



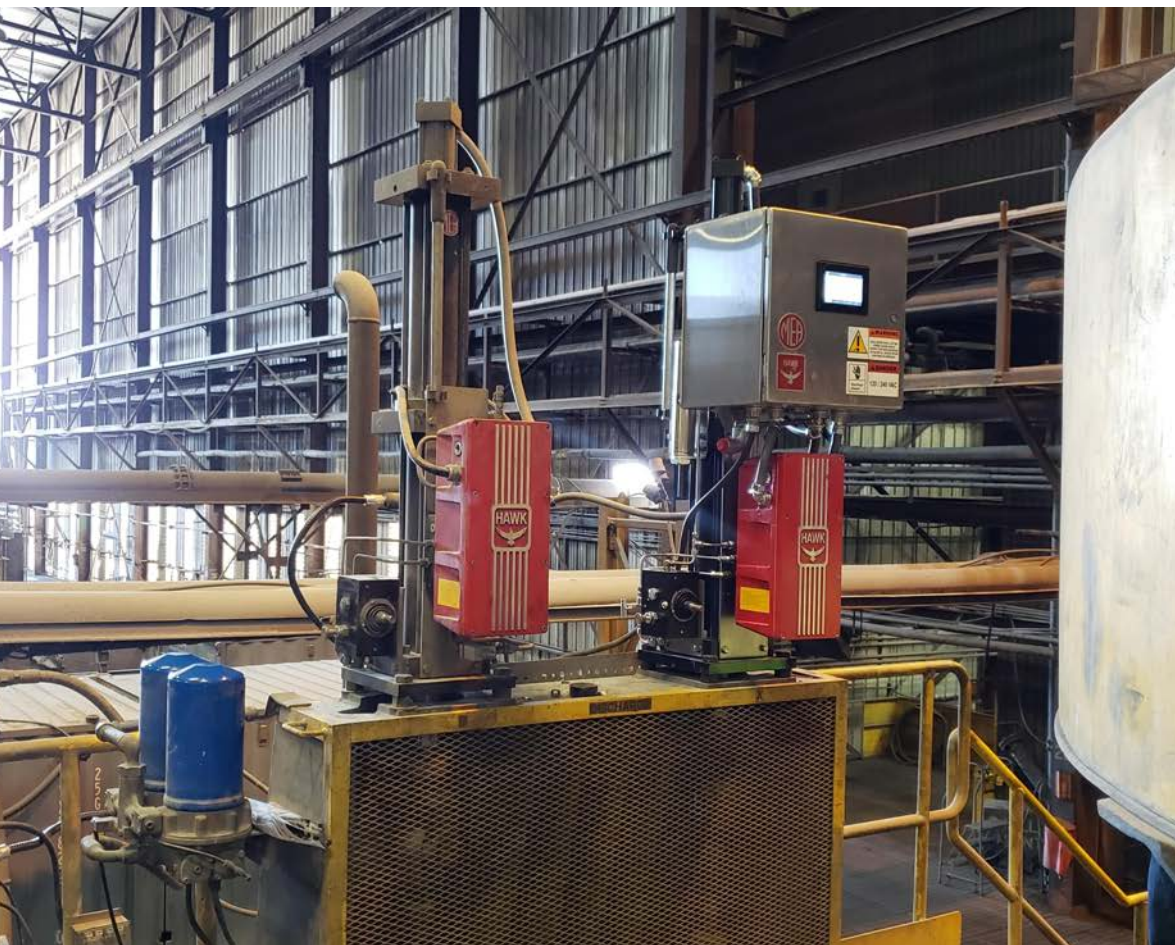
MEA INC

COPPER RECOVERY

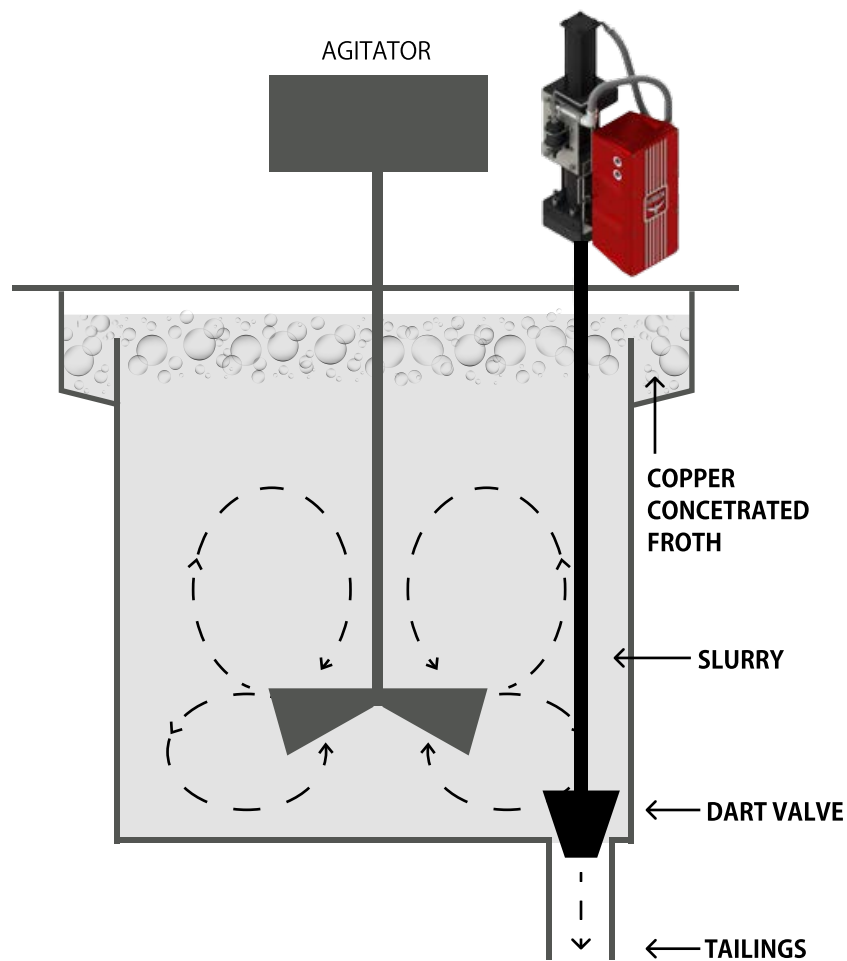
Flotation Cell Improvement

HAWK

Self-contained electrohydraulic actuator



MEA Hawk In Copper Flotation Recovery Cell



- Most of the actuation devices used on flotation cells to control Dart valve are pneumatic actuators
- Since pneumatic actuators utilize compressible air to operate the cylinder, the actuator cannot handle the stable control of the froth level in the flotation cell which decreases the purity of the copper concentrate
- MEA's Hawk, a self-contained electro-hydraulic actuator utilizes hydraulic fluid to provide stable, accurate, fast operation and control of the valve keeping the froth at the proper level
- Simple replacement of pneumatic actuators to MEA Hawk will increase overall copper recovery from the flotation cells

The Story

MEA's Hawk self-contained electro-hydraulic actuators have greatly improved the copper recovery performance of concentrator floatation cells at a copper mine in Arizona. The previous pneumatic actuators, mounted to linear dart valves, were not able to accurately control the liquid level in the cells. As low-pressure conditions at the valve seat repeatedly pulled the valve plug downward the instrument air in the pneumatic actuators would compress and allow the valves to close. The Hawk, with its incompressible hydraulic fluid, was able to provide vastly superior level control and increase the copper recovery yield.

After a year of trial run, the customer decided to move forward with the replacement of other pneumatic actuators further improving the operation of the copper floatation cells. This time the customer took advantage of MEA's All in One Hawk, which incorporates the control enclosure in one assembly with the hydro-mechanical portion of the actuator. This eliminated signal and power cable runs, made the package more compact and further simplified the installation.

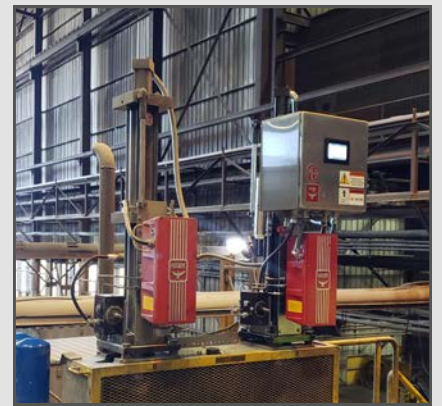
2018






2019



2020



HAWK VS. OTHER STYLES OF ACTUATORS

	HAWK 	ELECTRIC 	PNEUMATIC 
ACTUATION SPEED – PERFORMANCE TRADEOFF	Fast - ZERO performance tradeoffs	Slow – Similar performance	Fast – Introduces excessive deadtime & overshoot
DEAD TIME	>80ms from standby, 30-40ms under control	Typically 0.5-1 second, poor frequency response reversing direction	Typically 1-2 seconds depending on configuration
RESOLUTION UNDER LOAD	0.05% due to incompressible fluid	0.2-0.6% due to gearing	0.8-2% due to compressible fluid
DUTY CYCLE	Unlimited 100%	Starts per hour limitations	Unlimited 100%
STABLE CONTROL IN DYNAMIC APPLICATIONS	Excellent	Excellent	Poor
FAIL SAFE CAPABILITY	Fail Last - Standard Easily Made Fail Open/Close On Loss of Power	Fail Last - Standard Very Limited Fail Open/Close On Loss of Power	Typically Fail Open/Close On Loss of Power



COMPLETE CONTROL

MEA is the industry leader in hydraulic actuator systems, with a worldwide presence. For hydraulic solutions, there's no one better.

POWER CONTROL

MEA Eagle and Phoenix hydraulic power control units deliver reliability through redundancy.

TRADITIONAL HYDRAULIC ACTUATORS

MEA offers a full range of options, including lift and turn, rotary and linear hydraulic actuators.

AFTERMARKET SUPPORT

Partner with MEA for 24/7 technical support, planned maintenance, system upgrades, rebuilds and replacement parts.

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