

15.06.2018r.

# APPLICATION MANUAL

Increased safety Ex e - Terminal Blocks

Type:

**XE-B10S-G8**  
**XE-B10S-G9**  
**XE-B10S-G8Lr**  
**XE-B10S-G9Lr**  
**XE-B12S-G8**  
**XE-B12S-G9**  
**XE-B12S-G8Lr**  
**XE-B12S-G9Lr**  
**XE-SBd-B10S-G8**  
**XE-SBd-B10S-G9**  
**XE-SBd-B10S-G8Lr**  
**XE-SBd-B10S-G9Lr**  
**XE-SBdL-B10S-G8**  
**XE-SBdL-B10S-G9**  
**XE-SBdL-B10S-G8Lr**  
**XE-SBdL-B10S-G9Lr**  
**XE-SGBd-B10S-G8**  
**XE-SGBd-B10S-G8Lr**  
**XE-SGBdL-B10S-G8**  
**XE-SGBdL-B10S-G8Lr**



Contents:

1. Note of safety.
2. Identification.
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4. Installation.
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## 1. NOTE OF SAFETY.

The XE - ... type terminal blocks are designed as a terminal elements for connecting a sensor wire to an external signal cable. If used incorrectly it is possible that application - related danger may arise. The XE -... type terminal blocks may be installed, connected and maintained by qualified and authorized personnel only, under the strict observance of these operating instructions, any relevant standards, legal requirements and the certificate.

## 2. IDENTIFICATION.

### Direct mounted terminal blocks.

XE-B10S-G8  
XE-B10S-G8Lr  
XE-B10S-G9  
XE-B10S-G9Lr

XE-B12S-G8  
XE-B12S-G8Lr  
XE-B12S-G9  
XE-B12S-G9Lr

XE - increased safety „e”

└ Ex explosion protection device

B10S, B12S - types of a ceramic block directly mounted to the body of a connection head, made of steatite

G8 - type of a terminal - screwed sensor wire and a signal cable together, made of nickel-plated brass.

G9 - the same type as above made of steel.

Lr - a terminal equipped with soldering lugs for a connecting sensor wire by soft soldering or laser welding.

A signal cable is independently screwed to terminals G8, G9.

### Spring loaded terminal blocks

XE-SBd-B10S-G8  
XE-SBd-B10S-G8Lr  
XE-SBd-B10S-G9  
XE-SBd-B10S-G9Lr

XE-SBdL-B10S-G8  
XE-SBdL-B10S-G8Lr  
XE-SBdL-B10S-G9  
XE-SBdL-B10S-G9Lr

XE-SGBd-B10S-G8  
XE-SGBd-B10S-G8Lr  
XE-SGBdL-B10S-G8  
XE-SGBdL-B10S-G8Lr

SB(d) - a nominal diameter of a mineral insulated cable:  $\varnothing 3 \dots \varnothing 12,7\text{mm}$ .

SBd(L) – distance bush length: 8 .. 60mm. A spring loaded version with a distance bush for a solid connection with a mineral insulated cable.

S(G)Bd or S(G)BdL - additional grounding bracket equipped with a grounding terminal, welded-on to a springing disk.

B10S – a type of a ceramic block directly mounted on a springing disk, made of steatite.

### 3. ASSEMBLING.

#### Directly mounted version.

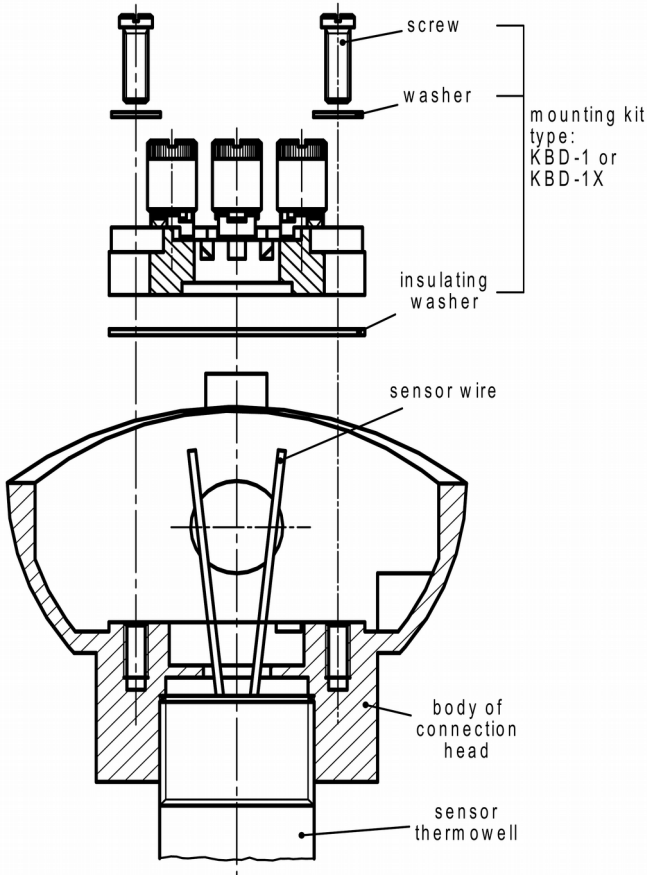


Fig. 1.  
Fixing terminal block to body of connection head

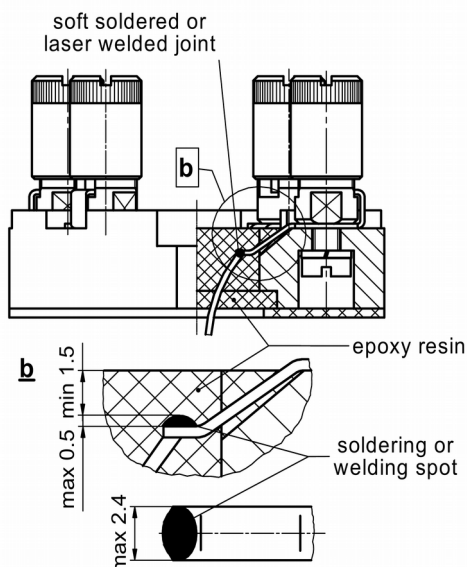


Fig. 3.  
Soldering or welding sensor wire to lugs of terminal.

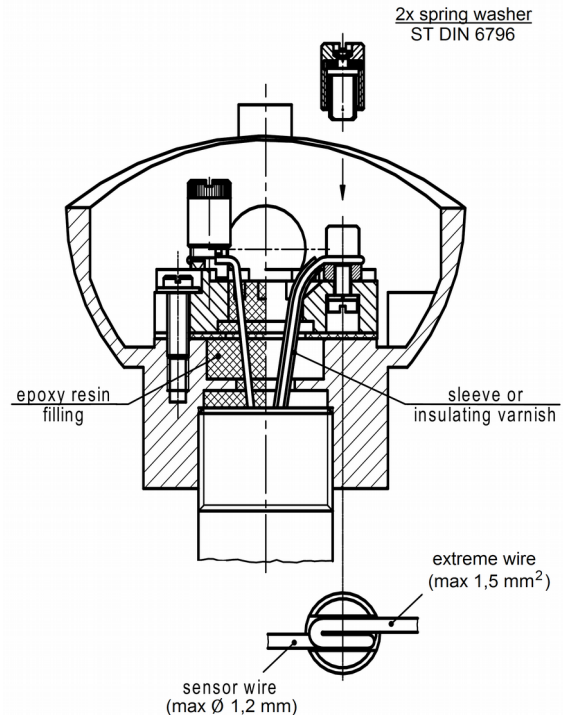


Fig. 2.  
Fixing sensor wire to the screwed terminals.

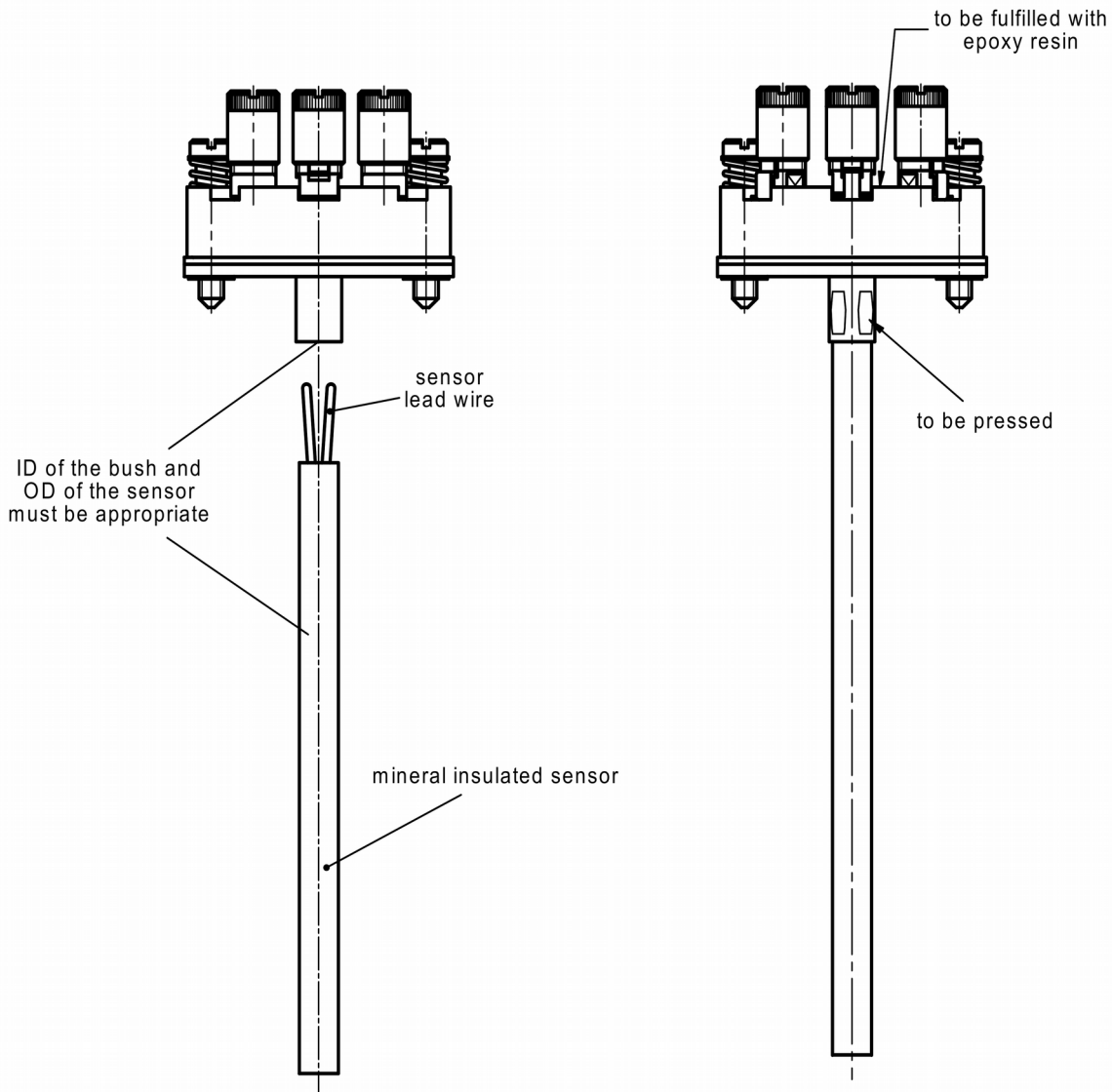
Min. (recommended) wire thickness - 0,5 mm<sup>2</sup>.  
Tightening torque (recommended) of the terminal (nut)  
~ 0,55 ÷ 0,6 Nm.

#### Notes:

- Types XE-B12S-G8(9)Lr are designed for soft soldering sensor wire to soldering lugs. In this case a soldering point – that is a central hole of a ceramic block – must be filled with epoxy resin up to the top edge of the hole (the soldering joint must be covered). It is also allowed laser welding sensor wire to lugs. It is recommended to fill up central holes with epoxy resin to protect a welded joint against vibration and corrosion.
- Types XE-B12S-G8(9) are designed for tightening a sensor wire in a screw terminal. In this case sensor wires must be isolated:
  - either with a sleeve or insulating varnish
  - or the central hole of ceramic block must be filled with epoxy resin up to the top edge of the hole.

Epoxy resin properties	Value
Temperature index TI (IEC 216)	min 120 °C
Tracking resistance CTI (IEC 112)	600

Spring loaded version



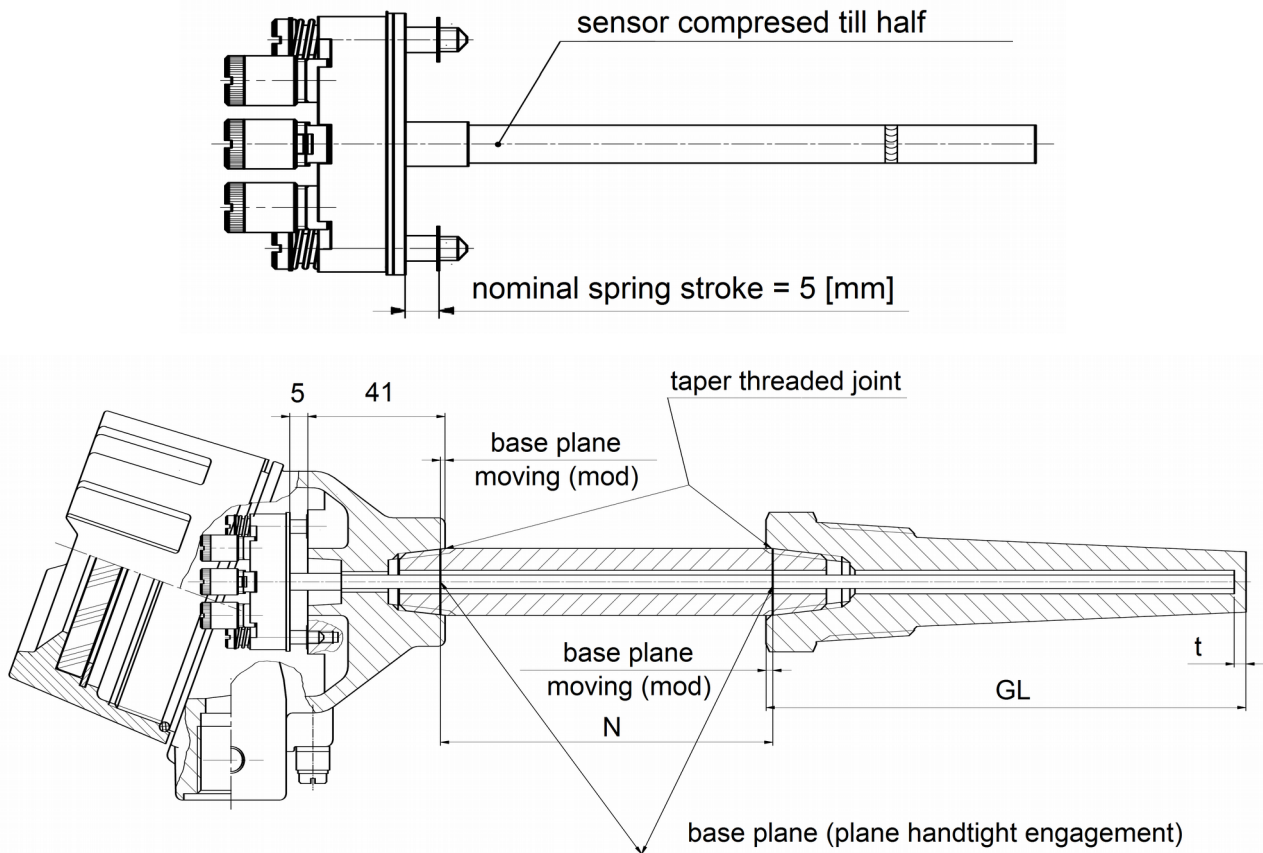
Way of fixing sensor lead wires to terminals or soldering lugs, and filling up with epoxy resin are the same as on Fig. 2. and Fig. 3.

Fig. 4.  
Assembling spring loaded terminal block to mineral insulated sensor.

#### 4. INSTALLATION OF A SPRING LOADED SENSOR IN A CONNECTION HEAD-THERMOWELL.

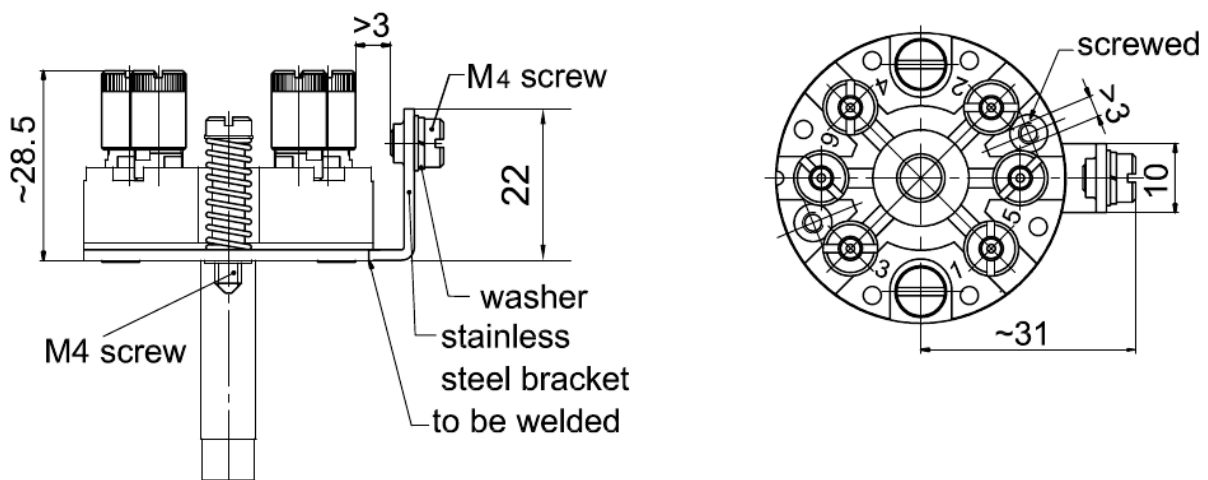
- the maximum stroke of sensor springs is 10 mm,
- the nominal calculating springs deflection is 5 mm,
- the working stroke of sensor spring regarded parts tolerance is  $\pm 4$  mm from preliminary spring deflection (5mm).

These dimension must be kept to ensure mounting a fixing spring sensor in a head – thermowell assembly, and avoid sensor damage.



## 5. GROUNDING.

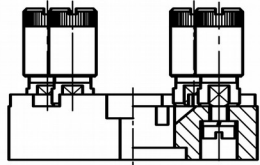
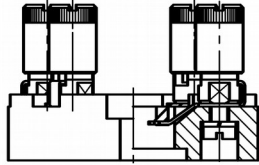


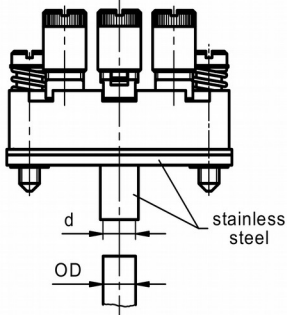
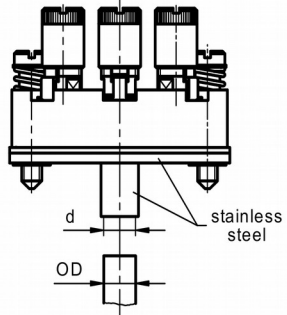
If it is required that spring loaded terminal block types XE-SBd-..., XE-SBdL- ... are grounded with the use of an additional grounding bracket equipped with a grounding terminal, welded to the disk, as shown in the drawing, the product name is XE-SGBd-... or XE-SGBdL-....



Note: A crepage distance in the air between terminals and a bracket must not be less than 3 mm.

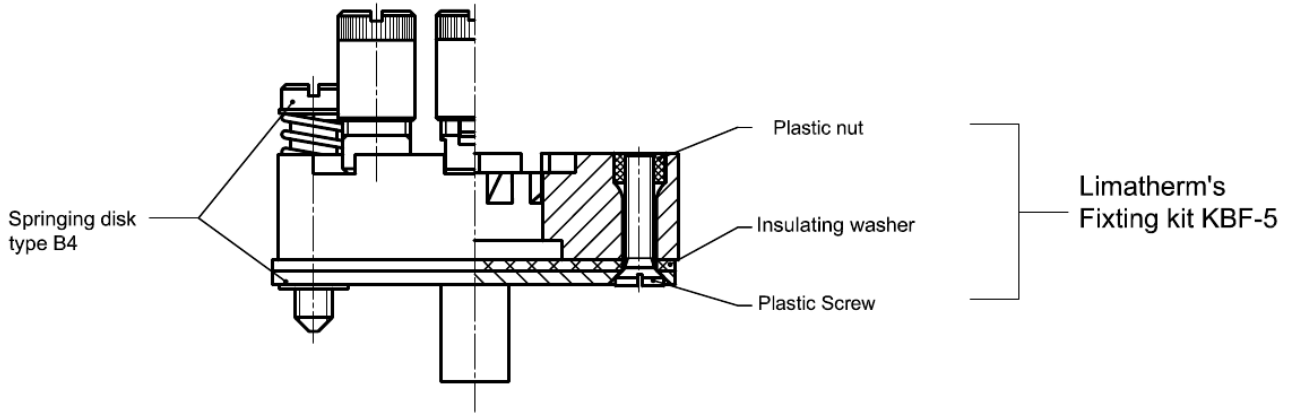


## 6. TECHNICAL DATA.

Features	Screwed terminals G8, G9	Soldered terminals G8Lr, G9Lr
Drawing		
Mounting holes spacing	33 mm	33 mm
Way of installation	Screw M4 Mounting kit KBD-1 KBD-1x	Screw M4 Mounting kit KBD-1 KBD-1x
Material of block	Steatite C220	Steatite C220
Material of terminals	G8 – nickel-plated brass G9 – nickel-plated steel	G8 – nickel-plated brass G9 – nickel-plated steel
Material of soldering lugs	Nickel-plated brass	Nickel-plated brass
Number of terminals	2, 3, 4, 6	2, 3, 4, 6
Max dia of sensor wire	Ø 1,2 mm	Ø 1,2 mm
Max dia of external lead wire	1,5 mm <sup>2</sup> stranded and solid wire	1,5 mm <sup>2</sup> stranded and solid wire
Ambient temperature	-40°C < T <sub>amb</sub> < 100°C	-40°C < T <sub>amb</sub> < 100°C
Protection method	increased safety Ex e II	increased safety Ex e II
ATEX Marking	 II 2G	 II 2G
Comply with standards	EN 60079-0 EN 60079-7	EN 60079-0 EN 60079-7
Drawing		
Mounting space	33 mm	33 mm
Size of screw	M4	M4
d [mm]	3,1   4,6   6,1   8,1   on request	3,1   4,6   6,1   8,1   on request
Sensor OD	3   4,5   6   8   d-0,1	3   4,5   6   8   d-0,1
Electrical parameters for RTD	U <sub>max</sub> = 15V I <sub>max</sub> = 10mA	U <sub>max</sub> = 15V I <sub>max</sub> = 10mA

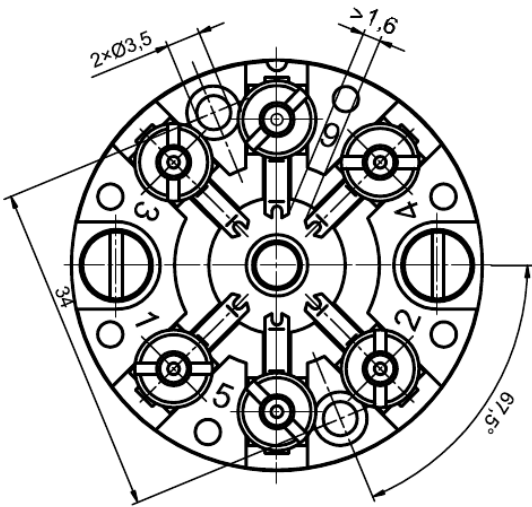
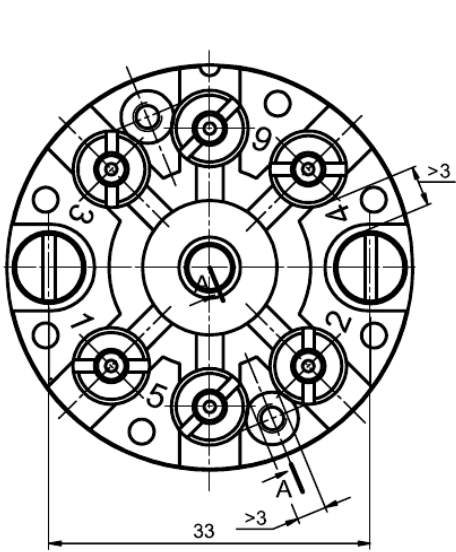
## 7. DISK MOUNTING INSTRUCTION.

Types XE-B10S-G8... terminal blocks are designed to be mounted on a springing disk.  
 Ex e protection is guaranteed only when assembled to the springing disk as in the drawing below.



XE-B10S-G8


XE-B10S-G8Lr





Mounting of a complete assembly according to the Application Manual.


## 8. MARKING.


According to standards ATEX 2014/34/UE  
 - EN 60079-0, EN 60079-7,  
 marking of XE - B10S ..., XE – Sbd -... is as follow:


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-B12S-G8


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-B12S-G9


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-B12S-G8Lr


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-B12S-G9Lr


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-SB xx -B10S-G8


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-SB xx -B10S-G9


LIMATHERM COMPONENTS  
 ŻELAZNA 5, 41-506 CHORZÓW POLAND  
 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-SB xx -B10S-G8Lr


LIMATHERM COMPONENTS  
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 1026  II 2G Ex eb IIC Gb FTZU 04 ATEX 0003U  
 Type: XE-SB xx -B10S-G9Lr


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 Type: XE-SGB xx -B10S-G8Lr

A sensor producer should apply their own label with the needed information about a complete sensor and transfer valuable information from Limatherm Components' label to a sensor label.  
 This Application Manual will be attached to each batch of goods.