

QUALITY REQUIREMENTS for welding ^a
EN ISO 3834

Grouping of materials
Welder qualification
WPS
Welding procedure qualification
Welding operator qualification
NDT-personnel
Welding coordination
Inspection & testing during welding
- Measurement of preheat and interpass temp.
- Recommendations for welding
- Comparison of methods for avoidance of cold cracks
Inspection & testing after welding
- NDT – General rules
- Visual testing
- Radiographic testing
- Ultrasonic testing
- Magnetic particle testing
- Macro- & microscopic testing
- Penetrant testing (general)
Post-weld heat treatment
Calibration/validation

Qual.lev. fusion welding (not beam)
Quality levels for beam welding
Quality levels for cutting
Joint preparation

Joint details
Geometric imperfections - Definitions

Arc welding
Steel Aluminium
CEN ISO/TR 15608, 20172, 20173, 20174
EN ISO 9606-1 EN ISO 9606-2
EN ISO 15609-1
EN ISO 15607, 15610, 15611, 15612, 15613
EN ISO 15614-1 EN ISO 15614-2 & -4
EN ISO 14732
EN ISO 9712
EN ISO 14731
EN ISO 13916
EN 1011-2 & -3 (ISO/TR 17671-2 & -3) EN 1011-4 (ISO/TR 17671-4)
CEN ISO/TR 17844)
EN ISO 17635
EN ISO 17637
EN ISO 17636-1 & -2
EN ISO 17640
EN ISO 17638
EN ISO 17639
EN ISO 3452-1
EN ISO 17663
EN ISO 17662

Quality levels & Joint preparation
Steel Aluminium
EN ISO 5817 EN ISO 10042
EN ISO 13919-1 EN ISO 13919-2
EN ISO 9013
EN ISO 9692-1 & -2 EN ISO 9692-3

Other
Pressurized comp. / Steel constr. EN 1708-1 & -3/ -2 (ISO 'missing')
Fusion welding / Pressure welding EN ISO 6520-1 / -2
Thermal cuts EN 12584 (ISO 17658)
Designation system CEN ISO/TS 17845

European (international^b) standards for fusion welding

Copper	Nickel	Titanium & Zirconium
EN ISO 9606-3	EN ISO 9606-4	EN ISO 9606-5

Gas welding	Electron beam welding	Laser welding
EN ISO 15609-2	EN ISO 15609-3	EN ISO 15609-4

Cast iron	Titanium & Zirconium	Copper
EN ISO 15614-3	EN ISO 15614-5	EN ISO 15614-6

Overlay welding	Tube to tube plate	Beam welding
EN ISO 15614-7	EN ISO 15614-8	EN ISO 15614-11

Clad steel	Laser	Electron beam	Cast iron
EN 1011-5 (ISO/TR 17671-5)	EN 1011-6 (ISO/TR 17671-6)	EN 1011-7 (ISO/TR 17671-7)	EN 1011-8 (ISO/TR 17671-8)

Environment, health & safety
EN ISO 15011-1 till -4 & CEN ISO/TR 15011-5
EN ISO 10882-1 & -2
EN ISO 15012-1 & -2
EN 169, 170, 171, 175 & 379
EN ISO 11611, EN 12477
EN 1598
EN 14717

MMA
MIG/MAG
TIG
Electrodes etc for submerged arc
Fluxes for submerged arc
Cored wires
Gas welding
Shielding gas

Other continued
ISO 2553
EN ISO 4063
CEN/TR 14599 (ISO/TR 25901)
EN 14610
EN ISO 17659
EN ISO 13920
EN ISO 6947, CEN/TR 14633
EN ISO 17660

Welding consumables
EN 13479
EN 12074
EN ISO 544
EN ISO 14344
EN 14532-1, -2 & -3
EN ISO 15792-1, -2 & -3, 6847, 14372, 8249, 3690 & ISO 2401
EN ISO 6848
EN 14700

Classification of welding consumables								
			Other materials					
Stainless and heat resisting			Nickel	Copper	Aluminium	Cast iron	Titanium	
EN ISO 3581			EN ISO 14172	prEN ISO 17777				
EN ISO 14343			EN ISO 18274	EN ISO 24373	EN ISO 18273	EN ISO 1071	EN ISO 24034	
EN ISO 17633			EN ISO 12153			EN ISO 1071		
EN ISO 14175								

Impact
Tensile long.
Tensile perp.
Tensile cruc.
Bend
Fracture
Hardness
Macroscopic
Hot crack
Cold crack
Delta ferrite

Destructive testing
EN ISO 9016
EN ISO 5178
EN ISO 4136
EN ISO 9018
EN ISO 5173
EN ISO 9017
EN ISO 9015-1 & -2
EN ISO 17639, CR 12361 (ISO/TR 16060)
EN ISO 17641-1, -2 & -3
EN ISO 17642-1, -2 & -3
EN ISO 17655

Acceptance levels for NDT
EN ISO 10675-1 & -2
EN ISO 11666, 15626, 22825, 23279
EN ISO 23278
EN ISO 23277
For all imperfections EN ISO 5817 etc apply

^a References in fields with this colour are directly linked to EN ISO 3834

^b The ISO-reference in brackets is in most cases identical with or is based on corresponding EN