KOMPLEX®

Smart RFID System

MARKING AND LOCATING

underground networks and devices

www.komplex.sk

About us

Company KOMPLEX was founded in 1994 by Mr. Stefan Sivak in Zilina, Slovakia. KOMPLEX focuses on development and production of Radio Frequency Identification Systems assigned for underground networks. Several of our products are registered on patent office as patents or as industrial design. Our priority is to meet all client's requests in the top quality. Thanks to this goal we are now performing in lot of countries in Europe, Asia and USA.

Try us to trace your network!

ISO 9001:2015

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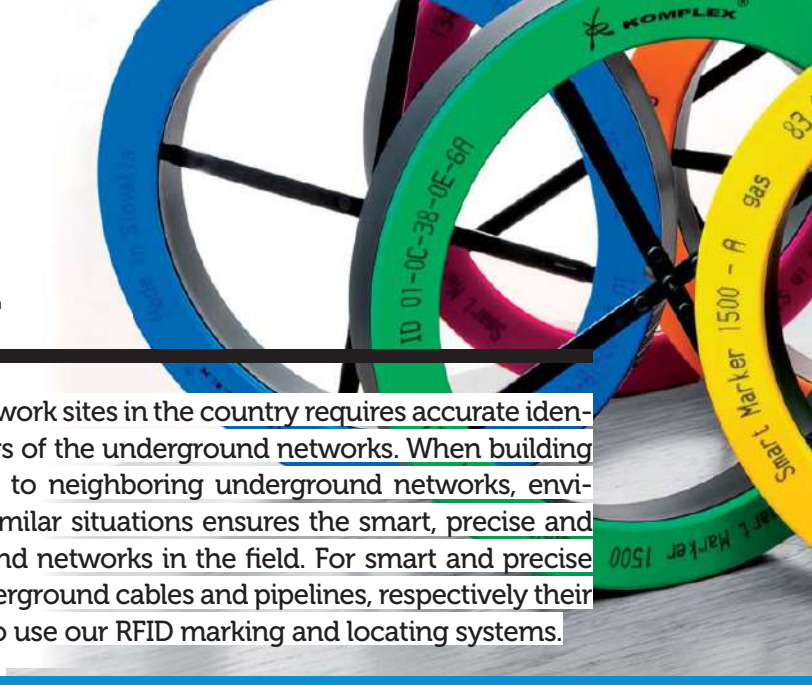
KOMPLEX®

Marking System



The increasing density of engineering network sites in the country requires accurate identification of course of routes and crossings of the underground networks. When building or renovating, there is a risk of damage to neighboring underground networks, environmental damage etc. Preventing the similar situations ensures the smart, precise and unambiguous marking of the underground networks in the field. For smart and precise marking the course of all types of the underground cables and pipelines, respectively their strategic points in the field, is necessary to use our RFID marking and locating systems.

Komplex offers two marking solutions:

- **Smart RFID System**
- **Analog markers**

Smart RFID System

Is an intelligent system for marking and tracing of the underground facilities. It consists of the following parts:

- **Smart markers**
- **SML Locator**
- **Marker Database® Software**
- **Marker Database® mobile application**

Why to choose KOMPLEX® Smart RFID System?

- Lifetime of data inside the Smart Marker is min. 50 years
- Creating of the user text information to each Smart Marker
- Editing of all data about your underground network from your office or home
- Inbuilt GPS module inside each Smart Marker Locator
- Acoustic GPS navigation
- Mapping of your Smart Markers in the Google maps
- Detail managing and archiving of all data about your underground networks in unique Marker Database® PC Software
- Archiving of your data in Cloud database
- Safe sharing of your data with your partners via Marker Database web service

Smart Markers

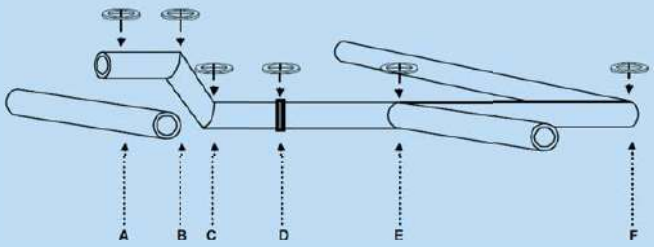
The Smart Marker is an electric passive equipment with the ID number. It is assigned for permanent marking of the selected point under the ground. Smart Marker provides the best and most accurate method how to precisely mark, trace and locate all types of buried facilities such:

- Optical cables
- Power cables
- Water pipelines
- Sewage pipelines
- Gas Pipelines
- CATV
- Non drinkable water pipelines

KOMPLEX produces two types of smart markers

- **Smart Marker SM1500**
- **MiM Smart Marker 120**

There are not two smart markers with the same ID number. This feature gives users a significant advantage because there can be no mistakes when identifying a pipe or cable point.



A	Intersection with other pipelines
B	Changing the depth of the pipe fitting
C	Changing the depth of the pipe fitting
D	Join, place of repair, place of the action in the pipeline
E	Pipe branch connection
F	Change of direction

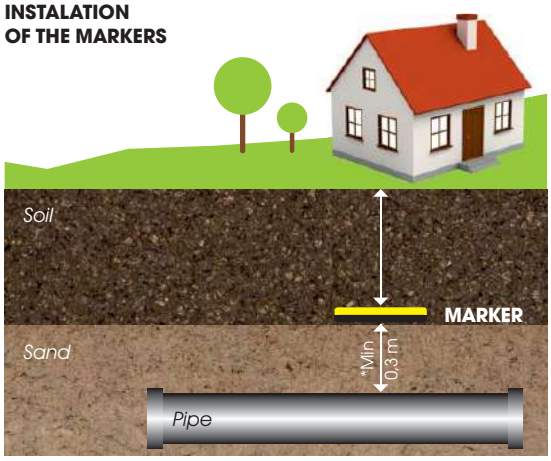
Smart Marker SM1500

It is buried over the key facilities during the construction or maintenance. The pre-programmed unique serial number of each **Smart Marker SM1500** provides precise and clear marking of each important point of the buried facility (joints, connections, change of direction etc.)

Later, the **Smart Marker SM1500** is easily, fast and accurately located by using of the SML Locator. The GPS module inbuilt inside the SML locator highly reduces the time of locating each **Smart Marker SM1500**. SML Locator automatically stores all data about the detected **Smart Marker SM1500** into internal memory. Data about each **Smart Marker SM1500** include the following information:

- GPS coordinates of the Smart marker location
- User text description about Smart marker
- ID number of Smart marker

INSTALATION OF THE MARKERS



*Min. 0.3 m: *For the metal pipes*

MiM Smart Marker 120

Represents a smaller version of the ID marker developed in KOMPLEX company. This marker was especially designed for exact and clear marking and detection of all strategic points of the underground facilities which are located in less depth or narrow trenches. The reading range of the **MiM Marker 120** is adapted to provide the exact detection in the small depths where the exact location of bigger markers is more complicated.

The serial ID number of the **MiM Smart Marker 120** provides the 100% correct identification of each point of the underground facility where the **MiM Smart Marker 120** is installed.

MiM Smart Marker 120 is used mainly for marking of the strategic points of the underground facility such:

- Connections, couplings
- Crossing with another network
- Change of direction
- Change of depth
- Concurrence of several networks
- Valves
- Etc.

All **Smart Markers** are visible in the PC software Marker Database® and also in the mobile phone in the Marker Database® application.

Analog markers

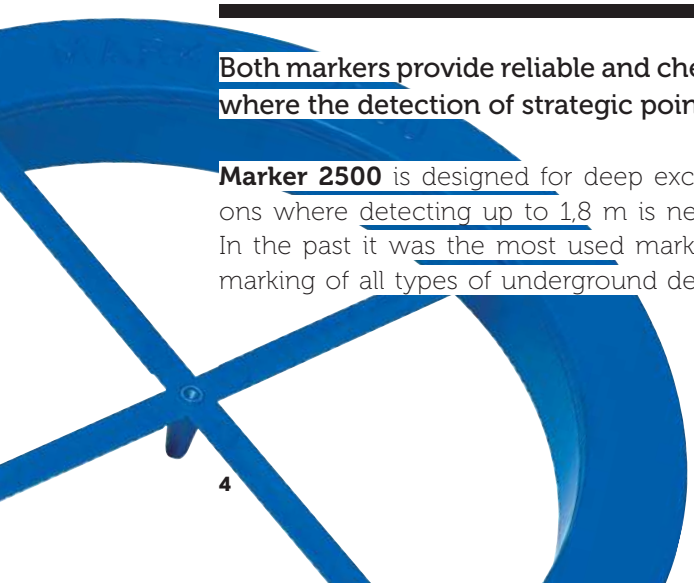
Analog radiofrequency marker is a passive electric equipment for permanent marking of the underground devices. It provides the best way for cheap and reliable marking of less important points of your underground network. It is a good solution for cases where detection of the specific points is not necessary.

KOMPLEX produces four types of analog markers:

- **MARKER 2500**
- **Long MARKER**
- **MiM Marker 120 analog**
- **MAR 100-3D**

MARKER 2500, Long MARKER

Both markers provide reliable and cheap marking of your underground device in places where the detection of strategic points of the underground network is no necessary.



Marker 2500 is designed for deep excavations where detecting up to 1,8 m is needed. In the past it was the most used marker for marking of all types of underground devices.

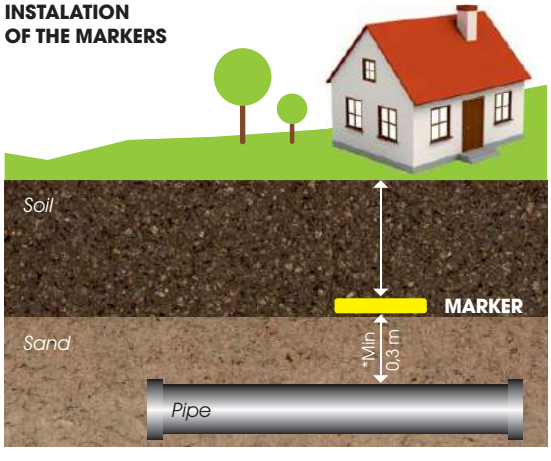
Long Marker is an innovation between flat analog markers. The parameters and principle of usage is similar like in case of **Marker 2500**. The main difference is in the reading range. New construction of the **Long Marker** enabled to increase the reading range of this marker up to 2,5 m.

MiM Marker 120 analog

Is a passive analog marker designed for the permanent marking of the underground facilities.

The external diameter of the markers is only 12 cm which means that the **MiM Marker 120 analog** can be used in the narrowest trenches or in the places with a bad access. **MiM Marker 120 analog** represents the cost friendly and reliable way of marking all types of the underground facilities where the exact and clear detection is needed.

INSTALATION OF THE MARKERS



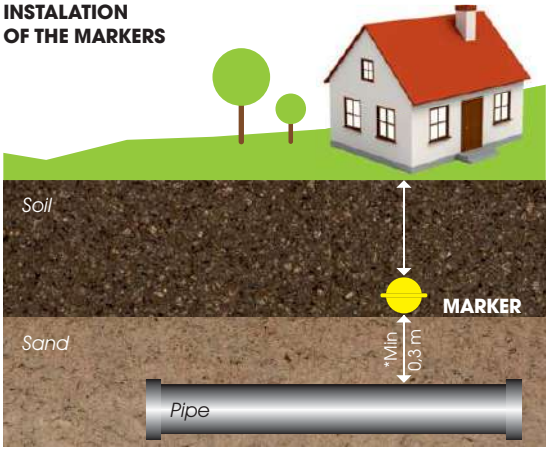
*Min. 0.3 m: *For the metal pipes*

MAR 100-3D

MAR 100-3D is the ball analog marker. It is the ideal solution for narrow excavations.

The biggest advantage of **MAR 100-3D** is the spherical characteristic of the electromagnetic field of this marker. This reduces installation time of the ball marker. Strong PE cover of the **MAR 100-3D** provides perfect protection of the marker even in the extreme conditions. Two holders on the PE cover enable to fix **MAR 100-3D** to your underground device by tape.

INSTALATION OF THE MARKERS



*Min. 0.3 m: *For the metal pipes*

Smart Marker Locator SML

SML is a portable device designed for precise and fast localization and detection of all analog markers and Smart Markers

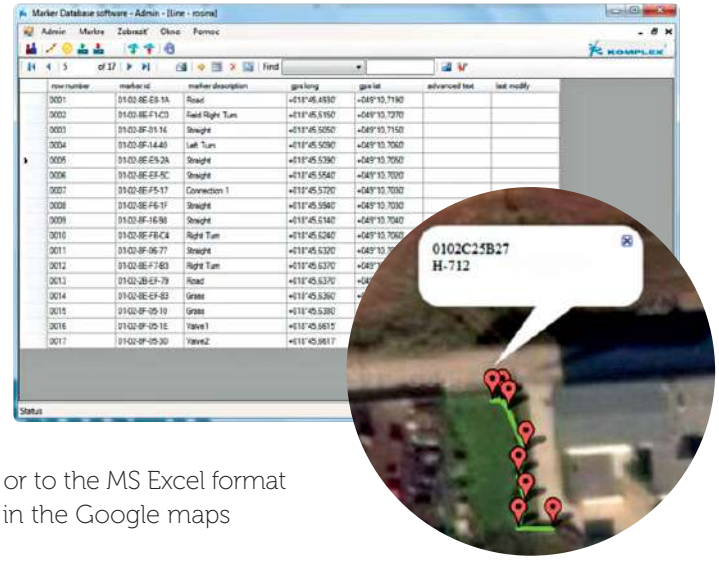
The GPS module inbuilt inside the SML locator highly reduces the time of locating of Markers. SML automatically stores all data about each detected Marker into locator's internal memory. The virtual keyboard enables to type the text user information about each marker. SML provides also measuring of depth of the markers.

Later is easily to connect SML locator with PC via USB cable and share all data about your markers with the unique Marker Database software.

Technical Specification of **Smart Marker Locator SML xxx**	
Operating temperature	–20 °C to +60 °C
Storage temperature	–20 °C to +60 °C
Marker depth measurement accuracy	+/– 10 % up to marker specification
GPS navigation	YES, inbuilt GPS module
Operating frequency	SML G1 – 83,0 kHz SML T1 – 101,4 kHz SML S1 – 121,6 kHz SML E1 – 134,0 kHz, 169,8 kHz SML W1 – 145,7 kHz
Dimensions (height x width x depth)	225 x 240 x 210 mm
Weight of device with antenna	Max. 4 kg
Memory capacity (Rewritable memory)	8 000 marker records
Display type	Backlight LCD screen, 4 x 20 digits
Communication with PC	USB cable
Battery life	45 working hours
Primary battery cells, voltage 1,5 V Dimension according to IEC R 14	10 pcs.

Marker Database® software

Marker Database software is the world-wide unique software for your markers. It is the best way how to manage data about your buried facilities.



It enables you the following advantages:

- Edit data about your markers and underground facilities
- Manage your data about markers and underground facilities
- Share your data with your partners all over the world by using our safe web Cloud Database service
- Export your data to SHP format for GIS systems or to the MS Excel format
- Export and watch your markers and networks in the Google maps

Marker Database® mobile application

Marker Database mobile application is the first mobile application in the world which enables you to allocate your underground devices position only by using of your smart phone.

It provides following functions:

- Share data between your web account and your smart phone
- Edit data about your underground device directly in the field
- Check your networks in the map
- GPS navigation to the target network or marker by your smart phone

Technical parameters

Technical parameters: **Smart Marker SM1500**						
Undergroung network type	Gas pipeline	Telecom. Cable	Sewage pipeline	Power cable EU	Water pipeline	Power cable US
Working frequency (kHz)	83,0	101 ,4	121,6	134,0	145,7	169,8
						
Casing material	High Density PS					
Dimensions	Diameter x Height 225 x 28 mm					
Weight	Max. 300 g (0,66 lb)					
ID serial number	YES – 10 digits hexadecimal unique code					
Reading range	Up to 1,7 m (5,57 ft)					
Working temperature	–20 °C +60 °C					
Life time	50 years					

Technical parameters: **MiM Smart Marker 120**						
Undergroung network type	Gas pipeline	Telecom. Cable	Sewage pipeline	Power cable EU	Water pipeline	Power cable US
Working frequency (kHz)	83,0	101,4	121,6	134,0	145,7	169,8
						
Casing material	High Density PS					
Dimensions	Diameter x Height 119 x 33 mm					
Weight	Max. 122 g (0,27 lb)					
ID serial number	YES – 10 digits hexadecimal unique code					
Reading range	Up to 1,0 m (3,28 ft)					
Working temperature	–20 °C +60 °C					
Life time	50 years					

Technical parameters: **Marker 2500, Long Marker**

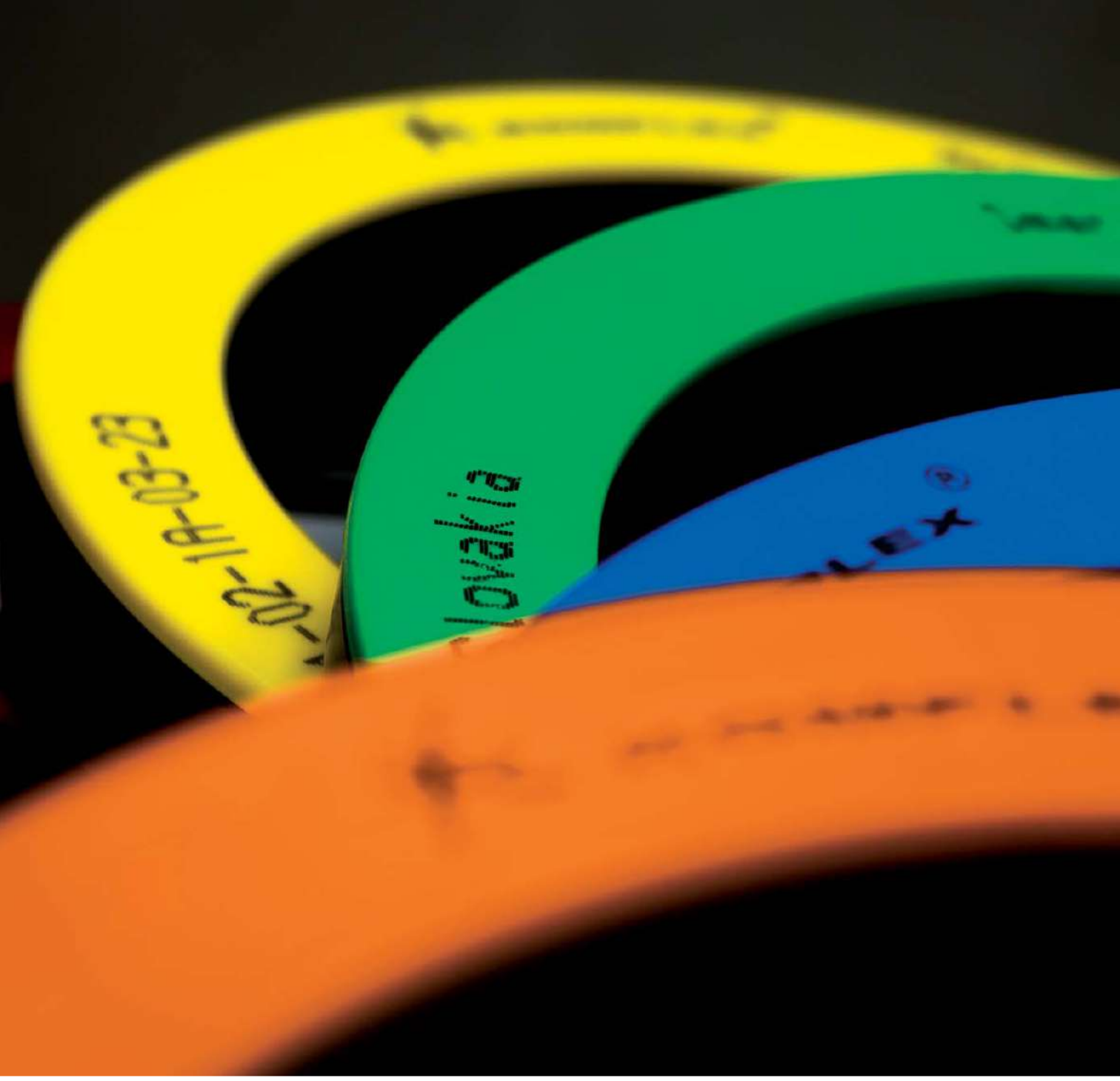
Undergroung network type	Gas pipeline	Telecom. Cable	Sewage pipeline	Power cable EU	Water pipeline	Power cable US
Working frequency (kHz)	83,0	101,4	121,6	134,0	145,7	169,8
						
Casing material	High Density PS					
Dimensions	Diameter x Height 225 x 28 mm					
Weight	Max. 300 g (0,66 lb)					
ID serial number	NO					
Reading range	Up to 1,8 m (5,9 ft), model Long Marker 2,5 m (8,2 ft)					
Working temperature	–20 °C +60 °C					
Life time	50 years					

Technical parameters: **MiM Marker 120 analog**

Undergroung network type	Gas pipeline	Telecom. Cable	Sewage pipeline	Power cable EU	Water pipeline	Power cable US
Working frequency (kHz)	83,0	101,4	121,6	134,0	145,7	169,8
						
Casing material	High Density PS					
Dimensions	Diameter x Height 119 x 33 mm					
Weight	Max. 116 g (0,26 lb)					
ID serial number	NO					
Reading range	Up to 1,4 m (4,59 ft)					
Working temperature	–20 °C +60 °C					
Life time	50 years					

Technical parameters: **Mar 100-3D**

Undergroung network type	Gas pipeline	Telecom. Cable	Sewage pipeline	Power cable EU	Water pipeline	Power cable US
Working frequency (kHz)	83,0	101,4	121,6	134,0	145,7	169,8
						
Casing material	PE					
Dimensions	Diameter 130 mm					
Weight	Max. 210 g (0,46 lb)					
ID serial number	NO					
Reading range	Up to 1,2 m (3,9 ft)					
Working temperature	–20 °C +60 °C					
Life time	50 years					



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