





USE AND MAINTANANCE INSTRUCTION

INCREASED SAFETY ENCLOSURES
HTB1.../ HCS1... SERIES



HARDO CZAPSKI I WSPÓLNICY SPÓŁKA JAWNA
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HARDO.

 Listed Documents		Any changes should be authorized by ExCB
	EU Type Examination Certificate	FIDI 22 ATEX 0065X
	IECEX Certificate	IECEX FIDI 22.0008X
	Ex Technical Report	HR/FIDI/ExTR 22.0020/00 FIDI 22 CR 068

INSTRUCTION NOTE: N° TN2111 Annex A				
0	Emission	--	--	15/09/2022
REV.	DESCRIPTION	ISSUED	APPR.	DATE

INCREASED SAFETY ENCLOSURES HTB1..HCS1... SERIES

Suitable for installation in Zone: 1, 2, 21, 22



HTB1P/A... SERIES
In GRP and
copper-free aluminium



HTB1S... SERIES
In AISI316L



HCS1.....Series
In AISI316L, copper-
free aluminium and
GRP



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1. General Information

1.1 Manufacturer

HARDO S.p.A.
Spacerowa 5 street,
32-083 Balice, Poland




1.2 About these Instructions

- INSTRUCTION NOTE: N° TN2111 Annex A, issued on September 15th, 2022
- Read carefully these Instructions before using the device
- Keep these Instructions throughout the entire service life of the enclosure
- Make these Instructions available to operating and maintenance personnel
- Update these Instructions every time an amendment is delivered from HARDO
- In case of sale of the apparatus, pass these Instructions to subsequent owners

1.3 Conformity with Standards and Regulations

- HTB1....HCS1... Series are manufactured in accordance with ATEX and IECEx standards

2. Explanation of symbols on the device

Symbol	Meaning
	Product compliant with European Directive 2014/34/EU (ATEX) for installation in hazardous areas
	Product compliant with IEC standards for installation in hazardous areas
	Product compliant with applicable European Directives

3. Safety

3.1 General precautions

- The apparatus must be installed according to EN/IEC 60079-14 standard (Edit in force) and maintenance operations must be performed according to EN/IEC 60079-17 standard (Edit in force).
- User must be aware of electric risks, chemical and physical characteristics of gas, vapours, and dusts present in the plant.
- To further guarantee good product quality/safety, the Quality System of HARDO is evaluated and approved by a Notified Body, which carries out Quality System surveillance.
- HARDO ensures and guarantees correct manufacturing of its products.
- Buyer and/or End User are directly responsible of correct product installation and maintenance, according to local and national laws and product installation specifications.
- Use the apparatus only in accordance with the operating conditions described in these operating Instructions;
- Use the apparatus only for the intended purpose specified in these operating Instructions;
- All modifications and changing are strictly forbidden.

DANGER: EXPLOSION HAZARD DUE TO IMPROPER USE AND/OR ALTERATIONS TO THE APPARATUS CAN CAUSE SEVERE OR FATAL INJURIES

WARNING: ALL MODIFICATIONS / CHANGING, MADE BY BUYER / END USER, WITHOUT HARDO WRITTEN ACCEPTANCE WILL INVALIDATE CERTIFICATIONS, WARRANTIES AND ANY OTHER CONTRACTUAL AGREEMENT

RESIDUAL RISK: ALTOUGH USED PROPERLY, THE APPARATUS CAN PRESENT RESIDUAL RISKS, WHICH ARE TYPICAL OF ANY APPARATUS CONNECTED TO POWER SUPPLY.

3.2 Type of protection

HTB1...HCS1... Series – Protection: Ex eb tb for enclosures; Ex eb tb ia ib db mb for components

Compliant with:

- *IEC 60079-0* & *EN IEC 60079-0*
Equipment - General requirement
- *IEC 60079-1* & *EN IEC 60079-1*
Equipment protection by flameproof enclosures 'd'
- *IEC 60079-7* & *EN IEC 60079-7*
Equipment protection by increased safety "e"
- *IEC 60079-11* & *EN IEC 60079-11*
Equipment protection by intrinsic safety 'i'
- *IEC 60079-18* & *EN 60079-18*
Equipment protection by encapsulation "m"
- *IEC 60079-31* & *EN 60079-31*
Equipment dust ignition protection by enclosure "t"

Enclosure & components:

Type of protection Ex eb:

It provides an impact resistant enclosure for electrical equipment and ensures that the contents will not produce a spark, temperature or current creepage that could ignite the external flammable atmosphere in a hazardous area zone, location or workspace.

Type of protection Ex tb:

It avoids combustible dust (IIIC) penetration into the enclosure and ensures surface temperature limitation for use in explosive dust atmospheres.

Components:

Type of protection Ex db:

Electric equipment is installed in enclosure suitable to withstand the pressure raised during the internal explosion and avoids flame transmission to the external potentially explosive atmosphere.

Type of protection Ex ia / ib:

The energy of the circuit which could be capable of igniting a potentially explosive atmosphere is limited so that neither sparking nor heating of the electrical components can ignite the surrounding potentially explosive atmosphere.

Type of protection Ex mb:

Encapsulation allows the separation of the alive parts from the explosive atmosphere.

3.3 Intended Use

HTB1....HCS1... Series are suitable for:

- Equipment for explosive GAS and DUST atmospheres, having a "high" Level of Protection, which is not a source of ignition in normal operation or during expected malfunctions.
- Applications such as: Junction Boxes, Local Control Stations and Local Control Panels.
- All terminals, components and equipment installed on the Ex eb/Ex b enclosure are covered by their own Ex components certificates. The terminals, components and equipment must be used according to data available in related certificates: temperature range, voltage and current limitations must be respected. They must be fitted in accordance with IEC 60079-0 and IEC 60079-7 with regard to creepage and clearance distances, and according to related safety instructions.
- Indoor / Outdoor application;
- Hazardous areas: Zone 1, 2, 21, 22.
- Safe areas.

WARNING: USE THE APPARATUS ONLY FOR ITS INTENDED PURPOSE. AN INCORRECT USE MAY AFFECT NEGATIVELY THE EFFICIENCY OF THE APPARATUS

WARNING: USE THE APPARATUS ONLY IN THE HAZARDOUS AREAS STATED IN THESE INSTRUCTIONS.

DANGER: AN IMPROPER USE OF THE APPARATUS MAY LEAD TO SEVER AND/OR FATAL INJURIES

4. Transport, Storage & Handling

4.1 Transport & Storage

- Transport and store the device only in its original packaging:
 - Paper/carton boxes; or
 - Wood boxes; or
 - Wood cages.
- Store the device in a dry place, protected from sunlight, humidity, rain and vibration-free in the following condition:
 - -20°C ... +40°C.

4.2 Handling

For handling, no special measures are required, therefore it is recommended to perform this operation following the common safety standards.

5. Mounting & Installation

5.1 Preparation of the product: unpacking

- Make sure to throw away any packaging component which could result dangerous to people, such as: screws, belts, plastic bags, etc...;
- Make sure that the packaging has not been damaged during transport;
- Put down the right side of the packaging and unpack the apparatus;
- Remove the apparatus from the package in the most appropriate manner according to the weight of the apparatus.

5.2 Before mounting & installation

Before mounting and installing the device, User must verify that:

- Apparatus is suitable for the hazardous area classification;
- Apparatus Group is suitable for gases, vapours and/or dusts present in the installation site;
- Temperature Class and Surface Temperature of the apparatus is suitable for gases, vapours and/or dusts present in the installation site;
- Apparatus is not damaged.

DANGER: EXPLOSION HAZARD DUE TO INCORRECT MOUNTING OF THE DEVICE CAN CAUSE SEVERE OR FATAL INJURIES

5.3 Before commissioning

Before placing the device into service:

- Check project data and installation;
- Check the electrical ratings (voltages, frequency, mechanical and thermal stress within project data);
- Check the clamping of the electric and mechanical connections;
- Check the integrity and the continuity of earth, protection or equipotential conductors;
- Verify that no modifications have occurred to the electrical and/or mechanical structure and functionality of the apparatus (e.g. the alteration of the enclosure by the installation of further equipment inside the apparatus);
- Verify that any electrical protection was not excluded nor deregulated;
- Verify the correct fastening of the enclosure parts;
- Verify the absence of any cause of stress (e.g. exposure to collision damages, presence of corrosive agents, possibility of internal short circuits with power dissipation superior than the admitted one).

WARNING: ALL MODIFICATIONS / CHANGING, MADE BY BUYER / END USER, WHICH IMPACT ON THE ELECTRICAL AND/OR MECHANICAL STRUCTURE AND FUNCTIONALITY OF THE APPARATUS WILL INVALIDATE CERTIFICATIONS, WARRANTIES AND ANY OTHER CONTRACTUAL AGREEMENT

Verify THREADED ENTRIES and CABLE GLANDS:

- Threaded entries must be equipped with suitable cable glands, accessories and blanking elements certified according to type of protection Ex eb IIC and / or Ex tb IIIC, suitable to maintain the enclosure protection degree and suitable for ambient temperature stated on the “marking” label;
- Use certified stopping plugs to close unused entries.

Verify the COVER:

- Cover must be properly closed. Refer to paragraph 5.5 – Installation.

WARNING: IN CASE UNUSED CABLE ENTRIES AND/OR THE COVER ARE NOT PROPERLY CLOSED, EXPLOSION PROTECTION CAN NO LONGER BE GUARANTEED.

WARNING: IN CASE UNPROPER CABLE GLANDS, ACCESSORIES AND/OR BLANKING ELEMENTS ARE USED, EXPLOSION PROTECTION CAN NO LONGER BE GUARANTEED.

5.4 Apparatus composition

The HTB1...HCS1...Series are made of Ex eb and Ex tb enclosures in stainless steel, aluminium alloy or glass fiber reinforced polyester resin, of various dimensions.

The cover of HTB1...is fixed to the body with screw, between body and cover a gasket guarantee the protection degree IP66 (IP66/67 depending on models). For HTB1S... it is also possible to add locking device (IP66) and/or swing handle (IP55) in addition to screws.

The cover of HTB1N... is fixed to the the body with locking device (IP66) and/or swing handle (IP55), between body and cover a gasket guarantee the protection degree.

NOTE: THE IP DEGREE OF JUNCTION BOXES, LOCAL CONTROL STATIONS AND LOCAL CONTROL PANELS DEPENDS ON THE COMPONENTS ACTUALLY MOUNTED.

The walls of the boxes can be drilled with maximum size and maximum number of holes as specified in the manufacturer documents. The enclosure can be provided with hinges and/or transparent window, according to manufacturer documents. Removable flange can be installed on HTB1 Connection of metallic enclosure in blocks are allowed.

The cable glands or plugs, with separate IECEx certificate, are mounted according to related manufacturer's installation instructions.

Each enclosure can be provided with internal earthing plate or lug, earthing screw or bolt. Metal enclosures are provided by external earthing screw or bolt, stainless steel enclosures are available with or without glands plate, metal and polyester enclosures can be provided by passing through earthing terminals.

All enclosures can be provided by:

- Externally installed accessories;
- Drain breath device type ECR3;
- Internal/external earthing plate.

NOTE: THE ENCLOSURE COMPOSITION DEPENDS TO CUSTOMER'S REQUIREMENT, BUT IN ANY CASE IT IS SUBJECT TO CONFORMITY CERTIFICATION.

5.5 Installation

ENCLOSURE LIDS AND FLANGES FASTENING:

To ensure the IP protection degree, the lid / flanges screws / nuts must be screwed tight. Suggested tightening torque as per following table:

Polyester enclosures HTB1P.. Series	Aluminium enclosures HTB1A.. Series	Stainless steel enclosures HTB1S/N.. Series
2Nm	2Nm	1.5Nm

Enclosures HTB1S... can be equipped with locking devices and swing handle. Locking devices do not substitute any fastening screws. The degree of protection are guarantee only from the use of the screws.

For HTB1S101210 and HTB1S151510 the cover can be closed only with screw.

Enclosures HTB1...is equipped with locking devices and swing handle. The degree of protection is guarantee from the use of locking devices.

GROUNDING TERMINALS FASTENING:

The screws and/or nuts of the grounding cables terminals must be screwed tight. Suggested tightening torque as per following table:

M5	M6	M8	M10	M12
8.5Nm	9Nm	20Nm	25Nm	35Nm

The internal grounding terminal, when installed, is positioned on the internal mounting plate or in a threaded hole.

The internal grounding terminal is suitable to clamp at least one cable lug for conductor size:

Phase conductor size $S\text{mm}^2$	Protection conductor size $S\text{mm}^2$
$S \leq 16$	S
$16 < S \leq 35$	16
$S > 35$	$0,5 S$

The external grounding terminal (in metal enclosures only), when installed, is positioned on one of the enclosure walls.

Dimensions suitable to clamp a cable lug for conductor size: at least 4mm^2 .

PASSING THROUGH GROUNDING TERMINALS:

The enclosures can be supplied (on each wall) c/w passing through terminals installed by HARDO.

TRANSPARENT PARTS:

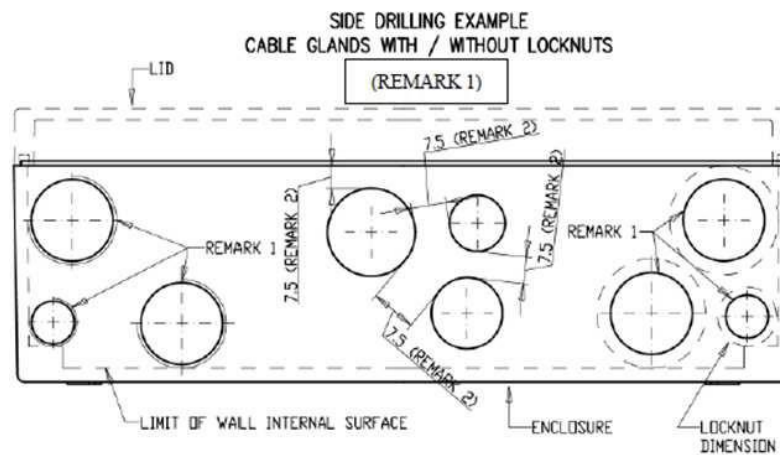
The enclosures can be supplied c/w transparent polycarbonate parts installed by HARDO.

5.6 Walls and Lid drillings

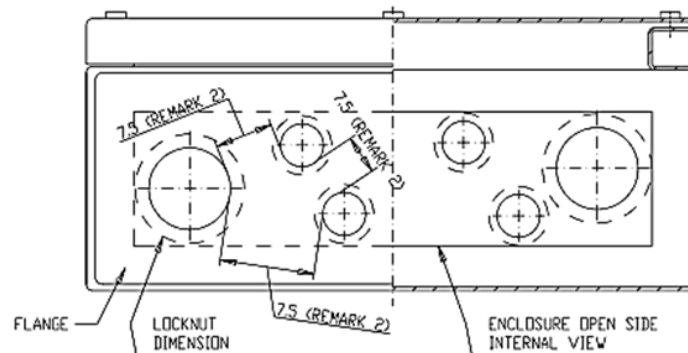
According to the allowable area on the walls of the enclosures, the drilling are made on the enclosures walls as per fig. 1 and 2.

The installed cable glands must be certified according to the types of protection Ex eb IIC and/or Ex tb IIIC.

Fig. 1



HTB1S SERIES ENCLOSURES – FLANGES DRILLING EXAMPLE
CABLE GLANDS WITH LOCKNUTS



HTB1N SERIES ENCLOSURES – FLANGES DRILLING EXAMPLE
CABLE GLANDS WITH LOCKNUTS

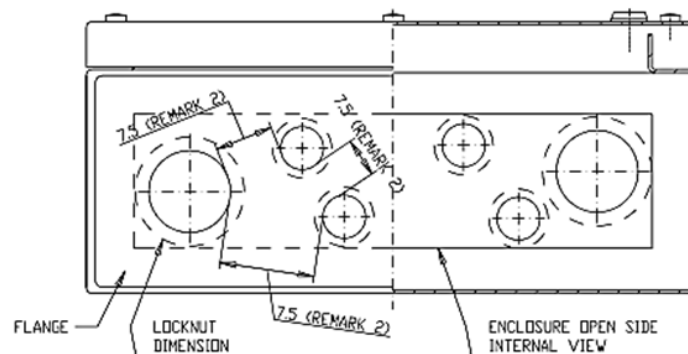
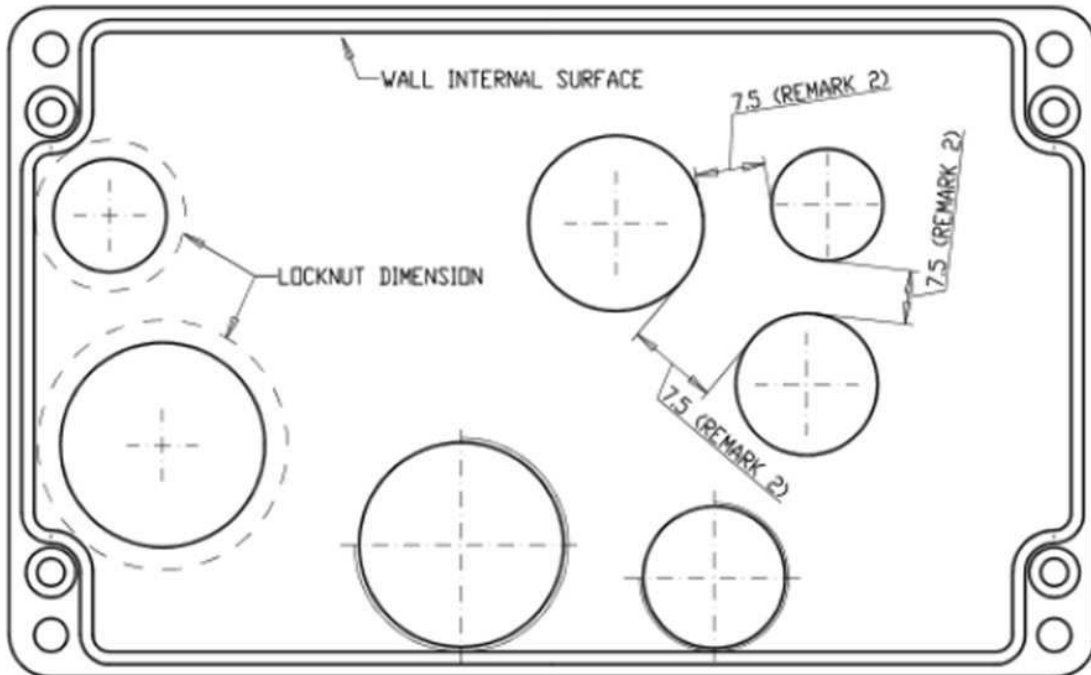


Fig. 2

BOTTOM DRILLING EXAMPLE
CABLE GLANDS WITH / WITHOUT LOCKNUTS (REMARK 1)



Remark 1

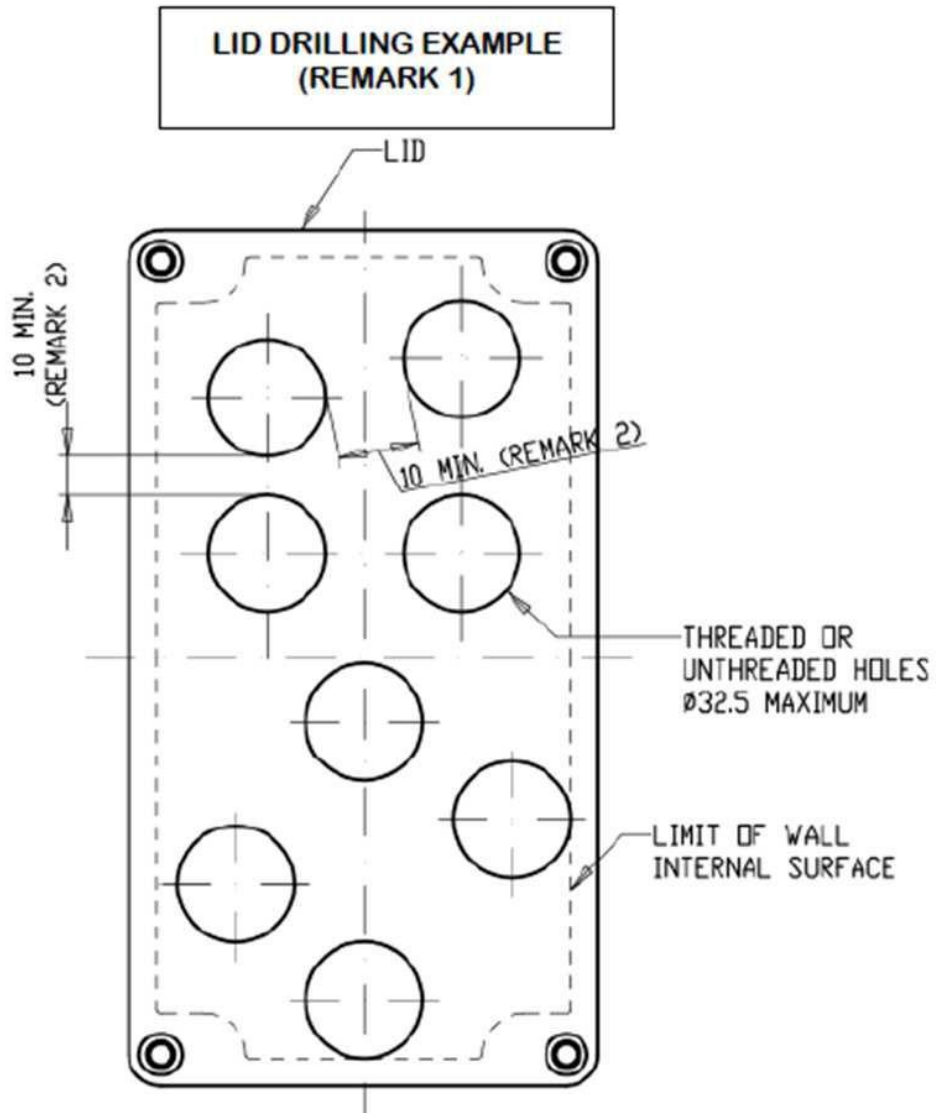
- Drilling examples suitable for the whole range of enclosures.
- Threaded or unthreaded holes. Max. holes dimensions 91mm.
- Parallel or taper threadings are admitted according to the threading of the cable glands to be installed.
- When installed on unthreaded holes, the mechanical fastening of the entry device must be by a locknut.
- The locknut must be also installed when required by the installation instructions of the cable glands.
- The diameter of the unthreaded hole must be maximum 1mm larger than the cable gland threading diameter when not otherwise specified by the assembling instructions of the cable glands.
- To ensure the IP degree of the enclosures, cable glands having at least the same IP degree of the enclosures must be installed. The IP protection degree of the coupling cable gland/enclosure is obtained according to the assembling instructions of the cable glands.
- Taper threadings are not admitted in polyester enclosures.

Remark 2

- Minimum distance (mm) between holes.

When required, drillings for externally operated devices are made on the enclosure lid as per fig. 3

Fig. 3



Remark 1

- Drilling example suitable for the whole range of enclosures.
- Dimension of the threaded or unthread holes must be according to the drilling instructions of the device to be installed.
- The mechanical fastening of the device must be made according its installing instructions.
- To ensure the IP degree of the enclosures, devices having at least the same IP degree of the enclosures must be installed. The IP protection degree of the coupling device/enclosure is obtained according to the assembling instructions of the device.

Remark 2

- Minimum distances (mm) between holes.

5.7 Cable entries and accessories installation

Fig. 4 shows the different cable entries copupled with different accessories. It is mandatory to perform the maintenance at lleast every 6 months when the accessory is fastened by locknut without star-washer (Fig. 4b).

Fig. 4

Fig. 4a

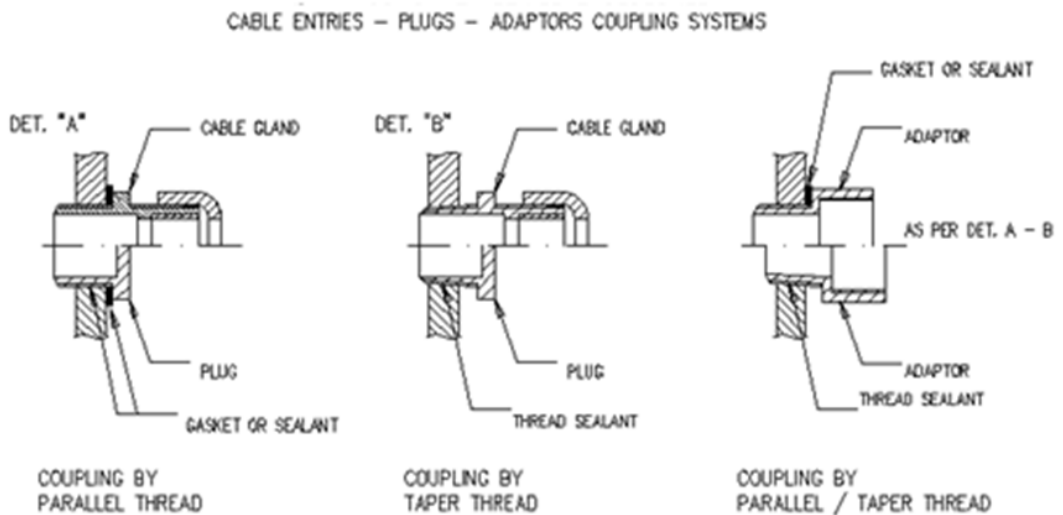
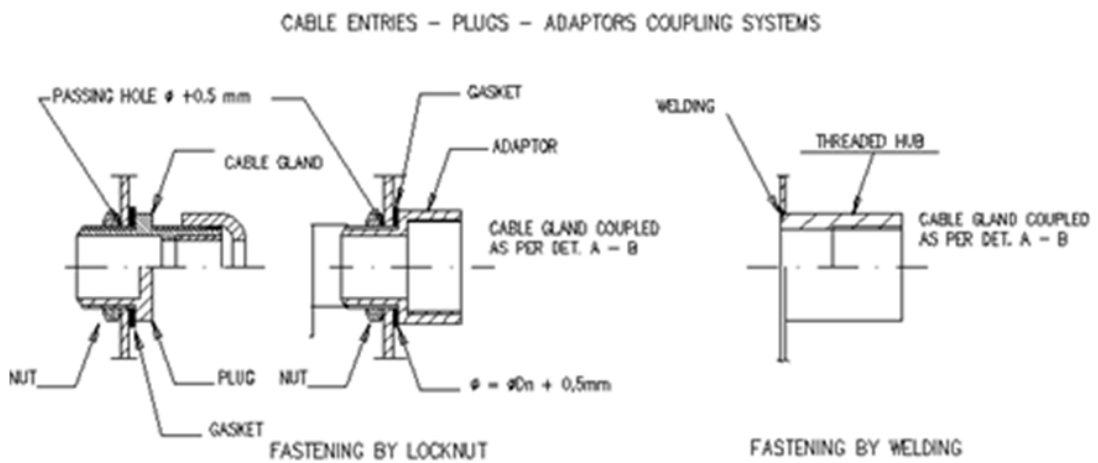
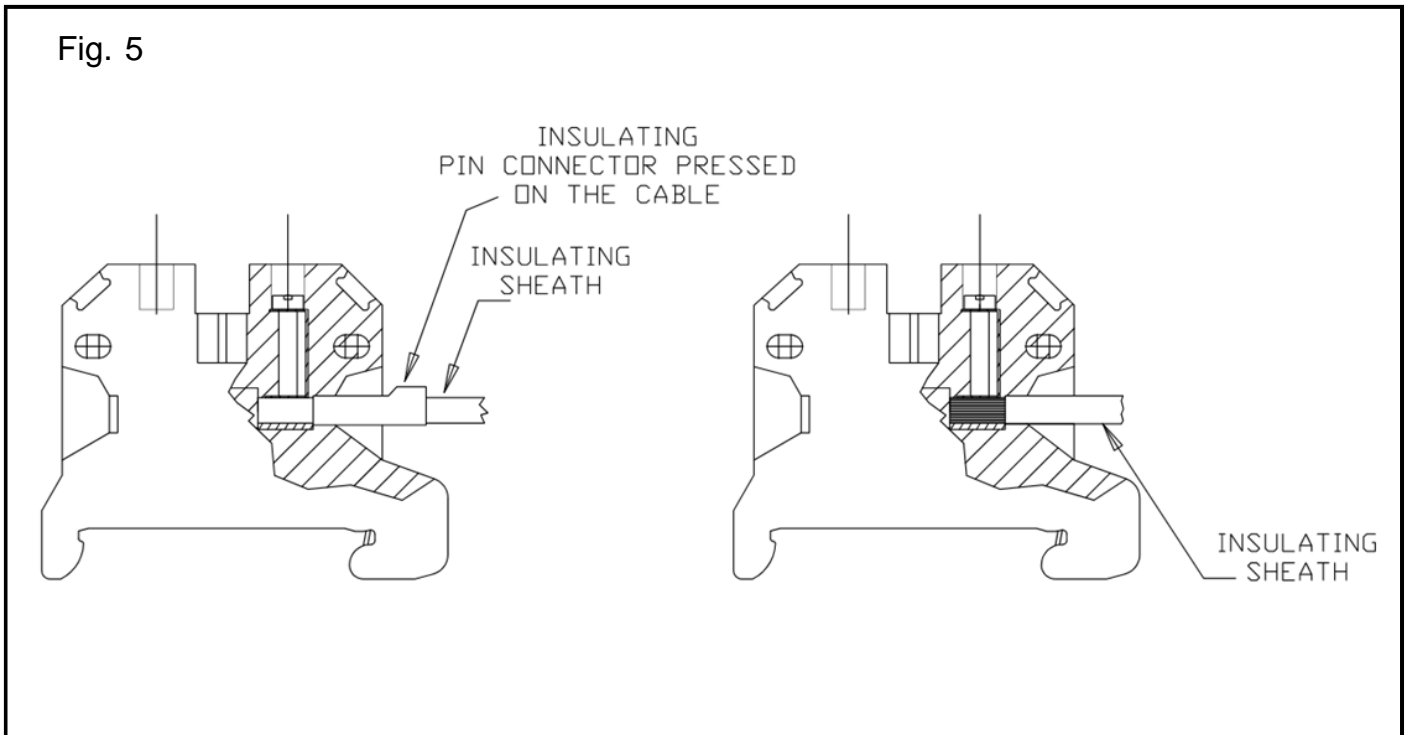


Fig. 4b



5.8 Terminals and others components

- The conductor must be inserted into the mouth of the terminal.
- The insulation must touch the outside of the conducting part of the terminal (Fig 5).
- Insert only one conductor per terminal socket. (unless otherwise described on the relevant certificate)
- Terminals that are jumpered with the appropriate accessories must be adjacent to each other and separated from neighbouring terminals by means of terminal plates.



6. Maintenance

6.1 General information

- The maintenance is a set of operations performed in order to maintain the safety and functional features of the apparatus during its operating life;
- The maintenance operations must be performed according to EN/IEC 60079-17 standard (Edit in force);
- The apparatus must be submitted to a detailed maintenance program studied and managed by qualified and authorized technicians and related to the type of apparatus, its operating service and environmental conditions;
- Do not exceed the limit of two years between inspections;
- Check the WARNINGS on the marking tag before opening the enclosure;
- All the maintenance operations must be performed with the electrical apparatus isolated from all energy sources;
- The apparatus must be installed and maintained in order to prevent dangers from casual contacts with under voltage elements and the risks of fire and burst derived from possible abnormal working conditions;
- If the apparatus is subjected to vibrations, verify frequently the fastening of screws, pipe and/or cable entries and each part of the enclosure;
- Replace damaged parts by original HARDO spare parts only;
- The inspections and maintenance on the apparatus must be carried out only from expert staff, whose training has included all the necessary instructions on the installation modalities, on the laws and standards relevant and on the general principles of the classification of the hazardous areas.

7. Cleaning

- Use only non-metallic brushes and non-corrosive cleaning fluids;
- Before re-assembling the apparatus, verify that flanged, gasket and screws have not been damaged;

When the apparatus is installed in environments with combustible dust:

- Proceed with a regular cleaning of the apparatus to avoid dust accumulation on the surfaces

When the Warning: "POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS" is present on the tag:

- Proceed with a regular cleaning using damp cloth or antistatic products only;
- During cleaning process, touch the apparatus with an insulated object.

DANGER: EXPLOSION HAZARD DUE TO DAMAGED GASKET DURING CLEANING TREATMENTS CAN CAUSE SEVERE OR FATAL INJURIES

8. Repairing

Repair of the re-certified equipment must be performed according to the standard EN/IEC 60079-19 by trained personnel.

Fastening screws of cover must be replaced by HARDO spare parts only.

All repairing impacting the type of protection (except for replacement with original HARDO spare parts) are admitted only under written authorization of HARDO.

Written agreements with HARDO must be taken concerning procedures for mandatory verifications and tests to be performed after repairing.

9. Disposal



The symbol, applied to the product or to the package, indicates that the product should not be considered normal domestic waste, but must be taken to the appropriate collection point for the recycling of electric and electronic devices.

Ensuring that you dispose of the product in the appropriate way contributes to avoiding potential negative consequences that might arise from unsuitable disposal of the product. For further information about recycling of this product, contact your local municipal offices, the local municipal waste disposal service or the point-of-sale where you purchased this product.

10. Special Condition of Use

- HTB1...HCS1... Series enclosures are suitable for service temperature: from -50°C to 105°C;
- Installation of cable entries or plugs and drillings in walls/lid shall be in accordance with Manufacturer's instructions. The suitability of all entries should be considered in the end use application;
- Enclosures equipped with polycarbonate transparent parts, painted enclosures having paint layer thickness more than 0,2 mm and not antistatic polyester enclosures (other than the black colored ones: clean only by damp cloth or antistatic products);
- For the use of the enclosures in environments with explosive atmosphere for the combustible dust presence, the following precautions must be taken: to avoid the accumulation of dust on the surfaces, the user must proceed with a regular cleaning of the enclosures;
- The accessories used for cable entries shall be certified according to EN/IEC 60079-0(*), EN/IEC 60079-7(*), EN/IEC 60079-31(*) standards, with Gb and Db minimum EPLs, and installed according EN/IEC 60079-14(*). They shall guarantee the protection degree on enclosure. If cylindrical threads are used, the coupling between the cable gland and the terminal box shall be provided with lock to prevent loosening.

(*): According to EN Standards for the component certified according to 2014/34 Directive. According to IEC Standards for the component certified according to IECEx Scheme.

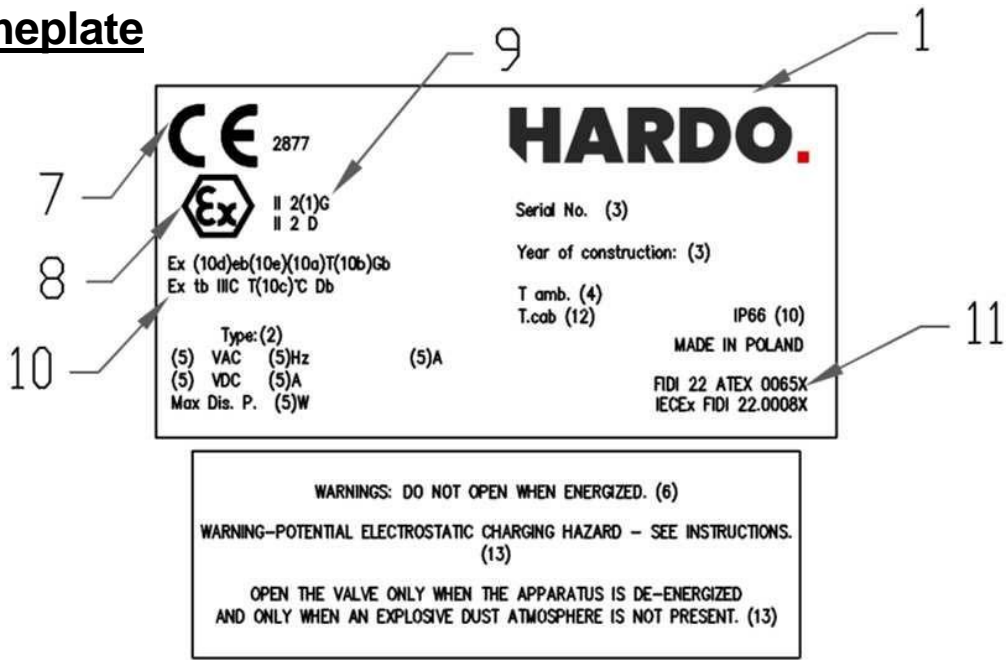
11. Warranties

For Warranty Terms & Conditions, please refer to our General Terms & Conditions available at www.hardo.tech

12. Management of non-conformities

In case of receiving a Product considered as non-compliant, please contact info@hardo.tech and communicate the following information: Company name, PO number, delivery date, non-compliant Product and the reason(s) why the Product has been considered as non-compliant. HARDO will evaluate the request and the Product will be repaired or replaced, at HARDO sole discretion.

13. Nameplate



Legenda:

(1)	Brand, name and address of the manufacturer	
(2)	Equipment type designation given by manufacturer	
(3)	Year of construction and serial number	
(4)	Ambient temperature range	
(5)	Nominal electrical characteristic	
(6)	Warning used for all types of Enclosure	
(7)	Graphic symbol of conformity CE marking	
(8)	Distinctive community mark specific of explosion protection	
(9)	ATEX Marking	
	II:	Group of apparatus - equipment suitable to be installed in surface places
	2G:	Category – equipment suitable to be installed in places in which, during the normal activities, explosive atmosphere caused by gases, vapours, mists (G) are likely to occur (zone 1); suitable to be installed in zone 1 and in zone 2.
	2D:	Category – equipment suitable to be installed in places in which, during the normal activities, explosive atmosphere caused by mixture of air and combustible dust are likely to occur (zone 21); suitable to be installed in zone 21 and in zone 22.
(1)G	Only with [ia], in case of associated equipment	
(10)	IECEx marking – type of protection	
	Ex:	Protection against explosion.
	ia	Type of protection “ia” - Intrinsic Safety protection
	eb	Type of protection “eb” – Equipment protection by increased safety (for EPL Gb)
	db	Type of protection “db” – Equipment protection for flameproof of enclosure (for EPL Gb)
	mb	Type of protection “mb” – Equipment protection by encapsulation
	IIC or IIB	Equipment suitable to be installed in surface places for all types of combustible gas
	Gb:	Equipment for explosive gas atmospheres, having a “enhanced” level of protection, which is not source of ignition in normal operation and which may have some additional protection to ensure that it remains inactive as an ignition source in the case of regular expected occurrences.
	tb:	Protection by enclosures, (for EPL Db).
	IIIC	Group III for use in places with an explosive dust atmosphere other than mines susceptible to firedamp; conductive dust
T135°C Or T85°C	Maximum surface temperature	
Db:	Equipment for explosive dust atmospheres, having an “high” level of protection, which is not a source of ignition in normal operation or during expected malfunctions	
IP66	Dust-tight (6); protected against powerful water jets (6)	
(11)	Identification of Notified Body that have issued the ATEX and IECEx certificate and its relative number (see declaration of conformity)	

14. Annex A – Technical data

14.1 Explosion protection

Global (IECEX)	Ex ia IIC/IIB T6/T5/T4 Ga ² or Ex eb IIC/IIB T6/T5/T4 Gb ¹ or Ex e IIC/IIB T6/T5/T4 Gb ¹ or Ex db eb ia/ib mb [³] IIC/IIB T6/T5/T4 Gb ¹ and/or Ex tb IIIC T85°C/T100°C/T135°C Db
Europe (ATEX)	II 1 G Ex ia IIC/IIB T6/T5/T4 Ga ² or II 2 G Ex eb IIC/IIB T6/T5/T4 Gb ¹ or II 2(1) G Ex db eb ia/ib mb [³] IIC/IIB T6/T5/T4 Gb ¹ or II 2G (1D) Ex db e ia/ib mb [Ex iaD] IIC/IIB T6/T5/T4 Gb ¹ and/or II 2 D Ex tb IIIC T85°C/T100°C/T135°C Db

NOTES:

- 1) Others type of protection additional to Ex e/eb depending to the components actually mounted.
- 2) In case of enclosures containing Ex e/Ex eb terminals and/or Ex ia Ga already certified components (with compatible marking) only.
- 3) Associated equipment protection depending on the components actually mounted (see lists): e.g. [ia/ib Ga/ia IIIC Da] and/or [ia IIIC Da] or [ia/ib/ia Ga/ia IIIC Da] and/or [ia/ib/ia Ga] [ia IIIC Da]

14.2 Mechanical data

Degree of protection:	IP55/ IP66 / IP67
Ambient temp. range	-50°C to 95°C Other possible ranges are with: - min temperature: -50°C to -20 °C - max temperature of: 40 °C to 95 °C
Body	HTB1A/P... Copper-free aluminium / GRP HTB1S/N AISI316L stainless steel HCS1S/N/A/P..... AISI316L stainless steel / Copper-free aluminium / GRP
Hardware, screws and locking devices	AISI316L stainless steel

15. Annex B – Design and models

Material & type	Junction boxes	HTB1P Series HTB1A Series	GRP Copper-free aluminium
		HTB1S/N Series	AISI316L stainless steel
	Panel board	HCS1P Series HCS1A Series	GRP Copper-free aluminium
		HCS1S/N Series	AISI316L stainless steel
Electrical data	Depending on mounted components		
Ambient temperature	-50°C to +95°C Other possible ranges are with: <ul style="list-style-type: none"> • min temperature: -50°C to -20 °C • max temperature of: 40 °C to 95 °C 		
Temperature Class	T6 (T85°C), T5 (T100°C), T4 (135°C)		

KEY CODE: JUNCTION BOXES

HTB1 (2) (3) (4) (5) (6)	(2)	P:	GRP
		A:	Copper-free aluminium
	(3)(4)(5)	Dimensions, in cm	
	(6)	None:	Up to internal temp. of 105°C
		HT:	Up to internal temp. of 130°C
HTB1S(2)(3)(4)	(2)(3)(4)	Dimensions, in cm «Stainless steel»	
HTB1N(2)(3)(4)	(2)(3)(4)	Dimensions, in cm «Stainless steel»	

KEY CODE: PANEL BOARD

HCS1(2) (3) (4) (5) (6)	(2)	P:	GRP
		A:	Copper-free aluminium
		S or N:	Stainless steel
	(3)(4)(5)	Dimensions, in cm	
		None:	AISI316L Stainless steel
	AL	Copper-free aluminium	
	(6)	None:	Up to internal temp. of 105°C
		HT:	Up to internal temp. of 130°C

NOTE 1: For commercial reasons, model name listed in the above table can be modified as follows: first (2) and second (3) digits can be reversed.

NOTE 2: For stainless steel enclosures (except types HTB1S101210 and HTB1S151510) the dimensions (2) and (3) can be decreased or increased up to 20%, the dimensions (3) can be increased up to 800 mm. Model name changes consequently.

MODELS – HIGH TEMPERATURE

Polyester		Aluminium	
HTB1P080806HT	HCS1P080806HT	HTB1A080806HT	HCS1A080806HT
HTB1P080808HT	HCS1P080808HT	HTB1A081306HT	HCS1A081306HT
HTB1P081106HT	HCS1P081106HT	HTB1A081806HT	HCS1A081806HT
HTB1P081108HT	HCS1P081108HT	HTB1A082505HT	HCS1A082505HT
HTB1P081606HT	HCS1P081606HT	HTB1A101008HT	HCS1A101008HT
HTB1P081608HT	HCS1P081608HT	HTB1A101608HT	HCS1A101608HT
HTB1P081906HT	HCS1P081906HT	HTB1A102008HT	HCS1A102008HT
HTB1P081908HT	HCS1P081908HT	HTB1A121208HT	HCS1A121208HT
HTB1P082306HT	HCS1P082306HT	HTB1A121209HT	HCS1A121209HT
HTB1P082308HT	HCS1P082308HT	HTB1A122208HT	HCS1A122208HT
HTB1P121209HT	HCS1P121209HT	HTB1A122209HT	HCS1A122209HT
HTB1P122209HT	HCS1P122209HT	HTB1A123608HT	HCS1A123608HT
HTB1P161609HT	HCS1P161609HT	HTB1A141409HT	HCS1A141409HT
HTB1P162609HT	HCS1P162609HT	HTB1A142009HT	HCS1A142009HT
HTB1P163609HT	HCS1P163609HT	HTB1A161609HT	HCS1A161609HT
HTB1P165609HT	HCS1P165609HT	HTB1A162609HT	HCS1A162609HT
HTB1P202017HT	HCS1P202017HT	HTB1A163609HT	HCS1A163609HT
HTB1P203017HT	HCS1P203017HT	HTB1A165609HT	HCS1A165609HT
HTB1P252612HT	HCS1P252612HT	HTB1A181810HT	HCS1A181810HT
HTB1P252616HT	HCS1P252616HT	HTB1A182810HT	HCS1A182810HT
HTB1P254012HT	HCS1P254012HT	HTB1A102311HT	HCS1A102311HT

MODELS – HIGH TEMPERATURE

Polyester		Aluminium	
HTB1P254016HT	HCS1P254016HT	HTB1A202311HT	HCS1A202311HT
HTB1P256012HT	HCS1P256012HT	HTB1A202318HT	HCS1A202318HT
HTB1P304020HT	HCS1P304020HT	HTB1A232811HT	HCS1A232811HT
HTB1P363609HT	HCS1P363609HT	HTB1A233311HT	HCS1A233311HT
HTB1P406025HT	HCS1P406025HT	HTB1A233318HT	HCS1A233318HT
HTB1P414012HT	HCS1P414012HT	HTB1A234011HT	HCS1A234011HT
HTB1P414020HT	HCS1P414020HT	HTB1A234023HT	HCS1A234023HT
-	-	HTB1A236011HT	HCS1A236011HT
-	-	HTB1A314011HT	HCS1A314011HT
-	-	HTB1A314014HT	HCS1A314014HT
-	-	HTB1A314018HT	HCS1A314018HT
-	-	HTB1A314023HT	HCS1A314023HT
-	-	HTB1A316011HT	HCS1A316011HT
-	-	HTB1A316018HT	HCS1A316018HT
-	-	HTB1A606020HT	HCS1A606020HT

MODELS – STANDARD TEMPERATURE			
Polyester		Aluminium	
HTB1P080806	HCS1P080806	HTB1A080806	HCS1A080806
HTB1P080808	HCS1P080808	HTB1A081306	HCS1A081306
HTB1P081106	HCS1P081106	HTB1A081806	HCS1A081806
HTB1P081606	HCS1P081606	HTB1A081808	HCS1A081808
HTB1P081906	HCS1P081906	HTB1A082505	HCS1A082505
HTB1P121209	HCS1P121209	HTB1A082508	HCS1A082508
HTB1P122209	HCS1P122209	HTB1A101008	HCS1A101008
HTB1P161609	HCS1P161609	HTB1A101508	HCS1A101508
HTB1P162609	HCS1P162609	HTB1A101608	HCS1A101608
HTB1P163609	HCS1P163609	HTB1A102008	HCS1A102008
HTB1P252612	HCS1P252612	HTB1A121208	HCS1A121208
HTB1P252616	HCS1P252616	HTB1A122209	HCS1A122209
HTB1P254012	HCS1P254012	HTB1A141409	HCS1A141409
HTB1P254016	HCS1P254016	HTB1A142009	HCS1A142009
HTB1P256012	HCS1P256012	HTB1A161609	HCS1A161609
HTB1P414012	HCS1P414012	HTB1A162410	HCS1A162410
HTB1P414016	HCS1P414016	HTB1A162609	HCS1A162609
-	-	HTB1A181810	HCS1A181810
-	-	HTB1A182810	HCS1A182810
-	-	HTB1A202311	HCS1A202311
-	-	HTB1A202318	HCS1A202318
-	-	HTB1A232811	HCS1A232811
-	-	HTB1A233312	HCS1A233312
-	-	HTB1A233318	HCS1A233318

MODELS – STANDARD TEMPERATURE

Stainless steel

HTB1S101210	HCS1S101210	HTB1N142013	HCS1N142013
HTB1S151510	HCS1S151510	HTB1N202010	HCS1N202010
HTB1S142013	HCS1S142013	HTB1N202016	HCS1N202016
HTB1S202010	HCS1S202010	HTB1N202713	HCS1N202713
HTB1S202016	HCS1S202016	HTB1N272713	HCS1N272713
HTB1S202713	HCS1S202713	HTB1N203016	HCS1N203016
HTB1S272713	HCS1S272713	HTB1N273513	HCS1N273513
HTB1S203016	HCS1S203016	HTB1N282816	HCS1N282816
HTB1S273513	HCS1S273513	HTB1N204016	HCS1N204016
HTB1S282816	HCS1S282816	HTB1N353516	HCS1N353516
HTB1S204016	HCS1S204016	HTB1N282827	HCS1N282827
HTB1S353516	HCS1S353516	HTB1N355016	HCS1N355016
HTB1S282827	HCS1S282827	HTB1N383816	HCS1N383816
HTB1S355016	HCS1S355016	HTB1N384516	HCS1N384516
HTB1S383816	HCS1S383816	HTB1N385716	HCS1N385716
HTB1S384516	HCS1S384516	HTB1N505016	HCS1N505016
HTB1S385716	HCS1S385716	HTB1N383827	HCS1N383827
HTB1S505016	HCS1S505016	HTB1N575716	HCS1N575716
HTB1S383827	HCS1S383827	HTB1N577620	HCS1N577620
HTB1S575716	HCS1S575716	HTB1N575730	HCS1N575730
HTB1S577620	HCS1S577620	HTB1N769520	HCS1N769520
HTB1S575730	HCS1S575730	HTB1N1258040	HCS1N1258040
HTB1S769520	HCS1S769520	-	-
HTB1S1258040	HCS1S1258040	-	-