile rated
- Minimum 100% joint efficiency
- 100% internal and external pressure rated
- Suitable for HP/HT (high pressure and high temperature)
- Fully flush bore (minimal turbulence)
- Ultimate gas-tight sealing under highly deviated well conditions
- Superior resistance to bending
- Improved resistance to galling
- Available in equal strength, special clearance and special bevel options

UNDERSTANDING ISO 13679 AND CAL IV

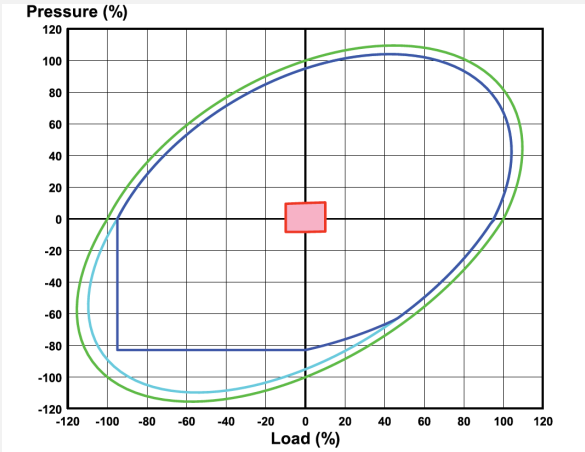
HICOM™ IS ONE OF THE MOST RELIABLE LEAK-RESISTANT PREMIUM CONNECTIONS IN THE WORLD.

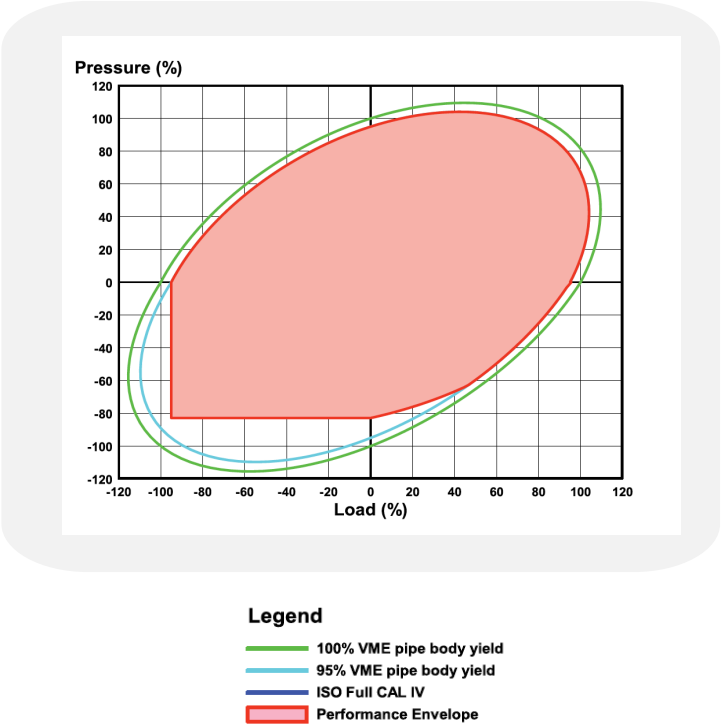
Since the release of ISO 13679, the Procedure for Testing Casing and Tubing Connections – there have been some misconceptions about the reassurance offered by this test.

Many Premium connections available in the oil and gas industry are promoted as being "in accordance with" ISO 13679 CAL IV, although under certain test conditions it is relatively easy for a Premium connection to meet the requirements of CAL IV.

The main factor differentiating CAL IV approved Premium connections is the level of compression applied combined with tension, internal pressure and external pressure during the mechanical testing. This is the most severe part of the testing procedure as it covers all four quadrants of the Von Mises tri-axial envelope.

The HICOM™ Premium Connection has been tested by Oil States Industries, Aberdeen in full compliance with ISO 13679 CAL IV with 100% compression rating for sizes 2 3/8"through to 8 5/8" and 80% for sizes 9 5/8" through to 14".





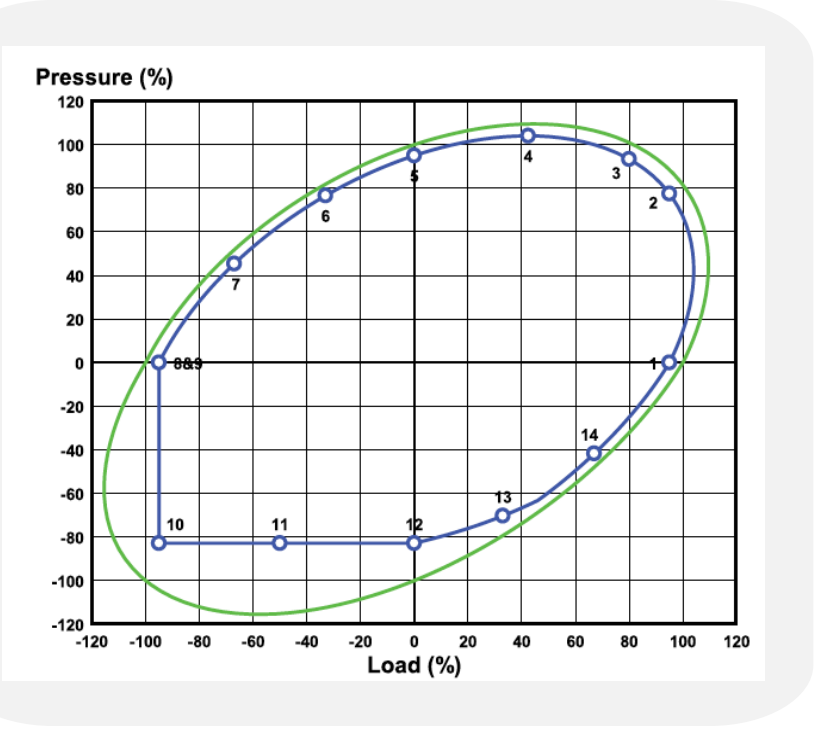
For example: A connection can be tested to CAL IV with a minimal level of compression, as long as the connection is tested through the four quadrants of the VM ellipse.
Indeed, a connection can be classed as CAL IV approved even if it has been tested to only 10% compression and 10% tension (see performance envelope, bottom left) nothing like enough to meet conditions found in the world's most demanding oil and gas wells.

Many Premium connections are tested in the designer's own testing facility. Such proprietary testing is acceptable during the design and development phase but does not provide the independent assessment required by the internationally recognised ISO 13679 specification.

SUPERIOR PERFORMANCE

HSC® HICOM™ Premium connection has been created by the Premium thread specialists of HSC®'s international Research and Development team for extreme well applications such as:

- **HIGHLY COMPRESSIVE LOADING**
- **INTERNAL AND EXTERNAL PRESSURE**
- **HORIZONTAL CONDITIONS**
- **HP/HT HIGH PRESSURE AND HIGH TEMPERATURE**
- **HIGH BENDING**

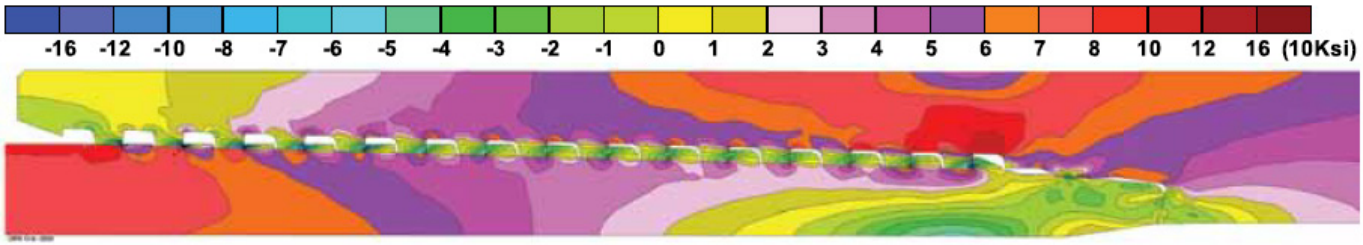


Legend

100% VME pipe body yield
ISO Load Point Envelope

LP	Load	Pressure
1	95%	
2	95%	int. 100% Rated
3	80%	int. 100% Rated
4	CEYP	int. 100% Rated
5	0%	int. 100% Rated
6	-33%	int. 100% Rated
7	-67%	int. 100% Rated
8&9	-95%	
10	-95%	ext. collapse 100%Rated
11	-50%	ext. collapse 100%Rated
12	0%	ext. collapse 100%Rated
13	33%	ext. collapse 100%Rated
14	67%	ext. collapse 100%Rated

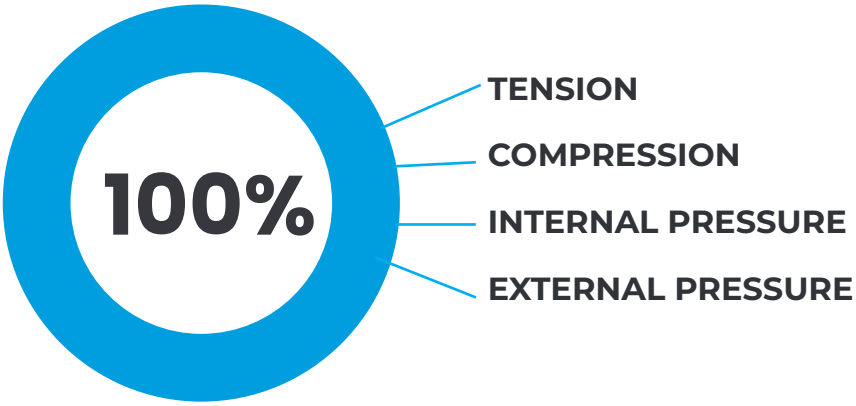
Example for 7" x 29lb/ft P110 HICOM™ Premium Connection



MECHANICAL & PHYSICAL TESTING

The 21st century technology used in the design and development phase has enabled HICOM™ to achieve and maintain complete gas tight sealing while exceeding the strength of the pipe body. This is supported by the flawless results obtained during mechanical testing at Oil States Industries, Aberdeen.

RATED EQUAL TO PIPE BODY



ISO 13679 CAL IV testing requires the mechanical testing of eight specimens containing 12 pups and eight couplings.

CAL IV comprises three testing series – series A, B and C, which include all eight specimens and 8 separate Load Limit failure tests - 1 load limit failure test for each specimen.

Four sets of stress/strain gauges are also applied to all test specimens to constantly monitor the yield strength of the material during the load applications and to calculate the level of bend applied to the connection during series B.

SERIES A

Subjects the connections to all four quadrants of the Von Mises Ellipse, including internal pressure, external pressure, tension and compression.

SERIES B

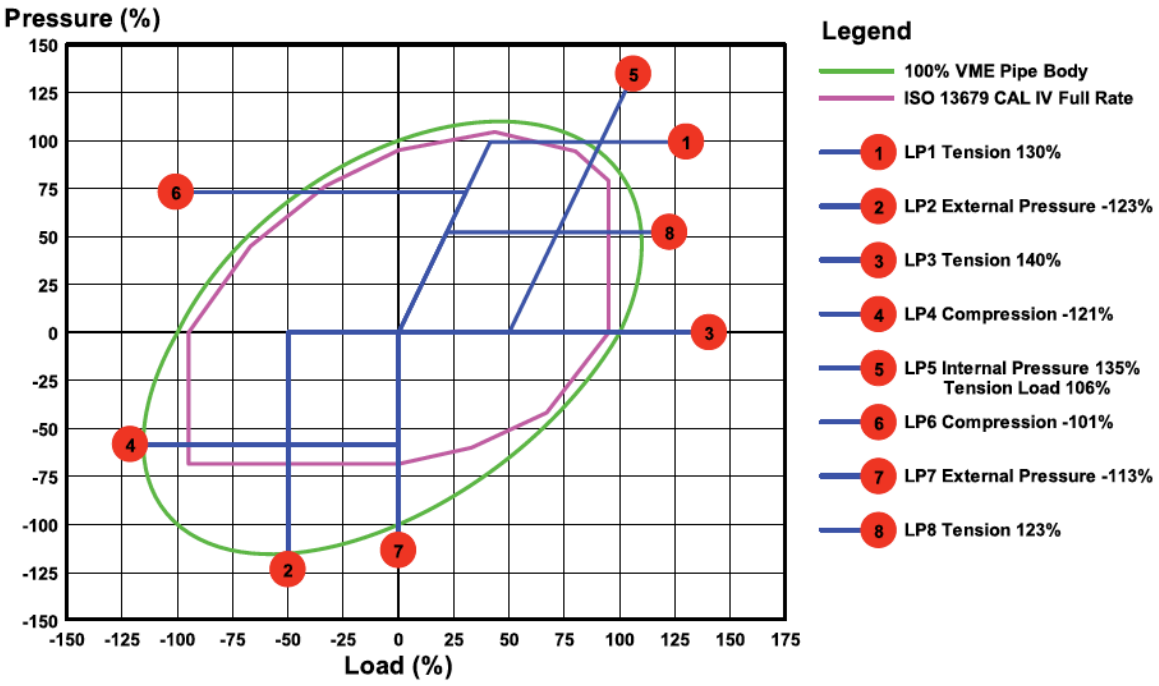
Applies bending at 20 /100ft.

SERIES C

Consists of 100 thermal cycles at 180°C plus 15 mechanical cycles at ambient temperatures and 180°C while being subjected to internal pressure and tension.

LIMIT LOAD TEST

Limit Load Tests to failure are important for demonstrating connection performance beyond the 100% Von Mises Body Pipe Performance Envelope. The test is performed following successful testing of all 8 specimens as the final test in accordance with ISO 13679, CAL IV. The purpose of this test is to establish the structural and sealing limits of the connection.



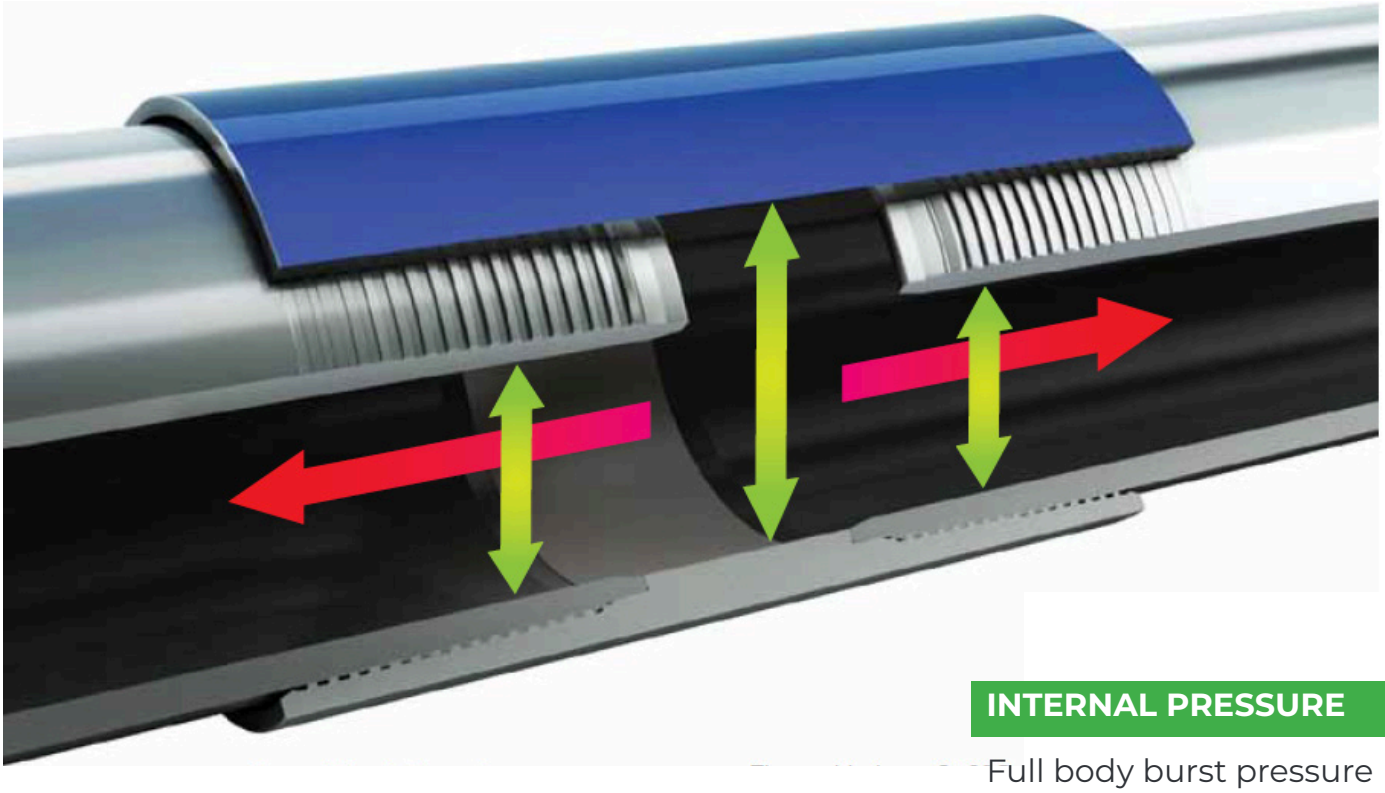
HSC® HICOM™ Load Limit Test Results for the 4 1/2" x 12.6lb/ft. Test performed at Oil States Industries, Aberdeen.

HICOM™ achieved superb results.

With each load test failing well beyond the limits of the performance envelope, mechanically verifying that the HICOM™ connection is far stronger than the actual pipe body.

EXTREME TEMPERATURE TEST

In addition to ISO 13679 CAL IV mechanical testing, the HICOM™ Premium Connection has been subjected to additional and even more extreme mechanical testing, by Oil States Industries, Aberdeen, and has been customised to satisfy specific demands by clients.



INTERNAL PRESSURE

Full body burst pressure

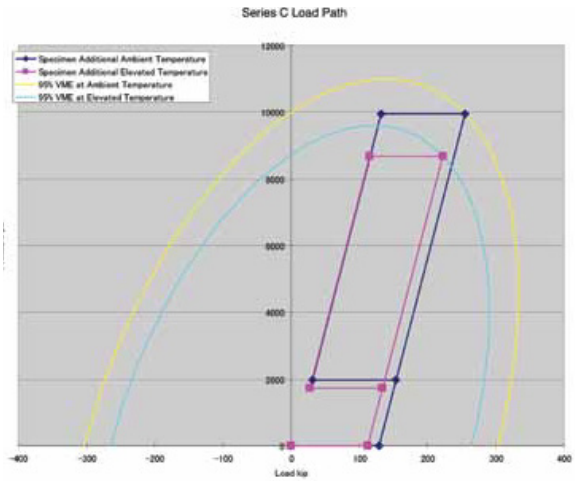
TENSION LOAD

Full body yield strength

250° C

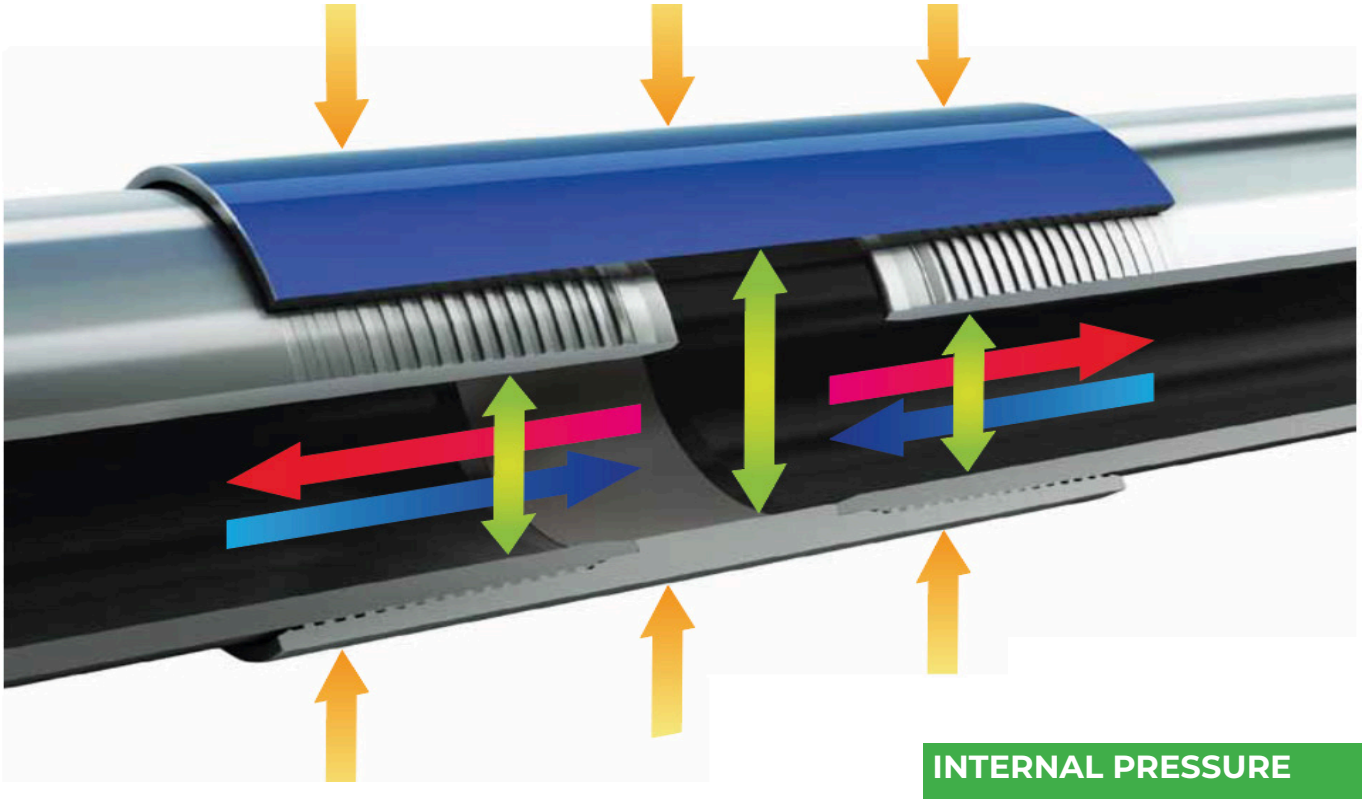
Specified Test Sequence as per ISO 13679 CAL IV at super-elevated temperature of 250° C.

- Thermal bake at 250° C
- Five mechanical cycles at ambient temperature
- Ten thermal cycles at 250° C
- Five mechanical cycles at 250° C
- Ten thermal cycles at 250° C
- Five mechanical cycles at ambient temperature

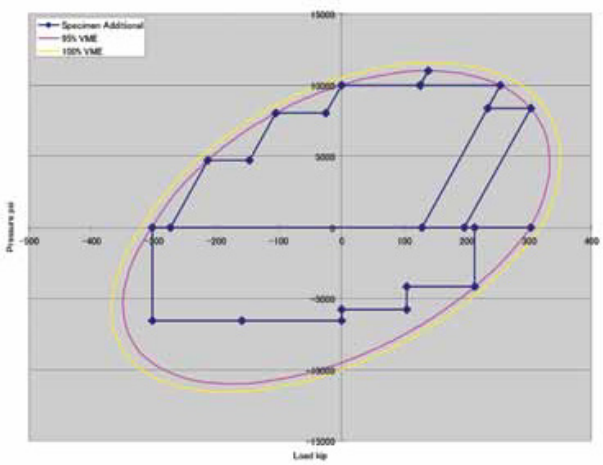


EXTREME MECHANICAL TEST

With a target of total reliability and reassurance as our objective, the HSC® HICOM™ was also successfully mechanically tested in compliance with ISO 13679 series A (100% compression rated, 100% tension rated, 100% internal and external pressure rated) plus series C in the extreme condition of thermalcycling at the super-high temperature of 250° C (180° C is required to meet ISO13679 CAL IV).



Already customised to satisfy the specific demands of HSC®'s current client base, the HICOM™ Premium connection is equally capable of meeting the similar needs of any other potential users.



INTERNAL PRESSURE

Full body burst pressure

TENSION LOAD

Full body yield strength

EXTERNAL PRESSURE

Full body collapse resistance

COMPRESSION LOAD

Full body yield strenght

RUNNING & HANDLING AFTER-SALES

HSC® OFFERS A FULL RANGE OF RUNNING & HANDLING PROCEDURES TO ENSURE YOUR HSC® PREMIUM CONNECTIONS PERFORMANCE.

Valuable rig-time and field damage to your HICOM™ connections during the running process can be minimised by following the latest HSC® HICOM™ Running Procedures for both carbon steel and special alloy tubing and casing.

HSC® offers our expert and experienced support in the field including; running, handling, pipe preparation & storage of your tubing and casing.

HSC®'s success is a result of maintaining the highest level of quality control of all HSC® products backed up by first class after-sales service.

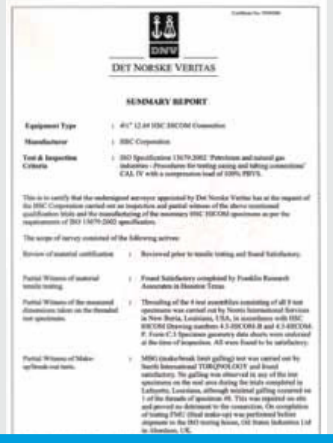
Today over 650 engineers and inspectors are working 24/7 in order to ensure a perfect quality product is manufactured and delivered.

Follow HSC®'s recommended Running & Handling Procedures to ensure your HSC® Premium connections performance.

CERTIFICATIONS

HSC® HICOM's™ advanced technology is protected by worldwide patents and has been certified independently to meet the ISO 13679 CAL IV, by the internationally recognised and ISO/UKAS approved Oil States Industries Ltd. in the UK.

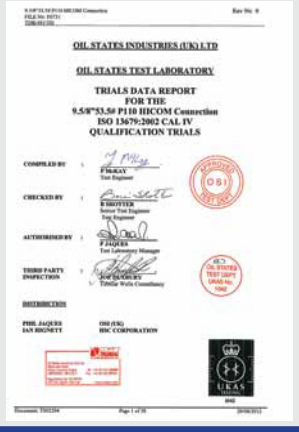
The machining and galling trials together with the mechanical testing of the HSC® HICOM™ were witnessed and approved by the highly respected quality auditing and inspection company "DET NORSKE VERITAS" (DNV).


DET NORSKE VERITAS

SUMMARY REPORT

Certification
DET NORSKE VERITAS

Certification
DET NORSKE VERITAS


OIL STATES INDUSTRIES (UK) LTD

OIL STATES TEST LABORATORY

TRIALS DATA REPORT
FOR THE
9.5/8"53.5# P110 HICOM Connection
ISO 13679:2002 CAL IV
QUALIFICATION TRIALS

Trials Data Report
OIL STATES INDUSTRIES


OIL STATES INDUSTRIES (UK) LTD

OIL STATES TEST LABORATORY

TRIALS DATA REPORT
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7", 29# P110 HICOM Connection
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QUALIFICATION TRIALS

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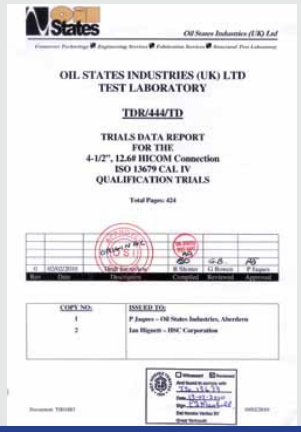
OIL STATES INDUSTRIES (UK) LTD
TEST LABORATORY

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TRIALS DATA REPORT
FOR THE
4-1/2", 12.6# HICOM Connection
ISO 13679 CAL IV
QUALIFICATION TRIALS

Trials Data Report
OIL STATES INDUSTRIES

PRODUCTION
HSC® CHENGDU

THE HSC® CHENGDU STEEL MILL USES CUTTING EDGE TECHNOLOGY AND THE LATEST EQUIPMENT AVAILABLE ON THE MARKET.

The steel mill is the result of all our know-how and expertise with state-of the art facilities and equipment focused solely on the manufacturing of high-end OCTG. Our process-control abilities are well-beyond the requirements of the market in terms of Innovation and lab-testing capacities.

The HSC® Chengdu Seamless Steel Pipe Mill is certified in accordance with API 5CT (PSL1, PSL2 and PSL3), API 5CRA Group 1 (PSL1 and PSL2) and API 5L (PSL1 and PSL2) by the American Petroleum Institute to manufacture carbon and chromium steel Casings, Tubings, Line Pipes, Pup-joints and Accessories.

The HSC® Chengdu Mill's Integrated Management System is fully compliant and certified according to ISO9001, ISO 14001, ISO 45001, API 5CT, API 5L, API 5CR and HSC® premium connection procedures, which ensure the highest level of quality together with reliable deliveries, under the comprehensive consideration of environment, occupational health and safety.

TECHNICAL DATA

Size (OD)		Nominal Weight	Wall Thickness		Inside Diameter		Drift Diameter		Coupling (OD) Regular		Make-up Loss		Coupling Length		Joint Efficiency
in	mm	lb/ft	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	%
2.375	60.32	4.60	0.190	4.83	1.995	50.67	1.901	48.29	2.697	68.50	2.205	56.01	6.410	162.81	102
2.375	60.32	5.10	0.218	5.54	1.939	49.25	1.845	46.86	2.738	69.55	2.205	56.01	6.410	162.81	102
2.375	60.32	5.80	0.254	6.45	1.867	47.42	1.773	45.03	2.788	70.82	2.205	56.01	6.410	162.81	102
2.375	60.32	6.30	0.280	7.11	1.815	46.10	1.721	43.71	2.823	71.70	2.205	56.01	6.410	162.81	102
2.375	60.32	6.60	0.295	7.49	1.785	45.34	1.691	42.95	2.843	72.21	2.205	56.01	6.410	162.81	102
2.375	60.32	7.35	0.336	8.53	1.703	43.26	1.609	40.87	2.894	73.51	2.205	56.01	6.410	162.81	102
2.875	73.02	6.40	0.217	5.51	2.441	62.00	2.347	59.61	3.247	82.47	2.205	56.01	6.410	162.81	102
2.875	73.02	7.80	0.276	7.01	2.323	59.00	2.229	56.62	3.334	84.68	2.205	56.01	6.410	162.81	102
2.875	73.02	8.60	0.308	7.82	2.259	57.38	2.165	54.99	3.379	85.83	2.205	56.01	6.410	162.81	102
2.875	73.02	9.35	0.340	8.64	2.195	55.75	2.101	53.37	3.421	86.89	2.205	56.01	6.410	162.81	102
2.875	73.02	9.80	0.362	9.19	2.151	54.64	2.057	52.25	3.450	87.63	2.205	56.01	6.410	162.81	102
2.875	73.02	10.50	0.392	9.96	2.091	53.11	1.997	50.72	3.487	88.57	2.205	56.01	6.410	162.81	102
2.875	73.02	10.70	0.405	10.29	2.065	52.45	1.971	50.06	3.503	88.98	2.205	56.01	6.410	162.81	102
3.500	88.90	7.70	0.216	5.49	3.068	77.93	2.943	74.75	3.848	97.74	2.830	71.88	7.660	194.56	102
3.500	88.90	9.20	0.254	6.45	2.992	76.00	2.867	72.82	3.909	99.29	2.830	71.88	7.660	194.56	102
3.500	88.90	10.20	0.289	7.34	2.922	74.22	2.797	71.04	3.962	100.63	2.830	71.88	7.660	194.56	102
3.500	88.90	12.70	0.375	9.52	2.750	69.85	2.625	66.68	4.086	103.78	2.830	71.88	7.660	194.56	102
3.500	88.90	13.70	0.413	10.49	2.674	67.92	2.549	64.74	4.137	105.08	2.830	71.88	7.660	194.56	102
3.500	88.90	14.30	0.430	10.92	2.640	67.06	2.515	63.88	4.159	105.64	2.830	71.88	7.660	194.56	102
3.500	88.90	14.70	0.449	11.40	2.602	66.09	2.477	62.92	4.184	106.27	2.830	71.88	7.660	194.56	102
3.500	88.90	15.50	0.476	12.09	2.548	64.72	2.423	61.54	4.217	107.11	2.830	71.88	7.660	194.56	102
4.000	101.60	8.20	0.190	4.83	3.620	91.95	3.495	88.77	4.300	109.22	2.997	76.12	7.994	203.05	102
4.000	101.60	9.50	0.226	5.74	3.548	90.12	3.423	86.94	4.360	110.74	2.997	76.12	7.994	203.05	102
4.000	101.60	10.90	0.262	6.65	3.476	88.29	3.351	85.12	4.419	112.24	2.997	76.12	7.994	203.05	102
4.000	101.60	13.20	0.330	8.38	3.340	84.84	3.215	81.66	4.525	114.94	2.997	76.12	7.994	203.05	102
4.000	101.60	14.80	0.380	9.65	3.240	82.30	3.115	79.12	4.598	116.79	2.997	76.12	7.994	203.05	102
4.000	101.60	16.10	0.415	10.54	3.170	80.52	3.045	77.34	4.648	118.06	2.997	76.12	7.994	203.05	102
4.000	101.60	16.50	0.430	10.92	3.140	79.76	3.015	76.58	4.669	118.59	2.997	76.12	7.994	203.05	102
4.000	101.60	18.90	0.500	12.70	3.000	76.20	2.875	73.02	4.762	120.95	2.997	76.12	7.994	203.05	102
4.500	114.30	10.50	0.224	5.69	4.052	102.92	3.927	99.75	4.852	123.24	3.164	80.37	8.328	211.53	102
4.500	114.30	11.60	0.250	6.35	4.000	101.60	3.875	98.42	4.896	124.36	3.164	80.37	8.328	211.53	102
4.500	114.30	12.60	0.271	6.88	3.958	100.53	3.833	97.36	4.930	125.22	3.164	80.37	8.328	211.53	102
4.500	114.30	13.50	0.290	7.37	3.920	99.57	3.795	96.39	4.961	126.01	3.164	80.37	8.328	211.53	102
4.500	114.30	15.10	0.337	8.56	3.826	97.18	3.701	94.01	5.035	127.89	3.164	80.37	8.328	211.53	102
4.500	114.30	17.00	0.380	9.65	3.740	95.00	3.615	91.82	5.101	129.57	3.164	80.37	8.328	211.53	102
4.500	114.30	17.70	0.402	10.21	3.696	93.88	3.571	90.70	5.133	130.38	3.164	80.37	8.328	211.53	102
4.500	114.30	18.90	0.430	10.92	3.640	92.46	3.515	89.28	5.174	131.42	3.164	80.37	8.328	211.53	102
4.500	114.30	21.50	0.500	12.70	3.500	88.90	3.375	85.72	5.272	133.91	3.164	80.37	8.328	211.53	102
5.000	127.00	13.00	0.253	6.43	4.494	114.15	4.369	110.97	5.414	137.52	3.730	94.74	9.460	240.28	102
5.000	127.00	15.00	0.296	7.52	4.408	111.96	4.283	108.79	5.485	139.32	3.730	94.74	9.460	240.28	102
5.000	127.00	18.00	0.362	9.19	4.276	108.61	4.151	105.44	5.591	142.01	3.730	94.74	9.460	240.28	102
5.000	127.00	20.30	0.408	10.36	4.184	106.27	4.059	103.10	5.661	143.79	3.730	94.74	9.460	240.28	102
5.000	127.00	20.80	0.422	10.72	4.156	105.56	4.031	102.39	5.682	144.32	3.730	94.74	9.460	240.28	102
5.000	127.00	21.40	0.437	11.10	4.126	104.80	4.001	101.63	5.705	144.91	3.730	94.74	9.460	240.28	102
5.000	127.00	23.20	0.478	12.14	4.044	102.72	3.919	99.54	5.764	146.41	3.730	94.74	9.460	240.28	102
5.000	127.00	24.10	0.500	12.70	4.000	101.60	3.875	98.42	5.795	147.19	3.730	94.74	9.460	240.28	102
5.500	139.70	15.50	0.275	6.98	4.950	125.73	4.825	122.56	5.955	151.26	3.730	94.74	9.460	240.28	102
5.500	139.70	17.00	0.304	7.72	4.892	124.26	4.767	121.08	6.004	152.50	3.730	94.74	9.460	240.28	102
5.500	139.70	20.00	0.361	9.17	4.778	121.36	4.653	118.19	6.096	154.84	3.730	94.74	9.460	240.28	102
5.500	139.70	23.00	0.415	10.54	4.670	118.62	4.545	115.44	6.181	157.00	3.730	94.74	9.460	240.28	102
5.500	139.70	26.00	0.476	12.09	4.548	115.52	4.423	112.34	6.273	159.33	3.730	94.74	9.460	240.28	102
5.500	139.70	26.80	0.500	12.70	4.500	114.30	4.375	111.12	6.309	160.25	3.730	94.74	9.460	240.28	102
5.500	139.70	28.40	0.530	13.46	4.440	112.78	4.315	109.60	6.352	161.34	3.730	94.74	9.460	240.28	102
5.500	139.70	29.70	0.562	14.27	4.376	111.15	4.251	107.98	6.397	162.48	3.730	94.74	9.460	240.28	102
6.625	168.28	20.00	0.288	7.32	6.049	153.64	5.924	150.47	7.110	180.59	3.730	94.74	9.460	240.28	102
6.625	168.28	23.20	0.330	8.38	5.965	151.51	5.840	148.34	7.182	182.42	3.730	94.74	9.460	240.28	102
6.625	168.28	24.00	0.352	8.94	5.921	150.39	5.796	147.22	7.219	183.36	3.730	94.74	9.460	240.28	102
6.625	168.28	28.00	0.417	10.59	5.791	147.09	5.666	143.92	7.326	186.08	3.730	94.74	9.460	240.28	102
6.625	168.28	32.00	0.475	12.07	5.675	144.14	5.550	140.97	7.418	188.42	3.730	94.74	9.460	240.28	102

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TECHNICAL DATA

Tensile Efficiency	Compression Efficiency	Joint Yield Strength						Coupling (OD) Special Clearance		Joint Efficiency
%	%	80 ksi	90 ksi	95 ksi	110 ksi	125 ksi	150 ksi	in	mm	%
100	100	104	117	124	143	163	196	2.596	65.94	70
100	100	118	133	140	162	185	222	2.626	66.70	70
100	100	135	152	161	186	212	254	2.662	67.61	70
100	100	147	166	175	203	230	276	2.687	68.25	70
100	100	154	173	183	212	241	289	2.701	68.61	70
100	100	172	194	204	237	269	323	2.738	69.55	70
100	100	145	163	172	199	227	272	3.131	79.53	70
100	100	180	203	214	248	282	338	3.193	81.10	70
100	100	199	224	236	273	310	373	3.225	81.92	70
100	100	217	244	257	298	338	406	3.256	82.70	70
100	100	229	257	272	314	357	429	3.277	83.24	70
100	100	245	275	290	336	382	459	3.304	83.92	70
100	100	251	283	299	346	393	471	3.315	84.20	70
100	100	178	201	212	245	279	334	3.728	94.69	70
100	100	207	233	246	285	324	389	3.771	95.78	70
100	100	233	262	277	321	364	437	3.809	96.75	70
100	100	295	331	350	405	460	552	3.898	99.01	70
100	100	320	360	381	441	501	601	3.935	99.95	70
100	100	332	373	394	456	518	622	3.951	100.36	70
100	100	344	387	409	473	538	646	3.968	100.79	70
100	100	362	407	430	497	565	678	3.993	101.42	70
100	100	182	205	216	250	284	341	4.190	106.43	70
100	100	214	241	255	295	335	402	4.233	107.52	70
100	100	246	277	292	338	385	462	4.275	108.58	70
100	100	304	342	361	419	476	571	4.350	110.49	70
100	100	346	389	411	475	540	648	4.403	111.84	70
100	100	374	421	444	514	584	701	4.438	112.73	70
100	100	386	434	458	530	603	723	4.453	113.11	70
100	100	440	495	522	605	687	825	4.520	114.81	70
100	100	241	271	286	331	376	451	4.724	119.99	70
100	100	267	300	317	367	417	501	4.755	120.78	70
100	100	288	324	342	396	450	540	4.779	121.39	70
100	100	307	345	364	422	479	575	4.801	121.95	70
100	100	353	397	419	485	551	661	4.854	123.29	70
100	100	393	443	467	541	615	738	4.900	124.46	70
100	100	414	466	492	569	647	776	4.924	125.07	70
100	100	440	495	522	605	687	825	4.953	125.81	70
100	100	503	565	597	691	785	942	5.023	127.58	70
100	100	302	340	358	415	472	566	5.270	133.86	70
100	100	350	394	416	481	547	656	5.320	135.13	70
100	100	422	475	501	580	659	791	5.395	137.03	70
100	100	471	530	559	647	736	883	5.445	138.30	70
100	100	486	546	577	668	759	910	5.460	138.68	70
100	100	501	564	595	689	783	940	5.476	139.09	70
100	100	543	611	645	747	849	1019	5.519	140.18	70
100	100	565	636	672	778	884	1060	5.541	140.74	70
100	100	361	406	429	497	564	677	5.798	147.27	70
100	100	397	447	471	546	620	744	5.833	148.16	70
100	100	466	525	554	641	729	874	5.899	149.83	70
100	100	530	597	630	729	829	994	5.959	151.36	70
100	100	601	676	714	826	939	1127	6.024	153.01	70
100	100	628	707	746	864	982	1178	6.050	153.67	70
100	100	662	745	786	910	1034	1241	6.081	154.46	70
100	100	697	785	828	959	1090	1308	6.113	155.27	70
100	100	459	516	545	631	717	860	6.944	176.38	70
100	100	522	587	620	718	816	979	6.994	177.65	70
100	100	555	624	659	763	867	1041	7.021	178.33	70
100	100	651	732	773	895	1017	1220	7.096	180.24	70
100	100	734	826	872	1010	1147	1377	7.161	181.89	70

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TECHNICAL DATA

Size (OD)		Nominal Weight	Wall Thickness		Inside Diameter		Drift Diameter		Coupling (OD) Regular		Make-up Loss		Coupling Length		Joint Efficiency
in	mm	lb/ft	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	%
7.000	177.80	23.00	0.317	8.05	6.366	161.70	6.241	158.52	7.538	191.47	3.730	94.74	9.460	240.28	102
7.000	177.80	26.00	0.362	9.19	6.276	159.41	6.151	156.24	7.614	193.40	3.730	94.74	9.460	240.28	102
7.000	177.80	29.00	0.408	10.36	6.184	157.07	6.059	153.90	7.691	195.35	3.730	94.74	9.460	240.28	102
7.000	177.80	32.00	0.453	11.51	6.094	154.79	5.969	151.61	7.763	197.18	3.730	94.74	9.460	240.28	102
7.000	177.80	35.00	0.498	12.65	6.004	152.50	5.879	149.33	7.835	199.01	3.730	94.74	9.460	240.28	102
7.000	177.80	38.00	0.540	13.72	5.920	150.37	5.795	147.19	7.900	200.66	3.730	94.74	9.460	240.28	102
7.000	177.80	41.00	0.590	14.99	5.820	147.83	5.695	144.65	7.975	202.57	3.730	94.74	9.460	240.28	102
7.625	193.68	29.70	0.375	9.52	6.875	174.62	6.750	171.45	8.243	209.37	4.130	104.90	10.260	260.60	102
7.625	193.68	33.70	0.430	10.92	6.765	171.83	6.640	168.66	8.336	211.73	4.130	104.90	10.260	260.60	102
7.625	193.68	35.80	0.465	11.81	6.695	170.05	6.570	166.88	8.393	213.18	4.130	104.90	10.260	260.60	102
7.625	193.68	39.00	0.500	12.70	6.625	168.28	6.500	165.10	8.450	214.63	4.130	104.90	10.260	260.60	102
7.625	193.68	42.80	0.562	14.27	6.501	165.13	6.376	161.95	8.547	217.09	4.130	104.90	10.260	260.60	102
7.625	193.68	45.30	0.595	15.11	6.435	163.45	6.310	160.27	8.598	218.39	4.130	104.90	10.260	260.60	102
7.750	196.85	46.10	0.595	15.11	6.560	166.62	6.435	163.45	8.725	221.62	4.130	104.90	10.260	260.60	102
8.625	219.08	36.00	0.400	10.16	7.825	198.76	7.700	195.58	9.270	235.46	4.530	115.06	11.060	280.92	102
8.625	219.08	40.00	0.450	11.43	7.725	196.22	7.600	193.04	9.355	237.62	4.530	115.06	11.060	280.92	102
8.625	219.08	44.00	0.500	12.70	7.625	193.68	7.500	190.50	9.439	239.75	4.530	115.06	11.060	280.92	102
8.625	219.08	49.00	0.557	14.15	7.511	190.78	7.386	187.60	9.531	242.09	4.530	115.06	11.060	280.92	102
8.625	219.08	52.00	0.595	15.11	7.435	188.85	7.310	185.67	9.592	243.64	4.530	115.06	11.060	280.92	102
9.625	244.48	36.00	0.352	8.94	8.921	226.59	8.765	222.63	10.168	258.27	4.930	125.22	11.860	301.24	102
9.625	244.48	40.00	0.395	10.03	8.835	224.41	8.679	220.45	10.244	260.20	4.930	125.22	11.860	301.24	102
9.625	244.48	43.50	0.435	11.05	8.755	222.38	8.599	218.41	10.314	261.98	4.930	125.22	11.860	301.24	102
9.625	244.48	47.00	0.472	11.99	8.681	220.50	8.525	216.54	10.378	263.60	4.930	125.22	11.860	301.24	102
9.625	244.48	53.50	0.545	13.84	8.535	216.79	8.379	212.83	10.500	266.70	4.930	125.22	11.860	301.24	102
9.625	244.48	58.40	0.595	15.11	8.435	214.25	8.279	210.29	10.583	268.81	4.930	125.22	11.860	301.24	102
9.875	250.82	62.80	0.625	15.88	8.625	219.08	8.469	215.11	10.884	276.45	4.930	125.22	11.860	301.24	102
9.875	250.82	66.40	0.661	16.79	8.553	217.25	8.397	213.28	10.942	277.93	4.930	125.22	11.860	301.24	102
9.875	250.82	66.90	0.668	16.97	8.539	216.89	8.383	212.93	10.953	278.21	4.930	125.22	11.860	301.24	102
9.875	250.82	67.50	0.678	17.22	8.519	216.38	8.363	212.42	10.969	278.61	4.930	125.22	11.860	301.24	102
9.875	250.82	68.90	0.700	17.78	8.475	215.27	8.319	211.30	11.004	279.50	4.930	125.22	11.860	301.24	102
9.875	250.82	70.50	0.720	18.29	8.435	214.25	8.279	210.29	11.035	280.29	4.930	125.22	11.860	301.24	102
9.875	250.82	72.00	0.725	18.42	8.425	214.00	8.269	210.03	11.043	280.49	4.930	125.22	11.860	301.24	102
10.750	273.05	45.50	0.400	10.16	9.950	252.73	9.794	248.77	11.360	288.54	5.330	135.38	12.660	321.56	102
10.750	273.05	51.00	0.450	11.43	9.850	250.19	9.694	246.23	11.449	290.80	5.330	135.38	12.660	321.56	102
10.750	273.05	55.50	0.495	12.57	9.760	247.90	9.604	243.94	11.527	292.79	5.330	135.38	12.660	321.56	102
10.750	273.05	60.70	0.545	13.84	9.660	245.36	9.504	241.40	11.613	294.97	5.330	135.38	12.660	321.56	102
10.750	273.05	65.70	0.595	15.11	9.560	242.82	9.404	238.86	11.697	297.10	5.330	135.38	12.660	321.56	102
11.750	298.45	54.00	0.435	11.05	10.880	276.35	10.724	272.39	12.427	315.65	5.330	135.38	12.660	321.56	102
11.750	298.45	60.00	0.489	12.42	10.772	273.61	10.616	269.65	12.522	318.06	5.330	135.38	12.660	321.56	102
11.750	298.45	65.00	0.534	13.56	10.682	271.32	10.526	267.36	12.601	320.07	5.330	135.38	12.660	321.56	102
11.750	298.45	71.00	0.582	14.78	10.586	268.88	10.430	264.92	12.683	322.15	5.330	135.38	12.660	321.56	102
11.875	301.62	71.80	0.582	14.78	10.711	272.06	10.555	268.10	12.809	325.35	5.330	135.38	12.660	321.56	102
13.375	339.72	61.00	0.430	10.92	12.515	317.88	12.359	313.92	14.048	356.82	5.330	135.38	12.660	321.56	102
13.375	339.72	68.00	0.480	12.19	12.415	315.34	12.259	311.38	14.139	359.13	5.330	135.38	12.660	321.56	102
13.375	339.72	72.00	0.514	13.06	12.347	313.61	12.191	309.65	14.199	360.65	5.330	135.38	12.660	321.56	102
13.375	339.72	77.00	0.550	13.97	12.275	311.78	12.119	307.82	14.263	362.28	5.330	135.38	12.660	321.56	102
13.375	339.72	80.70	0.580	14.73	12.215	310.26	12.059	306.30	14.315	363.60	5.330	135.38	12.660	321.56	102
13.375	339.72	85.00	0.608	15.44	12.159	308.84	12.003	304.88	14.364	364.85	5.330	135.38	12.660	321.56	102
13.375	339.72	86.00	0.625	15.88	12.125	307.98	11.969	304.01	14.393	365.58	5.330	135.38	12.660	321.56	102
13.625	346.08	88.20	0.625	15.88	12.375	314.32	12.187	309.55	14.645	371.98	5.330	135.38	12.660	321.56	102
14.000	355.60	86.00	0.600	15.24	12.800	325.12	12.612	320.34	14.979	380.47	5.330	135.38	12.660	321.56	102
14.000	355.60	93.00	0.650	16.51	12.700	322.58	12.512	317.80	15.065	382.65	5.330	135.38	12.660	321.56	102
14.000	355.60	100.00	0.700	17.78	12.600	320.04	12.412	315.26	15.151	384.84	5.330	135.38	12.660	321.56	102
14.000	355.60	106.00	0.750	19.05	12.500	317.50	12.312	312.72	15.235	386.97	5.330	135.38	12.660	321.56	102
14.000	355.60	114.00	0.800	20.32	12.400	314.96	12.212	310.18	15.318	389.08	5.330	135.38	12.660	321.56	102
14.000	355.60	120.00	0.850	21.59	12.300	312.42	12.112	307.64	15.400	391.16	5.330	135.38	12.660	321.56	102

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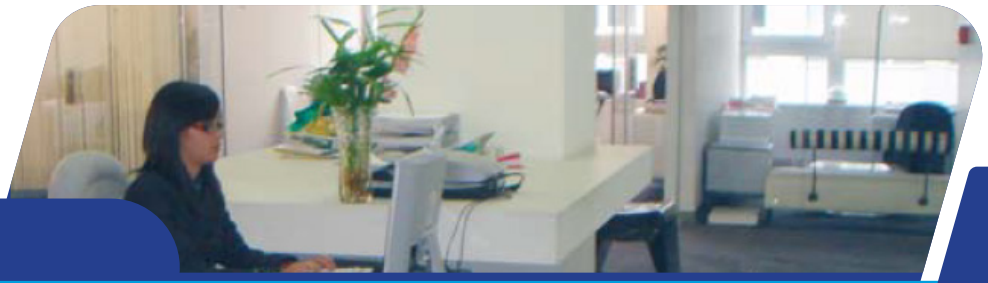
TECHNICAL DATA

Tensile Efficiency	Compression Efficiency	Joint Yield Strength						Coupling (OD) Special Clearance		Joint Efficiency
%	%	80 ksi	90 ksi	95 ksi	110 ksi	125 ksi	150 ksi	in	mm	%
100	100	532	599	632	732	832	998	7.355	186.82	70
100	100	604	679	717	830	944	1132	7.409	188.19	70
100	100	676	760	803	929	1056	1267	7.463	189.56	70
100	100	745	839	885	1025	1165	1398	7.515	190.88	70
100	100	814	916	966	1119	1272	1526	7.566	192.18	70
100	100	877	986	1041	1206	1370	1644	7.612	193.34	70
100	100	950	1069	1129	1307	1485	1782	7.665	194.69	70
100	100	683	769	811	940	1068	1281	8.029	203.94	70
100	100	778	875	923	1069	1215	1458	8.095	205.61	70
100	100	837	941	994	1151	1307	1569	8.135	206.63	70
100	100	895	1007	1063	1231	1399	1679	8.175	207.64	70
100	100	998	1122	1185	1372	1559	1871	8.245	209.42	70
100	100	1051	1183	1248	1445	1643	1971	8.281	210.34	70
100	100	1070	1204	1271	1471	1672	2006	8.407	213.54	70
100	100	827	930	982	1137	1292	1550	9.040	229.62	70
100	100	925	1040	1098	1271	1445	1734	9.100	231.14	70
100	100	1021	1149	1212	1404	1595	1914	9.159	232.64	70
100	100	1129	1271	1341	1553	1765	2118	9.225	234.32	70
100	100	1201	1351	1426	1651	1876	2252	9.268	235.41	70
100	80	820	923	974	1128	1282	1538	9.960	252.98	70
100	80	916	1031	1088	1260	1432	1718	10.014	254.36	70
100	80	1005	1130	1193	1381	1570	1884	10.063	255.60	70
100	80	1086	1222	1289	1493	1697	2036	10.108	256.74	70
100	80	1244	1399	1477	1710	1943	2332	10.194	258.93	70
100	80	1350	1519	1604	1857	2110	2532	10.252	260.40	70
100	80	1453	1635	1725	1998	2270	2724	10.539	267.69	70
100	80	1531	1722	1818	2105	2392	2870	10.580	268.73	70
100	80	1546	1739	1836	2125	2415	2898	10.588	268.94	70
100	80	1567	1763	1861	2155	2449	2938	10.599	269.21	70
100	80	1614	1816	1917	2219	2522	3027	10.624	269.85	70
100	80	1657	1864	1967	2278	2589	3106	10.646	270.41	70
100	80	1667	1876	1980	2292	2605	3126	10.651	270.54	70
100	80	1040	1171	1236	1431	1626	1951	11.124	282.55	70
100	80	1165	1311	1383	1602	1820	2184	11.186	284.12	70
100	80	1276	1435	1515	1754	1993	2392	11.242	285.55	70
100	80	1398	1573	1660	1922	2184	2621	11.302	287.07	70
100	80	1519	1708	1803	2088	2373	2847	11.361	288.57	70
100	80	1237	1392	1469	1701	1933	2319	12.171	309.14	70
100	80	1384	1557	1643	1903	2162	2595	12.238	310.85	70
100	80	1505	1693	1788	2070	2352	2822	12.293	312.24	70
100	80	1634	1838	1940	2246	2552	3063	12.351	313.72	70
100	80	1652	1858	1962	2271	2581	3097	12.476	316.89	70
100	80	1399	1574	1661	1924	2186	2623	13.793	350.34	70
100	80	1556	1750	1847	2139	2431	2917	13.856	351.94	70
100	80	1661	1869	1973	2284	2596	3115	13.898	353.01	70
100	80	1773	1994	2105	2438	2770	3324	13.943	354.15	70
100	80	1865	2098	2215	2565	2914	3497	13.980	355.09	70
100	80	1951	2195	2317	2682	3048	3658	14.014	355.96	70
100	80	2003	2253	2378	2754	3129	3755	14.034	356.46	70
100	80	2042	2297	2425	2808	3191	3829	14.285	362.84	70
100	80	2021	2273	2400	2778	3157	3789	14.631	371.63	70
100	80	2181	2454	2590	2999	3408	4089	14.692	373.18	70
100	80	2340	2632	2779	3217	3656	4387	14.752	374.70	70
100	80	2498	2810	2966	3434	3902	4683	14.812	376.22	70
100	80	2654	2986	3152	3649	4147	4976	14.870	377.70	70
100	80	2809	3160	3336	3863	4389	5267	14.928	379.17	70

MAKING THE RIGHT CONNECTION



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