

WATERSPEEDY
AND IDROLINE:
waterjet cutting
in the foam
production chain

Case History DAFA





Sealing, absorbing
and protecting.
Many needs and
only one reference
company: DAFA

DAFA production has always been made to measure in close cooperation with each customer. Thanks to the intrinsic versatility and accuracy, waterjet cutting is the ideal technology for the DAFA manufacturing process. CMS Tecnocut machines perfectly meet the needs of a company which is proud of its production quality and customization capabilities.

For over 70 years DAFA has manufactured seals, insulating strips and many other specific foam components. A strategic reality for many industries.



Relying on over 70 years of industrial activity and a constantly updated commitment to the technological innovation of its plants, DAFA is now a worldwide reference for the design and implementation of products based on foam and polymeric materials and characterized by different structures and typologies intended for application in multifarious industries with a view to meet all seal, insulation, shock absorption and anti-vibration needs. With headquarters in Brabrand, Denmark, and various production sites and commercial offices around the world, among which is a new operating centre in Tianjin - China. DAFA is a company committed to the industrial world, well-known and respected for the quality of its production and its

capability of offering an extremely collaborative customer service, based on dialogue and technical-engineering synergy in developing new projects.



CMS solutions as judged by customer DAFA



Early in 2000 our company experienced huge growth, when the strong development of the business required us to implement a strategic changeover, from both the viewpoint of the production systems and the technologies adopted in our production lines. We carried out a careful analysis of what the market offered in terms of waterjet cutting equipment based on the best technical solution for our value-added manufacturing needs, and decided that CMS Tecnocut offered the best way forward. Our collaboration started in 2001 and has never stopped; instead it has grown constantly with mutual satisfaction. We were looking for a new type of machine for our plants in Denmark, with more flexible and higher speed,

complete with a number of accessories, but above all constructed in close contact with the technology producer, where product engineering must fit our specific needs. The main issue was not only to increase our productivity, but also to improve the production chain as a whole, not one single machining centre. Until then we were using small versatile machines, lacking interchangeable heads. We needed the highest levels of automation possible, including speed and ease of programming. Another important issue was to find a technological partner who could guarantee a timely and complete assistance and maintenance service. In Denmark it can be hard to receive this level of service. With CMS Tecnocut



we found what we needed and over the years, the crucial importance of relying on a dedicated service has been confirmed. We process various types of foam materials in countless fields: from industrial to medical applications, from renewable energy sources to wind energy. We are open to any type of idea and project. We solve any kind of technical problems thanks to our materials and innovative techniques and with CMS Tecnocut we have found the perfect combination of expertise, innovation and quality of machining programming, the latter issue being extremely

↑ During their visit to DAFA headquarters at Brabrand, Eng. Stefano Dal Lago, Marketing Director and Tecnocut Division Director of CMS Industries along with CMS Tecnocut technicians had the opportunity to verify, in person, the customer's satisfaction and operating effectiveness of the installed machines, above all the new Waterspeedy, recently delivered and integrated into their production chain with immediate effect.

important for DAFA. Usually you take in consideration the machine quality and features, but software package and programming versatility are neglected. For us it is essential to hang onto uninterrupted cutting operations and with CMS Tecnocut machines we have improved foam material machining times by up to 80%. This is the outcome of our close collaboration with CMS technicians at the development stage and during machine installation. Some special changes have improved the performance of our machines with a special character: our own! That is why we intend to install new CMS Tecnocut machines in the next few years. The same will happen in our China plant, where an Idroline 5X is already in operation and we reckon we will see a noticeably increase in our production capability.

High precision and maximum versatility, with management controlled by dedicated software



Using CMS Tecnocut waterjet cutting machines brings about substantial advantages for DAFA production chain in terms of operating speed, machining accuracy, tooling versatility and cost optimization. The brilliant performance of Waterspeedy and Idroline machines, compared to other cutting systems, is due to technological solutions deriving from the special engineering commitment that places CMS Tecnocut in the forefront of this sector. DAFA's customers are

←
A
close
"cooperative"

dialogue in search of the proper solution for meeting all the needs of the production chain.



involved in the same kind of collaborative dialogue in order to provide solutions that meet all the specific needs of the production chain: machine configuration, practicality in managing the materials in pre- and post workpiece operations, IT control of all operations by CMS Tecnocut especially developed software Tecnocam, developed in Windows® environment. Tecnocam software is the result of Tecnocut's know-how in the field: it ensures the machine is effectively controlled and is also compatible with the various software design packages available on the market. Tecnocam proves the ideal ally in controlling the high machining cycles and the many variables that characterize DAFA's activity.

DAFA production

is the right choice for those who work in highly specialized industrial sectors



DAFA develops, creates and supplies a wide range of foam products and solutions, necessary for many industrial sectors, unlike each other but united in the search for quality as regards tightness, insulation, sealing, shock absorption and anti-vibration devices. Some of the sectors where the Dafa' solutions are used are: electronics, wind turbines, packaging, air conditioning, lighting technique, medical instruments, automotive. DAFA creates solutions for floors, roofs, facades, doors and windows and manufactures sealing strips for car windscreens and windows for automotive sector. DAFA is the main European manufacturer of sealing tapes and items for joints, insulating anti-condensation articles and noise absorption devices. They produce sealant strip gaskets, customized insulating material with special consideration to boxing for the packaging and transport of delicate and valuable equipment. The shaped interior of carry cases, for instance, is almost always the result of DAFA's work.



→ Waterspeedy

PROTECTION CAB

Soundproof cabin for the protection of the cutting area with suction system.

MULTIHEADS

Additional cutting heads composed of trolleys with 1-10 cutting heads, all with automatic adjustment of the centre distance.

AUTOMATIC PALLET CHANGE

Separate loading/unloading areas with automatic pallet handling.

BEARING SURFACE

Honeycomb stainless steel grid for plastic materials cutting.

BELT LOADING/ UNLOADING

Possibility of equipping the loading/unloading area with dedicated conveyor mats (for 1630 model only for Waterspeedy 1630 conveyor mat).



CUTTING ROBOT CONTROL HARDWARE AND SOFTWARE

The software, fully developed in Windows® environment, provides an easy dialogue with the operator and is customized for a user-friendly control of all waterjet cutting system functions. The robot hardware, based on a heavy-duty industrial PC, is equipped with a network card.

HANDLING

Rack and pinion and ball screw transmission with high precision and excellent dynamics.

SCREW FEEDER

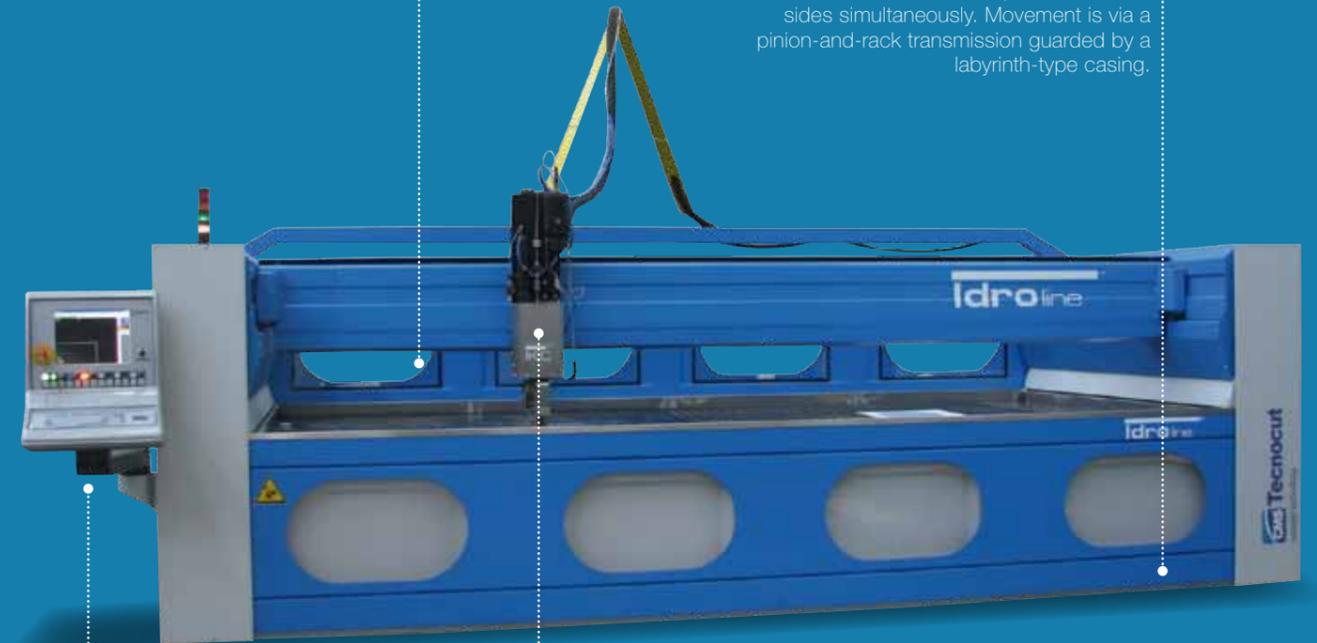
Integrated and automated system for cutting waste removal.

SUPPORTING EQUIPMENT

Idroline is equipped with a customised supporting surface for housing several workpieces in one single positioning operation including tubes, tube sections and irregular-shaped materials.

MACHINING CENTRE STRUCTURE

Tecnocut has taken great care of the machine structure in order to combine sturdiness and operating ergonomics in absolute safe conditions. The monolithic frame has a stainless steel tank and automatic doors for access to the work area; it also offers the possibility to change the machinable workpieces from two sides simultaneously. Movement is via a pinion-and-rack transmission guarded by a labyrinth-type casing.



CONTROL DESK

The control station enables a fully personalized interface between operator and machining centre, thus ensuring ease of operation of the cutting system.

CUTTING HEAD

The machining centre is equipped with a five-axis cutting head characterized by IKC technology and surface contact feeler; it is possible to carry out inclined cutting operations and check groove tapering automatically.

Idroline

The versatile and speedy cutting robot, suitable for all flexible materials, such as plastic, foam, rubber, composite and multilayer materials, industrial gaskets and technical items. The excellent dynamics, combined with the option of working with multiple cutting heads and the automatic pallet change system, ensures high productivity and competitive costs compared to conventional systems.

The cutting robot is characterized by the technological perfection of the details. The first machine with speed and jet conicity active control system, the first with 5-axis head in continuous laser tracing mode. Idroline can meet the needs of the most demanding machining and customers.

→ JetPower Evo

Tecnocam is a software which manages the complete waterjet cutting operation.



Software-based electronic control of cutting pressure.

PRESSURE MULTIPLIERS

Independent, parallel and electronically-synchronized cylinders, which ensure:

- constant pressure signal
- reduced maintenance costs.

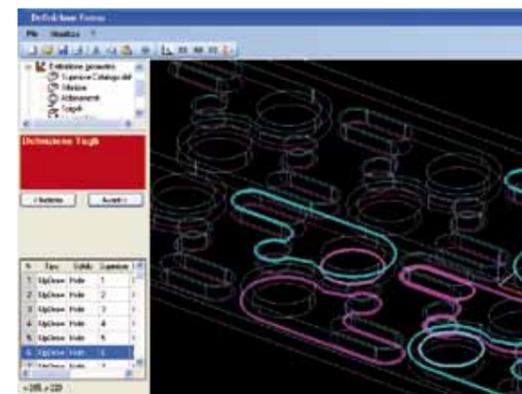
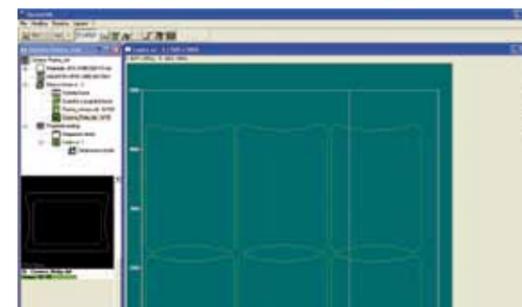
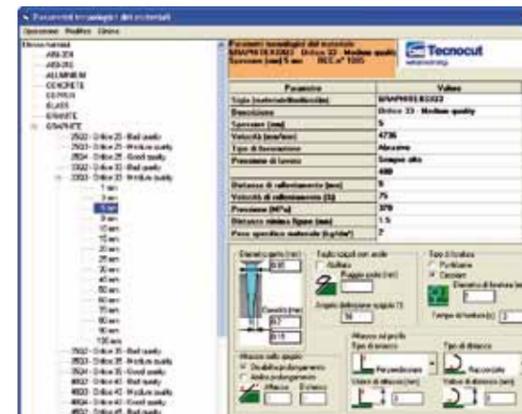
HYDRAULIC UNIT

Latest-generation system with variable-capacity hydraulic pumps.

OIL/AIR HEAT EXCHANGER

Ensures reduced machining costs by eliminating the cooling water supply required by traditional pressure intensifiers.

Tecnocut has brought about a new concept of ultrahigh pressure intensifiers, enriched with technological contents, especially designed to meet the ambitions of the most demanding users. The original technical conception requires the pressure intensifiers to be equipped with several independent, parallel and electronically-synchronized pressure multipliers. This enables ever-constant pressure levels, avoiding the pressure drops of traditional opposed-cylinder intensifiers.



Tecnocam is a CAM software which enables managing waterjet cutting system technology completely. Developed in Windows® environment, originates and grows out of Tecnocut's wide experience in the industry. Tecnocam enables interfacing with the most varied design software packages on the market.

DATABASE OF MATERIALS

The software package is completed by a database containing the most commonly used technological parameters in waterjet cutting and it can also be customized to meet special technological needs. The technological solution of single profiles making up the templates can be adjusted in order to optimize cutting sequence and machining operations.

OPTIMIZATION OF SHEET (NESTING FUNCTION)

The high degree of nesting algorithm development enables optimizing space on sheets perfectly, as variously-sized sheets and also machining waste are managed effectively.

MANAGEMENT OF CUTTING LIST AND ESTIMATES

The cutting diagram management is supervised by a user-friendly interface that provides information relating to the positioning data by means of a graphic view of the workpiece, the cutting-specific technological data and the production estimate, subdivided into cutting costs and material costs. Upon completion of the ISO code generation, it is possible to check the cutting path accuracy by means of simulation software which reproduces the cutting machine code.

MANAGEMENT OF 3D TECNOCAM CUTTING AND SPECIAL MACHINES

The 3D Tecnocam optional module is a software that manages multi-heads cutting, by selecting the number of heads and their centre distance. This minimizes cutting time and maximizes sheet exploitation. It also enables combined cutting operations to be used.

Advantages

CMS Tecnocut machines offer decisive solutions to the needs of most advanced production industries, as they ensure performance and advantages that traditional machines may not guarantee. Offering state-of-the-art machines does not only imply ensuring ultrahigh performance levels in terms of speed and accuracy, but also gives the opportunity of a structural investment which can be amortized more quickly. Besides, the exclusive technological solutions adopted on these machines offer configurations and accessories that are expressly designed to solve such needs.



Workpiece production times reduced by up to 80%

The technical operating features of CMS Tecnocut machines and the potential of waterjet cutting technology, reduce production times on foam materials by up to 80%, compared to other systems or to waterjet technologies that are not improved in collaboration with the customer.



IT control attended by one single operator

Managing the machine via a latest-generation CMS-developed software enables more functions based on an "adaptive technology" concept: slashing real machining times and simplifying the operator's work. Thanks to this function, it is possible to obtain the highest operating efficiency possible by the simple editing of some parameters.



Maximum versatility

The availability of easily interchangeable heads and the application of a 5-axis technology ensure an extraordinary versatility of dimensions and cutting typologies, with full customization of the production process. CMS Tecnocut machines offer the possibility of machining the full geometry of the component.



Dedicated service

The machines designed and manufactured by CMS Tecnocut division make the most of the competence and potential of a dedicated service team and like the other technological solutions of the company, the machines maintain the highest operating levels over many years.

Waterjet technology increases the machining possibilities for a wider range of materials.



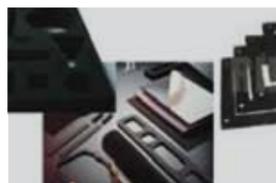
5-AXIS CUT



HIGH THICKNESS

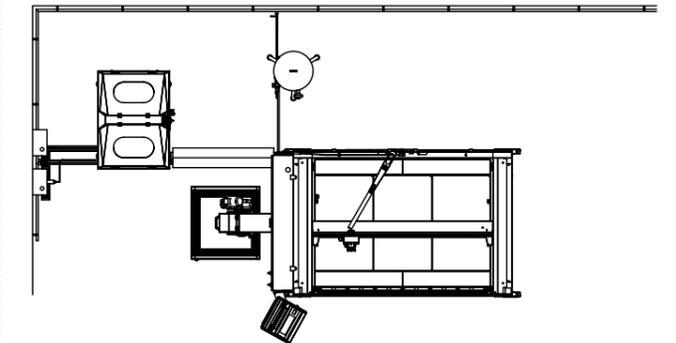
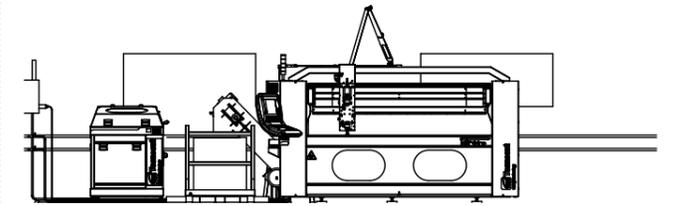
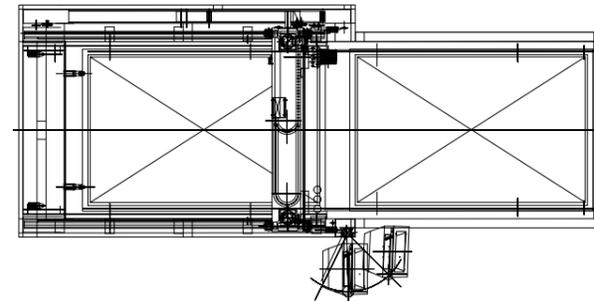
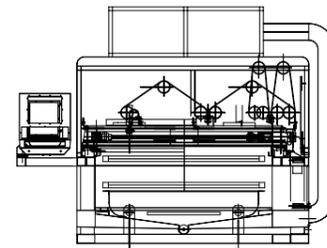


SPECIAL /HARD MATERIAL PART



WIDE RANGE OF MATERIALS

Technical Data Waterspeedy and Idroline



Model	Model			Model		
	1625	1630	1630 Sliding Carpet	1720	1740	2040
Axis X	1600 mm / 63 in	1600 mm / 63 in	1600 mm / 63 in	2000 mm / 78.7 in	4000 mm / 157.5 in	4000 mm / 157.5 in
Axis Y	2500 mm / 98.43 in	3000 mm / 118 in	3000 mm / 118 in	1700 mm / 66.9 in	1700 mm / 66.9 in	2000 mm / 78.7 in
Axis Z	150 mm / 5.91 in	150 mm / 5.91 in	200 mm / 7.87 in	250 mm / 9.8 in (150 mm / 5.9 in with 5 axis head)	250 mm / 9.8 in (150 mm / 5.9 in with 5 axis head)	250 mm / 9.8 in (150 mm / 5.9 in with 5 axis head)
Axis A				600°	600°	600°
Axis B				+/- 60°	+/- 60°	+/- 60°
Support plane	1630x2520 mm 64.17x99.21 in	1630x2520 mm 64.17x99.21 in	1630x2520 mm 64.17x99.21 in	2700x2050 mm 106.3x80.7 in	4600x2050 mm 181x80.7 in	4600x2050 mm 181x80.7 in
Overall dims.	6240x2900x h 2500 mm 245.67x114.17x98.43 in	7240x2900x h 2500 mm 285x114.17x98.43 in	7240x2900x h 2500 mm 285x114.17x98.43 in	4700x2300x h 3700 mm 185.90,6x h145.6 in	6400x2300x h 3700 mm 251.9x90,6x h145.6 in	6400x2300x h 3700 mm 251.9x90,6x h145.6 in
	Speed: 0 → 70000 mm/min - 0 → 1574.8 in/min 15" TFT colour screen, membrane keyboard with built-in mouse External port for USB key interface Computer network connection: RJ45 10/100 Mb connector			Speed: 0 → 40000 mm/min - 0 → 2755.9 in/min 15" TFT colour screen, membrane keyboard with built-in mouse External port for USB key interface Computer network connection: RJ45 10/100 Mb connector		



Founded in 1969, **CMS SpA** (Costruzione Macchine Speciali) consists of 3 industrial divisions under the brand CMS Industries, with a turnover of 100 Million Euro, 4 foreign branches and a worldwide sales & service network. CMS Industries is specialized in the production of multi-axis CNC machining centres, thermoforming machines and waterjet cutting systems, providing machining solutions to several sectors: aerospace, automotive, marine industry, energy generation, building, mechanics, moulds, prototypes, eyeglasses, stone, glass and wood. This unique and wide product line offers a comprehensive range of flexible, innovative and cost effective solutions, covering many production phases as well as customized solutions for specific processes. From 2002, CMS SpA is part of SCM GROUP.

CMS Tecnocut, a CMS Industries brand, is one of the most authoritative reference realities in the industrial field of waterjet cutting technology. CMS Tecnocut guarantees its presence in 120 countries and growingly-articulated solutions to the most diversified production needs. Its presence in AIW (Italian Waterjet Association) as a charter member, ensures Tecnocut continue to guarantee permanent technological updating. A sound and flexible corporate structure, a team of professionals capable of yielding excellent solutions and introducing exclusive and innovative technological devices. This is the added value that CMS Tecnocut offers its customers every day.

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