

UNATHERM®

pipes all over the world

PE-RT Pipes

for Heating and Sanitation

Made in Germany



Contents	Page
Who is UNATHERM?	4-5
UNATHERM Quality Pipes of DOWLEX*	6
PE-RT Pipes Type I and II	7
Production and Quality Assurance	8
Floor Heating and Radiator Connection	9
Test Reports and Certificates	10-12
Sanitation	13
Test Reports and Certificates	14-15
Physical Properties: Physical and Mechanical Properties	16
Physical Properties: Chemical Resistance	17
Long-term Resistance	18
Pressure Loss	19
Instructions for Use	20
Product Range	21
Dispenser	22
Disposable Cardboard Drum EWT	23

*Trademark - The Dow Chemical Company

Who is UNATHERM?



History

UNATHERM was established as a family business in 1965. Right from the beginning the company focused its efforts on offering its customers the most advanced and efficient products for heating and sanitation.

From the production of electric floor heating systems, and from transforming polypropylene pipes into tailor made heating grids, the development led to the latest step, the production of polyethylene pipes.

PE-RT pipes

Unatherm, as one of the entrepreneurs in the hot water pipe market started to produce pipes with non-cross linked PE over 20 years back. In cooperation with The Dow Chemical Company as supplier of such designed polymers with the trade name Dowlex®, Unatherm found high interest in the market for such pipes and grew steadily up until now and will continue to do so in the future. In cooperation with other interested parties the non-cross linked PE became standardized globally under the abbreviation PE-RT which stands for Polyethylene of Raised Temperature Resistance.

Location

The company is located in the pleasant countryside of the "Oberbergisches Land", 50 km east of Cologne, Germany, where the production facilities have constantly been expanded since 1992.

Philosophy

The management of the company is still in the family's hands. And we all dedicate a 100 % of our work to satisfying our customers' needs. Continuous development, together with our customers as partners, is the central idea of our philosophy. Therefore, it is of major importance to us to build up and maintain good personal relations with our business partners around the world.

We would be glad if we could also welcome you as a future member of the growing "family" of UNATHERM business partners.

*Trademark - The Dow Chemical Company

UNATHERM Quality Pipes of DOWLEX*

UNATHERM PE-RT pipes are made of pure DOWLEX* without addition of any recycled material. As the raw material is the basis for the quality of a pipe, we use the in our opinion best raw material.

While conventional PE's do need cross-linking in order to perform at higher temperatures long term, this is not needed for pipes made with Dowlex 2388 or 2344 as those polymers are Octene-Copolymers with a narrow molecular weight distribution.

The co-polymerized Octene provides Hexyl-branches which allow the polymer chains to entangle with each other and to form tie-molecules to bind crystallites together at a significant higher level than possible with conventional PE. A lot of energy is needed or can be dissipated before such structures break. One can imagine this effect as a kind of „geometrical cross-linking“.

Our pipes made of DOWLEX* have two characteristics that should be emphasized in particular:

- high flexibility
- excellent smoothness of the pipe's inner surface

The high flexibility of our pipes permits cold laying, even at temperatures much lower than 0°C.



The smoothness of the pipe's inner surface, achieved by a special manufacturing process, guarantees the lowest possible flow resistance. The "roughness" of our pipe's inner surface is as low as 400 Å! If a pipe shows a rough inner surface, a deposit can build up, thus increasing flow resistance considerably.

Pipes for use in floor heating and radiator connection are coated with an oxygen barrier made of EVOH.

This oxygen barrier is applied to the basic pipe using an adhesive resin. Basic pipe, adhesive resin and oxygen barrier thus form an inseparable unit. This system represents the state of the art. These pipes carry the name "oxystop".

Polyethylene, the raw material we employ, is a pure hydro-carbon compound that is ecologically neutral. Our production waste can be recycled.

**UNATHERM pipes for heating and sanitation
safe – flexible – durable**

*Trademark - The Dow Chemical Company

PE-RT Type I Pipes (Polyethylene of Raised Temperature Resistance) DIN 16833/34, DIN 4726

For the production of our PE-RT type I pipes we use DOWLEX* 2344, only. It is the first material that has been developed especially for the production of pipes for floor heating, radiator connection and hot and cold drinking water supply. Due to its unique molecular structure with octene homogeneously distributed over the polymer back-bone and the narrow molecular weight distribution, DOWLEX* 2344 does not need crosslinking in order to perform long-term under elevated temperature and pressure conditions.

The requirements our PE-RT pipe needs to meet are laid down in the standards that have especially been worked out for this pipe: DIN 16833, DIN 16834. Longterm testing proved that the requirements of DIN 4726 are exceeded by far. Thus, the extrapolated life time of a PE-RT pipe for instance is much longer than the specified 50 years at 70° C.

PE-RT Typ II Pipes (Polyethylene of Raised Temperature Resistance) DIN 16833/34

While Dowlex® 2344 is mainly used for heating applications because of its inherent exceptional high flexibility we are now able to provide pipes made with Dowlex® 2388 which are specifically designed to meet the stringent requirements for drinking water networks and those are in particular durability and best possible hygienic performance. National and international standardization bodies have meanwhile already established the standards for PE-RT type I and type II or are in the process to do so.

A key benefit of such Octene copolymers is that they do not need chemicals for cross-linking and will in so far not split off decomposition products which appear during the cross-linking procedure.

As we have no cross-linking we are confident that our pipes do not release undesired or prohibited chemicals into the water. In so far we have also no concerns that our pipes could generate taste or odour problems - a problem that frequently occurs with certain PE-RT materials.

**UNATHERM pipes for heating and sanitation
safe – flexible – durable
10 YEARS GUARANTEE**

*Trademark - The Dow Chemical Company

UNATHERM – The Safety Pipe Production & Quality Assurance

Manufacturing high quality pipes requires constant quality control – from the receipt of the raw material to the finished product.

The control of the pipe production is of special importance to UNATHERM – it is carried out continuously:

- inspection of the delivered raw material
- supervision of the manufacturing process
- checks during and after manufacturing
- final control before dispatch

Our quality assurance is based on the control and check regulations of the Süddeutsches Kunststoffzentrum, Würzburg and other European test institutes, on DIN ISO 9002 and the corresponding DIN standards.

The melt index of all delivered raw material is examined according to DIN 53735, as this plays a major part with regard to the future quality of the pipe. Only absolutely faultless material is released for production.

Our machines and devices used for manufacturing represent the state of the art. Our SPS-controlled extruders e.g. are the basis for an optimum pipe production.

During the pipe production the manufacturing process is constantly controlled according to DIN 8074/8075 and regulations HR 3.2/HR 3.16 of the SKZ.

This includes examination of

- exact wall thickness and outer diameter (DIN 8075 4.2)
- outer and inner, water carrying surface

All data are recorded and are available at any time, even years later.

The finished pipes are subject to the following tests:

- change after hot storage (DIN 8075 4.4)
- homogeneity of the material
- pressure resistance at 20° C and 95° C (DIN 53759)

For effecting these tests, our laboratory is equipped with the latest testing instruments. Only controlled and perfect pipes are released for dispatch.

Floor Heating

UNATHERM PE-RT oxystop floor heating pipe convinces by its decisive advantages:

- outstanding flexibility
- extremely easy to install
- saves installation time
- suitable for all installation methods
- usable for open space heating, wall heating, ceiling cooling, concrete core activation
- inexpensive
- made of high quality raw material (DOWLEX* 2344)
- complies with DIN 16833/34, DIN 4726



Pipe-in-Pipe System for Radiator Connection

UNATHERM radiator connection pipes - oxygen proof pipes in protective pipes - for all modern installations. The pipe-in-pipe system offers convincing advantages:

- easy to install
- replaceable
- no soldered or welded joints
- no deposit formation
- no sound transmission
- made of high quality raw material (DOWLEX* 2344)
- complies with DIN 16833/34, DIN 4726



*Trademark - The Dow Chemical Company

SKZ Certificates

For our PE-RT pipe we concluded an inspection and control contract with the Süddeutsches Kunststoffzentrum, Würzburg. The pipe is continuously controlled according to HR 3.16 and marked "SKZ A 240".

Seite 3 von 3
Inspektionszeugnis 1462101.1

3.8 Werkstoffeigenschaften

Benennung	Einheit in	Mittelwert	Sollwert
Schmelze Massiefüllrate MFR 1905 Granulat	g/10 min	2,07 ¹	≤ 3,0
Schmelze Massiefüllrate MFR 1905 Rohr	g/10 min	2,03	—
Änderung Granulat - Rohr	%	1,9	≤ 20
Homogenität - Querschnitt Verfahren B	Grad	0,4 Typ A 2	≤ 3

¹ Wert wurde vom Hersteller ermittelt

4. Beurteilung der Produktionsstätte

Feststellung zur personellen und gerätetägigen Ausstattung sowie zur werkzeigigen Produktionskontrolle:

Ergebnis: ohne Beanstandung

Seite 2 von 3
Inspektionszeugnis 1462101.1

1. Inspektionsumfang

Der Inspektionsumfang richtet sich nach der Prüf- und Überwachungsbestimmung HR 3.16: 2008-03 der SKZ - TeConA GmbH.

2. Probenentnahme

Die Probenentnahme wurde von einem Inspektor der SKZ - TeConA GmbH am 15. März 2010 in der Produktionsstätte D-51580 Reichshof-Wehrath durchgeführt.

3. Ergebnisse

3.1 Kennzeichnung:

FZ UNATHERM Fußbodenheizungsrohr PE-RT 17x2 Kl.C
sauerstoffdicht DIN 4726 DIN 16833/4721 Typ I Kl.A/5.6 bar Dowlex
2344 DIN CERTCO 3V248 KOMO GOST R SKZ A240 Datum 61308m.
Made in Germany

3.2 Farbe der Rohre:

natur

3.3 Lieferzustand und Oberflächenbeschaffenheit:

ohne Beanstandung

3.4 Maße

Benennung	Istmaß in mm	Sollmaß in mm	
		Größtmaß	Kleinmaß
Außendurchmesser d ₁	17,2	17,2	17,0
Wanddicke s ₁	2,1	2,1	2,0
Außendurchmesser Basisrohr d ₂	17,0	17,0	17,0
Wanddicke Basisrohr s ₂	2,0	2,0	2,0
Ovalität (Unrundheit)	0,3	0,3	1,0

¹ Werkstoffe

3.5 Wärmebehandlung

Benennung	Einheit in	Mittelwert	Sollwert
Maßänderung nach Warmlagerung	%	0,9	≤ 3,0

3.6 Beschaffenheit nach Warmlagerung:

ohne Beanstandung

3.7 Zeitstand-Innendruckprüfung

Prüftemperatur in °C	Prüfspannung in N/mm²	Istwert	Sollwert
95	3,4	> 1000	≥ 1000

ZERTIFIKAT SKZ

Verleihungs-Urkunde

Die SKZ - TeConA GmbH verleiht der Firma

UNATHERM GmbH
Gewerbeparkstraße 5
51580 Reichshof-Wehrath

das Recht zum Führen des SKZ-Prüf- und Überwachungszeichens

GEPRÜFT SKZ ÜBERWACHT

A 240

für nachstehende Kunststoffzeugnisse

Heizungsrohre aus PE-RT

Mit der Führung des SKZ-Zeichens ist die Verpflichtung verbunden, bei der Herstellung und Prüfung der Erzeugnisse die vorgeschriebenen Bestimmungen einzuhalten.

Erstverleihung am: 22. August 1994
Gültig bis: 25. August 2009

Inspektionszeugnis: 1462101.1/91173

Auftraggeber: UNATHERM GmbH
Gewerbeparkstraße 5
D-51580 Reichshof-Wehrath

Produktionsstätte: D-51580 Reichshof-Wehrath

Überwachungsprüfung: 1. Halbjahr 2010

Erzeugnis: Heizungsrohre
Rohr PE-RT 17 x 2,0 mm
Werkstoff: Dowlex 2344
SKZ Zeichen Nr.: A 240

Schreiben vom: — Zeichen: —

Probeneingang: 2010-03-22 Probenentnahme: 2010-03-15

Prüfzeitraum: 2010-03-31 bis 2010-05-14

Ergebnis: Die Anforderungen der Prüf- und Überwachungsbestimmung HR 3.16: 2008-03 der SKZ - TeConA GmbH werden erfüllt.

Das Inspektionszeugnis umfasst 3 Seiten.

Würzburg, 2010-05-27
WVP/uschm

I. V. Dr.-Ing. Günter Nawroth

I. A. Dipl.-Ing. Christian Winkler

Die ungeträgerte oder auszugsweise Wiedergabe, Vervielfältigung und Übersetzung dieses Berichtes zu Werbezwecken bedarf der schriftlichen Genehmigung der SKZ - TeConA GmbH. Die Ergebnisse beziehen sich auf die geprüften Produkte. Die Abkürzungen gelten nur für die in den Unterlagen aufgeführten Normen und Verfahren, die im Internet unter www.skz.de eingesehen werden können.

SKZ - TeConA GmbH
Testing, Quality Assurance, Certification
Friedrich-Bergius-Ring 12
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www.skz.de

Deutscher
Instandhaltungsrat
DIN EN ISO 9001
DIN EN ISO 14001
DIN EN ISO 45001

Current certificates and test reports at www.unatherm.com

UNATHERM®

pipes all over the world



Current certificates and test reports at www.unatherm.com

UNATHERM®

pipes all over the world

Oxygen Barrier TÜV and KIWA (DIN CERTCO) Test Certificates

Our oxygen proof "oxystop" pipes meet the requirements of DIN 4726.

TÜV ANLAGEN-UND UMWELTECHNIK
ZENTRALE MÜNCHEN
Westendstraße 199
D-80686 München
Tel. (0 89) 57 91-0

TÜV ANLAGEN-UND UMWELTECHNIK GMBH · D-80686 MÜNCHEN
Unatherm GmbH
Gewerbepark 5
51580 Reichshof - Wehrath

UNSERE ZEICHEN
AWM 10-r0
A-Nr. 2401 8979

TELEFON
-1050

FAX
-2070

DATUM
05.03.97

Sauerstoff-Permeationsmessung an einem Rohr mit der Bezeichnung
UNATHERM-HEIZROHR PE-OCTEN-C 16 X 2 SAUERSTOFFDICHT
DOWLEX 2344 DIN 4726, 01.03.1995, SKZ A 240 5219

TÜV BAYERN SACHSEN E.V.
Westendstraße 199
D-80686 München
Telefon 089/5791-0
Telefax 089/5791-1551

Unatherm GmbH
51580 Reichshof-Wehrath

G2-AWM 10-r0
A-Nr.: 2401 8979

20.03.1995
Anlage

MESSERGEBNISSE / PRÜFZEUGNIS

ROHRPROBE:
UNATHERM-HEIZROHR PE-OCTEN-C 16 X 2
SAUERSTOFFDICHT DOWLEX 2344
DIN 4726, 01.03.95, SKZ A240 5219

MESSWERTE:

Temp. K	Konz. O ₂ µg/l	Fluß l/h	Sauerstoff(O ₂) mg O ₂ /100 m·d·bar	Durchlässigkeit a. Luft mg O ₂ /l·d·bar
315 ± 1	0,10 ± 0,01	76 ± 1	0,09 ± 0,01	< 0,01 ± 0,01
314 ± 1	0,04 ± 0,01	80 ± 1	0,04 ± 0,01	< 0,01 ± 0,01
314 ± 1	0,04 ± 0,01	75 ± 1	0,04 ± 0,01	< 0,01 ± 0,01
314 ± 1	0,04 ± 0,01	62 ± 1	0,03 ± 0,01	< 0,01 ± 0,01
314 ± 1 = 41 °C	0,04 ± 0,01	80 ± 1	0,04 ± 0,01	< 0,01 ± 0,01
334 ± 1	0,52 ± 0,2	75 ± 1	0,05 ± 0,01	< 0,01 ± 0,01
333 ± 1	0,70 ± 0,2	80 ± 1	0,53 ± 0,1	0,05 ± 0,01
334 ± 1	0,67 ± 0,2	74 ± 1	0,65 ± 0,1	0,06 ± 0,01
334 ± 1	0,59 ± 0,2	81 ± 1	0,69 ± 0,1	0,06 ± 0,01
334 ± 1	0,51 ± 0,2	79 ± 1	0,60 ± 0,1	0,05 ± 0,01
334 ± 1 = 61 °C	0,51 ± 0,2	78 ± 1	0,51 ± 0,1	0,05 ± 0,01
		78 ± 1	0,60 ± 0,1	0,05 ± 0,01

VERSUCHSBEDINGUNGEN

Rohrlänge: 188 m im Bund
Rohrvolumen: 11,31 l/100 m
Abmessungen: Rohraußendurchmesser: 15,8 - 16,6 mm
Dicke der Sperrfolie: ca. 0,1 mm
Wanddicke incl. Sperrfolie: 2,0 - 2,1 mm
O₂-Partialdruck: 0,210 ± 0,005 bar (Korr. auf NN)

BEMERKUNGEN: Das Rohr wurde vor den Versuchen keiner Temperaturwechselbelastung nach DIN 4729 unterzogen. Rohreintritt und Rohraustritt in Kelvin (K) (Differenz ca. 1-2 K). Differenz der Sauerstoffkonzentration Rohraustritt minus Rohreintritt (µg/l = ppb).

BEURTEILUNG: Die Sauerstoffdurchlässigkeit liegt bei beiden Prüftemperaturen unterhalb des Grenzwertes der DIN 4726 von ≤ 0,1 g/m² · d (= mg/l · d) für "sauerstoffdichte" Rohre.

KWR

REPORT OF ANALYSIS
Testing of oxygen permeability.

REPORT NUMBER
LMC 10-0183
Date: August 16, 2010

AUTHORISATION
Dr. A.P. van Wamel
Head Chemical Water Quality and Health

DEPARTMENT
KWR, Laboratory for Materials Research and Chemical Analysis

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The test results are given at the next pages. These results relate only to the sample tested. The report shall not be reproduced except in full and with the written approval of KWR Water B.V.

DIN CERTCO
Anerkanntes ProfLaboratorium

Watercycle Research Institute

KWR

3. Results of analysis

Table 1: Results of analysis for the PE-RT/EOH pipe from the manufacturer Unatherm GmbH at a temperature of 40 ± 0,5 °C.

Description	Unit	Results
Internal diameter	mm	12
External diameter	mm	16
Length	meter	20
Pre-conditioning		According to DIN 4726: 2008
Temperature	°C	40 ± 0,5 °C
Average oxygen uptake	ppb/hour	1,5
Average standard oxygen permeation	mg O ₂ /m ² ·day	0,09

4. Conclusion

The PE-RT/EOH pipe from the manufacturer Unatherm GmbH meets the requirements as defined by DIN 4721 - BRL 5602. **

5. Analytical information

Parameter
Method
Technique
Detection limit
Preconditioning
Sample number
Date analysis
Number of measurements
Coefficient of variation of the repeatability
Coefficient of variation of the reproducibility
RvA accreditation

: Standard permeation of oxygen
: ISO 17455: 2005 (Method 1 = Dynamic test)
: Oxygen measurement with a specific electrode, continuous flow
: 0,1 µg O₂/l
: None
: C-10 0962
: July 26 - 29, 2010
: 10
: 3,7 %
: Between 15 and 40% for measurements from different materials
: Yes

** The conclusion is no part of the RvA accreditation.

Watercycle Research Institute
Report number: LMC 10-0183
Date: August 16, 2010
Page 4 of 4

Current certificates and test reports at www.unatherm.com

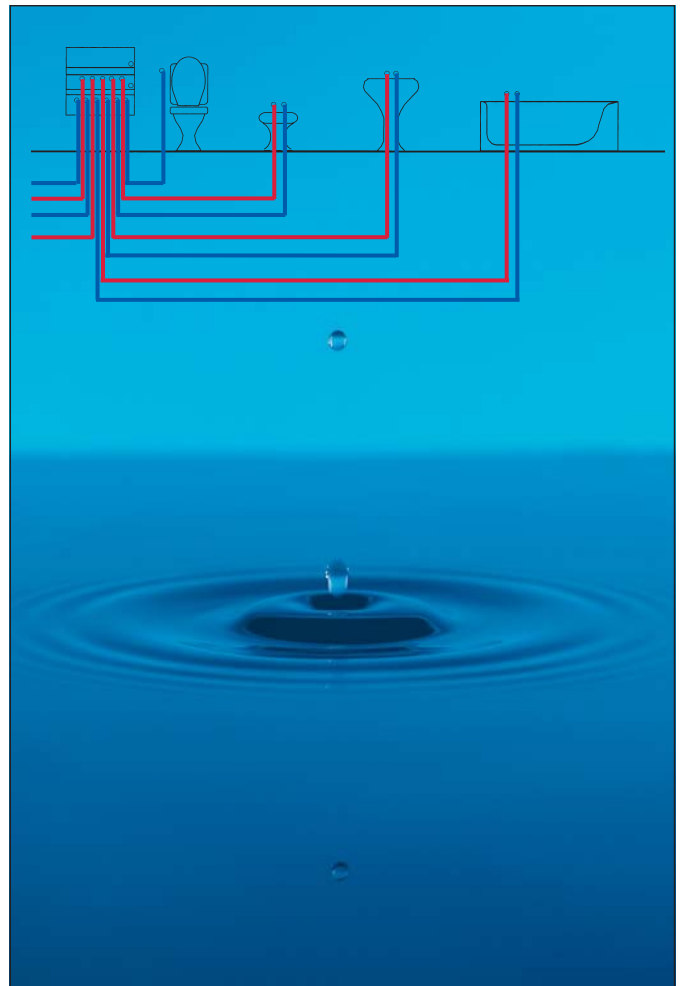
Pipe-in-Pipe System for Sanitary Installations

UNATHERM sanitary pipes for the entire domestic drinking water installation.

The pipe-in-pipe system offers convincing advantages:

- suitable for any drinking water quality
- pressure resistant up to 10 bar
- temperature resistant up to 95° C
- easy to install
- replaceable
- no punctual corrosion
- no sound transmission
- no sleeves or welded joins
- concerning to DIN 16833/34

Our drinking water pipes are of course approved by the German DVGW and TZW. It can be applied in areas where copper pipes are not allowed to be used anymore.



UNATHERM®

pipes all over the world



Current certificates and test reports at www.unatherm.com

UNATHERM®

pipes all over the world



Current certificates and test reports at www.unatherm.com

Physical and Mechanical Properties of UNATHERM Pipes

Property	Unit	Test Method	Values	
			PE-RT DOWLEX * 2344	PE-RT DOWLEX* 2388
Density	g/cm ³	ISO 1183	0.933	0.941
Thermal Conductivity	W/(mK) at 60° C	DIN 52612-1	0.40	0.40
Thermal Exp. Coefficient	10 ⁻⁴ /K	DIN 53752 A (20° C - 70° C)	1.95	1.80
Yield Tensile Strength ^{(1) (2)}	MPa	ISO 527	16.5	20.3
Yield Tensile Elongation ^{(1) (2)}	%	ISO 527	13	14
Surface Roughness	Ångström		400	400
Flexural Modulus	MPa	ISO 178	550	660
Oxygen permeability ⁽³⁾	g/m ³ ·d	DIN 4726	<0.1	<0.1
Weldability ⁽⁴⁾			excellent	excellent
ESCR	h	ASTM D 1693-B 10% ANTAROX CO 630	>8760 (0 failures)	>8760 (0 failures)
	h	50% antifreeze (PEG) ⁽⁵⁾	>8760 (0 failures)	>8760 (0 failures)
	h	10% corrosion inhibitor ⁽⁵⁾	>8760 (0 failures)	>8760 (0 failures)

All mentioned values are typical ones and not to be construed as specification limits.

⁽¹⁾ Crosshead speed 50 mm/min.

⁽²⁾ Compression molded sample (2 mm thick).

⁽³⁾ Tested with co-extruded EVOH-layer.

⁽⁴⁾ The EVOH-layer is not weldable and has to be removed.

⁽⁵⁾ Test according to ASTM 1693 with the listed medium.

*Trademark - The Dow Chemical Company

Chemical Resistance of UNATHERM Pipes

Reagent	PE-RT DOWLEX* 2344/2388
Acetone	EXCELLENT
Ammonia	good
Gasoline, regular	poor
Chromic acid	excellent
Ethylene Glycol	excellent
Ferrous sulfate	excellent
Formaldehyde 30%	EXCELLENT
Isopropyl Alcohol	excellent
Sodium Hydroxide	excellent
Propylene Glycol	excellent
Nitric Acid 5%	EXCELLENT
HCL Hydrochloric Acid	excellent
Acids, inorganic / organic	EXCELLENT
Sulfuric Acid 30%	EXCELLENT
Sodium Hydroxide	excellent

The chemical resistance tests were performed in accordance with ASTM D543-60T (ASTM D543-87) at 23.9° C.

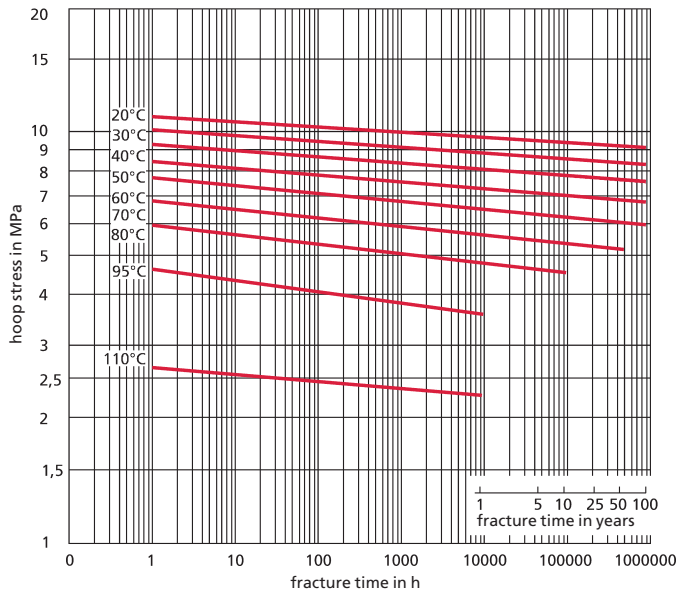
Upper case letters represent evaluations based on ASTM tests, lower case letters represent transferred values.

Further information available on request.

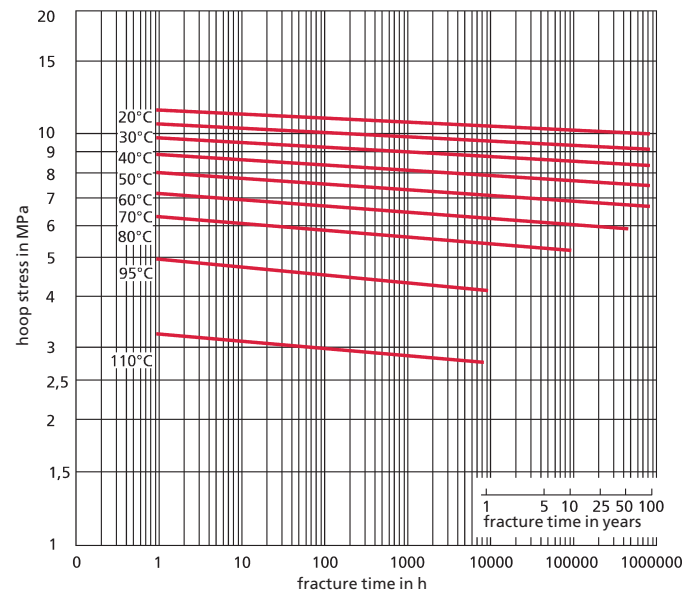
*Trademark - The Dow Chemical Company

Long-term Resistance

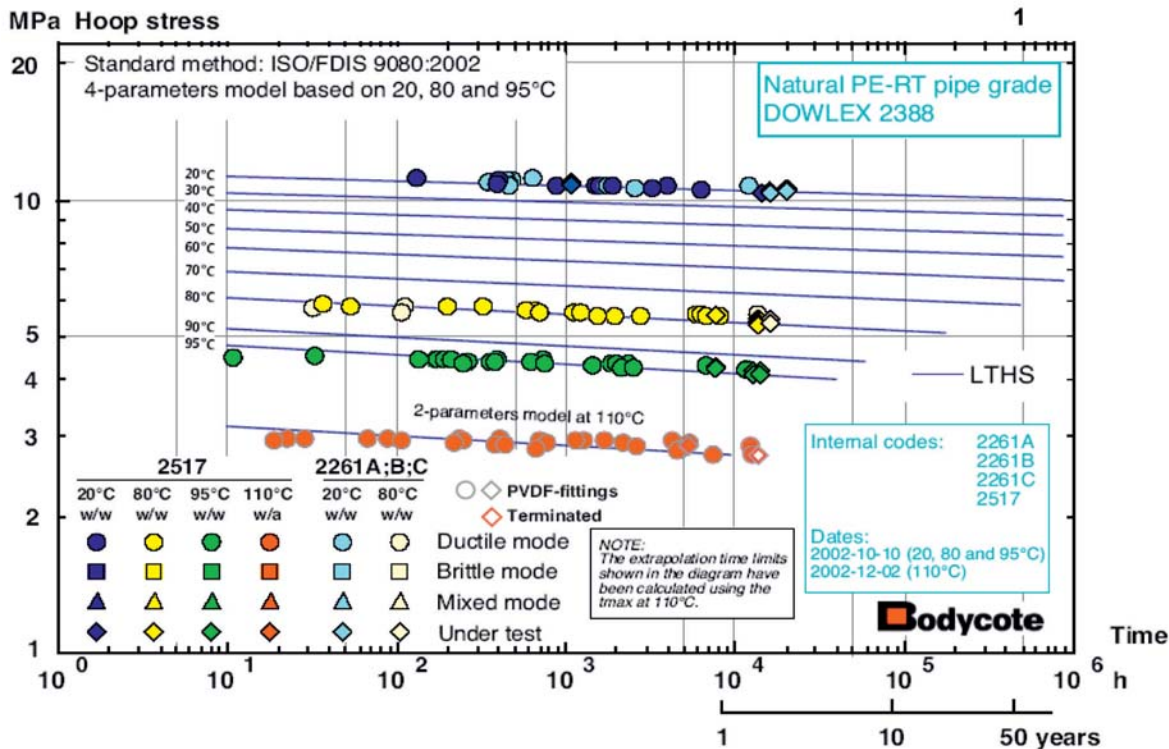
UNATHERM PE-RT Dowlex 2344



UNATHERM PE-RT Dowlex 2388

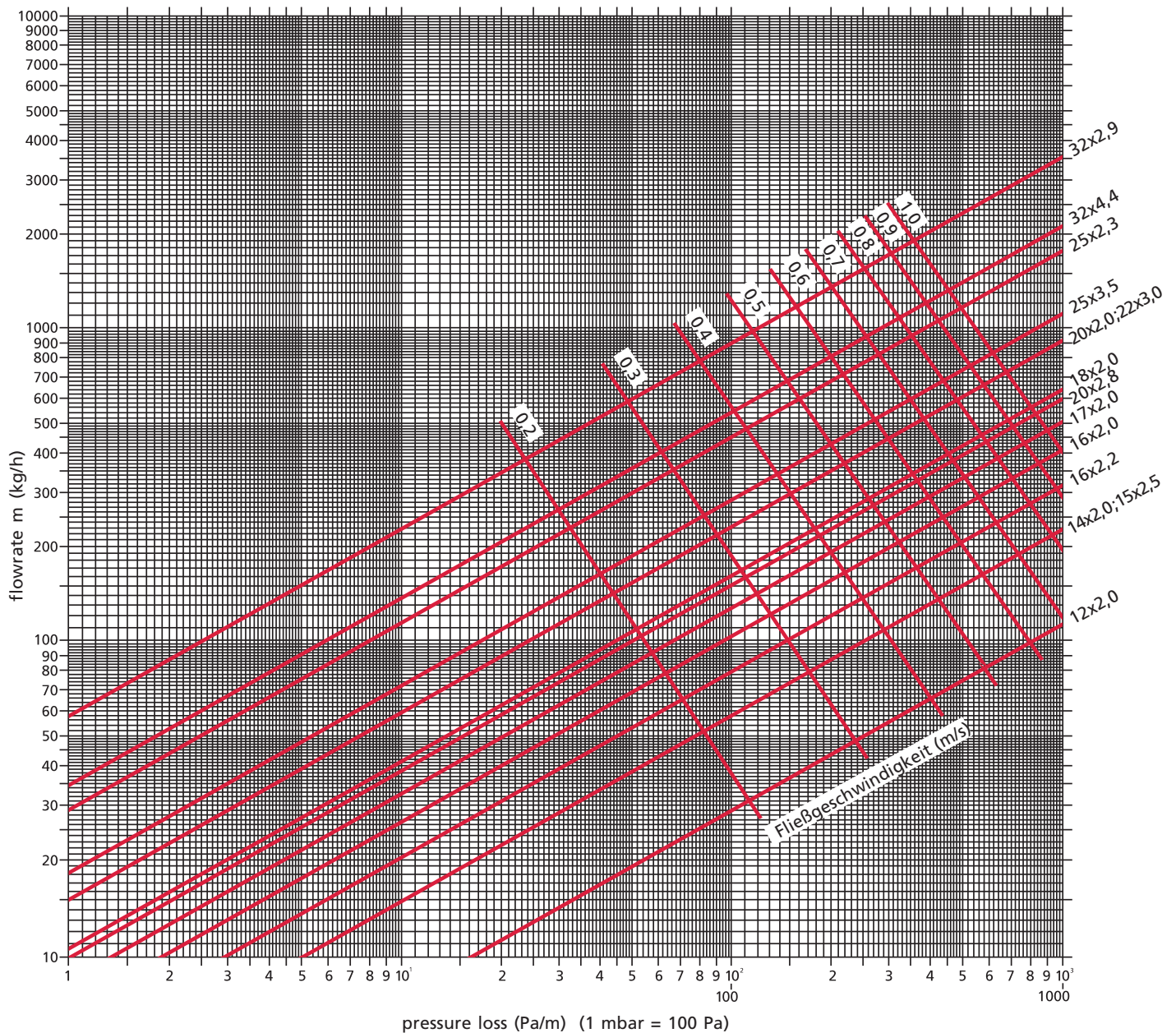


Equivalent Stress



Pressure Loss

UNATHERM PE-RT pipes



Instructions for Use UNATHERM Heating and Sanitation Pipes

Bending radius

We allow a bending radius according to DIN 4726. E.g. pipe 16 x 2,0 mm, bending radius in accordance with the above standard 80 mm.

Fittings

We recommend fittings made of brass (e.g. BEULCO or IPA). The fittings have to be installed according to the manufacturer's guidelines. Fittings must be suitable for pipes according to DIN 16833.

Storage

Pipes must be protected against direct sunlight. We recommend to store pipes in cardboard boxes or black polyethylene bags.

Application sanitation pipes

Max. operating pressure: 10 bar
Max. operating temperature: 95°C.

Application heating pipes

Max. operating pressure: 6 bar
Max. operating temperature: 95°C.

Pipes with oxygen barrier layer

The oxygen permeability is $< 0,1 \text{ g/m}^3\text{d}$ in accordance with DIN 4726.

Heating circuit additives

For pipes without oxygen barrier layer, a corrosion inhibitor must be used in the heating circuit. We recommend Varidos KK from Schilling Chemie in Germany.

Guarantee

10 years, when keeping to usual working condition according to the state of the art.

UNATHERM®
pipes all over the world

Certificate of Guarantee

UNATHERM heating and sanitation pipes are made of original materials without any addition of fillers or anything of the kind. When keeping to usual working conditions we guarantee the following.

- We supply pipes for replacement free of charge within 10 years of the delivery date in case any damage has occurred in which we are responsible.
- Furthermore we will pay compensation for damages incurred to a third party as well as for the repair costs within 10 years on condition that the responsibility for the damage lies with us.
- The obligation to pay compensation is limited to the bounds of the product liability insurance. This insurance will pay compensation up to Euro 1,000,000.00 in any individual case.

Color _____ Print _____

Dimensions _____ Material _____

Date _____



Signature _____ **UNATHERM GmbH**
Signature _____

Gewerbeparkstrasse 5 · D-51580 Reichshof-Wehrnath · Tel. +49-2265-8080 · Fax +49-2265-8938
<http://www.unatherm.com> · e-mail: pipes@unatherm.com

Product Range

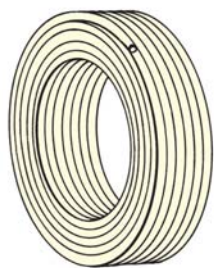
We manufacture our pipes as your requirements!

Select from our product range the pipe for your field of application:

Material	Outer- Ø mm	Wall- thickness	Colour	Corrugated pipe*	Coil length
Dowlex 2344	12	1,5			25
PE-RT	14	1,8			50
PE-RT oxystop	15	2,0			75
Dowlex 2388 PE-RT PE-RT oxystop	16	2,2			100
	17	2,3			120
	18	2,5			200
	20	2,8			300
	22	2,9			500
	25	3,0			600
	28	3,5			750
	32	4,4			1000

* lieferbar in den Längen 25 bis 200 m

The following units are at your disposal:



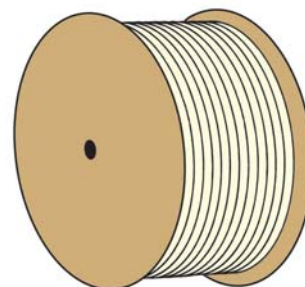
coil



pipe in pipe



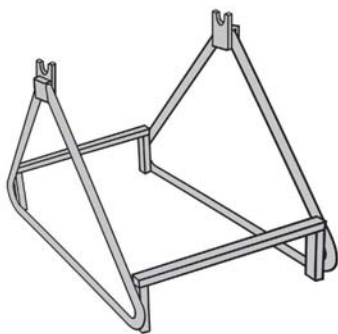
coils (> 300 m)



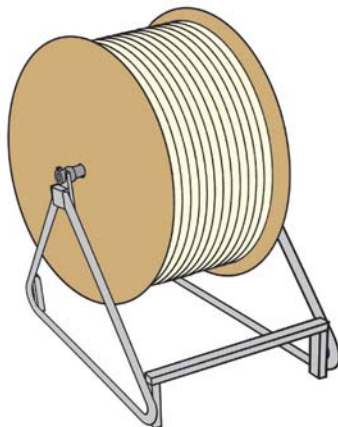
disposable
cardboard drum

Other measures, length, colours on request.

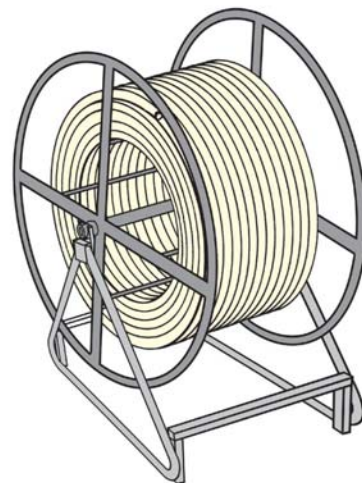
Dispenser



Dispenser ARS
- push fit construction -



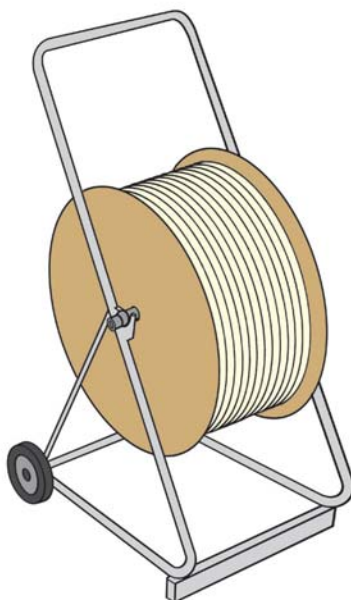
Dispenser ARS
- disposable cardboard drum -



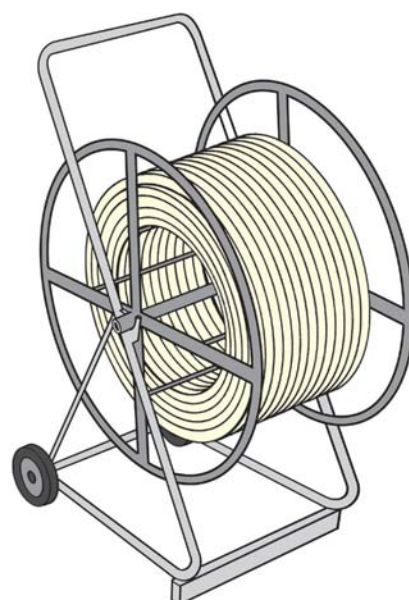
Dispenser ARS
- coils (> 300 m) -



Dispenser ARW
- movable -



Dispenser ARW
- disposable cardboard drum -



Dispenser ARW
- coils (> 300 m) -

Disposable Cardboard Drum EWT

Product description

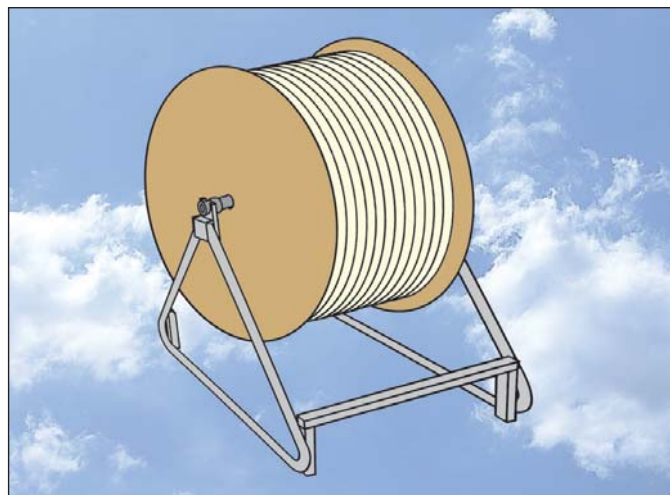
The UNATHERM EWT is useful and helps you to work more efficient with coils of more than 500 m.

With its compact size, the UNATHERM disposable cardboard drum allows very easy handling, and due to the width of 60 cm it fits every door.

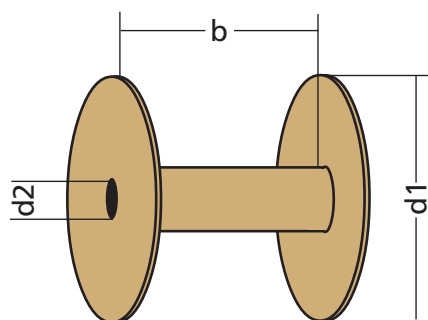
The UNATHERM EWT is equipped with front side holes of 35 mm, so standard steel bars up to 1" can be used as spindles to uncoil the pipes. The maximum coil length, depending on the outside diameter of the pipe, is 1.000 m.

Material

The UNATHERM disposable cardboard drum is manufactured completely of corrugated cardboard. Thus, it can be disposed easily and free of extra costs.



Sizes and max. coil length



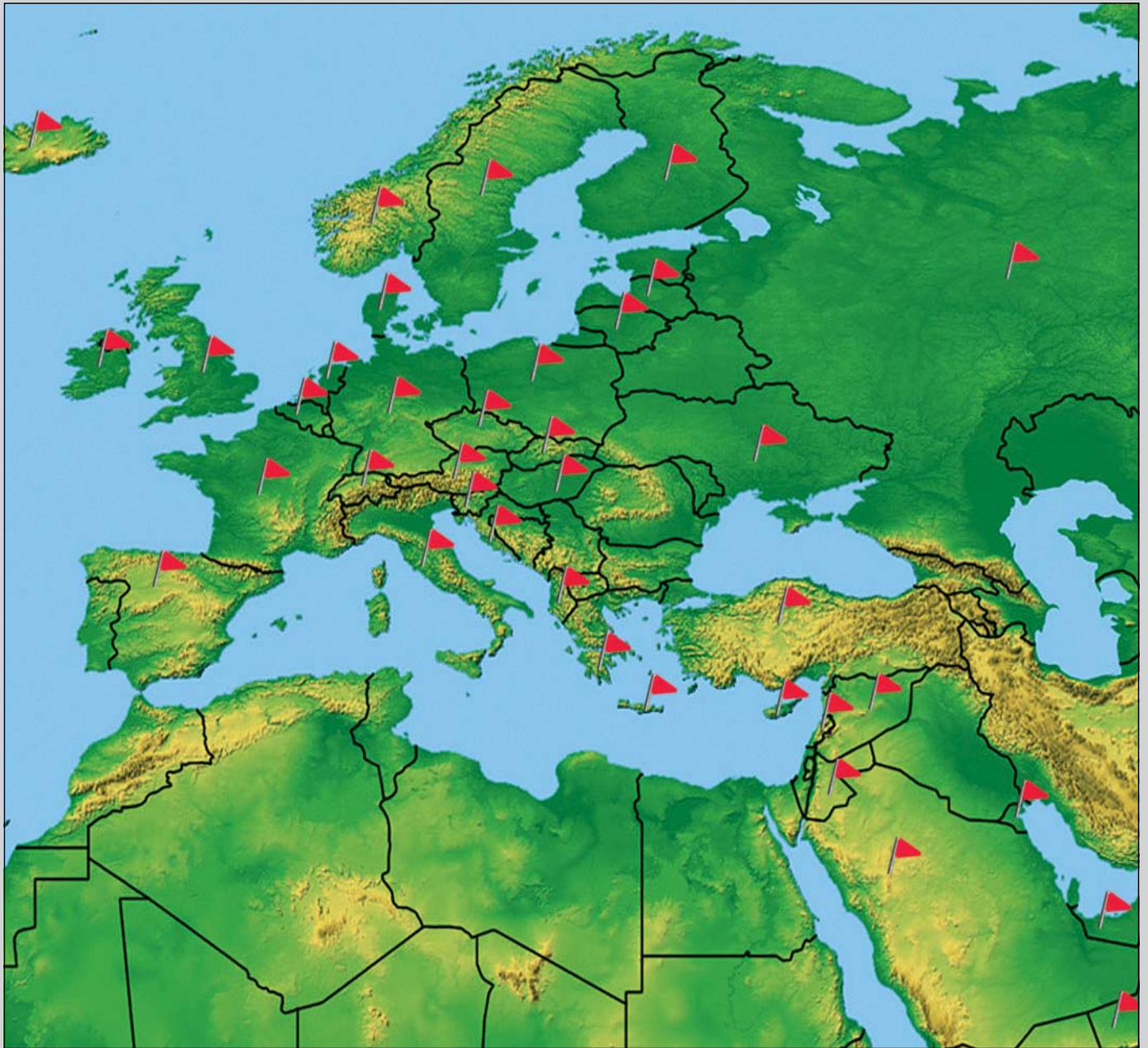
b: 600 mm
d1: 800 mm
d2: 35 mm

Ø 12 x 2,0 mm max.	1000 m
Ø 14 x 2,0 mm max.	900 m
Ø 16 x 2,0 mm max.	750 m
Ø 17 x 2,0 mm max.	700 m
Ø 18 x 2,0 mm max.	700 m
Ø 20 x 2,0 mm max.	500 m

Other cardboard drums and lenght on request.

UNATHERM®

pipes all over the world



CEE 03-11

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