

Ogura model MCNB-25-26.

# Life-Saving Rescue Tools at Work

Innovatively engineered rescue tools put tactical power and versatility in the hands of first responders worldwide to save lives faster, safer, and more efficiently.

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**E**very minute, somewhere in the world, emergency responders are rushing to accident scenes, utilizing their training, experience, knowledge and tools, to save lives.

One of those life-saving tools is the

Power Hawk P-16, a portable battery-powered "Jaws-type" rescue tool that delivers enormous spreading, cutting, and crushing power. This power is important because it used to cut into and force open vehicles that have been involved in crashes and whose occupants have been

trapped and need to be extricated.

The Power Hawk P-16 Rescue System uses aerospace gear technology and 12V DC power, rather than the hydraulics or gasoline-engine-powered pumps of traditional tools. The patented planetary gear system and

transmission in the P-16 multiplies the electric motor torque by nearly 6,000 times, generating an output torque of 72,000 inch-pounds.

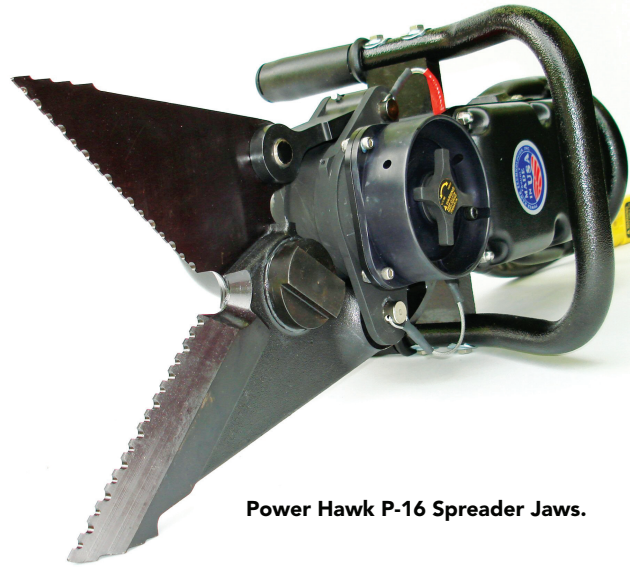
The P-16 is unique also because of its quick-change spreader and cutter attachments, which allows it to be converted in just seconds from one type of tool to another, like a Swiss Army Knife. The high torque of the P-16 is harnessed by these attachments to provide a wide variety of operations. For example, the S-1601 Spreaders Arms has a range from 8,000 lb to 45,000 lb of spreading force. This amount of power could easily pop open a trunk, pry open a door, or even lift a car off the ground. The CS-1602 Power Blade can produce anywhere from 21,000 lb near the center of the blades to 45,000 lb near the notch, easily cutting through a wide variety of materials, including a three-quarter-inch steel bar or a three-eighths-inch steel plate.

Because the product has a variety of attachments that can be switched easily, it is the ideal tool for many first responders. The tool is also a key

## THE TOOL IS ALSO A KEY COMPONENT OF THE SPECIAL FORCES.

component of many of the Special Forces divisions in the military for combat and non-combat situations.

Because of the high torque/light-weight requirement, a special custom brake was required by Ogura. Once the size/weight and torque challenges were overcome, the brake was also required to survive rigorous testing for heavy shock, vibration, extreme environmen-



**Power Hawk P-16 Spreader Jaws.**

tal conditions, low voltage operating conditions, and was even required to operate underwater.

Although the unit does not continuously operate underwater, there are some rescues where parts of the vehicle can be completely submerged and the cutting tool is required to operate occa-

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sionally under these conditions. Almost all spring-applied brakes have friction material, and when friction material gets wet, it expands. The tolerances of the air gap for Power Hawk's brake were very tight, so the challenge was to come up with a friction material that

could operate for a short time without swelling. If the friction material was to swell, the brake would lock up and the tool would no longer be functional. The proprietary Ogura material was able to meet the customer's testing requirements for limited friction material

expansion.

In Power Hawk's application, when the tools cutting or spreading jaws are working, both the motor and the brake are powered. Applying power to the brake creates a magnetic field, which attracts a pressure plate across an air gap, compressing internal coil springs and thereby releasing (or freeing) a rotating friction disc. This friction disc is attached by a hub to the Jaw motors drive shaft. Once the Jaw has reached its desired location and the motor has stopped, power is removed from both the motor and brake together. This collapses the brakes magnetic field, allowing the brakes internal coil springs to extend, applying a linear force to the brakes pressure plate, clamping and



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holding the rotational friction disc/hub and Jaw shaft assembly. This keeps the P-16 jaws locked in position without the risk of back driving, even with several thousands of pounds of force acting on the tool. The holding force and strength of the Ogura brake is critical to proper function and safety to personnel in the field.

There are currently five different tool attachments available with the P-16 Rescue System and as new designs are released, they are easily added to existing kits in the field. The versatility of the P-16 is enhanced further because of its planetary gear system design, which enables the entire power output head and its attached spreader or cutter to pivot 70 degrees. This provides access into very tight spots and gives operators much greater flexibility.

Besides its functional versatility, the Power Hawk P-16 can function in an oxygen-depleted atmosphere, which would be impossible for gas engine units to operate. Compared to gas or hydraulic units, the P-16 is also

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Remotec's F6A/B Robot.

quiet and is the only battery-powered rescue tool that is certified by UL as compliant to National Fire Protection Association 1936.

The P-16 Rescue System serves a myriad of end-user types and applications, including fire, rescue, ambulance, police, military, EOD, nuclear, and more. As an all electrical-mechanical tool, the P-16 brought forth a new solution into the bomb squad and Explosives Ordnance Disposal (EOD) arena. Recently, the Power Hawk P-16 rescue tool has been added to Remotec's Andros robots. This allows an operator to use the power of the P-16, but from a remote location. These robots, fitted with the Power Hawk tool, can provide different me-

chanical breaching methods for gaining access into car trunks, containers, gates, and other targets without the use of explosives; but, more importantly, render hazardous threats safe from a remote location, thereby keeping danger at a distance.

With help from Ogura Industrial, these innovatively engineered rescue tools (lightweight and optional attachments) put tactical power and versatility in the hands of first responders worldwide to save lives faster, safer, and more efficiently. For more than 20 years, Power Hawk products have been honored to play a part in the life saving role of the everyday heroes who put their own lives on the line day in and day out.

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