

# MIT CIRCULAR PLATES

## Robust and compact reflectors for thickness measurement of road pavement layers

Electromagnetic eddy current methods for determining layer thickness of roadway pavements require that reflectors are installed as an antipole. Aluminium reflector plates and foil are used for measuring the thickness of asphalt layers. For measuring concrete layer thickness only high strength steel plates should be used. During road construction the reflectors are installed beneath the layer that is to be measured. Currently many types of reflectors are available.

### Standard reflectors

Standard rectangular reflectors are usually positioned with their long sides parallel to and 1 m from the edge of the roadway. The distance between the reflectors in one measuring point should be at least 1 m. In practice, however, they are typically installed at greater distances.

### MIT circular reflectors

MIT reflector dimensions are highly compact. The reflectors are available in 3 sizes; with the largest having a diameter of 30 cm. The minimum distance required between the circular reflectors is also 1 m, however, the length of the test section is considerably shortened due to small diameter of the circular plates.

## INFLUENCE OF REFLECTOR PROPERTIES ON THICKNESS MEASUREMENTS

Reflector properties, i.e. the type of material they are made of, their length, width, thickness and degree of uniformity, have an impact on measurement results. Deviations from actual standard lengths can cause varying degrees of error. Deviations in the standard dimensions as well as damage to reflectors such as foils tend to lead to errors in the thickness measurements particularly if the foil is damaged during placement or is rippled during placement.

## ADVANTAGES OF MIT CIRCULAR REFLECTORS

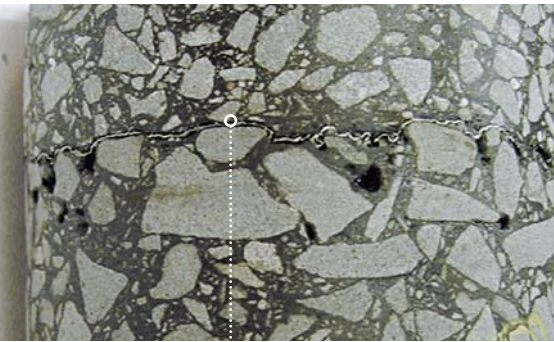
During pavement construction, the reflectors can be subjected to significant stress due to construction traffic and the asphalt placement equipment. This is especially the case on milled surfaces, compact asphalt, porous asphalt and during laying of splitmastix asphalt. MIT circular reflector plates, however, are not damaged even under these circumstances and reliably fulfil their function.

The circular reflectors are easy to install and are placed down in front of the paver so that they are not impacted by the asphalt loading vehicles.

The reflectors are particularly suitable for measurements required to adjust paving machinery since the thickness of the still hot asphalt layer can be determined with high precision directly behind the paver.

Moreover, since the test sections are shorter, they are better suited to pinpoint a road section requiring full-depth layer assessment.

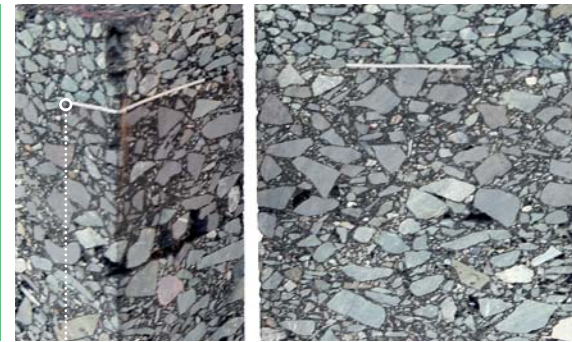
Due to their robustness and compact form, the plates are well-suited for automated installation and simultaneous measurement of asphalt layer thickness during the paving process.



Determined by various measurement methods, the use of foil as a reflector can lead to erroneous thickness measurements compared to asphalt core results.



The MIT thickness measurement method showed that damage to the foil during placement was the reason for the variations in thickness measurements (coefficient 0.36).



The MIT circular plate AL RO 07 is not deformed on a milled surface. By using the MIT-SCAN-T2 search mode, it was possible to exactly pinpoint the coring site.

## MIT CIRCULAR PLATES FOR ASPHALT - TECHNICAL DATA

Name	Readout in display	Max. depth	Description	Application area
AL RO 07	AL O 7	12 cm	Circular plate Diameter: 7.0 cm Material: Al 1.0 mm	Surface course
AL RO 12	AL O 12	18 cm	Circular plate Diameter: 12 cm Material: Al 1.0 mm	Surface course + binder course
AL RO 30	AL O 30	35 cm	Circular plate Diameter: 30 cm Material: Al 0.5 mm	Base

The technical data of MIT circular plates used in concrete pavements correspond to aluminium plate dimensions and maximum depth. The material is high-strength steel with a thickness of 0.65 mm.

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