

MIG/MAG welding with solid wire electrode (process 135)

| WPS number | Process | Weld type | Joint type | Material group | Filler material | Material thickness (mm) | Welding position | Weld details | Throat thickness (mm) |
|---------------------|---------|-----------|------------|----------------|--|-------------------------|------------------|--------------|-----------------------|
| Filled welds | | | | | | | | | |
| WPS 135-FW-1 | 135 | P/T | FW | 1.1/1.2 | EN ISO 14341-A G42 2 M/G3Si1 EN ISO 14341-A G42 3 M/G3Si1 EN ISO 14341-A G42 4 M/G3Si1 | 3...7 | PA, PB, PC | sl | 3...5 |
| WPS 135-FW-2 | 135 | P/T | FW | 1.1/1.2 | | 3...7 | PD | sl | 3...5 |
| WPS 135-FW-3 | 135 | P/T | FW | 1.1/1.2 | | 3...7 | PF | sl | 3...5 |
| WPS 135-FW-4 | 135 | P/T | FW | 1.1/1.2 | | 7...12 | PA, PB, PC | sl | 3...5 |
| WPS 135-FW-5 | 135 | P/T | FW | 1.1/1.2 | | 7...12 | PD | sl | 3...5 |
| WPS 135-FW-6 | 135 | P/T | FW | 1.1/1.2 | | 7...12 | PF | sl | 3...5 |
| WPS 135-FW-7 | 135 | P/T | FW | 1.1/1.2 | | 6...10 | PA, PB, PC | ml | no restriction |
| WPS 135-FW-8 | 135 | P/T | FW | 1.1/1.2 | | 6...10 | PD | ml | no restriction |
| WPS 135-FW-9 | 135 | P/T | FW | 1.1/1.2 | | 6...10 | PF | ml | no restriction |
| WPS 135-FW-10 | 135 | P/T | FW | 1.1/1.2 | | 10...24 | PA, PB, PC | ml | no restriction |
| WPS 135-FW-11 | 135 | P/T | FW | 1.1/1.2 | | 10...24 | PD | ml | no restriction |
| WPS 135-FW-12 | 135 | P/T | FW | 1.1/1.2 | | 10...24 | PF | ml | no restriction |
| Butt welds | | | | | | | | | |
| WPS 135-BW-1 | 135 | P/T | BW | 1.1/1.2 | EN ISO 14341-A G42 2 M/G3Si1 EN ISO 14341-A G42 3 M/G3Si1 EN ISO 14341-A G42 4 M/G3Si1 | 3...4 | PA | sl | |
| WPS 135-BW-2 | 135 | P/T | BW | 1.1/1.2 | | 3...4 | PC | sl | |
| WPS 135-BW-3 | 135 | P/T | BW | 1.1/1.2 | | 3...4 | PE | sl | |
| WPS 135-BW-4 | 135 | P/T | BW | 1.1/1.2 | | 3...4 | PF | sl | |
| WPS 135-BW-5 | 135 | P/T | BW | 1.1/1.2 | | 5...8 | PA | ml | |
| WPS 135-BW-6 | 135 | P/T | BW | 1.1/1.2 | | 5...8 | PC | ml | |
| WPS 135-BW-7 | 135 | P/T | BW | 1.1/1.2 | | 5...8 | PE | ml | |
| WPS 135-BW-8 | 135 | P/T | BW | 1.1/1.2 | | 5...8 | PF | ml | |
| WPS 135-BW-9 | 135 | P/T | BW | 1.1/1.2 | | 8...12 | PA | ml | |
| WPS 135-BW-10 | 135 | P/T | BW | 1.1/1.2 | | 8...12 | PC | ml | |
| WPS 135-BW-11 | 135 | P/T | BW | 1.1/1.2 | | 8...12 | PE | ml | |
| WPS 135-BW-12 | 135 | P/T | BW | 1.1/1.2 | | 8...12 | PF | ml | |
| WPS 135-BW-13 | 135 | P/T | BW | 1.1/1.2 | | 12...20 | PA | ml | |
| WPS 135-BW-14 | 135 | P/T | BW | 1.1/1.2 | | 12...20 | PC | ml | |
| WPS 135-BW-15 | 135 | P/T | BW | 1.1/1.2 | | 12...20 | PE | ml | |
| WPS 135-BW-16 | 135 | P/T | BW | 1.1/1.2 | | 12...20 | PF | ml | |

Filler materials that comply with the classifications above can be used, such as Esab OK Autrod 12.51, Elgamatic 100, Böhler EMK6. We have carried out impact toughness tests for a filler material that complies with EN ISO 14341-A G3 Si1.

MIG/MAG welding with flux cored wire (process 136)

| WPS number | Process | Weld type | Joint type | Material group | Filler material | Material thickness (mm) | Welding position | Weld details | Throat thickness (mm) |
|---------------------|---------|-----------|------------|----------------|--|-------------------------|------------------|--------------|-----------------------|
| Filled welds | | | | | | | | | |
| WPS 136-FW-1 | 136 | P/T | FW | 1.1/1.2 | EN ISO 17632-A T42 2 P M 1 H5 EN ISO 17632-A T46 2 P M 1 H5 EN ISO 17632-A T46 4 P M 2 H10 | 3...7 | PA, PB, PC | sl | 3...5 |
| WPS 136-FW-2 | 136 | P/T | FW | 1.1/1.2 | | 3...7 | PD | sl | 3...5 |
| WPS 136-FW-3 | 136 | P/T | FW | 1.1/1.2 | | 3...7 | PF | sl | 3...5 |
| WPS 136-FW-4 | 136 | P/T | FW | 1.1/1.2 | | 7...12 | PA, PB, PC | sl | 3...5 |
| WPS 136-FW-5 | 136 | P/T | FW | 1.1/1.2 | | 7...12 | PD | sl | 3...5 |
| WPS 136-FW-6 | 136 | P/T | FW | 1.1/1.2 | | 7...12 | PF | sl | 3...5 |
| WPS 136-FW-7 | 136 | P/T | FW | 1.1/1.2 | | 6...10 | PA, PB, PC | ml | no restriction |
| WPS 136-FW-8 | 136 | P/T | FW | 1.1/1.2 | | 6...10 | PD | ml | no restriction |
| WPS 136-FW-9 | 136 | P/T | FW | 1.1/1.2 | | 6...10 | PF | ml | no restriction |
| WPS 136-FW-10 | 136 | P/T | FW | 1.1/1.2 | | 10...24 | PA, PB, PC | ml | no restriction |
| WPS 136-FW-11 | 136 | P/T | FW | 1.1/1.2 | | 10...24 | PD | ml | no restriction |
| WPS 136-FW-12 | 136 | P/T | FW | 1.1/1.2 | | 10...24 | PF | ml | no restriction |
| Butt welds | | | | | | | | | |
| WPS 136-BW-1 | 136 | P/T | BW | 1.1/1.2 | EN ISO 17632-A T42 2 P M 1 H5 EN ISO 17632-A T46 2 P M 1 H5 EN ISO 17632-A T46 4 P M 2 H10 | 5...6 | PA | ml | ss mb *Note |
| WPS 136-BW-2 | 136 | P/T | BW | 1.1/1.2 | | 5...6 | PC | ml | ss mb |
| WPS 136-BW-3 | 136 | P/T | BW | 1.1/1.2 | | 5...6 | PE | ml | ss mb |
| WPS 136-BW-4 | 136 | P/T | BW | 1.1/1.2 | | 5...6 | PF | ml | ss mb |
| WPS 136-BW-5 | 136 | P/T | BW | 1.1/1.2 | | 6...8 | PA | ml | ss mb |
| WPS 136-BW-6 | 136 | P/T | BW | 1.1/1.2 | | 6...8 | PC | ml | ss mb |
| WPS 136-BW-7 | 136 | P/T | BW | 1.1/1.2 | | 6...8 | PE | ml | ss mb |
| WPS 136-BW-8 | 136 | P/T | BW | 1.1/1.2 | | 6...8 | PF | ml | ss mb |
| WPS 136-BW-9 | 136 | P/T | BW | 1.1/1.2 | | 8...12 | PA | ml | ss mb |
| WPS 136-BW-10 | 136 | P/T | BW | 1.1/1.2 | | 8...12 | PC | ml | ss mb |
| WPS 136-BW-11 | 136 | P/T | BW | 1.1/1.2 | | 8...12 | PE | ml | ss mb |
| WPS 136-BW-12 | 136 | P/T | BW | 1.1/1.2 | | 8...12 | PF | ml | ss mb |
| WPS 136-BW-13 | 136 | P/T | BW | 1.1/1.2 | | 12...20 | PA | ml | ss mb |
| WPS 136-BW-14 | 136 | P/T | BW | 1.1/1.2 | | 12...20 | PC | ml | ss mb |
| WPS 136-BW-15 | 136 | P/T | BW | 1.1/1.2 | | 12...20 | PE | ml | ss mb |
| WPS 136-BW-16 | 136 | P/T | BW | 1.1/1.2 | | 12...20 | PF | ml | ss mb |

* ss mb stands for single-sided welding and welding with material backing

Filler materials that comply with the classifications above can be used, for example:

Esab OK Tubrod 15.14, Böhler Ti 52-FD and Elgacore DWA 50. We have carried out impact toughness tests for those filler material brands.

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MIG/MAG welding with metal cored electrode (process 138)

| WPS number | Process | Weld type | Joint type | Material group | Filler material | Material thickness (mm) | Welding position | Weld details | Throat thickness (mm) |
|---------------------|---------|-----------|------------|----------------|--|-------------------------|------------------|--------------|-----------------------|
| Filled welds | | | | | | | | | |
| WPS 138-FW-1 | 138 | P/T | FW | 1.1/1.2 | EN ISO 17632-A T42 2 M M 1 H5 EN ISO 17632-A T46 4 M M 2 H5 | 3...7 | PA, PB, PC | sl | 3...5 |
| WPS 138- FW-2 | 138 | P/T | FW | 1.1/1.2 | | 3...7 | PD | sl | 3...5 |
| WPS 138- FW-3 | 138 | P/T | FW | 1.1/1.2 | | 3...7 | PF | sl | 3...5 |
| WPS 138- FW-4 | 138 | P/T | FW | 1.1/1.2 | | 7...12 | PA, PB, PC | sl | 3...5 |
| WPS 138- FW-5 | 138 | P/T | FW | 1.1/1.2 | | 7...12 | PD | sl | 3...5 |
| WPS 138- FW-6 | 138 | P/T | FW | 1.1/1.2 | | 7...12 | PF | sl | 3...5 |
| WPS 138- FW-7 | 138 | P/T | FW | 1.1/1.2 | | 6...10 | PA, PB, PC | ml | no restriction |
| WPS 138- FW-8 | 138 | P/T | FW | 1.1/1.2 | | 6...10 | PD | ml | no restriction |
| WPS 138- FW-9 | 138 | P/T | FW | 1.1/1.2 | | 6...10 | PF | ml | no restriction |
| WPS 138- FW-10 | 138 | P/T | FW | 1.1/1.2 | | 10...24 | PA, PB, PC | ml | no restriction |
| WPS 138- FW-11 | 138 | P/T | FW | 1.1/1.2 | | 10...24 | PD | ml | no restriction |
| WPS 138- FW-12 | 138 | P/T | FW | 1.1/1.2 | | 10...24 | PF | ml | no restriction |
| Butt welds | | | | | | | | | |
| WPS 138- BW-1 | 138 | P/T | BW | 1.1/1.2 | EN ISO 17632-A T42 2 M M 1 H5 EN ISO 17632-A T46 4 M M 2 H5 | 3...4 | PA | sl | |
| WPS 138- BW-2 | 138 | P/T | BW | 1.1/1.2 | | 3...4 | PC | sl | |
| WPS 138- BW-3 | 138 | P/T | BW | 1.1/1.2 | | 3...4 | PE | sl | |
| WPS 138- BW-4 | 138 | P/T | BW | 1.1/1.2 | | 3...4 | PF | sl | |
| WPS 138- BW-5 | 138 | P/T | BW | 1.1/1.2 | | 5...8 | PA | ml | |
| WPS 138- BW-6 | 138 | P/T | BW | 1.1/1.2 | | 5...8 | PC | ml | |
| WPS 138- BW-7 | 138 | P/T | BW | 1.1/1.2 | | 5...8 | PE | ml | |
| WPS 138- BW-8 | 138 | P/T | BW | 1.1/1.2 | | 5...8 | PF | ml | |
| WPS 138- BW-9 | 138 | P/T | BW | 1.1/1.2 | | 8...12 | PA | ml | |
| WPS 138- BW-10 | 138 | P/T | BW | 1.1/1.2 | | 8...12 | PC | ml | |
| WPS 138- BW-11 | 138 | P/T | BW | 1.1/1.2 | | 8...12 | PE | ml | |
| WPS 138- BW-12 | 138 | P/T | BW | 1.1/1.2 | | 8...12 | PF | ml | |
| WPS 138- BW-13 | 138 | P/T | BW | 1.1/1.2 | | 12...20 | PA | ml | |
| WPS 138- BW-14 | 138 | P/T | BW | 1.1/1.2 | | 12...20 | PC | ml | |
| WPS 138- BW-15 | 138 | P/T | BW | 1.1/1.2 | | 12...20 | PE | ml | |
| WPS 138- BW-16 | 138 | P/T | BW | 1.1/1.2 | | 12...20 | PF | ml | |

Filler materials that comply with the classifications above can be used, for example: Esab OK Tubrod 14.12, Elgacore MX100T and Böhler HL 51-FD. We have carried out impact toughness tests for those filler material brands.

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