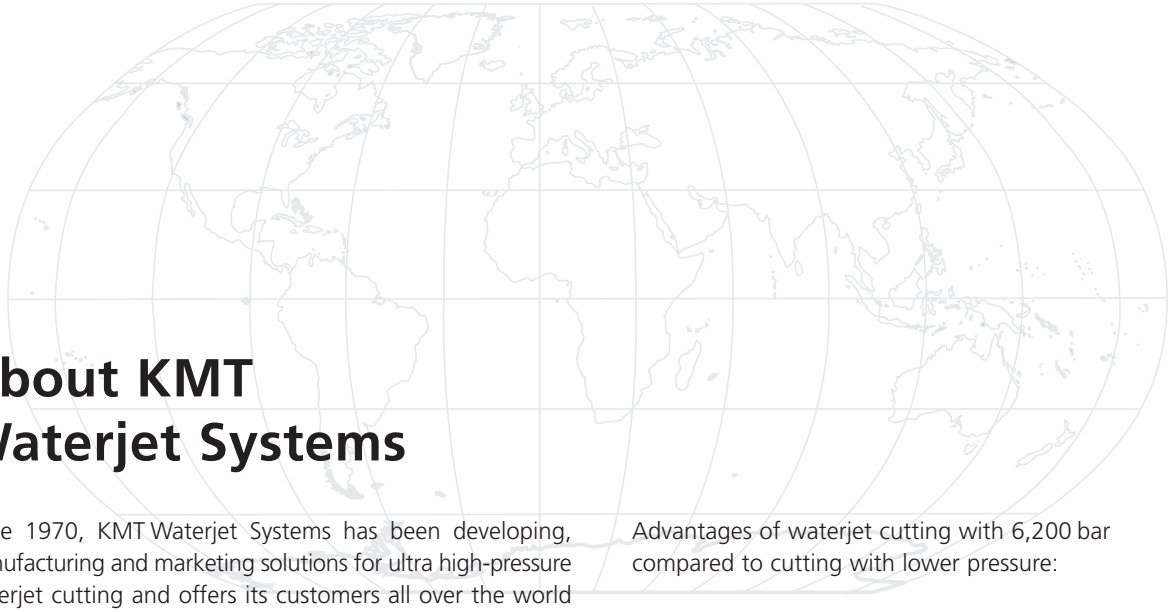
6,200 bar High-Pressure Innovations

- STREAMLINE™ PRO-I ultra high-pressure pumps
- PRO series cutting heads
- AMS PRO abrasive management system
- PSC PRO installation parts

High-Tech Waterjet Cutting



About KMT Waterjet Systems

Since 1970, KMT Waterjet Systems has been developing, manufacturing and marketing solutions for ultra high-pressure waterjet cutting and offers its customers all over the world a comprehensive range of after-sales services. The consistent further development of KMT Waterjet Systems' product range demonstrates the company's dedication to innovation. The focus is thereby always on user-friendliness and reliability of the equipment, and these principles have been successfully implemented once more in the popular STREAMLINE™ high-pressure pump series.

This has been achieved not least by using the latest production technology in the manufacture of the pumps. As a result, KMT Waterjet pumps offer unrivalled precision, which is a basic requirement for the reliable and safe use of high-pressure equipment.

The STREAMLINE™ range has been a great success, and many manufacturers of waterjet cutting equipment have adopted it as the new standard in their products.

Advantages of waterjet cutting with 6,200 bar compared to cutting with lower pressure:

- Greater cutting speed
- Improved cutting edge quality
- Reduced abrasive consumption
- Cutting power for thicker materials
- Lower costs per unit
- Higher productivity
- Competitive edge thanks to greater flexibility

Innovative ultra high-pressure technology
Waterjet cutting with 6,200 bar

With its new PRO high-pressure range, KMT Waterjet Systems sets new standards in the field of waterjet cutting. PRO stands for waterjet cutting technology with operating pressures of up to 6,200 bar, and the new range of products includes of course all necessary components and accessories - from high-pressure generation units to orifices that guide the cutting jet with great precision onto the material. The maximum pressure of 6,200 bar represents a nearly 50 % increase of the pressure used by conventional equipment!

The advantages offered to operators by this leap in technology are obvious:

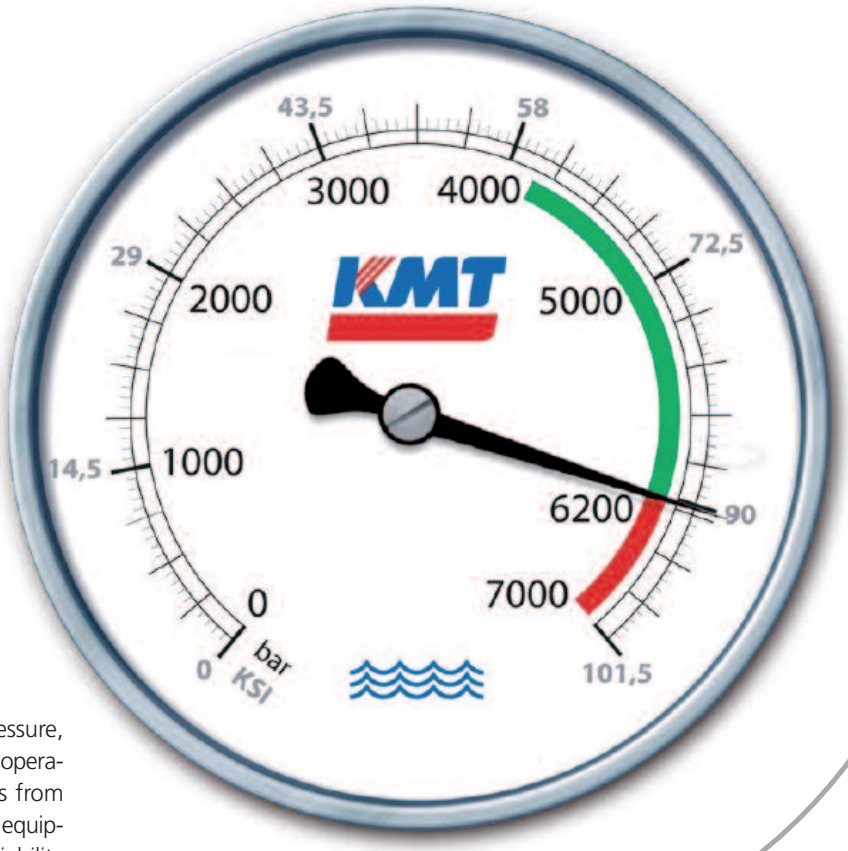
- Higher cutting speeds
- Improved cutting edge quality
- Lower abrasive consumption
- Higher productivity
- Optimised machine utilisation
- Improved conformality
- Reduced delamination

To enable users to gain maximum benefit from this huge increase in the operating pressure, the KMT team carefully re-examined all components of the pressure line from the pump and the piping to the cutting head. This resulted in the development of the following new products:

1. **STREAMLINE™ PRO-I** ultra high-pressure pumps
2. **ACTIVE AUTOLINE™ PRO-I** abrasive cutting head
3. **ACTIVE IDE™ PRO-I** abrasive cutting head
4. **AQUALINE PRO-I** pure water cutting head
5. **AMS PRO-I** abrasive management system
6. **PSC PRO-I** valves, pipes and fittings

Taking into account the increased exposure to high pressure, the new products were redesigned to ensure economical operation with enhanced service life. The original PRO series from KMT Waterjet thus offers you optimised high-pressure equipment meeting the highest requirements as regards reliability and cutting quality in heavy-duty continuous operation.

Maximum flexibility for all waterjet applications
With the STREAMLINE™ PRO ultra high-pressure pump, KMT Waterjet has extended its high-pressure pump range with an additional top model. Whether you require high volumetric flow, extremely high pressure or simply a machine with reliable standard features – the STREAMLINE™ series by KMT Waterjet offers efficient waterjet cutting solutions for all applications.



Ultra high-pressure pump – STREAMLINE™ PRO-I

STREAMLINE™ PRO-I 60

The latest generation of STREAMLINE™ PRO high-pressure pumps sets new standards in waterjet cutting technology. The innovative high pressure pumps have been specifically designed for abrasive waterjet cutting at operating pressures of up to 6,200 bar.

Higher productivity
The advantages of the higher operating pressure of 6,200 bar are particularly relevant for efficiency where operators need to cut thick materials. Higher operating pressures improve conformality as well as the quality of the cut edge.

- Depending on the material and its thickness, cutting with 6,200 bar allows operators to increase the cutting speed by up to 25 %. In many applications, the increase is even considerably higher.
- Higher operating pressures improve conformality as well as the quality of the cut edge. In many cases, there is no need for reworking cut edges.
- Cutting with 6,200 bar significantly reduces the consumption of abrasive.

Customer-oriented design
When developing the PRO series, easy and quick maintenance was one of the key priorities of the KMT Waterjet team. The modular design of all components of the PRO range allows for the quick replacement of individual wear parts whenever the need arises. The machine design guarantees that each single part works properly to the very end of its service life.

HSEC hard seal end cap technology
The innovative design of our hard seal end cap intensifier range for the fixture of the check valve reduces operating costs and wear. As the seal is made entirely from metals, there is no need for a conventional gasket. The new product thus does away with a fragile wear part.

Available in two power classes
The STREAMLINE PRO is available in two models with 45 kW or 93 kW. At a pressure of 6,200 bar, the two machine versions offer volumetric flows of 2.8 l/min and 5.4 l/min respectively. This enables the operator to cut with either single or multiple heads. In the PRO-I 125 with 93 kW, the cutting pressure of 6,200 bar is produced with the help of two pressure intensifiers operated with a phase shift that pump the cutting water through a 1.6 l pressure accumulator to the cutting heads. The standard model comes with a proportional pressure control system for the stepless adjustment of the cutting pressure. It is also equipped with a pressure transducer monitoring the cutting pressure in the high pressure line. This control circuit ensures equal utilisation of the two pressure intensifiers and optimises the pressure signal which significantly affects the cut edge quality of the workpiece.

STREAMLINE™ PRO-I 125

REMOTELINE remote diagnostics
The REMOTELINE online remote diagnostic tool is available as an optional extra. This web-based application enables users to analyse the operating status of the pump from a remote location. Machine downtimes can thus be minimised, as the software assists trained operators in locating and identifying faults and defects themselves. Should a customer still require the support of KMT, he can contact the company through the software and work together with our service technician to eliminate the fault, using online tools. This approach saves time and costs as there is no need to travel to the site.

Technical Data

System Information	Unit	PRO 60	PRO 125
Nominal Power Rate	kW/PS	45 / 60	93 / 125
Max. Continuous Pressure	bar	1,200 – 6,200	1,200 – 6,200
Max. Water Flow Rate @ Max. Pressure	l/min	2.8	5.8
Theo. Max. Single Orifice Diameter	mm	0.28	0.40
No. of Language Options on Display		11*	11*
Control Voltage & Power Supply	VDC	24	24
Nom. Motor Current at 400V/50Hz	A	80	160
Circuit Braker at 400V/50Hz	A	100	200
Max. Noise Level/Operators Noise Level	dB(A)	< 72.5	< 84
Ambient Operating Temperature	°C	5 – 40	5 – 40
Length	cm	198	223
Width	cm	91	150
Height	cm	145	155
Weight (Redundant Model)	kg	1,565	3,107
Control System		Touch-Screen-Display (Moeller)	
Cutting Water			
Minimal Inlet Cutting Water Flow	l/min	15	34.8
Minimal Inlet Cutting Water Pressure	bar	2.4	2.4
Max. Nominal Strokes per Minute	min-1	45	45 per pressure intensifier
Accumulator Volume	l	1.6	1.6
LP Filter	µm abs.	10	10
Hydraulic System			
Max. Hydraulic Pressure	bar	162	165
Hydraulic Reservoir Capacity	l	182	416
Hydraulic Pump Flow Rate at Max Output	l/min	242	242
Cooling System			
Minimal Cooling Water Pressure	bar	2.4	2.4
Cooling Water Consumption at 24°C	l/min	13.2	24.6
Transmission Ratio		38.5 : 1	38.5 : 1
Options & Other Features			
Booster Pump (adjustable & protected)		●	●
Soft Starter		●	●
Oil / Air-Cooler (Closed Loop Cooling System)		○	○
Redundant Topworks		○	–
Proportional Control		●	●
Remote Online Diagnostics		○	○
Networking Interface Kit		○	○
Door Swing Open (Remove Easily)		●	●
ProfiBus Connection		○	○
Tool Kit		○	○
Spare Parts Kit		○	○
CE Mark attached		●	●

** English, German, French, Spanish, Italian, Swedish, Finnish, Polish, Czech, Russian, Chinese*

● = *Standard*
○ = *Optional Feature*

Maximum Number of Cutting Heads at 6,200 bar**

Ø in mm	0.10	0.13	0.15	0.17*	0.18	0.20	0.23*	0.25*	0.28	0.30*	0.33*	0.35*	0.38
Pro-I 60	7	4	3	2	2	1	1	1	1	0	0	0	0
Pro-I 125	15	10	6	4	4	4	3	2	2	1	1	1	1

** This orifice size is used for abrasive cutting also.*
*** The maximum quantity of orifices installed can be increased or larger orifice sizes can be installed by reducing the working pressure. Please feel free to contact us for your individual calculation.*

ACTIVE AUTOLINE™ PRO I
ACTIVE IDE™ PRO I

Abrasive cutting heads for high pressures

Abrasive cutting head ACTIVE AUTOLINE™ PRO-I

Abrasive cutting head ACTIVE IDE™ PRO-I

The new PRO abrasive cutting head from KMT Waterjet has been specially designed for waterjet cutting with 6,200 bar. Its design and materials can withstand huge forces while focussing the energy to the point where it is needed, namely to the cutting jet.

ACTIVE AUTOLINE™ PRO-I abrasive cutting head
Among the outstanding features of ACTIVE AUTOLINE™ PRO cutting heads are automatic precision positioning, perfect repetition accuracy, high cutting speeds, long service life and easy maintenance. It takes only seconds to replace the few wear parts of the head, such as the orifice, mixing chamber and focussing tube, and no tools are required. In order to keep routine maintenance to a minimum, these parts are made from tough wear-proof materials. The typical features of KMT Waterjet products based on the innovative approach for efficiency and economy in continuous operation have thus been successfully integrated into the design of the company's latest development. ACTIVE AUTOLINE™ PRO cutting heads can also be integrated into all waterjet cutting systems with rigid or multiple head connections.

ACTIVE IDE™ PRO-I
Improved cutting performance thanks to high precision
The diamond orifice is integrated into the orifice body. A specially devised manufacturing method ensures that the waterjet is at all times properly aligned and connected to the mixing chamber located below the orifice body. In the mixing chamber, the abrasive is added to the waterjet. The stringent production tolerances for the mounted cutting head guarantee that the cutting jet is always properly aligned along the axis. As the waterjet exits the focusing tube at the correct angle, the power of the waterjet is focused for optimum impact. This allows for maximum cutting speeds at minimum cutting gaps combined with excellent cutting edge quality.

HYPERTUBE PRO focusing tube for 6,200 bar applications
With the HYPERTUBE PRO, KMT Waterjet has developed a patented design that considerably prolongs the service life of the focusing tube. In most cases, the focusing tube shows asymmetric wear, which results in an elliptic deformation of the outlet opening. HYPERTUBE PRO focusing tubes are equipped with an index that enables operators to repeatedly turn the tube by a set angle in the housing of the cutting head. This results in a uniform wear pattern so that the waterjet cross-section remains circular. The jet remains properly focused for longer, which further helps reduce the operating costs of the waterjet cutting unit. Experience shows that this patented solution prolongs the service life of focusing tubes by around 100 %.

AQUALINE PRO-I

Pure water cutting head AQUALINE

The nozzle valve for maximum stress

The wide range of cutting tasks and numerous switching cycles puts a heavy strain on the nozzle valve. With the AQUALINE PRO pure water cutting head, KMT Waterjet has now developed the perfect solution for 6,200 bar applications. As the cutting speed is higher than with 4000 bar, delamination is significantly reduced and in many cases completely eliminated. Depending on the actual requirements, the valves are available as normally open (N/O) or usually closed (N/C) valves. These high-pressure valves usually open in less than 50 ms, depending on the operating pressure. High precision, sturdy design and extremely short switching times are the key features of the AQUALINE PRO waterjet cutting head range.

Pure water cutting head AQUALINE PRO-I

PSC-PRO installation parts for 6,200 bar valves, connectors and pipes

PSC stands for Precision System Components, which include all installation parts required in high pressure cutting technology to feed the cutting water from the pump to the connected cutting stations. The PRO series of PSCs has been specially developed to meet the requirements of waterjet cutting with 6,200 bar. The comprehensive PSC-PRO range of products allows for the flexible and reliable installation of pipeline systems suitable for all commonly used cutting systems. PSCs from KMT Waterjet offer unrivalled reliability, availability and wear-resistance.

KMT Waterjet Systems
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