

# PRIMARY SHREDDER



# 9900 SERIES



WASTE  
REFINING  
SOLUTIONS



FOR MIXED SOLID WASTE



Over 250 plant deliveries  
around the world

1

**Renewable**

**BMH DESIGNS AND BUILDS** solutions for recycling, material recovery, renewable energy and re-creation of raw materials.

2

**Future**

**WE WANT TO BE** an integral part of building greener and cleaner future globally.

3

**Together**

**WE WORK TOGETHER** with our customers and enable them to succeed in their businesses and environmental targets. This we do together within BMH as a team.

**We create solutions for waste to be reborn as raw materials and renewable energy.**

We have decades of experience in waste processing and biomass handling.

# TYRANNOSAURUS® SHREDDERS & CRUSHERS



## Outstanding performance with smart technology

**BMH'S SHREDDER AND CRUSHER EXPERTISE** originates from our deep understanding of material handling processes and different customer needs. Since 1960's, we've delivered hundreds of shredders and material handling systems worldwide.

**TYRANNOSAURUS® SHREDDERS AND CRUSHERS** for waste and biomass represent excellent availability and high capacity. All our rotors have spiral knife arrangement, which means maximized power for each cutting event.

All our rotors have spiral knife arrangement. This means maximized power for each cutting event.



Get to know  
TYRANNOSAURUS®  
Shredders and  
Crushers!



The 9900 series is the ultimate solution when high capacity, heavy-duty design and high reliability are required.

### 9900 series

## When truly industrial design matters

**TYRANNOSAURUS 9900 SERIES** is the biggest and most intelligent single-rotor primary shredder for waste in the market. It's designed for industrial scale shredding of almost all types of solid waste with unique patented features such as MIPS® (Massive Impact Protection System) and Zero Gap®.

# 1

Requiring no pre-sorting, 9900 cuts almost any solid waste to the size of a business card in one pass with unbeatable capacity.

# 2

ZERO GAP® cutting technology maintains high capacity, ensures a longer lifetime for the knives, and contributes to low OPEX.

# 3

MIPS® equals automatic detection and rejection of unshred-dable materials, which guarantees continuous high availability.

# 4

Typical applications for 9900 series shredders are to produce:

- ➔ Feedstock for chemical recycling
- ➔ Alternative fuel for cement kilns
- ➔ SRF / RDF for high-efficiency boilers

TYRANNOSAURUS® 9900 Primary Shredders are the ultimate solution for industrial scale capacity, high availability, and robust design.

Zero Gap®  
cutting & fully  
automatic MIPS®



THE BIGGEST AND  
MOST ADVANCED  
WASTE SHREDDER  
IN THE WORLD.

Unique combination of high capacity, particle size and automatic tramp metal protection.

LET TYRANNOSAURUS® SHOW ITS TEETH.

## Designed to perform

**THE 9900 SERIES** is designed for shredding almost all types of solid waste from high moisture municipal solid waste (MSW) to dry industrial and commercial waste (ICW) and various waste mixes. Due to the unique technical features of the 9900 series shredders, neither pre-sorting nor source segregation of waste are needed.

Typically, mixed waste streams contain unshreddable materials, such as big rocks, large scrap metals, and massive concrete

objects. The 9900 series is armed with automatic MIPS® (Massive Impact Protection System), which means that the shredder will detect and reject any unshreddable items and keep on working. This function is completely automated, which has a significant impact on the availability of the shredder.

At the same time, the 9900 series shredders provide a clean cut for the most challenging materials, such as textiles, carpets and even the thinnest films and foils.

THE 9900 SERIES IS ARMED WITH AUTOMATIC MIPS® (MASSIVE IMPACT PROTECTION SYSTEM)

→ TYRANNOSAURUS® 9900 SERIES shreds any combustible waste, such as unsorted industrial, commercial, and municipal solid waste.

THE KNIVES' MATERIAL AND SHAPE HAVE BEEN CAREFULLY SELECTED TO RESIST WEAR AND FRACTURING.

**ZERO GAP®  
TECHNOLOGY  
MAINTAINS THE  
CUTTING GAP IN  
ZERO.**

**Zero Gap® technology ensures a clean-cut for even the thinnest of waste materials.**

## Zero Gap® - optimal cutting

**SHREDDING** is a wear-intensive function. Zero Gap® shredding means that the particle size and quality are preserved even with wearing of the knives. This technology, patented by BMH Technology, maintains the cutting gap in zero, ensuring optimal cutting.

Thanks to Zero Gap®, the TYRANNOSAURUS® 9900 Primary Shredder can process even the thinnest waste

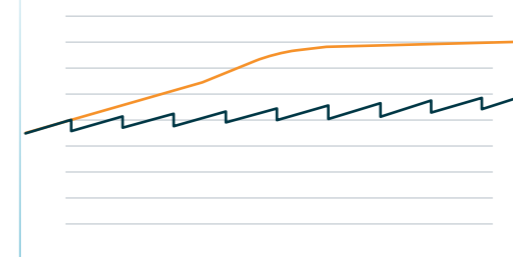
materials, such as plastic films and foils. The shredder's knives are hydraulically adjusted to keep on working optimally and lengthen the service interval.

The clean-cut equals lower power consumption and longer knife lifetime, while maintaining high capacity. All this contributes to achieving the lowest possible production cost.

**LOWEST  
POSSIBLE  
PRODUCTION  
COST**

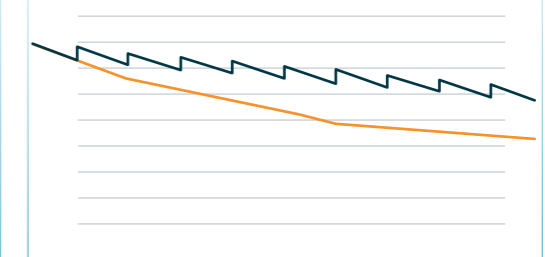
### POWER CONSUMPTION

■ POWER CONSUMPTION (WITH ZERO GAP®)  
■ POWER CONSUMPTION (WITHOUT ZERO GAP®)



### CAPACITY

■ CAPACITY (WITH ZERO GAP®)  
■ CAPACITY (WITHOUT ZERO GAP®)



Days 1 2 3 4 5 6 7 8 9 Days 1 2 3 4 5 6 7 8 9

AS THE KNIVES WEAR, THE CUTTING GAP NATURALLY INCREASES. THIS REDUCES CUTTING EFFICIENCY AND RESULTS TO BIGGER PARTICLE SIZE AND HIGHER POWER CONSUMPTION. SINCE THESE BIGGER PARTICLES CAN'T PASS THE BOTTOM SCREEN, THEY WILL CIRCULATE BACK WITH THE ROTOR FOR RE-SHREDDING. THIS CIRCULATION HINDERS NEW WASTE TO ENTER THE SHREDDER, THUS REDUCING THROUGHPUT CAPACITY. THIS SERIES OF EVENTS AND ITS NEGATIVE IMPACTS ARE MITIGATED BY THE ZERO GAP® FUNCTION.

**MIPS® guarantees a smooth operation despite harmful unshreddables in the waste stream.**

## MIPS® – the highest availability

**MIXED WASTE STREAMS** always contain unshreddable items. Massive Impact Protection System® (MIPS®), which is a patented and integrated feature of 9900

series shredders, is the best insurance for a plant's high availability. Instead of collecting harmful objects from inside the shredder or repairing damages, the

operator can focus on more profitable tasks.

MIPS® keeps the shredder working despite unshreddable items. First, the system dampens the impact to avoid major damages. Then, it locates the item, automatically removes it from the shredder and continues normal operation. All this happens without emptying the hopper or requiring any user input.

MIPS® equals maximum uptime, high average capacity, low maintenance costs and added safety. All this contributes to achieving the lowest possible production cost and avoiding unproductive or unpleasant work phases.

👉 Big rocks, large scrap metals, and massive concrete objects are automatically detected and rejected by the MIPS® system in the 9900 series shredders.



**AUTOMATIC  
MIPS® REMOVES  
UNSHREDDABLES  
WITHOUT USER  
INPUT.**



Requiring no pre-sorting, 9900 cuts almost any unsorted, solid waste to the size of a business card in one pass with unbeatable capacity.

## Unbeatable capacity

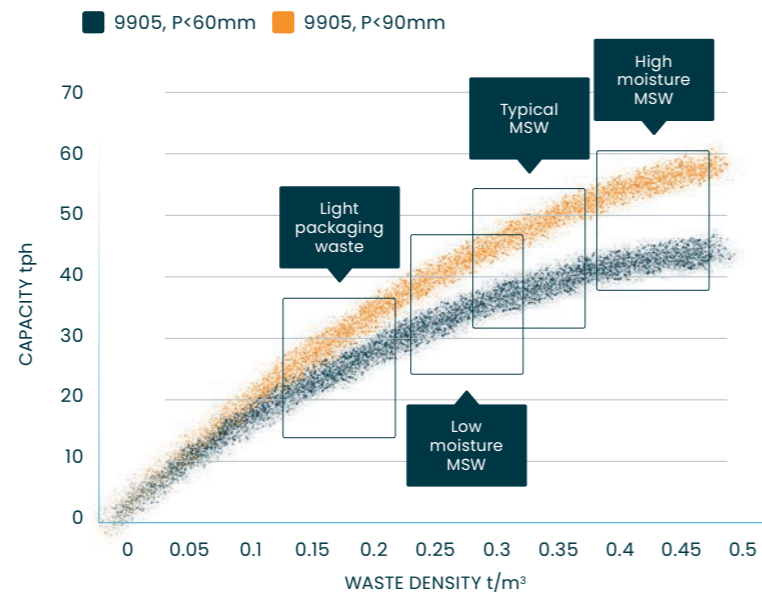
**ROBUST STRUCTURE** and heavy-duty design are standard features in industrial scale shredding. The 9900 series shredders go above and beyond all standards as they are by far the biggest and heaviest in the market. This, combined with an

extremely powerful drive unit, means that 9900 shredders can handle almost anything. To achieve continuous high shredding capacity, the shredder must be constantly fed. The 9900 series is integrated to an automatic feeding system, which main-

tains an optimal amount of waste in the shredding chamber. A strong hydraulic pusher efficiently pushes the waste towards the rotor knives, which keeps up continuous high shredding performance.

9905 weighs 75 tons.

TYRANNOSAURUS® 9905 MAIN SHREDDER



TYPICAL CAPACITIES FOR OUTPUT SIZES 90X90 MM AND 60X60 MM FOR DIFFERENT KINDS OF WASTES.



## EASY ACCESS TO 9900 SERIES' UNIQUE TECHNOLOGY FEATURES



Extreme conditions require extreme maintainability.

## Safe & swift maintenance

**OPERATING** in aggressive conditions with abrasive process materials and extreme throughput sets high demands for the shredder in terms of durability. Our thought-out structural solutions and accurate choice of materials ensure high availability and a long

lifetime in extreme shredding conditions.

Additionally, speedy and user-friendly maintenance plays a key role in maximising uptime hours. We've put plenty of effort on safe and easy access to the rotor, screens, and counter knives. Big, hydraulically operated

maintenance doors ensure that accessing the shredder is effortless and performing routine maintenance can be carried out comfortably and in an upright position.

Big doors allow for effortless inspection and service.



The TYRANNOSAURUS® 9900 Primary Shredder – heart of the waste refining process.

## Setting the standard for processing waste

BMH Technology offers a comprehensive industrial scale solution for refining waste.

The 9900 series shredder is the heart of the process offering several unbeatable advantages.

- 1 **Guaranteeing maximum plant availability**
- 2 **Ensuring high continuous capacity for the whole process**
- 3 **Widening the range of processed waste qualities**
- 4 **Optimizing the separation efficiency and accuracy**
- 5 **Simplifying the process & plant operation**
- 6 **Enabling a compact plant footprint**



**COMPACT &  
COMPREHENSIVE  
TYRANNOSAURUS®  
PROCESS BY BMH  
TECHNOLOGY**

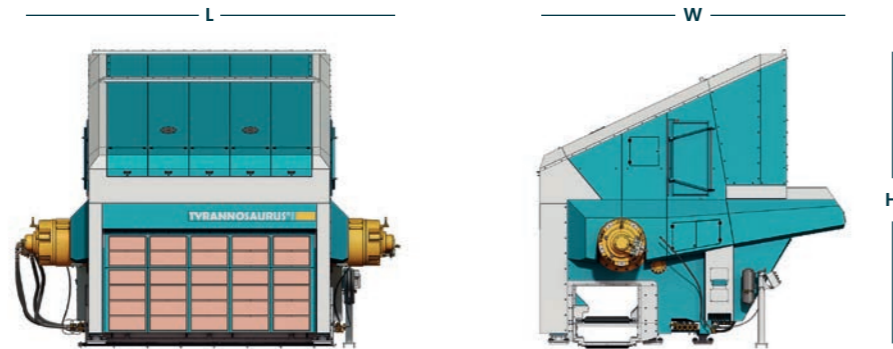
Scan to learn more about the process!



## 9900 series / Technical details

MODEL	9903	9904	9905
MAIN DIMENSIONS (L x W x H) [mm]	5620 x 6020 x 6000	6420 x 6020 x 6000	7220 x 6020 x 6000
WEIGHT [t]	56	64	75
DRIVE POWER [kW]	320	480	640
DRIVE SYSTEM	HYDRAULIC	HYDRAULIC	HYDRAULIC
INFEEED OPENING [mm]	2200 x 2400	2200 x 3200	2200 x 4000
NUMBER OF ROTORS	1	1	1
ROTOR LENGTH [mm]	2400	3200	4000
ROTOR DIAMETER [mm]	990	990	990
ROTATION SPEED [rpm, max]	UP TO 70	UP TO 75	UP TO 100
ROTOR KNIVES [pcs]	85	115	145
COUNTER KNIVES [pcs]	18	24	30
CASSETTES + SCREENS [pcs]	3+3	4+4	5+5
CAPACITY [t/h, max]*	25	35	50
TYPICAL OUTPUT PARTICLE SIZE [mm]	80	80	80
WIDTH OF OPTIONAL FEEDER [mm]	2400	3200	3200/4000
AUXILIARY HYDRAULIC POWER UNIT(S) [kW]	45	45	45

\*THESE INDICATIVE VALUES HAVE BEEN CALCULATED USING A TYPICAL MIXTURE OF ICW AND MSW.



Robust &  
industrial  
scale  
shredding



**BMH TECHNOLOGY**

Finnish cleantech company rooted back to 1929.



Scan  
to visit 9900  
product page!

## We create solutions for waste to be reborn as raw materials and renewable energy.

**We offer material handling solutions** for our customers who work towards carbon neutrality and a greener future. With our plant solutions, equipment and life cycle services they can reuse material previously seen merely as waste. We help our customers turn municipal, industrial, commercial and wood-based waste into raw materials and renewable energy. This answers to the needs of industrial, chemical and energy production as well as construction and infrastructure.



COMPLETE  
SOLUTIONS



STRONG  
REFERENCES



EXECUTION  
CAPABILITY



LOCAL  
SERVICE

Renewable  
future  
together.

**bmh.fi**

