

COMEPA for ... Thermal Control ...

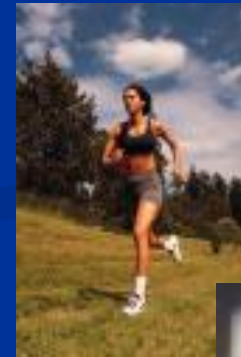
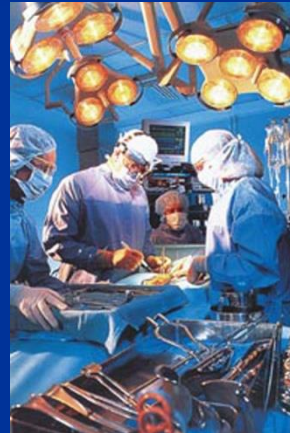
THERMOSTATS

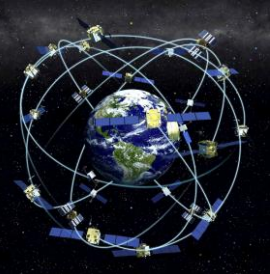
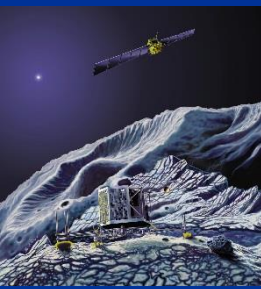
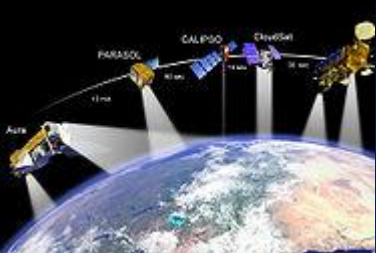


THERMOSTATS DIVISION



MEDICAL DIVISION





30 years in Flight



Space Agencies



Satellites Manufacturers



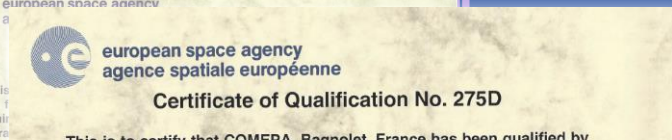
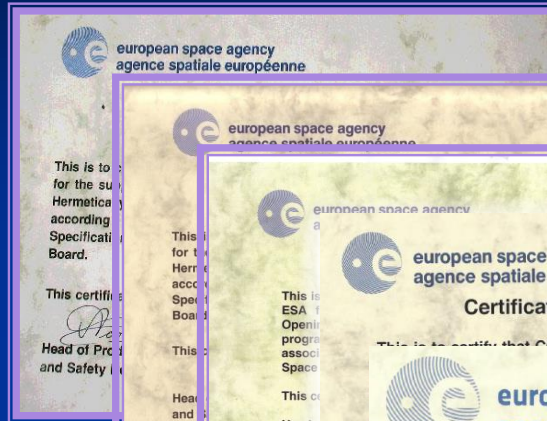
Others...

- ALTER Group
- NEC, JAXA...
- KAI & KARI
- IAI
- ABSL Space Power
- SSTL
- SAFT
- RUAG
- KAYSER THREDE
- FOKKER
- CYPHEN, CAST
- SAAB
- (...)





First Qualification: 1987...



3 good reasons of a new Development

1st: Save up light and cost for current satellites (Alphabus) and next generation ... saving up mass of thermostat itself (-30%) and the diameter of cables themselves to pass from 30-50VDC to 100-130VDC:

Today 120W

New 200W... +66%

2nd New request in term of a SMALLER TOLERANCES at BEGINNING and END LIFE

Today: Beginning $\pm 3^{\circ}\text{C}$

Beginning $\pm 2^{\circ}\text{C}$

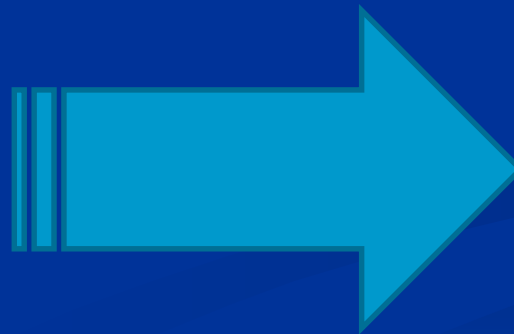
Today: End life $\pm 1,7^{\circ}\text{C}$

End life: $\pm 1,2^{\circ}\text{C}$

3rd New application at 10 Cycles under low Voltage, but High Power

Today: **Overload** 6A/30VDC

10A/ 30VDC

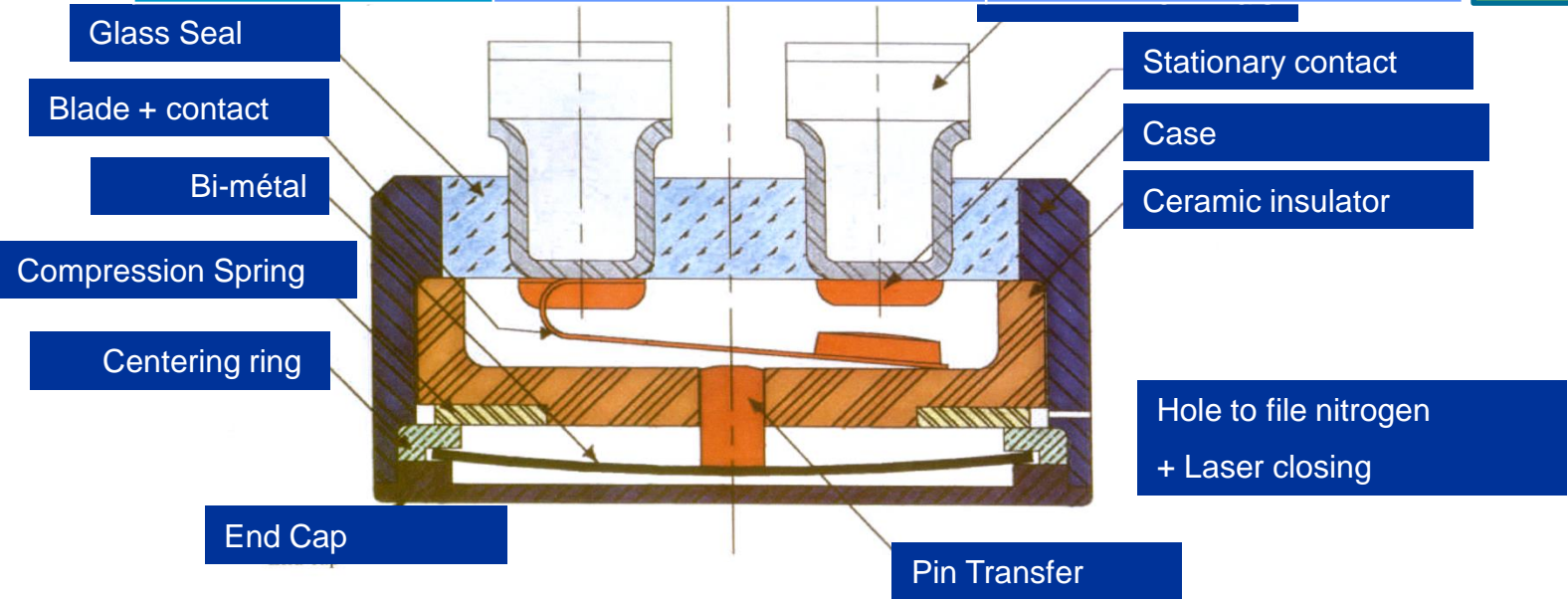




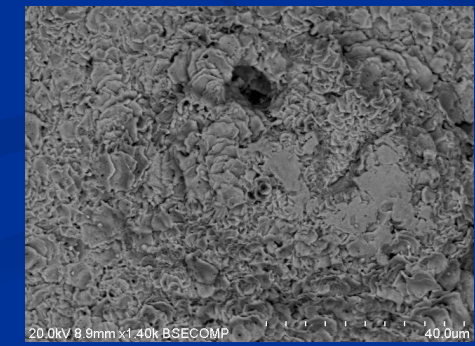
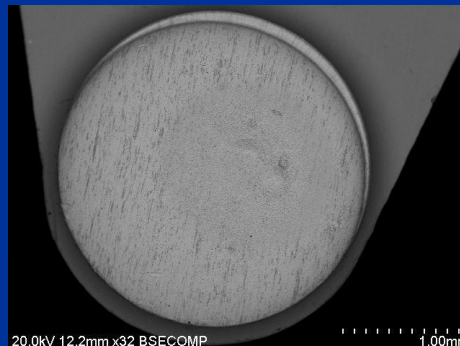
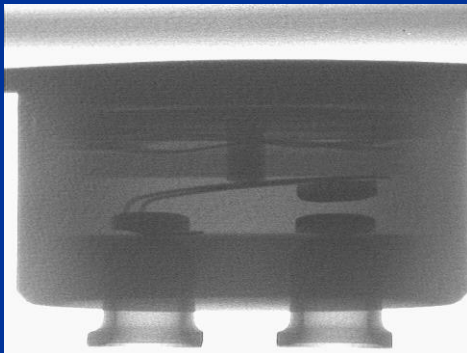
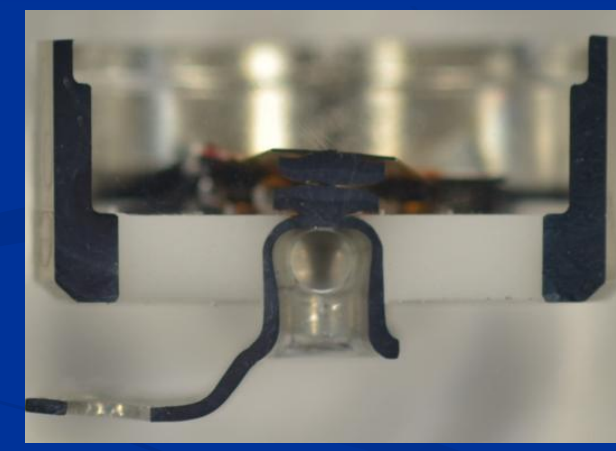
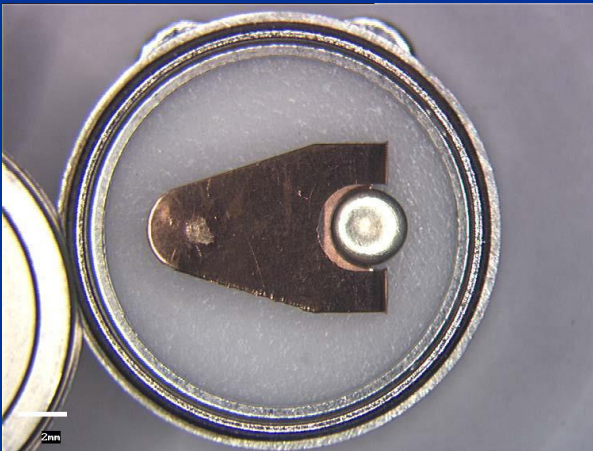
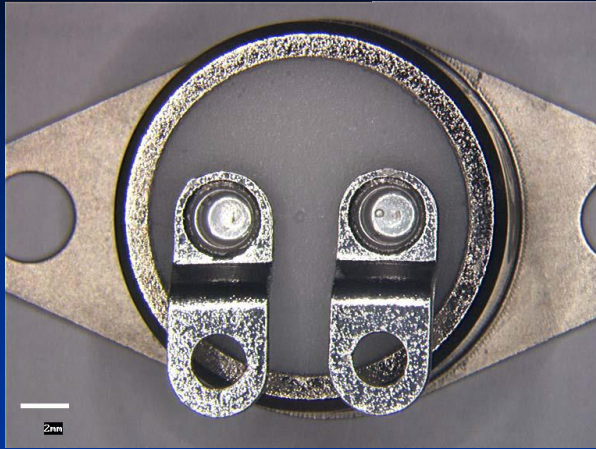
THERMOSTATS DIVISION

| Description | TH47-ESCC | Complementary tests |
|---------------------|---|--|
| Power (100 Kcycles) | 4A/30 VDC (100 000 cycles): 120W | 1,5A/100 VDC, or 5A/ 30VDC or 3A/50VDC ... 150W |
| Overload | 6A/30 VDC (50 cycles): 180W | 8A/30 VDC (240W/ 50 cycles) |
| Mass | 7 gramme | 7 gramme |
| Sinus Vibration | 50g (from 10 to 2 000 Hz) 30g (from 2 000 to 3 000 Hz) | 100g (from 100 to 1 000 Hz) 75g (from 50 to 3 000 Hz) |
| Shocks | 500g 1ms | 1 500g , 1ms |
| Radiation | X | 400 Krad OK |

Good way for the new thermostat **HIGH POWER**



Regular Inspections & Analysis



- Same external Design
- Body material is different, Inox
- Smaller glass, better standardization
- New design of terminals with better conductivity
- New Blade Design

- Better selection of Bimetallic disc
- A bigger between contacts at the end



2016, OptImization

2017... We hope in the way of Evaluation...

THANK YOU



Herve.guilloche@comepa.com

+33 (1)48 13 79 88

+33 (0)6 74 03 54 25