VSB

Vallourec Soluções Tubulares do Brasil S.A.
Distrito Industrial, s/n - Jeceaba - MG - ZIP: 35498-000 - Brasil

# Inspection Certificate

EN 10204.3.2

**N°.: 0030031446 / 00**



**Trading Company:** Sumitomo Corporation
**NSSMC Work no.:** JYYS14480000
**Buyer:** Nippon Steel & Sumitomo Metal Corporation
**Buyer Order No.:** 8845N35YFVSJ-01
**Customer:** SUMITOMO CORPORATION EUROPE LTD
**Customer Order No/Item:** 18-65
**Inspection Company:** Intertek-Moody

**Destination Country:** Netherlands
**Work Order:** 535877 / 10
**Material Number:** 604949

**DESCRIPTION OF PRODUCTS:** SEAMLESS HOT FINISHED STEEL CASING WITH VAM 21 Heat Treatment : QUENCHED+TEMPERED , VAM 21 THREAD AND COUPLING
**SIZE (O.D. X W.T.):** 7 inch X 29.00 lb/ft **GRADE:** L80 Type 1
**STANDARD:** API SPEC 5CT, 07.2011, 9TH EDITION + ERRATA(SEPTEMBER 2012) - PSL 2
**MANUFACTURING PROCEDURE SPECIFICATION:** VSP0078 - R0 **Inspection Plan:** VQP0005 - R3
**SURFACE PROTECTION: EXTERNAL:** UV-VARNISH **PIPE ENDS PROTECTOR:** MET/PLAS CLOSE HOLE 5MM LIFT
**TOLERANCES: OUTSIDE DIAMETER (PIPE BODY):** - 0.50 % / + 1.00 % **WALL THICKNESS:** - 12.5 %
**LENGTH:** RANGE 3 MOD 36.0 FT - 39.0 FT
**ACCEPTANCE LENGTH: 1-** RANDOM 05 % 34.0 FT - 36.0 FT
**STANDARD MARKING:** PIPE BODY, PAINT STENCILED: VSB LOGO 5CT-1345 API MONOGRAM YEAR/QUARTER SF 7 29.00 L S S16 20 +32F L2 P7500 VAM 21 D NSSMC JYYS14480000 HEAT NUMBER LENGTH NET WEIGHT PIPE TALLY NO HEAT TREATMENT LOT MADE IN BRAZIL
COUPLING, PAINT STENCILED: 5CT-1345 API MONOGRAM YEAR/QUARTER SF L L2 VAM 21 7 29.00 ID NUMBER (HEAT + PIPE) HEAT TREATMENT LOT
**SHIPPING MARKING:** P.O. NO. 18-65 CONTRACT NO. 18-MSCT-12-117164 PIECE NO. 7 X 29.00 X 36-39 DT42

| Heat | Heat Treatment Lot | Min.allowed tempering °F | Pieces | Lengths(ft) | Weight (Lbf) |
|---|---|---|---|---|---|
| 177591 | A | 1202 | 43 | 1628.3 | 47662 |
| | B | 1202 | 52 | 1974.7 | 57860 |
| | C | 1202 | 135 | 5131.2 | 150186 |
| 177592 | A | 1202 | 182 | 6904.9 | 202078 |
| 177593 | A | 1202 | 84 | 3167.7 | 92847 |
| | | **Total** | **496** | **18806.8** | **550633** |

## PIPES

**THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS:** DIMENSIONAL # VISUAL # HYDROSTATIC TEST: 7500.0 PSI 5 S # ULTRASONIC TEST : API 5CT,L2(N5),LONG/TRANS,O/I # ULTRASONIC TEST FOR WALL THICKNESS MEASUREMENT: MINIMUM COVER RATIO 25% # DRIFT TEST: DIAMETER 6.059 IN LENGTH 42.000 IN # HARDENABILITY 90% MART.-HRC MIN=58X(%C)+27 #

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## Chemical Composition (%)

**Process: Electric Arc Furnace (EAF), heats fully killed**

**DI:**

| | | | C | Mn | P | S | Si | Ni | Cr | Mo | Al | Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ladle Analysis** | | **Min** | | | | | | | | | | |
| | | **Max** | 0.43 | 1.90 | 0.030 | 0.030 | 0.45 | 0.25 | | | | 0.35 |
| **Product Analisys** | | **Min** | | | | | | | | | | |
| | | **Max** | 0.43 | 1.90 | 0.030 | 0.030 | 0.45 | 0.25 | | | | 0.35 |
| **Heat** | | **IPPN** | | | | | | | | | | |
| 177591 | | Ladle | 0.24 | 1.01 | 0.012 | 0.002 | 0.21 | 0.03 | 0.23 | 0.028 | 0.033 | 0.05 |
| | Check 1 | 402033 | 0.25 | 0.98 | 0.014 | 0.001 | 0.19 | 0.03 | 0.23 | 0.023 | 0.024 | 0.05 |
| | Check 2 | 502053 | 0.25 | 0.99 | 0.014 | 0.001 | 0.20 | 0.03 | 0.23 | 0.025 | 0.024 | 0.05 |
| 177592 | | Ladle | 0.24 | 1.01 | 0.013 | 0.002 | 0.21 | 0.03 | 0.23 | 0.028 | 0.032 | 0.05 |
| | Check 1 | 305041 | 0.25 | 1.00 | 0.013 | 0.002 | 0.21 | 0.03 | 0.24 | 0.035 | 0.029 | 0.05 |
| | Check 2 | 102021 | 0.24 | 0.99 | 0.013 | 0.002 | 0.21 | 0.03 | 0.24 | 0.029 | 0.030 | 0.05 |
| 177593 | | Ladle | 0.25 | 1.00 | 0.012 | 0.002 | 0.21 | 0.03 | 0.23 | 0.036 | 0.030 | 0.06 |
| | Check 1 | 502023 | 0.25 | 1.01 | 0.014 | 0.002 | 0.21 | 0.03 | 0.24 | 0.037 | 0.030 | 0.06 |
| | Check 2 | 401021 | 0.25 | 1.01 | 0.014 | 0.002 | 0.21 | 0.03 | 0.24 | 0.036 | 0.030 | 0.06 |

## Tensile Test

**S. Direction:** Longitudinal **Temperature:** Room Temperature **Type of Specimen** STRIP 1" WIDTH **Wall Thickness:** 0.408"

**Gauge Length:** L0=2" **Method:Elong.Total Under Load** 0.50 %

| | YS (PSI) | TS (PSI) | E (%) |
|---|---|---|---|
| **Required: Min** | 80000 | 95000 | 17.0 |
| **Max** | 95000 | | |

| Heat | Heat Treatment Lot | IPPN | Position | | | |
|---|---|---|---|---|---|---|
| 177591 | A | 402033 | Botton(trailing) | 89900 | 104400 | 30.0 |
| | A | 502053 | Top(leading) | 88600 | 102700 | 31.0 |
| | B | 201033 | Botton(trailing) | 85900 | 100200 | 31.0 |
| | B | 306013 | Top(leading) | 87300 | 101200 | 32.0 |
| | C | 104043 | Top(leading) | 89600 | 105900 | 32.0 |
| | C | 204023 | Top(leading) | 85100 | 101500 | 32.0 |
| | C | 404023 | Botton(trailing) | 89200 | 103400 | 28.0 |

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## Tensile Test

**S. Direction:** Longitudinal **Temperature:** Room Temperature **Type of Specimen** STRIP 1" WIDTH **Wall Thickness:** 0.408"

**Gauge Length:** L0=2" **Method:Elong.Total Under Load** 0.50 %

| | | YS (PSI) | TS (PSI) | E (%) |
|---|---|---|---|---|
| | **Required: Min** | 80000 | 95000 | 17.0 |
| | **Max** | 95000 | | |

| Heat | Heat Treatment Lot | IPPN | Position | | | |
|---|---|---|---|---|---|---|
| | C | 504043 | Botton(trailing) | 88200 | 102500 | 31.0 |
| 177592 | A | 102021 | Top(leading) | 88500 | 103400 | 30.0 |
| | A | 305041 | Botton(trailing) | 90500 | 105200 | 30.0 |
| | A | 401043 | Botton(trailing) | 89200 | 103400 | 29.0 |
| | A | 403031 | Top(leading) | 87900 | 102500 | 30.0 |
| 177593 | A | 401021 | Top(leading) | 90500 | 105000 | 30.0 |
| | A | 502023 | Botton(trailing) | 91800 | 105700 | 30.0 |

**YS-Yield Strength; TS-Tensile Strength; E-Elongation;**

## As Quenched Hardness

**Scale:** HRC **Fomula:** 90% Mart.-HRC min=58x(%C)+27

| Heat | Heat Treatment Lot | IPPN | Position | | OW1 | OW2 | OW3 | Avg | MW1 | MW2 | MW3 | Avg | IW1 | IW2 | IW3 | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177591 | A | 402053 | Botton(trailing) | Q1 | 48.1 | 47.3 | 47.2 | 47.5 | 49.4 | 49.3 | 48.9 | 49.2 | 48.4 | 48.9 | 49.5 | 48.9 |
| | | | | Q2 | 47.8 | 48.8 | 48.2 | 48.3 | 49.0 | 49.3 | 49.2 | 49.2 | 47.8 | 48.1 | 48.1 | 48.0 |
| | | | | Q3 | 48.6 | 48.2 | 48.0 | 48.3 | 49.5 | 48.3 | 49.1 | 49.0 | 49.1 | 49.3 | 49.5 | 49.3 |
| | | | | Q4 | 47.7 | 47.9 | 48.2 | 47.9 | 48.6 | 48.6 | 48.6 | 48.6 | 48.5 | 49.0 | 49.3 | 48.9 |
| 177592 | A | 401043 | Botton(trailing) | Q1 | 47.5 | 47.4 | 47.3 | 47.4 | 48.4 | 48.0 | 48.0 | 48.1 | 47.0 | 47.6 | 47.3 | 47.3 |
| | | | | Q2 | 47.4 | 47.3 | 47.4 | 47.4 | 47.6 | 48.0 | 48.0 | 47.9 | 47.0 | 47.6 | 47.4 | 47.3 |
| | | | | Q3 | 47.0 | 47.0 | 47.0 | 47.0 | 48.0 | 48.3 | 48.5 | 48.3 | 49.1 | 48.0 | 48.8 | 48.6 |
| | | | | Q4 | 47.4 | 47.6 | 47.0 | 47.3 | 47.6 | 48.0 | 48.3 | 48.0 | 48.2 | 47.8 | 47.7 | 47.9 |
| 177593 | A | 502013 | Botton(trailing) | Q1 | 48.7 | 48.5 | 47.9 | 48.4 | 49.4 | 49.2 | 48.6 | 49.1 | 48.6 | 48.3 | 48.8 | 48.6 |
| | | | | Q2 | 48.4 | 48.9 | 49.3 | 48.9 | 49.6 | 49.8 | 49.7 | 49.7 | 48.9 | 50.0 | 49.5 | 49.5 |
| | | | | Q3 | 49.0 | 48.7 | 48.8 | 48.8 | 49.3 | 49.3 | 49.6 | 49.4 | 49.4 | 49.6 | 49.5 | 49.5 |

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## As Quenched Hardness

**Scale:** HRC

**Fomula:** 90% Mart.-HRC min=58x(%C)+27

| Heat | Heat Treatment Lot | IPPN | Position | | OW1 | OW2 | OW3 | Avg | MW1 | MW2 | MW3 | Avg | IW1 | IW2 | IW3 | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Q4 | 49.0 | 48.4 | 48.6 | 48.7 | 48.9 | 49.4 | 49.2 | 49.2 | 48.3 | 48.4 | 49.0 | 48.6 |

OW - Outer Wall; MW - Middle Wall; IW - Inner Wall;

## Hardness Test Through Wall

**Scale:** HRC

| | Average |
|---|---|
| Required: Min | |
| Max | 23.0 |

| Heat | Heat Treatment Lot | IPPN | Position | | OW1 | OW2 | OW3 | Avg | MW1 | MW2 | MW3 | Avg | IW1 | IW2 | IW3 | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177591 | A | 402033 | Botton(trailing) | Q1 | 18.5 | 18.2 | 18.2 | 18.3 | 18.9 | 18.6 | 18.7 | 18.7 | 17.7 | 18.2 | 18.2 | 18.0 |
| | A | 502053 | Top(leading) | Q1 | 17.8 | 17.7 | 17.9 | 17.8 | 18.2 | 18.2 | 18.5 | 18.3 | 17.2 | 17.3 | 17.0 | 17.2 |
| | B | 201033 | Botton(trailing) | Q1 | 16.8 | 17.4 | 17.7 | 17.3 | 17.7 | 17.5 | 18.2 | 17.8 | 17.2 | 17.4 | 18.1 | 17.6 |
| | B | 306013 | Top(leading) | Q1 | 18.2 | 17.4 | 17.5 | 17.7 | 18.3 | 18.4 | 18.2 | 18.3 | 16.8 | 17.6 | 17.9 | 17.4 |
| | C | 104043 | Top(leading) | Q1 | 16.4 | 17.2 | 17.2 | 16.9 | 18.4 | 18.4 | 18.5 | 18.4 | 17.9 | 17.8 | 18.2 | 18.0 |
| | C | 204023 | Top(leading) | Q1 | 17.5 | 17.8 | 17.4 | 17.6 | 18.7 | 18.5 | 18.2 | 18.5 | 18.7 | 17.9 | 18.4 | 18.3 |
| | C | 404023 | Botton(trailing) | Q1 | 18.0 | 17.6 | 18.4 | 18.0 | 18.3 | 18.7 | 18.5 | 18.5 | 17.0 | 18.5 | 18.2 | 17.9 |
| | C | 504043 | Botton(trailing) | Q1 | 18.1 | 17.8 | 19.2 | 18.4 | 19.0 | 18.6 | 19.0 | 18.9 | 18.6 | 19.0 | 18.8 | 18.8 |
| 177592 | A | 102021 | Top(leading) | Q1 | 17.9 | 18.0 | 18.2 | 18.0 | 19.0 | 18.8 | 18.8 | 18.9 | 18.6 | 19.0 | 19.2 | 18.9 |
| | A | 305041 | Botton(trailing) | Q1 | 18.9 | 18.5 | 19.0 | 18.8 | 19.4 | 18.9 | 19.4 | 19.2 | 18.9 | 18.6 | 18.6 | 18.7 |
| | A | 401043 | Botton(trailing) | Q1 | 17.9 | 18.1 | 18.0 | 18.0 | 18.7 | 18.9 | 18.7 | 18.8 | 17.8 | 18.3 | 18.2 | 18.1 |
| | A | 403031 | Top(leading) | Q1 | 16.7 | 16.9 | 16.0 | 16.5 | 17.6 | 16.8 | 17.2 | 17.2 | 16.0 | 16.0 | 15.4 | 15.8 |
| 177593 | A | 401021 | Top(leading) | Q1 | 18.6 | 18.8 | 18.6 | 18.7 | 19.2 | 19.6 | 20.0 | 19.6 | 19.4 | 19.0 | 19.4 | 19.3 |
| | A | 502023 | Botton(trailing) | Q1 | 18.8 | 19.0 | 18.9 | 18.9 | 19.6 | 19.3 | 19.2 | 19.4 | 19.0 | 19.2 | 19.2 | 19.1 |

OW - Outer Wall; MW - Middle Wall; IW - Inner Wall;

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## Impact Test

**Test Specimen:** CHARPY 10X55X7.5 V NOTCH **Direction:** Longitudinal **Temperature:** 32°F **Striker radius:** 0.315"

| | | | | AE1 (Ftlb) | AE2 (Ftlb) | AE3 (Ftlb) | AE Avg (Ftlb) | SA1 (%) | SA2 (%) | SA3 (%) | SA Avg (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Required: Min | 11 | 11 | 11 | 16.0 | 75 | 75 | 75 | |
| | | | Max | | | | | | | | |
| Heat | Heat Treatment Lot | IPPN | Position | | | | | | | | |
| 177591 | A | 402033 | Botton(trailing) | 122 | 125 | 128 | 124.6 | 100 | 100 | 100 | |
| | B | 306013 | Top(leading) | 133 | 130 | 131 | 131.3 | 100 | 100 | 100 | |
| | C | 504043 | Botton(trailing) | 135 | 136 | 125 | 132.0 | 100 | 100 | 100 | |
| 177592 | A | 305041 | Botton(trailing) | 125 | 124 | 118 | 122.4 | 100 | 100 | 100 | |
| 177593 | A | 502023 | Botton(trailing) | 124 | 119 | 121 | 121.0 | 100 | 100 | 100 | |

**AE - Absorbed Energy; SA - Shear Area;**

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## COUPLINGS

**THE PRODUCT IS SATISFACTORY IN THE FOLLOWING TESTS / INSPECTIONS:** DIMENSIONAL VISUAL MPI ON COUPLING: API 5CT WET MPI LONG,OUT/INSID HARDENABILITY 90% MART.-HRC MIN=58X(%C)+27 #

### Chemical Composition (%)

**Process: Electric Arc Furnace (EAF), heats fully killed**

| | | | C | Mn | P | S | Si | Ni | Cr | Mo | Al | Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ladle Analysis** | | **Min** | | | | | | | | | | |
| | | **Max** | 0.43 | 1.90 | 0.030 | 0.030 | 0.45 | 0.25 | | | | 0.35 |
| **Product Analisys** | | **Min** | | | | | | | | | | |
| | | **Max** | 0.43 | 1.90 | 0.030 | 0.030 | 0.45 | 0.25 | | | | 0.35 |
| **Heat** | | **IPPN** | | | | | | | | | | |
| 177067 | | Ladle | 0.25 | 1.00 | 0.011 | 0.002 | 0.18 | 0.04 | 0.34 | 0.030 | 0.026 | 0.06 |
| | Check 1 | 302023 | 0.25 | 1.01 | 0.011 | 0.001 | 0.18 | 0.04 | 0.33 | 0.028 | 0.024 | 0.06 |
| | Check 2 | 302021 | 0.25 | 1.01 | 0.011 | 0.001 | 0.18 | 0.04 | 0.33 | 0.028 | 0.024 | 0.06 |
| 178229 | | Ladle | 0.25 | 1.02 | 0.011 | 0.001 | 0.19 | 0.03 | 0.34 | 0.010 | 0.033 | 0.08 |
| | Check 1 | 406031 | 0.25 | 1.02 | 0.014 | 0.001 | 0.19 | 0.03 | 0.33 | 0.018 | 0.032 | 0.07 |
| | Check 2 | 306013 | 0.25 | 1.02 | 0.013 | 0.001 | 0.19 | 0.03 | 0.33 | 0.016 | 0.031 | 0.07 |

### Tensile Test

**S. Direction:** Longitudinal **Temperature:** Room Temperature **Type of Specimen** ROUND BAR 0.5" DIAMETER **Gauge Length:** L0=50.8 mm

**Method:Elong.Total Under Load** 0.50 %

| | | YS (PSI) | TS (PSI) | E (%) |
|---|---|---|---|---|
| **Required: Min** | | 80000 | 95000 | 15.0 |
| **Max** | | 95000 | | |

| **Heat** | **Heat Treatment Lot** | **IPPN** | **Position** | | | |
|---|---|---|---|---|---|---|
| 177067 | H | 302021 | Top(leading) | 92100 | 107000 | 22.0 |
| | H | 302023 | Botton(trailing) | 90100 | 106200 | 23.0 |
| 178229 | A | 306013 | Top(leading) | 86600 | 103400 | 23.0 |
| | A | 406031 | Botton(trailing) | 89200 | 105000 | 22.0 |

**YS-Yield Strength; TS-Tensile Strength; E-Elongation;**

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## As Quenched Hardness

**Scale:** HRC

**Fomula:** 90% Mart.-HRC min=58x(%C)+27

| Heat | Heat Treatment Lot | IPPN | Position | | OW1 | OW2 | OW3 | Avg | MW1 | MW2 | MW3 | Avg | IW1 | IW2 | IW3 | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177067 | H | 402013 | Botton(trailing) | Q1 | 47.1 | 47.7 | 47.4 | 47.4 | 48.2 | 47.8 | 48.4 | 48.1 | 48.0 | 48.3 | 48.8 | 48.4 |
| | | | | Q2 | 46.8 | 47.5 | 47.3 | 47.2 | 47.6 | 47.9 | 47.7 | 47.7 | 47.7 | 47.7 | 47.0 | 47.5 |
| | | | | Q3 | 46.8 | 46.8 | 47.2 | 46.9 | 48.6 | 48.3 | 48.6 | 48.5 | 48.8 | 49.3 | 49.4 | 49.2 |
| | | | | Q4 | 47.2 | 47.5 | 47.4 | 47.4 | 47.7 | 47.9 | 47.8 | 47.8 | 50.0 | 49.0 | 49.3 | 49.4 |
| 178229 | A | 406021 | Botton(trailing) | Q1 | 47.8 | 48.0 | 48.2 | 48.0 | 48.3 | 47.8 | 48.3 | 48.1 | 48.4 | 47.4 | 47.8 | 47.9 |
| | | | | Q2 | 48.2 | 48.8 | 48.4 | 48.5 | 48.6 | 48.2 | 47.9 | 48.2 | 49.7 | 47.3 | 48.2 | 48.4 |
| | | | | Q3 | 48.1 | 47.7 | 48.2 | 48.0 | 47.4 | 47.8 | 47.7 | 47.6 | 47.6 | 47.0 | 47.4 | 47.3 |
| | | | | Q4 | 47.7 | 47.6 | 47.7 | 47.7 | 47.8 | 47.6 | 47.5 | 47.6 | 47.0 | 47.1 | 47.2 | 47.1 |

**OW - Outer Wall; MW - Middle Wall; IW - Inner Wall;**

## Hardness Test Through Wall

**Scale:** HRC

| | Individual | Average |
|---|---|---|
| Required: Min | | |
| Max | 23.0 | 23.0 |

| Heat | Heat Treatment Lot | IPPN | Position | | OW1 | OW2 | OW3 | Avg | MW1 | MW2 | MW3 | Avg | IW1 | IW2 | IW3 | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177067 | H | 302021 | Top(leading) | Q1 | 17.9 | 19.0 | 20.3 | 19.1 | 19.8 | 19.7 | 20.5 | 20.0 | 19.0 | 19.2 | 20.0 | 19.4 |
| | H | 302023 | Botton(trailing) | Q1 | 18.3 | 18.4 | 17.6 | 18.1 | 19.8 | 20.2 | 20.2 | 20.1 | 18.7 | 18.0 | 17.8 | 18.2 |
| 178229 | A | 306013 | Top(leading) | Q1 | 17.2 | 17.4 | 17.7 | 17.4 | 18.5 | 18.8 | 18.9 | 18.7 | 16.0 | 16.3 | 16.8 | 16.4 |
| | A | 406031 | Botton(trailing) | Q1 | 17.8 | 18.6 | 18.4 | 18.3 | 18.8 | 19.3 | 19.0 | 19.0 | 17.8 | 18.0 | 17.6 | 17.8 |

**OW - Outer Wall; MW - Middle Wall; IW - Inner Wall;**

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## Impact Test

**Test Specimen:** CHARPY 10X55X10 V NOTCH **Direction:** Transverse **Temperature:** 32°F **Striker radius:** 0.315"

| Heat | Heat Treatment Lot | IPPN | Position | AE1 (Ftlb) | AE2 (Ftlb) | AE3 (Ftlb) | AE Avg (Ftlb) | SA1 (%) | SA2 (%) | SA3 (%) | SA Avg (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Required: Min** | | | | 10 | 10 | 10 | 15.5 | 75 | 75 | 75 | |
| **Max** | | | | | | | | | | | |
| 177067 | H | 302023 | Botton(trailing) | 129 | 136 | 142 | 135.7 | 100 | 100 | 100 | |
| 178229 | A | 406031 | Botton(trailing) | 150 | 149 | 142 | 147.5 | 100 | 100 | 100 | |

AE - Absorbed Energy; SA - Shear Area;

**Remarks:**

# I TIMS CONTRACT NO.

*Rian Felipe Vieira Leão*
Engenheiro da Qualidade
Garantia da Qualidade
Vallourec Soluções Tubulares do Brasil

P/

Intertek
☒ Reviewed
☐ Witnessed
Initial EG
Date 26/12/2018
BR - 42770

We hereby certify that this product has been manufactured and examined in accordance with all requirements of the standards and specifications and all the results are found to be satisfactory. This testimonial and certificate respectively is recorded by a computer system and is valid without signature. Alteration or use for others products are regarded as falsification of documents and will be subject to criminal jurisdiction.

QUALITY CONTROL DEPARTMENT
FAX: (55-31) 2141 5705
e-mail:rian.leao@vstubos.com

RIAN FELIPE VIEIRA LEAO
TECHNICAL RESPONSIBLE

DATE
12.22.2018