



giaco@est

SYSTEM



SUMMARY

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- > 2. CERTIFICATIONS AND NORMS
- > 3. COMPONENTS AND TOOLS
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- > 14. GIACOMINI BRASS FOR POTABLE WATER
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- > 25. PRACTICAL HINTS FOR INSTALLING
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World leaders in development of heating, cooling and sanitary distribution systems GIACOQEST starts from the experience of practical and highly demanding markets and from the research carried out by Giacomini S.p.A. This system will leave a mark in the way the installations are made.

► Giacoquest System

Is the answer to the needs of every plumber.

- Allowing easy installations.
The technical innovations are useful provided that they are easy to be used.
- Providing quick installations.
Time is money also when it comes to the point of making a complete installation.
- Reduced Water Hammer.
- Freeze Damage Resistance.
- Prevention of Lime & Mineral Build-up.
- Elimination of Electrolysis (that causes pin holes in metallic pipes).
- No deterioration from low pH levels found in many wells.
- Requires less fittings, reducing potential for installation errors.
- It's light weight for easy handling.
- Offering pipes in the most common sizes familiar to every plumber.
(See the table below)

GIACOQEST SOLUTION	STANDARD SIZES NORMALLY AVAILABLE:
3/8" 1/2" 3/4" 1"	10/8, 12/8, 12/8.4, 12/9.8, 12/13.8, 13.6/8, 14/10, 15/10, 15.6/10, 16/10, 16/10.6, 16/11.6, 16/12, 16/12.4, 16/13, 17/13, 17/14, 17.6/11.6, 18/13, 18/14, 20/13.2, 20/14.4, 20/15, 20/16, 20/16.2, 25/18, 21/16
TOTAL: 4 SIZES	TOTAL: 27 SIZES

► Certifications and norms



2


CONFORMITY MARK
 298 **IIP a** PEX Pipe systems
 EN ISO 15875 - 2003


American Society for Testing and Materials

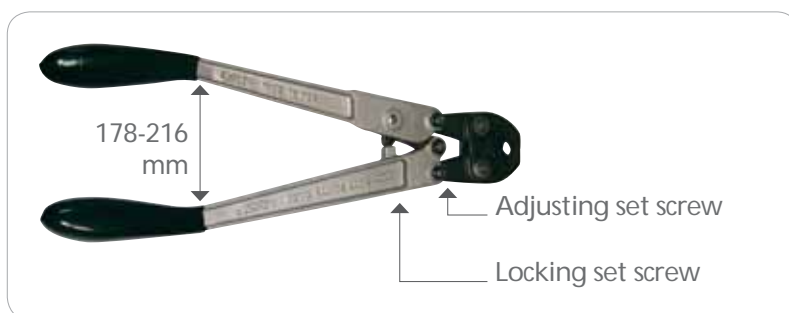

Canadian Standards Association

► ASTM F876
 ASTM F877
 ASTM F1807

► CAN/CSA B137.5
 In compliance with
 ANSI/NSF standard 61

► Components and tools

The tools of Giacoquest system are extremely easy to use.



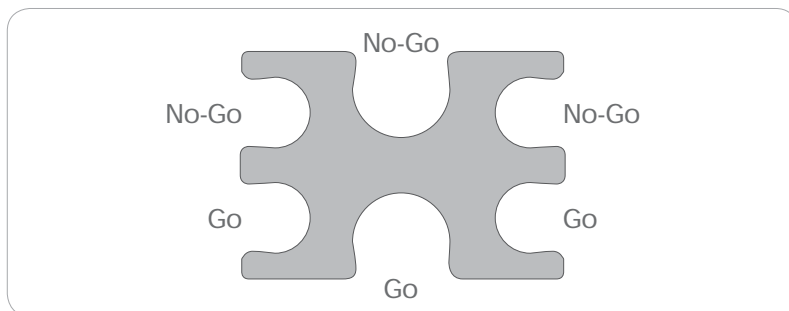
► CRIMP TOOL

The tempered steel tool provides positive interlocking jaw action for precision crimping on the ring.



► CUTTING TOOL

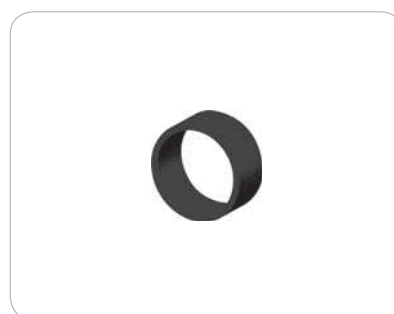
Designed for smooth, even cutting, to allow a square, burr-free cut.



► GAUGE

This steel "Go/No-Go" gauge has to be used to check every crimp.

By pushing a "Go" opening on to the crimped ring, it is possible to see whether the crimping is tightly enough. If the "no go" gauge fits across the crimped ring, the diameter of the ring is too small and the fitting must be cut out.



► CRIMP RING

Annealed and ductile copper ring with a black finish. After being crimped in the right position it permanently seals the pipe and the fitting together.

▸ Products range

Fittings are made of brass special lead wash process.

These new products are designed to protect drinking water from lead exposure, and are constructed to comply with several standards. Giacomini ensures continuous improvement in processes that impact on the environment, including those not subject to regulation currently. This is consistent with our environment policy and our ISO 14001 registration.

The fittings are manufactured accordingly to the ASTM American standard. This testifies the reliability of the system granted by clear and precise norms.

GZ102



Straight fitting



PART NUMBER	SIZE	□	⊞
GZ102Y002	3/8" x 3/8"	50	500
GZ102Y003	1/2" x 1/2"	50	500
GZ102Y004	3/4" x 3/4"	50	250
GZ102Y005	1" x 1"	50	250

GZ103



Reducing straight fitting



PART NUMBER	SIZE	□	⊞
GZ103Y002	1/2" x 3/8"	50	500
GZ103Y003	3/4" x 3/8"	50	500
GZ103Y004	3/4" x 1/2"	50	500
GZ103Y005	1" x 1/2"	50	250
GZ103Y006	1" x 3/4"	50	250



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GZ107

Straight fitting/male thread



PART NUMBER	SIZE	□	⊞
GZ107Y032	3/8" x 1/2"	50	250
GZ107Y033	1/2" x 1/2"	50	250
GZ107Y043	1/2" x 3/4"	50	250
GZ107Y034	3/4" x 1/2"	50	250
GZ107Y044	3/4" x 3/4"	50	250
GZ107Y054	3/4" x 1"	25	100
GZ107Y035	1" x 1/2"	25	100
GZ107Y045	1" x 3/4"	25	100
GZ107Y055	1" x 1"	25	100



GZ109

Straight fitting/female thread



PART NUMBER	SIZE	□	⊞
GZ109Y032	3/8" x 1/2"	50	250
GZ109Y033	1/2" x 1/2"	50	250
GZ109Y034	3/4" x 1/2"	50	250
GZ109Y044	3/4" x 3/4"	50	250
GZ109Y045	1" x 3/4"	25	100
GZ109Y046	1" x 1"	25	100



GZ122

90° elbow



PART NUMBER	SIZE	□	⊞
GZ122Y002	3/8" x 3/8"	100	500
GZ122Y003	1/2" x 1/2"	50	250
GZ122Y004	3/4" x 3/4"	50	250
GZ122Y005	1" x 1"	25	100

GZ127

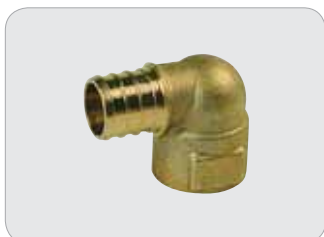


90° elbow - male thread



PART NUMBER	SIZE	□	⊞
GZ127Y002	3/8" x 1/2"	25	150
GZ127Y001	1/2" x 3/8"	25	150
GZ127Y003	1/2" x 1/2"	25	150
GZ127Y043	1/2" x 3/4"	10	50
GZ127Y044	3/4" x 3/4"	10	50
GZ127Y045	1" x 3/4"	10	50
GZ127Y055	1" x 1"	10	50

GZ129

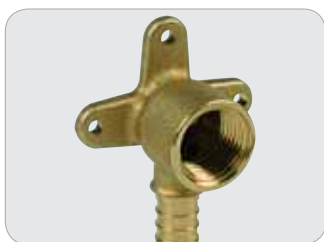


90° elbow - female thread



PART NUMBER	SIZE	□	⊞
GZ129Y032	3/8" x 1/2"	25	150
GZ129Y033	1/2" x 1/2"	25	150
GZ129Y034	3/4" x 1/2"	25	150
GZ129Y044	3/4" x 3/4"	10	50
GZ129Y045	1" x 3/4"	10	50
GZ129Y055	1" x 1"	10	50

GZ139



90° elbow with wall bearing



PART NUMBER	SIZE	□	⊞
GZ139Y003	1/2" x 1/2"	50	500
GZ139Y004	3/4" x 1/2"	50	500
GZ139Y044	3/4" x 3/4"	50	250
GZ139Y045	1" x 3/4"	50	250



GZ150



Tee fitting

PART NUMBER	SIZE		
GZ150Y002	3/8"	100	1000
GZ150Y003	1/2"	50	500
GZ150Y004	3/4"	50	250
GZ150Y005	1"	25	100

GZ151

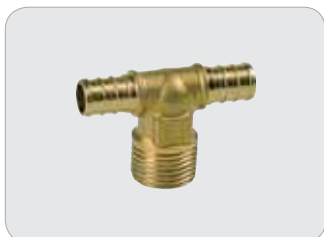


Reducing tee

A — C
|
B A x B x C

PART NUMBER	SIZE		
GZ151Y004	1/2" x 3/8" x 3/8"	100	500
GZ151Y006	1/2" x 3/8" x 1/2"	50	500
GZ151Y005	1/2" x 1/2" x 3/8"	50	500
GZ151Y009	1/2" x 3/4" x 1/2"	25	250
GZ151Y014	3/4" x 1/2" x 1/2"	50	250
GZ151Y015	3/4" x 1/2" x 3/4"	50	250
GZ151Y016	3/4" x 3/4" x 1/2"	25	250
GZ151Y023	1" x 1/2" x 1"	25	100
GZ151Y025	1" x 3/4" x 3/4"	25	100
GZ151Y017	3/4" x 1" x 3/4"	25	100
GZ151Y026	1" x 3/4" x 1"	25	100
GZ151Y027	1" x 1" x 3/4"	25	100

GZ153



Tee fitting - male thread

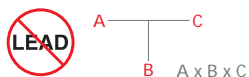
A — C
|
B A x B x C

PART NUMBER	SIZE		
GZ153Y033	1/2" x 1/2" x 1/2"	25	100
GZ153Y034	3/8" x 1/2" x 3/4"	25	100

GZ154



Tee fitting/female thread



PART NUMBER	SIZE	□	⊞
GZ154Y004	1/2" x 1/2" x 1/2"	25	100
GZ154Y006	3/4" x 1/2" x 3/4"	25	100
GZ154Y005	1" x 1/2" x 1"	25	100
GZ154Y009	1" x 3/4" x 1"	25	100

GZ165

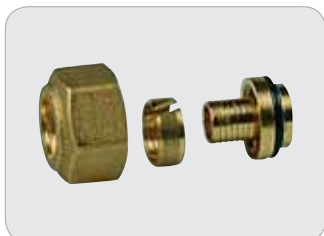


Cap



PART NUMBER	SIZE	□	⊞
GZ165Y002	3/8"	100	1000
GZ165Y003	1/2"	100	1000
GZ165Y004	3/4"	100	500
GZ165Y005	1"	50	250

GZ179



Plastic pipe adapter



PART NUMBER	SIZE	□	⊞
GZ179Y031	16x3/8"	25	250
GZ179Y032	16x1/2"	25	250
GZ179Y041	18x3/8"	25	250
GZ179Y042	18x1/2"	25	250
GZ179Y045	18x3/4"	10	100





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GZ573



Sanitary system connection 90° elbow



PART NUMBER	SIZE	□	⊞
GZ573Y032	3/8" x 1/2"	10	100
GZ573Y033	1/2" x 1/2"	10	100

GZ651



Ball valve



PART NUMBER	SIZE	□	⊞
GZ651Y003	1/2"	1	100
GZ651Y004	3/4"	1	100
GZ651Y005	1"	1	100

GZ606

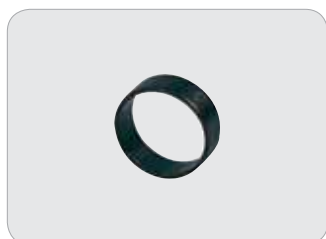


Interception cock to be pressed for giacoquest pipes



PART NUMBER	SIZE	□	⊞
GZ606Y001	3/8" x 3/8"	10	100
GZ606Y002	1/2" x 3/8"	10	100
GZ606Y003	1/2" x 1/2"	10	100

GZ61



Crimp ring



PART NUMBER	SIZE	□	⊞
GZ61Y002	3/8"	100	1000
GZ61Y003	1/2"	100	1000
GZ61Y005	3/4"	100	500
GZ61Y006	1"	100	500

GZ996



▶ With anti-oxygen barrier

Giacoquest pipe in cross linked polyethylene

* pipe in bar. 4 m lenght

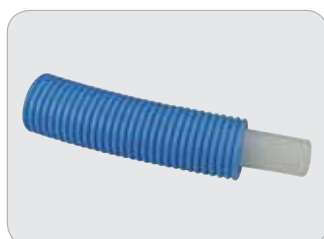
PART NUMBER	SIZE	□	⊞
GZ996Y102	3/8"	-	100m
GZ996Y103	1/2"	-	100m
GZ996Y105	3/4"	-	100m
GZ996Y106	1"	-	50m
GZ996Y253*	1/2"	4m	-
GZ996Y255*	3/4"	4m	-
GZ996Y256*	1"	4m	-

▶ Without anti-oxygen barrier

PART NUMBER	SIZE	□	⊞
GZ996Y002	3/8"	-	100m
GZ996Y003	1/2"	-	100m
GZ996Y005	3/4"	-	100m
GZ996Y006	1"	-	50m
GZ996Y205*	3/4"	4m	-
GZ996Y206*	1"	4m	-

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GZ993



▶ With anti-oxygen barrier

Giacoquest pipe in cross linked polyethylene with blue sleeve

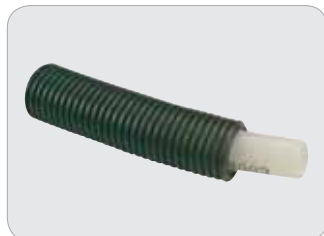
PART NUMBER	SIZE	□	⊞
GZ993Y102	3/8"	-	50m
GZ993Y103	1/2"	-	50m
GZ993Y105	3/4"	-	50m
PART NUMBER	SIZE	□	⊞
GZ993Y002	3/8"	-	50m
GZ993Y003	1/2"	-	50m
GZ993Y005	3/4"	-	50m

▶ Without anti-oxygen barrier



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GZ995



► With anti-oxygen barrier

► Without anti-oxygen barrier

Giacquest pipe in cross linked polyethylene with black sleeve

PART NUMBER	SIZE	□	⊞
GZ995Y102	3/8"	-	50m
GZ995Y103	1/2"	-	50m
GZ995Y105	3/4"	-	50m
PART NUMBER	SIZE	□	⊞
GZ995Y002	3/8"	-	50m
GZ995Y003	1/2"	-	50m
GZ995Y005	3/4"	-	50m

GZ200



Large crimping tool

PART NUMBER	SIZE	□	⊞
GZ200Y002	3/8"	1	-
GZ200Y003	1/2"	1	-
GZ200Y004	3/4"	1	-
GZ200Y005	1"	1	-

GZ200C



Medium crimping tool

PART NUMBER	SIZE	□	⊞
GZ200Y102	3/8"	1	50
GZ200Y103	1/2"	1	50
GZ200Y105	3/4"	1	50



GZ201

Crimp ring remover

PART NUMBER	SIZE	<input type="checkbox"/>	<input type="checkbox"/>
GZ201Y001	-	1	-



GZ211

Checking gauge

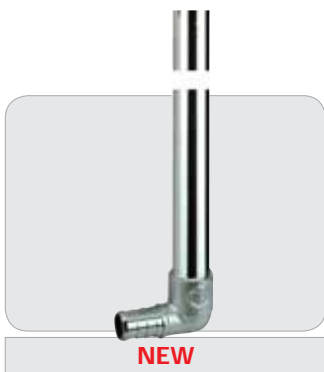
PART NUMBER	SIZE	<input type="checkbox"/>	<input type="checkbox"/>
GZ211Y001	3/8" - 1/2" - 3/4"	1	-
GZ211Y003	1"	1	-



GZ158

90° elbow with copper pipe Ø 15 chrome plated, for Giacoquest system.

PART NUMBER	SIZE	<input type="checkbox"/>	<input type="checkbox"/>
GZ158X003	1/2"	1	50



GZ128

Tee fitting copper pipe Ø 15 inclined chrome plated, for Giacoquest system.

PART NUMBER	SIZE	<input type="checkbox"/>	<input type="checkbox"/>
GZ128X003	1/2"	1	50



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NEW

GZ152-1

Manifold with 3 outlets 1/2" and 1 inlets 3/4".



PART NUMBER	SIZE		
GZ152Y041	3/4"x1/2"x1/2"x1/2"	5	50



NEW

GZ152-2

Manifold with 4 outlets 1/2" and 1 inlets 3/4".



PART NUMBER	SIZE		
GZ152Y042	3/4"x1/2"x1/2"x1/2"x1/2"	5	50



NEW

GZ152-3

Manifold with 3 outlets 1/2" and 2 inlets 3/4".



PART NUMBER	SIZE		
GZ152Y043	3/4"x1/2"x1/2"x1/2"x3/4"	5	50



NEW

GZ152-4

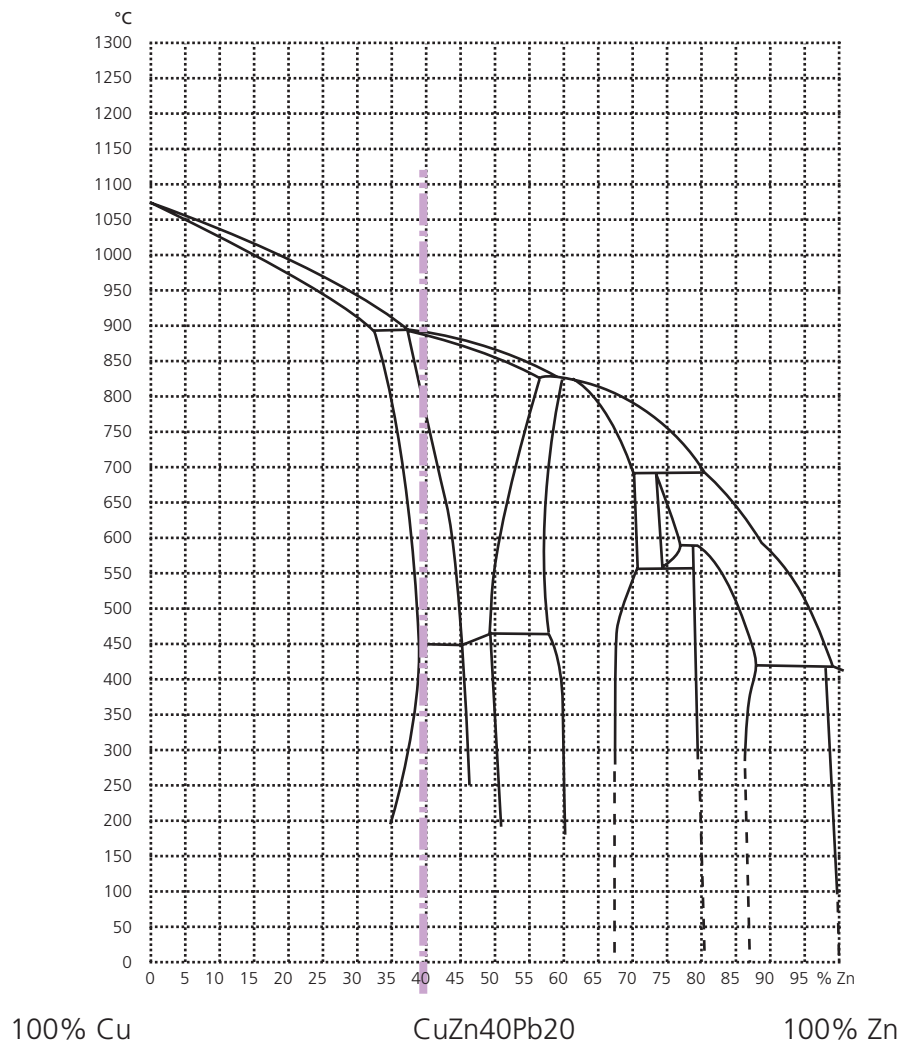
Manifold with 4 outlets 1/2" and 2 inlets 3/4".



PART NUMBER	SIZE		
GZ152Y044	3/4"x1/2"x1/2"x1/2"x1/2"x3/4"	5	50

► **Giacomini brass for potable water**

Brasses are the most important family of copper alloys, basically formed by copper (Cu) and zinc (Zn) with low percentage of lead (Pb) needed for forging.



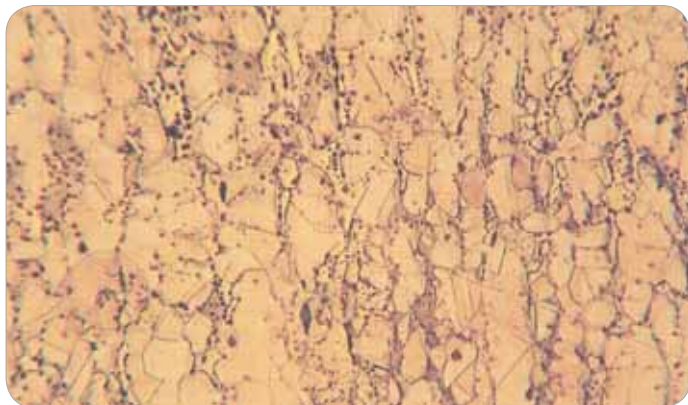
BRASS used by Giacomini is the one in accordance with European Norms EN 12164 and codified as CW617N(CuZn40Pb2). The chemical composition is the following:

%	Cu	Al	Fe	Ni	Pb	Sn	Zn	remaining impurities	g/m ³
Min	57	-	-	-	1.6	-	-	-	8.4
Max	59	0.075	0.3	0.3	2.5	0.3	100	0.2	-

The presence of the Lead (Pb) is fundamental for forging, because the lead assures the mechanical elasticity at 700-750°C. The Tin (Sn) produces on the surface of the brass a strong protective layer. The Aluminum layer (Al) produces a very strong protective film on the surface of the finish product.



▸ Structure



The structure of the brass, at 200 magnifications, is shown in the following picture.

We see the two phases: the a phase (white) and the b phase (more yellow). The small black points are the inclusions of lead.

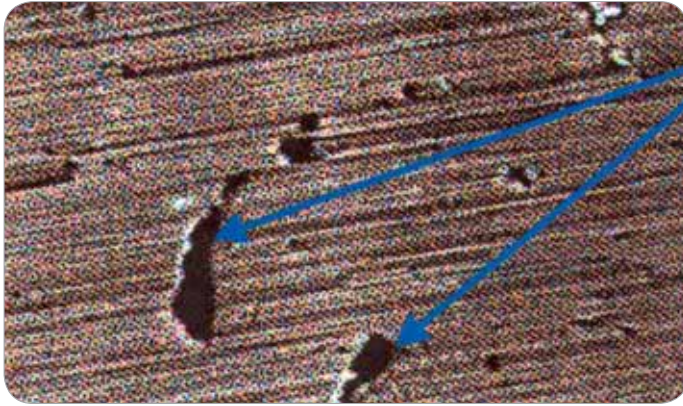
▸ Lead washing process

The presence of the lead inside the brass is essential for plastic distortion of the alloy. Without lead it could not be possible to forge it. The lead particles do not dissolve themselves inside the crystallographic structure, but they remain isolated from the alloy, inside the structure. It does not move from the structure. Therefore it should not interfere with drinking water, excluding the surface in touch with water. Its percentage should be very small and it could not affect the water.

During the screw machining the involved surface becomes very hot and it produces the lead melting around the interested area (the lead melts at relatively low temperature of 327 °C). The liquid lead comes to the surface through the crystals and it shows up as in the following picture.



Stains of lead

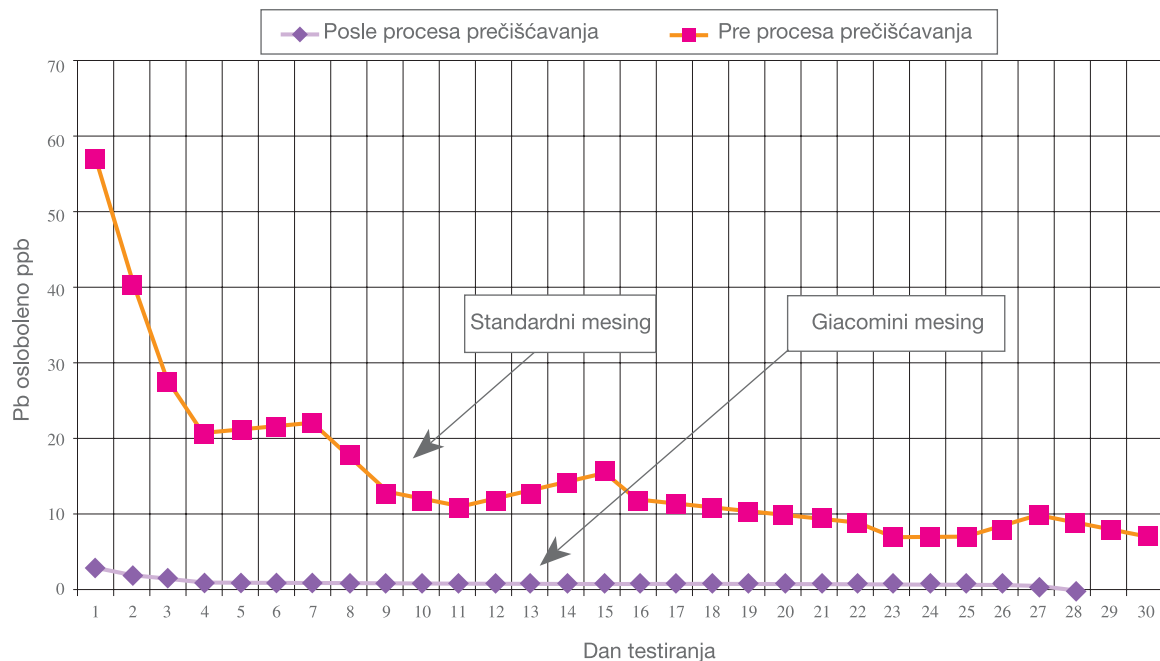


Cavities after lead removal

The cavities show the removal of the lead from the surface. The process consists of different stages into special solutions able to remove completely the lead. This process specially, is something very important for human health. Sometimes we loose time and energy by following the less important aspects of a problem, and do not pay attention to the most important, which are essential to us and our people.

At our laboratory we have tested the lead leaching, obtaining the following results:

Test NSF 61



The above graph shows very clearly the difference between a normal brass and the brass after cleaning process. We can see that after one day of contact with water, the common brass release is of approx. 50 ppb of Lead, while Giacomini brass release is no higher than 2 ppb. That means water in contact with Giacomini brass valves is the 96% more pure than for other brasses.



► How to make a connection



1. After having cut the pipe being sure that you have a square burr-free cut. An uneven cut may cause an improper connection.



2. Slip the special copper crimp ring onto the pipe.

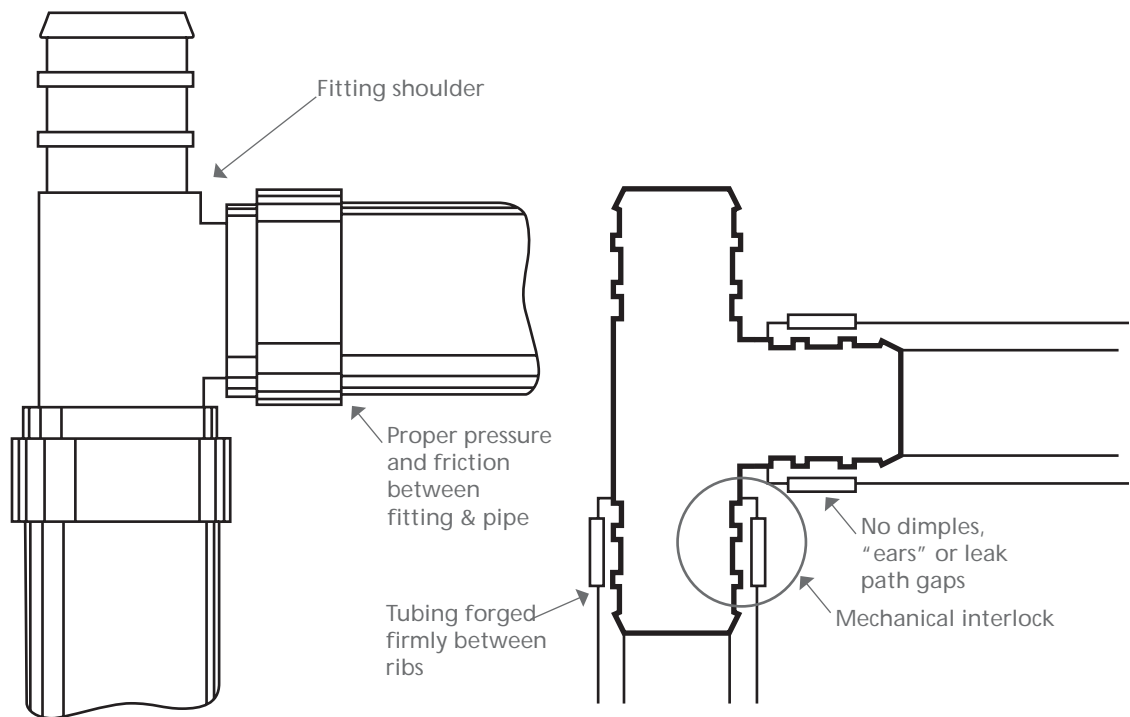


3. Insert the fitting into the pipe up to the fitting shoulder. Position the crimp ring 3-6 mm from the end of the tube.



4. Position the tool in a way that the crimp ring is completely covered by the tool jaws. Keep the tool at a 90° angle to the fitting and close it completely.

The tools required are easy to use

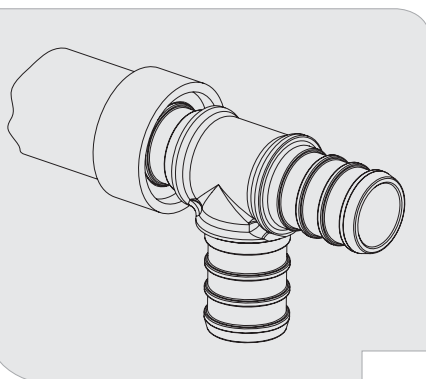


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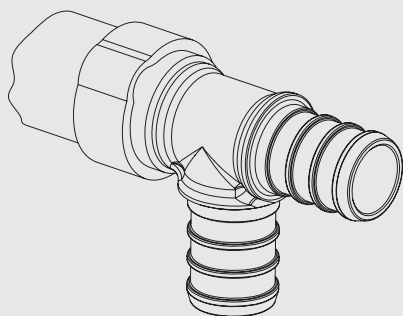
Fitting must be inserted into pipe up to fitting shoulder. Position ring 1/8" to 1/4" away from shoulder and over fitting ribs. With tool at 90° angle to fitting and jaws closed, a fully-round crimp and tight seal are created.

By not following the easy instructions you could have an improper sealing and potential leak as described below.

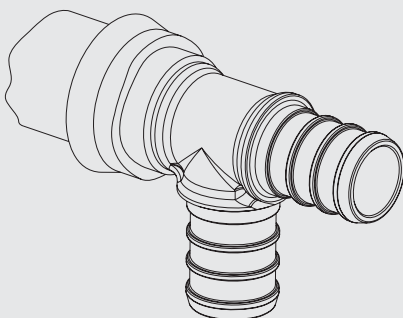
5 points to be checkedj to verify the proper connection



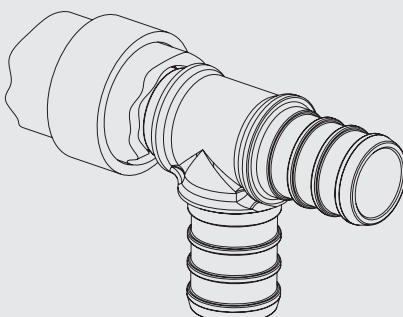
1. Ring crimped over end of tube.
Result: Doesn't cover enough ribs.



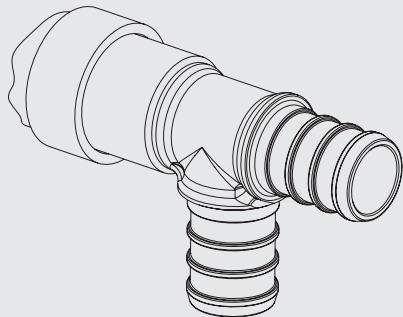
2. Tool was not at 90° to the tube when crimped. Result: Insufficient rib coverage; plastic dented.



3. Ring not completely covered by crimping tool. Result: Ring distortion, non-uniform crimp.

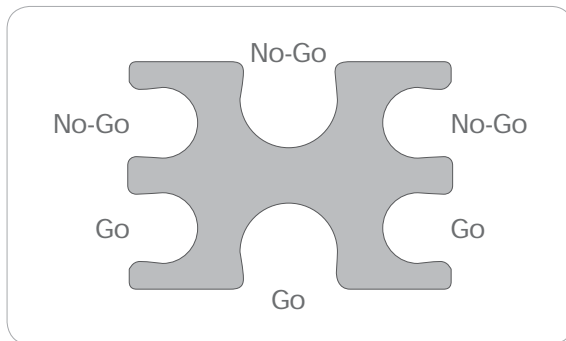


4. Tube not cut squarely. Result: Insufficient rib coverage.



5. Ring too far from pipe end. Result: Insufficient rib coverage.

▸ How to use the checking gauge



Checking gauge (Go No-go)

After making a crimp connection, use the appropriate opening of this flat "Go/No-Go" Gauge to check your finished crimp. The "GO" opening should pass freely across a crimped ring anywhere on its diameter with the possible exception the disturbed area on the ring surface caused by the tool jaws closing. Do not force the gauge across the ring. The "NO-GO" opening should not pass across a crimped ring anywhere. If the crimp fails either test, cut out the fitting and replace.

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▸ DO'S:



Always place the gauge opening on the crimp ring at a 90° angle for an accurate check.

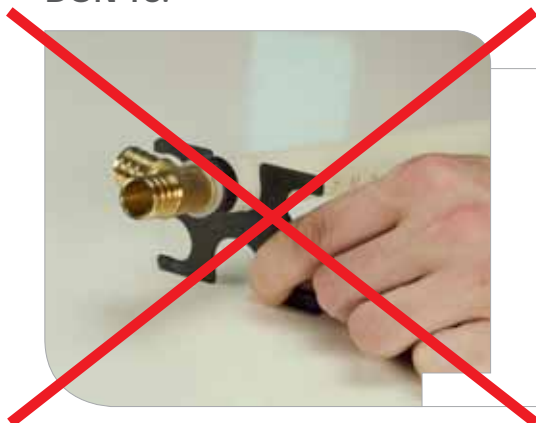


Be certain you use the gauge opening sized for the diameter of your pipe.



Always check every finished crimp with this gauge.

► DON'TS:



Don't slide the gauge onto the connection. Push it directly onto the crimped ring.



Don't try to save time by re-crimping a crimp that does not gauge properly. The fitting must be cut out and re-placed.



Don't modify the gauge opening areas for any reason. They have been carefully manufactured to 0.05 mm tolerance.

► 3/8", 1/2", 3/4", 1" pex pipe according to ASTM F876/F877

(Table 1 - pipe dimensions)

Nominal size	Outside diameter(mm)	Tolerance for outside diameter	Minimum wall-thickness(mm)	Tolerance on wall-thickness(mm)
3/8"	12.70	± 0.08	1.78	+ 0.25
1/2"	15.88	± 0.1	1.78	+ 0.25
3/4"	22.22	± 0.1	2.47	+ 0.25
1"	28.58	± 0.12	3.18	+ 0.33

(Table 2 - test at 1000 h)

Nominal size	Temperature 23°C	Temperature 82.2°C	Temperature 93.3°C
3/8"	36.2 bar	17.2 bar	14.5 bar
1/2"	22.8 bar	13.4 bar	11.4 bar
3/4"	22.4 bar	13.1 bar	11.4 bar
1"	22.4 bar	13.1 bar	11.4 bar

(Table 3 - maximum pressure)

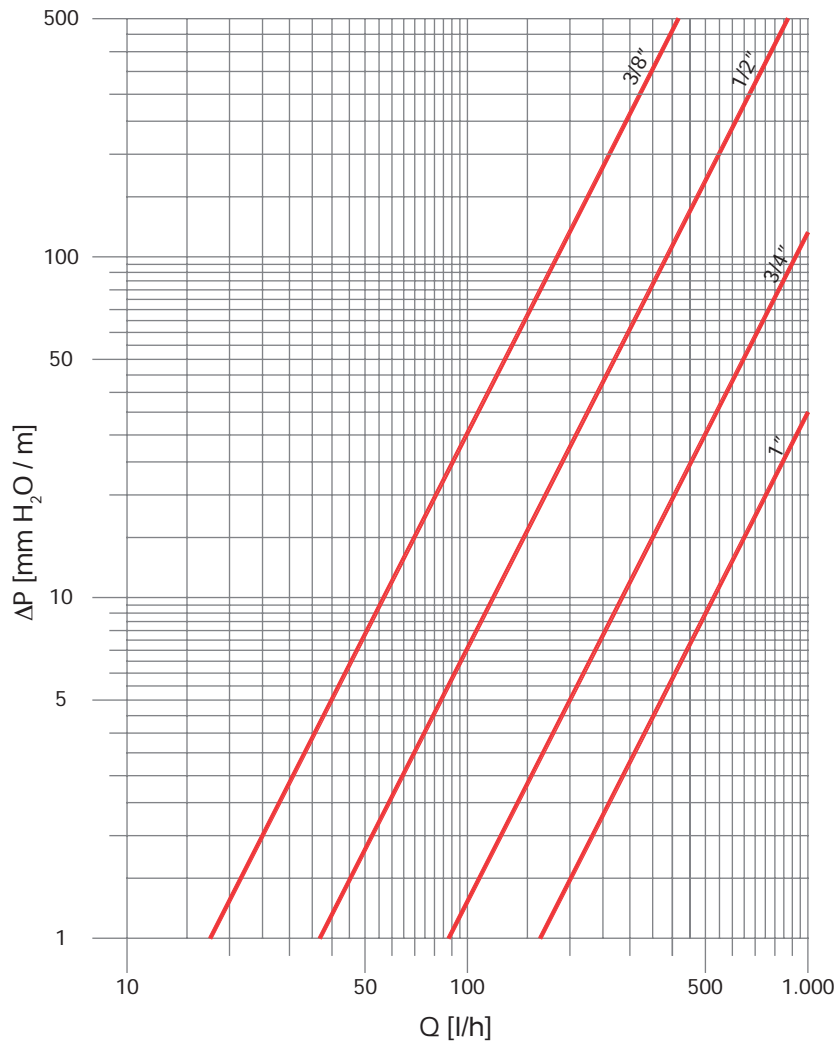
Nominal size	Temperature 23°C	Temperature 82.2°C	Temperature 93.3°C	Temperature 99°C*
3/8"	42.7 bar	19.0 bar	16.2 bar	10.34 bar
1/2"	33.1 bar	14.8 bar	14.8 bar	10.34 bar
3/4"	32.7 bar	14.5 bar	12.4 bar	10.34 bar
1"	32.7 bar	14.5 bar	12.4 bar	10.34 bar

* Test at 720h for tubing and fittings



PIPE PRESSURE LOSS

3/8", 1/2", 3/4", 1" pipe pressure loss



▸ Practical hints for installing



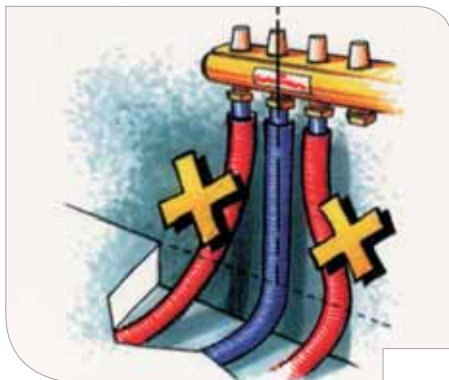
1. It is important to deliver and stock the pipe in the original packaging provided by the manufacturer.



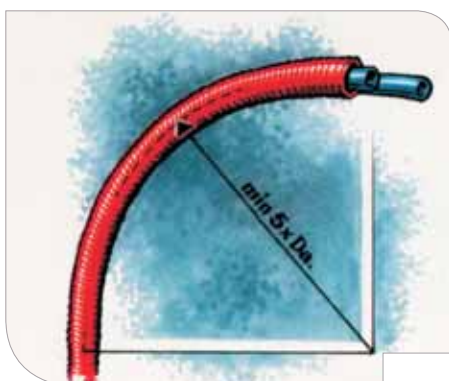
2. Pipe must be protected against direct exposure (ultra violet rays).



3. Pipe must be protected against mechanical damage.



4. In order to obtain the connection of the pipes to the set (i.e. to manifolds), it is important to fit the pipe at the correct angle.



5. Position the pipe in a way to have a radius 5 times more than the outside diameter of the pipe for heating installations. This angle must be respected even when making a service installation.



6. For bending the pipe with heat, or repairing it, heat the pipe till it becomes transparent (max. 140°C) and use hot air only (PEX only). Do not allow the pipe to come into direct contact with flames.



7. If there is any risk of freezing, drain the pipe or use an anti-freeze solution.



8. Ensure contact with products containing solvents, such as sprays is avoided.



▸ Giacoquest system guarantee

All products and components supplied by Giacomini are submitted to the guarantee and responsibility indicated in the European Laws (Directive 1994/44/CE, Directive 2001/95/CE i CEE 85/374).

The guarantee is not applicable under the following conditions:

- 1 ▸ If working conditions are different than those prescribed.
- 2 ▸ If the Giacoquest System is used with fluid not compatible with the material and/or installed in contact with products which could damage it.
- 3 ▸ If the installation instructions are not strictly followed.
- 4 ▸ If the Giacoquest System presents defects when installed, due to incidental factors easily recognizable at the time of installation or when the System is submitted to pressure test.
- 5 ▸ If the Giacoquest System is installed with components which are not manufactured by Giacomini, or different from those recommended.

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A series of horizontal dashed lines spanning the width of the page, intended for technical drawing or notes.



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