CATALOGO
CATALOGUE

AQUATEK

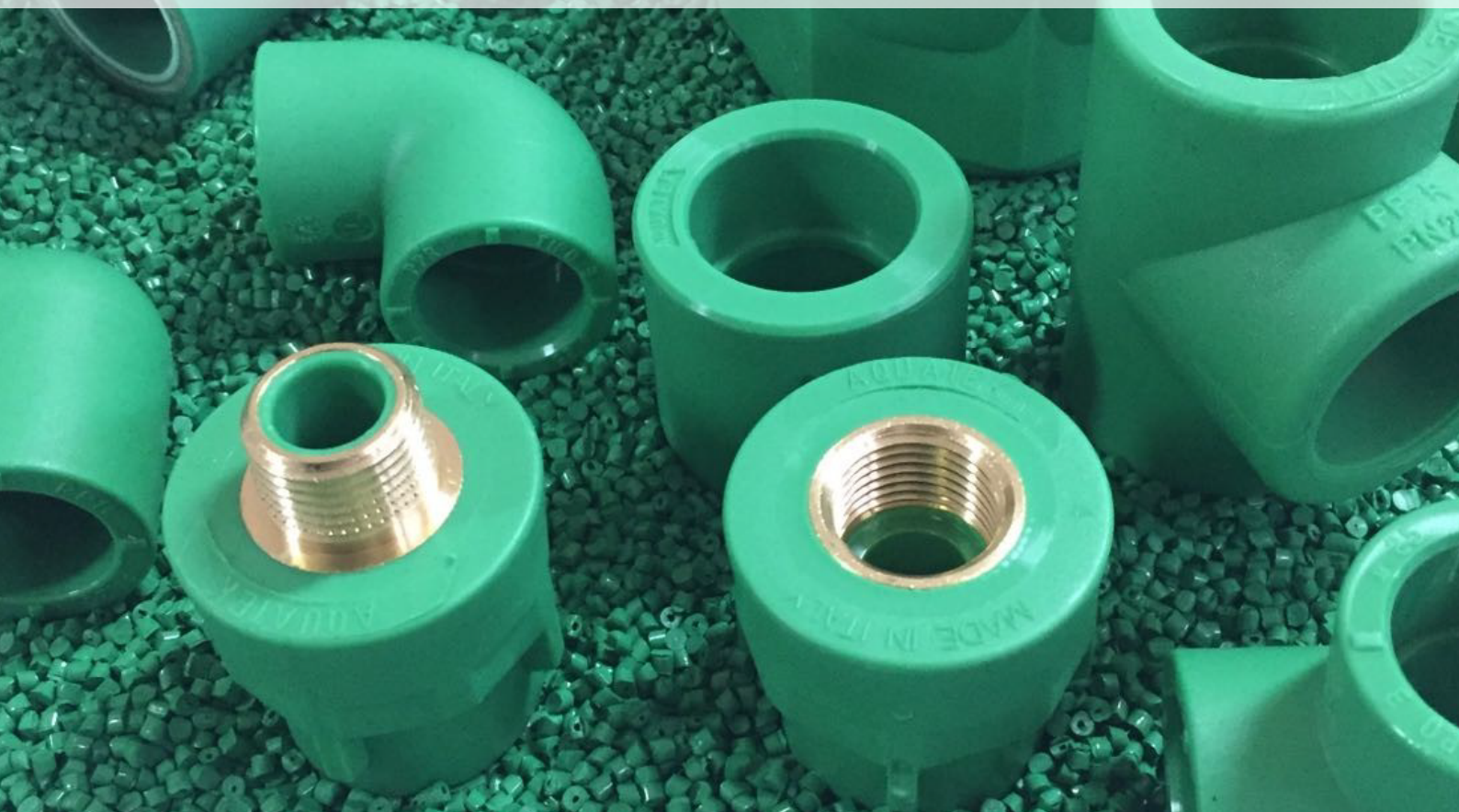
Sistema di distribuzione PP-R
PP-R distribution system

Member of CISQ Federation
RINA
ISO 9001:2008
Certified Quality System

MADEinITALY

CATALOGO
CATALOGUE

AQUATEK



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LACI s.r.l.

LABORATORIO CONFORME
UNI CEI EN ISO/IEC 1702

Rapporto di prova n°: 3600987

Pagina 1 di 2

Data di emissione: 27/07/2016
Accettazione: 3600580
Tipo di campione: Imballaggi

Spettabile:
AQUATEK

Descrizione campione: Campione assemblato costituito da tubo ca. 50 cm, raccordo liscio e raccordo filettato in polipropilene Random di tipo 3

Descrizione richiesta: Vs. ordine del 11-07-2016
Provenienza: /
Punto di prelievo: /
Prelievo effettuato da: a cura del cliente
Data accettazione: 11/07/2016

Prova: Esecuzione prove: 12/07/2016 - 26/07/2016

Prova:	Metodo:	u.m:	Risultato:
STUDIO DI MIGRAZIONE GLOBALE		-	
Migrazione globale a 40°C per 24 ore	(a)	-	
- in simulante A (etanolo 10%)			
rif. Reg UE n. 10/2011 All E)			
- in simulante A (acqua demineralizzata)		mg/dmq	
rif. DM n. 174 06/04/2004		-	0,71
STUDIO DI MIGRAZIONE SPECIFICA		mg/dmq	
IN ETANOLO 10%		-	0,47
Bario	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	
Cobalto	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	0,4
	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	<0,01
	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	<0,01
	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	<0,01
	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	<0,01
	CNR IRSA 10 Q64 Vol 3 1988	mg/kg	<0,01

IL RESPONSABILE
Tecnico di laboratorio

Timbro del laboratorio

LACI s.r.l.

I risultati delle prove si riferiscono esclusivamente al campione esaminato.
Il presente Rapporto di Prova deve essere esplicitamente autorizzato dal Laboratorio della LACI S.r.l.

Via di S. GIOVANNI TEATINO (CH) – Tel. 085.4402211 r.a. – Fax 085.4460455 – www.laci.it – e-mail: info@laci.it
Capitale I.V. € 87.768,00 – Socio Unico – Reg. Imprese Pescara, Cod. Fisc. e P.IVA: 01251090682 – R.E.A. Pescara 79452

RINA 1861

CISQ is a member of IQNet

CERTIFICATO N. 33934/16/S
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
IT IS HEREBY CERTIFIED THAT THE QUALITY MANAGEMENT SYSTEM OF

AQUATEK

Per informazioni sulla validità del certificato, visitare il sito www.rina.org

For information concerning validity of the certificate, you can visit the site www.rina.org

È CONFORME ALLA NORMA / IS IN COMPLIANCE WITH THE STANDARD

ISO 9001:2008

Riferirsi al Manuale della Qualità per i dettagli delle esclusioni ai requisiti della norma

Reference is to be made to the Quality Manual for details regarding the exemptions from the requirements of the standard

PER I SEGUENTI CAMPI DI ATTIVITÀ / FOR THE FOLLOWING FIELD(S) OF ACTIVITIES

EA:29
EA:14

COMMERCIALIZZAZIONE E PRODUZIONE DI TUBAZIONI E RACCORDERIA IN POLIPROPILENE TIPO 3 RANDOM (PP-R), DI TUBAZIONI E RACCORDERIA DI SCARICO IN PP-H E RELATIVI ACCESSORI

TRADE AND PRODUCTION OF PIPES AND FITTINGS IN POLYPROPYLENE RANDOM TYPE 3 (PP-R), DRAINAGE PIPES AND FITTINGS IN PP-H AND RELATED COMPONENTS

La validità del presente certificato è subordinata a sorveglianza periodica annuale / semestrale ed al riesame completo del sistema di gestione con periodicità triennale
The validity of this certificate is dependent on an annual / six monthly audit and on a complete review, every three years, of the management system.
L'uso e la validità del presente certificato sono soggetti al rispetto del documento RINA: Regolamento per la Certificazione di Sistemi di Gestione per la Qualità
The use and validity of this certificate are subject to compliance with the RINA document : Rules for the certification of Quality Management Systems

Stefano Grigioni
Central Italy District Manager

Prima emissione First Issue	04.07.2016
Emissione corrente Current Issue	04.07.2016
Data scadenza Expiry Date	15.09.2018

Stefano Grigioni

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FEDERAZIONE CISQ
www.cisq.com

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale
CISQ is the Italian Federation of management system Certification Bodies

ACCREDIA

IAF

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L'AZIENDA

La **AQUATEK** dopo un esperienza ventennale continua la produzione di tubi e raccordi in polipropilene random, dislocandosi in due stabilimenti.
L'azienda fonda il suo successo nell'esperienza maturata in anni di lavoro e presenza nel mercato sia italiano che estero

AQUATEK si appresta a diventare un'azienda primaria nel settore termoidraulico.

Oggi siamo un azienda che permette di essere il partner ideale per distributori termoidraulici ed edili, installatori, imprese di produzione e progettisti.

Le ottime caratteristiche tecniche che rendono i nostri prodotti inattaccabili da depositi e calcare, riducono al minimo le perdite di carico, riducendone drasticamente l'effetto condensa e la dispersione termica del fluido trasportato, fornendo così un notevole risparmio energetico. La rumorosità dell'impianto si riduce notevolmente grazie all'elasticità del materiale e il suo alto potere di isolamento acustico, inoltre consente il suo utilizzo anche in aree fortemente sismiche grazie alla sua flessibilità.

Inoltre offriamo ai nostri clienti una gamma di prodotti made in Italy di alto livello secondo le norme UNI EN ISO 9001:2008
Gestiamo interamente le attività di ricerca, sviluppo, produzione e commercializzazione.
Ai nostri clienti offriamo un servizio di assistenza di alto livello, sia in Italia che all'estero, grazie ad uno staff, capace di assicurare assistenza tecnica on-site, 24 ore al giorno, sette giorni la settimana.
L'elevata qualità delle lavorazioni, l'affidabilità, la puntualità nelle consegne ed il costante aggiornamento del parco macchine e delle professionalità interne, **AQUATEK** una realtà imprenditoriale in costante crescita.
L'acquisizione di nuovi importanti clienti, anche oltre i confini del mercato nazionale danno un ulteriore solidità all'azienda.
Tutta la produzione **AQUATEK** è rivolta alla realizzazione di prodotti termo-idraulici. Attualmente possiamo distinguere 2 prodotti:

- Tubi e raccordi in PP-R (Polipropilene copolimero Random – tipo3)
- Polifusori per la saldatura di tubi e raccordi

AQUATEK dedica grande attenzione ai temi della salute e del rispetto ambientale. Un luogo di lavoro sicuro e ordinato, una perfetta manutenzione degli strumenti tecnici, un impianto all'avanguardia, la completa osservanza delle normative in materia di inquinamento e smaltimento rifiuti rappresentano per noi e per i nostri dipendenti, le condizioni indispensabili per continuare a svolgere un buon lavoro.

IL POLIPROPILENE

Da diversi anni il PP-R (polipropilene copolimero random) rappresenta l'alternativa all'impiego di altri materiali negli impianti idrosanitari per il trasporto di fluidi freddi e caldi. Le caratteristiche chimico-fisiche del polipropilene ed il tipo di giunzione dei vari elementi, mediante polifusione, assicurano agli impianti realizzati la perfetta tenuta e garanzia nel tempo perché è un prodotto di eccellente qualità.
Il polipropilene è un materiale tra i più sicuri perché non trasmette odori o sapori, né sostanze tossiche e chimiche all'acqua. E' atossico, igienicamente perfetto, ed è innocuo perché non si corrode, non si scheggia e non si frantuma. Il polipropilene è ecologico a tutti gli effetti dato che non produce residui solidi, liquidi e gassosi.

Il polipropilene copolimero random tipo 3 da una garanzia di una durata degli impianti per oltre 50 anni.
Il sistema di distribuzione dei nostri tubi e raccordi in polipropilene, realizzato secondo le normative DIN 8077-8078, è particolarmente adatto alla realizzazione di:

- impianti di distribuzione di acqua potabile calda e fredda nel settore civile ed industriale
- convogliamento di acque potabili e calcaree, olii liquidi e corrosivi, liquidi alimentari nel settore industriale previa verifica delle compatibilità con la tabella della resistenza agli agenti chimici.
- impianti di riscaldamento
- sistema di condizionamento

Il sistema in PP-R della **AQUATEK** offre una gamma completa di componenti di elevata qualità ed affidabilità, inoltre i colori sono disponibili a seconda delle preferenze del cliente.

THE COMPANY

AQUATEK after twenty years of experience, continues the production of polypropylene random pipes and fittings.

The company bases its success in the experience gained through year of work and presence in the Italian and foreign market.
In February 2009, the company bought the brand Rietti together with the related certifications, which is a guarantee in this sector.

AQUATEK as proposed to become a primary company in the thermo-hydraulic sector

Today we are a company that allows it , to be the ideal partner for thermo-hydraulic and construction distributors, plumbers, building companies and engineers.
The excellent technical features that makes our products not affected by limestone deposits, minimizes losses and reduces drastically the effect of condensation and heat loss of the fluids, provides a relevant energy savings. The noise of the system is reduced due to the elasticity of the material and its high power of sound insulation and permits its use in highly seismic areas because of its flexibility.
Our company offers its customers a high level range of products made in Italy, according to UNI EN ISO 9001:2008 standards.
The company manages all the researches, development, production and marketing activities
We offer our customers our best services, in Italy and abroad, thanks to a team, able to provide technical assistance on-site 24 hours a day, seven days a week.
The high quality of the products, reliability, quick delivery and constant updating of the machines, makes sure that **AQUATEK** is a growing up enterprise.
The purchasing of important new customers, beyond the boundaries of the home market, gives an additional power to the company.
The whole production of **AQUATEK** is now leading to the production and marketing of thermo-hydraulic products.
Currently we can distinguish 2 products.

- Pipes and fittings in PP-R (polypropylene random copolymer – type 3)
- Welding machines for welding of pipes and fittings
- Manifolds
- Brass inserts

We dedicate great attention in the matter of health and the environment. A safe and clean workplace, a perfect maintenance of the technical tools, the full observance of the regulations concerning pollution and waste disposal, represent for us and our employees, the conditions necessary to continue to do a good job.

THE POLIPROPYLENE

Since many years the PP-R (polypropylene random copolymer) is the alternative to the use of other materials in the sanitary facilities systems for the transportation of hot and cold fluids. The chemical and physical characteristics of polypropylene and the type of junction of the various elements through welding, secures to the realized systems a perfect seal and guarantee over time because it is a product of excellent quality.

The polypropylene is one of the most secure material because it does not transmit odor or taste, toxic substances or chemi - cals to water. It is nontoxic, hygienically perfect and it is harmless because it does not corrode, does not splint and does not crush. The polypropylene is in all effect ecological because it does not produce solid, liquid and gas wastes.

The polypropylene random copolymer type 3 gives a guarantee over the systems for more than 50 years. The distribution system of our pipes and fittings in polypropylene, realized according to the rules DN 8077-8078, is particularly suited to realize:

- Distribution systems of hot and cold drinking water in the civil and industrial sector;
- Conveying of drinking and calcareous water, liquid and corrosive oils, liquids in the food industry, after verification of compatibility with the scale of resistance to chemical products;
- Heating systems
- Conditioning systems

The **AQUATEK** system offers a complete range of components of high quality and reliability, the color can be changed depending on the customer's needs.

TUBO PP-R IN BARRE MT.3 O MT.4
PIPE IN BARS MT 3 OR MT 4

SDR 6 **PN20**

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE MT.3 *CODE*	CODICE MT.4 *CODE*	CONF. MT. *PACKAGE*
	20 x 3,4	68500020AQ	68500021AQ	90/120
	25 x 4,2	68500025AQ	68500026AQ	90/100
	32 x 5,4	68500032AQ	68500033AQ	45/60
	40 x 6,7	68500040AQ	68500041AQ	45/60
	50x8,4	68500050AQ	68500051AQ	18/24
	63 x 10,5	68500063AQ	68500064AQ	18/24
	75 x 12,5	68500075AQ	68500076AQ	12
	90 x 15	68500090AQ	68500091AQ	8
	110x18,3	68500110AQ	68500111AQ	8
	125x20,8	68500125AQ	68500126AQ	1
	160x26,6	68500160AQ	68500161AQ	1

SDR 11 **PN10**

	20x1,9	68100020AQ	68100021AQ	90/120
	25x2,3	68100025AQ	68100026AQ	90/100
	32x2,9	68100032AQ	68100033AQ	45/60
	40x3,7	68100040AQ	68100041AQ	45/60
	50x4,6	68100050AQ	68100051AQ	18/24
	63x5,8	68100063AQ	68100064AQ	18/24
	75x6,8	68100075AQ	68100076AQ	12
	90x8,2	68100090AQ	68100091AQ	8
	110x10,0	68100110AQ	68100111AQ	8
	125x11,4	68100125AQ	68100126AQ	1
	160x14,6	68100160AQ	68100161AQ	1

SDR 7,4 **PN16**

	20x2,8	68160020AQ	68160021AQ	90/120
	25x3,5	68160025AQ	68160026AQ	90/100
	32x4,4	68160032AQ	68160033AQ	45/60
	40x5,5	68160040AQ	68160041AQ	45/60
	50x6,9	68160050AQ	68160051AQ	18/24
	63x8,6	68160063AQ	68160064AQ	18/24
	75x10,3	68160075AQ	68160076AQ	12
	90x12,3	68160090AQ	68160091AQ	8
	110x15,1	68160110AQ	68160111AQ	8
	125x17,1	68160125AQ	68160126AQ	1
	160x21,9	68160160AQ	68160161AQ	1

SDR 5 **PN 25**

TUBO IN BARRE PP-R
ALLUMINIO/UV CON GUAINA NERA

PIPE PP-R IN BARS
ALUMINUM/UV WITH BLACK SHEATH

	20x4,1	68250020A	68250021A	90/120
	25x5,1	68250025A	68250026A	90/100
	32x6,5	68250032A	68250033A	45/60
	40x8,1	68250040A	68250041A	45/60
	50x10,1	68250050A	68250051A	18/24
	63x12,7	68250063A	68250064A	18/24
	75x15,1	68250075A	68250076A	12
	90x18,1	68250090A	68250091A	8
	110x22,1	68250110A	68250111A	8
	125x25,1	68250125A	68250126A	1
	160x32,1	68250160A	68250161A	1

TUBO IN ROTOLI
PIPE IN COILS

ARTICOLO
ARTICLE
PN20

DIMENSIONI *MEASURE*	CODICE *CODE*	CONF. MT. *PACKAGE*
20 x 3,4	68520020	100 - 200
25 x 4,2	68520025	100 - 200

TUBO IN BARRE PP-R/ALLUMINIO MT.3 O MT.4
PIPE IN BARS PP-R/ALUMINUM MT.3 OR MT. 4

ARTICOLO
ARTICLE
PN20

DIMENSIONI *MEASURE*	CODICE MT.3 *CODE*	CODICE MT.4 *CODE*	CONF. MT. *PACKAGE*
20 x 2,8	68500020A	68500021A	90/120
25 x 3,5	68500025A	68500026A	90/100
32 x 4,4	68500032A	68500033A	45/60
40 x 5,6	68500040A	68500041A	45/60
50 x 6,9	68500050A	68500051A	18/24
63 x 8,6	68500063A	68500064A	18/24
75 x 10,3	68500075A	68500076A	12
90 x 12,3	68500090A	68500091A	8
110 x 15,1	68500110A	68500111A	8

PN25

20 x 3,4	68250020A	68250021A	90/120
25 x 4,2	68250025A	68250026A	90/100
32 x 5,4	68250032A	68250033A	45/60
40 x 6,7	68250040A	68250041A	45/60
50 x 8,3	68250050A	68250051A	18/24
63 x 10,5	68250063A	68250064A	18/24
75 x 12,5	68250075A	68250076A	12
90 x 15	68250090A	68250091A	8
110 x 18,3	68250110A	68250111A	8

TUBO IN BARRE PP-R/FIBERGLASS MT.3 O MT.4
PIPE IN BARS PP-R/FIBERGLASS MT.3 OR MT. 4

ARTICOLO
ARTICLE
PN20

DIMENSIONI *MEASURE*	CODICE MT.3 *CODE*	CODICE MT.4 *CODE*	CONF. MT. *PACKAGE*
20 X 2,8	68500020FG	68500021FG	90/120
25 X 3,5	68500025FG	68500026FG	90/100
32 X 4,4	68500032FG	68500033FG	45/60
40 X 5,5	68500040FG	68500041FG	45/60
50 X 6,9	68500050FG	68500051FG	18/24
63 X 8,6	68500063FG	68500064FG	18/24
75 X 10,3	68500075FG	68500076FG	12
90 X 12,3	68500090FG	68500091FG	8
110 X 15,1	68500110FG	68500111FG	8

MANICOTTO LISCIO F/F
SMOOTH SOCKET F/F

PN 25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	20	62350020AQ	600
	25	62350025AQ	400
	32	62350032AQ	200
	40	62350040AQ	150
	50	62350050AQ	100
	63	62350063AQ	70
	75	62350075AQ	42
	90	62350090AQ	20
	110	62350110AQ	8

CALOTTA LISCIA F
SMOOTH CAP F

PN25

	20	61850020AQ	500
	25	61850025AQ	500
	32	61850032AQ	300
	40	61850040AQ	100
	50	61850050AQ	70
	63	61850063AQ	20
	75	61850075AQ	10
	90	61850090AQ	6
	110	61850110AQ	4

MANICOTTO LISCIO A 90°F/F
SMOOTH ELBOW 90° F/F

PN 25

	20	62550020AQ	400
	25	62550025AQ	300
	32	62550032AQ	150
	40	62550040AQ	100
	50	62550050AQ	50
	63	62550063AQ	30
	75	62550075AQ	20
	90	62550090AQ	9
	110	62550110AQ	5

GOMITO LISCIO A 90°M/F
SMOOTH ELBOW 90°M/F

PN 25

	20	62560020AQ	500
	25	62560025AQ	300
	32	62560032AQ	200

GOMITO LISCIO A 45° F/F
SMOOTH ELBOW 45° F/F

PN 25

20	62650020AQ	500
25	62650025AQ	350
32	62650032AQ	200
40	62650040AQ	120
50	62650050AQ	80
63	62650063AQ	30
75	62650075AQ	30
90	62650090AQ	30
110	62650110AQ	30

RIDUZIONE LISCIA M/F
SMOOTH REDUCER M/F

PN25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
25 x 20	62362520AQ	500
32 x 20	62363220AQ	500
32 x 25	62363225AQ	500
40 x 20	62364020AQ	250
40 x 25	62364025AQ	250
40 x 32	62364032AQ	200
50 x 20	62365020AQ	200
50 x 25	62365025AQ	150
50 x 32	62365032AQ	150
50 x 40	62365040AQ	150
63 x 20	62366320AQ	80
63 x 25	62366325AQ	80
63 x 32	62366332AQ	80
63 x 40	62366340AQ	70
63 x 50	62366350AQ	70
75x40	63367540AQ	40
75x50	62367550AQ	40
75x63	62367563AQ	40

** FINO A GAMMA DN 110 COMPLETA A RICHIESTA*

TI LISCIO A 90°F/F
SMOOTH TEE 90°F/F

PN25

20	62450020AQ	300
25	62450025AQ	200
32	62450032AQ	100
40	62450040AQ	100
50	62450050AQ	50
63	62450063AQ	30
75	62450075AQ	12
90	62450090AQ	8
110	62450110AQ	5

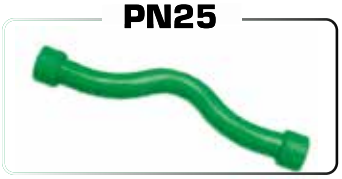
TI RIDOTTO LISCIO A 90° F/F
SMOOTH REDUCED TEE 90° F/F

PN 25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	25 x 20 x 25	62462520AQ	200
	25 x 20 x 20	62482520AQ	200
	32 x 20 x 32	62463220AQ	100
	32 x 25 x 32	62463225AQ	100
	32 x 20 x 25	62483220AQ	100
	32 x 25 x 25	62483225AQ	100
	32 x 32 x 25	62483232AQ	100
	40 x 20 x 40	62464020AQ	100
	40 x 25 x 40	62464025AQ	100
	40 x 32 x 40	62464032AQ	100
	50 x 20 x 50	62465020AQ	50
	50 x 25 x 50	62465025AQ	50
	50 x 32 x 50	62465032AQ	50
	50 x 40 x 50	62465040AQ	50
	63 x 20 x 63	62466320AQ	25
	63 x 25 x 63	62466325AQ	25
	63 x 32 x 63	62466332AQ	25
	63 x 40 x 63	62466340AQ	25
	63 x 50 x 63	62466350AQ	25

CURVA DI SORPASSO CON MANICOTTI
CROSSOVER WITH SOCKETS

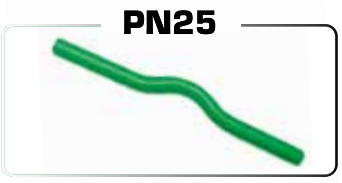
PN25



	20	68350020AQ	100

CURVA DI SORPASSO
CROSSOVER

PN25



	20	68600020AQ	150
	25	68600025AQ	100
	32	68600032AQ	50

CURVA AMPIO RAGGIO
LONG ELBOW

PN 25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	20	62850020AQ	100
	25	62850025AQ	100
	32	62850032AQ	50
	40	62850040AQ	50

MANICOTTO FILETTATO F/F
THREADED SOCKET F/F

PN25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	1/2 x 20	69301220AQ	300
	1/2 x 25	69301225AQ	250
	3/4 x 20	69303420AQ	250
	3/4 x 25	69303425AQ	250
	3/4 x 32	69303432AQ	200
	1 x 32	69300132AQ	100
	1-1/4 x 40	69301440AQ	70
	1-1/2 x 50	69301250AQ	50
	2 x 63	69300263AQ	36
	2 -1/2x75	69301275AQ	20
	3 x 90	69300390AQ	10
	4 x 110	69304110AQ	5

MANICOTTO FILETTATO M/F
THREADED SOCKET M/F

PN25

	1/2 x 20	69321220AQ	250
	1/2 x 25	69321225AQ	200
	3/4 x 20	69323420AQ	200
	3/4 x 25	69323425AQ	200
	3/4 x 32	69323432AQ	200
	1 x 32	69320132AQ	100
	1-1/4 x 40	69321440AQ	50
	1-1/2 x 50	69321250AQ	50
	2 x 63	69320263AQ	36
	2 -1/2x75	69321275AQ	20
	3 x 90	69320390AQ	10
	4 x 110	69324110AQ	5

TI A 90° FILETTATO F/F
THREADED TEE 90° F/F

PN25

	20 x 1/2 x 20	69401220AQ	200
	25 x 1/2 x 25	69401225AQ	150
	20 x 3/4 x 20	69403420AQ	150
	25 x 3/4 x 25	69403425AQ	150
	32 x 1 x 32	69400132AQ	80
	32 x 1/2 x 32	69401232AQ	80

TI A 90° FILETTATO M/F
THREADED TEE 90°M/F

PN25

	20 x 1/2 x 20	69421220AQ	200
	25 x 1/2 x 25	69421225AQ	150
	20 x 3/4 x 20	69423420AQ	150
	25 x 3/4 x 25	69423425AQ	150
	32 x 1 x 32	69420132AQ	60

GOMITO A 90° FILETTATO F/F
THREADED ELBOW 90° F/F

PN 25

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	1/2 x 20	69501220AQ	250
	1/2 x 25	69501225AQ	250
	3/4 x 20	69503420AQ	150
	3/4 x 25	69503425AQ	150
	1 x 32	69500132AQ	80 150

GOMITO FILETTATO CON STAFFA F/F
THREADED ELBOW WITH BRACKET F/F

PN 25

	1/2 x 20	69511220AQ	200
	1/2 x 25	69511225AQ	200
	3/4 x 20	69513420AQ	200
	3/4 x 25	69513425AQ	150

GOMITO A 90° FILETTATO M/F
THREADED ELBOW 90° M/F

PN25

	1/2 x 20	69521220AQ	200
	1/2 x 25	69521225AQ	150
	3/4 x 20	69523420AQ	150
	3/4 x 25	69523425AQ	150
	1 x 32	69520132AQ	75

GOMITO A 90° DI PASS.FILETTATO FF PP-R M
THREADED ELBOW 90° FF PP-R M

PN25

	1/2 x 20	69531220AQ	250

RUBINETTO A VITONE
STOPCOCK

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
PN25 	1/2 x 20	68801220AQ	50
	3/4 x 20	68800020AQ	50
	3/4 x 25	68800025AQ	50
	1 x 32	68800032AQ	60

RUBINETTO A VITONE CON MANIGLIA
STOPCOCK WITH HANDLE

PN25 	20	68900020AQ	50
	25	68900025AQ	50
	32	68900032AQ	40
	rosone + maniglia rosette+handle	68900001 AQ	1

RUBINETTO A VITONE CON VOLANTINO
STOP COCK WITH HANDWHEEL

PN 25 	20	68910020AQ	50
	25	68910025 AQ	50
	32	68910032 AQ	50
	40	68910040AQ	
	50	68910050AQ	
	63	68910063AQ	

VALVOLA A SFERA CON MANIGLIA
BALL VALVE WITH HANDLE

PN 25 	20	68880020AQ	50
	25	68880025AQ	50
	32	68880032AQ	50
	rosone + maniglia rosette+handle	68880001 AQ	1

VALVOLA A SFERA CON LEVA
BALL VALVE WITH LEVER

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	20	68890020AQ	50
	25	68890025AQ	50
	32	68890032AQ	50
	rosone+leva rosette+lever	68890001	1

VALVOLA A SFERA CON CAPPUCCIO
BALL VALVE WITH CAP

	20	68850020AQ	50
	25	68850025AQ	50
	32	68850032AQ	50
	rosone + cappuccio rosette+cap	68850001	1

CORPO RUBINETTO
BODY COCK

	1/2 x 20	68811220AQ	20
	3/4 x 20	68813420AQ	20
	3/4 x 25	68813425AQ	10
	1 x 32	68810132 AQ	5

SET VITONE
SET STOPCOCK

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
3/4 asta corta 3/4 short neck		68820034	1
3/4 asta lunga con maniglia 3/4 long neck with handle		68820134	1
1/2 asta corta 1/2 short neck		68820012	1
1" asta lunga con maniglia 1" long neck with handle		6809889	1

VITONE
STOPCOCK

3/4		6808887	1
3/4 asta lunga *long stopcock*		6808889	1
3/4 + borchia + cappuccio 3/4+boss+cap		6808888	1

CAPPUCCIO CON ROSONE
CAP WITH ROSETTE

rosone /rosette		68810034	1
canotto/sleeve		68850034	1
canotto forato/drilled		68860034	1
rosone /rosette		68810034	1
canotto/sleeve		68850034	1
canotto forato/drilled		68860034	1

PROLUNGA PER RUBINETTO VITONE
EXTENSION FOR STOPCOCK

3/4 asta lunga *long stopcock*		68840034	1

BOCCHETTONE
PIPE UNION

1/2 x 3/4		69911234	10
3/4 x 1		69913401	10
1 x 1 - 1/4		69911114	10

BOCCHETTONE MASCHIO
PIPE UNION MALE

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	20	69912234AQ	10
	25	69912235AQ	10
	32	69912236AQ	10
	40	69912237AQ	10
	50	69912238AQ	10
	63	69912239AQ	10

BOCCHETTONE FEMMINA
PIPE UNION FEMALE

	20	69912230AQ	10
	25	69912231 AQ	10
	32	69912232AQ	10
	40	69912233AQ	10
	50	69912225AQ	10
	63	69912224AQ	10

BOCCHETTONE IN PP
PIPE UNION IN PP

	20	69912240	10
	25	69912241	10
	32	69912242	10
	40	69912243	10
	50	69912244	10
	63	69912245	10

FLANGIA
FLANGE SOCKET

	40	69910040	15
	50	69910050	15
	63	69910063	15
	75	69910075	10
	90	69910090	10
	110	69910110	10

CASSETTA COMPLETA DI POLIFUSORE RT-63 CON SUPPORTO E MATRICI
TOOLBOX WITH WELDING MACHINE RT-63 WITH SUPPORT AND HEATING TOOLS

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	20-25-32	69010091NEW	1
	20	69010092NEW	1
	20-25	69010093NEW	1
	20-25-32-40	69010094NEW	1

POLIFUSORE RT-63
WELDING MACHINE RT-63

solo polifusore only welding machine	69040090	1
polifusore + supporto welding machine + support	69040091	1
20	69040092	1
20-25-32	69040095	1

COPPIA MATRICI PER POLIFUSORI
HEATING TOOLS FOR WELDING MACHINES

20	69020020	1
25	69020025	1
32	69020032	1
40	69020040	1
50	69020050	1
63	69020063	1
75	69020075	1
90	69020090	1
110	69020110	1

RIPARAFORI IN ACCIAIO TEFLONATO
REPAIR TOOL IN STEEL TEFLON PLATED

7	69030007	1
11	69030011	1

TRONCHESE TAGLIATUBO *CUTTING NIPPERS*

ARTICOLO *ARTICLE*	DIMENSIONI *MEASURE*	CODICE *CODE*	CONFEZIONE *PACKAGE*
	0 - 40	69050040	1
	38 mm - 67 mm	69053867	1
	50 mm - 127 mm	69050127	1
	100 mm - 168 mm	69050168	1

SPELATORE PER TUBI *PIPE PEELING*

20-25	69062025	PLASTIC	1
32-40	69063240	PLASTIC	1
20-25	69062520	METAL	1
32-40	69064032	METAL	1
50-63	69065063	METAL	1
75-90	69067590	METAL	1

TAPPO PROVA IMPIANTI *PLUG LINE TEST*

PN25

1/2 BLU	69090012	300
1/2 ROSSO	69090112	300

POMPA TEST DI PRESSIONE *PRESSURE TESTING PUMP*

	POMPA	1

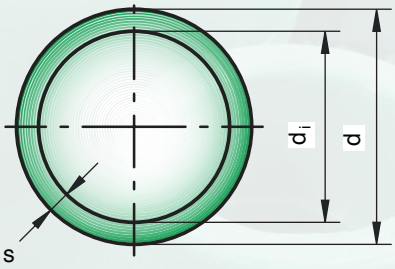
COLLARE FERMATUBI *CLIPS*

20	69913020	1000
25	69913025	500
32	69913032	300

PP-R Pipe Pn 20, SDR 6

Sice many years the PP-R (polypropylene random copolymer) is the alternative to the use of other materials in the sanitary facilties sytems for the transportations of hot and cold fluids. The chemical and physical characteristics of polypropylene and the type of junction of the various elements through the welding, secures to the realized systems perfect seal and guarantee over time because it is a product of excellent quality.

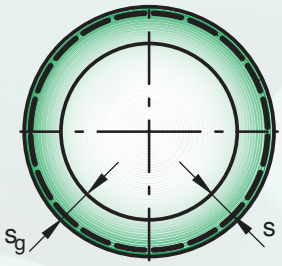
The polypropylene is one of the most secure material because it does not transmit odor or taste, toxic substances or chemicals to water. It is nontoxic, hygienically perfect and it is harmless because it does not corrode, does not splint and does not crush. The polypropylene is in all effect ecological because it does not produce solid, liquid and gas wastes.

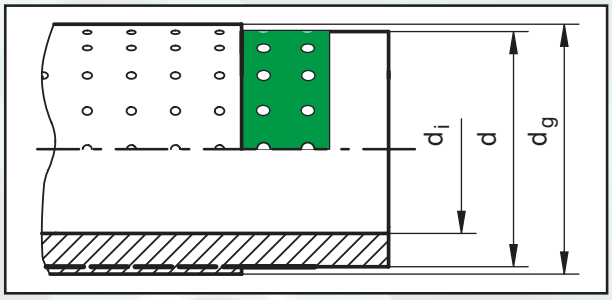


Pipe	Diameter	Wall Thickness	Internal content	Water content	Weight
Dimension	d	s	d_i	l/m	kg/m
	mm	mm	mm		
20 mm	20	3,4	13,2	0,137	0,174
25 mm	25	4,2	16,6	0,216	0,268
32 mm	32	5,4	21,2	0,353	0,437
40 mm	40	6,7	26,6	0,556	0,675
50 mm	50	8,4	33,2	0,876	1,047
63 mm	63	10,5	42,0	1,385	1,661
75 mm	75	12,5	50,0	1,963	2,351
90 mm	90	15,0	60,0	2,827	3,379
110 mm	110	18,3	73,4	4,231	5,037

PP-R Aluminum Pipe

PP-R Stabi Composite Pipe is a new type of PP-R pipes. It is a combination of the metal and plastic pipe to get advantages of the both. By integrating a layer of the metal into the plastic makes the lifetime of these pipes considerably longer. These PP-R pipes are much stronger and their temperature resistance is higher than with ordinary PP-R pipes.
The incorporating of metal ensures longer lifetime with same resistance as metal pipes and higher temperature, the features of the PP-R plastic prevent from corrosion and makes these pipes very hygienic and stable after installation.
PP-R Stabi Composite Pipe is widely used in food industry for its no oxidation and no chemical reaction characteristics.
It can be also found in cooling systems, snow melting equipments, heating installations and many other applications. It can be buried under ground and easily found with metal detector if needed.



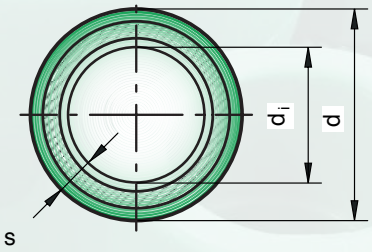


Pipe		Diameter	Wall thickness	Internal content	(d) totale	(s) totale	Water content	Weight
Dimension	UL	d	s	d_i	d_g	s_g	l/m	kg/m
		mm	mm	mm	mm	mm		
20 mm	100	20	2,8	14,4	21,6	3,6	0,163	0,210
25 mm	100	25	3,5	18,0	26,8	4,4	0,254	0,290
32 mm	40	32	4,5	23,0	33,8	5,4	0,415	0,466
40 mm	40	40	5,6	28,8	42,0	6,6	0,615	0,701
50 mm	20	50	6,9	36,2	52,0	7,9	1,029	1,054
63 mm	20	63	8,7	45,6	65,0	9,7	1,633	1,573
75 mm	20	75	10,4	54,2	77,0	11,4	2,307	2,190
90 mm	12	90	12,5	65,0	92,0	13,5	3,318	3,146
110 mm	8	110	15,2	79,6	113,0	16,7	4,976	4,601

PP-R Fiberglass Pipe

PP-R Fiberglass Pipe is a new and improved type of plastic pipe and its produce is based on three stable layer structure. It can take much more pressure than many other pipes and it resists even with growing temperature. Inner fibre layer solved the problem of expansion by reducing expansion coefficient of the pipe around 30% of an ordinary PP-R pipe.

With an advantages in hot temperature, PP-R Fiberglass Pipe has also improved protection to impulse in low temperature. It keeps all hygienic characteristics of the PP-R Pipe so this Fiberglass pipe can be used in water systems, heating and pipe network and many other applications.



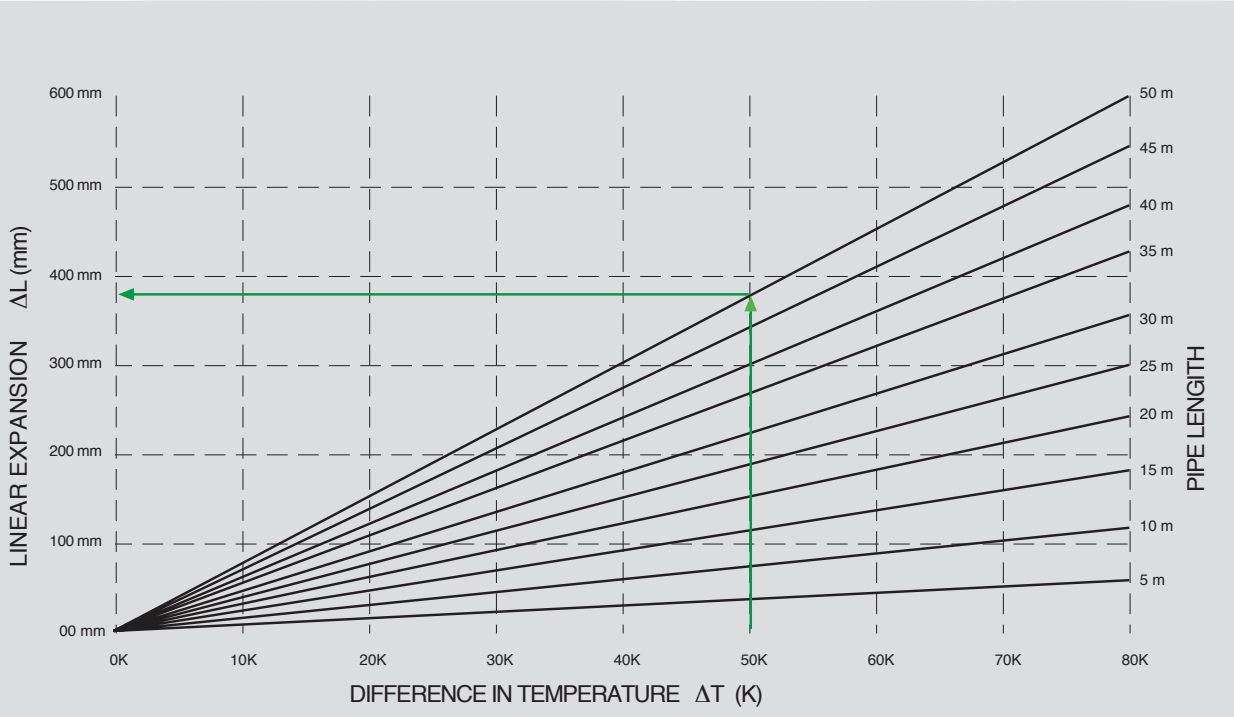
Pipe	Diameter	Wall thickness	Internal content	Water content	Weight
Dimension	d	s	d_i	l/m	kg/m
	mm	mm	mm		
20 mm	20	2,8	14,4	0,163	0,152
25 mm	25	3,5	18,0	0,254	0,236
32 mm	32	4,4	23,2	0,423	0,379
40 mm	40	5,5	29,0	0,661	0,590
50 mm	50	6,9	36,2	1,029	0,919
63 mm	63	8,6	45,8	1,647	1,444
75 mm	75	10,3	54,4	2,324	2,054
90 mm	90	12,3	65,4	3,359	2,943
110 mm	110	15,1	79,8	5,001	4,403
125 mm	125	17,1	90,8	6,475	5,669
160 mm	160	21,9	116,2	10,604	9,710
200 mm	200	27,4	145,2	16,550	15,051

Installation principles PP-R pipes

The linear expansion, described on the preceding pages, can be taken from the following tables and graphs.

Linear Expansion ΔL in (mm) for PP-R Pipes α = 0,150 mm/mK

PIPE LENGTH	DIFFERENCE IN TEMPERATURE ΔT = Te - Tm							
	10k	20k	30k	40k	50k	60k	70k	80k
	LINEAR EXPANSION ΔL (mm)							
5 m	8	15	23	30	38	45	53	60
10 m	15	30	45	60	75	90	105	120
15 m	23	45	68	90	113	135	158	180
20 m	30	60	90	120	150	180	210	240
25 m	38	75	113	150	188	225	263	300
30 m	45	90	135	180	225	270	315	360
35 m	53	105	158	210	263	315	368	420
40 m	60	120	180	240	300	360	420	480
45 m	68	135	203	270	338	405	473	540
50 m	75	150	225	300	375	450	525	600

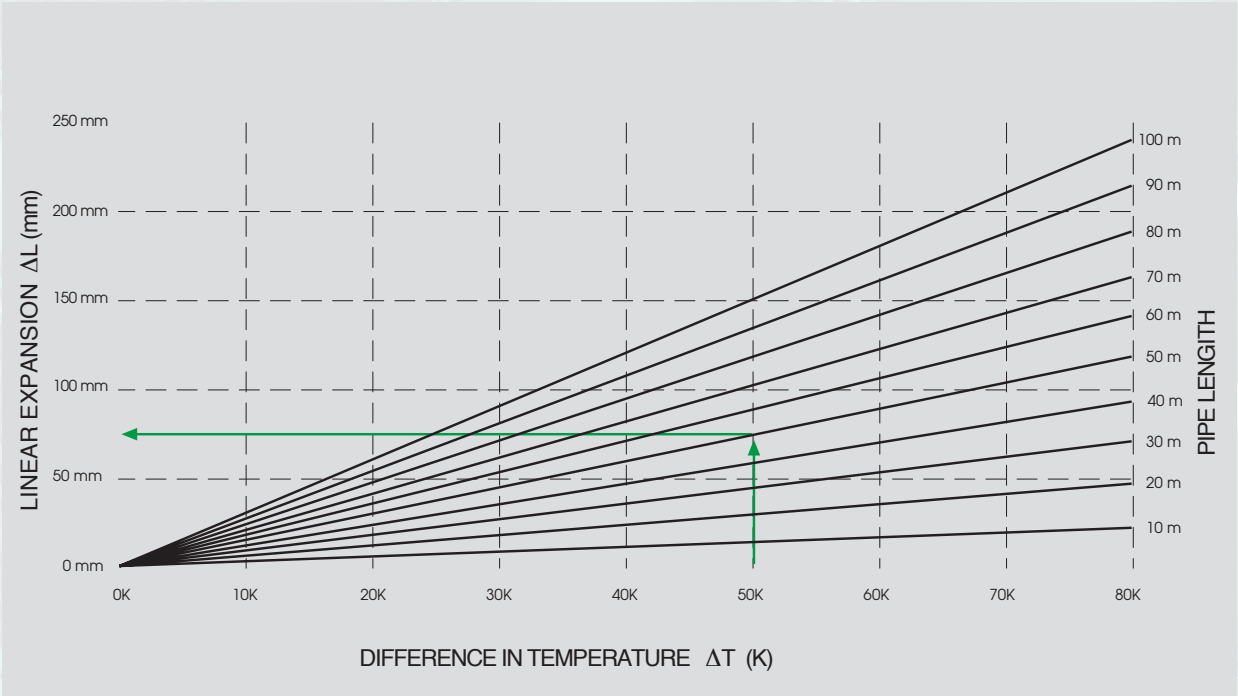


Installation principles PP-R/Stabi aluminum pipes

Due to the integration and positive bond of the different materials, stabi composite pipe offers much higher stability.
The linear expansion reduces its value to 1/5 of the PP-pipes.

Linear Expansion ΔL in (mm) for PP-R Pipes - aluminum α = 0,030 mm/mK

PIPE LENGTH	DIFFERENCE IN TEMPERATURE ΔT = Te - Tm							
	10k	20k	30k	40k	50k	60k	70k	80k
	LINEAR EXPANSION ΔL (mm)							
10 m	3	6	9	12	15	18	21	24
20 m	6	12	18	24	30	36	42	48
30 m	9	18	27	36	45	54	63	72
40 m	12	24	36	48	60	72	84	96
50 m	15	30	45	60	75	90	105	120
60 m	18	36	54	72	90	108	126	144
70 m	21	42	63	84	105	126	147	168
80 m	24	48	72	96	120	144	168	192
90 m	27	54	81	108	135	162	189	216
100 m	30	60	90	120	150	180	210	240

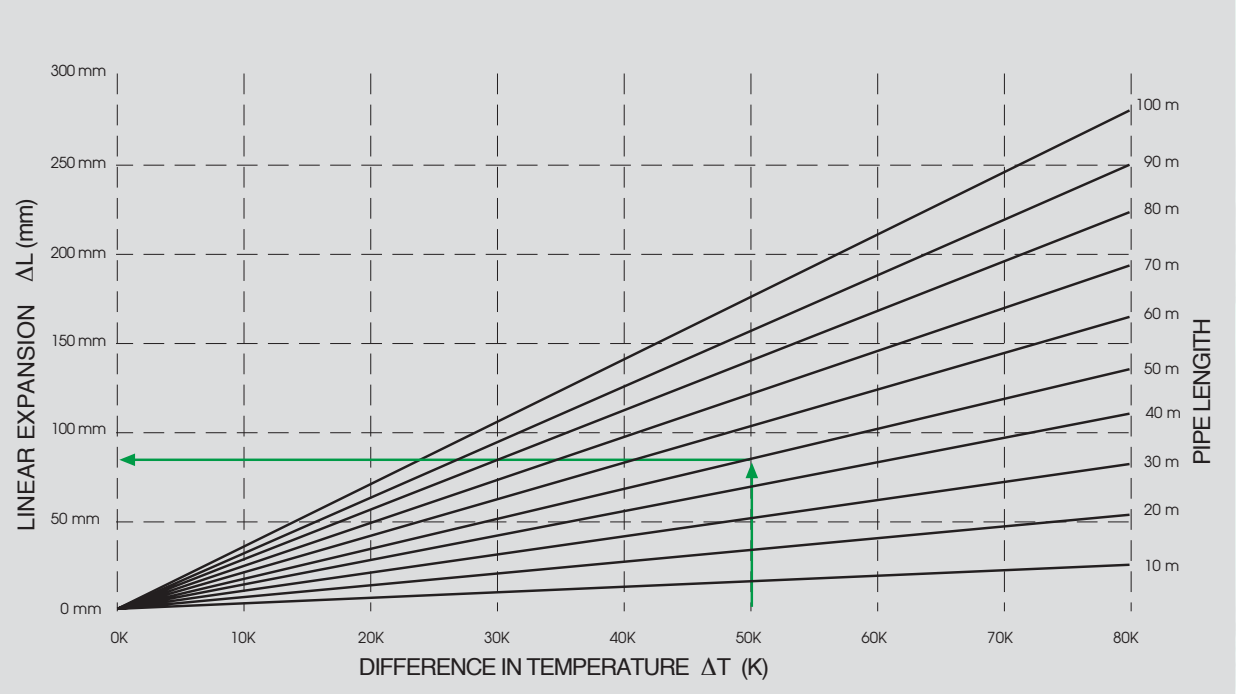


Installation principles PP-R / Fiberglass pipes

Due to the integration and positive bond of the different materials the composite pipe offers much higher stability
The linear expansion reduces its value to 1/5 of the PP-Pipes

Linear Expansion ΔL in (mm) for PP-R Pipes - Faser α = 0,035 mm/mK

PIPE LENGTH	DIFFERENCE IN TEMPERATURE ΔT = Te - Tm							
	10k	20k	30k	40k	50k	60k	70k	80k
	LINEAR EXPANSION ΔL (mm)							
10 m	4	7	11	14	18	21	25	28
20 m	7	14	21	28	35	42	49	56
30 m	11	21	32	42	53	63	74	84
40 m	14	28	42	56	70	84	98	112
50 m	18	35	53	70	88	105	123	140
60 m	21	42	63	84	105	126	147	168
70 m	25	49	74	98	123	147	172	196
80 m	28	56	84	112	140	168	196	224
90 m	32	63	95	126	158	189	221	252
100 m	35	70	105	140	175	210	245	280



Installation principles

Bending side

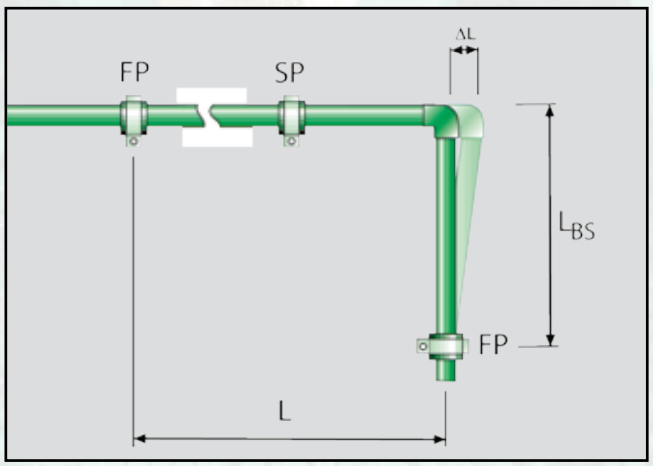
In most cases direction changes can be used to compensate for linear expansion in pipes.

The values of the bending side can be taken directly from the tables and graphs on the following pages.

Symbol	Meaning	
L_{BS}	Length of the bending side	[mm]
K	Material specific constant	15.0
d	Outside diameter	[mm]
ΔL	Linear expansion	[mm]
L	Pipe Length	[m]
FP	Fixed point	
SP	Sliding point	

Calculational determination of the bending side length

$$L_{BS} = K \times \sqrt{d \times \Delta L}$$



Expansion loop

If the linear expansion cannot be compensated by a change in direction, it will be necessary to install an expansion loop with long and straight pipelines.

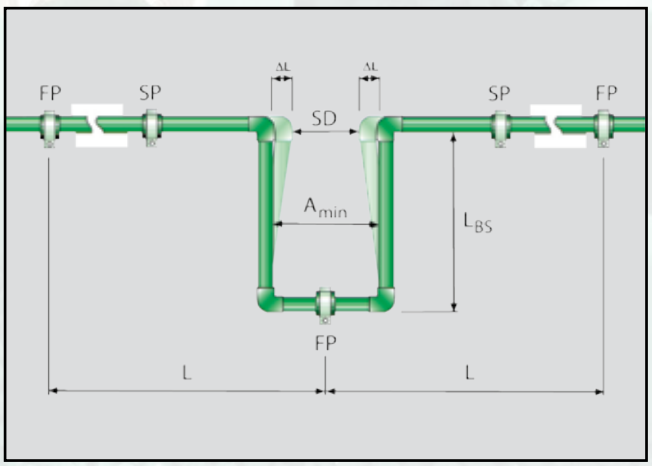
In addition to the length of the bending side L_{BS} the width of the pipe bend A_{min} must be considered.

Symbol	Meaning	
A_{min}	Width of the expansion loop	[mm]
SD	Safety distance	150 mm

The pipe bend A_{min} is calculated acc. to the following formula:

$$A_{min} = 2 \times \Delta L + SD$$

The width of the expansion loop A_{min} should be at least 210 mm.



Pre-stress / Bellow expansion joint

Pre-stress

Where space is limited, it is possible to shorten the total width A_{min} as well as the length of the bending side L_{BSV} by pre-stressing.

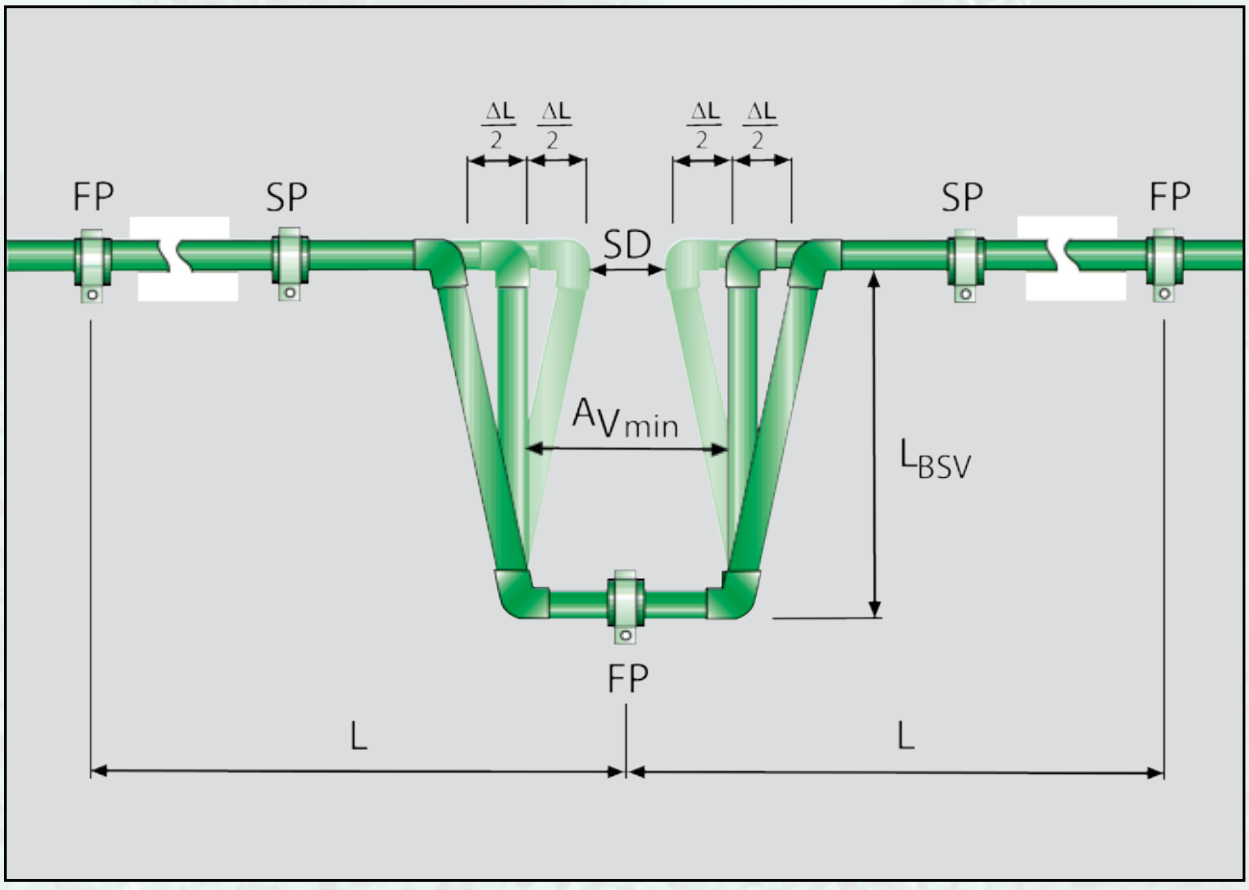
Pre-stress installations, if planned and carried out carefully, offer an optically perfect installation, as the linear expansion is hardly visible.

The side length L_{SV} is calculated acc. to the following calculation example:

Symbol	Meaning	Value	Measuring unit
L_{BSV}	Length of pre-stress	-	[mm]

The side length of expansion loops wih pre-stress is calculated acc. to the following example:

$$L_{BSV} = K \times \sqrt{d \times \frac{\Delta L}{2}}$$



Bellow expansion joint

All bellow expansion joints for corrugated pipes designed for metal materials are unsuitable for PP-R-pipes.

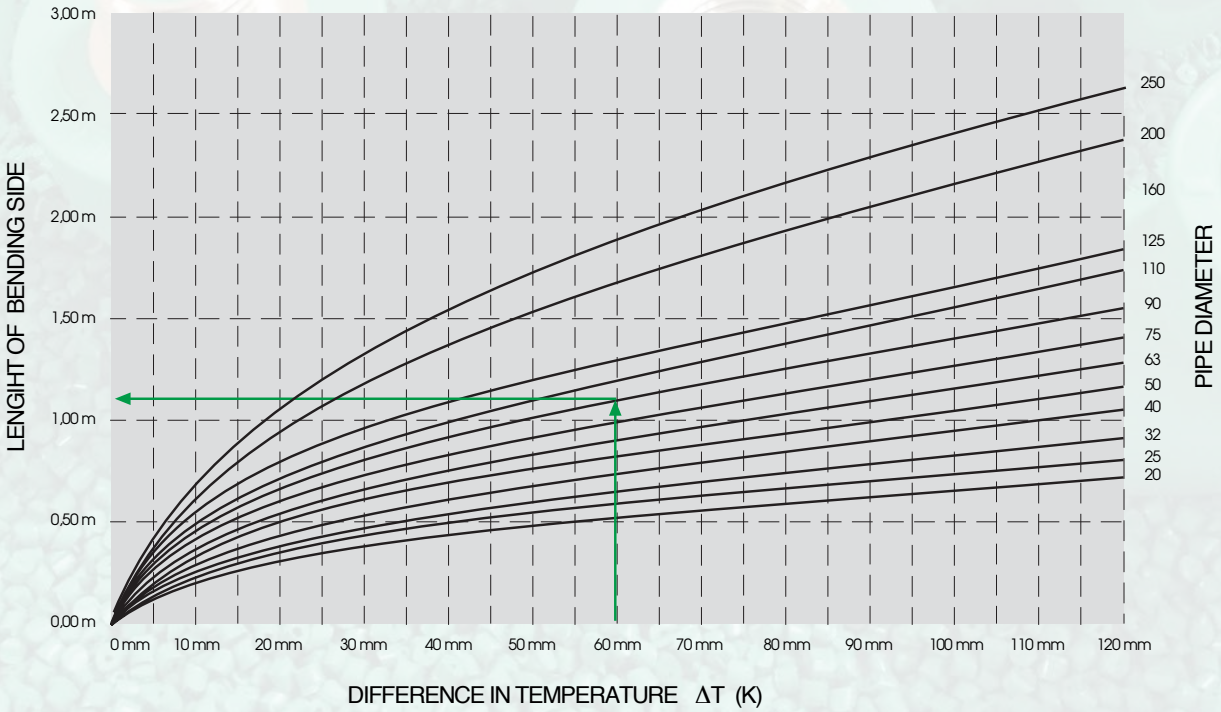
When using axial expansion joints observe the manufacturers instructions.

Installation principles

The length of the bending side L_{as} con be taken from the below tables and graphs in consideration of the applied pipe dimension and determined linear expansion

Lenght of bending side for PP-R STANDARD, PPR/FIBERGLASS, PP-R/ALUMINUM PIPES

PIPE DIAMETER (MM)	LINEAR EXPANSION											
	10	20	30	40	50	60	70	80	90	100	110	120
	LENGHT OF BENDING SIDE (M)											
20 mm	0,21	0,30	0,37	0,42	0,47	0,52	0,56	0,60	0,64	0,67	0,70	0,73
25 mm	0,24	0,34	0,41	0,47	0,53	0,58	0,63	0,67	0,71	0,75	0,79	082
32 mm	0,27	0,38	0,46	0,54	0,60	0,66	0,71	0,76	0,80	0,85	0,89	0,93
40 mm	0,30	0,42	0,52	0,60	0,67	0,73	0,79	0,85	0,90	0,95	0,99	1,04
50 mm	0,34	0,47	0,58	0,67	0,75	0,82	0,89	0,95	1,01	1,06	1,11	1,16
63 mm	0,38	0,53	0,65	0,75	0,84	0,92	1,00	1,06	1,13	1,19	1,25	1,30
75 mm	0,41	0,58	0,71	0,82	0,92	1,01	1,09	1,16	1,23	1,30	1,36	1,42
90 mm	0,45	0,64	0,78	0,90	1,01	1,10	1,19	1,27	1,35	1,42	1,49	1,56
110 mm	0,50	0,70	0,86	0,99	1,11	1,22	1,32	1,41	1,49	1,57	1,65	1,72
125 mm	0,53	0,75	0,92	1,06	1,19	1,30	1,40	1,50	1,59	1,68	1,76	1,84
160 mm	0,60	0,85	1,04	1,20	1,34	1,47	1,59	1,70	1,80	1,90	1,99	2,08
200 mm	0.67	0,95	1,16	1,34	1,50	1,64	1,77	1,90	2,01	2,12	2,22	2,32

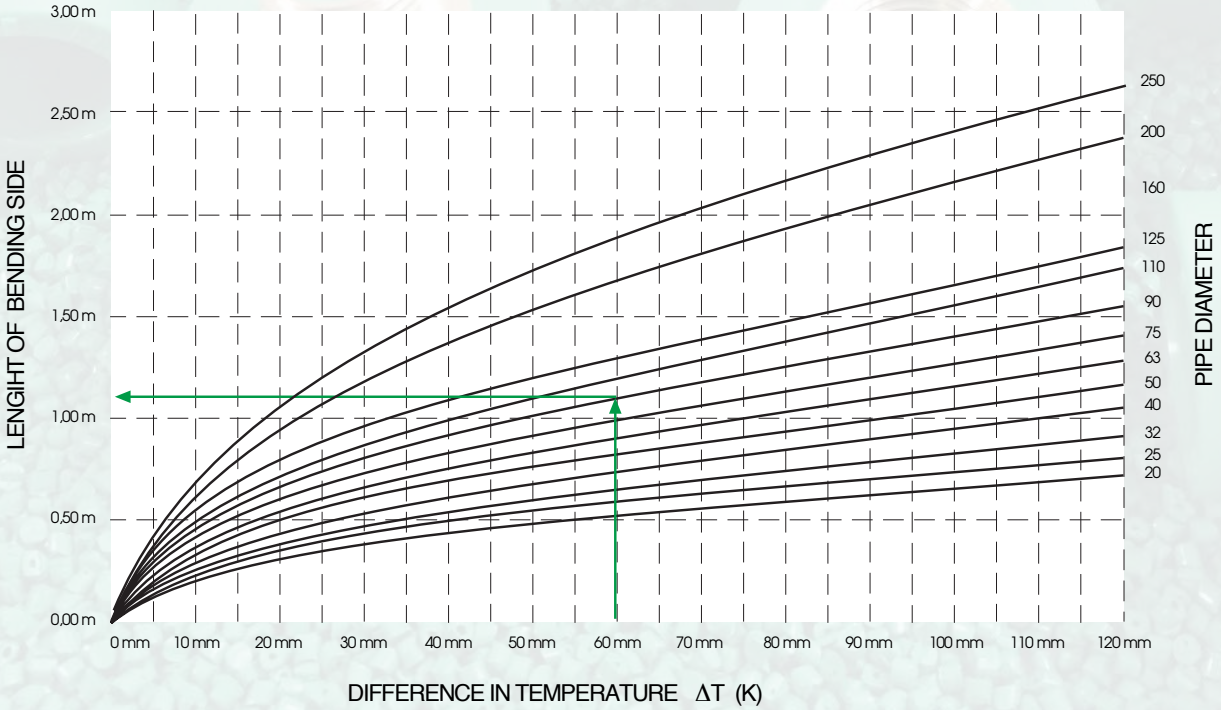


Installation principles

The length of the bending side L_{as} con be taken from the below tables and graphs in consideration of the applied pipe dimension and determined linear expansion

Lenght of bending side for PP-R STANDARD, PPR/FIBERGLASS, PP-R/ALUMINUM PIPES

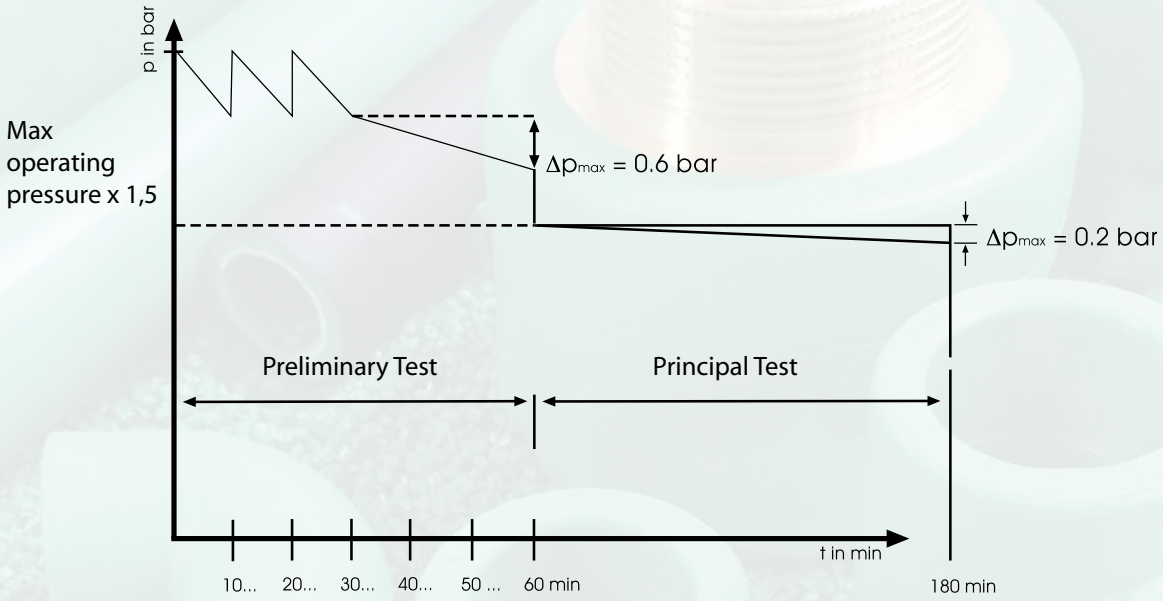
PIPE DIAMETER (MM)	LINEAR EXPANSION											
	10	20	30	40	50	60	70	80	90	100	110	120
	LENGHT OF BENDING SIDE (M)											
20 mm	0,21	0,30	0,37	0,42	0,47	0,52	0,56	0,60	0,64	0,67	0,70	0,73
25 mm	0,24	0,34	0,41	0,47	0,53	0,58	0,63	0,67	0,71	0,75	0,79	082
32 mm	0,27	0,38	0,46	0,54	0,60	0,66	0,71	0,76	0,80	0,85	0,89	0,93
40 mm	0,30	0,42	0,52	0,60	0,67	0,73	0,79	0,85	0,90	0,95	0,99	1,04
50 mm	0,34	0,47	0,58	0,67	0,75	0,82	0,89	0,95	1,01	1,06	1,11	1,16
63 mm	0,38	0,53	0,65	0,75	0,84	0,92	1,00	1,06	1,13	1,19	1,25	1,30
75 mm	0,41	0,58	0,71	0,82	0,92	1,01	1,09	1,16	1,23	1,30	1,36	1,42
90 mm	0,45	0,64	0,78	0,90	1,01	1,10	1,19	1,27	1,35	1,42	1,49	1,56
110 mm	0,50	0,70	0,86	0,99	1,11	1,22	1,32	1,41	1,49	1,57	1,65	1,72
125 mm	0,53	0,75	0,92	1,06	1,19	1,30	1,40	1,50	1,59	1,68	1,76	1,84
160 mm	0,60	0,85	1,04	1,20	1,34	1,47	1,59	1,70	1,80	1,90	1,99	2,08
200 mm	0.67	0,95	1,16	1,34	1,50	1,64	1,77	1,90	2,01	2,12	2,22	2,32

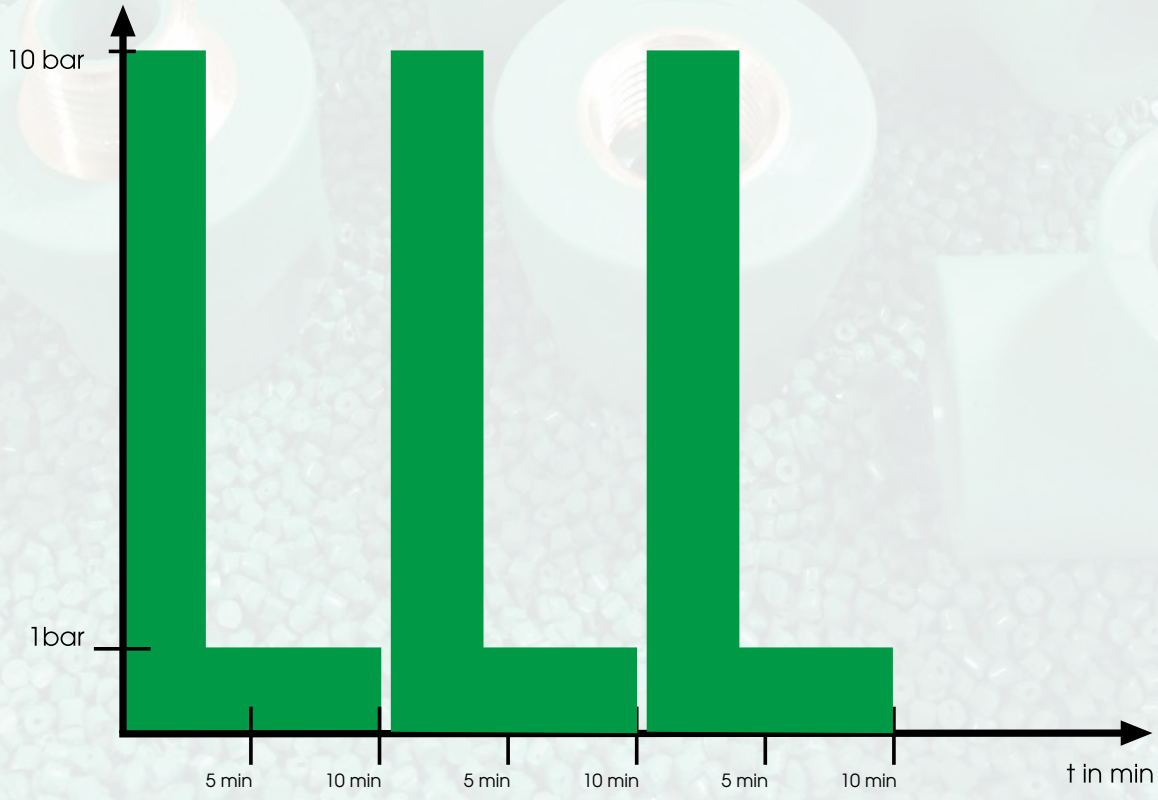


Installation Principles

Pressure test / Test control

PRELIMINARY- AND PRINCIPAL TEST





Permissible working pressure for potable water installations
Fluid transported: water acc. to DIN 2000

Temperature	Service life	PIPE SDR 11	PIPE SDR 6	FASER COMPOSITE PIPE
			STABI COMPOSITE PIPE	
		Sovrappressioni di esercizio ammissibili in bar		
20°C 68°F	1	15,0	30,0	28,6
	5	14,1	28,1	26,8
	10	13,7	27,3	26,1
	25	13,3	26,5	25,3
	50	12,9	25,7	24,5
30°C 86°F	1	12,8	25,5	24,3
	5	12,0	23,9	22,8
	10	11,6	23,1	22,0
	25	11,2	22,3	21,3
	50	10,9	21,8	20,7
40°C 104°F	1	10,8	21,5	20,5
	5	10,1	20,2	19,2
	10	9,8	19,6	18,7
	25	9,4	18,8	18,0
	50	9,2	18,3	17,5
50°C 122°F	1	9,2	18,3	17,5
	5	8,5	17,0	16,2
	10	8,2	16,5	15,7
	25	8,0	15,9	15,2
	50	7,7	15,4	14,7
60°C 140°F	1	7,7	15,4	14,7
	5	7,2	14,3	13,7
	10	6,9	13,8	13,2
	25	6,7	13,3	12,6
	50	6,4	12,7	12,1
Potable water (cold) / Potable water (warm)				
65°C 149°F	1		14,6	13,9
	5		13,6	12,9
	10		13,1	12,5
	25		12,6	12,0
	50		11,1	10,6
70°C 158°F	1		13,0	12,4
	5		11,9	11,4
	10		11,7	11,1
	25		10,1	9,6
	30		8,8	9,3
	50		8,5	8,1
75°C 167°F	1		12,3	11,7
	5		11,4	10,8
	10		10,5	10,0
	25		8,4	8,0

Faser and Stabi composite pipe: high working stress at lower wall thickness and higher flow rate

SDR = Standard Dimension Ratio
(diameter/wall thickness ratio)
SDR = 2 x S + 1? d/s
(S = Pipe series index from ISO 4065)

Legend

Designation	Symbol	Unit
Induced stress (σ = sigma)	$\sigma_{V\wedge}$	N/mm ^{2}
Pressure	p	mbar (bar)
Safety-factor	Sf	-
Linear expansion (Δ = delta)	Δ L	mm
Pipe length	L	m
Expansion coefficient (α = alpha)	α	mm/mK
Working temperature	T_W	°C
Installation temperature	T_M	°C
Difference in temperatur (D = delta)	ΔT	K
Length of the bending side	L_S	mm
Bending side with pre-press	L_{SV}	mm
Material specific constant	K	mm
Width of the expansion loop	A_{min}	mm
Safe distance	SA	mm
Area	A	mm^2
Circulatory	$\dot{V}$	l/s
Pressure gradient	R	mbar/m
Minimum pressure of flow	$p_{min\ Fl}$	mbar (bar)
Flow rate	v	m/s
Cold Water Volume Rate	K_V	m^3/h
Coefficient of loss (ζ = Zeta)	ζ	-
Diameter	d	mm
Internal diameter	d_a	mm
External diameter	d_i	mm
Wall thickness	s	mm
Insulation thickness	s_i	mm

INSTRUCTIONS FOR A CORRECT INSTALLATION OF THE PP-R SYSTEM

The connection between PP-R pipes and fittings, is effected by the Welding Machine which allows a real molecular fusion of the two parts which therefore become after the welding a single part. So, pipes and fittings are joined by local fusion at an average temperature of 260° C. This technique makes it possible to have a plant without mechanical joints which would require different materials than those of the pipes and fittings. So, the fusion technique eliminates any possible leakage points.

OPERATING TIMES AND DATA

Ø	*PIPE INSERTION*	*HEATING TIME*	*ASSEMBLY TIME*	*COOLING TIME*
mm	mm	sec	sec	min
16	13,0	5	4	2
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

Values according to standards DVS 2207 Part II and DVS 2208 Part I. The values given in the above table are approximate and refer to an external temperature of 20° C. For ambient temperatures below +5° C, heating times should be increased by 50%.

The proceeding is extremely quick and, most of all, simple to carry out.

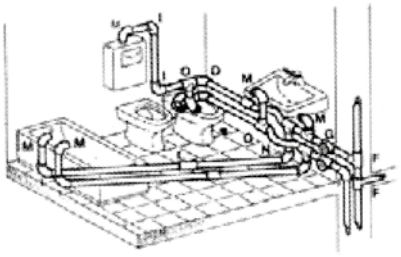
- cut the pipe by means of the suitable cutting nipper;
- check carefully that pipe and fitting to be welded are perfectly cleaned since dust might cause a not perfect welding;
- when the welding machine reaches the fusion temperature (green light off), insert at the same time pipe and fitting in the heating tools according to the working times foreseen in the table hereunder.



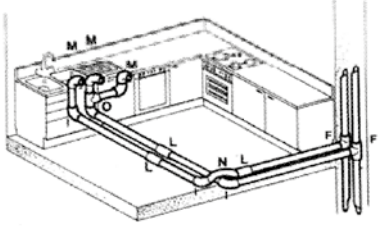
- extract at the same time pipe and fitting rapidly;
- effect the coupling of the two parts for few seconds inserting the pipe into the fitting exerting a slight pressure and avoiding any rotations;
- after the cooling time, the joint can be used.

Types of equipments realized with the PP-R

Bathroom's equipment



Kitchen's equipment



MAIN CHARACTERISTICS OF AQUATEK PP-R SYSTEM

ADVANTAGES

Compared to traditional systems, **AQUATEK** Italia srl offers more advantages:
- Long life: the system is studied to last more than 50 years of continuous function at 10 bar pressure and 60° C temperature.
- extremely easy and quick to install thanks to pipes and fittings lightness and by using ourWelding Machine RT 63.
- Long life thanks to the high corrosion resistance.
- Electrical insulation: PP-R is an electric insulating material: this makes it free from electrochemical corrosion and perforations caused by stray currents.
- Crusting absence : the molecular compositions of the PP-R does not allow the limestone formation into the piping avoiding the decrease of the load. Their smooth inner wall prevents any formation of calcareous scaling. Our pipes and fittings resist to any hardness.
- High resistance to chemicals: PP-R is highly resistant to chemicals, including the substances with which it is normally in contact with buildings (concrete and lime).
- Low load losses the compact, smooth and homogeneous structure of inner walls of the pipes and fittings reduces pressure loss to a minimum.
- Resistance to frost: the high elasticity of PP-R makes pipes adaptable to volume increases if freezed liquids run inside them.
- Low thermal dispersion and limited condensation: Heat dispersion is reduced thanks to the low thermal conductivity of PP-R; this prevents condensation on the pipe surface and considerably reduces the layer of insulating material required.
- Low noises : thanks to the high soundproofing of the material, PP-R is very elastic and sound absorbent; the noises and vibrations produced by the passage of water and by water hammer do not propagate.
- Low thermal conductivity : reducing at the minimum the heat dispersion and the condensation.
- Atoxicity and hygiene : the materials used and the working proceedings, are completely atoxic and comply with the international standard regulations.
- Suitable for use in seismic areas : PP-R is elastic inside the building and absorbs seismic shocks; it is recommended by international experts for use in seismic areas.

WARNINGS

- Ultra-violet rays : **AQUATEK** Italia srl must not be installed or stored exposed to UV rays since this causes the materials' ageing with consequent loss of its physical and chemical characteristics.
- Curvature : don't work the pipe with flame. It can be curved by cold working but the curvature ray does not exceed more than 8 times the pipe diameter.
- Low temperatures: the material gets fragile with temperature close to zero, therefore we suggest to avoid shakes to the pipings and the freezing of the water inside the pipes since the volume increase could cause breaks.
- Contacts with cutting bodies: during installation or storing do not let the pipe surface get in contact with cutting bodies which could scratch or carve it.
- Welding : clean always carefully the parts that have to be welded and check if the temperature of the welding machine is right.During the welding avoid the twisting of the parts you are assembling.
- In the connections of threaded fittings avoid to use too much hemp.We suggest to prefer Teflon or PTFE or other types of dopes for threads.

EQUIPMENT TEST

Before covering the system it's important to check pipes and fittings integrity .
After a visual check, the system is filled with water and all the air have to come out. The equipment will be then put under a pressure equal to that of the PN of the pipe for 24 hours to verify if there are eventual losses.

STANDARDS AND REGULATIONS

Pipes and Fittings **AQUATEK** PP-R have been designed and tested according to the following standards:
DIN 8077 Polypropylene (PP) pipes sizes.
DIN 1988 Regulations for drinking water pipes.
DIN 4109 Sound insulation in building constructions.
DIN 8076 Metal threaded joints tests methods.
DIN 16928 Pipes of thermoplastic materials; pipes joints, elements for pipes, laying of pipes; general directions;
DIN 16962 Manufacture and testing of fittings and pressure pipes.
DIN 8078 Polypropylene pipes. General quality requirements and tests .
DIN 2999 Rules for Fittings with threaded metallic insert.
DVS 2206 Regulations for the welding of thermoplastic materials.
DVS 2207 Welding of thermoplastic materials by means of heating tools.

Physical properties	Test method	Value	Unit
Density at +23°C	ISO 1183	0,897	g/cm^3
Melt mass-flow rate (MFR)	ISO 1133		
190°C/5.0kg		0,55	g/10min
230°C/2.16kg		0,30	g/10min
230°C/5.0kg		1,30	g/10min
Mechanical properties	**Test method**	**Value**	**Unit**
Tensile modulus	ISO 527-2/1	850	MPa
Tensile stress	ISO 527-2/50	24,0	MPa
Tensile strain at yield to 50mm/min	ISO 527-2/50	10	%
Tensile creep modulus	ISO 899-1		
1hr		650	MPa
1000hr		350	MPa
Impact	**Test method**	**Value**	**Unit**
Charpy notched impact	ISO 179		
-30°C		2,50	kJ/m^2
0°C		4,00	kJ/m^2
23°C		22,00	kJ/m^2
Charpy notched impact	ISO 179		
-30°C		43,00	kJ/m^2
0°C		no break	kJ/m^2
23°C		no break	kJ/m^2
Hardness	**Test method**	**Value**	**Unit**
Shore hardness D	ISO 868	65	
Ball indentation hardness	ISO 2039-1	48,0	N/mm^2
Thermal properties	**Test method**	**Value**	**Unit**
Melting temperature	ISO 3146	147	°C
Thermal conductivity at 20°C	DIN 52612	0,24	W/mK
Coefficient of linear thermal expansion	DIN 53752	1.5·10-4	K^{-1}
Vicat softening temperature			
(A50(50°C/h, 10N))	ISO 306/A50	132	°C
(B50(50°C/h, 50N))	ISO 306/B50	69,0	°C
Electrical properties	**Test method**	**Value**	**Unit**
Volume resistivity	DIN 53482	$>10^{17}$	Ω*cm
Surface resistivity	DIN VDE 0303, T3	$>10^{14}$	Ω
Dielectric constant	DIN 53483	2,3	10^6Hz
Loss factor	DIN 53483	$<5*10^{-4}$	10^6Hz
Dielectric rigidity	DIN 53481	500/650	kV/cm

RESTISTANCE OF POLYPROPYLENE
NOT SUBJECT TO MECHANICAL STRESS TO CHEMICALS

Product	Concentration	Temperature		
		20°C	60°C	100°C
A				
acetic anhydride	100%	S	-	-
acetic acid (concentr.)	over 96%	S	L	NS
acetic acid	up to 40%	S	S	-
acetic acid	50%	S	S	L
acetone	100%	S	S	-
acetophenone	100%	S	L	-
acrylonitrile	100%	S	-	-
air		S	S	S
aliphatic hydrocarbons		NS	NS	NS
alum	sol.	S	-	-
amyl acetate	100%	L	-	-
amyl alcohol	100%	S	S	S
ammonia (gas)	100%	S	-	-
ammonia (satured)	100%	S	-	-
ammonia liquor	up to 30%	S	-	-
ammonium acetate	sat. sol.	S	S	-
ammonium bicarbonate	sat. sol.	S	S	-
ammonium chloride	sat. sol.	S	-	-
ammonium fluoride	sol.	S	S	-
ammonium hydroxide	sol.	S	-	-
ammonium metaphosphate	sat. sol.	S	S	S
ammonium nitrate	sat. sol.	S	S	S
ammonium phosphate	sat. sol.	S	-	-
ammonium sulphate	sat. sol.	S	S	S
aniline	100%	S	S	-
anisole	100%	L	-	-
apple juice		S	-	-
aqua reja (HCl/HNO^3=3/1)		NS	NS	NS
B				
barium carbonate	sat.sol.	S	S	S
barium cloride	sat.sol.	S	S	S
barium hydroxide	sat.sol.	S	S	S
barium sulphate	sat.sol.	S	S	S
benzene	100%	L	NS	NS
benzonic acid	sat.sol.	S	-	-
benzoyl chloride	100%	L	-	-
benzyl alcohol	100%	S	L	-
boraz	sol.	S	S	-
broic acid	sat.sol.	S	-	-
bromine (dry vapour)		S	NS	NS
bromine (liquid)	100%	NS	NS	NS
bromine water	sol.	NS	NS	NS
bufane	100%	S	-	-
butyl acetate	100%	L	NS	NS
butanol	100%	S	L	L
butyglycol	100%	S	-	-
butyphenool	cold sat. sol.	S	-	-
butyl phtalate	100%	S	L	L
C				
calcium carbonate	sat. sol.	S	S	S
calcium chloride	sat. sol.	S	S	S
calcium hydroxide	sat. sol.	S	S	-

Product	Concentration	Temperature		
		20°C	60°C	100°C
calcium hypochorite	sol.	S	-	-
calcium nitrate	sat. sol.	S	S	-
carrbon dioxide, gaseous dry	100%	S	S	-
carbon dioxide, gaseous wet		S	S	-
carbun disulphide	100%	S	NS	NS
carbon tetrachloride	100%	NS	NS	NS
chorine, gaseous dry	100%	NS	NS	NS
chorine, liquid	100%	NS	NS	NS
chlorine water	sat. sol.	S	L	-
chloroacetic acid	sol.	S	-	-
chroethaol	100%	S	-	-
chloroform	100%	L	NS	NS
chlorosulphonic acid	100%	NS	NS	NS
chrome alum	sol.	S	S	-
chromic acid	up to 40%	S	L	NS
citric acid	10%	S	S	S
copper (cu") sulphide	sat. sol.	S	S	-
cresol	over 90%	S	-	-
cupric (cu") nitrate	30%	S	S	S
cupric (cu") sulphate	sat. sol.	S	S	-
cyclohexane	100%	S	-	-
cyclohexanol	100%	S	L	-
cyclohexanone	100%	S	L	-
D				
dekalin (decahydronophtalene)	100%	NS	NS	NS
dextrin	sol.	S	S	-
dextrose	sol.	S	S	-
dibutyl phtalate	100%	S	L	NS
dichloroacetic acid	100%	L	-	-
α,β dichloroethylene	100%	L	-	-
diethanolomine	100%	S	-	-
diethylene glycol	100%	S	S	-
diethyl ehter	100%	S	L	-
diglycolic acid	sat. sol.	S	-	-
diisoctyl phtalate	100%	S	L	-
dimethylamine	100%	S	-	-
dimethylformamide	100%	S	S	-
dioctyl phtalate	100%	L	L	-
dioxan	100%	L	L	-
E				
ethanolamine	100%	S	-	-
ethyl acetate	100%	L	NS	NS
ethylalcohol	up to 95%	S	S	S
ethyl chloride	100%	NS	NS	NS
ethylene chloride (mono, di)	100%	L	L	-
ethylene glycol	100%	S	S	S
F				
formaldehyde	40%	S	-	-
formic acid	10%	S	S	L
formic acid	85%	S	NS	NS
formic acid (anhydrous)	100%	S	L	L
fructose	sol.	S	S	S
fruit juice		S	S	S

Product	Concentration	Temperature		
		20°C	60°C	100°C
G				
gelatin		S	S	-
glucose	20%	S	S	S
glycerine	100%	S	S	S
glycolid acid	30%	S	-	-
H				
heptane	100%	L	NS	NS
hexane	100%	S	L	-
hydrobromic acid	up to 48%	S	L	NS
hydrochloric acid	2-7%	S	S	S
hydrochloric acid	10-20%	S	S	-
hydrochloric acid	30%	S	L	L
hydrochloric acid	35-36%	S	-	-
hydrochloric acid (gaseous, dry)	100%	S	S	-
hydrofluoric acid	dil sol.	S	-	-
hydrofluoric acid	40%	S	-	-
hydrogen	100%	S	-	-
hydrogen peroxide	up to 10%	S	-	-
hydrogen peroxide	up to 30%	S	L	-
hydrogen sulphide, gaseous, dry	100%	S	S	-
I				
iodine (alcoholic solution)		S	-	-
isoctane	100%	L	NS	NS
isopropylalcohol	100%	S	S	S
isopropylether	100%	L	-	-
L				
loctic acid	up to 90%	S	S	-
lanolin		S	L	-
M				
magnesium carbonate	sat. sol.	S	S	S
magnesium chlorid	sat. sol.	S	-	-
magnesium sulphate	sat. sol.	S	-	-
molice acid	sol.	S	-	-
mercuric cyanide	sat. sol.	S	-	-
mercuric chloride	sat. sol.	S	-	-
mercuric nitrate	sol.	S	-	-
mercury	100%	S	-	-
methyl acetate	100%	S	-	-
methyl alcohol	5%	S	L	L
methylamine	up to 32%	S	-	-
methyl bromide	100%	NS	NS	NS
methylene chloride	100%	L	NS	NS
methyl ethyl ketone	100%	S	-	-
milk		S	S	S
monochloroacetic acid	over 85%	S	S	-
N				
naphta		S	NS	NS
nickel chloride	sat. sol.	S	S	-
nickel nitrate	sat. sol.	S	S	-
nickel sulphate	sat. sol.	S		
nitric acid	10%	S	NS	NS
nitric acid	30%	S	-	-
nitric acid	40-50%	L	NS	NS
nitric acid (with nitric axide)		NS	NS	NS
nitrobenzene	100%	S	L	-

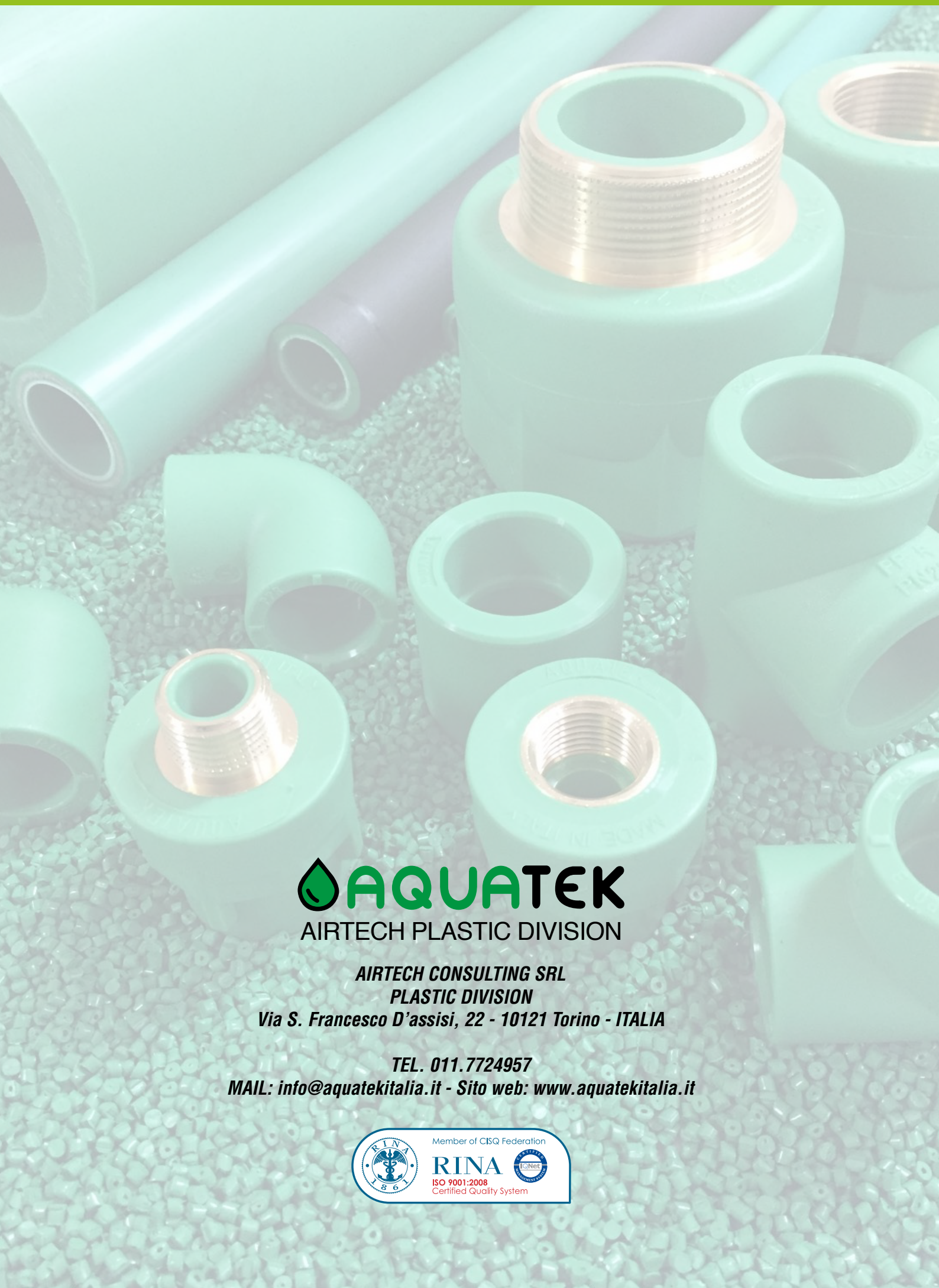
Product	Concentration	Temperature		
		20°C	60°C	100°C
O				
oil:				
almond		S	-	-
camphor		NS	NS	NS
castor	100%	NS	NS	NS
coconut		S	-	-
corn		S	L	-
cotton		S	S	-
linseed		S	S	S
olive		S	S	L
paraffin (FL 65)		S	L	NS
peanut		S	S	-
peppermint		S	-	-
silicone		S	S	S
soybean		S	L	-
oleic acid		S	L	-
oleum				
(sulphuric acid contain. 60% SO3)		S	NS	NS
oxalic acid	sat. sol.	NS	L	NS
oxygen	100%	S	-	-
P				
perchloric acid	2N	S	-	-
petroleum ether (ligroin)		L	L	-
phenol	5%	S	S	-
phenol	90%	S	-	-
phosphoric acid	25%	S	S	S
phosphoric acid	25/85%	S	S	S
phosphoric oxychloride	100%	L	L	-
picric acid	sat. sol.	S	-	-
potassium bicarbonate	sat. sol.	S	S	-
potassium borate	sat. sol.	S	S	-
potassium bromate	up to 10%	S	S	-
potassium bromide	sat. sol.	S	S	-
potassium carbonate	sat. sol.	S	-	-
potassium chlorate	sat. sol.	S	S	-
potassium chloride	sat. sol.	S	-	-
potassium chromate	sat. sol.	S	S	-
potassiu cyanide	sol.	S	-	-
potassium fluoride	sat. sol.	S	S	-
potassium hydroxide	up to 50%	S	S	S
potassium iodide	sat. sol.	S	-	-
potassium nitrate	sat. sol.	S	S	-
potassium perchlorate	10%	S	S	-
potassium permanganate	2N	S	-	-
potassium persulphate	sat. sol.	S	-	-
potassium sulphate	sat. sol.	S	-	-
propane	100%	S	-	-
propionic acid	over 50%	S	-	-
pyridine	100%	L	-	-
S				
silver nitrate	sat. sol.	S	S	L
sodium acetate	sat. sol.	S	S	S
sodium benzoate	35%	S	-	-
sodium bicarbonate	sat. sol.	S	S	S
sodium bisolfite	sol.	S	-	-
sodium bisulphate	sat. sol.	S	S	-
sodium carbonate	up to 50%	S	S	L
sodium chlorate	sat. sol.	S	-	-

Product	Concentration	Temperature		
		20°C	60°C	100°C
sodium chloride	10%	S	S	S
sodium chlorite	2%	S	S	NS
sodium chlorite	20%	S	S	NS
sodium dichromate	sat. sol.	S	S	S
sodium hydroxide	up to 60%	S	S	S
sodium hypochlorite	5%	S	S	-
sodium hypochlorite	10%	S	S	-
sodium hypochlorite	20%	S	S	-
sodium metaphosphate	sol.	S	S	-
sodium nitrate	sat. sol.	S	S	-
sodium orthophosphate	sat. sol.	S	S	S
sodium perborate	sat. sol.	S	S	-
sodium silicate	sol.	S	S	-
sodium sulfide	sat. sol.	S	S	-
sodium sulfite	40%	S	S	S
sodium sulphate	sat. sol.	S	S	-
sodium thiosulphate (hypo)	sat. sol.	S	S	-
stannic chloride	sat. sol.	S	S	-
stannous chloride	sat. sol.	S	S	-
stuccinic acid	sat. sol.	S	S	-
sulphur dioxide, dry and wet	100%	S	S	-
sulphuric acid	up to 10%	S	S	S
sulphuric acid	10 to 30%	S	S	-
sulphuric acid	50%	S	S	S
sulphuric acid	96%	S	S	NS
sulphuric acid	98%	L	L	NS
sulphurous acid	sol.	S	S	-
T				
tartaric acid	10%	S	S	-
tetrahydrofuran	100%	L	NS	NS
tetrahydronaphtalene	100%	NS	NS	NS
thiophene	100%	S	L	-
toluene	100%	L	NS	NS
trichloroethylene	100%	NS	NS	NS
triethanolamine	sol.	S	-	-
turpentine		NS	NS	NS
U				
urea	sat. sol.	S	-	-
W				
water, brackish				
mineral drinkable		S	S	S
water, distilled	100%	S	S	S
water (sea water)		S	S	S

THE FOLLOWING FLUIDS SHOULD BE AVOID	Concentation
aliphatic hydrocarbons	100%
aqua regia	HCl/HNO3=3/1
benzol	100%
bromine water	sol.
bromine (dry vapour)	dil.
bromine (liquid)	100%
butyl acetate	100%
camphor oil	
chlorine, gaseous, dry	100%
chlorine (liquid)	100%
chloroform	100%
chlorosulfonic acid	100%
cyclohexanone	100%
dekalin	100%
ethylacetate	100%
ethylchloride	100%
heptane	100%
isoctane	100%
nitric acid	over40%
methyl bromide	100%
methylene chloride	100%
oleic acid	100%
oleum (sulphuric acid with 60% SO3)	
paraffin oil	98%
sulfuric acid	100%
tetrahydrofuran	100%
tetrahydronaphtalene	100%
toluee	100%
trichloroethylene	100%
turpentine	
xilene	100%

Remarks:
the above concentrations are by mass. Aqueous solutions of lightly soluble chemical are considered as saturated solutions with regard to their chemical action on polypropylene.
The above table only shows chemical names in common use.
S= satisfactory
L= limited
NS= not satisfactory
Sat. sol.= saturated aqueous solution, prepared at 20°C


CERTIFICATO N.
CERTIFICATE No.
WaterMark
WATERMARK LICENCE
Level 1
Aquatek
SAI GLOBAL
UNIVERSITY OF KUWAIT
COLLEGE OF ENGINEERING AND PETROLEUM
Department of Civil Engineering
TEST REPORT
REPORT NO : CEN-0597
TEST : POLYPROPYLENE (ITALY)
TEST CODE : 1072
STANDARD : DIN 8077 / 78 - April 1984
CLIENT NAME :
TESTED FOR :
PROJECT NAME : NOT AVAILABLE
CONTRACT NO. : NOT AVAILABLE
DATE : 29/3/1997
3 PIPES DOG (1.5 in.) IN GOOD CONDITION
NO. OF PAGES : 3
ATTACHMENTS : NONE
REPORT REVIEWED BY:
Eng. Tariq Al-Sayed
TEST SUPERVISED BY:
Prof.Dr. M. Abdelrahman
CIVIL ENG. DEPT.
HEAT TEST
CEN-49/97
Date : 29/3/97
Page : 3/3
POLYPROPYLENE
METEOROLOGICO



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