BAOSTEEL | 创享改变生活

Baosteel Tube
Products Catalog

钢管产品
产品手册

www.baosteel.com

宝山钢铁股份有限公司
BAOSHAN IRON & STEEL CO., LTD.

目录 Content

Introduction
简介

宝山钢铁股份有限公司（简称“宝钢股份”）是全球领先的现代化钢铁联合企业，是《财富》世界 500 强中国宝武钢铁集团有限公司的核心企业。宝钢股份以“创享改变生活”为使命，致力于为客户提供优异的产品和服务，为股东和社会创造最大价值，实现与相关利益主体的共同发展。

公司钢管产业拥有 50 年的钢管制造经验，包括中小口径热轧无缝管、特种合金无缝钢管、冷轧和冷拔无缝钢管、中大口径高频电阻焊管、大口径直缝埋弧焊管等产品，集科研、产品开发、加工检验、产品销售于一体，实行从炼铁、炼钢（转炉、电炉）、热轧钢卷、厚板、条钢到制管及管加工的一贯制质量管理，具有特大型钢铁联合企业综合生产的规模化优势，目前已成为中国包括无缝、焊管的大型精品钢管研发生产基地。

公司以其先进技术、设备、管理、良好的信誉，保证提供高质量的产品和服务，令客户满意。

公司全体员工衷心感谢您对我们产品的关注和使用，竭诚欢迎您对公司产品和服务提出宝贵意见。

如果您所需产品的品种、规格或者特殊要求在本手册中未覆盖，请与我们联系，我们将予以即时答复。

Baoshan Iron & Steel Co., Ltd. (hereinafter referred to as Baosteel Co., Ltd.) is a modernized globally leading integrated iron and steel company and the core enterprise of China Baowu Steel Group Corporation Limited, which ranks among Global 500 in Fortune. Dedicated to its mission to change people's life through creativity, Baosteel Co., Ltd. is devoted to providing high-quality products and service for customers and creating best value for shareholder and the society for the joint development with stakeholders.

The company's tube sector has 50 years-long experience in steel tube production. Its products include medium and small diameter hot-rolled seamless tube, specially alloyed seamless tube, cold-rolled and cold drawing seamless tube, medium and large diameter high frequency ERW pipe, large diameter SAWL pipe, etc. It integrates R&D, product development, processing and inspection, products sales, etc., implements the throughout-process quality control from iron-making, steel-making (BOF, EAF), hot-rolled coil, heavy plate, bar steel to tube making and processing, is superior in scale with regard to the comprehensive production of the giant steel complex and has become a large-sized premium tube R&D and manufacture base for both seamless tube and welded pipes.

With its leading technologies, equipment, management and favorable reputation, customers are ensured to enjoy the quality products and satisfactory service.

We thank you very much for your attention and use of our products and warmly welcome your comments and suggestions.

We should be glad to give you a prompt response, if you contact us for any things about grade, specification or special requirement beyond this catalog.

工厂

宝钢钢管组织机构图：

Organization chart of Baosteel steel tube:

- 钢管条钢事业部 Tube, Pipe and Bar Business Unit
  - 综合管理部 Integrated Management Department
  - 人力资源部 Human Resource Department
  - 经营财务部 Operation Finance Department
  - 监察部 Supervision Department
  - 营销部 Marketing Department
  - 制造管理部 Products &Technique Management Department
  - 设备能环部 Equipment、Energy & Environment Department
  - 质量检验站 Quality Inspection Station
  - 安全保卫部 Safety & Guardian Department
  - 钢坯和线材 Steel Slabs & Wire Rods
    - 电炉厂 EAF Steelmaking Plant
    - 初轧厂 Blooming Mill Plant
    - 线材厂 High-speed wire Plant
    - 南通宝钢钢铁有限公司 Baosteel Nantong Iron&Steel Co., Ltd.
  - 无缝钢管 Seamless Pipe
    - 无缝钢管厂 Φ140 Seamless Tube Plant
    - 管加工中心(量器具中心) Tube Threading Center (Measuring Tools Center)
    - 烟台鲁宝钢管有限公司 Yantai Lubao Steel Pipe Co., Ltd.
    - 烟台宝钢钢管有限公司 Yantai Baosteel Steel Pipe Co., Ltd.
    - 精密钢管厂 Precise Steel Tube Plant
    - 宝钢克拉玛依钢管有限公司 Baosteel Karamay Steel Pipe Co., Ltd.
    - 宝力钢管(泰国)有限公司 BOLY Pipe Co., Ltd.
  - 焊接钢管 Welded Pipe
    - 焊管部 Welded Pipe Department (HFW、UOE)

Facilities & Sites
工厂及分布

国内 Domestic

上海 Shanghai

- 电炉厂
  EAF Steelmaking Plant
- 初轧厂
  Blooming Mill Plant
- 线材厂
  High-speed Wire Plant
- 无缝钢管厂
  Φ140 Seamless Tube Plant
- 焊管部
  Welded Pipe Department (HFW、UOE)
- 精密钢管厂
  Precise Steel Tube Plant

山东 Shandong

- 烟台鲁宝钢管有限公司
  Yantai Lubao Steel Tubes Co.,Ltd.
- 烟台宝钢钢管有限公司
  Yantai Baosteel Steel Tubes Co.,Ltd.

南通 Nantong

- 南通宝钢钢铁有限公司
  Baosteel Nantong Iron & Steel Co.,Ltd.

新疆 Xinjiang

- 宝钢克拉玛依钢管有限公司
  Baosteel Karamay Steel Pipe Co., Ltd.

海外 Overseas

泰国 Thailand

- 宝力钢管(泰国)有限公司
  BOLY Pipe Co., Ltd.

Facilities & Sites
工厂及分布

宝钢钢管生产机组及规格范围：
Baosteel tube production lines and size range

OD scale, 成品外径 英寸／毫米 (OD of finished product (inch/mm)): 1 (25.4), 2 (50.8), 3 (70.6), 4 (101.6), 5 (127), 6 (152.4), 7 (177.8), 8 (203.2), 10 (254), 15 (381), 20 (508), 25 (635), 30 (762), 40 (1016), 50 (1270), 60 (1524)

	机组 Line	坐落位置 Location	成品外径 英寸／毫米 OD of finished product (inch/mm), from	to
无缝钢管 Seamless pipe	**ø140**全浮动连轧管 **ø140** full-floating mandrel	无缝钢管厂（上海） Φ140 Seamless Tube Plant (Shanghai)	1.315 (33.4)	7 (177.8)
	高精度轧扩管 Accu-Roll & Expander	烟台鲁宝钢管有限公司（烟台） Yantai Lubao Steel Tubes Co.,Ltd. (Yantai)	6 1/4 (158.8)	12 7/8 (327)
	ø460 PQF	烟台宝钢钢管有限公司（烟台） Yantai Baosteel Steel Tubes Co.,Ltd. (Yantai)	7 (177.8)	18 (457.2)
	ø114 Accu-Roll **ø76** 曼式穿孔轧机 **ø114 Accu-Roll** **ø76** Mannesmann piercer	精密钢管厂 Precise Steel Tube Plant	0.63 (16)	3.5 (89)
焊管 Welded pipe	**ø610 HFW**	HFW 焊管厂（上海） HFW Plant (Shanghai)	8 5/8 (219.08)	24 (609.6)
	ø1422 UOE	UOE 焊管厂（上海） UOE Plant (Shanghai)	20 (508)	56 (1422)

Quality Assurance
质量保证

公司获得了英国 bsi 公司颁发的 IMS 综合 (质量、安全、环保) 管理体系证书、国家质量监督检验检疫总局颁发的完善计量检测体系证书。

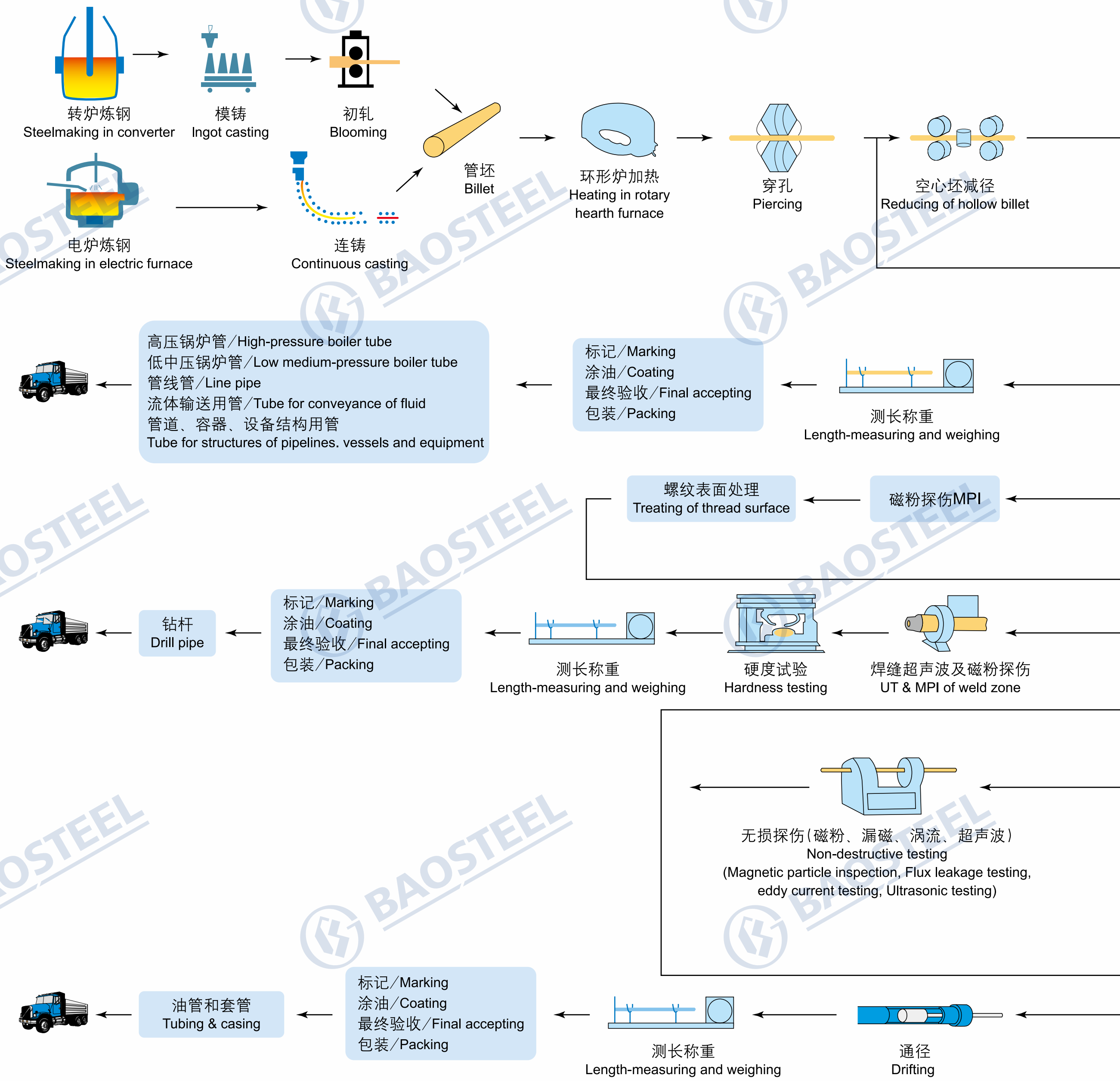
公司钢管产品获得的认可证书主要有 :

- 油管、套管、钻杆和管线管等油田用管材获得美国石油协会 API 颁发的 5CT、5DP、5L 会标使用许可证 ;
- 船用管获得英国 LR、法国 BV、德国 GL、挪威 DNV、韩国 KR 和中国 CCS 等六国船级社的工厂认可和材料认可证书 ;
- 锅炉管和结构管获得德国 TÜV 公司颁发的 TÜV 认证证书和 PED 认证证书 ;
- 结构管获得德国 TÜV 公司颁发的 Ü-Mark 证书。

Baosteel has been granted the IMS certificate for quality, safety, environment by British Standard Institution (bsi), the certificate of ISO14001 Environmental Management System by China Certification Center, Inc., and the certificate for perfecting the measuring and detecting System by the State General Administration of Quality Supervision and Inspection.

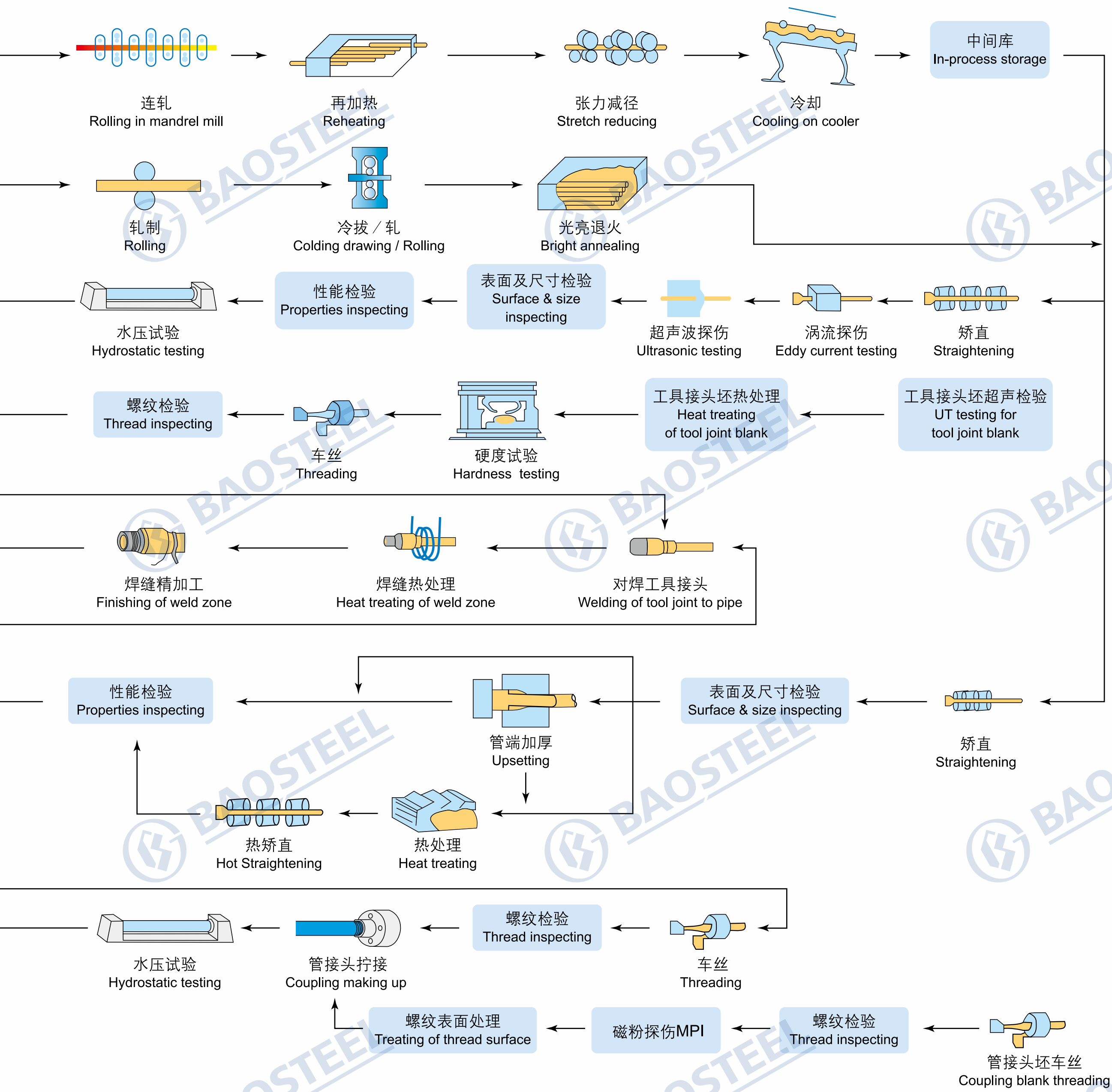
And its steel tube and pipe products have got the following certificates:

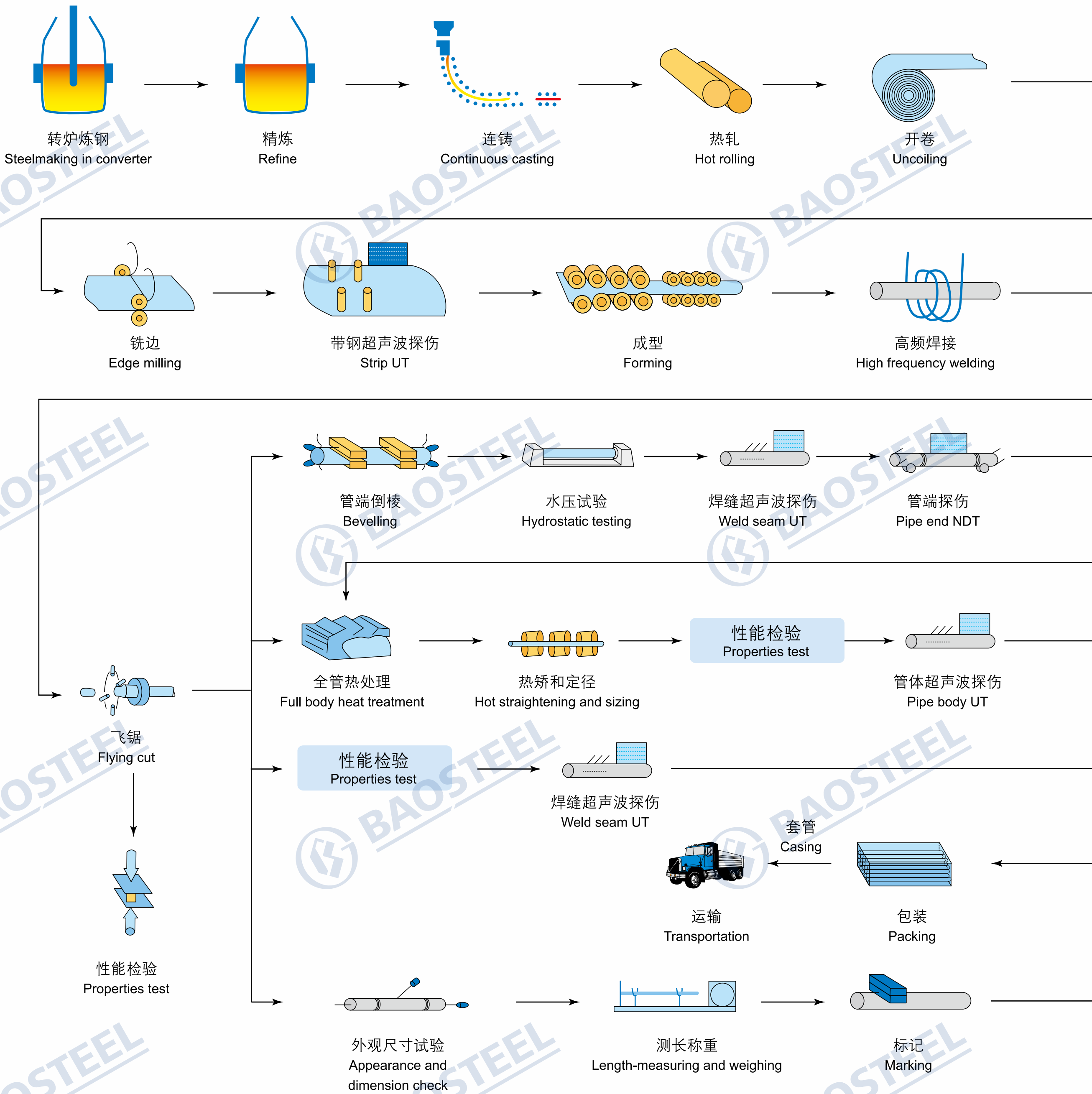
- Certificates of Authority to Use Official Monogram on its tubing, casing, drill pipe (with tool joint) and line pipe complying with API Specification 5CT, 5DP and 5L issued by American Petroleum Institute;
- Certificates of works and material approval given to tubes & pipes for ships by Lloyd's Register of Shipping (LR), Bureau Veritas France (BV), Germanischer Lloyd(GL), DET NORSKE VERITAS(DNV), KOREAN REGISTER OF SHIPPING(KR), and China Classification Society (CCS);
- A certificate according to AD-MERKBLATT W0/TRD100 and a certificate of Quality Assurance System in accordance with the Pressure Equipment Directive 97/23/EC (PED) issued to boiler tube and tube for structural purpose by TÜV SÜDDEUTSCHLAND;
- A Testing Certificate about Initial Type Testing of Construction Products (ÜHP) issued by TÜV.



转炉炼钢
Steelmaking in converter
模铸
Ingot casting
初轧
Blooming
电炉炼钢
Steelmaking in electric furnace
连铸
Continuous casting
管坯
Billet
环形炉加热
Heating in rotary hearth furnace
穿孔
Piercing
空心坯减径
Reducing of hollow billet
高压锅炉管／High-pressure boiler tube
低中压锅炉管／Low medium-pressure boiler tube
管线管／Line pipe
流体输送用管／Tube for conveyance of fluid
管道、容器、设备结构用管
Tube for structures of pipelines. vessels and equipment
标记／Marking
涂油／Coating
最终验收／Final accepting
包装／Packing
测长称重
Length-measuring and weighing
螺纹表面处理
Treating of thread surface
磁粉探伤MPI
钻杆
Drill pipe
标记／Marking
涂油／Coating
最终验收／Final accepting
包装／Packing
测长称重
Length-measuring and weighing
硬度试验
Hardness testing
焊缝超声波及磁粉探伤
UT & MPI of weld zone
无损探伤（磁粉、漏磁、涡流、超声波）
Non-destructive testing
(Magnetic particle inspection, Flux leakage testing, eddy current testing, Ultrasonic testing)
油管和套管
Tubing & casing
标记／Marking
涂油／Coating
最终验收／Final accepting
包装／Packing
测长称重
Length-measuring and weighing
通径
Drifting

Process Flow Chart/SMLS
工艺流程／无缝钢管

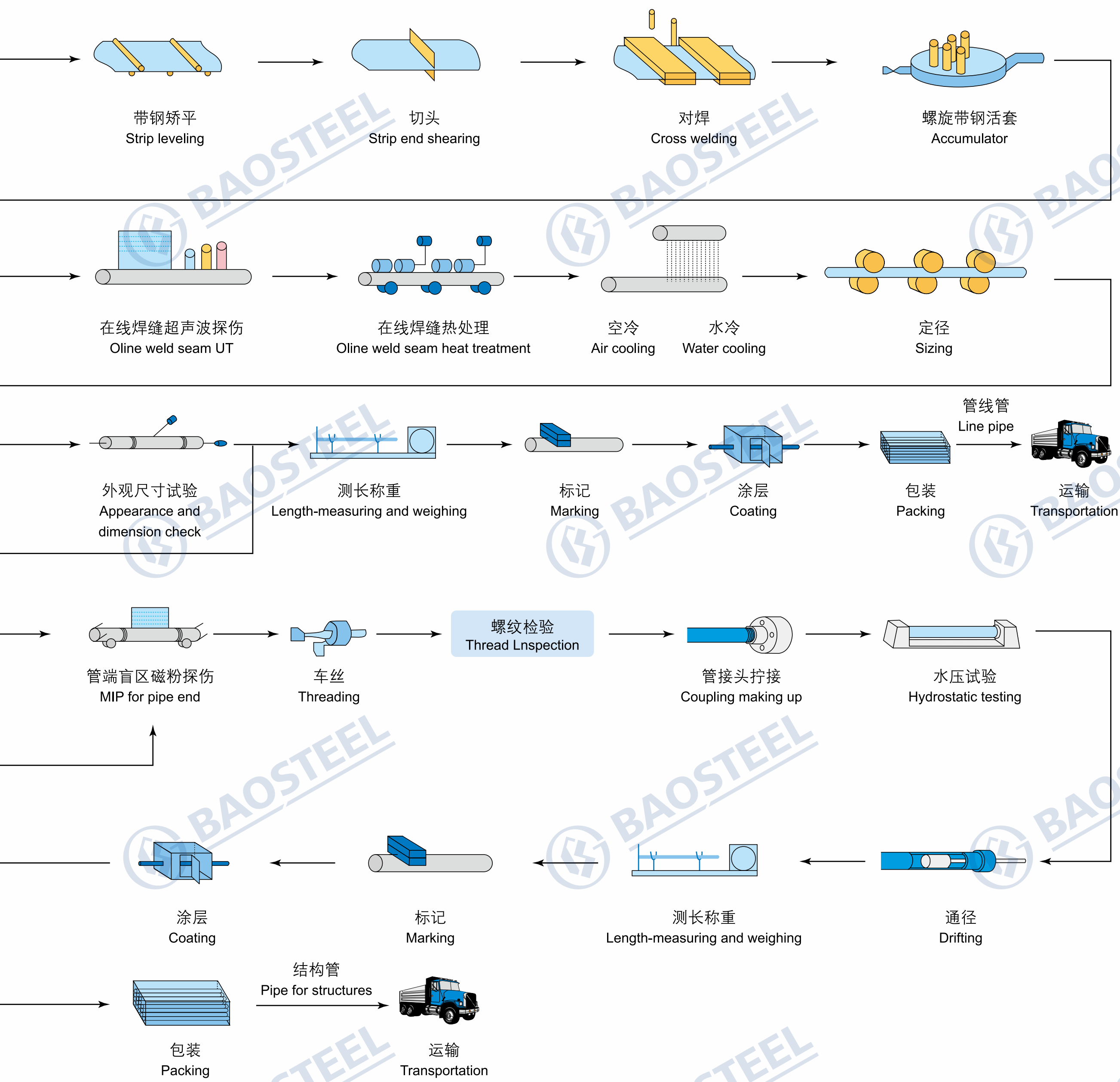


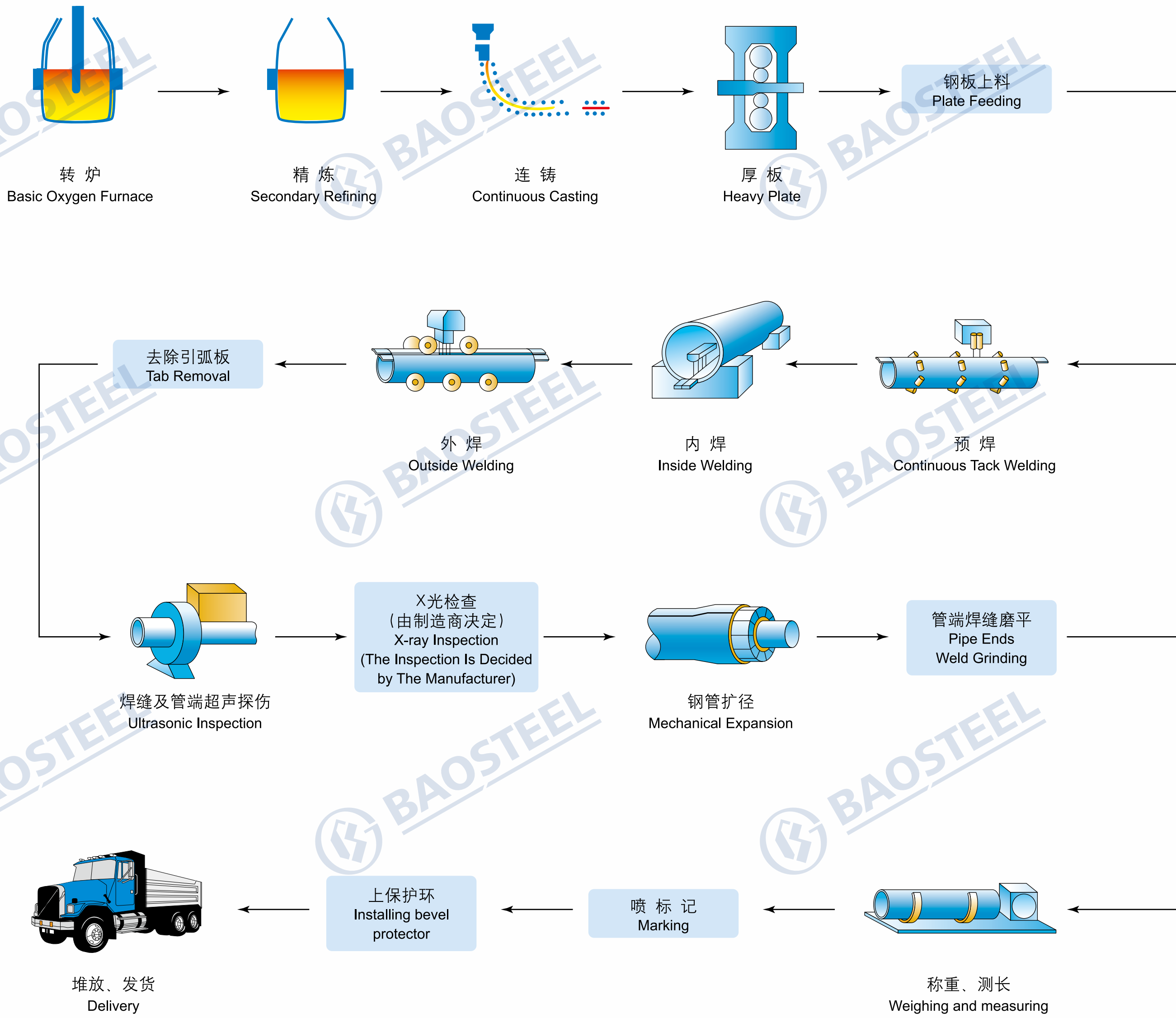


转炉炼钢
Steelmaking in converter
精炼
Refine
连铸
Continuous casting
热轧
Hot rolling
开卷
Uncoiling
铣边
Edge milling
带钢超声波探伤
Strip UT
成型
Forming
高频焊接
High frequency welding
管端倒棱
Bevelling
水压试验
Hydrostatic testing
焊缝超声波探伤
Weld seam UT
管端探伤
Pipe end NDT
全管热处理
Full body heat treatment
热矫和定径
Hot straightening and sizing
性能检验
Properties test
管体超声波探伤
Pipe body UT
飞锯
Flying cut
性能检验
Properties test
焊缝超声波探伤
Weld seam UT
套管
Casing
运输
Transportation
包装
Packing
性能检验
Properties test
外观尺寸试验
Appearance and dimension check
测长称重
Length-measuring and weighing
标记
Marking

Process Flow Chart/HFW

工艺流程 / HFW焊管

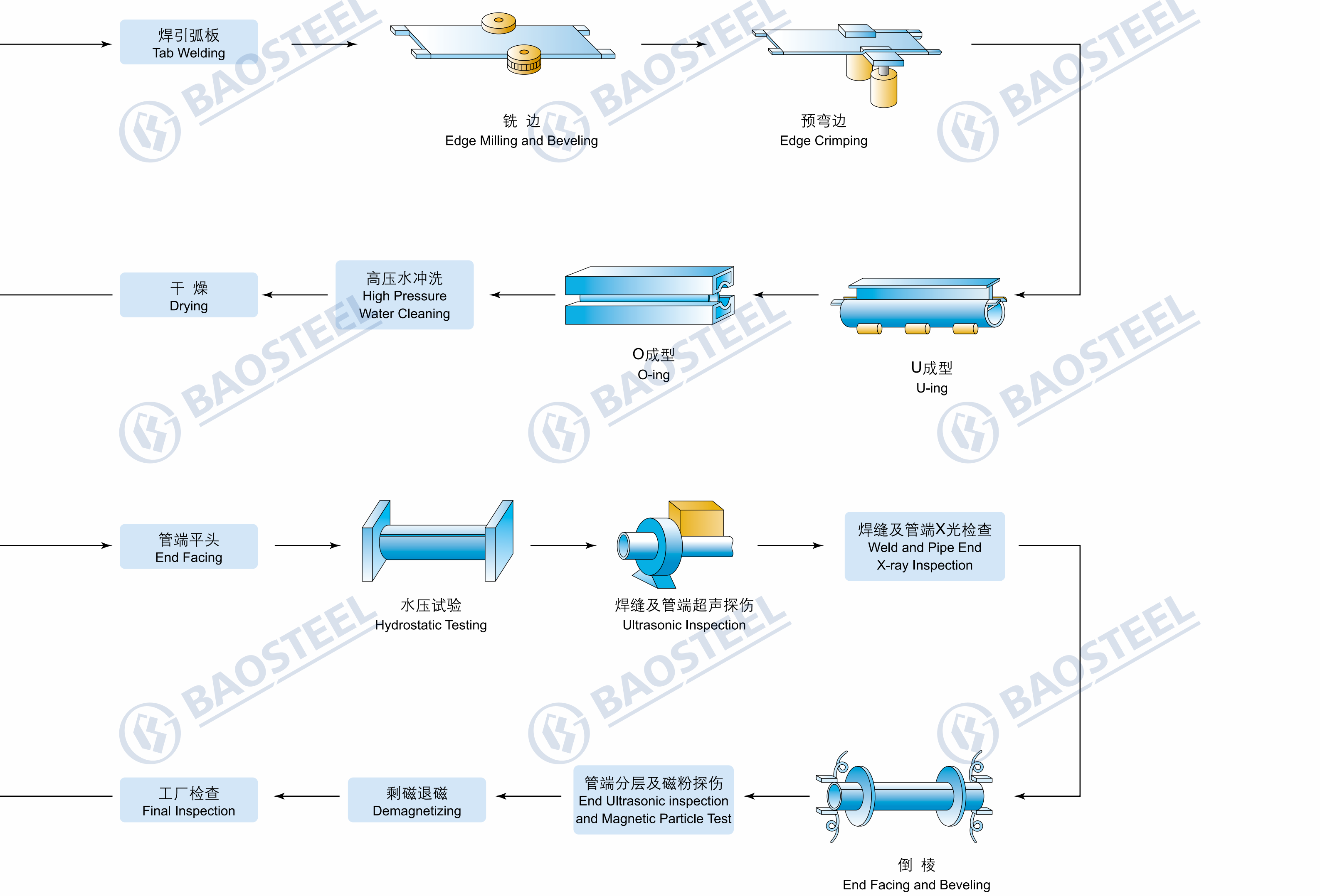




转 炉
Basic Oxygen Furnace
精 炼
Secondary Refining
连 铸
Continuous Casting
厚 板
Heavy Plate
钢板上料
Plate Feeding
预 焊
Continuous Tack Welding
内 焊
Inside Welding
外 焊
Outside Welding
去除引弧板
Tab Removal
焊缝及管端超声探伤
Ultrasonic Inspection
X光检查
（由制造商决定）
X-ray Inspection
(The Inspection Is Decided
by The Manufacturer)
钢管扩径
Mechanical Expansion
管端焊缝磨平
Pipe Ends
Weld Grinding
称重、测长
Weighing and measuring
喷 标 记
Marking
上保护环
Installing bevel
protector
堆放、发货
Delivery

Process Flow Chart/UOE

工艺流程 / UOE焊管



适用标准及供货技术条件 Standards and technical conditions for supply

API SPEC 5CT
宝钢股份相关供货技术条件 Relevant technical specifications of Baosteel Co., Ltd.

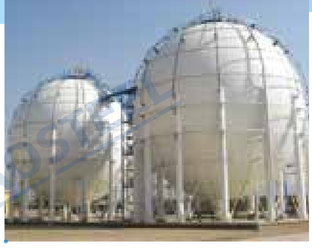
用途 Uses:

油管用于油井中抽取石油或天然气。
套管用作油气井的井壁。
Tubing is used for extracting oil or gas from wells, while casing for sidewall.

规格 Dimension:

油管规格 Dimension of Tubing:

代号 Label				外径 Outside diameter D mm	单位长度名义重量a,b Nominal linear mass			壁厚 Wall thickness t mm	
1	2				不加厚带螺纹和接箍 Non-upset T&C kg/m	外加厚带螺纹和接箍 Ex-upset T&C kg/m	整体接头 Integral joint kg/m		J55
	不加厚带螺纹和接箍 Non-upset T&C	外加厚带螺纹和接箍 Ex-upset T&C	整体接头 Integral joint						
2-3/8	4.00	-	-	60.32	5.95	-	-	4.24	PN
	4.60	4.70	-	60.32	6.85	6.99	-	4.83	PNUTS
	5.80	5.95	-	60.32	8.63	8.85	-	6.45	T
	6.60	-	-	60.32	9.82	-	-	7.49	-
	7.35	7.45	-	60.32	10.94	11.09	-	8.53	-
2-7/8	6.40	6.50	-	73.02	9.52	9.67	-	5.51	PNUTS
	7.80	7.90	-	73.02	11.61	11.76	-	7.01	T
	8.60	8.70	-	73.02	12.80	12.95	-	7.82	T
	9.35	9.45	-	73.02	13.91	14.06	-	8.64	T
	10.50	-	-	73.02	15.63	-	-	9.96	-
	11.50	-	-	73.02	17.11	-	-	11.18	-
3-1/2	7.70	-	-	88.90	11.46	-	-	5.49	PNS
	9.20	9.30	-	88.90	13.69	13.84	-	6.45	PNUTS
	10.20	-	-	88.90	15.18	-	-	7.34	PNTS
	12.70	12.95	-	88.90	18.90	19.27	-	9.52	T
	14.30	-	-	88.90	21.28	-	-	10.92	T
	15.50	-	-	88.90	23.07	-	-	12.09	T
	17.00	-	-	88.90	25.30	-	-	13.46	-



端部加工形式／Type of end finish											
钢级／Grade											
L80-1 R95	L80-9Cr	L80-13Cr	BG80S(SS)、BG80(S)-3Cr	N80 1、Q类	C90	BG90S(SS)、BG90(S)-3Cr	T95	BG95S(SS)、BG95(S)-3Cr	BG95-13Cr	P110	BG110S(SS)、BG110-3Cr
PN	PN	PN	PN	PN	PN	PN	PN	PN		-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS		PNUTS	PNUTS
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
P	P	P	P	-	P	P	P	P	P	-	-
PU	PU	PU	PU	-	PU	PU	PU	PU	PU	-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
PUT	PUT	PUT	PUT	T	PUT	PUT	PUT	PUT	PUT	T	T
P	P	P	P	-	P	P	P	P	P	-	-
P	P	P	P	-	P	P	P	P	P	-	-
PNS	PNS	PNS	PNS	PNS	PNS	PNS	PNS	PNS	PNS	-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
PNTS	PNTS	PNTS	PNTS	PNTS	PNTS	PNTS	PNTS	PNTS	PNTS	T	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS
PT	PT	PT	PT	T	PT	PT	PT	PT	PT	T	T
PT	PT	PT	PT	T	PT	PT	PT	PT	PT	T	T
P	P	P	P	-	P	P	P	P	P	-	-

规格 Dimension:

油管规格 Dimension of Tubing:

代号 Label				外径 Outside diameter D mm	单位长度名义重量a,b Nominal linear mass			壁厚 Wall thickness t mm	
1	2								
	不加厚带螺纹和接箍 Non-upset T&C	外加厚带螺纹和接箍 Ex-upset T&C	整体接头 Integral joint		不加厚带螺纹和接箍 Non-upset T&C kg/m	外加厚带螺纹和接箍 Ex-upset T&C kg/m	整体接头 Integral joint kg/m		J55
4	9.50	-	-	101.60	14.14	-	-	5.74	PNT
	10.70	11.00	-	101.60	-	16.37	-	6.65	PUT
	13.20	-	-	101.60	19.64	-	-	8.38	T
	14.80	-	-	101.60	22.04	-	-	9.65	-
	16.10	-	-	101.60	23.96	-	-	10.54	-
	18.90	-	-	101.60	28.13	-	-	12.70	-
	22.20	-	-	101.60	33.04	-	-	15.49	-
4-1/2	10.50	-	-	114.30	15.64	-	-	5.69	PNUTS
	11.60	-	-	114.30	17.28	-	-	6.36	PNUTS
	12.60	12.75	-	114.30	18.75	18.97	-	6.88	PNUTS
	13.50	-	-	114.30	20.11	-	-	7.37	T
	15.20	-	-	114.30	22.62	-	-	8.56	T
	17.00	-	-	114.30	25.30	-	-	9.65	T
	18.90	-	-	114.30	28.13	-	-	10.92	T
	21.50	-	-	114.30	32.00	-	-	12.70	-
	23.70	-	-	114.30	35.27	-	-	14.22	-
	26.10	-	-	114.30	38.84	-	-	16.00	-

注： P - 平端；N - 不加厚带螺纹和接箍；U - 外加厚带螺纹和接箍；T - 宝钢特殊螺纹油管；S - SUPERMAX油管。
所示带螺纹和接箍的单位长度名义重量（第2~4栏）仅供参考。马氏体铬钢（L80 9Cr和13Cr）的密度不同于碳钢。因此，表中给出的重量对马氏体铬钢来说不是精确值。可采用重量校正系数0.989。不加厚油管供货时带标准接箍或特殊倒角接箍。外加厚油管供货时带标准接箍、特殊倒角接箍或特殊间隙接箍。

Note: P - plain end; N - non-upset T&C; U - Ex-upset T&C; T - oil tubing with Baosteel premium connection; S - SUPERMAX premium connection tubing
The unit length nominal linear masses, threads and coupling (col. 2~4) are shown for reference only. The densities of martensite chromium steels (L80 types 9Cr and 13Cr) are different from carbon steels. Therefore, the masses values shown above are not accurate to martensite chromium steels. A mass correction factor of 0.989 may be used. Non-upset tubing is available with regular couplings or special bevel couplings. External-upset tubing is available with regular, special-bevel, or special clearance couplings.

端部加工形式 / Type of end finish											
钢级 / Grade											
L80-1 R95	L80-9Cr	L80-13Cr	BG80S(SS)、 BG80(S)-3Cr	N80 1、 Q类	C90	BG90S(SS)、 BG90(S)-3Cr	T95	BG95S(SS)、 BG95(S)-3Cr	BG95-13Cr	P110	BG110S(SS)、 BG110-3Cr
PNT	PNT	PNT	PNT	PNT	PNT	PNT	PNT	PNT	PNT	T	T
PUT	PUT	PUT	PUT	PUT	PUT	PUT	PUT	PUT	PUT	T	T
PT	PT	PT	PT	T	PT	PT	PT	PT	PT	T	T
PS	PS	PS	PS	-	PS	PS	PS	PS	PS	-	-
P	P	P	P	-	P	P	P	P	P	-	-
P	P	P	P	-	P	P	P	P	P	-	-
P	P	P	P	-	P	P	P	P	P	-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	-	-
PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	PNUTS	T	T
PTS	PTS	PTS	PTS	T	PTS	PTS	PTS	PTS	PTS	T	T
PTS	PTS	PTS	PTS	T	PTS	PTS	PTS	PTS	PTS	T	T
PT	PT	PT	PT	T	PT	PT	PT	PT	PT	T	T
PT	PT	PT	PT	T	PT	PT	PT	PT	PT	T	T
P	P	P	P	-	P	P	P	P	P	-	-
P	P	P	P	-	P	P	P	P	P	-	-
P	P	P	P	-	P	P	P	P	P	-	-

套管规格 Dimension of Casing:

代号a Label		外径 Outside diameter		单位重量（带螺纹和接箍）Nominal linear mass[b,c] T&C kg/m	壁厚 Wall thickness										
1	2	in	mm		in	mm	J55 K55	M65	L80-1 R95	L80-9Cr	L80-13Cr	N80 1、Q类	BG80T(TT)	BG80S(SS)、BG80(S)-3Cr	C90 T95
4	12.4	4.000	101.6		0.307	7.80	X	X	X	X	X	X	X	X	X
4-1/8							X	X	X	X	X	X	X	X	X
	9.50	4.500	114.30	14.14	0.205	5.21	PS	PS	-	-	-	-	-	-	-
	10.50	4.500	114.30	15.63	0.224	5.69	PSB	PSB	-	-	-	-	-	-	-
4-1/2	11.60	4.500	114.30	17.26	0.250	6.35	PSLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB
	13.50	4.500	114.30	20.09	0.290	7.37	-	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB
	15.10	4.500	114.30	22.47	0.337	8.56	-	-	-	-	-	-	-	-	-
	11.50	5.000	127.00	17.11	0.220	5.59	PS	PS	-	-	-	-	-	-	-
	13.00	5.000	127.00	19.35	0.253	6.43	PSLB	PSLB	-	-	-	-	-	-	-
	15.00	5.000	127.00	22.32	0.296	7.52	PSLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
5	18.00	5.000	127.00	26.79	0.362	9.19	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	21.40	5.000	127.00	31.85	0.437	11.10	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	23.20	5.000	127.00	34.53	0.478	12.14	-	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	24.10	5.000	127.00	35.86	0.500	12.70	-	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	14.00	5.500	139.70	20.83	0.244	6.20	PS	PS	-	-	-	-	-	-	-
	15.50	5.500	139.70	23.07	0.275	6.98	PSLBC	PSLBC	-	-	-	-	-	-	-
	17.00	5.500	139.70	25.30	0.304	7.72	PSLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	20.00	5.500	139.70	29.76	0.361	9.17	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
	23.00	5.500	139.70	34.23	0.415	10.54	-	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC
5-1/2	26.80	5.500	139.70	39.88	0.500	12.70	-	-	-	-	-	-	-	-	P
	29.70	5.500	139.70	44.20	0.562	14.27	-	-	-	-	-	-	-	-	P
	32.60	5.500	139.70	48.51	0.625	15.88	-	-	-	-	-	-	-	-	P
	35.30	5.500	139.70	52.53	0.687	17.45	-	-	-	-	-	-	-	-	P
	38.00	5.500	139.70	56.55	0.750	19.05	-	-	-	-	-	-	-	-	P
	40.50	5.500	139.70	60.27	0.812	20.62	-	-	-	-	-	-	-	-	P
	43.10	5.500	139.70	64.14	0.875	22.22	-	-	-	-	-	-	-	-	P

	钢级 Grade												
	BG90S(SS)、BG90(S)-3Cr	BG90T(TT)、BG90TS	BG95S(SS)、BG95(S)-3Cr	BG95T(TT)、BG95T	P110	BG110T(S)	BG110S(SS)、BG110-3Cr	Q125	BG125T(TT)	BG140V	BG140T(TT)	BG150V	C110
	X		X	X	X	X	X	X	X	X	X	X	-
	X		X	X	X	X	X	X	X	X	X	X	-
	-		-	-	-	-	-	-	-	-	-	-	-
	-		-	-	-	-	-	-	-	-	-	-	P
	PLB		PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	P
	PLB		PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	-
	-		-	-	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	
	-		-	-	-	-	-	-	-	-	-	-	-
	-		-	-	-	-	-	-	-	-	-	-	-
	PLBC		PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	PC
	PLBC		PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PC
	PLBC		PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PC
	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PC
	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PC
	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-
	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	PC
	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	PC
	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PC
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P
	P	P	P	P	-	-	-	-	-	-	-	-	P

套管规格 Dimension of Casing:

代号a Label		外径 Outside diameter		单位重量（带螺纹和接箍）Nominal linear mass[b,c]	壁厚 Wall thickness										
1	2	in	mm	T&C kg/m	in	mm	J55 K55	M65	L80-1 R95	L80-9Cr	L80-13Cr	N80 1、Q类	BG80T(TT)	BG80S(SS)、BG80(S)-3Cr	C90 T95
6-5/8	20.00	6.625	168.28	29.76	0.288	7.32	PSLB	PSLB	-	-	-	-	-	-	-
	24.00	6.625	168.28	35.72	0.352	8.94	PSLBC	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	28.00	6.625	168.28	41.67	0.417	10.59	-	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	32.00	6.625	168.28	47.62	0.475	12.06	-	-	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
7	20.00	7.000	177.80	30.06	0.272	6.91	PS	PS	-	-	-	-	-	-	-
	23.00	7.000	177.80	34.67	0.317	8.05	PSLBC	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	26.00	7.000	177.80	39.14	0.362	9.19	PSLBC	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	29.00	7.000	177.80	43.60	0.408	10.36	-	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	32.00	7.000	177.80	47.92	0.453	11.51	-	PLBC	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	35.00	7.000	177.80	52.23	0.498	12.65	-	-	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	38.00	7.000	177.80	56.10	0.540	13.72	-	-	PLBC	-	-	PLBC	PLBC	PLBC	PLBC
	42.70	7.000	177.80	63.84	0.625	15.88	-	-	-	-	-	-	-	-	P
	46.40	7.000	177.80	69.35	0.687	17.45	-	-	-	-	-	-	-	-	P
	50.10	7.000	177.80	74.85	0.750	19.05	-	-	-	-	-	-	-	-	P
	53.60	7.000	177.80	80.21	0.812	20.62	-	-	-	-	-	-	-	-	P
	57.10	7.000	177.80	85.42	0.875	22.22	-	-	-	-	-	-	-	-	P
7-5/8	26.40	7.625	193.68	39.29	0.328	8.33	PSLB	PSLB	PLB	-	-	PLB	PLB	PLB	PLB
	29.70	7.625	193.68	44.20	0.375	9.52	-	PLB	PLB	-	-	PLB	PLB	PLB	PLB
	33.70	7.625	193.68	50.15	0.430	10.92	-	PLB	PLB	-	-	PLB	PLB	PLB	PLB
	39.00	7.625	193.68	58.04	0.500	12.70	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	42.80	7.625	193.68	63.69	0.562	14.27	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	45.30	7.625	193.68	67.41	0.595	15.11	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	47.10	7.625	193.68	70.09	0.625	15.88	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	51.20	7.625	193.68	76.19	0.687	17.45	-	-	-	-	-	-	-	-	P
	55.30	7.625	193.68	82.30	0.750	19.05	-	-	-	-	-	-	-	-	P
7-3/4	46.10	7.750	196.85	68.60	0.595	15.11	-	-	P	-	-	P	P	P	P

钢级 Grade												
BG90S(SS)、BG90(S)-3Cr	BG90T(TT)、BG90TS	BG95S(SS)、BG95(S)-3Cr	BG95T(TT)、BG95T	P110	BG110T(S)	BG110S(SS)、BG110-3Cr	Q125	BG125T(TT)	BG140V	BG140T(TT)	BG150V	C110
-	-	-	-	-	-	-	-	-	-	-	-	-
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	P
-	-	-	-	-	-	-	-	-	-	-	-	-
PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	-	-	-	-	-	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	P
PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	PLBC	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
PLB	PLB	PLB	PLB	-	-	-	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	P	P	P	P	P	P	P	P	P

套管规格 Dimension of Casing:

代号a Label		外径 Outside diameter		单位重量（带螺纹和接箍）Nominal linear mass[b,c] T&C kg/m	壁厚 Wall thickness										
1	2	in	mm		in	mm	J55 K55	M65	L80-1 R95	L80-9Cr	L80-13Cr	N80 1、Q类	BG80T(TT)	BG80S(SS)、BG80(S)-3Cr	C90 T95
8-5/8	24.00	8.625	219.08	35.72	0.264	6.71	PS	PS	-	-	-	-	-	-	-
	28.00	8.625	219.08	41.67	0.304	7.72	-	PS	-	-	-	-	-	-	-
	32.00	8.625	219.08	47.62	0.352	8.94	PSLB	PSLB	-	-	-	-	-	-	-
	36.00	8.625	219.08	53.57	0.400	10.16	PSLB	PSLB	PLB	-	-	PLB	PLB	PLB	PLB
	40.00	8.625	219.08	59.53	0.450	11.43	-	PLB	PLB	-	-	PLB	PLB	PLB	PLB
	44.00	8.625	219.08	65.48	0.500	12.70	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	49.00	8.625	219.08	72.92	0.557	14.15	-	-	PLB	-	-	PLB	PLB	PLB	PLB
9-5/8	36.00	9.625	244.48	53.57	0.352	8.94	PSLB	PSLB	-	-	-	-	-	-	-
	40.00	9.625	244.48	59.53	0.395	10.03	PSLB	PSLB	PLB	-	-	PLB	PLB	PLB	PLB
	43.50	9.625	244.48	64.73	0.435	11.05	-	PLB	PLB	-	-	PLB	PLB	PLB	PLB
	47.00	9.625	244.48	69.94	0.472	11.99	-	PLB	PLB	-	-	PLB	PLB	PLB	PLB
	53.50	9.625	244.48	79.62	0.545	13.84	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	58.40	9.625	244.48	86.91	0.595	15.11	-	-	PLB	-	-	PLB	PLB	PLB	PLB
	59.40	9.625	244.48	88.40	0.609	15.47	-	-	-	-	-	-	-	-	P
	64.90	9.625	244.48	96.58	0.672	17.07	-		-	-	-	-	-	-	P
	70.30	9.625	244.48	104.62	0.734	18.64	-	-	-	-	-	-	-	-	P
	75.60	9.625	244.48	112.50	0.797	20.24	-	-	-	-	-	-	-	-	P
10-3/4	40.50	10.750	273.05	60.27	0.350	8.89	PSB	PSB	-	-	-	-	-	-	-
	45.50	10.750	273.05	67.71	0.400	10.16	PSB	PSB	-	-	-	-	-	-	-
	51.00	10.750	273.05	75.90	0.450	11.43	PSB	PSB	PSB	-	-	PSB	PSB	PSB	PSB
	55.50	10.750	273.05	82.59	0.495	12.57	-	PSB	PSB	-	-	PSB	PSB	PSB	PSB
	60.70	10.750	273.05	90.33	0.545	13.84	-	-	-	-	-	-	-	-	PSB
	65.70	10.750	273.05	97.77	0.595	15.11	-	-	-	-	-	-	-	-	PSB
	73.20	10.750	273.05	108.93	0.672	17.07	-	-	-	-	-	-	-	-	P
	79.20	10.750	273.05	117.86	0.734	18.64	-	-	-	-	-	-	-	-	P
	85.30	10.750	273.05	126.94	0.797	20.24	-	-	-	-	-	-	-	-	P

钢级 Grade												
BG90S(SS)、BG90(S)-3Cr	BG90T(TT)、BG90TS	BG95S(SS)、BG95(S)-3Cr	BG95T(TT)、BG95T	P110	BG110T(S)	BG110S(SS)、BG110-3Cr	Q125	BG125T(TT)	BG140V	BG140T(TT)	BG150V	C110
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PLB	PLB	PLB	PLB	-	-	-	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB						P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
-	-	-	-	-	-	-	-	-	-	-	-	-
PLB	PLB	PLB	PLB	-	-	-	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	-	-	-	-	-	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	PLB	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
PSB	PSB	PSB	PSB	PSB	PSB	PSB	-	-	-	-	-	P
PSB	PSB	PSB	PSB	PSB	PSB	PSB	-	-	-	-	-	P
PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	P
PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	PSB	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P
P	P	P	P	-	-	-	-	-	-	-	-	P

套管规格 Dimension of Casing:

代号a Label		外径 Outside diameter		单位重量（带螺纹和接箍）Nominal linear mass[b,c] T&C	壁厚 Wall thickness										
1	2	in	mm	kg/m	in	mm	J55 K55	M65	L80-1 R95	L80-9Cr	L80-13Cr	N80 1、Q类	BG80T(TT)	BG80S(SS)、BG80(S)-3Cr	C90 T95
13-3/8	54.50	13.375	339.72	81.10	0.380	9.65	PSB	PSB	-	-	-	-	-	-	-
	61.00	13.375	339.72	90.78	0.430	10.92	PSB	PSB	-	-	-	-	-	-	-
	68.00	13.375	339.72	101.19	0.480	12.19	PSB	PSB	PSB	-	-	PSB	-	-	PSB
	72.00	13.375	339.72	107.15	0.514	13.06	-	-	PSB	-	-	PSB	-	-	PSB
16	75.00	16.000	406.40	111.61	0.438	11.13	PSB	-	-	-	-	-	-	-	-
	84.00	16.000	406.40	125.01	0.495	12.57	PSB	-	-	-	-	-	-	-	-
	109.00	16.000	406.40	162.21	0.656	16.66	P	-	P	-	-	P	-	-	-
18-5/8	87.50	18.625	473.08	130.21	0.435	11.05	PSB	PSB	-	-	-	-	-	-	-
20	94.00	20.000	508.00	139.89	0.438	11.13	PSLB	PSLB	-	-	-	-	-	-	-
	106.50	20.000	508.00	158.49	0.500	12.70	PSLB	PSLB	-	-	-	-	-	-	-
	133.00	20.000	508.00	197.93	0.635	16.13	PSLB	-	-	-	-	-	-	-	-

注： P - 平端；S - 短圆螺纹；L - 长圆螺纹；B - 偏梯形螺纹；C - 宝钢特殊螺纹套管；X - 宝钢直连型套管。
1. 代号供订货时参考。
2. 所示单位长度名义重量（带螺纹和接箍）（第2栏）仅供参考。
3. 马氏体铬钢（L80 9Cr和13Cr）的密度不同于碳钢。因此，所示重量对马氏体铬钢来说不是精确值。可采用重量校正系数0.989。

Note: P - plain end; S - short round thread; L - long round thread; B - buttress thread; C - oil casing with Baosteel premium connection;
X - Baosteel Extreme-line casing .
a. Label are for informaion and assistance in ordering.
b. Nominal linear masses, threaded and coupled are shown for information only.
c. The densities of martensitic chromium steels (L80 types 9Cr and 13Cr) are different from carbon steels. The masses shown are therefore not accurate for matensitic chromium steels. A mass correction factor of 0.989 may be used.

接箍 Coupling:

1、标准接箍 Standard Coupling
2、特殊间隙接箍 Special Clearance Coupling
3、特殊倒角接箍 Special Bevel Coupling
4、改进型带密封环接箍 / API Modified Seal-Ring Coupling(SR 13)
5、组合接箍或异径接箍 / Combination Coupling or Reducing Coupling

短节或连接管 Pup Joint or Connector:

包括所有油套管规格、螺纹或其他组合。
All kinds of size, thread or their combination of tubing and casing are supplied.

钢级 Grade												
BG90S(SS)、BG90(S)-3Cr	BG90T(TT)、BG90TS	BG95S(SS)、BG95(S)-3Cr	BG95T(TT)、BG95T	P110	BG110T(S)	BG110S(SS)、BG110-3Cr	Q125	BG125T(TT)	BG140V	BG140T(TT)	BG150V	C110
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	PSB	-	-	-	-	-	-	-	P
-	-	-	-	PSB	-	-	PSB	-	-	-	-	P
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	P	-	-	P	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

长度 Lengths:

	范围1/Range 1	范围2/Range 2	范围3/Range 3
油管/Tubing	6.10~7.32	8.53~9.75	11.58~12.80
套管/Casing	4.88~7.62	7.62~10.36	10.36~14.63
短节/Pup joint	0.5~6		

机械性能 Mechanical Properties:

钢级 Grade		类型 Type	加载下的总伸长率 Total elongation under Load	屈服强度 Yield strength MPa		抗拉强度 Tehsile strength MPa	硬度[a] Hardness max		规定壁厚 Specified wall thickness mm	允许硬度变化[b] Allowable hardness variation
			%	min	max	min	HRC	HBW		HRC
API系列 API Series	J55	-	0.5	379	552	517	-	-	-	-
	K55	-	0.5	379	552	655	-	-	-	-
	N80	1	0.5	552	758	689	-	-	-	-
		Q	0.5	552	758	689	-	-	-	-
	R95	-	0.5	655	758	724	-	-	-	-
	M65	-	0.5	448	586	586	22	235	-	-
	L80	1	0.5	552	655	655	23	241	-	-
		9Cr	0.5	552	655	655	23	241	-	-
		13Cr	0.5	552	655	655	23	241	-	-
	C90	1	0.5	621	724	689	25.4	255	≤12.70 12.71~19.04 19.05~25.39 ≥25.40	3.0 4.0 5.0 6.0
	T95	1	0.5	655	758	724	25.4	255		
	C110	-	0.7	758	828	793	30	286		
	P110	-	0.6	758	965	862	-	-		
	Q125	1	0.65	862	1034	931	b	-		

机械性能 Mechanical Properties:

钢级 Grade		类型 Type	加载下的总伸长率 Total elongation under Load	屈服强度 Yield strength MPa		抗拉强度 Tehsile strength MPa	硬度[a] Hardness max		规定壁厚 Specified wall thickness mm	允许硬度变化[b] Allowable hardness variation
			%	min	max	min	HRC	HBW		HRC
BG抗腐蚀系列 BG anti-corrosion series	BG80S,BG80SS,BG80S-3Cr	-	0.5	552	655	655	23	241	≤12.70 12.71~19.04 19.05~25.39 ≥25.40	3.0 4.0 5.0 6.0
	BG90S,BG90SS,BG90S-3Cr	-	0.5	621	724	689	25.4	255		
	BG95S,BG95SS,BG95S-3Cr	-	0.5	655	758	724	25.4	255		
	BG110S,BG110SS	-	0.6	758	862	800	30	286		
	BG80-3Cr	-	0.5	552	758	689	-	-	-	-
	BG110-3Cr	-	0.6	758	965	862	-	-		
	BG13Cr-95	-	0.5	655	758	724	-	-		
	BG13Cr-95S	-	0.5	655	758	724	29	-	≤12.70 12.71~19.04 19.05~25.39 ≥25.40	3.0 4.0 5.0 6.0
	BG13Cr-110	-	0.6	758	965	862	-	-		
	BG13Cr-110S	-	0.6	758	896	793	32	-	≤12.70 12.71~19.04 19.05~25.39 ≥25.40	3.0 4.0 5.0 6.0
BG抗挤、高抗挤、抗挤抗硫系列 BG anti-collapse, high anti-collapse, anti-collapse and sulfate resistant series	BG80T，BG80TT	1	0.5	552	758	689	-	-		
	BG90T，BG90TT	1	0.5	621	724	689	-	-		
	BG95T，BG95TT		0.5	655	758	724	-	-		
	BG110T，BG110TT	-	0.6	758	965	862	-	-		
	BG125T，BG125TT	-	0.65	862	1034	931	-	-		
	BG140T，BG140TT		0.7	965	1172	1034	-	-		
	BG90TS		0.5	621	724	689	-	-		
	BG95TS		0.5	655	758	700	-	-		
	BG110TS		0.6	758	965	800	-	-		
BG超高强度系列 BG ultra strength series	BG140V	-	0.7	965	1172	1034	-	-		
	BG150V	-	0.7	1034	1206	1103	-	-		

注： a、若有争议时，应采用试验室的洛氏硬度作为仲裁方法。
b、未规定硬度极限，但按7.8 和7.9 规定限制最大变化量可作为生产控制。

Note: a．In case of disputes, laboratory Rockwell C hardness testing shall be used as the referee method.
b．No hardness limits one specified,but the maximum variation is restricted as a manufacturing control in accordance with 7.8 and 7.9.

适用标准及供货技术条件 Standards and technical conditions for supply

API SPEC 5DP

宝钢股份相关供货技术条件 Relevant technical specification of Baosteel Co., Ltd.

用途 Uses:

用于钻井 For Well Drilling

规格 Dimension:

规格外径 Size designation		公称重量 Calculated weight	工具接头型号 Tool joint designation	计算重量 Calculated weight		钢级 Grade	壁厚 Wall thickness		加厚形式（见注）Upset ends, for weld-on tool joints(see note)
in	mm			1b/ft	kg/m		in	mm	
2 3/8"	60.32	6.65	NC26,BGDS26	6.26	9.32	E.X.G.S	0.280	7.11	EU
2 7/8"	73.02	10.40	NC31,BGDS31	9.72	14.48	E.X.G.S	0.362	9.19	EU
3 1/2"	88.9	13.30	NC38,BGDS38	12.31	18.34	E.X.G.S	0.368	9.35	EU
3 1/2"	88.9	15.50	NC38,BGDS38,NC40,BGDS40	14.63	21.79	E.X.G.S	0.449	11.40	EU
4"	101.6	14.00	NC40,BGDS40,NC46,BGDS46	12.93	19.26	E.X.G.S	0.330	8.38	IU, EU
4 1/2"	114.3	16.60	NC46,BGDS46,NC50,BGDS50	14.98	22.31	E.X.G.S	0.337	8.56	EU, IEU
4 1/2"	114.3	20.00	NC46,BGDS46,NC50,BGDS50	18.69	27.84	E.X.G.S	0.430	10.92	EU, IEU
5"	127	19.50	NC50,BGDS50,NC52,BGDS52	17.93	26.71	E.X.G.S	0.362	9.19	IEU
5"	127	25.60	NC50,BGDS50,5 $^{1}/_{2}$FH,BGDS55	24.03	35.79	E.X.G.S	0.500	12.70	IEU
5 1/2"	139.7	21.90	5 1/2FH,BGDS55	19.81	29.51	E.X.G.S	0.361	9.17	IEU
5 1/2"	139.7	24.70	5 1/2FH,BGDS55	22.54	33.57	E.X.G.S	0.415	10.54	IEU
6 5/8"	168.28	25.20	6 5/8FH,BGDS65	22.19	33.0	E.X.G.S	0.330	8.38	IEU
6 5/8"	168.28	27.70	6 5/8FH,BGDS65	24.21	41.0	E.X.G.S	0.362	9.19	IEU

注： 1、EU - 外加厚；IEU - 内外加厚；IU - 内加厚；
2、工具接头螺纹有右旋螺纹和左旋螺纹两种；
3、螺纹镀铜或磷化。

Note: 1. EU - External Upset; IEU - Internal-External Upset; IU - Internal Upset.
2. Threads of tool joints are right-hand or left-hand.
3. Threads are cooper-plated or phosphated.

化学成分 Chemical Composition (%):

钢级 Grade	化学成分／Chemical composition	
	P	S
E	＜0.015	＜0.003
X	＜0.015	＜0.003
G	＜0.015	＜0.003
S	＜0.015	＜0.003
工具接头／Tool joint	＜0.015	＜0.003

机械性能 Mechanical Properties:

	钢级 Grade	屈服强度 Yield strength 最低/min Psi	屈服强度 Yield strength 最低/min MPa	屈服强度 Yield strength 最高/max Psi	屈服强度 Yield strength 最高/max MPa	抗拉强度 Tensile strength 最低/min Psi	抗拉强度 Tensile strength 最低/min MPa	伸长率(%) Elongation	硬度 Hardness HBW	硬度 Hardness HRC	全尺寸纵向夏氏冲击功 Full size charpy impact test (J) 最低/min 平均值 Average	全尺寸纵向夏氏冲击功 Full size charpy impact test (J) 最低/min 单个值 Single
管体 Pipe body	E	75000	517	105000	724	100000	689	$625000A^{0.2}/U^{0.9}$	-	-	80	65
	X	95000	655	125000	862	105000	724		-	-	80	65
	G	105000	724	135000	931	115000	793		-	-	80	65
	S	135000	931	165000	1138	145000	1000		-	-	80	65
工具接头 Tool Joint		120000	827	165000	1138	140000	965	≥13%	285~341	-	80	65
焊缝 Weld zone	E	75000	517	-	-	100000	689		-	≤37	40	27
	X	88000	609	-	-	103000	712		-	≤37	40	27
	G	95000	655	-	-	105000	724		-	≤37	40	27
	S	105000	724	-	-	115000	793		-	≤37	40	27

Tube for Perforating Gun
射孔枪管

标准 Standard:

Q/BQB 232　　宝钢企业标准 Baosteel Corporation Standard

用途 Uses:

用于制造油气井射孔枪枪体
For manufacture of perforating gun body

规格 Dimension:

外径／Outside diameter　mm	壁厚／Wall thickness　mm
60.30	5.00
68.00	5.50、6.3
73.00	5.51、7.82、9.19
82.50	9.00
83.00	9.00
88.90	6.45、7.10、8.00、8.80、9.19、10.00、12.00
95.00	8.00、10.00
96.00	10.00
101.60	7.00、9.00、9.50、10.00、11.00
108.00	8.00
114.30	8.50、9.50、10.00、11.10、12.50、13.00
127.00	9.50、11.00、12.50
159.00	12.00、12.50、13.00
178.00	12.00

化学成分 Chemical Composition (%):

牌号／Grade	C	Si	Mn	P	S	Cr	Mo	V
32CrMo4	0.29~0.36	0.17~0.37	0.50~0.80	≤0.015	≤0.010	0.90~1.20	0.20~0.30	–
25Mn2MoV	0.21~0.29	0.15~0.50	1.30~1.90	≤0.015	≤0.010	–	0.10~0.30	0.05~0.20

机械性能 Mechanical Properties:

牌号 Grade	规定总延伸强度 Specified total elongation strength $R_{t0.6}$, MPa	抗拉强度 R_m, Mpa	断后伸长率 A, %	冲击功[a] A_{kv}, J					
				纵向试样尺寸 Longitudinal sample dimension mm			横向试样尺寸 Transverse sample dimension mm		
				10 × 10	10 × 7.5	10 × 5	10 × 10	10 × 7.5	10 × 5
	不小于 not less than								
32CrMo4	724	793	14	57	46	32	38	31	21
25Mn2MoV	724	793	14	57	46	32	38	31	21

注：a　当外径＜ 73.03mm 时，不作冲击试验；当 73.03 ≤外径＜101.6mm 时，作纵向冲击试验；当外径≥ 101.6mm 时，作横向冲击试验。试验温度为 0°C。3 个冲击试样的平均值应不小于表中的规定值，仅允许 1 个冲击试样的吸收功小于规定值，但不应低于规定值的三分之二。

Note: a No impact test when OD<73.03mm; longitudinal impact test when 73.03 ≤ OD <101.6mm; transverse impact test when OD ≥ 101.6mm. The testing temperature is 0°C. The average value of 3 impact samples shall not be lower than the specified value in the table, and only the absorbed energy of 1 impact sample can be lower than the specified value, but not lower than 2/3 of the specified value.

长度 Length: 8-12m（请参照企标）

Insulating Tubing
隔热油管

标准 Standard:

Q/BQB 234　　宝钢企业标准 Baosteel Corporation Standard

用途 Uses:

用于油田的稠油热采
For producing viscous oil

规格 Dimension:

名称 Name	外径 Outside diameter mm	壁厚 Wall thickness mm	钢级 Grade	管端形式 Type of end	长度/Length m Ⅰ类长度 Length class Ⅰ	长度/Length m Ⅱ类长度 Length class Ⅱ
外层管 Outer tube	114.30	6.35	N80-Q、BG80H、BG110H	平端/NUE	9.5	9.1
	114.30	6.88	N80-Q、BG80H、BG110H	平端/NUE	9.6	9.2
内层管 Inner tube	73.02	5.51	N80-Q、BG80H、BG110H	外加厚/EUE	9.4	9.0
	88.90	6.45	N80-Q、BG80H、BG110H	平端/NUE	9.5	9.1
接箍料 Coupling section	127.00	12.70	P110、BG80H、BG110H	平端/NUE	8.0~12.0	
	132.08	15.00	P110、BG80H、BG110H	平端/NUE		
	141.30	15.00	P110、BG80H、BG110H	平端/NUE		

化学成分 Chemical Composition (%):

钢级 Grade	化学成分/Chemical composition: C	Si	Mn	P	S
N80	0.23-0.26	0.20-0.30	1.40-1.60	≤0.020	≤0.015
BG80H	0.12-0.17	0.15-0.35	0.4-0.6	≤0.015	≤0.010
BG110H	0.15-0.20	0.15-0.35	0.4-0.6	≤0.015	≤0.010

机械性能 Mechanical Properties:

名称 Name	钢级 Grade	屈服强度 Yield strength				抗拉强度 Tensile strength		伸长率 Elongation
		最低/min		最高/max		最低/min		最低/min
		Psi	MPa	Psi	MPa	Psi	MPa	%
外层管 Outer tube	N80	80,000	552	110,000	758	100,00	689	15.0
内层管 Inner tube	N80	80,000	552	110,000	758	100,00	689	13.5
外层管 Outer tube	BG80H	80,000	552	110,000	758	100,000	689	15
内层管 Inner tube	BG110H	110,000	758	140,000	965	125,000	862	11
外层管 Outer tube	BG80H	80,000	552	110,000	758	100,000	689	15
内层管 Inner tube	BG110H	110,000	758	140,000	965	125,000	862	11

长度 Lengths:

名称 Name	范围/Range mm
外层管/Outer tube	9000-9600
内层管/Inner tube	9000-9600

Boiler Tube
锅炉管

标准 Standard:

美国机械工程师协会标准 American society of mechanical engineers
ASME SA-106、ASME SA-192M、ASME SA-209M、ASME SA-210M、ASME SA-213M、ASME SA-335M
美国材料试验协会标准 American Society for Testing and Materials
ASTM A 106M、ASTM A 192M、ASTM A 210M、ASTM A 213M、ASTM A 335M
欧盟标准 European Standards
EN 10216-2
德国工业标准 Deutsche industrie normen
DIN 17175
中国国家标准 Chineses National Standards
GB 3087、GB 5310、GB 6479、GB 9948、GB/T 13296
日本工业标准 Japaneses industrial standards
JIS G 3456、JIS G 3461、JIS G 3462

用途 Uses:

用于锅炉水冷壁、省煤器、再热器、过热器和蒸气管道的制造。
For manufacture wall panel, economizer, reheater, superheater and steam pipeline of boilers

主要产品及用途 Main Products and Applications:

钢种 Steel Grade	标准 Standard			应用 Applications
	GB (China)	ASME (U.S.A)	DIN/EN (Euro)	
碳钢 Carbon steel	10 20 20G 20MnG 25MnG	SA-106B SA-192 SA-210A1 SA-106C SA-210C	P265GH P195GH P235GH St35.8 St45.8	省煤器 水冷壁管 Economizer tube Water wall tube
Mo合金钢 Mo Steel	15MoG 20MoG	SA-209T1 SA-209T1a SA-209T1b	15Mo3 16Mo3	水冷壁管 过热器 再热器 Water wall tube Superheater tube Reheater tube
Cr-Mo合金钢 Cr-Mo Steel	12CrMoG 12Cr2MoG 12Cr1MoVG 15CrMoG 10Cr9MoVNb	SA-213 T11 SA-213 T22 SA-213 T24 SA-213 T91 A335 P1 A335 P2 A335 P5 A335 P9 A335 P11 A335 P12 A335 P22 A335 P91 A335 P24	12Cr1MoV 14MoV63 10CrMo910 X10CrMoVNb91 10CrMo5-5、13CrMo4-5	过热器 再热器 Superheater tube Reheater tube
Cr-Mo-W合金钢 Cr-Mo-W steel	12Cr2MoWVTiB	SA-213 T23 SA-214 T911 SA-213 T92 SA-213 T122 A335 P23 A335 P911 A335 P92 A335 P122		过热器 再热器 Superheater tube Reheater tube
奥氏体不锈钢 Austenitic Stainless steel	–	TP304 TP304H TP321 TP321H TP347 TP347H TP316 TP316H S30432 TP310HCbN	–	过热器 再热器 Superheater tube Reheater tube

化学成分 Chemical Composition (%):

钢级 Grade 标准 Standard	钢种 Steel grade	C	Si	Mn	S max	P max	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
GB 3087	10	0.07-0.13	0.17-0.37	0.35-0.65	0.020	0.025	≤0.15	-	-	-	-	-	-				
	20	0.17-0.23	0.17-0.37	0.35-0.65	0.020	0.025	≤0.25	-	-	-	-	-	-				
DIN 17175	St35.8	≤0.17	0.10-0.35	0.40-0.80	0.020	0.025	-	-	-	-	-	-	-				
	St45.8	≤0.21	0.10-0.35	0.40-1.20	0.020	0.025	-	-	-	-	-	-	-				
	15Mo3	0.12-0.20	0.10-0.35	0.40-0.80	0.020	0.025	-	0.25-0.35	-	-	-	-	-				
	13CrMo44	0.10-0.18	0.10-0.35	0.40-0.70	0.020	0.025	0.70-1.10	0.45-0.65	-	-	-	-	-				
	10CrMo910	0.08-0.15	≤0.50	0.40-0.70	0.020	0.025	2.00-2.50	0.90-1.20	-	-	-	-	-				
	14MoV63	0.10-0.18	0.10-0.35	0.40-0.70	0.020	0.025	0.30-0.60	0.50-0.70	0.22-0.32	-	-	-	-				
	12Cr1MoV	0.08-0.15	0.17-0.37	0.40-0.70	0.020	0.025	0.90-1.20	0.25-0.35	0.15-0.30	-	-	-	-				
GB 5310	20G	0.17-0.23	0.17-0.37	0.35-0.65	0.015	0.025	-	-	-	-	-	-	-				
	20MnG	0.17-0.24	0.17-0.37	0.70-1.00	0.015	0.025	-	-	-	-	-	-	-				
	25MnG	0.22-0.27	0.17-0.37	0.70-1.00	0.015	0.025	-	-	-	-	-	-	-				
	15MoG	0.12-0.20	0.17-0.37	0.40-0.80	0.015	0.025	-	0.25-0.35	-	-	-	-	-				
	20MoG	0.15-0.25	0.17-0.37	0.40-0.80	0.015	0.025	-	0.44-0.65	-	-	-	-	-				
	12CrMoG	0.08-0.15	0.17-0.37	0.40-0.70	0.015	0.025	0.40-0.70	0.40-0.55	-	-	-	-	-				
	15CrMoG	0.12-0.18	0.17-0.37	0.40-0.70	0.015	0.025	0.80-1.10	0.40-0.55	-	-	-	-	-				
	12Cr2MoG	0.08-0.15	≤0.60	0.40-0.60	0.015	0.025	2.00-2.50	0.90-1.13	-	-	-	-	-				
	12Cr1MoVG	0.08-0.15	0.17-0.37	0.40-0.70	0.010	0.025	0.90-1.20	0.25-0.35	0.15-0.30	-	-	-	-				

化学成分 Chemical Composition (%):

钢级 Grade 标准 Standard	钢种 Steel grade	C	Si	Mn	S max	P max	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
GB 5310	12Cr2MoWVTiB	0.08-0.15	0.45-0.75	0.45-0.65	0.015	0.025	1.60-2.10	0.50-0.65	0.28-0.42	0.08-0.18	0.002-0.008	0.30-0.55	-				
	10Cr9Mo1VNbN	0.08-0.12	0.20-0.50	0.30-0.60	0.010	0.020	8.00-9.50	0.85-1.05	0.18-0.25	-	-	-	≤0.040	≤0.040	0.06-0.10	0.03-0.07	
	07Cr19Ni10	0.04-0.10	≤0.75	≤2.00	0.015	0.035	17.00-20.00		8.00-11.00	-	-	-					
	07Cr18Ni11Nb	0.04-0.10	≤0.75	≤2.00	0.15	0.03	17.00-19.00			-	-	-	9.00-13.00		8C-1.10		
ASTM A 106M ASME SA-106	A 106B SA-106B	≤0.30	≥0.10	0.29-1.06	0.020	0.025	-		-	-	-	-	-				
	A 106C SA-106C	≤0.35	≥0.10	0.29-1.06	0.020	0.025			-	-	-	-	-				
ASTM A 192M ASME SA-192M	A 192 SA-192	0.06-0.18	≤0.25	0.27-0.63	0.020	0.025	-	-	-	-	-	-	-				
ASTM A 209M ASME SA-209M	A 209T1 SA-209T1	0.10-0.20	0.10-0.50	0.30-0.80	0.020	0.025		0.44-0.65	-	-	-	-	-				
	A 209T1b SA-209T1b	≤0.14	0.10-0.50	0.30-0.80	0.020	0.025		0.44-0.65		-	-	-	-				
	A 209T1a SA-209T1a	0.15-0.25	0.10-0.50	0.30-0.80	0.020	0.025		0.44-0.65		-	-	-	-				
ASTM A 210M ASME SA-210M	A 210A1 SA-210A1	≤0.27	≥0.10	≤0.93	0.020	0.025											
	A 210C SA-210C	≤0.35	≥0.10	0.29-1.06	0.020	0.025	-	-	-	-	-	-	-				
ASTM A 213M ASME SA-213M	A 213 T2 SA-213 T2	0.10-0.20	0.10-0.30	0.30-0.61	0.020	0.025	0.50-0.81	0.44-0.65	-	-	-	-	-				
	A 213 T11 SA-213 T11	0.05-0.15	0.50-1.00	0.30-0.60	0.020	0.025	1.00-1.50	0.44-0.65	-	-	-	-	-				
	A 213 T12 SA-213 T12	≤0.15	≤0.50	0.30-0.61	0.020	0.025	0.80-1.25	0.44-0.65		-	-	-	-				
	A 213 T22 SA-213 T22	0.05-0.15	≤0.50	0.30-0.60	0.020	0.025	1.90-2.60	0.87-1.13	-	-	-	-	-				
	A 213 T23 SA-213 T23	0.04-0.10	≤0.50	0.10-0.60	0.010	0.025	1.90-2.60	0.05-0.30	0.20-0.30	0.005-0.06	0.0005-0.006	1.45-1.75	-	≤0.03	0.02-0.08	≤0.03	Ti / N ≥3.5
	A 213 T24 SA-213 T24	0.05-0.10	0.15-0.45	0.30-0.70	0.020	0.025	2.20-2.60	0.70-1.10	0.20-0.30	0.06-0.10	0.0015-0.0020	-	-	≤0.02		≤ 0.012	
	A 213 T91 SA-213 T91	0.08-0.12	0.20-0.50	0.30-0.60	0.010	0.020	8.00-9.50	0.85-1.05	0.18-0.25	-	-	-	≤0.40	≤0.40	0.06-0.10	0.03-0.07	
	A213 T911 SA-213 T911	0.09-0.13	0.10-0.50	0.30-0.60	0.020	0.025	8.50-10.50	0.90-1.10	0.18-0.25	-	0.0003-0.006	0.90-1.10	≤0.40	≤0.40	0.06-0.10	0.04-0.09	

化学成分 Chemical Composition (%):

钢级 Grade		C	Si	Mn	S	P	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
标准 Standard	钢种 Steel Grade				max												
ASTM A 213M ASME SA-213M	A 213 T92 SA-213 T92	0.07-0.13	≤0.50	0.30-0.60	0.010	0.020	8.50-9.50	0.30-0.60	0.15-0.25		0.001-0.006	1.50-2.00	≤0.40	≤0.40	0.04-0.09	0.03-0.07	
	A 213 T122 SA-213 T122	0.07-0.14	≤0.50	≤0.70	0.010	0.020	10.00-12.50	0.25-0.60	0.15-0.30	-	0.0005-0.005	1.50-2.50	≤0.50	≤0.04	0.04-0.10	0.040-0.100	
	TP304H	0.04-0.10	≤0.75	≤2.0	0.030	0.040	18.00-20.00			-	-	-	8.00-11.00				
	TP321H	0.04-0.10	≤0.75	≤2.0	0.030	0.040	17.00-20.00			4*C%-0.60	-	-	9.00-13.00				
	TP347H	0.04-0.10	≤0.75	≤2.0	0.030	0.040	17.00-20.00	-	-	-	-	-	9.00-13.00				Nb+Ta≥8*C%-1.00
	S30432	0.07-0.13	≤0.30	≤1.0	0.040	0.010	17.00-20.00	-	-	-	0.001-0.010	-	7.50-10.5	0.003-0.030	0.30-0.60	0.05-0.12	Cu 2.50-3.50
	TP310HCbN	0.04-0.10	≤0.75	≤2.0	0.030	0.030	24.00-26.00		-	-	-	-	17.0-23.0		0.20-0.60	0.15-0.35	
EN 10216-2	P195GH	≤0.13	≤0.35	≤0.70	0.020	0.025	≤0.30	≤0.08	≤0.02	≤0.040	-	-	≤0.30	≥0.02	≤0.01		Cr+Cu+Mo+Ni≤0.70
	P235GH	≤0.16	≤0.35	≤1.20	0.020	0.025	≤0.30	≤0.08	≤0.02	≤0.040			≤0.30	≥0.02	≤0.01		Cr+Cu+Mo+Ni≤0.70
	P265GH	≤0.20	≤0.40	≤1.40	0.020	0.025	≤0.30	≤0.08	≤0.02	≤0.040			≤0.30	≥0.02	≤0.01		Cr+Cu+Mo+Ni≤0.70
	16Mo3	0.12-0.20	≤0.35	0.40-0.90	0.020	0.025	≤0.30	0.25-0.35					≤0.30	≤0.04			Cu≤0.30
	10CrMo5-5	≤0.15	0.50-1.00	0.30-0.60	0.020	0.025	1.00-1.50	0.45-0.65					≤0.30	≤0.04			Cu≤0.30
	13CrMo4-5	0.10-0.17	≤0.35	0.40-0.70	0.020	0.025	0.70-1.15	0.40-0.60					≤0.30	≤0.04			Cu≤0.30
	10CrMo9-10	0.08-0.14	≤0.50	0.30-0.70	0.020	0.025	2.00-2.50	0.90-1.10					≤0.30	≤0.04			Cu≤0.30
	X10CrMo VNb9-1	0.08-0.12	0.20-0.50	0.30-0.60	0.010	0.020	8.00-9.50	0.85-1.05	0.18-0.25				≤0.40	≤0.04	0.06-0.10	0.03-0.070	Cu≤0.30
JIS G 3461	STB 340	≤0.18	≤0.35	0.30-0.60	0.020	0.025											
	STB 410	≤0.32	≤0.35	0.30-0.80	0.020	0.025											
	STB 510	≤0.25	≤0.35	1.00-1.50	0.020	0.025											
JIS G 3462	STBA 12	0.10-0.20	0.10-0.50	0.30-0.80	0.020	0.025		0.45-0.65									
	STBA 13	0.15-0.25	0.10-0.50	0.30-0.80	0.020	0.025		0.45-0.65									
	STBA 20	0.10-0.20	0.10-0.50	0.30-0.80	0.020	0.025	0.50-0.80	0.45-0.65									

化学成分 Chemical Composition (%):

钢级 Grade		C	Si	Mn	S	P	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
标准 Standard	钢种 Steel grade				max												
JIS G 3462	STBA 22	≤0.15	≤0.50	0.30-0.60	0.020	0.025	0.80-1.25	0.45-0.65									
	STBA 23	≤0.15	0.50-1.00	0.30-0.60	0.020	0.025	1.00-1.50	0.45-0.65									
	STBA 24	≤0.15	≤0.50	0.30-0.60	0.020	0.025	1.90-2.60	0.87-1.13									
	STBA 26	≤0.15	0.25-1.00	0.30-0.60	0.020	0.025	8.00-10.0	0.90-1.10									
JIS G 3463	SUS304HTB	0.04-0.10	≤2.00	≤0.75	0.020	0.025	18.00-20.00	-	-	-	-	-	8.00-11.00				
	SUS321HTB	0.04-0.10	≤2.00	≤0.75	0.020	0.025	17.00-20.00	-	-	4*C%-0.60		-	9.00-13.0				
GB 13296	0Cr18Ni9	0.070	≤1.00	≤2.00	0.030	0.035	17.00-19.00		-	-	-	-	8.00-11.0				
	1Cr18Ni9	≤0.15	≤1.00	≤2.00	0.030	0.035	17.00-19.00				-	-	8.00-11.0				
	00Cr19Ni10	≤0.03	≤1.00	≤2.00	0.030	0.035	18.00-20.00						8.00-12.0				
	2Cr23Ni13	≤0.20	≤1.00	≤2.00	0.030	0.035	22.0-24.0						12.0-15.0				
	0Cr23Ni13	≤0.08	≤1.00	≤2.00	0.030	0.035	22.0-24.0						12.0-15.0				
	2Cr25Ni20	≤0.25	≤1.00	≤2.00	0.030	0.035	22.0-24.0						19.0-22.0				
	0Cr25Ni20	≤0.08	≤1.00	≤2.00	0.030	0.035	24.0-26.0						19.0-22.0				
	0Cr17Ni12Mo2	≤0.08	≤1.00	≤2.00	0.030	0.035	16.0-18.5	2.0-3.0					10.0-14.0				
	1Cr17Ni12Mo2	0.04-0.1	≤0.75	≤2.00	0.030	0.035	16.0-18.0	2.0-3.0					11.0-14.0				

化学成分 Chemical Composition (%):

钢级 Grade		C	Si	Mn	S	P	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
标准 Standard	钢种 Steel grade				max												
GB 13296	00Cr17 Ni14Mo2	≤0.03	≤1.00	≤2.00	0.030	0.035	16.0-18.0	2.0-3.0					12.0-15.0				
	0Cr19 Ni13Mo3	≤0.08	≤1.00	≤2.00	0.030	0.035	18.0-20.0	3.0-4.0					11.0-15.0				
	00Cr19 Ni13Mo3	≤0.03	≤1.00	≤2.00	0.030	0.035	18.0-20.0	3.0-4.0					11.0-15.0				
	1Cr18Ni9Ti	0.04-0.1	≤1.00	≤2.00	0.030	0.035	17.0-19.0			5*(C-0.02)-0.80			8.0-11.0				
	0Cr18 Ni10Ti	≤0.08	≤1.00	≤2.00	0.030	0.035	17.0-19.0			≥5*C			9.0-12.0				
	1Cr18 Ni11Ti	0.04-0.1	≤0.75	≤2.00	0.030	0.035	17.0-20.0			4*C-0.60			9.0-13.0				
	0Cr18 Ni11Nb	≤0.08	≤1.00	≤2.00	0.030	0.035	17.0-19.0						9.0-13.0				
	1Cr19 Ni11Nb	0.04-0.1	≤0.75	≤2.00	0.030	0.035	17.0-20.0						9.0-13.0				
	0Cr18 Ni13Si4	≤0.08	3.0-5.0	≤2.00	0.030	0.035	15.0-20.0						11.0-15.0				
	0Cr18Ni12 Mo2Ti	≤0.08	≤1.00	≤2.00	0.030	0.035	16.0-19.0	1.8-2.50		5*C-0.70			11.0-14.0				
	1Cr18Ni12 Mo2Ti	≤0.12	≤1.00	≤2.00	0.030	0.035	16.0-19.0	1.8-2.50		5*(C-0.02)-0.80			11.0-14.0				
	1Cr18Ni12 Mo3Ti	≤0.12	≤1.00	≤2.00	0.030	0.035	16.0-19.0	2.5-3.50		5*(C-0.02)-0.80			11.0-14.0				
	0Cr18Ni12 Mo3Ti	≤0.08	≤1.00	≤2.00	0.030	0.035	16.0-19.0	2.5-3.50		5*C-0.70			11.0-14.0				

注：经协商，也可供应其它牌号的钢管。

Note: Grades other than the a.m. chart can be made available through consultations.

产品性能 Mechanical Properties:

标准 Standard	牌号 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa)不小于 Yield point not less than	伸长率(%)不小于 Elongation not less than	冲击功(J)不小于 Impact not less than	硬度不大于 Hardness not more than
GB 3087	10	335~475	205(t<16mm) 195(t≥16mm)	24	-	-
	20	392~588	245(t<16mm) 235(t≥16mm)	20	-	-
DIN 17175	St35.8	360-480	235(t≤16mm) 225(t>16mm)	25	-	-
	St45.8	410-530	255(t≤16mm) 245(t>16mm)	21	-	-
	15Mo3	450-600	270	22	-	-
	13CrMo44	440-590	290	22	-	-
	10CrMo910	450-600	280	20	-	-
	14MoV63	460-610	320	20	55	-
	12Cr1MoV	470-640	255	21	41	-
GB 5310	20G	410-550	245	纵24 横22	纵40 横27	-
	25MnG	485-640	275	纵20 横18	纵40 横27	-
	15MoG	450-600	270	纵22 横20	纵40 横27	-
	20MoG	415-665	220	纵22 横20	纵40 横27	-
	12CrMoG	410-560	205	纵21 横19	纵40 横27	-
	12 Cr2MoG	450-600	280	纵22 横20	纵40 横27	-
	12 Cr1MoVG	470-640	255	纵21 横19	纵40 横27	-
	12Cr2MoWVTiB	540-735	345	18	纵40 横27	-
	10Cr9Mo1VNb	≥585	415	20	40	
	1Cr18Ni9	≥520	206	35		
	1Cr19Ni11Nb	≥520	206	35		
ASTM A 106M ASME SA-106	A 106B/SA-106B	≥415	240	30	-	-
	A 106C/SA-106C	≥485	275	30	-	
ASTM A 192M ASME SA-192M	A 192/SA-192	≥325	180	35	-	77HRB(137HBW)
ASTM A 209M ASME SA-209M	A 209T1/SA-209T1	≥380	205		-	80HRB(146HBW)
	A 209T1b/SA-209T1b	≥365	195		-	77HRB(137HBW)
	A 209T1a/SA-209T1a	≥415	220		-	81HRB(153HBW)
ASTM A 210M ASME SA-210M	A 210A1/SA-210A1	≥415	255		-	79HRB(143HBW)
	A 210C/SA-210C	≥485	275		-	89HRB(179HBW)
ASTM A 213M ASME SA-213M	A 213 T2/SA-213 T2	≥415	205		-	85HRB(163HBW)
	A 213 T11/SA-213 T11	≥415	205		-	85HRB(163HBW)
	A 213 T22/SA-213 T22	≥415	205		-	85HRB(163HBW)
	A 213 T23/SA-213 T23	≥510	400	20	-	97HRB(220HBW)
	A 213 T24/SA-213 T24	≥585	415	20		25HRC(250HBW)
	A 213 T91/SA-213 T91	≥585	415	20		25HRC(250HBW)
	A 213 T911/SA-213 T911	≥620	440	20		25HRC(250HBW)
	A 213 T92/SA-213 T92	≥620	440	20	-	25HRC(250HBW)
	A 213 T122/SA-213 T122	≥620	400	20	-	25HRC(250HBW)
	TP304H	≥515	205	35	-	90HRB(192HBW)
	TP316H	≥515	205	35		90HRB(192HBW)
	TP321H	≥515	205	35		90HRB(192HBW)
	TP347H	≥515	205	35		90HRB(192HBW)
	S30432	≥590	235	35		95HRB(219HBW)
	TP310HCbN	≥655	295	30		100HRB(256HBW)

产品性能 Mechanical Properties:

标准 Standard	牌号 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa) 不小于 Yield point not less than	伸长率(%) 不小于 Elongation not less than	冲击功(J) 不小于 Impact not less than	硬度 不大于 Hardness not more than
EN 10216-2	P195GH	320-440	195	27		
	P235GH	360-500	235	25		
	P265GH	410-570	265	23		
	16Mo3	450-600	280	22		
	10CrMo5-5	410-560	275	22		
	13CrMo4-5	440-590	290	22		
	10CrMo9-10	480-630	280	22		
	X10CrMoVNb9-1	630-830	450	19	41	
JIS G 3461	STB 340	⩾340	175	35		
	STB 410	⩾410	255	25		
	STB 510	⩾510	295	25		
JIS G 3462	STBA 12	⩾382	206			
	STBA 13	⩾412	206			
	STBA 20	⩾412	206			
	STBA 22	⩾412	206			
	STBA 23	⩾412	206			
	STBA 24	⩾412	206			
	STBA 26	⩾412	206			
JIS G 3463	SUS 304HTB	⩾520	206	35		
	SUS 316HTB	⩾520	206	35		
	SUS 321HTB	⩾520	206	35		
	SUS 347HTB	⩾520	206	35		
GB 13296	0Cr18Ni9	⩾520	205	35		
	1Cr18Ni9	⩾520	205	35		
	00Cr19Ni10	⩾480	175	35		
	2Cr23Ni13	⩾520	205	35		
	0Cr23Ni13	⩾520	205	35		
	2Cr25Ni20	⩾520	205	35		
	0Cr25Ni20	⩾520	205	35		
	0Cr17Ni12Mo2	⩾520	205	35		
	1Cr17Ni12Mo2	⩾520	205	35		
	00Cr17Ni14Mo2	⩾480	175	40		
	0Cr19Ni13Mo3	⩾520	205	35		
	00Cr19Ni13Mo3	⩾480	175	35		
	1Cr18Ni9Ti	⩾520	205	40		
	0Cr18Ni10Ti	⩾520	205	35		
	1Cr18Ni11Ti	⩾520	205	35		
	0Cr18Ni11Nb	⩾520	205	35		
	1Cr19Ni11Nb	⩾520	205	35		
	0Cr18Ni13Si4	⩾520	205	35		
	0Cr18Ni12Mo2Ti	⩾530	205	35		
	1Cr18Ni12Mo2Ti	⩾540	215	35		
	1Cr18Ni12Mo3Ti	⩾530	205	35		
	0Cr18Ni12Mo3Ti	⩾540	215	35		

Special Products 特殊产品

内螺纹管 (Multi-rifled Seamless Steel Tube)

产品使用于制造电站锅炉水冷壁，能有效消除钢管内壁蒸汽膜，提高炉壁热效率。

产品用冷拔方法制造，使钢管内壁形成特殊几何尺寸的内壁螺旋筋。成品采用保护气体热处理，使钢管具有稳定的性能和良好的表面质量。

产品可按用户设计要求订货。

It is used as a water wall tube loaded with a highly heated flux and is also expected to find broadened other uses in the viewpoint of its energy saving effect and higher safety against the overheating damage.

This has a groove on its inside surface which functions to raise thermal efficiency by distrubing the fluid within the tube,featuring an extremely high thermal conduction property.

可提供的钢种及规格范围 Steel Grade & Dimension:

标准 Standard	钢种 Grade	规格范围 Specification 外径 Outside diameter mm	规格范围 Specification 壁厚 Wall thickness mm	规格范围 Specification 螺纹头数 Number of rib
GB/T 20409-2006	20G 15CrMoG SA-210 A1 SA-210C SA-213 T2 SA-213 T12	ø22-83	4.5-13	4-14

化学成分 Chemical Composition (%):

钢级 Grade 标准 Standard	钢级 Grade 钢种 Steel grade	C	Si	Mn	S max	P max	Cr	Mo	V	Ti	B	W	Ni	Al	Nb	N	其他 Others
GB/T 20409-2006	20G	0.17-0.23	0.17-0.37	0.35-0.65	0.020	0.025											
	15CrMoG	0.12-0.18	0.17-0.37	0.40-0.70	0.020	0.025	0.80-1.10	0.40-0.55									
	SA-210 A1	≤0.27	≥0.10	≤0.93	0.020	0.025											
	SA-210C	≤0.35	≥0.10	0.29-1.06	0.020	0.025											
	SA-213 T2	0.10-0.20	0.10-0.30	0.30-0.61	0.020	0.025	0.50-0.81	0.44-0.65									
	SA-213 T12	0.05-0.15	≤0.50	0.30-0.61	0.020	0.025	0.80-1.25	0.44-0.65									

产品性能 Mechanical Properties:

标准 Standard	牌号 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa) 不小于 Yield point not less than	伸长率(%) 不小于 Elongation not less than	冲击功(J) 不小于 Impact not less than	硬度 不大于 Hardness not more than
GB/T 20409-2006	20G	410-550	245	24	35	
	15CrMoG	440-640	235	21	35	
	SA-210 A1	≥415	255	30		79HRB(143HBW)
	SA-210C	≥485	275	30		89HRB(179HBW)
	SA-213 T2	≥415	205	30		85HRB(163HBW)
	SA-213 T12	≥415	220	30		85HRB(163HBW)

Pipe & Tube for Ship
船用管

标准 Standard:

GB/T 5312　　中国国家标准　China National Standard

用途 Uses:

用于船用锅炉、过热器及耐压力系管道的制造

For manufacture of boiler, superheaters for ships, and pressure system pipelines

化学成分 Chemical Composition (%):

标准 Standard	成分 Type of steel	钢级 Grade	C	Si	Mn	P	S	残余元素/Residual element				
								Cr	Mo	Ni	Cu	总量/Total
		320	≤0.16	≤0.35	0.40-0.70	≤0.035	≤0.035					
		360	≤0.17	≤0.35	0.40-0.80	≤0.035	≤0.035					
GB/T 5312	碳钢和碳锰钢 Carbon & Carbon-Manganese	410	≤0.21	≤0.35	0.40-1.20	≤0.035	≤0.035	≤0.25	≤0.10	≤0.30	≤0.30	≤0.70
		460	≤0.22	≤0.35	0.80-1.40	≤0.035	≤0.035					
		490	≤0.23	≤0.35	0.80-1.50	≤0.035	≤0.035					
	1Cr0.5Mo	440	0.10-0.18	0.10-0.35	0.40-0.70	≤0.035	≤0.035	0.70-1.10	0.45-0.65			
中国船级社规范 CCS	2.25Cr1Mo	410	0.08-0.15	0.10-0.35	0.40-0.70	≤0.035	≤0.035	2.00-2.50	0.90-1.20	≤0.30	≤0.25	Sn≤0.03 Al≤0.02
		490										

注1:　其它船规另行协商。

注2:　经协商,也可供应其他牌号的钢管。

Note1: Other classification of ships can also be provided after consulting with customers.

Note2: Grades other than the a.m. chart can be made available through consultations.

力学性能 Mechanical Properties:

标准 Standard	类别 Type of steel	钢级 Grade	抗拉强度 Tensile strength σ_b MPa	屈服点 Yield point σ_s MPa	伸长率 Elongation A %
				不小于 Not less than	
GB/T 5312	碳钢和碳锰钢 Carbon & Carbon-Mangnese	320	320-440	195	25
		360	360-480	215	24
		410	410-530	235	22
		460	460-580	265	21
		490	490-610	285	21
中国船级社规范 CCS	1Cr0.5Mo	440	440-590	275	22
	2.25Cr1Mo	410	410-560	135	20
		490	490-640	275	16

注：　其它船规另行协商。

Note: Other classification of ships can also be provided after consulting with customers.

Boiler Tube/ Pipe & Tube for Ship 锅炉管/ 船用管

产品规格 Available Dimension Range:

冷拔(冷轧)规格表 Cold Finished Seamless Steel Tube and Pipe:

外径 Outside diameter												
mm	2.0	2.5	2.8	3.0	3.2	3.5	4.0	4.5	5.0	5.5	6.0	6.5
16.0												
19.0												
22.0												
24.0												
25.0												
28.0												
29.0												
30.0												
32.0												
35.0												
38.0												
40.0												
42.0												
45.0												
48.0												
50.0												
51.0												
54.0												
57.0												
60.0												
63.5												
68.0												
70.0												
73.0												
76.0												
83.0												
89.0												

壁厚 Wall thickness
mm

7.0	7.5	8.0	8.5	9.0	9.5	10.0	11.0	12.0	13.0	14.0	16.0

产品规格 Available Dimension Range:

热轧规格表 Hot-rolled Steel Tube and Pipe:

外径 Outside diameter															
mm	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	11.0
31.8															
33.4															
35.0															
38.0															
40.0															
42.0															
44.5															
45.0															
48.0															
50.0															
51.0															
54.0															
57.0															
60.0															
63.0															
63.5															
68.0															
70.0															
73.0															
76.0															
82.5															
89.0															
95.0															
101.6															
108.0															
114.3															
121.0															
127.0															
133.0															
140.0															
146.0															
152.0															
159.0															
165.0															
168.0															
180.0															
194.0															
203.0															
219.0															
244.5															
273.0															
325.0															
339.7															
351.0															
355.6															
377.0															
406.4															
426.0															
457.0															

壁厚 Wall thickness
mm

12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	35.0	50.0	55.0

标准 Standard:

API SPEC 5L　ISO 3183　GB/T 9711

用途 Uses:

用于石油、天然气工业中的气、水、油输送

For conveying gas, water and oil either in the oil or natural gas industries

化学分析 Chemical Analysis(%):

标准 Standard	钢管种类 Type of pipe	等级 Class	钢级 Grade	C	Si	Mn	P	S	V	Nb	Ti	CE[a]	Pcm[b]	备注 Remark
				max	max	max	max	max	max	max	max	max	max	
API SPEC 5L ISO 3183 GB/T 9711	无缝管 SMLS	PSL1	L210 or A	0.22	-	0.90	0.030	0.030	-	-	-	-	-	e,o
			L245 or B	0.28	-	1.20	0.030	0.030	-	-	-	-	-	c,d,e,o
			L290 or X42	0.28	-	1.30	0.030	0.030	-	-	-	-	-	d,e,o
			L320 or X46	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L360 or X52	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L390 or X56	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L415 or X60	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L450 or X65	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L485 or X70	0.28	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
		PSL2	L245N or BN	0.24	0.40	1.20	0.025	0.015	-	-	0.04	0.43	0.25	c,f,o
			L290N or X42N	0.24	0.40	1.20	0.025	0.015	0.06	0.05	0.04	0.43	0.25	f,o
			L320N or X46N	0.24	0.40	1.40	0.025	0.015	0.07	0.05	0.04	0.43	0.25	d,f,o
			L360N or X52N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	0.43	0.25	d,f,o
			L390N or X56N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	0.43	0.25	d,f,o
			L415N or X60N	0.24	0.45	1.40	0.025	0.015	0.10	0.05	0.04	协议/As agreed		d,g,o
			L245Q or BQ	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L290Q or X42Q	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L320Q or X46Q	0.18	0.45	1.40	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L360Q or X52Q	0.18	0.45	1.50	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L390Q or X56Q	0.18	0.45	1.50	0.025	0.015	0.07	0.05	0.04	0.43	0.25	d,f,o
			L415Q or X60Q	0.18	0.45	1.70	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L450Q or X65Q	0.18	0.45	1.70	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L485Q or X70Q	0.18	0.45	1.80	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L555Q or X80Q	0.18	0.45	1.90	0.025	0.015	-	-	-	协议/As agreed		h,i
		酸性服役条件 For sour service	L245NS or BNS	0.14	0.40	1.35	0.020	0.008	-	-	0.04	0.36	0.22	c,d,j,k
			L290NS or X42NS	0.14	0.40	1.35	0.020	0.008	0.05	0.05	0.04	0.36	0.22	j,k
			L320NS or X46NS	0.14	0.40	1.40	0.020	0.008	0.07	0.05	0.04	0.38	0.23	d,j,k
			L360NS or X52NS	0.16	0.45	1.65	0.020	0.008	0.10	0.05	0.04	0.43	0.25	d,j,k
			L245QS or BQS	0.14	0.40	1.35	0.020	0.008	0.04	0.04	0.04	0.34	0.22	j,k
			L290QS or X42QS	0.14	0.40	1.35	0.020	0.008	0.04	0.04	0.04	0.34	0.22	j,k
			L320QS or X46QS	0.15	0.45	1.40	0.020	0.008	0.05	0.05	0.04	0.36	0.23	j,k
			L360QS or X52QS	0.16	0.45	1.65	0.020	0.008	0.07	0.05	0.04	0.39	0.23	d,j,k
			L390QS or X56QS	0.16	0.45	1.65	0.020	0.008	0.07	0.05	0.04	0.40	0.24	d,j,k
			L415QS or X60QS	0.16	0.45	1.65	0.020	0.008	0.08	0.05	0.04	0.41	0.25	d,j,k
			L450QS or X65QS	0.16	0.45	1.65	0.020	0.008	0.09	0.05	0.06	0.42	0.25	d,j,k
			L485QS or X70QS	0.16	0.45	1.65	0.020	0.008	0.09	0.05	0.06	0.42	0.25	d,j,k


化学分析 Chemical Analysis(%):

标准 Standard	钢管种类 Type of pipe	等级 Class	钢级 Grade	C	Si	Mn	P	S	V	Nb	Ti	CE[a]	Pcm[b]	备注 Remark
				max	max	max	max	max	max	max	max	max	max	
API SPEC 5L ISO 3183 GB/T 9711	无缝管 SMLS	海上服役条件 For offshore service	L245NO or BNO	0.14	0.40	1.35	0.020	0.010	-	-	0.04	0.36	0.22	c,d,l,m
			L290NO or X42NO	0.14	0.40	1.35	0.020	0.010	0.05	0.05	0.04	0.36	0.22	l,m
			L320NO or X46NO	0.14	0.40	1.40	0.020	0.010	0.07	0.05	0.04	0.38	0.23	d,l,m
			L360NO or X52NO	0.16	0.45	1.65	0.020	0.010	0.10	0.05	0.04	0.43	0.25	d,l
			L245QO or BQO	0.14	0.40	1.35	0.020	0.010	0.04	0.04	0.04	0.34	0.22	l,m
			L290QO or X42QO	0.14	0.40	1.35	0.020	0.010	0.04	0.04	0.04	0.34	0.22	l,m
			L320QO or X46QO	0.15	0.45	1.40	0.020	0.010	0.05	0.05	0.04	0.36	0.23	l,m
			L360QO or X52QO	0.16	0.45	1.65	0.020	0.010	0.07	0.05	0.04	0.39	0.23	d,l,n
			L390QO or X56QO	0.15	0.45	1.65	0.020	0.010	0.07	0.05	0.04	0.40	0.24	d,l,n
			L415QO or X60QO	0.15	0.45	1.65	0.020	0.010	0.08	0.05	0.04	0.41	0.25	d,l,n
			L455QO or X65QO	0.15	0.45	1.65	0.020	0.010	0.09	0.05	0.06	0.42	0.25	d,l,n
			L485QO or X70QO	0.17	0.45	1.75	0.020	0.010	0.10	0.05	0.06	0.42	0.25	d,l,n
			L555QO or X80QO	0.17	0.45	1.85	0.020	0.010	0.10	0.06	0.06	协议/As agreed		d,l,n
	焊管 WELD	PSL1	L245 or B	0.26	-	1.20	0.030	0.030	-	-	-	-	-	c,d,e,o
			L290 or X42	0.26	-	1.30	0.030	0.030	-	-	-	-	-	d,e,o
			L320 or X46	0.26	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L360 or X52	0.26	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L390 or X56	0.26	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L415 or X60	0.26	-	1.40	0.030	0.030	-	-	-	-	-	d,e,o
			L450 or X65	0.26	-	1.45	0.030	0.030	-	-	-	-	-	d,e,o
			L485 or X70	0.26	-	1.65	0.030	0.030	-	-	-	-	-	d,e,o
		PSL2	L245M or BM	0.22	0.45	1.20	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L290M or X42M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L320M or X46M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	0.43	0.25	f,o
			L360M or X52M	0.22	0.45	1.40	0.025	0.015	-	-	-	0.43	0.25	d,f,o
			L390M or X56M	0.22	0.45	1.40	0.025	0.015	-	-	-	0.43	0.25	d,f,o
			L415M or X60M	0.12	0.45	1.60	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L450M or X65M	0.12	0.45	1.60	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L485M or X70M	0.12	0.45	1.70	0.025	0.015	-	-	-	0.43	0.25	d,g,o
			L555M or X80M	0.12	0.45	1.85	0.025	0.015				0.43	0.25	d,g,o

化学分析 Chemical Analysis(%):

标准 Standard	钢管种类 Type of pipe	等级 Class	钢级 Grade	C max	Si max	Mn max	P max	S max	V max	Nb max	Ti max	CE[a] max	Pcm[b] max	备注 Remark
API SPEC 5L ISO 3183 GB/T 9711	焊管 WELD	酸性服役条件 For sour service	L245MS or BMS	0.10	0.40	1.25	0.020	0.002	0.04	0.04	0.04	-	0.19	j,k
			L290MS or X42MS	0.10	0.40	1.25	0.020	0.002	0.04	0.04	0.04	-	0.19	j,k
			L320MS or X46MS	0.10	0.45	1.35	0.020	0.002	0.05	0.05	0.04	-	0.20	j,k
			L360MS or X52MS	0.10	0.45	1.45	0.020	0.002	0.05	0.06	0.04	-	0.20	j,k
			L390MS or X56MS	0.10	0.45	1.45	0.020	0.002	0.06	0.08	0.04	-	0.21	d,j,k
			L415MS or X60MS	0.10	0.45	1.45	0.020	0.002	0.08	0.08	0.06	-	0.21	d,j,k
			L450MS or X65MS	0.10	0.45	1.60	0.020	0.002	0.10	0.08	0.06	-	0.22	d,j,k
			L485MS or X70MS	0.10	0.45	1.60	0.020	0.002	0.10	0.08	0.06	-	0.22	d,j,k
		海上服役条件 For offshore service	L245MO or BMO	0.12	0.40	1.25	0.020	0.010	0.04	0.04	0.04	-	0.19	l,m
			L290MO or X42MO	0.12	0.40	1.35	0.020	0.010	0.04	0.04	0.04	-	0.19	l,m
			L320MO or X46MO	0.12	0.45	1.35	0.020	0.010	0.05	0.05	0.04	-	0.20	l,m
			L360MO or X52MO	0.12	0.45	1.65	0.020	0.010	0.05	0.05	0.04	-	0.20	d,l,n
			L390MO or X56MO	0.12	0.45	1.65	0.020	0.010	0.06	0.08	0.04	-	0.21	d,l,n
			L415MO or X60MO	0.12	0.45	1.65	0.020	0.010	0.08	0.08	0.06	-	0.21	d,l,n
			L450MO or X65MO	0.12	0.45	1.65	0.020	0.010	0.10	0.08	0.06	-	0.222	d,l,n
			L485MO or X70MO	0.12	0.45	1.75	0.020	0.010	0.10	0.08	0.06	-	0.22	d,l,n
			L555MO or X80MO	0.12	0.45	1.85	0.020	0.010	0.10	0.08	0.06	-	0.24	d,l,n

a $CE=C+\frac{Mn}{6}+\frac{Cr+Mo+V}{5}+\frac{Ni+Cu}{15}$

b $Pcm=C+\frac{Si}{30}+\frac{Mn+Cu+Cr}{20}+\frac{Ni}{60}+\frac{Mo}{15}+\frac{V}{10}+5B$

c Nb+V≤0.06%

d Nb+V+Ti≤0.15%

e Cu≤0.50%, Ni≤0.50%, Cr≤0.50%, Mo≤0.15%

f Cu≤0.50%, Ni≤0.30%, Cr≤0.30%, Mo≤0.15%

g Cu≤0.50%, Ni≤0.50%, Cr≤0.50%, Mo≤0.50%

h Cu≤0.50%, Ni≤1.00%, Cr≤0.50%, Mo≤0.50%

i B≤0.004%

j Al_{tot}≤0.060%, N≤0.012%, Al/N≥2, Cu≤0.35%, Ni≤0.30%,Cr≤0.30%,Mo≤0.15%,B≤0.0005%

k for SMLS and welded pipe Ca≤0.006%

l Al_{tot}≤0.060%, N≤0.012%, Al/N≥2

m Cu≤0.35%, Ni≤0.30%, Cr≤0.30%, Mo≤0.10%, B≤0.0005%

n Cu≤0.50%, Ni≤0.50%, Cr≤0.50%, Mo≤0.50%, B≤0.0005%

o B≤0.001%

机械性能 Mechanical Properties:

标准 Standard	等级 Class	钢级 Grade		屈服强度 Rt0.5 (MPa) Yield strength	抗拉强度 Rm (MPa) Tensile strength	延伸率 Af (%) Elongation	屈强比 Rt0.5/Rm	焊缝抗拉强度 Rm (MPa) Tensile strength of weld seam
API SPEC 5L ISO 3183 GB/T 9711	PSL1	L210 or A	Min	210	335	a	-	335
		L245 or B	Min	245	415	a	-	415
		L290 or X42	Min	290	415	a	-	415
		L320 or X46	Min	320	435	a	-	435
		L360 or X52	Min	360	460	a	-	460
		L390 or X56	Min	390	490	a	-	490
		L415 or X60	Min	415	520	a	-	520
		L450 or X65	Min	450	535	a	-	535
		L485 or X70	Min	485	570	a	-	570
	PSL2	L245N or BN L245Q or BQ L245M or BM	Min	245	415	a	-	415
			Max	450	655		0.93	
		L290N or X42N L290Q or X42Q L290M or X42M	Min	290	415	a	-	415
			Max	495	655		0.93	
		L320N or X46N L320Q or X46Q L320M or X46M	Min	320	435	a	-	435
			Max	525	655		0.93	
		L360N or X52N L360Q or X52Q L360M or X52M	Min	360	460	a	-	460
			Max	530	760		0.93	
		L390N or X56N L390Q or X56Q L390M or X56M	Min	390	490	a	-	490
			Max	545	760		0.93	
		L415N or X60N L415Q or X60Q L415M or X60M	Min	415	520	a	-	520
			Max	565	760		0.93	
		L450Q or X65Q L450M or X65M	Min	450	535	a	-	535
			Max	600	760		0.93	
		L485Q or X70Q L485M or X70M	Min	485	570	a	-	570
			Max	635	760		0.93	
		L555Q or X80Q L555M or X80M	Min	555	625	a	-	625
			Max	705	825		0.93	
		L625M or X90M	Min	625	695	a	-	695
			Max	775	915		0.95	
		L690M or X100M	Min	690	760	a	-	760
			Max	840	990		0.97	
		L830M or X120M	Min	830	915	a	-	915
			Max	1050	1145		0.99	

机械性能 Mechanical Properties:

标准 Standard	等级 Class	钢级 Grade		屈服强度 Rt0.5 (MPa) Yield strength	抗拉强度 Rm (MPa) Tensile strength	延伸率 Af (%) Elongation	屈强比 Rt0.5/Rm	焊缝抗拉强度 Rm (MPa) Tensile strength of weld seam
API SPEC 5L ISO 3183 GB/T 9711	酸性服役条件 For sour service	L245NS or BNS L245QS or BQS L245MS or BMS	Min	245	415	a	-	415
			Max	450	655		0.93	
		L290NS or X42NS L290QS or X42QS L290MS or X42MS	Min	290	415	a	-	415
			Max	495	655		0.93	
		L320NS or X46NS L320QS or X46QS L320MS or X46MS	Min	320	435	a	-	435
			Max	525	655		0.93	
		L360NS or X52NS L360QS or X52QS L360MS or X52MS	Min	360	460	a	-	460
			Max	530	760		0.93	
		L390QS or X56QS L390MS or X56MS	Min	390	490	a	-	490
			Max	545	760		0.93	
		L415QS or X60QS L415MS or X60MS	Min	415	520	a	-	520
			Max	565	760		0.93	
		L450QS or X65QS L450MS or X65MS	Min	450	535	a	-	535
			Max	600	760		0.93	
		L485QS or X70QS L485MS or X70MS	Min	485	570	a	-	570
			Max	635	760		0.93	
	海上服役条件 For offshore service	L245NO or BNO L245QO or BQO L245MO or BMO	Min	245	415	a	-	415
			Max	450	655		0.93	
		L290NO or X42NO L290QO or X42QO L290MO or X42MO	Min	290	415	a	-	415
			Max	495	655		0.93	
		L320NO or X46NO L320QO or X46QO L320MO or X46MO	Min	320	435	a	-	435
			Max	520	655		0.93	
		L360NO or X52NO L360QO or X52QO L360MO or X52MO	Min	360	460	a	-	460
			Max	525	760		0.93	
		L390QO or X56QO L390MO or X56MO	Min	390	490	a	-	490
			Max	540	760		0.93	
		L415QO or X60QO L415MO or X60MO	Min	415	520	a	-	520
			Max	565	760		0.93	
		L450QO or X65QO L450MO or X65MO	Min	450	535	a	-	535
			Max	570	760		0.93	
		L485QO or X70QO L485MO or X70MO	Min	485	570	a	-	570
			Max	605	760		0.93	
		L555QO or X80QO L555MO or X80MO	Min	555	625	a	-	625
			Max	675	825		0.93	

注： a: 延伸率最小值计算公式 : $A_f=1940*A^{0.2}/U^{0.9}$

Note: a: The minimum elongation using the following equation: $A_f=1940*A^{0.2}/U^{0.9}$

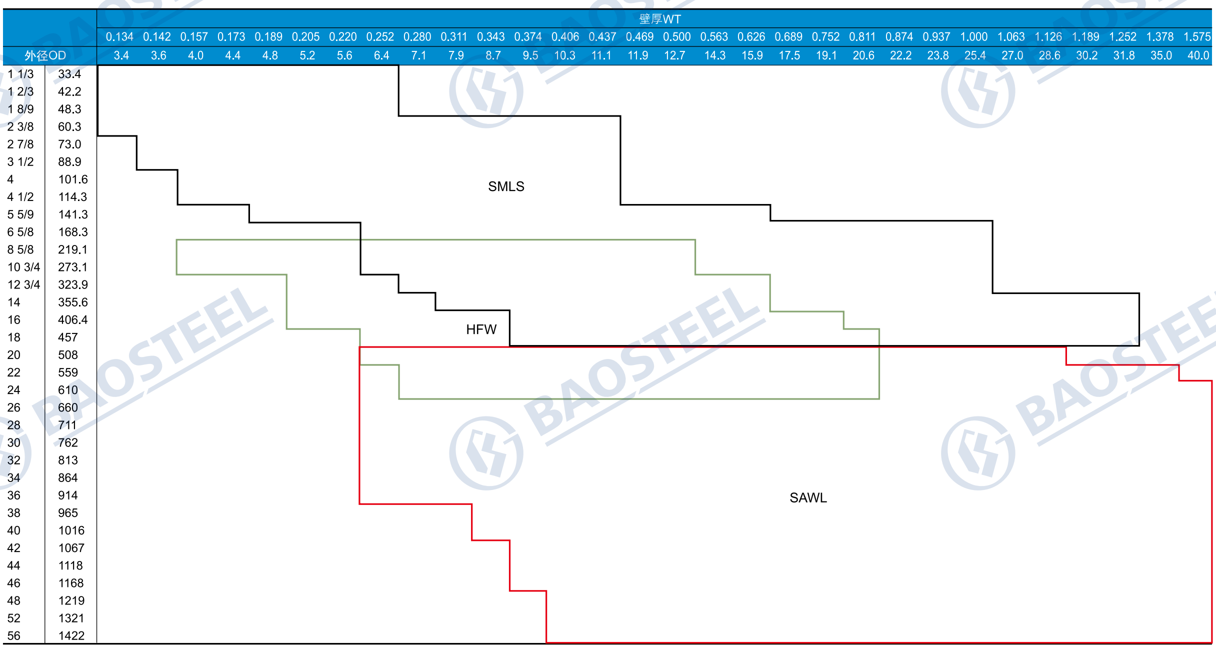
韧性 Toughness:

钢级 Grade	管体最小横向冲击功[(1)、(2)、(3)] Transverse minimum Impact of Pipe body (J)					焊缝最小横向冲击功[(1)、(2)、(3)] Transverse minimum Impact of Weld (J)	
	D≤508	508mm<D ≤762mm	762mm<D ≤914mm	914mm<D ≤1219mm	1219mm<D ≤1422mm	D<1422mm	D=1422mm
≤L415 or X60	27(20)	27(20)	40(30)	40(30)	40(30)	27(20)	40(30)
>L415 or X60 ≤L450 or X65	27(20)	27(20)	40(30)	40(30)	54(40)	27(20)	40(30)
>L450 or X65 ≤L485 or X70	27(20)	27(20)	40(30)	40(30)	54(40)	27(20)	40(30)
>L485 or X70 ≤L555 or X80	40(30)	40(30)	40(30)	40(30)	54(40)	27(20)	40(30)

注：(1) 表中所列值适用于全尺寸标准试样。
(2) 括号内为冲击功单值最小值，括号外为冲击功平均值。
(3) 试验温度为0°C。

Note: (1) The values in the table be suitable for the full size standard sample.
(2) The value inside bracket is the minimum single value,outside bracket is the average value.
(3) Test Temperature : 0°C.

规格 Dimension:



结构用管
Tube for Structural

标准 Standard:

GB/T 8162　中国国家标准 China National Standard
Q/BQB 203　宝钢企业标准 Baosteel Corporation Standard
DIN 1629　德国工业标准 Deutsche Industrie Normen

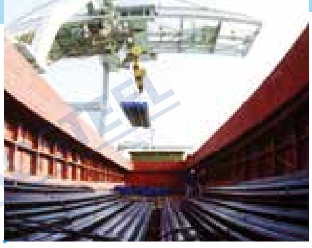
用途 Uses:

用于制造管道、容器、设备、管件及钢结构
For manufacture of pipelines,vessels,equipment,pipe fittings and steel structures

化学成分 Chemical Composition (%):

标准 Standard	牌号 Grade	C	Si	Mn	P	S	Cr	Ni	Cu	V
GB/T 8162	10	0.07-0.13	0.17-0.37	0.35-0.65	≤0.025	≤0.020	≤0.15	≤0.30	≤0.25	-
	20	0.17-0.23	0.17-0.37	0.35-0.65	≤0.025	≤0.020	≤0.25	≤0.30	≤0.25	-
	35	0.32-0.39	0.17-0.37	0.50-0.80	≤0.025	≤0.020	≤0.25	≤0.30	≤0.25	-
	45	0.42-0.50	0.17-0.37	0.50-0.80	≤0.025	≤0.020	≤0.25	≤0.30	≤0.25	-
	Q345A	≤0.20	≤0.55	1.00-1.60	≤0.025	≤0.020	≤0.30	≤0.30	≤0.30	-
	Q345B	≤0.20	≤0.55	1.00-1.60	≤0.025	≤0.020	≤0.30	≤0.30	≤0.30	-
	Q345C	≤0.20	≤0.55	1.00-1.60	≤0.025	≤0.020	≤0.30	≤0.30	≤0.30	0.02-0.15
	Q345D	≤0.18	≤0.55	1.00-1.60	≤0.025	≤0.020	≤0.30	≤0.30	≤0.30	0.02-0.15
	Q345E	≤0.18	≤0.55	1.00-1.60	≤0.025	≤0.020	≤0.30	≤0.30	≤0.30	0.02-0.15
Q/BQB 203 DIN 1629	St37.0	≤0.17	0.17-0.37	0.35-0.65	≤0.025	≤0.020	≤0.25	≤0.25	≤0.25	-
	St44.0	≤0.21	0.17-0.37	0.50-0.80	≤0.025	≤0.020	≤0.25	≤0.25	≤0.25	-
	St55	0.33-0.41	0.17-0.37	0.50-0.80	≤0.025	≤0.020	≤0.25	≤0.25	≤0.25	-
	St52.0	≤0.22	≤0.55	≤1.60	≤0.025	≤0.020	≤0.25	≤0.25	≤0.25	-
	CK45	0.42-0.50	0.17-0.37	0.50-0.80	≤0.025	≤0.020	≤0.25	≤0.25	≤0.25	-

注： 经协商，也可供应其它牌号的钢管。
Note: Grades other than the a.m. chart can be made available through consultations.



机械性能 Mechanical Properties:

标准 Standard	钢级 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa) 不小于 Yield strength not less than		伸长率(%) 不小于 Elongation not less than	冲击实验 Impact test	
			≤16mm	>16-30mm		温度(°C) Temperature	吸收功(KV/J) Absorbed energy
GB/T 8162	10	≥335	205	195	24	-	-
	20	≥410	245	235	20	-	-
	35	≥510	305	295	17	-	-
	45	≥590	335	325	14	-	-
	Q345A	470-630	345	325	20	-	-
	Q345B	470-630	345	325	20	20	34
	Q345C	470-630	345	325	21	0	34
	Q345D	470-630	345	325	21	-20	34
	Q345E	470-630	345	325	21	-40	27
Q/BQB 203 DIN 1629	-	-	≤16mm	>16mm	-	-	-
	St37.0	350-480	235	225	25	-	-
	St44.0	420-550	275	265	21	-	-
	St55	540-645	295	285	17	-	-
	St52.0	500-650	355	345	21	-	-
	CK45	590-730	335	325	14	-	-

流体输送用管
Tube for Liquid Service

标准 Standard:

GB/T 8163　　中国国家标准 China National Standard
ASTM A 53M　　美国材料与测试协会标准 Standard of American Society for Testing & Materials
ASTM A 106M　　美国材料与测试协会标准 Srandard of American Society for Testing & Materials
ASTM A 333M　　美国材料与测试协会标准 Srandard of American Society for Testing & Materials
JIS G 3454　JIS G 3455　JIS G 3456　日本工业标准 Japanese Industrial Standard

用途 Uses:

用于石油、天然气输送以及其他流体输送
For conveying oil, gas and other fluids

化学成分 Chemical Composition (%):

标准 Standard	牌号 Grade	C	Si	Mn	P	S	Ni	Cr	Cu	Mo	V
GB/T 8163	10	0.07-0.13	0.07-0.37	0.35-0.65	≤0.035	≤0.035	≤0.30	≤0.15	≤0.25	-	-
	20	0.17-0.23	0.17-0.37	0.35-0.65	≤0.035	≤0.035	≤0.30	≤0.25	≤0.25	-	-
	Q345A	≤0.20	≤0.50	≤1.70	≤0.035	≤0.035	≤0.50	≤0.30	≤0.30	-	≤0.15
	Q345B	≤0.20	≤0.50	≤1.70	≤0.035	≤0.035	≤0.50	≤0.30	≤0.30	-	≤0.15
	Q345C	≤0.20	≤0.50	≤1.70	≤0.030	≤0.030	≤0.50	≤0.30	≤0.30	-	≤0.15
	Q345D	≤0.18	≤0.50	≤1.70	≤0.030	≤0.030	≤0.50	≤0.30	≤0.30	-	≤0.15
	Q345E	≤0.18	≤0.50	≤1.70	≤0.025	≤0.020	≤0.50	≤0.30	≤0.30	-	≤0.15
ASTM A 53M	A	≤0.25	-	≤0.95	≤0.05	≤0.045	≤0.40	≤0.40	≤0.40	≤0.15	≤0.08
	B	≤0.30	-	≤1.20	≤0.05	≤0.045	≤0.40	≤0.40	≤0.40	≤0.15	≤0.08
ASTM A 106M	A	≤0.25	≥0.10	0.27-0.93	≤0.035	≤0.035	≤0.40	≤0.40	≤0.40	≤0.15	≤0.08
	B	≤0.30	≥0.10	0.29-1.06	≤0.035	≤0.035	≤0.40	≤0.40	≤0.40	≤0.15	≤0.08
	C	≤0.35	≥0.10	0.29-1.06	≤0.035	≤0.035	≤0.40	≤0.40	≤0.40	≤0.15	≤0.08
ASTM A 333M	-3	≤0.19	0.18-0.37	0.31-0.64	≤0.25	≤0.25	3.18-3.82	-	-	-	-
	-6	≤0.30	≥0.10	0.29-1.06	≤0.25	≤0.25	≤0.40	≤0.30	≤0.40	≤0.12	≤0.08

化学成分 Chemical Composition (%):

标准 Standard	牌号 Grade	C	Si	Mn	P	S	Ni	Cr	Cu	Mo	V
JIS G 3454	STPG 370	≤0.25	≤0.35	0.30-0.90	≤0.040	≤0.040	-	-	-	-	-
	STPG 410	≤0.30	≤0.35	0.30-1.00	≤0.040	≤0.040	-	-	-	-	-
JIS G 3455	STS 370	≤0.25	0.10-0.35	0.30-1.10	≤0.035	≤0.035	-	-	-	-	-
	STS 410	≤0.30	0.10-0.35	0.30-1.40	≤0.035	≤0.035	-	-	-	-	-
	STS 480	≤0.33	0.10-0.35	0.30-1.50	≤0.035	≤0.035	-	-	-	-	-
JIS G 3456	STPT 370	≤0.25	0.10-0.35	0.30-0.90	≤0.035	≤0.035	-	-	-	-	-
	STPT 410	≤0.30	0.10-0.35	0.30-1.00	≤0.035	≤0.035	-	-	-	-	-
	STPT 480	≤0.33	0.10-0.35	0.30-1.00	≤0.035	≤0.035	-	-	-	-	-

注： 经协商，也可供应其它牌号的钢管。

Note: Grades other than the a.m. chart can be made available through consultations.

机械性能 Mechanical Properties:

标准 Standard	牌号 Grade	抗拉强度 Tensile strength（MPa）	屈服强度 Yield strength（MPa）		伸长率 Elongation (%)	冲击实验 Impact test	
			≤16mm	>16mm		温度(℃) Temperature	吸收功(KV/J) Absorbed energy
GB/T 8163	10	335-475	≥205	≥195	≥24	-	-
	20	410-530	≥245	≥235	≥20	-	-
	Q345A	470-630	345	325	20	-	-
	Q345B	470-630	345	325	20	20	34
	Q345C	470-630	345	325	21	0	34
	Q345D	470-630	345	325	21	-20	34
	Q345E	470-630	345	325	21	-40	27
ASTM A 53M	A	≥330	≥205		查ASTM A53的表3 See table 3 of ASTM A 53	-	-
	B	≥415	≥240				
ASTM A 106M	A	≥330	≥205		查ASTM A106的表4 See table 4 of ASTM A 106	-	-
	B	≥415	≥240				
	C	≥485	≥275				
JIS G 3454	STPG 370	≥215	≥370		查JIS G 3454的表3-2 See table 3-2 of JIS G 3454	-	-
	STPG 410	≥245	≥410				
JIS G 3455	STS 370	≥215	≥370		查JIS G 3455的表3-2 See table 3-2 of JIS G 3455	-	-
	STS 410	≥245	≥410				
	STS 480	≥275	≥480				
JIS G 3456	STPT 370	≥215	≥370		查JIS G 3456的表3-2 See table 3-2 of JIS G 3456	-	-
	STPT 410	≥245	≥410				
	STPT 480	≥275	≥480				

地质钻探用管
Tube for Geological Drilling

标准 Standard:

Q/BQB 230　宝钢企业标准 Baosteel Corporation Standard
YB 235　中国冶金工业标准 Standard of China Metallurgical Industry
YB/T 5052　中国冶金工业标准 Standard of China Metallurgical Industry

用途 Uses:

用于地质钻探
For geological drilling

化学成分 Chemical Composition (%):

标准 Standard	牌号 Material	钢级 Grade	C	Si	Mn	P	S	Mo	V	B
YB 235 YB/T 5052	45MnB	DZ40	0.42-0.49	0.20-0.40	1.10-1.40	≤0.040	≤0.040	-	-	0.001-0.0035
	50Mn		0.48-0.56	0.17-0.37	0.70-1.00	≤0.040	≤0.040	-	-	-
	40Mn2	DZ50	0.37-0.44	0.20-0.40	1.40-1.80	≤0.040	≤0.040	-	-	-
	40Mn2Si		0.37-0.45	0.40-0.70	1.30-1.80	≤0.040	≤0.040	-	-	-
	45MnMoB	DZ60	0.41-0.49	0.17-0.37	0.90-1.20	≤0.040	≤0.040	0.20-0.30	-	0.001-0.005

标准 Standard	钢级 Grade	C	Si	Mn	Mo	P	S	Cu	Cr	Ni	V
Q/BQB 230	STM-R780	0.38-0.45	0.15-0.35	1.55-1.85	0.15-0.25	≤0.025	≤0.02	≤0.20	≤0.30	≤0.30	-
	STM-R780-1	0.35-0.40	≤0.65	1.30-1.70	-	≤0.025	≤0.02	-	-	-	0.08-0.20

机械性能 Mechanical Properties:

标准 Standard	钢级 Grade		屈服强度(MPa) Yield strength	抗拉强度(MPa) Tensile strength	延伸率(%) Elongation
YB235	DZ40	min	373	637	14
	DZ50	min	490	686	12
	DZ60	min	588	765	12
YB/T 5052	DZ40	min	392	637	14
	DZ50	min	490	686	12
	DZ60	min	588	765	12
Q/BQB 230	STM-R780	min	520	780	15
	STM-R780-1	min	520	780	15

气瓶用无缝钢管
Seamless Steel Tubes for Gas Cylinder

标准 Standard:

GB 18248　　中国国家标准 China National Standard

用途 Uses:

气瓶制造

For manufacturing gas cylinder

化学成分 Chemical Composition (%):

采用标准 Standard	牌号 Grade	C	Si	Mn	P	S	Cr	Mo	V	Ni	Cu
GB 18248	37Mn	0.34-0.40	0.10-0.30	1.35-1.75	≤0.020	≤0.020	≤0.30	-	-	≤0.30	≤0.20
	30CrMo	0.26-0.34	0.17-0.37	0.40-0.70	≤0.020	≤0.020	0.80-1.10	0.15-0.25	-	≤0.30	≤0.20
	34Mn2V	0.30-0.37	0.17-0.37	1.40-1.75	≤0.020	≤0.020	≤0.30	-	0.07-0.12	≤0.30	≤0.20
	35CrMo	0.32-0.40	0.17-0.37	0.40-0.70	≤0.020	≤0.020	0.80-1.10	0.15-0.25	-	≤0.30	≤0.20
	34CrMo4	0.30-0.37	≤0.40	0.60-0.90	≤0.020	≤0.020	0.90-1.20	0.15-0.30	-	≤0.30	≤0.20
	30CrMnSiA	0.28-0.34	0.90-1.20	0.80-1.10	≤0.020	≤0.020	0.80-1.10	≤0.10	-	≤0.30	≤0.20

机械性能 Mechanical Properties:

标准 Standard	钢级 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa) Yield strength	伸长率(%) Elongation	冲击功(J) Impact energy	
					温度(℃) Temperature	吸收功(KV/J) Absorbed energy
		不小于/not less than				
GB 18248	37Mn	750	630	16	-50	27
	30CrMo	930	785	12	-50	27
	34Mn2V	745	530	16	-20	27
	35CrMo	980	835	12	-50	27
	34CrMo4	980	835	12	-50	27
	30CrMnSiA	1080	885	10	室温 Room temperature	27

注： 经协商，也可供应其它牌号的钢管。

Note: Grades other than the a.m. chart can be made available through consultations.

汽车用无缝钢管
Seamless Steel Tubes for Automobile

标准 Standard:

DIN EN 10305 冷拔无缝精密钢管供货技术条件 Steel Tubes for Precision Applications Technical Delivery Conditions
YB/T 5035 中国冶金工业标准 Standard of China Metallurgical Industry
GB/T 8162 中国国家标准 China National Standard
MAL 010 宝钢供货技术要求 Baosteel Delivery Technical Requirement
GB/T 3639 冷拔或冷轧精密无缝钢管 Seamless Cold-Drawn or Cold-Rolled Steel Tubes for Precision Applications

用途 Uses:

用于汽车车轴、轴套、传动轴、球笼保持架、安全气囊、凸轮轴、稳定杆、高压油管
For manufacturing auto axle, housing, transmisston shaft, cage holder, SRS, Cam shaft, stabilizerbar, high pressure oil tube

化学成分 Chemical Composition (%):

标准 Standard	钢级 Grade	C	Si	Mn	P	S	Cr	Ni	Cu
YB/T 5035	45	0.42 0.50	0.17 0.37	0.50 0.80	≤0.030	≤0.025	≤0.25	≤0.25	≤0.25
	45Mn2	0.42 0.49	0.17 0.37	1.40 1.80	≤0.025	≤0.025	≤0.30	≤0.30	≤0.20
MAL 010	25MnCr	0.20 0.28	0.15 0.35	1.20 1.70	≤0.035	≤0.040	0.30 0.60	≤0.20	≤0.30
GB/T 8162	20Mn2	0.17 0.24	0.17 0.37	1.40 1.80	≤0.035	≤0.035	≤0.25	≤0.25	≤0.20

注： 经协商，也可供应其它牌号的钢管，Ck35, 27CD4(25CrMo4), SAE8617H, 20CrMnTi, 20Cr, 40Cr, BG690VF, 34MnB5, 26MnB5, E355
Note: Grades other than the a.m. chart can be made available through consultations, Ck35, 27CD4(25CrMo4), SAE8617H, 20CrMnTi, 20Cr, 40Cr, BG690VF, 34MnB5, 26MnB5, E355.

机械性能 Mechanical Properties:

标准 Standard	钢级 Grade	抗拉强度(MPa) Tensile strength	屈服强度(MPa) Yield strength	延伸率 (%) Elongation	布氏硬度 HBW
		不小于/not less than			
YB/T 5035	45	590	335	14	-
	45Mn2	885	735	10	217 269
MAL 010	25MnCr	600~785	350	16	-
GB/T 8162	20Mn2	785	590	10	-

液压支柱用无缝钢管
Seamless Steel Tubes for Hydraulic Prop

标准 Standard:

GB/T 17396　　中国国家标准 China National Standard

用途 Uses:

煤矿液压支架和支柱的缸、柱,也可用于其它的液压缸、柱用。
For manufacturing cylinder and piston of hydraulic props for coal mine or other purposes

化学成分 Chemical Composition (%):

钢级 Grade	C	Si	Mn	P	S	Cr	Ni	Cu
20	0.17~0.24	0.17~0.37	0.35~0.65	⩽0.020	⩽0.015	⩽0.25	⩽0.25	⩽0.20
35	0.32~0.40	0.17~0.37	0.50~0.80	⩽0.025	⩽0.025	⩽0.25	⩽0.25	⩽0.20
40	0.42~0.50	0.17~0.37	0.50~0.80	⩽0.025	⩽0.025	⩽0.25	⩽0.25	⩽0.20
27SiMn	0.24~0.32	1.10~1.40	1.10~1.40	⩽0.025	⩽0.020	⩽0.25	⩽0.25	⩽0.25
30MnNbRe	0.27~0.36	0.20~0.60	1.20~1.60	⩽0.035	⩽0.035	⩽0.030 Nb 0.02~0.05	⩽0.030	⩽0.030 Re 0.02~0.04

机械性能 Mechanical Properties:

钢级 Grade	试样热处理工艺 Test piece with heat treatment	抗拉强度 (MPa) Tensile strength	屈服强度 (MPa) Yield strength	伸长率 (%) Elongation	冲击功(J) A_{KU2} Impact energy	钢管退火状态布氏硬度⩽
		不小于/not less than				
20 35 45	-	400 510 590	245 305 335	20 17 14	-	-
27SiMn	920℃ ±20℃ 水淬/Water quench 450℃ ±50℃ 回火/Temper 冷却剂：油或水/Cooling: oil or water	980	835	12	39	217
30MnNbRe	880℃ ±20℃ 水淬/Water quench 450℃ ±50℃ 回火/Temper 冷却剂：空冷/Cooling: air	850	725	13	49	-

规格 Dimension:

规格表：管道、容器、设备用管 Dimension: Pipe and Tube for Pipeline, Vessel and Equipment

外径 Outside diameter															
mm	3.6	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	11.0
31.8	■	■	■	■	■	■									
33.4	■	■	■	■	■	■									
35.0	■	■	■	■	■	■									
38.0	■	■	■	■	■	■									
40.0	■	■	■	■	■	■									
42.0	■	■	■	■	■	■	■	■							
44.5		■	■	■	■	■	■	■	■	■	■	■			
45.0		■	■	■	■	■	■	■	■	■	■	■	■		
48.0		■	■	■	■	■	■	■	■	■	■	■	■		
50.0		■	■	■	■	■	■	■	■	■	■	■	■	■	
51.0		■	■	■	■	■	■	■	■	■	■	■	■	■	
54.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
57.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
60.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
63.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
63.5		■	■	■	■	■	■	■	■	■	■	■	■	■	■
68.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
70.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
73.0		■	■	■	■	■	■	■	■	■	■	■	■	■	■
76.0			■	■	■	■	■	■	■	■	■	■	■	■	■
82.5			■	■	■	■	■	■	■	■	■	■	■	■	■
89.0			■	■	■	■	■	■	■	■	■	■	■	■	■
95.0			■	■	■	■	■	■	■	■	■	■	■	■	■
101.6			■	■	■	■	■	■	■	■	■	■	■	■	■
108.0			■	■	■	■	■	■	■	■	■	■	■	■	■
114.3			■	■	■	■	■	■	■	■	■	■	■	■	■
121.0			■	■	■	■	■	■	■	■	■	■	■	■	■
127.0			■	■	■	■	■	■	■	■	■	■	■	■	■
133.0			■	■	■	■	■	■	■	■	■	■	■	■	■
140.0			■	■	■	■	■	■	■	■	■	■	■	■	■
146.0				■	■	■	■	■	■	■	■	■	■	■	■
152.0				■	■	■	■	■	■	■	■	■	■	■	■
159.0				■	■	■	■	■	■	■	■	■	■	■	■
165.0						■	■	■	■	■	■	■	■	■	■
168.0						■	■	■	■	■	■	■	■	■	■
180.0						■	■	■	■	■	■	■	■	■	■
194.0						■	■	■	■	■	■	■	■	■	■
203.0						■	■	■	■	■	■	■	■	■	■
219.0						■	■	■	■	■	■	■	■	■	■
244.5								■	■	■	■	■	■	■	■
273.0								■	■	■	■	■	■	■	■
325.0									■	■	■	■	■	■	■
339.7									■	■	■	■	■	■	■
351.0									■	■	■	■	■	■	■
355.6									■	■	■	■	■	■	■
377.0													■	■	■
406.4													■	■	■
426.0													■	■	■
457.0													■	■	■

壁厚 Wall thickness
mm

12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	35.0	50.0	55.0

规格 Dimension:

规格表：管道、容器、设备用管 Dimension: Pipe and Tube for Pipeline, Vessel and Equipment

	0.25	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.8	2.9	3.0	3.2	3.5	3.6	4.0	4.5	5.0	5.5	5.6	6.0	6.3
139.7																											
141.3																											
153.7																											
159.0																											
168.3																											
177.8																											
180.0																											
193.7																											
219.1																											
244.5																											
273.0																											
324.0																											
356.0																											
377.0																											
406.4																											
457.0																											
473.0																											
508.0																											
559.0																											
610.0																											
660.0																											
711.0																											
762.0																											
813.0																											
864.0																											
914.0																											
965.0																											
1016.0																											
1118.0																											
1168.0																											
1219.0																											
1270.0																											
1320.0																											
1371.0																											
1422.0																											

	6.5	7.0	7.1	7.5	8.0	8.5	8.8	9.0	9.5	10	11	12	12.5	13	14	15	16	17	17.5	18	19	20	22	25	28	30	32	36	40

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