HYUNDAI STEEL

PRODUCTS GUIDE

CONTENTS

CORPORATE IDENTITY (CI)

HYUNDAI STEEL

현대제철 사명을 부각시킨 심벌 H는 High Spirit(진취적 기상), Harmony(조화), Humanity(인류애)를 상징합니다.
H의 견고한 양 축은 현대제철의 신 • 기존사업과 기업, 고객을 뜻하며 가운데 교량(Bridge)은 양 축의 균형적 만남과 통합으로 성장하는 미래를 의미합니다.

블루컬러는 현대제철이 첨단기술과 신뢰를 바탕으로 밝은 미래 환경의 청사진을 구현하는 선도 기업임을 나타냅니다.
High Spirit, Harmony, Humanity는 현대제철이 도전적이고 혁신적인 기상과 조화를 통해 밝은 미래사회에 공헌하는 세계 최고의 철강기업으로 성장해 나간다는 뜻입니다.

The symbol 'H', which embosses the mission of Hyundai Steel, stands for 'High Spirit', 'Harmony', and 'Humanity'. The firm and stable axes on both sides of the 'H' imply the past and new businesses and customers. The bridge connecting the two axes suggests a promising future of Hyundai Steel, growing with balanced contact and integration of both axes.

The bright blue color shows the leading position of Hyundai Steel in future environmental concerns, proposing a new blueprint based on modern technology and reliability. In other words, High Spirit, Harmony, Humanity collectively represent that Hyundai Steel will grow into a world-leading steel company with high spirit and harmony, thereby contributing to the humanity.

쇳물에서 자동차까지 대한민국에서 세계까지 현대제철은 창조적인 변화와 혁신으로 친환경 자원 순환형 생산체계를 완성하며 새로운 철강시대의 리더로서 철강산업의 새로운 역사를 펼쳐갈 것입니다.

FROM RAW METAL TO CARS, FROM KOREA TO THE WORLD, HYUNDAI STEEL, AN INNOVATIVE STEEL INDUSTRY LEADER, IS HERALDING A NEW ERA OF CHANGE AND CREATIVITY BY DEVELOPING AN ECO-FRIENDLY PRODUCTION SYSTEM BASED ON THE "3RS", REUSE, RECYCLE, AND REDUCE.

COMPANY HISTORY 연혁

1953~1977

창립 초기의 대한중공업공사 전경
A panoramic view of Korea Heavy Industry Corporation at an early stage of its foundation

개척기
FOUNDATION

1953. 06. 대한중공업공사 창립
Established as Korea Heavy Industry Corporation

1962. 11. 인천중공업주식회사로 상호변경
Renamed to Incheon Heavy Industry Company, Ltd.

1964. 09. 인천제철주식회사 설립(양사 체제)
Established Incheon Iron & Steel Co. (Dual corporate system)

1970. 04. 인천제철로 통합
Merged into Incheon Iron & Steel Co.

1978~1999

현대그룹 종합체육대회 참가
Participated in Hyundai Group-wide track meet

확장기
EXPANSION

1978. 06. 현대그룹에 편입
Incorporated into Hyundai Group

1982. 03. H형강공장 조업 개시
Commissioned a H Section mill

1987. 05. 기업공개
Undertook initial public offering (IPO)

1990. 09. 12만 톤 스테인리스 냉연공장 증설 준공
Completed an additional 120 thousand ton stainless cold rolling mill.

1992. 10. 국제철강협회 정회원 가입
Became a full member of the International Iron & Steel mill

1998. 03. 120톤 전기제강공장 및 신(新) 중형 압연공장 준공
Completed 120-tonne electric arc furnace mill and new mid-sized rolling mill

1999. 12. 청도 현대 기계 유한공사 설립
Established Qingdao Hyundai Machinery Co., Ltd.

2000~2003

현대자동차그룹으로 출범하는 기념식에 참석한 정몽구 회장
Chairman Chung Mong-koo attending incorporation ceremony into Hyundai Motor Group in 2001

변화와 제2의 창업
CHANGES AND THE SECOND FOUNDATION

2000. 03. 강원산업㈜ 합병
Merged with Kangwon Industries, Ltd.

2000. 12. 삼미특수강㈜ 합병
Acquired Sammi Steel Company, Ltd.

2001. 04. 현대자동차그룹으로 출범
Incorporated into Hyundai Motor Group

2001. 07. INI STEEL로 사명 변경
Renamed to INI Steel

2004~2009

2006년 일관제철소 기공식
Held ground-breaking ceremony for Integrated Steelworks in 2006

종합철강회사 성장기반 구축
BUILDING A SOLID FOUNDATION FOR GROWTH AS A COMPREHENSIVE STEELMAKER

2004. 10. 한보철강공업㈜ 당진공장 인수합병식
Ceremony marking the acquisition and merger of Hanbo Iron & Steel's Dangjin plant

2005. 05. 당진 A열연공장 상업생산 개시
Dangjin A hot rolling mill starts commercial production

2006. 03. 현대제철로 사명 변경
Renamed to Hyundai Steel Company

2006. 10. 일관제철소 기공식
Held ground-breaking ceremony for Integrated Steelworks

2009. 09. 세계 최초 밀폐형 원료처리시스템 가동
Operating world's first fully enclosed raw materials system

2010~2015

2010년 제2고로 화입식
Chairman Chung Mong-koo firing Blast Furnace No.1 at ceremony in 2010

글로벌 철강사로의 대도약
TO BECOME A GLOBAL STEELMAKER

2010. 01. 일관제철소 1고로 화입식
Operation of Blast Furnace No.1

2010. 04. 일관제철소 준공식
Completed Integrated Steelworks

2010. 11. 일관제철소 2고로 화입식
Operation of Blast Furnace No.2

2011. 04. 일관제철소 3고로 기공식
Held ground-breaking ceremony of Furnace No.3

2013. 09. 일관제철소 3고로 화입식
Operation of Blast Furnace No.3

2013. 12. 현대하이스코 냉연부문 분할 합병
Merged with Hyundai Hysco's Cold-Rolled Coil Division

2014. 04. 특수강 공장 기공식
Began operation of special steel works

MANUFACTURING 공장 소개

당진제철소 Dangjin Integrated Steelworks

2010년 국내 민간기업 최초로 일관제철소를 가동해 한국 철강사를 다시 쓰고 있는 당진제철소는 고로 및 전기로 공정을 갖췄으며, 특수강 공장을 건설 중인 종합제철소입니다. 고로 3기를 포함한 고로 공정은 후판, 열연, 냉연공장으로 이루어져 있으며 철스크랩을 원료로한 전기로 공정에서는 철근을 생산하고 있습니다.
Since Hyundai Steel developed Korea's first privatized integrated steelworks in 2010, Dangjin Integrated Steelworks has been rewriting the history of steel in Korea. The Steelworks includes both blast furnace and electric arc furnace zones. The former consists of hot rolling, cold rolling, and heavy plate mills including three blast furnaces while the latter produces reinforcing bars, using scrap iron as a raw material. Additionally, the special steel mill is under construction and on the way to complete.

생산제품 열연강판, 냉연강판, 후판, 철근
Products Hot-rolled Coil, Cold-rolled Coil, Heavy Plate, Rebar

조강 생산능력 *2014년 12월 기준, *봉강/선재는 2015년 11월 기준
- •고로 – 1,258만 톤
- •전기로 – 225만 톤
- •압연능력(열연 · 후판 · 냉연) – 1,960만 톤
- •철근 – 125만 톤 / 봉강 – 60만 톤 / 선재 – 40만 톤

Annual Production Capacity: (in millions of tonnes) (as of December 2014, *Round Bar/Wire Rod: as of November 2015)
- •Blast furnace crude steelmaking – 12.58
- •Electric arc furnace steelmaking – 2.25
- •Rolling (Hot-rolled Coil, Cold-rolled Coil, Heavy Plate) – 19.60
- •Rebar – 1.25, Round Bar – 0.60, Wire Rod – 0.40

면적 882만 m^2
Size 8,820,000 m^2

인천공장 Incheon Works

한국 철강산업의 효시가 된 인천공장은 세계 최대 단일 전기로 공장으로서 친환경, 고효율의 시설을 갖추고 있습니다.
Hyundai Steel's Incheon Works was the very first steel plant in Korea. It is now the world's largest electric arc furnace mill, boasting a wide range of eco-friendly, high-efficiency facilities.

생산제품 H형강, 철근, 냉간압연 스테인리스 강판, 일반형강, 단강품
Products H Sections, Rebar, Stainless Steel, Section Steel, Ingot

생산능력 *2014년 12월 기준
- •제강 능력 – 465만 톤
- •압연 능력 – 443만 톤

Annual Production Capacity: (in millions of tonnes) (as of December 2014)
- •Steelmaking – 4.65
- •Rolling – 4.43

면적 92만 m^2
Size 920,000 m^2

포항공장 Pohang Works

세계 최고 수준의 기술력을 바탕으로 강력한 국제 경쟁력을 자랑하는 포항공장은 고부가가치 철강 제품 시장을 선도하고 있습니다.
Hyundai Steel's Pohang Works boasts a wide range of industry-leading technologies and strong global competitiveness. It is the leader of the Korean steel industry's high-value added market.

생산제품 H형강, 철근, 레일, 원형강, 롤, 무한궤도
Products H Sections, Reinforcing Bar, Railroad Rail, Round Section, Roll, Track Shoe Assembly

생산능력 *2014년 12월 기준
- •제강 능력 – 266만 톤
- •압연 능력 – 272만 톤

Annual Production Capacity: (in millions of tonnes) (as of December 2014)
- •Steelmaking – 2.66
- •Rolling – 2.72

면적 66만 m^2
Size 660,000 m^2

순천공장 Suncheon Works

단일설비로는 세계 최대인 120만 톤 규모의 연속소둔 설비를 갖춘 순천공장은 연산 200만 톤의 냉연제품을 생산할 수 있는 공장입니다. 용융아연도금설비, 전기아연도금설비, 착색도장설비 등의 최첨단 설비를 갖추고 자동차용, 가전용, 건자재용 등 다양한 냉연강판을 생산하고 있습니다.
Equipped with state-of-the-art facilities, including a Continuous Annealing Line (CAL) boasting the world's largest production capacity of 1.2 million tonnes, a Continuous Galvanizing Line (CGL), an Electrolytic Galvanizing Line, and a Color Coating Line, it produces a broad range of cold-rolled steel for automobiles, consumer electronics, and construction materials.

생산제품 냉연제품, 용융아연도금강판, 전기아연도금강판, 컬러강판
Products Cold-rolled Coil, Hot-dipped Galvanized Steel Sheet, Electrolytic Galvanized Steel Sheet, Pre-coated Steel Sheet

생산능력 *2014년 12월 기준
- •압연능력 – 200만 톤

Annual Production Capacity: (in millions of tonnes) (as of December 2014)
- •Rolling – 2.00

면적 82.2만 m^2
Size 822,000 m^2

청도공장 Qingdao Factory

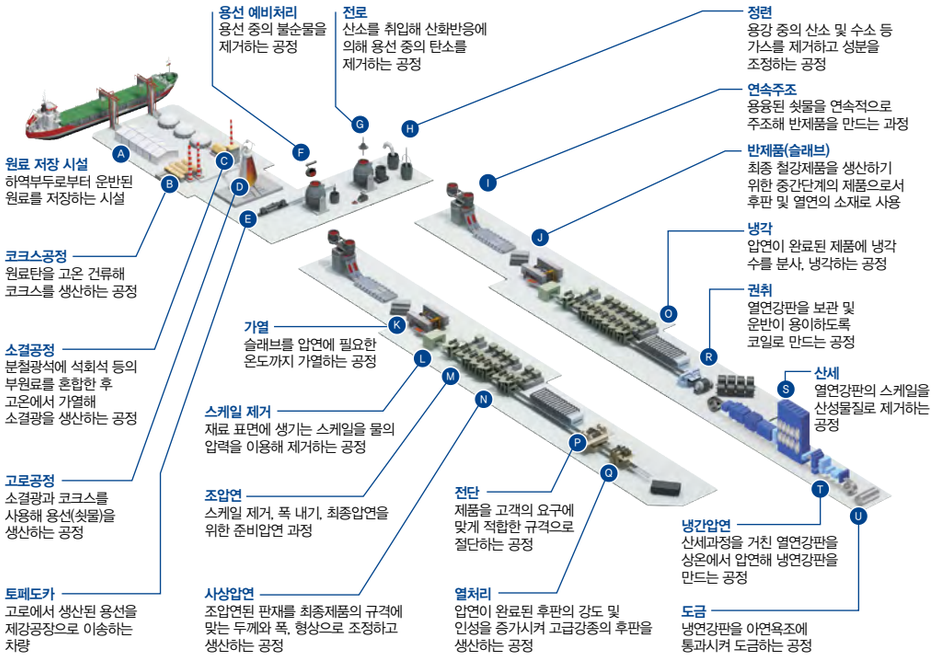
중국 시장의 잠재력과 무한한 가능성을 내다보며 지난 2000년 설립된 청도공장은 무한궤도 부품을 조립 · 생산하고 있습니다.
Established in 2000 to meet China's rapidly increasing need for steel products, the Qingdao Factory produces track shoe assemblies.

생산제품 트랙 어셈블리, 롤러
Products Track Assembly, Roller

면적 6.6만 m^2
Size 66,000 m^2

PROCESS 제조공정

Integrated Steelworks Process 일관제철공정



A Raw materials storage facility
stores raw materials unloaded from ships

B Coking
produces coke from coal through high-temperature carbonization

C Sintering
produces sintered ore by adding raw materials (such as heated limestone) to powdered ore and heating them at high temperatures

D Blast furnace process
produces molten iron using sintered ore and coke

E Torpedo car
transfers molten iron to the steelmaking plant

F Pre-treatment
removes impurities from molten iron

G Converter
removes carbon from molten iron through oxidization by adding oxygen

H Ladle furnace
removes gases such as oxygen and hydrogen from steel to vary its composition

I Continuous casting
makes steel slabs through continuous casting

J Semi-finished products
medium-stage products that will be turned into hot rolled Coil and steel Plate during the next rolling process

K Reheating
heats slabs to proper rolling temperature

L Descaling
removes scale from the surface using high-pressure water

M Roughing mill
descales and tenters during intermediate rolling prior to final rolling

N Finishing mill
rolls final products to proper size

O Cooling
uses water to cool rolled products

P Cutting
cuts products to customer-specified dimensions

Q Heating treatment
heats to produce high-quality steel Plate

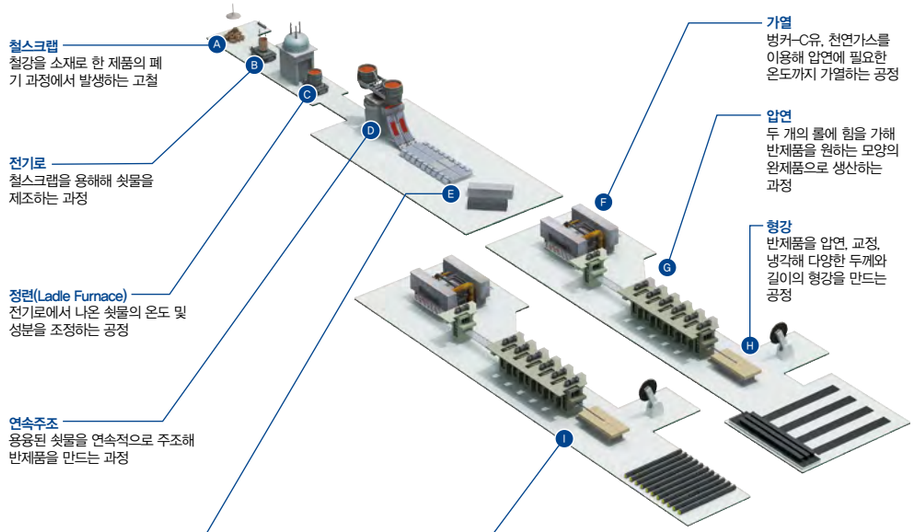
R Downcoiling
makes hot rolled Coil from hot rolled sheets for storage and delivery

S Picking
removes scale on hot-rolled coil with acid

T Cold Rolling
makes cold-rolled coil through hot-rolling prodess after picking process

U Plating
plates cold-rolled coil by passing it through a zinc bath

Electric Arc Furnace Process 전기로공정



A Scrap steel
steel acquired from used metal products

B Electric arc furnace
produces molten metal from scrap steel

C Ladle furnace
controls temperature and components of molten iron in the electric furnace

D Continuous casting
produces semi-finished products by continuously casting molten metal

E Semi-finished product
intermediate–stage products easily stored prior to final processing

F Reheating
heats H Section to required temperature using bunker–Coil and natural gas

G Rolling
produces finished products by adding strength to two rolls

H Section
makes various-shaped Steel from semi-finished products by rolling, modifying, and cooling them

I Reinforcing bar
produces various sizes of reinforcing Bar by rolling semi-finished products

MAIN PRODUCTS

HOT ROLLED COIL
열연코일

COLD ROLLED COIL
냉연코일

STEEL PLATE
후판

PRODUCTS GUIDE
PART 01

01. HOT ROLLED COIL 열연코일

1) Standard & Applications 제품 규격 및 용도

용도 Applications	규격 Standard					
	KS/JIS	ASTM/ASME	SAE/AISI	EN/AS/NZS	API	HS(사내규격)
열간압연 연강재 Hot Rolled Mild Steel Plate, Sheet	SPHC SPHD SPHE		-	DD11 DD12 DD13 DD14	-	
냉연용 탄소강재 Reduced Carbon Steel for Cold Rolled Steel	CQ3, DQ, DDQ, EDDQ					
일반구조용 Rolled Steel for General Structure	SS330 SS400 SS490 SS540* SS590*	A36 A283 A1011 A1018 SA36		S235JR S275JR/0/2 S355JR/0(C)/2 HA250 HA300 HA350	-	
용접구조용 Rolled Steel for Welded Structure	SM400A/B SM490A/B SM490YA/YB SM520B				-	
자동차구조용 열간압연 강판 및 강대 Hot Rolled Steel Plate, Sheets and Strip for Automobile Structural Uses	SAPH310 SAPH370 SAPH400 SAPH440		-	S315MC S355MC	-	
자동차용 가공성 열간압연 고장력강판 Hot Rolled High Strength Steel Sheets with Improved Formability for Automobile Structure Uses	SPFH540 SPFH590 SPFH590Y		-	S420MC S500MC S650MC* S700MC*	-	
자동차용 열간압연 고강도강판 Hot Rolled High Strength Steel for Automobile Structure Uses						HS540AS HS590AS HS780AS*
기계구조용 저합금 강재 Low-alloyed Steels for Machine Structural Use	SNCM220 SCM415 SCM435		8165 8617 8620 8622 4135 4137	34CrMo4*	-	
탄소 공구강재 Carbon Tool Steel	SK85 (SK5)*		W1-8*	C80W1*	-	
스프링 강재 Spring Steel	SPS6*		6145* 6150*	50CrV4* 51CrV4*	-	
기계구조용 탄소강재 Carbon Steel for Machine Structural Use	S10C S20C S35C S40C S45C S50C S55C		SAE1006 SAE1008 SAE1010 SAE1012 SAE1017 SAE1020 SAE1022* SAE1026* SAE1035*	-	-	

용도 Applications	규격 Standard					
	KS/JIS	ASTM/ASME	SAE/AISI	EN/AS/NZS	API	HS(사내규격)
강관용 Hot Rolled Carbon Steel Strip for Pipe & Tubes	HRS1/SPHT1 HRS2/SPHT2 HRS3/SPHT3 HRS4/SPHT4*		-	-	-	
열교환기용 탄소강관 Carbon Steel Boiler and Heat Exchanger Tubes	STB340 STB410 STB510*	A178A* A178C* A178D*		-	-	
일반구조용 탄소강관 Carbon Steel Tubes for General Structural Purposes	STK290 STK400 STK490 STK500 STK540* STK590*		-	-	-	
기계구조용 탄소강관 Carbon Steel Tubes for Machine Structural Purposes	STKM11A STKM12B STKM13A/B STKM15A* STKM16A*		-	-	-	HPCD290A HPCD340A HPCD410A HPCD440A HPCD470A HPCD510A*
철탑구조용 고장력강관 High Tensile Strength Steel Tubes for Tower Structural Purposes	STKT540 STKT590*		-	-	-	
건축구조용 압연강재 Rolled Steel for Building Structure	SN400B SN490B*		-	-	-	
건축구조용 탄소강관 Carbon Steel Tubes for Building Structure	STKN400B STKN490B		-	-	-	
고내후성 압연강재 Superior Atmosphere Corrosion Resisting Rolled Steel	SPA-H		A242	-	-	
선체구조용 연강재 Ordinary Strength Hull Structural Steel	A / B (KR, BV, CCS, DNV, GL, NK, RINA, RS, ABS*, LR*)					
선체구조용 고장력강재 Higher Strength Hull Structural Steel	AH32 / AH36 (KR, BV, CCS, DNV, GL, NK, RINA, RS, ABS*, LR*)					
고압가스 용기용 강재 Steel Sheets, Plate and Strip for Gas Cylinders	SG255 SG295 SG325* SG365*	A516*		-	-	
석유 및 천연가스 수송강관 Hot Rolled Carbon Steel Strip for Petroleum, Natural Gas Line Pipe	-		-	-	API 5L B API X42 API X46 API X52 API X56 API X60 API X65 API X70 API X80* API X42MS* API X52MS* API X60MS* API X65MS*	
석유 및 천연가스 유정강관 Hot Rolled Carbon Steel Strip for Petroleum, Natural Gas Casing & Tubing Pipe	-		-	-	API J55 API K55*	

*: 사전협의 필요 Prior discussion is necessary

※ 본 제품 규격 및 용도는 변경될 수 있으므로 반드시 최신 규격 및 세부 용도를 확인하시거나 담당자와 협의 바랍니다.

01. HOT ROLLED COIL 열연코일

2) Available Sizes 공급 가능 규격

(1) A열연

① 30Kg급

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 1.6	< 1.9	< 12.0	< 16.1
폭 Width 900 ≤				
폭 Width 1300 ≤				
폭 Width < 1540				

② 40Kg급

두께 Thickness	< 1.6	< 1.9	< 2.9	< 12.0	< 16.1
폭 Width 900 ≤					
폭 Width 1300 ≤					
폭 Width < 1540					

③ 50Kg급

두께 Thickness	< 1.6	< 4.0	< 5.0	< 12.0	< 16.1
폭 Width 900 ≤					
폭 Width 1000 ≤					
폭 Width 1100 ≤					
폭 Width < 1540					

④ 무늬강판 (Checkered Coil)

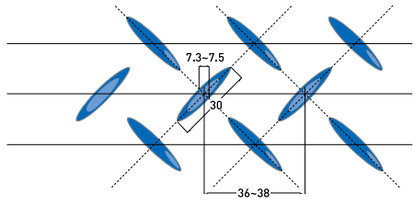
- 30Kg급

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 1.2	< 1.6	< 2.75	< 9.0	< 11.8	< 16.0
폭 Width ≤ 800						
폭 Width ≤ 900						
폭 Width ≤ 1000						
폭 Width ≤ 1100						
폭 Width ≤ 1230						
폭 Width ≤ 1530						
폭 Width ≤ 1600						

Pattern A

– Aiming 1.0mm

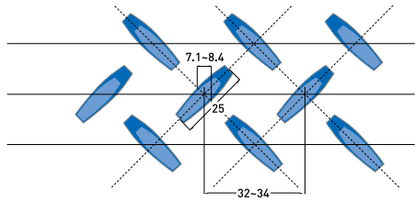


- 40Kg급

두께 Thickness	< 1.2	< 2.75	< 2.9	< 11.8	< 16.0
폭 Width ≤ 800					
폭 Width ≤ 900					
폭 Width ≤ 1000					
폭 Width ≤ 1100					
폭 Width ≤ 1230					
폭 Width ≤ 1530					
폭 Width ≤ 1600					

Pattern B

– Aiming 1.0mm



01. HOT ROLLED COIL 열연코일

2) Available Sizes 공급 가능 규격

(2) B열연

① 극저일반

사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 1.2	< 2.2	< 2.3	< 2.5	< 2.6	< 2.8	< 3.0	< 3.1	< 3.2	< 5.0	< 16.1
< 821											
< 1196											
< 1331											
< 1346											
< 1484											
< 1531											
< 1560											
< 1571											
< 1622											
< 1891											

② 30Kg급

두께 Thickness / 폭 Width	< 1.2	< 1.3	< 1.4	< 2.0	< 2.2	< 2.6	< 2.8	< 3.1	< 3.6	< 4.3	< 16.1
< 821											
< 1225											
< 1291											
< 1531											
< 1551											
< 1571											
< 1651											
< 1721											
< 1801											
< 1891											

③ 40Kg급

사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 1.2	< 1.4	< 2.0	< 2.6	< 3.3	< 3.6	< 4.3	< 4.4	< 5.3	< 16.1
< 821										
< 1291										
< 1531										
< 1571										
< 1651										
< 1711										
< 1721										
< 1836										
< 1891										

④ 50Kg급

두께 Thickness / 폭 Width	< 1.2	< 1.6	< 1.8	< 1.9	< 2.1	< 2.3	< 2.6	< 3.0	< 4.3	< 5.3	< 16.1
< 821											
< 971											
< 1121											
< 1181											
< 1196											
< 1271											
< 1346											
< 1531											
< 1571											
< 1891											

01. HOT ROLLED COIL 열연코일

2) Available Sizes 공급 가능 규격

(2) B열연

⑤ 60Kg급 / 70Kg급 이상

사전협의 필요 (Please consult us in advance)

폭 Width \ 두께 Thickness	< 1.2	< 1.7	< 1.8	< 1.9	< 2.0	< 2.1	< 2.3	< 2.4	< 3.1	< 3.4	< 4.5	< 6.0	< 16.1
< 821			■	■	■	■	■	■	■	■	■	■	■
< 971			■	■	■	■	■	■	■	■	■	■	■
< 1046				■	■	■	■	■	■	■	■	■	■
< 1121					■	■	■	■	■	■	■	■	■
< 1196						■	■	■	■	■	■	■	■
< 1271							■	■	■	■	■	■	■
< 1291								■	■	■	■	■	■
< 1346									■	■	■	■	■
< 1421										■	■	■	■
< 1496											■	■	■
< 1571												■	■
< 1651													■
< 1891													

⑥ 특수강 (SPA-H)

폭 Width \ 두께 Thickness	< 1.2	< 1.6	< 2.2	< 2.4	< 3.1	< 3.4	< 4.5	< 16.1
< 821			■	■	■	■	■	■
< 1181			■	■	■	■	■	■
< 1196					■	■	■	■
< 1271					■	■	■	■
< 1321						■	■	■
< 1421							■	■
< 1571								■
< 1891								

(3) C열연

① 극저일반

사전협의 필요 (Please consult us in advance)

폭 Width \ 두께 Thickness	< 1.2	< 1.8	< 1.9	< 2.0	< 2.3	< 2.4	< 2.6	< 2.7	< 25.5
< 821			■	■	■	■	■	■	■
< 1346			■	■	■	■	■	■	■
< 1421				■	■	■	■	■	■
< 1651					■	■	■	■	■
< 1721						■	■	■	■
< 1801							■	■	■
< 1836								■	■
< 2001									■

② 30Kg급

폭 Width \ 두께 Thickness	< 1.2	< 1.3	< 1.4	< 1.5	< 1.6	< 2.3	< 2.5	< 2.6	< 2.7	< 3.0	< 3.1	< 3.6	< 25.5
< 821		■	■	■	■	■	■	■	■	■	■	■	■
< 1237		■	■	■	■	■	■	■	■	■	■	■	■
< 1271			■	■	■	■	■	■	■	■	■	■	■
< 1484				■	■	■	■	■	■	■	■	■	■
< 1551					■	■	■	■	■	■	■	■	■
< 1622						■	■	■	■	■	■	■	■
< 1721							■	■	■	■	■	■	■
< 1836								■	■	■	■	■	■
< 1851									■		■		■
< 2001													■

01. HOT ROLLED COIL 열연코일

2) Available Sizes 공급 가능 규격

(3) C열연

③ 40Kg급

사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 1.2	< 1.3	< 1.4	< 1.6	< 2.5	< 3.0	< 3.6	< 25.5
< 821			■	■	■	■	■	■
< 1271			■	■	■	■	■	■
< 1421				■	■	■	■	■
< 1622					■	■	■	■
< 1801						■	■	■
< 1836							■	■
< 2001								■

④ 50Kg급

두께 Thickness / 폭 Width	< 1.2	< 1.4	< 1.8	< 2.2	< 2.3	< 2.7	< 3.2	< 4.4	< 4.5	< 25.5
< 821			■	■	■	■	■	■	■	■
< 1237			■	■	■	■	■	■	■	■
< 1346					■	■	■	■	■	■
< 1496						■	■	■	■	■
< 1571							■	■	■	■
< 1651								■	■	■
< 1721								■	■	■
< 1801									■	■
< 2001										■

⑤ 60Kg급

사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 1.2	< 1.6	< 1.8	< 2.2	< 2.3	< 2.7	< 4.4	< 4.5	< 25.5
< 821			■	■	■	■	■	■	■
< 1237			■	■	■	■	■	■	■
< 1346				■	■	■	■	■	■
< 1421					■	■	■	■	■
< 1571						■	■	■	■
< 1651							■	■	■
< 1801								■	■
< 2001									■

01. HOT ROLLED COIL 열연코일

2) Available Sizes 공급 가능 규격

(3) C열연

⑥ 70Kg급 이상

사전협의 필요 (Please consult us in advance)

폭 Width \ 두께 Thickness	< 1.2	< 1.7	< 2.0	< 2.1	< 2.3	< 2.5	< 2.7	< 3.2	< 4.4	< 4.5	< 25.5
< 821											
< 1196											
< 1271											
< 1346											
< 1496											
< 1571											
< 1651											
< 1721											
< 1801											
< 1836											
< 2001											

⑦ 특수강 (SPA-H)

사전협의 필요 (Please consult us in advance)

폭 Width \ 두께 Thickness	< 1.2	< 1.6	< 2.2	< 2.4	< 3.1	< 3.4	< 5.0	< 25.5
< 821								
< 1181								
< 1196								
< 1271								
< 1321								
< 1346								
< 1571								
< 2001								

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(1) Hot Rolled Mild Steel Plate, Sheet 열간압연 연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치				
			C	Si	Mn	P	S
JIS G3131	SPHC	1.2~14.0	0.12	-	0.60	0.045	0.035
	SPHD	1.2~14.0	0.10	-	0.45	0.035	0.035
	SPHE	1.2~6.0	0.08	-	0.40	0.030	0.030
EN 10111	DD11	1.0~11.0	0.12	-	0.60	0.045	0.045
	DD12	1.0~11.0	0.10	-	0.45	0.035	0.035
	DD13	1.0~11.0	0.08	-	0.40	0.030	0.030
	DD14	1.0~11.0	0.08	-	0.35	0.025	0.025

(2) Reduced Carbon Steel for Cold Rolled Steel 냉연용 탄소강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치				
			C	Si	Mn	P	S
-	CQ3	-	0.15	-	0.6	0.05	0.05
	DQ	-	0.12	-	0.5	0.04	0.04
	DDQ	-	0.08	-	0.25	0.03	0.03
	EDDQ	-	0.02	-	0.45	0.02	0.02

※ 성분보증재 – 재질규격 없음

항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			굽힘성			비고
		시험편	두께	Min.	시험편	두께 (mm)	안쪽반지름	
-	270	5호 압연방향	< 1.6 < 2.0 < 2.5 < 3.2 < 4.0 4.0 ≤	27 29 29 29 31 31	3호 압연방향	< 3.2 3.2 ≤	밀착 두께의 0.5배	
-	270	5호 압연방향	< 1.6 < 2.0 < 2.5 < 3.2 < 4.0 4.0 ≤	30 32 33 35 37 39	3호 압연방향	-	밀착	
-	270	5호 압연방향	< 1.6 < 2.0 < 2.5 < 3.2 < 4.0 4.0 ≤	32 34 35 37 39 41	3호 압연방향	-	밀착	
t < 2, 170~360 2 ≤ t, 170~340	440	5호 압연수직방향	1.0 ≤ t < 1.5 1.5 ≤ t < 2.0 2.0 ≤ t < 3.0 3.0 ≤ t < 11.0	22 23 24 28	-	-	밀착	
t < 2, 170~340 2 ≤ t, 170~320	420	5호 압연수직방향	1.0 ≤ t < 1.5 1.5 ≤ t < 2.0 2.0 ≤ t < 3.0 3.0 ≤ t < 11.0	24 25 26 30	-	-	밀착	재질보증 6개월
t < 2, 170~330 2 ≤ t, 170~310	400	5호 압연수직방향	1.0 ≤ t < 1.5 1.5 ≤ t < 2.0 2.0 ≤ t < 3.0 3.0 ≤ t < 11.0	27 28 29 33	-	-	밀착	재질보증 6개월
t < 2, 170~310 2 ≤ t, 170~290	380	5호 압연수직방향	1.0 ≤ t < 1.5 1.5 ≤ t < 2.0 2.0 ≤ t < 3.0 3.0 ≤ t < 11.0	30 31 32 36	-	-	밀착	재질보증 6개월

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Rolled Steel for General Structure 일반구조용 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						
			C	Si	Mn	P	S	N	비고
KS D3503 / JIS G3101	SS330 (KS/JIS)	-	-	-	-	0.050	0.050	-	필요에 따라 합금 첨가 가능
	SS400 (KS/JIS)	-	-	-	-	0.050	0.050	-	
	SS490 (KS/JIS)	-	-	-	-	0.050	0.050	-	
	SS540* (KS/JIS)	-	0.30	1.60	-	0.040	0.040	-	
	SS590* (KS)	-	0.30	1.60	-	0.040	0.040	-	-
ASTM A36	A36	< 20 ≤ 25	0.25	0.40	- 0.80~1.20	0.040	0.050	-	-
ASME	SA36	-	0.10	-	0.45	0.035	0.035	-	-
ASTM A283	A283 C	-	0.24	0.40	0.90	0.035	0.040	-	-
ASTM A1011	A1011CS Type B	< 6	0.02~0.15	-	0.60	0.030	0.035	-	Ni 0.20 Cr 0.15 Mo 0.06 V 0.008 Nb 0.008 Ti 0.025
	A1011SS Gr.33	< 6	0.25	-	0.90	0.035	0.040	-	
	A1011SS Gr.40	< 6	0.25	-	0.90	0.035	0.040	-	
	A1011HS Gr.50 Class1	< 6	0.23	-	1.35	0.040	0.040	-	최대값 Ni 0.20 Cr 0.15 Mo 0.06 최소값 V 0.005 Nb 0.005 Ti 0.005
	A1011HS Gr.55 Class1	< 6	0.25	-	1.35	0.040	0.040	-	

*: 사전협의 필요 Prior discussion is necessary

적용두께 (mm)	항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			굽힘성		기호
			시험편	두께	Min.	시험편	안쪽반지름	
≤ 16 ≤ 25	205 195	330~430	5호 1A호 1A호 압연방향	≤ 5 ≤ 16 ≤ 25	26 21 26	1호	두께의 0.5배	SS330 (KS/JIS)
≤ 16 ≤ 25	245 235	400~510	5호 1A호 1A호 압연방향	≤ 5 ≤ 16 ≤ 25	21 17 21	1호	두께의 1.5배	SS400 (KS/JIS)
≤ 16 ≤ 25	285 275	490~610	5호 1A호 1A호 압연방향	≤ 5 ≤ 16 ≤ 25	19 15 19	1호	두께의 2.0배	SS490 (KS/JIS)
≤ 16 ≤ 25	400 390	540	5호 1A호 1A호 압연방향	≤ 5 ≤ 16 ≤ 25	16 13 17	1호	두께의 2.0배	SS540* (KS/JIS)
≤ 16 ≤ 25	450 440	590	5호 1A호 1A호 압연방향	≤ 5 ≤ 16 ≤ 25	14 11 15	1호	두께의 2.0배	SS590* (KS)
-	250	400~550	5호 압연수직방향	-	23	-	-	A36
-	250	400~550	5호 압연수직방향	-	23	-	-	SA36
-	205	380~515	5호 압연수직방향	-	25	-	-	A283 C
-	205~340	-	5호 압연방향	-	25	굽힘각 90°	-	A1011CS Type B
-	230	360	5호 압연방향	≤ 1.6 1.6 ≤ t < 2.5 2.5 ≤ t < 6	18 22 23	굽힘각 90°	두께의 1배	A1011SS Gr.33
-	275	380	5호 압연방향	≤ 1.6 1.6 ≤ t < 2.5 2.5 ≤ t < 6	15 20 21	굽힘각 90°	두께의 2배	A1011SS Gr.40
-	340	450	5호 압연방향	< 2.5 2.5 ≤	20 22	굽힘각 90°	두께의 2배	A1011HS Gr.50 Class1
-	380	480	5호 압연방향	< 2.5 2.5 ≤	18 20	굽힘각 90°	두께의 2배	A1011HS Gr.55 Class1

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Rolled Steel for General Structure 일반구조용 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						
			C	Si	Mn	P	S	N	비고
ASTM A1018	A1018SS Gr.36 Type2	6 ≤ t ≤ 25	0.25	-	-	0.035	0.040	-	V 0.008 Nb 0.008 Ti 0.025 N 0.014
	A1018SS Gr.40	6 ≤ t ≤ 25	0.25	-	1.50	0.035	0.040	-	V 0.008 Nb 0.008 Ti 0.025 N 0.014
	A1018HS Gr.50 Class1	6 ≤ t ≤ 25	0.23	-	1.50	0.040	0.040	-	최소치 V 0.005 Nb 0.005 Ti 0.005

항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		굽힘성		기호
		시험편	Min.	시험편	안쪽반지름	
250	400~550	5호 1A호 압연수직방향	21 18	굽힘각 90°	두께의 2배	A1018SS Gr.36 Type2
275	380	5호 1A호 압연수직방향	19 14	굽힘각 90°	두께의 2배	A1018SS Gr.40
340	450	5호 1A호 압연수직방향	20 16	굽힘각 90°	두께의 2배	A1018HS Gr.50 Class1

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Rolled Steel for General Structure 일반구조용 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						
			C	Si	Mn	P	S	N	Cu
EN10025	S235JR	-	0.17	-	1.40	0.035	0.035	0.012	0.55
	S275JR	-	0.21	-	1.50	0.035	0.035	0.012	0.55
	S275J0	-	0.18	-	1.50	0.030	0.030	0.012	0.55
	S275J2	-	0.18	-	1.50	0.025	0.025	-	0.55
	S355JR	-	0.24	0.55	1.60	0.035	0.035	0.012	0.55
	S355J0	-	0.20	0.55	1.60	0.030	0.030	0.012	0.55
	S355J2	-	0.20	0.55	1.60	0.025	0.025	-	0.55

두께	항복강도 최소값 (N/mm²)	두께	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			충격(J) 최소값
				시험편	두께	Min.	
≤ 16 ≤ 25	235 225	-	360~510	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	15 16 17 18 19	20℃, 27 (고객사 협의 사항)
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	24	
≤ 16 ≤ 25	275 265	< 3 3 ≤ t ≤ 25	430~580 410~560	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	13 14 15 16 17	20℃, 27 (고객사 협의 사항)
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	21	
≤ 16 ≤ 25	275 265	< 3 3 ≤ t ≤ 25	430~580 410~560	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	13 14 15 16 17	0℃, 27
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	21	
≤ 16 ≤ 25	275 265	< 3 3 ≤ t ≤ 25	430~580 410~560	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	13 14 15 16 17	-20℃, 27
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	21	
≤ 16 ≤ 25	355 345	< 3 3 ≤ t ≤ 25	510~680 470~630	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	12 13 14 15 16	20℃, 27 (고객사 협의 사항)
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	20	
≤ 16 ≤ 25	355 345	< 3 3 ≤ t ≤ 25	510~680 470~630	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	12 13 14 15 16	0℃, 27
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	20	
≤ 16 ≤ 25	355 345	< 3 3 ≤ t ≤ 25	510~680 470~630	L_0=80mm 압연수직방향	≤ 1 1 < t ≤ 1.5 1.5 < t ≤ 2 2 < t ≤ 2.5 2.5 < t < 3	12 13 14 15 16	-20℃, 27
				L_0=5.62$\sqrt{S_0}$ 압연수직방향	3 ≤ t ≤ 25	20	

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Rolled Steel for Welded Structure 용접구조용 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치					
			C	Si	Mn	P	S	비고
JIS G3106	SM400A	–	0.23	-	2.5×C 이상	0.035	0.035	필요에 따라 합금 첨가 가능
	SM400B	–	0.20	0.35	0.6~1.50	0.035	0.035	필요에 따라 합금 첨가 가능
	SM490A	–	0.20	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능
	SM490B	–	0.18	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능
	SM490C	–	0.18	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능
	SM490YA	–	0.20	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능
	SM490YB	–	0.20	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능
	SM520B	–	0.20	0.55	1.65	0.035	0.035	필요에 따라 합금 첨가 가능

적용두께 (mm)	항복강도 최소값 (N/mm^2)	인장강도 최소값 (N/mm^2)	연신율(mm,%) 최소값			충격(J) 최소값
			시험편	두께	Min.	
≤ 16	245	400~510	5호	≤ 5	23	-
16~25	235		1A호	≤ 16	18	
			1A호 압연방향	≤ 25	22	
≤ 16	245	400~510	5호	≤ 5	23	0℃, 27J
16~25	235		1A호	≤ 16	18	
			1A호 압연방향	≤ 25	22	
≤ 16	325	490~610	5호	≤ 5	22	-
16~25	315		1A호	≤ 16	17	
			1A호 압연방향	≤ 25	21	
≤ 16	325	490~610	5호	≤ 5	22	0℃, 27J
16~25	315		1A호	≤ 16	17	
			1A호 압연방향	≤ 25	21	
≤ 16	325	490~610	5호	≤ 5	22	0℃, 27J
16~25	315		1A호	≤ 16	17	
			1A호 압연방향	≤ 25	21	
≤ 16	365	490~610	5호	≤ 5	19	-
16~25	355		1A호	≤ 16	15	
			1A호 압연방향	≤ 25	19	
≤ 16	365	490~610	5호	≤ 5	19	0℃, 27J
16~25	355		1A호	≤ 16	15	
			1A호 압연방향	≤ 25	19	
≤ 16	365	520~640	5호	≤ 5	19	0℃, 27J
16~25	355		1A호	≤ 16	15	
			1A호 압연방향	≤ 25	19	

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(5) Hot Rolled Carbon Steel Strip for Pipe & Tubes 강관용 열간압연 탄소강 강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치				
			C	Si	Mn	P	S
JIS G3132	SPHT1	1.2~13.0	0.10	0.35	0.50	0.040	0.040
	SPHT2	1.2~13.0	0.18	0.35	0.60	0.040	0.040
	SPHT3	1.6~13.0	0.25	0.35	0.30~0.90	0.040	0.040
	SPHT4*	1.6~13.0	0.30	0.35	0.30~1.00	0.040	0.040

인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			굽힘성		비고	기호
	시험편	두께	Min.	두께 (mm)	안쪽반지름		
270	5호 압연방향	≤ 1.6 ≤ 3.0 ≤ 6.0 ≤ 13.0	30 32 35 37	≤ 3.0 ≤ 13.0	밀착 두께의 0.5배	굽힘시험편 : 3호 압연방향	SPHT1
340	5호 압연방향	≤ 1.6 ≤ 3.0 ≤ 6.0 ≤ 13.0	25 27 30 32	≤ 3.0 ≤ 13.0	두께의 1.0배 두께의 1.5배	굽힘시험편 : 3호 압연방향	SPHT2
410	5호 압연방향	≤ 1.6 ≤ 3.0 ≤ 6.0 ≤ 13.0	20 22 25 27	≤ 3.0 ≤ 13.0	두께의 1.5배 두께의 2.0배	굽힘시험편 : 3호 압연방향	SPHT3
490	5호 압연방향	≤ 1.6 ≤ 3.0 ≤ 6.0 ≤ 13.0	15 18 20 22	≤ 3.0 ≤ 13.0	두께의 1.5배 두께의 2.0배	굽힘시험편 : 3호 압연방향	*SPHT4

(6) Rolled Steel for Building Structure 건축구조용 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						
			C	Si	Mn	P	S	Ceq	Pcm
JIS G3136	SN400B	6~25	0.20	0.35	0.60~1.40	0.030	0.015	0.36	0.26
	SN490B*	6~25	0.18	0.55	1.60	0.030	0.015	0.44	0.29

적용두께 (mm)	항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			충격(J) 최소값	항복비(%)	기호
			시험편	두께	Min.			
6 ≤ t < 12 12 ≤ t < 25	235 235~355	400~510	1A호 압연방향	6 ≤ t < 16 16 ≤ t < 25	18 22	0℃, 27	t < 12, - t ≤ 25, 80	SN400B
6 ≤ t < 12 12 ≤ t < 25	325 325~445	490~610	1A호 압연방향	6 ≤ t < 16 16 ≤ t < 25	17 21	0℃, 27		SN490B*

*: 사전협의 필요 Prior discussion is necessary

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(7) Superior Atmosphere Corrosion Resisting Rolled Steel 고내후성 압연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			굽힘성		비고
			C	Si	Mn	P	S	기타			시험편	두께	Min.	굽힘각도	안쪽반지름	
JIS G3125	SPA-H	≤ 16.0	0.12	0.20~0.75	0.60	0.070 ~0.150	0.035	Cu : 0.25~0.55 Cr : 0.30~1.25 Ni : 0.65 이하	-	355	490	5호 1A호 압연방향	≤ 6.0 6.0 <	22 15	180°	두께의 0.5배 두께의 1.5배	굽힘시험편 : 1호 압연방향
ASTM A242	A242	-	0.15	-	1.00	0.150	0.050	Cu : 0.20 이상	≤ 20 ≤ 25	345 315	480 460	5호 1A호 압연방향	-	21 18	-	-	-

(8) Hot Rolled Steel Plate, Sheets and Strip for Automobile Structural Uses

자동차구조용 열간압연 강판 및 강대

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치							적용두께 (mm)	항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			굽힘성		충격(J) 최소값	비고
			C	Si	Mn	P	S	Al	비고				시험편	두께	Min.	두께 (mm)	안쪽반지름		
JIS G3113	SAPH310	1.6~14	-	-	-	0.040	0.040	-	-	< 8 8 ≤	185 175	310	5호 압연방향	< 2.0 < 2.5 < 3.15 < 4.0 < 6.3 6.3 ≤	33 34 36 38 40 41	< 2.0 ≤ 14.0	밀착 두께의 1.0배	-	굴곡시험편 : 3호 압연수직방향 시험편수 : – 동일 용강 1개 최대두께가 최소두께의 2배 이내 – 50톤 초과 2개
	SAPH370	1.6~14	-	-	-	0.040	0.040	-	-	< 8 8 ≤	225 215	370	5호 압연방향	< 2.0 < 2.5 < 3.15 < 4.0 < 6.3 6.3 ≤	32 33 35 36 37 38	< 2.0 ≤ 14.0	두께의 0.5배 두께의 1.0배	-	
	SAPH400	1.6~14	-	-	-	0.040	0.040	-	-	< 6 6 ≤	255 235	400	5호 압연방향	< 2.0 < 2.5 < 3.15 < 4.0 < 6.3 6.3 ≤	31 32 34 35 36 37	< 2.0 ≤ 14.0	두께의 1.0배 두께의 1.0배	-	
	SAPH440	1.6~14	-	-	-	0.040	0.040	-	-	< 6 6 ≤ t < 8 8 ≤	305 295 275	440	5호 압연방향	< 2.0 < 2.5 < 3.15 < 4.0 < 6.3 6.3 ≤	29 30 32 33 34 35	< 2.0 ≤ 14.0	두께의 1.0배 두께의 1.5배	-	
EN 10149	S355MC	-	0.12	0.50	1.5	0.025	0.02	0.015	Nb 0.09 V 0.20 Ti 0.15	-	355	430~550	5호 압연방향	< 3.00 3.00 ≤	20 24	굽힘각도 180°	두께의 0.5배	-20℃ 27 이상	인장시험은 L방향 굽힘시험은 C방향 8mm 이상 두께에서는 항복강도 20N/mm² 하향

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(9) Hot Rolled High Strength Steel Sheets with Improved Formability for Automobile Structure Uses 자동차용 가공성 열연 고장력강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치 C	Si	Mn	P	S	Al	비고	항복강도 최소값 (N/mm²)
JIS G3134	SPFH540	1.6~6.0	-	-	-	-	-	-	-	355
	SPFH590	1.6~6.0	-	-	-	-	-	-	-	420
	SPFH590Y	2.0~4.0	-	-	-	-	-	-	-	325
EN 10149	S420MC	1.5~20.0	0.12	0.50	1.60	0.025	0.015	0.015 이상	Nb 0.09 V 0.20 Ti 0.15	420
			0.12	0.03	1.5	0.025	0.012	0.015 이상	Nb 0.09 V 0.20 Ti 0.15 [도금용]	
	S500MC	1.5~16.0	0.12	0.50	1.70	0.025	0.015	0.015 이상	Nb 0.09 V 0.20 Ti 0.15	500
	S650MC*	1.5~16.0	0.12	0.10	2.10	0.025	0.015	0.015 이상	Nb 0.09 V 0.20 Ti 0.22 Mo 0.5 B 0.005	650
	S700MC*	1.5~16.0	0.12	0.10	2.10	0.025	0.015	0.015 이상	Nb 0.09 V 0.20 Ti 0.22 Mo 0.5 B 0.005	700

*: 사전협의 필요 Prior discussion is necessary

인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값 시험편	두께	Min.	굽힘성 두께 (mm)	안쪽반지름	충격(J) 최소값	비고
540	5호 압연수직방향	< 2.0 < 2.5 < 3.25 ≤ 6.0	21 22 23 24	< 3.25 ≤ 6.0	두께의 1.0배 두께의 1.5배	-	
590	5호 압연수직방향	< 2.0 < 2.5 < 3.25 ≤ 6.0	19 20 21 22	< 3.25 ≤ 6.0	두께의 1.5배 두께의 1.5배	-	
590	5호 압연수직방향	< 2.0 < 2.5 < 3.25 ≤ 4.0	- 22 23 24	< 3.25 ≤ 4.0	두께의 1.5배 두께의 1.5배	-	
480~620	Lo=80mm Lo=5.65√So 압연방향	< 3.0 ≤ 20.0	16 19	굽힘각도 180° 압연수직방향	두께의 0.5배	12 ≤ t 압연수직방향 -20℃, 40	8mm 이상 두께에서는 항복강도 20N/mm² 하향
550~700	Lo=80mm Lo=5.65√So 압연방향	< 3.0 ≤ 20.0	12 14	굽힘각도 180° 압연수직방향	두께의 1.0배	12 ≤ t 압연수직방향 -20℃, 40	
700~880	Lo=80mm Lo=5.65√So 압연방향	< 3.0 ≤ 20.0	12 14	굽힘각도 180° 압연수직방향	두께의 2.0배	12 ≤ t 압연수직방향 -20℃, 40	
750~950	Lo=80mm Lo=5.65√So 압연방향	< 3.0 ≤ 20.0	10 12	굽힘각도 180° 압연수직방향	두께의 2.0배	12 ≤ t 압연수직방향 -20℃, 40	

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(10) Steel Sheets, Plate and Strip for Gas Cylinders 고압가스 용기용 강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치					항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		굽힘성		비고
			C	Si	Mn	P	S			시험편	Min.	굽힘각도	안쪽반지름	
JIS G3116	SG255	1.6~6.0	0.20	-	0.30 이상	0.030	0.030	255	400	5호 압연방향	28	180°	두께의 1.0배	
	SG295	1.6~6.0	0.20	0.35	1.00	0.030	0.030	295	440	5호 압연방향	26	180°	두께의 1.5배	굴곡시험편 : 3호 압연방향
	SG325*	1.6~6.0	0.20	0.55	1.50	0.030	0.030	325	490	5호 압연방향	22	180°	두께의 1.5배	시험편수 : – 동일 용강 1개 – 25톤 초과 2개
	SG365*	1.6~6.0	0.20	0.55	1.50	0.030	0.030	365	540	5호 압연방향	20	180°	두께의 1.5배	
ASTM A516	60*	≤ 12.5 ≤ 25	0.21 0.23	0.15~0.40	0.60~0.90 0.85~1.20	0.025	0.025	220	415~550	5호 1A호 압연수직방향	25 21	-	-	-
	70*	≤ 12.5 ≤ 25	0.27 0.28	0.15~0.40	0.85~1.20	0.025	0.025	260	485~620	5호 1A호 압연수직방향	21 17	-	-	-
ASTM A572	50*	-	0.23	0.40	1.35	0.040	0.050	345	450	5호 1A호 압연수직방향	21 18	-	-	-

*: 사전협의 필요 Prior discussion is necessary

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(11) Carbon Steel for Machine Structural Use 기계구조용 탄소강재

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치						
		C	Si	Mn	P	S	기타	비고
JIS G4051	S10C	0.08~0.13	0.15~0.35	0.30~0.60	0.030	0.035	Cr: 0.20	-
	S20C	0.18~0.23	0.15~0.35	0.30~0.60	0.030	0.035	Cr: 0.20	-
	S35C	0.32~0.38	0.15~0.35	0.60~0.90	0.030	0.035	Cr: 0.20	-
	S40C	0.37~0.43	0.15~0.35	0.60~0.90	0.030	0.035	Cr: 0.20	-
	S45C	0.42~0.48	0.15~0.35	0.60~0.90	0.030	0.035	Cr: 0.20	-
	S50C	0.47~0.53	0.15~0.35	0.60~0.90	0.030	0.035	Cr: 0.20	-
	S55C	0.52~0.58	0.15~0.35	0.60~0.90	0.030	0.035	Cr: 0.20	-
SAE	1006	0.08	-	0.45	0.040	0.050	-	
	1008	0.1	-	0.5	0.040	0.050	-	
	1010	0.08~0.13	-	0.30~0.60	0.040	0.050	-	Si 지정범위
	1012	0.10~0.15	-	0.30~0.60	0.040	0.050	-	SAE1025 이하
	1015	0.12~0.18	-	0.30~0.60	0.040	0.050	-	0.1 이하
	1016	0.12~0.18	-	0.60~0.90	0.040	0.050	-	0.10~0.25
	1017	0.14~0.20	-	0.30~0.60	0.040	0.050	-	0.15~0.35
	1018	0.14~0.20	-	0.60~0.90	0.040	0.050	-	SAE1026
	1020	0.17~0.23	-	0.30~0.60	0.040	0.050	-	~1095
	1022	0.17~0.23	-	0.70~1.00	0.040	0.050	-	0.10~0.25
	1026	0.22~0.28	-	0.60~0.90	0.040	0.050	-	0.15~0.35
	1040	0.36~0.44	-	0.60~0.90	0.040	0.050	-	Cu는 첨가
	1045	0.42~0.50	-	0.60~0.90	0.040	0.050	-	가능하나
	1060	0.55~0.66	-	0.60~0.90	0.040	0.050	-	일반적으로
								0.20% 이상

(12) Carbon Tool Steel 탄소 공구강재

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치						
		C	Si	Mn	P	S	기타	비고
JIS G4401	SK85 (SK5)*	0.80~0.90	0.10~0.35	0.10~0.50	0.030	0.030	-	-

(13) Low-alloyed Steels for Machine Structural Use
기계구조용 저합금강재

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치							
		C	Si	Mn	P	S	Cr	Ni	Mo
JIS G4053	SCM415	0.13~0.18	0.15~0.35	0.60~0.90	0.030	0.030	0.90~1.20	0.25	0.15~0.30
	SCM435	0.33~0.38	0.15~0.35	0.60~0.90	0.030	0.030	0.90~1.20	0.25	0.15~0.30
	SNCM220	0.17~0.23	0.15~0.35	0.60~0.90	0.030	0.030	0.40~0.60	0.40~0.70	0.15~0.25

(14) Spring Steel 스프링 강재

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치								
		C	Si	Mn	P	S	Cr	Ni	Mo	V
EN 10089	50CrV4* 51CrV4*	0.47~0.55	0.40	0.70~1.10	0.035	0.035	0.90~1.20	-	-	0.1~0.2

*: 사전협의 필요 Prior discussion is necessary
※ 성분보증재 – 재질규격 없음

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(15) Carbon Steel Boiler and Heat Exchanger Tubes 열교환기용 탄소강관

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값			수압시험	비파괴 검사	비고
			C	Si	Mn	P	S	비고			시험편	두께	Min.			
JIS G3461	STB340	1.2 ≤ t ≤ 12.5	0.18	0.35	0.30~0.60	0.035	0.035	주문자 요구 시 Si 0.10~0.35 관리	175	340	11호 압연방향	D ≤ 10㎜ 10 ≤ D ≤ 20㎜ 20㎜ ≤ D	27 30 35	P=2st/D (s : 항복하한값의 60% 또는 100)	초음파UD 와류EY	수압기준 초과 요구 시 당사자 협정에 따름 인장강도 상한 지정 가능 (하한+12kgf/mm²)
	STB410	1.2 ≤ t ≤ 12.5	0.32	0.35	0.30~0.80	0.035	0.035	주문자 요구 시 Si 0.10~0.35 관리	255	410	11호 압연방향	D ≤ 10㎜ 10 ≤ D ≤ 20㎜ 20㎜ ≤ D	17 20 25	P=2st/D (s : 항복하한값의 60% 또는 100)	초음파UD 와류EY	
	STB510*	1.2 ≤ t ≤ 12.5	0.25	0.35	1.00~1.50	0.035	0.035	주문자 요구 시 Si 0.10~0.35 관리	295	510	11호 압연방향	D ≤ 10㎜ 10 ≤ D ≤ 20㎜ 20㎜ ≤ D	17 20 25	P=2st/D (s : 항복하한값의 60% 또는 100)	초음파UD 와류EY	
ASTM A178	A178A*	-	0.06~0.18	-	0.27~0.63	0.035	0.035	-	180	325	5호 압연방향	-	35	-	-	-
	A178C*	-	0.35	-	0.80	0.035	0.035	-	255	415	5호 압연방향	1.6 2.4 3.2 4.0 4.8 5.6	18 20 21 22 24 26	-	-	연신율 계산식 E = 1.87t+15.00
	A178D*	-	0.27	0.10 이상	1.00~1.50	0.030	0.015	-	275	485	5호 압연방향	6.4 7.2 8.0	27 29 30	-	-	

(16) Carbon Steel Tubes for General Structural Purposes 일반구조용 탄소강관

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치					항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		굽힘성		비고
		C	Si	Mn	P	S			시험편	Min.	굽힘각도	안쪽반지름	
KS D3566 / JIS G3444	STK400 (KS/JIS)	0.25	-	-	0.040	0.040	235	400	5호 압연수직방향	18	90°	6D	STK540 두께 12.7mm 초과 시 화학성분은 협정에 의해 변경 가능 D는 관의 바깥지름
	STK490 (KS/JIS)	0.18	0.55	1.65	0.035	0.035	315	490	5호 압연수직방향	18	90°	6D	
	STK500 (KS/JIS)	0.24	0.35	0.3~1.3	0.040	0.040	355	500	5호 압연수직방향	16	90°	6D	
	STK540* (KS/JIS)	0.23	0.55	1.50	0.040	0.040	390	540	5호 압연수직방향	16	90°	6D	
	STK590* (KS)	30.00	0.40	2.00	0.040	0.040	440	590	5호 압연수직방향	16	90°	6D	

*: 사전협의 필요 Prior discussion is necessary

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(17) Carbon Steel Tubes for Machine Structural Purposes 기계구조용 탄소강관

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치					항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		굽힘성		비고
		C	Si	Mn	P	S			시험편	Min.	굽힘각도	안쪽반지름	
JIS G3445	STKM11A	0.12	0.35	0.60	0.040	0.040	-	290	5호 압연수직방향	30 ≤	180°	4D	A : 열간가공 C : 냉간가공 외경지름 50mm 이하 굽힘시험 외경지름 50mm 이상 편평시험 D는 관의 바깥지름
	STKM12B	0.20	0.35	0.60	0.040	0.040	275	390	5호 압연수직방향	20 ≤	90°	6D	
	STKM13A	0.25	0.35	0.30~0.90	0.040	0.040	215	370	5호 압연수직방향	25 ≤	90°	6D	
	STKM13B	0.25	0.35	0.30~0.90	0.040	0.040	305	440	5호 압연수직방향	15 ≤	90°	6D	
	STKM15A*	0.25~0.35	0.35	0.30~1.00	0.040	0.040	275	470	5호 압연수직방향	17 ≤	90°	6D	
	STKM16A*	0.35~0.45	0.40	0.40~1.00	0.040	0.040	325	510	5호 압연수직방향	15 ≤	90°	8D	

(18) High Tensile Strength Steel Tubes for Tower Structural Purposes 철탑구조용 고장력강관

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		충격(J) 최소값	비고
			C	Si	Mn	P	S	기타			시험편	Min.		
KS D3780 / JIS G3474	STKT540 (KS)	-	0.23	0.55	1.50	0.040	0.040	Ceq. 0.40	390	540	5호 압연수직방향	16 ≤	-	필요 시 합금 첨가 가능 (STKT540 : 12.5t 초과, STKT590 : 22.0t 초과)
	STKT590* (KS/JIS)	≤ 25	0.12	0.40	2.00	0.030	0.030	Nb+V 0.15 Ceq. 0.40	440	590~740	5호 압연수직방향	16 ≤	-5℃, 47	Ceq ≤ 0.44 연신율 : ≤ 8mm의 경우, 1mm 감소마다 연신율 1.5% 감소

*: 사전협의 필요 Prior discussion is necessary

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(19) Carbon Steel Tubes for Building Structure 건축구조용 탄소강관

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치						
		C	Si	Mn	P	S	기타	비고
JIS G3475	STKN400B	0.25	0.35	1.40	0.030	0.030	N 60ppm	Ceq 0.36 Pcm 0.26
	STKN490B	0.22	0.55	1.60	0.030	0.030	N 60ppm	Ceq 0.44 Pcm 0.29

적용두께 (mm)	항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	항복비 (%)	연신율(mm,%) 최소값		충격(J) 최소값	비고
				시험편	Min.		
< 12 ≤ 25	235 235~385	400~540	- ≤ 80	11,12호 압연방향	23 ≤	0℃, 27 [12t 이상만 실시]	Ceq=C+Mn/6+Si/24+Ni/40 +Cr/6+Mo/4+V/14 Pcm=C+Mn/20+Si/30+Cu/20 +Ni/60+Cr/20+Mo/15+V/10+B
< 12 ≤ 25	325 325~475	490~640	- ≤ 80	11,12호 압연방향	23 ≤		

(20) Ordinary Strength Hull Structural Steel 선체구조용 연강재

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치						
			C	Si	Mn	P	S	Ceq	비고
Class Rule	A	-	0.21	0.50	2.5 ×C	0.035	0.035	0.4	-
	B	-	0.21	0.35	0.80	0.035	0.035	0.4	-
	AH32	< 12.5 ≤ 25	0.18	0.10~0.50	0.7~1.60 0.9~1.60	0.035	0.035	0.44	Nb 0.02~0.05 V 0.05~0.10 Ti 0.02 Cu 0.35 Cr 0.20 Ni 0.40 Mo 0.08
	AH36	-	0.18	0.10~0.50	0.7~1.60	0.035	0.035	0.44	

항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		충격(J) 최소값	비고
		시험편	Min.		
235	400~520	5호 압연수직방향	24	-	충격시험은 0℃
235	400~520	5호 압연수직방향	24	L 27 T 20	
315	440~570	5호 압연수직방향	22	L 31 T 22	
355	490~630	5호 압연수직방향	22	L 34 T 24	

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(21) Hot Rolled Carbon Steel Strip for Petroleum, Natural Gas Casing & Tubing Pipe

석유 및 천연가스 유정강관(API 5CT)

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치					항복강도 (N/mm²)	인장강도 Min. (N/mm²)	하중하의 총연신율 (%)	기호
		C	Si	Mn	P	S				
API 5CT	J55	-	-	-	0.030	0.030	379~552	517	0.5	J55
	K55*	-	-	-	0.030	0.030	379~552	655	0.5	*K55

(22) Hot Rolled Carbon Steel Strip for Petroleum and Natural Gas Line Pipe

석유 및 천연가스 수송강관(API 5L)

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치							항복강도 $R_{t0.5}$ (N/mm²)	인장강도 R_m (N/mm²)	YR Max. $R_{t0.5}/R_m$	연신율 A_f 최소치(%)	Bend TEST	비고
		C	Si	Mn	P	S	기타	비고						
API 5L	B	0.22	0.45	1.20	0.025	0.015	V 0.05 Nb 0.05 Ti 0.04 Cu 0.50 Ni 0.30 Cr 0.30 Mo 0.15	Ce_{IIW} 0.43 CE_{PCM} 0.25 Ce_{IIW} = C+Mn/6 +Cr/5+Mo/5 +V/5+Ni/15 +Cu/15 CE_{PCM} = C + Si/30 +Mn/20+Cu/20 +Ni/60+Cr/20 +Mo/15+V/10+B	245~450	415~655	0.93	$A_f = c\frac{A_{xc}^{0.2}}{U^{0.9}}$ A_f 최소연신율 C 1940 (SI) A_{xc} 시험편 단면적 (mm²) U 최소인장강도 (Mpa)	No Crack	$R_{t0.5}$ Yield Strength 0.5% Total extension
	X42	0.22	0.45	1.30	0.025	0.015			290~495	415~655	0.93			
	X46	0.22	0.45	1.30	0.025	0.015			320~525	435~655	0.93			
	X52	0.22	0.45	1.40	0.025	0.015	V+Nb+Ti 0.15 Cu 0.50 Ni 0.30 Cr 0.30 Mo 0.15		360~530	460~760	0.93			
	X56	0.22	0.45	1.40	0.025	0.015			390~545	490~760	0.93			
	X60	0.12	0.45	1.60	0.025	0.015	V+Nb+Ti 0.15 Cu 0.50 Ni 0.50 Cr 0.50 Mo 0.50		415~565	520~760	0.93			
	X65	0.12	0.45	1.60	0.025	0.015			450~600	535~760	0.93			
	X70	0.12	0.45	1.70	0.025	0.015			485~635	570~760	0.93			
	X80*	0.12	0.45	1.85	0.025	0.015	V+Nb+Ti 0.15 Cu 0.50 Ni 1.00 Cr 0.50 Mo 0.50		555~705	625~825	0.93			

*: 사전협의 필요 Prior discussion is necessary

01. HOT ROLLED COIL 열연코일

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(22) Hot Rolled Carbon Steel Strip for Petroleum, Natural Gas Line Pipe

석유 및 천연가스 수송강관(API 5L)

규격 Designation	기호	화학성분(wt%) Chemical Composition, 최대치						
		C	Si	Mn	P	S	기타	비고
API 5L for Sour Service	X42MS*	0.10	0.40	1.25	0.020	0.002	V 0.04 Nb 0.04 Ti 0.04 Cu 0.35 Ni 0.30 Cr 0.30 Mo 0.15 B 0.0005	CE_{PCM} 0.19
	X52MS*	0.10	0.45	1.45	0.020	0.002	V 0.05 Nb 0.06 Ti 0.04 Cu 0.35 Ni 0.30 Cr 0.30 Mo 0.15	CE_{PCM} 0.20
	X60MS*	0.10	0.45	1.45	0.020	0.002	V+Nb+Ti 0.15 V 0.08 Nb 0.08 Ti 0.06 Cu 0.35 Ni 0.30 Cr 0.30 Mo 0.15	CE_{PCM} 0.21
	X65MS*	0.10	0.45	1.60	0.020	0.002	V+Nb+Ti 0.15 V 0.10 Nb 0.08 Ti 0.06 Cu 0.35 Ni 0.30 Cr 0.30 Mo 0.15	CE_{PCM} 0.22 if agreed, Mo ≤ 0.35
	X70MS*	0.10	0.45	1.60	0.020	0.002	V+Nb+Ti 0.15 V 0.10 Nb 0.08 Ti 0.06 Cu 0.35 Ni 0.30 Cr 0.30 Mo 0.15 B 0.0005	"CE_{PCM} 0.22 if agreed, Mo ≤ 0.35, Cr ≤ 0.45"

*: 사전협의 필요 Prior discussion is necessary

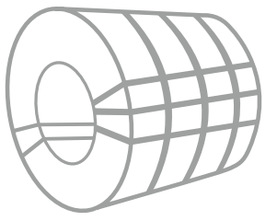
항복강도 $R_{t0.5}$ (N/mm²)	인장강도 R_m (N/mm²)	YR Max. $R_{t0.5}/R_m$	연신율 A_t 최소치(%)	Bend TEST	비고
290~495	415~655	0.93	$A_t = c\frac{A_{xc}^{0.2}}{U^{0.9}}$ A_t 최소연신율 C 1940 (SI) A_{xc} 시험편 단면적 (mm²) U 최소인장강도 (Mpa)	No Crack	$R_{t0.5}$ Yield Strength 0.5% Total extension
360~530	460~760	0.93			
415~565	520~760	0.93			
450~600	535~760	0.93			
485~635	570~760	0.93			

01. HOT ROLLED COIL 열연코일

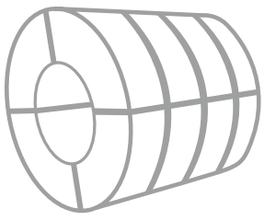
4) Packing & Marking 포장 및 마킹

(1) Packing 포장

HR COIL



HFL



SPM

(2) Marking 마킹

① Coil 코일

LABEL

일반 제품표
(내수, 수출)

HOT ROLLED STEEL COIL			HR
3.05	CUSTOMER HYUNDAI STEEL COMPANY		
	SPEC JIS G3131 SPHC		Inspector Park.J.D 82)41-680-1735
	SIZE 3.051224		
PROD. NO. HS03221		NET WT. 16930KG	37324LBS
CONT. NO. P060500017		GR. WT. 16930KG	
HEAT. NO. H05108	GRADE 1	DATE 2008. 03. 26	
Made In Korea		HYUNDAI STEEL	

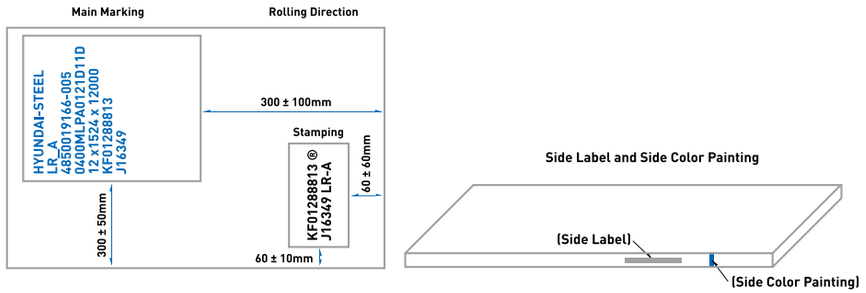
JIS 인증 제품표
(내수, 수출)

HOT ROLLED STEEL COIL			HR
3.05	CUSTOMER HYUNDAI STEEL COMPANY		
	SPEC JIS G3131 SPHC		Inspector Park.J.D 82)41-680-1735
	SIZE 3.051224		
PROD. NO. HS03221		NET WT. 16930KG	37324LBS
CONT. NO. P060500017		GR. WT. 16930KG	KSA JIS
HEAT. NO. H05108	GRADE 1	DATE 2008. 03. 26	CERTI. NO. KSKR07006
Made In Korea		HYUNDAI STEEL	

SHIPPING MARK

HYUNDAI STEEL
Dangjin, Chung-nam
JIS G3131 SPHC
3.05×1224×C
H 05108
NET. WT 16930
GR. WT 16930KG
MADE IN KOREA

② HR-Plate



(3) Display Items and Font Size for Marking 표시항목 및 글자크기

구분	표시항목	글자크기	LINE당 최대 글자수	글자방향	위치
Main Marking	HYUNDAI STEEL, 마킹규격명, Customer PO No, Lot No, 마킹치수, 제품번호, Heat No (7개 항목)	가로 25mm, 세로 35mm, 항목간 간격 5mm, 상 · 하부 간격 10mm	50	90° (압연방향기준)	TOP, 상면
Stamping 타각	제품번호, 선급협회 규격마크, Heat No, 규격약호 (4개 항목)	가로 5mm, 세로 7mm, 항목간 간격 1mm, 상 · 하부 간격 2mm	30	90° (압연방향기준)	TOP, 측면
Side Label 부착	제품번호, 규격약호, 치수, Lot No, 고객사	5mm x 200mm	80	압연방향	TOP, 측면
Color Marking 칼라마킹	RED, WHITE	흰색 1/2/3줄, 빨강색 1/2/3줄	-	-	TOP, 상면

02. COLD ROLLED COIL 냉연코일

1) Standard & Applications 제품 규격 및 용도

용도 Applications	규격 Standard			
	JIS	KS	ASTM/SAE	EN
산세 강판 및 강대 배전반, 공작기계용/ 자동차 고장력 (Pickled & Oiled, PO)	SPHC SPHD SPHE SPFH490 SPFH540 SPFH590	SPHC SPHD SPHE SPFH490 SPFH540 SPFH590		DD11 DD12 DD13
산세 강판 및 강대 자동차 구조용 (Pickled & Oiled, PO)	SAPH310 SAPH370 SAPH400 SAPH440	SAPH310 SAPH370 SAPH400 SAPH440		
냉간 압연 강판 및 강대 드럼용, 자동차 내/강판용 (Cold Rolled Coil, CR)	SPCC SPCD SPCE	SPCC SPCD SPCE	A1008-CS A1008-DS A1008-DDS A1008-EDDS	E DC01 E DC03 E DC04 E DC05 E DC06
냉간 압연 강판 및 강대 자동차용 냉간 압연 고장력 강판 (Cold Rolled Coil, CR)	SPFC340 SPFC370 SPFC390 SPFC440 SPFC490 SPFC540 SPFC590 SPFC780 SPFC980	SPFC340 SPFC370 SPFC390 SPFC440 SPFC490 SPFC540 SPFC590 SPFC780 SPFC980	A1008-33 A1008-60	E H240LA E H260LA E H300LA E H320LA E H340LA E H380LA E H420LA
용융 아연 도금 강판 및 강대 DUCT용, 경량철골용, 자동차 내/외판용 (Galvanized, GI)	SGCC SGCD SGC340 SGC400 SGC440 SGC490 SGC570	SGCC SGCD SGC340 SGC400 SGC440 SGC490 SGC570	A653M-CS A653M-DS A653M-DDS	E DX51D+ZF E DX52D+ZF E DX53D+ZF E DX54D+ZF E DX56D+ZF E HX220LAD E HX260LAD E HX340LAD E HX380LAD E HX420LAD
용융 합금화 아연 도금 강판 및 강대 자동차 내/외판용, 가전용 (Galva-annealed, GA)		(자체규격) SGACC SGACD SGACEN SGACUD SGARC340BH		
전기 아연 도금 강판 및 강대 복사기 내판, 가전기기 범용, 자동차용 (Electro-Galvanized, EG)	SECC SECD SECE SEFC340 SEFC490	SECC SECD SECE SEFC340 SEFC490	A591-CQ	E DC01+ZE E DC03+ZE E DC04+ZE E DC05+ZE E DC06+ZE E H260LA+ZE E H340LA+ZE
도장 용융 아연 도금 강판 및 강대 지붕용, 건축 내/외판용 (Galvanized Color, GIC)	CGCC CGCH CGCD CGC340 CGC400 CGC440 CGC490 CGC570	CGCC CGCH CGCD CGC340 CGC400 CGC440 CGC490 CGC570	A653M-CS A653M-DS A653M-DDS	E DX51D+Z E DX52D+Z E DX53D+Z E DX54D+Z E S280GD+Z E S320GD+Z
열연 용융 아연 도금강판 및 강대 (Hot Rolled Galvanized, HGI/HGA)	SGHC SGH340 SGH400 SGH440 SGH490 SGH550	SGHC SGH340 SGH400 SGH440 SGH490 SGH550	A653M-CS A653M-LFQ A653M-G40 A653M-G50	

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(1) Cold Rolled Coil, CR 냉간 압연 강판 및 강대 드럼용, 자동차 내/강판용

규격 Designation	기호	구분	화학성분(wt%) Chemical Composition, 최대치					항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(mm,%) 최소값		경도		굴곡시험 (반경/두께)	비고
			C	Si	Mn	P	S			두께	Min.	HRB	HV		
JIS G3141	SPCC	소둔 표준조질	0.12 이하*	-	0.5 이하*	0.04 이하*	0.045 이하*	-	270	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	(32) (34) (36) (37) (38) (39)	57 이하* 65 이하*	105 이하* 115 이하*	밀착	(1) 표준조질 및 소둔상태 인장시험치는 원칙적으로 적용하지 않음. 단, 주문자가 지정하는 경우( )내의 수치 적용 (2) *표시는 모두 참고치 (3) 인장시험 및 연신율은 폭 30㎜ 이상에 적용 (4) 두께 0.6㎜미만은 원칙적으로 인장시험 생략.
		1/8경질						-	250~410*	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	전 두께 25 이상*	50~71	95~130	밀착	
		1/4경질						-	370~490*	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	전 두께 10 이상*	65~80	115~150	0.5	
		1/2경질						-	440~590*	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	-	74~89	135~185	1.0	
		경질						-	550이상*	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	-	85 이상	170 이상	-	
	SPCD	1.2~14.0	0.1 이하*	-	0.45 이하*	0.035 이하*	0.035 이하*	-	270	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	34 36 38 39 40 41	57 이하* 65 이하*	105 이하* 115 이하*	밀착	
	SPCE	1.2~6.0	0.08 이하*	-	0.4 이하*	0.03 이하*	0.03 이하*	-	270	0.25 ≤ t < 0.40 0.40 ≤ t < 0.60 0.60 ≤ t < 1.0 1.0 ≤ t < 1.6 1.6 ≤ t < 2.5 2.5 ≤	36 38 40 41 42 43	57 이하* 65 이하*	105 이하* 115 이하*	밀착	
EN 10130	DC01	비합금강	0.12	-	0.60	0.045	0.045	~280	270~410	-	28	-	-	-	
	DC03		0.10	-	0.45	0.035	0.035	~240	270~370	-	34	-	-	-	
	CD04		0.08	-	0.40	0.030	0.030	~210	270~350	-	38	-	-	-	
	DC05		0.06	-	0.35	0.025	0.025	~180	270~330	-	40	-	-	-	
	DC06	합금강	0.02		0.25	0.020	0.020	~180	270~350	-	38	-	-	-	

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) Cold Rolled Coil, CR 냉간 압연 강판 및 강대 자동차용 냉간 압연 고장력 강판

규격 Designation	기호	적용두께 (mm)	화학성분(wt%) Chemical Composition, 최대치				
			C	Si	Mn	P	S
JIS G3135	SPFC340	0.6 이상 2.3 이하	-	-	-	-	-
	SPFC370		-	-	-	-	-
	SPFC390	0.6 이상 2.3 이하	-	-	-	-	-
	SPFC440		-	-	-	-	-
	SPFC490		-	-	-	-	-
	SPFC540		-	-	-	-	-
	SPFC590		-	-	-	-	-
	SPFC490Y	0.6 이상 1.6 이하	-	-	-	-	-
	SPFC540Y		-	-	-	-	-
	SPFC590Y		-	-	-	-	-
	SPFC780Y	0.8 이상 1.4 이하	-	-	-	-	-
	SPFC980Y		-	-	-	-	-
	SPFC340H	0.6 이상 1.6 이하	-	-	-	-	-
DIN EN 10268	H240LA	-	-	-	-	-	-
	H260LA	-	0.10	0.50	0.60	0.025	0.025
	H300LA	-	0.10	0.50	1.10	0.025	0.025
	H340LA	-	0.10	0.50	1.10	0.025	0.025
	H380LA	-	0.10	0.50	1.60	0.025	0.025
	H420LA	-	0.10	0.50	1.60	0.025	0.025

항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(%)			굴곡시험 (굴곡 반경/두께)			비고
		0.60 ≤ t < 1.0	1.0 ≤ t < 2.3	시편	굽힘각도	내측간격	시편	
175	340	34	35	5호 C방향	180^0	밀착	3호 C방향	(1) SPFC35H의 도장 소부경화량은 30N/mm² 이상 (2) 시험의 수 냉간압연하는 경우 Coil마다 1개, 단 코일 중량 3톤 미만의 경우 동일용강, 동일두께, 동일압연조건 및 동일열처리마다
205	370	32	33					
235	390	30	31					
265	440	26	27					
295	490	23	24					
325	540	20	21			0.5t		
355	590	17	18			1.0t		
225	490	24	25			밀착		
245	540	21	22			0.5t		
265	590	18	19			1.0t		
365	780	13	14			3.0t		
490	980	6	7			4.0t		
185	340	34	35			밀착		
-	-	-		-	-	-	-	
260	350	26		-	-	-	-	
300	380	23		-	-	-	-	
340	410	21		-	-	-	-	
380	440	19		-	-	-	-	
420	470	17		-	-	-	-	

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Galvanized 용융 아연 도금 강판 및 강대 DUCT용, 경량철골용, 자동차 내/외판용

규격 Designation	기호	표시두께 (mm)	화학성분(wt%) Chemical Composition, 최대치					항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율(%)						비고
			C	Si	Mn	P	S			0.25 이상 0.40 미만	0.40 이상 0.60 미만	0.60 이상 1.0 미만	1.0 이상 1.6 미만	1.6 이상 2.5 미만	0.25 이상	
JIS G3302	SGCC	0.25 이상 3.2 이하	-	-	-	-	-	-	-	-	-	-	-	-	-	
	SGCD1	0.4 이상 2.3 이하	-	-	-	-	-	-	270 이상	-	34	36	37	38	-	
	SGCD2		-	-	-	-	-	-	270 이상	-	36	38	39	40	-	
	SGCD3	0.6 이상 2.3 이하	-	-	-	-	-	-	270 이상	-	38	40	41	42	-	
	SGC340	0.25 이상 3.2 이하	-	-	-	-	-	245 이상	340 이상	20	20	20	20	20	20	
	SGC400		-	-	-	-	-	295 이상	400 이상	18	18	18	18	18	18	
	SGC440		-	-	-	-	-	335 이상	440 이상	18	18	18	18	18	18	
	SGC490		-	-	-	-	-	365 이상	490 이상	18	16	16	16	16	16	
	SGC570	0.25 이상 2.0 이하	-	-	-	-	-	560 이상	570 이상	-	-	-	-	-	-	

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Galvanized 용융 아연 도금 강판 및 강대 DUCT용, 경량철골용, 자동차 내/외판용

규격 Designation	기호	도금량 Symbol	화학성분(wt%) Chemical Composition, 최대치					항복강도 (N/mm²)	인장강도 (N/mm²)	연신율(%) 최소값	도금량 (양면g/m²)	비고
			C	Si	Mn	P	S					
EN 10142	DX51D+Z	+Z	0.12	0.50	0.60	0.10	0.045	-	270~500	22	100 140 220 (225) 275 350 (450) (600)	(1) ( )내의 도금량 협의하에 가능 (2) 3점접과 1점법에 대해 양면합계 도금량 적용. 편면 도금량은 1점법 값의 40% 이상으로 가정할 수 있다.
	DX51D+ZF	+ZF									100 140	
	DX52D+Z	+Z						140~300	270~420	26	100 140 200 (225) 275	
	DX52D+ZF	+ZF									100 140	
	DX53D+Z	+Z						140~260	270~380	30	100 140 200 (225) (275)	
	DX53D+ZF	+ZF									100 140	
	DX54D+Z	+Z						120~220	260~350	36	100 140 200 (225) (275)	
	DX54D+ZF	+ZF								34	100 140	
	DX56D+Z	+Z						120~180	260~350	37	100 140 200 (225) (275)	
	DX56D+ZF	+ZF								39	100 140	
DIN EN 10292	HX220LAD	+Z, +ZF	-	-	-	-	-	-	-	-	-	
	HX260LAD		0.12	0.50	0.60	0.03	0.025	260~330	350~430	26	-	
	HX340LAD		0.11	0.50	1.00	0.03	0.025	340~420	410~510	21	-	
	HX380LAD		0.11	0.50	1.40	0.03	0.025	380~480	440~560	19	-	
	HX420LAD		0.11	0.50	1.40	0.03	0.025	420~520	470~590	17	-	

	도금량 (g/m²)	
	3점법	1점법
100	100	85
140	140	120
200	200	170
225	225	195
275	275	235
350	350	300
450	450	385
600	600	510

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Electro-Galvanized, EG 전기아연 도금 강판 및 강대 복사기 내판, 가전기기 범용, 자동차용

규격	종별	기호	원판기호	표시두께 (mm)	최소 항복점 (N/mm²)	최소 인장강도 (N/mm²)
JIS G3313	일반용	SECC	SPCC	0.4-3.2	-	[270]
	드로잉용	SECD	SPCD		-	270
	디프드로잉용	SECE	SPCE		-	270
	드로잉가공용	SEFC340	SPFC340		175	340
	가공용	SEFC490	SPFC490	0.6-2.3	295	490

규격번호	규격 명칭	적용두께 (mm)		화학성분(%) 최대				
				C	Mn	P	S	Cu
A591-89	전기아연도금 강판	CQ	일반용	0.15	0.6	0.035	0.035	-
		DQ, DDQ	가공용	0.1	0.5	0.025	0.025	A - B

규격번호	강종	기호	탈산 type	화학성분(%) 최대				
				C	Mn	P	S	Ti
EN10152	비 합금강	DC01+ZE	완전탈산	0.12	0.6	0.0045	0.0045	-
		DC03+ZE		0.1	0.45	0.035	0.035	-
		DC04+ZE		0.08	0.4	0.03	0.03	-
		DC05+ZE		0.06	0.35	0.025	0.025	-
	합금강	DC06+ZE	완전탈산	0.02	0.25	0.02	0.02	0.3

규격번호	기호	화학성분(%) 최대					항복강도 (N/mm²)	인장강도 (N/mm²)	최소 EL (%)
		C	Si	Mn	P	S			
EN10268	H260LA+ZE	0.1	0.5	0.6	0.025	0.025	260/330	350/430	26
	H340LA+ZE	0.1	0.5	1	0.025	0.025	340/420	410/510	21

연신율 최소값(%)						인장 시험편	굴곡시험 (180°)	
0.40 ≤ t < 60	0.40 ≤ t < 60	0.40 ≤ t < 60	0.40 ≤ t < 60	0.40 ≤ t < 60	0.40 ≤ t < 60		내측반경	시험편
34	36	37	38	38	39	5호 L방향	소둔 표준조질 1/8경질 : 밀착 1/4경질 : 0.5 1/2경질 : 1.0 경질 : –	3호 L방향
36	38	39	40	40	41		밀착	
38	40	41	42	42	43		밀착	
-	34	35	35	-	-	5호 C방향	밀착	3호 C방향
-	23	24	24	-	-		밀착	

연신율 최소값(%)								
구분 in	최소치(3점)				최소치(1점)			
	상당도금두께(편면)		부착량(양면)		상당도금두께(편면)		부착량(양면)	
	mm	oz/ft²	g/m²	in	mm	oz/ft²	g/m²	in
-	-	-	-	-	-	-	-	-
B	0.000065	0.00165	0.08	24	0.00006	0.00152	0.07	22
0.00014	0.00356	0.16	48	0.000125	0.00318	0.15	45	-

항복강도 (N/mm²)	인장강도 (N/mm²)	최소 EL (%)	r90 최소	n90 최소	비고
≤ 280	270/410	28	-	-	1. 0.5 < t ≤ 0.7일 경우 항복강도 20N/mm² 증가, t ≤ 0.5일 경우 항복강도 40N/mm² 증가 2. 0.5 < t ≤ 0.7일 경우 연신율 2% 감소, t ≤ 0.5일 경우 연신율 4% 감소 3. r90, n90, r-bar, n-bar값은 t ≥ 0.5 이상 제품에 적용 4. t > 0.5일 경우 r90, r-bar 값은 0.2 감소 5. DC06의 첨가 원소 중 Ti는 Nb로 대체 가능함
≤ 240	270/370	34	1.3	-	
≤ 220	270/350	37	1.6	0.16	
≤ 190	270/330	39	1.9	0.19	
			r-bar	n-bar	
≤ 190	270/350	38	1.8	0.2	

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(5) Galvanized Color, GIC 도장 용융 아연 도금 강판 및 강대 지붕용, 건축 내/외판용

규격	적용	기호	도장원판 기호	표시두께	화학성분(%) 최대	
					C	Mn
JIS G3312	일반용	CGCC	SGCC	0.25 ≤ t < 2.3	0.15	0.8
	일반경질용	CGCH	SGCH	0.11 ≤ t < 1.0	0.18	1.2
	조임용	CGCD	SGCD1		0.12	0.6
			SGCD2		0.1	0.45
			SGCD3		0.08	0.45
	구조용	CGC340	SGC340	0.25 ≤ t < 1.6	0.25	1.7
		CGC400	SGC400		0.25	1.7
		CGC440	SGC440		0.25	2
		CGC490	SGC490		0.3	2
		CGC570	SGC570		0.3	2.5

화학성분(%) 최대		항복강도 (N/mm²)	인장강도 (N/mm²)	연신율(%)	
P	S			두께	min.
0.05	0.05	≥ 205	≥ 270	0.25 ≤ t < 2.3	-
0.08	0.05	-	-	-	-
0.04	0.04	-	≥ 270	0.4 ≤ t < 0.6	34
				0.6 ≤ t < 1.0	36
				1.0 ≤ t < 1.6	37
				1.6 ≤ t < 2.5	38
0.03	0.03	-	≥ 270	0.4 ≤ t < 0.6	36
				0.6 ≤ t < 1.0	38
				1.0 ≤ t < 1.6	39
				1.6 ≤ t < 2.5	40
0.03	0.03	-	≥ 270	0.4 ≤ t < 0.6	38
				0.6 ≤ t < 1.0	40
				1.0 ≤ t < 1.6	41
				1.6 ≤ t < 2.5	42
0.2	0.05	≥ 245	≥ 340	0.25 ≤ t < 1.6	20
0.2	0.05	≥ 295	≥ 400		18
0.2	0.05	≥ 335	≥ 440		18
0.2	0.05	≥ 365	≥ 490		16
0.2	0.05	≥ 560	≥ 570		-

규격번호	기호		화학성분(%) 최대						
			C	Mn	P	S	Cu	Ni	Cr
A653	CS	Type A	0.1	0.6	0.03	0.035	0.25	0.2	0.15
		Type B	0.02-0.15	0.6	0.03	0.035	0.25	0.2	0.15
		Type C	0.08	0.6	0.1	0.035	0.25	0.2	0.15
	FS	Type A	0.1	0.5	0.02	0.035	0.25	0.2	0.15
		Type B	0.02-0.1	0.5	0.02	0.03	0.25	0.2	0.15
	DDS	Type A	0.06	0.5	0.02	0.025	0.25	0.2	0.15
		Type C	0.02	0.5	0.02-0.1	0.25	0.25	0.2	0.15

화학성분(%) 최대					항복강도 (N/mm²)	인장강도 (N/mm²)	연신율(%)	r_m Value	n Value
Mo	V	Cb	Ti	Al (min.)					
0.06	0.008	0.008	0.025	-	170/380	-	≥ 20	-	-
0.06	0.008	0.008	0.025	-	205/380	-	≥ 20	-	-
0.06	0.008	0.008	0.025	-	170/410	-	≥ 15	-	-
0.06	0.008	0.008	0.025	-	170/310	-	≥ 26	1.0/1.4	0.17/0.21
0.06	0.008	0.008	0.025	-	170/310	-	≥ 26	1.0/1.4	0.17/0.21
0.06	0.008	0.008	0.025	0.01	140/240	-	≥ 32	1.4/1.8	0.19/0.24
0.06	0.1	0.1	0.15	0.01	140/240	-	≥ 32	1.2/1.8	0.17/0.24

규격	기호	항복강도 (N/mm²)	인장강도 (N/mm²)	연신율(%) Min.
EN10142	DX51D+Z	-	500	22
	DX52D+Z	300	420	26
	DX53D+Z	260	380	30
	DX54D+Z	220	350	36
EN10147	S280GD+Z	280	360	18
	S320GD+Z	320	390	17

02. COLD ROLLED COIL 냉연코일

2) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(6) Hot Rolled Galvanized, HGI/HGA 열연 용융 아연 도금강판 및 강대

규격	종별	기호	표시두께	화학성분(%) 최대			
				C	Mn	P	S
JIS G3302	일반용	SGHC	1.6 ≤ t < 6.0	0.15	0.8	0.05	0.05
	구조용	SGH340		0.25	1.7	0.2	0.05
		SGH400		0.25	1.7	0.2	0.05
		SGH440		0.25	2	0.2	0.05
		SGH490		0.3	2	0.2	0.05
		SGH550		0.3	2.5	0.2	0.05

항복강도 최소값 (N/mm²)	인장강도 최소값 (N/mm²)	연신율 최소(%)					
		0.25 ≤ t < 0.40	0.40 ≤ t < 0.60	0.60 ≤ t < 1.0	1.0 ≤ t < 1.6	1.6 ≤ t < 2.5	2.5 ≤ t
-	-	-	-	-	-	-	-
≥ 245	≥ 340	-	-	-	-	20	20
≥ 295	≥ 400	-	-	-	-	18	18
≥ 335	≥ 440	-	-	-	-	18	18
≥ 365	≥ 490	-	-	-	-	16	16
≥ 400	≥ 540	-	-	-	-	16	16

규격번호	기호		화학성분(%) 최대						
			C	Mn	P	S	Cu	Ni	Cr
A653	CS	Type A	0.1	0.6	0.03	0.035	0.25	0.2	0.15
		Type B	0.02-0.15	0.6	0.03	0.035	0.25	0.2	0.15
		Type C	0.08	0.6	0.1	0.035	0.25	0.2	0.15
	LFQ		0.15	0.6	0.035	0.04	0.2(min.)	-	-
	G40		0.25	1.35	0.1	0.04	0.25	0.2	0..15
	G50	Class 1	0.25	1.35	0.2	0.04	0.25	0.2	0..15
		Class 2	0.25	1.35	0.2	0.04	0.25	0.2	0..15
		Class 3	0.25	1.35	0.04	0.04	0.25	0.2	0..15
		Class 4	0.25	1.35	0.2	0.04	0.25	0.2	0..15

화학성분(%) 최대					항복강도 (N/mm²)	인장강도 (N/mm²)	연신율(%)
Mo	V	Cb	Ti	Al (min.)			
0.06	0.008	0.008	0.025	-	170/380	-	≥ 20
0.06	0.008	0.008	0.025	-	205/380	-	≥ 20
0.06	0.008	0.008	0.025	-	170/410	-	≥ 15
-	-	-	-	-	-	-	–
0.06	0.008	0.008	0.025	-	≥ 275	≥ 380	≥ 16
0.06	0.008	0.008	0.025	-	≥ 340	≥ 450	≥ 12
0.06	0.008	0.008	0.025	-	≥ 340	-	≥ 12
0.06	0.008	0.008	0.025	-	≥ 340	≥ 480	≥ 12
0.06	0.008	0.008	0.025	-	≥ 340	≥ 410	≥ 12

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(1) PO

사전협의 필요 (Please consult us in advance)

두께 Thickness	1.4 <	< 1.95	< 5.0
폭 Width 700 ≤			
1500 ≤			
< 1950			

(2) FH

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 <	< 0.32	< 0.40	< 0.50	< 0.60	< 2.3
폭 Width 700 ≤						
1250 ≤						
1300 ≤						
1550 ≤						
1600 ≤						
< 1950						

(3) CR

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.3 <	0.4 <	0.45 <	0.5 <	0.6 <	0.65 <	2.3
폭 Width 700 ≤							
1000 ≤							
1300 ≤							
1400 ≤							
1500 ≤							
1650 ≤							
1830							

② LQ

두께 Thickness	0.3 <	0.4 <	0.45 <	0.5 <	0.6 <	0.65 <	2.3
폭 Width 700 ≤							
1000 ≤							
1250 ≤							
1350 ≤							
1500 ≤							
1650 ≤							
1830							

③ DQ

두께 Thickness	0.3 <	0.5 <	0.6 <	0.65 <	2.3
폭 Width 700 ≤					
1500 ≤					
1650 ≤					
1830 ≤					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(3) CR

④ EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.3 <	0.5 <	0.55 <	0.6 <	1.8 <	2.0 <	2.3
폭 Width 700 ≤							
폭 Width 1500 ≤							
폭 Width 1650 ≤							
폭 Width 1700 ≤							
폭 Width 1830							

⑤ HS340B/350E/440E

두께 Thickness	0.3 <	0.4 <	0.6 <	0.7<	1.4 <	1.75 <	1.8 <	2.3
폭 Width 700 ≤								
폭 Width 1250 ≤								
폭 Width 1580 ≤								
폭 Width 1620 ≤								
폭 Width 1670 ≤								
폭 Width 1830								

⑥ HS340S

두께 Thickness	0.3 <	0.6 <	2.3 <
폭 Width 700 ≤			
폭 Width 1600 ≤			
폭 Width 1830			

⑦ HS340R/390R/440R/440C/590C

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.3 <	0.4 <	0.55 <	0.8 <	1.8 <	2.3
폭 Width 700 ≤						
폭 Width 1250 ≤						
폭 Width 1630 ≤						
폭 Width 1650 ≤						
폭 Width 1700						

⑧ HS590D

두께 Thickness	0.3 <	1.0 <	1.4 <	1.8 <	2.3
폭 Width 700 ≤					
폭 Width 1205 ≤					
폭 Width 1300 ≤					
폭 Width 1830					

⑨ HS980D

두께 Thickness	0.3 <	1.4 <	1.5 <	2.3
폭 Width 700 ≤				
폭 Width 820 ≤				
폭 Width 1830				

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(4) GA

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.6 ≤	0.7 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■
≤ 1250		■	■	■	■
≤ 1400			■	■	■
≤ 1700				■	■
≤ 1830					■

② LQ

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.55 ≤	0.6 ≤	0.7 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■	■
≤ 1250		■	■	■	■	■
≤ 1400			■	■	■	■
≤ 1550				■	■	■
≤ 1700					■	■
≤ 1830						■

③ DQ/NQ

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.55 ≤	0.6 ≤	0.7 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■	■
≤ 1250		■	■	■	■	■
≤ 1400			■	■	■	■
≤ 1550				■	■	■
≤ 1700					■	■
≤ 1830						■

④ EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.6 ≤	0.7 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■
≤ 1250		■	■	■	■
≤ 1400			■	■	■
≤ 1710				■	■
≤ 1830					■

⑤ HS340B/340E/390E/440E

두께 Thickness	0.23 ≤	0.4 ≤	0.6 ≤	0.7 ≤	1.8 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■
≤ 1250		■	■	■	■
≤ 1650			■	■	■
≤ 1740				■	
≤ 1830					

⑥ HS340S

두께 Thickness	0.23 ≤	0.35 ≤	0.5 ≤	0.7 ≤	2 ≤ < 2.3
폭 Width ≤ 1000		■	■	■	■
≤ 1250		■	■	■	■
≤ 1650			■	■	■
≤ 1740				■	
≤ 1830					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(4) GA

⑦ HS340R/390R/440R

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.35 ≤	0.5 ≤	0.7 ≤	1.8 ≤	< 2.3
≤ 1000						
≤ 1250						
폭 Width						
≤ 1650						
≤ 1740						
≤ 1830						

⑧ HS590D/590T

두께 Thickness	0.23 ≤	0.35 ≤	0.5 ≤	0.7 ≤	1.8 ≤	< 2.3
≤ 1000						
≤ 1250						
폭 Width						
≤ 1650						
≤ 1740						
≤ 1830						

⑨ HS980D

두께 Thickness	0.23 ≤	1.3 ≤	1.4 ≤	< 2.3
≤ 1000				
폭 Width				
≤ 1550				
≤ 1830				

(5) GI

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.32 ≤	0.35 ≤	0.45 ≤	0.5 ≤	0.9 ≤	< 2.3
≤ 1040							
≤ 1250							
≤ 1300							
폭 Width							
≤ 1400							
≤ 1550							
≤ 1830							

② LQ

두께 Thickness	0.23 ≤	0.32 ≤	0.35 ≤	0.45 ≤	0.5 ≤	0.7 ≤	0.8 ≤	< 2.3
≤ 1040								
≤ 1250								
폭 Width								
≤ 1300								
≤ 1500								
≤ 1750								
≤ 1830								

③ DQ/NQ

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.7 ≤	0.8 ≤	< 2.3
≤ 1000						
≤ 1300						
폭 Width						
≤ 1400						
≤ 1550						
≤ 1750						
≤ 1830						

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(5) GI

④ EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.6 ≤	0.8 ≤	1.2 ≤	< 2.3
≤ 1000							
≤ 1250							
≤ 1300							
≤ 1400							
≤ 1600							
≤ 1720							
≤ 1830							

폭 Width

⑤ HS340E

두께 Thickness	0.23 ≤	0.45 ≤	0.5 ≤	0.6 ≤	0.9 ≤	1.2 ≤	< 2.3
≤ 1000							
≤ 1250							
≤ 1400							
≤ 1550							
≤ 1830							

폭 Width

⑥ HS340R/390R/440R

두께 Thickness	0.23 ≤	0.8 ≤	< 2.3
≤ 1000			
≤ 1550			
≤ 1830			

폭 Width

⑦ S310~S570

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	0.32 ≤	0.35 ≤	0.45 ≤	0.5 ≤	0.8 ≤	< 2.3
≤ 1040							
≤ 1250							
≤ 1300							
≤ 1550							
≤ 1830							

폭 Width

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(6) EG

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.3	< 0.4	< 0.5	< 0.6	< 0.65	< 1.0	≤ 2.0	≤ 2.3
폭 Width 700 ≤									
1000 <									
1350 <									
1500 <									
1591 <									
1820 <									

② LQ

두께 Thickness	0.23 ≤	< 0.3	< 0.38	< 0.4	< 0.5	< 0.6	< 0.65	≤ 2.0	≤ 2.3
폭 Width 700 ≤									
1001 <									
1351 <									
1500 <									
1550 <									
1600 <									
1820 <									

③ DQ/NQ

두께 Thickness	0.23 ≤	< 0.5	< 0.6	< 0.65	≤ 2.0	≤ 2.3
폭 Width 700 ≤						
1500 <						
1600 <						
1820 <						

④ EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.45	< 0.5	< 0.6	< 0.7	< 1.8	≤ 2.3
폭 Width 700 ≤							
1350 <							
1500 <							
1600 <							
1700 <							

⑤ HS340E/390E/440E

두께 Thickness	0.23 ≤	< 0.4	< 0.6	< 0.7	< 0.75	≤ 0.9	≤ 1.8	≤ 2.3
폭 Width 700 ≤								
1250 <								
1650 <								
1680 <								
1700 <								
1740 <								

⑥ HS340R/390R/440R/440C

두께 Thickness	0.23 ≤	< 0.4	< 0.6	< 0.7	< 0.75	≤ 1.0	≤ 1.8	≤ 2.3
폭 Width 700 ≤								
1250 <								
1650 <								
1680 <								
1700 <								
1740 <								

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(6) EG

⑦ HS590C/590D/590T

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.4	< 0.6	< 0.8	< 1.4	≤ 1.8	≤ 2.0	≤ 2.3
폭 Width 700 ≤								
폭 Width 1250 <								
폭 Width 1299 <								
폭 Width 1399 <								
폭 Width 1530 <								

(7) LA (ALC)

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.45 ≤	< 0.5	< 1.0	≤ 2.0
폭 Width 700 ≤				
폭 Width 1400 <				
폭 Width 1600 <				
폭 Width 1820 <				

(8) LC (CRC) / LE (EGC)

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.3	< 0.4	< 0.5	< 1.0	< 1.6
폭 Width 700 ≤						
폭 Width 1000 <						
폭 Width 1350 <						
폭 Width 1500 <						
폭 Width 1650 <						

② LQ

두께 Thickness	0.23 ≤	< 0.3	< 0.4	< 0.5	< 0.7	< 1.0	< 1.6
폭 Width 700 ≤							
폭 Width 1001 <							
폭 Width 1350 <							
폭 Width 1500 <							
폭 Width 1550 <							
폭 Width 1650 <							

③ DQ/NQ

두께 Thickness	0.23 ≤	< 0.45	< 0.7	< 1.0	< 1.6
폭 Width 700 ≤					
폭 Width 1001 <					
폭 Width 1500 <					
폭 Width 1550 <					
폭 Width 1650 <					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (순천공장)

(8) LC (CRC) / LE (EGC)

④ EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.45	< 0.5	< 0.7	< 1.0	< 1.6
700 ≤			■	■	■	■
1001 <			■	■	■	■
1350 <				■	■	■
1500 <					■	
1550 <						
1650 <						

폭 Width

⑤ HS340E/390E

두께 Thickness	0.23 ≤	< 0.6	< 0.7	< 0.8	< 1.3	< 1.4	< 1.6
700 ≤			■	■	■	■	■
1100 <			■	■	■	■	
1250 <			■	■	■		
1400 <				■	■		
1450 <					■		
1550 <							
1650 <							

폭 Width

⑥ HS340R/390R

두께 Thickness	0.23 ≤	< 0.6	< 0.7	< 0.8	< 1.3	< 1.4	< 1.6
700 ≤			■	■	■	■	■
1100 <			■	■	■	■	
1250 <			■	■	■		
1400 <				■	■		
1450 <					■		
1550 <							
1650 <							

폭 Width

(9) LI (GIC) / LL (GLC)

① CQ/MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	0.23 ≤	< 0.3	< 0.35	< 0.45	< 0.8	< 1.6
700 ≤	■	■	■	■	■	■
950 <			■	■	■	■
1220 <				■	■	■
1250 <					■	■
1550 <						■
1650 <						■

폭 Width

② LQ/DQ/NQ/EQ

두께 Thickness	0.23 ≤	< 0.3	< 0.4	< 0.5	< 0.7	< 1.0	< 1.6
700 ≤			■		■	■	■
1001 <				■	■	■	■
1350 <					■	■	■
1500 <						■	■
1550 <							■
1650 <							■

폭 Width

③ S310~S450

두께 Thickness	0.23 ≤	< 0.3	< 0.45	< 0.8	< 1.6
700 ≤	■	■	■	■	■
950 <			■	■	■
1251 <				■	■
1500 <				■	■
1600 <					■
1650 <					■

폭 Width

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

<#1 CGL>

(1) GA / GI

① CQ, MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness		< 0.25	< 0.4	< 0.5	< 0.6	< 1.7	< 2.3
폭 Width	< 600			■	■	■	■
	< 1450			■	■	■	■
	< 1550				■	■	■
	< 1650					■	■
	< 1700					■	
	< 1860						

② LQ, NQ, DQ, EQ

두께 Thickness		< 0.25	< 0.4	< 0.5	< 0.6	< 1.3	< 1.7	< 2.3
폭 Width	< 600			■	■	■	■	■
	< 1450			■	■	■	■	■
	< 1550				■	■	■	■
	< 1650					■	■	■
	< 1700					■	■	
	< 1750					■		
	< 1860							

(2) GI

① SQ 32,38,41

사전협의 필요 (Please consult us in advance)

두께 Thickness		< 0.25	< 0.4	< 0.45	< 2.0	< 2.3
폭 Width	< 600			■	■	■
	< 1250			■	■	■
	< 1400				■	■
	< 1650				■	
	< 1860					

② SQ 32,38,41

두께 Thickness		< 0.25	< 0.4	< 0.45	< 1.0	< 2.3
폭 Width	< 600		■	■	■	
	< 1250		■	■	■	
	< 1550			■	■	
	< 1860					

③ SQ 58

두께 Thickness		< 0.25	< 0.3	< 0.4	< 1.1	< 2.3
폭 Width	< 600					
	< 900					
	< 1250			■	■	
	< 1350				■	
	< 1860					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

<#1 CGL>

(3) GA

① 고장력강 (HS35E/R, HS40E/R)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.25	< 0.4	< 0.5	< 2.0	< 2.1	< 2.3
폭 Width < 600			■	■	■	■
< 1400			■	■	■	■
< 1450				■	■	■
< 1550				■	■	
< 1650				■		
< 1860						

② 고장력강 (HS45E/R)

두께 Thickness	< 0.25	< 0.6	< 2.0	< 2.3
폭 Width < 600			■	■
< 1450			■	■
< 1650			■	
< 1860				

③ 고장력강 (HS50R, HS55R)

두께 Thickness	< 0.25	< 0.6	< 2.0	< 2.3
폭 Width < 600			■	
< 1650			■	
< 1860				

(4) GA / GI 외판재

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.25	< 0.6	< 0.9	< 2.3
폭 Width < 600				
< 800				
< 1700			■	
< 1860				

<#2 CGL>

(1) GA

① CQ

두께 Thickness	< 0.25	< 0.4	< 1.4	< 1.6
폭 Width < 750			■	■
< 1100			■	■
< 1400			■	

② MQ

두께 Thickness	< 0.25	< 0.4	< 1.05	< 1.4	< 1.6
폭 Width < 750			■	■	■
< 1100			■	■	■
< 1375			■	■	
< 1400			■		

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

<#2 CGL>

(1) GA

③ LQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.35	< 0.4	< 1.05	< 1.45	<1.6
< 750					
< 1000					
< 1375					
< 1400					

폭 Width

④ DQ/NQ

두께 Thickness	< 0.35	< 0.4	<1.05	<1.4	<1.45	<1.6
< 750						
< 1000						
< 1325						
< 1375						
< 1400						

폭 Width

⑤ EQ

두께 Thickness	< 0.35	< 0.4	< 1.05	<1.2	<1.4	<1.45	<1.6
< 750							
< 1000							
< 1250							
< 1350							
< 1375							
< 1400							

폭 Width

(1) GA

⑥ H340E

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.35	< 0.4	< 1.05	< 1.45	< 1.6
< 750					
< 1000					
< 1375					
< 1400					

폭 Width

⑦ H440R

두께 Thickness	< 0.35	< 0.4	< 1.05	< 1.3	< 1.45	< 1.6
< 750						
< 1000						
< 1375						
< 1400						

폭 Width

생산가능 Size – 1냉연 No Trimming 재 투입 지양

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

<CVGL>

(1) GI / CR

① CQ, MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.3	< 0.6	< 0.7	< 2.3
폭 Width < 600				
< 1700				
< 1780				

② SQ32/38/41/45

두께 Thickness	< 0.3	< 0.6	< 0.7	< 1.7	< 2.3
폭 Width < 600					
< 1650					
< 1700					
< 1750					
< 1780					

(2) GA

① CQ, MQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.3	< 0.6	< 0.7	< 1.4	< 2.3
폭 Width < 600					
< 1700					
< 1750					
< 1780					

(3) GA, GI, CR

① LQ, DQ, NQ, EQ

두께 Thickness	< 0.3	< 0.6	< 2.3
폭 Width < 600			
< 1750			
< 1780			

② 고장력강 (HS35E/R, HS40E/45E)

두께 Thickness	< 0.3	< 0.6	< 1.7	< 2.3
폭 Width < 600				
< 1650				
< 1750				
< 1780				

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

<CVGL>

(4) GA / CR

① HS590C, HS590DP

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.3	< 0.6	< 2.0	< 2.3
폭 Width < 600				
< 1500				
< 1780				

② 외판재 (340BH)

두께 Thickness	< 0.3	< 0.6	< 0.8	< 2.3
폭 Width < 600				
< 800				
< 1730				
< 1780				

③ 외판재 (490DP)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.3	< 0.6	< 0.8	< 2.3
폭 Width < 600				
< 900				
< 1350				
< 1780				

④ 외판재 (IF)

두께 Thickness	< 0.3	< 0.6	< 0.8	< 2.3
폭 Width < 600				
< 800				
< 1730				
< 1780				

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

< BAF >

(1) CR

① CQ, MQ, DQ, LQ, NQ, EQ

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.5	< 3.2
폭 Width < 700		
< 1700		

*주] CQ 0.45 ~ 0.5t 미만 Mill Edge 수주 가능

② 35R

두께 Thickness	< 0.5	< 2.0	< 3.2
폭 Width < 700			
< 1700			

< PCM >

(1) FH

① 가공용 (LQ/NQ/EQ)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.1	< 0.4	< 0.5	< 0.7	< 3.1	< 3.2
폭 Width < 600						
< 1600						
< 1800						
< 1850						
< 1900						

② 일반용 (CQ/MQ), 구조용 (SQ32/38/41/45/49/58)

두께 Thickness	< 0.1	< 0.2	< 0.3	< 0.5	< 0.7	< 3.1	< 3.2
폭 Width < 600							
< 1000							
< 1250							
< 1300							
< 1400							
< 1600							
< 1500							
< 1550							
< 1650							
< 1800							
< 1850							
< 1900							

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

< PCM >

(1) FH

③ BAF 일반용 (CQ1~4), 자동차용CQ (CQ1), 가공용 (CQ2), 심가공용 (LQ) 사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 0.1	< 0.3	< 0.4	< 0.5	< 0.7	< 3.1	< 3.2
< 600			■	■	■	■	
< 1400			■	■	■	■	
< 1500				■	■	■	
< 1600					■	■	
< 1800					■	■	
< 1850						■	
< 1900							

④ 고장력강 (HS35E/R, HS40E/R)

두께 Thickness / 폭 Width	< 0.1	< 0.3	< 0.4	< 0.5	< 1.6	< 2.2	< 3.2
< 600				■	■	■	
< 1400				■	■	■	
< 1600					■		
< 1900					■		

⑤ 고장력강 (HS45E/R) 사전협의 필요 (Please consult us in advance)

두께 Thickness / 폭 Width	< 0.1	< 0.5	< 0.6	< 0.8	< 2.2	< 3.2
< 600			■	■	■	
< 1300			■	■	■	
< 1450				■	■	
< 1600				■	■	
< 1700					■	
< 1900						

⑥ 고장력강 (HS60C/D)

두께 Thickness / 폭 Width	< 0.1	< 0.6	< 0.8	< 2.0	< 3.2
< 600			■	■	
< 1350			■	■	
< 1600				■	
< 1900					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 1공장)

< PGL >

(1) PO

① CQ 및 구조용강 (S290, S310, S370, S400, S440, S490) 사전협의 필요 (Please consult us in advance)

두께 Thickness	< 1.4	< 5.3	< 6.0	< 16.1
폭 Width < 601				
< 1421				
< 1651				

② 고장력강 (H540, H590)

두께 Thickness	< 1.4	< 5.0	< 16.1
폭 Width < 896			
< 1421			

(2) HGA

① CQ 및 구조용강 (S400, S440) 사전협의 필요 (Please consult us in advance)

두께 Thickness	< 1.4	< 3.2	< 16.1
폭 Width < 851			
< 1484			

(3) HGI

① CQ 및 구조용강 (S400, S440)

두께 Thickness	< 1.4	< 4.5	< 16.1
폭 Width < 851			
< 1651			

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 2공장)

(1) GA/CR

① 일반강 (CQ/DQ/NQ)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.7	< 1.0	< 2.3
폭 Width < 800			
폭 Width < 1400			
폭 Width < 1600			

② 일반강 (EQ)

두께 Thickness	< 0.7	< 0.8	< 1.1	< 2.3
폭 Width < 800				
폭 Width < 1400				
폭 Width < 1600				

③ 고장력강 (HS340E)

두께 Thickness	< 0.7	< 1.0	< 2.3
폭 Width < 800			
폭 Width < 1500			
폭 Width < 1600			

④ 고장력강 (HS340R/HS390E/HS440R)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.6	< 0.7	< 0.9	< 2.3
폭 Width < 800				
폭 Width < 1200				
폭 Width < 1500				
폭 Width < 1600				

⑤ 고장력강 (HS590C/HS590D)

두께 Thickness	< 0.7	< 2.3
폭 Width < 800		
폭 Width < 1600		

⑥ 고장력강 (SPFC780DP/SGAFC780DP)

두께 Thickness	< 0.7	< 0.8	< 1.0	< 2.0	< 2.3
폭 Width < 800					
폭 Width < 1400					
폭 Width < 1520					
폭 Width < 1600					

02. COLD ROLLED COIL 냉연코일

3) Available Sizes 공급 가능 규격 (당진 2공장)

(1) GA/CR

⑦ 고장력강 (SPFC980/SGAFC980Y)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.7	< 0.8	< 1.0	< 1.6	< 2.0	< 2.3
폭 Width < 800			■	■	■	
폭 Width < 1400			■	■	■	
폭 Width < 1500				■		
폭 Width < 1600						

⑧ 고장력강 (SPFC980Y)

두께 Thickness	< 0.7	< 0.9	< 2.0	< 2.3
폭 Width < 800			■	
폭 Width < 1400			■	
폭 Width < 1600				

⑨ 고장력강 (SPFC1180/SPFC1180Y/SGAFC1180Y)

사전협의 필요 (Please consult us in advance)

두께 Thickness	< 0.7	< 1.0	< 2.0	< 2.3
폭 Width < 800			■	
폭 Width < 1313			■	
폭 Width < 1600				

03. STEEL PLATE 후판

1) Standard & Applications 제품 규격 및 용도

구분		규격						
		선급	JIS	KS	API	ASTM	EN	NORSOK
조선용	AR	A/B/D AH/DH32 AH/DH36	-	-	-	-	-	-
	TMCP	A/B/D/E AH/DH32-TM AH/DH36-TM EH32/36-TM FH32-36-TM AH/DH40-TM* EH40-TM EH47-TM* A/D/E500-TM	-	-	-	-	-	-
	열처리	A/B/D/E-N AH/DH32-N AH/DH36-N EH32/36-N	-	-	-	-	-	-
	저온용	LTFH32/36-TM	-	-	-	-	-	-
	해양구조	-	-	-	API-2H-50[Z] API-2W-50[Z] API-2W-60[Z]*	-	EN-S355G7+M EN-S355G8+M EN-S355G9+M EN-S355G10+M EN-S420G1+M* EN-S420G2+M* EN-S460G1+M* EN-S460G2+M*	MDS-Y20 MDS-Y25 MDS-Y30 MDS-Y35 MDS-Y40 MDS-Y45
구조용	일반구조	-	SS400 SS490	SS400 SS490	-	A36 A572-50/60/65	-	-
	용접구조	-	SM400A/B/C SM490A/B/C SM490YA/YB SM520B/C SM570-TM	SM400A/B/C SM490A/B/C SM490YA/YB SM520B/C SM570-TM	-	A283-C A283-D A573-70	-	-
	내후성	-	SMA400A SMA490BP SMA490W	SMA400A SMA490BP SMA490W HSB500W	-	A588-A	-	-
	건축구조	-	SN400B/C SN490B/C	SN400B/C SN490B/C HSA800	-	-	-	
	기계구조	-	S45C	S45C	-	-	-	
	교량구조	-	-	HSB500 HSB500L HSB600	-	A709-50	-	

구분		규격					
		JIS	KS	API	ASTM	EN	기타
구조용	풍력타워용	-	-	-	-	EN-S235 EN-S275 EN-S355 EN-S460M	-
	기타	-	-	-	-	-	AS/NZS G250 AS/NZS G350 CSA 38WT CSA 44W CSA 50W
압력용기	보일러용	SB410/450/480 SB450M/480M SPV235/315/355	SB410/450/480 SB450M/480M SPPV235/315/355	-	-	-	-
	중상온/중저온용	-	-	-	A285-A/B/C A515-60/65/70 A516- 55/60/65/70 A516-60S/65S/70S* A537-C1	P275NL2 P355NL2	-
	합금강	-	-	-	A387-11* A387-12*	-	-
API	AR	-	-	5L B X42, X46, X52	-	-	-
	Normalizing	-	-	5L BN X42N, X46N, X52N	-	-	-
	TMCP	-	-	5L BM X42M, X52M, X56M X60M, X65M, X70M X80M*, X100M*	-	-	-

※ 본 제품 규격 및 용도는 변경될 수 있으므로 반드시 최신 규격 및 세부 용도를 확인하시거나 담당자와 협의 바랍니다.

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(1) AS-Rolled

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4800	Width (mm) \ Thickness (mm)
6 ≤ t < 7	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0							6 ≤ t < 7
7 ≤ t < 8	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0				수주제한 (Not Available)		7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5					8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5			9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.8	23.7	22.7	22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.9	22.8	21.8	20.9	24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.6	23.3	22.2	21.2	20.3	19.4	26 ≤ t < 28
28 ≤ t < 32	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.0	22.7	21.5	20.4	19.4	18.5	17.7	17.0	28 ≤ t < 32
32 ≤ t < 38	25.0	24.5	22.9	25.0	25.0	25.0	25.0	25.0	25.0	24.5	22.9	21.5	20.2	19.1	18.1	17.2	16.4	15.6	14.9	14.3	32 ≤ t < 38
38 ≤ t < 45	24.2	20.7	19.3	21.8	20.6	20.8	25.0	24.2	22.3	20.7	19.3	18.1	17.1	16.1	15.3	14.5	13.8	13.2	12.6	12.1	38 ≤ t < 45
45 ≤ t < 50	21.7	18.6	17.4	19.6	18.6	18.7	22.6	21.7	20.1	18.6	17.4	16.3	15.3	14.5	13.7	13.0	12.4	11.9	11.3	10.9	45 ≤ t < 50
50 ≤ t < 55	19.8	16.9	15.8	17.9	16.9	17.0	20.6	19.8	18.2	16.9	15.8	14.8	13.9	13.2	12.5	11.9	11.3	10.8	10.3	9.9	50 ≤ t < 55
55 ≤ t < 60	18.1	15.5	14.5	16.4	15.5	15.6	18.9	18.1	16.7	15.5	14.5	13.6	12.8	12.1	11.4	10.9	10.3	9.9	9.4	9.1	55 ≤ t < 60
60 ≤ t < 65	16.7	14.3	13.4	15.1	14.3	14.4	17.4	16.7	15.4	14.3	13.4	12.5	11.8	11.1	10.6	10.0	9.5	9.1	8.7	8.4	60 ≤ t < 65
65 ≤ t < 70	15.5	13.3	12.4	14.0	13.2	13.3	16.2	15.5	14.3	13.3	12.4	11.6	11.0	10.3	9.8	9.3	8.9	8.5	8.1	7.8	65 ≤ t < 70
70 ≤ t < 75	13.0	12.4	11.6	13.0	12.4	12.4	13.0	13.0	13.0	12.4	11.6	10.9	10.2	9.7	9.1	8.7	8.3	7.9	7.6	7.2	70 ≤ t < 75
75 ≤ t < 80	13.0	11.6	10.9	12.3	11.6	11.7	13.0	13.0	12.5	11.6	10.9	10.2	9.6	9.0	8.6	8.1	7.8	7.4	7.1	6.8	75 ≤ t < 80
80 ≤ t < 90	300mm 협의구간 (Consultation required for 300mm)						12.6	12.1	11.1	10.3	9.7	9.0	8.5	8.0	7.6	7.2	6.9	6.6	6.3	6.0	80 ≤ t < 90
90 ≤ t < 100							11.3	10.9	10.0	9.3	8.7	8.1	7.7	7.2	6.9	6.5	6.2	5.9	5.7	5.4	90 ≤ t < 100
100 ≤ t < 120							9.4	9.0	8.4	7.8	7.2	6.8	6.4	6.0	5.7	5.4	5.2	4.9	4.7	4.5	100 ≤ t < 120
120 ≤ t < 130							8.7	8.4	7.7	7.2	6.7	6.3	5.9	5.6	5.3	5.0	4.8	4.6	4.4	4.2	120 ≤ t < 130
130 ≤ t < 140	7.8	6.6	6.2	7.0	6.6	6.7	8.1	7.8	7.2	6.6	6.2	5.8	5.5	5.2	4.9	4.7	4.4	4.2	4.0		130 ≤ t < 140
140 ≤ t < 150	7.2	6.2	5.8	6.5	6.2	6.2	7.5	7.2	6.7	6.2	5.8	5.4	5.1	4.8	4.6	4.3	4.1				140 ≤ t < 150
150 ≤ t < 160	6.8	5.8	5.4	6.1	5.8	5.8	7.1	6.8	6.3	5.8	5.4	5.1	4.8	4.5	4.3	4.1					150 ≤ t < 160
160 ≤ t < 170	6.4	5.5	5.1	5.8	5.5	5.5	6.6	6.4	5.9	5.5	5.1	4.8	4.5	4.3	4.0						160 ≤ t < 170
170 ≤ t < 180	6.0	5.2	4.8	5.5	5.1	5.2	6.3	6.0	5.6	5.2	4.8	4.5	4.3	4.0					수주제한 (Not Available)		170 ≤ t < 180
180 ≤ t < 190	5.7	4.9	4.6	5.2	4.9	4.9	5.9	5.7	5.3	4.9	4.6	4.3	4.0								180 ≤ t < 190
190 ≤ t < 200	5.4	4.7	4.3	4.9	4.6	4.7	5.7	5.4	5.0	4.7	4.3	4.1									190 ≤ t < 200

※Maximum width of product 4800mm
※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※For some steel groups for marine structures, discussion must be done if T> 75 & W≤2,100 is used. (Steel group with a 4:1 Reduction Ratio, producing 300mm is compulsory in the case of T>75)
- Relevant Steel Groups: EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

※제품 최대폭: 4800mm
※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

※일부 해양구조용 강종의 경우 T>75 & W≤2,100 투입 시 반드시 협의 要
(압하비 4:1인 강종으로 75T 초과재부터 300mm 생산 필수 강종)
– 대상 강종 : EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(2) TMCP

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4800	Thickness (mm) \ Width (mm)
6 ≤ t < 7																	수주제한 (Not Available)				6 ≤ t < 7
7 ≤ t < 8																					7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5					8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5			9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	10 ≤ t < 12
12 ≤ t < 13	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	12 ≤ t < 13
13 ≤ t < 14	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	13 ≤ t < 14
14 ≤ t < 16	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	14 ≤ t < 16
16 ≤ t < 18	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	16 ≤ t < 18
18 ≤ t < 20	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	18 ≤ t < 20
20 ≤ t < 22	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	20 ≤ t < 22
22 ≤ t < 24	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.4	22.4	22 ≤ t < 24
24 ≤ t < 26	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	22.6	21.6	20.7	24 ≤ t < 26
26 ≤ t < 28	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.1	22.0	21.0	20.1	19.2	26 ≤ t < 28
28 ≤ t < 32	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	22.4	21.2	20.2	19.2	18.3	17.5	16.8	28 ≤ t < 32
32 ≤ t < 38	23.5	23.5	22.6	23.5	23.5	23.5	23.5	23.5	23.5	23.5	22.6	21.2	20.0	18.9	17.9	17.0	16.2	15.4	14.8	14.1	32 ≤ t < 38
38 ≤ t < 45	23.5	20.5	19.1	21.6	20.4	20.5	23.5	23.5	22.1	20.5	19.1	17.9	16.9	15.9	15.1	14.3	13.6	13.0	12.5	11.9	38 ≤ t < 45
45 ≤ t < 50	21.5	18.4	17.2	19.4	18.4	18.5	22.4	21.5	19.8	18.4	17.2	16.1	15.2	14.3	13.6	12.9	12.3	11.7	11.2	10.7	45 ≤ t < 50
50 ≤ t < 55	19.5	16.8	15.6	17.7	16.7	16.8	20.3	19.5	18.0	16.7	15.6	14.7	13.8	13.0	12.3	11.7	11.2	10.7	10.2	9.8	50 ≤ t < 55
55 ≤ t < 60	17.9	15.4	14.3	16.2	15.3	15.4	18.6	17.9	16.5	15.3	14.3	13.4	12.6	11.9	11.3	10.7	10.2	9.8	9.3	9.0	55 ≤ t < 60
60 ≤ t < 65	16.5	14.2	13.2	14.9	14.1	14.2	17.2	16.5	15.3	14.2	13.2	12.4	11.7	11.0	10.4	9.9	9.4	9.0	8.6	8.3	60 ≤ t < 65
65 ≤ t < 70	15.4	13.2	12.3	13.9	13.1	13.2	16.0	15.3	14.2	13.2	12.3	11.5	10.8	10.2	9.7	9.2	8.8	8.4	8.0	7.7	65 ≤ t < 70
70 ≤ t < 75	13.0	12.3	11.5	12.9	12.2	12.3	13.0	13.0	13.0	12.3	11.5	10.7	10.1	9.5	9.0	8.6	8.2	7.8	7.5	7.2	70 ≤ t < 75
75 ≤ t < 80	13.0	11.5	10.7	12.1	11.5	11.5	13.0	13.0	12.4	11.5	10.7	10.1	9.5	8.9	8.5	8.1	7.7	7.3	7.0	6.7	75 ≤ t < 80
80 ≤ t < 90	300mm 협의구간 (Consultation required for 300mm)						12.4	11.9	11.0	10.2											80 ≤ t < 90
90 ≤ t < 100							11.2	10.7													90 ≤ t < 100
100 ≤ t < 110							10.2												수주제한 (Not Available)		100 ≤ t < 110
110 ≤ t < 120																					110 ≤ t < 120

※Maximum width of heat-treated product 4800mm
※Heat treatment T<8 : section for discussion
※Maximum length of heat-treated product 23.5m
※The maximum width possible to be heat treated will be reflected.
※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※High Grade (ex. 60kgf-grade reaction wood) Separate discussion is required.
※For some steel groups for marine structures, if T>75 & W≤2,100 is used, discussion is required. (Steel group with 4:1 of reduction ration, necessary for 75T steel and 300mm steel production)
- Target Steel Groups : EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

※열처리 제품 최대폭 4800mm
※열처리 T<8 : 협의구간
※열처리 제품 MAX길이 23.5m
※최대 열처리로 가능 폭 구간 반영
※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행
※일부 해양구조용 강종의 경우 T>75 & W≤2,100 투입 시 반드시 협의 要
(압하비 4:1인 강종으로 75T 초과재부터 300mm 생산 필수 강종)
– 대상 강종 : EN–S355G7~G10+M EN–S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(3) TMCP & CR-40kgf~50kgf (API 제외)

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4800	Thickness (mm) \ Width (mm)
6 ≤ t < 7																					6 ≤ t < 7
7 ≤ t < 8																			수주제한 (Not Available)		7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5							8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5				9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0			10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.2	23.1		22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.4	22.3	21.4		24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.0	22.8	21.7	20.7			26 ≤ t < 28
28 ≤ t < 30	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.6	22.4	21.3	20.3	19.3			28 ≤ t < 30
30 ≤ t < 32	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.3	22.0	20.8	19.8	18.8	18.0			30 ≤ t < 32
32 ≤ t < 38	24.8	23.8	22.2	24.8	23.7	23.9	24.8	24.8	24.8	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8	15.1			32 ≤ t < 38
38 ≤ t < 45	23.5	20.1	18.8	21.2	20.0	20.1	24.4	23.5	21.7	20.1	18.7	17.6	16.5	15.6	14.8	14.0	13.3				38 ≤ t < 45
45 ≤ t < 50	21.1	18.1	16.9	19.1	18.0	18.1	22.0	21.1	19.5	18.1	16.9	15.8	14.9	14.0	13.3	12.6	12.0				45 ≤ t < 50
50 ≤ t < 55	19.0	16.3	15.2	17.2	16.2	16.3	19.8	19.0	17.5	16.3	15.2	14.2	13.3	12.6	11.9	11.3	10.7				50 ≤ t < 55
55 ≤ t < 60	17.4	14.9	13.9	15.7	14.8	14.9	18.1	17.4	16.0	14.9	13.9	13.0	12.2	11.5	10.9	10.3					55 ≤ t < 60
60 ≤ t < 65	16.0	13.7	12.8	14.5	13.7	13.7	16.7	16.0	14.8	13.7	12.8	12.0	11.2	10.6	10.0	9.5					60 ≤ t < 65
65 ≤ t < 70	14.9	12.7	11.8	13.4	12.7	12.7	15.5	14.9	13.7	12.7	11.8	11.1	10.4	9.8	9.3	8.8					65 ≤ t < 70
70 ≤ t < 75	13.0	11.8	11.0	12.5	11.8	11.9	13.0	13.0	12.8	11.8	11.0	10.3	9.7	9.1	8.6	8.2					70 ≤ t < 75
75 ≤ t < 80	13.0	11.1	10.3	11.7	11.0	11.1	13.0	13.0	12.0	11.1	10.3	9.7	9.1	8.5	8.1	7.7					75 ≤ t < 80
80 ≤ t < 90	300mm 필수 협폭 협의구간 (Consultation required for 300mm necessary width)						12.0	11.5	10.6	9.8	9.1	8.5	8.0	7.6	7.2	6.8					80 ≤ t < 90
90 ≤ t < 100																					90 ≤ t < 100

※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※For some steel groups for marine structures, discussion must be done if T>75 & W≤2,100 is used. (Steel group with a 4:1 Reduction Ratio, producing 300mm is compulsory in the case of T>75)
- Relevant Steel Groups: EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

※일부 해양구조용 강종의 경우 T>75 & W≤2,100 투입 시 반드시 협의 要
(압하비 4:1인 강종으로 75T 초과재부터 300mm 생산 필수 강종)
– 대상 강종 : EN–S355G7~G10+M EN–S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(4) TMCP & CR-50kgf~60kgf (API 제외)

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4700	Thickness (mm) \ Width (mm)
6 ≤ t < 7																					6 ≤ t < 7
7 ≤ t < 8																			수주제한 (Not Available)		7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5							8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5					9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0					10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.2			22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.6	23.4	22.3			24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.0	22.8	21.7	20.7			26 ≤ t < 28
28 ≤ t < 30	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.6	22.4	21.3	20.3	19.3			28 ≤ t < 30
30 ≤ t < 32	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.3	22.0	20.8	19.8	18.8	18.0			30 ≤ t < 32
32 ≤ t < 38	24.8	23.8	22.2	24.8	23.7	23.9	24.8	24.8	24.8	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8				32 ≤ t < 38
38 ≤ t < 45	23.5	20.1	18.8	21.2	20.0	20.1	24.4	23.5	21.7	20.1	18.7	17.6	16.5	15.6	14.8	14.0	13.3				38 ≤ t < 45
45 ≤ t < 50	21.1	18.1	16.9	19.1	18.0	18.1	22.0	21.1	19.5	18.1	16.9	15.8	14.9	14.0	13.3	12.6	12.0				45 ≤ t < 50
50 ≤ t < 55	19.0	16.3	15.2	17.2	16.2	16.3	19.8	19.0	17.5	16.3	15.2	14.2	13.3	12.6	11.9						50 ≤ t < 55
55 ≤ t < 60	17.4	14.9	13.9	15.7	14.8	14.9	18.1	17.4	16.0	14.9	13.9	13.0	12.2	11.5	10.9						55 ≤ t < 60
60 ≤ t < 65	16.0	13.7	12.8	14.5	13.7	13.7	16.7	16.0	14.8	13.7	12.8	12.0	11.2	10.6	10.0						60 ≤ t < 65
65 ≤ t < 70	14.9	12.7	11.8	13.4	12.7	12.7	15.5	14.9	13.7	12.7	11.8	11.1	10.4	9.8							65 ≤ t < 70
70 ≤ t < 75	13.0	11.8	11.0	12.5	11.8	11.9	13.0	13.0	12.8	11.8	11.0	10.3	9.7	9.1							70 ≤ t < 75
75 ≤ t < 80	13.0	11.1	10.3	11.7	11.0	11.1	13.0	13.0	12.0	11.1	10.3	9.7	9.1	8.5							75 ≤ t < 80
80 ≤ t < 90	300mm 필수 협폭 협의구간 (Consultation required for 300mm necessary width)						12.0	11.5	10.6	9.8	9.1	8.5	8.0	7.6							80 ≤ t < 90
90 ≤ t < 100																					90 ≤ t < 100

※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※For some steel groups for marine structures, discussion must be done if T>75 & W≤2,100 is used. (Steel group with a 4:1 Reduction Ratio, producing 300mm is compulsory in the case of T>75)
- Relevant Steel Groups: EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

※일부 해양구조용 강종의 경우 T>75 & W≤2,100 투입 시 반드시 협의 要
(압하비 4:1인 강종으로 75T 초과재부터 300mm 생산 필수 강종)
– 대상 강종 : EN–S355G7~G10+M EN–S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(5) TMCP & CR-60kgf 이상 (API 제외)

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4700	Thickness (mm) \ Width (mm)
6 ≤ t < 7																					6 ≤ t < 7
7 ≤ t < 8																				수주제한 (Not Available)	7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5									8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5									9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0							10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0						12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0					13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.6	23.4				24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.0	22.8	21.7				26 ≤ t < 28
28 ≤ t < 30	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.6	22.4	21.3	20.3				28 ≤ t < 30
30 ≤ t < 32	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.3	22.0	20.8	19.8	18.8				30 ≤ t < 32
32 ≤ t < 38	24.8	23.8	22.2	24.8	23.7	23.9	24.8	24.8	24.8	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8				32 ≤ t < 38
38 ≤ t < 45	23.5	20.1	18.8	21.2	20.0	20.1	24.4	23.5	21.7	20.1	18.7	17.6	16.5	15.6	14.8	14.0					38 ≤ t < 45
45 ≤ t < 50	21.1	18.1	16.9	19.1	18.0	18.1	22.0	21.1	19.5	18.1	16.9	15.8	14.9	14.0	13.3	12.6					45 ≤ t < 50
50 ≤ t < 55	19.0	16.3	15.2	17.2	16.2	16.3	19.8	19.0	17.5	16.3	15.2	14.2	13.3	12.6	11.9						50 ≤ t < 55
55 ≤ t < 60	17.4	14.9	13.9	15.7	14.8	14.9	18.1	17.4	16.0	14.9	13.9	13.0	12.2	11.5	10.9						55 ≤ t < 60
60 ≤ t < 65	16.0	13.7	12.8	14.5	13.7	13.7	16.7	16.0	14.8	13.7	12.8	12.0	11.2	10.6	10.0						60 ≤ t < 65
65 ≤ t < 70	14.9	12.7	11.8	13.4	12.7	12.7	15.5	14.9	13.7	12.7	11.8	11.1	10.4								65 ≤ t < 70
70 ≤ t < 75	13.0	11.8	11.0	12.5	11.8	11.9	13.0	13.0	12.8	11.8	11.0	10.3	9.7								70 ≤ t < 75
75 ≤ t < 80	13.0	11.1	10.3	11.7	11.0	11.1	13.0	13.0	12.0	11.1	10.3	9.7									75 ≤ t < 80
80 ≤ t < 90	300mm 필수 협폭 협의구간 (Consultation required for 300mm necessary width)						12.0	11.5	10.6	9.8	9.1	8.5									80 ≤ t < 90
90 ≤ t < 100																					90 ≤ t < 100

※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※For some steel groups for marine structures, discussion must be done if T>75 & W≤2,100 is used. (Steel group with a 4:1 Reduction Ratio, producing 300mm is compulsory in the case of T>75)
- Relevant Steel Groups: EN-S355G7~G10+M EN-S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

※일부 해양구조용 강종의 경우 T>75 & W≤2,100 투입 시 반드시 협의 要
(압하비 4:1인 강종으로 75T 초과재부터 300mm 생산 필수 강종)
– 대상 강종 : EN–S355G7~G10+M EN–S420/460G2+M
MDS – Y20/25 MDS – Y30/35/40

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(6) API-X42M-L2 이하 규격재

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4700	Thickness (mm) \ Width (mm)
6 ≤ t < 7																					6 ≤ t < 7
7 ≤ t < 8																			수주제한 (Not Available)		7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5							8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5				9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0			10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.2	23.1		22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.4	22.3	21.4		24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	22.8	21.7	20.7			26 ≤ t < 28
28 ≤ t < 30	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.6	22.4	21.3	20.3	19.3			28 ≤ t < 30
30 ≤ t < 32	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.3	22.0	20.8	19.8	18.8	18.0			30 ≤ t < 32
32 ≤ t < 38	24.8	23.8	22.2	24.8	23.7	23.9	24.8	24.8	24.8	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8	15.1			32 ≤ t < 38
38 ≤ t < 45	23.5	20.1	18.8	21.2	20.0	20.1	24.4	23.5	21.7	20.1	18.7	17.6	16.5	15.6	14.8	14.0					38 ≤ t < 45
45 ≤ t < 50	21.1	18.1	16.9	19.1	18.0	18.1	22.0	21.1	19.5	18.1	16.9	15.8	14.9	14.0	13.3	12.6					45 ≤ t < 50
50 ≤ t < 55	19.0	16.3	15.2	17.2	16.2	16.3	19.8	19.0	17.5	16.3	15.2	14.2	13.3	12.6	11.9	11.3					50 ≤ t < 55

※If steel exceeding API 56M GRADE is used, prior consultation is required.
(Consultation over the phone or contract feasibility review required)
※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※API 56M GRADE 초과 규격재는 투입 전 필히 검토
(유선 검토 or 수주가부 검토)
※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

03. STEEL PLATE 후판

2) Available Sizes 공급 가능 규격

(7) API-X52, 56M-L2 규격재

- Maximum length of product 제조 가능 최대 제품길이

사전협의 필요 (Please consult us in advance) ※ 제품 최소 길이 (Minimum length of product) : 3M 단위 : M

Thickness (mm) \ Width (mm)	1000 ~ 1200	1201 ~ 1400	1401 ~ 1500	1501 ~ 1600	1601 ~ 1800	1801 ~ 2000	2001 ~ 2200	2201 ~ 2400	2401 ~ 2600	2601 ~ 2800	2801 ~ 3000	3001 ~ 3200	3201 ~ 3400	3401 ~ 3600	3601 ~ 3800	3801 ~ 4000	4001 ~ 4200	4201 ~ 4400	4401 ~ 4600	4601 ~ 4700	Thickness (mm) \ Width (mm)
6 ≤ t < 7																					6 ≤ t < 7
7 ≤ t < 8																		수주제한 (Not Available)			7 ≤ t < 8
8 ≤ t < 9	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5							8 ≤ t < 9
9 ≤ t < 10	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5					9 ≤ t < 10
10 ≤ t < 12	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0					10 ≤ t < 12
12 ≤ t < 13	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				12 ≤ t < 13
13 ≤ t < 14	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0				13 ≤ t < 14
14 ≤ t < 16	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			14 ≤ t < 16
16 ≤ t < 18	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			16 ≤ t < 18
18 ≤ t < 20	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			18 ≤ t < 20
20 ≤ t < 22	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0			20 ≤ t < 22
22 ≤ t < 24	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.2			22 ≤ t < 24
24 ≤ t < 26	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.6	23.4	22.3			24 ≤ t < 26
26 ≤ t < 28	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	24.0	22.8	21.7	20.7			26 ≤ t < 28
28 ≤ t < 30	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	23.6	22.4	21.3	20.3	19.3			28 ≤ t < 30
30 ≤ t < 32	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	23.3	22.0	20.8	19.8	18.8	18.0			30 ≤ t < 32
32 ≤ t < 38	24.8	23.8	22.2	24.8	23.7	23.9	24.8	24.8	24.8	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8				32 ≤ t < 38
38 ≤ t < 45	23.5	20.1	18.8	21.2	20.0	20.1	24.4	23.5	21.7	20.1	18.7	17.6	16.5	15.6	14.8	14.0	13.3				38 ≤ t < 45
45 ≤ t < 50	21.1	18.1	16.9	19.1	18.0	18.1	22.0	21.1	19.5	18.1	16.9	15.8	14.9	14.0	13.3	12.6	12.0				45 ≤ t < 50
50 ≤ t < 55	19.0	16.3	15.2	17.2	16.2	16.3	19.8	19.0	17.5	16.3	15.2	14.2	13.3	12.6	12.0						50 ≤ t < 55

※If steel exceeding API 56M GRADE is used, prior consultation is required.
(Consultation over the phone or contract feasibility review required)
※T<70 : MAX Length = Based on unit weight
T≥70 : MAX Length = 13m (Flatness = Based on standard)
※For High Grade (ex. 60kgf-grade and over), separate discussion is required.

※API 56M GRADE 초과 규격재는 투입 전 필히 검토
(유선 검토 or 수주가부 검토)
※T<70 : MAX길이 = 단중 기준
T≥70 : MAX길이 = 13m (평탄도 = 규격 기준)
※High Grade (예 60kgf급 이상재) 별도 협의 후 진행

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(1) Shipbuilding and Offshore Structural Steels 조선해양구조용

규격 Designation	종류	구분	기호	제조법	최대두께 (mm)	화학성분 (wt%) C	Si	Mn
Class Rule	조선용	성분	A	As rolled / TMCP / Normalizing	70 / 100 / 100	≤ 0.21	≤ 0.50	≥ 2.5XC
			B	As rolled / TMCP / Normalizing	70 / 100 / 100	≤ 0.21	≤ 0.35	≥ 0.8
			D	As rolled / TMCP / Normalizing	35 / 100 / 100	≤ 0.21	≤ 0.35	≥ 0.6
			E	TMCP / Normalizing	100 / 83	≤ 0.18	≤ 0.35	≥ 0.7
			AH32	As rolled / TMCP / Normalizing	35 / 83 / 83	≤ 0.18	≤ 0.50	0.9~1.6
			DH32	As rolled / TMCP / Normalizing	35 / 83 / 83	≤ 0.18	≤ 0.50	0.9~1.6
			EH32	TMCP / Normalizing	83 / 83	≤ 0.18	≤ 0.50	0.9~1.6
			LT-FH32	TMCP	40	≤ 0.16	0.1~0.4	0.7~1.6
			FH32	TMCP	80	≤ 0.16	≤ 0.50	0.9~1.6
			AH36	As rolled / TMCP / Normalizing	35 / 83 / 83	≤ 0.18	≤ 0.50	0.7~1.6
			DH36	As rolled / TMCP / Normalizing	35 / 83 / 83	≤ 0.18	≤ 0.50	0.9~1.6
			EH36	TMCP / Normalizing	83 / 83	≤ 0.18	≤ 0.50	0.9~1.6
			LT-FH36	TMCP	40	≤ 0.16	≤ 0.50	0.9~1.6
			FH36	TMCP	80	≤ 0.16	≤ 0.50	0.9~1.6
			AH40	TMCP	83	≤ 0.18	≤ 0.50	0.9~1.6
			DH40	TMCP	83	≤ 0.18	≤ 0.50	0.9~1.6
			EH40	TMCP	83	≤ 0.18	≤ 0.50	0.9~1.6
			EH47	TMCP	80	≤ 0.10	≤ 0.50	≤ 2.0
			A500	TMCP	50	≤ 0.21	≤ 0.55	≤ 1.7
			D500	TMCP	50	≤ 0.20	≤ 0.55	≤ 1.7
			E500	TMCP	50	≤ 0.20	≤ 0.55	≤ 1.7

기호	화학성분 (wt%) Chemical Composition P	S	Cu	Cr	Ni	Mo	Total_Al	Nb	V	B	Ti	N
A	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
B	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
D	≤ 0.035	≤ 0.035	-	-	-	-	≥ 0.015 (25mm < t)	-	-	-	-	-
E	≤ 0.035	≤ 0.035	-	-	-	-	≥ 0.015	-	-	-	-	-
AH32	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
DH32	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
EH32	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
LT-FH32	≤ 0.025	≤ 0.025	≤ 0.35	≤ 0.20	≤ 0.80	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	≤ 0.009
FH32	≤ 0.025	≤ 0.025	≤ 0.35	≤ 0.20	≤ 0.80	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	≤ 0.009
AH36	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
DH36	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
EH36	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
LT-FH36	≤ 0.025	≤ 0.025	≤ 0.35	≤ 0.20	≤ 0.80	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	≤ 0.009
FH36	≤ 0.025	≤ 0.025	≤ 0.35	≤ 0.20	≤ 0.80	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	≤ 0.009
AH40	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
DH40	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
EH40	≤ 0.035	≤ 0.035	≤ 0.35	≤ 0.20	≤ 0.40	≤ 0.08	≥ 0.015	0.02~0.05	0.05~0.10	-	≤ 0.02	-
EH47	≤ 0.020	≤ 0.003	≤ 0.35	≤ 0.25	≤ 1.00	≤ 0.08	≥ 0.015	≥ 0.04	≥ 0.08	-	≤ 0.02	-
A500	≤ 0.030	≤ 0.003	≤ 1.50	≤ 0.20	≤ 2.00	≤ 0.08	≥ 0.015	≥ 0.06	≥ 0.10	-	≤ 0.02	-
D500	≤ 0.030	≤ 0.003	≤ 1.50	≤ 0.20	≤ 2.00	≤ 0.08	≥ 0.015	≥ 0.06	≥ 0.10	-	≤ 0.02	-
E500	≤ 0.030	≤ 0.003	≤ 1.50	≤ 0.20	≤ 2.00	≤ 0.08	≥ 0.015	≥ 0.06	≥ 0.10	-	≤ 0.02	-

규격 Designation	종류	구분	기호	재질값 Mechanical Property 시험편 No.	항복강도	인장강도
Class Rule	조선용	재질	A	JIS 1A	235 ≤	400~520
			B	JIS 1A	235 ≤	400~520
			D	JIS 1A	235 ≤	400~520
			E	JIS 1A	235 ≤	400~520
			AH32	JIS 1A	315 ≤	440~570
			DH32	JIS 1A	315 ≤	440~570
			EH32	JIS 1A	315 ≤	440~570
			LT-FH32	JIS 1A	315 ≤	440~570
			FH32	JIS 1A	315 ≤	440~590
			AH36	JIS 1A	355 ≤	490~630
			DH36	JIS 1A	355 ≤	490~630
			EH36	JIS 1A	355 ≤	490~630
			LT-FH36	JIS 1A	355 ≤	490~630
			FH36	JIS 1A	355 ≤	490~620
			AH40	JIS 1A	390 ≤	510~660
			DH40	JIS 1A	390 ≤	510~660
			EH40	JIS 1A	390 ≤	510~660
			EH47	JIS 1A	460 ≤	570~720
			A500	JIS 1A	500 ≤	610~770
			D500	JIS 1A	500 ≤	610~770
			E500	JIS 1A	500 ≤	610~770

기호	재질값 Mechanical Property 연신율 최소 (EL. Min.)	충격온도(℃)	충격(J) 최소값	비고
A	22	20	27	-
B	22	0	27	
D	22	-20	27	
E	22	-40	27	
AH32	22	0	31	
DH32	22	-20	31	
EH32	22	-40	31	
LT-FH32	22	-60	31	
FH32	22	-60	46	
AH36	21	0	34	
DH36	21	-20	34	
EH36	21	-40	34	
LT-FH36	21	-60	34	
FH36	21	-60	41	
AH40	20	0	37	
DH40	20	-20	37	
EH40	20	-40	37	
EH47	17	-40	43	
A500	16	0	33	
D500	16	-20	33	
E500	16	-40	33	

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(1) Shipbuilding and Offshore Structural Steels 조선해양구조용

규격 Designation	종류	구분	기호	열처리	최대두께 (mm)	화학성분 (wt%)		
						C	Si	Mn
API	해양구조용	성분	API 2H-50(Z)	Normalizing	100	≤ 0.18	0.05~0.40	1.15~1.60
			API 2W-50(Z)	TMCP	100	≤ 0.16	0.05~0.50	1.15~1.60
			API 2W-60(Z)	TMCP	76.2	≤ 0.16	0.05~0.50	1.15~1.60
EN 10225	해양구조용	성분	EN-S355G7+M	TMCP	100	≤ 0.14	0.15~0.55	1.00~1.65
			EN-S355G8+M	TMCP	100	≤ 0.14	0.15~0.55	1.00~1.65
			EN-S355G9+M	TMCP	100	≤ 0.12	0.15~0.55	≤ 1.65
			EN-S355G10+M	TMCP	100	≤ 0.12	0.15~0.55	≤ 1.65
			EN-S420G1+M	TMCP	75	≤ 0.14	0.15~0.55	≤ 1.65
			EN-S420G2+M	TMCP	75	≤ 0.14	0.15~0.55	≤ 1.65
			EN-S460G1+M	TMCP	75	≤ 0.14	0.15~0.55	≤ 1.65
			EN-S460G2+M	TMCP	75	≤ 0.14	0.15~0.55	≤ 1.65
NORSOK	해양구조용	성분	MDS-Y20	TMCP	100	≤ 0.12	0.15~0.55	≤ 1.65
			MDS-Y25	TMCP	100	≤ 0.12	0.15~0.55	≤ 1.65
			MDS-Y30	TMCP	40	≤ 0.14	0.15~0.55	≤ 1.65
			MDS-Y35	TMCP	40	≤ 0.14	0.15~0.55	≤ 1.65
			MDS-Y40	TMCP	40	≤ 0.14	0.15~0.55	≤ 1.65
			MDS-Y45	TMCP	40	≤ 0.14	0.15~0.55	≤ 1.65

화학성분 (wt%) Chemical Composition											
P	S	Cu	Cr	Ni	Mo	Total_Al	Nb	V	B	Ti	N
≤ 0.03	≤ 0.01	-	-	-	-	0.02~0.06	0.01~0.04	-	-	≤ 0.02	≤ 0.012
≤ 0.03	≤ 0.01	≤ 0.35	≤ 0.25	≤ 0.75	≤ 0.08	0.02~0.06	≤ 0.03	-	≤ 0.0005	0.007~0.02	≤ 0.012
≤ 0.03	≤ 0.01	≤ 0.35	≤ 0.25	≤ 1.00	≤ 0.15	0.02~0.06	≤ 0.03	-	≤ 0.0005	0.007~0.02	≤ 0.012
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.25	≤ 0.50	≤ 0.08	0.015~0.055	≤ 0.04	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.007	≤ 0.30	≤ 0.25	≤ 0.50	≤ 0.08	0.015~0.055	≤ 0.04	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.20	≤ 0.70	≤ 0.08	0.015~0.055	≤ 0.03	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.015	≤ 0.005	≤ 0.30	≤ 0.20	≤ 0.70	≤ 0.08	0.015~0.055	≤ 0.03	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.007	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.007	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.015	≤ 0.005	≤ 0.30	≤ 0.20	≤ 0.70	≤ 0.08	0.015~0.055	≤ 0.03	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.20	≤ 0.70	≤ 0.08	0.015~0.055	≤ 0.03	≤ 0.06	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.007	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.007	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010
≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.25	≤ 0.70	≤ 0.25	0.015~0.055	≤ 0.04	≤ 0.08	-	≤ 0.025	≤ 0.010

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(1) Shipbuilding and Offshore Structural Steels 조선해양구조용

규격 Designation	종류	구분	기호	재질값 Mechanical Property					비고
				두께 (mm)	시험편 No.	항복강도	인장강도	연신율 최소 (EL. Min.)	충격(J) 최소값	
API	해양구조용	재질	API 2H-50(Z)	t ≤ 63.5 t > 63.5	ASTM A370	345 ≤ 324 ≤	483~620	16	41	-
			API 2W-50(Z)	t ≤ 25 t > 25	ASTM A370	345~517 345~483	448	18	41	
			API 2W-60(Z)	t ≤ 25 t > 25	ASTM A370	414~621 414~586	517	16	48	
EN 10225	해양구조용	재질	EN-S355G7+M	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	1) Cr+Mo+Ni+Cu : Max. 0.9% Nb+V : Max. 0.06% Nb+V+Ti : Max. 0.08%
			EN-S355G8+M	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	
			EN-S355G9+M	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	Nb+V : Max. 0.06% Nb+V+Ti : Max. 0.08%
			EN-S355G10+M	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	
			EN-S420G1/ G2+M	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100	EN 10002-1	420 ≤ 400 ≤ 390 ≤ 380 ≤ 380 ≤	500~660 (t ≤ 40) 480~640 (40 < t ≤100)	19	60	1) Cr+Mo+Ni+Cu : Max. 0.9% Nb+V : Max. 0.09% Nb+V+Ti : Max. 0.11%
			EN-S460G1/ G2+M	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100	EN 10002-1	460 ≤ 440 ≤ 420 ≤ 415 ≤ 405 ≤ 400 ≤	540~700 530~690 520~680 525~675 505~665 500~660	17	60	
NORSOK	해양구조용	재질	MDS-Y20	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	Nb+V : Max. 0.06% Nb+V+Ti : Max. 0.08%
			MDS-Y25	t ≤ 16 16 < t ≤ 25 25 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	EN 10002-1	355 ≤ 355 ≤ 345 ≤ 335 ≤ 325 ≤	470~630	22	50	
			MDS-Y30	25 < t ≤ 100	EN 10002-1	420~540	500~660	19	60	1) Cr+Mo+Ni+Cu : Max. 0.9% Nb+V : Max. 0.09% Nb+V+Ti : Max. 0.11%
			MDS-Y35	25 < t ≤ 100	EN 10002-1	420~540	500~660	19	60	
			MDS-Y40	25 < t ≤ 100	EN 10002-1	460~580	550~700	17	60	
			MDS-Y45	25 < t ≤ 100	EN 10002-1	460~580	550~700	17	60	

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
ASTM A588	고강도, 저합금 구조용강 High Strength, Low Alloy General Structure Steel	성분	A	As rolled	t ≤ 100	≤ 0.19	0.30~0.65	0.80~1.25	≤ 0.04
			B	As rolled	t ≤ 100	≤ 0.20	0.15~0.50	0.75~1.35	≤ 0.04
			C	As rolled	t ≤ 100	≤ 0.15	0.15~0.40	0.80~1.35	≤ 0.04
			K	As rolled	t ≤ 100	≤ 0.17	0.25~0.50	0.50~1.20	≤ 0.04
ASTM A283	저, 중항장력 탄소강판	성분	A	As rolled	t ≤ 40	≤ 0.14	≤ 0.40	≤ 0.90	≤ 0.035
			B	As rolled	t ≤ 40	≤ 0.17	≤ 0.40	≤ 0.90	≤ 0.035
			C	As rolled	t ≤ 40	≤ 0.24	≤ 0.40	≤ 0.90	≤ 0.035
			D	As rolled	t ≤ 40	≤ 0.27	≤ 0.40	≤ 0.90	≤ 0.035

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
ASTM A588	고강도, 저합금 구조용강 High Strength, Low Alloy General Structure Steel	재질	A	ASTM A370	≤ 100 100 < t ≤ 125 125 < t ≤ 200	345 ≤ 315 ≤ 290 ≤	485 ≤ 460 ≤ 435 ≤
			B	ASTM A370	≤100 100 < t ≤ 125 125 < t ≤ 200	345 ≤ 315 ≤ 290 ≤	485 ≤ 460 ≤ 435 ≤
			C	ASTM A370	≤100 100 < t ≤ 125 125 < t ≤ 200	345 ≤ 315 ≤ 290 ≤	485 ≤ 460 ≤ 435 ≤
			K	ASTM A370	≤100 100 < t ≤ 125 125 < t ≤ 200	345 ≤ 315 ≤ 290 ≤	485 ≤ 460 ≤ 435 ≤
ASTM A283	저, 중항장력 탄소강판	재질	A	ASTM A370	≤ 40	165 ≤	345~450
			B	ASTM A370	≤ 40	185 ≤	345~450
			C	ASTM A370	≤ 40	205 ≤	345~450
			D	ASTM A370	≤ 40	230 ≤	345~450

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.05	-	0.25~0.40	-	0.02~0.10	-	-	0.40~0.65	≤ 0.04	-
≤ 0.05	-	0.20~0.40	-	0.01~0.10	-	-	0.40~0.70	≤ 0.05	-
≤ 0.05	-	0.25~0.50	-	0.01~0.10	-	-	0.30~0.50	0.25~0.50	-
≤ 0.05	-	0.30~0.50	0.005~0.05	-	-	-	0.40~0.70	≤ 0.04	≤ 0.01
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property						비고 Remark
연신율 (%) Elongation Minimum		굴곡			충격(J) 최소값	
시험편 Gauge Length (mm)	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius		
50 200	21 18	-	-	-	-	-
50 200	21 18	-	-	-	-	-
50 200	21 18	-	-	-	-	-
50 200	21 18	-	-	-	-	-
50 200	30 27	-	-	-	-	-
50 200	28 25	-	-	-	-	-
50 200	25 22	-	-	-	-	-
50 200	23 20	-	-	-	-	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
ASTM A36	용접구조용 강재 Welded Structure Steel	성분	-	As rolled	t ≤ 20 20 < t ≤ 40 40 < t ≤ 65 65 < t ≤ 100 100 < t	≤ 0.25 ≤ 0.25 ≤ 0.26 ≤ 0.27 ≤ 0.29	≤ 0.40 ≤ 0.40 0.15~0.40 0.15~0.40 0.15~0.40	- 0.80~1.20 0.80~1.20 0.80~1.20 0.80~1.20	≤ 0.04
ASTM A572	용접구조용 저합금 Nb-V 고장력 강재	성분	42	As rolled	≤ 150	≤ 0.21	≤ 0.40 0.15~0.40	≤ 1.35 ≤ 1.60	≤ 0.04
			50	As rolled	≤ 100	≤ 0.23	≤ 0.40 0.15~0.40	≤ 1.35 ≤ 1.60	≤ 0.04
			60	As rolled	≤ 32	≤ 0.26	≤ 0.40 - (t < 75)	≤ 1.35 ≤ 1.60	≤ 0.04
			65	As rolled	≤ 150	≤ 0.23	≤ 0.40 - (t < 75)	≤ 1.65	≤ 0.04

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
ASTM A36	용접구조용 강재 Welded Structure Steel	재질	-	ASTM A370	-	250 ≤	400~550
ASTM A572	용접구조용 저합금 Nb-V 고장력 강재	재질	42	ASTM A370	≤ 150	290 ≤	415 ≤
			50	ASTM A370	≤ 100	345 ≤	450 ≤
			60	ASTM A370	≤ 32	415 ≤	520 ≤
			65	ASTM A370	≤ 150	450 ≤	550 ≤

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.05	-	-	-	-	-	-	-	-	-
≤ 0.05	-	Cu 0.20 지정 시 Type1 Nb 0.005~0.05		-	-	-	-	-	-
≤ 0.05	-	Type2 V 0.01~0.15	-	-	-	-	-	-	-
≤ 0.05	-	Type3 Nb+V 0.02~0.15 Nb 0.05 ≤	-	-	-	-	-	-	-
≤ 0.05	-	Type5 N 0.015 ≤ V/N=4 이상	-	-	-	-	-	-	-

재질값 Mechanical Property							비고 Remark
연신율 (%) Elongation Minimum		굴곡			충격(J) 최소값		
시험편 Gauge Length (mm)	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius			
50 200	23 20	-	-	-	-	-	
50 200	24 20	-	-	-	-	-	
50 200	21 18	-	-	-	-	-	
50 200	18 16	-	-	-	-	-	
50 200	17 15	-	-	-	-	-	

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
ASTM A573	용접구조용 인성개량 탄소강판	성분	58	As rolled	t ≤ 13 13 < t ≤ 40	≤ 0.23	0.10~0.35	0.60~0.90	≤ 0.035
			65	As rolled	t ≤ 13 13 < t ≤ 40	≤ 0.24 ≤ 0.26	0.15~0.40	0.85~1.20	≤ 0.035
			70	As rolled	t ≤ 13 13 < t ≤ 40	≤ 0.27 ≤ 0.28	0.15~0.40	0.85~1.20	≤ 0.035
ASTM A709	교량용 강재 Bridge Structure Steel	성분	36	As rolled	t ≤ 20 20 < t ≤ 40 40 < t ≤ 65 65 < t ≤ 100	≤ 0.25 ≤ 0.25 ≤ 0.26 ≤ 0.27	≤ 0.40 ≤ 0.40 0.15~0.40 0.15~0.40	- 0.80~1.20 0.80~1.20 0.85~1.20	≤ 0.04
			50	-	≤ 100	≤ 0.23	≤ 0.40 0.15~0.40 (40 < t)	≤ 1.35	≤ 0.04

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
ASTM A573	용접구조용 인성개량 탄소강판	재질	58	ASTM A370	≤ 100	220 ≤	400~490
			65	ASTM A370	≤ 100	240 ≤	450~530
			70	ASTM A370	≤ 100	290 ≤	485~620
ASTM A709	교량용 강재 Bridge Structure Steel	재질	36	ASTM A370	≤ 100	250 ≤	400~550
			50	ASTM A370	≤ 100	345 ≤	450 ≤

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.05	-	Cu 0.20 지정 시 Type1 Nb 0.005~0.05 Type2 V 0.01~0.15	-	-	-	-	-	-	-
≤ 0.05	-	Type3 Nb+V 0.02~0.15 Nb 0.05 ≤ Type5 N 0.015 ≤ V/N=4 이상	-	-	-	-	-	-	-

재질값 Mechanical Property						비고 Remark
연신율 (%) Elongation Minimum		굴곡			충격(J) 최소값	
시험편 Gauge Length (mm)	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius		
50 200	24 21	-	-	-	-	-
50 200	23 20	-	-	-	-	-
50 200	21 18	-	-	-	-	-
50 200	23 20	-	-	-	-	-
50 200	21 18	-	-	-	-	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
SM400	구조용강 General Structure Steel	성분	A	As rolled	≤ 50 50 <	≤ 0.23 ≤ 0.25	-	≤ 2.5xC	≤ 0.035
			B	As rolled	≤ 50 50 <	≤ 0.20 ≤ 0.22	≤ 0.35	0.6~1.40	≤ 0.035
			C	As rolled/ TMCP	≤ 100	≤ 0.18	≤ 0.35	≤ 1.40	≤ 0.035
SM490		성분	A	As rolled/ TMCP	≤ 50 50 <	≤ 0.20 ≤ 0.22	≤ 0.55	≤ 1.60	≤ 0.035

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
SM400	구조용강 General Structure Steel	재질	A	KS B 0801	≤ 16 ≤ 40 ≤ 75 ≤ 100 ≤ 160 > 160	245 235 215 215 205 195	400~510
			B	KS B 0801	≤ 16 ≤ 40 ≤ 75 ≤ 100 ≤ 160 > 160	245 235 215 215 205 195	400~510
			C	KS B 0801	≤ 16 ≤ 40 ≤ 75 ≤ 100 ≤ 160 > 160	245 235 215 215 - -	400~510
SM490		재질	A	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	325 315 295 295 285 275	490~610

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
≤ 16 ≤ 50 50 <	1A호 1A호 4호	18 22 24	-	-	-	-	-	-
≤16 ≤ 50 50 <	1A호 1A호 4호	18 22 24	-	-	-	0℃	27	-
≤16 ≤ 50 50 <	1A호 1A호 4호	18 22 24	-	-	-	0℃	47	-
≤16 ≤ 50 50 <	1A호 1A호 4호	17 21 23	-	-	-	-	-	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
SM490	구조용강 General Structure Steel	성분	B	As rolled/N	≤ 50 50 <	≤ 0.18 ≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.035
			C	As rolled/ TMCP	≤ 100	≤ 0.18	≤ 0.55	≤ 1.60	≤ 0.035
			YA	As rolled	≤ 100	≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.035
			YB	As rolled	≤ 100	≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.035

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
SM490	구조용강 General Structure Steel	재질	B	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	325 ≤ 315 ≤ 295 ≤ 295 ≤ - -	490~610
			C	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	325 ≤ 315 ≤ 295 ≤ 295 ≤ - -	490~610
			YA	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	365 ≤ 355 ≤ 335 ≤ 325 ≤ - -	490~610
			YB	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	365 ≤ 355 ≤ 335 ≤ 325 ≤ - -	490~610

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
≤ 16 ≤ 50 50 <	1A호 1A호 4호	17 21 23	-	-	-	0℃	27	-
≤ 16 ≤ 50 50 <	1A호 1A호 4호	17 21 23	-	-	-	0℃	47	-
≤ 16 ≤ 50 50 <	1A호 1A호 4호	15 19 21	-	-	-	-	-	-
≤ 16 ≤ 50 50 <	1A호 1A호 4호	15 19 21	-	-	-	0℃	27	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
SM520	구조용강 General Structure Steel	성분	B	As rolled/ TMCP	≤ 100	≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.035
			C	As rolled/ TMCP	≤ 100	≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.035
SM570		성분	-	TMCP	≤ 100	≤ 0.18	≤ 0.55	≤ 1.60	≤ 0.035
SS330		성분	-	As rolled	-	-	-	-	≤ 0.05
SS400		성분	-	As rolled	-	-	-	-	≤ 0.05

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
SM520	구조용강 General Structure Steel	재질	B	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	365 ≤ 355 ≤ 335 ≤ 325 ≤ - -	520~640
			C	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	365 ≤ 355 ≤ 335 ≤ 325 ≤ - -	520~640
SM570		재질	-	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 75 75 < t ≤ 100 100 < t ≤ 160 160 <	460 ≤ 450 ≤ 430 ≤ 420 ≤ - -	570~720
SS330		재질	-	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 100 100 <	205 ≤ 195 ≤ 175 ≤ 165 ≤	330~430
SS400		재질	-	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 100 100 <	245 ≤ 235 ≤ 215 ≤ 205 ≤	400~510

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-
≤ 0.05	-	-	-	-	-	-	-	-	-
≤ 0.05	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
≤ 16 ≤ 50 50 <	1A호 1A호 4호	15 19 21	-	-	-	0℃	27	-
≤ 16 ≤ 50 50 <	1A호 1A호 4호	15 19 21	-	-	-	0℃	47	-
≤ 16 16 < t ≤ 20 20 <	1A호 1A호 4호	19 26 20	-	-	-	-5℃	47	-
≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	21 26 28	-	KS B 0801	두께의 0.5배	-	-	-
≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	17 21 23	-	KS B 0801	두께의 1.5배	-	-	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
SS490	구조용강 General Structure Steel	성분	-	As rolled	-	-	-	-	≤ 0.05
SS540		성분	-	As rolled	-	≤ 0.30	-	≤ 1.60	≤ 0.04
SN400		성분	A	As rolled	≤ 100	≤ 0.24	-	-	≤ 0.05
			B	As rolled	≤ 50 ≤ 100	≤ 0.20 ≤ 0.22	≤ 0.35	0.6~1.40	≤ 0.03
			C	As rolled	16 < t ≤ 50 ≤ 100	≤ 0.20 ≤ 0.22	≤ 0.35	0.6~1.40	≤ 0.02

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
SS490	구조용강 General Structure Steel	재질	-	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 100 100 <	285 ≤ 275 ≤ 255 ≤ 245 ≤	490~610
SS540		재질	-	KS B 0801	≤ 16 16 < t ≤ 40 40 < t ≤ 100 100 <	400 ≤ 390 ≤ - -	540 ≤
SN400		재질	A	KS B 0801	< 12 12 ≤ t < 16 t = 16 16 < t ≤ 40 ≤ 100	235 ≤ 235 ≤ 235 ≤ 235 ≤ 215 ≤	400~510
		재질	B	KS B 0801	< 12 12 ≤ t < 16 t=16 16 < t ≤ 40 ≤ 100	- - 235~335 235~335 215~335	400~510
		재질	C	KS B 0801	< 12 12 ≤ t < 16 t =16 16 < t ≤ 40 ≤ 100	- - 235~335 235~335 215~335	400~510

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.05	-	-	-	-	-	-	-	-	-
≤ 0.04	-	-	-	-	-	-	-	-	-
≤ 0.05	-	-	-	-	-	-	-	-	-
≤ 0.015	-	-	-	-	-	-	-	-	-
≤ 0.008	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	15 19 21	-	KS B 0801	두께의 2.0배	-	-	-
≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	13 17 -	-	KS B 0801	두께의 2.0배	-	-	-
≤ 16 16 < t ≤ 40 ≤ 100	1A호 1A호 4호	17 21 23	-	-	-	0℃	27	YR ≤ 80
≤ 16 16 < t ≤ 40 ≤ 100	1A호 1A호 4호	18 22 24	-	-	-	0℃	27	YR ≤ 80
≤ 16 16 < t ≤ 40 ≤ 100	1A호 1A호 4호	18 22 24	-	-	-	0℃	27	YR ≤ 80

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
SN490	구조용강 General Structure Steel	성분	B	As rolled/ TMCP	16 < t ≤ 50 ≤ 100	≤ 0.18 ≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.03
			C	As rolled/ TMCP	16 < t ≤ 50 ≤ 100	≤ 0.18 ≤ 0.20	≤ 0.55	≤ 1.60	≤ 0.02
HSB500	교량구조용 Bridge Structure Steel	성분	-	TMCP	≤ 100	≤ 0.18	≤ 0.55	≤ 1.8	≤ 0.02
			L	TMCP	≤ 100	≤ 0.18	≤ 0.55	≤ 1.8	≤ 0.02
			W	TMCP	≤ 100	≤ 0.18	≤ 0.65	≤ 1.8	≤ 0.02

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
SN490	구조용강 General Structure Steel	재질	B	KS B 0801	6 ≤ t < 12 12 ≤ t < 16 t = 16 16 < t ≤ 40 ≤ 100	325 ≤ 325~445 325~445 325~445 295~415	490~610
			C	KS B 0801	6 ≤ t < 12 12 ≤ t < 16 t=16 16 < t ≤ 40 ≤ 100	- - 325~445 325~445 295~415	490~610
HSB500	교량구조용 Bridge Structure Steel	재질	-	KS B 0801	≤ 100	380 ≤	500 ≤
			L	KS B 0801	≤ 100	380 ≤	500 ≤
			W	KS B 0801	≤ 100	380 ≤	500 ≤

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.015	-	-	-	-	-	-	-	-	-
≤ 0.008	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (℃) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
6 ≤ t ≤ 16 16 < t ≤ 40 40 < t ≤ 100	1A호 1A호 4호	17 21 23	-	-	-	-	-	YR ≤ 80
6 ≤ t ≤ 16 16 < t ≤ 40 40 < t ≤ 100	1A호 1A호 4호	17 21 23	-	-	-	-	-	YR ≤ 80
t ≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	15 19 21	-	-	-	-5℃	47	-
t ≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	15 19 21	-	-	-	-20℃	47	-
t ≤ 16 16 < t ≤ 40 40 <	1A호 1A호 4호	15 19 21	-	-	-	-5℃	47	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
HSB600	교량구조용 Bridge Structure Steel	성분	-	TMCP	≤ 100	≤ 0.10	≤ 0.55	≤ 1.8	≤ 0.02
			L	TMCP	≤ 100	≤ 0.10	≤ 0.55	≤ 1.8	≤ 0.02
			W	TMCP	≤ 100	≤ 0.10	≤ 0.65	≤ 1.8	≤ 0.02
HSB800		성분	-	TMCP	≤ 80	≤ 0.10	≤ 0.55	≤ 2.2	≤ 0.015
			L	TMCP	≤ 80	≤ 0.10	≤ 0.55	≤ 2.2	≤ 0.015
			W	TMCP	≤ 80	≤ 0.10	≤ 0.65	≤ 2.2	≤ 0.015

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-
≤ 0.006	-	-	-	-	-	-	-	-	-

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property			
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength
HSB600	교량구조용 Bridge Structure Steel	재질	-	KS B 0801	≤ 100	450 ≤	600 ≤
			L	KS B 0801	≤ 100	450 ≤	600 ≤
			W	KS B 0801	≤ 100	450 ≤	600 ≤
HSB800			-	KS B 0801	≤ 80	690 ≤	800 ≤
			L	KS B 0801	≤ 80	690 ≤	800 ≤
			W	KS B 0801	≤ 80	690 ≤	800 ≤

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
≤ 16 16 < t ≤ 40 40 <	5호 5호 4호	19 26 20	-	KS B 0801	-	-5℃	47	-
≤ 16 16 < t ≤ 40 40 <	5호 5호 4호	19 26 20	-	KS B 0801	-	-20℃	47	-
≤ 16 16 < t ≤ 40 40 <	5호 5호 4호	19 26 20	-	KS B 0801	-	-5℃	47	-
≤ 16 16< t ≤ 40 40 <	5호 5호 4호	15 22 16	-	KS B 0801	-	-20℃	47	-
≤ 16 16 < t ≤ 40 40 <	5호 5호 4호	15 22 16	-	KS B 0801	-	-20℃	47	-
≤ 16 16 < t ≤ 40 40 <	5호 5호 4호	15 22 16	-	KS B 0801	-	-20℃	47	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S235JR	구조용강 General Structure Steel	성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.17 ≤ 0.17 ≤ 0.20	-	≤ 1.40	≤ 0.035
S235J0		성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.17 ≤ 0.17 ≤ 0.17	-	≤ 1.40	≤ 0.030
S235J2		성분	-	AR/CR/N	≤ 16 16 < t ≤ 40 40 <	≤ 0.17 ≤ 0.17 ≤ 0.17	-	≤ 1.40	≤ 0.025

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S235JR	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	235 ≤ 225 ≤ 215 ≤ 215 ≤ 215 ≤ - - -	≤ 100	360~510
S235J0		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	235 ≤ 225 ≤ 215 ≤ 215 ≤ 215 ≤ - - -	≤ 100	360~510
S235J2		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	235 ≤ 225 ≤ 215 ≤ 215 ≤ 215 ≤ - - -	≤ 100	360~510

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.030	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.025	-	≤ 0.55	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
6 ≤ t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	-	26 25 24	-	-	-	20℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	-	26 25 24	-	-	-	0℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 63 < t ≤ 100	-	24 23 22	-	-	-	-20℃	27	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S275JR	구조용강 General Structure Steel	성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.21 ≤ 0.21 ≤ 0.22	-	≤ 1.50	≤ 0.035
S275J0		성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.18 ≤ 0.18 ≤ 0.18	-	≤ 1.50	≤ 0.030
S275J2		성분	-	AR/CR/N	≤ 16 16 < t ≤ 40 40 <	≤ 0.18 ≤ 0.18 ≤ 0.18	-	≤ 1.50	≤ 0.025

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S275JR	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	275 ≤ 265 ≤ 255 ≤ 245 ≤ 235 ≤ - - -	≤ 100	410~560
S275J0		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	275 ≤ 265 ≤ 255 ≤ 245 ≤ 235 ≤ - - -	≤ 100	410~560
S275J2		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	275 ≤ 265 ≤ 255 ≤ 245 ≤ 235 ≤ - - -	≤ 100	410~560

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.030	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.025	-	≤ 0.55	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	23 22 21	-	-	-	20℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	23 22 21	-	-	-	0℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	21 20 19	-	-	-	-20℃	27	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S355JR	구조용강 General Structure Steel	성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.24 ≤ 0.24 ≤ 0.24	≤ 0.55	≤ 1.60	≤ 0.035
S355J0		성분	-	AR	≤ 16 16 < t ≤ 40 40 <	≤ 0.20 ≤ 0.20 ≤ 0.22	≤ 0.55	≤ 1.60	≤ 0.030
S355J2		성분	-	AR/CR/N/TMCP	≤ 16 16 < t ≤ 40 40 <	≤ 0.20 ≤ 0.20 ≤ 0.22	≤ 0.55	≤ 1.60	≤ 0.025

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S355JR	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ - - -	≤ 100	470~630
S355J0		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ - - -	≤ 100	470~630
S355J2		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ - - -	≤ 100	470~630

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.035	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.030	≤ 0.012	≤ 0.55	-	-	-	-	-	-	-
≤ 0.025	-	≤ 0.55	-	-	-	-	-	-	-

재질값 Mechanical Property								비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	22 21 20	-	-	-	20℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	22 21 20	-	-	-	0℃	27	-
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	22 21 20	-	-	-	-20℃	27	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S355K2	구조용강 General Structure Steel	성분	-	CR/N/TMCP	≤ 16 16 < t ≤ 40 40 <	≤ 0.20 ≤ 0.20 ≤ 0.22	≤ 0.55	≤ 1.60	≤ 0.025
S275N		성분	-	NOR'	-	≤ 0.18	≤ 0.40	0.50~1.50	≤ 0.030
S275NL		성분	-	NOR'	-	≤ 0.16	≤ 0.40	0.50~1.50	≤ 0.025

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S355K2	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ - - -	≤ 100	470~630
S275N		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	275 ≤ 265 ≤ 255 ≤ 245 ≤ 235 ≤ 225 ≤ 215 ≤ 205 ≤	< 100 100 ≤ t < 200 ≤ 250	370~510 350~480 350~480
S275NL		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	275 ≤ 265 ≤ 255 ≤ 245 ≤ 235 ≤ 225 ≤ 215 ≤ 205 ≤	< 100 100 ≤ t < 200 ≤ 250	370~510 350~480 350~480

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.025	-	≤ 0.55	-	-	-	-	-	-	-
≤ 0.025	≤ 0.015	≤ 0.55	≤ 0.05	≤ 0.05	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.30	≤ 0.10
≤ 0.020	≤ 0.015	≤ 0.55	≤ 0.05	≤ 0.05	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.30	≤ 0.10

재질값 Mechanical Property							비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값		
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy	
6 ≤ t ≤ 40 40 < t ≤ 63 ≤ 100	-	20 19 18	-	-	-	-20℃	40	-
t ≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	24 24 24 24 24 24	-	-	-	-20℃	40	-
t ≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	23 23 23 23 23 23	-	-	-	-50℃	27	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S355N	구조용강 General Structure Steel	성분	-	NOR'	-	≤ 0.20	≤ 0.50	0.90~1.65	≤ 0.030
S355NL		성분	-	NOR'	-	≤ 0.18	≤ 0.50	0.90~1.65	≤ 0.025
S420M		성분	-	TMCP	-	≤ 0.20	≤ 0.60	1.00~1.70	≤ 0.030

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.025	≤ 0.015	≤ 0.55	≤ 0.05	≤ 0.12	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.50	≤ 0.10
≤ 0.020	≤ 0.015	≤ 0.55	≤ 0.05	≤ 0.12	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.50	≤ 0.10
≤ 0.025	≤ 0.025	≤ 0.55	≤ 0.05	≤ 0.20	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.80	≤ 0.10

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S355N	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ 295 ≤ 285 ≤ 275 ≤	≤ 100 100 < t ≤ 200 ≤ 250	470~630 450~600 450~600
S355NL		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	355 ≤ 345 ≤ 335 ≤ 325 ≤ 315 ≤ 295 ≤ 285 ≤ 275 ≤	t ≤ 100 100 < t ≤ 200 ≤ 250	470~630 450~600 450~600
S420M		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	420 ≤ 400 ≤ 390 ≤ 370 ≤ 360 ≤ 340 ≤ 330 ≤ 320 ≤	t ≤ 100 100 < t ≤ 200 ≤ 250	520~680 500~650 500~650

재질값 Mechanical Property									비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값			
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy		
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	22 22 22 22 22 22	-	-	-	-20℃	40		-
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	21 21 21 21 21 21	-	-	-	-50℃	27		-
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	19 19 19 19 19 19	-	-	-	-20℃	40		-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(2) General Structure Steel 구조용강

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Max. Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
S420ML	구조용강 General Structure Steel	성분	-	TMCP	-	≤ 0.20	≤ 0.60	1.00~1.70	≤ 0.025
S460M		성분	-	TMCP	-	≤ 0.20	≤ 0.60	1.00~1.70	≤ 0.030
S460ML		성분	-	TMCP	-	≤ 0.20	≤ 0.60	1.00~1.70	≤ 0.025

화학성분 (wt%) Chemical Composition									
S	N	Cu	Nb	V	Al	Ti	Cr	Ni	Mo
≤ 0.020	≤ 0.025	≤ 0.55	≤ 0.05	≤ 0.20	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.80	≤ 0.10
≤ 0.025	≤ 0.025	≤ 0.55	≤ 0.05	≤ 0.20	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.80	≤ 0.10
≤ 0.020	≤ 0.025	≤ 0.55	≤ 0.05	≤ 0.20	≥ 0.02	≤ 0.05	≤ 0.30	≤ 0.80	≤ 0.10

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property				
				시험편 No. Test Specimen	두께 (mm) Thickness	항복강도 (MPa) Yield Strength	두께 (mm) Thickness	인장강도 (MPa) Tensile Strength
S420ML	구조용강 General Structure Steel	재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	420 ≤ 400 ≤ 390 ≤ 370 ≤ 360 ≤ 340 ≤ 330 ≤ 320 ≤	≤ 100 100 < t ≤ 200 ≤ 250	520~680 500~650 500~650
S460M		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	460 ≤ 440 ≤ 430 ≤ 410 ≤ 400 ≤ 380 ≤ 370 ≤ -	≤ 100 100 < t ≤ 200 ≤ 250	540~720 530~710 -
S460ML		재질	-	-	≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 100 100 < t ≤ 150 150 < t ≤ 200 ≤ 250	460 ≤ 440 ≤ 430 ≤ 410 ≤ 400 ≤ 380 ≤ 370 ≤ -	≤ 100 100 < t ≤ 200 ≤ 250	540~720 530~710 -

재질값 Mechanical Property									비고 Remark
연신율 (%) Elongation Minimum			굴곡			충격(J) 최소값			
두께 (mm) Thickness	시험편 No. Test Specimen	최소값	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy		
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	18 18 18 18 18 18	-	-	-	-50℃	27		-
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	17 17 17 17 17 -	-	-	-	-20℃	40		-
≤ 16 16 < t ≤ 40 40 < t ≤ 63 63 < t ≤ 80 80 < t ≤ 200 ≤ 250	-	17 17 17 17 17 -	-	-	-	-50℃	27		-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Line Pipe (45th Edition) 라인파이프용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition[a] C[b]	Si	Mn[b]	P	S	V	Nb	Ti	Other	탄소당량 (% maximum) Carbon Equivalent 탄소당량 계산식 CE (Ceq)	탄소당량 (% maximum) Carbon Equivalent 용접크랙 민감지수 계산식 CE (Pcm)
API	API PSL 1	성분	A	AR/N	-	≤ 0.22	-	≤ 0.90	≤ 0.030	≤ 0.030	-	-	-	-	-	-
			B	AR/N/TMCP	-	≤ 0.26	-	≤ 1.20	≤ 0.030	≤ 0.030	c, d	c, d	d	-	-	-
			X42	AR/N/TMCP	-	≤ 0.26	-	≤ 1.30	≤ 0.030	≤ 0.030	d	d	d	-	-	-
			X46	AR/N/TMCP	-	≤ 0.26	-	≤ 1.40	≤ 0.030	≤ 0.030	d	d	d	-	-	-
			X52	AR/N/TMCP	-	≤ 0.26	-	≤ 1.40	≤ 0.030	≤ 0.030	d	d	d	-	-	-
			X56	AR/N/TMCP	-	≤ 0.26	-	≤ 1.40	≤ 0.030	≤ 0.030	d	d	d	-	-	-
			X60	AR/N/TMCP	-	≤ 0.26[e]	-	≤ 1.40[e]	≤ 0.030	≤ 0.030	f	f	f	-	-	-
			X65	AR/N/TMCP	-	≤ 0.26[e]	-	≤ 1.45[e]	≤ 0.030	≤ 0.030	f	f	f	-	-	-
			X70	AR/N/TMCP	-	≤ 0.26[e]	-	≤ 1.65[e]	≤ 0.030	≤ 0.030	f	f	f	-	-	-

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property 항복강도 Yield Strength $R_{t0.5}$ MPa (psi) Minimum	Maximum	재질값 Mechanical Property 인장강도 Tensile Strength R_m MPa (psi) Minimum	Maximum	최대 항복비 $R_{t0.5}/R_m$	연신율 (%) Elongation Minimum
API	API PSL 1	재질	A	210(30 500)	-	335(48 600)	-	-	$A_f = C\,(A_{xc}^{0.2}/U^{0.9})$
			B	245(35 500)	-	415(60 200)	-	-	
			X42	290(42 100)	-	415(60 200)	-	-	
			X46	320(46 400)	-	435(63 100)	-	-	
			X52	360(52 200)	-	460(66 700)	-	-	
			X56	390(56 600)	-	490(71 100)	-	-	
			X60	415(60 200)	-	520(75 400)	-	-	
			X65	450(65 300)	-	535(77 600)	-	-	
			X70	485(70 300)	-	570(82 700)	-	-	

C is 1940 (SI), 625000 (USC unitis)
A_f = minimum elongation
A_{xc} : Cross-Sectional area of the test specimen
U : specified minimum tensile strength

a. 0.50 maximum for copper; 0.50% maximum for nickel; 0.50% maximum for chromium; and 0.15% maximum for molybdenum. For grades up to and including X52, Cu, Cr, and Ni shall not be added intentionally.
b. For each reduction of 0.01% below the specified maximum concentration for carbon, an increase of 0.05% above the specified maximum concentration for manganese is permissible, up to a maximum of 1.65% for grades ≥ B, but ≤ X52; up to a maximum of 1.75% for grades > X52, but < X70; and up to a maximum of 2.00% for grade X70.
c. Unless otherwise agreed, the sum of the niobium and vanadium contents shall be ≤ 0.06%.
d. The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.
e. Unless otherwise agreed.
f. Unless otherwise agreed, the sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Line Pipe (45th Edition) 라인파이프용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition		
						C[b]	Si	Mn[b]
API	API PSL 2	성분	BN	Normalizing	-	≤ 0.24	≤ 0.40	≤ 1.20
			X42N	Normalizing	-	≤ 0.24	≤ 0.40	≤ 1.20
			X46N	Normalizing	-	≤ 0.24	≤ 0.40	≤ 1.40
			X52N	Normalizing	-	≤ 0.24	≤ 0.45	≤ 1.40
			BM	TMCP	-	≤ 0.22	≤ 0.45	≤ 1.20
			X42M	TMCP	-	≤ 0.22	≤ 0.45	≤ 1.30
			X46M	TMCP	-	≤ 0.22	≤ 0.45	≤ 1.30

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property	
				항복강도 Yield Strength $R_{t0.5}$ MPa (psi)	
				Minimum	Maximum
API	API PSL 2	재질	BN	245(35 500)	450(65 300)
			X42N	290(42 100)	495(71 800)
			X46N	320(46 400)	525(76 100)
			X52N	360(52 200)	530(76 900)
			BM	245(35 500)	450(65 300)
			X42M	290(42 100)	495(71 800)
			X46M	320(46 400)	525(76 100)

화학성분 (wt%) Chemical Composition							
P	S	V	Nb	Ti	Other	탄소당량 (% maximum) Carbon Equivalent[a]	
						탄소당량 계산식 CE (Ceq)	용접크랙 민감지수 계산식 CE (Pcm)
≤ 0.025	≤ 0.015	[c]	[c]	0.04	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.06	0.05	0.04	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.07	0.05	0.04	[d, e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.1	0.05	0.04	[d, e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.05	0.05	0.04	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.05	0.05	0.04	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	0.05	0.05	0.04	[e, l]	0.43	0.25

재질값 Mechanical Property			
인장강도 Tensile Strength R_m MPa (psi)		최대 항복비 $R_{t0.5}/R_m$	연신율 (%) Elongation Minimum
Minimum	Maximum		
415(60 200)	655(95 000)	0.93	$A_f = C\,(A_{xc}^{0.2}/U^{0.9})$ **C** is 1940 (SI), 625000 (USC unitis) **A_f =** minimum elongation **A_{xc} :** Cross-Sectional area of the test specimen **U :** specified minimum tensile strength
415(60 200)	655(95 000)	0.93	
435(63 100)	655(95 000)	0.93	
460(66 700)	760(110 200)	0.93	
415(60 200)	655(95 000)	0.93	
415(60 200)	655(95 000)	0.93	
435(63 100)	655(95 000)	0.93	

a. Based upon product analysis. The Ce_{IIW} limits apply if the carbon mass fraction is greater than 0.12% and the CE_{Pcm} limits if the carbon mass fraction is less than or equal to 0.12%.
b. For each reduction of 0.01% below the specified maximum for carbon, an increase of 0.05% above the specified maximum for manganese is permissible, up to a maximum of 1.65% for grades ≥ B, but ≤ X52; up to a maximum of 1.75% for grades > X52, but < X70; up to a maximum of 2.00% for grades ≥ X70, but ≤ X80; and up to a maximum of 2.20% for grades > X80.
c. Unless otherwise agreed, the sum of the niobium and vanadium concentrations shall be ≤ 0.06%.
d. The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.
e. Unless otherwise agreed, 0.50% maximum for copper, 0.30% maximum for nickel, 0.30% maximum for chromium and 0.15% maximum for molybdenum.
f. Unless otherwise agreed.
g. Unless otherwise agreed, the sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.
h. Unless otherwise agreed, 0.50% maximum for copper, 0.50% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybenum.
i. Unless otherwise agreed, 0.50% maximum for copper, 0.50% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybenum.
j. 0.004% maximum for boron.
k. Unless otherwise agreed, 0.50% maximum for copper, 0.10% maximum for nickel, 0.55% maximum for chromium and 0.80% maximum for molybenum
l. For all PSL 2 pipe grade except those grades to which footnote j already applies, the following applies. Unless otherwise agreed no intentional addition of B is permitted and residal 0.001% maximum for boron.

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Line Pipe (45th Edition) 라인파이프용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition		
						C[b]	Si	Mn[b]
API	API PSL 2	성분	X52M	TMCP	-	≤ 0.22	≤ 0.45	≤ 1.40
			X56M	TMCP	-	≤ 0.22	≤ 0.45	≤ 1.40
			X60M	TMCP	-	≤ 0.12[f]	≤ 0.45[f]	≤ 1.60[f]
			X65M	TMCP	-	≤ 0.12[f]	≤ 0.45[f]	≤ 1.60[f]
			X70M	TMCP	-	≤ 0.12[f]	≤ 0.45[f]	≤ 1.70[f]
			X80M	TMCP	-	≤ 0.12[f]	≤ 0.45[f]	≤ 1.85[f]
			X100M	TMCP	-	≤ 0.10	≤ 0.55[f]	≤ 2.10[f]

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property	
				항복강도 Yield Strength $R_{t0.5}$ MPa (psi)	
				Minimum	Maximum
API	API PSL 2	재질	X52M	360(52 200)	530(76 900)
			X56M	390(56 600)	545(79 000)
			X60M	415(60 200)	565(81 900)
			X65M	450(65 300)	600(87 000)
			X70M	485(70 300)	635(92 100)
			X80M	555(80 500)	705(102 300)
			X100M	690(100 100)	840(121 800)

a. Based upon product analysis. The Ce_{IIW} limits apply if the carbon mass fraction is greater than 0.12% and the CE_{Pcm} limits if the carbon mass fraction is less than or equal to 0.12%.
b. For each reduction of 0.01% below the specified maximum for carbon, an increase of 0.05% above the specified maximum for manganese is permissible, up to a maximum of 1.65% for grades ≥ B, but ≤ X52; up to a maximum of 1.75% for grades > X52, but < X70; up to a maximum of 2.00% for grades ≥ X70, but ≤ X80; and up to a maximum of 2.20% for grades > X80.
c. Unless otherwise agreed, the sum of the niobium and vanadium concentrations shall be ≤ 0.06%.
d. The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.
e. Unless otherwise agreed, 0.50% maximum for copper, 0.30% maximum for nickel, 0.30% maximum for chromium and 0.15% maximum for molybdenum.
f. Unless otherwise agreed.

화학성분 (wt%) Chemical Composition							
P	S	V	Nb	Ti	Other[c,d]	탄소당량 (% maximum) Carbon Equivalent[a]	
						탄소당량 계산식 CE (Ceq)	용접크랙 민감지수 계산식 CE (Pcm)
≤ 0.025	≤ 0.015	[d]	[d]	[d]	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	[d]	[d]	[d]	[e, l]	0.43	0.25
≤ 0.025	≤ 0.015	[g]	[g]	[g]	[h, l]	0.43	0.25
≤ 0.025	≤ 0.015	[g]	[g]	[g]	[h, l]	0.43	0.25
≤ 0.025	≤ 0.015	[g]	[g]	[g]	[h, l]	0.43	0.25
≤ 0.025	≤ 0.015	[g]	[g]	[g]	[i, l]	0.43[f]	0.25
≤ 0.020	≤ 0.010	[g]	[g]	[g]	[i, j]	-	0.25

재질값 Mechanical Property			
인장강도 Tensile Strength R_m MPa (psi)		최대 항복비 $R_{t0.5}/R_m$	연신율 (%) Elongation Minimum
Minimum	Maximum		
460(66 700)	760(110 200)	0.93	$A_f = C\,(A_{xc}^{0.2}/U^{0.9})$
490(71 100)	760(110 200)	0.93	
520(75 400)	760(110 200)	0.93	**C** is 1940 (SI), 625000 (USC unitis)
535(77 600)	760(110 200)	0.93	A_f = minimum elongation
570(82 700)	760(110 200)	0.93	A_{xc} : Cross-Sectional area of the test specimen
625(90 600)	825(119 700)	0.93	**U** : specified minimum tensile strength
760(110 200)	990(143 600)	0.97[k]	

g. Unless otherwise agreed, the sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%.
h. Unless otherwise agreed, 0.50% maximum for copper, 0.50% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybenum.
i. Unless otherwise agreed, 0.50% maximum for copper, 0.50% maximum for nickel, 0.50% maximum for chromium and 0.50% maximum for molybenum.
j. 0.004% maximum for boron.
k. Unless otherwise agreed, 0.50% maximum for copper, 0.10% maximum for nickel, 0.55% maximum for chromium and 0.80% maximum for molybenum
l. For all PSL 2 pipe grade except those grades to which footnote j already applies, the following applies. Unless otherwise agreed no intentional addition of B is permitted and residal 0.001% maximum for boron.

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(3) Line Pipe (45th Edition) 라인파이프용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition		
						C[b]	Si	Mn[b]
API	API for Sour Service	성분	BMS	TMCP	-	≤ 0.10	≤ 0.40	≤ 1.25
			X42MS	TMCP	-	≤ 0.10	≤ 0.40	≤ 1.25
			X46MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.35
			X52MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.45
			X56MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.45
			X60MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.45
			X65MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.60
			X70MS	TMCP	-	≤ 0.10	≤ 0.45	≤ 1.60

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property	
				항복강도 Yield Strength $R_{t0.5}$ MPa (psi)	
				Minimum	Maximum
API	API for Sour Service	재질	BMS	245(35 500)	450(65 300)
			X42MS	290(42 100)	495(71 800)
			X46MS	320(46 400)	525(76 100)
			X52MS	360(52 200)	530(76 900)
			X56MS	390(56 600)	545(79 000)
			X60MS	415(60 200)	565(81 900)
			X65MS	450(65 300)	600(87 000)
			X70MS	485(70 300)	635(92 100)

a. Based upon product analysis. The Ce_{IIW} limits apply if the carbon mass fraction is greater than 0.12% and the CE_{Pcm} limitsapply if the carbon mass fraction is less than or equal to 0.12%.
b. For each reduction of 0.01% below the specified maximum for carbon, an increase of 0.05% above the specified maximum for manganese is permissible, up to a maximum increase of 0.20%.
c. Al_{total} ≤ 0.060%; N ≤ 0.012%; Al/N ≥ 2:1 (not applicable to titanium-killed or titanium-treated steel); Cu ≤ 0.35% (if agreed, Cu ≤ 0.10%); Ni ≤ 0.30%, Cr ≤ 0.30% ; Mo ≤ 0.15%; B ≤ 0.0005%
d. For welded pipe where calcium is intentionally added, unless otherwise agreed, Ca/S ≥ 1.5 if S > 0.0015%. For SMLS and welded pipes, the calcium concentraion shall be ≤ 0.006%.
e. The maximum limit for sulfur concentration may be increased to ≤ 0.008% for SMLS pipe and, if agreed, to ≤ 0.006% for welded pipe. For such higher-sulfur levels in welded pipe, lower Ca/S ratios may be agreed.
f. The sum of the niobium, canadium and titanium concentrations shall be ≤ 0.06%

화학성분 (wt%) Chemical Composition							
P	S	V	Nb	Ti	Other[c,d]	탄소당량 (% maximum) Carbon Equivalent[a]	
						탄소당량 계산식 CE (Ceq)	용접크랙 민감지수 계산식 CE (Pcm)
≤ 0.020	≤ 0.002[e]	0.04	0.04	0.04	-	-	0.19
≤ 0.020	≤ 0.002[e]	0.04	0.04	0.04	-	-	0.19
≤ 0.020	≤ 0.002[e]	0.05	0.05	0.04	-	-	0.2
≤ 0.020	≤ 0.002[e]	0.05	0.06	0.04	-	-	0.2
≤ 0.020	≤ 0.002[e]	0.06	0.08	0.04	[f]	-	0.21
≤ 0.020	≤ 0.002[e]	0.08	0.08	0.06	[f, g]	-	0.21
≤ 0.020	≤ 0.002[e]	0.1	0.08	0.06	[f, g, h]	-	0.22
≤ 0.020	≤ 0.002[e]	0.1	0.08	0.06	[f, g, h]	-	0.22

재질값 Mechanical Property			
인장강도 Tensile Strength R_m MPa (psi)		최대 항복비 $R_{t0.5}/R_m$	연신율 (%) Elongation Minimum
Minimum	Maximum		
415(60 200)	655(95 000)	0.93	$A_f = C\,(A_{xc}^{0.2}/U^{0.9})$ **C** is 1940 (SI), 625000 (USC unitis) **A_f =** minimum elongation **A_{xc} :** Cross-Sectional area of the test specimen **U :** specified minimum tensile strength
415(60 200)	655(95 000)	0.93	
435(63 100)	655(95 000)	0.93	
460(66 700)	760(110 200)	0.93	
490(71 100)	760(110 200)	0.93	
520(75 400)	760(110 200)	0.93	
535(77 600)	760(110 200)	0.93	
570(82 700)	760(110 200)	0.93	

g. The sum of the niobium, vanadium and titanium concentrations shall be ≤ 0.15%
h. For SMLS pipe, the listed CE_{Pcm} value may be increased by 0.03%
i. If agreed, the molybdenum concentration shall be ≤ 0.35%.
j. If agreed, the chromium concentration shall be ≤ 0.45%.
k. If agreed, the chromium concentration shall be ≤ 0.45% and the Nikel oncentration shall be ≤ 0.50%.

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition														
						C	Si	Mn	P	S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
ASTM A285	압력용기용 저중강도용 탄소강판 Carbon steel plate of low- and intermediate-tensile strengths in pressure vessels	성분	A	As rolled	≤ 50	≤ 0.17	-	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
			B	As rolled	≤ 50	≤ 0.22	-	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
			C	As rolled	≤ 50	≤ 0.28	-	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
ASTM A515	중.고온용 압력용기용 탄소강판 Carbon steel plate primarily for intermediate- and high-temperature service in pressure vessels	성분	60	As rolled	t ≤ 25	≤ 0.24	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					25 < t ≤ 50	≤ 0.27	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.29	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.31	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.31	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
			65	As rolled	t ≤ 25	≤ 0.28	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					25 < t ≤ 50	≤ 0.31	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.33	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.33	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.33	0.15~0.40	≤ 0.90	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
			70	As rolled	t ≤ 25	≤ 0.31	0.15~0.40	≤ 1.20	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					25 < t ≤ 50	≤ 0.33	0.15~0.40	≤ 1.20	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.35	0.15~0.40	≤ 1.20	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.35	0.15~0.40	≤ 1.20	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.35	0.15~0.40	≤ 1.20	≤ 0.025	≤ 0.025	-	-	-	-	-	-	-	-	-	-

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property													
				두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum			단면수축률 Reduction of Area		굴곡			충격(J) 최소값	
								두께 (mm)	GL=200 mm	G=50 mm	Measure on Round Test Specimen	Measure on Flat Specimen	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy
ASTM A285	압력용기용 저중강도용 탄소강판	재질	A	-	-	≥ 165	310~450	-	27	30	-	-	-	-	-	-	-
			B	-	-	≥ 185	345~485	-	25	28	-	-	-	-	-	-	-
			C	-	-	≥ 205	380~515	-	23	27	-	-	-	-	-	-	-
ASTM A515	중.고온용 압력용기용 탄소강판	재질	60	-	-	≥ 220	415~550	-	21	25	-	-	-	-	-	-	-
			65	-	-	≥ 240	450~585	-	19	23	-	-	-	-	-	-	-
			70	-	-	≥ 260	485~620	-	17	21	-	-	-	-	-	-	-

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition														
						C	Si	Mn	P	S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
ASTM A516	상온 및 저온용 탄소강판 Carbon steel plate primarily for moderate- and low-temperature service in pressure vessels	성분	55	As rolled	t ≤ 12.5	≤ 0.18	0.15~0.40	0.60~0.90	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					12.5 < t ≤ 50	≤ 0.20	0.15~0.40	0.6~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.22	0.15~0.40	0.6~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.24	0.15~0.40	0.6~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.26	0.15~0.40	0.6~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
			60	As rolled Normalizing	t ≤ 12.5	≤ 0.21	0.15~0.40	0.60~0.90	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					12.5 < t ≤ 50	≤ 0.23	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.25	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.27	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.27	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
			60S (Sour Service)	Normalizing	t ≤ 12.5	≤ 0.21	0.15~0.40	0.60~0.90	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					12.5 < t ≤ 50	≤ 0.23	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.25	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.27	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.27	0.15~0.40	0.85~1.2	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
			65	As rolled Normalizing	t ≤ 12.5	≤ 0.24	0.15~0.40	0.85~1.20	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					12.5 < t ≤ 50	≤ 0.26	0.15~0.40	0.85~1.20	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					50 < t ≤ 100	≤ 0.28	0.15~0.40	0.85~1.20	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					100 < t ≤ 200	≤ 0.29	0.15~0.40	0.85~1.20	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-
					t > 200	≤ 0.29	0.15~0.40	0.85~1.20	≤ 0.035	≤ 0.035	-	-	-	-	-	-	-	-	-	-

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property														
				두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum			단면수축률 Reduction of Area		굴곡			충격(J) 최소값	
								두께 (mm)	GL=200 mm	G=50 mm	Measure on Round Test Specimen	Measure on Flat Specimen	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수에너지 (J) Average Absorbed Energy
ASTM A516	상온 및 저온용 탄소강판	재질	55	-	-	≥ 205	380~515	-	23	27	-	-	-	-	-	-	-
			60	-	-	≥ 220	415~550	-	21	25	-	-	-	-	-	-	-
			60S (Sour Service)	-	-	≥ 220	415~550	-	21	25	-	-	-	-	-	-	-
			65	-	-	≥ 240	450~585	-	19	23	-	-	-	-	-	-	-

Hot Rolled Coil
Cold Rolled Coil
Steel Plate

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
ASTM A516	상온 및 저온용 탄소강판 Carbon steel plate primarily for moderate- and low-temperature service in pressure vessels	성분	65S (Sour Service)	Normalizing	t ≤ 12.5	≤ 0.24	0.15~0.40	0.60~0.90	≤ 0.035
					12.5 < t ≤ 50	≤ 0.26	0.15~0.40	0.6~1.2	≤ 0.035
					50 < t ≤ 100	≤ 0.28	0.15~0.40	0.6~1.2	≤ 0.035
					100 < t ≤ 200	≤ 0.29	0.15~0.40	0.6~1.2	≤ 0.035
					t > 200	≤ 0.29	0.15~0.40	0.6~1.2	≤ 0.035
			70	As rolled Normalizing	t ≤ 12.5	≤ 0.27	0.15~0.40	0.60~0.90	≤ 0.035
					12.5 < t ≤ 50	≤ 0.28	0.15~0.40	0.85~1.2	≤ 0.035
					50 < t ≤ 100	≤ 0.30	0.15~0.40	0.85~1.2	≤ 0.035
					100 < t ≤ 200	≤ 0.31	0.15~0.40	0.85~1.2	≤ 0.035
					t > 200	≤ 0.31	0.15~0.40	0.85~1.2	≤ 0.035
			70S (Sour Service)	Normalizing	t ≤ 12.5	≤ 0.27	0.15~0.40	0.60~0.90	≤ 0.035
					12.5 < t ≤ 50	≤ 0.28	0.15~0.40	0.85~1.2	≤ 0.035
					50 < t ≤ 100	≤ 0.30	0.15~0.40	0.85~1.2	≤ 0.035
					100 < t ≤ 200	≤ 0.31	0.15~0.40	0.85~1.2	≤ 0.035
					t > 200	≤ 0.31	0.15~0.40	0.85~1.2	≤ 0.035

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property						
				두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum		
								두께 (mm)	GL=200 mm	G=50 mm
ASTM A516	상온 및 저온용 탄소강판	재질	65S (Sour Service)	-	-	≥ 240	450~585	-	19	23
			70	-	-	≥ 260	485~620	-	17	21
			70S (Sour Service)	-	-	≥ 260	485~620	-	17	21

화학성분 (wt%) Chemical Composition										
S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-
≤ 0.035	-	-	-	-	-	-	-	-	-	-

재질값 Mechanical Property						
단면수축률 Reduction of Area		굴곡			충격(J) 최소값	
Measure on Round Test Specimen	Measure on Flat Specimen	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수 에너지 (J) Average Absorbed Energy
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition C	Si	Mn	P	S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
ASTM A387	압력용기용 Cr-Mo 강판	성분	11-C1	Normalizing and Tempering	-	0.05~0.17	0.50-0.80	0.40~0.65	≤ 0.025	≤ 0.025	1.00~1.50	0.45~0.65	-	-	-	-	-	-	-	-
			11-C2		-	0.05~0.17	0.50-0.80	0.40~0.65	≤ 0.025	≤ 0.025	1.00~1.50	0.45~0.65	-	-	-	-	-	-	-	-
			22-C1		-	0.05~0.15	≤ 0.50	0.30~0.60	≤ 0.025	≤ 0.025	2.00~2.50	0.90~1.10								
			22-C2		-	0.05~0.15	≤ 0.50	0.30~0.60	≤ 0.025	≤ 0.025	2.00~2.50	0.90~1.10								
ASTM A537	압력용기용 C-Mn-Si 강판	성분	C1	Normalizing	t ≤ 40	≤ 0.24	0.15-0.50	0.70~1.60	≤ 0.035	≤ 0.035	≤ 0.25	≤ 0.08	≤ 0.35	≤ 0.02	≤ 0.25	≤ 0.03	≤ 0.03	-	-	≤ 0.57
			C2	Quenching and Tempering	-	≤ 0.24	0.15-0.50	0.70~1.60	≤ 0.035	≤ 0.035	≤ 0.25	≤ 0.08	≤ 0.35	≤ 0.02	≤ 0.25	≤ 0.03	≤ 0.03	-	-	≤ 0.57
			C3		-	≤ 0.24	0.15-0.50	0.70~1.60	≤ 0.035	≤ 0.035	≤ 0.25	≤ 0.08	≤ 0.35	≤ 0.02	≤ 0.25	≤ 0.03	≤ 0.03	-	-	≤ 0.57
EN 10028-3	저온용 탄소강판	성분	P275NL2	Normalizing	-	≤ 0.16	≤ 0.40	0.80~1.50	≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.08	≤ 0.30	≤ 0.05	≤ 0.05	≤ 0.03	≤ 0.05	0.02 ≤	≤ 0.012	≤ 0.40
			P355NL2		-	≤ 0.18	≤ 0.50	1.10~1.70	≤ 0.02	≤ 0.01	≤ 0.30	≤ 0.08	≤ 0.30	≤ 0.05	≤ 0.05	≤ 0.03	≤ 0.10	0.02 ≤	≤ 0.012	≤ 0.43

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property 두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum 두께 (mm)	GL=200 mm	G=50 mm	단면수축률 Reduction of Area Measure on Round Test Specimen	Measure on Flat Specimen	굴곡 두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	충격(J) 최소값 시험온도 (°c) Test Temperature	평균흡수 에너지 (J) Average Absorbed Energy
ASTM A387	압력용기용 Cr-Mo 강판	재질	11-C1	-	-	≥ 240	415~585	-	≥ 19	≥ 22	-	-	-	-	-	-	-
			11-C2	-	-	≥ 310	515~690	-	≥ 18	≥ 22	-	-	-	-	-	-	-
			22-C1	-	-	≥ 205	415~585	-	-	≥ 18	≥ 45	≥ 40	-	-	-	-	-
			22-C2	-	-	≥ 310	515~690	-	-	≥ 18	≥ 45	≥ 40	-	-	-	-	-
ASTM A537	압력용기용 C-Mn-Si 강판	재질	C1	-	-	≥ 345	485~620	-	≥ 18	≥ 22	-	-	-	-	-	-	-
			C2	-	-	≥ 415	550~690	-	≥ 18	≥ 22	-	-	-	-	-		
			C3	-	-	≥ 380	550~690	-	≥ 18	≥ 22	-	-	-	-	-	-	-
EN 10028-3	저온용 탄소강판 Carbon steel plate primarily for low-temperature service in pressure vessels	재질	P275NL2	≤ 16	-	≥ 275	390~510	-	24	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				16 < t ≤ 40	-	≥ 265	390~510	-	24	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				40 < t ≤ 60	-	≥ 255	390~510	-	24	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				60 < t ≤ 100	-	≥ 235	370~490	-	23	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				100 < t ≤ 150	-	≥ 225	360~480	-	23	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				150 < t ≤ 250	-	≥ 215	350~470	-	23	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
			P355NL2	≤ 16	-	≥ 355	490~630	-	22	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				16 < t ≤ 40	-	≥ 345	490~630	-	22	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				40 < t ≤ 60	-	≥ 335	490~630	-	22	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				60 < t ≤ 100	-	≥ 315	470~610	-	21	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				100 < t ≤ 150	-	≥ 305	460~600	-	21	-	-	-	-	-	-	- 50℃	T : 27J L : 42J
				150 < t ≤ 250	-	≥ 295	450~590	-	21	-	-	-	-	-	-	- 50℃	T : 27J L : 42J

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
KS D3521	압력용기용 강판 Steel plate in pressure vessels	성분	SPV235 SPPV235	As rolled Normalizing	≤ 100	≤ 0.18	≤ 0.35	≤ 1.40	≤ 0.030
					100 <	≤ 0.2	≤ 0.35	≤ 1.40	≤ 0.030
			SPV315 SPPV315	As rolled Normalizing	-	≤ 0.18	≤ 0.55	≤ 1.60	≤ 0.030
			SPV355 SPPV355	As rolled Normalizing	-	≤ 0.2	≤ 0.55	≤ 1.60	≤ 0.030
KS D 3560	보일러 및 압력 용기용 탄소강 및 몰리브데넘강 강판 Carbon and Molybdenum steel plate in and pressure vessels	성분	SB410	As rolled Normalizing	≤ 25	≤ 0.24	0.15~0.40	≤ 0.90	≤ 0.030
					25 < t ≤ 50	≤ 0.27	0.15~0.40	≤ 0.90	≤ 0.030
					50 < t ≤ 200	≤ 0.30	0.15~0.40	≤ 0.90	≤ 0.030

화학성분 (wt%) Chemical Composition										
S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property						
				두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum		
								두께 (mm)	GL=200 mm	G=50 mm
KS D3521	압력용기용 강판	재질	SPV235 SPPV235	6 ≤ t ≤ 50	1A호	235 ≤	400~510	≤ 16	1A호	17 ≤
				50 < t ≤ 100	1A호	215 ≤	400~510	16 < t ≤ 40	1A호	21 ≤
				100 < t ≤ 200	4호	195 ≤	400~510	40 <	4호	24 ≤
			SPV315 SPPV315	6 ≤ t ≤ 50	1A호	315 ≤	490~610	≤ 16	1A호	16 ≤
				50 < t ≤ 100	1A호	295 ≤	490~610	16 < t ≤ 40	1A호	20 ≤
				100 < t ≤ 200	4호	275 ≤	490~610	40 <	4호	23 ≤
			SPV355 SPPV355	6 ≤ t ≤ 50	1A호	355 ≤	520~640	≤ 16	1A호	14 ≤
				50 < t ≤ 100	1A호	335 ≤	520~640	16 < t ≤ 40	1A호	18 ≤
				100 < t ≤ 200	4호	315 ≤	520~640	40 <	4호	21 ≤
KS D 3560	보일러 및 압력 용기용 탄소강 및 몰리브데넘강 강판	재질	SB410	≤ 50	1A호	225 ≤	410~550	≤ 50	1A호	21 ≤
				50 <	10호	225 ≤	410~550	50 <	10호	25 ≤

재질값 Mechanical Property						
단면수축률 Reduction of Area		굴곡			충격(J) 최소값	
Measure on Round Test Specimen	Measure on Flat Specimen	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수 에너지 (J) Average Absorbed Energy
-	-	≤ 50	-	두께의 1.0배	+0℃	47(L)
-	-	50 <	-	두께의 1.5배	+0℃	47(L)
-	-	50 <	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	-	-	두께의 1.5배	+0℃	47(L)
-	-	≤ 25	-	두께의 0.5배	-	-
-	-	25 < t ≤ 50	-	두께의 0.75배	-	-

03. STEEL PLATE 후판

3) Chemical Compositions & Mechanical Properties 규격별 성분 및 재질

(4) Pressure Vessel 압력용기용

규격 Designation	종류 Type	구분 Classification	기호 Grade	열처리 Heat-treatment	최대두께 (mm) Maximum Thickness	화학성분 (wt%) Chemical Composition			
						C	Si	Mn	P
KS D 3560	보일러 및 압력 용기용 탄소강 및 몰리브데넘강 강판 Carbon and Molybdenum steel plate in boilders and pressure vessels	성분	SB450	As rolled Normalizing	t ≤ 25	≤ 0.28	0.15~0.40	≤ 0.90	≤ 0.030
					25 < t ≤ 50	≤ 0.31	0.15~0.40	≤ 0.90	≤ 0.030
					50 < t ≤ 200	≤ 0.33	0.15~0.40	≤ 0.90	≤ 0.030
			SB450M	As rolled Normalizing	t ≤ 25	≤ 0.18	0.15~0.40	≤ 0.90	≤ 0.030
					25 < t ≤ 50	≤ 0.21	0.15~0.40	≤ 0.90	≤ 0.030
					50 < t ≤ 100	≤ 0.23	0.15~0.40	≤ 0.90	≤ 0.030
			SB480	As rolled Normalizing	t ≤ 25	≤ 0.31	0.15~0.40	≤ 1.20	≤ 0.030
					25 < t ≤ 50	≤ 0.33	0.15~0.40	≤ 1.20	≤ 0.030
					50 < t ≤ 200	≤ 0.35	0.15~0.40	≤ 1.20	≤ 0.030
			SB480M	As rolled Normalizing	t ≤ 25	≤ 0.20	0.15~0.40	≤ 0.90	≤ 0.030
					25 < t ≤ 50	≤ 0.23	0.15~0.40	≤ 0.90	≤ 0.030
					50 < t ≤ 100	≤ 0.25	0.15~0.40	≤ 0.90	≤ 0.030

규격 Designation	종류 Type	구분 Classification	기호 Grade	재질값 Mechanical Property						
				두께 (mm) Thickness	시험편 No. Test Specimen	항복강도 (MPa) Yield Strength	인장강도 (MPa) Tensile Strength	연신율 (%) Elongation Minimum		
								두께 (mm)	GL=200 mm	G=50 mm
KS D 3560	보일러 및 압력 용기용 탄소강 및 몰리브데넘강 강판	재질	SB450	≤ 50	1A호	≥ 245	450~590	≤ 50	1A호	≥ 19
				> 50	10호	≥ 245	450~590	> 50	10호	≥ 23
			SB450M	≤ 50	1A호	≥ 255	450~590	≤ 50	1A호	≥ 19
				> 50	10호	≥ 255	450~590	> 50	10호	≥ 23
			SB480	≤ 50	1A호	≥ 265	480~620	≤ 50	1A호	≥ 17
				> 50	10호	≥ 265	480~620	> 50	10호	≥ 21
			SB480M	≤ 50	1A호	≥ 275	480~620	≤ 50	1A호	≥ 17
				> 50	10호	≥ 275	480~620	> 50	10호	≥ 21

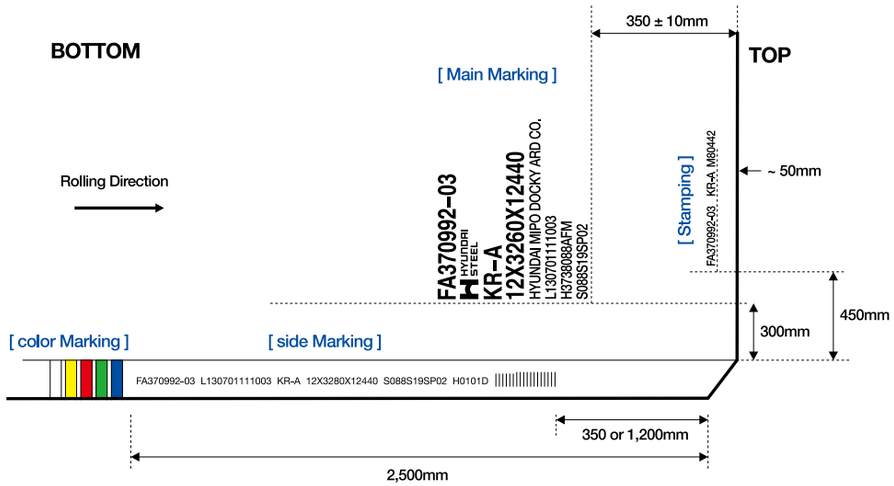
화학성분 (wt%) Chemical Composition										
S	Cr	Mo	Cu	Nb	Ni	Ti	V	Al_Total	N	Ceq
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	-	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-
≤ 0.030	-	0.45-0.60	-	-	-	-	-	-	-	-

재질값 Mechanical Property						
단면수축률 Reduction of Area		굴곡			충격(J) 최소값	
Measure on Round Test Specimen	Measure on Flat Specimen	두께 (mm) Thickness	시험편 No. Test Specimen	안쪽반지름 Inner Radius	시험온도 (°c) Test Temperature	평균흡수 에너지 (J) Average Absorbed Energy
-	-	≤ 25	-	두께의 0.75배	-	-
-	-	25 < t ≤ 100	-	두께의 1.00배	-	-
-	-	≤ 25	-	두께의 0.50배	-	-
-	-	25 < t ≤ 100	-	두께의 0.75배	-	-
-	-	≤ 25	-	두께의 1.00배	-	-
-	-	25 < t ≤ 50	-	두께의 1.00배	-	-
-	-	≤ 25	-	두께의 0.75배	-	-
-	-	25 < t ≤ 100	-	두께의 0.75배	-	-

03. STEEL PLATE 후판

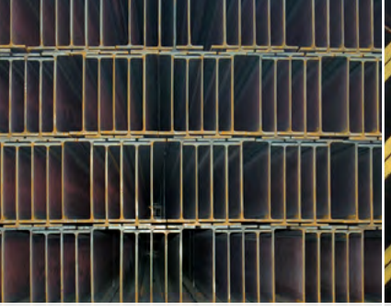
4) Marking 마킹

(1) Marking & Stamping 마킹 및 타각 위치



(2) Display Items and Font Size for Marking 표시항목 및 글자크기

구분	표시항목	글자크기	LINE당 최대 글자수	글자방향	위치
Main Marking 메인마킹	제품번호, 회사 로고(HYUNDAI STEEL), 규격약호, 제품 치수, 고객사명, 주문번호 및 행번, Stock Lot 번호, PO번호, Heat no. MADE IN KOREA, 목적지명 등	**FONT SIZE** 16×10 (80(h) × 50(w)mm) 9×6 (45(h) × 30(w)mm)	30	90° (압연방향기준)	TOP, 상면
Side Marking 측면마킹	제품번호, 주문번호 및 행번, 규격약호, 제품치수, 수요가 코드, Stock Lot 번호, PO번호, HYUNDAI STEEL, 이론중량, 목적지 코드, BAR CODE	3, 6 (h)mm	80	압연방향	TOP, 측면
Color Marking 칼라마킹	RED, YELLOW, WHITE, GREEN, BLUE	-	-	-	TOP, 측면
Stamping 타각	제품번호, 선급협회 마크, GRADE, HEAT NO, 회사 로고(H)	**FONT SIZE** 7 (10.5(h)mm)	30	90° (압연방향기준)	TOP, 상면



H SECTION
H형강

ANGLE/CHANNEL
ㄱㄷ형강

SHEET PILE
강널말뚝

RAIL
레일

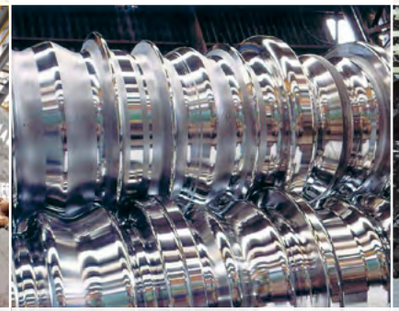
MAIN PRODUCTS

REINFORCING BAR
철근

ROUND BAR
특수강

COLD ROLLED STAINLESS
STEEL SHEET, COIL & STRIP
스테인리스 강판 및 강대

INGOT FOR FORGING
잉곳

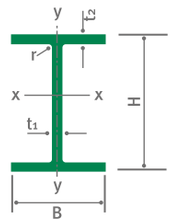


ROLL
롤

HEAVY MACHINERY
중기

PRODUCTS GUIDE
PART 02

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(1) Metric Series - KS, JIS '90

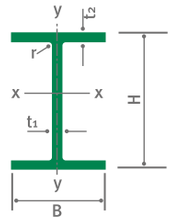
호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
100 x 100	17.2	100	100	6	8	10	21.90	383	134
125 x 125	23.8	125	125	6.5	9	10	30.31	847	293
150 x 75	14.0	150	75	5	7	8	17.85	666	49.5
150 x 100	21.1	148	100	6	9	11	26.84	1,020	151
150 x 150	31.5	150	150	7	10	11	40.14	1,640	563
200 x 100	18.2	198	99	4.5	7	11	23.18	1,580	114
	21.3	200	100	5.5	8	11	27.16	1,840	134
200 x 150	30.6	194	150	6	9	13	39.01	2,690	507
200 x 200	49.9	200	200	8	12	13	63.53	4,720	1,600
	56.2	200	204	12	12	13	71.53	4,980	1,700
	*65.7	208	202	10	16	13	83.69	6,530	2,200
250 x 125	25.7	248	124	5	8	12	32.68	3,540	255
	29.6	250	125	6	9	12	37.66	4,050	294
250 x 175	44.1	244	175	7	11	16	56.24	6,120	985
250 x 250	*64.4	244	252	11	11	16	82.06	8,790	2,940
	*66.5	248	249	8	13	16	84.70	9,930	3,350
	72.4	250	250	9	14	16	92.18	10,800	3,650
	82.2	250	255	14	14	16	104.7	11,500	3,880
300 x 150	32.0	298	149	5.5	8	13	40.80	6,320	442
	36.7	300	150	6.5	9	13	46.78	7,210	508
300 x 200	56.8	294	200	8	12	18	72.38	11,300	1,600
	*65.4	298	201	9	14	18	83.36	13,300	1,900
300 x 300	84.5	294	302	12	12	18	107.7	16,900	5,520
	*87.0	298	299	9	14	18	110.8	18,800	6,240
	94.0	300	300	10	15	18	119.8	20,400	6,750
	106	300	305	15	15	18	134.8	21,500	7,100
	*106	304	301	11	17	18	134.8	23,400	7,730
	*130	310	305	15	20	18	165.3	28,600	9,470
	*142	310	310	20	20	18	180.8	29,900	10,000

* 는 KS(JIS)에 없는 규격

Dimension : KS D 3502:2013 JIS G 3192:1990
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:1990
Surface Condition : KS D 3502:2013 JIS G 3192:1990

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
4.18	2.47	76.5	26.7	87.6	41.2	2.83	5.17	100 x 100
5.29	3.11	136	46.9	154	71.9	9.87	8.43	125 x 125
6.11	1.66	88.8	13.2	102	20.8	2.53	2.81	150 x 75
6.17	2.37	138	30.1	157	46.7	7.28	7.37	150 x 100
6.39	3.75	219	75.1	246	115	27.6	13.5	150 x 150
8.26	2.21	160	23.0	180	35.7	10.4	3.86	200 x 100
8.24	2.22	184	26.8	209	41.9	12.3	5.77	
8.30	3.61	277	67.6	309	104	43.4	10.9	200 x 150
8.62	5.02	472	160	525	244	142	29.8	200 x 200
8.35	4.88	498	167	565	257	150	39.6	
8.83	5.13	628	218	710	332	203	66.7	
10.4	2.79	285	41.1	319	63.6	36.7	6.74	250 x 125
10.4	2.79	324	47.0	366	73.1	42.7	9.68	
10.4	4.18	502	113	558	173	134	23.2	250 x 175
10.3	5.98	720	233	805	358	399	39.5	250 x 250
10.8	6.29	801	269	883	408	462	46.7	
10.8	6.29	867	292	960	444	508	58.7	
10.5	6.09	919	304	1,040	468	540	79.0	
12.4	3.29	424	59.3	475	91.8	92.9	8.65	300 x 150
12.4	3.29	481	67.7	542	105	107	12.4	
12.5	4.71	771	160	859	247	319	35.8	300 x 200
12.6	4.77	893	189	1,000	291	383	53.4	
12.5	7.16	1,150	365	1,280	560	1,097	61.4	300 x 300
13.0	7.50	1,270	417	1,390	634	1,258	71.3	
13.1	7.51	1,360	450	1,500	684	1,372	88.1	
12.6	7.26	1,440	466	1,610	716	1,443	116	
13.2	7.57	1,540	514	1,710	781	1,592	125	
13.2	7.57	1,850	621	2,080	949	1,991	215	
12.9	7.44	1,930	645	2,200	992	2,093	271	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(1) Metric Series - KS, JIS '90

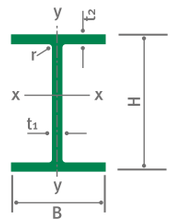
Dimension : KS D 3502:2013 JIS G 3192:1990
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:1990
Surface Condition : KS D 3502:2013 JIS G 3192:1990

호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
350 x 175	41.4	346	174	6	9	14	52.68	11,100	792
	49.6	350	175	7	11	14	63.14	13,600	984
	*57.8	354	176	8	13	14	73.68	16,100	1,180
350 x 250	*69.2	336	249	8	12	20	88.15	18,500	3,090
	79.7	340	250	9	14	20	101.5	21,700	3,650
350 x 350	*106	338	351	13	13	20	135.3	28,200	9,380
	115	344	348	10	16	20	146.0	33,300	11,200
	*131	344	354	16	16	20	166.6	35,300	11,800
	137	350	350	12	19	20	173.9	40,300	13,600
	*156	350	357	19	19	20	198.4	42,800	14,400
400 x 200	56.6	396	199	7	11	16	72.16	20,000	1,450
	66.0	400	200	8	13	16	84.12	23,700	1,740
	*75.5	404	201	9	15	16	96.16	27,500	2,030
400 x 300	*94.3	386	299	9	14	22	120.1	33,700	6,240
	107	390	300	10	16	22	136.0	38,700	7,210
400 x 400	140	388	402	15	15	22	178.5	49,000	16,300
	147	394	398	11	18	22	186.8	56,100	18,900
	*168	394	405	18	18	22	214.4	59,700	20,000
	172	400	400	13	21	22	218.7	66,600	22,400
	197	400	408	21	21	22	250.7	70,900	23,800
	*200	406	403	16	24	22	254.9	78,000	26,200
	232	414	405	18	28	22	295.4	92,800	31,000
	283	428	407	20	35	22	360.7	119,000	39,400
	415	458	417	30	50	22	528.6	187,000	60,500
	605	498	432	45	70	22	770.1	298,000	94,400
450 x 200	66.2	446	199	8	12	18	84.30	28,700	1,580
	76.0	450	200	9	14	18	96.76	33,500	1,870
450 x 300	*106	434	299	10	15	24	135.0	46,800	6,690
	124	440	300	11	18	24	157.4	56,100	8,110
500 x 200	79.5	496	199	9	14	20	101.3	41,900	1,840
	89.6	500	200	10	16	20	114.2	47,800	2,140
	103	506	201	11	19	20	131.3	56,500	2,580

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
14.5	3.88	641	91.0	716	140	225	13.6	
14.7	3.95	775	112	868	174	283	23.0	350 x 175
14.8	4.01	909	135	1,020	208	344	36.1	
14.5	5.92	1,100	248	1,210	380	812	44.6	
14.6	6.00	1,280	292	1,410	447	970	66.3	340 x 250
14.4	8.33	1,670	534	1,850	818	2,477	90.3	
15.1	8.78	1,940	646	2,120	980	3,024	121	
14.6	8.43	2,050	669	2,300	1,030	3,186	164	350 x 350
15.2	8.84	2,300	777	2,550	1,180	3,721	199	
14.7	8.53	2,450	809	2,760	1,240	3,953	270	
16.7	4.48	1,010	145	1,130	224	536	27.1	
16.8	4.54	1,190	174	1,330	268	650	42.2	400 x 200
16.9	4.60	1,360	202	1,530	312	770	62.3	
16.7	7.21	1,750	418	1,920	637	2,160	79.9	400 x 300
16.9	7.28	1,980	481	2,190	733	2,521	114	
16.6	9.54	2,530	809	2,800	1,240	5,655	156	
17.3	10.1	2,850	951	3,120	1,440	6,688	194	
16.7	9.65	3,030	985	3,390	1,510	7,053	264	
17.5	10.1	3,330	1,120	3,670	1,700	8,048	303	
16.8	9.75	3,540	1,170	3,990	1,790	8,550	415	
17.5	10.1	3,840	1,300	4,280	1,980	9,558	462	400 x 400
17.7	10.2	4,480	1,530	5,030	2,330	11,557	714	
18.2	10.4	5,570	1,930	6,310	2,940	15,198	1,317	
18.8	10.7	8,170	2,900	9,540	4,440	25,188	3,885	
19.7	11.1	12,000	4,370	14,500	6,720	43,214	11,063	
18.5	4.33	1,290	159	1,450	247	744	38.3	450 x 200
18.6	4.40	1,490	187	1,680	291	890	56.9	
18.6	7.04	2,160	448	2,380	686	2,937	104	450 x 300
18.9	7.18	2,550	541	2,820	828	3,611	163	
20.3	4.27	1,690	185	1,910	290	1,072	60.8	
20.5	4.33	1,910	214	2,180	335	1,254	85.9	500 x 200
20.7	4.43	2,230	257	2,540	401	1,530	132	

* 는 KS(JIS)에 없는 규격

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(1) Metric Series - KS, JIS '90

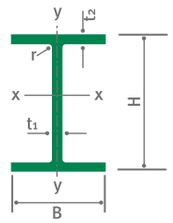
호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
500 x 300	114	482	300	11	15	26	145.5	60,400	6,760
	128	488	300	11	18	26	163.5	71,000	8,110
600 x 200	94.6	596	199	10	15	22	120.5	68,700	1,980
	106	600	200	11	17	22	134.4	77,600	2,280
	120	606	201	12	20	22	152.5	90,400	2,720
	*134	612	202	13	23	22	170.7	103,000	3,180
600 x 300	137	582	300	12	17	28	174.5	103,000	7,670
	151	588	300	12	20	28	192.5	118,000	9,020
	175	594	302	14	23	28	222.4	137,000	10,600
700 x 300	166	692	300	13	20	28	211.5	172,000	9,020
	185	700	300	13	24	28	235.5	201,000	10,800
	*215	708	302	15	28	28	273.6	237,000	12,900
800 x 300	191	792	300	14	22	28	243.4	254,000	9,930
	210	800	300	14	26	28	267.4	292,000	11,700
	*241	808	302	16	30	28	307.6	339,000	13,800
900 x 300	213	890	299	15	23	28	270.9	345,000	10,300
	243	900	300	16	28	28	309.8	411,000	12,600
	286	912	302	18	34	28	364.0	498,000	15,700
	*307	918	303	19	37	28	391.3	542,000	17,200

* 는 KS(JIS)에 없는 규격

Dimension : KS D 3502:2013 JIS G 3192:1990
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:1990
Surface Condition : KS D 3502:2013 JIS G 3192:1990

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
20.4	6.82	2,500	451	2,790	695	3,688	118	500 x 300
20.8	7.04	2,910	541	3,230	830	4,481	172	
23.9	4.05	2,310	199	2,650	315	1,671	82.4	600 x 200
24.0	4.12	2,590	228	2,980	361	1,936	113	
24.3	4.22	2,980	271	3,430	429	2,336	167	
24.6	4.31	3,380	314	3,890	498	2,755	237	
24.3	6.63	3,530	511	3,960	793	6,121	173	600 x 300
24.8	6.85	4,020	601	4,490	928	7,275	241	
24.9	6.90	4,620	701	5,200	1,080	8,628	356	
28.6	6.53	4,970	601	5,630	936	10,189	260	700 x 300
29.3	6.78	5,760	722	6,460	1,120	12,367	383	
29.4	6.86	6,700	853	7,560	1,320	14,897	588	
32.3	6.39	6,410	662	7,290	1,040	14,720	341	800 x 300
33.0	6.62	7,290	782	8,240	1,220	17,569	486	
33.2	6.70	8,400	915	9,530	1,430	20,902	726	
35.7	6.16	7,760	688	8,910	1,080	19,308	403	900 x 300
36.4	6.39	9,140	843	10,500	1,320	24,015	633	
37.0	6.56	10,900	1,040	12,500	1,630	30,169	1,050	
37.2	6.63	11,800	1,140	13,500	1,790	33,391	1,316	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

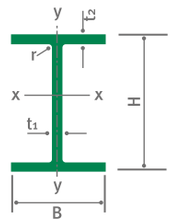
(1) Metric Series - JIS '94, '08

호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
100 x 100	16.9	100	100	6	8	8	21.59	378	134
125 x 125	23.6	125	125	6.5	9	8	30.00	840	293
150 x 75	14.0	150	75	5	7	8	17.85	666	49.5
150 x 100	20.7	148	100	6	9	8	26.35	1,000	150
150 x 150	31.1	150	150	7	10	8	39.65	1,620	563
200 x 100	17.8	198	99	4.5	7	8	22.69	1,540	113
	20.9	200	100	5.5	8	8	26.67	1,810	134
200 x 150	29.9	194	150	6	9	8	38.11	2,630	507
200 x 200	49.9	200	200	8	12	13	63.53	4,720	1,600
250 x 125	25.1	248	124	5	8	8	31.99	3,450	255
	29.0	250	125	6	9	8	36.97	3,960	294
250 x 175	43.6	244	175	7	11	13	55.49	6,040	984
250 x 250	71.8	250	250	9	14	13	91.43	10,700	3,650
300 x 150	32.0	298	149	5.5	8	13	40.80	6,320	442
	36.7	300	150	6.5	9	13	46.78	7,210	508
300 x 200	55.8	294	200	8	12	13	71.05	11,100	1,600
300 x 300	93.0	300	300	10	15	13	118.5	20,200	6,750
350 x 175	41.2	346	174	6	9	13	52.45	11,000	791
	49.4	350	175	7	11	13	62.91	13,500	984
350 x 250	78.1	340	250	9	14	13	99.53	21,200	3,650
350 x 350	135	350	350	12	19	13	171.9	39,800	13,600
400 x 200	56.1	396	199	7	11	13	71.41	19,800	1,450
	65.4	400	200	8	13	13	83.37	23,500	1,740
400 x 300	105	390	300	10	16	13	133.3	37,900	7,200
400 x 400	172	400	400	13	21	22	218.7	66,600	22,400
	232	414	405	18	28	22	295.4	92,800	31,000
	283	428	407	20	35	22	360.7	119,000	39,400
	415	458	417	30	50	22	528.6	187,000	60,500
	605	498	432	45	70	22	770.1	298,000	94,400
450 x 200	65.1	446	199	8	12	13	82.97	28,100	1,580
	74.9	450	200	9	14	13	95.43	32,900	1,870

Dimension : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008
Dimensional Tolerance : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008
Surface Condition : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
4.18	2.49	75.6	26.7	86.4	41.0	2.82	4.91	100 x 100
5.29	3.13	134	46.9	152	71.7	9.86	8.10	125 x 125
6.11	1.67	88.8	13.2	102	20.8	2.52	2.90	150 x 75
6.16	2.39	135	30.1	154	46.4	7.25	6.66	150 x 100
6.39	3.77	216	75.1	243	114	27.6	12.7	150 x 150
8.24	2.24	156	22.9	175	35.5	10.3	3.32	200 x 100
8.24	2.24	181	26.7	205	41.6	12.3	5.17	
8.31	3.65	271	67.6	301	103	43.3	9.43	200 x 150
8.62	5.02	472	160	526	244	141	30.2	200 x 200
10.4	2.82	278	41.1	312	63.2	36.6	5.80	250 x 125
10.3	2.82	317	47.0	358	72.7	42.5	8.61	
10.4	4.21	495	112	551	172	133	21.3	250 x 175
10.8	6.32	856	292	953	443	508	56.2	250 x 250
12.4	3.29	424	59.3	475	91.8	92.7	8.79	300 x 150
12.4	3.29	481	67.7	542	105	107	12.7	
12.5	4.75	755	160	842	245	318	31.8	300 x 200
13.1	7.55	1,350	450	1,480	683	1,370	82.9	300 x 300
14.5	3.88	636	91.0	713	140	224	13.3	350 x 175
14.6	3.96	771	113	864	173	282	22.5	
14.6	6.06	1,250	292	1,380	445	969	58.4	350 x 250
15.2	8.89	2,270	777	2,520	1,180	3,720	187	350 x 350
16.7	4.51	1,000	146	1,110	223	535	25.1	400 x 200
16.8	4.57	1,180	174	1,310	267	649	39.7	
16.9	7.35	1,940	480	2,140	730	2,520	100	400 x 300
17.5	10.1	3,330	1,120	3,670	1,700	8,040	304	400 x 400
17.7	10.2	4,480	1,530	5,030	2,330	11,500	721	
18.2	10.5	5,560	1,940	6,310	2,940	15,200	1,320	
18.8	10.7	8,170	2,900	9,540	4,440	25,100	3,930	
19.7	11.1	12,000	4,370	14,500	6,720	43,100	11,300	
18.4	4.36	1,260	159	1,420	245	742	34.3	450 x 200
18.6	4.43	1,460	187	1,650	290	887	52.0	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

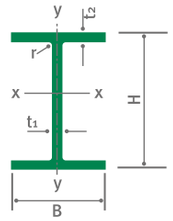
(1) Metric Series - JIS '94, '08

호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
450 x 300	121	440	300	11	18	13	153.9	54,700	8,110
500 x 200	77.9	496	199	9	14	13	99.29	40,800	1,840
	88.2	500	200	10	16	13	112.3	46,800	2,140
500 x 300	111	482	300	11	15	13	141.2	58,300	6,760
	125	488	300	11	18	13	159.2	68,900	8,110
600 x 200	92.5	596	199	10	15	13	117.8	66,600	1,980
	103	600	200	11	17	13	131.7	75,600	2,270
600 x 300	133	582	300	12	17	13	169.2	99,000	7,660
	147	588	300	12	20	13	187.2	114,000	9,010
	170	594	302	14	23	13	217.1	134,000	10,600
700 x 300	163	692	300	13	20	18	207.5	168,000	9,020
	182	700	300	13	24	18	231.5	197,000	10,800
800 x 300	188	792	300	14	22	18	239.5	248,000	9,920
	207	800	300	14	26	18	263.5	286,000	11,700
900 x 300	210	890	299	15	23	18	266.9	339,000	10,300
	240	900	300	16	28	18	305.8	404,000	12,600
	283	912	302	18	34	18	360.1	491,000	15,700
	304	918	303	19	37	18	387.4	535,000	17,200

Dimension : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008
Dimensional Tolerance : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008
Surface Condition : JIS G 3192:1994 JIS G 3192:2008 JIS G 3136:2008

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
18.9	7.26	2,490	541	2,760	823	3,610	142	450 x 300
20.3	4.30	1,650	185	1,870	288	1,070	52.9	500 x 200
20.4	4.37	1,870	214	2,130	333	1,250	76.4	
20.3	6.92	2,420	451	2,700	690	3,680	95.5	500 x 300
20.8	7.14	2,820	541	3,130	825	4,470	144	
23.8	4.10	2,230	199	2,580	312	1,660	70.0	600 x 200
24.0	4.15	2,520	227	2,900	358	1,930	98.2	
24.2	6.73	3,400	511	3,820	786	6,110	139	600 x 300
24.7	6.94	3,880	601	4,350	921	7,260	200	
24.8	6.99	4,510	702	5,060	1,080	8,610	306	
28.5	6.59	4,860	601	5,500	931	10,200	228	700 x 300
29.2	6.83	5,630	720	6,340	1,110	12,300	342	
32.2	6.44	6,260	661	7,140	1,030	14,700	305	800 x 300
32.9	6.66	7,150	780	8,100	1,210	17,500	440	
35.6	6.21	7,620	689	8,750	1,080	19,300	365	900 x 300
36.3	6.42	8,980	840	10,300	1,320	24,000	581	
36.9	6.60	10,770	1,040	12,300	1,620	30,100	981	
37.2	6.66	11,660	1,140	13,400	1,780	33,300	1,240	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

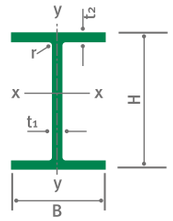
(2) ASTM

호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
W4 x 4	13	4.16	4.060	0.280	0.345	0.30	19.35	105.7	103.1	7.1	8.8	7.6
W5 x 5	16	5.01	5.000	0.240	0.360	0.30	23.81	127.3	127.0	6.1	9.1	7.6
	19	5.15	5.030	0.270	0.430	0.30	28.28	130.8	127.8	6.9	10.9	7.6
W6 x 4	8.5	5.83	3.940	0.170	0.195	0.30	12.65	148.0	100.1	4.3	4.9	7.6
	9	5.90	3.940	0.170	0.215	0.30	13.39	149.9	100.1	4.3	5.5	7.6
	12	6.03	4.000	0.230	0.280	0.30	17.86	153.2	101.6	5.8	7.1	7.6
	16	6.28	4.030	0.260	0.405	0.30	23.81	159.5	102.4	6.6	10.3	7.6
W6 x 6	15	5.99	5.990	0.230	0.260	0.30	22.32	152.1	152.1	5.8	6.6	7.6
	20	6.20	6.020	0.260	0.365	0.30	29.76	157.5	152.9	6.6	9.3	7.6
	25	6.38	6.080	0.320	0.455	0.30	37.20	162.1	154.4	8.1	11.6	7.6
W8 x 4	10	7.89	3.940	0.170	0.205	0.30	14.88	200.4	100.1	4.3	5.2	7.6
	13	7.99	4.000	0.230	0.255	0.30	19.35	202.9	101.6	5.8	6.5	7.6
	15	8.11	4.015	0.245	0.315	0.30	22.32	206.0	102.0	6.2	8.0	7.6
W8 x 5¼	18	8.14	5.250	0.230	0.330	0.30	26.79	206.8	133.4	5.8	8.4	7.6
	21	8.28	5.270	0.250	0.400	0.30	31.25	210.3	133.9	6.4	10.2	7.6
W8 x 6½	24	7.93	6.495	0.245	0.400	0.40	35.72	201.4	165.0	6.2	10.2	10.2
	28	8.06	6.535	0.285	0.465	0.40	41.67	204.7	166.0	7.2	11.8	10.2
W8 x 8	31	8.00	7.995	0.285	0.435	0.40	46.13	203.2	203.1	7.2	11.0	10.2
	35	8.12	8.020	0.310	0.495	0.40	52.09	206.2	203.7	7.9	12.6	10.2
	40	8.25	8.070	0.360	0.560	0.40	59.53	209.6	205.0	9.1	14.2	10.2
	48	8.50	8.110	0.400	0.685	0.40	71.43	215.9	206.0	10.2	17.4	10.2
	58	8.75	8.220	0.510	0.810	0.40	86.31	222.3	208.8	13.0	20.6	10.2
	67	9.00	8.280	0.570	0.935	0.40	99.71	228.6	210.3	14.5	23.7	10.2
W10 x 4	12	9.87	3.960	0.190	0.210	0.30	17.86	250.7	100.6	4.8	5.3	7.6
	15	9.99	4.000	0.230	0.270	0.30	22.32	253.7	101.6	5.8	6.9	7.6
	17	10.11	4.010	0.240	0.330	0.30	25.30	256.8	101.9	6.1	8.4	7.6
	19	10.24	4.020	0.250	0.395	0.30	28.28	260.1	102.1	6.4	10.0	7.6
W10 x 5¾	22	10.17	5.750	0.240	0.360	0.30	32.74	258.3	146.1	6.1	9.1	7.6
	26	10.33	5.770	0.260	0.440	0.30	38.69	262.4	146.6	6.6	11.2	7.6
	30	10.47	5.810	0.300	0.510	0.30	44.64	265.9	147.6	7.6	13.0	7.6

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
24.90	476.5	161.1	4.37	2.54	90.2	31.3	104	48.1	3.77	6.91	W4 x 4
30.26	888.8	311.0	5.42	3.21	140	49.0	157	74.6	10.9	8.02	W5 x 5
35.88	1,090	379.6	5.51	3.25	167	59.4	190	90.6	13.6	13.2	
16.25	620	82.1	6.17	2.25	84	16.4	94	25.4	4.2	1.58	W6 x 4
17.48	693.1	92.1	6.30	2.30	92.5	18.4	104	28.4	4.79	1.90	
22.99	923.1	124.4	6.34	2.33	121	24.5	137	38.0	6.62	4.09	
30.76	1,350	184.8	6.62	2.45	169	36.1	193	55.8	10.3	9.72	
28.63	1,220	387.4	6.53	3.68	160	50.9	177	77.7	20.5	4.58	W6 x 6
38.10	1,730	554.5	6.74	3.81	220	72.5	246	111	30.4	10.5	
47.57	2,240	712.4	6.86	3.87	276	92.3	312	141	40.3	20.0	
19.08	1,280	87.1	8.19	2.14	128	17.4	145	27.1	8.28	1.87	W8 x 4
24.72	1,650	114.0	8.17	2.15	163	22.4	187	35.4	11.0	3.86	
28.60	2,000	142.0	8.36	2.23	194	27.8	222	43.7	13.9	5.86	
33.93	2,580	332.8	8.72	3.13	250	49.9	279	76.6	32.7	7.25	W8 x 5¼
39.97	3,150	408.7	8.88	3.20	300	61.0	336	93.6	40.9	12.0	
45.78	3,460	764.3	8.69	4.09	344	92.6	380	141	69.8	14.6	W8 x 6½
53.11	4,070	900.5	8.75	4.12	398	109	445	166	83.7	22.4	
58.62	4,560	1,540.0	8.82	5.13	449	152	496	230	142	22.3	W8 x 8
66.52	5,280	1,780.0	8.91	5.17	512	175	570	265	166	32.5	
75.60	6,090	2,040.0	8.98	5.19	581	199	651	303	195	46.9	
91.05	7,650	2,540.0	9.17	5.28	709	247	803	375	250	82.3	
110.5	9,490	3,130.0	9.27	5.32	854	300	982	458	318	141	
126.8	11,300	3,680.0	9.44	5.39	989	350	1,150	535	386	212	
22.68	2,230	90.2	9.92	1.99	178	17.9	206	28.4	13.5	2.41	W10 x 4
28.43	2,870	121.1	10.0	2.06	226	23.8	262	37.9	18.4	4.55	
32.26	3,410	148.7	10.3	2.15	266	29.2	306	46.1	22.9	6.67	
36.28	4,000	178.0	10.5	2.22	308	34.9	354	54.8	27.7	9.78	
41.73	4,900	473.6	10.8	3.37	379	64.8	425	100	73.4	10.0	W10 x 5¾
49.17	6,010	588.8	11.1	3.46	458	80.3	513	123	92.8	16.9	
57.10	7,090	697.7	11.1	3.50	533	94.5	601	145	111	26.2	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

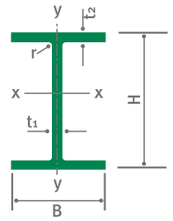
(2) ASTM

호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
W10 x 8	33	9.73	7.960	0.290	0.435	0.50	49.11	247.1	202.2	7.4	11.0	12.7
	39	9.92	7.985	0.315	0.530	0.50	58.04	252.0	202.8	8.0	13.5	12.7
	45	10.10	8.020	0.350	0.620	0.50	66.97	256.5	203.7	8.9	15.7	12.7
W10 x 10	49	9.98	10.000	0.340	0.560	0.50	72.92	253.5	254.0	8.6	14.2	12.7
	54	10.09	10.030	0.370	0.615	0.50	80.36	256.3	254.8	9.4	15.6	12.7
	60	10.22	10.080	0.420	0.680	0.50	89.29	259.6	256.0	10.7	17.3	12.7
	68	10.40	10.130	0.470	0.770	0.50	101.2	264.2	257.3	11.9	19.6	12.7
	77	10.60	10.190	0.530	0.870	0.50	114.6	269.2	258.8	13.5	22.1	12.7
	88	10.84	10.265	0.610	0.990	0.50	131.0	275.3	260.7	15.4	25.1	12.7
	100	11.10	10.340	0.680	1.120	0.50	148.8	281.9	262.6	17.3	28.4	12.7
	112	11.36	10.415	0.755	1.250	0.50	166.7	288.5	264.5	19.2	31.8	12.7
W12 x 4	14	11.91	3.970	0.200	0.225	0.30	20.83	302.5	100.8	5.1	5.7	7.6
	16	11.99	3.990	0.220	0.265	0.30	23.81	304.5	101.3	5.6	6.7	7.6
	19	12.16	4.005	0.235	0.350	0.30	28.28	308.9	101.7	6.0	8.9	7.6
	22	12.31	4.030	0.260	0.425	0.30	32.74	312.7	102.4	6.6	10.8	7.6
W12 x 6½	26	12.22	6.490	0.230	0.380	0.30	38.69	310.4	164.8	5.8	9.7	7.6
	30	12.34	6.520	0.260	0.440	0.30	44.64	313.4	165.6	6.6	11.2	7.6
	35	12.50	6.560	0.300	0.520	0.30	52.09	317.5	166.6	7.6	13.2	7.6
W12 x 8	40	11.94	8.005	0.295	0.515	0.60	59.53	303.3	203.3	7.5	13.1	15.2
	45	12.06	8.045	0.335	0.575	0.60	66.97	306.3	204.3	8.5	14.6	15.2
	50	12.19	8.080	0.370	0.640	0.60	74.41	309.6	205.2	9.4	16.3	15.2
W12 x 10	53	12.06	9.995	0.345	0.575	0.60	78.87	306.3	253.9	8.8	14.6	15.2
	58	12.19	10.010	0.360	0.640	0.60	86.31	309.6	254.3	9.1	16.3	15.2
W12 x 12	65	12.12	12.000	0.390	0.605	0.60	96.73	307.8	304.8	9.9	15.4	15.2
	72	12.25	12.040	0.430	0.670	0.60	107.1	311.2	305.8	10.9	17.0	15.2
	79	12.38	12.080	0.470	0.735	0.60	117.6	314.5	306.8	11.9	18.7	15.2

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
62.53	7,070	1,520	10.6	4.93	572	150	634	229	211	24.4	
74.14	8,720	1,880	10.8	5.04	692	185	769	282	267	40.9	W10 x 8
85.38	10,300	2,210	11.0	5.09	803	217	898	331	321	62.3	
92.9	11,300	3,880	11.0	6.46	892	306	987	463	555	57.6	
102.0	12,600	4,300	11.1	6.49	983	338	1,090	512	623	75.9	
114.0	14,200	4,840	11.2	6.52	1,090	378	1,220	575	710	104	
129.0	16,400	5,570	11.3	6.57	1,240	433	1,400	658	832	150	
146.1	19,000	6,390	11.4	6.61	1,410	494	1,600	752	975	215	W10 x 10
166.9	22,200	7,420	11.5	6.67	1,610	569	1,850	868	1,160	315	
189.5	25,900	8,580	11.7	6.73	1,840	654	2,120	998	1,380	455	
212.8	29,800	9,820	11.8	6.79	2,070	743	2,420	1,130	1,620	637	
26.83	3,680	97.7	11.7	1.91	243	19.4	286	31.1	21.4	3.12	
30.37	4,260	117	11.8	1.96	280	23.0	328	36.9	25.7	4.44	
36.06	5,410	157	12.2	2.08	350	30.8	406	48.9	35.1	7.66	W12 x 4
41.83	6,500	194	12.5	2.15	416	37.9	481	60.0	44.0	12.3	
49.35	8,520	724	13.1	3.83	549	87.9	611	134	164	12.6	
56.80	9,930	849	13.2	3.87	634	103	707	157	194	19.2	W12 x 6½
66.60	11,900	1,020	13.4	3.91	750	122	837	188	236	30.9	
76.03	12,900	1,840	13.0	4.92	851	181	944	276	386	39.4	
85.19	14,600	2,080	13.1	4.94	953	204	1,060	311	441	54.3	W12 x 8
94.92	16,400	2,350	13.1	4.98	1,060	229	1,190	351	505	74.3	
100.5	17,700	3,990	13.3	6.30	1,160	314	1,280	478	847	65.7	
110.1	19,800	4,470	13.4	6.37	1,280	352	1,420	534	961	87.2	W12 x 10
123.3	22,200	7,270	13.4	7.68	1,440	477	1,590	724	1,550	91.7	
136.2	24,800	8,110	13.5	7.72	1,590	530	1,770	805	1,750	122	W12 x 12
149.7	27,600	9,010	13.6	7.76	1,760	587	1,950	892	1,970	161	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

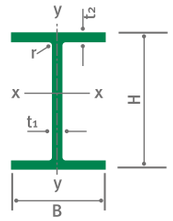
호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
W12 x 12	87	12.53	12.125	0.515	0.810	0.60	129.5	318.3	308.0	13.1	20.6	15.2
	96	12.71	12.160	0.550	0.900	0.60	142.9	322.8	308.9	14.0	22.9	15.2
	106	12.89	12.220	0.610	0.990	0.60	157.7	327.4	310.4	15.5	25.1	15.2
	120	13.12	12.320	0.710	1.105	0.60	178.6	333.2	312.9	18.0	28.1	15.2
	136	13.41	12.400	0.790	1.250	0.60	202.4	340.6	315.0	20.1	31.8	15.2
	152	13.71	12.480	0.870	1.400	0.60	226.2	348.2	317.0	22.1	35.6	15.2
	*161	13.88	12.535	0.906	1.484	0.60	239.6	352.5	318.4	23.0	37.7	15.2
	170	14.03	12.570	0.960	1.560	0.60	253.0	356.4	319.3	24.4	39.6	15.2
	190	14.38	12.670	1.060	1.735	0.60	282.8	365.3	321.8	26.9	44.1	15.2
	210	14.71	12.790	1.180	1.900	0.60	312.5	373.6	324.9	30.0	48.3	15.2
	230	15.05	12.895	1.285	2.070	0.60	342.3	382.3	327.5	32.6	52.6	15.2
	252	15.41	13.005	1.395	2.250	0.60	375.0	391.4	330.3	35.4	57.2	15.2
	279	15.85	13.140	1.530	2.470	0.60	415.2	402.6	333.8	38.9	62.7	15.2
	305	16.32	13.235	1.625	2.705	0.60	453.9	414.5	336.2	41.3	68.7	15.2
W14 x 5	22	13.74	5.000	0.230	0.335	0.40	32.74	349.0	127.0	5.8	8.5	10.2
	26	13.91	5.025	0.255	0.420	0.40	38.69	353.3	127.6	6.5	10.7	10.2
W14 x 6¾	30	13.84	6.730	0.270	0.385	0.40	44.64	351.5	170.9	6.9	9.8	10.2
	34	13.98	6.745	0.285	0.455	0.40	50.60	355.1	171.3	7.2	11.6	10.2
	38	14.10	6.770	0.310	0.515	0.40	56.55	358.1	172.0	7.9	13.1	10.2
W14 x 8	43	13.66	7.995	0.305	0.530	0.60	63.99	347.0	203.1	7.7	13.5	15.2
	48	13.79	8.030	0.340	0.595	0.60	71.43	350.3	204.0	8.6	15.1	15.2
	53	13.92	8.060	0.370	0.660	0.60	78.87	353.6	204.7	9.4	16.8	15.2
W14 x 10	61	13.89	9.995	0.375	0.645	0.60	90.78	352.8	253.9	9.5	16.4	15.2
	68	14.04	10.035	0.415	0.720	0.60	101.2	356.6	254.9	10.5	18.3	15.2
	74	14.17	10.070	0.450	0.785	0.60	110.1	359.9	255.8	11.4	19.9	15.2
	82	14.31	10.130	0.510	0.855	0.60	122.0	363.5	257.3	13.0	21.7	15.2
W14 x 14½	90	14.02	14.520	0.440	0.710	0.60	133.9	356.1	368.8	11.2	18.0	15.2
	99	14.16	14.565	0.485	0.780	0.60	147.3	359.7	370.0	12.3	19.8	15.2
	109	14.32	14.605	0.525	0.860	0.60	162.2	363.7	371.0	13.3	21.8	15.2

* 표시는 BS규격

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
165.2	30,800	10,000	13.7	7.78	1,940	649	2,170	991	2,220	215	
182.2	34,700	11,300	13.8	7.88	2,150	732	2,420	1,110	2,530	289	
200.8	38,800	12,500	13.9	7.89	2,370	805	2,680	1,230	2,860	381	
227.7	44,600	14,400	14.0	7.95	2,680	920	3,050	1,400	3,340	544	
258.0	51,900	16,600	14.2	8.02	3,050	1,050	3,510	1,610	3,950	784	
288.9	59,700	18,900	14.4	8.09	3,430	1,190	3,980	1,830	4,620	1,090	
305.8	64,200	20,300	14.5	8.15	3,640	1,280	4,250	1,950	5,020	1,290	
322.5	68,500	21,500	14.6	8.16	3,840	1,350	4,500	2,060	5,390	1,500	W12 x 12
360.4	78,800	24,500	14.8	8.24	4,310	1,520	5,100	2,340	6,320	2,060	
398.9	89,300	27,700	15.0	8.33	4,780	1,710	5,710	2,620	7,300	2,740	
436.8	100,600	30,900	15.2	8.41	5,260	1,890	6,330	2,900	8,370	3,550	
477.9	113,200	34,500	15.4	8.50	5,780	2,090	7,020	3,210	9,590	4,580	
528.4	129,500	39,000	15.7	8.59	6,430	2,340	7,890	3,600	11,230	6,070	
578.4	147,600	43,700	16.0	8.69	7,120	2,600	8,810	4,010	13,010	7,880	
41.74	8,270	291	14.1	2.64	474	45.8	542	71.8	84.1	8.71	W14 x 5
49.77	10,200	372	14.3	2.73	577	58.2	661	91.1	109	15.1	
57.29	12,100	817	14.5	3.78	689	95.6	777	148	238	16.3	
64.53	14,200	973	14.8	3.88	800	114	896	175	287	23.9	W14 x 6¾
72.18	16,100	1,110	14.9	3.92	899	129	1,010	200	331	33.6	
81.46	17,800	1,890	14.8	4.82	1,030	186	1,140	285	524	43.4	
91.12	20,200	2,140	14.9	4.85	1,150	210	1,280	322	600	59.9	W14 x 8
100.8	22,600	2,410	15.0	4.89	1,280	236	1,430	361	681	80.8	
115.7	26,700	4,480	15.2	6.22	1,510	353	1,680	538	1,270	91.4	
128.9	30,100	5,060	15.3	6.27	1,690	397	1,880	605	1,450	125	W14 x 10
140.3	33,100	5,560	15.4	6.30	1,840	435	2,050	663	1,600	161	
155.3	36,700	6,170	15.4	6.30	2,020	480	2,270	734	1,800	212	
170.6	41,500	15,100	15.6	9.41	2,330	819	2,560	1,240	4,300	169	
187.9	46,200	16,700	15.7	9.43	2,570	903	2,840	1,370	4,830	224	W14 x 14½
206.3	51,500	18,600	15.8	9.50	2,830	1,000	3,140	1,520	5,420	296	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

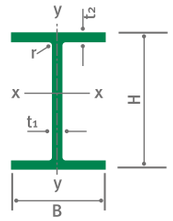
호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
W14 x 14½	120	14.48	14.670	0.590	0.940	0.60	178.6	367.8	372.6	15.0	23.9	15.2
	132	14.66	14.725	0.645	1.030	0.60	196.4	372.4	374.0	16.4	26.2	15.2
W14 x 16	145	14.78	15.500	0.680	1.090	0.60	215.8	375.4	393.7	17.3	27.7	15.2
	159	14.98	15.565	0.745	1.190	0.60	236.6	380.5	395.4	18.9	30.2	15.2
	176	15.22	15.650	0.830	1.310	0.60	261.9	386.6	397.5	21.1	33.3	15.2
	193	15.48	15.710	0.890	1.440	0.60	287.2	393.2	399.0	22.6	36.6	15.2
	211	15.72	15.800	0.980	1.560	0.60	314.0	399.3	401.3	24.9	39.6	15.2
	233	16.04	15.890	1.070	1.720	0.60	346.7	407.4	403.6	27.2	43.7	15.2
	257	16.38	15.995	1.175	1.890	0.60	382.5	416.1	406.3	29.8	48.0	15.2
	283	16.74	16.110	1.290	2.070	0.60	421.2	425.2	409.2	32.8	52.6	15.2
	311	17.12	16.230	1.410	2.260	0.60	462.8	434.8	412.2	35.8	57.4	15.2
	342	17.54	16.360	1.540	2.470	0.60	509.0	445.5	415.5	39.1	62.7	15.2
	370	17.92	16.475	1.655	2.660	0.60	550.6	455.2	418.5	42.0	67.6	15.2
W16 x 5½	26	15.69	5.500	0.250	0.345	0.40	38.69	398.5	139.7	6.4	8.8	10.2
	31	15.88	5.525	0.275	0.440	0.40	46.13	403.4	140.3	7.0	11.2	10.2
W16 x 7	36	15.86	6.985	0.295	0.430	0.40	53.57	402.8	177.4	7.5	10.9	10.2
	40	16.01	6.995	0.305	0.505	0.40	59.53	406.7	177.7	7.7	12.8	10.2
	45	16.13	7.035	0.345	0.565	0.40	66.97	409.7	178.7	8.8	14.4	10.2
	50	16.26	7.070	0.380	0.630	0.40	74.41	413.0	179.6	9.7	16.0	10.2
	57	16.43	7.120	0.430	0.715	0.40	84.83	417.3	180.8	10.9	18.2	10.2
W16 x 10¼	67	16.33	10.235	0.395	0.665	0.40	99.71	414.8	260.0	10.0	16.9	10.2
	77	16.52	10.295	0.455	0.760	0.40	114.6	419.6	261.5	11.6	19.3	10.2
	89	16.75	10.365	0.525	0.875	0.40	132.4	425.4	263.3	13.3	22.2	10.2
	100	16.97	10.425	0.585	0.985	0.40	148.8	431.0	264.8	14.9	25.0	10.2
W18 x 6	35	17.70	6.000	0.300	0.425	0.40	52.09	449.6	152.4	7.6	10.8	10.2
	40	17.90	6.015	0.315	0.525	0.40	59.53	454.7	152.8	8.0	13.3	10.2
	46	18.06	6.060	0.360	0.605	0.40	68.46	458.7	153.9	9.1	15.4	10.2
W18 x 7½	*41	17.70	7.450	0.320	0.425	0.40	61.01	449.6	189.2	8.1	10.8	10.2
	*45	17.86	7.475	0.335	0.500	0.40	66.97	453.6	189.9	8.5	12.7	10.2
	50	17.99	7.495	0.355	0.570	0.40	74.41	456.9	190.4	9.0	14.5	10.2

* 표시는 BS규격

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
228.1	57,300	20,600	15.8	9.50	3,120	1,110	3,480	1,680	6,090	394	W14 x 14½
250.4	63,800	22,900	16.0	9.56	3,430	1,220	3,840	1,860	6,840	518	
275.5	71,300	28,200	16.1	10.12	3,800	1,430	4,270	2,170	8,510	638	
301.3	79,100	31,100	16.2	10.16	4,160	1,570	4,700	2,390	9,550	827	
334.2	89,100	34,900	16.3	10.22	4,610	1,760	5,250	2,670	10,900	1,120	
366.4	99,800	38,800	16.5	10.29	5,080	1,940	5,820	2,960	12,300	1,470	
399.5	111,000	42,700	16.7	10.34	5,560	2,130	6,390	3,240	13,800	1,870	
441.8	125,000	47,900	16.8	10.41	6,140	2,370	7,140	3,620	15,800	2,510	W14 x 16
487.4	142,000	53,700	17.1	10.50	6,830	2,640	7,970	4,040	18,200	3,330	
537.4	160,000	60,200	17.3	10.58	7,530	2,940	8,890	4,490	20,800	4,400	
589.7	180,000	67,100	17.5	10.67	8,280	3,260	9,880	4,980	23,900	5,740	
648.2	204,000	75,100	17.7	10.76	9,160	3,610	11,010	5,540	27,500	7,510	
702.2	227,000	82,800	18.0	10.86	9,970	3,960	12,070	6,070	31,000	9,430	
49.86	12,600	401	15.9	2.84	632	57.4	728	90.3	152	11.3	W16 x 5½
58.99	15,600	516.9	16.3	2.96	773	73.7	887	115	198	19.4	
68.14	18,600	1,020	16.5	3.87	924	115	1,050	177	389	22.9	
75.73	21,500	1,200	16.8	3.98	1,060	135	1,190	208	464	32.9	
85.88	24,500	1,370	16.9	3.99	1,200	153	1,350	238	535	47.1	W16 x 7
95.32	27,400	1,550	17.0	4.03	1,330	173	1,510	268	609	64.1	
108.2	31,600	1,800	17.1	4.08	1,510	199	1,730	310	714	93.2	
126.9	39,700	4,950	17.7	6.25	1,910	381	2,130	581	1,960	100	
146.0	46,100	5,760	17.8	6.28	2,200	441	2,460	673	2,300	150	W16 x 10¼
168.5	54,000	6,760	17.9	6.33	2,540	514	2,860	787	2,740	228	
190.1	61,800	7,750	18.0	6.38	2,870	585	3,250	899	3,190	324	
66.34	21,200	639	17.9	3.10	943	83.9	1,090	132	307	21.4	
75.79	25,400	793	18.3	3.23	1,120	104	1,280	163	385	33.7	W18 x 6
87.23	29,600	939	18.4	3.28	1,290	122	1,490	192	460	51.2	
76.56	25,400	1,220	18.2	3.99	1,130	129	1,290	201	587	26.2	
85.52	29,400	1,450	18.5	4.12	1,300	153	1,470	237	704	37.5	W18 x 7½
94.62	33,300	1,670	18.8	4.20	1,460	175	1,650	272	816	52.1	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

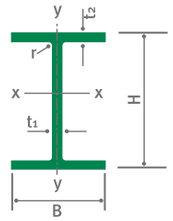
호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
	55	18.11	7.530	0.390	0.630	0.40	81.85	460.0	191.3	9.9	16.0	10.2
	60	18.24	7.555	0.415	0.695	0.40	89.29	463.3	191.9	10.5	17.7	10.2
W18 x 7½	65	18.35	7.590	0.450	0.750	0.40	96.73	466.1	192.8	11.4	19.1	10.2
	*66	18.39	7.590	4.450	0.770	0.40	98.22	467.2	192.8	11.4	19.6	10.2
	71	18.47	7.635	0.495	0.810	0.40	105.7	469.1	193.9	12.6	20.6	10.2
	76	18.21	11.035	0.425	0.680	0.40	113.1	462.5	280.3	10.8	17.3	10.2
	86	18.39	11.090	0.480	0.770	0.40	128.0	467.1	281.7	12.2	19.6	10.2
	97	18.59	11.145	0.535	0.870	0.40	144.4	472.2	283.1	13.6	22.1	10.2
	106	18.73	11.200	0.590	0.940	0.40	157.7	475.7	284.5	15.0	23.9	10.2
	119	18.97	11.265	0.655	1.060	0.40	177.1	481.8	286.1	16.6	26.9	10.2
	130	19.25	11.160	0.670	1.200	0.40	193.5	489.0	283.5	17.0	30.5	10.2
	143	19.49	11.220	0.730	1.320	0.40	212.8	495.0	285.0	18.5	33.5	10.2
W18 x 11	158	19.72	11.300	0.810	1.440	0.40	235.1	500.9	287.0	20.6	36.6	10.2
	175	20.04	11.375	0.890	1.590	0.40	260.4	509.0	288.9	22.6	40.4	10.2
	192	20.35	11.455	0.960	1.750	0.40	285.7	516.9	291.0	24.4	44.4	10.2
	211	20.67	11.555	1.060	1.910	0.40	314.0	525.0	293.5	26.9	48.5	10.2
	234	21.06	11.650	1.160	2.110	0.40	348.2	534.9	295.9	29.5	53.6	10.2
	258	21.46	11.770	1.280	2.300	0.40	383.9	545.1	299.0	32.5	58.4	10.2
	283	21.85	11.890	1.400	2.500	0.40	421.2	555.0	302.0	35.6	63.5	10.2
	311	22.32	12.005	1.520	2.740	0.40	462.8	566.9	304.9	38.6	69.6	10.2
	44	20.66	6.500	0.350	0.450	0.50	65.48	524.8	165.1	8.9	11.4	12.7
W21 x 6½	50	20.83	6.530	0.380	0.535	0.50	74.41	529.1	165.9	9.7	13.6	12.7
	57	21.06	6.555	0.405	0.650	0.50	84.83	534.9	166.5	10.3	16.5	12.7
	48	20.60	8.140	0.350	0.430	0.50	71.43	523.2	206.8	8.9	10.9	12.7
	55	20.80	8.220	0.375	0.522	0.50	81.85	528.3	208.8	9.6	13.2	12.7
	62	20.99	8.240	0.400	0.615	0.50	92.27	533.1	209.3	10.2	15.6	12.7
W21 x 8¼	68	21.13	8.270	0.430	0.685	0.50	101.2	536.7	210.1	10.9	17.4	12.7
	73	21.24	8.295	0.455	0.740	0.50	108.6	539.5	210.7	11.6	18.8	12.7
	83	21.43	8.355	0.515	0.835	0.50	123.5	544.3	212.2	13.1	21.2	12.7
	93	21.62	8.420	0.580	0.930	0.50	138.4	549.1	213.9	14.7	23.6	12.7
	101	21.36	12.290	0.500	0.800	0.50	150.3	542.5	312.2	12.7	20.3	12.7
W21 x 12¼	111	21.51	12.340	0.550	0.875	0.50	165.2	546.4	313.4	14.0	22.2	12.7
	122	21.68	12.390	0.600	0.960	0.50	181.6	550.7	314.7	15.2	24.4	12.7

* 표시는 BS규격

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
104.5	37,100	1,870	18.8	4.23	1,610	196	1,830	304	920	69.7	
113.8	41,000	2,090	19.0	4.29	1,770	218	2,010	338	1,030	91.3	
123.3	44,700	2,290	19.0	4.31	1,920	238	2,190	370	1,140	115	W18 x 7½
125.3	45,700	2,350	19.1	4.33	1,960	244	2,230	379	1,170	122	
134.7	48,800	2,510	19.0	4.32	2,080	259	2,390	405	1,260	147	
144.1	55,500	6,350	19.6	6.64	2,400	453	2,670	693	3,150	119	
163.5	63,700	7,310	19.7	6.69	2,730	519	3,050	794	3,660	173	
184.2	72,700	8,370	19.9	6.74	3,080	591	3,460	906	4,230	246	
201.1	79,700	9,190	19.9	6.76	3,350	646	3,780	992	4,680	315	
225.9	91,000	10,500	20.1	6.82	3,780	734	4,280	1,130	5,430	445	
246.6	103,000	11,600	20.4	6.86	4,210	818	4,760	1,260	6,090	609	
271.0	114,000	12,900	20.5	6.90	4,610	905	5,270	1,400	6,880	804	
299.1	127,000	14,500	20.6	6.96	5,070	1,010	5,840	1,550	7,770	1,060	W18 x 11
331.1	144,000	16,300	20.9	7.02	5,660	1,130	6,520	1,740	8,910	1,420	
363.8	161,000	18,300	21.0	7.09	6,230	1,260	7,240	1,940	10,180	1,880	
400.7	180,000	20,500	21.2	7.15	6,860	1,400	8,030	2,170	11,600	2,470	
444.3	204,000	23,200	21.4	7.23	7,630	1,570	9,000	2,440	13,400	3,320	
489.3	229,000	26,100	21.6	7.30	8,400	1,750	10,000	2,730	15,410	4,340	
536.8	257,000	29,300	21.9	7.39	9,260	1,940	11,100	3,030	17,600	5,620	
590.4	290,000	33,100	22.2	7.49	10,200	2,170	12,300	3,400	20,330	7,390	
83.71	35,000	859	20.4	3.20	1,330	104	1,560	166	563	33.1	
95.19	41,100	1,040	20.8	3.31	1,550	125	1,810	200	688	48.9	W21 x 6½
108.0	48,600	1,270	21.2	3.43	1,820	153	2,110	243	853	74.4	
91.09	39,800	1,610	20.9	4.20	1,520	156	1,750	244	1,050	34.6	
104.7	47,500	2,010	21.3	4.38	1,800	193	2,060	300	1,330	52.5	
117.9	55,300	2,390	21.7	4.50	2,070	228	2,370	356	1,600	77.0	
129.2	61,600	2,700	21.8	4.57	2,300	257	2,620	400	1,810	102	W21 x 8¼
138.8	66,800	2,940	21.9	4.60	2,480	279	2,830	435	1,990	127	
157.1	76,200	3,390	22.0	4.65	2,800	320	3,210	500	2,310	182	
176.1	86,100	3,860	22.1	4.68	3,140	361	3,610	568	2,660	253	
191.9	101,000	10,300	22.9	7.33	3,720	660	4,140	1,010	7,020	218	
210.8	111,000	11,400	22.9	7.35	4,060	728	4,560	1,120	7,820	286	W21 x 12¼
231.2	123,000	12,700	23.1	7.41	4,470	807	5,030	1,240	8,780	377	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

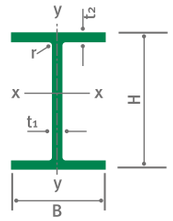
호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
W21 x 12¼	132	21.83	12.440	1.035	0.650	0.50	196.4	554.5	316.0	16.5	26.3	12.7
	147	22.06	12.510	1.150	0.720	0.50	218.8	560.3	317.8	18.3	29.2	12.7
	166	22.48	12.420	1.360	0.750	0.50	247.0	571.0	315.5	19.1	34.5	12.7
	182	22.72	12.500	1.480	0.830	0.50	270.8	577.1	317.5	21.1	37.6	12.7
	201	23.03	12.575	1.630	0.910	0.50	299.1	585.0	319.4	23.1	41.4	12.7
	*223	23.35	12.673	1.000	1.791	0.50	331.9	593.1	321.9	25.4	45.5	12.7
	*248	23.74	12.776	1.114	1.988	0.50	369.1	603.0	324.5	28.3	50.5	12.7
	*275	24.13	12.890	1.220	2.189	0.50	409.2	612.9	327.4	31.0	55.6	12.7
	*300	24.53	12.988	1.319	2.382	0.50	446.4	623.1	329.9	33.5	60.5	12.7
	*333	25.00	13.130	1.461	2.618	0.50	495.6	635.0	333.5	37.1	66.5	12.7
W24 x 7	55	23.57	7.005	0.505	0.395	0.50	81.85	598.7	177.9	10.0	12.8	12.7
	62	23.74	7.040	0.590	0.430	0.50	92.27	603.0	178.8	10.9	15.0	12.7
W24 x 9	68	23.73	8.965	0.585	0.415	0.50	101.2	602.7	227.7	10.5	14.9	12.7
	76	23.92	8.990	0.680	0.440	0.50	113.1	607.6	228.3	11.2	17.3	12.7
	84	24.10	9.020	0.770	0.470	0.50	125.0	612.1	229.1	11.9	19.6	12.7
	94	24.31	9.065	0.875	0.515	0.50	139.9	617.5	230.3	13.1	22.2	12.7
	103	24.53	9.000	0.980	0.550	0.50	153.3	623.1	228.6	14.0	24.9	12.7
W24 x 12¾	104	24.06	12.750	0.750	0.500	0.65	154.8	611.1	323.9	12.7	19.1	16.5
	117	24.26	12.800	0.850	0.550	0.65	174.1	616.2	325.1	14.0	21.6	16.5
	131	24.48	12.855	0.960	0.605	0.65	194.9	621.8	326.5	15.4	24.4	16.5
	146	24.74	12.900	1.090	0.650	0.65	217.3	628.4	327.7	16.5	27.7	16.5
	162	25.00	12.955	1.220	0.705	0.65	241.1	635.0	329.1	17.9	31.0	16.5
	176	25.24	12.890	1.340	0.750	0.65	261.9	641.1	327.4	19.1	34.0	16.5
	192	25.47	12.950	1.460	0.810	0.65	285.7	646.9	328.9	20.6	37.1	16.5
	207	25.71	13.010	1.570	0.870	0.65	308.0	653.0	330.5	22.1	39.9	16.5
	229	26.02	13.110	1.730	0.960	0.65	340.8	660.9	333.0	24.4	43.9	16.5
	250	26.34	13.185	1.890	1.040	0.65	372.0	669.0	334.9	26.4	48.0	16.5
	279	26.73	13.305	2.090	1.160	0.65	415.2	678.9	337.9	29.5	53.1	16.5
	306	27.13	13.405	2.280	1.260	0.65	455.4	689.1	340.5	32.0	57.9	16.5
	335	27.52	13.520	2.480	1.380	0.65	498.5	699.0	343.4	35.1	63.0	16.5
	370	27.99	13.660	2.720	1.520	0.65	550.6	710.9	347.0	38.6	69.1	16.5

* 표시는 BS규격

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
250.4	134,000	13,900	23.1	7.45	4,830	880	5,460	1,350	9,650	474	
278.8	151,000	15,600	23.3	7.48	5,390	982	6,120	1,520	11,000	648	
315.0	178,000	18,100	23.8	7.58	6,230	1,150	7,080	1,760	13,000	988	
346.0	197,000	20,100	23.9	7.62	6,830	1,270	7,800	1,950	14,600	1,290	
381.9	221,000	22,500	24.1	7.68	7,560	1,410	8,680	2,180	16,600	1,720	
421.8	248,000	25,400	24.2	7.76	8,360	1,580	9,660	2,440	19,000	2,290	W21 x 12¼
471.2	281,000	28,900	24.4	7.83	9,320	1,780	10,900	2,760	21,900	3,140	
521.0	317,000	32,600	24.7	7.91	10,300	1,990	12,100	3,100	25,300	4,190	
568.8	353,000	36,400	24.9	8.00	11,300	2,210	13,400	3,440	28,600	5,390	
631.2	400,000	41,300	25.2	8.09	12,600	2,480	15,000	3,870	33,200	7,220	
104.2	55,900	1,210	23.2	3.41	1,870	136	2,190	218	1,030	50.3	
117.5	64,600	1,440	23.4	3.50	2,140	161	2,510	258	1,240	72.4	W24 x 7
129.4	76,200	2,940	24.3	4.77	2,530	258	2,900	403	2,530	79.2	
144.6	87,500	3,440	24.6	4.88	2,880	301	3,290	470	2,990	113	
159.4	98,600	3,940	24.9	4.97	3,220	344	3,680	536	3,450	155	W24 x 9
178.7	112,000	4,530	25.0	5.03	3,630	393	4,160	615	4,000	220	
195.5	125,000	4,970	25.3	5.04	4,010	435	4,590	680	4,440	297	
198.8	130,000	10,800	25.6	7.37	4,250	667	4,770	1,030	9,480	206	
223.0	148,000	12,400	25.8	7.46	4,800	763	5,390	1,170	10,900	291	
249.9	168,000	14,200	25.9	7.54	5,400	870	6,090	1,340	12,600	410	
278.4	192,000	16,300	26.3	7.65	6,110	995	6,870	1,530	14,700	575	
308.9	216,000	18,400	26.4	7.72	6,800	1,120	7,700	1,730	16,800	790	
334.4	237,000	19,900	26.6	7.71	7,390	1,220	8,390	1,880	18,300	1,020	
364.4	261,000	22,000	26.8	7.77	8,070	1,340	9,200	2,070	20,500	1,310	
392.8	285,000	24,100	26.9	7.83	8,730	1,460	10,000	2,250	22,600	1,630	W24 x 12¾
434.5	319,000	27,100	27.1	7.90	9,650	1,630	11,100	2,520	25,700	2,180	
475.1	354,000	30,100	27.3	7.96	10,600	1,800	12,200	2,800	29,000	2,830	
530.2	400,000	34,300	27.5	8.04	11,800	2,030	13,700	3,160	33,400	3,870	
580.1	446,000	38,300	27.7	8.13	12,900	2,250	15,100	3,510	37,900	5,010	
636.2	496,000	42,700	27.9	8.19	14,200	2,490	16,700	3,900	43,000	6,490	
702.9	558,000	48,400	28.2	8.30	15,700	2,790	18,600	4,380	49,500	8,610	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

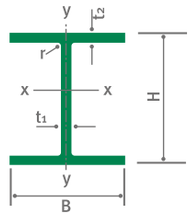
호칭치수 Desig-nation	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
	84	26.71	9.960	0.460	0.640	0.60	125.0	678.4	253.0	11.7	16.3	15.2
	94	26.92	9.990	0.490	0.745	0.60	139.9	683.8	253.7	12.4	18.9	15.2
W27 x 10	102	27.09	10.015	0.515	0.830	0.60	151.8	688.1	254.4	13.1	21.1	15.2
	114	27.29	10.070	0.570	0.930	0.60	169.7	693.2	255.8	14.5	23.6	15.2
	129	27.63	10.010	0.610	1.100	0.60	192.0	701.8	254.3	15.5	27.9	15.2
	90	29.53	10.400	0.470	0.610	1.10	133.9	750.1	264.2	11.94	15.49	28.0
	99	29.65	10.450	0.520	0.670	1.10	147.3	753.1	265.4	13.21	17.02	28.0
	108	29.83	10.475	0.545	0.760	1.10	160.7	757.7	266.1	13.84	19.30	28.0
W30 x 10½	116	30.01	10.495	0.565	0.850	1.10	172.6	762.3	266.6	14.35	21.59	28.0
	124	30.17	10.515	0.585	0.930	1.10	184.5	766.3	267.1	14.86	23.62	28.0
	132	30.31	10.545	0.615	1.000	1.10	196.4	769.9	267.8	15.62	25.40	28.0
	148	30.67	10.480	0.650	1.180	1.10	220.2	779.0	266.2	16.51	29.97	28.0
	118	32.86	11.480	0.550	0.740	1.18	175.6	834.6	291.6	13.97	18.80	30.0
	130	33.09	11.510	0.580	0.855	1.18	193.5	840.5	292.4	14.73	21.72	30.0
W33 x 11½	141	33.30	11.535	0.605	0.960	1.18	209.8	845.8	293.0	15.37	24.38	30.0
	152	33.49	11.565	0.635	1.055	1.18	226.2	850.6	293.8	16.13	26.80	30.0
	169	33.82	11.500	0.670	1.220	1.18	251.5	859.0	292.1	17.02	30.99	30.0
	135	35.55	11.950	0.600	0.790	1.18	200.9	903.0	303.5	15.24	20.07	30.0
	150	35.85	11.975	0.625	0.940	1.18	223.2	910.6	304.2	15.88	23.88	30.0
	160	36.01	12.000	0.650	1.020	1.18	238.1	914.7	304.8	16.51	25.91	30.0
W36 x 12	170	36.17	12.030	0.680	1.100	1.18	253.0	918.7	305.6	17.27	27.94	30.0
	182	36.33	12.075	0.725	1.180	1.18	270.8	922.8	306.7	18.42	29.97	30.0
	194	36.49	12.115	0.765	1.260	1.18	288.7	926.8	307.7	19.43	32.00	30.0
	210	36.69	12.180	0.830	1.360	1.18	312.5	931.9	309.4	21.08	34.54	30.0
	232	37.12	12.120	0.870	1.570	1.18	345.3	942.8	307.8	22.10	39.88	30.0

W

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
160.0	119,000	4,410	27.3	5.25	3,510	349	4,010	546	4,820	120	
178.0	136,000	5,160	27.6	5.38	3,980	407	4,550	635	5,680	169	
194.0	151,000	5,800	27.9	5.47	4,390	456	5,010	713	6,440	222	W27 x 10
216.4	170,000	6,600	28.0	5.52	4,900	516	5,620	808	7,380	307	
244.0	198,000	7,670	28.5	5.61	5,640	603	6,460	943	8,680	464	
174.4	156,000	4,780	29.9	5.24	4,160	362	4,790	575	6,420	154	
192.1	172,000	5,330	29.9	5.27	4,570	402	5,270	639	7,180	199	
209.0	191,000	6,090	30.2	5.40	5,040	458	5,820	727	8,260	251	
225.0	211,000	6,850	30.6	5.52	5,540	514	6,360	813	9,350	313	W30 x 10½
239.8	228,000	7,540	30.8	5.61	5,950	565	6,840	892	10,300	380	
255.1	245,000	8,170	31.0	5.66	6,360	610	7,320	964	11,300	456	
285.0	283,000	9,470	31.5	5.76	7,270	712	8,350	1,120	13,200	662	
228.7	253,000	7,800	33.3	5.84	6,060	535	6,990	849	12,900	274	
252.2	287,000	9,090	33.7	6.00	6,830	622	7,840	983	15,200	362	
273.1	318,000	10,300	34.1	6.14	7,520	703	8,610	1,100	17,200	462	W33 x 11½
293.8	347,000	11,400	34.4	6.23	8,160	776	9,350	1,220	19,200	578	
324.4	394,000	12,900	34.9	6.31	9,170	883	10,500	1,390	22,100	805	
261.1	333,000	9,400	35.7	6.00	7,380	619	8,540	986	18,200	349	
290.0	385,000	11,300	36.4	6.24	8,460	743	9,730	1,170	22,000	480	
308.1	414,000	12,300	36.7	6.32	9,050	807	10,400	1,270	24,100	577	
327.5	445,000	13,300	36.9	6.37	9,690	870	11,100	1,380	26,400	694	W36 x 12
350.5	479,000	14,500	37.0	6.43	10,400	946	12,000	1,500	28,700	844	
372.3	512,000	15,600	37.1	6.47	11,000	1,010	12,800	1,610	31,100	1,010	
403.3	557,000	17,100	37.2	6.51	12,000	1,110	13,800	1,760	34,300	1,270	
444.0	633,000	19,500	37.8	6.63	13,400	1,270	15,500	2,010	39,500	1,760	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(3) HE

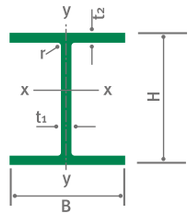
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
HE100	A	16.7	96.0	100.0	5.0	8.0	12.0	21.24	349	134
	B	20.4	100.0	100.0	6.0	10.0	12.0	26.04	450	167
	M	41.8	120.0	106.0	12.0	20.0	12.0	53.24	1,140	399
HE120	A	19.9	114.0	120.0	5.0	8.0	12.0	25.34	606	231
	B	26.7	120.0	120.0	6.5	11.0	12.0	34.01	864	318
	M	52.1	140.0	126.0	12.5	21.0	12.0	66.41	2,020	703
HE140	A	24.7	133.0	140.0	5.5	8.5	12.0	31.42	1,030	389
	B	33.7	140.0	140.0	7.0	12.0	12.0	42.96	1,510	550
	M	63.2	160.0	146.0	13.0	22.0	12.0	80.56	3,290	1,140
HE160	A	30.4	152.0	160.0	6.0	9.0	15.0	38.77	1,670	616
	B	42.6	160.0	160.0	8.0	13.0	15.0	54.25	2,490	889
	M	76.2	180.0	166.0	14.0	23.0	15.0	97.05	5,100	1,760
HE180	A	35.5	171.0	180.0	6.0	9.5	15.0	45.25	2,510	925
	B	51.2	180.0	180.0	8.5	14.0	15.0	65.25	3,830	1,360
	M	88.9	200.0	186.0	14.5	24.0	15.0	113.3	7,480	2,580
HE200	A	42.3	190.0	200.0	6.5	10.0	18.0	53.83	3,690	1,340
	B	61.3	200.0	200.0	9.0	15.0	18.0	78.08	5,700	2,000
	M	103	220.0	206.0	15.0	25.0	18.0	131.3	10,600	3,650
HE220	A	50.5	210.0	220.0	7.0	11.0	18.0	64.34	5,410	1,950
	B	71.5	220.0	220.0	9.5	16.0	18.0	91.04	8,090	2,840
	M	117	240.0	226.0	15.5	26.0	18.0	149.4	14,600	5,010
HE240	AA	47.4	224.0	240.0	6.5	9.0	21.0	60.38	5,840	2,080
	A	60.3	230.0	240.0	7.5	12.0	21.0	76.84	7,760	2,770
	B	83.2	240.0	240.0	10.0	17.0	21.0	106.0	11,300	3,920
	M	157	270.0	248.0	18.0	32.0	21.0	199.6	24,300	8,150
HE260	AA	54.1	244.0	260.0	6.5	9.5	24.0	68.97	7,980	2,790
	A	68.2	250.0	260.0	7.5	12.5	24.0	86.82	10,500	3,670
	B	92.9	260.0	260.0	10.0	17.5	24.0	118.4	14,900	5,130
	M	172	290.0	268.0	18.0	32.5	24.0	219.6	31,300	10,400

HE

Dimension : DIN 1025
Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
4.05	2.51	72.8	26.8	83.0	41.1	2.58	5.24	
4.15	2.53	89.9	33.5	104	51.4	3.38	9.25	HE100
4.63	2.74	190	75.3	236	116	9.93	68.2	
4.89	3.02	106	38.5	120	58.9	6.47	5.99	
5.04	3.06	144	52.9	165	81.0	9.41	13.8	HE120
5.52	3.25	289	112	351	172	24.8	91.7	
5.73	3.52	155	55.6	174	84.8	15.1	8.13	
5.93	3.58	216	78.5	245	120	22.5	20.1	HE140
6.39	3.76	411	156	494	241	54.3	120	
6.56	3.98	220	77.0	245	118	31.4	12.2	
6.77	4.05	311	111	354	170	47.9	31.2	HE160
7.25	4.26	567	212	675	326	108	162	
7.45	4.52	294	103	325	157	60.2	14.8	
7.66	4.57	426	151	481	231	93.8	42.2	HE180
8.13	4.77	748	277	883	425	199	203	
8.28	4.99	388	134	430	204	108	21.0	
8.54	5.06	570	200	643	306	171	59.3	HE200
8.99	5.27	964	354	1,140	543	346	259	
9.17	5.51	515	177	569	271	193	28.5	
9.43	5.59	736	258	827	394	295	76.6	HE220
9.89	5.79	1,220	443	1,420	679	573	315	
9.83	5.87	521	173	571	264	240	23.0	
10.0	6.00	675	231	745	352	328	41.6	HE240
10.3	6.08	942	327	1,050	498	487	103	
11.0	6.39	1,800	657	2,120	1,010	1,150	628	
10.8	6.36	654	215	715	328	383	30.3	
11.0	6.50	840	282	920	430	516	52.4	HE260
11.2	6.58	1,150	395	1,280	602	754	124	
11.9	6.88	2,160	776	2,520	1,190	1,730	719	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(3) HE

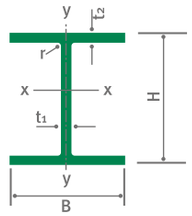
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
HE280	AA	61.3	264.0	280.0	7.0	10.0	24.0	78.02	10,600	3,660
	A	76.4	270.0	280.0	8.0	13.0	24.0	97.26	13,700	4,760
	B	103	280.0	280.0	10.5	18.0	24.0	131.4	19,300	6,590
	M	189	310.0	288.0	18.5	33.0	24.0	240.2	39,500	13,200
HE300	AA	69.8	283.0	300.0	7.5	10.5	27.0	88.91	13,800	4,730
	A	88.3	290.0	300.0	8.5	14.0	27.0	112.5	18,300	6,310
	B	117	300.0	300.0	11.0	19.0	27.0	149.1	25,200	8,560
	M	238	340.0	310.0	21.0	39.0	27.0	303.1	59,200	19,400
HE320	AA	74.3	301.0	300.0	8.0	11.0	27.0	94.58	16,400	4,960
	A	97.7	310.0	300.0	9.0	15.5	27.0	124.4	22,900	6,990
	B	127	320.0	300.0	11.5	20.5	27.0	161.3	30,800	9,240
	M	245	359.0	309.0	21.0	40.0	27.0	312.0	68,100	19,700
HE340	AA	78.9	320.0	300.0	8.5	11.5	27.0	100.5	19,600	5,180
	A	105	330.0	300.0	9.5	16.5	27.0	133.5	27,700	7,440
	B	134	340.0	300.0	12.0	21.5	27.0	170.9	36,700	9,690
	M	248	377.0	309.0	21.0	40.0	27.0	315.8	76,400	19,700
HE360	AA	83.7	339.0	300.0	9.0	12.0	27.0	106.6	23,000	5,410
	A	112	350.0	300.0	10.0	17.5	27.0	142.8	33,100	7,890
	B	142	360.0	300.0	12.5	22.5	27.0	180.6	43,200	10,100
	M	250	395.0	308.0	21.0	40.0	27.0	318.8	84,900	19,500
HE400	AA	92.4	378.0	300.0	9.5	13.0	27.0	117.7	31,300	5,860
	A	125	390.0	300.0	11.0	19.0	27.0	159.0	45,100	8,560
	B	155	400.0	300.0	13.5	24.0	27.0	197.8	57,700	10,800
	M	256	432.0	307.0	21.0	40.0	27.0	325.8	104,000	19,300
HE450	AA	99.8	425.0	300.0	10.0	13.5	27.0	127.1	41,900	6,090
	A	140	440.0	300.0	11.5	21.0	27.0	178.0	63,700	9,470
	B	171	450.0	300.0	14.0	26.0	27.0	218.0	79,900	11,700
	M	263	478.0	307.0	21.0	40.0	27.0	335.4	131,000	19,300

HE

Dimension : DIN 1025
Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Designation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
11.7	6.85	803	261	873	399	590	36.2	HE280
11.9	7.00	1,010	340	1,110	518	785	62.1	
12.1	7.08	1,380	471	1,530	718	1,130	144	
12.8	7.41	2,550	917	2,970	1,400	2,520	807	
12.5	7.29	975	315	1,070	482	877	49.4	HE300
12.8	7.49	1,260	421	1,380	641	1,200	85.2	
13.0	7.58	1,680	571	1,870	870	1,690	185	
14.0	8.00	3,480	1,250	4,080	1,910	4,390	1,410	
13.2	7.24	1,090	331	1,200	506	1,040	55.9	HE320
13.6	7.50	1,480	466	1,630	710	1,510	108	
13.8	7.57	1,930	616	2,150	939	2,070	225	
14.8	7.95	3,790	1,280	4,440	1,950	5,000	1,500	
14.0	7.18	1,230	345	1,340	529	1,230	63.1	HE340
14.4	7.47	1,680	496	1,850	756	1,820	127	
14.7	7.53	2,160	646	2,410	986	2,450	257	
15.6	7.90	4,050	1,280	4,720	1,950	5,580	1,510	
14.7	7.12	1,360	361	1,500	553	1,440	71.0	HE360
15.2	7.43	1,890	526	2,090	802	2,180	149	
15.5	7.48	2,400	673	2,680	1,030	2,880	292	
16.3	7.82	4,300	1,270	4,990	1,940	6,140	1,510	
16.3	7.06	1,660	391	1,820	600	1,950	84.7	HE400
16.8	7.34	2,310	571	2,560	873	2,940	189	
17.1	7.39	2,890	720	3,230	1,100	3,820	356	
17.9	7.70	4,810	1,260	5,570	1,930	7,410	1,510	
18.2	6.92	1,970	406	2,180	624	2,570	95.6	HE450
18.9	7.29	2,900	631	3,220	966	4,150	244	
19.1	7.33	3,550	780	3,980	1,200	5,260	440	
19.8	7.59	5,480	1,260	6,330	1,940	9,250	1,530	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(3) HE

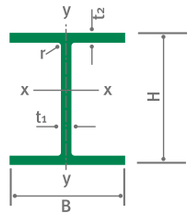
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
HE500	AA	107	472.0	300.0	10.5	14.0	27.0	136.9	54,600	6,310
	A	155	490.0	300.0	12.0	23.0	27.0	197.5	87,000	10,400
	B	187	500.0	300.0	14.5	28.0	27.0	238.6	107,000	12,600
	M	270	524.0	306.0	21.0	40.0	27.0	344.3	162,000	19,200
HE550	AA	120	522.0	300.0	11.5	15.0	27.0	152.8	72,900	6,770
	A	166	540.0	300.0	12.5	24.0	27.0	211.8	112,000	10,800
	B	199	550.0	300.0	15.0	29.0	27.0	254.1	137,000	13,100
	M	278	572.0	306.0	21.0	40.0	27.0	354.4	198,000	19,200
HE600	AA	129	571.0	300.0	12.0	15.5	27.0	164.1	91,900	6,990
	A	178	590.0	300.0	13.0	25.0	27.0	226.5	141,000	11,300
	B	212	600.0	300.0	15.5	30.0	27.0	270.0	171,000	13,500
	M	286	620.0	305.0	21.0	40.0	27.0	363.7	237,000	19,000
HE650	AA	138	620.0	300.0	12.5	16.0	27.0	175.8	114,000	7,220
	A	190	640.0	300.0	13.5	26.0	27.0	241.6	175,000	11,700
	B	225	650.0	300.0	16.0	31.0	27.0	286.3	211,000	14,000
	M	293	668.0	305.0	21.0	40.0	27.0	373.7	282,000	19,000
HE700	AA	150	670.0	300.0	13.0	17.0	27.0	190.9	143,000	7,670
	A	204	690.0	300.0	14.5	27.0	27.0	260.5	215,000	12,200
	B	241	700.0	300.0	17.0	32.0	27.0	306.4	257,000	14,400
	M	301	716.0	304.0	21.0	40.0	27.0	383.0	329,000	18,800
HE800	AA	172	770.0	300.0	14.0	18.0	30.0	218.5	209,000	8,130
	A	224	790.0	300.0	15.0	28.0	30.0	285.8	303,000	12,600
	B	262	800.0	300.0	17.5	33.0	30.0	334.2	359,000	14,900
	M	317	814.0	303.0	21.0	40.0	30.0	404.3	443,000	18,600
HE900	AA	198	870.0	300.0	15.0	20.0	30.0	252.2	301,000	9,040
	A	252	890.0	300.0	16.0	30.0	30.0	320.5	422,000	13,500
	B	291	900.0	300.0	18.5	35.0	30.0	371.3	494,000	15,800
	M	333	910.0	302.0	21.0	40.0	30.0	423.6	570,000	18,500

HE

Dimension : DIN 1025
Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
20.0	6.79	2,310	421	2,580	649	3,300	108	HE500
21.0	7.26	3,550	693	3,950	1,060	5,640	309	
21.2	7.27	4,280	840	4,810	1,290	7,020	538	
21.7	7.47	6,180	1,250	7,090	1,930	11,200	1,540	
21.8	6.66	2,790	451	3,130	699	4,340	134	HE550
23.0	7.14	4,150	720	4,620	1,110	7,190	352	
23.2	7.18	4,980	873	5,590	1,340	8,860	600	
23.6	7.36	6,920	1,250	7,930	1,940	13,500	1,550	
23.7	6.53	3,220	466	3,620	725	5,380	150	HE600
25.0	7.06	4,780	753	5,350	1,160	8,980	398	
25.2	7.07	5,700	900	6,430	1,390	11,000	667	
25.5	7.23	7,650	1,250	8,770	1,930	15,900	1,560	
25.5	6.41	3,680	481	4,160	751	6,570	168	HE650
26.9	6.96	5,470	780	6,140	1,200	11,000	448	
27.1	6.99	6,490	933	7,320	1,440	13,400	739	
27.5	7.13	8,440	1,250	9,660	1,940	18,600	1,580	
27.4	6.34	4,270	511	4,840	800	8,160	195	HE700
28.7	6.84	6,230	813	7,030	1,260	13,400	514	
29.0	6.86	7,340	960	8,330	1,500	16,100	831	
29.3	7.01	9,190	1,240	10,500	1,930	21,400	1,590	
30.9	6.10	5,430	542	6,220	857	11,500	257	HE800
32.6	6.64	7,670	840	8,700	1,310	18,300	597	
32.8	6.68	8,980	993	10,200	1,550	21,800	946	
33.1	6.78	10,900	1,230	12,500	1,930	27,800	1,650	
34.5	5.99	6,920	603	8,000	958	16,300	335	HE900
36.3	6.49	9,480	900	10,800	1,410	25,000	737	
36.5	6.52	11,000	1,050	12,600	1,660	29,500	1,140	
36.7	6.61	12,500	1,230	14,400	1,930	34,700	1,670	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(4) IPE

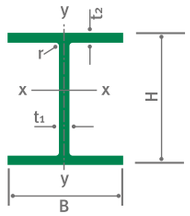
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
IPE120	A	8.66	117.6	64.0	3.8	5.1	7.0	11.03	257	22.4
	-	10.4	120.0	64.0	4.4	6.3	7.0	13.21	318	27.7
IPE140	A	10.5	137.4	73.0	3.8	5.6	7.0	13.39	435	36.4
	-	12.9	140.0	73.0	4.7	6.9	7.0	16.43	541	44.9
IPE160	A	12.7	157.0	82.0	4.0	5.9	9.0	16.18	689	54.4
	-	15.8	160.0	82.0	5.0	7.4	9.0	20.09	869	68.3
IPE180	A	15.4	177.0	91.0	4.3	6.5	9.0	19.58	1,060	81.9
	-	18.8	180.0	91.0	5.3	8.0	9.0	23.95	1,320	101
	0	21.3	182.0	92.0	6.0	9.0	9.0	27.10	1,510	117
IPE200	A	18.4	197.0	100.0	4.5	7.0	12.0	23.47	1,590	117
	-	22.4	200.0	100.0	5.6	8.5	12.0	28.48	1,940	142
	0	25.1	202.0	102.0	6.2	9.5	12.0	31.96	2,210	169
IPE220	A	22.2	217.0	110.0	5.0	7.7	12.0	28.26	2,320	171
	-	26.2	220.0	110.0	5.9	9.2	12.0	33.37	2,770	205
	0	29.4	222.0	112.0	6.6	10.2	12.0	37.39	3,130	240
IPE240	A	26.2	237.0	120.0	5.2	8.3	15.0	33.31	3,290	240
	-	30.7	240.0	120.0	6.2	9.8	15.0	39.12	3,890	284
	0	34.3	242.0	122.0	7.0	10.8	15.0	43.71	4,370	329
IPE270	A	30.7	267.0	135.0	5.5	8.7	15.0	39.15	4,920	358
	-	36.1	270.0	135.0	6.6	10.2	15.0	45.95	5,790	420
	0	42.3	274.0	136.0	7.5	12.2	15.0	53.84	6,950	514
IPE300	A	36.5	297.0	150.0	6.1	9.2	15.0	46.53	7,170	519
	-	42.2	300.0	150.0	7.1	10.7	15.0	53.81	8,360	603.8
	0	49.3	304.0	152.0	8.0	12.7	15.0	62.83	10,000	745.7
IPE330	A	43.0	327.0	160.0	6.5	10.0	18.0	54.74	10,200	685.2
	-	49.2	330.0	160.0	7.5	11.5	18.0	62.61	11,800	788.1
	0	57.0	334.0	162.0	8.5	13.5	18.0	72.62	13,900	960.4
IPE360	A	50.2	357.6	170.0	6.6	11.5	18.0	63.96	14,500	944
	-	57.1	360.0	170.0	8.0	12.7	18.0	72.73	16,300	1,040
	0	66.0	364.0	172.0	9.2	14.7	18.0	84.13	19,000	1,250

IPE

Dimension : DIN 1025
Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
4.83	1.43	43.8	7.00	49.9	11.0	0.71	1.04	IPE120
4.90	1.45	53.0	8.70	60.7	13.6	0.89	1.74	
5.70	1.65	63.3	10.0	71.6	15.5	1.58	1.36	IPE140
5.74	1.65	77.3	12.3	88.3	19.2	1.98	2.45	
6.53	1.83	87.8	13.3	99.1	20.7	3.09	1.96	IPE160
6.58	1.84	109	16.7	124	26.1	3.96	3.60	
7.36	2.05	120	18.0	135	28.0	5.93	2.70	IPE180
7.42	2.05	147	22.2	166	34.6	7.43	4.79	
7.46	2.08	166	25.5	189	39.9	8.74	6.76	
8.23	2.23	161	23.4	182	36.5	10.5	4.11	IPE200
8.25	2.24	194	28.5	221	44.6	13.0	6.98	
8.32	2.30	219	33.1	249	51.9	15.6	9.45	
9.06	2.46	214	31.2	240	48.5	18.7	5.69	IPE220
9.11	2.48	252	37.3	285	58.1	22.7	9.07	
9.15	2.53	282	42.8	321	66.9	26.8	12.3	
9.94	2.68	278	40.0	312	62.4	31.3	8.35	IPE240
9.97	2.69	324	47.3	367	73.9	37.4	12.9	
10.0	2.74	361	53.9	410	84.4	43.7	17.2	
11.2	3.02	369	53.0	413	82.3	59.5	10.3	IPE270
11.2	3.02	429	62.2	484	97.0	70.6	15.9	
11.4	3.09	507	75.5	575	118	87.6	24.9	
12.4	3.34	483	69.2	542	107	107	13.4	IPE300
12.5	3.35	557	80.5	628	125	126	20.1	
12.6	3.45	658	98.1	744	153	158	31.1	
13.7	3.54	624	85.7	702	133	172	19.6	IPE330
13.7	3.55	715	98.5	804	154	199	28.2	
13.8	3.64	832	119	943	185	246	42.2	
15.1	3.84	811	111	907	172	282	26.5	IPE360
15.0	3.78	906	122	1,020	191	314	37.3	
15.0	3.85	1,040	145	1,190	227	380	55.8	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(4) IPE

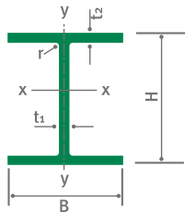
IPE

Dimension : DIN 1025
Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
	A	57.4	397.0	180.0	7.0	12.0	21.0	73.10	20,300	1,170
IPE400	-	66.3	400.0	180.0	8.6	13.5	21.0	84.46	23,100	1,320
	O	75.7	404.0	182.0	9.7	15.5	21.0	96.39	26,700	1,560
	A	67.2	447.0	190.0	7.6	13.1	21.0	85.55	29,800	1,500
IPE450	-	77.6	450.0	190.0	9.4	14.6	21.0	98.82	33,700	1,680
	O	92.4	456.0	192.0	11.0	17.6	21.0	117.7	40,900	2,090
	A	79.4	497.0	200.0	8.4	14.5	21.0	101.1	42,900	1,940
IPE500	-	90.7	500.0	200.0	10.2	16.0	21.0	115.5	48,200	2,140
	O	107	506.0	202.0	12.0	19.0	21.0	136.7	57,800	2,620
	A	92.1	547.0	210.0	9.0	15.7	24.0	117.3	60,000	2,430
IPE550	-	106	550.0	210.0	11.1	17.2	24.0	134.4	67,100	2,670
	O	123	556.0	212.0	12.7	20.2	24.0	156.1	79,200	3,220
	A	108	597.0	220.0	9.8	17.5	24.0	137.0	82,900	3,120
IPE600	-	122	600.0	220.0	12.0	19.0	24.0	156.0	92,100	3,390
	O	154	610.0	224.0	15.0	24.0	24.0	196.8	118,000	4,520

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
16.7	4.00	1,020	130	1,140	202	432	34.8	
16.5	3.95	1,160	147	1,310	229	490	51.1	IPE400
16.6	4.02	1,320	171	1,500	269	588	73.1	
18.7	4.19	1,330	158	1,490	246	705	45.7	
18.5	4.12	1,500	177	1,700	276	791	66.9	IPE450
18.6	4.21	1,790	218	2,050	341	998	109	
20.6	4.38	1,730	194	1,950	302	1,130	62.8	
20.4	4.30	1,930	214	2,190	336	1,250	89.3	IPE500
20.6	4.38	2,280	259	2,610	409	1,550	143	
22.6	4.55	2,190	231	2,470	362	1,710	86.5	
22.3	4.46	2,440	254	2,790	401	1,880	123	IPE550
22.5	4.54	2,850	304	3,260	481	2,300	188	
24.6	4.77	2,780	284	3,140	442	2,610	119	
24.3	4.66	3,070	308	3,510	486	2,850	165	IPE600
24.5	4.79	3,870	404	4,470	640	3,860	318	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(5) HD

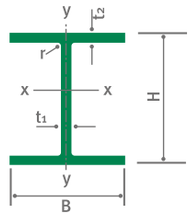
호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
HD260	68.2	250.0	260.0	7.5	12.5	24.0	86.82	10,500	3,670
	92.9	260.0	260.0	10.0	17.5	24.0	118.4	14,900	5,130
	114	268.0	262.0	12.5	21.5	24.0	145.7	18,900	6,460
	142	278.0	265.0	15.5	26.5	24.0	180.3	24,300	8,240
	172	290.0	268.0	18.0	32.5	24.0	219.6	31,300	10,400
HD320	97.7	310.0	300.0	9.0	15.5	27.0	124.4	22,900	6,990
	127	320.0	300.0	11.5	20.5	27.0	161.3	30,800	9,240
	158	330.0	303.0	14.5	25.5	27.0	201.2	39,600	11,800
	198	343.0	306.0	18.0	32.0	27.0	252.3	51,900	15,300
	245	359.0	309.0	21.0	40.0	27.0	312.0	68,100	19,700
	300	375.0	313.0	27.0	48.0	27.0	382.1	86,900	24,600
HD360	134	356.0	369.0	11.2	18.0	15.0	170.6	41,500	15,100
	148	360.0	370.0	12.3	19.8	15.0	187.9	46,300	16,700
	162	364.0	371.0	13.3	21.8	15.0	206.3	51,500	18,600
	179	368.0	373.0	15.0	23.9	15.0	228.3	57,400	20,700
	196	372.0	374.0	16.4	26.2	15.0	250.3	63,600	22,900

HD

Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
11.0	6.50	840	282	920	430	516	52.4	
11.2	6.58	1,150	395	1,280	602	754	124	
11.4	6.66	1,410	493	1,600	753	979	222	HD260
11.6	6.76	1,750	622	2,020	951	1,300	407	
11.9	6.88	2,160	776	2,520	1,190	1,730	719	
13.6	7.50	1,480	466	1,630	710	1,510	108	
13.8	7.57	1,930	616	2,150	939	2,070	225	
14.0	7.66	2,400	779	2,720	1,190	2,740	420	HD320
14.3	7.79	3,030	1,000	3,480	1,530	3,700	805	
14.8	7.95	3,790	1,280	4,440	1,950	5,000	1,500	
15.1	8.02	4,630	1,570	5,520	2,410	6,560	2,650	
15.6	9.41	2,330	818	2,560	1,240	4,310	169	
15.7	9.43	2,570	903	2,840	1,370	4,840	224	
15.8	9.50	2,830	1,000	3,140	1,520	5,430	296	HD360
15.9	9.52	3,120	1,110	3,480	1,680	6,120	394	
15.9	9.57	3,420	1,220	3,840	1,860	6,830	517	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(6) HP

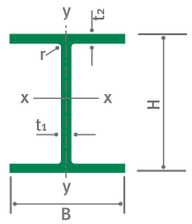
호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
HP200	53.5	204	207	11.3	11.3	10.0	68.14	4,980	1,670
HP220	57.2	210	224.5	11	11	18.0	72.85	5,730	2,080
HP260	75.0	249	265	12	12	24.0	95.54	10,600	3,730
	87.3	253	267	14	14	24.0	111.2	12,600	4,460
HP305	78.4	299.3	306.4	11	11	15.2	99.89	16,300	5,280
	88.0	301.7	307.8	12.4	12.3	15.2	112.1	18,400	5,980
	95.0	303.7	308.7	13.3	13.3	15.2	121.0	20,000	6,530
	110	307.9	310.7	15.3	15.4	15.2	140.1	23,600	7,710
	126	312.3	312.9	17.5	17.6	15.2	160.6	27,400	9,000
	149	318.5	316	20.6	20.7	15.2	189.9	33,100	10,900
	180	326.7	319.7	24.8	24.8	15.2	229.3	41,000	13,500
	186	328.3	320.9	25.5	25.6	15.2	236.9	42,600	14,100
	223	337.9	325.7	30.3	30.4	15.2	284.0	52,700	17,600
HP320	88.5	303	304	12	12	27.0	112.7	18,700	5,630
	103	307	306	14	14	27.0	131.0	22,100	6,700
	117	311	308	16	16	27.0	149.5	25,500	7,810
	147	319	312	20	20	27.0	186.9	32,700	10,200
	184	329	317	25	25	27.0	234.5	42,300	13,300
HP360	84.3	340	367	10	10	15.2	107.4	23,200	8,240
	109	346.4	371	12.8	12.9	15.2	138.7	30,600	11,000
	133	352	373.8	15.6	15.7	15.2	169.4	38,000	13,700
	152	356.4	376	17.8	17.9	15.2	193.7	44,000	15,900
	174	361.4	378.5	20.3	20.4	15.2	221.5	51,000	18,500
	180	362.9	378.8	21.1	21.1	15.2	229.5	53,000	19,100

HP

Dimensional Tolerance : EN 10034:1997
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Designation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
8.55	4.95	488	161	551	249	155	34.2	HP200
8.87	5.34	546	185	614	286	205	44.2	HP220
10.5	6.25	851	282	959	435	523	79.3	HP260
10.6	6.33	996	334	1,120	516	634	116	
12.8	7.27	1,090	345	1,210	527	1,100	50.6	HP305
12.8	7.30	1,220	389	1,360	595	1,250	70.1	
12.9	7.35	1,320	423	1,470	648	1,370	86.7	
13.0	7.42	1,530	496	1,720	762	1,650	131	
13.1	7.49	1,750	575	1,990	885	1,950	194	
13.2	7.58	2,080	690	2,370	1,070	2,410	314	
13.4	7.67	2,510	845	2,900	1,310	3,080	542	
13.4	7.71	2,600	879	3,000	1,370	3,230	594	
13.6	7.87	3,120	1,080	3,650	1,680	4,140	998	
12.9	7.07	1,230	370	1,380	572	1,190	99.0	HP320
13.0	7.15	1,440	438	1,610	677	1,430	142	
13.1	7.23	1,640	507	1,850	786	1,700	198	
13.2	7.39	2,050	654	2,340	1,010	2,260	357	
13.4	7.53	2,570	839	2,980	1,310	3,070	662	
14.7	8.76	1,360	449	1,500	683	2,240	44.4	HP360
14.9	8.91	1,770	593	1,960	903	3,050	90.7	
15.0	8.99	2,160	733	2,410	1,120	3,860	161	
15.1	9.06	2,470	846	2,770	1,290	4,540	236	
15.2	9.14	2,820	978	3,190	1,500	5,360	348	
15.2	9.12	2,920	1,010	3,310	1,550	5,580	387	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(7) British Standard (BS) - Universal Beam

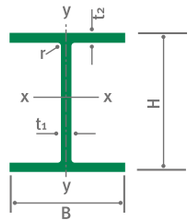
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
203 x 102	23	23.1	203.2	101.8	5.4	9.3	7.6	29.40	2,100	164
203 x 133	25	25.1	203.2	133.2	5.7	7.8	7.6	31.97	2,340	308
	30	30.0	206.8	133.9	6.4	9.6	7.6	38.21	2,900	385
254 x 102	22	22.0	254.0	101.6	5.7	6.8	7.6	28.02	2,840	119
	25	25.2	257.2	101.9	6.0	8.4	7.6	32.04	3,410	149
	28	28.3	260.4	102.2	6.3	10.0	7.6	36.08	4,000	179
254 x 146	31	31.2	251.4	146.1	6.0	8.6	7.6	39.68	4,410	448
	37	37.0	256.0	146.4	6.3	10.9	7.6	47.17	5,540	571
	43	43.0	259.6	147.3	7.2	12.7	7.6	54.77	6,540	677
305 x 102	25	24.8	305.1	101.6	5.8	7.0	7.6	31.60	4,460	123
	28	28.2	308.7	101.8	6.0	8.8	7.6	35.88	5,370	155
	33	32.8	312.7	102.4	6.6	10.8	7.6	41.83	6,500	194
305 x 165	40	40.3	303.4	165.0	6.0	10.2	8.9	51.32	8,500	764
	46	46.1	306.6	165.7	6.7	11.8	8.9	58.75	9,900	896
	54	54.0	310.4	166.9	7.9	13.7	8.9	68.77	11,700	1,060
356 x 127	33	33.1	349.0	125.4	6.0	8.5	10.2	42.13	8,250	280
	39	39.1	353.4	126.0	6.6	10.7	10.2	49.77	10,200	358
356 x 171	45	45.0	351.4	171.1	7.0	9.7	10.2	57.33	12,100	811
	51	51.0	355.0	171.5	7.4	11.5	10.2	64.91	14,100	968
	57	57.0	358.0	172.2	8.1	13.0	10.2	72.56	16,000	1,110
	67	67.1	363.4	173.2	9.1	15.7	10.2	85.49	19,500	1,360
406 x 140	39	39.0	398.0	141.8	6.4	8.6	10.2	49.65	12,500	410
	46	46.0	403.2	142.2	6.8	11.2	10.2	58.64	15,700	538
406 x 178	54	54.1	402.6	177.7	7.7	10.9	10.2	68.95	18,700	1,020
	60	60.1	406.4	177.9	7.9	12.8	10.2	76.52	21,600	1,200
	67	67.2	409.4	178.8	8.8	14.3	10.2	85.54	24,300	1,360
	74	74.2	412.8	179.5	9.5	16.0	10.2	94.51	27,300	1,550
457 x 152	52	52.3	449.8	152.4	7.6	10.9	10.2	66.64	21,400	645
	60	59.8	454.6	152.9	8.1	13.3	10.2	76.23	25,500	795
	67	67.2	458.0	153.8	9.0	15.0	10.2	85.55	28,900	913
	74	74.2	462.0	154.4	9.6	17.0	10.2	94.48	32,700	1,050
	82	82.0	465.8	155.3	10.5	18.9	10.2	104.5	36,600	1,180

UB

Dimension : BS 4:2005
Dimensional Tolerance : EN 10034:1993
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
8.45	2.36	207	32.2	234	49.8	15.4	7.02	203 x 102
8.56	3.10	230	46.2	258	70.9	29.3	6.10	203 x 133
8.71	3.17	281	57.5	314	88.2	37.3	10.4	
10.1	2.06	224	23.5	259	37.3	18.2	4.35	254 x 102
10.3	2.15	265	29.2	306	46.0	22.9	6.56	
10.5	2.22	307	34.9	353	54.8	27.9	9.66	
10.5	3.36	351	61.3	393	94.1	65.9	8.68	254 x 146
10.8	3.48	433	78.0	483	119	85.6	15.4	
10.9	3.52	504	92.0	566	141	103	24.0	
11.9	1.97	292	24.2	342	38.8	27.2	4.98	305 x 102
12.2	2.08	348	30.5	403	48.5	34.8	7.51	
12.5	2.15	416	37.9	481	60.0	44.0	12.3	
12.9	3.86	560	92.7	623	142	164	14.7	305 x 165
13.0	3.90	646	108	720	166	194	22.2	
13.0	3.93	754	127	846	196	234	34.9	
14.0	2.58	473	44.7	543	70.3	81.0	8.97	356 x 127
14.3	2.68	577	56.8	659	89.1	105	15.2	
14.5	3.76	689	94.8	775	147	236	16.2	356 x 171
14.7	3.86	794	113	896	174	285	24.0	
14.8	3.91	894	129	1,010	199	329	33.6	
15.1	3.99	1,070	157	1,210	243	411	55.9	
15.9	2.87	628	57.8	724	90.8	155	11.0	406 x 140
16.4	3.03	779	75.7	888	118	206	19.1	
16.5	3.85	929	115	1,050	178	391	23.5	406 x 178
16.8	3.96	1,060	135	1,200	209	465	33.5	
16.9	3.99	1,190	152	1,350	237	532	46.4	
17.0	4.05	1,320	173	1,500	267	607	63.1	
17.9	3.11	952	84.6	1,100	133	310	21.7	457 x 152
18.3	3.23	1,120	104	1,290	163	386	34.0	
18.4	3.27	1,260	119	1,450	187	446	48.0	
18.6	3.33	1,420	136	1,630	213	516	66.2	
18.7	3.36	1,570	152	1,810	240	589	89.7	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(7) British Standard (BS) - Universal Beam

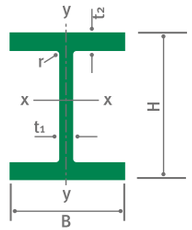
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
457 x 191	67	67.1	453.4	189.9	8.5	12.7	10.2	85.51	29,400	1,450
	74	74.3	457.0	190.4	9.0	14.5	10.2	94.63	33,300	1,670
	82	82.0	460.0	191.3	9.9	16.0	10.2	104.5	37,100	1,870
	89	89.3	463.4	191.9	10.5	17.7	10.2	113.8	41,000	2,090
	98	98.4	467.2	192.8	11.4	19.6	10.2	125.3	45,700	2,350
533 x 210	82	82.2	528.3	208.8	9.6	13.2	12.7	104.7	47,500	2,010
	92	92.2	533.1	209.3	10.1	15.6	12.7	117.4	55,200	2,390
	101	101	536.7	210.0	10.8	17.4	12.7	128.7	61,500	2,690
	109	109	539.5	210.8	11.6	18.8	12.7	138.9	66,800	2,940
	122	122	544.5	211.9	12.7	21.3	12.7	155.4	76,000	3,390
610 x 229	101	101	602.6	227.6	10.5	14.8	12.7	128.9	75,800	2,910
	113	113	607.6	228.2	11.1	17.3	12.7	143.9	87,300	3,430
	125	125	612.2	229.0	11.9	19.6	12.7	159.3	98,600	3,930
	140	140	617.2	230.2	13.1	22.1	12.7	178.2	112,000	4,510
610 x 305	149	149	612.4	304.8	11.8	19.7	16.5	190.0	126,000	9,310
	179	179	620.2	307.1	14.1	23.6	16.5	228.1	153,000	11,400
	238	238	635.8	311.4	18.4	31.4	16.5	303.3	209,000	15,800
686 x 254	125	125	677.9	253.0	11.7	16.2	15.2	159.5	118,000	4,380
	140	140	683.5	253.7	12.4	19.0	15.2	178.4	136,000	5,180
	152	152	687.5	254.5	13.2	21.0	15.2	194.1	150,000	5,780
	170	170	692.9	255.8	14.5	23.7	15.2	216.8	170,000	6,630
762 x 267	134	134	750.0	264.4	12.0	15.5	16.5	170.6	151,000	4,790
	147	147	754.0	265.2	12.8	17.5	16.5	187.2	169,000	5,460
	173	173	762.2	266.7	14.3	21.6	16.5	220.4	205,000	6,850
	197	197	769.8	268.0	15.6	25.4	16.5	250.6	240,000	8,170
838 x 292	176	176	834.9	291.7	14.0	18.8	17.8	224.0	246,000	7,800
	194	194	840.7	292.4	14.7	21.7	17.8	246.8	279,000	9,070
	226	226	850.9	293.8	16.1	26.8	17.8	288.6	340,000	11,400
914 x 305	201	201	903.0	303.3	15.1	20.2	19.1	255.9	325,000	9,420
	224	224	910.4	304.1	15.9	23.9	19.1	285.6	376,000	11,200
	253	253	918.4	305.5	17.3	27.9	19.1	322.8	436,000	13,300
	289	289	926.6	307.7	19.5	32.0	19.1	368.3	504,000	15,600

UB

Dimension : BS 4:2005
Dimensional Tolerance : EN 10034:1993
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
18.5	4.12	1,300	153	1,470	237	704	37.5	
18.8	4.20	1,460	175	1,650	272	817	52.1	
18.8	4.23	1,610	196	1,830	304	920	69.7	457 x 191
19.0	4.29	1,770	218	2,010	338	1,040	91.3	
19.1	4.33	1,960	244	2,230	379	1,170	122	
21.3	4.38	1,800	193	2,060	300	1,330	52.5	
21.7	4.51	2,070	228	2,360	356	1,600	76.3	
21.9	4.57	2,290	256	2,610	399	1,810	102	533 x 210
21.9	4.60	2,480	279	2,830	436	1,990	127	
22.1	4.67	2,790	320	3,200	500	2,310	180	
24.2	4.75	2,520	256	2,880	400	2,510	78.2	
24.6	4.88	2,870	301	3,280	469	2,980	112	610 x 229
24.9	4.97	3,220	343	3,680	535	3,440	155	
25.1	5.03	3,630	392	4,140	611	3,980	218	
25.8	7.00	4,110	611	4,590	937	8,170	200	
25.9	7.07	4,930	742	5,550	1,140	10,100	342	610 x 305
26.3	7.22	6,570	1,010	7,490	1,570	14,400	791	
27.2	5.24	3,480	346	3,990	542	4,790	118	
27.6	5.39	3,980	408	4,560	638	5,710	170	686 x 254
27.8	5.46	4,360	454	5,000	710	6,410	221	
28.0	5.53	4,910	518	5,630	811	7,400	310	
29.8	5.30	4,030	362	4,640	570	6,440	122	
30.0	5.40	4,480	412	5,160	647	7,380	162	762 x 267
30.5	5.57	5,380	514	6,200	808	9,360	270	
30.9	5.71	6,240	610	7,170	959	11,300	407	
33.1	5.90	5,890	535	6,810	842	12,900	226	
33.6	6.06	6,640	620	7,640	974	15,200	310	838 x 292
34.3	6.28	7,990	776	9,150	1,210	19,200	517	
35.6	6.07	7,200	621	8,350	982	18,300	298	
36.3	6.26	8,260	737	9,530	1,160	22,000	427	914 x 305
36.8	6.42	9,490	871	10,900	1,370	26,300	631	
37.0	6.51	10,900	1,010	12,600	1,600	31,100	934	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(8) British Standard (BS) - Universal Column

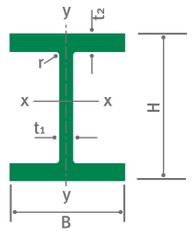
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
152 x 152	23	23.0	152.4	152.2	5.8	6.8	7.6	29.25	1,250	400
	30	30.0	157.6	152.9	6.5	9.4	7.6	38.26	1,750	561
	37	37.0	161.8	154.4	8.0	11.5	7.6	47.11	2,210	706
203 x 203	46	46.1	203.2	203.6	7.2	11.0	10.2	58.73	4,570	1,550
	52	52.0	206.2	204.3	7.9	12.5	10.2	66.28	5,260	1,780
	60	60.0	209.6	205.8	9.4	14.2	10.2	76.37	6,120	2,060
	71	71.0	215.8	206.4	10.0	17.3	10.2	90.43	7,620	2,540
	86	86.0	222.2	209.1	12.7	20.5	10.2	109.6	9,450	3,130
254 x 254	73	73.1	254.1	254.6	8.6	14.2	12.7	93.10	11,400	3,910
	89	88.9	260.3	256.3	10.3	17.3	12.7	113.3	14,300	4,860
	107	107	266.7	258.8	12.8	20.5	12.7	136.4	17,500	5,930
	132	132	276.3	261.3	15.3	25.3	12.7	168.1	22,500	7,530
	167	167	289.1	265.2	19.2	31.7	12.7	212.9	30,000	9,870
305 x 305	97	96.9	307.9	305.3	9.9	15.4	15.2	123.4	22,200	7,310
	118	118	314.5	307.4	12.0	18.7	15.2	150.2	27,700	9,060
	137	137	320.5	309.2	13.8	21.7	15.2	174.4	32,800	10,700
	158	158	327.1	311.2	15.8	25.0	15.2	201.4	38,700	12,600
	198	198	339.9	314.5	19.1	31.4	15.2	252.4	50,900	16,300
	240	240	352.5	318.4	23.0	37.7	15.2	305.8	64,200	20,300
	283	283	365.3	322.2	26.8	44.1	15.2	360.4	78,900	24,600
356 x 368	129	129	355.6	368.6	10.4	17.5	15.2	164.3	40,200	14,600
	153	153	362.0	370.5	12.3	20.7	15.2	194.8	48,600	17,600
	177	177	368.2	372.6	14.4	23.8	15.2	225.5	57,100	20,500
	202	202	374.6	374.7	16.5	27.0	15.2	257.2	66,300	23,700
356 x 406	235	235	381.0	394.8	18.4	30.2	15.2	299.4	79,100	31,000
	287	287	393.6	399.0	22.6	36.5	15.2	365.7	99,900	38,700
	334	340	406.4	403.0	26.6	42.9	15.2	433.0	122,500	46,900
	393	393	419.0	407.0	30.6	49.2	15.2	500.6	146,600	55,400
	467	467	436.6	412.2	35.8	58.0	15.2	594.9	183,000	67,800
	551	551	455.6	418.5	42.1	67.5	15.2	701.9	227,000	82,700
	634	634	474.6	424.0	47.6	77.0	15.2	807.5	275,000	98,100

UC

Dimension : BS 4:2005
Dimensional Tolerance : EN 10034:1993
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
6.54	3.70	164	52.5	182	80.2	21.2	4.86	
6.76	3.83	222	73.3	248	112	30.8	10.7	152 x 152
6.85	3.87	273	91.5	309	140	39.8	19.5	
8.82	5.14	450	152	497	231	143	22.3	
8.91	5.18	510	174	567	264	167	32.0	
8.95	5.19	584	200	656	305	197	47.8	203 x 203
9.18	5.30	706	246	799	374	250	80.6	
9.29	5.34	851	299	977	456	318	138	
11.1	6.48	897	307	992	465	562	57.7	
11.2	6.55	1,100	379	1,220	575	717	103	
11.3	6.59	1,310	458	1,480	697	897	174	254 x 254
11.6	6.69	1,630	576	1,870	878	1,180	321	
11.9	6.81	2,080	744	2,420	1,140	1,630	634	
13.4	7.70	1,440	479	1,590	726	1,560	91.8	
13.6	7.77	1,760	590	1,960	895	1,980	162	
13.7	7.83	2,050	692	2,300	1,050	2,390	251	
13.9	7.91	2,370	810	2,680	1,230	2,870	382	305 x 305
14.2	8.04	2,990	1,040	3,440	1,580	3,870	741	
14.5	8.15	3,640	1,280	4,250	1,950	5,020	1,290	
14.8	8.26	4,320	1,530	5,110	2,340	6,340	2,060	
15.6	9.43	2,260	792	2,480	1,200	4,170	153	
15.8	9.51	2,690	950	2,960	1,430	5,110	251	
15.9	9.53	3,100	1,100	3,460	1,670	6,080	383	356 x 368
16.1	9.60	3,540	1,270	3,970	1,920	7,150	561	
16.3	10.2	4,150	1,570	4,690	2,380	9,530	818	
16.5	10.3	5,080	1,940	5,810	2,950	12,320	1,460	
16.8	10.4	6,030	2,330	7,000	3,540	15,460	2,370	
17.1	10.5	7,000	2,720	8,220	4,150	18,900	3,590	356 x 406
17.5	10.7	8,380	3,290	10,000	5,030	24,300	5,900	
18.0	10.9	9,960	3,950	12,100	6,060	31,100	9,400	
18.5	11.0	11,600	4,630	14,200	7,110	38,700	14,000	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(9) British Standard (BS) - Universal Bearing Pile

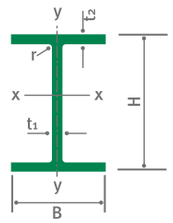
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
203 x 203	54	54.0	204.0	207.7	11.3	11.4	10.2	68.72	5,030	1,710
	63	63.0	247.1	256.6	10.6	10.7	12.7	80.22	8,860	3,020
254 x 254	71	71.0	249.7	258.0	12.0	12.0	12.7	90.39	10,100	3,440
	85	85.1	254.3	260.4	14.4	14.3	12.7	108.4	12,300	4,220
	79	79.1	299.2	306.0	11.1	11.1	15.2	100.7	16,400	5,310
	88	87.6	301.7	307.2	12.3	12.3	15.2	111.6	18,400	5,950
	95	95.5	303.8	308.3	13.4	13.4	15.2	121.7	20,200	6,550
	110	110	307.9	310.3	15.4	15.4	15.2	140.2	23,600	7,680
305 x 305	126	127	312.4	312.5	17.7	17.7	15.2	161.6	27,500	9,020
	149	149	318.5	315.6	20.7	20.7	15.2	190.0	33,000	10,900
	186	186	328.3	320.9	25.5	25.6	15.2	236.9	42,600	14,100
	223	223	337.9	325.7	30.3	30.4	15.2	284.0	52,700	17,600
	109	109	346.4	371.0	12.8	12.9	15.2	138.7	30,600	11,000
	133	133	352.0	373.8	15.6	15.7	15.2	169.4	38,000	13,700
356 x 368	152	152	356.4	376.0	17.8	17.9	15.2	193.7	44,000	15,900
	174	174	361.4	378.5	20.3	20.4	15.2	221.5	51,000	18,500

UBP

Dimension : BS 4:2005
Dimensional Tolerance : EN 10034:1993
Surface Condition : EN 10163-3 2004 CLASS C Subclass1

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Desig-nation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
8.56	4.99	493	165	557	252	158	35.0	203 x 203
10.5	6.14	717	235	799	360	421	37.2	
10.6	6.17	809	267	904	409	485	52.3	254 x 254
10.7	6.24	967	324	1,090	498	606	87.8	
12.8	7.26	1,100	347	1,220	530	1,100	51.9	
12.8	7.30	1,220	387	1,360	593	1,240	69.3	
12.9	7.34	1,330	425	1,480	651	1,380	88.5	
13.0	7.40	1,530	495	1,720	760	1,640	132	
13.0	7.47	1,760	577	2,000	888	1,950	199	305 x 305
13.2	7.57	2,070	691	2,370	1,060	2,400	316	
13.4	7.71	2,600	879	3,000	1,370	3,230	594	
13.6	7.87	3,120	1,080	3,650	1,680	4,140	998	
14.9	8.91	1,770	593	1,960	903	3,050	90.7	
15.0	8.99	2,160	733	2,410	1,120	3,860	161	
15.1	9.06	2,470	846	2,770	1,290	4,540	236	356 x 368
15.2	9.14	2,820	978	3,190	1,500	5,360	348	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(10) Australian/New Zealand Universal Beam & Columns (AS/NZS) - UB

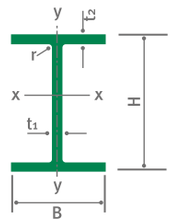
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
150UB	14	14.0	150	75	5	7	8.0	17.85	666	50
	18	18.0	155.0	75.0	6.0	9.5	8.0	22.96	905	67
200UB	18	18.2	198.0	99.0	4.5	7.0	11.0	23.18	1,580	114
	23	22.5	201.6	133.0	5.0	7.0	8.9	28.68	2,100	275
	25	25.4	203.2	133.0	5.8	7.8	8.9	32.31	2,360	306
	30	30.0	207.0	134.0	6.3	9.6	8.9	38.24	2,910	386
250UB	26	25.7	248.0	124.0	5.0	8.0	12.0	32.68	3,540	255
	31	31.5	251.5	146.0	6.1	8.6	8.9	40.08	4,450	447
	37	37.3	256.2	146.0	6.4	10.9	8.9	47.51	5,570	566
310UB	32	32.0	298.0	149	5.5	8	13.0	40.80	6,320	442
	41	40.9	304.0	165	6.1	10.2	11.4	52.08	8,640	765
	47	46.5	307.2	166	6.7	11.8	11.4	59.29	10,000	901
360UB	45	44.9	352.0	171.0	6.9	9.7	11.4	57.24	12,100	810
	51	50.8	355.6	171.0	7.3	11.5	11.4	64.73	14,200	960
	57	56.9	358.6	172.0	8.0	13.0	11.4	72.44	16,100	1,100
410UB	54	54.1	402.6	178.0	7.6	10.9	11.4	68.86	18,800	1,030
	60	60.0	406.4	178.0	7.8	12.8	11.4	76.39	21,600	1,210
460UB	67	67.4	453.8	190.0	8.5	12.7	11.4	85.79	29,600	1,450
	75	74.7	457.4	190.0	9.1	14.5	11.4	95.20	33,500	1,660
	82	82.1	460.4	191.0	9.9	16.0	11.4	104.6	37,200	1,860
530UB	82	82.4	528.2	209.0	9.6	13.2	14.0	105.0	47,700	2,010
	93	92.7	533.0	209.0	10.2	15.6	14.0	118.1	55,400	2,380
610UB	102	102	602	228	10.6	14.8	14.0	129.8	76,100	2,930
	114	114	607	228	11.2	17.3	14.0	144.7	87,500	3,430
	125	125	611.6	229	11.9	19.6	14.0	159.6	98,600	3,930
690UB	125	125	677.9	253	11.7	16.2	15.2	159.5	118,000	4,380
	140	140	683.5	253.7	12.4	19	15.2	178.4	136,000	5,180
760UB	147	147	754	265.2	12.8	17.5	16.5	187.2	169,000	5,460
	173	173	762.2	266.7	14.3	21.6	16.5	220.4	205,000	6,850
	197	197	769.8	268	15.6	25.4	16.5	250.6	240,000	8,170
	220	220	775.5	269.8	17.4	28.3	16.5	280.1	270,000	9,300
	244	244	781.3	271.6	19.3	31.3	16.5	311.1	302,000	10,500

AS/NZS

Dimension : AS/NZS 3679.1:2010
Dimensional Tolerance : AS/NZS 3679.1:2010
Surface Condition : AS/NZS 3679.1:2010

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Designation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
6.11	1.67	88.8	13.2	102	20.8	2.52	2.90	150UB
6.28	1.71	117	17.9	135	28.2	3.54	6.12	
8.26	2.21	160	22.9	180	35.7	10.3	3.85	200UB
8.56	3.10	208	41.3	231	63.4	26.0	4.59	
8.55	3.08	232	46.1	260	70.9	29.2	6.46	
8.72	3.18	281	57.6	316	88.4	37.5	10.7	
10.4	2.79	286	41.1	319	63.6	36.6	6.69	250UB
10.5	3.34	354	61.2	397	94.2	65.8	9.09	
10.8	3.45	435	77.5	486	119	85.1	15.8	
12.4	3.29	424	59.3	475	91.8	92.7	8.79	310UB
12.9	3.83	568	92.7	633	142	165	15.7	
13.0	3.90	651	109	729	166	196	23.2	
14.5	3.76	688	94.7	777	146	237	16.4	360UB
14.8	3.85	799	112	897	173	284	24.3	
14.9	3.90	898	128	1,010	198	329	33.9	
16.5	3.87	934	116	1,060	179	393	23.8	410UB
16.8	3.98	1,060	136	1,200	209	466	33.8	
18.6	4.11	1,300	153	1,480	238	706	38.3	460UB
18.8	4.18	1,460	175	1,660	271	813	53.3	
18.9	4.22	1,620	195	1,840	303	917	70.6	
21.3	4.38	1,810	192	2,070	301	1,330	53.8	530UB
21.7	4.49	2,080	228	2,370	355	1,590	78.3	
24.2	4.75	2,530	257	2,900	402	2,520	80.5	610UB
24.6	4.87	2,880	301	3,290	469	2,970	115	
24.9	4.96	3,220	343	3,680	536	3,440	157	
27.2	5.24	3,480	346	3,990	542	4,790	118	690UB
27.6	5.39	3,980	408	4,560	638	5,710	170	
30.0	5.40	4,480	412	5,160	647	7,380	162	760UB
30.5	5.57	5,380	514	6,200	808	9,360	270	
30.9	5.71	6,240	610	7,170	959	11,300	407	
31.0	5.76	6,960	689	8,040	1,090	12,900	563	
31.2	5.81	7,730	773	8,950	1,220	14,700	763	

01. H SECTION H형강



Dimensions and Sectional Properties 치수 및 단면성능

(10) Australian/New Zealand Universal Beam & Columns (AS/NZS) - UC

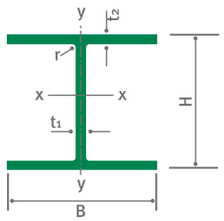
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
		W	H	B	t_1	t_2	r	A	Ix	Iy
100UC	**15**	14.8	97.0	99.0	5.0	7.0	10.0	18.87	318	114
150UC	**23**	23.4	152.4	152	6.1	6.8	8.9	29.82	1,260	399
	30	30.3	157.6	153	6.6	9.4	8.9	38.60	1,760	562
	37	37.2	161.8	154	8.1	11.5	8.9	47.34	2,220	701
200UC	**46**	46.0	203.2	203.0	7.3	11.0	8.9	58.57	4,540	1,530
	52	52.0	206.4	204.0	8.0	12.5	8.9	66.19	5,250	1,770
	59	59.5	209.8	205.0	9.3	14.2	8.9	75.77	6,090	2,040
250UC	**73**	73.2	253.8	254.0	8.6	14.2	14	93.20	11,400	3,880
	89	89.4	260.0	256.0	10.5	17.3	14	113.9	14,300	4,840
310UC	**97**	97.1	308.0	305.0	9.9	15.4	16.5	123.7	22,300	7,290
	118	118	314.6	307.0	11.9	18.7	16.5	150.1	27,700	9,020
	137	137	320.6	309.0	13.8	21.7	16.5	174.7	32,900	10,700
	158	158	327.2	311.0	15.7	25.0	16.5	201.4	38,800	12,500

AS/NZS

Dimension : AS/NZS 3679.1:2010
Dimensional Tolerance : AS/NZS 3679.1:2010
Surface Condition : AS/NZS 3679.1:2010

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Designation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
4.11	2.45	65.6	22.9	74.4	35.2	2.29	3.61	100UC
6.50	3.66	165	52.4	185	80.2	21.1	5.40	
6.75	3.81	223	73.4	250	112	30.8	11.1	150UC
6.85	3.85	274	91.0	310	139	39.5	20.1	
8.80	5.11	447	151	495	229	142	22.0	
8.91	5.17	509	174	566	263	166	31.5	200UC
8.97	5.19	581	199	652	303	195	46.6	
11.1	6.45	898	306	992	464	557	58.6	250UC
11.2	6.52	1,100	378	1,230	575	712	105	
13.4	7.68	1,450	478	1,600	725	1,560	93.3	
13.6	7.75	1,760	588	1,960	893	1,970	164	310UC
13.7	7.83	2,050	693	2,300	1,050	2,380	254	
13.9	7.88	2,370	804	2,680	1,230	2,860	384	

02. STEEL H PILE H형강 말뚝



Dimensions and Sectional Properties 치수 및 단면성능

(1) Metric Series

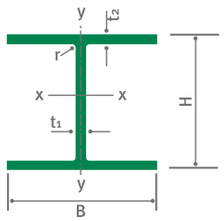
호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
200 x 200	56.2	200	204	12	12	13	71.53	4,980	1,700
250 x 250	64.4	244	252	11	11	16	82.06	8,790	2,940
	82.2	250	255	14	14	16	104.7	11,500	3,880
300 x 300	84.5	294	302	12	12	18	107.7	16,900	5,520
	94.0	300	300	10	15	18	119.8	20,400	6,750
	106	300	305	15	15	18	134.8	21,500	7,100
350 x 350	106	338	351	13	13	20	135.3	28,200	9,380
	131	344	354	16	16	20	166.6	35,300	11,800
	137	350	350	12	19	20	173.9	40,300	13,600
	156	350	357	19	19	20	191.4	42,800	14,400
400 x 400	140	388	402	15	15	22	178.5	49,000	16,300
	168	394	405	18	18	22	214.4	59,700	20,000
	172	400	400	13	21	22	218.7	66,600	22,400
	197	400	408	21	21	22	250.7	70,900	23,800
	232	414	405	18	28	22	295.4	92,800	31,000
	283	428	407	20	35	22	360.7	119,000	39,400

HP

Dimension : KS F 4603:2007
Dimensional Tolerance : KS F 4603:2007
Surface Condition : KS F 4603:2007

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,$x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
8.35	4.88	498	167	566	257	150	43.6	200 x 200
10.3	5.98	720	233	805	358	398	44.6	250 x 250
10.5	6.09	919	304	1,040	468	539	87.3	
12.5	7.16	1,150	365	1,280	560	1,100	69.1	300 x 300
13.1	7.51	1,360	450	1,500	684	1,370	89.0	
12.6	7.26	1,440	466	1,610	716	1,440	128	
14.4	8.33	1,670	535	1,850	818	2,470	101	350 x 350
14.6	8.43	2,050	669	2,300	1,030	3,180	180	
15.2	8.84	2,300	776	2,550	1,180	3,720	200	
14.7	8.53	2,450	809	2,760	1,240	3,950	294	
16.6	9.54	2,520	809	2,800	1,240	5,650	174	400 x 400
16.7	9.65	3,030	985	3,390	1,510	7,040	290	
17.5	10.1	3,330	1,120	3,670	1,700	8,040	304	
16.8	9.75	3,540	1,170	3,990	1,790	8,540	450	
17.7	10.2	4,480	1,530	5,030	2,330	11,500	721	
18.2	10.4	5,570	1,930	6,310	2,940	15,200	1,320	

02. STEEL H PILE H형강 말뚝



Dimensions and Sectional Properties 치수 및 단면성능

(2) ASTM

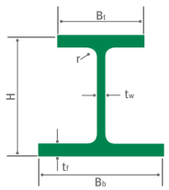
호칭치수 Division (depth x width)	단위무게 Unit Weight (lbs/ft)	표준단면치수 Standard Sectional Dimension (in)					단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				
	W	H	B	t_1	t_2	r	M	H	B	t_1	t_2	r
HP8 x 8	36	8.02	8.155	0.445	0.445	0.40	53.5	203.7	207.1	11.3	11.3	10.2
HP10 x 10	42	9.70	10.075	0.420	0.415	0.50	62.6	246.4	255.9	10.5	10.7	12.7
	57	9.99	10.225	0.565	0.565	0.50	85.3	253.7	259.7	14.4	14.4	12.7
HP12 x 12	53	11.78	12.045	0.435	0.435	0.60	78.3	299.2	305.9	11.0	11.0	15.2
	63	11.94	12.125	0.515	0.515	0.60	93.4	303.3	308.0	13.1	13.1	15.2
	74	12.13	12.215	0.610	0.605	0.60	111	308.1	310.3	15.4	15.5	15.2
	84	12.28	12.295	0.685	0.685	0.60	125	311.9	312.3	17.4	17.4	15.2
HP14 x 14½	73	13.61	14.585	0.505	0.505	0.60	108	345.7	370.5	12.8	12.8	15.2
	89	13.83	14.695	0.615	0.615	0.60	132	351.3	373.3	15.6	15.6	15.2
	102	14.01	14.785	0.705	0.705	0.60	152	355.9	375.5	17.9	17.9	15.2
	117	14.21	14.885	0.805	0.805	0.60	174	360.9	378.1	20.4	20.4	15.2

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant ($cm^6 x10^3$)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
A	Ix	Iy	ix	iy	Sx	Sy	Zx	Zy	Cw	J	
68.16	4,970	1,680	8.54	4.96	488	162	551	249	155	34.4	HP8 x 8
79.77	8,770	2,990	10.5	6.12	712	234	794	358	415	36.7	HP10 x 10
108.6	12,300	4,210	10.6	6.23	970	324	1,090	499	602	88.7	
99.77	16,300	5,250	12.8	7.25	1,090	343	1,210	525	1,090	50.6	HP12 x 12
119.0	19,700	6,390	12.9	7.33	1,300	415	1,450	635	1,340	82.9	
140.8	23,700	7,730	13.0	7.41	1,540	498	1,730	765	1,650	134	
158.9	27,000	8,850	13.0	7.46	1,730	567	1,960	872	1,920	189	
137.8	30,300	10,900	14.8	8.89	1,750	588	1,940	893.6	3,010	89.4	HP14 x 14½
168.4	37,600	13,500	14.9	8.95	2,140	723	2,390	1,110	3,810	159	
193.7	43,800	15,800	15.0	9.03	2,460	842	2,760	1,290	4,510	238	
221.5	50,800	18,400	15.1	9.11	2,820	973	3,180	1,490	5,330	350	

03. ASYMMETRIC H - BEAM 비대칭 H형강

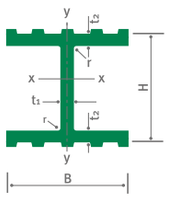
Dimensions and Sectional Properties 치수 및 단면성능



호칭치수 Designation	표준단면치수 Standard Sectional Dimension (mm)				단위무게 Unit Weight (kg/m)	단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)	
	H x Bt x Bb	t_w	t_f	r	W	A	Ix	Iy	ix	iy
312 x 234 x 344	312 x 234 x 344	12	18	22	111	141.3	24,751	8,038	13.2	7.5
320 x 236 x 346	320 x 236 x 346	14	22	22	134	170.8	30,907	10,017	13.5	7.7
328 x 238 x 348	328 x 238 x 348	16	26	22	158	200.7	37,437	12,069	13.7	7.8
336 x 240 x 350	336 x 240 x 350	18	30	22	181	230.8	44,354	14,197	13.9	7.8

04. CHECKERED H-BEAM 무늬 H형강(복공용)

Dimensions and Sectional Properties 치수 및 단면성능



호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r	A	Ix	Iy
190 x 197	31.9	190	197	5	7	13	40.63	2,900	999

ASY

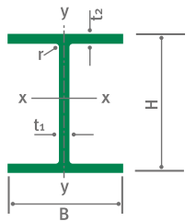
Dimension : KS D 3502:2013
Dimensional Tolerance : KS D 3502:2013
Surface Condition : KS D 3502:2013

탄성중립축 Elestic Neutral Axis Position (cm)	탄성단면계수 Modulus of Elastic (cm^3)			소성중립축 Plastic Neutral Axis Position (cm)	소성단면계수 Modulus of Plastic (cm^3)		뒤틀림상수 Warping Constant (cm^6)	비틀림상수 Torisonal Constant (cm^4)
ye	Sxt	Sxb	Sy	yp	Zx	Zy	H	J
13.5	1,402	1,828	467	7.3	1,732	793	1,263,539	153
13.9	1,707	2,225	579	7.4	2,125	983	1,624,487	265
14.2	2,018	2,627	694	7.5	2,533	1,178	2,018,371	424
14.6	2,336	3,035	811	7.6	2,955	1,379	2,447,064	636

CH.HB

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Designation
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
8.45	4.96	300	101	52	314	74.7	7.10	190 x 197

05. JUNIOR BEAM 경량 H형강



Dimensions and Sectional Properties 치수 및 단면성능

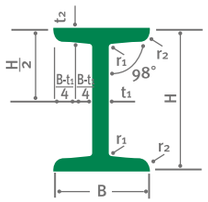
호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)						단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)	
	W	H	B	t_1	t_2	r_1	r_2	A	Ix	Iy
150 x 75	9.01	150	75	3.2	4.5	5	-	11.48	442	31.7
150 x 100	10.8	150	100	3.2	4.5	5	-	13.73	562	75.1
175 x 90	10.7	175	90	3.2	4.5	5	-	13.63	725	54.7
200 x 100	12.0	200	100	3.2	4.5	5	-	15.33	1,070	75.1
	14.3	200	100	3.2	6.0	5	-	18.23	1,330	100
200 x 150	15.6	200	150	3.2	4.5	5	-	19.83	1,500	253
250 x 125	15.1	250	125	3.2	4.5	5	-	19.18	2,100	147
	20.4	250	125	4.5	6.0	5	-	25.92	2,770	196
300 x 150	24.5	300	150	4.5	6.0	5	-	31.17	4,830	338
350 x 175	28.6	350	175	4.5	6.0	5	-	36.42	7,720	536

Note : 위 제품은 수요자 주문 사양으로 별도주문판매(These sizes are not included in regular rolling schedules.)

단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		소성단면계수 Plastic Modulus (cm^3)		뒤틀림상수 Warping Constant (cm^6,x10^3)	비틀림상수 Torsional Constant (cm^4)	호칭치수 Division (depth x width)
ix	iy	Sx	Sy	Zx	Zy	Cw	J	
6.21	1.66	59.0	8.50	66.5	13.1	1.67	0.71	150 x 75
6.40	2.34	74.9	15.0	82.9	22.9	3.97	0.86	150 x 100
7.29	2.00	82.9	12.2	92.9	18.7	3.97	0.83	175 x 90
8.35	2.21	107	15.0	119	23.0	7.17	0.91	200 x 100
8.54	2.34	133	20.0	147	30.5	9.41	1.73	
8.70	3.57	150	33.8	163	51.2	24.2	1.22	200 x 150
10.5	2.76	168	23.5	187	35.8	22.1	1.12	250 x 125
10.3	2.75	222	31.3	249	48.2	29.1	2.72	
12.4	3.29	322	45.0	361	69.0	72.9	3.23	300 x 150
14.6	3.84	441	61.3	493	93.7	159	3.75	350 x 175

06. I-BEAM I형강

Dimensions and Sectional Properties 치수 및 단면성능



호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					
	W	H	B	t_1	t_2	r_1	r_2
100 x 75*	12.9	100	75	5	8	7	3.5
125 x 75*	16.1	125	75	5.5	9.5	9	4.5
150 x 75	17.1	150	75	5.5	9.5	9	4.5
200 x 100	26.0	200	100	7	10	10	5
250 x 125	38.3	250	125	7.5	12.5	12	6
300 x 150	65.5	300	150	10	18.5	19	9.5
300 x 150*	76.8	300	150	11.5	22	23	11.5
350 x 150	87.2	350	150	12	24	25	12.5
400 x 150	95.8	400	150	12.5	25	27	13.5
450 x 175	115	450	175	13	26	27	13.5

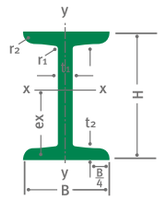
Note : * 는 별도주문판매 (These sizes indicated by an asterisk(*) are not included in regular rolling schedules.)

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

단면적 Sectional Area (cm^2)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		호칭치수 Division (depth x width)
A	Ix	Iy	ix	iy	Sx	Sy	
16.43	281	47.3	4.14	1.70	56.2	12.6	*100 x 75
20.45	538	57.5	5.13	1.68	86.0	15.3	*125 x 75
21.83	819	57.5	6.12	1.62	109	15.3	150 x 75
33.06	2,170	138	8.10	2.05	217	27.7	200 x 100
48.79	5,180	337	10.3	2.63	414	53.9	250 x 125
83.47	12,700	886	12.3	3.26	849	118	300 x 150
97.88	14,700	1,080	12.3	3.32	978	143	*300 x 150
111.1	22,400	1,180	14.2	3.26	1,280	158	350 x 150
122.1	31,700	1,240	16.1	3.19	1,580	165	400 x 150
146.1	48,800	2,020	18.3	3.72	2,170	231	450 x 175

07. I-BEAM FOR MINE SUPPORT

광산지보용 I형강



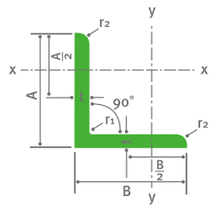
Dimensions and Sectional Properties 치수 및 단면성능

호칭치수 Division (depth x width)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)				단면적 Sectional Area (cm^2)
H x B	W	t_1	t_2	r_1	r_2	A
100 x 80	20.7	9	12.5	13	4	26.4
130 x 100	35.0	12	17	16	7	44.6

Dimension : KS E 4002
Dimensional Tolerance : KS E 4002

단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		호칭치수 Division (depth x width)
Ix	Iy	ix	iy	Sx	Sy	H x B
403	80.5	3.91	1.75	80.7	20.1	100 x 80
1,130	211	5.05	2.18	175	42.3	130 x 100

08. EQUAL ANGLE 등변 ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능
- KS, JIS

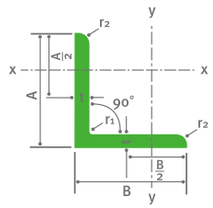
표준단면치수 Standard Sectional Dimension (mm)				단위무게 Unit Weight (kg/m)	단면적 Sectional Area (cm^2)	중심의 위치 Center of Gravity (cm)	
A x B	t	r_1	r_2	W	A	Cx=Cy	Ix=Iy
25 x 25	3	4	2	1.12	1.427	0.719	0.797
30 x 30	3	4	2	1.36	1.727	0.844	1.42
40 x 40	5	4.5	3	2.95	3.755	1.17	5.42
45 x 45	4	6.5	3	2.74	3.492	1.24	6.50
45 x 45	5	6.5	3	3.38	4.302	1.28	7.91
50 x 50	4	6.5	3	3.06	3.892	1.37	9.06
50 x 50	5	6.5	3	3.77	4.802	1.41	11.1
50 x 50	6	6.5	4.5	4.43	5.644	1.44	12.6
60 x 60	4	6.5	3	3.68	4.692	1.61	16.0
60 x 60	5	6.5	3	4.55	5.802	1.66	19.6
60 x 60	*6	6.5	4.5	5.37	6.844	1.69	22.6
65 x 65	5	8.5	3	5.00	6.367	1.77	25.3
65 x 65	6	8.5	4	5.91	7.527	1.81	29.4
65 x 65	8	8.5	6	7.66	9.761	1.88	36.8
70 x 70	6	8.5	4	6.38	8.127	1.93	37.1
75 x 75	6	8.5	4	6.85	8.727	2.06	46.1
75 x 75	9	8.5	6	9.96	12.69	2.17	64.4
75 x 75	12	8.5	6	13.0	16.56	2.29	81.9
80 x 80	6	8.5	4	7.32	9.327	2.18	56.4
80 x 80	*7	8.5	4	8.48	10.797	2.23	64.2
80 x 80	*8	8.5	4	9.60	12.2	2.26	72.82
90 x 90	6	10	5	8.28	10.55	2.42	80.7
90 x 90	7	10	5	9.59	12.22	2.46	93.0
90 x 90	*8	10	7	10.8	13.764	2.50	104
90 x 90	*9	10	7	12.1	15.394	2.54	114
90 x 90	10	10	7	13.3	17.00	2.57	125
90 x 90	13	10	7	17.0	21.71	2.69	156

* 는 KS 및 JIS에 없는 규격
** A90 x 10t 11m는 25톤 이하 10m와 함께 들어올 시 생산가능
These sizes indicated by an asterisk(*) are not included in regular rolling schedules.

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)			단면계수 Modulus of Section (cm^3)	생산불가길이 Not Available Length
Max. Iu	Min. Iy	ix=iy	Max. iu	Min. iy	Zx=Zy	m
1.26	0.332	0.747	0.940	0.483	0.448	
2.26	0.59	0.908	1.14	0.585	0.661	
8.59	2.25	1.20	1.51	0.774	1.91	
10.3	2.69	1.36	1.72	0.880	2.00	
12.5	3.29	1.36	1.71	0.874	2.46	
14.4	3.76	1.53	1.92	0.983	2.49	
17.5	4.58	1.52	1.91	0.976	3.08	
20.0	5.23	1.50	1.88	0.963	3.55	
25.4	6.62	1.85	2.33	1.19	3.66	
31.2	8.09	1.84	2.32	1.18	4.52	
35.9	9.30	1.82	2.29	1.17	5.24	10.5
40.1	10.5	1.99	2.51	1.28	5.36	7.5/8.5/9.5/10.5/11/11.5
46.6	12.2	1.98	2.49	1.27	6.26	
58.3	15.3	1.94	2.44	1.25	7.96	
58.9	15.3	2.14	2.69	1.37	7.33	
73.2	19.0	2.30	2.90	1.48	8.47	
102	26.7	2.25	2.84	1.45	12.1	10.5(JIS)/11/11.5(KS)
129	34.5	2.22	2.79	1.44	15.7	8(JIS)/8.5/11/11.5/12
89.6	23.2	2.46	3.10	1.58	9.70	11.5(JIS)
102.4	26.8	2.44	3.08	1.58	11.12	
114.8	29.7	2.44	3.06	1.56	12.69	11(JIS)/11.5
128	33.4	2.77	3.48	1.78	12.3	
148	38.3	2.76	3.48	1.77	14.2	11(JIS)/11.5
165	42.8	2.74	3.46	1.76	16.0	10/10.5
182	47.3	2.72	3.44	1.75	17.65	9/11.5(JIS)/12
199	51.7	2.71	3.42	1.74	19.5	8/8.5(KS)/10.5(JIS)/11**/11.5/12
248	65.3	2.68	3.38	1.73	24.8	6.5/8.5/9/9.5/10(KS)

08. EQUAL ANGLE 등변 ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능
- KS, JIS

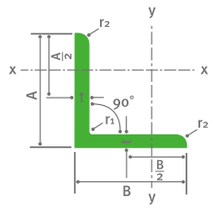
표준단면치수 Standard Sectional Dimension (mm)				단위무게 Unit Weight (kg/m)	단면적 Sectional Area (cm^2)	중심의 위치 Center of Gravity (cm)	
A x B	t	r_1	r_2	W	A	Cx=Cy	Ix=Iy
100 x 100	7	10	5	10.7	13.62	2.71	129
100 x 100	*8	10	8	12.1	15.36	2.75	144
100 x 100	10	10	7	14.9	19.0	2.82	175
100 x 100	13	10	7	19.1	24.31	2.94	220
120 x 120	8	12	5	14.7	18.76	3.24	258
130 x 130	9	12	6	17.9	22.74	3.53	366
130 x 130	*10	12	6	19.7	25.16	3.57	403
130 x 130	12	12	8.5	23.4	29.76	3.64	467
130 x 130	15	12	8.5	28.8	36.75	3.76	568
150 x 150	*10	14	7	22.9	29.21	4.06	627
150 x 150	12	14	7	27.3	34.77	4.14	740
150 x 150	15	14	10	33.6	42.74	4.24	888
150 x 150	19	14	10	41.9	53.38	4.40	1,090
175 x 175	12	15	11	31.8	40.52	4.73	1,170
175 x 175	15	15	11	39.4	50.21	4.85	1,440
200 x 200	15	17	12	45.3	57.75	5.46	2,180
200 x 200	20	17	12	59.7	76.00	5.67	2,820
200 x 200	25	17	12	73.6	93.75	5.86	3,420
250 x 250	25	24	12	93.7	119.4	7.10	6,950
250 x 250	35	24	18	128	162.6	7.45	9,110

* 는 KS 및 JIS에 없는 규격

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)			단면계수 Modulus of Section (cm^3)	생산불가길이 Not Available Length
Max. Iu	Min. Iy	ix=iy	Max. iu	Min. iy	Zx=Zy	m
205	53.2	3.08	3.88	1.98	17.7	
229	59.4	3.06	3.86	1.97	19.86	
278	72.0	3.04	3.83	1.95	24.4	
348	91.1	3.00	3.78	1.94	31.1	
410	106	3.71	4.67	2.38	29.5	
583	150	4.01	5.06	2.57	38.7	
641	165	4.00	5.05	2.56	42.8	
743	192	3.96	5.00	2.54	49.9	
902	234	3.93	4.95	2.53	61.5	
997	258	4.63	5.84	2.97	57.3	
1,180	304	4.61	5.82	2.96	68.1	
1,410	365	4.56	5.75	2.92	82.6	
1,730	451	4.52	5.69	2.91	103	
1,860	480	5.38	6.78	3.44	91.8	
2,290	589	5.35	6.75	3.42	114	
3,470	891	6.14	7.75	3.93	150	
4,490	1,160	6.09	7.68	3.90	197	
5,420	1,410	6.04	7.61	3.88	242	
11,000	2,860	7.63	9.62	4.90	388	
14,400	3,790	7.49	9.42	4.83	519	

08. EQUAL ANGLE 등변 ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능
- EN

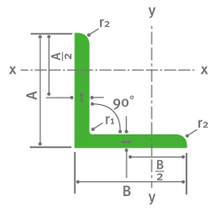
표준단면치수 Standard Sectional Dimension (mm)				단위무게 Unit Weight (kg/m)	단면적 Sectional Area (cm^2)	중심의 위치 Center of Gravity (cm)	
A x B	t	r_1	r_2	W	A	Cx=Cy	Ix=Iy
25 x 25	3	4	2	1.12	1.427	0.72	0.797
30 x 30	3	4	2	1.36	1.727	0.84	1.42
40 x 40	5	4.5	3	2.97	3.755	1.17	5.42
45 x 45	4	6.5	3	2.74	3.492	1.24	6.50
45 x 45	5	6.5	3	3.38	4.302	1.28	7.91
50 x 50	4	6.5	3	3.06	3.892	1.37	9.06
50 x 50	5	6.5	3	3.77	4.082	1.41	11.1
50 x 50	6	6.5	4.5	4.47	5.644	1.44	12.6
60 x 60	4	6.5	3	3.70	4.692	1.61	16.0
60 x 60	5	6.5	3	4.57	5.802	1.66	19.6
60 x 60	6	6.5	4.5	5.42	6.844	1.69	22.6
65 x 65	5	8.5	3	4.97	6.367	1.77	25.3
65 x 65	6	8.5	4	5.91	7.527	1.81	29.4
65 x 65	8	8.5	6	7.73	9.761	1.88	36.8
70 x 70	6	8.5	4	6.38	8.127	1.93	37.1
75 x 75	6	8.5	4	6.85	8.727	2.06	46.1
75 x 75	9	8.5	6	10.03	12.69	2.17	64.4
80 x 80	6	8.5	4	7.34	9.327	2.18	56.4
80 x 80	7	8.5	4	8.49	10.797	2.23	64.2
90 x 90	6	10	5	8.3	10.55	2.42	80.7
90 x 90	7	10	5	9.61	12.22	2.46	93.0
90 x 90	8	10	7	10.9	13.764	2.50	104
90 x 90	9	10	7	12.2	15.394	2.54	114
90 x 90	10	10	7	13.4	17.00	2.57	125
90 x 90	13	10	7	17.0	21.71	2.69	156

** A90 x 10t 11m는 25톤 이하 10m와 함께 들어올 시 생산가능
These sizes indicated by an asterisk(*) are not included in regular rolling schedules.

Dimension : EN 10056-1:1999
Dimensional Tolerance : EN 10056-2:1993
Surface Condition : EN 10163-3:2004 CLASS C

단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)			단면계수 Modulus of Section (cm^3)	생산불가길이 Not Available Length
Max. Iu	Min. Iy	ix=iy	Max. iu	Min. iy	Zx=Zy	m
1.26	0.332	0.747	0.94	0.48	0.448	
2.26	0.59	0.908	1.14	0.59	0.661	
8.59	2.25	1.20	1.51	0.77	1.91	
10.3	2.69	1.36	1.72	0.88	2.00	
12.5	3.29	1.36	1.71	0.874	2.46	
14.4	3.76	1.53	1.92	0.983	2.49	
17.5	4.58	1.52	1.91	0.976	3.08	
20.0	5.23	1.50	1.88	0.963	3.55	
25.4	6.62	1.85	2.33	1.19	3.66	
31.2	8.09	1.84	2.32	1.18	4.52	
35.9	9.30	1.82	2.29	1.17	5.24	10.5
40.1	10.5	1.99	2.51	1.28	5.36	7.5/8.5/9.5/10.5/11/11.5
46.6	12.2	1.98	2.49	1.27	6.26	
58.3	15.3	1.94	2.44	1.25	7.96	
58.9	15.3	2.14	2.69	1.37	7.33	
73.2	19.0	2.30	2.90	1.48	8.47	
102	26.7	2.25	2.84	1.45	12.1	10.5(JIS)/11/11.5(KS)
89.6	23.2	2.46	3.10	1.58	9.70	11.5(JIS)
102.4	26.8	2.44	3.08	1.58	11.1	
128	33.4	2.77	3.48	1.78	12.3	
148	38.3	2.76	3.48	1.77	14.2	11(JIS)/11.5
165	42.8	2.74	3.46	1.76	16.0	10/10.5
182	47.3	2.72	3.44	1.75	17.7	9/11.5(JIS)/12
199	51.7	2.71	3.42	1.74	19.5	8/8.5(KS)/10.5(JIS)/11**/11.5/12
248	65.3	2.68	3.38	1.73	24.8	6.5/8.5/9/9.5/10(KS)

08. EQUAL ANGLE 등변 ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능

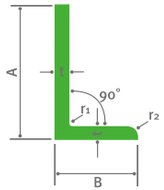
- EN

표준단면치수 Standard Sectional Dimension (mm)				단위무게 Unit Weight (kg/m)	단면적 Sectional Area (cm^2)	중심의 위치 Center of Gravity (cm)	
A x B	t	r_1	r_2	W	A	Cx=Cy	Ix=Iy
100 x 100	7	10	5	10.73	13.62	2.71	129
100 x 100	8	10	8	12.2	15.36	2.75	144
100 x 100	10	10	7	15	19.00	2.82	175
100 x 100	13	10	7	19.2	24.31	2.94	220
120 x 120	8	12	5	14.71	18.76	3.24	258
120 x 120	10	12	5	18.2	23.20	3.31	313
120 x 120	12	12	5	21.6	27.50	3.40	368
120 x 120	15	12	5	26.6	33.90	3.51	445
130 x 130	9	12	6	17.9	22.74	3.53	366
130 x 130	10	12	6	19.79	25.16	3.57	403
130 x 130	12	12	8.5	23.6	29.76	3.64	467
130 x 130	15	12	8.5	29.01	36.75	3.76	568
150 x 150	10	14	7	23	29.21	4.06	627
150 x 150	12	14	7	27.3	34.77	4.14	740
150 x 150	15	14	10	33.8	42.74	4.24	888
150 x 150	18	14	10	40.1	51.00	4.37	1,080
150 x 150	19	14	10	42.13	53.38	4.40	1,090
175 x 175	12	15	11	32.11	40.52	4.73	1,170
175 x 175	15	15	11	39.72	50.21	4.85	1,440
180 x 180	12	15	11	32.11	40.52	4.73	1,170
180 x 180	15	15	11	39.72	50.21	4.85	1,440
200 x 200	15	17	12	45.61	57.75	5.46	2,180
200 x 200	20	17	12	59.9	76.00	5.67	2,820
200 x 200	25	17	12	73.87	93.75	5.86	3,420
250 x 250	25	24	12	93.49	119.4	7.10	6,950
250 x 250	35	24	18	128	162.6	7.45	9,110

Dimension : EN 10056-1:1999
Dimensional Tolerance : EN 10056-2:1993
Surface Condition : EN 10163-3:2004 CLASS C

단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)			단면계수 Modulus of Section (cm^3)	생산불가길이 Not Available Length
Max. Iu	Min. Iy	ix=iy	Max. iu	Min. iy	Zx=Zy	m
205	53.2	3.08	3.88	1.98	17.7	
229	59.4	3.06	3.86	1.97	19.9	
278	72.0	3.04	3.83	1.95	24.4	
348	91.1	3.00	3.78	1.94	31.1	
410	106	3.71	4.67	2.38	29.5	
498	128	3.67	4.63	2.35	36.0	
584	151	3.65	4.61	2.34	42.7	
706	184	3.62	4.56	2.33	52.4	
583	150	4.01	5.06	2.57	38.7	
641	165	4.00	5.05	2.56	42.8	
743	192	3.96	5.0	2.54	49.9	
902	234	3.93	4.95	2.53	61.5	
997	258	4.63	5.84	2.97	57.3	
1,180	304	4.61	5.82	2.96	68.0	
1,410	365	4.56	5.75	2.92	82.6	
1,666	434	4.54	5.71	2.92	98.7	
1,730	451	4.52	5.69	2.91	103	
1,860	480	5.38	6.78	3.44	91.8	
2,290	589	5.35	6.75	3.42	114	
1,860	480	5.38	6.78	3.44	91.8	
2,290	589	5.35	6.75	3.42	114	
3,470	891	6.14	7.75	3.93	150	
4,490	1,160	6.09	7.68	3.90	197	
5,420	1,410	6.04	7.61	3.88	242	
11,000	2,860	7.63	9.62	4.90	388	
14,400	3,790	7.49	9.42	4.83	519	

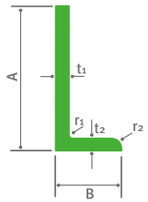
09. UNEQUAL ANGLE 부등변 ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능

호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)					단면적 Sectional Area (cm²)	중심의 위치 Center of Gravity (cm)		
	W	A	B	t	r1	r2	A	Cx	Cy	Ix
100 x 75	9.32	100	75	7	10	5	11.87	3.06	1.83	118
	13.0	100	75	10	10	7	16.50	3.17	1.94	159
125 x 75	10.7	125	75	7	10	5	13.62	4.10	1.64	219
	13.6	125	75	*9	10	7	17.30	4.23	1.70	278
	14.9	125	75	10	10	7	19.00	4.22	1.75	299
	19.1	125	75	13	10	7	24.31	4.35	1.87	376
150 x 90	16.4	150	90	9	12	6	20.94	4.95	1.99	485
	18.2	150	90	*10	12	6	23.23	5.03	2.03	541
	21.5	150	90	12	12	8.5	27.36	5.07	2.10	619

10. INVERTED ANGLE 부등변 부등후ㄱ형강



Dimensions and Sectional Properties 치수 및 단면성능

호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)							단면적 Sectional Area (cm²)	중심의 위치 Center of Gravity (cm)		
	W	A	B	t1	t2	r1	r2		A	Cx	Cy	Ix
200 x 90	23.3	200	90	*10	14	14	7		29.66	6.36	2.15	1,210
250 x 90	29.4	250	90	10	15	17	8.5		37.47	8.61	1.92	2,440
	33.7	250	90	12	16	17	8.5		42.95	8.99	1.89	2,790
300 x 90	36.3	300	90	11	16	19	9.5		46.22	11.0	1.76	4,370
	41.3	300	90	13	17	19	9.5		52.67	11.3	1.75	4,940
350 x 100	45.3	350	100	12	17	22	11		57.74	13.0	1.87	7,440
400 x 100	48.0	400	100	*11.5	16	24	12		61.08	15.28	1.71	10,284
	53.8	400	100	13	18	24	12		68.59	15.4	1.77	11,500

* 는 KS 및 JIS에 없는 규격

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

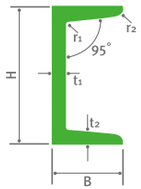
단면 2차 모멘트 Moment of Inertia (cm⁴)			단면 2차 반경 Radius of Gyration (cm)				tan α	단면계수 Modulus of Section (cm³)		호칭치수 Designation
Iy	Max. Iu	Min. Iy	ix	iy	Max. iu	Min. iy		Zx	Zy	
56.9	144	30.8	3.15	2.19	3.49	1.61	0.548	17.0	10.0	100 x 75
76.1	194	41.3	3.11	2.15	3.43	1.58	0.543	23.3	13.7	
60.4	243	36.4	4.01	2.11	4.23	1.64	0.362	26.1	10.3	125 x 75
73.8	307	44.9	4.01	2.06	4.21	1.61	0.352	32.8	13.6	
80.8	330	49.0	3.96	2.06	4.17	1.61	0.357	36.1	14.1	
101	415	61.9	3.93	2.04	4.13	1.60	0.352	46.1	17.9	
133	537	80.4	4.81	2.52	5.06	1.96	0.361	48.5	19.0	150 x 90
146	598	88.7	4.82	2.51	5.07	1.95	0.356	53.1	22.5	
167	685	102	4.76	2.47	5.00	1.93	0.357	62.3	24.3	

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

단면 2차 모멘트 Moment of Inertia (cm⁴)			단면 2차 반경 Radius of Gyration (cm)				tan α	단면계수 Modulus of Section (cm³)		호칭치수 Designation
Iy	Max. Iu	Min. Iy	ix	iy	Max. iu	Min. iy		Zx	Zy	
200	1,290	125	6.39	2.60	6.58	2.05	0.263	88.7	29.2	200 x 90
223	2,520	147	8.08	2.44	8.20	1.98	0.182	149	31.5	250 x 90
238	2,870	160	8.07	2.35	8.18	1.93	0.173	174	33.5	
245	4,440	168	9.72	2.30	9.80	1.90	0.136	229	33.8	300 x 90
259	5,020	181	9.68	2.22	9.76	1.85	0.128	265	35.8	
362	7,550	251	11.3	2.50	11.4	2.08	0.124	338	44.5	350 x 100
349	-	-	12.97	2.39	-	-	-	416	42.1	400 x 100
388	11,600	277	12.9	2.38	13	2.01	0.0996	467	47.1	

11. CHANNEL ㄷ형강

Dimensions and Sectional Properties 치수 및 단면성능



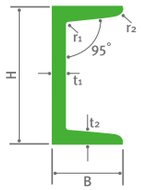
호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)						단면적 Sectional Area (cm²)
	W	H	B	t_1	t_2	r_1	r_2	A
75 x 40	6.92	*75	40	5	7	8	4	8.818
100 x 50	9.36	*100	50	5	7.5	8	4	11.92
125 x 65	13.4	125	65	6	8	8	4	17.11
150 x 75	18.6	150	75	6.5	10	10	5	23.71
200 x 80	24.6	200	80	7.5	11	12	6	31.33
200 x 90	30.3	200	90	8	13.5	14	7	38.65
250 x 90	34.6	250	90	9	13	14	7	44.07
300 x 90	38.1	300	90	9	13	14	7	48.57
380 x 100	54.5	380	100	10.5	16	18	9	69.39
	67.3	*380	100	13	20	24	12	85.71

Note : * 는 별도주문판매 (These sizes indicated by an asterisk(*) are not included in regular rolling schedules.)

Dimension : KS D 3502:2013 JIS G 3192:2008
Dimensional Tolerance : KS D 3502:2013 JIS G 3192:2008
Surface Condition : KS D 3502:2013 JIS G 3192:2008

중심의 위치 Center of Gravity (cm)	단면 2차 모멘트 Moment of Inertia (cm⁴)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm³)		호칭치수 Designation
Cy	Ix	Iy	ix	iy	Zx	Zy	
1.28	75.3	12.2	2.92	1.17	20.1	4.47	75 x 40
1.54	188	26.0	3.97	1.48	37.6	7.52	100 x 50
1.90	424	61.8	4.98	1.90	67.8	13.4	125 x 65
2.28	861	117	6.03	2.22	115	22.4	150 x 75
2.21	1,950	168	7.88	2.32	195	29.1	200 x 80
2.74	2,490	277	8.02	2.68	249	44.2	200 x 90
2.40	4,180	294	9.74	2.58	334	44.5	250 x 90
2.22	6,440	309	11.5	2.52	429	45.7	300 x 90
2.41	14,500	535	14.5	2.78	763	70.5	380 x 100
2.54	17,600	655	14.3	2.76	926	87.8	

11. CHANNEL ㄷ형강



Dimensions and Sectional Properties 치수 및 단면성능

호칭치수 Designation	단위무게 Unit Weight (lbs/ft)	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)						단면적 Sectional Area (cm²)
		W	H	B	t_1	t_2	r_1	r_2	A
8"	11.5	17.1	203	57	5.6	9.9	-	-	21.80
	13.75	20.5	203	59	7.7	9.9	-	-	26.10
	18.75	27.9	203	64	12.4	9.9	-	-	35.50
10"	15.3	22.8	254	65	6.1	11.1	-	-	29.00
	20	30.0	254	69	9.6	11.1	-	-	37.90
	25	37.0	254	73	13.4	11.1	-	-	47.40
	30	45.0	254	76	17.1	11.1	-	-	56.90
12"	20.7	30.8	305	74	7.2	12.7	-	-	39.30
	25	37.0	305	77	9.8	12.7	-	-	47.40
	30	45.0	305	80	13	12.7	-	-	56.90
15"	33.9	50.4	381	86	10.2	16.5	-	-	64.30
	40	60.0	381	89	13.2	16.5	-	-	76.10
	50	74.0	381	94	18.2	16.5	-	-	94.80

※ Actual flange and web thicknesses vary due to mill rolling practices: however permitted variations for such dimensions are not addressed.

CN

Dimension : ASTM A6-11
Dimensional Tolerance : ASTM A6-11
Surface Condition : ASTM A6-11

중심의 위치 Center of Gravity (cm)	단면 2차 모멘트 Moment of Inertia (cm⁴)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm³)		호칭치수 Designation
Cy	Ix	Iy	ix	iy	Zx	Zy	
1.44	1,340	53.8	7.86	1.57	132	12.6	8"
1.39	1,490	62	7.57	1.54	147	13.7	
1.43	1,820	81.7	7.15	1.51	179	16.4	
1.58	2,770	91.2	9.81	1.78	218	18.5	10"
1.53	3,260	114	9.29	1.74	257	21.2	
1.56	3,790	138	8.93	1.70	298	24	
1.63	4,270	158	8.68	1.67	336	26.5	
1.74	5,340	157	11.7	2.00	350	27.7	12"
1.70	5,970	183	11.2	1.97	391	30.5	
1.70	6,720	209	10.9	1.92	441	33.2	
1.99	13,100	337	14.3	2.28	688	50.5	15"
1.97	14,400	379	13.8	2.24	758	54.7	
2.02	16,700	454	13.3	2.19	877	61.5	

UPN

Dimensions and Sectional Properties 치수 및 단면성능

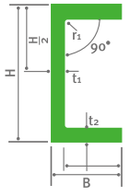
Dimension : DIN 1026-1:2000
Dimensional Tolerance : EN 10279:2000
Surface Condition : EN 10163-3:2004 CLASS C Subclass 1

호칭치수 Designation	단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)						단면적 Sectional Area (cm²)
	W	H	B	t_1	t_2	r_1	r_2	A
UPN200	25.3	200	75	8.5	11.5	11.5	6	32.2
UPN240	33.2	240	85	9.5	13	13	6.5	44.07
UPN300	46.2	300	100	10	16	16	8	48.57

중심의 위치 Center of Gravity (cm)	단면 2차 모멘트 Moment of Inertia (cm⁴)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm³)		호칭치수 Designation
Cy	Ix	Iy	ix	iy	Zx	Zy	
2.01	1,910	148	7.70	2.14	191	27	UPN200
2.23	3,600	248	9.22	2.42	300	39.6	UPN240
2.70	8,030	495	11.7	2.90	535	67.8	UPN300

12. PARALLEL FLANGE CHANNEL

평행채널



Dimensions and Sectional Properties 치수 및 단면성능

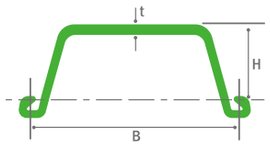
호칭치수 Designation		단위무게 Unit Weight (kg/m)	표준단면치수 Standard Sectional Dimension (mm)						단면적 Sectional Area (cm^2)
		W	H	B	t_1	t_2	r_1	r_2	A
KS (KS D3502)	150 x 75	18.2	150	75	6	10	10	-	23.2
	200 x 80	24.0	200	80	6.5	11.5	12	-	30.5
BS (BS 4-1)	150 x 75	17.9	150	75	5.5	10	12	-	22.77
	200 x 75	23.4	200	75	6	12.5	12	-	29.87
AS/NZS (AS/NZS 3679)	150 x 75	17.7	150	75	6	9.5	10	-	22.5
	200 x 75	22.9	200	75	6	12	12	-	29.2
	230 x 75	25.1	230	75	6.5	12	12	-	32
	250 x 90	35.5	250	90	8	15	12	-	45.2
	300 x 90	40.1	300	90	8	16	14	-	51.1

Dimension : KS D 3502:2013 BS 4-1:2005 AS/NZS 3679.1:2010
Dimensional Tolerance : KS D 3502:2013 BS 4-1:2005 AS/NZS 3679.1:2010
Surface Condition : KS D 3502:2013 EN 10163-3:2004 CLASS C Subclass 1 AS/NZS 3679.1:2010

중심의 위치 Center of Gravity (cm)	단면 2차 모멘트 Moment of Inertia (cm^4)		단면 2차 반경 Radius of Gyration (cm)		단면계수 Modulus of Section (cm^3)		호칭치수 Designation	
Cy	Ix	Iy	ix	iy	Zx	Zy		
2.54	864	131.3	6.1	2.4	115.1	26.5	150 x 75	KS (KS D3502)
2.55	1,984	192.5	8.1	2.5	198.4	35.3	200 x 80	
2.58	861	131	6.2	2.4	114.8	26.6	150 x 75	BS (BS 4-1)
2.48	1,963	170	8.1	2.4	196.3	33.8	200 x 75	
2.49	834	129	6.1	2.4	129.0	46	150 x 75	AS/NZS (AS/NZS 3679)
2.44	1,910	165	8.1	2.4	221.0	58.9	200 x 75	
2.26	2,680	176	9.1	2.4	271.0	61	230 x 75	
2.86	4,510	364	10.0	2.8	421.0	107	250 x 90	
2.72	7,240	404	11.9	2.8	564.0	117	300 x 90	

13. SHEET PILE 강널말뚝

Dimensions and Sectional Properties 치수 및 단면성능



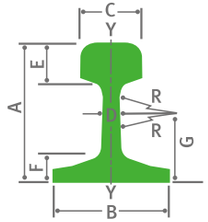
종류 Section Type	표준단면치수 Dimension			단위무게 Unit Weight	
	B	H	t	Per Pile	Per Wall Width
	mm	mm	mm	kg/m	kg/m²
SP-II	400	100	10.5	48.0	120
SP-III	400	125	13.0	60.0	150
SP-III$_A$(E)	400	150	13.1	58.4	146
SP-III$_A$(D)	400	150	13.0	60.0	150
SP-IV	400	170	15.5	76.1	190
SP-V$_M$	500	175	16.5	86.0	172
SP-V$_A$	500	200	19.5	105.0	210
SP-II$_w$	600	130	10.3	61.8	103
SP-III$_w$	600	180	13.4	81.6	136

Dimension : KS F 4604 & JIS A 5528
Dimensional Tolerance : KS F 4604 & JIS A 5528
Surface Condition : KS D 3502 & JIS G 3192

단면적 Sectional Area		단면 2차 모멘트 Moment of Inertia		단면계수 Modulus of Section		종류 Section Type
Per Pile	Per Wall Width	Per Pile	Per Wall Width	Per Pile	Per Wall Width	
cm²	cm²/m	cm⁴	cm⁴/m	cm³	cm³/m	
61.2	153.0	1,240	8,740	152	874	SP-II
76.4	191.0	2,220	16,800	223	1,340	SP-III
74.4	186.0	2,790	22,800	250	1,520	SP-III$_A$(E)
76.4	191.0	3,060	22,600	278	1,510	SP-III$_A$(D)
96.9	242.5	4,634	38,610	360	2,271	SP-IV
109.6	219.2	5,345	40,290	383	2,310	SP-V$_M$
133.8	267.6	8,100	63,000	520	3,150	SP-V$_A$
78.7	131.2	2,445	13,640	231	1,018	SP-II$_w$
103.9	173.2	5,124	32,802	371	1,822	SP-III$_w$

14. RAILWAY RAIL 철도레일

1) Dimensions and Sectional Properties 치수 및 단면성능



규격 Specifications	항목 Items	표준단면치수 Standard Sectional Dimension									단위무게 Unit Weight		단면적 Sectional Area		중심축의 거리 Distance from Rail Base to Neutral Axis		단면2차모멘트 Moment of Inertia		단면계수 Modulus of Section		규격 Specifications
		단위 Unit	A	B	C	D	E	F	G	R	W		S		Yd		J		Z		
											kg/m	lb/yd	cm²	in²	mm	in	cm⁴	in⁴	cm³	in³	
KS, JIS	37A	mm	122.24	122.24	62.71	13.49	36.12	21.43	53.78	304.8	37.2	-	47.3	-	53.78	-	952	-	163	-	
KS R 9106 JIS E 1101	50N	mm	153.0	127.0	65.0	15.0	49.0	30.0	76.0	500.0	50.4	-	64.2	-	71.6	-	1,960	-	242	-	KS, JIS
	60	mm	174.0	145.0	65.0	16.5	49.0	30.1	77.5	500.0	60.8	-	77.45	-	77.8	-	3,090	-	321	-	KS R 9106 JIS E 1101
KS R 9110 JIS E 1120	60K	mm	174.0	145.0	65.0	16.5	49.0	30.1	77.5	500.0	60.7	-	77.3	-	77.6	-	3,064	-	395	-	
	70s	mm	148	140	65.3	35	52	28	62.2	-	69.5	-	88.5	-	62.2	-	2,120	-	341	-	
AREMA	90lbs*	in	5-5/8	5-1/8	2-9/16	9/16	1-15/32	1	2-29/32	14	44.64	90.0	-	8.82	-	2.54	-	38.7	-	15.2	AREMA
	100lbs*	in	6	5-3/8	2-11/16	9/16	1-21/32	1-1/16	2-31/32	14	50.35	101.5	-	9.94	-	2.75	-	49.0	-	17.8	
	115lbs*	in	6-5/8	5-1/2	2-23/32	5/8	1-11/16	1-1/8	3-1/4	14	56.90	114.7	-	11.23	-	2.68	-	65.6	-	22.0	
	119lbs*	in	6-13/16	5-1/2	2-21/32	5/8	1-7/8	1-1/8	3-1/4	14	58.93	118.8	-	11.64	-	3.12	-	71.4	-	22.9	
	132lbs*	in	7-1/8	6	3	21/32	1-3/4	1-3/16	3-7/8	14	65.52	132.1	-	12.94	-	3.20	-	88.2	-	27.6	
	136lbs*	in	7-5/16	6	2-15/16	11/16	1-15/16	1-3/16	3-7/8	20	67.56	136.2	-	13.34	-	3.347	-	94.9	-	28.3	
BS 11	75R	mm	128.59	122.24	61.91	13.1	39.69	18.65	53.98	304.8	37	-	47.19	-	61.8	-	1,061	-	159.09	-	BS 11
		in	5-1/16	4-13/16	2-7/16	32/64	1-9/16	47/64	2-1/8	12.0	-	80.1	-	7.31	-	2.43	-	-	-	-	
	75A*	mm	128.59	114.3	61.91	12.7	42.07	23.81	64.29	508.0	37.5	-	47.71	-	64.81	-	1,049	-	161.8	-	
		in	5-1/16	4-1/2	2-7/16	1/2	1-21/32	15/16	2-17/32	20.0	-	75.5	-	7.40	-	2.55	-	-	-	-	
	90A*	mm	142.88	127.0	66.67	13.89	46.04	26.19	71.44	508.0	45.1	-	57.45	-	72.79	-	1,564	-	214.8	-	
		in	5-5/8	5.0	2-5/8	35/64	1-13/16	1-1/32	2-13/16	20.0	-	90.9	-	8.90	-	2.87	-	-	-	-	
UIC 860	UIC 54*	mm	159	140	70	16	49.4	30.2	76.2	508.0	54.43	-	69.34	-	74.97	-	2,346	-	307.87	-	UIC 860
	UIC 60	mm	172	150	74.3	16.5	51	31.5	-	120	60.34	-	76.86	-	80.95	-	3,055	-	377.4	-	
	UIC 60 (KHRC)	mm	172	150	74.3	16.5	51	31.5	-	120	60.34	-	76.86	-	80.95	-	3,055	-	377.4	-	
EN 13674-1 : 2003	50E4 (UIC 50)*	mm	152	125	70	15	49.4	28	75.1	508.0	50.46	-	64.28	-	75.36	-	1,934	-	256.6	-	EN 13674-1 : 2003
	54E1 (UIC 54)*	mm	159	140	70	16	49.4	30.2	76.2	508.0	54.43	-	69.33	-	74.97	-	2,346	-	307.87	-	
	60E1(UIC 60)	mm	172	150	72	16.5	51	31.5	-	120.0	60.34	-	76.7	-	80.95	-	3,055	-	377.4	-	
HS	73	mm	135	140.0	100	32.0	43.0	26.5	100	100	73.3	-	93.39	-	66.9	-	2,000	-	294	-	HS

* 는 별도주문판매 (These sizes indicated by an asterisk(*) are not included in regular rolling schedules.)

14. RAILWAY RAIL 철도레일

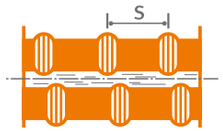
2) Chemical Composition & Mechanical Property

규격 Specification	강종 Grade		화학적성질 Chemical Composition (wt, %)										Gas			기계적 성질 Mechanical Property		
			C	Si	Mn	P	S	Al	Cr	Mo	Ni	Cu	Sn	Sb	Ti	Nb	V	O_2	N_2	H_2	인장강도 Tensile Strength Min. (N/mm^2)	항복강도 Yield Strength (N/mm^2)	연신율 Elongation (%)
			x100			x1000			x100				x100	ppm	x100			ppm					
KS, JIS KS R 9106 JIS E 1101	37KG		55/70	10/35	60/95	45↓	50↓	-	-	-	-	-	-	-	-	-	-	-	-	-	690↑	-	9↑
	50KGN, 60KG		63/75	15/30	70/110	30↓	25↓	-	-	-	-	-	-	-	-	-	-	-	-	-	800↑	-	10↑
KS, JIS KS R 9110 JIS E 1120	HH340		72/82	10/55	70/110	30↓	20↓	-	20↓	-	-	-	-	-	-	-	30↓	-	-	-	1,080↑	-	8↑
	HH370		72/82	10/65	80/120	30↓	20↓	-	25↓	-	-	-	-	-	-	-	30↓	-	-	-	1,130↑	-	8↑
KHRC	UIC60		68/80	15/58	70/120	25↓	8/25	4↓	15↓	2↓	10↓	15↓	40↓	20↓	25↓	10↓	30↓	20↓	90↓	2.5↓	880↑	-	10↑
UIC860-0	900A(B)		60/80	10/50	80/130	40↓	40↓	-	-	-	-	-	-	-	-	-	-	-	-	-	880↑	-	10↑
	1100		60/82	30/90	80/130	30↓	30↓	-	80/130	-	-	-	-	-	-	-	-	-	-	-	1,080↑	-	9↑
EN 13674-1	R260		62/80	15/58	70/120	25↓	25↓	4↓	15↓	2↓	10↓	15↓	30↓	20↓	25↓	10↓	30↓	20↓	90↓	2.5↓	880↑	-	10↑
	R350RT		72/80	15/58	70/120	20↓	25↓	4↓	15↓	2↓	10↓	15↓	30↓	20↓	25↓	40↓	30↓	20↓	90↓	2.5↓	1,175↑	-	9↑
BS11(1985)			65/80	10/50	80/130	40↓	40↓	-	-	-	-	-	-	-	-	-	-	-	-	-	680↑	-	8↑
AREMA(1996)	Chemistry Rail	표준	74/86	10/60	75/125	20↓	20↓	10↓	30↓	6↓	25↓	-	-	-	-	-	10↓	-	-	-	983↑	510↑	10↑
		고강도	74/86	10/60	75/125	20↓	20↓	10↓	30↓	6↓	25↓	-	-	-	-	-	10↓	-	-	-	1,180↑	827↑	10↑
	Low Alloy Rail	표준	72/82	10/50	80/110	20↓	20↓	5↓	25/40	5↓	15↓	40↓	-	-	-	-	10↓	-	-	-	983↑	510↑	10↑
		중간	72/82	10/100	70/125	20↓	20↓	5↓	40/70	5↓	15↓	40↓	-	-	-	-	10↓	-	-	-	1,014↑	552↑	8↑
		고강도	72/82	10/100	70/125	20↓	20↓	5↓	40/70	5↓	15↓	40↓	-	-	-	-	10↓	-	-	-	1,180↑	827↑	10↑

* 는 별도주문판매 (These sizes indicated by an asterisk(*) are not included in regular rolling schedules.)

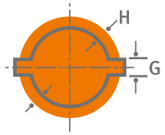
15. REINFORCING BAR 철근

1) Dimensions and Weight 치수 및 중량



규격명 Standard	호칭명 Designation	단위무게 Unit Weight	공칭치수 Nominal Dimensions		
			직경 Diameter	단면적 Sectional Area	둘레 Perimeter
	mm	kg/m	mm	cm²	cm
KS D 3504 KS D 3688 JIS G 3112	D10	0.560	9.53	0.713	3.0
	D13	0.995	12.7	1.267	4.0
	D16	1.56	15.9	1.986	5.0
	D19	2.25	19.1	2.865	6.0
	D22	3.04	22.2	3.871	7.0
	D25	3.98	25.4	5.067	8.0
	D29	5.04	28.6	6.424	9.0
	D32	6.23	31.8	7.942	10.0
	D35	7.51	34.9	9.566	11.0
	D38	8.95	38.1	11.40	12.0
	D41	10.5	41.3	13.40	13.0
	D43	11.4	43.0	14.52	13.5
	D51	15.9	50.8	20.27	16.0
	D57	20.3	57.3	25.79	18.0

DB

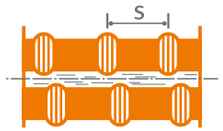


Dimension : KS D 3504 / JIS G 3112
Dimensional Tolerance : KS D 3504 / JIS G 3112
Surface Condition : KS D 3504 / JIS G 3112

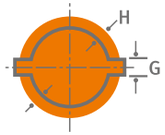
마디 및 리브의 치수 Deformation Requirements				호칭명 Designation
마디의 평균간격 최대치 Max. Average Spacing	마디높이 최소치 Min. Height	마디높이 최대치 Max. Height	마디틈 합계의 최대치 Max. Gap	
mm	mm	mm	mm	mm
6.7	0.4	0.8	7.5	D10
8.9	0.5	1.0	10.0	D13
11.1	0.7	1.4	12.5	D16
13.4	1.0	2.0	15.0	D19
15.5	1.1	2.2	17.5	D22
17.8	1.3	2.6	20.0	D25
20.0	1.4	2.8	22.5	D29
22.3	1.6	3.2	25.0	D32
24.4	1.7	3.4	27.5	D35
26.7	1.9	3.8	30.0	D38
28.9	2.1	4.2	32.5	D41
30.1	2.2	4.4	33.8	D43
35.6	2.5	5.0	40.0	D51
40.1	2.9	5.8	45.0	D57

15. REINFORCING BAR 철근

1) Dimensions and Weight 치수 및 중량



규격명 Standard	호칭명 Designation	단위무게 Unit Weight		공칭치수 Nominal Dimensions		
				직경 Diameter	단면적 Sectional Area	둘레 Perimeter
	No.	lb/ft	kg/m	mm	cm^2	mm
ASTM A615	3	0.376	0.560	9.5	0.71	29.9
	4	0.668	0.994	12.7	1.29	39.9
	5	1.043	1.552	15.9	1.99	49.9
	6	1.502	2.235	19.1	2.84	59.8
	7	2.044	3.042	22.2	3.87	69.8
	8	2.670	3.973	25.4	5.1	79.8
	9	3.400	5.060	28.7	6.45	90.0
	10	4.303	6.404	32.3	8.19	101.3
	11	5.313	7.907	35.8	10.06	112.5
	14	7.65	11.38	43.0	14.52	135.1
	18	13.60	20.24	57.3	25.81	180.1

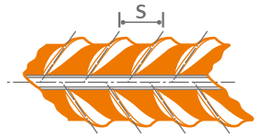


Dimension : ASTM A615
Dimensional Tolerance : ASTM A615
Surface Condition : ASTM A615

마디 및 리브의 치수 Deformation Requirements				호칭명 Designation
마디의 평균간격 최대치 Max. Average Spacing	마디높이 최소치 Min. Height	마디높이 최대치 Max. Height	마디틈 합계의 최대치 Max. Gap	
mm	mm	mm	mm	No.
6.7	0.4	0.38	3.6	3
8.9	0.5	0.51	4.9	4
11.1	0.7	0.71	6.1	5
13.3	1.0	0.97	7.3	6
15.5	1.1	1.12	8.5	7
17.8	1.3	1.27	9.7	8
20.1	1.4	1.42	10.9	9
22.6	1.6	1.63	12.4	10
25.1	1.7	1.80	13.7	11
30.1	2.2	2.16	16.5	14
40.1	2.9	2.59	21.9	18

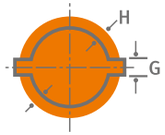
15. REINFORCING BAR 철근

1) Dimensions and Weight 치수 및 중량



규격명 Standard	호칭명 Designation	단위무게 Unit Weight	공칭치수 Nominal Dimensions	
			직경 Diameter	단면적 Sectional Area
	mm	kg/m	mm	mm²
BS 4449 (B500B)	10	0.617	10.0	78.5
	12	0.888	12.0	113
	13(Singapore)	1.042	13.0	133
	16	1.58	16.0	201
	20	2.47	20.0	314
	25	3.85	25.0	491
	32	6.31	32.0	804
	40	9.86	40.0	1,257
	50	15.4	50.0	1,963

DB

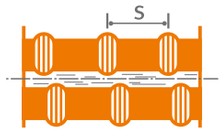


Dimension : BS 4449 : 2005
Dimensional Tolerance : BS 4449 : 2005
Surface Condition : BS 4449 : 2005

마디 및 리브의 치수 Deformation Requirements				호칭명 Designation
둘레 Perimeter	마디 평균간격 Average Spacing	마디높이 평균 Average Height	상대마디면적 Relative Rib Area	
mm	mm	mm	-	mm
-	4~12	0.3~1.5	0.040	10
-	4.8~14.4	0.36~1.8	0.040	12
-	5.2~15.6	0.39~1.95	0.056	13(Singapore)
-	6.4~19.2	0.48~2.4	0.056	16
-	8~24	0.6~3	0.056	20
-	10~30	0.75~3.75	0.056	25
-	12.8~38.4	0.96~4.8	0.056	32
-	16~48	1.2~6	0.056	40
-	20~60	1.5~7.5	0.056	50

15. REINFORCING BAR 철근

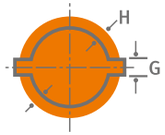
1) Dimensions and Weight 치수 및 중량



규격명 Standard	호칭명 Designation	단위무게 Unit Weight	공칭치수 Nominal Dimensions		
			직경 Diameter	단면적 Sectional Area	둘레 Perimeter
	mm	kg/m	mm	cm²	mm
CSA-G30 18-M92	10	0.785	11.3	1	35.5
	15	1.57	16	2	50.1
	20	2.355	19.5	3	61.3
	25	3.925	25.2	5	79.2
	30	5.495	29.9	7	93.9
	35	7.85	35.7	10	112.2

Dimension : SSA 2/1979
Dimensional Tolerance : SSA 2/1979
Surface Condition : SSA 2/1979

규격명 Standard	호칭명 Designation	단위무게 Unit Weight	단면적 Sectional Area
	mm	kg/m	cm²
SSA 2/1979	10	0.617	0.785
	12	0.888	0.13
	14	1.21	1.54
	16	1.58	2.01
	18	2.00	2.54
	20	2.47	3.14
	22	2.98	3.81
	25	3.85	4.91
	32	6.31	8.04
	40	9.87	12.60
	50	15.40	19.60



Dimension : CSA-G30, 18-M92
Dimensional Tolerance : CSA-G30, 18-M92
Surface Condition : CSA-G30, 18-M92

마디 및 리브의 치수 Deformation Requirements			호칭명 Designation
마디의 평균간격 최대치 Max. Average Spacing	마디높이의 평균 최소치 Min. Average Height	공칭둘레 12.5%의 최대 마디간격 Max. Gapchord of 12.5% of Nominal Perimeter	
mm	mm	mm	mm
7.9	0.45	4.4	10
11.2	0.72	6.3	15
13.6	0.98	7.7	20
17.6	1.26	9.9	25
20.9	1.48	11.7	30
25.0	1.79	14.0	35

15. REINFORCING BAR 철근

2) 이형봉강포장(이론중량) 조견표(KS D 3504)

(1) 1톤 단위

환산중량 단중 : KS D 3504 기준
1본중량 : 단중×1본길이(소수2자리 맺음)
포장중량 : 1본중량×포장본수(kg단위로 맺음)

호칭명 Designation	단위중량 Unit Weight (kg/m)	구분 Classification / 길이 Length (m)	6.0	6.5	7.0	7.5	8.0	9.0	10.0	11.0	12.0	호칭명 Designation
D10	0.560	1본중량	3.36	3.64	3.92	4.20	4.48	5.04	5.60	6.16	6.72	D10
		총본수	280	280	245	245	210	210	180	150	150	
		중량	941	1,019	960	1,029	941	1,058	1,008	924	1,008	
D13	0.995	1본중량	5.97	6.47	6.97	7.46	7.96	8.96	9.95	10.95	11.94	D13
		총본수	168	144	140	140	120	120	100	100	80	
		중량	1,003	931	976	1,045	955	1,075	995	1,095	955	
D16	1.56	1본중량	9.36	10.14	10.92	11.70	12.48	14.04	15.60	17.16	18.72	D16
		총본수	105	105	90	90	75	75	60	60	60	
		중량	983	1,065	983	1,053	936	1,053	936	1,030	1,123	
D19	2.25	1본중량	13.50	14.63	15.75	16.88	18.00	20.25	22.50	24.75	27.00	D19
		총본수	70	70	60	60	60	50	50	40	40	
		중량	945	1,024	945	1,013	1,080	1,013	1,125	990	1,080	
D22	3.04	1본중량	18.24	19.76	21.28	22.80	24.32	27.36	30.40	33.44	36.48	D22
		총본수	55	51	47	44	41	37	33	30	27	
		중량	1,003	1,008	1,000	1,003	997	1,012	1,003	1,003	985	
D25	3.98	1본중량	23.88	25.87	27.86	29.85	31.84	35.82	39.80	43.78	47.76	D25
		총본수	42	39	36	33	32	28	25	23	21	
		중량	1,003	1,009	1,003	985	1,019	1,003	995	1,007	1,003	
D29	5.04	1본중량	30.24	32.76	35.28	37.80	40.32	45.36	50.40	55.44	60.48	D29
		총본수	33	31	28	26	25	22	20	18	17	
		중량	998	1,016	988	983	1,008	998	1,008	998	1,028	
D32	6.23	1본중량	37.38	40.50	43.61	46.73	49.84	56.07	62.30	68.53	74.76	D32
		총본수	27	25	23	21	20	18	16	15	13	
		중량	1,009	1,012	1,003	981	997	1,009	997	1,028	972	

15. REINFORCING BAR 철근

2) 이형봉강포장(이론중량) 조견표(KS D 3504)

(1) 1톤 단위

환산중량 단중 : KS D 3504 기준
1본중량 : 단중×1본길이(소수2자리 맺음)
포장중량 : 1본중량×포장본수(kg단위로 맺음)

호칭명 Designation	단위중량 Unit Weight (kg/m)	구분 Classification / 길이 Length (m)	6.0	6.5	7.0	7.5	8.0	9.0	10.0	11.0	12.0	호칭명 Designation
D35	7.51	1본중량	45.06	48.82	52.57	56.33	60.08	67.59	75.10	82.61	90.12	D35
		총본수	22	20	19	18	17	15	13	12	11	
		중량	991	976	999	1,014	1,021	1,014	976	991	991	
D38	8.95	1본중량	53.70	58.18	62.65	67.12	71.60	80.55	89.50	98.45	107.40	D38
		총본수	19	17	16	15	14	12	11	10	9	
		중량	1,020	989	1,002	1,007	1,002	967	984	985	967	
D41	10.5	1본중량	63.00	68.25	73.50	78.75	84.00	94.50	105.00	115.50	126.00	D41
		총본수	16	15	14	13	12	11	10	9	8	
		중량	1,008	1,024	1,029	1,024	1,008	1,040	1,050	1,040	1,008	
D43	11.4	1본중량	68.40	74.10	79.80	85.50	91.20	102.60	114.00	125.40	136.80	D43
		총본수	14	14	14	12	11	10	9	8	7	
		중량	958	1,037	1,117	1,026	1,003	1,026	1,026	1,003	958	
D51	15.9	1본중량	95.40	103.35	111.30	119.25	127.20	143.10	159.00	174.90	190.80	D51
		총본수	11	10	10	9	16	14	13	11	10	
		중량	1,049	1,034	1,113	1,073	2,035	2,003	2,067	1,924	1,908	

15. REINFORCING BAR 철근

2) 이형봉강포장(이론중량) 조견표(KS D 3504)

(2) 2톤 단위

환산중량 단중 : KS D 3504 기준
1본중량 : 단중×1본길이(소수2자리 맺음)
포장중량 : 1본중량×포장본수(kg단위로 맺음)

호칭명 Designation	단위중량 Unit Weight (kg/m)	구분 Classification / 길이 Length (m)	6.0	6.5	7.0	7.5	8.0	9.0	10.0	11.0	12.0	호칭명 Designation
D10	0.560	1본중량	3.36	3.64	3.92	4.20	4.48	5.04	5.60	6.16	6.72	D10
		소속본수	70	70	70	70	70	70	60	60	60	
		소속수	8	8	7	7	6	6	6	5	5	
		총본수	560	560	490	490	420	420	360	300	300	
		중량	1,882	2,038	1,921	2,058	1,882	2,116	2,016	1,848	2,016	
D13	0.995	1본중량	5.97	6.47	6.97	7.46	7.96	8.96	9.95	10.95	11.94	D13
		소속본수	48	48	40	40	40	40	40	40	40	
		소속수	7	6	7	7	6	6	5	5	4	
		총본수	336	288	280	280	240	240	200	200	160	
		중량	2,006	1,863	1,952	2,089	1,910	2,150	1,990	2,190	1,910	
D16	1.56	1본중량	9.36	10.14	10.92	11.70	12.48	14.04	15.60	17.16	18.72	D16
		소속본수	35	35	30	30	25	25	30	30	30	
		소속수	6	6	6	6	6	6	4	4	4	
		총본수	210	210	180	180	150	150	120	120	120	
		중량	1,966	2,130	1,966	2,106	1,872	2,106	1,872	2,060	2,246	
D19	2.25	1본중량	13.50	14.63	15.75	16.88	18.00	20.25	22.50	24.75	27.00	D19
		총본수	140	140	126	120	112	98	88	80	80	
		중량	1,890	2,048	1,984	2,025	2,016	1,984	1,980	1,980	2,160	
D22	3.04	1본중량	18.24	19.76	21.28	22.80	24.32	27.36	30.40	33.44	36.48	D22
		총본수	110	102	94	88	82	74	66	60	54	
		중량	2,006	2,016	2,000	2,006	1,994	2,024	2,006	2,006	1,970	
D25	3.98	1본중량	23.88	25.87	27.86	29.85	31.84	35.82	39.80	43.78	47.76	D25
		총본수	84	78	72	66	64	56	50	46	42	
		중량	2,006	2,018	2,006	1,970	2,038	2,006	1,990	2,014	2,006	
D29	5.04	1본중량	30.24	32.76	35.28	37.80	40.32	45.36	50.40	55.44	60.48	D29
		총본수	66	62	56	52	50	44	40	36	34	
		중량	1,996	2,032	1,976	1,966	2,016	1,996	2,016	1,996	2,056	
D32	6.23	1본중량	37.38	40.50	43.61	46.73	49.84	56.07	62.30	68.53	74.76	D32
		총본수	54	50	46	42	40	36	32	30	26	
		중량	2,018	2,026	2,006	1,962	1,994	2,018	1,994	2,056	1,944	

15. REINFORCING BAR 철근

2) 이형봉강포장(이론중량) 조견표(KS D 3504)

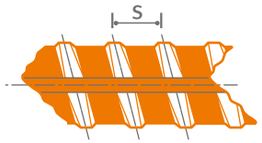
(2) 2톤 단위

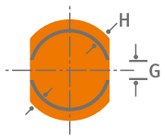
환산중량 단중 : KS D 3504 기준
1본중량 : 단중×1본길이(소수2자리 맺음)
포장중량 : 1본중량×포장본수(kg단위로 맺음)

호칭명 Designation	단위중량 Unit Weight (kg/m)	구분 Classification / 길이 Length (m)	6.0	6.5	7.0	7.5	8.0	9.0	10.0	11.0	12.0	호칭명 Designation
D35	7.51	1본중량	45.06	48.82	52.57	56.33	60.08	67.59	75.10	82.61	90.12	D35
		총본수	44	40	38	36	34	30	26	24	22	
		중량	1,983	1,952	1,998	2,028	2,043	2,028	1,953	1,983	1,983	
D38	8.95	1본중량	53.70	58.18	62.65	67.12	71.60	80.55	89.50	98.45	107.40	D38
		총본수	38	34	32	30	28	24	22	20	18	
		중량	2,041	1,978	2,005	2,014	2,005	1,933	1,969	1,969	1,933	
D41	10.5	1본중량	63.00	68.25	73.50	78.75	84.00	94.50	105.00	115.50	126.00	D41
		총본수	32	30	28	26	24	22	20	18	16	
		중량	2,016	2,048	2,058	2,048	2,016	2,079	2,100	2,079	2,016	
D43	11.4	1본중량	68.40	74.10	79.80	85.50	91.20	102.60	114.00	125.40	136.80	D43
		총본수	28	28	27	24	22	20	18	16	15	
		중량	1,915	2,075	2,155	2,052	2,006	2,052	2,052	2,006	2,052	
D51	15.9	1본중량	95.40	103.35	111.30	119.25	127.20	143.10	159.00	174.90	190.80	D51
		총본수	11	10	10	9	16	14	13	11	10	
		중량	1,049	1,034	1,113	1,073	2,035	2,003	2,067	1,924	1,908	
D57	20.3	1본중량	121.80	131.95	142.10	152.25	162.40	182.70	203.00	223.30	243.60	D57
		총본수	16	15	14	13	12	11	10	9	8	
		중량	1,949	1,979	1,989	1,979	1,949	2,010	2,030	2,010	1,949	

16. THREAD BAR 나사형 철근

Dimensions and Weight 치수 및 중량





호칭명 Designation	단위무게 Unit Weight	공칭치수 Nominal Dimensions		마디치수 Deformation Requirements		
		직경 Diameter	단면적 Sectional Area	마디간격의 최대치 Max. Pitch	마디높이의 최대치 Max. Height	마디제외 최대직경 Max. Core Diameter
	kg/m	mm	cm^2	mm	mm	mm
D19	2.25	19.1	2.865	10.3	2.0	19.0
D22	3.04	22.2	3.871	11.3	2.2	22.0
D25	3.98	25.4	5.067	12.4	2.3	25.0
D29	5.04	28.6	6.424	13.2	2.7	28.0
D32	6.23	31.8	7.942	14.3	2.9	30.9
D35	7.51	34.9	9.566	16.6	3.0	34.1
D38	8.95	38.1	11.401	17.5	3.2	37.2
D41	10.5	41.3	13.396	18.7	3.4	40.4
D51	15.9	50.8	20.270	21.0	3.8	50.0

CHEMICAL COMPOSITION 강재 성분표

1) Shapes (형강) KS, JIS

규격 Standard	명칭 Designation	종류의 기호 Grade	화학성분 Chemical Composition (%) C	Si	Mn	P. Max.	S. Max.	비고 Remarks	규격 Standard
KS D 3503 JIS G 3101	일반구조용 압연강재 Rolled Steel for General Structure	SS400 SS490 SS540	- - 0.30 max.	- - -	- - 1.60 max.	0.050 0.050 0.040	0.050 0.050 0.040	-	KS D 3503 JIS G 3101
KS D 3515 JIS G 3106	용접구조용 압연강재 Rolled Steel for Welded Structure	SM400A SM400B SM490A SM490B SM490YA SM490YB SM520B	0.23 max. 0.20 max. 0.20 max. 0.18 max. 0.20 max. 0.20 max. 0.20 max.	- 0.35 max. 0.55 max. 0.55 max. 0.55 max. 0.55 max. 0.55 max.	2.5 x C min. 0.06~1.40 1.60 max. 1.60 max. 1.60 max. 1.60 max. 1.60 max.	0.035 0.035 0.035 0.035 0.035 0.035 0.035	0.035 0.035 0.035 0.035 0.035 0.035 0.035	-	KS D 3515 JIS G 3106
KS D 3866	건축구조용 열간압연 H형강 Hot Rolled H-beam for Building Structure	SHN400 SHN490 SHN520 SHN570	0.20 max.	0.40 max.	0.50~1.00 max. 0.50~1.50 max. 0.50~1.50 max. 0.50~1.50 max.	0.035	0.030	Cu: 0.60 max. Ni: 0.45 max. Cr: 0.35 max. Mo: 0.15 max. Mn/S=20 min. V: 0.110 max. Nb: 0.050 max. Nb+V < 0.15% [for SHN490, 520, 570] CEQ=0.40 max. [for SHN400] CEQ=0.45 max. [for SHN490, 520, 570] $Ceq = C + \frac{Mn}{6} + \frac{Cr+V+Mo}{5} + \frac{Cu+Ni}{15}$	KS D 3866
JIS G 3136	건축구조용 압연강재 Rolled Steels for Building Structure	SN400A SN400B SN400C SN490B SN490C	0.24 max. 0.20 max. 0.20 max. 0.18 max. 0.18 max.	- 0.35 max. 0.35 max. 0.55 max. 0.55 max.	- 0.60~1.40 0.60~1.40 1.60 max. 1.60 max.	0.050 0.030 0.020 0.030 0.020	0.050 0.015 0.008 0.015 0.008	CEQ=SN400B, SN400C: 0.36 max. SN490B, SN490C: 0.44 max. P_{CM}=SN400B, SN400C: 0.26 max. SN490B, SN490C: 0.29 max. $Ceq = C + \frac{Mn}{6} + \frac{Si}{24} + \frac{Ni}{40} + \frac{Cr}{5} + \frac{Mo}{4} + \frac{V}{14}$ $Pcm = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B$	JIS G 3136
KS F 4603	H형강 말뚝 Steel H Pile	SHP 400 SHP 400W SHP 490W SH9 550W	- 0.23 max. 0.20 max. 0.22 max.	- - 0.55 max. 0.55 max.	- 2.5 x C min. 1.50 max. 1.60 max.	0.050 0.040 0.040 0.040	0.050 0.040 0.040 0.040	-	KS F 4603

( )안의 값은 제품분석의 경우에 적용한다.

※ 강재의 화학성분은 용강분석지(또는 래들분석지)로서 나타낸다.

CHEMICAL COMPOSITION 강재 성분표

1) Shapes (형강) KS, JIS

규격 Standard	명칭 Designation	종류의 기호 Grade	화학성분 Chemical Composition (%) C	Si	Mn	P. Max.	S. Max.	비고 Remarks	규격 Standard
KS E 4002	광산지보용 I형강 I-Beam for Mine Support	SG-1	-	-	-	0.050	0.050	-	KS E 4002
		SG-2	-	-	-	0.050	0.050		
KS F 4604 JIS A 5528	열간압연 강널말뚝 Sheet Pile	SY 300	-	-	-	0.040	0.040	Cu: 0.23~0.55.	KS F 4604 JIS A 5528
		SY 400	-	-	-	0.040	0.040		
		SY 295	-	-	-	0.040	0.040	-	
		SY 390	-	-	-	0.040	0.040		
KS F 4604 JIS A 5523	용접용 열간압연 강널말뚝 Weldable Hot Rolled Steel Sheet Pile	SY 300W	0.18 max.	0.55 max.	1.60 max.	0.035	0.035	Cu: 0.23~0.55. CEQ= SY300W: 0.44 max. SY400W: 0.46 max. $Ceq = C + \frac{Mn}{6} + \frac{Si}{24} + \frac{Ni}{40} + \frac{Cr}{5} + \frac{Mo}{4} + \frac{V}{14}$	KS F 4604 JIS A 5523
		SY 400W	0.20 max.	0.55 max.	1.60 max.	0.035	0.035		
		SYW295	0.18 max.	0.55 max.	1.50 max.	0.040	0.040	Free N_2: 0.0060 max. CEQ=SYW295: 0.44 max. SYW390: 0.45 max. SYW430: 0.46 max. $Ceq = C + \frac{Mn}{6} + \frac{Si}{24} + \frac{Ni}{40} + \frac{Cr}{5} + \frac{Mo}{4} + \frac{V}{14}$	
		SYW390	0.18 max.	0.55 max.	1.50 max.	0.040	0.040		
		SYW430	0.18 max.	0.55 max.	1.50 max.	0.040	0.040		
KS R 9110	열처리레일 Head Hardened Rail	HH 340	0.72~0.82	0.10~0.55	0.70~1.10	0.030	0.020	Cr: 0.20 max., V: 0.030 max.	KS R 9110
		HH 370	0.72~0.82	0.10~0.65	0.80~1.20	0.030	0.020	Cr: 0.25 max., V: 0.030 max.	
KS R 9106	철도레일 Railway Rail	30A	0.50~0.70	0.10~0.35	0.60~0.95	0.045	0.050	-	KS R 9106
		37A	0.55~0.70	0.10~0.35	0.60~0.95	0.045	0.050		
		50PS	0.60~0.75	0.10~0.35	0.60~0.95	0.045	0.050		
		40N, 50N	0.63~0.75	0.15~0.30	0.70~1.10	0.030	0.025		
		60	0.63~0.75	0.15~0.30	0.70~1.10	0.030	0.025		
		60K	0.68~0.80	0.15~0.58	0.70~1.20	0.025	0.025		

※ 강재의 화학성분은 용강분석지(또는 래들분석지)로서 나타낸다.

CHEMICAL COMPOSITION 강재 성분표

2) Shapes (형강) ASTM, AS/NZS

규격 Standard	명칭 Designation	종류의 기호 Grade	화학성분 Chemical Composition (%)					Cu Max.	CEV	N_2 ppm	비고 Remarks	규격 Standard
			C	Si	Mn	P. Max.	S. Max.					
ASTM A36	Standard Specification for Carbon Structural Steel	ASTM A36	0.26 max.	0.40 max.	-	0.040	0.050	-	-	-	-	ASTM A36
ASTM A572	Standard Specification for Hign-Strength Low-Alloy Columbium-Vanadium Structural Steel	G50 (G345) G60	0.23 max. 0.26 max.	0.40 max.	1.35 max.	0.040	0.050	-	-	-	C: 0.01% point ↑ → Mn: 0.06% point ↑ (Max.1.50%) V: 0.01-0.15 or Nb: 0.005-0.05 or V+Nb: 0.02-0.15	ASTM A572
ASTM A992	Standard Specification for Structural Steel Shape	ASTM A992	0.23 max.	0.40 max.	0.50~1.50	0.035	0.045	-	-	-	Cu: 0.60 max. Ni: 0.45 max. Cr: 0.35 max. Mo 0.15 max. N_2: 0.0150 max. Nb+V < 0.15% Mn/S=20 min.	ASTM A992
ASTM A36/ A572 G50/ A992/ CSA350W		ASTM A36/ A572 G50/ A992/ CSA350W (TRIPLE)	0.23 max.	0.40 max.	0.50~1.35	0.035	0.045	-	-	-	Cu: 0.60 max. Ni: 0.45 max. Cr: 0.35 max. Mo 0.15 max. N_2: 0.0150 max. V: 0.01~0.15 or Nb: 0.005~0.05 or V+Nb: 0.02~0.15 Mn/S=20 min.	ASTM A36/ A572 G50/ A992/ CSA350W
AS/NZS 3679.1	Structural Steel-Hot Rolled Bars and Section	300	0.25 max.	0.50 max.	1.60 max.	0.040	0.040	0.50	0.44	-	Ni: 0.50 max. Cr: 0.30 max. Mo: 0.10 max. V: 0.030 max Nb: 0.020 max, V+Nb: 0.030 max	AS/NZS 3679.1

( )안의 값은 제품분석의 경우에 적용한다.

※ 강재의 화학성분은 용강분석지(또는 래들분석지)로서 나타낸다.

3) Shapes (형강) EN

규격 Standard	명칭 Designation	종류의 기호 Grade	화학성분 Chemical Composition (%) C	Si	Mn	P. Max.	S. Max.	Cu Max.	CEV	N_2 ppm	비고 Remarks	규격 Standard
EN10025-2	Hot Rolled Products for Structural Steel	S235JR	0.17 max.	-	140 max.	0.035	0.035	0.55	0.35	120 max.	If it is total Al min 0.020%, the max. value for N_2 does not apply For S450J0 grade, Nb 0.050% max. V 0.130% max.	EN10025-2
		S235J0	0.17 max.	-	140 max.	0.030	0.030	0.55	0.35	120 max.		
		S235J2	0.17 max.	-	140 max.	0.025	0.025	0.55	0.35	-		
		S275JR	0.21 max.	-	150 max.	0.035	0.035	0.55	0.40	120 max.		
		S275J0	0.18 max.	-	150 max.	0.030	0.030	0.55	0.40	120 max.		
		S275J2	0.18 max.	-	150 max.	0.025	0.025	0.55	0.40	-		
		S355JR	0.24 max.	0.55 max.	160 max.	0.035	0.035	0.55	0.45	120 max.		
		S355J0	0.20 max.	0.55 max.	160 max.	0.030	0.030	0.55	0.45	120 max.		
		S355J2	0.20 max.	0.55 max.	160 max.	0.025	0.025	0.55	0.45	-		
		S355K2	0.20 max.	0.55 max.	160 max.	0.025	0.025	0.55	0.45	-		
		S450J0	0.20 max.	0.55 max.	170 max.	0.030	0.030	0.55	0.47	250 max.		
EN10225	Weldable Structural Steels for Fixed Offshore Structures - Technical Delivery Conditions	S355G1[1][2]	0.20 max	0.50 max	0.90~1.65	0.035	0.030	0.35	0.43 max	150 max	Cr 0.30 max, Mo 0.10 max, Ni 0.50 max, Al 0.02 min, Nb 0.050 max, Ti 0.030 max, V 0.120 max	EN10225
		S355G4[1][2] S355G4+M[1][2]	0.16 max	0.50 max	1.60 max	0.035	0.030	0.35	0.43 max	150 max	Mo 0.20 max, Ni 0.30 max, Al 0.02 min, Nb 0.050 max, Ti 0.050 max, V 0.100 max	
		S355G11[1][2] S355G11+M[1][2]	0.14 max	0.55 max	1.65 max	0.025	0.015	0.30	0.43 max	120 max	Cr 0.25 max, Mo 0.08 max, Ni 0.50 max, Al 0.015~0.055, Nb 0.040 max, Ti 0.025 max, V 0.060 max, Cr+Mo+Ni+Cu 0.80 max, Nb+V 0.06 max, Nb+V+Ti 0.08 max	
		S355G11[1][2] S355G12+M[1][2]	0.14 max	0.55 max	1.65 max	0.020	0.007	0.30	0.43 max	120 max	Cr 0.25 max, Mo 0.08 max, Ni 0.50 max, Al 0.015~0.055, Nb 0.040 max, Ti 0.025 max, V 0.060 max, Cr+Mo+Ni+Cu 0.80 max, Nb+V 0.06 max, Nb+V+Ti 0.08 max	

(1) Total Al to N ratio shall be a minimum of 2:1. When other N binding elements are used, the min Al and Al/N-ratio do not apply.

(2) $Pcm = C + \frac{Si}{30} + \frac{Mn+Cu+Cr}{20} + \frac{Ni}{60} + \frac{Mo}{15} + \frac{V}{10} + 5B \leq 0.24$

CHEMICAL COMPOSITION 강재 성분표

4) Steel Bars for Concrete Reinforcement 철근 콘크리트용 봉강

규격 Standard	종류의 기호 Grade	화학성분 Chemical Composition (%) C	Si	Mn	P. Max.	S. Max.	비고 Remarks	규격 Standard
KS D 3504	SD300 SD350 SD400 SD500 SD600 SD700	- - - - - -	- - - - - -	- - - - - -	0.05 0.05 0.05 0.05 0.05 0.05	0.05 0.05 0.05 0.05 0.05 0.05	일반용 철근 SD600, SD700 $C+\frac{Mn}{6}+\frac{Cr+V+Mo}{5}+\frac{Cu+Ni}{15} \le 0.63\%$	KS D 3504
	SD400W SD500W	0.22 max. (0.24 max.)	0.60 max. (0.65 max.)	1.60 max. (1.7 max.)	0.05 (0.055)	0.05 (0.055)	용접용철근 $C+\frac{Mn}{6}+\frac{Cr+V+Mo}{5}+\frac{Cu+Ni}{15} \le 0.50\%$ (0.52%)	
KS D 3688	SD400S SD500S	0.29 max. 0.32 max.	0.30 max. 0.30 max.	1.50 max. 1.80 max.	0.040 0.040	0.040 0.040	내진용철근 Cu 0.20 Min. $C+\frac{Mn}{6}+\frac{Cr+V+Mo}{5}+\frac{Cu+Ni}{15} \le 0.55\%$ (SD400S) $C+\frac{Mn}{6}+\frac{Cr+V+Mo}{5}+\frac{Cu+Ni}{15} \le 0.60\%$ (SD500S)	KS D 3688
JIS G 3112	SD295A SD295B SD345 SD390 SD490	- 0.27 max. 0.27 max. 0.29 max. 0.32 max.	- 0.55 max. 0.55 max. 0.55 max. 0.55 max.	- 1.50 max. 1.60 max. 1.80 max. 1.80 max.	0.050 0.040 0.040 0.040 0.040	0.050 0.040 0.040 0.040 0.040	이형철근 Deformed Bar $C+\frac{Mn}{6}+ \le 0.50\%$ (SD345) $C+\frac{Mn}{6}+ \le 0.55\%$ (SD390) $C+\frac{Mn}{6}+ \le 0.60\%$ (SD490)	JIS G 3112
ASTM A615	Grade40 Grade60	- -	- -	- -	0.060 0.060	-	-	ASTM A615
BS 4449	Grade460 Grade460B GradeB500B	0.25 max. 0.25 max. 0.22 max.	- - -	- - -	0.055 0.055 0.055	0.055 0.055 0.055	Plain Round Steel Bar Bs4449 Deformed High Yield Steel Bar $C+\frac{Mn}{6}+\frac{Cr+V+Mo}{5}+\frac{Cu+Ni}{15} \le 0.51\%$	BS 4449
CSA-G30 18-M92	G400W	0.30 max.	0.50 max.	1.60 max.	0.035	0.045	-	CSA-G30 18-M92

( )안의 값은 제품분석의 경우에 적용한다.
※ 강재의 화학성분은 용강분석지(또는 래들분석지)로서 나타낸다.

CHEMICAL COMPOSITION 강재 성분표

5) The Other 기타 강재

명칭 Spec.	종류의 기호 Grade	화학성분 Chemical Composition (%)					비고 Remarks	명칭 Spec.
		C	Si	Mn	P. Max.	S. Max.		
기계구조용 탄소강재 Carbon Steel for Machine Structural Use	SM 10C	0.08~0.13	0.15~0.35	0.30~0.60	0.030	0.035		기계구조용 탄소강재 Carbon Steel for Machine Structural Use
	SM 15C	0.13~0.18	0.15~0.35	0.30~0.60	0.030	0.035		
	SM 20C	0.18~0.23	0.15~0.35	0.30~0.60	0.030	0.035		
	SM 25C	0.22~0.28	0.15~0.35	0.30~0.60	0.030	0.035		
	SM 30C	0.27~0.33	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 35C	0.32~0.38	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 38C	0.35~0.41	0.15~0.35	0.60~0.90	0.030	0.035	-	
	SM 40C	0.37~0.43	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 45C	0.42~0.48	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 50C	0.47~0.53	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 55C	0.52~0.58	0.15~0.35	0.60~0.90	0.030	0.035		
	SM 58C	0.55~0.61	0.15~0.35	0.60~0.90	0.030	0.035		
	A 105	0.35 max.	0.35 max.	0.60~1.05	0.040	0.050		
기계구조용 합금강 Alloy Steel for Machine Structural Use	SCr415	0.13~0.18	0.15~0.35	0.60~0.90	0.03	0.03		기계구조용 합금강 Alloy Steel for Machine Structural Use
	SCr420	0.18~0.23	0.15~0.35	0.60~0.90	0.03	0.03		
	SCr435	0.33~0.38	0.15~0.35	0.60~0.90	0.03	0.03		
	SCr440	0.38~0.43	0.15~0.35	0.60~0.90	0.03	0.03		
	SCr445	0.43~0.48	0.15~0.35	0.60~0.90	0.03	0.03		
	SCM415	0.13~0.18	0.15~0.35	0.60~0.90	0.03	0.03	-	
	SCM420	0.18~0.23	0.15~0.35	0.60~0.90	0.03	0.03		
	SCM435	0.33~0.38	0.15~0.35	0.60~0.90	0.03	0.03		
	SCM440	0.38~0.43	0.15~0.35	0.60~0.90	0.03	0.03		
	SCM445	0.43~0.48	0.15~0.35	0.60~0.90	0.03	0.03		
중기용 For Heavy Construction Equipment	S43BC	0.43~0.48	0.15~0.35	0.67~0.90	0.03	0.015		중기용 For Heavy Construction Equipment
	15B23M	0.21~0.25	0.15~0.30	1.00~1.10	0.03	0.015		
	15B37M	0.32~0.36	0.15~0.30	1.00~1.40	0.03	0.025		
	10B35M	0.32~0.36	0.15~0.30	1.00~1.30	0.03	0.025	-	
	30MnB4	0.32~0.36	0.15~0.30	1.20~1.50	0.03	0.025		
	SCr440B	0.39~0.43	0.15~0.30	0.67~0.85	0.03	0.025		
체인용 For Chain	SBC70	0.33 max.	0.15~0.35	1.00~1.90	0.035	0.035	-	체인용 For Chain

※ 강재의 화학성분은 용강분석치(또는 래들분석치)로서 나타낸다.

MECHANICAL PROPERTIES 기계적 성질

1) Rolled Steel for General Structure 일반구조용 강재

규격 Standard	종류의 기호 Symbol of Grade	인장시험 Tensile Test					굽힘시험 Bend Test			
		항복점 또는 내력 Yield Point or Yield Strength (N/mm²)			인장강도 Tensile Strength (N/mm²)	연신율 Elongation	연신율 Elongation		굽힘각도 Angle of Bending	안쪽반지름 Inside Radius	시험편 Test Piece	종류의 기호 Symbol of Grade
		두께 Thickness (mm)					인장 시험편 Test Piece	Min. (%)				
		t ≤ 16	16 < t ≤ 40	40 < t		두께 Thickness (mm)						
KS D 3503 JIS G 3101	SS400	245	235	215	400~510	Steel Plate and Sheets, Steel Strip in Coil, Flat and Section t ≤ 5	No. 5	21	180°	1.5 x Thickness	No. 1	SS400
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 5 < t ≤ 16	No. 1A	17				
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 16 < t ≤ 50	No. 1A	21				
						Steel Plate and Sheets, Flat and Section 40 < t	No. 4	23				
	SS490	285	275	255	490~610	Steel Plate and Sheets, Steel Strip in Coil, Flat and Section t ≤ 5	No. 5	19	180°	2.0 x Thickness	No. 1	SS490
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 5 < t ≤ 16	No. 1A	15				
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 16 < t ≤ 50	No. 1A	19				
						Steel Plate and Sheets, Flat and Section 40 < t	No. 4	21				
	SS540	400	390	-	540 이상	Steel Plate and Sheets, Steel Strip in Coil, Flat and Section t ≤ 5	No. 5	16	180°	2.0 x Thickness	No.1	SS540
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 5 < t ≤ 16	No. 1A	13				
						Steel Plate and Sheets, Steel Strip in Coil, Flat and Section 16 < t ≤ 50	No. 1A	17				

MECHANICAL PROPERTIES 기계적 성질

2) Rolled Steel for Welded Structure 용접구조용 강재

규격 Standard	종류의 기호 Symbol of Grade	인장시험 Tensile Test					
		항복점 또는 내력 Yield Point or Yield Strength (N/mm²)				인장강도 Tensile Strength (N/mm²)	연신율 Elongation
		두께 Thickness (mm)				두께 Thickness (mm)	두께 Thickness (mm)
		t ≤ 16	16 < t ≤ 40	40 < t ≤ 75	75 < t	t ≤ 100	
KS D 3515 JIS G 3106	SM 400A SM 400B SM 400C	245	235	215	215	400~510	t ≤ 5 5 < t ≤ 16 16 ≤ t < 50 40 < t
	SM 490A SM 490B SM 490C	325	315	295	295	490~610	t ≤ 5 5 < t ≤ 16 16 ≤ t < 50 40 < t
	SM 490YA SM 490YB	365	355	335	335	490~610	t ≤ 5 5 < t ≤ 16 16 ≤ t < 50 40 < t
	SM 520B SM 520C	365	355	335	335	520~640	t ≤ 5 5 < t ≤ 16 16 ≤ t < 50 40 < t

연신율 Elongation		충격시험 Impact Test			종류의 기호 Symbol of Grade
시험편 Test Piece	Min. (%)	시험온도 Test Temp. (℃)	샤르피 흡수에너지 Charpy Absorbed Energy (Joule)	시험편 Test Piece	
No. 5 No. 1A No. 1A No. 4	23 18 22 24	- 0 0	- 27 min 47 min	V-notch in rolled direction	SM 400A SM 400B SM 400C
No. 5 No. 1A No. 1A No. 4	22 17 21 23	- 0 0	- 27 min 47 min	V-notch in rolled direction	SM 490A SM 490B SM 490C
No. 5 No. 1A No. 1A No. 4	19 15 19 21	- 0	- 27 min	V-notch in rolled direction	SM 490YA SM 490YB
No. 5 No. 1A No. 1A No. 4	19 15 19 21	0 0	27 min 47 min	V-notch in rolled direction	SM 520B SM 520C

3) Hot Rolled H-Beam for Building Structure 건축구조용 열간압연 H형강

규격 Standard	종류의 기호 Symbol of Grade	인장시험 Tensile Test		
		항복점 또는 내력 Yield Point or Yield Strength (N/mm²)	인장강도 Tensile Strength (N/mm²)	항복비 Yield Ratio Max. (%)
KS D 3866	SHN 400	235~355	400~510	85
	SHN 490	325~445	490~610	85
	SHN 520	365~485	520~640	85

연신율 Elongation			충격시험 Impact Test		종류의 기호 Symbol of Grade
두께 Thickness (mm)	시험편 Test Piece	Min. (%)	시험온도 Test Temp. (℃)	샤르피 흡수에너지 Charpy Absorbed Energy (Joule)	
Max. 75	No. 1A	21	0	27 min	SHN 400
Max. 75	No. 1A	21	0	27 min	SHN 490
Max. 75	No. 1A	19	-5	47 min	SHN 520

MECHANICAL PROPERTIES 기계적 성질

4) Rolled Steel for Building Structure 건축구조용 압연강재

규격 Standard	종류의 기호 Grade	인장시험 Tensile Test						충격시험 Impact Test				종류의 기호 Grade
		항복점 또는 내력 Yield Point or Yield Strength (N/mm²)				인장강도 Tensile Strength (N/mm²)	항복비 Yield Ratio Max. (%)	연신율 Elongation Min. (%)			시험온도 Test Temp. (℃)	샤르피 흡수에너지 Charpy Absorbed Energy (Joule)	시험편 Test Piece	
		두께 Thickness (mm)				두께 Thickness (mm)		시험편 Test Piece	두께 Thickness (mm)					
		6 ≤ t < 12	12 ≤ t < 16	16	16 < t ≤ 40	t ≤ 100			6 ≤ t ≤ 16	16 < t ≤ 40				
KS D 3561 JIS G 3136	SN400A	235↑	235↑	235↑	235↑	400~510	-	No. 1A	17	21↑	-	-	V-notch in rolled direction	SN400A
	SN400B	235↑	235~355	235~355	235~355	400~510	80	No. 1A	18	22↑	0	27 min.	V-notch in rolled direction	SN400B
	SN400C	-	-	235~355	235~355	400~510	80	No. 1A	18	22↑	0	27 min.	V-notch in rolled direction	SN400C
	SN490B	325↑	325~445	325~445	325~445	490~610	80	No. 1A	17	21↑	0	27 min.	V-notch in rolled direction	SN490B
	SN490C	-	-	325~445	325~445	490~610	80	No. 1A	17	21↑	0	27 min.	V-notch in rolled direction	SN490C

MECHANICAL PROPERTIES 기계적 성질

5) EN10025-2:2004 강재

규격 Standard	종류의 기호 Grade	인장시험 Tensile Test			충격시험 Impact Test		종류의 기호 Grade
		두께 Thickness (mm)	인장강도 Tensile Strength (N/mm²)	항복점 또는 내력 Yield Point or Yield Strength (N/mm²)	연신율 Elongation Min. (%)	시험온도 Test Temp. (℃)	샤르피 흡수에너지 Charpy Absorbed Energy (Joule)	
EN10025-2:2004	S235JR	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	360~510	235 225 215	26 26 25	20	27 min.	S235JR
	S235J0	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	360~510	235 225 215	26 26 25	0	27 min.	S235J0
	S235J2	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	360~510	235 225 215	24 24 23	-20	27 min.	S235J2
	S275JR	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	410~560	275 265 255	23 23 22	20	27 min.	S275JR
	S275J0	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	410~560	275 265 255	23 23 22	0	27 min.	S275J0
	S275J2	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	410~560	275 265 255	21 21 20	-20	27 min.	S275J2
	S355JR	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	470~630	355 345 335	22 22 21	20	27 min.	S355JR
	S355J0	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	470~630	355 345 335	22 22 21	0	27 min.	S355J0
	S355J2	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	470~630	355 345 335	22 22 21	-20	27 min.	S355J2
	S355K2	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	470~630	355 345 335	20 20 19	-20 (-30)	40 min. (27 min.)	S355K2
	S450J0	t ≤ 16 16 < t ≤ 40 40 < t ≤ 63	550~720	450 430 410	17 17 17	0	27 min.	S450J0

6) EN10225 강재

규격 Standard	종류의 기호 Grade	인장시험 Tensile Test				충격시험 Impact Test				종류의 기호 Grade
		두께 Thickness (mm)	인장강도 Tensile Strength (N/mm²)	항복점 또는 내력 Yield Point or Yield Strength (N/mm²)	항복비 Yield to Tensile Strength Ratios Max. (%)	연신율 Elongation Min. (%)	방향 Direction	시험온도 Test Temp. (℃)	샤르피 흡수에너지 Charpy Absorbed Energy (Joule)	
EN10225	S355G1[1]	t ≤ 16 16 < t ≤ 40	470~630	355 345[1]	0.87	22	Longitudinal	-20℃	50J min	S355G1[1]
	S355G4[1] S355G4+M	t ≤ 16 16 < t ≤ 40	450~610	355 345[1]	0.87	22	Longitudinal	-20℃	50J min	S355G4[1] S355G4+M
	S355G11[1] S355G11+M	t ≤ 16 16 < t ≤ 40	460~620	355 345	0.87	22	Longitudinal	-40℃[2]	50J min	S355G11[1] S355G11+M
	S355G12[1] S355G12+M	t ≤ 16 16 < t ≤ 40	460~620	355 345	0.87	22	Transverse	-40℃[2]	50J min[3]	S355G12[1] S355G12+M

(1) As-rolled 생산범위: Flange 두께 25mm 이하
(2) Flange 두께 25mm 이하 규격은 –20℃에서 테스트 실시
(3) EN10225 Option 26 참조

MECHANICAL PROPERTIES 기계적 성질

7) ASTM 강재

종류의 기호 Grade	인장시험 Tensile Test		
	항복점 또는 내력 Yield Point or Yield Strength (N/mm²)	인장강도 Tensile Strength (N/mm²)	연신율 Elongation Min. (%)
ASTM A36	250 Min.	400-550	20
G50 (G345) G60	345 Min. 415 Min.	450 Min. 520 Min.	18 16
ASTM A992	345-450	450 Min.	19
ASTM A36/A572 G50/ A992/CSA350W (TRIPLE)	345-450	450-550	20

8) AS/NZS 3679.1:2010 강재

종류의 기호 Grade	인장시험 Tensile Test			
	두께 Thickness (mm)	항복점 또는 내력 Yield Point or Yield Strength (N/mm²)	인장강도 Tensile Strength (N/mm²)	연신율 Elongation Min. (%)
300	t < 11 11 ≤ t ≤ 17 17 < t < 40	320 Min. 300 Min. 280 Min.	440 Min.	22

9) Sheet Pile 강널말뚝

규격 Standard	종류의 기호 Grade	인장강도 Tensile Strength Min. (N/mm²)	항복점 Yield Point Min. (N/mm²)	연신율 Elongation Min. (%)
KS F 4604	SY300	500	300	17
	SY400	550	400	15
	SY300W	500	300	17
	SY400W	550	400	15
JIS A 5528	SY295	450	295	18
	SY390	490	390	16
JIS A 5523	SYW295	450	295	18
	SYW390	490	390	16
	SYW430	510	430	14

10) The Others 기타 강재

명칭 Designation	종류의 기호 Grade	인장강도 Tensile Strength Min. (N/mm²)	항복점 Yield Point Min. (N/mm²)	연신율 Elongation Min. (%)	경도 Hardness
철도레일 Railway Rail	30A, 37A	690	-	9	-
	50PS	710	-	8	-
	40N, 50N, 60	800	-	10	HB 235 Min.
	UIC 60	880	-	10	HB 260~300
열처리레일 Head Hardened Rail	HH 340	1,080	-	8	표면경도 HSC: 47~53 심부경도 HB311 Min.
	HH 370	1,130	-	8	표면경도 HSC: 49~56 심부경도 HB331 Min.
광산지보용 I형강 I Beam for Mine Support	SG-1	480	-	20	-
H형강 말뚝 Steel H Pile	SHP 400	400~510	245	17 t ≤ 16	-
			235	21 16 < t	-
	SHP 400W	400~510	245	18 t ≤ 16	-
			235	22 16 < t	-
	SHP 490W	490~610	325	17 t ≤ 16	-
			315	21 16 < t	-

MECHANICAL PROPERTIES 기계적 성질

11) Steel Bars for Concrete Reinforcement 철근

규격 Standard	종류의 기호 Grade	인장시험 Tensile Test			굽힘시험 Bend Test			종류의 기호 Grade
		항복점 또는 0.2% 항복강도 Yield Point or 0.2% Yield Strength (N/mm²)	인장강도 Tensile Strength (N/mm²)	연신율 Elongation 시험편 Test Piece	Min. (%)	굽힘각도 Bending Angle	안쪽반지름 Inside Radius of Bending	
KS D 3504	SD 300	300 min.	440 min.	No. 2 or equivalent	16	180°	D ≤ 16 1.5d	SD 300
				No. 3 or equivalent	18	180°	16 < D 2.0d	
	SD 350	350 min.	490 min.	No. 2 or equivalent	18	180°	D ≤ 16 1.5d	SD 350
				No. 3 or equivalent		180°	16 < D ≤ 41 2.0d	
					20	180°	D51 2.5d	
	SD 400	400 min.	560 min.	No. 2 or equivalent	16	180°	- 2.5d	SD 400
				No. 3 or equivalent	18	180°	- 2.5d	
	SD 500	500 min.	620 min.	No. 2 or equivalent	12	90°	D ≤ 25 2.5d	SD 500
				No. 3 or equivalent	14	90°	25 < D 3.0d	
	SD 400W	400 min.	560 min.	No. 2 or equivalent	16	180°	- 2.5d	SD 400W
				No. 3 or equivalent	18	180°	- 2.5d	
	SD 500W	500 min.	620 min.	No. 2 or equivalent	12	90°	D ≤ 25 2.5d	SD 500W
				No. 3 or equivalent	14	90°	25 < D 3.0d	
	SD 600	600 min.	710 min.	No. 2 or equivalent	10	90°	D ≤ 25 2.5d	SD 600
				No. 3 or equivalent	10	90°	25 < D 3.0d	
	SD 700	700 min.	800 min.	No. 2 or equivalent	10	90°	D ≤ 25 2.5d	SD 700
				No. 3 or equivalent	10	90°	25 < D 3.0d	
KS D 3688	SD 400S	400-520	YP x 1.25 min.	No. 2 or equivalent	16	180°	D ≤ 25 2.5d	KS D 3688
				No. 3 or equivalent	18	180°	25 < D 3.0d	
	SD 500S	500-650	YP x 1.25 min.	No. 2 or equivalent	12	180°	D ≤ 25 2.5d	
				No. 3 or equivalent	14	180°	25 < D 3.0d	
JIS G3112	SD295A	295 min.	440~600	No. 2 or equivalent No. 14A or equivalent	D10-22: 16 D25-32: 17 D35 : 15 D38-51: 13	180°	D ≤ 16 1.5d 16 < D 2.0d	SD295A
	SD345	345-440	490 min.	No. 2 or equivalent No. 14A or equivalent	D10-22: 18 D25-32: 19 D35 : 17 D38-51: 15	180°	D ≤ 16 1.5d 16 < D ≤ 41 2.0d D51 2.5d	SD345
	SD390	390-510	560 min.	No. 2 or equivalent No. 14A or equivalent	D10-22: 16 D25-32: 17 D35 : 15 D38-51: 13	180°	- 2.5d	SD390

d=nominal diameter of specimen.

MECHANICAL PROPERTIES 기계적 성질

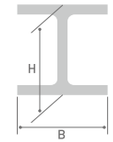
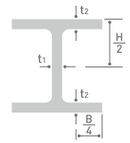
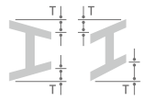
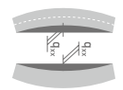
11) Steel Bars for Concrete Reinforcement 철근

규격 Standard	종류의 기호 Grade	인장시험 Tensile Test			굽힘시험 Bend Test			종류의 기호 Grade
		항복점 또는 0.2% 항복강도 Yield Point or 0.2% Yield Strength (N/mm²)	인장강도 Tensile Strength (N/mm²)	연신율 Elongation 시험편 Test Piece	Min. (%)	굽힘각도 Bending Angle	안쪽지름 Pin Diameter	
ASTM A615	G40	280 min.	420 min.	-	#3 : 11 #4 ≥ : 12	180° 180°	#3~#5 #6~	3.5d 5d	G40
	G60	420 min.	620 min.	-	#3~6 : 9 #7~8 : 8 #9 ≥ : 7 #14, #18 : 10	180° 180° 180° 90°	#3~#5 #6~#8 #9~#11 #14, #18	3.5d 5d 7d 9d	G60
BS 4449	G460	460 min.	YP × 1.1	-	12	180° 45°→23°	Bend R/Bend	3d 5d	G460
	G460B	460 min.	YP × 1.08	-	14 Agt(%) : 5	45°→23°	R/Bend: D16 이하 D16 초과	5d 7d	G460B
	B500B	500~650	YP × 1.08	-	Agt(%) : 5	90°→20° (BACK)	R/Bend: D16 이하 D16 초과	4d 7d	B500B

d=nominal diameter of specimen.

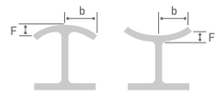
DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

항목 Item	KS D 3502 (2007)		JIS G 3192 (1994)		JIS G 3192 (2008)		비고 Remarks
	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	
폭 Width (B)	B ≤ 110 110 < B ≤ 210 210 < B ≤ 325 325 < B	+4.0, -1.0 +4.0, -2.0 ±4.0 +6.0, -5.0	Nominal B < 100 100 ≤ Nominal B < 200 200 ≤ Nominal B	±2.0 ±2.5 ±3.0	B ≤ 400 B > 400	±2.0 ±3.0	
높이 Depth (H)	H ≤ 180 180 < H ≤ 400 400 < H ≤ 700 700 < H	+3.0, -2.0 +4.0, -2.0 +5.0, -3.0 ±5.0	Nominal H < 400 400 ≤ Nominal H < 600 600 ≤ Nominal H	±2.0 ±3.0 ±4.0	H < 800 & B ≤ 400 H ≥ 800	±2.0 ±3.0	
두께 Thickness t_1	t_1 < 7 7 ≤ t_1 < 10 10 ≤ t_1 < 20 20 ≤ t_1 < 40 40 ≤ t_1	±0.7 ±1.0 ±1.5 ±2.0 ±2.5	t_1 < 16 16 ≤ t_1 < 25 25 ≤ t_1 < 40 40 ≤ t_1	±0.7 ±1.0 ±1.5 ±2.0	t_1 < 16 16 ≤ t_1 < 25 25 ≤ t_1 < 40 40 ≤ t_1	±0.7 ±1.0 ±1.5 ±2.0	
두께 Thickness t_2	t_2 < 6.5 6.5 < t_2 ≤ 10 10 < t_2 ≤ 20 20 < t_2 ≤ 30 30 < t_2 ≤ 40 40 ≤ t_2	+1.5, -0.5 +2.0, -1.0 +2.5, -1.5 +2.5, -2.0 ±2.5 ±3.0	t_2 < 16 16 ≤ t_2 < 25 25 ≤ t_2 < 40 40 ≤ t_2	±1.0 ±1.5 ±1.7 ±2.0	t_2 < 16 16 ≤ t_2 < 25 25 ≤ t_2 < 40 40 ≤ t_2	±1.0 ±1.5 ±1.7 ±2.0	
직각도 Out-of-Square (T)	B ≤ 110 B > 110	T+T'=1.5mm T+T'=2% x (B) (최대 6.5mm)	Nominal H ≤ 300 Nominal H > 300	T or T' = (B) x 1.0% 이하 (최소치 1.5mm) T or T' = (B) x 1.2% 이하 (최소치 1.5mm)	H ≤ 300 H > 300	T or T' = (B) x 1.0% 이하 (최소치 1.5mm) T or T' = (B) x 1.2% 이하 (최소치 1.5mm)	
편심 Web off Center (S)	B ≤ 110 110 < B ≤ 325 325 < B	2.5 Max. 3.5 Max. 5.0 Max.	Nominal H ≤ 300 Nominal H > 300	2.5 Max. 3.5 Max.	B ≤ 400 B > 400	2.0 max. 3.5 max.	
굴곡 Bend	Nominal H ≤ 180 180 < Nominal H ≤ 360 360 < Nominal H	L x 0.30% 이하 L x 0.15% 이하 L x 0.10% 이하	Nominal H ≤ 300 Nominal H > 300	L x 0.15% 이하 L x 0.10% 이하	H ≤ 300 H > 300	L x 0.15% 이하 L x 0.10% 이하	
절단면 직각도 Sectional Squareness	-	(B, H) x 1.6% 이하 (최소치 3.0mm)	-	(B, H) x 1.6% 이하 (최소치 3.0mm)	-	(B, H) x 1.6% 이하 (최소치 3.0mm)	

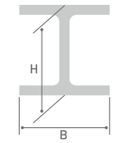
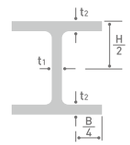
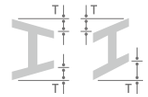
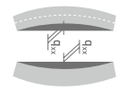
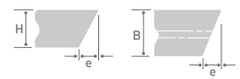
DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

항목 Item	KS D 3502 (2007)		JIS G 3192 (1994)		JIS G 3192 (2008)		비고 Remarks
	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	
중량 Tolerance on Weight	t < 10 t ≥ 10	±5.0% ±4.0% (주문 시 무게 허용차 적용 요구 시에만)	t < 10 t ≥ 10	±5.0% ±4.0% (주문 시 무게 허용차 적용 요구 시에만)	t < 10 t ≥ 10	±5.0% ±4.0% (주문 시 무게 허용차 적용 요구 시에만)	-
길이 Length	-	+100, -0	L ≤ 7m L > 7m	+40, -0 Add 5mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction, -0	L ≤ 7m L > 7m	+40, -0 Add 5mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction, -0	-
웨브의 휨 Concavity of Web (W)	Nominal H ≤ 400 400 < Nominal H ≤ 600 600 < Nominal H	2.0 Max. 2.5 Max. 3.0 Max.	Nominal H < 400 400 ≤ Nominal H < 600 600 ≤ Nominal H	2.0 Max. 2.5 Max. 3.0 Max.	H ≤ 350 350 < H < 550 550 ≤ H	2.0 Max. 2.5 Max. 3.0 Max.	
프랜지의 휨 Flange Fold (F)	-	-	-	-	B ≤ 400	b x 1.5% 이하 (최대치 1.5mm)	
곡률 반지름 Radius (r)	r ≤ 10 10 < r ≤ 20 20 < r	±1.0 ±2.0 ±3.0	-	-	-	-	

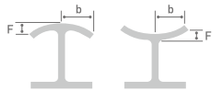
DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

항목 Item	JIS G 3136 (2008)		ASTM A6		EN10034: 1993		비고 Remarks
	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): inch	구분 Dimension	단위(Unit): mm	
폭 Width (B)	B ≤ 400 B > 400	±2.0 ±3.0	전 규격	+1/4", -3/16" (+6.0, -5.0mm)	B ≤ 110 110 < B ≤ 210 210 < B ≤ 325 325 < B	+4.0, -1.0 +4.0, -2.0 ±4.0 +6.0, -5.0	
높이 Depth (H)	H < 800 & B < 400 H ≥ 800	±2.0 ±3.0	전 규격	±1/8" (+4.0, -3.0mm)	H ≤ 180 180 < H ≤ 400 400 < H ≤ 700 700 < H	+3.0, -2.0 +4.0, -2.0 +5.0, -3.0 ±5.0	
두께 Thickness t_1	t_1 < 16 16 ≤ t_1 < 25 25 ≤ t_1 < 40 40 ≤ t_1	±0.7 ±1.0 ±1.5 ±2.0	-	-	t_1 < 7 7 ≤ t_1 < 10 10 ≤ t_1 < 20 20 ≤ t_1 < 40 40 ≤ t_1 < 60 60 < t_1	±0.7 ±1.0 ±1.5 ±2.0 ±2.5 ±3.0	
두께 Thickness t_2	t_2 < 16 16 ≤ t_2 < 25 25 ≤ t_2 < 40 40 ≤ t_2	±1.0 ±1.5 ±1.7 ±2.0	-	-	t_2 < 6.5 6.5 ≤ t_2 < 10 10 ≤ t_2 < 20 20 ≤ t_2 < 30 30 ≤ t_2 < 40 40 ≤ t_2 < 60 60 ≤ t_2	+1.5, -0.5 +2.0, -1.0 +2.5, -1.5 +2.5, -2.0 ±2.5 ±3.0 ±4.0	
직각도 Out-of-Square (T)	H ≤ 300 H > 300	T or T' = (B) x 1.0% 이하 (최소치 1.5mm) T or T' = (B) x 1.2% 이하 (최소치 1.5mm)	H ≤ 12" (H ≤ 310mm) H > 12" (H > 310mm)	1/4" (6.0mm) 이하 5/16" (8.0mm) 이하	B ≤ 110 B > 110	T+T'=1.5mm T+T'=2% x (B) (최대 6.5mm)	
직각도에 따른 최대 높이 Max. Depth (C)	-	-	전 규격	+1/4" (+6.0mm)	-	-	
편심 Web off Center (S)	B ≤ 400 B > 400	2.0 max. 3.5 max.	전 규격 (B/2±E)	3/16" (5.0mm) 이하	B ≤ 110 110 < B ≤ 325 325 < B (t < 40) 325 < B (t ≥ 40)	2.5 max. 3.5 max. 5.0 max. 8.0 max.	
굴곡 Bend	H ≤ 300 H > 300	L x 0.15% 이하 L x 0.10% 이하	전 규격 1/8"×(Feet수/10) - CAMBER & SWEEP 다만 FLANGE 6"미만의 경우 SWEEP=1/8"×(Feet/5) ※ FLANGE폭과 DEPTH가 동일 또는 유사한 경우 · 길이 45Ft 이하 : 1/8"×(Ft수/10) (MAX 3/8") · 길이 45Ft 초과 : 3/8"+{1/8"×[(Ft수-45)/11]}		Nominal H ≤ 180 180 < H ≤ 360 360 < H	L x 0.30% 이하 L x 0.15% 이하 L x 0.10% 이하	
절단면 직각도 Sectional Squareness	-	(B, H) x 1.6% 이하 (최소치 3.0mm)	삭제 (가공된 상태에서 적용)	삭제 (가공된 상태에서 적용)	-	-	

DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

항목 Item	JIS G 3136 (2008)		ASTM A6			EN10034: 1993		비고 Remarks
	구분 Dimension	단위(Unit): mm	구분 Dimension		단위(Unit): inch	구분 Dimension	단위(Unit): mm	
중량 Tolerance on Weight	t < 10 t ≥ 10	±5.0% ±4.0% (At the time of order)	전 규격		±2.5%	전 규격	±4.0%	-
길이 Length	L ≤ 7m L > 7m	+40, -0 Add 5mm to the plus side tolerance given in the above column for every 1m increase in length or its fraction, -0	길이 / 높이	30ft 이하 (9m 이하)	30ft 초과 (9m 초과)	전 규격	±50 or +100, -0 (min. lengths are required)	-
			24˝ 이하 (610mm 이하)	±3.8˝ (10mm)	±3.8˝(10m) +5ft(1m) 증가 시 마다 플러스 치수에서 1/16˝(1mm) 가산			
			24˝ 초과 (610mm 초과)	±1.2˝ (13mm)	±1.2˝(13m) +5ft(1m) 증가 시 마다 플러스 치수에서 1/16˝(1mm) 가산			
웨브의 휨 Concavity of Web (W)	H ≤ 350 350 < H < 550 550 ≤ H	2.0 Max. 2.5 Max. 3.0 Max.	-		-	-	-	
프랜지의 휨 Flange Fold (F)	B ≤ 400	b x 1.5% 이하 (최대치 1.5mm)	-		-	-	-	

DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

AS/NZS 3679.1: 2010

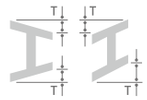
규격 Nominal Size	단중 Nominal Mass (Kg/m)	치수 허용차 Dimensional Tolerance (mm)								비고 Remarks
		높이 Pemissible Variation of Depth (H)	변 Pemissible Variation of Flange Width (B)	두께 Thickness		FLANGE 차 Max. Difference of Flange Over Four Flanges (4개변의 차)	직각도 Pemissible Out-of-Square		편심 Pemissible Web Off-Center (e)	최대높이 Pemissible Overall Depth Over Specified Depth (C)	
				(t_{web})	(t_{Flange})		T 또는 T'	T+T'			
150UB	14.0	+2.5 −1.5	±3.0	±0.7	±1.0	1.0	1.5	2.5	2.5	4.0	※ 중량(Weight) % : ±2.5%
	18.0	+2.5 −1.5	±3.0	±0.7	±1.0	1.0	1.5	2.5	2.5	4.0	※ 길이(length) 7m 이하(under) : +50. -0 7~12m : +75, -0 12m 초과(over) : +100,-0
180UB	16.1	+2.5 −1.5	±3.0	±0.7	±1.0	1.0	2.0	2.5	2.5	4.0	
	18.1	+2.5 −1.5	±3.0	±0.7	±1.0	1.0	2.0	2.5	2.5	4.0	※ 직선도(straight) – 변 150mm 미만 ·Camper: L x 0.1% 이하 ·Sweep: L x 0.2% 이하
	22.2	+2.5 −1.5	±3.0	±0.7	±1.0	1.0	2.0	2.5	2.5	4.0	
200UB	18.2	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	
	22.3	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	– 기타 좌우,상하 : 0.1% * UC 의 경우 14m 이하 : L x 0.10% 이하 (최대 10mm) 14m 초과 : 10+(L-14000) x 0.10% 이하
	25.4	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	
	29.8	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	
250UB	25.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	
	31.4	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	4.0	6.0	5.0	6.0	
	37.3	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
310UB	32.0	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
	40.4	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
	46.2	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
360UB	44.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
	50.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
	56.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
410UB	53.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	
	59.7	±3.0	+6.0 −5.0	±0.7	±1.0	1.0	5.0	8.0	5.0	6.0	

DIMENSIONAL TOLERANCE 치수 허용차

1) H Section H형강

AS/NZS 3679.1: 2010

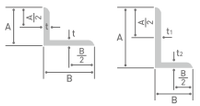
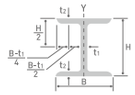
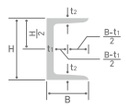
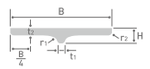
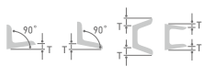
규격 Nominal Size	단중 Nominal Mass (Kg/m)	치수 허용차 Dimensional Tolerance (mm)			
		높이 Pemissible Variation of Depth (H)	변 Pemissible Variation of Flange Width (B)	두께 Thickness	
				(t_{web})	(t_{Flange})
460UB	67.1	±3.0	+6.0 −5.0	±0.7	±1.0
	74.6	±3.0	+6.0 −5.0	±0.7	±1.0
	82.1	±3.0	+6.0 −5.0	±0.7	±1.5
530UB	82.0	±3.0	+6.0 −5.0	±0.7	±1.0
	92.4	±3.0	+6.0 −5.0	±0.7	±1.5
610UB	101.0	±3.0	+6.0 −5.0	±0.7	±1.0
	113.0	±3.0	+6.0 −5.0	±0.7	±1.5
	125.0	±3.0	+6.0 −5.0	±0.7	±1.5
100UC	14.8	±3.0	+6.0 −5.0	±0.7	±1.0
150UC	23.4	±3.0	+6.0 −5.0	±0.7	±1.0
	30.0	±3.0	+6.0 −5.0	±0.7	±1.0
	37.2	±3.0	+6.0 −5.0	±0.7	±1.0
200UC	46.2	±3.0	+6.0 −5.0	±0.7	±1.0
	52.2	±3.0	+6.0 −5.0	±0.7	±1.0
	59.5	±3.0	+6.0 −5.0	±0.7	±1.0
250UC	72.9	±3.0	+6.0 −5.0	±0.7	±1.0
	89.5	±3.0	+6.0 −5.0	±0.7	±1.5
310UC	96.8	±3.0	+6.0 −5.0	±0.7	±1.5
	118.0	±3.0	+6.0 −5.0	±0.7	±1.5
	137.0	±3.0	+6.0 −5.0	±0.7	±1.5
	158.0	±3.0	+6.0 −5.0	±1.0	±1.5

치수 허용차 Dimensional Tolerance (mm)					비고 Remarks
FLANGE 차 Max. Difference of Flange Over Four Flanges (4개변의 차)	직각도 Pemissible Out-of-Square		편심 Pemissible Web Off-Center (e)	최대높이 Pemissible Overall Depth Over Specified Depth (C)	
	T 또는 T'	T+T'			
1.0	5.0	8.0	5.0	6.0	※ 직각도
1.0	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.0	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.0	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	* 한쪽만 적용
1.0	4.0	6.0	5.0	6.0	T 또는 T'
1.0	4.0	6.0	5.0	6.0	* 양쪽 합 적용
1.0	4.0	6.0	5.0	6.0	T+T'
1.0	4.0	6.0	5.0	6.0	
1.0	4.0	6.0	5.0	6.0	
1.0	4.0	6.0	5.0	6.0	
1.0	4.0	6.0	5.0	6.0	
1.0	4.0	6.0	5.0	6.0	
1.5	4.0	6.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	
1.5	5.0	8.0	5.0	6.0	

DIMENSIONAL TOLERANCE 치수 허용차

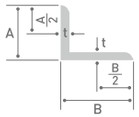
2) Angle, Channel, I-Beam ㄱ형강, ㄷ형강, I 형강

KS D 3502, JIS G 3192 치수단위(Unit) : mm

항목 Item			허용차 Tolerance	비고 Remarks
변 Leg (A or B)		< 50 50~100 100~200 200 <	±1.5 ±2.0 ±3.0 ±4.0	
높이 Height (H)		< 100 100~200 200~400 400 ≤	±1.5 ±2.0 ±3.0 ±4.0	
두께 Thickness (t_1, t_2)	Flange A (B for T-Shape) or Height Under 130	< 6.3 6.3~10 10~16 16 ≤	±0.6 ±0.7 ±0.8 ±1.0	
	Flange A (B for T-Shape) or Height 130 & Over	< 6.3 6.3~10 10~16 16~25 25 ≤	±0.7 ±0.8 ±1.0 ±1.2 ±1.5	
길이 Length		≤ 7m	+40 0	
		7m <	Add 5mm to the above plus size Over 7m tolerance for each additional 1m or fraction thereof.	
직각도 Out-of Square (T)		I-Beam	Not more than 2% of Flange B	
		Shapes Excluding I-Beam & T-Shapes	Not more than 2.5% of Flange B	
중량 Tolerance on Weight		t < 10 10 ≤ t	±5.0% ±4.0% (주문 시 무게 허용차 적용 요구 시에만)	-
굴곡 Camber and Sweep		I-Beam & T-Shapes	Not more than 0.2% of length	To be applied to warp upward and downward, right and left.
		Shapes excluding I-Beam & T-Shapes	Not more than 0.3% of length	

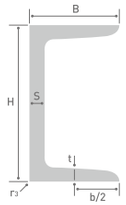
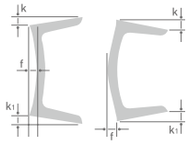
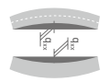
3) Other Angle 기타 ㄱ형강

EN10056-2: 1993 치수단위(Unit) : mm

항목 Item			허용차 Tolerance	비고 Remarks
변 Leg (A or B)		< 50 50~100 100~150 150~200 200 <	±1.0 ±2.0 ±3.0 ±4.0 +6, -4	
두께 Thickness (t_1, t_2)		≤ 5 5~10 10~15 15 <	±0.5 ±0.75 ±1.0 ±1.2	
길이 Length		-	±50 or +100, -0 (min. lengths are required)	
직각도 Out-of Square (T)		Leg A ≤ 100 100~150 150~200 200Ð	1.0 max. 1.5 max. 2.0 max. 3.0 max.	
중량 Tolerance on Weight		t ≤ 4 4 < t	±6.0% ±4.0%	-
굴곡 Straightness	제품전장 (Over Full Length)	Leg A ≤ 150 150~200 200 <	Not more than 0.4% of length Not more than 0.2% of length Not more than 0.1% of length	To be applied to warp upward and downward, right and left.
	국분적 (Over Any Length)	Leg A ≤ 150 150~200 200 <	6mm for 1.5m 3mm for 2m 3mm for 3m	

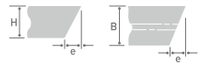
DIMENSIONAL TOLERANCE 치수 허용차

4) Other Channel 기타 ㄷ형강

항목 Item		ASTM A6			EN 10279 : 2000 (UPN)		AS/NZS 3679.1: 2010 (PFC, TFC)		비고 Remarks
			구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	
폭 Width (B)			H ≤ 38.1 38.1 < H < 76.2 76.2 ≤ H ≤ 177.8 177.8 < H ≤ 355.6 355.6 < H	±0.79 ±1.59 ±3.18 +3.18, -3.97 +3.18, -4.76	B ≤ 50 50 < B ≤ 100 100 < B ≤ 125 125 < B	±1.5 ±2.0 ±2.5 ±3.0	35 < B ≤ 55 55 < B ≤ 80 80 < B ≤ 105	±3.0 ±3.0 +3.0, -4.0	
높이 Depth (H)			H ≤ 38.1 38.1 < H < 76.2 76.2 ≤ H ≤ 177.8 177.8 < H ≤ 355.6 355.6 < H	±0.79 ±1.59 +2.38, -1.59 +3.18, -2.38 +4.76, -3.18	H ≤ 65 65 < H ≤ 200 200 < H ≤ 400 400 < H	±1.5 ±2.0 ±3.0 ±4.0	75 < H ≤ 120 120 < H ≤ 360 360 < H ≤ 390	+3.0, -1.5 +3.0, -1.5 +5.0, -3.0	
두께 Thickness	S	S ≤ 5 mm	H ≤ 38.1 38.1 < H < 76.2 76.2 ≤ H ≤ 177.8 177.8 < H ≤ 355.6 355.6 < H	-0.25 -0.38 - - -	S ≤ 10 10 < S ≤ 15 15 < S	±0.5 ±0.7 ±1.0	35 < B ≤ 55 55 < B ≤ 80 80 < B ≤105	±0.7 ±1.0 ±1.0	
		5 mm < S	H ≤ 38.1 38.1 < H < 76.2 76.2 ≤ H ≤ 177.8 177.8 < H ≤ 355.6 355.6 < H	-0.38 -0.51 - - -	S ≤ 10 10 < S ≤ 15 15 < S	±0.5 ±0.7 ±1.0	35 < B ≤ 55 55 < B ≤ 80 80 < B ≤ 105	±0.7 ±1.0 ±1.0	
	t		-	-	t ≤ 10 10 < t ≤ 15 15 < t	-0.5 -1.0 -1.5	75 ≤ H ≤ 120 120 < H ≤ 360 360 < H ≤ 390	±0.7 ±1.0 ±1.0	
직각도 Out-of-Square (k+k1)			All Sizes	0.03 x B	B ≤ 100 100 < B	2.0 2.5% of B	Size 75 ≤ d ≤ 120 120 < d ≤ 360 360 < d ≤ 390	t or t' 1.0 1.5 2.0	t + t' B1 x 0.03 B1 x 0.03 B1 x 0.03	
Web평탄도 Web Flatness (f)			-	-	H ≤ 100 100 < H ≤ 200 200 < H ≤ 400 400 < H	±0.5 ±1.0 ±1.5 ±1.5	-	-	
굴곡 Bend	(A or B 중 장변)	Camber	Sweep		Camber	Sweep	All Sizes	L/500 (Camber)	
	< 76.2mm	1/4" x (ft수/5)	by agreement	h ≤ 150	±0.3% of L	±0.5% of L			
	76.2mm ≤	1/8" x (ft수/5)	by agreement	150 < h ≤ 300	±0.2% of L	±0.3% of L			
				300 < h	±0.15% of L	±0.2% of L			

DIMENSIONAL TOLERANCE 치수 허용차

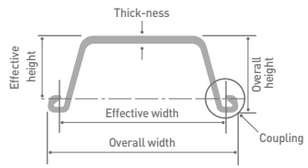
4) Other Channel 기타 ㄷ형강

항목 Item	ASTM A6			EN 10279 : 2000 (UPN)		AS/NZS 3679.1: 2010 (PFC, TFC)		비고 Remarks
		구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	구분 Dimension	단위(Unit): mm	
절단면 직각도 Sectional Squareness		-	-	-	-	All Sizes	H x 0.03	
중량 Tolerance on Weight		All Sizes	±2.5%	H ≤125 100 < H	±6.0% ±4.0%	All Sizes	±2.5%	-
길이 Length	(A or B 중 장변)	L ≤ 40 ft	40 ft < L	All Sizes	+100, -0 (All) ±50 mm (by agreement)	L ≤ 7m 7 < L ≤ 12m 12 < L	+50, -0 +75, -0 +100, -0	-
	< 76.2mm	+50.8, -0	+63.5, -0					
	76.2mm ≤	+57.2, -0	+69.9, -0					
곡률 반지름 Radius (r)		-	-	All Sizes	r3 ≤ 0.3t	-	-	-

5) Sheet Pile 강널말뚝

JIS A 5528:2012, KS F 4604:2012 치수단위(Unit) : mm

항목 Item		허용차 Tolerance	비고 Remarks
폭 Width (B)		+10, -5	
높이 Height (H)		±4.0% of Overall height (전 높이)	
두께 Thickness (t)	t < 10mm	±1.0	
	10mm ≤ t < 16mm	±1.2	
	16mm ≤ t	±1.5	
길이 Length		+ : Not specified, - : 0	
굽힘 Deflection	≤ 10mm	Overall length (m) X 0.12% max.	
	10mm <	[(Overall length (m) - 10 m) X 0.10% + 12 mm] max.	
휨 Camber	≤ 10mm	Overall length (m) X 0.25% max.	
	10mm <	[(Overall length (m) - 10 m) X 0.20% + 25 mm] max.	
단면의 절단 직각차 Difference in Vertically Cut Section		4% of width max. (너비의 4% 이하)	



DIMENSIONAL TOLERANCE 치수 허용차

6) Steel Bars for Concrete Reinforcement 철근

KS D 3504

항목 Item		허용차 Tolerance		비고 Remarks
		Min.	Max.	
마디높이 Height of Knot	≤ D13	4.0% of Nominal Dia.	Min. Value x 2	Refer to "Steel Bar for Concrete Reinforcement" "Dimensions and Weight"
	D13~D19	4.5% of Nominal Dia.	Min. Value x 2	
	D19 ≤	5.0% of Nominal Dia.	Min. Value x 2	
길이 Length	≤ 7m	+40mm 0		-
	7m <	Add 5mm to the above plus size tolerance for each additional 1m or fraction thereof. However, the max. value shall be limited to 120mm		-

Note : The following standards are also applicable JIS G3112, ASTM A615, BS4449, SSA 2.

TOLERANCE ON WEIGHT 중량 허용차

Steel Bars for Concrete Reinforcement 철근

KS D 3504

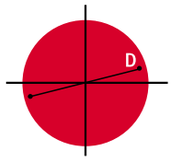
표준규격 Standards	항목 Item	허용차 Tolerance	
		Single Piece wt.	One Lot wt.
KS D 3504 JIS G 3112	D10 ≤ d < D16	±6%	±5%
	D16 ≤ d < D29	±5%	±4%
	D29 ≤ d	±4%	±3.5%

d=nominal diameter

17. ROUND BAR 특수강

1) Dimensions and Weight 치수 및 중량

직경 Dia.(mm)	단면적 Sectional Area(cm^2)	단위중량 Unit Weight (kg/m)	관성모멘트 Moment of Inertia(cm^4)	단면계수 Section Modulus(cm^3)
19 *	2.835	2.23	0.640	0.673
20 *	3.142	2.47	0.785	0.785
22	3.801	2.98	1.150	1.045
23	4.155	3.26	1.374	1.194
24	4.524	3.55	1.629	1.357
25	4.909	3.85	1.917	1.534
26	5.309	4.17	2.243	1.726
27	5.726	4.49	2.609	1.932
28	6.158	4.83	3.017	2.155
29	6.605	5.19	3.472	2.394
30	7.069	5.55	3.976	2.651
31	7.548	5.92	4.533	2.925
32	8.042	6.31	5.147	3.217
33	8.553	6.71	5.821	3.528
34	9.079	7.13	6.560	3.859
35	9.621	7.55	7.366	4.209
36	10.18	7.99	8.245	4.580
38	11.34	8.90	10.24	5.387
40	12.57	9.86	12.57	6.283
42	13.85	10.9	15.27	7.274
44	15.21	11.9	18.40	8.363
45	15.90	12.5	20.13	8.946
46	16.62	13.0	21.98	9.556
47	17.35	13.6	23.95	10.19
48	18.10	14.2	26.06	10.86
50	19.63	15.4	30.68	12.27
52	21.24	16.7	35.89	13.80
53	22.06	17.3	38.73	14.62
55	23.76	18.7	44.92	16.33
58	26.42	20.7	55.55	19.16
59	27.34	21.5	59.48	20.16
60	28.27	22.2	63.62	21.21
61.5	29.71	23.3	70.22	22.84
62	30.19	23.7	72.53	23.40
63	31.17	24.5	77.33	24.55
64	32.17	25.3	82.35	25.74
65	33.18	26.0	87.62	26.96
66	34.21	26.9	93.14	28.22
68	36.32	28.5	105.0	30.87
70	38.48	30.2	117.9	33.67
72.5	41.28	32.4	135.6	37.41
73	41.85	32.9	139.4	38.19
75	44.18	34.7	155.3	41.42
78	47.78	37.5	181.7	46.59
80	50.27	39.5	201.1	50.27
85	56.75	44.5	256.2	60.29



KS D 3707 / 3708 / 3709 / 3711 / 3723 / 3724 / 3752 / 3754

직경 Dia.(mm)	단면적 Sectional Area(cm^2)	단위중량 Unit Weight (kg/m)	관성모멘트 Moment of Inertia(cm^4)	단면계수 Section Modulus(cm^3)
90	63.62	49.9	322.1	71.57
93	67.93	53.3	367.2	78.97
95	70.88	55.6	399.8	84.17
97	73.90	58.0	434.6	89.60
98	75.43	59.2	452.8	92.40
100	78.54	61.7	490.9	98.17
103	83.32	65.4	552.5	107.28
105	86.59	68.0	596.7	113.65
110	95.03	74.6	718.7	130.67
115	103.9	81.5	858.5	149.31
120	113.1	88.8	1,017.9	169.65
130	132.7	104	1,402.0	215.69
140	153.9	121	1,885.7	269.39
150	176.7	139	2,485.0	331.34
160	201.1	158	3,217.0	402.12
170	227.0	178	4,099.8	482.33
180	254.5	200	5,153.0	572.56
190	283.5	223	6,397.1	673.38
200	314.2	247	7,854.0	785.40
220	380.1	298	11,499	1,045.4
230	415.5	326	13,737	1,194.5
240 *	452.4	355	16,286	1,357.2
250 *	490.9	385	19,175	1,534.0
300 *	706.9	555	39,761	2,650.7

* 는 별도주문판매 (These sizes indicated by an asterisk(*) are not included in regular rolling schedules.)

2) Round Bar Steel Group 특수강 강종별 분류

강종 Steel Group		종류의 기호 Grade	비고 Remark
탄소강 Carbon Steel	저탄소강 Low Carbon Steel	SM10C, SM15C, LF2, SM20C, SM20CA, SM25C, SM25CA A105, SS400,TB630W	C : 0.28% ↓
	중탄소강 Middle Carbon Steel	SM35C, SM38C, SM40C, SM43C, SM45C(D), SM48C SM50C(D), SM53C, SM55C, 1524HM, CK35M, XC43DN S45Cr, S45CM, S45CS, S48CM, SAE1050M, SAE1050MJ, SAE1050MC S53CM, S53CrB S55CKN	C : 0.3% ↑
합금강 Low Alloy Steel	Cr 강 Cr Steel	SCr420H, SCr420H1, SCr440H(M)	Cr 첨가
	Cr - Mo 강 Cr - Mo Steel	SCM415H, SCM420H, SCM420H1, SCM435, SCM435H, SCM440H, SCM445, SCM420HD, SCMH1, SCMH1ST, SCMH1MD, SCM822H, SCM822HST	Cr-Mo 첨가
보론강 Boron Steel		S43BCH-A, S43BCH-B, S43BCH-AJ, S43BCH-BJ, 15B37MJ, 15B37M 15B36Cr, 30MnB4, SCr440BJ, SCr440B, SAE10B38M2, SAE51B35	B 첨가
체인강 Chain Steel		SBC70	-
비조질강 Micro Alloy steel		15V24, S30CVT, S40CVSHB, S40CV, S45CVMn, S45CVMnK, S45CVMnH S25CVMnS, S25CVMnS1, 38MnSiVS5, 44MnSiVS6	-

17. ROUND BAR 특수강

3) Table for Chemical Composition 특수강 강종별 화학성분표

기본 규격임 사전 주문에 한함

강종 Steel Group	종류의 기호 Grade	규격 Standard	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Ni+Cr	Cu+10Sn	Al	Sn	V	Nb	Ti	B	O_2	N_2	H_2	종류의 기호 Grade	강종 Steel Group
			×100			×1000		×100				×100		×1000					×PPM					
저탄소강 Low Carbon Steel	SM10C	KS D 3752	08/13	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM10C	저탄소강 Low Carbon Steel
	SM15C	KS D 3752	13/18	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM15C	
	LF2	USER	20↓	20/30	105/120	30↓	35↓	30↓	20↓	10↓	30↓	-	35↓	10/30	-	25↓	18↓	-	-	-	-	-	LF2	
	SM20C	KS D 3752	18/23	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM20C	
	SM20CA	USER	18/21	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM20CA	
	SM25C	KS D 3752	22/28	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM25C	
	SM25CA	USER	22/28	15/35	30/60	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM25CA	
	A105	ASTM A 105	35↓	35↓	60/105	40↓	50↓	40↓	30↓	12↓	40↓	-	-	-	-	-	-	-	-	-	-	-	A105	
	SS400	JIS G 3101	-	-	-	50↓	50↓	-	-	-	-		-	-	-	-	-	-	-	-	-	-	SS400	
	TB630W	USER	19/22	20/35	90/100	25↓	10↓	20↓	20↓	-	25↓	-	-	-	-	25/35	-	-	-	-	120↓	-	TB630W	
중탄소강 Middle Carbon Steel	SM35C	KS D 3752	32/38	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM35C	중탄소강 Middle Carbon Steel
	SM38C	KS D 3752	35/41	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM38C	
	SM40C	KS D 3752	37/43	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM40C	
	SM43C	KS D 3752	40/46	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM43C	
	SM45C(D)	KS D 3752	42/48	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM45C(D)	
	SM48C	KS D 3752	45/51	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM48C	
	SM50C(D)	KS D 3752	47/53	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM50C(D)	
	SM53C	KS D 3752	50/55	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM53C	
	SM55C	KS D 3752	52/58	15/35	60/90	30↓	35↓	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	SM55C	
	1524HM	USER	20/25	15/30	140/170	40↓	50↓	-	15/30	-	-	-	-	-	-	-	-	-	-	-	-	-	1524HM	
	CK35M	USER	34/38	20/38	75/85	30↓	20/35	20↓	18/25	-	30↓	-	-	-	-	-	-	-	-	-	-	-	CK35M	
	XC43DN	USER	40/46	20/35	80/90	30↓	35↓	35↓	30/40	-	20↓	-	-	-	-	-	-	-	-	20↓	80↓	2.5↓	XC43DN	

17. ROUND BAR 특수강

3) Table for Chemical Composition 특수강 강종별 화학성분표

기본 규격임 사전 주문에 한함

강종 Steel Group	종류의 기호 Grade	규격 Standard	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Ni+Cr	Cu+10Sn	Al	Sn	V	Nb	Ti	B	O_2	N_2	H_2	종류의 기호 Grade	강종 Steel Group
			×100			×1000		×100				×100		×1000					×PPM					
중탄소강 Middle Carbon Steel	S45Cr	USER	42/48	15/35	60/90	30↓	35↓	20↓	15/30	-	20↓	-	-	-	-	-	-	-	-	-	-	-	S45Cr	중탄소강 Middle Carbon Steel
	S45CM	USER	43/47	20/35	65/90	30↓	35↓	20↓	20↓	5↓	20↓	35↓	35↓	10/25	-	-	-	-	-	-	-	-	S45CM	
	S45CS	USER	42/48	15/35	60/90	30↓	20/35	20↓	20↓	-	30↓	-	-	-	-	-	-	-	-	-	-	-	S45CS	
	S48CM	USER	45/51	15/35	60/90	30↓	25/45	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	S48CM	
	SAE1050M	USER	50/55	15/30	85/105	30↓	25/40	20↓	20↓	-	20↓	-	-	-	-	-	-	-	-	-	-	-	SAE1050M	
	SAE1050MJ	USER	52/55	15/35	60/90	40↓	50↓	-	-	-	-	-	-	18↑	-	-	-	-	-	-	-	-	SAE1050MJ	
	SAE1050MC	USER	50/55	15/35	90/110	30↓	15↓	20↓	12/20	5↓	30↓	-	-	15/50	-	-	-	-	-	-	-	-	SAE1050MC	
	S53CM	USER	50/56	15/35	60/90	30↓	25/45	20↓	20↓	-	30↓	35↓	-	-	-	-	-	-	-	-	-	-	S53CM	
	S53CrB	USER	50/56	15/35	70/90	20↓	10/20	20↓	12/20	-	30↓	90↑	-	-	-	-	-	Mn+Cr→	-	-	-	-	S53CrB	
	S55CKN	USER	52/56	15/35	70/90	30↓	35↓	20↓	12/20	-	30↓	90↑	-	-	-	-	-	Mn+Cr→	-	-	-	-	S55CKN	
합금강 (H-Band) Low Alloy Steel	SCr420H	KS D 3707	17/23	15/35	70/90	30↓	25↓	25↓	90/125	-	30↓	-	-	-	-	-	-	-	-	25↓	100/150	2.5↓	SCr420H	합금강 (H-Band) Low Alloy Steel
	SCr420H1	KS D 3754	17/23	15/35	55/90	30↓	30↓	25↓	85/125	-	30↓	-	-	-	-	-	-	-	-	25↓	-	-	SCr420H1	
	SCr440H(M)	USER	37/44	15/35	55/90	30↓	30↓	25↓	85/125	-	30↓	-	-	-	-	-	-	-	-	-	-	-	SCr440H(M)	
	SCM415H	KS D 3711	13/18	15/35	70/90	20↓	10/25	20↓	90/120	15/20	25↓	-	-	-	-	-	-	-	-	-	100/150	-	SCM415H	
	SCM420H	KS D 3711	18/23	15/35	70/90	30↓	25↓	25↓	90/125	15/35	30↓	-	-	-	-	-	-	-	-	25↓	100/150	2.5↓	SCM420H	
	SCM420H1	USER	17/23	15/35	55/90	30↓	30↓	25↓	85/125	15/35	30↓	-	-	-	-	-	-	-	-	20↓	-	-	SCM420H1	
	SCM420HD	USER	17/23	15/35	55/90	30↓	30↓	25↓	85/125	15/35	30↓	-	-	-	-	-	-	-	-	-	-	-	SCM420HD	
	SCMH1	USER	20/25	15/35	60/100	30↓	30↓	20↓	90/130	20/40	30↓	-	-	15/50	-	-	-	-	-	-	-	-	SCMH1	
	SCMH1ST	USER	20/25	20/35	60/100	30↓	30↓	-	90/130	20/40	-	-	-	15/50	-	-	20/40	-	-	-	50/180	-	SCMH1ST	
	SCMH1MD	USER	20/25	15/35	70/110	30↓	30↓	25↓	95/135	8/15	30↓	-	-	-	-	-	-	-	-	-	-	-	SCMH1MD	
	SCM822H	USER	19/25	15/35	55/90	30↓	30↓	25↓	85/125	35/45	30↓	-	-	-	-	-	-	-	-	-	-	-	SCM822H	
	SCM822HST	USER	20/24	20/35	75/85	20↓	20↓	20↓	105/115	36/45	20↓	-	35↓	25/50	20↓	-	30/35	-	-	20↓	50/150	2.0↓	SCM822HST	

17. ROUND BAR 특수강

3) Table for Chemical Composition 특수강 강종별 화학성분표

기본 규격임 사전 주문에 한함

강종 Steel Group	종류의 기호 Grade	규격 Standard	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Ni+Cr	Cu+10Sn	Al	Sn	V	Nb	Ti	B	O_2	N_2	H_2	종류의 기호 Grade	강종 Steel Group
			×100			×1000		×100				×100		×1000					×PPM					
합금강 (H-Band) Low Alloy Steel	SCM435H	KS D 3711	33/38	15/35	70/85	30↓	30↓	20↓	90/120	15/30	30↓	-	-	-	-	-	-	-	-	-	-	-	SCM435H	합금강 (H-Band) Low Alloy Steel
	SCM440H	KS D 3711	37/44	15/35	55/90	30↓	30↓	25↓	85/125	15/35	30↓	-	-	-	-	-	-	-	-	-	-	-	SCM440H	
	SCM445	KS D 3711	43/48	15/35	70/85	30↓	30↓	20↓	90/120	15/30	30↓	-	-	-	-	-	-	-	-	-	-	-	SCM445	
보론강 (H-Band) Boron Steel	S43BCH-A	USER	43/46	15/35	60/80	30↓	15↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	S43BCH-A	보론강 (H-Band) Boron Steel
	S43BCH-B	USER	45/48	15/35	70/90	30↓	15↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	S43BCH-B	
	S43BCH-AJ	USER	43/46	15/35	60/80	30↓	15↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	S43BCH-AJ	
	S43BCH-BJ	USER	45/48	15/35	70/90	30↓	15↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	S43BCH-BJ	
	15B37MJ	USER	32/36	15/35	100/140	30↓	25↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	15B37MJ	
	15B37M	USER	32/36	15/35	100/140	30↓	25↓	20↓	20↓	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	-	-	-	15B37M	
	15B36Cr	USER	32/36	15/35	120/150	30↓	25↓	20↓	20/40	5↓	20↓	-	20/50	-	-	20/40	-	-	15/40	-	-	-	15B36Cr	
	30MnB4	USER	32/36	15/35	120/150	30↓	25↓	20↓	20/40	5↓	20↓	-	20/50	-	-	20/40	-	-	15/40	-	-	-	30MnB4	
	SAE10B38M2	USER	39/43	15/35	67/85	30↓	25↓	20↓	97/120	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	20↓	80↓	2.5↓	SAE10B38M2	
	SAE51B35	USER	35/41	15/30	70/90	20↓	20↓	-	80/105	-	-	-	-	-	-	-	-	-	5/30	-	-	-	SAE51B35	
	SCr440BJ	USER	39/43	15/35	67/85	30↓	25↓	20↓	97/120	5↓	20↓	-	20/50	-	-	15/50	-	-	15/40	20↓	80↓	2.5↓	SCr440BJ	
	SCr440B	USER	36/39	10/40	70/110	35↓	10/30	-	-	-	25↓	-	20/60	-	-	30/60	-	35↓	8/50	-	120↓	-	SCr440B	
체인강 Chain Steel	SBC70	JIS G 3105	33↓	15/35	100/190	35↓	35↓	-	-	-	-	-	65↓	-	-	-	-	-	-	-	-	-	SBC70	체인강 Chain Steel
비조질강 Micro Alloy Steel	15V24	USER	19/25	15/35	135/165	40↓	50↓	20↓	15↓	-	25↓	-	20↓	20/200	-	-	-	-	-	-	-	-	15V24	비조질강 Micro Alloy Steel
	S30CVT	USER	28/34	20/35	125/150	30↓	30↓	20↓	20↓	-	30↓	-	-	40/100	-	5↑	-	-	-	-	60/120	-	S30CVT	
	S40CVSHB	USER	38/42	15/35	75/90	30↓	20/40	25↓	10/20	-	30↓	-	-	80/140	-	-	-	-	-	-	-	-	S40CVSHB	
	S40CV	USER	38/42	15/35	75/90	30↓	35↓	25↓	10/20	-	30↓	-	-	80/140	-	-	-	35↓	-	20↓	-	-	S40CV	
	S45CVMn	USER	43/47	15/35	110/130	30↓	40/70	20↓	10/20	5↓	30↓	-	20↓	80/150	-	-	-	-	-	-	-	-	S45CVMn	
	S45CVMnK	USER	43/47	15/35	110/130	30↓	40/70	20↓	10/20	5↓	30↓	-	20↓	80/150	-	-	-	-	-	-	-	-	S45CVMnK	
	S45CVMnH	USER	43/47	15/35	110/130	30↓	40/70	20↓	10/20	5↓	30↓	-	20↓	80/150	-	-	-	-	-	-	-	-	S45CVMnH	

17. ROUND BAR 특수강

3) Table for Chemical Composition 특수강 강종별 화학성분표

기본 규격임 사전 주문에 한함

강종 Steel Group	종류의 기호 Grade	규격 Standard	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Ni+Cr	Cu+10Sn	Al	Sn	V	Nb	Ti	B	O₂	N₂	H₂	종류의 기호 Grade	강종 Steel Group
			×100			×1000		×100				×100		×1000					×PPM					
비조질강 Micro Alloy Steel	S25CVMnS	USER	22/28	15/35	140/170	30↓	40/70	-	20/40	-	25↓	-	-	100/200	-	-	-	-	-	-	-	-	S25CVMnS	비조질강 Micro Alloy Steel
	S25CVMnS1	USER	22/28	15/35	140/170	30↓	40/70	-	20/40	-	25↓	-	-	-	-	100/200	-	-	-	-	-	-	S25CVMnS1	
	38MnSiVS5	USER	35/40	50/70	130/150	30↓	45/65	20↓	10/20	6↓	25↓	20↓	10/30	80/130	-	10↓	-	35↓	-	-	100/200	2.0↓	38MnSiVS5	
	44MnSiVS6	USER	41/45	60/80	140/150	25↓	20/35	15↓	20/30	5↓	20↓	-	10/30	120/170	-	10/20	-	-	-	-	140/200	-	44MnSiVS6	

4) Heat Treatment & Mechanical Properties 열처리 및 기계적 성질

강종 Steel Group	KS 기호 (괄호안: 구기호)	JIS 기호	단조 (℃)	열처리 (℃) N	A	Q	T	기계적 성질 항복점 kgf/mm² (N/mm²)	인장강도 kgf/mm² (N/mm²)	연신율 (%)	감면율 (%)	샤르피 충격치 kgfm/cm² (J/cm²)	브리넬 경도 (HB)	용도
탄소강 Carbon Steel	SM10C	S10C	1,100~900	900~950 (공냉)	약 900 (로냉)	-	-	≥ 21 ; 불림 (≥ 206)	≥ 32 ; 불림 (≥ 314)	≥ 33 ; 불림	-	-	109~156 ; 불림	냉간가공 및 부품
	SM12C	S12C	1,100~900	880~930 (공냉)	약 880 (로냉)	-	-	≥ 24 ; 불림 (≥ 235)	≥ 38 ; 불림 (≥ 373)	≥ 30 ; 불림	-	-	109~149 ; 불림	
	SM15C	S15C	1,100~900	880~930 (공냉)	약 880 (로냉)	-	-	≥ 24 ; 불림 (≥ 235)	≥ 38 ; 불림 (≥ 373)	≥ 30 ; 불림	-	-	109~149 ; 불림	냉간 Header, Bolt, Pin류로서 열처리하지 않고 사용하는 부품, 단조품으로서 불림하여 사용하는 부품
	SM20C	S20C	1,100~900	870~920 (공냉)	약 860 (로냉)	-	-	≥ 25 ; 불림 (≥ 245)	≥ 41 ; 불림 (≥ 402)	≥ 28 ; 불림	-	-	116~174 ; 불림	
	SM25C	S25C	1,100~900	860~910 (공냉)	약 850 (로냉)	-	-	≥ 27 ; 불림 (≥ 265)	≥ 45 ; 불림 (≥ 441)	≥ 27 ; 불림	-	-	123~183 ; 불림	
	SM30C	S30C	1,100~850	850~900 (공냉)	약 840 (로냉)	850~900 (수냉)	550~650 (급냉)	≥ 34 ; QT (≥ 333)	≥ 55 ; QT (≥ 539)	≥ 23 ; QT	≥ 57 ; QT	≥ 11 ; QT (≥ 108)	152~212	스프라인샤프트, 소형 기어 등의 고주파 담금질 부품. 전동기축, 차축 등으로서 불림하고 또 일부 고주파 담금질 등으로 사용하는 부품
	SM35C	S35C	1,100~850	840~890 (공냉)	약 830 (로냉)	840~890 (수냉)	550~650 (급냉)	≥ 40 ; QT (≥ 392)	≥ 58 ; QT (≥ 569)	≥ 22 ; QT	≥ 55 ; QT	≥ 10 ; QT (≥ 98.1)	167~235	
	SM38C	S38C	1,100~850	830~880 (공냉)	약 820 (로냉)	830~880 (수냉)	550~650 (급냉)	≥ 45 ; QT (≥ 441)	≥ 62 ; QT (≥ 608)	≥ 20 ; QT	≥ 50 ; QT	≥ 9 ; QT (≥ 88)	179~255	
	SM40C	S40C	1,100~850	830~880 (공냉)	약 820 (로냉)	830~880 (수냉)	550~650 (급냉)	≥ 45 ; QT (≥ 441)	≥ 62 ; QT (≥ 608)	≥ 20 ; QT	≥ 50 ; QT	≥ 9 ; QT (≥ 88)	179~255	
	SM43C	S43C	1,100~850	820~870 (공냉)	약 810 (로냉)	820~870 (수냉)	550~650 (급냉)	≥ 50 ; QT (≥ 490)	≥ 70 ; QT (≥ 686)	≥ 17 ; QT	≥ 45 ; QT	≥ 8 ; QT (≥ 78)	201~269	일반 작은 부품으로서 완전히 담금질을 하는 부품, 크랭크축, 리어액슬샤프트 등 완전 담금질하는 부품
	SM45C	S45C	1,100~850	820~870 (공냉)	약 810 (로냉)	820~870 (수냉)	550~650 (급냉)	≥ 50 ; QT (≥ 490)	≥ 70 ; QT (≥ 686)	≥ 17 ; QT	≥ 45 ; QT	≥ 8 ; QT (≥ 78)	201~269	
	SM48C	S48C	1,050~850	810~860 (공냉)	약 800 (로냉)	810~860 (수냉)	550~650 (급냉)	≥ 55 ; QT (≥ 539)	≥ 75 ; QT (≥ 735)	≥ 15 ; QT	≥ 40 ; QT	≥ 7 ; QT (≥ 69)	212~277	
	SM50C	S50C	1,050~850	810~860 (공냉)	약 800 (로냉)	810~860 (수냉)	550~650 (급냉)	≥ 55 ; QT (≥ 539)	≥ 75 ; QT (≥ 735)	≥ 15 ; QT	≥ 40 ; QT	≥ 7 ; QT (≥ 69)	212~277	

※ 단, 상기 항목은 참고치로만 활용 가능함.

17. ROUND BAR 특수강

4) Heat Treatment & Mechanical Properties 열처리 및 기계적 성질

강종 Steel Group	KS 기호 (괄호안: 구기호)	JIS 기호	단조 (℃)	열처리(℃)				기계적 성질						용도
				N	A	Q	T	항복점 kgf/mm² (N/mm²)	인장강도 kgf/mm² (N/mm²)	연신율 (%)	감면율 (%)	샤르피 충격치 kgfm/cm² (J/cm²)	브리넬 경도 (HB)	
탄소강 Carbon Steel	**SM53C**	S53C	1,050~850	800~850 (공냉)	약 790 (로냉)	800~850 (수냉)	550~650 (급냉)	≥ 60 ; QT (≥ 588)	≥ 80 ; QT (≥ 785)	≥ 14 ; QT	≥ 35 ; QT	≥ 6 ; QT (≥ 59)	229~285	Connecting Rod, Pin, Gear 등 완전 담금질하여 고강도 요구부품, 트럭 차축 등 질량 효과가 큰 완전 담금질 부품
	SM55C	S55C	1,050~850	800~850 (공냉)	약 790 (로냉)	800~850 (수냉)	550~650 (급냉)	≥ 60 ; QT (≥ 588)	≥ 80 ; QT (≥ 785)	≥ 14 ; QT	≥ 35 ; QT	≥ 6 ; QT (≥ 59)	229~285	
	SM58C	S58C	1,050~850	800~850 (공냉)	약 790 (로냉)	800~850 (수냉)	550~650 (급냉)	≥ 60 ; QT (≥ 588)	≥ 80 ; QT (≥ 785)	≥ 14 ; QT	≥ 35 ; QT	≥ 6 ; QT (≥ 59)	229~285	
기계구조용 Mn강 (SMn XXX)	**SMn420**	SMN420	1,100~900	870~930	850~900	1차 850~900 2차 780~830 (유냉)	150~200 (공냉)	-	≥ 70 (≥ 686)	≥ 14	≥ 30	≥ 5 (≥ 49)	201~311	
	SMn433	SMN433	1,100~850	870~930	840~900	830~880 (수냉)	550~650 (급냉)	≥ 55 (≥ 539)	≥ 70 (≥ 686)	≥ 20	≥ 55	≥ 10 (≥ 98.1)	201~277	표면 경화용
	SMn438	SMN438	1,100~850	870~930	840~900	830~880 (유냉)	550~650 (급냉)	≥ 60 (≥ 588)	≥ 75 (≥ 736)	≥ 18	≥ 50	≥ 8 (≥ 78)	212~285	
	SMn443	SMN443	1,100~850	870~930	840~900	830~880 (유냉)	550~650 (급냉)	≥ 65 (≥ 637)	≥ 80 (≥ 785)	≥ 17 ; QT	≥ 45	≥ 8 (≥ 78)	299~302	
기계구조용 Mn-Cr강 (SMnC XXX)	**SMnC420**	SMN420	1,100~900	870~930	850~900	1차 850~900 2차 780~830 (유냉)	150~200 (공냉)	-	≥ 85 (≥ 834)	≥ 13	≥ 30	≥ 5 (≥ 49)	235~321	표면 경화용
	SMnC433	SMN433	1,100~850	870~930	840~900	830~880 (수냉)	550~650 (급냉)	≥ 80 (≥ 785)	≥ 95 (≥ 932)	≥ 13	≥ 40	≥ 5 (≥ 49)	269~321	
Cr강 (SCr XXX)	**SCr415**	SCR415	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 80 (≥ 785)	≥ 15	≥ 40	≥ 6 (≥ 59)	217~302	표면 경화용 캠축, 핀
	SCr420	SCR420	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 85 (≥ 834)	≥ 14	≥ 35	≥ 5 (≥ 49)	235~321	표준형 크롬도금 표면 경화강 치차류 스프라인축
	SCr430	SCR430	1,100~850	880	약 830 (로냉)	830~880 (유냉)	520~620 (급냉)	≥ 65 (≥ 637)	≥ 80 (≥ 785)	≥ 18	≥ 55	≥ 9 (≥ 88)	229~293	볼트, 너트
	SCr435	SCR435	1,100~850	850~900 (공냉)	약 830 (로냉)	830~880 (유냉)	520~620 (급냉)	≥ 75 (≥ 836)	≥ 90 (≥ 883)	≥ 15	≥ 50	≥ 7 (≥ 69)	255~321	Arm류, 고주파 담금질 부품
	SCr440	SCR440	1,100~850	880	약 830 (로냉)	830~880 (유냉)	520~620 (급냉)	≥ 80 (≥ 785)	≥ 95 (≥ 932)	≥ 13	≥ 45	≥ 6 (≥ 59)	269~331	강력볼트, Arm축류
	SCr445	SCR445	1,100~850	880	약 830 (로냉)	830~880 (유냉)	520~620 (급냉)	≥ 85 (≥ 834)	≥ 100 (≥ 980.7)	≥ 12	≥ 40	≥ 5 (≥ 49)	285~352	축류, Key, 너클, 핀

※ 단, 상기 항목은 참고치로만 활용 가능함.

17. ROUND BAR 특수강

4) Heat Treatment & Mechanical Properties 열처리 및 기계적 성질

강종 Steel Group	KS 기호 (괄호안: 구기호)	JIS 기호	단조 (℃)	열처리(℃)				기계적 성질						용도
				N	A	Q	T	항복점 kgf/mm² (N/mm²)	인장강도 kgf/mm² (N/mm²)	연신율 (%)	감면율 (%)	샤르피 충격치 kgfm/cm² (J/cm²)	브리넬 경도 (HB)	
Cr-Mo강 (SCM XXX)	**SCM415**	SCM415	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 85 (≥ 834)	≥ 16	≥ 40	≥ 7 (≥ 69)	235~321	표면 경화용 일반용, 기어, 핀, 축류
	SCM418	SCM418	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 90 (≥ 883)	≥ 15	≥ 40	≥ 7 (≥ 69)	278~331	표면 경화용 일반용, 기어, 축류
	SCM420	SCM420	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 95 (≥ 932)	≥ 14	≥ 40	≥ 6 (≥ 59)	262~352	
	SCM421	SCM421	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 100 (≥ 980.7)	≥ 14	≥ 35	≥ 6 (≥ 59)	285~375	기어, 축류, 체인, 핀 강도를 중시하는 부품
	SCM430	SCM430	1,100~900	830~880 (공냉)	약 830 (로냉)	830~880 (유냉)	530~630 (급냉)	≥ 70 (≥ 686)	≥ 85 (≥ 834)	≥ 18	≥ 55	≥ 11 (≥ 108)	241~302	작은 축류, 고주파 담금질 부품
	SCM432	SCM432	1,050~850	830~880 (공냉)	약 830 (로냉)	830~880 (유냉)	530~630 (급냉)	≥ 75 (≥ 736)	≥ 90 (≥ 883)	≥ 16	≥ 50	≥ 9 (≥ 88)	255~321	볼트, 프로펠러, 축류
	SCM435	SCM435	1,050~850	830~880 (공냉)	약 830 (로냉)	830~880 (유냉)	530~630 (급냉)	≥ 80 (≥ 785)	≥ 95 (≥ 932)	≥ 15	≥ 50	≥ 8 (≥ 78)	269~331	일반용, 축류, Arm류 기어, 볼트, 냉간단조품
	SCM440	SCM440	1,050~850	830~880 (공냉)	약 830 (로냉)	830~880 (유냉)	530~630 (급냉)	≥ 85 (≥ 834)	≥ 100 (≥ 980.7)	≥ 12	≥ 45	≥ 6 (≥ 59)	285~352	크랭크축, 너클, 암
	SCM445	SCM445	1,050~850	830~880 (공냉)	약 850 (로냉)	830~880 (유냉)	530~630 (급냉)	≥ 90 (≥ 883)	≥ 105 (≥ 1,030)	≥ 12	≥ 40	≥ 4 (≥ 39)	302~363	대형 강력 축류
	SCM822	SCM822	1,100~900	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 105 (≥ 1,030)	≥ 12	≥ 30	≥ 6 (≥ 59)	302~415	표면 경화용 피니언, 기어
Ni-Cr강 (SNC XXX)	**SNC236**	SNC236	1,050~850	820~880 (공냉)	약 820 (로냉)	820~880 (유냉)	550~650 (급냉)	≥ 60 (≥ 588)	≥ 75 (≥ 736)	≥ 22	≥ 50	≥ 12 (≥ 118)	217~277	샤프트, 볼트
	SNC415	SNC415	1,100~900	820~900 (공냉)	약 850 (로냉)	1차 850~900 2차 740~790 (유냉)	150~200 (공냉)	-	≥ 80 (≥ 785)	≥ 17	≥ 45	≥ 9 (≥ 88)	235~341	표면 경화용 피스톤 핀
	SNC631	SNC631	1,050~850	820~880 (공냉)	약 820 (로냉)	820~880 (유냉)	550~650 (급냉)	≥ 70 (≥ 686)	≥ 85 (≥ 834)	≥ 18	≥ 50	≥ 12 (≥ 118)	248~302	크랭크샤프트, 기어

※ 단, 상기 항목은 참고치로만 활용 가능함.

17. ROUND BAR 특수강

4) Heat Treatment & Mechanical Properties 열처리 및 기계적 성질

강종 Steel Group	KS 기호 (괄호안: 구기호)	JIS 기호	단조 (℃)	열처리(℃)				기계적 성질						용도
				N	A	Q	T	항복점 kgf/mm² (N/mm²)	인장강도 kgf/mm² (N/mm²)	연신율 (%)	감면율 (%)	샤르피 충격치 kgfm/cm² (J/cm²)	브리넬 경도 (HB)	
Ni-Cr강 (SNC XXX)	**SNC815**	SNC815	1,100~900	830~880 (공냉)	약 830 (로냉)	1차 830~880 2차 750~800 (유냉)	150~200 (공냉)	-	≥ 100 (≥ 980.7)	≥ 12	≥ 45	≥ 8 (≥ 78)	285~388	표면 경화용 질량효과가 큰 샤프트
	SNC836	SNC836	1,050~850	820~880 (공냉)	약 820 (로냉)	820~880 (유냉)	550~650 (급냉)	≥ 80 (≥ 785)	≥ 95 (≥ 932)	≥ 15	≥ 50	≥ 8 (≥ 78)	269~321	샤프트류, 기어
Ni-Cr-Mo강 (SNCM XXX)	**SNCM220 (SNCM21)**	SNCM220	1,100~850	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 800~850 (유냉)	150~200 (공냉)	-	≥ 85 (≥ 834)	≥ 17	≥ 40	≥ 6 (≥ 59)	248~341	표면 경화 침탄강, 치차, 축류
	SNCM240 (SNCM6)	SNCM240	1,050~850	820~870 (공냉)	약 820 (로냉)	820~870 (유냉)	580~680 (공냉)	≥ 80 (≥ 785)	≥ 90 (≥ 883)	≥ 17	≥ 50	≥ 7 (≥ 69)	255~311	축류
	SNCM415 (SNCM22)	SNCM415	1,100~850	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 780~830 (유냉)	150~200 (공냉)	-	≥ 90 (≥ 883)	≥ 16	≥ 45	≥ 7 (≥ 69)	255~341	표면 경화용 치차, 축류
	SNCM420 (SNCM213)	SNCM420	1,100~850	850~900 (공냉)	약 850 (로냉)	1차 850~900 2차 770~820 (유냉)	150~200 (공냉)	-	≥ 100 (≥ 980.7)	≥ 15	≥ 40	≥ 7 (≥ 69)	293~375	표면 경화용 롤러, 베어링 대형치차축류
	SNCM431 (SNCM1)	SNCM431	1,050~850	820~870 (공냉)	약 820 (로냉)	820~870 (유냉)	570~670 (공냉)	≥ 70 (≥ 686)	≥ 85 (≥ 834)	≥ 20	≥ 55	≥ 10 (≥ 98.1)	248~302	크랭크샤프트, 터빈
	SNCM439 (SNCM8)	SNCM439	1,050~850	820~870 (공냉)	약 820 (로냉)	820~870 (유냉)	580~680 (공냉)	≥ 90 (≥ 883)	≥ 100 (≥ 980.7)	≥ 16	≥ 45	≥ 7 (≥ 69)	293~352	치차류
	SNCM447 (SNCM9)	SNCM447	1,050~850	820~870 (공냉)	약 820 (로냉)	820~870 (유냉)	580~680 (공냉)	≥ 95 (≥ 932)	≥ 105 (≥ 1,030)	≥ 14	≥ 40	≥ 6 (≥ 59)	302~363	치차류
	SNCM616 (SNCM26)	SNCM616	1,100~850	850~900 (공냉)	약 670 (로냉)	1차 850~900 2차 770~830 (유냉)	100~200 (공냉)	-	≥ 120 (≥ 1,177)	≥ 14	≥ 40	≥ 8 (≥ 78)	341~415	표면 경화용 침탄 없는 초강인강으로도 유효
	SNCM625 (SNCM2	SNCM625	1,050~850	820~870 (공냉)	약 670 (로냉)	820~870 (유냉)	570~670 (공냉)	≥ 85 (≥ 834)	≥ 95 (≥ 932)	≥ 18	≥ 50	≥ 8 (≥ 78)	269~321	크랭크축, 치차, 축류
	SNCM630 (SNCM5)	SNCM630	1,050~850	850~900 (공냉)	약 670 (로냉)	850~950 (유냉)	550~650 (공냉)	≥ 90 (≥ 882)	≥ 110 (≥ 1,079)	≥ 15	≥ 45	≥ 8 (≥ 78)	302~352	가장 담금질성이 큰 강종, 대형치차축류
	SNCM815 (SNCM25)	SNCM815	1,100~850	830~900 (공냉)	약 650 (로냉)	1차 830~880 2차 750~800 (유냉)	150~200 (공냉)	-	≥ 110 (≥ 1,079)	≥ 12	≥ 40	≥ 7 (≥ 69)	311~375	표면 경화용 가장 강인한 표면 경화강

※ 단, 상기 항목은 참고치로만 활용 가능함.

17. ROUND BAR 특수강

5) Dimensional Tolerance 치수 허용차

KS D 3501 치수단위(Unit) : mm

구분 Classification		허용차 Tolerance	비고 Remarks 편경차 Diametrical Variation
직경 Diameter	Under 16	±0.4	Not more than 70% of total tolerance range of diameter
	16 to 28, excl.	±0.5	
	28 & over	±1.5%	

Note: The following standards are also applicable JIS G 3192, ASTM A6/6M, DIN 1013

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

1) Product Standard 생산규격

제품형상 Type	두께 Thickness		폭 Width		길이 Length		표면상태 Finish
	범위 Range	표준 Regular	범위 Range	표준 Regular	범위 Range	표준 Regular	
SHEET	0.3mm~ 3.5mm	0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.2 1.5 1.8 2.0 2.2 2.5 3.0 3.5 4.0	500mm ~1,300mm	914mm : 3feet 1,000mm : 1M 1,219mm : 4feet	1,000mm ~7,500mm	2,000mm: 2M 2,438mm: 8feet 3,000mm: 3M 3,048mm: 10feet 4,000mm: 4M	No.1 No.2D No.2B No.4 No.8 HL L-HL SM
COIL	0.3mm~ 4.0mm	0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.2 1.5 1.8 2.0 2.2 2.5 3.0 3.5 4.0	45mm ~1,300mm	규정 없음	COIL 단중 : 평균 1M/T~4M/T (Max. 20M/T) COIL 내경 : 508mm, 610mm 외경 : Max. 2,000mm (내경 Paper Spool 삽입 시 2,200mm)		No.1 No.2D No.2B No.4 No.8 HL L-HL SM

2) Finish 표면사상

표면 Finishes	제조방법 Applied Finishing Process	용도 Application
No.1	열간압연 후 열처리 및 산세처리한 제품 표면 Reduced to a specified thickness by hot rolling only, annealed, and finally pickled or shot blasted for removal of scale.	공업용 Tank, 화학공업장치 Industrial tanks, Chemical Industry equipment
No.2D	냉간압연 후 열처리 및 산세처리한 제품 표면 A dully cold rolled finish produced by cold rolling, annealing and descaling.	공업용 Tank, 파이프 Industrial tanks, Pipe
No.2B	냉간압연 후 열처리 및 산세처리한 제품표면을 조질압면하여 형상과 광택을 개선한 제품 A bright cold rolled finish produced by final cold rolling, with brighter surface and is slightly harder than No. 2D finish.	주방기구, 양식기, 건축자재 Kitchen ware, Flat ware, Hollow ware, Materials for building
No.4	2B의 제품을 #150~#180 연마벨트로 연마한 제품표면. No.3 보다 연마상태가 미려함 Uniformly polished with a polisher using a belt to which abrasives of #150 to 180 mesh are glued.	낙농공업설비, 주방기구 Food-processing facilities, Kitchen ware
No.8	상당한 광택 및 반사기능을 가진 연마제품으로 #800 이상의 연마제로 Buff를 회전시켜 연마하여 만들어진 표면 No.7 finish products for further polishing with finer abrasives.	반사경, 소형거울, 건축내외장재 Reflector, Mirror, Interior-Exterior decoration for building
HL (Hair Line)	No.4 제품 표면을 #150~180 입도의 연마벨트를 사용하여 연속된 연마무늬가 나타나도록 한 제품표면 Polished to #400 or so, and finished with emery power of #150 to 180 mesh to provide straight, parallel grit lines.	건축내외장재, 차량, 쇼케이스 Sash, Door Most suitable for architectural purposes, Vehicles, Show case, Sash, Door
L-HL (Light Hair Line)	No.4 제품표면을 #400 입도의 연마벨트를 사용하여 연속된 연마무늬가 나타나도록 한 제품표면, HL보다 부드럽고 우아한 제품표면 Polished to #400 or so, and finished with emery power of #400 mesh to provide straight, parallel grit lines.	건축자재, 차량 Architectural purposes, vehicles
SM (Super Mirror)	No.8 보다 훨씬 상회하는 고광택표면으로 유리거울에 준하는 제품표면 Further polished than No.8	건축외장재, 거울 Exterior decoration for building, Mirror

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

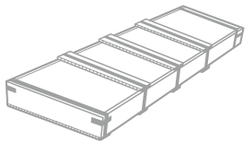
3) Specification 생산강종

KS (STS)	규격 Standards	기호 Symbol	화학성분 Chemical Composition (wt%)						Ni	Other	기계적 성질 Mechanical Properties						기호 Symbol
			C (Max.)	Si (Max.)	Mn (Max.)	P (Max.)	S (Max.)	Cr			인장시험 Tensile Test (Min.) Y/S N/mm²	인장시험 Tensile Test (Min.) T/S N/mm²	인장시험 Tensile Test (Min.) EL (%)	경도시험 Hardness Test (Max.) HBW	경도시험 Hardness Test (Max.) HRB	경도시험 Hardness Test (Max.) Hv	
304	KS	STS 304	0.08	1.00	2.00	0.045	0.030	18.00~20.00	8.00~10.50	-	205	520	40	187	90	200	STS 304
	JIS	SUS 304	0.08	1.00	2.00	0.045	0.030	18.00~20.00	8.00~10.50	-	205	520	40	187	90	200	SUS 304
	ASTM	TYPE 304	0.07	0.75	2.00	0.045	0.030	17.50~19.50	8.00~10.50	N 0.10 이하	205	515	45	201	92	-	TYPE 304
	EN	1.4301	0.07	1.00	2.00	0.045	0.015	17.50~19.50	8.00~10.50	N 0.11 이하	230	540/750	40	-	-	-	1.4301
D-Series	-	HD D11	0.08	1.00	5.50~7.50	0.045	0.015	17.00~18.00	3.50~5.50	Cu 1.50~3.50	205	520	40	-	90	210	HD D11
	-	HD D7S	0.12	1.00	5.00~7.00	0.045	0.030	17.00~18.00	2.00~4.00	Cu 1.50~3.50	205	520	40	-	95	220	HD D7S
304L	KS	STS 304L	0.03	1.00	2.00	0.045	0.030	18.00~20.00	9.00~13.00	-	175	480	40	187	90	200	STS 304L
	JIS	SUS 304L	0.03	1.00	2.00	0.045	0.030	18.00~20.00	9.00~13.00	-	175	480	40	187	90	200	SUS 304L
	ASTM	TYPE 304L	0.03	0.75	2.00	0.045	0.030	17.50~19.50	8.00~12.00	N 0.10 이하	170	485	40	201	92	-	TYPE 304L
	EN	1.4306	0.03	1.00	2.00	0.045	0.015	18.00~20.00	10.00~12.00	N 0.11 이하	220	520/700	45	-	-	-	1.4306
304J1	KS	STS 304JI	0.08	1.70	3.00	0.045	0.030	15.00~18.00	6.0~9.0	Cu 1.0~3.00	155	450	40	187	90	200	STS 304JI
	JIS	SUS 304JI	0.08	1.70	3.00	0.045	0.030	15.00~18.00	6.0~9.0	Cu 1.0~3.00	155	450	40	187	90	200	SUS 304JI
316	KS	STS 316	0.08	1.00	2.00	0.045	0.030	16.00~18.00	10.00~14.00	Mo 2.00~3.00	205	520	40	187	90	200	STS 316
	JIS	SUS 316	0.08	1.00	2.00	0.045	0.030	16.00~18.00	10.00~14.00	Mo 2.00~3.00	205	520	40	187	90	200	SUS 316
	ASTM	TYPE 316	0.08	0.75	2.00	0.045	0.030	16.00~18.00	10.00~14.00	Mo 2.00~3.00, N 0.10 이하	205	515	40	217	95	-	TYPE 316
	EN	1.4401	0.07	1.00	2.00	0.045	0.015	16.50~18.50	10.00~13.00	Mo 2.00~2.50, N 0.11 이하	240	530/680	40	-	-	-	1.4401
316L	KS	STS 316L	0.03	1.00	2.00	0.045	0.030	16.00~18.00	12.00~15.00	Mo 2.00~3.00	175	480	40	187	90	200	STS 316L
	JIS	SUS 316L	0.03	1.00	2.00	0.045	0.030	16.00~18.00	12.00~15.00	Mo 2.00~3.00	175	480	40	187	90	200	SUS 316L
	ASTM	TYPE 316L	0.03	0.75	2.00	0.045	0.030	16.00~18.00	10.00~14.00	Mo 2.00~3.00, N 0.10 이하	170	485	40	217	95	-	TYPE 316L
	EN	1.4404	0.03	1.00	2.00	0.045	0.015	16.50~18.50	10.00~13.00	Mo 2.00~2.50, N 0.11 이하	240	530/680	40	-	-	-	1.4404
409L	-	STR 409L	0.03	1.00	1.00	0.040	0.030	10.50~11.75	-	-	175	360	25	162	80	175	STS 409L
	-	SUS 409L	0.03	1.00	1.00	0.040	0.030	10.50~11.75	-	-	175	360	25	162	80	175	SUS 409L
430	KS	STS 430	0.12	0.75	1.00	0.040	0.030	16.00~18.00	-	-	205	450	22	183	88	200	STS 430
	JIS	SUS 430	0.12	0.75	1.00	0.040	0.030	16.00~18.00	-	-	205	420	22	183	88	200	SUS 430
	ASTM	TYPE 430	0.12	1.00	1.00	0.040	0.030	16.00~18.00	0.75 이하	-	205	450	22	183	89	-	TYPE 430
	EN	1.4016	0.08	1.00	1.00	0.040	0.015	16.00~18.00	-	-	280	450~600	20	-	-	-	1.4016
430J1L	KS	STS430J1L	0.025	1.00	1.00	0.040	0.030	16.00~20.00	-	Cu 0.30~0.80, N 0.025 이하	205	390	22	192	90	200	STS430J1L
	JIS	SUS430J1L	0.025	1.00	1.00	0.040	0.030	16.00~20.00	-	Ti,Nb,Zr 또는 그 조합이 8×(C%+N%)~0.80	205	390	22	192	90	200	SUS430J1L
436L	KS	STS 436L	0.025	1.00	1.00	0.040	0.030	16.00~19.00	-	Mo 0.75~1.50, N 0.025 이하	245	410	20	217	96	230	STS 436L
	JIS	SUS 436L	0.025	1.00	1.00	0.040	0.030	16.00~19.00	-	Ti,Nb, Zr 또는 그 조합이 8×(C%+N%)~0.80	245	410	20	217	96	230	STS 436L
439L	-	439L	0.03	0.75	1.00	0.040	0.030	17.00~19.00	0.6	Ti 0.75 이하, N 0.020 이하	175	360	22	183	88	200	439L

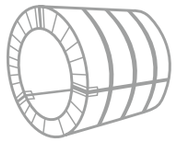
18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

4) Packing Type 포장

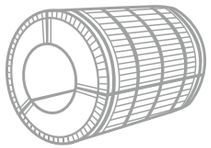
(1) Type 외형



SHEET



내수 COIL
(Domestic)



수출 COIL
(Export)

(2) Packing Weight 포장단중

치수단위(Unit) : kg

구분 Type	통상 Normal	최대 Max.
SHEET	1,000~2,000	-
COIL	3,000~7,000	20,000

5) Dimensional Tolerance 치수 허용차

(1) Thickness 두께 허용차

지정이 없는 한 [표1]에 따릅니다. 특별히 지정이 있는 경우에는 [표2]에 따릅니다.
단, 두께측정 위치는 가장자리부터 Mill Edge는 25mm 이상, Cut Edge는 15mm 이상 내측의 임의의 점으로 합니다.

- Normal tolerance applies in table 1, special tolerance applies in table 2.
- In case of Mill Edge, measuring point is over 25mm from the edge.
- In case of Cut Edge, measuring point is over 15mm from the edge.

[표1]

치수단위(Unit) : mm

두께 Thickness \ 폭 Width	두께 허용차 Tolerance of Thickness	
	w < 1250	1250 ≤ w ≤ 1300
0.30 ≤ t < 0.60	±0.05	±0.08
0.60 ≤ t < 0.80	±0.07	±0.09
0.80 ≤ t < 1.00	±0.09	±0.10
1.00 ≤ t < 1.25	±0.10	±0.12
1.25 ≤ t < 1.60	±0.12	±0.15
1.60 ≤ t < 2.00	±0.15	±0.17
2.00 ≤ t < 2.50	±0.17	±0.20
2.50 ≤ t < 3.15	±0.22	±0.25
3.15 ≤ t < 4.00	±0.25	±0.30
4.00 ≤ t < 5.00	±0.35	±0.40

[표2]

치수단위(Unit) : mm

두께 Thickness \ 폭 Width	두께 허용차 Tolerance of Thickness					
	w < 160	160 ≤ w < 250	250 ≤ w < 400	400 ≤ w < 630	630 ≤ w < 1000	1000 ≤ w < 1250
0.30 ≤ t < 0.40	±0.025	±0.030	±0.035	±0.035	±0.038	±0.038
0.40 ≤ t < 0.60	±0.035	±0.040	±0.040	±0.040	±0.040	±0.040
0.60 ≤ t < 0.80	±0.040	±0.045	±0.045	±0.045	±0.05	±0.05
0.80 ≤ t < 1.00	±0.040	±0.05	±0.05	±0.05	±0.05	±0.06
1.00 ≤ t < 1.25	±0.05	±0.05	±0.05	±0.06	±0.06	±0.07
1.25 ≤ t < 1.60	±0.05	±0.06	±0.06	±0.06	±0.07	±0.08
1.60 ≤ t < 2.00	±0.06	±0.07	±0.08	±0.08	±0.09	±0.10
2.00 ≤ t < 2.50	±0.07	±0.08	±0.08	±0.09	±0.10	±0.11
2.50 ≤ t < 3.15	±0.08	±0.09	±0.09	±0.10	±0.11	±0.12
3.15 ≤ t < 4.00	±0.09	±0.10	±0.10	±0.11	±0.12	±0.13

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

5) Dimensional Tolerance 치수 허용차

(2) Width 폭

지정이 없는한 강대(대강포함)에 대해서는 [표3], 강판에 대해서는 [표4]에 따릅니다.
특별히 지정이 있는 경우에는 [표5]에 따릅니다.

- For Coil refer to table 3.
- For Sheet refer to table 4.
- For Special requirement refer to table 5.

[표3] 치수단위(Unit) : mm

폭 Width / Edge	폭 허용차 Tolerance of Width			
	w < 400	400 ≤ w < 630	630 ≤ w < 1000	1000 ≤ w < 1300
Mill Edge	+10, 0	+20, 0	+25, 0	+30, 0
Cut Edge	+5, 0	+5, 0	+5, 0	+5, 0

[표4] 치수단위(Unit) : mm

길이 Length	폭 허용차 Tolerance of Width
L ≤ 3500	+5, 0
3500 < L ≤ 6000	+15, 0
6000 < L	+20, 0

[표5] 치수단위(Unit) : mm

폭 Width / 두께 Thickness	폭 허용차 Tolerance of Width				
	w < 160	160 ≤ w < 250	250 ≤ w < 400	400 ≤ w < 630	630 ≤ w < 1000
t < 0.60	±0.15	±0.20	±0.25	±0.30	±0.50
0.60 ≤ t < 1.00	±0.20	±0.25	±0.25	±0.30	±0.50
1.00 ≤ t < 1.60	±0.20	±0.30	±0.30	±0.40	±0.60
1.60 ≤ t < 2.50	±0.25	±0.35	±0.35	±0.50	±0.70
2.50 ≤ t < 4.00	±0.30	±0.40	±0.40	±0.50	±0.80

(3) Length 길이(강판)

치수단위(Unit) : mm

길이 Length	L ≤ 3500	3500 < L ≤ 6000	6000 < L
길이 허용차 Tolerance of Length	+10, 0	+15, 0	+30, 0

(4) Flatness (Sheet) 평탄도(강판)

치수단위(Unit) : mm

폭 Width	길이 Length	평탄도 Flatness Max.
W ≤ 1000	≤2000	15
	2000<	20
1000 < W	≤2000	20
	2000<	20

(5) Camber (Coil) 가로휨(강대)

치수단위(Unit) : mm

폭 Width	가로휨 Camber Max.
40 ≤ W < 80	임의의 길이 2000에 대해 8 (8 in any 2000)
80 ≤ W < 630	임의의 길이 2000에 대해 4 (4 in any 2000)
630 ≤	임의의 길이 2000에 대해 2 (2 in any 2000)

단, 압연의 처음과 끝의 불안정부분에는 적용하지 않습니다.
Unstable portion of strip (top, end) is not applied.

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

6) STS Cold Rolled Sheet Counter Table per Thickness

스테인리스 냉연 SHEET 포장 조견표

환산중량(Scaled Weight) 단중 : KS D 3695 기준
1매 중량 : 비중 x 두께 x 폭 x 길이(유효숫자 3자리 맺음)
One sheet weight : gravity x thickness x width x length

강종 Steel Group / 규격 Designation / 단위 Unit / 두께 Thickness (mm)	304											
	1000x2000		1000x3000		1000x4000		1250x2500		3'x6' 914x1829		4'x8' 1219x2438	
	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤
0.3	4.76	210	7.14	140	9.52	105	7.43	135	3.98	251	7.08	141
0.4	6.34	158	9.52	105	12.69	79	9.91	101	5.31	188	9.44	106
0.5	7.93	126	11.90	84	15.86	63	12.39	81	6.64	151	11.80	85
0.6	9.52	105	14.27	70	19.03	53	14.87	67	7.96	126	14.16	71
0.7	11.10	90	16.65	60	22.20	45	17.35	58	9.29	108	16.52	61
0.8	12.69	79	19.03	53	25.38	39	19.83	50	10.62	94	18.88	53
0.9	14.27	70	21.41	47	28.55	35	22.30	45	11.94	84	21.25	47
1.0	15.86	63	23.79	42	31.72	32	24.78	40	13.27	75	23.61	42
1.2	19.03	53	28.55	35	38.06	26	29.74	34	15.93	63	28.33	35
1.5	23.79	42	35.69	28	47.58	21	37.17	27	19.91	50	35.41	28
2.0	31.72	32	47.58	21	63.44	16	49.56	20	26.54	37	47.21	21
2.5	39.65	25	59.48	17	79.30	13	61.95	16	33.18	30	59.02	17
3.0	47.58	21	71.37	14	95.16	11	74.34	13	39.81	25	70.82	14
3.5	55.51	18	83.27	12	111.02	9	86.73	12	46.47	21	82.62	12

	430						HD D-11(D-7s)				강종 Steel Group / 규격 Designation / 단위 Unit / 두께 Thickness (mm)
4'x10' 1219x3048		1000x2000		4'x8' 1219x2438		1000x2000		4'x8' 1219x2438		
kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	kg/매	매/톤	
8.85	113	4.62	216	6.88	145	4.70	213	6.99	143	0.3
11.80	85	6.16	162	9.17	109	6.27	159	9.32	107	0.4
14.75	68	7.70	130	11.46	87	7.84	128	11.65	86	0.5
17.70	56	9.24	108	13.75	73	9.41	106	13.98	72	0.6
20.66	48	10.78	93	16.04	62	10.98	91	16.31	61	0.7
23.61	42	12.32	81	18.34	55	12.54	80	18.64	54	0.8
26.56	38	13.86	72	20.63	48	14.11	71	20.97	48	0.9
29.51	34	15.40	65	22.92	44	15.68	64	23.30	43	1.0
35.41	28	18.48	54	27.51	36	18.82	53	27.96	36	1.2
44.26	22	23.10	43	34.38	29	23.52	43	34.95	29	1.5
59.02	17	30.80	32	45.84	22	31.36	32	46.60	21	2.0
73.77	14	38.50	26	57.30	17	39.20	26	58.25	17	2.5
88.52	11	46.20	22	68.76	15	47.04	21	69.90	14	3.0
103.28	10	53.90	18	80.22	12	54.88	18	81.55	12	3.5

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

7) STS Hot Rolled Sheet Table per Thickness

스테인리스 열연 SHEET 포장 조견표

두께 Thickness (mm)	강종 Steel Group / 규격 Designation / 단위 Unit	304						430		410
		1000x2000	1000x3000	1000x4000	3'x6' 914x1829	4'x8' 1219x2438	4'x10' 1219x3048	1000x2000	4'x8' 1219x2438	1000x2000
2.0	kg/매	31.72	47.58	63.44	26.52	47.14	58.94	30.80	45.77	31.00
	매/톤	32	21	16	38	21	17	32	32	32
	중량 Weight (kg)	1,015	999	1,015	1,008	990	1,002	986	1,007	992
2.5	kg/매	39.66	59.49	79.32	33.16	58.93	73.69	38.50	57.21	38.76
	매/톤	25	17	13	30	17	14	26	17	26
	중량 Weight (kg)	992	1,011	1,031	995	1,002	1,032	1,001	973	1,008
3.0	kg/매	47.58	71.37	95.16	39.78	70.70	88.40	46.20	68.65	46.50
	매/톤	21	14	11	25	14	11	22	15	22
	중량 Weight (kg)	999	999	1,047	995	990	972	1,016	1,030	1,023
3.5	kg/매	55.52	83.28	111.04	46.41	82.50	103.16	53.90	80.10	54.26
	매/톤	18	12	9	22	12	10	19	12	18
	중량 Weight (kg)	999	999	999	1,021	990	1,032	1,024	961	977
4.0	kg/매	63.44	95.16	126.88	53.04	94.27	117.87	61.60	91.54	62.00
	매/톤	16	11	8	19	11	8	16	11	16
	중량 Weight (kg)	1,015	1,047	1,015	1,008	1,037	943	986	1,007	992
5.0	kg/매	79.30	118.65	158.60	66.29	117.84	147.34	77.00	114.42	77.50
	매/톤	13	8	6	15	8	7	13	9	13
	중량 Weight (kg)	1,031	952	952	994	943	1,031	1,001	1,030	1,008
6.0	kg/매	95.16	142.74	190.32	79.55	141.41	176.81	92.40	137.31	93.00
	매/톤	11	7	5	13	7	6	11	7	11
	중량 Weight (kg)	1,047	999	952	1,034	990	1,061	1,016	961	1,023
7.0	kg/매	111.02	166.53	222.04	92.81	164.98	206.28	107.80	160.19	108.50
	매/톤	9	6	5	11	6	5	9	6	9
	중량 Weight (kg)	999	999	1,110	1,021	990	1,031	970	961	977
8.0	kg/매	126.88	190.32	253.76	107.07	188.54	235.74	123.20	183.08	124.00
	매/톤	8	5	4	9	5	4	8	5	8
	중량 Weight (kg)	1,015	952	1,015	955	955	943	986	915	992

8) Gravity 강종별 비중

치수단위(Unit) : kg/mm · m²

비중 Gravity	강종 Grade
7.93	STS 304, 304L, 321, 301L, 302, 305, 631, HD 202
7.98	STS 316, 316L, 310S, 347, 317, 317L
7.84	STS HD D-11(HD D-7s)
7.70	STS 430, 429L, 434, 440A, 436L, 439L, 430J1L
7.75	STS 410, 420J1, 405, 410L, 409L, 444, 420J2

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

9) Corrosion Resistance of Stainless Steel 스테인리스강의 내식성

시험용액 Solution	농도 Concentration	온도 Temperature	STS304	STS316	STS410	STS430
질산 HNO_3	5%	20°C	A	A	A	A
	20%	20°C	A	A	A	A
	50%	비등(Boiling)	A	A	-	A
	농후액 (Concentration liquid)	비등(Boiling)	D	D	E	D
황산 H_2SO_4	5%	20°C	C	B	-	C
	5%	비등(Boiling)	E	C	-	E
	50%	20°C	D	C	-	-
	50%	비등(Boiling)	E	D	-	E
	농후액 (Concentration liquid)	20°C	A	A	-	A
	-	비등(Boiling)	D	D	-	D
염산 HCl	-	20°C	E	E	E	E
인산 Phosphoric acid	1%	20°C	++A	++A	A	A
	5%	20°C	A	A	A	A
	10%	20°C	C	A	D	D
수산 Oxalic acid	5%	20°C~비등(Boiling)	A	A	B	A
	10%	비등(Boiling)	D	C	-	-
초산 Acetic acid	5~10%	20°C	A	A	A	A
	20~100%	20°C	A	A	C	B
	50%	비등(Boiling)	C	B	-	-

시험용액 Solution	농도 Concentration	온도 Temperature	STS304	STS316	STS410	STS430
의산 Formic acid	5%	20°C~60°C	B	A	C	D
유산 Lactic acid	5%	20°C	A	A	C	B
	5%	65°C	B	A	C	B
	10%	비등(Boiling)	B	A	-	-
낙산 Butryc acid	5%	20°C~65°C	A	A	A	A
구연산 Citric acid	5%	20°C~65°C	A	A	A	A
	15%	비등(Boiling)	A	A	-	B
크롬산 Chromic acid	5%	20°C	A	A	-	B
	10%	비등(Boiling)	C	B	-	D
요드 Iodine	-	-	E	D	-	E
불소 Fluorine	-	20°C	E	E	E	E
염소가스 Cl gas	건조(Drying)	20°C	C	B	-	C
	습기 함유(Moisture)	20°C	D	C	-	D
취소수 Bromine water	-	20°C	E	D	-	E
이황화탄소 Carbon disulfide CS_2	-	20°C	A	A	-	A
사염화탄소 Carbon chloride CCl_4	순수(Purity)	20°C	A	A	-	A
	5%~10%	20°C	C	B	D	C
석탄산 Phenol	-	20°C	A	A	-	A
주석산 Tartaric acid	-	20°C	A	A	C	C

18. COLD ROLLED STAINLESS STEEL SHEET, COIL & STRIP 스테인리스 강판 및 강대

9) Corrosion Resistance of Stainless Steel 스테인리스강의 내식성

시험용액 Solution	농도 Concentration	온도 Temperature	STS304	STS316	STS410	STS430
오레인산 Oleic acid	-	20°C	A	A	-	B
암모니아수 Ammonia water	-	20°C	A	A	-	A
암모니아가스 Ammonia gas	-	50°C	-	D	-	D
수산화칼슘 Calcium hydroxide	10%~20%	비등(Boiling)	A	A	-	-
	50%	비등(Boiling)	C	B	-	-
카세인소다 Casein sodium	-	-	A	A	-	A
탄화소다 Carbon sodium	5%	20°C~65°C	A	A	A	A
중탄화소다 CO_3 sodium	-	20℃	A	A	A	A
치오황산소다 Sodium thiosulfate	5%~10%	20°C~65°C	A	A	-	C
황산암모니아 Sulfuric acid ammonia	1%~5%	20°C	A	A	B	A
황화나트륨 Sodium sulfide	5%~20%	20°C~65°C	*A	A	*B	*B
	포화(Saturation)	비등(Boiling)	B	A	-	-
염화아연 Zinc chloride	5%	20°C	*A	*A	-	*A
황산아연 Zinc sulfate	5%~포화(Saturation)	20°C	A	A	-	A
염화제2철 Fe Cl_3	1%	20°C	++*B	*A	C	*B
	5%	20°C	++*D	*C	D	*D
에틸알코올 Ethanol	-	20°C~비등(Boiling)	A	A	-	A
메틸알코일 Methyl	-	20°C	A	A	-	A
	-	65°C	*C	B	-	C

시험용액 Solution	농도 Concentration	온도 Temperature	STS304	STS316	STS410	STS430
탄산수 Carbonated water	-	-	A	A	A	A
식초 Vinegar	-	20°C	*A	A	A	A
해수 Seawater	-	-	*A	*A	-	*C
밀크 Milk	-	65°C	A	A	B	A
당밀 Syrup	-	-	A	A	-	A
휘발유 Benzine	-	-	A	A	A	A
주스 Juice	-	-	A	A	A	A
마요네즈 Mayonnaise	-	20°C	*A	A	-	-
글리세린 Glycerine	-	-	A	A	A	A
케첩 Ketchup	-	20°C	*A	A	*A	*A
커피 Coffee	-	비등(Boiling)	A	A	A	A
맥주 Beer	-	-	A	A	-	-

(注) A : 충분한 내식성 0.0089mm/월 이하
B : 만족할 정도의 내식성 0.0089~0.089mm/월
C : 상당한 정도의 내식성 0.089~0.25mm/월
D : 소량의 내식성 0.25~0.89mm/월
E : 내식성이 없음 0.89mm/월 이상
+ : 황산(黃酸)이 존재하면 부식되기 쉬운 것
++ : 염산(鹽酸)이 존재하면 부식되기 쉬운 것
* : 방치하여 건조하면 공식(孔蝕)이 되기 쉬운 것

Note : Corrosion resistance A>B>C>D>E
+ : Sulfuric acid corrosive conditions
++ : HCl corrosive conditions
* : Pitting possible danger

19. INGOT FOR FORGING 잉곳

1) Available Ingot Size & Specification 제조 범위

구분	4.65T					6.25T				
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비
a	4,650	3,999	86.0%	651	14.0%	6,250	5,375	86.0%	875	14.0%
b										
c										
d										
e										
f										
g										
h										

구분	14.6 ~ 17.2T					17.9 ~ 22.7T				
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비
a	14,560	12,158	83.5%	2,402	16.5%	17,980	15,013	83.5%	2,967	16.5%
b	15,220	12,709	83.5%	2,511	16.5%	18,680	15,598	83.5%	3,082	16.5%
c	15,810	13,201	83.5%	2,609	16.5%	19,270	16,090	83.5%	3,180	16.5%
d	16,320	13,627	83.5%	2,693	16.5%	20,030	16,725	83.5%	3,305	16.5%
e	16,730	13,970	83.5%	2,760	16.5%	20,630	17,226	83.5%	3,404	16.5%
f	17,160	14,329	83.5%	2,831	16.5%	21,380	17,852	83.5%	3,528	16.5%
g						21,970	18,345	83.5%	3,625	16.5%
h						22,690	18,946	83.5%	3,744	16.5%

구분	6.9 ~ 9.4T					11.0 ~ 13.6T					구분
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	
a	6,900	5,762	83.5%	1,139	16.5%	11,020	9,202	83.5%	1,818	16.5%	a
b	7,720	6,446	83.5%	1,274	16.5%	11,640	9,719	83.5%	1,921	16.5%	b
c	8,650	7,223	83.5%	1,427	16.5%	12,070	10,078	83.5%	1,992	16.5%	c
d	9,020	7,532	83.5%	1,488	16.5%	12,580	10,504	83.5%	2,076	16.5%	d
e	9,440	7,882	83.5%	1,558	16.5%	13,120	10,955	83.5%	2,165	16.5%	e
						13,560	11,323	83.5%	2,237	16.5%	f
											g
											h

구분	23.6 ~ 30.6T					32.0 ~ 40.5T					구분
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	
a	23,640	19,739	83.5%	3,901	16.5%	32,000	26,720	83.5%	5,280	16.5%	a
b	24,850	20,750	83.5%	4,100	16.5%	33,980	28,373	83.5%	5,607	16.5%	b
c	26,210	21,885	83.5%	4,325	16.5%	34,920	29,158	83.5%	5,762	16.5%	c
d	27,410	22,887	83.5%	4,523	16.5%	35,860	29,943	83.5%	5,917	16.5%	d
e	28,700	23,965	83.5%	4,736	16.5%	36,620	30,578	83.5%	6,042	16.5%	e
f	30,160	25,184	83.5%	4,976	16.5%	37,950	31,688	83.5%	6,262	16.5%	f
g	30,560	25,518	83.5%	5,042	16.5%	39,120	32,665	83.5%	6,455	16.5%	g
h						40,520	33,834	83.5%	6,686	16.5%	h

19. INGOT FOR FORGING 잉곳

1) Available Ingot Size & Specification 제조 범위

구분	41.5 ~ 48.5T					50.8 ~ 62.1T				
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비
a	41,450	34,611	83.5%	6,839	16.5%	50,800	42,418	83.5%	8,382	16.5%
b	42,720	35,671	83.5%	7,049	16.5%	51,820	43,270	83.5%	8,550	16.5%
c	43,870	36,631	83.5%	7,239	16.5%	52,730	44,030	83.5%	8,700	16.5%
d	45,130	37,684	83.5%	7,446	16.5%	54,090	45,165	83.5%	8,925	16.5%
e	46,200	38,577	83.5%	7,623	16.5%	57,790	48,255	83.5%	9,535	16.5%
f	47,360	39,546	83.5%	7,814	16.5%	59,960	50,067	83.5%	9,893	16.5%
g	48,510	40,506	83.5%	8,004	16.5%	62,050	51,812	83.5%	10,238	16.5%
h										

구분	64.1 ~ 75.0T					80 ~ 95T					구분
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	
a	64,050	53,162	83.0%	10,889	17.0%	80,000	64,000	80.0%	16,000	20.0%	a
b	65,540	54,398	83.0%	11,142	17.0%	85,000	68,000	80.0%	17,000	20.0%	b
c	70,000	57,400	82.0%	12,600	18.0%	90,000	72,000	80.0%	18,000	20.0%	c
d	75,000	61,500	82.0%	13,500	18.0%	95,000	76,000	80.0%	19,000	20.0%	d
e											e
f											f
g											g
h											h

구분	100 ~ 140T					150 ~ 180T				
	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비
a	100,000	80,000	80.0%	20,000	20.0%	150,000	120,000	80.0%	30,000	20.0%
b	110,000	88,000	80.0%	22,000	20.0%	160,000	128,000	80.0%	32,000	20.0%
c	120,000	96,000	80.0%	24,000	20.0%	170,000	136,000	80.0%	34,000	20.0%
d	130,000	104,000	80.0%	26,000	20.0%	180,000	144,000	80.0%	36,000	20.0%
e	140,000	112,000	80.0%	28,000	20.0%					
f										
g										
h										

190 ~ 200T					구분
INGOT 중량	BODY 중량	BODY 중량비	압탕중량	압탕비	
190,000	152,000	80.0%	38,000	20.0%	a
200,000	160,000	80.0%	40,000	20.0%	b
					c
					d
					e
					f
					g
					h

19. INGOT FOR FORGING 잉곳

2) Applicable Material Spec. of Ingot

· 재질 Spec.

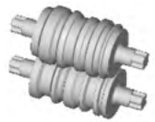
Description	JIS	ASTM
Carbon Steel	G4051: S10C ~ S55C G3201: SF35 ~ SF60 G3202: SFVC1 ~ SFVC2 G3205: SFL1 ~ SFL2 G3106: SM41 A ~ B G4404: SKT4, SKD61	AISI 1010 ~ 1055 A668 A105/A105M A350 SA266
Low Alloy Steel	G4105: SCM415 ~ SCM822 G4103: SNCM220 ~ SNCM447 G4104: SCr415 ~ SCr445 G3203: SFVA F1 ~ SFVA F22 G3212: SFVV 1 ~ 3	AISI 4130 ~ 4147 AISI 8615 ~ 8640 AISI 4320 ~ 4340 AISI 5120 ~ 5140 SA508

· 고객사(Customer) Spec.

Description	Customer	Grade
Shiping Engine	MAN Diesel HHI	M60.6, S34MNV, S45SU HF450, HF601, HFCM6
Windmill-MainShaft	GE	34CrNiMo6 (EN)
	Siemens, Gamesa	42CrMo4 (EN)
Forging Roll	-	Carbon Range (< 2.0%)

20. ROLL 롤

1) Production Range 생산 가능 범위

Item		Centrifugal Casting Roll (Vertical & Horizontal)	Static Casting Roll
Typical Shape		  ※Sleeve Type	
Product		(~ 5M) Plate, Hot Strip Mill	Section Mill	Bar, Sections, ect.
Materials		· Indefinite Chilled Cast Iron · Ultra Wear Resistant Indefinite Chilled Cast Iron · High Chromium Steel · High Chromium Iron · High Speed Steel · Semi-High Speed Steel	· High Alloy Cast Steel · Graphitic Cast Steel	· Low Carbon Cast Steel · High Alloy Cast Steel · Graphitic Cast Steel · Ductile Cast Iron
Size ※ (Max. / mm)	Body Diameter	1,400	1,400	1,500
	Body Length	5,500	As Required	5,000
	Total Length	11,000	As Required	11,000
Weight (Max. kg)		70,000	20,000	70,000

※ 사전 협의 필요 ; Prior Discussion is Necessary

2) Chemical Compositions (wt%) 화학성분

Materials	Symbol	C	Si	Mn	Ni	Cr	Mo
Low Carbon Cast Steel	SP	0.30 / 1.00	0.30 / 1.00	0.60 / 1.10	RES.	0.80 / 1.20	0.20 / 0.50
	SQ	0.40 / 1.00	0.30 / 1.00	0.60 / 1.10	0.70 / 1.30	0.80 / 1.20	0.20 / 0.50
High Alloy Cast Steel (Adamite)	AG	1.50 / 2.50	1.00 / 2.00	0.50 / 1.50	1.00 / 2.50	0.50 / 1.50	0.50 / 2.00
	AS	1.50 / 2.50	0.50 / 1.50	0.50 / 1.50	1.00 / 2.00	1.00 / 2.50	0.40 / 1.00
	AP	1.10 / 2.40	0.30 / 1.00	0.60 / 1.20	RES.	0.80 / 1.20	0.20 / 0.50
	AQ	1.10 / 2.40	0.30 / 1.00	0.60 / 1.20	0.80 / 1.70	0.80 / 1.20	0.20 / 0.50
	GS	1.20 / 2.20	0.80 / 1.70	0.50 / 1.20	0.50 / 1.80	0.50 / 1.50	0.20 / 0.50
High Chromium Steel	HSVN	1.00 / 2.40	0.50 / 1.50	0.70 / 1.30	Max. 1.00	10.00 / 14.00	2.00 / 5.00
High Chromium Iron	HCV	2.00 / 3.20	0.50 / 1.50	0.70 / 1.30	Max. 2.00	14.00 / 20.00	1.00 / 4.00
	HCMV (Skin Pass)	2.00 / 3.20	0.50 / 1.50	0.70 / 1.30	Max. 2.00	14.00 / 20.00	1.00 / 4.00
High Speed Steel	TVN	0.60 / 3.00	V + Ti + Nb = Max. 15.00			4.00 / 8.00	2.50 / 6.00
Indefinite Chilled Cast Iron	ISH	2.90 / 3.40	0.70 / 1.00	0.40 / 1.10	4.00 / 5.30	1.30 / 2.00	0.10 / 0.60
Ultra Wear Resistant Indefinite Chilled Cast Iron	UWIC	2.90 / 3.40	1.00 / 2.00	0.40 / 1.10	4.00 / 5.30	Mo+Cr+V+Ti+Nb=Max. 5.00	
Ductile Cast Iron	DA	3.00 / 3.50	1.60 / 2.30	0.30 / 1.20	2.00 / 3.00	Max. 0.30	0.30 / 1.00
	DD, DE DF, DG	3.00 / 3.50	1.50 / 2.20	0.30 / 1.20	1.20 / 3.80	0.20 / 1.00	0.30 / 1.00
	DDH, DEH DFH, DGH	3.00 / 3.50	1.50 / 2.20	0.30 / 1.20	1.20 / 3.80	0.20 / 1.00	0.30 / 1.00
	*SHD	3.00 / 3.50	1.50 / 2.20	0.30 / 1.20	1.20 / 3.80	0.20 / 1.00	0.30 / 1.00

*SHD: Specially Heat treated high strength Ductile cast iron
※ 사전 협의 필요 ; Prior Discussion is Necessary

3) Mechanical Properties 기계적 특성

Materials	Symbol	Tensile Strength (kgf/mm^2)	Bending Strength (kgf/mm^2)	Elongation (%)	Impact Value (kgm/cm^2)	Compressive Strength (kgf/mm^2)	Symbol
Low Carbon Cast Steel	SP	70 / 95	140 / 190	2.00 / 10.00	2.00 / 5.00	-	SP
	SQ	70 / 100	140 / 190	1.00 / 7.00	1.00 / 4.00	-	SQ
High Carbon Cast Steel (Adamite)	AG	50 / 70	70 / 120	0.10 / 1.00	0.10 / 1.00	-	AG
	AS	50 / 70	70 / 120	0.10 / 1.00	0.10 / 1.00	-	AS
	AP	40 / 65	60 / 160	0.10 / 3.00	0.10 / 1.50	-	AP
	AQ	40 / 65	60 / 180	0.10 / 2.00	1.10 / 1.50	-	AQ
	GS	50 / 75	100 / 160	0.30 / 1.50	0.30 / 1.50	-	GS
High Chromium Steel	HSVN	75 / 90	100 / 120	0.10 / 2.00	0.10 / 2.00	260 / 320	HSVN
High Chromium Iron	HCV	65 / 80	80 / 110	0.10 / 1.00	0.10 / 1.00	200 / 280	HCV
	HCMV (Skin Pass)	60 / 75	80 / 110	0.10 / 1.00	0.10 / 1.00	200 / 280	HCMV (Skin Pass)
High Speed Steel	TVN	70 / 90	100 / 130	0.10 / 2.00	0.10 / 2.00	300 / 320	TVN
Indefinite Chilled Cast Iron	ISH	35 / 55	60 / 80	0.10 / 1.00	0.10 / 1.00	230 / 250	ISH
Ultra Wear Resistant Indefinite Chilled Cast Iron	UWIC	35 / 55	60 / 80	0.10 / 1.00	0.10 / 1.00	230 / 250	UWIC
Ductile Cast Iron	DA	60 / 80	80 / 140	0.50 / 1.00	0.10 / 0.60	-	DA
	DD, DE DF, DG	40 / 55	60 / 80	0.10 / 1.00	0.10 / 0.30	-	DD, DE DF, DG
	DDH, DEH DFH, DGH	40 / 55	60 / 80	0.10 / 1.00	0.10 / 0.30	-	DDH, DEH DFH, DGH
	SHD	70 / 90	90 / 160	0.50 / 2.00	0.10 / 0.50	-	SHD

※ 사전 협의 필요 ; Prior Discussion is Necessary

20. ROLL 롤

4) Application 적용

Unit : Shore Hardness 경도 (Hs)

Product	Type of Stand		Type of Roll	Low Cabon Cast Steel	High Alloy Cast steel (Adamite)			High Chromium		High Speed Steel	Indefinite Chilled Cast Iron	Ultra Wear Resistant Indefinite Chilled Cast Iron	Ductile		
				SP SQ	AS AG	AP AQ	GAD GS	HSVN	HCV HCMV	TVN	ISH	UWIC	DA	SHD	DD, DE DF, DG
Slabs	2 Hi		-	35/45	-	-	35/45	-	-	-	-	-	-	40/55	-
Blooms	2 Hi		-	35/45	-	-	40/50	-	-	-	-	-	-	40/55	-
Plate 후판	4 Hi		Roughing Work Roll	-	-	-	-	70/80	-	-	65/80	70/80	-	-	-
			Finishing Work Roll	-	-	-	-	-	70/80	-	65/80	75/85	-	-	-
Plate (5M) 광폭후판	4 Hi		Roughing Work Roll	-	-	-	-	-	-	-	70/80	70/80	-	-	-
			Finishing Work Roll	-	-	-	-	-	-	-	70/80	75/85	-	-	-
Hot Strip Mill 열연	Continuous		Scale Breakers	-	-	40/50	40/50	-	-	-	-	-	-	-	-
			Roughing Work Roll	-	-	45/55	-	70/80	-	75/85	-	-	-	-	-
			Front Stands Finishing Work Roll	-	-	-	-		70/80	75/85	-	-	-	-	-
			Rear Stands Finishing Work Roll	-	-	-	-	-	-	75/85	75/85	75/85	-	-	-
			Edger	-	-	45/55	-	-	-	75/85	-	-	-	-	50/60
	Reversing	2 Hi	Roughing	-	-	45/55	-	70/80	-	70/80	-	-	-	-	-
		4 Hi	Roughing	-	-	-	-	70/80	-	75/85	-	-	-	-	-
Skin Pass & Temper	2 Hi, 4 Hi		Work Roll	-	-	-	-	-	85/95	-	-	-	-	-	-
	4 Hi		Back-Up Roll	-	-	-	-	-	-	-	70/85	-	-	-	-

※ 사전 협의 필요 ; Prior Discussion is Necessary

20. ROLL 롤

4) Application 적용

Unit : Shore Hardness 경도 (Hs)

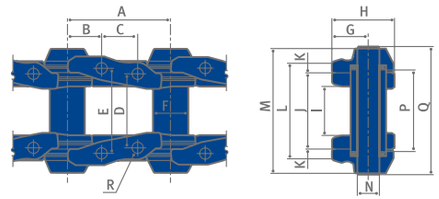
Product	Type of Stand	Type of Roll	Low Cabon Cast Steel	High Alloy Cast steel (Adamite)			High Chromium		High Speed Steel	Indefinite Chilled Cast Iron	Ultra Wear Resistant Indefinite Chilled Cast Iron	Ductile		
			SP SQ	AS AG	AP AQ	GAD GS	HSVN	HCV HCMV	TVN	ISH	UWIC	DA	SHD	DD, DE DF, DG
Billets / Bar 평철	2Hi Continuous	Roughing	35/45	-	40/50	40/50	-	-	-	-	-	45/55	45/55	-
		Intermediate	-	-	-	-	-	-	-	-	-	-	-	50/70
		Finishing	-	-	-	-	-	-	75/85	75/85	-	-	-	65/75
Beams	Universal	Horizontal Roughing	-	50/75	-	-	-	-	-	-	-	-	-	-
		Horizontal Finishing	-	50/75	-	-	-	-	-	-	-	-	-	-
		Horizontal Edger	-	-	50/60	-	-	-	-	-	-	-	-	50/60
		Vertical	-	50/75	-	-	-	-	70/80	-	-	-	-	50/65
Heavy Sections 대형강	2 and 3 Hi (Tandem)	Roughing	35/45	-	45/55	-	-	-	-	-	-	-	45/55	-
		Intermediate	-	-	45/55	45/55	-	-	-	-	-	-	50/60	50/60
		Finishing	-	-	50/60	45/60	-	-	-	-	-	-	-	55/65
Medium Sections 중형강	2 and 3 Hi (Tandem)	Roughing	-	-	35/45	45/55	-	-	-	-	-	-	45/55	-
		Intermediate	-	-	45/55	45/55	-	-	-	-	-	-	50/60	50/60
		Finishing	-	-	45/55	45/60	-	-	-	-	-	-	-	55/65
Light Section 소형강	2 and 3 Hi	Roughing	-	-	45/55	45/55	-	-	-	-	-	45/55	50/55	50/55
		Intermediate	-	-	-	-	-	-	-	-	-	-	55/65	55/65
		Finishing	-	-	-	-	-	-	-	-	-	-	-	60/70
Rod 선재	2 and 3 Hi	Roughing	-	-	45/55	-	-	-	-	-	-	45/55	50/60	50/60
		Intermediate	-	-	-	-	-	-	-	-	-	-	55/65	55/65
		Finishing	-	-	-	-	-	-	75/85	70/80	75/85	-	-	60/70

※ 사전 협의 필요 ; Prior Discussion is Necessary

21. HEAVY MACHINERY 중기

1) Track Link Assembly 링크조립품

홀간 거리 Pitch (A)	제품명 Model Name	표준단면치수 Dimensions					
		B	C	D	E	F(Ø)	G
90.0	KU90A	Welding Type	Welding Type	Welding Type	Welding Type	22.2	23.0
101.6	KU102A	Welding Type	Welding Type	Welding Type	Welding Type	32.2	30.0
135.0	KU135A	41.0	46.0	64.0	94.0	35.1	35.5
	KU135B	42.4	43.4	72.0	99.0	39.0	36.0
	KU135C	40.0	46.0	80.0	104.0	35.0	36.0
	KU135E	42.4	43.4	65.0	92.0	39.0	36.0
	KU135F	41.0	46.0	64.0	94.0	35.1	35.5
140.0	KU140A	44.0	52.0	86.0	86.0	37.0	38.0
154.0	KU154A	44.0	57.0	73.0	89.0	41.3	40.5
160.0	KU160A	52.0	56.0	99.0	99.0	45.3	46.0
171.45	KU171A	55.2	60.3	108.0	108.0	53.8	53.5
	KU171B	56.4	58.7	125.4	144.5	54.0	58.8
	KU171F	55.6	60.3	107.9	107.9	50.6	50.0
	KU171H	55.6	60.3	107.9	107.9	50.4	49.5
	KU171J	53.7	60.3	108.0	108.0	53.5	53.5
	KU171M	55.6	60.3	107.9	107.9	50.6	50.0
	KU171N	55.6	60.3	107.9	107.9	50.7	49.5
175.0	KU175E	54.0	57.0	86.4	102.4	46.0	47.0
	KU175F	54.0	57.0	86.4	102.4	50.2	49.0
175.41	KU175A	57.3	58.7	125.4	144.5	58.8	60.2
190.0	KU190B	58.0	62.0	124.4	160.4	59.0	58.0
	KU190C	58.0	69.0	119.6	155.6	58.7	60.0
	KU190G	58.0	62.0	124.4	160.4	59.0	57.0
	KU190J	58.0	62.0	124.4	160.4	59.0	58.0
	KU190L	58.0	62.0	124.4	160.4	59.0	57.0
	KU190M	58.0	62.0	124.4	160.4	59.0	58.0
	KU190N	58.0	62.0	124.4	160.4	59.0	58.0
	KU190S	58.0	62.0	124.4	160.4	59.0	57.0
	KU190R	58.0	62.0	119.6	155.6	59.0	60.0
202.8	KU203D	62.0	72.0	129.0	179.0	64.0	64.0
203.2	KU203A	58.0	72.2	138.4	178.4	66.7	64.0
	KU203C	58.0	72.2	138.4	178.4	66.7	64.0
	KU203G	58.0	72.2	138.4	178.4	66.9	64.0
	KU203H	58.0	72.2	138.4	178.4	66.9	64.0
215.9	KU216B	64.3	76.2	146.0	184.0	71.0	70.0
	KU216D	69.0	76.0	140.0	190.0	67.9	68.4

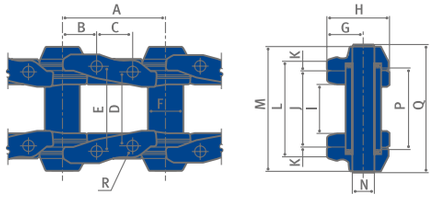


치수단위(Unit) : mm

표준단면치수 Dimensions								제품명 Model Name
H	I	K	L	M	N(Ø)	Q	R(Ø)	
46.0	27.0	0.5	59.0	74.0	14.2	77.0	-	KU90A
60.0	32.0	0.9	73.8	87.8	19.2	92.5	-	KU102A
65.0	40.0	0.6	85.0	120.2	22.1	123.0	13.5	KU135A
70.0	48.0	0.4	102.0	134.4	22.3	140.0	13.2	KU135B
67.0	53.6	1.0	104.0	136.0	22.3	140.0	13.5	KU135C
70.0	40.0	0.9	95.0	127.4	23.0	133.0	12.3	KU135E
65.0	40.0	0.6	85.0	120.2	22.1	123.0	13.5	KU135F
70.0	57.8	0.6	109.9	133.0	25.2	137.0	12.3	KU140A
74.0	45.0	1.2	101.1	125.0	24.1	131.0	14.2	KU154A
83.0	66.0	1.0	130.5	152.0	30.0	157.0	14.8	KU160A
94.5	72.2	1.2	135.2	178.6	36.6	183.0	16.2	KU171A
101.6	90.5	0.6	168.0	203.3	36.7	206.4	16.1	KU171B
90.0	70.5	0.6	135.1	171.9	33.6	178.0	16.4	KU171F
89.0	72.9	1.0	135.6	168.9	33.5	175.0	16.2	KU171H
94.5	71.2	1.2	137.2	178.6	36.6	186.0	16.3	KU171J
90.0	72.9	0.6	137.5	171.9	34.1	178.0	16.3	KU171M
89.0	72.9	1.0	139.2	168.9	33.6	175.0	16.2	KU171N
86.0	52.4	1.2	117.8	162.0	30.0	173.0	16.3	KU175E
90.0	52.4	1.2	117.5	162.0	32.0	173.0	16.3	KU175F
103.2	82.0	0.6	165.3	209.2	36.6	212.0	18.1	KU175A
105.0	82.8	1.2	170.4	205.2	38.0	213.2	20.3	KU190B
106.0	82.6	1.5	167.7	201.6	36.6	207.0	20.8	KU190C
104.0	82.8	0.6	163.6	207.0	38.0	212.0	18.2	KU190G
105.0	84.8	1.2	169.8	207.0	38.0	212.0	20.3	KU190J
104.0	82.8	0.6	163.6	207.0	38.0	212.0	20.2	KU190L
105.0	82.8	1.2	170.4	205.2	38.0	212.0	20.5	KU190M
105.0	84.8	1.2	169.8	207.0	38.0	212.0	20.2	KU190N
104.0	82.8	0.6	163.6	207.0	38.0	212.0	20.8	KU190S
110.0	82.5	1.5	166.7	201.5	38.0	207.0	20.8	KU190R
115.0	92.0	1.5	185.3	226.0	42.0	230.0	21.0	KU203D
116.4	100.8	0.8	189.0	237.4	44.5	245.0	20.2	KU203A
116.4	100.8	0.8	193.8	237.4	44.5	245.0	20.2	KU203C
116.0	102.0	1.4	191.5	230.8	44.7	242.0	20.2	KU203G
116.0	101.0	1.4	194.2	235.6	44.6	244.0	20.2	KU203H
129.0	108.5	1.5	201.1	245.1	47.0	252.0	22.3	KU216B
124.0	100.7	1.5	200.8	241.7	46.0	246.5	23.0	KU216D

21. HEAVY MACHINERY 중기

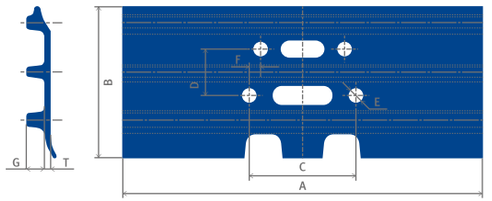
1) Track Link Assembly 링크조립품



치수단위(Unit) : mm

홑간 거리 Pitch (A)	제품명 Model Name	표준단면치수 Dimensions									제품명 Model Name
		B	C	D	E	F(Ø)	G	H	I	K	L	M	N(Ø)	Q	R(Ø)	
216.0	KU216E	63.0	76.2	140.4	178.4	66.5	64.0	116.0	102.0	1.4	191.6	233.6	44.6	242.0	22.3	KU216E
	KU216H	63.0	76.2	140.4	178.4	66.5	64.0	116.0	102.0	1.4	191.6	233.6	44.6	242.0	22.3	KU216H
	KU216K	63.0	76.2	140.4	178.4	66.5	64.0	116.0	102.0	1.4	191.6	233.6	44.6	242.0	22.3	KU216K
	KU216M	63.0	76.2	140.4	178.4	66.9	64.0	116.0	102.0	1.4	191.6	233.6	44.7	242.0	22.3	KU216M
	KU216N	64.3	76.2	146.0	184.0	71.4	70.0	129.0	103.1	1.2	203.2	246.3	47.0	252.0	24.3	KU216N
	KU216P	63.0	76.2	140.4	178.4	66.5	64.0	116.0	102.0	1.4	191.6	233.6	44.6	242.0	22.3	KU216P
	KU216Q	63.0	76.2	140.4	178.4	66.5	64.0	120.0	102.0	1.4	191.6	233.6	44.6	242.0	22.3	KU216Q
	KU216R	64.3	76.2	146.1	184.2	73.4	70.0	129.0	102.4	1.5	205.7	250.6	48.1	257.0	24.3	KU216R
	KU216S	64.3	76.2	146.1	184.2	71.0	70.0	125.0	105.1	1.5	204.2	245.9	46.4	253.0	22.9	KU216S
228.6	KU228B	71.4	76.2	149.2	200.0	73.3	70.0	129.0	104.0	1.5	213.5	257.0	48.8	264.0	24.3	KU228B
	KU228C	71.4	76.2	144.0	184.0	71.0	70.0	129.0	106.0	1.4	202.2	248.2	47.0	252.0	24.3	KU228C
	KU228D	71.4	76.2	144.0	184.0	71.0	70.0	129.0	106.0	1.4	202.2	243.2	47.0	252.0	24.3	KU228D
260.35	KU260A	88.0	76.2	184.2	235.0	85.0	79.0	152.0	133.4	1.5	266.2	311.4	57.2	319.0	27.3	KU260A
	KU260B	88.0	76.2	184.2	235.0	85.0	86.0	159.0	133.4	1.5	266.2	311.4	57.2	319.0	30.3	KU260B

2) Track Shoe 트랙슈 (Triple Grouser)

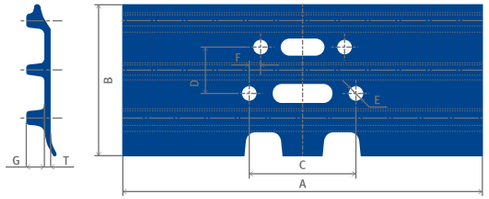


치수단위(Unit) : mm

두께 Thickness	폭 Width (A)	품목코드 Description Code	표준단면치수 Dimensions			표준단면치수 Dimensions		적용 링크 피치 Applied Link Pitch	단면적 Section Area (mm²)	품목코드 Description Code
			B	C	D	F	G			
6.0	350~500	13TA060	154.0	92.0	43.4	13.5	14.0	135.0	1,378.1	13TA060
			154.0	99.0	43.4	13.5	14.0	135.0	1,378.1	
	450~600	15TA060	165.0	89.0	57.0	8.0	20.0	154.0	1,792.9	15TA060
			165.0	90.0	55.0	0.0	20.0	154.0	1,792.9	
8.0	450~600	15TA080	165.0	89.0	57.0	8.0	20.0	154.0	2,121.4	15TA080
			165.0	90.0	55.0	0.0	20.0	154.0	2,121.4	
	500~900	17TA080	198.9	102.4	57.0	8.0	25.0	171.45	2,903.4	17TA080
	500~600	17TB080	190.0	107.9	60.3	0.0	20.0	171.45	2,353.8	17TB080

21. HEAVY MACHINERY 중기

2) Track Shoe 트랙슈 (Triple Grouser)

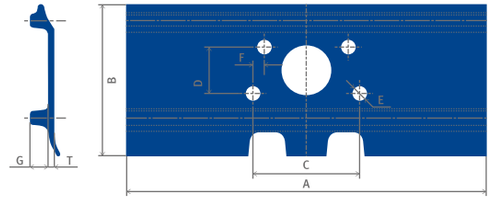


치수단위(Unit) : mm

두께 Thickness	폭 Width (A)	품목코드 Description Code	표준단면치수 Dimensions			표준단면치수 Dimensions		적용 링크 피치 Applied Link Pitch	단면적 Section Area (mm²)	품목코드 Description Code
			B	C	D	F	G			
8.5	500~700	19TB085	219.0	155.57	69.0	18.0	26.0	190.0	3,299.2	19TB085
			219.0	160.4	62.0	18.0	26.0	190.0	3,299.2	
	400~500	16TA085	185.0	99.0	56.0	0.0	22.0	160.0	2,687.6	16TA085
9.0	500~900	17TA090	198.9	108.0	60.3	0.0	25.0	171.45	3,094.2	17TA090
			198.9	125.41	58.7	9.6	25.0	171.45	3,094.2	
9.5	500~700	17TC095	190.0	102.4	57.0	8.0	20.0	175.0	2,676.8	17TC095
			190.0	108.0	60.3	0.0	20.0	171.45	2,676.8	
10.0	400~900	19TA100	217.5	160.4	62.0	18.0	26.0	190.0	3,679.7	19TA100
	500~900	19TB100	219.0	155.57	69.0	18.0	26.0	190.0	3,626.3	19TB100
			219.0	160.4	62.0	18.0	26.0	190.0	3,626.3	
10.5	500~600	17TA105	198.9	108.0	60.3	0.0	25.0	171.45	3,377.8	17TA105
			198.9	125.41	58.7	9.55	25.0	171.45	3,377.8	
11.0	500~950	20TA110	232.5	178.4	72.2	20.0	26.0	203.2	4,290.7	20TA110
	600~900	20TB110	232.5	178.4	72.2	20.0	31.0	203.2	4,699.0	20TB110
	600~900	21TB110	247.0	178.4	76.2	19.0	36.0	216.0	5,133.7	21TB110
			247.0	184.2	76.2	19.0	36.0	216.0	5,133.7	
	600~850	21TC110	250.0	178.4	76.2	19.0	30.0	216.0	4,542.8	21TC110
			250.0	190.0	76.0	19.0	30.0	216.0	4,542.8	
	600~850	21TC115	250.0	178.4	76.2	19.0	30.0	215.9	4,704.6	21TC115
12.5	500~900	19TA125	217.5	160.4	62.0	18.0	26.0	190.0	4,219.7	19TA125
13.0	600~900	21TA130	247.0	178.4	76.2	19.0	36.0	215.9	5,627.7	21TA130
			247.0	184.0	76.2	19.0	36.0	215.9	5,627.7	
16.0	600~900	21TD160	247.0	178.4	76.2	19.0	36.0	228.6	6,148.5	21TD160
			247.0	184.0	76.2	19.0	36.0	228.6	6,148.5	
			247.0	190.0	76.0	25.4	36.0	228.6	6,148.5	
			247.0	200.0	76.2	25.4	36.0	228.6	6,148.5	
18.0	600~900	21TD180	247.0	184.0	76.2	19.0	36.0	216.0	6,642.5	21TD180

21. HEAVY MACHINERY 중기

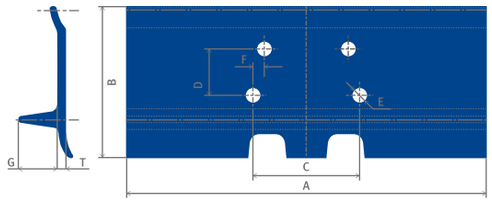
3) Track Shoe 트랙슈 (Double Grouser)



치수단위(Unit) : mm

두께 Thickness	폭 Width (A)	품목코드 Description Code	표준단면치수 Dimensions					적용 링크 피치 Applied Link Pitch	단면적 Section Area (mm²)	품목코드 Description Code
			B	C	D	F	G			
13.0	600~900	P190DG	217.0	160.4	62.0	18.0	35.0	190.0	4,205.5	P190DG
15.0	600~900	P216DG	250.0	184.0	76.2	19.0	49.5	216.0	6,238.4	P216DG
			250.0	178.4	76.2	19.0	49.5	216.0	6,238.4	
21.0	600~900	P260DG	302.0	234.95	76.2	25.4	50.0	260.35	9,335.0	P260DG

4) Track Shoe 트랙슈 (Single Grouser)



치수단위(Unit) : mm

두께 Thickness	폭 Width (A)	품목코드 Description Code	표준단면치수 Dimensions					적용 링크 피치 Applied Link Pitch	단면적 Section Area (mm²)	품목코드 Description Code
			B	C	D	F	G			
13.5	600~960	19SG135	222.0	155.6	69.0	18.0	57.5	190.0	3,866.9	19SG135
			222.0	160.4	62.0	18.0	57.5	190.0	3,866.9	
16.7	600~900	21SG167	247.7	184.2	76.2	19.1	71.4	216.0	6,106.2	21SG167

5) Chemical Composition (Ladle Analysis) 강재 성분표

명칭 Designation	종류의 기호 Symbol	화학성분 Chemical Composition (%)				
		C	Si	Mn	P. Max.	S. Max.
중기용 For Heavy Construction Equipment	S43BC	0.43~0.48	0.15~0.35	0.67~0.90	0.030	0.015
	15B23M	0.21~0.25	0.15~0.30	1.00~1.10	0.030	0.015
	15B37M	0.32~0.36	0.15~0.30	1.00~1.40	0.030	0.025
	10B35M	0.32~0.36	0.15~0.30	1.00~1.30	0.030	0.025
	30MNB4	0.32~0.36	0.15~0.30	1.20~1.50	0.030	0.025
	SCR440B	0.39~0.43	0.15~0.30	0.67~0.85	0.030	0.025

QUALITY CERTIFICATION 품질인증 현황

Certificate Product of KS KS 표시 허가품목

KS 기호	허가번호 Certi. No.	허가일자 Approval Date	등급 및 품명 Grade & Name of Product	비고 Remarks
	43	1964. 12. 18	Steel Bar for Concrete Reinforcement 철근콘크리트용 봉강	Incheon 인천공장
KS D 3504	871	1973. 12. 24		Pohang 포항공장
	95-06-001	1995. 08. 16	Deformed Bar: SD300, SD350, SD400, SD500, SD400W, SD500W, SD600*, SD700**	Dangjin 당진제철소
			Rolled Steel for General Structure 일반구조용 압연강재	
			Equal Angle & Unequal Angle: SS400, SS490, SS540 등변 ㄱ형강, 부등변 ㄱ형강	
	42	1964. 12. 08	Inverted Angle: SS330, SS400 부등변 부등후 ㄱ형강	Incheon 인천공장
KS D 3503	1459	1977. 05.16	Channels, I-Beams: SS400 ㄷ형강, I형강	Pohang 포항공장
	05-0388	2005. 08. 17	H-Beams: SS400, SS490, SS540 H형강 Steel Strip: SS400 강대 Steel Plate: SS400, SS490, SS540 강판	Dangjin 당진제철소
KS E 4002	2451	1981. 09. 16	I Section Steel for Mine Support: Type 1:100, Type 1:130 광산지보용 I형강: 1종:100, 1종: 130	Incheon 인천공장
			Rolled Steel for Welded Structure 용접구조용 압연강재	
	5321	1987. 06. 11	H-Beams, Channel, Equal Angle: SM400A, SM400B, SM490A, SM490B H형강, ㄷ형강, 등변 ㄱ형강 :	Incheon 인천공장
KS D 3515	10987	1994. 05. 11	SM490YA, SM490YB, SM520B Steel Strip: SM400B, SM490A, SM490B,	Pohang 포항공장
	06-0372	2006. 09. 27	SM490YB, SM520B, SM520C 강대 Steel Plate: SM400A, SM400B, SM400C, SM490A, SM490B, SM490C, SM490YA, SM490YB, SM520B, SM520C, SM570 강판	Dangjin 당진제철소
KS D 3698	7920	1999. 07. 22	Cold Rolled Stainless Steel Sheet & Coil: STS 304, 304L, 316, 316L, 430, 436L 냉간 압연 스테인리스 강판 및 강대	Incheon 인천공장
KS D 3868	10-0605	2010. 10. 27	Rolled Steel for Bridge Structure 교량구조용압연강재 Steel Plate: HSB500, HSB500L, HSB500W, HSB600 강판	Dangjin 당진제철소
KS D 3866	09-0237 09-0330	2010. 03. 10 2009. 08. 26	Hot Rolled H-Beam for Building Structure 건축구조용 열간압연 H형강	Incheon 인천공장 Pohang 포항공장

KS 기호	허가번호 Certi. No.	허가일자 Approval Date	등급 및 품명 Grade & Name of Product	비고 Remarks
KS F 4604	05-0420 3318	2005. 09. 14 1983. 12. 17	Hot Rolled Steel Sheet Pile: SY300, SY400 열간압연 강널말뚝	Incheon 인천공장 Pohang 포항공장
KS R 9106	97-09-067	1997. 12. 18	Rail 보통 레일	Pohang 포항공장
KS R 9110	10-0106	2010. 02. 24	Head Hardened Rail 열처리 레일	Pohang 포항공장
KS F 4603	00-1257	2000. 03. 23	Steel H Pile H형강 말뚝	Incheon 인천공장
KS D 3501	05-0387	2005. 08. 17	Hot Rolled Mild Steel Sheet, Coil: SPHC 열간 압연 연강판 및 강대	Dangjin 당진제철소
KS D 3555	05-0389	2005. 08. 17	Hot Rolled Carbon Steel Strip for Pipe & Tube: HRS1, HRS2 강관용 열간 압연 탄소강대	Dangjin 당진제철소
KS D 5994	13-5215	2013. 10. 16	High performance Rolled Steel for Building structure: HSA800 건축구조용 고성능 압연강재	Dangjin 당진제철소
KS D 3770	07-0411	2007.10.31	Hot-dip 55% aluminium-zinc alloy-coated steel sheets and coils : SGLCC, SGLCD, SGLC400, SGLC440, SGLC570 : AZ90, AZ120, AZ150 용융55% 알루미늄-아연합금 도금 강판 및 강대	Dangjin #1 CR 당진제철소 1냉연
KS D 3512	07-0409 13-5149 99-0535	2007.10.31 2013.08.21 1999.04.03	Cold-reduced carbon steel sheets and strip : SPCC, SPCD, SPCE 냉간 압연 강판 및 강대	Dangjin #1 & #2 CR 당진제철소 1 & 2 냉연 Suncheon 순천공장
KS D 3506	07-0408 13-5148 99-0536	2007.10.31 2013.08.21 1999.04.03	Hot-dip zinc-coated steel sheets and coils : #1CR : SGCC, SGCD1, SGCD2, SGCD3, SGC340, SGC400, SGC440, SGC570, SGH400, SGH440, SGH490 #2CR : SGC340, SGC400, SGC440, SGC490, SGCC, SGCD1, SGCD2, SGCD3 Suncheon : SGCD1, SGCD2, SGCD3, SGCC, SGC340, SGC400 용융 아연 도금 강판 및 강대	Dangjin #1 & #2 CR 당진제철소 1 & 2 냉연 Suncheon 순천공장
KS D 3528	99-0537	1999.04.03	Electrolytic zinc-coated steel sheet and strip : SECC, SECD, SECE, EB, E8, E16, E24, E32, E40 전기 아연 도금 강판 및 강대	Suncheon 순천공장
KS D 3520	99-0584	1999.04.03	Prepainted hot-dip zinc-coated steel sheet and strip : 1, 2류 도장 용융 아연 도금 강판 및 강대	Suncheon 순천공장

* 당진제철소는 SD600인증에서 제외
** 당진제철소는 SD700인증에서 제외

QUALITY CERTIFICATION 품질인증 현황

ISO Certification ISO 인증

구분 Section	허가번호 Certi. No.	허가일자 Approval Date	품명 Product	비고 Remarks	구분 Section
품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009	QMS-1261 (KSA) FM548055 (BSI)	2014. 11. 10 (최초인증 1994. 04. 29) 2014. 10. 28 (최초인증 2009. 03. 11)	형강 Steel Shape 철근 Steel Bar 열연강판, 강대 Hot Rolled Plate & Coil 스테인리스 Stainless Steel Plate & Coil 원형강 Round Bar 레일 및 경레일 Rail & Light Rail 빌렛, 부룸, 빔블랭크 Steel Billets, Blooms & Beam-Blanks 선철 Pig Iron 주단강 Cast Steel & Steel Ingots for Forging 주조롤 Cast Rolls 중기 및 기계 Heavy Machinery & Machinery 슬라브 SLAB	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009
품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009	SEO 1955816/C (LRQA)	2014. 07. 08 (최초인증 2005. 11. 02)	냉간압연 강판 및 강대 Cold-rolled steel sheet and coil 용융 아연 도금 강판 및 강대 Hot-dip zinc-coated steel sheet and coil 산세 도유 강판 및 강대 Pickled and oiled steel sheet and coil 용융 아연 합금 도금 강판 및 강대 Hot-dip zinc alloy-coated steel sheet and coil	Dangjin CR 당진제철소 냉연사업부	품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009
품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009	SEO 1955816/B (LRQA)	2014. 01. 01 (최초인증1999. 02. 12)	냉간압연 강판 및 강대 Cold-rolled steel sheet and coil 용융 아연 도금 강판 및 강대 Hot-dip galvanized steel sheet and coil 전기 아연 도금 강판 및 강대 Electrolytic galvanized steel sheet and coil 산세 도유 강판 및 강대 Pickled and oiled steel sheet and coil 전기 아연 니켈 도금 강판 및 강대 Electrolytic zinc-nickel coated steel sheet and coil	Suncheon 순천공장	품질경영시스템 Quality Management System ISO 9001:2008 KS Q ISO 9001:2009
환경경영시스템 Environmental Management System ISO 14001:2004 KS I ISO 14001:2009	EMS-0163 (KSA) EMS548050 (BSI)	2014. 11. 20 (최초인증 2003. 10. 29) 2014. 10. 28 (최초인증 2009. 03. 11)	형강 Steel Shape 철근 Steel Bar 열연강판, 강대 Hot Rolled Plate & Coil 스테인리스 Stainless Steel Plate & Coil 원형강 Round Bar 레일 및 경레일 Rail & Light rail 빌렛, 부룸, 빔블랭크 Steel Billets, Blooms & Beam-Blanks 선철 Pig Iron 주단강 Cast Steel & Steel Ingots for Forging 주조롤 Cast Roll 중기 및 기계 Heavy Machinery & Machinery	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	환경경영시스템 Environmental Management System ISO 14001:2004 KS I ISO 14001:2009

QUALITY CERTIFICATION 품질인증 현황

ISO Certification ISO 인증

구분 Section	허가번호 Certi. No.	허가일자 Approval Date	품명 Product	비고 Remarks	구분 Section
안전보건경영시스템 Health & Safety Management System OHSAS 18001:2007 K-OHSMS 18001:2007	HSS-0020 (KSA) OHS 548051 (BSI)	2014. 11. 20 (최초인증 2005. 12. 21) 2014. 10. 28 (최초인증 2009. 03. 11)	형강 Steel Shape 철근 Steel Bar 열연강판, 강대 Hot Rolled Plate & Coil 스테인리스 Stainless Steel Plate & Coil 원형강 Round Bar 레일 및 경레일 rail & Light rail 빌렛, 부룸, 빔블랭크 Steel Billets, Blooms & Beam-Blanks 선철 Pig Iron 주단강 Cast Steel & Steel Ingots for Forging 주조롤 Cast Roll 중기 및 기계 Heavy Machinery & Machinery	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	안전보건경영시스템 Health & Safety Management System OHSAS 18001:2007 K-OHSMS 18001:2007
안전보건경영시스템 Safety & Health Management System KOSHA 18001	KOSHA/KSA10003 제837호 제106호	2010. 11. 05 2014. 06. 22 (최초인증 2011. 06. 27) 2011. 01. 27	KOSHA 18001	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	안전보건경영시스템 Safety & Health Management System KOSHA 18001
품질경영시스템 Quality Management System ISO/TS 16949:2009	IATF No.0112984 TSS-0105 (KSA)	2013. 11. 16 (최초인증 2007. 12. 20)	강재, 강판 및 강대의 제조 Manufacture of Steel Products, Plate Sheet and Strip Coil	Dangjin 당진제철소	품질경영시스템 Quality Management System ISO/TS 16949:2009
품질경영시스템 Quality Management System ISO/TS 16949:2009	SEO 2981055/A (LRQA)	2014. 07. 08 (최초인증 2005. 11. 02)	냉간압연 강판 및 강대 Cold-rolled steel sheet and coil 용융 아연 도금 강판 및 강대 Hot-dip zinc-coated steel sheet and coil 산세 도유 강판 및 강대 Pickled and oiled steel sheet and coil 용융 아연 합금 도금 강판 및 강대 Hot-dip zinc alloy-coated steel sheet and coil	Dangjin CR 당진제철소 냉연사업부	품질경영시스템 Quality Management System ISO/TS 16949:2009
품질경영시스템 Quality Management System ISO/TS 16949:2009	SEO 0955816/B (LRQA)	2014. 01. 01 (최초인증 2003. 11. 10)	냉간압연 강판 및 강대 Cold-rolled steel sheet and coil 용융 아연 도금 강판 및 강대 Hot-dip galvanized steel sheet and coil 전기 아연 도금 강판 및 강대 Electrolytic galvanized steel sheet and coil 산세 도유 강판 및 강대 Pickled and oiled steel sheet and coil 전기 아연 니켈 도금 강판 및 강대 Electrolytic zinc-nickel coated steel sheet and coil	Suncheon 순천공장	품질경영시스템 Quality Management System ISO/TS 16949:2009

QUALITY CERTIFICATION 품질인증 현황

Certificate Product of JIS JIS 표시 허가품목

구분 Section	허가번호 Certi. No.	허가일자 Approval Date	품명 Product	비고 Remarks	구분 Section
JIS G 3112	KSKR07022(KSA) KR8746(日경제산업성) KSKR07033 KR8749 KSKR07018	2011. 01. 06 (최초인증 1987. 08. 07) 2014. 02. 13 (최초인증 2008. 02. 13) 1987. 12. 03 2013. 12. 12 (최초인증 2007. 12. 12)	Steel Bar for Concrete Reinforcement 철근콘크리트용 봉강 Plain Bar : SR235, SR295 원형철근 Deformed Bar : SD295A, SD295B, SD345, SD390, SD490 이형철근	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	JIS G 3112
JIS G 3101	KSKR07020(KSA) KR8745(日경제산업성) KSKR07031 KR8969 KSKR07006	2011. 01. 06 (최초인증 1987. 08. 07) 2014. 02. 13 (최초인증 2008. 02. 13) 1989. 06. 13 2013. 05. 30 (최초인증 2007. 05. 30)	Rolled Steel for General Structure : Shape, Hot Rolled Steel 일반구조용 압연강재 : 형강, 열연강판, 열연강대	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	JIS G 3101
JIS G 3106	KSKR07021(KSA) KR8745(日경제산업성) KSKR07032 KSKR07017	2011. 01. 06 (최초인증 1987. 08. 07) 2014. 02. 13 (최초인증 2008. 02. 13) 2013. 12. 12 (최초인증 2007. 12. 12)	Rolled Steel for Welded Structure : Shape, Hot Rolled Steel 용접구조용 압연강재 : 형강, 열연강판, 열연강대	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	JIS G 3106
JIS A 5528	KSKR08041(KSA) KR8977(日경제산업성) KSKR08042 KR9995	2011. 08. 04 (최초인증 1989. 10. 23) 2014. 07. 16 (최초인증 2008. 07. 16) 1999. 06. 02	Hot Rolled Steel Sheet Pile 열간압연, 강널말뚝	Incheon 인천공장 Pohang 포항공장	JIS A 5528
JIS A 5523	KSKR10008 KSKR10001	2010. 06. 17 2013. 04. 22 (최초인증 2010. 04. 22)	Weldable Hot Rolled Steel Sheet Pile 용접용 열간압연, 강널말뚝	Incheon 인천공장 Pohang 포항공장	JIS A 5523
JIS G 4051	KSKR07034 KSKR12019	2014. 02. 13 (최초인증 2008. 02. 13) 2012. 08. 02	Carbon Steel for Machine Structural Use 원형강(기계구조용 탄소강) 열간압연 강판 및 강대	Pohang 포항공장 Dangjin 당진제철소	JIS G 4051
JIS G 3136	KSKR07023 KSKR11009 KSKR11023	2011. 01. 06 2014. 06. 30 (최초인증 2011. 06. 30) 2014. 10. 27 (최초인증 2011. 10. 27)	Rolled Steel for Building Structure 건축구조용 압연강재	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	JIS G 3136
JIS G 3131	KSKR07007	2013. 05. 30 (최초인증 2007. 05. 30)	Hot Rolled Mild Steel Plate, Sheet & Strip : Hot Rolled Steel 열간압연연강판 및 강대 : 열연강판, 열연강대	Dangjin 당진제철소	JIS G 3131

QUALITY CERTIFICATION 품질인증 현황

Certificate Product of JIS JIS 표시 허가품목

구분 Section	허가번호 Certi. No.	허가일자 Approval Date	품명 Product	비고 Remarks	구분 Section
JIS G 3114	KSKR10027	2014. 01. 06 (최초인증 2011. 01. 06)	Hot Rolled atmospheric corrosion resisting Steel for welded structure 용접구조용 내후성 열간압연강재	Dangjin 당진제철소	JIS G 3114
JIS G 3113	KSKR12017	2012. 08. 02	Hot Rolled Steel Plate, Sheet and Strip for Automobile Structural Uses 자동차 구조용 열간압연 강판 및 강대 SAPH310, SAPH370, SAPH400, SAPH440	Dangjin 당진제철소	JIS G 3113
JIS G 3132	KSKR12018	2012. 08. 02	Hot Rolled Carbon Steel Strip for Pipes and Tubes 강관용 열간압연 탄소강 강대	Dangjin 당진제철소	JIS G 3132
JIS G 3302	KSKR07013	2013. 11. 28	Hot-dip zinc-coated steel sheet and strip 용융 아연 도금 강판 및 강대	Dangjin #1 CR 당진제철소 1냉연	JIS G 3302
	KSKR13015	2013. 12. 05		Dangjin #2 CR 당진제철소 1냉연	
	KSKR08104	2014. 10. 01 (최초인증 2008. 10. 01)		Suncheon 순천공장	
JIS G 3141	KSKR07012	2013. 11. 28	Cold-reduced carbon steel sheet and strip 냉간 압연 강판 및 강대	Dangjin #1 CR 당진제철소 1냉연	JIS G 3141
	KSKR13014	2013. 12. 05		Dangjin #2 CR 당진제철소 1냉연	
	KSKR08103	2014. 10. 01 (최초인증 2008. 10. 01)		Suncheon 순천공장	
JIS G 3312	KSKR08105	2014. 10. 01 (최초인증 2008. 10. 01)	Prepainted hot-dip zinc-coated steel sheet and strip 도장 용융 아연 도금 강판 및 강대	Suncheon 순천공장	JIS G 3312
JIS G 3313	KSKR11001	2014. 10. 01 (최초인증 2012. 02. 29)	Electrolytic zinc-coated steel sheet and strip 전기 아연 도금 강판 및 강대	Suncheon 순천공장	JIS G 3313
JIS G 4305	KSKR09009	2011. 08. 04	Cold Rolled Stainless Steel Plate, Sheet & Strip 냉간 압연 스테인리스 강판 및 강대	Incheon 인천공장	JIS G 4305
JIS E 1101	KSKR10038	2014. 03. 30 (최초인증 2011. 03. 30)	Flat Bottom Railway Rails and Special Rails for Switches and Crossings of Non-Treated Steel 보통 레일 및 분기기류용 특수 레일	Pohang 포항공장	JIS E 1101
JIS E 1120	KSKR10039	2014. 03. 30 (최초인증 2011. 03. 30)	Head Hardened Rails 열처리 레일	Pohang 포항공장	JIS E 1120
JIS G 4052	KSKR14020	2014. 11. 14	Structural Steel with Hardenability (H-Beam) 소입성을 보증한 구조용강 강재(H강) Chrome Steel, Chrome-Molybdan Steel 크롬강, 크롬몰리브덴강	Pohang 포항공장	JIS G 4052
JIS G 4053	KSKR14015	2014. 11. 06	Alloy Steel for Machine Structural Use 기계구조용 합금강 강재 Hot Rolled Steel Bar and Wire Rod 열간압연봉강 및 선재	Pohang 포항공장	JIS G 4053

QUALITY CERTIFICATION 품질인증 현황

The Others 기타 인증

구분 Section	허가번호 Certi. No.	허가일자 Approval Date
유럽연합(EU) CPR (CE-Mark)	0035-CPR-060001 0035-CPR-060001-2	2012. 04. 02 2014. 02. 07 (최초인증 2011. 03. 09)
유럽연합(EU) CPR (CE-Mark)	0038/CPD/MUM/0710056/1	2007. 07. 19
유럽연합(EU) U-Sign	696 06587-01	2009. 01. 20
유럽연합(EU) PED	01 202ROK/Q 02 0014	2011. 07. 31
유럽연합(EU) PED	0038/PED/MUM/1210002/1	2012. 01. 19
홍콩정부승인 Hong Kong Government	(74) in BD GR/I-80/44	2011. 11. 23
KEPIC (원자력분야)	DN-594 DN-217 DN-586	2013. 03. 19 2012. 06. 30 (최초인증 2003. 06. 30) 2012. 11. 30
철도용품 품질인증	KRC-12호	2013. 11. 19
유자격공급자	201400269	2012. 06. 30
	0038/CPD/MUM/0710056/1	2012. 06. 30
	926/021091	2014. 09. 03
SIRIM (MALAYSIA)	PH040401 PH040402	2012. 02. 11
SIRIM (MALAYSIA)	PC000738	2013. 08. 23
	PC000711	2013. 08. 02
SIRIM (MALAYSIA)	PC000865 PC000866 PC000867 PC000900 PC000901 PC000902 PC001112	2013. 11. 15 2013. 11. 15 2013. 11. 15 2013. 11. 29 2013. 11. 29 2013. 11. 29 2014. 04. 04

품명 Product	인증기관 Accredited Unit	비고 Remarks	구분 Section
Hot Rolled Products of Structural Steels for metal structures or in composite metal and concrete structures	TÜV Rheinland	Incheon 인천공장 Pohang 포항공장	유럽연합(EU) CPR (CE-Mark)
Hot Rolled Plate & Coil 열연강판 및 코일	Lloyd's Register Verification	Dangjin 당진제철소	유럽연합(EU) CPR (CE-Mark)
Hot Rolled Steel Sheet Pile	TÜV Rheinland	Pohang 포항공장	유럽연합(EU) U-Sign
Stainless Steel 스테인리스	TÜV Rheinland	Incheon 인천공장	유럽연합(EU) PED
Hot Rolled Plate 열연강판	Lloyd's Register Verification	Dangjin 당진제철소	유럽연합(EU) PED
Steel Shape (H-Beam) 305X305X223kg, 180kg EN10025-2:2004 S450J0+AR	Buildings Department	Incheon 인천공장	홍콩정부승인 Hong Kong Government
Manufacturer and supplier of steel board and reinforcing steel 재료업체로서 판재 및 철근의 제조 및 공급	Korea Electric Association 대한전기협회	Incheon 인천공장 Pohang 포항공장 Dangjin 당진제철소	KEPIC (원자력분야)
Rail (60Kg K Ordinary Rail, 60kg UIC Rail) 레일 (60Kg K 보통 레일, 60kg UIC 레일)	Korean Railroad Corporation 한국철도공사	Pohang 포항공장	철도용품 품질인증
C205B, Reinforcing Steel Bar, #11, #14 and #18 Bar sizes	Korea Hydro & Nuclear Power 한국수력원자력(주)	Pohang 포항공장	유자격공급자
C205A, Reinforcing Steel Bar, Up to #10 Bar sizes	Korea Hydro & Nuclear Power 한국수력원자력(주)	Pohang 포항공장	
C205C, Reinforcing Steel Bar, KS Bars	Korea Hydro & Nuclear Power 한국수력원자력(주)	Pohang 포항공장	
Hot Rolled Products of Non Alloy Structural Steel	SIRIM QAS	Incheon 인천공장	SIRIM (MALAYSIA)
Hot Rolled Stell Sheet Pile	SIRIM QAS	Pohang 포항공장	SIRIM (MALAYSIA)
Hot Rolled Sections of Non-alloy Structual Steel	SIRIM QAS	Pohang 포항공장	
Hot Rolled Steel Strip and Plates Strip: SPHC, SPHT1, SPHT2, SAE1006, SAE1008, SAE1012, SAE1016, S235JR, S275JR, S355JR, S355J0 Plate : S275JR, S275J0, S275J2, S355JR, S355J0, S355J2, S355K2, S355N, S355NL, S355M, S355ML, API-2H50	SIRIM QAS	Dangjin 당진제철소	SIRIM (MALAYSIA)

QUALITY CERTIFICATION 품질인증 현황

The Others 기타 인증

구분 Section	허가번호 Certi. No.	허가일자 Approval Date
BC 1 (싱가포르)	0035-CPR-060001	2012. 04. 02
	0035-CPR-060001-2	2012. 03. 26
BC 1 (싱가포르)	MUM/BC1/0710056/2	2009. 08. 03
SNI (인도네시아)	07-0601-2006	2009. 06. 02
	07-3567-2006	2014. 01. 17
	07-2053-2006	2014. 08. 21
BIS IS 2062 (인도)	CM/L - 4036748	2013. 06. 10
BIS IS 2041 (인도)	CM/L - 4055449	2014. 11. 12
AD 2000 W0 (독일)	50238/1	2014. 08. 28
UK CARERS (영국)	70704	2007. 07. 31
국제공인시험기관인정 KOLAS	No.505	2011. 12. 05
국제공인시험기관인정 KOLAS	No.508	2011. 12. 05
국제공인시험기관인정 KOLAS	No.483	2011. 06. 29
	No.533	2012. 11. 06
국제공인교정기관인정 KOLAS	KC09-233호	2009. 06. 18

품명 Product	인증기관 Accredited Unit	비고 Remarks	구분 Section
Hot Rolled H Beams, Angle and Channels of Structural Steel	TÜV Rheinland	Incheon 인천공장	BC 1 (싱가포르)
Hot Rolled Beams of Structural Steel		Pohang 포항공장	
Hot Rolled Plate & Coil 열연강판 및 코일	Lloyd's Register Verification	Dangjin 당진제철소	BC 1 (싱가포르)
Hot Rolled Steel Sheets, Plates and Coils 열연 강판	BSI(BALAI RISET DAN STANDARDISASI INDUSTRI) PUSTAN	Dangjin 당진제철소	SNI (인도네시아)
Cold Rolled Steel Sheet and Coil 냉연 강판		Dangjin #1CR 당진제철소 1냉연	
Zinc coated Steel Sheet and Coil 아연도금 강판	BSI(BALAI RISET DAN STANDARDISASI INDUSTRI) SURABAYA	Suncheon 순천공장	
Hot Rolled Medium and High Tensile Structural Steel	Bureau of Indian Standards	Dangjin 당진제철소	BIS (인도)
Steel Plates for Pressure Vessels used at Moderate and low temperature	Bureau of Indian Standards	Dangjin 당진제철소	BIS IS 2041 (인도)
Manufacture of hot rolled steel plate	Lloyd's Register Quality Assurance GmbH	Dangjin 당진제철소	AD 2000 W0 (독일)
Reingorcing Bar 철근	UKAS	Pohang 포항공장	UK CARERS (영국)
KS Q ISO/IEC 17025:2006 역학시험 Mechanical Test 화학시험 Chemical Test	한국인증기구 Korea Laboratory Accreditation Scheme	Incheon 인천공장	국제공인시험기관인정 KOLAS
KS Q ISO/IEC 17025:2006 역학시험 Mechanical Test 화학시험 Chemical Test	한국인증기구 Korea Laboratory Accreditation Scheme	Pohang 포항공장	국제공인시험기관인정 KOLAS
KS Q ISO/IEC 17025:2006 역학시험 Mechanical Test 화학시험 Chemical Test	한국인증기구 Korea Laboratory Accreditation Scheme	Dangjin 당진제철소	국제공인시험기관인정 KOLAS
KS Q ISO/IEC 17025:2006 선형치수/형상/기타관련량/질량/압력/ 직류/인피던스/교류 및 교류전력/ 기타 직류 및 저주파 측정/온도	한국인증기구 Korea Laboratory Accreditation Scheme	Dangjin 당진제철소	국제공인교정기관인정 KOLAS

QUALITY CERTIFICATION 품질인증 현황

Certified Product of Register Shipping (Steel Shapes)

선급협회 제조승인 품목(형강)

구분 Section	공장 Site	허가번호 Certi. No.	허가일자 Approval Date
한국 선급협회 (KR)	Incheon	INC00396-SP001	2012. 06. 22
		INC00396-QA001	2011. 05. 27 (Annual Audit)
	Pohang	POH00337-SP002	2013. 08. 08 (최초인증 1997. 04. 10)
		POH00337-SP003	2012. 11. 16 (최초인증 1988. 09. 16)
		POH00337-QA001	2014. 02. 11 (최초인증 2010. 12. 15)
영국 선급협회 (LR)	Incheon	MD00/0754/0007/1	2011. 08. 15
	Pohang	MD00/0819/0014/1	2013. 07. 04
		MD00/3084/0006/1	2013. 07. 04
노르웨이 선급협회 (DNV)	Incheon	AMM-4420	2013. 06. 27
	Pohang	AMM-7054	2014. 11. 11
		R-3369	2012. 12. 31
미국 선급협회 (ABS)	Incheon	ML3-11 156172 a	2012. 06. 25
		ML3-11 250258	2012. 06. 25
		ML3-11 156172 c	2012. 06. 25
	Pohang	155204 e	2006. 04. 19
		155204 d	2006. 04. 19
		539617	2010. 01. 29
		506268	2009. 10. 13
		285891	2007. 11. 20

등급 Grade	품명 Product	구분 Section
A, B, AH32, AH36	Rolled Steel Section for Hull Structure	한국 선급협회 (KR)
-	Approval Certificate for Quality Assurance System	
A, AH32, AH36, DH32, DH36, FH32, FH36	Rolled Steel Sections for Hull Structure	
RL33, RL37	Rolled Steel Sections for Low Temperature Service	
RSBC70	Grade 3 Chain Bar	
-	Approval Certificate for Quality Assurance System	
A, B, AH27S, AH32, AH36	선박구조용 형강(Hull Structural Section)	영국 선급협회 (LR)
Sections : A, B, D, E, AH27S, AH32, AH36, DH32, DH36, AH40, DH27S, DH40, EH27S, EH32, EH36, EH40, FH27S, FH32, FH36, FH40, LTAH27S, LTAH32, LTDH27S, LTDH32, LTEH27S, LTEH32, LTFH27S, LTFH32, LTFH36, LTFH40 Bars : R3S, R4, U3, R3, U2	Steelmaking, Semi-Finished Products, Sections and Bars	
Sections : A, B, D, AH27S, AH32, AH36	Steelmaking and Sections	
NV A, NV B, NV A32, NV A36, NV D36+TM	Steelmaking and Rolled Steel Products	노르웨이 선급협회 (DNV)
Sections: NV- A, E, A32, A36, D32, D36, F40, NV4-4, NV2-4L, NV4-4L Round Bars: NV-K2, K3, R3, R3S, R4	Approval of Manufacturer Certificate : Sections and Round Bars	
-	DET NORSKE VERITAS Manufacturing Survey Arrangement	
A, B	Hull Structural Steel Shape	미국 선급협회 (ABS)
AH32, AH36	Higher Strength Hull Structural Steel Section	
A, AH32, AH36	플랫바(Flat Bar)	
AH32, AH360	Section : Angle	
E	Sections	
AH32, AH36	Steel Sections(Inverted Angle)	
A, AH32, AH36, DH32, DH36	Sections : H-Beam (No. 1)	
RQ3, RQ3S, RQ4 (No. 1)	Bars : Rolled Steel Round Bar	
A, AH32, AH36	Sections : Angle (No. 2)	
FH40	Sections(Angle)	

QUALITY CERTIFICATION 품질인증 현황

Certified Product of Register Shipping (Steel Shapes)

선급협회 제조승인 품목(형강)

구분 Section	공장 Site	허가번호 Certi. No.	허가일자 Approval Date
독일 선급협회 (GL)	Incheon	WZ 118 HH6	2010. 10. 21
	Pohang	WZ 653 HH 10	2014. 05. 21
		WZ 1385 HH5	2014. 12. 29
일본 선급협회 (NK)	Incheon	NKR-106ROL	2008. 07. 04
	Pohang	TA14398E	2014. 04. 23
프랑스 선급협회 (BV)	Incheon	SMS.W. II ./1175/D.0	2010. 01. 25
		08450/C0 BV	2010. 03. 25
		08449/C0 BV	2010. 03. 25
	Pohang	10279/D0 BV	2014. 12. 01
		10280/D0 BV	2014. 12. 01
		07924/D0 BN	2013. 10. 24
러시아선급협회 (RS)	Pohang	7.1.4.1	2012. 06. 20
이태리 선급협회 (RINA)	Pohang	11/PU/01/1370	2012. 01. 05
		FAB248014PU	2015. 01. 29

등급 Grade	품명 Product	구분 Section
GL-A, GL-B, GL-A32, GL-A36	선박구조용 형강 (Hull Structural Section) 플랫바(Flat Bar)	독일 선급협회 (GL)
GL-A, B, D, E, A32, A36, A40, D32, D36, D40, E32, E36, E40, F32, F36, F40, S235J0, S235J2, S235JR, S275J0, S275J2, S275JR, S355J0, S355J2, S275M, S275ML, S355M, S355ML	Normal and Higher Strength Hull Structural Steels	
K1, K2, K3	Unalloyed Steels for Welded Structures Anchor Chain Cables and Accessories	
GL-A, A32, A36	Unequal angles and inverted angles made of normal and higher strength hull structural steels	
KA, KB, KA32, KA36	선박구조용 형강 (Hull Structural Section)	일본 선급협회 (NK)
KA, KA32, KA36	플랫바(Flat Bar)	
KA, KE, KA32, KD32, KA36, KD36, KF32, KF36, KF40	Rolled Steels for Hull	
KSBC50, KSBC70	Round Bars for Chains	
KL33, KL37	Rolled Steels for Low Temperature Service	
Manufacturing Assessment Approval 공장승인	- Cast Steel Ordinary Anchors and High Holding Power Anchor - Steel Casting in Carbon and Carbon-Manganese Steel and Low Alloy Steel - Ingot for Forging in Carbon and Carbon-Manganese Steel and Low Alloy Steel - Hot Rolled Section	프랑스 선급협회 (BV)
A, B	Flat Bar and Section	
AH32, AH36	Flat Bar and Section	
A, B, D, E,	Normal Strength Hull Steel Rolled Products	
AH32, AH36, DH32, DH36, EH36, FH36, FH40	Higher Strength Hull Steel Rolled Products	
Q2a, Q3a	Round Bars for Ship Anshor Chain Cable	
PC-A, E, AH32, AH36, DH32, DH36, EH32, EH36	Rolled sections of hull structural steel of normal and higher strength	러시아선급협회 (RS)
-	STATEMENT	이태리 선급협회 (RINA)
A, AH32, AH36, DH32, DH36	Normal strength and higher strength hull steel sections	

QUALITY CERTIFICATION 품질인증 현황

Certified Product of Register Shipping (Casting and Ingots)

선급협회 제조승인 품목(주단강)

구분 Section	허가번호 Certi. No.	허가일자 Approval Date	등급 Grade	품명 Product
한국 선급협회 (KR)	INC00396-SC001	2012. 06. 08	RSC RSC-A	Carbon Steel Casting, Low Alloy Steel Casting & Ingot for Forging
영국 선급협회 (LR)	MD00/0754/0006/2	2011. 03. 11	Carbon, C-Mn & Low Alloy Steel	Casting (Max. 130 ton)
노르웨이 선급협회 (DNV)	AMM-4503	2010. 01. 06	Carbon, C-Mn & Low Alloy Steel	Carbon Steel Casting (Max. 170 ton) Ingots for Forging (Max. 150 ton)
미국 선급협회 (ABS)	11-MMPS-CF&PAC-198	2011. 03. 18	Carbon, C-Mn & Low Alloy Steel	Steel Casting, Ingot for Forging
독일 선급협회 (GL)	WZ851 HH5	2010. 07. 29	Carbon, C-Mn & Low Alloy Steel	Steel Casting, Ingot for Forging
일본 선급협회 (NK)	NKM-963CF	2009. 08. 21	Carbon & Low Alloy Steel	Casting, Ingot for Forging
프랑스 선급협회 (BV)	SMS.W. Ⅱ./1175/D.0	2010. 01. 25	Carbon, C-Mn & Low Alloy Steel	Steel Casting (Max. 170 ton), Ingot for Forging (Max. 150 ton)
이태리 선급협회 (RINA)	FAB097209PU/001	2009. 08. 24	Carbon, C-Mn & Low Alloy Steel	Steel Casting, Ingot for Forging

Certified Product of Register Shipping (Low Temperature Steel Plate)

선급협회 제조승인 품목(Low Temperature Steel Plate)

구분 Section	허가일자 Approval Date	등급 Grade	두께 Thickness
한국 선급협회 (KR)	2012. 03. 23	RL235A, RL235B RL325A, RL325B RL360	40
영국 선급협회 (DNV)	2012. 07. 09	LTDH27S, LTDH32, LTDH36 LTFH27S, LTFH32, LTFH36	40
노르웨이 선급협회 (DNV)	2012. 04. 16	NV 2-3, NV 2-4, NV 2-4L NV 4-3, NV-4-4, NV 4-4L	40
미국 선급협회 (ABS)	2012. 05. 11	V-055, V-060 VH-055, VH-060	40
독일 선급협회 (GL)	2012. 04. 23	EN 10028-5 P355M/ML1/ML2	40
일본 선급협회 (NK)	2012. 05. 11	KL33 KL37	40
프랑스 선급협회 (BV)	2012. 06. 05	410LE/410LF 460LE/460LF/460LFM32	40
이태리 선급협회 (RINA)	2012. 05. 03	410LE/410LF 460LE/460LF	40

QUALITY CERTIFICATION 품질인증 현황

Certificated Product of Register Shipping (HR PLATE, PLATE)

선급협회 제조승인 품목(HR PLATE, PLATE)

구분 Section	HR PLATE		PLATE	
	허가일자	등급	허가일자	등급
한국 선급협회 (KR)	2008. 03. 14 (A,B열연) 2011. 06. 15 (C열연)	A, B, AH32, AH36	2010. 10. 25	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47-H, DH47-H, EH47-H AH51, DH51, EH51
영국 선급협회 (LR)	2008. 11. 24 (A,B열연) 2012. 01. 27 (C열연)	A, B, AH32, AH36	2010. 11. 17	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
노르웨이 선급협회 (DNV)	2008. 02. 05 (A,B열연) 2011. 06. 20 (C열연)	A, B A32, A36	2010. 11. 13	A, B, D, E, A32/36, D32/36, E32/36 A40, D40, E40, F32/36 D47, E47
미국 선급협회 (ABS)	2008. 03. 11 (A,B열연) 2011. 07. 21 (C열연)	A, B, AH32, AH36	2010. 12. 16	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
독일 선급협회 (GL)	2008. 01. 17 (A,B열연) 2011. 07. 13 (C열연)	A, B, A32, A36	2010. 10. 19	A, B, D, E, A32/36, D32/36, E32/36 A40, D40, E40, FH32/36 A47EXP, D47EXP, E47EXP
일본 선급협회 (NK)	2008. 01. 18 (A,B열연) 2011. 06. 20 (C열연)	KA, KB, KA32, KA36	2010. 11. 08	KA, KB, KD, KE, KA32/36, KD32/36, KE32/36, FH32/36 KA40, KD40, KE40 KE47
프랑스 선급협회 (BV)	2008. 09. 30 (A,B열연) 2011. 07. 28 (C열연)	A, B, AH32, AH36	2010. 11. 19	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47 A500, D500, E500
이태리 선급협회 (RINA)	2008. 04. 17 (A,B열연) 2011. 07. 18 (C열연)	A, B, AH32, AH36	2010. 12. 07	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
중국 선급협회 (CCS)	2011. 06. 20 (C열연)	A, B A32, A36	2010. 11. 10	A, B, D, E, A32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
러시아 선급협회 (RS)	2011. 05. 16 (C열연)	A, B, AH32, AH36	2010. 10. 26	A, B, D, E, AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47 A500, D500, E500

Certificated Product of Register Shipping (SLAB)

선급협회 제조승인 품목(슬라브)

구분 Section	250mm		300mm	
	허가일자	등급	허가일자	등급
한국 선급협회 (KR)	2010. 10. 25	RL235A, RL235B RL325A, RL325B, RL360 AH51, DH51, EH51	2011. 09. 20	A, B, D, E AH32/36, DH32/36 EH32/36 AH40, DH40, EH40 FH32/36 AH47-H, DH47-H, EH47-H
영국 선급협회 (LR)	2010. 11. 17	LTDH27S, LTDH32, LTDH36 LTFH27S, LTFH32, LTFH36	2012. 01. 27	A, B, D, E AH32/36, DH32/36 EH32/36 AH40, DH40, EH40 FH32/36 AH47, DH47, EH47
노르웨이 선급협회 (DNV)	2010. 11. 13	NV 2-3, NV 2-4, NV 2-4L NV 4-3, NV-4-4, NV 4-4L	2011. 09. 09	A, B, D, E A32/36, D32/36, E32/36 A40, D40, E40, F32/36 D47, E47
미국 선급협회 (ABS)	2010. 12. 16	V-055, V-060 VH-055, VH-060	2011. 10. 20	A, B, D, E AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
독일 선급협회 (GL)	2010. 10. 19	EN 10028-5 P355M/ML1/ML2	2011. 09. 13	A, B, D, E A32/36, D32/36, E32/36 A40, D40, E40, FH32/36 A47EXP, D47EXP, E47EXP

QUALITY CERTIFICATION 품질인증 현황

Certificated Product of Register Shipping (SLAB)

선급협회 제조승인 품목(슬라브)

구분 Section	250mm		300mm	
	허가일자	등급	허가일자	등급
일본 선급협회 (NK)	2010. 11. 08	KL33 KL37	2011. 09. 20	KA, KB, KD, KE, KA32/36, KD32/36, KE32/36, FH32/36 KA40, KD40, KE40 KE47
프랑스 선급협회 (BV)	2010. 11. 19	410LE/410LF 460LE/460LF/460LFM32 A500, D500, E500	2011. 10. 26	A, B, D, E AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
이태리 선급협회 (RINA)	2010. 12. 07	410LE/410LF 460LE/460LF	2011. 09. 26	A, B, D, E AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
중국 선급협회 (CCS)	2010. 11. 10	-	2012. 01. 02	A, B, D, E A32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47
러시아 선급협회 (RS)	2010. 10. 26	A500, D500, E500	2011. 09. 21	A, B, D, E AH32/36, DH32/36, EH32/36 AH40, DH40, EH40, FH32/36 AH47, DH47, EH47

CONVERSION TABLE 도량형 환산표

Linear Measure 길이

	Millimeter (mm)	Centimeter (cm)	Meter (m)	Inch (in)	Foot (ft)	Yard (yd)	Mile (mi)
Millimeter (mm)	1	0.1	0.001	0.03937	0.0032808	0.0010936	$0.0_{(6)}6214$
Centimeter (cm)	10	1	0.01	0.3937	0.032808	0.010936	$0.0_{(5)}6214$
Meter (m)	1,000	10	1	39.37	3.28083	1.0936	$0.0_{(3)}6214$
Inch (in)	25.40	2.540	0.0254	1	0.0833	0.02778	$0.0_{(4)}1578$
Foot (ft)	304.8	30.48	0.3048	12	1	0.333	$0.0_{(3)}1894$
Yard (yd)	914.4	91.44	0.9144	36	3	1	$0.0_{(3)}5682$
Mile (mi)	1,609,347.0	160,934.70	1,609.35	63,360	5,280	1,760	1

Square Measure 면적

	Square Millimeter (mm^2)	Square Centimeter (cm^2)	Square Meter (m^2)	Square Inch (in^2)	Square Foot (ft^2)	Square Yard (yd^2)
Square Millimeter (mm^2)	1	0.01	$0.0_{(5)}1$	0.00155	$0.0_{(4)}10764$	$0.0_{(5)}119599$
Square Centimeter (cm^2)	100	1	0.0001	0.154999	0.0010764	$0.0_{(3)}119599$
Square Meter (m^2)	1,000,000	10,000	1	1,549.99	10.7639	1.19599
Square Inch (in^2)	654.2	6.452	$0.0_{(3)}6452$	1	0.006944	$0.0_{(3)}7616$
Square Foot (ft^2)	92,900	929	0.0929	144	1	0.11111
Square Yard (yd^2)	836,100	8,361	0.8361	1,296	9	1

Cube Measure 부피

	Cubic Centimeter (cm^3)	Cubic Meter (m^3)	Cubic Inch (in^3)	Cubic Foot (ft^3)	Cubic Yard (yd^3)
Cubic Centimeter (cm^3)	1	$0.0_{(5)}1$	0.06102	$0.0_{(4)}3531$	$0.0_{(5)}1308$
Cubic Meter (m^3)	1,000,000	1	61,023	35.31	1.308
Cubic Inch (in^3)	16.39	$0.0_{(4)}1639$	1	$0.0_{(3)}5787$	$0.0_{(4)}2143$
Cubic Foot (ft^3)	28,317	0.028317	1,728	1	0.03704
Cubic Yard (yd^3)	764,500	0.7645	46,660	27	1

Note: The small subnumeral following a zero indicates that the zero is to be repeated that number of times.
thus $0.0_{(3)}4$=0.0004

CONVERSION TABLE 도량형 환산표

Weight 중량

	Kilogram (kg)	Ounce (oz)	Pound (lb)	Net Ton (2,000lbs) (nt)	Gross Ton (2,240 lbs) (gt)	Metric Ton (1,000kg) (t)
Kilogram (kg)	1	35.274	2.20462	0.001102	$0.0_{(3)}9842$	0.001
Ounce (oz)	0.02835	1	0.0625	$0.0_{(4)}3125$	$0.0_{(4)}279$	$0.0_{(4)}2835$
Pound (lb)	0.45359	16	1	0.0005	$0.0_{(3)}4464$	$0.0_{(3)}4536$
Net Ton (nt)	907.187	32,000	2,000	1	0.89286	0.90719
Gross Ton (gt)	1,106.05	35,840	2,240	1.12	1	1.01605
Metric Ton (t)	1,000	35,274	2,204.62	1.10231	0.98421	1

Weight per Linear Unit 중량

	Gram per Centimeter (g/cm)	Kilogram per Meter (kg/m)	Pound per Inch (lb/in)	Pound per Foot (lb/ft)	Pound per Yard (lb/yb)
Gram per Centimeter (g/cm)	1	0.1	0.50560	0.06720	0.20159
Kilogram per Meter (kg/m)	10	1	0.05600	0.67197	2.0159
Pound per Inch (lb/in)	178.5	17.8579	1	12	36
Pound per Foot (lb/ft)	148,816	1.48816	0.08333	1	3
Pound per Yard (lb/yb)	4.96054	0.49605	0.02778	0.3333	1

Weight per Unit Area 단위면적당 중량

	Kilogram per Square Centimeter (kg/cm^2)	Kilogram per Square Meter (kg/m^2)	Metric Tonper Square Meter (t/m^2)
Kilogram per Square Centimeter (kg/cm^2)	1	10,000	10
Kilogram per Square Meter (kg/m^2)	0.0001	1	0.001
Metric Tonper Square Meter (t/m^2)	0.01	1,000	1
Pound per Square Inch (lb/in^2)	0.0703067	703.06686	0.7031
Pound per Square Foot (lb/ft^2)	0.0004882	4.8824087	0.004882

Weight per Unit Volume 단위체적당 중량

	Kilogram per Cubic Centimeter (kg/cm^3)	Kilogram per Cubic Meter (kg/m^3)	Metric Ton per Cubic Meter (t/m^3)
Kilogram per Cubic Centimeter (kg/cm^3)	1	1,000,000	1,000
Kilogram per Cubic Meter (kg/m^3)	0.000001	1	0.001
Metric Ton per Cubic Meter (t/m^3)	0.001	1,000	1
Pound per Cubic Inch (lb/in^3)	0.02768	27,680.4	27.6804
Pound per Cubic Foot (lb/ft^3)	0.000016	16.0196	0.01602

Energy 에너지

	B.T.U	Calories	Ft-lb	kg-m	Hp-hr	Kw-hr	Joules
B.T.U (mean)	1	0.252	778	107.563	$0.0_{(3)}2939$	$0.0_{(3)}2931$	1,054.80
Calories (mean)	3.968	1	3,091.36	426.84	0.001559	0.001163	4,185
Ft-lb	0.001285	$0.0_{(3)}3239$	1	0.1383	$0.0_{(4)}505$	$0.0_{(6)}3767$	1.355
Ft-ton	2.571	0.6478	2,000	276.511	0.00101	$0.0_{(3)}7535$	2,712.59
kg-m	0.009297	0.002343	7.23301	1	0.053653	$0.0_{(5)}2725$	9.806
Hp-hr	2,544.99	641.327	1,980.000	273,747	1	0.746	2,685,600
Kw-hr	3,411.57	859.702	2,654.200	366,959	1.34041	1	3,600,000
Joules (absolute)	$0.0_{(3)}9477$	$0.0_{(3)}2389$	0.73735	0.101937	$0.0_{(6)}3725$	$0.0_{(6)}2778$	1
Lb C	14,544	3,665	11,315.000	1,564,396	5.714	4.263	153,470,000
Lb H_2O	970.4	244.537	745.971	104,379	0.38127	0.284424	1,023,966

Note: The small subnumeral following a zero indicates that the zero is to be repeated that number of times.
thus $0.0_{(3)}4=0.0004$

CONVERSION TABLE 도량형 환산표

Pressure 압력

	Bar	Long ton per Sq. Foot (long ton w/ft²)	Barometric Pressure (atm)	Mercury Column in Meter (m Hg)	Mercury Column in inch (in Hg)	Water Column in Meter (m H_2O)	Water Column in Foot (ft H_2O)	
Bar	1	0.93239	0.98692	0.75006	29.53	10.197	33.456	Bar
Long ton per Sq. Foot (long ton w/ft²)	1.0725	1	1.0585	0.80445	31.671	10.937	35.881	Long ton per Sq. Foot (long ton w/ft²)
Barometric Pressure (atm)	1.0133	0.94074	1	0.76	29.921	10.333	33.9	Barometric Pressure (atm)
Mercury Column in Meter (m Hg)	1.3332	1.2431	1.3158	1	39.37	13.595	44.605	Mercury Column in Meter (m Hg)
Mercury Column in inch (in Hg)	0.03386	0.031574	0.033421	0.0254	1	0.34533	1.133	Mercury Column in inch (in Hg)
Water Column in Meter (m H_2O)	0.098064	0.091436	0.096781	0.073554	2.8958	1	3.2808	Water Column in Meter (m H_2O)
Water Column in Foot (ft H_2O)	0.02987	0.02787	0.029499	0.022419	0.088265	0.3048	1	Water Column in Foot (ft H_2O)

CONVERSION TABLE 도량형 환산표

Equivalent Degrees, Centigrade and Fahrenheit 등가온도, 섭씨온도와 화씨온도

C	F	C	F	C	F	C	F
-129	-200	-17.8	0	-8.33	17	1.11	34
-101	-150	-17.2	1	-7.78	18	1.67	35
-73.3	-100	-16.7	2	-7.22	19	2.22	36
-67.8	-90	-16.1	3	-6.67	20	2.78	37
-62.2	-80	-15.6	4	-6.11	21	3.33	38
-56.7	-70	-15.0	5	-5.56	22	3.39	39
-51.2	-60	-14.4	6	-5.00	23	4.44	40
-45.6	-50	-13.9	7	-4.44	24	5.00	41
-40.0	-40	-13.3	8	-3.89	25	5.56	42
-34.5	-30	-12.8	9	-3.83	26	6.11	43
-28.9	-20	-12.2	10	-2.78	27	6.67	44
-26.1	-15	-11.7	11	-2.22	28	7.22	45
-23.4	-10	-11.1	12	-1.67	29	7.78	46
-20.6	-5	-10.6	13	-1.11	30	8.33	47
		-10.0	14	-0.56	31	8.89	48
		-9.44	15	0	32	9.44	49
		-8.39	16	0.56	33	10.0	50

Note : 변환공식 Conversion formula : F=1.8C+32

C	F	C	F	C	F	C	F
10.6	51	20.0	68	29.4	85	43	110
11.1	52	20.6	69	30.0	86	49	120
11.7	53	21.1	70	30.6	87	54	130
12.2	54	21.7	71	31.1	88	60	140
12.8	55	22.2	72	31.7	89	66	150
13.3	56	22.8	73	32.2	90	71	160
13.9	57	23.3	74	32.8	91	77	170
14.4	58	23.9	75	33.3	92	82	180
15.0	59	24.4	76	33.9	93	88	190
15.6	60	25.0	77	34.4	94	93	200
16.1	61	25.6	78	35.0	95	99	210
16.7	62	26.1	79	35.6	96	100	212
17.2	63	26.7	80	36.1	97		
17.8	64	27.2	81	36.7	98		
18.3	65	27.8	82	37.2	99		
18.9	66	28.3	83	37.8	100		
19.4	67	28.9	84	38	101		

CAUTION
주의사항

형강 및 철근

| 사용 시 주의사항 |

- 설계도에 의거한 강재의 종류를 사용하시기 바랍니다. 설계도에 맞지 않는 제품 사용 시 구조물 안전에 문제가 발생합니다.
- 형강은 표준시방에 따라 가공, 용접 등의 작업을 하시기 바랍니다. 적합치 못한 작업으로 제품 손상, 용접부 균열 등의 문제가 발생할 수 있습니다.
- 강널말뚝 계수부(interlock) 형상 및 치수는 제조사 별로 차이가 있으므로 타사 제품과 혼용하여 사용하지 마십시오. 타사 제품과 혼용 사용 시 당사 관련 팀에 문의하시기 바랍니다.
- 철근은 한국공업규격(KS)에 정해진 방법대로 굽힘가공 작업을 하십시오. 무리하게 작업하거나 저온에서 굽힘가공 시 철근이 부러질 수 있으며, 그로 인해 다칠 수 있습니다.

| 취급 시 주의사항 |

- 제품 취급 시 안전 장구를 착용하십시오. 충격 및 베임 등 인체에 상해를 입을 수 있습니다.
- 제품 운송 시 제품을 움직이지 않게 결박하고 운송법규를 준수하십시오. 제품 낙하로 인하여 인적, 물적 피해가 발생할 수 있습니다.
- 제품 적치 시 제품 사이에 고임목을 놓고 적치하시기 바랍니다. 제품 사이에 손이나 발이 끼어 다칠 수 있습니다.
- 제품 상, 하차 시는 규정된 장비를 사용하십시오. 부적합한 장비 사용으로 인해 안전 사고가 발생할 수 있습니다.
- 제품 결속선에 지게발 또는 와이어를 넣어 들어 올리지 마십시오. 결속선이 풀어져 제품 추락으로 인해 인명 피해를 초래할 수 있습니다.
- 크레인 작업 시 양줄로 균형을 맞추어 작업 바랍니다. 제품을 외줄로 걸어 작업 시 균형이 맞지 않아 낙하로 인해 피해를 초래할 수 있습니다.
- 강재 취급 시 작업 전 작업조건을 확인하시기 바랍니다. 낙뢰 및 고압선 접촉에 의한 위험이 발생할 수 있습니다.
- 철근의 소운반은 2인 이상이 하십시오. 1인이 운반하면 철근의 출렁거림으로 균형을 잃어 다칠 수 있습니다.

단강

| 취급 시 주의사항 |

- 각 제품별 중량에 맞는 기중기를 사용하십시오. 부적합한 장비 사용 시 낙하로 인해 안전사고가 발생할 수 있습니다.
- 각 제품별 러그(LUG)용 샤클(SHACKLE) 걸고리를 사용하십시오. 부적합한 걸고리 사용 시 이탈로 인해 안전사고가 발생할 수 있습니다.
- 안전장구를 착용하고 작업하십시오. 안전장구를 미착용하고 제품에 올라가는 경우 표면이 미끄러워 추락 등의 안전사고가 발생할 수 있습니다.
- 제품 결박 시 접촉부 보호대를 사용하시기 바랍니다. 상차 및 선적 시 결박체인이 직접 제품에 접촉되면 제품 손상 및 도색 벗겨짐이 발생될 수 있습니다.
- 안전을 확인 후 주의하여 적치하십시오. 기중기로 제품을 운반 및 적치할 경우 초기 및 최종 작동 시 손이나 발이 끼어 다칠 수 있습니다.
- 용접은 시방서에 따라 용접하십시오. 규정에 벗어난 용접작업은 제품에 손상을 초래할 수 있습니다.
- 각 제품별 중량에 적합한 차량을 선정하여 운송하십시오. 제품중량에 맞지 않는 차량으로 운송 시 낙하 및 이탈로 인적, 물적 피해가 발생할 수 있습니다.
- 제품 운송 시 제품을 움직이지 않게 결박하고 운송법규를 준수하십시오. 제품 낙하로 인하여 인적, 물적 피해가 발생할 수 있습니다.

Steel Shapes & Deformed Bar

| Suggested Use |

- Follow all directions that are specified Problems may occur if products are not used according to their intended specifications.
- Work according to standard specifications. Careless and improper usage may cause cracking and damage.
- Hyundai Steel's sheet Pile Interlock is made up of different sizes and shapes. Other brands should not be used as a replacement as they differ. Please contact us immediately if you are considering using another manufacturer's Interlock steel board pile.
- Steel reinforcing Bar should follow KS guidelines when being shaped. Be careful of the potential hazards that can be caused by excessive operations or shaping.

| Instructions on Handling |

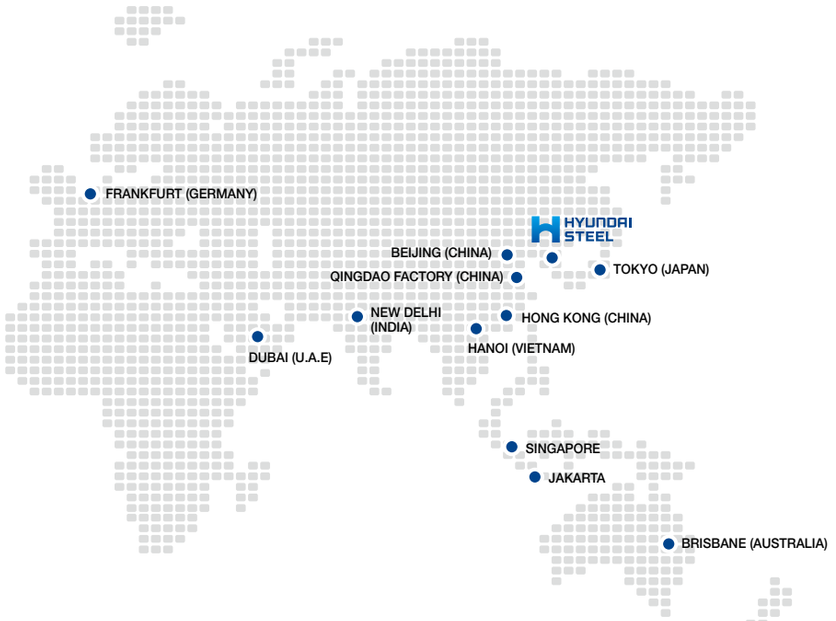
- Be sure to wear safety gear when handling products. Beware of being shocked or cut.
- Bind products tightly during transportation and be sure to follow traffic laws and regulations. I njury or loss can occur from falling products.
- Ensure that support is used when piling up products. Injuries may result from jamming your hands or feet in the products.
- Use designated equipment when loading and unloading products. Using improper equipment can cause unexpected accidents.
- Do not lift products that are on the binding line without using a lever or a wire. Dropping of products that are on the untied binding line may result in casualties.
- When performing crane work, make sure to on both ends. Using a single rope to balance can cause severe damage as products may drop.
- Check all work conditions before handling any steel products. Be careful of hazards caused by lightning or high voltage shock.
- When transporting steal products, ensure that more than two people are on the job If one person is on the job, steel products may sway and lose their balance causing injuries.

Ingot

| Instructions on Handling |

- Use the correct crane for each product as all have different weights. Using improper equipment can cause unexpected accidents.
- Use Lug and Shackle for each product. Using improper shackles may cause unexpected accidents.
- Use safety equipment during all operations. Use safety equipment during Ingot operations as unexpected accidents may occur including falling due to slippage.
- Using proper safety equipment when binding the products together. When loading and unloading products, be careful of the binding chain coming into contact with the product as this may cause damage and paint to peel off.
- Check to make sure that products are piled safely. When piling or transporting products using a crane, be careful as injuries may result from the jamming of body parts.
- Welding work should be done according to all standard specifications. Not following regulations may cause problems such as the damaging or cracking of products.
- Select the correct vehicle according to the weight of the products when transporting goods. Not using the correct vehicle when transporting goods may cause product damage or human injuries and fatalities.
- Bind products tightly during transportation and be sure to follow traffic laws and regulations. Injury or loss can occur from falling products.

GLOBAL NETWORK



국내 DOMESTIC

본사 HEAD OFFICE
서울특별시 서초구 헌릉로 12
현대기아차사옥 서관
12 HEOLLEUNG-RO
SEOCHO-GU, SEOUL, KOREA
TEL: 82-2-3464-6114
FAX: 82-2-3464-6100

당진제철소 DANGJIN INTEGRATED STEEL WORKS
충청남도 당진시 송악읍 북부산업로 1480
1,480 BUKBUSANEOP-RO
SONGAK-EUP, DANGIN
CHUNGCHEONGNAM-DO, KOREA
TEL: 82-41-680-0114
FAX: 82-41-680-1199

인천공장 INCHEON WORKS
인천광역시 동구 중봉대로 63
63 JUNGBONG-DAERO
DONG-GU, INCHEON, KOREA
TEL: 82-32-760-2114
FAX: 82-32-763-5046

포항공장 POHANG WORKS
경상북도 포항시 남구 동해안로 6363
6363 DONGHAEAN-RO
NAM-GU, POHANG
GYEONGSANGBUK-DO, KOREA
TEL: 82-54-271-1114
FAX: 82-54-271-1241

순천공장 SUNCHEON WORKS
전라남도 순천시 해룡면 인덕로 300
300 INDEOK-RO
HAERYONG-MYEON, SUNCHEON
JEOLLANAM-DO, KOREA
TEL: 82-61-720-1441
FAX: 82-61-723-5256

서울영업소 SEOUL SALES OFFICE
서울특별시 종로구 종로1길 50
더케이트윈타워 B동
THE K TWIN TOWER B
50 JONG-RO 1-GIL
JONGNO-GU, SEOUL, KOREA
TEL: 82-2-772-2114
FAX: 82-2-772-2109, 2091

부산영업소 BUSAN SALES OFFICE
부산광역시 사상구 대동로 303
벽산디지털밸리 11층 1106호
ROOM 1106, 11TH FLOOR
BYEOKSAN DIGITAL VALLEY
303 DAEDONG-RO,
SASANG-GU, BUSAN, KOREA
TEL: 82-51-329-7235
FAX: 82-51-329-7248

울산영업소 ULSAN SALES OFFICE
울산광역시 북구 염포로 559
NH농협은행 2층
2ND FLOOR, NH NONGHYUP BANK
559 YEOMPO-RO, BUK-GU
ULSAN, KOREA
TEL: 82-52-288-2659
FAX: 82-52-288-1936

대구영업소 DAEGU SALES OFFICE
대구광역시 수성구 들안로 274
이조빌딩 7층
274 DEULAN-RO, SUSEONG-GU
DAEGU, KOREA
TEL: 053-745-1871~4
FAX: 053-745-1875

광주영업소 GWANGJU SALES OFFICE
광주광역시 서구 대남대로 465
상공회의소 501호
ROOM 501, 5TH FLOOR, CHAMBER
OF COMMERCE AND INDUSTRY
465 DAENAM-DAERO, SEO-GU
GWANGJU, KOREA
TEL: 82-62-351-8404~7
FAX: 82-62-351-8644

해외 OVERSEAS NETWORK

ASIA

QINGDAO FACTORY (CHINA)
TWO AREA OF JIAOZHOUWAN
INDUSTRY PARK QINGDAO
SHANDONG, CHINA
TEL: 86-532-8727-3793
FAX: 86-532-8727-3816

BEIJING (CHINA)
RM #1706, XIAN DAI QI CHE DA
SHA #38 XIAO YUN RD.
CHAO YANG, BEJING, CHINA
TEL: 86-10-8453-9228~9
FAX: 86-10-6-6467-0706

TOKYO (JAPAN)
12F AKASAKA 1-CHOME CENTER
BLDG., 1-11-30 AKASAKA
MINATO-KU, TOKYO
107-0052, JAPAN
TEL: 81-3-6234-9204
FAX: 81-3-6234-9203

SINGAPORE
152 BEACH ROAD, #11-02 GATE-
WAY EAST, SINGAPORE 189721
TEL: 65-6341-5080~1
FAX: 65-6293-5083

DUBAI (UAE)
OFFICE NO.2208, LOB#18, JEBEL
AUFREE ZONE. P.O.BOX 263190
DUBAI, UAE
TEL: 971-4-884-8138
FAX: 971-4-885-7666

HONGKONG (CHINA)
SUITE 811, TSIMSHATSUI CENTER
EAST WING, NO. 66 MODY ROAD
TSIMSHATSUI, KOWLOON
HONG KONG
TEL: 852-2268-6892
FAX: 852-2268-6795

HANOI (VIETNAM)
#1020, PACIFIC PLACE, 83B LY
THUONG KIET, HANOI, VIETNAM
TEL: 84-4-3946-1065
FAX: 84-4-3946-1064

NEW DELHI (INDIA)
#102, RECTANGLE 1, D-4
DISTRICT CENTER, SAKET
NEW DELHI-110017
TEL: 91-11-4611-5231
FAX: 91-11-4611-5230

JAKARTA (INDONESIA)
MENARA PRIMA 25TH FL., UNIT 1
JL. LINGKAR, MEGA KUNINGAN
BLOK 6.2 JAKARTA 12950
TEL: 62-21-5794-8320
FAX: 62-21-5794-8322

NORTH AMERICA

LA (USA)
PACITIC ARTS PLAZE 3200
PARK CENTER DR. COSTA MESA
CA 92626
TEL: 1-714-594-1699
FAX: 1-714-594-1636

EUROPE

FRANKFURT (GERMANY)
KAISERLEIPROMENADE 5
63067 OFFENBACH, GERMANY
TEL: 49-69-27142-781, 783, 788
FAX: 49-69-271472-798

OCEANIA

BRISBANE (AUSTRALIA)
LEVEL 54, 111 EAGLE STREET
BRISBANE QLD 4000, AUSTRALIA
TEL: 61-7-3012-6332
FAX: 61-7-3012-6699

HYUNDAI STEEL

HYUNDAI STEEL

www.hyundai-steel.com

Printed 2015. 06.