

PRESS RELEASE

Kaiserslautern, 05 November 2013

Efficiency under extreme conditions

Endlessly rotating water-cooled torch is compatible with air-cooled

Welding with very high currents at duty cycles (DC) close to 100% generates large amounts of heat. Air-cooled torch systems are not able to sufficiently dissipate this heat when welding, for example, thick sheet, multilayer or aluminum parts. An additional challenge is posed by process arm robots with inner cable dress: to fully and efficiently utilize their advantages, the torch must be able to endlessly rotate turn at the robot wrist. The new water-cooled Water Joint meets both of these critical demands. Additionally, the torch system of SKS Welding Systems offers even more benefits that reduce power loss during welding and increase profitability.

Typical applications with large amounts of heat occur in the manufacturing of commercial vehicles, rail vehicles and special machinery. Water Joint torch systems have proven their performance during a one-year pilot operation under such conditions. Now, we can offer our customers a product that is ready for series production. With 72 mm², the cross section of the copper conductor as compared to conventional water-cooled torches is very large. Therefore, it produces less voltage drops and stays relatively cool even without water cooling. Only the parts at the torch tip affected by the reflected energy of the welding process require additional cooling. Low power loss and targeted water cooling increase the efficiency of the overall system.

The high-current and water rotating joints of the Water Joint also make the otherwise rigid unit of the hose connections between robot and welding torch flexible. As with the air-cooled Power Joint, the robot-controlled torch can rotate endlessly, i.e. also beyond 360° around its axis or the wire electrode. Wire feeding, the flow of electrical current, electrical signals and inert gas work without limitation. Torsional strains to the torch cable in the welding robot's hollow shaft that are otherwise caused by the torch system do not occur. This increases the service life of the cable considerably. Because of the unlimited rotation a reorientation of the robot is not

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necessary. This simplifies programming and avoids downtimes – which both lead to direct cost savings.

SKS also offers an innovative design for the water cooling system and the conduction of the cooling water. Instead of using susceptible combined current/water cables as part of the cable dress, the water hoses are placed separately at the air-cooled torch. As they are guided along the 6th axis of the robot it is also impossible that water gets into the robot. For the water cooler, two alternative designs are offered: passive and active cooling. The latter is able to cool two torch systems.

Another advantage for the investor is SKS' modular system design. The components not affected by water cooling as the central component, the high-current rotary joint, the wire feeder, the torch cable, the gas nozzle, and the wearing parts are identical with those of the Power Joint that has proven its reliability in more than 6,000 installations. This approach saves both direct costs for the acquisition and indirect costs for the management of spare parts.

PI 13073 about 3,238 characters

For more information, please visit www.sks-welding.com.
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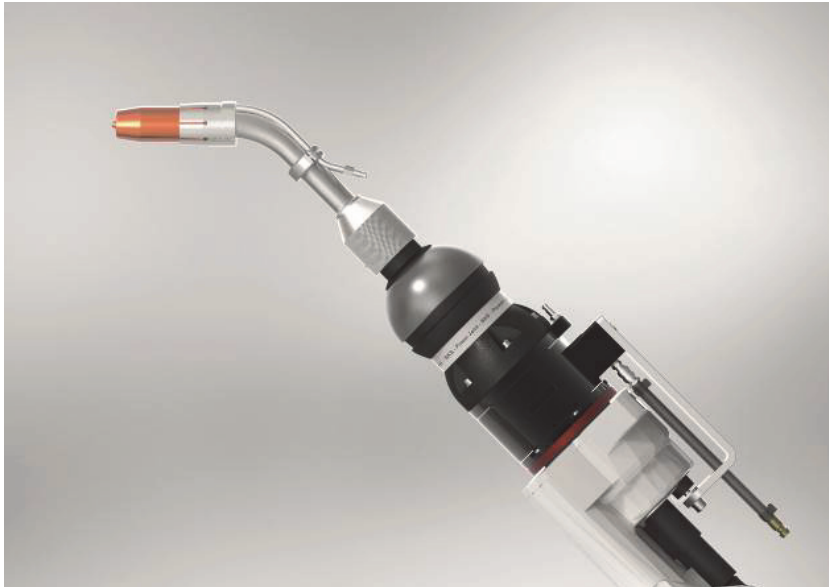
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Picture 1:

The Water Joint torch system: torch neck with water cooling for consumables, Power Joint to decouple media and the water rotating joint Water Joint.



Picture 2:

Ideal for welding with process arm robots and large amounts of heat: the Water Joint torch system.

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