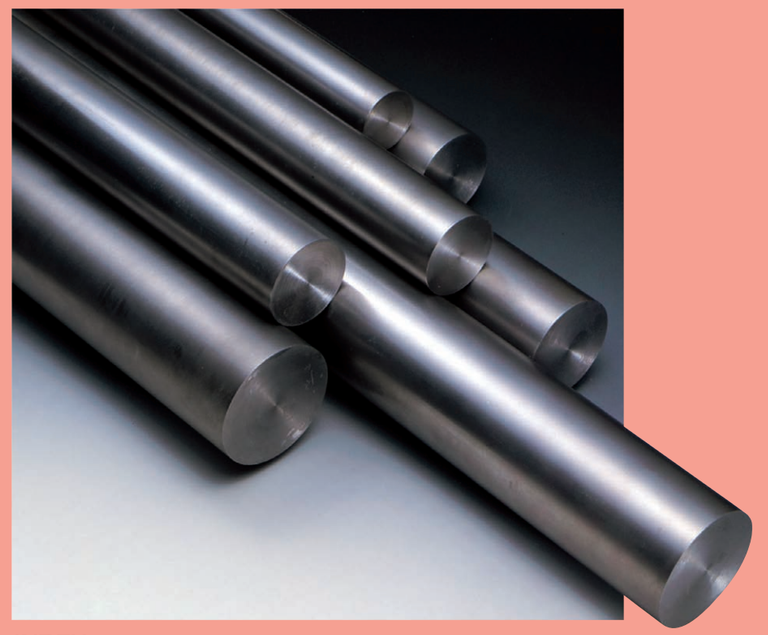
# Bars

## 合同製鐵の構造用棒鋼　The structural bars of Godo Steel



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GODO STEEL, LTD.

ISO 9001
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JIC
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No. 0367-ISO 9001
JAB
MS
CM002


221210㉑

## ①はじめに（概要）Introduction(Summary)

弊社の構造用棒鋼は、姫路製造所で製造しております。当初は特殊鋼の製造工場として、長年の実績をもち、構造用棒鋼の分野で広く御好評いただいております。
近年、産業用資材に対するユーザーニーズの高度化、多様化に対応すべく、設備の近代化、および技術の向上をはかり、日々心を新たに品質向上に努めております。ここにその概要をご紹介申し上げ、一層のご愛顧を賜りますよう、お願い申し上げます。

The structural bars of Godo Steel are produced at Himeji Works.The works has been one of the best special steel factories for many years and has been extensively applied in structural operation. In the continuing development of the advancement and diversification of user needs for industry materials, Godo Steel is making efforts day by day to improve still further quality of its products by means of up–to–date facilities and advanced technology. We herein introduce the summary and look forward to your continued favor.



## ②合鐵構造用棒鋼・製品一覧 Godo Steel Structural Bars Products List

- 一般構造用丸鋼
- みがき棒鋼用丸鋼
- チェーン用丸鋼
- 鍛鋼品用鋼片
- ロッドミル用丸鋼
- 非調質鋼
- 機械構造用炭素鋼
- 機械構造用合金鋼
- H鋼（焼入性保証）
- 被削性改善鋼
- ボロン鋼
- 溶接構造用圧延丸鋼
- 建築構造用圧延棒鋼

- Steel Bars for general structure
- Steel Bars for Cold-Finished Steel Bars
- Steel Bars for Chains
- Bloom for Forged Steel Products
- Steel Bars for Rod Mill
- Microalloyed Steel
- Carbon Steels for Machine Structural Use
- Alloy Steels for Machine Structural Use
- H steels (with hardenability assurance)
- Machinability Steel
- Boron Steel
- Steel Bars for Welded Structure
- Rolled Bars for Building Structure

## ③用途例 Application Example

建設機械をはじめ、農機、工作機械、産業機械、造船、電機、土木建築など広い分野で重要な部品の素材として使用されております。

Our structural bars are used as material for key parts in a wide variety of industrial fields such as construction machinery, agricultural machinery, machine tools, industrial machinery, shipbuilding, electric appliances and civil engineering and construction.





## ④特長 Merits

精選された原料を使用し、製鋼から圧延まで厳しい品質管理のもと、一貫した製造を行なっていますので、健全均一かつ優れた品質の製品を安定して提供することができます。

Using carefully selected materials Godo Steel consistently proceed from steel making up to rolling will under strict quality control,therefore, we can stably supply sound and uniform products of high quality.

● すぐれた内部品質

最新の精錬設備導入により、成分、ガスのコントロールが容易となり、広範な要望に応じて、高品位鋼の製造が可能です。

Excellent Internal Quality
We are able to produce high quality steel by introducing the latest refiner with makes easier to control the component and the gas.

● すぐれた表面品質

溶製工程から特別管理して、鋼片の入念な手入の上、品質管理のゆきとどいた圧延、厳重な検査のもとで製造されておりますので用途に適合した品質が保証出来ます。

Excellent Surface Quality
We are able to assure quality suited to the demands due to our process from specially controlled melting through well cared rolling mill up to strict inspection.

● すぐれた寸法・形状

製品寸法の精度が高いことは勿論のこと当社独特の特殊冷却設備により、曲りが少なく、残留応力のない品質が確保出来るため、長尺の旋削加工用材として好評を得ております。

Excellent Size and Shape
Besides size accuracy, our products are well received for useful cutting process materials due to the steady quality with little bending and remaining stress produced by our original cooling equipment.

● 広範なサイズ

皆様のご要望に応じた適材を提供できるよう標準サイズの他、各種サイズを保有しています。(丸鋼42mm～260mm)

Various Sizes
We possess various sizes other than standard sizes,therefore,we can supply suitable materials for your demands.(round bar 42mm-260mm)

## ⑤主要設備 Main Equipment

| | |
|---|---|
| 製鋼部門 | レクトロメルト式電気炉　70／Heat×1 |
| | 真空脱ガス装置　70t／Heat |
| | LF式炉外精錬設備　70t／Heat |
| | 連続鋳造機（2ストランド）全湾曲型・MD電磁攪拌<br>サイズ 220×250、250×300、330×360、330×450<br>370×490<br>鋳片手入グラインダー　3基 |
| 圧延部門 | ウォーキングビーム式加熱炉<br>熱間成形プレス　能力1600t<br>並列式中形圧延機　46t/H |
| 検査部門 | 分析装置（カントレコーダー、ガス分析）<br>自動磁気探傷装置<br>機械試験装置（引張試験、シャルピー衝撃,硬度,疲労）<br>走査電子顕微鏡<br>超音波探傷機<br>ジョミニー試験装置 |

| | |
|---|---|
| Steel-Making Section | Lectromelt Electric Furnace 70／Heat×1 |
| | Vacuum Degasser 70t／Heat |
| | LFLadle-Refining Process Equipment 70t／Heat |
| | Continuous Casting(2 strands) all curved mold type<br>[Size 220×250 250×300 330×360<br>330×450 370×490]<br>Billet Reconditioning Grinder×3 |
| Rolling Mill Section | Walking Beam Type Reheat-furnace<br>Hot Forming Press Capacity 1600t<br>Parallel Medium Rolling 46t／H |
| Inspection Section | Analysis Device<br>(quantity-recorder,gas analysis)<br>Automatic Magnetic Fiaw Detector<br>Mechanical Test Equipment<br>(Tensile Test,Charpy Impact,Hardness,Fatigue)<br>Scanning Electron Microscope<br>Ultrasonic Flaw Detector<br>Jominy Test Equipment |

# ⑥製造工程 Manufacturing



電気炉 Electric Fornace



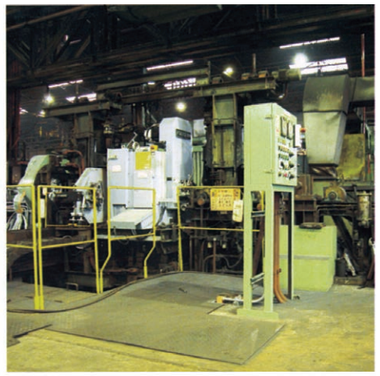
炉外精錬設備 Ladle-Refining Process Equipment



鋳片手入 Billet Reconditioning



粗圧延機 Rough Rolling Machine

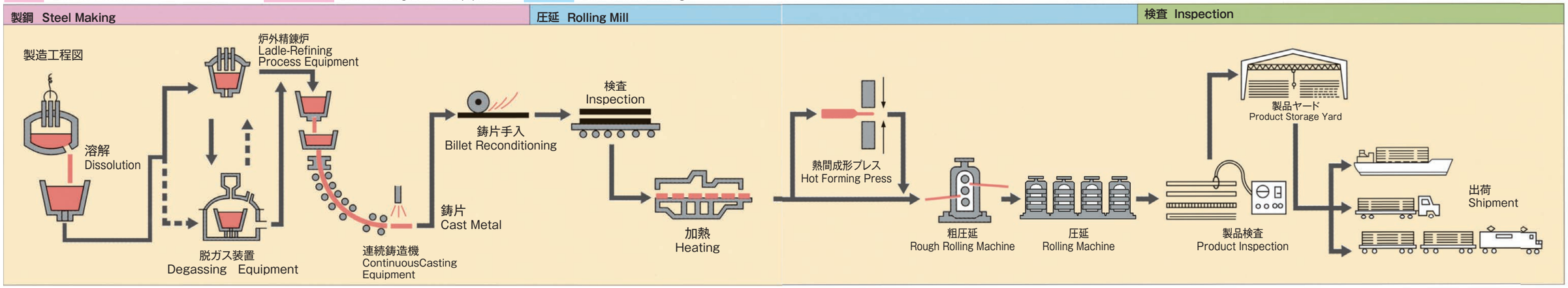


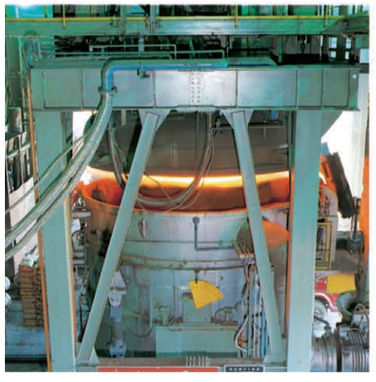
磁気探傷機 Magnetic Flaw Detector



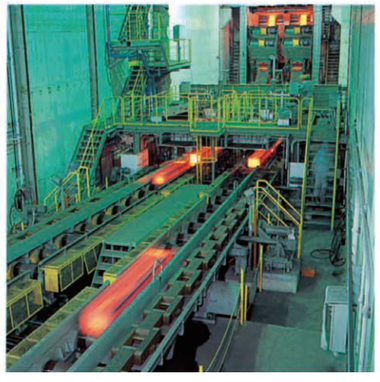
超音波探傷機 Ultrasonic Flaw Detector

製鋼 Steel Making　圧延 Rolling Mill　検査 Inspection



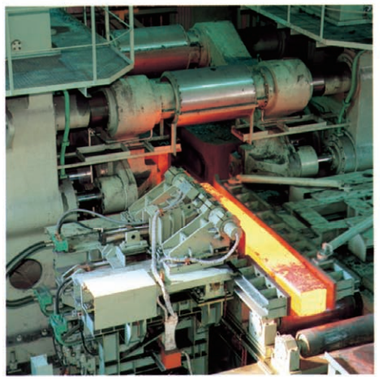
脱ガス設備 Degassing Equipment



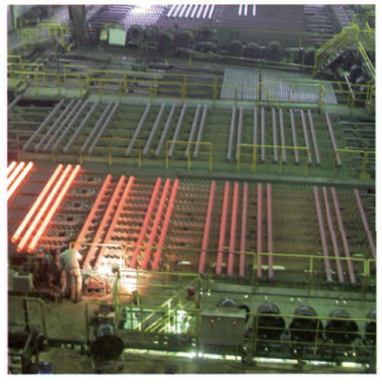
連続鋳造設備 Continuous Casting Equipment



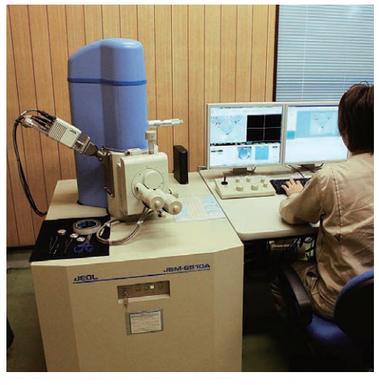
加熱設備 Heating Equipment



熱間成形プレス Hot Forming Press



新冷却床(回転冷却床) New Cooling Bed(Rotary cooling Bed)



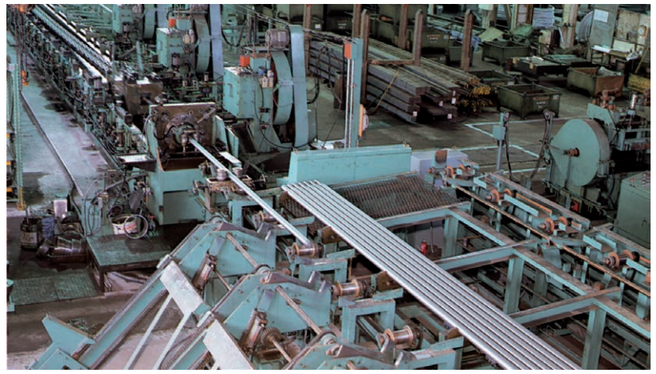

走査電子顕微鏡 Scanning Electron Microscope

# ⑦加工例 Application Examples

## 引抜 Drawing

精度の高い寸法と美しい表面肌を有する冷間みがき棒鋼材用として太径丸棒130mm迄のサイズにわたって多量に使用されます。

With accurate size and beautiful surface they are abundantly used for cold-finished steel bars of sizes up to diameter 130mm.



## 鍛造 Forging

熱間、温間鍛造用素材として、広範囲な鍛造部品に使用されます。

As hot, and warm forging materials they are extensively used for forging parts.



## 切削 cutting

直接切削、及び引抜鍛造後の切削加工など、巾広い分野で、各種の高性能マシンによりいろいろな形状の部品に加工されています。

They are processed to parts of various forms, such as direct cutting and the cutting after drawing forge, by using many sorts of high performance machines.



# ⑧規格 Standard

●機械構造用炭素鋼鋼材（JIS G4051） **Carbon Steels for Machine Structural**

| 種類の記号 Grade | 化学成分 % Chemical Compositions % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | C | Si | Mn | P | S | Cu | Ni | Cr | Ni + Cr |
| S10C | 0.08～0.13 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S12C | 0.10～0.15 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S15C | 0.13～0.18 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S17C | 0.15～0.20 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S20C | 0.18～0.23 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S22C | 0.20～0.25 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S25C | 0.22～0.28 | 0.15～0.35 | 0.30～0.60 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S28C | 0.25～0.31 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S30C | 0.27～0.33 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S33C | 0.30～0.36 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S35C | 0.32～0.38 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S38C | 0.35～0.41 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S40C | 0.37～0.43 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S43C | 0.40～0.46 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S45C | 0.42～0.48 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S48C | 0.45～0.51 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S50C | 0.47～0.53 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S53C | 0.50～0.56 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S55C | 0.52～0.58 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |
| S58C | 0.55～0.61 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.035max | 0.30max | 0.20max | 0.20max | 0.35max |

●機械構造用合金鋼鋼材（JIS G4053） **Alloy Steels for Machine Structural**

| 種類の記号 Grade | 化学成分 % Chemical Compositions % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | C | Si | Mn | P | S | Cr | Mo | Ni | Cu |
| SMn433 | 0.30～0.36 | 0.15～0.35 | 1.20～1.50 | 0.030max | 0.030max | 0.35max | — | 0.25max | 0.30max |
| SMn443 | 0.40～0.46 | 0.15～0.35 | 1.35～1.65 | 0.030max | 0.030max | 0.35max | — | 0.25max | 0.30max |
| SCM415 | 0.13～0.18 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.25 | 0.25max | 0.30max |
| SCM420 | 0.18～0.23 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.25 | 0.25max | 0.30max |
| SCM421 | 0.17～0.23 | 0.15～0.35 | 0.70～1.00 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.25 | 0.25max | 0.30max |
| SCM425 | 0.23～0.28 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.30 | 0.25max | 0.30max |
| SCM430 | 0.28～0.33 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.30 | 0.25max | 0.30max |
| SCM435 | 0.33～0.38 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.30 | 0.25max | 0.30max |
| SCM440 | 0.38～0.43 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.30 | 0.25max | 0.30max |
| SCM445 | 0.43～0.48 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.90～1.20 | 0.15～0.30 | 0.25max | 0.30max |
| SNCM220 | 0.17～0.23 | 0.15～0.35 | 0.60～0.90 | 0.030max | 0.030max | 0.40～0.60 | 0.15～0.25 | 0.40～0.70 | 0.30max |

注：焼入性を保証したH鋼についても製造します。
Remark: We will produce H steels with hardenability assurance upon your request.

# ⑧規格 Standard

## ●一般構造用圧延鋼材（JIS G3101） Rolled Steels for general structure

| 種類の記号 Grade | 化学成分% Chemical Compositions % | | | | 引張試験 Tensile Test | | | | | | 曲げ試験 Bend Test | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Mn | P | S | 降伏点 N/mm² Yield Point N/mm² 径 mm Diameter mm 40超100以下 over 40 and 100max | 降伏点 N/mm² Yield Point N/mm² 径 mm Diameter mm 100超 over 100 | 引張強さ N/mm² Tensile strength N/mm² | 伸び % Elongation % 径 Diameter | 伸び % Elongation % 試験片 Test piece | 伸び % Elongation % % | 曲げ角度 Bending Angle | 内側半径 Inside radius | 試験片 Test piece |
| SS400 | — | — | 0.050 max | 0.050 max | 215min | 205min | 400～510 | over 40 | No.14A | 22min | 180° | 径の1.5倍 diameter x 1.5 | No.2 |
| SS490 | — | — | | | 255min | 245min | 490～610 | over 40 | No.14A | 20min | 180° | 径の2.0倍 diameter x 2.0 | No.2 |

曲げ試験：特に注文者からの指定がない限り、曲げ試験は省略致します。 Bend test: A bend test shall be conducted upon receipt of instructions from the customer.

## ●チェーン用丸鋼（JIS G3105） Steel Bars for Chains

| 種類の記号 Grade | 化学成分% Chemical Compositions % | | | | | 引張試験 Tensile Test | | | | 曲げ試験 Bend Test | | | 供試材の状態 Condition of test materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Si | Mn | P | S | 引張強さ N/mm² Tensile strength N/mm² | 試験片 Test piece | 伸び% Elongation% | 絞り% Drawing% | 曲げ角度 Bending Angle | 内側半径 Inside radius | 試験片 Test piece | |
| SBC490 | 0.25 max | 0.15 ～ 0.40 | 1.00 ～ 1.50 | 0.040 max | 0.040 max | 490min | No.14A | 22min | — | 180° | 径の1.5倍 diameter ×1.5 | No.2 | 圧延のまま又は焼ならし rolled or normalized |
| | | | | | | | No.2 | 18min | | | | | |
| SBC690 | 0.36 max | 0.15 ～ 0.55 | 1.00 ～ 1.90 | 0.040 max | 0.040 max | 690min | No.14A | 17min | 40min | 吸収エネルギー J 0℃ V Charpy Absorbed Energy J 0℃ V | | | 焼入焼戻し quending and tempering |
| | | | | | | | No.2 | 12min | | 60min | | | |

## ●みがき棒鋼用一般鋼材（JIS G3108） Rolled Carbon Steel for Cold-Finished Steel Bars

| 種類の記号 Grade | 化学成分% Chemical Compositions % | | | | |
|---|---|---|---|---|---|
| | C | Si | Mn | P | S |
| SGD3 | 0.15～0.20 | 0.50max | 0.30～0.60 | 0.045max | 0.045max |
| SGD3M | 0.15～0.20 | 0.50max | 0.60～0.90 | 0.045max | 0.045max |

## ●非調質鋼（当社規格） Microalloyed Steel (Standard of Godo,Ltd)

| 種類の記号 Grade | 化学成分% Chemical Compositions % | | | | | | | | | | 引張試験 Tensile Test | | | | 硬さ Hardness Hв |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | 降伏点 N/mm² Yield Point N/mm² | 引張強さ N/mm² Tensile strength N/mm² | 試験片 Test piece | 伸び% Elongation% | |
| GNH45 | 0.40 ～0.45 | 0.15 ～0.30 | 0.70 ～1.00 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.20 max | 添加 add | — | 390min | 640min | No.4 | 20min | 170min |
| GNH55 | 0.40 ～0.47 | 0.15 ～0.30 | 1.00 ～1.30 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.20 max | 添加 add | 微量添加 micro-added | 490min | 740min | No.4 | 17min | 192min |
| GNH60 | 0.47 ～0.52 | 0.15 ～0.30 | 1.10 ～1.40 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.20 max | 添加 add | 微量添加 micro-added | 530min | 890min | No.4 | 15min | 241min |
| GNHT740 | 0.40 ～0.44 | 0.15 ～0.35 | 1.45 ～1.55 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.15 ～0.25 | 微量添加 micro-added | — | 490min | 740min | No.4 | 17min | 192min |
| GNH55K | 0.40 ～0.47 | 0.15 ～0.30 | 1.00 ～1.25 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.20 max | 添加 add | 微量添加 micro-added | 540min | 780min | No.4 | 15min | 230～285 |
| GNH740Z | 0.42 ～0.48 | 0.15 ～0.35 | 0.80 ～1.10 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.20 max | 添加 add | 微量添加 micro-added | 540min | 740min | No.4 | 15min | 230～277 |
| GNH880Z | 0.32 ～0.38 | 0.15 ～0.35 | 1.60 ～1.80 | 0.030 max | 0.030 max | 0.30 max | 0.20 max | 0.30 ～0.50 | 添加 add | — | 590min | 880min | No.4 | 14min | 269min |
| GNH740F | 0.35 ～0.40 | 0.15 ～0.35 | 1.20 ～1.30 | 0.030 max | 0.030 max | 0.30 max | 0.25 max | 0.10 ～0.40 | 添加 add | — | 490min | 740min | No.4 | 17min | 207min |
| GNH80F | 0.35 ～0.40 | 0.50 ～0.70 | 1.30 ～1.50 | 0.030 max | 0.070 max | 0.30 max | 0.25 max | 0.20 max | 添加 add | — | 490min | 785min | No.4 | 20min | 229min |

## ●溶接構造用圧延丸鋼（当社規格） Rolled Steel for Welded Structure (Standard of Godo,Ltd)

| 種類の記号 Grade | 径 mm Diameter mm | 化学成分% Chemical Compositions % | | | | | 引張試験 Tensile Test | | | | | 吸収エネルギー J 0℃ V Charpy Absorbed Energy J 0℃ V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C | Si | Mn | P | S | 降伏点 N/mm² Yield Point N/mm² φ42～φ100 | 降伏点 N/mm² Yield Point N/mm² φ105～φ160 | 降伏点 N/mm² Yield Point N/mm² φ165～ | 引張強さ N/mm² Tensile strength N/mm² | 試験片 Test piece | 伸び % * Elongation % | |
| SM400A-M | φ50max | 0.23max | — | 2.5×Cmin | 0.035max | 0.035max | 215min | 205min | 195min | 400～510 | No.4 | 24min | — |
| | over φ50 and φ260max | 0.25max | | | | | | | | | | | |
| SM400B-M | φ50max | 0.20max | 0.35max | 0.60～1.50 | | | | | | | | | 27min |
| | over φ50 and φ250max | 0.22max | | | | | | | | | | | |
| SM490A-M | φ50max | 0.20max | 0.55max | 1.65max | 0.035max | 0.035max | 295min | 285min | 275min | 490～610 | No.4 | 23min | — |
| | over φ50 and φ260max | 0.22max | | | | | | | | | | | |
| SM490B-M | φ50max | 0.18max | | | | | | | | | | | 27min |
| | over φ50 and φ250max | 0.20max | | | | | | | | | | | |

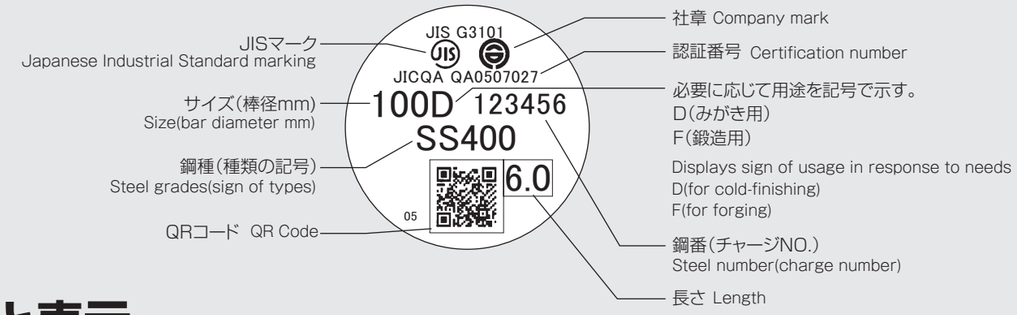
＊直径100mmを越える丸鋼の伸びは、直径が25mm又はその端数を増すごとに、1を減じる。ただし減じる限度は3とする。
＊As for elongation of the round bar of which diameter is more than 100mm, 1is subtracted for every additional diameter of 25mm and its fraction. However, the limit to be subtracted should be 3.

## ●建築構造用圧延棒鋼（JIS G3138） Rolled Steel Bars for Building Structure

| 種類の記号 Grade | 径 mm Diameter mm | 化学成分% Chemical Compositions % | | | | | | 引張試験 Tensile Test | | | | | 吸収エネルギー J 0℃ V Charpy Absorbed Energy J 0℃ V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C | Si | Mn | P | S | 炭素当量 Carbon Equivalent | 降伏点 N/mm² Yield Point N/mm² | 引張強さ N/mm² Tensile strength N/mm² | 降伏比 % Yield Ratio % | 試験片 Test piece | 伸び % Elongation % | |
| SNR400A | φ100max | 0.24max | — | — | 0.050max | 0.050max | — | 215min | 400～510 | — | No.14A | 22min | – |
| SNR400B | φ50max | 0.20max | 0.35max | 0.60～1.50 | 0.030max | 0.030max | 0.36max | 215～335 | | 80max | No.14A | 22min | 27min |
| | over φ50 and φ100max | 0.22max | | | | | | | | | | | |
| SNR490B | φ50max | 0.18max | 0.55max | 1.65max | 0.030max | 0.030max | 0.46max | 295～415 | 490～610 | 80max | No.14A | 21min | 27min |
| | over φ50 and φ100max | 0.20max | | | | | | | | | | | |

＊直径100mmを越える丸鋼については弊社規格品GNR490Bの製造を行っております。
＊We will produce standard of Godo,Ltd product GNR490B for round steel with a diameter of more than 100 mm.

●その他、お客さまの仕様に合わせた ボロン鋼、ロッドミル用丸鋼、SAE、AISIなど外国規格の製造も行っております。
●We will produce other steels with foreign standards such as Boron Steels, Steel Bars for Rod Mill, SAE and AISI, according to the specification demanded by a customer.




# ⑨結束と表示 Bunding and Marking

## 寸法・単位質量 Size/unit mass

### 標準サイズ **Standard Size**

| 径 (mm) Diameter(mm) | 単位質量 (Kg/m) Unit Mass(Kg/m) | 径 (mm) Diameter(mm) | 単位質量 (Kg/m) Unit Mass(Kg/m) |
|---|---|---|---|
| 42 | 10.9 | 100 | 61.7 |
| 44 | 11.9 | 105 | 68.0 |
| 46 | 13.0 | 110 | 74.6 |
| 48 | 14.2 | 115 | 81.6 |
| 50 | 15.4 | 120 | 88.8 |
| 55 | 18.7 | 130 | 104 |
| 60 | 22.2 | 140 | 121 |
| 65 | 26.0 | 150 | 139 |
| 70 | 30.2 | 160 | 158 |
| 75 | 34.7 | 170 | 178 |
| 80 | 39.5 | 180 | 200 |
| 85 | 44.5 | 190 | 223 |
| 90 | 49.9 | 200 | 247 |
| 95 | 55.6 | | |

### 中間サイズ・その他 **Middle Size/Others**

| 径 (mm) Diameter(mm) | 単位質量 (Kg/m) Unit Mass(Kg/m) | 径 (mm) Diameter(mm) | 単位質量 (Kg/m) Unit Mass(Kg/m) |
|---|---|---|---|
| 52 | 16.7 | 98 | 59.2 |
| 53 | 17.3 | 103 | 65.4 |
| 56 | 19.3 | 113 | 78.7 |
| 58 | 20.7 | 125 | 96.3 |
| 62 | 23.7 | 135 | 112 |
| 63 | 24.5 | 145 | 130 |
| 64 | 25.3 | 155 | 148 |
| 68 | 28.5 | 210 | 272 |
| 72 | 32.0 | 220 | 298 |
| 73 | 32.9 | 230 | 326 |
| 78 | 37.5 | 240 | 355 |
| 83 | 42.5 | 250 | 385 |
| 88 | 47.7 | 260 | 417 |
| 93 | 53.3 | | |

注①:中間サイズは当該寸法の注文書が一定数量にまとまるか、又はロールチャンスのあること等を条件とした受注可能寸法を示します。
注②:鋼種により受注可能寸法は異なりますので確認の上、注文願います。
注③:丸鋼250mm及び260mmの圧延鍛錬比は各々3.7S及び3.4Sとなりますのでご注意願います。
注④:上記表に無いサイズは弊社までお問い合わせ下さい。

Remark (1): The middle size shows the sizes for which acceptance of orders is subject to quantity for a certain size in an order or for the possibility of a roll chance and so on.
Remark (2): The size for which order is acceptable varies depending on the type of steel. Please check with us before ordering.
Remark (3): Please note that rolled forging ratios of 250mm and 260mm steel bars are 3.7S and 3.4S, respectively.
Remark (4): Please contact us about any size not listed above.

### ●各種船級協会鋼種承認一覧表
### ●List for steel grande permitted by various ship's class association

| 略称名 Abbr. | 承認内容 Admission Contents | | | |
|---|---|---|---|---|
| | 鋼種 steel grade | 最大径(mm) the diameter of maximum (mm) | 鋼種 steel grade | 最大径(mm) the diameter of maximum (mm) |
| NK | 船体構造用(KA) for hull structural use (KA) | φ100 注④ | チェーン用 KSBC50 KSBC70 for chains(KSBC50,70) | φ170 |
| LR | 船体構造用(A) for hull structural use (A) | φ150 | チェーン用 U2 for chains U2 | φ150 |
| | | | チェーン用 U3 for chains U3 | φ100 |
| DNV | 機械類用低合金鋼 low alloy steel for machinery | φ100 | チェーン用 NVK2 for chains NVK2 | φ150 |
| | | | チェーン用 NVK3 for chains NVK3 | φ100 |
| ABS | 炭素鋼、マンガン鋼、クロムモリブデン鋼 carbon steel, manganese steel, chromium molybdenum steel | φ260 | チェーン用 U2 U3 for chains(U2,U3) | φ170 |

| | 半製品 Semi-finished products | 鋼種 Grade | 最大サイズ(mm) the maximum size(mm) |
|---|---|---|---|
| LR | 鋳片 slabs | 炭素鋼、マンガン鋼 carbon, carbon-manganese | 370×490 |
| ABS | 鋳片 slabs | 炭素鋼、マンガン鋼、クロムモリブデン鋼 carbon steel, manganese steel, chromium molybdenum steel | 370×490 |

### ●JISマーク表示許可一覧表
### ●List for JIS marking permission

| 許可品目 Permitted item | 認証番号 Permission number |
|---|---|
| 一般構造用圧延鋼材(JIS G3101) rolled steel for general structure (JIS G3101) | QA0507027 |
| チェーン用丸鋼(JIS G3105) steel bars for chains (JIS G3105) | |
| みがき棒鋼用一般鋼材(JIS G3108) Rolled carbon steel for cold-finished steel bars (JIS G3108) | |
| 建築構造用圧延棒鋼(JIS G3138) Rolled steels for building structure (JIS G3138) | |
| 機械構造用炭素鋼鋼材(JIS G4051) carbon steel materials for machine structural use (JIS G4051) | |
| 焼入性を保証した構造用鋼鋼材(JIS G4052) stuctural steel materials with specified hardenability bands (JIS G4052) | |
| 機械構造用合金鋼鋼材(JIS G4053) alloy steel materials for machine structural use (JIS G4053) | |

注⑤φ100を超える寸法は特別認証(製造の都度認証)となります。
Remark (4): The size exceeding 100mm in diameter is special certification.

●結束 棒鋼の結束単位は2トンを原則とします。
●Bundling Bunding unit should be 2 tons in principle

●表示
●Marking

①色表示(ラベルの基色) Color marking

| 規格(鋼種) | SS | SGD | SNR | SC | SBC | | GNH | SMn | SCM |
|---|---|---|---|---|---|---|---|---|---|
| 表示色 | 赤 | 薄赤 | 紫 | 黄 | 490 白 | 690 青 | 銀 | 青 | 緑 |
| | red | light red | purple | yellow | white | blue | silver | blue | green |

②ラベル
各棒鋼の片端面に色別ラベルを貼布しております。ラベルの表示例は次のとおりです。

②Labels
Label is attached at the end of each bar. Marking items and examples of label are as follows.

SS400




SGD3




SNR490B




S45C




SBC490




SBC690




GNH-55




SMn443H




SCM435H




※各ラベルの表示色は印刷方式の違いにより、実際の色とは若干異なります。
※Marking colors for each labels might be slightly different from the actual colors due to the difference of printing method.

# ⑩認定証 Certificate

# JIS Product Certificate

Certification number QA0507027

Date of certification December 18, 2007
Date of reissue October 15, 2019

## GODO STEEL, LTD.

2-8, Dojimahama 2-chome, Kita-ku, Osaka, Japan

JIC Quality Assurance Ltd., operating as a registered certification body by the Ministry of Economy, Trade and Industry under the Industrial Standardization Law where the conformity to ISO/IEC 17065 is stipulated as the criteria of registration thereof, hereby certifies that the industrial and mineral products or processing technologies mentioned below comply with the certification criteria and specifications in Japanese Industrial Standards as well as in governing ministerial ordinance.

- JIS number, and designation of Products/Processing technologies:
  specified in the authorized annex
- Division of certification: G-1
- Type or grade: specified in the authorized annex
- Head FACTORY:
  GODO STEEL, LTD. HIMEJI WORKS
  2946, Nakashima, Shikama-ku, Himeji-shi, Hyogo, Japan
- Basis provision of the Industrial Standardization Law: Article 30, Paragraph 1

No.040504

JIC Quality Assurance Ltd.
2-15-5, Shintomi, Chuo-ku, Tokyo, Japan
Hirofumi Kawasaki
Hirofumi Kawasaki, President



# JIS Product Certificate
## Annex

Certification number QA0507027

Date of certification December 18, 2007
Date of reissue October 15, 2019

## GODO STEEL, LTD.

- JIS number, and designation of Products/Processing technologies
- Type or grade

(Division of shape etc.: Wire rods and bars)

| Product type | Designation | | | |
|---|---|---|---|---|
| JIS G 3101<br>Rolled steels for general structure | SS400 | | SS490 | |
| JIS G 3105<br>Steel bars for chains | SBC490 | | SBC690 | |
| JIS G 3108<br>Rolled carbon steel for cold-finished steel bars | SGDA | SGD1 | SGD3 | |
| | SGDB | SGD2 | SGD4 | |
| JIS G 3138<br>Rolled steel bars for building structure | SNR400A | SNR400B | SNR490B | |
| JIS G 4051<br>Carbon steels for machine structural use | S10C | S22C | S35C | S48C |
| | S12C | S25C | S38C | S50C |
| | S15C | S28C | S40C | S53C |
| | S17C | S30C | S43C | S55C |
| | S20C | S33C | S45C | S58C |
| JIS G 4052<br>Structural steels with specified hardenability bands | SCM415H | SCM435H | SNCM220H | SMn443H |
| | SCM420H | SCM440H | SMn433H | – |
| | SCM425H | SCM445H | SMn438H | – |
| JIS G 4053<br>Low-alloyed steels for machine structural use | SCM415 | SCM435 | SNCM220 | SMn443 |
| | SCM420 | SCM440 | SMn433 | – |
| | SCM425 | SCM445 | SMn438 | – |

No.040504

JIC Quality Assurance Ltd.
2-15-5, Shintomi, Chuo-ku, Tokyo, Japan
Hirofumi Kawasaki
Hirofumi Kawasaki, President

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