

Not every duct can be located from above, but all ducts can be **accurately mapped** from within



The ABM-40 and DR-2 Gyroscopic Mapping Systems are unique solutions for obtaining accurate location and shape information for data cable ducts with trade sized DN50 to DN90 1.5" to 3".





Take no risk, get it **mapped!**

The **articulated design** of the probe ensures almost any natural bend in the duct can be taken.

The ABM-40 and DR-2 mapping systems are designed to map ducts with trade sizes DN50 to DN90, or 1.5" - 3", regardless of its wall thickness (SDR).

 No electromagnetic interference

 No tracing required

 High frequency data logging

 Open platform output

**ABM-40** MEMS-based technology for mapping segments up to 300m/1000' distance between waypoints.



**DR-2** FOG-based technology for mapping unlimited segment lengths (1500m/5000' waypoints distance is recommended).



Both systems are highly accurate and easy to operate. They share the same robust, waterproof and articulating housing.

Three exchangeable odometer wheel sizes and a range of spacers ensure the best fit, regardless of the pipe material or type of utility.

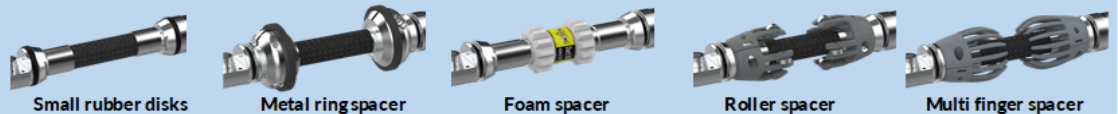


## Exchangeable **spacers** ensure the best performance for any pipe material, condition or segment shape

The ABM-40 and DR-2 systems are designed for mapping ducts with trade sizes DN-50 / 1.5", the DN-63 / 2", and the DN-90 / 3".

Best results are obtained when the probe is optimally aligned with the duct orientation. Depending on the condition of the duct and the shape of the segment to be mapped, various types of spacers are available.

The table below summarizes the available spacers, the operational specifications, and the recommended use.



### Applicable trade sizes

Trade Size	Small rubber disks	Metal ring spacer	Foam spacer	Roller spacer	Multi finger spacer
DN50/1.5"	●	-	●	-	-
DN63/2"	-	●	●	●	●
DN90/3"	-	●	-	●	●

### Operational features

Operational Feature	Small rubber disks	Metal ring spacer	Foam spacer	Roller spacer	Multi finger spacer
Ease of mounting	Very easy	Time consuming	Very easy	Easy	Easy
Proportional pulling resistance (Ref. values on Reduct DN63 test track)	1kg / 2.2lb	1.5kg / 3.3lb	7.5kg / 16.5lb	0.3kg / 0.7lb	0.55kg / 1.2lb
Durability/Wear	Medium	Medium	High	Low	Medium
Passing poor couplings	Mildly tough	Tough	Possible foam damage	Easy	Easy
Risk of parts lost in duct	Low	Low	Low in smooth ducts. High in other cases.	Low	Low
Negotiating ovality	Low	Low	High	Low	Medium
Alignment stability (= accuracy)	Medium	High	Medium/High	Medium/High	High
Single Entry suitability	High	Low	Low	High	High

### Recommended use






Use Case	Small rubber disks	Metal ring spacer	Foam spacer	Roller spacer	Multi finger spacer
New installation (no couplings)	Good	Good	Good	Good	Good
Existing duct with bends	Possible	Possible	Good	Good	Good
Slightly silted ducts	Good	Avoid	Avoid	Avoid	Good

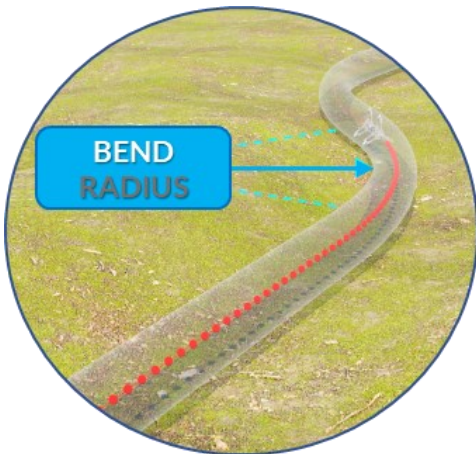
### Purchase details





Purchase Detail	Small rubber disks	Metal ring spacer	Foam spacer	Roller spacer	Multi finger spacer
Included in initial system purchase	1 Set of 6 Included	Not included	10 Standard sets	Not included	1 Set for DN63/2"
Set size when purchased as accessory	Set of 6 disks	Sets of 6 spacers + disks	Per size: Box of 25 sets	Set of 8 (2 spare)	Set of 8 (2 spare)

## Standard **data output** serves a wide range of purposes adding specific value to each type of utility






-  Accurate as-built data
-  High-frequency points
-  User defined sampling distance
-  Objective data for contractor handover
-  Open platform output formats

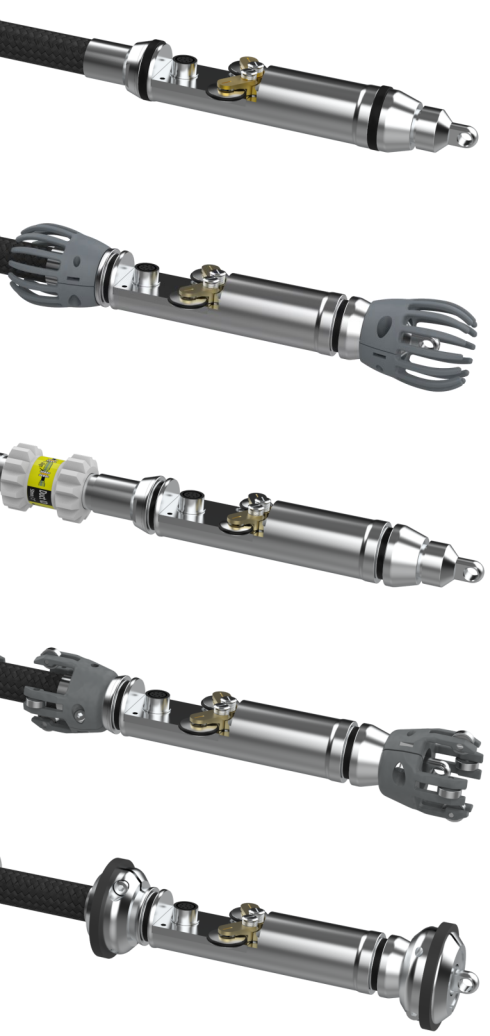


-  Verifying new-built specifications
-  User defined sampling distance and calculation interval
-  Essential for pipe stress calculation
-  Essential for estimating cable pull tension



-  High-frequency grade samples
-  Accurate undulation assessment
-  Check results cable manufacturer's installation specifications

## Technical and Operational Specifications



Probe type	ABM-40	DR-2
Core technology	MEMS	Fiber Optic Gyro
Maximum segment length	300m / 1000'	1,500m / 5,000'
Data logging rate	100 Hz	
Operating temperature	0°C to 50°C / 32°F to 120°F	
Inclination range	+45° to -45°	
Probe length (ex. spacers)	±800mm / 31.5" (articulated)	
Probe outer diameter	36mm / 1.4"	
Probe weight	2.0kg / 4.4 lb.	
Mean travelling speed	1 m/s - 3 ft/s	
Max. pulling force	75 kg / 150 lb.	
Maximum acceleration	5g	
Battery type/Autonomy	Rechargeable Li-ion / 10 hours	

Standard output compatibility (selection)



## Recommended winches for optimal mapping accuracy



**DRW-200**  
Manual winch  
Capacity 200m/660'



**DRW-312M**  
Manual winch  
Capacity 300m/1000'



**DRW-560S**  
Electric winch  
Capacity 1750m/5750'

## Reduct Academy

Get access to our virtual academy and learn how to assemble and operate the various systems, and how to process the logged data before you hit the field.

Advanced courses such as single entry method and bend radius calculation become available once you have completed the basic system courses.



## Reduct Cloud services

The Reduct Cloud Services platform offers advanced tools that facilitate management of your equipment pool and monitoring key quality and performance variables such as spread, length scaling statistics of measurement performance by operator, system, pipe type and customer.

## Central management of mapping equipment

As Administrator of the Reduct Cloud Services you can track the performance of your pool of mapping tools. The clearly structured dashboard enables you to filter data by device, operator, project and much more.

## System performance statistics

Individual mapping device statistics enable you to plan maintenance effectively and ensures the provision of highest quality service, while ensuring the longevity of your equipment.

## Field crew performance statistics

As Administrator you can review all User activities, while individual Users can review their own activities as well. In the Performance Reports section you have full oversight of User historical performance statistics. User statistics help in identifying the need for refresher and advanced training courses, most of which are offered in the Reduct Academy.

## Secure storage of encrypted data

The Reduct Cloud Services platform runs on highly secure third-party servers. Our regional server architecture is hosted by ISO27001 and ISO9001 certified partners to ensure your critical data does not leave your chosen region.

Only encrypted data required for quality assessment purposes is stored in the cloud. XYZ coordinate files are only saved to your local laptop, unless the User consents to upload it to the cloud for easier sharing and reporting.

## Contact

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