# HTP HIGH TECH PRODUCTS S.R.L.

## YOUR CONNECTIVITY PARTNER

H.T.P. s.r.l. is a dynamic company, established in 2003, operating in pneumatics, hydraulics and industrial automation.

H.T.P. s.r.l. produces a wide range of EN175301-803 connectors (former DIN 43650 connectors) for solenoid valve, as well as M8, M12, M23, 7/8” circular connectors,D-SUB connectors, passive distribution boxes and lately also LED industrial lights.

Thanks to its unique flexibility H.T.P. s.r.l. is able to follow constantly the evolution of the market by developing new key products such as energy-saving connectors, structured cabling solutions and splitters allowing the end customer to save time in terms of wiring and to produce the machines more quickly thus being more competitive than its competitors.

H.T.P. s.r.l. builds custom connectors (even personalized with customer's logo) through innovative, unique, effective and cost-saving technical solutions.
Quality, reliability and flexibility make H.T.P. s.r.l. a partner you can trust and rely on.

H.T.P. s.r.l. has been for many years the leader in the following markets:
Pneumatics, hydraulics and producers of pressure switches.

Over the years H.T.P. s.r.l. has sold its products in more than 60 countries worldwide in all continents and to first class customers.

The key philosophy of the company is to focus on skills and expertise of custom manufacturing to enhance competitiveness.

Thanks to consolidated expertise, custom connectors are the best solution for non-standard requirements: the design is shared with the client and responds best to specific requests.

The main commercial advantages that H.T.P. s.r.l. can offer are the following:
Excellent service and high quality of all products.

Competitive prices in the international market in relation to the entire range of products.

Those who turn to H.T.P. s.r.l. instead of buying cable and products to be assembled receive connectors already assembled with cables, lengths and sizes meeting the required specifications.

To provide all these services H.T.P. s.r.l. employs staff capable of understanding the particular needs of each customer in order to deliver the specific required product in a short time.

Today H.T.P. s.r.l. is the protagonist in the market with head office in Brembate di Sopra (BG), Italy, where it has more than eight million pieces in stock.

H.T.P. s.r.l. also has branches in Rockaway, New Jersey, USA, and in Osaka, Japan, all with related sales offices and warehouses.
All this allows just-in-time deliveries and Kanban guaranteeing the confirmed lead time without risk of lines stop for customers.

H.T.P. productions are located in China and in Italy.

The organization of the production, certified in accordance with ISO 9001, is done according to criteria that enable the achievement of a standard of quality of the highest level.

Quality control of every single finished product is performed twice, in order to guarantee our customers absolute quality.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

# CERTIFICATO

**Nr. 50 100 10684 Rev.005**

SI ATTESTA CHE / *THIS IS TO CERTIFY THAT*

IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
*THE QUALITY MANAGEMENT SYSTEM OF*

HTP HIGH TECH PRODUCTS S.R.L.

SEDE LEGALE:
*REGISTERED OFFICE:*

**VIA GIACOMO QUARENGHI 11**
**IT - 24122 BERGAMO (BG)**

SEDI OPERATIVE: **VEDI ALLEGATO 1** / *OPERATIONAL SITES:* ***SEE ANNEX 1***

È CONFORME AI REQUISITI DELLA NORMA
*HAS BEEN FOUND TO COMPLY WITH THE REQUIREMENTS OF*

**UNI EN ISO 9001:2015**

QUESTO CERTIFICATO È VALIDO PER IL SEGUENTE CAMPO DI APPLICAZIONE
*THIS CERTIFICATE IS VALID FOR THE FOLLOWING SCOPE OF APPLICATION*

**Progettazione, gestione fabbricazione e commercializzazione di connettori, sensori, prolunghe per automazione e lampade LED**
**(IAF 19, 29)**

***Design, manufacturing management and trade of industrial connectors, sensor switches, extensions for automation and LED lights (IAF 19, 29)***

Per l'Organismo di Certificazione
*For the Certification Body*
**TÜV Italia S.r.l.**

Validità /*Validity*
Dal / From: **2023-10-21**
Al / To: **2026-10-20**

ACCREDIA
SGQ N° 049A

**Francesco Scarlata**
Direttore Divisione Business Assurance
*Business Assurance Division Manager*

Data emissione /
*Issuing Date*
**2023-09-18**

**PRIMA CERTIFICAZIONE / *FIRST CERTIFICATION:* 2011-10-21**

"LA VALIDITÀ DEL PRESENTE CERTIFICATO È SUBORDINATA A SORVEGLIANZA PERIODICA A 12 MESI E AL RIESAME COMPLETO DEL SISTEMA DI GESTIONE AZIENDALE CON PERIODICITÀ TRIENNALE"
*"THE VALIDITY OF THE PRESENT CERTIFICATE DEPENDS ON THE ANNUAL SURVEILLANCE EVERY 12 MONTHS AND ON THE COMPLETE REVIEW OF COMPANY'S MANAGEMENT SYSTEM AFTER THREE-YEARS"*

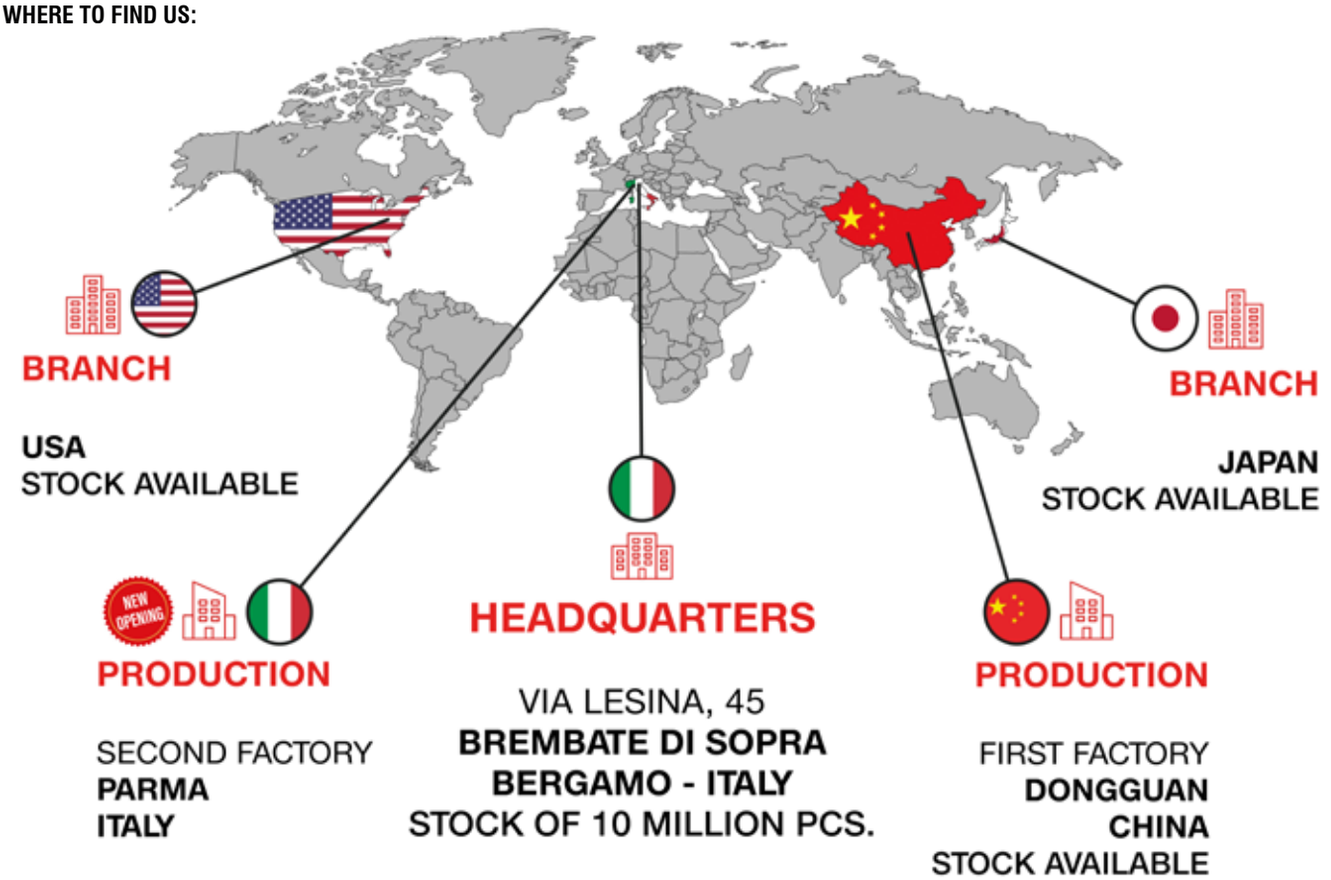
TÜV Italia • Gruppo TÜV SÜD • Viale Fulvio Testi, 358/A • 20126 Milano • Italia • www.tuvsud.com/it

Since H.T.P. s.r.l. also has a Department for the production of moulds, it has the ability to offer its customers: flexibility, competence and quality also in the development of custom products in a very short time.

The various locations are a team capable to absorb and respond to requests from the world of industrial production more and more in real time.

To have a better idea of our range of products, please visit our web site at www.webhtp.eu and contact our sales department at +39-035-692509 or send an email to: info@webhtp.eu.

**WHERE TO FIND US:**




HTP WEBSITE


























## CONFORMITY DECLARATION

ACCORDING TO EN 60730-1 \ EN 60529
HTP HIGH TECH PRODUCTS S.R.L. DECLARES THAT ITS PRODUCTS ARE IN CONFORMITY WITH SAFETY REQUIREMENTS OF DIRECTIVES 2014/35/EU (ex 2006/95/CE, 73/23/CEE ), EMC 2014/30/EU (ex 93/68, 2004/108/EC ) AND VDE 110 TECHNICAL NORMS.

## ROHS DECLARATION

HTP HIGH TECH PRODUCTS S.R.L. DECLARES THAT ITS PRODUCTS COMPLY WITH THE EUROPEAN STANDARD 2011/65/UE (ex 2002/95/CE) ROHS (RESTRICTION OF HAZARDOUS SUBSTANCES) AND WITH WEEE REQUIREMENTS.

## REACH DECLARATION

HTP HIGH TECH PRODUCTS S.R.L. DECLARES THAT IT HAS FULLY COMPLIED WITH THE REACH NORMATIVE no. 1907/2006.

HTP HIGH TECH PRODUCTS S.R.L. NEITHER PRODUCES NOR IMPORTS CHEMICAL SUBSTANCES (AS CHEMICAL SUBSTANCES THEMSELVES OR AS COMPONENTS OF CHEMICAL SUBSTANCES); HOWEVER AS A USER OF SUBSTANCES, HTP HIGH TECH PRODUCTS S.R.L. HAS PROMOTED THE KNOWLEDGE OF THE REACH NORMATIVE TO ALL ITS SUPPLIERS WITH REGARD TO THE RAW MATERIALS BEING USED IN THE PROCESS AND HAS ENSURED THAT ALL ITS SUPPLIERS HAVE CONFORMED TO THE REACH NORMATIVE AND TO THE PRE-REGISTRATION IF REQUESTED.

ON THE BASIS OF THE INFORMATION RECEIVED FROM OUR SUPPLIERS, WE ALSO INFORM THAT THE PRODUCTS SUPPLIED BY HTP HIGH TECH PRODUCTS S.R.L. DO NOT CONTAIN ANY HIGHLY DANGEROUS SUBSTANCES INCLUDED IN THE CANDIDATE LIST (PUBLISHED BY THE AGENCY AND UPDATED) ABOVE THE LIMITS DEFINED IN THE REACH NORMATIVE.

## EAC CERTIFICATE

CERTIFICATE OF COMPLIANCE
Certificate n° RU C-CN.HB27.B.00415/20
RU Series: 0243802

INDUSTRIAL ELECTRICAL CONNECTORS, PLUG CONNECTORS SERIES:
G1;G1C;G1F;G4;M1;M2;P1;P2;BG0;BG1;BG4;BG5;BG7;BG8;BG10;BG16;BG33;BG42;BGR;BM1;BP1;BP2;BP3;AM;AG; AP;G1B;BG1;BG1B;BGB;08;12;78;P3;P4;BP3;BP4;15;CG1;CBG1;CG5;CGB;CBGB;CM1;CM2;CM1B;CP1;CP2;CP2C;09; 23;HDC;CG1;CM1;CM2;CP1;CP2;A;B;C;D;CG1E;CM1E,CM2E;A;C

Standard(s) for safety:
All above connectors and plugs meet safety requirements TP TC 004/2011 for low voltage equipment.

## UL CERTIFICATES

C US
US = UNITED STATES REQUIREMENTS
= RECOGNIZED PRODUCTS
C = CANADIAN REQUIREMENTS

### DIN VALVE CONNECTORS FIELD ATTACHABLE & BASES

CERTIFICATE OF COMPLIANCE
Certificate n° E333724

COMPONENT-CONNECTORS FOR USE DATA,SIGNAL,CONTROL AND POWER APPLICATIONS
USR,CNR Component Connector,Series G1,G2,G1F and header BG.
Component Connector,Series Cat. Nos. P1 and P2 and header Series Cat.Nos.BP1 and BP2.
USR,CNR Component Connector,Series M1&M2 and header BM.

Standard(s) for safety:
Component connectors for use in data,signal,control and power applications,UL 1977 and CAN/CSA C22.2 No.182.3-M1987

C US
US = UNITED STATES REQUIREMENTS
= LISTED PRODUCTS
C = CANADIAN REQUIREMENTS

### M8 CIRCULAR CONNECTORS WITH MOULDED CABLE

**CERTIFICATE OF COMPLIANCE**
Certificate n° E464987

CABLE ASSEMBLIES AND FITTINGS FOR INDUSTRIAL CONTROL AND SIGNAL DISTRIBUTION
Female and male cable fittings (one-side molded-on models) Cat. Nos.
08FA,08FD,08MA,08MD,08FJ,08FV,08MJ,08MV.
Extension cable Assembly,series M8, Cat. Nos. 08FA,08FD,08MA,08MD,08FJ,08FV,08MJ,08MV.

Standard(s) for safety:
UL 2238 standard for cable assemblies and fittings for industrial control and signal distribution
CSA C22.2 No.182.3-M1987 special use attachment plugs,receptacles and connectors.

C US
US = UNITED STATES REQUIREMENTS
= LISTED PRODUCTS
C = CANADIAN REQUIREMENTS

## M12 CIRCULAR CONNECTORS WITH MOULDED CABLE

**CERTIFICATE OF COMPLIANCE**
Certificate n° E464987

CABLE ASSEMBLIES AND FITTINGS FOR INDUSTRIAL CONTROL AND SIGNAL DISTRIBUTION
Female and Male Cable Fittings, Series M12, Cat. Nos. :

| | | | |
|---|---|---|---|
| 12FA | B-12FA | D-12FA | S-12FA |
| 12FD | B-12FD | D-12FD | S-12FD |
| 12MA | B-12MA | D-12MA | S-12MA |
| 12MD | B-12MD | D-12MD | S-12MD |
| 12FJ | B-12FJ | D-12FJ | S-12FJ |
| 12MJ | B-12MJ | D-12MJ | S-12MJ |
| 12FV | B-12FV | D-12FV | S-12FV |
| 12MV | B-12MV | D-12MV | S-12MV |

Extension cable Assembly, Series M12, Cat. Nos. 12 or B-12 or D-12 or S-12.
Series M12,panel connectors,Female, Cat. Nos. S-12FP,S-12FR.

Standard(s) for safety:
UL 2238 standard for cable assemblies and fittings for industrial control and signal distribution
CSA C22.2 No.182.3-M1987 special use attachment plugs,receptacles and connectors.

C US
US = UNITED STATES REQUIREMENTS
= LISTED PRODUCTS
C = CANADIAN REQUIREMENTS

## VALVE CONNECTORS EN175301-803 (form A),WITHOUT ELECTRONIC, WITH MOULDED CABLE

**CERTIFICATE OF COMPLIANCE**
Certificate n° E464987

CABLE ASSEMBLIES AND FITTINGS FOR INDUSTRIAL CONTROL AND SIGNAL DISTRIBUTION
Valve Connectors, Series CG DIN-A EN175301-803 form A,without electronic.
Cable Fittings (Female connectors only)
Cat. Nos. CG1N02000,CG1N03000 and CG5N02000,CG5N03000.
Cat. Nos. CG6N02000,CG6N03000.

Standard(s) for safety:
UL 2238, Cable Assemblies and Fittings for Industrial control and Signal Distribution
CSA C22.2 No 182.3, special use attachment plugs, receptacles, and connectors.

## ATEX CERTIFICATES

The electrical, electronic and mechanical equipment present in not dangerous places are safe if they are CE-labelled, that means that the manufacturers ensure the observance of the requirements established by EU applicable regulations and standards.

Increasingly, electrical and electronic equipment is being used in potentially hazardous environments to automate or control certain production processes.

However, the use of such equipment in close proximity to flammable or combustible gases or materials increases the risk of fire or explosion,as the normal operation of electrical and electronic equipment often involves actions or reactions that are a potential ignition of risk.

These potentially hazardous environments, also known as "Ex areas" (short for explosive areas), are found in a range of industries, including oil and gas refineries and distribution facilities, chemical processing plants, grain and agricultural handling, processing and storage facilities, underground mines, and even hospital operating environments.

In the European Union (EU) the equipment present in potentially dangerous places must comply with the conditions established by EU Directive 2014/34/EU, also known as ATEX Directive (ATEX comes from French "*ATmosphere EXplosible*").

The Regulation applies to all electrical and non-electrical products that are used in dangerous places, including equipment, protection systems, components and safety devices.

Like all *"New Approach" Directives*, the ATEX Legislation lays down the application of standards that assess the technical compliance of products.

The tests of conformity are usually proved by the supplier with a declaration that is based on a technical evaluation.

In addition, manufacturers of electrical equipment of Category 1 and Category 2 have to get a certification issued by an EU Notified Body.

Moreover, the conformity with the essential requirements established by ATEX Directive ensure not to run into additional risks or undermine the security of the working environment.

The need of the producers to satisfy specific safety requirements of their products expand the market opportunities and allow to meet the customers' requests.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

CERTIFICATE

[1] EU-TYPE EXAMINATION CERTIFICATE

[2] Equipment or Protective System intended for use in potentially explosive atmospheres Directive 2014/34/EU

[3] EU-Type Examination Certificate number:

TUV IT 20 ATEX 037 X

[4] Equipment: Junction devices type M12, M8, G1+G2, M1+M2, P1+P2
[5] Manufacturer: H.T.P. High Tech Products S.R.L.,

[6] Address: Via Lesina 45
24030 Brembate di Sopra (BG) – ITALY

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] TÜV Italia, notified body no. 0948 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. R 20 EX 035

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 - EN IEC 60079-7:2015/A1:2018- EN 60079-31:2014

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

II 2G Ex eb IIC T5 Gb
II 2D Ex tb IIIC T100°C Db
II 2G Ex eb IIC T5 Gb (only M8)
Tamb: -20 +85 °C

This certificate may only be reproduced in its entirety and without any change, schedule included.

Issue date: 22nd September 2020

ACCREDIA
PRD N° 081B

TÜV Italia S.r.l.
Notified body N° 0948

Alberto Carelli
Industry Service - Real Estate & Infrastructure
Managing Director

TÜV Italia • Gruppo TÜV SÜD • Via Cerdacci 125, Pal. 23 • 20099 Sesto San Giovanni (MI) • Italia • www.tuv.it TÜV

| CONNECTOR'S TYPE | ATEX MARKING |
|---|---|
| DIN VALVE CONNECTORS FIELD ATTACHABLE | CE 0948 Ex II 2G Ex eb IIC T5 Gb ; II 2D Ex tb IIIC T100°C Db IP65/67 |
| M12 CIRCULAR CONNECTORS FIELD ATTACHABLE | CE 0948 Ex II 2G Ex eb IIC T5 Gb ; II 2D Ex tb IIIC T100°C Db IP65/67 |
| M8 CIRCULAR CONNECTORS FIELD ATTACHABLE | CE 0948 Ex II 2G Ex eb IIC T5 Gb IP55/57 |

### DIN VALVE CONNECTORS FIELD ATTACHABLE:

| CE 0948 | Ex | II | 2G / 2D | Ex | eb / tb | IIC / IIIC | T5 / T100°C | Gb / Db | IP65/67 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

### M12 CIRCULAR CONNECTORS FIELD ATTACHABLE:

| CE 0948 | Ex | II | 2G / 2D | Ex | eb / tb | IIC / IIIC | T5 / T100°C | Gb / Db | IP65/67 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

### M8 CIRCULAR CONNECTORS FIELD ATTACHABLE:

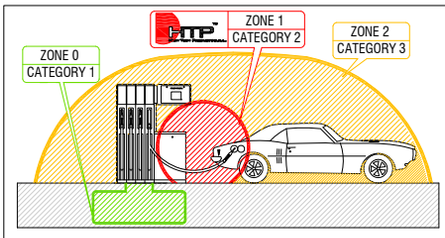
| CE 0948 | Ex | II | 2G | Ex | eb | IIC | T5 | Gb | IP55/57 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

# CONFORMITY
## ATEX Certificates

## GUIDE TO THE ATEX WORLD:

| 1 ID 1 | 2 ID 2 | 3 Group Equipment | 4 Equipment Category |
|---|---|---|---|
| CE Marking<br>0948 : Notified body. | ATEX Marking. | **II** = used in all other EX environments. | **2G** = equipment suitable for areas where, during normal activities, explosive atmospheres due to gas, vapors or mists (zone 1) may occur; suitable to be installed in zone 1.<br>**2D** = equipment suitable for areas where, during normal activities, explosive atmospheres due to a mixture of air and flammable dusts (zone 21) and that has inside a bonded device that will be connected to a category 1 equipment; suitable to be installed in zone 21. |

| Equipment Category | Gas zone (G) | Dust zone(D) |
|---|---|---|
| 2 | 1 | 21 |




*The ATEX Directive lays down the categories of the protective systems and devices,that have to be used in the corresponding areas according to the below table.*

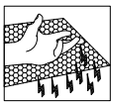
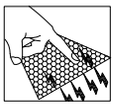
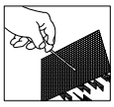
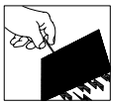
| Zone Gas | Zone Dust | Equipment Category | Presence of explosive atmosphere |
|---|---|---|---|
| 0 | 20 | 1 | Continuously or for long periods > 1000 hours/year |
| 1 | 21 | 2 | Occasionally 10 – 1000 hours/year |
| 2 | 22 | 3 | Rarely or for short periods < 10 hours/year |

| 5 Equipment | 6 Type of inition protection | 7 Explosion Group |
|---|---|---|
| Ex= explosion-proof equipment. | **eb** = "eb" increased safety equipment.<br>**tb** = equipment with an enclosure that prevents dust ingress and with devices to limit surface temperatures; protection level "b". | **IIC** = equipment not addressed to underground work in mines or their surface plants which could exposed to risk of explosive atmospheres - subgroup of C gas; suitable to be installed in presence of any gas (subgroups A, B and C).<br>**IIIC** = equipment not addressed to underground work in mines or their surface plants which could exposed to risk of explosive atmospheres - subgroup of C dusts;suitable to be installed in presence of any dust (subgroups A, B and C). |

| 8 Definition of temperatures generated by equipment | 9 Equipment protection level | 10 Protection class |
|---|---|---|
| **T5** = equipment that can reach, but not exceed 100°C of absolute temperature.<br>**T...°C** = equipment that can reach, but not exceed in surface …°C of absolute temperature. | **Gb** = equivalent to 2G category.<br>**Db** = equivalent to 2D category. | IP protection type. |

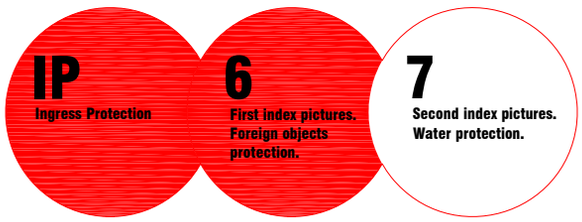
## INTERNATIONAL PROTECTION CLASSES according to EN 60529 (IEC 529 / VDE 047T1)

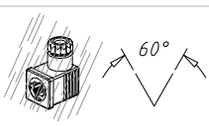
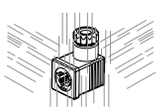
FIRST INDEX PICTURE
PROTECTION CLASS-PROTECTION AGAINST SOLID FOREIGN OBJECTS PENETRATING THE PRODUCT.


| Index | Degree of protection | | Definition |
|---|---|---|---|
| 0 |  | No protection against accidental contact, no protection against solid foreign bodies. | |
| 1 |  | Protection against contact with any large area by hand and against solid foreign bodies with ø >50mm. | The sample object, a ball of 50mm diameter,must not penetrate the enclousure completely. |
| 2 |  | Protection against contact with the fingers, protection against solid foreign bodies with ø > 12mm. | The sample object, a ball of 12.5mm diameter,must not penetrate the enclousure completely. |
| 3 |  | Protection against tools,wires or similar objects with ø > 2.5mm,protection against solid foreign bodies with ø > 2.5mm. | The sample object, a ball of 2.5mm diameter,must not penetrate the enclousure at all. |
| 4 |  | Just like 3 except for the size difference of ø 1mm. | The sample object, a ball of 1mm diameter,must not penetrate the enclousure at all. |
| 5 |  | Full protection against contacts,protection against interior injurious dust deposits. | Ingress of dust is not prevented completely but dust may only enter to such extent that the amount of dust does not interfere with normal operation or compromise safety. |
| 6 |  | Total protection against contact,protection against penetration of dust. | Ingress of dust is not prevented completely. |

## INTERNATIONAL PROTECTION CLASSES according to EN 60529 (IEC 529 / VDE 047T1)

SECOND INDEX PICTURE.
PROTECTION CLASS-PROTECTION AGAINST INGRESS OF WATER WITH ADVERSE EFFECTS.



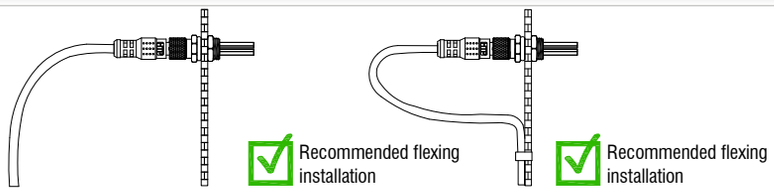

| Index | Degree of protection | | Definition |
|---|---|---|---|
| 0 | No protection against water. | | |
| 1 |  | Protection against vertical water drips. | Vertically falling water drops must not have any adverse effects. |
| 2 |   | Protection against water drips (up to a 15° angle) | Vertically falling water drops must not have any adverse effects when the enclousure is tilted up to 15° on either side of the vertical. |
| 3 |   | Protection against diagonal water drips (up to a 60° angle) | Water, sprayed at an angle up to 60° on either side of the vertical,must not have any adverse effects. |
| 4 |  | Protection against splashed water from all directions. | Water, splashed against the enclosure from any direction,must not have any adverse effects. |
| 5 |  | Protection against water(out of a nozzle)from all directions. | Water, projected in jets against the enclosure from any direction,must not have any adverse effects. |
| 6 |  | Protection against temporary flooding. | Water, projected in powerful jets against the enclosure from any direction, must not have any adverse effects. |
| 7 |  | Protection against temporary subimmersion in water. | Water may only enter to such extent that the amount of water entering the enclosure does not cause any adverse effects when the enclosure is temporarily immersed in water; standardized pressure and time conditions apply. |
| 8 |  | Protected agasinst permanent subimmertion in water. | Water may not enter to such extent that it causes any adverse effects when the enclousure is continuously immersed in water, under conditions that have been agreed upon by the manufacturer and the user; the conditions must be more difficult than the conditions described in point digit 7. |
| 9 K |  | Protected agasinst water from high-pressure / steam jet cleaners. | Water,directed against the enclosure from any direction under extremely high pressure,must not have any adverse effects. |

## CABLE INSTALLATION GUIDE

Avoiding common cabling pitfalls! Proper installation and maintenance of cabling systems will ensure high operational dependability and longevity of the system.

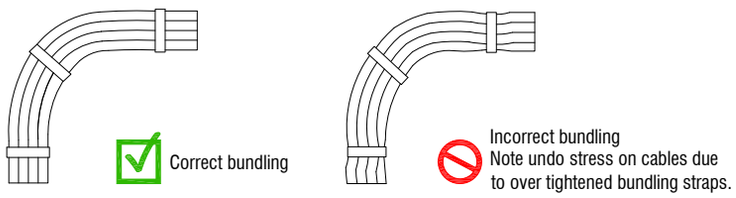
### BEND RADIUS:

Procuring commensurate bend radius allows the cable to absorb the impact of bendig,with less tension,thereby,increasing its life cycle.
Increasing bend radius can significantly increase the duration of the cable's life and reduce costs.



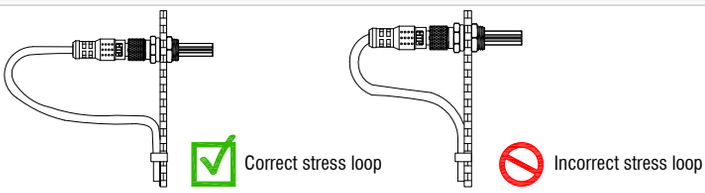

### CABLE BUNDLING:

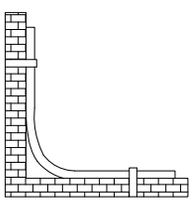
When attaching single cables to equipment,or bundling several cables together,care must be taken that the cable ties do not pinch or deform the cable.
Correct cable bundling enables movement without stress to the cable,wich will translate into long lasting usage.



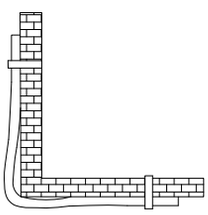

### STRESS POINTS:

Implementing a sufficient stress loop from a connection point will reduce excessive wear and eliminate a common problem: stress pints pictured below.
Note the rugged overmoulded body,wich provides exceptional stress relief in conjunction with the correctly installed stress loop.



Recommended inside cornering.
Note generous allowance for bending around and within corners.



Outside cornering is NOT recommended.
Make allowance for sharp corners and extra stress to cable at fastening points.

### INSTALLATION OF CABLE FOR MOTION APPLICATIONS:

When connected cable is subjected to any motion between two points,the cable lenght should be adequate to prevent any undue stress on the cable or plugs.
Cable lopps and cable tracks are the solution to eliminate cable stress due to motion.