

Staff qualifications and certifications – welding

Pressure equipment – Regulations and standards

Welding personnel for pressure equipment and structural welding constructions are qualified and certified in third party by accredited inspection body according to EN ISO 9601-1 for steel and according to EN ISO 9696-2 for welded constructions in aluminum and aluminum alloys.

- Fulfils requirements according to PED 2014/68/EU (AFS 2016:1)

Eurocode 3 – Regulations and standards

Welding personnel for structural welding constructions are qualified and certified in third party by accredited inspection body according to EN ISO 9601-1 for steel and according to EN ISO 9696-2 for welded constructions in aluminum and aluminum alloys.

- Fulfils requirements according to Eurocode 3
- Fulfils requirements according to EN 1090-2:2018

ASME BPVC – Codes and standards

Welding personnel for pressure equipment are qualified and certified in-house as manufacturer according to ASME (American Society for Mechanical Engineers) BPVC (Boiler and Pressure Vessel Code) Section IX.

- Fulfils requirements according to ASME B31.1 – Power Piping
- Fulfils requirements according to ASME B31.3 – Process Piping

NORSOK – Pressure equipment

Welding personnel for pressure equipment are qualified and certified according to NORSOK (Norwegian Oil and Gas Standard/Petroleum Industry).

- Fulfils requirements according to NORSOK M-601 – Piping Welding Code – Steel

NORSOK – Structural welded constructions

Welding personnel for structural welded constructions are qualified and certified according to NORSOK (Norwegian Oil and Gas Standard).

- Fulfils requirements according to NORSOK M-101 – Structural Welding Code – Steel

Manufacturing product codes and standards

We manufacture equipment, systems and components according to the following standards

- EN 13480:2017 – Metallic industrial piping
- EN 13445:2014 – Pressure vessels
- EN 1092-2:2018 – Execution of steel structures and aluminium structures
- EN 13155 – Cranes -Safety – Non-fixed load lifting attachments
- NORSOK M-601 – Welding and inspection of piping
- NORSOK M-101 – Structural steel fabrication
- ASME BPVC – Section VIII Division 1 (Után U-Stamp and ASME Authorized QSM)
- ASME B31.1 – Power Piping (Excluding PP-Stamp and ASME Authorized QSM)
- ASME B31.3 – Process Piping (Excluding PP-Stamp and ASME Authorized QSM)

NDT Personnel – Qualifications and certifications

Nondestructive Testing NDT - Method	Performing and equipment	Evaluation and acceptance
Visual Testing VT EN ISO 9712 (Multi Sector) EN ISO 9712 (Multi Sector) - Welds - Material general	EN ISO 13018 Level II Level III (external resource) EN ISO 17637 EN ISO 13018	EN ISO 5817 According to specification
Penetrantprovning PT EN ISO 9712 (Multi Sector) EN ISO 9712 (Multi Sector) - Svets - Material smide - Material gjutgoods - Material allmänt	EN ISO 3452–1 Level II Level III (external resource) EN ISO 3452–1 EN 10228–2 EN 1371 EN ISO 3452–1	EN ISO 23277 EN 10228–2 EN 1371 EN ISO 23277
Magnetpulverprovning MT EN ISO 9712 (Multi Sector) EN ISO 9712 (Multi Sector) - Svets - Material smide - Material gjutgoods - Material allmänt	SS-EN ISO 9934–1 Level II Level III (external resource) EN ISO 17638 EN 10228–3 EN 1369 EN ISO 9934–1	EN ISO 23278 EN 10028–3 EN 1369 EN ISO 23278
Radiografisk provning RT EN ISO 9712 (Multi Sector) EN ISO 9712 (Multi Sector) - Svets	EN ISO 17636–1 Level II Level III (external resource) EN ISO 17636–1	EN ISO 10675–1

Non-destructive testing - Methods

Nondestructive Testing NDT - Method	Performing and equipment	Evaluation and acceptance
Visual Testing VT - Welds - Material general	SS-EN ISO 13018 SS-EN ISO 17637 SS-EN ISO 13018	SS-EN ISO 5817 According to specification
Penetrant testing PT - Welds - Material forgings - Material castings - Material general	SS-EN ISO 3452–1 SS-EN ISO 3452–1 SS-EN 10228–2 SS-EN 1371 SS-EN ISO 3452–1	SS-EN ISO 23277 SS-EN 10228–2 SS-EN 1371 SS-EN ISO 23277
Magnetic Particle Testing MT - Welds - Material forgings - Material castings - Material general	SS-EN ISO 9934–1 SS-EN ISO 17638 SS-EN 10228–3 SS-EN 1369 SS-EN ISO 9934–1	SS-EN ISO 23278 SS-EN 10028–3 SS-EN 1369 SS-EN ISO 23278
Radiographic Testing RT - Welds	SS-EN ISO 17636–1 SS-EN ISO 17636–1	SS-EN ISO 10675–1

Destructive testing – Methods

Destructive Testing DT - Method	Performing and equipment	Evaluation and acceptance
Microhardness Testing MHT - Welds - Material general	SS-EN ISO 9015–1 SS-EN ISO 6507	According to specification According to specification

Weld metal inspection

Welding inspection - Method	Performing and equipment	Evaluation and acceptance
Ferrite content measurement Fe nr / Fe % - Welds Duplex and Super Duplex - Material Duplex and Super Duplex	EN ISO 17655 FERITSCOPE FMP30 FERITSCOPE FMP30	Enligt kravspecifikation Enligt kravspecifikation

Weld processes

Weld process	Process EN ISO 4063	Designation
TIG welding with solid filler material (wire/rod) Gas tungsten arc welding using inert gas and solid filler material (wire/rod)	141	GTAW
MIG welding with solid wire electrode. Gas metal arc welding using inert gas and solid wire electrode	131	GMAW
MAG welding with solid wire electrode. Gas metal arc welding using active gas with solid wire electrode	135	GMAW
MAG welding with flux cored electrode. Gas metal arc welding using active gas and flux cored electrode.	136	FCAW
MAG welding with metal cored electrode; gas metal arc welding using active gas and metal cored electrode	138	FCAW
Manual metal arc welding (metal arc welding with covered electrode) Shielded metal arc welding	111	SMAW
Oxyacetylene welding	311	OAW

Welding Procedure Qualification

Type of procedure qualification	Codes and standards	Welding Procedure Specification
Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys	PED 2014/68/EU Eurocode 3 EN 1090-2:2018 NORSOK M-601 EN ISO 15614-1:2004	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys	Eurocode 3 EN 1090-2:2018 NORSOK M-601 EN ISO 15614-1:2017	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specifikation för och kvalificering av svetsprocedurer för metalliska material - Svetsprocedurkontroll - Del 2: Bågsvetsning av aluminium och dess legeringar	PED 2014/68/EU Eurocode 3 EN 1090-2:2018 NORSOK M-601 EN ISO 15614-2:2004	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production welding test	SS-EN ISO 15613:2004	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specification and qualification of welding procedures for metallic materials - Qualification by adoption of a standard welding procedure	Eurocode 3 EN 1090-2:2018 EN ISO 15612:2019	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specification and qualification of welding procedures for metallic materials - Qualification based on previous welding experience	EN ISO 15611:2004	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019
Specification and qualification of welding procedures for metallic materials - Qualification based on tested welding consumables	EN ISO 15610:2004	Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding EN ISO 15609-1:2019