III PROMACH

SHUTTLEWORTH



AUTOMOTIVE SOLUTIONS

EXTENSIVE EXPERIENCE

APPLICATIONS DESIGNED TO KEEP THE AUTOMOTIVE INDUSTRY MOVING

We've designed, manufactured and installed hundreds of gentle handling solutions for automotive part applications such as catalytic converters, engine control modules, parts and powdered metals. From efficiency in your manufacturing process to its accuracy, Shuttleworth can design a system to keep your automotive products safe and secure.



L00+ DESIGNED, MANUFACTURED, & INSTALLED GENTLE HANDLING SOLUTIONS WE UNDERSTAND THE UNIQUE, EVER-CHANGING CHALLENGES OF THE AUTOMOTIVE INDUSTRY.

AUTOMOTIVE SOLUTIONS

THE SHUTTLEWORTH ADVANTAGE

ACCURACY / GENTLE HANDLING

Positioning parts through the use of automated product handling devices provides consistent product control. Utilizing Slip-Torque® technology, our design engineers will create the best solution to accurately handle your fragile parts before or after the sintering process in powered metal applications. We will design a system so your machined parts can be accumulated without damage to the parts or the rollers on the conveyor.

ACCUMULATION

When conveying multiple products in multiple lanes, our low line pressure Accumulators are an excellent choice. After learning about your project needs, we will design a system for mass or inline accumulation for either manual or robotic handling operations using low line pressure, which minimizes product damage.

OPTIMIZED RESOURCES

Controlling the amount of time needed at each furnace or press is critical.

Through the use of automated parts handling, we can design solutions that optimize labor and increase the efficiency of your facility.

FLEXIBILITY

Having the ability to accommodate product changes is extremely valuable in this ever changing market. Whatever size or shape of your product, your Shuttleworth system will be flexible to help you minimize changeover time.

FULL SERVICE

When you want to integrate specific equipment, such as scales, marking systems, or robotic interfaces, our engineering team can help you simplify the process. Our dedication, experience, ongoing communication, and project management process enable us to function as an extension of your engineering department.



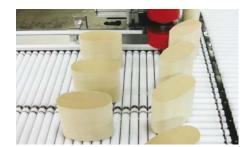
Automotive Electronics Assembly and Test System using Bi-directional Flow with One Frame and One Drive



Parts with Machined Surfaces are Protected from Damage



Multi-lane Accumulation without Product Damage



Accumulation and Single Rowing of Catalytic Converter Substrates



Extended Roller Transfer of Powdered Metal Parts Eliminates the Need for Dead Plates



Precision Machined Edges are Protected with Sliptorque Slip-fit Technology to Buffer the Product and Increase Efficiency



Tight Right Angle Transfer with Traffic Control



Serpentine Cooling with Bi-directional Product Flow



Pattern Forming and Indexing using Right Angle Transfers to feed Single or Multi-product Processes



Accumulation and Pattern Forming of Oil Filters



Accumulation with Assembly and Testing of Radiators and AC Evaporators



Locating Parts for Robotic Pick Up



Accumulation and Single Rowing of Catalytic Converter Substrates



Extended Roller Transfer of Powdered Metal Parts Eliminates the Need for Dead Plates



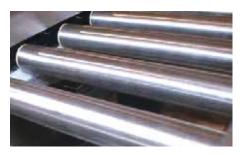
Precision Machined Edges are Protected with Sliptorque Slip-fit Technology to Buffer the Product and Increase Efficiency



Open Center Track System with Customized Conveyor Surface

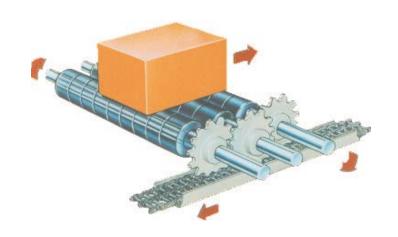


Tight 90° Corners



Heavy Duty Tube Rollers for Transferring Large Products in Oily Environments

CHAIN DRIVE TECHNOLOGY







ATTRIBUTES

- 100 lbs./sq. ft. loads
- Drives with automatic oilers and chain tensioners
- Suitable for Class 100 (ISO Class 5) clean environments

SLIP-TORQUE TECHNOLOGY

- Slip-fit rollers minimize product damage
- Low line pressure provides gentle product accumulation
- Close roller shaft centers offer maximum product stability

INNOVATIVE CUSTOM-ENGINEERED SOLUTIONS

- Modular design allows for future reconfiguration
- Ergonomic operator requirements may be incorporated
- Inherent safety of Slip-Torque design meets OHSA standards



"Although the system has only been in place a short time, we have **benefited from significant quality improvements** and **reduced labor** and **inventory costs**. Not only

are we seeing **fewer damaged parts**, but the Shuttleworth conveyor helps us **speed up work** in progress and **reduces our inventory**."

AUTOMOTIVE APPLICATIONS

AUTO ELECTRONICS

- · Body Control Modules
- · Circuit Board Inspection & Repair
- · Heater & AC Controls
- · Power Train Control Modules
- · Radios Test/Inspection/Repair
- · Sorting/Pack-off of Modules

CATALYTIC CONVERTERS

- · Coating Infeeds
- · Inspection & Pack-off

CLEAN CONVEYORS FOR ASSEMBLY

- · Air Bag Sensors
- · Air Conditioning Components
- · Anti-lock Braking Systems
- · Rear View Mirrors

COMPONENT ASSEMBLY

- Air Bags
- · Air Bags X-ray Inspection
- · Air Conditioner Compressors
- · Air Conditioner Evaporators
- · Automatic Transmissions
- · Fuel Injectors
- Headlights
- Radiators
- · Rearview Mirrors
- Sensors

COOLING SYSTEMS

· High-temperature Parts

PACKAGING & ASSEMBLY

· Air & Oil Filters

PARTS QUEUEING FOR ASSEMBLY

- · Cylinder Heads
- Alternators

POWDERED METAL PRODUCTS

- · Automated Transfers To/From Furnace
- · Clutch Components
- · Transmission & Engine Pump Gears

SPECIALTY COATINGS

Plastic Parts

Shuttleworth has extensive experience in light to medium weight automotive assembly and components manufacturing. We have designed, manufactured, and installed hundreds of gentle handling solutions for automotive parts applications.

We understand the unique, ever-changing challenges of the automotive industry and are here to help. To learn more about how we can improve your product handling processes while reducing production times, contact us today.





SHUTTLEWORTH

From automotive and electronics, to paper conversion and pharmaceuticals, to food and consumer good markets and beyond, manufacturers across the globe rely on Shuttleworth's proven product handling solutions to increase line efficiency, maximize profitability, and minimize risk. As part of the ProMach Product Handling business line, Shuttleworth helps our packaging customers protect and grow the reputation and trust of their consumers. ProMach is performance, and the proof is in every package.

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