



WATERJET CUTTING PRODUCTS

MADE

IN THE

NETHERLANDS





RESATO WATERJET TECHNOLOGY B.V.

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A WATERJET THAT GROWS WITH YOUR FUTURE NEEDS!

With an ACM waterjet you are getting more than the best quality cut. With its modular design it will make your company ready for the future. As a Dutch manufacturer we focus on increasing productivity while reducing operational costs; all surrounded by best in class support. Now you can focus on growing your business. Upgrade your machine with what you need, but only when you need it.

ONE STOP SHOP

Resato is one of the few water jet manufacturers that completely owns the technology; from table, to pumps and the operating software. This ensures that you get the best waterjet cutting quality available from a reliable partner.

- ▶ More than 30 years of high pressure experience.
- ▶ Focus on reducing the total cost of ownership with smart solutions.
- ▶ Extensive service packages, such as preventive maintenance, to ensure the highest availability on your machine.

FOCUS ON ROI

Buying a waterjet is a significant investment. But to understand the return on investment you need to take into account the total cost of ownership over the lifetime of the machine. And this is more than double your initial investment!

Resato aims to give your company the best return on investment out there. With energy consumption and production optimization in mind and a broad range of service contracts we strive to match your company's needs and offer you what you need.

RELIABLE TECHNOLOGY

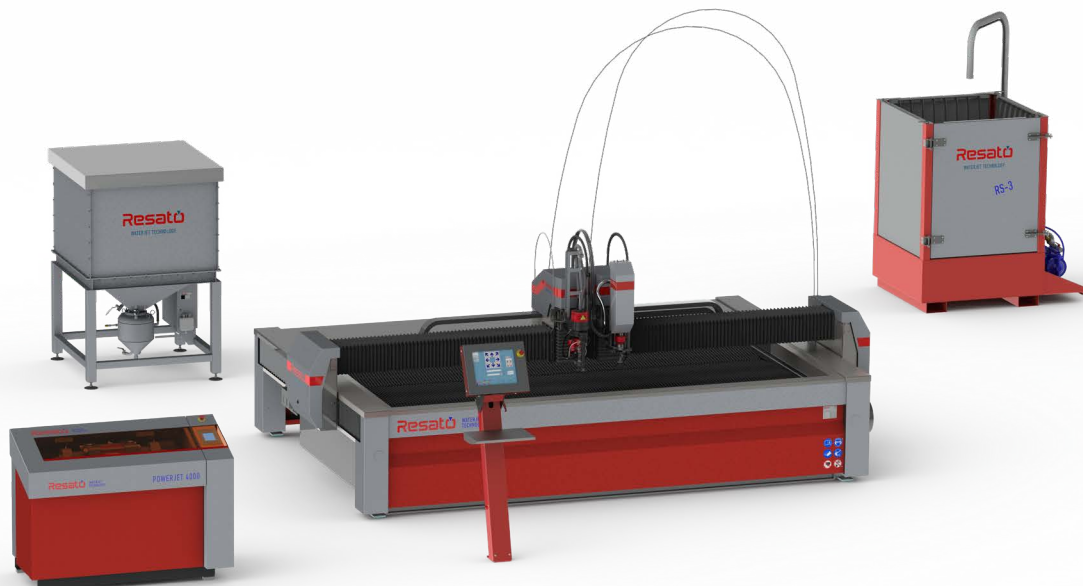
Leading technology is great; reliability even better. Resato optimizes the right balance between these two, and provides innovative solutions to put your company ahead of your competition.

- ▶ Maintenance free linear drives for maximum accuracy.
- ▶ Flex-zone allows cutting while (un)loading the free area of the table.
- ▶ Modular design to easily upgrade your machine.

A reliable partner

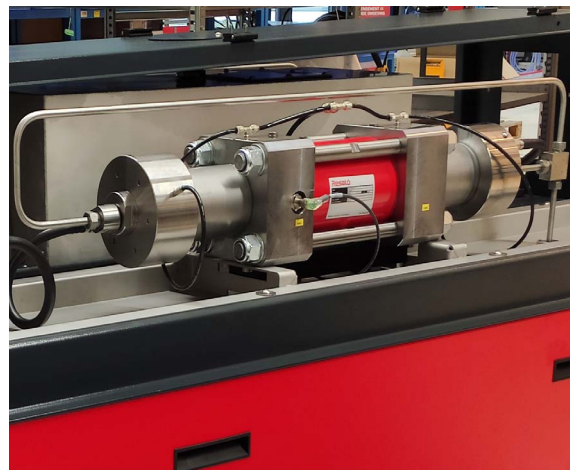
A quality business decision

A balanced machine





WATERJET TECHNOLOGY



Resato , your universal supplier of waterjet technology. Waterjet cutting technology is one of the fastest growing major machine tool processes in the world due to its versatility in applications and ease of operation.

Resato is one of the few suppliers of waterjet cutting machines worldwide that has in-house development and production of the cutting tables as well as the high pressure pumps, cutting heads, high pressure fittings and machine software. A true one stop shop.

WE STAND FOR

- ▶ Worldwide service
- ▶ Modular design
- ▶ Manufacturer of the complete solution
- ▶ Wide range of options and add-ons
- ▶ Easy and user-friendly operation
- ▶ Minimum maintenance

MORE INFORMATION

This overview of our products is just a start.
View all of our solutions, options and add-ons at:

www.resato-waterjetcutting.com

A COMPLETE WATERJET SET UP

CUTTING TABLES

The basis of a waterjet cutting machine is the table. A robust table provides stability when cutting materials. The cutting table contains the bridge that moves the cutting head on an its X-Y axes. Different drive technologies are available. For our waterjet cutting machines, we use linear drive technology to provide accuracy and reduce maintenance costs. A wide range of cutting tables allows us to provide a cutting system for almost any situation.

CUTTING HEADS

Achieve greater cutting quality with waterjet cutting and the combination of a accurate waterjet cutting head with smart software of the ACM waterjet cutting machine. The cutting head, one of the most important aspects of the waterjet cutting machine, is available for 2D, 2.5D or 3D cutting and is suitable for abrasive and pure water cutting or the cutting of bevels. Whether you go for a 2D cutting head or the 2.5D cutting head, a high cutting quality is assured.

WATERJET CUTTING PUMPS

With waterjet cutting a high water output pressure is needed. A water output pressure of 4,000 bar can be generated by a relative low oil pressure of 200 bar. When multiple waterjet pumps are desired, the pump skid option is recommended. The pump skid controls the complete water management when using multiple pumps on a single or multiple waterjet cutting machines. The waterjet pump can be further extended with several features, such as an air cooler or water cooler and a softstarter.

ABRASIVE MANAGEMENT

We effectively focused on creating a continuous abrasive flow in order to reduce the downtime and save on operational costs. During the waterjet cutting process, we want to make sure that you can benefit from a continuous abrasive flow for a long period of time and thus limit the need to refill the abrasive. Our continuous abrasive supply system and abrasive removal systems take care of this, creating maximum uptime.

CAD/CAM SOFTWARE

CAD/CAM software is one of the critical machine components that influences the success of your investment. User-friendliness and versatility in functionalities are critical success factors for your processes. Production can be designed more efficiently with cost estimations, manual and automated nesting capabilities, and minimal training requirements.

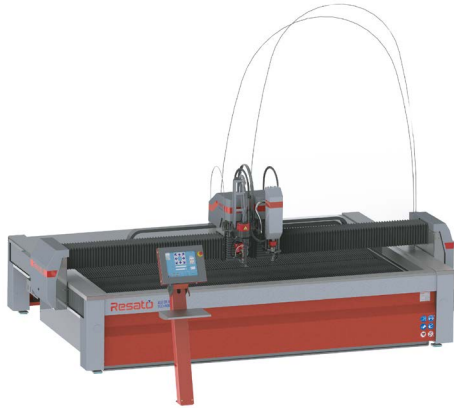
MAINTENANCE

Resato can offer you a tailor-made maintenance contract for your waterjet cutting machine. By carrying out preventive maintenance, you have a higher operational reliability of your system. For this maintenance contract we charge you a fixed amount per month based on your machine and the expected number of operating hours per year.



PRODUCTS

ACM cutting machine



The cutting table comprises a precision-built steel construction embodying linear direct-drive motors on each of the two main axes. To achieve the required precision, the bridge and self-propelled carriage plate are powered by two direct-drive linear motors on each side. This results in a speed range from 1 to 30.000 mm/min.

The ACM cutting table can be ordered in different sizes and cutting head configurations, suitable for almost any waterjet application. The machine has been developed to operate as much as possible automatically.

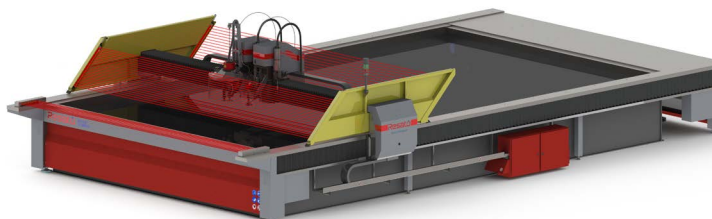
This means that the input and required knowledge of operators has been reduced to a minimum. By an intuitive touch panel, the operator can start a cutting job in a few clicks. These jobs will be prepared in the CAD/CAM environment IGEMS and will be stored directly on the machine.

SPECIFICATIONS	
Repetition accuracy	$\pm 50 \mu\text{m}$ at 20° ⁽¹⁾
Positioning accuracy	$\pm 50 \mu\text{m}$ at 20° ⁽¹⁾
Maximum stroke Z-axis	220 mm
Minimum speed	1 mm / min
Maximum speed	30,000 mm / min
Maximum acceleration	$500 \text{ mm} / \text{s}^2$
Weight capacity cutting bed	1,000 kg per m^2
Maximum product height	200 mm
Working rage between 2 cutting head pens	Min 350 mm Max 1500 mm ⁽²⁾

DIMENSIONS			
One cutting head	Cutting range	Two cutting heads	Cutting range per head
ACM 2015	2020x1520 mm	ACM 2015	1670x1520 mm
ACM 2040	2020x4020 mm	ACM 2040	1670x4020 mm
ACM 2060	2020x6020 mm	ACM 2060	1670x6020 mm
ACM 3015	3020x1520 mm	ACM 3015	3020x1520 mm
ACM 3030	3020x3020 mm	ACM 3030	3020x3020 mm
ACM 3040	3020x4020 mm	ACM 3040	3020x4020 mm
ACM 3060	3020x6020 mm	ACM 3060	3020x6020 mm
ACM 3080	3020x8020 mm	ACM 3080	3020x8020 mm
ACM 30100	3020x10020 mm	ACM 30100	3020x10020 mm

¹ - Across the entire table range

² - Applicable only to the ACM 3000 series



While the table previously was unreachable during cutting, with the Flex-zone it now can freely and safely be loaded and unloaded during the cutting process. Downtime is kept to a minimum while production and operator work-time is optimised.

Light curtains are normally placed around water cutting tables, guarantying operator safety. With the Resato ACM Flex-zone, the safety feature is mounted on the bridge itself. It moves along with the working area of the cutting head. The Flex-zone creates flexible, accessible work areas on the cutting table during cutting. Making the table accessible for operators during the cutting process.

The ACM Flex-zone: More efficiency in a safe environment!

KEY FEATURES

- ▶ More efficient cutting process
- ▶ Unmanned operation
- ▶ Cleaner working environment

KEY SPECIFICATIONS

- ▶ Lightscreen mounted on bridge
- ▶ Compatible with ACM range ≥ 4 meters

OPERATION

The ACM Flex-zone implements a front and back light curtain around the gantry at a specific distance to the cutting head and gantry. Crossing this light curtain while the machine is operating reacts into a direct stop of the cutting head and servo motors and offers a safe approach to the elements of the gantry.

The console offers within a few clicks a release of the protected zone and the cutting job can be resumed. While the cutting job is active the operator can load / unload outside the safety zone.

2D cutting head



The standard fixed cutting head configuration on all ACM series machines is the 2D cutting head. It consists of an aluminium interface bracket with height sensor.

To guarantee proper aligning and interchangeability the interface bracket backside has been precisely machined to fit the mounting slot in the mating face on the Z-axis module.

KEY FEATURES

- ▶ Abrasive and pure water compatible
- ▶ Modular design
- ▶ Highly accurate
- ▶ Compact solution

SPECIFICATIONS

Clamping positioning repeatability	$\pm 0.05 \text{ mm} / 0.1^\circ$
Calibration height	$150.5 \pm 0.5 \text{ mm}$
Operating temperature range	$10\text{--}30 \text{ }^\circ\text{C}$
Distance to Z-axis mounting face	$255 \pm 0.5 \text{ mm}$
Length of height sensor arm	110 mm

2.5D cutting head



The 2.5D cutting head is designed to cut bevel parts from sheet material. The 2.5D is a five-axis machine that cuts materials at an angle.

The integrated high torque frameless servo motors are the core of this unique machine. Using the direct drive principle means a minimum of moving parts resulting in a compact, highly accurate, fast responding and maintenance-free solution.

The cutting head can be tilted up to 55°, the practical limit when cutting a 45° bevel corner in an 90° contour angle.

KEY FEATURES

- ▶ Abrasive and pure water compatible
- ▶ Modular design
- ▶ Highly accurate
- ▶ Compact solution

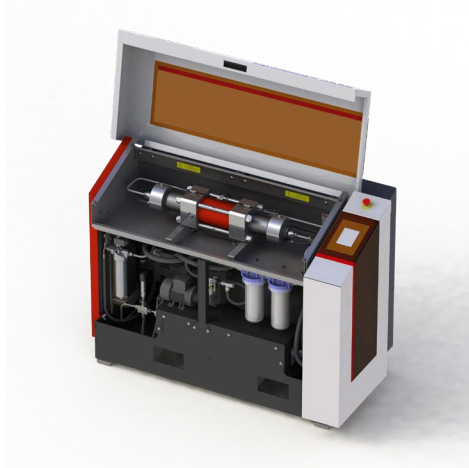
KEY SPECIFICATIONS

- ▶ 55° tilt angle
- ▶ 45° bevel corner
- ▶ ACM backwards compatible

SPECIFICATIONS

Maximum tilt range	55°
Maximum rotation	±360°
Operating temperature range	10-30 °C
Protection class	IP65
Axis positionig accuracy	±0.1°

PJ4-4000 pump



The Resato PJ4-4000 pump works on the pressure booster principle being powered by an electrically-driven hydraulic pump with only 25 liters of oil. The intensifiers pressure is stepless controllable through the HMI or pump from 300 to 3800 bar working pressure. The pump with its touchscreen PLC will follow the instruction of the program and will only consume power and water if required.

An integrated high pressure 2,5 liter accumulator, will minimize pressure fluctuations. The accumulator has a proven track record in ensuring considerable reduction in wear of the high pressure tubing and fittings. This technology shows a better cutting result because the vacuum, abrasive flow and volume is 100% controlled. Therefore, the material to be cut is almost unlimited.

KEY FEATURES

- ▶ Low noise level, below 72 dBA
- ▶ Wear reduction
- ▶ Touch screen PCL control with diagnostics
- ▶ Excellent cutting quality due to minimal pressure fluctuations
- ▶ Air or water cooled
- ▶ Digitally connected with the HMI
- ▶ Toolset included for doing first line service
- ▶ Training guidance through Resato University and Resato wiki
- ▶ Pump automatically shuts down within 5 minutes after finishing the cutting job

KEY SPECIFICATIONS

- ▶ Pump drive by 30 kW engine
- ▶ Steplessly programmable 300 - 3800 bar working pressure
- ▶ Capacity up to 3,8 L/min feeding up to two cutting heads simultaneously with a small setting

EF-5 Feeder and vacuum control



Abrasive costs in general account approximately two-third of total operation costs on a abrasive water jet machine. The abrasive feeder is designed to deliver a dosed amount of abrasive to the waterjet cutting process. It consists of two barrels and a dosing control unit.

The upper barrel is filled with abrasive from the hopper by pressurized air. The abrasive flows to the lower barrel through a fill pipe. The length and diameter of this pipe forms a restriction to keep the level in the lower barrel within a certain range.

The abrasive flows from the lower barrel to the dosing control unit. A small motor drives a toothed wheel inside the metering housing. The speed of the motor determines the amount of abrasive delivered.

SPECIFICATIONS	
Yield minimum	25 gr/min.
Yield maximum	900 gr/min. 650 gr/min. in combination with a ABR-CS
Overall length	460 mm
Low output range accuracy	25 .. 150 gr/min. $\pm$ 10%
Normal output range accuracy	150 .. 900 gr/min. $\pm$ 4%
Pneumatic pressure	2 .. 3 bar
Vacuum hose OD	6 mm
Abrasive hose OD	8 mm
Abrasive supply	1/2"

Abrasive continuous supply



The abrasive continuous supply system provides an abrasive flow to cutting machines without stopping the cutting process while refilling the abrasive pressure silo.

The silo contains an automatic controlled pressure system to fill-up at the abrasive feeder to transport the abrasive to the cutting machine. The silo stores the abrasive and can be replenished at any moment without interfering the cutting process.

To detect sufficient stored abrasive in the storage silo a second sensor will signal the cutting machine to report an "Silo Low-Level" message. This message will be the trigger to replenish the storage silo before running completely out of abrasive.

CHARACTERISTICS

ABR-CS for single ACM machine / gantry.

ABR-CS for up to three machines / gantries with maximal six abrasive feeders in total.

SPECIFICATIONS

Replenishment	Open cover and empty big bag in silo
Total capacity	2300 kg
Refill capacity	2000 kg (1000 L)
Accessibility	Easy and ergonomically access with use of set-up
Minimum ceiling height	4 m
Empty weight	325 kg
Maximum weight	2625 kg
Floor load	4 supports Ø 120 mm, 6563N/support, 0,6 N/mm ²
Dimensions (WxDxH)	1225x1225x1880 mm
Surrounding free space	Back ≥ 200 mm Left or right ≥ 600 mm Front is fork truck dependant

Abrasive removal system



The type RS3 abrasive removal system, containing a single filter, incorporates a special suction and pressure tubing network, provided with a number of inlet and outlet nozzles, that is built into the ACM table's catcher.

The catcher size determines the number of inlet and outlet nozzles, and for larger catchers the inlet and outlet nozzles will be automatically controlled per section via pneumatic valves.

The water/abrasive mixture is pumped from the catcher into a free standing separation system with a so-called 'big bag filter'. The mixture is collected in the 'big bag' and, after separation of abrasive, the water is pumped back into the catcher via a connecting circuit.

KEY FEATURES

- ▶ Optional on all ACM-series machines
- ▶ Minimizes machine downtime
- ▶ Minimizes cleaning maintenance

KEY SPECIFICATIONS

- ▶ Operating pressure of 1,5 bar
- ▶ RS3 tank capacity of 500 l
- ▶ Air consumption of 500 NI / min
- ▶ Pump flow rate of ~70 l / min (depending on hose length or machine size)



The efficiency and speed with which cutting tasks can be executed is to a great extent determined by proper job preparation. Resato therefore supplies the IGEMS CAD/CAM software package, specifically developed for water jet cutting.

IGEMS R10 base package supports the most features found in CAD-software. So drawing or designing your cutting parts does not require expensive CAD software of another supplier. By a simple 5 step method, compiling a cutting job is an easy task.

Simplicity makes IGEMS a very easy to learn package. As well very complex cutting jobs can be created with ease.

The IGEMS R10 base package contains sufficient functionality for creating cutting jobs by hand. If required, the base package can be upgraded with option modules. An important module for handling automatic nesting is the Automatic Nesting (level 1 + 2) and common cut for IGEMS module.

The software package will be fully installed on a customer's PC, on which we will also install the software for sending and receiving of cutting programs to/from the CNC controller. The CNC controller has a cable connection to the PC. Supply of the ACM does not include a PC.

Resato Kryptonite



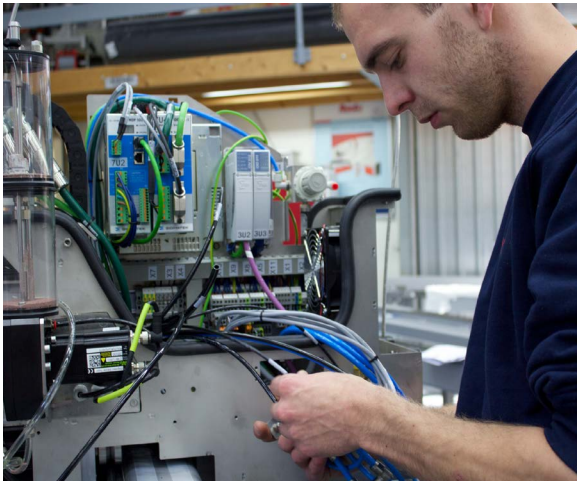
The Kryptonite is fully equipped for the stone industry. But due to its flexibility and complete configuration, it can cut every job and material. This edition has a special package price for you. Don't miss this offer and contact us.

KEY FEATURES

- ▶ ACM 2040 waterjet cutting machine
- ▶ 2.5D cutting head for bevel cutting
- ▶ Abrasive continuous supply, 2 ton (1000 l)
- ▶ Igems software package DXF and DWG
- ▶ Software package: Tilemaker and Beveling
- ▶ High pressure pump with water cooling
- ▶ DigWatersoftner type CC206



CUSTOMER CARE



At Resato we want to turn you into a high pressure expert. We offer through several training modules to fully prepare you for your high pressure system. With our investment in the training modules we optimally prepare you to operate and maintain your high pressure solution!

With the operator training module you will gain the technical understanding and knowledge of how to operate your high pressure system. With a keen eye on safety, the operator training module will turn you into a high pressure expert.

Keeping your high pressure system in good shape is essential for your business. With the maintenance training module you will be trained in performing preventive maintenance to get the best out of your system. Knowing what to do when the system requires service reduces downtime and saves you costs. Become an expert in maintaining your high pressure system.

Preventive maintenance



Resato can offer you a tailor-made maintenance contract for your waterjet cutting machine. For this maintenance contract, we charge you a fixed monthly fee based on your machine and the expected number of operating hours per year.

By carrying out preventive maintenance, you have a higher operational reliability of your system. Other advantages that Resato offers are:

- ▶ Up to 25% discount on parts within the contract
- ▶ Fast and adequate handling in the event of any breakdowns
- ▶ Pay a fixed amount for call-out costs, also for service visits outside of the contract
- ▶ Free telephone support
- ▶ 15% discount on all extra consumer parts outside of the contract

Resato

WATERJET TECHNOLOGY

CREATE MAGIC WITH WATER. TOGETHER.

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VERSION 1.1 2023