

FastFlow[®]

Microhydraulic actuators: more pounce per ounce™...

FastFlow[®] Inc. is to be the successor to LatchTool Group; a roll-up of two-development stage companies that discovered and pioneered the field of microhydraulics with the discovery of the *FastFlow[®]* valve.

FastFlow[®] Inc. is in the business of technology and business development in the fields of microhydraulics, annular flow control and microfluidics. Commercial transactions include joint development agreements and licenses to use the Company's intellectual properties.

The **FastFlow[®] Syndicate™** provides applications engineering to component parts manufacturers and OEM's. Development efforts currently focus on electrically driven *high force* microhydraulic actuators, wirelessly operated workholding devices and multi-ton compression & shearing tools. Syndicate members, **certified** in the design of *FastFlow[®]* microhydraulic systems, are authorized to grant end-use licenses to the technology.

Microhydraulic systems may be designed as fully integrated mechatronic systems weighing ounces that rapidly deliver tons of force. As the issues of *how small can you go* are answered, the prospects of *kinetic* MEMS loom large. Imagine touch-screens that pounce back...

FastFlow[®] Microhydraulicsⁱ – [LatchTool Group](#)

High Force Microhydraulic Actuators: Compact and inexpensive alternative to hydraulic and pneumatic systems. Eliminate the bulk and weight of hydraulic fluids and the noise and low force of compressed air. Systems are suitable for hazardous and hostile environments. Mechatronic *Microhydraulic* Actuators minimize the environmental risks of accidental spillage, fugitive leaks and catastrophic disasters. Small liquid volumes, no connections and water based fluids are the **Green Alternative** for power transmission.

- Power for all tools; industrial, professional, surgical and DIY's.
- Mobile actuators for brakes, steering and suspensions.
- Positioning actuators for machines, automated equipment, oil tools and devices.
- Control surface actuators for aircraft, boats, missiles, UAVs and ROVs.
- Muscle for robots, prosthetics and ambulatory assists.

They hold when the power is off...™

Workholding Device: [Wirelessly operated toggle clamp](#) with dial-able force (100 to 2,000-pound). For size, simplicity and versatility networked devices offer a capital advantage for manufacturing.

- Powered by battery or coupled by a *plug-n-play* receptacle.
- Measures approximately 2"square×4½".
- Clamps and releases instantly, unobstructed clearances to lift or drop work.
- Holds work when the power is off; no slippage or creep.

Unit is a remotely controlled self-contained gearmotor driven *FastFlow[®] microhydraulic* circuit with integrated electronics.

Compression & Shearing Tools: Powerful, portable and lightweight tool technology brings affordability to heavy construction, electric utilities and the first responder/demolition industries. Not only are the intrinsic product costs low, but also the *economy of scope* for the product mix drives down prices...

- Electric Utilities Linemen *Inline* 12-Ton Compression Tool
- Rebar cutter for *pour-in-place* concrete construction... Fire safe alternative to current methods.
- Extraction tool for police squad cars and fire trucks... *At the scene, ready to deploy – at a moment's notice.*

Microhydraulic circuitry and power package are the same for each tool. Jaw configurations are unique for each task.

PowerPliers™: The ultimate multi-tool that amplifies hand-strength to crimp, shear and hold. It becomes a plumber's third hand, a yachtsman's second mate and gives a grandmother the grip of Godzilla.

The body for the PowerPliers is cast in aircraft aluminum by the investment casting foundry Cera-Met, LLC, a LatchTool Group strategic partner. The body is the manifold and housing for microhydraulic components and drive mechanisms. Birch Hill Enterprises, Inc., a LatchTool Group licensee, procures component parts and assembles the PowerPliers. They are responsible for subsequent sales and distribution of the finished goods.

The *fabrication* of manifolds and *assembly* of product are critical links in the supply chain between the promises of the *FastFlow®* Technology and the consumer. The model accelerates the adoption and promulgation of the many opportunities offered by the *FastFlow®* Technology. Front-end engineering is provided by the *FastFlow®* Syndicate.

HydrAssembly™: The objective is to create manufacturing complexes that globally supplies technologically sophisticated products based on *FastFlow®* **disruptive** innovation.

- The weak dollar favors US manufacturing. Imports are too expensive; US exports compete favorably. A recession threatens.
- A disruptive technology protects against currency vagaries with superior product and an intrinsic cost advantage.
- Along with strong intellectual property enforcement, **economy of scope** and a broadminded **private labeling** strategy will de-incentivize piracy. Open-innovation policies tying back to a competitive manufacturing complex, will help thwart technology leakage.

Critical factors

- *FastFlow®* Technology is disruptive and pervasive – Microhydraulics will precipitate change. It is the **green alternative** to hydraulics. *FastFlow®* will make many products now on the market better and less expensive, and enable new products and process to do things now only imagined.
- Five US Patents have issued, eleven more are either issuing or are pending around the world.

Leading issues

- A favorable political landscape
- A manufacturing city/state that needs jobs with a future
- **Colleges of Engineering that can teach and advance the technology**
 - [Penn State has an engineering department devoted to workholding technology](#)
- An international airport and sea port – gateways to Europe, Latin America and beyond
- A key strategic partner in Bethlehem, PA is a *state-of-the-art* aluminum foundry
 - The Navy Yard is a [Keystone Innovation Zone](#). **Partner with local entrepreneurs and corporations**

Philadelphia is the lead candidate in a field that includes Albany, Cleveland and Toronto.

Engineering Design & Development: The *FastFlow®* Syndicate is an independent member organization of industrial design engineers proficient in annular flow control and microhydraulic systems. Members are certified to design with the *FastFlow®* valves.

- The syndicate's purpose is to advance adoption of the *FastFlow®* Technology by promoting its use, setting design standards, endorsing subassemblies and component designs and bestowing *FastFlow®* design certifications upon qualified practitioners.
- Certified Members are:
 - Gearhead Associates – Portland, OR

(971) 506-7597

- o [Top Notch Machining, Inc](#) – Gresham, OR (503) 491-9107
- o [Synthesis Engineering Services, Inc.](#) – Colorado Springs, CO (719) 380-1122

Syndicate Members are authorized to grant, subject to availability, exclusive end-use licenses to their contracted designs.

FastFlow® Inc.: *nee* [LatchTool Group, LLC](#) is a virtual organization of over 100 members; entrepreneurs, new business development executives, patent attorneys and engineers. They have invested twelve years researching and developing the science and investigating market applications, business models and gambits for establishing commercial opportunities.

- Five US patents have issued and over a dozen more are pending worldwide. Two fields for continued invention have been identified and a reservoir of trade secrets exist.
- LatchTool practices an open business model, licensing specific end-use applications of the technology.

LatchTool Group, LLC

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CEO/Chair	Robert W. McPherson, BS/Chem. Engr.	(1)
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CDO	Philippe Content, MSME/EE, MBA	(4)
COO	Tom Wilson, MSE.....	(5)

- (1) A co-founder of LatchTool Group. Vice Chair & COO of a NASDAQ listed advanced technology company. Product manager for two Fortune 100 Companies; FMC before the split-up and Conoco. Cornell, Chemical Engineering.
- (2) CFO of a 50-employee manufacturing company, RBM Precision Metal Products, Inc. and an entrepreneur.
- (3) Chief technologist for Ziba Design, an Industrial Design firm, and Director of New Product Development for Flextronics. President of an Engineering Design Firm. Doctoral thesis focused on deep sea robotics.
- (4) Led Lucent’s (Bell Laboratories) corporate development initiatives into MEMS and Nanotechnology. Graduate of Belgium’s Military Academy – Airborne ranger.
- (5) Senior business broker, sales manager for two large engineering design firms.

4/8/08

ⁱ Microhydraulics *per se* has no bearing on the size of a device. Rather it refers to hydraulic systems regulated by fluidics rather than conventional valves. Valves are eliminated, hence the prefix micro.

Microhydraulic actuators are scalable: Microhydraulic principles applied to both the ram and the pump result in smaller and lighter systems than currently imaginable. A ½-inch round × ⅜-inch *double-action* Hi-Bar™ pump using *FastFlow®* valves is able to easily generate 6,000 *psi* pressures and achieve flow rates of ½ liters per minute. Higher pressures are a function of o-ring ratings.