



vinidurit[®] UKC and UUKC

PVC system for non-pressure underground drainage and sewerage according to EN 1401 and EN 13476





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PURPOSE

vinidurit UKC-ECO – non-lead PVC pipes for non-pressure underground drainage and sewerage are manufactured according to EN 1401-1:2009¹ and **vinidurit U UKC-ECO** – non-lead PVC pipes for non-pressure underground drainage and sewerage are manufactured according to EN 13476-1:2007² and EN 13476-2:2007³ as special contributions to environmental protection. The stabilizers which are used for production these pipes are a heavy-metal free organic based stabilizers environmentally suitable and therefore marked as PVC-ECO.

vinidurit[®] UKC-ECO pipes and fittings and **vinidurit[®] U UKC-ECO pipes** are used for non-pressure underground drainage and sewerage outside the building structure (**pipes series SN2, SN 4 and SN 8**) and both buried in ground within the building structure (**pipes series SN 4 i SN 8**). The pipes have excellent resistance to chemical attack up to max 60 °C for continuous and 90 °C for discontinuous discharge which makes them particularly suitable for a wide range of applications.

Further guidance can be found in ISO/TR 10358:1993 “Classification of chemical resistance of plastic pipes and fittings”.

COLOUR

Vinidurit[®] UKC i U UKC pipes are coloured dark orange-brown (approximately RAL 8023⁴).

BENEFITS

• High chemical resistance

Vinidurit UKC and U UKC pipes offer a considerable resistance to a large number of chemical agents up to 60° C for continuous and 90° C for discontinuous discharge.

¹ EN 1401-1:2009

Plastics piping systems for non-pressure underground drainage and sewerage -- Unplasticized poly(vinyl chloride) (PVC-U) -- Part 1: Specifications for pipes, fittings and the system

² EN 13476-1:2007

Plastic piping systems for non-pressure underground drainage and sewerage -- Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) -- Part 1: General requirements and performance characteristics

³ EN 13476-2:2007

Plastics piping systems for non-pressure underground drainage and sewerage -- Structured-wall piping systems of unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) -- Part 2: Specifications for pipes and fittings with smooth internal and external surface and the system, Type A

⁴ According to the colour register RAL 840-HR



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- **Smooth interior, excellent hydraulic characteristics, free of incrustations**

The smooth interior of vinidurit UKC and U UKC pipes and fittings prevents the build-up of deposits, assuring low friction loss and high flow rates. These high flow rates continue for the life of the pipe system.

- **Easy to install**

Easy installation due to the rubber ring push-fit system. A tight and durable connection is ensured.

Jointing: push-fit sockets;

Sealing material: pre-inserted lip ring seal, system BL, conform to EN 681-1.

- **Light weight**

The low weight of the system makes it easy to install. It also reduces transportation, handling and installation costs.

- **Cost effective**

The many advantages of vinidurit UKC and U UKC pipes ensure a lower installed cost compared to other piping systems.

- **Maintenance free**

Vinidurit UKC and U UKC pipes do not rust, corrode or promote build-up of deposits on the system interior.

- **Reliable and durable**

Vinidurit UKC and U UKC pipes are highly durable with high tensile and high impact strength with service life of at least 50 years.



PACKING AND DELIVERY

Standard length of pipes without in-line socket is 1, 2 and 5 m.

Generally, pipes are delivered pre-packed in block bundles of standard quantities. In these bundles, pipes are held by straps and timber stretchers.



MARKING OF PIPES

Longitudinal:

Number of standard (EN 1401 or EN 13476), application area code (U or UD), manufacturer's name (KEMOPLAST), manufacturer's trade mark (UKC or U UKC), diameter x wall thickness (d x s), material (PVC-ECO), nominal ring stiffness (SN), length in cm, date, hour, line No. (L1)



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FEATURES AND CLASSIFICATION OF PVC MATERIAL

MRS (Minimum Required Strength) value in MPa is the basis for the classification of plastics for piping systems.

The MRS value represents the long-term circumferential stress in the pipe where the break may occur after 50 years at the earliest (ISO/DIS 9080, ISO 12162). The calculation design stress σ_s is applied for dimensioning of the piping network. This is calculated

$$\sigma_s = MRS/C$$

with C= overall service (design) coefficient.

Minimum Required Strength for PVC is **MRS=25 MPa**.

Each pipe series is geometrically defined by the SDR code = Standard Dimension Ratio, whereby:

$$SDR = d / s$$

Where: **d** – Outside diameter of pipe
s – Wall thickness of pipe

Nominal Ring Stiffness (**SN**) is defined as: $SN = EI/d_m^3$

Where: **SN** – Nominal Ring Stiffness in kN/m²
E – Modulus of Elasticity
I – Moment of Inertia of wall cross section
($I = s^3/12$)
d_m – mean diameter of pipe

Physical properties of UKC and U UKC pipes

Characteristic	Standard	Value	Unit	
Density at 23°C	UKC U UKC	EN ISO 1183-2	1.350-1.460 1.000-1.100	kg/m ³
MRS		EN ISO 9080	≥ 25	MPa
Tensile strength		ISO 6259	≥ 45	MPa
Elongation at break		ISO 6259	≥ 80	%
Modulus of elasticity		DIN 53457	3.000-3.600	MPa
Thermal conductivity		DIN 52612	-0,15	W/Mk
Coefficient of linear thermal expansion		DIN 53752	60-80x10 ⁻⁶	K ⁻¹
Longitudinal reversion at 150°C		EN 743	≤ 5	%
Vicat softening temperature (VST) (5kg)		EN 727	≥ 78	°C
Surface resistance		DIN 53482	> 1.000.000	MΩ
Water Absorption		DIN 8061 paragraph 4.6	≤ 40	g/m ²
Fire classification		NF 055-L3	M1	Self-extinguish
Ring stiffness		EN ISO 9969	SDR 51: ≥ 2 SDR 41: ≥ 4 SDR 34: ≥ 8	kN/m ²

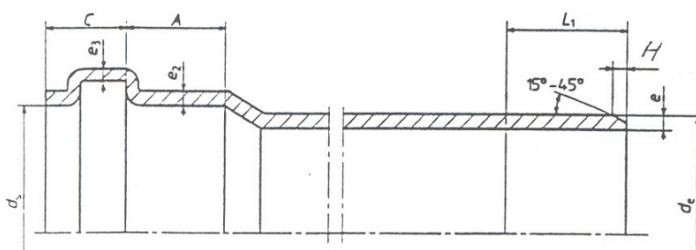


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Vinidurit[®] UKC-ECO pipes

Compact non-lead PVC pipes for non-pressure underground drainage and sewerage according to EN 1401-1:2009
- dimensions -



DN/OD mm	d _e mm	d _{e,max} mm	SN 2* SDR 51		SN 4** SDR 41		SN 8** SDR 34	
			e mm	e _{max} mm	e mm	e _{max} mm	e mm	e _{max} mm
110	110,0	110,3	-	-	3,2	3,8	3,2	3,8
125	125,0	125,3	-	-	3,2	3,8	3,7	4,3
160	160,0	160,3	3,2	3,8	4,0	4,6	4,7	5,4
200***	200,0	200,5	3,9	4,5	4,9	5,6	5,9	6,7
250***	250,0	200,5	4,9	5,6	6,2	7,1	7,3	8,3
315***	315,0	315,6	6,2	7,1	7,7	8,7	9,2	10,4
400***	400,0	400,7	7,9	8,9	9,8	11,0	11,7	13,1
500	500,0	500,9	9,8	11,0	12,3	13,8	14,6	16,3

Note:

* only use for outside building structure

** both buried in ground within the building structure and outside the building

*** recommended vinidurit U UKC pipes (see page 8 of 12)

where:

DN/OD - nominal size, related to the outside diameter in mm,
d_e - outside diameter in mm,
e - wall thickness in mm,
SN - nominal ring stiffness in kN/m²
SDR - standard dimension ratio

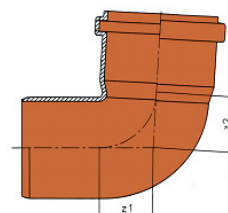
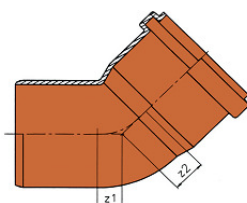


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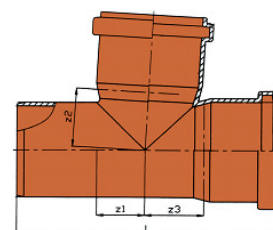
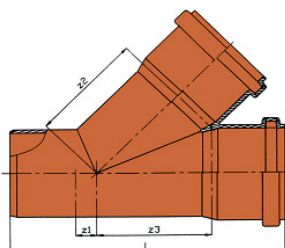
Vinidurit[®] UKC-ECO fittings

Compact PVC fittings for non-pressure underground drainage and sewerage according to EN 1401-1:2009
- dimensions -



Bend URC-KGB - 45°								
α	110	125	160	200	250	315	400	500
45°	+	+	+	+	+	+	+	+

Bend URC-KGB - 87°								
ϕ	110	125	160	200	250	315	400	500
87°30'	+	+	+	+	+	+	+	+



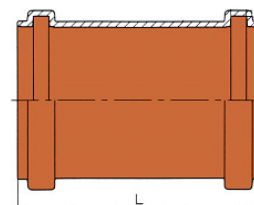
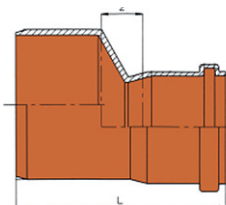
Branch URG-KGEA - 45°								
ϕ	110	125	160	200	250	315	400	500
110	+	+	+	+	+	+	+	
125		+	+	+	+	+	+	
160			+	+	+	+	+	+
200				+	+	+	+	+
250					+	+	+	+
315						+	+	+
400							+	+
500								+

Branch URT-KGEA - 87°								
ϕ	110	125	160	200	250	315	400	500
110	+	+	+	+	+	+	+	
125		+	+	+	+	+	+	
160			+	+	+	+	+	+
200				+	+	+	+	+
250					+	+	+	+
315						+	+	+
400							+	+
500								+



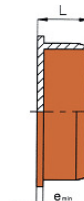
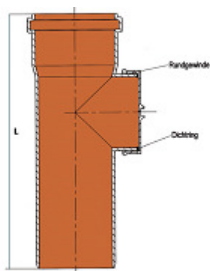
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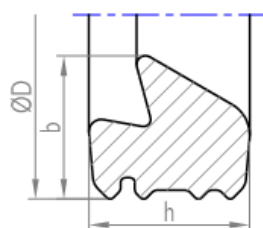
Reducer URRC-KGR								
φ	110	125	160	200	250	315	400	500
110		+	+					
125			+					
160				+				
200					+			
250						+		
315							+	
400								+

Repair coupler KS-KGU								
φ	110	125	160	200	250	315	400	500
	+	+	+	+	+	+	+	+

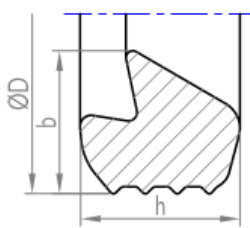


Cleaning pipe URGT-KGRE								
φ	110	125	160	200	250	315	400	500
	+	+	+					

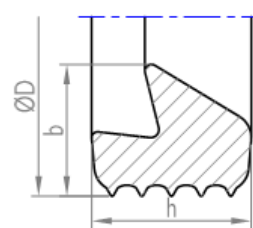
Socket plug UČ-KGM								
φ	110	125	160	200	250	315	400	500
	+	+	+	+	+	+	+	+



DN 100



DN 125-200



DN 250-500

Lip seal ring -BL								
φ	110	125	160	200	250	315	400	500
	+	+	+	+	+	+	+	+

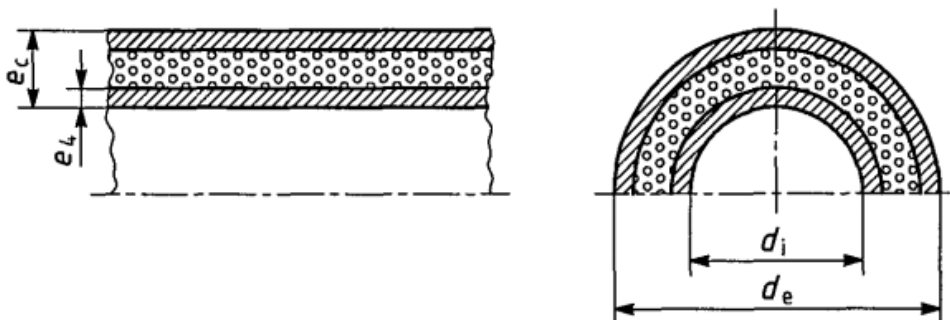


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Vinidurit[®] U UKC-ECO pipes

Foam-core non-lead PVC pipes for non-pressure underground drainage and sewerage according to EN 13476-2:2007 and EN 1401-1:2009
- dimensions -



DN/OD mm	d _e mm	d _{e,max} mm	SN 2* SDR 51			SN 4** SDR 41			SN 8** SDR 34		
			e mm	e _{max} mm	e mm	e _{max} mm	e mm	e _{max} mm	DN/OD mm	d _e mm	d _{e,max} mm
200	200,0	200,5	3,9	4,5	0,6	4,9	5,6	0,6	5,9	6,7	0,6
250	250,0	200,5	4,9	5,6	0,7	6,2	7,1	0,7	7,3	8,3	0,7
315	315,0	315,6	6,2	7,1	0,8	7,7	8,7	0,8	9,2	10,4	0,8
400	400,0	400,7	7,9	8,9	1,0	9,8	11,0	1,0	11,7	13,1	1,0

Note:

- * only use for outside building structure
- ** both buried in ground within the building structure and outside the building
- *** recommended vinidurit U UKC pipes (see page 8 of 11)

where:

DN/OD	- nominal size, related to the outside diameter in mm,
d_e	- outside diameter in mm,
e	- wall thickness in mm,
SN	- nominal ring stiffness in kN/m ²
SDR	- standard dimension ratio

edition 1/2010

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