



Solutions for industrial recycling

# The most heavy duty waste grinder there is!



## The FlexHammer<sup>TM</sup> Mill





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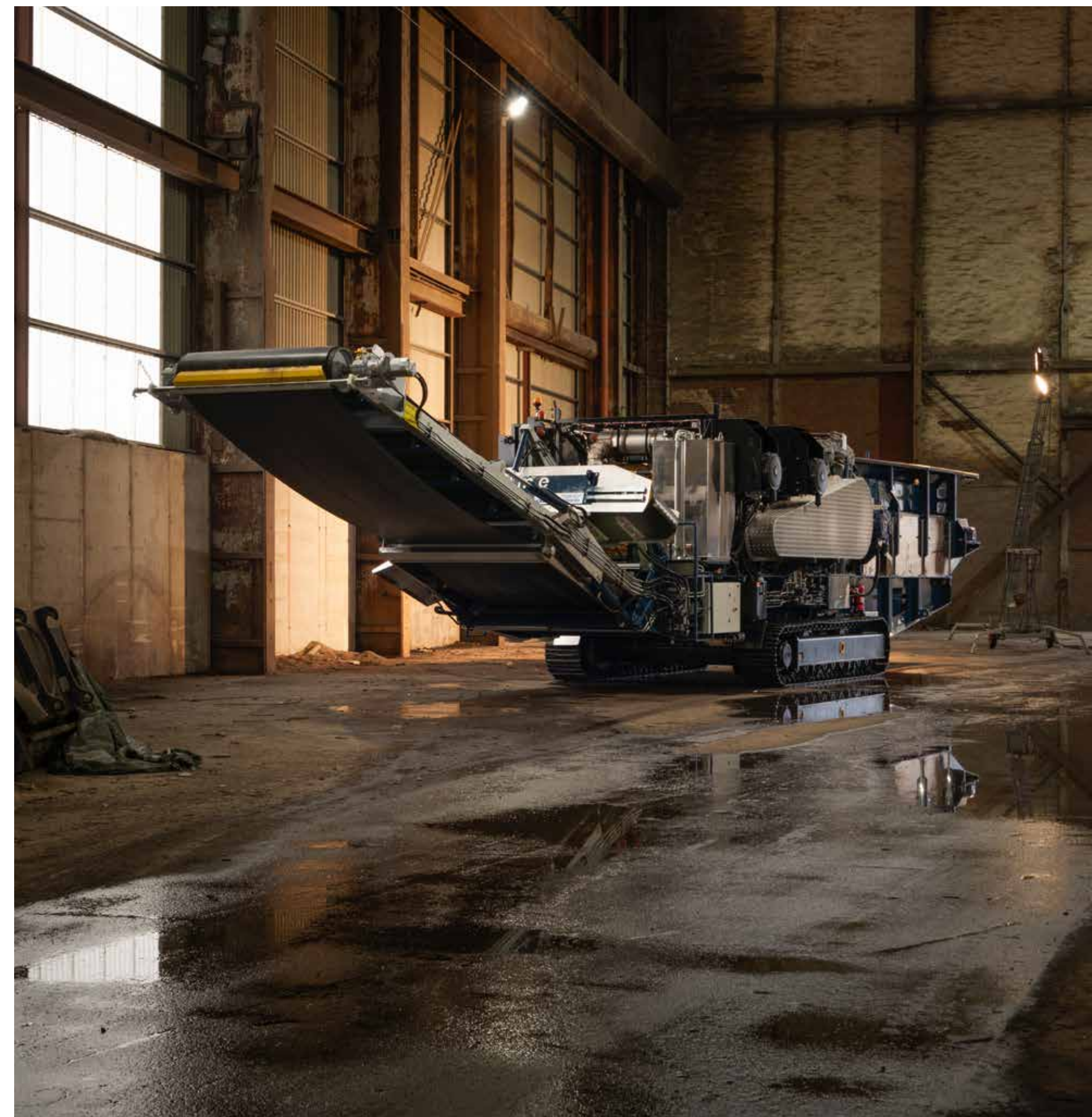
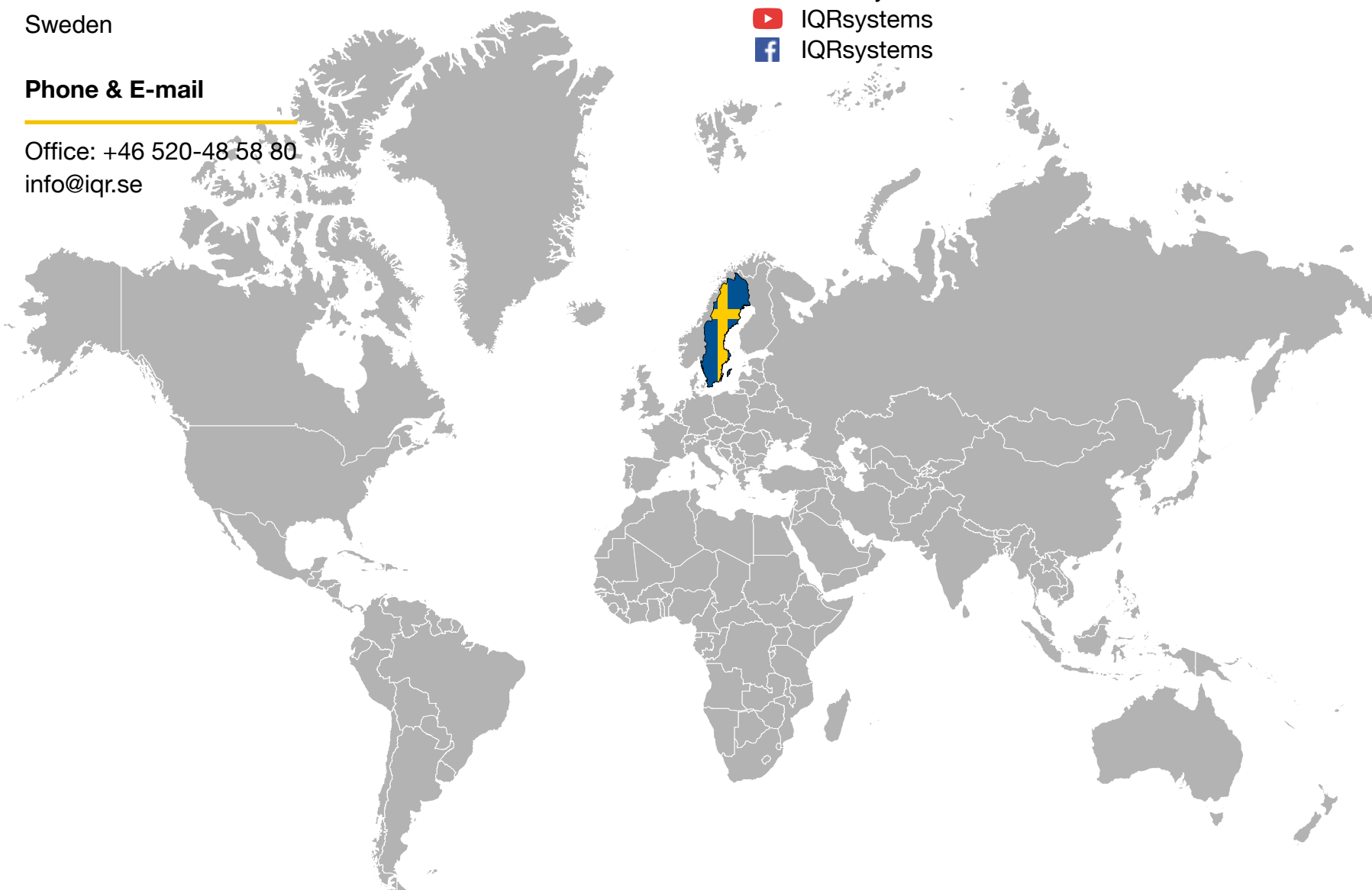
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# The FlexHammer™ Mill – the most heavy duty waste grinder there is

In contrary to many other grinders the FlexHammer™ distributes its grinding power to more than one hit – less brutal but still effective.

The FlexHammer™ machine has an upward rotor direction and it works without a fixed anvil. Crushing takes place in several moments and under flexible conditions. Uncrushable items are stopped on top of the “knives”, the hammers are bending backwards, hiding between the rotor discs and at the same time lifting the object from the “knives”, against the reject door, which opens and allows the object to drop out. A combination of incidents, which work well in line with the desire to avoid heavy impacts and damages. The FlexHammer™’s “knives” prevent uncrushable objects to enter between rotor and grate while Fixed Hammer machine has no protection against the same.

The real purpose of the machine, to provide an effective and controlled processing must not be forgotten.

The FlexHammer™ machine’s crushing takes place in several steps, at feed entrance, material to material, against roof, against reject door, over and/or between the “knives” and finally through the bottom grate.

The “knives” in particular have great importance to the finished product. They are arranged crosswise to the grate bars and therefore limit production of longer material (oversize). Also elastic materials are effectively processed thanks to the “knives”.

The Fixed Hammer type of machines works directly from entrance to bottom grate which results in a brutal operation, which gives no room for sensitive processing.

On the contrary a FlexHammer™ has a simple design with a lot of flexibility built into it.

It is an easy work to change the grate when there is a need for a different finished product. Contaminations in form of uncrushable objects make no harm to the machine and capacity as well as reliability is very high.





# The feeder



Our plants use steel apron feeders. Reason is simple, it is the only type that is robust enough to last in the tough environment offered in the waste handling industry. It comes in different lengths and widths and depending on your application we can build it lighter or even heavier. In static applications, where weight is seldom an issue we provide 10 meter feeding tables to our FlexHammer™ 1800.

# The engine



Of course our machines come equipped with different types of engines as well as a wide range of power choices. However, we do recommend the Scania DC16 (V8, 770 hp) for our smallest mobile hammermill. That engine is very efficient and in Europe it is the first choice. Going up to the FH1800 we need the power that CAT can provide with their V12 engines. In this book you see an FH1800 equipped with a CAT C32 at 1200 hp.



# The magnet(s)



At IQR we build our own magnets and metal separation equipment. Depending on the type of machine you choose your options on magnet size vary. If you go static you should go electro in our opinion. We also offer the electromagnet on our biggest mobile machine, the FH1800 on tracks (the FH1800 Crawler). That machine is equipped standard with a 3200 kg electromagnet (see pictures in this book). Of course you adjust the magnet position with the remote control. That is what we call mobile heavy duty. In static applications you can of course go even bigger on the magnet – for example up to our ELME MS1500 S2000 at roughly 7 metric tons of pure quality power.

One of the best advantages with using an electromagnet is its self-cleaning properties. When it is turned off, all magnetic metals stuck on is fall off of it making it less prone to having unwanted bearing failures and damaged belts.

# Conveyor



On this particular tracked machine we provide a 1600 mm wide belt (63 inches) – and we even go as far as to 1800 in rare occasions. The width have two main purposes:

It helps lowering the material depth  
making it easier to pick ferrous metal scrap and boosting the already powerful magnets’ performance

When using magnets cross belt one problem often occurring is the magnetization of the conveyor frame. Not on the FH1800 Crawler though – here it is stainless and 100% clean from metal at the end of your working day. Whether you want to use a flat belt or a chevroned belt is up to you and the waste you process – they both come with pros and cons.



# Remote control unit



The IQR remote control unit is very long range and comes with an informative display that gives you the preferred data at a glance.

# PLC/HMI



We try to implement as much as possible in the control systems of our FlexHammerTM's. Again you'll be able to get the most out of a static system but our supplier of PLC already offers a pretty impressive SCADA – giving you information about fuel consumption, start-up time, stoppages, reasons, GPS-positioning etc. all from the quite comfort of your home.



# FH1800 Crawler details



GPS-dial-up  
service & maintenance  
support hub

Flexhammer  
Reject Door

Feed Roller

Steel hopper

Steel aprons  
reinforced

IP 65  
e-cabinets

CAT C32  
1125-1200 bhp

3200 KG / 7055 lbs  
Swedish ELME-magnet,  
electro

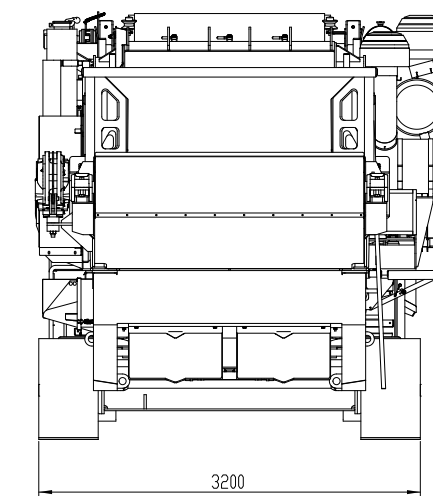
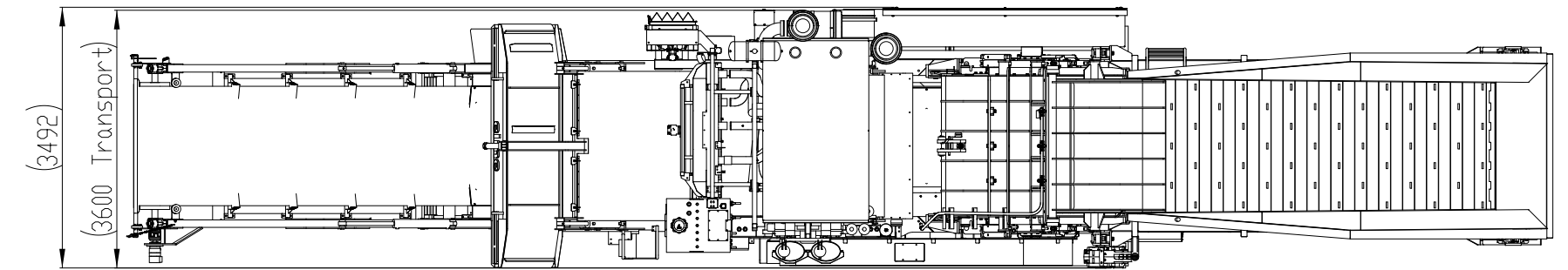
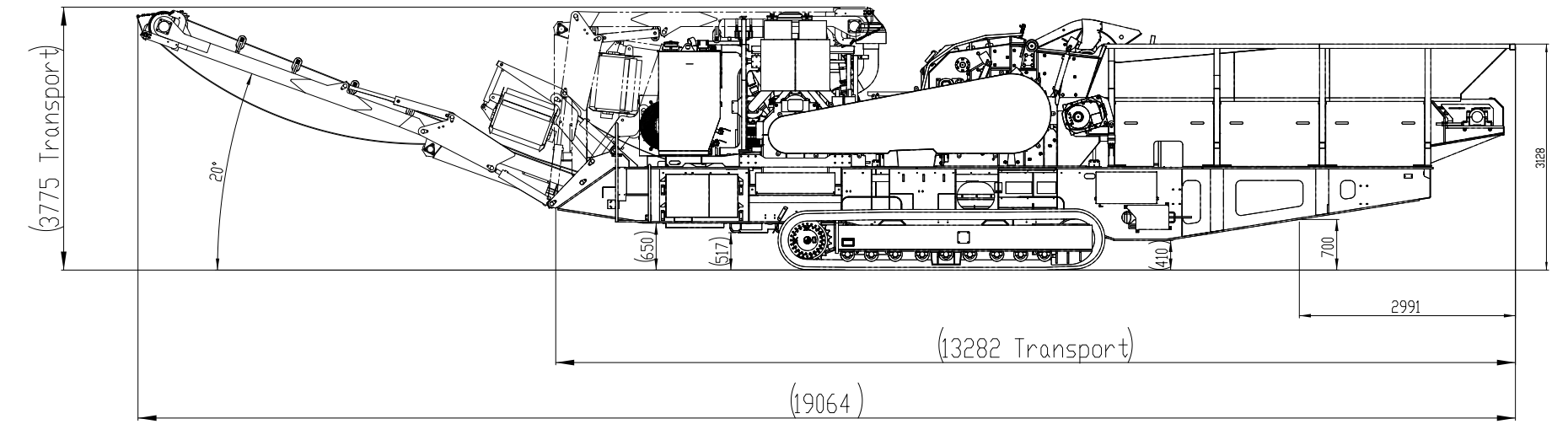
Stainless steel under magnet

Swedish quality  
Åkerström remote



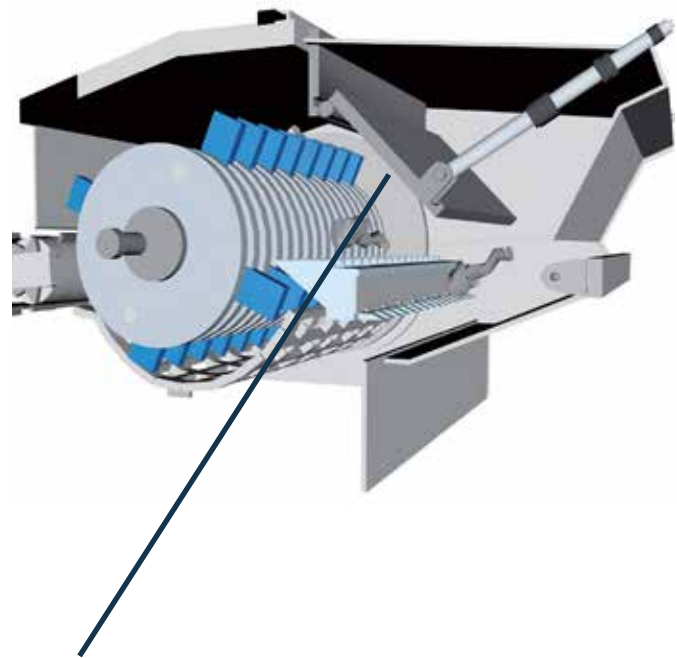
DATA

Total weight:	~52,5 tonnes	IMPERIAL 116.000 lbs
Dimensions transport L/W/H:	13,3 / 3,5 / 3,77	43' 8" / 11' 5" / 12' 4"
Fuel capacity:	1900 litres	500 gallon
Feed opening dimensions, width:	1,80 m	70"
Feeder, Apron Feeder size. Size: Length/width:	5,20/1,80	17'/70"
Rotor weight/with Hammers and shafts:	5230 kg	11500 lbs
Rotor width:	1,80 m	70"
Rotor diameter/tip to tip:	1200 mm	47"
Rotor shaft diameter:	295 mm	11,6"
Engine:	C32 CAT, V12	
Engine power:	1200 bhp	
Hydraulic capacity:	800 litres	210 gallons
Magnet type:	Electro	
Discharge belt width:	1,60 m	63"
Clutch:	HPTO-21	





# Handling uncrushables being fed into the mill



FlexRejectDoor™  
This is a safety device which prtects the mill from damage and stoppages if any uncrushable material is fed in by mistake.



One of the most important features of the FlexHammer™ is its ability to withstand heavy hits from contaminants in your waste. These contaminants, or unwanted uncrushables (call them what you want) often cause massive problems and severe downtime in other machines that were possibly built more towards grinding only wood. With the IQR machines (the FlexHammer™ 's) the costs for such events are Massively reduced, not to say eliminated. See examples on these pages of objects having entered our machine without damaging it.

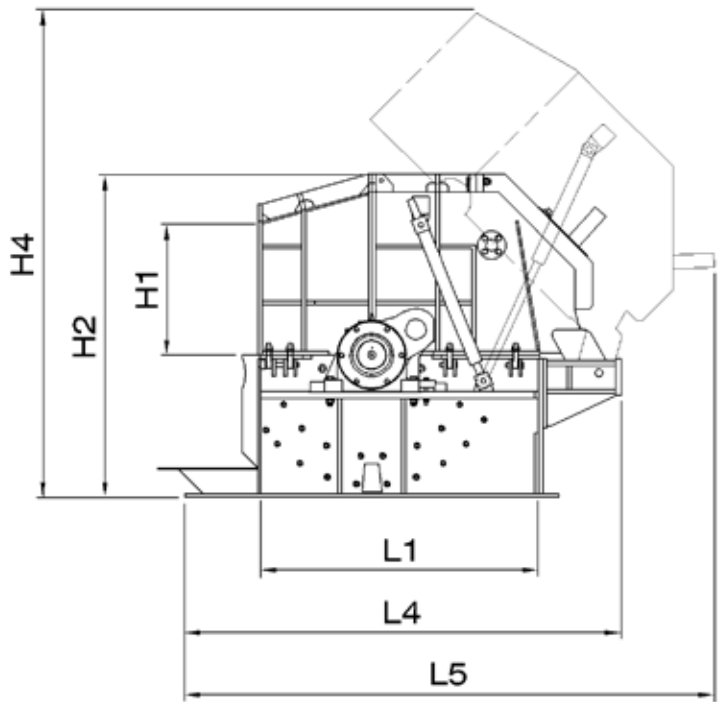
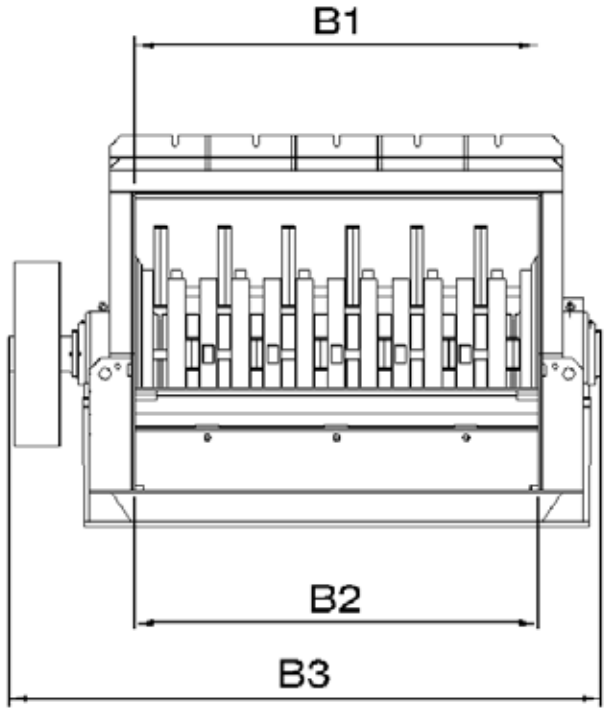


# The FlexHammer™ 1500 Mobile unit

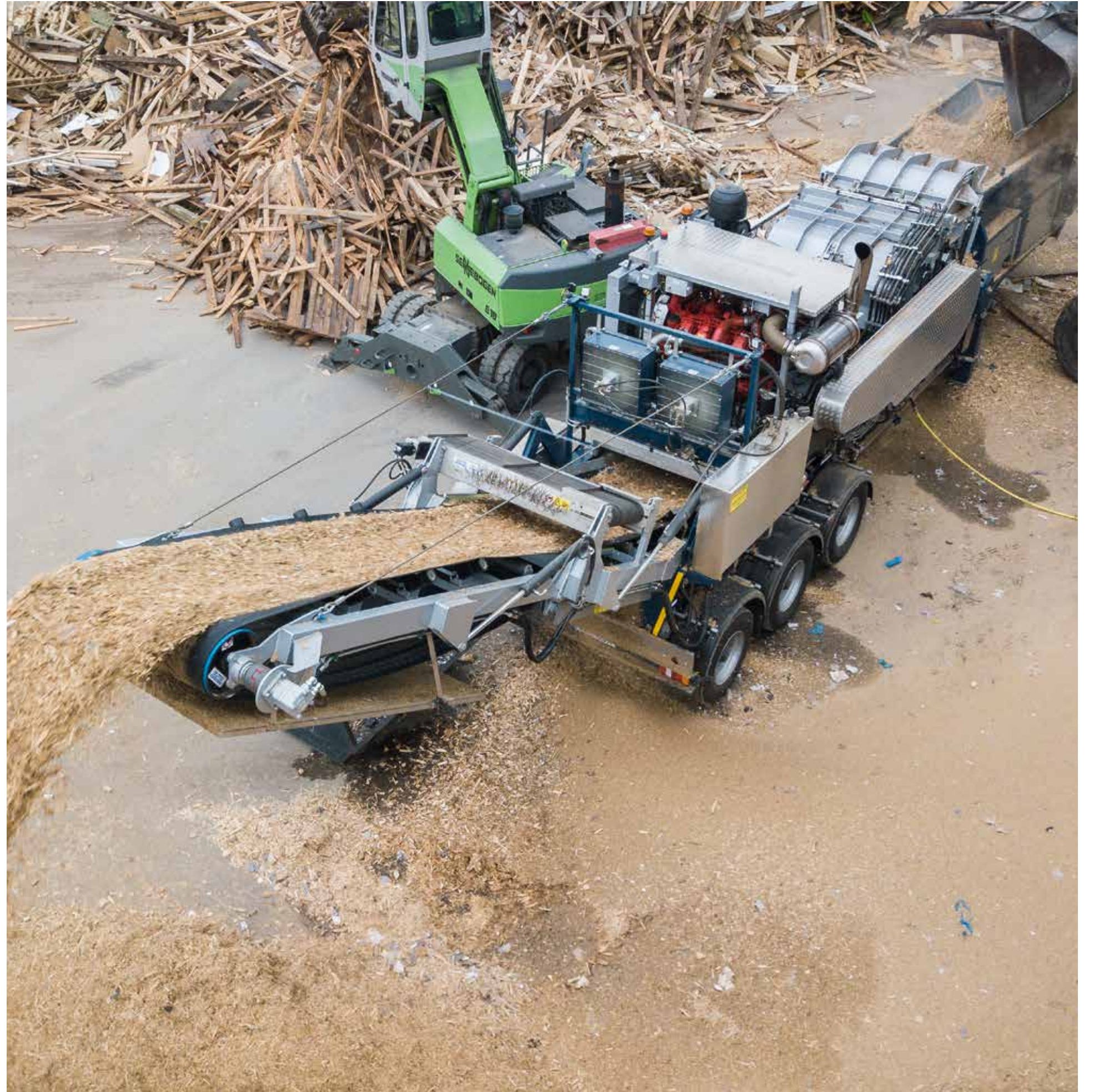
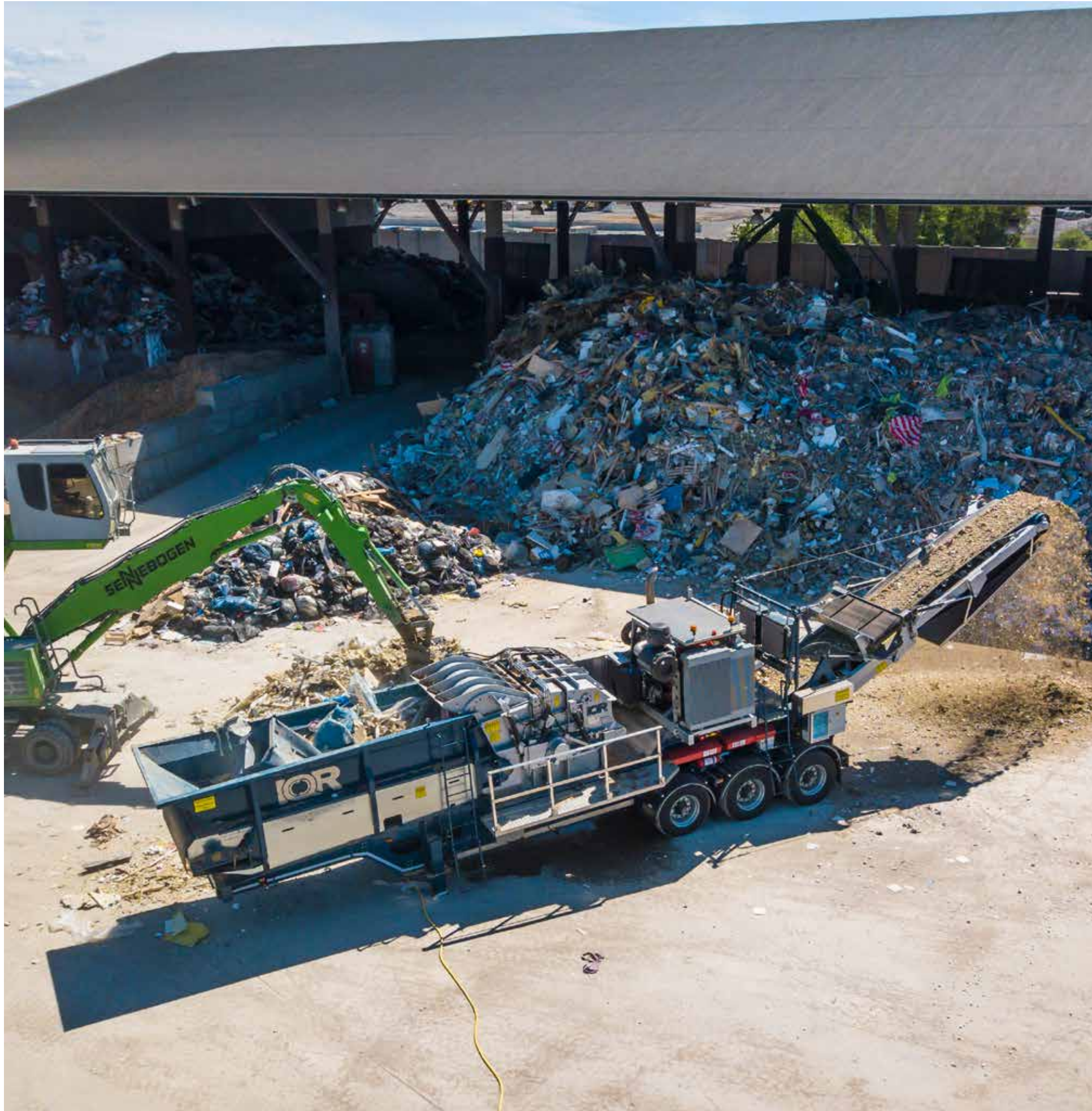


On the following pages you'll see the FH1500. It is the most popular machine in the IQR line of machines in Europe. It is also provided on tracks but uses (in the EU) only the Scania 16 litre V8 engine. It is a lighter machine than the FH1800 and is comparable to the competition in size. You can get this unit specified as the FH1800 you've read about in the previous pages but the mobile unit seen here is lighter using permanent magnets (incl. roller magnet), 1200 mm wide belt and is towed by king-pin. The 34 ton heavy machine makes it a far better choice if you move around a lot.

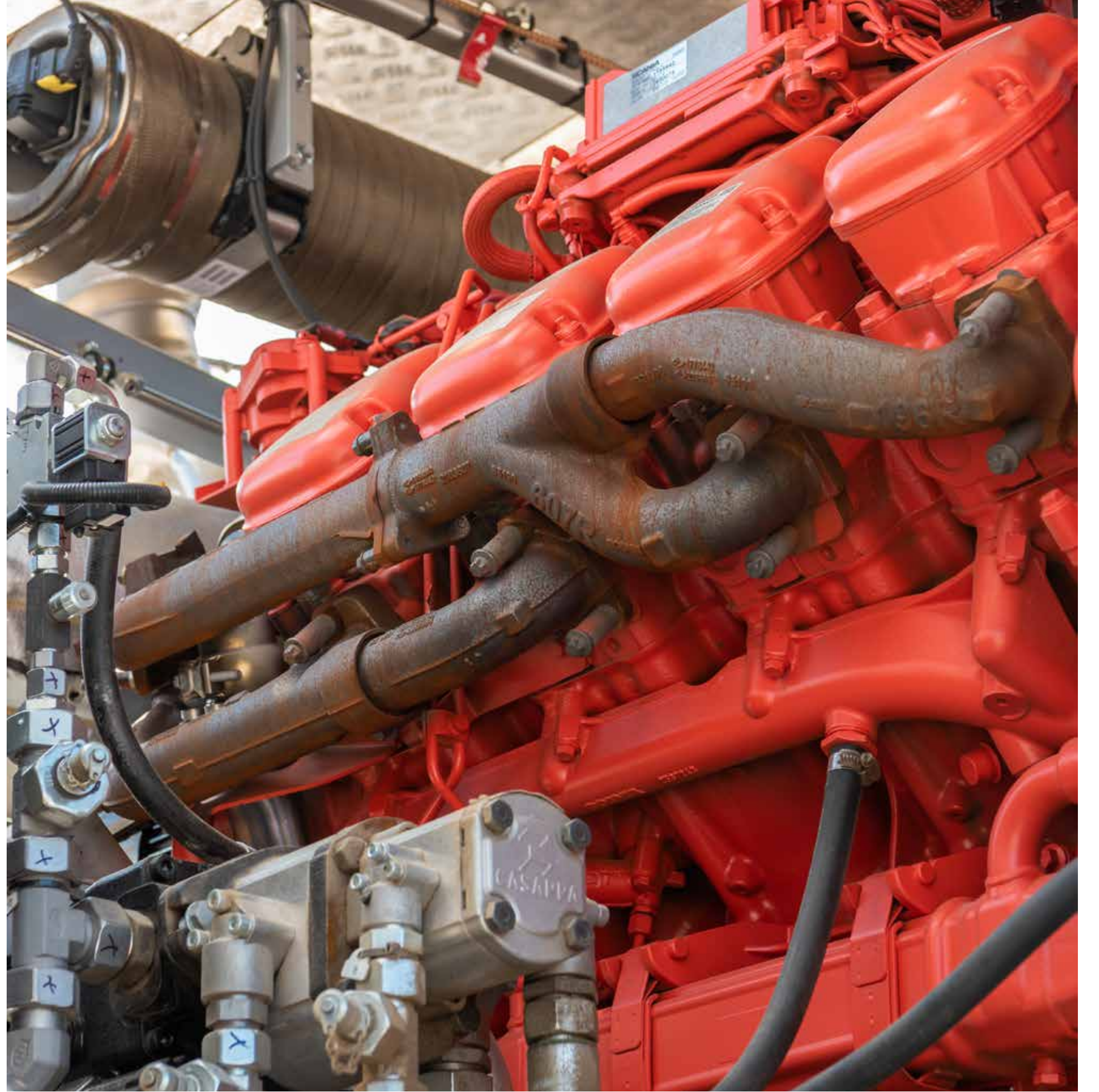
DATA		IMPERIAL
Total weight:	~35 tonnes	70.000 lbs
Dimensions transport L/W/H:	12,40 (11,5 King-pin) / 2,55 / 4,30 m	40' 8" (37' 9")/ 8' 4" / 14' 1"
Feed opening dimensions, width / height:	1,5 m / 0,8 m	59" / 31"
Feedroller diameter:	0,8 m	31"
Feeder:	4,5 / 1,5 (6m3)	14' 9" /59"
Rotor weight:	~4 tons	~8800
No. of hammers /Weight of hammer:	48 pcs / 11kg	24 lbs
Rotor diameter/tip to tip:	1200 mm	47"
Rotor speed:	~880 rpm	
Engine:	Scania DC16 Stage 5	
Engine power:	670 - 770hp (1025hp)	
Magnet type:	Elme permanent cross belt magnet	
Magnet type:	Electro	
End magnet in drive drum:	Yes	
Discharge belt width:	1,2 m	47"
Discharge belt - dropping height:	4,5 m	14' 9"











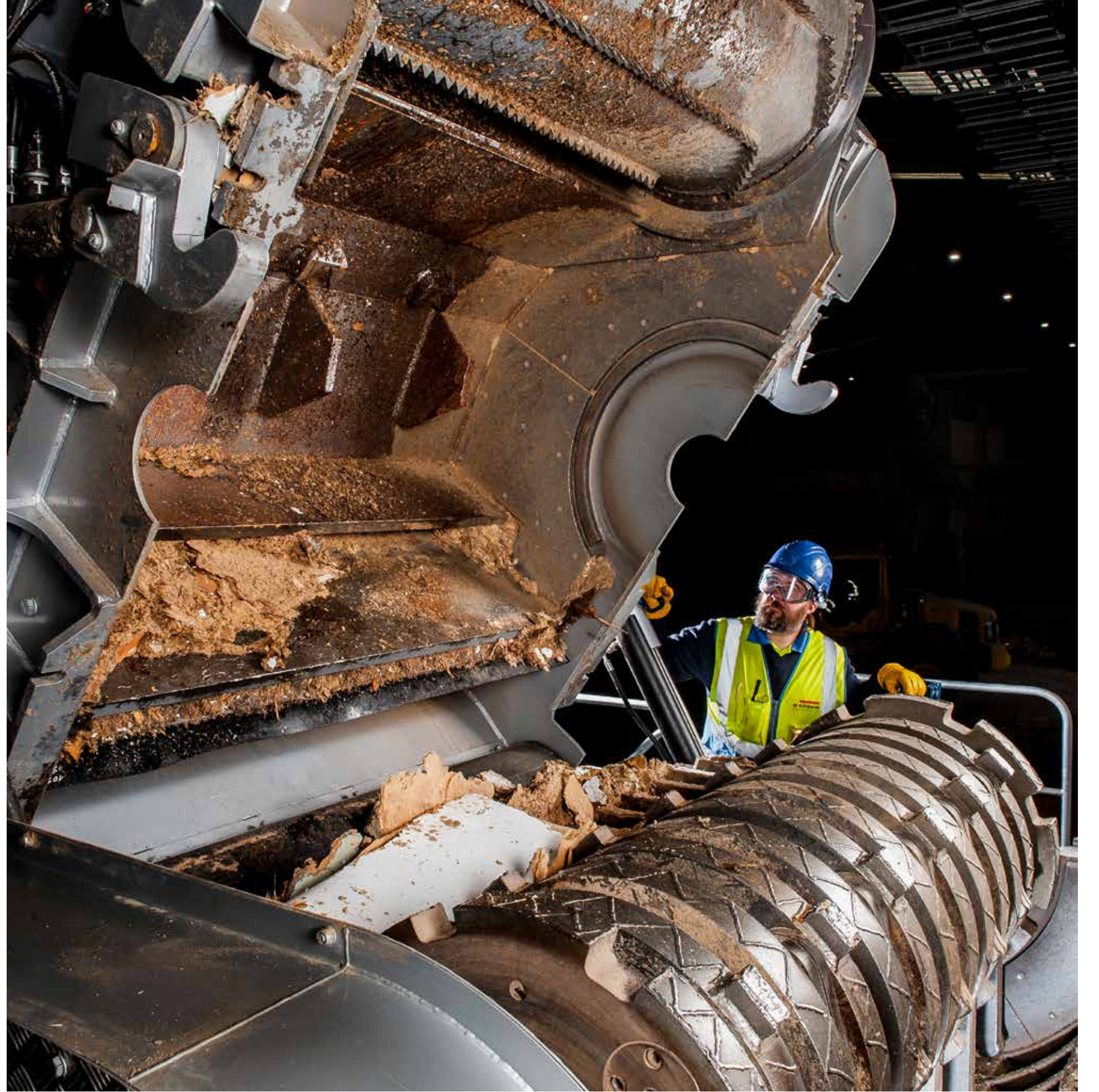




## Example of a static IQR crusher - FH1800











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