



#### **Operational requirement**

To save the lives of those who 'fly and fight' and to preserve high value fighter aircraft in a dense missile threat environment, chaff and flare dispensing is essential.

When the priority is 'weapons on the target', the pilot has to rely on an automated dispensing of decoys adapted to the detected threat.

#### **The solution**

The SPIRALE decoying system is totally integrated to the Mirage 2000 ICMS\*, with decoy types and sequences related to the threats. Completely internal, it leaves the hard points free and preserves the fighter aircraft's manoeuvrability and mission range.

An extra capacity of decoys can be obtained with the internal addition of the ECLAIR-M dispenser. A missile detection function can be added by using the DDM missile detector.

\* Integrated Countermeasure System (in cooperation with Thales)

- **Completely integrated on to the Mirage 2000 EW suite**
- **Large range of decoy types and calibres: chaff, flares, others**
- **Fully programmable by the user**
- **In full operational service**

## **SPIRALE**

### MIRAGE 2000 DECOYING AND MISSILE WARNING SYSTEM



## AIR

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### Ammunition

The SPIRALE ammunition payload consists of up to 36 cartridges fitted into the CDMs and 112 chaff packs in the ICDs.

The addition of ECLAIR-M multiplies the flare payload by four.

Chaff cartridges can also be used, as well as other decoys.

Advanced flares\*

- small-calibre flares to double the CDM capacity
- spectral flares

\* in co-operation with LACROIX

### Operating modes

SPIRALE operates in several modes : automatic, semi-automatic, manual, survival and navigation.

Different decoy programmes can be selected in each mode.

Sequence parameters can be defined by the user at the operational level with the mission preparation tool.

### Functional integration

SPIRALE is totally integrated into the Mirage 2000's ICMS via the Digibus data link. If required, it can be operated as a stand alone system.

### Description and installation

SPIRALE is a decoying system integrated into the structure of the Mirage 2000. It consists of:

- A Digital System Unit (DSU) which is the main computer of the SPIRALE system. It performs the Digibus interface, the threat processing, the automatic payload management and the decoy sequencing
- An Analogue System Unit (ASU) which provides power supply and the two ICDs current amplification
- Two Cartridge Dispenser Modules (CDM) which house the ammunition, perform the loading identification and manage the firing impulses
- Two Internal Chaff Dispensers (ICD) which consist of two twin-tubes integrated into each wing root. The tubes are loaded with chaff-packs which are ejected by a piston motor through diffusers

### Name

- SPIRALE



### Extensions

An extension of the decoy capacity can be obtained by adding the ECLAIR-M dispenser, containing six more cartridge dispenser modules.

The DDM sensors can be added to the aft part of Magic or Mica missile launchers, providing a missile detection function.

