

ELECTRIC VENTILATION OPENING SYSTEM

Technical Data Sheet

PRODUCT DESCRIPTION

The Shams electric ventilation opening system is suitable for any type of room and is especially recommended for installation heights above approximately 4 m. It allows easy operation by push button or remote control.

The system consists of a white lacquered aluminium frame hinged to the upstand and a SKY 450 rack actuator that performs the opening and closing of the dome with a maximum stroke of 230 mm.

It can be installed on any Shams upstand made of PVC, FRP (fiberglass reinforced polyester) or galvanized steel, with square, rectangular or circular bases and in different heights of 150, 180 or 300 mm.

A single rack actuator is installed for domes with dimensions up to 160 × 160 cm in the square format and up to 100 × 200 cm in the rectangular format.

For larger sizes, from 170 × 170 cm in the square format and from 150 × 200 cm in the rectangular format, a rack actuator is supplied together with a connection bar and actuator rod in order to guarantee uniform and safe opening.

The system is compatible with all Shams domes: PMMA, HeatStop and compact polycarbonate.

TECHNICAL CHARACTERISTICS – ALUMINIUM FRAME

The aluminium profiles used for the frame are manufactured from an alloy designed to provide a minimum tensile strength of 215 MPa. Their main fields of application are the building and transport industries, where they offer good mechanical strength and load distribution.

Typical applications include windows, roof domes, partitions and containers, among others.

SPECIAL PROPERTIES OF THE ALUMINIUM ALLOY

- Formability: good.
- Machinability: moderate; improved in T6 temper.
- Weldability: suitable for all common welding methods.
- Corrosion resistance: good.
- Surface treatment: suitable for all types of surface treatments.
- Anodising: good.

TYPICAL PHYSICAL PROPERTIES OF THE ALUMINIUM ALLOY

Property	Value
Density	2.70–2.71 kg/dm³
Modulus of elasticity	69 kN/mm²
Shear modulus	26 kN/mm²
Coefficient of linear expansion (20–100 °C)	23 µm/(m·°C)
Thermal conductivity (20 °C)	200 W/(m·K)
Specific heat capacity (0–100 °C)	880–900 J/(kg·K)
Electrical resistivity (20 °C)	33 nΩ·m
Electrical conductivity (20 °C)	52 % IACS
Solidus temperature	625–635 °C
Solvus temperature	475–490 °C

TECHNICAL CHARACTERISTICS – ELECTRIC RACK ACTUATOR

The rack actuator performs the opening and closing movement of the dome through a round-section steel rack. The movement is generated by the electric power supplied to a geared motor controlled by an electronic board.

The opening stroke of the dome cannot be programmed, as it depends on the length of the rod fitted to the geared motor. The electronic control device allows the rack to extend until it encounters an obstacle that blocks its travel, such as the internal stop of the actuator or the fully open or fully closed position of the dome.

Both in extension and retraction, the end-of-stroke function uses an electronic self-learning system based on power absorption, so no mechanical adjustment is required.

TECHNICAL DATA – SKY 450 ACTUATOR

Parameter	Value
Thrust and pulling force	450 N
Stroke	230 mm
Supply voltage	100–240 V~ 50/60 Hz
Current absorption at nominal load	0.28–0.19 A
No-load travel speed	6.7 mm/s
Stroke duration at no load	Depending on stroke
Double electrical insulation	Yes
Service type	S2 – 4 min
Operating temperature range	-5 to +65 °C
Degree of protection (electrical parts)	IP44

Parameter	Value
Frame and sash coupling adjustment	Self-determination of position
Parallel connection of two or more motors	Yes (max 20)
Tandem or battery connection	Yes
Nominal holding force	2200 N (depending on supports used)

TECHNICAL CHARACTERISTICS – CONNECTION BAR AND ACTUATOR ROD

The system is completed with a 1 m long connection bar made of high-strength material (polyamide reinforced with fibreglass) and an actuator rod. Together with the rack actuator they transmit the movement mechanically, so that the aluminium frame is displaced at the same speed and in a homogeneous way along its length.

Thanks to the sliding clamp system, the actuator can be fixed at any point along the actuator rod, including at its end, while the support can oscillate to adapt to the rotation of the dome, acting as a second thrust point.

The values shown are based on the technical data provided by the raw material suppliers and correspond to tests carried out under standard conditions. Shams reserves the right to introduce modifications derived from product development and improvement.