



METAL EXTRACTION

The experience gained in industrial magnetism and our know-how in "Iron Removal" from continuous flow bulk products enable us to offer you ranges of "Metal Extraction" equipment specially designed for automatically and continuously eliminating non-ferrous metal parts. Today, the reliability and high performance of our non-ferrous metal separators are recognized and tested in numerous industrial applications.

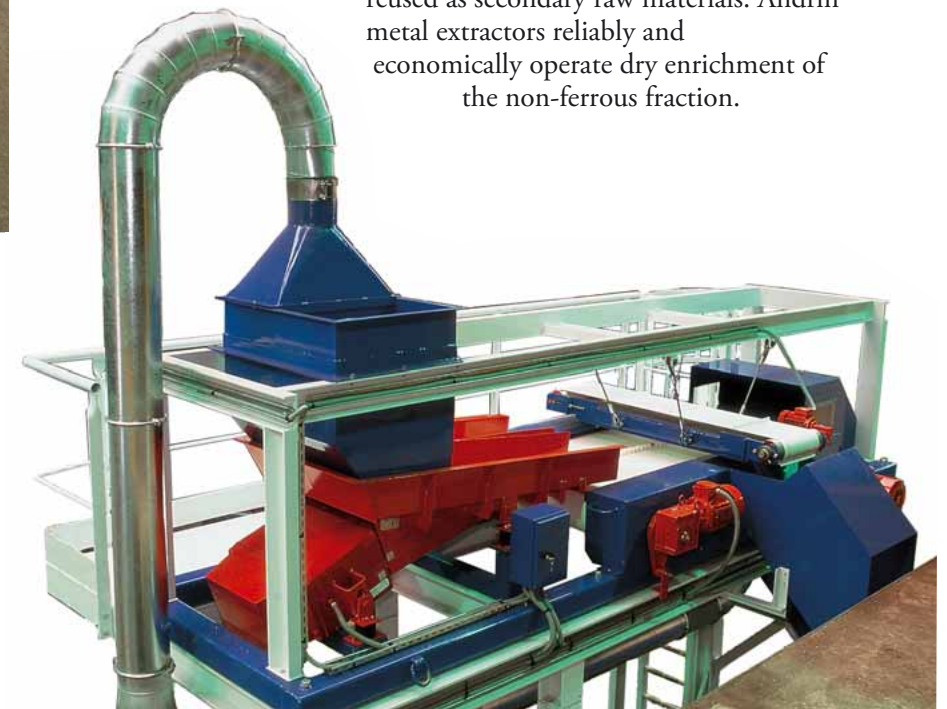


■ Purification of raw materials

Some of your products, like a number of raw materials, require a high degree of quality : glass, plastics, timber, paper, chemical products, sand, clinker, etc. They should be free from all metal particles or parts. So the metallic particles should be extracted with appropriate, reliable and high performance equipment. Our equipment is presently installed in numerous industrial plants.

■ Non-ferrous upgrading

Recycling industries such as car crushers, RBA, fines, flotation units, selective household packaging sorting centers, aluminium crushers, non-ferrous foundries, incineration plants, clinker platforms, etc, upgrade non-ferrous metals so that they can be reused as secondary raw materials. Andrin metal extractors reliably and economically operate dry enrichment of the non-ferrous fraction.



METAL EXTRACTION

■ Why extract metal ?

Extracting non-ferrous metals allows them to be recycled or refined from the material containing them. The quantity of non-ferrous metals, the quality of products from sorting, legal requirements and protection of the environment are all criteria justifying the setting up of a metal extraction unit suitable for your processing.



INNOVATION AND INDUSTRIAL DEVELOPMENT

■ Some research...

Decades of research and development were needed for the design and refinement of several ranges of high frequency non-ferrous metal separators based on the theory of Eddy currents.

Their reliability and efficiency have been proven in high output production units continuously operating for several years. These conditions of manufacturing use enabled our technicians to gain an understanding of technical parameters and physical phenomena. The sensing and separation possibilities are multiple :

- metal parts in non-metallic flow.
- non-ferrous metals among the flow.

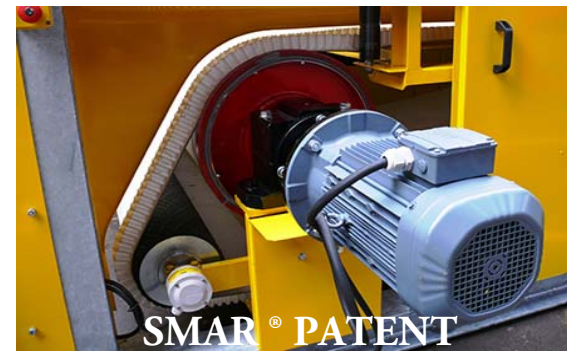
We are optimizing the design of our separators from the layout study thanks to this experience feedback. As a result of our thinking and know-how, several Andrin patents have been filed.



■ ...with industrial design...

Our ranges of equipment, designed for fitting out all recycling industries, are based upon two technologies : metal extraction by sensing-effect, and repulsion of non-ferrous metal parts by high frequency magnetic flux induction.

We incorporate the degree of automation, the variety of products to be sorted, the ambient conditions, the discharges and the market factor according to your needs and processes. Within our varied ranges we recommend the most suitable metal extraction equipment for you.



■ ... and standardization.

Our ranges of products use standard of their component parts to make maintenance and spare parts control easier. For special applications, our design office characterizes the separator or its fittings.

In terms of quality, output, reliability and value of its products in the secondhand market, Andrin is the reference.



TURN-KEY CONSTRUCTION

Do you want a turn-key plant ?

We design, manufacture, assemble and commission iron removal and metal extraction units in partnership with bulk-handling specialists. Our non-ferrous separators are connected to other equipment, such as Andrin conveyors, calibration equipment, selection and iron removal equipment.

■ Non-ferrous metals processing

A Loading products to be processed

B Iron removal

C Magnetic protection

D Screening

E Non-ferrous sorting and separation

F Protective enclosure

■ Selection products

1 Mean and large particle size ferrous.

2 Raking ferrous and fines

3 Mean particle size non-ferrous

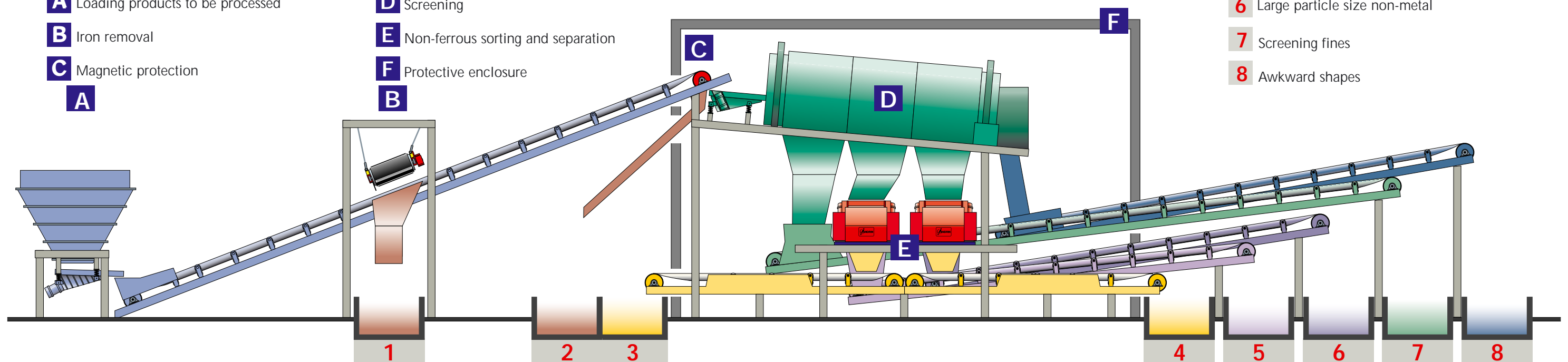
4 Large particle size non-ferrous

5 Mean particle size non-metal

6 Large particle size non-metal

7 Screening fines

8 Awkward shapes

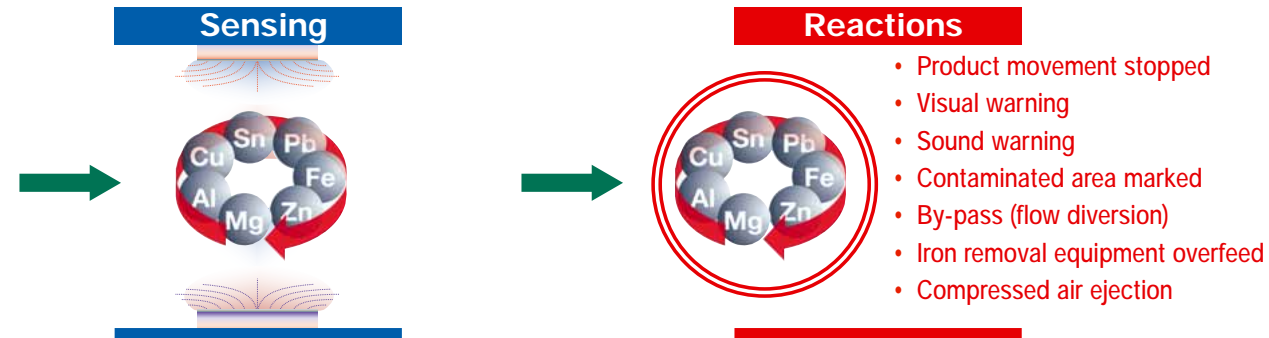


DIFFERENT METAL EXTRACTION SYSTEMS

Sensor - reaction metal extraction

One or more sensors are fitted on a product conveyor. Using a warning processing unit, depending on the equipment chosen, any ferrous

or non-ferrous metals present trip a series of reactions installed downstream.



High frequency magnetic flux induction

The periphery of a rotor is lined with permanent strong field magnets (boron iron neodymium) with alternating poles. Each magnet develops its own magnetic field. As a result of this revolving field rotating every metal part in the vicinity undergoes magnet flux variation. This induces an alternating current in the part.

This current in turn generates a magnetic field, opposite to the field of the revolving field, so the object is repulsed. The non-ferrous metals are separated from the non-metals by the resultant force and speed.

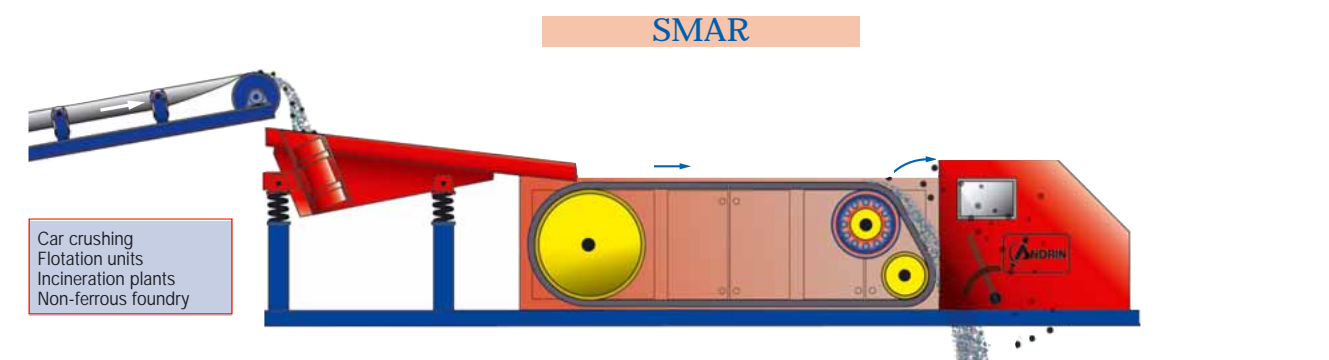
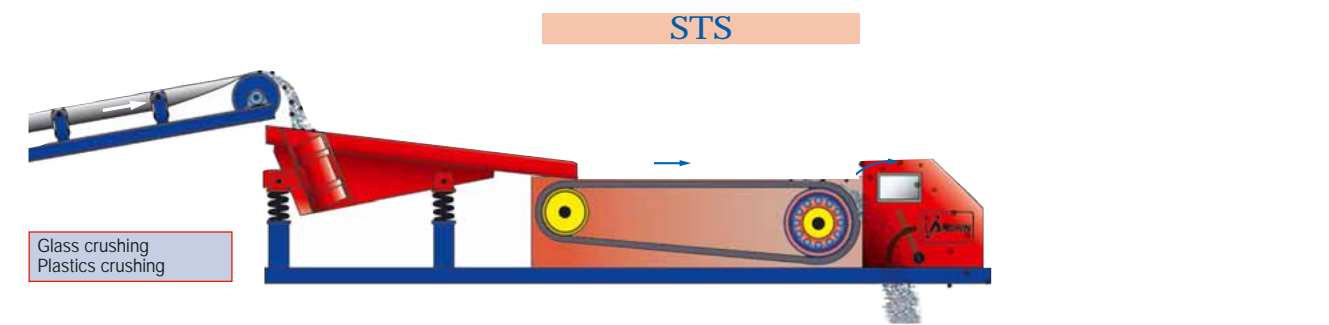
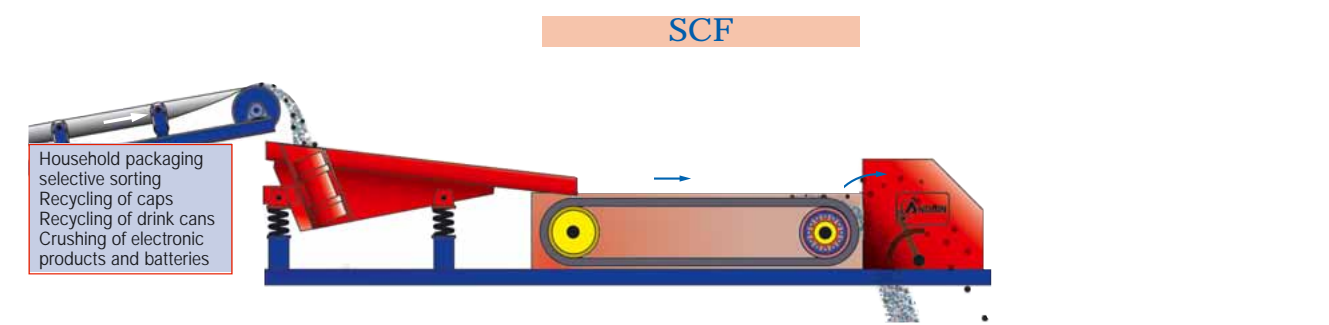
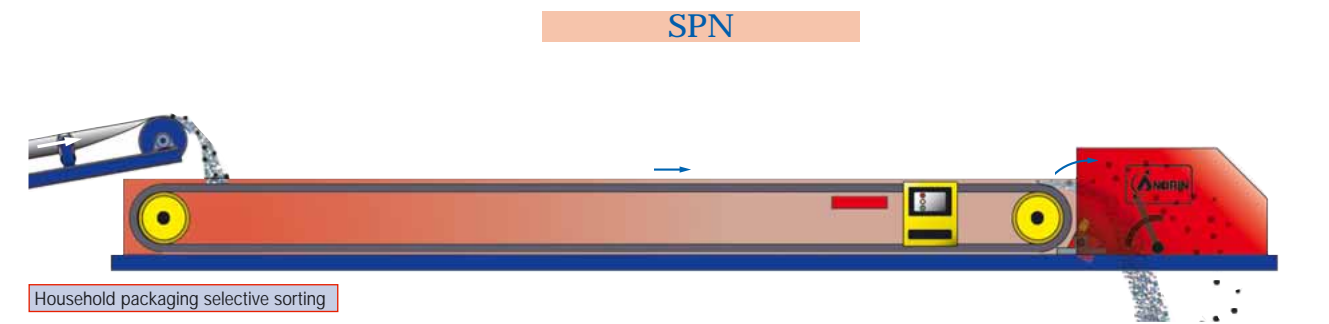
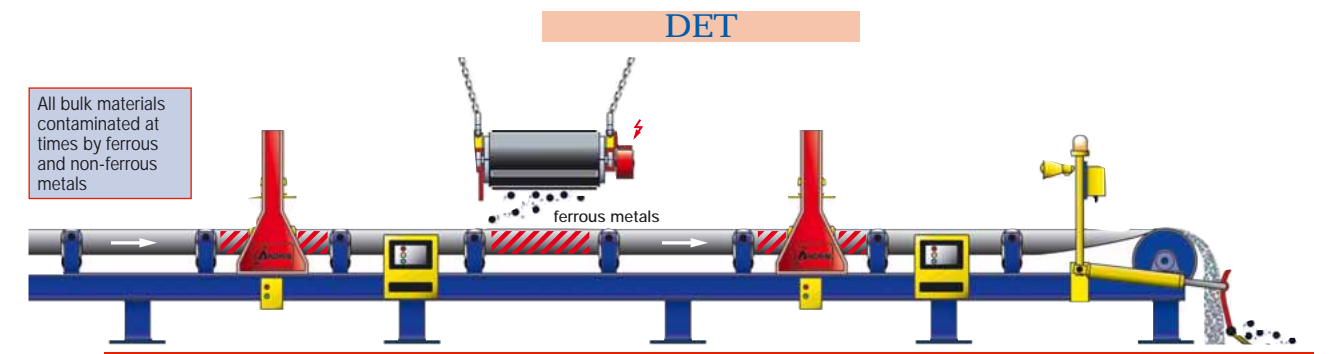
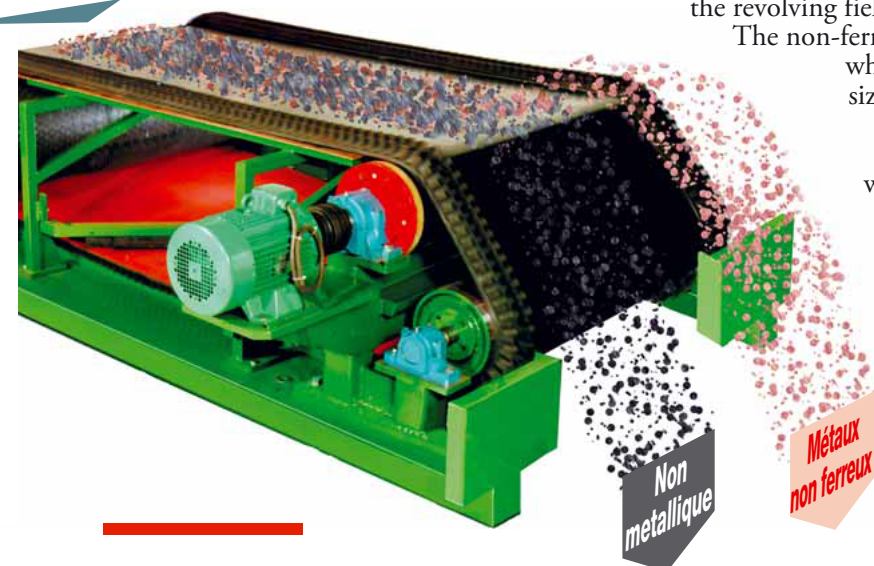


The Andrin application

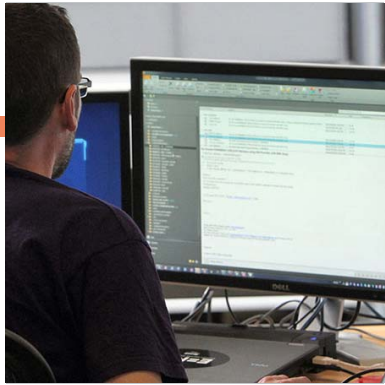
The revolving wheel is placed inside the head pulley of a flat belt conveyor. This pulley consists of a composite material shell, magnetically inert with high mechanical and chemical strength. The rotation speed of the revolving field is independent of the pulley speed.

The non-ferrous metals are ejected on a trajectory which depends on their type, shape and size. The non-metals on the other hand fall by gravity.

Andrin-patented separators are fitted with a third wheel in order to increase the performance and reliability of the application. Their magnetic and mechanical features are described in detail in our patents.



Non-magnetic area Non metal parts Non-ferrous metals



RECOGNIZED KNOW-HOW

The quality of our production has been guaranteed by the long service life of our products which assures of minimal maintenance. In terms of productivity and safety our proven methodology will more than meet your expectations.

Our know-how in the fields of industrial magnetism, linked to our values of service and quality leads to the recognized performance of all Andrin products.

QUALITY REFERENCES

Our personal commitment is based on our know-how, our idea of service, our technology, and our compliance with deadlines and budgets. Our production favours your productivity, safety and reliability requirements. We analyze and implement all our activities in compliance with your constraints. The following companies place their confidence in us:

Steelwork, Rolling Mill

Arbed Saarstahl
Arcelor Mittal
China Steel
Dillinger Hütte
Dragon Steel
Icdas
Kroman
Kuey Steel
Magnitogorsk
Posco
Rivagroup
Severstal
Sonasid
Tata Steel
Thyssenkrupp
Vallourec
Voest Alpine

Hoffman
Hyundai
Metso Lindemann
Metso Mineral
Sandvik
Voest Alpine
Vauché
Venti Oelde

Recycling

Decons
Derichebourg
Gde Environnement
Harsco
Heilig-Teigen
HKS
Normet
Retem
Scholtz
Thyssenkrupp
TSR
Yamanaka

Engineering

Alfyma
Cmi
Danieli

Environment

Cnim
EDF Tiru
Plastic Omnium
Sita-Suez
Veolia
Vinci

Material Handling

Case
Caterpillar
Fuchs
Hyundai
Liebherr
Sennebogen
TP Partners

Mines & quarries, Foundry, cement plants

Calcia
Lafarge
Montupet
SLN

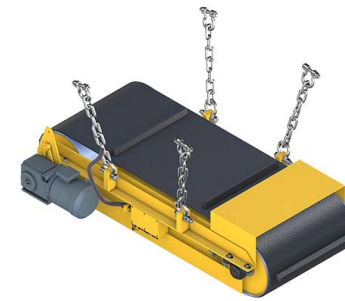


OUR KNOW-HOW



MAGNETIC LIFTING

Magnetic and electromagnetic lifting equipment combines force, durability, reliability, productivity and safety, enriched by numerous undertakings linked to experience gained in all the big traditional sectors such as metallurgy, the steel industry, ferrous recycling, shipyards, and steelwork.



REMOVAL OF IRON

Our experience gained in the “removal of iron” from continuous flow products enables us today to offer a range of equipment suitable for each use. Our products meet the most specific of your needs, whether protecting, purifying, selecting, sorting or separating. In terms of quality, output and reliability they guarantee your requirements.

AN IDEA OF SERVICE

Our specialist multidisciplinary teams are equipped with technological resources suited to best meet your requirements. The results we have obtained guarantee our reputation. Our everyday ambition : to know you, listen to you, understand you, anticipate your needs, be at your service, and satisfy you, our valued customers.

APPLIED ENGINEERING

We are in a position to get you to take advantage of our capacity for technical appraisal and advice, with a good grip on your company's practical problems. Our design office has skills in metal, mechanical, electrical construction and automatic control and is able to make recommendations, design and assemble, build and provide operating follow-up.

Experience, acquired in a manufacturing world of high quality assurance constraints, guarantees the output and reliability of **Andrin** equipment. We provide you with an optimal service, capable of meeting all your requirements and expectations in magnetic handling plant. During the design, manufacture, assembly and commissioning for use, we are with you at each stage of developing a plant, Our engineers and technicians also make visits to improve your existing plants, define the required investments with you, and recommend cost effective solutions.

We provide after-sales service all makes and types of devices.



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