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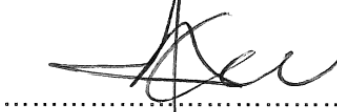


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1. INTRODUCTION

1.1 SCOPE

This procedure is applicable for all plant and equipment on all Power Station Projects that will require plant coding and labelling. KKS coding is used as an example throughout the standard although this labelling method is not limited to KKS only, but also includes AKZ coding methods. This document is applicable to Hydro, Coal, Solar and Gas power stations only.

1.1.1 Purpose

The purpose of this procedure is to specify the detailed requirements for the Fossil Power Station Project to ensure the plant get labelled with the correct codes and equipment descriptions.

1.1.2 Applicability

This document applies to all engineering stakeholders during a new build project. On refurbishment projects, the labelling specification applicable to that project must be used. This document shall apply throughout Eskom Group Technology.

1.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

1.2.1 Normative

- [1] Quality Management Systems ISO 9001
- [2] KKS Guidelines VGB-B 105 E 2010
- [3] Application Commentaries VGB-B 106 E – KKS – Part A 2004
- [4] Identification in Mechanical Engineering VGB-B 106 B1 E – KKS – Part B1 2004
- [5] Identification in Civil Engineering VGB-B 106 B2 E – KKS – Part B2 2004
- [6] Identification of Electrical and C&I Engineering VGB-B 106 B3 E – KKS – Part B3 2004
- [7] Identification of instrumentation and Control Tasks/Functions in process System and Identification of functions in Instrumentation and Control System VGB-B 106 B4 E – KKS – Part B4 2004
- [8] VGB – Abbreviation catalogue for Power Plant Technology – VGB – B107

1.2.2 Informative

- [9] Guidelines for Configuration Management ISO 10007
- [10] Generation Plant Safety Regulations 36-681

1.3 DEFINITIONS

Definition	Description
Key Part	KKS KEY-PART is a Plant Classification system catalogue of KKS codes to be used to classify power plant structures, systems, equipment and components
Process-Related Coding	Process-related identification of systems and items of equipment

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Definition	Description
	according to their functions in mechanical, civil, electrical and control and instrumentation engineering
Point of Installation	Identification of points of installation of electrical and control and instrumentation equipment in installation units (e.g. in cabinets, panels, consoles)
Location Code	Identification of locations in structures, on floors and in rooms and also of fire areas
Breakdown Level 0	In Breakdown level 0 power station units, Non-unit-specific plant and extensions are marked within location of a power station
Breakdown Level 1	Classification of systems and plants as per the KKS key part
Breakdown Level 2	Classification of mechanical equipment, electrical, control and instrumentation equipment as per the KKS key part
Breakdown Level 3	Classification of component, signals or signal applications as per the KKS key part
Description:	A description given to a process, structure, point of installation, component or equipment.
Label	Identification of process, structure, point of installation, component or equipment by means of approved fixing methods, materials and ergonomic requirements.
Key Performance Indicator	Key Performance Indicator – Defined measurements and metrics used to determine whether a process is successful or not
Basic colour	A colour that indicates the group of fluids to which the contents of a pipeline or vessel belongs.
Clad/cladding	The external protective metal sheath of the insulation of a pipeline or vessel.
Colour code indicator(s)	One or two colours that are applied in addition to the basic colour to indicate the specific contents.
Lagged	Indicates an insulated pipe or vessel that has no external protective sheath.
Stencil	A stencil is a thin sheet of material, such as paper, plastic, wood or metal, with letters or a design cut from it, used to produce the letters or design on an underlying surface by applying pigment through the cut-out holes in the material. The key advantage of a stencil is that it can be reused to repeatedly and rapidly produce the same letters or design.

1.3.1 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

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1.4 ABBREVIATIONS

Abbreviation	Description
C&I	Control and Instrumentation
CM	Configuration Management
DC	Direct Current
ISO	International Organization for Standardization
KKS	Kraftwerk Kennzeichen System – German abbreviation for (Power Plant Classification system)
KPA	Key Performance Area
KPI	Key Performance Indicator
kV	Kilo Volt
LV	Low Voltage
MCB	Miniature Circuit Breaker
MV	Medium Voltage
P&ID	Piping and Instrumentation Diagram
PLC	Programmable logic controller
RACI	Responsible Accountable Consulted Informed
V	Volt
VGB	Technische Vereinigung Der Grosskraftwerks Betreiber E.V (Major Power Plant Users Association)

1.5 ROLES AND RESPONSIBILITIES

Configuration Management: Responsible for reviewing KKS coding and issuing of a KKS certificate on correct labelling of the plant.

Design Authority: Responsible for adding KKS codes on designs/project documents.

Engineer: Responsible for reviewing labelling of structures, system, equipment and components on the plant.

1.6 PROCESS FOR MONITORING

Compliance to the standard will be monitored through Configuration Management internal compliance audits.

1.7 RELATED/SUPPORTING DOCUMENTS

Specification for the Identification of the contents of pipelines and vessels (ESKSCAAC6)

2. PLANT LABELLING

Plant labelling is the physical label that is fixed to the plant. The purpose of plant label is to unambiguously distinguish between plant items and to ensure that a one to one correlation exist

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between the identification of the item on the plant and the identification of the item in the information systems and related documentation. The manufacturing of the label will be from an approved equipment / label list.

2.1 LABELS

Because of the diversity of a plant that has to be labelled one cannot standardise on the material, size and type of label. This standard will therefore distinguish between the different plant areas and types of labels to be used.

2.2 LABEL MATERIAL

TABLE 1: The following material will be used for the different plant areas.

PLANT AREA	LABEL MATERIAL TYPE	BACK PLATE MATERIAL TYPE
Boiler	Anodised Aluminium	Anodised Aluminium
Turbine	Anodised Aluminium	Anodised Aluminium
Ash Plant	Anodised Aluminium	Anodised Aluminium
Coal Plant	Anodised Aluminium	Anodised Aluminium
Water Treatment Plant	Stainless Steel	Stainless Steel
BOP and LP Services	Anodised Aluminium	Anodised Aluminium
Switchgear and Panels	White Graflux	Slide in aluminium holder
Internal panels/cubicles	Colour coded plastic	N/A
Transformers and structures	Cromadeck	Pre manufactured stand or wall mounted
Room Identification	Cromadeck	N/A
Buildings	Cromadeck	N/A

Notes:

Label thickness: 1.5mm

Corners round 4mm radius

Fixing holes 4mm. to be drilled only when fitted with a back plate.

Fixing holes 7.5mm from sides.

2.3 ERGONOMIC REQUIREMENTS

- Consistency will be maintained when fitting new labels regarding material, labels will be fitted in such a manner not to hamper routine operation and maintenance activities.
- Labels should be fitted in a position where they can be easily seen without compromising identity of exact equipment.
- Labels will be mounted so that the text runs in a horizontal plane reading from left to right to the nearest fixed point that is being described.

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- For labels that have to be mounted vertically due to space constraints, the method of text reading will be from bottom to top. This excludes cable labels.
- Label fixing devices e.g. rivets, self-tappers, adhesives, ext. will not penetrate the equipment housing or constitute a potential source of corrosion. All labels must be securely fitted to the plant.
- Labels or back plates/brackets will not have sharp edges or protrude in such a way as to pose a safety risk.
- Valve labels will not be installed on hand wheels and labels will not cover equipment specification plates.
- All valve labels must be strapped on pipe next to the valve and if not possible consult Eskom Configuration Management.
- In the event where mimics are used, contact Eskom configuration for further clarity.

2.4 ENVIRONMENTAL FACTORS

All labels will be able to withstand the following for at least 30 years:

- Rain
- Hail
- Temperature variance as required by plant
- Wind and Dust erosion
- Ultra Violet rays (sun)
- Corrosion

2.5 NOTATION OF KKS CODE

Single spacing between unit, system, equipment and components as per VGB-B 106 E – KKS – Part A 2004.

Description	Small spacing
With Blank Spaces	N NAAANN AANNNA AANN

2.6 ENGRAVING

- Arial font to be used on all labels.
- Standard vertical characters will be used.
- Narrow (condensed), broad (extended) characters are not acceptable.
- Horizontal lines will be evenly spaced amongst the height of the label.

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3. PLANT LABELS

3.1 LABEL TYPE GA

Mechanical Plant Identification Label

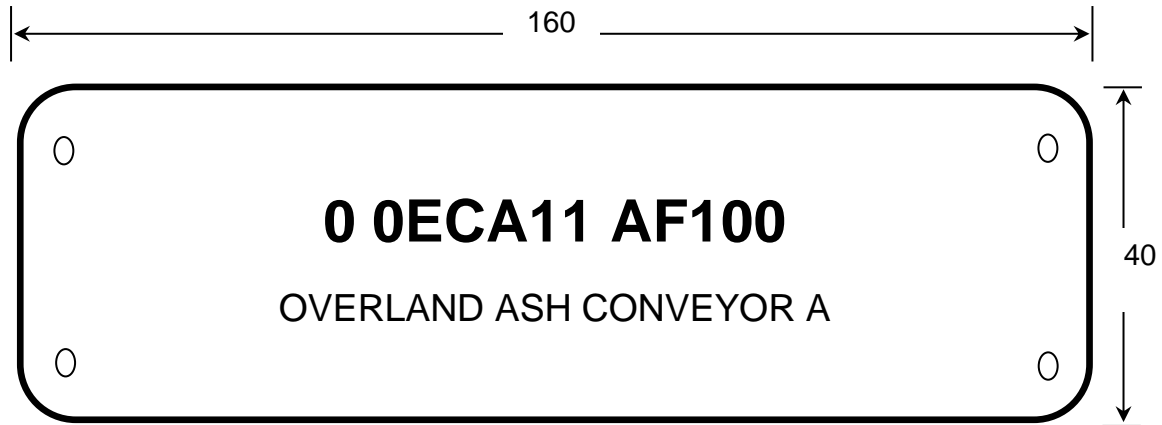


Figure 1

Engraving

- Alphanumeric Characters: 7mm High.
- Description Characters: 5mm High.

3.2 LABEL TYPE GB

Mechanical Plant Component Identification Label

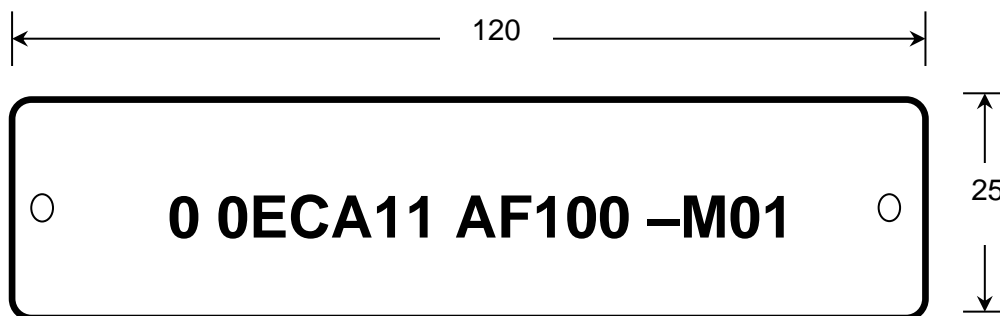


Figure 2

Engraving:

- Alphanumeric Characters: 7mm High.

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3.3 LABEL TYPE GC

Equipment Identification Label

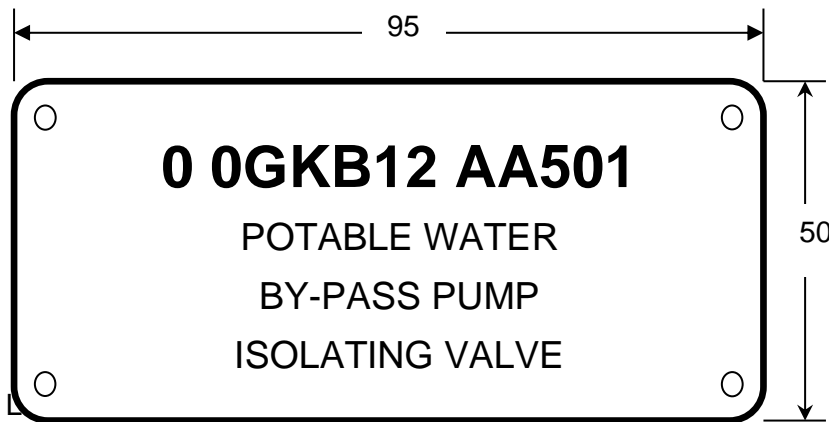


Figure 3

Engraving:

- Alphanumeric Characters: 7mm High.
- Description Characters: 5mm High.

3.4 LABEL TYPE GD

Process code labels for process control equipment on local control panels, mimics and control panels.

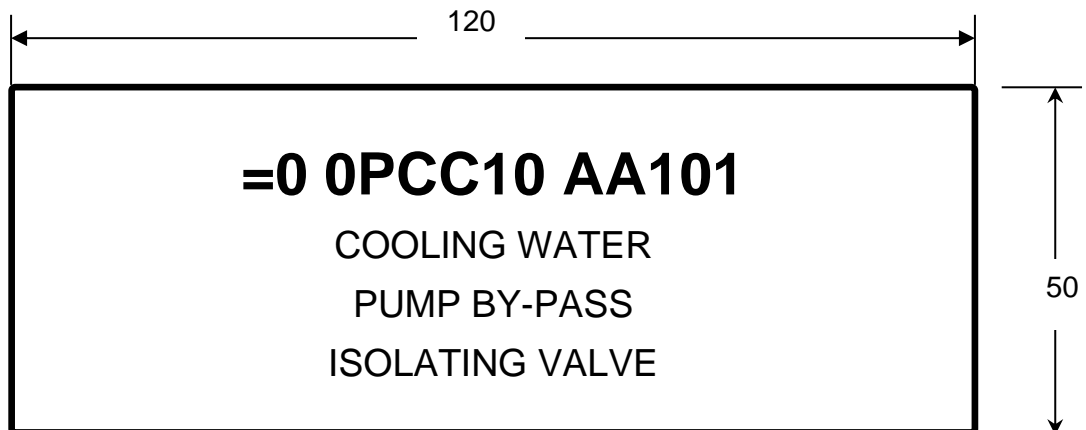


Figure 4

Engraving:

- Alphanumeric Characters: 7mm High
- Description Characters: 5mm High

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3.5 LABEL TYPE GE

Field device label for process control equipment / room identification

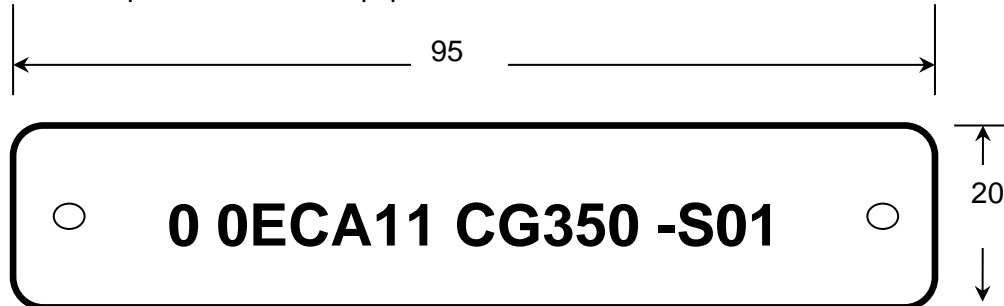


Figure 5

Engraving:

Alphanumeric Characters: 4mm High.

3.6 LABEL TYPE GH

Point of Installation Code Labels for Process Control and Electrical Equipment PLC's Measurement Panels, Protection Panels Measurement Racks, Local Alarm Panels.

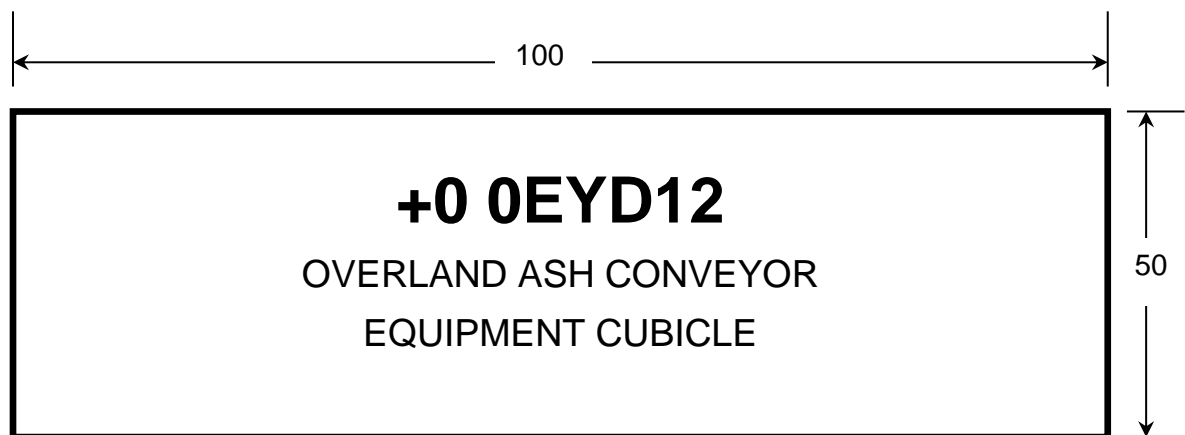


Figure 6

Engraving:

- Alphanumeric Characters: 10mm High.
- Description Characters: 5mm High.

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3.7 LABEL TYPE EA

Board Main Label

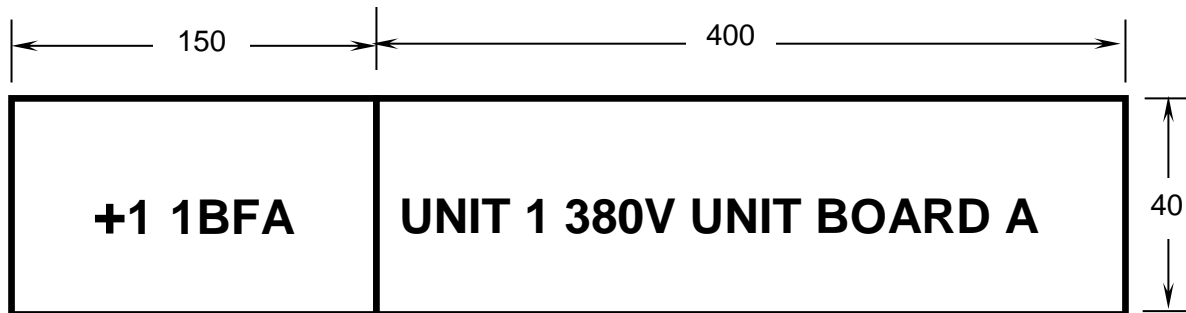


Figure 7

Fixing Method: Aluminium sliding holder, no drilling into electrical or process control panels

Engraving:

- Alphanumeric Characters: 20mm High.
- Description Characters: 15mm High.

3.8 LABEL TYPE EB

Electrical board sub section

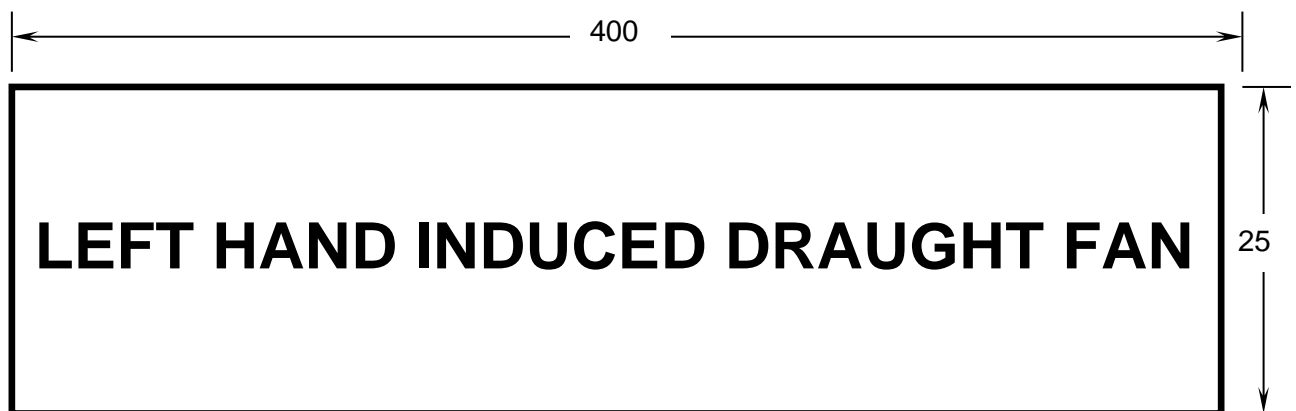


Figure 8

Fixing Method: Aluminium sliding holder, no drilling into electrical or process control panels.

Engraving:

- Alphanumeric Characters: 15mm High.

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3.9 LABEL TYPE EC

Isolator Labels

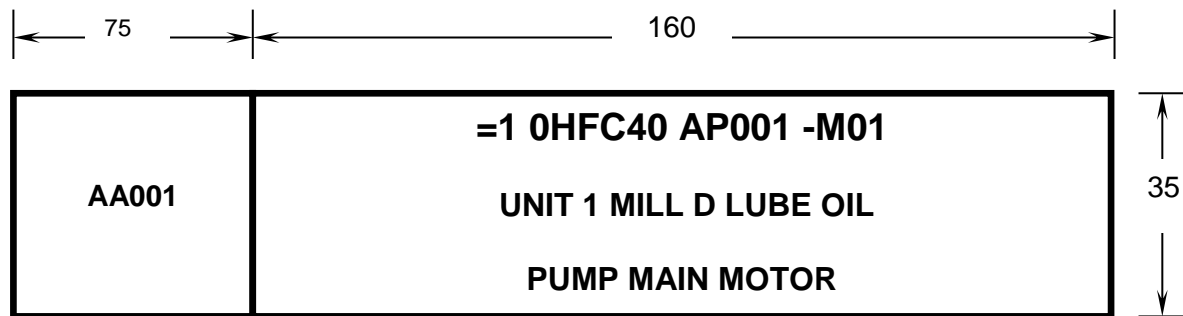


Figure 9

Fixing Method: Aluminium sliding holder, no drilling into electrical or process control panels

Engraving:

- Characters Fill in colour
- Alphanumeric Characters: 10mm High.
- Description Characters: 10mm High.

3.10 LABEL TYPE ED

Cubicle Identification Labels

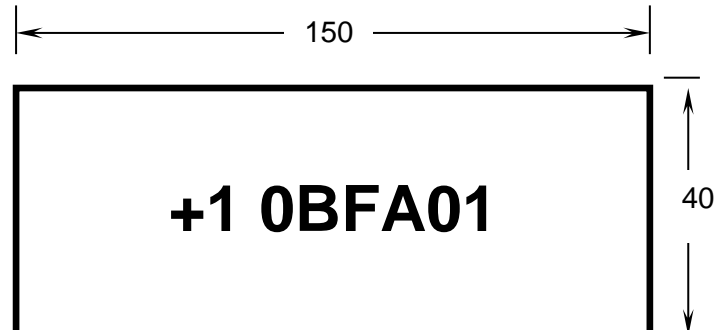


Figure 10

Fixing Method: Aluminium sliding holder, no drilling into electrical or process control panels

Engraving:

- Alphanumeric Characters: 20mm High.

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3.11 LABEL TYPE EE

Terminal Label with Tier Co-ordinate (back of panel)

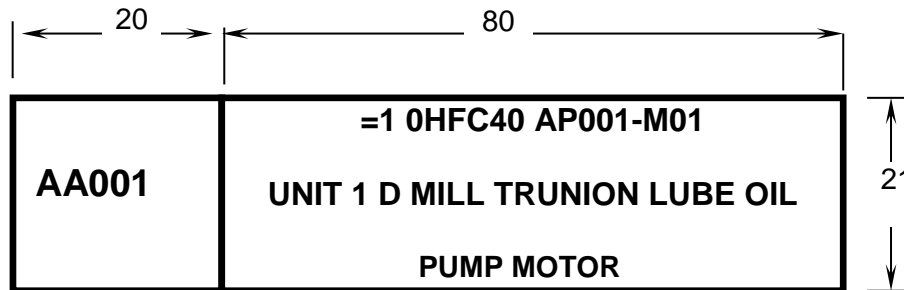


Figure 11

Fixing Method: Aluminium sliding holder, no drilling into electrical or process control panels.

Engraving:

- Alphanumeric Characters: 3mm High
- Description Characters: 3mm High.

3.12 LABEL TYPE EF

Lighting Distribution Board Label

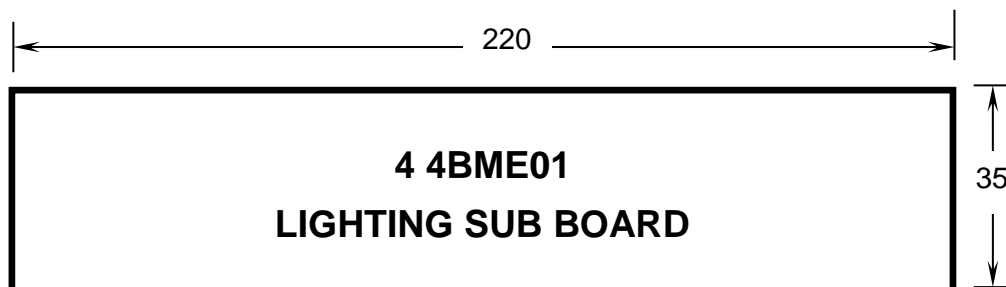


Figure 12

Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 10mm High
- Description Characters: 10mm High

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3.13 LABEL TYPE EG

Distribution Boards Information Labels

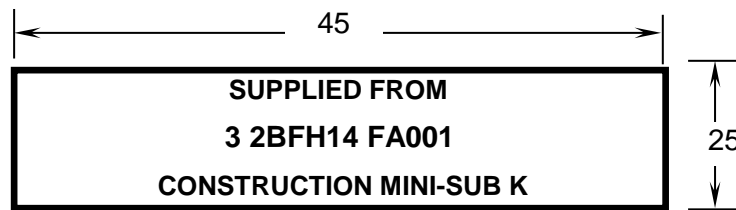


Figure 13

Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 4mm High.
- Description Characters: 3mm High.

3.14 LABEL TYPE EH

Junction Box Label

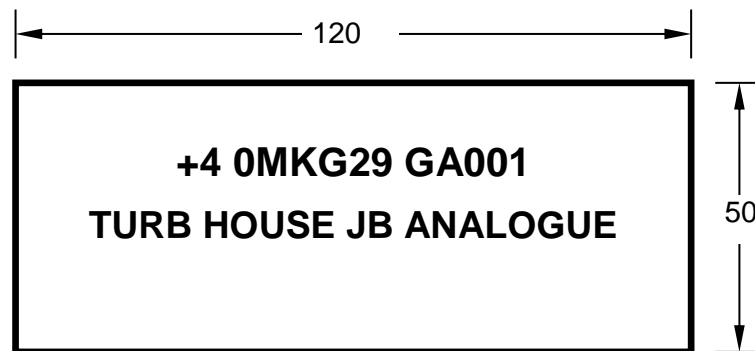


Figure 14

Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 10mm High
- Description Characters: 10mm High.

3.15 LABEL TYPE EI

MCB process code Label

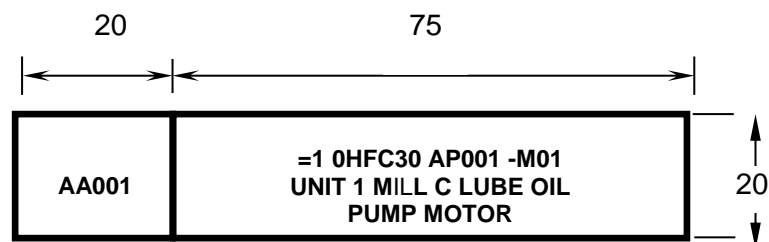


Figure 15

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Fixing Method: Adhesive / Sliding holder

Engraving:

- Alphanumeric Characters: 4mm High.
- Description Characters: 3mm High.

3.16 LABEL TYPE EJ

MCB point of installation Labels

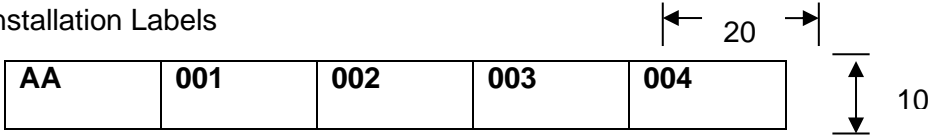


Figure 16

Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 3mm High.

3.17 ELECTRICAL AND C&I COMPONENT LABELS

3.18 LABEL TYPE EK

Terminal Label

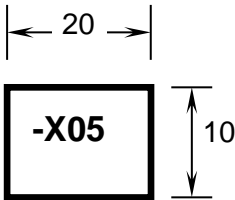


Figure 17

Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 3mm High.

3.19 LABEL TYPE EL

Electrical Component

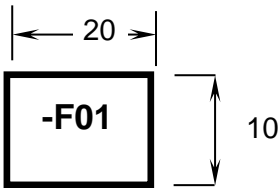


Figure 18

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Fixing Method: Adhesive

Engraving:

- Alphanumeric Characters: 3mm High.

3.20 LABEL TYPE EM

Transformer, Structure and, Building Identification Label

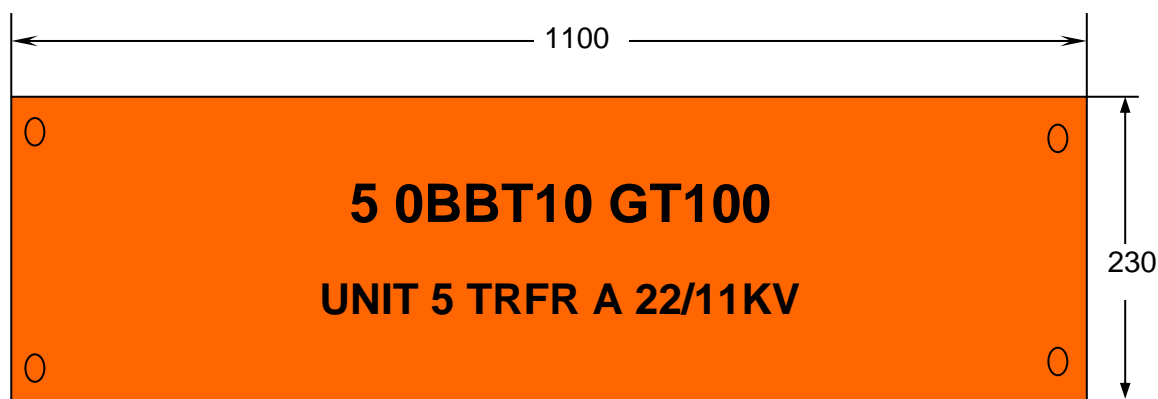


Figure 19

Text:

- Cut out characters
- Characters in Black Engineering Grade 7 Years Vinyl.
- Alphanumeric Characters: 60mm High.
- Description Characters: 40mm High.

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3.21 LABEL TYPE EM.1

Structure related label (Not electrical switchgear)



Figure 20

- Cut out characters
- Characters in Black Engineering Grade 7 Years Vinyl.
- KKS code characters: 60 mm High
- Description text characters: 40 mm High

3.22 LABEL TYPE EM.2

Label to be used inside buildings where a description is required on a room/area.

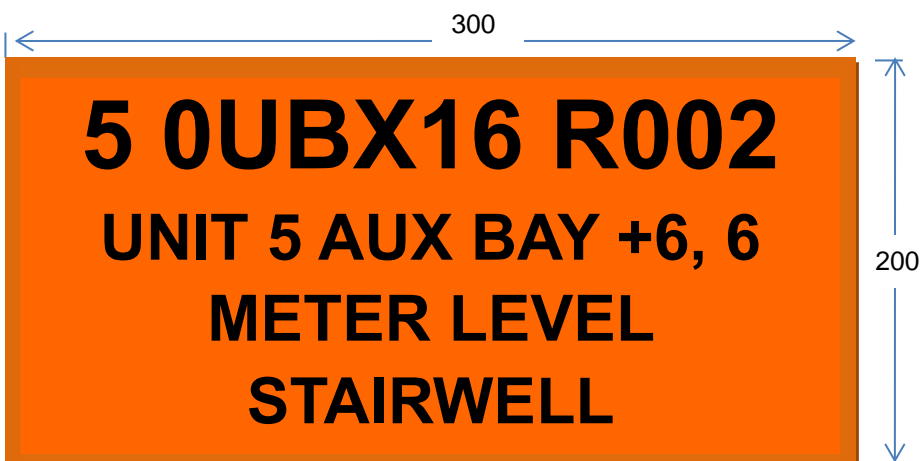


Figure 21

Text:

- Cut out characters
- Characters in Black Engineering Grade 7 Years Vinyl.
- KKS code characters: 30 mm High

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- Description text characters: 20 mm High

4. BACK PLATES

Examples of back plates, this design will be used for labels requiring a back plate. The label size and shape will follow the size and shape of the label

4.1 BACK PLATE TYPE BB

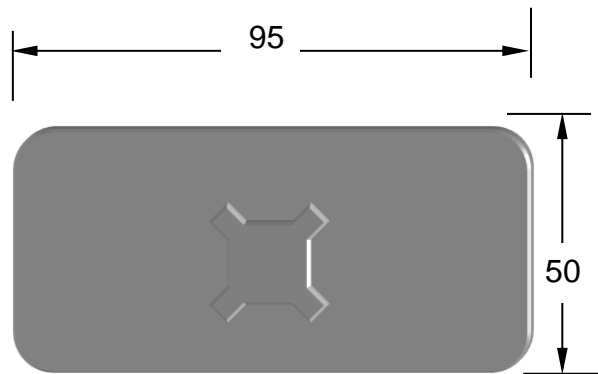


Figure 22

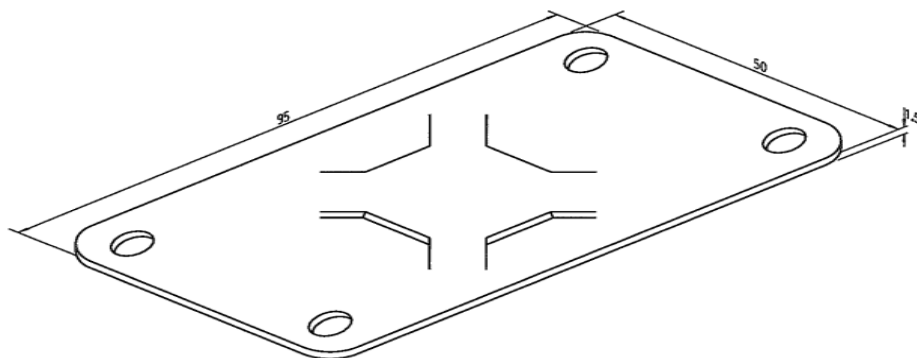


Figure 23

4.2 BACK PLATE TYPE BC

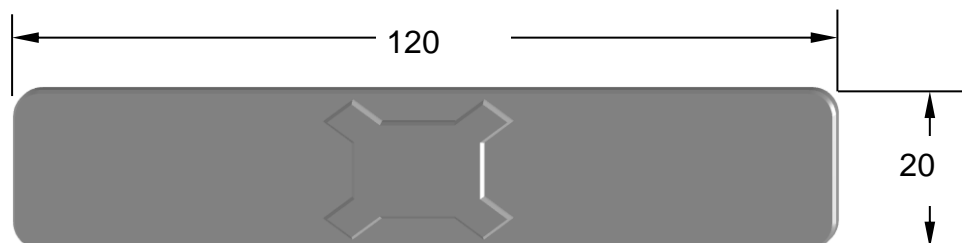


Figure 24

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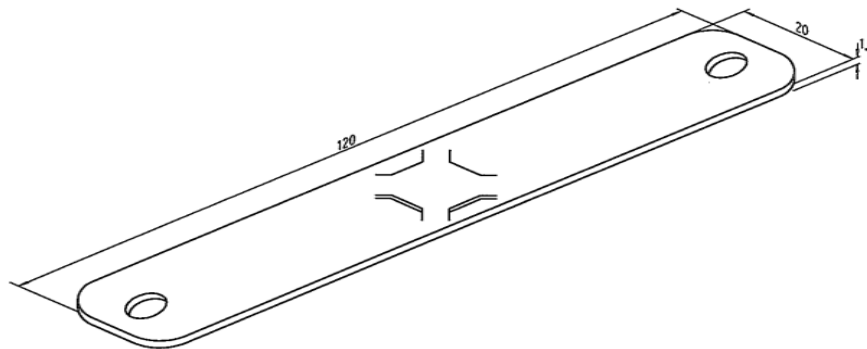


FIGURE 25

4.3 BACK PLATE STRAP

- The strap of stainless steel strapping and size to fit in pressed out slot.

5. PIPE LABELS

5.1 NON-LAGGED PIPING LESS THAN OR EQUAL TO 35MM

Pipelines of diameter less than or equal to 35mm are to be painted in the basic colour over their full length. Colour code indicator bands are to be superimposed around the pipes, a suitable mechanical label is to be strapped around the pipes and a direction of flow to be painted as showed in the figure below.

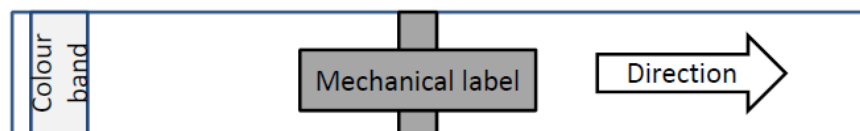


Figure 26

The indicators shown in Figure 26 above are to be placed at 10 m intervals nominally along the length of the pipe and adjacent to valves, wall and floor penetrations. The direction of flow arrows are of white colour with dimensions in accordance the below. For the length of the arrow please refer to the

Table C.1. *Dimensions of legend for pipelines and vessels*

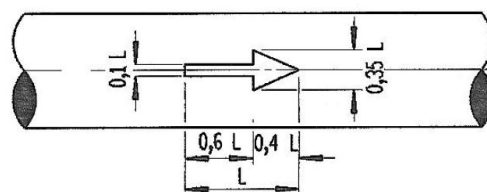


Figure 27

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Dimensions and arrangement of descriptive identification legends for pipelines and vessels

Table C.1 — Dimensions of legends for pipelines and vessels

Outside diameter mm	Legend height mm	Chemical hazard legend height mm	Direction of flow arrow
			Length mm
Up to 50	20	20	75
51 to 100	25	25	100
101 to 150	38	50	150
151 to 225	50	100	200
226 to 300	75	150	300
301 to 600	100	150	300
Above 600	150	150	300

➤ Font type - Arial

For basic colours; as well as colour code indicator band colours to be used for pipes carrying various mediums, refer to Eskom document Eskom document ESKSCAAC6.

5.2 NON-LAGGED PIPING GREATER THAN 35MM

Pipelines of diameter greater than 35mm are to be painted in the basic colour over their full length. In cases of long exposed sections of large diameter pipes, due consideration shall be given to the costs incurred with regard to the use of a basic colour over the full length. Colour code indicator bands are to be superimposed around the pipes, a KKS code label is to be stencilled along the pipe length, a medium description to be stencilled along the pipe length and a direction of flow to be stencilled as showed below.



Figure 28

The height of the letters used on the KKS code and medium description stencilling is superimposed on a 'rectangular area' in accordance with Table C.1. The direction of flow arrows are of white colour with dimensions in accordance with Table C.1. The indicators shown in Figure 28 above are to be placed at 10 m intervals nominally along the length of the pipe and adjacent to valves, wall and floor penetrations.

For basic colours; as well as colour code indicator band colours to be used for pipes carrying various mediums, refer to Eskom document Eskom document ESKSCAAC6.

5.3 LAGGED PIPING PROTECTED WITH CLADDING

Pipelines lagged and protected with cladding do not require painting in basic colour over their full length, however colour code indicator bands are to be superimposed around the cladding. A KKS code label is to be stencilled/labelled along the cladding length, and medium description to be stencilled/labelled along the cladding length as well as a direction of flow to be stencilled/labelled as showed in Figure 28 above. The height of the letters used on the KKS code and medium description stencilling is superimposed on a 'rectangular area' in accordance with Table C.1. The indicators shown in Figure 28 above are to be

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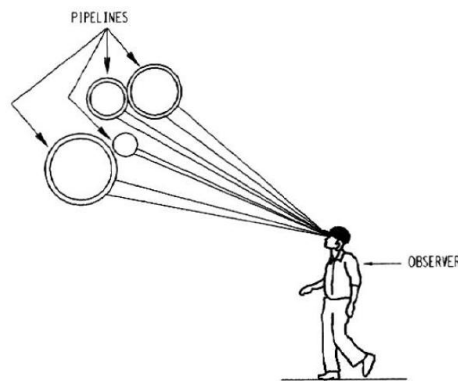
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placed at 10 m intervals nominally along the length of the pipe and adjacent to valves, wall and floor penetrations.

For the basic colour and colour code indicator band paint specification please refer to Corrosion Protection Specification.

5.4 MULTIPLE-PIPELINE RUNS

Colour identification, descriptive identification and labels are positioned on multi-pipeline runs such that the identification of all pipes in the run is clearly visible from an observation position as shown in figure 29 below.



NOTE — Extract from SABS 0140-3:1992.

Figure 29

6. VESSELS

6.1 ROUND VESSELS

Round vessels are to be stencilled as showed below. The height of the letters used on the KKS code and medium description stencilling is superimposed on a 'rectangular area' in accordance with table C.1 *Dimensions of legends for pipelines and vessels above*.



Figure 30

For the stenciling paint specifications for the vessels please refer to the Corrosion Protection Specification.

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6.2 SQUARE VESSELS

Square vessels are to be labelled using a manufacture's name plate as showed in Detail A below. The height of the letters used on the KKS code and description must be visible at eye level.

Detail A

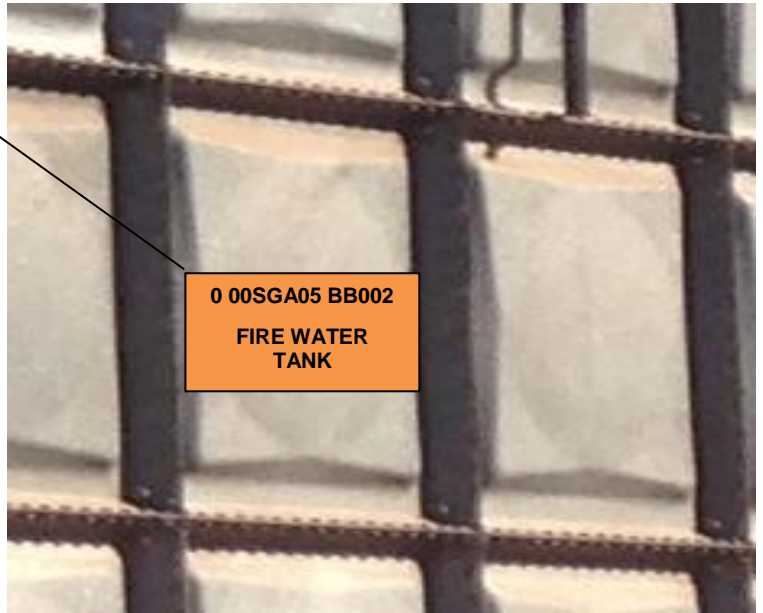


Figure 31

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Alternatively label Type EM used to label transformers, structures and buildings can be used to label the square vessels as shown in Detail B below. The label to be fixed on a flat surface of the vessel using adhesive or to be fixed on a bracket using rivets similarly to Detail A above. The KKS code and description on the EM label must be visible at eye level.

Detail B**B****Figure 32****7. CABLE RACKS**

Cable rack/tray coding is the identification of cable racks/trays according to the location, voltage level and type of rack/tray. The cable rack/tray number format shall be as follows:

TOTAL PLANT	SYSTEM CODE	EQUIPMENT UNIT CODE
0	0 UGB 11	BQ 101
0	0 UGB 21	BQ 101
0	0 UGB 31	BQ 101

Table 2

The KKS code for the rack/tray to be stencilled and clearly visible from an observation position as shown in figure 33.

**Figure 33****CONTROLLED DISCLOSURE**

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The height of the letters used on the KKS code is to be '50mm high and black in colour and font Arial as shown in figure 34.

6 0ULC11 BQ123

Figure 34

The KKS codes are to be placed at 10 m intervals nominally along the length of the horizontal and vertical racks/ trays as well as adjacent to T-junctions as shown below.

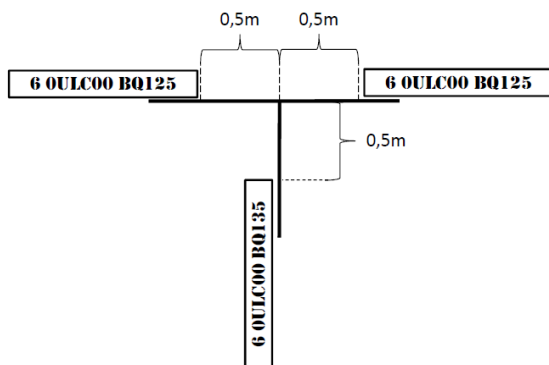


Figure 35

When the rack/tray is changing direction or penetrating a floor or wall opening the KKS code is to be placed as shown below.

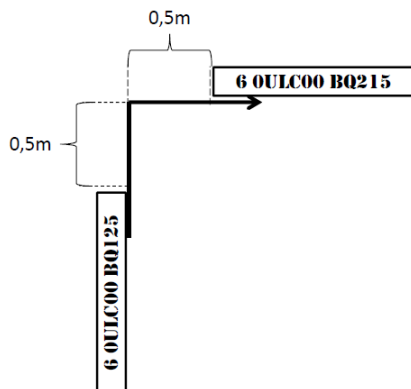


Figure 36

For the stencilling paint specifications for the rack/tray please refer to the Corrosion Protection Specification.

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8. CRANES AND CRAWL BEAM LABELS

The KKS code for the crane or crawl beam is to be stencilled in black and to be clearly visible from an observation position as shown in figure 37 with the height of the text being 50% of the beam breath.



Figure 37

For the stencilling paint specifications to be used for the crane or crawl beam please refer to the Corrosion Protection Specification.

9. STAIRWELL, CAT LADDERS & PIPE SUPPORT LABELS

9.1 STAIRWELLS

Stairwells to be labelled using label Type EM.2. The label is to be installed on stairwell points of entry.

9.2 CAT LADDERS

Cat ladders will be labelled using GC mechanical label in this specification. The label is to be installed on cat ladder points of entry.

9.3 PIPE SUPPORTS

Pipe supports to be labelled using GC mechanical label in this specification.

10. CABLE LABELS

10.1 INTERNAL CABLES

10.1.1 Label Type EN

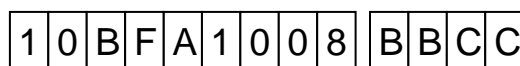


Figure 38

All internal cables to be labeled with standard PVC K Type flexible cable markers and more than 13 digit carrier strips and attached on both ends with suitable cable ties (T18R or T30R, depending on cable thickness)

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10.2 EXTERNAL CABLES

10.2.1 Label Type EP

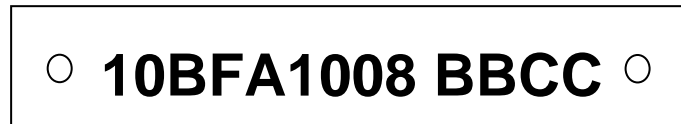


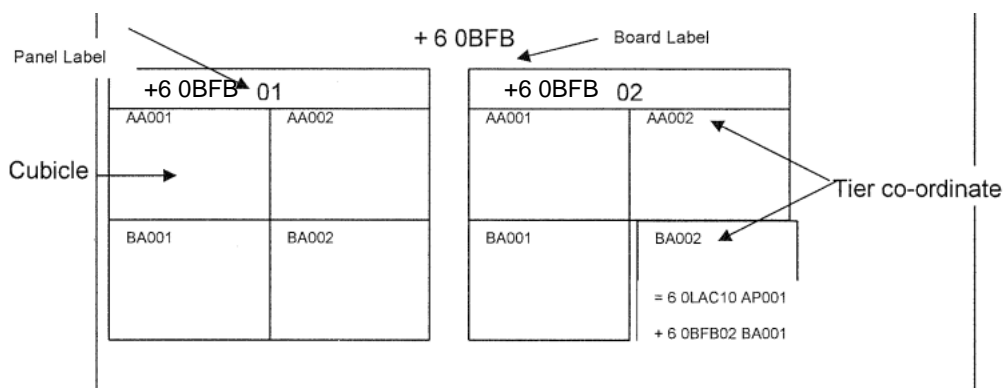
Figure 39

Note:

- Label size: 10x90mm
- Alphanumeric Characters: 5mm
- Material: Stainless Steel
- Thickness: 0.6mm
- Fixing Holes: 2 holes, size 4mm diameter
- All cables must be labeled on both sides of wall and cabinet penetrations.

11. POSITIONING OF LABELS ON ELECTRICAL BOARDS

Each cubicle consists of a combination of the board, panel and tier co-ordinate to form the KKS code.



KKS Codes shown in the diagram above;

Board + 6 0BFB

Panel 01

6 0BFB01AA001

6 0BFB01AA002

6 0BFB01BA001

6 0BFB01BA002

Panel 02

6 0BFB02AA001

6 0BFB02AA002

6 0BFB02BA001

6 0BFB02BA002

Positioning of the labels should be as follows and should be fixed as shown in the diagram.

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The board is identified by the '+' sign in front of the code. This label should be positioned in the middle on top of the board. The panel number should be in the centre middle of the panel. The tier co-ordinate (cubicle) should have its identification on the top left hand corner of door, e.g. AA001 BA001 etc. The complete 'installation' and 'process' code should be fixed to the right hand bottom corner of the cubicle door. This must be consistent for all boards, panels and cubicles.

12. PLANT DESCRIPTIONS

Although the plant classification code is sufficient to uniquely identify the plant, the need still exists to describe the plant with a plant functional description. This is especially required when lists of KKS codes are reviewed. The KKS code does not clearly differentiate between e.g. left hand and right hand or between pump inlet and outlet. These problems could be overcome by forcing the users to always refer to the P&ID. The allocation of item descriptions is useless if it does not clearly describe the function of the item. There are a number of applications where plant descriptions are used e.g. plant labels, information systems etc. and the need therefore exists to standardise on the application thereof. This procedure deals with the allocation of descriptions in the two main areas being plant labels and information systems.

12.1 PLANT LABEL DESCRIPTION

The need exists to structure the description in such a way that the most meaningful description can be obtained from the minimum number of characters.

- Descriptions on plant labels shall be in English
- The description shall clearly describe the function of the item
- Descriptions shall be as short as possible without compromising on description accuracy
- All abbreviations used in descriptions shall be in accordance Project Standard Abbreviation standard
- Descriptions will only be used once reviewed and approved by Configuration Management on an equipment list.
- All descriptions shall be in capital letters

12.2 FORMAT OF LABEL DESCRIPTIONS

The format of the description shall follow the format of the KKS code. It is implicit that the descriptions must always be unique and is compiled as follows:

0 0ECA20 AF001 -M01			
UNIT	SYSTEM	EQUIPMENT FUNCTION	COMPONENT TYPE
THE DESCRIPTION AS FOLLOWS:			
-	COAL CONVEYOR SYSTEM	COAL CONVEYOR	MOTOR

Example for common plant:

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0 0GKB18 GK001 –H01			
UNIT	SYSTEM	EQUIPMENT FUNCTION	COMPONENT TYPE
THE DESCRIPTION AS FOLLOWS:			
-	POTABLE HEADER TANK	LOCAL CONTROL PANAL	ALARM UNIT

13. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Lucky Mokoena	Configuration Management CoE Manager (Acting)
Andell Kannemeyer	Plant Configuration Manager
Renier Smal	CM Consultant
Phetheni Mhlongo	CM Technician

14. REVISIONS

Date	Rev.	Compiler	Remarks
March 2015	0	J Mathebula	Updated first Draft Document
March 2015	0.1	J Mathebula	Final Draft for Comments Review Process
April 2015	0.2	J Mathebula	Updated Draft from comments Review
April 2015	1	J Mathebula	Final Document for Authorisation and Publication

15. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- Jabulane Mathebula
- Andell Kannemeyer
- Renier Smal

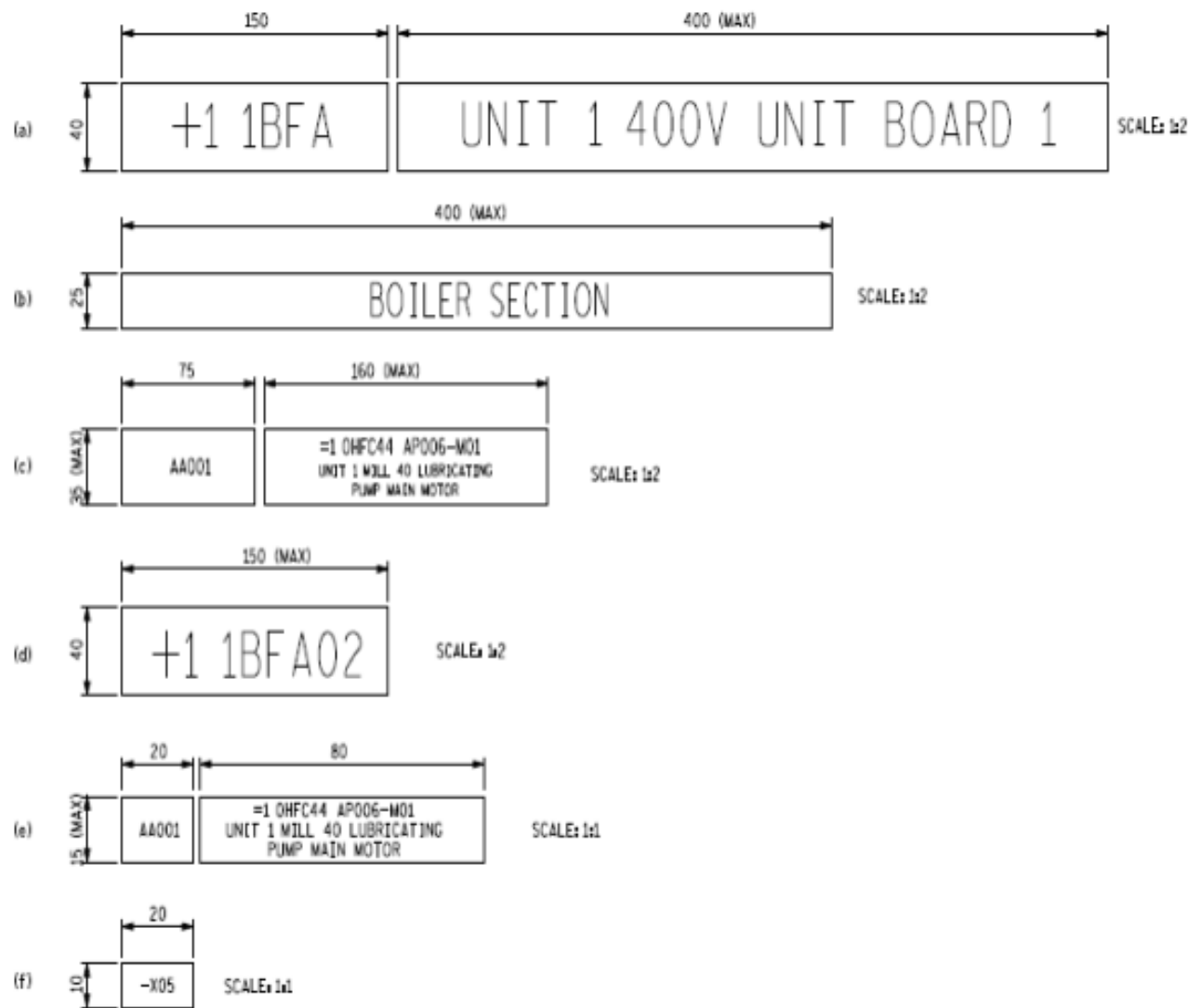
16. ACKNOWLEDGEMENTS

- None

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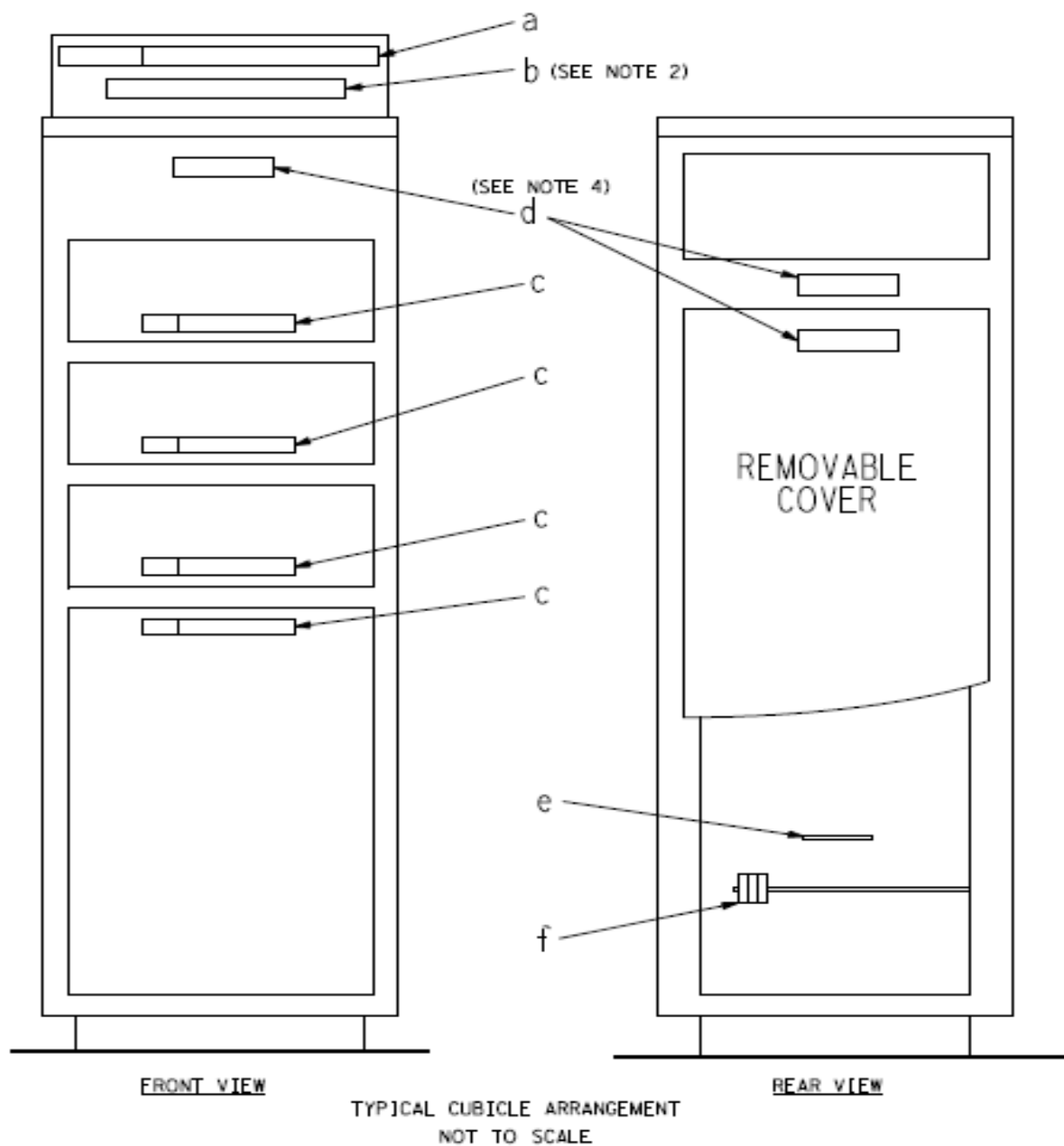
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APPENDIX A: MV, LV, & DC SWITCHGEAR LABEL POSITIONS



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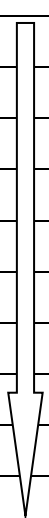
Label type EJ (To be used with label type EE)

BA	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015

MINIATURE CIRCUIT BREAKERS

Use label type EE for MCB process identification, applied with label type EJ

BA001	=1 0EYG11 GA106 FIELD MARSHALLING PANEL
BA002	=1 0EYG11 GA115 FIELD MARSHALLING PANEL
BA003	=1 0EYG11 GA107 FIELD MARSHALLING PANEL
BA004	=1 0EYG11 GA114 FIELD MARSHALLING PANEL
BA005	=1 0EYG11 GA130 FIELD MARSHALLING PANEL
BA006	
BA007	
BA008	
BA009	
BA010	
BA011	
BA012	
BA013	
BA014	
BA015	


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APPENDIX B: LABEL TYPE PER EQUIPMENT

KKS BREAKDOWN LEVEL 2	DESCRIPTION OF BREAKDOWN LEVEL 2	LABEL TYPE
A	Mechanical equipment (machinery including driven or hand operated)	
AA	Valve , damper including actuator , rupture disk , equipment ,also manual etc.	GC
AB	Isolating element (access gates , doors , locks etc.)	GC
AC	Heat exchanger , heat transfer surface	GA
AE	Turning , driving , lifting and slewing unit (manipulators also)	GA
AE	Overhead Cranes, Hoist, Crawl beams	See par 8.
AF	Continuous conveyor unit (escalator)	GA
AG	Generator unit	GA
AH	Heating , cooling and air conditioning unit	GA
AJ	Size reduction equipment , (crushing milling plant)	GA
AK	Pressing and packaging unit	GA
AM	Mixer , agitator , vibrating unit	GA
AN	Compressor, fan and blower unit	GA
AP	Pump unit	GA
AS	Positioning and tensioning equipment # for non-electrical variable	GA
AT	Purifying, drying, filtering, separating and screening unit, steam trap, equip. other than "BT"	GA
AU	Brake , coupling and gearbox unit , not electrical converter	GA
AV	Combustion unit	GA
AW	Fixed workshop equipment	GA
AX	Testing control and monitoring equipment (e.g. weighing devices)	GA
B	MECHANICAL EQUIPMENT	
BB	Storage equipment (vessel , tank , dam)	GA, Note 2
BE	Tunnel and trench (eg inspection/cable access)	GC
BF	Foundation	Not labelled
BG	Boiler-heating surface	Not

BN	Ejector , injector , jet pump (attemporator)	GA
BP	Flow restricting limiter , orifice (not for metering)	GC
BQ	Hanger , support , frame , rack , pipe penetration , cable tray	Stencilled
BR	Piping , duct and channel	Stencilled
BS	Sound absorber (silencer)	GC
BT	Flue gas catalytic converter module	GC
BU	Insulation , cladding	GC
BY	Mechanically operated controlling unit	GC
C	DIRECT MEASURING CIRCUIT	
CD	Density	GC
CE	Electrical quantities (eg current , voltage , power , electrical frequency)	GC
CF	Flow , mass flow	GC
CG	Distance , length , position , direction of rotation	GC
CH	Manual input (as manually operated sensor , e.g. fire detector)	GC
CJ	Power (mechanical or heat , not electrical)	GC
CK	Time	GC
CL	Level (also for dividing line)	GC
CM	Humidity (moisture)	GC
CP	Pressure	GC
CQ	Quality quantities (analysis , material characteristic other than "CD", "CM" and "CV")	GC
CR	Radiation quantities	GC
CS	Rotational speed , velocity , frequency , acceleration (mechanical)	GC
CT	Temperature	GC
CU	Combined quantities	GC
CV	Viscosity	GC
CW	Weight , force , mass	GC
CX	Neutron flux (reactor power measurement)	GC
CY	Vibration , expansion	GC

D CLOSED LOOP CONTROL CIRCUIT

DD	Density	GC
DE	Electrical quantities (eg current, voltage, power, electrical frequency)	GC
DF	Flow, mass flow	GC
DG	Distance, length, position direction of rotation	GC
DJ	Power (mechanical or heat, not electrical)	GC
DK	Time	GC
DL	Level (also for dividing line)	GC
DM	Humidity (moisture)	GC
DP	Pressure	GC
DQ	Quality quantities (analysis, material characteristic other than "DD", "DM" and "DV")	GC
DR	Radiation quantities	GC
DS	Rotational speed, velocity frequency, acceleration mechanical)	GC
DT	Temperature	GC
DU	Combined quantities	GC
DV	Viscosity	GC
DW	Weight, force, mass	GC
DX	Neutron flux (reactor power closed loop control)	GC
DY	Vibration, expansion	GC
E	ANALOGUE AND BINARY SIGNAL CONDITIONING	
EA		Not labelled
	Open loop control	
EB		Not labelled
EC		Not labelled
ED		Not labelled
EE		Not labelled

EG		Not labelled
	Alarm/annunciation	
EH		Not labelled
EJ		Not labelled
EK		Not labelled
EM	Process computer (also for operating and monitoring)	EH
EN	Process computer (also for operating and monitoring)	EH
EP	Process computer (also for operating and monitoring)	EH
EQ	Process computer (also for operating and monitoring)	EH
ER	Reactor protection	Not labelled
EU	Combined analogue and binary signal processing	Not labelled
EW	Protection	Not labelled
EX		Not labelled
EZ		Not labelled
F	INDIRECT MEASURING CIRCUIT	
FD	Density	GC
FE	Electrical quantities (e.g. current, voltage, power, electrical frequency)	GC
FF	Flow , mass flow	GC
FG	Distance, length, position, direction of rotation	GC
FJ	Power (mechanical or heat, not electrical)	GC
FK	Time	GC
FL	Level (also for dividing line)	GC
FM	Humidity (moisture)	GC
FP	Pressure	GC
FQ	Quality quantities (analysis, material characteristic other than "FD", "FM" and "FV")	GC
FR	Radiation quantities	GC

FS	Rotational speed, velocity, frequency, acceleration (mechanical)	GC
FT	Temperature	GC
FU	Combined quantities	GC
FV	Viscosity	GC
FW	Weight, force, mass	GC
FX	Neutron flux (reactor power measurement)	GC
FY	Vibration, expansion	GC
G	ELECTRICAL EQUIPMENT	
GA	Sub-distributor/penetration	GH
GB	Sub-distributor/penetration	GH
GC	Sub-distributor/penetration	GH
GD	Sub-distributor/penetration	GH
GE	Sub-distributor/penetration	GH
GF	Sub-distributor/penetration general	GH
GG	Penetration - cable cover	GH
GH	Cubicle , box for process control and electrical	GH
GK	Periphery equipment for information preparation	GA
GM	Sub-distributor for GPO telecommunication system	GG
GP	Sub-distributor for lighting	EF
GQ	Power socket	EF
GR	Direct current power source device (battery)	GC
GS	Switchgear equipment (not process related)	GA
GT	Transformer winding	GA
GU	Converter equipment including battery charger	GH
GV	Structure related earthing and lightning protection, surge arrestor	GC
GW	Actuating device for electrical quantities eg. (tap changer)	GA
GX	Actuating equipment for electrical variables	GA
GY	Sub-distributor for telecommunication system (not GPO)	GH

H	SUB-ASSEMBLY OF MAIN AND HEAVY MACHINE	
HA	Machine static assembly	GA
HB	Machine rotating assembly	GA
HD	Bearing assembly	GA
K	MECHANICAL UNIT COMPONENT (PRODUCTION)	
	Gate valve, globe valve, cock, damper, rupture disk, orifice etc.	
KB	Gate , door , dam door	GB
KC	Heat exchanger , cooler	GB
KD	Vessel , storage tank , surge tank	GB
KE	Turning , driving , lifting , and slewing devices	GB
KF	Endless conveyor , (escalator , conveyor)	GB
KH	Heating and cooling device	GB
KJ	Crushing device	GB
KK	Pressing and packaging device	GB
KM	Mixer , stirrer	GB
KN	Compressor , fan , blower , ventilator	GB
KP	Pump	GB
KT	Purifier , drier , filter , separator	GB
KU	Converter	GB
KV	Burner	GB
KW	Workshop device	GB
KX	Stationary testing device	GB
KZ	Special mechanical device (production)	GB
M	MECHANICAL UNIT COMPONENT (AUXILIARY)	
MB	Brake	GB
MF	Foundation	GB
MG	Gearbox	GB

MK	Clutch and coupling	GB
MM	Engine (not electric)	GB
MR	Piping part , ducting component	GB
MS	Positioning drive (not electric)	GB
MT	Turbine	GB
MU	Transmission device , other than coupling and gearbox	GB
Q	UNIT COMPONENT (NOT ELECTRICAL) FOR CONTROL AND INSTRUMENTATION	Note1
QB	Sensor/transducer (only , if not integrated in "QP")	Note1
QH	Annunciation system	Note1
QN	Controller , fly bolt governor	Note1
QP	Measuring device (transmitter) testing equipment	Note1
QR	Impulse pipework	Not labelled
QS	Equalising chamber	EL
QT	Protection tube , thermo well (only for protection of the sensor)	Not labelled
QU	Converter	
-	ELECTRICAL UNIT COMPONENT	
-A	Assembly and sub-assembly	EL
-B	Transducer for non-electric to electric quantities and reverse, vice-versa	EL
-C	Capacitor	EL
-D	Binary element, time delay equipment, memory equipment	EL
-E	Special unit component	EL
-F	Protection equipment	EL
-G	Generator, power supply	EL
-H	Annunciation system	EL
-K	Relay, miniature circuit breaker	EL
-L	Inductance	EL
-M	Electrical motor	GB
-N	Amplifier , controller	EL

-P	Measuring device , testing equipment	EL
-Q	Power switching device (contactors)	EL
-R	Resistance	EL
-S	Switch , selector	EL
-T	Transformer	EL
-U	Modulator , transducer from electric to electric quantities	EL
-V	Vacuum tube, semi-conductor	EL
-W	Current transmission system, wave guide antennae	EL
-X	Terminal, plug , socket outlet	EL
-Y	Electric actuated equipment, e.g. magnet, solenoid not electric motor	GB
-Z	Cable termination, compensating equipment, filter, limiter	EL

Note1: GE if situated on plant process. EL if situated inside a control/marshalling cubicle.

Note2: Large tanks like BFO gets stencilled.