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Client: ISOTEC Enerji Ltd. Şti., Istanbul, Turkey

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Wind loads on the „ISOFLAT S13" solar ballasted roof mount system of ISOTEC Enerji Ltd. Şti.

Design wind loads for uplift and sliding according to EN 1991-1-4

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Wind tunnel data was analyzed to determine the design wind loads on the "ISOFLAT S13" solar ballasted roof mount system. The analysis was performed by I.F.I. Institut für Industrieaerodynamik GmbH (Institute for Industrial Aerodynamics), Institute at the Aachen University of Applied Sciences in compliance with DIN EN 1991-1-4/NA:2010-12, EN 1991-1-4:2005, section 1.5 and with the wind tunnel guideline of the German Wind Engineering Association, WTG.

The "ISOFLAT S13" solar ballasted roof mount system consists of solar PV panels which are tilted south at 13deg and is depicted in Figure 1 and Figure 2. Solar modules are in landscape orientation with chord lengths ranging between approximately 950 mm to 1050 mm. The system may be equipped with additional side wind deflectors.

Figure 1: Array assembly of the "ISOFLAT S13" solar ballasted roof mount system with a module tilt angle of 13°

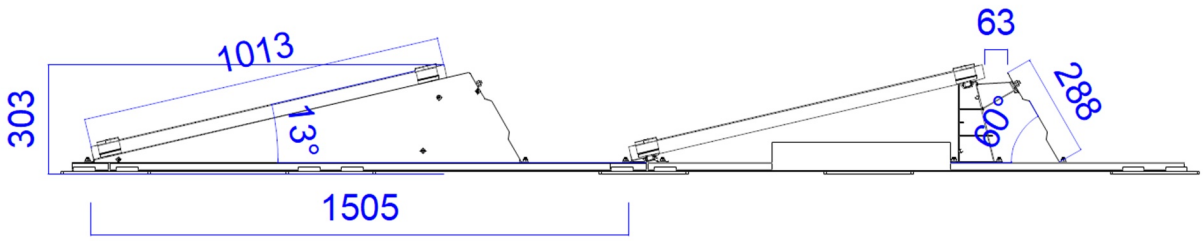

Figure 2: Geometric dimensions of the "ISOFLAT S13" solar ballasted roof mount system with a module tilt angle of 13°

Pressure coefficients were provided for effective wind areas of varying size, several roof and array zones and are valid for roofs having a slope of up to 10° with heights up to 50m. Structural calculations and ballast design may be performed based on these aerodynamic coefficients and on the peak velocity pressure, q_p, based on EN 1991-1-4 and corresponding National Annexes. Design wind loads may also be calculated taking into account national wind loading standards. Detailed design specifications are given in report IEI01-1.