

# Dimensional stability

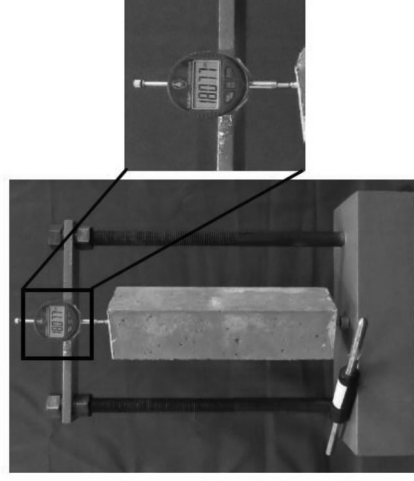
The dimensional stability in concrete is affected in the long term by the time dependant that take place. This can lead to complex stress patterns when the concrete structure is restrained. Thus it becomes important to understand the creep and shrinkage characteristics of the binder matrix.

The laboratory is facilitated to monitor and study shrinkage at different scales of paste, mortar and concrete. The creep on concrete can also be monitored under compression and flexure. In order to control the environmental conditions, a chamber with a controlled temperature and relative humidity is used for the specimen storage.

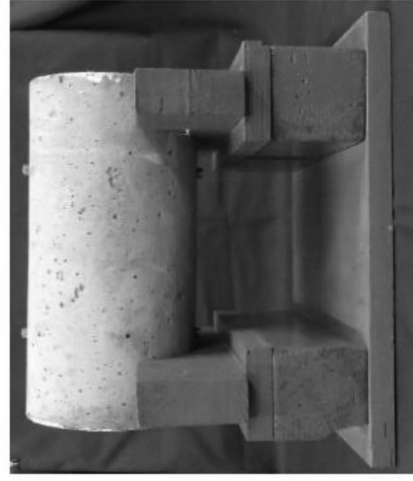
# Shrinkage



Corrugated tube for  
Autogenous shrinkage



Rigid frame with  
digital dial gauge

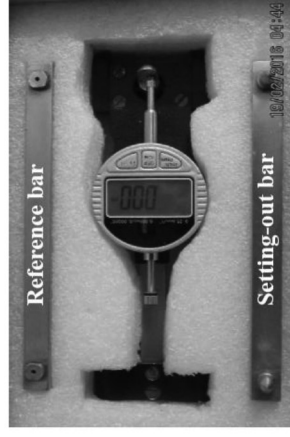


Concrete cylindrical specimen  
with studs in place

The autogenous shrinkage at early ages (from the final set of binder matrix) can be captured using the corrugated tube set up.

The drying and autogenous shrinkage can also be monitored at the paste, mortar or concrete level. Rigid frames set up with different dimensions can be used to monitor these specimens.

Demountable mechanical (DEMEC) strain gauges are used for larger concrete specimens.



DEMEC gauge

# Creep



Compression creep

The monitoring of creep in concrete requires a sophisticated and sensitive test facility. In order to maintain a constant load through the cycle of testing and accommodate for the strain rigid frames supported with helical springs as shown in the figure.

The laboratory also has the facility to test concrete for flexural creep on concrete beam specimen.