



EN



**ARJES**

Recycling Innovation

***RECYCLING***  
***IS OUR GLOBAL SOLUTION***

[www.arjes.de](http://www.arjes.de)



## **OUR OPPORTUNITY** THE SEVENTH RESOURCE



Of the earth's natural resources, we consider six to be the most important: water, air, oil, natural gas, coal and minerals. Those resources are the foundation of our existence, but they are limited.

Humans have consumed more resources in the past 50 years than in all of prehistory. We are reckless with earth's natural resources while billions of tonnes of waste end up as rubbish every year.

Our solution is recycling –  
***"The seventh resource"***





## WE ARE THE RE-GENERATION!

We may not be able to turn back time, but we can start making a difference now. We belong to the generation that can make peace with nature. Therefore, despite the great waste, we should also see the opportunities that arise. Recycling is an essential part of our circular economy and helps to preserve our natural resources.

The so-called "seventh resource" saves more than 700 million tonnes of CO<sub>2</sub> emissions every year and covers about 40% of the world's demand for raw materials. According to projections, this amount is expected to increase to 1 billion tonnes by 2030. Beyond that the recycling industry provides a future-proof job for around 1.6 million people worldwide, trend rising\*.

(Source: \*Study by the Bureau of International Recycling)



## **YOUR CHALLENGE** WASTE WOOD & BIOMASS



Waste wood is a versatile raw material that is worldwide used thermally, and for the production of material. It is waste and biomass at the same time.

Some waste products are recyclable and find their use in industrial wood processing. The rest are converted into electricity and heat via biomass power plants and thus form a pillar in the energy transition as renewable energies. The requirement for high-quality recycling is qualified preparation of the material.





## OUR SOLUTION! RESOURCES FOR THE PROTECTION OF THE CLIMATE



Scan the respective code to see the shredding process of our application examples in action!

### WASTE WOOD



Waste wood is already materially processed wood that has come to the end of its useful life. After its utilisation, depending on its classification (A1 – A4), it can be recycled both materially, e.g. for chipboard, and thermally for the production of electricity and heat.

### GREEN WASTE



Green waste is the term used to describe freshly cut, slightly woody or non-woody plant residues, which are often produced as waste in gardening and landscaping as well as in forestry. Through its processing, it can make a significant contribution to renewable energy supply.

### STEM WOOD



Cut down and delimbed trees are also called trunk wood or rootstocks. The solid material needs to be roughly broken up first to ensure that it can then be shredded. The inexpensive fuel is mainly used for thermal recycling.

### TOMATO PLANTS



Due to their cultivation method, tomato plants are laced with additional plastic mesh which is intended as a climbing aid and are unsuitable for composting after harvesting. The only solution is effective volume reduction to obtain an end product for thermal recycling.

## **YOUR CHALLENGE** HOUSEHOLD & COMMERCIAL WASTE



Regardless as to whether our private or commercial waste ends up as substitute fuel in the waste incinerator or it can be recycled – Packaging material, bulky waste, used tyres and many other types of waste must be shredded first.

Since the composition of household and commercial waste varies greatly in different countries around the world, a shredding technology is needed that can withstand this unruly mix of materials and process it ideally.





## OUR SOLUTION! *DON'T WASTE IT – REUSE IT.*



Scan the respective code to see the shredding process of our application examples in action!

### COMMERCIAL WASTE



Waste from commercial operations contains many materials such as plastic, wood, paper, rubber, glass or metal. In addition to shredding, effective separation of metal-containing materials is of particular interest. This material mix is usually for the production of substitute fuel.

### TYRES



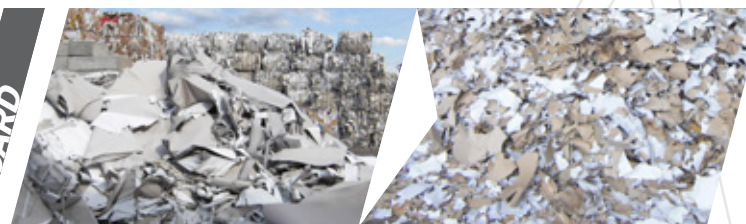
With a share of about 98 %, used tyres are utterly significant for material recycling. Recovered rubber granulate is used in insulation materials, in road construction or as flooring for playgrounds. Non-recyclable tyres are sent for thermal recycling.

### ROTOR BLADES



The recycling of CFRP/GFRP materials (the main component of rotor blades) is an important subject for wind turbine operators. After being shredded and subjected to a clean separation process, the glass-fibre reinforced plastics can be recycled sustainably.

### PAPER & CARDBOARD



Paper and cardboard packaging are traditionally considered to be the oldest recycled product with the highest recyclability rate. Paper fibres can be recycled up to 25 times. The recovered material is used to create new products, such as newsprint, sanitary products and office papers.

## ***YOUR CHALLENGE*** CONSTRUCTION & DEMOLITION WASTE



The construction industry is one of the most resource-intensive in the world. The stock of buildings and infrastructure represents a significant man-made resource. These can be recycled after demolition.

Nowadays, up to 90 % of construction and demolition waste is processed for the extraction of so-called secondary raw materials. Our shredders create the basis for these recycled building materials, which are mainly used in road construction, earthworks or landfill construction.





## OUR SOLUTION! *TEAR DOWN AND REBUILD*



Scan the respective code to see the shredding process of our application examples in action!

### CONSTRUCTION WASTE



Mixed construction waste contains both, mineral (stone, brick, concrete) and non-mineral components (metal, wood, glass). In short: everything that is left behind during demolition. The raw materials produced after crushing are returned to the economic cycle as secondary raw materials.

### CONCRETE SLEEPERS



Concrete sleepers play an important role in rail traffic. To ensure the safety of train traffic, they must be replaced regularly. The hard concrete with reinforcing steel is first crushed and the iron content sorted out.

### ASPHALT



Recycled asphalt is increasingly used in the production of road pavements worldwide. Crushing and screening are followed by processing in asphalt mixing plants. At the end, the processed secondary raw material is reused by road pavers.

### CLAY



Clay is a naturally occurring material consisting mainly of mineral clay particles. This extremely sticky mineral, which behaves like plasticine when crushed and prepared, provides an optimal raw material for the production of tiles.

## **YOUR CHALLENGE** SCRAP METAL & CAR BODIES



Scrap and metal are significant secondary raw materials. By recycling waste of this kind, it is possible to save increasingly scarce and valuable raw materials, which also reduces energy consumption. Especially in the steel industry as well as in metal processing companies, professional disposal and reuse is worthwhile.

The scrap to be recycled is first crushed and then sorted according to different criteria using various separation processes. The sorted recyclable materials are melted down for further processing and used to manufacture new products.





## **OUR SOLUTION!** *EVERY PIECE OF SCRAP CAN BE TURNED INTO MONEY*



Scan the respective code to see the shredding process of our application examples in action!

### **CAR BODIES**



After the removal of saleable used parts, end-of-life vehicles are shredded and the materials are separated into different fractions, such as metals, light metals, plastics, etc. The share of scrap will be processed for the further usage and production of new steel.

### **MIXED SCRAP**



Mixed scrap is any form of waste that consists of more than one type of metal. The most diverse recyclable materials must undergo shredding and sorting processes before being recycled.

### **ELECTRONIC WASTE**



More than 40 million tonnes of e-waste are generated world-wide every year. The material compounds have enormous raw material potentials that should not be lost in a modern circular economy. The recycling of the metals or plastics contained requires efficient pre-shredding.

### **CABLE SCRAP**



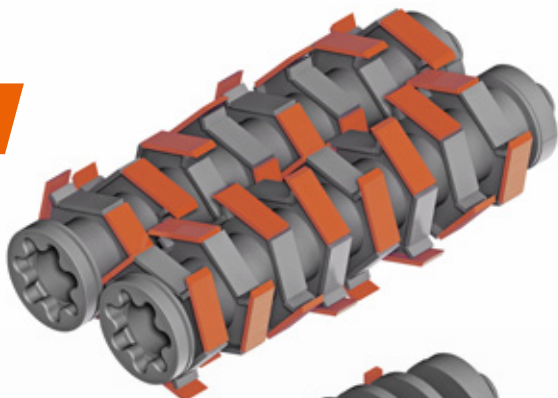
Due to the valuable components, cables have a high priority in recycling. The long cables are first pre-shredded into short pieces and then further processed in granulators until the coveted raw materials such as copper and aluminium separate from the PVC insulation.

# OUR EQUIPMENT *ARJES SHREDDING SHAFTS*



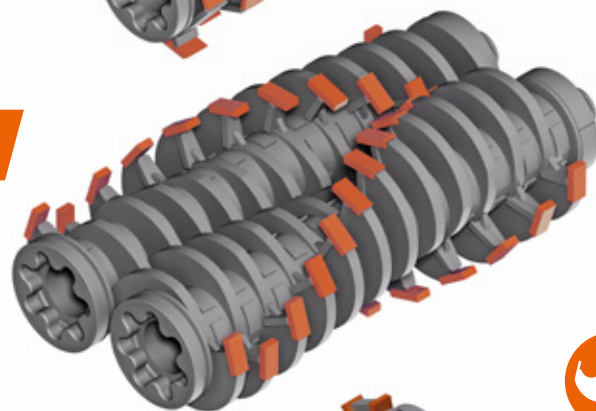
## PADDLE SHAFTS

The best choice for the most common applications in the field of waste wood & biomass as well as household & commercial waste.



## CONCRETE SHAFTS

Crushing instead of cutting. With this pair of shafts you are well equipped for your construction & demolition waste.



## METAL SHAFTS

These particularly resistant shredding shafts are mainly used in the field of metal scrap & cars



### SHAFT BODY

This forms the basic framework of each shaft. The shaft discs and crushing tools are welded onto it.



### SHAFT DISCS

The shape and arrangement of the discs play a significant role in determining which material can be shredded.



### SHAFT KNIVES

Worn knives can be refurbished easily and inexpensive in case of wear.

## WHAT'S INSIDE





Our innovative shredding shafts form the basis for all pre-shredding application areas. They are made of a highly wear-resistant steel with excellent surface hardening and can be used in as many different ways as the requirements of the industry demand.

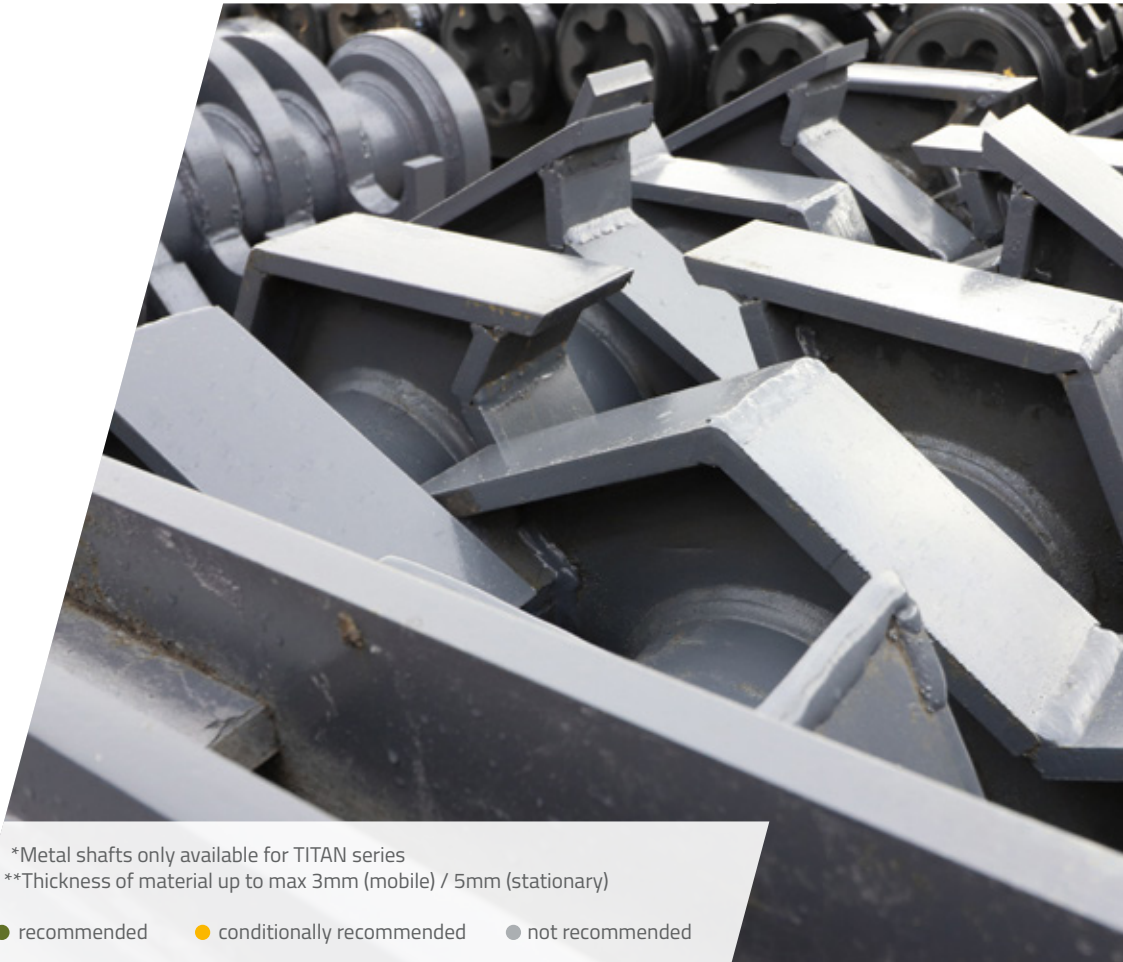
To cope with almost any application, asynchronous shaft running in combination with the ARJES control system is the optimal solution. The different arrangement of the shaft discs and knives has been adapted to the respective requirements. In case of wear, a simple and cost-effective reconditioning is possible.

(Exemplary representation of our shredding shafts)



## RECOMMENDED AREAS OF APPLICATION

MATERIAL	PADDLE SHAFTS	CONCRETE SHAFTS	METAL SHAFTS*
 <b>Waste Wood</b>	●	●	●
<b>Pallets</b>	●	●	●
<b>Cable drums</b>	●	●	●
<b>Wooden Railway Sleepers</b>	●	●	●
<b>Rootstocks</b>	●	●	●
<b>Green waste</b>	●	●	●
 <b>Household Waste</b>	●	●	●
<b>Commercial Waste</b>	●	●	●
<b>Bulky Waste</b>	●	●	●
<b>Tyres</b>	●	●	●
<b>Paper</b>	●	●	●
<b>Paper Rolls</b>	●	●	●
 <b>Construction Waste</b>	●	●	●
<b>Bricks</b>	●	●	●
<b>Asphalt</b>	●	●	●
<b>Concrete</b>	●	●	●
<b>Concrete sleepers</b>	●	●	●
<b>Cinder</b>	●	●	●
 <b>Aluminium**</b>	● soft	●	● hard
<b>Household scrap**</b>	●	●	●
<b>Car Bodies**</b>	●	●	●
<b>Electronic waste</b>	●	●	●
<b>Engine blocks</b>	●	●	●
<b>Recycling Residue</b> (paper and iron wires)	●	●	●



\*Metal shafts only available for TITAN series

\*\*Thickness of material up to max 3mm (mobile) / 5mm (stationary)

● recommended    ● conditionally recommended    ● not recommended

## OUR UNIQUENESS *SHAFT QUICK-CHANGE SYSTEM*

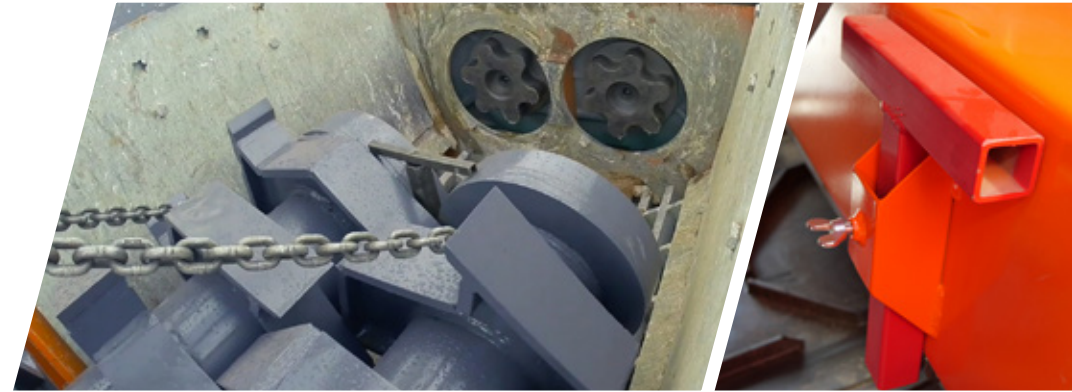


Scan the QR code to see a tutorial on how to use our ARJES quick exchange system!



## THE CHANGE OF SHAFTS IN FOUR STEPS

- 1** Undo all screw connections of the hopper back wall and attach the chain suspension to it. With the help of an excavator or crane, the hopper wall may now be dismantled.
- 2** Loosen the 4 main bolts of the quick-change cassette and attach the chain suspension right there as well as to the opposite end of the shredding shafts. Before lifting out the shafts, insert the supplied T-piece between the shafts as shown above.
- 3** Also use the T-piece to ensure the necessary distance between the shafts when installing them. Insert the shredding shafts into the cloverleaf couplings provided.
- 4** Position the quick-change cassette and hopper wall and screw in all the previously loosened bolts and screw connections.





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Your local dealer



## **5** CONVINCING ARGUMENTS FOR YOUR RECYCLING SOLUTIONS WITH ARJES

- 1 Best price-performance ratio in the industry**  
Optimal cost-benefit ratio for the maximum benefit of our customers and users
- 2 Largest range of applications**  
Processing of many types of material with the toughest requirements (such as waste wood, household and commercial waste, construction and demolition waste, scrap metal, etc.)
- 3 Revolutionary shaft quick-change system**  
Shortens maintenance times, refurbishment and changing of the different shaft types for uninterrupted operation
- 4 Global sales and service network**  
Qualified and experienced specialists provide you with shredder and recycling technology all over the world
- 5 For every challenge the right solution**  
Committed and competent employees with the courage to always push things forward