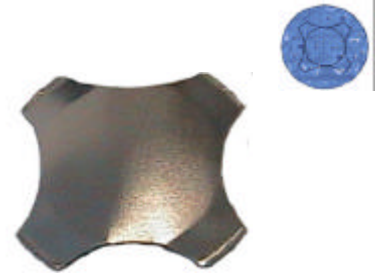




NICOMATIC SA is
certified ISO 9001 : 2000

SWITCH'AIR™ NON-STICK DOMES



Demand for metal domes is increasing as an integral part for the miniaturization and low profiling of key switches in devices such as mobile phones. Indeed, a metal dome, made of stainless steel known for its low carbon content and high oxidation resistance, is a part used in important switches, which can give an accurate “tactile” signal to electronic devices when it is pressed.

NICOMATIC has been specialized in the metal dome switching technology for many years and offers his know-how and solution to two main markets : **to mobile phone manufacturers and to membrane switch manufacturers** who sell in turn to various sectors such as automotive, defence, industrial applications, electric appliance, cameras, in operating switches in portable electronic devices, such as DVDs and MP3 players.

For handset designs domes are delivered on custom made arrays. A dome array is made of 0.05mm polyester carrier plus a 0.03mm sheet of acrylic adhesive. Metal domes are placed onto pre-cut polyester adhesive. When a dome is pressed, the center of it contacts to the PCB and lets the electric current flow through. This is how metal dome arrays work. At the early design stage, NICOMATIC provides value-added service to companies that offer fully integrated solutions for handset designs, design houses focused on mobile handheld devices or the manufacturers themselves. Designed specifically for mounting on printed circuit, each dome backed with a polyester adhesive is peeled off the liner and placed onto the circuit board.

NICOMATIC domes are also incorporated into **membrane switches and control panels** to provide the user with positive feedback that switch closure has occurred. Unlike many other manufacturers, NICOMATIC domes are plated with either nickel to avoid all risk of contamination or 1 side gold, and are designed to be an integral part of the contact system.

The NICOMATIC production technique enables stable and homogeneous forces of domes per batch number, excellent tactile feel even after rigorous overload tests, control of dimensional tolerances, no burrs, thus reducing wear on the substrate, successful and reliable automatic placement with equipment, which enables high production capacity (5 million domes per day minimum, on-site manufacturing and R&D). The quality is approved not only in France and Europe but also overseas, especially in Asia and in the United States.

Full product range with various choices in shapes from circle and four-legged, diameter from 4 mm to 12.2 mm, and trip force from 110g to 420g in standard is available. NICOMATIC is also able to design products that meet the changing needs of the market. 4-legged domes are known for their SWITCH'AIR™ notch feature which has eradicated all risk of dome sticking thus ensuring efficient automatic placement and packaging in tubes for quick and easy positioning. The SWITCH'AIR™ notch helps to create a cushion of air between the domes so that they no longer stick together.

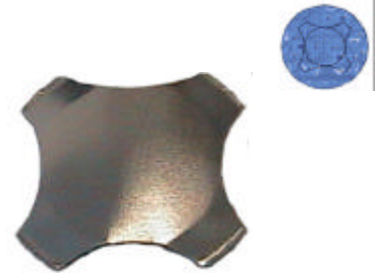
All dome types come with a range of activation pressures to suit most common applications, this coupled with a **minimum order quantity of only 800 pieces** on tubed domes enables NICOMATIC to offer his customers much wider solutions and a traceability of the order by batch number and desired force within the same tolerances.

On actuation, the NICOMATIC dome is deflected over the contact point between switch circuit layers (typical membrane switch type design), or between concentric pad layouts (PCB design and many flexible circuit designs). Actuation then completes the electrical circuit, and provides a high tactile response.



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SWITCH'AIR™ NON-STICK DOMES



Mechanical Properties / Key Specifications / Special Features

Country of origin : France

Material:

- Stainless steel with nickel plating (STANDARD)
- Stainless steel (bare domes)
- Stainless steel with one-sided gold plating
- Stainless steel with one-sided silver plating
- Material plating option : Ag plating (one side) 0.5µm minimum or Au plating (one side) 0.1µm minimum

Dimensions and shapes :

- Diameter: 4 mm - 12.2 mm
- Types : Circle (4 mm, 5mm with and without dimple) and square with SWITCH'AIR™ notch (6mm, 8.4mm and 12.2mm 4-legged metal domes with and without dimple)
- Trip force range: 110-420g
- Click ratio range:30-70% (circle) / 40-70% (square)
- Travel:0.15-0.70 mm
- Height:0.20-0.80 mm
- Dimensional stability: +/-0.02mm

Life expectancy:

- Minimum 1,000,000 cycles and up to 5,000,000

Temperatures :

- Operating condition: -40° to +105° degrees celsius
- Storage condition: -55° to +125° degrees celsius
- Humidity: 0-97% (no condensation)

Electrical :

- Contact Bounce (on): <0.1ms
- Contact Resistance: <100 mohms
- Switching / working voltage : 0.1 to 100 V Dc
- Switching current : 0.005 to 100 ma Dc
- Switching capacity : 1 Watt

Packaging :

- In bulk (loose domes in plastic bags of 25,000 or 50,000 pieces) – concerns all domes
- In tube (packed by 800 domes in plastic tubes that offer the best possible traceability per batch number and tolerances ratio – concerns 4-legged domes
- On custom made arrays (as per your application) – concerns all domes
- On Tape & Reel (packed on reel per 4 000 or 5 000 domes) – concerns 8.4mm and 12.2mm domes