

IMRO PRODUCTS



IMRO  **PURIFYING SYSTEM**

According to the IMRO purity law of 1990

Separation technology

Recycling plants

Conveyor technology

RecycleCraft®  by IMRO


MASCHINENBAU GMBH

Maximum recovery of recyclable materials - IMRO - Europe's separation and conveying experts



Concepts at the very highest level: flexible, fast and cost-effective. For this you need partners with experience and expertise

Customer care, reliability, adherence to deadlines, a desire for excellence and listening to our customers are values we have stood for since we founded our company 30 years ago. Since then we have developed from a small mechanical engineering company to an international manufacturer and supplier of innovative recycling solutions.

A lot has changed since Reinhard Ott and Manfred Ingrisich founded the company for the production, sale and repair of machines and transport equipment. The aim to always be an independent and reliable partner for our customers has remained. IMRO supports you with a broad selection of services and high-end products. IMRO helps you achieve your

goals. This means configuring plants and machines, developing recycling solutions, connecting all interfaces, inspecting, maintaining and repairing your plants as well as machines are the services we deliver, as a one-stop-solution provider. For all our customers, worldwide.

The most important thing is that we see ourselves as being business partners with our customers. This is why we truly value exchanging ideas and listening to you. Because, only if we listen to you carefully, we can also provide you with the right solutions.





The IMRO Purifying System is designed to perfectly synchronise the target-oriented use of all our machines and components

By means of the IMRO Maschinenbau recycling processes can be designed excellently. We are your specialists for the best separation and conveyor technology. At our company that means: purifying system. From the first idea to the turnkey solution, we do not build any machine or plant, but precisely yours. On the highest level in terms of technology and quality, exactly designed for your individual requirements.

To understand the latter as well as possible, our common path generally starts with a tour through your recycling company. There, our eye catches decisive details that offer together with your ideas and our expe-

rience a first approach to find solutions directly on site.

Whatever demands you make on your recycling tasks, we plan and develop the optimum solution for you and implement it precisely down to the last detail.

Moreover, the importance of energy-efficient plants as well as of recycling processes has been rising together with the competitive pressure increasing at the same time. Even in this respect, the IMRO Purifying System offers recycling businesses the opportunity to work with technologies supporting an energy-efficient as well as a CO₂-neutral plant operation.



Non-ferrous separation



- The advantages of RCSX eddy current separators
- The RCSX product family
- RCSX technology and equipment

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Iron separation



- Permanent overbelt magnet separators IMP
- Electric overbelt magnet separators IME
- Suspended permanent magnets IAP
- Permanent magnetic pulleys neodym variable PMPNV
- Permanent magnetic pulleys ferrit PMP
- Permanent magnetic pulleys neodym PMPN
- Permanent magnetic drums ferrit ITP
- Permanent magnetic drums neodym ITPN

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Stainless steel separation



- Stainless steel separator RCSS

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Metal-Sensor separation



- Sensor-based sorting DSS Falcon NEO

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Conveyor technology



- Optimal interface technology
- Heavy-DutyLine for bottom ash processing
- Metering bunkers IAB
- NewLine for light conveying tasks
- BasicLine for medium conveying tasks
- HeavyLine for medium to heavy conveying tasks

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Purifying System



- Customized components separation and conveying technology

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Recycling plants



- Bottom ash treatment plant stationary
- Cascading separation RCSX CS
- Recycling plant mobile
- General plant engineering

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Engineering, consulting, planning, service



- IMRO Engineering
- Individual solutions for your recycling
- Technical support, commissioning, maintenance, service

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IMRO Test centre



- We develop and test for more performance in the recycling process

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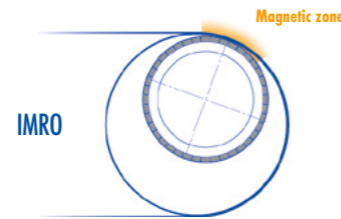


The excellent technology of IMRO eddy current separators

IMRO combines in its eddy current separators all crucial points to achieve a reliable and efficient separation of non-ferrous metals:

IMRO RCSX D eccentric rotor high tech advantages:

- 44 poles comprising the strongest magnet material
- Ultra large diameter on inductor pole drum
- Highest magnetic strength
- Frequency 1.4 kHz

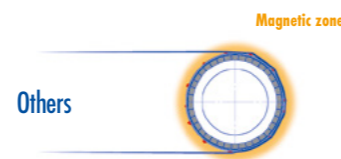


Ferrous parts are not attracted outside the magnetic zone.

Other manufacturers use:

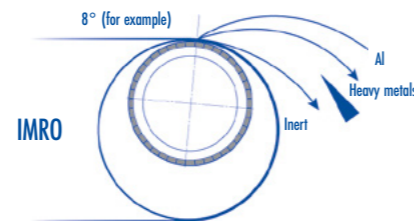
- 38 or fewer poles
- Small rotors

To prevent burn-through of ferrous particles, other manufacturers' concentric rotors include ceramic-lined drum shells which exponentially reduce magnetic strength and separation power, increasing the gap between material and magnets.

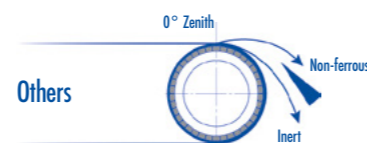


Ferrous particles are attracted in any position because there is no magnetic free zone, causing high wear and tear on belt and drum shell.

With the IMRO eccentric rotor system, the position of the trajectory peak can be changed by adjusting the angle of attack of the inductor drum from 0 to 20 degrees. This is a crucial advantage compared to concentric systems with a fixed angle of attack. With an infinitely variable pole drum position between 0 to 20 degrees, the point of separation is optimized.



In a concentric rotor, non-ferrous particles are influenced by the magnetic field far too early in the process which prevents optimal separation.



Adjustment is not possible with the concentric system and therefore the trajectory of the non-ferrous particles can not be changed. This impacts especially copper wires and heavy metals.

The pole drum system is infinitely variable from 0 to 20 degrees (IMRO Patent).

IMRO Eddy Current Separators comprise a thin modern fibre-reinforced drum shell, to minimize the gap between magnet system and material, optimizing the interaction with the magnetic field.

The IMRO RCSX series - sound technology for more efficiency



We produce Eddy current separators with different types of rotors. Stronger magnets and lower pole changing frequencies are used for coarser particles than for those used to recycle material comprising finer particles. Optimal machine

applications can be engineered with any combination of number and arrangement of neodymium magnets and pole system rotational speed.

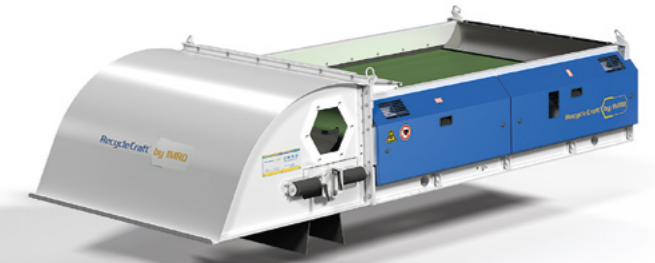
IMRO Eddy current separator RCSX

RCSX JUNIOR

Coarse particle size separator for with integrated control panel, the cost efficient alternative

Max. speed/frequency 2500 rpm / 0.30 kHz

14 POLES



RCSX C

Medium particle size separator for non-ferrous materials

Max. speed/frequency 3000 rpm / 0.52 kHz

24 POLES

RCSX D

Fine particle size separator for non-ferrous materials

Max. speed/frequency 3500 rpm / 1.17 kHz

40 POLES

RCSX D NEO

Fine particle size separator for non-ferrous materials

Max. speed/frequency 3800 rpm / 1.27 kHz

40 POLES

RCSX F

Very fine particle size separator for non-ferrous materials

Max. speed/frequency 3800 rpm / 1.4 kHz

44 POLES

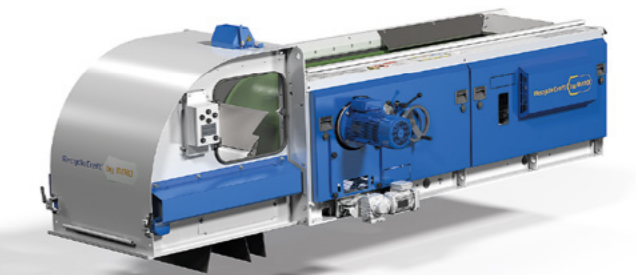


RCSX D-60 Purifier

For purifying the non-ferrous (NFE) fraction

Max. speed/frequency 3800 rpm / 1.27 kHz

40 POLES



Working width from 600 bis 2400 mm

The machines are equipped with electrical control systems. Belt and rotor speed can be changed with frequency converters in order to control material feed and separation efficiency.



Technology and features - IMRO RCSX - the perfectly coordinated options

The IMRO product portfolio of eddy current separators as well as their numerous features, offer the best technology for the most advanced separation projects. IMRO products

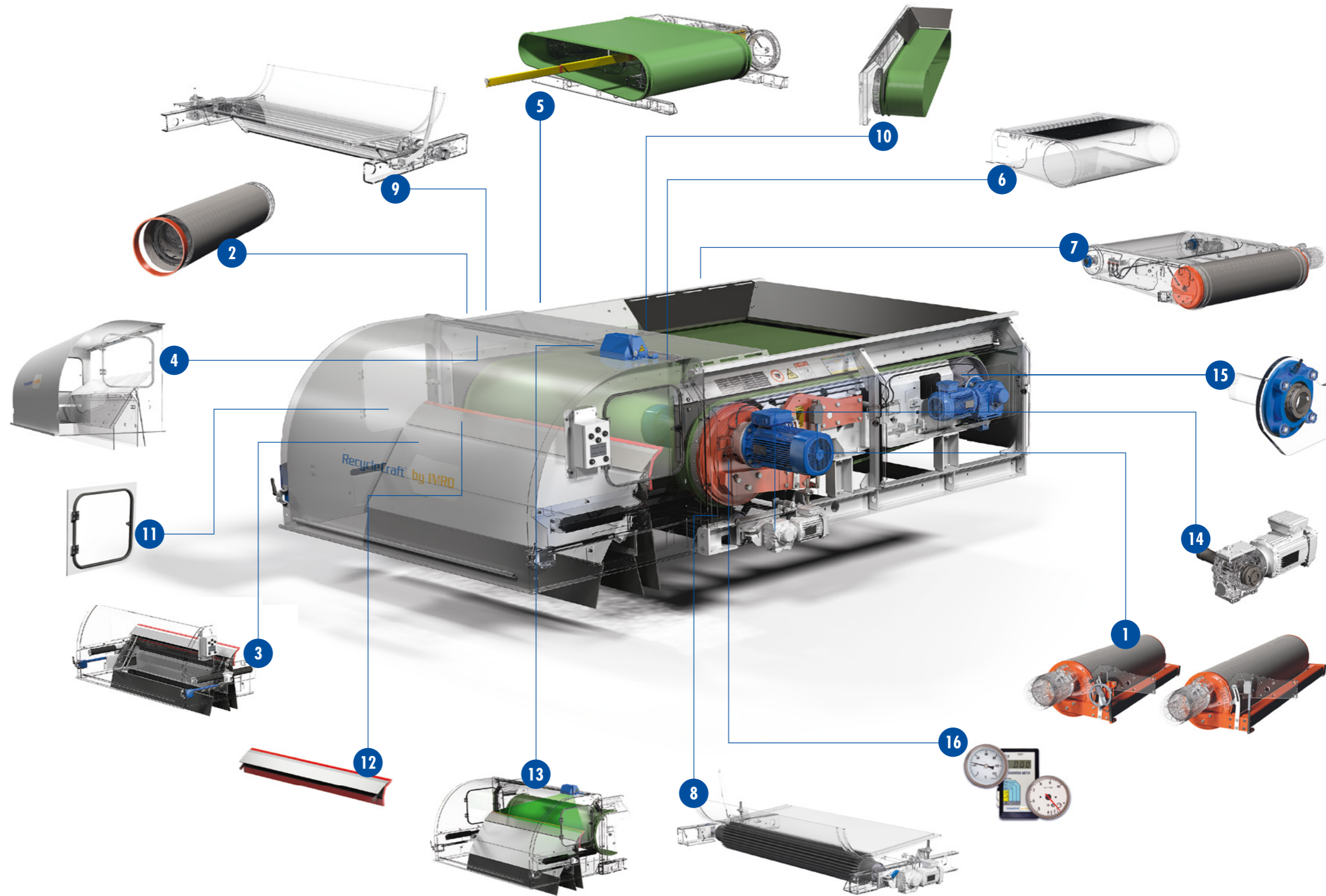
are rock solid, thoroughly engineered and constructed with maximum functionality.



Eddy Current Separator

The strengths of the RCSX Eddy current separators:

- 1 Infinitely variable pole system 0 - 20° electrically or manually
- 2 Removable shell ring for easy maintenance
- 3 Infinitely variable divider
- 4 Lighting in the discharge chute
- 5 Telescope beam for belt change
- 6 Sliding plate in the discharge region
- 7 Central lubrication
- 8 Cleaning brush
- 9 Brush cleaning device
- 10 Guided labyrinth seal between cornering and conveyor belt
- 11 Large inspection windows, both sides
- 12 Exchangeable divider edge
- 13 Laser calibration system for non-contact adjustment and monitoring of the divider position
- 14 Electric drives with TorqLOC® mounting system (Advantage for IBA and slag recycling)
- 15 Split bearings for anti-corrosion (Advantage for IBA and slag recycling)
- 16 Monitoring temperature/speed/vibrations





Iron separation - IMRO Overbelt magnets - they gets it

IMRO Overbelt magnets recover iron from valuable materials, domestic refuse, industrial waste, commercial waste, shredded material, wood, glass, construction waste, moulding sand, e-waste, coal, food and feed products. Whatever process is your priority, whether it is iron recovery, materials purification or wear resistance and machinery protection, this magnet system can do the job.

IMRO Overbelt magnets are equipped with permanent magnetic blocks. In series, the transport belt is driven by the attachable gear motor. Other gear motors are available on request; for example, drum motors or hydraulic motors. IMRO Overbelt magnets are arranged lengthwise or perpendicular to the material stream. This separator can also be positioned above conveyors, vibrating chutes and slides.



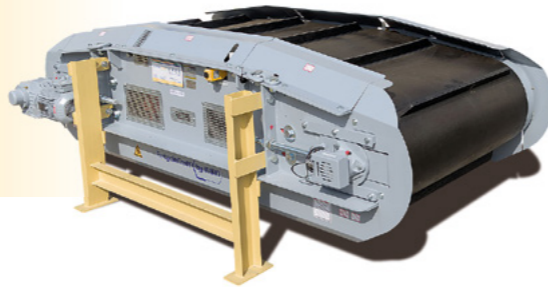
Permanent overbelt magnet separator IMP

Extreme performance, comparable with electromagnet, low capital expenditure with highest efficiency



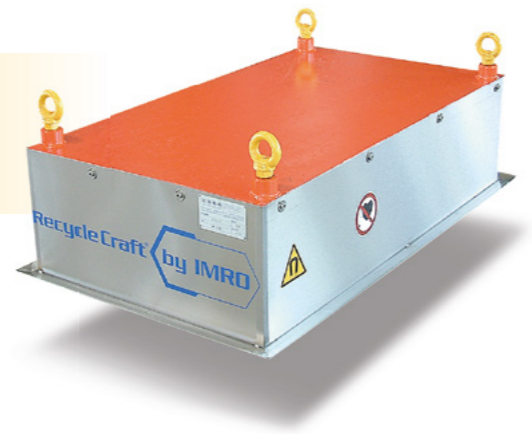
Electro overbelt magnet separator IME

Powerful and reliable, designed for different coil voltages, DC solenoid coils, various rectifier devices are supplied



Suspended permanent magnet IAP

Safe iron separation from material flow, with high quality ferrite or neodymium magnets



Criteria:

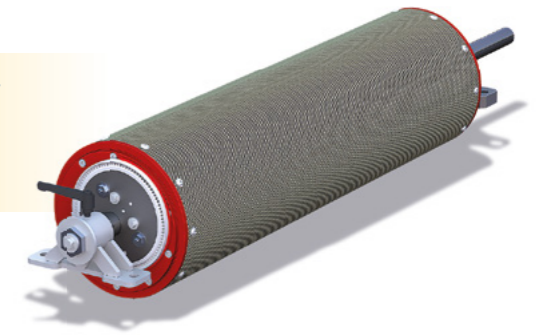
- Material type and specific weight
- Material shape and material grain size
- Layer height of conveyed material
- Size and amount of any iron impurities
- Throughput volume
- Width of the conveyor belt or the vibrating chute
- Required separation efficiency

Iron separation - Permanent magnetic pulleys



Permanent magnetic pulleys neodym variable PMPNV

More power, cleanest fraction, variable adjustment magnet system, visualization magnet position, can be switched off



Permanent magnetic pulleys ferrit PMP

Instead of drive or idler pulleys at the discharge point, equipped with ferrite magnets



Permanent magnetic pulleys neodym PMPN

Instead of drive or idler pulleys at the discharge point, equipped with neodymium magnets

Iron separation - Permanent magnetic drums



Permanent magnetic drums ferrit ITP

Drum shell made of high-manganese steel or stainless steel, arrangement overflowing or lifting out, on request with coupling, motor, speed monitor, brush system



Permanent magnetic drums neodym ITPN

Equipped with neodymium magnets





Stainless steel separation - IMRO RCSS - extreme strengths for maximum performance

The stainless steel separator IMRO RCSS is a sophisticated system that can separate slightly magnetic steels and stainless steels by means of highest magnetic field strength. An optimum adjustment to the material to be sorted is possible by means of variable belt speed and adjustable material di-

vider. As a result, this machine is appropriate for almost all stainless steel applications and allows a method unrivalled so far for sorting stainless steel, with the operating costs being very low at the same time. This machine unfolds its full impact in case a ferrous separation is mounted upstream.



- Magnetic pulley with highest field strength
- Dust trap to keep inner belt and magnetic system clean
- Belt drive with integrated frequency converter for easy integration and commissioning
- Quick tensioning device for belt and belt change traverse for easy maintenance
- Optional belt brush cleaning device
- Lighting inside the discharge hood
- Infinitely variable divider



Metal sensor-based sorting - IMRO DSS - finest separation technology

The newest sensor-based system IMRO DSS Falcon NEO offers you more reliable and more cost-efficient recovery of all metals. By selective setting possibilities the machine can be adjusted to further parameters and thus perfectly to your sorting task.

Furthermore, it is particularly fast and powerful thanks to the newly developed, easy to maintain AERO20 valve-nozzle system. The extremely short opening times of the nozzles minimise bad throws and you increase the purity of the metal fraction, consuming less air. The versatile

and robust sorter is designed for the specific requirements in the processing of bottom ash and thus it is reliably available even under the harshest operation conditions. The DSS Falcon NEO is recommended even in all other applications in which metals cannot be separated by means of traditional methods.

In bottom ash applications further increase in performance is achieved by means of a bar screen mounted directly upstream of the sensor machine.



- Pull-out pneumatic component for easy maintenance
- Infinitely adjustable material divider
- Pull-out belt cleaning brush (option)
- Easy and fast belt replacement
- Lighting in the discharge hood
- Air-saving high-speed compressed air system AERO20

DSS Falcon NEO - the advantages at a glance

- High belt occupation with less over-sorting
- Low loss and high purities
- Low compressed air requirement
- High availability
- Low maintenance costs



IMRO stands for modular conveyor and optimal interface technology

It is always good to know where a product comes from when making an investment. The technology, the quality and the future-proofing of IMRO conveyors come straight from our IMRO plant in Uffenheim, Germany. This includes our wide range of separation technology and our turnkey recycling plants. IMRO delivers custom-fit solutions based on comprehensive knowledge and exper-

tise. More than 30 years' experience in conveying and separation technology ensures that IMRO engineering is a wise investment helping you save time and avoid mistakes. This means low follow-up costs and high quality recycling processes. Efficient material flow and the coordinated interaction of all of the equipment is our top priority.

IMRO HEAVY-DUTYLINE

Conveyor belts for bottom ash processing

Individual troughing, extra reserve capacity, special stripper systems, separated bearings, belt drive with TorqLOC®



IMRO Metering bunker - for versatile applications

The superior IMRO Metering Bunker discharges bulk materials uniformly. The IMRO Metering Bunker features an exceptionally stable steel construction designed exclusively

for meeting the daily extreme requirements in material handling.

Metering bunker

Capacity of 12 - 90 m³, Discharging capacity from 6 - 30 m³ per hour, including transport belts



IMRO NEWLINE

Conveyor belts NewLine

For light tasks, commonly used in one-shift operations, Belt width 200 - 1400 mm, Axial distance 1000 - 15000 mm



IMRO BASICLINE

Conveyor belts BasicLine

For medium tasks, commonly used in one-shift or two-shift operations, Belt width 400 - 1600 mm, Axial distance 1600 - 50000 mm



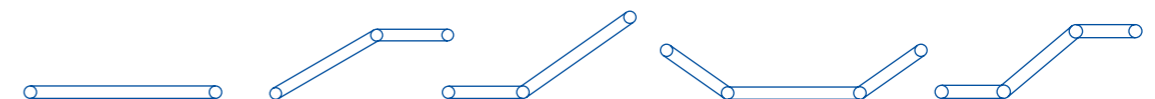
IMRO HEAVYLINE

Conveyor belts HeavyLine

For medium to the heaviest conveyor tasks, commonly used in two-shift or three-shift operations, Belt width 800 - 2400 mm, Axial distance 2500 - 70000 mm



All IMRO conveyor belts can be custom-fit for the most diverse applications. Framework made of sturdy tubular and steel construction. Larger sizes available upon request





The pure power



PURIFYING SYSTEM

Less CO₂ by more IMRO!

Often the most valuable material lies in secrecy. Thanks to expertise, skills and the new IMRO Purifying System, you get on its track significantly more easily. IMRO increases the recycling output. By means of systems and compo-

nents which promise you distinctly higher recycling efficiency. The optimum prerequisites for the most demanding separation tasks. For a maximum output when recycling PET, non-ferrous metals, metals, bottom ash and more.



Optimum material distribution

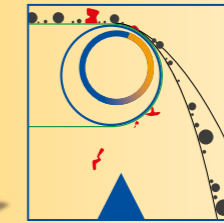
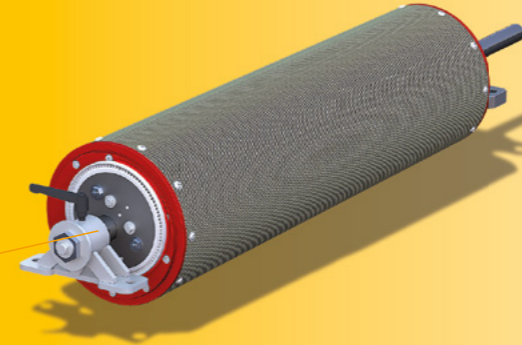
If material flows come from narrower aggregates or are fed at right angle, IMRO material distributors are used to distribute the material flow across the entire width of the non-ferrous separator.



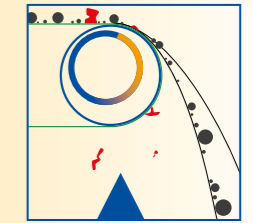
IMRO cleaning system with eccentric and variable permanent magnetic belt pulleys

The magnetic conveyor belt pulley can be continuously adjusted to your needs. The setting ranges from completely deactivated to the separation performance of a strong neodymium belt pulley.

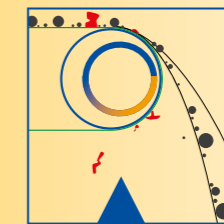
- For more output or a cleaner ferrous fraction
- Visualization of the magnet system position
- Adjustment of the orientation of the magnet system
- Adjustment of eccentric position



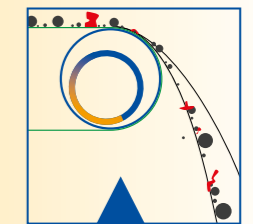
Strong



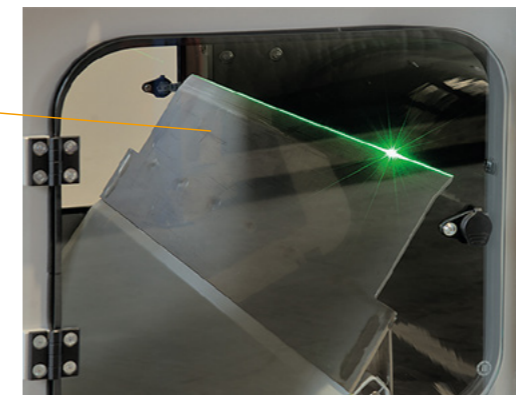
Weak



Customized



Off



Splitter calibration with millimetric laser system

The perfect solution for a high purity non-ferrous (NFE) fraction

- For NFE fines separation, the exact uniform distance between the splitter and the eddy current field is of major importance
- The uniform distance of the splitter to the eddy current field can be checked with the laser calibration system and is easily adjustable

Incinerator Bottom Ash Recycling - Non-ferrous



Incinerator Bottom Ash Recycling - Residue



PET Recycling - PET Flakes



PET Recycling - Aluminium



Auto Shredder Residue - Non-ferrous



Auto Shredder Residue - Waste



and more ...



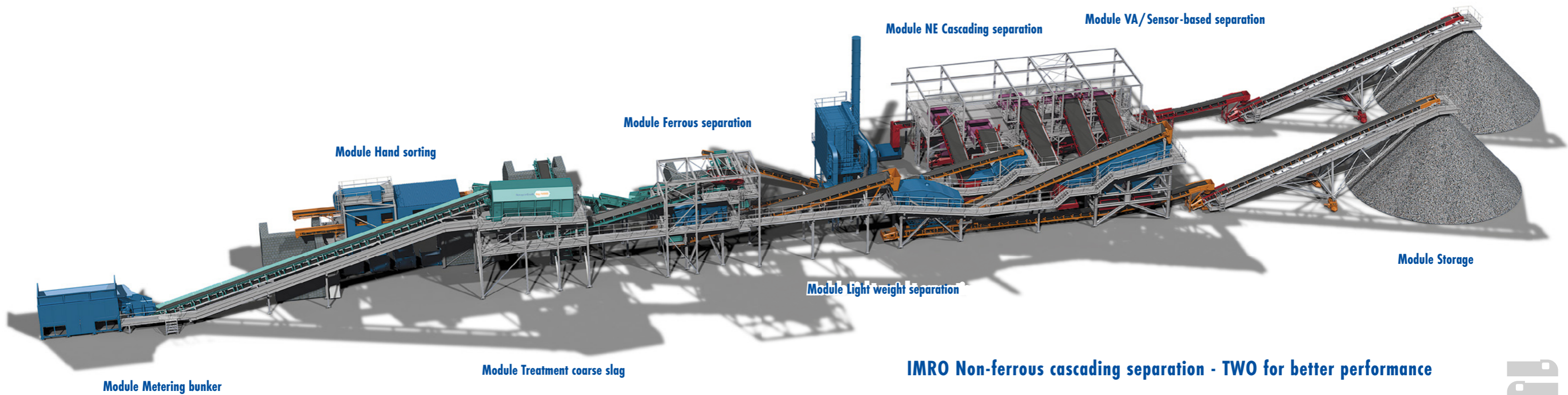
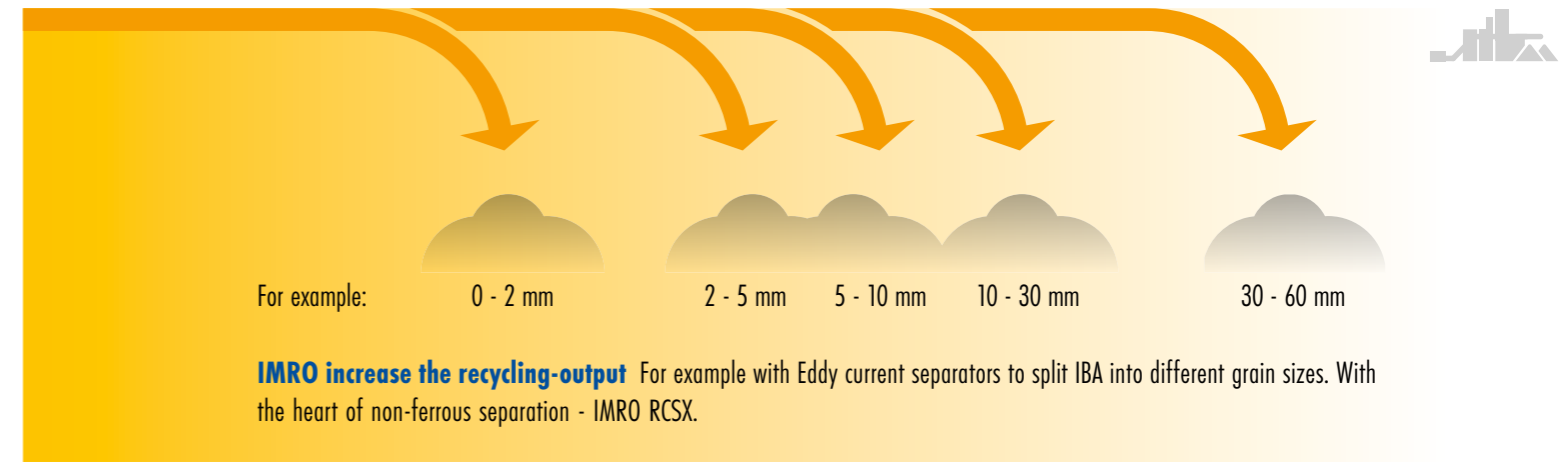
Stationary IMRO bottom ash treatment plants - for effective recycling

We develop additional possibilities to recycle metals from waste incineration ash. Technically efficient solutions rendering your recycling processes even more efficient.

As your experienced specialist for separation technology, conveyor technology and recycling plants we help you develop your ash recycling into a continuing raw mate-

rial source. By separating the metals by means of IMRO separation technology, you are able to achieve a quality enhancement of the mineral fractions.

Our test results show that very high recycling rates are technically possible when potentials unused so far are implemented.



IMRO Non-ferrous cascading separation - TWO for better performance

Every improvement of your plant configuration results in more profitability and generates a competitive advantage.

With the new IMRO cascading system, we ensure increased performance of your recycling processes.



One-sided non-ferrous output



Two-sided non-ferrous output

Two key points are crucial for the profitability of your recycling plant:

- Highest possible yield of the metals
- High availability of the system technology

To reach with:

- IMRO Magnetic separator and non-ferrous separator
- IMRO Cascading separation
- IMRO Experience and high vertical range of manufacture in plant engineering



Recycling plants

**"What we lost in the fire,
we'll find in the ashes."**

Quotation "The magnificent Seven"

**Mobile IMRO ash processing plant -
the variety of possibilities**



General plant engineering



We develop and produce advanced recycling plants IMRO - the interface specialist

The most commonly occurring raw material recycled worldwide to produce new material is metal. Almost half of all metal products are produced out of recycled material. That means that the waste management industry is turning more and more into a supplier of raw material. For this, you need recycling plants and

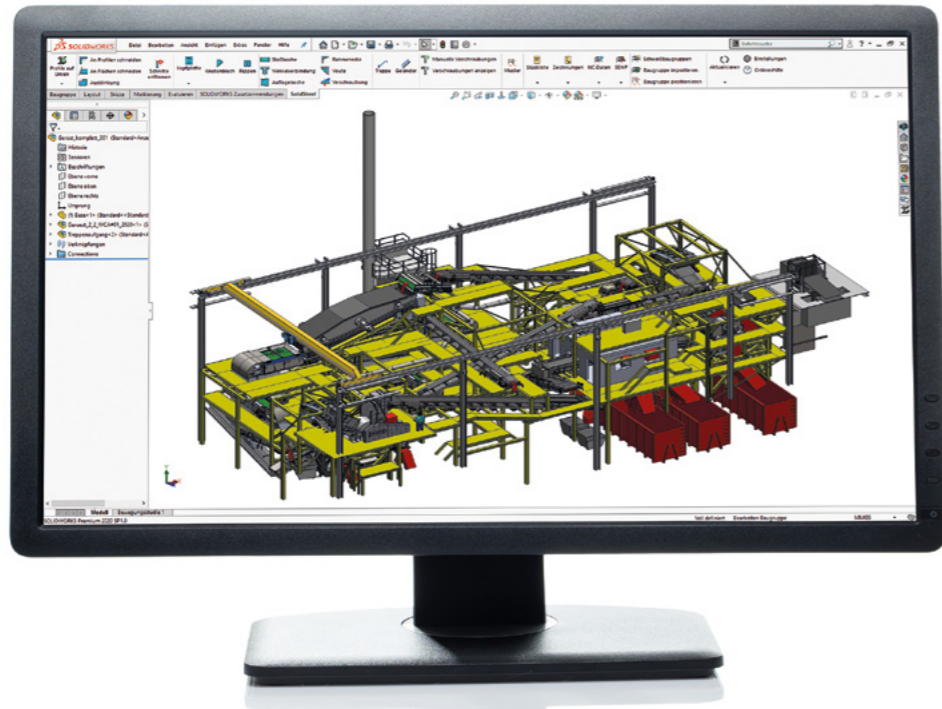
concepts that are exactly designed according to your requirements. IMRO Maschinenbau supplies the most modern technology for the homogeneous separation of ferrous metals, non-ferrous metals and stainless steels from the most varied material fractions.

IMRO know how - added value from metals - plastics - wood - textiles - rubber

When developing forward-looking technological solutions, the benchmark for us is economic efficiency and alignment with the requirements of dynamic future markets in the recycling industry. As a solution provider in FE/NE and sensor separation as well as

in conveying technology, we have a wealth of experience. Our recycling technology is characterized by maximum availability. The large number of machines available for selection offers a wide range of applications.

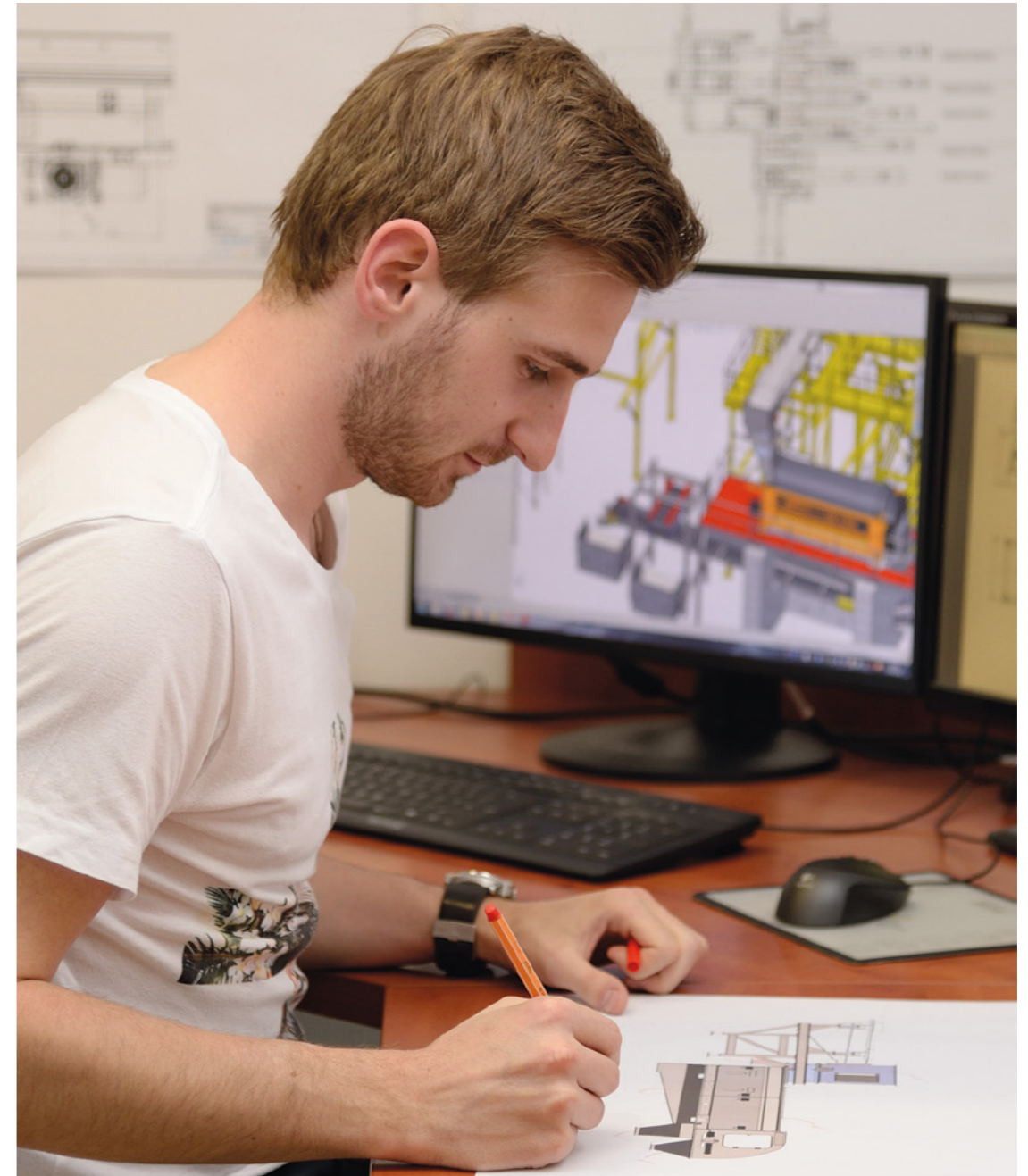




We not only deliver machines and plants, we also share 30 years' experience and expertise in mechanical engineering with you

The recycling industry needs superior solutions that are flexible, fast and economically viable. For this reason you need partners who are as flexible and as specialised as you are. Customer care, reliability, adherence to deadlines, a desire for excellence and listening to our customers are values we have stood for since we founded our company 30 years ago. Since then we have developed from a small mechanical engineering company to an international manufacturer and supplier of innovative recycling solutions. A lot has changed since Reinhard Ott and Manfred Ingrisch

founded the company for the production, sale and repair of machines and transport equipment. The aim to always be an independent and reliable partner for our customers has remained. IMRO supports you with a broad selection of services and high-end products. IMRO helps you achieve your goals. This means configuring plants and machines, developing recycling solutions, connecting all interfaces, inspecting, maintaining and repairing your plants as well as machines are the services we deliver, as a one-stop-solution provider. For all our customers, worldwide.



A comprehensive IMRO value chain comprises the process steps engineering and design, manufacturing, assembly, commissioning and service, supplemented by a commercial department. Everything at one location - this promotes the quality and efficiency of products and services. This benefits our customers. Because we know the most diverse conditions in recycling, always depending on the individual tasks and the general framework situation.



Expertise, flexibility, friendliness - that is IMRO Maschinenbau. We are doing a great deal to ensure this. As for production and maintenance, well-trained and experienced staff is necessary. Project and mechanical engineers, electronics and maintenance specialists and skilled workers provide you with anything you need for the comprehensive support of your plants.



IMRO Maschinenbau GmbH - individual solutions for your recycling



Thanks to its three core competences separation technology, conveyor technology and recycling plants, the IMRO Maschinenbau GmbH is the high-performance partner in the recycling industry. Nationally as well as internationally. Professionalism, flexibility and proximity to the customers: These are no empty promises at our company, but daily-lived reality. For we know how important it is that you can rely on each other. You receive

individual and custom-fit solutions as well as tailor-made services for recycling technology and processes, developments, plant maintenance and spare parts needs from us. Thanks to our over 30 years of experience and international orientation, we are able to accompany and support our customers even in case of the most difficult tasks in Germany and abroad. IMRO Maschinenbau is available wherever you need our service.



We are always there for you and taking care of your requests, questions and concerns in detail.

Contact us:



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IMRO Services

- Assembly
- Technical support
- Commissioning, maintenance and repair
- Spare parts
- After sales
- Upgrades
- Remote maintenance
- Training courses





IMRO TEST CENTRE



More performance and productivity in the recycling process

We now have over 30 years of experience in recycling. The technique is always determined by the requirement. You want to know which recyclables or impurities are in your material? Then come to the IMRO test center with your material and have it analyzed. Our experience in recycling ensures that we use the optimal process for you. Using our state-of-the-art technical equipment, you

take the first step towards increasing your profitability. We will show you the performance of IMRO separation equipment and the precisely coordinated interaction of the individual units. Your benefit: Fast results as well as effective plants and machines with high added value and immediate increase in profitability for all recycling tasks.





Separation technology



Recycling plants



Conveyor technology

PURE QUALITY

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RecycleCraft[®]  by IMRO


MASCHINENBAU GMBH

Maximum recovery of recyclable materials - IMRO - Europe's separation and conveying experts