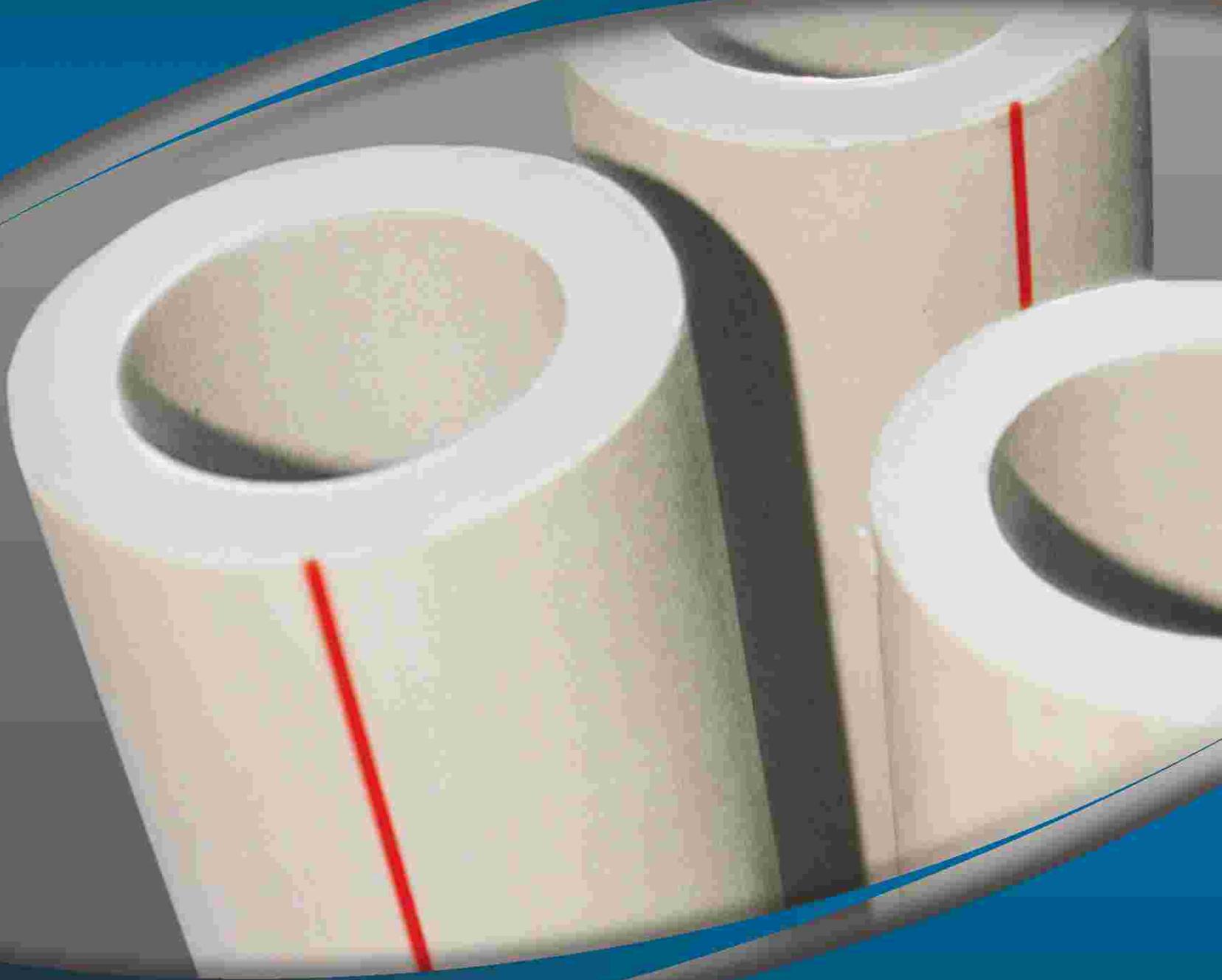




# GENOVA<sup>®</sup>

PP-R PIPES & FITTINGS



*Smart Solution Piping System*



Management System  
CNAS CO20-Q

## Company Profile PT. Karya Mulia Sejahtera

### Introduction

We already know the pipe is used as the installation of water connections in homes, restaurants, malls, offices and apartments (cold or hot) for that we also need to know the type of pipe for the selection of the appropriate designation. There are several types of pipe based materials, namely:

Because of the weakness of Iron pipe, Copper pipe and PVC pipe which can only be used for a particular installation and are also prone to leak and then there is innovation to form PP-R pipe. PP-R pipe can be applied in cold and hot water, for the installation process was very easy.

PP-R pipes and fittings are made from high quality materials polypropylene random co-polymer, which has assets of excellent hygiene. Physical and chemical properties make piping systems PP-R versatile in various applications.

Forming a company supplier of PP-R has a vision of "Smart Solution Piping System" that is always constantly strive to deliver the best quality products for development in Indonesia. The products we offer are PP-R Pipes and Fittings brands 'Genova'.

### Company Vision

*"Smart Solution Piping System"*

### Company Mission

- PP-R provides quality products that meet the National Standard Indonesia, even exceeding the expectations of consumers as well and provide benefits for all stakeholders.
- PP-R products deliver to customers in a timely.
- Being a supplier of PP-R pipes are always able to compete and grow healthily.
- Giving awards to employees through the provision of adequate welfare, providing a safe work environment, healthy and comfortable, providing opportunities for career development and innovate.
- Best to establish cooperation with Owner, Consultant, Contractor, Construction Management and Quantity Surveyors.

### Forms Of Business Entities :

From	: limited company
Establish Date	: January, 08 -2010
Certificate Number	: 13 (Thirteen)
Notary	: Siti NurulYuliami, S.H.,M.Kn
SK. Minister of Justice and Human Rights	: AHU-11564.AH.01.01.Tahun 2010

### Business :

General trading and services, distributors of PP-R pipe "Genova"

### Test Results

#### Hydrostatic testing

Product	: PP-R Pipe PN. 10 "Genova"
From	: Technology Center for Structural Strength (BPPT), Serpong Tangerang • Indonesia
Number	: C.2010.708 / C.2012.951 B
Date	: April, 08 - 2010 / April, 30 - 2012
Product	: PP-R Pipe PN. 20 "Genova"
From	: Technology Center for Structural Strength (BPPT), Serpong Tangerang • Indonesia
Number	: C.2010.1402 / C. 2012.951.A
Date	: July, 06 - 2010 / April, 30 - 2012
Number	: 1344397210
Date	: August, 08 - 2012
From	: Sentral Teknologi Polimer

### Contrast of Property for some pipe system

Pipe Style	Iron Pipe	Copper Pipe	Upvc Pipe	Cpvc Pipe	Pex-Al-Pex	PB Pipe	Genova
Service Life	5-10 years	50 years	30 years	50 years	50 years	50 years	50 years
Resistance to High Temperature	Good	Good	Bad	Good	Good	Good	Good
Hygienic Property	Bad	Common	Bad	Common	Good	Good	Good
Recyclable and No Pollution	No	No	No	No	Yes	Yes	Yes
Pipe Furring	Yes	Yes	No	No	No	No	No
Corrosion-Resistant	Bad	Bad	Good	Good	Good	Good	Good
Installation	Hard	Hard	Easy	Easy	Easy	Easy	Easy
Price	Low	High	Low	High	High	High	Common
Reliability	Common	Common	Common	Common	Common	Common	Good

### Properties

GENOVA PP-R pipes and fittings are manufactured from high quality of polypropylen Random Co- polymer (PP-R type 3). Which has excellent hygiene property. Its physical and chemical properties make GENOVA a versatile piping system in a wide range of application.

### Quality Assurance and Standard

The best practices of successful quality management systems have been adapted and learned to create our own GENOVA quality system. Quality is engineered into GENOVA products during the entire manufacturing process to comply with the following Germany standard :

- \* DIN 8077 for Pipes cold water (PN 10)
- \* DIN 8078 for Pipes hot water (PN 20)

### Advantages of Using GENOVA

Compared to other conventional metal or plastic piping system, GENOVA has the following advantages :

1. Rust and Corrosion free.
2. Low specific weight, lighter than iron therefore extensive savings in time and labor.
3. High resistance to acids and chlorides.
4. High pressure tolerances and rating.
5. Good thermal insulation properties.
6. Reduced flow stream noises in comparison with metallic pipe line.

7. Psychological non toxicity.
8. Noise free at high flow rates.
9. Long life of use, at least 50 years.

### Application Area

The GENOVA piping system is designed for :

- Hotel, resort and apartment.
- School, laboratories and chemical sewerage.
- Hospital.
- Industrial plants dealing with chemical, food processing, semi conductors.
- Commercial shopping centres, office buildings.
- Agriculture, horticulture and solar plants.
- Heating pipe for residential house and rainwater utilization system.

### Hygiene and Health Concern

The safety of GENOVA pipes and fitting for usage relating to human contact and consumption with potable water have strictly comply with the regulation for food and commodity goods. The advanced products of GENOVA have comply with the following :

- a. Material : the joining method requires no additive such as fluxes or solder. The connection is exclusively made by coupling welding.
- b. Commodity good : potable water, the increasing use of PP-R in the field of food packing confirms the hygienic qualities of the material. This make GENOVA advanced PP-R Pipeline system the optima packing for one of our precious commodity goods : the potable water.

### Chemical Resistance

The GENOVA pipe line system displays excellent resistance to no oxidating acids even at higher temperatures, hence it can be applied for the transport of hand water, soft water, potable water an industry.

### Sound insulation

The GENOVA provide a sound proofing effect on noise transmission compare to metallic pipes, since metals transmit noises quicker and louder, whereas plastics dampen the noises.

## UV - Resistance

The GENOVA piping system should not be left exposed under direct sunlight without insulating or protection. However should it have to be installed or exposed under sunlight, the UV resistance foam pipe or UV resistance coating can be applied to protect the piping system.

## Fire Classification

GENOVA pipes and fittings are classified under the requirements of the fire classification, B2 (Normally In flammable). As the raw material of GENOVA PP-R is hydrocarbon chain, toxin fumes or dioxin will not be emitted in case of outbreak of temperature more than 800°C, under ideal condition with sufficient oxygen.

## Genova Permissible operating Pressure

Temperature	Service Life, Years	For Water Installation, According to DIN 8077 Safety-Factor of 1.5			
		Genova Pipe SDR 11	Genova Pipe SDR 7.4	Genova Pipe SDR 6	Genova Stable Pipe
		Nominal Pressure in Bars			
		PN 10 Cold Water	PN 16, Hot & Cold water	PN 20, Hot & Cold Water	PN 25, Hot & Cold Water
		Permissible Working Pressure at Various Temperatures (Bars)			
20° C	1	15.1	23.8	30.7	37.7
	5	14.0	22.3	28.0	35.0
	10	13.5	21.7	27.1	33.8
	25	13.2	21.1	26.4	33.0
	50	12.9	20.4	25.9	32.3
30° C	1	12.8	20.2	25.6	32.0
	5	12.0	19.0	24.0	30.0
	10	11.7	18.3	23.5	29.3
	25	11.3	17.7	22.7	28.3
	50	11.1	17.3	22.1	27.7
40° C	1	11.1	17.1	22.1	27.7
	5	10.4	16.0	20.8	26.0
	10	10.1	15.6	20.3	25.3
	25	9.7	15.0	19.5	24.3
	50	9.2	14.5	18.4	23.0
50° C	1	9.5	14.5	18.9	23.7
	5	8.9	13.5	17.9	22.3
	10	8.7	13.1	17.3	21.7
	25	8.0	12.6	16.0	20.0
	50	7.3	12.2	14.7	18.3
60° C	1	8.3	12.2	16.5	20.7
	5	7.6	11.4	15.2	19.0
	10	7.2	11.0	14.4	18.0
	25	6.1	10.5	12.3	15.3
	50	5.5	10.1	10.9	13.7
70° C	1	6.7	10.3	13.3	16.7
	5	6.0	9.5	12.0	15.0
	10	5.3	9.3	10.7	13.3
	25	4.5	8.0	9.1	11.3
	50	4.3	6.7	8.5	10.7
80° C	1	8.7	8.6	12.3	13.7
	5	4.3	7.6	10.7	10.8
	10	3.9	6.3	9.3	9.8
	25	3.7	5.1	7.5	9.2
	50	3.8	6.1	7.6	8.4
95° C	1	3.8	6.1	7.6	8.4
	5	2.9	4.0	5.7	6.3

## Installation Instruction

Tools needed for connecting PPR pipe :

- \* Duster
- \* Ruler or tape measure
- \* Stationery
- \* Engine heater
- \* Clips pipe



## work steps

- a. Cut the pipe vertically and clean head.
- b. Earmark the length of the hot melting.
- c. Heat up the pipe and fitting at the same time.
- d. Hot melt the pipe and fitting stably, quickly and directly in short time.
- e. Cooling
- f. Pressure test :  
Cold water pipes test pressure should be 1,5 times over the design pressure.  
Hot water pipes test pressure should be 2.0 times over the design pressure

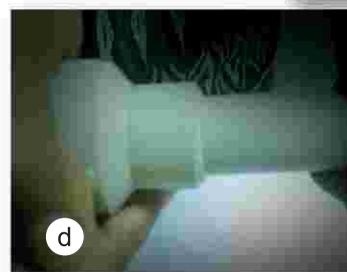
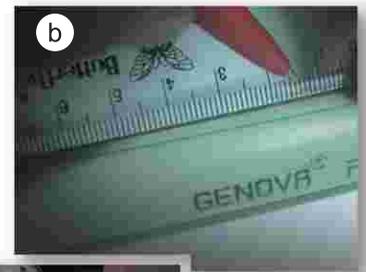
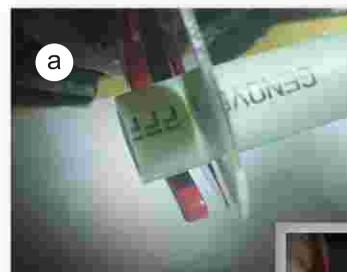
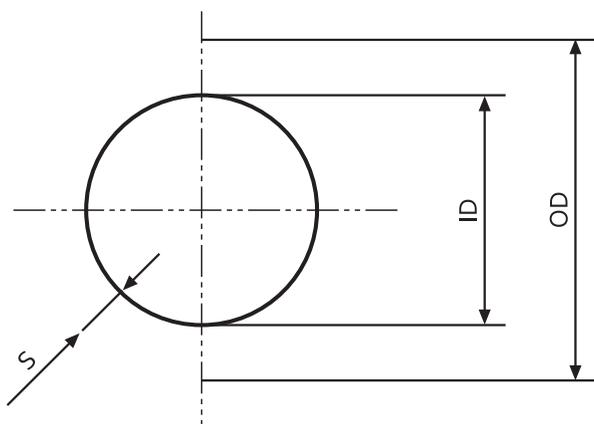


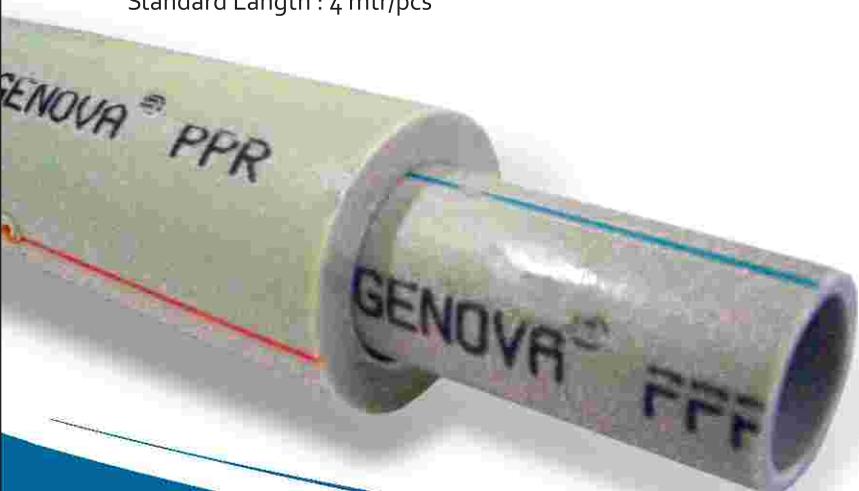
Table of processing time

Diameter mm	Welding Depth mm	Heating Time sec	Welding Time sec	Cooling Time min
20	14.0	5	4	2
25	15.0	7	4	2
32	16.5	8	6	4
40	18.0	12	6	4
50	20.0	18	6	4
63	24.0	24	8	6
75	26.0	30	8	8
90	29.0	40	8	8
110	32.5	50	10	8

Diameter Pipe



Standard Length : 4 mtr/pcs



Pipe series : SDR 11 / S<sub>5</sub> / PN 10 Cold Water

Pipe		Diameter d (mm)	Wall Thickness s (mm)	Internal Diameter di (mm)	Water Content l/m
Art-No	Dimension				
110020	20 mm	20	2	16	0.201
110025	25 mm	25	2.3	20.4	0.327
110032	32 mm	32	2.9	26	0.531
110040	40 mm	40	3.7	32.6	0.834
110050	50 mm	50	4.6	40.8	1.307
110063	63 mm	63	5.8	51.4	2.075
110075	75 mm	75	6.8	61.2	2.941
110090	90 mm	90	8.2	73.6	4.254
110110	110 mm	110	10	90	6.362
110160	160 mm	160	14.6	130.8	-

Pipe series : SDR 6 / S<sub>2.5</sub> / PN 20 Hot Water

Pipe		Diameter d (mm)	Wall Thickness s (mm)	Internal Diameter di (mm)	Water Content l/m
Art-No	Dimension				
113020	20 mm	20	3.4	13.2	0.137
113025	25 mm	25	4.2	16.6	0.216
113032	32 mm	32	5.4	21.2	0.353
113040	40 mm	40	6.7	26.2	0.556
113050	50 mm	50	8.3	33.2	0.866
113063	63 mm	63	10.5	42	1.385
113075	75 mm	75	12.5	50	1.963
113090	90 mm	90	15	60	2.827
113110	110 mm	110	18.3	73.2	4.208
113160	160 mm	160	14.6	130.8	-

