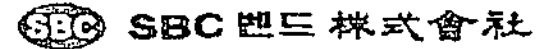


CERTIFICATE No. SBCGA-0121001  
 DATE OF ISSUE 2019.01.21  
 CONTRACT NO. PI019446

검사증명서  
**MILL INSPECTION CERTIFICATE**  
 MATERIAL MEET THE EN10204:2004 3.1



HEAD OFFICE : 178, Wolchongongdan-ro, Gumbuk-Myeon,  
 Haman-Gun, Gyeongsangnam-Do, South Korea  
 TEL : (055)-580-9900  
 FAX : (055)580-9998-9

소재 MATERIAL ASTM A234/234M, ASME SA234-SA234M WPB - 15  
 NACE MR0103-12 / NACE MR0175 / ISO15156-15  
 적용규격 CRITERIA ASME B16.9 - 12 / ASTM A950 - 14a

수요자 CUSTOMER Service Metal  
 페이지 Page 1 of 1

2" STD LR 90 WELD ELL

Heat #: 6B181137

| 순서 NO | 제품규격<br>DESCRIPTION<br>(ANGLE/OUTDIA / THICK) | 수량<br>QUAN-<br>TITY<br>(PCS) | 제품<br>번호<br>HEAT LOT<br>No. | 화학적 성분(%)<br>CHEMICAL COMPOSITION |       |               |        |        |       |       |       |       |       |                                  | 인장시험<br>TENSILE TEST               |                     |                       |                                 | 충격시험<br>IMPACT TEST |  | FLATTENING<br>TEST |
|-------|---|------------------------------|-----------------------------|-----------------------------------|-------|---------------|--------|--------|-------|-------|-------|-------|-------|----------------------------------|------------------------------------|---------------------|-----------------------|---------------------------------|---------------------|--|--------------------|
|       |   |                              |                             | C                                 | Si    | Mn            | P      | S      | Cr    | Mo    | Ni    | Cu    | V     | 항복강도<br>YIELD<br>STRENGTH<br>MPa | 인장강도<br>TENSILE<br>STRENGTH<br>MPa | 연신율<br>ELONG<br>(%) | 경도<br>HARDNESS<br>HBB | DELIV-<br>ERY<br>CONDI-<br>TION | 충격<br>에너지<br>J      |  |                    |
| SPHC  |   |                              |                             | 0.301                             | 0.107 | 0.29-<br>1.06 | 0.0501 | 0.0581 | 0.401 | 0.151 | 0.401 | 0.401 | 0.081 | 0.081                            | 2401                               | 415-655             | 30.1                  | 197.1                           |                     |  |                    |
| 18    | E45(L) WPB BW 3" STD                          | 1000                         | 6B181143                    | 0.18                              | 0.20  | 0.40          | 0.017  | 0.012  | 0.040 | 0.008 | 0.020 | 0.020 | 0.001 | 295                              | 498                                | 30.2                | 136 145               | A                               |                     |  |                    |
| 19    | E45(L) WPB BW 4" STD                          | 2000                         | 6B181145                    | 0.20                              | 0.26  | 0.44          | 0.014  | 0.006  | 0.023 | 0.001 | 0.005 | 0.009 | 0.001 | 314                              | 496                                | 30.0                | 146 149               | A                               |                     |  |                    |
| 21    | E45(L) WPB BW 8" STD                          | 400                          | 1.S170129                   | 0.17                              | 0.21  | 0.27          | 0.011  | 0.004  | 0.030 | 0.05  | 0.040 | 0.060 | 0.000 | 312                              | 464                                | 40.0                | 152 156               | A                               |                     |  |                    |
| 40    | CR WPB BW 5" * 6" STD                         | 250                          | 6B181225                    | 0.21                              | 0.26  | 0.57          | 0.016  | 0.008  | 0.060 | 0.002 | 0.030 | 0.020 | 0.010 | 299                              | 479                                | 31.0                | 148 155               | N                               |                     |  |                    |
| 55    | E90(L) WPB BW 2" STD                          | 1,500                        | 6B181127                    | 0.18                              | 0.20  | 0.38          | 0.020  | 0.007  | 0.030 | 0.010 | 0.020 | 0.020 | 0.001 | 301                              | 498                                | 30.1                | 145 151               | A                               |                     |  |                    |
| 63    | TEE WPB BW 3" STD                             | 750                          | 6B181179                    | 0.17                              | 0.20  | 0.38          | 0.018  | 0.006  | 0.050 | 0.000 | 0.030 | 0.020 | 0.010 | 305                              | 460                                | 30.1                | 147 150               | N                               |                     |  |                    |
| 83    | E90(L) WPB BW 2" XII                          | 1,600                        | 6B181508                    | 0.13                              | 0.22  | 0.83          | 0.007  | 0.007  | 0.030 | 0.050 | 0.100 | 0.140 | 0.001 | 328                              | 457                                | 34.0                | 142 148               | A                               |                     |  |                    |
| 88    | TEE WPB BW 6" * 2" XII                        | 20                           | 6B181182                    | 0.18                              | 0.24  | 0.44          | 0.015  | 0.010  | 0.029 | 0.002 | 0.012 | 0.009 | 0.001 | 295                              | 464                                | 30.0                | 148 151               | N                               |                     |  |                    |
| 89    | TEE WPB BW 6" * 3" XII                        | 20                           | 6B181182                    | 0.18                              | 0.24  | 0.44          | 0.015  | 0.010  | 0.029 | 0.002 | 0.012 | 0.009 | 0.001 | 295                              | 464                                | 30.0                | 148 150               | N                               |                     |  |                    |
| 90    | TEE WPB BW 6" * 4" XII                        | 140                          | 6B181182                    | 0.18                              | 0.26  | 0.45          | 0.019  | 0.007  | 0.026 | 0.002 | 0.005 | 0.011 | 0.001 | 118                              | 485                                | 32.0                | 149 150               | N                               |                     |  |                    |

NOTE:

- VISUAL & DIMENSION TEST: GOOD
- MADE FROM SEAMLESS PIPE, CAP AND THE PRODUCTIONS WITH RT IN THE NONDESTRUCTIVE TEST IS MADE FROM PLATE.
- $CE = C + Mn/6 - (Cr + Mo + V)/5 + (Ni + Cu)/15$
- A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING  
 N: NORMALIZING AT TEMPERATURE 920°C, AIR COOLING
- LEAD FREE
- HARDNESS ACCORDING TO NACE MR0103/NACE MR0175/ISO15156

| INSTRUCTION MODE | NO.            | CONCLUSION |
|------------------|----------------|------------|
| UT               |                |            |
| MT               | 63, 83, 89, 90 |            |
| PT               | 63, 83, 89, 90 |            |
| RT               |                |            |

SURVEYOR: WE CERTIFY THAT ALL PRODUCTS WERE MANUFACTURED, SAMPLED, TESTED AND INSPECTED SOLELY BY THE MANUFACTURER LISTED AT THE ADDRESS ABOVE IN ACCORDANCE WITH INDICATED SPECIFICATION AND FOUND TO MEET REQUIREMENTS. MATERIAL IS FREE FROM MERCURY AND RADIOACTIVE CONTAMINATION.

INSPECTION MANAGER: *S. J. Kim*

SBCBEND CO., LTD.

Stock 4709897 02/17/2020  
 MATCONOR M90LR08 2IN LR 90  
 BW A234 ELBOW