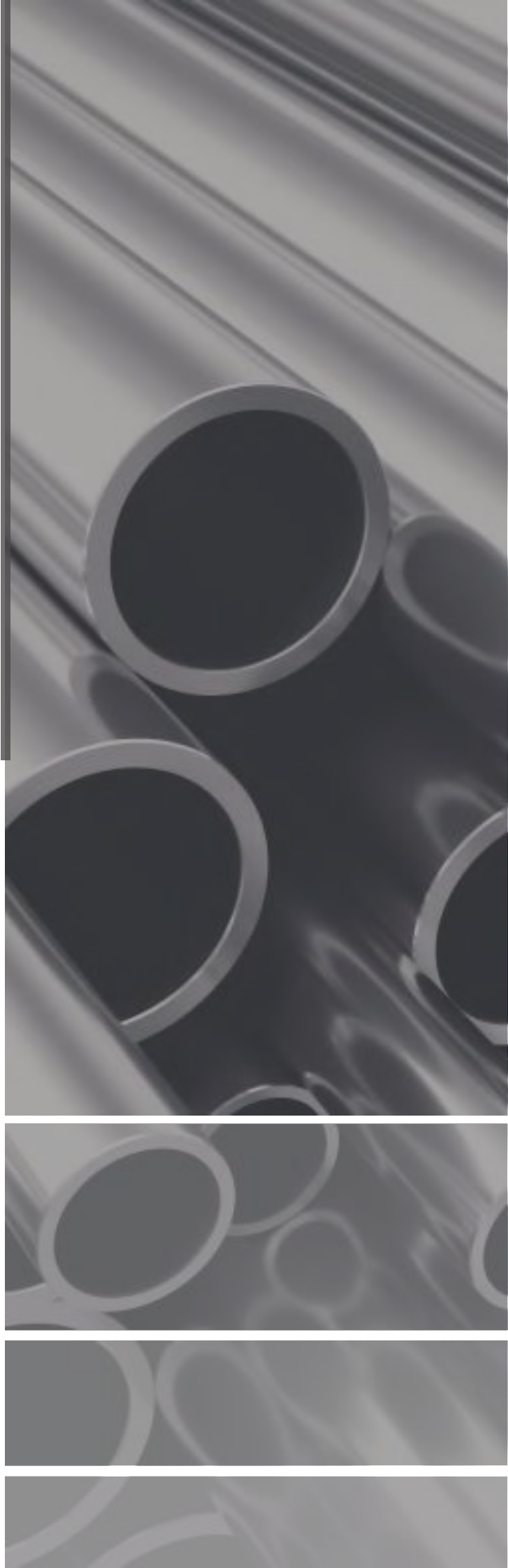






**STAINLESS STEEL  
PRODUCTS &  
APPLICATIONS**



# Stainless Steel Products & Applications

## Applications and Standard Specifications

	Product	Application
	a) Ornamental Tube	Structural frames, construction of decorative railings, residential gates, windows, doors, furniture and etc
	b) Décor Pipe	Structural frames, construction of decorative railings, residential gates, windows, doors, furniture and etc
	c) String Pipe	Structural frames, construction of decorative railings, residential gates, windows, doors, furniture and etc
	d) Slitted Coil	Manufacturing of kitchen equipment, furniture, office equipment, electrical appliances and etc
	e) Sheet	Manufacturing of kitchen equipment, furniture, office equipment, electrical appliances, fabrication of stainless steel tanks, structural support, rain water gutters in buildings, decorative panels in interior design and etc
	f) Flat Bar	Components of machines and mechanisms, structural electrical appliance and etc

## Standard Weight Table

Fundamental Mass (kg)	7.93	7.98	7.70	7.75
Standard Specification	STS 301, 301L, 304, 304L, 305, 321	STS 310S, 316, 316L, 347	STS 430, 434	STS 410, 420J1, 420J2, STR 409L
Note : The Fundamental Mass means the mass of the stainless steel of 1mm in thickness and 1m <sup>2</sup> in area.				

# Stainless Steel Products & Applications

## Applications and Standard Specifications

Classification	Standard	Chemical Composition (%)									Mechanical Properties					Fundamental Mass (Kg)	
		C	Mn	P	S	Si	Cr	Ni	N	Others	Yield Strength (N/mm <sup>2</sup> )	Tensile Strength (N/mm <sup>2</sup> )	Elongation (%)	Hardness			
		HRB	HV														
304	KS	<0.08	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	8.00 - 10.50	-	-	>205	>520	>40	<90	<200	7.93	
	JIS	<0.08	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	8.00 - 10.50	-	-	>205	>520	>40	<90	<200	7.93	
	AISI	<0.08	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	8.00 - 10.50	-	-	290	579	55	80	-	7.93	
	ASTM	<0.08	<2.00	<0.045	<0.03	<0.75	18.00 - 20.00	8.00 - 10.50	<0.10	-	>205	>515	>40	<92	-	7.93	
304L	KS	<0.03	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	9.00 - 13.00	-	-	>175	>480	>40	<90	<200	7.93	
	JIS	<0.03	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	9.00 - 13.00	-	-	>175	>480	>40	<90	<200	7.93	
	AISI	<0.03	<2.00	<0.045	<0.03	<1.00	18.00 - 20.00	8.00 - 12.00	-	-	269	558	55	79	-	7.93	
	ASTM	<0.03	<2.00	<0.045	<0.03	<0.75	18.00 - 20.00	8.00 - 12.00	<0.10	-	>170	>485	>40	<95	-	7.93	
316	KS	<0.08	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	10.00 - 14.00	-	Mo : 2.00 - 3.00	>205	>520	>40	<90	<200	7.98	
	JIS	<0.08	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	10.00 - 14.00	-	Mo : 2.00 - 3.00	>205	>520	>40	<90	<200	7.98	
	AISI	<0.08	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	10.00 - 14.00	-	Mo : 2.00 - 3.00	290	579	50	79	-	7.98	
	ASTM	<0.08	<2.00	<0.045	<0.03	<0.75	16.00 - 18.00	10.00 - 14.00	<0.10	Mo : 2.00 - 3.00	>205	>515	>40	<95	-	7.98	
316L	KS	<0.03	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	12.00 - 15.00	-	Mo : 2.00 - 3.00	>175	>480	>40	<90	<200	7.98	
	JIS	<0.03	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	12.00 - 15.00	-	Mo : 2.00 - 3.00	>175	>480	>40	<90	<200	7.98	
	AISI	<0.03	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	10.00 - 14.00	-	Mo : 2.00 - 3.00	290	558	50	79	-	7.98	
	ASTM	<0.03	<2.00	<0.045	<0.03	<0.75	16.00 - 18.00	10.00 - 14.00	<0.10	Mo : 2.00 - 3.00	>170	>485	>40	<95	-	7.98	
301	KS	<0.15	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	-	-	>205	>520	>40	<95	<218	7.93	
	JIS	<0.15	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	-	-	>205	>520	>40	<95	<218	7.93	
	AISI	<0.15	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	-	-	276	758	60	85	-	7.93	
	ASTM	<0.15	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	<0.10	-	>205	>515	>40	<95	-	7.93	
301L	KS	<0.03	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	-	-	>215	>550	>40	<90	<200	7.93	
	JIS	<0.03	<2.00	<0.045	<0.03	<1.00	16.00 - 18.00	6.00 - 8.00	-	-	>215	>550	>40	<90	<200	7.93	
	AISI	-	<2.00	-	-	-	16.00 - 18.00	6.00 - 8.00	-	-	-	-	-	-	-	7.93	
	ASTM	-	<2.00	-	-	-	16.00 - 18.00	6.00 - 8.00	-	-	-	-	-	-	-	7.93	
305	KS	<0.12	<2.00	<0.045	<0.03	<1.00	17.00 - 19.00	10.50 - 13.00	-	-	>175	>480	>40	<90	<200	7.93	
	JIS	<0.12	<2.00	<0.045	<0.03	<1.00	17.00 - 19.00	10.50 - 13.00	-	-	>175	>480	>40	<90	<200	7.93	
	AISI	<0.12	<2.00	<0.045	<0.03	<1.00	17.00 - 19.00	10.50 - 13.00	-	-	262	586	50	80	-	7.93	
	ASTM	<0.12	<2.00	<0.045	<0.03	<0.75	17.00 - 19.00	10.50 - 13.00	-	-	>205	>515	>40	<88	-	7.93	
430	KS	<0.12	<1.00	<0.04	<0.03	<0.75	16.00 - 18.00	-	-	-	>205	>450	>22	<88	<200	7.70	
	JIS	<0.12	<1.00	<0.04	<0.03	<0.75	16.00 - 18.00	-	-	-	>205	>450	>22	<88	<200	7.70	
	AISI	<0.12	<1.00	<0.04	<0.03	<1.00	16.00 - 18.00	-	-	345	517	25	85	-	7.70		
	ASTM	<0.12	<1.00	<0.04	<0.03	<1.00	16.00 - 18.00	<0.75	-	-	>205	>515	>22	<88	-	7.70	
409L	KS	<0.03	<1.00	<0.04	<0.03	<1.00	10.50 - 11.75	-	-	Ti6xC% ~ 0.75	>175	>360	>25	<80	<175	7.75	
	JIS	<0.03	<1.00	<0.04	<0.03	<1.00	10.50 - 11.75	-	-	Ti6xC% ~ 0.75	>175	>360	>25	<80	<175	7.75	
	AISI	-	-	-	-	-	10.50 - 11.75	-	-	Ti6xC% ~ 0.75	-	-	-	-	-	7.75	
	ASTM	-	-	-	-	-	10.50 - 11.75	-	-	Ti6xC% ~ 0.75	-	-	-	-	-	7.75	
434	KS	<0.12	<1.00	<0.04	<0.03	<1.00	16.00 - 18.00	-	-	Mo:0.75 ~ 1.25	>205	>450	>22	<88	<200	7.70	
	JIS	<0.12	<1.00	<0.04	<0.03	<1.00	16.00 - 18.00	-	-	Mo:0.75 ~ 1.25	>205	>450	>22	<88	<200	7.70	
	AISI	<0.12	<1.00	<0.04	<0.03	<1.00	16.00 - 18.00	-	-	Mo:0.75 ~ 1.25	365	531	23	83	-	7.70	
	ASTM	<0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	7.70	
410	KS	<0.15	<1.00	<0.04	<0.03	<1.00	11.50 - 13.50	-	-	-	>205	>440	>20	<93	<210	7.75	
	JIS	<0.15	<1.00	<0.04	<0.03	<1.00	11.50 - 13.50	-	-	-	>205	>440	>20	<93	<210	7.75	
	AISI	<0.15	<1.00	<0.04	<0.03	<1.00	11.50 - 13.50	-	-	-	310	483	25	80	-	7.75	
	ASTM	<0.15	<1.00	<0.04	<0.03	<1.00	11.50 - 13.50	<0.75	-	-	>205	>450	>20	<96	-	7.75	
420 420J1	KS	0.16 - 0.25	<1.00	<0.04	<0.03	<1.00	12.00 - 14.00	-	-	-	>225	>520	>18	<97	<234	7.75	
	420J2	JIS	0.26 - 0.40	<1.00	<0.04	<0.03	<1.00	12.00 - 14.00	-	-	-	>225	>540	>18	<99	<247	7.75
	420	AISI	<0.15	<1.00	<0.04	<0.03	<1.00	12.00 - 14.00	-	-	-	334	655	20	92	-	7.75

# Stainless Steel Products & Applications



## 12 a) Ornamental Tubes

### ASTM A554 / Manufacturer's Standard

Round Tube				
Size (Outside Diameter)		Weight (kg/m)		
		Nominal Wall Thickness (mm)		
mm	in	1.0	1.2	1.5
12.7	1/2	0.291	0.344	0.418
15.9	5/8	0.371	0.439	0.538
19.1	3/4	0.451	0.535	0.658
22.2	7/8	0.528	0.628	0.773
25.4	1	0.608	0.723	0.893
31.8	1 1/4	0.767	0.915	1.132
38.1	1 1/2	0.924	1.103	1.368
50.8	2	1.241	1.483	1.842
63.5	2 1/2	1.557	1.862	2.317
76.2	3	1.873	2.242	2.791
101.6	4	2.506	3.001	3.740

Square Tube					
Size (Side Length)		Weight (kg/m)			
		Nominal Wall Thickness (mm)			
mm	in	1.0	1.2	1.5	2.0
12.7 x 12.7	1/2 x 1/2	0.370	0.436	0.531	0.677
15.9 x 15.9	5/8 x 5/8	0.471	0.558	0.683	0.880
19.1 x 19.1	3/4 x 3/4	0.573	0.680	0.836	1.083
25.4 x 25.4	1 x 1	0.773	0.919	1.135	1.483
31.8 x 31.8	1 1/4 x 1 1/4	0.976	1.163	1.440	1.889
38.1 x 38.1	1 1/2 x 1 1/2	1.176	1.403	1.740	2.288
50.8 x 50.8	2 x 2	1.578	1.886	2.344	3.094

Rectangular Tube				
Size (Side Length)		Weight (kg/m)		
		Nominal Wall Thickness (mm)		
mm	in	1.0	1.2	1.5
25.4 x 50.8	1 x 2	1.176	1.403	1.740

Note : The above weight list is applicable to 304 grade only      Standard Length : 6.1 meter per piece

#### Surface Finish

Item	Finish	Description
Round Tube (O.D)	Mill Finish	As welded
	# 180	Buffed after polishing by # 180
	# 180 Hairline	Hairline finished after polishing by # 180
	# 400	Buffed after polishing by # 400
	# 600	Buffed after polishing by # 600
Square Tube (S.Q)	Mill Finish	As welded
	# 180 Hairline	Hairline finished after polishing by # 180
	# 400	Buffed after polishing by # 400
Rectangular Tube (R.T)	Mill Finish	As welded
	# 180 Hairline	Hairline finished after polishing by # 180
	# 400	Buffed after polishing by # 400

# Stainless Steel Products & Applications



## 12 a) Ornamental Tubes

### Outside Diameter Tolerance

Round Tube		
Outside Diameter (mm)	Wall Thickness (mm)	Outside Diameter Tolerance (mm)
Under 12.7	0.51 to 1.24	±0.10
12.7 to 25.4	0.51 to 1.65	±0.13
	Over 1.65 to 3.40	±0.25
Over 25.4 to 38.1	0.64 to 1.65	±0.20
	Over 1.65 to 3.40	±0.25
Over 38.1 to 50.8	0.64 to 1.24	±0.25
	Over 1.24 to 2.11	±0.28
	Over 2.11 to 3.78	±0.30
Over 50.8 to 63.5	0.81 to 1.65	±0.30
	Over 1.65 to 2.77	±0.33
	Over 2.77 to 4.19	±0.36
Over 63.5 to 88.9	0.81 to 4.19	±0.36
Over 88.9 to 127.0	0.89 to 4.19	±0.51

Square Tube / Rectangular Tube	
Size ( Side Length )	±mm, Across Flats, Convexity or Concavity incl.
To 31.8	0.38
Over 31.8 to 50.8	0.51

### Maximun Radii Of Corners (Square Tube / Rectangular Tube)

Wall Thickness (mm)	Radii Of Corners Max (mm)
Over 0.51 to 1.24	2.4
Over 1.24 to 1.65	3.2
Over 1.65 to 2.11	3.6
Over 2.11 to 2.42	4.8
Over 2.42 to 2.77	5.2
Over 2.77 to 3.40	5.6



## 12 b) Décor Pipe

Nominal Size (mm)	Outside Diameter (mm)	Wall Thickness		Knot Design		
		1.0mm	1.2mm	1 K	2 K	14 K
16	15.9					
19	19.1					
25	25.4					
32	31.8					
38	38.1					
50	50.8					

Currently in production

Note: Décor Pipe - Available in 6 meter length  
Finish - Grit #600

## 12 c) String Pipe



Nominal Size (mm)	Outside Diameter (mm)	Wall Thickness		Knot Design		
		1.0mm	1.2mm	1 K	2 K	14 K
16	15.9					
19	19.1					
25	25.4					
32	31.8					
38	38.1					
50	50.8					

Currently in production

Note: String Pipe - Available in 6 meter length  
Finish - Grit #600



## 12 d) Slitted Coil

Description	Material		
	SS	CR / EG / GI / CC	HR / P & O
Thickness	0.3mm - 1.5mm	0.3mm - 2.0mm	1.2mm - 4.0mm
Strip Width	Min. 12mm	Min. 12mm	Min. 25mm
Coil ID	508mm	508mm	508mm / 609mm



## 12 e) Shearing Sheets

Description	Material			
	SS		CR / EG / GI / CC	HR / P & O / CK
Thickness	0.3mm - 1.5mm	2.0mm - 6.0mm	0.3mm - 3.2mm	1.2mm - 12.0mm
Width	Min. 100mm	Min. 350mm	Min. 100mm	Min. 100mm
	Max. 1,524mm	Max. 1,829mm	Max. 1,524mm	Max. 1,829mm
Length	Max : 3,200mm	Max : 12,000mm	Max : 3,200mm	Max : 12,000mm

### Abbreviation :

SS :	Stainless Steel	CC :	Colour Coated
CR :	Cold Rolled	HR :	Hot Rolled
EG :	Electro Galvanised	P & O :	Pickled & Oiled
GI :	Galvanised Iron	CK :	Chequered

## 12 f) Stainless Steel Flat Bar



### Stainless Steel Flat Bar

#### ASTM A276 / Manufacturer's Standard

Nominal Size (mm)	Weight (kg/m)									
	AISI 304 / 304L					AISI 316 / 316L				
	Nominal Thickness (mm)									
	3.0	4.0	4.5	6.0	9.0	3.0	4.0	4.5	6.0	9.0
25.0	0.595	0.793	0.892	1.190	1.784	0.599	0.798	0.898	1.197	1.796
32.0	0.761	1.015	1.142	1.523	2.283	0.766	1.021	1.149	1.532	2.298
38.0	0.904	1.205	1.356	1.808	2.712	0.910	1.213	1.365	1.819	2.729
50.0	1.190	1.586	1.784	2.379	3.569	1.197	1.596	1.796	2.394	3.591
65.0	1.546	2.062	2.320	3.093	4.639	1.556	2.075	2.334	3.112	4.668
75.0	1.784	2.379	2.676	3.569	5.353	1.796	2.394	2.693	3.591	5.387
100.0	2.379	3.172	3.569	4.758	7.137	2.394	3.192	3.591	4.788	7.182
150.0	3.569	4.758	5.353	7.137	10.706	3.591	4.788	5.387	7.180	10.773

Standard Length : 6.1 meter per piece

Permissible Variation in Dimension According To ASTM A484	
Dimension	Tolerance
Thickness	
Over 2.90mm to 3.30mm	+ 0.25mm, - 0.25mm
Over 3.30mm to 3.70mm	+ 0.30mm, - 0.30mm
Over 3.70mm to 4.80mm	+ 0.35mm, - 0.35mm
Over 4.80mm to 9.00mm excl.	+ 1.25mm, - 0.25mm