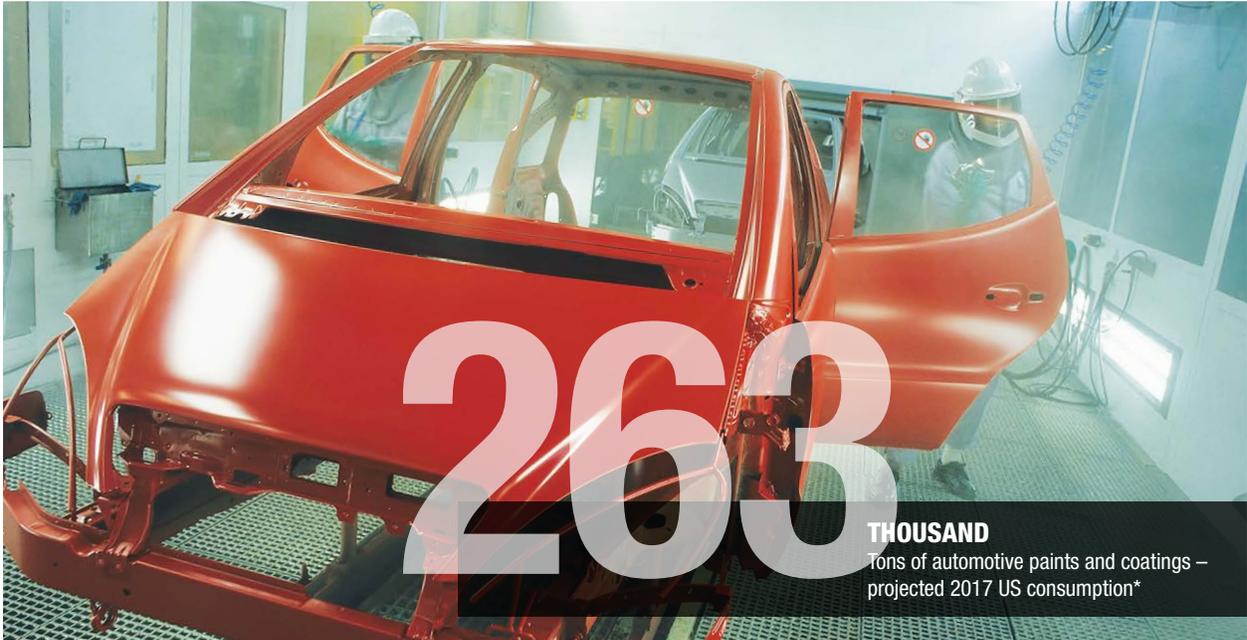


INNOVATION

SPOTLIGHT from the brands of Altra Industrial Motion Corp.



THOUSAND
Tons of automotive paints and coatings –
projected 2017 US consumption*

HUCO DYNATORK AIR MOTORS PROVIDE RELIABLE, EFFICIENT PERFORMANCE ON AUTOMOTIVE PAINT LINES

Driven by high consumer expectations, auto manufacturers around the world are constantly looking for ways to improve the appearance and quality of the finishes applied in their paint shops. The most common method is electrostatic painting, a process that runs a mild electrical current through a body panel, creating an electromagnetic charge. Misted paint molecules are attracted to the charged metal, creating uniform coating coverage, while reducing wasteful overspray. Other paint processes are utilized for lightweight plastics, fiberglass and carbon fiber materials.

It typically takes eight hours for an auto body to move through an entire paint line, including initial submersion in coating tanks, primers, base color coats, clearcoats and baking ovens. Applied by a series of highly specialized robotic arms, auto body painting can account for more than 60 percent of an auto assembly plant's total energy use.

Modern automotive paint is composed of a complex blend of resins, binders, fillers, additives and carrying agents (solvents or water). All of these components need to be properly mixed to ensure a high quality application.

CONTROLLING CRITICAL STIRRING SPEEDS

The main purpose of paint agitators (mixers) is to keep wafer thin metallic particles evenly distributed in suspension within the paint. The speed of stirring is critical: too slow and the particles will settle and form thick clusters at the bottom of the container; too fast and the particles collapse, becoming globular instead of flat, resulting in an undesirable granular paint finish.



I N N O V A T I O N

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UNIQUE HUCO DYNATORK PISTON AIR MOTORS MEET THE CHALLENGE

Paint stirring speed at auto plants can be controlled directly through Huco Dynatork air motors because they have built-in variable-speed capability.

With piston air motors, power is related to the supply pressure and volume air flow, so an inlet valve can be adjusted to control both speed and torque. The motors can also be fitted with torque sensors for closed loop feedback. With this simple arrangement, a Huco Dynatork motor will hold its set speed steady; almost indefinitely.

To achieve this speed consistency with an electric motor you would need an expensive variable-speed drive that requires on-site installation, programming and commissioning.



A number of automotive manufacturers have adopted Huco Dynatork Air Motors to drive the agitators in their paint shops.

SIGNIFICANTLY REDUCED COMPRESSED AIR USAGE

The free-floating piston design of Huco Dynatork air motors is intrinsically efficient and consumes far less compressed air than a conventional vane-type motor, usually needing less than a quarter of the air supply for the same power output. Furthermore, the dynamic characteristics of the motor, including instant start/stop under load, mean that it can be used in indexing applications, just like a stepper motor.

In operation, air at up to 100 psi is supplied to each of three pistons, in turn, via an integral rotary valve. The free-floating pistons transmit maximum torque on start-up, which can be adjusted via a pressure regulator. The resulting performance features include: high torque, even at low speed; variable speed control; and very low noise operation.

Because the motors are supplied only with compressed air and no electrical cables are required, there is no possibility of sparking, making the motors intrinsically safe for use in ATEX Zone 1 applications. Due to the flammable nature of paint vapors, this feature is a significant advantage to modern high-throughput paint shops.

In one paint shop application, the daily cost of running a paint spraying system with a vane motor was \$5.50 - \$6.75 (based on 85% compressor efficiency). By incorporating a Huco self-lubricating piston air motor, the operating cost was reduced to just \$.85/day.

EASY INSTALLATION AND MAINTENANCE

The simplicity of both the air motors and their air supply system, when compared to an electric drive equivalent, makes installation and maintenance very easy. The lightweight, compact air motors are easy to lift and position during routine maintenance. Connection to, and disconnection from, the air supply is straightforward.

Furthermore, there is normally no need for a step-down gearbox between the motor and stirrer; an electric motor would require a gearbox, as would a vane-type air motor. Even without a step-down gearbox, the Huco Dynatork motor can run comfortably at output speeds below 100 RPM, the typical range for stirring applications.

Huco Dynatork motors are available with aluminium, stainless steel or acetal bodies. Stainless steel and acetal versions are ideal for use in industries such as food processing, pharmaceuticals and medical equipment manufacturing. Three standard sizes are offered, with maximum torques of up to 16 Nm in direct drive, or up to 550 Nm through a gearbox.

PREFERRED BY MAJOR PAINT SPRAYING SYSTEM OEMs

Several leading manufacturers of robotic and automated paint finishing equipment have begun to incorporate Huco Dynatork piston air motors into their systems, replacing industry standard vane motors. The Huco Dynatork air motors have substantially reduced compressed air usage and provide consistent agitator blade RPM. The result is a better surface finish and lower operating costs.

* Source: Information Research Limited (IRL)