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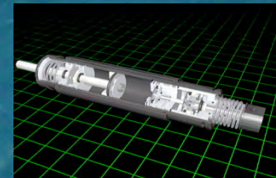
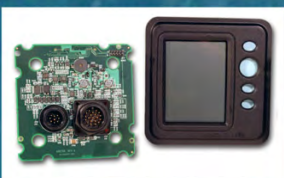
Volume 6 Issue 6

Entertainment Engineering



ROBOTS IN FILM

ROBOTS ARE CAST AS THE AUTOMATION SYSTEM



ALSO IN THIS ISSUE... GUI COLOR KIT | HD CAMERA LENS | MICROHYDRAULICS MORE...

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MOVIE REVIEWS OUR WAY: SUMMER BLOCKBUSTERS BY TECHNOLOGY

One of the cool things about a digital online magazine is the ability to interact with readers. It's the interaction that helps shape future issues of the magazine; so keep your suggestions coming.

This time we'd like to have a little fun – like our tag line says: Technology. Creativity. Fun. Here's what we're thinking: we'd like to read your thoughts concerning the portrayal and use of technology in this summer's blockbuster movies.

There are several movies in particular that will be portraying futuristic technology and other using modern-day technology for production.

Here are some examples:

Terminator: Salvation
Star Trek
Transformers: Revenge of the Fallen
X-Men Origins: Wolverine

So, tell us, is the on-screen technology convincing? Is the movie's vision of the future realistic? Why do you think so? Why not? Are there other movies worthy of comment?

While other magazines and web sites cover the acting or the plot of movies, Entertainment Engineering is different because we cover the technology.

We often bring you articles about the technologies --motion control, electronics, fluid power, software, etc --used to produce movies, theme park rides, sporting events, theatre, and other forms of entertainment. For example, you can read about the use of ABB robots in the Terminator: Salvation movie in this issue. Look for articles that discuss other technologies in the movies mentioned above in future issues.

We're ready to have some fun. We've already started some of the [movie discussion topics on our Facebook Page](#). Share your thoughts with your community. You can choose whichever movie you'd like to comment on and feel free to begin a discussion topic for a different movie you feel fits this conversation. We only ask that you focus on the technology shown in the movie or used to make the movie.

Thanks!

Bruce

Bruce Wiebusch
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Entertainment Engineering

TECHNOLOGY. CREATIVITY. FUN.

Volume 6 Issue 6



ENTERTAINMENT ENGINEERING TV.

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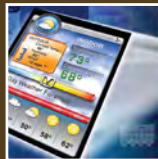
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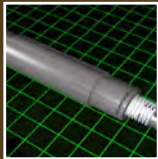
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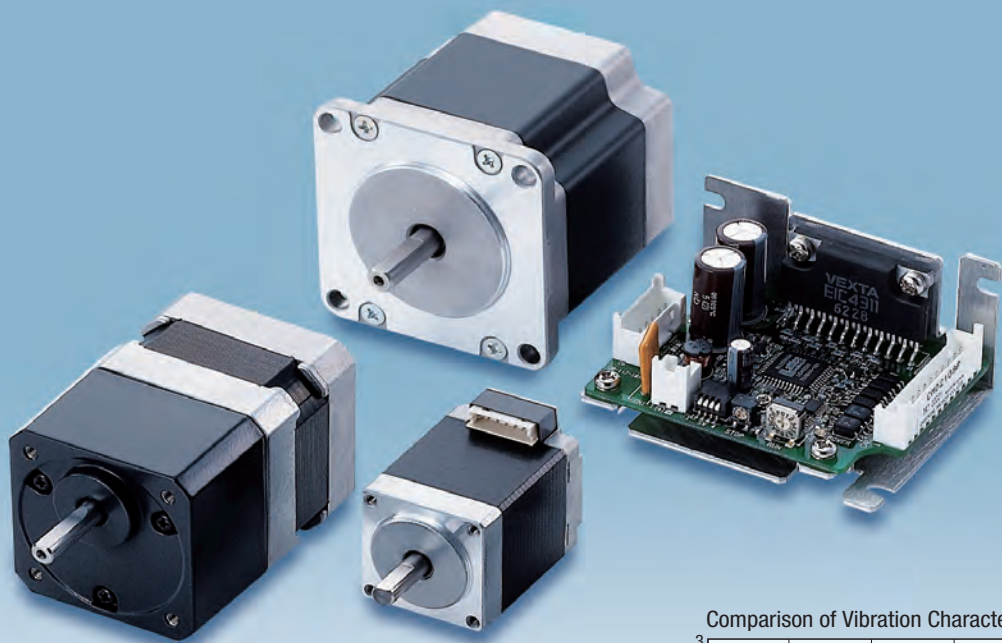


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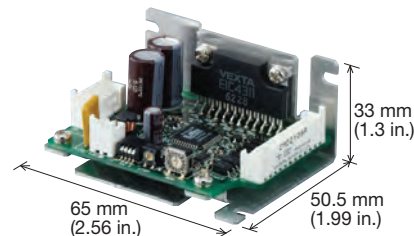
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High-Torque Type	The high-torque motor has higher torque of approx. 1.5 times compared with the conventional standard type motor.					
High-Resolution Type	High-resolution motor offering higher positioning accuracy with the basic step angle set to 0.9°/step, which is just half the basic step angle of the standard type motor.					
Standard Type	The basic model offering a good balance of torque and low vibration/noise characteristics.					
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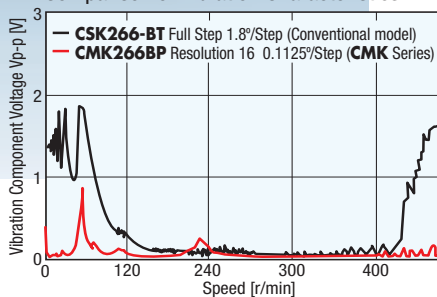
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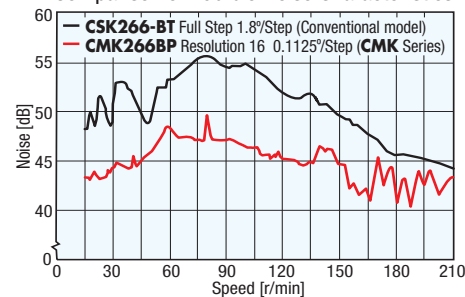
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Comparison of Vibration Characteristics



Comparison of Audible Noise Characteristics



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GRIZZLY CREEK FILMS

The latest National Geographic Channel film was shot using Fujinon ENG lenses to provide crisp HD images under harsh environmental conditions.

Grizzly Creek Films executive producers Leslie M. Gaines, Mailande Becker Holland, and Thomas Winston documented the grizzly bears of Yellowstone National Park for a one-hour special for the National Geographic Channel. On location, the crew paired the Panasonic AG-HPX500 P2 HD camcorder with a Fujinon HA42x13.5BERD lens, as well as a Panasonic AJ-HPX3000 P2 HD camcorder with a Fujinon HA13X4.5 wide angle lens for special segments. Aerial footage was shot by Aerial Director of Photography Gary Kaufman of Omniscience High Definition Video, who used a gimbal-stabilized Sony HDC-F950 camera outfitted with a Fujinon HA42x9.7 lens.

The special, “Expedition Grizzly” chronicles

Winston said the Fujinon lens performed in all conditions, delivering pristine HD images.

renowned naturalist Casey Anderson’s year-long odyssey to shed light on Yellowstone’s “island” population of about 600 grizzlies. “With a subject as difficult to locate and document as wild grizzly bears, lens selection was critical for this project,” according to Thomas Winston, Executive Producer, Grizzly Creek Films. “The Yellowstone grizzlies are quick to retreat at the first sign of human intrusion, so we had to have the lon-

gest and sharpest lens available,” he said. “The Fujinon 42X allowed us to shoot from a distance without affecting the behavior of the bears. The lens’ built-in OS-Tech image stabilization system removed any unwanted movement, which can arise during unstable long shots.”

In order to simultaneously capture the natural history of the Yellowstone grizzly and Anderson’s on-camera analysis and reactions, the crew devised a two-camera strategy that integrated dynamic handheld verité footage of Anderson tracking and observing the bears with more traditional natural history footage of the grizzlies. A Panasonic AG-HVX200 was used for the footage of Anderson, while the HPX500 equipped with the Fujinon lens was used to capture the natural history footage.





Conditions were often far from ideal during production. The equipment was exposed to spring blizzards and high elevations throughout the shoot. Winston said the Fujinon lens performed in all conditions, delivering pristine HD images.

“We were thrilled at the picture quality when we first began shooting with an HPX3000 and a Fujinon wide angle lens last fall. The true 1080p picture on the new AVC-Intra codec paired with the ultra-sharp Fujinon glass produced stellar results.”

A Fujinon HA13X4.5 wide angle lens mounted on a Panasonic HPX3000 was also used to shoot special video segments the crew dubbed “Brutus Breakouts.”

Shot with a Panasonic HPX3000 mounted on a CamMate Systems crane, manned by veteran operator Tony Haman, the segments include up-close footage of Brutus, a six-year-old, 800-pound grizzly raised by Anderson since birth and therefore comfortable around people. Juxtaposed with stunning HD footage filmed in some of Yellowstone’s most treacherous, beautiful, and remote terrain, the breakout segments allowed the filmmakers a safe way to capture grizzly bear behavior.

For example, after watching the bears turn over boulders to feast upon insects beneath it from a distance in the field, the viewer is brought to within inches of Brutus’ massive bulk as he repeats the same behavior for a food reward hidden below the rock.

“The ‘Brutus Breakouts’ are a unique feature of this documentary,” Winston said. “They were used to re-create what wild grizzlies naturally do with Brutus. Even with all the added safety precautions, we were able to get within a foot of Brutus’ face, thereby further engaging the viewer.”

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[National Geographic Channel >](#)

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Whether the sleek look of a fighter jet, the advanced design of the latest commercial airline, or the cool look of recreational aircraft, repetitive motion drilling is key to providing a safe end product.

Positive feed, and air feed drills are the two basic drill systems used for repetitive drilling operations in the aerospace industry. Positive feed drills are typically used to drill holes 3/8" and larger, to minimize the fatigue to the operator. However, Positive feed drills are typically larger and heavier than air feed drills. When drilling holes smaller than 3/8" in materials less than 1/2" thick, air feed drills offer the advantages of a smaller, lighter drill that can be used in more confined areas.

The PFO4 series attachment used on a .9 HP Universal Tool air drill from Andrews Tool Company, is ideal for such jobs. Critical to the overall efficiency of this type of drilling operation is the ability to change the "feed rate" to suit various hole diameters and type of material being drilled.

Engineers, accordingly, have developed specific "feed and speed" references for each situation. With the inclusion of the Deschner Kinechek® Mini K Kinechek hydraulic speed regulator on the Andrews Tool air drill, the feed rate may be easily increased or decreased. This speed regulator saves significant down time by simply turning the built-in adjustment knob. In contrast, a traditional positive feed drill motor's feed rate is controlled by a screw mechanism that requires stopping the operation to change the screw adjustment mechanism.

Air feed drills with an easily adjustable speed regulator offer an efficient solution to repetitive small hole drilling operations for companies like Bell Helicopter and Lockheed Martin, as well as Hawker Beechcraft and Cessna for their consumer planes.



For More Information Click Below:
[Deschner Home >](#)
[Andrews Tool Company Home >](#)

AMULET GUI COLOR STARTER KIT



Electronic components distributor Digi-Key Corporation now stocks Amulet Technologies' new GUI Color Starter Kit. Developed as an antidote to costly and cumbersome GUI development tools, Amulet's kit enables OEMs to quickly and cost effectively meet customer demand for sophisticated and appealing graphical displays in such products as home appliances, consumer electronics, medical devices, and automobiles. The kit provides everything needed to create and drive color-rich GUI displays.

The display module is powered by Amulet's new Graphical OS Chip™ that allows customers to use simple dynamic HTML-authoring tools to create visually exciting user interfaces that enhance the value and brand awareness of their products. Developing a GUI in dynamic HTML enables designers to drag and drop user interface elements and see the production-ready GUI on actual hardware before handing it off to engineering for application integration. This approach unshackles designers, making it easier for them to create consistent user interfaces for entire brands or product lines and to seamlessly upgrade from monochrome to color.

Amulet's built-in microprocessor manages all GUI functions, freeing up the host micro to run the application more efficiently. The chip also features a power management controller for low-power operation. The integrated LCD controller supports 24-bit color and alpha blending on passive and active displays. Electronic interface options include USB 2.0, RS232, and 3.3v UART. Graphic formats supported include PNG, GIF, and JPEG.

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[Digi-Key Home >](#) [Digi-Key Product Index >](#)

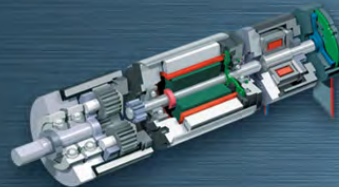
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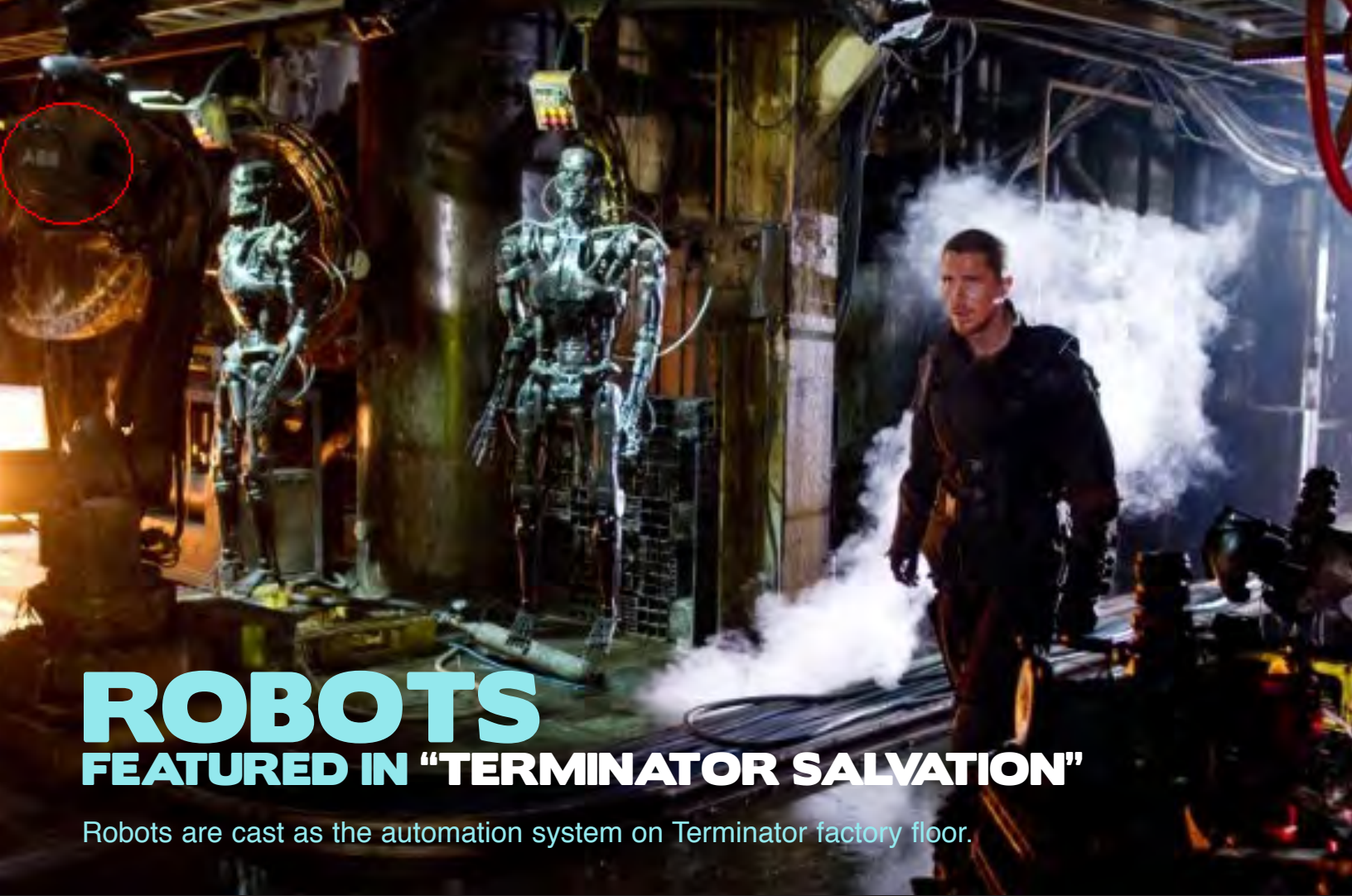


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ROBOTS FEATURED IN "TERMINATOR SALVATION"

Robots are cast as the automation system on Terminator factory floor.

On May 21st Warner Brothers Studios releases the new Terminator Salvation movie to North American audiences. In addition to Christian Bale and the army of rival Terminators, 18 ABB Robots will share starring roles in the fourth of the highly popular Terminator film franchise.

Appropriately cast in a versatile manufacturing role, twelve ABB IRB 6620s and six IRB 1600s spent the summer of 2008 on the movie set in a converted power plant in Albuquerque, NM. Through special effects, the robots are arranged in an almost endless manufacturing line of robots on the Terminator factory floor, mass producing a growing army of the Terminators.

Jaffe Entertainment, a product placement firm, had initially contacted ABB and other robotic manufacturers to investigate the possibility of using their robots and to review their individual product lines. Academy Award winning set director Victor Zolfo and production designer Martin Laing were most intrigued by ABB's product offering, and began working with ABB Robotics Vice President of Marketing Ted Wodoslawsky to work out the details and select the robot models that would best fit the role.

"We looked at a variety of different robot manufacturers, but were struck by the presence of ABB's robots,

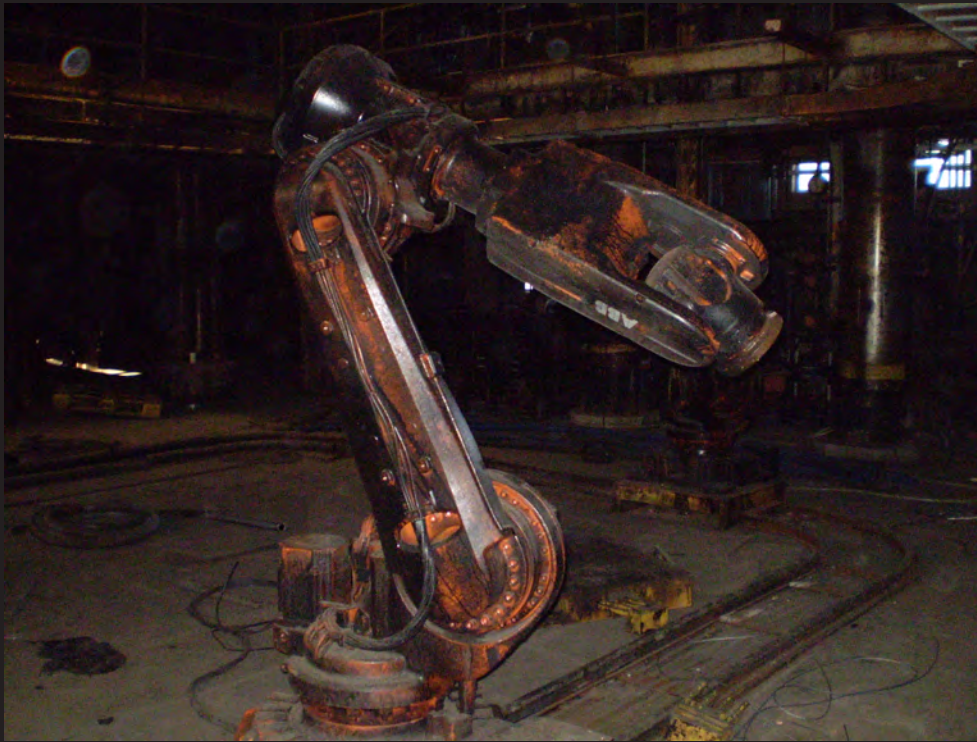
especially the larger units," said Zolfo. "They had the right lines and provided the feel that they could actually be making Terminators."

ABB Field Service Engineer Erik Ryskamp, with periodic support from additional company technicians, spent ten weeks on set, installing, programming, and operating the robots. An ABB IRC5 controller was provided with every robot to facilitate the precise program-

"The robots were really an evolutionary character," said Zolfo. "Like an interim step between the humans and the Terminators."

ming required for the various scenes.

"Erik and his team worked with us very closely creating an incredible ballet with the robots, actors, stuntmen, and Christian Bale," said Zolfo. "What the ABB programming system was able to get the robots to do was better than we ever expected. The robots are very



visible and instrumental in the final, climactic scene of the movie.”

“Originally we were scheduled to be on-site for about five weeks; I think when McG (movie director) saw how cool the robots worked we got the chance to be in a couple more scenes,” said Ryskamp. “I really got a feel for all the planning and effort that is put into every individual scene.”

Just like the human actors, many of the robots were significantly made-up, covered with black soot to appear as if they had been in rigorous use for an extended period in dingy conditions. “The robots were really an evolutionary character,” said Zolfo. “Like an interim step between the humans and the Terminators.”

All robots have since been returned to ABB and have been prepped for less visible, but equally important future roles in real-life industrial manufacturing.

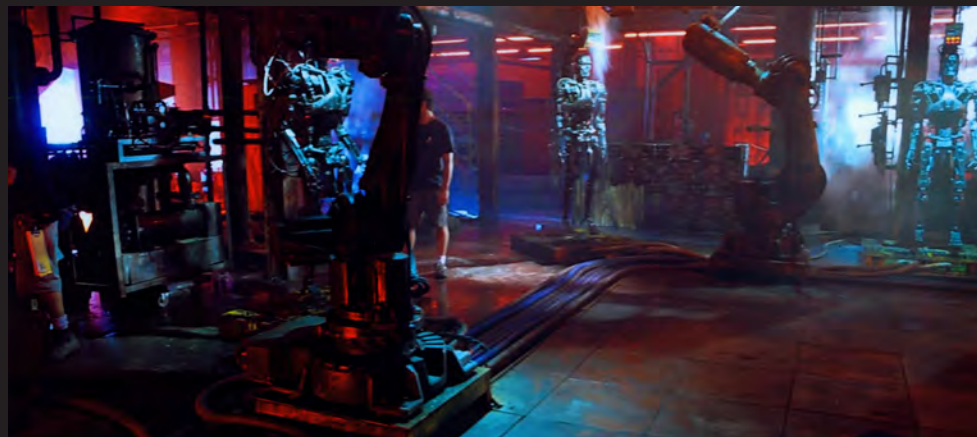
“It was a great deal for both parties. Terminator Salvation got to use ABB robots and engineering expertise, and we get the exposure of our robots being featured in the film, with ABB logos prominently displayed,” said Wodoslawsky. “They were attracted by the strength and durability of the IRB 6620s, and the lighter, nimble nature of the wall-mounted IRB 1600s.”

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[Terminator Salvation Home >](#)



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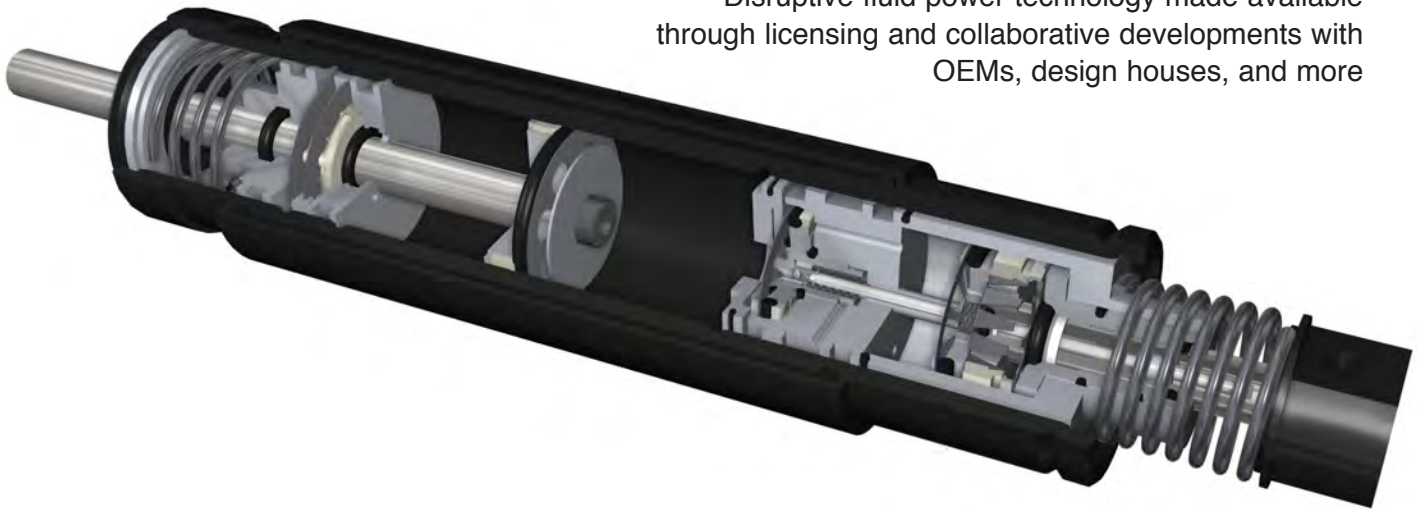


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FastFlow® is a patented hydraulic technology that uses “microhydraulic” principles. Microhydraulics refers to hydraulic systems regulated by fluidics rather than conventional valves. Consequently, the technology enables small, lightweight hydraulic systems that fit within the palm of a hand that are able to easily generate 10,000 psi pressures with flow rates of one half liter per minute.

Traditional valves, pumps, and other convention hydraulic components are eliminated from FastFlow hydraulic systems. Instead, cast manifolds contain all the necessary porting. The microhydraulic technology relies on Bernoulli’s Principle where a change in a fluid’s speed is matched by a change in its pressure. How the Technology Works

To understand how FastFlow works, consider one application of the technology: LatchGroup’s patented PowerCylinder™.

“Small liquid volumes, no connections, and water-based fluids inherent in the technology are a “Green Alternative”...”

O-ring seals in FastFlow’s cylinder double as valves, which enable the elimination of spool valves and other conventional hydraulic parts. Instead, annular floating seals create the flow paths around pistons and ram rods. The seals are designed to seat in the direction of rod travel.

The unique cylinder design uses two mechanical sub-

assemblies: the Barrier and Ram-Cap. With very small parts, the subassemblies work together as a regenerative hydraulic circuit that rapidly advances a cylinder’s ram. The Barrier and Ram-Cap assemblies control the shift of the system in and out of the regenerative mode. It is a totally automatic process that is regulated by the resistance encountered by the ram. The cylinder’s bulkhead separates the pump from the actuator and directs the fluid distribution.

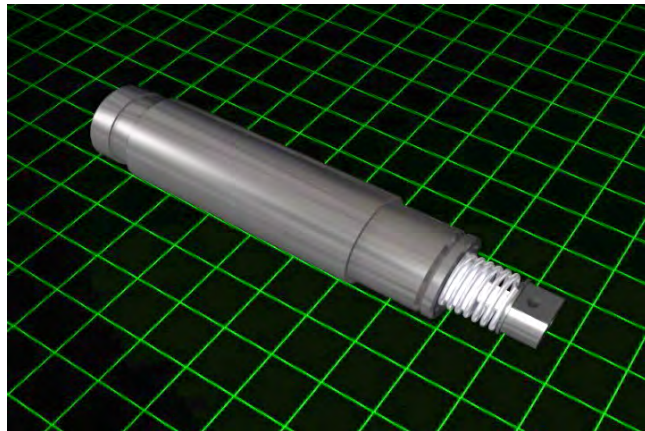
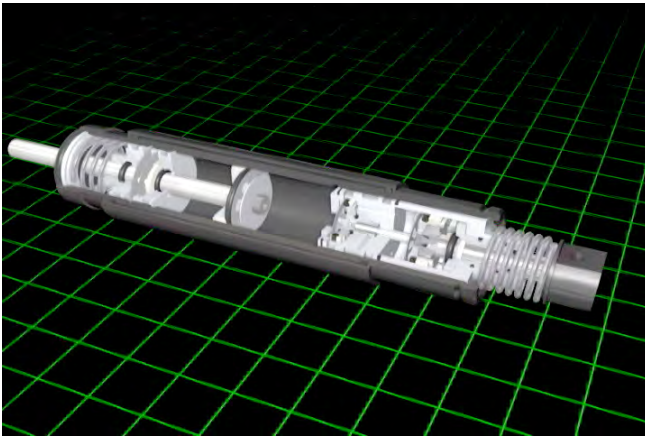
The rod side of the ram acts as the reservoir. Working in combination with the Ram-Cap, the Barrier stops the flow of fluid from the reservoir to the accumulator so that the fluid displaced by the advancing ram is forced back through the Ram-Cap into the Ram Chamber to create a regenerative circuit (See Figure 1). The transition from the regenerative to expectant circuit happens instantaneously.

The ram is driven by the cross-sectional area of the ram-rod. As the ram engages its work, resistance and pressure build. At a pre-determined pressure, the floating seal valve in the Barrier squeezes off the surface of the seal plate, thereby opening the Barrier Gate. Fluid on the rod side of the ram is now expressed into the accumulator and the ram is driven by the cross-sectional area of the Ram-Cap.

Accumulator volume is greater than the volume of the displaced rod. The systems’ dart valve sets the maximum force, prevents over pressurization, and enables modulation.

The Fluid

The fluid used with FastFlow contains high water content. It’s driven either manually or by motor. It is four times less compressible than oil, which eliminates



the “sponginess” associated with other oil-based hydraulic fluids.

The water-based fluid has a low viscosity that reduces frictional losses. The high surface tension also keeps the water-based fluids from leaking. Additives provide lubricity, rust prevention, anti-freeze, and other desirable properties.

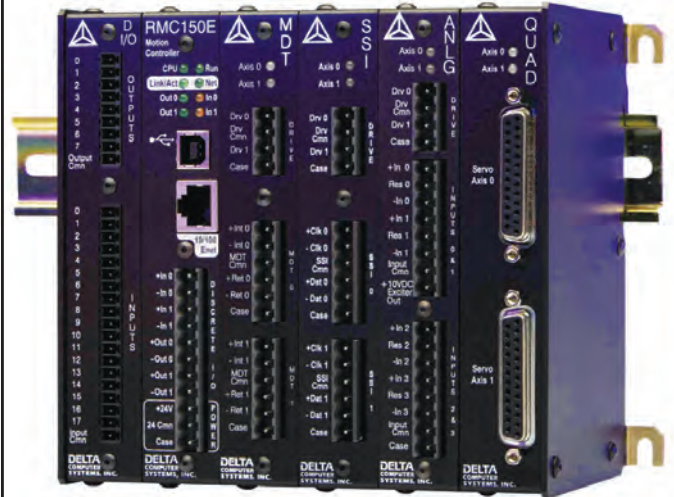
FastFlow systems are suitable for hazardous and hostile environments. The technology also minimizes the environmental risks of accidental spillage of fluid, fugitive leaks, and catastrophic disasters. Small liquid volumes, no connections, and water-based fluids inherent in the technology are a “Green Alternative” to larger, traditional hydraulic fluid-based systems. One Technology, Many Applications

FastFlow can be used in many diverse applications where compact, self-contained high-force linear actuators and motion control devices are needed. It enables improvement and can reduce the manufacturing cost of products on the market now, but also makes possible entirely new categories of products. The wide applicability and far-reaching potential for the technology are a few of the reasons why LatchTool Group practices an OPEN Business Model through a syndicate of engineering design firms and licensed OEM’s.

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Calculating a big move?



RMC150 Motion Controllers

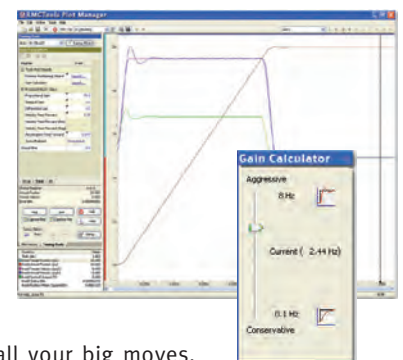
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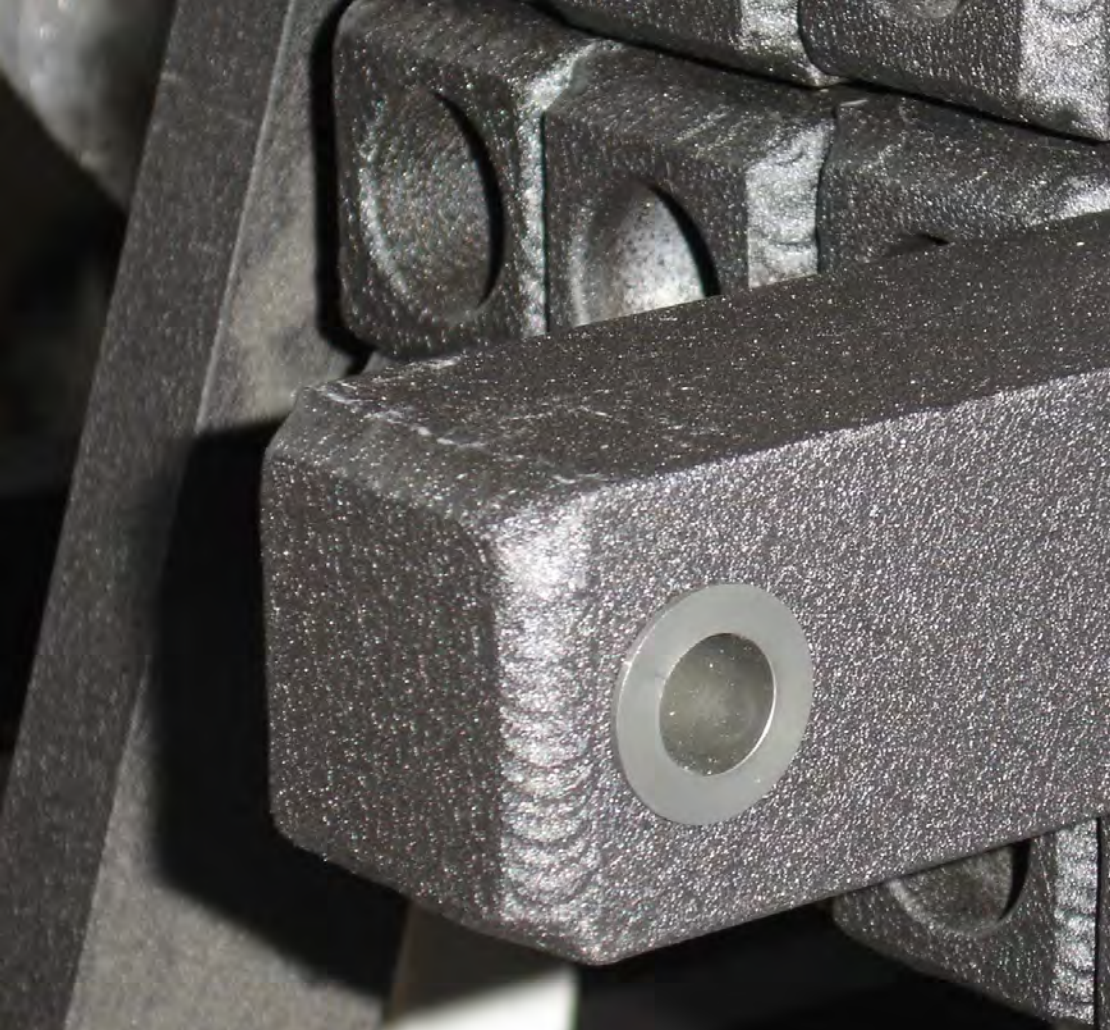
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BEARINGS IN CAMERA JIBS

Plastic bearings offer major cost savings as a replacement of bronze bearings in camera jibs for the film industry.

EZ FX is a manufacturer of jibs, extension kits, remote controls, monitors, supports, and other products for the film and video business. The company's EZ FX Jib and the Junior Jib are used to create sophisticated moving camera shots and also add production value to film sets.

The company uses iglide® plastic plain bearings from igus® on its camera jibs. The bearings replace bronze bushings that required messy lubricants and frequent maintenance. By making the switch to self-lubricating iglide bearings, the jibs are lighter-weight, less expensive, and maintenance-free.

iglide G300 and iglide M250 plain bearings are used to enable the jib to pivot a camera weighing up to 50 pounds in a seesaw motion. The plastic bearings eliminate metal-on-metal contact, which prevents corrosion between the aluminum rod of the jib and the steel nuts and bolts. iglide G300 and M250 are also economical,

so EZ FX is able to reduce costs.

"We see many benefits from the iglide bearings," said Steve Bonin, owner of EZ FX, "They reduce friction, are lighter-weight than bronze, and are cleaner to work with. They offer major cost savings, which is great for us and our customers."

igus also develops Energy Chain® cable carriers, Chainflex® continuous-flex cables, igubal® spherical bearings, DryLin® linear bearings, and guide systems. These seemingly unrelated products are linked together through a belief in making functionally advanced, yet affordable plastic components and assemblies.

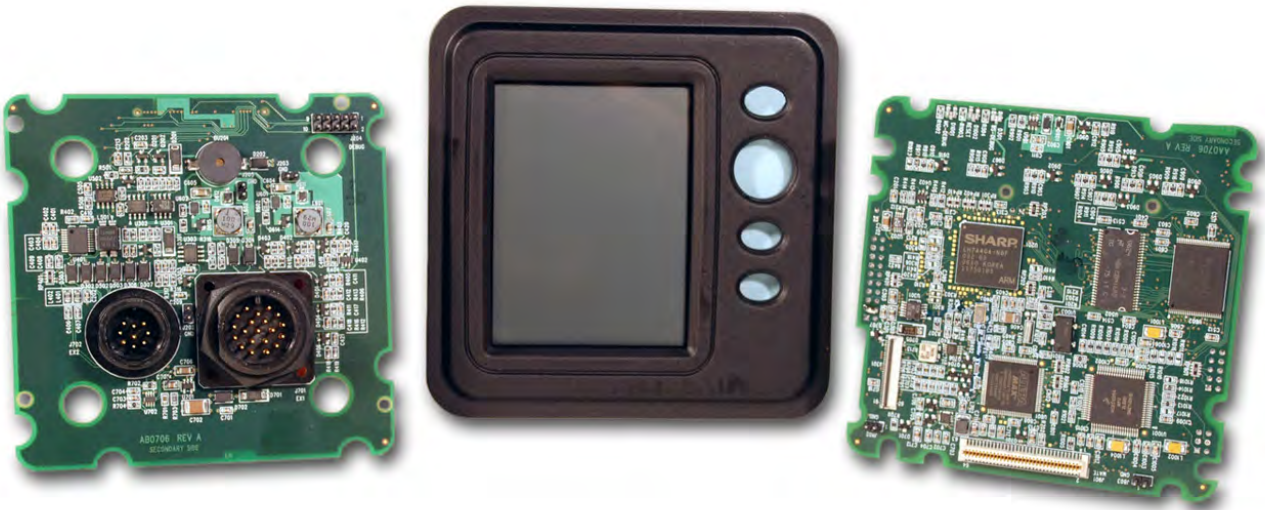
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MARINE ENGINE CONTROL

World class competition water skiing begins with precision marine instrumentation.



An ARM9 class processor and Window CE helps to make this marine engine controller ready for action. Real-time sensor processing integrates inputs from diverse sources such as paddle wheels, GPS Receivers, steering sensors, ballast sensors, and CAN Bus high-speed engine sensors. A high-visibility color graphics LCD display provides operator visibility in both day-light and low-light conditions. A low-cost, backlit keypad completes the package.

Operation in high-reliability, demanding marine environments was essential. High-quality, fail-safe operation necessitated careful circuit design and implementation. Low-power operation, hardened circuit design, cost-effective component selection, and judicious component de-rating make up some of the high-reliability measures taken during system design to make the devices rugged and reliable.

A high-contrast LCD display is viewable in bright sunlight and low-light conditions. A customized, contrast enhancing AD-TFT electrical interface provides a high gamma display interface for increased readability. SVGA resolution makes this display ultra-clear. And, a rugged electrical interface system permits operation in high-vibration environments—perfect for the dash of a high power ski boat.

With only weeks until a major commercial boating trade show, Orchid Technologies was hired to develop both the hardware and driver software for this Windows CE-based ARM9 Marine Engine Control Product. Demanding marketing requirements dictated challenging electronic packaging requirements. Working around the clock, engineers at Orchid performed the simultaneous development of the hardware and software components. Orchid performed the entire electronic hardware and software driver design—delivering trade show-ready,

functional prototypes six weeks after project start.

The company develops custom electronics solutions for the OEM designer. High performance Custom Marine Electronics with rapid design cycles, demanding technical requirements, and unforgiving schedules help to set the company apart from its competitors.

**For information:
Orchid Technologies >**





LICENSABLE INTELLECTUAL PROPERTY FOR HD DIGITAL AUDIO

New codec is for designers of high-definition systems for digital entertainment markets

APT-X, a developer of licensable intellectual-property for high-performance audio compression, is introducing to the high-definition audio-video segment of the digital entertainment applications market: A new design of “lossless” audio codec codenamed apt-X Lossless.

Known in broadcast engineering and studio post production for its low-latency apt-X audio codecs, APTX announces the availability of a “lossless” audio compression technology, the product of a concentrated internal R&D program, targeted for applications in fast-growing consumer multimedia applications. apt-X Lossless, the latest addition to the apt-X series of audio compression technologies for consumer, professional, and broadcast applications.

Designed from first principles, and invested with the new techniques in digital signal processing, apt-X Lossless features and benefits include: high-performance lossless compression; a highly scalable and dynamically adaptive coding mechanism; mastering-grade audio; low coding delay; low computational complexity, run-time overhead and device power consumption. For applications in communications links that are occasionally subject to stringent bandwidth constraints, apt-X Lossless can operate in a special hybrid mode, dynamically incorporating “near lossless” coding to seamlessly mitigate against audio degradation. From a system integration stand-point, apt-X Lossless is easy to port across multiple hardware and software platforms.

Jonny McClintock, APTX Sales & Marketing President says, “It’s becoming increasingly apparent that designers of high-definition systems for digital entertainment markets are becoming constrained by the shortcomings in the performance of first-generation lossless and lossy audio compression technology available to date, especially in rapid-evolving areas where the delivery of multi-channel surround-sound contributes greatly to the immersive user experience. Surround-sound presentation is migrating from a cinematic experience in the movie theatre into the living room, through the HDTV, the Blue-ray player, the media gateway, via the laptop and

games console. And surround-sound radio is just around the corner. APTX has been listening to customers and watching the market.”

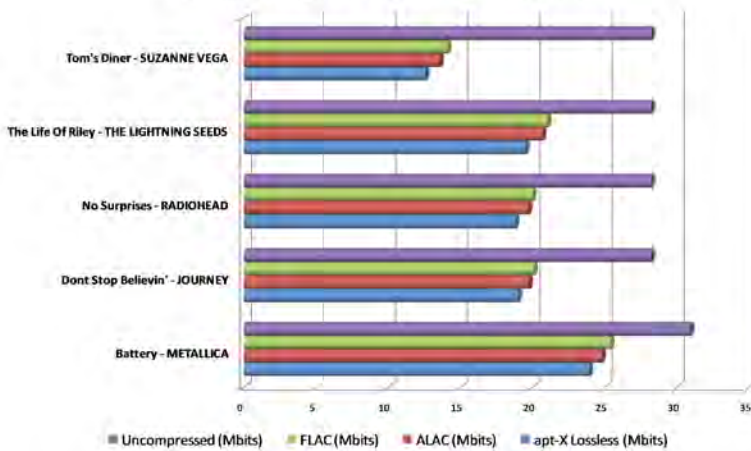
Applications in high-definition audio for apt-X Lossless include wireless audio peripherals for media players, digital wireless microphones, music storage and archiving, audio consoles; digital audio routers; broadcast audio distribution between production, network and transmission sites.

McClintock added, “Three years ago, APTX took venture funding and fired up an intensive R&D program to focus on best-of-breed solutions for the coming digital entertainment paradigm. APTX believes that, going forward, apt-X Lossless addresses the needs of emerging high-definition audio applications, and presents systems developers with a much-needed alternative source of codec technology. APTX has always been about offering compression solutions that deliver the most authentic audio experience, one that meets the demands of the most discerning consumer.”

The new apt-X Lossless audio codec supports high-definition audio up to 96 kHz sampling rates and sample resolutions up to 24 bits. The codec optionally permits a “hybrid” coding scheme for applications where average and/or peak compressed data rates must be capped at a constrained level. This involves the dynamic application of a form of “near lossless” coding – but only for those short sections of audio where completely lossless coding cannot respect the bandwidth constraints. Even for those short periods while the “near lossless” coding is active, high-definition audio quality is maintained, retaining audio frequencies up to 20 kHz and a dynamic range of at least 120 dB.

Coding latency is another scalable parameter within apt-X Lossless and can be dynamically traded against other parameters such as levels of compression and computational complexity. The latency of the apt-X Lossless codec can be scaled to as low as 1 ms for 48 kHz sampled audio, depending on the settings of other configurable parameters. apt-X Lossless performs par-

File-size comparison of Lossless audio codecs



ticularly well against other lossless codecs when the coding latency is constrained to be small, such as 5 ms or less, making it particularly appropriate for delay-sensitive interactive audio applications.

Some lossless codecs possess a low computational overhead compared to well-known “lossy” codecs, such as MP3 and AAC. This is particularly important for deeply-embedded audio applications running on low-power mobile devices. apt-X Lossless promotes low computational overhead by dynamically selecting the simplest coding functions for each short segment of audio whilst complying with other operational constraints, such as levels of compression and coding delay. Depending on the settings of other scalable parameters, apt-X Lossless can encode a 48 kHz 16-bit stereo audio stream using only 10 MIPS on a modern RISC processor with signal processing extensions. The corresponding decoder represents only 6 MIPS on the same platform.

User metadata and special synchronization data can be incorporated into the compressed format at configurable rates. The latter permits rapid decoder resynchronization in the event of data corruption or loss over communications links where Quality of Service can vary rapidly. Depending on the settings of parameters, decoder resynchronization can occur within 1-2 ms.

Available starting July 2009, apt-X Lossless is implemented as C and C++ code, and has been verified on x86 processors, ARM 9E and ARM Cortex M3, Texas Instruments C64xx, and others TBA. Headquartered in Belfast, Northern Ireland, APTX also has direct sales offices in the USA, Japan and Korea.

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ANIMATION USES MOTION CAPTURE SYSTEMS

The Studio, a 2D animation company located in New York recently installed a T10 motion capture system to expand into 3D



VICON, developer of Academy Award®-winning motion capture systems announced the installation of its T10 motion capture system at graphic design and 2D animation company The Studio, which has served the advertising industry for over 20 years

“We looked at everything else available, including markerless systems, and were very pleased with the quality and features VICON had to offer,” says The Studio owner Mary Nittolo.

“VICON cameras are extremely high-quality, which was a big factor in choosing their system for our facility,” said Dave Voci, Director of Animation at The Studio. “I’ve worked with other motion capture systems in the past, but found limitations in the hardware that were just not acceptable. The VICON system is ideal for capturing motions ranging from action-based, such as sports, to simple and subtle interactions between two people.”

The Studio’s capture volume is configured with rail mounts for capturing facial and full-body movements for up to three actors at a time. The facility’s motion capture pipeline includes VICON’s Blade Software for managing mocap data, Autodesk MotionBuilder for character rigging, and Autodesk Maya for rendering and character development.

“Installing the VICON system was incredibly simple. We put it up, calibrated it, and had it running that same night,” Voci detailed. “We have a dual-screen set up with Blade on one screen and MotionBuilder on the other, and the connectivity between the two is imme-

diately apparent. Clients love it because they can see instant results - so far they have been very impressed.”

The Studio is in the process of developing a character library, set environments and other assets for its motion capture pipeline. Voci anticipates that they will be using the system on test commercials for clients.

“We’re very happy with the performance of the VICON system,” Voci concluded. “It’s very low-maintenance, and the rail mounts we use allow it to be reconfigured for various tasks with very little down time.”

About VICON

VICON is a supplier of precision motion tracking systems, serving customers and CG animation applications in film, visual effects, computer games, and broadcast television, as well as engineering and life science industries VICON’s global clients include: life science leaders University of Pennsylvania, the VA Hospitals, Shriners Hospitals for Children, Titleist Golf, The Andrews Institute; engineering industry leaders Ford, BMW, Airbus, Lockheed, Pratt-Whitney, NASA, Caterpillar, International Truck, and Toyota; and entertainment companies Sony Pictures Imageworks, Sony Computer Entertainment, Industrial Light and Magic, Sega, Nintendo, Ubisoft, Vivendi, Electronic Arts, Square Enix and many others.

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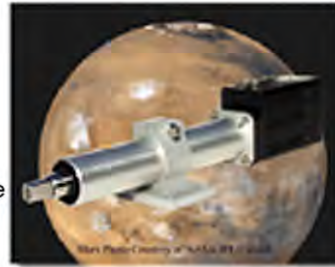
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High Speed Linear Actuator is "Concept Apparatus" For Life on Mars Test

Mattituck, NY: - Is there life on Mars? Jet Propulsion Laboratory scientists are developing for possible future Mars missions, an apparatus that will be designed to detect amino acids in the Martian soil if they are present. This is a highly important test as amino acids are considered a "Signature of Life." With the apparatus, Martian soil will be tested for the presence of a specific nuclear quadrupole resonance of Nitrogen 14 found in the amino acid molecules of the soil sample.



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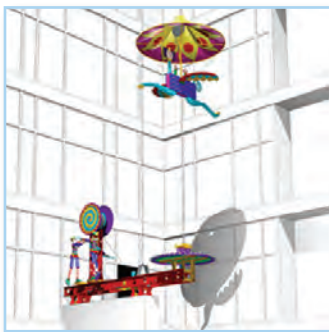
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LOUD OBNOXIOUS BUT GREAT SOUND



Peavey Electronics designs all their systems in-house. Teams of engineers use SolidWorks Software for most of their equipment's mechanical designs. And mechanical design engineer Greg Parr finds...

ART FOR THE FUN OF IT



James Eaton, a sculptor and artist living near Chicago creates a variety of fanciful, painted aluminum weather vanes, whirligigs, and other sculptural objects that are suitable for either interior or exterior use — all for the pleasure of it.

One day, James had...



IT'S CLOBBERIN' TIME

Derek and a team of specialists from White Monkey Design (Vancouver, Canada) spent several months building props for the big screen adaptation of the classic Fantastic Four comic book series. Some of the designs, like a computer console for Victor Von Doom's shuttle cart, was seen in the movie trailers, but didn't make it into the final film. Another device that didn't make the film was a crushable cordless phone that Von Doom would discard.

One prop that did make it into several scenes of the movie was Reed Richards' holographic projector...


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