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TTGM

TIANJIN DEHUA GROUP


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BEYOND THE SELF
PURSUIT OF EXCELLENCE
天津德华石油装备制造有限公司


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Enterprise Mission

To become a global professional oil country tubular and drilling equipment manufacturer

Management Philosophy

Beyond the self and pursuit of excellence

Quality Principles

Customer's satisfaction as standard
Market share as target
Continuously improve product quality
Always meet customer's need

Enterprise Introduction

TTGM is a modem and advanced integrated enterprise with oil country tubular and drill tools R&D, manufacturing and trading in Jin Nan Development Zone, Tianjin China, which was founded in 1994 based on the stronger development of Tianjin Tubular Goods Co., Ltd. The main product lines are tubing, casing, drill pipe, mud pump accessories and associated drilling equipment.

TTGM covers 300,000m² areas and owns production lines with annual production capacity of 400,000 metric tons casings and tubings, 20,000 metric tons drilling pipes, and 100,000 metric tons heat treatment for full length pipe. Our products cover all casing, tubing, drill pipe specified in API standards and also research and develop Non-API standard TD series casing, tubing and drill pipe. Besides that, TTGM also manufactures associated oilfield equipment and accessories.

TTGM owns scientific laboratory with completed inspection procedures and advanced on-line inspection devices including NDT equipment from Tuboscope, USA and precision thread measuring tools made by Gaugemaker and Allen; all these advanced technology provide strong guarantee for high quality and reliability of TTGM products.

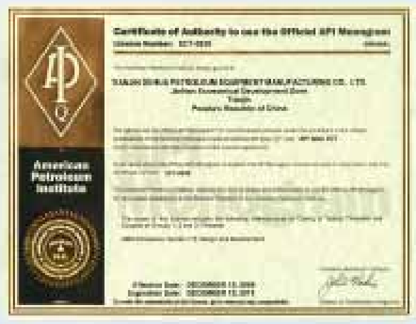
TTGM has been granted ISO9001 quality management system certification and monogram certification of API, and also has been approve as supplier network member of oil fields in domestic and abroad. The products not only have been used by most oil fields in domestic, but also have been exported to more than 30 countries and regions such as USA, Russia, Canada and Middle-East. TTGM has established a great reputation and long-term partner relationship with most of gas and petroleum exploration companies world wide.

"Beyond the self and pursuit of excellence" is the company's philosophy. TTGM is pursuing to become a star of industry with sales, management and service globalization, and products technological advantage. TTGM will become the strong support and best partner for all OCTG companies and friends.

Welcome to TTGM!

Certificate

ISO9001:2000 quality management system certificates
API spec 5DP and API spec 5CT certificates
Approved by CNPC, China Sinopec and Iranian National Oil Company



Production Capabilities

Heat Treatment Workshop

TTGM owns a heat treatment production line for full length pipe with designed annual capacity of 100,000 metric tons. All API standard casing, tubing, drill pipe and high-collapse casing and tubing with non-API standard can be produced. The main equipment in heat treatment workshop are walking-beam furnace, inside and outside quenching devices, 6 rolls automatic straightening machine (including end upsetting pipe) and USA Tuboscope on line NDT equipment.

Heating Furnace

Quenching machine

6 Rolls Straightening Machine

Tuboscope NDT equipment

Casing and Tubing Production Line

TTGM owns first class equipment and scientific processing technology. All production lines are numerically controlled and automatic. The annual output reaches 400,000 metric tons. TTGM performs strict control on all procedures from raw material to every single production process to ensure the products are qualified. Based on their accumulated rich experience, TTGM keeps a leading domestic level on producing large diameter pipes such as 16", 18-5/8" and 20".

EMI Inspection

Threading Machine

Coupling Makeup Machine

Hydrostatics testing machine

Measuring-marking-Stenciling Machine

Drill Pipe Production Line

TTGM imported inertia friction welder from MTI, which made in USA. TTGM adopt medium frequency heat treatment device to narrow the welding-heat-affected zone, and improved the physical properties of welding zone and performance of finished drilling pipes by making scientific friction welding technology and heat treatment technology.

MTI Inertia Friction Welder

Medium Frequency Heat Treatment Device

MPI Machine

HardBanding Welder

Testing Device

TTGM has established modern physical laboratories and introduced advanced testing equipments including USA MTS tensile tester, impact testing machine, hardness tester and German ZEISS metallurgical microscope.

The technicians can perform tests on raw material and finished products such as casing, tubing, drill pipe, and couplings on tensile, impact, hardness, bending, metallographic and spectral analysis, which improve the quality control of products.

Metalloscope

Rockwell Harness Tester

Brinell Hardness Tester

Polishing and Burnishing Machine

Tensile Testing Machine

Impact Testing Machine

Lead Gauge

Precision measuring

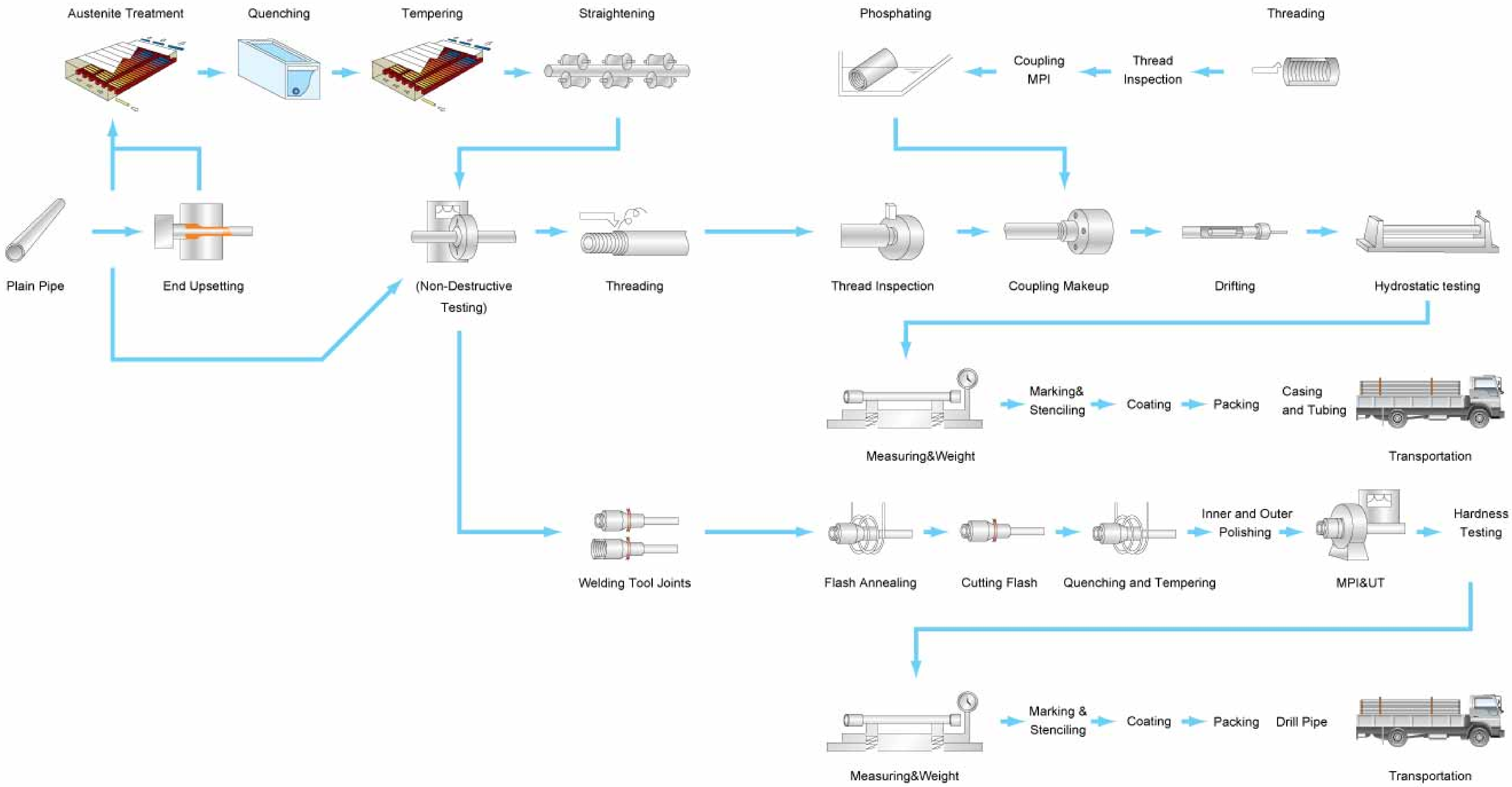
In order to ensure the thread accuracy of casing and tubing of TD series and under API standards, TTGM introduced measuring tools made by USA GAGEMAKER, ALLEN Company and Japan KURODA to guarantee quality of products and new products R&D.

Internal Taper Gauge

Tooth Height Gauge

External Taper Gauge

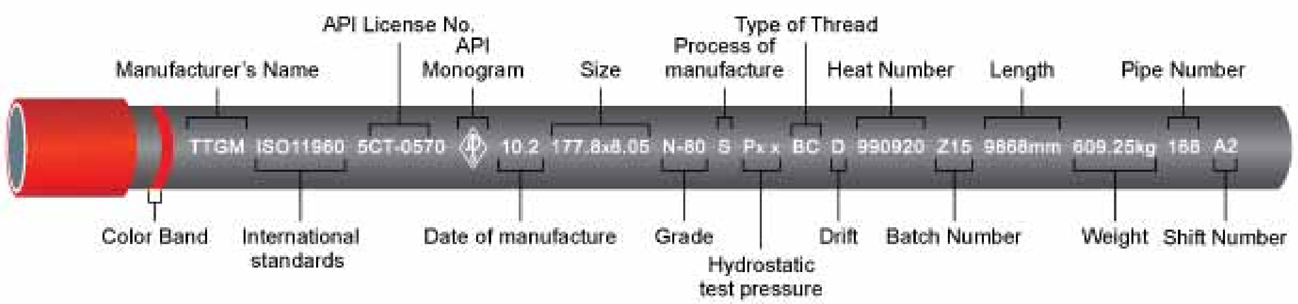
Process flow chart



Product Introduction

API Standard Casing and Tubing

TTGM Pipe Label Diagram



Type	Grade	Coupling	Pipes
API	H40		
	J55		
	K55		
	M65		
	N80 1类		
	N80 Q类		
	L80 1类		
API	L80 9Cr类		
	L80 13Cr类		
	C90 1类		

Type	Grade	Coupling	Pipes
API	C90 2类		
	T95 1类		
	T95 2类		
	C95		
API	P110		
	Q125 1类		
	Q125 2类		
	Q125 3类		
	Q125 4类		

Tubing

Standard:API spec 5CT, API spec 5B

Tubing is used for transporting crude oil and natural gas to surface after drilling, which also bears pressure from exploration.

Tubing

Size	Weight lb/ft		OD mm	WT mm	Type of end						
	NU	EU			H40	J55	L80	N80	C90	T95	P110
2-3/8	4.00	—	60.32	4.24	PU	PN	PN	PN	PN	PN	—
	4.60	4.70	60.32	4.83	PNU	PNU	PNU	PNU	PNU	PNU	PNU
	5.80	5.95	60.32	6.45	—	—	PNU	PNU	PNU	PNU	PNU
	6.60	—	60.32	7.49	—	—	P	—	P	P	—
	7.35	7.45	60.32	8.53	—	—	PU	—	PU	PU	—
2-7/8	6.40	6.50	73.02	5.51	PNU	PNU	PNU	PNU	PNU	PNU	PNU
	7.80	7.90	73.02	7.01	—	—	PNU	PNU	PNU	PNU	PNU
	8.60	8.70	73.02	7.82	—	—	PNU	PNU	PNU	PNU	PNU
	9.35	9.45	73.02	8.64	—	—	PU	—	PU	PU	—
	10.50	—	73.02	9.96	—	—	P	—	P	P	—
	11.50	—	73.02	11.18	—	—	P	—	P	P	—
3-1/2	7.70	—	88.90	5.49	PN	PN	PN	PN	PN	PN	—
	9.20	9.30	88.90	6.45	PNU	PNU	PNU	PNU	PNU	PNU	PNU
	10.20	—	88.90	7.34	PN	PN	PN	PN	PN	PN	—
	12.70	12.95	88.90	9.52	—	—	PNU	PNU	PNU	PNU	PNU
	14.30	—	88.90	10.92	—	—	P	—	P	P	—
	15.50	—	88.90	12.09	—	—	P	—	P	P	—
	17.00	—	88.90	13.46	—	—	P	—	P	P	—
4	9.50	—	101.60	5.74	PN	PN	PN	PN	PN	PN	—
	10.70	11.0	101.60	6.65	PU	PU	PU	PU	PU	PU	—
	13.20	—	101.60	8.38	—	—	P	—	P	P	—
	16.10	—	101.60	10.54	—	—	P	—	P	P	—
	18.90	—	101.60	12.70	—	—	P	—	P	P	—
	22.20	—	101.60	15.49	—	—	P	—	P	P	—
4-1/2	12.60	12.75	114.30	6.88	PNU	PNU	PNU	PNU	PNU	PNU	—
	15.20	—	114.30	8.56	—	—	P	—	P	P	—
	17.00	—	114.30	9.65	—	—	P	—	P	P	—
	18.90	—	114.30	10.92	—	—	P	—	P	P	—
	21.50	—	114.30	12.70	—	—	P	—	P	P	—
	23.70	—	114.30	14.22	—	—	P	—	P	P	—
	26.10	—	114.30	16.00	—	—	P	—	P	P	—

Remark: P = Plain end, N = Non-upset threaded and coupled, U = External upset threaded and coupled.

Tubing Coupling (NU)

Size		OD		Length (N_L)		Weight	
in	mm	in	mm	in	mm	lb	kg
2-3/8	60.32	2.875	73.02	4-1/4	107.95	2.82	1.28
2-7/8	73.02	3.500	88.90	5-1/8	130.18	5.15	2.34
3-1/2	88.90	4.250	107.95	5-5/8	142.88	8.17	3.71
4	101.60	4.750	120.65	5-3/4	146.05	9.58	4.35
4-1/2	114.30	5.200	132.08	6-1/8	155.58	10.77	4.89

Tubing Coupling (EU)

Size		OD		Length (N_L)		Weight	
in	mm	in	mm	in	mm	lb	kg
2-3/8	60.32	3.063	77.80	4-7/8	123.82	3.43	1.55
2-7/8	73.02	3.668	93.17	5-1/4	133.35	5.30	2.40
3-1/2	88.90	4.500	114.30	5-3/4	146.05	9.03	4.10
4	101.60	5.000	127.00	6	152.40	10.63	4.82
4-1/2	114.30	5.563	141.30	6-1/4	158.75	13.33	6.05

Casing

Standard: API spec 5CT, API spec 5B

Casing is used for fastening oil and gas well wall or borehole, with bigger diameter than tubing, including surface casings, technical casings and Oil layer casings.

Casing

Size	Weight lb/ft	OD mm	WT mm	Type of end						
				J55/K55	M65	L80/C95	N80	C90/T95	P110	Q125
4-1/2	9.5	114.3	5.21	PS	PS	—	—	—	—	—
	10.5	114.3	5.69	PSB	PSB	—	—	—	—	—
	11.6	114.3	6.35	PSLB	PLB	PLB	PLB	PLB	PLB	—
	13.5	114.3	7.37	—	PLB	PLB	PLB	PLB	PLB	—
	15.1	114.3	8.56	—	—	—	—	—	PLB	PLB
5	11.5	127.0	5.59	PS	PS	—	—	—	—	—
	13.0	127.0	6.43	PSLB	PSLB	—	—	—	—	—
	15.0	127.0	7.52	PSLBE	PLB	PLBE	PLBE	PLBE	PLBE	—
	18.0	127.0	9.19	—	PLB	PLBE	PLBE	PLBE	PLBE	PLBE
	21.4	127.0	11.10	—	PLB	PLB	PLB	PLB	PLB	PLB
	23.2	127.0	12.14	—	—	PLB	PLB	PLB	PLB	PLB
	24.1	127.0	12.7	—	—	PLB	PLB	PLB	PLB	PLB
5-1/2	14.0	139.7	6.20	PS	PS	—	—	—	—	—
	15.5	139.7	6.98	PSLBE	PSLB	—	—	—	—	—
	17.0	139.7	7.72	PSLBE	PLB	PLBE	PLBE	PLBE	PLBE	—
	20.0	139.7	9.17	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	23.0	139.7	10.54	—	PLB	PLBE	PLBE	PLBE	PLBE	PLBE
	26.8	139.7	12.70	—	—	—	—	P	—	—
	29.7	139.7	14.27	—	—	—	—	P	—	—
6-5/8	20.0	168.28	7.32	PSLB	PSLB	—	—	—	—	—
	24.0	168.28	8.94	PSLBE	PLB	PLBE	PLBE	PLBE	PLBE	—
	28.0	168.28	10.59	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	32.0	168.28	12.06	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
7	17.0	177.8	5.87	—	—	—	—	—	—	—
	20.0	177.8	6.91	PS	PS	—	—	—	—	—
	23.0	177.8	8.05	PSLBE	PLB	PLBE	PLBE	PLBE	—	—
	26.0	177.8	9.19	PSLBE	PLB	PLBE	PLBE	PLBE	PLBE	—
	29.0	177.8	10.36	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	32.0	177.8	11.51	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	35.0	177.8	12.65	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
	38.0	177.8	13.72	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
7-5/8	24.0	193.68	7.62	—	—	—	—	—	—	—
	26.4	193.68	8.33	PSLBE	PSLB	PLBE	PLBE	PLBE	—	—
	29.7	193.68	9.52	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	33.7	193.68	10.92	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	39.0	193.68	12.70	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
	42.8	193.68	14.27	—	—	PLB	PLB	PLB	PLB	PLB
	45.3	193.68	15.11	—	—	PLB	PLB	PLB	PLB	PLB

Remark: P - Plain end, S - Short round thread, L - Long round thread, B - Buttress thread, E - Extreme-line.

Casing

Size	Weight lb/ft	OD mm	WT mm	Type of end-finish						
				J55/K55	M65	L80/C95	N80	C90/T95	P110	Q125
8-5/8	24.0	219.08	6.71	PS	PS	—	—	—	—	—
	28.0	219.08	7.72	—	PS	—	—	—	—	—
	32.0	219.08	8.94	PSLBE	PSLB	—	—	—	—	—
	36.0	219.08	10.16	PSLBE	PSLB	PLBE	PLBE	PLBE	—	—
	40.0	219.08	11.43	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	44.0	219.08	12.7	—	—	PLBE	PLBE	PLBE	PLBE	—
	49.0	219.08	14.15	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
9-5/8	32.3	244.48	7.92	—	—	—	—	—	—	—
	36.0	244.48	8.94	PSLB	PSLB	—	—	—	—	—
	40.0	244.48	10.03	PSLBE	PSLB	PLBE	PLBE	PLBE	—	—
	43.5	244.48	11.05	—	PLB	PLBE	PLBE	PLBE	PLBE	—
	47.0	244.48	11.99	—	PLB	PLBE	PLBE	PLBE	PLBE	PLBE
	53.5	244.48	13.84	—	—	PLBE	PLBE	PLBE	PLBE	PLBE
	58.4	244.48	15.11	—	—	PLB	PLB	PLB	PLB	PLB
10-3/4	32.75	273.05	7.09	—	—	—	—	—	—	—
	40.5	273.05	8.89	PSB	PSB	—	—	—	—	—
	45.5	273.05	10.16	PSBE	PSB	—	—	—	—	—
	51.0	273.05	11.43	PSBE	PSB	PSBE	PSBE	PSBE	PSBE	
	55.5	273.05	12.57	—	PSB	PSBE	PSBE	PSBE	PSBE	—
	60.7	273.05	13.84	—	—	—	—	PSBE	PSBE	PSBE
	65.7	273.05	15.11	—	—	—	—	PSB	PSB	PSB
11-3/4	42.0	298.45	8.46	—	—	—	—	—	—	—
	47.0	298.45	9.53	PSB	PSB	—	—	—	—	—
	54.0	298.45	11.05	PSB	PSB	—	—	—	—	—
	60.0	298.45	12.42	PSB	PSB	PSB	PSB	PSB	PSB	PSB
	65.0	298.45	13.56	—	—	P	P	P	P	P
	71.0	298.45	14.78	—	—	P	P	P	P	P
13-3/8	48.0	339.72	8.38	—	—	—	—	—	—	—
	54.5	339.72	9.65	PSB	PSB	—	—	—	—	—
	61.0	339.72	10.92	PSB	PSB	—	—	—	—	—
	68.0	339.72	12.19	PSB	PSB	PSB	PSB	PSB	PSB	—
	72.0	339.72	13.06	—	—	PSB	PSB	PSB	PSB	PSB
16	65.0	406.4	9.53	—	—	—	—	—	—	—
	75.0	406.4	11.13	PSB	PSB	—	—	—	—	—
	84.0	406.4	12.57	PSB	PSB	—	—	—	—	—
	109.0	406.4	16.66	P	—	P	P	—	P	P
18-5/8	87.5	473.08	11.05	PSB	PSB	—	—	—	—	—
20	94.0	508.0	11.13	PSLB	PSLB	—	—	—	—	—
	106.5	508.0	12.70	PSLB	PSLB	—	—	—	—	—
	133.0	508.0	16.13	PSLB	—	—	—	—	—	—

Remark: P - Plain end, S - Short round thread, L - Long round thread, B - Buttress thread, E - Extreme-line.

Casing Coupling (STC/LC)

Size		OD (W)		Length (NL)				Weight			
				STC		LC		STC		LC	
in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
4-1/2	114.30	5.000	127.00	6-1/4	158.75	7	177.80	7.98	3.62	9.16	4.15
5	127.00	5.563	141.30	6-1/2	165.10	7-3/4	196.85	10.27	4.66	12.68	5.75
5-1/2	139.70	6.050	153.67	6-3/4	171.45	8	203.20	11.54	5.23	14.15	6.42
6-5/8	168.28	7.390	187.71	7-1/4	184.15	8-3/4	222.25	20.11	9.12	25.01	11.34
7	177.80	7.656	194.46	7-1/4	184.15	9	228.60	18.49	8.39	23.87	10.83
7-5/8	193.70	8.500	215.90	7-1/2	190.50	9-1/4	234.95	27.11	12.30	34.46	15.63
8-5/8	219.08	9.625	244.48	7-3/4	196.85	10	254.00	35.79	16.23	47.77	21.67
9-5/8	244.48	10.625	269.88	7-3/4	196.85	10-1/2	266.70	39.75	18.03	56.11	25.45
10-3/4	273.05	11.750	298.45	8	203.20	—	—	45.81	20.78	—	—
11-3/4	298.45	12.750	323.85	8	203.20	—	—	49.91	22.64	—	—
13-3/8	339.72	14.375	365.12	8	203.20	—	—	56.57	25.66	—	—
16	406.40	17.000	431.80	9	228.60	—	—	76.96	34.91	—	—
18-5/8	473.08	20.000	508.00	9	228.60	—	—	119.07	54.01	—	—
20	508.00	21.000	533.40	9	228.60	11-1/2	292.10	95.73	43.42	126.87	57.04

Casing Coupling (BC)

Size		OD (W)		Length (NL)		Weight	
in	mm	in	mm	in	mm	lb	kg
4-1/2	114.30	5.000	127.00	8-7/8	225.42	10.12	4.55
5	127.00	5.563	141.30	9-1/8	231.78	13.00	5.85
5-1/2	139.70	6.050	153.67	9-1/4	234.95	14.15	6.36
6-5/8	168.28	7.390	187.71	9-5/8	244.48	24.49	11.01
7	177.80	7.656	194.46	10	254.00	23.24	10.54
7-5/8	193.68	8.500	215.90	10-3/8	263.52	34.88	15.82
8-5/8	219.08	9.625	244.48	10-5/8	269.88	45.99	20.86
9-5/8	244.48	10.625	269.88	10-5/8	269.88	51.05	23.16
10-3/4	273.05	11.750	298.45	10-5/8	269.88	56.74	25.74
11-3/4	298.45	12.750	323.85	10-5/8	269.88	61.80	28.03
13-3/8	339.72	14.375	365.12	10-5/8	269.88	70.03	31.77
16	406.40	17.000	431.80	10-5/8	269.88	88.81	40.28
18-5/8	473.08	20.000	508.00	10-5/8	269.88	138.18	62.68
20	508.00	21.000	533.40	10-5/8	269.88	110.45	50.10

Drill pipe

Standard: API spec 5DP, API spec 7

TTGM produce all drill pipes specified in API Spec 5DP, API Spec 7 standards, including hard bandings, Heavy-weight, tool joint and self-developed corrosion resistance TD series drill pipes.

Drill Pipe

Size	Nominal Weight	Calculated Plain-End Weight		OD		WT		Grade
		lb/ft	kg/m	in	mm	in	mm	
2-3/8	6.65	6.27	9.33	2.375	60.3	0.280	7.11	E,X,G,S
2-7/8	10.40	9.72	14.47	2.875	73.0	0.362	9.19	E,X,G,S
3-1/2	9.50	8.81	13.12	3.500	88.9	0.254	6.45	E
	13.30	12.32	18.34	3.500	88.9	0.368	9.35	E,X,G,S
	15.50	14.64	21.79	3.500	88.9	0.449	11.40	E
	15.50	14.64	21.79	3.500	88.9	0.449	11.40	X,G,S
4	14.00	12.95	19.27	4.000	101.6	0.330	8.38	E,X,G,S
4-1/2	13.75	12.25	18.23	4.500	114.3	0.271	6.88	E
	16.60	15.00	22.32	4.500	114.3	0.337	8.56	E,X,G,S
	20.00	18.71	27.84	4.500	114.3	0.430	10.92	E,X,G,S
5	16.25	14.88	22.16	5.000	127.0	0.296	7.52	X,G,S
	19.50	17.95	26.70	5.000	127.0	0.362	9.19	E
	19.50	17.95	26.70	5.000	127.0	0.362	9.19	X,G,S
	25.60	24.05	35.80	5.000	127.0	0.500	12.70	E
	25.60	24.05	35.80	5.000	127.0	0.500	12.70	X,G,S
5-1/2	21.90	19.83	29.52	5.500	139.7	0.361	9.17	E,X,G,S
	24.70	22.56	33.57	5.500	139.7	0.415	10.54	E,X,G,S
6-5/8	25.20	22.21	33.04	6.625	168.3	0.330	8.38	E,X,G,S
	27.72	24.24	36.06	6.625	168.3	0.362	9.19	E,X,G,S

Tool Joint

Thread Type	Size	Upset Type	Weight	Grade	OD of Tool Joint	ID of Pin Joint	Bevel Diameter	Pin Tong Space	Box Tong Space	Weld neck
			lb/ft		mm	mm	mm	mm	mm	mm
NC26	2-3/8	EU	6.65	E	85.7	44.45	82.95	177.8	203.2	65.09
				X	85.7	44.45	82.95	177.8	203.2	65.09
				G	85.7	44.45	82.95	177.8	203.2	65.09
NC31	2-7/8	EU	10.4	E	104.8	53.98	100.41	177.8	228.6	80.96
				X	104.8	50.8	100.41	177.8	228.6	80.96
				G	104.8	50.8	100.41	177.8	228.6	80.96
				S	111.1	41.28	100.41	177.8	228.6	80.96
NC38	3-1/2	EU	13.3	E	120.7	68.26	116.28	203.2	266.7	98.43
				X	127.0	65.09	116.28	203.2	266.7	98.43
				G	127.0	61.91	116.28	203.2	266.7	98.43
				S	127.0	53.98	116.28	203.2	266.7	98.43
	3-1/2	EU	15.5	E	127.0	65.09	116.28	203.2	266.7	98.43
				X	127.0	61.91	116.28	203.2	266.7	98.43
				G	127.0	53.98	116.28	203.2	266.7	98.43
NC40	3-1/2	EU	15.5	S	139.7	57.15	127.40	177.8	254.0	98.43
	4	IU	14	E	133.4	71.44	127.4	177.8	254.0	106.36
				X	133.4	68.26	127.4	177.8	254.0	106.36
				G	139.7	61.91	127.4	177.8	254.0	106.36
				S	139.7	50.8	127.4	177.8	254.0	106.36
NC46	4	EU	14	E	152.4	82.55	145.26	177.8	254.0	114.3
				X	152.4	82.55	145.26	177.8	254.0	114.3
				G	152.4	82.55	145.26	177.8	254.0	114.3
				S	152.4	76.2	145.26	177.8	254.0	114.3
	4-1/2	IEU	16.6	E	158.8	82.55	145.26	177.8	254.0	119.06
				X	158.8	76.2	145.26	177.8	254.0	119.06
				G	158.8	76.2	145.26	177.8	254.0	119.06
				S	158.8	69.85	145.26	177.8	254.0	119.07
	4-1/2	IEU	20	E	158.75	76.2	145.3	177.8	254.0	119.07
				X	158.75	69.85	145.3	177.8	254.0	119.07
				G	158.75	63.5	145.3	177.8	254.0	119.07
				S	158.75	57.15	145.3	177.8	254.0	119.07
NC50	4-1/2	EU	16.6	E	168.28	95.25	154.0	177.8	254.0	127.00
				X	168.28	95.25	154.0	177.8	254.0	127.00
				G	168.28	95.25	154.0	177.8	254.0	127.00
				S	168.28	88.90	154.0	177.8	254.0	127.00
	4-1/2	EU	20	E	168.28	92.08	154.0	177.8	254.0	127.00
				X	168.28	88.9	154.0	177.8	254.0	127.00
				G	168.28	88.9	154.0	177.8	254.0	127.00
				S	168.28	76.2	154.0	177.8	254.0	127.00
	4-1/2	EU	13.75	E	168.28	95.25	154.0	177.8	254.0	127.00
	5	IEU	19.5	E	168.28	95.25	154.0	177.8	254.0	130.18
				X	168.28	88.9	154.0	177.8	254.0	130.18
				G	168.28	82.55	154.0	177.8	254.0	130.18
				S	168.28	69.85	154.0	177.8	254.0	130.18
	5	IEU	25.6	E	168.28	88.9	154.0	177.8	254.0	130.18
				X	168.28	76.2	154.0	177.8	254.0	130.18
				G	168.28	69.85	154.0	177.8	254.0	130.18
5 1/2FH	5	IEU	19.5	E	177.8	95.25	170.7	203.2	254.0	130.18
				X	177.8	95.25	170.7	203.2	254.0	130.18
				G	177.8	95.25	170.7	203.2	254.0	130.18
				S	184.15	88.9	170.7	203.2	254.0	130.18
	5	IEU	25.6	E	177.8	88.9	170.7	203.2	254.0	130.18
				X	177.8	88.9	170.7	203.2	254.0	130.18
				G	184.15	88.9	170.7	203.2	254.0	130.18
				S	184.15	82.55	170.7	203.2	254.0	130.18
	5-1/2	IEU	21.9	E	177.8	101.6	170.7	203.2	254.0	144.46
				X	177.8	95.25	170.7	203.2	254.0	144.46
				G	184.15	88.9	170.7	203.2	254.0	144.46
				S	190.5	76.2	180.2	203.2	254.0	144.46
	5-1/2	IEU	24.7	E	177.8	101.6	170.7	203.2	254.0	144.46
				X	184.15	88.9	170.7	203.2	254.0	144.46
				G	184.15	88.9	170.7	203.2	254.0	144.46
				S	190.5	76.2	180.2	203.2	254.0	144.46

Remark: 1. EU---External-Upset, IEU----Internal-external Upset IU---Internal-Upset
2. Left-hand Thread and Right-hand Thread
3. Thread Coppered or Phosphated

Downhole Motor

Series: API Spec 7

Downhole Motor Series

Model	OD		Bit Size		Connected Thread		Lobe	Stage	Flow Rate		Rotary Speed	Working Pressure Loss		Output Torque		Max Pressure Loss		Max Torque		Working Pressure		Max Pressure		Output Power	
	mm	in	mm	in	up	down			lpm	gpm	rpm	MPa	psi	N.m	lb-ft	MPa	psi	N.m	lb-ft	KN	lb	KN	lb	KW	hp
5LZ60x7.0 L-3-600	60	2 3/8	79-111	3 1/8-4 3/8	1 1/2REG	1 1/2REG	5:6	3	140-280	38-75	298-595	2.4	350	156	115	3.39	495	218	160	5	1100	10	2200	12	16
5LZ73x7.0 L-3-600	73	2 7/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	3	162-578	76-153	121-432	2.4	350	460	339	3.39	495	650	479	12	2640	25	5500	27	36
5LZ79x7.0 L-4-600	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	4	162-578	76-153	121-432	3.2	466	613	452	4.52	655	867	639	12	2640	25	5500	36	48
7LZ79X7.0 L-4-400	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	7:8	4	140-419	37-111	138-413	3.2	466	465	342	4.52	655	617	455	12	2640	25	5500	24	32
5LZ89x7.0 L-4-600	89	3 1/2	114-149	4 1/2-5 7/8	2 3/8REG	2 3/8REG	5:6	4	255-766	67-202	108-325	3.2	466	1080	800	4.52	655	1526	1126	22	4400	35	7700	47	63
5LZ95x7.0 L-3-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	5:6	3	320-800	85-211	124-300	2.4	350	833	615	3.39	495	1177	868	30	6600	55	12100	32	43
7LZ95x7.0 L-3-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	7:8	3	389-778	102-205	167-335	2.4	350	710	525	3.39	495	1000	740	30	6600	55	12100	32	43
5LZ105x7.0 L-4-600	105	4 1/8	121-152	4 3/4-6	2 7/8REG	2 7/8REG	5:6	4	450-900	120-240	146-292	3.2	466	1248	920	4.52	655	1656	1222	30	6600	55	12100	46	61
5LZ120x7.0 L-4-900	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	4	694-1388	184-367	140-278	3.2	466	2160	1593	4.52	655	2869	2116	49	10803	100	22000	71	95
7LZ120x7.0 L-4-896	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	4	745-1489	196-393	130-261	3.2	466	2468	1819	4.52	655	3277	2417	49	10803	100	22000	75	102
5LZ127x7.0 L-3-900	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	3	694-1388	184-367	140-278	2.4	350	1620	1195	3.39	495	2288	1688	49	10803	100	22000	57	76
7LZ127x7.0 L-4-896	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	4	745-1489	196-393	130-261	3.2	466	2468	1819	4.52	655	3277	2417	49	10803	100	22000	75	102
5LZ140x7.0 L-4-810	140	5 1/2	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	5:6	4	718-1436	190-379	101-202	3.2	466	2613	1927	4.52	655	3471	2560	49	10803	100	22000	73	98
5LZ159x7.0 L-5-840	159	6 1/4	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	5:6	5	828-1656	219-438	88-177	4	585	4221	3113	5.65	824	5962	4397	80	17600	160	35200	111	148
LZ165x7.0 L-4-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	163-325	3.2	466	1018	751	4.52	655	1352	997	49	10803	100	22000	46	62
5LZ165x7.0 L-4-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	862-1724	228-456	87-174	3.2	466	3673	2709	4.52	655	4878	3597	80	17600	160	35200	88	119
LZ172x7.0 L-4-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	191-382	3.2	466	1018	751	4.52	655	1352	997	80	17600	160	35200	46	62
2LZ172x7.0 L-7-780	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	2:3	7	590-1180	156-312	120-240	5.6	817	3510	2588	7.91	1154	4958	3656	100	22000	170	37400	110	147
4LZ172x7.0 L-7-770	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	4:5	7	833-1665	220-440	102-205	5.6	817	6158	4541	7.91	1154	8698	6415	100	22000	170	37400	154	206
5LZ172x7.0 L-4-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	947-1894	250-500	78-154	3.2	466	4160	3068	4.52	655	5525	4075	100	22000	170	37400	126	170
7LZ172x7.0 L-5-914	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5	1183-2366	312-625	84-168	4	585	7176	5293	5.65	824	10137	7476	100	22000	170	37400	150	200
LZ178x7.0 L-4-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	191-382	3.2	466	1018	751	4.52	655	1352	997	80	17600	160	35200	46	62
5LZ178x7.0 L-4-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	947-1894	250-500	78-154	3.2	466	4160	3068	4.52	655	5525	4075	100	22000	170	37400	126	170
7LZ178x7.0 L-5-914	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5	1183-2366	312-625	84-168	4	585	7176	5293	5.65	824	10137	7476	100	22000	170	37400	150	200
5LZ197x7.0 L-4-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	4	1113-2225	295-588	79-158	3.2	466	5022	3704	4.52	655	6700	4920	150	33000	200	44000	99	133
5LZ203x7.0 L-4-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	4	1113-2225	295-588	79-158	3.2	466	5022	3704	4.52	655	6700	4920	155	34100	250	55000	99	133
9LZ203x7.0 L-4-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	9:10	4	1267-2534	335-670	72-145	3.2	466	6260	4617	4.52	655	8315	6132	150	33000	200	44000	113	152
5LZ210x7.0 L-5-840	210	8 1/4	251-375	9 7/8-14 3/4	6 5/8REG	6 5/8REG	5:6	5	1228-2455	325-650	75-150	4	585	7481	5517	5.65	824	10567	7793	180	39600	300	66000	149	200
5LZ216x7.0 L-4-840	216	8 1/2	311-394	12 1/4-15 1/2	6 5/8REG	6 5/8REG	5:6	4	1228-2455	325-650	72-145	3.2	466	6105	4502	4.52	655	8108	5980	180	39600	300	66000	112	150
5LZ228x7.0 L-5-840	228	9	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	5	1228-2455	325-650	72-145	4	585	7631	5628	5.65	824	10607	7823	180	39600	300	66000	147	197
3LZ244x7.0 L-6-1026	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	3:4	6	1345-2690	355-710	75-150	4.8	700	10465	7718	6.78	988	14782	10902	220	48400	330	79200	179	240
5LZ244x7.0 L-4-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	5:6	4	1650-3300	450-880	64-129	3.2	466	9114	6722	4.52	655	12105	8927	220	48400	330	79200	147	197
3LZ286x7.0 L-4-1280	286	11 1/4	375-660	14 3/4-26	(6 5/8REG)7 5/8REG	(6 5/8REG)7 5/8REG	3:4	4	2850-5700	1000-1500	97-196	3.2	466	11840	8731	4.52	655	15724	11597	300	67500	550	123750	290	388

Spiral welded pipe

Standard: API 5L GB/T9711.1 ASTM A252

Spiral welded pipe

Outside diameter	Φ219—Φ508mm
Wall thickness	4—16mm
Standard	API 5L,GB/T9711.1,ASTM A252

Drill collar

Standard: API Spec 7

- Normal Drill collar
- Spiral drill collar
- Nonmagnetic drill collar

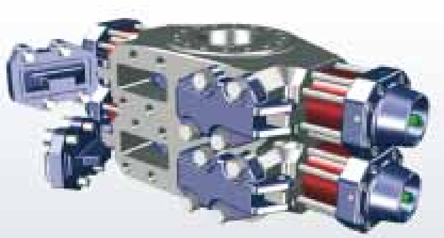
Drill collar

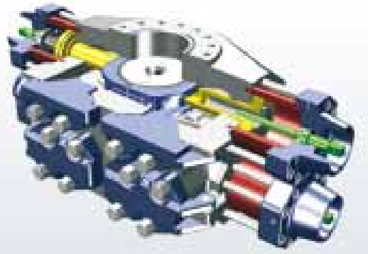
Thread Type	OD		ID		Length (mm)	Shoulder Bevel Diameter (mm)	Bending Strength Ratio
	mm	in	mm	in			
NC31-41(2-7/8F)	104.8	4-1/8	50.8	2	9150/9450	100.4	2.43:1
NC35-47	120.7	4-3/4	50.8	2	9150/9450	114.7	2.58:1
NC38-50(3-1/2IF)	127.0	5	57.2	2-1/4	9150/9450	121.0	2.38:1
NC44-60	152.4	6	57.2	2-1/4	9150/9450	144.5	2.49:1
NC44-60	152.4	6	71.4	2-13/16	9150/9450	144.5	2.84:1
NC44-62	158.8	6-1/4	57.2	2-1/4	9150/9450	149.2	2.91:1
NC46-62(4IF)	158.8	6-1/4	71.4	2-13/16	9150/9450	150.0	2.63:1
NC46-65(4IF)	165.1	6-1/2	57.2	2-1/4	9150/9450	154.8	2.76:1
NC46-65(4IF)	165.1	6-1/2	71.4	2-13/16	9150/9450	154.8	3.05:1
NC46-67(4IF)	171.4	6-3/4	57.2	2-1/4	9150/9450	159.5	3.18:1
NC50-70(4-1/2IF)	177.8	7	57.2	2-1/4	9150/9450	164.7	2.54:1
NC50-70(4-1/2IF)	177.8	7	71.4	2-13/16	9150/9450	164.7	2.73:1
NC50-72(4-1/2IF)	184.2	7-1/4	71.4	2-13/16	9150/9450	169.5	3.12:1
NC56-77	196.8	7-3/4	71.4	2-13/16	9150/9450	185.3	2.70:1
NC56-80	203.2	8	71.4	2-13/16	9150/9450	190.1	3.02:1
6-5/8REG	209.6	8-1/4	71.4	2-13/16	9150/9450	195.7	2.93:1
NC61-90	228.6	9	71.4	2-13/16	9150/9450	212.7	3.17:1
7-5/8REG	241.3	9-1/2	76.2	3	9150/9450	223.8	2.81:1
NC70-97	247.6	9-3/4	76.2	3	9150/9450	232.6	2.57:1
NC70-100	254.0	10	76.2	3	9150/9450	237.3	2.81:1

Remark: 1. NCXX---Numeric Type IF------Inner Flat Type REG---Regular Type
2. NC50-67(4-1/2 IF) only apply to C type drill collar

Oilfield equipments

Blowout Preventer (BOP)





Thread Protector

Accessories

Pressure Sleeve

Clamp

Crosshead Pin

Valve Box

Crankshaft Assembly

Single Stage Hanging Casing Head

Drill Bit

Eccentric Wheel

Safety Valve

R&D Capabilities

TTGM established enterprise level technical center with high level technical team, whose range of research covers steel grade, pipe body, process, thread, corrosion and other fields. The company owns self-developed TD series products such as corrosion-resistant pipes, premium connections, expandable pipes, high-collapse pipes, and thermal well pipes.

Laboratory

TTGM own advanced material mechanics, physical and chemical testing devices.

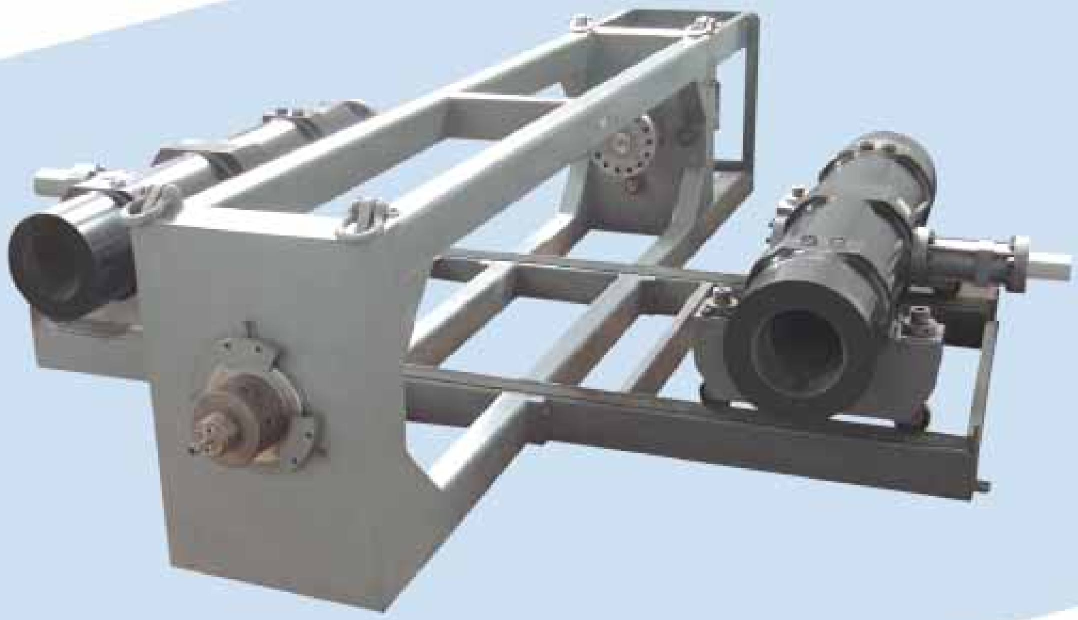
Constant Extension Rate Tester systems

Proof Rings Tester systems

GLEEBLE 3500 thermal simulation tester

H_2S corrosion laboratory

HIC Hydrogen brittleness corrosion testing system



Collapse tester

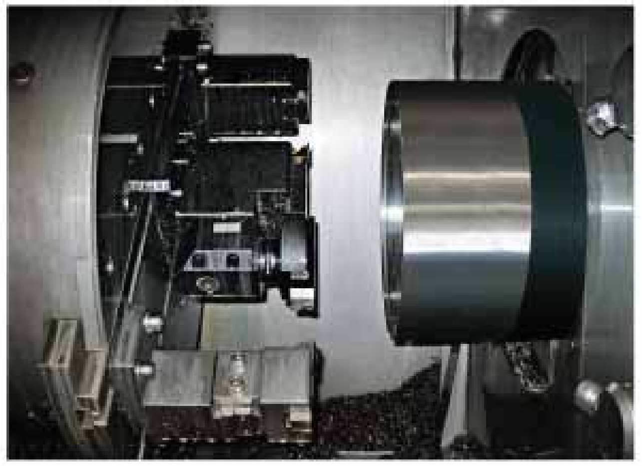
Precise Spark Direct Reading Spectrometer

Autoclave Systems

Expandable Pipe

TTGM owns intellectual property rights on Premium connections for expandable pipes

Sample



In processing

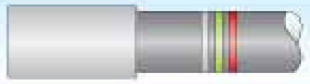
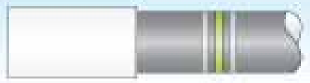
Finished Sample

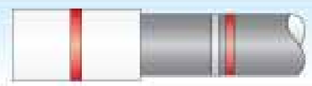
Inside Thread

Outside Thread

NON-API TD series

TD Casing and Tubing

High Collapse TD series casings	
TD95T	
TD110T	

TD series casings for thermal wells	
TD110H	
TD series for H_2S corrosion resistant casings	
TD110S	

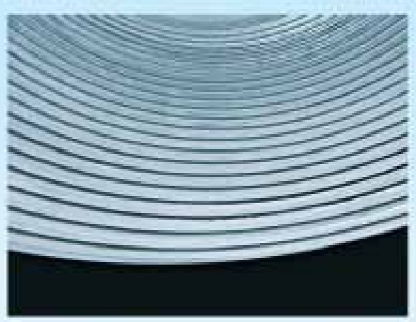
1. High collapse resistance casings: TD95T and TD110T
2. TD series casings for thermal wells: TD110H
3. Corrosion resistant casings and tubings: TD110S

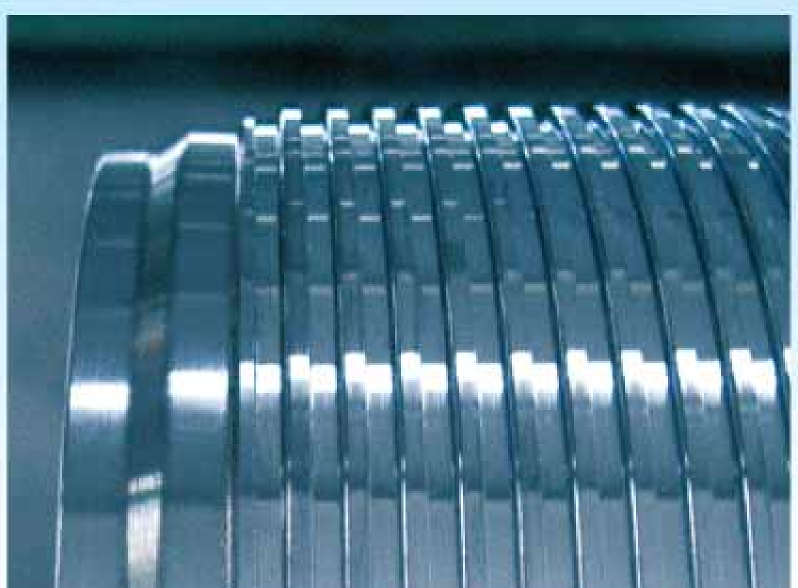
TD JIP series with premium connection

Profile of TD JIP Thread

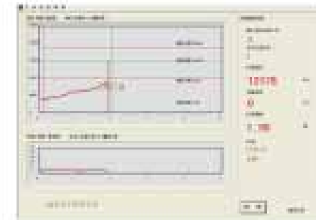
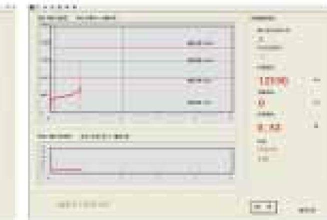
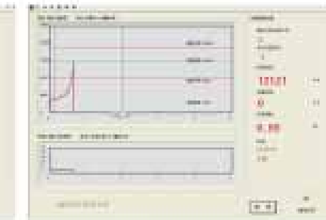
Thread form

- High thread connection strength with coupling designed which connection strength will exceed pipe's strength.
- Optimized joint stress distribution for stronger anti-stress cracking performance.
- Thread with multi-seal, joint gastight resistance can reach pipe body yield pressure.
- Thread Anti-galling technology



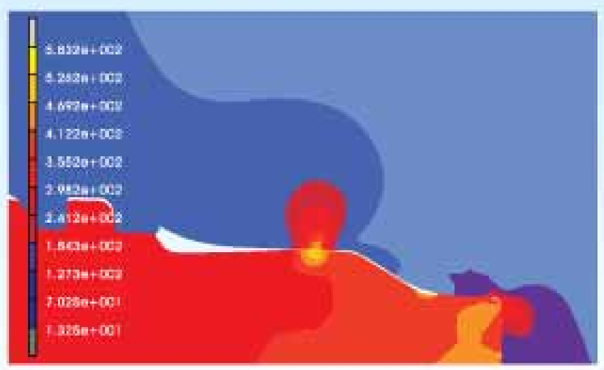


Features of TD JIP premium connection

			
Make up and break out for first time	Make up and break out for second time	Make up and break out for third time	Make up and break out for forth time

Make up Less wear and tear for thread

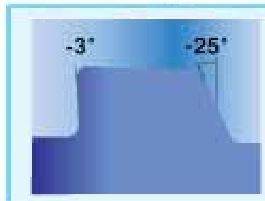
- 90° shoulders provide the stop and free from exceeding the torque limit, also enhance the seal ability of joints bearing combined load
- The interference of pitch diameter can reduce to ±0.100mm (the interference of BTC pitch diameter in API standard is 0.375mm-0.75mm)
- Phosphating treatment for thread surface with scientific recipe and phosphating process is used for improving anti-galling ability of thread.
- More reasonable and scientific stress distribution effectively reduce friction and wear of thread.



The press distributing on the shoulder and seal surface after making up (Spherical surface---biggest; conical surface---smallest)

The press distributing on the shoulder and seal surface after making up (Spherical surface---smallest; conical surface---biggest)

Connections High efficiency joints



Developed buttress thread
----hook buttress thread
Bearing surface -3°
Guard surface -25°

API standard BTC

Seal structure: mixed features of dual shoulders, spherical seal and bevel seal

Multi seal structure-------metallic seal structure of dual seal and dual shoulders
Primary seal: spherical surface to conical surface
Secondary seal: conical surface to conical surface
Primary shoulders: 90°　　Secondary shoulders: 60°

Domestic sales network

Products from TTGM have been sold widely in Most of large oilfields in China such as DaQing, ChangQing, Shengli, Liaohe and Xinjiang. So far, TTGM has achieved "Three Promises"

"One service center for each area"

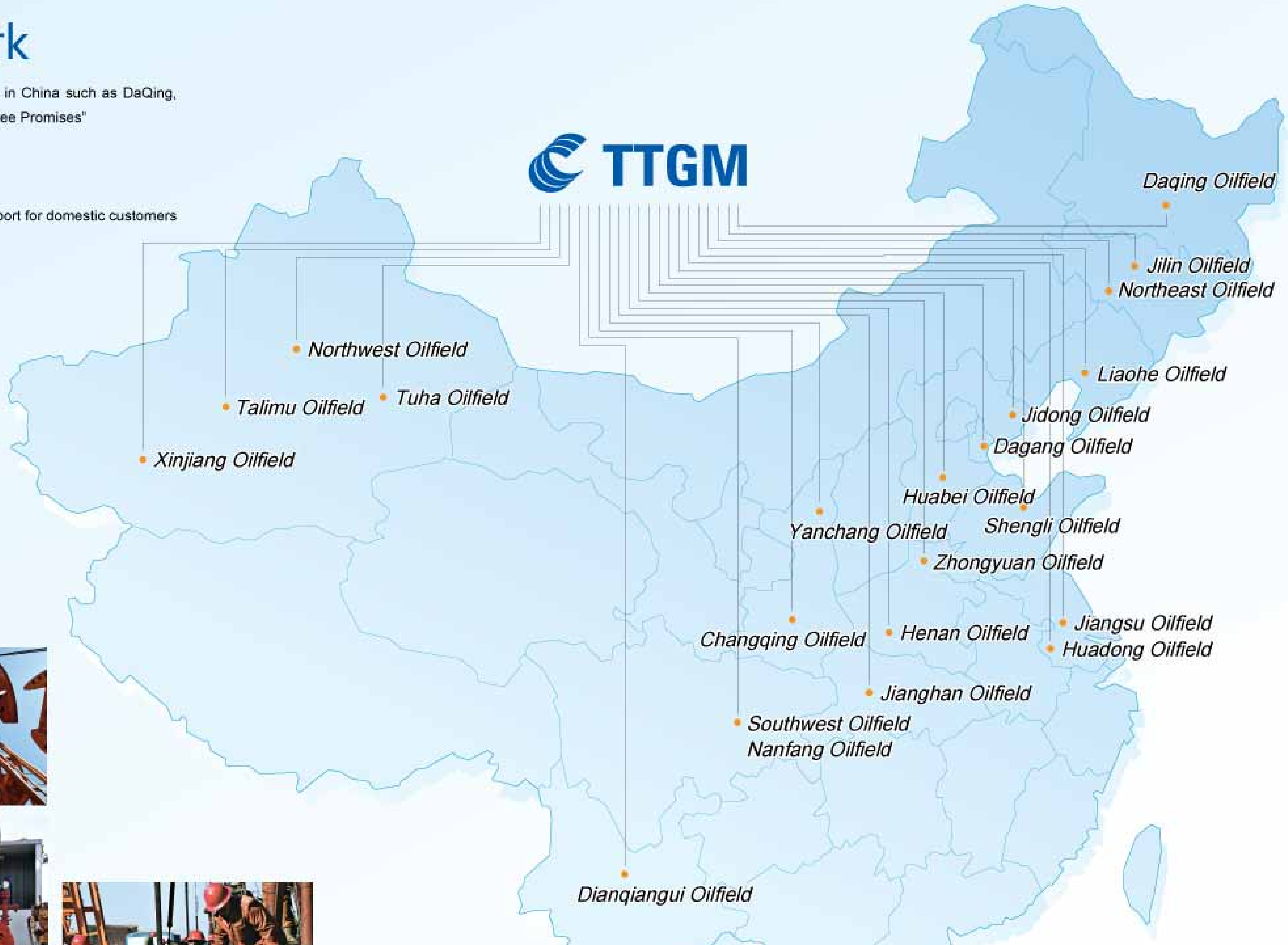
"One professional technician for one client"

"Reply to every client's question within 24 hours"

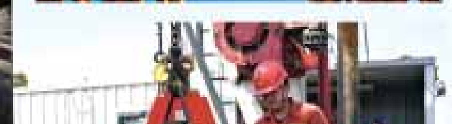
TTGM set up sales office in Beijing, which provides strong backup support for domestic customers and overseas customers.

Main Clients

PETROCHINA	SINOPEC	YANCHANG FIELD	CNOOC








International sales network

TTGM has established solid international sales network, based on high quality products, dedicated service, and professional sales team. Also has built a high-quality global purchasing platform for worldwide oil and drilling companies. TTGM has won great reputation among the clients and achieved global development of the company. TTGM has been sold its product to more than 30 countries and regions including Canada, USA, Russia, India, Middle-East, Africa and South America.

TTGM has two branches in USA and in Dubai, UAE.

Main Clients

SHELL	TOTAL	NIOC
CHEVRON	CPC	PETRO-CANADA