

# Waterjet accumulator high pressure

What is a high pressure water-jet propulsion system (HWPS)?

The high-pressure water-jet propulsion system (HWPS), which is a novel thruster, ejects a high-speed and high-pressure water stream from a nozzle to engender thrust and pushes watercraft forward [1]. Usually, a special axial piston water pump is employed as a power supply in HWPS.

How does a water pressure accumulator work?

Because of the compressibility of water, which can reach up to 15% at 350 MPa, every piston covers a part of its working stroke in order to compress the water, without there is water discharge. In order to reduce the pressure fluctuations, an accumulator of high pressure water is installed. Its volume controls the range of fluctuations.

How long does a waterjet accumulator last?

The pressure accumulator has a lifespan of 10,000 hours. Even if you maintain the water jet in the best way possible, you will still need to replace these parts since they will undergo wear and tear during usage. For details on when to replace a particular component, you should check the waterjet manufacturer's specifications.

What causes waterjet pressure fluctuation?

**KEYWORDS:** Waterjet, Pressure Fluctuation, Cutting Quality. **ABSTRACT.** The pressure fluctuation in the waterjet (WJ) process is due to the mechanism of high pressure generation, characterized by a cyclical working, and to physical causes (water compressibility at the exercise pressures).

How much pressure does a high pressure pump fluctuate without accumulator?

The measurements were made without accumulator as well as with accumulator volumes of 0.88 and 2.49 liters. At the high pressure pump with 37 kW and a maximum flow rate of 3.8 l/min the pressure fluctuation were nearly 150 MPa without any dampening device.

How axial piston water pump works in HWPS?

Usually, a special axial piston water pump is employed as a power supply in HWPS. The swash plate angle of this axial piston water pump is  $25^\circ$ , which is larger than other piston pumps (about  $10^\circ$ ), so the water pump has a large displacement. Besides, the water pump can discharge high-pressure water.

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Waterjet intensifier 05040696 ACCUMULATOR,TUV,1 LITER,SLIV waterjet spare parts supplier water jet shop parts online wholesale. ... How does the size of the water jet cutting machine's accumulator capacity affect the machine? ... the more compressed air or liquid can be stored to provide a longer duration of high pressure water jetting.

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The Accumulator's bladder is pressurized with nitrogen and smooths out pulses that occur while cycling your Ultra High Pressure Intensifier Pump. This additional buffering protects the hydraulic components from pressure spikes that lead to component fatigue and premature hose failure thereby maintaining cut quality and reducing maintenance ...

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the ultra-high pressure pressurization system and the outlet velocity of the high-speed waterjet. Therefore, carrying out studies and tests based on the research results of high-pressure technology is of great significance to the promotion of the design, application and equipment localization of the high-pressure waterjet systems. 2.

In addition to our high pressure valves, we offer a complete line of reactors and pressure vessels and a recently expanded family of pumping systems and generators. ... HiP is an ISO 9001 certified company and a preferred supplier within diverse markets such as waterjet cutting and cleaning, oil and gas, chemical and petrochemical, research and ...

Large-capacity and high-pressure plunger water-pump is often used as power supply in high-pressure water-jet propulsion system (HWPS). Generally, the flow pulsation and pressure pulsation generated in the working process of ...

High-pressure waterjets have advanced substantially over the years in terms of longevity and reliability. Still, they need maintenance and repair from time to time. ... Three other common problems with intensifier-based waterjet systems are hydraulic pressure failure, low water pressure, and hydraulic temperature overheating. 1. Overstroking

The ultra-high-pressure waterjet pump is the heart of your waterjet cutting. At Jet Edge, we have a pump for every application allowing you to match the exact pump to your exact needs. Whether you're cutting with water only or running a 24/7 operation with multiple abrasive jets, Jet Edge has a pump that will bring your application the tough ...

Stroke of the ultra-high pressure energy accumulator. H. mm. 500. Area of the piston rod of the pressure cylinder. A g. m  $2.35 \times 10^{-4}$ . Inner diameter of the ultra-high pressure energy accumulator. D. mm. 41. Reversing time of the electromagnetic valve. t. s. 0.16. Cross-sectional area of the nozzle. A. m  $3.15 \times 10^{-8}$ . Wall thickness of ultra ...

Low pressure is anything under 10,000 psi (69 MPa). Medium pressure is between 10,000 and 15,000 psi (69 to 103 MPa). High pressure is between 15,000 to 40,000 psi (103 to 276 MPa). Ultrahigh-pressure is between 40,000 psi to 75,000 psi (276 to 517 MPa), for waterjet cutting most pumps are between 55-60,000 psi (379 to 413 MPa).

The PJ4-4000 intensifier pump generates a high and steady water pressure from 300 to 4000 bar with a relatively low oil pressure. Skip to the content. Phone: ... a high pressure accumulator and electronic switching by the pressure booster. ... The Waterjet Pump can be extended with several options and features to further improve your waterjet ...

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The system then stabilizes the high-pressure liquid flow through the fluid storage accumulator. Finally, via the nozzle, spray a high-speed liquid at 300 to 900 meters per second onto the workpiece surface for material removal and modification. ... A high-pressure water jet cutter is a revolution in the cutting industry because it is highly ...

2.1 Experimental Apparatus and Rock Sample Parameters. In order to carry out the high-pressure abrasive water jet cutting extremely hard rock test, granite and anorthosite materials with different strengths were selected for this test, as shown in Fig. 1 terms of rock type, granite is very typical hard rock often encountered in TBM tunnelling engineering, and ...

Hairan waterjet is a leading china direct drive high pressure cylinder manufacturer, supplier and exporter. Spare parts include waterjet accumulator, Cutting Machine Accumulator, waterjet accumulator, etc. Each product of Hairan waterjet cutting technology Co., Ltd uses ultra-high pressure materials, perfect heat treatment and material ...

Read More: Best Adjustable Wrench in 2023 Conclusion. In conclusion, water jet machining is an innovative and highly efficient method of cutting and shaping various materials. Its use of high-pressure water streams mixed with an abrasive material offers a unique advantage over traditional cutting methods. Water jet machines are capable of cutting through thick ...

- o One large (6"OD) accumulator ensures low pulsations in the high-pressure system.
- o A pneumatic bleed-down assembly provides for depressurization of the high-pressure system immediately upon shutdown.
- o All high-pressure tubing and fittings are Autoclave.
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of high pressure water in water jet cutting. It can save pressure, absorb shock and eliminate pulsation. The carrying capacity directly influences the cutting performance. In order to improve the actual strength of the barrel, in this paper, accumulator in the use of the process often due to high pressure and yield failure

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