

RAKtherm[®]

Ultimate Piping Solutions



TECHNICAL SHEET 2019.V1

D.W.V PIPING SYSTEM



STOP using yesterday's solutions for Today plumbing challenges!

Then...

Why RAKtherm Reinforced DWV system?

DWV Systems (Drain, Waste, and Vent) is the latest development of RAKtherm. A state of the art pipes made up of three layers from the new generation premium materials, which improves the durability of pipes more significantly than conventional pipes with solid wall construction. RAKtherm is proud to be the first manufacturer to unveil the secret in the new and ground breaking reinforced (RNF) technology.

A uniform middle layer construction based on special cells to ensure increased in mechanical properties of the pipe combined with the inner and outer layer 'sandwich' construction of virgin raw material, resulting in a pipe that exceeds all the requirements for Noise Reduction, Durability and Longer service life.

RAKtherm's Performance at its Best!

RAKtherm multi-layer technology is the perfect choice; it has been used successfully for diverse site applications.

In today's fast-paced technological advancements, the industry is in need for a breakthrough. Traditional pipe systems must be developed to raise the efficiency level even further than previous. Therefore, existing pipe systems are engineered by RAKtherm to cope with the challenging wide range of future projects to come. As contractors, engineers, plumbing professionals faced with such MEP innovation challenges, we at RAKtherm are exploring all avenues to comply with the new requirements of the piping industry. The dedicated functionality of each individual layers improves the characteristics of the total pipe, and the cell structure of the core of the pipes increases its resistance to abrasion, corrosion, and physical and chemical impacts.

Go Green Best Practices' Initiatives!

The increased resistance of pipe systems is in conjunction with the RAKtherm's Green Initiative program to create a more sustainable future. It aims to slow the consumption of raw materials and reduce the amount of waste entering landfills. It also supports in helping to minimize other indirect environmental factors such as, less CO2 emissions during transport, as well as reduced CO2 consumption during recycling, reuse and disposal. A lead-free system can create a healthy working condition and protects the environment. When using new technologies, it is imperative that environment should not be compromised unlike the conventional products that damaged our ecosystem.

Does your health matter?... Definitely YES!

With over 50 years of experience in the industry, RAKtherm systems are trusted by builders, contractors, and design engineers, and are rated as the best in health and safety.

RAKtherm ML-PVC products are in line with EU lead-free legislation and therefore contribute to a better HSE policy and CSR aspects. They are stimulated and supported by TEPPFA. RAKtherm ML-PVC technology enables producers to participate in voluntary programs such as Vinyl-Plus (following the successful Vinyl 2000 program). RAKtherm ML-PVC products are rated as a 'greener' product compared to conventional products, which enables RAKtherm to win tenders in many countries as per global market demand.

Let's make it simple... We made it easy to install!

PVC-u, or polyvinyl chloride unplasticised, also known as PVCu, uPVC, and u-PVC is a lightweight pipe material which offers an easy installation with an up to 50 year service life when used under correct conditions.

An easy jointing technique makes it hassle-free to make the installation process simple, using RAKtherm solvent cement to complement the full systems of DWV.

Your trusted system... RELIABILITY is our priority

Pipe and fittings PVC products have a temperature range of 5°C to 60°C and are sturdy and durable. All products across our PVC product range have good resistance to abrasion, chemical attack and corrosion.

Engineered for Higher Resilience.... We are globally recognized and certified!

Imperial PVC-u products:

Pipe: EN1452-2 , EN 1329-1

Fittings: EN1452-2

Threaded Fittings: BS21, DIN2999, ISO7

How do we take care of our consumers?..... We demonstrate the importance of product compliance in your everyday life!

At RAKtherm, we do not compromise! As we aim to protect the interest of our customers, we ensure that their health and safety are not at risk. RAKtherm has gained the trust of 35 countries worldwide across GCC, North and South Africa, South and East Asia, and Europe. Its' product compliance is affirmed by the experts in the water industry, and accepted by third-party water suppliers.

We use only the premium resins that are selected from the highest grade of materials to manufacture the most durable and reliable pipe systems. It is safe and its non-hazardous properties do not contaminate the water, therefore it complies to the certain requirements and regulations as specified by laws.

We'll guide you to the installation process...

- Ensure all jointing areas are well ventilated.
- Ensure a safe working environment by avoiding exposure to naked flames (such as a lighter or candle or match) or smoking in the jointing area.
- PVC cement must be used prior to its expiry date (shown on bottom of tin).
- Always wear rubber or latex gloves when applying MEK cleaner and PVC cement.
- Never dilute PVC cement.
- Always replace lids on tins when not in use.
- Always use clean brushes.
- Always use lint-free cloth or absorbent paper.
- When doing the jointing outside, use a shelter to keep jointing surfaces dry especially when doing under wet weather environments.

How to achieve a stable piping network?... Pipe support and spacing is the key!

On above ground installations, it is essential to provide a support to ensure that the weight of the pipe and its contents are adequately supported.

The recommended maximum support spacing for horizontal runs of PVC pipe OD>50 each 80cm & OD<50mm each 100cm.

Spacing's are calculated assuming the pipes are carrying water.

Specifications and Fields of Application

This specification aims to regulate the modalities of delivery and testing of UPVC pipes for drain of water, conforming to Dlgs 06/04/2004 n. 174 "regulation concerning the materials and objects which can be used within fixed plants of purification, treatment, conduction, and distribution of drain water used for human consumption".

Made from the New Generation Materials for Long-Service Life

The blend has mainly to be made of PVC (polyvinyl-chloride) with the sole addition of non toxic fluidification materials and stabilizers. Inert charges and other additives in quantities are necessary to extrusion and to give a guarantee of stability of the characteristics of the polymer both during the working process and the life of the product. The blend used for the production of pipes either in granules or powder, must not be used for any other utilisation or working process than the required for the production of pipes.

Characteristics of PVC Resins (Powder)

Characteristics	Requirements
K Value	65 ÷ 70
Apparent specific weight	0,5 ÷ 0,6
Particle size measurement	> 250 mm 5% max. < 63 mm 5% max.
Residual VCM	< 1 ppm (1mg/kg max.)
Volatile substances	≤ 0,3%

Suggested Applications of RAKtherm DWV Pipes

DWV waste water inside and outside the building are used for pipes laid to drain the water. PVC waste water pipes TS 275-1 EN 1326-1 standards DIN 19 531 due to the smooth inner and outer surfaces that do not allow the formation of deposits, bacteria produce odor making PVC waste water pipes, it is used in terms of ecological, economical ideal and for safety. Rigid PVC waste water pipes and fittings made of PVC material is resistant to different weather conditions. Fireproof, PVC waste water pipes it is the most preferred type of pipe construction sector thanks to its highly resistant and rigid structure.

Application:

B: for use on land or in the building element can include elements to a building wall.

D: Under the building and the building include elements used in pipes and buried under the ground in the first meters.

BD: Includes both application class elements.

DWV Waste Water Pipes are made suitable for the following applications:

- The groundwater and surface water transport systems in various areas (city, industrial areas, and waste water systems).
- The electricity and communication systems.
- Drainage, sewage, and waste discharge systems.
- DWV waste water pipe is the ideal solution for chemical and industrial plants under pressurized lines.

Physical Properties of DWV Pipe and Fittings:

1. Vicat Softening Temperature (min 79°C) (EN 727).
2. Influence of temperature (150 ° C - 30 minutes)
 - a. PVC waste water pipes the injection point around a radius of 15 times the thickness of the gap in the area, depth of the peeling or bubbles should not be more than 50% of the wall thickness at that point.
 - b. PVC waste water pipes Ring length of the cracks of the housing wall thickness in a distance 10 times, should be no more than 50% of the wall thickness at that point.
 - c. PVC waste water pipes opening in the connecting line should not exceed 50% of the thickness of the line.
 - d. PVC waste water pipes 30% of the meat depth of peelings in any other area of the part thickness, while the height of the wall thickness It should not exceed 10%.

Mechanical Properties of PVC Fittings:

It must be in accordance with EN 1401-1 and TS 2171 standards.

1. Impact Strength (TS prEN 12061).
2. Mechanical strength or flexibility (EN 12256).

Quality, Reliability, and Performance

With more than 50 years of proven performance, DWV water pipes are demanded by the specialists in the constructions industry.

The Advantage of using DWV waste water pipes:

- NOISE reduction By RNF Technology from RAKtherm
- Pipes and fittings are non-flammable.
- Does not rust, therefore it does not contribute to contaminate the rainwater.
- Longer Service life.
- Decay and corrosion resistant; it is also leak proof.
- Light in weight, therefore installation and transport is easy
- less pressure loss
- Smooth surface for better flow.
- High impact strength.
- Have high-resistance to chemical inputs.
- It has noise-reducing properties; therefore it provides the best performance and comfort to its users.
- It does not react with the mineral diameter shrinks.
- Below -0 ° C, ice crack elastic structure.

Know the Difference....

Take a look on the PVC materials and its features

More than 50% of the products produced by PVC raw materials are used in the building industry in the world. PVC raw materials are environment friendly; it does not harm the environment and these products help preserve the environment by reducing the pollution or waste they produce. PVC raw material is also used in PVC waste water pipes water color; the smell and taste does not change and also does not harm human health. In the absence of filler material, it retains its' original state. In fluid flow especially in vertical line, it does not produce high levels of sound like the rigid pipes; therefore it reduces the impact of noise. PVC raw materials are white and offer many advantages.

PVC-U pipes and fittings produced in BD application class thickness (B and BD mark) is used for the following purposes:

- Hot and cold domestic wastewater.
- Ventilation systems for domestic wastewater lines.
- Building rainwater supplies.

What is the difference in waste water and pressure systems between PP and PVC?

- The main difference between PVC and PP is the hardness. PVC pipes are superior in terms of harness which is more resistant than PP materials in underground applications.
- But PVC PP in accordance to temperature impact strength is also lower. In terms of flammability, PP pipes in PVC pipe while burning flame burning as would be in the form of soot formation.

DWV Waste Water Pipes Laying Rules

- DWV waste water pipes must be carefully laid in the pipeline. Correct laying of the pipe improves the pipe's quality and service life. The base of the trench must be dug before doing the pipe-laying operation. It must also be flat and stone free.
- Before laying DWV waste water pipes, the type and quality of soil must be considered before filling it in. Another factor to consider is the season and climate. And the distance must be 1 – 1.5 meters.
- The base will be poured into the ditch and should be properly placed near the bed with 15 cm of sand, and would be hard to stop the pipe.
- Checking and testing process must be done to where it will be installed to seal the seams.
- DWV waste water pipes and fittings in muff bed, a damaged condition must be determined and in case of extreme damage it should not be used.
- DWV waste water pipes and fittings will be made in each assembly, and a liquid soap must be applied to the ends for easy installation.
- Any iron clamps should be used except in DWV waste water pipes, steel, etc. should not be the material.
- After closing the floor if it is performed with the top of the PVC waste water pipes should be laid on top of the sand and off the ground.
- During winter, the pipes and fittings should be avoided especially from shock.