



beta

BETA CLEAN PIPE

HIGH CLEANLINESS SEAMLESS/ WELDED
STAINLESS STEEL PIPE FOR SEMICONDUCTOR/
LIQUID CRYSTAL PLANTS FOR BIOCHEMICAL/
PHARMACEUTICAL/ FOOD PROCESSING PLANTS

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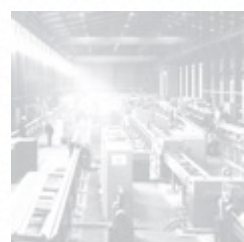
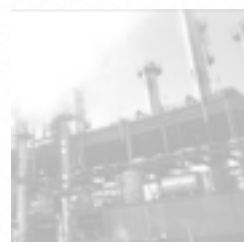
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***We will be a partner
in technology***



Introduction

Based on professional technology, BETA CLEAN PIPE is one of the few companies that successfully produce seamless stainless steel tubes and pipes worldwide. Due to its high purity, durability and corrosion resistance, BETA CLEAN PIPE products are a key component of chemical and gas power systems and semiconductor and LCD production. In order to meet the increasing demand for high precision tube and pipe, the company to save the cost of production method and production technology has made great progress, the goal is to become a world-class technology leader in the overseas markets.

Innovative technology

AP/MP/BA/EP Seamless Stainless Steel Tube & Pipe

Semi-Seamless Stainless Steel Pipe

Laser Welding system with the best manufacturing engineer system

The Development of high-tech tube materials such as VIM/VAR

The Achievement of patent on seamless tube and the manufacturing technology

Product

Seamless Stainless Steel Tube/Pipe

Stainless Steel Laser Welded Tube/Pipe

Welded Stainless Steel Tube/Pipe & Cold Drawn



Seamless Stainless Steel Tube & Pipe



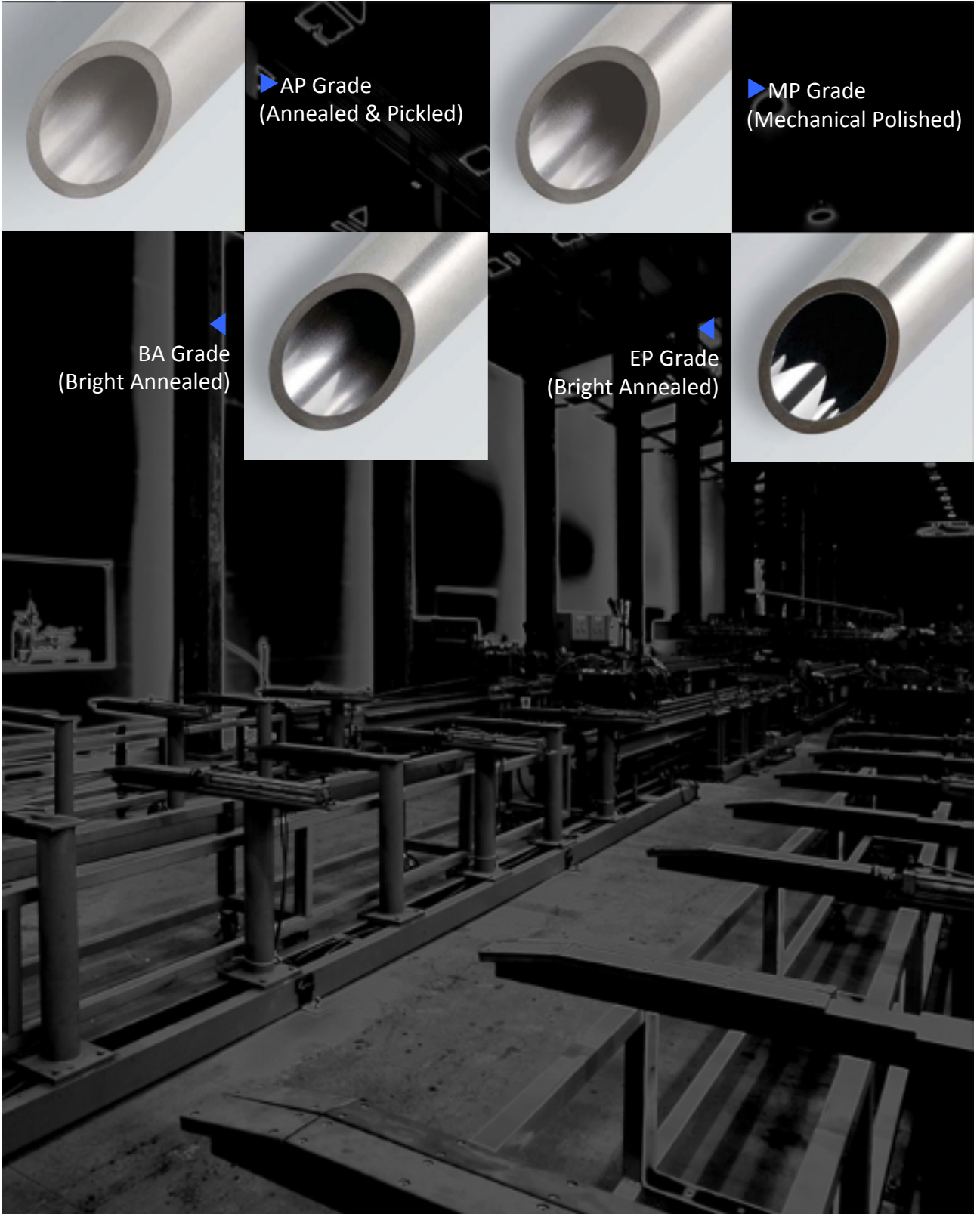
BETA CLEAN PIPE has supplied clean and precise seamless tube to semiconductor, medical instrument, biotechnology, aerospace engineering and chemical industries. Especially, **BETA CLEAN PIPE** has been applied to UHP(Ultra High Purity) piping line that is necessary for pollution control in the semiconductor / LCD field.

Product Range & Application Field

Application Field	The quality of material
Semiconductor / LCD plants	VIM/VAR,SUS316(L),304(L)
Sanitary / Biochemical	SUS304(L), 316(L)
Petrochemistry / Electric-power plants	SUS316(L),304(L),310,321
Ship-building	SUS316(L),304(L),310,321
Nuclear power plants	SUS316(L),304(L),310,321
Cylinder & Shaft	SUS304(L)
Precision Machine & Airplane Parts	SUS316(L),304(L)



Seamless Stainless Tube & Pipe

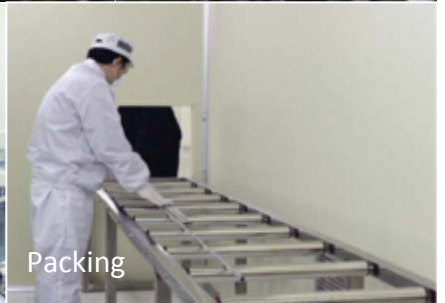
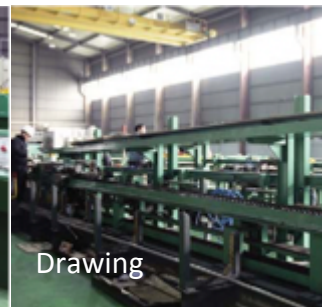
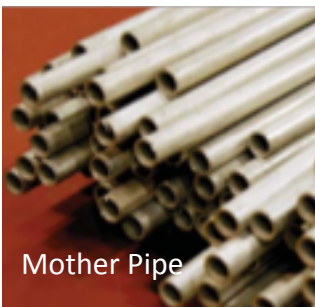
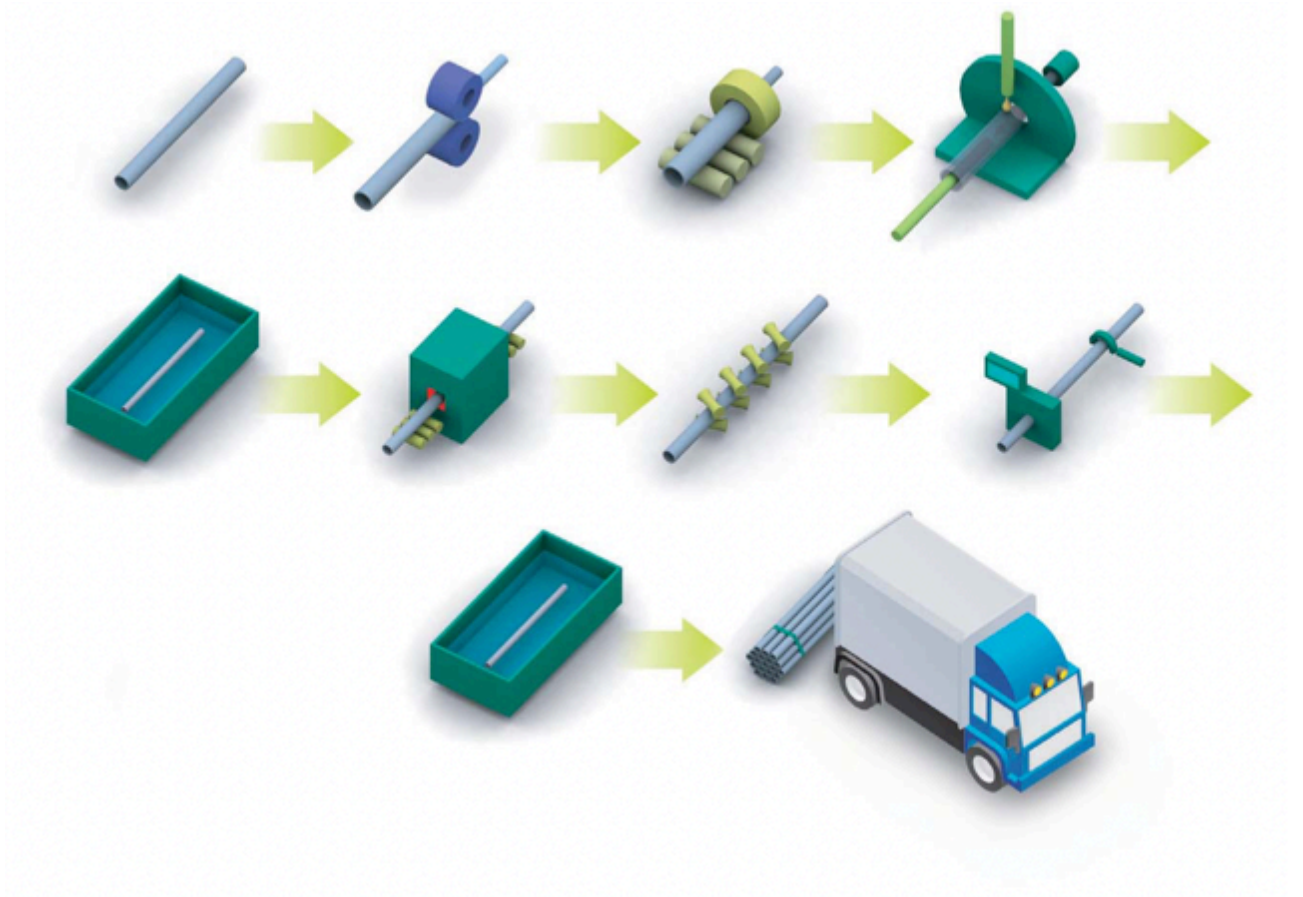


Seamless Stainless Tube & Pipe

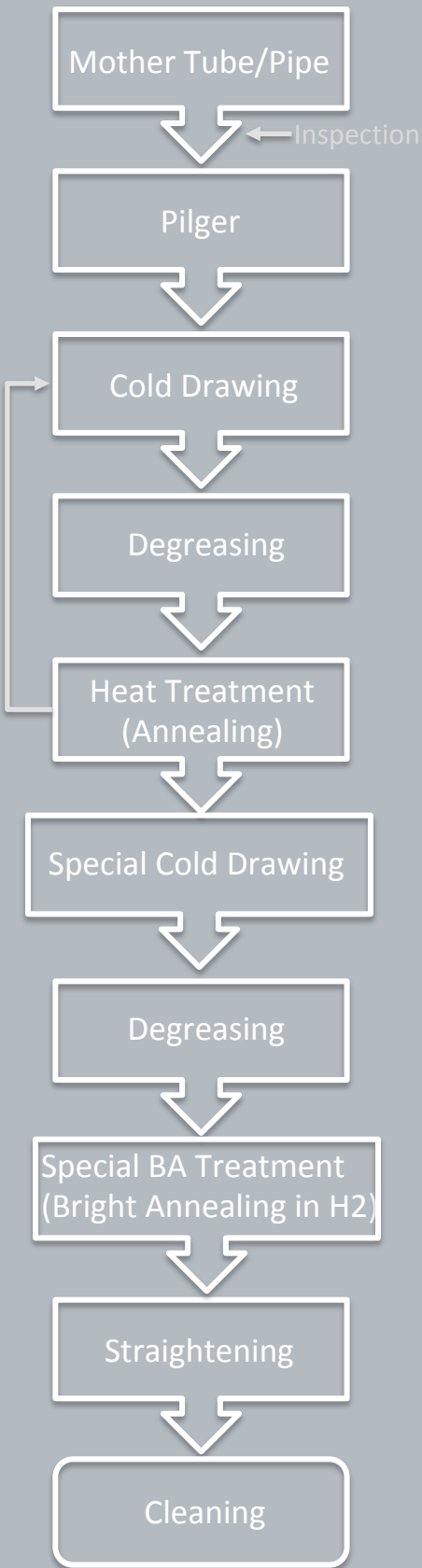


Outer Diameter		Wall Thickness (mm)		Tolerance		Type of Pipe	Technology Grade			
inch		mm	mm	Outer diameter	Wall thickness	Seamless	AP	BA	MP	EP
3.18	1/8	0.51	0.71	±0.06mm	±10%	√	√	√		√
6.35	1/4	0.89	1.00	±0.1mm	±0.1mm	√	√	√		√
9.53	3/8	0.89	1.00	±0.1mm	±0.1mm	√	√	√		√
12.7	1/2	1.00	1.24	±0.1mm	±0.1mm	√	√	√		√
15.88	5/8	1.00	1.24	±0.1mm	±0.1mm	√	√	√		√
19.05	3/4	1.24	1.65	±0.1mm	±0.1mm	√	√	√		√
25.4	1	1.24	1.65	±1%	±0.1mm	√	√	√		√
38.1	1 1/2	1.65		±1%	±0.1mm	√	√	√		√
50.8	2	1.65		±1%	±0.1mm	√	√	√		√
63.5	2 1/2	1.65		±1%	±0.1mm	√	√	√		√
A size		SCH5S	SCH10S				√	√		√
10.5	6A	1.00	1.20	±0.1mm	±0.1mm	√	√	√		√
13.8	8A	1.20	1.65	±0.1mm	±0.1mm	√	√	√		√
17.3	10A	1.20	1.65	±0.1mm	±0.1mm	√	√	√		√
21.7	15A	1.65	2.10	±0.1mm	±10%	√	√	√		√
27.2	20A	1.65	2.10	±0.1mm	±10%	√	√	√		√
34	25A	1.65	2.80	±0.1mm	±10%	√	√	√		√
42.7	32A	1.65	2.80	±0.1mm	±10%	√	√	√		√
48.6	40A	1.65	2.80	±0.1mm	±10%	√	√	√		√
60.5	50A	1.65	2.80	±0.1mm	±10%	√	√	√		√
76.3	65A	2.10	3.00	±0.1mm	±10%	√	√	√		√
89.1	80A	2.10	3.00	±0.1mm	±10%	√	√	√		√
101.6	90A	2.10	3.00	±0.1mm	±10%	√	√	√		√
114.3	100A	2.10	3.00	±0.1mm	±10%	√	√	√		√
139.8	125A	2.80	3.40	±1%	±10%	√	√		√	√
165.2	150A	2.80	3.40	±1%	±10%	√	√		√	√
216.3	200A	2.80	4.00	±1%	±10%	√	√		√	√
267.4	250A	3.40	4.00	±1%	±10%	√	√		√	√
318.5	300A	4.00	4.50	±1%	±10%	√	√		√	√
355.6	350A	4.00	5.00	±1%	±10%	√	√		√	√
406.4	400A	4.50	5.00	±1%	±10%	√	√		√	√
457.2	450A	4.50	5.00	±1%	±10%	√	√		√	√
508	500A	5.00	5.50	±1%	±10%	√	√		√	√
558.8	550A	5.00	5.50	±1%	±10%	√	√		√	√
609.6	600A	5.50	6.50	±1%	±10%	√	√		√	√

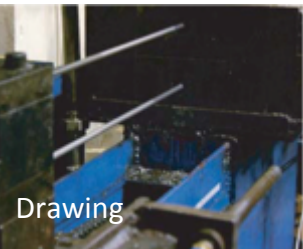
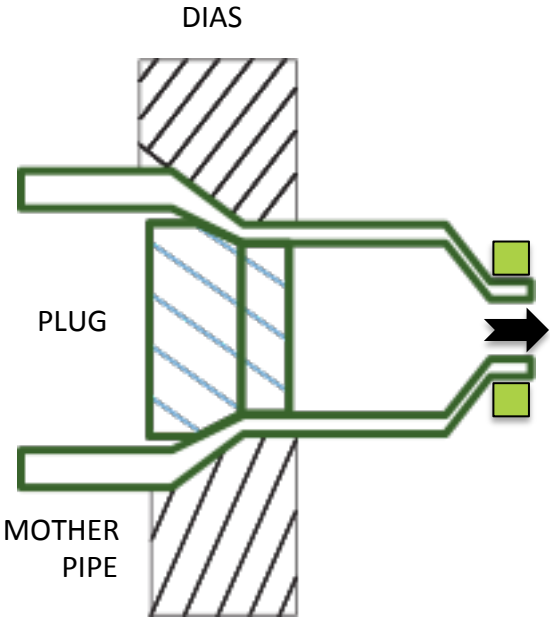




Seamless BA Tube/Pipe Process

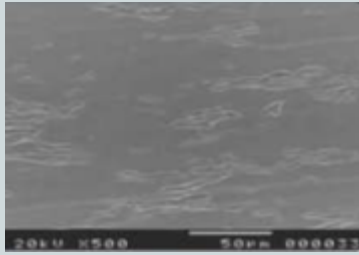


【 Drawing 】

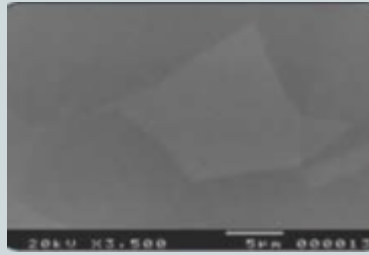


EP(Electropolishing) Treatment Process

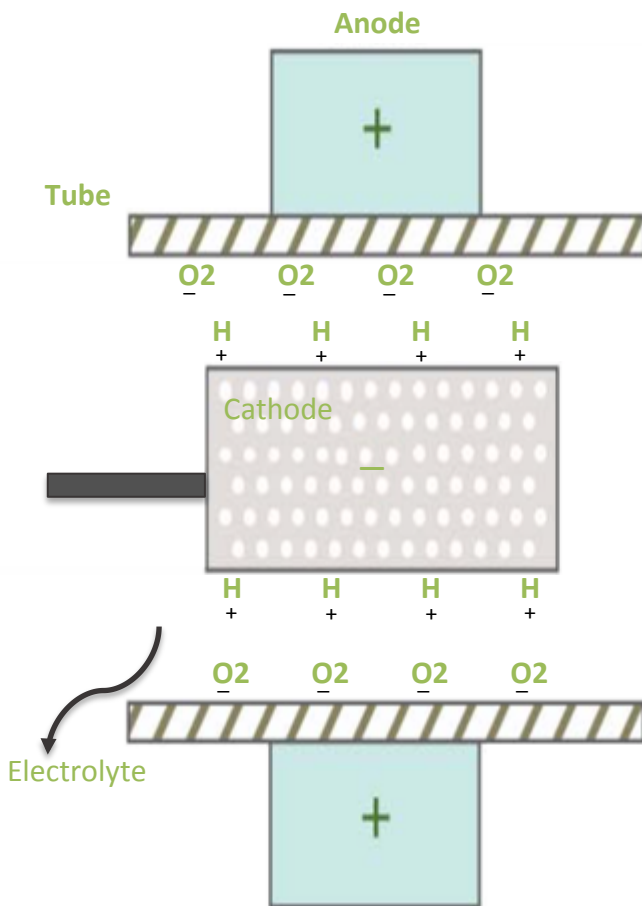
SEM:Scanning Electron Microscope



BA



EP



【 Electropolishing 】

BA Tube/Pipe

Cleaning

Eletropolishing

Passivation

Cleaning/Drying

Face&Square

Inspection

Cleanroom
(Hot Di & Hot N₂, Packing)

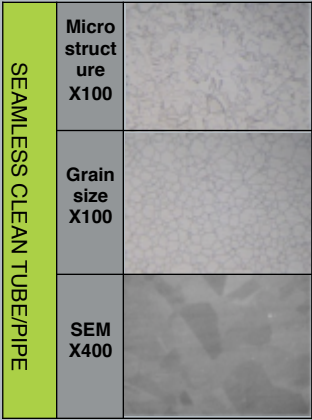
 Semiconductor / LCD

MATERIAL/ CHEMICAL COMPOSITI

		C	Si	Mn	P	S	Ni	Cr	Mo	O(ppm)
SUS304TP	SMIC/LCD	max 0.08	max 1.00	max 2.00	max 0.045	max 0.030	8.00-11.00	18.00-20.00		
	Typical example	0.02	0.47	1.09	0.028	0.002	9.07	18.25		
SUS316TP	SMIC/LCD	max 0.08	max 1.00	max 2.00	max 0.045	max 0.030	10.00-14.00	16.00-18.00	2.00-3.00	
	Typical example	0.02	0.45	0.84	0.026	0.001	11.16	17.28	2.17	
SUS316LTP	SMIC/LCD	max 0.030	max 1.00	max 2.00	max 0.045	max 0.030	12.00-16.00	16.00-18.00	2.00-3.00	
	Typical example	0.019	0.35	0.71	0.027	0.001	12.64	16.68	2.2	
VIM+VAR	SMIC/LCD	max 0.015	max 0.50	max 0.05	max 0.020	max 0.003	14.00-15.00	16.00-17.00	2.00-3.00	max 20
	Typical example	0.006	0.09	0.03	0.004	0.002	14.72	16.37	2.83	8

MECHANICAL PROPERTY

		Tensile strength (N/mm²)	Yield strength (N/mm²)	Elongation (%)	Hardness (HRb)
SUS304TP	SMIC/LCD	min 520	min 205	min 35	
	Typical example	619	251	59	162
SUS316TP	SMIC/LCD	min 520	min 205	min 35	
	Typical example	605	278	53	142
SUS316LTP	SMIC/LCD	min 480	min 175	min 35	
	Typical example	587	260	62	138



 Bio / Pharmaceutical / Food processing plants

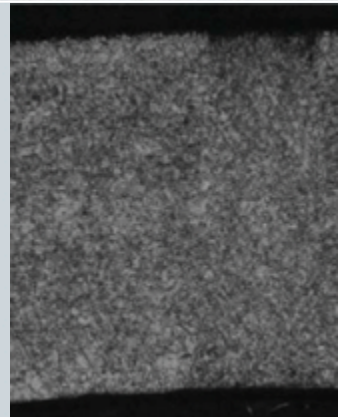
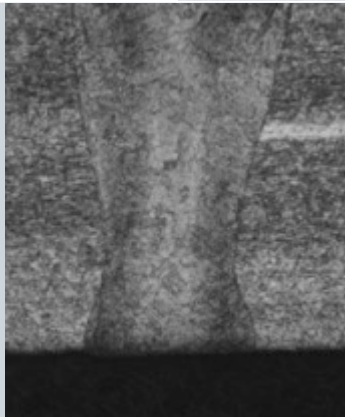
MATERIAL/ CHEMICAL COMPOSITI

		C	Si	Mn	P	S	Ni	Cr	Mo
SUS304TBS	Food / Pharmaceutical	max 0.08	max 1.00	max 2.00	max 0.045	max 0.030	8.00-10.50	18.00-20.00	
	Typical example	0.02	0.43	1.04	0.03	0.006	9.09	18.5	
SUS316LTBS	Food / Pharmaceutical	max 0.030	max 1.00	max 2.00	max 0.045	max 0.030	12.00-15.00	16.00-18.00	2.00-3.00
	Typical example	0.019	0.37	0.76	0.025	0.001	12.59	17.37	2.15

MECHANICAL PROPERTY

		Tensile strength (N/mm²)	Elongation (%)	Hardness (HRb)
SUS304TBS	Food / Pharmaceutical	min 520	min 35	
	Typical example	605	55	162
SUS316LTBS	Food / Pharmaceutical	min 480	min 35	
	Typical example	552	61	138

Welded Tube / Pipe

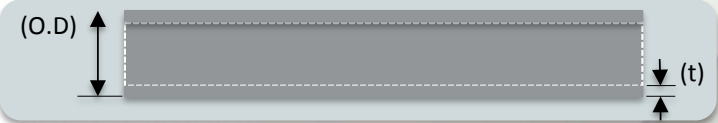


Welding

Welding +
Heat Treatment

Welding+ColdDrawing
+Heat Treatment

Welded & Drawn Tube/Pipe Product Range

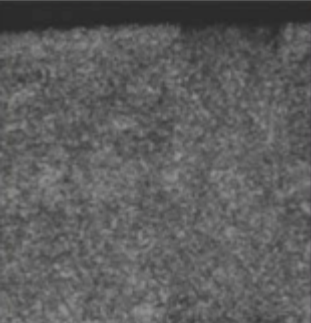
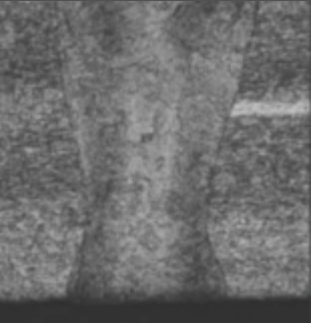


Outer Diameter		Wall Thickness (mm)		Tolerance		Type of Pipe	Technology Grade			
inch		mm	mm	Outer diameter	Wall thickness	Welded	AP	BA	MP	EP
3.18	1/8"	0.51	0.71	±0.06mm	±10%	√	√	√		√
6.35	1/4"	0.89	1.00	±0.1mm	±0.1mm	√	√	√		√
9.53	3/8"	0.89	1.00	±0.1mm	±0.1mm	√	√	√		√
12.7	1/2"	1.00	1.24	±0.1mm	±0.1mm	√	√	√		√
15.88	5/8"	1.00	1.24	±0.1mm	±0.1mm	√	√	√		√
19.05	3/4"	1.24	1.65	±0.1mm	±0.1mm	√	√	√		√
25.4	1"	1.24	1.65	±1%	±0.1mm	√	√	√		√
38.1	1 1/2"	1.65		±1%	±0.1mm	√	√	√		√
50.8	2"	1.65		±1%	±0.1mm	√	√	√		√
63.5	2 1/2"	1.65		±1%	±0.1mm	√	√	√		√
A size		SCH5S	SCH10S				√	√		√
10.5	6A	1.00	1.20	±0.1mm	±0.1mm	√	√	√		√
13.8	8A	1.20	1.65	±0.1mm	±0.1mm	√	√	√		√
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76.3	65A	2.10	3.00	±0.1mm	±10%	√	√	√		√
89.1	80A	2.10	3.00	±0.1mm	±10%	√	√		√	√
101.6	90A	2.10	3.00	±0.1mm	±10%	√	√		√	√
114.3	100A	2.10	3.00	±0.1mm	±10%	√	√		√	√
139.8	125A	2.80	3.40	±1%	±10%	√	√		√	√
165.2	150A	2.80	3.40	±1%	±10%	√	√		√	√
216.3	200A	2.80	4.00	±1%	±10%	√	√		√	√
267.4	250A	3.40	4.00	±1%	±10%	√	√		√	√
318.5	300A	4.00	4.50	±1%	±10%	√	√		√	√
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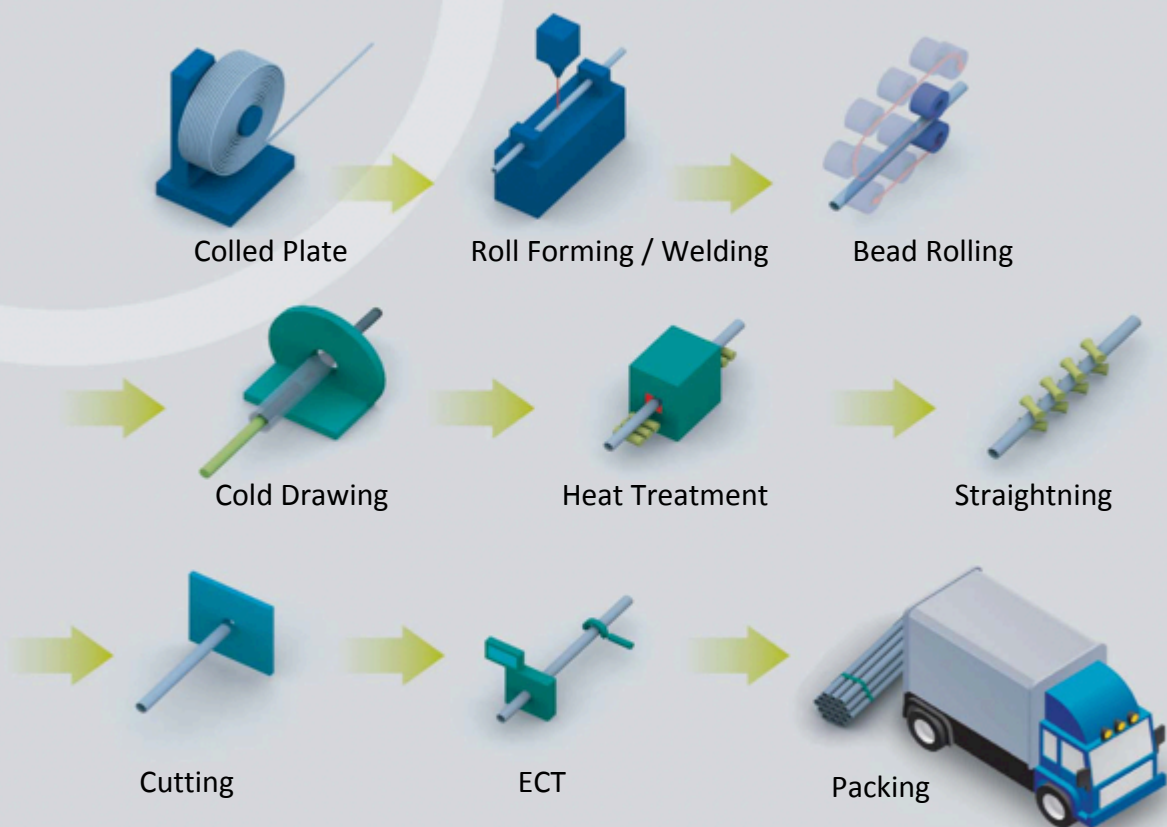
Welding

Welding+Heat
Treatment

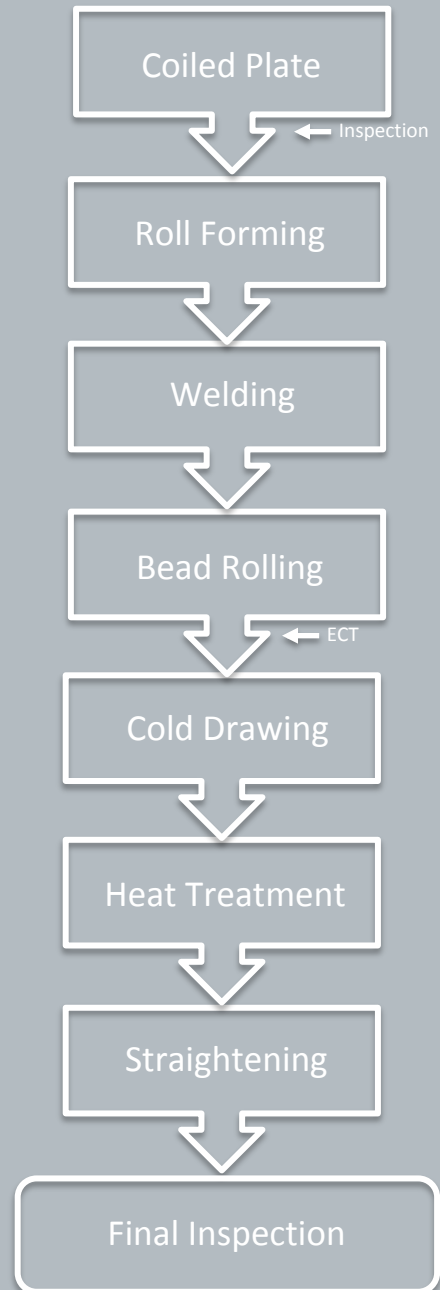
Welding+Cold
Drawing+Heat Treatment



Welded & Drawn Tube



Welded TUBE / PIPE Process



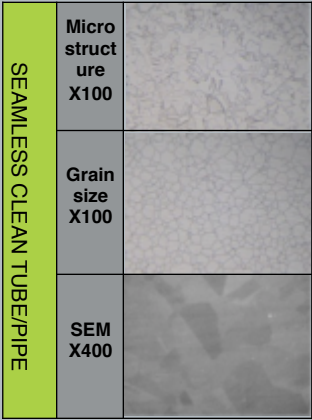
 Semiconductor / LCD

MATERIAL/ CHEMICAL COMPOSITI

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SUS304TP	SMIC/LCD	max 0.08	max 1.00	max 2.00	max 0.045	max 0.030	8.00-11.00	18.00-20.00		
	Typical example	0.02	0.47	1.09	0.028	0.002	9.07	18.25		
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SUS316LTP	SMIC/LCD	max 0.030	max 1.00	max 2.00	max 0.045	max 0.030	12.00-16.00	16.00-18.00	2.00-3.00	
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MECHANICAL PROPERTY

		Tensile strength (N/mm²)	Yield strength (N/mm²)	Elongation (%)	Hardness (HRb)
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SUS316TP	SMIC/LCD	min 520	min 205	min 35	
	Typical example	605	278	53	142
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 Bio / Pharmaceutical / Food processing plants

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SUS316LTBS	Food / Pharmaceutical	max 0.030	max 1.00	max 2.00	max 0.045	max 0.030	12.00-15.00	16.00-18.00	2.00-3.00
	Typical example	0.019	0.37	0.76	0.025	0.001	12.59	17.37	2.15

MECHANICAL PROPERTY

		Tensile strength (N/mm²)	Elongation (%)	Hardness (HRb)
SUS304TBS	Food / Pharmaceutical	min 520	min 35	
	Typical example	605	55	162
SUS316LTBS	Food / Pharmaceutical	min 480	min 35	
	Typical example	552	61	138

ITEM	AP	BA	EP	V+V
Measure Tolerance	O	O	O	O
Chemical Composition	Mill Sheet	Mill Sheet	Mill Sheet	Mill Sheet
Welding Test		O	O	O
Tensile Test	O	O	O	O
Surface Microscope		O	O	O
Roughness	O	O	O	O
Hardness	O	O	O	O
Particle Test			O	O
Oil Content			O	O
Eluant ion check			O	O
SEM Test				O
ESCA Test				O

Inner Surface Roughness

Method	Size	Inner surface roughness Assurance values		Hardness
		Rmax(μm)	Ra(μinch)	Hb
AP	OD	≤25	≤100	≥90
BA	1/4"≤OD≤1"	≤3	≤15	
	25A≤OD≤80A	≤4	≤20	
MP	OD≥100A	≤4	≤20	
EP	1/4"OD≤80A	≤0.5	≤10	
	OD≥100A	≤0.7		

※For Semiconductor and Liquid Crystal Plants

Super Mechanical Cleaned Quality Assurance Values

Method	Particle(Number/CFM)		Oil content	Eluant ion Check(Liquid resistivity Measurement)	Eluant ion Check(ion chromatograpt Analysis)	Dew point
	0.1μm	0.3μm				
AP		≤5	≤0.1mg/ft2	—	—	—
BA/MP	≤5	0	≤0.01mg/ft2	≥0.5MΩ·CM	≤10ng/fcm2	≤-75°C
EP	≤1	0	≤0.01mg/ft2	≥0.5MΩ·CM	≤5ng/fcm2	≤-75°C

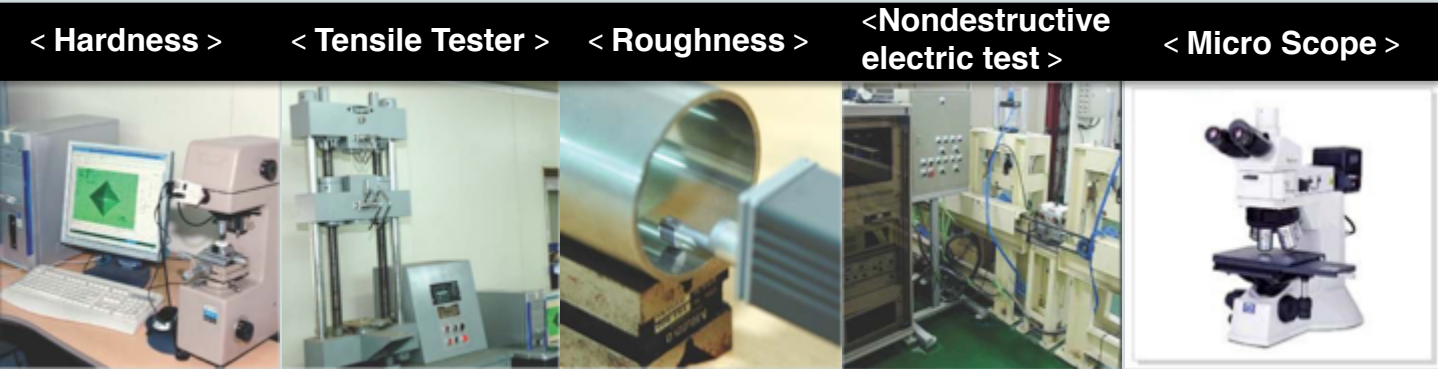
※For Semiconductor and Liquid Crystal Plants

Facility Equipment

Classification	Q'ty	Etc.
RO/DI system	1	18MΩ 10TON/DAY
Clean room	1	100/1000CLASS
Gas equipment	1	N2, H2, CDA
Auto cutting/ chamering	1	WITH AUTO CLEANING
Dew point tester	1	-90<DEW POINT<+90

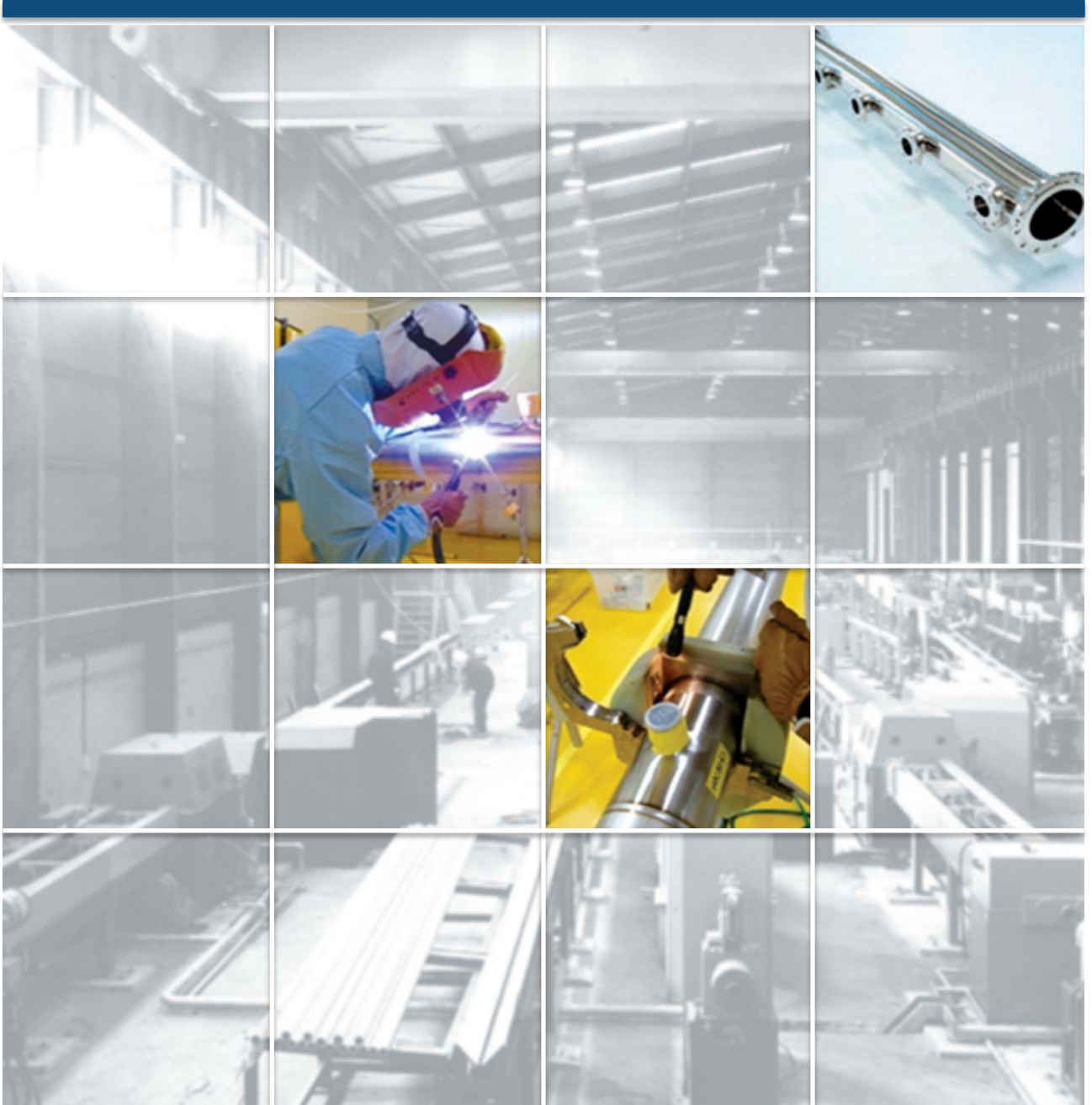
Inspection Equipment

Classification	Q'ty	Etc.
Surface roughness Measuring instruments	1	
Pin gauge	5	
Microscope for steel	1	X500
Hardness tester	1	H.V. tester 1Kg
Flatinf tester	1	
Eddy current examination equipment	2	
Versatile tester	1	Max 1000kN



Clean Fitting & Coax Clean Fitting

The pre-fabricated and assembled pipe or tube package with valve and fitting.



►► BE90 - ELBOW 90°



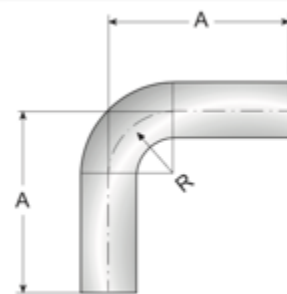
ASTM Standard

O.D. Size Inch	Dimensions				Shape - Size*
	A inch	A mm	R inch	R mm	
1/4"	2.63	66.80	0.62	15.75	BE90-1/4-*
3/8"	2.63	66.80	1.00	25.40	BE90-3/8-*
1/2"	3.00	76.20	1.13	28.70	BE90-1/2-*
5/8"	3.00	76.20	1.13	28.70	BE90-5/8-*
3/4"	3.00	76.20	1.13	28.70	BE90-3/4-*
1"	3.00	76.20	1.50	38.10	BE90-1-*
1 1/2"	3.75	95.25	2.25	57.15	BE90-1 1/2-*
2"	4.75	120.65	3.00	76.20	BE90-2-*
2 1/2"	5.50	139.70	3.75	95.25	BE90-2 1/2-*
3"	6.25	158.75	4.50	114.30	BE90-3-*
4"	8.00	203.20	6.00	152.40	BE90-4-*
6"	11.50	292.10	9.00	228.60	BE90-6-*



JIS Standard

O.D. Size Inch	Dimensions		Shape - Size*
	A mm	R mm	
15A	38.10	75.00	BE90-15A-*
20A	38.10	75.00	BE90-20A-*
25A	38.10	75.00	BE90-25A-*
32A	47.60	94.00	BE90-32A-*
40A	57.20	104.00	BE90-40A-*
50A	76.20	123.00	BE90-50A-*
65A	95.30	147.00	BE90-65A-*
80A	114.30	166.00	BE90-80A-*
100A	152.40	204.00	BE90-100A-*
125A	190.50	250.00	BE90-125A-*
150A	228.60	290.00	BE90-150A-*
200A	304.80	375.00	BE90-200A-*



►► BE45 – ELBOW 45°



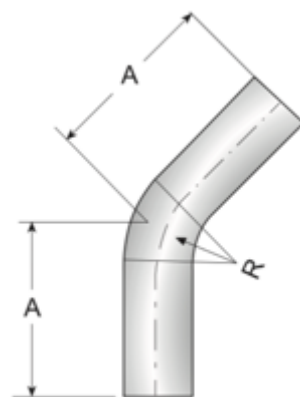
ASTM Standard

O.D. Size Inch	Dimensions				Shape - Size*
	A inch	A mm	R inch	R mm	
1/4"	2.00	50.80	0.62	15.75	BE45-1/4-*
3/8"	2.00	50.80	1.00	25.40	BE45-3/8-*
1/2"	2.25	57.15	1.13	28.70	BE45-1/2-*
5/8"	2.25	57.15	1.13	28.70	BE45-5/8-*
3/4"	2.25	57.15	1.13	28.70	BE45-3/4-*
1"	2.25	57.15	1.50	38.10	BE45-1-*
1 1/2"	2.25	57.15	2.25	57.15	BE45-1 1/2-*
2"	3.00	76.20	3.00	76.20	BE45-2-*
2 1/2"	3.37	85.60	3.75	95.25	BE45-2 1/2-*
3"	3.62	91.95	4.50	114.30	BE45-3-*
4"	4.50	114.30	6.00	152.40	BE45-4-*
6"	6.25	158.75	9.00	228.60	BE45-6-*



JIS Standard

O.D. Size Inch	Dimensions		Shape - Size*
	A mm	R mm	
15A	38.10	75.00	BE90-15A-*
20A	38.10	75.00	BE90-20A-*
25A	38.10	75.00	BE90-25A-*
32A	47.60	94.00	BE90-32A-*
40A	57.20	104.00	BE90-40A-*
50A	76.20	123.00	BE90-50A-*
65A	95.30	147.00	BE90-65A-*
80A	114.30	166.00	BE90-80A-*
100A	152.40	204.00	BE90-100A-*
125A	190.50	250.00	BE90-125A-*
150A	228.60	290.00	BE90-150A-*
200A	304.80	375.00	BE90-200A-*

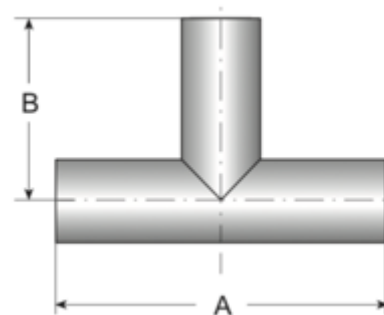


►► BT - EQUAL TEE



ASTM Standard

O.D. Size Inch	Dimensions				Shape - Size*
	A inch	A mm	B inch	B mm	
1/4"	3.50	88.90	1.75	44.45	BT-1/4-*
3/8"	3.50	88.90	1.75	44.45	BT-3/8-*
1/2"	3.75	95.25	1.88	47.75	BT-1/2-*
5/8"	4.00	101.60	2.00	50.80	BT-5/8-*
3/4"	4.00	101.60	2.00	50.80	BT-3/4-*
1"	4.25	107.95	2.13	54.10	BT-1-*
1 1/2"	4.75	120.65	2.38	60.45	BT-1 1/2-*
2"	5.75	146.05	2.88	73.15	BT-2-*
2 1/2"	6.25	158.75	3.12	79.25	BT-2 1/2-*
3"	6.75	171.45	3.37	85.60	BT-3-*
4"	8.25	209.55	4.12	104.65	BT-4-*
6"	11.25	285.75	5.62	142.75	BT-6-*



JIS Standard

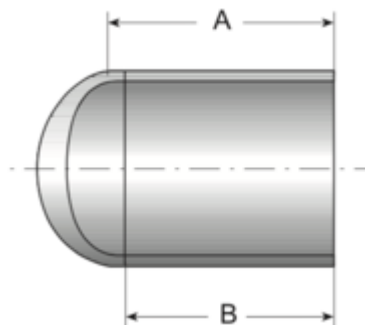
O.D. Size Inch	Dimensions		Shape - Size*
	A mm	B mm	
15A	118.00	59.00	BT-15A-*
20A	130.00	65.00	BT-20A-*
25A	136.00	68.00	BT-25A-*
32A	176.00	88.00	BT-32A-*
40A	190.00	95.00	BT-40A-*
50A	204.00	102.00	BT-50A-*
65A	242.00	121.00	BT-65A-*
80A	260.00	130.00	BT-80A-*
100A	290.00	145.00	BT-100A-*
125A	320.00	160.00	BT-125A-*
150A	340.00	170.00	BT-150A-*
200A	380.00	190.00	BT-200A-*

►► BCP - END CAP



ASTM Standard

O.D. Size Inch	Dimensions		Shape - Size*
	A inch	A mm	
1/4"	1.00	25.40	BCP-1/4-*
3/8"	1.00	25.40	BCP-3/8-*
1/2"	1.50	38.10	BCP-1/2-*
5/8"	1.50	38.10	BCP-5/8-*
3/4"	1.50	38.10	BCP-3/4-*
1"	1.50	38.10	BCP-1-*
1 1/2"	1.50	38.10	BCP-1 1/2-*
2"	1.50	38.10	BCP-2-*
2 1/2"	1.50	38.10	BCP-2 1/2-*
3"	1.75	44.45	BCP-3-*
4"	2.00	50.80	BCP-4-*
6"	2.50	63.50	BCP-6-*



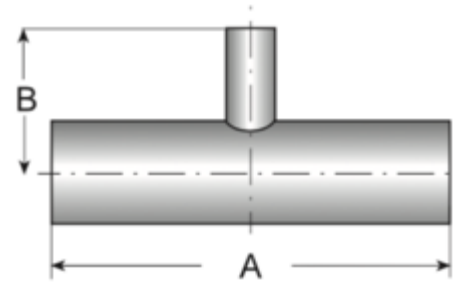
JIS Standard

O.D. Size Inch	Dimensions	Shape - Size*
	A mm	
15A	25.40	BCP-15A-*
20A	25.40	BCP-20A-*
25A	38.10	BCP-25A-*
32A	38.10	BCP-32A-*
40A	38.10	BCP-40A-*
50A	38.10	BCP-50A-*
65A	38.10	BCP-65A-*
80A	50.80	BCP-80A-*
100A	63.50	BCP-100A-*
125A	76.20	BCP-125A-*
150A	88.90	BCP-150A-*
200A	101.60	BCP-200A-*

► BRT - REDUCING TEE



ASTM Standard



O.D. Size Inch		Dimensions				Shape - Size*
		A inch	A mm	B inch	B mm	
3/8"	1/4"	3.50	88.90	1.75	44.45	BRT-3/8-1/4-*
1/2"	1/4", 3/8"	3.75	95.25	1.88	47.75	BRT-1/2-*
5/8"	1/4", 3/8", 1/2"	4.00	101.60	2.00	50.80	BRT-5/8-*
3/4"	1/4", 3/8", 1/2", 5/8"	4.00	101.60	2.00	50.80	BRT-3/4-*
1"	1/4", 3/8", 1/2", 5/8", 3/4"	4.25	107.95	2.13	54.10	BRT-1-*
1 1/2"	1/4", 3/8", 1/2", 5/8", 3/4", 1"	4.75	120.65	2.38	60.45	BRT-1 1/2-*
2"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2"	5.75	146.05	2.63	66.80	BRT-2-*
2 1/2"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2"	6.25	158.75	2.88	73.15	BRT-2 1/2-*
3"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2"	6.75	171.45	3.12	79.25	BRT-3-*
4"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2", 3"	8.25	209.55	3.88	98.55	BRT-4-*
6"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2", 3", 4"	11.25	285.75	5.62	142.75	BRT-6-*



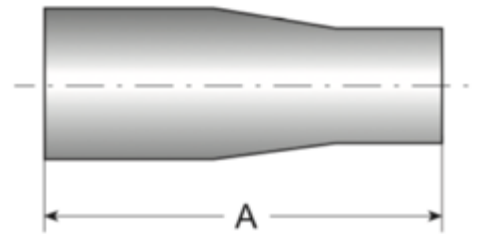
JIS Standard

O.D. Size Inch		Dimensions		Shape - Size*
		A mm	B mm	
15A	1/4", 3/8", 1/2"	94	44	BRT-15A-*
	3/4"	104	52	
20A	1/4", 3/8", 1/2"	94	47	BRT-20A-*
	3/4", 1", 15A	110	55	
25A	1/4", 3/8", 1/2"	94	50	BRT-25A-*
	3/4", 1", 15A, 20A	118	59	
32A	1/4", 3/8", 1/2"	114	54	BRT-32A-*
	3/4", 1", 15A, 20A, 25A	136	62	
40A	1/4", 3/8", 1/2"	114	57	BRT-40A-*
	3/4", 1", 15A, 20A, 25A	136	65	
	1 1/2", 32A	154	77	
50A	1/4", 3/8", 1/2"	114	63	BRT-50A-*
	3/4", 1", 15A, 20A, 25A	136	71	
	1 1/2", 32A, 40A, 2"	166	83	
65A	1/4", 3/8", 1/2"	122	71	BRT-65A-*
	3/4", 1", 15A, 20A, 25A	144	79	
	1 1/2", 32A, 40A, 2", 50A	176	90	
	2 1/2"	194	97	
80A	1/4", 3/8", 1/2"	122	77	BRT-80A-*
	3/4", 1", 15A, 20A, 25A	144	85	
	1 1/2", 32A, 40A, 2", 50A	176	96	
	2 1/2", 3", 65A	206	103	
100A	1/4", 3/8", 1/2"	122	90	BRT-100A-*
	3/4", 1", 15A, 20A, 25A	144	98	
	1 1/2", 32A, 40A, 2", 50A	176	109	
	2 1/2", 3", 65A, 80A, 4"	232	116	
125A	1/4", 3/8", 1/2"	160	110	BRT-125A-*
	3/4", 1", 15A, 20A, 25A	200	120	
	1 1/2", 32A, 40A, 2", 50A	240	130	
	2 1/2", 3", 65A, 80A, 4", 100A	280	140	
150A	1/4", 3/8", 1/2"	180	130	BRT-150A-*
	3/4", 1", 15A, 20A, 25A	220	140	
	1 1/2", 32A, 40A, 2", 50A	260	150	
	2 1/2", 3", 65A, 80A, 4", 100A	300	160	
	125A	340	170	
200A	1/4", 3/8", 1/2"	200	150	BRT-200A-*
	3/4", 1", 15A, 20A, 25A	240	160	
	1 1/2", 32A, 40A, 2", 50A	280	170	
	2 1/2", 3", 65A, 80A, 4", 100A	320	180	
	125A, 6", 150A	360	190	

►► BRD - REDUCERS



ASTM Standard

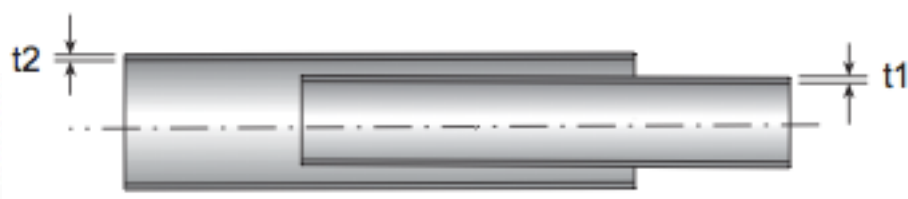


O.D. Size Inch		Dimensions		Shape - Size*
		A inch	A mm	
3/8"	1/4"	1.62	41.15	BRD-3/8-1/4-*
1/2"	1/4", 3/8"	1.87	47.50	BRD-1/2-*
5/8"	1/4", 3/8", 1/2"	1.87	47.50	BRD-5/8-*
3/4"	1/4", 3/8", 1/2", 5/8"	2.10	53.34	BRD-3/4-*
1"	1/4", 3/8", 1/2", 5/8", 3/4"	2.10	53.34	BRD-1-*
1 1/2"	1/4", 3/8", 1/2", 5/8", 3/4", 1"	2.25	57.15	BRD-1 1/2-*
2"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2"	2.75	69.85	BRD-2-*
2 1/2"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2"	3.25	82.55	BRD-2 1/2-*
3"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2"	4.50	114.30	BRD-3-*
4"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2", 3"	5.00	127.00	BRD-4-*
6"	1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/2", 2", 2 1/2", 3", 4"	10.00	254.00	BRD-6-*



JIS Standard

O.D. Size Inch		Dimensions	Shape - Size*
		A mm	
15A	1/4", 3/8", 1/2", 3/4"	100	BRD-15A-*
20A	1/4", 3/8", 1/2", 3/4", 1", 15A	105	BRD-20A-*
25A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A	120	BRD-25A-*
32A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A	125	BRD-32A-*
40A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A	130	BRD-40A-*
50A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2"	140	BRD-50A-*
65A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2"	165	BRD-65A-*
80A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2", 3", 65A	170	BRD-80A-*
100A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2", 3", 65A, 4"	180	BRD-100A-*
125A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2", 3", 65A, 4"	250	BRD-125A-*
150A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2", 3", 65A, 4", 125A	260	BRD-150A-*
200A	1/4", 3/8", 1/2", 3/4", 1", 15A, 20A, 25A, 1 1/2", 32A, 40A, 2", 50A, 2 1/2", 3", 65A, 4", 125A, 6", 150A	280	BRD-200A-*



Coax-Tubes

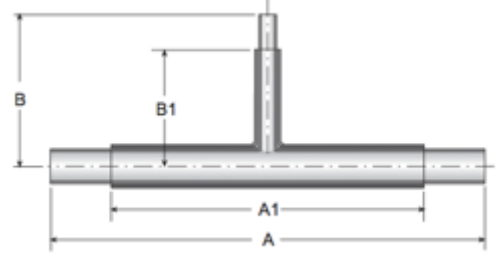
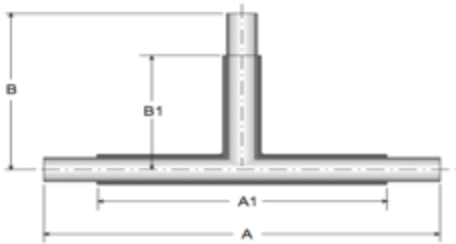
Inner Tube	Outer Tube	Wall Thickness	Wall Thickness
		t1	t2
1/4"	1/2"	0.89	1.24
3/8"	5/8"	0.89	1.24
1/2"	3/4"	1.24	1.65
3/4"	1"	1.65	1.65
1"	1 1/4"	1.65	1.65

The special twin wall tube system consists of an inner electrochemically polished process tube and an outer safety tube.

Both are prepared for orbital welding and manufactured from high quality stainless steel AISI 316L (the tube is also available in other alloys on demand).

Spacers centre the process tube and safeguard the gas flow between the outer and the inner tube. In case of a leak in the process tube the escaping medium flows into the safety space and can be neutralised and harmlessly discharged from the system.

The twin wall tube system is easy to install by orbital welding and can also be integrated into existing systems and plants.



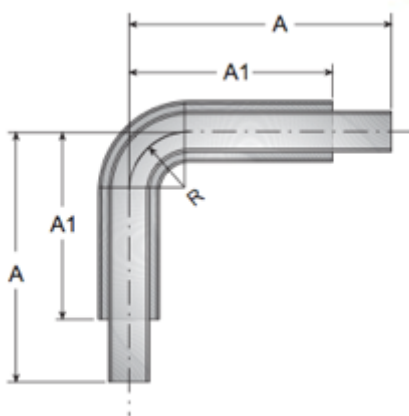
Coax-Tee

O.D. Size		Dimensions				Shape - Size*
Inner	Outer	A	A 1	B	B 1	
1/4"	1/2"	146.10	95.30	73.20	47.80	BCT-1/4-1/2-*
3/8"	5/8"	146.10	95.30	73.20	47.80	BCT-3/8-5/8-*
1/2"	3/4"	152.40	101.60	76.20	50.80	BCT-1/2-3/4-*
3/4"	1"	158.80	108.00	79.50	54.10	BCT-3/4-1-*
1"	1 1/4"	158.80	108.00	79.50	54.10	BCT-1-1 1/4-*



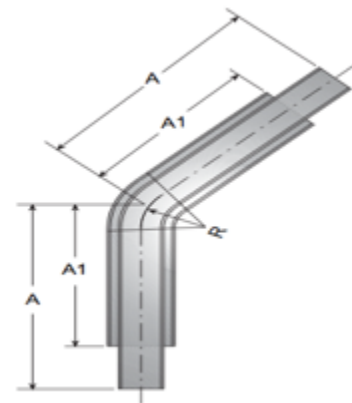
Coax-Reducing

O.D. Size		Dimensions				Shape - Size*
Inner	Outer	A	A 1	B	B 1	
1/4"*3/8"	1/2"*5/8"	146.1	95.3	73.2	47.8	BCT-1/4-3/8-*
1/4"*1/2"	1/2"*3/4"	152.4	101.6	76.2	50.8	BCT-1/4-1/2-*
3/8"*1/2"	5/8"*3/4"	152.4	101.6	76.2	50.8	BCT-3/8-1/2-*
1/4"3/4"	1/2"*1"	158.8	108	79.5	54.1	BCT-1/4-3/4-*
3/8"3/4"	5/8"*1"	158.8	108	79.5	54.1	BCT-3/8-3/4-*
1/2"3/4"	3/4"*1"	158.8	108	79.5	54.1	BCT-1/2-3/4-*
1/4"*1"	1/2"*1 1/4"	158.8	108	79.5	54.1	BCT-1/4-1-*
3/8"*1"	5/8"*1 1/4"	158.8	108	79.5	54.1	BCT-3/8-1-*
1/2"*1"	3/4"*1 1/4"	158.8	108	79.5	54.1	BCT-1/2-1-*
3/4"*1"	1"*1 1/4"	158.8	108	79.5	54.1	BCT-3/4-1-*



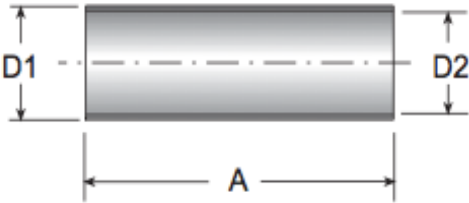
Coax-Elbow 90

O.D. Size		Dimensions			Shape - Size*
Inner	Outer	A	A 1	R	
1/4"	1/2"	101.6	28.6	28.6	BC90E-1/4-1/2-*
3/8"	5/8"	101.6	28.6	28.6	BC90E-3/8-5/8-*
1/2"	3/4"	101.6	28.6	28.6	BC90E-1/2-3/4-*
3/4"	1"	101.6	28.6	38.1	BC90E-3/4-1-*
1"	1 1/4"	101.6	28.6	38.1	BC90E-1-1 1/4-*



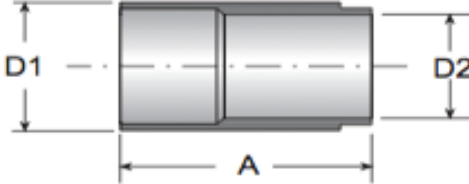
Coax-Elbow 45

O.D. Size		Dimensions			Shape - Size*
Inner	Outer	A	A 1	R	
1/4"	1/2"	82.6	76.2	28.6	BC45E-1/4-1/2-*
3/8"	5/8"	82.6	76.2	28.6	BC45E-3/8-5/8-*
1/2"	3/4"	82.6	76.2	28.6	BC45E-1/2-3/4-*
3/4"	1"	82.6	76.2	38.1	BC45E-3/4-1-*
1"	1 1/4"	82.6	76.2	38.1	BC45E-1-1 1/4-*



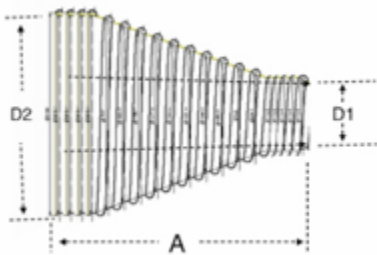
Coax-Sleeve

Outer Tube	Dimensions			Shape - Size*
	D1	D2	A	
1/2"	15.3	12.85	100	BCSEL-1/4-1/2-*
5/8"	18.5	16.03	100	BCSEL-3/8-5/8-*
3/4"	22.5	19.18	100	BCSEL-1/2-3/4-*
1"	29	25.65	100	BCSEL-3/4-1-*
1 1/4"	35.3	32	100	BCSEL-1-11/4-*



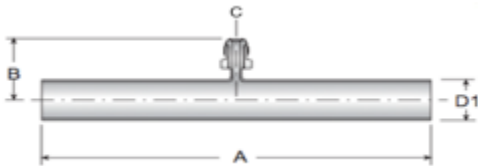
Coax-Terminator

Inner Tube	Outer Tube	Dimensions			Shape - Size*
		D1	D2	A	
1/4"	1/2"	12.7	6.45	31.75	BCTR-1/4-1/2-*
3/8"	5/8"	15.9	9.63	31.75	BCTR-3/8-5/8-*
1/2"	3/4"	19.1	12.8	31.75	BCTR-1/2-3/4-*
3/4"	1"	25.4	19.15	50.8	BCTR-3/4-1-*
1"	1 1/4"	31.8	25.5	50.8	BCTR-1-11/4-*



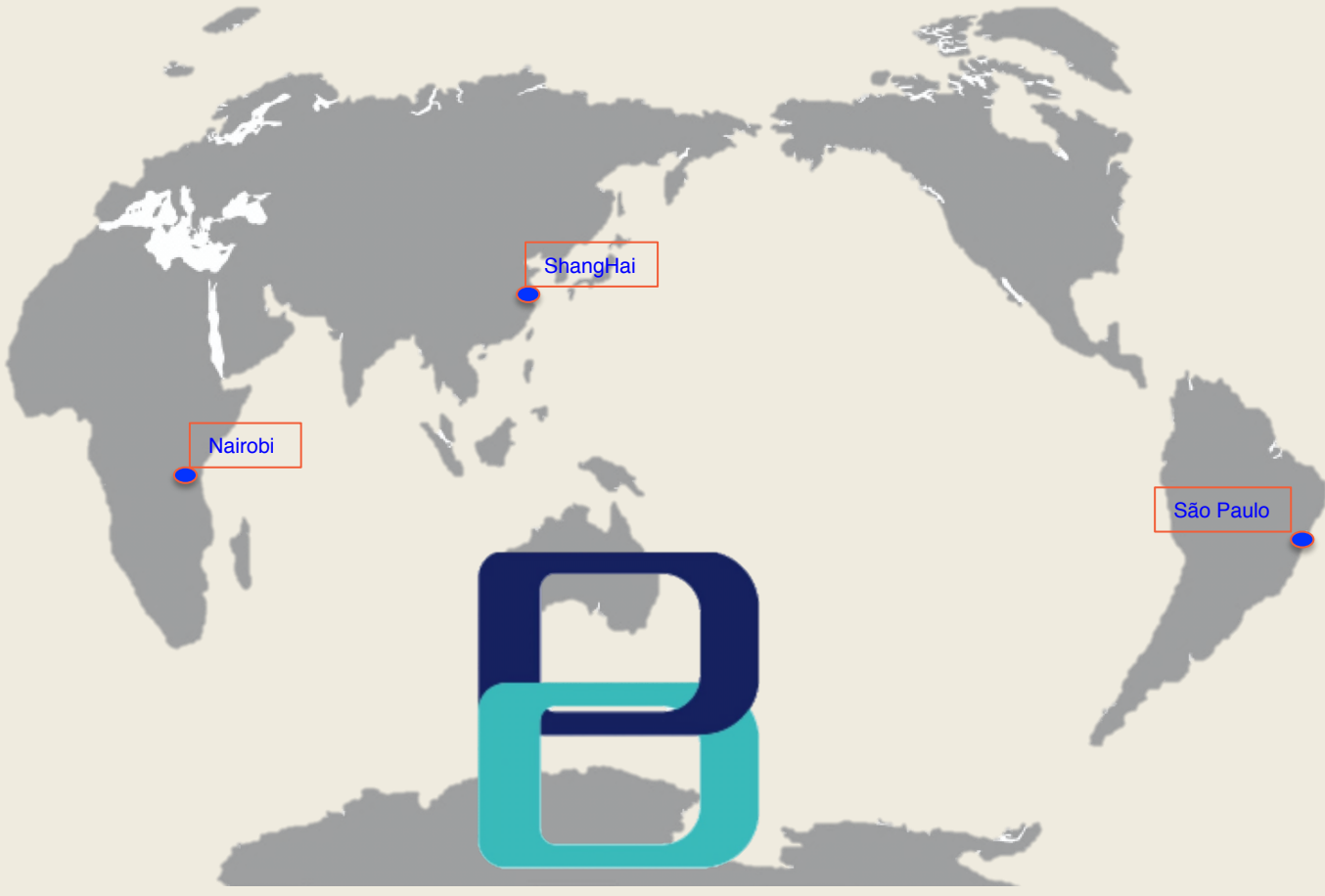
Coax-Spring

D1	D2	A	Shape - Size*
1/4"	10.22	15	BCSG-1/4-1/2-*
3/8"	13.4	15	BCSG-3/8-5/8-*
1/2"	15.75	15	BCSG-1/2-3/4-*
3/4"	22.1	20	BCSG-3/4-1-*
1"	28.45	20	BCSG-1-11/4-*



Coax-Purge Tee

Inner & Outer	Dimensions				Shape - Size*
	D1	A	B	C	
1/4"x1/2"	1/2"	95.3	127	1/4"VCR	BCPT-1/4-1/2-*
3/8"x5/8"	5/8"	95.3	152.4	1/4"VCR	BCPT-3/8-5/8-*
1/2"x3/4"	3/4"	101.6	152.4	1/4"VCR	BCPT-1/2-3/4-*
3/4"x1"	1"	108	235	1/4"VCR	BCPT-3/4-1-*
1"x1 1/4"	1 1/4"	108	241.3	1/4"VCR	BCPT-1-11/4-*



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