



N-L4129

Updated 17.05.2011

## **APPLICATION MANUAL**

### **CONDUCTOR BUSHING Ex d**

- with thread type T
- hexagon nipple type N

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**N-L4129****1. Note of safety.**

The application manual is intended for users of flameproof conductor bushings type N and T. The conductor bushing should be used by qualified and authorized company and people only, under strict observance of this application manual and relevant standards, legal requirements, and, where appropriate, the certificate. If conductor bushing used incorrectly it is possible that application-related dangers may arise.

Producer of conductor bushing do not vouch for damage of bushing and legal effects arisen from not observance of recommendation this manual.

**2. Destination.**

Conductor bushing type is designed for electrical connection between housings of protection type Ex d or a housing protection type Ex d and connecting area of different protection type (Ex e or Ex i).

**Table 1. Technical data**

Conductor bushing type	T	N
Material of sleeve	Nickel-plated brass	
Conductor type	HELUTHERM 145	
Number of cores	$1 \div 16$ for $0,25 \text{ mm}^2$ $1 \div 15$ for $0,50 \text{ mm}^2$ $1 \div 8$ for $0,75 \text{ mm}^2$	
Conductor cross section	$0,25 \text{ mm}^2$ $0,5 \text{ mm}^2$ $0,75 \text{ mm}^2$	
Nominal voltage	250 V	
Max delta voltage	500 V	
Operating temperature	$-40 \text{ }^{\circ}\text{C} \dots +120 \text{ }^{\circ}\text{C}$	
Ambient temperature	$-40 \text{ }^{\circ}\text{C} \dots +75 \text{ }^{\circ}\text{C}$	
Relative humidity	to 95 %	
Protection marking	C $\text{Ex}$ 1026 $\text{Ex}$ II 2G Ex d IIC T4 Gb Ex d IIC T4 Gb	
Approval standards	ATEX 94/9/EC EN 60079-0:2009 EN 60079-1:2007 IEC 60079-0:2007 IEC 60079-1:2007	
Mass of conductor bushing	~ 0,30 kg	
Overall dimensions	Hex 27 x 23 mm	Hex 27 x 43 mm

**3. Use of conductor bushing.**

User should know marking of conductor bushing placed on its sleeve before fitting and installation.

### 3.1. Requirements of fitting.

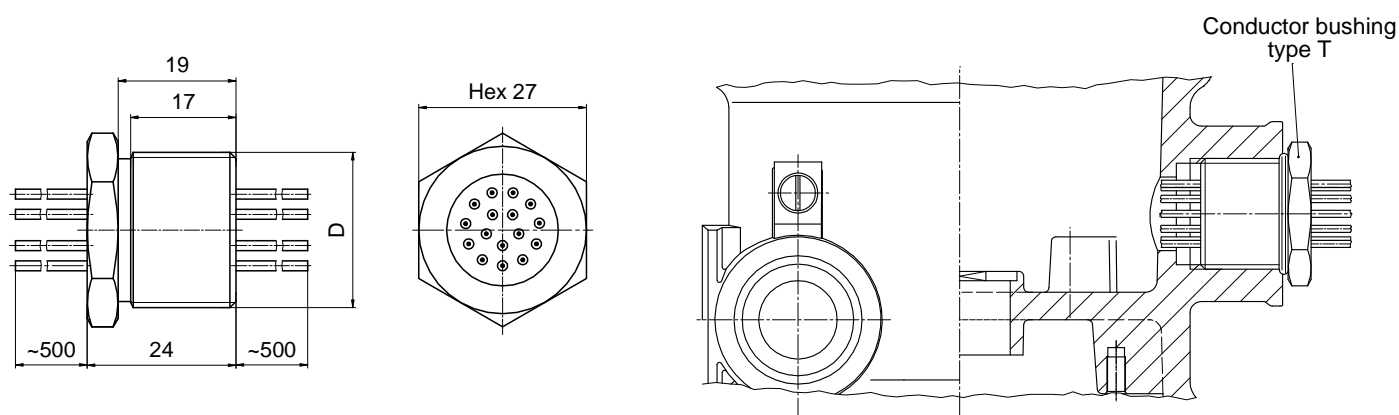
- It should be checked completeness of delivery and accordance of parameters on the bushing with parameters of installation,
- Flameproof bushing should be installed in place ensured protection of bushing sleeve and conductors against mechanical damage,
- It should be inspected conductor bushing and located cores in it.

### 3.2. Conductor bushing type T.

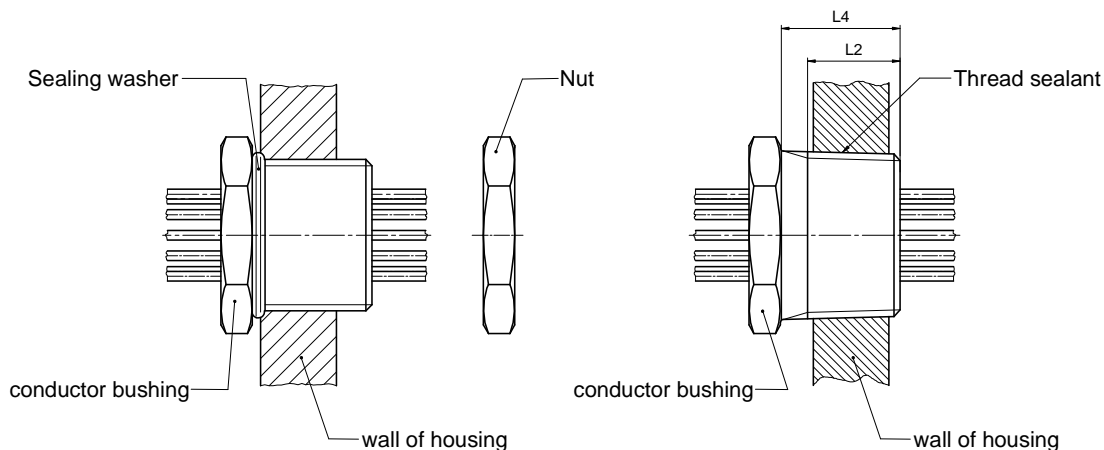
#### 3.2.1. Variety and installation

Bushing type	Thread type D	Conductor cross section [mm <sup>2</sup> ]	Number of cores	Permissible current * [A]
T	M24x1,5 M25x1,5 3/4NPT	0,25	1÷16	4,1
		0,5	1÷15	6,5
		0,75	1÷8	10,4

\* Maximum current value in the conductor, which causes the temperature of a bushing +120°C at ambient temperature +75°C. Current values can be higher at lower ambient temperatures, but can not be higher than nominal current value for suitable cross section of conductor.



#### Way of sealing and protection from self-unscrewing or slackening



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## 3.2.2. Flameproof joint – threaded joint

- cylindrical threaded joints: M24x1.5 6g, M25x1.5 6g

Standard EN 60079-1 requirements	Achieved value
• pitch: $\geq 0,7$ mm	1,5 mm
• threads form and quality of fit: medium or fine tolerance quality according to ISO 965-1 and ISO 965-3	6g 6H of female thread should be ensured by customer
• threads engaged: $\geq 5$	should be ensured by customer possible to achieve: 11
• depth of engagement: volume $< 100 \text{ cm}^3$ : $\geq 5$ mm volume $> 100 \text{ cm}^3$ : $\geq 8$ mm	should be ensured by customer possible to achieve: 17 mm

- taper threaded joint: 3/4NPT

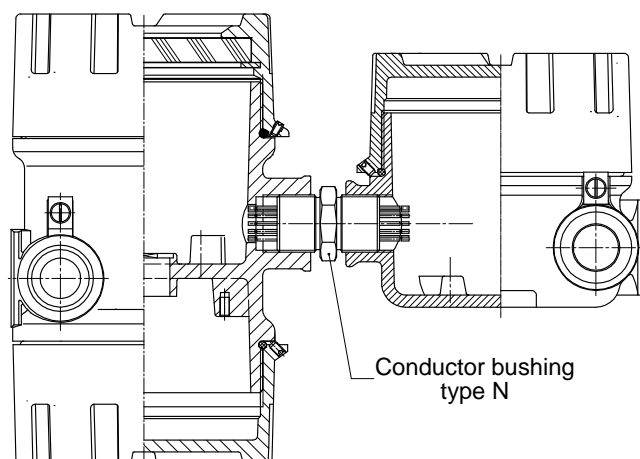
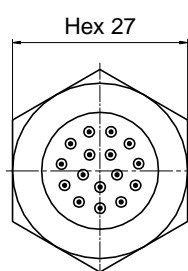
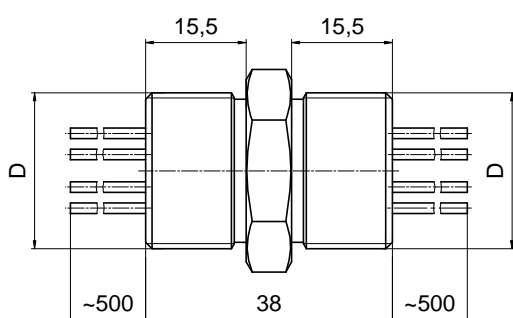
Standard EN 60079-1 requirements	Achieved values
• threads provided on each parts: $\geq 5$	9 female thread should be ensured by customer
• effective thread length min. $L_{2\frac{3}{4}\text{NPT}} = 13,9$ mm	17 mm
• overall length external thread min. $L_{4\frac{3}{4}\text{NPT}} = 20,2$ mm	20,5 mm

## 3.3. Conductor bushing type N.

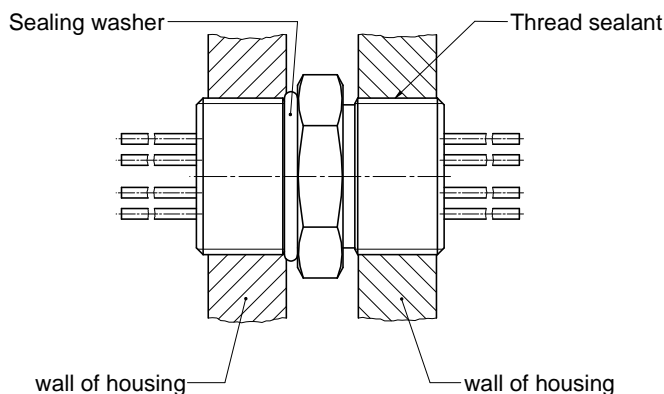
## 3.3.1. Variety and installation

Bushing type	Thread type D	Conductor cross section [mm <sup>2</sup> ]	Number of cores	Permissible current * [A]
N	M24x1,5 M25x1,5	0,25	1÷16	4,1
		0,5	1÷15	6,5
		0,75	1÷8	10,1

\* Maximum current value in the conductor, which causes the temperature of a bushing +120°C at ambient temperature +75°C. Current values can be higher at lower ambient temperatures, but can not be higher than nominal current value for suitable cross section of conductor.



Way of sealing and protection from self-unscrewing or slackening



### 3.3.2. Flameproof joint - – threaded joint

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• threads engaged: $\geq 5$	should be ensured by customer possible to achieve: 9
• depth of engagement: volume $< 100 \text{ cm}^3$ : $\geq 5$ mm volume $> 100 \text{ cm}^3$ : $\geq 8$ mm	should be ensured by customer possible to achieve: 13,5 mm

### 3.4. Electrical installation.

- Specific ampacity of cores used in conductor bushing (see: permissible current in tables) and permissible voltage between next cores (see: table 1) can not be exceeded.
- It should be check kind of used conductors: type of conductor, cross section, number of cores, nominal voltage.
- Assembly and disassembly of bushing or cores can be done only when supply voltage is switched off.

### 3.5. Dangers during assembly and operating.

#### **!WARNING!**

**Disconnection of conductors under live of circuit is forbidden.**

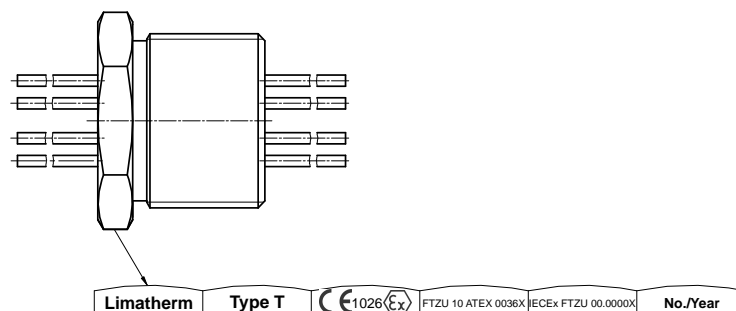
**Components of used resin include harmful chemical compounds, that can emit when max permissible temperature is exceeded. Contact to a doctor in case of irritation or intoxication.**

#### 4. Marking.

Identification marking is engraved on sleeve of conductor bushing according to:

- ATEX 94/9/EC
- EN 60079-0:2009
- IEC 60079-0:2007

Sample of marking:



#### 5. Maintenance and repair.

Maintenance of conductor bushing relies on periodical inspection of its outside state, mechanical fastening, state of wire insulation and electrical connections. In case of notice mechanical damages of bushing or cores it should be replaced by new one.

**! ANY REPAIR OF CONDUCTOR BUSHING IS INADMISSIBLE !**

#### 6. Storage and transport.

During longer period of storage conductor bushing should be stored in original package, in dry room, in temperature range  $5 \div 40^{\circ}\text{C}$  and humidity to 65%. Bushing should be transported in original producer package.

#### 7. Warranty.

Producer grants warranty under conditions:

- observance recommendations included in this Application Manual,
- assurance of operating conditions described in technical parameters,
- keeping identification marking on the product,
- use as destined,
- service and maintenance made by qualified people.

Warranty does not include damages consequent on incorrect operating, transport and storage, making mechanical or electrical damages, e.g. damage of wire insulation, damage of sleeve, or other.

#### 8. Documents.

Documents enclosed to the product:

- Declaration of conformity
- Application manual,
- Warranty.