



**Engineering progress
Enhancing lives**

RAUFUSION PP-R plumbing system

Safer. Smarter. More convenient.

Product Book - Malaysia

 **REHAU**



Polypropylene Random-Copolymer (PP-R) System with Homogeneous Jointing Technology for Plumbing Applications to DIN 8077/78 and ISO 15874.

REHAU RAUFUSION

PP-R plumbing system

REHAU being a global supplier of materials for the Automotive, Industry and Construction sectors understands what is required to get the job done today and for the future.

The RAUFUSION system has been engineered and manufactured according to the REHAU prestige quality standard guaranteeing the performance of the RAUFUSION system during installation, commissioning and long-term operation.

RAUFUSION has been rigorously tested according to all short and long-term requirements specified in the ISO 15874 and DIN 8077/78 international standards and of course REHAU's own stringent quality requirements.



**German
Quality**



* Please check with your local sales office on the suitability of application before installation.

This Product Book must be used in conjunction with the latest relevant Technical Information Book. All handling, design, installation, testing, and operation of the products must comply with the requirements outlined in the relevant Technical Information Booklet

The perfect fusion of quality and functionality



Engineered for your safety

Safety is critical when choosing a suitable plumbing system. REHAU Raufusion consists of a wide array of safety features such as threaded fittings that ensure absolute security at the joints, and the best polypropylene material chosen to prevent material degradation. In addition, the Raufusion system has gone through rigorous testing to meet both international and local standards.



The REHAU Identity

Different pressure rated pipes are striped with distinct REHAU corporate colours to representing our distinct design, engineering and commitment to the products reliability and innovation.

Easy identification

The RAUFUSION piping system is clearly marked out with 3 distinct stripes, each representing a different PN rating. This allows for easy identification at the jobsite for both installation and inspection purposes.



Pressure Rating:
PN10 / SDR 11 / S 5
Operating Pressure:
12.9 bars at 20°C
Operating Temperature:
5 - 70°C
Lifespan:
50 years
Appearance:
Light Grey with 4 Green stripes

14 Bar @ 20°C for 5 years



Pressure Rating:
PN 20 / SDR 6 / S 2,5
Operating Pressure:
25.7 bars at 20°C
Operating Temperature:
5 - 70°C
Lifespan:
50 years
Appearance:
Light Grey with 4 Magenta stripes

28 Bar @ 20°C for 5 years



Pressure Rating:
PN16 / SDR 7,4 / S 3,2
Operating Pressure:
20.4 bars at 20°C
Operating Temperature:
5 - 70°C
Lifespan:
50 years
Appearance:
Light Grey with 4 Grey stripes

22 Bar @ 20°C for 5 years

Quality
at your
fingertips



Prestigious quality standards

Rigorously tested according to all short and long term requirements specified by ISO15874 and DIN8077/8078 while fulfilling REHAU's internal stringent lab tests and quality requirements.

SAFER

Engineered for you safety and well being

Safety is extremely crucial when choosing the right plumbing system. The RAUFUSION plumbing system is engineered for your well being. Raufusion consists of a wide array of safety features such as threaded fittings that ensure absolute security at the joints, the best compounded polypropylene material chosen to prevent material degradation. In addition, Raufusion system has gone through rigorous testing to meet international and internal standards.

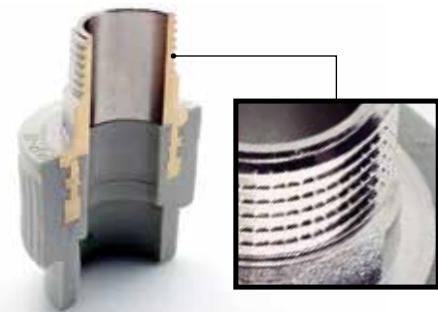


HOMOGENEOUS JOINT - SOCKET FUSION

The result of the socket fusion process is a permanent homogeneous joint that requires no O-ring or solvent to seal and gives great pressure resistance. This is a unique safety feature through engineered design.

RAUFUSION THREADED FITTINGS

The bond between PP-R material and metal threaded insert is critical for system security as significant forces can be present during the jointing to another materials. REHAU's RAUFUSION deep multi-point rib design is tested to resist the extreme torque during installation. In addition, the serrated thread ensures Teflon tapes are tightly bonded around the thread for maximum security.



SUPERIOR RAW MATERIAL

High quality polypropylene (PP-R) material is used for fitting production, which results in a strong and robust product.

SMARTER

Because we're thinking of you

Smarter and more intuitive. RAUFUSION is designed with you in mind. We've thought about how difficult it can be when it comes to plumbing, we've designed our plumbing system with smarter and more intelligent features that will make your plumbing experience a breeze.



Coloured markings for Identification

The RAUFUSION piping system is clearly marked out in various colours. Magenta (PN20), Grey (PN16) and Green (PN10) are the primary colours of REHAU. A symbol of quality, innovation and service; recognisable throughout the world.

The distinct REHAU colours are represented in the RAUFUSION 3 pipes series, representing our distinct design, engineering and commitment to the products reliability and innovation.

Allow shallower installation

Often a water outlet is required in a location that does not allow for standard concealment depth. RAUFUSION shallow female elbow can solve your problem. It is designed with a shorter transaction elbow to connect to the concealed pipe.

It is the small things that can make a big difference.

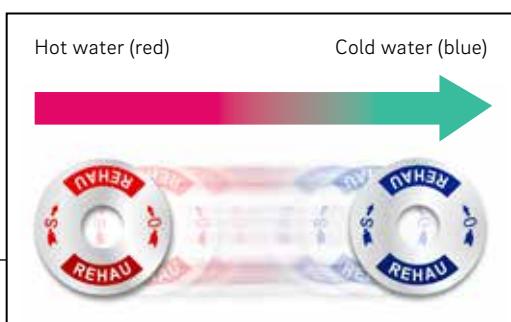
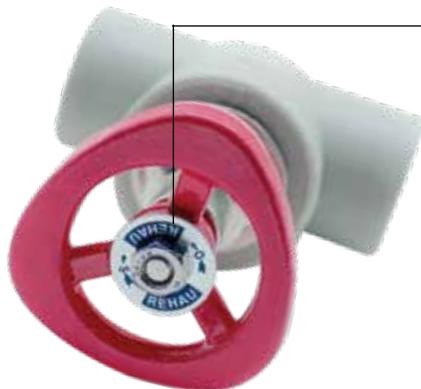


Stop valves with smart label plates

The distinct stop valve is designed with a large hand wheel shaped like the Rehau logo. The valve can easily be closed or opened at will, for preventing or regulating the flow of liquid.

Labelled plate on the stop valve clearly indicates red and blue prints on each side functioning as a visible indicator on the type of application used for the stop valve.

Flip to the red side for hot water and blue side for cold water. This can be done easily in just a few seconds.

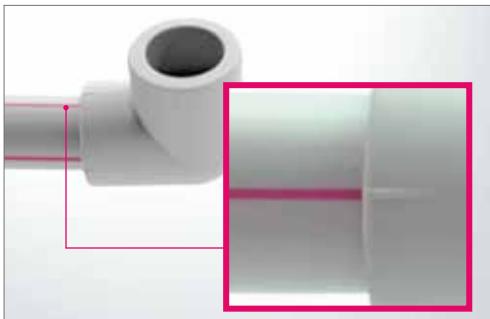


Turning
with
ease

CONVENIENT

Easier just for you

Convenience is the core of the RAUFUSION system. Aside from the unique features such as embossed joint and time markings, RAUFUSION is a complete PP-R system that comes equipped with a fusion tools that makes plumbing and fixing effortless.



Embossed joint markings

Four (4) stripes located at 90° apart are not only designed just for product identification, but also for convenient installation.

The pipe's stripes and fitting's embossed marking lines allow easy and quick alignment during the installation to achieve the desired angle of the branched pipe or fitting.



Timing marks

We know that correct fusion time guarantees the quality of the joint.

With REHAU RAUFUSION, our installers are not required to memorize the fusion parameters to carry out the fusion process. It is simply because the Fusion (Heating) Time is printed in small intervals on the RAUFUSION pipes according to the respective heating requirements for each pipe's size.

The fusion time table can also be found in the each REHAU welding tool bag.

Accurate timing

REHAU's unique depth markers are also available to measurement of required insertion depth an ease.



Fusion tools

Durable tools with factory fixed welding temperature. Inclusive of vice clamp.

- Special heat-resistant canvas bag for immediate convenient storage
- Special coated welding bushes
- Durable for daily use



Reliable tools

With precise temperature to provide the best homogeneous joints!

Fused
with
ease



Easy Installation

3 STEPS FOR SOCKET FUSION



1 Fusioning



2 Aligning



3 Jointing

Socket fusion is an easy way to making RAUFUSION joints. Both pipe and fitting are heated for a set length of time after which the heated socket and spigot are removed from the heating tool and the pipe is pushed into the fitting. Pipe and fitting are left for a predetermined time to cool and form a secured weld. Depending on the size of pipe, socket fusion welding can either be done by our handy RAUTOOL RF63, or RAUTOOL RF160 station kit.

For more technical details, please refer to REHAU RAUFUSION Technical Information, which can be viewed/downloaded on www.rehau.com.sg.

Welding Parameters

Pipe Diameter (mm)	Insertion depth (mm)	Heating time (sec)	Jointing time (sec)	Cooling time (sec)
20	14	5	4	120
25	16	6	4	180
32	18	8	6	240
40	20	12	6	240
50	23	18	6	300
63	26	25	8	360
75	28	30	8	480
90	31	40	10	480
110	33	50	10	480
125	36	58	10	600
160	43	80	15	900



Designed to
meet your
requirements

Technical specification

Pipes dimension table

Outer pipe dimensions	PN 10 / SDR 11 / S 5	PN 16 / SDR 7,4 / S 3,2	PN 20 / SDR 6 / S 2,5			
mm	e	ID	e	ID	e	ID
20	1,9	16,2	2,8	14,4	3,4	13,2
25	2,3	20,4	3,5	18	4,2	16,6
32	2,9	26,2	4,4	23,2	5,4	21,2
40	3,7	32,6	5,5	29	6,7	26,6
50	4,6	40,8	6,9	36,2	8,4	33,2
63	5,8	51,4	8,6	45,8	10,5	42,0
75	6,8	61,4	10,3	54,4	12,5	50,0
90	8,2	73,6	12,3	65,4	15,0	60,0
110	10	90,0	15,1	79,8	18,4	73,2
160	14,6	130,8	21,9	116,2	21,9	116,2

PP-R MATERIAL CHARACTERISTICS

Properties	Test method	Unit	Values
Melt Index 230/2.16	ISO 1133	g/10min	0.25
Density	ISO 1183	g/cm ³	0.9
Vicat Softening Temperature	ISO 306	°C	>130°C
Thermal conductivity (20°C)	DIN 52612	W/mK	0.24
Pipe roughness	-	[mm]	0.007
Thermal Expansion Factor	Dilatometer	Mm/mK	0.15
Elongation	ASTM D 638	%	>400
Tensile Strength at Yield	ASTM D 638	MPa	26.5
Flexular Modulus	ASTM D 790	MPa	833

Technical Data of pipes (approximate value)

RAUFUSION Product Range

RAUFUSION Pipes

Description Art. - No. DN in mm



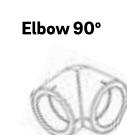
Pipe PN10	13750761001	20 x 1,9
	13750771001	25 x 2,3
	13750781001	32 x 2,9
	13750791001	40 x 3,7
	13750801001	50 x 4,6
	13750821001	63 x 5,8
	13750831001	75 x 6,8
	13750841001	90 x 8,2
	13750861001	110 x 10,0



Pipe PN16	13750871001	20 x 2,8
	13750881001	25 x 3,5
	13750891001	32 x 4,4
	13750921001	40 x 5,5
	13750931001	50 x 6,9
	13750941001	63 x 8,6
	13750961001	75 x 10,3
	13750971001	90 x 12,3
	13750981001	110 x 15,1



Pipe PN20	13750991001	20 x 3,4
	13751031001	25 x 4,2
	13751041001	32 x 5,4
	13751061001	40 x 6,7
	13751071001	50 x 8,4
	13751091001	63 x 10,5
	13751121001	75 x 12,5
	13751131001	90 x 15,0
	13751161001	110 x 18,4



Elbow 90°	13751361001	20
	13751371001	25
	13751381001	32
	13751391001	40
	13751421001	50
	13751431001	63
	13126061001	75
	13126071001	90
	13126081001	110
	13156661001	125
	13156671001	160

RAUFUSION components

Description Art. - No. DN in mm



Elbow 45°	13126351001	20
	13126361001	25
	13126371001	32
	13126381001	40
	13126091001	50
	13126101001	63
	13126111001	75
	13126121001	90
	13126131001	110
	13156681001	125
	13156691001	160



Tee	13751441001	20
	13751461001	25
	13751471001	32
	13751481001	40
	13751491001	50
	13751521001	63
	13127321001	75
	13127331001	90
	13127341001	110
	13156701001	125
	13156711001	160



Tee, Reduced Centre	13751531001	25-20-25
	13126171001	32-20-32
	13126181001	32-25-32
	13126411001	40-20-40
	13126421001	40-25-40
	13126431001	40-32-40
	13126451001	50-20-50
	13126461001	50-25-50
	13127351001	50-32-50
	13127361001	50-40-50
	13126471001	63-20-63
	13127371001	63-25-63
	13127381001	63-32-63
	13127391001	63-40-63
	13127401001	63-50-63
	13127411001	75-32-75
	13127421001	75-63-75
	13127431001	90-32-90
	13127451001	90-63-90
	13127461001	110-63-110

RAUFUSION components

Description Art. - No. DN in mm



Tee, Reducing Ends	13202471001	20-25-20
	13202481001	25-20-20
	13202521001	25-25-20
	13202531001	32-20-20
	13202541001	32-20-25
	13202551001	32-25-20
	13202561001	32-25-25
	13202811001	40-25-32
	13202821001	40-32-25



Reducing Elbow 90°	13202571001	25-20
	13202581001	32-20
	13202591001	32-25



Reducing Bush	13751541001	25-20
	13126481001	32-20
	13126201001	32-25
	13126491001	40-20
	13126501001	40-25
	13127471001	40-32
	13127481001	50-20
	13127491001	50-25
	13127501001	50-32
	13127511001	50-40
	13127521001	63-20
	13127531001	63-25
	13127541001	63-32
	13127551001	63-40
	13127561001	63-50
	13127571001	75-63
	13127581001	90-63
	13127591001	90-75
	13127601001	110-63
	13127611001	110-75
	13127621001	110-90
	13156721001	125-110
	13156741001	160-110
	13156731001	160-125

RAUFUSION components

Description Art. - No. DN in mm



13751561001	20
13751571001	25
13751581001	32
13751591001	40
13751621001	50
13751631001	63
13126251001	75
13126261001	90
13126271001	110
13156341001	125
13156651001	160

End Cap



13126531001	20
13126541001	25
13126551001	32
13126561001	40
13126571001	50
13126581001	63

Coupling - female thread



13751641001	20 - 1/2"
13126601001	20 - 3/4"
13751661001	25 - 1/2"
13126621001	25 - 3/4"
13126631001	32 - 3/4"
13126641001	32 - 1"
13126661001	40 - 11/4"
13126671001	50 - 11/2"
13126681001	63 - 2"

Coupling - male thread



13751671001	20-1/2"
13751681001	20-3/4"
13751691001	25-1/2"
13751701001	25-3/4"
13126731001	32-3/4"
13751711001	32-1"
13751721001	40-11/4"
13751731001	50-11/2"
13751741001	63-2"

Wall-mounted Elbow - female thread



13126781001	20-1/2"
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Adaptor Union - male thread



13127031002	20-1/2"
13127041002	25-3/4"
13127051002	32-1"
13127061001	40-11/4"
13127071001	50-11/2"
13127081001	63-2"

RAUFUSION components

Description Art. - No. DN in mm

Adaptor union female



13143481002	20-1/2"
13143521002	25-3/4"
13143531002	32-1"
13143541001	40-11/4"
13143551001	50-11/2"
13143561001	63-2"

Flange Adaptor



13127091001	63
13127101001	75
13127111001	90
13127241001	110
13156751001	125
13206731001	160

Short Bypass Bend



13140501001	20
13140601001	25
13140701001	32

Elbow - female thread



13126791001	20-1/2" Shallow
13751191001	20-1/2"
13140801001	20-3/4"
13751221001	25-1/2"
13126831001	25-3/4"
13126841001	32-3/4"
13126851001	32-1"

Elbow - male thread



13751231001	20-1/2"
13126871001	20-3/4"
13751241001	25-1/2"
13751261001	25-3/4"
13126901001	32-3/4"
13126911001	32-1"

Tee - female thread



13126921001	20-1/2"-20
13126931001	25-1/2"-25
13126941001	25-3/4"-25
13126951001	32-3/4"-32
13126961001	32-1"-32

Tee - male thread



13126971001	20-1/2"-20
13126981001	25-1/2"-25
13163131001	25-3/4"-25

RAUFUSION components

Description Art. - No. DN in mm

Stop Valve



13146711001	20
13146721001	25
13146731001	32

Union Ball Valve



13162281004	20
13162291003	25
13162301003	32
13166351001	40
13166361001	50
13166371001	63

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regard to claims made in respect of the products.
We recommend that the suitability of any REHAU product for the intended
application should be checked. Utilisation and processing of our products are
beyond our control and are therefore exclusively your responsibility. In the
event that a liability is nevertheless considered, any compensation will be
limited to the value of the goods supplied by us and used by you.
Our warranty assumes consistent quality of our products in accordance
with our specification and in accordance with our general conditions of sale.

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MY_001BT01.2026