

601/1820/9 - ETCAL Level 2 NVQ Diploma in Fabrication and Welding Engineering (QCF)

1 Introduction to the Qualification

1.1 Who is the qualification for?

- This qualification has been designed to cover those learners who are:
 - employed but require additional engineering competencies as part of an existing job role or to enable career progression.

1.2 Learner entry requirements

There are no formal entry requirements for learners undertaking this qualification. However, centres must ensure that learners have the potential and opportunity to gain the qualification successfully.

1.3 Age restrictions

This qualification is not approved for use by learners under the age of 16, and ETA cannot accept any registrations for learners in this age group.

1.4 What does the qualification cover?

- Mandatory units cover those areas which have a common approach such as organisational safety requirements, team working and using technical information
- There are 10 optional pathways, Manual Welding, Welding Machine Operating, Rail Welding, Brazing and Soldering, Plastic Welding, Sheetmetal, Plateworker, Structural Steelwork, Pipework Fabrication and Thermal Cutting offering a choice of units applicable to individual workplaces and working environments

2 Qualification Structure

Learners must achieve a minimum of 47 credits to gain the qualification. 15 credits must be achieved by completing the 3 mandatory units and the remaining credits achieved by completing the unit requirements from the selected pathway.

Mandatory Units – all units must be completed

Ofqual code	Unit Title	Level	CV	GLH
A/601/5013	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35
Y/601/5102	Using and Interpreting Engineering Data and Documentation	2	5	25

Y/601/5052	Carrying Out Engineering Activities Efficiently and Effectively	2	5	25
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Manual Welding Optional Pathway – 1 unit must be selected.

Ofqual code	Unit Title	Level	CV	GLH
T/504/9232	Joining Materials by the Manual Metal Arc Welding Process	2	54	196
F/504/9234	Joining Materials by the Semi-Automatic MIG/MAG and Flux Cored Arc Processes	2	54	196
J/504/9235	Joining materials by Manual TIG and Plasma-arc Welding Processes	2	54	196
L/504/9236	Joining Materials by the Manual Oxy/Fuel Gas Welding Process	2	50	175
R/504/9237	Producing Fillet Welded Joints using a Manual/Semi-Automatic Welding Process	2	44	169

Welding Machine Operating Optional Pathway – 1 unit must be selected.

H/504/9212	Welding Materials with Mechanised Arc Welding Equipment	2	37	140
K/504/9213	Welding Materials using Resistance Spot, Seam and Projection Welding Machines	2	35	129
M/504/9214	Welding Materials using Laser Welding Machines	2	37	140
T/504/9215	Welding Materials using Electron Beam Welding Machines	2	37	140
A/504/9216	Welding Materials using Friction Welding Machines	2	35	129

Rail Welding Optional Pathway – 1 unit must be selected.

Y/504/9238	Joining Rails using the Aluminothermic Welding Process	2	52	153
D/504/9239	Restore Rails to Operational Condition using an Arc Welding Process	2	44	132
R/504/9240	Welding Rails using Flash Welding Equipment	2	40	132

Brazing and Soldering Optional Pathway – 1 unit must be selected.

D/504/9242	Joining Materials by Manual Torch Brazing and Soldering	2	35	129
H/504/9243	Operating Brazing Machines	2	35	129

Plastic Welding Optional Pathway – 1 unit must be selected.

F/504/9248	Joining Plastics by Manual Welding Processes	2	44	147
J/504/9249	Joining Materials using Plastics Welding Machines	2	35	129

Sheet Metalwork (3mm or less) Optional Pathway – 2 units must be selected from the following.

F/504/9251	Marking Out Components for Fabrication	2	15	63
A/504/9281	Cutting Sheet Metal to Shape using Hand and Machine Tools	2	28	133
F/504/9282	Forming Sheet Metal using Hand and Machine tools	2	28	133
J/504/9283	Producing Sheet Metal Assemblies	2	35	119
L/504/9284	Heat Treating Materials for Fabrication Activities	2	10	56
Y/504/9286	Cutting and Shaping Materials using CNC Laser Profiling Machines	2	37	154
D/504/9287	Cutting and Shaping using CNC Plasma or Gas Cutting Machines	2	37	154
M/504/9293	Cutting Materials using Hand Operated Thermal Cutting Equipment	2	28	133
H/504/9307	Cutting and Shaping Materials using CNC Water Jet Cutting Machines	2	28	133

Plus 1 unit must be selected from the following.

K/504/9289	Assembling Components using Mechanical Fasteners	2	18	70
F/504/9217	Bonding Engineering Materials using Adhesives	2	14	56
J/504/9218	Joining Materials by Resistance Spot Welding	2	7	35
F/504/9234	Joining Materials by the Semi-Automatic MIG/MAG and Flux Cored Arc Processes	2	54	196
J/504/9235	Joining Materials by Manual TIG and Plasma-arc Welding Processes	2	54	196
L/504/9236	Joining Materials by the Manual Gas	2	50	175

	Welding Process			
D/504/9290	Slinging, Lifting and Moving Materials and Components	2	14	56
Plateworker (3mm or more) Mandatory Pathway – this unit must be selected.				
F/504/9251	Marking Out Components for Fabrication	2	15	63
Plateworker (3mm or more) Optional Pathway – 1 unit must be selected from the following.				
H/504/9291	Cutting Plate and Sections using Shearing Machines	2	21	98
M/504/9293	Cutting Materials using Hand Operated Thermal Cutting Equipment	2	28	133
A/504/9295	Cutting and Shaping Materials using Gas Cutting Machines	2	28	133
L/504/9219	Cutting Materials using Saws and Abrasive Discs	2	13	42
Y/504/9286	Cutting and Shaping Materials using CNC Laser Profiling Machines	2	37	154
D/504/9287	Cutting and Shaping using CNC Plasma or Gas Cutting Machines	2	37	154
H/504/9307	Cutting and Shaping Materials using CNC Water Jet Cutting Machines	2	28	133
Plus 1 more unit from the following.				
F/504/9296	Bending and Forming Plate using Power Operated Machines	2	28	133
J/504/9297	Forming Platework using Power Rolling Machines	2	28	133
L/504/9298	Producing Platework Assemblies	2	30	133
R/504/9299	Producing Holes using Drilling Machines	2	10	49
Plus 1 more unit from the following.				
K/504/9289	Assembling Components using Mechanical Fasteners	2	18	70
R/504/9237	Producing Fillet Welded Joints using a Manual Welding Process	2	44	169
H/504/9212	Welding Materials with Mechanised Arc Welding Equipment	2	37	140
D/504/9290	Slinging, Lifting and Moving Materials and Components	2	14	56
Structural Steelwork Mandatory Pathway – this unit must be selected.				
F/504/9251	Marking Out Components for Fabrication	2	15	63

Structural Steelwork Optional Pathway – 1 unit must be selected from the following.				
H/504/9291	Cutting Plate and Sections using Shearing Machines	2	21	98
M/504/9293	Cutting Materials using Hand Operated Thermal Cutting Equipment	2	28	133
A/504/9295	Cutting and Shaping Materials using Gas Cutting Machines	2	28	133
L/504/9219	Cutting Materials using Saws and Abrasive Discs	2	13	42
Plus 2 more units must be selected from the following.				
A/504/9300	Forming of Structural Sections using Machines	2	35	119
J/504/9302	Producing Structural Steel Ancillary Components	2	24	111
R/504/9299	Producing Holes using Drilling Machines	2	10	49
K/504/9289	Assembling Components using Mechanical Fasteners	2	18	70
R/504/9237	Producing Fillet Welded Joints using a Manual Welding Process	2	44	269
H/504/9212	Welding Materials with Mechanised Arc Welding Equipment	2	37	140
L/504/9303	Assembling Structural Steelwork	2	35	119
D/504/9290	Slinging, Lifting and Moving Materials and Components	2	14	56
Pipework Fabrication Mandatory Pathway – this unit must be selected.				
F/504/9251	Marking Out Components for Fabrication	2	15	63
Pipework Fabrication Optional Pathway – 1 unit must be selected from the following.				
M/504/9293	Cutting Materials using Hand Operated Thermal Cutting Equipment	2	28	133
A/504/9295	Cutting and Shaping Materials using Gas Cutting Machines	2	28	133
L/504/9219	Cutting Materials using Saws and Abrasive Discs	2	13	42
Plus 2 more units must be selected from the following.				
R/504/9299	Producing Holes using Drilling Machines	2	10	49
R/504/9304	Forming Pipework by Machine Bending	2	35	126
K/504/9289	Assembling Components using Mechanical Fasteners	2	18	70
F/504/9217	Bonding Engineering Materials using Adhesives	2	14	56
Y/504/9305	Produce Socket and Flange Fillet Welded Joints in Pipe using A Manual Welding Process	2	50	175

Thermal Cutting Optional Pathway – 2 units must be selected from the following.

M/504/9293	Cutting Materials using Hand Operated Thermal Cutting Equipment	2	28	133
A/504/9295	Cutting and Shaping Materials using Gas Cutting Machines	2	28	133
Y/504/9286	Cutting and Shaping Materials using CNC Laser Profiling Machines	2	37	154
D/504/9287	Cutting and Shaping using CNC Plasma or Gas Cutting Machines	2	37	154

2.1 Unit requirements are available as a separate document

2.2 Unit Endorsement

These units are endorsed by the Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTEA).

3 Centre & Qualification Approval

Centres wishing to offer the qualification will need to gain ETA's approval to do so. Current ETA centres can do this via Quartz Web. For non ETA Centres to gain approval to run the qualification please provide your details via <http://quartz.etawards/quartz-system.com> and the ETA team will start the process of approval.

4 Resource Requirements

4.1 Assessors

Assessment must be carried out by competent assessors who hold, or are working towards, a current assessor qualification. They will be expected to regularly review their skills, knowledge and understanding and, where applicable, undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

Assessors must be able to demonstrate that they have relevant and sufficient technical competence to evaluate and judge performance and knowledge evidence of this qualification, the units being taken and the associated assessment criteria. This will be demonstrated either by holding a relevant technical qualification or by proven experience in the learner's industry. The assessor's competence must, at the very least, be at the same level as that required of the learner in the assessment so that they are able to demonstrate the skills needed.

4.2 Internal Quality Assurance Advisors

Internal quality assurance (IQA) must be carried out by competent quality assurers who should hold or be working towards, a current internal quality assurance qualification. They will be expected to regularly review their skills, knowledge and understanding and, where applicable, undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

Persons carrying out the role of internal quality assurance will also be expected to be fully conversant with the ETA requirements for IQA in centres. These are detailed in the centre manual.

IQAAs must be able to demonstrate that they have relevant and sufficient technical competence to understand performance and knowledge evidence of this qualification, the units being taken and the associated assessment criteria. This will be demonstrated either by holding a relevant technical qualification or by proven experience in the learner's industry.

The IQAA's competence must be sufficient to recognise what constitutes acceptable performance, knowledge and understanding as required by this qualification.

4.3 External Quality Assurance Advisors

ETA will appoint an appropriately qualified person to provide advice and guidance to the centre team and act as their external quality assurance advisor (EQAA).

External quality assurance (EQA) must be carried out by competent quality assurers who should hold, or be working towards, a current external quality assurance qualification. They will be expected to regularly review their skills, knowledge and understanding and where applicable undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

EQAAs must be able to demonstrate that they have relevant and sufficient technical competence to recognise performance and knowledge evidence of this qualification as required by the units being taken and the associated assessment criteria.

4.4 Assessment environment

The evidence of a learner's competence, knowledge and understanding for this qualification can only be regarded as valid, reliable, sufficient and authentic if demonstrated in a real working environment.