

QUALITY REQUIREMENTS for welding ^a
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
Qual.lev. laser-arc hybrid welding
Quality levels for cutting
Joint preparation

	Other	
Joint details	Pressurized comp. / Steel constr.	EN 1708-1 & -3 / -2 (ISO 'missing')
Geometric imperfections - Definitions	Fusion welding / Pressure welding	ISO 6520-1 / -2
	Thermal cuts	ISO 17658
	Designation system	ISO/TS 17845
	See continued	

International^b standards for fusion welding

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

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

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

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

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

Environment, health & safety	Product
ISO 15011-1 to -5	Quality req. for manufacturing
ISO 10882-1 & -2	Technical delivery conditions
ISO 21904-1, -2 & -4	Procurement
ISO 16321-1 & -2	Type testing
ISO 11611, (EN 12477)	Testing
ISO 25980	TIG electrodes
(EN 14717)	Hard facing
Fume sampling in laboratory	
Fume sampling in breathing zone	
Filters	
Eye protection	
Protective clothing	
Welding curtains	
Environm. checklist	

	Classification of welding consumables								
	Steel				Other materials				
	Non-alloy and fine grain	High strength	Creep resistant	Stainless and heat resisting	Nickel	Copper	Aluminium	Cast iron	Titanium
MMA	ISO 2560	ISO 18275	ISO 3580	ISO 3581	ISO 14172	ISO 17777			
MIG/MAG	ISO 14341	ISO 16834	ISO 21952	ISO 14343	ISO 18274	ISO 24373	ISO 18273	ISO 1071	ISO 24034
TIG	ISO 636								
Electrodes etc for submerged arc	ISO 14171								
Fluxes for submerged arc	ISO 14174								
Cored wires	ISO 17632	ISO 18276	ISO 17634	ISO 17633	ISO 12153			ISO 1071	
Gas welding	ISO 20378		ISO 20378						
Shielding gas	ISO 14175								

Other continued
ISO 2553
ISO 4063
ISO/TR 25901-parts, CEN/TR 14599
ISO/TR 25901-parts
ISO 17659
ISO 13920
ISO 6947, CEN/TR 14633
ISO 17660

Welding consumables
EN 13479
EN 12074
ISO 544
ISO 14344
EN 14532-1, -2 & -3
ISO 15792-1, -2 & -3, 6847, 14372, 8249, 3690 & ISO 2401
ISO 6848
ISO/TR 13393 (EN 14700)

Impact
Tensile long.
Tensile perp.
Tensile cruc.
Bend
Fracture
Hardness
Macroscopic
Hot crack
Cold crack
Ferrite No

Destructive testing
ISO 9016
ISO 5178
ISO 4136
ISO 9018
ISO 5173
ISO 9017
ISO 9015-1 & -2
ISO 17639, ISO/TR 16060 (CR 12361)
ISO 17641-1, -2 & -3
ISO 17642-1, -2 & -3
ISO 8249

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

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

^b The ISO reference in brackets is in most cases identical with or is based on corresponding EN *"Standards do not replace education, sound judgment and good engineering practice"*, Mathias Lundin