

TANA SHARK

Waste shredders



Unique versatility

TANA

From Waste to Value®

TANA Shark Waste shredders

THE MOST VERSATILE WASTE SHREDDER ON THE MARKET

Applicable even for the most challenging materials



Recycling possibilities

- Energy recovery
- Re-use of waste fractions
- Recovery of valuable materials
- Final disposal of rejected waste
- SRF/RDF production

Demand smart machinery

- Detailed reports and real-time information of the processes efficiency enable better control on increasing the profitability

Possibilities in recycling business

- Many waste materials require a tailored, task specific recycling processes
- Cost reduction for enhancing current processes
- Avoiding unnecessary pre-sorting of waste
- Varying uses of end products require a variety of particle sizes
- Solutions needed for difficult materials eg. plastics, tyres,
- Increased quality standards for energy recovery and other re-use possibilities

More value through versatility

For many years the recycling business has seen shredders that are designed for very specific, narrow field of tasks and applications.

The requirements and processes are constantly changing and the needs for different types of materials and end products vary from waste-to-energy production to volume reduction, from pre-treatment to raw material production.

These gave the key guidelines when we designed the TANA Shark. It is a slow-speed multipurpose waste shredder suitable for performing different tasks with the efficiency, reliability and quality only Tana can provide.

Prepared for future possibilities

Choosing a right shredder for the needs of today may mean that you limit your possibilities in the future. Most slow speed shredders are at their best when doing certain kind of shredding or are applicable for shredding of certain kinds of materials only.

By choosing the TANA Shark a variety of possibilities is still available. It can be used in

- Pre-shredding
- Secondary shredding
- Small particle size shredding in one pass
- In in-line systems

And it can shred a wide variety of materials, such as tyres, commercial & industrial waste construction & demolition waste, Solid Recovered Fuel (SRF), plastics, MSW, Waste wood, railway sleepers, household waste, mattresses and furniture, paper, shingles, ragger wire and other special materials.



WASTE TO ENERGY

EU produces 12,000 metric kilotons of SRF annually (Germany 6,150 kt/a)

Source: European Recovered Fuel Organisation

Total of 20 % of electricity demand in the US must originate from renewable sources (ie. SRF, RDF) by the year 2020

Source: American Clean Energy and Security Act

MATERIAL RECOVERY

**Percentage of tyres recycled:
Canada 95 %, Europe 84 %, Australia 23 %**

Source: URS & World Business Council for Sustainable Development

**Tyre Derived Aggregate (TDA) applications are constantly being developed:
TDA drains 10 times better than soil, insulates 8 times better than stone**

TANA

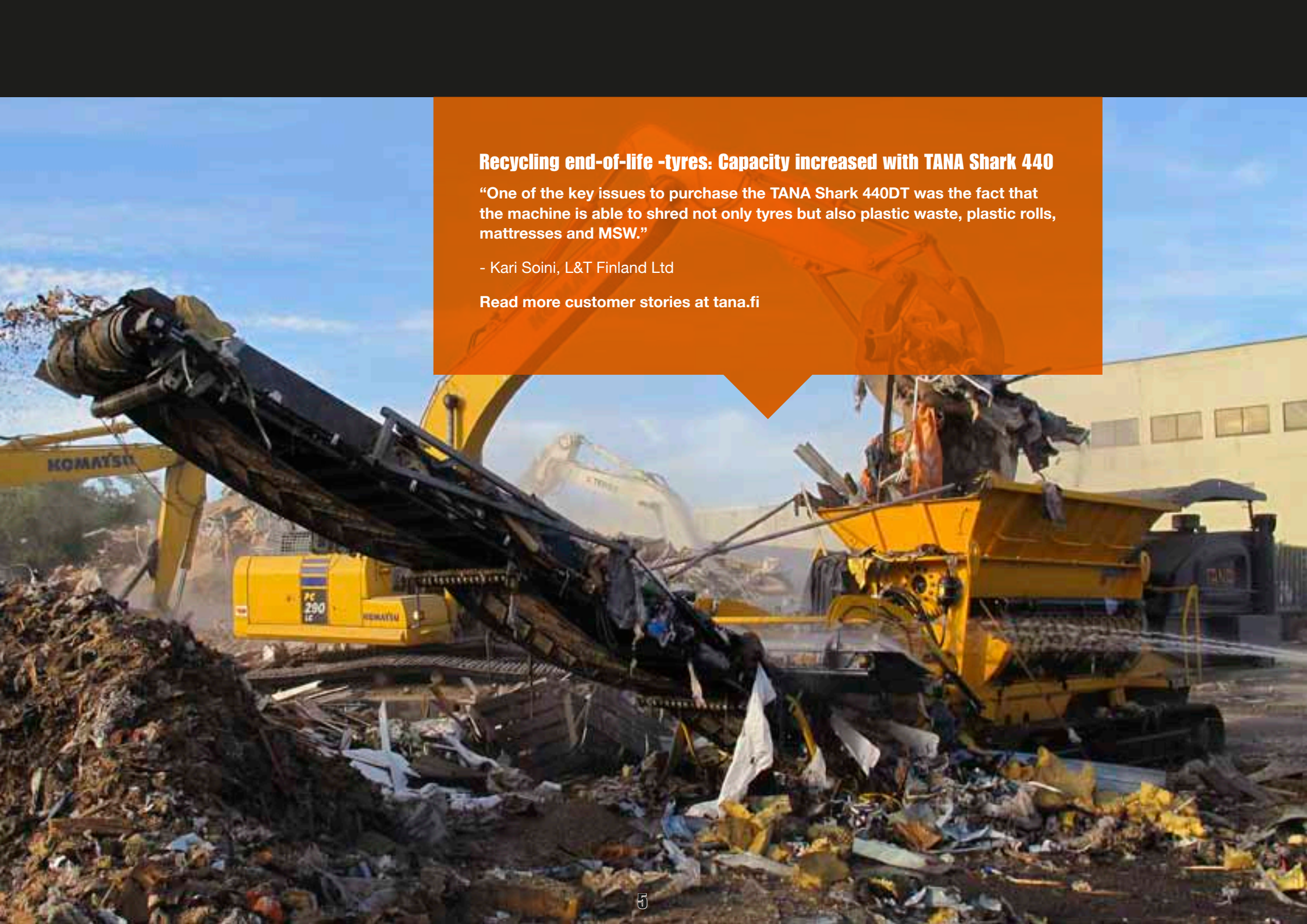
From Waste to Value®

Recycling rates are increasing globally and new possibilities for using waste as resource are being born every year.

In many countries, legislation aims at reducing and preventing the disposal of waste to landfills. Waste to Energy, recycling and other alternative ways of waste handling mean new processes and create a need for a variety of machinery and equipment, in other words new business opportunities in the recycling industry.

Because the business environment is constantly changing, versatility of machines is a value. It leaves the window open for grasping new business opportunities without necessarily investing in another machine.

Tana's slogan "From Waste to Value" crystallizes our mission: to provide our customers a possibility to make more money.



Recycling end-of-life -tyres: Capacity increased with TANA Shark 440

“One of the key issues to purchase the TANA Shark 440DT was the fact that the machine is able to shred not only tyres but also plastic waste, plastic rolls, mattresses and MSW.”

- Kari Soini, L&T Finland Ltd

Read more customer stories at tana.fi

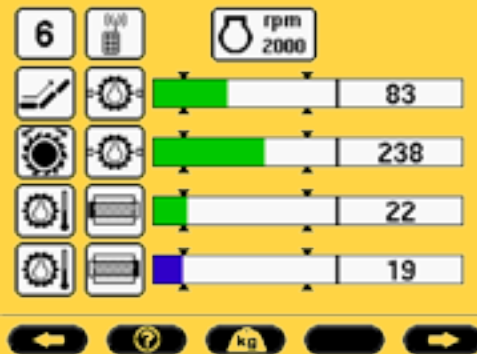
Smart operation

EASY USER INTERFACE

TANA Control System (TCS) monitors and controls the machine functions. There are 12 pre-programmed operating programs for different types of materials and purposes of shredding. On top of that, extra customer specified programs can be added.

The programs adjust the machine functions to optimal level for achieving the wanted output. For instance, overcharge pressure limits, rotor RPMs and conveyor speed can be adjusted.

If a non-crushable object blocks the rotor, TCS makes the machine reverse and try a few times until the object either goes through or the machine stops. The non-crushable object can be removed quickly and safely through the opening side wall.



Integrated scale tracks production

For better control of your shredding operation, TANA Shark weighs the shredded materials on the conveyor in real time. The information is transferred to TANA SMART SITE™, where you can view reports by waste fractions.

You can also evaluate operators by comparing the quantities they have shredded during a certain time period like a work shift.

Increasing the operator efficiency by “learning by doing” -principle needs feedback, which the reports from the scale can produce.



Replacing two shredders with one TANA Shark Minimal dust in waste wood shredding

“The ergonomics and safety of the TANA Shark 440D is years ahead compared to the previous machines we have used. For example changing knives and/or screen is not only safe but also a really quick procedure to do due to the marvelous design of the machine..”

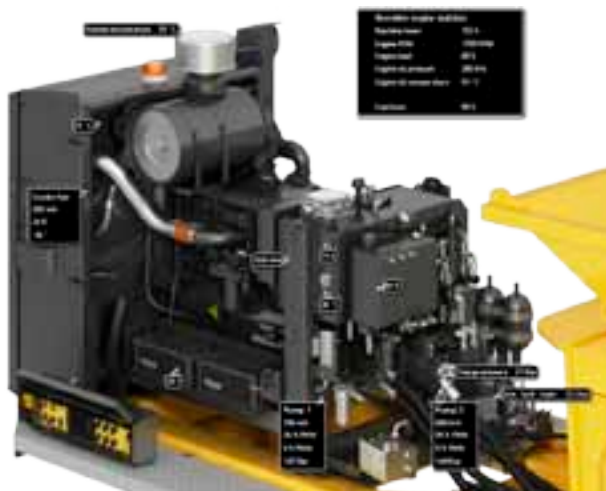
Operations Manager from a French company

Read more customer stories at tana.fi

TANA SMART SITE™ PREVENTS DOWNTIMES

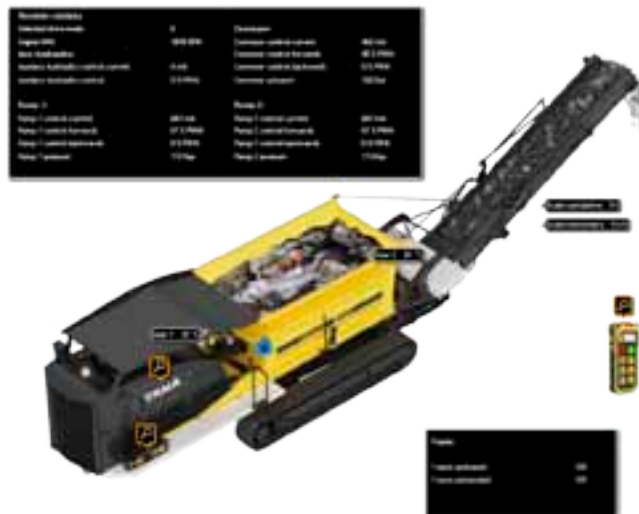
TANA Shark has inbuilt smart features called TANA SMART SITE™. It enables an Internet access and a real time view to the machine for authorized professionals at TANA Service Center, at the local Tana representative as well as at the customer himself.

It improves accuracy of trouble-shooting and minimizes downtimes. In a best case scenario, upcoming failures can be prevented by reacting to the early symptoms and data.



The machine owner can track his machine where and whenever he wants. This allows more control of the operation. In addition to the real time view, the upcoming scheduled maintenances, fuel consumption and working hours can be downloaded - just to mention a few.

If the reporting (optional) has been ordered, it is possible to track the work shifts and the efficiencies of the operators of the machine.



TANA Service Kits

The filters and accessories needed for the scheduled maintenances are packed in TANA Service Kits. When it is time for scheduled maintenance, everything except lubricants are provided in one box ready to go.



TANA Shark

SIMPLE, ROBUST AND SMART

Maximized reliability

Renowned for designing long lasting, robust machines, Tana engineering aims at the best customer experience through durability and high uptime.

TANA Shark has a hydrostatic power transmission, identical to the one used in TANA landfill compactors. It introduces a patented *swing frame construction.

The robustness of the Shark is shown in its weight. The material of the wearing parts, such as the rotor knives, is an alloy developed specifically for the TANA Shark.

Easy to operate and maintain

One of the smart features for daily operation is the opening sidewall. It provides an easy and safe access to clean and remove non-shreddable objects from the rotor shaft.

Opening sidewall also functions as a service hatch when changing or replacing rotor knives and counter knives.

Both rotor knives and counter knives have two wearing surfaces which prolong their lifetime.

Adjusting end product size with counter knives

For volume reduction and pre-shredding purposes up to two thirds of the counter knives can be replaced with half knives which result in bigger end product size and higher capacity. Using rotor screens allows to finetune the homogeneity of the small particle size.



*The swing frame construction (pat.) by TANA protects the gearbox, thus increasing reliability and maximizing uptime of the machine.





**Producing SRF
High uptimes with long, stringy materials**

“Our two TANA Sharks provide outstanding quality SRF with the high uptime of 99% even when working on difficult materials which normally jam the conventional shredders.”

Kalle Mäki, Ekopartnerit

Read more customer stories at tana.fi

PRODUCE ANYTHING FROM 50 TO 500 MM PARTICLE SIZE



Screens for fine tuning the end product

The end product size and quality can be determined and finalized by using a rotor screen with suitable mesh size out of the five available. The suitable size is defined by the characteristics of the material and the wanted end product size.



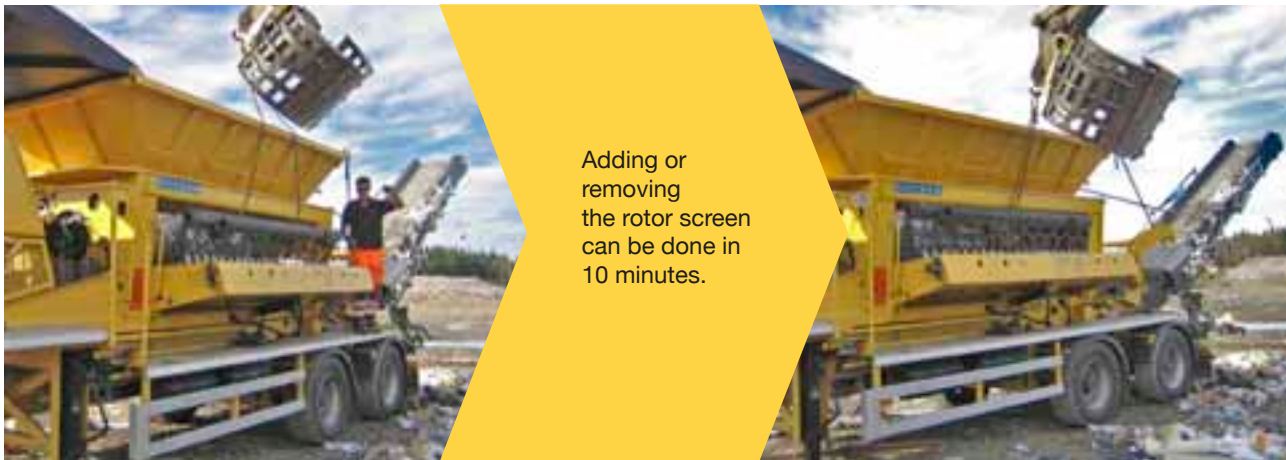
Adjustable rotor to screen clearance

The rotor to screen clearance can be narrowed down to one millimeter. The optimal clearance depends on the material and the mesh size of the screen.

ERGONOMIC ACCESS TO THE SERVICE POINTS

Daily routines can be performed easily with a walk around area around the power pack. FOPS gives shelter from rain and extensive sunlight. Easy access to service points is not only ergonomic but it also diminishes the time needed for routine service operations.

The pre-screening of the airflow to the radiators and an oversized engine air filter greatly reduce the daily service attention required.



Adding or removing the rotor screen can be done in 10 minutes.

Universal knives

Same knife for any material. The rotor configuration and knife design result in a half cutting effect, that allows the TANA Shark crush practically any solid waste fraction.

Due to the bolt-on attachment mechanism of the knives, all rotor knives can be changed in a few hours.



TANA Shark

ONE TANA SHARK CAN REPLACE EVEN THREE DIFFERENT MACHINES

Many tasks can be performed with one machine instead of one pre-shredder, primary shredder and a screen

Operating one machine instead of two or three cuts costs on fuel and labour significantly

Highly homogeneous end product in one pass

Traditional waste shredd



ing process



Smart waste shredding process with TANA Shark

Costs Fuel and manpower needed	Particle size and waste streams	Costs Fuel and manpower needed	
€ 	Construction & demolition wood (C&D) 200-500 mm Green waste	€ 	
€ 	Tires Plastic & Textiles SRF (Solid Recovered Fuel) 100-200 mm Municipal Solid Waste (MSW) Commercial & Industrial waste Railway sleepers	€ 	
€ 	50-100 mm Municipal Solid Waste (MSW) Commercial & Industrial waste	€ 	
€ 	<50 mm Municipal Solid Waste (MSW) Commercial & Industrial waste	€ 	

FROM LANDFILLS TO RECYCLING

The founding year of Tana Oy

The first purpose-built real landfill compactor with two full-width steel drums



Swing frame (pat.)
for reliability and serviceability for TANA Compactors: later implemented on the TANA Shark waste shredders



The first TANA Shark
mobile slow speed shredder R5030 launched

1971

2001

2003

2005

20



State-of-the-art TANA Control System **TCS**



Gearing towards recycling business
Prototypes of the first TANA Shark slow speed shredder R1300

International launch of the TANA Shark slow speed shredder unique in versatility. Two basic product lines S5430 and S6330



MATERIAL HANDLING

06

2008

2012

2014

2015



The first step towards value adding services: TANA SMART SITE™ information management system with remote online access to the machine's control system

Powered by Cummins QSX15



Integrated scale as standard

Reporting per waste fraction



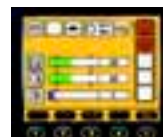
New Generation of TANA Shark waste shredders 220D/DT/E and 440D/DT/E



TCS with color display

The second generation of TANA SMART SITE™ for customer value measurement standard in all models

Development of dynamic measurement of weight



Pre-launch of TANA Smart site

Product lines with Tier 4 final engines



TANA Service Center launch

Technical specifications

General information	220D 220D ^{eco}	220DT 220DT ^{eco}	220E	440D 440D ^{eco}	440DT 440DT ^{eco}	440E
Operating weight, kg *)	24040	25740	21500	27100	28800	21500
Total length in transportation, mm	10530	10530	10020	10530	10530	10020
Total length in operation, mm	15790	15760		15790	15760	
Total width, mm	2520	2830	2860	2520	2830	2860
Total height in transportation, mm	3880	3390	3260	3880	3390	3260
Rotor shaft type	single	single	single	single	single	single
Conveyor belt speed (max. m/s)	3	3	3	3	3	3
Conveyor width	1000	1000	1000	1000	1000	1000
Conveyor length (m)	12,5	12,5	12,5	12,5	12,5	12,5
Conveyor height on operation	4030	3600	3600	4030	3730	3600
Integrated scale	x	x	x	x	x	x
Remote control	x	x	x	x	x	x
Maximum velocity (models with tracks)		3 km/h			3 km/h	
Overband magnet power rating (Gs/cm ²)	8000	8000	8000	8000	8000	8000
Engine and power transmission	220D 220D ^{eco}	220DT / 220DT ^{eco}	220E	440D / 440D ^{eco}	440DT / 440DT ^{eco}	440E
Engine	Cummins QSX15 (220D) Cummins QSX15 (220Deco) Fullfills U.S. EPA Tier 4 final, CARB Tier 4 final and EU Stage IV	Cummins QSX15 (220DT) Cummins QSX15 (220DTeco) - Fullfills U.S. EPA Tier 4 final, CARB Tier 4 final and EU Stage IV	VEM	Cummins QSX15 (440D) Cummins QSX15 (440Deco) - Fullfills U.S. EPA Tier 4 final, CARB Tier 4 final and EU Stage IV	Cummins QSX15 (440DT) Cummins QSX15 (440DTeco) - Fullfills U.S. EPA Tier 4 final, CARB Tier 4 final and EU Stage IV	VEM
Power rating (SAE J1995) (kW)	439 (220D) 433 (220Deco)	439 (220DT) 433 (220DTeco)	2 x 110kW	439 (440D) 433 (440Deco)	439 (440DT) 433 (440DTeco)	2 x 160KW
Displacement (l)	15	15	-	15	15	-
No. of cylinders	6	6	-	6	6	-
Emission limits	TIER 3 (stage IIIA) (220D) TIER 4F (220Deco)	TIER 3 (stage IIIA) (220DT) TIER 4F (220DTeco)	IE3	TIER 3 (stage IIIA) (440D) TIER 4F (440Deco)	TIER 3 (stage IIIA) (440DT) TIER 4F (440DTeco)	IE3
Fuel tank (litres)	700	710	-	700	710	-
Urea tank (eco-models only)	56	56	-	56	56	-
Rotor drive gears, brand	Lohmann + Stolterfoht	Lohmann + Stolterfoht	Lohmann + Stolterfoht	Lohmann + Stolterfoht	Lohmann + Stolterfoht	Lohmann + Stolterfoht
Rotor drive gears, pcs	2	2	2	2	2	2
Nominal rotor torque, kNm	220	220	220	440	440	440
Shredding tools	220D / 220D ^{eco}	220DT / 220DT ^{eco}	220E	440D / 440D ^{eco}	440DT / 440DT ^{eco}	440E
Rotor shredding length, mm	3000	3000	3000	3000	3000	3000
Rotor speed, rpm	27	27	27	28	28	28
Rotor diameter, mm	870	870	920	920	920	920
Rotor knives, pcs	22	22	33	33	33	33
Counter knives, pcs	23	23	23	23	23	23
Rotor knife type	Bolt-on, reversible cutting knife	Bolt-on, reversible cutting knife	Bolt-on, reversible cutting knife	Bolt-on, reversible cutting knife	Bolt-on, reversible cutting knife	Bolt-on, reversible cutting knife
Rotor knife size	115x70	115x70	115x70	115x70	115x70	115x70
Optional equipment						
Overband magnet	Overband magnet	Overband magnet	Overband magnet	Overband magnet	Overband magnet	Overband magnet
Rotor screen width x length (optional)	3050x850	3050x850	3050x900	3050x900	3050x900	3050x900
Rotor screen sizes (optional) (mm)	103,157, 205, 258	103, 157, 205, 258	109, 167, 220, 275	109, 167, 220, 275	109, 167, 220, 275	109, 167, 220, 275

*) Operating weight includes the basic machine (fuel tank full), overband magnet, screen support bars and one screen.

Weights and measurements are given within normal tolerances limits. The manufacturer reserves the right for any changes. See the latest updates for the TANA Shark waste shredders at www.tana.fi. Latest print June 2015

DIESEL DRIVEN MODELS **MOBILE WASTE SHREDDERS** **ON SEMI-TRAILER**

TANA Shark 220D / 220D^{eco}
TANA Shark 440D / 440D^{eco}



DIESEL DRIVEN MODELS **MOBILE WASTE SHREDDERS** **ON TRACKS**

TANA Shark 220DT / 220DT^{eco}
TANA Shark 440DT / 440DT^{eco}



ELECTRIC MODELS **STATIONARY** **WASTE SHREDDERS**

TANA Shark 220E
TANA Shark 440E



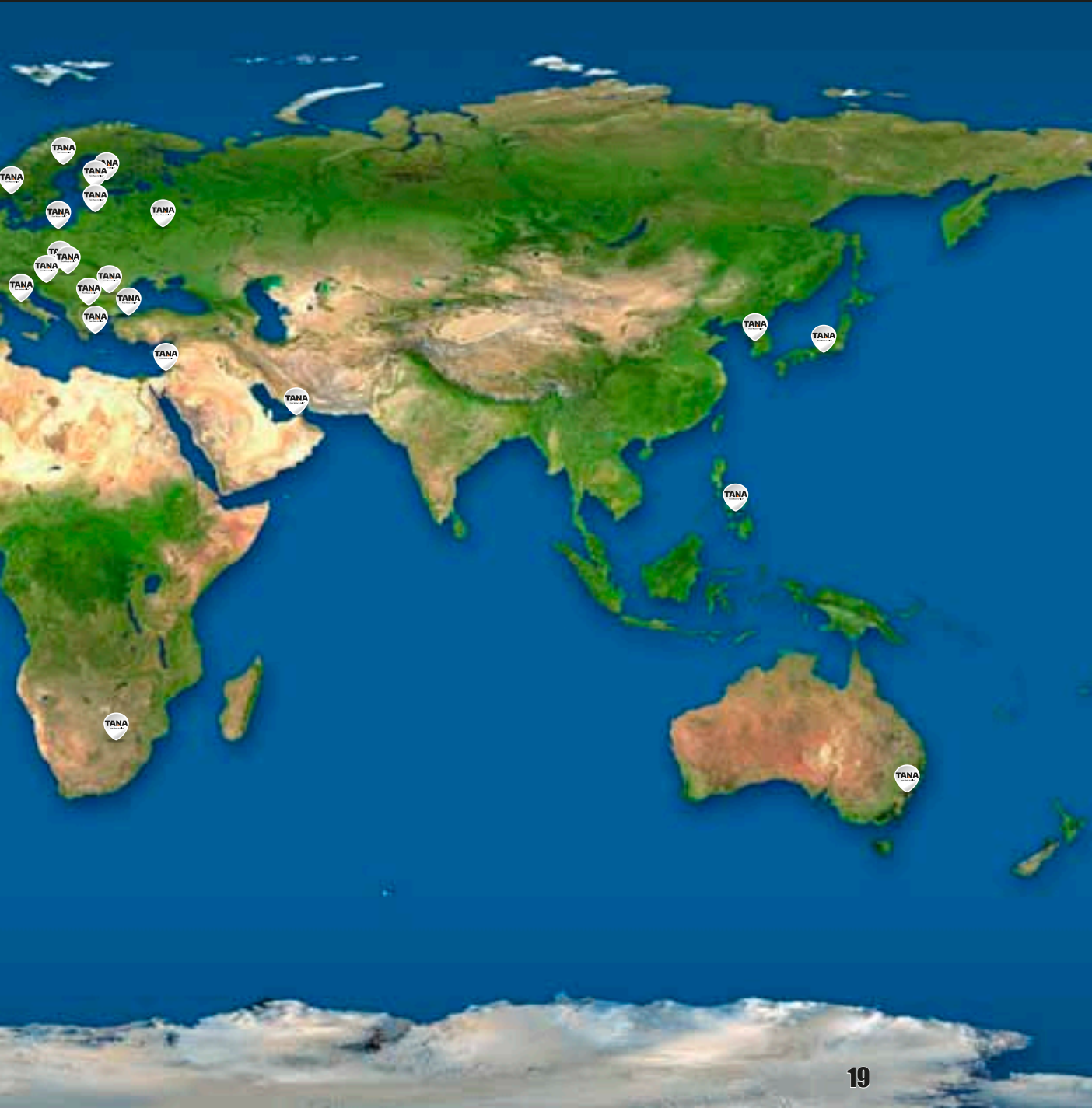
TANA SERVICE CENTER

Machine reliability and uptime are our customers' key concerns and hence ours, too. We build maximum machine uptime and have our eyes on all the Tana machines around the world through TANA Service Center.

Together with our distributors we are aiming at preventative maintenance by following early signals of possible malfunctions and getting in touch with the customer to solve the situation before any problems occur.

The purpose is to improve the response time and quality to our customers by helping them to keep the productivity high. Your Tana dealer, along with TANA Service Center, is ready to assist you with any possible situations to ensure high efficiency at minimum operating costs.





Future with us

At Tana we want to help our customers to improve their businesses and increase their profits. Our slogan, **From Waste to Value**, crystallizes that.

Over 40 years of experience in waste business along with the world's first landfill compactor, Tana has continued to manufacture and develop the most versatile waste shredders since 2006.

Our customers have grown accustomed to receiving the best possible shredding performance and reliability from TANA Shark waste shredders.

Global distribution and service network is at your service, along with TANA Service Center, providing our customers the top notch service and parts for keeping your Tana machinery up and running with peak efficiency.

These are key elements for the highly demanding tasks required by the recycling operations around the globe.

TANA

From Waste to Value®



TANA
From Waste to Value®

Tana Oy
P.O.Box 160, Schaumanin puistotie 1
FI-40101 Jyväskylä, FINLAND
Tel. +358 20 7290 240
mail@tana.fi • www.tana.fi

Your local TANA distributor: