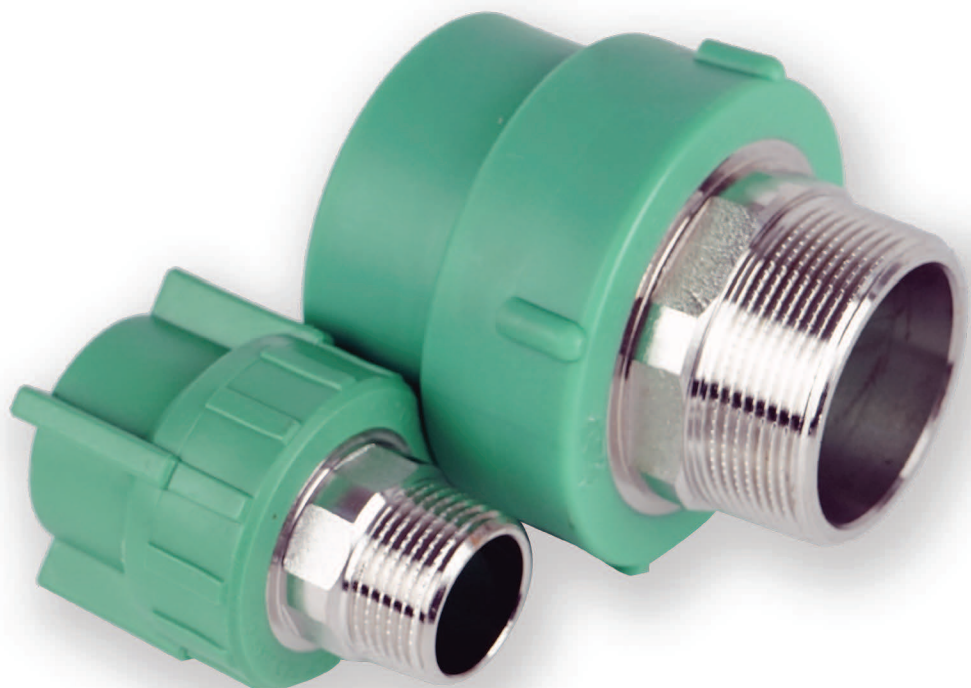


DISMY

PP - R C A T A L O G

"Premium Quality Pipe
For Better Life."



DISMY®

PREFACE

DISMY

PP-R CATALOG

Premium Quality Pipe For Better Life.

We are the leading manufacturer of PP-R Pipe system , heating system , cooling system , HVAC system and water softener and purifier. We are the specialist not only on manufacturer but also on design, development of molds, raw material and technology support for distributors, contractors, designers, owners and agents

Our vision is to lead comfort residential life. We are always devoting to research, develop, manufacture and supply residential comfort system. We have successfully researched and developed world-leading complete solution for residential comfort life.

We own complete and reliable quality management system ISO9001, environmental management system ISO14001, occupational health and safety management system and international quality CERTIFICATE including German SKZ, German DVGW, Russia PCT, Italy CE, China CEC, Australian manufacture WATERMARK, etc.

Our manufacture has powerful capacity, owns advanced manufacturing equipment and technique, automatic production control system, and excellent test methods and equipment, all these make it possible to provide high-quality pipes and fittings.

Our PP-R pipes are made of the highest quality PP-R material, which is tested under extreme conditions & conforms to global quality standards for quality, our PP-R pipes are reliable and designed to give levels of performance in the face of the harshest of elements.

Conforming to world-class standards of quality, they are extremely reliable, and offer convenient, and reliable installation in any plumbing system.

CONTENTS

1

FEATURE

- 01 GOOD PROPERTY
- 01 SCIENCE AND TECHNOLOGY
- 01 QUALITY
- 01 FIELDS OF APPLICATION
- 02 CONTRAST OF PROPERTY FOR SOME PIPE SYSTEM
- 02 UV RESISTANCE
- 02 HYGIENIC HARMLESSNESS

- 03 SOUND INSULATION
- 03 FIRE PROTECTION
- 03 CHEMICAL RESISTANCE
- 03 STRICT INSPECTION AND TESTING
- 03 OUTER QUALITY SUPERVISION

4

MATERIAL

- 04 PROPERTY OF MATERIAL

5

HYDROSTATIC PRESSURE PERFORMANCE

- 05 HYDROSTATIC PRESSURE PERFORMANCE

6

PERMISSIBLE WORKING PRESSURE

07 PERMISSIBLE WORKING
PRESSURE

8

FLOW RATE DIAGRAM

08 FLOW RATE DIAGRAM

9

CERTIFICATES

09 CERTIFICATES

10

CONNECTION TECHNIQUE

10 PIPE WELDING
11 WELDING IN SADDLE
12 ELECTRICAL WELDING
12 FLANG CONNECTION
12 REPAIR

13

INSTALLATION

13 INSTALLATION
13 FASTENING TECHNIQUE
13 FIXED POINT
13 SLIDING POINT
13 INSTALLATION ADVICE
14 LINEAR EXPANSION
14 CONCEALED INSTALLATION
15 INSTALLATION IN DUCTS
15 OPEN INSTALLATION
16 CALCULATION OF LINEAR
EXPANSION
16 EXPANSION COMPENSATION
17 BENDING SIDE
18 EXPANSION LOOP
19 LINEAR EXPANSION CHART
20 LINEAR EXPANSION CHART
21 PRE-STRESS

22 SUPPORT INTERVALS
23 THERMAL INSULATION WARM
WATER PIPE
24 THERMAL INSULATION COLD
WATER PIPE
24 MANIFOLD INSTALLATION
25 ATTENTION IN INSTALLATION
25 PRESSURE TEST /
TEST CONTROL
26 COMMANDMENTS FOR HANDING

27

PRODUCT RANGE

27 DISMY PP-R PIPE
28 DISMY PP-R
FITTING AND TOOL

35

SOME REFERENCE OF INSTALLATION

35 SOME REFERENCE OF
INSTALLATION

DISMY PP-R PIPE

DISMY®

WWW.RANOTECH.COM



CERTIFICATES



RNT
rano tech
RANO TECH CO.,LTD.

GOOD PROPERTY

- Extremely long life of at least 50 year.
- Taste and odour neutral.
- Unique and unrivaled connection technique with security for a life-time.
- Good chemical resistance.
- Good impact strength.
- Physiologically harmless.
- Bacteriologically neutral.
- Heating-preservation and energy-saving.
- Resistance to high temperature (95 C).
- Convenient and reliable installation.
- No pipe furring.
- Sound insulation.
- Recyclable for the benefit of environment.

SCIENCE AND TECHNOLOGY

Two model of new PP-R pipes :

1. DISMY PP-R/ AI/ PP-R Stabi pipe
2. DISMY PP-R/ Fibre Composite pipe

GOOD PROPERTY

1. Their expansion is 75% less than standard PP-R pipes.
is nearly not deformed with high temperature water test.
2. Flexibility increase by 20% with thinner thickness.
3. Higher stability and impact strength.



QUALITY

DISMY PP-R pipes are globally proven water carrier for and certificated by many countries. If needing further detail, please check relative certificates and awards.

FIELDS OF APPLICATION

- Potable water pipe networks for cold and warm water supply.
- I.e. in residential building, hospitals, hotels, office and school buildings, shipbuilding, etc.
- Pipe networks for rainwater utilization systems.
- Pipe networks for compressed-air plants.
- Pipe networks for swimming pool facilities.
- Pipe networks for solar plants.
- Pipe networks for agriculture and horticulture.
- Heating pipes for residential house.
- Transport of liquid foods.

CONTRAST OF PROPERTY FOR SOME PIPE SYSTEM

Pipe style Property	G.I. Pipe	Copper Pipe	Upvc Pipe	Cpvc Pipe	Pex-Al-Pex Pipe	PB Pipe	Dismy PP-R Pipe
Service Life	5-10year	50year	30year	50year	50year	50year	50year
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 Resistance	Bad	Bad	Good	Good	Good	Good	Good
Installation	Difficult	Difficult	Easy	Easy	Easy	Easy	Easy
Price	Low	High	Low	High	High	High	Common
Reliability	Common	Common	Common	Common	Common	Common	Good

UV RESISTANCE

PP-R pipe and fitting should not be installed (without protection) where subject to UV-radiation. If DISMY PP-R pipe system must be installed outside of building and exposed under sunlight, one UV-resistance form pipe can be applied to protect DISMY PP-R pipe system.

HYGIENIC HARMLESSNESS

Hygienic Harmlessness is prior to be considered by DISMY in all process including purchasing raw material, manufacture, storage, installation. All DISMY PP-R product must comply with following stipulates and requirement:

- DIN8077 -- PP-R PIPES, DIMENTION
- DIN8078 -- PP-R PIPES, QUALITY REQUIRMENT AND GENERAL TESTING DESCRIPTION
- DIN16962 -- CONNECTION OF PP-R PIPES AND FITTINGS
- DIN1988 T2 -- POTABLE WATER SUPPLY SYSTEM, MATERIAL, INGREDIENT, APPLICATION, DESIGN, INSTALLATION
- ISO/DIS15874 -- PLASTIC PIPING SYSTEMS FOR HOT AND COLD WATER INSTALLATIONS - POLYPROPYLENE (PP)
- ISO9001 -- INTERNATIONAL QUALITY MANAGEMENT SYSTEM
- HR 3.10 (10198) -- SPECIFICATION FOR TEST AND INSPECTION PRESSURE PIPE SYSTEM MADE OF PP-R OF GERMEN SKZ
- DW-8317CS0393 -- DISMY PP-R PLASTIC PIPE FOR DRINKING WATER INSTALLATION

The hygienic harmlessness of the material is used for the DISMY pipe system which is independently verified through international test. The suitability for potable in the field of cold and warm water is confirmed by current tests.

The joining method requires no additives such as fluxes and solder. The connection is exclusively made by welding.

Potable water---our most precious commodity good.

The increasing use of PP-R pipe in liquid food industry confirms the hygienic qualities of the material.

This makes DISMY pipe one of the optional packing for our most precious commodity goods-our potable water.

SOUND INSULATION

The sound insulation quality of the DISMY pipe system, when related to water flow and hydraulic shock in a building, provide a sound proofing effect on noise transmission. Therefore the sound transmission is much lower than metallic pipes.

FIRE PROTECTION

DISMY pipe and fitting comply with the requirements of the fire classification B2 (normal inflammable). Compared to natural products like wood, cork or wool, DISMY pipes do not show an increased brand gas toxicity. Therefore, in case of fire, there is no risk of the development of dioxin. Measures against fire and smoke transmission with pipes are fire retardant seals.

CHEMICAL RESISTANCE

Chemical resistance is one of the remarkable characteristics of the DISMY pipe system. However the nickel-plated brass inserts may not compared with pure PP-R system chemical resistance. Non metal PP-R pipe and fitting or special metal pipe and fitting of DISMY PP-R SS316 are advised to apply to pipeline which chemical resistance requirement is at high level.

STRICT INSPECTION AND TESTING

Top quality of DISMY pipe can be assured by the following testing

- | | |
|-----------------------------------|---|
| 1. Dimension Measurement | 6. Long Term Hydrostatic Pressure Testing |
| 2. Surface Inspection | 7. Aging Resistance Testing |
| 3. Impact Strength Testing | 8. Thermal Circulation Testing |
| 4. DSC.IR Testing of Raw Material | 9. Longitudinal Reversion Testing |
| 5. Melt flow rate Testing | 10. Hygienic Inspection |



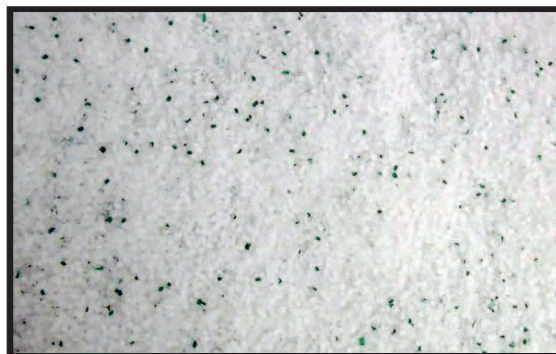
OUTER QUALITY SUPERVISION

DISMY PP-R pipe is tested and inspected by German SKZ at workshop twice per year and all-year market quality supervision to guarantee our quality in accordance to German Standard.

(Remark: German SKZ owns the highest authority in plastic product in the world.)

PROPERTY OF MATERIAL

DISMY pipe system is made of random copolymer polypropylene PP-R 80 Class, with better property of high temperature resistance and impact resistance. DISMY pipe is applied in many fields including residential and industrial construction for potable water and heating system.



Property	Test Method	Unit	Value
Melt flow rate MFR230/2.16	ASTM D1238	g/10min	0.2
Density	ISO1238	g/cm3	0.91
Flexural modulus 1)	ASTM D790	MPa	850
Tensile properties 2) Tensile stress at yield Tensile strength at break Elongation at break	ISO 37	MPa MPa %	28 32 >50
Impact strength(Charpy) 23 0 -10	ASTM D256	KJ/m2 KJ/m2 KJ/m2	No failure No failure No failure
Notched impact strength(Charpy) 3) 23 0 -10	ASTM D256	KJ/m2 KJ/m2 KJ/m2	60 4 2.5
Ball Indentation hardness	ASTM D785	K-Scale	70
Coeffient of linear thermal expansion	VDE 0304 Part1	K-1	1.5 x 10 ⁻⁴
Thermal conductivity	DIN 52612	W/m K	0.24
Specific heat	Adiabatic calorimeter	KJ/KgK	2.0
Vicat softening temperature At 10N At 50N	ISO 306/A ISO 306/B		130 61

- 1). Three point bending
- 2). Test speed 50mm/min, test specimen 2.0mm thick
- 3). With V shape notch 0.25mm

HYDROSTATIC PRESSURE PERFORMANCE

Normally service life of pipes can reach at least 50 years, service life is determined by three factor: constant working temperature, constant working pressure, safe factor.

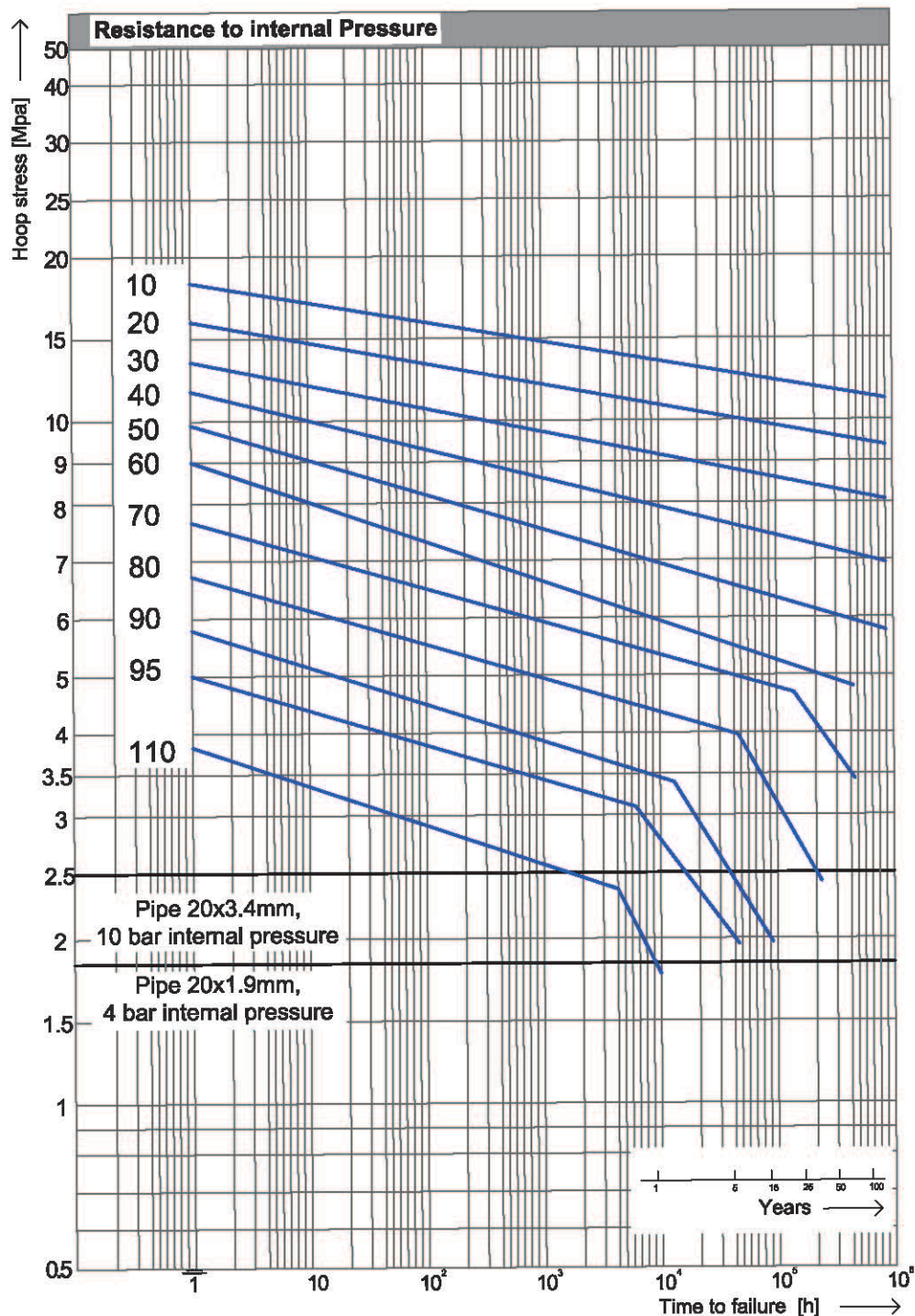
All materials must bear natural aging, no exception for DISMY pipes. We make Time-Loop Stress graph for DISMY pipes through being tested under different temperature and different pressure to have optimal term and condition for long service life.

$$\sigma = \frac{p(de-e)}{2e}$$

P = internal pressure(MPA)

de = the external pipe diameter of pipe(mm)

e = the wall thickness of the pipe(mm)



PERMISSIBLE WORKING PRESSURE

Working term and condition according to DIN1988 T2

The table shows service condition of pipes under different pressure and temperature, the permissible working pressure is on the base of the following table according to DIN1988 T2.

	Working Pressure	Temperature	Working Times/Year
	bar	°c	Hours/Year
Cold Water	0 to 10 Transient	To 25	8760
Hot Water	0 to 10 Transient	To 60	8710
		To 85	50

FOR POTABLE WATER INSTALLATIONS

Temperature	Service life	Safety-Factor - 1.5			
		SDR 11	SDR 9	SDR 7.4	SDR 6
		Nominal Pressure			
		PN 10	PN 12.5	PN 16	PN 20
Permissible Working Pressure					
20°C	1	15	18.9	23.8	30.0
	5	14.1	17.8	22.3	28.1
	10	13.7	17.3	21.7	27.3
	25	13.3	16.7	21.1	26.5
	50	12.9	15.9	20.4	25.7
30°C	1	12.8	16.2	20.2	25.5
	5	12.0	15.1	19.0	23.9
	10	11.6	14.7	18.3	23.1
	25	11.2	14.2	17.7	22.3
	50	10.9	13.8	17.3	21.8
40°C	1	10.8	13.6	17.1	21.5
	5	10.1	12.8	16.0	20.2
	10	9.8	12.4	15.6	19.6
	25	9.4	11.9	15.0	18.8
	50	9.2	11.5	14.5	18.3
50°C	1	9.2	10.8	14.5	18.3
	5	8.5	10.6	13.5	17.0
	10	8.2	10.5	13.1	16.5
	25	8.0	10.1	12.6	15.9
	50	7.7	9.8	12.2	15.4
60°C	1	-	-	12.2	15.4
	5	-	-	11.4	14.3
	10	-	-	11.0	13.8
	25	-	-	10.5	13.3
	50	-	-	10.1	12.7
65°C	1	-	-	11.9	14.9
	5	-	-	10.8	13.5
	10	-	-	10.0	12.6
	25	-	-	8.5	10.7
	50	-	-	7.2	10.2
70°C	1	-	-	10.3	13.0
	5	-	-	9.5	11.9
	10	-	-	9.3	11.7
	25	-	-	8.0	10.1
	30	-	-	7.0	8.8
75°C	1	-	-	6.7	8.5
	5	-	-	9.9	12.3
	10	-	-	8.6	10.7
	25	-	-	7.5	9.3
	50	-	-	6.1	7.5

* SDR - Standard Dimension Ratio (diameter / wall thickness)

SDR = d/s (S-pipe series index from ISO4065)

DISMY Aluminum stabi :high working stress with lower wall thickness and higher flow rate

PERMISSIBLE WORKING PRESSURE

FOR HEATING PIPES (fluid transported : water)

Heating period	Temperature	Service life	Safety-Factor - 1.25	
			SDR 7.4	SDR 6
			Nominal Pressure	
			PN 16	PN 20
Constant operating temperature 70°C including 30 days per year at	75°C	5	11.33	14.27
		10	10.95	13.79
		25	9.32	11.74
		45	8.08	10.18
	80°C	5	10.72	13.50
		10	10.16	12.80
		25	8.84	11.14
		42.5	7.77	9.79
	85°C	5	9.85	12.42
		10	9.42	11.87
		25	8.05	10.14
		37.5	7.29	9.18
	90°C	5	9.04	11.39
		10	8.69	10.94
		25	7.03	8.86
		35	6.48	8.16
Constant operating temperature 70°C including 60 days per year at	75°C	5	11.20	14.11
		10	10.77	13.57
		25	9.19	11.58
		45	7.97	10.05
	80°C	5	10.41	13.12
		10	9.96	12.54
		25	8.38	10.56
		40	7.47	9.41
	85°C	5	9.55	12.03
		10	9.14	11.52
		25	7.31	9.22
		35	6.73	8.48
	90°C	5	8.76	11.04
		10	7.75	9.76
		25	6.20	7.81
		30	5.92	7.46
Constant operating temperature 70°C including 90 days per year at	75°C	5	11.12	14.02
		10	10.62	13.38
		25	8.99	11.33
		45	7.80	9.82
	80°C	5	10.23	12.90
		10	9.80	12.35
		25	7.97	10.05
		37.5	7.21	9.09
	85°C	5	9.37	11.81
		10	8.51	10.72
		25	6.81	8.58
		32.5	6.37	8.03
	90°C	5	8.41	10.59
		10	7.11	8.96
		25	5.69	7.17
		-	-	-

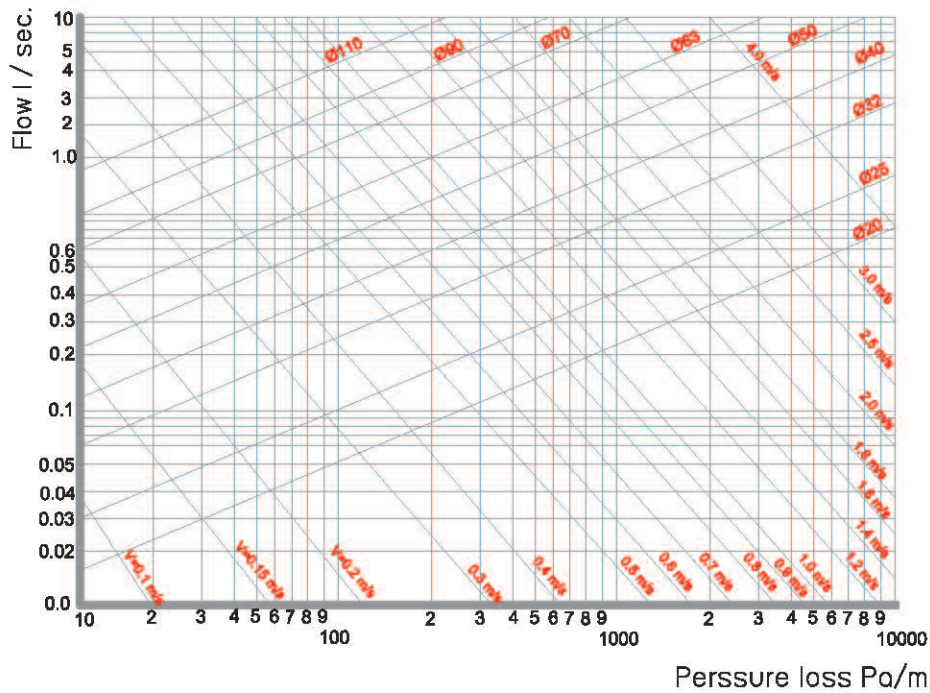
- SDR - Standard Dimension Ratio (diameter / wall thickness)

SDR = d/s (S=pipe series index from ISO4065)

FLOW RATE DIAGRAM

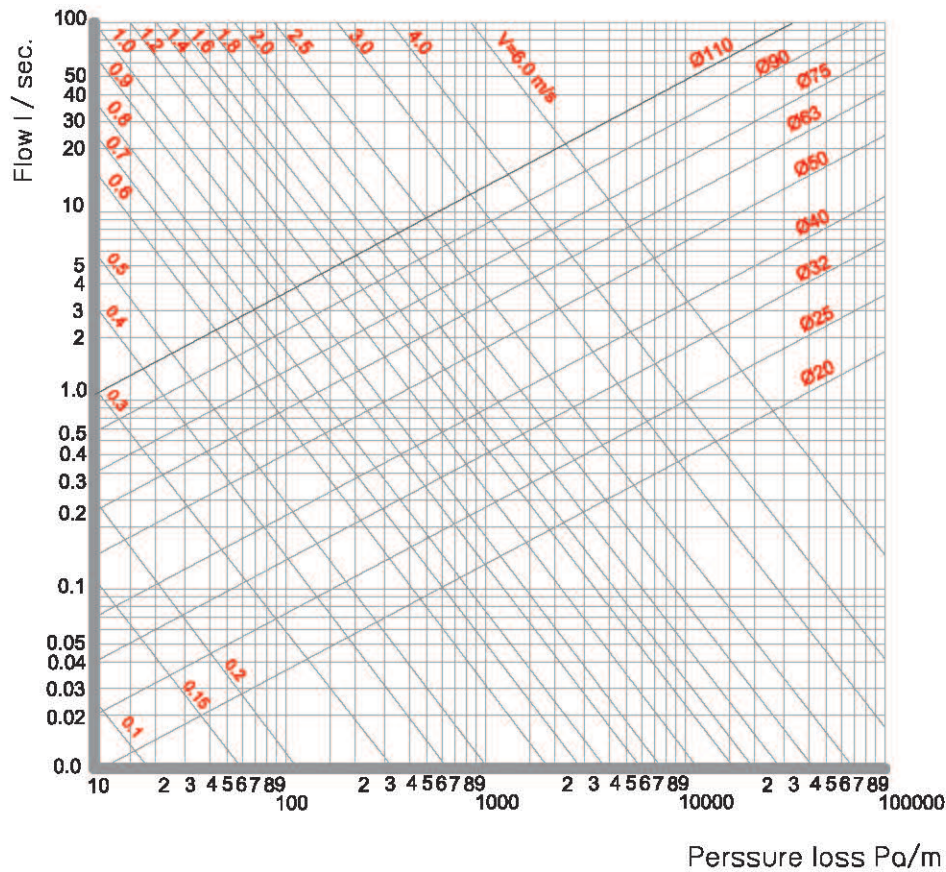
Flow Rate Diagram for DISMY PP-R Pipe, SDR 11 PN 10

Loss pressure diagram for SDR 11 (PN10) Pipe

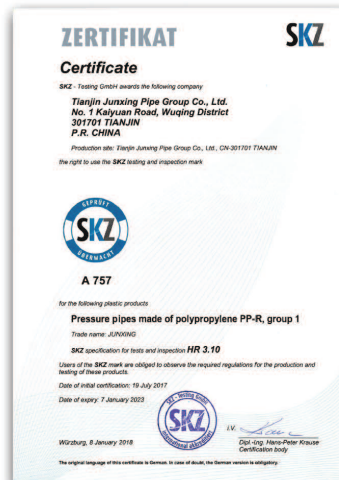


Flow Rate Diagram for DISMY PP-R Pipe, SDR 6 PN 20

Loss pressure diagram for SDR 6 (PN20) Pipe



International Quality Certificates of DISMY PP-R Pipe & Manufacture



PIPE WELDING

PP-R pipes and fittings should be connected through thermal melting or electric melting. relevant set of welding machine or tool is supplied by us. Pipe installation and operation must comply with relevant technology regulation and usage requirement for welding machine and tool.

DISMY PP-R pipe can't directly be connected to sanitary ware, metal pipe and fittings, valve, relevant accessory, but via PP-R metal threaded fittings or flange.

WELDING KEY POINTS

Cut the end part of pipe at right angle to pipe axis with pipe cutter, take care that pipe axis is free from burrs of cutting chips and remove if necessary.

Don't start operation until green light is on.

Welding parts of pipes and fittings must be kept dry, cleanness, no oil.

Marking welding depth at end of pipe and fittings with proper pen and measure in accordance with following table.

After stipulates the heating time, quickly remove pipe and fitting from welding die, joining them immediately with average and without turning until the marked depth is base of PP-R from the fitting.

Joint element have to be fixed during the specified assembly time. Use this time to correct the connection. The connection is only restricted to the alignment of pipe and fitting. Never turn the elements or align the connection after the processing time.



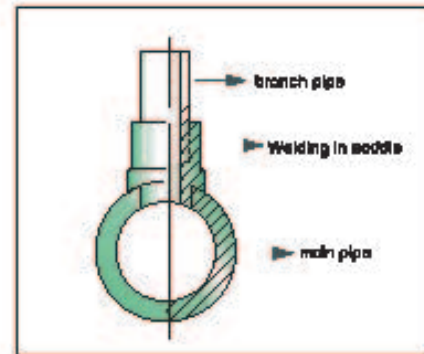
Table : processing time

Dimension (mm)	Welding Depth (mm)	Heating Time (s)	Welding Time (s)	Cooling Time (min)
20 (1/2")	14.0	5	4	2
25 (3/4")	15.0	7	4	2
32 (1")	16.5	8	6	4
40 (1-1/4")	18.0	12	6	4
50 (1-1/2")	20.0	18	6	4
63 (2")	24.0	25	8	6
75 (2-1/2")	26.0	30	8	8
90 (3")	29.0	40	8	8
110 (4")	32.5	50	10	8
125 (5")	36.0	55	13	10
160 (6")	42.0	60	15	10
200 (8")	45.0	70	18	14

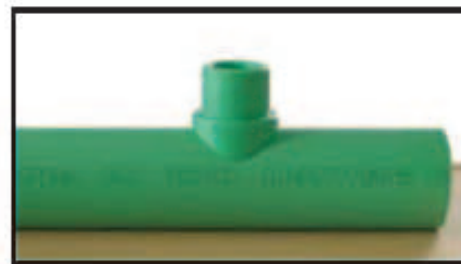
WELDING IN SADDLE

WELD IN SADDLES ARE USED FOR

- weld in saddles are available for pipe outer diameters of 50,63,75,90,110 and 125mm.
- branch connections in existing installations.
- the substitution of a tee.
- branch connections in risers.
- sensor installation, etc.



1. Before the welding process, check whether the DISMY-welding devices and tools meet the requirements of welding.
2. The first step is to drill through the wall of the pipe at the point intended for the outlet using the drill.
3. When using-stabl composite pipes remove the rest of the aluminium remaining at the bore hole with DISMY tool.



4. The welding device/saddle welding tool must have reached the required operating temperature of 260 C.
5. The welding surface have to be clean and dry.
6. Insert the heating nozzle on the concave side of the weld in saddle tool into the hole drilled in the side wall of the pipe until the tool is completely in contact with the outer wall of the pipe. At the same time the welding in saddle nozzle is inserted into the heating sleeve until the saddle surface is up against the convex side of the welding tool. The heating time of the elements is generally 30 seconds.
7. After the welding tool has been removed, the weld in saddle nozzle is immediately inserted into the heated, drilled hole. The weld in saddle should then be pressed on the pipe for about 15 seconds. After being allowed to cool for 10 minutes the connection can be exposed to its full loading. The appropriate branch pipe is fitted into the sleeve in the DISMY weld in saddle using conventional welding technology.

ELECTRICAL WELDING

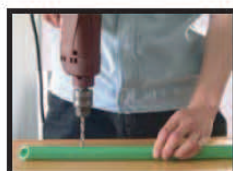
1. Keeping the welding surface of pipe and electric sockets clean and dry.
2. Cut the ends of pipe to be welded at right angles to the pipe axis.
3. To adjust the peeling depth unscrew the grub screw on the peeling tool.
4. The machine, tool and pipe and fitting for electrical welding should comply with electrical welding technique requirement.
5. Joint element have to be fixed during the specified assembly time. Use this time to correct the connection. The connection is only restricted to the alignment of pipe and fitting. Never turn the elements of align the connection after processing time.
6. Standard time of electrical welding is determined by the manufacturer and need be adjusted at different working temperature.
7. Electrical welding process will be finished when melted material flows of the signal hole.

FLANGE CONNECTION

1. Metal flange will be mounted on PP-R flange socket.
2. The flange socket and pipe and fitting for electrical welding should comply with electrical welding technique requirement.
3. Ensuring two flanges socket to have right angle to pipe axis.
4. Flange gasket should be non-toxic and heating resistance.
5. Same nuts is at same direction and symmetry, zinc plated header of screw should be used.
6. Length of pipe should be accurate and doesn't make elongation power during fastening screw down.
7. A hanger should set up for flange connection.

REPAIR

1. If a pin hole is accidentally made in the (with a drill bit , for example) and the pin hole is in only one side of the pipe, it can be repaired with a new pipe by thermal welding.
2. A pin hole in pipe can be repaired with hole repair bar and repair tool thermal welding.
3. A pin hole both side of pipe can be repaired with electrical welding couple.
 - Prepare the pipes to be welded so that they are cut perpendicular to their length, using the special pipe cutter.
 - Taking off damaged parts.
 - Clean the joint area with sand cloth and cleaning solution.
 - Connect the wire terminals to the coupling, ensuring that the weight of the wires doesn't rest on the joint.
 - Start welding. Following the instructions on the welder.
 - Prepare new pipe same specification and length as damaged pipe.
 - Put new pipe in two electrical welding couple respectively half respectively.
 - Start welding, following the instructions of the welding.



INSTALLATION

Concealed installation should be good for pipe installation in duct, floor or embedded in wall.

Open installation shouldn't be used for pipe installation outside. If necessary, the protection should be used to prevent outdoor pipe from UV, frost, etc.

Water supply pipe in open installation can't go through bedroom, stock, switch room, smoke way, wind way and especially far beyond thermal resource. Riser is at least 200 mm away from water heater, thermal resource.

FASTENING TECHNIQUE

Pipe clamps for DISMY pipes have to correspond to the external diameter of the plastic pipe. Furthermore it is important, that the fastening material does not damage the surface of the pipe mechanically. The ideal fastening material for DISMY pipes are rubber lined pipe clamps. The rubber compound is specially made for applications with plastic pipes. The selection of the fastening material and its application has to be determined as a

- fixed point
- sliding point

FIXED POINT

- On locating fixed points the pipelines are divided into individual sections. This avoids uncontrolled movements of the pipe.
- In principal fixed points have to be measured and installed in a way, that the forces of expansion of DISMY-pipes as well as probable additional loads are absorbed.
- On using threaded rods or threaded screws the drop from the ceiling should be as short as possible. Rocker supports should not be used as fixed points.
- It is always possible to install vertical distributions rigidly. Risers do not require expansion loops, provided that fixed points are located immediately before or after a branch.
- On locating fixed points the pipelines are divided into individual sections. The sufficient fixed points and supports have to be installed in order to compensate linear expansion of pipe.

SLIDING POINT

- Sliding clamps have to allow axial movements of the pipe without damage.
- On location a sliding clamp it has to be observed that movements of the pipelines are not hindered by fittings or armatures installed next to them.

INSTALLATION ADVICE

- Direct interval between fixed support on pipeline shouldn't be more than 3m.
- DISMY pipe clamps are perfectly suited for the installation of fixed point and sliding point. The application of distance rings depends on the type of pipe.

Fastening	PPR pipe / Fibre composite	Alu Stabi
Sliding point	1 distance ring	2 distance ring
Fixed point	none	1 distance ring

LINEAR EXPANSION

The linear expansion of pipes depends on the heat subjected to the pipe material at different temperature. Therefore cold water pipes have nearly no linear expansion and consequently expansion need not be considered. Because of the heat expansion dependent on temperature and the material, the linear expansion must be specially considered in case of warm water and heating installations. This requires a distinction of the types of installation, i.e.

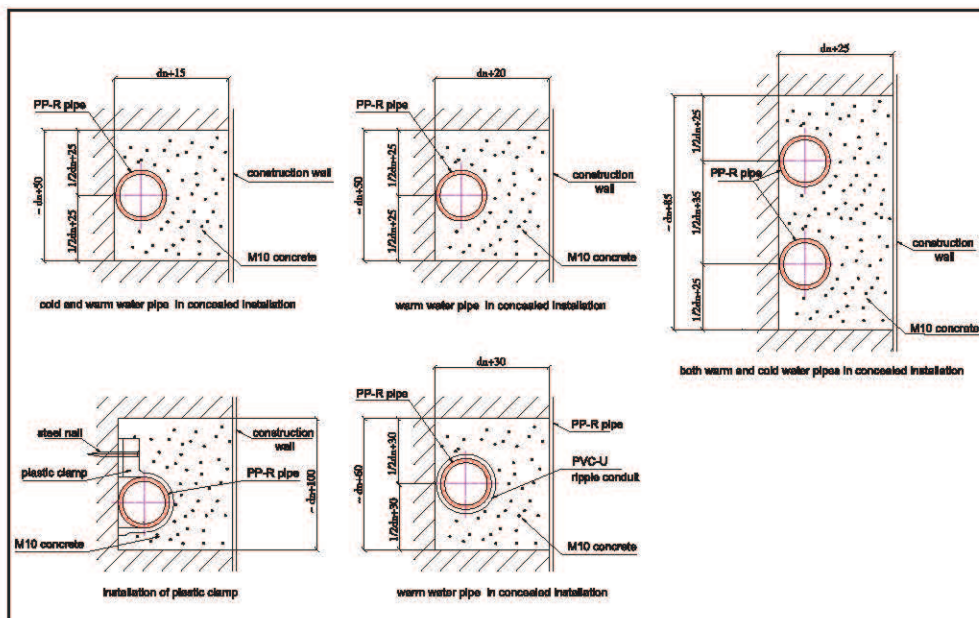
- concealed installation
- installation in duct
- open installation

CONCEALED INSTALLATION

Concealed installations generally do not require a consideration of the expansion of DISMY pipes.

The insulation acc. to DIN1988 or the Decree for the installation of heating systems (Heizungsanlagenverordnung) gives enough expansion space for the pipe. In case that the expansion is greater than the room to move in the insulation, the material absorbs every stress arising from a residual expansion.

The same applies to pipes, which do not have to be insulated acc. to current regulations. A temperature dependent linear expansion is prevented through the embedding in the floor, concrete or plaster. The compressive strain and tensile stress arising from this are not critical as they are absorbed through the material.



Remark:

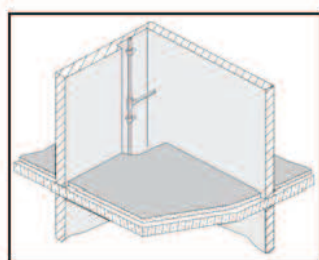
- Moulding M10 concrete has two stages. First moulding M10 concrete to fix pipe and fitting up to 50% strong, then filling M10 concrete to level.
- Pipe can't be covered by concrete before the pressure test is finished successfully.
- Diameter of concealed installed pipe is less than 32mm.
- Interval between pipe and clamp is no more than 1.5m, there must be a pipe clamp to support tee in wall corner.

INSTALLATION IN DUCTS

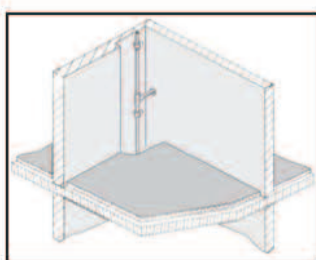
The installation of risers of DISMY pipes components requires a branch pipe, which is elastic enough to take the linear expansion of the riser.

The installation of a spring leg gives the appropriate elasticity.

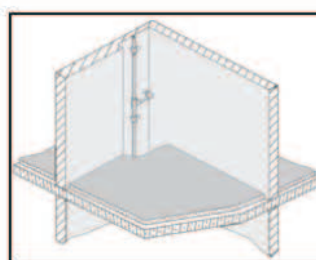
An adequate pipe liner also gives sufficient elasticity to the branch-off pipe.



* Good Fixing



* Large Diameter Pipe Liner



* Installation of a Spring Leg

OPEN INSTALLATION

- As coefficient of linear expansion of DISMY PP-R pipes is 0.15 mm/mk, it is recommended to plan and install visible DISMY pipes, where linear expansion has to be considered. DISMY PP-R/ Alu stabi/ Fibre pipe is recommended for carrier of hot water installation of over 40m length of Fibre composite pipe need also expansion bend. Riser doesn't need expansion bend.
- The following calculation examples and diagrams are of help for the practical determination of linear expansion. Essential for the calculation of linear expansion is the difference between working temperature and maximum or minimum installation temperature.
- During open installation, no deformation is most important.
- DISMY PP-R pipe for potable water and DISM Alu Stabi pipe for hot water don't need to be considered about their linear expansion.

Coefficient of linear expansion PP-R Alu Stabi pipe $\longrightarrow \alpha_1 = 0.03 \text{ mm/mk}$

Coefficient of linear expansion PP-R Fibre Composite $\longrightarrow \alpha_2 = 0.035 \text{ mm/mk}$

Coefficient of linear expansion PP-R pipe $\longrightarrow \alpha_3 = 0.15 \text{ mm/mk}$

- Calculated example and diagram help solve problem of linear expansion calculation of linear expansion between maximum working temperature and minimum installation temperature is crucial to determine linear expansion.

CALCULATION OF LINEAR EXPANSION

Calculation of linear expansion
Gives and required value table

Designation	Meaning	Value	Measuring Unit
Δl	DISMY Linear Expansion	?	mm
α_1	Coefficient of Linear Expansion Alu Stabi	0.03	mm/mk
α_2	Coefficient of Linear Expansion Fibre Composite	0.035	mm/mk
α_3	Coefficient of Linear Expansion PP-R Pipe	0.15	mm/mk
L	Pipe Length	30	m
t_w	Working Temperature	70	°C
t_M	Installation Temperature	30	°C
Δt	Temperature Difference Between Working and Installation Temperature ($\Delta t = t_w - t_M$)	40	k

The Linear expansion Δl is calculated according to the following formula:

$$\Delta l = \alpha_m \times L \times \Delta t$$

$$\Delta l = 0.035 \text{ mm/mk} \times 30 \text{ m} \times 40 \text{ k}$$

$$\Delta l = 42 \text{ mm}$$

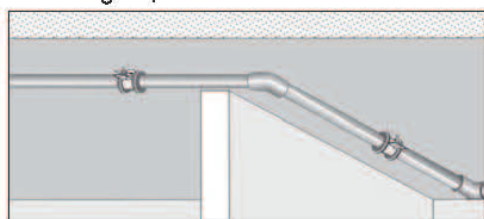
$$\alpha_m = \alpha_1 ; \alpha_2 ; \alpha_3$$

EXPANSION COMPENSATION

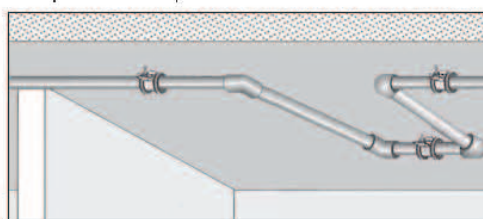
DISMY pipe clamp should be installed for DISMY pipe in suitable position.

In open installation, the following possibilities are considered to compensate the linear expansion :

- Bending loop



- Expansion loop



BENDING SIDE

Normally Linear expansion in pipes can be compensated through change in direction.

The Length of bending side has to be calculated acc. to the following example

Designation	Meaning	Value	Measuring Unit
L_s	Length of the bending side	?	mm
k	Material specific constant	15	mm/mk
d	External diameter	40.0	mm/mk
Δl	Linear expansion	42.0	mm/mk

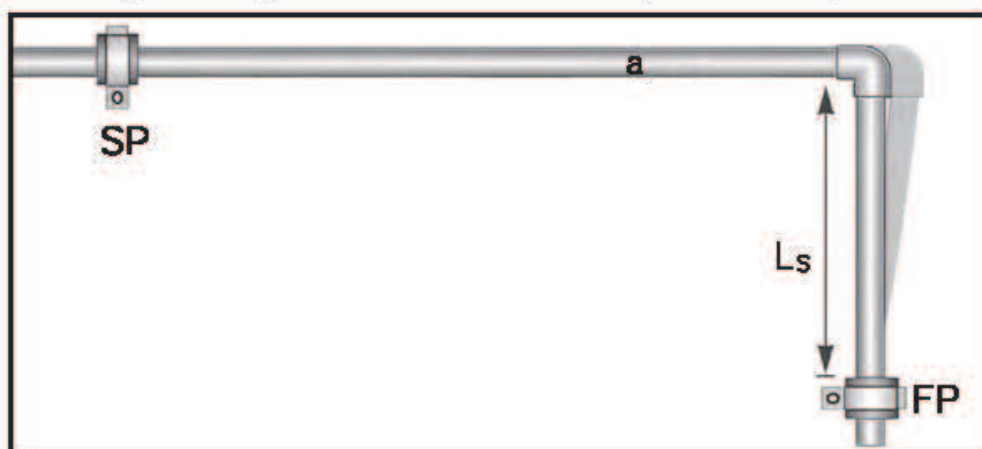
The bending side length is calculated according to the following formula:

$$L_s = K \times \sqrt{d \times \Delta l}$$

$$L_s = 15 \times \sqrt{40.0\text{mm} \times 42.0\text{mm}}$$

$$L_s = 615.0\text{mm}$$

Considering the values given above, the calculated bending side L_s comes up to 615 mm.



SP - Sliding point
FP - Fixed point

EXPANSION LOOP

If the linear expansion can't be compensated through change in direction, it becomes necessary to install an expansion loop. It's construction requires the necessary length of pipes and four pieces of angle 90. Considering the length of the bending side L_s as well as the breadth of the pipe bend A_{min} on constructing an expansion loop.

Calculation example : Breadth of the expansion loop
Given and required values

Designation	Meaning	Value	Measuring Unit
A_{min}	Breadth of the expansion loop	?	mm
Δl	Linear expansion	42.0	mm
SD	Safe distance	150.0	mm

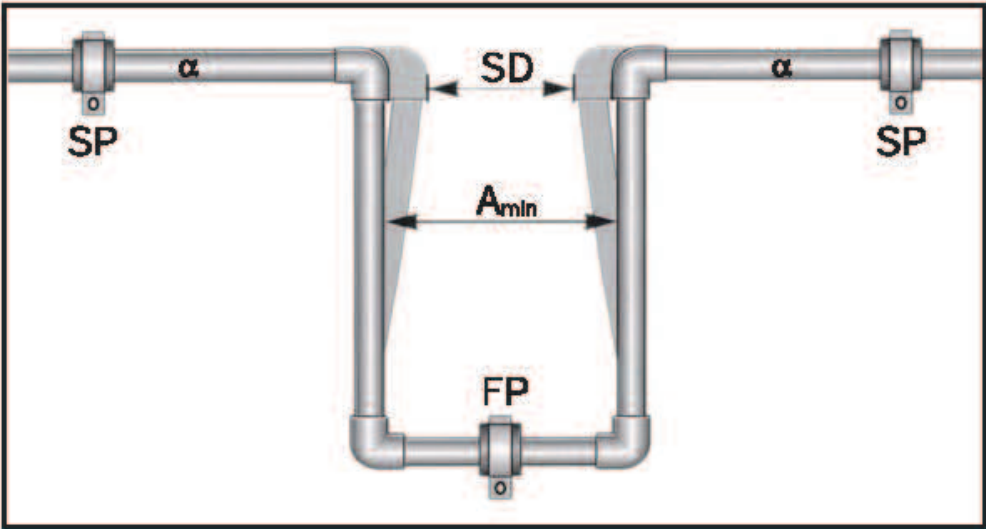
The pipe bend A_{min} is calculated acc. to the following formula :

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

$$A_{min} = 2 \times 42.0\text{mm} + 150.0\text{mm}$$

$$A_{min} = 234.0\text{mm}$$

The breadth of the expansion loop A_{min} should be at least 234 mm.



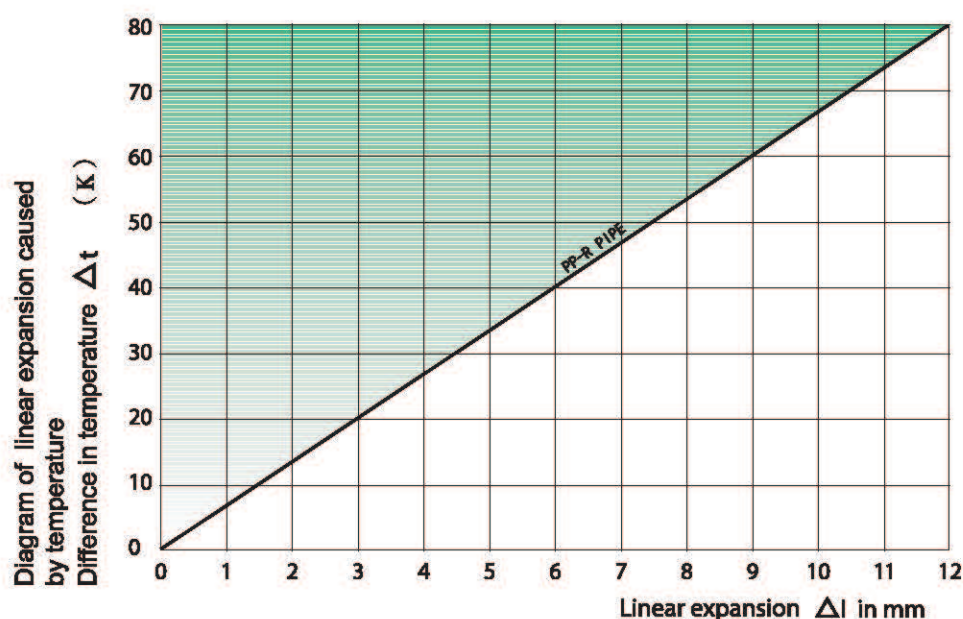
SP - Sliding point
FP - Fixed point

LINEAR EXPANSION CHART

The Linear expansion, fully described on the last pages, can be taken from the following tables

DISMY Linear expansion: DISMY pipe								
Pipe length l(m)	Difference in temperature Δt °C							
	10	20	30	40	50	60	70	80
0.1	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20
0.2	0.30	0.60	0.90	1.20	1.50	1.80	2.10	2.40
0.3	0.45	0.90	1.35	1.80	2.25	2.70	3.15	3.60
0.4	0.60	1.20	1.80	2.40	3.00	3.60	4.20	4.80
0.5	0.75	1.50	2.25	3.00	3.75	4.50	5.25	6.00
0.6	0.90	1.80	2.70	3.60	4.50	5.40	6.30	7.20
0.7	1.05	2.10	3.15	4.20	5.25	6.30	7.35	8.40
0.8	1.20	2.40	3.60	4.80	6.00	7.20	8.40	9.60
0.9	1.35	2.70	4.05	5.40	6.75	8.10	9.45	10.80
1.0	1.50	3.00	4.50	6.00	7.50	9.00	10.50	12.00
2.0	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00
3.0	4.50	9.00	13.50	18.00	22.50	27.00	31.50	36.00
4.0	6.00	12.00	18.00	24.00	30.00	36.00	42.00	48.00
5.0	7.50	15.00	22.50	30.00	37.50	45.00	52.50	60.00
6.0	9.00	18.00	27.00	36.00	45.00	54.00	63.00	72.00
7.0	10.50	21.00	31.50	42.00	52.50	63.00	73.50	84.00
8.0	12.00	24.00	36.00	48.00	60.00	72.00	84.00	96.00
9.0	13.50	27.00	40.50	54.00	67.50	81.00	94.50	108.00
10.0	15.00	30.00	45.00	60.00	75.00	90.00	105.00	120.00

Linear expansion Δl in mm



LINEAR EXPANSION CHART

DISMY PP-R Alu Stabi/ Fibre pipe

DISMY PP-R/Alu Stabi/ Fibre Composite pipe have better sturdy and stability, especially it's linear expansion is 75% less than that of common PP-R pipe.

DISMY Linear expansion: DISMY pipe																
Pipe length [m]	Difference in temperature Δt [K]															
	10	20	30	40	50	60	70	80	10	20	30	40	50	60	70	80
0.1	0.03	0.04	0.06	0.07	0.09	0.11	0.12	0.14	0.15	0.18	0.18	0.21	0.21	0.25	0.24	0.28
0.2	0.06	0.07	0.12	0.14	0.18	0.21	0.24	0.28	0.30	0.35	0.36	0.42	0.42	0.49	0.48	0.56
0.3	0.09	0.11	0.18	0.21	0.27	0.32	0.36	0.42	0.45	0.53	0.54	0.63	0.63	0.74	0.72	0.84
0.4	0.12	0.14	0.24	0.28	0.36	0.42	0.48	0.56	0.60	0.70	0.72	0.84	0.84	0.98	0.96	1.12
0.5	0.15	0.18	0.30	0.35	0.45	0.53	0.60	0.70	0.75	0.88	0.90	1.05	1.05	1.23	1.20	1.40
0.6	0.18	0.21	0.36	0.42	0.54	0.63	0.72	0.84	0.90	1.05	1.08	1.26	1.28	1.47	1.44	1.68
0.7	0.21	0.25	0.42	0.49	0.63	0.74	0.84	0.98	1.05	1.23	1.26	1.47	1.47	1.72	1.68	1.96
0.8	0.24	0.28	0.48	0.56	0.72	0.84	0.96	1.12	1.20	1.40	1.44	1.68	1.68	1.96	1.92	2.24
0.9	0.27	0.32	0.54	0.63	0.81	0.95	1.08	1.26	1.35	1.58	1.62	1.89	1.89	2.21	2.16	2.52
1.0	0.30	0.35	0.60	0.70	0.90	1.05	1.20	1.40	1.50	1.75	1.80	2.10	2.10	2.45	2.40	2.80
2.0	0.60	0.70	1.20	1.40	1.80	2.10	2.40	2.80	3.00	3.50	3.60	4.20	4.20	4.90	4.80	5.60
3.0	0.90	1.05	1.80	2.10	2.70	3.20	3.60	4.20	4.50	5.25	5.40	6.30	6.30	7.35	7.20	8.40
4.0	1.20	1.40	2.40	2.80	3.60	4.20	4.80	5.60	6.00	7.00	7.20	8.40	8.40	9.80	9.60	11.20
5.0	1.50	1.75	3.00	3.50	4.50	5.25	6.00	7.00	7.50	8.75	9.00	10.50	10.50	12.25	12.00	14.00
6.0	1.80	2.10	3.60	4.20	5.40	6.30	7.20	8.40	9.00	10.50	10.80	12.60	12.80	14.70	14.40	16.80
7.0	2.10	2.45	4.20	4.90	6.30	7.35	8.40	9.80	10.50	12.25	12.60	14.70	14.70	17.15	16.80	19.60
8.0	2.40	2.80	4.80	5.60	7.20	8.40	9.60	11.20	12.00	14.00	14.40	16.80	16.80	19.60	19.20	22.40
9.0	2.70	3.15	5.40	6.30	8.10	9.45	10.80	12.60	13.50	15.75	16.20	18.90	18.90	22.05	21.60	25.20
10.0	3.00	3.50	6.00	7.00	9.00	10.50	12.00	14.00	15.00	17.50	18.00	21.00	21.00	24.50	24.00	28.00

Linear expansion Δl in mm

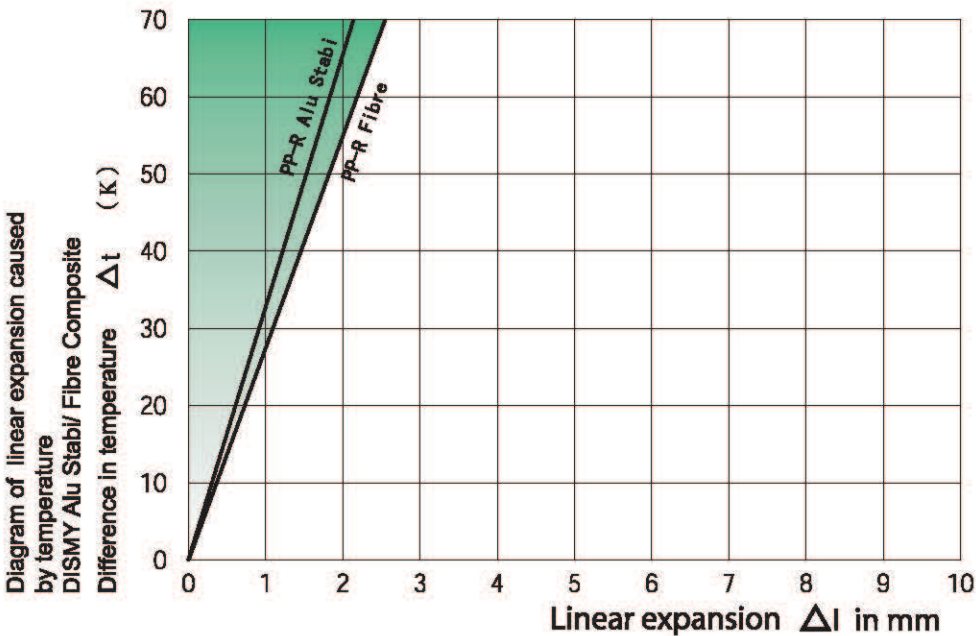


Diagram of linear expansion caused by temperature
DISMY Alu Stabi/ Fibre Composite
Difference in temperature Δt (K)

Linear expansion Δl in mm

PRE-STRESS

Where space is limited It is possible to shorten the length of the bending side by its 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} for bending sides with pre-stress is calculated acc. to the following calculation example :

Calculation of linear expansion
Gives and required value table

Designation	Meaning	Value	Measuring Unit
L_{sv}	Length of the bending side with pre-stress	?	mm
k	Material specific constant DISMY pipes	15	-
d	External diameter of DISMY pipes	40.0	mm
Δl	Linear expansion	42.0	mm

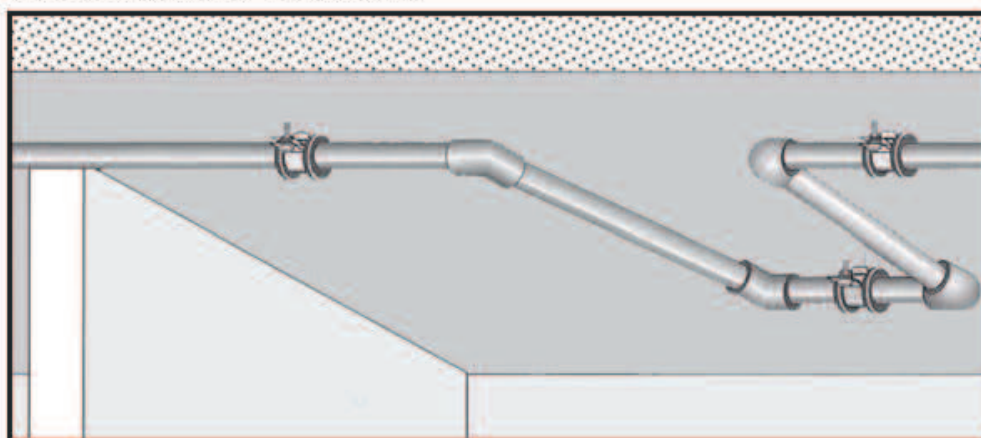
The bending side with pre-stress is calculated acc. to the following formula:

$$L_{sv} = k \times \sqrt{d \times \frac{\Delta l}{2}}$$

$$L_{sv} = 15 \times \sqrt{40.0 \text{ mm} \times \frac{42.0 \text{ mm}}{2}}$$

$$L_{sv} = 435.0 \text{ mm}$$

Acc to the above given values the length of the bending side is 435 mm under consideration of the pre-stress



SP - Sliding point
FP - Fixed point

SUPPORT INTERVALS

Table to determine support intervals for DISMY PP-R Alu Stabi pipe in conjunction with temperature and external diameter

Difference in temperature Δt (K)	Pipe diameter d (mm)								
	20	25	32	40	50	63	75	90	110
	Support intervals in cm								
0	155	170	195	220	245	270	285	300	325
20	120	130	150	170	190	210	220	230	250
30	120	130	150	170	190	210	220	230	240
40	110	120	140	160	180	200	210	220	230
50	110	120	140	160	180	200	210	220	210
60	100	110	130	150	170	190	200	210	200
70	90	100	120	140	160	180	190	200	200

Table to determine support intervals for DISMY PP-R Fibre Composite pipe in conjunction with temperature and external diameter

Difference in temperature Δt (K)	Pipe diameter d (mm)								
	20	25	32	40	50	63	75	90	110
	Support intervals in cm								
0	120	140	160	180	205	230	245	260	290
20	90	105	120	135	155	175	185	195	215
30	90	105	120	135	155	175	185	195	210
40	85	95	110	125	145	165	175	185	200
50	85	95	110	125	145	165	175	185	190
60	80	90	105	120	135	155	165	175	180
70	70	80	95	110	130	145	155	165	170

Table to determine support intervals for DISMY PP-R pipe in conjunction with temperature and external diameter

Difference in temperature Δt (K)	Pipe diameter d (mm)								
	20	25	32	40	50	63	75	90	110
	Support intervals in cm								
0	85	105	125	140	165	190	205	220	250
20	60	75	90	100	120	140	150	160	180
30	60	75	90	100	120	140	150	160	180
40	60	70	80	90	110	130	140	150	170
50	60	70	80	90	110	130	140	150	170
60	55	65	75	85	100	115	125	140	160
70	50	60	70	80	95	105	115	125	140

THERMAL INSULATION WARM WATER PIPE

Property of the heat conductivity of DISMY pipes, thermal loss is very low. Normally it isn't necessary to install thermal insulation for open or concealed installed DISMY pipe in room.

DISMY pipes and fittings for warm water system have to be insulated against loss of heat. The insulation thickness depends on the respective installation.

For the purposes of calculation insulation material thickness for pipe, which nominal width is not stipulated by standards, the external diameter must be taken as the criteria for determining the level of insulation thickness (Decree for the Installation of Heating Systems). Due to the high proper insulation values the level of insulation thickness - compared to metal pipe systems - can be reduced acc. to the following minimum insulation thickness.

Installation of thermal insulation of SDR6 PP-R Pipe

Thermal conductivity	0.030 w/mk		0.035 w/mk		0.40 w/mk	
Dimension	Minimum insulation thickness in mm					
	50*	100*	50*	100*	50*	100*
20 mm	6.1	12.9	7.8	18.8	9.7	21.6
25 mm	6.0	13.0	7.6	18.7	9.3	21.0
32 mm	9.4	19.9	11.8	25.5	14.4	32.2
40 mm	9.3	19.8	11.5	25.1	13.9	31.2
50 mm	9.0	19.7	11.0	24.7	13.2	30.2
63 mm	13.1	27.9	15.9	35.0	19.0	42.9
75 mm	15.6	33.4	19.0	41.7	22.6	51.1
90 mm	18.8	40.2	22.8	50.1	27.1	61.3
110 mm	23.1	49.1	27.9	61.1	33.1	74.7

Installation of thermal insulation of SDR6 PP-R Al Stabi / Fibre Composite pipe

Thermal conductivity	0.030 w/mk		0.035 w/mk		0.40 w/mk	
Dimension	Minimum insulation thickness in mm					
	50*	100*	50*	100*	50*	100*
20 mm	6.4	13.3	8.2	17.5	10.3	22.5
25 mm	6.4	13.4	8.0	17.3	9.9	21.8
32 mm	9.9	20.5	12.5	26.4	15.3	33.4
40 mm	9.9	20.5	12.2	26.1	14.8	32.5
50 mm	13.3	27.5	16.5	34.9	19.9	43.5
63 mm	15.0	31.1	18.3	39.1	22.0	48.3
75 mm	18.4	38.0	22.5	47.8	27.0	58.9
90 mm	21.7	45.1	26.6	56.6	31.8	69.6
110 mm	27.0	55.7	32.9	69.8	39.2	85.8

THERMAL INSULATION COLD WATER PIPE

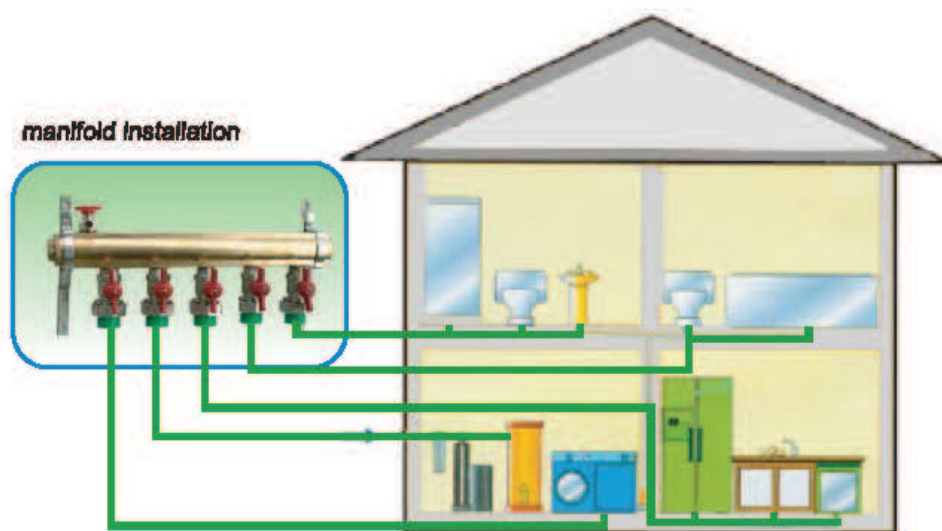
Potable water plants have to be protected against heat gain and the formation of condensation. Standard values for the minimum insulation thickness have to be taken from the following table. The given insulation thickness are applicable to all pipe material and also DISMY pipe.

Standard values for the minimum insulation thicknesses for the insulation of potable water plants (cold)	
Type of the installation	Insulation thickness $\lambda = 0.040 \text{ w/mk}^*$
Open installed pipe. In a not heated room (i.e. cellar)	4 mm
Open installed pipe, in a heated room	9 mm
Pipe in a duct, without warm water pipes	4 mm
Pipe in a duct, beside warm water pipes	13 mm
Pipe in a pipe chase riser	4 mm
Pipe in a pipe chase riser	13 mm
Pipe in a pipe chase riser	4 mm
*) The insulation thicknesses, applied to a diameter of $d = 20 \text{ mm}$, for other coefficient of thermal conduction have to be calculated correspondingly.	

The above values are corresponding to the German Industry Standard (DIN) and have to be adapted to the respective national regulation

MANIFOLD INSTALLATION

Manifold is easily installed and be maintained, through which water flow can be adjusted more conveniently and bring the most reasonable water supply.



ATTENTION IN INSTALLATION

- Sufficient Teflon seal belt must be used for connection of DISMY threaded fitting in order to avoid leakage excessively screwing down pipe and fitting may result in crack for leakage, so we must be cautious that it can't be screwed down excessively.
- 4-5cm length end of pipe must be cut out to assure quality of project.
- Correcting angle of welding part can be reach up to 5 degree, but it must be done at once after welding. Otherwise it forms defects.
- Expansion must be put into consideration during designing and installation.
- Thermal bend of pipe caused by naked flame must be avoided. Pipe can't be heated directly by naked flame. Thermal air can exclusively be used to heat pipe, maximum temperature is no more than 140 degree.
- Concealed installed pipe must be tested for pressure before covering.
- PP-R pipe can't be subjected to shock, impact, throwing and falling stones.
- During transportation of pipe and fitting, we must be careful. Temperature in the warehouse for pipe and fitting is no more than 40 degree with good ventilation, there is no any thermal resource and chemical product. Pipe and fitting can't be supported by block or bar, stack height is on more than 1.5m, it can't be exposed directly is sun.
- DISMY pipe should be cut with DISMY-cutter at right angle if is necessary to be cut.
- During building, construction hole should be kept for pipe go through wall, floor, pool wall, etc measure as following: the outer diameter of hole is bigger than 30mm. The breadth and depth for pipe is 10-20mm bigger than the hole if there is thermal insulation, so outer diameter of the thermal insulation should be taken as the norm.
- Water proof should be taken for it when pipes go through wall, floor, pool wall.
- Pipe and fitting should be protected and prevented from pollution of building material and

PRESSURE TEST / TEST CONTROL

Test pressure is 1.5 time higher than working temperature, testing pressure for potable water pipe is not lower than 0.9MPa and testing pressure for hot water pipe is not lower than 1.2MPa, testing water temperature is at normal temperature.

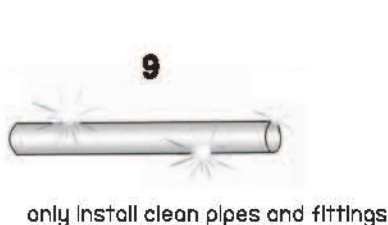
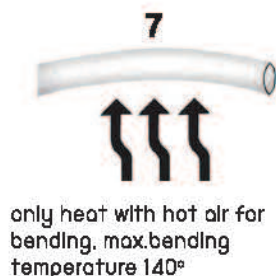
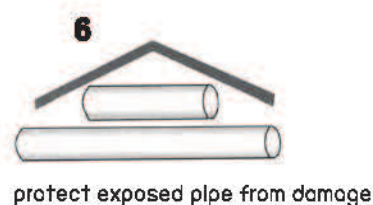
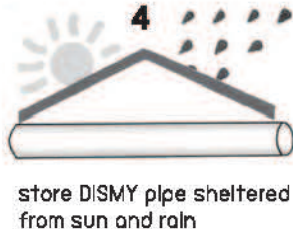
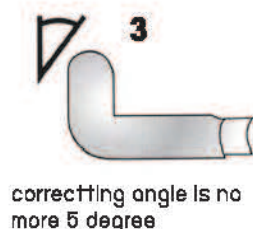
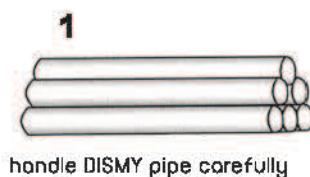
Pipe system should be full of water exhaust and check if it is leakage. Manual testing pump should be used for water pressure testing. Time for increasing pressure is not less than 10 mins, precision of bar meter is less than 0.01 Bar. Keep testing pressure for 1 hour after pressure reaches working pressure.

Testing pressure can't decrease by 0.06MPa during 1 hour testing. Second Testing pressure can't decrease by 0.06MPa for 2 hours during 2 hours testing.

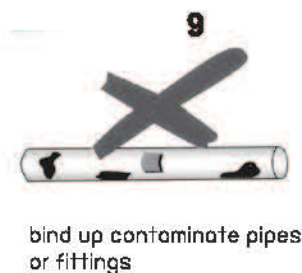
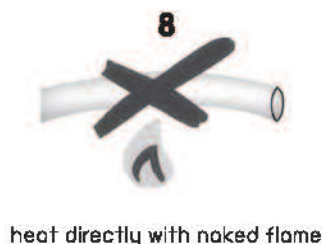
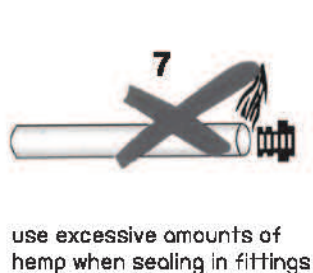
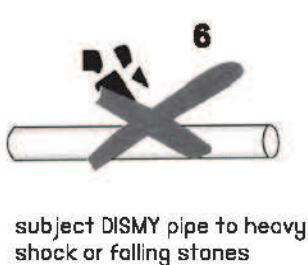
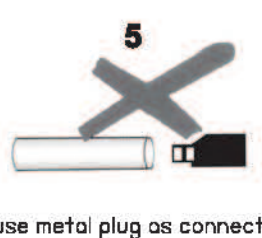
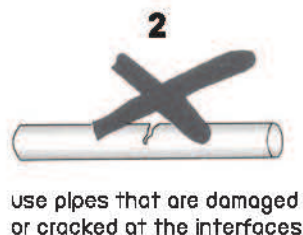
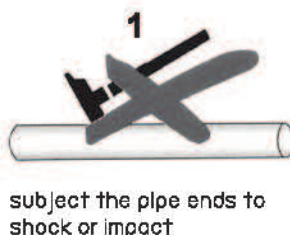
The reliability and validity of position, diameter, support and compensation facility and sensitivity of instruments and valves should be inspected carefully.

COMMANDMENTS FOR HANDING

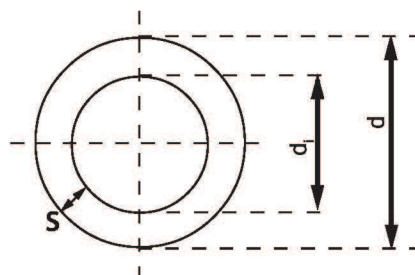
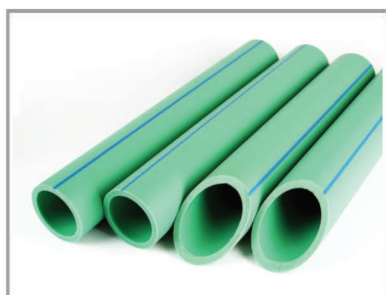
You must



You must not



DISMY PP-R PIPE



Pipe series: PP-R SDR 11/S 5/PN 10

Color: green

Form supplied: 4m straight length

Pipe		Diameter		Thickness	Internal Diameter
Code	Dimension	d	s	di	
		mm	mm	mm	
1020	20 mm	20	2.0	16.0	
1025	25 mm	25	2.3	20.4	
1032	32 mm	32	2.9	26.2	
1040	40 mm	40	3.7	32.6	
1050	50 mm	50	4.6	40.8	
1063	63 mm	63	5.8	51.4	
1075	75 mm	75	6.8	61.4	
1090	90 mm	90	8.2	73.6	
10110	110 mm	110	10.0	90.0	
10125	125 mm	125	12.0	101.0	
10160	160 mm	160	14.6	130.8	
10200	200 mm	200	18.2	163.6	

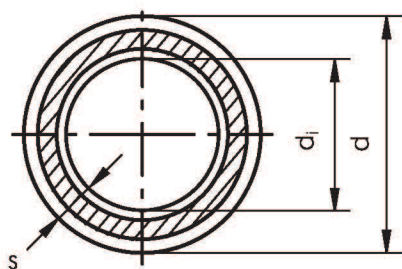
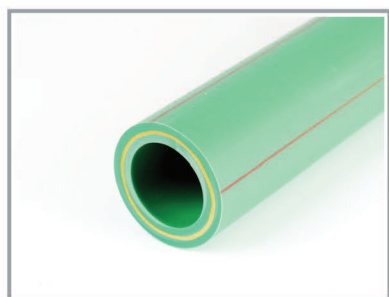
Pipe series: PP-R SDR 6/S 2.5/PN 20

Color: green

Form supplied: 4m straight length

Pipe		Diameter		Thickness	Internal Diameter
Code	Dimension	d	s	di	
		mm	mm	mm	
2020	20 mm	20	3.4	13.2	
2025	25 mm	25	4.2	16.6	
2032	32 mm	32	5.4	21.2	
2040	40 mm	40	6.7	29.6	
2050	50 mm	50	8.3	36.4	
2063	63 mm	63	10.5	42.0	
2075	75 mm	75	12.5	50.0	
2090	90 mm	90	15.0	60.0	
20110	110 mm	110	18.3	73.4	
20125	125 mm	125	20.8	83.4	
20160	160 mm	160	21.9	86.2	

** SDR 7.4 for dimension 160 mm.



Pipe series: PP-R FIBRE COMPOSITE

SDR 6/S 2.5/PN 20

Color: green

Form supplied: 4m straight length

Pipe		Diameter		Thickness	Internal Diameter
Code	Dimension	d	s	di	
		mm	mm	mm	
2020FB	20 mm	20	3.4	13.2	
2025FB	25 mm	25	4.2	16.6	
2032FB	32 mm	32	5.4	21.2	
2040FB	40 mm	40	6.7	29.6	
2050FB	50 mm	50	8.3	36.4	
2063FB	63 mm	63	10.5	42.0	
2075FB	75 mm	75	12.5	50.0	
2090FB	90 mm	90	15.0	60.0	
20110FB	110 mm	110	18.3	73.4	

DISMY PP-R FITTING AND TOOL

Coupling	Code	SDR	PN	Dimension
	102000	6	20	20 mm
	102500	6	20	25 mm
	103200	6	20	32 mm
	104000	6	20	40 mm
	105000	6	20	50 mm
	106300	6	20	63 mm
	107500	6	20	75 mm
	109000	6	20	90 mm
	1011000	6	20	110 mm
	1012500	6	20	125 mm
	1016000	6	20	160 mm
	1020000	6	20	200 mm



90 Elbow	Code	SDR	PN	Dimension
	122000	6	20	20 mm
	122500	6	20	25 mm
	123200	6	20	32 mm
	124000	6	20	40 mm
	125000	6	20	50 mm
	126300	6	20	63 mm
	127500	6	20	75 mm
	129000	6	20	90 mm
	1211000	6	20	110 mm
	12125000	6	20	125 mm
	12160000	6	20	160 mm
	1220000	6	20	200 mm



45 Elbow	Code	SDR	PN	Dimension
	132000	6	20	20 mm
	132500	6	20	25 mm
	133200	6	20	32 mm
	134000	6	20	40 mm
	135000	6	20	50 mm
	136300	6	20	63 mm
	137500	6	20	75 mm
	139000	6	20	90 mm
	1311000	6	20	110 mm
	1312500	6	20	125 mm
	1316000	6	20	160 mm



Tee	Code	SDR	PN	Dimension
	142000	6	20	20 mm
	142500	6	20	25 mm
	143200	6	20	32 mm
	144000	6	20	40 mm
	145000	6	20	50 mm
	146300	6	20	63 mm
	147500	6	20	75 mm
	149000	6	20	90 mm
	1411000	6	20	110 mm
	1412500	6	20	125 mm
	1416000	6	20	160 mm
	1420000	6	20	200 mm



Reducer	Code	SDR	PN	Dimension
	112520	6	20	25/20 mm
	113220	6	20	32/20 mm
	113225	6	20	32/25 mm
	114020	6	20	40/20 mm
	114025	6	20	40/25 mm
	114032	6	20	40/32 mm
	115020	6	20	50/20 mm
	115025	6	20	50/25 mm
	115032	6	20	50/32 mm
	115040	6	20	50/40 mm
	116320	6	20	63/20 mm
	116325	6	20	63/25 mm
	116332	6	20	63/32 mm
	116340	6	20	63/40 mm
	116350	6	20	63/50 mm
	117520	6	20	75/20 mm
	117525	6	20	75/25 mm
	117532	6	20	75/32 mm
	117540	6	20	75/40 mm




Code	SDR	PN	Dimension
117550	6	20	75/50 mm
117563	6	20	75/63 mm
119032	6	20	90/32 mm
119040	6	20	90/40 mm
119050	6	20	90/50 mm
119063	6	20	90/63 mm
119075	6	20	90/75 mm
1111050	6	20	110/50 mm
1111063	6	20	110/63 mm
1111075	6	20	110/75 mm
1111090	6	20	110/90 mm
1112575	6	20	125/75 mm
1112590	6	20	125/90 mm
11125110	6	20	125/110 mm
11160110	6	20	160/110 mm
11160125	6	20	160/125 mm
11200110	6	20	200/110 mm
11200160	6	20	200/160 mm

DISMY PP-R FITTING AND TOOL

Reducer Tee	Code	SDR	PN	Dimension
	15252025	6	20	25/20/25 mm
	15322032	6	20	32/20/32 mm
	15322532	6	20	32/25/32 mm
	15402040	6	20	40/20/40 mm
	15402540	6	20	40/25/40 mm
	15403240	6	20	40/32/40 mm
	15502050	6	20	50/20/50 mm
	15502550	6	20	50/25/50 mm
	15503250	6	20	50/32/50 mm
	15504050	6	20	50/40/50 mm
	15632063	6	20	63/20/63 mm
	15632563	6	20	63/25/63 mm
	15633263	6	20	63/32/63 mm
	15634063	6	20	63/40/63 mm
	15635063	6	20	63/50/63 mm
	15752075	6	20	75/20/75 mm
	15752575	6	20	75/25/75 mm
	15753275	6	20	75/32/75 mm
	15754075	6	20	75/40/75 mm
	15755075	6	20	75/50/75 mm
	Code	SDR	PN	Dimension
	15756375	6	20	75/63/75 mm
	15903290	6	20	90/32/90 mm
	15904090	6	20	90/40/90 mm
	15905090	6	20	90/50/90 mm
	15906390	6	20	90/63/90 mm
	15907590	6	20	90/75/90 mm
	1511040110	6	20	110/40/110 mm
	1511050110	6	20	110/50/110 mm
	1511063110	6	20	110/63/110 mm
	1511075110	6	20	110/75/110 mm
	1511090110	6	20	110/90/110 mm
	1512550125	6	20	125/50/125 mm
	1512563125	6	20	125/63/125 mm
	1512575125	6	20	125/75/125 mm
	1512590125	6	20	125/90/125 mm
	15125110125	6	20	125/110/125 mm
	15160110160	6	20	160/110/160 mm
	15160125160	6	20	160/125/160 mm
	15200110200	6	20	200/110/200 mm
	15200160200	6	20	200/160/200 mm

Cap	Code	SDR	PN	Dimension
	172000	6	20	20 mm
	172500	6	20	25 mm
	173200	6	20	32 mm
	174000	6	20	40 mm
	175000	6	20	50 mm
	176300	6	20	63 mm
	177500	6	20	75 mm
	179000	6	20	90 mm
	1711000	6	20	110 mm
	1712500	6	20	125 mm
	1716000	6	20	160 mm
	1720000	6	20	200 mm

Cross	Code	SDR	PN	Dimension
	162000	6	20	20 mm
	162500	6	20	25 mm
	163200	6	20	32 mm
	164000	6	20	40 mm
	165000	6	20	50 mm
	166300	6	20	63 mm

Pipe Plug	Code	SDR	PN	Dimension
	182000	6	20	20 mm
	182500	6	20	25 mm
	183200	6	20	32 mm


Short by Pass Bend	Code	SDR	PN	Dimension
	SBB20	6	20	20 mm
	SBB25	6	20	25 mm
	SBB32	6	20	32 mm

DISMY PP-R FITTING AND TOOL

90 Degree Nipple Elbow	Code	SDR	PN	Dimension
	122000N	6	20	20 mm
	122500N	6	20	25 mm
	123200N	6	20	32 mm



90 Reducing Elbow	Code	SDR	PN	Dimension
	252520	6	20	25/20 mm
	253220	6	20	32/20 mm
	253225	6	20	32/25 mm




90 Long Elbow	Code	SDR	PN	Dimension
	122000L	6	20	20 mm
	122500L	6	20	25 mm
	123200L	6	20	32 mm




Weld In Saddle	Code	SDR	PN	Dimension
	225020	6	20	50/20 mm
	225025	6	20	50/25 mm
	225032	6	20	50/32 mm
	226320	6	20	63/20 mm
	226325	6	20	63/25 mm
	226332	6	20	63/32 mm
	227520	6	20	75/20 mm
	227525	6	20	75/25 mm
	227532	6	20	75/32 mm
	229020	6	20	90/20 mm
	229025	6	20	90/25 mm
	229032	6	20	90/32 mm
	2211020	6	20	110/20 mm
	2211025	6	20	110/25 mm
	2211032	6	20	110/32 mm
	2212532	6	20	125/32 mm



Female Threaded Coupling	Code	SDR	PN	Dimension
	302012	6	20	20x1/2" f
	302034	6	20	20x3/4" f
	302512	6	20	25x1/2" f
	302534	6	20	25x3/4" f
	303212	6	20	32x1/2" f
	303234	6	20	32x3/4" f
	303210	6	20	32x1" f
	3040114	6	20	40x1-1/4" f
	3050112	6	20	50x1-1/2" f
	306320	6	20	63x2" f
	3075212	6	20	75x2-1/2" f
	309030	6	20	90x3" f
	3011040	6	20	110x4" f



Male Threaded Coupling	Code	SDR	PN	Dimension
	312012	6	20	20x1/2" m
	312512	6	20	25x1/2" m
	312534	6	20	25x3/4" m
	313212	6	20	32x1/2" m
	313234	6	20	32x3/4" m
	313210	6	20	32x1" m
	3140114	6	20	40x1-1/4" m
	3150112	6	20	50x1-1/2" m
	316320	6	20	63x2" m
	3175212	6	20	75x2-1/2" m
	319030	6	20	90x3" m
	3111040	6	20	110x4" m



DISMY PP-R FITTING AND TOOL

90 Female Threaded Elbow



Code	SDR	PN	Dimension
322012	6	20	20x1/2" f
322034	6	20	20x3/4" f
322512	6	20	25x1/2" f
322534	6	20	25x3/4" f
323212	6	20	32x1/2" f
323234	6	20	32x3/4" f
323210	6	20	32x1" f

90 Male Threaded Elbow



Code	SDR	PN	Dimension
332012	6	20	20x1/2" m
332512	6	20	25x1/2" m
332534	6	20	25x3/4" m
333212	6	20	32x1/2" m
333234	6	20	32x3/4" m
333210	6	20	32x1" m

Female Threaded Tee



Code	SDR	PN	Dimension
352012	6	20	20x1/2" f
352034	6	20	20x3/4" f
352512	6	20	25x1/2" f
352534	6	20	25x3/4" f
353212	6	20	32x1/2" f
353234	6	20	32x3/4" f
353210	6	20	32x1" f

Male Threaded Tee



Code	SDR	PN	Dimension
362012	6	20	20x1/2" m
362512	6	20	25x1/2" m
362534	6	20	25x3/4" m
363212	6	20	32x1/2" m
363234	6	20	32x3/4" m
363210	6	20	32x1" m

Female Threaded Union



Code	SDR	PN	Dimension
402012	6	20	20x1/2" f
402534	6	20	25x3/4" f
403210	6	20	32x1" f
4040114	6	20	40x1-1/4" f
4050112	6	20	50x1-1/2" f
406320	6	20	63x2" f

Male Threaded Union



Code	SDR	PN	Dimension
412012	6	20	20x1/2" m
412534	6	20	25x3/4" m
413210	6	20	32x1" m
4140114	6	20	40x1-1/4" m
4150112	6	20	50x1-1/2" m
416320	6	20	63x2" m

Union (Brass Threaded, Two PPR Socket)



Code	SDR	PN	Dimension
432000	6	20	20 mm
432500	6	20	25 mm
433200	6	20	32 mm
434000	6	20	40 mm
435000	6	20	50 mm
436300	6	20	63 mm

Plastic Union



Code	Dimension
432000P	20 mm
432500P	25 mm
433200P	32 mm
434000P	40 mm
435000P	50 mm
436300P	63 mm

DISMY PP-R FITTING AND TOOL

Ball Valve	Code	Dimension
	512000	20 mm
	512500	25 mm
	513200	32 mm
	514000	40 mm
	515000	50 mm
	516300	63 mm



Stop Valve	Code	Dimension
	502000	20 mm
	502000	25 mm
	503200	32 mm
	504000	40 mm
	505000	50 mm
	506300	63 mm
	507500	75 mm
	509000	90 mm
	5011000	110 mm




Single Union & Female Threaded Ball Cock	Code	SDR	PN	Dimension
	522012	6	20	20x1/2"f
	522534	6	20	25x3/4"f
	523210	6	20	32x1"f



Double Union Ball Cock	Code	SDR	PN	Dimension
	532000	6	20	20 mm
	532500	6	20	25 mm
	533200	6	20	32 mm
	534000	6	20	40 mm
	535000	6	20	50 mm
	536300	6	20	63 mm



PP-R Union Ball Valve	Code	Dimension
	UBV20	20 mm
	UBV25	25 mm
	UBV32	32 mm
	UBV40	40 mm
	UBV50	50 mm
	UBV63	63 mm




Female Threaded Ball Valve	Code	Dimension
	512000F	20x1/2"f




Flang Socket	Code	SDR	PN	Dimension
	203200	6	20	32 mm
	204000	6	20	40 mm
	205000	6	20	50 mm
	206300	6	20	63 mm
	207500	6	20	75 mm
	209000	6	20	90 mm
	2011000	6	20	110 mm
	2012500	6	20	125 mm
	2016000	6	20	160 mm
	2020000	6	20	200 mm



Flange Plastic for Flange Socket	Code	Standard	Dimension
	PJ1	JIS-10K	32 mm
	PJ114	JIS-10K	40 mm
	PJ112	JIS-10K	50 mm
	PJ2	JIS-10K	63 mm
	PJ212	JIS-10K	75 mm
	PJ3	JIS-10K	90 mm
	PJ4	JIS-10K	110 mm
	PJ5	JIS-10K	125 mm
	PJ6	JIS-10K	160 mm




DISMY PP-R FITTING AND TOOL


Steel Flange for Flange Socket	Code	Standard	Dimension
	J1	JIS 10K /PN16 / ANSI 150P	32/1"
	J114	JIS 10K /PN16 / ANSI 150P	40/1-1/4"
	J112	JIS 10K /PN16 / ANSI 150P	50/1-1/2"
	J2	JIS 10K /PN16 / ANSI 150P	63/2"
	J212	JIS 10K /PN16 / ANSI 150P	75/2-1/2"
	J3	JIS 10K /PN16 / ANSI 150P	90/3"
	J4	JIS 10K /PN16 / ANSI 150P	110/4"
	J5	JIS 10K /PN16 / ANSI 150P	125/5"
	J6	JIS 10K /PN16 / ANSI 150P	160/6"
	J8	JIS 10K /PN16 / ANSI 150P	200/8"

Plastic Clip	Code	Dimension
	752000	20 mm
	752500	25 mm
	753200	32 mm
	754000	40 mm
	755000	50 mm
	756300	63 mm

Strainer	Code	Dimension
	STR20	20 mm
	STR25	25 mm
	STR32	32 mm
	STR40	40 mm
	STR50	50 mm
	STR63	63 mm

Check Valve	Code	Dimension
	CHK20	20 mm
	CHK25	25 mm
	CHK32	32 mm
	CHK40	40 mm
	CHK50	50 mm
	CHK63	63 mm

Pipe Distribution	Code	SDR	PN	Dimension
	233220	6	20	32-20x4 mm

Hole Repair Bar	Code	Dimension
	610711	7x11 mm

Repair Set	Code	Dimension
	730700	7 mm
	731100	11 mm

Welding Die	Code	Dimension
	732000	20 mm
	732500	25 mm
	733200	32 mm
	734000	40 mm
	735000	50 mm
	736300	63 mm
	737500	75 mm
	739000	90 mm
	7311000	110 mm
	7312500	125 mm
	7316000	160 mm
	7320000	200 mm

DISMY PP-R FITTING AND TOOL

Welding Tool
for Saddle




Code	Dimension
622050	20x50 mm
622063	20x63 mm
622075	20x75 mm
622090	20x90 mm
6220110	20x110 mm
622550	25x50 mm
622563	25x63 mm
622575	25x75 mm
622590	25x90 mm
6225110	25x110 mm
623250	32x50 mm
623263	32x63 mm
623275	32x75 mm
623290	32x90 mm
6232110	32x110 mm

Teflon Tape
(Premium)




Code	Dimension
TLT	12 x 18MRT

Constant
Temperature
Mixing Valve




Code	Dimension
MV-12	1/2"m
MV-34	3/4"m

Pressure
Testing
(Premium)




Code
92100

Pipe Scissors



Code	Dimension
712040	20-40 mm
712063	20-63 mm

Pipe Cutter



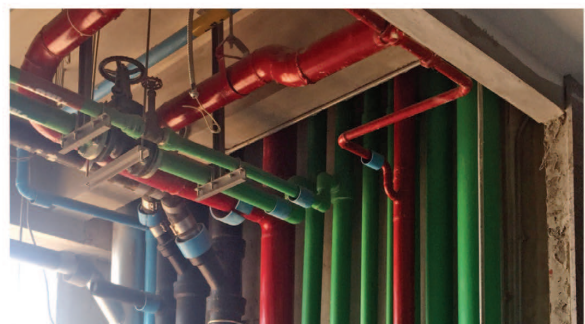
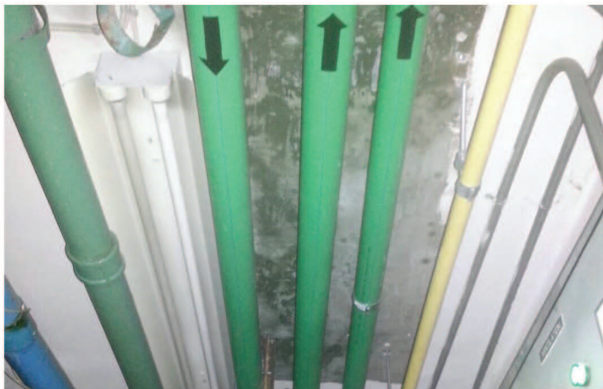
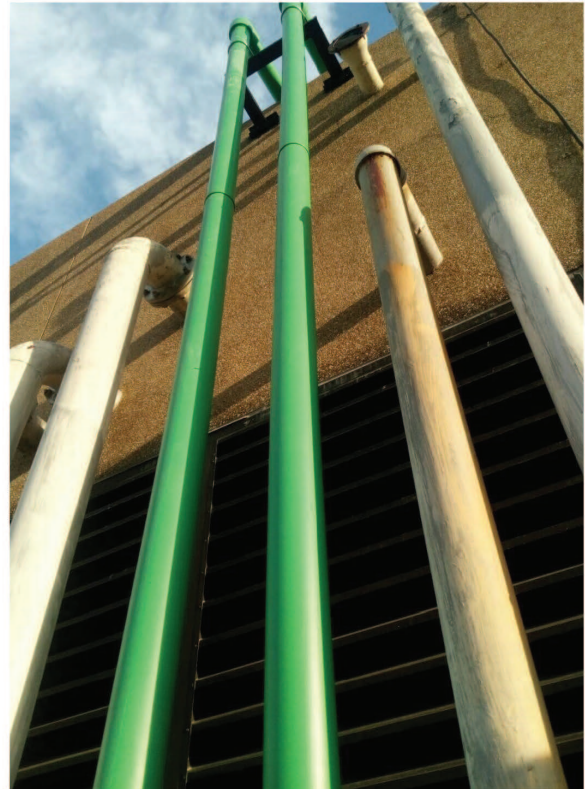
Code	Dimension
711663	16-63 mm
7150125	50-125 mm

PP-R Welding
Machine



Code	Dimension
722032	20-32 mm
722063DGT	20-63 mm
7275110DGT	75-110 mm
7263160	63-160 mm

SOME REFERENCE OF INSTALLATION





สาขารบค่าแทง (สำนักงานใหญ่)

647/3-6 ถนนรามคำแหง แขวงหัวหมาก เขตบางกะปิ จังหวัดกรุงเทพฯ 10240

Tel : 02-735-0755 Fax : 02-735-0702

Email : ranotech@gmail.com

Website : www.ranotech.com

เปิดรับ : วันจันทร์ - เสาร์ เวลา : 08.30 - 17.30 น.

สาขาสาธุกา

38/11-12 ถนนสาธุกา แขวงสาธุกา อำเภอสาธุกา จังหวัดปทุมธานี 12130

Tel : 02-531-3691 Fax : 02-531-3691

Email : ranotech@gmail.com

Website : www.ranotech.com

เปิดรับ : วันจันทร์ - ศุกร์ เวลา : 08.30 - 17.30 น.

สาขานาฬิก

199/109 หมู่ 3 ถนนนาฬิก แขวงนาฬิก อำเภอนาฬิก จังหวัดนาฬิก 74000

Tel : 034-440-810 Fax : 034-440-810

Email : ranotech@gmail.com

Website : www.ranotech.com

เปิดรับ : วันจันทร์ - ศุกร์ เวลา : 08.30 - 17.30 น.

 ranotech@gmail.com



www.ranotech.com

*ขอสงวนสิทธิ์ในการการเปลี่ยนแปลง ปรับปรุงข้อมูลโดยไม่ต้องแจ้งให้ทราบล่วงหน้า
เพื่อประโยชน์และประสิทธิภาพสูงสุดของผลิตภัณฑ์สำหรับผู้บริโภค

