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News Release



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High Speed Part Sort & Reject Solution

Moving Coil Actuator Technology

SMAC Inc. introduces a highly innovative solution to sort & reject parts at ultra-high speeds. It has been designed to directly replace conventional pneumatic cylinders & devices...

Carlsbad, California: SMAC Inc has recently announced a new Moving Coil Actuator (MCA) system designed to sort & reject parts at ultra-high speeds. The system has numerous significant inherent advantages over conventional pneumatic cylinders & devices that are presently used. Namely:

High Speed Repeatability – Old-fashioned conventional pneumatic cylinders contain a number of static & dynamic sealing arrangements. Due to the use & application of compressed air the operational efficiency of these seals deteriorate considerably over time. This cause friction & ‘sticktion’ that causes the pneumatic system to slow, particularly when the cylinder cycle time is varied. The longer the period of time the cylinder system sits without moving the higher the static friction breakaway force is required. It is not uncommon for this variation to be up to 50 milliseconds. The conventional pneumatic system is also highly dependent on the speed and reaction time of the solenoid valve used. General industrial DC solenoid valves have a variance of +/- 10 milliseconds. With AC solenoid valves this variance often doubles. Hence the total variation in cycle time can be up to 50 milliseconds.

The SMAC Moving Coil Actuator (MCA) solution eliminates these problems due to the fact they run on high precision linear guides with static breakaway forces in the order of only 1% of that of a pneumatic air cylinder. Therefore total cycle time variation is under 1 millisecond.

Life Time – Due to the seals used in conventional pneumatic cylinders wear is an inherent and major problem. The life cycle of such a cylinder is on average circa 10 million cycles when used in applications where controlled impact and end of stroke cushioning is required. After this time the cylinder has to repaired or replaced causing downtime and increasing costs.

The SMAC Moving Coil Actuators (MCA) will last circa 100 million cycles when used in similar applications. This considerable increase in lifetime is achieved due to the dampening

& cushioning being a servo controlled function. It is the coil within the actuator that provides the programmed reduction in speed. The SMAC actuators are low wattage devices – typically less than 2 amps at 24 or 48 volts - thus heat generation is minimal and has no detrimental effect on cycle life. Due to these major advantages SMAC Moving Coil Actuators (MCA) last between 10 & 25 times longer than conventional pneumatic cylinders & devices in similar applications.

Noise & Energy - Pneumatic systems are inherently noisy & extremely inefficient. When pneumatic cylinders perform a high number of cycles in an enclosed space the noise and heat generated is significant (50+ degrees Celsius) as the compressed air is exhausted to atmosphere. Whilst a degree of crude silencing & muffling can be applied the noise of the cylinder impacting at the end of stroke cannot.

In comparison SMAC Moving Coil Actuators (MCA) are extremely quiet. No wasted energy is exhausted and the heat generated is relatively extremely low (5 -10 degrees Celsius). Overall SMAC actuators run & perform much quieter, cooler and are far more energy efficient than old technology pneumatic systems.

Cost – Compressed air is notoriously expensive to generate. Apart from the immediate costs associated with the hardware of cylinders, valves, fittings, tubing, silencers, air preparation equipment etc there is other significant additional costs required to be taken into consideration: The compressor, after cooler, dryer, piping etc. Also the cost of compressed air leaks is significant and such not be under estimated. The overall purchase & running costs of SMAC actuators when compared against conventional pneumatic systems is highly favourable.

The SMAC Moving Coil Actuators (MCA) are also ideal for other very demanding applications such as packaging, bottling, labelling, filling, parts handling, measuring & QC testing to name but a few.

SMAC Inc is the world leader in Moving Coil Actuators and associated control systems. Headquartered in Carlsbad, California USA with subsidiaries throughout Europe, Asia & Japan.

SMAC delivers high tech solutions to industry with linear & rotary Moving Coil Actuators, positioning stages and electronic control solutions.

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