



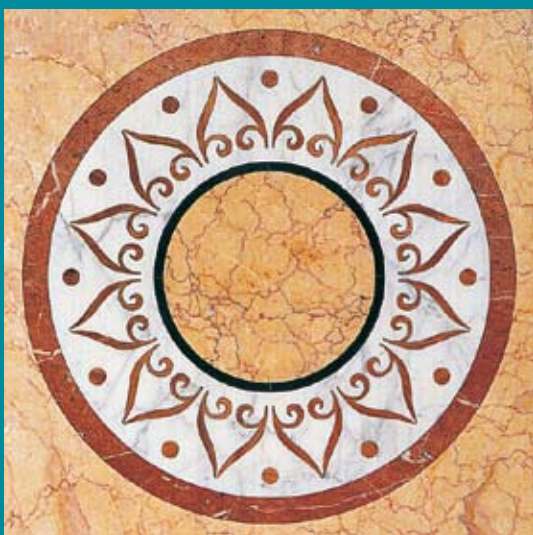
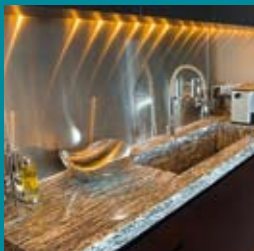
STONE CUTTING **WITH WATER**



Design with stone: an abundance of ideas

In the development of creative concepts, architects and designers are increasingly turning to high-value materials such as natural stone and ceramics. Complex inlay work improves floors, decorative mosaics adorn walls and facades, modern kitchens are unimaginable without marble and granite work surfaces.

But how can complicated forms and contours be quickly and economically cut from hard, sensitive materials? How can sophisticated products of slate, terracotta, or ceramic be manufactured easily to a high quality and without damage?



Stone cutting with water

Professionals meet these challenges with waterjet cutting systems from Flow. Waterjet and abrasive waterjet cutting ranks among the most modern, gentle, and versatile cold cutting processes used in industrial products. Above all, it offers users unique possibilities for the stone and ceramic industries.

The heart of our waterjet cutting systems – the high-pressure pump – pressurizes the water up to 6,000 bar. A jewelled orifice in the cutting head creates a focused water stream of 0.1 – 1.5 mm in diameter, which allows quick and precise cutting in all directions. When this stream is mixed with an abrasive media, cutting through hard materials such as stone, metal, or bulletproof glass is possible with a material thickness up to 150 mm.

The water jet stream, which can reach a velocity of more than 1,000 m/s, achieves a high accuracy (up to +/- 0.04 mm) and at the same time producing an excellent surface finish. Since no direct contact exists between the cutting head and the workpiece, the material experiences no mechanical cutting or clamping stress. Even the most sensitive materials can be reliably and economically processed without heat, dust, or fumes.



Waterjet cutting systems from Flow

Flow understand the requirements of the market. That's why waterjet cutting systems and high-pressure pumps from Flow have been worldwide leaders in the stone industry for over 30 years. The robust construction and the compact design assure easy operation. The Windows-based machine control FlowMaster® is intuitively designed and easy to learn. Both the IFB and the WMC offer the highest precision and produce consistent high workpiece quality even with fast cutting speed.



IFB | Integrated Flying Bridge



WMC | Waterjet Machining Center



Dynamic Waterjet® technology

Sophisticated inlay work requires a small, almost invisible joint. In the case of high cutting speeds, stream backlash and taper are typical but undesired side effects of waterjet cutting. Flow offers the ideal solution with Dynamic Waterjet. With our Active Tolerance Control, the angle accuracy is increased and the stream backlash automatically corrected. For the user this means not only high cost savings, but also a significantly higher manufacturing quality – and not just when working with inlays.



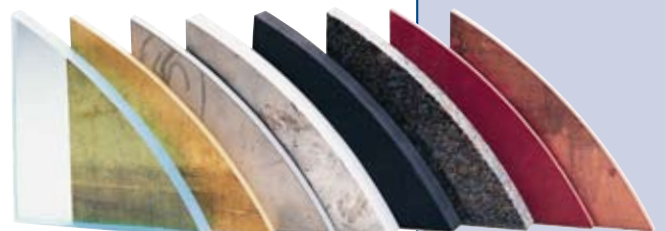
Hole piercing assistance with UltraPierce

The patented piercing technology from Flow, UltraPierce offers the option to pierce sensitive or brittle materials such as glass, natural, and artificial stone or composite materials directly with the waterjet. Mechanical pre-drilling is not necessary for most materials.

Cutting velocities in mm/min

Material	Material thicknesses				
	5 mm	10 mm	20 mm	50 mm	100 mm
Granit	6,891	3,757	1,718	495	182
Marble	8,088	4,410	2,017	580	214
Ceramic	15,353	8,372	3,828	–	–
Glass	7,469	4,073	1,862	536	198
Aluminum	3,893	2,123	971	279	103
Stainless steel	1,441	785	359	103	38

The cutting velocities named in this table refer to a crosscut with the following parameters: water pressure = 6,000 bar, nozzle combination 15/40, water flow rate = 4.92 l/min, abrasive flow rate = 570 g/min, abrasive type = Flow PASERplus 80 mesh.



Applications

- sophisticated architectural and design concepts
- mosaics and inlay for tabletops, floors, walls, and facades
- furniture, fireplaces, stairwells, worktops
- tombstones and window sills
- signs and company logos
- kitchens and bathroom designs

Benefits

- A versatile cutting process for a variety of materials such as natural and artificial stone, marble, granite, ceramic, glass, bonded and laminated materials
- precise cutting in all directions: any desired internal and external contours, sharp angles, and slanted cuts
- One tool for ALL holes and profiles with little or no after finishing required
- no direct contact between the cutting head and workpiece
- no heat, dust or fumes
- high quality finish together with high productivity and low cost operation



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