



High Precision Ball Bearings
& Electromechanical Systems
For Specific Environments

DEFENCE & SECURITY



technology in **motion**

DEFENCE & SECURITY

Today, most of ADR's activity is devoted to the Defence & Security sector.

With our long experience in this market, we design and manufacture custom-made technical solutions in order to meet the requirements of **stability**, **repeatability**, **cleanliness** and **sustainability**, making ADR the world specialist in optronic systems.

Electro-optical systems

AIR | LAND | NAVAL

ADR's **thin section** and **integrated bearings** are present in all electro-optical systems when reliability, accuracy and repeatability are required.

Our specific solutions are adapted to each environment and used to **observe**, **communicate**, **attack** or **self-protect**.

Today, thanks to its high-technological products, ADR is proud to be on the latest generations of defence systems.

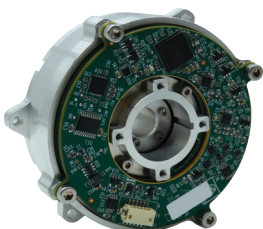


Missile seekers

Thanks to long experience and unique knowledge, ADR is a major player in this very high technology field.

ADR high precision ball bearings are able to respond to all the technical requirements of those products, with adapted materials and designs.

ADR is currently present on many projects of infrared missile guidance seekers which proves the reliability and the quality of the proposed solutions.



ADR TECHNICAL OVERVIEW

Materials & lubrications

Conventional and **specific** materials are used depending on your application or environment and **adapted to your specifications**.

RINGS	Stainless steel X105CrMo17, High Nitrogen Stainless Steel, X40CrMoVN16.2, High-speed steel Titanium, Surface hardened steel, etc.
BALLS	Stainless steel, Ceramic Si_3N_4 , Zirconium Oxide ZrO_2 , etc.
SEALS	Reinforced PTFE with bespoke design requirements, Polymer, etc.
CAGES	Phenolic resin, PTFE, Peek, Self-lubricating cages, Steel and alloys, etc.

LUBRICATION | Fluid : Oil or Grease with high stability.
Solid : WS2, Silver, DLC, etc.

LUBRICATION WITH LOW DEGASSING WITH EXACT QUANTITY CONTROL.

ANTI-FRICTION AND ANTI-CORROSION COATING.

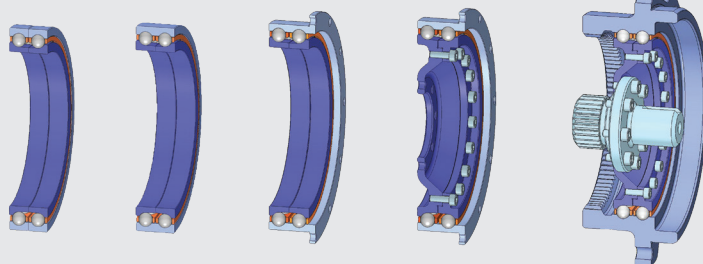
CRYOGENIC AND EXTREME TEMPERATURES COMPATIBLE MATERIALS.

ADR offers specific **lubrication** and **sealing solutions** to evolve in severe environments like optonics.

A perfect mastery of the preload

One of the key competence of ADR is its ability to undertake fully-measured and fully-controlled **preloads**.

This operation will make it possible to increase the **precision of rotation** as well as the **overall stiffness** of the bearing while keeping a perfect control of the friction torque.



Controlled environments

Each ADR product is assembled in clean rooms **categorised Class 100/ISO 5 to Class 100 000/ISO 8**. This allows to obtain a very low and stable friction torque.

As quality is the priority of ADR, we also are **ISO 9001** and **EN 9100** certified.



Integrated design

ADR has the ability, to offer custom-made solutions with an **integrated design**.

These integrated bearings bring many benefits such as the improvement in **stiffness** depending on the chosen design, the excellent **mass/dimensions/capacity ratio** or even the increase in the **rotational accuracy**, the **guiding** and in the **stability**.

This design while **reducing the parts number** and the interface sets also offers a unique solution to ensure the necessary repeatability in the **optronic systems**.





ALCEN

Head office
6, rue Paul Baudry
75008 Paris - France
Tel. + 33 (0)1 40 72 55 00
alcen@alcen.com
www.alcen.com



ADR

12, chemin des Prés
77810 Thomery
France
Tel. +33 (0)1 64 70 59 50
mail@adr-alcen.com
www.adr-alcen.com