STAINLESS STEEL

ENGLISH

STAINLESS STEEL

STAINLESS STEEL

posco

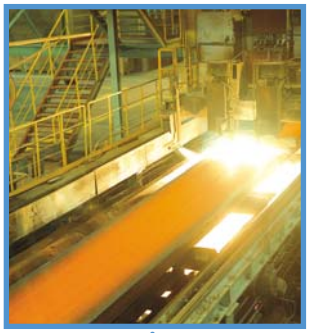
Future

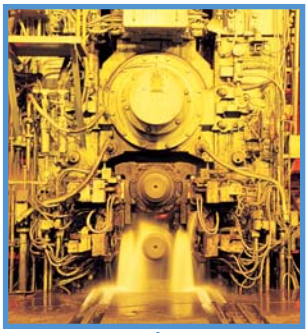
Contents	

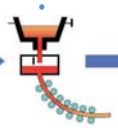
POSCO STAINLESS STEEL

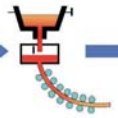
POSCO' s stainless steel products are manufactured by the latest facilities and technology.
Stainless steel, called the flower of steels, contains more than 12% of chromium and tends to be rustproof. Therefore, it is used as interior and exterior materials for building, kitchenwares, industrial parts, automotive components, medical instruments and so forth.
POSCO has established integrated manufacturing system from melting shop to hot & cold rolling process. POSCO produces 200 million tons of stainless steel products annually.
POSCO also pursues complete quality control and delivery management, and strives to achieve customer satisfaction.

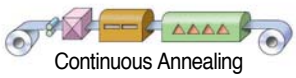
MANUFACTURING PROCESS

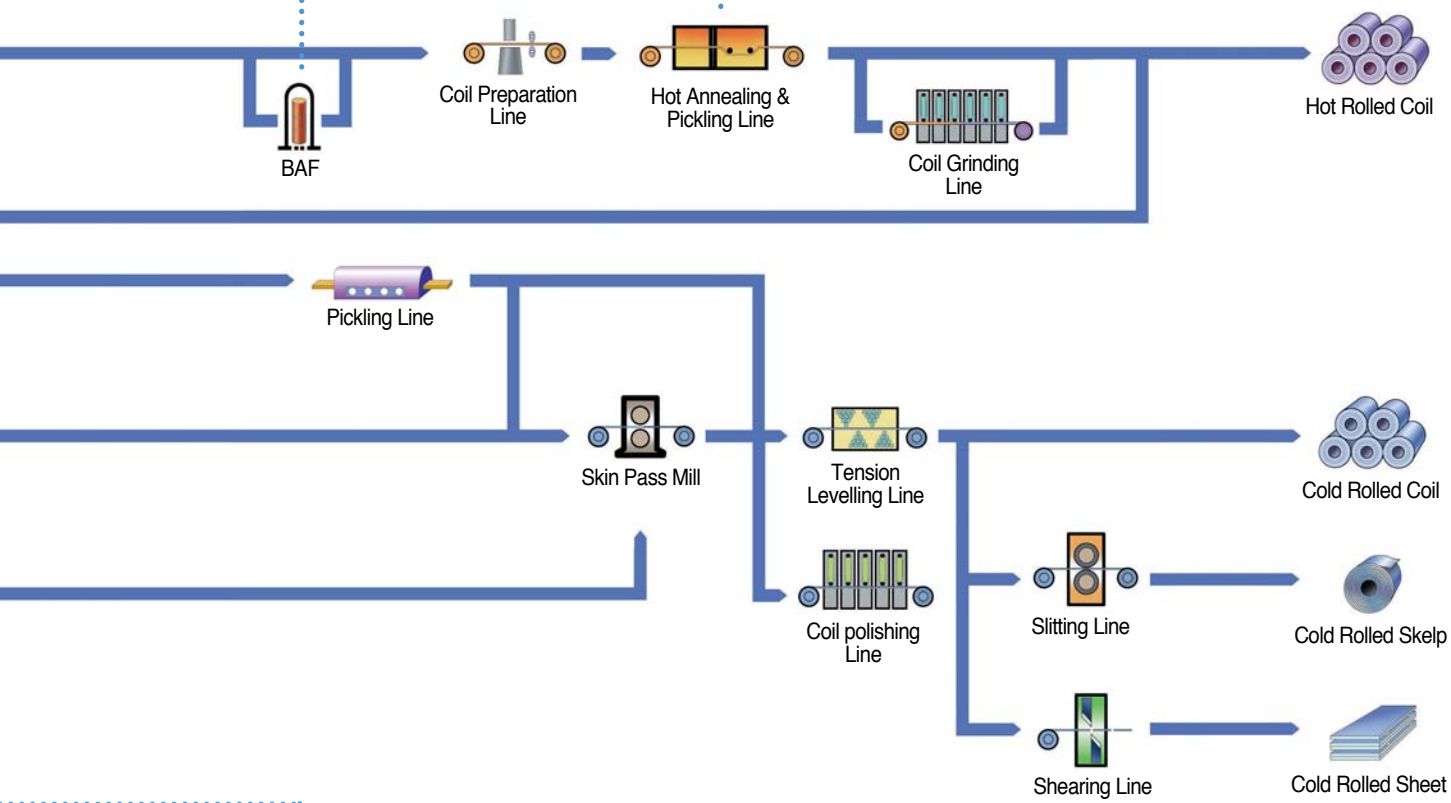


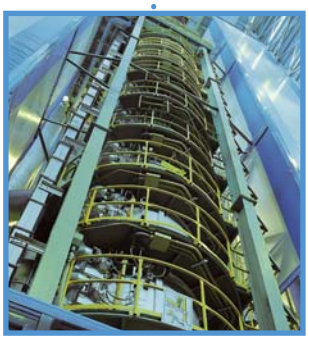









BAF
Coil Preparation Line
Hot Annealing & Pickling Line
Coil Grinding Line
Hot Rolled Coil
Pickling Line
Skin Pass Mill
Tension Levelling Line
Coil polishing Line
Slitting Line
Shearing Line
Cold Rolled Coil
Cold Rolled Skelp
Cold Rolled Sheet



AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

301
301L

17Cr-7Ni
17Cr-7Ni-LC

Characteristics

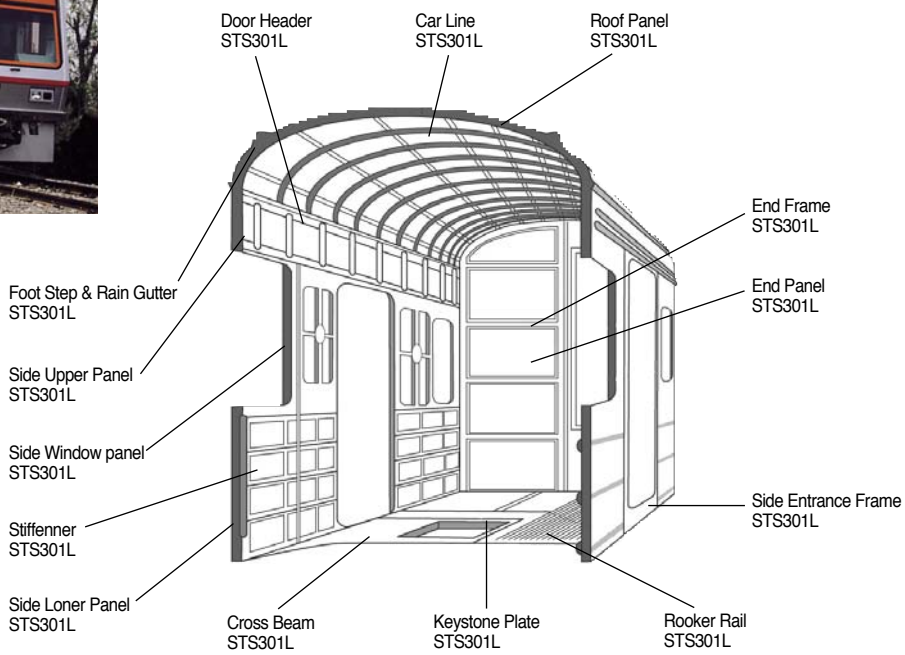
301 and 301L contain lower Cr and Ni content than 304 steel does. Cold working increases strength and generates magnetism. Compared to Aluminium, they are excellent in corrosion resistance, strength at high temperature, and fatigue strength. They are applicable for railway vehicles due to their economical efficiency, safety and light weight.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Train interior and exterior panels •Structural materials of train • Components of electronic products • Spring



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
301	301	≦ 0.15	16.0~18.0	6.00~8.00	–	–	≧ 205	≧ 520	≧ 40	≦ 218	0.50	7.93	16.9	16.3
301L	301L	≦ 0.030	16.0~18.0	6.00~8.00	–	N ≦ 0.2	≧ 215	≧ 550	≧ 45	≦ 218	0.50	7.93	16.9	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

304 — 18Cr-8Ni
304L — 18Cr-9Ni-LC
304LN — 18Cr-9Ni-LC-0.13N

Characteristics

304 : Most widely used steel type because of its good corrosion resistance, thermal resistance, strength at low-temperature and mechanical properties.

304L : Low-carbon 304 stainless steel. It is excellent in intergranular corrosion resistance.

304LN : 304 stainless steel with low nitrogen. Superior tensile strergth and corrosion resistance to 304.

Products available

304,304L : Hot rolled coil, Cold rolled coil, Plate

304LN : Plate

Applications

304 : Household utensils (sink, interior pipe, hot-water system, bathtub, boiler and others), Automotive components (wiper, muffler, molding), medical instruments, building materials, some industries (chemical, food processing, textile) and vessel parts.

304L : Machinery and tools used in chemical, coal, and petroleum industries that require high inter-granular corrosion resistance, Building materials, heat resistant parts and parts that is difficult to implement heat treatment, LNG tank.

304LN : Water tank of heater, Chemical tank.

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
304	304	≦ 0.08	18.0~20.0	8.00~10.50	–	–	≧ 205	≧ 520	≧ 40	≦ 200	0.50	7.93	17.3	16.3
304L	304L	≦ 0.030	18.0~20.0	9.00~13.00	–	–	≧ 175	≧ 480	≧ 40	≦ 200	0.50	7.93	17.3	16.3
304LN	304LN	≦ 0.030	17.0~19.0	8.5~11.5	-	N≧0.12~0.22	≧ 245	≧ 550	≧ 40	≦ 220	0.50	7.93	17.3	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

304N1

19Cr-8Ni-0.13N

Characteristics

S and Mn contents are lowered and N is added in 304 steel to protect from reducing ductility to prevent ductility reduction and to increase strength, which enables light-weight.

Products available

Cold rolled coil, Plate

Applications

• Structural material • Street light • Potable water pipe

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
304N1	304N1	≦ 0.08	18.0~20.0	7.00~10.50	–	N 0.10~0.25	≧ 275	≧ 550	≧ 35	≦ 220	0.50	7.93	17.3	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

304J1

17Cr-8Ni-2Cu

Characteristics

With an addition of Cu, 304J1 has excellent antibiosis, formability, and deep drawability, also used for products requiring sanitary environment.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Thermos bottle • Thermos lunch box • Kitchen pot • Catering facilities • Products requiring spinning drawing

A Section of Thermos

Components of Burner (Presenting the process of forming)

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g·℃	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100℃)	Thermal Conductivity W/m·℃ (100℃)
304J1	304J1	≦ 0.08	15.0~18.0	6.0~9.0	–	Cu 1.0~3.0	≧ 155	≧ 450	≧ 40	≦ 200	0.50	7.93	17.3	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

305EG

16Cr-14Ni

Characteristics

Suitable for electronic components because of its non-magnetism and excellence in formability and drawability.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Electrodes components of TV monitor (electron gun) • VTR guide roller • Components of motor

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·˚C (20-100˚C)	Thermal Conductivity W/m·˚C (100˚C)
305	305EG	≦ 0.08	15.0~17.0	13.0~15.0	–	–	≧ 175	≧ 480	≧ 40	≦ 200	0.50	7.93	17.3	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

309S
310S

22Cr-13Ni
25Cr-20Ni

Characteristics

Highly alloied stainless steel. It has high strength and corrosion resistance in high temperature.

Products available

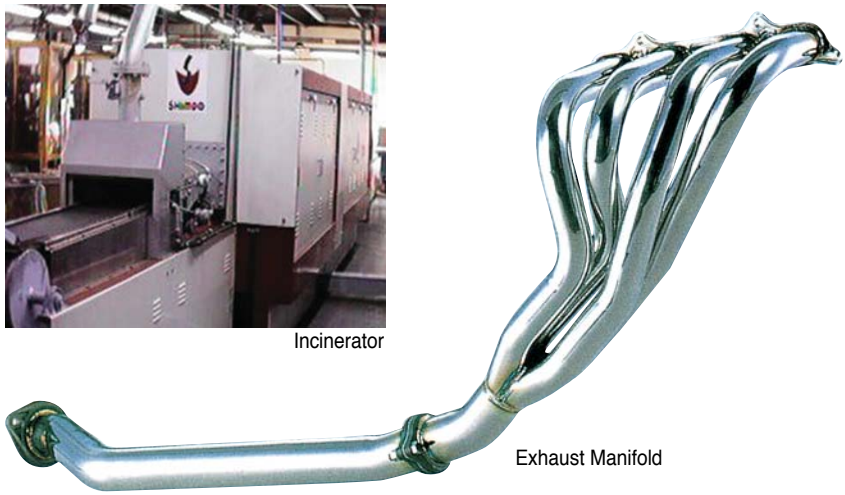
Hot rolled coil, Cold rolled coil, Plate

Applications

• Exhaust Manifold • Heat exchanger • Incinerator • Furnace • Contact components with high temperature


Furnace

Incinerator


Exhaust Manifold

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
309S	309S	≦ 0.08	22.0~24.0	12.0~15.0	–	–	≧ 205	≧ 520	≧ 40	≦ 200	0.50	7.98	15.9	14.2
310S	310S	≦ 0.08	24.0~26.0	19.0~22.0	–	–								

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

316
316L

18Cr-12Ni-2Mo
18Cr-12Ni-2Mo-LC

Characteristics

316 : With the addition of Mo in 304, 316 steel is superior in corrosion resistance, pitting resistance and high temperature strength.

316L : Low carbon 316 steel type. It has all the properties of 316 steel and has excellent inter-granular corrosion resistance.

Products available

Hot rolled coil, Cold rolled coil, Plate

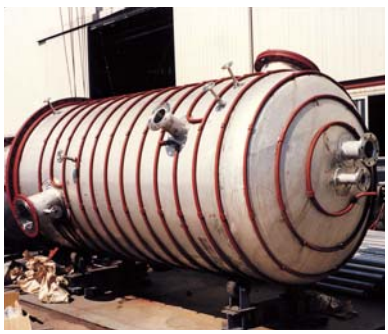
Applications

316 • Potable water pipe • Equipment for manufacturing chemicals, paper, dye, acetic and fertilizer • Structures in the coastal area • Photo industries, and food processing industries

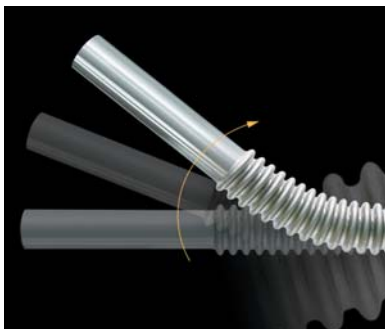
316L • Suitable for the corrosion-susceptible environments such as salt and toxic gas which one of the 316 steel usages

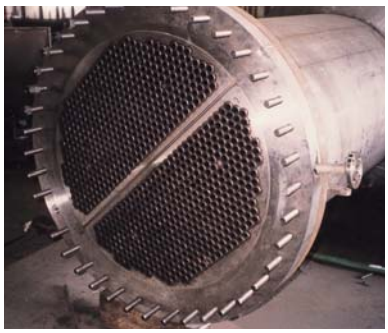

Food Processing Facility


Water Pipe


Heat Exchanger


Chemical Plant


Flexible Pipe


Heat Exchanger

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
316	316	≦ 0.08	16.0~18.0	10.00~14.0	2.00~3.00	–	≧ 205	≧ 520	≧ 40	≦ 200	0.50	7.98	15.9	16.3
316L	316L	≦ 0.03	16.0~18.0	12.00~15.0	2.00~3.00	–	≧ 175	≧ 480	≧ 40	≦ 200	0.50	7.98	15.9	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

316LN 18Cr-11Ni-2Mo-0.13N
316Ti 17Cr-11Ni-2Mo-0.13Ti
317L 18Cr-14Ni-3Mo-LC

Characteristics

316LN : 0.1~0.3wt% of N is added to 316 to increase strength.
316Ti : Ti is added to 316 to increase inter-granular corrosion resistance.
317L : 317L stainless steel has more Mo than 316L does. It has good seawater and SCC resistance.

Products available

316LN, 317L : Plate
316 Ti : Hot rolled coil, Cold rolled coil, Plate

Applications

316LN • Chemical tank • Chemical vessel • Chemical plant • Nuclear reactor
316Ti • Crude oil tank • Heat exchanger cover
317L • Chemical vessel • Chemical reactor • Petrochemical tank and vessel


Tank for Petrochemical Products


Chemical Plant


Heat Exchanger

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·˚C (20-100˚C)	Thermal Conductivity W/m·˚C (100˚C)
316LN	316LN	≦ 0.03	16.5~18.5	10.5~14.5	2.00~3.00	N 0.12~0.22	≧ 245	≧ 550	≧ 40	≦ 220	0.50	7.98	15.9	16.3
316Ti	316Ti	≦ 0.08	16.0~18.0	10.00~14.0	2.00~3.00	Ti 5×C% Min	≧ 205	≧ 520	≧ 40	≦ 200	0.50	7.98	15.9	16.3
317L	317L	≦ 0.03	18.0~22.0	11.0~15.0	3.0~4.0	–	≧ 175	≧ 480	≧ 40	≦ 200	0.486	7.98	16.5	14.4

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

321

18Cr-9Ni-0.3Ti

Characteristics

Ti is added to 304 steel to prevent inter-granular corrosion. Applicable to usages at temperature between 430 and 900℃.

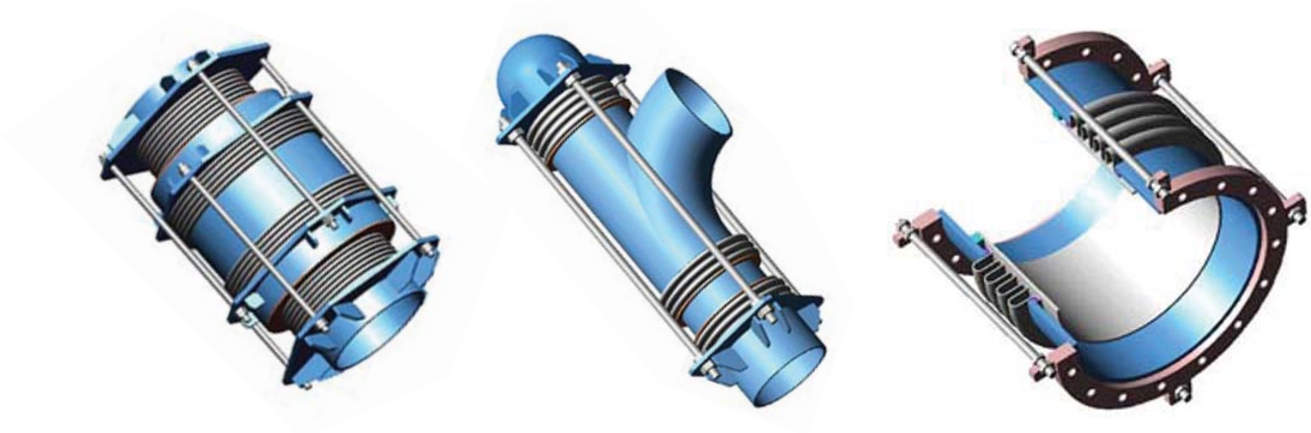
Products available

Hot rolled coil, Cold rolled coil, Plate

Applications

• Exhaust pipe of aircraft • Boiler cover • Heat exchanger • Boiler pipe

• Some parts that are impossible for heat treatment after welding or assembling



Expansion Joint

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g℃	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100℃)	Thermal Conductivity W/m·℃ (100℃)
321	321	≦ 0.08	17.0~19.0	9.00~13.00	–	Ti 5xC% Min	≧ 205	≧ 520	≧ 40	≦ 200	0.50	7.93	16.7	16.1

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

347

18Cr-9Ni-0.5Nb

Characteristics

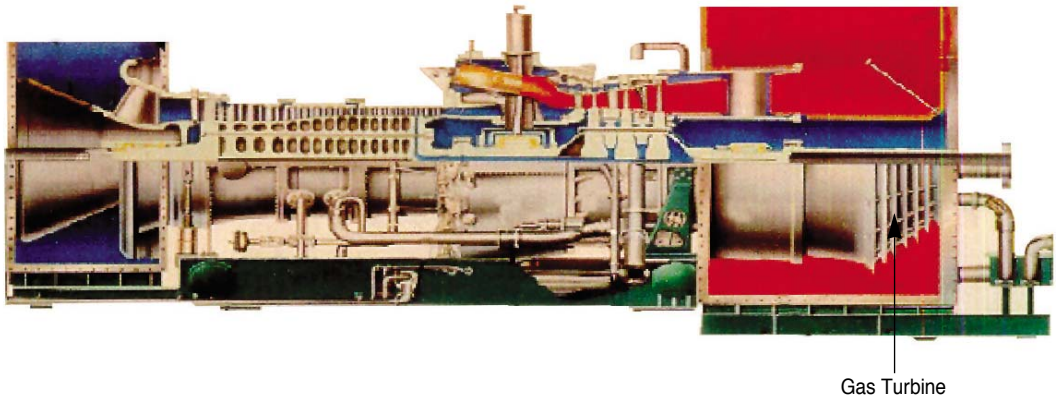
Nb is added to 304 steel to increase inter-granular corrosion resistance.

Products available

Hot rolled coil, Plate roll

Applications

Welding structure or some parts used at temperature between 400 and 900˚C : Pipe, flange, tube, turbine components for high temperature and high compressed air.



Model of Gas Turbine

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
347	347	≦ 0.08	17.0~19.0	9.00~13.00	–	Nb10xC Min	≧ 205	≧ 520	≧ 40	≦ 200	0.5	7.98	16.7	16.1

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

XM15J1

19Cr-13Ni-3.5Si

Characteristics

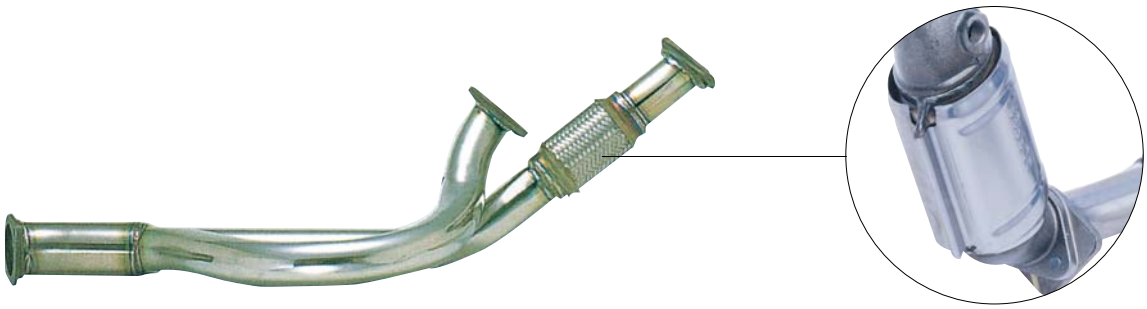
Excellent oxidation resistance and salt induced hot corrosion resistance by adding Si.

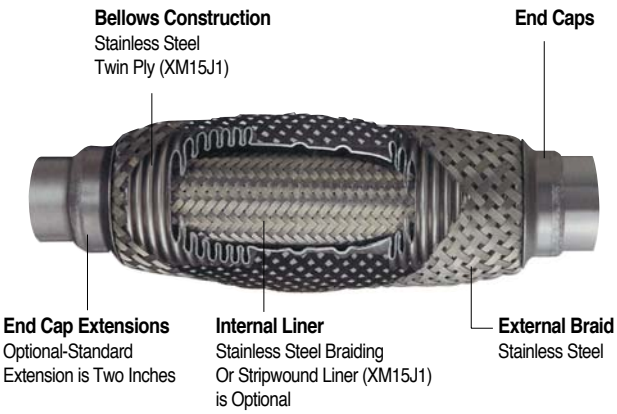
Products available

Hot rolled coil, Cold rolled coil

Applications

• Flexible coupling • Heater • Incinerator components





Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
XM15J1	XM15J1	≦ 0.08	15.0~20.0	11.5~15.0	–	Si 3.0~5.0	≧ 205	≧ 520	≧ 40	≦ 218	0.5	7.75	13.8	16.3

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

329J3L

22Cr-5Ni-3Mo-0.15N

Characteristics

The content of Cr, Mo and N gives an excellent chlorine induced corrosion resistance, SCC and erosion corrosion.
It is controlled to contain 50% of Austenite and Ferrite, respectively.

Products available

Hot rolled coil, Cold rolled coil, Plate

Applications

- Tube and pipe for gas petroleum products
- Desalination facilities, water reservoir and water cleaning facilities
- Pressure vessels, tank, pipe and heater exchanger to produce or transport chemical products
- Pressure vessels, tank, pipe for containing salty liquid and food industry
- Duct of desulfurization facilities

Water Pipe

Water Tank

Water Reservoir

Desalination Plant (Resource : Doo San heavy industries)

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
329J3L	329J3L	≦ 0.03	21.0~24.0	4.5~6.5	2.5~3.5	N 0.08~0.20	≧ 450	≧ 620	≧ 18	≦ 320	0.4	7.80	13.7	19.0

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

329LD

20Cr-2.5Ni-1.4Mo-N

Characteristics

The contents of Ni and Mo saving duplex stainless steel (Lean Duplex)
Excellent pitting corrosion, crevice corrosion , intergranular corrosion, and stress corrosion cracking (SCC) resistance

Products available

Hot rolled coil, Cold rolled coil, Plate

Applications

Water pipe, Seawater facilities, Chemical facilities, Equipment for manufacturing paper, dye and fertilizer,
Photo industry, Food processing industry, Structure in the costal area, Nuclear fuel reprocessing facilities

Water Pipe

Chemical Plant

Water Reservoir

Desalination Plant
(Resource : Doo San heavy industries)

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	YS	TS	El	HV	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
329LD	329LD	≦ 0.03	19.0~22.0	2.0~ 4.0	1.0~2.0	N 0.14~ 0.2 Mn 2.0~ 4.0	≧ 450	≧ 620	≧25	≦310	0.52	7.71	13.2	16.5

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

409L

11Cr-0.2Ti-LCN

Characteristics

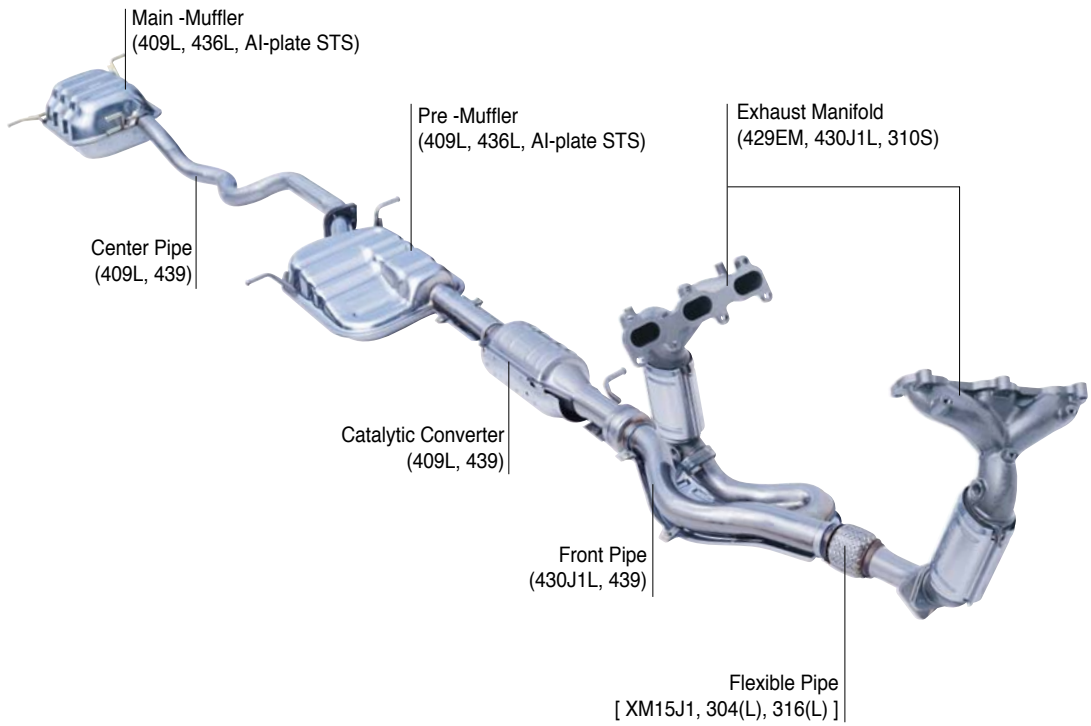
Excellent weldability and formability by adding Ti.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Auto exhaust parts (front pipe, convert shell, center pipe, tail end pipe) • Heat exchanger • Container
• Heat resistance components



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
409L	409L	≦ 0.03	10.50~11.75	–	–	Ti 6xC% ~0.75	≧ 175	≧ 360	≧ 25	≦ 175	0.46	7.75	6.5	24.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

HIPOS

High Yield Strength POSCO Stainless Steel

12.6Cr-Si-Ti-LCN

Characteristics

The strength increases with additional contents of Cr and Si than 409L.

Products available

Cold rolled coil

Applications

• LCD (Liquid Crystal Display) frame

Nevigation Frame

TV Frame

Notebook Frame

LCD Monitor Frame

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)
-	HIPOS	≤ 0.03	12~14	-	-	Si ≤ 1.3	≥ 175	≥ 360	≥ 22	≤ 180

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

410L

12Cr-LCN

Characteristics

Lower C contents than 410 stainless steel. It has good formability, bendability and high temperature oxidation resistance.

Products available

Hot rolled coil, Cold rolled coil

Applications

- Products requiring abrasion resistance and good weldability : reefer container, automotive, mining & industrial machinery components.
- Products requiring formability and oxidation resistance at the temperature lower than 820℃ : Boiler combustion chamber, burner components.

Reefer Container

Boiler Combustion Chamber

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
410L	410L	≦ 0.03	11.0~13.5	-	-	-	≧ 195	≧ 360	≧ 22	≦ 200	0.46	7.75	9.9	25.1

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

429EM

14Cr-1Si-0.2Ti-LC

Characteristics

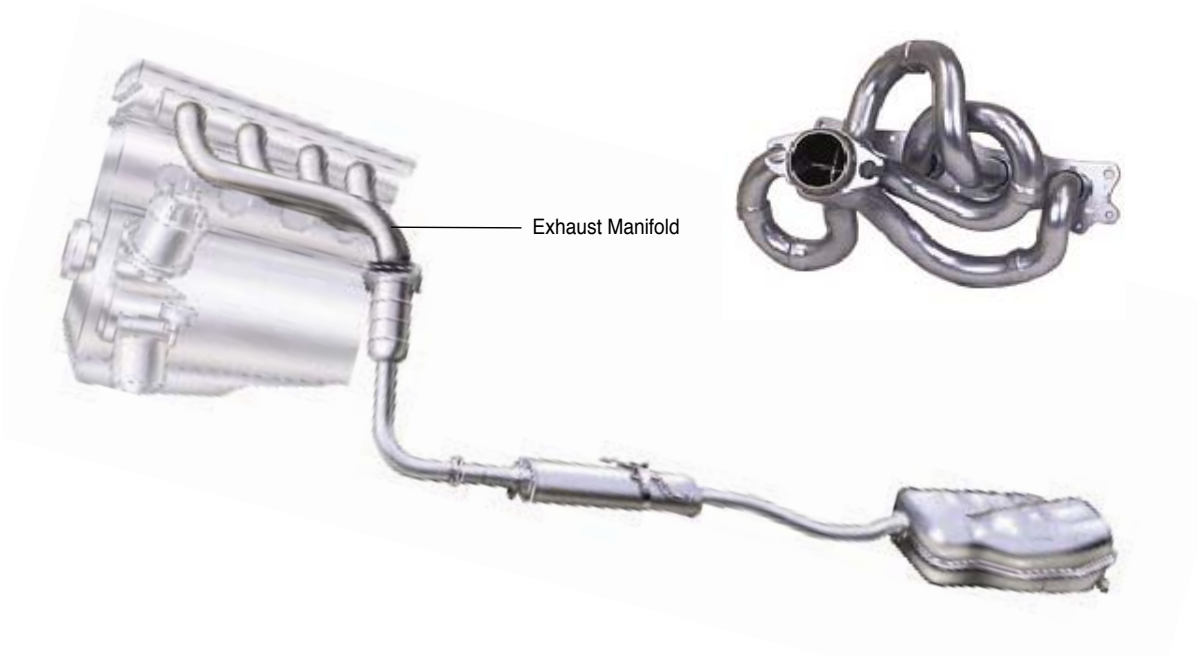
Heat resisting stainless steel. Si, Ti, Mn and Cu are added while the content of C and N is lowered.
It has great high temperature strength, oxidation resistance, formability and weldability.

Products available

Cold rolled coil

Applications

Auto exhaust system : Heat resisting parts such as exhaust manifold, front pipe



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
-	429EM	≦ 0.020	13.0~15.0	-	-	Si ≦ 1.5	≧ 205	≧ 400	≧ 25	≦ 180	0.456	7.62	10.6	20.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

430

16Cr-0.05C

Characteristics

Representative Ferritic Staniless Steel. It has low thermal expansion coefficient, excellent oxidation resistance.

Products available

Hot rolled coil, Cold rolled coil

Applications

Heat resistant products, Burner, Home appliances, Computer components (HDD), Flatware,
Interior and exterior materials for architecture, Gas range stove, Washing machine

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
430	430	≤ 0.12	16.0~18.0	–	–	–	≥ 205	≥ 450	≥ 22	≤ 200	0.46	7.70	10.5	23.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

430J1L

19Cr-0.5Cu-0.4Nb-LCN

Characteristics

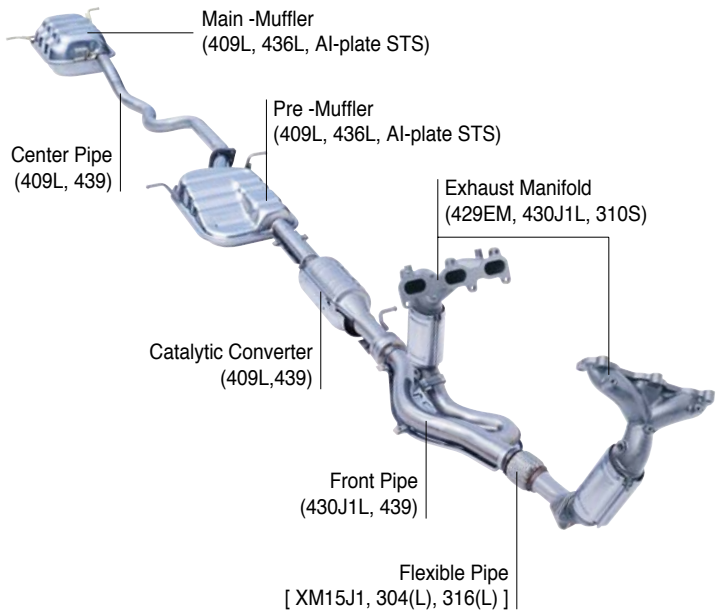
Cu and Nb are added to 430 stainless steel. It has superior corrosion resistance, drawability, weldability and high temperature oxidation resistance.

Products available

Hot rolled coil, Cold rolled coil

Applications

- Manufacturing : Kitchenwares, home appliances (washing machine, electrical rice cooking machine, etc)
- Heat resistance : Auto exhaust system (exhaust manifold, front pipe, muffler)
- Exterior materials : Molding, Exterior materials for building, Guardrail pipes



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
430J1L	430J1L	≦ 0.025	16.0~20.0	–	–	N ≦ 0.025	≧ 205	≧ 390	≧ 22	≦ 200	0.46	7.70	10.4	26.2

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

430Ti

20Cr-0.4Ti-LCN

Characteristics

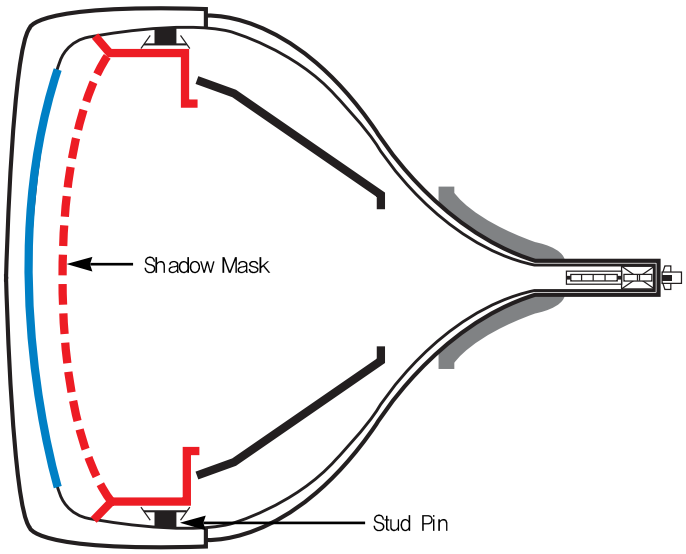
Addition of Si and Ti to 430 stainless steel brings excellent adhesive properties to glass.
(similar thermal expansion coefficient to glass)

Products available

Cold rolled coil

Applications

Components attached to TV Braun tube to support shadow mask (e.g. stud-pin)



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
430Ti	430Ti	≦ 0.02	19.5~20.5	–	–	Ti 0.3~0.6	≧ 206	≧ 422	≧ 25	≦ 180	0.46	7.70	10.4	26.4

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

436L

18Cr-1Mo-0.3Ti-LCN

Characteristics

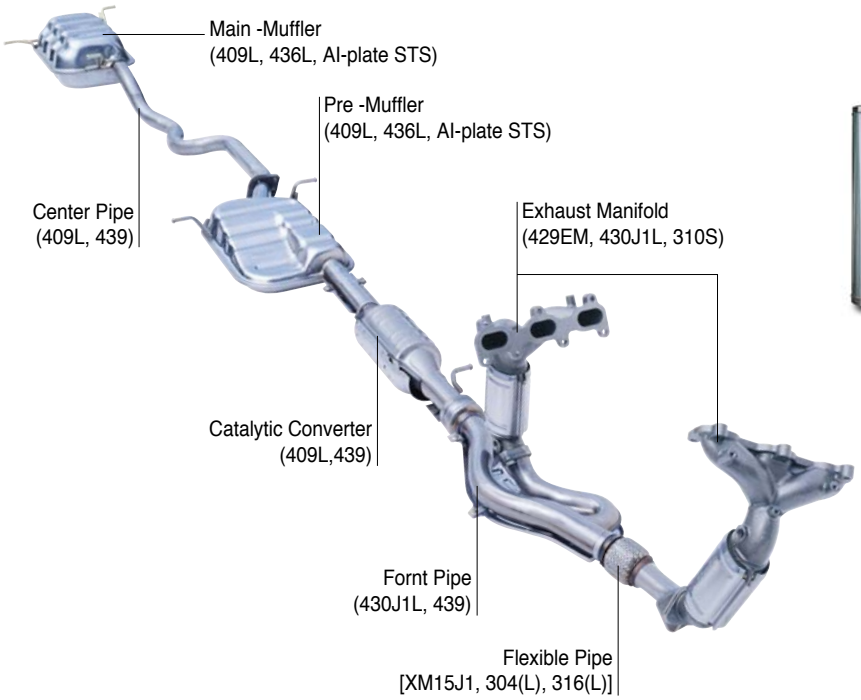
Excellent in corrosion resistance, drawability and weldability due to the addition of Mo, Ti and Nb.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Auto exhaust parts • Hot water system • Electric home appliances



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
436L	436L	≦ 0.025	16.0~19.0	–	0.75~1.5	Ti, Nb, Zr 8x(C%+N%) ~0.8	≧ 245	≧ 410	≧ 20	≦ 230	0.46	7.70	9.3	23.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

439

18Cr-0.4Ti-LCN

Characteristics

With high thermal conductivity and low thermal expansion coefficiency, its is suitable for heat exchanger and auto exhaust parts.

Products available

Hot rolled coil, Cold rolled coil

Applications

Auto exhaust parts, Ornamental pipes, Hope applicane (washing machine)

Handrail

Turbo Drum Base

Fence

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g°C	Specific Gravity	Thermal Expansion Coefficient W/m·°C (20-100°C)	Thermal Conductivity W/m·°C (100°C)
-	439	≦ 0.03	17.0~19.0	-	-	Ti 0.2~1.0	≧ 175	≧ 400	≧ 22	≦ 175	0.46	7.70	10.5	26.4

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

441

18Cr-0.3Si-Ti-Nb-LCN

Characteristics

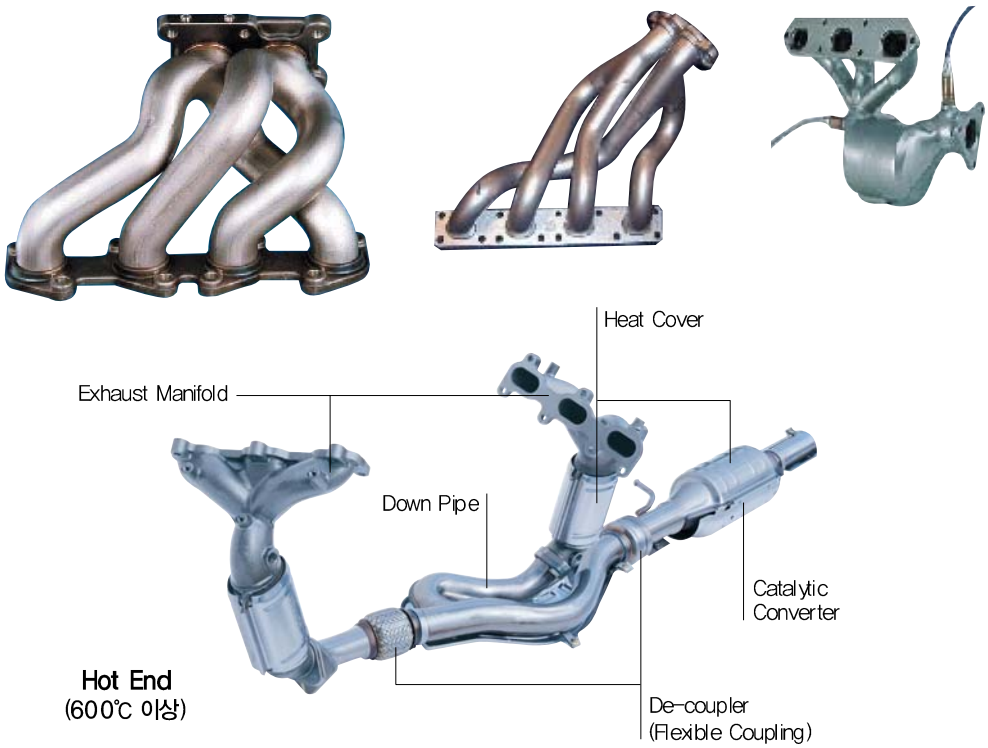
The content of 18Cr and Si secures oxidation resistance. The addition of Ti and Nb and the reduction of C and N improve high temperature strength, weldability, and formability

Products available

Cold rolled coils

Applications

• Auto exhaust system : Heat resisting parts such as exhaust manifold, front pipe, and catalytic converter



Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
-	441	≦ 0.03	17.5~18.5	≦ 1.0	-	Si ≦ 1.0 Ti 0.1~0.6 Nb 9C+0.3~1.0	≧ 250	430~630	≧ 25	≦ 175	0.462	7.60	10.1	27.1

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

444

19Cr-2Mo-0.3Nb-LCN

Characteristics

Higher Cr and Mo content bring great inter-granular corrosion resistance and SCC resistance.

Products available

Hot rolled coil, Cold rolled coil

Applications

• Potable water tank • Hot water system(solar/electric) • Heat exchanger • Auto Exhaust Manifold

Potable Water Tank

Hot Water System

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
444	444	≦ 0.025	17.0~20.0	–	1.75~2.5	Ti, Nb, Zr 8x(C%+N%) ~0.8	≧ 245	≧ 410	≧ 20	≦ 230	0.427	7.75	11.0	26.8

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

445NF

21Cr-0.3Ti-0.4Cu-Si,Nb

Characteristics

Higher Cr content increases corrosion resistance and weldability. Applicable for various uses

Products available

Hot rolled coil, Cold rolled coi

Applications

Elevator, Interior and exterior materials for architecture, BBQ grill, Household utensils, Electronic components, Pip

Household Utensils

Gas Range

Elevator

Fence

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
KS (JIS)	POSCO	C	Cr	Ni	Mo	Others	YS	TS	El	Hv	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
-	445NF	≦ 0.015	20.0 ~ 23.0	≦ 0.5	-	Ti + Nb 10(C + N) ~ 0.6	≧ 245	≧ 410	≧ 22	≦ 200	0.44	7.74	10.5	23

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

446M

26Cr-2Mo-0.3(Ti,Nb)-LCN

Characteristics

Superior in corrosion resistance to 445 stainlee steel with higher Cr content.

Products available

Cold rolled coil

Applications

• Roof and exterior building materials in coastal and industrial areas

＊e.g. : Roofs of ASEM Center and Incheon International Airport in korea

ASEM Center

Incheon International Airport

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
446M	446M	≦ 0.015	25~28.5	≦ 0.3	1.5~2.5	Ti, Nb ≧ 8(C+N)	≧ 270	≧ 430	≧ 20	≦ 210	0.5	7.75	11.0	18.84

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

410

13Cr-0.04C

Characteristics

A representative type of Martensitic stainless steel. It has superior drawability and is hardened through heat treatment. (being magnetic)

Products available

Hot rolled coil, Cold rolled coil

Applications

• Knife blade • Machinery parts • Tableware cutlery (spoon, fork, knife, etc)

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·℃ (20-100˚C)	Thermal Conductivity W/m·℃ (100˚C)
410	410	≦ 0.15	11.5~13.5	–	–	–	≧ 205	≧ 440	≧ 20	≦ 210	0.46	7.70	9.9	24.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

410B

12Cr-0.4Ni

Characteristics

Compared to 410 stainless steel, quenching hardness is improved by controlling the quantity of Mn and Ni.

Products available

Hot rolled coil

Applications

Products requiring abrasion resistance between Hv 300~390 in Quenching hardness : Disc break of motorcycle

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g°C	Specific Gravity	Thermal Expansion Coefficient W/m·°C (20-100°C)	Thermal Conductivity W/m·°C (100°C)
-	410B	≦ 0.15	11.5~13.5	≦ 0.6	-	-	≧ 205	≧ 440	≧ 20	≦ 210	0.46	7.75	9.9	24.9

AUSTENITE
DUAL-PHASE
FERRITE
MARTENSITE

420N1
420J2

13Cr-0.1C-0.1N
13Cr-0.3C

Characteristics

420N1 : Improved formability, corrosion resistance and strenghth / Abrasion resistance than 420J1(magnetism).
- Formability : minimize center segregation
- Corrosion resistance : restrain the formation of chrome carbide
- Strength / Abrasion resistance : precipitate of micro chrome nitride

420J2 : Larger quenching hardness compared to 420J1

Products available

420N1, 420J2 : Hot rolled coil

420J2 : Cold rolled coill

Applications

- High-quality table knives requiring corrosion and abrasion resistance
- Machinery parts requiring abrasion resistance

Chemical compositions and physical properties

Designations		Chemical compositions (%)					Mechanical properties				Physical properties			
JIS (KS)	Posco	C	Cr	Ni	Mo	Others	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2)	Elongation (%)	Hardness (Hv)	Specific Heat J/g˚C	Specific Gravity	Thermal Expansion Coefficient W/m·˚C (20-100˚C)	Thermal Conductivity W/m·˚C (100˚C)
–	420N1	0.17 MAX	12.0~14.0	–	–	N≦0.14	≧ 225	≧ 520	≧ 18	≦ 218	0.46	7.75	10.3	23.8
420J2	420J2	0.26~0.4	12.0~14.0	–	–	–	≧ 225	≧ 540	≧ 18	≦ 247	0.46	7.75	10.3	23.8

Ordering

When you order POSCO stainless steel, an appropriate steel type must be selected in accordance with the purpose of use, design conditions, processing conditions and environment atmosphere. It is advised you indicate specifications.

Specified items	Items that require mutual agreements
• Designation standard (KS, JIS, DIN, ASTM, etc) • Steel type Code : KS (STS No.), JIS (SUS No.) etc • Surface Treatment : N0 1~4, BA, HL, Dull • Edge Finishing : Mill Edge, Slit Edge • Dimension : Thickness, Width, Length, Coil Inner Diameter • Weight, Weight per Package • Packaging • Surface Film, paper insertion • Usage, Conditions for use • Delivery date, Method and destination	• Dimension tolerance (apart from the standard tolerances) • Special Packaging Specification • Special Usage • Special Requirement of Manufacturing Conditions (Chemical Composition, Material Quality, External Appearance) • Special Surface Protective Film • Heat treatment, Pickling Conditions

POSCO's philosophy is to achieve customer satifaction.

Should you have any inquiry or complaint regarding our products, please contact the nearest POSCO office or access our Internet website at www.steel-n.com

Hot rolled coil

AUSTENITIC (excluding 316, 316L)

(Unit : mm)

Thickness	2.0 ~ 2.7	2.7 ~ 3.5	3.5 ~ 4.0	4.0 ~ 8.0
Width	800 ~ 1040	800 ~ 1270	800 ~ 1350	800 ~ 1550

* Below 3.0mmt for pipe and sheet only

AUSTENITIC (316, 316L)

(Unit : mm)

Thickness	2.7 ~ 3.0	3.0 ~ 4.0	4.0 ~ 5.0	5.0 ~ 8.0
Width	800 ~ 1040	800 ~ 1270	800 ~ 1380	800 ~ 1544

* Below 3.0mmt for pipe and sheet only

FERRITIC

(Unit : mm)

Thickness	3.0 ~ 5.5
Width	1000 ~ 1270

* BAF Annealed materials can be from 3.0mmt to 6.0mmt (including 430)

MARTENSITIC

(Unit : mm)

Thickness	3.0 ~ 5.5
Width	1000 ~ 1270

Plate based on 304

(Unit : mm)

Thickness	7.0 ~ 9.0	9.0 ~ 100	130 ~ 195
Width	1500 ~ 3200	1500 ~ 3300	1500 ~ 1601

Cold rolled coil based on 304

Coil and skelp (based on 2B)

(Unit : mm)

Thickness	Skelp	Coil		
	0.2 ~ 1.6	0.3 ~ 0.4	0.4 ~ 0.9	0.9 ~ 3.0
Width	40 ~ 799	800 ~ 1251	800 ~ 1350	800 ~ 1524

Coil (BA)

(Unit : mm)

Thickness	0.2 ~ 0.3	0.3 ~ 1.6
Width	800 ~ 1004	800 ~ 1270

Steel (sheet)

(Unit : mm)

Thickness	0.3 ~ 0.4	0.4 ~ 0.8	0.8 ~ 3.0
Width	800 ~ 1000	800 ~ 1350	800 ~ 1524

Hot rolled coil

Thickness Tolerances

Unless specified, thickness tolerances are as given in Table 1. When specified, they should be as in Table 2. Thickness is measured at arbitrary point that is more than 15mm inward from the edge in case of slit edge, and 25 mm in case of mill edge. Measurement is not conducted on unstable parts of top and tail.

Table 1

(Unit : mm)

Width / Thickness	Thickness Tolerance		
	w < 1000	1000 ≤ w < 1250	1250 ≤ w < 1600
2.00 ≤ t < 2.50	±0.25	±0.30	–
2.50 ≤ t < 3.15	±0.30	±0.35	±0.40
3.15 ≤ t < 4.00	±0.35	±0.40	±0.45
4.00 ≤ t < 5.00	±0.40	±0.45	±0.50
5.00 ≤ t < 6.00	±0.50	±0.55	±0.60
6.00 ≤ t < 8.00	±0.60	±0.65	±0.70

Table 2

(Unit : mm)

Width / Thickness	Thickness Tolerance			
	w < 800	800 ≤ w < 1000	1000 ≤ w < 1250	1250 ≤ w < 1600
2.00 ≤ t < 2.50	±0.20	–	–	–
2.50 ≤ t < 3.15	±0.23	±0.25	±0.30	±0.35
3.15 ≤ t < 4.00	±0.26	±0.30	±0.35	±0.40
4.00 ≤ t < 5.00	±0.29	±0.38	±0.40	±0.45
5.00 ≤ t < 6.00	±0.32	±0.45	±0.45	±0.50
6.00 ≤ t < 8.00	–	±0.55	±0.60	±0.60

Width tolerances

Width tolerance shall be in accordance with Table 3.

Table3

(Unit : mm)

Edge / Thickness / Width		Width Tolerance
Mill Edge	–	+30 –0
Slit Edge	t < 6.00	+10 –0
	6.00 ≤ t	+15 –0

Camber Tolerances (Max)

Camber is 5mm in an arbitrary length of 2000mm.

(However, measurement is not taken on the top and tail of a coil.)

Cold rolled coil

Thickness Tolerances

Unless specified, tolerances for thickness are as given in Table 4. When specified, they should be as in Table 5. Thickness is measured at arbitrary point that is more than 15mm inward from the edge in case of slit edge, and 25mm in case of mill edge. Measurement is not conducted on top and tail of a coil.

Table 4

(Unit : mm)

Width / Thickness	Thickness tolerance	
	w < 1250	1250 ≤ w < 1600
0.30 ≤ t < 0.60	±0.05	±0.08
0.60 ≤ t < 0.80	±0.07	±0.09
0.80 ≤ t < 1.00	±0.09	±0.10
1.00 ≤ t < 1.25	±0.10	±0.12
1.25 ≤ t < 1.60	±0.12	±0.15
1.60 ≤ t < 2.00	±0.15	±0.17
2.00 ≤ t < 2.50	±0.17	±0.20
2.50 ≤ t < 3.00	±0.22	±0.25

Table 5

(Unit : mm)

Width / Thickness	Thickness Tolerance					
	w < 160	160 ≤ w < 250	250 ≤ w < 400	400 ≤ w < 630	630 ≤ w < 1000	1000 ≤ w < 1250
0.10 ≤ t < 0.16	±0.015	±0.020	–	–	–	–
0.16 ≤ t < 0.25	±0.020	±0.025	±0.030	±0.030	–	–
0.25 ≤ t < 0.40	±0.025	±0.030	±0.035	±0.035	±0.038	±0038
0.40 ≤ t < 0.60	±0.035	±0.040	±0.040	±0.040	±0.040	±0.040
0.60 ≤ t < 0.80	±0.040	±0.045	±0.045	±0.045	±0.05	±0.05
0.80 ≤ t < 1.00	±0.040	±0.05	±0.05	±0.05	±0.05	±0.06
1.00 ≤ t < 1.25	±0.05	±0.05	±0.05	±0.06	±0.06	±0.07
1.25 ≤ t < 1.60	±0.05	±0.06	±0.06	±0.06	±0.07	±0.07
1.60 ≤ t < 2.00	±0.06	±0.07	±0.08	±0.08	±0.09	±0.10
2.00 ≤ t < 2.50	±0.07	±0.08	±0.08	±0.09	±0.10	±0.11
2.50 ≤ t < 3.00	±0.08	±0.09	±0.09	±0.10	±0.11	±0.12

Cold rolled coil

Width tolerances

Unless specified, tolerances for width are as given in Table 6. When specified, they should be as given in Table 8.
For sheet, they are as shown in Table 7.

Table 6

(Unit : mm)

Edge \ Width	Width Tolerance			
	w < 400	400 ≤ w < 630	630 ≤ w < 1000	1000 ≤ w < 1524
Mill Edge	+10 –0	+20 –0	+25 –0	+30 –0
Slit Edge	+3 –0	+3 –0	+3 –0	+3 –0

Table 7

(Unit : mm)

Length	Width Tolerance
ℓ ≤ 3500	+5 –0
3500 < ℓ ≤ 6000	+15 –0
6000 < ℓ	+20 –0

Table 8

(Unit : mm)

Thickness \ Width	Width Tolerance				
	w < 160	160 ≤ w < 250	250 ≤ w < 400	400 ≤ w < 630	630 ≤ w < 1000
t < 0.60	±0.15	±0.20	±0.25	±0.30	±0.50
0.60 ≤ t < 1.00	±0.20	±0.25	±0.25	±0.30	±0.50
1.00 ≤ t < 1.60	±0.20	±0.30	±0.30	±0.40	±0.60
1.60 ≤ t < 2.50	±0.25	±0.35	±0.35	±0.50	±0.70
2.50 ≤ t < 3.00	±0.30	±0.40	±0.40	±0.50	±0.80

Length Tolerances

For sheet, Table 9 should be referred to.

Table 9

(Unit : mm)

Length	Length Tolerance
ℓ < 3500	+10 –0
3500 < ℓ ≤ 6000	+15 0
6000 < ℓ	+30 –0

Cold rolled coil

Maximum flatness tolerance for steel sheet

Maximum tolerances for flatness for steel sheet are given in Table 10. Stretcher flatness correction is conducted upon specific notification. Maximum flatness tolerance in 1/4H and 1/2H of STS 301(L) is in accordance with Table 11.

Table 10 (Unit : mm)

Width	Length	Maximum flatness tolerance for steel sheet	
		Stretcher not correct	Stretcher correct
w ≤ 1000	ℓ ≤ 2000	15	3
	2000 < ℓ	20	6
1000 < w	ℓ ≤ 2000	20	6
	2000 < ℓ	20	6

Table 11 (Unit : mm)

Width	Length	Maximum flatness tolerance for STS 301	
		1/4H	1/2H
600 ≤ w < 1000	ℓ < 0.40	13	19
	0.40 ≤ ℓ < 0.80	16	22
	0.80 ≤ ℓ	19	22
1000 ≤ w < 1219	ℓ < 0.40	16	26
	0.40 ≤ ℓ < 0.80	19	29
	0.80 ≤ ℓ	26	29

Maximum flatness tolerances for coil and skelp

Maximum tolerances for flatness for coil and skelp are given in Table 12. However, measurement is not taken on top and tail of a coil.

Table 12 (Unit : mm)

Width	Maximum Flatness
40 ≤ w < 80	8 in an arbitrary length of 2000
80 ≤ w < 630	4 in an arbitrary length of 2000
630 ≤ w	2 in an arbitrary length of 2000

Plate

Thickness tolerances

Table 13 should be referred to for ordering KS and JS, and Table 14 for ordering ASTM. Thickness is measured at an arbitrary point that is more than 15mm inward from the edge in case of slit edge, and 25mm in case of mill edge. Measurement is not taken on top and tail.

Table 13

(Unit : mm)

Width / Thickness	Thickness tolerance				
	1250 ≤ w < 1600	1600 ≤ w < 2000	2000 ≤ w < 2500	2500 ≤ w < 3150	3150 ≤ w < 3230
9.0 ≤ t < 10.0	±0.65	±0.80	±1.2	±1.5	±1.6
10.0 ≤ t < 16.0	±0.70	±0.85	±1.2	±1.5	±1.6
16.0 ≤ t < 25.0	±0.80	±0.95	±1.3	±1.5	±1.6
25.0 ≤ t < 40.0	±0.90	±1.1	±1.3	±1.5	±1.6
40.0 ≤ t < 63.0	±1.2	±1.2	±1.4	±1.5	±1.6
63.0 ≤ t < 80.0	±1.3	±1.3	±1.5	±1.6	±1.7

Table 14

(Unit : In, [ ] mm)

Width / Thickness	Thickness tolerance		
	84 [2134] ≤ w	84 [2134] < w ≤ 120 [3048]	120 [3048] < w ≤ 127.2 [3230]
0.35 [9] < t ≤ 0.38 [9.52]	0.045 [1.14]	0.050 [1.27]	–
0.38 [9.52] < t ≤ 0.75 [19.05]	0.055 [1.40]	0.060 [1.52]	0.075 [1.90]
0.75 [19.05] < t ≤ 1 [25.40]	0.060 [1.52]	0.065 [1.65]	0.085 [2.16]
1 [25.40] < t ≤ 2 [50.80]	0.070 [1.78]	0.075 [1.90]	0.095 [2.41]
2 [50.80 < t ≤ 3 [76.20]	0.125 [3.18]	0.150 [3.81]	0.175 [4.44]
3 [76.20] < t ≤ 3.15 [80]	0.175 [4.44]	0.210 [5.33]	0.245 [6.22]

Minimum tolerance : -0.25mm

	Processing Method and application	Surface status
No.1	Hot rolled product that has undergone both annealing and pickling process. Used for rerolling material, chemical plant, industrial tank, etc.	
No.2D	A non-glossy cold rolled product that has undergone both annealing and pickling process. Used for petrochemical plant, automobile parts, building materials, pipe, etc.	
No.2B	Skinpassed products of No.2D. Compared to No.2D, it attains a brighter and flatter finish. It is the standard surface with improved mechanical properties. Applicable for almost all uses.	
No.3	Polished product with 100-120 mesh abraser. Variety of uses including building exterior and interior, various kinds of electronic products, kitchenware that require an attractive glossy finish.	
No.4	Polished product with 150-180 mesh abraser. It has an attractive silvery-white surface, which is finer than No.3. Used for bathtubs, building exterior and interior, food industry installations, etc.	
HL	It is a product with continuous striped pattern acquired by polishing. Most widely used for building exterior and interior. It is also used for sash, doors, panel of building.	
BA	After cold rolling, the coil is annealed in a protective gas that prevents oxidisation of the surface and skinpassed. BA product is highly reflective. Also it is used for home appliances, small-sized mirror, kitchenware, building materials and others that require highly reflective properties.	
DULL	Dull surface is matt finish produced by grinding with a fine rugged roll. Widely used for exterior and interior of train and building that require reduced light reflection.	

Packaging

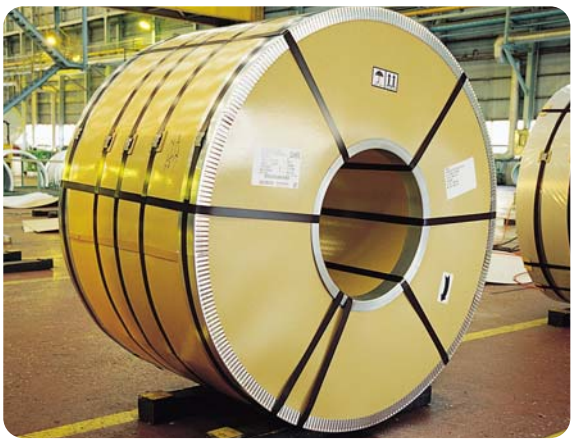
Classification	Hot rolled	Cold rolled		
		Coil	Skelp	Sheet
Thickness (mm)	2.5 ~ 8.0	0.25 ~ 3.0	0.25 ~ 3.0	0.25 ~ 3.0
Width (mm)	800 –1600	800 –1580	40 –800	500 –1580
Unit weight (M/T)	30 max.	26 max.	15 max.	6 max.
Inner diameter (mm)	610	508, 610	508, 610	–
Outer diameter (mm)	2200	2100	2100	–
Height (mm)	–	–	–	900 max.
Length (mm)	–	–	–	1200 –9000
Packaging	Wooden packaging Paper packaging	Wooden packaging Paper packaging	Wooden packaging Paper packaging	Wooden packaging Paper packaging

Label

Hot rolled

Paper packaging of hot rolled coil for domestic users

Paper packaging of hot rolled coil for domestic users



Paper packaging of hot rolled coil for export customers

Cold rolled

Waterproof packaging of cold rolled for domestic users

Waterproof packaging of cold rolled

Paper packaging of cold rolled for export customers

The selection of steel

Stainless steel type should be selected according to the application environment and purpose so as to keep fine appearance and extend the life time.

Steel \ Environment	Pastoral area				Urban area				Industrial area				Coastal area			
	I	L	M	H	I	L	M	H	I	L	M	H	I	L	M	H
High Corrosion Resistance STS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
STS 316	●	●	●	●	●	●	●	●	●	●	●	◆	●	●	◆	■
STS 304	●	●	●	●	●	●	●	◆	●	◆	◆	■	●	◆	■	■
STS 430	●	●	◆	◆	●	■	■	■	◆	■	■	■	◆	■	■	■

Note

I : Indoor Environment
L : Low Grade Environment
M : Medium Grade Environment
H : High Grade Environment

● Excessive employment
● Suitable
◆ Available given frequent cleaning
■ Unsuitable

Storing and Transportation

Stainless steel has good corrosion resistance due to the oxidized layer on the surface. Therefore, careful attention should be paid to maintain the oxidized layer in good condition.

Storing

It is important to store stainless steel away from moisture, dust, grease and lubricant in order to protect its surface from rust and lowered corrosion resistance when welding.
When moisture penetrates between stainless steel and protective film, the corrosion develops faster than it does without protective film.
It is strongly recommended to store stainless steel in a clean, dry and well ventilated place preferably in the original package with an additional cover.
The protective film should not be directly exposed to sunlight, and the film should be inspected regularly.
If the film shows signs of deterioration (film lifespan is approx. 3 months), it should be replaced immediately.
When packaging materials including insent paper get wet, they should be immediately removed to prevent surface corrosion.

Transportation

Stainless steel from scratch on the surface, rubber and timber supporter should be used during the transportation.
Purposed transportation equipment should be used. To protect stainless steel from fingerprint, carrier should use gloves.

Processing & Construction

Cutting & Pressing

For punching and shearing, more pressure is required since stainless steel has higher strength than carbon steel. Dice and blade should be precisely set to prevent burr and work hardening. Plasma or laser cutting is recommended. When gas or Arc cutting is unavoidable, however, grinding and/or heat treatment should be performed on the area affected.

Bending

The steel under 2mm in thickness can be bent by 180° close-processing-method. However, it is desirable for thin steel to be bent with the same inner radius as the steel thickness in order to reduce cracking of bent area.
If thick steel (2mm and over) is bent in rolling direction, the curvature radius twice the steel thickness should be applied.

Drawing

In deep drawing, heat resistant and high pressure resistant lubricant should be used to protect the surface from scratching /friction. After the drawing, the lubricant on the surface should be cleaned clearly.

Welding

Before welding, rust, oil, moisture and paint should be completely removed and an appropriated welding rod should be selected.
In tack welding, pitch should be shorter than carbon steel and slag should be removed by stainless steel brush.
After welding, grinding and washing processes are required to avoid local corrosion and/or decrease of strength.

Construction

– As forwarded, stainless steel is protected from scratch and contamination by the attached protective film. However, the problems of remaining adhesive liquid and degradation as time passes may occur. Therefore, after constructing the stainless steel, protective film should be removed and the surface should be cleaned.

– It is desirable to use purposed tool for stainless steel. However, if general tool is used, it should be cleaned to remove metal dust. Cleaning chemicals for tile and stone have strong corrosiveness. So if they contact stainless steel, it should be cleaned immediately.

– At construction site, stainless steel should not be exposed to cements, dust, etc. After construction, it should be cleaned with neutral detergent. The stainless steel with chemical coloring, etching or coating is susceptible to discoloration and scratch, and the recovery is not easy. Therefore, the users should pay attention to technical notes mentioned above.

Surface washing methods

To reserve the original condition of cleanliness and refinement of stainless steel, periodical washing is required. During washing, to protect stainless steel from scratch, decolorizer, compound and metal scrubbing brush should not be used. After washing, detergent should be rinsed out with clean water.

Washing frequency by environment

Environment		Rural area	Urban, industrial, costal area	
Part	Structure		Normal environment	Corrosive environment (High temperature and humidity, air pollution)
Exposed to rainwater	Place where sediment/ contamination not remained	1-2 per year	2-3 per year	3-4 per year
	Place where sediment/ contamination remained	2-3 per year	3-4 per year	4-5 per year
Not exposed to rainwater	Place where sediment/ contamination not remained	1-2 per year	3-4 per year	4-5 per year
	Place where sediment/ contamination remained	2-3 per year	4-5 per year	5-6 per year

Washing methods by surface condition

Surface condition	Washing method
Dust, filthy to be removed easily	Wash in warm water with soap or moderate detergent
Label, protective film	Wash in warm water with soap, moderate detergent product and organic solvent for adhesive
Grease, fat, oil	Clean with soft paper or fabric, and then use neutral detergent or ammonia
Decolorizer, lands of acid attached	Wash in water, and then wash with ammonia or sodium bicarbonate in warm water
Carbonized organic material	Wash in hot water of neutral detergent or ammonia, then use detergent containing fine compound
Finger print	Use soft fabric with alcohol, benzene or ether, then wash in water
Rainbow Film	Wash in warm water with neutral detergent
Faded area by welding heat	Wash with 10% Nitric acid or hydrofluoric acid, then wash with ammonia or sodium bicarbonate water
Rust by contaminant	Use oxalic acid, sulfuric acid, nitric acid of 10% or detergent containing compound

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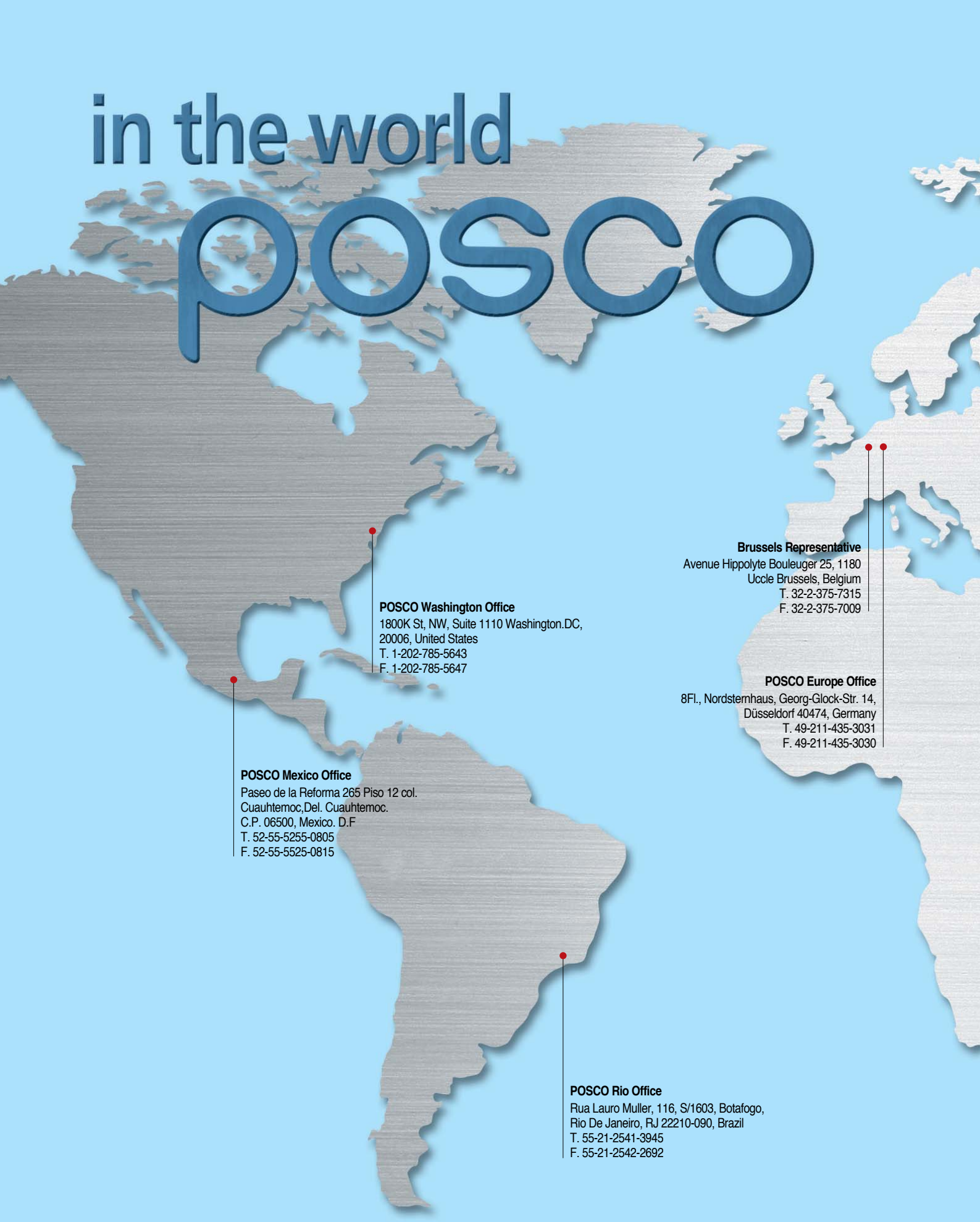

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