

PURETUBE

PURETUBE

普瑞管业

High Purity Precision BA+ Stainless Tube
Move Forward with Quality
Technology
Trust



● 欢迎咨询更多信息

Welcome to inquire for further information

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PURETUBE

普瑞管业

专注于高端应用的小口径无缝洁净管

浙江普瑞管业有限公司位于中国不锈钢管产业基地——浙江湖州。

材质主要为不锈钢、双相钢、镍基合金，规格OD 3.175-42mm，WT0.5-3.0mm，内壁粗糙度Ra<0.375 μ m,执行标准ASTM A213/A269/270,及等效DIN, EN和JIS标准。

我们采用目前最先进的油拉技术，高效的生产设备，成熟的工艺路线及先进的管理模式，致力于生产满足高端客户严苛要求的产品，并提供超越客户期望的技术服务与解决方案。

PURE Focusing on high-end applications

PURETUBE is located in Huzhou, Zhejiang, where it is a base of stainless steel tube products in China. We are specializing in manufacturing Stainless/Duplex/Nickel Alloy seamless BA+tube, with small OD range from 3.175-42mm, or 1/8"-1.5", and inner roughness Ra<0.375 μ m for high-end applications, complying with international standards ASTM A213/A269/A270, or equivalent DIN, EN and JIS. We have advanced equipments, state-of-art manufacturing process and production management.



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多样产品种类

We support our customers by producing many different types of pipe.

普瑞可以为各种需求提供多种多样的品种支持。

请根据您的用途和目的选择高品质的普瑞清洁管SUS316L EP规格

或性价比高的普瑞清洁管SUS316BA规格。

品种 Products

无缝洁净管

SEAMLESS CLEAN PIPE

从小径管到大径管（1/8"–400A）的广泛制造范围，从一般SUS304材料到高纯度流体配管用的SUS316L双熔材（V+V），是拥有丰富钢种的无缝管。

PURE produces a wide variety of seamless steel pipes, from those manufactured with a general SUS304 material of (1/8"–400A), to those produced with a double melted SUS316L material (V+V), which is used for high purity fluid piping, in both small and large diameters.

焊接管道

WELDED CLEAN PIPE

从中径管到大径管（3/4"–400A）的广泛制造范围，具有出色的性价比的焊管。

Our welded pipe is particularly cost effective and can be provided in a wide range of diameters from medium to large (3/4"–800A).

钢种 Steel Type

无缝洁净管

SEAMLESS CLEAN PIPE

标准钢种
Standard Material

SUS304

SUS316

SUS316L

半导体/液晶成套设备用高纯净
For Semiconductor / Liquid Crystal Plants
(Double Melted Material, SUS316L)

V

V+V

焊接洁净管

WELDED CLEAN PIPE

标准钢种
Standard Material

SUS304

SUS316L

半导体/液晶塑料
For Semiconductor / Liquid Crystal Plants

SUS316L

表面处理 Surface Condition



AP Grade

酸洗 Anneal&Pickled



(MP)
BA Grade

机械研磨 Mechanical Polished
(Outer/Inner surface)



BA Grade

光亮退火 Bright Annealed

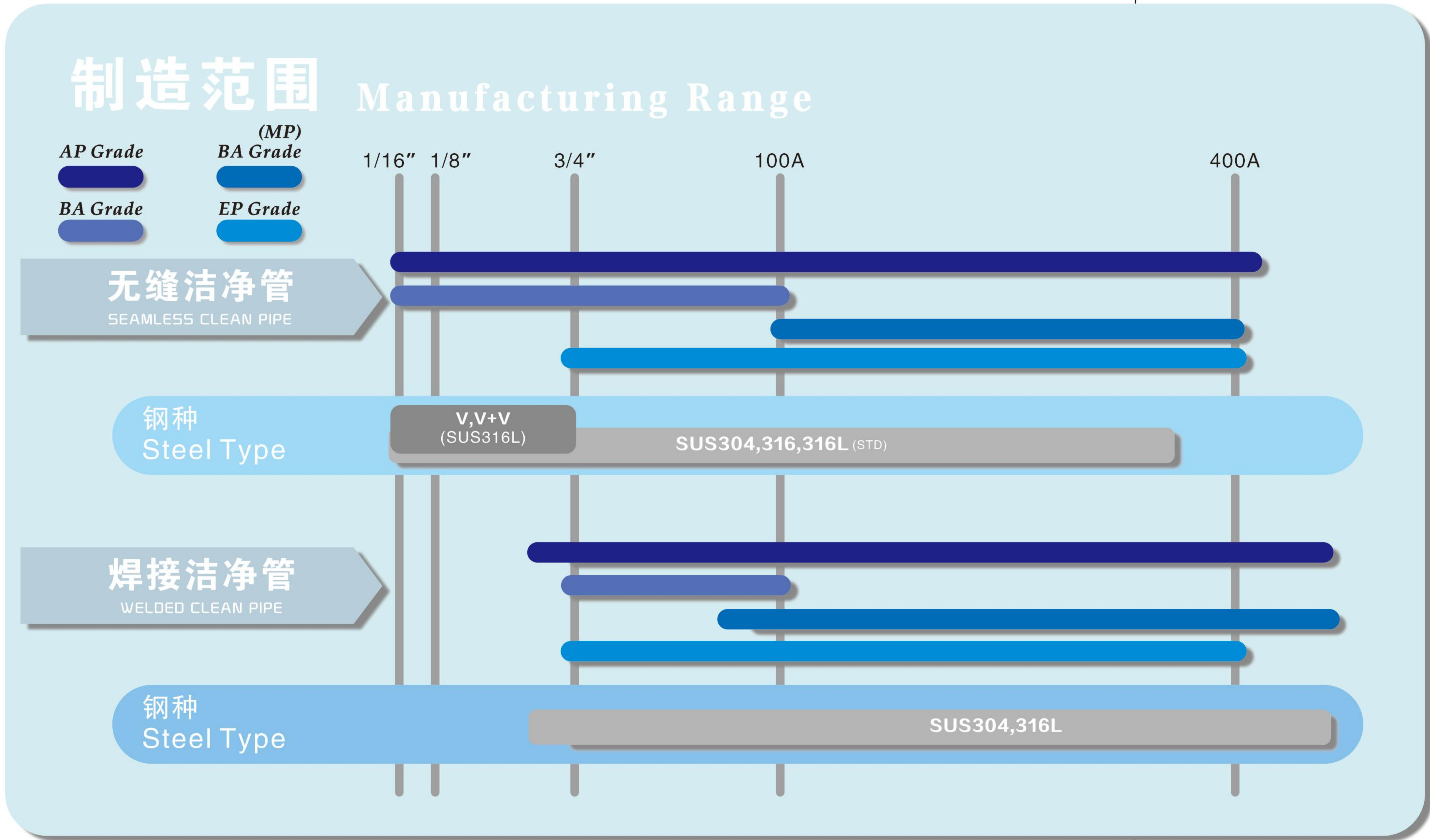


EP Grade

电解研磨 Electro Polished
(Inner surface)

产品范围广泛

We support our customers with our broad manufacturing range.



无尘室
Clean room



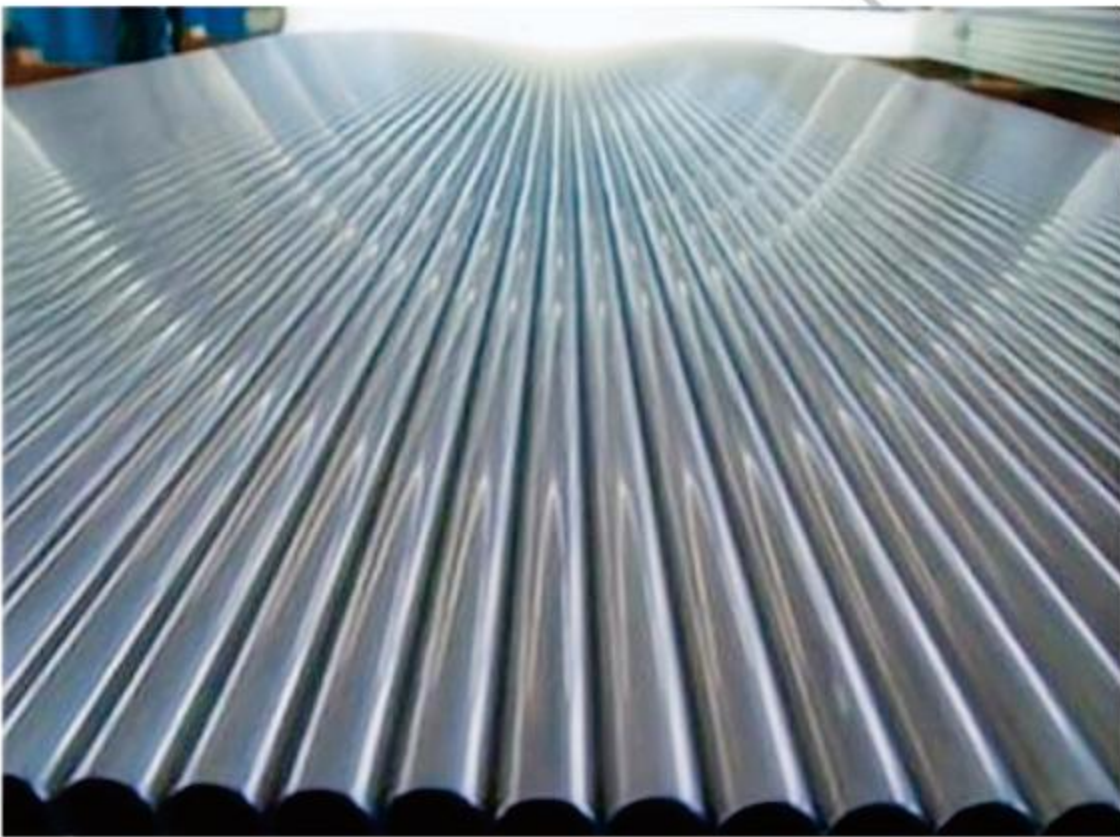
高效协同生产
Efficient collaborative production

钢种 Steel Type

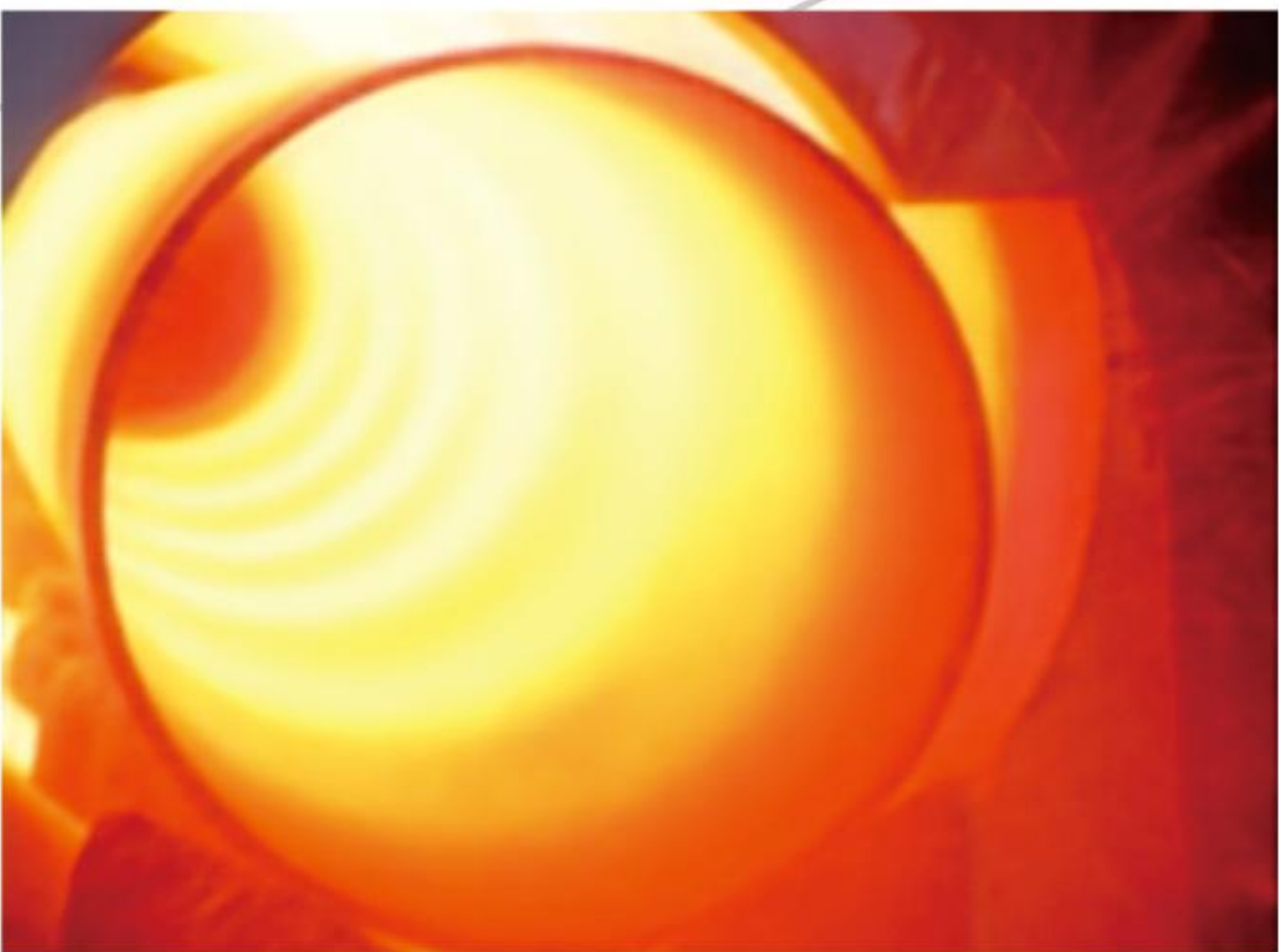


除标准的SUS304、SUS316L外，还可选择半导体、液晶成套设备用高纯度流体用多重溶解材料。(无缝洁净管)

Apart from standard SUS304, and SUS316L stainless steel, pipes can also be produced from ultra clean stainless steel, for use with high purity fluids in semiconductor and liquid crystal plants.



洁净管(BA Grade)
Clean Pipe(BA Grade)



100A管用热处理炉
100APipe heat treatment furnace

外径 1/8"到400A

普瑞管业生产范围广泛，可满足各种需求。还制造了性价比高的无缝洁净管。

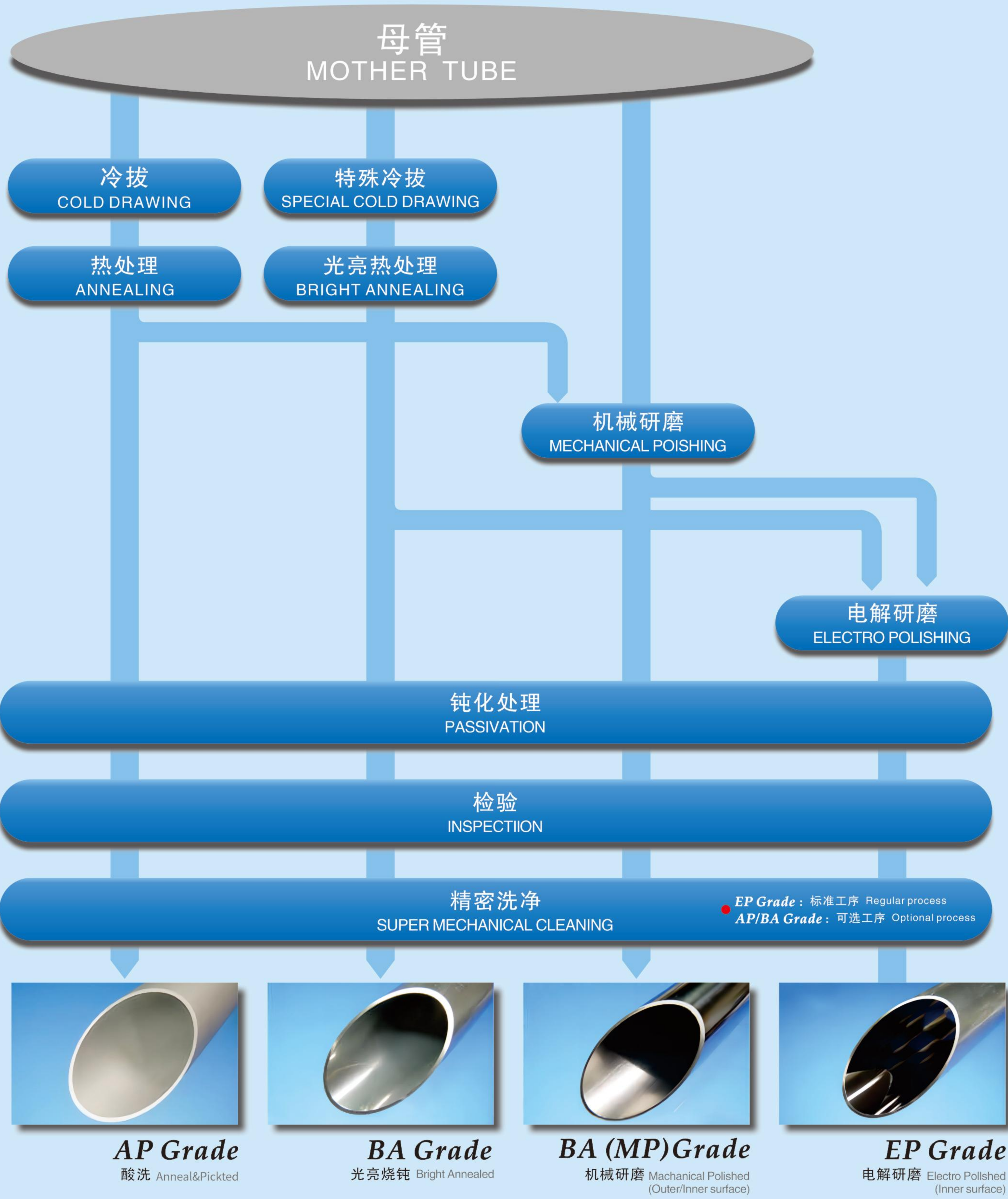
Outside diameter 1/8"-400A

PURETUBE has a wide production range and can meet various needs. We have also produced cost-effective Seamless Clean pipes.

密切集成的生产体制支持

We support our customers needs with our totally integrated production system.

制造工艺 Manufacturing Process



从冷加工到电解研磨、精密清洗，在本公司或外协工厂生产，以最好的质量管理体系为客户提供产品。

From cold processing to electrolytic grinding and precision cleaning, we produce our products in our company or outsourced factories, providing customers with the best quality management system.

成熟的技术及工艺
Mature technology and processes



资材场地
Materials Yard



包装 (木箱)
Packing (Wooden Box)



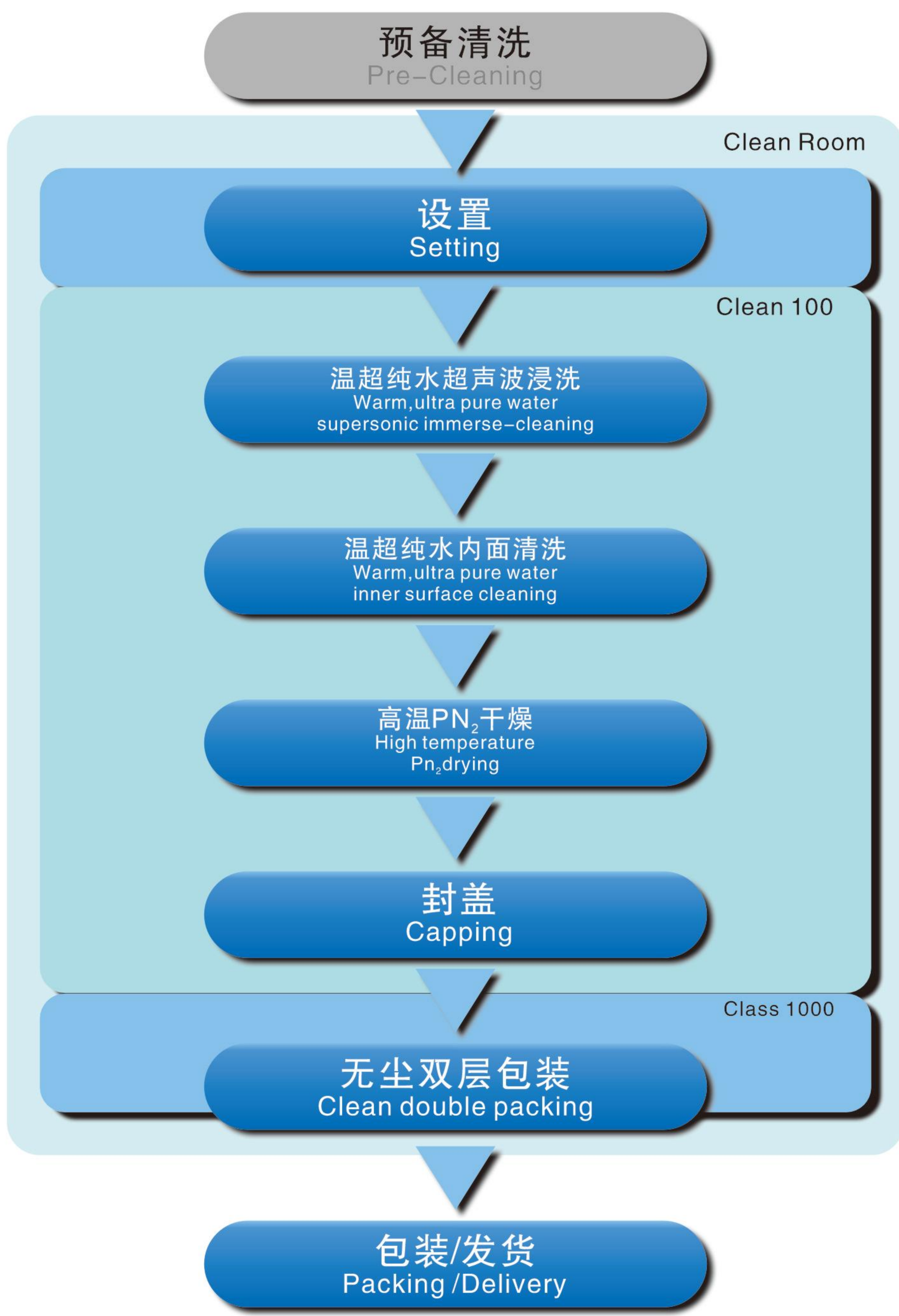
目视检查
Visual Inspection



产品检验中
During Product Inspection



精密洗净工程 Super Mechanical Cleaning



待包装
To be packaged



待发货
Pending shipment

特性

- 明确的生产体系**
EP管、BA管、MP管、AP管全部可进行精密清洗。
- 广阔无尘车间**
使用大面积无尘室，可清洗至最大长度6米（20英尺）
- 高洁净度的环境**
温超纯水清洗、高温PN₂干燥、起皱全部在100级区域实施。
- 盐渍化防治措施**
洁净室空调系统除采用精密过滤器外，还采用海盐粒子去除过滤器及除臭全功能。
- 超声波浸洗**
在初步、温、纯水浸泡清洗后，将超声波清洗与温、超纯水浸泡清洗结合使用。

Features

- Established integrated systems**
We manufacture all EP, BA, MP and AP pipes using well-established integrated systems, from manufacturing through to super mechanical cleaning
- Cleaning in a spacious clean room**
Our spacious clean room, which enables us to clean pipes with a maximum length of up to 6m (20ft).
- Cleaning in accordance with Class 10 cleanliness ratings**
Cleaning with ultra pure warm water, drying with high temperature PN₂ and capping are performed in clean ambient conditions, which comply with Class 100 cleanliness ratings.
- Salt damage preventative measures**
Particle filters and deodorising filters are used to totally eliminate the possibility of salt damage.
- Combined application of supersonic and immersion cleaning**
After preliminary, warm, pure water immersion cleaning, supersonic cleaning is applied together with warm, ultra pure water immersion cleaning.

精密清洗品质保证值

Super Mechanical Cleaned Quality Assurance Values

检查项目 Inspection Items	保证值 Assurance Values			
	AP Grade	BA Grade	BA (MP) Grade	EP Grade
油分测定 Oil content measurement	0.1mg/ft ² 以下 0.1mg/ft ² or lower	0.01mg/ft ² 以下 0.01mg/ft ² or lower		
粒子测量 Particle count	粒径0.3 μ m以上为5/cf以下 No. of particle above 0.3 μ m is 5/cf or less	粒径0.1 μ m以上为5/cf以下 No. of particle above 0.1 μ m is 5/cf or less		粒径0.1 μ m以上为1/cf以下 No. of particle above 0.1 μ m is 1/cf or less
液体测量洗脱液离子检查 Liquid registivity measurment Eluant ion check	0.5MΩ・cm以上 0.5MΩ・cm or over			
离子色谱分析溶出离子检查 On chromatography analysis Eluant ion check	10ng/cm ² 以下 10ng/cm ² or lower		5ng/cm ² 以下 5ng/cm ² or lower	
露点测定 Dew point measurement	-75℃以下 -75℃ or lower			

注：保修值适用于半导体/液晶设备。“※”离子色谱分析和露点测定是可选的。
These are assurance values for semiconductor/liquid crystal plants.
“※” Ion chromatography analysis and Dew point measurement are optional items.

标准尺寸/公差等级

STANDARD SIZE/DIMENSION TOLERANCE

半导体/液晶设备用 标准尺寸

Standard Sizes for Semiconductor and Liquid Crystal Plants
For AP/BA/MP/EP Grade

外径 Outer Diameter			壁厚 Wall Thickness (mm)		
mm	inch	A size	mm	SCH5S	SCH10S
3.18	1/8"		0.51※1	0.71※1	
6.35	1/4"		0.89※1	1.0※1	
9.53	3/8"		0.89※1	1.0※1	
12.7	1/2"		1.0※1	1.24※1	
19.05	5/8"		1.0※1	1.24※1	
15.88	3/4"		1.24※1	1.65※1	
25.4	1"		1.24	1.65※1	
10.5		6A		1.0※1	1.2※1
13.8		8A		1.2※1	1.65※1
17.3		10A		1.2※1	1.65※1
21.7		20A		1.65	2.1※1
27.2		15A		1.65	2.1※1
34.0		25A		1.65	2.8※1
42.7		32A		1.65	2.8※1
48.6		40A		1.65	2.8※1
60.5		50A		1.65	2.8※1
76.3		65A		2.1	3.0※1
89.1		80A		2.1	3.0※1
101.6		90A		2.1	3.0※1
114.3		100A		2.1	3.0※1
139.8		125A		2.8※2	3.4※2
165.2		150A		2.8※2	3.4※2
216.3		200A		2.8※2	4.0※2
267.4		250A		3.4※2	4.0※2
318.5		300A		4.0※2	4.5※2
355.6		350A		4.0※2	5.0※2
406.4		400A		4.5※2	5.0※2
457.2		450A		4.5※2	5.0※2
508.0		500A		5.0※2	5.5※2

注：
标准长度为4米。
除标准尺寸以外也请咨询。
“※1” 仅可无缝清洁管。
“※2” 仅可焊接清洁管。
Nominal pipe length is 4m
Please contact us for details of other sizes.
※1 Only available as SEAMLESS CLEAN PIPE.
※2 Only available as WELDED CLEAN PIPE.

半导体/液晶设备用 尺寸公差

Dimension Tolerances for Semiconductor and Liquid Crystal Plants
For AP Grade

外径(mm) Outer Diameter	外径公差 OuterDiameter Tolerance
up to 27.2	± 0.3mm
34.0–318.5	± 1%
355.6–508.0	± 0.5% ※3

壁厚(mm) Wall Thickness	壁厚公差 Wall Thickness Tolerance
up to 2.0	± 0.2mm
over 2.0	± 10%
4.0/4.5/5.0/5.5	+15%–12.5%
5.0/5.5/6.5	MIN.–12.5%
8.0	MIN.–10%

注：
相对于标准尺寸的公差。
请咨询标准尺寸以外的公差。
“※3” 测量根据周长。
These tolerances are applicable to standard sizes.
Please contact us for the tolerances of any other sizes.
※3 The outer diameter is calculated according
to the length of the circumference.

For AP/BA/MP/EP Grade

外径 Outer Diameter			外径公差(mm)	壁厚公差	
mm	inch	A size	Outer Diameter Tolerance	Wall Thickness Tolerance	
3.18	1/8"		+0.06 −0	± 12.5%	
6.35	1/4"		+0.05 −0	± 10%	
9.53	3/8"		+0.06 −0		
12.7	1/2"		+0.07 −0		
15.88	5/8"		+0.08 −0		
19.05	3/4"		+0.09 −0		
25.4	1"		± 0.08		
10.5		6A	± 0.10	± 10%	
13.8		8A			
17.3		10A			
21.7		15A			
27.2		20A			
34.0		25A	± 0.30		
42.7		32A	± 0.50		
48.6		40A	± 0.60		
60.5		50A	± 0.70		
76.3		65A	± 0.80		
89.1		80A	± 1.00		
101.6		90A	± 1.0%	+15%−12.5%	
114.3		100A			
139.8		125A			
165.2		150A			
216.3		200A			
267.4		250A	± 0.5%※4		WT 5.0/5.5/6.5mm MIN. −12.5%
318.5		300A			
355.6		350A			
406.4		400A			
457.2		450A			
508.0		500A			WT 8.0mm MIN. −10%

注：
相对于标准尺寸的公差。
请咨询标准尺寸以外的公差。
根据表面光洁度的不同，制造范围也不同。请注意。
“※4” 测量根据周长。
These tolerances are applicable to standard sizes.
Please contact us for the tolerances of any other sizes.
The manufacture range changes with surface condition.
※4 The outer diameter is calculated according to the length of the
circumference.

生物/医药/食品 标准尺寸/公差

Standard Sizes and Dimension Tolerances
for Biochemical,Pharmaceutical and Food Processing Plants
For BA/MP/EP Grade

外径(mm) Outer Diameter	外径公差 Outer Diameter Tolerance	壁厚(mm) Wall Thickness	壁厚公差 Wall Thickness Tolerance
25.4	± 0.15	1.2	± 10%
31.8	± 0.16	1.2	
38.1	± 0.19	1.2	
50.8	± 0.25	1.5	
63.5	± 0.25	2.0	
76.3	± 0.25	2.0	
89.1	+0.30 –0.40	2.0	
101.6	+0.35 –0.40	2.0	
114.3	+0.40 –0.60	3.0	
139.8	+0.40 –0.80	3.0	
165.2	+0.40 –1.20	3.0	

注：
标准长度为6米。
除标准尺寸以外也请咨询。
外径测量根据周长。
请咨询标准尺寸以外的公差。
根据表面光洁度的不同，制造范围也不同。请注意。
Nominal pipelength is 4m.
Please contact us for details of other sizes.
The outer diameter is calculated according to the length of the circumference.
Please contact us for the tolerances of any other sizes.
The manufacture range changes with surface condition.

钢种/化学成分

MATERIAL/CHEMICAL COMPOSITION

无缝洁净管
SEAMLESS CLEAN PIPE

标准钢种
Standard material

(%)

		C	Si	Mn	P	S	Ni	Cr	Mo
SUS304TP	JIS	max0.08	max1.00	max2.00	max0.045	max0.030	8.00-11.00	18.00-20.00	
	示例 typical example	0.02	0.47	1.09	0.028	0.002	9.07	18.25	
SUS316TP	JIS	max0.08	max1.00	max2.00	max0.045	max0.030	10.00-14.00	16.00-18.00	2.00-3.00
	示例 typical example	0.02	0.45	0.84	0.026	0.001	11.16	17.28	2.17
SUS316LTP	JIS	max0.030	max1.00	max2.00	max0.045	max0.030	12.00-16.00	16.00-18.00	2.00-3.00
	控制值※ control value	max0.027	max0.50	max1.00	max0.0035	max0.0025	12.50-13.10	16.50-18.50	2.00-3.00
	示例 typical example	0.019	0.35	0.71	0.027	0.001	12.64	16.68	2.20
SUS304TBS	JIS	max0.08	max1.00	max2.00	max0.045	max0.030	8.00-10.50	18.00-20.00	
	示例 typical example	0.02	0.43	1.04	0.030	0.006	9.09	18.50	
SUS316LTBS	JIS	max0.030	max1.00	max2.00	max0.045	max0.030	12.00-15.00	16.00-18.00	2.00-3.00
	示例 typical example	0.019	0.37	0.76	0.025	0.001	12.59	17.37	2.15

注：“※”适用于外径100A以下。
Control value of SUS316LTP is set for 100A or smaller pipe.

多重溶解材料(SUS316L) 半导体/液晶设备用
Double/Triple Melted Material for Semiconductor and Liquid Crystal Plants

		C	Si	Mn	P	S	Ni	Cr	Mo
V+V	控制值 control value	max0.015	max0.50	max0.05	max0.020	max0.003	14.00-15.00	16.00-17.00	2.00-3.00
	示例 typical example	0.006	0.09	0.03	0.004	0.002	14.72	16.37	2.83
V	控制值 control value	max0.020	max0.50	max0.30	max0.030	max0.003	14.00-15.00	16.00-17.00	2.00-3.00
	示例 typical example	0.007	0.41	0.22	0.022	0.002	14.79	16.26	2.88

半导体/液晶设备用多重溶解材料。
Double Melted Material for Semiconductor and Liquid Crystal Plants.

V+V: 多重溶解材料 Double Melted Steel (VIM+VAR)

V: 多重溶解材料 Double Melted Steel (EF/RH+VAR)

VIM:真空感应溶解 Vacuum Induction Melting
VAR:真空电弧再溶解 Vacuum Arc Remelting
EF:电炉 Electro Furnace
RH:回流式真空脱力 Rheinstah Huttenwerke Heraus

焊接洁净管
WELDED CLEAN PIPE

标准钢种
Standard material

(%)

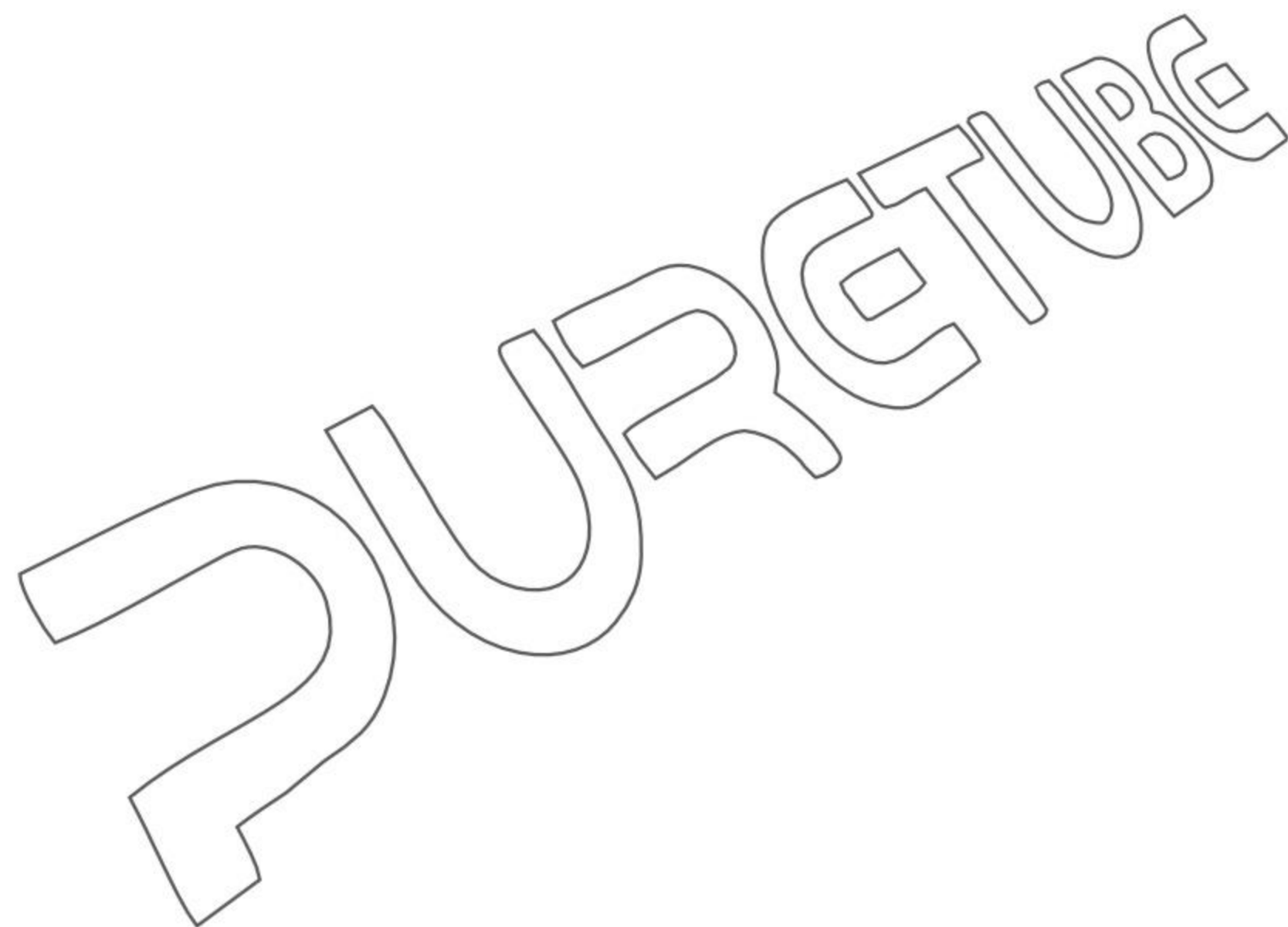
		C	Si	Mn	P	S	Ni	Cr	Mo
Tp304L	ASTM	max0.035	max1.00	max2.00	max0.045	max0.030	8.00-11.00	18.00-20.00	
	TYPICAL	0.018	0.34	1.13	0.028	0.002	8.31	18.52	
TP316L	ASTM	max0.035	max1.00	max2.00	max0.045	max0.030	10.00-14.00	16.00-18.00	2.00-3.00
	TYPICAL	0.015	0.30	0.98	0.031	0.003	10.43	16.71	2.08

半导体用管标准
Standard for semiconductor tubes

(%)

		C	Si	Mn	P	S	Ni	Cr	Mo
SUS316L	JIS	max0.030	max1.00	max2.00	max0.045	max0.030	12.00-16.00	16.00-18.00	2.00-3.00
	控制值※ control value	max0.030	max0.50	max1.00	max0.045	max0.005	12.00-16.00	16.00-18.00	2.00-3.00
	示例 typical example	0.014	0.38	0.76	0.033	0.001	12.88	17.34	2.22

注：“※”适用于外径100A以下。
Control value of SUS316LTP is set for 100A or smaller pipe..



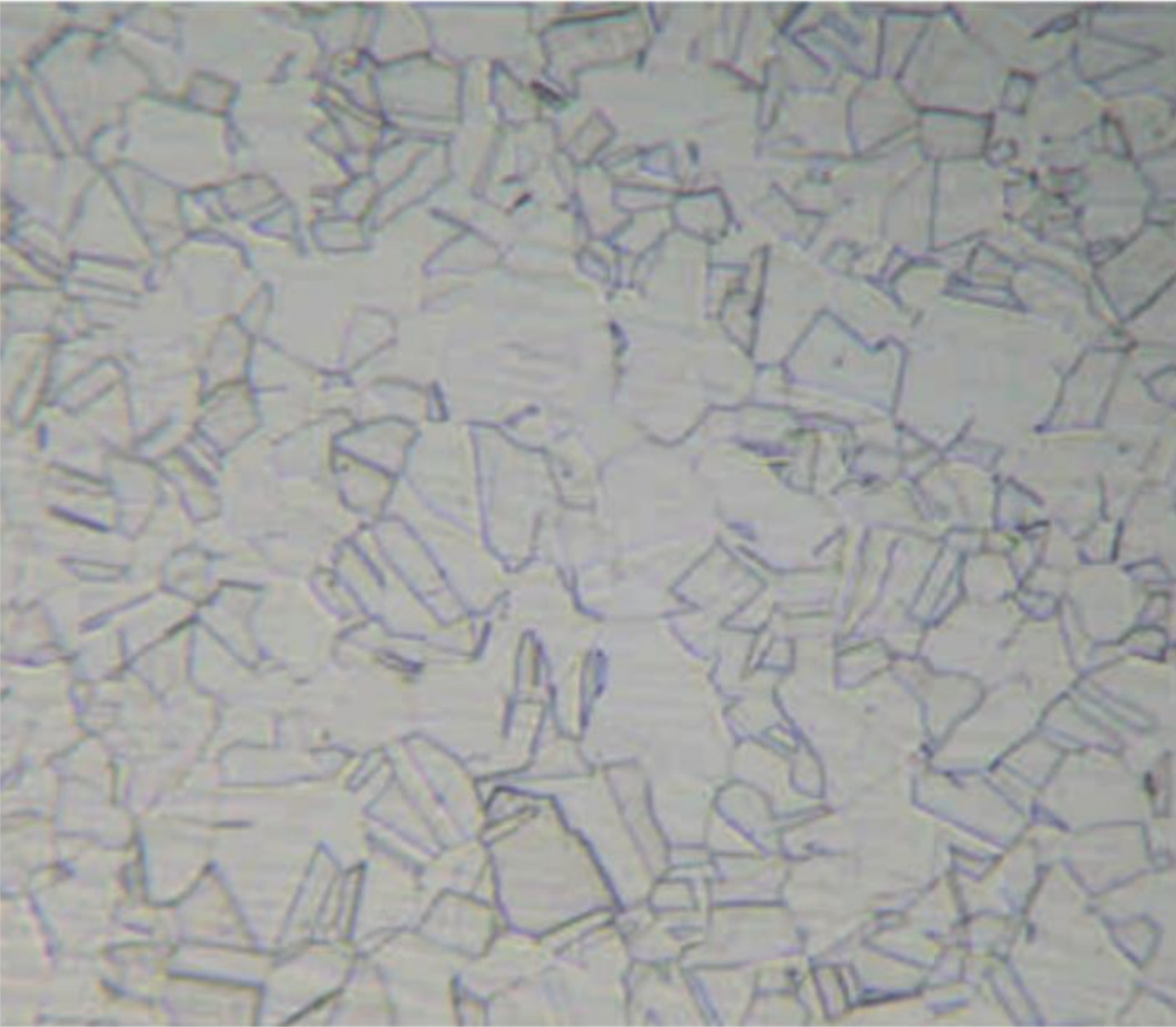
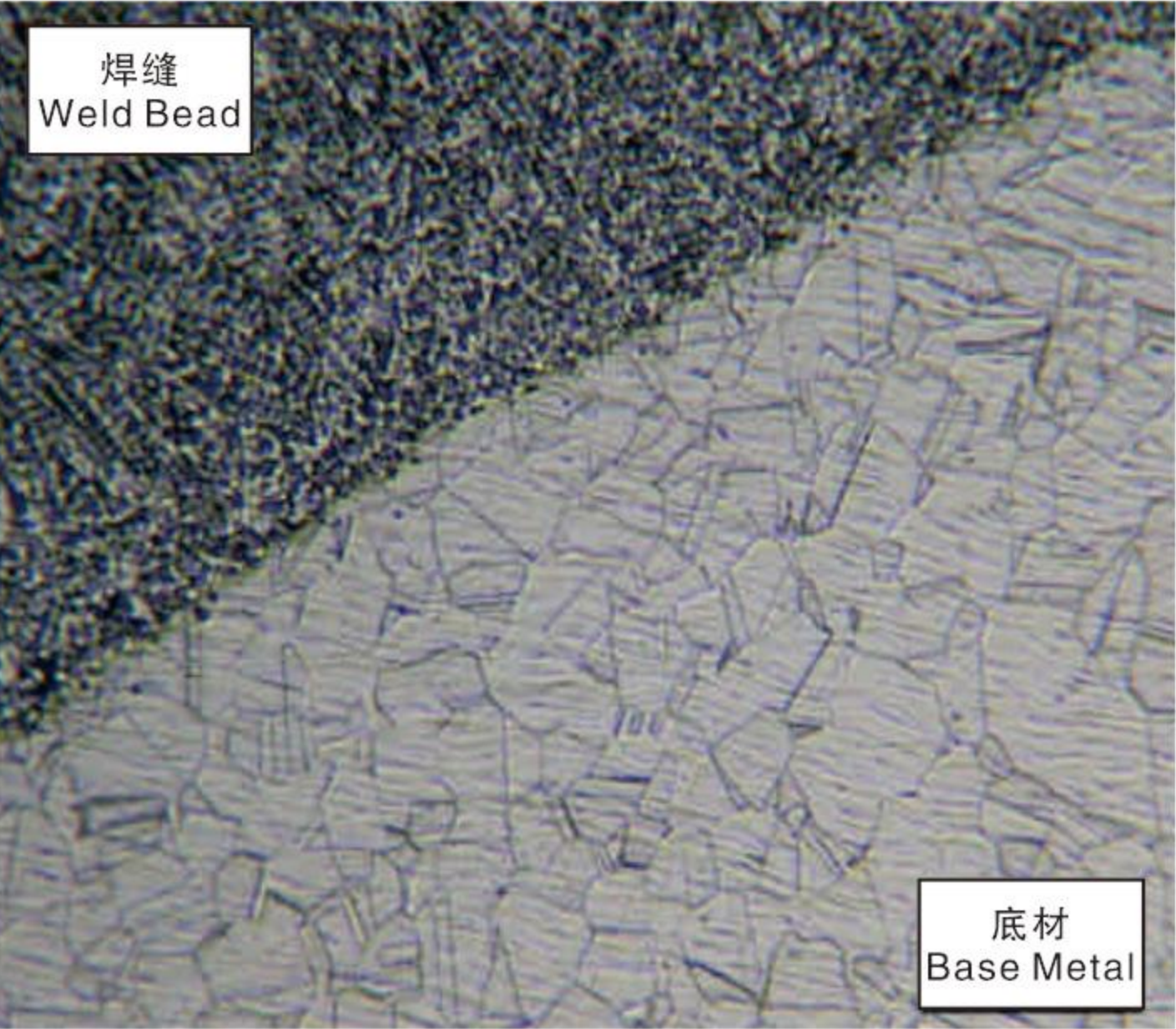
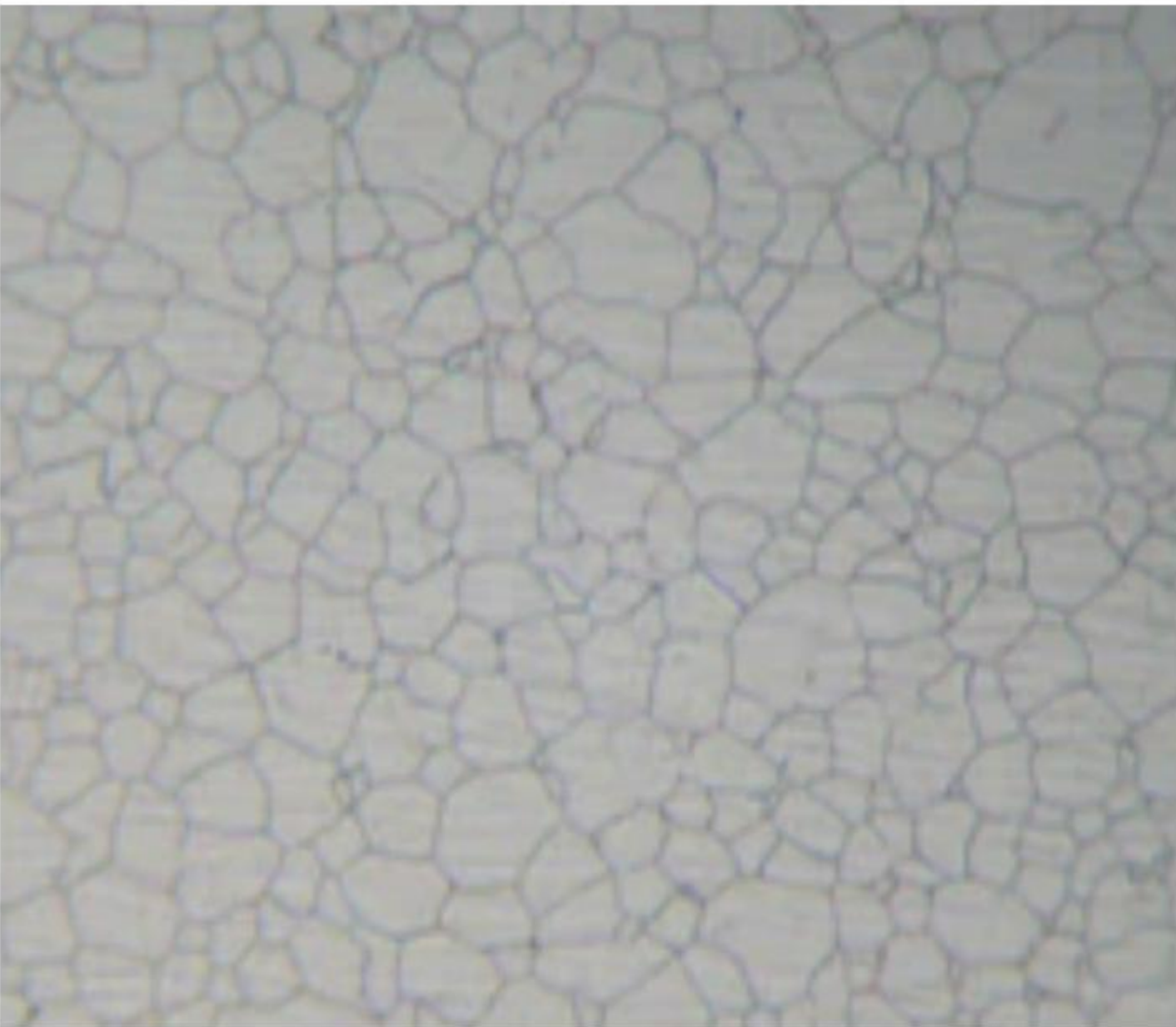
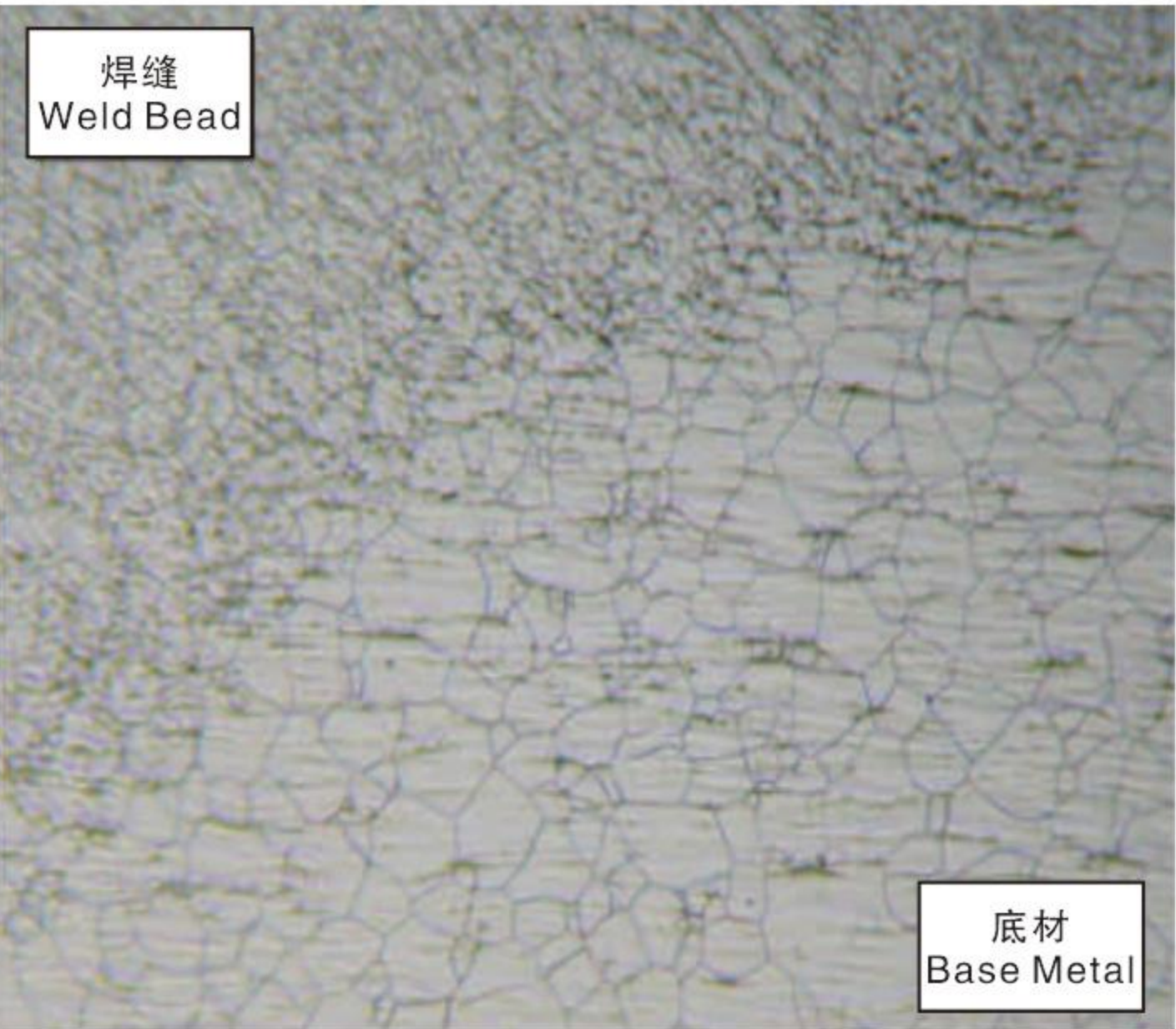
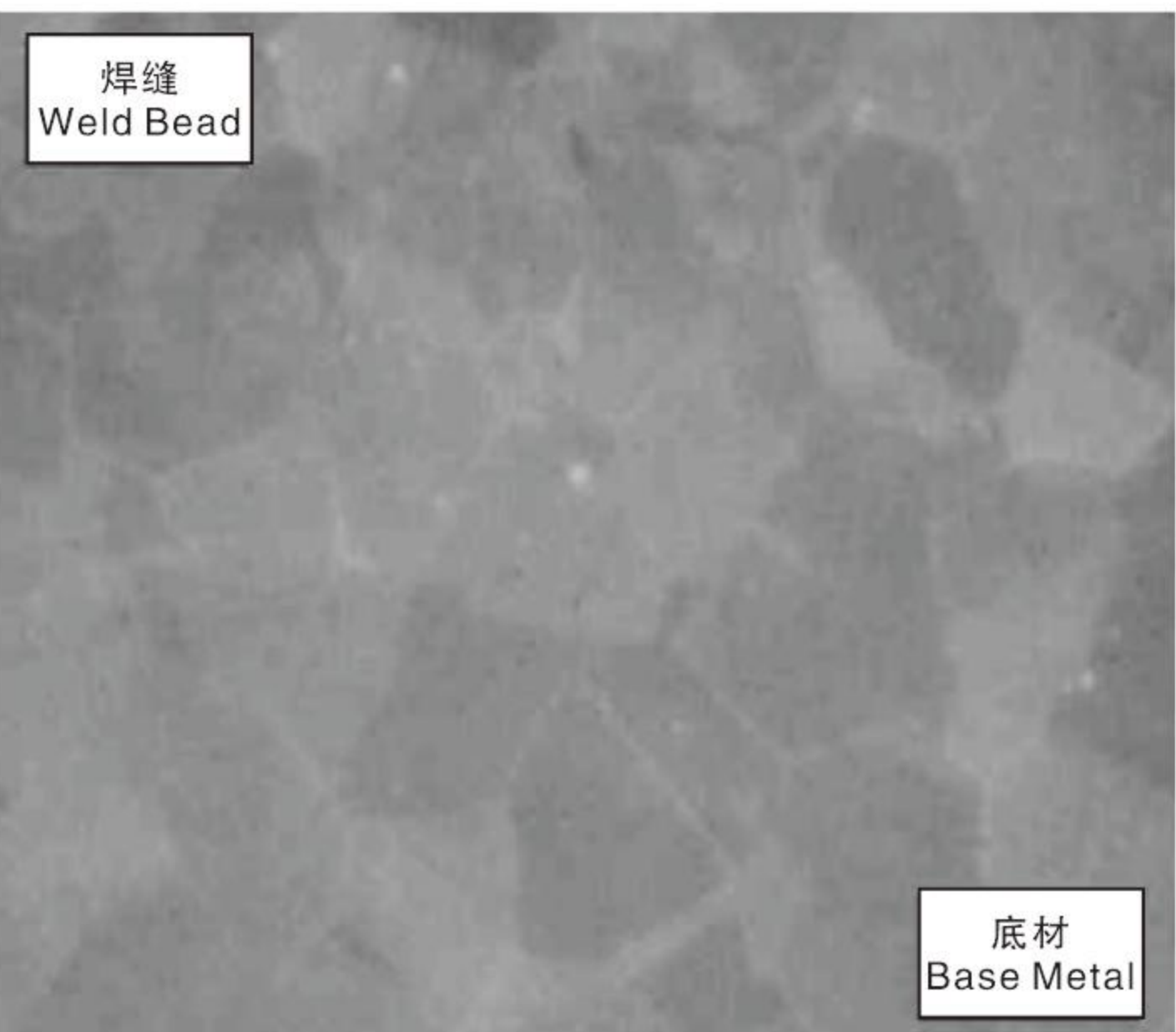
高精密度产品
High precision products

拉伸试验
Tensile Test

		0.2%耐力 (N/mm ²) Yield Strength	抗拉强度 (N/mm ²) Tensile Strength	延伸 (%) Elongation	Vickers Hardness	
Tp304L	ASTM	170min	485min	35%min	HV	HRB
	TYPICAL	278	605	58	146	80
TP316L	ASTM	170min	485min	35%min	HV	HRB
	TYPICAL	280	595	62	143	79

硬度试验
Hardness Test

		维氏硬度 Vickers Hardness 示例 typical example
无缝洁净管 SEAMLESS CLEAN PIPE	SUS316L OD34.0mm × WT1.65mm	144
焊接洁净管 WELDED CLEAN PIPE	SUS316L OD34.0mm × WT1.65mm	底材 Base Metal
		138
		焊缝 Weld Bead
		147

	无缝洁净管 SEAMLESS CLEAN PIPE	焊接洁净管 WELDED CLEAN PIPE
微结构写真 Micro Structure × 100		
晶粒尺寸写真 Grain Size × 100		
SEM写真 SEM × 100 EP Grade 内壁 Inner surface		

内表面粗糙度

INNER SURFACE ROUGHNESS

半导体/液晶设备 标准

For Semiconductor and Liquid Crystal Plants

外 径(mm) Outer Diameter		壁 厚(mm) Wall Thickness	内壁粗糙度控制值 inner Surface Roughness Assurance value			
			AP Grade	BA Grade	BAGrade	EP Grade
3.18		0.71	Ry≤25 μ m Ra≤100 μ inch	Ry≤4.5 μ m		Ry≤1.0 μ m
6.35		1.0		Ry≤3.0 μ m Ra≤15 μ inch		Ry≤0.5 μ m Ra≤10 pinch
9.53		1.0				
12.7		1.24				
15.88		1.24				
19.05		1.65				
25.4		1.65				
10.5		1.0				
13.8		1.2				
17.3		1.2				
21.7		1.65				
27.2		1.65				
34.0		1.65				
42.7		1.65				
48.6		1.65				
60.5		1.65				
76.3		2.1		Ry≤4.0 μ m Ra≤20 μ inch		
89.1		2.1				
101.6		2.1				
114.3		2.1				
139.8		2.8		(MP) Ry≤4.0 μ m Ra≤20 μ inch		
165.2		2.8				
216.3		2.8				
267.4		3.4				
318.5		4.0				
355.6		4.0				
406.4		4.5				
457.2		4.5				
508.0		5.0				

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另有其他特殊规格。
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We can supply also other special edition..



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PURETUBE is committed to producing products that meet the stringent requirements of high-end customers and providing technical services and solutions that exceed customer expectations. We suggest that you use our pipes along with accessories. Pipe fittings use the same process, high standards, and high-quality materials as pipeline production

生物/医药/食品 标准

For Biochemical,Pharmaceutical and Food Processing Plants

外径(mm) Outer Diameter	壁厚(mm) Wall Thickness	内壁粗糙度控制值 Inner Surface Roughness Assurance value		
		BA Grade	BAGrade	EP Grade
25.4	1.2	Ry≤0.5 μ m		Ry≤0.3 μ m
31.8	1.2			
38.1	1.2			
50.8	1.5			
63.5	2.0	Ry≤0.6 μ m		Ry≤0.4 μ m
76.3	2.0			
89.1	2.0			
101.6	2.0			
114.3	3.0	Ry≤0.7 μ m		
139.8	3.0	(MP) Ry≤0.7 μ m		
165.2	3.0			

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管道和相关零件的不当选择和/或处理不当可能会损坏系统，并对工人造成其他财产损失和伤害。我们真诚地敦促系统设计师和用户在选择与他们的系统和目的最兼容的可缝合管道和零件时尽最大的谨慎，然后安装、操作和维护它们，使其处于良好状态，因为所有这些操作都将完全由设计师和用户自行承担风险。如果您对我们的产品有任何问题或疑问，请随时与我们联系以获取更多信息和技术建议。

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Inappropriate selection and /or mishandling of pipes and those related parts may damage the systems and cause other property damage and injuries to workers. We sincerely urge system designers and users to employ their highest discretion in selecting suitable pipes and parts that have the best compatibility with their systems and purposes and then to install, operate and maintain them in good order as all these operations will be conducted entirely at the designers and users own risk. Please do not hesitate to contact us for further information and technical advice if you should encounter any problems or queries about our products.

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