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|  | | | | | ASME Code Section IX - QW-360 AUTOMATIC AND MACHINE - WELDING  Automaten- und Maschinen - Schweißen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Doc. No.: | | | | | | WOPQ | | | | | | | |
|  | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Rev. | | | | | | 0 | | | | | | | |
|  | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Date | | | | | | 24.01.2013 | | | | | | | |
| WELDINGOPERATOR - PERFORMANCE - QUALIFICATION Maschinen - Schweißer - Zeugnis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | WOPQ\_B1 | | | | | | | | | | | | | |
|  | MUSTERMANN | | | | | | | | |  | Klaus | | | | | | | | | | | | | | |  | B1 | | | | |  | | | WPS 24 | | | | | | | | | | 0 | | |  |
|  | Name | | | | | | | | |  | First Name(s) | | | | | | | | | | | | | | |  | Stamp No. | | | | |  | | |  | | | WPS used | | | | | | | Rev. | | |  |
| BASIC INFORMATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Info only | | pipe or plate | | | | | | | | | | | | | Pipe | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Info only | | base material(s) | | | | | | | | | | | | | *SA-312 316 T = 5 [mm] to SA-312 316 T = 5 [mm]* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Info only | | P-No to P-No | | | | | | | | | | | | | *8 to 8* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Info only | | welding machine | | | | | | | | | | | | | *Master-3000* | | | | | | | | | | | | | | Weld Position | | | | | | | | | | | | | *1G rotated* | | | | | | |
| Info only | | filler metal or electrode classification | | | | | | | | | | | | | *SFA 5.18* | | | | | | | | | | | | | | Current / Polarity | | | | | | | | | | | | | *AC (-)* | | | | | | |
| Welding Variables | | | | | | | | | | | | | | | Actual Values from Coupon | | | | | | | | | | | | | | Qualified Ranges | | | | | | | | | | | | | | | | | | | |
| QW | |  | | | | | | | | | | | | | or Production Weld | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | |
| AUTOMATIC - WELDING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 361.1 (a) | | change from automatic to machine | | | | | | | | | | | | | *automatic* | | | | | | | | | | | | | | *automatic* | | | | | | | | | | | | | | | | | | | |
| 361.1 (b) | | change in welding process | | | | | | | | | | | | | *Laser Beam Welding 522* | | | | | | | | | | | | | | *Laser Beam Welding 522* | | | | | | | | | | | | | | | | | | | |
| 361.1 (c) | | filler metal used  (electron beam - EBW or laser beam welding - LBW) | | | | | | | | | | | | | *yes* | | | | | | | | | *no* | | | | | *without* | | | | | | | | | | | | | | | | | | | |
| 361.1 (d) | | type of laser for LBW (CO2 to YAG) | | | | | | | | | | | | | *yes - CO2* | | | | | | | | | *no* | | | | | *CO2 laser only* | | | | | | | | | | | | | | | | | | | |
| 361.1 (e) | | continuous drive or inertia welding (friction welding - FW) | | | | | | | | | | | | | *yes* | | | | | | | | | *no* | | | | | *without* | | | | | | | | | | | | | | | | | | | |
| 361.1 (f) | | vacuum to out of vacuum (EBW) | | | | | | | | | | | | | *yes* | | | | | | | | | *no* | | | | | *without* | | | | | | | | | | | | | | | | | | | |
| MACHINE - WELDING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 361.2 (a) | | process(s) | | | | | | | | | | | | | GTAW | | | | | | | | | | | | | | GTAW | | | | | | | | | | | | | | | | | | | |
| 361.2 (b) | | direct visual control ⮀ remote control | | | | | | | | | | | | | *direct* | | | | | | *remote* | | | | | | | | direct | | | | | | | | | | | | | | | | | | | |
| 361.2 (c) | | automatic volt control (GTAW) | | | | | | | | | | | | | *yes* | | | | | | *no* | | | | | | | | *with / without* | | | | | | | | | | | | | | | | | | | |
| 361.2 (d) | | automatic joint tracking | | | | | | | | | | | | | *yes* | | | | | | *no* | | | | | | | | *with / without* | | | | | | | | | | | | | | | | | | | |
| 361.2 (e) | | welding position | | | | | | | | | | | | | *1 G* | | | | | | *OD = 100,0 [mm]* | | | | | | | | *F* | | | | | | | | | | | *OD ≥ 73,0 [mm]* | | | | | | | | |
| 361.2 (f) | | consumable inserts | | | | | | | | | | | | | *yes* | | | | | | *no* | | | | | | | | *with / without* | | | | | | | | | | | | | | | | | | | |
| 361.2 (g) | | backing | | | | | | | | | | | | | *yes* | | | | | | *no* | | | | | | | | *with / without* | | | | | | | | | | | | | | | | | | | |
| 361.2 (h) | | single pass ⮀ multiple pass | | | | | | | | | | | | | *single* | | | | | | *multiple* | | | | | | | | *single / multiple* | | | | | | | | | | | | | | | | | | | |
| QW-161 | | | | | | | | **GUIDED BEND TEST** | | | | | | | | | | | | | | | | *YES* | | | | | | *None* | | | | | | | | | | | | | | | | | | |
| Type QW-462.3 (a) (b) | | | | | | | | | | | | | | | Results: | | | | | | | | | | Type QW-462.2 | | | | | | | | | | | | | | | | | | Results: | | | | | |
| x (Face Bend) | | | | | | | | | | | | | | | *satisfactory* | | | | | | | | | | x (Side Bend) | | | | | | | | | | | | | | | | | |  | | | | | |
| x (Root Bend) | | | | | | | | | | | | | | | *satisfactory* | | | | | | | | | | x (Side Bend) | | | | | | | | | | | | | | | | | |  | | | | | |
| QW-191 | | | | | | | | | **VOLUMETRIC NDE** | | | | | | | | | | | | | *YES* | | | | | | | | | | | | *None* | | | | | | | | | | | | | | |
| Radiographic Examination (RT) | | | | | | | | |  | | | | | | | | | Ultrasonic Examination (UT) | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | |
| QW-191.1.2 Results: | | | | | | | | | *satisfactory* | | | | | | | | | QW-191.2.3 Results: | | | | | | | | | | | | | | | |  | | | | | | | | | | | | | | |
| QW-181.2 | | | | | | | **FILLET WELD TEST** QW-462.4 (b) or (c) | | | | | | | | | | | | | | | | *YES* | | | | | | | | | | | *None* | | | | | | | | | | | | | | |
| Fracture Test | | | | fractured specimen | | | | | | | | |  | | | | | | | bend specimen upon itself | | | | | | | | | | | | | |  | | | | | | | | | | | | | | |
| Length of inclusion or percent of defects: | | | | | | | | | | | | | | | | | | | | QW-182 Results: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QW-184 or QW-362 | | | | | | **MACRO EXAMINATION** | | | | | | | | | | | | | | | *YES* | | | | | | | | | | | | *None* | | | | | | | | | | | | | | | |
| **fusion zone size consistent** | | | **regular shape of fusion zone** | | | | | | | | | **uniform penetration** | | | | | | | **sound weld metal** | | | | | | | | | **cracks in weld metal** | | | | | | | | | | | **cracks in  heat-affected zone** | | | | | | | | | |
| *yes* | | | *yes* | | | | | | | | | *yes* | | | | | | | *yes* | | | | | | | | | *no* | | | | | | | | | | | *no* | | | | | | | | | |
| Length of indication: | | | | | | | | | | | | | | Concavity: | | | | | | | | | | | | | | | | | | | | | | | Convexity: | | | | | | | | | | | |
| Fillet leg size: | | | | | | | | | | | | | | | | | | | QW-184 or QW-362 Results: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OTHER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Visual examination results (QW-302.4): *satisfactory* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RT Film or UT evaluated by: ***Mr. Mustermann*** | | | | | | | | | | | | | | | | | ***Level*** | | | | | | | | Company: | | | | | | | | | | | | | | | | | | | | | | | |
| Mechanical tests conducted by: ***TÜV Thüringen*** | | | | | | | | | | | | | | | | | | | | | | | | | Laboratory test report no.: | | | | | | | | | | | | | | | | | | | | | | | |
| Welding supervised by: ***Mr. Mustermann (Welding Engineer)*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in according with the requirements of Section IX ASME Boiler and Pressure Vessel Code. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | |  | | | | |  | | | | | | | | | |  | | |
|  | Mustermann GmbH | | | | | | | | | | | | |  | |  | | | | | | | | | | | | | | |  | | | | | *20* | | | | | *06* | | | *2013* | | |  | |
|  | Organization / Manufacturer | | | | | | | | | | | | |  | | Signature | | | | | | | | | | | | | | |  | | | | | Day Month Year | | | | | | | | | |  | | |