HUBBELL ELECTRICAL PRODUCTS
A Division of HUBBELL INCORPORATED (Delaware)
2112 Fenton Logistics Park Blvd.
Fenton, Missouri 63026 USA

INSTALLATION, OPERATION & MAINTENANCE DATA SHEET
SERIES HKB, HKSB EMPTY ENCLOSURES

HKB and HKSB SERIES EMPTY ENCLOSURES

Classified by Underwriters Laboratories as to explosion and fire hazard only. Enclosure for use in Hazardous Locations. UL and CSA certified for use in Class I, Groups A, B, C & D, Class II, Groups E, F & G, Class III; Class I, Zone 1, Ex db IIC Hazardous Locations as defined by the Canadian Electrical Code and the National Electrical Code. Type 3, 4 & 4X.

IECEx and ATEX Certified as Flameproof Enclosures – For use in Zone Classified Hazardous Locations:

DEMKO 01 ATEX 015742U
2813 Ex II 2 G D
Ex db IIC Gb
Ex tb IIIC Db IP66
-60ºC to +70ºC

IECEx UL 14.0071U
Ex db IIC Gb
Ex tb IIIC Db IP66
-60ºC to +70ºC

CAUTION:

Before installing, make sure you are compliant with area classifications, as failure to do so may result in bodily injury, death and property damage. Do not attempt installation until you are familiar with the following procedures. All installation must comply with the applicable Electrical Code(s).

Make sure that the circuit is de-energized before starting installation or maintenance.

Verify that the installation is grounded. Failure to ground will create electrical shock hazards, which can cause serious injury and or death.

IMPORTANT:

Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.

Technical information, advice and recommendations contained in these documents is based upon information that Killark believes to be reliable. All the information and advice contained in these documents is intended for use only by persons having been trained and possessing the requisite skill and know-how and to be used by such persons only at their own discretion and risk. The nature of these instructions is informative only and does not cover all of the details, variations or combinations in which this equipment may be used, its storage, delivery, installation, check out, safe operation and maintenance. Since conditions of use of the product are outside of the care, custody and control of Killark, the purchaser should determine the suitability of the product for his/her intended use and assumes all risk and liability whatsoever in connection therewith.

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Application Information -

IMPORTANT: ALL MACHINING, DRILLING AND TAPPING ON THIS ENCLOSURE MUST BE PROVIDED BY KILLARK. THE UL/DEMKO CERTIFICATIONS ARE VOIDED IF FIELD MACHINING IS DONE. THE END SUPPLIER MUST BEAR THE BURDEN OF PROOF FOR THE FINAL EVALUATION, TESTING AND DOCUMENTATION.

a: These component enclosures form the basis for certification of a unit or protection system for use in hazardous areas other than Zone 0.

b: All internal components mounted in this enclosure should be Certified (Listed or Recognized) for the application and installed in accordance with the component manufacturer's installation instructions.

c: Care shall be taken by the end-use Control Station manufacturer to ensure proper separation of circuits (voltages), and spacings (creepage and clearance distances between live parts of opposite polarity, and between all live parts and dead metal) are maintained. Refer to IEC/EN/UL/CSA 60079-7, Table 2, for minimum Increased Safety creepage and clearance distances.

d: A complete Control Station should be certified by a 3rd party to the applicable product safety Standard(s), and all supply wiring methods (including grounding) shall be in accordance with the local/jurisdictional electrical code(s).

e: WARNING: To reduce the risk of ignition of hazardous atmospheres, install conduit seals within 18 inches of the enclosure and keep assembly tightly closed while circuits are alive. Cover joints must be cleaned before replacing cover.

f: CAUTION: To prevent external fire or explosion, do not install switching equipment intended to interrupt more than 10,000 RMS symmetrical amperes.

Installation Instructions -

NEC/CEC: This junction box must be installed by trained, qualified and competent personnel. Installation must comply with local, state and national regulations, as well as safety practices for this type of equipment.

IEC/EN Installation Code references (60079-14, 60079-17): Installation shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. IEC/EN 60079-14.

The mounting location must be flat and provide proper clearance, rigidity and strength to support the enclosure and all contained devices. (Refer to Figures 1 & 2). Securely fasten the enclosure to the mounting location, using up to a ¼" (M6) diameter steel bolt and washer.

WARNING: Electrical power must be OFF during installation. Disconnect all power sources and lockout.

NOTE: Inspect and clean the machined, threaded surfaces of both the box and cover. Clean surfaces by wiping with a clean, lint-free cloth. Apply a light coating of Killark "LUBG" lubricant to the cover threads. Install and hand tighten cover to the box. Wrench down cover locking screw. When installing a breather and/or drain, they must be approved for the specific hazardous location into which the enclosure is being installed.

NOTE: Damaged or improperly assembled joint can result in an explosion, creating a potential for physical injury or property damage.

Openings for Conduit & Cable Fittings: The openings provided for conduit & cable fitting connections are ¾ NPT or ½ NPT when a Killark R-EX / RE-EX reducer or a certified Ex d IIC reducer per EN/IEC 60079-1 is installed. When customer specified, a ¾ or ½ NPT opening may be provided in the side or back wall pads.

Installation Instructions (cont'd) -

A minimum of five (5) full threads engagement is required for all NPT device connections/ threaded openings. A minimum of seven (7) full threads engagement is required for all NPSM/Metric device connections/ threaded openings.

Earthing/Grounding: When enclosure is properly mounted, earthing / ground conductor must be installed to the external terminal and fastened by the green external #8-32 binding head screw. The terminal is located on the external mounting lug.

Grounding Conductor Size: #10 AWG or 6.6mm^2 (maximum).

Conduit Sealing Fittings: Install sealing fittings and conduit using an approved electrical conducting type lubricant on the threads. The conduit thread connections must be tapered pipe thread conforming to ANSI/ASME B1.20.1.

Conduit sealing fittings must be certified "Ex db" components per EN/IEC 60079-1, whose design and installation comply with North American standards.

Sealing fittings, approved for the specific hazardous location where the enclosure is used, must be installed within 18" of the enclosure for NEC/CEC Class and Division applications. For Zone applications, the seal must be immediately adjacent to the enclosure.

Cable Fittings: Cable fittings must be certified "Ex db" components per EN/IEC 60079-1. For lines which are not permanently installed, only cable fittings appropriate for this purpose can be used. They are to be protected from loosening and locked against rotation, i.e. clips, cemented, etc., per EN/IEC 60079-1.

Unused Openings: All unused openings must be closed with a "Ex db" certified close-up plug or sealing plug per EN/IEC 60079-1. All unused enclosure openings must be plugged using a certified close-up plug approved for the specific hazardous location where the enclosure is used. Plugs must be tightly installed with a minimum engagement of five (5) full threads for NPT threads, and seven (7) full threads for NPSM/Metric threads.

Flame Arrestor / Drain & Breather: Killark KB1FA & KBM20FA series flame arrestors and Killark KB & KDB series drain and breather per Certificate numbers IECEx CSA 10.0007U / Sira 10ATEX 1351U may be installed.

Cover Locking Screw: The cover locking screw is a #6-32 x 3/8 long socket head cap screw, either plated steel or stainless steel.

Maintenance Instructions – **Inspection and maintenance of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice e.g. IEC/EN 60079-17.**

After installation, this junction box should be inspected at regular intervals. A visual inspection should ascertain that all cover bolts are installed and still tight; that all conduit connections are intact and free of corrosion, and that the enclosure mounting bolts are tight and in good condition.

If the enclosure must be opened for servicing, to check or replace internal devices and apparatus, the following procedures should be followed.

WARNING: Before servicing the enclosure, be certain the electrical power is OFF. Disconnect the enclosure from primary power source and lockout.

Inspect threaded surfaces. Surfaces must be smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Should a threaded surface be damaged contact factory, never attempt to rework surfaces by sanding, grinding, etc. Surfaces must seat fully against each other to provide a proper explosion-proof joint.

SCHEDULE OF LIMITATIONS

1. The equipment is to be used only in Zone 1 and Zone 2 hazardous locations.
2. Where necessary for safety, the contents of the enclosure shall comply with the appropriate requirements of relevant standards for electrical apparatus for use in potentially explosive atmospheres.
3. The assembled equipment shall comply with the appropriate requirements of relevant standards for electrical apparatus for use in potentially explosive atmospheres.
4. The enclosure's apparatus may be placed in any arrangement, provided that an area of at least 40% of each cross-sectional area remains free to permit unimpeded gas glow and, therefore, unrestricted development of an explosion.
5. For the purposes of note 3 above, separate relief areas may be aggregated, provided that each area has a minimum dimension in any direction of 12.5 mm.
6. Rotating or other devices which create turbulence shall not be incorporated.
7. Liquids shall not be used when there is risk of producing an explosive mixture by the decomposition of or release of oxygen by these liquids.
8. The use of energy storage devices may present difficulties, due to the possibility of sparking, after isolation from the supply, when the enclosure cover is removed. In addition, secondary cells, and in some cases, primary cells, may emit flammable gas not considered under the normal certification conditions. The following requirements shall apply:
   - 8.1 All such devices shall be provided with adequate means to prevent incentive sparking when flameproof covers are removed.
   - 8.2 Enclosures which can be opened more quickly than the time necessary for the discharge of incorporated capacitors to a residual energy of:

     0.2 mJ for electrical apparatus of Group I of Group IIA, or
     0.06 mJ for electrical apparatus of Group IIB
     0.02 mJ for electrical apparatus of Group IIC

     shall be provided with a label stating the delay required before attempting to open the enclosure.
     If enclosed components have a temperature above that of the temperature classification of the electrical apparatus, a label shall be provided stating the delay necessary before attempting to open the enclosure to allow the component to cool below the temperature classification.
9. Oil-filled contactors shall not be used.
10. No holes, whether for mechanical or electrical purposes, and whether blind or clear, shall be drilled in the enclosure, other than those shown on the Component Certificate drawings 20675 & 20676
11. All entry devices shall be of a type specified in the certification documents having an appropriate Component Certificate and suitable for the conditions of use or be specifically certified with the apparatus.
12. Any unused entry shall be closed by a device specified in the certification documents, having an appropriate Component Certificate or be specifically certified with the apparatus.
13. The holder of the final Certificate will be required to provide information to enable the test authority to verify compliance with the above and the relevant parts of the certification standard not explicitly covered by the Component Certificate (e.g. temperature classification).
14. The window temperature must not exceed 120°C.
15. Flame proof joints are not to be repaired in the field. If the flame path is damaged the enclosure is to be removed from service and replaced with a new properly working enclosure.
16. The sealing cement on the windows shall not exceed 87°C.