RESINTECH® HDPE DOUBLE-WALL CORRUGATED SEWER PIPE

APPROVED BY
JABATAN PERKHIDMATAN PEMBETUNGAN
KEMENTERIAN PERUMAHAN DAN KERAJAAN TEMPATAN

THE SEWER PIPE SYSTEM OF THE FUTURE
YOUR SUBSTITUTE
FOR VITRIFIED CLAY PIPE

- Cost Effective
  (Competitive Pricing and Low Installation Cost)
- Manhole to Manhole
  (Available in 4m, 6m, 9m OR 12m)
- Leakage Proof
  (Double-Wall Construction)
- Superior Physical Properties
  (Strong and Non-Breakable)
- Superior Chemical Resistance
  (Corrosive Chemicals in Wastewaters)
- Easy Handling and Installation
  (Lightweight Design and Easy Installation)
- Wide Service Temperature Range
  (from -40°C to +80°C)
- Superior Abrasion Resistance
  (High Durability and Long-Service Life)
- Superior Hydraulic Flow Capacity
  (Smooth Inner Surface Provides Reduced Friction)
- Environmentally Friendly
  (Provides 60% Material Savings as Compared to Conventional Pipe Designs and is Recyclable)

New Solutions Are Required for Sewer Construction

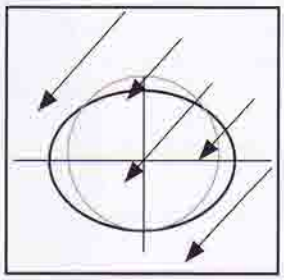
Sewer pipes today must fulfill tougher requirements than ever before. Each year, higher quantities of wastewater and increasing levels of aggressive chemical contents are encountered. If sewer lines leak or are damaged by corrosion, serious groundwater pollution and irreversible damage to the enviroment can result.

Analysis of damaged sewer pipes shows that damage to rigid pipe materials, occurs as a result of changes in surrounding conditions (physical stress). For this reason, pipes made of flexible materials are rapidly becoming the preferred answer to sewer construction problems.

Types of Damage In order of Occurrence	
1	Cracking and fragmentation
2	Leakage
3	Flow obstructions
4	Corrosion
5	Deviation from course
6	Abrasion
7	Deformation
8	Collapse
9	Intrusions
10	Other damage

The Future Belongs to Flexible Pipe

Flexible pipes can respond to changes in surrounding conditions (physical stress) by deforming. Stress distribution to surrounding backfill or structures reduces loading on the pipe. Within a relatively short time, the forces in and around the pipe reach equilibrium and deformation stops. This "smart response" ability reduces the possibility of damage to flexible pipe materials and provides improved environmental protection.



Stress Response in Flexible Pipes

High density polyethylene (HDPE) is a standard-setting material of this type. HDPE provides numerous advantages including superior chemical resistance, excellent physical properties, a wide service temperature range and outstanding flexibility.

Resintech HDPE Sewer Pipe from **FRANKISCHE** technology, with its profiled wall design and smooth inside surface, fulfills these requirements.

Resintech HDPE Sewer Pipe extremely rugged and durable and is resistant to all chemical substances found in soil and to corrosive wastewater. Also, **Resintech** HDPE Sewer Pipe is very easy to install and thus highly cost-effective.

Resintech HDPE Sewer Pipe represents an important contribution to future-oriented solutions in the field of sewer line construction.

The RESINTECH® SEWER PIPE System Has Many Benefits

Resintech, HDPE Sewer Pipe is a composite HPDE pipe with a smooth-surfaced inner wall (coloured yellow) surrounded by a profiled outer wall (coloured black). The corrugated outer wall provides optimum strength under compressive loading from covering layers and traffic. The smooth inner pipe ensures excellent hydraulic flow capacity. The bright yellow colour of the inner pipe also improves visibility in TV inspection, providing optimum, conditions for acceptance testing.

Resintech HDPE Sewer Pipe is available in norminal diameters DN 100, DN 150, DN 200, DN 225, DN 250, DN 300, DN 375, DN 400, DN 450, DN 600.

Resintech HDPE Sewer Pipe fulfills the strict requirements of DIN 16961. It is supplied in sections 6m/12m long with a HDPE socket and a profiled EPDM sealing ring mounted on one and in accordance with DIN 4060 and Approval Document PA I-4084 from the German Institute of Construction Technology (DIFBt/Berlin).

The composite design provides high long-term ring stiffness, i.e. greater than 10 kN/mm^2. This ensures high load-bearing capacity regardless of the type and quality of installation.

Besides stiffness, another decisive factor for a pipe system is a secure jointing technology. This is provided by the push-fit socket/sealing ring system.

The corrugated outer surface of **Resintech** HDPE Sewer Pipe allows secure and consistent placements of the mushroom-profile sealing ring.

A full range of accessories and fittings is offered with the **Resintech** HDPE Sewer Pipe system.

The special geometry of the socket compression zone provides a tight joint with a pull-out strength of at least 50N. The limit stop in the joint acts as a stop barrier and prevents overinsertion. The sealing ring is placed in the second corrugation groove from the pipe end. Lubricant is applied to the mating surfaces prior to joining.

Advantages That Speak For Themselves

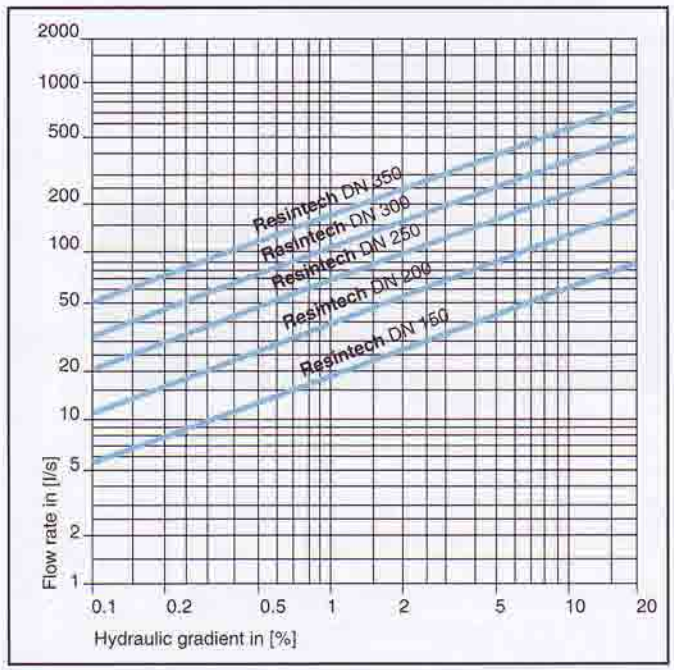
RESINTECH

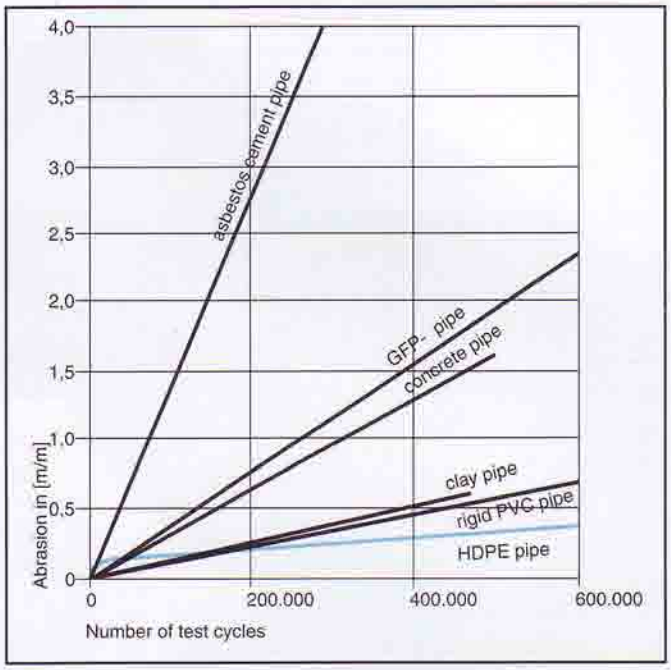
material-saving composite design
environmentally friendly + recyclable HDPE

T E S T E D
Static properties

- ❑ secure jointing technology
  with push-fit socket / sealing ring
- ❑ superior chemical resistance
  to corrosive chemicals in wastewater
- ❑ excellent physical properties
  and thus increased security and non-breakable
- ❑ superior hydraulic flow capacity
  smooth inner surface provides reduced friction
- ❑ excellent abrasion resistance
  for high durability, long service life
- ❑ easy handling
  due to lightweight design and fast processing
- ❑ wide service temperature range
  from -40 0C to +80 0C
- ❑ environmentally friendly
  provides 60% material savings as compared to conventional pipe designs and is recyclable

The RESINTECH® SEWER PIPE System- For Top-Of-The-Line Performance





High Flow Rates

The smooth inner surface of **Resintech** HDPE Sewer Pipe ensures low hydraulic friction loss. The absolute roughness of smooth HDPE pipe surfaces is generally less than 0.1mm. The above diagramme shows the high water flow rates attained with **Resintech** HDPE Sewer Pipe. The calculations for the diagramme are based on an effective roughness of 0.5mm as specified in Table 4 of Worksheet A110 "Guidelines for Hydraulic Dimensioning and Flow Capacity Calculation of Sewer Channels and Lines" from the German Waste-water Technical Society ATV.

Use of effective roughness in hydraulic calculations is permitted by this specification for approved pipe grades which meet applicable standards. This overall approach takes the following factors into account:

- wall roughness (0.1mm)
- deviations and changes in course
- pipe joints
- inlet fittings
- manhole shafts

Worksheet A 110 of ATV also gives procedures to be used should other flow-relevant factors be present.

High Abrasion Resistance

HDPE has outstanding abrasion resistance, amongst the highest of all know pipe materials. This is shown by data from the Darmstadt University test, a widely accepted evaluation procedure for abrasion resistance of pipe materials, conducted by the South German Plastics Centre in Wurzburg. The impressive performance of HDPE is documented in the diagramme above.

The average wear in HDPE specimens after 100,000 test cycles was only 0.09mm. This was lower than the wear normally found for HDPE in the Darmstadt test - providing added security over that expected.

Along with low surface roughness and low abrasion another advantage provided by **Resintech** HDPE Sewer Pipe is that HDPE surfaces do not promote formation of build-up or deposits, a fact which is explained by their excellent chemical resistance.

The RESINTECH® SEWER PIPE System- For Increased Security

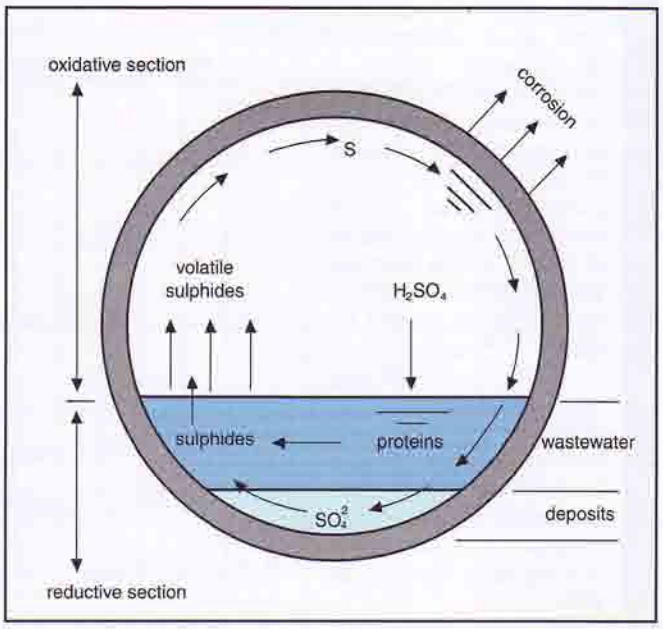
RESINTECH

High Chemical Resistance

In underground gravity pipelines, biogenous sulfuric acid corrosion is a decisive factor with regard to service life of the system. Biogenous sulfuric acid corrosion takes place above water level and thus occurs only in partially filled pipes, i.e. gravity lines.

This type of corrosion is particularly critical for all cement-bonded materials as it can eat away watersoluble components of cement at rates as high as 6mm per year.

The table below gives some of the substances found in wastewater to which **Resintech** HDPE Sewer Pipe is chemically resistant. Additional resistance information for other chemicals not listed here can be provided by request. **Resintech** HDPE Sewer Pipe is resistant to acids and bases over a pH range of 1 - 14



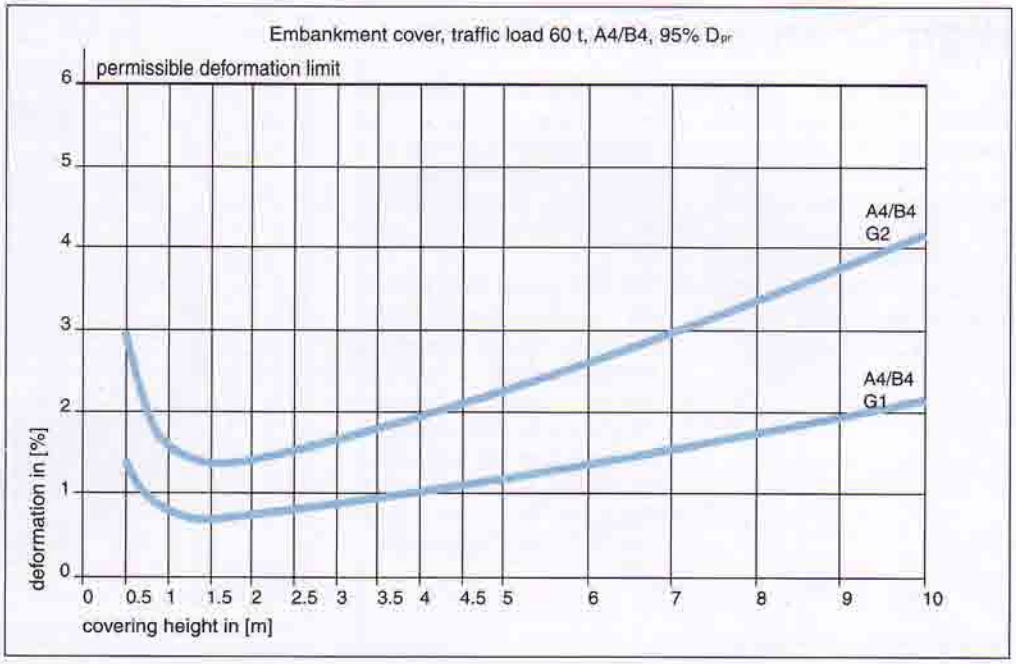
Substance	*Concentration*	*Substance*	*Concentration*	*Substance*	*Concentration*
adipic acid, aqueous	saturated	dyes		plasticisers	
aluminium chloride	any	ferrous chloride, aqueous	saturated	potassium card., aqueous	saturated
aluminium sulphate	saturated	ferrous sulphate, aqueous	saturated	potassium chlor., aqueous	any
amino acids		fertilizer salts, aqueous	any	release agents	
ammonium nitr., aqueous	any	formaldehyde, aqueous	up to 40%	sea water	
ammonium phosph., aqu.	any	formic acid, aqueous	85%	silicone oil	
aniline	any	fruit juices	any	sodium acetate, aqueous	any
animal oils		fuel oil		sodium chloride, aqueous	any
antifreeze agents	commercial	hydrogen sulphine	saturated	sodium hydroxide	any
aromatic acids		lime		sodium sulphate, aqueous	cold saturated
benzoic acid, aqueous	any	lubricating oil		starch, aqueous	any
bismuth salts		magnesium chlor., aqueous	any	sulphates inaqueous sol'n	any
boric acid, aqueous	any	magnesium salts, aqueous	any	sulphuric acid, aqueous	up to 50%
calcium chloride, aqueous	saturated	mercury		sulphurous acid	
carbon tetrachloride	technical grade	milk + lactic acid, aqueous	any	table salt, aqueous	any
castor oil		mineral water		tartaric acid, aqueous	any
caustic potash		nitric acid	up to 25%	turpentine oil	technical grade
caustic soda		oxalic acid, aqueous	any	urea, aqueous	up to 33%
citric acid, aqueous	saturated	paraffininc oil		urine	
citrus juices		pesticides	commercial grade	vinegar	
cola concentrates		petroleum		water, distilled	
copper chloride, aqueous	saturated	photographic developers		zinc salts, aqueous	any
dishwashing detergents	commercial	photographic emulsions			

The RESINTECH® SEWER PIPE System-Statically Tested

The Testing Institute for Foundation Engineering, Soil Mechanics and Rock Mechanics of the Technical University of Munich carried out a physical testing programme to determine static load-bearing capacities by the ATV-A 127 procedure.

The ring stiffness of a pipe is a measure of its inherent ability to withstand top loading, i.e. independent of the type and quality of installation. It is a function of the plastic modulus of the pipe material, the moment of inertia of the pipe wall and the effective diameter at the neutral line in the wall.

The long-term ring stiffness of **Resintech** HDPE Sewer Pipe is guaranteed to be at least 10kN/mm2 regardless of nominal diameter. This corresponds to statics load-bearing rating PN 4 of DIN 8074.



Deformation Data

The following installation conditions apply for the deformation diagrammed shown above and on the opposite page:

- **Resintech** HDPE SEWER PIPE DN 100 to DN 600
- Height of covering embankment (over pipe crest) 0.5 - 10.0m
- 60 tonnes traffic load
- Soil classifications
  G2/ slightly cohensive soils (upper curve)
  G1/non-cohesive soils (lower curve)
  Also see soil class 3 according to DIN 18300

The following additional conditions apply for the above diagramme only:

- Covering condition A4
- bedding condition B4, i.e. layer-by-layer filling, compaction and bedding with confirmation of degree of compaction required by ZTVE-StB, in this case 97% D_{pr}

The RESINTECH® SEWER PIPE System- For Long Term Shape Stability

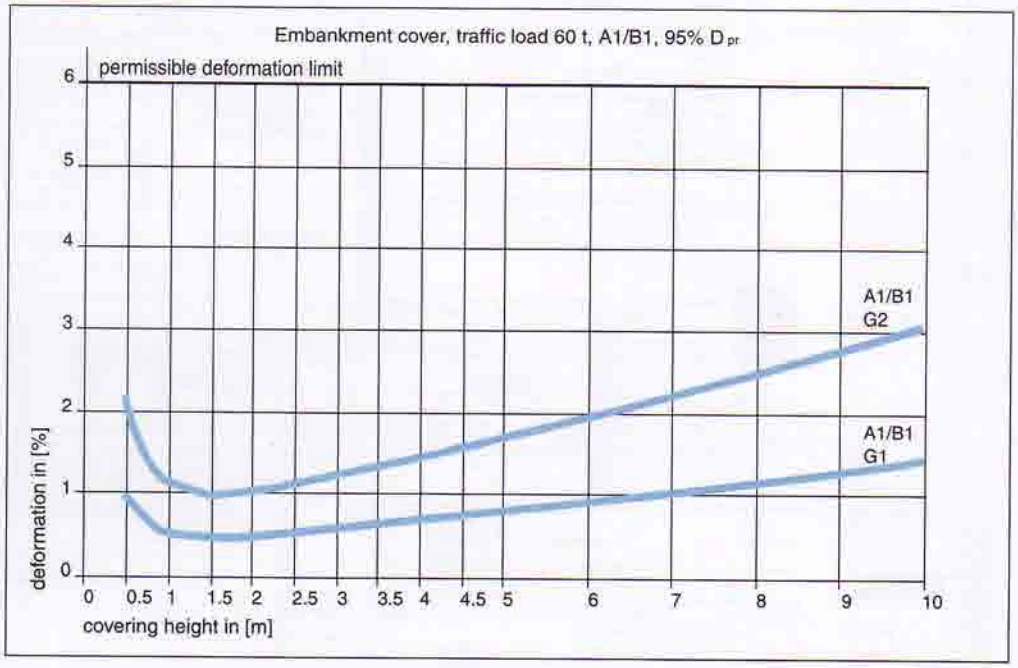
RESINTECH

Results:

All data found (including the curves shown here) show that longterm deformation of **Resintech** HDPE Sewer Pipe was well below the permissible limit of 6%, thus ensuring a large margin of safety.

For the diagrammed at right:

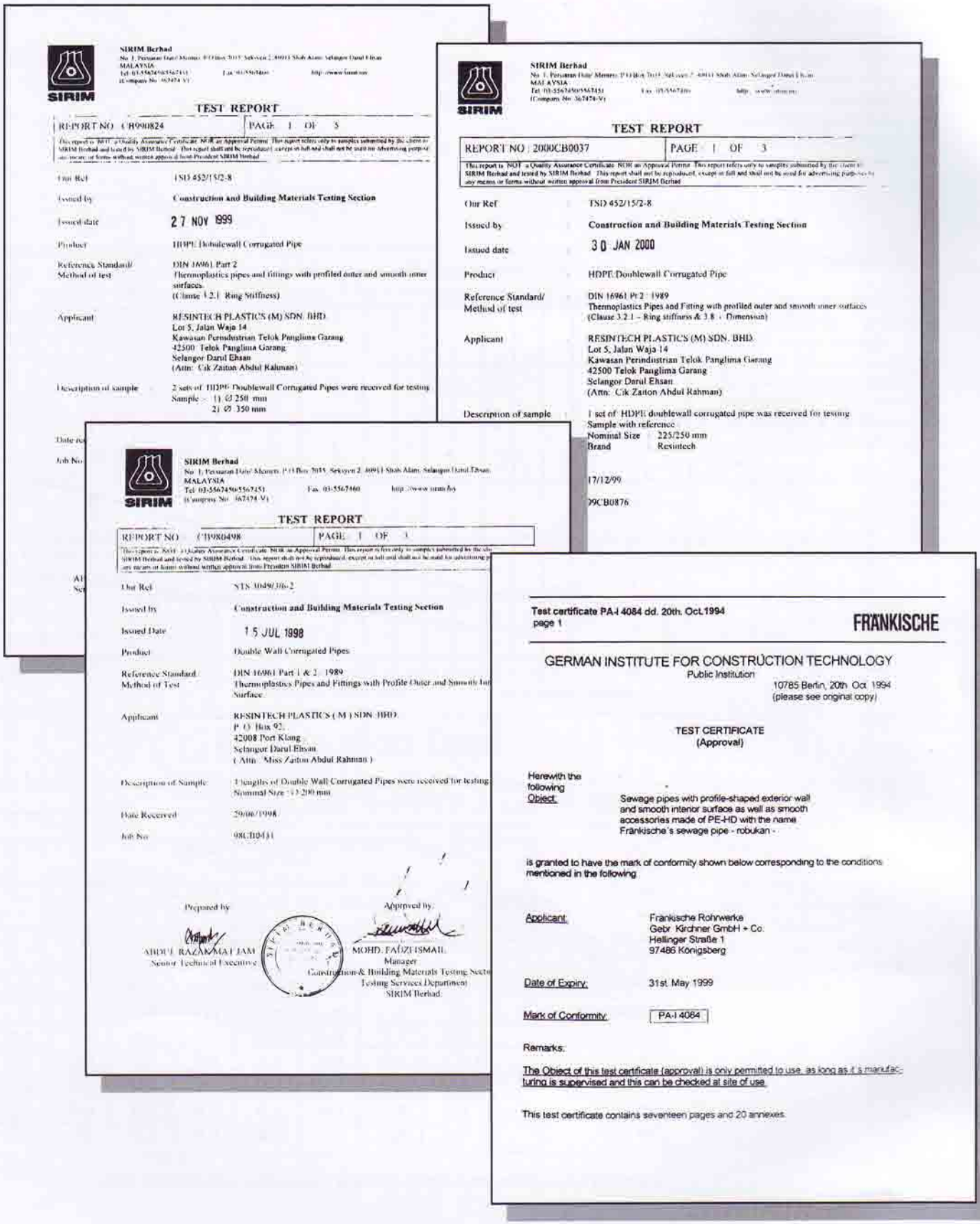
- covering condition A1
- bedding condition B1, i.e. layer-by-layer filling, compaction and bedding without confirmation of degree of compaction required by ZTVE-StB, in this case 95% D_{pr}



installation type	embankment cover							
traffic load	60 tonnes							
installation cond./ covering condition	A1/B1				A4/B4			
degree of compaction D_{pr}	95%				97%			
backfill material in pipe zone	G2		G1		G2		G1	
covering height	h_{min}	h_{max}	h_{min}	h_{max}	h_{min}	h_{max}	h_{min}	h_{max}
Resintech	m	m	m	m	m	m	m	m
DN 150	0,5	7,0	0,5	0,8	0,5	0,8	0,5	9,0
DN 200	0,7	5,0	0,6	5,0	0,6	5,0	0,6	6,0
DN 250	0,6	6,0	0,5	6,0	0,5	6,0	0,5	6,0
DN 300	0,6	5,0	0,6	5,0	0,6	6,0	0,5	7,0
DN 350	0,6	5,0	0,5	6,0	0,5	6,0	0,5	6,0

Covering height limits determined in stress calculations with a safety factor of 2.5

The RESINTECH® SEWER PIPE System-
Guaranteed Constant Quality



SIRIM Berhad
No. 1, Persiaran Dato' Menteri, P.O. Box 7035, Seksyen 2, 40911 Shah Alam, Selangor Darul Ehsan
MALAYSIA
Tel: 03-5567450/5567451 Fax: 03-5567460 http://www.sirim.my
(Company No: 367474-V)

TEST REPORT

REPORT NO : CB900824 PAGE : 1 OF : 5

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Our Ref: TSD 452/15/2-8

Issued by: Construction and Building Materials Testing Section

Issued date: 27 NOV 1999

Product: HDPE Doublewall Corrugated Pipe

Reference Standard/ Method of test: DIN 16961 Part 2
Thermoplastics pipes and fittings with profiled outer and smooth inner surfaces.
(Clause 4.2.1 Ring Stiffness)

Applicant: RESINTECH PLASTICS (M) SDN. BHD.
Lot 5, Jalan Waja 14
Kawasan Perindustrian Telok Panglima Garang
42500 Telok Panglima Garang
Selangor Darul Ehsan
(Attn: Cik Zaiton Abdul Kalunan)

Description of sample: 2 sets of HDPE Doublewall Corrugated Pipes were received for testing
Sample – 1) Ø 250 mm
2) Ø 350 mm

Date re

Job No.

SIRIM Berhad
No. 1, Persiaran Dato' Menteri, P.O. Box 7035, Seksyen 2, 40911 Shah Alam, Selangor Darul Ehsan
MALAYSIA
Tel: 03-5567450/5567451 Fax: 03-5567460 http://www.sirim.my
(Company No: 367474-V)

TEST REPORT

REPORT NO : 2000CB0037 PAGE : 1 OF : 3

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Our Ref: TSD 452/15/2-8

Issued by: Construction and Building Materials Testing Section

Issued date: 30 JAN 2000

Product: HDPE Doublewall Corrugated Pipe

Reference Standard/ Method of test: DIN 16961 Pt 2 : 1989
Thermoplastics Pipes and Fitting with profiled outer and smooth inner surfaces
(Clause 3.2.1 – Ring stiffness & 3.8 : Dimension)

Applicant: RESINTECH PLASTICS (M) SDN. BHD.
Lot 5, Jalan Waja 14
Kawasan Perindustrian Telok Panglima Garang
42500 Telok Panglima Garang
Selangor Darul Ehsan
(Attn: Cik Zaiton Abdul Rahman)

Description of sample: 1 set of HDPE doublewall corrugated pipe was received for testing
Sample with reference
Nominal Size 225/250 mm
Brand Resintech

17/12/99

99CB0876

SIRIM Berhad
No. 1, Persiaran Dato' Menteri, P.O. Box 7035, Seksyen 2, 40911 Shah Alam, Selangor Darul Ehsan
MALAYSIA
Tel: 03-5567450/5567451 Fax: 03-5567460 http://www.sirim.my
(Company No: 367474-V)

TEST REPORT

REPORT NO : CB980498 PAGE : 1 OF : 3

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Our Ref: NTS/A049/3/6-2

Issued by: Construction and Building Materials Testing Section

Issued Date: 15 JUL 1998

Product: Double Wall Corrugated Pipes

Reference Standard/ Method of Test: DIN 16961 Part 1 & 2 : 1989
Thermoplastics Pipes and Fittings with Profile Outer and Smooth Inner Surface

Applicant: RESINTECH PLASTICS (M) SDN. BHD.
P. O. Box 92,
42008 Port Klang,
Selangor Darul Ehsan
(Attn : Miss Zaiton Abdul Rahman)

Description of Sample: 3 lengths of Double Wall Corrugated Pipes were received for testing
Nominal Size : 150/200 mm

Date Received: 29/06/1998

Job No: 98CB00431

Prepared by:
ABDUL RAZAK MAT JAM
Senior Technical Executive

Approved by:
MOHD. FAUZI ISMAIL
Manager
Construction & Building Materials Testing Section
Testing Services Department
SIRIM Berhad

Test certificate PA-I 4084 dd. 20th. Oct.1994
page 1

FRÄNKISCHE

GERMAN INSTITUTE FOR CONSTRUCTION TECHNOLOGY
Public Institution
10785 Berlin, 20th Oct. 1994
(please see original copy)

TEST CERTIFICATE
(Approval)

Herewith the following Object:
Sewage pipes with profile-shaped exterior wall and smooth interior surface as well as smooth accessories made of PE-HD with the name Fränkische's sewage pipe - robukan -

is granted to have the mark of conformity shown below corresponding to the conditions mentioned in the following.

Applicant: Fränkische Rohrwerke
Gebr. Kirchner GmbH + Co.
Hellinger Straße 1
97486 Königsberg

Date of Expiry: 31st. May 1999

Mark of Conformity: PA-I 4084

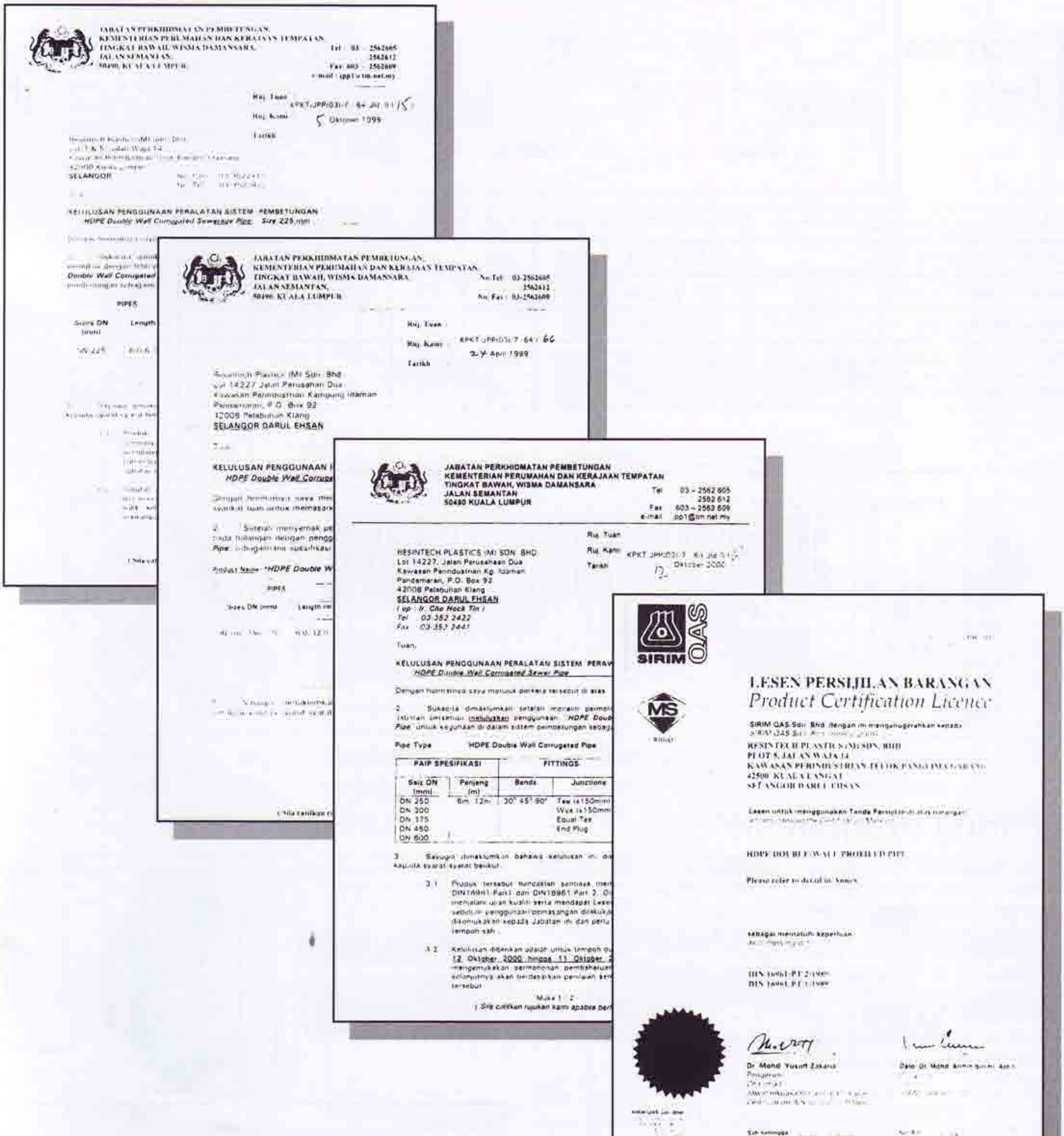
Remarks:

The Object of this test certificate (approval) is only permitted to use, as long as it's manufacturing is supervised and this can be checked at site of use.

This test certificate contains seventeen pages and 20 annexes.

The RESINTECH® SEWER PIPE System-
Officially Approved

RESINTECH



JABATAN PERKHIDMATAN PEMBETUNGAN
KEMENTERIAN PERUMAHAN DAN KERAJAAN TEMPATAN
TINGKAT BAWAH, WISMA DAMANSARA
JALAN SEMANTAN
50490 KUALA LUMPUR

Ruj. Tuan:
Ruj. Kami: KPKT/JPP(03)/7 - 64 Jld 9 / 15
Tarikh: 5 Oktober 1999

SELANGOR

KELULUSAN PENGGUNAAN PERALATAN SISTEM PEMBETUNGAN
HDPE Double Wall Corrugated Sewerage Pipe: Size 225 mm

JABATAN PERKHIDMATAN PEMBETUNGAN
KEMENTERIAN PERUMAHAN DAN KERAJAAN TEMPATAN
TINGKAT BAWAH, WISMA DAMANSARA
JALAN SEMANTAN
50490 KUALA LUMPUR

No. Tel: 03-2562605
2562612
No. Fax: 03-2562609

Ruj. Tuan:
Ruj. Kami: KPKT/JPP(03)/7-64/ 66
Tarikh: 24 April 1999

Resintech Plastics (M) Sdn. Bhd.
Lot 14227 Jalan Perusahaan Dua
Kawasan Perindustrian Kampung Idaman
Pandamaran, P.O. Box 92
42008 Pelabuhan Klang
SELANGOR DARUL EHSAN

KELULUSAN PENGGUNAAN ...
HDPE Double Wall Corrugated ...

JABATAN PERKHIDMATAN PEMBETUNGAN
KEMENTERIAN PERUMAHAN DAN KERAJAAN TEMPATAN
TINGKAT BAWAH, WISMA DAMANSARA
JALAN SEMANTAN
50490 KUALA LUMPUR

Tel: 03 – 2562 605
2562 612
Fax: 603 – 2562 609
e-mail: pp1@tm.net.my

Ruj. Tuan:
Ruj. Kami: KPKT JPP(03)/7 - 64 Jld 5 / 15
Tarikh: 12 Oktober 2000

RESINTECH PLASTICS (M) SDN. BHD.
Lot 14227, Jalan Perusahaan Dua
Kawasan Perindustrian Kg. Idaman
Pandamaran, P.O. Box 92
42008 Pelabuhan Klang
SELANGOR DARUL EHSAN
(up : Ir. Cho Hock Tin)
Tel: 03 352 2422
Fax: 03 352 2441

Tuan,

KELULUSAN PENGGUNAAN PERALATAN SISTEM PERAW...
HDPE Double Wall Corrugated Sewer Pipe

Dengan hormatnya saya merujuk perkara tersebut di atas.

2. Sukacita dimaklumkan setelah meneliti permoh... Jabatan bersetuju meluluskan penggunaan "HDPE Doub... Pipe" untuk kegunaan di dalam sistem pembetungan sebag...

Pipe Type: HDPE Double Wall Corrugated Pipe

PAIP SPESIFIKASI		FITTINGS	
Saiz DN (mm)	Panjang (m)	Bends	Junctions
DN 250	6m, 12m	30°, 45°, 90°	Tee (x150mm)
DN 300			Wye (x150mm)
DN 375			Equal Tee
DN 450			End Plug
DN 600			

3. Sayugia dimaklumkan bahawa kelulusan ini di... kepada syarat-syarat berikut:

3.1 Produk tersebut hendaklah sentiasa mem... DIN16961 Part 1 dan DIN16961 Part 2. Di... menjalani ujian kualiti serta mendapat Lese... sebelum penggunaan/pemasangan dilakuka... dikemukakan kepada Jabatan ini dan perlu... tempoh sah.

3.2 Kelulusan diberikan adalah untuk tempoh du... 12 Oktober 2000 hingga 11 Oktober 2... mengemukakan permohonan pembaharuan... selanjutnya akan berdasarkan penilaian sem... tersebut.

Muka 1 / 2
(Sila catitkan rujukan kami apabila berh...)

SIRIM QAS

LESEN PERSIJILAN BARANGAN
Product Certification Licence

SIRIM QAS Sdn. Bhd. dengan ini menganugerahkan kepada

RESINTECH PLASTICS (M) SDN. BHD.
PLOT 5, JALAN WAJA 14
KAWASAN PERINDUSTRIAN TELOK PANGLIMA GARANG
42500 KUALA LANGAT
SELANGOR DARUL EHSAN

Lesen untuk menggunakan Tanda Persijilan di atas barangan

HDPE DOUBLE WALL PROFILED PIPE

Please refer to detail in Annex

sebagai mematuhi keperluan

DIN 16961:PT 2:1989
DIN 16961:PT 1:1989

Dr. Mohd Yusoff Zakaria

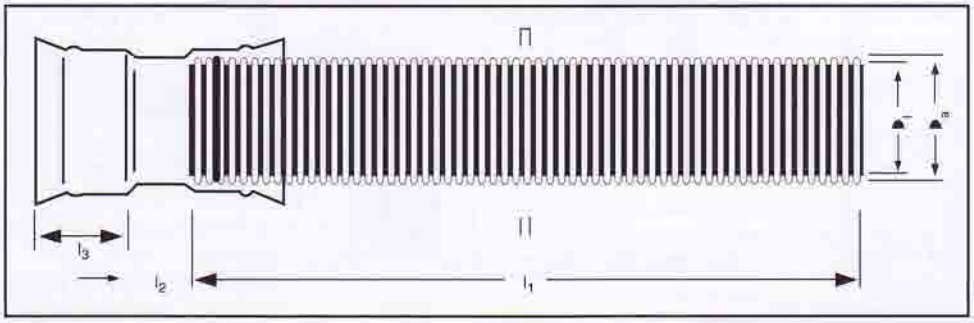
Dato' Dr. Mohd Ariffin ...

Sah hingga ... 31 March 2002

The RESINTECH® SEWER PIPE System- For Practical Solutions

Technical Data

Nominal diameter DN (mm)	100	150	200	225	250	300	375	450	600
Outside diameter D_a (mm)	118	173	235	262	292	346	435	522	701
Inside diameter D_i (mm)	100	150	200	224	250	298	374	450	600
Section length l_1 (m)	6	6	6	6	6	6	6	6	6
Effect. length w. socket $l_1 + l_2$ (m)	6.010	6.015	6.014	6.010	6.010	6.020	6.095	6.100	6.095
Insertion depth l_3 (mm)	110	140	130	125	125	195	245	285	360



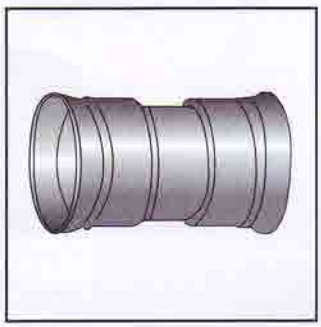
Fitting Programme

The **Resintech** HDPE Sewer Pipe system incorporates a unique, uncomplicated push-fit socket coupler which allows use of a standardised programme of HDPE fittings.

The fittings have easy-to-use push-fit sockets at each end, allowing quick, problem-free assembly.

Connection of **Resintech** HDPE Sewer Pipe to structures or other pipe systems is done with minimum time and effort. The jointing technology ensures an optimum transition with low hydraulic friction loss in sockets and fitting alike.

The profiled EPDM sealing rings conform fully with DIN 4060, thus providing high security against joint leakage in gravity lines.

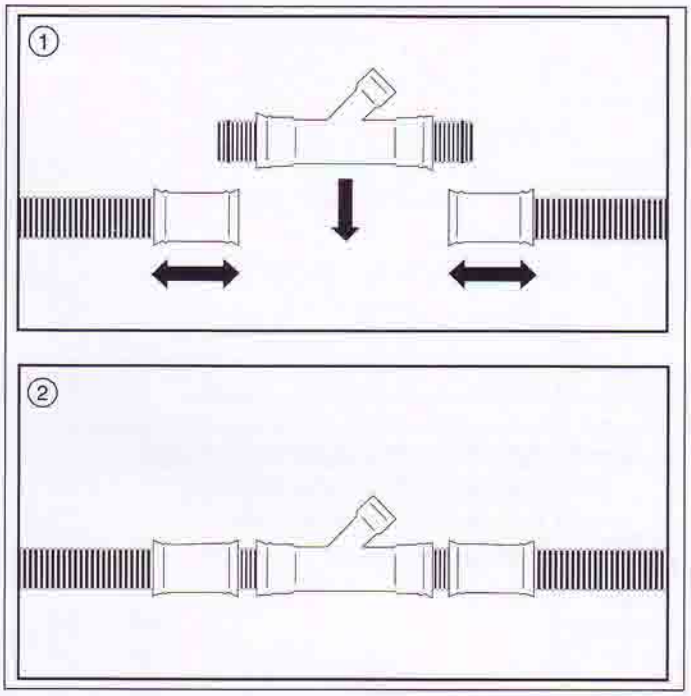


Resintech
double socket coupler

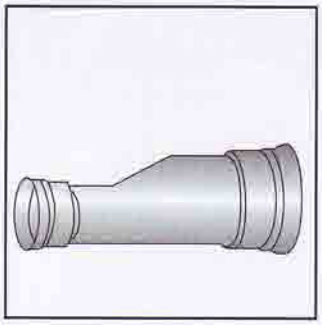
Resintech
profiled sealing ring
made of EPDM, with mushroom profile.
Note: ring is placed in second groove from pipe end.

The RESINTECH® SEWER PIPE System- Any Way You Want

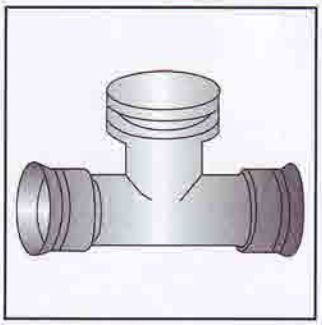
The **Resintech** HDPE Sewer Pipe fitting programme offers solutions for a wide range of applications in gravity lines. Even retrofit components are easy to install. To install a branch - for instance - in an existing line, it is fitted with **Resintech** HDPE Sewer Pipe sections on both ends and inserted into the line as shown at right.



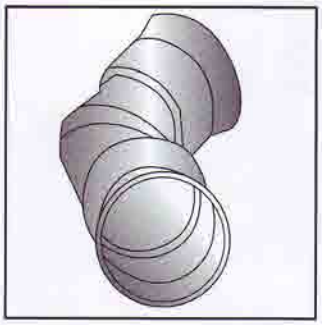
Resintech
45° branch



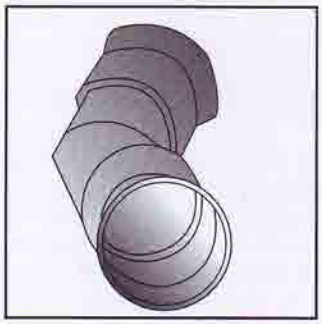
Resintech
reducer (eccentric)



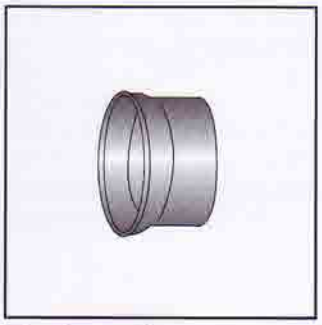
Resintech
access fitting
with blind flange



Resintech
45° bend



Resintech
30° bend



Resintech
end plug

Resintech
transition piece
for rigid PVC pipe

Resintech
transition piece
for clay pipe

The RESINTECH® SEWER PIPE System- An Overview

Resintech HDPE Sewer Pipe is a comprehensive HDPE pipe system which fulfills all requirements for reliability and versatility.

Resintech HDPE Sewer Pipe sections are supplied with a sealing ring and a double socket coupler in place on one end. The sealing ring for the spigot end is also provided.

Article			Art.-No.	Nominal Diameter (DN in mm)				
				150	200	250	300	350
Resintech sewer pipe (section length 6m)			54 00 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech profiled sealing ring			54 51 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech double socket coupler			54 50 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech 45° branch	to DN	150	54 7. ..	2 15	3 15	4 15	5 15	6 15
		200	54 7. ..		3 20	4 20	5 20	6 20
		250	54 7. ..			4 25	5 25	6 25
		300	54 7. ..				5 30	6 30
		350	54 7. ..					6 35
Resintech reducer	to DN	150	54 8. ..		3 15			
(eccentric)		200	54 8. ..			4 20		
		250	54 8. ..				5 25	
		300	54 8. ..					6 30
Resintech access fitting/blind flange			54 53 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech 45° bend			54 58 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech 30° bend			54 57 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech 15° bend			54 65 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech end plug			54 52 ..	.. 15	.. 20	.. 25	.. 30	.. 35
Resintech lubricant								
Other **Resintech** accessories available on request !								

Ideal Handling With The RESINTECH® SEWER PIPE System

RESINTECH

Resintech HDPE Sewer Pipe is a cost-effective HDPE sewer pipe system with lightweight construction for problem-free storage and handling. Its rapid installation without need for heavy equipment makes the system particularly economical.

The excellent hydraulic properties of HDPE counteract scaling and deposit build-up. Cleaning is required only at infrequent intervals, thus reducing maintenance costs.

Long-term physical test results predict a service life of at least 100 years for **Resintech** HDPE Sewer Pipe when installed and used as recommended.

Transport

The light weight of **Resintech** HDPE Sewer Pipe makes transport and handling easy and convenient - during storage and at the site. Transport is normally done on pallets.

Care should be taken in handling and storage to prevent contact with sharp edges, points etc. which could cause deformation or other damage. The pipes and fittings can be stored either indoors or outdoors.

Installation

Resintech HDPE Sewer Pipe is easy to install - without need for heavy equipment. Installation should be done in accordance with DIN 1986 Parts 1 - 4, DIN 4033 and ATVA 139.

Utilisation of residual cut-off lengths is made easy by the problem-free socket coupler system.

Cutting to length

Resintech HDPE Sewer Pipe can be cut to non-standard lengths if required using a fine-toothed saw or a cutting grinder. Special equipment is not required. Residual cut-off can be used like normal pipe material.

The cut is made in the centre of a corrugation groove, perpendicular to the pipe axis. The edges of the cut must be deburred. Fittings can also be cut using a fine-toothed saw, perpendicular to the fitting axis. Here too, the edges must be deburred.

Socket Coupler

The mushroom-profile sealing ring is located in the second groove from the cut. A lubricant is applied prior to making the coupler connection.