



RINA

SINCERT

ACCREDITED ORGANIZATION

ISO 9001:2008 - ISO 14001:2004
EN ISO 15189 - EN ISO 15187
SAR 111001 - SAR 111002

Member degli Accordi di Vuoto
Riconoscimento EN 9100
Secretary of EN and ISO Mutual
Recognition Agreements

WELDING PROCEDURE QUALIFICATION RECORD (WPQR)

N. 10TA00036PO4/A

Manufacturer **M & G METALMECCANICA sas - Torrecuso (Bn)**

WPQR No. **04/010**

Dated **21/04/2010**

Manufacturer's welding procedure (WPS) No. **04/010**

Dated **22/03/2010**

RANGE OF APPROVAL

| | | | |
|-----------------------------------|---|---|------------------------------------|
| Welding process | 135 | Type | Partly mechanized |
| Joint type | Plates and Pipes FW | | |
| Single/Multiple pass | Single | | |
| Parent material group(s) | I-1 (Subgroup 1.1 only) | | ISO/TR 15608 |
| | with a specified minimum yield strength \leq 275 Mpa | | |
| Parent material thickness (mm) | Butt Joint = N.A. | Fillet Joint t₁ = 1.05 to 3.0 | t₂ = 1.05 to 3.0 |
| Throat thickness (mm) | 1.87 to 3.75 | | |
| Weld deposit thickness (mm) | N.A. | | |
| Outside diameter (mm) | Over 150 (PA-PB); over 500 (other qualified positions) | | |
| Filler metal type | Solid wire EN ISO 14341-A: G3 Si1 | | |
| Shielding gas (ISO 14175) | M21 with max. CO₂ % = 21.6 | Backing gas (ISO 14175) | N.A. |
| Type of welding current | DCEP | Heat input KJ/cm | All |
| Welding position | All, vertical down excluded | | |
| Preheat min. (°C) | None | Interpass temp. Max. (°C) | N.A. |
| Post weld heat treatment / Ageing | None | | |
| Other information | - | | |

Welders name **GOGLIA Nicolino**

Stamp No. **GN**

Welding test conducted by **M & G METALMECCANICA sas - Torrecuso (Bn)**

Mechanical test conducted by **TECNOLAB srl - Civitavecchia (Rm)** Laboratory test No. **179** dated **21/04/2010**

At presence of RINA Surveyor **D. Eranio**

We certify that statements in this certificate are correct and that the test welds were prepared, welded and tested in accordance with the requirements of **UNI EN ISO 15614-1: 2008** Standard

Issued at: **Genova**

on **16 June 2010**

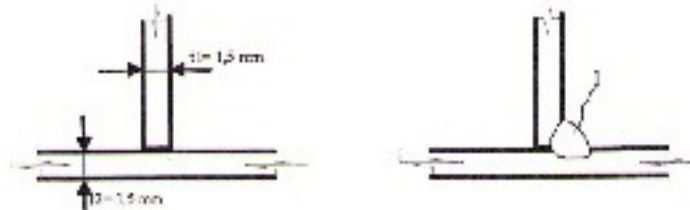


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JOINT DETAILS AND WELDING SEQUENCES

FILLET WELD

| Pass No. | Process | Filler metal diam. (mm) | Filler metal classification | Amps | Volt | Travel speed (cm/min) | Heat input (kJ/cm) | Other |
|----------|---------|-------------------------|-----------------------------|------|------|-----------------------|--------------------|-------|
| 1 | 135 | 0.8 | EN ISO 14341-A | 75 | 18 | 32 | 2.0 | - |



PARENT MATERIAL

| | | | |
|---|-----------------|-----------------------|-----|
| Material specification | EN 10025-2:2005 | | |
| Type or grade | S275JR | | |
| Group(s)/Subgroup(s) No. (ISO/TR 15608) | 1.1 | | |
| Thickness (mm) | 1.5 | Throat thickness (mm) | 2.5 |
| Diameter (mm) | N.A. | | |
| Branch connection angle | N.A. | | |
| Other | - | | |

WELDING CONSUMABLES

| | | | |
|------------------------------|----------------|--|--|
| Process | 135 | | |
| Trade name(s) | SPIRA FERRO | | |
| Specification | EN ISO 14341-A | | |
| Classification / designation | G3 S11 | | |
| Size (mm) | 0.8 | | |
| Deposited metal thickness | | | |
| Groove | N.A. | | |
| Throat | 2.5 mm | | |
| Flux trade name | N.A. | | |
| Consumable insert | N.A. | | |
| Other | - | | |



| GAS | Gas | Mixture | Flow rate (l/min.) |
|------------|------|---------------------|--------------------|
| Shielding | - | Argon 82% + CO2 18% | 18 |
| Trailing | None | - | - |
| Backing | N.A. | - | - |

| POSITION | |
|------------------|-----------|
| Welding position | PB |
| Other | - |

| PREHEAT | | POSTWELD HEAT TREATMENT | |
|-----------------------|------------|--------------------------------|------|
| Preheat temperature | 15 °C min. | Temperature | None |
| Interpass temperature | N.A. | Time | N.A. |
| Other | - | Other | - |

| ELECTRICAL CHARACTERISTICS | | | |
|-----------------------------------|-----------|---------------|-----------|
| Current | DC EP | | |
| Ampere (range) | See table | Volts (Range) | See table |
| Mode of metal transfer | Spray arc | | |
| Tungsten electrode size and type | N.A. | | |
| Other | - | | |

| TECHNIQUE | |
|-----------------------------------|-----------------------------------|
| Travel speed (range) | See table |
| String or weave head | String |
| Oscillation (*) | N.A. |
| Method of groove/edge preparation | Machining/Grinding |
| Interpass cleaning | N.A. |
| Method of back gouging | N.A. |
| Orifice or gas cup size | 18 mm |
| Stand off distance (*) | N.A. |
| Multiple or single pass | Single |
| Multiple or single electrodes | Single |
| Torch angle (*) | N.A. |
| Other (*) | for fully mechanized/robotic only |



OTHER TEST

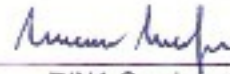
| | |
|--------------------------|--------------|
| MACROGRAPHIC EXAMINATION | Acceptable |
| MICROGRAPHIC EXAMINATION | Not required |

NON DESTRUCTIVE EXAMINATION

| | |
|--------------------------|--------------|
| VISUAL EXAMINATION | Acceptable |
| RADIOGRAPHIC EXAMINATION | Not required |
| PENETRANT TEST | Not required |
| MAGNETIC PARTICLE | Acceptable |
| ULTRASONIC TEST | Not required |

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