

MOUNTING CLAMP  
MATERIAL: PVC  
SCREW DIAMETER: M4  
HOLE CENTERS: 28mm

FOR CONDUIT DIAMETERS  
Ø16mm / Ø20mm

CONNECTOR COUPLING  
MATERIAL: PVC  
THREAD TYPE: NPT

ACROSS FLATS  
24mm

WORKING TEMPERATURE  
-20°C TO +60°C

PVC CONDUIT / TUBE  
MATERIAL: PVC  
OUTER DIAMETER: 20mm  
WALL THICKNESS: 1.5mm  
LENGTH: CUSTOM

OVERALL LENGTH: 38mm

**TAKWEEN PLAST**  
One of Innovation Experts Brands

**PVC ELECTRIC  
CONDUITS**  
SASO/ISO/NEMA Standards



- |                                                                                        |                                                                                   |                                                                                        |                                                                                       |                                                                    |                                                                            |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| <br>Strict Compliance with<br>International Standards<br>مطابقة لكافة المعايير الدولية | <br>Massive Production<br>Capacity<br>قدرة الإنتاجية كبيرة جداً                   | <br>Guaranteed Seamless<br>Supply Chain<br>ضمان سلسلة التوريد                          | <br>Extended Long-Term<br>Warranty<br>ضمان يدوم طويلاً                                | <br>Comprehensive<br>One-Stop Services<br>خدمات شاملة في مكان واحد | <br>All Products<br>Under One Roof<br>كل المنتجات في مكان واحد             |
| <br>Uncompromising Quality<br>and Reliability<br>الاعتمادية والجودة                    | <br>Complete Alignment with<br>the Kingdom's Vision<br>توافق كامل مع رؤية المملكة | <br>Unmatched Value and<br>Return on Investment (ROI)<br>القيمة مقابل العائد في الأفضل | <br>Advanced Loyalty Program<br>for Ultimate Satisfaction<br>برنامج ولاء متقدم لرضاكم | <br>24/7 Round-the-Clock<br>Support<br>خدمات على مدار الساعة       | <br>Expert Consultation<br>for Optimal Value<br>الدعم الاستشاري لأفضل قيمة |

احسب كفاءة شبكتك:  
استخدم حاسبة الهيدروليكا  
المتقدمة من تكوين بلاست  
**OPTIMIZE YOUR NETWORK:**  
Use Takween's Plast Advanced  
Hydraulics Calculator.



صمم بدقة:  
حمل مكتبة (BIM)  
لمنتجات تكوين الآن.  
**DESIGN WITH PRECISION:**  
Download Takween's BIM  
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## رسالتنا

بناء قاعدة صلبة ومتنامية من العملاء المخلصين عبر تقديم أنظمة أنابيب بلاستيكية عالية الجودة تتوافق مع أرفع المعايير الدولية. نحن ملتزمون بتوفير منتجات موثوقة وحلول مبتكرة وخدمات استثنائية تدعم النجاح طويل الأمد لعملائنا وشركائنا، وتسهم بفاعلية في التنمية المستدامة للبنية التحتية الحديثة.

## رؤيتنا

أن نصبح رائداً عالمياً معترفاً به في مجال أنظمة الأنابيب البلاستيكية، واضعين معايير جديدة للثقة والابتكار والتميز الصناعي. نطمح تكوين بلاست " لقيادة الأسواق الإقليمية من خلال التقنيات المتقدمة والحلول المستدامة والشراكات الاستراتيجية، لتصبح مرجعاً موثقاً لمشاريع البنية التحتية والمرافق العامة حول العالم.

## قيمنا الجوهرية

1. التميز في الجودة: نلتزم بأعلى معايير التصنيع لتقديم حلول أنابيب موثوقة وطويلة الأمد تلبي المتطلبات الدولية وتتجاوز تطلعات عملائنا.
2. الالتزام تجاه العملاء: نضع عملاءنا في قلب اهتماماتنا، ونبني شراكات طويلة الأمد قائمة على الثقة، والأداء المتفوق، والنجاح المشترك.
3. الابتكار والتحسين المستمر: نسعى دوماً لتطوير حلول متقدمة وتحسين عملياتنا لمواكبة الاحتياجات المتطورة في قطاع البنية التحتية والصناعة.
4. النزاهة والموثوقية: نعمل بشفافية ومسؤولية ومهنية عالية، بما يضمن أداءً يعتمد عليه في كل مشروع ندعمه.
5. الاستدامة والمسؤولية: نلتزم بممارسات تصنيعية مسؤولة بيئياً تسهم في تطوير بنية تحتية مستدامة وحماية البيئة للأجيال القادمة.

# من نحن تكوين بلاست



تعد شركة "صادرات الابتكار" المظلة المؤسسية والمالك لعلامة "تكوين بلاست" التجارية. حيث يجسد هذا الارتباط تكاملاً استراتيجياً يجمع بين الرؤية الاستثمارية والخبرة الصناعية المعمقة؛ بينما تقود "صادرات الابتكار" قاطرة الابتكار والنمو، تبرز "تكوين بلاست" كذراع صناعي متميز يمثل تحالفاً استراتيجياً لنخبة من كبار المصنعين في العديد من الدول عبر خمس دول.

نحن ملتزمون بتقديم حلول مستدامة ومبتكرة لأنظمة الأنابيب البلاستيكية المستخدمة في شبكات تصريف المياه، والاتصالات، وأنظمة التكييف (HVAC)، وتطبيقات الطاقة. ونفخر بتوفير أنظمة متطورة تتماشى مع المتطلبات المتسارعة لمشاريع البنية التحتية الحديثة، على المستويين الإقليمي والعالمي.

تكمّن قوتنا في العمل التشاركي، والوحدة التنظيمية، والالتزام المشترك بالتميز. ومن خلال تواجدها الاستراتيجي في مراكز الأعمال الرئيسية بالملكة العربية السعودية ومنطقة الخليج والشرق الأوسط، تستند "تكوين بلاست" إلى كوادرات بشرية عالية الكفاءة، وشبكة موثوقة من الموزعين، وشراكات تجارية متينة لخدمة قاعدة عريضة ومتنوعة من العملاء.

وتعمل "تكوين بلاست" كشبكة متكاملة من شركات التصنيع المحلية، بالتعاون مع أكثر من 20 شريك إنتاج دولي، مدعومة بسلسلة توريد قوية في كافة أنحاء المملكة ودول مجلس التعاون الخليجي والشرق الأوسط الكبير. تتيح لنا هذه القدرات الجماعية تقديم جودة ثابتة، وحلولاً مخصصة، وخدمات موثوقة في كافة الأسواق التي نتواجد فيها.

## Who We Are **TAKWEEN PLAST**



About Us "Innovation Expeerts" (Innovation Exports) is the institutional umbrella and the proud owner of the "Takween Plast" brand. This relationship represents a strategic integration combining investment vision with industrial expertise, where "Innovation Expeerts" drives innovation and growth, while "Takween Plast" operates as a distinguished industrial arm representing a strategic consortium of leading Saudi manufacturers. We are committed to delivering sustainable and innovative plastic piping solutions for water drainage, telecommunications, HVAC, and energy applications. We take pride in providing advanced piping systems that align with the evolving requirements of modern infrastructure projects, both regionally and globally. Our strength lies in collaboration, organizational unity, and a shared commitment to excellence. With a strategic presence across key business hubs in the Kingdom of Saudi Arabia, the Gulf region, and the Middle East, TAKWEEN PLAST leverages a highly skilled workforce, a trusted network of distributors, and strong business partnerships to serve a broad and diverse client base. Operating as an integrated network of local manufacturing companies, and collaborating with more than 20 international production partners, TAKWEEN PLAST is supported by a robust distribution chain throughout Saudi Arabia, the GCC, and the wider Middle East. This collective capability enables us to deliver consistent quality, customized solutions, and reliable service across all markets we serve.



### OUR MISSION

To build a strong and continuously expanding base of satisfied and loyal customers by consistently delivering high-quality plastic piping systems that meet the highest international standards. We are committed to providing reliable products, innovative solutions, and exceptional service that support the long-term success of our clients and partners while contributing to the sustainable development of modern infrastructure.

### OUR VISION

To become a globally recognized leader in plastic piping systems, setting benchmarks for trust, innovation, and manufacturing excellence. Takween Plast aims to lead regional markets through advanced technologies, sustainable solutions, and strategic partnerships, becoming a trusted reference for infrastructure and utility projects worldwide.

### Our Core Values

١. **Quality Excellence:** We uphold the highest standards in manufacturing, delivering reliable and long-lasting piping solutions that meet international requirements and exceed customer expectations.
٢. **Customer Commitment:** We place our customers at the center of everything we do, building long-term partnerships based on trust, performance, and mutual success.
٣. **Innovation & Continuous Improvement:** We continuously develop advanced solutions and enhance our processes to meet evolving infrastructure and industry demands.
٤. **Integrity & Reliability:** We operate with transparency, accountability, and consistency, ensuring dependable performance in every project we support.
٥. **Sustainability & Responsibility:** We are committed to environmentally responsible manufacturing practices that contribute to sustainable infrastructure development and long-term environmental protection.

## BUSINESS OVERVIEW:



TAKWEEN PLAST Pipes holds a significant position in the plastic pipes and fittings sector, contributing significantly to key infrastructure and real estate developments in the area. With a substantial annual production capacity, TAKWEEN PLAST is recognized for its wide range of products. Additionally, their efficient shipping approach guarantees exceptional service, providing customers with the necessary products promptly. TAKWEEN PLAST's vision is to lead the way in innovation by introducing new pipe and fitting systems to meet the increasing needs of construction and infrastructure projects.

The TAKWEEN PLAST team members are esteemed as a crucial asset to the company. The production process is managed by top professionals in the industry, ensuring high-quality products that can compete on an international level. With a skilled team and extensive experience, TAKWEEN PLAST is a leader in producing specialized HDPE and uPVC products, catering to clients and partners globally.

TAKWEEN PLAST is honored to be a top provider for construction projects in KSA, collaborating closely with well-known consultants, construction companies, and developers.

TAKWEEN PLAST Pipes plays a significant role in large-scale projects across the Middle East and Asia.

# PVC ELECTRIC CONDUITS

SASO/ISO/NEMA Standards

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## AMERICAN STANDARD

NEMA TC 2 pipes  
NEMA TC 6 & TC 8 pipes  
NEMA TC - 3 Fittings  
Fabricated Long Radius Bends NEMA TC - 3 Fittings  
Fabricated Long Radius Bends NEMA TC - 9 Fittings  
Fabricated Couplings & Bell Ends NEMA TC - 3 Fittings  
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SASO & BRITISH STANDARD  
Fittings and accessories for conduits by TAKWEEN PLAST

## BRITISH STANDARD

BS 3506-1969  
CLASS B, 6.0 BAR  
CLASS C, 9.0 BAR  
CLASS O (NON-PRESSURE)

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## MATERIAL OVERVIEW

PVC, also known as Polyvinyl Chloride, was initially identified over a century ago, but its poor thermal stability delayed its introduction to the market until around 1930 due to processing challenges.

The issue of poor thermal stability was resolved through the development of effective stabilizer systems, leading PVC to become one of the most widely used synthetic polymers globally with a wide range of applications.

The versatility of PVC, which can transition from a rigid material to a soft and flexible one with the addition of plasticizers, allows for the production of a vast array of products using various processing equipment, ranging from solid to creamy textures.

uPVC is particularly favored for extrusions and molding, being recognized as the most suitable material for applications in the electrical industry worldwide.

### Product labeling, Material Properties, and Characteristics

TAKWEEN PLAST Electric conduit pipes and fittings comply with standards set by SASO, BS, NEMA, and ASTM. The straight runs of 3 and 6 meters are labeled with various specifications and markings for traceability and quality control.

The TAKWEEN PLAST Electric products are non-flame propagating, combustion proof, and have good insulation properties. They are also impact resistant, moisture proof, acids and alkalis-resistant, and rust-free. PVC conduit pipes are also rodent-resistant due to their lack of smell.

In addition, the products are easy to install and maintain, with a complete range of solvent cement fabricated electrical fittings. They are lightweight, resulting in lower transportation costs and facilitating installation.

## TAKWEEN PLAST ELECTRIC CONDUIT STANDARDS

TAKWEEN PLAST Electric Conduit PVC & uPVC Pipes & Fittings are crafted from a unique unplasticized polyvinyl chloride (uPVC) blend to adhere to strict Saudi and International regulations. Our products are constructed from Extra Super High Impact components, ensuring their safety in challenging conditions. The production process complies with the following standards (American, European, and Saudi & Gulf):

- SASO GSO IEC 61386-21/2014 & BS EN 61386 (Conduit Systems for Cable Management).
- NEMA Standards: TC-2, TC-3, TC-6, TC-8, and TC-9.
- SASO/ISO 1452-2 (Plastic Piping Systems for Water Supply).
- IEC, British, and European Standards.
- British Standards (BS).
- Saudi Arabian Standards (SSA 255 and SSA 254 1981), which follow BS EN 50086-1:1994 for Electrical Conduits and have superseded BS 6099: Part 1:1981.

|                                                |                                                                                                                                          |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 60423:                                     | Conduit Systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings. |
| BS EN 61386-1<br>IEC 61386-1:                  | Conduit systems for cable management — Part 1: General requirements                                                                      |
| BS EN 61386-21 &<br>IEC 61386 -21:             | Conduit systems for cable management - Part 21: Particular requirements - Rigid PVC conduit systems.                                     |
| BS EN 60670-1<br>2005 A 2013 & IEC<br>60670-1: | Boxes and enclosures for electrical accessories for household and similar fixed electrical installations                                 |
| NEMA TC2:                                      | Electrical Polyvinyl Chloride Rigid (PVC) Conduit.                                                                                       |
| NEMA TC 6 &<br>8-2013:                         | Polyvinyl Chloride (PVC) Plastic Utilities Duct for Underground Installers.                                                              |
| NEMA TC 3:                                     | Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing for NEMA TC 2                                                |
| NEMA TC 9:                                     | Fittings for polyvinyl chloride (PVC) plastic utilities duct for underground installation for NEMA TC 6 & 8.                             |
| GSO 32/2007:                                   | Methods of testing plastic conduits and fitting for electrical installations.                                                            |
| GSO 33/2007:                                   | Plastic conduits and fittings for electrical installations.                                                                              |
| SASO 14 (GS 675)<br>DIN 8061/8062:             | Unplasticized Polyvinyl Chloride (UPVC) Pipes Class 2, 3 & 4 & Class 5.                                                                  |
| SASO 15 (GS 676)                               | Methods of testing of Unplasticized Polyvinyl Chloride (UPVC) Pipes Class 2, 3, 4, & Class 5.                                            |
| BS-3506                                        | Rigid PVC Pipes Class B & Class C & O for Industrial uses.                                                                               |
| IEE Wiring<br>Regulations:                     | The NALPLAST System meets all the necessary standards outlined in the most recent version of the BS 7671 (IEE Wiring Regulations).       |
| UL 651:                                        | Schedule 40, 80, Type EB, DB and A Rigid PVC Conduit and Fittings.                                                                       |

### NOTE:

- BS 6099-1:1981 was replaced by BS EN 50086-1:1994, which in turn was replaced by BS EN 61386-1:2004, and then by BS EN 61386-1:2008.
- BS 6099-2-2.2:1982, IEC 60614-2-2:1980 was replaced by BS EN 50086-2-1:1996, which was then replaced by BS EN 61386-21:2010. SASO 254/255 was replaced by SASO / IEC 61386-1 & SASO / IEC 61386-21.

## INTRODUCTION

### CUSTOMER SATISFACTION

Our mission is to provide superior products with guaranteed quality and to ensure exceptional customer service at every stage.

### TAKWEEN PLAST Conduit Technical Team

Producing top-notch PVC & uPVC pipes demands advanced technical expertise. TAKWEEN PLAST Conduit boasts a team of highly skilled technicians ready to provide comprehensive support to meet the needs of clients and consultants.

### Key Features & Advantages of TAKWEEN PLAST Conduits & Fittings

- **LIGHTWEIGHT & EASY INSTALLATION** Weighs less than 1/5 of steel and 1/2 of aluminum, making installation quicker, reducing labor requirements, and lowering total project time.
- **NON-CORROSIVE MATERIAL** Manufactured from PVC, resistant to concrete additives, electrolysis, corrosive atmospheres, soil salts, and excessive humidity offering a far longer service life compared to other conduit materials.
- **FIRE RESISTANCE & SAFETY** PVC is a fire-resistant thermoplastic, inherently self-extinguishing when tested to ASTM D 635, ensuring enhanced safety.
- **ELECTRICAL EFFICIENCY** Non-magnetic material reduces voltage drop and minimizes power loss.
- **SIMPLE & RELIABLE INSTALLATION** Smooth interior walls make wire pulling faster and easier, while solvent cement joints provide secure connections without threading.
- **NON-CONDUCTIVE & SAFE** Being non-conductive and non-sparking, PVC eliminates risks of secondary points of contact and phase-to-ground faults.
- **DURABLE PERFORMANCE** High impact strength and tensile strength ensure long-lasting durability even in demanding conditions.
- **CORROSION RESISTANT** PVC is fully resistant to rust and external corrosion, leading to lower maintenance costs and extended service life.
- **CHEMICAL RESISTANCE** Resistant to a wide range of chemicals, including acids, alkalis, and salt solutions, making it suitable for various environments.

## TECHNICAL INFORMATION

- TAKWEEN PLAST Conduits & Fittings are manufactured in accordance with the following standards:
- SASO GSO IEC 61386-21/2014 & BS EN 61386 (Conduit systems for cable management).
- NEMA Standards: TC-2, TC-3, TC-6, TC-8, and TC-9.
- SASO/ISO 1452-2 (Plastic piping systems for water supply).
- Saudi Standards SSA 255 & SSA 254 for electrical conduits, based on BS 6099 Part 1.

### uPVC Properties

| Property                          | ASTM TEST METHOD       | Unit               | Value                  |
|-----------------------------------|------------------------|--------------------|------------------------|
| <b>General Properties:</b>        |                        |                    |                        |
| Density                           | D-792                  | gm/cm <sup>3</sup> | 1.47 ±0.03             |
| <b>Water Absorption</b>           |                        |                    |                        |
| <b>Mechanical Properties:</b>     |                        |                    |                        |
| Tensile Strength, Ultimate        | D-638                  | kg/cm <sup>2</sup> | 492                    |
| Modulus of Elasticity             | D-638                  | psi                | 400000-500000          |
| Flexural Strength                 | D-790                  | Mpa                | 80                     |
| Hardness                          | D-785                  | Shore D            | 90                     |
| Izod Impact Strength              | D-256                  | J/M                | 27-81                  |
| <b>Thermal Properties:</b>        |                        |                    |                        |
| Heat Deflection Temp.             | D-648 (Load 0.455 MPa) | °C                 | 85                     |
| Vicat Softening Temp.             | D-1525 (Rate B)        | °C                 | 84.93                  |
| Co-efficient of Thermal Expansion | D-696                  | mm/m/°C            | 4.5 x 10 <sup>-6</sup> |
| Thermal Conductivity              | C-177                  | W/(°Km)            | 0.19                   |
| <b>Flammability Properties:</b>   |                        |                    |                        |
| Flammability                      | D-635                  | Resistance         | Self-extinguishing     |
| Extent of Burning                 | D-635                  | mm                 | <25                    |
| Flammability Rating               | UL-94                  | rating             | V-O                    |
| <b>Electrical Properties:</b>     |                        |                    |                        |
| Volume Resistivity                | D-257                  | ohm.cm             | 3.4x10 <sup>12</sup>   |
| Surface Resistance                | D-257                  | ohms               | > 10 <sup>12</sup>     |

## TAKWEEN PLAST uPVC Conduits & Fittings

### 1. Conduits by Duty Type

- Extra Heavy-Duty uPVC Conduit
- Heavy Duty uPVC Conduit
- Medium Duty uPVC Conduit
- Light Duty uPVC Conduit
- Rigid PVC Conduits (NEMA TC2)

### 2. Couplings & Expansion Fittings

- Standard Coupling
- Expansion Coupling
- Fabricated Couplings & End Bells (NEMA TC3)
- Type EB20 (NEMA TC6 & 8)
- Type EB35 (NEMA TC6 & 8)
- Type DB60 (NEMA TC6 & 8)
- Expansion Fittings
- End Bells
- End Caps
- Intermediate Spacers, Base Spacers

### 3. Bends & Elbows

- Bend Heavy Duty with Bell Ends
- Bend Light Duty with Bell Ends
- uPVC Elbows (SASO) 90° & Various Angles Male Terminal Adapter
- Bending Springs

### 4. Adapters & Boxes

- Female Adapter / Double
- Male Adapter
- Bushing for Female Adapter

- Adaptable Boxes
- Metallic Boxes
- Terminal One Way Box & Back Outlet
- Through Two Way Box & Back Outlet
- Angle Two Way Box & Back Outlet
- U Two Way Box & Back Outlet
- Tee Three Way Box & Back Outlet
- Intersection Four Way Box & Back Outlet
- H Four Way Box & Back Outlet
- Loop in Box

### 5. Accessories & Installation Items

- Round Spring Clips
- uPVC Cement
- Lock Nut
- Lock Ring for Male Adapter
- Strap Saddles
- Saddle with Base
- Circular Lids
- Rubber Gasket
- Circular Extension Ring

### 6. Standards & Classes

- All Fittings (NEMA TC9)
- BS-3506 Conduit & Fittings
- Class 2 (SASO)
- Class 3 (SASO)
- Class 4 (SASO)
- Class 5 (SASO)

| SPECIFICATION  | APPLICATION        | RATING           | SIZES            |
|----------------|--------------------|------------------|------------------|
| BS 4607        | Conduit            | Duct             | 3/4 - 1 1/2 inch |
| DIN 8062       | Non-Pressure       | Series 2 (4 Bar) | 75 - 400 mm      |
| BS 3506        | Non-Pressure       | Class O          | 2 1/2 - 10 inch  |
| NEMA-TC2       | Non-Pressure       | Duct             | 1/2 - 6 inch     |
| NEMA-TC6 (EB)  | Non-Pressure       | Duct             | 2 - 6 inch       |
| NEMA-TC6 (DB)  | Non-Pressure       | Duct             | 2 - 6 inch       |
| NEMA-TC8 (EB)  | Non-Pressure       | Duct             | 2 - 6 inch       |
| NEMA-TC8 (DB)  | Non-Pressure       | Duct             | 1 - 6 inch       |
| UL651 NEMA-TC2 | Non-Pressure Sch40 | Conduit          | 1 1/4" - 6"      |

## TAKWEEN PLAST CONDUIT: TECHNICAL DETAILS

TAKWEEN PLAST Conduits are manufactured and tested in accordance with IEC/EN 61386 (formerly BS 6099) to withstand various impact and compression forces. They are available in the following duty classes:

- Light Duty (2221): Suitable for flush and service applications
- Medium Duty (3321): Ideal for flush and service installations
- Heavy Duty (4421): Designed for ceiling and wall installations
- Extra Heavy Duty (5521): Intended for installation inside bulk concrete

All conduits operate reliably within a temperature range of -5°C to 60°C.

| Outside Diameter<br>(mm) | W.T.<br>(mm) | Weight<br>(kg/m) | Cross Section Area<br>(mm <sup>2</sup> ) |
|--------------------------|--------------|------------------|------------------------------------------|
| 20                       | 1.8          | 0.163            | 103                                      |
| 25                       | 1.9          | 0.219            | 138                                      |
| 32                       | 2.5          | 0.367            | 232                                      |
| 38                       | 2.5          | 0.442            | 278                                      |
| 50                       | 3.2          | 0.747            | 470                                      |

W.T. = Wall Thickness

### Conduits, Grades, Area and Weights

TAKWEENPLAST Conduits are manufactured and tested in accordance with IEC/EN 61386 (formerly BS 6099) to withstand various impact and compression forces. They are available in the following duty classes:

- Light Duty (2221): Suitable for flush and service applications
- Medium Duty (3321): Ideal for flush and service installations
- Heavy Duty (4421): Designed for ceiling and wall installations
- Extra Heavy Duty (5521): Intended for installation inside bulk concrete

All conduits operate reliably within a temperature range of -5°C to 60°C.

**The Nominal Dimensions for each type are displayed in the table below:**

| Outside Diameter (mm) | Nominal Thickness (mm) |        |       | Internal Area (mm <sup>2</sup> ) |        |       |
|-----------------------|------------------------|--------|-------|----------------------------------|--------|-------|
|                       | Light                  | Medium | Heavy | Light                            | Medium | Heavy |
| 20                    | 1.2                    | 1.6    | 1.8   | 243                              | 222    | 211   |
| 25                    | 1.4                    | 1.8    | 1.9   | 387                              | 360    | 353   |
| 32                    | 1.5                    | 2.1    | 2.5   | 660                              | 607    | 573   |
| 38                    | 1.5                    | 2.2    | 2.5   | 962                              | 887    | 855   |
| 50                    | 1.9                    | 2.5    | 3.2   | 1590                             | 1590   | 1493  |

- Additionally, Extra Heavy Duty is also offered for your consideration.

## AMERICAN STANDARD

-  **NEMA TC-2 CONDUIT**
-  **NEMA TC-3 FITTINGS**
-  **NEMA TC-6 & 8 CONDUIT**
-  **NEMA TC-9 FITTINGS**

-  **PREMIUM QUALITY**  
BUILT TO LAST
-  **RELIABLE PERFORMANCE**  
TRUSTED EVERYWHERE
-  **ENGINEERED FOR SAFETY**  
MEETS AMERICAN STANDARDS



**AMERICAN STANDARD.**  
QUALITY YOU CAN TRUST.

### Conduits by TAKWEEN PLAST

## AMERICAN STANDARD

NEMA TC 2 - Standards for Electrical Plastic Tubing and Conduit (EPC-40 & EPC-80)

| Size<br>(inch) | Metric<br>mm | O.D.<br>mm | EPT-A-PVC  |                           | EPC-80-PVC |                           | EPC-80-PVC |                           |
|----------------|--------------|------------|------------|---------------------------|------------|---------------------------|------------|---------------------------|
|                |              |            | W.T.<br>mm | Nominal<br>Weight<br>Kg/m | W.T.<br>mm | Nominal<br>Weight<br>Kg/m | W.T.<br>mm | Nominal<br>Weight<br>Kg/m |
| ½              | 16           | 21.34      | 1.52       | 0.155                     | 2.77       | 0.248                     | 3.730      | 0.311                     |
| ¾              | 21           | 26.67      | 1.52       | 0.197                     | 2.87       | 0.329                     | 3.910      | 0.421                     |
| 1              | 27           | 33.4       | 1.52       | 0.25                      | 3.38       | 0.483                     | 4.550      | 0.620                     |
| 1¼             | 35           | 42.16      | 1.78       | 0.365                     | 3.56       | 0.652                     | 4.850      | 0.854                     |
| 1½             | 41           | 48.26      | 2.03       | 0.468                     | 3.68       | 0.779                     | 5.080      | 1.034                     |
| 2              | 53           | 60.32      | 2.54       | 0.717                     | 3.91       | 1.04                      | 5.540      | 1.429                     |
| 2½             | 63           | 73.02      | 2.79       | 0.952                     | 5.16       | 1.61                      | 7.010      | 2.179                     |
| 3              | 78           | 88.9       | 3.18       | 1.310                     | 5.49       | 2.16                      | 7.620      | 2.193                     |
| 4              | 103          | 114.3      | 3.81       | 2.000                     | 6.02       | 3.07                      | 8.560      | 4.288                     |
| 5              | 129          | 141.3      | —          | —                         | 6.55       | 4.18                      | 9.520      | 5.929                     |
| 6              | 155          | 168.28     | —          | —                         | 7.11       | 5.41                      | 10.97      | 8.143                     |
| 8              | 200          | 219.00     | —          | —                         | 8.18       | 8.25                      | 12.70      | 12.345                    |

- 1. W.T. = Wall Thickness (Min.), O.D. = Average outside diameter.
- 2. The table above complies with SEC Specification 23 - TMSS 01 Table (EPC 40).
- 3. EPT-A-PVC Electrical Plastic Tubing is suitable for encasement in concrete, EPC 40 Electrical Plastic Conduit is designed for normal duty application, and EPC 80 Electrical Plastic Conduit is intended for heavy-duty application.
- 4. The available colors are Grey, and the standard pipe length is 3 / 6 meters.
- 5. Pack in Bulk (Pieces) can be advised when placing P.O.

## PVC plastic utilities ducts for underground installations: NEMA TC 6 & TC 8 pipes

The minimum modulus of elasticity is 500,000 psi

| Size<br>(inch) | Metric<br>mm | O.D.<br>mm | EB-20      | EB-35      | DB-60      | DB-100     | DB-120     |
|----------------|--------------|------------|------------|------------|------------|------------|------------|
|                |              |            | W.T.<br>mm | W.T.<br>mm | W.T.<br>mm | W.T.<br>mm | W.T.<br>mm |
| 1              | 27           | 33.4       | —          | —          | —          | —          | 1.52       |
| 1½             | 41           | 48.26      | —          | —          | —          | —          | 1.52       |
| 2              | 53           | 60.32      | 1.52       | 1.52       | 1.52       | —          | 1.96       |
| 3              | 78           | 88.9       | 1.55       | 1.93       | 2.34       | 2.84       | 3.00       |
| 4              | 103          | 114.3      | 2.08       | 2.54       | 3.07       | 3.68       | 3.91       |
| 5              | 129          | 141.3      | 2.62       | 3.20       | 3.86       | 4.55       | 4.85       |
| 6              | 155          | 168.28     | 3.18       | 3.86       | 4.62       | 5.41       | 5.77       |

W.T. = Wall Thickness (Min.), O.D. = Average outside diameter.

- ١ The EB-35 and DB-120 pipes in the table adhere to SEC Specification 23 - TMSS 01.  
٢ EB is for Encased Burial in Concrete and DB is for Direct Burial without Concrete. They are available in the color Grey and have a standard length of 6 meters.

## Pipe base Spacers

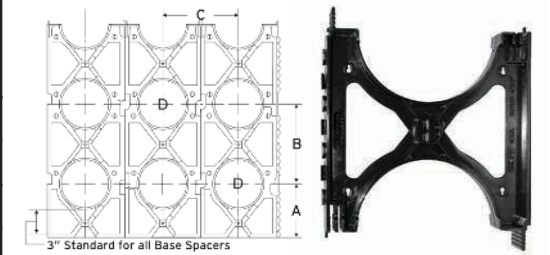
| Size<br>(inch/<br>mm) | Separation<br>(Inch/mm) | A<br>(Inch/mm) | C<br>(Inch/mm) | D<br>(Dia.)<br>mm |
|-----------------------|-------------------------|----------------|----------------|-------------------|
| 4 x 2                 | 2 / 50.80               | 2 / 50.80      | 2 / 50.80      | 2 / 50.80         |
| 6 x 2                 | 2 / 50.80               | 2 / 50.80      | 2 / 50.80      | 2 / 50.80         |
| 110                   | 44.68                   | 44.68          | 44.68          | 44.68             |
| 160                   | 60.12                   | 60.12          | 60.12          | 60.12             |

Available in Black & Grey color.



## Pipe Intermediate Spacers

| Size<br>(inch/<br>mm) | Separation<br>(Inch/mm) | A<br>(Inch/mm) | C<br>(Inch/mm) | D<br>(Dia.)<br>mm |
|-----------------------|-------------------------|----------------|----------------|-------------------|
| 4 x 2                 | 2 / 50.80               | 2 / 50.80      | 2 / 50.80      | 2 / 50.80         |
|                       | 2 / 50.80               | 2 / 50.80      | 2 / 50.80      | 2 / 50.80         |
| 110                   | 44.68                   | 44.68          | 44.68          | 44.68             |
| 160                   | 60.12                   | 60.12          | 60.12          | 60.12             |



Available in Black & Grey color.

## Proposed requirements for PEC duct base and internal spacer

The conduit bank must be surrounded by concrete, with a minimum of three inches on the top and bottom, and two inches on each side. To ensure proper separation, TAKWEEN PLAST high impact spacers should be used to maintain a 2-inch/50.8 mm gap between ducts, with horizontal and vertical locking intervals of 1.5 to 2 meters.

## Fittings and accessories for conduits by TAKWEEN PLAST AMERICAN STANDARD (NEMA TC - 3)

### Elbows "Bends" (NEMA TC-3 Bends using NEMA TC-2 Pipes)

| Size (d1)<br>inch | Radius (R)<br>mm |
|-------------------|------------------|
| ¾                 | 114              |
| 1                 | 146              |



### Standard coupling

| Size (mm) |
|-----------|
| ¾         |
| 1         |



### Coupler

| Size (mm) |
|-----------|
| ¾         |
| 1         |



Available in Grey color only.

The product is offered in Grey color, with White color available upon request.

## Fabricated Long Radius Bends / NEMA TC-3 Bends Using NEMA TC-2 Pipes

| Size (inch) | Metric mm | O.D.<br>mm | Radius      |               | Socket Depth (B) |  | Radius    |             | Socket Depth (B) |  |
|-------------|-----------|------------|-------------|---------------|------------------|--|-----------|-------------|------------------|--|
|             |           |            | R<br>(inch) | MAX<br>(inch) | MIN<br>(inch)    |  | R<br>(mm) | MAX<br>(mm) | MIN<br>(mm)      |  |
| ½           | 16        | 21.34      | 4.00        | 1.500         | 0.652            |  | 101.60    | 38.10       | 16.56            |  |
| ¾           | 21        | 26.67      | 4.50        | 1.500         | 0.719            |  | 114.30    | 38.10       | 18.26            |  |
| 1           | 27        | 33.4       | 5.75        | 1.875         | 0.875            |  | 146.05    | 47.63       | 22.23            |  |
| 1¼          | 35        | 42.16      | 7.25        | 2.000         | 0.938            |  | 184.15    | 50.80       | 23.83            |  |
| 1½          | 41        | 48.26      | 8.25        | 2.000         | 1.062            |  | 209.55    | 50.80       | 26.97            |  |
| 2           | 53        | 60.32      | 9.50        | 2.000         | 1.125            |  | 241.30    | 50.80       | 28.58            |  |
| 2½          | 63        | 73.02      | 10.50       | 3.000         | 1.469            |  | 266.70    | 76.20       | 37.31            |  |
| 3           | 78        | 88.9       | 13.00       | 3.125         | 1.594            |  | 330.20    | 79.38       | 40.49            |  |
| 4           | 103       | 114.3      | 16.00       | 3.375         | 1.750            |  | 406.40    | 85.73       | 44.45            |  |
| 6           | 155       | 168.28     | 30.00       | 3.750         | 2.125            |  | 762.00    | 95.25       | 53.98            |  |
| 8           | 200       | 219.00     | 40.00       | 6.500         | 4.875            |  | 1016.00   | 165.10      | 123.83           |  |

### NEMA TC-9 bends using NEMA TC-6 & TC-8 pipes

| Radius    | Radius    | Sweep R             | Radius    | Radius    | Sweep R             |
|-----------|-----------|---------------------|-----------|-----------|---------------------|
| 45° & 90° | 22° & 30° | 22°, 30°, 45° & 90° | 45° & 90° | 22° & 30° | 22°, 30°, 45° & 90° |
| R         | R         | FEET                | R         | R         | FEET                |
| (degree)  | (degree)  |                     | (degree)  | (degree)  |                     |

| Size (inch) | O.D. mm | United States customary units |                    |     | Metric                             |                              |     |
|-------------|---------|-------------------------------|--------------------|-----|------------------------------------|------------------------------|-----|
| 2           | 60.32   | 18, 24, 36, 48, 60            | 18, 24, 36, 48, 60 | 12½ | 0.46, 0.61, 0.91, 1.22, 1.52       | 0.46, 0.61, 0.91, 1.22, 1.52 | 3.8 |
| 3           | 88.9    | 18, 24, 30, 48, 60            | 18, 24, 36, 48, 60 | 12½ | 0.46, 0.61, 0.76, 0.91, 1.22, 1.52 | 0.46, 0.61, 0.91, 1.22, 1.52 | 3.8 |
| 4           | 114.3   | 18, 24, 36, 48, 60            | 18, 24, 36, 48, 60 | 12½ | 0.46, 0.61, 0.91, 1.22, 1.52       | 0.46, 0.61, 0.91, 1.22, 1.52 | 3.8 |

Upon request, we are able to produce sizes of 1" and 1½".

### NEMA TC-9 Fittings using NEMA TC-6 & TC-8 Pipes

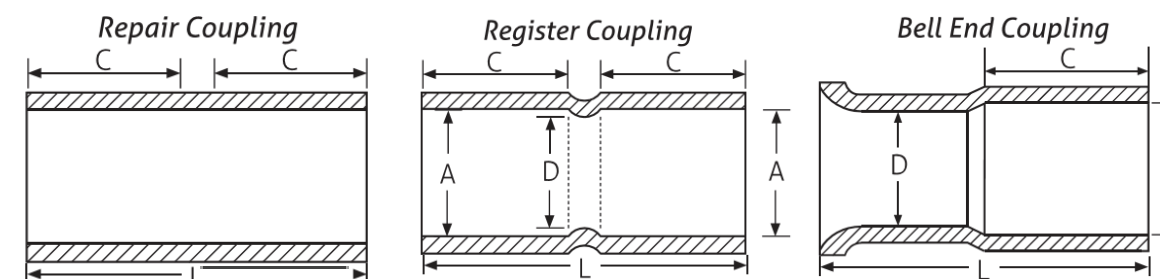
|             | A inch                      | C inch        | D inch          | A inch                      | C inch        | D inch          |
|-------------|-----------------------------|---------------|-----------------|-----------------------------|---------------|-----------------|
| Size (inch) | Socket entrance Average Dia | Socket length | Inside Diameter | Socket entrance Average Dia | Socket length | Inside Diameter |
| 1           | 1.338                       | 1.181         | 1.330           | 34.00                       | 30.00         | 33.80           |
| 1½          | 1.889                       | 1.515         | 1.842           | 48.00                       | 38.50         | 46.80           |
| 2           | 2.400                       | 1.750         | 2.381           | 60.96                       | 44.45         | 60.48           |
| 3           | 3.538                       | 2.875         | 3.508           | 89.87                       | 73.02         | 89.10           |
| 4           | 4.544                       | 3.375         | 4.509           | 115.42                      | 85.72         | 114.53          |
| 6           | 6.687                       | 5.000         | 6.636           | 169.85                      | 127.00        | 168.55          |

Repair couplings, register couplings, and bell ends for PVC plastic utilities duct, designed for underground installations.

### Fabricated Couplings & Bell Ends / NEMA TC-3 Fittings using NEMA TC-2 Pipes

|             | A inch                      | C inch        | D inch          | A inch                      | C inch        | D inch          |
|-------------|-----------------------------|---------------|-----------------|-----------------------------|---------------|-----------------|
| Size (inch) | Socket entrance Average Dia | Socket length | Inside Diameter | Socket entrance Average Dia | Socket length | Inside Diameter |
| ½           | 0.86                        | 0.652         | 0.63            | 21.84                       | 16.56         | 16.00           |
| ¾           | 1.074                       | 0.719         | 0.834           | 27.28                       | 18.26         | 21.18           |
| 1           | 1.34                        | 0.875         | 1.059           | 34.04                       | 22.22         | 26.90           |
| 1¼          | 1.689                       | 0.938         | 1.392           | 42.9                        | 23.83         | 35.36           |
| 1½          | 1.93                        | 1.062         | 1.622           | 49.02                       | 26.97         | 41.20           |
| 2           | 2.405                       | 1.125         | 2.079           | 61.09                       | 28.58         | 52.81           |
| 2½          | 2.905                       | 1.469         | 2.484           | 73.79                       | 37.31         | 63.09           |
| 3           | 3.53                        | 1.594         | 3.083           | 89.66                       | 40.49         | 78.31           |
| 4           | 4.565                       | 1.75          | 4.076           | 115.95                      | 44.45         | 103.53          |
| 6           | 6.708                       | 2.125         | 6.115           | 170.38                      | 53.98         | 159.32          |
| 8           | 8.582                       | 4.724         | 7.795           | 218.00                      | 120.00        | 198.00          |

Repair couplings, register couplings, and bell ends available for Rigid PVC Conduit & Tubing



## DIN STANDARD - DIN 8061 / 8062 CLASS 2,3,4 & 5

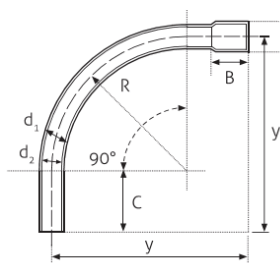
### SASO Standard – uPVC Conduits/Ducts

The sizes and dimensions of TAKWEEN PLAST uPVC conduits/ducts comply with SASO 14/15, which has been withdrawn and replaced by SASO-ISO 1452-2. Certification for compliance with SASO-ISO 1452-2 can be issued upon request for an indefinite duration.

### Fittings and accessories for conduits by TAKWEEN PLAST

#### Elbows “Bends”

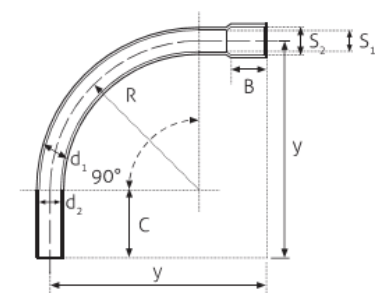
Using SASO GSO IEC 61386-21/2014 & BS-EN-61386 Pipes



| Size (d1)<br>mm | Radius (R)<br>mm |
|-----------------|------------------|
| 20              | 70               |
| 25              | 90               |
| 32              | 125              |
| 38              | 159              |
| 50              | 240              |

The product is offered in Black color, with White color available upon request.

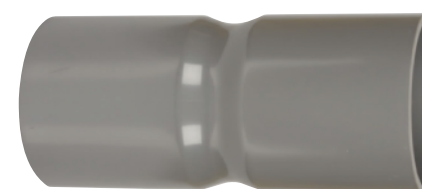
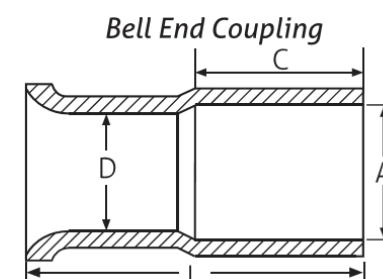
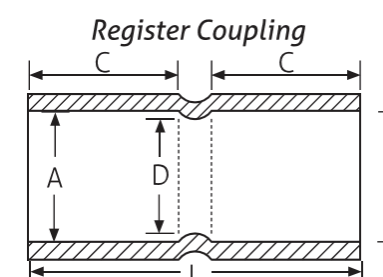
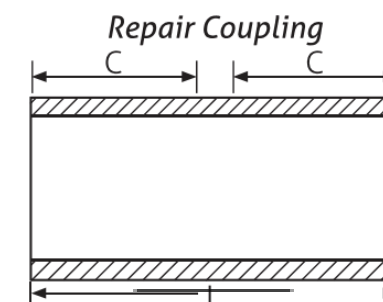
### DIN/ SASO BENDS using SASO GS 675/1997 & DIN 8061/62



| O.D.<br>(mm) | Radius<br>(mm) | Socket Depth |            | Curve Shape           |
|--------------|----------------|--------------|------------|-----------------------|
|              |                | Max (B) mm   | Min (B) mm | Average length (z) mm |
| 016          | 90.00          | 32.00        | 16.00      | 141.30                |
| 020          | 101.60         | 38.10        | 16.56      | 159.51                |
| 025          | 114.30         | 38.10        | 18.26      | 179.32                |
| 032          | 146.05         | 47.63        | 22.23      | 229.23                |
| 040          | 184.15         | 50.80        | 23.83      | 289.11                |
| 050          | 209.55         | 50.80        | 26.97      | 328.94                |
| 063          | 241.30         | 50.80        | 28.58      | 378.84                |
| 075          | 266.70         | 76.20        | 37.31      | 418.72                |
| 090          | 330.20         | 79.38        | 40.49      | 518.41                |
| 110          | 406.40         | 85.73        | 44.45      | 638.04                |
| 140          | 762.00         | 90.00        | 48.50      | 1196.34               |
| 160          | 762.00         | 95.25        | 53.96      | 1196.34               |
| 200          | 952.00         | 165.10       | 123.83     | 1494.64               |
| 225          | 952.00         | 165.10       | 123.83     | 1494.64               |
| 250          | 1000.00        | 170.00       | 130.00     | 1570.00               |
| 280          | 1168.00        | 180.00       | 140.00     | 1833.76               |
| 315          | 1168.00        | 190.00       | 150.00     | 1833.76               |

O.D. = Nominal outside diameter

## Fabricated Couplings & Bell Ends



| Register, repair couplings & bell ends |                            |                              |
|----------------------------------------|----------------------------|------------------------------|
| O.D.<br>(mm)                           | Socket<br>length<br>(C) mm | Finished<br>length<br>(L) mm |
| 016                                    | 25                         | 56                           |
| 020                                    | 27                         | 58                           |
| 025                                    | 30                         | 66                           |
| 032                                    | 34                         | 74                           |
| 040                                    | 39                         | 94                           |
| 050                                    | 45                         | 96                           |
| 063                                    | 53                         | 126                          |
| 075                                    | 60                         | 140                          |
| 090                                    | 69                         | 160                          |
| 110                                    | 81                         | 185                          |
| 140                                    | 99                         | 230                          |
| 160                                    | 111                        | 250                          |
| 200                                    | 135                        | 300                          |
| 225                                    | 150                        | 360                          |
| 250                                    | 165                        | 380                          |
| 280                                    | 183                        | 425                          |
| 315                                    | 204                        | 478                          |
| 400                                    | 224                        | 520                          |

- The SASO Fabricated Register, Repair Couplings & Bell Ends are manufactured in compliance with SASO , GS 675/1997, and DIN 8061/62 standards.
- Register, repair couplings & bell ends.
- O.D. = Nominal outside diameter.

## IEC, BRITISH & EUROPEAN STANDARD

### TECHNICAL INFORMATION

#### IEC, BS & EN STANDARDS

#### TAKWEEN PLAST CONDUIT: TECHNICAL DETAILS

Conduit with heavy gauge and round section

This offers a strong level of protection for traditional conduit installation, ensuring safety and security. Temperature range: -5 °C to 60 °C (Minimum and Maximum), in accordance with BS EN/IEC 61386-1 section 6.6.

TAKWEEN PLAST Conduits have been tested by its QC department and are compliant up to 75 °C.

Section 2.2 of the document meets all the relevant standards outlined in the 16th edition of the IEE Wiring Regulations and ensures a high level of protection and safety.

| Outside Diameter (mm) | W.T. (mm) | Weight (kg/m) | Cross Section Area (mm <sup>2</sup> ) |
|-----------------------|-----------|---------------|---------------------------------------|
| 20                    | 1.8       | 0.163         | 103                                   |
| 25                    | 1.9       | 0.219         | 138                                   |
| 32                    | 2.5       | 0.367         | 232                                   |
| 38                    | 2.5       | 0.442         | 278                                   |
| 50                    | 3.2       | 0.747         | 470                                   |

W.T. = Wall Thickness

#### Conduits, Grades, Area and Weights

TAKWEEN PLAST conduits are produced and examined in accordance with IEC / EN 61386 (formerly BS 6099) to endure various impact and compression forces, including Light Duty (2221), Medium Duty (3321) for flush and service applications, Heavy Duty (4421) for ceiling and wall installations, and Extra Heavy Duty (5521) for installation inside bulk concrete in temperature range of -5°C to 60°C.

The Nominal Dimensions for each type are displayed in the table below:

| Outside Diameter (mm) | Nominal Thickness (mm) |        |       | Internal Area (mm <sup>2</sup> ) |        |       |
|-----------------------|------------------------|--------|-------|----------------------------------|--------|-------|
|                       | Light                  | Medium | Heavy | Light                            | Medium | Heavy |
| 20                    | 1.2                    | 1.6    | 1.8   | 243                              | 222    | 211   |
| 25                    | 1.4                    | 1.8    | 1.9   | 387                              | 360    | 353   |
| 32                    | 1.5                    | 2.1    | 2.5   | 660                              | 607    | 573   |
| 38                    | 1.5                    | 2.2    | 2.5   | 962                              | 887    | 855   |
| 50                    | 1.9                    | 2.5    | 3.2   | 1590                             | 1590   | 1493  |

Additionally, Extra Heavy Duty is also offered for your consideration.

#### TAKWEEN PLAST CONDUIT:

The conduit system complies with IEC, BS, and EN standards.

#### \*HEAVY DUTY uPVC CONDUIT | IEC CODE 4421 1250N

The conduits exhibit exceptional physical characteristics and can endure significant mechanical strain.

| O.D. (mm) | Wall Thickness (mm) | Standard Packs |       |
|-----------|---------------------|----------------|-------|
|           |                     | Pcs            | Mtrs. |
| 20        | 1.8                 | 50             | 145   |
| 25        | 1.9                 | 25             | 72.5  |
| 32        | 2.5                 | 20             | 58    |
| 38        | 2.5                 | 20             | 58    |
| 50        | 3.2                 | 5              | 14.5  |

#### \*MEDIUM DUTY uPVC CONDUIT | IEC CODE 3321 750N

Suitable for typical conduit installations requiring a very high degree of protection.

| O.D (mm) | Wall Thickness (mm) | Standard Packs |       |
|----------|---------------------|----------------|-------|
|          |                     | Pcs            | Mtrs. |
| 20       | 1.6                 | 50             | 145   |
| 25       | 1.8                 | 25             | 72.5  |
| 32       | 2.1                 | 20             | 58    |
| 38       | 2.2                 | 20             | 58    |
| 50       | 2.5                 | 5              | 14.5  |

### \*LIGHT DUTY uPVC CONDUIT | IEC CODE 2221 320N

Ideal for both flush and surface mounting applications.

| O.D.<br>(mm) | Wall Thickness<br>(mm) |
|--------------|------------------------|
| 20           | 1.2                    |
| 25           | 1.4                    |
| 32           | 1.5                    |
| 38           | 1.5                    |
| 50           | 1.9                    |

- All pipes are also available with sockets.
- O.D. = Nominal Size.
- This product is made in compliance with BS 6099, EN 61386 (IEC 61386), part 1 & 21 standard with a length of 2.9m. Different lengths can be provided upon request.
- The items are offered in two colors: Black and White. When placing an order, add the color suffix BK WT and include 's' at the end of the part number for socket.

### SASO & BRITISH STANDARD

#### SASO GSO IEC 61386-21/2014 & BS-EN-61386 pipes

| O.D.<br>(mm) | Nominal Thickness (mm) |     |     | Internal Area (mm <sup>2</sup> ) |      |      | Standard compressive strength +4% "Newton (N)" |     |      |
|--------------|------------------------|-----|-----|----------------------------------|------|------|------------------------------------------------|-----|------|
| 20           | 1.2                    | 1.6 | 1.8 | 243                              | 222  | 211  | 320                                            | 750 | 1250 |
| 25           | 1.4                    | 1.8 | 1.9 | 387                              | 360  | 353  | 320                                            | 750 | 1250 |
| 32           | 1.5                    | 2.1 | 2.5 | 660                              | 607  | 573  | 320                                            | 750 | 1250 |
| 38           | 1.5                    | 2.2 | 2.5 | 962                              | 887  | 855  | 320                                            | 750 | 1250 |
| 50           | 1.9                    | 2.5 | 3.2 | 1590                             | 1590 | 1493 | 320                                            | 750 | 1250 |

- O.D. = Outside Diameter, L = Light, M = Medium, H = Heavy.
- Additionally, Extra Heavy Duty is also offered for your consideration.
- TAKWEEN PLAST Conduits are available in 2.9-meter lengths and in black or white colors (formerly BS6099).

### Fittings and accessories for conduits by TAKWEEN PLAST

#### BRITISH STANDARD - BS 4607 Part 3

##### Standard coupling

| Size (mm) |
|-----------|
| 20        |
| 25        |
| 32        |
| 38        |
| 50        |



##### Expansion coupling

| Size (mm) |
|-----------|
| 20        |
| 25        |
| 32        |
| 38        |
| 50        |



The product is offered in Black color, with White color available upon request.

##### Reducers

| Size (mm) |
|-----------|
| 20 x 25   |



##### Saddle & base

| Size (mm) |
|-----------|
| 20        |
| 25        |
| 32        |
| 38        |
| 50        |



The product is offered in Black color, with White color available upon request.

##### Female Adaptor

| Size (mm) |
|-----------|
| 20        |
| 25        |
| 32        |
| 38        |
| 50        |



##### Male Threaded Adaptor

| Size (mm) |
|-----------|
| 20        |
| 25        |
| 32        |
| 38        |
| 50        |



The product is offered in Black color, with White color available upon request.

### CIRCULAR BOX - TERMINAL 1 WAY

| Size (mm) |
|-----------|
| 20        |
| 25        |



The product is offered in Black color, with White color available upon request.

### CIRCULAR BOX - THROUGH 2 WAY

| Size (mm) |
|-----------|
| 20        |
| 25        |



### CIRCULAR BOX INTERSECTION 4 WAY

| Size (mm) |
|-----------|
| 20        |
| 25        |



The product is offered in Black color, with White color available upon request.

### Screws for Junction box

| Size (mm) |
|-----------|
| 12.35 x 4 |



### CIRCULAR BOX - TEE 3 WAY

| Size (mm) |
|-----------|
| 20        |
| 25        |



The product is offered in Black color, with White color available upon request.

### BRANCH 2 WAY (U)

| Size (mm) |
|-----------|
| 20        |
| 25        |



### Loop in box

| Size (mm) |
|-----------|
| 20        |
| 25        |



### Screws for Junction box

| Size (mm) |
|-----------|
| 10.00 x 4 |



The product is offered in Black color, with White color available upon request.

### CIRCULAR BOX - ANGLE 2 WAY

| Size (mm) |
|-----------|
| 20        |
| 25        |



The product is offered in Black color, with White color available upon request.

### BRANCH 4 WAY (H)

| Size (mm) |
|-----------|
| 20        |
| 25        |



### BRANCH 3 WAY (Y)

| Size (mm) |
|-----------|
| 20        |
| 25        |



The product is offered in Black color, with White color available upon request.

### CIRCULAR LID

| Size (mm) |
|-----------|
| 66        |



## BRITISH STANDARD / BS 3506 - 1969 - Class B, C, & O

### CLASS B, 6.0 BAR

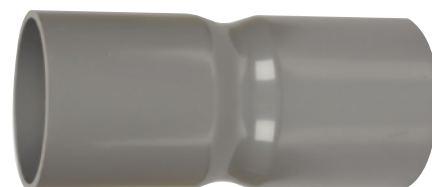
| Size (inch) | O.D. (mm) | O.D. (mm) | W.T. (mm) |
|-------------|-----------|-----------|-----------|
| 3           | 88.70     | 89.10     | 2.9       |
| 4           | 114.1     | 114.5     | 3.4       |
| 6           | 168       | 168.5     | 4.5       |
| 8           | 218.8     | 219.4     | 5.3       |

W.T. = Wall Thickness (Min.).  
O.D. = Mean Outside diameter.



### FABRICATED COUPLING

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



### 90° ELBOW - BELL TWO ENDS

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |

The typical Bend in our inventory features sockets on both sides.



### FABRICATED END BELL

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



### CLASS C, 9.0 BAR

| Size (inch) | O.D. (mm) | O.D. (mm) | W.T. (mm) |
|-------------|-----------|-----------|-----------|
| 3           | 88.70     | 89.10     | 3.5       |
| 4           | 114.1     | 114.5     | 4.5       |
| 6           | 168.0     | 168.5     | 6.6       |
| 8           | 218.8     | 219.4     | 7.8       |

W.T. = Wall Thickness (Min.).  
O.D. = Mean Outside diameter.



### FABRICATED COUPLING

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



### 90° ELBOW - BELL TWO ENDS

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |

The typical Bend in our inventory features sockets on both sides.



### FABRICATED END BELL

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



## BS 3506-1969

### CLASS O (NON-PRESSURE)

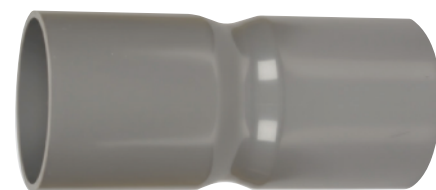
| Size (inch) | O.D. (mm) | O.D. (mm) | W.T. (mm) |
|-------------|-----------|-----------|-----------|
| 3           | 88.70     | 89.10     | 1.8       |
| 4           | 114.1     | 114.5     | 2.3       |
| 6           | 168.0     | 168.5     | 3.1       |
| 8           | 218.8     | 219.4     | 3.1       |

W.T. = Wall Thickness (Min.).  
O.D. = Mean Outside diameter.



### FABRICATED COUPLING

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



### 90° ELBOW - BELL TWO ENDS

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |

The typical Bend in our inventory features sockets on both sides.



### FABRICATED END BELL

| Size (inch) |
|-------------|
| 3           |
| 4           |
| 6           |
| 8           |



## Quality Control & Testing

At TAKWEEN PLAST, all pipes and fittings undergo strict quality control and comprehensive testing to ensure durability, safety, and compliance with international standards.

### Pipe Testing Processes:

- Dimensional Inspection – verifying size accuracy and wall thickness.
- Bend Testing – ensuring flexibility and resistance to deformation.
- Compression Testing – evaluating strength under load.
- Collapse Testing – checking pipe integrity against structural failure.
- Heat Resistance Testing – confirming performance at elevated temperatures.
- Electrical Property Testing – ensuring proper insulation and non-conductivity.
- Impact Testing – assessing durability against sudden force or shock.
- Flame Resistance Testing – verifying self-extinguishing properties and fire safety.

### Fitting Testing Methods:

- Dimensional Inspection – ensuring precise measurements and tolerances.
- Resistance to Oil – confirming durability in oily environments.
- Copper Content Testing – verifying compliance with material composition standards.
- Visual, Structural & Marking Examination – checking appearance, strength, and labeling accuracy.
- Fire Resistance – evaluating safety performance under fire conditions.
- Chemical Resistance – testing against acids, alkalis, and other corrosive substances.
- Impact Resistance – assessing mechanical strength against shocks.
- Moisture Absorption Testing – ensuring resistance to water absorption.
- Electrical Characteristics Evaluation – verifying insulation properties and safety.
- Resistance to Chemical Action – ensuring long-term stability under chemical exposure.

# JOINTING PROCEDURE

## FOR PVC CONDUIT SYSTEM

### REQUIRED EQUIPMENT



### JOINTING PROCEDURE

#### 1 CUTTING

- Cut the pipe perpendicular to its axis.
- This prevents obstruction when pulling wires through the conduit.



#### 2 CHAMFERING

- Smooth the pipe edge and bevel the end.
- This ensures easier insertion and a stronger joint.



#### 3 APPLICATION OF SOLVENT CEMENT

- Apply a thin, even coat of solvent cement to both the spigot and socket.
- Avoid over-application to prevent buildup and uneven bonding.



#### 4 JOINTING

- Quickly join the male and female parts after applying solvent.
- Hold in place for a short time to allow the joint to set uniformly.
- Repeat the same process for subsequent joints.



STRONG JOINTS



LEAK PROOF



EASY & FAST INSTALLATION



RELIABLE PERFORMANCE

### INSTALLATION GUIDELINES

#### A. On Wall Surface

1. Select a conduit of suitable size based on the number of wires to be installed.
2. Create chases in walls of adequate width and depth using a cutter and chisel.
3. Install the conduit with necessary accessories in the chase. Use a female bush adapter to connect the conduit with modules.
4. Secure the conduit in the chase at 900 mm intervals using U-nails or GI clamps. Fix the modules with screws.
5. Once secured, finish the chases with mortar.

#### B. Hiding Beneath the Floor

1. Choose a conduit size according to the quantity of wires to be pulled through.
2. Create chases in or on Plain Cement Concrete (PCC) flooring of proper width and depth using a cutter and chisel.
3. Position conduits with inspection boxes in the chase or on the PCC flooring. Use a female bush adaptor for connecting conduits to inspection boxes or metal modules.
4. Secure conduits with U-nails or GI clamps, and fix inspection boxes with screws.
5. Ensure conduit installation does not interfere with Reinforced Cement Concrete (RCC) work.

#### C. Hiding on the Walls

- 1- Select a conduit of suitable size based on the number of wires.
- 2- Install the conduit on the surface according to the approved layout route.
- 3- Secure firmly with spacers and saddles.
- 4- Place spacers at equal intervals of 600–750 mm.
- 5- Fix the conduit to the spacers using saddles.
- 6- Ensure the distance between spacers does not exceed 600–750 mm, regardless of conduit size.
- 7- Use:
  - Flat head screws (35 × 8 mm) for spacers.
  - Round head screws (12 × 5 mm) for saddles.
- 8- For multi-phase wiring, use separate conduits.
- 9- Keep separate conduits for Internet, TV, and telephone

#### D. Concealment Within Reinforced Concrete (Rcc) Framework

- 1. **Coordination with Civil Work:** Ensure proper coordination with civil teams when concealing conduit systems in RCC elements such as slabs, beams, and columns.
- 2. **Selection of Conduit Size:** Choose the conduit diameter according to the number of wires to be pulled.
- 3. **Fixing to Reinforcement Steel:** Secure conduits and accessories to the reinforcement steel using binding wire.
- 4. **Stability During Casting:** Ensure conduits are firmly fixed to the reinforcement to maintain their position during the RCC casting process.
- 5. **Junction Boxes and Modules:** Install deep junction boxes and draw-in modules without gaps between open ends and centering material to prevent concrete intrusion. Fill covers with dry sand if necessary.
- 6. **Open-End Conduits:** Conceal open-end conduits within walls and fit couplers or sockets at their ends, aligning with the beam bottom.
- 7. **Avoid Bunching:** Prevent bunching and grouping of conduits inside RCC structures to maintain structural strength.
- 8. **Fish Wire Installation:** Insert a suitable steel fish wire through conduits to facilitate later wire pulling.

**The maximum number of single-core 1.1KV wires that can be pulled through rigid non-metallic conduits**

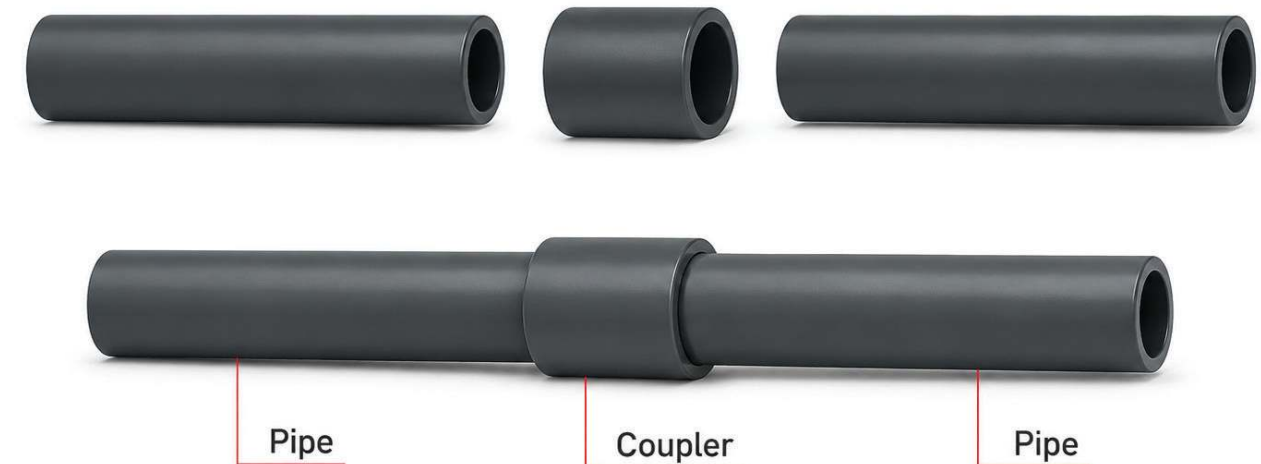
| Size of cable<br>mm <sup>2</sup> | No of conductor / Dia of each conductor | 20 | 25 | 32 | 40 | 50 |
|----------------------------------|-----------------------------------------|----|----|----|----|----|
| 1.0                              | 1/1.12                                  | 7  | 13 | 20 | -- | -- |
| 1.5                              | 1/1.14                                  | 6  | 10 | 14 | -- | -- |
| 2.5                              | 1/1.8, 3/1.06                           | 5  | 10 | 14 | -- | -- |
| 4.0                              | 1/2.24, 7/0.85                          | 3  | 6  | 10 | -- | -- |
| 6.0                              | 1/2.8, 7/1.06                           | 2  | 5  | 9  | -- | -- |
| 10.0                             | 7/1.4                                   | -- | 4  | 7  | 9  | -- |
| 16.0                             | 7/1.7                                   | -- | 2  | 4  | 5  | 12 |
| 25.0                             | 7/2.24                                  | -- | -- | 2  | 2  | 6  |
| 35.0                             | 7/2.5                                   | -- | -- | -- | 2  | 5  |
| 50.0                             | 19/1.8                                  | -- | -- | -- | 2  | 3  |

#### THERMAL EXPANSION & CONTRACTION

Thermoplastic conduits and piping systems are subject to thermal expansion and contraction. The longer the conduit, the more pronounced these effects will be.

TAKWEEN PLAST conduit material has a thermal expansion coefficient of 0.07 mm/m/°C.

When installing conduit systems on exterior surfaces, it is important to account for thermal movement. To manage expansion and contraction, an expansion coupler should be used for conduit runs exceeding 6 meters on exterior installations.

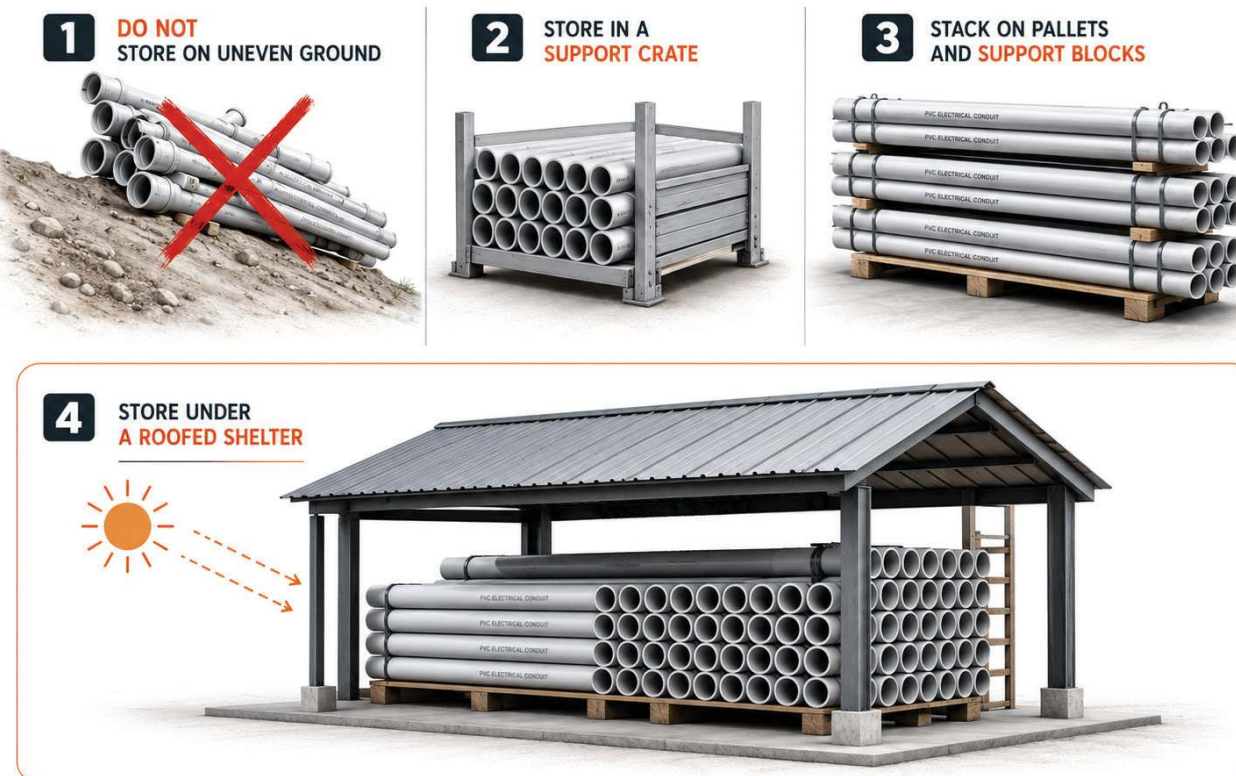


- 1. Install an expansion coupler between two conduits.
- 2. Weld one end of the conduit to the expansion coupler using solvent.
- 3. Apply silicon grease internally on the other side of the coupler and on the external surface of the conduit wall.
- 4. Insert the conduit into the expansion coupler up to half of the total socket length to allow for expansion and contraction of the 6.0-meter-long conduit system.
- 5. Increase the number of expansion couplers if the conduit length exceeds 6.0 meters.
- 6. Flexible conduits can also be utilized to offset the thermal impact of expansion and contraction at expansion joints.

## STORAGE AND HANDLING OF PVC CONDUITS

- Handle PVC conduits with care due to their low strength. Lower them slowly and properly during unloading to prevent damage.
- Store larger diameter conduits at the bottom and smaller diameters on top to avoid crushing.
- Provide proper support for PVC conduits during storage:
  - Use wooden blocks spaced 750 mm apart for 3-meter conduits.
  - Alternatively, stack them on a flat level surface for temporary field storage without racks.
- Always store conduits under a roof to protect them from sunlight and UV rays.
- Keep the storage area dry and free from water.
- Store fittings securely in carton boxes to maintain their shape.
- Do not stack conduit fitting cartons or conduit bundles higher than 1.2 meters (4 feet) to prevent damage.

## STORAGE - UV PROTECTION



## DOs & DON'Ts



### DOs

1. Utilize a conduit for a distinct electrical phase supply.
2. Implement a long bend in the conduit piping system at directional changes.
3. Employ a separate conduit for communication and power cables.
4. Establish level markings prior to commencing wall surface conduit work, ensuring height above finished floor level (FFL).
5. Ensure all horizontal conduit runs are straight at the box or module level.
6. Run conduit above the false ceiling with appropriate support.
7. Allow conduit to be free in saddles to accommodate thermal movement.
8. Secure conduit in chases using high-quality U nails and clamps.
9. Use a bush at the pipe opening to protect wire insulation from sharp conduit edges.
10. Support surface wall conduit system at 600 – 750 mm intervals.
11. Use a spring to alter the conduit direction.
12. Protect installed conduits and fittings from foreign material on site.

### DON'Ts

1. Avoid placing power conduit lines near communication lines.
2. Never place conduits on the false ceiling under any circumstances.
3. Ensure pull and junction boxes are not clustered together in one location.

## 15-YEAR PRODUCT GUARANTEE



TAKWEEN PLAST Conduit provides a 15-year guarantee and warranty for uPVC conduits and accessories used indoors, starting from the delivery date. This coverage includes mal-functions caused by material defects, workmanship errors, and manufacturing defects.

The guarantee and warranty from TAKWEEN PLAST Conduit will be void if the products are improperly used or installed, in violation of national and international electrical industry standards and codes

### The guarantee does not cover:

- Items not manufactured by TAKWEEN PLAST Conduit.
- Damage or defects resulting from improper use, mis-handling, or misuse during transport or storage.
- Any use beyond the intended purpose of the products.

## WHY PVC CONDUIT SYSTEM?



### FIRE RESISTANT

PVC is a thermoplastic material that inherently resists continuous combustion. It is classified as self-extinguishing and will not drip when exposed to fire.

### NON-CORROSIVE

PVC does not corrode and is unaffected by concrete additives, corrosive atmospheres, soil, salts, or excessive humidity. Its service life under these conditions is far superior to other conduit materials.

### SAFETY

PVC is non-conductive and non-sparking, eliminating the danger of secondary contact and phase-to-ground faults.

### CORROSION RESISTANT

PVC resists external corrosion and pitting and never rusts, resulting in lower maintenance costs and a longer service life.

### STRENGTH

PVC offers high impact and tensile strength, even in cold temperatures, for both conduits and fittings.

### CHEMICAL RESISTANT

TAKWEEN PLAST conduits and fittings are resistant to a wide range of chemicals, including acids, alkalis, and salt solutions. Refer to the chemical resistance guide for details.

### LIGHTWEIGHT & EASY TO INSTALL

PVC weighs approximately 1/6th of steel, allowing for faster and easier installation.

### EASY WIRE PULL

PVC's exceptionally smooth internal surface reduces friction when pulling wires through long runs, even with 90° bends.

### LONG LIFE

PVC retains its properties after prolonged exposure to sunlight, heat, and extreme weather, ensuring a long trouble-free life in indoor and outdoor installations.

### CONCRETE-TIGHT JOINTS

TAKWEEN PLAST conduit systems are designed to maintain concrete-tight joints in all weather conditions.

### SUITABLE FOR DIRECT BURIAL

Heavy PVC conduits are suitable for direct burial without extra protection. Care must be taken while backfilling trenches.

### ASSEMBLY

TAKWEEN PLAST solvent cement is recommended for joining conduits and fittings.

### TEMPERATURE RANGE

PVC conduits can withstand temperatures ranging from 5.0 °C to 60 °C.

#### Disclaimer

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