

Employer
SAKO BRNO A.S.

Project
**High-efficient combined heat and power facility utilizing renewable sources (OHB
II - line K1)**

Date
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PART III, APPENDIX 14.8

IDENTIFICATION AND LABELLING OF COMPONENTS



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Project name **High-efficient combined heat and power facility utilizing renewable sources
(OHB II - line K1)**

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1. INTRODUCTION

The following permanent labelling shall be performed as part of the Contract Object:

- Component manufacturer standard label / rating plate / name plate / data plate, e.g. on motors, pumps, pipes, fittings, valves, filters, measuring points, measuring taps, transmitters, switchboards, cubicles, cabinets, junction boxes, cables etc.
- KKS- and text labelling signs as a part of the general identification for the installation. This shall be closely coordinated with and accepted by the Employer, see descriptions in section 2.
- Other labelling: This includes health and safety labelling according to local Authorities, directives, standards, safety regulations, escape routes etc., and in accordance with ISO 3864.

By choice of signs and fastening system, the environment in which the signs are to be placed shall be considered. Proposed choice of sign and fastening system shall be presented to and approved by the Employer.

In cases where the specified requirements for labelling cannot be fulfilled, alternatives shall be presented to and approved by the Employer.

The information on the labelling shall be 100 % identical with the reported data in the documentation. The identification and labelling are considered as being part of the Documentation.

At delivery, all equipment and components shall be marked with project designation and component number. The labels must be kept during installation, testing and commissioning. Prior to commissioning, the Contractor shall mark the plant, equipment and components permanently. Execution, position and fitting of the labels shall be agreed with the Employer. The information on the labelling shall be 100 % identical with the reported data in the documentation. The identification and labelling are considered as being part of the Documentation.

All components shall be labelled according to Appendix B8 *Component numbering system (KKS)*.

2. SIGN TEXTS

The prescribed signs shall be printed with a maximum of four lines of 23 characters each plus a QR code.

The text shall be designed as follows:

- First line : KKS-no.
- Second line : Plant component description (plus medium, if any)
- Third line : Component text (In cases where the sign is used in connection with plant components placed in pipes, ducts, etc., the text shall indicate the medium in the pipe/duct).
- Fourth line : Supplied from switchboard/RIO/panel, Fuse number

The signs shall also include a QR code with the KKS number. The Contractor shall suggest a method for incorporating a QR code in the sign.

The signs shall make use of colours, to easily indicate which system the component belongs to.

For transmitters where sensor and measuring value converter are built together, only the converter should be labelled.

For measuring points (thermal pockets, pressure taps, etc.) where the transmitter is mounted directly at the measuring point, only the transmitter shall be labelled.

2.1 Specification of Labels

Material:	Aluminium labels with high quality foil shall be used.
Colour:	Black text on coloured background and in accordance with ISO 3864.
Size:	55 mm x 100 mm x 3.2 mm with bevelled edges (4 lines).
Text:	Max. 4 lines of max. 23 characters each and a QR code (see Section 2)
Font:	Helvetica medium 4L, capital letters, height 10 mm, milling machine 1 mm.

The signs shall be fastened using coated wires. The use of sign holders will not be accepted.

For electric cabinets, operating panels etc. with plane surfaces, the signs may be glued on.

All signs shall be easily visible from normal working positions and readable from a distance of 2 meters.

3. LABELLING OF SWITCHBOARDS

All switchboards shall be labelled on the outside with a text sign for the switchboard itself and an additional text sign on each door/drawer for incoming and out-going feeder units specifying the contents. The text is to be agreed upon with the Employer.

All internal switchboard components shall be labelled with component number, max/ min settings, size of overload relay/overload switch, etc., according to the documentation.

All switchboards shall be labelled with all design data and ratings of the switchboard.

All cable conductors and internal wires shall be labelled with numerical counters. Internal wires shall be labelled at both ends.

4. LABELLING OF CABLES

All incoming and outgoing cables connected to switchboards, cubicles, cabinets, junction boxes, terminal boxes, components, etc., including equipotential bonding and earthing cables, shall be labelled with cable no. according to the KKS-manual. Further, the cable marking shall include a number of text lines as well as a QR code.

The Contractor shall state the manufacturer and type of a high-quality cable labelling system and a description on durability, fastening method, etc. for approval by the Employer.

In switchboards, cabinets and similar, where several cables are connected in the same plant component, the labelling shall be repeated inside the screw cap.

Both cable ends shall be labelled with the cable number as well as either side of cable penetrations.

Cables from junction boxes and similar to components shall be labelled at both ends with the same cable no. as the incoming cable to the junction box. If such cables are less than 2.0 m long and fully visible, labelling in one end is sufficient.

5. LABELLING OF TERMINAL BLOCKS

All terminal blocks shall be labelled.

If the chosen type of terminal block allows for labelling on the input side as well as the output side, both sides shall be labelled.

6. LABELLING OF MEDIA CARRYING PIPES AND DUCTS

All pipes and ducts for steam, water, flue gas, etc. shall be labelled and the flow direction indicated. Ducts and pipes should be labelled at the beginning and end of the duct or pipe (inlet and outlet) and at least every 10 meters.

The labelling shall include colours in accordance with local standards, KKS number and short description text.

Colour codes shall be coordinated with the Employer to match the colour coding of the Existing facility. The colour coding shall be based on the flow media and includes, but is not limited to the following:

Media	Colour coding of pipes and ducts
Live steam	Red stripe minimum every 5m
DH water	Grey stripe minimum every 10m
Oil	Complete in brown colour
Chemicals	Complete in purple colour
Natural gas	Complete in yellow colour
Air	Complete in dark blue colour
Condensate	Complete in bright green colour
Cooling water	Complete in dark green colour

With consideration to the standardisation of the Complete Plant the Contractor shall propose a labelling system to be presented to and approved by the Employer.

7. INSTRUMENTS

The labelling for instruments shall include the following:

- Name and address of the manufacturer
- Production series
- Type designation
- Conditions concerning connection
- Measuring range/output signal
- IP protection class/restricted surrounding temperature interval
- Year of manufacture
- CE-mark