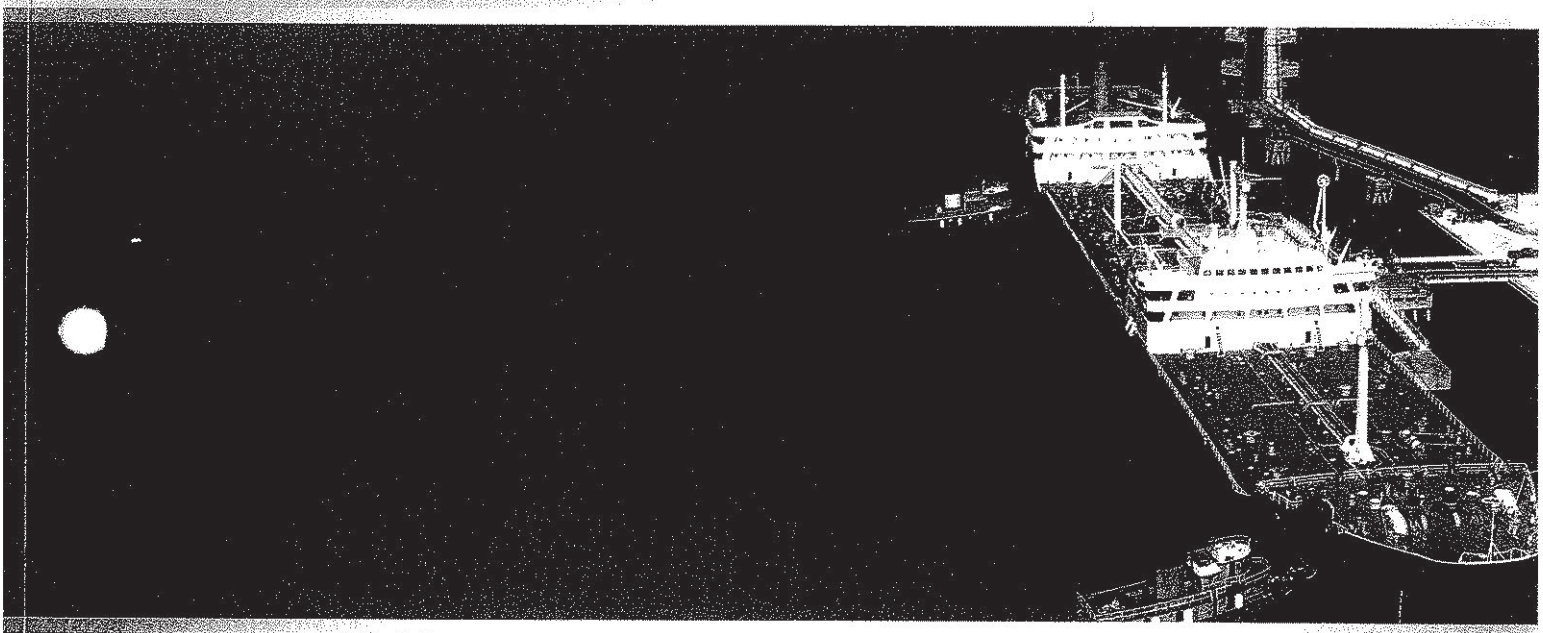
Appendix C-2

Product Brochure

POSCO

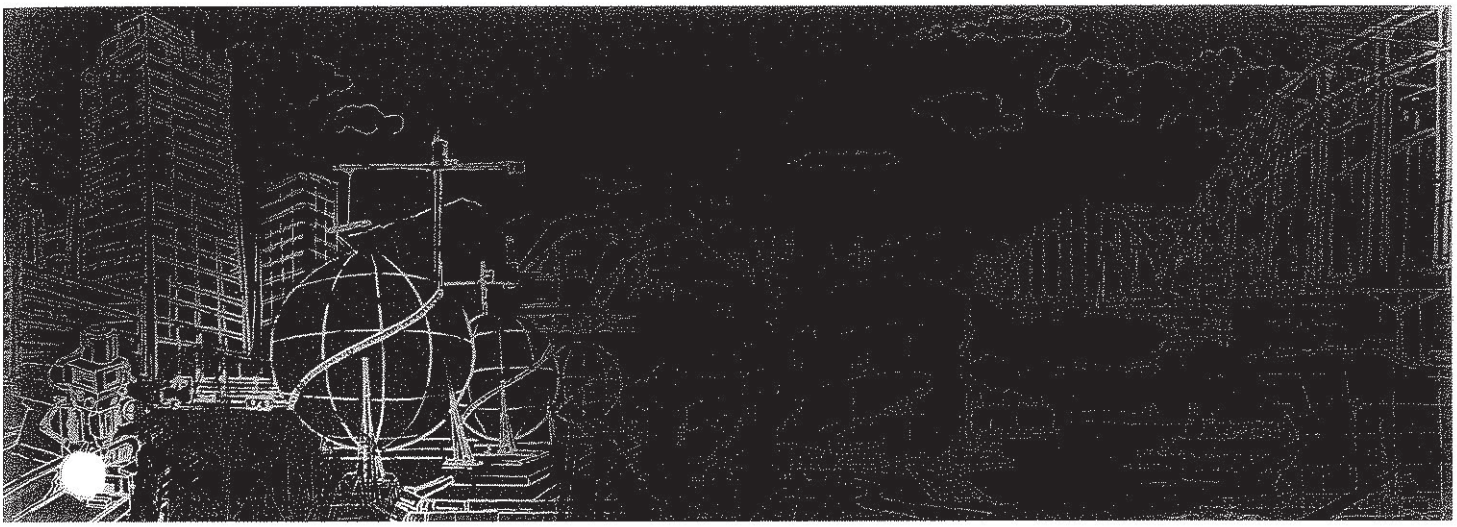
Steel Plates



GLOBAL
POSCO WAY

CONTENTS

Manufacturing Equipment	4
Manufacturing Process	6
Main Uses	8
Approved Specifications	10
Specifications	12
Available Dimensions	14
Structural Steel Plates	25
High Strength Steel Plates	35
Weathering & Corrosion Resistant Steel	41
Steel Plates for Shipbuilding	45
Steel Plates for Boilers & Pressure Vessels	49
Steel Plates for Pressure Vessels for Low Temperature Service	61
Steel Plates for Line Pipe	67
Steel Plates for Special Applications	77
Marking & Ordering	81



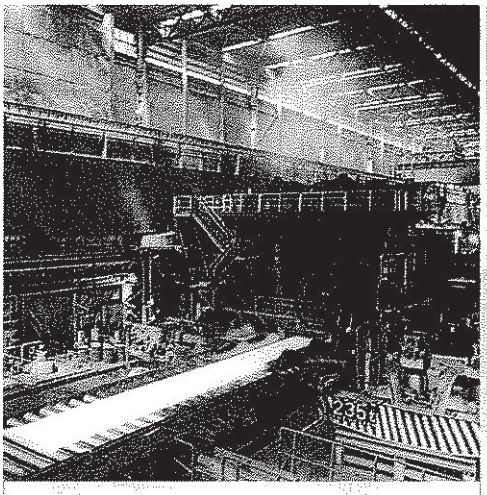
Plates are mainly for the use of shipbuilding, structure for large size bridges, structure for buildings, pressure vessels, and also for special purpose such as extremely low temperature storage containers, industrial machineries, and military equipments.

POSCO produces products that meet both KS and POSCO standard as well as other country standards such as ISO quality management system

POSCO is putting its best efforts to produce super quality plates to meet the customer's need through quality design.

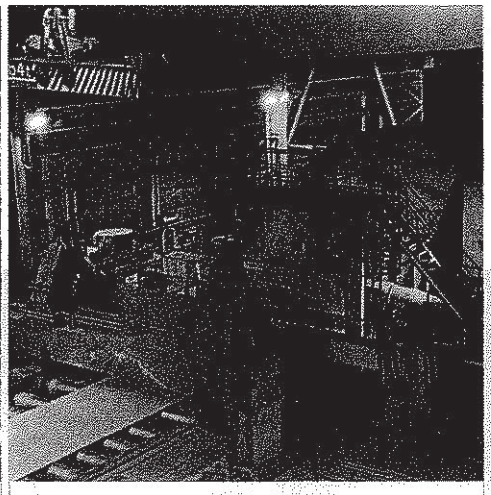
MANUFACTURING EQUIPMENT

To meet the requirements of the customers, POSCO's thick plates are being made by the latest technology and facilities, and under the stringent quality management. To ensure the best quality of products, all the manufacturing processes are controlled by large computer system and so for the precision and quality characteristics fully automated production equipment is in place.



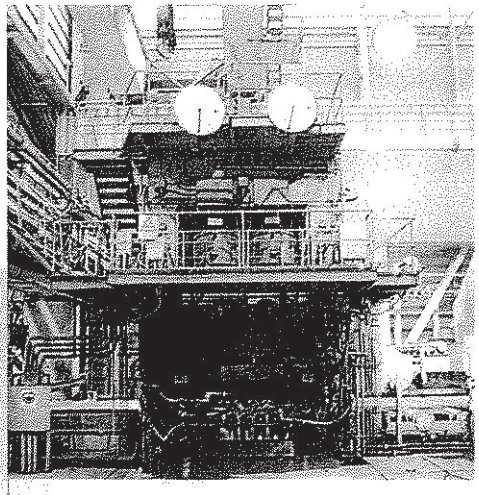
Rolling

4 stage reversible strip roll mill with maximum 12,000 ton pressing power enables to minimize internal flaw of the plates and automatic dimension control as well as shape control equipment also reduces the thickness deviation and improves the dimension accuracy of plates.



Accelerated cooling(TMCP)

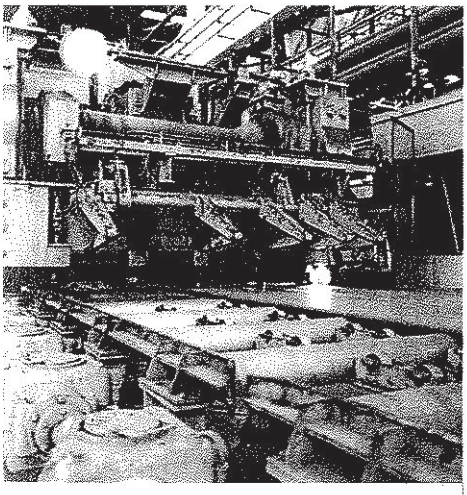
TMCP is the process of rolling and accelerated cooling (PILAC) to produce high tensile steel without heat treatment, which means by adding small amount of alloy, high strength and superior tenacity are obtained and reduction of carbon equivalents (CEQ) provides better performance in use of welding by the customers.



Hot Leveling

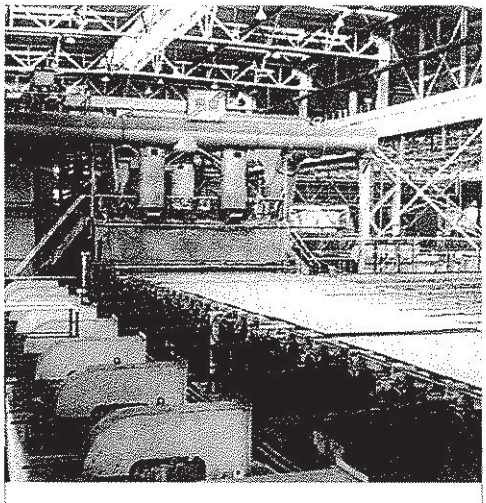
Residual stress is being removed to provide better flatness as plates.

MANUFACTURING EQUIPMENT



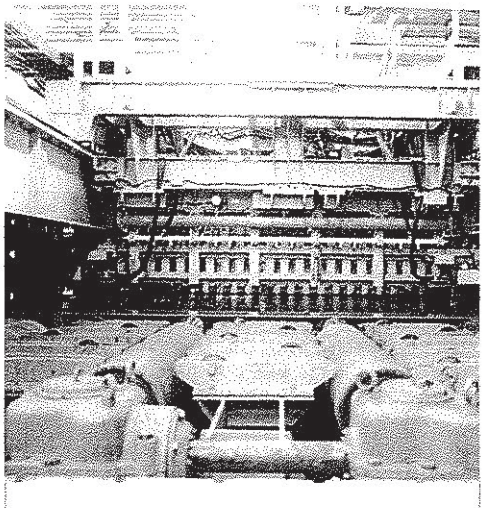
Shearing

Steel plates after cooling zone, will go through dimension measurement and cut into pieces of proper length and width by either gas or mechanical shearing machine. Working conditions to ensure better accuracy of the products, will be determined in consideration of the air knife gap and gas torch nozzle size.



Heat Treatment

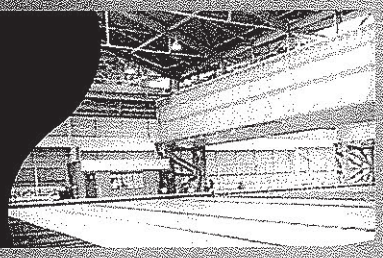
To obtain customer desired texture of steel plates, scales are removed by shot blaster and heat treatment will be followed.
Heat treatment equipment is an indirect radiation type which doesn't form scale during heat treatment.



Ultrasonic Test

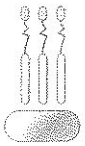
Ultrasonic test is being done to guarantee customer required quality of internal structure of steel plates by checking flaws such as blow hole, pipe lamination, etc, which may occur inside of steel plates.

MANUFACTURING PROCESS

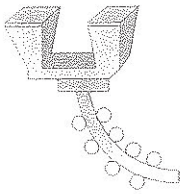


Converter

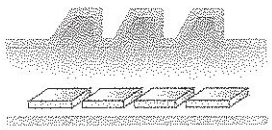
RH Vacuum Degassing



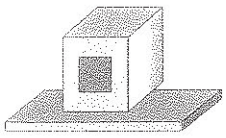
Pl, Ca Treatment



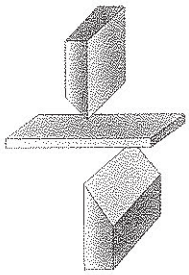
Continuous Casting



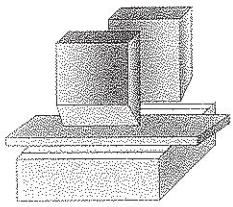
Reheating Furnace



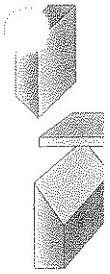
Automatic Stamping



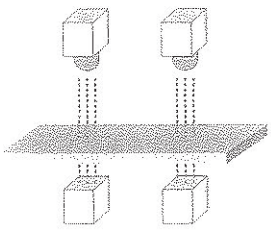
Dividing Shear



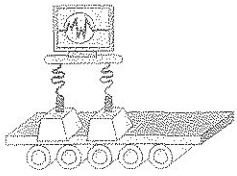
Rotary / Double Side Shear



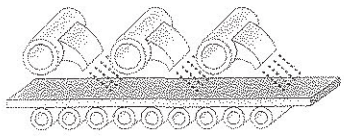
Cro



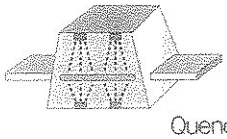
Cold Thickness Gauge



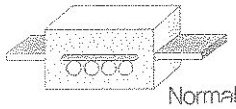
Ultrasonic Test



Shot Blast

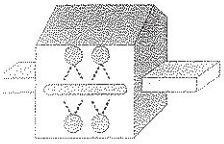


Quenching

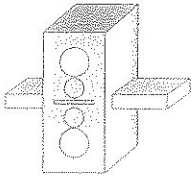


Normalizing

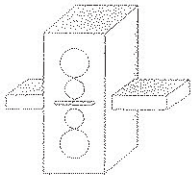
MANUFACTURING PROCESS



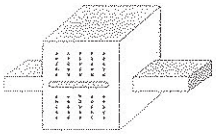
Descaler



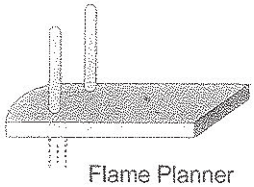
Roughing Mill



Finishing Mill



Accelerated Cooling

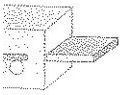


Flame Planner

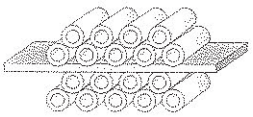
Cooling Bed

Heavy Plate Cooling Bed

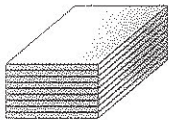
Hot Leveling



Tempering



Cold Leveling



Finishing/Inspection & Warehousing

Shipping

MAIN USES

POSCO Specifications

POSTEN	High Strength Steel for Welded Structure
PILAC-BT33/36/45	TMCP High Strength Steel for Building Construction
POSMOLD	Mold Steel
POS AR320/360/400	Abrasion Resistant Steel

KS Specifications

D 3503	Rolled Steels for General Structure
D 3515	Rolled Steels for Welded Structure
D 3521	Steel Plates for Pressure Vessels
D 3529	Hot-Rolled Atmospheric Corrosion Resisting Steels for Welded Structure
D 3539	Mn-Mo and Mn-Mo-Ni alloy Steel Plates Quenched
D 3560	Carbon Steel and Molybdenum Alloy Steel Plate for Boilers and other Pressure Vessels
D 3586	Nickel Steel Plate for Pressure Vessels for Low Temperature Service
D 3752	Carbon Steel for Machine Structural Use
D 3861	Rolled Steel for Building Structure
D 3868	Rolled Steel Sheet for Bridge Structure(TMCP)

API Specifications

API-2H	Heat treated Steel Plates for Offshore Structure
API-2W	TMCP Steel Plates for Offshore Structure
API-5L	Steel Pipe for Pipeline Transporatation System

SAE Standard

SAE	Carbon Steel Plate for Structural Use

ASTM Specifications

A36	Carbon Structural Steel
A131	Structural Steel for Ships/High Strength Structural Steel
A242	High-Strength Low-Alloy Structural Steel
A283	Low and Intermediate Tensile Strength Carbon Steel Plates
A 285/A 285M	Low-Intermediate-Tensile Strength Carbon Steel Plate for Pressure Vessels
A514	High-Yield-Strength, Quenched and Tempered low Alloy Steel Plate for Welded Structure
A515/A515M	Pressure Vessel Plates, Corbon Steel, for Intermediate- and Higher-Temperature Service
A516/A516M	Pressure Vessel Plates, Corbon Steel, for Modorate-and Lower-Temperature Serive
A537/A537	Pressure Vessel Plates, Heat-Treated, C-Mn-Si Steel
A573	Structural Caron Steel Plate of Improved Toughness
A588	High-Strength High-Alloy Structural Steel with Atmospheric Corrosion Resistance
A633	Normalized High-Strength Low-Alloy Structural Steel Plate
A709	Structural Steel for Bridges

EN Specifications

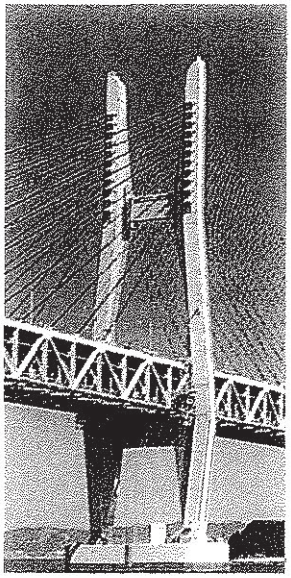
EN 10025	Structural Steel
EN 10028	Steel for Pressure Vessels
EN 10225	Steel for use of ocean structure

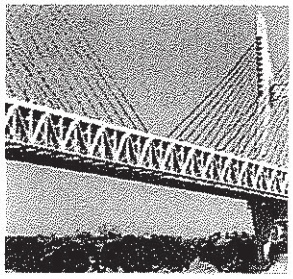
JIS Specifications

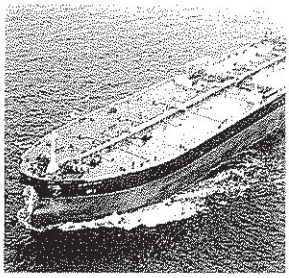
G 3101	Steel for General Structural Use
G3103	Carbon Steel and Molybdenum Alloy Steel Plate for Boilers and Other Pressure Vessels
G3106	Steel for Welded Structure
G3114	Temperature Resistant Steel Plate for Welded S[illegible]re
G3115	Steel Plate for Pressure Vessels for Intermediate Temperature Service
G3126	Carbon Steel Sheet for Pressure Vessels for Low Temperature Service
G3136	Rolled Steel Sheet for Building Structure
G4051	Carbon Steel Sheet for Machine Structural Use

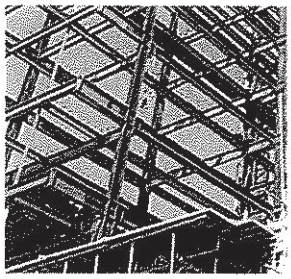
MAIN USES

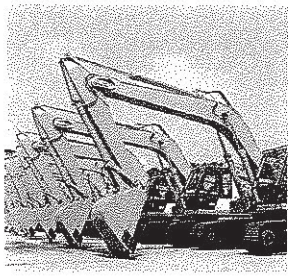
The usage presented in this section reflects the general use and shall be sued as a reference.
Please be sure to consult with our associates when making orders for specific usage.

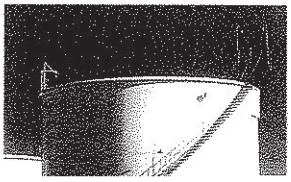


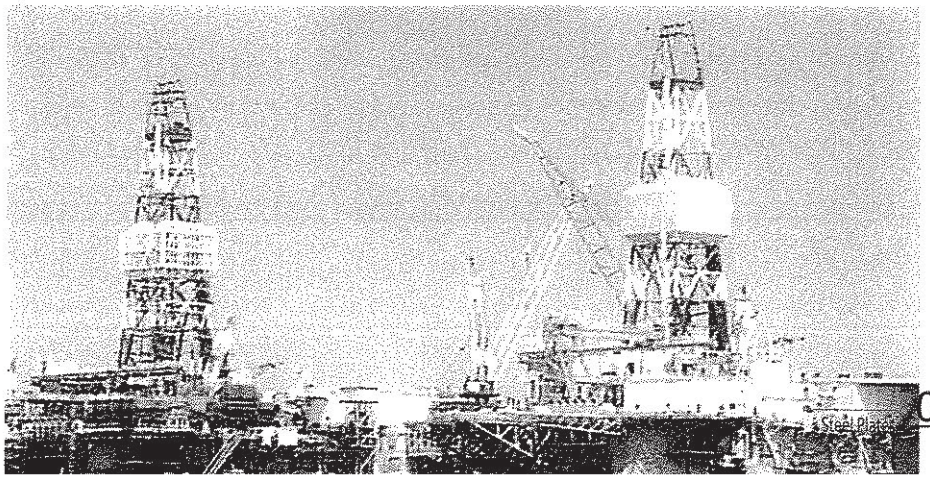




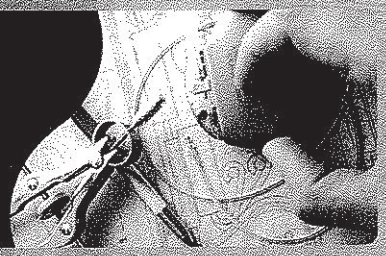








APPROVED SPECIFICATIONS



KS, JIS Approval Status

Classification	Specifications	Types and Codes	Thickness(mm)
KS	D 3503 (Steel for General Structure)	SS400, SS490	All thickness
	D 3515 (Steel for Welded Structure)	SM400A, B, C SM490A, B, C, YA, YB, 520B, C, SM570	
	D 3868 (Steel for Bridge Structure)	HSB500, 500L HSB600, 600L	
JIS	G 3101 (Steel for General Structure)	SS330, SS400, SS490, SS540	
	G 3106 (Steel for Welded Structure)	SM400A, B, C SM490A, B, C, YA, YB SM520B, C, SM570	
	G 3136 (Steel for Building Construction)	SN400A, B, C SN490B, C	
CE	EN10025-2	S235JR, 0, 2, R, S275JR, 0, 2 S355JR, 0, 2, S355K2, S450JO	6-150
	EN10025-3	S275N, S275NL, S355N, S355NL	6-100
	EN10025-4	S275M, S355M, S420M, S460M S275ML, S355ML, S420ML, S460ML	6-100
	EN10025-5	S235J0W, 2W S355J0WP, 2WP, 0W, 2W S355K2W	6-100
	EN10025-6	S460Q, S500Q, S550Q S620Q, S690Q, S460QL S500QL, S550QL, S620QL S690QL, S460QL1, S500QL1 S550QL1, S620QL1, S690QL1	6-80

APPROVED SPECIFICATIONS

Approval Status of Classification Society

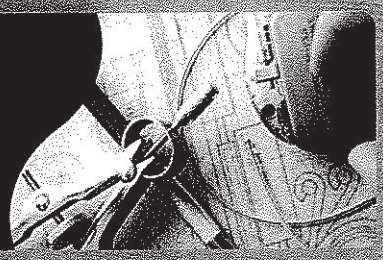
Grade	NORMAL		TMCP				
	Normal Strength	High Strength	Normal Strength	High Strength			Low Temperature Service
Classification Society	A,B,C,D	AH32~EH32 AH36~EH36	D,E	AH32~EH32 AH36~EH36	AH40~EH40	EH47	Defferent Standards per CS
KR(Korea)	100	83	83	100	90	80	RL37, 50
ABS(USA)	100	83	83	100	90	80	–
LR(UK)	100	90	83	100	90	80	LTFH36, 50
NV(Norway)	100	90	83	100	–	–	4–4, 50
NK(Japan)	100	83	83	100	90	in process of approval	KL37, 30
GL(Germany)	100	90	83	100	90	80	–
BV(France)	100	90	83	100	90	80	460LF, 40
(.iwan)	100	90	83	100	90	–	–
RINA(Italy)	100	90	83	83	–	–	–
CCS(China)	100	90	83	100	90	–	–
RS(Russia)	100	100	90	90	–	–	–

Please conctact us for more details before ordering EH47 or steel for low temperature service.

Major Manufacturing Equipment

Equipment		No.1 Plate Mill	No.2 Plate Mill	No.3 Plate Mill	Gwang yang Plate Mill
Finishing Mill		4-High Reversing Mill	4-High Reversing Mill	4-High Reversing Mill	4-High Reversing Mill
Roughing Mill		-	4-High Reversing Mill	-	-
Production Capacity		620,000Tons per year	2,700,000Tons per year	1,180,000Tons per year	2,500,000Tons per year
Sizes (mm)	Thickness	6~120	6~200	4.5~200	6~200
	Width	1,219~3,100	1,219~4,500	1,219~4,000	1,400~5,300
	Length	MAX. 15,500	MAX. 25,000	MAX. 25,000	MAX. 25,000
Accelerated Cooling		-	Multi Jet Type		
Heat Treatment Equipment		Heat Treatment furnace, Shot Blaster, Quenching Equipment			
Marking		Automatic Stamping, Automatic Marker			

SPECIFICATIONS



SPECIFICATIONS

The product standards are subject to change.
Please be sure to confirm the recent standards when making orders to consult our associates.

Classification	Specifications					
	POSCO	KS	JIS	ASTM	Others	
Steel Plates for Shipbuilding	–	KR A, B, D, E, AH32, DH32, EH32, AH36, DH36, EH36, EH40, EH47 RL27, 33	NK KA, KB, KD, KE, KA32, KD32, KE32, KA36, KD36, KE36, KA40, KD40, KE40, KL30, 37	ABS A, B, D, E AH32, DH32, EH32, AH40, DH40, EH40, EH47	LR, BV, RINA A, B, D, E, AH32, DH32, EH32, AH36, DH36, EH36, EH40, EH47(LR, BV)	DNV, GL, CCS, RS A, B, D, E, A32, D32, E32, A36, D36, E36, E36, E40, E47(GL)
Steel Plates for Mechanical Structure	POSMOLD 1, 2 POS AR320 360 400 500	KS D 3752 SM10C~SM58C	JIS G 4051 S10C~S58C JIS G 4105 SCM415~440	SAE1010 ~SAE1060 SAE4150	–	–
Steel Plates for Boilers & Pressure Vessels	SQV3A SQV3B SPPV355	KS D 3539 SQV1A SQV1B SQV2A SQV2B KS D 3521 SPPV235, 315 SPPV450, 490 KS D 3560 SB450 SB480 SB410 SB450M SB480M	JIS G 3103 SB410, 450, 480 SB450M, SB490M JIS G 3118 SGV410, 450, 480 JIS G 3115 SPV235, 315, 355, 410 SPV450, 490	A285 Gr A, B, C A515 Gr 60, 65, 70 A516 Gr 55, 60, 65, 70 A537 Class 1, 2	EN 10028 P265GH	–
Cr-Mo Steel Plates for Pressure Vessels	–	–	–	A387-11, A387-12, A387-22	–	

Classification	Specifications					
	POSCO	KS	JIS	ASTM	Others	
Steel Plates for Low Temperature Pressure Vessels	–	–	JIS G 3126 SLA235A, B SLA325A, B SLA360	A203-D, E A553-1	–	–
Steel Plates for Pipelines	–	–	–	–	API 5L-B X42, X46, X52, X56, X60, X65, X70, X80, X100	–
Steel Plates for Ocean Structure	–	–	–	–	API-2H Gr 50 API-2W Gr 50, 50T, 60	EN 10225 S355 S420
Weather Resistant Rolled Steel Plates	–	KS D 3529 SMA400AW, AP SMA400BW, BP SMA400CW, CP SMA490AW, AP SMA490BW, BP SMA490CW, CP SMA570W, SMA570P	JIS G 3114 SMA400AW, AP SMA400BW, BP SMA400CW, CP SMA490AW, AP SMA490BW, BP SMA490CW, CP SMA570W, SMA570P	A242 A588 Gr A, B, C A709-50W Gr A, B, C	–	–
Rolled Steel Plates for Structural Use	POSTEN100 POSTEN55H POSTEN60 POSTEN60RE POSTEN80 POSTEN100 POSTEN60H POSTEN60FW	KS D 3503 SS330, SS400, SS490 KS D 3515 SM400A, B, C SM490A, B, C SM490YA, YB SM520B, C SM570	JIS G 3101 SS330, SS400, SS490, SS540 JIS G 3106 SM400A, B, C SM490A, B, C SM490YA, SM490YB SM570	A283 Gr A, B, C, D A36 A572 Gr 42, 50, 60, 65 A633 Gr A, C, D, E A678 A656 A514B, F A573 Gr70	E10025 S235JR, J0, J2 S275JR, J0, J2 S355JR, J0, J2, K2 S450J0	–
Rolled Steel Plates for Constructional Use	PILAC-BT33 PILAC-BT36 PILAC-BT45	KS D 3861 SN400 A, B, C SN490 B, C KS D 3868 HSB500, L, W HSB600, L, W HSB800, L, W	JIS G 3136 SN400 A, B, C SN490 B, C	A709 Gr 36, 50	–	–

AVAILABLE DIMENSIONS

AS-Rolled

Thickness \ With	Min. Length	1000 ~1499	1500 ~1599	1600 ~1699	1700 ~1799	1800 ~1899	1900 ~2099	2000 ~2099	2100 ~2199	2200 ~2299	2300 ~2399	2400 ~2499	2500 ~2599	2600 ~2699	2700 ~2799	2800 ~2899	2900 ~2999	3000 ~3099	3100 ~3149
6≤T<7	3.0m																		
T<8						20.5m								20.5m					
T<9																			
T<10																			
T<11		20.5m								22m									
T<12							22m												
T<13																			
T<14																			
T<15																			
T<16																			
T<17																			
T<18																			
T<19																			
T<20																			
T<21																			
T<22																			
T<23																			
T<24																			
T<25																			
T<26																			
T<27																			
T<28																			
T<29																			
T<30																			
T<31																			
T<32																			
T<33																			
T<34																			
T<35																			
T<36																			
T<37																			
T<38																			
T<39																			
T<40																			
T<41																			
T<42																			
T<43																			
T<44																			
T<45																			
T<46																			
T<47				14.6ton	15.5ton	16.4ton													
T<48		13.5ton																	
T<49																			
T<50																			
T<60																			
T<70				14.5ton	15.4ton	16.3ton	21.4ton	22.5ton	23.5ton	24.4ton									
T<80																			
T<90																			
T<100																			
T<110																			
T<120																			
T<130		14.5ton																	
T<140																			
T<150																			
T<160			14.6ton		15.3ton	16.2ton	21.3ton	22.4ton	23.4ton	24.5ton									
T<170																			
T<180																			
T<190																			
T<200																			

25m

25.6ton

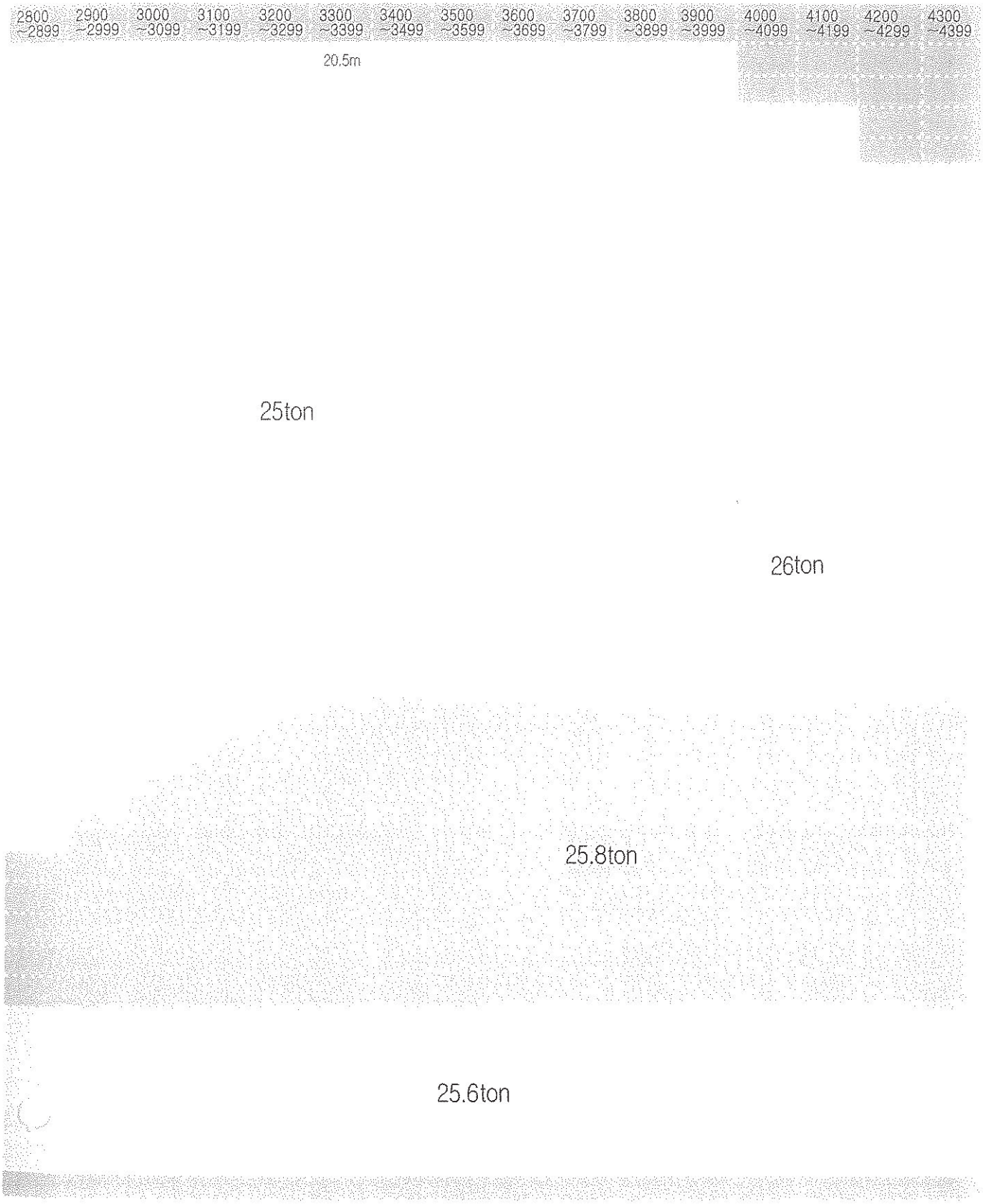
AVAILABLE DIMENSIONS

The available sizes is subject to change. Please consult with the POSCO contact person before ordering.

3150 ~3199	3200 ~3299	3300 ~3399	3400 ~3499	3500 ~3599	3600 ~3699	3700 ~3799	3800 ~3899	3900 ~3999	4000 ~4099	4100 ~4199	4200 ~4299	4300 ~4399	4400 ~4499	4500 ~4599	4600 ~4699	4700 ~4799	4800 ~4899	4900 ~4999	5000 ~5099	5100 ~5199	5200 ~5299
20.5m																					
25m																					
26ton																					
25.8ton																					
25.6ton																					
25.6ton																					

TMCP

Thickness \ With	Min. Length	1000 ~1499	1500 ~1599	1600 ~1699	1700 ~1799	1800 ~1899	1900 ~1999	2000 ~2099	2100 ~2199	2200 ~2299	2300 ~2399	2400 ~2499	2500 ~2599	2600 ~2699	2700 ~27
8≤T<9	3.0m														
T<10		20.5m													
T<11					20.5m					22.0m					
T<12							22.0m								
12≤T<10															
T<25															
T<26															
T≤27															
T≤28															
T≤29															
T≤30															
T≤31															
T≤32															
T≤33											25ton				
T≤34															
T≤35															
T≤36															
T≤37															
T≤38															
T≤39															
T≤40															
T≤41															
T≤42															
T≤43															
T≤44															
T≤45															
T≤46															
T≤47				14.6ton	15.5ton	16.4ton									
T≤48		13.5ton													
T≤49															
T≤50															
T≤60	4.0m														
T≤70					15.4ton	16.3ton	21.4ton	22.5ton	23.5ton	24.4ton					
T≤80			14.5ton												
T≤90															
T≤100					15.3ton	16.2ton	21.3ton	22.4ton	23.4ton	24.3ton					
T≤120															


2800 ~2899
2900 ~2999
3000 ~3099
3100 ~3199
3200 ~3299
3300 ~3399
3400 ~3499
3500 ~3599
3600 ~3699
3700 ~3799
3800 ~3899
3900 ~3999
4000 ~4099
4100 ~4199
4200 ~4299
4300 ~4399
20.5m
25ton
26ton
25.8ton
25.6ton

Shipbuilding TMCP FH Grade

Thickness(mm) \ Wm, Length	1000 ~1099	1100 ~1199	1200 ~1299	1300 ~1399	1400 ~1499	1500 ~1599	1600 ~1699	1700 ~1799	1800 ~1899	1900 ~1999	2000 ~2099	2100 ~2199	2200 ~2299	2300 ~2399	2400 ~2499
8≤T<9											14.0m				
T<10		16.0m		25.0m			20.0m		14.0m						
T<11											16.0m				
T<12			22.0m											22.0m	
T≤13															
T≤14															
T≤15															
T≤16															
T≤17															
T≤18															
T≤19															
T≤20															
T≤21															
T≤22							25.0m								
T≤23															
T≤24	3.0m														
T≤25															
T≤26															
T≤27															
T≤28															
T≤29															
T≤30															
T≤31															
T≤32															
T≤33															
T≤34															
T≤35															
T≤36															
T≤37						11.2 Ton		12.0 Ton		12.7 Ton					
T≤38															
T≤39															
T≤40															

2500 ~2599	2600 ~2699	2700 ~2799	2800 ~2999	3000 ~3199	3200 ~3399	3400 ~3599	3600 ~3699	3700 ~3799	3800 ~3899	3900 ~3999	4000 ~4099	4100 ~4199	4200 ~4299	4300 ~4399	4400 ~4500
16.0m	20.0m														
22.0m															

25.0m

20.0 Ton

Normalizing

Thickness/Width	Min. Length	1500 ~1599	1600 ~1699	1700 ~1799	1800 ~1899	1900 ~1999	2000 ~2099	2100 ~2199	2200 ~2299	2300 ~2399	2400 ~2499	2500 ~2599	2600 ~2699	2700 ~2799	2800 ~2899	2900 ~2999
8≤T<9														20.0m		
T<10																
T<11																
T<12																
T≤13																
T≤14																
T≤15																
T≤16																
T≤17																
T≤18																
T≤19																
T≤20																
T≤21																
T≤22																
T≤23																
T≤24																
T≤25																
T≤26																
T≤27									22.0m							
T≤28																
T≤29																
T≤30																
T≤31																
T≤32	6.0m															
T≤33																
T≤34																
T≤35																
T≤36																
T≤37																
T≤38																
T≤39			11.2 Ton	12.0 Ton	12.7 Ton											20.0톤
T≤40																
T≤41																
T≤42																
T≤43																
T≤44																
T≤45																
T≤46																
T≤47																
T≤48			10.9m	11.6 Ton	12.3 Ton											
T≤49														19.5m		
T≤50																
T≤60								16.8 Ton								
T≤70																
T≤80																
T≤90																
T≤100																
T≤120																

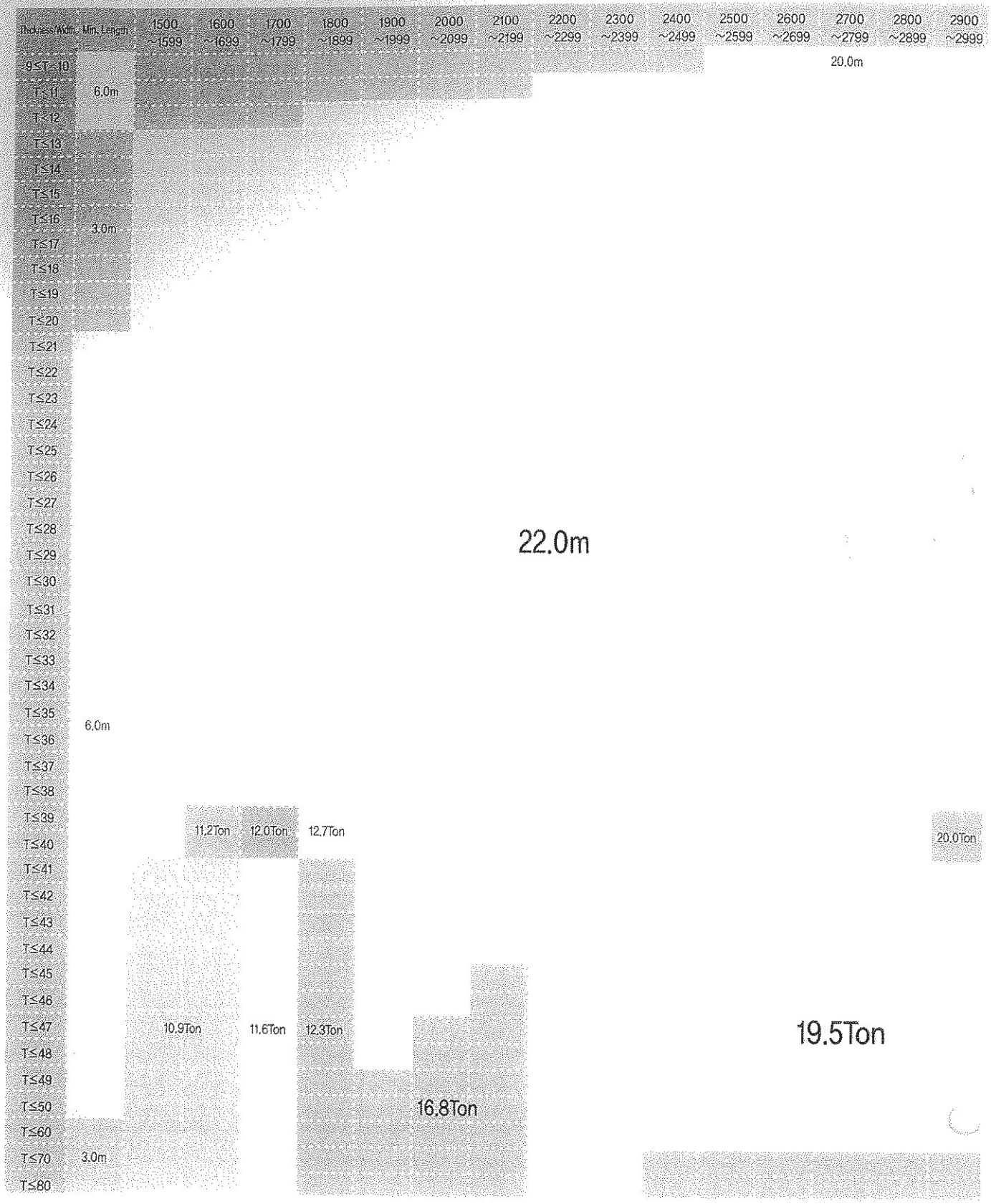
3000 ~3099	3100 ~3149	3150 ~3199	3200 ~3299	3300 ~3399	3400 ~3499	3500 ~3599	3600 ~3699	3700 ~3799	3800 ~3899	3900 ~3999	4000 ~4099	4100 ~4199	4200 ~4299	4300 ~4399	4400 ~4599
			20.0m												

22.0m

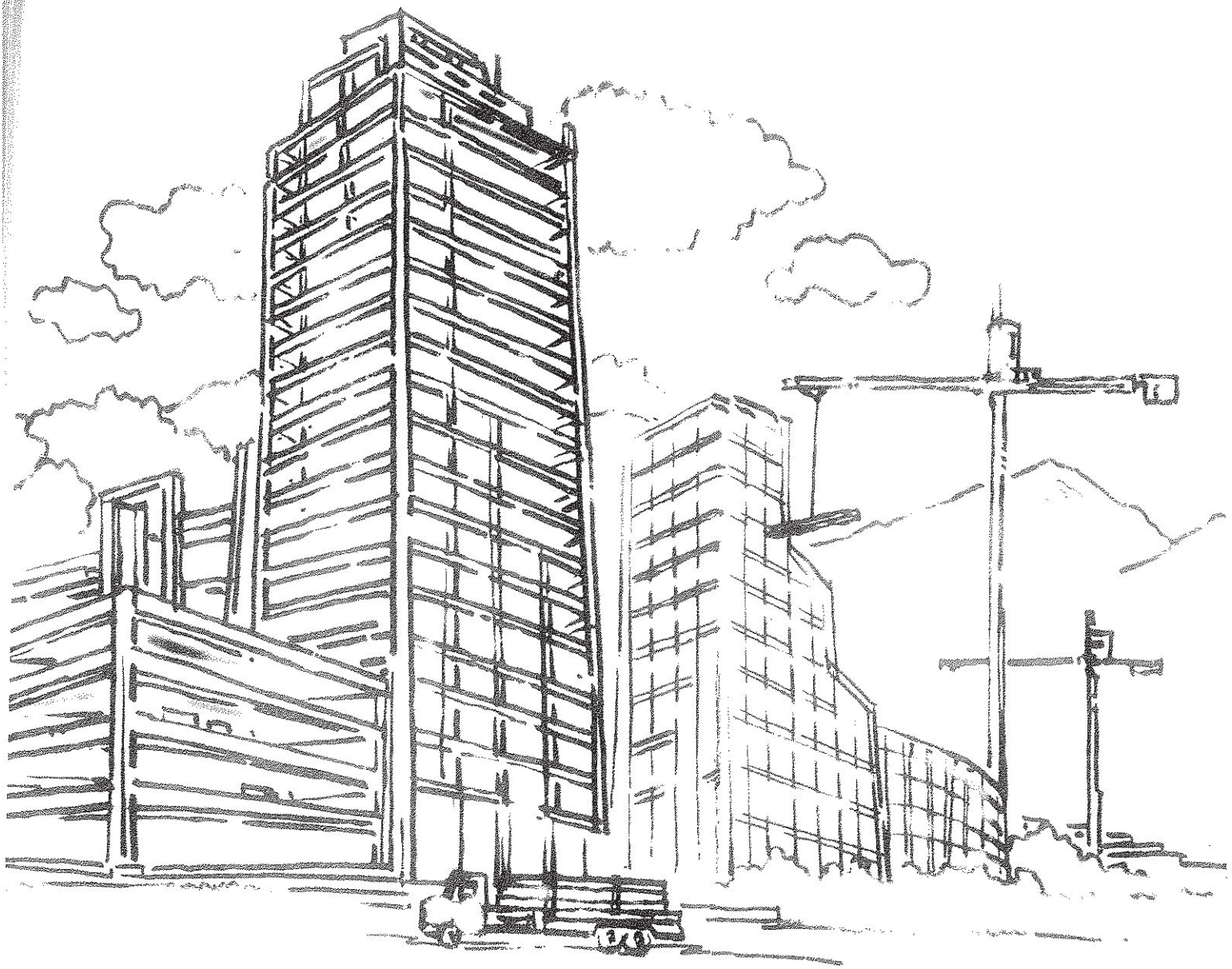
20.0m

19.5m

QT


Thickness/Width, Min. Length
1500 ~1599
1600 ~1699
1700 ~1799
1800 ~1899
1900 ~1999
2000 ~2099
2100 ~2199
2200 ~2299
2300 ~2399
2400 ~2499
2500 ~2599
2600 ~2699
2700 ~2799
2800 ~2899
2900 ~2999
20.0m
9≤T<10
T<11
6.0m
T<12
T≤13
T≤14
T≤15
T≤16
3.0m
T≤17
T≤18
T≤19
T≤20
T≤21
T≤22
T≤23
T≤24
T≤25
T≤26
T≤27
T≤28
22.0m
T≤29
T≤30
T≤31
T≤32
T≤33
T≤34
T≤35
6.0m
T≤36
T≤37
T≤38
T≤39
11.2Ton
12.0Ton
12.7Ton
20.0Ton
T≤40
T≤41
T≤42
T≤43
T≤44
T≤45
T≤46
T≤47
10.9Ton
11.6Ton
12.3Ton
19.5Ton
T≤48
T≤49
T≤50
16.8Ton
T≤60
T≤70
3.0m
T≤80

3000 ~3099	3100 ~3149	3150 ~3199	3200 ~3299	3300 ~3399	3400 ~3499	3500 ~3599	3600 ~3699	3700 ~3799	3800 ~3899	3900 ~3999	4000 ~4099	4100 ~4199	4200 ~4299	4300 ~4399	4400 ~4500
22.0m															
20.0 Ton															
19.5 Ton															



STRUCTURAL STEEL PLATES

POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

KS D 3503, JIS G 3101-1987 [SS] Rolled Steels for General Structure

Specifications	Thickness(mm)	Chemical Compositions (%)				
		C	Si	Mn	P	S
SS400	6 ≤ t ≤ 100	–	–	–	0.050 Max.	0.050 Max.
SS490	6 ≤ t ≤ 100	–	–	–	0.050 Max.	0.050 Max.
SS540	6 ≤ t ≤ 40	0.30 Max.	–	1.60 Max.	0.040 Max.	0.040 Max.

KS D 3515, JIS G 3106 [SM] Rolled Steels for Welded Structure

Specifications		Thickness(mm)	Chemical Compositions (%)				
			C	Si	Mn	P	S
SM400	A	t ≤ 50	0.23 Max.	–	2.5×C Min.	0.035 Max.	0.035 Max.
		50 < t ≤ 200	0.25 Max.				
	B	t ≤ 50	0.20 Max.	0.35 Max.	0.6~1.40		
		50 < t ≤ 200	0.22 Max.				
	C	t ≤ 100	0.18 Max.	0.35 Max.	1.40 Max.		
SM490	A	t ≤ 50	0.20 Max.	0.55 Max.	1.60 Max.	0.035 Max.	0.035 Max.
		50 < t ≤ 200	0.22 Max.				
	B	t ≤ 50	0.18 Max.				
		50 < t ≤ 200	0.20 Max.				
	C	t ≤ 100	0.18 Max.				
SM490	YA YB	t ≤ 100	0.20 Max.	0.55 Max.	1.60 Max.	0.035 Max.	0.035 Max.
SM520	B C	t ≤ 100	0.20 Max.	0.55 Max.	1.60 Max.	0.035 Max.	0.035 Max.
SM570		t ≤ 100	0.18 Max.	0.55 Max.	1.60 Max.	0.035 Max.	0.035 Max.

- For use of H-Beam and Box Column, ultrasonic test (JIS-G0801) is required, when not specified, internal quality assurance process should observe A578-A UST standard
- For products with thickness over 90mm, prior discussion on quality is necessary.

Thickness(mm)	Tensile Test: Minimum Yield Point(MPa)	Tensile Test: Tensile Strength (MPa)	Tensile Test: Minimum Elongation: Thickness	Tensile Test: Minimum Elongation: Test Piece	Tensile Test: Minimum Elongation: %	Bending Test: Inside Radius	Bending Test: Test Piece
t ≦ 16	245	400 ~ 510	6 < t ≦ 16	No. 1A	17	1.5 x thickness	No. 1
16 < t ≦ 40	235		16 < t ≦ 40	No. 1A	21		
40 < t	215		40 < t	No. 4	23		
t ≦ 16	285	490 ~ 610	6 < t ≦ 16	No. 1A	15	2.0 x thickness	No. 1
16 < t ≦ 40	275		16 < t ≦ 40	No. 1A	19		
100 < t	255		40 < t	No. 4	21		
t ≦ 16	400	540 Min.	6 < t ≦ 16	No. 1A	13	2.0 x thickness	No. 1
16 < t ≦ 40	390		16 < t ≦ 50	No. 1A	17		

※ Bending test can be waived when there is no request from customers

Thickness(mm)	Tensile Test: Minimum Yield Point(MPa)	Tensile Test: Tensile Strength (MPa)	Tensile Test: Minimum Elongation: Thickness	Tensile Test: Minimum Elongation: Test Piece	Tensile Test: Minimum Elongation: %	Impact Test: Test Temperature (℃)	Impact Test: Minimum Charpy Absorbed Energy(J)
t ≦ 16	245	400~510	6 < t ≦ 16	1A 호	18	–	
16 < t ≦ 40	235		16 < t ≦ 50	1A 호	22	0	27
40 < t ≦ 100	215		50 < t	4 호	24		
100 < t	205					0	47
t ≦ 16	325	490~610	6 < t ≦ 16	1A 호	17	–	–
16 < t ≦ 40	315		16 < t ≦ 50	1A 호	21	0	27
40 < t ≦ 100	295		50 < t	4 호	23		
100 < t	285					0	47
t ≦ 16	365	490~610	6 < t ≦ 16	1A 호	15	–	–
16 < t ≦ 40	355		16 < t ≦ 50	1A 호	19		
40 < t ≦ 75	335		50 < t	4 호	21	0	27
75 < t ≦ 100	325						
t ≦ 16	365	520~640	6 < t ≦ 16	1A 호	15	0	27
16 < t ≦ 40	355		16 < t ≦ 50	1A 호	19		
40 < t ≦ 75	335		50 < t	4 호	21	0	47
75 < t ≦ 100	325						
t ≦ 16	460	570~720	6 < t ≦ 16	5 호	19	–5	47
16 < t ≦ 40	450		16 < t	5 호	26		
40 < t ≦ 75	430		20 < t	4 호	20		
75 < t ≦ 100	420						

KS D 3861, JIS G 3136 [SN] Rolled Steels for Building Structure

Specifications		Thickness(mm)	Chemical Compositions (%) C	Si	Mn	P	S	Ceq	Pcm
SN400	A	6 ≦ t ≦ 100	0.24 Max.	–	–	0.05 Max.	0.05 Max.	–	–
	B	6 ≦ t ≦ 50	0.20 Max.	0.35 Max.	0.6~1.4	0.03 Max.	0.015 Max.	0.36 Max.	0.26 Max.
		50 〈 t ≦ 100	0.22 Max.						
	C	16 〈 t ≦ 50	0.20 Max.	0.35 Max.	0.6~1.4	0.02 Max.	0.008 Max.	0.36 Max.	0.26 Max.
		50 〈 t ≦ 100	0.22 Max.						
SN490	B	6 ≦ t ≦ 40	0.18 Max.	0.55 Max.	1.60 Max.	0.03 Max.	0.015 Max.	0.44 Max.	0.29 Max.
		40 〈 t ≦ 50							
		50 〈 t ≦ 100	0.20 Max.					0.46 Max.	
	C	16 〈 t ≦ 40	0.18 Max.	0.55 Max.	1.60 Max.	0.02 Max.	0.008 Max.	0.44 Max.	0.29 Max.
		40 〈 t ≦ 50							
		50 〈 t ≦ 100	0.20 Max.					0.46 Max.	

※ Ceq(%) : C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

※ Pcm(%) C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B

ASTM A36 Carbon Structural Steel

Specifications	Thickness inch(mm)	Chemical Compositions (%) C	Si	Mn	P
A36	1/4(6) 〈 t ≦ 3/4(20)	0.25 Max.	0.40 Max.	–	0.04 Max.
	3/4(20) 〈 t ≦ 1 1/2(40)	0.25 Max.	0.40 Max.	0.80~1.20	0.04 Max.
	1 1/2(40) 〈 t ≦ 2 1/2(65)	0.26 Max.	0.15~0.40	0.80~1.20	0.04 Max.
	2 1/2(65) 〈 t ≦ 4(100)	0.27 Max.	0.15~0.40	0.85~1.20	0.04 Max.
	4(100) 〈 t	0.29 Max.	0.15~0.40	0.85~1.20	0.04 Max.

ASTM A283 Low and Intermediate Tensile Strength Carbon Steel Plates

Specifications	Maximum Available Thicknesses	Thickness inch(mm)	Chemical Compositions (%) C	Mn	Si
A283-A	100	t ≦ 1 1/2(40)	0.14 Max.	0.90 Max.	0.40 Max.
		1 1/2(40) 〈 t			0.15~0.40
A283-B	105	t ≦ 1 1/2(40)	0.17 Max.	0.90 Max.	0.40 Max.
		1 1/2(40) 〈 t			0.15~0.40
A283-C	100	t ≦ 1 1/2(40)	024 Max.	0.90 Max.	0.40 Max.
		1 1/2(40) 〈 t			0.15~0.40
A283-D	100	t ≦ 1 1/2(40)	0.27 Max.	0.90 Max.	0.40 Max.
		1 1/2(40) 〈 t			0.15~0.40

Thickness(mm)	Tensile Test				Impact Test (0°C, J)
	Minimum Yield Point(MPa)	Tensile Strength(MPa)	Minimum Elongation(%)	Yield Ratio(%)	
6 ≦ t ≦ 16	235	400~510	17	–	–
16 〈 t ≦ 40			21		
40 〈 t ≦ 100	215		23		
6 ≦ t ≦ 12	235	400~510	18	–	–
12 ≦ t ≦ 16	235~355		22	80 Max.	27
16 〈 t ≦ 40					
40 〈 t ≦ 100	215~335		24		
t = 16	235~355	400~510	18	80 Max.	27
16 〈 t ≦ 40			22		
40 〈 t ≦ 100	215~335		24		
6 ≦ t 〈 12	325	490~610	17	–	–
12 ≦ t ≦ 16	325~445		21	80 Max.	27
16 〈 t ≦ 40					
40 〈 t ≦ 100	295~415		23		
t = 16	325~445	490~610	17	80 Max.	27
16 〈 t ≦ 40			21		
40 〈 t ≦ 100	295~415		23		

Chemical Compositions (%)		Tensile Test				Remarks
S	Cu	Tensile Strength(MPa)	Minimum Yield Point(MPa)	Minimum Elongation(%) GL = 8"(200m)	Minimum Elongation(%) GL = 2"(50m)	
0.05 Max.	0.20 Max.	58~80 (400~550)	36(250)	20	23	For plates of over 100mm in thickness, prior negotiation is required.
0.05 Max.	0.20 Max.					
0.05 Max.	0.20 Max.					
0.05 Max.	0.20 Max.					
0.05 Max.	0.20 Max.					

Chemical Compositions (%)			Tensile Test			
P	S	Cu	Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation(%) GL=200m	Minimum Elongation(%) GL=(50m)
0.035 Max.	0.04 Max.	0.20 Max.	24 (165)	45~60 (310~415)	27	30
0.035 Max.	0.04 Max.	0.20 Max.	27 (185)	50~65 (345~450)	25	28
0.035 Max.	0.04 Max.	0.20 Max.	30 (205)	55~75 (380~515)	22	25
0.035 Max.	0.04 Max.	0.20 Max.	33 (230)	60~80 (415~550)	20	23

ASTM A572 High-Strength Low-Alloy Nb-V Structural Steels

Specifications	Chemical Compositions (%)							Tensile Test			
	Thickness inch(mm)	C	Si t≦1 1/2 (40)	Si t≦1 1/2 (40)	Mn	P	S	Minimum Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation GL = 8″ (200m)	Minimum Elongation GL = 2″ (50m)
A572-42	6 (120)	0.21 Max.	0.40 Max.	0.15~0.40	1.35 Max. *1.60 Max.	0.04 Max.	0.05 Max.	60(415)	42(290)	20	24
A572-50	4 (100)	0.23 Max.	0.40 Max.	0.15~0.40	1.35 Max. *1.60 Max.	0.04 Max.	0.05 Max.	65(450)	50(345)	18	21
A572-60	1 1/4(32)	0.26 Max.	0.40 Max.	-	1.35 Max. *1.60 Max.	0.04 Max.	0.05 Max.	75(520)	60(415)	16	18
A572-65	1 1/4<t≦1 1/2 (13~32)	0.23 Max.	0.40 Max.	-	1.65 Max.	0.04 Max.	0.05 Max.	80 (550)	65 (450)	15	17
	t≦1 1/2 (32)	0.26 Max.	0.40 Max.	-	1.35 Max.	0.04 Max.	0.05 Max.				

* For each reduction of 0.01% below the specified Carbon maximum, an increase of 0.06% Mn above the specified maximum is permitted, up to maximum 1.5%

API-2H/2W Steel Plates for Offshore Structures

Specifications	Grade	Maximum Thickness	Chemical Compositions (%) C	Si	Mn	P	S	Other	Ceq(Pcm) Thickness inch(mm)	Ceq(Pcm) %
API-2H	50	100	0.18 Max.	0.15~0.40	0.15~1.60	0.03 Max.	0.01 Max.	NB 0.01~0.04 Ti 0.02 Max. T.AL 0.02~0.06 N 0.012 Max.	t ≦ 2(50.8)	0.43 Max.
									2(50.8) < t	0.45 Max.
API-2W	50	100	0.16 Max.	0.05 ~ 0.50	1.15 ~ 1.60	0.03 Max.	0.010 Max.	T.Al 0.020~0.06 S.Al 0.015~0.055 Ni 0.75 Max. Cr 0.25 Max. Mo 0.08 Max. Cu 0.35 Max. Ti 0.003~ 0.02 Nb 0.03 Max. N 0.012 Max. B 5ppm Max.	t ≦ 1 1/2(40)	0.39 Max. (0.22) Max.
									1 1/2<t≦3 1/2(90)	0.41 Max. (0.23) Max.
									3 1/2<t≦6(150)	0.43 Max. (0.24) Max.
	60	100	0.16 Max.	0.05 ~ 0.50	1.15 ~ 1.60	0.03 Max.	0.010 Max.	T.Al 0.025~0.06 S.Al 0.015~0.055 Ni 1.0 Max. Cr 0.25 Max. Mo 0.15 Max. Cu 0.35 Max. Ti 0.003~ 0.02 Nb 0.03 Max. N 0.012 Max. B 5ppm Max.	t ≦ 1 1/2(40)	0.42 Max. (0.23) Max.
									1 1/2<t≦4(100)	0.45 Max. (0.23) Max.

ASTM A573 Structural Caron Steel Plate of Improved Toughness

Specifications	Thickness inch (mm)	Chemical Compositions (%) C	Si	Mn	P	S	Tensile Test Minimum Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation GL = 8″ (200m)	Minimum Elongation GL = 2″ (50m)
A573-70	t≦1/2(13)	0.27 Max.	0.15~0.40	0.85~1.20	0.035Max.	0.04Max.	70~90 (480~620)	42(290)	18	21
	1/2(13)<t≦1 1/2 (40)	0.28 Max.								

Chemical Compositions (%) Minimum Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation (%) GL = 8″(200m)	GL = 2″(50m)	Classification	Impact Test Size of Test Piece(mm)	Test Temperature (℃)	Minimum Average Charpy Absorbed Energy(J)	Minimum Individual Charpy Absorbed Energy(J)	Heat Treatment
70~90 (483~620)	t ≦ 2.5 inch 50 (345) t > 2.5 inch 47 (324)	16	21	A	10×10	-40(-40)	41	34	NOR.
				B	10×7.5	-40(-40)	41	34	
				C	10×5.0	-40(-40)	41	34	
				D	10×7.5	-50(-46)	31	26	
				E	10×5.0	-80(-62)	20	18	
65 (448)	t ≦ 1(25) inch 50~95 (345~517) t > 1(25) inch 50~70 (345~483)	23	18	A	10×10	-40(-40)	41	34	TMCP
				B	10×7.5	-40(-40)	41	34	
				C	10×5.0	-40(-40)	41	34	
				D	10×7.5	-50(-46)	31	26	
				E	10×5.0	-80(-62)	20	18	
75 (517)	t ≦ 1(25) inch 60~90 (414~621) t > 1(25) inch 60~85 (414~586)	23	18	A	10×10	-40(-40)	48	41	TMCP
				B	10×7.5	-40(-40)	48	41	
				C	10×5.0	-40(-40)	48	41	
				D	10×7.5	-50(-46)	35	31	
				E	10×5.0	-80(-62)	24	20	

EN 10025 Structural Steels

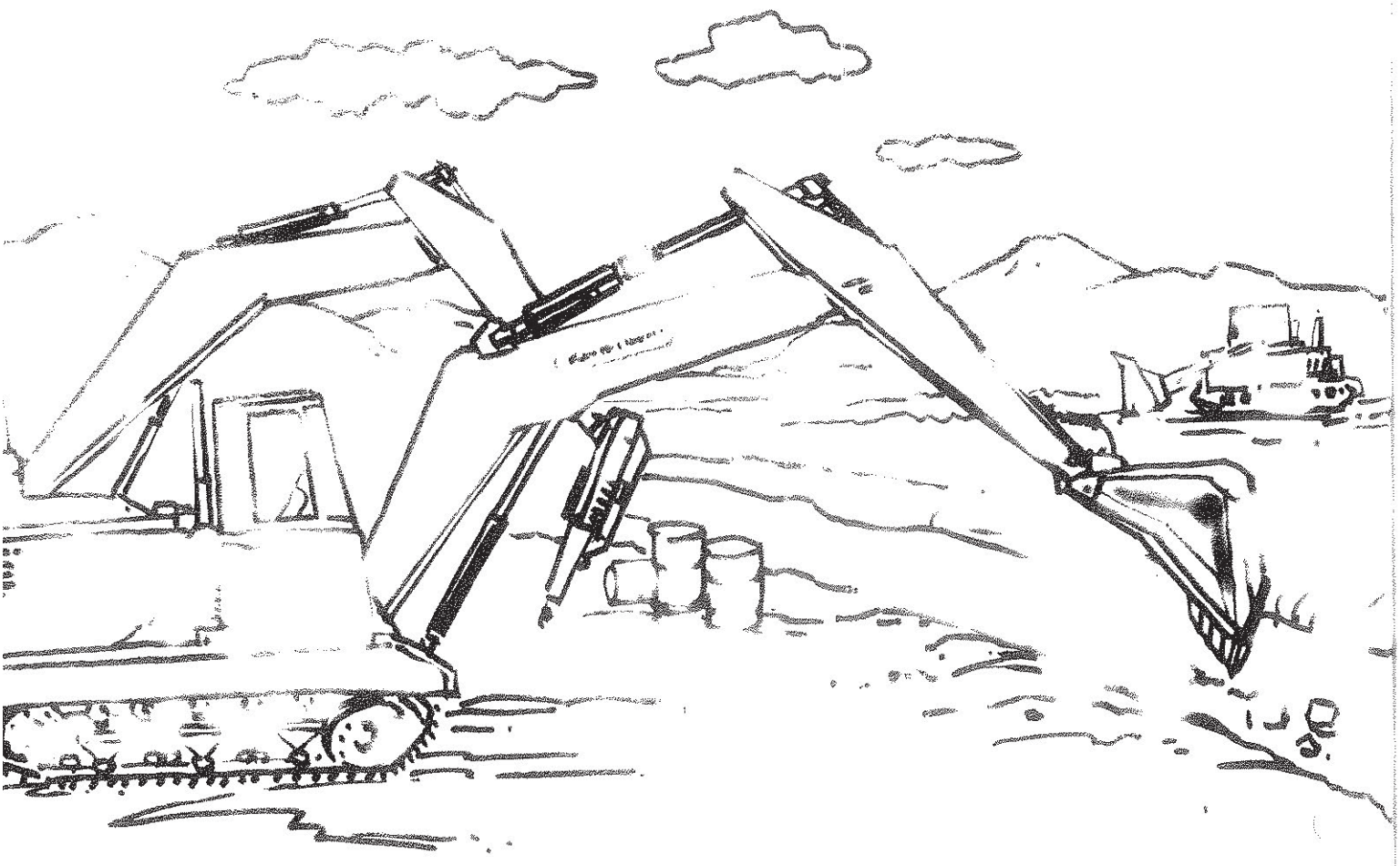
Specifications		Method of Deoxidation	C in (% max.) for Nominal Product Thickness(mm)			Chemical Compositions (%)						
According EN 10027-1 and CR 10260	According EN 10027-2		t≤16	16<t≤40	40<t	Si (% Max.)	Mn (% Max.)	P (% Max.)	S (% Max.)	N (% Max.)	Cu (% Max.)	Other (% Max.)
S235JR	1.0038	FN	0.17	0.17	0.20	–	1.40	0.035	0.035	0.012	0.55	–
S235JO	1.0114	FN	0.17	0.17	0.17	–	1.40	0.030	0.030	0.012	0.55	–
S235J2	1.0117	FN	0.17	0.17	0.17	–	1.40	0.025	0.025	–	0.55	–
S275JR	1.0044	FN	0.21	0.21	0.22	–	1.50	0.035	0.035	0.012	0.55	–
S275JO	1.0143	FN	0.18	0.18	0.18	–	1.50	0.030	0.030	0.012	0.55	–
S275J2	1.0145	FF	0.18	0.18	0.18	–	1.50	0.025	0.025	–	0.55	–
S355JR	1.0045	FN	0.24	0.24	0.24	0.55	1.60	0.035	0.035	0.012	0.55	–
S355JO	1.0553	FN	0.20	0.20	0.22	0.55	1.60	0.030	0.030	0.012	0.55	–
S355J2	1.0577	FF	0.20	0.20	0.22	0.55	1.60	0.025	0.025	–	0.55	–
S355K2	1.0596	FF	0.20	0.20	0.22	0.55	1.60	0.025	0.025	–	0.55	–
S450JO	1.0590	FF	0.20	0.20	0.22	0.55	1.70	0.030	0.030	0.025	0.55	m

EN 10025 Structural Steels

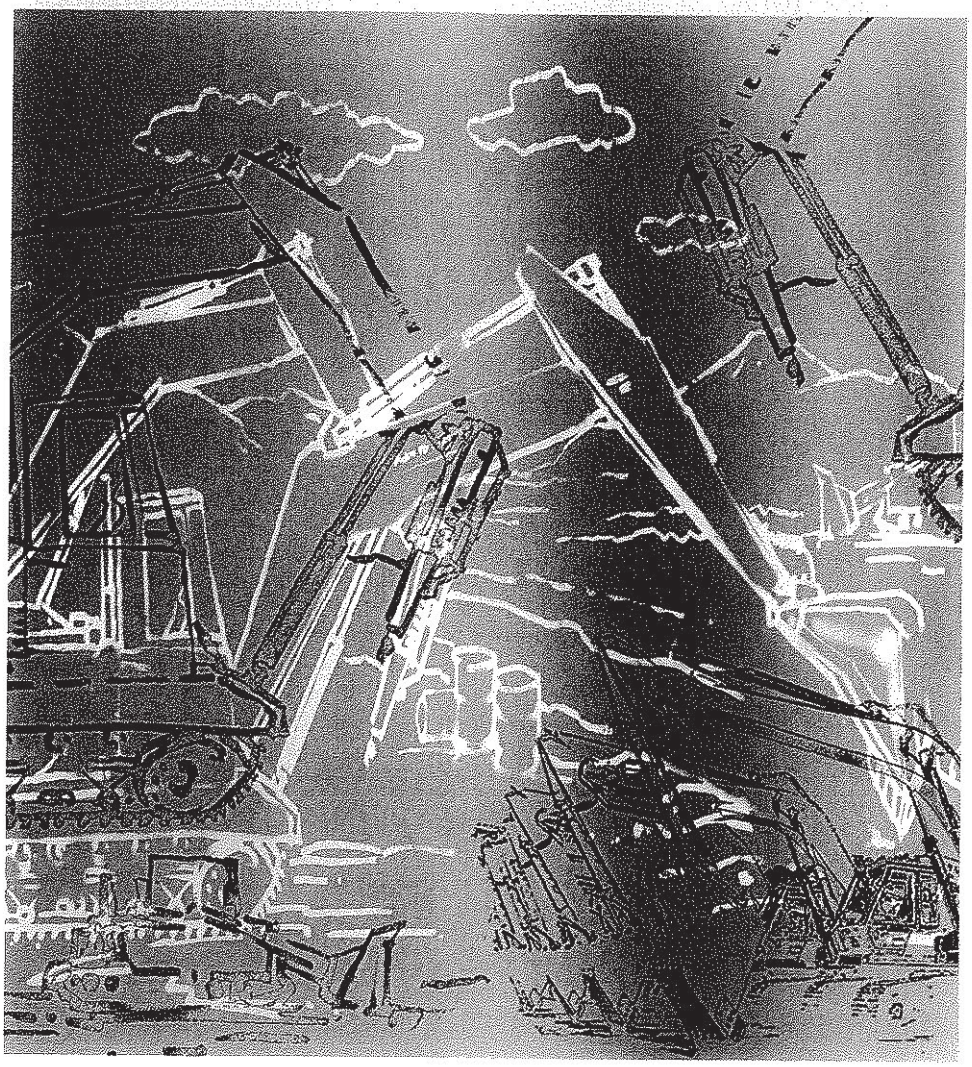
Specifications		Temperature (°C)	Minimum Energy(J) Nominal Thickness(mm)		
According EN 10027-1 and CR 10260	According EN 10027-2		t ≤ 150	150 < t ≤ 250	250 < t ≤ 400
S235JR	1.0038	20	27	27	–
S235JO	1.0114	0	27	27	–
S235J2	1.0117	-20	27	27	27
S275JR	1.0044	20	27	27	–
S275JO	1.0143	0	27	27	–
S275J2	1.0145	-20	27	27	27
S355JR	1.0045	20	27	27	–
S355JO	1.0553	0	27	27	–
S355J2	1.0577	-20	27	27	27
S355K2	1.0596	-20	40	33	33
S450JO	1.0590	0	27	–	–

Minimum Yield Strenght Reh(MPa) Nominal Thickness(mm)									Tensile Strength Rm(MPa) Nominal Thickness(mm)				
≤16	〉16 ≤ 40	〉40 ≤ 63	〉63 ≤ 80	〉80 ≤ 100	〉100 ≤ 150	〉150 ≤ 200	〉200 ≤ 250	〉250 ≤ 400	〈 3	〉 3 ≤ 100	〉100 ≤ 150	〉150 ≤ 250	〉250 ≤ 400
235	225	215	215	215	195	185	175	–	360 to 510	360 to 510	350 to 500	340 to 490	–
235	225	215	215	215	195	185	175	–	360 to 510	360 to 510	350 to 500	340 to 490	–
235	225	215	215	215	195	185	175	165	360 to 510	360 to 510	350 to 500	340 to 490	330 to 480
275	265	255	245	235	225	215	205	–	430 to 580	410 to 560	400 to 540	380 to 540	–
275	265	255	245	235	225	215	205	–	430 to 580	410 to 560	400 to 540	380 to 540	–
275	265	255	245	235	225	215	205	195	430 to 580	410 to 560	400 to 540	380 to 540	380 to 540
355	345	335	325	315	295	285	275	–	510 to 680	470 to 630	450 to 600	450 to 600	–
355	345	335	325	315	295	285	275	–	510 to 680	470 to 630	450 to 600	450 to 600	–
355	345	335	325	315	295	285	275	265	510 to 680	470 to 630	450 to 600	450 to 600	450 to 600
355	345	335	325	315	295	285	275	265	510 to 680	470 to 630	450 to 600	450 to 600	450 to 600
450	430	410	390	380	380	–	–	–	–	550 to 720	530 to 700	–	–

Specifications		Position of Test Pieces	Minimum Percentage Elongation after Fracture(%)										
			L_o=80mm Nominal thickness(mm)					L_o=5.65$\sqrt{S_o}$ Norminal thickness(mm)					
According EN 10027-1 and CR 10260	According EN 10027-2		≤ 1	〉1 ≤ 1.5	〉1.5 ≤ 2	〉2 ≤ 2.5	〉2.5 ≤ 3	〉3 ≤ 40	〉40 ≤ 63	〉63 ≤ 100	〉100 ≤ 150	〉150 ≤ 200	〉250 ≤ 400 only fo J2 and K2
S235JR	1.0038	L	17	18	19	20	21	26	25	24	22	21	–
S235JO	1.0114												–
S235J2	1.0117	T	15	16	17	18	19	24	23	22	22	21	21(L&T)
S275JR	1.0044	L	15	16	17	18	19	23	22	21	19	18	–
S275JO	1.0143												–
S275J2	1.0145	T	13	14	15	16	17	21	20	19	19	18	18(L&T)
S355JR	1.0045	L	14	15	16	17	18	22	21	20	18	17	–
S355JO	1.0553												–
S355J2	1.0577												17(L&T)
S355K2	1.0596	T	12	13	14	15	16	20	19	18	18	17	17(L&T)
S450JO[d]	1.0590	L	–	–	–	–	–	17	17	17	17	–	–



HIGH STRENGTH STEEL PLATES



POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

High Strength Steel for Welded Structure (POSTEN)

This standard defines about high strength heat rolled steel plates with super weldability for use of building, bridge, pressure vessel and other structures.

Specifications	Thickness	Chemical Compositions (%)							
		C	Si	Mn	P	S	Cr	Other	Ceq
POSTEN55H	9~17	0.18 Max.	0.55 Max.	1.6 Max.	0.035 Max.	0.035 Max.	–	–	0.47 Max.
POSTEN60	8~80	0.16 Max.	0.15 ~ 0.55	1.50 Max.	0.030 Max.	0.030 Max.	*0.30 Max.	*Ni 0.60 Max. *Mo 0.30 Max. *V 0.10 Max.	t≦50 0.44 t〉50 0.47
POSTEN60RE	8~25	0.12 Max.	0.15 ~ 0.55	2.0 Max.	0.030 Max.	0.030 Max.	*0.30 Max.	*Ti 0.15 Max. Nb+V 0.15 Max.	0.45 Max.
POSTEN60FW	8~40	0.08 Max.	0.15 ~ 0.55	1.60 Max.	0.030 Max.	0.030 Max.	*0.25 Max.	*Ni 0.40 Max. *Mo 0.40 Max. *V 0.01–0.08 Ti 0.05 Max.	0.43 Max.
POSTEN80	8~80	0.16 Max.	0.15 ~ 0.35	1.20 Max.	0.030 Max.	0.030 Max.	0.40 ~ 0.80	Cu 0.50 Max. Ni 0.40–1.50 Mo 0.30–0.60 V 0.10 Max. B 0.006 Max.	0.60 Max.
POSTEN 100	10~100	0.16 Max.	0.15 ~ 0.35	1.20 Max.	0.030 Max.	0.030 Max.	0.40 ~ 0.80	Cu 0 5.0 Max. Ni 0.40–2.0 Mo 0.40–2.0 V 0.10 Max. B 0.006 Max.	0.70 Max.

* Inquiry is required when order.

※ Ceq=C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

※ Pcm=C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B

Tensile Test					Impact Test				Heat Treated
Minimum Yield Point kgf/mm²(MPa)	Tensile Strength mm²(MPa)	Minimum Elongation Thickness(mm)	Test Piece	%	Test Temperature (℃)	Minimum Charpy Absorbed Energy kgf · m(J) Average	Individual	Test Piece	
40 (393)	55(540) Min	16 under	No.5	19	−5	5.0 (49)	4.8 (47)		TMCP
		16 over		20					
46 (450)	60~72 (590~710)	16 under	No.5	20	−5	4.8 (47)	2.8 (28)		QT / DQT
		16 over		28					
		20 over	No.4	20					
46 (450)	60~72 (590~710)	16 under	No.5	20	−5	4.8 (47)	2.8 (28)		TMCP
		16 over	No.5	20					
50 (490)	62~75 (590~710)	16 under	No.5	18	−10	4.8 (47)	2.8 (28)	V-notch vertical to face of rolling	QT
		16 over		25					
		20 over	No.4	19					
70 (686)	80~85 (785~930)	16 under	No.5	16	−20	3.6 (36)	2.1 (21)		QT / DQT
		16 over		24					
		20 over	No.4	16					
90 (885)	97~115 (950~1130)	16 under	No.5	14	−20	2.7(27)	2.1(21)		QT
		16 over		22					
		20 over	No.4	14					

KS D 3868 [HSB] Rolled Steel Sheet for Bridge Structures(TMCP)

Specifications	Thickness (mm)	Chemical Compositions (%)									
		C	Si	Mn	P	S	Cu	Cr	Ni	Ceq	Pcm
HSB500 HSB500L HSB500W	6~100	0.18 Max.	0.55 Max. 0.65 Max.	1.80 Max.	0.020 Max.	0.006 Max.	– – 0.10~0.50	– – 0.45~0.75	– – 0.05~0.80	0.40 Max. 0.47 Max.	0.20 Max. 0.22 Max.
HSB600 HSB600L HSB600W	6~100	0.10 Max.	0.55 Max. 0.65 Max.	1.80 Max.	0.020 Max.	0.006 Max.	– – 0.10~0.50	– – 0.45~0.75	– – 0.05~0.80	0.42 Max. 0.47 Max.	0.20 Max. 0.22 Max.

※ Ceq(%) = C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

※ Pcm(%) = C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B

TMCP High Strength Steel for Building Construction [PILAC-BT]

This standard defines about high tensile heat rolled steel plates manufactured by accelerated cooling equipment for use of building structure.

Specifications	Thickness (mm)	Chemical Compositions (%)							
		C	Si	Mn	P	S	S.Al	Ceq	Pcm
PILAC-BT33	6≦t≦50	0.18 Max.	0.55 Max.	1.60 Max.	0.020 Max.	0.010 Max.	0.015 Min.	0.38 Max.	–
	50<t≦80	0.20 Max.	0.55 Max.	1.60 Max.	0.020 Max.	0.010 Max.	0.015 Min.	0.40 Max.	–
PILAC-BT36	6≦t≦50	0.18 Max.	0.55 Max.	1.60 Max.	0.020 Max.	0.010 Max.	0.015 Min.	0.40 Max.	0.26 Max.
	50<t≦80	0.20 Max.	0.55 Max.	1.60 Max.	0.020 Max.	0.010 Max.	0.015 Min.	0.42 Max.	0.27 Max.
PILAC-BT45	6≦t≦80	0.18 Max.	0.55 Max.	1.60 Max.	0.020 Max.	0.010 Max.	0.015 Min.	0.42 Max.	0.27 Max.

※ Ceq(%) = C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

Tensile Test					Impact Test (J)			
Minimum Yield Point (MPa)	Minimum Tensile Strength(MPa)	Minimum Elongation Thickness(mm)	Test Piece	%	Test Temperature (°C)	Specifications	Minimum Charpy Absorbed Energy	Test Piece
380	500	6 ≤ t ≤ 16		15	-5	HSB500 HSB500W	47	V-notch vertical to face of rolling
		16 < t ≤ 40		19				
		40 < t		21	-20	HSB500L	47	
450	600	6 ≤ t ≤ 16		19	-5	HSB600 HSB600W	47	V-notch vertical to face of rolling
		16 < t ≤ 20		26				
		20 < t		20	-20	HSB600L	47	

Tensile Test						Impact Test (J)			Tensile Test in the Thickness Direction		
Minimum Yield Point(MPa)	Tensile Strength(MPa)	Yield Ratio(%)	Minimum Elongation Thickness(mm)	Test Piece	%	Test Temperature (°C)	Minimum Charpy Absorbed Energy	Test Piece	Minimum Section Contraction Ratio Thickness(mm)	Average	Individual
325	490~610	80 Max.	6 ≤ t ≤ 16	No. 1A	17	0	47	V-notch vertical to face of rolling	15≤t≤80	25	15
			16 < t ≤ 40	No. 1A	21						
			40 < t ≤ 80	No. 4	23						
355	520~640	80 Max.	6 ≤ t ≤ 16	No. 1A	15						
			16 < t ≤ 40	No. 1A	19						
			40 < t ≤ 80	No. 4	21						
440	570~720	85 Max.	6 ≤ t ≤ 16	No. 5	19	-5	47				
			16 < t ≤ 20	No. 5	26						
			20 < t ≤ 80	No. 4	20						

WEATHERING & CORROSION RESISTANT STEEL

POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

KS D 3529, JIS G 3114 [SMA] Hot-Rolled Atmospheric Corrosion Resisting Steels for Welded Stru e

Specifications		Chemical Compositions (%)							
		C	Si	Mn	P	S	Cu	Cr	Ni
SMA400A SMA400B	W	0.18 Max.	0.15~0.65	1.25 Max.	0.035 Max.	0.035 Max.	0.30~0.50	0.45~0.75	0.05~0.30
SMA400C	P	0.18 Max.	0.55 Max.	1.25 Max.	0.035 Max.	0.035 Max.	0.20~0.35	0.30~0.55	--
SMA490A SMA490B	W	0.18 Max.	0.15~0.65	1.40 Max.	0.035 Max.	0.035 Max.	0.30~0.50	0.45~0.75	0.05~0.30
SMA490C	P	0.18 Max.	0.55 Max.	1.40 Max.	0.035 Max.	0.035 Max.	0.20~0.35	0.30~0.55	--
SMA570	W	0.18 Max.	0.15~0.65	1.40 Max.	0.035 Max.	0.035 Max.	0.30~0.50	0.45~0.75	0.05~0.30
	P	0.18 Max.	0.55 Max.	1.40 Max.	0.035 Max.	0.035 Max.	0.20~0.35	0.30~0.55	--

※ P : Coated, W : Non-Coated

ASTM A242 High-Strength Low-Alloy Structural Steel

Specifications	Chemical Compositions (%)				
	C	Mn	P	S	Cu
A242 Type1	0.15 Max.	1.00 Max.	0.15 Max.	0.05 Max.	0.20 Min.

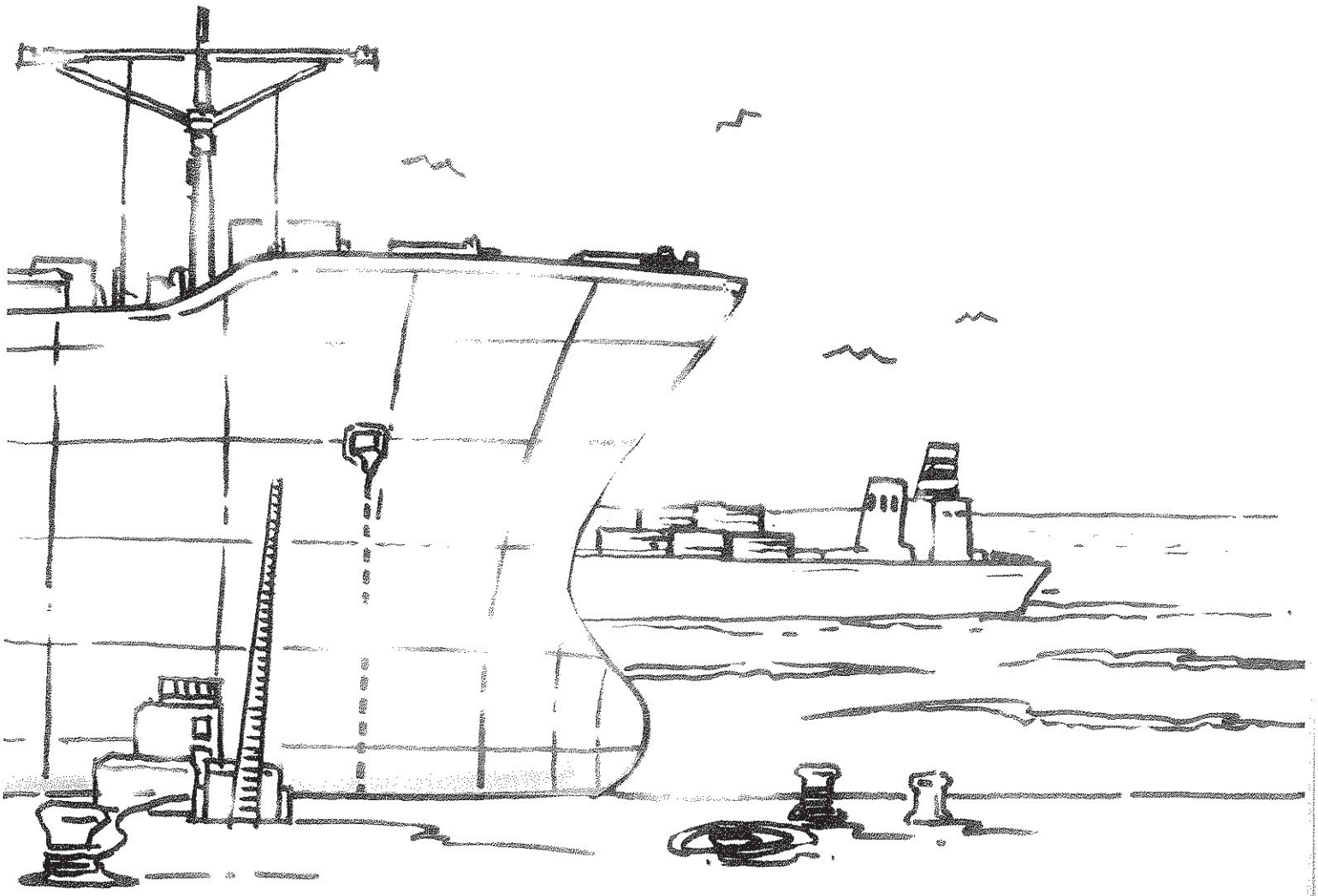
ASTM A588 High-Strength Low-Alloy Structural Steel with Atmospheric Corrosion Resistance

Specifications	Chemical Compositions (%)						
	C	Si	Mn	P	S	Ni	Cr
A588-A	0.19 Max.	0.30~0.65	0.80~1.25	0.04 Max.	0.05 Max.	0.40 Max.	0.40~0.65
A588-B	0.20 Max.	0.15~0.50	0.75~1.35	0.04 Max.	0.05 Max.	0.50 Max.	0.40~0.70
A588-C	0.15 Max.	0.15~0.40	0.80~1.35	0.04 Max.	0.05 Max.	0.25~0.50	0.30~0.50

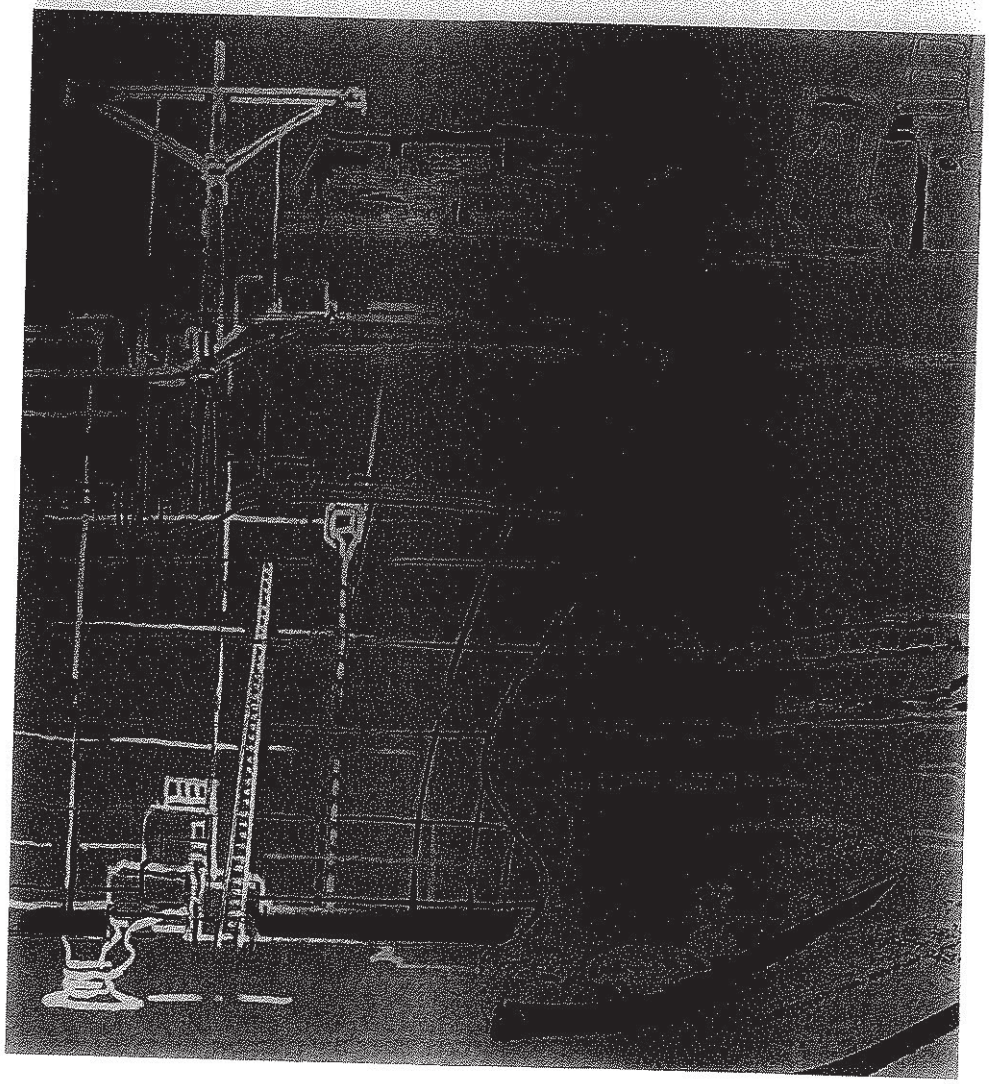
	Specifications	Tensile Test: Minimum Yield Point (MPa) Thickness of Steel Products(mm) t≤16	16<t≤40	40<t≤75	75<t≤100	100<t≤160	160<t≤200	Tensile Strength	Minimum Elongation(%) Thickness(mm)	Test Piece	%	Impact Test (J) Specifications	Test Temperature (℃)	Minimum Charpy Absorbed Energy (J)	Test Piece
1	SMA400AW SMA400AP SMA400BW SMA400BP	245	235	215	215	205	195	400 ~ 540	t≤5	V-notch vertical to face of rolling	22	A	–	–	V-notch vertical to face of rolling
									t≤16		17	B	0	27	
	SMA400CW SMA400CP	245	235	215	215	–	–		16 < t		21	C	0	47	
									40 < t		23				
2	SMA490AW SMA490AP SMA490BW SMA490BP	365	355	335	325	305	295	490 ~ 610	t≤5		19	A	–	–	
									t≤16		15	B	0	27	
	SMA490CW SMA490CP	365	355	335	325	–	–		16 < t		19	C	0	47	
									40 < t		21				
3	SMA570W SMA570P	460	450	430	420	–	–	570 ~ 720	t≤16		19	–	–5	47	
									16 < t		26				
									20 < t		20				

Thickness (mm)	Tensile Test: Minimum Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation (%) GL = 8″(200m)	GL = 2″(50m)
t ≤ 20	70 (480)	50 (345)	18	21
20 < t ≤ 40	67 (460)	46 (315)	18	21
40 < t ≤ 100	63 (435)	42 (290)	18	21

Chemical Compositions (%) Cu	V	Specifications	Thickness (mm)	Tensile Test: Minimum Tensile Strength Ksi(MPa)	Minimum Yield Point Ksi(MPa)	Minimum Elongation (%) GL = 8″(200m)	GL = 2″(50m)
0.25~0.40	0.02~0.10	A588-A	t ≤ 100	70 (485)	50 (345)	18	21
0.20~0.40	0.01~0.10	A588-B	100 < t ≤ 125	67 (460)	46 (315)	–	21
0.20~0.50	0.01~0.10	A588-C	125 < t ≤ 200	63 (435)	42 (290)	–	21



STEEL PLATES FOR SHIPBUILDING

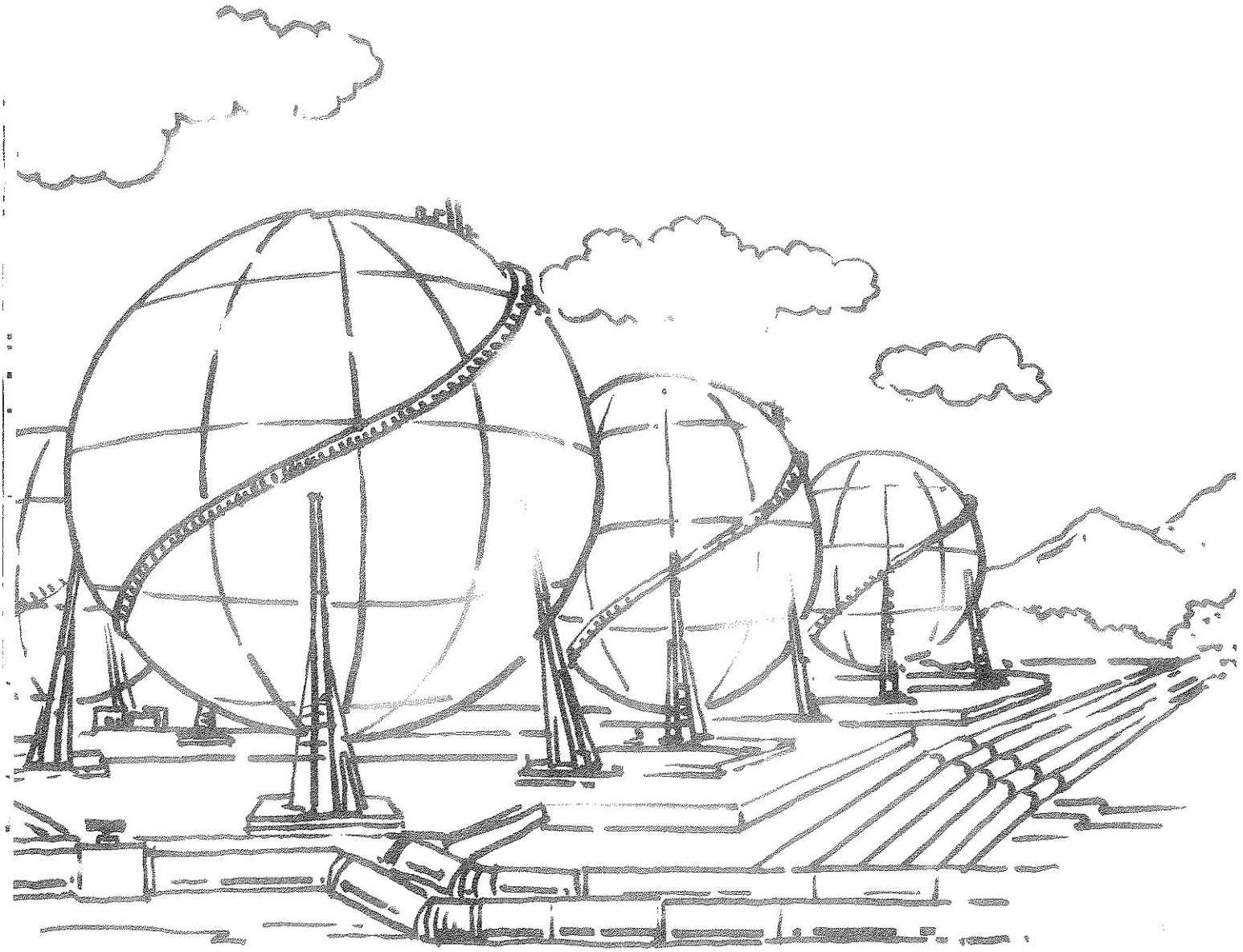


POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

Steel Plates for Ship Structure

Classification	Specifications	Chemical Compositions (%)										
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	S.Al	Nb
Normal Strength	A	0.21 Max.	0.50 Max.	2.5XC Min.	0.035 Max.	0.035 Max.						
	B	0.21 Max.	0.35 Max.	0.80 Max.	0.035 Max.	0.035 Max.						
	D	0.21 Max.	0.35 Max.	0.60 Max.	0.035 Max.	0.035 Max.					0.015 Max.	
	E	0.18 Max.	0.35 Max.	0.70 Max.	0.035 Max.	0.035 Max.					0.015 Max.	
High Strength	AH32	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	DH32	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	EH32	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	AH36	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	DH36	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	EH36	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	AH40	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	DH40	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	EH40	0.18 Max.	0.50 Max.	0.90~1.60	0.035 Max.	0.035 Max.	0.35 Max. 0.30 Max(GL)	0.20 Max.	0.40 Max.	0.08 Max.	0.015 Max. 0.015~0.08 (DNV)	0.02~0.05
	EH47 (2008 GL Draft)	0.14 Max.	0.55 Max.	2.0 Max.	0.020 Max.	0.007 Max.	0.40 Max.	0.60 Max.	1.00 Max.	0.25 Max.	0.015 Max.	0.05 Max.

Chemical Compositions (%)					Tensile Test					Impact Test (excl.NK)						
V	Ti (ABS,LR,BV, RINA,GL,CCS)	C+Mn/6	Deoxidation	Supply Condition (excl.NK)	Min. Yield Point (MPa)	Tensile Strength (MPa)	GL=200mm Thickness	GL=200mm Elongation	Elongation	Test Temperature (℃)	t≤50 L	t≤50 T	50<t≤70 L	50<t≤70 T	70<t≤100 L	70<t≤100 T
		0.40 Max.	Killed, Semi-Killed				t≤5	14		20 (t≥50)						
		0.40 Max.	Killed, Semi-Killed	AR,Nor,TMCP			5<t≤10	16		0						
		0.40 Max.	Fine Grain Fully Killed		235	400~520	10<t≤15	17	22		27	20	34	24	41	27
							15<t≤20	18								
		0.40 Max.		Nor,TMCP			20<t≤25	19		-20						
							25<t≤30	20								
							30<t≤40	21		-40						
							40<t≤100	22								
0.05~0.10							t≤5	14								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)		AR,Nor, CR,TMCP			5<t≤10	16		0						
0.05~0.10							10<t≤15	17								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)			315	440~590	15<t≤20	18								
				Nor,TMCP		440~570	20<t≤25	19	22	-20	31	22	38	26	46	31
0.05~0.10						(KR,GL)	25<t≤30	20								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)					30<t≤40	21		-40						
							40<t≤100	22								
0.05~0.10							t≤5	13								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)		AR,Nor, CR,TMCP			5<t≤10	15		0						
0.05~0.10							10<t≤15	16								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)			335	490~620	15<t≤20	17								
				Nor,TMCP		490~630	20<t≤25	18	21	-20	34	24	41	27	50	34
0.05~0.10			Fine Grain Fully Killed			(KR,GL)	25<t≤30	19								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)					30<t≤40	20		-40						
							40<t≤100	21								
0.05~0.10							t≤5	12								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)					5<t≤10	14		0						
0.05~0.10							10<t≤15	15								
0.03~0.10(LR)	0.02 Max.	0.40Max(KR,LR)			390	510~660	15<t≤20	16			39	26	46	31		
						510~650(GL)	20<t≤25	17	20	-20	41(NK,BV, RINA,	27(NK,BV, RINA,	45(DNV,	30(DNV,	55	37
0.05~0.10							25<t≤30	18			DNV,CCS)	DNV,CCS)	CCS)	CCS)		
0.10(LR)	0.02 Max.	0.40Max(KR,LR)					30<t≤40	19		-40						
				TMCP			40<t≤100	20								
							t≤10	11								
							10<t≤15	12								
		※Cep(Pcm)					15<t≤20	13								
0.10 Max.	0.02 Max.	t≤51:0.46(0.22)			460	570~720	20<t≤25	14	17	-40	46	31	31	37	64	46
		51<t≤100:0.49(0.25)					25<t≤40	15								
							40<t≤50	16								
							50<t≤100	17								



STEEL PLATES FOR BOILERS & PRESSURE VESSELS

POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

KS D 3521 [SPPV] Steel Plates for Pressure Vessels

Specifications	Chemical Compositions (%)						
	C	Si	Mn	P	S	Ceq	
						t ≦ 50mm	50 < t ≦ 75
SPPV235	t≦100:0.18 Max. t)100:0.20 Max.	0.15~0.35	1.40 Max.	0.030 Max.	0.030 Max.	–	–
SPPV315	0.18 Max.	0.15~0.55	1.50 Max.	0.030 Max.	0.030 Max.	–	–
SPPV355	0.20 Max.	0.15~0.55	1.60 Max.	0.030 Max.	0.030 Max.	–	–
SPPV450	0.18 Max.	0.15~0.75	1.60 Max.	0.030 Max.	0.030 Max.	0.44 Max.	0.46 Max.
SPPV490	0.18 Max.	0.15~0.75	1.60 Max.	0.030 Max.	0.030 Max.	0.45 Max.	0.47 Max.

※ Ceq(%) = C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

KS D 3539 [SQV] Mn-Mo and Mn-Mo-Ni alloy Steel Plates Quenched

Specifications	Chemical Compositions (%)						
	C	Si	Mn	P	S	Ni	Mo
SQV1A	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	–	0.45~0.60
SQV1B	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	–	0.45~0.60
SQV2A	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	0.40~0.70	0.45~0.60
SQV2B	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	0.40~0.70	0.45~0.60
SQV3A	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	0.70~1.00	0.45~0.60
SQV3B	0.25 Max.	0.15~0.40	1.15~1.50	0.030 Max.	0.030 Max.	0.70~1.00	0.45~0.60

※ Production analysis is available if required.

Tensile Test							Bending Test		Impact Test		
Minimum Yield Point, MPa(kgf/mm²) Thickness(mm)			Tensile Strength (MPa)	Minimum Elongation			Bend Angle	Inside Radius Thickness(mm)	Minimum Charpy Absorbed Energy Kgf · m(J)		
6≤t≤50	50≤t≤100	100<t≤200		Thickness (mm)	Test Piece	%			Test Temperature(℃)	Average	Individua
235 (24)	215 (22)	195 (20)	400~510 (41~52)	t≦16	No. 1A No. 1A No. 4	17 21 24	180°	t≦50:1.0X t>50:1.5X	0	4.8 (47)	2.8 (27)
315 (32)	290 (30)	–	490~610 (50~62)		No. 1A No. 1A No. 4	16 20 23	180°	1.5 X of Thickness	0		
355 (36)	335 (34)	–	520~640 (53~65)	16<t≦40	No. 1A No. 1A No. 4	14 18 21	180°	1.5 X of Thickness	0		
450 (46)	430 (44)	–	570~695 (58~71)	40<t	No. 5 No. 5 No. 4	19 26 20	180°	1.5 X of Thickness	−10		
490 (50)	470 (48)	–	610~735 (62~75)		No. 5 No. 5 No. 4	18 25 19	180°	1.5 X of Thickness	−10		

※ Impact Test is required for products with thickness over 12mm. When specified for L-direction, C-direction, values of absorbed energy will be discussed

Tensile Test				Bending Test		Impact Test		
Minimum Yield Point, MPa(kgf/mm²)	Tensile Strength (MPa)	Minimum Elongation Test Piece	%	Bend Angle	Inside Radius	Minimum Charpy Absorbed Energy Kgf · m(J) Average	Individua	Test Piece
345(35)	550~690(56~70)	No. 1A or No.10	18	180°	1.7X of Thickness	4.1(40.2)	3.5(34.3)	V-notch vertical to face of rolling
480(49)	620~790(63~81)		16			4.8(47.1)	4.1(40.2)	
345(35)	550~690(56~70)		18			4.1(40.2)	3.5(34.3)	
480(49)	620~790(63~81)		16			4.8(47.1)	4.1(40.2)	
345(35)	550~690(56~70)		18			4.1(40.2)	3.5(34.3)	
480(49)	620~790(63~81)		16			4.8(47.1)	4.1(40.2)	

※Temperature of Impact Test is subject to discussion

KS D 3560 [SB] Carbon Steel and Molybdenum Alloy Steel Plate for Boilers and other Pressure Vessels

Specifications	Thickness(mm)	Chemical Compositions (%)					
		C	Si	Mn	P	S	Mo
SB410	t ≤ 25	0.24 Max.	0.15~0.40	0.90 Max.	0.030 Max.	0.030 Max.	-
	25 < t ≤ 50	0.27 Max.					
	50 < t ≤ 200	0.30 Max.					
SB450	t ≤ 25	0.28 Max.	0.15~0.40	0.90 Max.	0.030 Max.	0.030 Max.	-
	25 < t ≤ 50	0.31 Max.					
	50 < t ≤ 200	0.33 Max.					
SB480	t ≤ 25	0.31 Max.	0.15~0.40	0.90 Max.	0.030 Max.	0.030 Max.	-
	25 < t ≤ 50	0.33 Max.					
	50 < t ≤ 200	0.35 Max.					
SB450M	t ≤ 25	0.18 Max.	0.15~0.40	0.90 Max.	0.030 Max.	0.030 Max.	0.45~0.60
	25 < t ≤ 50	0.21 Max.					
	50 < t ≤ 100	0.23 Max.					
	100 < t ≤ 150	0.25 Max.					
SB480M	t ≤ 25	0.20 Max.	0.15~0.40	0.90 Max.	0.030 Max.	0.030 Max.	0.45~0.60
	25 < t ≤ 50	0.23 Max.					
	50 < t ≤ 100	0.25 Max.					
	100 < t ≤ 150	0.27 Max.					

※ Prior discussion is required when thickness is over 83mm

ASTM A285 Pressure Vessel Plates, Carbon Steel, Low-and Intermediate-Tensile Streng

Specifications	Chemical Compositions (%)				
	C	Mn	P	S	Cu(??)
A285A	0.17 Max.	0.90 Max.	0.035 Max.	0.035 Max.	0.20~0.35
A285B	0.22 Max.	0.90 Max.	0.035 Max.	0.035 Max.	0.20~0.35
A285C	0.28 Max.	0.90 Max.	0.035 Max.	0.035 Max.	0.20~0.35

※ Maximum limit of thickness is 50 ton.

ASTM A515 Pressure Vessel Plates, Carbon Steel, for Intermediate-and Higher-Temperature Service

Specifications	Chemical Compositions (%)					
	C					Si
	Thickness inch(mm)					
	t ≦ 1(25)	1(25)< t ≦ 2(50)	2(50)< t ≦ 4(100)	4(100)< t ≦ 8(200)	8(200) < t	
A515-60	0.24 Max.	0.27 Max.	0.29 Max.	0.31 Max.	0.31 Max.	0.15~0.40
A515-65	0.28 Max.	0.31 Max.	0.33 Max.	0.33 Max.	0.33 Max.	0.15~0.40
A515-70	0.31 Max.	0.33 Max.	0.35 Max.	0.35 Max.	0.35 Max.	0.15~0.40

※ Max. 93mm

Tensile Test				Bending Test	
Minimum Yield Point MPa(kgf/mm²)	Tensile Strength MPa(kgf/mm²)	Minimum Elongation Test Piece	Minimum Elongation %	Thickness (mm)	Inside Radius/ Thickness
225 (23)	410~550 (42~56)	No. 1A	21	t ≦ 25	0.50
		No. 10A	25	25 〈 t ≦ 50	0.75
				50 〈 t ≦ 100	1.00
				100 〈 t ≦ 150	1.25
245 (25)	450~590 (46~60)	No. 1A	19	t ≦ 25	0.75
		No. 10A	23	25 〈 t ≦ 100	1.00
				100 〈 t ≦ 200	1.25
265 (27)	480~620 (49~63)	No. 1A	17	t ≦ 25	1.00
		No. 10A	21	25 〈 t ≦ 50	1.00
				50 〈 t ≦ 100	1.25
				100 〈 t ≦ 150	1.50
255 (26)	450~590 (46~60)	No. 1A	19	t ≦ 25	0.50
		No. 10A	23	25 〈 t ≦ 100	0.75
				100 〈 t ≦ 150	1.00
275 (28)	480~620 (49~63)	No. 1A	17	t ≦ 25	0.75
		No. 10A	21	25 〈 t ≦ 100	1.00
				100 〈 t ≦ 150	1.25

※ Bending test may be skipped when no request from client

Tensile Test			
Tensile Strength KSi(kgf/mm²)	Minimum Yield Point KSi(kgf/mm²)	Minimum Elongation GL = 8″(200m)	Minimum Elongation GL = 2″(50m)
45~65 (310~450)	24 (165)	27	30
50~70 (345~485)	27 (185)	25	28
55~75 (380~515)	30 (205)	23	27

Chemical Compositions (%)			Tensile Test			
Mn	P	S	Minimum Yield Point MPa(kgf/mm²)	Tensile Strength MPa(kgf/mm²)	Minimum Elongation GL = 8″(200m)	Minimum Elongation GL = 2″(50m)
0.90 Max.	0.035 Max.	0.035 Max.	60~80 (415~550)	32 (220)	21	25
0.90 Max.	0.035 Max.	0.035 Max.	65~85 (450~585)	35 (240)	19	23
1.20 Max.	0.035 Max.	0.035 Max.	70~90 (485~620)	38 (260)	17	21

ASTM A516 Pressure Vessel Plates, Corbon Steel, for Moderate-and Lower-Temperature Ser

Specifications	Chemical Compositions (%)							
	C Thickness inch(mm)					Si	Mn Thickness inch(mm)	
	t≤1/2(12.5)	1/2(12.5)<t≤2(50)	2(50)<t≤4(100)	4(100)<t≤8(200)	8(200)<t		t≤1/2(12.5)	1/2(12.5)<t
A516-55	0.18 Max.	0.20 Max.	0.22 Max.	0.24 Max.	0.26 Max.	0.15~0.40	0.60~0.90	0.60~1.20
A516-60	0.21 Max.	0.23 Max.	0.25 Max.	0.27 Max.	0.27 Max.	0.15~0.40	0.60~0.90*	0.85~1.20
A516-65	0.24 Max.	0.26 Max.	0.28 Max.	0.29 Max.	0.29 Max.	0.15~0.40	0.85~1.20	0.85~1.20
A516-70	0.27 Max.	0.28 Max.	0.30 Max.	0.31 Max.	0.31 Max.	0.15~0.40	0.85~1.20	0.85~1.20

- Remark : Max thickness 100mm
- Other requests(ingredients, SR treatment, Ceq, heat treatment, impact request, etc) requires prior discussion.
- Grade 60 with thickness 12.5mm or below, Mn of 0.85-1.25 available
- Anti-HIC steel products of A516-60/70 is available (strong acid guaranteed, Max50.0t)

* Mn of 0.85~1.20% available)

-Grade 60/65/70 : For each reduction of 0.01% below the specified maximum for Carbon, increase of 0.06% Mn above the specified maximum for Mn is permitted, up to maximum 1.50%

ASTM A537 Pressure Vessel Plates, Heat-Treated, C-Mn-Si Steel

Specifications	Chemical Compositions (%)							
	C	Si	Mn Thickness inch(mm)		P	S	Cu	Ni
			t ≤ 40	40 < t				
A537-1	0.24 Max.	0.15~0.50	0.70~1.35*	1.00~1.60	0.035 Max.	0.035 Max.	0.35 Max.	0.25 Max.*
A537-2	0.24 Max.	0.15~0.50	0.70~1.35*	1.00~1.60	0.035 Max.	0.035 Max.	0.35 Max.	0.25 Max.*

* Mn, Ni : while Ceq ≤ 0.57, Mn ≤ 1.6%, Ni ≤ 0.5% available

Chemical Compositions (%)		Tensile Test				Heat Treatment
P	S	Tensile Strength KSi(kgf/mm²)	Minimum Yield Point KSi(kgf/mm²)	Minimum Elongation(%) GL = 8″(200m)	Minimum Elongation(%) GL = 2″(50m)	
0.035 Max.	0.035 Max.	55~75 (380~515)	30 (205)	23	27	t ≧ 1½ inch (40.01mm) NOR.
0.035 Max.	0.035 Max.	60~80 (415~550)	32 (220)	21	25	
0.035 Max.	0.035 Max.	65~85 (450~585)	35 (240)	19	23	
0.035 Max.	0.035 Max.	70~90 (485~620)	38 (260)	17	21	

Chemical Compositions (%)		Thickness inch (mm)	Tensile Test				
Cr	Mo		Minimum Yield Point KSi(kgf/mm²)	Tensile Strength KSi(kgf/mm²)	Minimum Yield Point KSi(kgf/mm²)	Minimum Elongation(%) GL = 8″ (200m)	Minimum Elongation(%) GL = 2″ (50m)
0.25 Max.	0.08 Max.	NOR.	t≦65	70~90(485~620)	50 (345)	18	22
			65<t≦100	65~85(450~585)	45 (310)		
0.25 Max.	0.08 Max.	QT	t≦65	80~100(550~690)	60 (415)	–	t≦100 : 22 t<100 : 20
			65<t≦100	75~95(515~655)	55 (380)		
			100<t≦150	70~90(485~620)	46 (315)		

JIS G 3103 [SB, SB-M] Carbon Steel and Molybdenum Alloy Steel Plate for Boilers and Other Pressure Vessels

Specifications	Chemical Compositions (%)						
	Thickness(mm)	C	Si	Mn	P	S	Mo
SB410	t≦25	0.24 Max.	0.15~0.30	0.90 Max.	0.030 Max.	0.030 Max.	–
	25<t≦50	0.27 Max.					
	50<t≦200	0.30 Max.					
SB450	t≦25	0.28 Max.	0.15~0.30	0.90 Max.	0.030 Max.	0.030 Max.	–
	25<t≦50	0.31 Max.					
	50<t≦200	0.33 Max.					
SB480	t≦25	0.31 Max.	0.15~0.30	0.90 Max.	0.030 Max.	0.030 Max.	–
	25<t≦50	0.33 Max.					
	50<t≦200	0.35 Max.					
SB450M	t≦25	0.18 Max.	0.15~0.30	0.90 Max.	0.030 Max.	0.030 Max.	0.45~0.60
	25<t≦50	0.21 Max.					
	50<t≦100	0.23 Max.					
	100<t≦150	0.25 Max.					
SB480M	t≦25	0.20 Max.	0.15~0.30	0.90 Max.	0.030 Max.	0.030 Max.	0.45~0.60
	25<t≦50	0.23 Max.					
	50<t≦100	0.25 Max.					
	100<t≦150	0.27 Max.					

JIS G 3115 [SPV] Steel Plate for Pressure Vessels for Intermediate Temperature Service

Specifications	Chemical Compositions (%)						
	C	Si	Mn	P	S	Ceq	Pcm
SPV235	t ≦ 100 : 0.18 Max. t > 100 : 0.20 Max.	0.35 Max.	1.40 Max.	0.030 Max.	0.030 Max.	–	–
SPV315	0.18 Max.	0.55 Max.	1.60 Max.	0.030 Max.	0.030 Max.	–	–
SPV355	0.20 Max.	0.55 Max.	1.60 Max.	0.030 Max.	0.030 Max.	–	–
SPV410	0.18 Max.	0.75 Max.	1.60 Max.	0.030 Max.	0.030 Max.	–	–
SPV450	0.18 Max.	0.75 Max.	1.60 Max.	0.030 Max.	0.030 Max.	t≦50㎜:0.44 Max. 50㎜<t≦75㎜ : 0.46Max.	t≦50㎜:0.28 Max. 50㎜<t≦150㎜ : 0.30Max.
SPV490	0.18 Max.	0.75 Max.	1.60 Max.	0.030 Max.	0.030 Max.	t≦50㎜:0.45 Max. 50㎜<t≦75㎜ : 0.47Max.	t≦50㎜:0.28 Max. 50㎜<t≦150㎜ : 0.30Max.

※ Ceq(%)=C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

※ Pcm(%)=C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B

Tensile Test				Bending Test		
Tensile Strength(MPa)	Minimum Yield Point(MPa)	Minimum Elongation(%)	Test Piece	Bend Angle	Thickness(mm)	Inside Radius
410~550	225	21 25	No. 1A No. 10A	180°	t ≦ 25 25 〈 t ≦ 50 50 〈 t ≦ 100 100 〈 t ≦ 200	0.50 t 0.75 t 1.00 t 1.25 t
450~590	245	19 23	No. 1A No. 10A	180°	t≦25 25〈t≦50 100〈t≦200	0.75 t 1.00 t 1.25 t
480~620	265	17 21	No. 1A No. 10A	180°	t ≦ 25 25 〈 t ≦ 50 50 〈 t ≦ 100 100 〈 t ≦ 200	1.00 t 1.00 t 1.25 t 1.50 t
450~590	255	19 23	No. 1A No. 10A	180°	t≦25 25〈t≦50 100〈t≦200	0.50 t 0.75 t 1.00 t
480~620	275	17 21	No. 1A No. 10A	180°	t≦25 25〈t≦50 100〈t≦200	0.75 t 1.00 t 1.25 t

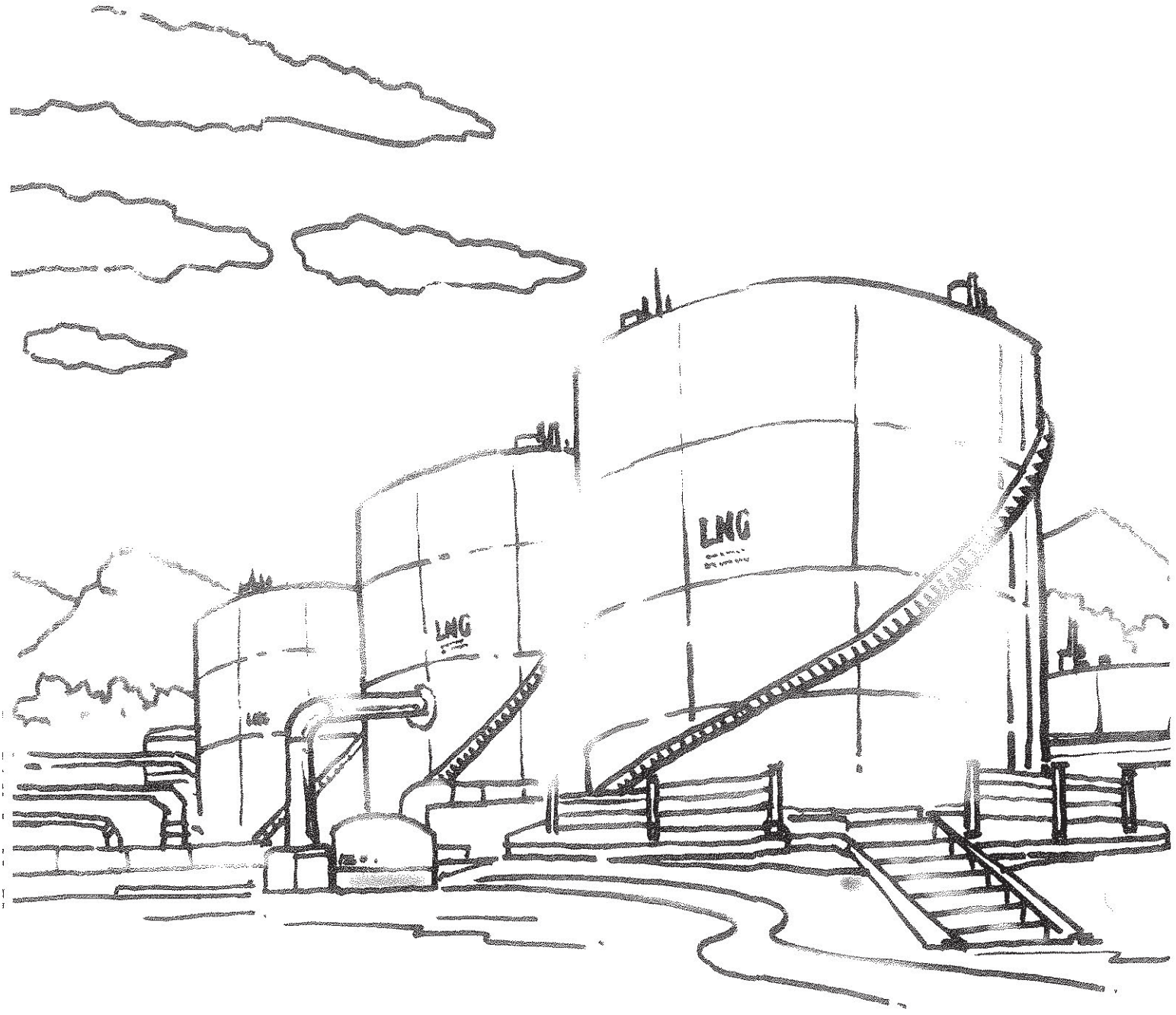
※ Bending test may be skipped when no request from client

Tensile Test							Bending Test		Impact Test		
Minimum Yield Point(MPa) Thickness(mm)			Tensile Strength (MPa)	Minimum Elongation			Bend Angle	Inside Radius	Test Temperature (°C)	Minimum Charpy Absorbed Energy Kgf · m(J)	
6〈t≦50	50〈t≦100	100〈t≦200		Thickness (mm)	%	Test Piece				Average	Individua
235	215	195	400~510	t≦16 16〈t≦40 40 〈 t	17 21 24	No. 1A No. 1A No. 4	180°	t≦50㎜:1.0t t〉50㎜:1.5t	0	4.8(47)	2.8(27)
315	295	–	490~610	t≦16 16〈t≦40 40 〈 t	16 20 23	No. 1A No. 1A No. 4	180°	1.5 t	0	4.8(47)	2.8(27)
355	335	–	520~640	t≦16 16〈t≦40 40 〈 t	14 18 21	No. 1A No. 1A No. 4	180°	1.5 t	0	4.8(47)	2.8(27)
410	390	–	550~670	t≦16 16〈t≦40 40 〈 t	12 16 18	No. 1A No. 1A No. 4	180°	1.5 t	–10	4.8(47)	2.8(27)
450	430	–	570~700	t≦16 16〈t≦20 20 〈 t	19 26 20	No. 5 No. 5 No. 4	180°	1.5 t	–10	4.8(47)	2.8(27)
490	470	–	610~740	t≦16 16〈t≦20 20 〈 t	18 25 19	No. 5 No. 5 No. 4	180°	1.5 t	–10	4.8(47)	2.8(27)

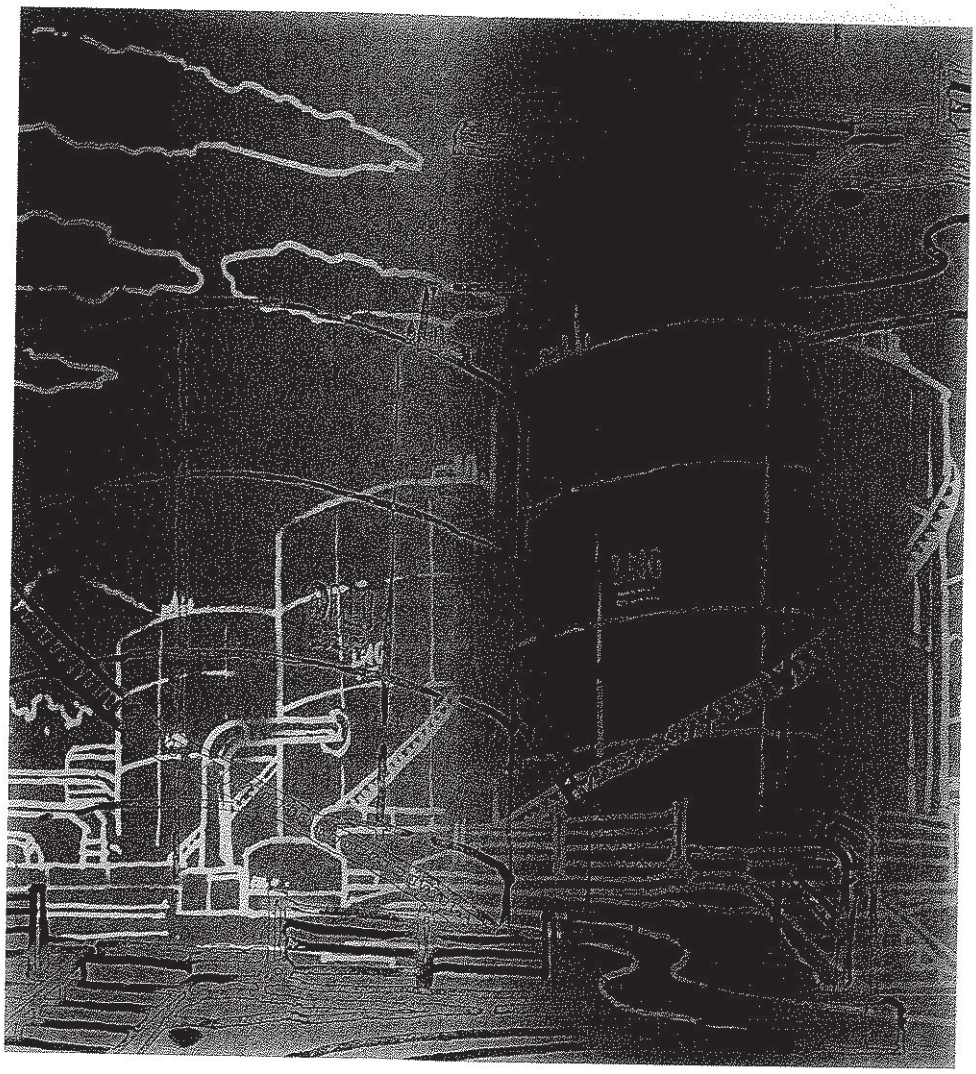
JIS G 3118 [SGV] Carbon Steel Plates for Use of Intermediate and Moderate Temperature Pressure Vessel

Specifications	Thickness(mm)	Chemical Compositions (%) C	Si	Mn	P	S
SGV410	t ≤ 12.5	0.21 Max.	0.15~0.40	0.85~1.20	0.030 Max.	0.030 Max.
	12.5 < t ≤ 50	0.23 Max.				
	50 < t ≤ 100	0.25 Max.				
	100 < t ≤ 200	0.27 Max.				
SGV450	t ≤ 12.5	0.24 Max.	0.15~0.40	0.85~1.20	0.030 Max.	0.030 Max.
	12.5 < t ≤ 50	0.26 Max.				
	50 < t ≤ 100	0.28 Max.				
	100 < t ≤ 200	0.29 Max.				
SGV480	t ≤ 12.5	0.27 Max.	0.15~0.40	0.85~1.20	0.030 Max.	0.030 Max.
	12.5 < t ≤ 50	0.28 Max.				
	50 < t ≤ 100	0.30 Max.				
	100 < t ≤ 200	0.31 Max.				

Tensile Test				Bending Test		
Minimum Yield Point(MPa)	Tensile Strength(MPa)	Minimum Elongation(%)	Test Piece	Bend Angle	Thickness(mm)	Inside Radius
225	410~490	21	No. 1A	180°	t ≦ 25	0.5 t
					25 〈 t ≦ 50	0.75 t
		25	No. 10A		50 〈 t ≦ 100	1.0 t
					100 〈 t ≦ 200	1.25 t
245	450~540	19	No. 1A	180°	t ≦ 25	0.75 t
					25 〈 t ≦ 50	1.0 t
		23	No. 10A		50 〈 t ≦ 100	1.0 t
					100 〈 t ≦ 200	1.25 t
265	480~590	17	No. 1A	180°	t ≦ 25	1.0 t
					25 〈 t ≦ 50	1.0 t
		21	No. 10A		50 〈 t ≦ 100	1.25 t
					100 〈 t ≦ 200	1.5 t


LNG
LNG

STEEL PLATES FOR PRESSURE VESSELS FOR LOW TEMPERATURE SERVICE



POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

JIS G 3126 [SLA] Carbon Plates for Pressure Vessels for Low Temperature Service

Specifications	Chemical Compositions (%3)						Tensile Test	
	C	Si	Mn	P	S	Heat Treatment	Minimum Yield Point(MPa)	Tensile Strength(MPa)
SLA235A SLA235B	0.15 Max.	0.30 Max.	0.70~1.50	0.025 Max.	0.020 Max.	NOR. or CR	t ≦ 40㎜ : 235 t 〉 40㎜ : 215	400 ~510
SLA325A SLA325B	0.16 Max.	0.55 Max.	0.80~1.60	0.025 Max.	0.020 Max.	NOR. or CR QT or CR	325	440~560
SLA365	0.18 Max.	0.55 Max.	0.80~1.60	0.025 Max.	0.020 Max.	QT or CR	365	490~610

Tensile Test			Bending Test		Impact Test				
Minimum Elongation(%)					Test Temperature(°C)				
Thickness (mm)	%	Test Piece	Bend Angle	Inside Radius	6<t≤8.5 10 x 5	8.5<t<11 10 x 7.5	11≤t≤20 10 x 10	20<t 10 x 10	Maximum Charpy Absorbed Energy kgf · m(J)
6<t≤16	18	No. 1A	180°	1.0 t	-5	-5	-5	-10	1/2 and over of maximum absorbed energy
16<t 40<t≤50	22 24	No. 1A No. 4			-30	-20	-15	-30	
6<t≤16	22	No. 5	180°	1.5 t	-40	-30	-25	-35	
16<t 20<t≤32	30 22	No. 5 No. 4			-60	-50	-45	-55	
6<t≤16	20	No. 5	180°	1.5 t	-60	-50	-45	-55	
16<t 20<t≤32	28 20	No. 5 No. 4							

ASTM A387 Pressure Vessel Plates, Alloy Steel, Cr-Mo

Specifications	Classification		Heat Treatment	Thickness	Chemical Compositions (%) C	Si	Mn	P	S
A387	12	1	NOR. & T or NACT	6≤t≤65	0.05~0.17(L) 0.04~0.17(P)	0.15~0.40(L) 0.13~0.45(P)	0.40~0.65(L) 0.35~0.73(P)	0.035 Max.	0.035 Max.
		2							
	11	1		6≤t≤65	0.05~0.17(L) 0.04~0.17(P)	0.50~0.80(L) 0.44~0.86(P)	0.40~0.65(L) 0.35~0.73(P)	0.035 Max.	0.035 Max.
		2							
	22	1		6≤t≤65	0.05~0.15(L) 0.04~0.15(P)	0.50 이하(L) 0.50 이하(P)	0.30~0.60(L) 0.25~0.66(P)	0.035 Max.	0.035 Max.
		2							

※ L : Ladle analysis, P : Product analysis

※ NACT : NOR + Accelerated cooling + Tempering

ASTM A203, A553-1 Hi-Ni Pressure Vessel Plates Alloy Steel, Ni

Specifications	Thickness	Chemical Compositions (%) C		Mn		Si	P	S	Ni
		t ≤ 50	50 < t	t ≤ 50	50 < t				
A203-D		0.17 Max.	0.20 Max.	0.70 Max.	0.80 Max.	0.15~0.40	0.035 Max.	0.035 Max.	3.25~3.75
A203-E		0.20 Max.	0.23 Max.	0.70 Max.	0.80 Max.	0.15~0.40	0.035 Max.	0.035 Max.	3.25~3.75
A553-1		0.13 Max.		0.90 Max.		0.15~0.40	0.035 Max.	0.035 Max.	8.50~9.50

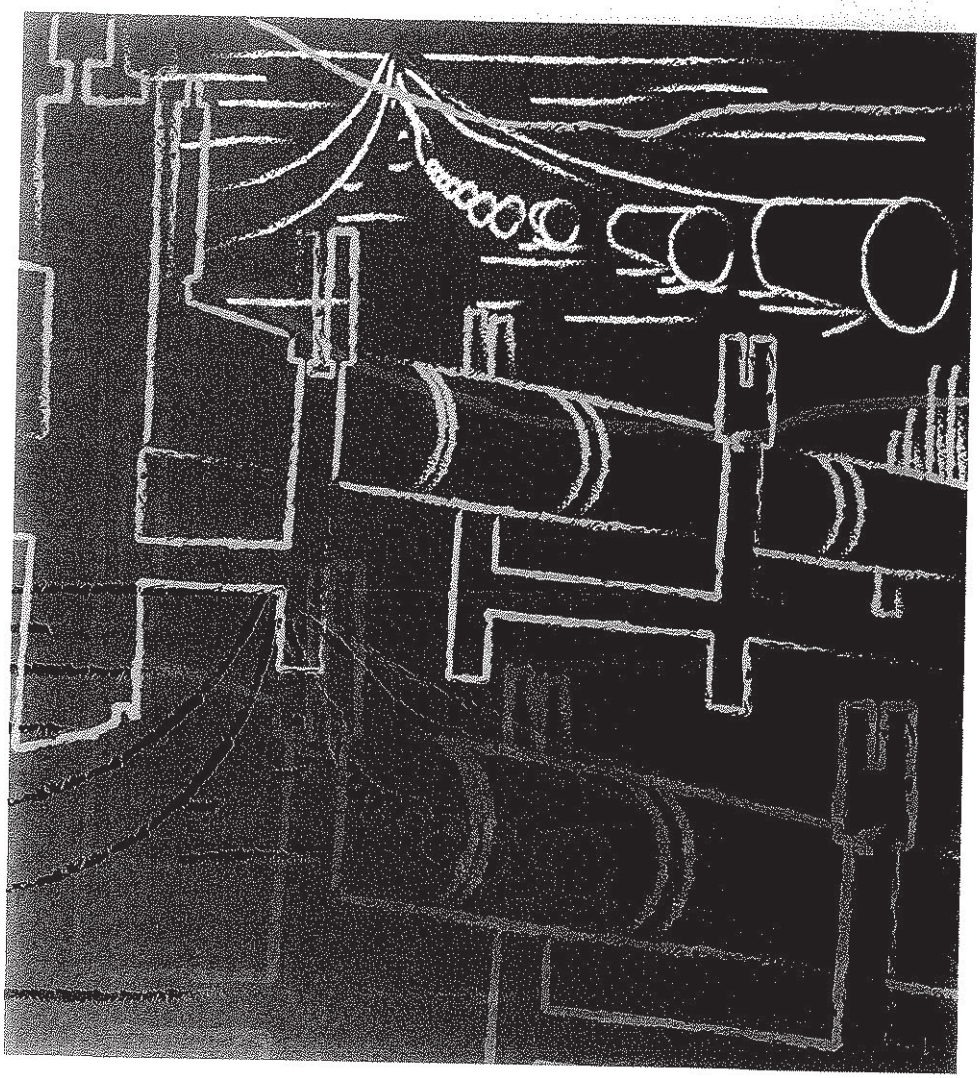
※ specification of residual ingredients besides above follows ASTM A20 Minimum width expansion

Chemical Compositions (%)		Tensile Test			
Cr	Mo	Minimum Yield Point Ksi(MPa)	Tensile Strength KsiMPa)	Minimum Elongation(%) GL(inch)	%
0.80~1.15(L)	0.45~0.60(L)	Class 1 33(230)	55~80 (380~550)	8 2	18 22
0.74~1.21(P)	0.40~0.65(P)	Class 2 40(275)	65~85 (450~585)	8 2	19 22
1.00~1.50(L)	0.45~0.65(L)	Class 1 35(240)	60~85 (415~585)	8 2	19 22
0.94~1.56(P)	0.40~0.70(P)	Class 2 45(310)	75~100 (515~690)	8 2	18 22
2.00~2.50(L)	0.90~1.10(L)	Class 1 30(205)	60~85 (415~585)	2	Shrankage ratio: Globe 45 / Flat 40
1.88~2.62(P)	0.85~1.15(P)	Class 2 45(310)	75~100 (515~690)	2	Shrankage ratio: Globe 45 / Flat 40

Tensile Test				Impact Test			
Tensile Strength (MPa)	Minimum Yield Point(MPa)	Minimum Elongation(%) GL=200mm	GL=50mm	Test Temperature (°C)	Maximum Charpy Absorbed Energy (J) Average	Individua	Minimum Width Expansion (mm)
450~585	255	19	23	–	–	–	–
485~620	275	17	21	–	–	–	–
690~825	585	–	20	-196	27	27	0.381

※ Applied manufacturing method: NOR for A203-D, E and QT for A553-1

STEEL PLATES FOR LINE PIPE



POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

API-5L Steel Pipe for Pipeline Transportation System (API 5L 44th edition)

Steel Grade (Specifications) PSL1	Chemical Compositions (%)						
	C Max.	Mn Max.	P Max.	S Max.	V Max.	Nb Max.	Ti Max.
API-B	0.26	1.20	0.030	0.030	a, b	a, b	b
API-X42	0.26	1.30	0.030	0.030	b	b	b
API-X46	0.26	1.40	0.030	0.030	b	b	b
API-X52	0.26	1.40	0.030	0.030	b	b	b
API-X56	0.26	1.40	0.030	0.030	b	b	b
API-X60	0.26	1.40	0.030	0.030	c	c	c
API-X65	0.26	1.45	0.030	0.030	c	c	c
API-X70	0.26	1.65	0.030	0.030	c	c	c

a : Unless otherwise agreed, the sum of the niobium and vanadium contents shall be $\leq$ 0.06 %.

b : The sum of the niobium, vanadium and titanium concentrations shall be $\leq$ 0.15 %.

c : Unless otherwise agreed, the sum of the niobium, vanadium and titanium concentrations shall be $\leq$ 0.15 %.

Tensile Test		
Yield Point MPa(psi)	Tensile Strength MPa(psi)	Minimum Elongation(%)
245 (30 500)	415 (60 200)	
290 (42 100)	415 (60 200)	
320 (46 400)	435 (63 100)	
360 (52 200)	460 (66 700)	$A_f = C\frac{A_{xc}^{0.2}}{U^{0.9}}$
390 (56 600)	490 (71 100)	
415 (60 200)	520 (75 400)	
450 (65 300)	535 (77 600)	
485 (70 300)	570 (82 700)	

API-5L Steel Pipe for Pipeline Transportation System (API 5L 44th edition)

Steel Grade (Specifications) PSL2	Chemical Compositions (%)										
	C	Si	Mn	P	S	V	Nb	Ti	Other	Ceq	Pcm
API-BM	0.22	0.45	1.20	0.025	0.015	0.05	0.05	0.04	a	0.43	0.25
API-X42M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	a	0.43	0.25
API-X46M	0.22	0.45	1.30	0.025	0.015	0.05	0.05	0.04	a	0.43	0.25
API-X52M	0.22	0.45	1.40	0.025	0.015	b	b	b	a	0.43	0.25
API-X56M	0.22	0.45	1.40	0.025	0.015	b	b	b	a	0.43	0.25
API-X60M	0.12	0.45	1.60	0.025	0.015	c	c	c	d	0.43	0.25
API-X65M	0.12	0.45	1.60	0.025	0.015	c	c	c	d	0.43	0.25
API-X70M	0.12	0.45	1.70	0.025	0.015	c	c	c	d	0.43	0.25
API-X80M	0.12	0.45	1.85	0.025	0.015	c	c	c	e	0.43	0.25
API-X90M	0.10	0.55	2.10	0.020	0.010	c	c	c	e		0.25
API-X100M	0.10	0.55	2.10	0.020	0.010	c	c	c	e, f	-	0.25
API-X120M	0.10	0.55	2.10	0.020	0.010	c	c	c	e, f		0.25

a : Unless otherwise ageed, 0.50% maximum for copper, 0.30% maximum for nickel, 0.30% maximum for chromium and 0.15% maximum for molybdenum.

b : The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15 %.

c : Unless otherwise agreed, the sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15 %.

d : Unless otherwise ageed, 0.50% maximum for copper, 0.50% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybdenum.

e : Unless otherwise ageed, 0.50% maximum for copper, 1.00% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybdenum.

f : 0.004% maximum for boron

Tensile Test					
Yield Point MPa(psi)		Tensile Strength MPa(psi)		Maximum Yield Ratio	Minimum Elongation(%)
Min.	Max.	Min.	Max.		
245 (35 500)	450 (65 300)	415 (60 200)	760 (110 200)	0.93	
290 (42 100)	495 (71 800)	415 (60 200)	760 (110 200)	0.93	
320 (46 400)	525 (76 100)	435 (63 100)	760 (110 200)	0.93	
360 (52 200)	530 (76 900)	460 (66 700)	760 (110 200)	0.93	
390 (56 600)	545 (79 000)	490 (71 100)	760 (110 200)	0.93	
415 (60 200)	565 (81 900)	520 (75 400)	760 (110 200)	0.93	$A_f = C\frac{A_{xc}^{0.2}}{U^{0.9}}$
450 (65 300)	600 (87 000)	535 (77 600)	760 (110 200)	0.93	
485 (75 300)	635 (92 100)	570 (82 700)	760 (110 200)	0.93	
555 (80 500)	705 (102 300)	625 (90 600)	825 (119 700)	0.93	
625 (90 600)	775 (112 400)	695 (100 800)	915 (132 700)	0.95	
690 (100 100)	840 (121 800)	760 (110 200)	990 (143 600)	0.97	
830 (120 400)	1050 (152 300)	915 (132 700)	1145 (166 100)	0.99	

※ Additional Test (Available on the agreement between manufacture and customer)
- Impact Test (Test temperature selection available)
- DWTT (Test temperature selection available)
- Bending Test
- Hardness Test
- UST

API-5L Steel Pipe for Pipeline Transportation System (API 5L 44th edition)

Steel Grade (Sour Service)	Chemical Compositions (%, Max.)										
	C	Si	Mn	P	S	V	Nb	Ti	Other	Ceq	Pcm
API-X52MS	0.10	0.45	1.45	0.020	0.002	0.05	0.06	0.04	–	–	0.20
API-X56MS	0.10	0.45	1.45	0.020	0.002	0.06	0.08	0.04	a	–	0.21
API-X60MS	0.10	0.45	1.45	0.020	0.002	0.08	0.08	0.06	a, b	–	0.21
API-X65MS	0.10	0.45	1.60	0.020	0.002	0.10	0.08	0.06	a, b, c	–	0.22
API-X70MS	0.10	0.45	1.60	0.020	0.002	0.10	0.08	0.06	a, b, c	–	0.22

a : The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.

b : If agreed, the molybdenum concentration shall be ≤ 0.35%.

c : If agreed, the chromium concentration shall be ≤ 0.45%.

Tensile Test					
Yield Point MPa(psi)		Tensile Strength MPa(psi)		Maximum Yield Ratio	Minimum Elongation(%)
Min.	Max.	Min.	Max.		
360 (52 200)	530 (76 900)	460 (66 700)	760 (110 200)	0.93	
390 (56 600)	545 (79 000)	490 (71 100)	760 (110 200)	0.93	
415 (60 200)	565 (81 900)	520 (75 740)	760 (110 200)	0.93	$A_f = C\frac{A_{xc}^{0.2}}{U^{0.9}}$
450 (65 300)	600 (87 000)	535 (77 600)	760 (110 200)	0.93	
485 (70 300)	635 (92 100)	570 (82 700)	760 (110 200)	0.93	

※ Additional Test (Available on the agreement between manufacture and customer)
- Impact Test (Test temperature selection available)
- DWTT (Test temperature selection available)
- Bending Test
- Hardness Test
- HIC Test
- SSCC Test
- UST

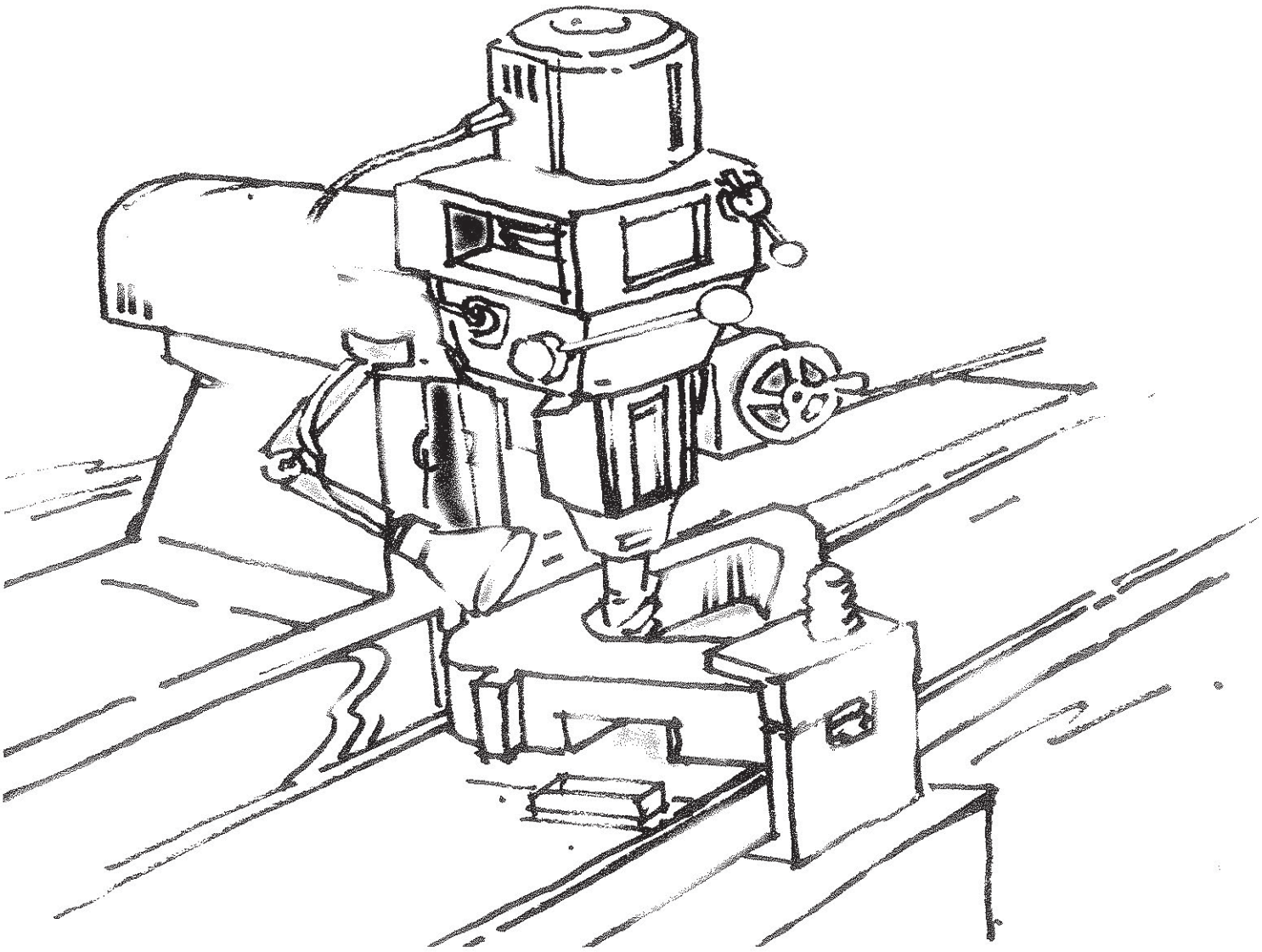
API-5L API-5L Steel Pipe for Pipeline Transportation System (API 5L 44th edition)

Steel Grade (off shore)	Chemical Compositions (%, Max.)										
	C	Si	Mn	P	S	V	Nb	Ti	Other	Ceq	Pcm
API-X52MO	0.12	0.45	1.65	0.020	0.010	0.05	0.05	0.04	a, b	-	0.20
API-X56MO	0.12	0.45	1.65	0.020	0.010	0.06	0.08	0.04	a, b	-	0.21
API-X60MO	0.12	0.45	1.65	0.020	0.010	0.08	0.08	0.06	a, b	-	0.21
API-X65MO	0.12	0.45	1.65	0.020	0.010	0.10	0.08	0.06	a, b	-	0.22
API-X70MO	0.12	0.45	1.75	0.020	0.010	0.10	0.08	0.06	a, b	-	0.22
API-X80MO	0.12	0.45	1.85	0.020	0.010	0.10	0.08	0.06	a, b	-	0.24

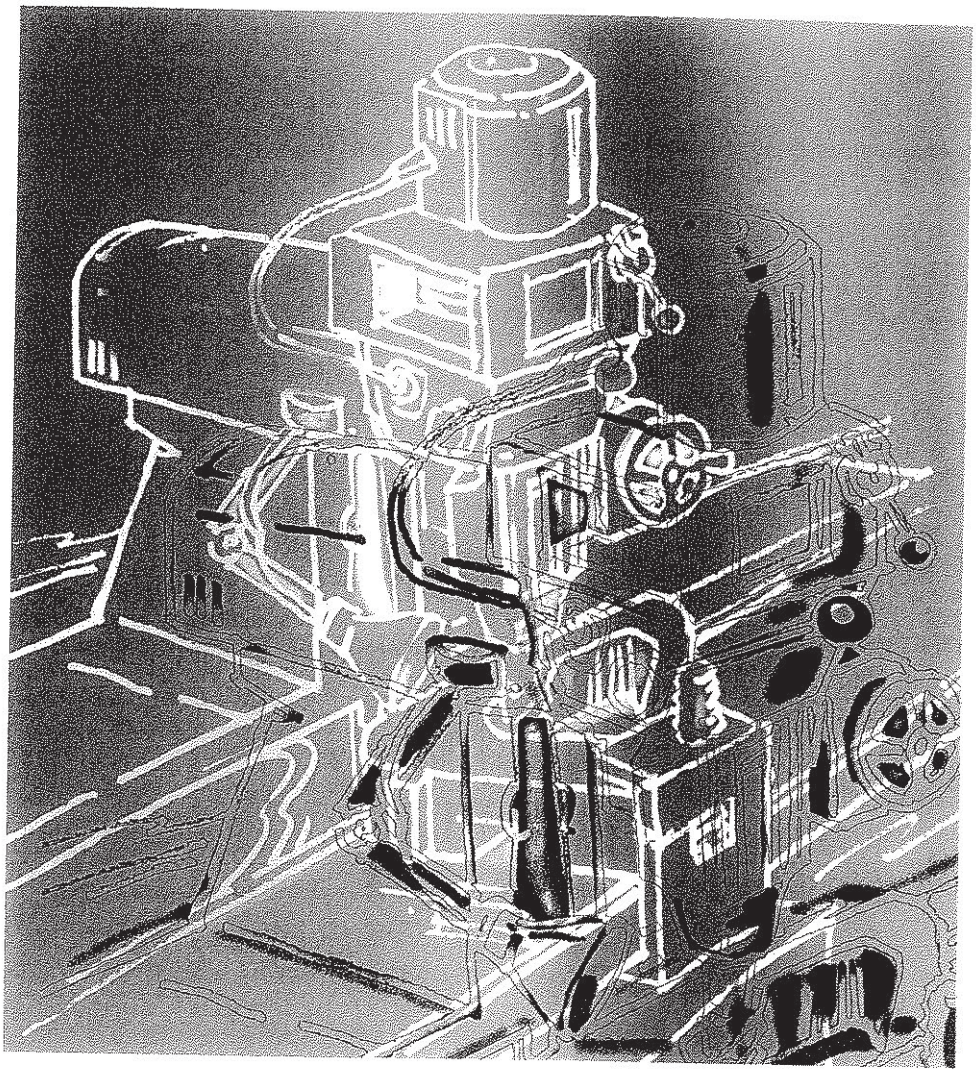
a : The sum of the niobium, vanadium and titanium concentrations shall be $\leq$ 0.15%.
b : Cu $\leq$ 0.50%; N $\leq$ .50%; Cr 0.50%; Mo $\leq$ 0.50%; B $\leq$ 0.0005%.

Tensile Test					
Yield Point MPa(psi)		Tensile Strength MPa(psi)		Maximum Yield Ratio	Minimum Elongation(%)
Min.	Max.	Min.	Max.		
360 (52 200)	525 (76 000)	460 (66 700)	760 (110 200)	0.93	
390 (56 600)	540 (78 300)	490 (71 100)	760 (110 200)	0.93	
415 (60 200)	565 (81 900)	520 (75 400)	760 (110 200)	0.93	
450 (65 300)	570 (82 700)	535 (77 600)	760 (110 200)	0.93	$A_t = C\frac{A_{xc}^{0.2}}{U^{0.9}}$
485 (70 300)	605 (87 700)	570 (82 700)	760 (110 200)	0.93	
555 (80 500)	675 (97 900)	625 (90 600)	825 (119 700)	0.93	

※ Additional Test (Available on the agreement between manufacture and customer)
- Impact Test (Test temperature selection available)
- DWTT (Test temperature selection available)
- Bending Test
- Hardness Test
- CTOD Test
- UST



STEEL PLATES FOR SPECIAL APPLICATIONS



POSCO is putting its best efforts to produce super quality of plates to meet the customer's need through quality design.

JIS G 4051 [S-C] Carbon Steel Sheet for Machine Structural Use

Specifications	Chemical Compositions (%)				
	C	Si	Mn	P	S
S10C	0.08 ~ 0.13	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S12C	0.10 ~ 0.15	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S15C	0.13 ~ 0.18	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S17C	0.15 ~ 0.20	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S20C	0.18 ~ 0.23	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S22C	0.20 ~ 0.25	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S25C	0.22 ~ 0.28	0.15 ~ 0.35	0.30 ~ 0.60	0.030 Max.	0.035 Max.
S28C	0.25 ~ 0.31	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S30C	0.27 ~ 0.33	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S33C	0.30 ~ 0.36	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S35C	0.32 ~ 0.38	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S38C	0.35 ~ 0.41	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S40C	0.37 ~ 0.43	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S43C	0.40 ~ 0.46	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S45C	0.42 ~ 0.48	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S48C	0.45 ~ 0.51	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S50C	0.47 ~ 0.53	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S53C	0.50 ~ 0.56	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Ma
S55C	0.52 ~ 0.58	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.
S58C	0.55 ~ 0.61	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.035 Max.

[POSMOLD] Mold Steel

Specifications	Chemical Compositions (%)					Remark
	C	Si	Mn	P	S	POSCOMOLD
POSMOLD1	0.47~0.53	0.15 ~ 0.35	0.60 ~ 0.90	0.030 Max.	0.020 Max.	POSCO
POSMOLD2	0.38~0.43	0.15 ~ 0.35	0.60 ~ 0.85	0.030 Max.	0.020 Max.	MOLDBASE

SAE Carbon Steel Plate for Structure

Specifications	Chemical Compositions (%)			
	C	Mn	P	S
1006	0.08 Max.	0.45 Max.	0.035 Max.	0.040 Max.
1008	0.10 Max.	0.50 Max.	0.035 Max.	0.040 Max.
1009	0.15 Max.	0.60 Max.	0.035 Max.	0.040 Max.
1010	0.08 ~ 0.13	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1012	0.10 ~ 0.15	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1015	0.12 ~ 0.18	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1016	0.12 ~ 0.18	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1017	0.14 ~ 0.20	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1018	0.14 ~ 0.20	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1019	0.14 ~ 0.20	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1020	0.17 ~ 0.23	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1021	0.17 ~ 0.23	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1022	0.17 ~ 0.23	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1023	0.19 ~ 0.25	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1025	0.22 ~ 0.28	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1026	0.22 ~ 0.28	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1030	0.27 ~ 0.31	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1033	0.29 ~ 0.36	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1035	0.31 ~ 0.38	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1037	0.31 ~ 0.38	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1038	0.31 ~ 0.42	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1039	0.36 ~ 0.41	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1040	0.36 ~ 0.44	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1042	0.39 ~ 0.47	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1043	0.39 ~ 0.47	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1045	0.42 ~ 0.50	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1046	0.42 ~ 0.50	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1049	0.45 ~ 0.53	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1050	0.47 ~ 0.55	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1055	0.52 ~ 0.60	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1060	0.55 ~ 0.66	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1064	0.59 ~ 0.70	0.50 ~ 0.80	0.035 Max.	0.040 Max.
1065	0.59 ~ 0.70	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1070	0.65 ~ 0.76	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1074	0.69 ~ 0.80	0.50 ~ 0.80	0.035 Max.	0.040 Max.
1075	0.69 ~ 0.80	0.40 ~ 0.70	0.035 Max.	0.040 Max.
1078	0.72 ~ 0.86	0.30 ~ 0.60	0.035 Max.	0.040 Max.
1080	0.74 ~ 0.88	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1084	0.80 ~ 0.94	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1085	0.80 ~ 0.94	0.70 ~ 1.00	0.035 Max.	0.040 Max.
1086	0.80 ~ 0.94	0.30 ~ 0.50	0.035 Max.	0.040 Max.
1090	0.84 ~ 0.98	0.60 ~ 0.90	0.035 Max.	0.040 Max.
1095	0.90 ~ 1.04	0.30 ~ 0.50	0.035 Max.	0.040 Max.

Hardenability Ensured Structural Steel Plates

JIS - SCM440

Specifications	C	Si	Mn	P	S	Cr	Mo
SCM440	0.37~0.44	0.15~0.35	0.55~0.90	0.030 Max.	0.030 Max.	0.85~1.25	0.15~0.35

AISI SAE4150

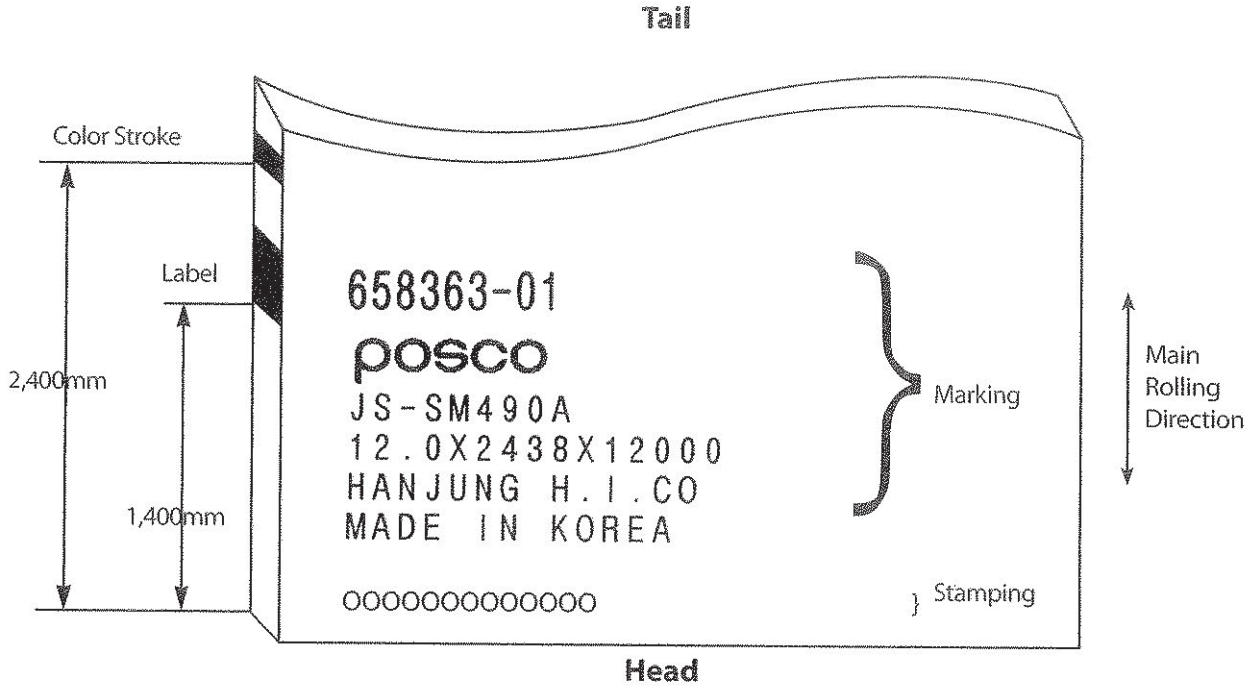
Specifications	C	Si	Mn	P	S	Cr	Mo
SAE4150	0.48~0.53	0.15~0.35	0.75~1.00	0.035 Max.	0.040 Max.	0.80~1.10	0.15~0.25

Abrasion Resistant Steel

Specifications	Thickness (mm)	Chemical Compositions (%, Max.)											
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	B	Ceq	Hardness(HB)
POSAR320	9≦t≦50	0.20 Max.	0.35 Max.	0.6 ~1.2	0.025 Max.	0.015 Max.	0.15 ~0.5	0.30 ~1.50	0.40 ~0.80	0.15 ~0.60	0.0005 Max.	0.70 Max.	320 Min.
POSAR360	10≦t≦50	0.20 Max.	0.35 Max.	0.6 ~1.2	0.025 Max.	0.015 Max.	–	0.40 ~1.50	0.40 ~0.80	0.15 ~0.60	0.005 Max.	0.70 Max.	360 Min.
POSAR400	12≦t≦50	0.25 Max.	0.55 Max.	0.6 ~1.2	0.025 Max.	0.015 Max.	–	–	0.40 ~1.20	0.10 ~0.50	–	0.76 Max.	400 Min.
POSAR500	20≦t≦50	0.25 Max.	0.55 Max.	1.20 Max.	0.025 Max.	0.015 Max.	–	–	0.40 ~1.20	0.10 ~0.50	–	0.76 Max.	477 Min.
POSAR360LC	12≦t≦40	0.18 Max.	0.1 ~0.5	0.6 ~1.4	0.025 Max.	0.015 Max.	0.1 Max.	0.5 Max.	0.2 ~0.8	0.1 ~0.6	0.0005 Max.	0.53 Max.	360 Min.

※ Ceq(%): C+Mn/6+Si/24+Ni/40+Cr/5+Mo/4+V/14

MARKING & ORDERING INFORMATION



Marking

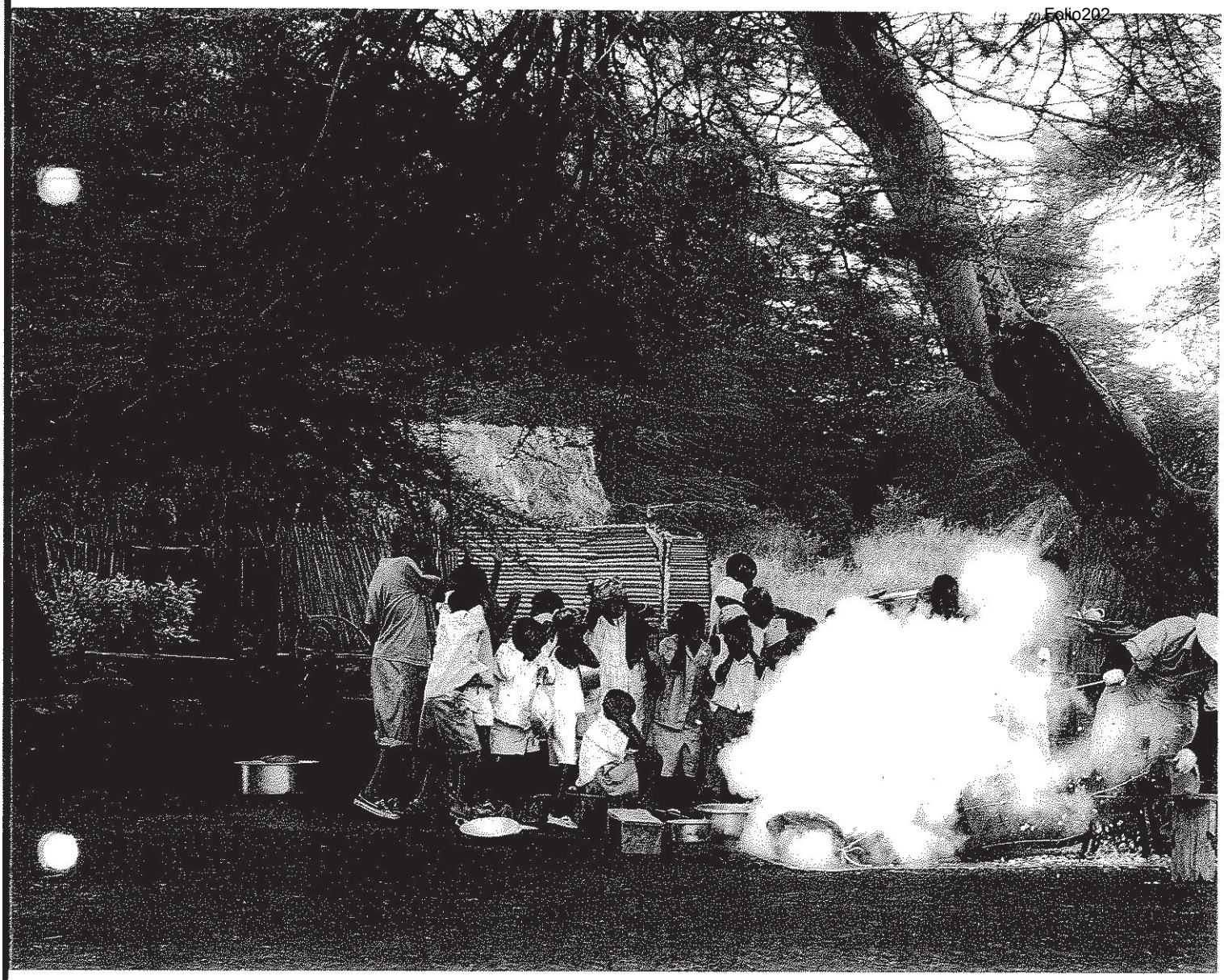
- POSCO uses DOT-type Paint Marking method. Customers can easily recognize their products due to high distinction.
- Marking can be done according to customers' requests such as specification, size, customer company name, and so forth.
- Side marking and color stroke (option) are also available.

Ordering Information

- Since plates are various in their usage fields, processing conditions and welding methods, steel selection shall be proceeded with full consideration of conditions, life spans, economy, and so forth. Special requirements on specifications shall be asked when orders are being placed, and most suitable-quality products will be produced if processing conditions and usages are clearly presented.

For more information, please contact us at the addresses given below.

Seoul Office : POSCO Center, #892, Daechi 4-dong, Gangnam-gu, Seoul 135-777, South Korea.
Tel: +82-2-3457-0114
Internet Homepage : www.posco.com
www.steel-n.com



The whole area of a village gets full of joys even only with some small grains!

In a small village, Manyara of Tanjania, having been clam, the whole village is hustling and bustling, today, thanks to only one popping machine from an unknown country.

A child having a bawl full of corns and another having no grains feel the same flutter in their hearts.

'Pop!' And then, the empty bawl of a child with no grains is also filled up with pop corns.

At the very moment when all the children' s bawls are full of white happiness evenly, smiles brighter than anyone' s over the world settle down on everyone' s face in the village.

We, only together, can move the world.

Appendix C-3

List Showing Each Type of Goods Export to Australia

List Showing Each Type of Goods Exported to Australia

OBS	Model (or Type)	Each Product Characteristics						
		Product code	Grade (Product Specification)	Thickness range	Width range	Length Range	Trimmed edge or untrimmed edge	Plate surface (Patterns in relief)
1	PJ AS3678-250 A1 A B S N							
2	PJ AS3678-250 A1 B B S N							
3	PJ AS3678-250 A1 C B S N							
4	PJ AS3678-250 A2 A B S N							
5	PJ AS3678-250 A2 B B S N							
6	PJ AS3678-250 A2 C B S N							
7	PJ AS3678-250 B3 A B S N							
8	PJ AS3678-250 B3 B B S N							
9	PJ AS3678-250 B3 C B S N							
10	PJ AS3678-250 C4 A B S N							
11	PJ AS3678-250 C4 B B S N							
12	PJ AS3678-250 C4 C B S N							
13	PJ AS3678-250 C5 A B S N							
14	PJ AS3678-250 C5 B B S N							
15	PJ AS3678-250 C5 C B S N							
16	PJ AS3678-250 E6 A B S N							
17	PJ AS3678-250 E6 B B S N							
18	PJ AS3678-250 E6 C B S N							
19	PJ AS3678-250 E7 A B S N							
20	PJ AS3678-250 E7 B B S N							

OBS	Model (or Type)	Each Product Characteristics						
		Product code	Grade (Product Specification)	Thickness range	Width range	Length Range	Trimmed edge or untrimmed edge	Plate surface (Patterns in relief)
21	PJ AS3678-250 E7 C A S N							
22	PJ AS3678-250 E7 C B S N							
23	PJ AS3678-250 E8 B B S N							
24	PJ AS3678-250 E8 C A S N							
25	PJ AS3678-250 E8 C B S N							
26	PJ AS3678-250 H9 A B S N							
27	PJ AS3678-250 H9 B B S N							
28	PJ AS3678-250 H9 C A S N							
29	PJ AS3678-250 H9 C B S N							
30	PJ AS3678-250 HT A B S N							
31	PJ AS3678-250 HT B B S N							
32	PJ AS3678-250 HU A B S N							
33	PJ AS3678-250 HU B B S N							
34	PJ AS3678-350 A1 B B S N							
35	PJ AS3678-350 A2 B B S N							
36	PJ AS3678-350 B3 A B S N							
37	PJ AS3678-350 B3 B B S N							
38	PJ AS3678-350 B3 C B S N							
39	PJ AS3678-350 C4 A B S N							
40	PJ AS3678-350 C4 B B S N							
41	PJ AS3678-350 C4 C B S N							
42	PJ AS3678-350 C5 B B S N							

OBS	Model (or Type)	Each Product Characteristics						
		Product code	Grade (Product Specification)	Thickness range	Width range	Length Range	Trimmed edge or untrimmed edge	Plate surface (Patterns in relief)
43	PJ AS3678-350 C5 C B S N							
44	PJ AS3678-350 E6 B B S N							
45	PJ AS3678-350 E6 C B S N							
46	PJ AS3678-350 E7 B B S N							
47	PJ AS3678-350 E8 B B S N							
48	PJ AS3678-350 H9 B B S N							
49	PJ AS3678-350 HT B B S N							
50	PJ AS3678-350 HU B B S N							
51	PJ POS-BIS20 A1 B B S N							
52	PJ POS-BIS20 C4 C B S N							
53	PJ POS-BIS20 C5 B B S N							
54	PJ POS-BIS20 C5 C B S N							
55	PJ POS-BIS52 A1 B B S N							
56	PJ POS-BIS52 A2 B B S N							
57	PJ POS-BIS52 B3 B B S N							
58	PJ POS-BIS52 C4 B B S N							

Appendix C-4

List of Reported Standard for Each Specification

List of Reported Standard for Each Specification

OBS	Standard Code	Description	Remark
1		Australian Standard	
2		European Standard	
3		American Standard	
4			
5			
6			
7			
8			
9		Canadian Standard	
10		Japanese Standard	
11		Korean Standard	
12		German Standard	
13		British Standard	
14		Norwegian Standard	
15		Italian Standard	
16		French Standard	
17		Russsian Standard	
18		Chinese Standard	
19		POSCO Standard	

Appendix C-5

Printouts of Computer File Named "Like Goods"

Model Match (Austrian Sales vs Domestic Sales)_Like Goods

OBS	Exported Model (or Type)	Domestic Model (or Type)	IDENTICAL?	DIFFERENCES	Remark
1	PJ AS3678-250 A1 A B S N				
2	PJ AS3678-250 A1 B B S N				
3	PJ AS3678-250 A1 C B S N				
4	PJ AS3678-250 A2 A B S N				
5	PJ AS3678-250 A2 B B S N				
6	PJ AS3678-250 A2 C B S N				
7	PJ AS3678-250 B3 A B S N				
8	PJ AS3678-250 B3 B B S N				
9	PJ AS3678-250 B3 C B S N				
10	PJ AS3678-250 C4 A B S N				
11	PJ AS3678-250 C4 B B S N				
12	PJ AS3678-250 C4 C B S N				
13	PJ AS3678-250 C5 A B S N				
14	PJ AS3678-250 C5 B B S N				
15	PJ AS3678-250 C5 C B S N				
16	PJ AS3678-250 E6 A B S N				
17	PJ AS3678-250 E6 B B S N				
18	PJ AS3678-250 E6 C B S N				
19	PJ AS3678-250 E7 A B S N				
20	PJ AS3678-250 E7 B B S N				
21	PJ AS3678-250 E7 C A S N				
22	PJ AS3678-250 E7 C B S N				

OBS	Exported Model (or Type)	Domestic Model (or Type)	IDENTICAL?	DIFFERENCES	Remark
23	PJ AS3678-250 E8 B B S N				
24	PJ AS3678-250 E8 C A S N				
25	PJ AS3678-250 E8 C B S N				
26	PJ AS3678-250 H9 A B S N				
27	PJ AS3678-250 H9 B B S N				
28	PJ AS3678-250 H9 C A S N				
29	PJ AS3678-250 H9 C B S N				
30	PJ AS3678-250 HT A B S N				
31	PJ AS3678-250 HT B B S N				
32	PJ AS3678-250 HU A B S N				
33	PJ AS3678-250 HU B B S N				
34	PJ AS3678-350 A1 B B S N				
35	PJ AS3678-350 A2 B B S N				
36	PJ AS3678-350 B3 A B S N				
37	PJ AS3678-350 B3 B B S N				
38	PJ AS3678-350 B3 C B S N				
39	PJ AS3678-350 C4 A B S N				
40	PJ AS3678-350 C4 B B S N				
41	PJ AS3678-350 C4 C B S N				
42	PJ AS3678-350 C5 B B S N				
43	PJ AS3678-350 C5 C B S N				
44	PJ AS3678-350 E6 B B S N				
45	PJ AS3678-350 E6 C B S N				
46	PJ AS3678-350 E7 B B S N				

OBS	Exported Model (or Type)	Domestic Model (or Type)	IDENTICAL?	DIFFERENCES	Remark
47	PJ AS3678-350 E8 B B S N				
48	PJ AS3678-350 H9 B B S N				
49	PJ AS3678-350 HT B B S N				
50	PJ AS3678-350 HU B B S N				
51	PJ POS-BIS20 A1 B B S N				
52	PJ POS-BIS20 C4 C B S N				
53	PJ POS-BIS20 C5 B B S N				
54	PJ POS-BIS20 C5 C B S N				
55	PJ POS-BIS52 A1 B B S N				
56	PJ POS-BIS52 A2 B B S N				
57	PJ POS-BIS52 B3 B B S N				
58	PJ POS-BIS52 C4 B B S N				

Appendix D-2

Sample Documentation for Two Domestic Sales

POSCO

PUBLIC RECORD

Sample Documentation for Domestic Sale

(1) Serial Number (SN):

(2) Invoice Number: [ ]

(3) Invoice Date: 20120404

(4) Quantity : 22.308 (MT)

(5) Customer Name: [ ]

POSCO

PUBLIC RECORD

Sample Documentation for Domestic Sale

(1) Serial Number (SN):

(2) Invoice Number: [ ]

(3) Invoice Date: 20121216

(4) Quantity : 55.42 (MT)

(5) Customer Name: [ ]

Appendix E-1

Calculation of Short-term Interest Rate

Calculation of Short-term Interest Rate (POSCO)

(Unit: Korean Won)

Year-Month	Ending Balance of Short-term borrowing	Interest Expense
2012-01		
2012-02		
2012-03		
2012-04		
2012-05		
2012-06		
2012-07		
2012-08		
2012-09		
2012-10		
2012-11		
2012-12		
Total	-	-
	(a)	(b)

Average Balance of Short-term Borrowings = (a) / 12 = _____ - (c)

Total Interest Expense = (b) = _____ - (d)

Short-term Interest Rate = (d) / (c) = [1.0% ~ 5.0%]

Appendix E-2

Duty Drawback Regulation

ACT ON SPECIAL CASES CONCERNING THE REFUNDMENT OF CUSTOMS DUTIES, ETC. LEVIED ON RAW MATERIALS FOR EXPORT

Wholly Amended by Act No. 5197, Dec. 30, 1996
Amended by Act No. 6305, Dec. 29, 2000
Act No. 7210, Mar. 22, 2004

Article 1 (Purpose)

The purpose of this Act is to stipulate special provisions of the Customs Act, the Provisional Import Surtax Act, the Special Consumption Tax Act, the Liquor Tax Act, the Traffic Tax Act, the Act on Special Agricultural and Fishing Villages Tax and the Education Tax Act (hereinafter referred to as the "Customs Act, etc."), the Framework Act on National Taxes, and the National Tax Collection Act, thereby to contribute to efficient support for export activities and balanced industrial development through proper implementation of refund of taxes paid on imported raw materials for use in export such as the customs duties, provisional import surtax, special consumption tax, liquor tax, traffic tax, agricultural and fishing villages special tax and education tax.

Article 2 (Definitions)

The definitions of the terms used in this Act shall be as follows:

1. The term "customs duties, etc." means the customs tax, provisional import surtax, special consumption tax, liquor tax, traffic tax, agricultural and fishing village special tax and education tax;
2. The term "export, etc." means, notwithstanding the provisions of the Customs Act, etc., those as provided in each subparagraph of Article 4;
3. The term "export goods" means goods offered for the purpose of export, etc.;
4. The term "required amount" means the amount of raw materials re-

quired in the production of goods for export (including the manufacturing, assembling, repair, recycling, or remodeling of export goods; hereinafter the same shall apply) including the amount of normal loss and wear from production processing;

5. The term "refund" means the refund, to the exporter or the producer of export goods, of the customs duties, etc. which are paid at the time of import of raw material for use in export or assessed to be paid later, according to Article 3 of this Act, notwithstanding the Customs Act, etc.; and
6. The term "settlement of accounts" means to offset the customs duties, etc. which are to be paid on raw materials imported for use in export *en bloc* for each specified period pursuant to Article 5 (2) against the payment of the refund account being withheld pursuant to Article 16 (3).

Article 3 (Raw Materials Subject to Refund)

(1) The raw materials for which the customs duties, etc. may be refunded (hereinafter referred to as "raw materials for export") shall be those which fall under any of the following subparagraphs:

1. In case where a product is manufactured for export, raw materials required for composition of the final product through physical combination with export goods or chemical reaction, etc. in the process of physical/chemical change or alteration; and
2. Export goods offered for export in the same condition as imported.

(2) If raw material produced domestically having the same quality and characteristics as that of imported raw material is used indiscriminately in the production process of export goods because it is mutually substitutable, it shall be treated as if raw materials for export have been used.

Article 4 (Exports, etc. Subjected to Refund)

The exports, etc. for which the customs, etc. on raw materials for export may be refunded shall be those which fall under any of the following subparagraphs: *〈Amended by Act No. 7210, Mar. 22, 2004〉*

1. The exports for which the export report has been accepted according to the provisions of the Customs Act: *Provided*, That exports free of charge shall be limited to such exports as prescribed by the Ordinance of the Prime Minister;

2. Of the transactions or construction work performed domestically in country for payment in foreign currency, those prescribed by the Ordinance of the Prime Minister;
3. Supplies to a resident enterprise in a district as prescribed by the Ordinance of the Prime Minister from among the bonded districts designated under the Customs Act or the free export zone under the Act on Designation and Operation of Free Trade Zones; and
4. Other transactions recognized as exports and prescribed by the Ordinance of Prime Minister.

Article 5 (Collection of Customs Duties, etc. on Raw Materials for Export)

(1) The head of a customhouse, notwithstanding the provisions of the Customs Act, etc., shall collect the customs duties, etc. on imported raw materials for export at the time of the import thereof.

(2) In case a person applies for a permit to import raw materials for export, the head of a customhouse, notwithstanding the provisions of the Customs Act, etc., may have him pay the customs duties, etc. on such raw materials in lump sum by the specified period as prescribed by the Presidential Decree (hereinafter referred to as "lump-sum payment period") within the limit of 6 months. In this case, the payment period of the customs duties, etc. shall be until the end of the following month of the day when the lump-sum payment period is terminated.

(3) In case when the Commissioner of the Korea Customs Service acknowledges the reasons for the lump-sum payment of the customs, etc. pursuant to paragraph (2) and for the settlement of accounts pursuant to Article 7 in regard to the transaction of raw materials for export which was traded through payment by local letters of credit or other similar documents as prescribed by the Ordinance of the Prime Minister (hereinafter referred to as "local letters of credit, etc."), notwithstanding the provisions of the Customs Act, etc., the supply of such raw materials for export by local letters of credit, etc. may be regarded as export and the purchase of the same materials by the same documents as import.

(4) The Commissioner of the Korea Customs Service may provide the standards and procedures necessary for the lump-sum payment of the customs duties, etc. pursuant to paragraph (2).

Article 6 (Furnishing of Security)

(1) A person who intends to pay *en bloc* the customs duties, etc. in lump-

sum pursuant to Article 5 (2) (hereinafter referred to as a "lump-sum payment enterprise") shall furnish a security in comparable amount as the tax amount to be paid in lump sum under the conditions as prescribed by the Presidential Decree.

(2) The customs collector may make a waiver, notwithstanding the provisions of the paragraph (1), of the furnishing of a security if the person is deemed free of impediment in assurance of obligation of the customs, etc., and designated under the conditions as prescribed by the Presidential Decree (hereinafter referred to as "clean credit enterprise"). In this case, the customs collector shall set the limit of the tax amount that is permissible to pay in lump sum without furnishing a security.

Article 7 (Settlement of Accounts for Customs Duties, etc. on Raw Materials for Export and Refund Money)

(1) A lump-sum payment enterprise shall offset the accounts of the customs payable in lump sum pursuant to Article 5 (2) as prescribed by the Presidential Decree, against the refund money the payment of which is reserved pursuant to Article 16 (3) under the conditions as prescribed by the Presidential Decree, and thereafter shall report the result of the account settlement to the customs collector (hereinafter referred to as "report on the settlement of accounts") before the date as prescribed by the Presidential Decree.

(2) A lump-sum payment enterprise, when found obligated to pay customs as a result of the settlement of accounts pursuant to paragraph (1), shall pay it within the payment period as prescribed in the latter part of Article 5 (2).

(3) The customs collector who has received the report on the account settlement pursuant to paragraph (1) and discovers an overdue refund shall immediately make payment of such refund money according to Article 16.

(4) The customs collector, when he learns of some surplus or deficit in the reported account settlement as a result of the examination on the matters reported pursuant to paragraph (1), may correct it.

Article 8 (*Ex Officio* Settlement of Accounts)

(1) The customs collector, in a case when any grounds develop as prescribed by the Presidential Decree, shall immediately settle the accounts of customs duties, etc., in order to assure the credit which is not yet

due until the date designated pursuant to the latter part of Article 5 (2) against the refund money which is being reserved pursuant to Article 16 (3). In this case, the lump-sum payment of the customs duties, etc. pursuant to Article 5 (2) may be restricted under the conditions as prescribed by the Presidential Decree.

(2) The customs collector, if he finds refund money payable as a result of the *ex officio* settlement of accounts, shall immediately make such payment according to Article 16.

(3) The customs collector, if he finds customs duties, etc., collectable as a result of the *ex officio* settlement of accounts , shall issue a notice of tax pursuant to Article 39 of the Customs Act. In this case, the person who has received the notice of tax shall pay the respective tax amount to the customs collector within 10 days from the date when he received the notice. *〈Amended by Act No. 6305, Dec. 29, 2000〉*

(4) The customs collector, if a person who has received the notice of tax pursuant to paragraph (3), as a lump-sum payment enterprise of the customs duties, etc. and who has put up a security, fails to pay the customs duties, etc., shall appropriate such security against the customs duties, etc. concerned.

Article 9 (Refund of Customs Duties, etc.)

(1) The customs collector, in a case where goods are used for export, etc., shall refund the customs duties, etc. on the imported raw materials for export of such goods exported within 2 years retroactively on the date prescribed by the Presidential Decree.

(2) When the raw materials for export are transacted by local letter of credit, etc. and when such transaction is made within the period as prescribed by the Presidential Decree from the date in which the immediate preceding transaction by such local letter of credit, etc. is made (if there is no immediate preceeding transaction by local letter of credit, etc., it refers to an import), the period from the date in which the raw materials for export are imported to the date in which the final transaction by local letter of credit, etc. is made shall not be included in the period pursuant to paragraph (1): *Provided*, That in case when the raw materials for export are transacted in the same condition as imported, the same shall not apply.

Article 10 (Calculation of Refund Money, etc.)

(1) An applicant for refund shall draw up the document in which the required amount of the raw materials for export goods is calculated (hereinafter referred to as "statement of accounts for the required amount") under the conditions as prescribed by the Presidential Decree, and shall calculate the refund money on the basis of such statement of accounts for the required amount.

(2) Notwithstanding the provisions of paragraph (1), the Commissioner of the Korea Customs Service, if it is deemed necessary to simplify the process of calculating the required amount, shall determine and put to public notice the standard required amount summed up on the basis of the average required amount by each of the export goods and may allow the applicant for refund to apply it selectively.

(3) Where two or more different types of goods are produced by using one kind of raw material for export, the customs duties, etc. shall be refunded on the basis of the price of goods produced under the conditions as prescribed by the Commissioner of the Korea Customs Service.

(4) As to the refund of the customs duties, etc., in a case when it is likely that an significantly excessive or deficient refund is to be made against the tax amount paid at the time of the import of the raw materials for export due to a fluctuation of the ratio of customs duties on such materials, the Commissioner of the Korea Customs Service may decide to make the validity of the certificate of import declaration, by which a substantiation of refund is possible, shorter than the period as designated in Article 9 (1), or may set criteria for refund by determining the amount of raw materials for export summed up on the basis of the ratio between the inventory of such material and the ratio of export by each enterprise.

Article 11 (Certificate of Average Tax Amount)

(1) The customs collector, in a case when it is deemed necessary to simplify the process of the refund of the customs duties, etc. on raw materials for export, may issue, upon the request of the person who imports the materials for export (including such purchases by local letters of credit, etc.; hereafter the same shall apply in this Article) under the conditions as prescribed by the Presidential Decree, a document to certify each item by name, quantity, and average tax amount per unit of the raw materials for export which have been imported on a monthly basis

by the person under the conditions as prescribed by the Presidential Decree (hereinafter referred to as "certificate of average tax amount"). In this case, this Article shall be applied to the first day of the month in which the date of import of such materials appertains.

(2) With respect to goods imported by the person who has received the certificate of average tax amount under the provisions of paragraph (1) for a purpose other than to offer them for export the same goods having the same tariff classification of ten digits on the tariff schedules pursuant to Article 50 (1) of the Customs Act in comparison with the raw materials for export as described in the certificate of average tax amount, the customs duties, etc. may be refunded only when the customs duties, etc. on the raw materials for export as described in the certificate of average tax amount have been refunded. In this case, the refund money by each item may not exceed the average tax amount of the raw materials for export as described in the certificate of average tax amount for the month in which the goods in question have been imported (in case there is no import of raw materials for export described in the certificate of average tax amount for the month, the reference to the average tax amount of the raw materials for export described in the certificate of average tax amount for the month in which such raw materials are imported for the shall be applied to the materials having the same item name imported for the first time retroactively on the month in which the goods concerned are imported). *〈Amended by Act No. 6305, Dec. 29, 2000〉*

Article 12 (Certificate of Tax Payment on Basic Raw Materials)

(1) The customs collector, in case when the raw materials for export were transacted by local letters of credit, etc. (excluding the case to which Article 5 (3) applies), may issue, for more effective performance of refund affairs, the document certifying the tax amount paid on such raw materials for export transacted (hereinafter referred to as "certificate of tax payment on basic raw materials") under the conditions as prescribed by the Presidential Decree: *Provided*, That if the Commissioner of the Korea Customs Service deems it necessary to simplify the procedures relating to the issuance of the certificate of tax payment on basic raw materials, the person who supplied the goods by local letters of credit or a licensed customs agent may be permitted to issue such certificate of tax payment on basic raw materials.

(2) The tax amount certified in the issued certificate of tax payment on basic raw materials pursuant to paragraph (1) shall be based on the calculating method on refund money pursuant to Articles 10 and 14 (2) and (3) shall apply *mutatis mutandis* with respect to the examination as to the correctness of the tax amount certified.

Article 13 (Fixed Amount Refund Rates Table)

(1) The Commissioner of the Korea Customs Service, if it is deemed necessary to simplify the refund procedure on the customs duties, etc. on such export goods having extraordinary production process as when 2 or more products are produced simultaneously by using one raw material for export and on the export goods produced by a small and medium enterprise, may determine and put to public notification a fixed amount refund rates table by each item of the export goods on the basis of the average refund money of the customs duties, etc. or the average paid tax amount on the raw materials for export.

(2) The amount as provided in the fixed amount refund rates table pursuant to paragraph (1), shall be refunded as if it were the customs duties, etc. paid when the raw materials for export needed for manufacturing or processing the goods concerned was imported.

(3) A person who may be eligible for the application of the fixed amount refund rates table pursuant to paragraph (1) may ask the Commissioner of the Korea Customs Service to determine and put to public notice the fixed amount refund rates table under the conditions as prescribed by the Presidential Decree.

(4) If it is deemed inappropriate to apply the fixed amount refund rates table because the refund money in the fixed amount refund rates table is larger or smaller due to changes in the export structure, the import structure of raw materials, tariff rates, and exchange rates, the Commissioner of the Korea Customs Service may suspend the application of the fixed amount refund rates table or may make proper adjustments on all or part of the fixed amount refund rates table and notify the public thereof.

Article 14 (Application for Refund)

(1) A person who intends to have the customs duties, etc. refunded shall apply the refund to the customhouse as designated by the Commissioner of the Korea Customs Service within 2 years after the goods were offered

for export, etc. under the conditions as prescribed by the Presidential Decree.

(2) The customs collector, upon receiving the application for refund pursuant to paragraph (1), shall examine the items described in the written application for refund and items confirmed pursuant to the provisions in this Act and shall determine the refund money, but may examine the correctness of the refund money after refunding under the conditions as prescribed by the Presidential Decree.

(3) Notwithstanding the provisions of paragraph (2), the customs collector, in the case designated by the Ordinance of the Prime Minister because it is deemed inappropriate to examine after refunding due to the apprehension of an excessive refund, shall examine the correctness of the refund money before refunding.

Article 15 (Use of Computer System)

(1) The customs collector, when he receives and executes the application, report, designation, approval and notice, etc. (hereafter referred to as "application, etc." in this Article), may use a computer system or may have a computer system used under the conditions as determined by the Commissioner of the Korea Customs Service.

(2) The customs collector, in case where he receives the application, etc. pursuant to paragraph (1), may omit the submission of the documents concerned or direct it in a simple and easy way.

(3) The application for refund, etc. executed pursuant to paragraph (1) is regarded as received in the customhouse or as dispatched from the customhouse when it is registered on the file in the computer system, but in case of notice it is considered to have been delivered after the elapse of time normally required to output from the computer system since its registration.

Article 16 (Payment of Refund Money)

(1) Notwithstanding the provisions of Article 18 of the Budget and Accounts Act, the refund of the customs duties, etc. pursuant to this Act shall be paid by the Bank of Korea from the revenue account under the control of the customs collector who determines the payment of refund money. In this case, the procedure for payment shall be prescribed by the Presidential Decree.

(2) If the balance of the revenue account under the control of the cus-

toms collector pursuant to paragraph (1) is insufficient, the Commissioner of the Korea Customs Service may ask the Bank of Korea to make an adjustment between the revenue accounts under the control of the customs collector under the conditions as prescribed by the Presidential Decree.

(3) Notwithstanding the provisions of paragraph (1), the customs collector shall reserve the payment of the refund money determined after the refund is applied for by a lump-sum payment enterprise of customs duties, etc. until the time of settlement of accounts pursuant to Article 7 (1) by each lump-sum payment term in which time the date of the refund decision is included.

(4) If the customs collector finds an applicant for refund is in default of any customs duties, etc. including additional dues, additional tax or disposition fee in arrears, which is to be paid to the customhouse, he may preferentially make an appropriation of the determined refund of the customs duties, etc. to meet such defaulted payment of the additional dues, the additional tax and the disposition fee in arrears, and the remainder after the appropriation shall be paid to the applicant concerned.

Article 17 (Restriction on Refund, etc.)

(1) Notwithstanding the provisions of Article 9, if it is deemed necessary to promote the use of domestically produced raw materials for the production of export goods, the refund may be restricted under the conditions as prescribed by the Presidential Decree.

(2) The goods which are subjected to restriction on the refund pursuant to paragraph (1), and the rate of restriction shall be prescribed by the Ordinance of the Prime Minister.

Article 18 (Collection of Customs Duties, etc. for Using Outside of Purpose)

(1) The customs collector, in a case when the goods for which the customs, etc. were refunded are found to have been used for the purpose other than prescribed in subparagraph 2 of Article 4 within the period designated by the Commissioner of the Korea Customs Service in the limit of 3 years after the date on which the goods are offered for the concerned purpose, shall instantly collect the refunded customs duties, etc. from the person who used the goods outside of the purpose: *Provided,* That in a case when the goods are destroyed because of such unavoidable reasons as disaster, etc. or are destroyed with the prior approval by the cus-

toms collector, the same shall not apply.

(2) Any goods which are offered for the purpose as prescribed in subparagraph 3 of Article 4 shall be considered as foreign goods in application of the Customs Act, etc.

Article 19 (Reduction of Tax Rates of Customs Duties, etc. in lieu of Refund)

(1) With respect to goods imported for use chiefly in the production of goods offered for export, etc., the tax rates of the customs duties, etc. may be reduced taking into consideration the export ratio.

(2) The goods and the tax rates of the customs duties, etc. on such goods which are to be reduced pursuant to paragraph (1) shall be prescribed by the Presidential Decree.

(3) With respect to goods to which a reduction of tax rates of the customs, etc. was applied pursuant to paragraph (1), the lump-sum payment and refund of the customs duties, etc. pursuant to this Act shall not be granted.

Article 20 (Custody and Submission of Documents, etc.)

(1) All documents designated by the Presidential Decree from among the documents concerning the refund of the customs duties, etc. pursuant to this Act shall be kept for the period designated by the Presidential Decree within the limit of 5 years after the date of the application for the refund, etc.

(2) The documents as provided in paragraph (1) may be kept in the form of microfilm, optical disk or other media for preservation of data under the conditions as determined by the Commissioner of the Korea Customs Service.

(3) The Commissioner of the Korea Customs Service or the customs collector, if it is deemed necessary for the examination as to the appropriateness of refund money pursuant to Article 14, may ask a person who has received refund, a person who imports raw materials for export, person who offers such raw materials for export for use in the country by local letters of credit, etc. and other related persons to submit the documents as provided in paragraph (1) and other related data.

Article 21 (Collection of Excessive Refund Money, etc.)

(1) The customs collector, in case where the refund money paid pursuant to Article 16 falls under any of the following subparagraphs, shall collect

the refund money concerned or excessive refund money (hereinafter referred to as "excessive refund money, etc.") from the persons who have received the refund of the customs duties, etc. pursuant to Article 47 (1) of the Customs Act (including the person who has been issued a certificate of tax payment on basic raw materials; hereafter the same shall apply in this Article): *〈Amended by Act No. 6305, Dec. 29, 2000〉*

1. Where an excessive amount of refund was made in comparison with the amount which should have been refunded pursuant to the provisions of this Act;
2. Where the tax amount of the customs duties, etc., pursuant to the provisions of Article 12, was recorded in excess of the true amount on the certificate of tax payment on basic raw materials concerned, and such certificate has been used for refund, etc. and thereafter it is impossible to modify or re-issue the certificate of tax payment on basic raw materials;
3. Where the customs duties, etc. have already been refunded without loading onto a ship or an aircraft: *Provided*, That in the case when the loading onto such crafts was done before the collection of the amount in question, the same shall not apply; and
4. Where the refund is received according to the fixed amount refund rates table with respect to the goods to which the fixed amount refund rates table does not apply pursuant to Article 13 (1).

(2) When collecting excessive refund money, etc. pursuant to paragraph (1), the amount calculated according to the rate of interest as prescribed by the Presidential Decree shall be added to the excessive refund money for the period from the day following the refund was paid until the date when the decision to collect was made.

(3) If a person who has received the refund of customs duties, etc. or a person who has made the report of settlement of accounts pursuant to Article 7 (1), had knowledge regarding the fact that it may fall under any of the said subparagraphs of paragraph (1) or the fact that the report he had made reflected a shortage of the customs duties, etc. which should have been paid according to the report of settlement of accounts, he may voluntarily report such facts to the customs collector as prescribed by the Presidential Decree and may pay the additional refund money, etc. or customs duties, etc. In this case, the period or the rate of interest cal-

culated on the amount payable in addition to the excessive refund money, etc. or customs duties, etc. shall be prescribed by the Presidential Decree.

Article 22 (Refund of Shortage of Refund Money)

(1) The customs collector shall make up for the shortage of refund money concerned without delay when he learns the fact that the refund money paid pursuant to Article 16 had been made less than the amount rightfully payable pursuant to the provisions of this Act.

(2) When making up for the shortage of refund money pursuant to paragraph (1), the amount calculated according to the rate of interests as prescribed by the Presidential Decree pursuant to Article 21 (2) shall be added to the shortage of the refund money for the period from the day following the refund until the day when the decision to make up for the shortage was made.

Article 23 (Penal Provisions)

(1) A person who has received the refund of the customs duties, etc. by deception and other fraudulent methods shall be punished by imprisonment for 3 years or less, or by a fine of 5 times or less equivalent to the tax amount refunded.

(2) A person who prepared the statement of accounts for the required amount pursuant to Article 10 (1) and received the certificate of tax payment on basic raw materials pursuant to the main sentence of Article 12 (1), and who was issued a certificate of tax payment on basic raw materials pursuant to the proviso of Article 12 (1) by deception and other fraudulent methods, shall be punished by imprisonment for 3 years or less, or by a fine of 20,000,000 won or less.

(3) A person who violates the provisions of Article 20 (1) without reasonable grounds shall be punished with a fine of 20,000,000 won or less.

(4) A person who fails to submit the document and other data required by the Commissioner of the Korea Customs Service or the customs collector pursuant to Article 20 (3) without reasonable grounds, shall be punished with a fine of 10,000,000 won or less.

(5) The customs collector, in a case where it falls under paragraphs (1) and (2), shall collect instantly the customs duties, etc. refunded.

Article 24 (Examination and Disposal)

The provisions of Articles 283 through 319 of the Customs Act shall apply to any person falling under Article 23 (1) through (4) of this Act. *〈Amended by Act No. 6305, Dec. 29, 2000〉*

ACT ON SPECIAL CASES CONCERNING THE REFUNDMENT OF CUSTOMS DUTIES, ETC. LEVIED ON RAW MATERIALS FOR EXPORT

ADDENDA

Article 1 (Enforcement Date)

This Act shall enter into force on July 1, 1997.

Article 2 (General Transitional Measures)

Matters in force pursuant to the previous provisions before this Act enters into force, shall be governed by the previous provisions.

Article 3 (Examples of Application Subject to Lump-Sum Payment of Customs, etc.)

Lump-sum payment of the customs duties, etc. pursuant to Article 5 (2) shall apply to the raw materials for export, the import declaration of which is made on July 1, 1997.

Article 4 (Examples of Application to Refund of Customs Duties, etc.)

The calculation period on the raw materials for export pursuant to Article 9 (1) shall apply to the raw materials for export, the import declaration of which is made on July 1, 1997.

Article 5 (Transitional Measures concerning Drawing Up of Statement of Accounts for Required Amount)

Drawing up of the statement of accounts for the required amount pursuant to Article 10 (1) shall be regarded as if the export declaration were received or offered through a local letter of credit after July 1, 1997 (in case where transaction through a local letter of credit is executed more than twice, the first day offered shall be the standard): *Provided,* That in a case where an applicant for refund fails to calculate the required amount by June 30, 1998, the statement of accounts for the required amount, etc. pursuant to the previous provisions before this Act enter into force may be used.

Article 6 (Examples for Application to Payment Reserve of Refund Money)

The payment reserve of the refund money pursuant to Article 16 (3) shall apply to the submitted application for the refund of customs duties, etc. by the lump-sum enterprise of the customs duties, etc., on July 1, 1997.

Article 7 (Examples of Application to Collection of Using Outside of Purpose)

The provisions of Article 18 (1) shall apply to the purpose as prescribed in subparagraph 2 of Article 4 after July 1, 1997.

Article 8 (Examples of Application to Custody of Document)

The provisions of Article 20 (1) and (2) shall apply to the document rel-

ative to the refund after July 1, 1997.

Article 9 (Examples of Application to Collection of Excessive Refund Money, etc. and Refund of Insufficient Refund Money)

The provisions of Articles 21 and 22 shall apply to the refund after July 1, 1997.

ADDENDA *〈Act No. 6305, Dec. 29, 2000〉*

Article 1 (Enforcement Date)

This Act shall enter into force on January 1, 2001.

Articles 2 through 8 Omitted.

ADDENDA *〈Act No. 7210, Mar. 22, 2004〉*

Article 1 (Enforcement Date)

This Act shall enter into force three months after the date of its promulgation.

Articles 2 through 16 Omitted.

Appendix E-3

Sample Calculation of Duty Drawback

POSCO

PUBLIC RECORD

Duty Drawback for Exports to Australia (by Export Permit)

OBS	Export Permit No	Quantity (MT)	Duty Drawback (KRW)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			

POSCO

PUBLIC RECORD

OBS	Export Permit No	Quantity (MT)	Duty Drawback (KRW)
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
Total		-	-
		(A)	(B)

Unit Duty Drawback	[300 ~ 700]	(KRW/MT)

(C) = (B) / (A)

Appendix E-4

Worksheet Showing Import Duty Paid and Duty Drawback Refunded

Worksheet Showing Import Duty Paid and Duty Drawback Refunded [INDEXED]

(Unit: Thousand KRW)

Month-Year	Pohang Factory		Kwangyang Factory		Company-wide	
	Import Duty Paid	Duty Drawback Refunded	Import Duty Paid	Duty Drawback Refunded	Import Duty Paid	Duty Drawback Refunded
Jan-12						
Feb-12						
Mar-12						
Apr-12						
May-12						
Jun-12						
Jul-12						
Aug-12						
Sep-12						
Oct-12						
Nov-12						
Dec-12						
Total	**[1,000]**	**[516]**	**[331]**	**[82]**	**[1,331]**	**[597]**

Appendix E-5

Payment Terms for Domestic Sales

Terms of Payment

Code	Description
	Advanced receipt condition
	Settled with cash within [ ]
	Credit sales settled with [ ]
	Credit sales settled with [ ]
	Credit cyber sales - settled with [ ]
	Credit sales settled with [ ]
	Credit sales settled with [ ]
	Credit sales settled with [ ]

Appendix E-6

Calculation of Warehousing Unit Cost

Warehousing Expense

Year-Month	A		B	
	Q'ty	Value	Q'ty	Value
2012-01				
2012-02				
2012-03				
2012-04				
2012-05				
2012-06				
2012-07				
2012-08				
2012-09				
2012-10				
2012-11				
2012-12				
Total	-	-		
Unit Price		**[2,000 ~ 4,000]**		**[2,000 ~ 4,000]**

Appendix E-7

Calculation of Interest Revenue

POSCO

PUBLIC RECORD

Interest Revenue

	(A)	(B)	(A) / (B)
Customer Code	Interest Revenue	Domestic Sales	Interest Revenue Ratio
GLBSH			0.0026%
ICIKG			0.0031%
DMB85			0.0000%
IBA22			0.0005%
1S045			0.6284%
CRT08			0.1414%
6UY1G			0.3237%
CJG99			0.0003%
DF004			0.0001%
DYSHP			0.3958%
SF017			1.3533%
KMJCO			0.2167%
XAN79			0.1107%
SF019			0.8801%
DE115			0.0002%
NGD99			1.9983%
HG174			0.0035%
IAUFK			0.6357%
IKF4Q			0.1855%
SJCWD			0.2782%
IRVCW			0.0267%
SKCON			0.0225%
IPBUY			0.1483%
DGH13			0.1659%
DFW5B			0.0168%
IBTS1			0.0865%
IGWCD			0.0551%
IDGUY			0.0014%
CG009			0.0069%
PCA85			0.0000%

Appendix F-1

Printouts of "Third Country Sales" File

Export Sales of the Goods under Consideration to Ten Largest Third Countries [INDEXED]

No	Country	Number of Customers	Level of Trade	Commercial Type	Thickness (mm)	Width(mm)	Length (mm)	Trimmed edge or untrimmed edge	Grade	Prime or non-prime
1	JAPAN									
2	INDIA									
3	USA									
4	CHINA									
5	MEXICO									
6	ARAB EMIRATE									
7	SOUTH AFRICA									
8	PHILIPPINES									
9	THAILAND									
10	BRAZIL									
Total										

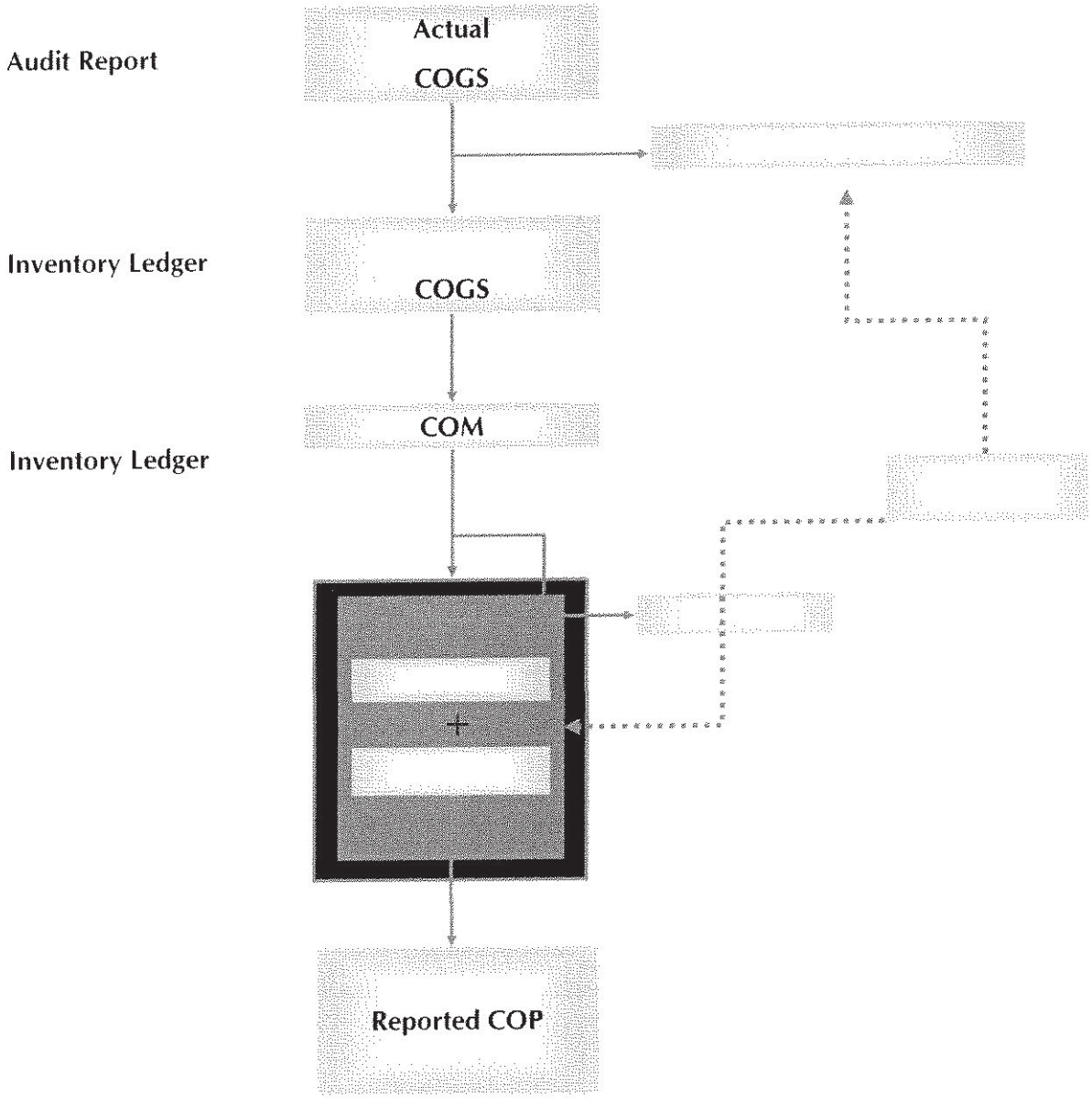
Export Sales of the Go

No	Country	Standard	Quantity	Unit of Quantity	Value of Sales	Currency	Payment Terms	Shipment Terms
1	JAPAN		24.1%					
2	INDIA		12.8%					
3	USA		11.9%					
4	CHINA		9.7%					
5	MEXICO		9.2%					
6	ARAB EMIRATE		8.6%					
7	SOUTH AFRICA		7.9%					
8	PHILIPPINES		7.8%					
9	THAILAND		4.0%					
10	BRAZIL		4.0%					
			100.0%		-			

Appendix G-3

Summary of Response Methodology

Summary of Response Methodology



Appendix G-5

List of Cost Center

Cost Center List

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Headquarter	HAY11			Indirect
Headquarter	HCA11			Indirect
Headquarter	HCA99			Indirect
Headquarter	HCD17			Indirect
Headquarter	HDJ99			Indirect
Headquarter	HDL99			Indirect
Headquarter	HMJ11			Indirect
Headquarter	HMJ19			Indirect
Headquarter	HMR24			Indirect
Headquarter	HMU12			Indirect
Headquarter	HVH16			Indirect
Headquarter	HVH26			Indirect
Headquarter	HVH47			Indirect
Headquarter	HVH71			Indirect
Headquarter	HVH99			Indirect
Kwangyang	KBA11			Direct
Kwangyang	KBA12			Direct
Kwangyang	KBA99			Direct
Kwangyang	KBB21			Direct
Kwangyang	KBB71			Direct
Kwangyang	KBC21			Direct
Kwangyang	KBD21			Direct
Kwangyang	KBE21			Direct
Kwangyang	KBF21			Direct
Kwangyang	KBG32			Direct
Kwangyang	KBH41			Direct
Kwangyang	KBH42			Direct
Kwangyang	KBH43			Direct
Kwangyang	KBH99			Direct
Kwangyang	KBI41			Direct
Kwangyang	KBI42			Direct
Kwangyang	KBI43			Direct
Kwangyang	KBI99			Direct
Kwangyang	KBJ41			Direct
Kwangyang	KBJ42			Direct
Kwangyang	KBJ43			Direct
Kwangyang	KBJ99			Direct
Kwangyang	KBK41			Direct
Kwangyang	KBK42			Direct
Kwangyang	KBK43			Direct
Kwangyang	KBK99			Direct
Kwangyang	KBL41			Direct
Kwangyang	KBL42			Direct
Kwangyang	KBL43			Direct
Kwangyang	KBL99			Direct
Kwangyang	KBM51			Direct
Kwangyang	KBM52			Direct
Kwangyang	KBM53			Direct

Factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KBM99			Direct
Kwangyang	KBN61			Direct
Kwangyang	KBN62			Direct
Kwangyang	KBN63			Direct
Kwangyang	KBN99			Direct
Kwangyang	KBP61			Direct
Kwangyang	KBP63			Direct
Kwangyang	KBP99			Direct
Kwangyang	KBR61			Direct
Kwangyang	KBR63			Direct
Kwangyang	KBR99			Direct
Kwangyang	KBS61			Direct
Kwangyang	KBS63			Direct
Kwangyang	KBS99			Direct
Kwangyang	KBT61			Direct
Kwangyang	KBT63			Direct
Kwangyang	KBT99			Direct
Kwangyang	KBX11			Indirect
Kwangyang	KBX12			Indirect
Kwangyang	KBX21			Indirect
Kwangyang	KBX22			Indirect
Kwangyang	KBX31			Indirect
Kwangyang	KBX32			Indirect
Kwangyang	KBX33			Indirect
Kwangyang	KBX34			Indirect
Kwangyang	KBX41			Indirect
Kwangyang	KBX42			Indirect
Kwangyang	KBX43			Indirect
Kwangyang	KBX51			Indirect
Kwangyang	KBX52			Indirect
Kwangyang	KBX53			Indirect
Kwangyang	KBX54			Indirect
Kwangyang	KBX55			Indirect
Kwangyang	KBZ11			Direct
Kwangyang	KBZ12			Direct
Kwangyang	KBZ13			Direct
Kwangyang	KBZ14			Direct
Kwangyang	KBZ15			Direct
Kwangyang	KBZ16			Direct
Kwangyang	KBZ17			Direct
Kwangyang	KBZ18			Direct
Kwangyang	KBZ19			Direct
Kwangyang	KBZ21			Direct
Kwangyang	KBZ22			Direct
Kwangyang	KBZ29			Direct
Kwangyang	KBZ31			Direct
Kwangyang	KBZ32			Direct
Kwangyang	KBZ99			Direct
Kwangyang	KEA11			Direct
Kwangyang	KEA12			Direct
Kwangyang	KEA13			Direct
Kwangyang	KEA14			Direct

Factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KEA15			Direct
Kwangyang	KEA16			Direct
Kwangyang	KEA99			Direct
Kwangyang	KEB11			Direct
Kwangyang	KEB12			Direct
Kwangyang	KEB13			Direct
Kwangyang	KEB14			Direct
Kwangyang	KEB15			Direct
Kwangyang	KEB16			Direct
Kwangyang	KEB99			Direct
Kwangyang	KEC12			Direct
Kwangyang	KEC15			Direct
Kwangyang	KEC16			Direct
Kwangyang	KEC99			Direct
Kwangyang	KEE21			Direct
Kwangyang	KEE22			Direct
Kwangyang	KEE23			Direct
Kwangyang	KEE99			Direct
Kwangyang	KEF21			Direct
Kwangyang	KEF22			Direct
Kwangyang	KEF23			Direct
Kwangyang	KEF99			Direct
Kwangyang	KEG00			Direct
Kwangyang	KEG99			Direct
Kwangyang	KEH21			Direct
Kwangyang	KEH22			Direct
Kwangyang	KEH23			Direct
Kwangyang	KEH99			Direct
Kwangyang	KEL99			Direct
Kwangyang	KEX11			Indirect
Kwangyang	KEX12			Indirect
Kwangyang	KEX13			Indirect
Kwangyang	KEX14			Indirect
Kwangyang	KEX15			Indirect
Kwangyang	KEX21			Indirect
Kwangyang	KEX22			Indirect
Kwangyang	KEX23			Indirect
Kwangyang	KEX24			Indirect
Kwangyang	KEX31			Indirect
Kwangyang	KEX32			Indirect
Kwangyang	KEZ11			Direct
Kwangyang	KEZ12			Direct
Kwangyang	KEZ13			Direct
Kwangyang	KEZ14			Direct
Kwangyang	KEZ15			Direct
Kwangyang	KEZ16			Direct
Kwangyang	KEZ17			Direct
Kwangyang	KEZ99			Direct
Kwangyang	KHA11			Direct
Kwangyang	KHA12			Direct
Kwangyang	KHA13			Direct
Kwangyang	KHA14			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KHA15			Direct
Kwangyang	KHA16			Direct
Kwangyang	KHA17			Direct
Kwangyang	KHA26			Direct
Kwangyang	KHA27			Direct
Kwangyang	KHA99			Direct
Kwangyang	KHB11			Direct
Kwangyang	KHB12			Direct
Kwangyang	KHB13			Direct
Kwangyang	KHB14			Direct
Kwangyang	KHB15			Direct
Kwangyang	KHB16			Direct
Kwangyang	KHB17			Direct
Kwangyang	KHB26			Direct
Kwangyang	KHB27			Direct
Kwangyang	KHB99			Direct
Kwangyang	KHC11			Direct
Kwangyang	KHC12			Direct
Kwangyang	KHC13			Direct
Kwangyang	KHC14			Direct
Kwangyang	KHC15			Direct
Kwangyang	KHC16			Direct
Kwangyang	KHC17			Direct
Kwangyang	KHC26			Direct
Kwangyang	KHC27			Direct
Kwangyang	KHC31			Direct
Kwangyang	KHC99			Direct
Kwangyang	KHD21			Direct
Kwangyang	KHD22			Direct
Kwangyang	KHD99			Direct
Kwangyang	KHE21			Direct
Kwangyang	KHE22			Direct
Kwangyang	KHE23			Direct
Kwangyang	KHE99			Direct
Kwangyang	KHF21			Direct
Kwangyang	KHF22			Direct
Kwangyang	KHF23			Direct
Kwangyang	KHF24			Direct
Kwangyang	KHF99			Direct
Kwangyang	KHG21			Direct
Kwangyang	KHG22			Direct
Kwangyang	KHG25			Direct
Kwangyang	KHG99			Direct
Kwangyang	KHX11			Indirect
Kwangyang	KHX12			Indirect
Kwangyang	KHX13			Indirect
Kwangyang	KHX14			Indirect
Kwangyang	KHX15			Indirect
Kwangyang	KHX21			Indirect
Kwangyang	KHX31			Indirect
Kwangyang	KHX32			Indirect
Kwangyang	KHZ11			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KHZ12			Direct
Kwangyang	KHZ13			Direct
Kwangyang	KHZ14			Direct
Kwangyang	KHZ15			Direct
Kwangyang	KHZ99			Direct
Kwangyang	KKA12			Direct
Kwangyang	KKA13			Direct
Kwangyang	KKA14			Direct
Kwangyang	KKA99			Direct
Kwangyang	KKE21			Direct
Kwangyang	KKE22			Direct
Kwangyang	KKE24			Direct
Kwangyang	KKE25			Direct
Kwangyang	KKE26			Direct
Kwangyang	KKE27			Direct
Kwangyang	KKE28			Direct
Kwangyang	KKE99			Direct
Kwangyang	KKX00			Indirect
Kwangyang	KKX11			Indirect
Kwangyang	KKX21			Indirect
Kwangyang	KKZ11			Direct
Kwangyang	KKZ12			Direct
Kwangyang	KKZ13			Direct
Kwangyang	KKZ14			Direct
Kwangyang	KKZ15			Direct
Kwangyang	KKZ16			Direct
Kwangyang	KKZ99			Direct
Kwangyang	KLA11			Direct
Kwangyang	KLA12			Direct
Kwangyang	KLA13			Direct
Kwangyang	KLA14			Direct
Kwangyang	KLA15			Direct
Kwangyang	KLA16			Direct
Kwangyang	KLA17			Direct
Kwangyang	KLA18			Direct
Kwangyang	KLA25			Direct
Kwangyang	KLA27			Direct
Kwangyang	KLA28			Direct
Kwangyang	KLA99			Direct
Kwangyang	KLX11			Indirect
Kwangyang	KLX21			Indirect
Kwangyang	KLZ11			Indirect
Kwangyang	KLZ12			Indirect
Kwangyang	KLZ13			Indirect
Kwangyang	KLZ14			Indirect
Kwangyang	KLZ99			Indirect
Kwangyang	KMA11			Direct
Kwangyang	KMA13			Direct
Kwangyang	KMA15			Direct
Kwangyang	KMA16			Direct
Kwangyang	KMA17			Direct
Kwangyang	KMA18			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KMA22			Direct
Kwangyang	KMA23			Direct
Kwangyang	KMA24			Direct
Kwangyang	KMA25			Direct
Kwangyang	KMA26			Direct
Kwangyang	KMA32			Direct
Kwangyang	KMA99			Direct
Kwangyang	KMB11			Direct
Kwangyang	KMB13			Direct
Kwangyang	KMB15			Direct
Kwangyang	KMB17			Direct
Kwangyang	KMB18			Direct
Kwangyang	KMB22			Direct
Kwangyang	KMB26			Direct
Kwangyang	KMB99			Direct
Kwangyang	KMC11			Direct
Kwangyang	KMC12			Direct
Kwangyang	KMC13			Direct
Kwangyang	KMC14			Direct
Kwangyang	KMC15			Direct
Kwangyang	KMC17			Direct
Kwangyang	KMC18			Direct
Kwangyang	KMC22			Direct
Kwangyang	KMC26			Direct
Kwangyang	KMC27			Direct
Kwangyang	KMC28			Direct
Kwangyang	KMC99			Direct
Kwangyang	KMD11			Direct
Kwangyang	KMD12			Direct
Kwangyang	KMD13			Direct
Kwangyang	KMD14			Direct
Kwangyang	KMD15			Direct
Kwangyang	KMD17			Direct
Kwangyang	KMD18			Direct
Kwangyang	KMD22			Direct
Kwangyang	KMD26			Direct
Kwangyang	KMD27			Direct
Kwangyang	KMD28			Direct
Kwangyang	KMD99			Direct
Kwangyang	KMF17			Direct
Kwangyang	KMF36			Direct
Kwangyang	KMF41			Direct
Kwangyang	KMF42			Direct
Kwangyang	KMF46			Direct
Kwangyang	KMF47			Direct
Kwangyang	KMF48			Direct
Kwangyang	KMF99			Direct
Kwangyang	KMG17			Direct
Kwangyang	KMG51			Direct
Kwangyang	KMG54			Direct
Kwangyang	KMG56			Direct
Kwangyang	KMG57			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KMG99			Direct
Kwangyang	KMH17			Direct
Kwangyang	KMH41			Direct
Kwangyang	KMH42			Direct
Kwangyang	KMH43			Direct
Kwangyang	KMH44			Direct
Kwangyang	KMH45			Direct
Kwangyang	KMH46			Direct
Kwangyang	KMH47			Direct
Kwangyang	KMH48			Direct
Kwangyang	KMH99			Direct
Kwangyang	KMJ17			Direct
Kwangyang	KMJ41			Direct
Kwangyang	KMJ42			Direct
Kwangyang	KMJ99			Direct
Kwangyang	KMK17			Direct
Kwangyang	KMK51			Direct
Kwangyang	KMK56			Direct
Kwangyang	KMK57			Direct
Kwangyang	KMK99			Direct
Kwangyang	KML17			Direct
Kwangyang	KML41			Direct
Kwangyang	KML42			Direct
Kwangyang	KML48			Direct
Kwangyang	KML99			Direct
Kwangyang	KMM17			Direct
Kwangyang	KMM18			Direct
Kwangyang	KMM19			Direct
Kwangyang	KMM41			Direct
Kwangyang	KMM42			Direct
Kwangyang	KMM99			Direct
Kwangyang	KMN17			Direct
Kwangyang	KMN41			Direct
Kwangyang	KMN42			Direct
Kwangyang	KMN47			Direct
Kwangyang	KMN48			Direct
Kwangyang	KMN71			Direct
Kwangyang	KMN73			Direct
Kwangyang	KMN99			Direct
Kwangyang	KMX11			Indirect
Kwangyang	KMX12			Indirect
Kwangyang	KMX13			Indirect
Kwangyang	KMX14			Indirect
Kwangyang	KMX15			Indirect
Kwangyang	KMX21			Indirect
Kwangyang	KMX22			Indirect
Kwangyang	KMX23			Indirect
Kwangyang	KMX24			Indirect
Kwangyang	KMX31			Indirect
Kwangyang	KMX41			Indirect
Kwangyang	KMX42			Indirect
Kwangyang	KMX43			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KMX44			Indirect
Kwangyang	KMX51			Indirect
Kwangyang	KMX61			Indirect
Kwangyang	KMZ11			Direct
Kwangyang	KMZ12			Direct
Kwangyang	KMZ13			Direct
Kwangyang	KMZ14			Direct
Kwangyang	KMZ15			Direct
Kwangyang	KMZ16			Direct
Kwangyang	KMZ17			Direct
Kwangyang	KMZ19			Direct
Kwangyang	KMZ21			Direct
Kwangyang	KMZ22			Direct
Kwangyang	KMZ23			Direct
Kwangyang	KMZ24			Direct
Kwangyang	KMZ29			Direct
Kwangyang	KMZ99			Direct
Kwangyang	KTA11			Indirect
Kwangyang	KTA21			Indirect
Kwangyang	KTA31			Indirect
Kwangyang	KTA32			Indirect
Kwangyang	KTA99			Indirect
Kwangyang	KTB11			Indirect
Kwangyang	KTB12			Indirect
Kwangyang	KTB13			Indirect
Kwangyang	KTB14			Indirect
Kwangyang	KTB21			Indirect
Kwangyang	KTB99			Indirect
Kwangyang	KTC11			Indirect
Kwangyang	KTD11			Indirect
Kwangyang	KTD12			Indirect
Kwangyang	KTD13			Indirect
Kwangyang	KTD99			Indirect
Kwangyang	KTE11			Indirect
Kwangyang	KTE12			Indirect
Kwangyang	KTE99			Indirect
Kwangyang	KTH11			Indirect
Kwangyang	KTH12			Indirect
Kwangyang	KTH13			Indirect
Kwangyang	KTH14			Indirect
Kwangyang	KTH15			Indirect
Kwangyang	KTH16			Indirect
Kwangyang	KTH17			Indirect
Kwangyang	KTH99			Indirect
Kwangyang	KTZ11			Indirect
Kwangyang	KTZ12			Indirect
Kwangyang	KTZ13			Indirect
Kwangyang	KTZ15			Indirect
Kwangyang	KTZ16			Indirect
Kwangyang	KTZ17			Indirect
Kwangyang	KTZ18			Indirect
Kwangyang	KTZ19			Indirect

factory	Cost Ce[illegible]ode	Cost Center Name (Korean)	Cost Center Name (English)	lassification
Kwangyang	KTZ99			Indirect
Kwangyang	KUA11			Indirect
Kwangyang	KUA12			Indirect
Kwangyang	KUA13			Indirect
Kwangyang	KUA14			Indirect
Kwangyang	KUA15			Indirect
Kwangyang	KUA18			Indirect
Kwangyang	KUA21			Indirect
Kwangyang	KUA22			Indirect
Kwangyang	KUA24			Indirect
Kwangyang	KUA26			Indirect
Kwangyang	KUA27			Indirect
Kwangyang	KUA28			Indirect
Kwangyang	KUA29			Indirect
Kwangyang	KUA99			Indirect
Kwangyang	KUB11			Indirect
Kwangyang	KUB12			Indirect
Kwangyang	KUB13			Indirect
Kwangyang	KUB14			Indirect
Kwangyang	KUB15			Indirect
Kwangyang	KUB18			Indirect
Kwangyang	KUB21			Indirect
Kwangyang	KUB23			Indirect
Kwangyang	KUB24			Indirect
Kwangyang	KUB25			Indirect
Kwangyang	KUB26			Indirect
Kwangyang	KUB27			Indirect
Kwangyang	KUB28			Indirect
Kwangyang	KUB31			Indirect
Kwangyang	KUB32			Indirect
Kwangyang	KUB33			Indirect
Kwangyang	KUB99			Indirect
Kwangyang	KUC11			Indirect
Kwangyang	KUC12			Indirect
Kwangyang	KUC13			Indirect
Kwangyang	KUC14			Indirect
Kwangyang	KUC16			Indirect
Kwangyang	KUC17			Indirect
Kwangyang	KUC19			Indirect
Kwangyang	KUC21			Indirect
Kwangyang	KUC22			Indirect
Kwangyang	KUC23			Indirect
Kwangyang	KUC24			Indirect
Kwangyang	KUC25			Indirect
Kwangyang	KUC26			Indirect
Kwangyang	KUC27			Indirect
Kwangyang	KUC28			Indirect
Kwangyang	KUC29			Indirect
Kwangyang	KUC30			Indirect
Kwangyang	KUC31			Indirect
Kwangyang	KUC32			Indirect
Kwangyang	KUC33			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KUC34			Indirect
Kwangyang	KUC99			Indirect
Kwangyang	KUD11			Indirect
Kwangyang	KUD12			Indirect
Kwangyang	KUD13			Indirect
Kwangyang	KUD14			Indirect
Kwangyang	KUD15			Indirect
Kwangyang	KUD16			Indirect
Kwangyang	KUD17			Indirect
Kwangyang	KUD99			Indirect
Kwangyang	KUE11			Indirect
Kwangyang	KUE12			Indirect
Kwangyang	KUE13			Indirect
Kwangyang	KUE14			Indirect
Kwangyang	KUE15			Indirect
Kwangyang	KUE16			Indirect
Kwangyang	KUE17			Indirect
Kwangyang	KUE18			Indirect
Kwangyang	KUE99			Indirect
Kwangyang	KUF11			Indirect
Kwangyang	KUF12			Indirect
Kwangyang	KUF13			Indirect
Kwangyang	KUF14			Indirect
Kwangyang	KUF15			Indirect
Kwangyang	KUF16			Indirect
Kwangyang	KUF17			Indirect
Kwangyang	KUF18			Indirect
Kwangyang	KUF19			Indirect
Kwangyang	KUF99			Indirect
Kwangyang	KUG11			Indirect
Kwangyang	KUG12			Indirect
Kwangyang	KUG13			Indirect
Kwangyang	KUG14			Indirect
Kwangyang	KUH11			Indirect
Kwangyang	KUH12			Indirect
Kwangyang	KUH13			Indirect
Kwangyang	KVA11			Indirect
Kwangyang	KVA12			Indirect
Kwangyang	KVA14			Indirect
Kwangyang	KVA15			Indirect
Kwangyang	KVA16			Indirect
Kwangyang	KVA17			Indirect
Kwangyang	KVA18			Indirect
Kwangyang	KVA19			Indirect
Kwangyang	KVA21			Indirect
Kwangyang	KVA22			Indirect
Kwangyang	KVA99			Indirect
Kwangyang	KVB11			Indirect
Kwangyang	KVB12			Indirect
Kwangyang	KVB13			Indirect
Kwangyang	KVB14			Indirect
Kwangyang	KVB17			Indirect

factory	Cost Cen. Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KVB18			Indirect
Kwangyang	KVB19			Indirect
Kwangyang	KVB20			Indirect
Kwangyang	KVB21			Indirect
Kwangyang	KVB22			Indirect
Kwangyang	KVB23			Indirect
Kwangyang	KVB24			Indirect
Kwangyang	KVB25			Indirect
Kwangyang	KVB26			Indirect
Kwangyang	KVB27			Indirect
Kwangyang	KVB28			Indirect
Kwangyang	KVB29			Indirect
Kwangyang	KVB30			Indirect
Kwangyang	KVB99			Indirect
Kwangyang	KVE11			Indirect
Kwangyang	KVE13			Indirect
Kwangyang	KVE14			Indirect
Kwangyang	KVE15			Indirect
Kwangyang	KVE16			Indirect
Kwangyang	KVE17			Indirect
Kwangyang	KVE21			Indirect
Kwangyang	KVE22			Indirect
Kwangyang	KVE23			Indirect
Kwangyang	KVE25			Indirect
Kwangyang	KVE27			Indirect
Kwangyang	KVE28			Indirect
Kwangyang	KVE99			Indirect
Kwangyang	KVF11			Indirect
Kwangyang	KVF12			Indirect
Kwangyang	KVF13			Indirect
Kwangyang	KVF14			Indirect
Kwangyang	KVF15			Indirect
Kwangyang	KVF16			Indirect
Kwangyang	KVF17			Indirect
Kwangyang	KVF18			Indirect
Kwangyang	KVF19			Indirect
Kwangyang	KVF20			Indirect
Kwangyang	KVF24			Indirect
Kwangyang	KVF25			Indirect
Kwangyang	KVF26			Indirect
Kwangyang	KVF27			Indirect
Kwangyang	KVF99			Indirect
Kwangyang	KVG11			Indirect
Kwangyang	KVG12			Indirect
Kwangyang	KVG13			Indirect
Kwangyang	KVG14			Indirect
Kwangyang	KVG15			Indirect
Kwangyang	KVG16			Indirect
Kwangyang	KVG18			Indirect
Kwangyang	KVG19			Indirect
Kwangyang	KVG20			Indirect
Kwangyang	KVG21			Indirect

factory	Cost Cen. Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KVG22			Indirect
Kwangyang	KVG23			Indirect
Kwangyang	KVG24			Indirect
Kwangyang	KVG25			Indirect
Kwangyang	KVG26			Indirect
Kwangyang	KVG27			Indirect
Kwangyang	KVG28			Indirect
Kwangyang	KVG29			Indirect
Kwangyang	KVG30			Indirect
Kwangyang	KVG37			Indirect
Kwangyang	KVG99			Indirect
Kwangyang	KVH14			Indirect
Kwangyang	KVH15			Indirect
Kwangyang	KVH16			Indirect
Kwangyang	KVH17			Indirect
Kwangyang	KVH18			Indirect
Kwangyang	KVH21			Indirect
Kwangyang	KVH22			Indirect
Kwangyang	KVH23			Indirect
Kwangyang	KVH24			Indirect
Kwangyang	KVH27			Indirect
Kwangyang	KVH28			Indirect
Kwangyang	KVH29			Indirect
Kwangyang	KVH33			Indirect
Kwangyang	KVH34			Indirect
Kwangyang	KVH35			Indirect
Kwangyang	KVH36			Indirect
Kwangyang	KVH37			Indirect
Kwangyang	KVH38			Indirect
Kwangyang	KVH39			Indirect
Kwangyang	KVH40			Indirect
Kwangyang	KVH41			Indirect
Kwangyang	KVH42			Indirect
Kwangyang	KVH43			Indirect
Kwangyang	KVH44			Indirect
Kwangyang	KVH45			Indirect
Kwangyang	KVH46			Indirect
Kwangyang	KVH47			Indirect
Kwangyang	KVH48			Indirect
Kwangyang	KVH49			Indirect
Kwangyang	KVH51			Indirect
Kwangyang	KVH52			Indirect
Kwangyang	KVH99			Indirect
Kwangyang	KVI11			Indirect
Kwangyang	KVI17			Indirect
Kwangyang	KVI22			Indirect
Kwangyang	KVI23			Indirect
Kwangyang	KVI24			Indirect
Kwangyang	KVI25			Indirect
Kwangyang	KVI26			Indirect
Kwangyang	KVI27			Indirect
Kwangyang	KVI28			Indirect

Factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Kwangyang	KVI29			Indirect
Kwangyang	KVI30			Indirect
Kwangyang	KVI31			Indirect
Kwangyang	KVI32			Indirect
Kwangyang	KVI34			Indirect
Kwangyang	KVI99			Indirect
Kwangyang	KVL11			Indirect
Kwangyang	KVM11			Indirect
Kwangyang	KVM12			Indirect
Kwangyang	KVM99			Indirect
Kwangyang	KVN11			Indirect
Kwangyang	KVN12			Indirect
Kwangyang	KVN13			Indirect
Kwangyang	KVN14			Indirect
Kwangyang	KVN15			Indirect
Kwangyang	KVN99			Indirect
Kwangyang	KVO11			Indirect
Kwangyang	KVO12			Indirect
Kwangyang	KZZ15			Indirect
Kwangyang	KZZ21			Indirect
Pohang	PBA11			Direct
Pohang	PBA12			Direct
Pohang	PBA13			Direct
Pohang	PBA14			Direct
Pohang	PBA99			Direct
Pohang	PBB21			Direct
Pohang	PBC21			Direct
Pohang	PBD21			Direct
Pohang	PBE21			Direct
Pohang	PBF21			Direct
Pohang	PBG31			Direct
Pohang	PBH41			Direct
Pohang	PBH42			Direct
Pohang	PBH43			Direct
Pohang	PBH99			Direct
Pohang	PBJ41			Direct
Pohang	PBJ42			Direct
Pohang	PBJ43			Direct
Pohang	PBJ99			Direct
Pohang	PBK41			Direct
Pohang	PBK42			Direct
Pohang	PBK43			Direct
Pohang	PBK99			Direct
Pohang	PBL41			Direct
Pohang	PBL42			Direct
Pohang	PBL43			Direct
Pohang	PBL99			Direct
Pohang	PBM51			Direct
Pohang	PBM52			Direct
Pohang	PBM53			Direct
Pohang	PBM54			Direct
Pohang	PBM99			Direct

factory	Cost Cen. Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PBN61			Direct
Pohang	PBN62			Direct
Pohang	PBN63			Direct
Pohang	PBN99			Direct
Pohang	PBP61			Direct
Pohang	PBP63			Direct
Pohang	PBP99			Direct
Pohang	PBR61			Direct
Pohang	PBR63			Direct
Pohang	PBR99			Direct
Pohang	PBS61			Direct
Pohang	PBS63			Direct
Pohang	PBS99			Direct
Pohang	PBU71			Direct
Pohang	PBU72			Direct
Pohang	PBU73			Direct
Pohang	PBU99			Direct
Pohang	PBV81			Direct
Pohang	PBV83			Direct
Pohang	PBV84			Direct
Pohang	PBV85			Direct
Pohang	PBV86			Direct
Pohang	PBV88			Direct
Pohang	PBV89			Direct
Pohang	PBV99			Direct
Pohang	PBW81			Direct
Pohang	PBW83			Direct
Pohang	PBW84			Direct
Pohang	PBW85			Direct
Pohang	PBW86			Direct
Pohang	PBW88			Direct
Pohang	PBW89			Direct
Pohang	PBW91			Direct
Pohang	PBW99			Direct
Pohang	PBX11			Indirect
Pohang	PBX21			Indirect
Pohang	PBX31			Indirect
Pohang	PBX32			Indirect
Pohang	PBX51			Indirect
Pohang	PBX52			Indirect
Pohang	PBX53			Indirect
Pohang	PBX54			Indirect
Pohang	PBX61			Indirect
Pohang	PBZ11			Direct
Pohang	PBZ12			Direct
Pohang	PBZ13			Direct
Pohang	PBZ14			Direct
Pohang	PBZ15			Direct
Pohang	PBZ16			Direct
Pohang	PBZ17			Direct
Pohang	PBZ18			Direct
Pohang	PBZ19			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PBZ21			Direct
Pohang	PBZ22			Direct
Pohang	PBZ23			Direct
Pohang	PBZ24			Direct
Pohang	PBZ25			Direct
Pohang	PBZ29			Direct
Pohang	PBZ31			Direct
Pohang	PBZ32			Direct
Pohang	PBZ41			Indirect
Pohang	PBZ42			Indirect
Pohang	PBZ43			Indirect
Pohang	PBZ44			Indirect
Pohang	PBZ45			Indirect
Pohang	PEA11			Direct
Pohang	PEA12			Direct
Pohang	PEA13			Direct
Pohang	PEA14			Direct
Pohang	PEA15			Direct
Pohang	PEA16			Direct
Pohang	PEA99			Direct
Pohang	PEB11			Direct
Pohang	PEB12			Direct
Pohang	PEB13			Direct
Pohang	PEB14			Direct
Pohang	PEB15			Direct
Pohang	PEB16			Direct
Pohang	PEB99			Direct
Pohang	PEC11			Direct
Pohang	PEC12			Direct
Pohang	PEC14			Direct
Pohang	PEC15			Direct
Pohang	PEC99			Direct
Pohang	PEE21			Direct
Pohang	PEE22			Direct
Pohang	PEE23			Direct
Pohang	PEE25			Direct
Pohang	PEE26			Direct
Pohang	PEE99			Direct
Pohang	PEF21			Direct
Pohang	PEF22			Direct
Pohang	PEF23			Direct
Pohang	PEF99			Direct
Pohang	PEG21			Direct
Pohang	PEG22			Direct
Pohang	PEG23			Direct
Pohang	PEG99			Direct
Pohang	PEH31			Direct
Pohang	PEH33			Direct
Pohang	PEH99			Direct
Pohang	PEJ31			Direct
Pohang	PEJ33			Direct
Pohang	PEJ99			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PEK41			Direct
Pohang	PEM25			Direct
Pohang	PEM26			Direct
Pohang	PEN21			Direct
Pohang	PEN22			Direct
Pohang	PEN23			Direct
Pohang	PEN25			Direct
Pohang	PEN26			Direct
Pohang	PEN99			Direct
Pohang	PEX11			Indirect
Pohang	PEX12			Indirect
Pohang	PEX13			Indirect
Pohang	PEX21			Indirect
Pohang	PEX22			Indirect
Pohang	PEX23			Indirect
Pohang	PEX24			Indirect
Pohang	PEX31			Indirect
Pohang	PEZ11			Direct
Pohang	PEZ12			Direct
Pohang	PEZ13			Direct
Pohang	PEZ14			Direct
Pohang	PEZ15			Direct
Pohang	PEZ16			Direct
Pohang	PEZ17			Direct
Pohang	PEZ18			Direct
Pohang	PEZ19			Direct
Pohang	PEZ21			Direct
Pohang	PEZ22			Direct
Pohang	PEZ23			Direct
Pohang	PEZ99			Direct
Pohang	PGA11			Direct
Pohang	PGA12			Direct
Pohang	PGA13			Direct
Pohang	PGA14			Direct
Pohang	PGA17			Direct
Pohang	PGA99			Direct
Pohang	PGB21			Direct
Pohang	PGB22			Direct
Pohang	PGB26			Direct
Pohang	PGB27			Direct
Pohang	PGB99			Direct
Pohang	PGC21			Direct
Pohang	PGC22			Direct
Pohang	PGC26			Direct
Pohang	PGC27			Direct
Pohang	PGC99			Direct
Pohang	PGD21			Direct
Pohang	PGD22			Direct
Pohang	PGD26			Direct
Pohang	PGD27			Direct
Pohang	PGD99			Direct
Pohang	PGX11			Indirect

Factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PGX12			Indirect
Pohang	PGX13			Indirect
Pohang	PGX14			Indirect
Pohang	PGX21			Indirect
Pohang	PGZ11			Direct
Pohang	PGZ12			Direct
Pohang	PGZ13			Direct
Pohang	PGZ14			Direct
Pohang	PGZ15			Direct
Pohang	PGZ99			Direct
Pohang	PHA11			Direct
Pohang	PHA12			Direct
Pohang	PHA13			Direct
Pohang	PHA14			Direct
Pohang	PHA15			Direct
Pohang	PHA16			Direct
Pohang	PHA17			Direct
Pohang	PHA18			Direct
Pohang	PHA26			Direct
Pohang	PHA27			Direct
Pohang	PHA99			Direct
Pohang	PHB11			Direct
Pohang	PHB12			Direct
Pohang	PHB13			Direct
Pohang	PHB14			Direct
Pohang	PHB15			Direct
Pohang	PHB16			Direct
Pohang	PHB17			Direct
Pohang	PHB18			Direct
Pohang	PHB26			Direct
Pohang	PHB27			Direct
Pohang	PHB99			Direct
Pohang	PHX11			Indirect
Pohang	PHX12			Indirect
Pohang	PHX13			Indirect
Pohang	PHZ11			Direct
Pohang	PHZ12			Direct
Pohang	PHZ13			Direct
Pohang	PHZ14			Direct
Pohang	PHZ15			Direct
Pohang	PHZ16			Direct
Pohang	PHZ17			Direct
Pohang	PHZ99			Direct
Pohang	PLA11			Direct
Pohang	PLA12			Direct
Pohang	PLA14			Direct
Pohang	PLA15			Direct
Pohang	PLA17			Direct
Pohang	PLA18			Direct
Pohang	PLA25			Direct
Pohang	PLA27			Direct
Pohang	PLA28			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PLA99			Direct
Pohang	PLB11			Direct
Pohang	PLB12			Direct
Pohang	PLB13			Direct
Pohang	PLB14			Direct
Pohang	PLB15			Direct
Pohang	PLB16			Direct
Pohang	PLB17			Direct
Pohang	PLB18			Direct
Pohang	PLB25			Direct
Pohang	PLB27			Direct
Pohang	PLB28			Direct
Pohang	PLB99			Direct
Pohang	PLC11			Direct
Pohang	PLC12			Direct
Pohang	PLC13			Direct
Pohang	PLC14			Direct
Pohang	PLC15			Direct
Pohang	PLC16			Direct
Pohang	PLC17			Direct
Pohang	PLC18			Direct
Pohang	PLC25			Direct
Pohang	PLC27			Direct
Pohang	PLC28			Direct
Pohang	PLC99			Direct
Pohang	PLD99			Direct
Pohang	PLM41			Direct
Pohang	PLM42			Direct
Pohang	PLM43			Direct
Pohang	PLM44			Direct
Pohang	PLM45			Direct
Pohang	PLM99			Direct
Pohang	PLMZZ			Direct
Pohang	PLX11			Indirect
Pohang	PLX12			Indirect
Pohang	PLX13			Indirect
Pohang	PLX14			Indirect
Pohang	PLX21			Indirect
Pohang	PLZ11			Direct
Pohang	PLZ12			Direct
Pohang	PLZ13			Direct
Pohang	PLZ14			Direct
Pohang	PLZ99			Direct
Pohang	PMA11			Direct
Pohang	PMA12			Direct
Pohang	PMA13			Direct
Pohang	PMA14			Direct
Pohang	PMA15			Direct
Pohang	PMA16			Direct
Pohang	PMA17			Direct
Pohang	PMA18			Direct
Pohang	PMA21			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PMA22			Direct
Pohang	PMA23			Direct
Pohang	PMA24			Direct
Pohang	PMA25			Direct
Pohang	PMA26			Direct
Pohang	PMA27			Direct
Pohang	PMA28			Direct
Pohang	PMA29			Direct
Pohang	PMA99			Direct
Pohang	PMB11			Direct
Pohang	PMB15			Direct
Pohang	PMB19			Direct
Pohang	PMB22			Direct
Pohang	PMB23			Direct
Pohang	PMB24			Direct
Pohang	PMB26			Direct
Pohang	PMB99			Direct
Pohang	PME31			Direct
Pohang	PME32			Direct
Pohang	PME33			Direct
Pohang	PME34			Direct
Pohang	PME35			Direct
Pohang	PME99			Direct
Pohang	PMG51			Direct
Pohang	PMG52			Direct
Pohang	PMG53			Direct
Pohang	PMG55			Direct
Pohang	PMG56			Direct
Pohang	PMG57			Direct
Pohang	PMG65			Direct
Pohang	PMG67			Direct
Pohang	PMG68			Direct
Pohang	PMG99			Direct
Pohang	PMH23			Direct
Pohang	PMH24			Direct
Pohang	PMH41			Direct
Pohang	PMH53			Direct
Pohang	PMH56			Direct
Pohang	PMH57			Direct
Pohang	PMH59			Direct
Pohang	PMH99			Direct
Pohang	PMM71			Direct
Pohang	PMM72			Direct
Pohang	PMM74			Direct
Pohang	PMM75			Direct
Pohang	PMM76			Direct
Pohang	PMM80			Direct
Pohang	PMM81			Direct
Pohang	PMM83			Direct
Pohang	PMM84			Direct
Pohang	PMM85			Direct
Pohang	PMM86			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PMM91			Direct
Pohang	PMM92			Direct
Pohang	PMM94			Direct
Pohang	PMM95			Direct
Pohang	PMM99			Direct
Pohang	PMN71			Direct
Pohang	PMN73			Direct
Pohang	PMN79			Direct
Pohang	PMN83			Direct
Pohang	PMN85			Direct
Pohang	PMN87			Direct
Pohang	PMN90			Direct
Pohang	PMN93			Direct
Pohang	PMN95			Direct
Pohang	PMN99			Direct
Pohang	PMP73			Direct
Pohang	PMP75			Direct
Pohang	PMP81			Direct
Pohang	PMP84			Direct
Pohang	PMP85			Direct
Pohang	PMP90			Direct
Pohang	PMP91			Direct
Pohang	PMP92			Direct
Pohang	PMP95			Direct
Pohang	PMP99			Direct
Pohang	PMQ43			Direct
Pohang	PMQ45			Direct
Pohang	PMQ46			Direct
Pohang	PMQ99			Direct
Pohang	PMX11			Indirect
Pohang	PMX12			Indirect
Pohang	PMX13			Indirect
Pohang	PMX14			Indirect
Pohang	PMX15			Indirect
Pohang	PMX21			Indirect
Pohang	PMX31			Direct
Pohang	PMX32			Direct
Pohang	PMX33			Direct
Pohang	PMX41			Direct
Pohang	PMX51			Direct
Pohang	PMZ11			Direct
Pohang	PMZ12			Direct
Pohang	PMZ13			Direct
Pohang	PMZ14			Direct
Pohang	PMZ15			Direct
Pohang	PMZ16			Direct
Pohang	PMZ17			Direct
Pohang	PMZ19			Direct
Pohang	PMZ21			Direct
Pohang	PMZ22			Direct
Pohang	PMZ23			Direct
Pohang	PMZ24			Direct

Factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PMZ25			Direct
Pohang	PMZ26			Direct
Pohang	PMZ29			Direct
Pohang	PMZ99			Direct
Pohang	PSA11			Direct
Pohang	PSA12			Direct
Pohang	PSA14			Direct
Pohang	PSA15			Direct
Pohang	PSA16			Direct
Pohang	PSA17			Direct
Pohang	PSA99			Direct
Pohang	PSB11			Direct
Pohang	PSB12			Direct
Pohang	PSB13			Direct
Pohang	PSB14			Direct
Pohang	PSB15			Direct
Pohang	PSB16			Direct
Pohang	PSB99			Direct
Pohang	PSC11			Direct
Pohang	PSC12			Direct
Pohang	PSC14			Direct
Pohang	PSC15			Direct
Pohang	PSC16			Direct
Pohang	PSC99			Direct
Pohang	PSD17			Direct
Pohang	PSD99			Direct
Pohang	PSH21			Direct
Pohang	PSH22			Direct
Pohang	PSH23			Direct
Pohang	PSH24			Direct
Pohang	PSH25			Direct
Pohang	PSH26			Direct
Pohang	PSH27			Direct
Pohang	PSH28			Direct
Pohang	PSH30			Direct
Pohang	PSH47			Direct
Pohang	PSH48			Direct
Pohang	PSH99			Direct
Pohang	PSM31			Direct
Pohang	PSM32			Direct
Pohang	PSM33			Direct
Pohang	PSM34			Direct
Pohang	PSM35			Direct
Pohang	PSM36			Direct
Pohang	PSM37			Direct
Pohang	PSM38			Direct
Pohang	PSM39			Direct
Pohang	PSM41			Direct
Pohang	PSM43			Direct
Pohang	PSM46			Direct
Pohang	PSM47			Direct
Pohang	PSM51			Direct

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PSM52			Direct
Pohang	PSM53			Direct
Pohang	PSM54			Direct
Pohang	PSM55			Direct
Pohang	PSM56			Direct
Pohang	PSM57			Direct
Pohang	PSM58			Direct
Pohang	PSM99			Direct
Pohang	PSN00			Direct
Pohang	PSN61			Direct
Pohang	PSN62			Direct
Pohang	PSN63			Direct
Pohang	PSN64			Direct
Pohang	PSN65			Direct
Pohang	PSN99			Direct
Pohang	PSP31			Direct
Pohang	PSP33			Direct
Pohang	PSP35			Direct
Pohang	PSP37			Direct
Pohang	PSP41			Direct
Pohang	PSP46			Direct
Pohang	PSP47			Direct
Pohang	PSP65			Direct
Pohang	PSP66			Direct
Pohang	PSP67			Direct
Pohang	PSP99			Direct
Pohang	PST17			Direct
Pohang	PSU11			Direct
Pohang	PSU12			Direct
Pohang	PSU13			Direct
Pohang	PSU21			Direct
Pohang	PSU23			Direct
Pohang	PSU99			Direct
Pohang	PSX11			Indirect
Pohang	PSX12			Indirect
Pohang	PSX13			Indirect
Pohang	PSX14			Indirect
Pohang	PSX21			Indirect
Pohang	PSX22			Indirect
Pohang	PSX23			Indirect
Pohang	PSX24			Indirect
Pohang	PSX99			Indirect
Pohang	PSZ11			Direct
Pohang	PSZ12			Direct
Pohang	PSZ13			Direct
Pohang	PSZ14			Direct
Pohang	PSZ15			Direct
Pohang	PSZ16			Direct
Pohang	PSZ17			Direct
Pohang	PSZ18			Direct
Pohang	PSZ19			Direct
Pohang	PSZ21			Direct

factory	Cost Ce... Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PSZ22			Direct
Pohang	PSZ41			Direct
Pohang	PSZ42			Direct
Pohang	PSZ43			Direct
Pohang	PSZ49			Direct
Pohang	PSZ61			Direct
Pohang	PSZ62			Direct
Pohang	PSZ69			Direct
Pohang	PSZ99			Direct
Pohang	PTA11			Indirect
Pohang	PTA12			Indirect
Pohang	PTA13			Indirect
Pohang	PTA14			Indirect
Pohang	PTA15			Indirect
Pohang	PTA16			Indirect
Pohang	PTA21			Indirect
Pohang	PTA31			Indirect
Pohang	PTA32			Indirect
Pohang	PTA41			Indirect
Pohang	PTA99			Indirect
Pohang	PTB11			Indirect
Pohang	PTB12			Indirect
Pohang	PTB13			Indirect
Pohang	PTB14			Indirect
Pohang	PTB99			Indirect
Pohang	PTC11			Indirect
Pohang	PTD11			Indirect
Pohang	PTD12			Indirect
Pohang	PTD13			Indirect
Pohang	PTD14			Indirect
Pohang	PTD15			Indirect
Pohang	PTD21			Indirect
Pohang	PTD99			Indirect
Pohang	PTE11			Indirect
Pohang	PTE12			Indirect
Pohang	PTE21			Indirect
Pohang	PTE22			Indirect
Pohang	PTE99			Indirect
Pohang	PTG11			Indirect
Pohang	PTH13			Indirect
Pohang	PTI11			Indirect
Pohang	PTI12			Indirect
Pohang	PTI13			Indirect
Pohang	PTI14			Indirect
Pohang	PTI15			Indirect
Pohang	PTZ11			Indirect
Pohang	PTZ12			Indirect
Pohang	PTZ14			Indirect
Pohang	PTZ15			Indirect
Pohang	PTZ16			Indirect
Pohang	PTZ17			Indirect
Pohang	PTZ18			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PTZ19			Indirect
Pohang	PTZ99			Indirect
Pohang	PUA11			Indirect
Pohang	PUA12			Indirect
Pohang	PUA13			Indirect
Pohang	PUA14			Indirect
Pohang	PUA15			Indirect
Pohang	PUA16			Indirect
Pohang	PUA17			Indirect
Pohang	PUA18			Indirect
Pohang	PUA23			Indirect
Pohang	PUA24			Indirect
Pohang	PUA25			Indirect
Pohang	PUA26			Indirect
Pohang	PUA27			Indirect
Pohang	PUA29			Indirect
Pohang	PUA31			Indirect
Pohang	PUA32			Indirect
Pohang	PUA99			Indirect
Pohang	PUB11			Indirect
Pohang	PUB12			Indirect
Pohang	PUB13			Indirect
Pohang	PUB14			Indirect
Pohang	PUB15			Indirect
Pohang	PUB17			Indirect
Pohang	PUB18			Indirect
Pohang	PUB22			Indirect
Pohang	PUB24			Indirect
Pohang	PUB26			Indirect
Pohang	PUB27			Indirect
Pohang	PUB28			Indirect
Pohang	PUB31			Indirect
Pohang	PUB32			Indirect
Pohang	PUB33			Indirect
Pohang	PUB34			Indirect
Pohang	PUB35			Indirect
Pohang	PUB36			Indirect
Pohang	PUB37			Indirect
Pohang	PUB38			Indirect
Pohang	PUB39			Indirect
Pohang	PUB99			Indirect
Pohang	PUC11			Indirect
Pohang	PUC12			Indirect
Pohang	PUC13			Indirect
Pohang	PUC14			Indirect
Pohang	PUC15			Indirect
Pohang	PUC16			Indirect
Pohang	PUC17			Indirect
Pohang	PUC18			Indirect
Pohang	PUC19			Indirect
Pohang	PUC21			Indirect
Pohang	PUC22			Indirect

factory	Cost Cen Code	Cost Center Name (Korean)	Cost Center Name (English)	lassification
Pohang	PUC23			Indirect
Pohang	PUC24			Indirect
Pohang	PUC25			Indirect
Pohang	PUC26			Indirect
Pohang	PUC27			Indirect
Pohang	PUC28			Indirect
Pohang	PUC29			Indirect
Pohang	PUC30			Indirect
Pohang	PUC31			Indirect
Pohang	PUC33			Indirect
Pohang	PUC34			Indirect
Pohang	PUC35			Indirect
Pohang	PUC36			Indirect
Pohang	PUC37			Indirect
Pohang	PUC38			Indirect
Pohang	PUC39			Indirect
Pohang	PUC40			Indirect
Pohang	PUC99			Indirect
Pohang	PUD11			Indirect
Pohang	PUD12			Indirect
Pohang	PUD13			Indirect
Pohang	PUD14			Indirect
Pohang	PUD15			Indirect
Pohang	PUD16			Indirect
Pohang	PUD17			Indirect
Pohang	PUD18			Indirect
Pohang	PUD99			Indirect
Pohang	PUE11			Indirect
Pohang	PUE12			Indirect
Pohang	PUE13			Indirect
Pohang	PUE14			Indirect
Pohang	PUE15			Indirect
Pohang	PUE16			Indirect
Pohang	PUE17			Indirect
Pohang	PUE18			Indirect
Pohang	PUE19			Indirect
Pohang	PUE99			Indirect
Pohang	PUF11			Indirect
Pohang	PUF12			Indirect
Pohang	PUF13			Indirect
Pohang	PUF14			Indirect
Pohang	PUF15			Indirect
Pohang	PUF16			Indirect
Pohang	PUF17			Indirect
Pohang	PUF18			Indirect
Pohang	PUF99			Indirect
Pohang	PUG00			Indirect
Pohang	PUG11			Indirect
Pohang	PUG12			Indirect
Pohang	PUG13			Indirect
Pohang	PUH00			Indirect
Pohang	PUH11			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PUH12			Indirect
Pohang	PUH13			Indirect
Pohang	PUI11			Indirect
Pohang	PUI12			Indirect
Pohang	PVA11			Indirect
Pohang	PVA12			Indirect
Pohang	PVA13			Indirect
Pohang	PVA14			Indirect
Pohang	PVA15			Indirect
Pohang	PVA16			Indirect
Pohang	PVA17			Indirect
Pohang	PVA18			Indirect
Pohang	PVA19			Indirect
Pohang	PVA99			Indirect
Pohang	PVB11			Indirect
Pohang	PVB13			Indirect
Pohang	PVB15			Indirect
Pohang	PVB16			Indirect
Pohang	PVB17			Indirect
Pohang	PVB18			Indirect
Pohang	PVB19			Indirect
Pohang	PVB20			Indirect
Pohang	PVB21			Indirect
Pohang	PVB22			Indirect
Pohang	PVB23			Indirect
Pohang	PVB24			Indirect
Pohang	PVB25			Indirect
Pohang	PVB26			Indirect
Pohang	PVB27			Indirect
Pohang	PVB99			Indirect
Pohang	PVE11			Indirect
Pohang	PVE12			Indirect
Pohang	PVE13			Indirect
Pohang	PVE14			Indirect
Pohang	PVE17			Indirect
Pohang	PVE22			Indirect
Pohang	PVE23			Indirect
Pohang	PVE24			Indirect
Pohang	PVE25			Indirect
Pohang	PVE26			Indirect
Pohang	PVE27			Indirect
Pohang	PVE28			Indirect
Pohang	PVE29			Indirect
Pohang	PVE99			Indirect
Pohang	PVF11			Indirect
Pohang	PVF12			Indirect
Pohang	PVF13			Indirect
Pohang	PVF14			Indirect
Pohang	PVF16			Indirect
Pohang	PVF17			Indirect
Pohang	PVF18			Indirect
Pohang	PVF19			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PVF20			Indirect
Pohang	PVF21			Indirect
Pohang	PVF22			Indirect
Pohang	PVF23			Indirect
Pohang	PVF24			Indirect
Pohang	PVF25			Indirect
Pohang	PVF99			Indirect
Pohang	PVG11			Indirect
Pohang	PVG12			Indirect
Pohang	PVG13			Indirect
Pohang	PVG14			Indirect
Pohang	PVG15			Indirect
Pohang	PVG16			Indirect
Pohang	PVG17			Indirect
Pohang	PVG19			Indirect
Pohang	PVG21			Indirect
Pohang	PVG22			Indirect
Pohang	PVG23			Indirect
Pohang	PVG26			Indirect
Pohang	PVG27			Indirect
Pohang	PVG28			Indirect
Pohang	PVG29			Indirect
Pohang	PVG31			Indirect
Pohang	PVG32			Indirect
Pohang	PVG33			Indirect
Pohang	PVG34			Indirect
Pohang	PVG35			Indirect
Pohang	PVG36			Indirect
Pohang	PVG37			Indirect
Pohang	PVG38			Indirect
Pohang	PVG39			Indirect
Pohang	PVG40			Indirect
Pohang	PVG41			Indirect
Pohang	PVG42			Indirect
Pohang	PVG43			Indirect
Pohang	PVG44			Indirect
Pohang	PVG45			Indirect
Pohang	PVG46			Indirect
Pohang	PVG47			Indirect
Pohang	PVG48			Indirect
Pohang	PVG49			Indirect
Pohang	PVG50			Indirect
Pohang	PVG51			Indirect
Pohang	PVG52			Indirect
Pohang	PVG53			Indirect
Pohang	PVG54			Indirect
Pohang	PVG55			Indirect
Pohang	PVG56			Indirect
Pohang	PVG57			Indirect
Pohang	PVG58			Indirect
Pohang	PVG59			Indirect
Pohang	PVG61			Indirect

factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PVG62			Indirect
Pohang	PVG63			Indirect
Pohang	PVG64			Indirect
Pohang	PVG65			Indirect
Pohang	PVG66			Indirect
Pohang	PVG67			Indirect
Pohang	PVG68			Indirect
Pohang	PVG69			Indirect
Pohang	PVG71			Indirect
Pohang	PVG72			Indirect
Pohang	PVG73			Indirect
Pohang	PVG74			Indirect
Pohang	PVG75			Indirect
Pohang	PVG76			Indirect
Pohang	PVG77			Indirect
Pohang	PVG78			Indirect
Pohang	PVG79			Indirect
Pohang	PVG80			Indirect
Pohang	PVG82			Indirect
Pohang	PVG83			Indirect
Pohang	PVG84			Indirect
Pohang	PVG85			Indirect
Pohang	PVG86			Indirect
Pohang	PVG87			Indirect
Pohang	PVG88			Indirect
Pohang	PVG89			Indirect
Pohang	PVG91			Indirect
Pohang	PVG92			Indirect
Pohang	PVG93			Indirect
Pohang	PVG94			Indirect
Pohang	PVG95			Indirect
Pohang	PVG96			Indirect
Pohang	PVG97			Indirect
Pohang	PVG98			Indirect
Pohang	PVG99			Indirect
Pohang	PVH11			Indirect
Pohang	PVH12			Indirect
Pohang	PVH14			Indirect
Pohang	PVH15			Indirect
Pohang	PVH16			Indirect
Pohang	PVH17			Indirect
Pohang	PVH18			Indirect
Pohang	PVH19			Indirect
Pohang	PVH21			Indirect
Pohang	PVH22			Indirect
Pohang	PVH23			Indirect
Pohang	PVH24			Indirect
Pohang	PVH25			Indirect
Pohang	PVH26			Indirect
Pohang	PVH27			Indirect
Pohang	PVH29			Indirect
Pohang	PVH31			Indirect

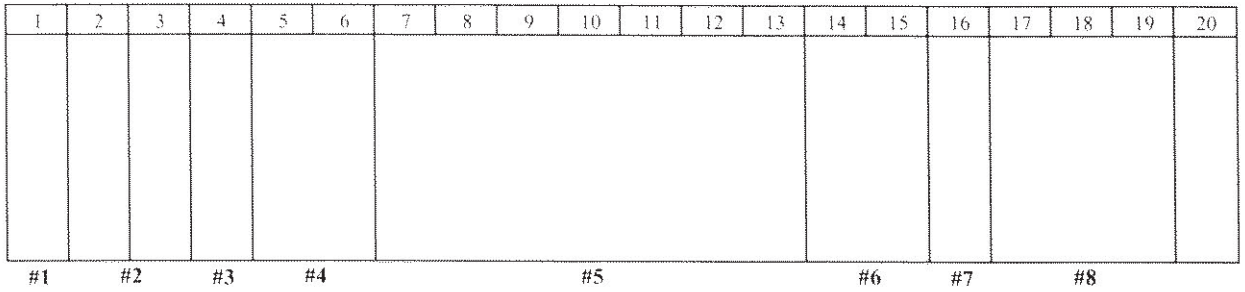
factory	Cost Center Code	Cost Center Name (Korean)	Cost Center Name (English)	Classification
Pohang	PVH32			Indirect
Pohang	PVH33			Indirect
Pohang	PVH34			Indirect
Pohang	PVH35			Indirect
Pohang	PVH36			Indirect
Pohang	PVH37			Indirect
Pohang	PVH38			Indirect
Pohang	PVH39			Indirect
Pohang	PVH99			Indirect
Pohang	PVI11			Indirect
Pohang	PVI14			Indirect
Pohang	PVI24			Indirect
Pohang	PVI25			Indirect
Pohang	PVI26			Indirect
Pohang	PVI27			Indirect
Pohang	PVI28			Indirect
Pohang	PVI29			Indirect
Pohang	PVI30			Indirect
Pohang	PVI31			Indirect
Pohang	PVI32			Indirect
Pohang	PVI34			Indirect
Pohang	PVI99			Indirect
Pohang	PVJ11			Indirect
Pohang	PVJ12			Indirect
Pohang	PVJ13			Indirect
Pohang	PVJ14			Indirect
Pohang	PVJ15			Indirect
Pohang	PVJ99			Indirect
Pohang	PVK11			Indirect
Pohang	PVK12			Indirect
Pohang	PVK13			Indirect
Pohang	PVK14			Indirect
Pohang	PVK99			Indirect
Pohang	PVL11			Indirect
Pohang	PVO11			Indirect
Pohang	PVO12			Indirect
Pohang	PVO99			Indirect
Pohang	PVP11			Indirect
Pohang	PVP12			Indirect
Pohang	PVP13			Indirect
Pohang	PVP14			Indirect
Pohang	PVP99			Indirect
Pohang	PZZ11			Indirect

Appendix G-6

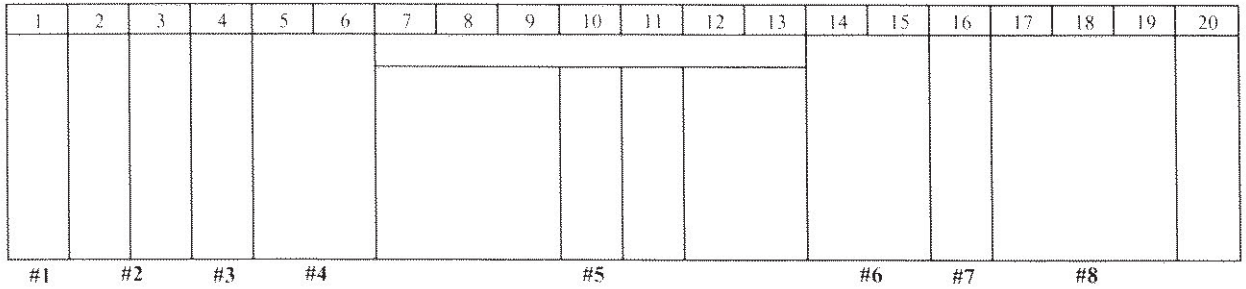
Description of Internal Product Code

POSCO's Item Structure

(1) [ ] for Finished Products



(2) [ ] for Semi-finished Products



Appendix G-7

Documents of Cost Information for Sample Product

Production Quantity and Cost of Manufacturing [INDEXED] by Product Name & Quarter

Sample Quarter & Product

(Unit: MT, KRW)

Product Name Code	Product Name	2012Q1		2012Q2		2012Q3		2012Q4		POI		
		Production Qty	COM Amount	Production Qty	COM Amount	Production Qty	COM Amount	Production Qty	COM Amount	Production Qty	COM Amount	
HE	*HR Plate*									0.9%		
PJ	Plate									99.1%		
Total Reported Production Qty & COM										100.0%		A
Total Excluded Production Qty & COM												B
HE Products with thickness below 4.75 mm												
Sub-standard Item and Abnormal Cost												
										0.07%		
Total Production Qty & COM (on Inventory Ledger)												C = A + B

Appendix G-8

Calculation of SG&A and Financial Expense Ratio for Each Market

Calculation of SG&A and Financial Expense Ratio for "Domestic CTMS"

Account	Company-wide	Goods under consideratoin	Remark
Wages and saleries			Allocated by [ ]
Expenses related to defined benefit plan			Allocated by [ ]
Other Employee benefits			Allocated by [ ]
Travel			Allocated by [ ]
Depreciation			Allocated by [ ]
Amortization			Allocated by [ ]
Rental			Allocated by [ ]
Repair			Allocated by [ ]
Advertising			Allocated by [ ]
Research & development			Allocated by [ ]
Service fees			Allocated by [ ]
Supplies			Allocated by [ ]
Vehicles maintenance			Allocated by [ ]
Industry association fee			Allocated by [ ]
Training			Allocated by [ ]
Conference			Allocated by [ ]
(Reversal of) bad debt expenses			Allocated by [ ]
Others			Allocated by [ ]
Freight and custody expenses			Direct Selling Expnese (Refer to "Domestic Sales Data")
Operating expenses for distribution center			Direct Selling Expnese (Refer to "Domestic Sales Data")
Sales commissions			Direct Selling Expnese (Refer to "Domestic Sales Data")
Sales Advertising			Allocated by [ ]
Sales Promotion			Allocated by [ ]
Samples			Allocated by [ ]
Sales Insurance Premium			Allocated by [ ]
Total Selling and General Administrative Expenses			**A**

Interest income			Allocated by [ ]
Dividend income			Excluded (Not Related with Sales & Production Activities)
Gains on disposal of financial assets held for trading			Allocated by [ ]
Gains on derivative transactions			Allocated by [ ]
Gains on foreign currency transactions			Allocated by [ ]
Gains on foreign currency translations			Allocated by [ ]
Gains on disposal of available-for-sale securities			Allocated by [ ]
Others			Allocated by [ ]
Total Financial Income			**B**

Account	Company-wide	Goods under consideratoin	Remark
Gain in disposals of property, platn and equipment			Allocated by [ ]
Gain in disposals of other long-term assets			Allocated by [ ]
Gain in disposals of intangible assets			Allocated by [ ]
Gain in disposals of investment in subsidiaries and associates			Excluded (Not Related with Sales & Production Activities)
Reversals of impairment of property, plant, and equipment			Allocated by [ ]
Gain in disposals of assets held for sale			Allocated by [ ]
Miscellaneous income			Allocated by [ ]
Total Non-operating Income			**C**
Interest Expense			Allocated by [ ]
Losses on foreing currency transactions			Allocated by [ ]
Losses on foreign currency translations			Allocated by [ ]
Impairment of available-for-sale securities			Allocated by [ ]
Others			Allocated by [ ]
Total Financial Expense			**D**
Loss on disposals of peroperty, plant, and equipment			Allocated by [ ]
Reversal of other bad debt expenses			Allocated by [ ]
Impairment loss of property, plant, and equipment			Allocated by [ ]
Loss on disposals of other long-term assets			Allocated by [ ]
Impairment loss of intangible assets			Allocated by [ ]
Loss on disposals of intangible assets			Allocated by [ ]
Donations			Allocated by [ ]
Idle tangible assets expenses			Allocated by [ ]
Impairment loss of investment in subsidiaries and associates			Excluded (Not Related with Sales & Production Activities)
Loss on disposals of investments in subsidiearies and associates			Excluded (Not Related with Sales & Production Activities)
Loss on disposales of assets held for sale			Allocated by [ ]
Miscellaneous loss			Allocated by [ ]
Total Non-operating Expense			**E**

Total Selling&Genearl and Financial Expense			**F = A - B - C + D + E**
Total Sales			**G (Refer to Domestic Sales Data)**
SG&A and Financial Expense Ratio	**[1% ~ 10%]**	**[1% ~ 10%]**	**H = E / G**

Calculation of SG&A and Financial Expense Ratio for "Australian CTMS"

Account	Company-wide	Goods under consideratoin	Remark
Wages and saleries			Allocated by [ ]
Expenses related to defined benefit plan			Allocated by [ ]
Other Employee benefits			Allocated by [ ]
Travel			Allocated by [ ]
Depreciation			Allocated by [ ]
Amortization			Allocated by [ ]
Rental			Allocated by [ ]
Repair			Allocated by [ ]
Advertising			Allocated by [ ]
Research & development			Allocated by [ ]
Service fees			Allocated by [ ]
Supplies			Allocated by [ ]
Vehicles maintenance			Allocated by [ ]
Industry association fee			Allocated by [ ]
Training			Allocated by [ ]
Conference			Allocated by [ ]
(Reversal of) bad debt expenses			Allocated by [ ]
Others			Allocated by [ ]
Freight and custody expenses			Direct Selling Expnese (Refer to "Australian Sales Data")
Operating expenses for distribution center			Direct Selling Expnese (Refer to "Australian Sales Data")
Sales commissions			Direct Selling Expnese (Refer to "Australian Sales Data")
Sales Advertising			Allocated by [ ]
Sales Promotion			Allocated by [ ]
Samples			Allocated by [ ]
Sales Insurance Premium			Allocated by [ ]
Total Selling and General Administrative Expenses			**A**

Interest income			Allocated by [ ]
Dividend income			Excluded (Not Related with Sales & Production Activities)
Gains on disposal of financial assets held for trading			Allocated by [ ]
Gains on derivative transactions			Allocated by [ ]
Gains on foreign currency transactions			Allocated by [ ]
Gains on foreign currency translations			Allocated by [ ]
Gains on disposal of available-for-sale securities			Allocated by [ ]
Others			Allocated by [ ]
Total Financial Income			**B**

Account	Company-wide	Goods under consideratoin	Remark
Gain in disposals of property, platn and equipment			Allocated by [ ]
Gain in disposals of other long-term assets			Allocated by [ ]
Gain in disposals of intangible assets			Allocated by [ ]
Gain in disposals of investment in subsidiaries and associates			Excluded (Not Related with Sales & Production Activities)
Reversals of impairment of property, plant, and equipment			Allocated by [ ]
Gain in disposals of assets held for sale			Allocated by [ ]
Miscellaneous income			Allocated by [ ]
Total Non-operating Income			**C**
Interest Expense			Allocated by [ ]
Losses on foreing currency transactions			Allocated by [ ]
Losses on foreign currency translations			Allocated by [ ]
Impairment of available-for-sale securities			Allocated by [ ]
Others			Allocated by [ ]
Total Financial Expense			**D**
Loss on disposals of peroperty, plant, and equipment			Allocated by [ ]
Reversal of other bad debt expenses			Allocated by [ ]
Impairment loss of property, plant, and equipment			Allocated by [ ]
Loss on disposals of other long-term assets			Allocated by [ ]
Impairment loss of intangible assets			Allocated by [ ]
Loss on disposals of intangible assets			Allocated by [ ]
Donations			Allocated by [ ]
Idle tangible assets expenses			Allocated by [ ]
Impairment loss of investment in subsidiaries and associates			Excluded (Not Related with Sales & Production Activities)
Loss on disposals of investments in subsidiearies and associates			Excluded (Not Related with Sales & Production Activities)
Loss on disposales of assets held for sale			Allocated by [ ]
Miscellaneous loss			Allocated by [ ]
Total Non-operating Expense			**E**

Total Selling&Geneard and Financial Expense		**F = A - B - C + D + E**
Total Sales		**G (Refer to Australian Export Sales Data)**
SG&A and Financial Expense Ratio	**[1% ~ 10%]**	**[1% ~ 10%] H = E / G**

Appendix G-9

Analysis of Raw Material Purchases

Analysis of Raw Material Purchases

Raw material	Affiliation	Supplier Name	Purchase Quantity (MT)	Purchase Rate
[Material A]	Affiliated			0.06%
				0.15%
				3.11%
	Unaffiliated	Unaffiliated		96.68%
	Sub-Total			**100.0%**

[Material B]	Affiliated			0.32%
				0.05%
	Unaffiliated			99.63%
	Sub-Total			**100.0%**

Appendix G-10

Table Showing Raw Material Purchases

Raw Material Purchases

Date of purchase	Material type (Coke, Coking coal, Coal, Lime etc)	PO No - Release No	Country of manufacture	Supplier	Does the supplier manufacture/produce the raw material?	Manufacturer/producer (if not the supplier)	Quantity (Tonnes)	Purchase Price (ex. tax)	Purchase Price (Incl. tax)	Unit Price (Ex. tax)	Currency	Delivery terms
	[Material A]											

Folio111

Raw Material Purchases

Date of purchase	Material type (Coke, Coking coal, Coal, Lime etc)	PO No - Release No	Country of manufacture	Supplier	Does the supplier manufacture/produce the raw material?	Manufacturer/producer (if not the supplier)	Quantity (Tonnes)	Purchase Price (ex. tax)	Purchase Price (Incl. tax)	Unit Price (Ex. tax)	Currency	Delivery terms
	[Material B]											