

Snowy Technical Standards

SHL-GEN-121

Labeling of Valves and Devices

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1. Executive Summary

This standard sets out the requirements for

2. Scope

This document specifies the labelling requirements for all Mechanical, Electrical and Communications plant and equipment within Snowy Hydro Operational Sites.

2.1. Applicable Standards

AS 1345	Identification of the Contents of Pipes, Conduits and Ducts
AS 1359.101-1997	Rotating Electrical Machines – General Requirements – Rating and Performance
AS 2700	Colour Standards for General Purposes

3. Technical Requirements

3.1. General

Labels in sufficient numbers, size and detail, including a unique description and a unique number, are to be provided for all pieces of equipment. The labels are to facilitate rapid, positive plant identification for operational and maintenance purposes.

3.2. Label Material and Lettering Formats

3.2.1. Format 1 – Plastic Laminate “Gravoply”

Engraved in plastic laminate composed of white and black layers. When engraved they shall have black letters not less than 3.0 mm high on a white background. Refer to Drawing MP-M1-286.

Except as otherwise specified in this document, white letters on black background will only be allowed in exceptional circumstances; and then only in clean environments. Approval shall be required for this option.

3.2.2. Format 2 – Aluminium – E.g. For Fire Equipment

Machine embossed letters filled with black paint in aluminium not less than 1 mm thick. Letters shall be 3.0 mm high and embossed more than 0.2 mm deep, neat in appearance.

3.2.3. Format 3 – Stainless Steel (E.g. For Corrosive Environments)

Matt stainless steel with engraved letters filled with black paint

3.2.4. Format 4 – for Pipe Markers only

Pipe markers shall comply with AS 2700 and AS 1345 using adhesive markers

Important: Pipe markers must be applied to correctly show direction of flow.

3.2.5. Format 5 – Warning Labels – to Australian Standard

General facility warning labels shall be to Australian Standard specifications.

Specific electrical equipment warning labels shall be provided on or in all electrical equipment where terminals at dangerous voltages (including 415/240V) may be exposed during maintenance.

- Such Warning labels shall be of plastic laminate with white lettering on a red background.

3.2.6. Fonts

Fonts acceptable for use on labels are as follows:

Arial – Upper Case

Simplex – Upper Case (acceptable AutoCAD Option)

Typical Text styles and sizes are shown on drawing E-GEN-194-13

3.3. Text Requirements and Text Layout for Each Label Category

3.3.1. Large Plant Item Labels

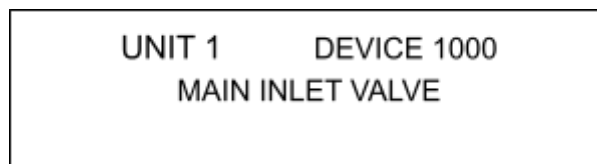
Line 1 Unit, Group, Station or similar high-level designation; and valve/device number.

Line 2 Valve/Device description

Line 3 (If required) Note: schematic/drawing No is preferable.

Character height: 3mm minimum; however choice of size can be made to suit each individual plant item.

Label size and text to suit plant size. Refer to E-GEN-194-13 for text format options.



3.3.2. Valve, Device Labels – Format

Line 1 Unit No, Device Number. (If the device is repeated in more than one location, an additional letter is to follow the number to identify each individual item separately).

Line 2 System Designation (eg: Cooling Water System)

Line 3 Sub-system or sub item (eg Receiver No: ZZ)

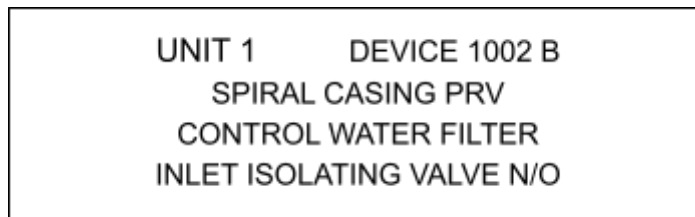
Line 3 Specific item/Valve or Device Description (eg Discharge Isolating Valve). Also include where relevant, the notation "N/O" or "N/C" indicating whether the valve is normally open or closed.

Character height: 3mm minimum.

Each line is to have a maximum of 23 characters (26 if use narrow font).

Example: (not to scale):

Label Size: 84 mm long by 30 mm wide – Ref Drg. No: MP-GEN-158.



3.3.3. Cubicle Identification Labels – for Small Cubicles

- to be used on cubicle doors.

Line 1 Unit and/or System or General Location/Site Designation

(Eg 1: Unit 6; eg 2. Eucumbene – Snowy Tunnel)

Line2 Specific Item of plant that the Cubicle operates/monitors

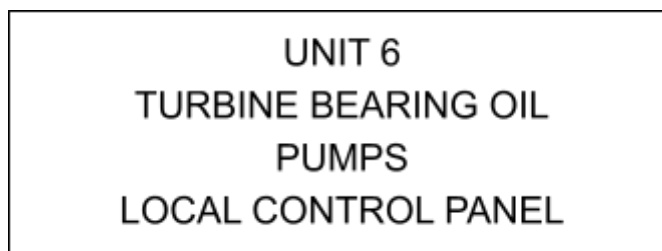
Line 3 Name of the Control Cabinet

Line 4 The label shall show the circuit designation of the equipment within the enclosure.

Font size (Min 3 mm) is selected to suit label size required.

Each line is to have a maximum of 23 characters (26 if use narrow font).

Example: (not to scale):



3.3.4. Cubicle Identification Labels – for Large Cubicles

Specification is the same as for 6.3 above, with the following variations

Font size selected to suit chosen to suit size of label/inscription.

Each line is to have a maximum of 23 characters (26 if use narrow font)

3.3.5. Identification Labels for Devices within Enclosures/Cubicles

The label is designed to cater for a maximum of three lines of lettering.

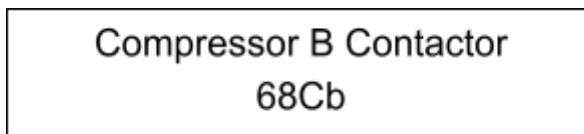
Size: as appropriate to accommodate the description and to fit in the space available.

Character height: 3 mm to 5 mm

Line 1 Device Name

Line2 Device Number

Example: (not to scale):

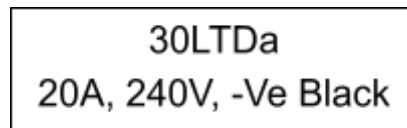


3.3.6. Labels for Fuses and Links

Fuses and links shall be identified by their function, voltage, polarity, phase colour and fuse link rating.

Size: 8 – 16 mm high X 20 - 30 mm long

Example: (not to scale):



3.3.7. Rating Plates

A rating plate complying with the requirements of the appropriate Standard (Ref: AS 1359.101 1997 (Rotating Electrical Machines – General Requirements – Rating and Performance) shall be affixed to each item of plant.

The rating plates shall be of engraved or stamped matt stainless steel, brass or of other approved metal.

In addition, the rating plate shall:

- Be marked with the Contract number (and other information if specified in the contract specification).
- Specify the mass of the item where it is affixed to a removable item of plant of a mass in excess of 100kg.

3.3.8. Warning Labels

Format: white lettering on a red background.

Line 1 The word WARNING is to be displayed prominently. A note regarding Hot/Cold/High Pressure/Live Electrical Contacts etc, etc is also to be noted.

Line2 Advice of Danger – eg. Live, 240 Volt Busbar or: System or Valve or Device name and number

Line 3 Advice of Danger (if not on Line 2).

Line 4 As needed to add further information

Example: (not to scale):



3.4. Fixing/Fastening of Labels

3.4.1. General

No label shall be attached by gluing to any valve, device, cabinet etc. Glued labels have a tendency to fall off due to moisture and other conditions experienced in Snowy Hydro facilities.

"Lost" labels cause devices to become unlabelled and therefore open to operational error and possibly endangering personnel and plant.

3.4.2. Attachment of Gravoply Labels

All "gravoply" labels shall be attached to an Aluminium backing plate (carrier plate) to provide strength.

Typical carrier options are shown on drawing No's: MP-M1-287 Sheets 1 & 2.

Attachment of Gravoply labels to backing plates shall be by pop rivets. Refer to drawing No's MP-M1-287.

Typically, Pop Rivets can be: RIV43, ST/OP 1/8D – 3/16 Gauge Proline.

Typical devices for attaching the label/plate subassembly to devices include:

- Zinc Plate Steel Screws: eg. Staetite, PAN XR, Zinc, Part No C105112 – to screw in to valve bodies and other steel items.
- Stainless Steel Cable Ties: eg. Panduit MLT4S-CP316 – attach labels to pipework and other steelwork.
- Stainless Steel plastic coated "sealing wire" (part Number MS3268-005G) attached with "sealing ferrules" (part Number MS-3282-012-1000)
- Hammer Drive screws ("Tampins") (Round, Type U, length to suit (typically 5/16 inches) hammered in to 6.00 mm diameter plugs in concrete walls

Attaching devices are typically available from Blackwoods with Blackwoods part No's shown for reference.

3.4.3. Long labels - Expansion

Fixings for long labels shall cater for expansion.

3.4.4. All steel labels

Steel labels shall be fastened by nickel-plated screws or other devices – typically refer to 7.2.3 above.

3.4.5. Cubicles and Equipment Mounted Within 2.0m Above Floor Level

Labels for cubicles and equipment mounted within 2.0m above floor level shall be positioned so that they can be read by a person of average height standing in front of the cubicles.

3.4.6. Labels for Devices Mounted on or in Enclosures

Labels for devices mounted on or in enclosures shall be provided on the inside of the enclosure adjacent to the device as well as on the device.

3.4.7. Removable Covers & Removable Devices

Labels shall not be located on removable covers of devices.

3.4.8. Valve Labels – Fastening

Labels are not to be fixed directly on to valves and other removable devices. The label shall be mounted on the cubicle wall or other adjacent fixed structure so that the referenced item is unambiguously identified.

Where small valves are used in close proximity to each other or where they are combined into a single body, a label showing a schematic diagram and valve number can be used, where it unambiguously identifies the valve.

Where valve labels cannot be unambiguously identified by labels mounted on final structures they shall be mounted on the valve so that they can be removed without damage and reinstalled when the valve/device is repaired or replaced. The Valve labels shall be held in place by the valve flange bolts or by two galvanised steel straps around the pipe adjacent to the valve. Refer to 7.2.3 above.

3.4.9. Number of Labels

Where a device is located in cubicles such that it penetrates the cubicle, the device shall be labelled on both sides, otherwise, only one label is required in each instance.

3.5. Failure to Complete Supply and Fixing of Labels/Notices etc

3.5.1. Withholding issuing of Certificate of Practical Completion

Failure to complete the supply and fixing of warning notices, labels and rating plates shall be sufficient reason for the Superintendent to withhold the issuing of a certificate of Practical Completion.

4. References

- Drawing [E-GEN-194-13](#) Titled: "Characters for Engraved Labels, Details of Style and Sizes.
- Drawing [MP-M1-286](#) Titled: Murray 1 Power Station, Valve and Device Labels, Engraving Detail.
- Drawing MP-M1-287, sheets [1](#) & [2](#) Titled: Murray 1 Power Station, Valve & Device Labels, Installation Arrangement