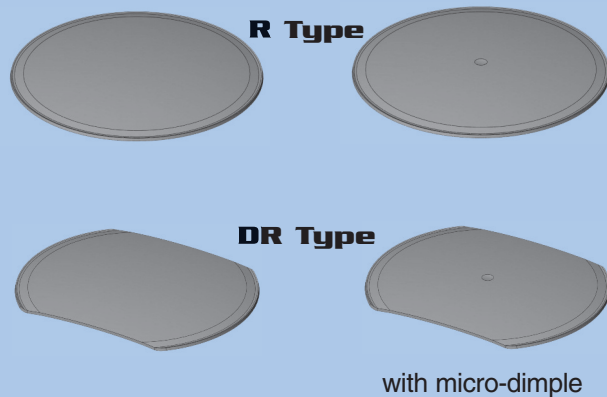


# SWITCH'AIR™ Round & Double Radius domes

NICOMATIC metal domes are used in any type of Man/Machine interface (MMI). The most common application for small diameter 4mm and 5mm Round & Double-Radius domes lies in mobile phone handsets, due to space and thickness savings. Every kind of push-button could integrate a NICOMATIC METAL DOME and/or DOME ARRAYS.

## 2 TYPES



DR benefit : space savings  
(see pattern overleaf)

## ADVANTAGES

The NICOMATIC SWITCH'AIR™ Round & DR domes offer :

- Excellent tactile effect even after rigorous tests (click ratio > 50%)
- Very long life expectancy : over 5 million cycles
- Stable forces and homogeneity of forces per batch number
- Control of dimensional and mechanical characteristics
- No burrs, thus eliminating the scratching effect
- Full-cut technology for longer life expectancy
- Successful and reliable automatic placement with NICOMATIC machines
- The standard model is pre-nickel plated to avoid all risk of contamination
- 100% traceability per batch number

## PRODUCTION CAPACITY

NICOMATIC is one of the worldwide largest manufacturers of metal domes:

- Over 100 standard references available
- On-site production and R&D
- Proprietary manufacturing process for EL & DOME ARRAYS

## QUALIFICATION TESTS

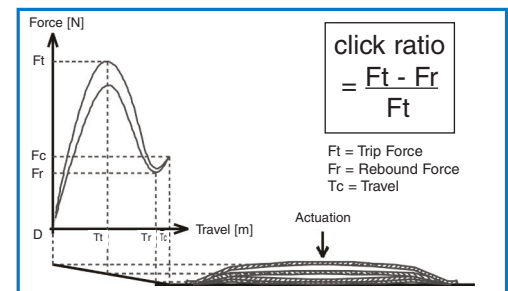
- Life expectancy
- Overload test (static load)
- Overstroke
- Sweet spot (position of the actuator shifted from the dome centre)
- O.S.O. test (at a time : overload, sweet spot, overstroke)
- Electrical measurement

## PACKAGING

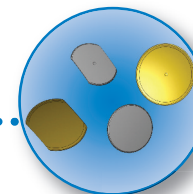
NICOMATIC SWITCH'AIR™ ROUND & DR domes are either supplied :

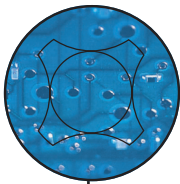
- In bulk quantities
- In Pre-Assembled Spacer (PAS) custom-made arrays
- In Electroluminescent (EL) dome arrays

## Mechanical characteristics



Typical force versus travel curve for a metal dome





# SWITCH'AIR™ Round & Double Radius domes

## SERIES R - DR DOMES

### MATERIAL

- Stainless steel
- RoHS directive compliant
- REACH regulations compliant

### PLATING

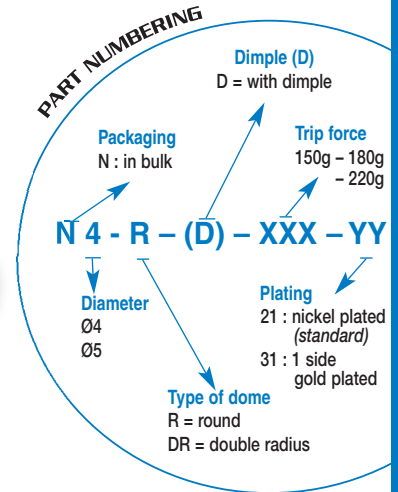
- Nickel plated standard model (-21)
- Optional one side gold plated (-31)

### ENVIRONMENTAL

- Storage temperature from -55°C to + 125°C
- Operating temperature from -40°C to + 105°C

### ELECTRICAL

- Switching voltage 0.1 to 100 V Dc
- Switching current 5μ A to 100 mA Dc
- Contact resistance < 100 mΩ
- Switching capacity 1 W



DOME SPECIFICATIONS

### 4 MM ROUND DOMES

- With and without dimple

DOME REFERENCE XXX	150	180	220
Trip force (g)	150 +30 / -10	180 +/- 25	220 +/- 25
Rebound force (g)	80 +/- 30	90 +/- 30	100 +/- 30
Height (mm)	0.20 +/- 0.03	0.20 +/- 0.03	0.23 +/- 0.03
Total travel (mm) without dimple	0.14 +/- 0.03	0.14 +/- 0.10	0.17 +/- 0.03
Total travel (mm) with dimple	0.135 +/- 0.03	0.135 +/- 0.03	0.165 +/- 0.03
Foot print (mm)	Ø 3,9 +/- 0.05	Ø 3,9 +/- 0.05	Ø 3,9 +/- 0.05
Diameter (mm)	4 +/- 0.05	4 +/- 0.05	4 +/- 0.05
Pattern	A (mm)	4.5	4.5
	B (mm)	3	3
	C (mm)	1.7	1.7
Click ratio (%)	30 - 70	40 - 70	40 - 70

### 5 MM ROUND DOMES

- With 1 or 3 dimples or without

DOME REFERENCE XXX	150	180	220
Trip force (g)	150 +30 / -10	180 +/- 25	220 +/- 25
Rebound force (g)	80 +/- 30	90 +/- 30	100 +/- 30
Height (mm)	0.23 +/- 0.03	0.25 +/- 0.03	0.25 +/- 0.03
Total travel (mm) without dimple	0.17 +/- 0.03	0.19 +/- 0.03	0.19 +/- 0.03
Total travel (mm) with dimple	0.16 +/- 0.03	0.18 +/- 0.03	0.18 +/- 0.03
Foot print (mm)	Ø 4,9 +/- 0.05	Ø 4,9 +/- 0.05	Ø 4,9 +/- 0.05
Diameter (mm)	5 +/- 0.05	5 +/- 0.05	5 +/- 0.05
Pattern	A (mm)	5.5	5.5
	B (mm)	4	4
	C (mm)	2.5	2.5
Click ratio (%)	30 - 70	40 - 70	40 - 70

### 4 MM DOUBLE RADIUS DOMES

- With 1 or 5 dimples or without

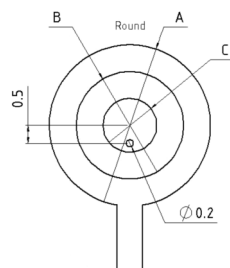
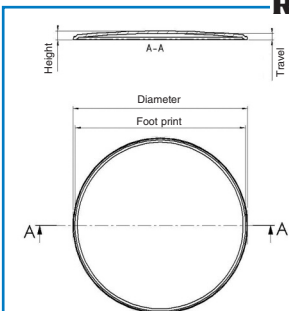
DOME REFERENCE XXX	150	180	220
Trip force (g)	150 +30 / -10	180 +/- 25	220 +/- 25
Rebound force (g)	80 +/- 30	80 +/- 30	100 +/- 30
Height (mm)	0.23 +/- 0.03	0.23 +/- 0.03	0.23 +/- 0.03
Total travel (mm) without dimple	0.17 +/- 0.03	0.17 +/- 0.03	0.17 +/- 0.03
Total travel (mm) with dimple	0.165 +/- 0.03	0.165 +/- 0.03	0.165 +/- 0.03
Foot print (mm)	Ø 3,9 +/- 0.05	Ø 3,9 +/- 0.05	Ø 3,9 +/- 0.05
Diameter (mm)	4 +/- 0.05	4 +/- 0.05	4 +/- 0.05
Pattern	A (mm)	4.5	4.5
	B (mm)	3	3
	C (mm)	1.7	1.7
	D (mm)	3.5	3.5
	E (mm)	2.5	2.5
H (mm)	3 +/- 0.05	3 +/- 0.05	3 +/- 0.05
Click ratio (%)	30 - 70	40 - 70	40 - 70

### 5 MM DOUBLE RADIUS DOMES

- With 1 or 5 dimples or without

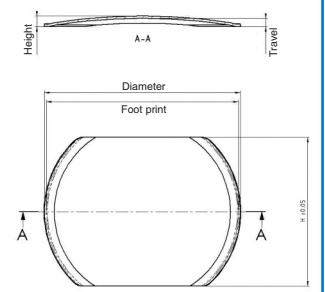
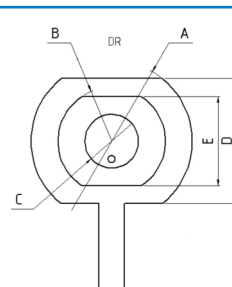
DOME REFERENCE XXX	150	180	220
Trip force (g)	150 +30 / -10	180 +/- 25	220 +/- 25
Rebound force (g)	80 +/- 30	90 +/- 30	100 +/- 30
Height (mm)	0.23 +/- 0.03	0.25 +/- 0.03	0.25 +/- 0.03
Total travel (mm) without dimple	0.17 +/- 0.03	0.19 +/- 0.03	0.19 +/- 0.03
Total travel (mm) with dimple	0.16 +/- 0.03	0.18 +/- 0.03	0.18 +/- 0.03
Foot print (mm)	Ø 4,9 +/- 0.05	Ø 4,9 +/- 0.05	Ø 4,9 +/- 0.05
Diameter (mm)	5 +/- 0.05	5 +/- 0.05	5 +/- 0.05
Pattern	A (mm)	5.5	5.5
	B (mm)	4	4
	C (mm)	2.5	2.5
	D (mm)	4.5	4.5
	E (mm)	3.5	3.5
H (mm)	3.8 +/- 0.05	3.8 +/- 0.05	3.8 +/- 0.05
Click ratio (%)	30 - 70	40 - 70	40 - 70

### Round Dome



Plating: Ni (standard) or Au or Sn or Ag

### DR Dome



Plating: Ni (standard) or Au or Sn or Ag