GIACOGREEN®

Pipes and Fittings in Polypropylene Random

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GIACOGREEN® - Pipes and Fittings in Polypropylene Random

Use

GIACOMINI, one of the leading companies in the thermo-sanitary field, based upon the experience gained in recent years, has introduced new pipes and fittings in Polypropylene Random, manufactured in accordance to DIN 8077-8078 standards, to satisfy further engineering needs of customers and increasing the range of plastic materials for sanitary distribution.

The high investment undertaken by the company enables the introduction into the market of a complete range with high quality and reliability, attained by careful selection of raw material suppliers and submitting production to very sophisticated controls using hightech equipment.

Water distribution with Polypropylene pipes is widely used when simple systems and low costs are required, enabling an installation with limited space, which is a main feature when retrofitting.

Quick installation, lightness of material, completely nontoxic, high acustic and thermal insulation render Polypropylene Random a modern material included in the range of the plastics for distribution not as a replacement, but as an addition for specific uses.

Features

GIACOGREEN® pipes and fittings are particularly suitable to carry out distribution systems of hot and cold water for hydro-sanitary application.

Technical features of the material render it the best solution for execution of installations for potable water, even with high percentage of limestone, alimentary liquids, irrigation systems for gardens, distribution installations of compressed air, aspiration systems or vacuum.
The main advantages of GIACOGREEN® Polypropylene systems are:

- long duration (due to its resistance to aggressive elements and to impossibility of perforation caused by electric currents, due to its conductivity)
- low loss of pressure (pipes and fittings have very smooth surfaces, and are manufactured with particular attention to the finish)
- no toxicity (guaranteed by careful selection of raw material and modern technological productive processes)
- no incrustation (phenomenon of restriction of sections due to limestone, impurities and oxidation is completely absent)
- high acustic and thermal insulation (features of the material and thickness make the system capable of absorbing sound, with the thermal insulation reducing the loss of heat, and forming of condensation typical in installations where copper pipe is used)
- the fittings with metallic inserts are highly reliable (due to the experience gained by GIACOMINI in the heating field for over 50 years enabling the production of hot forged inserts, machine tooled and then chrome plated to give high durability and perfect pressure sealing)
- carefully packaged to give maximum protection, easy stocking and transportation.

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The main technical features of GIACOGREEN® listed in the chart below are based on samples collected from current production.

Quality essays on production are carried out following the standard of the statistic method, and allow the introduction into the market of highly reliable components, to the advantage of the end-user.

Technical data

Details		Testing method	Value	U.M.
Volume at 23°C		ISO R1183	0.89	g/cm^3
Fusion area		-	140 - 150	°C
Coefficient of linear expansion		ASTM D696	0.11	mm/m°C
Thermal conductivity at 23°C		ISO R3146	0.17	W/mK
Index of fluidity	at 190°C with 5 Kg	ISO R1133	0.4 - 0.6	g/10 min.
	at 230°C with 2,16 Kg		< 0.3	g/10 min.
	at 230°C with 5 Kg		0.8 - 1.3	g/10 min.
Softening point VICAT with 9.8 N		ISO R306	135	°C
Distortion point underload with 0.45 MPa		ISO R75	80	°C
ROCKWELL hardness		ISO R2039/2	93	R scale
Specific heat at 23°C		Calorimetric	1.92	KJ/KgK
Elasticity module at 23°C		ISO R178	835	MPa
Yield tension at 23°C		ISO R527	28	MPa
Breaking point under stress at 23°C		ISO R527	> 430	%
Notched IZOD impact strength	at 23°C	ISO R180/1A	no break	KJ/m^2
	at 0°C		9.1	KJ/m^2
	at -20°C		4.9	KJ/m^2
Unnotched IZOD impact strength	at 23°C	ISO R180/1A	no break	KJ/m^2
	at 0°C		no break	KJ/m^2

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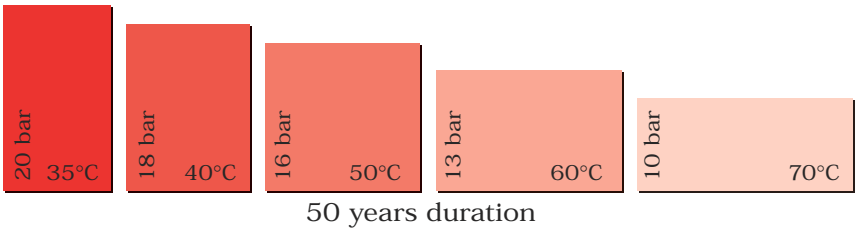
Duration of continuous working conditions with varying pressure and temperature

Duration of continuous working conditions for GIACOGREEN® components is determined based on regression curves, which strictly links duration in hours to pressure and temperature of the fluid. Thickness of pipes and fittings are designed in accordance with certain security values, able to guarantee reliability and long life.
Duration in years listed in the charts refer to continuous working conditions, and are consequently submitted to variations in increase or decrease depending on pressure and temperature. Nominal pressure of pipe is 20 bar, while fittings have a nominal pressure of 25 bar, even though they are able to withstand higher pressure (in our lab, with water temperature at 20°C, GIACOGREEN® pipe size 20 x 3,4 fails when reaching a pressure around 140 bar).



50 years duration

Installation

A sanitary system carried out with GIACOGREEN® components is very easy and quick to install, even by inexperienced people.

When installing the distribution lines, some easy recommendations must be followed with reference to the preparation of pipe, soldering of fittings and pressure test once the installation is completed.

To have perfect and long lasting joints, it is necessary to cut the pipe precisely, using suitable cutters, clean the end part to be soldered, eliminating all traces of dirt or residual grease, use a correct template on the pipe to mark the depth of the socket, heat the pipe (avoid using a naked flame), assemble the two parts without rotating and wait the required time for the solder to cool. Avoid any stress on the soldered parts until the required cooling time is reached; this is important in order not to damage the joint, and conpromise the quality of soldering.

When the installation is finished, before covering the system with concrete, fit the plugs on the threaded end pieces, and submit the system to sealig tests, which must be carried out with a pressure 1.5 times higher than the working pressure.

When the installation is visible, is necessary to support the pipe with suitable brackets, and allow for expansion and contraction, able to meet the variation of length of pipe submitted to temperature changes.

When the fluid is in danger of freezing, the system must be insulated.

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Components

Pipe in 4 mt. bar H100

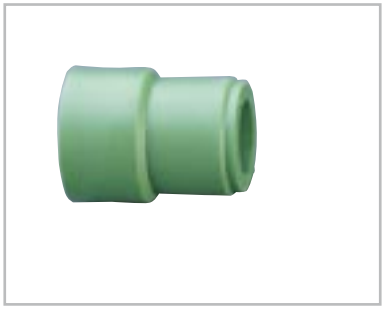
H100
ø 20 x 3,4
ø 25 x 4,2
ø 32 x 5,4
ø 40 x 6,7
ø 50 x 8,4
ø 63 x 10,5

H100
ø 75 x 12,5
ø 90 x 15
ø 110 x 18,3

Connection H102 H103 Reducer MF

H102
ø 20
ø 25
ø 32
ø 40
ø 50
ø 63

H102
ø 75
ø 90
ø 110



H103
25 x 20
32 x 20
32 x 25
40 x 32
50 x 20
50 x 25
50 x 32

H103
50 x 40
63 x 32
63 x 40
63 x 50
75 x 63
90 x 75
110 x 90

Fitting male thread H107 H109 Fitting female thread

H107
20 x 1/2"M
20 x 3/4"M
25 x 1/2"M
25 x 3/4"M
32 x 1"M

H107
40 x 1"1/4M
50 x 1"1/2M
63 x 2"M

H109
20 x 1/2"F
20 x 3/4"F
25 x 1/2"F
25 x 3/4"F
32 x 1"F

H109
40 x 1"1/4F
50 x 1"1/2F
63 x 2"F

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Components

Cross over pipe H120 H121 Cross over pipe

H120
ø 20
ø 25
ø 32

H121
ø 20

Elbow 90° H122 H124 Elbow 90° MF

H122
ø 20
ø 25
ø 32
ø 40
ø 50

H122
ø 63
ø 75
ø 90
ø 110

H124
ø 20
ø 25
ø 32

Elbow 90° with male thread H127 H129 Elbow 90° with female thread

H127
20 x 1/2"M
25 x 1/2"M
25 x 3/4"M
32 x 1"M

H129
20 x 1/2"F
25 x 1/2"F
25 x 3/4"F
32 x 1"F

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Components

Elbow 90° with female thread - male soldering H130

H130
20 x 1/2"

H139 Wall plate elbow 90° with female thread

H139
20 x 1/2"
25 x 3/4"

Elbow 45° H144

H144
ø 20
ø 25
ø 32
ø 40
ø 50

H144
ø 63

H150 Tee

H150
ø 20
ø 25
ø 32
ø 40
ø 50

H150
ø 63
ø 75
ø 90
ø 110

Reduced tee H151

H151
25x20x20
25x25x20
25x20x25
32x20x32
32x25x32

H151
50x25x50
50x32x50
50x40x50
63x25x63
63x32x63

H151
63x40x63
63x50x63
75x63x75
90x75x90
110x90x110

H153 Tee male thread

H153
20x1/2"Mx20
25x1/2"Mx25
25x3/4"Mx25
32x1"Mx32

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Components

Tee female thread H154

H154
20x1/2"Fx20
25x1/2"Fx25
25x3/4"Fx25
32x1"Fx32

H170 - H171 Stop valves

H170/H171
ø 20
ø 25

Stop valve with screwdown shut-off H173

H173
ø 20
ø 25

H173A Stop valve with screwdown shut-off, chrome plated template and cap

H173A
ø 20
ø 25

H173B Stop valve with screwdown shut-off , chrome plated template and handle

H173B
ø 20
ø 25

H174A Template with chrome plated caps

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Components

H174B Template with chrome plated caps, extension sleeve and stem, chrome plated handwheel

H174C Extension sleeve and stem

End piece H165

H165
ø 20
ø 25
ø 32
ø 40
ø 50
ø 63

H163 Plug for the pressure test of the systems

H163
1/2" M ROSSO
1/2" M BLU

Electrofusion sockets H166

H166
ø 20
ø 25
ø 32
ø 40
ø 50
ø 63

H115 Straight fitting welding x union

H115
20 x 3/4"
25 x 1"
32 x 1"1/4

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Components

Angle fitting welding x union H135

H135
20 x 3/4"
25 x 1"
32 x 1"1/4

H200 Welding machine with box and accessories

Welding tool
ø 20
ø 25
ø 32

Welding machine for H166 H205

H201 GIACOGREEN® pipe cutter

H201
0 ÷ 40

Repair kit H202 - H203

P53 Welding tool

P53
ø 20
ø 25
ø 32
ø 40
ø 50
ø 63

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Cautions

GIACOGREEN® as with all Polypropylene Random pipes, requires some precautions to guarantee durability and operation.
Main rules are:

1) Keep the pipe in its packing, avoid direct exposure to the sun.

2) Store the pipe in protected and dry places, to avoid humidity damaging the packaging.

3) Avoid the pipe coming into contact with sharp objects, paying particular attention during transportation and installation.

4) Always use the correct cutters, and cut perpendicular to the pipe axis.

5) Protect the pipe from freeezing because below 0° Polypropylene becomes fragile. Avoid contact with other hard surfaces.

6) Do not allow the pipe to come into contact with naked flames.

7) Pay particular attention to the soldering operation, which must be carried out as per the instructions.

8) Before making the joint ensure the pipe and fitting connection is clean by using sand paper.

9) When connecting two threaded fittings, avoid overuse of sealing tape, in order not to apply stress to the inserts.

Guarantee

Before being launched on the market, the GIACOGREEN® components are subjected to continuous tests in order to guarantee high quality.
The production cycle checks the chemical-physical features, dimensional and hydraulic controls identifying all possible defects, which could, over a period of time, create malfunctioning or fluid leakages.
The guarantee on the GIACOGREEN® pipes lasts for 10 years, starting from production date.
During that period GIACOMINI will refund to a maximum of 2.000.000.000 lt.
Lire any damage to person or property caused by the components.
The guarantee is not applicable under the following conditions:

1) If working conditions are different than those prescribed.

2) If the components are used in installations where the fluid is not compatible with the material.

3) If the installation instructions are not strictly followed.

4) If the pipe 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 components are installed with others not manufactured by GIACOMINI, the guarantee is extended to GIACOGREEN® components only.

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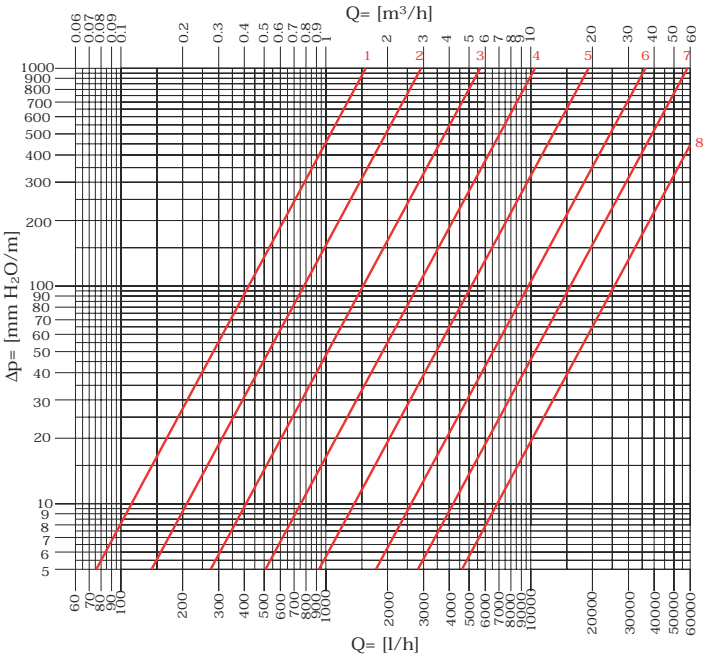
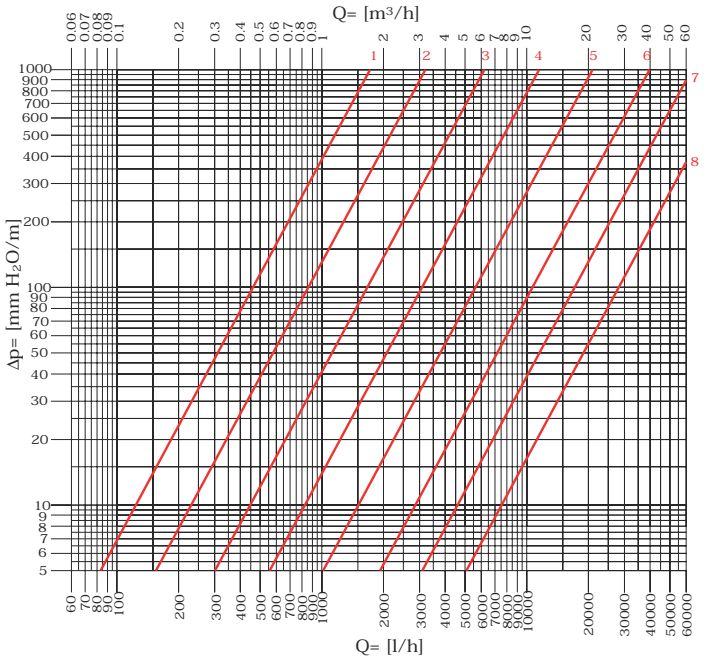
In the diagrams you will find the GIACOGREEN® loss of pressure graphs:

Loss of pressure



T= 10°C

n°	Ø
1	20 x 3,4
2	25 x 4,2
3	32 x 5,4
4	40 x 6,7
5	50 x 8,4
6	63 x 10,5
7	75 x 12,5
8	90 x 15



T= 50°C

n°	Ø
1	20 x 3,4
2	25 x 4,2
3	32 x 5,4
4	40 x 6,7
5	50 x 8,4
6	63 x 10,5
7	75 x 12,5
8	90 x 15

R304T