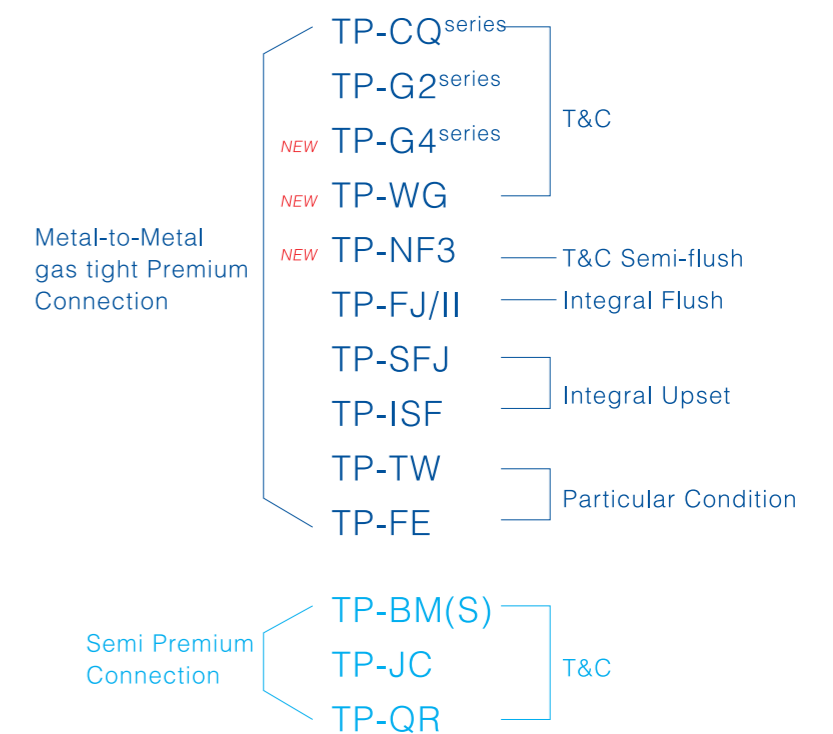


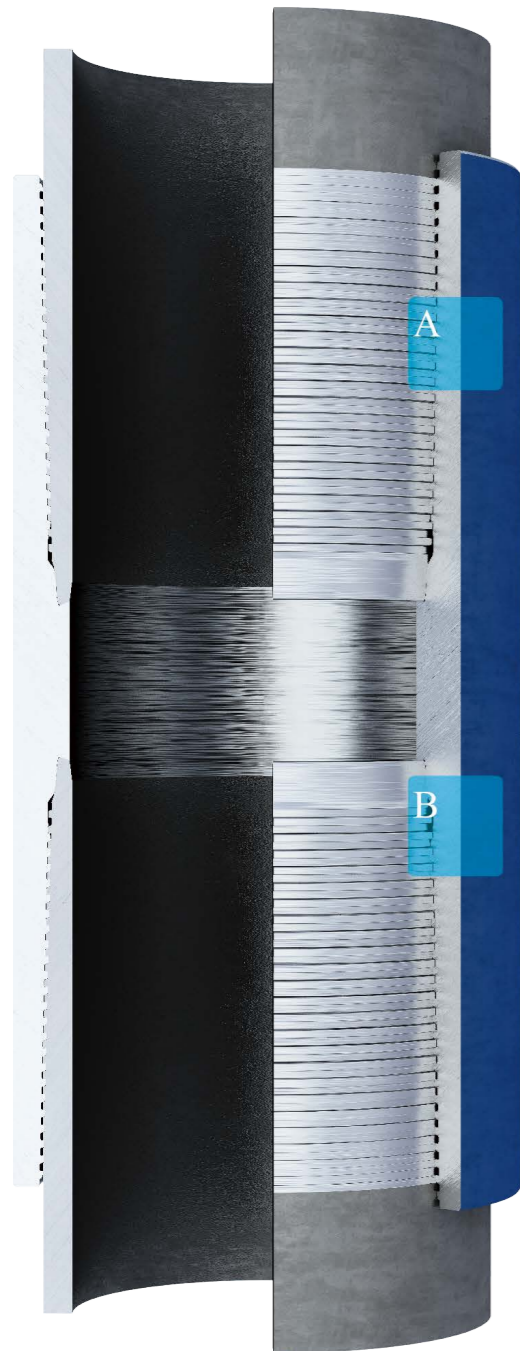
Tianjin Pipe Corporation
 Tianjin Pipe International Economic & Trading Corporation
 Add.: No.396, Jintang Road, Dongli District, Tianjin, P.R. China
 Tel.: +86 22 6628 0988
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Premium Connection TP-G4^{Series}



TP-G4 The Latest Fourth Generation Premium Connection 5in~14-3/8in

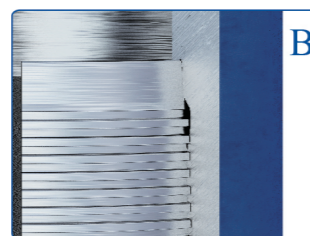


High Performance Gas-Tight Connection

- Performance meet four-100% (tension, compression, internal and external pressure)
- Thread crest parallel to axis design, easy to make up.
- New concept sealing structure ensures excellent gas sealing ability under combined load, and improves the over-torque ability.
- Suitable for complex well conditions such as horizontal well and extended reach well.
- Suitable for high grade steel and high alloy materials.



A Hook Buttress Thread
Taper=1:16
CSG: 5in~9-5/8in: 5T.P.I.
9-7/8in~14-3/8in:



B Three Stage Sealing Structure. Metal to Metal Seal.
Reverse Angel Torque Shoulder.
Internal flush.

Options:

- TP-G4 HT: High Torque
- TP-G4(SC): Special Clearance

1. Description

1.1 Threaded Connection

Unique golden section proportional tooth shape design, uniform and harmonious thread structure size, stable mechanical structure and excellent bearing performance.

The negative angle bearing design is adopted, with excellent connection performance and 100% bending and compression resistance. Optimized hook thread design reduces thread collision.

Stepped thread design, easy to make up and not easy to cross thread. thread.

1.2 Sealing Structure

The design of new concept sealing structure improves the leakage resistance of the joint.

The main seal and auxiliary seal adopt non equivalent interference design, highlighting the advantages of the main seal.

1.3 Reverse Angle Torque Shoulder

Negative angle shoulders provide accurate screw positioning.

1.4 Streamlined Internal Profile

The streamlined internal profile minimizes turbulence and energy loss when high-velocity gas flows.

1.5 Coupling Design

The coupling performance meets 100% design requirements, and the outer diameter design is consistent with API standard.

1.6 Connection Low Stress Design

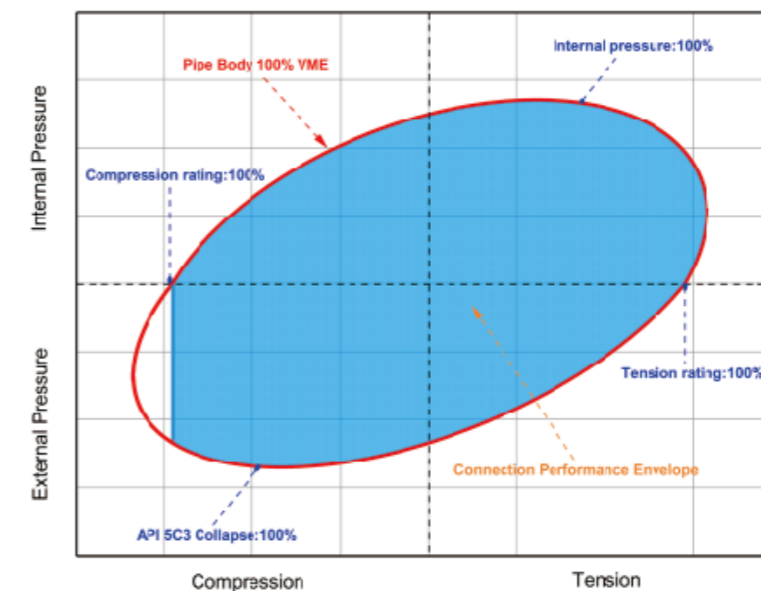
The lower stress design makes the connections reliable in Corrosive condition.

2. Finite Element Analysis on TP-G4



The low stress design of the joint makes TP-G4 the best choice for corrosive environment applications.

VME



3. Proven Test or Apply

3.1 Qualification Test

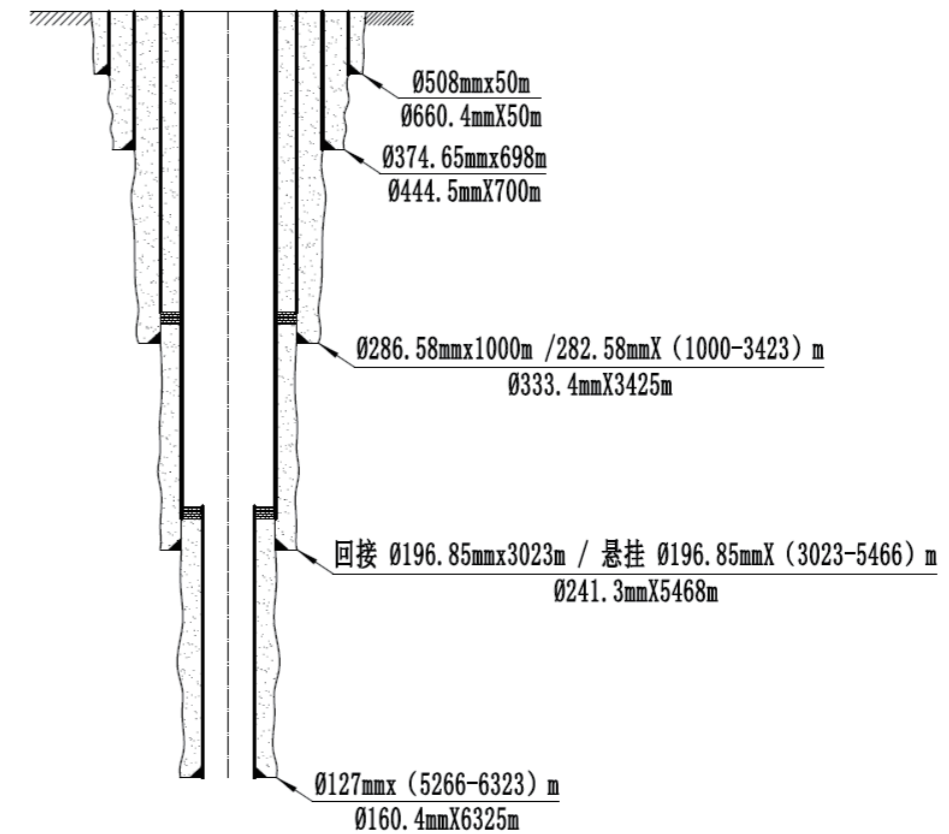
TGRC=CNPC Tubular Good Research Center

TPCO = The R&D Center of Tianjin Pipe Corporation

OD		t (mm)	GRADE	Test Standard	CAL	Lab.
mm	in					
177.80	7	10.36	TP110-HP13Cr	API 5C5 (2017) CAL IV	IV	TGRC
196.85	7.75	12.7	TP140HC	API 5C5 (2017) CAL IV	IV	TGRC
200.03	7.875	10.92	C110	API 5C5 (2017) CAL IV	IV	TPCO
244.48	9.625	11.99	P110	API 5C5 (2017) CAL IV	IV	TPCO
273.05	10.75	13.84	TP140V	API 5C5 (2017) CAL IV	IV	TPCO
339.72	13.375	13.06	TP140V	API 5C5 (2017) CAL IV	IV	TPCO

3.2 Typical Performance

User	Petro China Southwest Oil & Gasfield Company
Date	2022.4
Well NO.	Pengshen-5#
Location	Sui Ning, SI Chuan
Connection	TP-G4
Grade/Size	TP110S 196.85*16.83mm
MD	3980m



4. Supply Recorder

User	Grade	Size (mm)	Quantity (ton)	Year
CNPC Southwest Oil & Gas field Company	TP110S	196.85×16.83	1100	2022
CNPC Tuha Oilfield Company	TP140V	139.7×12.7	1130	2022
Sinopec Jiangnan Oilfield Company	TP125V	139.7×12.34	1450	2022
	TP140V	139.7×12.34	1450	2022



5. Performance of TP-G4 Connection

Size OD mm/in		t	Dirft	Coupling OD		Make up loss	Yield strength (KN)				External Pressure (Mpa)				Minimum internal yield pressure (Mpa)				
in	mm	mm	mm	OD	Length		80	110	125	140	80	110	125	140	80	110	125	140	
							mm	KIPS	KIPS	KIPS	KIPS	PSI	PSI	PSI	PSI	PSI	PSI	PSI	PSI
5.5	139.7	9.17	118.19	6.300	10.906	TP-G4	4.961	466	641	729	816	8830	11100	12080	12960	9190	12640	14360	16080
5.5	139.7	10.54	115.45	6.300	10.906	TP-G4	4.961	530	729	829	928	11160	14540	16060	17490	10560	14530	16510	18490
5.5	139.7	12.34	111.85	6.300	10.906	TP-G4	4.961	612	842	957	1072	12890	17720	20140	22560	12370	17010	19330	21650
5.5	139.7	12.70	111.13	6.300	10.906	TP-G4	4.961	628	864	982	1100	13220	18180	20660	23140	12730	17500	19890	22270
5.5	139.7	14.27	107.99	6.394	10.906	TP-G4	4.961	697	959	1090	1221	14680	20180	22940	25690	14310	19670	22350	25030
7	177.80	8.05	158.53	7.875	12.205	TP-G4	5.118	532	732	832	932	3830	4440	4650	4760	6340	8720	9910	11100
7	177.80	9.19	156.25	7.875	12.205	TP-G4	5.118	604	830	944	1057	5410	6230	6450	6690	7240	9960	11310	12670
7	177.80	10.36	153.91	7.875	12.205	TP-G4	5.118	676	929	1056	1183	7030	8530	9110	9560	8160	11220	12750	14280
7	177.80	11.51	151.61	7.875	12.205	TP-G4	5.118	745	1025	1165	1304	8600	10780	11710	12530	9060	12460	14160	15860
7	177.80	12.65	149.33	7.875	12.205	TP-G4	5.118	814	1119	1272	1424	10180	13030	14310	15500	9960	13700	15560	17430
7	177.80	13.72	147.19	7.875	12.205	TP-G4	5.118	877	1206	1370	1534	11390	15130	16740	18270	10800	14850	16880	18900
7	177.80	14.99	144.65	7.976	13.150	TP-G4	5.591	950	1307	1485	1663	12350	16980	19300	21570	11800	16230	18440	20650
7	177.80	15.88	142.87	7.976	13.150	TP-G4	5.591	1001	1377	1565	1752	13010	17890	20330	22770	12500	17190	19530	21880
7.25	184.15	15.83	149.32	8.213	13.780	TP-G4	5.906	1038	1427	1621	1816	12570	17280	19640	21990	12030	16540	18800	21050
7.625	193.68	10.92	168.67	8.500	12.992	TP-G4	5.512	778	1069	1215	1361	6560	7870	8340	8690	7900	10860	12340	13820
7.625	193.68	12.70	165.11	8.500	12.992	TP-G4	5.512	895	1231	1399	1567	8820	11080	12060	12930	9180	12620	14340	16070
7.625	193.68	14.27	161.97	8.661	12.992	TP-G4	5.512	998	1372	1559	1746	10810	13930	15350	16680	10320	14190	16120	18060
7.625	193.68	15.11	160.29	8.661	12.992	TP-G4	5.512	1051	1445	1643	1840	11510	15440	17100	18680	10920	15020	17070	19120
7.625	193.68	15.88	158.75	8.661	12.992	TP-G4	5.512	1100	1512	1718	1924	12040	16550	18700	20500	11480	15780	17930	20080
7.75	196.85	12.70	168.28	8.500	13.189	TP-G4	5.610	894	1229	1396	1564	8560	10710	11630	12440	9030	12420	14110	15810
7.75	196.85	16.83	160.02	8.779	13.189	TP-G4	5.610	1181	1624	1845	2067	12520	17210	19560	21900	11980	16470	18710	20960
7.875	200.03	10.92	175.02	8.750	11.811	TP-G4	4.921	805	1106	1257	1408	6120	7240	7620	7860	7640	10510	11940	13380
7.875	200.03	12.70	171.46	8.750	11.811	TP-G4	4.921	927	1274	1448	1622	8300	10350	11220	11970	8890	12220	13890	15560
7.875	200.03	14.20	168.46	8.898	13.268	TP-G4	5.650	1028	1413	1606	1799	10150	12970	14250	15430	9940	13660	15530	17390
7.875	200.03	15.88	165.10	8.898	13.268	TP-G4	5.650	1139	1566	1779	1993	11690	15910	17640	19290	11110	15280	17360	19440
9.625	244.48	10.03	220.45	10.625	12.598	TP-G4	5.315	916	1260	1432	1604	3090	3470	3530	3530	5750	7900	8980	10050
9.625	244.48	11.05	218.41	10.625	12.598	TP-G4	5.315	1005	1381	1570	1758	3810	4420	4620	4730	6330	8700	9890	11070
9.625	244.48	11.99	216.53	10.625	12.598	TP-G4	5.315	1086	1493	1697	1900	4750	5300	5630	5890	6870	9440	10730	12010
9.625	244.48	13.84	212.83	10.625	12.598	TP-G4	5.315	1244	1710	1943	2177	6620	7950	8440	8800	7930	10900	12390	13870
10.75	273.05	10.16	248.76	11.750	12.992	TP-G4	5.512	1040	1431	1626	1821	2470	2610	2610	2610	5210	7160	8140	9120
10.75	273.05	11.43	246.22	11.750	12.992	TP-G4	5.512	1165	1602	1820	2039	3220	3660	3740	3750	5860	8060	9160	10260
10.75	273.05	12.57	243.94	11.750	12.992	TP-G4	5.512	1276	1754	1993	2233	4020	4610	4850	4990	6450	8860	10070	11280
10.75	273.05	13.84	241.40	11.750	12.992	TP-G4	5.512	1398	1922	2184	2446	5160	5880	6070	6390	7100	9760	11090	12420
10.75	273.05	15.11	238.86	11.750	12.992	TP-G4	5.512	1519	2088	2373	2658	6300	7500	7920	8210	7750	10650	12110	13560
11.125	282.58	17.32	243.97	12.362	13.780	TP-G4	5.906	1790	2461	2797	3132	7770	9590	10330	10960	8580	11800	13410	15020
11.125	282.58	18.64	241.33	12.362	13.780	TP-G4	5.906	1917	2636	2995	3355	8920	11220	12220	13110	9240	12700	14430	16160
13.375	339.72	10.92	313.91	14.375	13.071	TP-G4	5.551	1399	1924	2186	2448	1670	1670	1670	1670	4500	6190	7030	7880
13.375	339.72	12.19	311.37	14.375	13.071	TP-G4	5.551	1556	2139	2431	2722	2260	2330	2330	2330	5020	6910	7850	8790
13.375	339.72	13.06	309.63	14.375	13.071	TP-G4	5.551	1661	2284	2596	2907	2670	2880	2880	2880	5380	7400	8410	9420
13.375	339.72	13.97	307.81	14.375	13.071	TP-G4	5.551	1773	2438	2770	3102	3100	3490	3550	3550	5760	7920	9000	10070
14.375	365.12	13.88	332.61	15.507	13.386	TP-G4	5.709	1898	2609	2965	3321	2600	2780	2780	2780	5320	7310	8310	9310