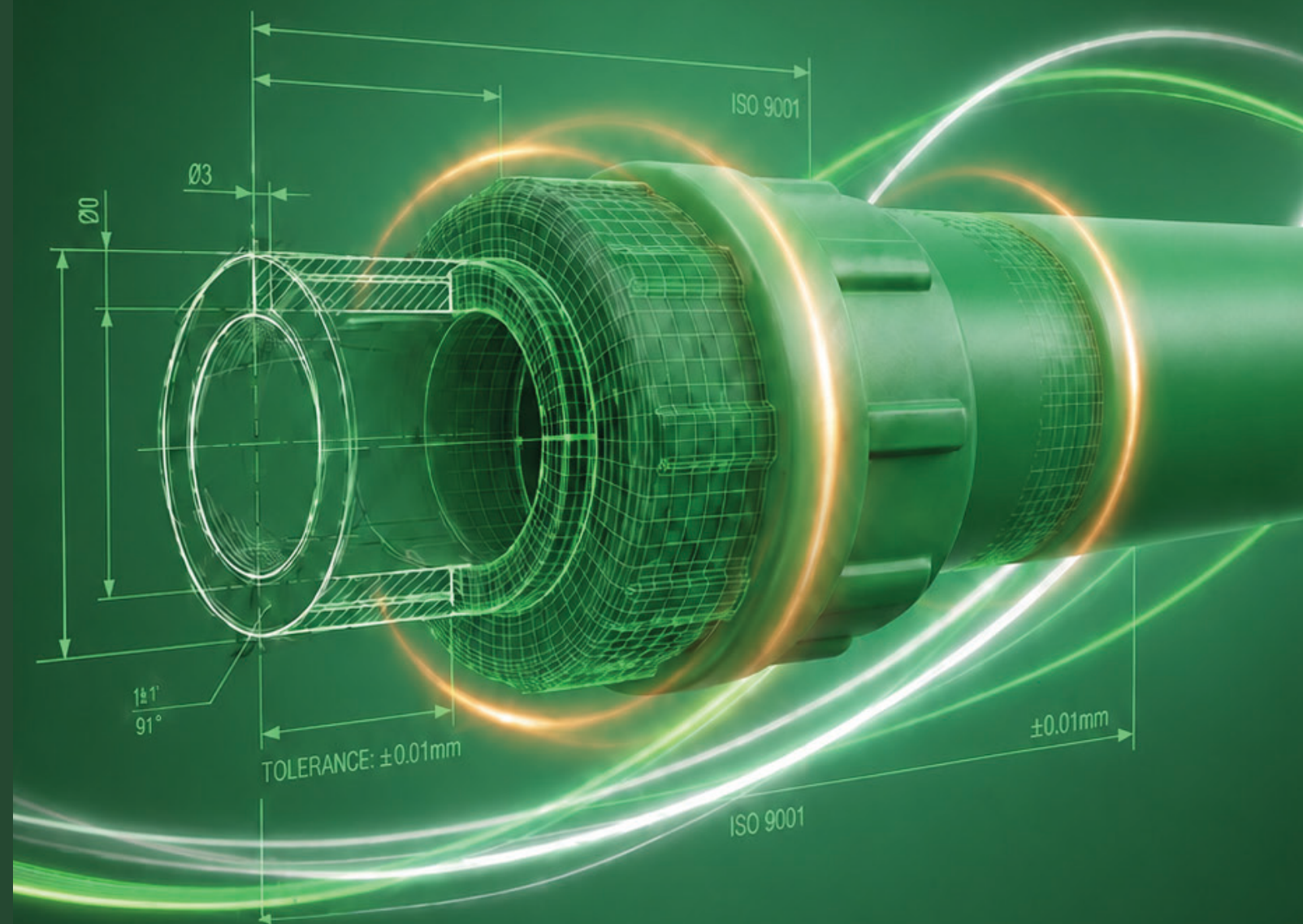




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| Strict Compliance with International Standards
مطابقة لكافة المعايير الدولية | Massive Production Capacity
قدرة إنتاجية كبيرة جداً | Guaranteed Seamless Supply Chain
ضمان سلسلة التوريد | Extended Long-Term Warranty
ضمان يدوم طويلاً | Comprehensive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

احسب كفاءة شبكتك:
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Hydraulics Calculator.



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**POLYPROPYLENE
(PP-R)
PIPES & FITTINGS**



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

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

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POLYPROPYLENE (PP-R) PIPES & FITTINGS

TABLE OF CONTENTS

Introduction

Who We Are – TAKWEEN PLAST
Our Mission & Vision
Why Choose TAKWEEN PLAST?

HDPE Industry Overview

History of HDPE Pipes
Advantages Over PVC & Metal
Key ISO & International Standards

Product Overview

Measurements and Terms
Working Pressure & Compliance Standards
Premium Material Quality

Technical Specifications

Material Properties (PE80 vs. PE100)
Chemical & Environmental Resistance
Thermal Performance & Safety Compliance

Product Range & Dimensions

Product Range & Dimensions (A)
Product Range & Dimensions (B)

Key Features & Benefits

Customization Options
Technical Notes

Quality Assurance & Installation Standards

Raw Material Verification
In-Process Quality Checks
Finished Product Inspection
Advanced Joining Technologies

Handling & Storage

Safe Handling & Storage of TAKWEEN PLAST PE Pipes
Storage Protocols (ISO 4427 Compliance)

TAKWEEN PLAST PE Pipe Installation Standards

Appendices



OUR SOLUTIONS

TAKWEEN PLAST offers the most comprehensive range of advanced piping systems in the Middle East and North Africa, including:

- Premium PP-R piping systems for hot and cold-water applications.
- Multilayer oxygen barrier pipes for enhanced performance.
- Aluminum composite pipes for superior stability and longevity.
- TAKWEEN PLAST composite technology for reduced thermal expansion.
- Complete fitting systems for every application scenario.
- Professional-grade tools and accessories for perfect installations.

Our versatile and comprehensive systems are engineered for the delivery of water and other fluids, excelling in applications of pressurized hot and cold-water delivery as well as underfloor heating in all modern residential, commercial, and industrial buildings.

OUR ADVANTAGE

The TAKWEEN PLAST difference is evident in every aspect of our operation:

Manufacturing Excellence: Our production facilities feature state-of-the-art machinery from the most reputed sources, ensuring precision, consistency, and efficiency.

Quality Assurance: Our high-tech quality control system employs advanced testing methodologies to verify that every product meets our exacting standards.
Technical Expertise: Our engineering team brings decades of combined experience to every design challenge, creating innovative solutions that set new benchmarks for the industry.

Customer Support: Our highly motivated staff at all levels of the company remain committed to providing premium service at any time, ensuring that our customers receive the support they need when they need it.
Global Perspective: While proudly rooted in the Middle East, our vision extends world-wide, allowing us to incorporate global best practices while addressing local requirements.

At TAKWEEN PLAST, we don't just manufacture pipes and fittings – we engineer the future of fluid transport technology. Join us as we continue to redefine what's possible in the world of piping systems.

APPLICATIONS AND INDUSTRIES

Versatile Solutions for Modern Construction

TAKWEEN PLAST piping systems represent the pinnacle of versatility in fluid transport technology, engineered to excel across a diverse range of applications and industries. Our comprehensive product portfolio delivers exceptional performance in environments ranging from residential buildings to industrial complexes, providing tailored solutions for every construction challenge.

The remarkable adaptability of our advanced polymer piping systems stems from their unique combination of physical properties, chemical resistance, and thermal performance. Unlike traditional materials that may excel in one area but compromise in others, TAKWEEN PLAST systems deliver balanced excellence across all performance parameters, making them the ideal choice for forward-thinking engineers, contractors, and property owners.

RESIDENTIAL APPLICATIONS

1. Potable Water Distribution

TAKWEEN PLAST systems create the perfect infrastructure for delivering clean, safe drinking water throughout residential properties. Our PP-R pipes maintain water purity while resisting corrosion and scaling, ensuring decades of trouble-free service with minimal maintenance requirements. The smooth interior surfaces prevent bacterial growth and mineral buildup, protecting both system performance and occupant health.

2. Hot Water Circulation

The exceptional temperature resistance of our piping systems makes them ideal for hot water circulation networks. With operating capabilities up to 95°C, TAKWEEN PLAST pipes maintain dimensional stability and pressure resistance even under continuous high-temperature operation. The low thermal conductivity minimizes heat loss during distribution, improving energy efficiency and reducing operating costs.

3. Radiator Connections

The flexibility and kink resistance of our piping systems make them ideal for radiator connections, allowing for clean, efficient installations even in tight spaces. The fusion welding for PP-R provide installers with versatile solutions for every installation scenario, ensuring leak-free performance with minimal connection points.

COMMERCIAL APPLICATIONS

1. High-Rise Buildings

TAKWEEN PLAST systems excel in high-rise applications, where their lightweight nature simplifies installation while their pressure resistance ensures reliable performance even on lower floors with elevated static pressure. Our TAKWEEN PLAST and Aluminum Composite pipes offer reduced thermal expansion, minimizing the need for expansion compensation in long vertical runs.

2. Hotels and Hospitality

The noise-dampening properties of our polymer piping systems make them ideal for hotels and hospitality venues, where guest comfort is paramount. The smooth flow characteristics reduce water hammer and flow noise, while the thermal insulation properties minimize condensation on cold water lines and heat loss from hot water distribution.

3. Educational Institutions

The exceptional durability and minimal maintenance requirements of TAKWEEN PLAST systems make them the perfect choice for educational institutions, where system longevity and operational reliability are essential.

The chemical resistance protects against aggressive cleaning agents, while the smooth interior surfaces prevent biofilm formation and ensure consistent water quality.

4. Healthcare Facilities

In healthcare environments, where water quality and system reliability directly impact patient safety, TAKWEEN PLAST systems provide the perfect solution. The hygienic properties of our PP-R pipes prevent bacterial growth, while their chemical resistance protects against disinfection treatments. The leak-free connections eliminate potential contamination points, maintaining system integrity throughout the facility.

INDUSTRIAL APPLICATIONS

1. Food and Beverage Processing

TAKWEEN PLAST systems meet the stringent hygiene requirements of food and beverage processing facilities, with materials that comply with international food contact standards. The smooth interior surfaces prevent product adhesion and facilitate cleaning, while the chemical resistance protects against aggressive cleaning and sterilization protocols.

2. Chemical Processing

The exceptional chemical resistance of our piping systems makes them suitable for many chemical processing applications, providing a cost-effective alternative to specialized materials in appropriate scenarios. The fusion-welded connections eliminate potential leak points, ensuring safe transport of process fluids throughout the facility.

3. Agricultural Irrigation

TAKWEEN PLAST systems deliver outstanding performance in agricultural applications, with UV-resistant options for exposed installations and chemical resistance for fertilizer distribution. The lightweight nature simplifies installation across large areas, while the pressure resistance ensures consistent water delivery even in extensive networks.

4. Compressed Air Systems

The pressure resistance and leak-free connections of TAKWEEN PLAST systems make them an excellent choice for compressed air distribution, where system integrity directly impacts energy efficiency. The smooth interior surfaces minimize pressure drops, while the corrosion immunity eliminates the risk of contamination from pipe degradation.

SPECIALIZED APPLICATIONS

1. Swimming Pools and Spas

The chlorine resistance and temperature stability of TAKWEEN PLAST systems make them ideal for swimming pool and spa installations. Our pipes and fittings maintain their performance characteristics even when exposed to treated water and fluctuating temperatures, ensuring reliable operation with minimal maintenance requirements.

2. Cooling Systems

The condensation resistance and insulation properties of TAKWEEN PLAST systems make them an excellent choice for cooling applications, from residential air conditioning to commercial chilled water distribution. The corrosion immunity eliminates the risk of system degradation, while the smooth interior surfaces ensure efficient fluid transport with minimal pressure loss.

3. Rainwater Harvesting

TAKWEEN PLAST systems provide the perfect infrastructure for sustainable rainwater harvesting systems, with UV-resistant options for exposed installations and a comprehensive range of fittings for system integration. The chemical resistance protects against the slightly acidic nature of rainwater, ensuring long-term system integrity and water quality.

At TAKWEEN PLAST, we understand that each application presents unique challenges and requirements. Our engineering team is available to provide specialized guidance for your specific project, ensuring that you select the optimal system configuration for your particular needs. With TAKWEEN PLAST, you're not just installing pipes – you're investing in a comprehensive fluid transport solution engineered for exceptional long-term performance.



QUALITY ASSURANCE AND STANDARDS

Commitment to Excellence

At TAKWEEN PLAST, quality isn't just a department, it's a fundamental philosophy that permeates every aspect of our operation. Our comprehensive approach to quality assurance represents our unwavering commitment to delivering products that consistently exceed industry standards and customer expectations.

We believe that true quality emerges from the perfect alignment of superior materials, precision manufacturing, rigorous testing, and continuous improvement. This holistic perspective enables us to create piping systems that deliver exceptional performance and reliability throughout their extended service life.

Advanced Manufacturing Processes

Our state-of-the-art manufacturing facility incorporates the latest technological innovations to ensure unparalleled product consistency and quality:

1. Precision Extrusion Technology

TAKWEEN PLAST pipes are produced using advanced extrusion systems that maintain precise dimensional control throughout the production process. Our computer-controlled equipment continuously monitors and adjusts critical parameters including temperature profiles, pressure conditions, and cooling rates to ensure perfect molecular structure and dimensional stability.

The sophisticated multi-layer extrusion technology used for our composite pipes ensures perfect alignment and bonding between layers, creating a unified structure with enhanced performance characteristics. Each production line undergoes regular calibration and validation to maintain the exacting standards that define the TAKWEEN PLAST difference.

2. Injection Molding Excellence

Our fitting production utilizes high-precision injection molding systems that ensure perfect dimensional accuracy and structural integrity. The computer-controlled process maintains optimal material flow, temperature, and pressure conditions to prevent internal stresses and ensure consistent wall thickness throughout each component.

The advanced mold designs incorporate optimized flow paths that minimize turbulence and pressure drops, while the precision-machined surfaces ensure perfect sealing and alignment during fusion welding. Each mold undergoes regular inspection and maintenance to prevent dimensional drift and maintain perfect part consistency.

Comprehensive Testing Protocols

TAKWEEN PLAST maintains one of the most rigorous testing regimens in the industry, ensuring that every product meets our exacting standards before reaching our customers:

1. Raw Material Verification

Before entering production, all raw materials undergo comprehensive testing to verify their composition, purity, and performance characteristics. Our laboratory employs advanced analytical techniques including differential scanning calorimetry, melt flow index testing, and spectroscopic analysis to ensure that only materials meeting our strict specifications are used in TAKWEEN PLAST products.

2. In-Process Quality Control

Throughout the production process, our integrated quality control system performs continuous monitoring and testing to verify compliance with all specifications. Automated dimensional measurement systems check critical parameters including diameter, wall thickness, and ovality, while visual inspection systems identify any surface imperfections or cosmetic issues.

For fittings, sophisticated vision systems verify critical dimensions and detect any molding defects, ensuring perfect compatibility with corresponding pipes. Each production batch undergoes regular sampling for more comprehensive laboratory testing, providing statistical validation of process stability.

3. Performance Validation

Finished products undergo rigorous performance testing to verify their functional characteristics under real-world conditions. Our testing laboratory simulates decades of service through accelerated testing protocols, subjecting samples to elevated temperatures and pressures to validate long-term performance predictions.

Hydrostatic pressure testing verifies the pressure resistance of pipes and fittings, while thermal cycling tests confirm performance stability under fluctuating temperature conditions. Impact resistance, burst pressure, and long-term hydrostatic strength tests provide comprehensive validation of product durability and safety margins.

International Standards Compliance

TAKWEEN PLAST products are manufactured in strict accordance with relevant international standards, ensuring global acceptance and compliance:

1. ISO Certification

Our manufacturing facility operates under a comprehensive ISO 9001:2015 quality management system, ensuring consistent adherence to documented procedures and continuous improvement processes. This certification validates our systematic approach to quality management and demonstrates our commitment to customer satisfaction.

Additionally, our environmental management practices comply with ISO 14001:2015 standards, reflecting our dedication to sustainable manufacturing and responsible resource utilization. This integrated management approach ensures that quality and environmental considerations are embedded in every operational decision.

2. Product Standards

TAKWEEN PLAST piping systems comply with the following international standards:

- PP-R Systems: ISO 15874, EN ISO 15874, DIN 8077/8078, ASTM F2389.
- Multilayer Systems: ISO 21003, DIN 16836, ASTM F1281.
- Drinking Water Compliance: NSF/ANSI 61, WRAS, ACS, DVGW.

Each product category undergoes regular third-party certification testing to verify continued compliance with these standards, providing independent validation of our internal quality assurance processes.

Continuous Improvement Culture

Beyond our formal quality systems, TAKWEEN PLAST maintains a corporate culture centered on continuous improvement and excellence:

1. Innovation Integration

Our research and development team works in close collaboration with quality assurance to ensure that innovations enhance product performance without compromising reliability. This integrated approach allows us to introduce advanced features while maintaining the exceptional dependability that defines the TAKWEEN PLAST brand.

2. Customer Feedback Loop

We maintain active channels for customer feedback, incorporating field experiences into our product development and quality improvement processes. This customer-centric approach ensures that our products continue to evolve to meet changing market requirements and address emerging application challenges.

3. Professional Development

TAKWEEN PLAST invests heavily in the ongoing professional development of our quality team, ensuring they remain at the forefront of industry's best practices and testing methodologies. This commitment to expertise development enables us to implement the most effective quality assurance techniques and technologies.

Quality Guarantee

Our comprehensive approach to quality allows us to offer one of the industry's most robust warranty programs, reflecting our confidence in the exceptional performance and longevity of TAKWEEN PLAST piping systems. When you choose TAKWEEN PLAST, you're not just selecting a product, you're investing in a quality assurance system designed to deliver decades of trouble-free performance.

The TAKWEEN PLAST quality difference is evident in every pipe, fitting, and component we produce. It's a difference you can see in the precision of our manufacturing, feel in the substantial quality of our products, and rely on throughout the extended service life of your installation.



PP-R STANDARD PIPES

Product Description: TAKWEEN PLAST PP-R Standard Pipes represent the pinnacle of modern piping technology, engineered for exceptional performance and longevity across diverse applications. Manufactured from premium-grade polypropylene random copolymer (PP-R), these pipes deliver unmatched reliability for hot and cold-water distribution systems in residential, commercial, and industrial environments.

Our advanced manufacturing process ensures perfect dimensional stability and structural integrity throughout the pipe's extended service life. The molecular structure of our PP-R material provides outstanding resistance to pressure and temperature variations, making these pipes ideal for both potable water systems and specialized industrial applications. TAKWEEN PLAST PP-R Standard Pipes feature a smooth interior surface that minimizes flow resistance and prevents mineral buildup, ensuring optimal hydraulic performance and consistent flow rates over decades of service. The homogeneous material composition eliminates corrosion concerns and provides excellent chemical resistance, protecting water quality and system integrity in all installation environments.

Technical Specifications

Property	Test Method	Unit	Value
Density	ISO 1183	g/cm ³	0.895-0.905
Melt Flow Rate (230°C/2.16kg)	ISO 1133	g/10min	0.3-0.5
Tensile Strength at Yield	ISO 527	MPa	≥20
Elongation at Break	ISO 527	%	>350
Modulus of Elasticity	ISO 178	MPa	850-950
Thermal Conductivity	DIN 52612	W/m·K	0.24
Linear Expansion Coefficient	ASTM D696	mm/m·K	0.15
Impact Strength at 23°C	ISO 179	kJ/m ²	No Break
Oxygen Permeability	DIN 4726	g/m ³ ·d	<0.1
Surface Roughness	-	mm	0.007

Product Codes and Dimensions: TAKWEEN PLAST PPR Pipe Specifications
Compliant with DIN 8077/78, ISO 15874, PN 10, PN 16, PN 20 & PN 25 Ratings.

1. TAKWEEN PLAST PPR SDR 11 (PN 10) – Series 4

Application: Cold water systems, low-pressure plumbing.

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water Content (l/m)	Weight (kg/m)	Max Pressure (bar)
TK-PN10-20	20	100 m	20.0 ± 0.3	1.9 ± 0.2	16.2	0.206	0.107	10
TK-PN10-25	25	100 m	25.0 ± 0.3	2.3 ± 0.2	20.4	0.327	0.164	10
TK-PN10-32	32	40 m	32.0 ± 0.3	2.9 ± 0.3	26.2	0.531	0.261	10
TK-PN10-40	40	40 m	40.0 ± 0.4	3.7 ± 0.3	32.6	0.834	0.412	10
TK-PN10-50	50	20 m	50.0 ± 0.5	4.6 ± 0.4	40.8	1.307	0.638	10
TK-PN10-63	63	20 m	63.0 ± 0.6	5.8 ± 0.5	51.4	2.075	1.010	10
TK-PN10-75	75	20 m	75.0 ± 0.7	6.8 ± 0.6	61.4	2.941	1.410	10
TK-PN10-90	90	12 m	90.0 ± 0.9	8.2 ± 0.7	73.6	4.254	2.030	10
TK-PN10-110	110	8 m	110.0 ± 1.0	10.0 ± 0.9	90.0	6.362	3.010	10

2. TAKWEEN PLAST PPR SDR 7.4 (PN 16) – Series 5

Application: Hot & cold-water systems, medium-pressure HVAC.

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water Content (l/m)	Weight (kg/m)	Max Pressure (bar)
TK-PN16-20	20	100 m	20.0 ± 0.3	2.8 ± 0.3	14.4	0.163	0.148	16
TK-PN16-25	25	100 m	25.0 ± 0.3	3.5 ± 0.3	18.0	0.254	0.230	16
TK-PN16-32	32	40 m	32.0 ± 0.3	4.4 ± 0.4	23.2	0.415	0.370	16
TK-PN16-40	40	40 m	40.0 ± 0.4	5.5 ± 0.5	29.0	0.651	0.575	16
TK-PN16-50	50	20 m	50.0 ± 0.5	6.9 ± 0.6	36.2	1.029	0.896	16
TK-PN16-63	63	20 m	63.0 ± 0.6	8.6 ± 0.7	45.8	1.633	1.410	16
TK-PN16-75	75	20 m	75.0 ± 0.7	10.3 ± 0.8	54.4	2.307	2.010	16
TK-PN16-90	90	12 m	90.0 ± 0.9	12.3 ± 1.0	65.4	3.318	2.870	16
TK-PN16-110	110	8 m	110.0 ± 1.0	15.1 ± 1.2	79.8	5.674	4.300	16

3. TAKWEEN PLAST PPR SDR 6 (PN 20) – Series 6

Application: High-pressure hot water systems, industrial plumbing.

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water Content (l/m)	Weight (kg/m)	Max Pressure (bar)
TK-PN20-20	20	100 m	20.0 ± 0.3	3.4 ± 0.3	13.2	0.137	0.172	20
TK-PN20-25	25	100 m	25.0 ± 0.3	4.2 ± 0.4	16.6	0.216	0.266	20
TK-PN20-32	32	40 m	32.0 ± 0.3	5.4 ± 0.5	21.2	0.353	0.434	20
TK-PN20-40	40	40 m	40.0 ± 0.4	6.7 ± 0.6	26.6	0.556	0.671	20
TK-PN20-50	50	20 m	50.0 ± 0.5	8.3 ± 0.7	33.4	0.866	1.040	20
TK-PN20-63	63	20 m	63.0 ± 0.6	10.5 ± 0.9	42.0	1.385	1.650	20
TK-PN20-75	75	20 m	75.0 ± 0.7	12.5 ± 1.0	50.0	1.963	2.340	20
TK-PN20-90	90	12 m	90.0 ± 0.9	15.0 ± 1.2	60.0	2.827	3.360	20
TK-PN20-110	110	8 m	110.0 ± 1.0	18.3 ± 1.5	73.4	4.208	5.010	20

4. TAKWEEN PLAST PPR SDR 5 (PN 25) – Series 2

Application: Ultra-high-pressure systems, industrial process piping.

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water Content (l/m)	Weight (kg/m)	Max Pressure (bar)
TK-PN25-20	20	100 m	20.0 ± 0.3	4.1 ± 0.4	11.8	0.111	0.198	25
TK-PN25-25	25	100 m	25.0 ± 0.3	5.1 ± 0.5	14.8	0.178	0.307	25
TK-PN25-32	32	40 m	32.0 ± 0.3	6.5 ± 0.6	19.0	0.291	0.498	25
TK-PN25-40	40	40 m	40.0 ± 0.4	8.1 ± 0.7	23.8	0.461	0.775	25
TK-PN25-50	50	20 m	50.0 ± 0.5	10.1 ± 0.9	29.8	0.703	1.210	25
TK-PN25-63	63	20 m	63.0 ± 0.6	12.7 ± 1.1	37.6	1.137	1.910	25
TK-PN25-75	75	20 m	75.0 ± 0.7	15.1 ± 1.3	44.8	1.619	2.700	25
TK-PN25-90	90	12 m	90.0 ± 0.9	18.1 ± 1.5	53.8	2.336	3.880	25
TK-PN25-110	110	8 m	110.0 ± 1.0	22.1 ± 1.8	65.8	2.742	5.780	25

Features and Benefits

- **Superior Durability:** Engineered for a minimum service life of 50 years under normal operating conditions.
- **Temperature Resistance:** Excellent performance in temperatures ranging from -10°C to +95°C.
- **Pressure Rating:** PN20 pressure rating suitable for demanding applications.
- **Hygienic Properties:** Non-toxic, tasteless, and odorless material ensures water purity.
- **Chemical Resistance:** Exceptional resistance to chemicals, acids, and alkalis.
- **Corrosion Immunity:** Complete immunity to corrosion, scaling, and pitting.
- **Low Thermal Conductivity:** Minimizes heat loss in hot water systems.
- **Noise Reduction:** Absorbs vibration and reduces water flow noise.
- **Environmental Sustainability:** 100% recyclable material with reduced carbon footprint.
- **Easy Installation:** Lightweight design and reliable fusion joining method.
- **Cost Efficiency:** Lower installation costs and minimal maintenance requirements.
- **International Compliance:** Manufactured in accordance with ISO 15874, EN ISO 15874, and DIN 8077/8078 standards

APPLICATIONS



TAKWEEN PLAST COMPOSITE PIPE WITH ALUMINUM

Product Description

TAKWEEN PLAST Aluminum Composite Pipe System represents the perfect fusion of plastic and metal technologies, delivering exceptional performance for modern plumbing and heating applications. Our multi-layer construction combines the best properties of PP-R and aluminum, creating a piping solution that excels in demanding environments. The five-layer composite structure features a central aluminum core sandwiched between inner and outer layers of premium PP-R, with special adhesive layers ensuring perfect bonding between materials. This innovative design delivers the corrosion resistance and hygienic properties of plastic with the strength, stability, and oxygen barrier properties of aluminum.

TAKWEEN PLAST Aluminum Composite Pipes feature significantly reduced thermal expansion compared to standard plastic pipes, making them ideal for installations where dimensional stability is critical. The aluminum layer provides an absolute oxygen barrier, preventing diffusion and protecting system components in closed heating circuits.

Technical Specifications

Property	Test Method	Unit	Value
Density (Composite)	ISO 1183	g/cm ³	1.1-1.2
Tensile Strength	ISO 527	MPa	>30
Elongation at Break	ISO 527	%	>200
Thermal Conductivity	DIN 52612	W/m·K	0.43
Linear Expansion Coefficient	ASTM D696	mm/m·K	0.03
Oxygen Permeability	DIN 4726	g/m ³ ·d	0.0
Surface Roughness	-	mm	0.007
Minimum Bending Radius	-	x D	5 x D
Aluminum Layer Thickness	-	mm	0.2-0.4

Product Codes and Dimensions

1. Standard Composite Pipes (PN 20)

Product Code	Size (mm)	Packing Unit Mtr.	OD (mm)	Wall Thickness (mm)	ID (mm)	Water (l/m)	Weight (kg/m)	Pressure (bar)
TK-AL20-20	20	100m	20.0	2.8	14.4	0.163	0.220	20
TK-AL20-25	25	100m	25.0	3.5	18.0	0.254	0.320	20
TK-AL20-32	32	40m	32.0	4.4	23.2	0.415	0.470	20
TK-AL20-40	40	40m	40.0	5.5	29.0	0.651	0.720	20
TK-AL20-50	50	20m	50.0	6.9	36.2	1.029	1.060	20
TK-AL20-63	63	20m	63.0	8.6	45.8	1.633	1.650	20
TK-AL20-75	75	20m	75.0	10.3	54.4	2.307	2.280	20
TK-AL20-90	90	12m	90.0	12.3	65.4	3.318	3.200	20
TK-AL20-110	110	8m	110.0	15.1	79.8	5.674	4.600	20

2. Standard Composite Pipes (PN 25)

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water (l/m)	Weight (kg/m)	Pressure (bar)
TK-AL25-20	20	100m	20.0	3.4	13.2	0.137	0.241	25
TK-AL25-25	25	100m	25.0	4.2	16.6	0.216	0.350	25
TK-AL25-32	32	40m	32.0	5.4	21.2	0.353	0.542	25
TK-AL25-40	40	40m	40.0	6.7	26.6	0.556	0.805	25
TK-AL25-50	50	20m	50.0	8.3	33.4	0.866	1.217	25
TK-AL25-63	63	20m	63.0	10.5	42.0	1.385	1.860	25
TK-AL25-75	75	20m	75.0	12.5	50.0	1.963	2.586	25
TK-AL25-90	90	12m	90.0	15.0	60.0	2.827	3.656	25
TK-AL25-110	110	8m	110.0	18.3	73.4	4.208	5.372	25

Features and Benefits

- Minimal Thermal Expansion: 5 times less expansion than standard PP-R pipes.
- Temperature Resistance: Excellent performance in temperatures ranging from -20°C to +95°C.
- Absolute Oxygen Barrier: Aluminum layer prevents 100% of oxygen diffusion.
- Dimensional Stability: Maintains shape and alignment even with temperature fluctuations.
- Flexibility: Can be bent by hand while maintaining structural integrity.
- Shape Memory: Returns to original form after bending.
- Corrosion Immunity: Complete immunity to corrosion, scaling, and pitting.
- Reduced Support Requirements: Requires fewer support points during installation.
- Noise Reduction: Absorbs vibration and reduces water flow noise.
- Hygienic Properties: Non-toxic inner layer ensures water purity.
- Low Thermal Conductivity: Minimizes heat loss in hot water systems.
- UV Resistance: Outer layer provides protection against UV degradation.
- Environmental Sustainability: Reduced carbon footprint compared to metal alternatives.
- Easy Installation: Lightweight design and reliable fusion joining method.
- Cost Efficiency: Lower installation costs and minimal maintenance requirements.
- International Compliance: Manufactured in accordance with ISO 21003 and DIN 16836 standards.

APPLICATIONS



TAKWEEN PLAST COMPOSITE PIPE WITH ALUMINUM - BLACK LAYER (UV RESISTANT) APPLICATION: OUTDOOR AND EXTERNAL INSTALLATIONS UNDER SUNLIGHT

Product Description

TAKWEEN PLAST Composite Pipe System represents an innovative engineering solution that combines exceptional dimensional stability with superior thermal performance. Our unique multi-layer construction features a fiberglass-reinforced middle layer that dramatically reduces thermal expansion while maintaining the excellent pressure and temperature resistance of premium PP-R.

The specialized three-layer design incorporates an inner and outer layer of high-quality PP-R with a middle layer of fiberglass-reinforced composite material. This revolutionary structure delivers the perfect balance of rigidity and flexibility, making it ideal for installations where thermal expansion must be minimized without sacrificing the benefits of plastic piping.

TAKWEEN PLAST Composite Pipes feature a coefficient of linear expansion that is three times lower than standard PP-R pipes, ensuring exceptional dimensional stability even under significant temperature fluctuations. The homogeneous outer and inner PP-R layers maintain all the hygienic and chemical resistance properties that make PP-R the preferred choice for modern plumbing systems.

Technical Specifications

Property	Test Method	Unit	Value
Density (Composite)	ISO 1183	g/cm ³	0.92-0.95
Tensile Strength	ISO 527	MPa	>25
Elongation at Break	ISO 527	%	>200
Thermal Conductivity	DIN 52612	W/m·K	0.24
Linear Expansion Coefficient	ASTM D696	mm/m·K	0.05
Oxygen Permeability	DIN 4726	g/m ³ ·d	<0.1
Surface Roughness	-	mm	0.007
Minimum Bending Radius	-	x D	8 x D
Fiberglass Layer Thickness	-	% of total	15-20%

Product Codes and Dimensions

1. UV-Resistant Composite Pipes (PN 20)

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water (l/m)	Weight (kg/m)	Pressure (bar)
TK-ALUV20-20	20	100m	20.0	2.8	14.4	0.163	0.220	20
TK-ALUV20-25	25	100m	25.0	3.5	18.0	0.254	0.320	20
TK-ALUV20-32	32	40m	32.0	4.4	23.2	0.415	0.470	20
TK-ALUV20-40	40	40m	40.0	5.5	29.0	0.651	0.720	20
TK-ALUV20-50	50	20m	50.0	6.9	36.2	1.029	1.060	20
TK-ALUV20-63	63	20m	63.0	8.6	45.8	1.633	1.650	20
TK-ALUV20-75	75	20m	75.0	10.3	54.4	2.307	2.280	20
TK-ALUV20-90	90	12m	90.0	12.3	65.4	3.318	3.200	20
TK-ALUV20-110	110	8m	110.0	15.1	79.8	5.674	4.600	20

2. UV-Resistant Composite Pipes (PN 25)

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Water (l/m)	Weight (kg/m)	Pressure (bar)
TK-ALUV25-20	20	100m	20.0	3.4	13.2	0.137	0.241	25
TK-ALUV25-25	25	100m	25.0	4.2	16.6	0.216	0.350	25
TK-ALUV25-32	32	40m	32.0	5.4	21.2	0.353	0.542	25
TK-ALUV25-40	40	40m	40.0	6.7	26.6	0.556	0.805	25
TK-ALUV25-50	50	20m	50.0	8.3	33.4	0.866	1.217	25
TK-ALUV25-63	63	20m	63.0	10.5	42.0	1.385	1.860	25
TK-ALUV25-75	75	20m	75.0	12.5	50.0	1.963	2.586	25
TK-ALUV25-90	90	12m	90.0	15.0	60.0	2.827	3.656	25
TK-ALUV25-110	110	8m	110.0	18.3	73.4	4.208	5.372	25

Large Diameter Pipes (PN 16) - Reinforced Pipe

Product Code	Size (mm)	Packing Unit	OD (mm)	Wall Thickness (mm)	ID (mm)	Weight (kg/m)	Pressure (bar)
TK-P16-125	125	4m	125.0	14.0	97.0	4.480	16
TK-P16-160	160	4m	160.0	14.6	130.8	6.755	16
TK-P16-200	200	4m	200.0	18.2	163.6	10.640	16
TK-P16-250	250	4m	250.0	22.7	204.6	16.160	16

Features and Benefits

- All pipes feature 0.2mm aluminum layer for thermal stability.
- UV-resistant variants have black outer layer for outdoor use.
- Precision tolerances: $\pm 0.3\text{mm}$ ($\text{OD} \leq 63\text{mm}$), $\pm 0.5\%$ ($\text{OD} > 63\text{mm}$).
- Reduced Thermal Expansion: 3 times less expansion than standard PP-R pipes.
- Temperature Resistance: Excellent performance in temperatures ranging from -10°C to $+95^{\circ}\text{C}$.
- Dimensional Stability: Maintains shape and alignment even with temperature fluctuations.
- Reduced Support Requirements: Requires fewer support points during installation.
- Hygienic Properties: Non-toxic, tasteless, and odorless material ensures water purity.
- Chemical Resistance: Exceptional resistance to chemicals, acids, and alkalis.
- Corrosion Immunity: Complete immunity to corrosion, scaling, and pitting.
- Low Thermal Conductivity: Minimizes heat loss in hot water systems.
- Noise Reduction: Absorbs vibration and reduces water flow noise.
- Environmental Sustainability: 100% recyclable material with reduced carbon footprint.
- Easy Installation: Lightweight design and reliable fusion joining method.
- Cost Efficiency: Lower installation costs and minimal maintenance requirements.
- International Compliance: Manufactured in accordance with ISO 15874, EN ISO 15874, and DIN 8077/8078 standards.

Note: All dimensions in millimeters (mm), weights in kilograms per meter (kg/m), and water content in liters per meter (l/m).

APPLICATIONS



01 Hot water distribution systems.



02 Long pipe runs requiring minimal expansion.



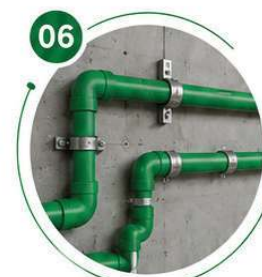
03 High-rise building installations.



04 Commercial plumbing systems.



05 Industrial fluid transport.



06 Exposed piping installations.



07 Heating system main lines.



08 Riser applications.



09 Ceiling installations.



10 Applications with significant temperature fluctuations.



11 Systems requiring minimal pipe movement.



12 Installations with limited expansion compensation.

TAKWEEN PLAST PP-R Fittings & Accessories Designed for Versatility, Reliability, and Easy Installation

Product Description

TAKWEEN PLAST . PP-R Fittings represent the pinnacle of connection technology for modern piping systems, engineered to deliver flawless performance and exceptional reliability. Manufactured from premium-grade polypropylene random copolymer (PP-R), our fittings are designed to create perfect, homogeneous joints with our PP-R pipes through thermal fusion welding. Each fitting is precision-engineered to exact dimensional specifications, ensuring perfect alignment and leak-free connections throughout your installation. The molecular structure of our PP-R material provides outstanding resistance to pressure, temperature variations, and chemical exposure, making these fittings ideal for both potable water systems and specialized industrial applications.

TAKWEEN PLAST PP-R Fittings feature optimized internal geometries that minimize flow resistance and pressure drops, ensuring consistent hydraulic performance throughout the system. The homogeneous material composition eliminates corrosion concerns and provides excellent chemical resistance, protecting water quality and system integrity in all installation environments.

Technical Specifications

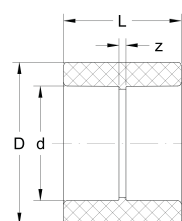
Property	Test Method	Unit	Value
Density	ISO 1183	g/cm ³	0.895-0.905
Melt Flow Rate (230°C/2.16kg)	ISO 1133	g/10min	0.3-0.5
Tensile Strength at Yield	ISO 527	MPa	≥20
Elongation at Break	ISO 527	%	>350
Modulus of Elasticity	ISO 178	MPa	850-950
Thermal Conductivity	DIN 52612	W/m·K	0.24
Impact Strength at 23°C	ISO 179	kJ/m ²	No Break
Vicat Softening Temperature	ISO 306	°C	≥130

Product Codes and Dimensions

1. Socket Fittings

Application: Used for connecting PP-R pipes in straight runs. Ideal for residential, commercial, and industrial plumbing systems.

CODE	d	D	L	Z	Pack	Weight (gms)
APS20	20	28.05	32	2.6	10 pcs	10
APS25	25	34.5	35.5	3.1	10 pcs	15
APS32	32	44.3	39.4	3	5 pcs	28
APS40	40	55.5	46	4.6	5 pcs	52
APS50	50	69.5	50.4	3	5 pcs	86
APS63	63	88	60	4.6	1 pc	160
APS75	75	100	66.4	4	1 pc	215
APS90	90	119.6	76.4	5	1 pc	350
APS110	110	147.3	88.4	5	1 pc	615



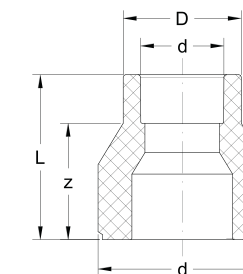
Features & Benefits:

- Made from high-quality PP-R random copolymer.
- Corrosion-resistant, chemical-resistant, and durable.
- Ensures leak-proof connections with fusion welding.

2. Reducer Socket Fittings

Application: Connects pipes of different diameters. Used in systems requiring flow adjustment.

CODE	d	D	L	Z	Pack	Weight (gms)
APR25X20	25x20	25.2	38	4.8	10 pcs	11
APR32X20	32x20	32.15	41.2	8	5 pcs	16
APR32X25	32x25	32.15	42.7	8	5 pcs	20
APR40X20	40x20	40.15	45.7	10	5 pcs	25
APR40X25	40x25	40.15	47.2	10	5 pcs	29
APR40X32	40x32	40.15	49.2	10	5 pcs	36
APR50X20	50x20	50.2	51.2	12.5	5 pcs	42
APR50X25	50x25	50.2	52.7	12.5	5 pcs	46
APR50X32	50x32	50.2	54.7	12.5	5 pcs	52
APR50X40	50x40	50.2	57.2	12.5	5 pcs	66
APR63X20	63x20	63.2	58.4	15.5	1 pc	77
APR63X25	63x25	63.2	59.9	15.5	1 pc	80
APR63X32	63x32	63.2	61.9	15.5	1 pc	86
APR63X40	63x40	63.2	64.4	15.5	1 pc	97
APR63X50	63x50	63.2	67.4	15.5	1 pc	121
APR75X40	75x40	75.25	71.2	18.5	1 pc	129
APR75X50	75x50	75.25	74.2	18.5	1 pc	150
APR75X63	75x63	75.25	78.2	18.5	1 pc	194
APR90X50	90x50	90.3	82.7	22.5	1 pc	221
APR90X63	90x63	90.3	86.7	22.5	1 pc	260
APR90X75	90x75	90.3	90.2	22.5	1 pc	288
APR110X63	110x63	110.3	97.7	27.5	1 pc	394
APR110X75	110x75	110.3	101.2	27.5	1 pc	420
APR110X90	110x90	110.3	105.7	27.5	1 pc	500



Features & Benefits:

- Smooth transition between pipe sizes.
- High-pressure resistance (PN10-PN25).
- Compatible with all TAKWEEN PLAST PP-R pipes.

3. Elbow 90° Fittings

Application: Changes pipeline direction by 90°. Used in tight spaces where bends are required.

CODE	d	D	L	Z	Pack	Weight (gms)
APE9020	20	28.05	39.03	10.3	10 pcs	16
APE9025	25	35.05	46.28	12.55	10 pcs	25
APE9032	32	44.3	56.15	15.8	5 pcs	45
APE9040	40	55.45	68.23	19.8	5 pcs	83
APE9050	50	69.8	83.8	25	5 pcs	160
APE9063	63	87.6	103	31.5	1 pc	294
APE9075	75	100	119.5	38.3	1 pc	447
APE9090	90	119.6	140.8	45.3	1 pc	715
APE90110	110	147.3	170.65	55.3	1 pc	1285

Features & Benefits:

- Smooth inner surface for optimal flow.
- High thermal and mechanical strength.
- Resistant to scaling and deposits.

4. Elbow 45° Fittings

Application: Used for gradual directional changes. Ideal for reducing flow resistance.

CODE	d	D	L	Z	Pack	Weight (gms)
APE4520	20	28.05	19.2	4.5	10 pcs	13
APE4525	25	35.05	21.5	5.3	10 pcs	20
APE4532	32	44.3	25	6.8	5 pcs	35
APE4540	40	55.45	29.5	8.8	5 pcs	65
APE4550	50	69.5	34.5	10.8	5 pcs	120
APE4563	63	87.7	41	13.5	1 pc	225
APE4575	75	100	47.5	16.3	1 pc	327
APE4590	90	119.6	55	19.3	1 pc	517
APE45110	110	147.3	65	23.3	1 pc	975

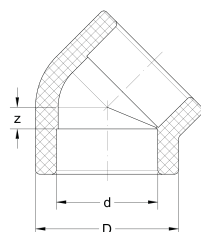
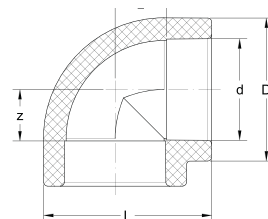
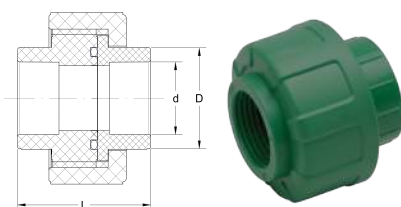
Features & Benefits:

- Low-pressure drop.
- Easy installation with fusion welding.
- Long service life (>50 years).

5. Female Union (Both Ends Welding)

Applications: Connects pipes with removable joints for maintenance.

CODE	d	D	L	Pack	Weight (gms)
APU20	20	28.05	42	10 pcs	28
APU25	25	34.5	49	10 pcs	70
APU32	32	44.3	59	5 pcs	127



Features & Benefits:

- Reusable: Brass-nut design for disassembly.
- Leak-proof: Double O-ring seals.

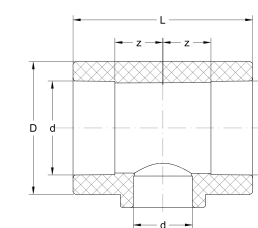
6. Reducing Tee

Applications: Connects pipes of different diameters (e.g., main lines to sub-distributors).

CODE	d	D	L	Z	Pack	Weight (gms)
APRT20X25X20	20 X 25 X 20	35.05	58	12.8	10 pcs	40
APRT25X20X20	25 X 20 X 20	35.05	58	12.8	10 pcs	40
APRT25X20	25 X 20 X 25	35.05	58	12.8	10 pcs	35
APRT32X20	32 X 20 X 32	44.3	69	16.3	5 pcs	52
APRT25X32	32 X 25 X 25	44.3	69	16.3	5 pcs	70
APRT32X25	32 X 25 X 32	44.3	69	16.3	5 pcs	64
APRT40X20	40 X 20 X 40	55.5	82	20.3	1 pc	97
APRT40X25	40 X 25 X 40	55.5	82	20.3	1 pc	97
APRT40X32	40 X 32 X 40	55.5	82	20.3	1 pc	100
APRT50X20	50 X 20 X 50	69.5	98	25.3	1 pc	172
APRT50X25	50 X 25 X 50	69.5	98	25.3	1 pc	174
APRT50X32	50 X 32 X 50	69.5	98	25.3	1 pc	175
APRT50X40	50 X 40 X 50	69.5	98	25.3	1 pc	180
APRT63X20	63 X 20 X 63	87.7	119	31.8	1 pc	332
APRT63X25	63 X 25 X 63	87.7	119	31.8	1 pc	332
APRT63X32	63 X 32 X 63	87.7	119	31.8	1 pc	330
APRT63X40	63 X 40 X 63	87.7	119	31.8	1 pc	332
APRT63X50	63 X 50 X 63	87.7	119	31.8	1 pc	340
APRT75X32	75 X 32 X 75	100	138	37.8	1 pc	480
APRT75X40	75 X 40 X 75	100	138	37.8	1 pc	479
APRT75X50	75 X 50 X 75	100	138	37.8	1 pc	484
APRT75X63	75 X 63 X 75	100	138	37.8	1 pc	503
APRT90X40	90 X 40 X 90	119.6	162	45.3	1 pc	800
APRT90X50	90 X 50 X 90	119.6	162	45.3	1 pc	805
APRT90X63	90 X 63 X 90	119.6	162	45.3	1 pc	808
APRT90X75	90 X 75 X 90	119.6	162	45.3	1 pc	820
APRT110X63	110 X 63 X 110	147.3	184	54.8	1 pc	1345
APRT110X75	110 X 75 X 110	147.3	184	54.8	1 pc	1350
APRT110X90	110 X 90 X 110	147.3	184	54.8	1 pc	1391

Features & Benefits:

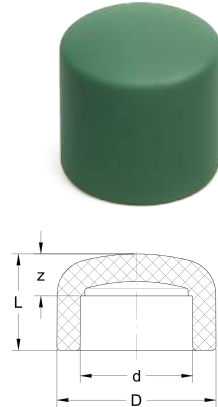
- Versatile: Compatible with PN10–PN25 systems.
- UV-Resistant Option: Available for outdoor use (TP-RTEE-UV series).



7. End Cap

Applications: Seals pipe ends in water supply, drainage, and irrigation systems.

CODE	d	D	L	Z	Pack	Weight (gms)
APEC20	20	28.05	22.8	8.1	10 pcs	10
APEC25	25	35.05	25	8.8	10 pcs	13
APEC32	32	44.3	29.2	11	5 pcs	24
APEC40	40	55.45	32.5	11.8	5 pcs	40
APEC50	50	69.5	38.2	14.5	5 pcs	76
APEC63	63	88	44	16.3	1 pc	140
APEC75	75	100	50	18.8	1 pc	200
APEC90	90	119	55	19.3	1 pc	300
APEC110	110	147.3	67	25.3	1 pc	568



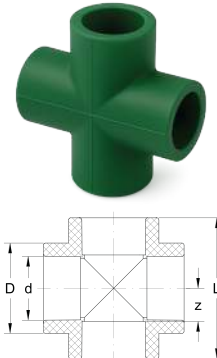
Features & Benefits:

- Airtight Seal: Prevents contamination in potable water systems.
- Easy Installation: Fusion-welded or threaded options.

8. Cross Tee

Applications: 4-way pipe connections for complex distribution networks.

CODE	d	D	L	Z	Pack	Weight (gms)
APCT20	20	28.05	51	10.8	10 pcs	25
APCT25	25	35.05	58	12.8	10 pcs	37
APCT32	32	44.3	69	16.36	5 pcs	65



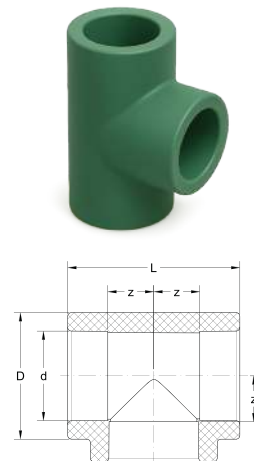
Features & Benefits:

- High Flow Capacity: Optimized internal design.
- Certifications: Complies with DIN 16962 and BS 6920.

9. Equal Tee

Applications: Branches pipelines in potable water, HVAC, and industrial systems.

CODE	d	D	L	Z	Pack	Weight (gms)
APT20	20	28.05	51	10.8	10 pcs	20
APT25	25	35.05	60	10.8	10 pcs	32
APT32	32	44.3	69	16.3	5 pcs	57
APT40	40	55.5	82	20.3	5 pcs	107
APT50	50	69.3	98	25.3	1 pc	189
APT63	63	87.7	119	31.8	1 pc	365
APT75	75	99.6	138	37.8	1 pc	515
APT90	90	119.6	162	45.3	1 pc	862
APT110	110	146.7	184	54.8	1 pc	1496



Features & Benefits:

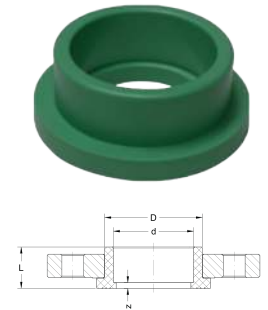
- Flow Efficiency: Smooth interior minimizes pressure drop.
- Durability: Resists scaling and chemical corrosion.

10. Flange Adaptors

Application: Connects PP-R pipes to flanged systems (pumps, valves, tanks). Used in industrial, HVAC, and water treatment plants.

Stub

CODE	d	D	L	Z	Pack	Weight (gms)
APST63	63	76	36	8.35	1 pc	75
APST75	75	89.5	40.15	8.6	1 pc	105
APST90	90	109	45.6	8.8	1 pc	167
APST110	110	130.6	52.2	9.6	1 pc	250



Rubber Gasket

CODE	Size	Outer Dia	Thikness	Inside Dia	Pack	Weight (gms)
TRG03887	63	95.3	2.9	63.5	1 pc	17
TRG03890	75	107.6	3	75.2	1 pc	19.6
TRG03893	90	125.6	3.1	80.6	1 pc	36.5
TRG03896	110	147.7	3	109.5	1 pc	32.1



GI Backing Ring

CODE	Size	Outer Dia	Thikness	Inside Dia	Pack	Weight (gms)
TRG03885	63	164.88	12.2	77.05	1 pc	1490
TRG03888	75	185.6	12.2	75.2	1 pc	1820
TRG03891	90	200.4	12	110	1 pc	1875
TRG03894	110	220.4	11.9	134.5	1 pc	2012



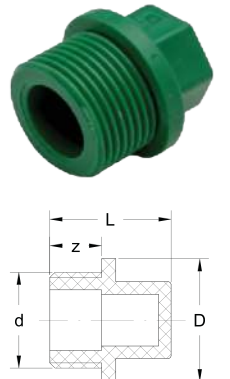
Features & Benefits:

- Stainless steel flange for corrosion resistance.
- Includes EPDM gasket for leak-proof sealing.
- Compatible with PN10-PN25 pressure systems.

11. End Plugs (Threaded)

Application: Seals threaded pipe ends temporarily or permanently. Used in pressure testing and system maintenance.

CODE	d	D	L	Z	Pack	Weight (gms)
APEP0.5	1/2"	28	28.7	13.2	10 pcs	8
APEP0.75	3/4"	34.5	29	14.5	10 pcs	11
APEP1	1"	38.5	31.5	17	10 pcs	17



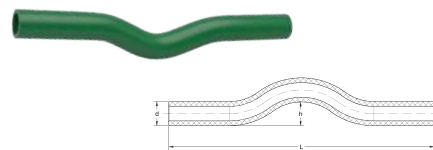
Features & Benefits:

- Brass construction for durability.
- Hexagonal head for easy installation.
- Leak-proof design.

12. Over Bridge Bows

Application: Bridges pipes over obstacles (walls, beams). Ideal for HVAC and plumbing installations.

CODE	d	L	h	Pack	Weight (gms)
APCO20	20	352	22	10 pcs	60
APCO25	25	352	25	10 pcs	91
APCO32	32	352	32	5 pcs	154



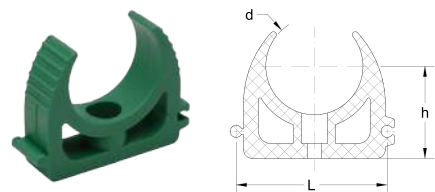
Features & Benefits:

- PP-R material for chemical resistance.
- Prevents pipe stress due to misalignment.

13. Pipe Brackets

Application: Secures pipes to walls/ceilings. Prevents vibration and movement.

CODE	d	L	h	Pack	Weight (gms)
APPB20	20	35.5	24.9	20 pcs	10
APPB25	25	41	27.4	20 pcs	12
APPB32	32	50	30.6	20 pcs	15



Features & Benefits:

- UV-resistant polypropylene.
- Adjustable for different pipe sizes.

14. Pipe Clamps

Application: Fixes pipes to structures. Used in exposed installations.

Product Code	Dimension (mm)	Packing Unit	Weight (kg/piece)
TP-CLP-20	20	50 pcs	0.042
TP-CLP-25	25	50 pcs	0.053
TP-CLP-32	32	50 pcs	0.060
TP-CLP-40	40	50 pcs	0.067
TP-CLP-50	50	50 pcs	0.077
TP-CLP-63	63	25 pcs	0.082



Features & Benefits:

- Stainless steel screw for corrosion resistance.
- Rubber lining to reduce noise.

15. Transition Piece Round-Female (PP-R to Threaded)

Applications: Connects PP-R pipes to threaded fixtures (e.g., pumps, valves, meters).

Product Code	Dimension	Packing Unit	Weight (kg/piece)	Material
TP-TRF-201/2	20mm × 1/2" Female	10 pcs	0.058	PP-R + Brass Insert
TP-TRF-203/4	20mm × 3/4" Female	10 pcs	0.072	PP-R + Brass Insert
TP-TRF-251/2	25mm × 1/2" Female	10 pcs	0.059	PP-R + Brass Insert
TP-TRF-253/4	25mm × 3/4" Female	10 pcs	0.073	PP-R + Brass Insert
TP-TRF-323/4	32mm × 3/4" Female	5 pcs	0.078	PP-R + Brass Insert



Features & Benefits:

- Leak-proof: Precision-machined brass threads (DIN 2999 compliant).
- Corrosion-resistant: Electroplated brass inserts.
- Pressure Rating: PN20 (20 bar at 20°C).

16. PP-R Ball Valves

Application: Controls water flow in pipelines. Used in isolation and regulation.

CODE	d	D	L	Z	Pack	Weight (gms)
TRG03904	20	29.6	64.5	37.5	1 PC	91
TRG03905	25	35.7	77	47.9	1 PC	127
TRG03906	32	46.2	85.3	49.7	1 PC	214
TRG03907	40	56.52	100.5	57.3	1 PC	305
TRG03908	50	71	115.2	71.4	1 PC	570
TRG03909	63	89.3	145	83.7	1 PC	1091
TRG03910	75	105.5	154	81.1	1 PC	1485



Features & Benefits:

- Full-bore design for minimal pressure loss.
- Ergonomic lever handle.

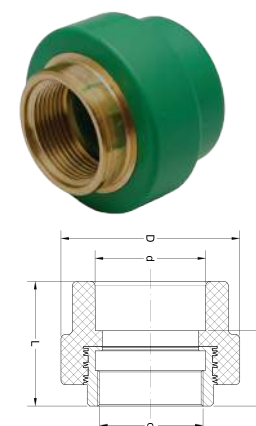
Key Advantages of TAKWEEN PLAST Products:

- Corrosion-Free – No rust or scaling.
- 50+ Year Lifespan – Tested under DIN/ISO standards.
- Easy Installation – Fusion welding ensures perfect joints.

17. Transition Piece Round-Female with Hexagon Socket

Applications: Heavy-duty connections for industrial and commercial plumbing.

CODE	d	D	L	Z	Pack	Weight (gms)
APFHS32X1	32X1	59.5	55.4	37.2	5 pcs	190
APFHS40X1	40X1	60	58	37.3	5 pcs	203
APFHS40X1.25	40X1 1/4	74	57.6	36.9	1 pc	293
APFHS50X1.5	50X1 1/2	85.6	64	40.3	1 pc	401
APFHS63X2	63X2	100.5	70	42.3	1 pc	603
APFHS75X2.5	75X2 1/2	126	76.8	45.6	1 pc	779
APFHS90X3	90X3	145	89	53.3	1 pc	1264
APFHS110X4	110X4	174.5	132	90	1 pc	3415



Features & Benefits:

- Hexagon Socket: Allows high-torque tightening without deformation.
- Reinforced Design: Thicker brass wall for industrial use.

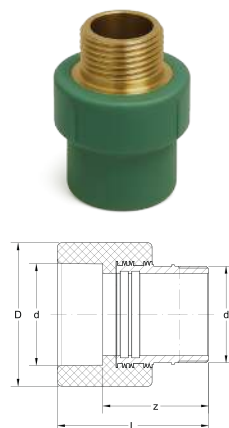
18. Transition Piece Round-Male (PP-R to Threaded)

Applications: Connects PP-R pipes to male-threaded equipment (e.g., boilers, filters).

CODE	d	D	L	Z	Pack	Weight (gms)
APMHS32X1	32X1	53	74.2	59	5 pcs	217
APMHS40X1	40X1	55.46	77.2	59.5	5 pcs	233
APMHS40X1.25	40X11/4	64	79	58.3	1 pc	335
APMHS50X1.5	50X11/2	73.2	85.7	62	1 pc	398
APMHS63X2	63X2	87.6	92.3	64.6	1 pc	604
APMHS75X2.5	75X21/2	100	98.2	67	1 pc	782
APMHS90X3	90X3	119.6	115.3	84.6	1 pc	1516
APMHS110X4	110X4	174.5	165.5	122	1 pc	4655

Features & Benefits:

- Anti-Strip Threads: Brass inserts with ISO 228-1 standard threads.
- Temperature Range: -10°C to +95°C continuous use.



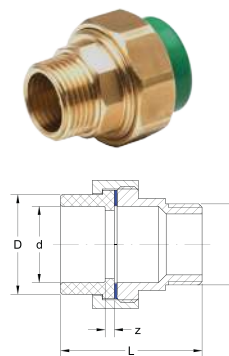
19. Transition Piece Round-Male with Hexagon Socket

Applications: High-torque connections for industrial plumbing and HVAC systems

CODE	d	D	L	Z	Pack	Weight (gms)
APMBU20X0.5	20x1/2	27	17.2	2.5	10 pcs	6
APMBU25X0.75	25x3/4	34.3	19.5	3.3	10 pcs	11
APMBU32X1	32X1	40.6	22	3.8	5 pcs	14
APMBU40X1.25	40X11/4	51	25	4.8	1 pc	25
APMBU50X1.5	50X11/2	65.6	28	4.3	1 pc	45
APMBU63X2	63X2	81.8	34.5	6.9	1 pc	90

Features & Benefits:

- Hexagon Socket: Allows wrench tightening up to 50Nm torque
- Reinforced Collar: Prevents cracking during installation
- Temperature Range: -20°C to +110°C (short-term)



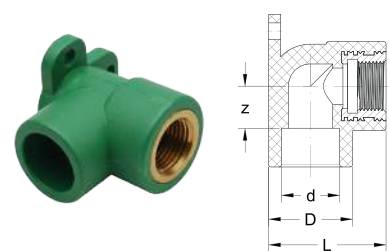
20. Wall Mount Elbow

Applications: Fixture connections (sinks, toilets) with wall mounting

CODE	d	D	L	Z	Pack	Weight (gms)
APWME20X0.5	20x1/2	37.2	48.95	15.65	10 pcs	73
APWME25X0.5	25x1/2	37.2	52.35	17.55	10 pcs	83
APWME25X0.75	25x3/4	38.8	56	39.8	10 pcs	104

Features & Benefits:

- Integrated Bracket: Pre-drilled holes for M6 screws
- Aesthetic Cover: Conceals pipe entry points



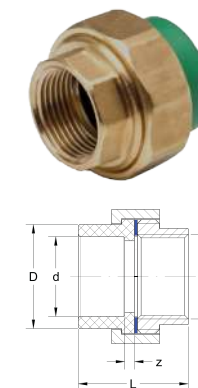
21. Transition PPR Female Union (Brass with Ribs)

Applications: Secure connections for maintenance-prone systems.

CODE	d	D	L	Z	Pack	Weight (gms)
APFBU20X0.5	20x1/2	27	17.2	2.5	10 pcs	6
APFBU25X0.75	25x3/4	34.3	19.5	3.3	10 pcs	11
APFBU32X1	32X1	40.6	22	3.8	5 pcs	14
APFBU40X1.25	40X11/4	51	25	4.8	1 pc	25
APFBU50X1.5	50X11/2	65.6	28	4.3	1 pc	45
APFBU63X2	63X2	81.8	34.5	6.9	1 pc	90

Features & Benefits:

- Dual O-Rings: Ensures double sealing.
- Chemical Resistance: Compatible with potable water and mild chemicals.



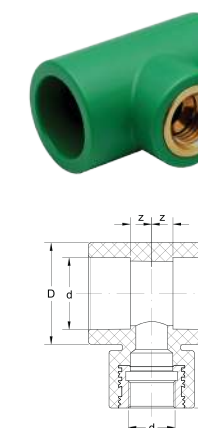
22. Transition Female Tee

Applications: Branching connections with threaded outlets

CODE	d	D	L	Z	Pack	Weight (gms)
APFT20X0.5	20x1/2x20	37.2	62.5	16.55	10 pcs	74
APFT20X0.75	20x3/4x20	48.3	62.5	16.55	10 pcs	87
APFT25X0.5	25x1/2x25	37.2	62.5	15.05	10 pcs	79
APFT25X0.75	25x3/4x25	44.3	73	20.3	10 pcs	99
APFT32X0.5	32x1/2x32	44.3	72.15	16.8	5 pcs	93
APFT32X0.75	32x3/4x32	44.3	71.8	10.8	5 pcs	107
APFT32X1	32x1x32	52	76.05	14.8	5 pcs	211

Features & Benefits:

- Flow-Optimized: 45° branch reduces turbulence
- Installation: Fusion welding on PP-R ends



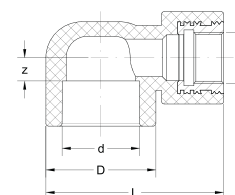
23. Transition Elbow Female

Applications: Direction changes with threaded connections

CODE	d	D	L	Z	Pack	Weight (gms)
APFE20X0.5	20x1/2	37.2	48.95	15.65	10 pcs	63
APFE20X0.75	20x3/4	44.3	54.6	17.75	10 pcs	83
APFE25X0.5	25x1/2	37.2	52.35	17.55	10 pcs	73
APFE25X0.75	25x3/4	44.3	58.5	20.15	10 pcs	94
APFE32X0.5	32x1/2	44.3	71.6	9.3	5 pcs	83
APFE32X0.75	32x3/4	43.3	72.3	9.3	5 pcs	99
APFE32X1	32X1	52	75.35	15.2	5 pcs	208

Features & Benefits:

- Compact Design: Saves space in tight installations
- Pressure Tested: 2.5× working pressure



24. Transition Elbow Male

Applications: Male-threaded directional connections

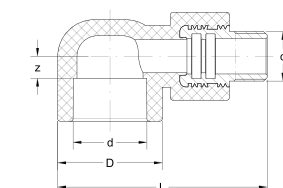
CODE	d	D	L	Z	Pack	Weight (gms)
APME20X0.5	20x1/2	37.2	66.83	16.8	10 pcs	84
APME20X0.75	20x3/4	38	67.78	17.75	10 pcs	92
APME25X0.5	25x1/2	37.2	70.03	17.55	10 pcs	94
APME25X0.75	25x3/4	38	71.03	20.15	10 pcs	101
APME32X0.5	32x1/2	44.3	88.75	9.3	5 pcs	104
APME32X0.75	32x3/4	44.3	90.55	9.3	5 pcs	109
APME32X1	32X1	52	92.15	13.8	5 pcs	239

Features & Benefits:

- Tapered Threads: Self-sealing under pressure
- Anti-Rotation Notch: Prevents loosening

Technical Specifications

- Standards Compliance: DIN 8077/78, BS 6920, ISO 9001
- Working Temperatures:
 - Continuous: -10°C to +95°C
 - Peak: 110°C (max 100 hours/year)



Concealed Valve

CODE	d	D	L	Z	Pack	Weight (gms)
APCV20X0.75	20	28.05	75	21.65	10 pcs	410
APCV25X0.75	25	35.05	75	21.65	10 pcs	419
APCV32X1	32	44.3	98	26	10 pcs	433



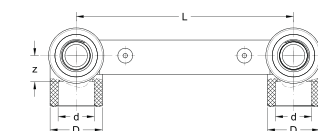
Stop Valve

CODE	d	D	L	Z	Pack	Weight (gms)
APSGV20X0.75	20	28.05	75	21.65	1 pcs	198
APSGV25X0.75	25	35.05	75	21.65	1 pcs	207
APSGV32X1	32	44.3	98	26	1 pcs	549



Double Female Elbow With Tape Connector

CODE	d	D	L	Z	Pack	Weight (gms)
APWMG25X0.5	25x1/2	37.2	146	17.55	1 SET	180



Features and Benefits

- Superior Durability: Engineered for a minimum service life of 50 years under normal operating conditions.
- Temperature Resistance: Excellent performance in temperatures ranging from -10°C to +95°C.
- Hygienic Properties: Non-toxic, tasteless, and odorless material ensures water purity.
- Chemical Resistance: Exceptional resistance to chemicals, acids, and alkalis.
- Corrosion Immunity: Complete immunity to corrosion, scaling, and pitting.
- Optimized Flow: Smooth internal surfaces and streamlined geometries minimize pressure drops.
- Homogeneous Joints: Thermal fusion creates single-piece connections with no weak points.
- Noise Reduction: Absorbs vibration and reduces water flow noise.
- Environmental Sustainability: 100% recyclable material with reduced carbon footprint.
- Easy Installation: Reliable fusion joining method creates permanent, leak-free connections.
- Cost Efficiency: Lower installation costs and minimal maintenance requirements.
- International Compliance: Manufactured in accordance with ISO 15874, EN ISO 15874, and DIN 8077/8078 standards.

Applications

- Potable water distribution systems.
- Hot water circulation systems

APPLICATIONS



Potable water distribution systems



Hot water circulation systems



Underfloor heating installations



Industrial fluid transport



Compressed air systems



Chemical processing



Food and beverage processing



Agricultural irrigation



Radiant heating and cooling



Swimming pool and spa systems



Concealed installations in wall cavities



Visible installations requiring aesthetic appeal

TRANSITION FITTINGS WITH BRASS INSERTS PRODUCT DESCRIPTION

TAKWEEN PLAST Transition Fittings with Brass Inserts represent the perfect interface between polymer and metal piping systems, engineered for exceptional reliability and versatility. These specialized fittings feature precision-machined brass inserts that are permanently integrated into premium PP-R bodies, creating the ideal transition point between plastic and metal components. Our advanced manufacturing process ensures perfect integration of the brass insert with the surrounding PP-R material, eliminating potential weak points and ensuring long-term performance. The brass components are manufactured from high-quality, lead-free brass alloy that meets international standards for potable water applications, ensuring safety and compliance. TAKWEEN PLAST Transition Fittings feature optimized thread designs that conform to international standards, ensuring compatibility with a wide range of metal piping components. The PP-R portion of each fitting can be thermally fused to TAKWEEN PLAST pipes, creating a homogeneous, leak-free connection that maintains the integrity of your piping system.

Technical Specifications

Property	Test Method	Unit	Value
PP-R Density	ISO 1183	g/cm ³	0.895-0.905
Brass Material	-	-	CW617N (CuZn40Pb2)
Brass Lead Content	-	%	<0.2
Thread Standard	-	-	ISO 228 / ISO 7
Temperature Resistance	-	°C	-10 to +95
Pressure Rating	-	bar	PN25
Torque Resistance	-	N·m	>40

Features and Benefits

- Superior Durability: Engineered for a minimum service life of 50 years under normal operating conditions.
- Temperature Resistance: Excellent performance in temperatures ranging from -10°C to +95°C.
- Pressure Rating: PN25 pressure rating suitable for demanding applications.
- Lead-Free Brass: Complies with international standards for potable water applications.
- Corrosion Resistance: High-quality brass alloy resists dezincification and stress corrosion.
- Perfect Integration: Advanced manufacturing ensures permanent bonding between brass and PP-R.
- Standardized Threads: ISO-compliant threads ensure compatibility with standard plumbing components.
- Homogeneous Joints: Thermal fusion creates single-piece connections with PP-R pipes.
- Torque Resistance: Reinforced design prevents twisting or separation during installation.
- Electrical Continuity: Provides electrical continuity for grounding when required.
- Hygienic Properties: Materials comply with drinking water regulations.
- Easy Installation: Reliable fusion joining method creates permanent, leak-free connections.
- Cost Efficiency: Lower installation costs and minimal maintenance requirements.
- International Compliance: Manufactured in accordance with ISO 15874, EN ISO 15874, and DIN 8077/8078 standards

APPLICATIONS

- Transitions between plastic and metal piping systems.
- Connections to metal valves and equipment.
- Potable water distribution systems.
- Hot water circulation systems.
- Heating system connections.
- Boiler and water heater connections.
- Pump and filter connections.
- Radiator connections.
- Manifold connections.
- Water meter installations.
- Pressure gauge connections.
- Temperature sensor installations.

PP-R BALL VALVES PRODUCT DESCRIPTION

TAKWEEN PLAST PP-R Ball Valves represent the pinnacle of flow control technology for modern piping systems, engineered to deliver exceptional reliability and performance. These specialized valves feature a precision-engineered ball mechanism encased in premium PP-R housing, creating a perfect balance of durability, functionality, and ease of operation.

Our advanced manufacturing process ensures perfect integration of all components, with high-quality brass or polymer internals that provide smooth operation and long-term reliability. The innovative design includes PTFE seats and seals that ensure perfect sealing even after thousands of cycles, maintaining system integrity throughout the service life of your installation.

TAKWEEN PLAST PP-R Ball Valves feature optimized flow paths that minimize pressure drops while providing complete shut-off capability. The ergonomic handles provide excellent leverage for easy operation, with clear open/closed position indicators. The PP-R ends can be thermally fused to TAKWEEN PLAST pipes, creating homogeneous, leak-free connections that maintain the integrity of your piping system.

Technical Specifications

Property	Test Method	Unit	Value
Body Material	-	-	PP-R
Ball Material	-	-	Brass (CW617N) or PP-R
Seat Material	-	-	PTFE
O-Ring Material	-	-	EPDM
Temperature Resistance	-	°C	-10 to +95
Pressure Rating	-	bar	PN25
Flow Coefficient (Kv)	-	m³/h	See table below
Operating Torque	-	N·m	<5
Cycle Life	-	cycles	>10,000

Features and Benefits

- Superior Durability: Engineered for a minimum service life of 50 years under normal operating conditions.
- Temperature Resistance: Excellent performance in temperatures ranging from -10°C to +95°C.
- Pressure Rating: PN25 pressure rating suitable for demanding applications.
- Full-Bore Design: Minimizes pressure drop and flow restriction.
- Quarter-Turn Operation: Quick and easy operation with clear position indication.
- Double O-Ring Stem Seal: Prevents leakage around the stem.
- PTFE Ball Seats: Ensures perfect sealing and low operating torque.
- Corrosion Immunity: Complete immunity to corrosion, scaling, and pitting.
- Homogeneous Joints: Thermal fusion creates single-piece connections with PP-R pipes.
- Hygienic Properties: Materials comply with drinking water regulations.
- Easy Installation: Reliable fusion joining method creates permanent, leak-free connections.
- Cost Efficiency: Lower installation costs and minimal maintenance requirements.
- International Compliance: Manufactured in accordance with ISO 15874, EN ISO 15874, and DIN 8077/8078 standards.

APPLICATIONS



Potable water distribution systems



Hot water circulation systems



Underfloor heating installations



Industrial fluid transport



Compressed air systems



Chemical processing



Food and beverage processing



Agricultural irrigation



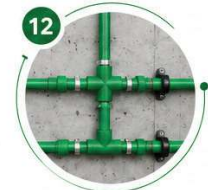
Radiant heating and cooling



Swimming pool and spa systems



Concealed installations in wall cavities



Visible installations requiring aesthetic appeal

TAKWEEN PLAST WELDING ACCESSORIES - PROFESSIONAL TOOLS FOR PERFECT PP-R JOINTS

1. Marking Tools

Product Code: TP-MT-20110

Application: Marks welding depth on pipes (20-110mm) before fusion

Pipe Size (mm)	Marking Depth (mm)	Packing Unit	Weight (kg/pc)
20-110	14-32	100 pcs	0.005

Features:

- Laser-etched depth indicators
- Color-coded for different pipe sizes

2. Welding Machines

- Standard Welder (20-63mm)

Product Code: TP-WD-2063

Parameter	Specification
Voltage	220V/50Hz
Power	1200W
Temperature Range	200-300°C
Weight	6.09 kg
Included Heads	20,25,32,40,50,63mm

- Heavy-Duty Welder (75-110mm)

Product Code: TP-WD-110

Parameter	Specification
Voltage	220V/50Hz
Power	1500W
Temperature Range	200-300°C
Weight	7.00 kg

3. Welding Heads

Product Code	Pipe Size (mm)	Weight (kg)	Heating Time (sec)*
TP-WH-20	20	0.112	5
TP-WH-25	25	0.142	7
TP-WH-32	32	0.185	8
TP-WH-40	40	0.260	12
TP-WH-50	50	0.395	18
TP-WH-63	63	0.618	24

*At 260°C ambient temperature

4. Specialized Welding Tools

Saddle Welding Kits

Product Code	Main/Branch Size (mm)	Weight (kg)
TP-SWK-6325	63/25	0.380
TP-SWK-6332	63/32	0.365

Includes:

- Spiral drill bit
- Chamfering tool
- Alignment guide

Peeling Tools

(For TAKWEEN PLAST Composite Pipes)

Product Code	Pipe Size (mm)	Packing	Weight (kg)
TP-PT-25	25	50 pcs	0.158
TP-PT-32	32	50 pcs	0.234

5. Pipe Cutting Systems

- Standard Cutters

Product Code	Range (mm)	Features	Weight (kg)
TP-PC-042	0-42	Ratchet mechanism	0.447
TP-PC-075	0-75	Ergonomic rubber grip	1.670

- Heavy-Duty Cutters

Product Code	Range (mm)	Features	Weight (kg)
TP-HDC-125	50-125	Industrial-grade blades	1.600

6. Complete Welding Kits

Starter Kit (TP-SKIT-1):

- TP-WD-2063 Welder
- 6 welding heads (20-63mm)
- TP-PC-042 cutter
- TP-MT-20110 marker
- Carrying case

Professional Kit (TP-PKIT-1):

- TP-WD-110 Welder
- Full head set (20-110mm)
- Saddle welding attachments
- Pipe deburring tool

Quality Assurance

All TAKWEEN PLAST welding tools:

- Manufactured to DIN 16892 standards
- TUV-certified safety compliance
- 2-year warranty against defects

WELDING TOOLS AND ACCESSORIES

Product Description

TAKWEEN PLAST Welding Tools and Accessories represent the essential equipment needed for creating perfect, homogeneous connections in modern piping systems. Our comprehensive range of professional-grade tools is engineered to deliver consistent, reliable results across all installation environments, ensuring the long-term integrity of your piping network.

Our welding devices feature precision temperature control systems that maintain the optimal fusion temperature with exceptional accuracy, while ergonomic designs reduce operator fatigue during extended use. Each tool is manufactured using premium materials and components that ensure durability and reliability even in demanding jobsite conditions.

TAKWEEN PLAST Welding Tools include specialized pipe cutters that deliver clean, square cuts essential for proper fusion, along with innovative peeling tools for preparing composite pipes.

Our comprehensive system approach ensures that installers have access to all the equipment necessary to create perfect connections that will maintain system integrity throughout the service life of the installation.

Technical Specifications - Welding Devices

Property	Unit	Socket Welding Device	Butt Welding Device
Power Supply	V/Hz	220-240V / 50-60Hz	220-240V / 50-60Hz
Power Consumption	W	650-1500 (model dependent)	800-3000 (model dependent)
Temperature Range	°C	0-300	0-300
Temperature Accuracy	°C	±5	±5
Heating Time	min	3-5	5-10
Temperature Control	-	Electronic thermostat	Electronic thermostat
Housing Material	-	Aluminum/Steel	Aluminum/Steel
Handle Material	-	Heat-resistant polymer	Heat-resistant polymer
Cable Length	m	3	3
Protection Class	IP	IP44	IP44

Product Codes and Dimensions - Socket Welding Devices

Product Code	Description	Pipe Diameter Range (mm)	Power (W)	Weight (kg)	Dimensions (mm)
TP-TL-50-000-P	Socket Welder Small	20-32	650	1.2	340×100×70
TP-TL-50-001-P	Socket Welder Medium	20-63	1000	1.8	420×120×80
TP-TL-50-002-P	Socket Welder Large	20-110	1500	2.5	500×150×90

Product Codes and Dimensions - Pipe Cutters

Product Code	Description	Pipe Diameter Range (mm)	Blade Material	Weight (g)	Dimensions (mm)
TP-TL-51-000-P	Pipe Cutter Small	3-42	Hardened Steel	280	210×50×25
TP-TL-51-001-P	Pipe Cutter Medium	6-63	Hardened Steel	480	270×70×30
TP-TL-51-002-P	Pipe Cutter Large	50-110	Hardened Steel	850	350×100×40
TP-TL-51-003-P	Ratchet Pipe Cutter	20-63	Hardened Steel	520	250×80×35

Product Codes and Dimensions - Peeling Tools

Product Code	Description	Pipe Diameter (mm)	Material	Weight (g)	Dimensions (mm)
TP-TL-52-020-P	Pipe Peeler 20mm	20	Hardened Steel	120	150×40×30
TP-TL-52-025-P	Pipe Peeler 25mm	25	Hardened Steel	130	150×45×30
TP-TL-52-032-P	Pipe Peeler 32mm	32	Hardened Steel	145	160×50×35
TP-TL-52-040-P	Pipe Peeler 40mm	40	Hardened Steel	165	170×55×35
TP-TL-52-050-P	Pipe Peeler 50mm	50	Hardened Steel	190	180×65×40
TP-TL-52-063-P	Pipe Peeler 63mm	63	Hardened Steel	230	190×75×45
TP-TL-52-000-P	Universal Pipe Peeler	20-63	Hardened Steel	350	200×80×50

Product Codes and Dimensions - Accessories

Product Code	Description	Compatible With	Material	Weight (g)	Dimensions (mm)
TP-TL-53-000-P	Pipe Marking Tool	All pipe sizes	Aluminum/Steel	180	160×60×30
TP-TL-54-000-P	Repair Pin Set	All pipe sizes	PP-R/Steel	250	200×100×40
TP-TL-55-000-P	Welding Jig	20-63mm pipes	Aluminum/Steel	1500	350×200×150
TP-TL-56-000-P	Measuring Tape	-	Fiberglass	120	80×80×20
TP-TL-57-000-P	Chamfering Tool	All pipe sizes	Hardened Steel	150	140×50×25

Features and Benefits

- Professional Quality: Engineered for professional use in demanding environments.
- Precision Temperature Control: Maintains optimal fusion temperature for perfect joints.
- Ergonomic Design: Reduces operator fatigue during extended use.
- Durable Construction: Premium materials ensure long service life.
- Quick Heating: Rapid heat-up time increases productivity.
- Consistent Results: Delivers reliable, repeatable fusion joints.
- Comprehensive Range: Complete system of tools for all installation requirements.
- Safety Features: Includes temperature indicators and protective features.
- Versatile Application: Suitable for all TAKWEEN PLAST piping systems.
- Easy Maintenance: Designed for simple cleaning and maintenance.
- Carrying Cases: Durable storage cases protect tools during transport.
- International Compliance: Manufactured in accordance with international safety standards.

TAKWEEN PLAST PIPING SYSTEMS - FUSION WELDING GUIDE FOR PP-R SYSTEMS

1. TAKWEEN PLAST Welding Devices & Tools

- Welding Machine (Model: TP-WD-2063)

Application: For fusion welding TAKWEEN PLAST PP-R pipes (20mm to 63mm).

Technical Specifications:

Parameter	Specification
Voltage	220V ±10% 50/60Hz
Power	1,200W
Temperature Range	260°C ±5°C
Heating Time	5-25 mins (ambient temp. dependent)
Weight	6.09 kg

Included Accessories:

- 6 welding heads (20/25/32/40/50/63mm)
- Carrying case
- Temp-check pen

Welding Tools

Product Code	Pipe Size (mm)	Welding Depth (mm)	Heating Time (sec)	Cooling Time (min)
TP-WT-20	20	14	5	2
TP-WT-25	25	15	7	2
TP-WT-32	32	16.5	8	4
TP-WT-40	40	18	12	4
TP-WT-50	50	20	18	4
TP-WT-63	63	24	24	6

Note: Increase heating time by 50% if ambient temperature <5°C.

2. Step-by-Step Welding Procedure

Stage 1: Preparation

- Cutting: Use TP-PC-042 pipe cutter for square ends.
- Deburring: Remove inner/outer pipe edges with TP-DB tool.
- Marking: Indicate welding depth using TP-MT marker.

Stage 2: Heating

- Simultaneously heat pipe end and fitting socket at 260°C.
- Follow heating times from table above.

Stage 3: Joining

- Align pipe and fitting without twisting.
- Hold firmly for welding time (see table).

Stage 4: Cooling

- Do not stress joint during cooling period.
- For TAKWEEN PLAST pipes: Wait 15 mins before pressurizing.

3. Saddle Welding

For Branch Connections Without Tees

Product Code	Main Pipe/Branch Size (mm)	Hole Diameter (mm)	Total Heating Time (sec)
TP-SDL-6325	63/25	20	50 (30 pipe + 20 saddle)
TP-SDL-6332	63/32	25	50
TP-SDL-7525	75/25	20	50

Procedure:

- Drill hole using spiral bit (included in TP-SDKIT).
- Heat pipe and saddle separately.
- Join and hold for 30 sec under light pressure.

4. Quality Control

- Visual Inspection: Check for uniform melt bead around joint.
- Ensure proper insertion depth
- Check alignment of assembled components
- Allow full cooling before system pressurization
- Pressure Test:
 - Test at 1.5x working pressure after 2-hour cooling.
 - Max allowable drop: 0.6 bar in 30 mins.

5. Safety Guidelines

- Never weld wet pipes or in rain.
- Use heat-resistant gloves (TP-GL-260 included with welder).
- Store welding tools in dry conditions.

TAKWEEN PLAST Warranty

All welded joints are covered under our 15-year system warranty when:

- Using genuine **TAKWEEN PLAST** pipes/fittings
- Following this welding procedure

INSTALLATION GUIDELINES

Professional Installation for Optimal Performance

The exceptional performance and longevity of TAKWEEN PLAST piping systems depend not only on the superior quality of our materials and manufacturing processes but also on proper installation techniques. This comprehensive guide provides essential information for professional installers to ensure that every TAKWEEN PLAST installation delivers the reliability, efficiency, and durability our customers expect. Our installation guidelines represent decades of field experience and technical expertise, addressing the most common challenges and providing proven solutions for optimal system performance. By following these recommendations, installers can create piping networks that will provide trouble-free service throughout their extended service life.

Planning and Preparation

1. System Design Considerations

Before beginning any installation, careful planning is essential to ensure optimal performance and compliance with local regulations:

- Calculate flow rates and pressure requirements based on fixture units and anticipated demand.
- Size pipes appropriately to balance flow velocity, pressure drop, and noise considerations.
- Plan pipe routing to minimize bends and fittings while allowing for thermal expansion.
- Consider accessibility for future maintenance when determining valve placement.
- Ensure compliance with local building codes and plumbing regulations.
- Provide adequate support spacing according to pipe diameter and operating temperature.
- Plan for thermal expansion compensation in long straight runs.
- Maintain appropriate clearance from heat sources for cold water lines.

2. Material Handling and Storage

Proper handling and storage of TAKWEEN PLAST components protect their integrity before installation:

- Store pipes horizontally on flat surfaces with uniform support to prevent deformation.
- Protect materials from direct sunlight during extended storage periods.
- Keep pipes and fittings in their original packaging until ready for use.
- Store pipes and fittings in clean areas to prevent contamination.
- Handle pipes carefully to avoid impact damage, particularly in cold weather.
- Inspect all components for damage or defects before installation.
- Keep welding tools clean and properly maintained for optimal fusion quality.
- Protect pipe ends with caps or tape when work is interrupted to prevent contamination.

Pipe Cutting and Preparation

1. Cutting Techniques

Proper cutting is essential for creating reliable fusion connections:

- Use only professional-grade pipe cutters designed for plastic pipes.
- Ensure blades are sharp and properly adjusted to prevent pipe deformation.
- Cut perpendicular to the pipe axis to ensure proper alignment during fusion.
- Remove any burrs or shavings from cut ends using appropriate tools.
- For larger diameters, support the pipe on both sides of the cut to prevent stress.
- Mark insertion depth on the pipe according to fitting dimensions.
- For composite pipes, use appropriate peeling tools to expose the PP-R layer.
- Chamfer pipe ends slightly to facilitate insertion into fittings.

2. Pipe Bending

When bending is required for installation flexibility:

- Only bend pipes of appropriate materials and dimensions according to specifications.
- Use proper bending tools or springs to prevent kinking.
- Maintain minimum bending radius according to pipe diameter and material.
- Allow for slight springback when determining bend angles.
- For hot bending of PP-R pipes, use appropriate heat sources and techniques.
- Support bent sections adequately to prevent stress on connections.
- Consider using elbows instead of bends for tight radius turns.

Connection Methods

1. Socket Fusion Welding for PP-R Systems

Socket fusion creates homogeneous, leak-free connections for PP-R piping:

- Verify that the welding device has reached the correct temperature (typically 260°C).
- Insert the pipe and fitting simultaneously into the appropriate welding tool sockets.
- Maintain steady pressure without rotation during the heating period.
- Observe the recommended heating time based on pipe diameter.
- Remove from the welding tool and immediately join with proper alignment.
- Hold firmly without rotation during the specified cooling period.
- Allow complete cooling before pressure testing.

2. Threaded Connections

When connecting to threaded components:

- Use only appropriate thread sealant or tape compatible with plastic fittings.
- Apply sealant or tape to male threads only, avoiding the first thread.
- Tighten fittings hand-tight plus 1-2 turns with an appropriate wrench.
- Avoid over-tightening, which can damage the plastic threads.
- Use backing wrenches to prevent stress on completed connections.
- For metal-to-plastic transitions, always use the appropriate adapter fittings.
- Allow thread sealant to cure according to manufacturer recommendations before testing.

System Installation

1. Support and Fixing

Proper support prevents stress and ensures long-term performance:

- Install horizontal supports at intervals specified for the pipe diameter and material.
- Provide additional supports near changes in direction and heavy components.
- Use appropriate pipe clips that support without compressing the pipe.
- Allow for thermal movement in support design and placement.
- Install vertical risers with supports at each floor level and as specified by diameter.
- Use sliding supports where thermal expansion must be accommodated.
- Ensure support materials are compatible with the piping system.
- Protect pipes from abrasion at support points with appropriate materials.

2. Thermal Expansion Management

Managing thermal expansion is critical for system longevity:

- Calculate expected expansion based on pipe material, length, and temperature differential.
- Incorporate expansion loops, offsets, or compensators as needed.
- Allow sufficient space for thermal movement in wall penetrations.
- Use fixed points strategically to direct expansion in desired directions.
- For composite pipes with reduced expansion, follow specific guidelines.
- Consider expansion when transitioning between different piping materials.
- Install expansion compensators according to manufacturer instructions.
- Ensure expansion provisions are not restricted by insulation or building elements.

3. Insulation

Proper insulation improves energy efficiency and prevents condensation:

- Select insulation thickness based on pipe diameter, fluid temperature, and ambient conditions.
- Ensure insulation materials are compatible with pipe materials.
- Seal insulation joints properly to prevent thermal bridges and condensation.
- Protect insulation from mechanical damage and weather exposure.
- Insulate fittings and valves to the same standard as straight pipe runs.
- Consider fire rating requirements when selecting insulation materials.
- Prevent compression of insulation at support points.
- Ensure vapor barriers are continuous and properly sealed for cold water lines.

TESTING AND COMMISSIONING

1. Pressure Testing

Thorough testing verifies system integrity before operation:

- Visually inspect all connections before testing.
- Fill the system slowly, allowing air to escape through high points.
- Conduct initial test at low pressure to identify major leaks.
- Increase to test pressure according to system specifications.
- Maintain test pressure for the specified duration (typically 2 hours).
- Inspect all connections during the test period.
- Document test results including pressure, duration, and ambient temperature.
- For combined heating/cooling systems, conduct separate tests for each temperature extreme.

2. System Flushing

Proper flushing removes construction debris before operation:

- Flush each branch line individually, working from the furthest point toward the source.
- Use sufficient flow velocity to remove any construction debris.
- Continue flushing until water runs clear at all outlets.
- For potable water systems, follow local regulations for disinfection if required.
- For heating systems, fill with appropriate water treatment chemicals after flushing.
- Verify proper operation of all valves and controls after flushing.
- Document the flushing procedure for warranty and maintenance records.

MAINTENANCE AND REPAIR

1. Routine Maintenance

Minimal but essential maintenance ensures continued performance:

- Periodically inspect exposed piping for signs of damage or stress.
- Test pressure relief valves and safety devices according to manufacturer recommendations.
- Operate isolation valves periodically to prevent seizing.
- Monitor system pressure and temperature to identify potential issues.
- Inspect insulation for damage or deterioration.
- Follow manufacturer guidelines for water treatment in closed systems.
- Document all maintenance activities for warranty purposes.

2. Repair Procedures

In the rare event that repairs are needed:

- Isolate and drain the affected section.
- Cut out the damaged portion using appropriate tools.
- Prepare the pipe ends according to the repair fitting requirements.
- Install appropriate repair fittings according to manufacturer instructions.
- Pressure test the repaired section before returning to service.
- Document the repair for future reference

By following these comprehensive guidelines, installers can ensure that **TAKWEEN PLAST** piping systems deliver their full potential for performance, efficiency, and longevity. Our technical support team is available to provide additional guidance for specific applications or installation challenges, ensuring successful outcomes for even the most complex projects.



TAKWEEN PLAST PP-R Piping Systems - Installation Guidelines & Technical Specifications

1. Pipe Joint Assemblies

- Operating Conditions

System Type	Pressure Range (bar)	Temperature Range (°C)	Annual Usage (hours)
Cold Water	0-10	≤25	8,760
Hot Water	0-10	≤60	8,710

Design Life: 50+ years at 20°C reference temperature

2. Linear Expansion Calculations Formula:

- $\Delta L = \alpha \times L \times \Delta T$
- Where:
- ΔL = Expansion (mm)
- α = Coefficient (0.15 mm/mK for standard PP-R)
- L = Pipe length (m)
- ΔT = Temperature difference (K)

Expansion Table for Standard PP-R

Pipe Length (m)	$\Delta T=20$ K	$\Delta T=40$ K	$\Delta T=60$ K	$\Delta T=80$ K
1	3.0	6.0	9.0	12.0
2	6.0	12.0	18.0	24.0
5	15.0	30.0	45.0	60.0

TAKWEEN PLAST Pipe Comparison

Pipe Type	Expansion Rate
Standard PP-R	100%
TakweenPlast PP-R	20%

3. Installation Guidelines

Key Requirements

Minimum support intervals:

Pipe Size (mm)	Standard PP-R	TakweenPlast PP-R
20	0.5m	1.0m
32	0.6m	1.2m
63	0.8m	1.5m

- Always use **TAKWEEN PLAST** brackets (TP-BRK series).
- Maintain 300mm clearance between hot/cold pipes

4. Insulation Specifications

Minimum Insulation Thickness

Location	Thickness (mm)*
Exposed pipes in unheated rooms	4
Exposed pipes in heated rooms	9
Buried pipes (cold water only)	4
Buried pipes (hot & cold)	13

*For $\lambda=0.040$ W/(m·K) insulation material

5. Pressure Testing Protocol

- Two-Stage Test Procedure

Stage	Test Pressure	Duration	Max Allowable Drop
1	Working pressure + 5 bar	30 mins	0.6 bar
2	Working pressure	2 hours	0.2 bar

Requirements:

- Test medium temperature stable ($\pm 2^\circ\text{C}$)
- No testing within 2 hours of last weld

6. Transport & Storage

- Environmental Limits

Condition	Duration
Outdoor storage	Max 45 days
Sub-zero temperatures	Avoid mechanical impact
Direct sunlight	Prohibited

Stacking Guidelines:

Pipe Size (mm)	Max Stack Height
≤32	1.5m
≥40	1.0m

Compliance & Standards

- DIN 1988 (Drinking water systems).
- DIN 8077/78 (PP-R pipe standards).
- BS 6920 (Water quality testing).

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