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MetalCraft Marine fireboats motor to the rescue

Kingston boat builder known for speed adopts modular connectors

When there is smoke on the water – and fire in the sky – it helps to have a fast fireboat to come to your rescue. For buyers like the Port of Houston, with so many oil tankers supplying refineries along its ship channel, the \$5 million Canadian-built FireStorm 70 does the job of fireboats costing a great deal more.

The aluminum-hulled fireboat FireStorm 70 from MetalCraft Marine (www.metalcraftmarine.com) is a veritable remote command centre, with quad diesel engines, water jets for propulsion, generators, fire pumps, water cannons, radar, GPS, patient care area, medical fridge, searchlights, galley, HVAC and options like a recovery boat and crane.

The FireStorm 70, MetalCraft Marine's largest at 70 feet, boasts a top speed of 46 knots. Its fire-fighting system can pump 17,000 gpm at 130 psi and stream up to 450 feet, triple the typical discharge rate of older fireboats.

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Multipole rectangular connectors

GWconnect multipole rectangular connectors from Chartwell Automation are UL/CSA approved and employ inserts in self-extinguishing thermoplastic material UL94V0.

www.chartwell.ca



Toggle and stem valves

Available in 3-way and 4-way configurations, HV-HTV valves from Clippard feature #10-32 inlet and outlet ports and are available as toggle or stem actuated, in addition to offering cartridge styles. Flows range up to 15 scfm at 100 psig.

www.clippard.com



Appliance inlet module

E-T-A Circuit Breakers has introduced the X3130 appliance inlet module. Integrated with E-T-A's double-pole 3130 thermal circuit breaker, the module combines a C14 appliance inlet module, rocker switch and resettable overcurrent protection.

www.e-t-a.ca

Fast fireboats come to the rescue

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The Firestorm 70 shares several MetalCraft proprietary design features, like a sea chest that gives it extraordinary pumping capacity for its size and a hull shape that gives it a shallow 34-in. draft, fully loaded. At high speed, it can do emergency stops and change direction within three boat lengths. MetalCraft also puts a great deal of thought into the layout to provide crew comfort and ensure easy maintenance accessibility to the four diesel engines and twin diesel generators of the FireStorm70 as it does with smaller models.

Why is a Kingston, ON, boat builder so highly regarded? “We pride ourselves on fast attack,” said Jay Milner, project manager for the Firestorm 70 program. “Our boats are faster and pump more water than our typical competitor.”

A vessel like MetalCraft Marine’s award-winning FireStorm 70 relies on hard-wiring electrical systems at the wheelhouse – systems that control or monitor many mission-critical operations aboard the most advanced fireboat of its class. MetalCraft remains price-competitive with other North American shipyards by keeping costs low and being open to new ideas, like switching to connector-based wiring assemblies.

Harting (www.harting.ca), a global manufacturer of heavy-duty connectors and other interconnection products, was approached by MetalCraft, and proposed its IP65 compliant Han-Eco series. Made of glass fibre-reinforced thermoplastic, the corrosion-resistant series weighs less and has a lower price point than metal connectors. Most Harting Han-Modular inserts fit Han-Eco connectors, allowing for combinations of power, signal, fibre optic, coax, D-Sub and pneumatic to be streamed through the same unit.

On the FireStorm 70, six Han-Eco units are used for connecting wiring from the wheelhouse to the hull, two for connecting the wheelhouse to the arch/mast and one to connect the wheelhouse and rooftop water cannon.

Adopting connectors coincides with a move by MetalCraft engineers to develop modular, standardized content to accelerate the design and build process. “That’s a big step for us,” said electrical designer Charles Iscoe.

“We are looking to further divide electrical subsystems within our boats and create physical modules – a cabin instrumentation cluster, for example – that can be assembled and wired off the boat. These modules could be more or less ‘cut and pasted’ into the electrical drawings used on the shop floor.”

Using modular connectors also means more flexibility in designing signal connections for MetalCraft.

“We had previously been restricted by electrical connectors that could accommodate one or maybe two wire sizes,” added Iscoe. “Often, we had to have dedicated roof penetrations with individual cable glands for certain cables. On radar arches, we have a variety of electrical loads that require anywhere from 14 to 8 AWG conductors. Harting’s modular approach allows us to load gauge-specific modules into the same Han-Eco as needed and standardize some electrical systems.”



MetalCraft Marine assistant supervisor Shawn Latreille holding a wire assembly with a Han-Eco termination. Top left above: Mated wire bundles with Han-Eco. Bottom right above: Han-Eco installed in hull. Left: With the help of Harting Han-Modular inserts, Han-Eco heavy-duty connectors can carry a combination of power, signal, fibre optic, coax, D-Sub and pneumatic through the same unit. (Cover photo courtesy MetalCraft Marine.)

“We also have been successful in using the Han-Eco to bridge pneumatic (air horn) and coaxial (surveillance camera) signals as they pass through the cabin ceiling, reducing the number of ceiling penetrations. Since each penetration requires thought and consideration, we are saving a lot of time at the design stage.”

From the installation perspective, switching to connectors dispensed with having to make about 300 hard-wired connections on the FireStorm 70 that in turn required 30 terminal strips. “The mating process has gone from two weeks of making hard connections to one day of plugging in connectors,” said MetalCraft assistant supervisor Shawn Latreille. “This is the time-saving for mating cabin-to-hull only.” Wire harnesses with Han-Eco are pre-assembled off the boat.

“Mostly, the connectors channel a lot of 24 volts, a little bit of 120 AC power and a lot of signal – mainly sensor wires for flow, pressure and water,” said Latreille. Separating the power from the signal modules with blanks in the connector is sufficient to prevent any interference.

“We are pre-assembling wire runs better than before – and can separate wire runs in the cabin and hull and terminate each instead of waiting until the mating process,” said Latreille.

“That allows us to plan termination points better.”

MetalCraft, with a workforce of 150, has built 600 workboats since

entering the workboat business in 2001 when heightened security concerns released a continuous flow of U.S. government funds to ports across that country to upgrade emergency capabilities. MetalCraft has several months’ worth of orders in the production pipeline and more pending. **DPN**

This article was contributed by Harting Canada.

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