



Technical data sheet

**GEROtherm® DUPLEX-REX**

The completely diffusion resistant geothermal probes with  
protective layer

PN 16

dn 40 x 3.7

## GEROthem® DUPLEX-REX the completely diffusion resistant geothermal probes with protective layer PN16

Material	Polyethylene PE100-RC (RC=resistance to cracking); Polypropylene PP-mechanical protection
Geothermal probe design	<ul style="list-style-type: none"> <li>▪ <b>Two geothermal probe feet, PN25</b>, Patent: EP 2 395 301, U-shaped with dirt trap and a minimal pressure drop of &lt;10 mbar at 1.0 m/s, a fixture for securing weights as an aid to installation, plus a reinforcement brace for the GEROthem® PUSH-FIX impact-resistant sleeve: additional protective layer against diffusion from outside to inside</li> <li>▪ <b>Four pipes for double-U probes from pipe series SDR11/S5/PN16</b> core tube made of the material PE100-RC in the pipe outside diameter 40 x 3.7mm with double metering and flow direction indication (forward/return flow)</li> <li>▪ <b>Diffusion tightness</b> is achieved by a polymer matrix film with an embedded diffusion barrier. Permeated volume &lt;0.50 cm<sup>3</sup>/ (1 m<sup>2</sup> x 24 h x 1.0 bar)</li> <li>▪ <b>Protective layer made of PP in silver gray with green stripes</b> to prevent mechanical damage to the core tube through grooves, scratches, etc. With geothermal probe signing (outer tube diameter with protective layer 43 mm)</li> </ul>
Installation and operation	The part of the geothermal system down in the soil must withstand the pressures and temperatures that occur. The applicable standards must be observed.
Delivery form	Rolls on a pallet covered with protective film: each individual probe foot packed in a protective pouch with a factory certificate and serial number in accordance with EN 10204 2.2.
Regulations (core tube)	SIA 384/6 incl. diffusion tightness; SKZ HR3.26 A278; VDI 4640; KOMO® (K84660/02) Patent {EU 3 450 878; EP 2 395 301}
Geothermal probe signing	{Direction of flow} {GEROthem DUPLEX-REX} {Erdwärmesonde/Geothermal probe} {Swiss made} {EU 3 450 878; EP 2 395 301} {with core tube} {40 x 3.7} {PE100 RC} {S5} {SDR11} {PN16} {Tmax 40°C} {DIN EN 12201-2} {core tube} {SKZ A278} / {KOMO K84660} {Part No.} {Machine No.} {Date} {Production No.} {Double metering}
Certified and monitored by	South German Plastics Center; Süddeutsches Kunststoffzentrum (SKZ), Würzburg/Germany Kiwa Nederland B.V. (KOMO®)
<b>Physical properties</b>	
Density PE100-RC	0.95 – 0.97 g / cm <sup>3</sup>
Pipe roughness	0.03 mm
Minimum bending radius at 0°C	55 x dn
Minimum bending radius at 10°C	40 x dn
Minimum bending radius at 20°C	25 x dn
<b>Mechanical properties (core tube)</b>	
Tensile modulus of elasticity (23°C, v = 1 mm/min, secant)	900 MPa
Yield stress (23°C, v = 50 mm/min)	23 MPa
Tensile deformation (23°C, v = 50 mm/min)	9%
FNCT (4.0 MPa, 2% Arkopal N100, 80°C)	>/= 8760 h
Failure strain	>/= 350%
Mean thermal coefficient of linear thermal expansion	0.18 mm/m K
<b>Hardness (core tube)</b>	
Shore hardness (Shore D (3 sec))	63
<b>Thermal properties</b>	
Maximum temperature	+ 40°C
Minimum temperature	- 20°C
Thermal conductivity (with protective layer)	~0.38 W/mK
<b>Chemical properties</b>	
The HakaGerodur GEROthem® geothermal systems are resistant to the common heat transfer media. Refer to the Technical Manual for the suitable heat transfer media.	