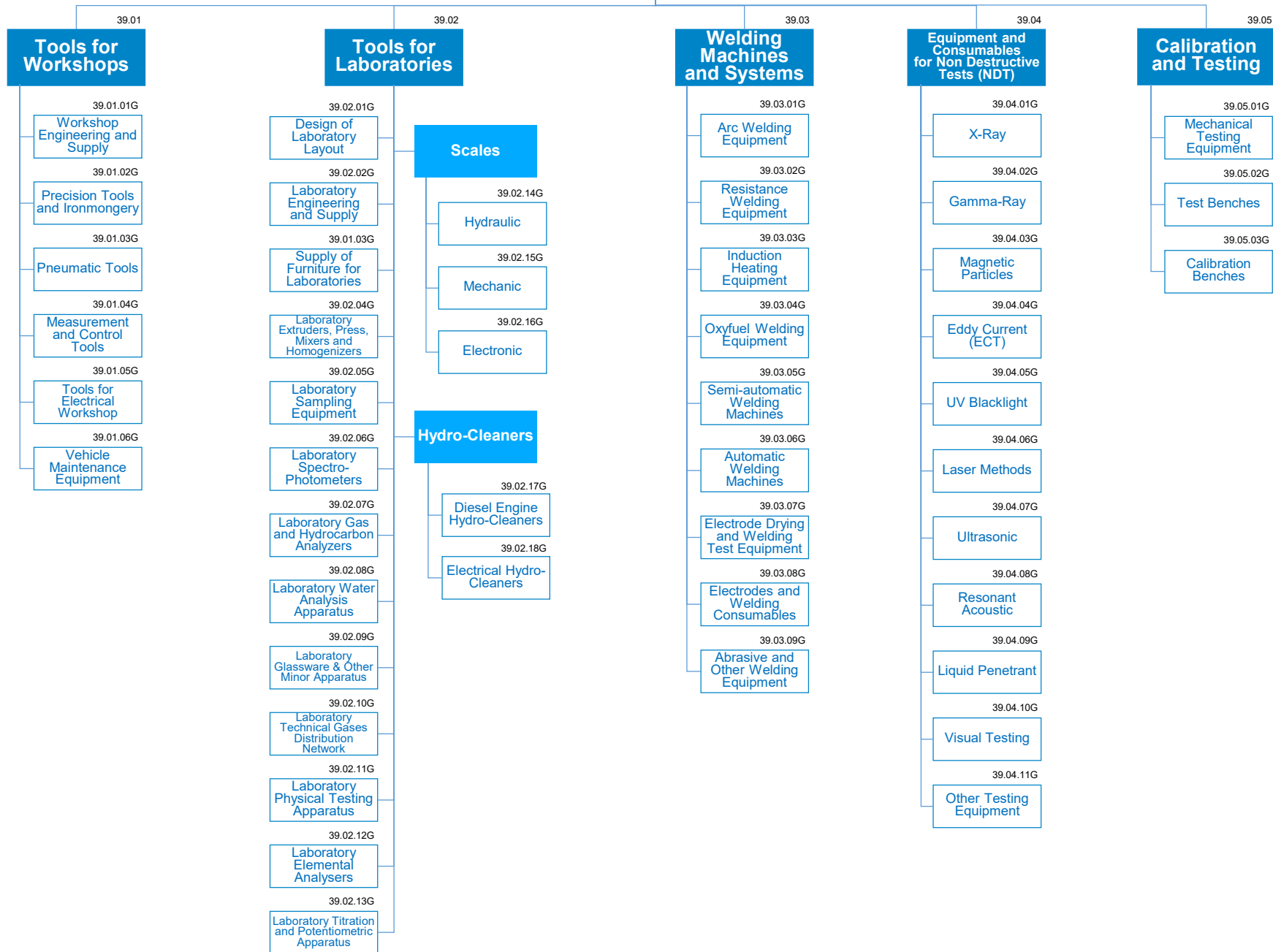


# Workshop and Laboratory Tools



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Workshops and Laboratories are required in each manufacturing plant in the industrial world. They vary in magnitude based on the size of the plant and of the activities, frequently linked to the Operations and Maintenance needs.

Laboratory design and procurement guidance is required by organisations seeking to establish new or ancillary facilities to support and enhance their exploration and production assignments.

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## MAIN RATIONALES BEHIND THE STANDARD CATEGORIZATION

### Tools for Workshops

- The market is characterized by the presence of service providers that act as global, single-source supplier of workshops for Oil&Gas and Power plants.
- Ironmongery refers to the manufacture of iron goods.
- Examples of precision measurement tools, such as steel rule, tape measure, protractor, micrometer, height gauge, various calipers and dial indicators.

### Tools for Laboratories

- The basic design of a Laboratory typically includes layout, furniture planning, fume extraction, solvent and chemical storage, waste management, equipment selection, legislative and environmental requirements, specification for utilities and safety apparatus.
- The market is characterized by the presence of service providers that act as global, single-source supplier of laboratory packages, handling the purchasing of test equipment, laboratory furniture, work benches, storage cabinets, fume cupboards, start-up chemicals, consumables, pressure-control and heating, ventilation and air-conditioning systems.
- Frequent is also the sourcing two-year operating spares, devising operating and procedures manuals and planning for modular laboratories.
- The categories within this family should not be confused with the plant instrumentation comprised under Group 06 ("Control Systems and Instrumentation")

### Welding Machines and Systems

- Welding equipment includes stick welders, tig welders, MIG welders, multi-process welders, advanced process welders, multi-operator welders, engine drives, submerged arc equipment, and wire feeders for arc welding.

### Equipment and Consumables for Non-Destructive-Tests

- Nondestructive testing (NDT) or Nondestructive evaluation (NDE) is a method of materials testing to assess the characteristics of a component without altering or destroying it. NDT is important in the materials testing industry where quick, dependable information on finished or raw material is needed. This may occur during the production stage, during the service life of a material or product, or as a diagnostic tool in the event of material failure.

### Calibration and Testing

- Mechanical testing equipment covers devices used for adhesion, compression, drop (shock), tensile, vibration, and fatigue testing.
- Benches are built to cover core parameters most common to industrial sectors. These include electrical, pressure, temperature, loop and frequency. The modules integrated into the consoles are made to optimise calibration work and increase output.