

Product information

FRANK geothermal probes PE 100-RC



Description

- Completely factory-assembled, factory-welded geothermal probe in standard lengths as well as special lengths on request
- Injection-moulded probe foot with flow deflection developed specifically for use with geothermal energy without cross section contraction
- Piggable probe
- Manufactured in accordance with SKZ Directive HR 3.26, external monitoring of production by the Materialprüfungsanstalt Darmstadt (State Materials Testing Institute Darmstadt [MPA])
- Made by DVS-certified welders
- Individual test certificate for each probe (available at www.frank-gmbh.de)

Design

- Duplex geothermal probe with separable probe foot

Compliance

- Manufactured in accordance with SKZ Directive HR 3.26, SKZ Certificate no. A 466

- Factory-welded geothermal probe acc. to VDI 4640
- Welding in accordance with DVS guidelines
- Pipe lettering with meter marking

Material

- Pipe: extruded pipes made of polyethylene PE 100-RC, black (resistant to cracks) acc. to PAS 1075, SDR 11 and SDR 9, approved for installation without sand embedding
- Probe foot: Fitting made of PE 100-RC, SDR 11/ 9, injection moulded
- The material properties are dependent on temperature and pressure (see page 3)

Temperature range

- PE 100-RC: Continuous operating temperature -10°C to max. +40°C, Peak temperatures up to +70°C permissible (Table for temperature behaviour see page 3)
- Max. brine supply temperature in the subsoil +/- 17°C

compared to ground temperature (acc. to VDI Directive 4640)

Operating pressure

- SDR 11 according to DIN 8074 pressure class PN 16
- SDR 9 according to DIN 8074 pressure class PN 20
- (safety coefficient 1.25)
The working pressure is dependent on temperature and time (see page 3)

Thermal conductivity

- $\lambda = 0.40 \text{ W/mK}$ (at 20°C)

Connection dimensions

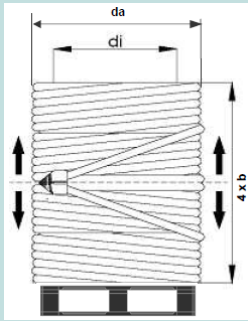
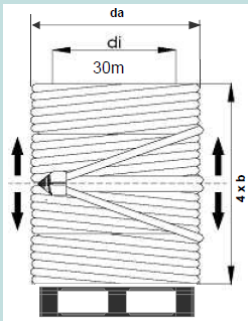
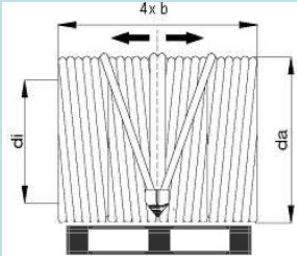
- Pipe dimensions (2 x supply pipes and 2 x return pipes)
- d 32 x 3.0 mm (SDR 11)
- d 40 x 3.7 mm (SDR 11)
- d 40 x 4.5 mm (SDR 9)

Installation

See FRANK installation instructions for geothermal probes

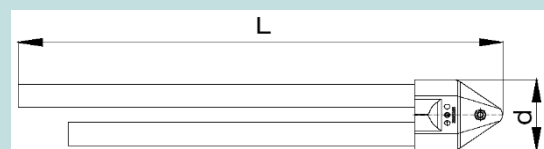
Dimensions

Coiled bundle geothermal probes PE 100-RC

Pipe		Coiled bundle dimensions			Number of coiled bundles	Weight (kg)		Mode of delivery
da (mm)	L (m)	da (mm)	di (mm)	4xb (mm)	Pc.	SDR 11	SDR 9	
32	50	1111	860 - 960	800	4	58	-	
	60	1136		732	4	69	-	
	70	1186		800	4	80	-	
	80	1210		732	4	92	-	
	90	1210		800	4	103	-	
	100	1180		932	4	114	-	
	110	1180		1000	4	126	-	
	120	1274		800	4	137	-	
	130	1299		800	4	148	-	
	140	1264		1000	4	159	-	
	150	1254		1064	4	171	-	
40	50	1093	770 - 890	824	4	89	-	 <p>up to L = 90 m and on request</p>
	60	1153		908	4	106	-	
	70	1181		824	4	124	-	
	80	1219		824	4	141	-	
	90	1171		1072	4	158	-	
	100	1191		1152	4	176	-	
	110	1206		1092	4	193	-	
	120	1219		1152	4	211	-	
	130	1296		1176	4	228	-	
	140	1355		988	4	245	-	
	150	1322		1152	4	263	-	
	160	1370		1120	4	280	-	
	170	1370		1180	4	297	-	
	180	1370		1220	4	315	-	
	200	1440		1180	4	349	414	
	220	1500		1180	4	384	455	
	250	1440		1420	4	436	517	
	275	1520		1420	4	480	568	
300	1580	1420	4	523	619			
								 <p>Standard</p>

Note: Outer diameter and breadth of the coiled bundle may vary for manual production of above-mentioned dimensions.
 * Weights are incl. +1m for horizontal connection

Geothermal probe foot (mm)	Probe foot diameter d (mm)
32 x 3.0	approx. 99
40 x 3.7	approx. 118



Working pressure of components at continuous load for PE 100 / PE 100-RC in accordance with temperature and the service life

Temperature [°C]	Service life [years]	Diameter/wall thickness ratio SDR 11 / PN 16	Diameter/wall thickness ratio SDR 9 / PN 20
		Working pressure [bar]	Working pressure [bar]
10	5	20.2	25,1
	10	19.8	24,6
	25	19.3	24,1
	50	19.0	23,8
	100	18.7	23,3
20	5	16.9	21,0
	10	16.6	20,8
	25	16.2	20,3
	50	16.0	20,0
	100	15.7	19,5
30	5	14.4	17,8
	10	14.1	17,5
	25	13.8	17,3
	50	13.5	17,0
40	5	12.3	15,3
	10	12.1	15,0
	25	11.8	14,8
	50	11.6	14,5
50	5	10.7	13,3
	10	10.4	13,0
	15	9.5	13,0
60	5	7.7	11,5
70	2	6.2	10,5

The entries in the table apply to water as the flow medium. They have been calculated with a safety coefficient of C=1.25 according to DIN 8074 from the long-term hydrostatic strength diagram.