



Australian Government

**Assessment Requirements for MEM07042
Undertake corrections and basic
maintenance to aluminium extrusion dies
and die support systems**

Release: 1

Assessment Requirements for MEM07042 Undertake corrections and basic maintenance to aluminium extrusion dies and die support systems

Modification History

Release 1. Supersedes and is equivalent to MEM07042A Undertake corrections and basic maintenance to aluminium extrusion dies and die support systems

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- complying with work health and safety (WHS), regulatory requirements and risk management associated with extruder operation and die handling
- relating intended changes to bearings, apertures, other die components and toolstack components to particular extrusion faults
- adjusting metal flow using workshop machines, hand tools and hand held power tools to correct bearings
- maintaining bearings and other die components to specification
- identifying situations where die or other components must be either scrapped or returned to die manufacturer
- supervising or conducting trial extrusions to verify corrections
- reporting and documenting results of corrections.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- die technology:
 - construction:
 - solid dies
 - hollow dies
 - die support components
 - composition and characteristics of various die steels
 - die manufacturing process
 - nitriding process and purpose
 - extrusion design process and behaviour of typical shapes during extrusion

- bearings:
 - shape and definition
 - bearing deflections
 - bearing wash
 - bearing choke where entrance to die aperture is wider than the exit angle
 - negative bearing (entrance is narrower than the exit angle) increases speed of flow
- die support technology and common faults:
 - bolsters:
 - matching of dies to bolsters
 - typical faults in extrusions related to poor bolster selection or fit
 - backers:
 - softening
 - dishing
 - feeder plates:
 - tolerances too close can cause heat related surface defects on extrusions
 - tolerances not matched to bearings in die can cause shape loss
- extrusion process:
 - shape behaviour of typical extrusion products
 - channel shapes and tongue movement faults and typical distortions and corrections
 - runout length variations and possible causes:
 - recycled and unevenly cooled billets
 - out of alignment die slides
 - bearings worn or polished unevenly
 - operator variables:
 - incorrect heat settings
 - incorrect selection of bolster for die
 - poor breakthrough management
 - principles of flow:
 - variation of flow speed through local details and thicknesses
 - variation across container diameter
 - variation due to length of bearing
 - speed of metal through die along with temperature determines how metal flow fills die
 - source and purpose of heating of:
 - billet
 - die
 - extrusion and extrusion created heat
- surface defects and their causes:
 - die lines caused by roughness at surface edges, damaged bearing edges, bearing wash or flaking of nitriding

- pick up (surface tearing)
- streaking
- blisters
- inclusions in billets
- nitriding flaking off die face
- effects of incorrect heat:
 - collapsing of thin walled sections due to over heating
 - blocking of the die
 - surface breakdown and faults:
 - roughness
 - streaking
 - tearing
- dangers of welding extrusion dies
- die efficiency considerations:
 - monitor die performance over time using examine die and extrusion records
 - balance die correction against tonnage, speed and recovery rates
- when to recommend new die or major re-work by die manufacturer where required.

Assessment Conditions

- Assessors must:
 - have vocational competency in undertaking corrections and basic maintenance to aluminium extrusion dies and die support systems at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>