



**Engineering progress
Enhancing lives**

RAUFUSION PP-R plumbing system

Safer. Smarter. More convenient.

Product Book - Singapore





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.

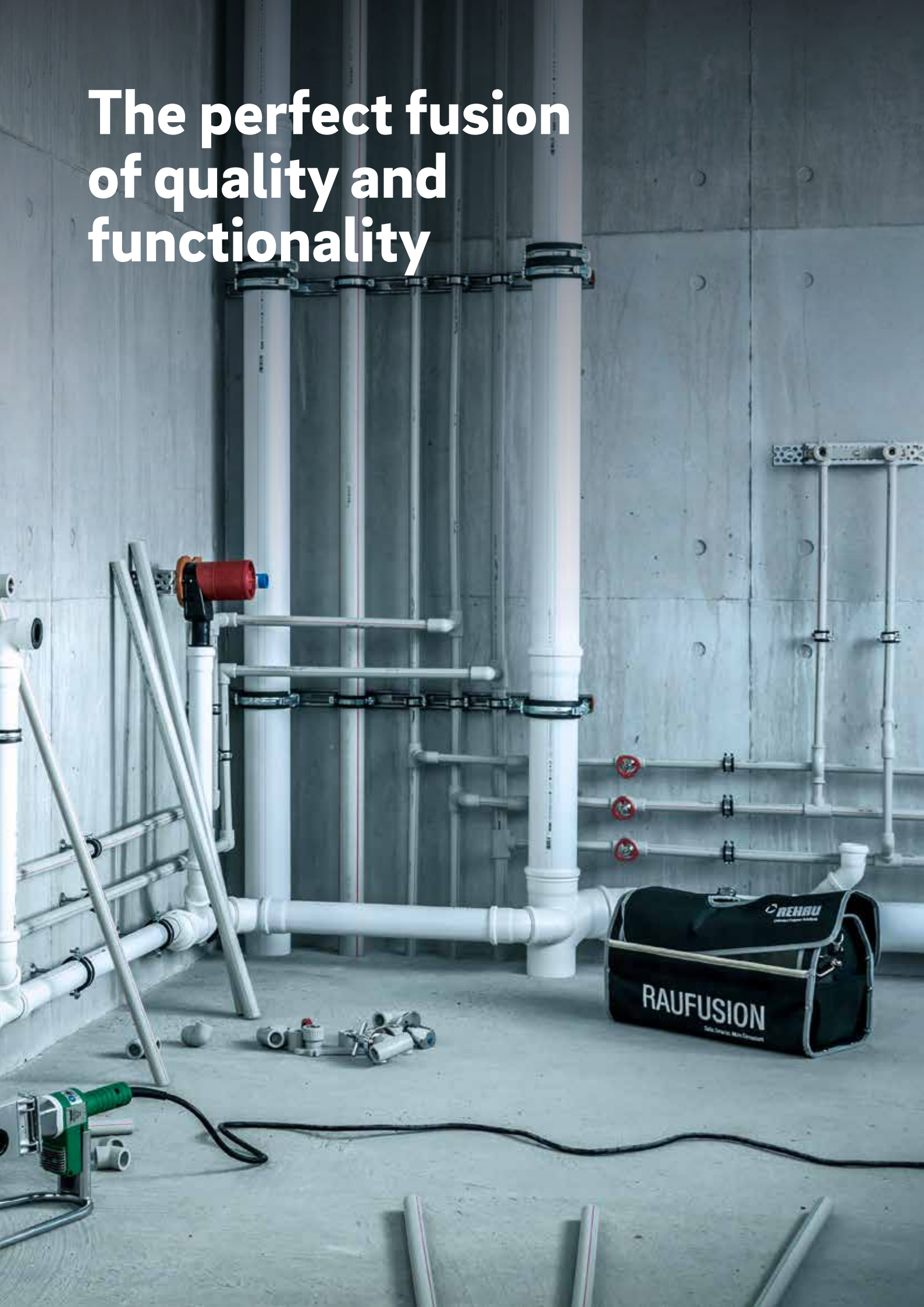
RAUFUSION has been rigorously tested according to all short and long-term requirements specified in the ISO 15874 and DIN 8077/78 international standards and of course REHAU's own stringent quality requirements.



* 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

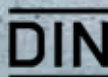
22 Bar @ 20°C for 5 years

**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.

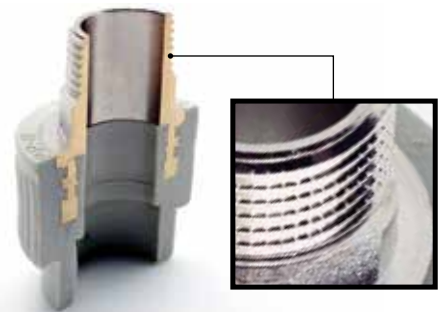


HOMOGENEOUS JOINT - SOCKET FUSION

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.

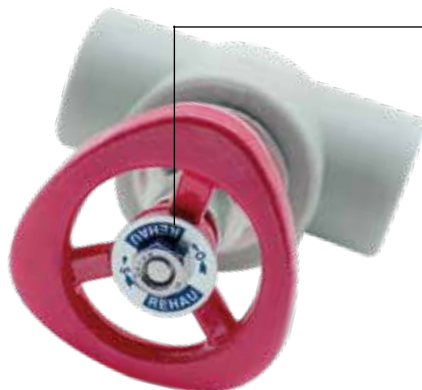


Stop valves with smart lable plates

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 an 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.



Hot water (red)

Cold water (blue)

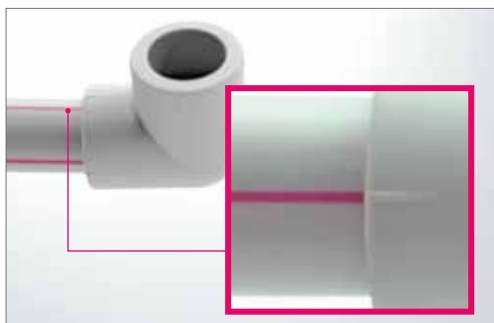


**Turning
with
ease**

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	
	e	ID	e	ID	e	ID
mm	mm	mm	mm	mm	mm	mm
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
Flexural 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

Socket

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

13146331001	20-1/2"
13146341001	20-3/4"
13146351001	25-1/2"
13146361001	25-3/4"
13146371001	32-3/4"
13146381001	32-1"
13146391001	40-1 1/4"
13146401001	50-1 1/2"
13146411001	63-2"

Coupling - male thread

13146421001	20-1/2"
13146431001	20-3/4"
13146441001	25-1/2"
13146451001	25-3/4"
13146461001	32-3/4"
13146471001	32-1"
13146481001	40-1 1/4"
13146491001	50-1 1/2"
13146501001	63-2"

Wall-mounted Elbow - female thread

13146511001	20-1/2"
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Adaptor Union - male thread

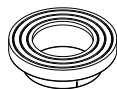
13146751001	20-1/2"
13146761001	25-3/4"
13146771001	32-1"
13146781001	40-1 1/4"
13146791001	50-1 1/2"
13146801001	63-2"

RAUFUSION components

Description Art. - No. DN in mm

Adaptor union female

13146811001	20-1/2"
13146821001	25-3/4"
13146831001	32-1"
13146841001	40-11/4"
13146851001	50-11/2"
13146861001	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

13146741001	20-1/2" (Shallow)
13146521001	20-1/2"
13146531001	20-3/4"
13146541001	25-1/2"
13146551001	25-3/4"
13146561001	32-3/4"
13146571001	32-1"

Elbow - male thread

13146581001	20-1/2"
13146591001	20-3/4"
13146601001	25-1/2"
13146611001	25-3/4"
13146621001	32-3/4"
13146631001	32-1"

Tee - female thread

13146641001	20-1/2"-20
13146651001	25-1/2"-25
13146661001	25-3/4"-25
13146671001	32-3/4"-32
13146681001	32-1"-32

Tee - male thread

13146691001	20 - R 1/2"-20
13146701001	25 - R 1/2"-25

RAUFUSION components

Description Art. - No. DN in mm

Stop Valve

13146711001	20
13146721001	25
13146731001	32

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obligation.

The use of REHAU products in conditions that are beyond our control or for
applications other than those specified releases us from any obligation in
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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