



ERDWICH

... SHREDDING UNLIMITED ...

METAL SWARF TREATMENT



**CENTRALISED AND DECENTRALISED SYSTEMS
FOR MAXIMUM PROCESS RELIABILITY!**

FOR ALL METAL-PROCESSING BUSINESSES!



Metal swarf endangers the process reliability of your production.

In metal-working companies with production processes which create swarf, the swarf represents an often underestimated cost factor. Instead of working productively on the machine, the operator often has to move the swarf containers to the waste metal containers himself.

Worse still: If the swarf container is overfilled, the swarf can be drawn in again by the conveyor - resulting in machine stoppages due to blocked swarf conveyors. These stoppages threaten the productivity of investment-intensive machining centres. Your machine tools can no longer achieve the calculated target productivity, and your competitiveness decreases as quickly as the motivation of your operators.

Process reliability in swarf management is therefore the key challenge for all companies with production processes which create swarf. ERDWICH offers perfect, customer-specific solutions to this problem.

The daily challenges:

- Overflowing swarf containers
- Machine stoppages due to blocked swarf conveyors
- Unnecessary reduction of the achievable scrap price due to residual oil quantities
- Unproductive personnel costs for internal swarf transport
- Risk of injury due to bulky accumulation of sharp swarf

ERDWICH offers the perfect solution!

ERDWICH systems for swarf shredding and treatment offer maximum economy, safety and efficiency. We offer both centralised and decentralised systems, which are matched to specific customer requirements.

Whether centralised or decentralised: Maximise your productivity potentials in swarf management and improve your process reliability with ERDWICH.

And even after a purchase, the customer is still at the centre of our thinking and action, because customer satisfaction is always our prime consideration. Whether factory acceptance test, installation, commissioning or start-up support, we take care of all the details. It goes without saying that this includes all trial runs, the training of your operating and maintenance personnel, comprehensible operating instructions and spare parts catalogues.

Thanks to high-speed logistics, our spare parts supply is just as outstanding as the short-notice support offered by our customer service technicians on-site.

The advantages of ERDWICH system solutions:

- Greater process reliability at the machine tool
- Lower transport costs due to higher bulk density
- Higher sales prices for the scrap
- Recovery of coolants and lubricants
- Significantly reduced personnel costs for swarf handling
- Increased occupational safety
- Cleanliness in your production
- and many other process advantages

SHREDDING AND TREATMENT OF:

- | | |
|-------------------------|------------------------|
| ■ Steel swarf | ■ Titanium swarf |
| ■ Stainless steel swarf | ■ Precious metal swarf |
| ■ Casting swarf | ■ Die-cutting waste |
| ■ Aluminium swarf | ■ Metal strip residue |
| ■ Copper swarf | ■ Cast parts |
| ■ Brass swarf | ■ and many more ... |



**DECENTRALISED
INDIVIDUAL SYSTEMS**

**THE STARTER CLASS
FOR SIGNIFICANTLY
INCREASED PROCESS
RELIABILITY!**



Instant swarf shredding directly at the machining centre.

The most important task in swarf management is the immediate swarf disposal directly at the machine. Decentralised swarf treatment is the technologically best and most efficient solution.

For this purpose, ERDWICH offers a compact solution for starting into decentralised technology. The swarf shredder reduces the swarf quantity immediately to 1/10 of the original volume. The increased process reliability is even more important: the installation of ERDWICH swarf shredders ensures that swarf from overflowing material containers is not transported back, where it can block the swarf conveyor.

Over 1,000 of these ERDWICH systems are in successful use worldwide, and pay for themselves within a very short time.

The advantages at a glance:

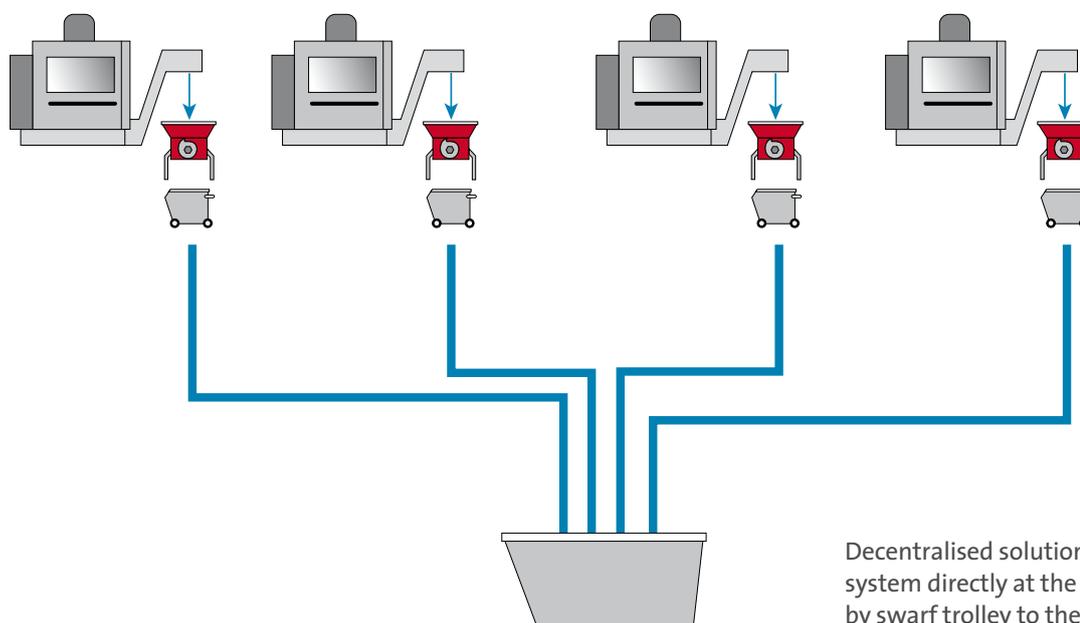
- Individually adaptable to existing metal-cutting machines
- Compact, cost-effective entry-level solution for decentralised shredding
- Reduction of the swarf volume to 1/10 of the original volume
- Optimal conditions for further swarf transport by swarf trolley or downstream automation solutions
- No stoppages due to blockage of the swarf conveyor thanks to direct shredding at the processing machine



Volume reduction to $\frac{1}{10}$ of the original volume.



Schematic diagram of decentralised individual system:



Decentralised solution as an individual shredding system directly at the machine. Removal of swarf by swarf trolley to the swarf container or by optional automation solutions.

DECENTRALISED COMPLETE SYSTEMS

THE HIGH-PERFORMANCE CLASS FOR COMPANIES PRODUCING LARGE QUANTITIES OF SWARF!

“The ERDWICH shredder with on-site pumping station guarantees continuous and clean swarf volume reduction within our production.”

Klaus Kießling, Project planning
SMS Meer, Mönchengladbach

REFERENCES:

- ATA Gears, Finland
- Otto Fuchs, Meinerzhagen
- Getriebebau Nord, Glinde
- Mannesmann Vallourec, France
- Mahle, Spain
- MAN, Augsburg
- Peugeot, France
- Volvo, Sweden
- Scholz, Gotha
- SMS Meer, Mönchengladbach



Complete solutions with integrated pump or suction station.

With high levels of swarf, the removal of the shredded swarf is an essential factor in ensuring process reliability. Decentralised swarf treatment using downstream pumping or suction stations is the ERDWICH answer to problems in swarf management.

For this purpose, ERDWICH offers complete solutions that are exactly tailored to the needs and technological conditions of the customer's production.

The swarf shredder reduces the swarf volume, so that it can be transported to the central swarf container via integrated conveyor systems.

This is usually done with the aid of single-shaft shredders. The station filling levels are monitored, and pumped or suctioned out in cycles. This reduces pipeline cross-sections and saves energy costs.

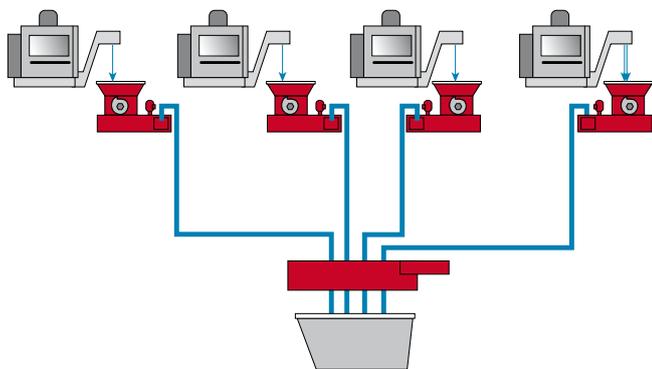
ERDWICH complete solutions for swarf shredding are the technologically best solution, when the determining production factors are high levels of swarf and high production quantities.

The advantages at a glance:

- Technologically perfect complete solutions for decentralised shredding
- Reduction of swarf volume to 1/10 of the original volume
- Optimum conditions for further swarf transport by downstream automation solutions with pumping or suction stations
- For pumping stations: Removal of swarf together with the cooling lubricant



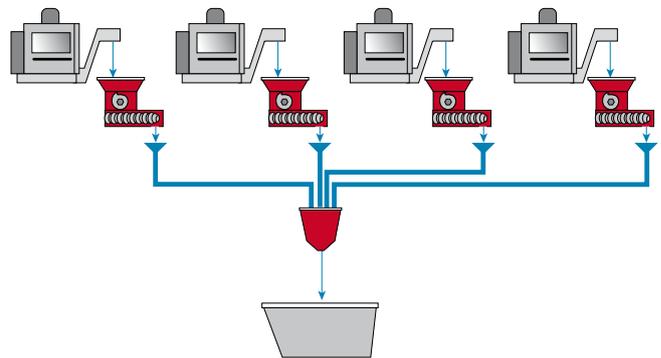
Schematic diagram of decentralised solution with pumping station:



Following the shredding process, the swarf is pumped out with the emulsion by energy-efficient pumping stations and transported to the central swarf treatment system.

Can be implemented with customer conveyor equipment or as an ERDWICH complete solution.

Schematic diagram of decentralised solution with suction station:



Following the shredding process, the swarf is suctioned out by an energy-efficient blower and transported to the central swarf treatment system.

Can be implemented with customer conveyor equipment or as an ERDWICH complete solution.

CENTRAL COMPLETE SYSTEMS

THE IDEAL SOLUTION FOR COMPANIES WITH RESTRICTED SPACE AVAILABILITY!



Central shredders for the processing of large swarf quantities.

Wherever metal-cutting machines are installed in separate workshops or the budget for perfect decentralised swarf disposal is limited, the central solution provides valuable assistance. The shredding system is installed at a central location, to which the swarf is transported by swarf trolley from the different machining centres.

Here, the swarf trolleys are emptied automatically into the hopper by means of an efficient lift-tipping device or forklifts. The shredded material is transported via hinged-plate belt conveyors to the disposal container or to the centrifuge or briquetting press.

ERDWICH offers complete solutions for automatic filling, efficient material distribution in the hopper, filling level monitoring and transport to the disposal containers (incl. product distribution into individual containers).

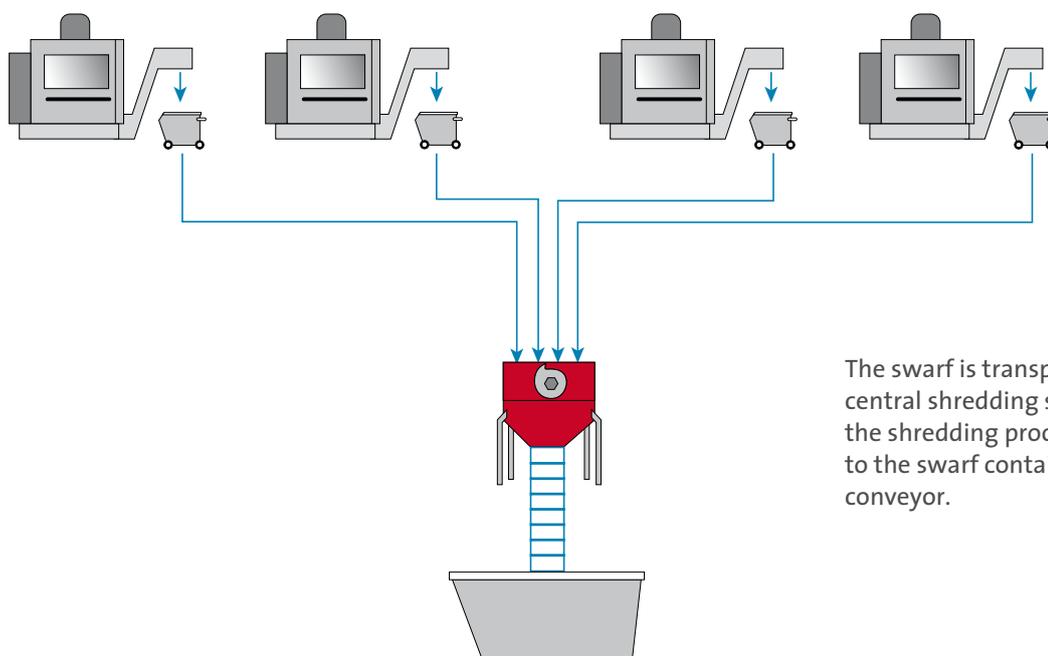
The advantages at a glance:

- Turnkey complete solutions for central shredding of metal swarf
- Large range of machines as the basis for the optimum shredding of different types of swarf
- Performance range from 100 kg/h to 4,000 kg/h
- Lower transport volume with resulting lower transport costs
- Special drum-type swarf shredders with ejection of solid parts, see page 10/11



- REFERENCES:**
- Allseas, North Sea
 - John Deere, Mannheim
 - FAG, Eltmann
 - Kordel, Dülmen, Jawor (PL)
 - MAN-Renk, Augsburg
 - Siemens, Berlin
 - Mannesmann Vallourec, France
 - Otto Fuchs, Meinerzhagen
 - and many more

Schematic diagram of centralised solution:



The swarf is transported in a swarf trolley to the central shredding system for processing. After the shredding process, the swarf is transported to the swarf container via a hinged-plate belt conveyor.

**CENTRALISED
COMPLETE SYSTEMS**

DRUM-TYPE SWARF SHREDDER WITH DOUBLE IMPURITY EJECTION FLAP!



Large-capacity drum charging and perfect impurity separation for continuous operation.

In many metal-working companies, decentralised swarf disposal is often not economically feasible due to local circumstances or restricted space availability.

With the drum-type swarf shredder, ERDWICH has developed a solution with which such businesses can handle their swarf management with process reliability. Thanks to the large charging drum, up to 1,500 litres can be tipped directly into the shredder by means of forklift or lift-tipping device. The rotating feed drum supplies the material slowly and evenly to the cutting gear. Despite the homogeneous swarf structure, the material often contains impurities or solid parts, which can cause substantial damage.



Impurities are separated out cleanly and completely.

This ERDWICH innovation is therefore equipped with two hydraulically-driven ejection flaps, which guarantee the reliable removal of more complex impurities.

Through the combination of a large charging drum and small shredding machine, the ERDWICH drum-type swarf shredders are the ideal solution for companies with temporary charging. The revolutionary process-technology concept of the double ejection flap is also offered in combination with standard charging systems.

The advantages at a glance:

- Ideal solution for smaller to medium swarf levels
- Continual and even feeding of the swarf to the cutting gear by the rotating drum
- Automatic separation of impurities from the material flow into coarse parts containers and transport of the swarf to the swarf conveyor below
- The single-shaft technology with double impurity ejection flap ensures smooth system operation even with a high proportion of solid parts in the swarf
- Intelligent system controls for automatic detection of solid parts, with reversible operation



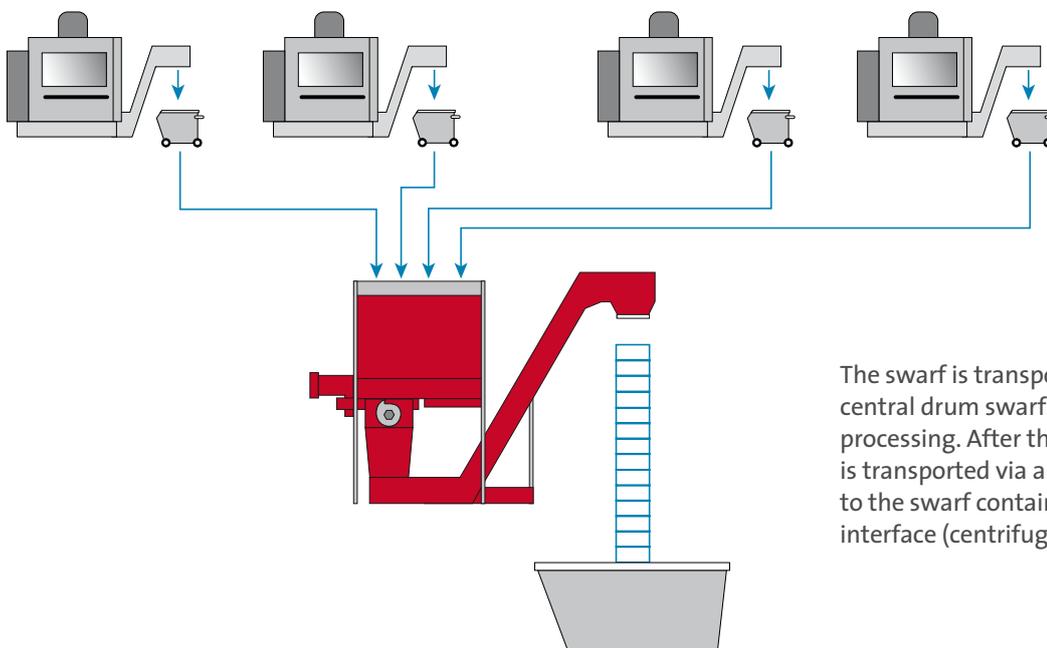
“The innovative ERDWICH technology with reliable separation of impurities makes our swarf recycling process significantly more effective.”

Wolfgang Färber, Managing Director
RAMPA Verbindungstechnik, Hans Brüggemann GmbH & Co. KG

REFERENZEN:

- GEZE, Leonberg
- Aesculap, Tuttlingen
- RAMPA, Schwarzenbek
- MAN Turbo, Augsburg
- Multivac, Lechaschau

Schematic diagram of centralised solution with drum-type swarf shredder:



The swarf is transported in a swarf trolley to the central drum swarf shredding system for central processing. After the shredding process the swarf is transported via a hinged-plate belt conveyor to the swarf container or downstream treatment interface (centrifuge, briquetting press).

CENTRALISED COMPLETE SYSTEMS WITH CENTRIFUGES

SHREDDING SYSTEMS WITH ECONOMIC OIL RECOVERY!

REFERENCES, WITH CENTRIFUGES:

- Niles-Simmons, Chemnitz
- Elbe, Bietigheim
- RAMPA, Schwarzenbek
- Tibo, Liechtenstein
- Siemens, Berlin

REFERENCES, WITH BRIQUETTING PRESSES:

- Festo, Esslingen
- Aleris, Bitterfeld
- Schechtl, Edling
- Liebherr, Biberach



Centralised solutions with process-reliable connection to centrifuges.

Oil as an operating material represents a significant cost factor for metal-cutting businesses. The aim therefore is to recover the oil as efficiently as possible from the swarf and feed it back into the process cycle.

ERDWICH systems connected with existing customer centrifuges or complete solutions with centrifuges supplied by ERDWICH meet this requirement in an efficient and economic way.

In addition to the actual shredding process, such solutions with centrifuges also ensure reliable exceeding of the maximum limit values of 2–3 % cooling lubricant residual moisture when disposing of the swarf.

The advantages at a glance:

- Recovery of valuable oil for the production cycle
- Latest technology with connection to existing or new centrifuges
- Reliable exceeding of the limit values of max. 2–3 % cooling lubricant residual moisture



Oil is reliably removed from the swarf waste.

CENTRALISED COMPLETE SYSTEMS
WITH BRIQUETTING PRESSES

COMPLETE SYSTEMS WITH BRIQUETTING PRESSES FOR VOLUME REDUCTION!



Optimisation of the recycling and handling process by briquetting.

With many types of swarf, the recycling and handling process is optimised by pressing the swarf into briquettes, which also reduces the volume. At the same time, increased revenue can be obtained when selling the briquettes to smelting businesses.

ERDWICH systems connected with existing customer briquetting presses or complete solutions with briquetting supplied by ERDWICH meet these requirements in an efficient, reliable and economic way.

The advantages at a glance:

- Briquetting of metal swarf for volume reduction and optimum handling
- Latest technology with connection to existing or new briquetting presses
- Proven solutions for maximum process reliability
- Shredded and compacted swarf increases the combustion efficiency when smelting
- Increased revenue from sales to smelting businesses



Pressing of the shredded swarf into handy briquettes.

MACHINE TECHNOLOGY

SINGLE-SHAFT TECHNOLOGY FOR EXACT MATERIAL PREPARATION IN ONLY ONE OPERATION!



ERDWICH machine technology as the decisive interface for maximum process reliability.

The key interface in swarf logistics is the machine technology. This determines how reliably and efficiently the system performs in the long term.

Investment in machinery and systems for swarf shredding are guaranteed to pay for themselves with ERDWICH technology. Decades of experience, first-class consultation and specialists who tune and adapt every system to your individual requirements: **This is the service which awaits you at ERDWICH.**

**Don't wait any longer.
Make short shrift of your metal swarf!**

ERDWICH SINGLE-SHAFT SHREDDERS

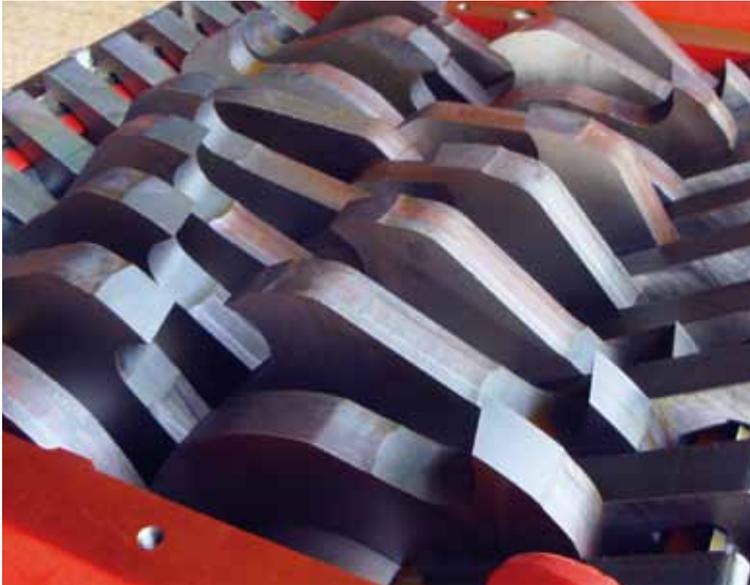
Carrying out the exact material preparation in only one work operation - this is the proven capability of ERDWICH single-shaft shredders.

- The metal swarf is picked up by the cutting rotor and repeatedly shredded at the stator blade
- When the required size is reached, the material is removed by the perforated screen mounted below
- Also equipped with double impurity ejection flaps, which enable problem-free permanent operation even with larger swarf quantities
- Maximum efficiency and absolute reliability for defined swarf sizes

Technical facts:

Drive performance: 2.2 – 30.0 kW
Cutting gear size: 200 x 200 mm to 900 x 380 mm
Screen diameter: 10 – 50 mm
Throughput: 10 – 2,000 kg/h

TWO-SHAFT TECHNOLOGY FOR THE SHREDDING OF LARGE VOLUMES OF SWARF!



THREE-SHAFT TECHNOLOGY FOR SOLID PIECES OF SWARF AND LONG, SPIRAL SWARF!



ERDWICH TWO-SHAFT SHREDDERS

Continual shredding processes of large swarf quantities and volumes – this is the world of ERDWICH two-shaft shredders. The secret of our success is the ERDWICH rotor-shear cutting principle, which has been proven over decades.

- The metal swarf is picked up by the hooks of the blade, drawn in completely and shredded between the blades of the two opposing shafts
- Metal swarf has no chance against the two powerful cutting shafts
- Mechanical or hydraulic drive concepts for special performance requirements
- Ideal preliminary shredding for further material treatment thanks to the different blade options

Technical facts:

Drive performance: 2.2 – 45 kW
Cutting gear size: 160 x 265 mm to 1,008 x 800 mm
Screen diameter: 20 – 50 mm
Throughput: 20 – 4,000 kg/h

ERDWICH THREE-SHAFT SHREDDERS

The even shredding of metal swarf in large volumes– this is the speciality of the ERDWICH three-shaft shredders. No trapping or blockage even with enormous swarf volumes and long, spiral-shaped swarf.

- Due to the different speeds of the three cutting shafts and their individual blade fitting, the metal swarf is continuously drawn in and precisely shredded
- Material which is too large is fed from the upper clearance shaft to the lower shaft for further shredding. This cycle is repeated until the defined swarf size is achieved
- Continual shredding process, with exact size determination by perforated screen below

Technical facts:

Drive performance: 2 x 11.0 – 2 x 45 kW
Cutting gear size: 488 x 605 mm to 1,250 x 900 mm
Screen diameter: 20 – 50 mm
Throughput: 500 – 3,600 kg/h

Further applications areas:

- **Electronic waste**
- **Refrigeration plant**
- **Substitute fuels**
- **Cardboard**
- **Special waste**
- **and many more**

Core competencies:

- **Shredding machinery**
- **Plant engineering**
- **Service**

Innovation is our standard!

As a highly specialised engineering and production company ERDWICH offers exceptional services in recycling and shredder technology, backed up by over 30 years of experience. Shredding machinery, special solutions, complete recycling systems and global services are our core competencies, to which our team dedicates itself enthusiastically every day.

Owner-managed, with personal, intensive support, short reaction times and comprehensive service, we offer our customers first-class quality made in Bavaria. Get to know us.

Welcome!



Take advantage of your opportunity and test your material without any obligation in the ERDWICH Test Centre.

We look forward to seeing you there.

ERDWICH ZERKLEINERUNGSSYSTEME GMBH

Kolpingstraße 8
D-86916 Kaufering

Tel.: +49 (0)8191 - 96 52 - 0

Fax: +49 (0)8191 - 96 52 - 16

E-Mail: info@erdwich.de

www.erdwich.com