

PRODUCT
CATALOGUE
2025

VIALLI GERMANY GmbH

PEX-a Pipes & Fittings

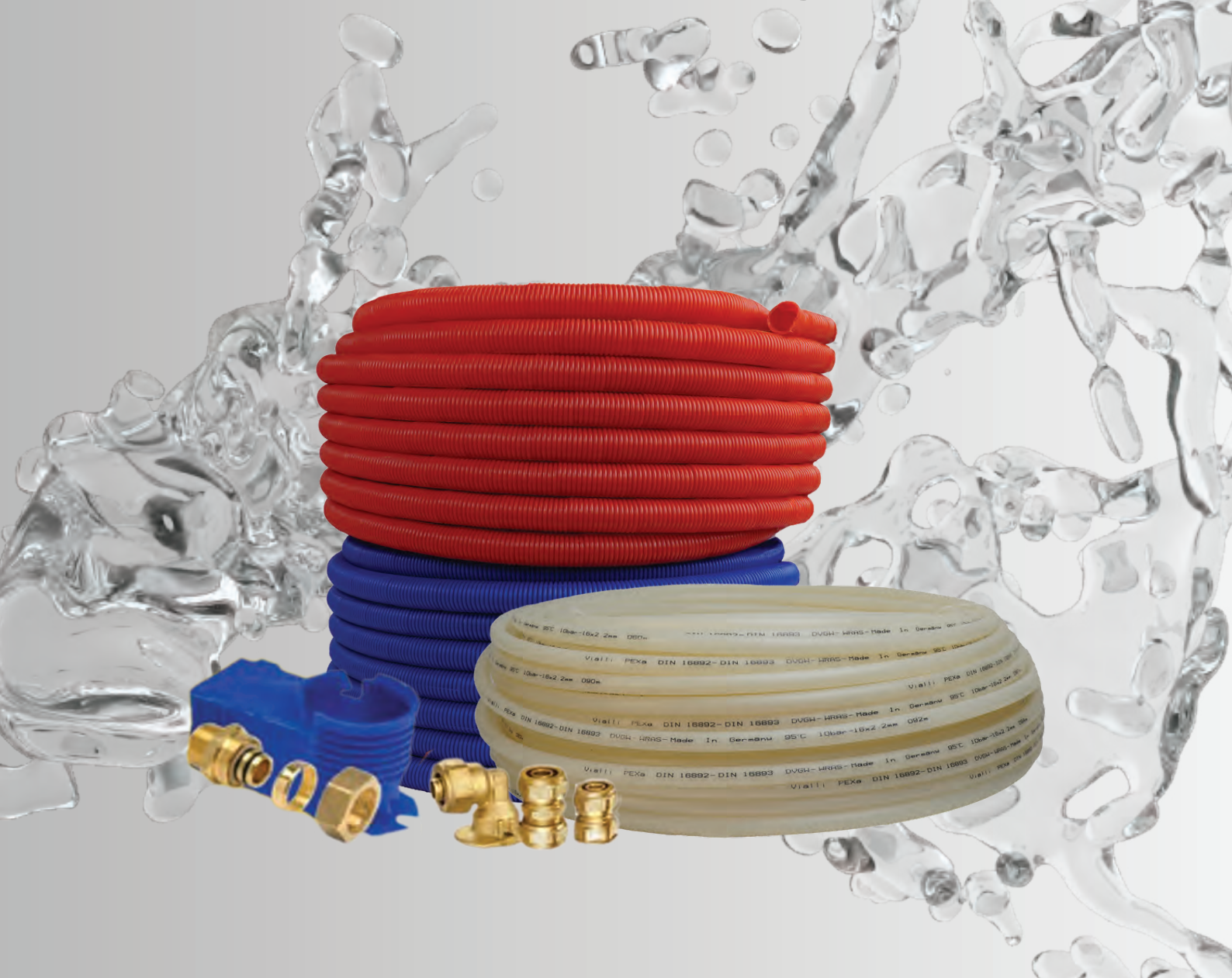


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VIALLI GmbH Pipes & Fittings

VIALLI, a renowned German brand specializing in plastic piping systems, is proudly manufactured by **VIALLI GmbH**. With over 15 years of experience, we have consistently delivered top-quality products utilizing cutting-edge German Technology that adheres to DIN standards, utilizing only the highest quality materials.

Our commitment to excellence extends beyond borders as we export our products to Europe, various parts of Asia, and the Middle East. Our overarching vision is to broaden our reach and make this exceptional product accessible to as many regions as possible.

Our comprehensive range of products includes:

VIALLI PP-R Pipes & Fittings, meticulously crafted in accordance with German DIN 8077 and DIN 8078 Standards. Our lineup includes PP-R Stabi pipes with an aluminum layer and PP-R Fiberglass Composite Pipes.

VIALLI PP-RCT Pipes & Fittings, similar to our standard PP-R offerings, our PP-RCT Pipes and Fittings meet the stringent requirements of German DIN 8077 and DIN 8078 Standards. This range also encompasses PP-RCT Stabi pipes with an aluminum layer and PP-R Fiberglass Composite Pipes.

VIALLI PEX-a pipe & fittings products are engineered to meet the rigorous German standards of DIN 16892 and DIN 16893, ensuring the required Cross-link Degree for optimal performance.

At VIALLI, we prioritize the highest hygienic and quality standards. For more details and to explore our complete product catalogue, make sure to visit our website. Your satisfaction is our priority, and we look forward to serving you with excellence.

All our products have undergone rigorous testing to ensure they meet the stringent Hygienic and Quality Test Requirements recommended by WRAS.



Fields of Applications

Vialli PEXa pipes are used for:

- Hot and Cold water Supply using the "Pipe in Pipe" Technique with Manifolds.
- Hot and Cold water Supply using the "Pipe in Pipe" Technique with PPR mains
- Traditional water supply Systems.

Vialli PEXa Advantages

- Easy and fast installation
- Easy inter exchangeable the inner pipe in case of failure.
- High temperature & pressure resistant.
- Hygienically safe
- High aging stability
- No corrosion
- Does not affect from acids
- Low friction coefficient
- Flexible

Types of Installation

Double Pipe Installation

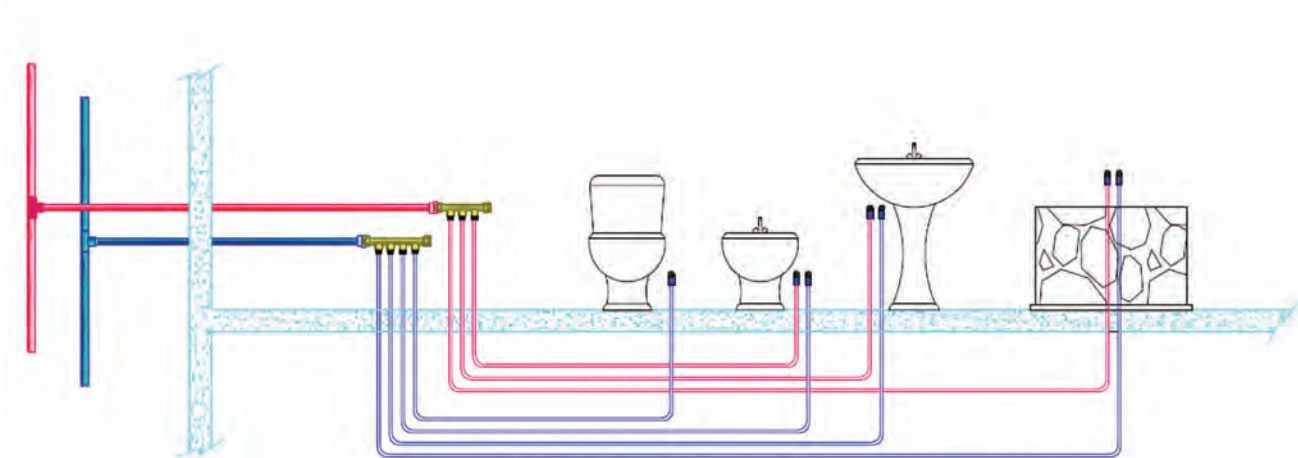


Fig. 1

Single Pipe Installation

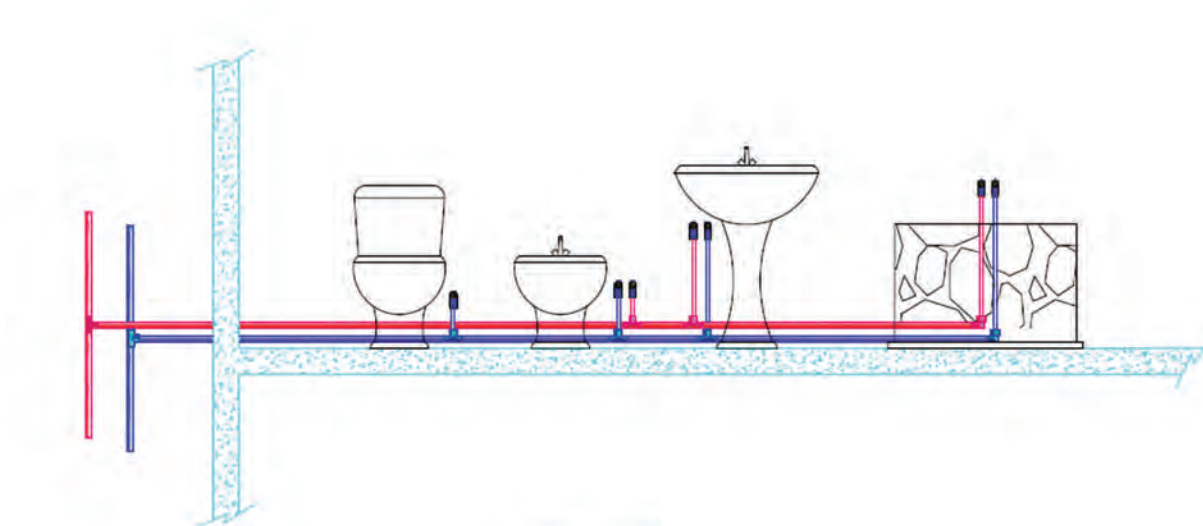


Fig. 2

POLYETHYLENE CROSS LINKED WATER SUPPLY SYSTEM

Pipe in Pipe system using manifolds:

This system has been inspired from the parallel electricity distribution systems, as each tap is supplied with two pipes, one for hot and the other for cold water directly from manifolds.

The hot and cold water manifolds are installed in a cabinet embedded into the wall (Fig. 3) or directly fixed on the wall above the false ceiling (Fig.4). The hot and cold water taps involved in each circuit respectively.

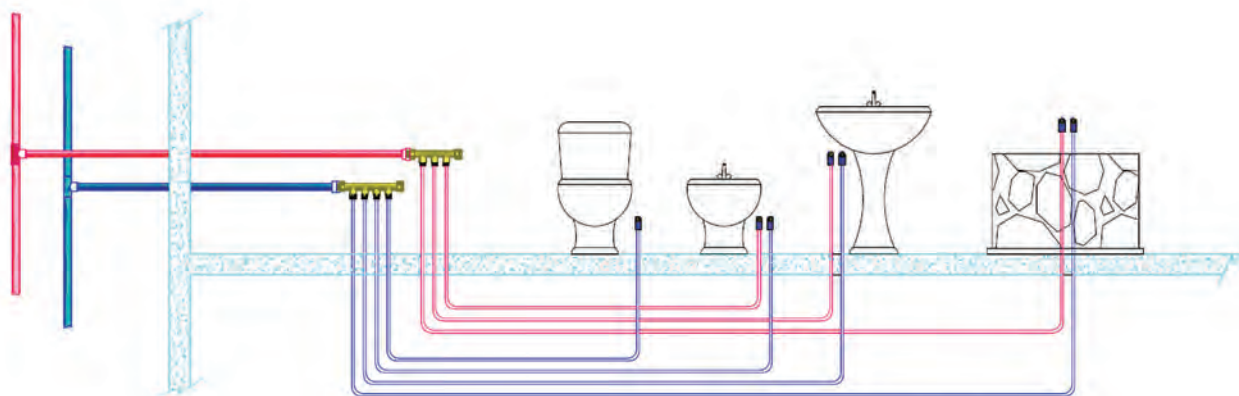


Fig. 3

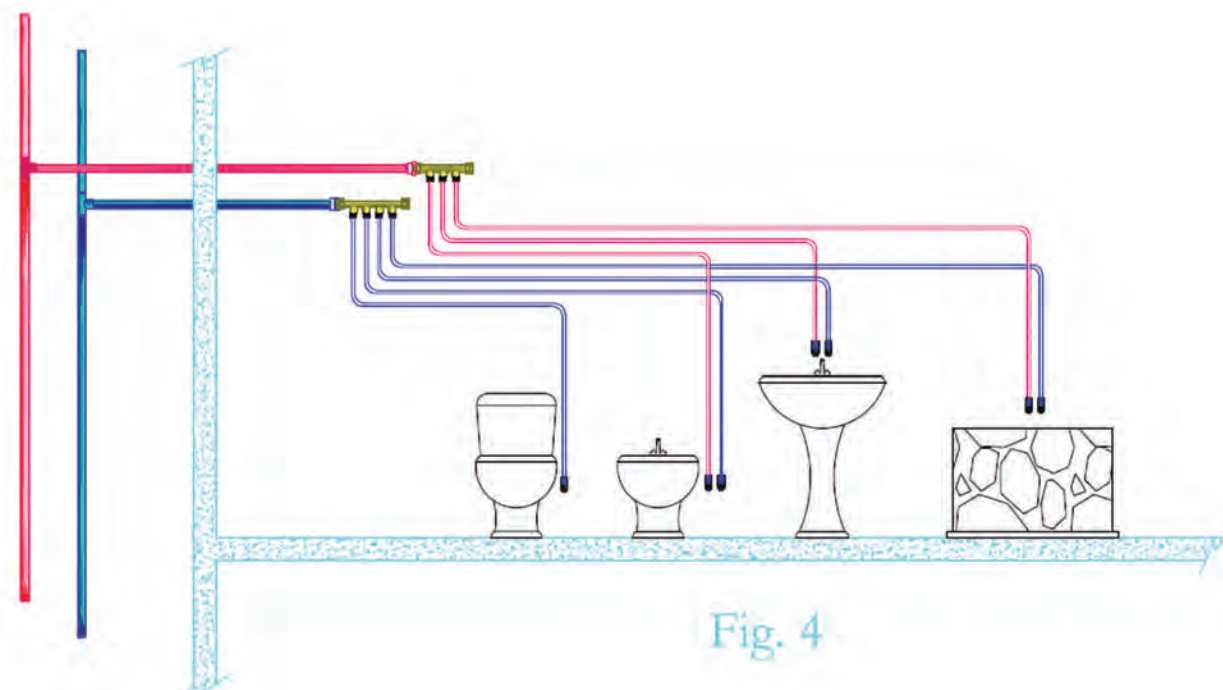
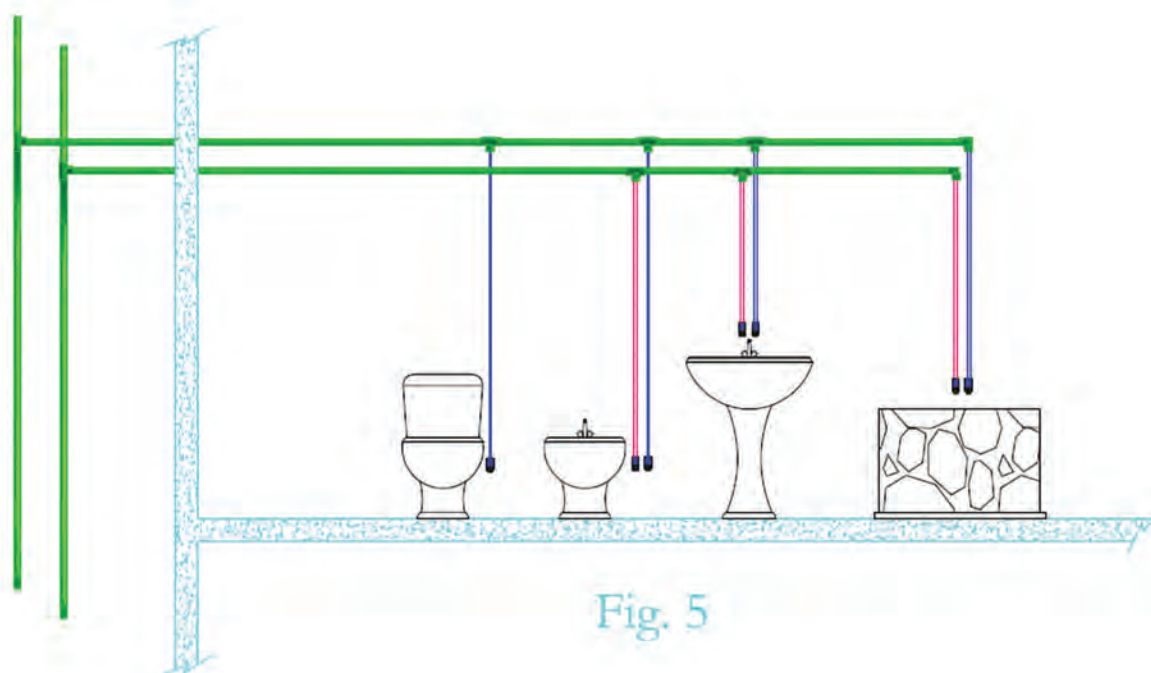


Fig. 4

Pipe in Pipe system using PPR Main Headers:

In this system, the taps are supplied with hot and cold water using PEXa pipes running inside corrugated conduits, directly from the PPR main installed above the false Ceiling (Fig. 5) This system combines the advantage of pliability and possibility of easy replacement of the damage pipes.



Types of PEX pipes

Standard	PEX Type	Definition	Cross linked Degree
DIN 16892	PEXa	Pipes cross-linked with peroxide	80-85%

PEXa

Formed with the peroxide that is made into the raw material during the extrusion. Peroxide is the chemical that is activated by heat forms free from radicals from the cross-link. These kind of pipes are called PE-Xa cross-link pipes.



Technical Data

Basic points to be considered in order to have safe and problem free mounting

Take in consideration of replacement in case of failure and mount horizontally and avoid the sharp twist while mounting.

- To avoid the damage from the metals like screw thread, remember to make the pipe's coordinates that go through a closed area.
- Install the pipes at temperature that is over the freezing point.
- In order to avoid rust or powder get into the pipes, keep the ends closed until the installation is finished.
- Keep the conjunctions points open in order to make adjustments.
- Do not cover the system until the tests are preceded.
- Do not exposed pipes to direct sunlight.
- Pass a productive sheath under the alum. This protective sheath will also act like an airbag and help heat isolation.
- Be careful of protection sheath being in spiral form in order not to cause cross section narrowing in order to determine the incoming and outgoing water directions, used red protective sheath for hot water and blue cold water.

Vialli PEX Technical Properties

Property	Temp.	Standard	Value	Unit
Density		DIN 1872	0.94	g/cm ³
Breaking off Resistance	20°C	DIN 53455	290-300	Kg/cm ³
Impact Strength		DIN 53453	No Break	Mn.j.mm ³
Breaking off Elongation	20°C	DIN 52456	300-350	%
	100°C	DIN 53455	500-600	%
Elasticity Module		DIN 53457	600	N/mm ²
Surface Resistance		DIN 53453	Ω	> 10 ¹²
Operating Temperature			-100° C+100°C	C
Softening Temperature			135	°C
Linear Expansion coefficient	20°C	DIN 53752	1.4x 10 ⁻⁴	°C
	100°C	DIN 53752	2.05x 10 ⁻⁴	°C
Heat Conductivity		DIN 52612 Pr1	0.41	W.K-1.m-1
Specific Heat			0.50	Cal/gr



VIALLI PEXa PRESSURE RATE

OPERATING PRESSURE TABLE

O.D	Thickness (PN20)	Density Kg/m
16	2.2	0.095
20	2.8	0.153
25	3.5	0.238
32	4.4	0.382
40	5.5	0.594
50	6.9	0.926
63	8.7	1.47
75	10.3	2.07
90	12.4	2.98
110	15.1	4.44

Vialli PEXa Behavior According to DIN 16892 under Long-Term Stressing.

The Service life of Vialli PEXa depends on the internal hoops stress over time subject to temperature.

$$f = \frac{p \times D}{2 \times S}$$

s= Hoop Stress [N/mm² or MPa]

P= Internal Pressure (Bar)

D= Outer Diameter of Pipe mm

S= Wall Thickness of Pipe

Permissible Working Pressure of Vialli PEX Pipes (DIN 16893) with safety factor 1.2

Service Life Year	Temperature (°C)	Pressure Rate Bar PN 20
1	20	21.7
10	20	21.0
50	20	20.0
1	40	17.5
10	40	16.9
50	40	16.5
1	60	13.8
10	60	13.1
50	60	12.9
1	95	9.0
10	95	8.6
50	95	8.2

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VIALLI DZR BRASS FITTINGS

GENERAL INFORMATION

Dezincification resistant brass (DZR Brass) is essentially a leaded arsenical brass with a duplex structure. As its name suggests it was originally developed to provide good resistance to dezincification type corrosion which is experienced by normal hot working brasses.

As well as the improved dezincification also offers good strength levels, is readily machined and easily hot forged. Its primary usage over the years has been for water fittings that are produced by hot stamping and machining

Designed for use with compression fittings (offered separately), that are manufactured in compliance.

MANUFACTURING TECHNOLOGIES

Brass parts and components can be casting, forging, hot extrusion and cold drawing.

MECHANICAL PROPERTIES

Forged Brass

Alloy	Physical Properties	Snerv N/mm ²	Car. Rott. N/mm ²	Allung %	Durezza HB
CW614N	H080	>(120)	>(360)	>(20)	>(80)

Brass Bar

Alloy	Physical Properties	Snerv N/mm ²	Car. Rott. N/mm ²	Allung %	Durezza HB
CW614N	R500	(390)	>500	>8	(150)
CW614N	R430	(250)	>430	>10	(120)

MACHINABILITY

The workability and adaptability of brass to the automatic machines makes it one of the most used material in the Fittings business. The high cutting speed reduces the manufacturing timeline reducing evidently, the production cost. The components surface is smooth allowing finishing process as polishing and coating at a very reasonable price.

CORROSION RESISTANCE

The brass has excellent resistance to corrosion when it is used in hydro thermo sanitary systems. Water with high concentration of chlorine can put under stress the brass and cause corrosion. This phenomenon is called dezincification: selective leaching of zinc from brass alloys. Containing more than 15% zinc in presence of oxygen and moisture. In this particular case is better to use a Dezincification resistant brass (DZR). The DZR, (CunZN36Pb2asCW602N), material has been developed for using pipe fittings with potable water.

METAL RESIDUES IN DRINKING WATER

The percentage of lead in DZR Brass is considerably low, so all DZR Brass components are designed to respect the highest health and safety standards.

VIALLI BRONZE-GUN METAL FITTINGS

GENERAL INFORMATION

Bronze is one of the oldest metal alloys, consisting primarily of copper, usually with tin as additive. Compositions vary, but most modern bronze is 88% copper and 12% tin. Bronze may also contain manganese, aluminum, nickel, phosphorus, silicon, arsenic, or zinc

Vialli Bronze fittings provide a tight seal when installed correctly. Vialli Bronze fittings are used in many applications including plumbing, heating systems, hot water plumbing, pneumatic and marine type construction. The Vialli Bronze fittings are resistant from harmful effects of corrosion when in contact with fresh or salt water, that is polluted with mineral acids.

Vialli Bronze-Gun Metal – PEXa pipe fittings are the best durable choice

MANUFACTURING TECHNOLOGIES

Parts and components can be obtained only by casting or by a mechanical process of semi-finished metal removal coming from casting. Therefore the result is a rough and uneven surface.

MECHANICAL PROPERTIES

Forged Bronze

Alloy	Physical Properties	Snerv N/mm ²	Car. Rott. N/mm ²	Allung %	Durezza HB
CW617N	Fuso	>(90)	>(220)	>(16)	(70)

MACHINABILITY

The bronze, despite the presence of lead has a capacity of adapting to automatic machine. The components surface, particularly the one manufactured by casting, presents some imperfections and roughness, which cause pressure drop. The galvanic treatment leaves the surface less bright and polished

CORROSION RESISTANCE

The bronze has, general a very good resistance to the corrosion. The bronze has a tolerance to the corrosion cracking, but it is totally exempt from this phenomenon

METAL RESIDUES IN DRINKING WATER

All bronze components are designed to respect the highest health and safety standards.

INSTALLATION RECOMENDATIONS

RECOMMENDATIONS

Heating the pipe with naked flame or with any heating element of high temperature should not be used, as this will damage the pipe and can cause deformation.

It is a must to protect a visible pipe from ultra violet rays and Direct sunlight, as this may change the chemical- physical features of the PEXa material and cause it to lose its characteristics.

Do Not Use with PEX

Liquid-based leak detectors, adhesive tape, pipe dope, linseed oil, threading compound, putty, mineral oil, petroleum products, metal pipe hangers.

Leave Excess Tubing

Leave extra tubing at the beginning and end of runs to simplify connection to manifolds and end points and to make connections without straining the tubing or connection. Immediate connection to a manifold or transition fittings and then making the run reduces the chance of cutting tubing too short.

Identify Tubing Runs

Clearly and permanently mark each run at each end to identify the fixture it supplies (hot or cold water, bathroom sink, kitchen sink, basement toilet, etc). Do not apply adhesive labels to PEXa pipe.

PEXa and Concrete

Tubing installed within or under concrete slabs should be continuous lengths of PEXa tube. Do not install fittings beneath concrete.

Minimum Bend Radius

Do not bend tube too tightly. The minimum recommended bend radius is six times the tube size (i.e. ½" tube = 3" bend radius). When making a 90° turn, use bend supports.

Manifold Installation Warnings

- Before and after installation, ensure manifold is kept in a location with limited exposure to chemicals, paint, hazardous materials, debris, excessive heat, direct flame, or moving objects that could cause damage.
- The manifold should be located in an area that will not be covered permanently with sheetrock, plywood, or paneling.
- Manifolds should not be installed or kept in a location exposed to freezing temperatures.
- Do not use pipe dope or tape to seal any fittings on the manifold.
- Care should be taken not to over or under tighten fittings.
- Distribution lines must connect to the connecting valves in a straight line perpendicular to the manifold as to avoid bending stress on the valves.
- The installer must also meet all qualifications required by the state and/or local administrative authority administering the provisions of the code where PEXa piping is installed.

RECOMMENDATIONS

Cut the pipe size

Make sure the blade of the pipe is angled perfectly straight across the pipe. A clean straight cut makes sure it will connect properly to the fitting.



Choose the fittings

Choose the correct fittings according to PEXa pipe dimension.



Sleeve the nut and olive

Slide the nut over the pipe followed by the olive as indicated.



Insert fitting body

Check O-rings on the main body are intact and free of dirt. Insert the main body of the fitting into the pipe. It should go in easily, if it is stiff then pipe is not fully beveled.



Tighten with spanners

Slide the nut, olive and fitting together and tighten off with spanners. This completes the fitting.



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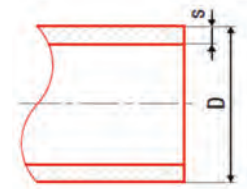
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PEX PRODUCTS

1.) PEXa Cross Linked Pipe

Formed with the peroxide that is made into the raw material during the extrusion. Peroxide is the chemical that is activated by heat forms free from radicals from the cross-link. These kind of pipes are called PE-Xa cross-link pipes.

Size (D)	Description	CODE
16 mm (2.2 mm wall thickness)	PEXa	VP16
20 mm (2.8 mm wall thickness)	PEXa	VP20



2.) Corrugated Conduit

Corrugated Conduit is a flexible conduit which can be used in a host of different applications and add extra protection also indicates the PEX pipe if it's hot (red) & cold (blue).

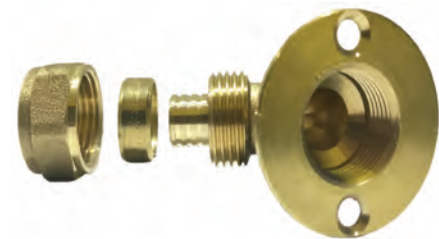
Size (D)	Description	CODE
25 mm	Corrugated Conduit (Red)	VCC25R
25 mm	Corrugated Conduit (Blue)	VCC25B
32 mm	Corrugated Conduit (Red)	VCC32R
32 mm	Corrugated Conduit (Blue)	VCC32B



3.) Female Elbow & Comp. Fitt. (DZR or Bronze)

Elbow is made of a lead-free DZR brass and is an easy to install, low-cost solution to connect to PEX tubing.

Size (D)	Description	CODE
16 mm x 2.2 mm x 1/2"	Female Elbow (DZR)	VDE16
20 mm x 2.8 mm x 1/2"	Female Elbow (DZR)	VDE20
16 mm x 2.2 mm x 1/2"	Female Elbow (Bronze)	VBZE16
20 mm x 2.8 mm x 1/2"	Female Elbow (Bronze)	VBEZE20



4.) Elbow Casing

Plastic box for holding Elbows for easy PEX tubing Connection.

Size (D)	Description	CODE
25 mm	Elbow Casing	VDEC25
32 mm	Elbow Casing	VDEC32
25 mm	Elbow Casing	VBZEC25
32 mm	Elbow Casing	VBZEC32



5.) PEX MALE Adaptor (DZR or Bronze)

A special adaptor to connect PEX pipe & water source.

Size (D)	Description	CODE
16mm x 2.2mm x ½"	PEX MALE Adaptor (DZR)	VDMA0
20mm x 2.8mm x ½"	PEX MALE Adaptor (DZR)	VDMA1
20mm x 2.8mm x ¾"	PEX MALE Adaptor (DZR)	VDMA11
16mm x 2.2mm x ½"	PEX MALE Adaptor (Bronze)	VBZMA0
20mm x 2.8mm x ½"	PEX MALE Adaptor (Bronze)	VBZMA1
20mm x 2.8mm x ¾"	PEX MALE Adaptor (Bronze)	VBZMA11



6.) PEX Female Adaptor (DZR or Bronze)

A special adaptor to connect PEX pipe & water source.

Size (D)	Description	CODE
16mm x 2.2mm x ½"	PEX Female Adaptor	VDFA0
20mm x 2.8mm x ½"	PEX Female Adaptor	VDFA1



7.) Manifold with Valves (DZR or Bronze)

PEX manifolds are plumbing systems are control centers for hot and cold water that feed flexible PEX supply lines to individual fixtures.

Size (D)	Outlet	CODE
16mm x 2.2mm x ¾"	2,3 & 4 outlet	21401
20mm x 2.8mm x 1"	2,3 & 4 outlet	21402
16mm x 2.2mm x 1 ¼"	2,3 & 4 outlet	21403
20mm x 2.8mm x 1 ½"	2,3 & 4 outlet	21404



8.) Manifold (DZR or Bronze)

PEX manifolds are plumbing systems are control centers for hot and cold water that feed flexible PEX supply lines to individual fixtures.

Size (D)	Outlet	CODE
¾"	2 WAY (DZR)	RM12
1"	2 WAY (DZR)	RM22
1 ¼"	2 WAY (DZR)	RM32
¾"	3 WAY (DZR)	RM13
1"	3 WAY (DZR)	RM23
1 ¼"	3 WAY (DZR)	RM33
¾"	4 WAY (DZR)	RM14
1"	4 WAY (DZR)	RM24
1 ¼"	4 WAY (DZR)	RM34



Size (D)	Outlet	CODE
3/4"	2 WAY (Bronze)	BZRM12
1"	2 WAY (Bronze)	BZRM22
1 1/4"	2 WAY (Bronze)	BZRM32
3/4"	3 WAY (Bronze)	BZRM13
1"	3 WAY (Bronze)	BZRM23
1 1/4"	3 WAY (Bronze)	BZRM33
3/4"	4 WAY (Bronze)	BZRM14
1"	4 WAY (Bronze)	BZRM24
1 1/4"	4 WAY (Bronze)	BZRM34

9.) Female End Cap-Manifold (DZR or Bronze)

They are used to seal the female end of a manifold.

Size (D)	Outlet	CODE
3/4"	Female End Cap (DZR)	BFEC1
1"	Female End Cap (DZR)	BFEC2
3/4"	Female End Cap (Bronze)	BZFEC1
1"	Female End Cap (Bronze)	BZFEC2



10.) Male End Cap-Manifold (DZR or Bronze)

They are used to seal the female end of a manifold.

Size (D)	Outlet	CODE
3/4"	Male End Cap (DZR)	BMEC1
1"	Male End Cap (DZR)	BMEC2
3/4"	Male End Cap (Bronze)	BZMEC1
1"	Male End Cap (Bronze)	BZMEC2



QUALITY STANDARD PROCEDURE

Our PEX-a piping systems are manufactured under a comprehensive quality management process to ensure consistent product performance, reliability, and long service life. Every stage—from raw material selection to final inspection—is controlled according to internationally recognized German and European standards.

Quality Assurance

Premium PEX-a raw materials - Our PEX-a pipes are manufactured using premium-grade peroxide cross-linked polyethylene (PEX-a) raw materials carefully selected from qualified suppliers to ensure consistent quality, reliability, and long-term performance. The peroxide cross-linking process creates a highly uniform molecular structure, resulting in exceptional flexibility, superior mechanical strength, and excellent resistance to thermal and mechanical stress.



The use of high-quality PEX-a material enables the pipes to withstand demanding operating conditions, including elevated temperatures and high working pressures, while maintaining dimensional stability throughout their service life. Its outstanding flexibility allows for easier installation with fewer fittings, reducing potential leak points and improving overall system reliability.

Premium PEX-a also offers excellent resistance to corrosion, scaling, abrasion, and a wide range of common chemicals, ensuring smooth water flow and minimal maintenance requirements. The material does not rust or deteriorate like traditional metal piping, making it an ideal solution for potable water distribution, radiant floor heating, and hydronic heating systems.

Continuous in-process quality monitoring

Continuous in-process quality monitoring—Quality is monitored continuously throughout every stage of the manufacturing process to ensure that each PEX-a pipe meets the required specifications and performance standards. Advanced production equipment and systematic inspection procedures are used to monitor critical manufacturing parameters in real time, helping maintain consistent product quality and dimensional accuracy.

Diameter, wall thickness, surface finish, material distribution, processing temperature, and production speed are regularly checked and controlled. This continuous monitoring helps identify any variation immediately, allowing corrective actions to be implemented before the product proceeds to the next manufacturing stage. As a result, manufacturing consistency is maintained while minimizing defects and material waste.

Routine quality inspections are performed at defined intervals to verify compliance with dimensional tolerances, visual appearance, and overall product integrity. Each production batch is documented to ensure complete traceability and to support consistent manufacturing performance.

By maintaining strict in-process quality control, every PEX-a pipe is produced with uniform mechanical properties, reliable pressure performance, excellent flexibility, and long-term durability. This systematic approach ensures that the finished product consistently meets the quality expectations required for potable water, heating, and plumbing applications while complying with applicable German and European standards.

Dimensional accuracy verification

Dimensional accuracy verification is a critical stage of the quality control process, ensuring that every PEX-a pipe is manufactured within the specified dimensional tolerances required by applicable German and European standards. Precise dimensions are essential for maintaining system integrity, ensuring compatibility with fittings, and delivering reliable long-term performance in plumbing and heating installations.

During production, each pipe is regularly inspected using calibrated measuring instruments to verify key dimensions, including outside diameter, wall thickness, pipe ovality, and overall dimensional consistency. These measurements are performed at predetermined intervals throughout the manufacturing process to ensure that every production batch meets the required specifications.

Continuous dimensional monitoring helps detect any variation caused by changes in processing conditions, allowing immediate corrective action to maintain product consistency. This proactive quality control approach minimizes manufacturing deviations, reduces material waste, and ensures uniform product quality across all production batches.

Why Choose VIALLI?

VIALLI Advantage	Value to Customers
✓ Premium Quality Materials	Reliable and durable plumbing solutions
✓ Precision Engineering	Accurate fit for faster installation
✓ Leak-Proof Connections	Safe and efficient water distribution
✓ High Pressure Performance	Suitable for demanding applications
✓ Corrosion & Scale Resistant	Lower maintenance costs
✓ Excellent Temperature Resistance	Ideal for hot and cold water systems
✓ Long Service Life	Designed for decades of dependable performance
✓ Strict Quality Control	Consistent quality in every batch
✓ Professional Testing	Verified performance before delivery
✓ Customer-Focused Reliability	Peace of mind for contractors, consultants, and end users

Quality Control Parameter	VIALLI Quality Standard	Customer Benefit
Premium Raw Materials	Manufactured using high-grade virgin PEX-a and premium brass	Ensures durability and long service life
100% Raw Material Inspection	Every batch is tested before production	Consistent product quality
Dimensional Accuracy	Precision-controlled OD, wall thickness, and fitting dimensions	Perfect fit and easy installation
Hydrostatic Pressure Test	Every production batch is pressure tested	Leak-proof and reliable performance
Burst Pressure Test	Tested beyond standard operating pressure	Enhanced safety and reliability
Thermal Resistance	Suitable for hot and cold water applications	Excellent performance in varying temperatures
Cross-Linking Verification	Controlled cross-linking process for PEX pipes	Superior flexibility and strength
Leak-Proof Joint Performance	Fittings tested for secure and tight connections	Prevents water leakage
Corrosion Resistance	Brass fittings designed to resist corrosion and scaling	Longer product lifespan
Smooth Inner Surface	Precision manufacturing minimizes internal roughness	Better water flow with reduced pressure loss
Mechanical Strength Test	Tested for impact and tensile strength	High resistance to handling and installation damage
Quality Monitoring	Continuous inspection throughout production	Consistent manufacturing quality
Traceability System	Batch number marked on every product	Easy quality tracking and after-sales support
Visual Inspection	Every product checked for surface finish and defects	Premium appearance and dependable performance
International Standards	Manufactured in accordance with applicable international standards*	Trusted quality and customer confidence

Quality Control Formulas for PEX Pipes

1. Average Outside Diameter

$$D_{avg} = \frac{(D_1 + D_2 + D_3 + D_4)}{4}$$

Where:

- D_{avg} = Average outside diameter (mm)
- $D_1 - D_4$ = Diameter measurements taken at different positions

2. Average Wall Thickness

$$t_{avg} = \frac{(t_1 + t_2 + t_3 + t_4)}{4}$$

Where:

- T_{avg} = Average wall thickness (mm)
- $T_1 - T_4$ = Thickness measurements

3. Pipe Ovality

Absolute Ovality

$$Ovality = D_{max} - D_{min}$$

Percentage Ovality

$$Ovality (\%) = \frac{D_{max} - D_{min}}{D_{nominal}} \times 100$$

Where:

- D_{max} = Maximum outside diameter
- D_{min} = Minimum outside diameter
- $D_{nominal}$ = Nominal outside diameter

4. Standard Dimension Ratio (SDR)

$$SDR = \frac{D_o}{t}$$

Where:

- D_o = Outside diameter (mm)
- t = Wall thickness (mm)

5. Internal Diameter

$$D_i = D_o - 2t$$

Where:

- D_i = Internal diameter (mm)
- D_o = Outside diameter (mm)
- t = Wall thickness (mm)

6. Cross-Sectional Flow Area

$$A = \frac{\pi D_i^2}{4}$$

Where:

- A = Internal Flow area (mm²)
- D_i = Internal diameter (mm)

7. Pipe Volume

$$V = A \times L$$

Or

$$V = \frac{\pi D_i^2}{4} \times L$$

Where:

- V = Internal volume (mm³ or m³)
- A = Internal cross-sectional area
- L = Pipe length

8. Hydrostatic Test Pressure

$$P = \frac{2St}{D_o}$$

Where:

- P = Hydrostatic test pressure
- S = Allowable hoop stress
- t = Wall thickness
- D_o = Outside diameter

9. Hoop Stress

$$\sigma = \frac{PD}{2t}$$

Where:

- σ = Hoop stress (MPa)
- P = Internal pressure (MPa)
- D = Pipe diameter (mm)
- t = Wall thickness (mm)

10. Burst Pressure (Thin-Wall Approximation)

$$P = \frac{2\sigma t}{D}$$

Where:

- P = Burst pressure
- σ = Tensile or allowable hoop stress
- t = Wall thickness
- D = Outside diameter

11. Density

$$\rho = \frac{m}{V}$$

Where:

- ρ = Density (g/cm^3 or kg/m^3)
- m = Mass
- V = Volume

12. Percentage Elongation

$$\text{Elongation (\%)} = \frac{L_f - L_0}{L_0} \times 100$$

Where:

- L_0 = Original gauge length after fracture
- L_f = Final gauge length after testing

13. Tensile Strength

$$\sigma = \frac{F}{A}$$

Where:

- σ = Tensile strength (MPa)
- F = Maximum tensile force (N)
- A = Cross-sectional area (mm²)

14. Cross-Linking Degree

$$\text{Cross-linking (\%)} = \frac{W_0 - W_1}{W_0} \times 100$$

Where:

- W_0 = Initial specimen weight
- W_1 = Weight after extraction

Note: The cross-linking degree for PEX-a is commonly determined using the gel-content method described in **DIN EN ISO 10147** or equivalent test methods.

15. Percentage Deviation

$$\%Deviation = \frac{\text{Measured} - \text{Nominal}}{\text{Nominal}} \times 100$$

Where:

- Measured = Actual measured value
- Nominal = Specified nominal value

16. Production Yield

$$\text{Yield (\%)} = \frac{\text{Accepted Quantity}}{\text{Produced Quantity}} \times 100$$

17. Rejection Rate

$$\text{Rejection (\%)} = \frac{\text{Rejected Quantity}}{\text{Produced Quantity}} \times 100$$

18. First Pass Yield (FPY)

$$\text{FPY} = \frac{\text{Accepted Without Rework}}{\text{Total Produced}} \times 100$$

Where:

- Accepted Without Rework = Products meeting specifications on the first inspection
- Total Produced = Total number of products manufactured

FREQUENTLY ASKED QUESTIONS

Q: Which is the raw material used to produce VIALLI PEX Pipe system?

A: Vialli using Borealis raw material to produce PEXa pipes under DIN 16892 & DIN 16893.

Q: What are production standards of VIALLI PEX?

A: Following standards are used for the production of VIALLI pipes and fittings:

Standard	Concern Production
DIN 16892	Cross linked high-density polyethylene PEXa pipes - General quality requirements and testing
DIN 16893	Cross linked high-density polyethylene PEXa pipes – Dimensions

Q: What is the service life (life span) of VIALLI PE-X piping system for different pressure groups?

A: PEXa pipes have a service life of 50 years according to DIN Standards for in house applications. To have detailed information for different temperatures and pressure rates, please refer to page No. 8.

Q: Are VIALLI PEXa pipes used for drinking water? Are they Hygienic/Healthy?

A: PEXa products can safely be used for drinking water. VIALLI PEXa products have got all international Approvals as well as the approvals of the sales territories. (WRAS).

Q: How is the pipe cutting recommended?

A: It is advised to used sharp cutting tools to cut the pipe with no burrs VIALLI provide cutting tools.

Q: How is the size of Pipes and Fittings measured?

A: Pipes size is measured by mm (millimeter) of its outer dia. PEXa fittings are measured by mm (millimeter) of inner dia. and metal threaded fittings treaded side size is measured in inches.

Q: Are VIALLI PEXa compression fittings reusable?

A: Yes, it is so easy to disconnect the fittings and do the required maintenance and re-connect it again.

Q: Is there a possibility of over- or under-tightening the fitting?

A: If you follow the instructions above, the risks of over- or under-tightening are very small. Since all systems must be pressure tested prior to being put into use, it is possible to tighten the fitting more if there's a leak at the connection point. In order to avoid over-tightening the compression nut, do not use excessive force and wrenches larger than indicated when installing the fitting.

Q: I see that the brass O-ring is split, is it normal?

A: Yes. When the compression nut is tightened, the open ends of the O-ring come together, exerting pressure upon the Vialli PEXa pipe, allowing it to be compressed over the fitting's barbs.

Q: What purpose do the black rubber O-rings over the fitting's barbs serve?

A: The O-rings are intended to prevent water leakage. The main purpose of the barbs is to prevent the fitting from popping out under pressure from the pipe. The O-rings should not be removed from the fitting, nor is it necessary to lubricate them in any way.

TECHNICAL SUPPORT

Training Services

Technical training ensures that client are proficient in using complex tools, machinery, or software while adhering to safety standards and best practices.



Safety and Compliance Training

To teach clients to recognize and mitigate risks in their work environments, ensuring safety and compliance with local regulations.



Quality

Our product is made using the finest raw materials and undergoes rigorous quality control to ensure it meets the highest standards. We are committed to delivering not only great performance but also long-term reliability, so you can trust that it will meet your expectations and serve you well for years to come."



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