

# RDC-158

## Name THERMAL EXPANSION

Material type  
**GRANULAR  
PITCH  
ELECTRODES  
LINING**

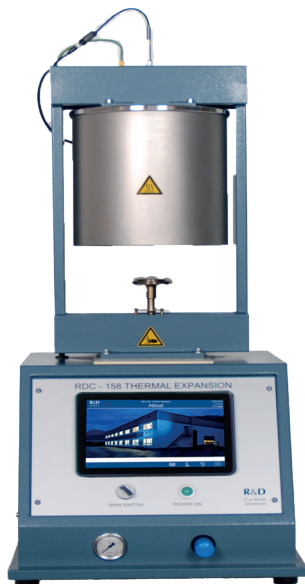
Utilization  
**R&D  
IN-PLANT  
LAB**

General description  
The coefficient of thermal expansion of an electrode is an important parameter to predict its thermal shock resistance. When an electrode at ambient temperature is put in operation at a high temperature, a heat wave will penetrate the block body and create a temperature gradient. A high coefficient of thermal expansion increases the strain in the body and, thus, the thermal stresses to the extent that cracking can occur. The measurement is conducted with the RDC-158 apparatus, where a core sample with a diameter of 50 mm and a height of 50 mm is placed in a furnace, preheated at 300 °C, for a given period of time. The length change at the end of the test is recorded and used for the calculation of the coefficient of thermal expansion in  $10^{-6}/K$ . This equipment is not suitable for the quality control of graphite electrodes, as different temperature ranges and a higher precision level would be required.

Standard Method:	ISO 14420
Property:	Coefficient of Thermal Expansion $[10^{-6}/K]$
Sample:	Core $\varnothing 50 \times 50$ mm
Process time:	3 hours
Installation:	Draft-free workbench
Dimensions (LxWxH):	48 x 56 x 120 cm
Weight:	65 kg
Electrical Property:	230V 1/N/PE, 50 Hz 0.5 kW, 2.2 A
Fluid Property:	Air, 3–7 bar
Certified Reference Standard:	RDC 1158
Database Connection:	Yes

### Additional Recommended Equipment:

Drilling Machine (RDC-157 or RDC-179)  
Saw (RDC-140 or RDC-148)  
Drying oven (min. temperature 180 °C)



## 1158

Certified Reference  
Gauge for Thermal  
Expansion



## 1158-2

Certified Height  
Reference Gauge for  
Thermal Expansion

