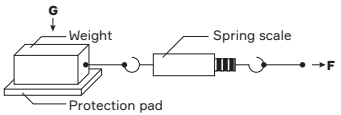
AEROCOMPACT®

INSTRUCTION FOR THE MEASUREMENT OF THE STATIC FRICTION COEFFICIENT

The static equilibrium of a non-penetrating solar racking system is achieved by the weight of the racking, the PV module weight and additional ballast counteracting the wind forces. The respective roof must have a sufficient load-bearing reserve for the additional weight of a solar racking system. The coefficient of static friction between the roof covering and the building protection pad located on the roof underneath the racking affects the size of the required additional ballast. The static friction coefficient can only be reliably determined by measurement.

Determination of the coefficient of static friction:

The coefficient of static friction (formula symbol μ0) is a dimensionless parameter that describes the ratio of the measured static frictional force F at the time of breakaway to the weight force G. To its determination you will need: A test weight with a permanently attached roof protection pad on the underside and a spring scale.



Measurement:

- Prepare the roof surface by bringing it into the condition in which the installation is to be carried out later.
- Pull with the spring scale perpendicular to the direction of the roof slope.
- Read off the weight as soon as the test weight starts moving.
- Measure at several locations using dry and wet roof conditions.
- Place the test weight on the roof surface and wait for 10 seconds.

Note:

Pay attention to the zero position of the unloaded scale during each measurement..

Example:

The test weight weighs 1.0 kg. The spring scale indicates 0.6 kg before the weight breaks away from the rest position.

$F / G = \mu_0$ with F [kg] and G [kg]

0.6 kg / 1.0 kg = 0.6

$\mu_0 = 0{,}6$

TEST RECORD FOR THE STATIC FRICTION COEFFICIENT

Starting base			
Producer of the roofing	Type of the roofing	Age of the roofing	Weight of the test specimen in [kg]
Measured values*	**Tensile force F in kg**	**Measured values***	**Tensile force F in kg**
Measuring point 1 - dry		Measuring point 6 - dry	
Measuring point 1 - wet		Measuring point 6 - wet	
Measuring point 2 - dry		Measuring point 7 - dry	
Measuring point 2 - wet		Measuring point 7 - wet	
Measuring point 3 - dry		Measuring point 8 - dry	
Measuring point 3 - wet		Measuring point 8 - wet	
Measuring point 4 - dry		Measuring point 9 - dry	
Measuring point 4 - wet		Measuring point 9 - wet	
Measuring point 5 - dry		Measuring point 10 - dry	
Measuring point 5 - wet		Measuring point 10 - wet	

*Record the measuring points in your roof layout or roof sketch! For large roof areas, we recommend increasing the number of measuring points. Then use the lowest value of all measuring points and divide it by the weight of the test specimen.

Result for μ_0 = _____

Customer: _____

Date: _____

Name of the tester: _____

AEROCOMPACT® Europe GmbH
Gewerbestrasse 14
6822 Satteins, Austria
T: +43 5524 22 566
E: office@aerocompact.com