



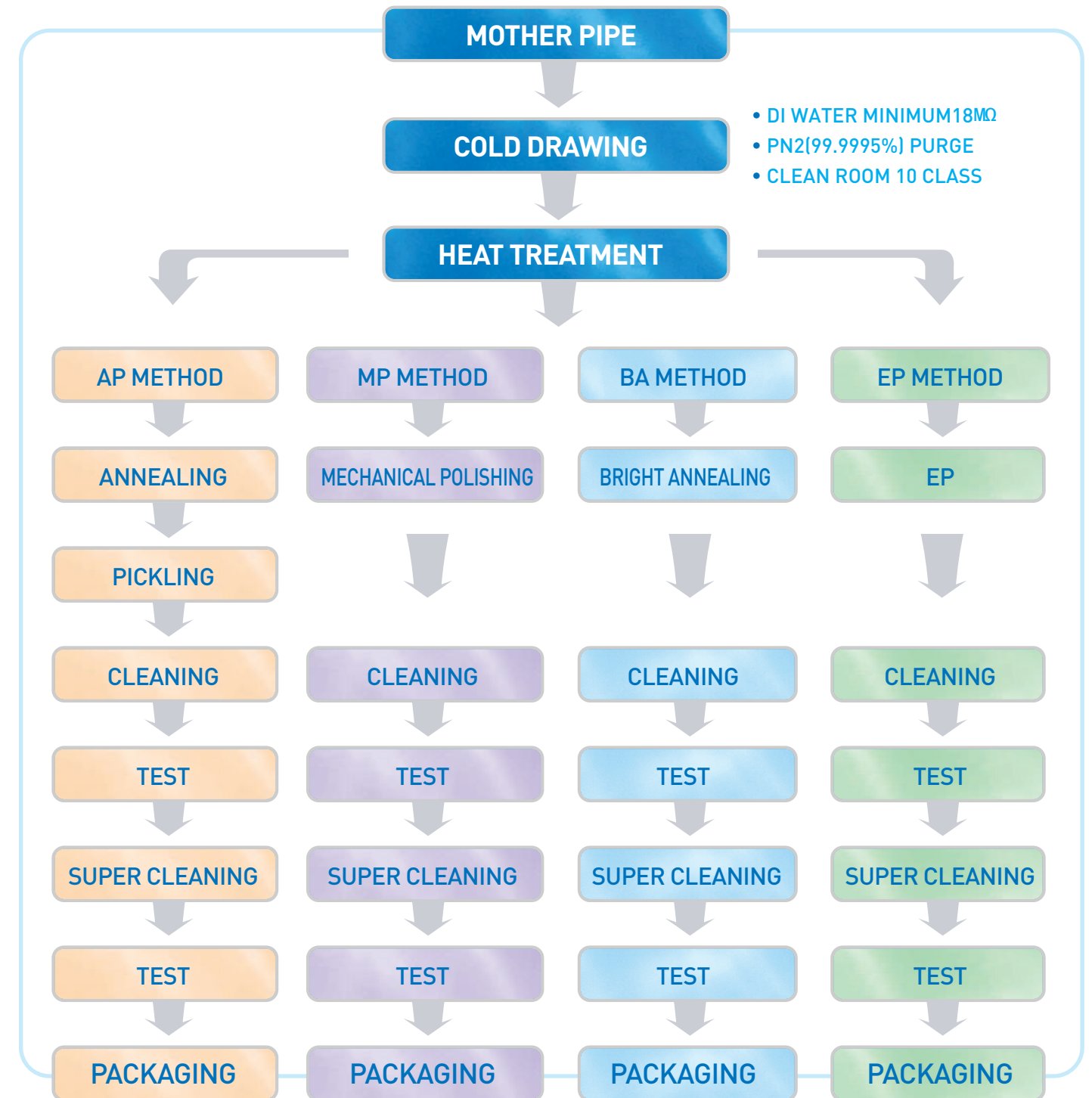
Pipe & Tube

Aerospace & Semiconductor Flow





Pipe & Tube





ASFLOW SUPER CLEAN PIPE & TUBE I

With state of the art EP technology, ASFLOW produces ultra high purity pipe & tube used in semiconductor & aerospace applications.

Seamless Clean Pipe

- **BA** - Our special cold working, optimum pass schedule and bright-annealing give very fine and lustrous smoothness and good anticorrosion.
- **EP** - Precision electropolishing bright, smooth and corrosion resistant surface. anticorrosion.

Welded Clean Pipe

- ASFLOW provides a wide range of cost effective welded pipes.

Grade

- **AP** - Annealed and Pickled Pipe
- **MP** - Mechanically Polished Pipe
- **BA** - Bright Annealed Pipe
- **EP** - ElectroPolished Pipe



ASFLOW MATERIALS

- SUS 316L Single melt or SUS 316L Double melt is used to meet the stringent requirements of the semiconductor and aerospace industries.
- Our state-of-the-art Pipe & Tube prevent out gassing and improve corrosion resistance while providing excellent compatibility with speciality gases and chemicals

	Material	Surface	Grade
Seamless	SUS316L Single Melt (VOD)		EP
	SUS316L Double Melt (VAR)		BA
	SUS316L Double Melt (VIM+VAR)		BA
Welded	SUS 304/316		MP
	SUS 316L		AP
			AP

- Electropolishing improves surface roughness by selective solution of surface



● Chemical Composition Standard

Grade	Chemical Composition(Wt%)	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Al
AP / MP	SUS316L JIS Standard (AOD)	0.030	1.00	2.00	0.045	0.030	12.00 16.00	16.00 18.00	2.00 3.00	-	-
	SUS304 JIS Standard	0.08	1.00	2.00	0.045	0.030	8.00 11.00	18.00 20.00	-	-	-
BA / EP	SUS316L Single Melt (VOD)	0.030	0.75	0.80	0.040	0.005	12.00 16.00	16.00 18.00	2.00 3.00	0.50	-
	SUS316L Double Melt (VAR)	0.010	0.30	0.40	0.030	0.003	14.50 15.00	16.50 17.00	2.20 2.50	0.25	0.01
	SUS316L Double Melt (VIM+VAR)	0.010	0.20	0.05	0.020	0.003	14.50 15.00	16.50 17.00	2.20 2.50	0.20	0.01

International Standard SEMI SPEC F20-0706E

● Pipe & Tube Size / Dimension Tolerance

Outer Diameter				Wall Thickness													
Pipe Size (A)	Tube Size (inch)	mm	Grade		mm				5S			10S					
			MP/BA/EP	AP	T	Grade			T	Grade		T	Grade				
						EP/MP	BA	AP		MP/BA/EP	AP		MP/BA/EP	AP			
	1/4"	6.35	±0.10 0.00	±0.30 mm	1	+0.05 -0.00	±0.05	±0.02 mm									
	3/8"	9.53			1												
	1/2"	12.70			1.24												
	3/4"	19.05			1.65	+0.01 -0.15	±0.1										
	1"	25.40			1.65												
8A		13.8	±0.08	±1.0%					1.2	±0.12		1.65	±0.15	±0.2 mm			
10A		17.3			1.2				1.65				1.65				
15A		21.7	±0.1		1.65				2.1				2.1	±0.21			
20A		27.2			1.65				2.1				2.8				
25A		34.0			1.65	±0.15	±0.2 mm		2.8				2.8				
32A		42.7	±0.015		1.65				2.8			2.8	±0.28				
40A		48.6	±0.2		1.65				2.8			2.8					
50A		60.5			2.1				3			3			±10%		
65A		76.3	±0.4		2.1	±0.2			3			3	±0.30				
80A		89.1			2.1				3			3					
100A		114.3	±0.8		2.1				3			3					
125A		139.8	±1.0		2.8				3.4			3.4	±0.34				
150A		165.2	±1.5		2.8	±0.28	±10.0 %		3.4			3.4					
200A		216.3	±2.0		2.8				4			4	±0.40				
250A		267.4	±2.5		3.4	±0.34			4			4					
300A		318.5	±3.0	4	±0.40			4.5			4.5	±0.45					
350A		355.6	±3.50	5	±0.50	±0.50	±10%										
				6.4	±0.64	±0.64											

01 PIPE SIZE

PIPE SIZE	OUTER DIAMETER OD(mm)	THICKNESS		LENGTH L
		T=5S	T=10S	
8A	13.8	1.2	1.65	4M (6M)
10A	17.3	1.2	1.65	
15A	21.7	1.65	2.1	
20A	27.2	1.65	2.1	
25A	34.0	1.65	2.8	
32A	42.7	1.65	2.8	
40A	48.6	1.65	2.8	
50A	60.5	1.65	2.8	
65A	76.3	2.1	3.0	
80A	89.1	2.1	3.0	
100A	114.3	2.1	3.0	4M
125A	139.8	2.8	3.4	
150A	165.2	2.8	3.4	
200A	216.3	2.8	4.0	

02 TUBE SIZE

TUBE SIZE	OUTER DIAMETER OD(mm)	THICKNESS T	LENGTH L
1/4"	6.35	1.0 (0.89)	4M (6M)
3/8"	9.53	1.0 (0.89)	
1/2"	12.7	1.0, 1.24 (1.65)	
3/4"	19.05	1.65 (1.24)	
1"	25.4	1.65 (1.24)	
1 1/4"	31.8	1.65	
1 1/2"	38.1	1.65	
2"	50.8	1.65	
2 1/2"	63.5	1.65	
3"	76.2	1.65	
4"	101.6	2.11	
5"	127	2.77 (3.05)	
6"	152.4	2.77 (3.05)	