日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
Yejin street Laobiandistrict Yingkou Liaoning P.R.China/115005
TEL 0417 3236081 FAX 0417 3236057 NO. DTZH01301-A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | |
|---|---|---|---|
| 订货单位 PURCHASER | CUMIC SHH USA INC | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | CUMIC SHH USA INC | YGRIZANN240285008-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr 50WT-Z2-B | 热轧(AR) | 签发日期 DATE OF ISSUE 20240512 |
| 车 号 TRAIN NO | | | 240512Z00226 |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 mm DIMENSION | 数量 QTY | 重量 WEIGHT kg | 交货状态 DELIVERY CONDITION | 化学成分 CHEMICAL ANALYSIS% C | Si | Mn | P | S | Ni | Cr | Cu | V | Nb | Sb | Ti | Als | 力学性能 MECHANICAL PROPERTIES 试样方向 DIRECTION | 试样编号 SPECIMEN NO. | 试样位置 SAMPLE LOCATION | 屈服点 YIELD POINT | 抗拉强度 TENSILE STRENGTH | 伸长率 ELONGATION | 冷弯 BEND | 冲击 IMPACT 试验温度 TEST TEMP. | 单个值 SINGLE | 平均值 AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2310499JA | S1128B018 | S1128B018 | 9X2438X12192 | 1 | 2,198 | 1 | 0.11 | 0.32 | 1.40 | 0.20 | 0.03 | 0.18 | 0.61 | 0.29 | 0.03 | 0.10 | 0.01 | 0.02 | 0.03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | | 总计 TOTAL | 6 | 13,188 | | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTES:
1. 冶炼成分 SMELTING COMPOSITION
2. 拉伸试验 (GAUGE LENGTH) To=200 mm
3. A0C01=IMPACT TEST A
4. A0C012=IMPACT TEST B
5. A0C013=IMPACT TEST C
6. A0C02=IMPACT AVERAGE
7. A0C01=冲击试验 IMPACT TEST, 4个, 纵向 LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸 SIZE10*7.5*55
8. B0A01=YIELD STRENGTH
9. B0A02=TENSILE STRENGTH
10. B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

MTR 456-24-01 02 03 04 05 06

According to EN 10204 3.1

我厂特此证明标准要求的各项试验结果均符合, 以及可供合同、特殊协议:
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT



MTR 456-24-01

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MTR 456-24-06

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| | | 证明书编号 CERTIFICATE NO. | 240213Z00670 | | |
| 车号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 MM DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-3}$ | $\times10^{-2}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-4}$ | | | | | | | | |
| 24102102D | 1142078026 | 1142078010101 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142078026 | 1142078010103 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142078026 | 1142078010201 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142078026 | 1142078010202 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142078026 | 1142078010301 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142078062 | 1142078010302 | 12x2438x6096 | 1 | 1,400 | 1 | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 394 | 599 | 21 | 172 | 187 | 195 | 185 |
| 24102104D | 1142100262 | 1142103711101 | 12x2438x6096 | 1 | 1,400 | 1 | 147 | 353 | 1330 | 168 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 103 | 102 |
| | | | 合计(TOTAL): | 7 | 9,800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L.: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 314-24 -01

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MTR 314-24 -07

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAICORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | HYUNDAICORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240213 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00669 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION (MM) | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C (×10⁻³) | Si (×10⁻³) | Mn (×10⁻³) | P (×10⁻⁴) | S (×10⁻⁴) | Cu (×10⁻³) | Ni (×10⁻⁴) | Cr (×10⁻³) | V (×10⁻³) | Ti (×10⁻³) | Mo (×10⁻⁴) | B (×10⁻⁴) | Nb (×10⁻⁴) | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24102102D | 1142070026 | 1142064852O1 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 485 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142064852O2 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142064852O3 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142064853O1 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 485 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142064853O2 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 485 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070091O1 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070091O2 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070091O3 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 485 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070092O1 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070092O2 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070093O1 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 24102102D | 1142070026 | 1142070093O2 | 12x2438x6096 | 1 | 1.400 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 485 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| | | | 合计(TOTAL): | 12 | 16.800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 315-24 -01
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MTR 315-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00668 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻⁴ | | | | | | | |
| 241021101D | 1142070027 | 1142061833B1 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 416 | 605 | 23.5 | 134 | 108 | 102 | 115 |
| 241021101D | 1142070027 | 1142061833B2 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 416 | 605 | 23.5 | 134 | 108 | 102 | 115 |
| 241021102D | 1142070026 | 1142061841D1 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061841D2 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061842D1 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061842D2 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061843D1 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061843D2 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061844D1 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061844D2 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061851D1 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| 241021102D | 1142070026 | 1142061851D2 | 12x2438x6096 | 1 | 1,400 | L | 144 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 415 | 614 | 28.5 | 133 | 123 | 149 | 135 |
| | | 合计(TOTAL): | | 12 | 16,800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE 10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

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冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 316-24 -01
AL
MTR 316-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00476 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 拉伸强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ≤10⁻² | ≤10⁻³ | ≤10⁻³ | ≤10⁻⁴ | ≤10⁻⁴ | ≤10⁻³ | 10⁻⁴ | ≤10⁻³ | ≤10⁻³ | ≤10⁻³ | ≤10⁻³ | ≤10⁻⁴ | ≤10⁻⁴ | ≤10⁻⁴ | | | | | | | |
| 24102104D | 1142100261 | 1142103701O1 | 19x2438x6096 | 1 | 2.217 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 436 | 601 | 23.5 | 195 | 228 | 216 | 213 |
| 24102104D | 1142100261 | 1142103701O2 | 19x2438x6096 | 1 | 2.217 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 436 | 601 | 23.5 | 195 | 228 | 216 | 213 |
| 24102104D | 1142100261 | 1142103701O3 | 19x2438x6096 | 1 | 2.217 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 436 | 601 | 23.5 | 195 | 228 | 216 | 213 |
| 24102104D | 1142100261 | 1142103702O1 | 19x2438x6096 | 1 | 2.217 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 436 | 601 | 23.5 | 195 | 228 | 216 | 213 |
| 24102104D | 1142100261 | 1142103702O2 | 19x2438x6096 | 1 | 2.217 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 436 | 601 | 23.5 | 195 | 228 | 216 | 213 |
| | | | 合计 (TOTAL): | 5 | 11.085 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 317-24 -01
AL
MTR 317-24 -05

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00671 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C (×10⁻³) | Si (×10⁻²) | Mn (×10⁻²) | P (×10⁻⁴) | S (×10⁻⁴) | Cu (×10⁻²) | Ni (×10⁻²) | Cr (×10⁻²) | V (×10⁻³) | Ti (×10⁻³) | Mo (×10⁻²) | B (×10⁻⁴) | Nb (×10⁻³) | B0A01 屈服强度 MPa Rp0.2 | B0A02 拉伸强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24102104D | 1142070029 | 1142061871O1 | 19x2438x6096 | 1 | 2.217 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6415 | 10 | 60 | 40 | 413 | 595 | 19.5 | 180 | 209 | 160 | 183 |
| 24102104D | 1142070029 | 1142061871O2 | 19x2438x6096 | 1 | 2.217 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6415 | 10 | 60 | 40 | 413 | 595 | 19.5 | 180 | 209 | 160 | 183 |
| 24102104D | 1142070029 | 1142061872O1 | 19x2438x6096 | 1 | 2.217 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6415 | 10 | 60 | 40 | 413 | 595 | 19.5 | 180 | 209 | 160 | 183 |
| 24102104D | 1142070029 | 1142061872O2 | 19x2438x6096 | 1 | 2.217 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6415 | 10 | 60 | 40 | 413 | 595 | 19.5 | 180 | 209 | 160 | 183 |
| 24102102D | 1142100255 | 1142103581O2 | 25x2138x6096 | 1 | 2.917 | L | 114 | 350 | 1340 | 150 | 42 | 268 | 2590 | 486 | 24 | 6418 | 20 | 60 | 10 | 418 | 601 | 23 | 267 | 283 | 252 | 267 |
| | | | 合计 (TOTAL): | 5 | 11.785 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 320-24 -01

AL

MTR 320-24 -05

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240212 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240212Z00601 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B0A01 屈服强度 MPa ReD.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-3 | 10^-4 | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | | | | | | | |
| 23121614D | 1142100256 | 1142103580101 | 22x2438x6096 | 1 | 2.567 | 1 | 143 | 321 | 1330 | 250 | 37 | 276 | 3100 | 196 | 23 | 6649 | 10 | 50 | 40 | 412 | 588 | 20.5 | 270 | 286 | 295 | 284 |
| 23121614D | 1142100256 | 1142103591102 | 22x2438x6096 | 1 | 2.567 | 1 | 143 | 321 | 1330 | 250 | 37 | 276 | 3100 | 196 | 23 | 6649 | 10 | 50 | 40 | 412 | 588 | 20.5 | 270 | 286 | 295 | 284 |
| 23121614D | 1142100256 | 1142103592101 | 22x2438x6096 | 1 | 2.567 | 1 | 143 | 321 | 1330 | 250 | 37 | 276 | 3100 | 196 | 23 | 6649 | 10 | 50 | 40 | 412 | 588 | 20.5 | 270 | 286 | 295 | 284 |
| 23121614D | 1142100256 | 1142103592102 | 22x2438x6096 | 1 | 2.567 | 1 | 143 | 321 | 1330 | 250 | 37 | 276 | 3100 | 196 | 23 | 6649 | 10 | 50 | 40 | 412 | 588 | 20.5 | 270 | 286 | 295 | 284 |
| 23207959A | 1142100257 | 1142103601101 | 22x2438x6096 | 1 | 2.567 | 1 | 142 | 195 | 1350 | 170 | 48 | 340 | 1260 | 191 | 14 | 6314 | 20 | 10 | 40 | 400 | 554 | 21.5 | 316 | 298 | 290 | 301 |
| 23207959A | 1142100257 | 1142103601102 | 22x2438x6096 | 1 | 2.567 | 1 | 142 | 195 | 1350 | 170 | 48 | 340 | 1260 | 191 | 14 | 6314 | 20 | 10 | 40 | 400 | 554 | 21.5 | 316 | 298 | 290 | 301 |
| 23207958A | 1142100257 | 1142103602101 | 22x2438x6096 | 1 | 2.567 | 1 | 142 | 195 | 1350 | 170 | 48 | 340 | 1260 | 191 | 14 | 6314 | 20 | 10 | 40 | 400 | 554 | 21.5 | 316 | 298 | 290 | 301 |
| 23207959A | 1142100257 | 1142103602102 | 22x2438x6096 | 1 | 2.567 | 1 | 142 | 195 | 1350 | 170 | 48 | 340 | 1260 | 191 | 14 | 6314 | 20 | 10 | 40 | 400 | 554 | 21.5 | 316 | 298 | 290 | 301 |
| 23116880D | 1142100258 | 1142103611101 | 22x2438x6096 | 1 | 2.567 | 1 | 149 | 189 | 1360 | 180 | 59 | 329 | 1460 | 187 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103611102 | 22x2438x6096 | 1 | 2.567 | 1 | 149 | 189 | 1360 | 180 | 59 | 329 | 1460 | 187 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103612101 | 22x2438x6096 | 1 | 2.567 | 1 | 149 | 189 | 1360 | 180 | 59 | 329 | 1460 | 187 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103612102 | 22x2438x6096 | 1 | 2.567 | 1 | 149 | 189 | 1360 | 180 | 59 | 329 | 1460 | 187 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| | | | 合计(TOTAL): | 12 | 30.804 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 冶炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 323-24 -01

AL

MTR 323-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAICORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAICORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240212 |
| | | 证明书编号 CERTIFICATE NO. | 240212Z00602 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $10^{-3}$ | $10^{-3}$ | $10^{-3}$ | $10^{-4}$ | $10^{-4}$ | $10^{-3}$ | $10^{-4}$ | $10^{-3}$ | $10^{-3}$ | $10^{-3}$ | $10^{-3}$ | $10^{-4}$ | $10^{-4}$ | $10^{-4}$ | | | | | | | |
| 24102102D | 1142100255 | 1142103571O1 | 25x2438x6096 | 1 | 2.917 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 24102102D | 1142100255 | 1142103571O2 | 25x2438x6096 | 1 | 2.917 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 24102102D | 1142100255 | 1142103572O1 | 25x2438x6096 | 1 | 2.917 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 24102102D | 1142100255 | 1142103572O2 | 25x2438x6096 | 1 | 2.917 | L | 111 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 23116880D | 1142100258 | 1142103621O1 | 22x2438x6096 | 1 | 2.567 | L | 119 | 189 | 1360 | 180 | 59 | 329 | 1460 | 487 | 15 | 6313 | 20 | 30 | 10 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103621O2 | 22x2438x6096 | 1 | 2.567 | L | 119 | 189 | 1360 | 180 | 59 | 329 | 1460 | 487 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103622O1 | 22x2438x6096 | 1 | 2.567 | L | 119 | 189 | 1360 | 180 | 59 | 329 | 1460 | 487 | 15 | 6313 | 20 | 30 | 10 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23116880D | 1142100258 | 1142103622O2 | 22x2438x6096 | 1 | 2.567 | L | 119 | 189 | 1360 | 180 | 59 | 329 | 1460 | 487 | 15 | 6313 | 20 | 30 | 40 | 419 | 577 | 24.5 | 245 | 191 | 209 | 215 |
| 23121611D | 1142128006 | 1142103631O1 | 22x2438x6096 | 1 | 2.567 | L | 113 | 321 | 1330 | 250 | 37 | 276 | 3100 | 496 | 23 | 6649 | 10 | 50 | 10 | 410 | 583 | 21 | 261 | 268 | 196 | 242 |
| 23121611D | 1142128006 | 1142103631O2 | 22x2438x6096 | 1 | 2.567 | L | 113 | 321 | 1330 | 250 | 37 | 276 | 3100 | 496 | 23 | 6649 | 10 | 50 | 40 | 410 | 583 | 21 | 261 | 268 | 196 | 242 |
| 23121611D | 1142128006 | 1142103632O1 | 22x2438x6096 | 1 | 2.567 | L | 113 | 321 | 1330 | 250 | 37 | 276 | 3100 | 496 | 23 | 6649 | 10 | 50 | 10 | 410 | 583 | 21 | 261 | 268 | 196 | 242 |
| 23121611D | 1142128006 | 1142103632O2 | 22x2438x6096 | 1 | 2.567 | L | 113 | 321 | 1330 | 250 | 37 | 276 | 3100 | 496 | 23 | 6649 | 10 | 50 | 40 | 410 | 583 | 21 | 261 | 268 | 196 | 242 |
| | | 合计(TOTAL): | | 12 | 32.204 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 325-24 -01

AL

MTR 325-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240212 |
| | | 证明书编号 CERTIFICATE NO. | 240212Z00603 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $10^{-3}$ | $10^{-3}$ | $10^{-3}$ | $10^{-1}$ | $10^{-4}$ | $10^{-3}$ | $10^{-1}$ | $10^{-4}$ | $10^{-2}$ | $10^{-2}$ | $10^{-4}$ | $10^{-4}$ | $10^{-4}$ | | | | | | | | |
| 24102102D | 1142100255 | 1142103581O1 | 25x2438x6096 | 1 | 2.917 | L | 114 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 24102102D | 1142100255 | 1142103582O1 | 25x2438x6096 | 1 | 2.917 | L | 114 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| 24102102D | 1142100255 | 1142103582O2 | 25x2438x6096 | 1 | 2.917 | L | 114 | 350 | 1340 | 150 | 42 | 268 | 2690 | 486 | 24 | 6418 | 20 | 60 | 40 | 448 | 601 | 23 | 267 | 283 | 252 | 267 |
| | | | 合计(TOTAL): | 3 | 8.751 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：冶炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

野牛

MTR 328-24 -01

AL

MTR 328-24 -03

ISF ZAP752L04

注文者 SHIPPER : METAL ONE CORPORATION

契約番号 CONTRACT No 2-831 H1-5-X-BX08　船番 SHIP No.

商品名 COMMODITY : HOT ROLLED STEEL PLATES

規格 SPECIFICATION ASTM A572 21 GRADE 50

需要家 CUSTOMER TERNIUM PROCUREMENT SA　需要家管理番号 CUSTOMER'S CONTROL No. CO-24234　文書番号 DOCUMENT No.

# 日本製鉄株式会社
NIPPON STEEL CORPORATION

# 鋼材検査証明書
# INSPECTION CERTIFICATE


本社 HEAD OFFICE : 〒100-8071 東京都千代田区丸の内二丁目6番1号 2-6-1, MARUNOUCHI, CHIYODA-KU TOKYO, 100-80 JAPAN
東日本製鉄所 鹿島 EAST NIPPON WORKS KASHIMA : 〒314-0014 茨城県鹿嶋市光3番地 3, HIKARI, KASHIMA-CITY, IBARAKI-PREF., 314-0014, JAPAN


証明書番号 CERTIFICATE No : E22006629　頁 PAGE : 1

発行年月日 DATE OF ISSUE : 2022-12-21

| 需要家照合番号 ORDER ITEM No / 寸法 DIMENSION mm, H: inch, F: feet | 員数 QUANTITY | 質量 MASS KG | 製鋼番号 HEAT No / 試験番号 TEST No | 製品番号 PLATE No | 区分※1 | 引張試験 TENSILE TEST 降伏点・耐力 YP, YS | 引張強さ TS | 伸び EL % | 衝撃試験 IMPACT TEST 試験温度 TEST TEMP. | 吸収エネルギー ABSORBED ENERGY 1 | 2 | 3 | AVG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 38X2440X6096 | 3 | 13308 | 2B30227 MX0018 | FROM X01992001 TO X01992003 | TC F | 57 | 74 | 30 | | | | | |
| 01 38X2440X6096 | 1 | 4436 | 2B30227 MX0018 | X01992101 | TC F | 57 | 74 | 30 | | | | | |
| 01 38X2440X6096 | 1 | 4436 | 2B30227 MY0018 | X01992102 | TC F | 59 | 77 | 25 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2A21404 MX0020 | X60707601 | TC F | 65 | 78 | 27 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2A21404 MY0020 | X60707602 | TC F | 59 | 76 | 29 | | | | | |
| 02 32X2440X6096 | 3 | 11205 | 2B30227 MY0018 | FROM X01992201 TO X01992203 | TC F | 59 | 77 | 25 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2920727 MX0021 | X60708301 | TC F | 64 | 78 | 26 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2920727 MY0021 | X60708302 | TC F | 61 | 76 | 28 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2922703 MX0022 | X60708601 | TC F | 63 | 71 | 26 | | | | | |
| 02 32X2440X6096 | 1 | 3735 | 2922703 MY0022 | X60708602 | TC F | 56 | 73 | 29 | | | | | |

化学成分 CHEMICAL COMPOSITION % (※10 xl. 1: 1/10, 2: 1/100, 3: 1/1000, 4: 1/10000, 5: 1/100000)

| 区分※10 | C | Si | Mn | P | S | Cu | Ni | Cr | Mo | Nb | V | T.A | Sol. Al | PCM | CEt | 熱処理 ※12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | 15 | 26 | 113 | 9 | 2 | 1 | 1 | 3 | 0 | 1 | 0 | | | | | H |
| L | 15 | 26 | 113 | 9 | 2 | 1 | 1 | 3 | 0 | 1 | 0 | | | | | H |
| L | 15 | 26 | 113 | 9 | 2 | 1 | 1 | 3 | 0 | 1 | 0 | | | | | H |
| L | 14 | 28 | 114 | 17 | 1 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |
| L | 14 | 28 | 114 | 17 | 1 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |
| L | 15 | 26 | 113 | 9 | 2 | 1 | 1 | 3 | 0 | 1 | 0 | | | | | H |
| L | 15 | 27 | 116 | 12 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |
| L | 15 | 27 | 116 | 12 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |
| L | 15 | 27 | 115 | 10 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |
| L | 15 | 27 | 115 | 10 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | | | | | H |

注釈 NOTES ※1 試験片熱処理区分 Test piece heat treatment H:試験片熱処理実施 Heat treated for test piece. ブランク blank:供給まま As-supplied ※2 位置 Location T:Top B:Bottom ※3 方向 Direction L:圧延方向 Longitudinal C:板直方向 Transverse. Z:板厚方向 Through-Thickness. R:45°方向 45Deg. to the Longitudinal Axis ※4 採内位置 Position in thickness. F:全厚 Full-thick. S:表層 Surface B:Bottom surface. Q:1/4厚 Quarter-thick. M:1/2厚 Mid-thick. T:1/3厚 Third-thick. 3:1/4厚 Three quarter-thick. Y:表面下12.5mm 12.5mm-under surface. H:半厚 Half-thick. ※5 GL:標点距離 Gauge Length. 平板試験片 Rectangular type specimen. A:50mm, B:70mm, C:80mm, D:200mm, E:2", F:8", G:5.65√So, H:4√So 丸棒試験片 Round type specimen. I:50mm, J:70mm, K:2", L:4", M:5.65√So, N:4√So ※6 YP,YS:Yield Point or Yield Strength. 0.2YS:0.2% Offset. 0.5YS:0.5% total extension under load. LYP:Lower yield point ※7 RA:絞り Reduction of Area, YR:降伏比 Yield Ratio ※8 A:合格 Acceptable ※9 引張試験試験片サイズ F:16mm Full 2:2.5mm Sub. 3:3.0mm Sub. 4:3.33mm Sub. 5:5mm Sub. 6:6.67mm Sub. 7:7.5mm Sub. 8:8.75mm Sub. 9:10.0mm. A:Plate Thick. ※10 分析区分 Analysis L:レードル分析 Ladle. P:製品分析 Product ※11 超音波探傷試験 UTrasonic test A:Acceptable ※12 寸法, 外観, 形状検査 Dimension, Visual, Shape Inspection A:Acceptable. ※13 供給状態 Condition of supply H:TMCP ※MISC 温度 Temperature/°C °F ° F MPa=N/mm2

FA:延性破面率 Fracture Appearance (Shear Fracture) CF:結晶破面率 Crystallinity Fracture LE:横拡出 Lateral Expansion AGS:オーステナイト粒度 Austenite Grain Size FGS:フェライト粒度 Ferrite Grain Size SR:Stress Relieved/PostWeld Heat Treatment

All plates are produced by following process.
STEEL MAKING:LD Process and Fully-Killed practice.

上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

MTR, 358, 23-三10

MTR358-23-09

HIDENORI FUKAMI
深水 秀範
東日本製鉄所 品質保証室長
HEAD OF DEPARTMENT
QUALITY ASSURANCE DEPT
EAST NIPPON WORKS

092*********MF04E


<注意とお願い>本証明書の改変や不正使用は、固く禁じられております。本証明書の真偽についてご質問がある場合は、次の当社窓口までお問い合わせ下さい (E-mail: mc-pl@jp.nipponsteel.com)。
(Notice)Modification to or unauthorized use of this certificate is strictly prohibited. If you have any questions on the authenticity of this certificate, you can contact us by E-mail: mc-pl@jp.nipponsteel.com


MTR, 358, 23-三09

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240217 |
| | | 证明书编号 CERTIFICATE NO. | 240217Z00204 | | |
| 车号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 MM DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Nb | Mo | Ti | Nb | BOA01 屈服强度 MPa ReH ReL Rp0.2 | BOA02 抗拉强度 MPa Rm | BOA03 断后伸长率 % B5 | AOC01 冲击单值 A J | AOC012 冲击单值 B J | AOC013 冲击单值 C J | AOC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-3}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-4}$ | | | | | | | | |
| 24201194A | S42150126 | S4215246101 | 9x2438x6096 | 1 | 1.050 | 1 | 143 | 355 | 1340 | 210 | 43 | 283 | 2880 | 168 | 22 | 6608 | 10 | 60 | 10 | | 376 | 605 | 25 | 53 | 67 | 55 | 58 |
| 24201194A | S42150126 | S4215246102 | 9x2438x6096 | 1 | 1.050 | 1 | 143 | 355 | 1340 | 210 | 43 | 283 | 2880 | 168 | 22 | 6608 | 10 | 60 | 10 | | 376 | 605 | 25 | 53 | 67 | 55 | 58 |
| 24201194A | S42150126 | S4215246201 | 9x2438x6096 | 1 | 1.050 | 1 | 143 | 355 | 1340 | 210 | 43 | 283 | 2880 | 168 | 22 | 6608 | 10 | 60 | 10 | | 376 | 605 | 25 | 53 | 67 | 55 | 58 |
| 24201194A | S42150126 | S4215246202 | 9x2438x6096 | 1 | 1.050 | 1 | 143 | 355 | 1340 | 210 | 43 | 283 | 2880 | 168 | 22 | 6608 | 10 | 60 | 10 | | 376 | 605 | 25 | 53 | 67 | 55 | 58 |
| | | | 合计 (TOTAL): | 4 | 4.200 | | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
AOC冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*7.5*55
BOA01=YIELD STRENGTH
BOA02=TENSILE STRENGTH
BOA03=PRECENTAGE ELONGATION AFTER FRACTURE

AOC01=IMPACT TEST A
AOC012=IMPACT TEST B
AOC013=IMPACT TEST C
AOC02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 304-24 -01
A2

MTR 304-24 -04

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00475 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B BA01 屈服强度 MPa Rp0.2 | B BA02 抗拉强度 MPa Rm | B BA03 断后伸长率 % A5 | A OC01 冲击单值 A J | A OC012 冲击单值 B J | A OC013 冲击单值 C J | A OC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ≤10^-2 | ≤10^-3 | ≤10^-2 | ≤10^-1 | ≤10^-3 | ≤10^-3 | ≤10^-4 | ≤10^-2 | ≤10^-3 | ≤10^-3 | ≤10^-4 | ≤10^-1 | ≤10^-4 | | | | | | | | |
| 24102104D | 1142100262 | 1142103731O3 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 1142103732O1 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 1142103732O2 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 1142103732O3 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 1142103733O1 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 1142103733O2 | 12x2438x6096 | 1 | 1.400 | 1 | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| | | | 合计 (TOTAL): | 6 | 8.400 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：专炉成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
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冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

野牛

MTR 306-24 -01
AL
MTR 306-24 -06

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGRIZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240202 |
| | | 证明书编号 CERTIFICATE NO. | 240202Z00760 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | | | | | | | |
| 2320865 1C | 1141290121 | 141129124101 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129124102 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129124202 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129124203 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129125101 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129125201 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129125202 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129125203 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129126101 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 2320865 1C | 1141290121 | 141129126202 | 12x2438x6096 | 1 | 1,400 | 1 | 140 | 164 | 1320 | 150 | 58 | 315 | 1240 | 173 | 11 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| | | | 合计(TOTAL): | 10 | 14,000 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

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WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 307-24 -01

AL

MTR 307-24 -10

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240204 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240204Z00239 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Mb | B 0A01 屈服强度 MPa Rp0.2 | B BA02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 J A | A 0C012 冲击单值 J B | A 0C013 冲击单值 J C | A 0C02 冲击均值 J Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-2 | <10^-3 | <10^-2 | <10^-1 | <10^-4 | <10^-3 | 10^-4 | <10^-2 | <10^-2 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | | | | | | | |
| 23208651C | 1141290121 | 114129124201 | 12x2438x6096 | 1 | 1.400 | L | 110 | 164 | 1320 | 150 | 58 | 315 | 1240 | 473 | 14 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 23208651C | 1141290121 | 114129125102 | 12x2438x6096 | 1 | 1.400 | L | 110 | 164 | 1320 | 150 | 58 | 315 | 1240 | 473 | 14 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 23208651C | 1141290121 | 114129125102 | 12x2438x6096 | 1 | 1.400 | L | 110 | 164 | 1320 | 150 | 58 | 315 | 1240 | 473 | 14 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 23208651C | 1141290121 | 114129126201 | 12x2438x6096 | 1 | 1.400 | L | 110 | 164 | 1320 | 150 | 58 | 315 | 1240 | 473 | 14 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| 23208651C | 1141290121 | 114129126203 | 12x2438x6096 | 1 | 1.400 | L | 110 | 164 | 1320 | 150 | 58 | 315 | 1240 | 473 | 14 | 6131 | 30 | 30 | 40 | 382 | 554 | 21.5 | 157 | 144 | 96 | 132 |
| | | | 合计(TOTAL): | 5 | 7.000 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 306-24 -01
AL
MTR 308-24 -05

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区沿金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240213 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240213Z00474 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻³ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | | | | | | | | |
| 24102104D | 1142100262 | 114210371102 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371103 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371201 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371202 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371203 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371301 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 24102104D | 1142100262 | 114210371302 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| 23121141A | 1142100263 | 114210372101 | 12x2438x6096 | 1 | 1,400 | L | 135 | 330 | 1370 | 170 | 51 | 284 | 2690 | 458 | 25 | 6474 | 10 | 60 | 40 | 401 | 588 | 24 | 205 | 171 | 156 | 177 |
| 23121141A | 1142100263 | 114210372102 | 12x2438x6096 | 1 | 1,400 | L | 135 | 330 | 1370 | 170 | 51 | 284 | 2690 | 458 | 25 | 6474 | 10 | 60 | 40 | 401 | 588 | 24 | 205 | 171 | 156 | 177 |
| 23121141A | 1142100263 | 114210372201 | 12x2438x6096 | 1 | 1,400 | L | 135 | 330 | 1370 | 170 | 51 | 284 | 2690 | 458 | 25 | 6474 | 10 | 60 | 40 | 401 | 588 | 24 | 205 | 171 | 156 | 177 |
| 23121141A | 1142100263 | 114210372202 | 12x2438x6096 | 1 | 1,400 | L | 135 | 330 | 1370 | 170 | 51 | 284 | 2690 | 458 | 25 | 6474 | 10 | 60 | 40 | 401 | 588 | 24 | 205 | 171 | 156 | 177 |
| 24102104D | 1142100262 | 114210373102 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| | | | 合计 (TOTAL): | 12 | 16,800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 309-24 -01
AL
MTR 309-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAICORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAICORPORATION | 合同编号 CONTRACTNO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240212 |
| | | 证明书编号 CERTHCATE NO. | 240212Z00234 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 厚×宽×长 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10⁻² | <10⁻² | <10⁻² | <10⁻⁴ | <10⁻⁴ | <10⁻³ | 10⁻¹ | <10⁻³ | <10⁻² | <10⁻³ | <10⁻⁴ | <10⁻⁴ | <10⁻⁴ | | | | | | | |
| 24102184D | H42100262 | H42103731O1 | 12×2438×6096 | 1 | 1.480 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 485 | 25 | 6415 | 10 | 60 | 40 | 420 | 617 | 22.5 | 103 | 103 | 101 | 102 |
| | | | 合计(TOTAL): | 1 | 1.480 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

野牛

MTR 310-24 -01

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240219 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240219Z00181 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻⁴ | ×10⁻³ | ×10⁻² | ×10⁻³ | ×10⁻⁴ | ×10⁻¹ | ×10⁻⁴ | | | | | | | | |
| 24102104D | 1142110085 | 1142110373D1 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142110085 | 1142110373D2 | 12x2438x6096 | 1 | 1,400 | L | 147 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| | | | 合计 (TOTAL): | 2 | 2,800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 311-24 -01



MTR 311-24 -02

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240216 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240216Z00670 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | Ti ×10⁻³ | Mo ×10⁻⁴ | B ×10⁻⁴ | Nb ×10⁻⁴ | B OA01 屈服强度 MPa Rp0.2 | B OA02 抗拉强度 MPa Rm | B OA03 断后伸长率 % B5 | A OC01 冲击单值 A J | A OC012 冲击单值 B J | A OC013 冲击单值 C J | A OC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24102104D | 1142140085 | 1142140371@1 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140371@2 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140371@3 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140372@1 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140372@2 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140381@1 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140381@2 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140382@1 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140382@2 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140383@1 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| 24102104D | 1142140085 | 1142140383@2 | 12x2438x6096 | 1 | 1,400 | L | 117 | 353 | 1330 | 160 | 52 | 273 | 2550 | 488 | 25 | 6445 | 10 | 60 | 40 | 404 | 617 | 23 | 56 | 63 | 63 | 61 |
| | | | 合计 (TOTAL): | 12 | 16,800 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C2冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 313-24 -01
AL

MTR 313-24 -12

南冶钢铁 NAN STEEL

湖南南冶钢铁有限公司
Nansteel Manufacturing Co.,Ltd.
湖南省长沙市岳麓科技工业园学士路
21ST&22ND FLOOR GOLDEN TOWER, CHANGSHA WEST INTERNATIONAL CENTRAL MANSION, YUELU DISTRICT, CHANGSHA, HUNAN, CHINA

# 产品质量证明书
# MILL TEST CERTIFICATE
( EN 10204 3.1 )

生产许可证编号 Production license
No: TS2710L40-2018
T:+86 731 8878 7783,
E:info@nan-steel.com
Page:www.nan-steel.com

| 订货单位 Customer | KENNA INTERN ATIONAL CORPOR ATION PTY LTD | | | 合同编号 Contract .No | | NSCO24978 | | 总件数 Total PCS | 624 | | 出证日期 DATE OF ISSUE | 2024.09.26 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 品种名称 Product Name | 角钢/EQUAL ANGLE STEEL | | | 产品要求标准 Technical Specification | | ASTM A709 ZONE 1 WT | | 证书编号 Certificate No | 24978-01 | | 交货条件 DELIVERY | 热轧Hot Rolling | |

| 炉号 Heat No. | 尺寸 Size 宽*长*厚W*L*T Specfication(mm) | 单重 Theoretical Weight(kg/m) | 件数 pcs | 总长度 total length (m) | 总重量 total weight (kg) | 钢号 Steel Grade | 机械性能Mechanical Property | | | 冲击试验Impact Test (+20℃) | | | 通径测试 Drift Test | 水压试验 Hydrostatic Test | 金相检测 Metallographic Test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tensile Strength | Yield Strength | Elongation | 1 | 2 | 3 | | | |
| | | | | | | | Mpa | | % | J | | | | | |
| 32408310 | ANGULO 4*4*3/8*12M | 14.60 | 143 | 1,716 | 25,053.60 | GR.50 | 550 | 385 | 27.0 | 54 | 52 | 57 | - | - | - |
| 32406096 | ANGULO 4*4*1/2*12M | 19.07 | 306 | 3.672 | 70,025.04 | GR.50 | 510 | 375 | 30.0 | 62 | 68 | 57 | - | - | - |
| 32407175 | ANGULO 4*4*5/8*12M | 23.30 | 89 | 1.068 | 24,884.40 | GR.50 | 510 | 360 | 29.0 | 73 | 69 | 68 | - | - | - |
| 24303773DE2 | ANGULO 5*5*1/2*12M | 24.13 | 86 | 1.032 | 24,902.16 | GR.50 | 522 | 370 | 31.0 | 114 | 121 | 126 | - | - | - |
| Total | | | 624 | 7,488 | 144,865.20 | | | | | | | | | | |

| 炉号 Heat No. | 化学成分 Chemical Composition (%) | | | | | | | | | | | 压扁测试 Flattening Test | 硬度 Hardness Test HRC | 弯曲试验 Bend Test | 非金属杂质 Non-metallic Inclusions | | | | 组织 The Banded Structure | 漏磁 Leakage | 超声 Ultrasound | 外观尺寸及表面 The Size of Surface Appearance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Mn | Si | P | S | Cr | Ni | Cu | B | V+Nb+Ti | CE | | | | A 细/粗 | B 细/粗 | C 细/粗 | D 细/粗 | | | | |
| 32408310 | 0.210 | 1.300 | 0.360 | 0.029 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32406096 | 0.180 | 1.290 | 0.330 | 0.029 | 0.018 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32407175 | 0.210 | 1.320 | 0.170 | 0.017 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 24303773DE2 | 0.180 | 1.280 | 0.310 | 0.022 | 0.010 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |

注释 Note

我们证明本文档所代表的材料已经过检查和测试，并且符合参考规范和您的采购订单的要求。
We certify that the material represented by this document has been inpected and tested,and is in conformance with the requirements of the referenced specification's and your purchase order.

盖章生效
Stamp to take effect

检验 INSPECTOR: Li Yiming

发货 CONSIGNOR: Mr. Wang

签批 APPROVAL: Xiang Wang

王香

TR003 -25--01

AL

TR003 -25--04

HR SADELEC
APROBADO
QC 5

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240926 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240926Z01206 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | Ti | Als | B 0A01 屈服强度 | B 0A02 抗拉强度 | B 0A03 断后伸长率 | A 0C01 冲击单值 A | A 0C012 冲击单值 B | A 0C013 冲击单值 C | A 0C02 冲击均值 Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | MPa Rp0.2 | MPa Rm | % B5 | J | J | J | J |
| 24116443D | H49240116 | H4924154101 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154201 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154301 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154401 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| | | | 合计(TOTAL): | 4 | 11,200 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 36 -25-0 AL MTR 36 -25-04

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

posco

# Mill Test Certificate

Certificate No. : 211108-FP01PS-0005A1-0001
Date of Issue : Nov., 25, 2021

Order No. : 01S5221952
PO No. : HB1
Supplier : POSCO INTERNATIONAL CORPORATION
Commodity : STEEL PLATE
Customer : H B ESTRUCTURAS METALICAS
Spec & Type : ASTM A709-50W T-z1-B

| Size | Product No. | Quantity | Weight (kg) | Heat No. | Position | Tensile Test YP (Mpa) | Tensile Test TS | Tensile Test EL (%) | Impact Test V Notch +21 ℃ Energy (Joule) | Division | Chemical Composition C (%) | Si (%) | Mn (%) | P (%) | S (%) | Cr (%) | Ni (%) | Cu (%) | V (%) | Sol-Al (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.8x2440x6096 | PC98479801-9802 | 2 | 3,688 | SB24632 | T | 372 | 624 | 22 | 1: 149<br>2: 146<br>3: 132<br>A: 142 | L | 0.0688 | 0.332 | 1.300 | 0.0069 | 0.0019 | 0.488 | 0.351 | 0.319 | 0.052 | 0.032 |
| | | | | | | | | | | P | 0.0667 | 0.337 | 1.307 | 0.0074 | 0.0018 | 0.488 | 0.361 | 0.311 | 0.053 | 0.032 |
| 15.8x2440x6096 | PB62513101-3108 | 8 | 14,752 | SB24643 | T | 408 | 598 | 23 | 1: 311<br>2: 256<br>3: 271<br>A: 279 | L | 0.0705 | 0.345 | 1.299 | 0.0074 | 0.0022 | 0.478 | 0.332 | 0.324 | 0.053 | 0.033 |
| | | | | | | | | | | P | 0.0694 | 0.324 | 1.290 | 0.0073 | 0.0019 | 0.479 | 0.338 | 0.314 | 0.054 | 0.034 |
| 15.8x2440x6096 | PB62513001-3008 | 8 | 14,752 | SB24645 | T | 415 | 625 | 23 | 1: 223<br>2: 195<br>3: 172<br>A: 197 | L | 0.0745 | 0.359 | 1.293 | 0.0075 | 0.0022 | 0.482 | 0.330 | 0.324 | 0.052 | 0.033 |
| | | | | | | | | | | P | 0.0702 | 0.323 | 1.275 | 0.0068 | 0.0020 | 0.470 | 0.325 | 0.322 | 0.053 | 0.031 |
| *** Sub Total (010) *** | | 18 | 33,192 (kg) | | | | | | | | | | | | | | | | | |
| *** Heat Treatment ===> Thermo Mechanical Rolling + Accelerated Cooling *** | | | | | | | | | | | | | | | | | | | | |
| 32x2440x6096 | PB62463601-3604 | 4 | 14,940 | SB24643 | T | 475 | 635 | 21 | 1: 308<br>2: 290<br>3: 287<br>A: 295 | L | 0.0705 | 0.345 | 1.299 | 0.0074 | 0.0022 | 0.478 | 0.332 | 0.324 | 0.053 | 0.033 |
| | | | | | | | | | | P | 0.0694 | 0.324 | 1.290 | 0.0073 | 0.0019 | 0.479 | 0.338 | 0.314 | 0.054 | 0.034 |
| 32x2440x6096 | PB62463501-3502 | 2 | 7,470 | SB24649 | T | 511 | 672 | 21 | 1: 327<br>2: 315<br>3: 311<br>A: 318 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62463504 | 1 | 3,735 | SB24649 | T | 511 | 672 | 21 | 1: 327<br>2: 315<br>3: 311<br>A: 318 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |

* Position - T : Top, M : Middle, B : Bottom
* Tensile Test. Direction : Transversal, Gauge Length : 200 ㎜(Rectangular), YP Method : Upper Point
* Impact Test. Direction : 1/4T Transversal, Full-Size : 10 ㎜X10 ㎜
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing and calcium treated process.
Test Certificate is issued according to ISO 10474/EN 10204 3.1.
Melted and Manufactured in Republic of Korea

03=11
04=11
05=11
MTR-046-22-06=1

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

MTR 046 -22-03 AL

Surveyor To :

MTR 046 -22-06

T.C.BAE

posco

# Mill Test Certificate

Certificate No. : 211108-FP01PS-0005A1-0002
Date of Issue : Nov., 25, 2021

Order No. : 01S5221952
PO No. : HB1
Supplier : POSCO INTERNATIONAL CORPORATION
Commodity : STEEL PLATE
Customer : H B ESTRUCTURAS METALICAS
Spec & Type : ASTM A709-50W T-z1-B

| Size | Product No. | Quantity | Weight (kg) | Heat No. | Position | Tensile Test YP (MPa) | Tensile Test TS (MPa) | Tensile Test EL (%) | Impact Test V Notch +21 ℃ Energy (Joule) | Division | Chemical Composition C (%) | Si (%) | Mn (%) | P (%) | S (%) | Cr (%) | Ni (%) | Cu (%) | V (%) | Sol-Al (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32x2440x6096 | PB62463401-3404 | 4 | 14,940 | SB24649 | T | 511 | 672 | 21 | 1: 325<br>2: 327<br>3: 325<br>A: 326 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62464501-4504 | 4 | 14,940 | SB24649 | T | 511 | 672 | 21 | 1: 276<br>2: 296<br>3: 300<br>A: 291 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62464301-4305 | 5 | 18,675 | SB24649 | T | 511 | 672 | 21 | 1: 273<br>2: 280<br>3: 297<br>A: 283 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62464401-4405 | 5 | 18,675 | SB24649 | T | 511 | 672 | 21 | 1: 281<br>2: 289<br>3: 259<br>A: 276 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62464201-4205 | 5 | 18,675 | SB24649 | T | 511 | 672 | 21 | 1: 284<br>2: 296<br>3: 303<br>A: 294 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| 32x2440x6096 | PB62464101-4105 | 5 | 18,675 | SB24649 | T | 511 | 672 | 21 | 1: 280<br>2: 302<br>3: 282<br>A: 288 | L | 0.0754 | 0.342 | 1.290 | 0.0069 | 0.0016 | 0.483 | 0.330 | 0.327 | 0.053 | 0.035 |
| | | | | | | | | | | P | 0.0711 | 0.328 | 1.280 | 0.0069 | 0.0013 | 0.476 | 0.334 | 0.322 | 0.053 | 0.035 |
| *** Sub Total (029) *** | | 35 | 130,725 (kg) | | *** | | | | | | | | | | | | | | | |
| *** Heat Treatment ===> Thermo Mechanical Rolling + Accelerated Cooling *** | | | | | | | | | | | | | | | | | | | | |

* Position - T : Top, M : Middle, B : Bottom
* Tensile Test. Direction : Transversal, Gauge Length : 200 ㎜(Rectangular), YP Method : Upper Point
* Impact Test. Direction : 1/4T Transversal, Full-Size : 10 ㎜X10 ㎜
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

MTR 047 -22-01 AL

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing and calcium treated process.
Test Certificate is issued according to ISO 10474/EN 10204 3.1.
Melted and Manufactured in Republic of Korea

MTR-047-22-01 = 1111
02 = 1111
03 = 11111
04 = 111

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To : MTR 047 -22-04

T.C.BAE

KOCAER

Kocaer Celik San. Ve Tic. A.S.
Address: Yenifoca Yolu Uzeri 3.Km
Aliaga, Izmir/Turkey

www.kocaersteel.com

info@kocaersteel.com
Phone +902326251166
Fax +902326251966

TO : HB ESTRUCTURAS METALICAS SAS
AV. CARRERA 129 No. 17F-97 BOGOTA, COLOMBIA
COLOMBIA

# MILL TEST CERTIFICATE

IN ACCORDANCE WITH EN 10204:2004 3.1 | DATE : 12.01.2024 | NO :KCR-179 | PAGE : 1 / 1

* DESCRIPTION OF GOODS :
PRIME QUALITY HOT ROLLED STEEL PROFILES
AS PER QUALITY A572 GR50 TP2, ACCORDING TO ASTM A6
AS PER SALES CONTRACT NO: KH231120 05/SDL-24 DATED: 20.11.2023

HOT ROLLED STEEL C CHANNELS ACC TO ASTM A572-21

| SIZE (in. x lb/ft) | QUALITY | LENGTH (mm) | TOTAL PIECES | QUANTITY (MT) | HEAT NO | MECHANICAL PROPERTIES | | | BEND TEST 180° | CHEMICAL PROPERTIES (LADLE) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | YIELD STRENGTH (N/mm²) | TENSILE STRENGTH (N/mm²) | % ELONG. | | C % | Si % | Mn % | P % | S % | Cu % | N (ppm) | V % | Cr % | Ni % | Mo % | Ceq % |
| C 6 X 8.2 | A572 GR50 TP2 | 6000 | 22 | 1,610 | 23171984 | 415 | 595 | 29 | OK | 0,20 | 0,23 | 0,94 | 0,033 | 0,005 | 0,40 | 110 | 0,014 | 0,140 | 0,100 | 0,010 | 0,42 |
| C 6 X 8.2 | A572 GR50 TP2 | 6000 | 178 | 13,028 | 23290464 | 432 | 581 | 24 | OK | 0,21 | 0,18 | 0,91 | 0,015 | 0,010 | 0,47 | 90 | 0,015 | 0,091 | 0,127 | 0,021 | 0,43 |

Tolerances on shape and dimensions are fulfilled Acc. to American Standard ASTM A6/A6M-22
Mechanical and chemical requirements are fulfilled Acc. to client specifications and American Standard ASTM A572-21
Standard for surface: EN 10163-3:2004, Class C, Subclass 1
Steel Making Process: Electric Arc Furnace
Deoxidation Method: Killed Steel

Tensile test as per ASTM A370
Chemical test as per CEN/TR 10261
CEQ:C+Mn/6+ (Cr+Mo+V)/5+(Ni+Cu)/15

ISSUED BY

MTR 053-24-01
02

MTR 053-24-01
MTR 053-24-02

2000038444

KOCAER

Kocaer Celik San. Ve Tic. A.S.
Address: Yenifoca Yolu Uzeri 3.Km
Aliaga, Izmir/Turkey

TO : HB ESTRUCTURAS METALICAS SAS
AV. CARRERA 129 No. 17F-97 BOGOTA, COLOMBIA
COLOMBIA

www.kocaersteel.com

info@kocaersteel.com
Phone +902326251166
Fax +902326251966

# MILL TEST CERTIFICATE

IN ACCORDANCE WITH EN 10204:2004 3.1 | DATE : 25.01.2024 | NO :KCR-180 | PAGE : 1 / 1

*** DESCRIPTION OF GOODS :**
PRIME QUALITY HOT ROLLED STEEL PROFILES
AS PER QUALITY A572 GR50 TP2, ACCORDING TO ASTM A6
AS PER SALES CONTRACT NO: KH231120 05/SDL-24 DATED: 20.11.2023

HOT ROLLED STEEL C CHANNELS ACC TO ASTM A572-21

| SIZE (in. x lb/ft) | QUALITY | LENGTH (mm) | TOTAL PIECES | QUANTITY (MT) | HEAT NO | MECHANICAL PROPERTIES | | | BEND TEST 180° | CHEMICAL PROPERTIES (LADLE) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | YIELD STRENGTH (N/mm²) | TENSILE STRENGTH (N/mm²) | % EL.ONG. | | C % | Si % | Mn % | P % | S % | Cu % | N (ppm) | V % | Cr % | Ni % | Mo % | Ceq % |
| C 6 X 10.5 | A572 GR50 TP2 | 12000 | 144 | 26,952 | 23171946 | 398 | 480 | 26 | OK | 0,21 | 0,22 | 0,99 | 0,020 | 0,012 | 0,35 | 100 | 0,014 | 0,130 | 0,110 | 0,020 | 0,44 |
| C 6 X 10.5 | A572 GR50 TP2 | 12000 | 130 | 24,332 | 23171984 | 400 | 578 | 25 | OK | 0,20 | 0,23 | 0,94 | 0,033 | 0,005 | 0,40 | 110 | 0,014 | 0,140 | 0,100 | 0,010 | 0,42 |
| C 8 X 11.5 | A572 GR50 TP2 | 12000 | 120 | 24,624 | 23170111 | 406 | 581 | 30 | OK | 0,21 | 0,21 | 0,97 | 0,023 | 0,005 | 0,32 | 110 | 0,014 | 0,140 | 0,110 | 0,020 | 0,44 |

Tolerances on shape and dimensions are fulfilled Acc. to American Standard ASTM A6/A6M-22
Mechanical and chemical requirements are fulfilled Acc. to client specifications and American Standard ASTM A572-21
Standard for surface: EN 10163-3:2004, Class C, Subclass 1
Steel Making Process: Electric Arc Furnace — Deoxidation Method: Killed Steel

Tensile test as per ASTM A370
Chemical test as per CEN/TR 10261
CEQ:C+Mn/6+ (Cr+Mo+V)/5+(Ni+Cu)/15

ISSUED BY

MTR 064-24 -01
MTR 064-24 -02
MTR 064-24 -03

MTR 064-24-01
02
03

2000038444

KOCAER

Kocaer Celik San. Ve Tic. A.S.
Address: Yenifoca Yolu Uzeri 3.Km
Aliaga, Izmir/Turkey

www.kocaersteel.com

info@kocaersteel.com
Phone +902326251166
Fax +902326251966

TO : HB ESTRUCTURAS METALICAS SAS
AV. CARRERA 129 No. 17F-97 BOGOTA, COLOMBIA
COLOMBIA

# MILL TEST CERTIFICATE

IN ACCORDANCE WITH EN 10204:2004 3.1 | DATE : 25.01.2024 | NO :KCR-180 | PAGE : 1 / 1

*** DESCRIPTION OF GOODS :**
PRIME QUALITY HOT ROLLED STEEL PROFILES
AS PER QUALITY A572 GR50 TP2, ACCORDING TO ASTM A6
AS PER SALES CONTRACT NO: KH231120 05/SDL-24 DATED: 20.11.2023

HOT ROLLED STEEL C CHANNELS ACC TO ASTM A572-21

| SIZE (in. x lbft) | QUALITY | LENGTH (mm) | TOTAL PIECES | QUANTITY (MT) | HEAT NO | MECHANICAL PROPERTIES | | | BEND TEST 180° | CHEMICAL PROPERTIES (LADLE) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | YIELD STRENGTH (N/mm²) | TENSILE STRENGTH (N/mm²) | % ELONG. | | C % | Si % | Mn % | P % | S % | Cu % | N (ppm) | V % | Cr % | Ni % | Mo % | Ceq % |
| C 6 X 10.5 | A572 GR50 TP2 | 12000 | 144 | 26,952 | 23171946 | 398 | 460 | 26 | OK | 0,21 | 0,22 | 0,99 | 0,020 | 0,012 | 0,35 | 100 | 0,014 | 0,130 | 0,110 | 0,020 | 0,44 |
| C 6 X 10.5 | A572 GR50 TP2 | 12000 | 130 | 24,332 | 23171984 | 400 | 578 | 25 | OK | 0,20 | 0,23 | 0,94 | 0,033 | 0,005 | 0,40 | 110 | 0,014 | 0,140 | 0,100 | 0,010 | 0,42 |
| C 8 X 11.5 | A572 GR50 TP2 | 12000 | 120 | 24,624 | 23170111 | 406 | 581 | 30 | OK | 0,21 | 0,21 | 0,97 | 0,023 | 0,005 | 0,32 | 110 | 0,014 | 0,140 | 0,110 | 0,020 | 0,44 |

Tolerances on shape and dimensions are fulfilled Acc. to American Standard ASTM A6/A6M-22
Mechanical and chemical requirements are fulfilled Acc. to client specifications and American Standard ASTM A572-21
Standard for surface: EN 10163-3:2004, Class C, Subclass 1
Steel Making Process: Electric Arc Furnace Deoxidation Method: Killed Steel

Tensile test as per ASTM A370
Chemical test as per CEN/TR 10261
CEQ:C+Mn/6+ (Cr+Mo+V)/5+(Ni+Cu)/15

ISSUED BY

2000038444

# INFORME DE ENSAYOS


Razón Social: **Ternium Siderurgica de Caldas** Página Web: **www.ternium.com.co**
NIT: **900174468-4**
Teléfono: **01 8000 114 114**
Dirección: **Km 2 Vía Termales la Enea. Manizales**


## INFORMACION GENERAL

Cliente: **FABRICA DE ESTRUCTURAS SADE ELECTRI** Fecha Impresión **21/03/30**
Dirección: **AV CR 129 17F 97 BOGOTA** No. Remisión: **82307806**
Teléfono: **4224700** Página: **1 de 4**

## DATOS GENERALES / PROPIEDADES QUIMICAS

| MATERIAL | DESCRIPCION | LOTE | NORMA | FABRICANTE | % C | % Mn | % Si | % S | % P | % Nb | % Ce | % Cr | % Ni | % Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351707 01 | ASTM A572 GR50 | Ternium | 0.210 | 0.89 | 0.19 | 0.024 | 0.016 | 0.002 | 0.38 | 0.13 | 0.07 | 0.19 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351708 02 | ASTM A572 GR50 | Ternium | 0.210 | 0.89 | 0.19 | 0.024 | 0.016 | 0.002 | 0.38 | 0.13 | 0.07 | 0.19 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351709 03 | ASTM A572 GR50 | Ternium | 0.210 | 0.89 | 0.19 | 0.024 | 0.016 | 0.002 | 0.38 | 0.13 | 0.07 | 0.19 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351713 04 | ASTM A572 GR50 | Ternium | 0.210 | 0.89 | 0.19 | 0.024 | 0.016 | 0.002 | 0.38 | 0.13 | 0.07 | 0.19 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351714 05 | ASTM A572 GR50 | Ternium | 0.210 | 0.89 | 0.19 | 0.024 | 0.016 | 0.002 | 0.38 | 0.13 | 0.07 | 0.19 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351801 06 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351802 07 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351803 08 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351804 09 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351805 10 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351806 11 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351807 12 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351808 13 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351809 14 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351810 15 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351811 16 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351812 17 | ASTM A572 GR50 | Ternium | 0.203 | 0.88 | 0.18 | 0.027 | 0.017 | 0.003 | 0.37 | 0.15 | 0.07 | 0.21 |

[redacted] 109 -21-01 AL [redacted] 109 -21-17 SI 7092 SOLKSD OC 32161

MTR-109-21-01 AL 17

Eivy Jerez

Autoriza
Eivy Dayan Jerez Salazar
Jefe Sector Verificaciones y Laboratorios


Los datos del presente informe de ensayos, han sido revisados por el área de Verificaciones y Laboratorio.
La conformidad de los resultados de ensayo está basada en aceptación simple.
Los resultados reportados en este informe de ensayos se relacionan únicamente a los materiales ensayados, aquí descritos.
No se debe reproducir información parcial del informe de ensayos, excepto, si se hace en su totalidad con la aprobación escrita del laboratorio emisor.

# INFORME DE ENSAYOS


Razón Social: **Ternium Siderurgica de Caldas** Página Web: **www.ternium.com.co**
NIT: **900174468-4**
Teléfono: **01 8000 114 114**
Dirección: **Km 2 Vía Termales la Enea. Manizales**


## INFORMACION GENERAL

Cliente: **FABRICA DE ESTRUCTURAS SADE ELECTRI**
Dirección: **AV CR 129 17F 97 BOGOTA**
Teléfono: **4224700**

Fecha Impresión **21/03/30**
No. Remisión: **82307806**
Página: **2 de 4**

| DATOS GENERALES | | | | | PROPIEDADES QUIMICAS | | | |
|---|---|---|---|---|---|---|---|---|
| MATERIAL | DESCRIPCION | LOTE | NORMA | FABRICANTE | % Sn | % V | % Mo | % Al |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351707 | ASTM A572 GR50 | Ternium | 0.017 | 0.023 | 0.019 | 0.212 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351708 | ASTM A572 GR50 | Ternium | 0.017 | 0.023 | 0.019 | 0.212 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351709 | ASTM A572 GR50 | Ternium | 0.017 | 0.023 | 0.019 | 0.212 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351713 | ASTM A572 GR50 | Ternium | 0.017 | 0.023 | 0.019 | 0.212 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351714 | ASTM A572 GR50 | Ternium | 0.017 | 0.023 | 0.019 | 0.212 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351801 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351802 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351803 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351804 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351805 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351806 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351807 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351808 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351809 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351810 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351811 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351812 | ASTM A572 GR50 | Ternium | 0.018 | 0.021 | 0.017 | 0.209 |

Autoriza
Eivy Dayan Jerez Salazar
Jefe Sector Verificaciones y Laboratorios


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# INFORME DE ENSAYOS


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NIT: **900174468-4**
Teléfono: **01 8000 114 114**
Dirección: **Km 2 Vía Termales la Enea. Manizales**


## INFORMACION GENERAL

Cliente: **FABRICA DE ESTRUCTURAS SADE ELECTRI** Fecha Impresión **21/03/30**
Dirección: **AV CR 129 17F 97 BOGOTA** No. Remisión: **82307806**
Teléfono: **4224700** Página: **3 de 4**

| DATOS GENERALES | | | | | PROPIEDADES FISICAS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MATERIAL | DESCRIPCION | LOTE | NORMA | FABRICANTE | FLUENCIA | TRACCION | ELONGACION | FLUENCIA(2) | TRACCION(2) | ALARGAMIENTO(2) |
| | | | | | PSI | PSI | % | PSI | PSI | % |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351707 | ASTM A572 GR50 | Ternium | 58443 | 79909 | 23.9 | 58786 | 80177 | 22.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351708 | ASTM A572 GR50 | Ternium | 58443 | 79909 | 23.9 | 58786 | 80177 | 22.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351709 | ASTM A572 GR50 | Ternium | 58443 | 79909 | 23.9 | 58786 | 80177 | 22.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351713 | ASTM A572 GR50 | Ternium | 58443 | 79909 | 23.9 | 58786 | 80177 | 22.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351714 | ASTM A572 GR50 | Ternium | 58443 | 79909 | 23.9 | 58786 | 80177 | 22.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351801 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351802 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351803 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351804 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351805 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351806 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351807 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351808 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351809 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351810 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |

Autoriza
Eivy Dayan Jerez Salazar
Jefe Sector Verificaciones y Laboratorios

Los datos del presente informe de ensayos, han sido revisados por el área de Verificaciones y Laboratorio.
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# INFORME DE ENSAYOS


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NIT: **900174468-4**
Teléfono: **01 8000 114 114**
Dirección: **Km 2 Vía Termales la Enea. Manizales**


## INFORMACION GENERAL

Cliente: **FABRICA DE ESTRUCTURAS SADE ELECTRI** Fecha Impresión: **21/03/30**
Dirección: **AV CR 129 17F 97 BOGOTA** No. Remisión: **82307806**
Teléfono: **4224700** Página: **4 de 4**

| DATOS GENERALES | | | | | PROPIEDADES FISICAS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MATERIAL | DESCRIPCION | LOTE | NORMA | FABRICANTE | FLUENCIA | TRACCION | ELONGACION | FLUENCIA(2) | TRACCION(2) | ALARGAMIENTO(2) |
| | | | | | PSI | PSI | % | PSI | PSI | % |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351811 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |
| 8000091 | ANGULO 3"x1/4" 12m A572/G50 | A009351812 | ASTM A572 GR50 | Ternium | 59393 | 91023 | 23.9 | 59068 | 80449 | 23.5 |

| Material | Lote | Ensayo | Norma | Fecha Ensayo |
|---|---|---|---|---|
| 8000091 | A0093517 | QUÍMICO | NTC 5192 | 25.03.2021 |
| 8000091 | A0093518 | QUÍMICO | NTC 5192 | 25.03.2021 |
| 8000091 | A0093517 | TRACCIÓN | NTC 3353 | 27.03.2021 |
| 8000091 | A0093518 | TRACCIÓN | NTC 3353 | 27.03.2021 |

Autoriza
Eivy Dayan Jerez Salazar
Jefe Sector Verificaciones y Laboratorios


Los datos del presente informe de ensayos, han sido revisados por el área de Verificaciones y Laboratorio.
La conformidad de los resultados de ensayo está basada en aceptación simple.
Los resultados reportados en este informe de ensayos se relacionan únicamente a los materiales ensayados, aquí descritos.
No se debe reproducir información parcial del informe de ensayos, excepto, si se hace en su totalidad con la aprobación escrita del laboratorio emisor.

posco

# Mill Test Certificate

Certificate No. : 211215-FP01PS-0003A1-0006
Date of Issue : Dec., 22, 2021

Order No. : 01S5222016
PO No. : HB3
Supplier : POSCO INTERNATIONAL CORPORATION
Commodity : STEEL PLATE
Customer : H B ESTRUCTURAS METALICAS
Spec & Type : ASTM A709-50W T-z1-B

| Size | Product No. | Quantity | Weight (kg) | Heat No. | Position | Tensile Test YP (MPa) | Tensile Test TS | Tensile Test EL (%) | Impact Test V Notch +20 °C Energy (Joule) | | Division | Chemical Composition C (%) | Si (%) | Mn (%) | P (%) | S (%) | Cr (%) | Ni (%) | Cu (%) | V (%) | Sol-Al (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12x2440x6096 | PC98899401-9406 01 | 6 | 8,406 | SF49294 | T | 351 | 612 | 22 | 1: 153<br>2: 177<br>3: 161<br>A: 164 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 12x2440x6096 | PC98899601-9606 02 | 6 | 8,406 | SF49294 | T | 351 | 612 | 22 | 1: 164<br>2: 166<br>3: 159<br>A: 163 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 12x2440x6096 | PC98899501-9506 03 | 6 | 8,406 | SF49294 | T | 351 | 612 | 22 | 1: 147<br>2: 133<br>3: 142<br>A: 141 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 12x2440x6096 | PC99496301 04 | 1 | 1,401 | SF49294 | T | 351 | 612 | 22 | 1: 266<br>2: 269<br>3: 269<br>A: 268 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| *** Sub Total (020) *** | | 65 | 91,065 (kg) | | | | | | | | | | | | | | | | | | |
| 15x2440x6096 | PB63944001-4010 05 | 10 | 17,520 | SB35633 | T | 396 | 604 | 25 | 1: 194<br>2: 182<br>3: 171<br>A: 182 | | L<br>P | 0.0692<br>0.0670 | 0.342<br>0.336 | 1.291<br>1.280 | 0.0070<br>0.0069 | 0.0028<br>0.0025 | 0.490<br>0.484 | 0.341<br>0.336 | 0.319<br>0.315 | 0.056<br>0.057 | 0.029<br>0.030 |
| 15x2440x6096 | PC98899301-9305 06 | 5 | 8,760 | SF49298 | T | 381 | 586 | 24 | 1: 236<br>2: 270<br>3: 273<br>A: 260 | | L<br>P | 0.0676<br>0.0719 | 0.358<br>0.351 | 1.307<br>1.308 | 0.0057<br>0.0057 | 0.0009<br>0.0014 | 0.467<br>0.471 | 0.326<br>0.324 | 0.264<br>0.258 | 0.051<br>0.052 | 0.033<br>0.031 |
| *** Sub Total (030) *** | | 15 | 26,280 (kg) | | | | | | | | | | | | | | | | | | |

*** Heat Treatment ===> Thermo Mechanical Rolling + Accelerated Cooling ***

* Position - T : Top, M : Middle, B : Bottom
* Tensile Test, Direction : Transversal, Gauge Length : 200 mm(Rectangular), YP Method : Upper Point
* Impact Test, Direction : 1/4T Transversal, Full-Size : 10 mmX10 mm
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

01 = N+T
02 = N+T
03 = N+T
04 =
MTR-199-22-05 = N+T
06 = N+T

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing and calcium treated process.
Test Certificate is issued according to ISO 10474/EN 10204 3.1.
Melted and Manufactured in Republic of Korea

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To :

T.C.BAE



MTR 199 -22-01 AL MTR 199 -22-06

posco

# Mill Test Certificate

Certificate No. : 211215-FP01PS-0003A1-0011
Date of Issue : Dec., 22, 2021

Order No. : 01S5222016
PO No. : HB3
Supplier : POSCO INTERNATIONAL CORPORATION
Commodity : STEEL PLATE
Customer : H B ESTRUCTURAS METALICAS
Spec & Type : ASTM A709-50W T-z1-B

| Size | Product No. | Quantity | Weight (kg) | Heat No. | Position | Tensile Test YP (MPa) | Tensile Test TS | Tensile Test EL (%) | Impact Test V Notch +20 °C Energy (Joule) | | Division | Chemical Composition C (%) | Si (%) | Mn (%) | P (%) | S (%) | Cr (%) | Ni (%) | Cu (%) | V (%) | Sol-Al (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38x2440x6096 | PC98897001-7002 | 2 | 8,872 | SF49294 | T | 363 | 550 | 26 | 1: 380<br>2: 384<br>3: 378<br>A: 381 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 38x2440x6096 | PC98897101-7102 | 2 | 8,872 | SF49294 | T | 363 | 550 | 26 | 1: 280<br>2: 450<br>3: 340<br>A: 357 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 38x2440x6096 | PC98897201-7202 | 2 | 8,872 | SF49294 | T | 363 | 550 | 26 | 1: 268<br>2: 327<br>3: 278<br>A: 291 | | L<br>P | 0.0688<br>0.0756 | 0.332<br>0.336 | 1.303<br>1.311 | 0.0057<br>0.0062 | 0.0022<br>0.0020 | 0.474<br>0.476 | 0.324<br>0.327 | 0.270<br>0.273 | 0.048<br>0.051 | 0.020<br>0.022 |
| 38x2440x6096 | PC98696201-6202 | 2 | 8,872 | SF49298 | T | 370 | 548 | 26 | 1: 316<br>2: 329<br>3: 265<br>A: 303 | | L<br>P | 0.0676<br>0.0719 | 0.358<br>0.351 | 1.307<br>1.308 | 0.0057<br>0.0057 | 0.0009<br>0.0014 | 0.467<br>0.471 | 0.326<br>0.324 | 0.264<br>0.258 | 0.051<br>0.052 | 0.033<br>0.031 |
| 38x2440x6096 | PC98696001-6002 | 2 | 8,872 | SF49298 | T | 370 | 548 | 26 | 1: 358<br>2: 284<br>3: 291<br>A: 311 | | L<br>P | 0.0676<br>0.0719 | 0.358<br>0.351 | 1.307<br>1.308 | 0.0057<br>0.0057 | 0.0009<br>0.0014 | 0.467<br>0.471 | 0.326<br>0.324 | 0.264<br>0.258 | 0.051<br>0.052 | 0.033<br>0.031 |
| 38x2440x6096 | PC98696101-6102 | 2 | 8,872 | SF49298 | T | 370 | 548 | 26 | 1: 240<br>2: 271<br>3: 244<br>A: 252 | | L<br>P | 0.0676<br>0.0719 | 0.358<br>0.351 | 1.307<br>1.308 | 0.0057<br>0.0057 | 0.0009<br>0.0014 | 0.467<br>0.471 | 0.326<br>0.324 | 0.264<br>0.258 | 0.051<br>0.052 | 0.033<br>0.031 |
| 38x2440x6096 | PC98772001-2002 | 2 | 8,872 | SF49298 | T | 370 | 548 | 26 | 1: 253<br>2: 323<br>3: 154<br>A: 243 | | L<br>P | 0.0676<br>0.0719 | 0.358<br>0.351 | 1.307<br>1.308 | 0.0057<br>0.0057 | 0.0009<br>0.0014 | 0.467<br>0.471 | 0.326<br>0.324 | 0.264<br>0.258 | 0.051<br>0.052 | 0.033<br>0.031 |

* Position - T : Top, M : Middle, B : Bottom
* Tensile Test. Direction : Transversal, Gauge Length : 200 ㎜(Rectangular), YP Method : Upper Point
* Impact Test. Direction : 1/4T Transversal, Full-Size : 10 ㎜X10 ㎜
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

MIR-2021-22

01 = X
02 = //
03 = +1
04 = X+
05 = ++
06 = +11
07 = T1

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing and calcium treated process.
Test Certificate is issued according to ISO 10474/EN 10204 3.1.
Melted and Manufactured in Republic of Korea

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To :

T.C.BAE



MIR 204 -22-01 AL MIR 204 -22-07

KOCAER

Kocaer Celik San. Ve Tic. A.S.
Address: Yenifoca Yolu Uzeri 3.Km
Aliaga, Izmir/Turkey

www.kocaergroup.com.tr

info@kocaergroup.com
Phone +902326251166
Fax +902326251966

**TO : HB ESTRUCTURAS METALICAS SAS**
AV. CARRERA 129 No. 17F-97 BOGOTA, COLOMBIA
COLOMBIA

# MILL TEST CERTIFICATE

**IN ACCORDANCE WITH EN 10204:2004 3.1** **DATE : 7.12.2021** **NO :KCR-176** **PAGE : 1 / 1**

*** DESCRIPTION OF GOODS :**
PRIME QUALITY HOT ROLLED STEEL MERCHANT BARS
AS PER QUALITY A709 GR50WT Z1TB, ACCORDING TO A6
AS PER SALES CONTRACT NO: KH210910 06/SDL-20 DATED: 20.09.2021 & ADDENDUM NO:1 DATE:23.11.2021

**HOT ROLLED STEEL EQUAL ANGLES ACC TO ASTM A709M-18**

| SIZE (inch) | QUALITY | LENGTH (mm) | TOTAL PIECES | QUANTITY (MT) | HEAT NO | MECHANICAL PROPERTIES | | | IMPACT TEST RESULTS Joule | | | | | | | BEND TEST 180° | CHEMICAL PROPERTIES (LADLE) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | YIELD STRENGTH (N/mm²) | TENSILE STRENGTH (N/mm²) | % ELONG. | SPECIMEN SIZE mm | 1 | 2 | 3 | AVERAGE | at °C | IMPACT ENERGY (J/cm²) | | C % | Si % | Mn % | P % | S % | Cu % | N (ppm) | V % | Cr % | Ni % | Mo % | Ceq % |
| 4 X 4 X 5/16 | A709 GR50WT Z1TB | 12000 | 120 | 17,568 | 21250771 | 413 | 570 | 28 | 7,5x10x55 | 100 | 114 | 66 | 93 | 21 | 124 | OK | 0,11 | 0,22 | 1,08 | 0,009 | 0,011 | 0,25 | 87 | 0,045 | 0,450 | 0,110 | 0,020 | 0,42 |
| 4 X 4 X 5/16 | A709 GR50WT Z1TB | 12000 | 577 | 84,471 | 21250772 | 437 | 590 | 25 | 7,5x10x55 | 67 | 63 | 72 | 67 | 21 | 90 | OK | 0,12 | 0,22 | 1,09 | 0,009 | 0,006 | 0,23 | 85 | 0,045 | 0,440 | 0,140 | 0,033 | 0,43 |
| 4 X 4 X 3/8 | A709 GR50WT Z1TB | 12000 | 90 | 15,766 | 21250771 | 428 | 599 | 25 | 7,5x10x55 | 64 | 72 | 57 | 64 | 21 | 86 | OK | 0,11 | 0,22 | 1,08 | 0,009 | 0,011 | 0,25 | 87 | 0,045 | 0,450 | 0,110 | 0,020 | 0,42 |
| 4 X 4 X 3/8 | A709 GR50WT Z1TB | 12000 | 322 | 56,406 | 21250772 | 447 | 584 | 31 | 7,5x10x55 | 57 | 67 | 62 | 62 | 21 | 83 | OK | 0,12 | 0,22 | 1,09 | 0,009 | 0,006 | 0,23 | 85 | 0,045 | 0,440 | 0,140 | 0,033 | 0,43 |

Tolerances on shape and dimensions are fulfilled Acc. to American Standard ASTM A6/6M-19
Mechanical and chemical requirements are fulfilled Acc. to client specifications and American Standard ASTM A709M-18
Standard for surface: EN 10163-3:2004, Class C, Subclass 1
Steel Making Process: Electric Arc Furnace Deoxidation Method: Fully Killed Steel

Bending Test: quer D=2s< 180°
Tensile test as per ASTM A370
Chemical test as per CEN/TR 10261
CEQ:C+Mn/6+ (Cr+Mo+V)/5+(Ni+Cu)/15

**ISSUED BY**

MTR-215-22-01
05
04

[redacted] 215 -22-01
AL

[redacted] 215 -22-04

2000028069

posco

# Mill Test Certificate

Certificate No. : 211215-FP01PS-0005A1-0002
Date of Issue : Dec., 22, 2021

Order No. : 01S5221952
PO No. : HB1
Supplier : POSCO INTERNATIONAL CORPORATION
Commodity : STEEL PLATE
Customer : H B ESTRUCTURAS METALICAS
Spec & Type : ASTM A709-50W T-z1-B

| Size | Product No. | Quantity | Weight (kg) | Heat No. | Position | Tensile Test YP (MPa) | Tensile Test TS | Tensile Test EL (%) | Impact Test V Notch +20 ℃ Energy (Joule) | | Division | Chemical Composition C (%) | Si (%) | Mn (%) | P (%) | S (%) | Cr (%) | Ni (%) | Cu (%) | V (%) | Sol-Al (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.8x2440x6096 | PB63881701-1703 | 3 | 5,532 | SB24645 | T | 415 | 625 | 23 | 1: 164<br>2: 167<br>3: 162<br>A: 164 | | L<br>P | 0.0745<br>0.0702 | 0.359<br>0.323 | 1.293<br>1.275 | 0.0075<br>0.0068 | 0.0022<br>0.0020 | 0.482<br>0.470 | 0.330<br>0.325 | 0.324<br>0.322 | 0.052<br>0.053 | 0.033<br>0.031 |
| 15.8x2440x6096 | PB63881705-1708 | 4 | 7,376 | SB24645 | T | 415 | 625 | 23 | 1: 164<br>2: 167<br>3: 162<br>A: 164 | | L<br>P | 0.0745<br>0.0702 | 0.359<br>0.323 | 1.293<br>1.275 | 0.0075<br>0.0068 | 0.0022<br>0.0020 | 0.482<br>0.470 | 0.330<br>0.325 | 0.324<br>0.322 | 0.052<br>0.053 | 0.033<br>0.031 |
| 15.8x2440x6096 | PC98775701-5705 | 5 | 9,220 | SF49296 | T | 362 | 601 | 21 | 1: 218<br>2: 199<br>3: 202<br>A: 206 | | L<br>P | 0.0664<br>0.0655 | 0.337<br>0.334 | 1.296<br>1.279 | 0.0055<br>0.0050 | 0.0010<br>0.0009 | 0.472<br>0.463 | 0.323<br>0.318 | 0.274<br>0.268 | 0.051<br>0.052 | 0.030<br>0.031 |
| *** Sub Total (010) *** | | 12 | 22,128 (kg) | | | | | | | | | | | | | | | | | | |
| *** Heat Treatment ===> Thermo Mechanical Rolling + Accelerated Cooling *** | | | | | | | | | | | | | | | | | | | | | |
| 32x2440x6096 | PB63903101-3104 | 4 | 14,940 | SB24643 | T | 475 | 635 | 21 | 1: 275<br>2: 270<br>3: 274<br>A: 273 | | L<br>P | 0.0705<br>0.0694 | 0.345<br>0.324 | 1.299<br>1.290 | 0.0074<br>0.0073 | 0.0022<br>0.0019 | 0.478<br>0.479 | 0.332<br>0.338 | 0.324<br>0.314 | 0.053<br>0.054 | 0.033<br>0.034 |
| 32x2440x6096 | PB62463503 | 1 | 3,735 | SB24649 | T | 511 | 672 | 21 | 1: 327<br>2: 315<br>3: 311<br>A: 318 | | L<br>P | 0.0754<br>0.0711 | 0.342<br>0.328 | 1.290<br>1.280 | 0.0069<br>0.0069 | 0.0016<br>0.0013 | 0.483<br>0.476 | 0.330<br>0.334 | 0.327<br>0.322 | 0.053<br>0.053 | 0.035<br>0.035 |
| 32x2440x6096 | PB63440801-0804 | 4 | 14,940 | SB24649 | T | 511 | 672 | 21 | 1: 281<br>2: 294<br>3: 295<br>A: 290 | | L<br>P | 0.0754<br>0.0711 | 0.342<br>0.328 | 1.290<br>1.280 | 0.0069<br>0.0069 | 0.0016<br>0.0013 | 0.483<br>0.476 | 0.330<br>0.334 | 0.327<br>0.322 | 0.053<br>0.053 | 0.035<br>0.035 |

* Position - T : Top, M : Middle, B : Bottom
* Tensile Test. Direction : Transversal, Gauge Length : 200 ㎜(Rectangular), YP Method : Upper Point
* Impact Test. Direction : 1/4T Transversal, Full-Size : 10 ㎜X10 ㎜
* Division - L : Ladle Analysis, P : Products Analysis
* Supply Condition : As-Rolled unless otherwise Heat Treated.

We hereby certify that the material herein has been made in accordance with the order and above specification.
This material has been fully killed and made by basic oxygen process. This material is fine grained steel.
This material has been made by vacuum degassing and calcium treated process.
Test Certificate is issued according to ISO 10474/EN 10204 3.1.
Melted and Manufactured in Republic of Korea

MTR 231 -22-01 AL MTR 231 -22-06

Legal sanction can be imposed on forging. Improper use of product can cause safety issues.

Surveyor To :

T.C.BAE

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240224 |
| | | 证明书编号 CERTIFICATE NO. | 240224Z00673 | | |
| 车号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-1}$ | $\times10^{-1}$ | $\times10^{-2}$ | $\times10^{-1}$ | $\times10^{-1}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-1}$ | $\times10^{-1}$ | $\times10^{-1}$ | | | | | | | | |
| 24102502A | S42170191 | S4217285201 | 9x2138x6096 | 1 | 1,050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 164 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217285202 | 9x2138x6096 | 1 | 1,050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 164 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217285203 | 9x2138x6096 | 1 | 1,050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 164 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| | | | 合计(TOTAL): | 3 | 3,150 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

野牛

MTR 298-24 -01

AL

MTR 298-24 -03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市鲅边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmosphericcorrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGRIZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240224 |
| | | 证明书编号 CERTIFICATE NO. | 240224Z00831 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | I | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | | | | | | | |
| 23103774A | S42140013 | S4213453101 | 9x2438x6096 | 1 | 1,050 | 1 | 144 | 321 | 1382 | 180 | 39 | 266 | 1740 | 481 | 26 | 6231 | 40 | 50 | 50 | 377 | 645 | 23 | 50 | 53 | 46 | 50 |
| 23103774A | S42140013 | S4213453201 | 9x2438x6096 | 1 | 1,050 | 1 | 144 | 321 | 1382 | 180 | 39 | 266 | 1740 | 481 | 26 | 6231 | 40 | 50 | 50 | 377 | 645 | 23 | 50 | 53 | 46 | 50 |
| 23103774A | S42140013 | S4213453301 | 9x2438x6096 | 1 | 1,050 | 1 | 141 | 321 | 1382 | 180 | 39 | 266 | 1740 | 481 | 26 | 6231 | 40 | 50 | 50 | 377 | 645 | 23 | 50 | 53 | 46 | 50 |
| | | | 合计 (TOTAL): | 3 | 3,150 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 299-24 -01

AL

MTR 299-24 -03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240224 |
| | | 证明书编号 CERTIFICATE NO. | 240221Z00672 | | |
| 车号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | I | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 拉伸强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻³ | ×10⁻² | ×10⁻⁴ | ×10⁻² | ×10⁻⁴ | ×10⁻² | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | | | | | | | |
| 24102502A | S42170191 | S4217282202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217282203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217283102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217283201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217283202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217284101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217284102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217284201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217284202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217284203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217285101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217285102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| | | | 合计 TOTAL: | 12 | 12.600 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE 10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 300-24 -01

AL

MTR 300-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DTZ101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGRIZANN240185001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240224 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 24022:Z00671 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-2}$ | $\times10^{-1}$ | $\times10^{-2}$ | $\times10^{-3}$ | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-4}$ | | | | | | | |
| 24102502A | S42170191 | S4217280101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217280102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217280202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217280203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217281101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217281102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217281201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217281202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217281203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217282101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217282102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217282201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| | | | 合计(TOTAL): | 12 | 12.600 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 301-24 -01

AL

MTR 301-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240224 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240224Z00606 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 拉伸强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-2}$ | $\times10^{-2}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-4}$ | | | | | | | |
| 24102502A | S42170191 | S4217278101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217278102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217278201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217278202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217278203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217279101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217279102 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217279201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217279202 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217279203 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217280201 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217283101 | 9x2438x6096 | 1 | 1.050 | L | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 618 | 19 | 57 | 63 | 83 | 67 |
| | | | 合计(TOTAL): | 12 | 12.600 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

野牛

MTR 302-24 -01
AL

MTR 302-24 -12

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240185001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240224 |
| 车 号 TRAIN NO. | | 质量证明书编号 CERTIFICATE NO. | 240224Z00607 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-2}$ | $\times10^{-4}$ | $\times10^{-3}$ | $\times10^{-3}$ | $\times10^{-2}$ | $\times10^{-4}$ | $\times10^{-4}$ | $\times10^{-4}$ | | | | | | | | |
| 24102502A | S42170191 | S4217283203 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217286101 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217286102 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217286201 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217286202 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| 24102502A | S42170191 | S4217286203 | 9x2438x6096 | 1 | 1.050 | 1 | 148 | 320 | 1360 | 170 | 62 | 275 | 2630 | 464 | 24 | 6407 | 10 | 60 | 40 | 367 | 648 | 19 | 57 | 63 | 83 | 67 |
| | | | 合计(TOTAL): | 6 | 6.300 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 303-24 -01

AL

MTR 303-24 -06

kardemir
Çelik Sanayi A.Ş.
Akçeşme Mah. Menderes Bulv. No:77 Denizli / Türkiye
Tel: +90 232 625 22 22 Fax: +90 232 625 19 85

# MILL TEST CERTIFICATE
## EN 10204:2004 / 3.1

EN 10025-1:2004 Hot Rolled Products of Structural Steel

CE 2195-CPR-1405603

Certificate No: / No Du Certificat: GYXBAQ 24-0773
Date : 26.06.2024
Page : 1 / 2

Your Order No: / Commande No:

ORIGINAL

Description of Goods: BY VESSEL PRIME QUALITY HOT ROLLED STEEL EQUAL ANGLES & C - SHAPE CHANNEL IN 6,000 METERS LENGTH (-00 MM / +50 MM) IN QUALITY ASTM A572 GR50 T2 ACCORDING TO A6

Standard : ASTM

Tolerance :

Our Order No: / Notre Commande: GYXBAQ 24-0773

Purchaser : / Commettant: GYJ FERRETERIAS S.A
NIT 800.130.426-3 CARRERA 62 NO. 12-78 BOGOTA, COLOMBIA
TEL: 2600783☐
☐

| Material: Matiàre: | Size-Dimension: | Length: | Quality / Qualité: Hot Rolled Stuctural Steel | Heat No : No Coulée : | CHEMICAL COMPOSITION - COMPOSITION CHEMIQUE - CEV = C + Mn/6 + (Cr + Mo + V )/5 + (Cu + Ni)/15 | | | | | | | | | | | | | | | | | Mechanical Properties - Properties Mechaniques ASTM A370-24 | | | | Quantity Shipped / Quantité expédiée (MTON) | No Of Bundles XNo Of Pieces Per Bundles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | C % | Si % | Mn % | P % | S % | Cr % | Ni % | Mo % | Cu % | Ti % | Co % | N % | Sn % | Al % | V % | Cb % | B % | Cev % | Yield Point-Limite él. N/mm² | Tensile Strength- Rupture (N/mm²) | Elongation/Allong.(%) (Gauge Lenght L0 = 2) | Hardness - Dureté | | |
| C-SHAPE CHANNEL | C 6"X8.2 lb/ft | 6 M | ASTM A572 GR50 T2 | 2403405 | 0,16 | 0,20 | 1,22 | 0,016 | 0,008 | 0,100 | 0,120 | 0,010 | 0,37 | 0,001 | 0,010 | 0,009 | 0,012 | 0,006 | 0,027 | 0,001 | 0,0005 | 0,42 | 390 | 568 | 29,8 | | | |
| C-SHAPE CHANNEL | C 6"X8.2 lb/ft | 6 M | ASTM A572 GR50 T2 | 2403406 | 0,16 | 0,20 | 1,21 | 0,018 | 0,008 | 0,110 | 0,120 | 0,010 | 0,32 | 0,001 | 0,010 | 0,009 | 0,011 | 0,006 | 0,026 | 0,001 | 0,0005 | 0,42 | 387 | 561 | 31,2 | | | |
| C-SHAPE CHANNEL | C 8"X11.5 lb/ft | 6 M | ASTM A572 GR50 T2 | 2307072 | 0,16 | 0,18 | 1,28 | 0,012 | 0,008 | 0,090 | 0,100 | 0,020 | 0,33 | 0,001 | 0,010 | 0,009 | 0,014 | 0,003 | 0,026 | 0,002 | 0,0005 | 0,43 | 395 | 574 | 32,4 | | | |
| C-SHAPE CHANNEL | C 8"X11.5 lb/ft | 6 M | ASTM A572 GR50 T2 | 2403195 | 0,16 | 0,19 | 1,21 | 0,018 | 0,011 | 0,130 | 0,130 | 0,020 | 0,33 | 0,001 | 0,010 | 0,008 | 0,011 | 0,004 | 0,026 | 0,001 | 0,0005 | 0,43 | 384 | 556 | 30,8 | | | |
| EQUAL ANGLES | 4"X4"X1/4" | 6 M | ASTM A572 GR50 T2 | 2402828 | 0,16 | 0,18 | 1,23 | 0,015 | 0,015 | 0,110 | 0,110 | 0,020 | 0,38 | 0,001 | 0,010 | 0,008 | 0,019 | 0,004 | 0,030 | 0,001 | 0,0004 | 0,43 | 389 | 562 | 30,2 | | | |
| MTR 532-24 01 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MTR 532-24 02 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Tests to verify quality have been carried out -Tests de verification de la conformite de la nuance fournie- OK

Standard for surface : EN10163-3:2004,Class C,Subclass 1

Banding Test -qure D=2s<180°

Visual Inspection and Dimensional Check -Examen Visuel et Dimensionel de Surface- OK

The Surveyor-*L'expert:Ersin PEK*

Material are manufactured,inspected,tested and sampled in accordance with the requirement of manufacturing standard found satisfactory and comply.
Dimension and material surface appererarance result is acceptable and satisfactory.

**Places of melting and casting/hot rolling; Facility / the name of the country:** Kardemir Çelik Sanayi A.Ş./ Turkiye, **HS Code:**72071116

MTR 532-24-02,01

# QUALITY CERTIFICATE/CERTIFICADO DE CALIDADE

GERDAU

GERDAU AÇOS LONGOS S.A.
AV.JOAO XXIII 6777 SANTA CRUZ
RIO DE JANEIRO RJ
23565-235 BRAZIL

PAGE/PAGINA: 1/1

CUSTOMER / CLIENTE: CYRGO SAS

SALES ORDER / ORDEN DE VENTA: 13165603/2

DATE/FECHA: /00/0000

PRODUCT DETAILS / DETALLES DEL PRODUCTO: CANTONEIRA EXP

QUALITY / CALIDAD: ASTM A572 GR50

INVOICE/FACTURA: 0003973E23

DIMENSIONS/DIMENSIONES: 4X3/8/12,000 M

SPECIFICATION / ESPECIFICACION: NA

| HEAT / COLADA | C % | Mn % | Si % | S % | P % | Cu % | Cr % | Nb % | Ni % | V % | Mo % | YS MPa | TS MPa | Elong % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4139618902 | 0,19 | 1,16 | 0,21 | 0,026 | 0,026 | 0,16 | 0,08 | 0,006 | 0,07 | 0,024 | 0,017 | 478 | 625 | 19,00 |

MECHANICAL PROPERTIES CODE / CÓDIGO DE PROPIEDADES MECÁNICAS
YS - Yield Strength MPa/Esfuerzo de Fluencia MPa
TS - Tensile Strength MPa/Resistencia a la Tensión Mpa
Elong - Elongation/Alargamiento

MTR 572-24 01

OBSERVATIONS / OBSERVACIONES
Elongation L0=200mm
Este material ha sido probado y los niveles de radiación están por debajo del nivel permitido
This material has been tested and radiation levels are below the allowed level
The products supplied under this Quality Certificate are Free of Radiation.
Este material ha sido probado y los niveles de radiación están por debajo del nivel permitido.

Angelo Dabbicco de Melo

ANGELO DABBICCO DE MELO
Quality Manager / Gerente de Calidad
CREA/PE PE055492

SURVEYOR

MTR 572-24-01

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGRIZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240717 |
| | | 证明书编号 CERTIFICATE NO. | 240717Z00335 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS% C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻³ | | | | | | | |
| 24205167A | S17160008 | S4715555101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715555201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715555301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160009 | S4715564101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715564201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715564301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| | | | 合计 (TOTAL): | 12 | 22.404 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标准(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 587-24--01
AL
MTR 587-24--12

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

587-24-05-02-10
06-03-11
01-12-07
08-04-09

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGRIZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240711 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240711Z00179 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻³ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | Ti ×10⁻³ | Mo ×10⁻⁴ | B ×10⁻⁴ | Nb ×10⁻⁴ | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 拉伸强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24305744C | S47090139 | S4709225101 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305744C | S47090139 | S4709225201 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305744C | S47090139 | S4709225301 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305744C | S47090139 | S4709226101 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305744C | S47090139 | S4709226201 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305744C | S47090139 | S4709226301 | 9x2438x12192 | 1 | 2,100 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 361 | 626 | 19.5 | 73 | 91 | 91 | 85 |
| 24305745C | S47090140 | S4709227101 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| 24305745C | S47090140 | S4709227201 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| 24305745C | S47090140 | S4709228101 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| 24305745C | S47090140 | S4709228201 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| 24305745C | S47090140 | S4709229101 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| 24305745C | S47090140 | S4709229201 | 9x2438x12192 | 1 | 2,100 | L | 145 | 316 | 1390 | 200 | 42 | 271 | 3310 | 479 | 24 | 6574 | 40 | 40 | 50 | 383 | 646 | 19.5 | 80 | 100 | 178 | 119 |
| | | | 合计(TOTAL): | 12 | 25,200 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*7.5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 589-24-11-01
ΔL
MTR 589-24--12

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

589-24-02 11 05 -01 -12
05 08
09
10
03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240714 |
| | | 证明书编号 CERTIFICATE NO. | 240714Z00195 | |
| 车 号 TRAIN NO. | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | | | | | | | | |
| 24305744C | S47120009 | S1711181101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S1711181201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305741C | S47120009 | S1711181301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| | | | 合计 (TOTAL): | 3 | 8,400 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸 SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 590-24-01

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

590-24-01

02
03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240717 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240717Z00336 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 厚×宽×长 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | I | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <0.10 | <0.10 | <1.0 | <0.10 | <0.10 | <0.10 | 0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | | | | | | | |
| 24305744C | S47120010 | S4711186101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 373 | 608 | 27 | 90 | 97 | 104 | 97 |
| 24305744C | S47120010 | S4711186201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 373 | 608 | 27 | 90 | 97 | 104 | 97 |
| 24305741C | S47120010 | S4711186301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 373 | 608 | 27 | 90 | 97 | 104 | 97 |
| | | | 合计 (TOTAL): | 3 | 8,400 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 591-24-_01
ΔL
MTR 591-24-_03

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

591-24-01 03
02

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240712 |
| | | 证明书编号 CERTIFICATE NO. | 240712Z01019 | | |
| 车号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | I | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 拉强度 MPa Rm | B 0A03 断后伸长率 % A5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10 -3 | <10 -3 | <10 -3 | <10 -1 | <10 -4 | <10 -3 | 10 -4 | <10 -3 | 10 -3 | 10 -3 | <10 -4 | 10 -1 | 10 -1 | | | | | | | |
| 24305744C | S47120009 | S4711180101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711180201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711180301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711182101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711182201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711182301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711183101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711183201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711183301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711184101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711184201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S4711184301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| | | | 合计 (TOTAL): | 12 | 33,600 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 592-24-11
AL
MTR 592-24-12

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

592-24-04 -09 -01
05 -08 -02
06 -03
12 -10
11 -07

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAXINTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAXINTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGRIZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240717 |
| 车 号 TRAIN NO. | | 质量证明书编号 CERTIFICATE NO. | 240717Z00337 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻² | Si ×10⁻² | Mn ×10⁻² | P ×10⁻² | S ×10⁻² | Cu ×10⁻² | Ni ×10⁻² | Cr ×10⁻² | V ×10⁻² | Nb ×10⁻² | Mo ×10⁻² | Ti ×10⁻² | Nb ×10⁻² | B BA01 屈服强度 MPa Rp0.2 | B BA02 抗拉强度 MPa Rm | B BA03 断后伸长率 % A5 | A OC01 冲击单值 A J | A OC012 冲击单值 B J | A OC013 冲击单值 C J | A OC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24108072D | S47110103 | S4711117101 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711117201 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711118101 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711118201 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108062D | S47110106 | S4711125101 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 378 | 516 | 24 | 279 | 234 | 278 | 264 |
| 24108062D | S47110106 | S4711125201 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 378 | 516 | 24 | 279 | 234 | 278 | 264 |
| 24108062D | S47160021 | S4715590101 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 391 | 578 | 20 | 195 | 166 | 203 | 188 |
| 24108062D | S47160021 | S4715590201 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 391 | 578 | 20 | 195 | 166 | 203 | 188 |
| | | | 合计(TOTAL): | 8 | 41.064 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

According to EN 10204 3.1

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 595-24--01
AL
MTR 595-24--08

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

595-24-05--06-01
02-03-08
04-07

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL.:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO.,LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO.,LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240712 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240712Z01021 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-2 | <10^-2 | <10^-1 | <10^-4 | <10^-3 | 10^-4 | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-1 | <10^-1 | | | | | | | | |
| 24108070D | S47110107 | S4711126101 | 19x2438x12192 | 1 | 4,433 | L | 154 | 372 | 1315 | 170 | 37 | 274 | 3520 | 486 | 23 | 6659 | 30 | 40 | 30 | 379 | 568 | 24 | 203 | 253 | 234 | 230 |
| 24108070D | S47110107 | S4711126201 | 19x2438x12192 | 1 | 4,433 | L | 154 | 372 | 1315 | 170 | 37 | 274 | 3520 | 486 | 23 | 6659 | 30 | 40 | 30 | 379 | 568 | 24 | 203 | 253 | 234 | 230 |
| 24108072D | S47110108 | S4711127101 | 19x2438x12192 | 1 | 4,433 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 381 | 563 | 23.5 | 252 | 231 | 202 | 228 |
| 24108072D | S47110108 | S4711127201 | 19x2438x12192 | 1 | 4,433 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 381 | 563 | 23.5 | 252 | 231 | 202 | 228 |
| 24108072D | S47110108 | S4711128101 | 19x2438x12192 | 1 | 4,433 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 381 | 563 | 23.5 | 252 | 231 | 202 | 228 |
| 24108072D | S47110108 | S4711128201 | 19x2438x12192 | 1 | 4,433 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 381 | 563 | 23.5 | 252 | 231 | 202 | 228 |
| | | | 合计(TOTAL): | 6 | 26,598 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 596-24--01
AL
MTR 596-24--06

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

596-24-02-01

04
05
06
03

# MILL TEST / QUALITY CERTIFICATE


**GERDAU**

GERDAU AÇOMINAS S.A.
ROD MG 443 KM 7 SN FAZENDA DO CADETE
OURO BRANCO MG
36420-000 BRAZIL


| PAGE | DATE | DOCUMENT NUMBER |
|---|---|---|
| 1 / 1 | 12.16.2020 | 0003835E20 |

| CUSTOMER | CUSTOMER ORDER | SALES ORDER | DIMENSIONS |
|---|---|---|---|
| CYRGO SAS | SAW078/20 | 9296847-000018 | 31,750mm x 2440mm x 12192mm |

| PRODUCT | EDGE TYPE | DELIVERY CONDITION |
|---|---|---|
| PLANCHA GRUESA | Cut edge | Thermal Mech Control Process |

**SPECIFICATION**
ASTM A709 TYPEB 50WT2 2018


*Gerdau S.A. certifies that the material herein described is in accordance with the applicable technical specifications. As mutual protection for costumer and supplier, this certificate is considered as confidential and can not be transcribed or reproduced without the written authorization of Gerdau S.A.*


## PACKAGES

| PLATE # | WEIGHT (MT) | HEAT | SAMPLE |
|---|---|---|---|
| 3024545801 | 7.414 | 28115289 | 28115289005 |
| | | | 28115289008 |
| 3024545901 | 7.414 | 28115289 | 28115289005 |
| | | | 28115289008 |

| PLATE # | WEIGHT (MT) | HEAT | SAMPLE |
|---|---|---|---|
| 3025005901 (*) | 7.414 | 28116631 | 28116631001 |
| | | | 28116631002 |
| 3025006001 (*) | 7.414 | 28116631 | 28116631001 |
| | | | 28116631002 |

| PLATE # | WEIGHT (MT) | HEAT | SAMPLE |
|---|---|---|---|
| 3025006101 (*) | 7.414 | 28116631 | 28116631001 |
| 3025006201 (*) | 7.414 | 28116631 | 28116631001 |
| 3025006301 (*) | 7.414 | 28116631 | 28116631001 |
| 3025006401 (*) | 7.414 | 28116631 | 28116631001 |

## CHEMICAL COMPOSITION

| HEAT | C(%) | Mn(%) | Si(%) | P(%) | S(%) | Al T(%) | Cr(%) | Cu(%) | Ti(%) | Mo(%) | Nb(%) | Ni(%) | V(%) | B(%) | Ca(%) | N(%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28115289 | 0.10 | 0.86 | 0.32 | 0.017 | 0.004 | 0.025 | 0.49 | 0.30 | 0.011 | 0.02 | 0.024 | 0.25 | 0.031 | 0.0001 | 0.0000 | 0.0046 |
| 28116631 | 0.10 | 0.84 | 0.34 | 0.020 | 0.004 | 0.027 | 0.50 | 0.30 | 0.013 | 0.01 | 0.025 | 0.23 | 0.033 | 0.0000 | 0.0002 | 0.0045 |

| HEAT | CEQ2(%) |
|---|---|
| 28115289 | 0.39 |
| 28116631 | 0.38 |

## TENSILE TEST

| SAMPLE | DIRECTION | POSITION | YS/RE(MPa) | TS/RT(MPa) | ELONG/ALARG(%) |
|---|---|---|---|---|---|
| 28115289005 | Transversal | Corner / Borde | 436 | 536 | 51.0 |
| 28116631001 | Transversal | Corner / Borde | 486 | 568 | 54.0 |

## CHARPY IMPACT TEST

| SAMPLE | DIRECTION | POSITION | TEMP/TEMP(°C) | IND EN/EN IND(J) | IND EN/EN IND(J) | IND EN/EN IND(J) | AVG EN/EN MD(J) |
|---|---|---|---|---|---|---|---|
| 28115289008 | Longitudinal | Corner / Borde | -13 | 359 | 356 | 373 | 363 |
| 28116631001 | Longitudinal | Corner / Borde | -13 | 267 | 270 | 272 | 270 |
| 28116631002 | Longitudinal | Corner / Borde | -13 | 376 | 380 | 380 | 379 |

**TENSILE TEST**
**GAUGE LENGTH/LONGITUD DE REFERENCIA:**
L0: 50 mm

**CHARPY IMPACT TEST**
**SPEC SIZE/DIM MUESTRA:** 10X10mm - V 2mm

## ABBREVIATIONS

(*) Mother Plate
AVG EN/EN MD Average Energy
YS/RE Yield Point
TS/RT Tensile Strength
ELONG/ALARG Elongation
TEMP/TEMP Temperature
IND EN/EN IND Individual Energy

MTR 600-21-08 SI 2174 OC 12125 Stock HB

600-21-02

## REMARKS

All radiation sources are verified and controlled.
All scrap used at Gerdau Ouro Branco is internally generated.
We certify that this material is free of contamination by radiation.

MTR 600 -21-02
MTR 600 -21-08

**QUALITY ASSURANCE**

THAYENE OLIVEIRA SILOTTI
CREA 249773

**SURVEYOR**

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD
辽宁省营口市老边区冶金街:115005
Yejin street,Laobian district,Yingkou,Liaoning,P.R.China:115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501 A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | MANUCHAR STEEL N.V. | 产品名称 PRODUCT | 桥梁结构钢 Bridge structural steel | | |
| 收货单位 CONSIGNEE | MANUCHAR STEEL N.V. | 合同编号 CONTRACT NO. | YGRIZANN221185010-03 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50W T-Z1-B | 交货状态 DELIVERY CONDITION | 热轧(AR) | 签发日期 DATE OF ISSUE | 20230120 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 230120Z00055 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻³ | Cr ×10⁻³ | V ×10⁻⁴ | Ti ×10⁻⁴ | Mo ×10⁻⁴ | Al ×10⁻⁴ | Nb ×10⁻⁴ | R0A01 屈服强度 MPa ReO.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % A5 | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23100771D | 43150297 | H3115355101 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3115355102 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3115355103 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3115355201 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3115355202 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3116049101 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3116049102 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3116049201 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43150297 | H3116049202 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 427 | 574 | 25 | 206 | 146 | 166 | 173 |
| 23100771D | 43160220 | H3116281101 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 429 | 578 | 25.5 | 228 | 222 | 222 | 224 |
| 23100771D | 43160220 | H3116281102 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 429 | 578 | 25.5 | 228 | 222 | 222 | 224 |
| 23100771D | 43160220 | H3116281201 | 25x2440x6100 | 1 | 2.921 | L | 149 | 334 | 1320 | 250 | 47 | 253 | 1620 | 495 | 25 | 6260 | 30 | 30 | 20 | 429 | 578 | 25.5 | 228 | 222 | 222 | 224 |
| | | | 合计 (TOTAL): | 12 | 35.052 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL,
近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
According to EN 10204 3.1

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR-787-23--03
MTP-787-23--02
MTP-787-23--04

本产品已按照标准要求进行制造和检验, 其结果符合要求, 特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR-787-23--12

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 787-23-03
12
02
04

辽宁省营口市老边区冶金街/115005
Yejin street, Laobiandistrict, Yingkou,
Liaoning, P. R. China/115005
TEL:0417-3256081 FAX:0417-3256057

营口中板有限责任公司
Yingkou Medium Plate Co. ,Ltd.

# 产品质量证明书
# INSPECTION CERTIFICATE

NO.: DT2101501/A

| | | | | | |
|---|---|---|---|---|---|
| 订货单位(PURCHASER) | Hangzhou Cogeneration (Hong Kong) Co., Ltd. | 产品名称(PRODUCT) | 热轧钢板Prime newly produced Hot Rolled Steel Plates | 证明书编号(CERTIFICATE NO.) | D07001508201980014129 |
| 收货单位(CONSIGNER) | Hangzhou Cogeneration (Hong Kong) Co., Ltd. | 交货状态 (DELIVERY CONDITION) | 热轧 (AR) | 签发日期(DATE OF ISSUE) | 2019-02-02 |
| 合同编号(CONTRACT NO.) | YGCKB35181109227-B-04 | 技术条件 (SPECIFICATION) | ASTM A 709/A 709M | 牌号 GRADE | A709 Gr.50 |
| 车号(TRAIN NO.) | 辽H20199;辽HH3773;辽H6031C;辽HJ1225;辽H6025C;辽H6034C;辽HK2890;辽H22579;辽HC2199;辽H22590;辽H6024C;辽HQ1907; | | | | |

| 炉号 HEAT NO. | 批号 BATCH NO. | 规格尺寸(mm) DIMENSION T | W | L | 件数 PIECES | 重量 (ton) WEIGHT | 拉伸试验TENSILE TEST 屈服ReH (N/mm2) | 屈服ReL (N/mm2) | 屈服Rp (N/mm2) | 抗拉强度 Rm(N/mm2) | 伸长率 A (%) | 弯曲试验 BEND TEST | 冲击功AkV(J) IMPACT ENERGY 尺寸SIZE (mm2) | 温度 TEMP (℃) | 纵向longitudinal | | | 探伤检验UT TEST 级别 LEVEL | 结果 RESULT | 标准STANDARD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19200364A | 201901110049 | 9 | 2400 | 12000 | 5 | 10.175 | | | 415 | 530 | 24 | 合格OK | 10X7.5 | -20 | 72.5 | 64 | 120 | | | |
| 19100344A | 201901110050 | 9 | 2400 | 12000 | 9 | 18.315 | | | 445 | 540 | 23.5 | 合格OK | 10X7.5 | -20 | 113 | 98.5 | 78 | | | |
| 18213171D | 201812210175 | 25 | 3000 | 12000 | 2 | 14.130 | | | 410 | 570 | 25 | 合格OK | 10X10 | -20 | 165 | 192 | 170 | | | |
| 18113237D | 201812290156 | 32 | 3000 | 12000 | 1 | 9.043 | | | 385 | 525 | 24.5 | 合格OK | 10X10 | -20 | 156 | 137 | 140 | | | |
| 合计(TOTAL) | | | | | 17 | 51.663 | | | | | | | | | | | | | | |

| 批号 BATCH NO. | 化学成分CHEMICAL COMPOSITION(%) C | Si | Mn | P | S | Als | Al | Cr | Ni | Cu | Mo | V | Ti | Nb | ceq | CEV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201901110049 | 0.16 | 0.19 | 1.23 | 0.021 | 0.004 | 0.026 | 0.028 | 0.307 | 0.007 | 0.001 | 0.004 | 0.005 | 0.015 | 0.012 | | 0.43 |
| 201901110050 | 0.17 | 0.19 | 1.24 | 0.017 | 0.005 | 0.033 | 0.035 | 0.302 | 0.006 | 0.001 | 0.002 | 0.005 | 0.016 | 0.015 | | 0.44 |
| 201812210175 | 0.16 | 0.18 | 1.24 | 0.020 | 0.007 | 0.029 | 0.030 | 0.317 | 0.005 | 0.008 | 0.003 | 0.004 | 0.015 | 0.014 | | 0.43 |
| 201812290156 | 0.17 | 0.17 | 1.25 | 0.020 | 0.007 | 0.030 | 0.031 | 0.302 | 0.005 | 0.008 | 0.002 | 0.004 | 0.014 | 0.013 | | 0.44 |

备注 NOTE: ACCORDING TO EN10204 3.1 : Al=Alt ;

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.

| 操作员 OPERATOR | 李阳 Li Yang | 冶金技术处处长 DIRECTOR OF METALLURGICAL DEPARTMENT | 翠建伟 |
|---|---|---|---|

COMERCIAL DEL ACERO S.A. CERTIFICADOS DE CALIDAD

861 -21-01

4

# ZHUO NAN PTE. LTD.

531A UPPER CROSS STREET, #03-108, HONG LIM COMPLEX, SINGAPORE(051531)

**MILL TEST CERTIFICATE**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PRODUCT | HOT ROLLED ANGLE STEEL | | | | | | | INVOICE NO.: | | UM-01202309 | | | |
| MATERIAL: | ASTM A572 GR 50 | | | | | | | DATE: | | 7TH SEP,2023 | | | |
| HEAT NO. | MATERIAL DESCRIPTION | | | CHEMICAL COMPOSITION % | | | | | T.S (Mpa) | Y.S (Mpa) | ELONG (%) | BENDING TEST |
| | SPECIFICATION | NO OF BUNDLES | WEIGHT (MT) | C | SI | Mn | P | S | | | | |
| E30621024 | 4"x5/16" 12.2kg/m | 6 | 28.987 | 0.18 | 0.3 | 1.17 | 0.017 | 0.025 | 595 | 466 | 26.5 | OK |
| E30620043 | 4"x3/8" 14.6kg/m | 11 | 53.962 | 0.17 | 0.29 | 1.18 | 0.017 | 0.024 | 597 | 464 | 26 | OK |
| 61230825-11 | 6"x1/2" 29.2kg/m | 83 | 233.016 | 0.18 | 0.29 | 1.15 | 0.016 | 0.025 | 596 | 467 | 26.5 | OK |
| A30731021 | 8"x5/8" 48.7kg/m | 26 | 106.361 | 0.18 | 0.28 | 1.20 | 0.019 | 0.022 | 595 | 467 | 26 | OK |
| TOTAL | | 126 | 422.326 | – | – | – | – | – | – | – | – | – |

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MANUFACTURED AND TESTED WITH SATISFATORY RESULT IN ACCORDANCE WITH THE REQUIREMENT OF THE ABOVE MATERIAL SPECIFICATION.

QUALITY INSPECTION DEPARTMENT

MTR 862-23-01
02
03
04

MTR 862-23--01
al
MTR 862-23--04

ZHUO NAN PTE. LTD.

Blake

扫描全能王 创建

五矿营口中板有限责任公司
MINMETALS YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet, Laobiandistrict, Yingkou, Liaoning, P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 耐候桥梁钢 Corrosion resistance bridge steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN201027035-02 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/709M; A709 Gr.50W,T2 | 交货状态 DELIVERY CONDITION | 热轧(AR) | 签发日期 DATE OF ISSUE | 20201128 |
| | | 证明书编号 CERTIFICATE NO. | 201128Z00673 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 A.A | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20123391D | H0B250113 | 31.75x2440x12192 | 2 | 14,828 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 387 | 566 | 21.5 | 187 | 185 | 160 | 177 |
| 20123391D | H0B250234 | 31.75x2440x12192 | 1 | 7,414 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 408 | 583 | 22.5 | 163 | 165 | 181 | 170 |
| 20123391D | H0B250235 | 31.75x2440x12192 | 1 | 7,414 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 402 | 577 | 22.5 | 168 | 150 | 176 | 165 |
| 20123391D | H0B250236 | 25.4x2440x12192 | 1 | 5,932 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 419 | 583 | 23.5 | 156 | 158 | 162 | 159 |
| 20211318D | H0B250237 | 25.4x2440x12192 | 2 | 11,864 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 408 | 562 | 22 | 185 | 190 | 175 | 183 |
| 20211318D | H0B250238 | 25.4x2440x12192 | 1 | 5,932 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 389 | 563 | 23 | 183 | 171 | 186 | 180 |
| 20211318D | H0B250239 | 25.4x2440x12192 | 1 | 5,932 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 386 | 563 | 24 | 171 | 150 | 155 | 159 |
| 20123397D | H0B250253 | 15.88x2440x12192 | 1 | 3,708 | L | 149 | 345 | 1348 | 220 | 80 | 283 | 1200 | 468 | 11 | 368 | 549 | 20 | 228 | 255 | 235 | 239 |
| | | 合计(TOTAL): | 10 | 63,024 | | | | | | | | | | | | | | | | | |

注释 NOTES

A.A: ANALYSIS REGION
L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH)
A0C01冲击试验IMPACT TEST: 4℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=ELONGATION
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 1000-21-01

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

20210115-125053



MTR 1000 -21-01

五矿营口中板有限责任公司
MINMETALS YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | |
|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 耐候桥梁钢 Corrosion resistance bridge steel |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN201027035-02 |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/709M; A709 Gr.50 WT2 | 交货状态 DELIVERY CONDITION | 热轧(AR) |
| | | 签发日期 DATE OF ISSUE | 20201128 |
| | | 证明书编号 CERTIFICATE NO. | 201128Z00673 |
| 车 号 TRAIN NO. | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 A.A | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B OA01 屈服强度 MPa Rp0.2 | B OA02 抗拉强度 MPa Rm | B OA03 断后伸长率 % | A OC01 冲击单值 A J | A OC012 冲击单值 B J | A OC013 冲击单值 C J | A OC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | | | | | | | |
| 20123391D | H0B250113 | 31.75x2440x12192 | 2 | 14,828 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 387 | 566 | 21.5 | 187 | 185 | 160 | 177 |
| 20123391D | H0B250234 | 31.75x2440x12192 | 1 | 7,414 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 408 | 583 | 22.5 | 163 | 165 | 181 | 170 |
| 20123391D | H0B250235 | 31.75x2440x12192 | 1 | 7,414 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 402 | 577 | 22.5 | 168 | 150 | 176 | 165 |
| 20123391D | H0B250236 | 25.4x2440x12192 | 1 | 5,932 | L | 138 | 361 | 1342 | 210 | 79 | 257 | 1150 | 458 | 11 | 419 | 583 | 23.5 | 156 | 158 | 162 | 159 |
| 20211318D | H0B250237 | 25.4x2440x12192 | 2 | 11,864 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 408 | 562 | 22 | 185 | 190 | 175 | 183 |
| 20211318D | H0B250238 | 25.4x2440x12192 | 1 | 5,932 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 389 | 563 | 23 | 183 | 171 | 186 | 180 |
| 20211318D | H0B250239 | 25.4x2440x12192 | 1 | 5,932 | L | 139 | 338 | 1364 | 120 | 34 | 288 | 1220 | 475 | 11 | 386 | 563 | 24 | 171 | 150 | 155 | 159 |
| 20123397D | H0B250253 | 15.88x2440x12192 | 1 | 3,708 | L | 149 | 345 | 1348 | 220 | 80 | 283 | 1200 | 468 | 11 | 368 | 549 | 20 | 228 | 255 | 235 | 239 |
| | | 合计(TOTAL): | 10 | 63,024 | | | | | | | | | | | | | | | | | |

注释 NOTES

A.A: ANALYSIS REGION
L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH)
A0C01冲击试验IMPACT TEST: 4℃, 纵向LONGITUDINAL
. 近表 CLOSE TO SURFACE
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=ELONGATION
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR-1008-21-02
03

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR
EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

[redacted]1008 -21-02 [redacted]1008 -21-03

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

20210115-125053

五矿营口中板有限责任公司
MINMETALS YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet, Laobiandistrict, Yingkou, Liaoning, P.R. China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT210150168

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 耐候桥梁钢 Corrosion resistance bridge steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN201027035-02 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/709M; A709 Gr.50W T2 | 交货状态 DELIVERY CONDITION | 热轧(AR) | 签发日期 DATE OF ISSUE | 20201207 |
| | | 证明书编号 CERTFICATE NO. | 201207Z00529 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 A.A | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % | A 0C01 冲击单值A J | A 0C012 冲击单值B J | A 0C013 冲击单值C J | A 0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | | | | | | | |
| 20123449D | H0C040127 | 38.1x2440x12192 | 1 | 8,897 | L | 139 | 327 | 1334 | 150 | 40 | 283 | 1140 | 460 | 13 | 435 | 608 | 20 | 178 | 186 | 176 | 180 |
| 20123449D | H0C040128 | 31.75x2440x12192 | 2 | 14,828 | L | 139 | 327 | 1334 | 150 | 40 | 283 | 1140 | 460 | 13 | 420 | 580 | 20.5 | 182 | 180 | 188 | 183 |
| | | 合计(TOTAL): | 3 | 23,725 | | | | | | | | | | | | | | | | | |

注释 NOTES

A.A: ANALYSIS REGION
L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH)
A0C01冲击试验IMPACT TEST: 4℃, 纵向LONGITUDINAL
, 近表 CLOSE TO SURFACE
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=ELONGATION
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MR-1009-21-02

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION.

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

20210115-125055

MR 1009 -21-02

五矿营口中板有限责任公司
MINMETALS YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | |
|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 耐候桥梁钢 Corrosion resistance bridge steel |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN201227051-01 |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M; A709 Gr.50W T2 | 交货状态 DELIVERY CONDITION | 热轧(AR) 签发日期 DATE OF ISSUE 20210304 |
| | | 证明书编号 CERTIFICATE NO. | 210304Z00464 |
| 车 号 TRAIN NO. | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 A.A | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21201378C | S12220092 | 31.75x2440x12192 | 1 | 7.414 | L | 144 | 334 | 1340 | 180 | 51 | 269 | 1740 | 472 | 23 | 395 | 557 | 20 | 189 | 190 | 195 | 191 |
| | | 合计 (TOTAL): | 1 | 7.414 | | | | | | | | | | | | | | | | | |

注释 NOTES

A.A: ANALYSIS REGION
L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C01冲击试验IMPACTTEST: 4℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE. 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=ELONGATION
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 1020-21-01

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

20210325-153703



[redacted] 1020 -21-01

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区沿金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 桥梁结构钢 Bridge structural steel | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGRIZANN230285001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20230301 |
| | | 质量证明书编号 CERTIFICATE NO. | | 230301Z00129 |
| 车号 TRAIN NO. | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 Rp0.2 MPa | B 0A02 抗拉强度 Rm MPa | B 0A03 伸长率 % | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻² | ×10⁻¹ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻² | | | | | | | | |
| Z31037131D | S32280005 | S3227270101 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270102 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270201 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270202 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270301 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270302 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227270303 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280005 | S3227272101 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 483 | 589 | 24 | 132 | 121 | 138 | 130 |
| Z31037131D | S32280006 | S3227275101 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 488 | 586 | 24 | 169 | 143 | 161 | 158 |
| Z31037131D | S32280006 | S3227275102 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 488 | 586 | 24 | 169 | 143 | 161 | 158 |
| Z31037131D | S32280006 | S3227275201 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 488 | 586 | 24 | 169 | 143 | 161 | 158 |
| Z31037131D | S32280006 | S3227275202 | 15x2438x6095 | 1 | 1,750 | 1 | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 488 | 586 | 24 | 169 | 143 | 161 | 158 |
| | | | 合计 (TOTAL): | 12 | 21,000 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C2冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
According to EN 10204 3.1

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTP.457-23--01 AL MTR.457-23--12

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 457-23-02 -07 08
03 01 09
04 10
05 12
06 11

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区命盘街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品 PRODUCT | 桥梁结构钢 Bridge structural steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN230285001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20230301 |
| | | 质量证明书编号 CERTIFICATE NO. | 230301Z00130 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (M/M) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Al | Sn | B | Nb | B0A01 屈服强度 MPa Re0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % | A0C01 冲击单值 A J | A0C01 冲击单值 B J | A0C012 冲击单值 C J | A0C013 冲击单值 Ave J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | -3 ×10 | -3 ×10 | -3 ×10 | -4 ×10 | -4 ×10 | -3 ×10 | -4 ×10 | -2 ×10 | -2 ×10 | -3 ×10 | -4 ×10 | -4 ×10 | -4 ×10 | | | | | | | | | |
| 23103713D | S32280006 | S3227275301 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 496 | 586 | 29 | 169 | 143 | 161 | 158 |
| 23103713D | S32280006 | S3227275302 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 496 | 586 | 29 | 169 | 143 | 161 | 158 |
| 23103713D | S32280006 | S3227275303 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 496 | 586 | 29 | 169 | 143 | 161 | 158 |
| 23103711D | S32280007 | S3227276101 | 15x2438x6095 | 1 | 1,750 | L | 141 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276102 | 15x2438x6095 | 1 | 1,750 | L | 141 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276201 | 15x2438x6095 | 1 | 1,750 | L | 144 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276202 | 15x2438x6095 | 1 | 1,750 | L | 141 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276301 | 15x2438x6095 | 1 | 1,750 | L | 144 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276302 | 15x2438x6095 | 1 | 1,750 | L | 144 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227276303 | 15x2438x6095 | 1 | 1,750 | L | 144 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227278101 | 15x2438x6095 | 1 | 1,750 | L | 144 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| 23103711D | S32280007 | S3227278102 | 15x2438x6095 | 1 | 1,750 | L | 141 | 324 | 1321 | 170 | 105 | 319 | 1700 | 476 | 27 | 6486 | 30 | 50 | 50 | 487 | 566 | 29.5 | 124 | 151 | 157 | 144 |
| | | | 合计 (TOTAL): | 12 | 21,000 | | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MIR.458-23--01

AL

MIR.458-23--12

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 458-2312-04 08
02-05 09
10-06 11
01 07 03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejiastreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT210150I/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | | PRODUCT | 桥梁结构钢 Bridge structural steel | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | | 合同编号 CONTRACT NO. | YGRIZANN230285001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50WT-Z1-B | | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20230301 |
| 车号 TRAIN NO. | | | 证明书号 CERTIFICATE NO. | 230301Z00469 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B | Nb | Ti | Al | B BA01 屈服强度 MPa Rpl.2 | B BA02 抗拉强度 MPa Rm | E BA03 断后伸长率 % A5 | A 0C01 冲击值 A | A 0C012 冲击值 B | A 0C013 冲击值 C | A 0C02 冲击平均值 Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻² | ×10⁻⁴ | ×10⁻² | | | | J | J | J | J |
| 23103707D | 1132270270 | 1132272202 | 38x2438x6095 | 1 | 4,433 | 1 | 154 | 348 | 1359 | 150 | 72 | 258 | 1800 | 478 | 24 | 6245 | 48 | 60 | 56 | 395 | 536 | 24 | 213 | 214 | 202 | 209 |
| 23103761D | 1132270274 | 1132272411 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103761D | 1132270274 | 1132272412 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103764D | 1132270274 | 1132272410 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103761D | 1132270274 | 1132272410 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103761D | 1132270274 | 1132272410 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103761D | 1132270274 | 1132272412 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| 23103761D | 1132270274 | 1132272402 | 25x2438x6095 | 1 | 2,916 | 1 | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 186 | 24 | 6125 | 30 | 60 | 56 | 413 | 572 | 19.5 | 245 | 245 | 253 | 248 |
| | | | 合计 (TOTAL): | 8 | 24,845 | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR.461-23--01 AL MTR.461-23--08

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

01-06
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08
MTR 461-23-03
02
01
05

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区鲅鱼圈街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | | 产品名称 PRODUCT | 桥梁结构钢 Bridge structural steel | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | | 合同编号 CONTRACT NO. | YGRIZANN230285001-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50WT-Z1-B | | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20230301 |
| 车 号 TRAIN NO. | | | 证书编号 CERTIFICATE NO. | 230301Z00427 | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B | Mo | Ti | Nb | B A01 屈服强度 MPa Rp0.2 | B A02 抗拉强度 MPa Rm | B A03 断后伸长率 % | A 0C01 冲击单值 A | A 0C01 冲击单值 B | A 0C01 冲击单值 C | A 0C02 冲击均值 Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻² | ×10⁻² | ×10⁻² | | | | J | J | J | J |
| 23103764D | 1132270272 | 1132272311101 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272311102 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272311103 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272312101 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272312102 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272312103 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272322201 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103764D | 1132270272 | 1132272322202 | 25x2438x6095 | 1 | 2,916 | L | 155 | 355 | 1356 | 130 | 46 | 253 | 1800 | 486 | 24 | 6125 | 30 | 60 | 50 | 529 | 587 | 19.5 | 151 | 168 | 145 | 155 |
| 23103707D | 1132270273 | 1132272361102 | 25x2438x6095 | 1 | 2,916 | L | 154 | 348 | 1359 | 130 | 72 | 259 | 1800 | 478 | 24 | 6245 | 40 | 60 | 50 | 529 | 592 | 19.5 | 153 | 151 | 129 | 144 |
| 23103707D | 1132270273 | 1132272361103 | 25x2438x6095 | 1 | 2,916 | L | 154 | 348 | 1359 | 130 | 72 | 259 | 1800 | 478 | 24 | 6245 | 40 | 60 | 50 | 529 | 592 | 19.5 | 153 | 151 | 129 | 144 |
| 23103707D | 1132270273 | 1132272362101 | 25x2438x6095 | 1 | 2,916 | L | 154 | 348 | 1359 | 130 | 72 | 259 | 1800 | 478 | 24 | 6245 | 40 | 60 | 50 | 529 | 592 | 19.5 | 153 | 151 | 129 | 144 |
| | | 合计(TOTAL): | | 12 | 34,992 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR.463-23--01 AL MTR.463-23--12

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR2463-23-06 05-03 12 02 14 04 09 07 01 08 10

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT210150I/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 桥梁结构钢 Bridge structural steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGRIZANN230285001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M : A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20230308 |
| | | 证书编号 CERTIFICATE NO. | 230308Z00988 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B QA01 钢板 屈服 强度 MPa / Rt0.5 N/mm² | E BA02 钢板 抗拉 强度 MPa / N/mm² | L QA03 钢板 伸长 率 % | A BC01 冲击 单值 A J | A BC012 冲击 单值 B J | A BC013 冲击 单值 C J | A BC02 冲击 均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | | | | | | | |
| 2310371 3D | S32280006 | S3227277101 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 169 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277102 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 169 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277201 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 168 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277202 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 169 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277301 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 169 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277302 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 169 | 143 | 161 | 158 |
| 2310371 3D | S32280006 | S3227277303 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 0214 | 30 | 50 | 50 | 486 | 586 | 24 | 168 | 143 | 161 | 158 |
| | | | 合计 (TOTAL): | 7 | 12,250 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR.466-23-01 AL MTR.466-23-07

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明：
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

02
01
MTR-466-23-05
03
07
04
06

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 桥梁结构钢 Bridge structural steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN230285001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M ; A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20230301 |
| 车 号 TRAIN NO. | | 质量证明书编号 CERTIFICATE NO. | 230301Z00339 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | B | Mo | Ti | Nb | B A01 屈服强度 MPa ReH0.2 | B A02 抗拉强度 MPa Rm | B A03 断后伸长率 % A | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-2 | <10^-3 | <10^-2 | <10^-2 | <10^-2 | <10^-2 | 10^-2 | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | | | | | | | |
| 2310371310 | S32280005 | S3227273303 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 493 | 589 | 26 | 132 | 121 | 135 | 130 |
| 2310371310 | S32280006 | S3227274101 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 486 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274102 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 496 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274201 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 486 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274202 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 486 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274301 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 486 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274302 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 486 | 586 | 26 | 169 | 143 | 161 | 158 |
| 2310371310 | S32280006 | S3227274303 | 15x2438x6095 | 1 | 1,750 | L | 165 | 345 | 1366 | 140 | 51 | 264 | 1820 | 488 | 25 | 6214 | 30 | 50 | 50 | 496 | 586 | 26 | 169 | 143 | 161 | 158 |
| | | | 合计(TOTAL): | 8 | 14,000 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE 10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR.469-23--08

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

469-23-01 AC 08

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

山东钢铁集团日照有限公司
Shandong Iron & Steel Group Rizhao Co.,Ltd
SD STEEL

山东省日照市东港区临钢路1号
No. 1, Lingang Road, Donggang
Rizhao City, Shandong Province, P.R.
http://www.sdsteelrz.com
TEL (0633)7920801 FAX (0633)7920801

# 产品质量证明书

## INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 客户 PURCHASER | Young Gap Inc. | | | 产品名称 PRODUCT | 热轧中厚板 HOT ROLLED STEEL PLATES |
| 技术条件 TECHNICAL STANDARD | ASTM A572/A572M | 钢号 SERIAL NO | WORDRE 5/27-61 | 质量证明书编号 CERTIFICATE NO. | LK698545749 |
| 交货状态 DELIVERY CONDITION | 热轧 AS ROLLED | 合同号 CONTRACT NO. | 196586989-G25 | 许可证书号 LICENSE NO. | |
| 牌号 GRADE | A572 Gr50 | 签发日期 DATE OF ISSUE | 2024-5-27 | 检验证书号 INSPECTION CERTIFICATE | |

| 序号 NO. | 钢卷/钢板号 COIL/PLATE NO. | 炉号 HEAT NO. | 批号 LOT NO. | 规格及重量MATERIAL DESCRIPTION 厚度T mm | 宽度W mm | 长度L mm | 件数 PCS. | 理重 MASS (t) | 化学成分CHEMICAL COMPOSITION % HEAT_ANALYSIS C x100 | Si x100 | Mn x100 | P x100 | S x100 | T_AL x100 | V x100 | Cu x100 | Ti x100 | Ni x100 | Nb x100 | Mo x100 | Cr x100 | B x100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 57M-965962-98 | 2547894219 | 56M-965890 | 8.0 | 2440 | 6100 | 5 | 4.675 | 18 | 20 | 102 | 1.4 | 2.6 | 1.7 | 0.5 | 1.6 | 0.4 | 0.03 | 0.28 | 0.22 | 0.7 | 0.01 |
| 2 | 57M-965962-46 | 2547896521 | 56M-965890 | 9.0 | 2440 | 6100 | 46 | 48.392 | 19 | 21 | 103 | 1.5 | 2.6 | 1.6 | 0.7 | 1.4 | 0.9 | 0.04 | 0.21 | 0.17 | 0.5 | 0.03 |
| 3 | 57M-965962-49 | 2547896354 | 56M-965890 | 12.0 | 2440 | 6100 | 38 | 53.275 | 18 | 23 | 100 | 1.6 | 2.9 | 1.8 | 0.7 | 1.7 | 0.7 | 0.05 | 0.14 | 0.18 | 0.1 | 0.01 |
| 4 | 57M-965962-63 | 2547892560 | 56M-965890 | 19.0 | 2440 | 6100 | 10 | 22.200 | 18 | 20 | 101 | 1.7 | 2.9 | 1.9 | 0.5 | 1.6 | 0.7 | 0.05 | 0.14 | 0.14 | 0.2 | 0.03 |

| | 屈服强度 Y.S. ReL/R0.2 Pa | 抗拉强度 T.S. Rm MPa | 断后伸长率 EL A % | 冷弯 B.T. d=3a | 冲击 Impact Test Value 10*10*55mm 横向 Horizontal KV2 0° C (J) | NDT NB/T 47013.3_II (2015) |
|---|---|---|---|---|---|---|
| 1 | 319 | 518 | 24.0 | Y | 118,126,128,124 | Y |
| 2 | 322 | 509 | 23.5 | Y | 129,130,130,130 | Y |
| 3 | 308 | 529 | 25.3 | Y | 128,126,129,128 | Y |
| 4 | 325 | 510 | 26.5 | Y | 130,126,125,127 | Y |

| 合计 TOTAL | 99 PCS | 128.543 t(吨) | 备注 REMARKS |
|---|---|---|---|

兹证明以上所述本产品已按本标准进行检验和试验，其结果符合要求。特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS BEEN MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.

质量证明章 STAMP OF QUALITY ASSURANCE



MTR 482-24-01 AL 04

MTR 482-24 -01
AL
MTR 482-24 -04

南冶钢铁 NAN STEEL

湖南南冶钢铁有限公司
Nansteel Manufacturing Co.,Ltd.
湖南省长沙市岳麓科技工业园学士路
21ST&22ND FLOOR GOLDEN TOWER, CHANGSHA WEST INTERNATIONAL CENTRAL MANSION, YUELU DISTRICT, CHANGSHA, HUNAN, CHINA

# 产品质量证明书
# MILL TEST CERTIFICATE
( EN 10204 3.1 )

生产许可证编号 Production license
No: TS2710L40-2018
T:+86 731 8878 7783,
E:info@nan-steel.com
Page:www.nan-steel.com

| 订货单位 Customer | KENNA INTERN ATIONAL CORPOR ATION PTY LTD | | | 合同编号 Contract .No | | NSCO24978 | | 总件数 Total PCS | 624 | | 出证日期 DATE OF ISSUE | 2024.09.26 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 品种名称 Product Name | 角钢/EQUAL ANGLE STEEL | | | 产品要求标准 Technical Specification | | ASTM A709 ZONE 1 WT | | 证书编号 Certificate No | 24978-01 | | 交货条件 DELIVERY | 热轧Hot Rolling | |

| 炉号 Heat No. | 尺寸 Size 宽*长*厚W*L*T Specfication(mm) | 单重 Theoretical Weight(kg/m) | 件数 pcs | 总长度 total length (m) | 总重量 total weight (kg) | 钢号 Steel Grade | 机械性能Mechanical Property | | | 冲击试验Impact Test (+20℃) | | | 通径测试 Drift Test | 水压试验 Hydrostatic Test | 金相检测 Metallographic Test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tensile Strength | Yield Strength | Elongation | 1 | 2 | 3 | | | |
| | | | | | | | Mpa | | % | J | | | | | |
| 32408310 | ANGULO 4*4*3/8*12M | 14.60 | 143 | 1,716 | 25,053.60 | GR.50 | 550 | 385 | 27.0 | 54 | 52 | 57 | - | - | - |
| 32406096 | ANGULO 4*4*1/2*12M | 19.07 | 306 | 3.672 | 70,025.04 | GR.50 | 510 | 375 | 30.0 | 62 | 68 | 57 | - | - | - |
| 32407175 | ANGULO 4*4*5/8*12M | 23.30 | 89 | 1.068 | 24,884.40 | GR.50 | 510 | 360 | 29.0 | 73 | 69 | 68 | - | - | - |
| 24303773DE2 | ANGULO 5*5*1/2*12M | 24.13 | 86 | 1.032 | 24,902.16 | GR.50 | 522 | 370 | 31.0 | 114 | 121 | 126 | - | - | - |
| Total | | | 624 | 7,488 | 144,865.20 | | | | | | | | | | |

| 炉号 Heat No. | 化学成分 Chemical Composition (%) | | | | | | | | | | | 压扁测试 Flattening Test | 硬度 Hardness Test HRC | 弯曲试验 Bend Test | 非金属杂质 Non-metallic Inclusions | | | | 组织 The Banded Structure | 漏磁 Leakage | 超声 Ultrasound | 外观尺寸及表面 The Size of Surface Appearance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Mn | Si | P | S | Cr | Ni | Cu | B | V+Nb+Ti | CE | | | | A 细/粗 | B 细/粗 | C 细/粗 | D 细/粗 | | | | |
| 32408310 | 0.210 | 1.300 | 0.360 | 0.029 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32406096 | 0.180 | 1.290 | 0.330 | 0.029 | 0.018 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32407175 | 0.210 | 1.320 | 0.170 | 0.017 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 24303773DE2 | 0.180 | 1.280 | 0.310 | 0.022 | 0.010 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |

注释 Note

我们证明本文档所代表的材料已经过检查和测试，并且符合参考规范和您的采购订单的要求。
We certify that the material represented by this document has been inpected and tested,and is in conformance with the requirements of the referenced specification's and your purchase order.

盖章生效
Stamp to take effect

检验 INSPECTOR: Li Yiming

发货 CONSIGNOR: Mr. Wang

签批 APPROVAL: Xiang Wang

王香

TR003 -25--01

AL

TR003 -25--04

HR SADELEC
APROBADO
QC 5

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict.Yingkou.Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | CUMIC STEEL USA INC | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | CUMIC STEEL USA INC | 合同编号 CONTRACT NO. | YGRIZANN240285001-02 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-21:A709 Gr.50W T-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240508 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240508Z00179 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | Ti ×10⁻³ | Mo ×10⁻⁴ | Ti ×10⁻⁴ | Nb ×10⁻⁴ | BOA01 屈服强度 MPa Rp0.2 | BOA02 抗拉强度 MPa Rm | BOA03 断后伸长率 % B5 | AOC01 冲击单值A J | AOC012 冲击单值B J | AOC013 冲击单值C J | AOC02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24203112D | H45060199 | H4506250101 | 15.8x2440x12192 | 1 | 3,690 | L | 146 | 329 | 1350 | 180 | 48 | 280 | 2840 | 469 | 23 | 6505 | 10 | 40 | 40 | 418 | 578 | 22 | 255 | 219 | 129 | 201 |
| 24203112D | H45060199 | H4506250201 | 15.8x2440x12192 | 1 | 3,690 | L | 146 | 329 | 1350 | 180 | 48 | 280 | 2840 | 469 | 23 | 6505 | 10 | 40 | 40 | 418 | 578 | 22 | 255 | 219 | 129 | 201 |
| | | | 合计(TOTAL): | 2 | 7,380 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
AOC冲击试验IMPACT TEST：20℃，纵向LONGITUDINAL，
近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
BOA01=YIELD STRENGTH
BOA02=TENSILE STRENGTH
BOA03=PRECENTAGE ELONGATION AFTER FRACTURE

AOC01=IMPACT TEST A
AOC012=IMPACT TEST B
AOC013=IMPACT TEST C
AOC02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 019-25-02

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 19 -25 -02

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240905 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240905Z00795 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-2 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-8 | <10^-3 | | | | | | | |
| 24115439D | H49050083 | H4905004101 | 32x2438x12192 | 1 | 7,467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 432 | 575 | 24 | 252 | 243 | 258 | 251 |
| 24115439D | H49050083 | H4905004201 | 32x2438x12192 | 1 | 7,467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 432 | 575 | 24 | 252 | 243 | 258 | 251 |
| | | | 合计(TOTAL): | 2 | 14,934 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

MTR 25-25--01 MTR 25-25--02

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240910 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240910Z00421 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | 10^-3 | <10^-3 | <10^-2 | <10^-4 | <10^-4 | <10^-4 | <10^-3 | | | | | | | | |
| 24115439D | H49060276 | H4906407201 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 411 | 569 | 23 | 247 | 265 | 246 | 253 |
| | | | 合计(TOTAL): | 1 | 7.467 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

MTR 26 -25- 01

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240905 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240905Z00781 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻¹ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻² | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁹ | ×10⁻³ | | | | | | | |
| 24115439D | H49050082 | H4904487101 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | H49050082 | H4904487201 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | H49050082 | H4905001101 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | H49050083 | H4905003101 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 432 | 575 | 24 | 252 | 243 | 258 | 251 |
| 24115441D | H49050084 | H4905005101 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905005201 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905006101 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905006201 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905006301 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115437D | H49050087 | H4905012101 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H49050087 | H4905013401 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| | | | 合计 (TOTAL): | 11 | 59.033 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 27 -25--01 AL MTR 27 -25--12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240906 |
| | | 证明书编号 CERTIFICATE NO. | 240906Z00564 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | $\times 10^{-3}$ | $\times 10^{-3}$ | $\times 10^{-3}$ | $\times 10^{-4}$ | $\times 10^{-4}$ | $\times 10^{-4}$ | $10^{-3}$ | $\times 10^{-3}$ | $\times 10^{-3}$ | $\times 10^{-4}$ | $\times 10^{-4}$ | $\times 10^{-4}$ | $\times 10^{-3}$ | | | | | | | | |
| 24115437D | H49050087 | H4905014101 | 15x2438x12192 | 1 | 3,500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H49050087 | H4905014201 | 15x2438x12192 | 1 | 3,500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H49050087 | H4905014301 | 15x2438x12192 | 1 | 3,500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H49050087 | H4905014401 | 15x2438x12192 | 1 | 3,500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H49050089 | H4905018101 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 419 | 595 | 23.5 | 128 | 124 | 115 | 122 |
| 24115437D | H49050089 | H4905018201 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 419 | 595 | 23.5 | 128 | 124 | 115 | 122 |
| 24115437D | H49050089 | H4905018301 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 419 | 595 | 23.5 | 128 | 124 | 115 | 122 |
| 24115437D | H49050089 | H4905018401 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 419 | 595 | 23.5 | 128 | 124 | 115 | 122 |
| 24115443D | H49050090 | H4905019101 | 12x2438x12192 | 1 | 2,800 | L | 140 | 342 | 1330 | 190 | 67 | 2790 | 485 | 294 | 21 | 10 | 40 | 7 | 28 | 418 | 554 | 24 | 196 | 235 | 207 | 213 |
| 24115443D | H49050090 | H4905019201 | 12x2438x12192 | 1 | 2,800 | L | 140 | 342 | 1330 | 190 | 67 | 2790 | 485 | 294 | 21 | 10 | 40 | 7 | 28 | 418 | 554 | 24 | 196 | 235 | 207 | 213 |
| 24115443D | H49050090 | H4905019202 | 12x2438x12192 | 1 | 2,800 | L | 140 | 342 | 1330 | 190 | 67 | 2790 | 485 | 294 | 21 | 10 | 40 | 7 | 28 | 418 | 554 | 24 | 196 | 235 | 207 | 213 |
| 24115443D | H49050090 | H4905019301 | 12x2438x12192 | 1 | 2,800 | L | 140 | 342 | 1330 | 190 | 67 | 2790 | 485 | 294 | 21 | 10 | 40 | 7 | 28 | 418 | 554 | 24 | 196 | 235 | 207 | 213 |
| | | | 合计 (TOTAL): | 12 | 36,400 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 29 -25--01 AL MTR 29 -25--12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240906 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240906Z00565 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C (×10⁻³) | Si (×10⁻³) | Mn (×10⁻³) | P (×10⁻⁴) | S (×10⁻⁴) | Ni (×10⁻⁴) | Cr (×10⁻³) | Cu (×10⁻³) | V (×10⁻³) | Mo (×10⁻⁴) | Nb (×10⁻⁴) | I (×10⁻⁸) | Als (×10⁻³) | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24115441D | 1149050084 | 1149050081O1 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | 1149050085 | 1149050082O1 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | 1149050084 | 1149050083O1 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | 1149050085 | 1149050101O1 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115437D | 1149050088 | 1149050161O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | 1149050088 | 1149050162O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | 1149050088 | 1149050163O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | 1149050088 | 1149050171O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | 1149050088 | 1149050172O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | 1149050088 | 1149050173O1 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| | | | 合计(TOTAL): | 10 | 38.732 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 30 -25-1-01 AL MTR 30 -25-1-12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240910 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240910Z00388 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21115439D | H49060276 | H4906407101 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 411 | 569 | 23 | 247 | 265 | 246 | 253 |
| 21114089D | H49070018 | H4906458301 | 12x2438x12192 | 1 | 2.800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 433 | 601 | 17.5 | 77 | 86 | 80 | 81 |
| 21115437D | H49070019 | H4906459301 | 12x2438x12192 | 1 | 2.800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 421 | 593 | 18 | 58 | 53 | 48 | 53 |
| | | | 合计 (TOTAL): | 3 | 13.067 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 32 -25--01 AL

MTR 32 -25--03

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240910 |
| | | 证明书编号 CERTIFICATE NO. | 240910Z00420 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值A J | A0C012 冲击单值B J | A0C013 冲击单值C J | A0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | 10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-8 | <10^-3 | | | | | | | |
| 24114089D | H49070018 | H4906458401 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 433 | 601 | 17.5 | 77 | 86 | 80 | 81 |
| 24115437D | H49070019 | H4906459101 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 421 | 593 | 18 | 58 | 53 | 48 | 53 |
| 24115437D | H49070019 | H4906459201 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 421 | 593 | 18 | 58 | 53 | 48 | 53 |
| 24115437D | H49070019 | H4906459401 | 12x2438x12192 | 1 | 2,800 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 421 | 593 | 18 | 58 | 53 | 48 | 53 |
| 24114089D | H49090045 | H4908488101 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908488201 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908488301 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908488401 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908489101 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908489201 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908489301 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| 24114089D | H49090045 | H4908489401 | 12x2438x12192 | 1 | 2,800 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 411 | 599 | 24 | 121 | 117 | 121 | 120 |
| | | | 合计 (TOTAL): | 12 | 33,600 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 35 -25--01 AL MTR 35 -25--12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240926 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240926Z01206 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | Ti | Als | B 0A01 屈服强度 | B 0A02 抗拉强度 | B 0A03 断后伸长率 | A 0C01 冲击单值 A | A 0C012 冲击单值 B | A 0C013 冲击单值 C | A 0C02 冲击均值 Ave |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻³ | MPa Rp0.2 | MPa Rm | % B5 | J | J | J | J |
| 24116443D | H49240116 | H4924154101 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154201 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154301 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| 24116443D | H49240116 | H4924154401 | 12x2438x12192 | 1 | 2,800 | L | 69 | 363 | 1380 | 170 | 83 | 3350 | 466 | 317 | 22 | 30 | 130 | 7 | 37 | 373 | 556 | 25.5 | 153 | 179 | 153 | 162 |
| | | | 合计(TOTAL): | 4 | 11,200 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 36 -25-0 AL MTR 36 -25-04

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240285004-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-2021；A709 Gr.50 WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240318 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240318Z00365 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻² | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | Al ×10⁻³ | Mo ×10⁻⁴ | Ti ×10⁻⁴ | Nb ×10⁻⁴ | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % 35 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24302500B | H43170136 | H4317111101 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111102 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111201 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111202 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112101 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112102 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112201 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170137 | H4317112202 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 366 | 531 | 24 | 246 | 265 | 272 | 261 |
| | | | 合计(TOTAL): | 8 | 35.464 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分SMELTING COMPOSITION
拉伸标距(GAUGELENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，
近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 375-24 -01 AL MTR 375-24 -08

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO.,LIMITED | 品名 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO.,LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240822 |
| 车号 TRAIN NO. | | 证明书号 CERTIFICATE NO. | 240822Z00031 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION (MM) | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B0A01 屈服强度 MPa Rp0.2 | B0A02 抗拉强度 MPa Rm | B0A03 断后伸长率 % B5 | A0C01 冲击单值 A J | A0C012 冲击单值 B J | A0C013 冲击单值 C J | A0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-2 | <10^-3 | <10^-3 | <10^-1 | <10^-4 | <10^-3 | 10^-4 | 10^-3 | <10^-2 | <10^-3 | <10^-1 | <10^-1 | <10^-4 | | | | | | | | |
| 24205167A | S47160008 | S4715560201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3860 | 474 | 22 | 6581 | 30 | 60 | 48 | 367 | 646 | 19.5 | 46 | 36 | 48 | 41 |
| | | | 合计(TOTAL): | 1 | 1.867 | | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1 MTR 580-24-01

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

580-24-01

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240725 |
| | | 证明书编号 CERTIFICATE NO. | 240725Z00050 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Nb | Mo | Ti | Mo | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | | | | | | | | |
| 24205167A | S47160088 | S4715552102 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715552201 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715554101 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715554201 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715557201 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715557301 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715558101 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715558201 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715558301 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715559201 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160088 | S4715559202 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S47160089 | S4715562101 | 8x2438x12192 | 1 | 1,867 | L | 142 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| | | | 合计 (TOTAL): | 12 | 22,401 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 583-24-01

According to EN 10204 3.1

AL

MTR 583-24--12

本产品已按照标准要求进行制造和检验，其结果符合要求 特此证明
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

583-24 -09 06 -07
-11 12 -08 -05
03 10 -04
01
02

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | |
|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE: 20240714 |
| | | 证明书编号 CERTIFICATE NO. | 240714Z00195 | |
| 车 号 TRAIN NO. | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | | | | | | | | |
| 24305744C | S47120009 | S1711181101 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305744C | S47120009 | S1711181201 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| 24305741C | S47120009 | S1711181301 | 12x2438x12192 | 1 | 2,800 | L | 142 | 326 | 1340 | 220 | 47 | 279 | 3150 | 474 | 23 | 6611 | 30 | 40 | 40 | 387 | 583 | 23.5 | 133 | 113 | 121 | 122 |
| | | | 合计 (TOTAL): | 3 | 8,400 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸 SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE
A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 590-24-01

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

590-24-01

02
03

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAXINTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAXINTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGRIZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240717 |
| 车 号 TRAIN NO. | | 质量证明书编号 CERTIFICATE NO. | 240717Z00337 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻² | Si ×10⁻² | Mn ×10⁻² | P ×10⁻² | S ×10⁻² | Cu ×10⁻² | Ni ×10⁻² | Cr ×10⁻² | V ×10⁻² | Nb ×10⁻² | Mo ×10⁻² | Ti ×10⁻² | Nb ×10⁻² | B BA01 屈服强度 MPa Rp0.2 | B BA02 抗拉强度 MPa Rm | B BA03 断后伸长率 % A5 | A OC01 冲击单值 A J | A OC012 冲击单值 B J | A OC013 冲击单值 C J | A OC02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24108072D | S47110103 | S4711117101 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711117201 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711118101 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711118201 | 25x2438x12192 | 1 | 5.833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108062D | S47110106 | S4711125101 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 378 | 516 | 24 | 279 | 234 | 278 | 264 |
| 24108062D | S47110106 | S4711125201 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 378 | 516 | 24 | 279 | 234 | 278 | 264 |
| 24108062D | S47160021 | S4715590101 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 391 | 578 | 20 | 195 | 166 | 203 | 188 |
| 24108062D | S47160021 | S4715590201 | 19x2438x12192 | 1 | 4.433 | L | 151 | 352 | 1321 | 250 | 31 | 269 | 2950 | 494 | 24 | 6628 | 30 | 50 | 30 | 391 | 578 | 20 | 195 | 166 | 203 | 188 |
| | | | 合计(TOTAL): | 8 | 41.064 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

According to EN 10204 3.1

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 595-24--01
AL
MTR 595-24--08

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
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冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

595-24-05--06-01
02-03-08
04-07

南冶钢铁 NAN STEEL

湖南南冶钢铁有限公司
Nansteel Manufacturing Co.,Ltd.
湖南省长沙市岳麓科技工业园学士路
21ST&22ND FLOOR GOLDEN TOWER, CHANGSHA WEST INTERNATIONAL CENTRAL MANSION, YUELU DISTRICT, CHANGSHA, HUNAN, CHINA

# 产品质量证明书
# MILL TEST CERTIFICATE
( EN 10204 3.1 )

生产许可证编号 Production license
No: TS2710L40-2018
T:+86 731 8878 7783,
E:info@nan-steel.com
Page:www.nan-steel.com

| 订货单位 Customer | KENNA INTERN ATIONAL CORPOR ATION PTY LTD | | | 合同编号 Contract .No | | NSCO24978 | | 总件数 Total PCS | 624 | | 出证日期 DATE OF ISSUE | 2024.09.26 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 品种名称 Product Name | 角钢/EQUAL ANGLE STEEL | | | 产品要求标准 Technical Specification | | ASTM A709 ZONE 1 WT | | 证书编号 Certificate No | 24978-01 | | 交货条件 DELIVERY | 热轧Hot Rolling | |

| 炉号 Heat No. | 尺寸 Size 宽*长*厚W*L*T Specfication(mm) | 单重 Theoretical Weight(kg/m) | 件数 pcs | 总长度 total length (m) | 总重量 total weight (kg) | 钢号 Steel Grade | 机械性能Mechanical Property | | | 冲击试验Impact Test (+20℃) | | | 通径测试 Drift Test | 水压试验 Hydrostatic Test | 金相检测 Metallographic Test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Tensile Strength | Yield Strength | Elongation | 1 | 2 | 3 | | | |
| | | | | | | | Mpa | | % | J | | | | | |
| 32408310 | ANGULO 4*4*3/8*12M | 14.60 | 143 | 1,716 | 25,053.60 | GR.50 | 550 | 385 | 27.0 | 54 | 52 | 57 | - | - | - |
| 32406096 | ANGULO 4*4*1/2*12M | 19.07 | 306 | 3.672 | 70,025.04 | GR.50 | 510 | 375 | 30.0 | 62 | 68 | 57 | - | - | - |
| 32407175 | ANGULO 4*4*5/8*12M | 23.30 | 89 | 1.068 | 24,884.40 | GR.50 | 510 | 360 | 29.0 | 73 | 69 | 68 | - | - | - |
| 24303773DE2 | ANGULO 5*5*1/2*12M | 24.13 | 86 | 1.032 | 24,902.16 | GR.50 | 522 | 370 | 31.0 | 114 | 121 | 126 | - | - | - |
| Total | | | 624 | 7,488 | 144,865.20 | | | | | | | | | | |

| 炉号 Heat No. | 化学成分 Chemical Composition (%) | | | | | | | | | | | 压扁测试 Flattening Test | 硬度 Hardness Test HRC | 弯曲试验 Bend Test | 非金属杂质 Non-metallic Inclusions | | | | 组织 The Banded Structure | 漏磁 Leakage | 超声 Ultrasound | 外观尺寸及表面 The Size of Surface Appearance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C | Mn | Si | P | S | Cr | Ni | Cu | B | V+Nb+Ti | CE | | | | A 细/粗 | B 细/粗 | C 细/粗 | D 细/粗 | | | | |
| 32408310 | 0.210 | 1.300 | 0.360 | 0.029 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32406096 | 0.180 | 1.290 | 0.330 | 0.029 | 0.018 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 32407175 | 0.210 | 1.320 | 0.170 | 0.017 | 0.017 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |
| 24303773DE2 | 0.180 | 1.280 | 0.310 | 0.022 | 0.010 | - | - | - | - | - | - | - | - | PASS | - | - | - | - | - | - | - | PASS |

注释 Note

我们证明本文档所代表的材料已经过检查和测试，并且符合参考规范和您的采购订单的要求。
We certify that the material represented by this document has been inpected and tested,and is in conformance with the requirements of the referenced specification's and your purchase order.

盖章生效
Stamp to take effect

检验 INSPECTOR: Li Yiming

发货 CONSIGNOR: Mr. Wang

签批 APPROVAL: Xiang Wang

王香

TR003 -25--01

AL

TR003 -25--04

HR SADELEC
APROBADO
QC 5

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240905 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240905Z00794 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | 10^-3 | <10^-3 | <10^-3 | <10^-4 | <10^-4 | <10^-4 | <10^-3 | | | | | | | |
| 24115439D | I149050082 | I14905001201 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | I149050082 | I14905002101 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | I149050082 | I14905002201 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115439D | I149050083 | I14905003201 | 32x2438x12192 | 1 | 7.467 | L | 138 | 339 | 1300 | 220 | 52 | 3500 | 479 | 285 | 22 | 30 | 40 | 7 | 28 | 450 | 589 | 23 | 276 | 273 | 253 | 267 |
| 24115441D | I149050084 | I14905005301 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 432 | 575 | 24 | 252 | 243 | 258 | 251 |
| 24115437D | I149050087 | I14905012301 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115437D | I149050087 | I14905013101 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | I149050087 | I14905013201 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | I149050087 | I14905015101 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | I149050088 | I14905015201 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| 24115437D | I149050087 | I14905015301 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | I149050088 | I14905015401 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| | | | 合计 (TOTAL): | 12 | 58.801 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 28 -25- -01 AL MTR 28 -25- -12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | |
|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) |
| | | 签发日期 DATE OF ISSUE | 20240906 |
| | | 证明书编号 CERTIFICATE NO. | 240906Z00817 |
| 车 号 TRAIN NO. | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa ReH | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-2 | <10^-2 | <10^-3 | <10^-1 | <10^-4 | <10^-1 | 10^-3 | <10^-2 | <10^-3 | <10^-1 | <10^-4 | <10^-8 | <10^-3 | | | | | | | |
| 24115441D | H149050085 | H14905009101 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | H149050085 | H14905009201 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | H149050085 | H14905009301 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | H149050085 | H14905010201 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | H149050085 | H14905010301 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 435 | 590 | 21 | 186 | 149 | 163 | 166 |
| 24115441D | H149050086 | H14905011101 | 15x2438x12192 | 1 | 3.500 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 415 | 581 | 21.5 | 142 | 182 | 171 | 165 |
| 24115441D | H149050086 | H14905011201 | 15x2438x12192 | 1 | 3.500 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 415 | 581 | 21.5 | 142 | 182 | 171 | 165 |
| 24115441D | H149050086 | H14905011301 | 15x2438x12192 | 1 | 3.500 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 415 | 581 | 21.5 | 142 | 182 | 171 | 165 |
| 24115437D | H149050087 | H14905012101 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H149050087 | H14905012201 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H149050087 | H14905013301 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 446 | 595 | 23 | 163 | 153 | 156 | 157 |
| 24115437D | H149050088 | H14905016401 | 15x2438x12192 | 1 | 3.500 | L | 139 | 340 | 1310 | 210 | 62 | 3360 | 485 | 276 | 23 | 10 | 30 | 7 | 21 | 444 | 593 | 23.5 | 161 | 156 | 163 | 160 |
| | | | 合计 (TOTAL): | 12 | 46.665 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

MTR 31-25-01 AL MTR 31-25-12

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240911 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240911Z00050 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻³ | P ×10⁻⁴ | S ×10⁻⁴ | Ni ×10⁻⁴ | Cr ×10⁻³ | Cu ×10⁻³ | V ×10⁻³ | Mo ×10⁻⁴ | Nb ×10⁻⁴ | I ×10⁻⁸ | As ×10⁻³ | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值A J | A 0C012 冲击单值B J | A 0C013 冲击单值C J | A 0C02 冲击均值Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24115441D | H49050084 | H4905007101 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905007201 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| 24115441D | H49050084 | H4905007301 | 19x2438x12192 | 1 | 4.433 | L | 144 | 370 | 1320 | 220 | 53 | 3570 | 478 | 281 | 21 | 10 | 40 | 7 | 24 | 448 | 603 | 22.5 | 202 | 194 | 183 | 193 |
| | | | 合计 (TOTAL): | 3 | 13.299 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

MTR 33 -25--01 AL MTR 33 -25--03

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | HYUNDAI CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | HYUNDAI CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240885001-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M;A709 Gr.50WT-Z2-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240911 |
| | | 证明书编号 CERTIFICATE NO. | 240911Z00822 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Ni | Cr | Cu | V | Mo | Nb | I | Als | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻³ | ×10⁻² | ×10⁻¹ | ×10⁻⁴ | ×10⁻¹ | ×10⁻³ | ×10⁻³ | ×10⁻³ | ×10⁻⁴ | ×10⁻⁴ | ×10⁻⁰ | ×10⁻³ | | | | | | | |
| 241140890 | H49070017 | H4906457101 | 19x2438x12192 | 1 | 4,433 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 430 | 593 | 22.5 | 141 | 133 | 139 | 138 |
| 241140890 | H49070017 | H4906457201 | 19x2438x12192 | 1 | 4,433 | L | 135 | 346 | 1380 | 230 | 44 | 2980 | 492 | 314 | 23 | 20 | 40 | 7 | 34 | 430 | 593 | 22.5 | 141 | 133 | 139 | 138 |
| | | | 合计 (TOTAL): | 2 | 8,866 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 4℃，纵向LONGITUDINAL，近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

野牛

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MTR 34 -25--01 MTR 34 -25--02

HB SADELEC
APROBADO
QC 5

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

中普（邯郸）钢铁有限公司
ZHONGPU(HANDAN) IRON AND STEEL CO., LTD

# 产品质量证明书
## CERTIFICATE OF PRODUCT QUALITY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 收货单位 PURCHASER | | 订单编号 CONTRACT NO. | DLT2024111602 06 SO241116300358 | 车 号 VEHICLE NO. | 车队06700D | | |
| 产品名称 PRODUCT | HOT ROLLED STEEL PLATE | 交货状态 CONDITION OF DELIVERY | AR | 证明书号 CERTIFICATE NO. | GC202411260415 | | |
| 执行标准 SPECIFICATION | A709 GR.50 WITH ANNEX 2 TYPE I | 发货日期 DATE OF DELIVERY | 2024-12-15 | 认证号 AUTHORIZATION NO. | | | |

| 炉号 HEAT NO. | 批号 BATCH NO. | 牌号 GRADE | 尺寸 SIZE(mm) 厚度 THICK-NESS | 宽度 WIDTH | 长度 LENGTH | 张数 PIECES | 重量 WEIGHT (t) | 拉伸试验 TENSILE TEST 屈服强度 $R_{eL}$ MPa | 抗拉强度 $R_m$ MPa | 屈强比 YSR | 断后伸长率A % | 冲击吸收能量 J($KV_2$) IMPACT ABSORBED ENERGY 方向 DIRECTION | 温度 TEMP ℃ | 1 | 2 | 3 | AVE. | 弯曲 BEND TEST 180° | 硬度 HARDNESS 1 | 2 | 3 | AVE. | Z向断面收缩率% SECTION SHRINKAGE 1 | 2 | 3 | AVE. | 探伤 U T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24535080512 | 24712155A | GR.50 | 12 | 2438 | 12192 | 92 | 257.6 | 432 | 547 | 0.80 | 25.5 | T | 4 | 169 | 200 | 219 | 195 | OK | | | | | | | | |
| 22422850020 | 24611415A | GR.50 | 15 | 2438 | 12192 | 6 | 21.0 | 426 | 546 | 0.81 | 30.0 | T | 4 | 175 | 142 | 146 | 150 | OK | | | | | | | | |
| 24584902010 | 24610366A | GR.50 | 32 | 2438 | 12192 | 15 | 112.0 | 436 | 561 | 0.81 | 30.0 | T | 4 | 206 | 239 | 225 | 231 | OK | | | | | | | | |
| 总计(TOTAL) | | | | | | 113 | 390.6 | | | | | | | | | | | | | | | | | | | |

| 炉号 BATCH NO. | 化学成分 CHEMICAL COMPOSITION (质量分数) / % C | Si | Mn | P | S | Alt | Als | Nb | V | Ti | Cr | Ni | Cu | Mo | B | N | | CEV | | | 其它 OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24535080512 | 0.14 | 0.31 | 1.31 | 0.014 | 0.003 | 0.03 | 0.31 | 0.032 | 0.046 | 0.015 | 0.45 | 0.22 | 0.24 | 0.003 | 0.0003 | 0.0042 | | 0.42 | | | |
| 22422850020 | 0.13 | 0.30 | 1.32 | 0.011 | 0.004 | 0.03 | 0.30 | 0.031 | 0.043 | 0.016 | 0.46 | 0.21 | 0.23 | 0.004 | 0.0005 | 0.0036 | | 0.43 | | | |
| 24584902010 | 0.14 | 0.31 | 1.32 | 0.015 | 0.004 | 0.03 | 0.30 | 0.031 | 0.045 | 0.017 | 0.45 | 0.20 | 0.25 | 0.003 | 0.0005 | 0.0040 | | 0.40 | | | |

注释 NOTES
1. 位置方向 T=横向 TRANSVERSE L=纵向 LONGITUDINAL
2. 交货状态 N=正火 Q=淬火 CR=控轧 TMCP=热机械轧制 AR=热轧 NR=正火轧制 T=回火

说明 REMARKS
1. 兹证明本产品按照下示产品执行标准和订货协议要求制造、检测并判定，氮含量提供产品执行标准规定限制值内保证。
IT IS HEREBY CERTIFIED THAT THE PRODUCT IS MANUFACTURED, TESTED AND JUDGED IN ACCORDANCE WITH THE IMPLEMENTATION STANDARDS OF THE LABELLED PRODUCT AND THE ORDER AGREEMENTS. THE NITROGEN CONTENT IS GUARANTEED WITHIN THE LIMITS SPECIFIED IN THE PRODUCT IMPLEMENTATION STANDARDS.

2. 本产品质量证明书无产品质量专用章无效。
THE CERTIFICATE OF PRODUCT QUALITY IS INVALID WITHOUT QUALITY STAMP.

3. 如发现质量问题请与我公司联系。
PLEASE CONTACT US IF ANY QUALITY PROBLEM OCCURRED.

签发: ISSUED 申利晶

（质量证明书专用章） QUALITY CERTIFICATE SEAL 产品质量专用章 (2)

电话：（0310）5178978、5178999
地　　址：中国.河北.武安.阳邑镇
ADDRESS: YANG YI TOWN, WU AN CITY, HEBEI PROVINCE, P.R.CHINA

开证日期： 2024-12-20
ISSUE DATE.



MTR085-25-01
AL
MTR085-25-03

MTR 085-25-01
02
03

HB SADELEC
APROBADO
QC 5

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SAMSUNG C&T CORPORATION | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SAMSUNG C&T CORPORATION | 合同编号 CONTRACT NO. | YGR1ZANN240285004-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-2021；A709 Gr.50 WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240318 |
| 车 号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240318Z00365 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C ×10⁻³ | Si ×10⁻³ | Mn ×10⁻² | P ×10⁻⁴ | S ×10⁻⁴ | Cu ×10⁻³ | Ni ×10⁻⁴ | Cr ×10⁻³ | V ×10⁻³ | Al ×10⁻³ | Mo ×10⁻⁴ | Ti ×10⁻⁴ | Nb ×10⁻⁴ | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % 35 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24302500B | H43170136 | H4317111101 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111102 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111201 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317111202 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112101 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112102 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170136 | H4317112201 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 367 | 531 | 24.5 | 245 | 219 | 268 | 244 |
| 24302500B | H43170137 | H4317112202 | 38x2438x6096 | 1 | 4.433 | L | 141 | 344 | 1350 | 210 | 36 | 276 | 3000 | 484 | 25 | 6595 | 10 | 60 | 40 | 366 | 531 | 24 | 246 | 265 | 272 | 261 |
| | | | 合计(TOTAL): | 8 | 35.464 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L：熔炼成分SMELTING COMPOSITION
拉伸标距(GAUGELENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST：20℃，纵向LONGITUDINAL，
近表 CLOSE TO SURFACE，尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

MTR 375-24 -01 AL MTR 375-24 -08

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGRIZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240717 |
| | | 证明书编号 CERTIFICATE NO. | 240717Z00335 | | |
| 车 号 TRAIN NO. | | | | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS% C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | B | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻² | ×10⁻³ | ×10⁻² | ×10⁻² | ×10⁻³ | | | | | | | |
| 24205167A | S17160008 | S4715555101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715555201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715555301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160008 | S4715556301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 367 | 646 | 19.5 | 46 | 36 | 40 | 41 |
| 24205167A | S17160009 | S4715564101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715564201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715564301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565101 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565201 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| 24205167A | S17160009 | S4715565301 | 8x2438x12192 | 1 | 1.867 | L | 112 | 347 | 1340 | 200 | 44 | 272 | 3060 | 474 | 22 | 6561 | 30 | 60 | 40 | 382 | 657 | 19 | 37 | 38 | 44 | 40 |
| | | | 合计 (TOTAL): | 12 | 22.404 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标准(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACT TEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*5*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

According to EN 10204 3.1

MTR 587-24--01
AL
MTR 587-24--12

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIR EMENTS OF THE ABOVE MATERIAL SPECIFICATION

野牛

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

587-24-05-02-10
06-03-11
01-12-07
08-04-09

日钢营口中板有限公司
RIZHAO STEEL YINGKOU MEDIUM PLATE CO.,LTD.
辽宁省营口市老边区冶金街/115005
Yejinstreet,Laobiandistrict,Yingkou,Liaoning,P.R.China/115005
TEL:0417-3256081 FAX:0417-3256057 NO.:DT2101501/A

# 产品质量证明书
# INSPECTION CERTIFICATE

| | | | | | |
|---|---|---|---|---|---|
| 订货单位 PURCHASER | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 产品名称 PRODUCT | 普通耐候结构钢 General atmospheric corrosion resisting steel | | |
| 收货单位 CONSIGNEE | SHARPMAX INTERNATIONAL (HONGKONG) CO., LIMITED | 合同编号 CONTRACT NO. | YGR1ZANN240685003-01 | | |
| 技术标准/牌号 SPEC/GRADE | ASTM A709/A709M-11;A709 Gr.50WT-Z1-B | 交货状态 DELIVERY CONDITION | 控制轧制(CR) | 签发日期 DATE OF ISSUE | 20240714 |
| 车号 TRAIN NO. | | 证明书编号 CERTIFICATE NO. | 240714Z00196 | | |

| 炉号 HEAT NO. | 批号 LOT NO. | 钢板号 PLATE NO. | 规格 (MM) DIMENSION | 数量 QTY | 重量 WEIGHT kg | 分析区域 AA | 化学成分 CHEMICAL ANALYSIS % C | Si | Mn | P | S | Cu | Ni | Cr | V | Ti | Mo | Ti | Nb | B 0A01 屈服强度 MPa Rp0.2 | B 0A02 抗拉强度 MPa Rm | B 0A03 断后伸长率 % B5 | A 0C01 冲击单值 A J | A 0C012 冲击单值 B J | A 0C013 冲击单值 C J | A 0C02 冲击均值 Ave J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | <10^-3 | <10^-3 | <10^-3 | <10^-1 | <10^-4 | <10^-3 | 10^-4 | <10^-3 | <10^-2 | <10^-3 | <10^-1 | <10^-1 | <10^-4 | | | | | | | |
| 24108072D | S47110103 | S4711116101 | 25x2438x12192 | 1 | 5,833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| 24108072D | S47110103 | S4711116201 | 25x2438x12192 | 1 | 5,833 | L | 139 | 388 | 1362 | 220 | 46 | 285 | 3120 | 491 | 22 | 6748 | 30 | 50 | 30 | 388 | 562 | 24 | 135 | 111 | 109 | 118 |
| | | | 合计(TOTAL): | 2 | 11,666 | | | | | | | | | | | | | | | | | | | | | |

注释 NOTES

L: 熔炼成分 SMELTING COMPOSITION
拉伸标距(GAUGE LENGTH) Lo=200 mm
A0C冲击试验IMPACTTEST: 20℃, 纵向LONGITUDINAL, 近表 CLOSE TO SURFACE, 尺寸SIZE10*10*55
B0A01=YIELD STRENGTH
B0A02=TENSILE STRENGTH
B0A03=PRECENTAGE ELONGATION AFTER FRACTURE

According to EN 10204 3.1

A0C01=IMPACT TEST A
A0C012=IMPACT TEST B
A0C013=IMPACT TEST C
A0C02=IMPACT AVERAGE

MTR 598-24--01
ΔL
MTR 598-24--02

本产品已按照标准要求进行制造和检验，其结果符合要求，特此证明。
WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION

冶金技术处处长
DIRECTOR OF METALLURGICAL DEPARTMENT

598-24-02
01

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

El producto en láminas colaborantes de acero galvanizado aquí descrito ha sido inspeccionado y ensayado por personal autorizado independiente del área de producción, con resultados satisfactorios en concordancia con los siguientes documentos: Plan de calidad de Corpalosa FO-CC-02-128; Especificacion técnica de Corpalosa ET-CC-02-17.

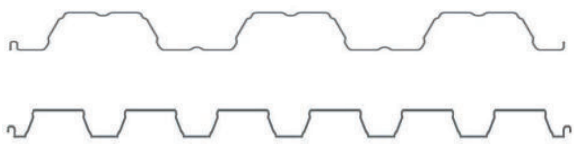
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1250** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135566 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 22 | **N° Orden:** | 25004466 |
| | | **Cantidad:** | 661,29 M2 |

**CARACTERISTICAS DE LA MATERIA PRIMA**

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

**PRUEBAS Y ENSAYOS**



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

El producto en láminas colaborantes de acero galvanizado aquí descrito ha sido inspeccionado y ensayado por personal autorizado independiente del área de producción, con resultados satisfactorios en concordancia con los siguientes documentos: Plan de calidad de Corpalosa FO-CC-02-128; Especificacion técnica de Corpalosa ET-CC-02-17.

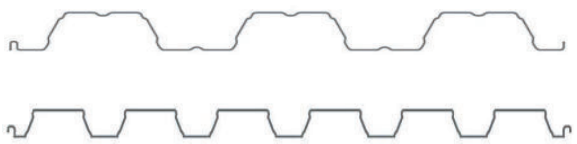
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1251** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135567 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 22 | **N° Orden:** | 25004292 |
| | | **Cantidad:** | 315,84 M2 |

**CARACTERISTICAS DE LA MATERIA PRIMA**

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

**PRUEBAS Y ENSAYOS**



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

El producto en láminas colaborantes de acero galvanizado aquí descrito ha sido inspeccionado y ensayado por personal autorizado independiente del área de producción, con resultados satisfactorios en concordancia con los siguientes documentos: Plan de calidad de Corpalosa FO-CC-02-128; Especificacion técnica de Corpalosa ET-CC-02-17.

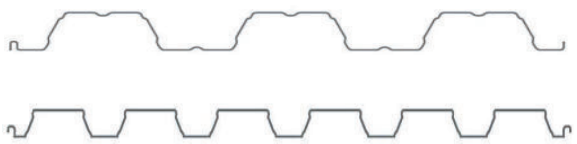
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1252** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135567 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 18 | **N° Orden:** | 25004292 |
| | | **Cantidad:** | 559,629 M2 |

**CARACTERISTICAS DE LA MATERIA PRIMA**

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

**PRUEBAS Y ENSAYOS**



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

El producto en láminas colaborantes de acero galvanizado aquí descrito ha sido inspeccionado y ensayado por personal autorizado independiente del área de producción, con resultados satisfactorios en concordancia con los siguientes documentos: Plan de calidad de Corpalosa FO-CC-02-128; Especificacion técnica de Corpalosa ET-CC-02-17.

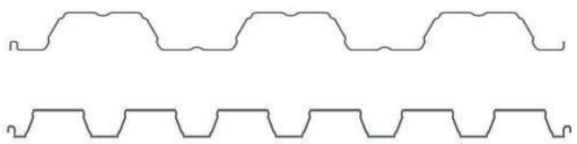
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1253** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135568 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 22 | **N° Orden:** | 25004295 |
| | | **Cantidad:** | 240,3 M2 |

**CARACTERISTICAS DE LA MATERIA PRIMA**

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

**PRUEBAS Y ENSAYOS**



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

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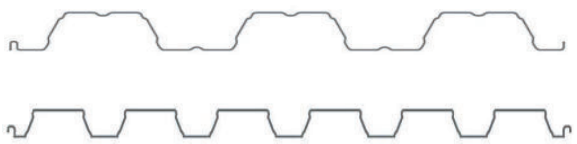
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1254** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135568 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 18 | **N° Orden:** | 25004295 |
| | | **Cantidad:** | 350,46 M2 |

## CARACTERISTICAS DE LA MATERIA PRIMA

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

## PRUEBAS Y ENSAYOS



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

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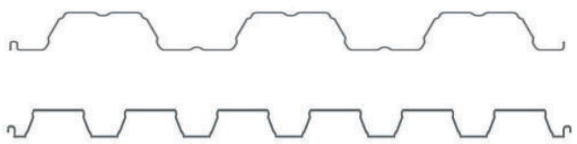
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1255** |
| **Línea:** | **CORPALOSA® GALVANIZADA** | **Remisión:** | 2135569 |
| **Norma:** | **NTC 5805<br>NSR10** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | CORPALOSA 3" GLV. CAL 18 | **N° Orden:** | 25004142 |
| | | **Cantidad:** | 534,24 M2 |

**CARACTERISTICAS DE LA MATERIA PRIMA**

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | | Recubrimiento (g/m2) |
|---|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | % S, máx | Esfuerzo de Fluencia MPa | Esfuerzo de Tracción MPa | % Elongación en 50 mm | |
| 40 | 0,25 | 1,35 | 0,10 | 0,04 | ≥ 275 | ≥ 380 | ≥ 16 | ≥ 180 |

**PRUEBAS Y ENSAYOS**



| | |
|---|---|
| **Materia Prima:** | CONFORME |
| **Ancho Útil:** | CONFORME |
| **Ancho Total:** | CONFORME |
| **Longitud Nominal:** | CONFORME |
| **Prof. Grafado:** | CONFORME |
| **Seccion perfil:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

**LEONEL DARIO AVILA**
Director tecnico

corpacero
aliados de acero

# DECLARACION DE CONFORMIDAD

La lámina de acero galvanizado aquí descrita ha sido inspeccionada y ensayada por personal autorizado independiente del área de producción, con resultados satisfactorios en concordancia con la especificación técnica de Testeros Metálicos y materia prima acorde con la norma ASTM A653.

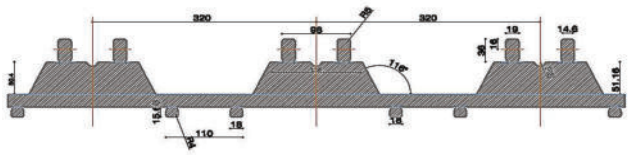
## INFORMACION BASICA

| | | | |
|---|---|---|---|
| **Fecha:** | 23/10/2025 | **Consecutivo Nº:** | **CET25-1256** |
| **Línea:** | **TESTEROS** | **Remisión:** | 2135570 |
| **Norma:** | **ASTM A653** | **Cliente:** | CONSORCIO SAN FRANCISCO |
| **Referencia:** | TESTERO METALICO 3" | **N° Orden:** | 25004145 |
| | | **Cantidad:** | 1510 UN |

## CARACTERISTICAS DE LA MATERIA PRIMA

| Gr. | Propiedades Químicas | | | | Propiedades Mecánicas | | |
|---|---|---|---|---|---|---|---|
| | % C, máx | % Mn, máx | % P, máx | %S, máx | Esfuerzo de Fluencia, mín. Mpa | Esfuerzo de Tracción, mín. Mpa | % Elongación en 50 mm, mín. |
| 33 | 0,25 | 1,15 | 0,20 | 0,04 | 230 | 310 | 20 |

## PRUEBAS Y ENSAYOS




| | |
|---|---|
| **Corte:** | CONFORME |
| **Doblez:** | CONFORME |
| **Espesor:** | CONFORME |
| **Recubrimiento:** | CONFORME |

**Elaboró:**

**MARIA CAMILA CALDERON**
Aprendiz de calidad.

**Aprobó:**

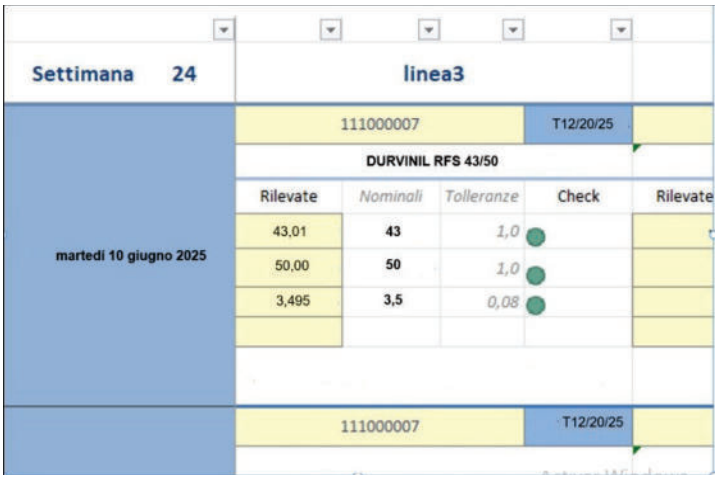
**LEONEL DARIO AVILA**
Director tecnico

| | | |
|---|---|---|
| sireg | **Controllo qualitá produzione**<br>**DURVINIL RFS 43/50**<br>**lotto T12-20-25** | **Data di emissione:**<br>**06/2025**<br><br>Pagina 1 di 1 |

| | |
|---|---|
| **Prodotto:** | DURVINIL RFS 43/50 |
| **Codice Articolo:** | 111000007 |
| **Lotto:** | T12/20/25 |
| **Data di produzione:** | 06/2025 |
| **Tipo di verifica** | VERIFICA DIAMETRO INTERNO / ESTERNO E SPESSORE DEL TUBO |

Descrizione dei controlli

I seguenti parametri sono controllati:
- Diametro esterno
- Diametro interno
- Spessore minimo



| Settimana 24 | linea3 | | | | |
|---|---|---|---|---|---|
| | 111000007 | | T12/20/25 | | |
| | DURVINIL RFS 43/50 | | | | |
| | Rilevate | Nominali | Tolleranze | Check | Rilevate |
| martedì 10 giugno 2025 | 43,01 | 43 | 1,0 | | |
| | 50,00 | 50 | 1,0 | | |
| | 3,495 | 3,5 | 0,08 | | |
| | | | | | |
| | 111000007 | | T12/20/25 | | |

RISULTATO

I controlli effettuati sui diametri e sullo spessore del tubo hanno dato esito positivo sulla qualitá del lotto di materiale prodotto e in linea con i dati indicati nella scheda tecnica

10-06-2025

QC Q.C. APPROVED



**Sireg Geotech s.r.l.**
Via del Bruno, 12 - 20862 Arcore (MB), Italy - tel. (+39) 039 627021 - fax (+39) 039 615996
e-mail: info@sireg.it - www.sireggeotech.it
Capitale Sociale € 300.000 - C.C.I.A.A. MB-1904179 - Cod. Fiscale e Part. IVA IT 09263030968

ACCREDIA
SISTEMA DI GESTIONE QUALITÀ CERTIFICATO CQY CERTIQUALITY UNI EN ISO 9001:2015
IQNet CERTIQUALITY È MEMBRO DELLA CONFEDERAZIONE CISQ



## Durvinil® RFS 43/50

Tubo de drenaje ranurado y micro fisurado con ranuras longitudinales externas y cortes transversales.

superficie abierta por metro de tubo: **>7.950mm²/m**

# DIMENSIONES Y MATERIALES

FICHA TÉCNICA

### DIMENSIONES

- Diámetro interno: 43mm ± 0.5 mm
- Diámetro externo: 50mm ± 0.5 mm
- Peso lineal: 650 g ± 5%

### MATERIALES UTILIZADOS

**PVC rígido anti - choque**
- Densidad, ASTM D1505:1.5 ± 0.1g/cm³
- Temperatura de ablandamiento: Vicat > 75°

**Datos de tracción,** ASTM D 638
- Resistencia a la tracción: 34 ≥ Mpa
- Alargamiento de la ruptura: ≥ 50%
- Modulo elástico: ≥ 2700 MPa

### TIPO DE ROSCA EN LA EXTREMIDAD DEL TUBO

- Rosca cuadrada: n. 4 roscas x pulgada

### DIMENSIONES FÍSURAS

- Cortes en la circunferencia del tubo: n. 3
- Ancho de cortes: 0.6mm – Largo del corte 40mm
- Distancia entre cortes: 9mm

### MANGUITO DE CONEXIÓN

- Material: ABS
- Largo: 60 mm
- Diámetro externo: 55 mm
- Rosca: n. 4 roscas por pulgada

**SIREG Geotech**: Via del Bruno 12 - 20043 Arcore (MB) – Italia
Tel: +39-039-627021 Fax: +39-039-615996 - www.sireg.it

**PROTUNELES sas**: Carrera 48c - n.100 sur 72 – La Estrella – Colombia
Tel: +57 318 608 43 97 - www.protuneles.com



# FICHA TÉCNICA

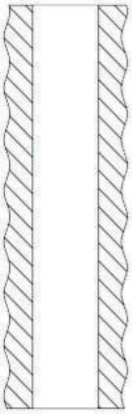
## BARRAS AUTOPERFORANTES

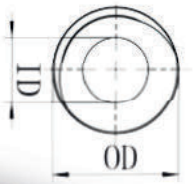
El sistema de anclaje autoperforante se compone de una barra de anclaje roscada hueca con una broca que realiza la perforación, el anclaje y la lechada en una sola operación.

La barra de anclaje es el cuerpo de un anclaje autoperforante, como un tubo de acero hueco con una rosca redonda exterior, el anclaje hueco tiene la broca conectada en un lado, la placa y la tuerca conectadas en el otro; Se pueden conectar dos barras de anclaje mediante una unión, para tareas que requieran anclajes más largos.

El sistema de anclaje autoperforante se utiliza principalmente en trabajos de estabilización de taludes, presoporte de túneles, cimientos con micropilotes, etc., que se usa ampliamente en proyectos de minería, túneles, ferrocarriles, construcción de metro, etc.

## SERIE R






| Tamaño | DE (mm) | identificación (mm) | Carga última (kN) | Carga de rendimiento (kN) | Peso (kg/metro) |
|---|---|---|---|---|---|
| R25N-14 | 25 | 14.0 | 200 | 150 | 2.3 |
| R32L-22 | 32 | 22.0 | 210 | 160 | 2.8 |
| R32N-21 | 32 | 21.0 | 280 | 230 | 2.9 |
| R32N-18.5 | 32 | 18.5 | 280 | 230 | 3.4 |
| R32S-17.5 | 32 | 17.5 | 360 | 280 | 3.5 |
| R32S-15 | 32 | 15.0 | 360 | 280 | 4.1 |
| R32SS-14 | 32 | 14.0 | 405 | 350 | 4.3 |
| R38N-21 | 38.0 | 21.0 | 500 | 400 | 4.8 |
| R38N-19 | 38.0 | 19.0 | 500 | 400 | 5.5 |
| R38S-18 | 38.0 | 18.0 | 560 | 460 | 6.0 |
| R51L-38 | 51.0 | 38.0 | 550 | 450 | 6.0 |
| R51L-36 | 51.0 | 36 | 550 | 450 | 7.6 |
| R51N-36 | 51.0 | 36 | 800 | 630 | 7.6 |
| R51N-33 | 51.0 | 33.0 | 800 | 630 | 8.4 |
| R51S-30 | 51.0 | 30.0 | 930 | 730 | 9.4 |

## ISO 10208 / ISO1720

15 AÑOS JG Representaciones Minería y Obras Civiles

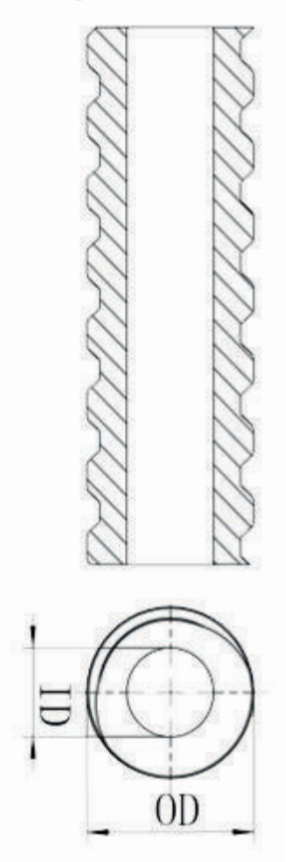
Dirección: Carrera 48C #100sur-72.
La Estrella, Antioquia, Colombia

Teléfono: (604)448 10 75
Email: info@jgrepresentaciones.com.co
www.jgrepresentaciones.com.co

# FICHA TÉCNICA
## BARRAS AUTOPERFORANTES



## SERIE T




| Tamaño | DE (mm) | identificación (mm) | Carga última (kN) | Carga de rendimiento (kN) | Peso (kg/metro) |
|---|---|---|---|---|---|
| T30-11 | 30.0 | 11.0 | 320 | 260 | 3.3 |
| T30-14 | 30.0 | 14.0 | 275 | 220 | 2.9 |
| T30-16 | 30.0 | 16.0 | 245 | 190 | 2.7 |
| T40-16 | 40 | 16.0 | 660 | 525 | 7.1 |
| T40-20 | 40 | 20.0 | 540 | 425 | 5.6 |
| T52-26 | 52.0 | 26 | 930 | 730 | 10 |
| T73-56 | 73.0 | 56 | 1035 | 830 | 10.8 |
| T73-53 | 73.0 | 53.0 | 1160 | 970 | 14 |
| T73-45 | 73.0 | 45 | 1600 | 1270 | 17.5 |
| T103-78 | 103.0 | 78.0 | 2270 | 1800 | 25 |
| T103-51 | 103.0 | 51.0 | 3660 | 2670 | 44 |

**DUREZA: HRC25-HRC30**
**ISO 10208 / ISO1720**

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www.jgrepresentaciones.com.co

# FICHA TÉCNICA
## BROCAS PARA BARRA AUTOPERFORANTE



### Brocas de anclaje autoperforante
La broca es la parte frontal del sistema de anclaje autoperforante, al cortar y perforar rocas y otras estructuras geológicas.

### Características
- Se ofrecen diferentes tipos de bits para diferentes condiciones.
- La aleación primaria se aplica para fabricar la broca de aleación.

### Aplicaciones
Preapoyos, micropilotes para apuntalamiento de cimentaciones, anclaje de taludes, etc.

## PARÁMETROS



**EX**

Broca de anclaje autoperforante en cruz de acero completo.
Para formaciones de suelo sueltas a medianamente densas.



**ES**

Broca de anclaje autoperforante de botón de acero completo
Para suelos cementados débiles/arenas y formaciones rocosas fracturadas débiles



**EW**

Broca de arcilla de anclaje autoperforante.
Para arcilla blanda y suelos



**CE**

Broca de anclaje autoperforante de arco de acero completo.
Para suelos sueltos a densos o formaciones de arena.



**EY**

Broca de anclaje autoperforante de tres cortadores de acero completo.
Para suelo cementado/arena débil y formaciones rocosas fracturadas débiles



**EXX**

Broca de anclaje autoperforante en cruz TC (carburo de tungsteno).
Para formaciones rocosas fracturadas de medianas a fuertes



**ESS**

Broca de anclaje autoperforante con botón TC (carburo de tungsteno).
Para fuertes formaciones rocosas fracturadas



**ECC**

Broca de anclaje autoperforante de arco TC (carburo de tungsteno).
Para formaciones rocosas medianamente fracturadas



**OYY**

Broca de anclaje autoperforante de tres cortadores TC (carburo de tungsteno).
Para faomraciones de roca medianamente fracturada

**DUREZA:**
**SIN TUNGSTENO: HRC 48-HRC55**
**CON TUNGSTENO: HRA87-HRA90**

**Guía general para la selección de diámetros de brocas de anclaje (solo como referencia):**

| Hilo | Diámetro de brocas (mm) | Hilo | Diámetro de brocas (mm) |
|---|---|---|---|
| R25 | 42 mm, 51 mm, 76 mm | T30 | 42 mm, 46 mm, 51 mm, 76 mm, 90 mm |
| R32 | 45 mm, 51 mm, 76 mm, 90 mm, 100 mm, 115 mm | T40 | 76 mm, 90 mm, 100 mm, 115 mm |
| R38 | 64 mm, 76 mm, 90 mm, 100 mm, 110 mm, 115 mm, 130 mm | T52 | 76 mm, 90 mm, 110 mm, 115 mm, 130 mm, 150 mm |
| R51 | 76 mm, 90 mm, 100 mm, 110 mm, 115 mm, 130 mm, 150 mm | T73 | 115 mm, 130 mm, 175 mm |
| T76 | 170 mm, 220 mm | T103 | 175 mm, 220 mm, 280 mm |

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Email: info@jgrepresentaciones.com.co
www.jgrepresentaciones.com.co

# FICHA TÉCNICA

## UNIONES BARRAS AUTOPERFORANTES

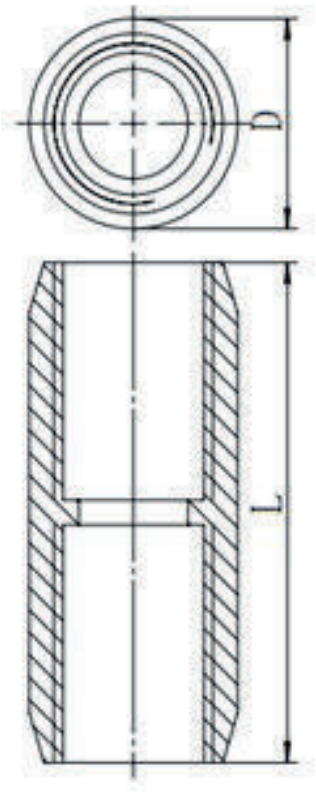


Las uniones se utilizan para enlazar las barras de anclaje y lograr que esta sea más larga, favoreciendo así una instalación más profunda.

Características

Calidad estable | La rosca es compatible con las normas ISO y otras normas internacionales | Anclajes fabricados con precisión y tolerancias ≤0,25 mm | Buen rendimiento mecánico.

Aplicaciones: Se puede utilizar como pre-soporte, micropilote de cimentación, anclaje de pendientes, etc.




## SERIE R

| Tamaño del hilo | Longitud (mm) | Diámetro de salida (mm) | Peso unitario (kg) |
|---|---|---|---|
| R25 | 150.0 | 36 | 0.6 |
| R32 | 145.0 | 42.0 | 0.7 |
| | 160.0 | 42.0 | 0.8 |
| | 190.0 | 42.0 | 0.9 |
| R38 | 180.0 | 51.0 | 1.4 |
| | 220.0 | 51.0 | 1.7 |
| R51 | 140.0 | 63.0 | 1.4 |
| | 200.0 | 63.0 | 2.0 |

## SERIE T

| Tamaño del hilo | Longitud (mm) | Diámetro de salida (mm) | Peso unitario (kg) |
|---|---|---|---|
| T76 | 220.0 | 95.0 | 4.7 |
| T30 | 105.0 | 38.0 | 0.42 |
| T40 | 140.0 | 54.0 | 1.1 |
| | 140.0 | 57.0 | 1.3 |
| T52 | 160.0 | 70.0 | 2.4 |
| T73 | 235.0 | 89.0 | 3.7 |
| | 245.0 | 95.0 | 5.7 |
| T103 | 255.0 | 123.0 | 7.5 |
| | 290.0 | 132.0 | 12.5 |
| T127 | 255.0 | 139.0 | 7.5 |

NORMA: ISO 1 0 2 0 8 / ISO1720 / Otro estándar internacional

Dureza (HRC): HRC25 - HRC30

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