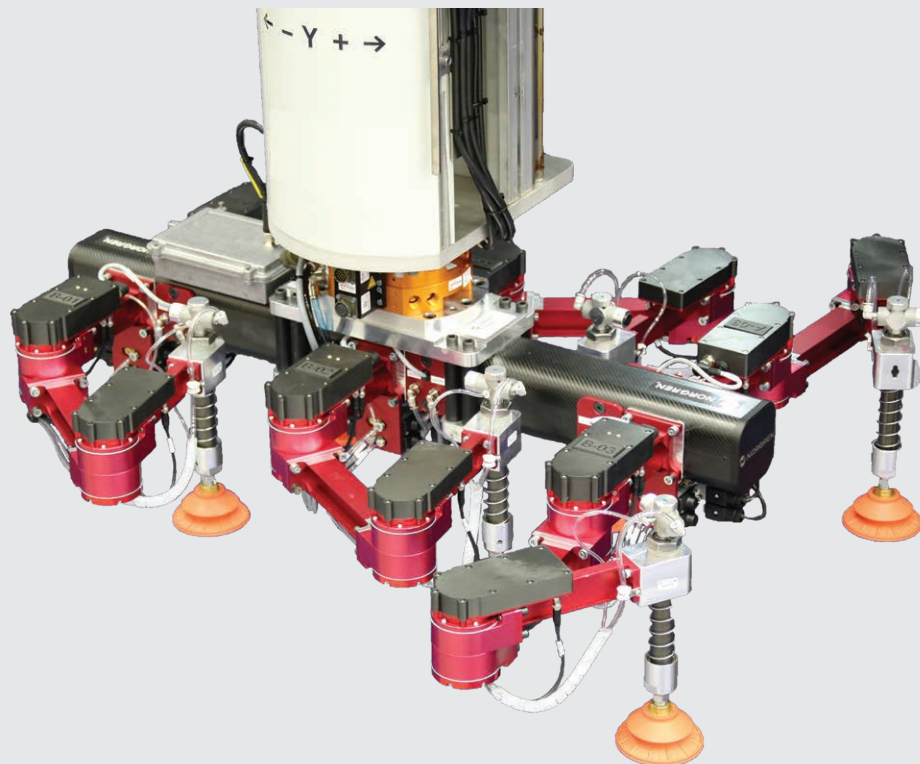


Transforming Tooling

Adaptable fully programmable tooling



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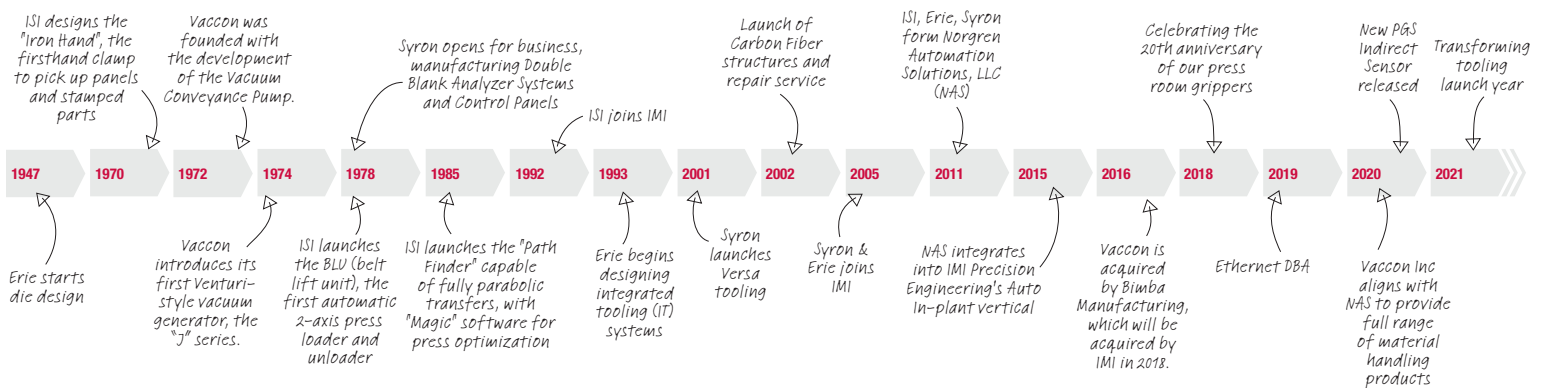
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Breakthrough Engineering for a Better World

Norgren is part of global engineering organisation IMI plc. IMI is at the forefront of delivering the solutions we need in a changing world and is focused on **creating tremendous value by solving key industry problems** in attractive markets and employing the best.

Norgren has a proud history of creating innovative engineering solutions in precise motion control and fluid technology, and we collaborate with our customers across more than 50 countries in critical areas such as Factory Automation, Material Handling, Rail, Energy, Process Control, Life Science and Commercial Vehicles.

From improving speed, productivity, reliability and efficiency of equipment, to generating significant energy and cost savings, or lowering total cost of ownership across many industries, Norgren's high-quality solutions are designed to help customers pursue progress, achieve new goals and overcome problems.

Our world-class portfolio of fluid and motion control products include Norgren, Bimba, Buschjost, FAS, Herion, Kloehn and Maxseal. Supplied either individually or combined into powerful customised solutions to meet customer needs.

With market-leading industry expertise, we offer the capability, resources, engineering intelligence and global support infrastructure to tackle the largest project demands.

Breakthrough engineering you can count on.



Breakthrough Engineering for a Better World

Benefits



Transforming Tooling Optimizes the Press Room

Industry Problem

As the industry evolves into a low-volume/high mix market, stampers are tasked with capacity constraints, increased safety & ergonomic challenges, lack of tool storage space, and tool changes that are timely and expensive

The Solution

Transforming Tooling supports these future challenges and allows manufacturers to gain capacity in press room stamping, eliminates manual labor and ergonomic/safety issues, and maintenance for thousands of tools

Benefits

- » One robotic tool covers any panel the press is specified for
- » Quick tooling changeover using pre-programmed jobs
- » Remote adjustment of tool arms-pick points- through HMI
- » Intelligent crash mitigation and instant tooling recovery



Return on Investment consideration:



How many people and how much time are needed for each changeover?



How often do you adjust manual tooling?



What are typical labor costs per hour?



How many different panels do you run?



How much do you spend on manual tooling?



What other material handling challenges does your business face?

Engineered Solution

Unlike conventional tooling which is configured to work with a single panel, Transforming Tooling is designed as a system capable of reconfiguring itself to handle all panel sizes and shapes the press line is capable of processing.

One set of tools is all you'll ever need!

System optimized to:

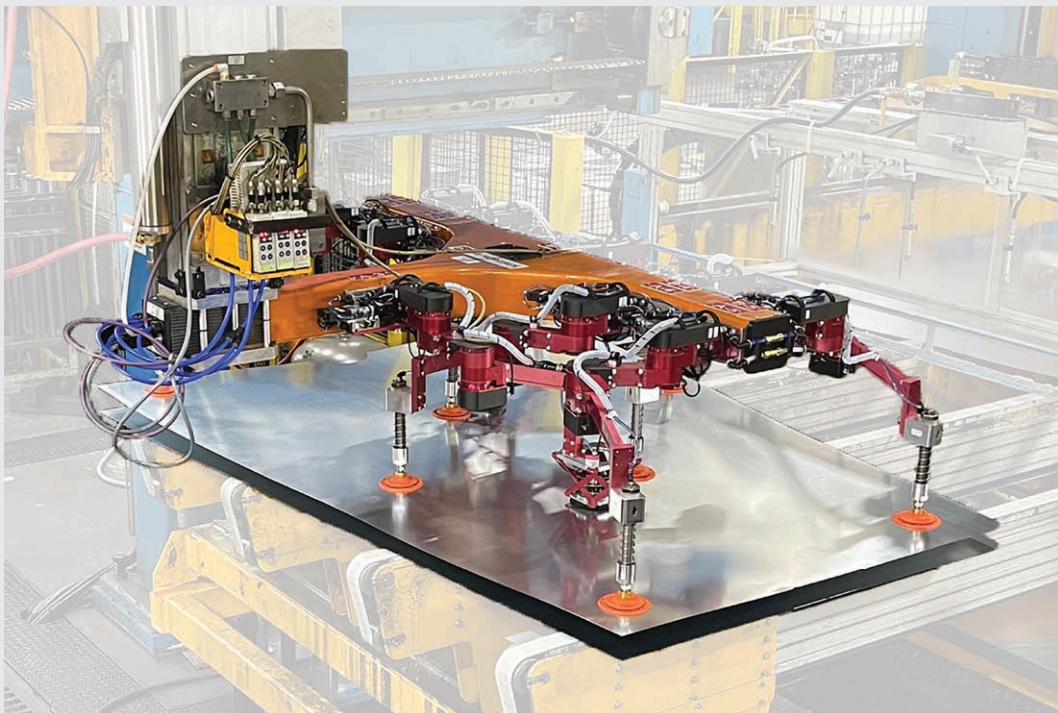
- » System is configured to match your machine/material handling application
- » Arms and Motorized Joints determined to fully support your workpiece
- » Minimum/Maximum motion of each arm covers your range of workpieces and optimizes pick point location

System is engineered for:

- » Small to large workpieces
- » Light to heavy applications
- » Optimized material pick points

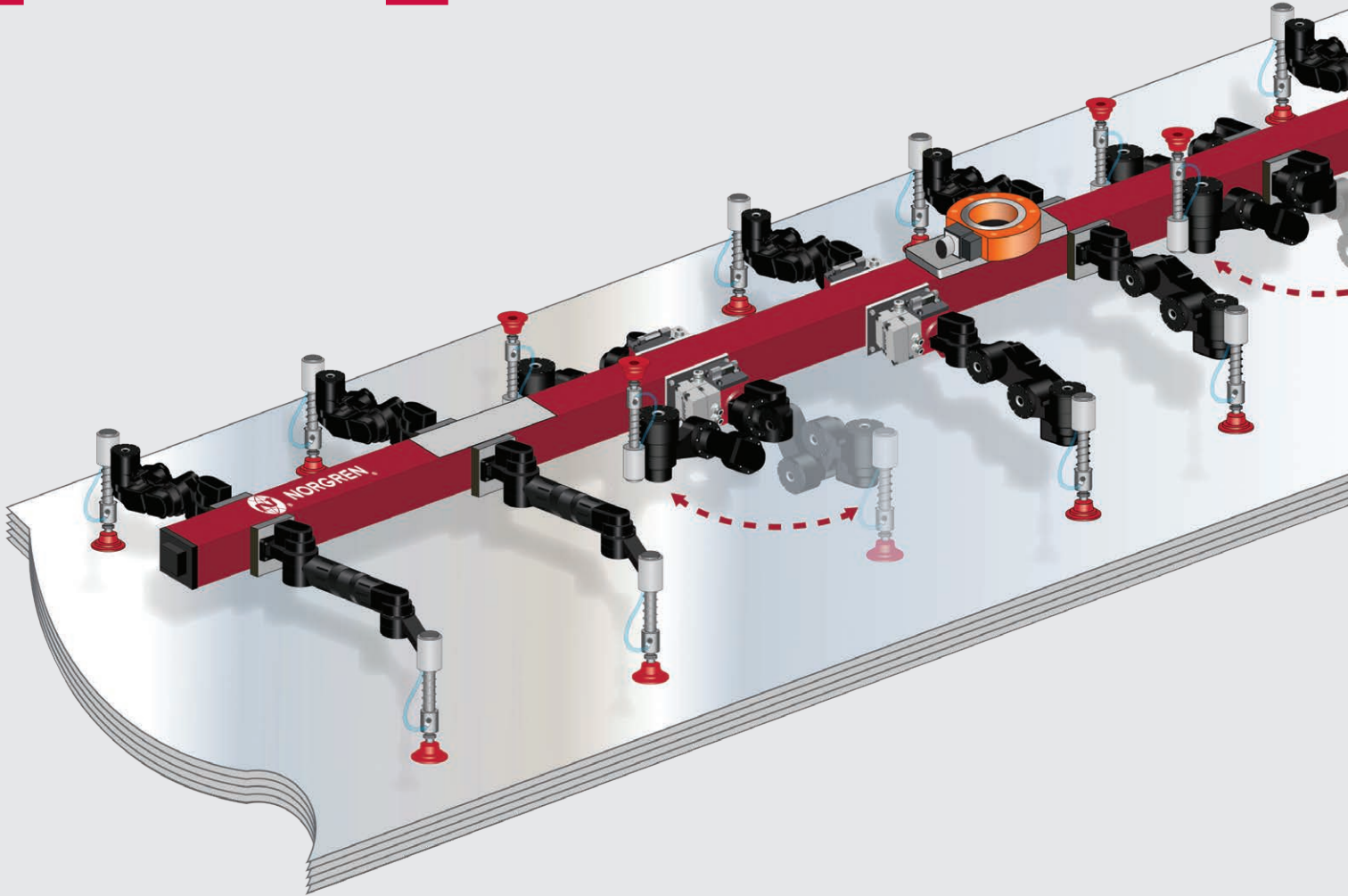
System utilizes:

- » Standard Arms/Joints
- » Fully integrated HMI
- » Optimized support structure
- » Software for creating and utilizing motion plans



Features

1 Supervisor & Safety Cabinet with PLC Connection



Communication Highlights:

Press Communication

- » Communicates what job, when to change, health, when to stop if there is loss of part or crash
- » Ethernet IP, PROFINET
- » Able to directly integrate on Sieman 1500 PLC
- » Consult NAS for other communication options

Supervisor Controller

- » Stores the library of motion plans, connects arms to press

Number of Jobs

- » 100+ motion plans

Arm Communication

- » Supervisor Controller to arms via CAN bus



Health Status

- » Arm position monitoring, arm status, vacuum status for part present

Job Change time

- » Job specific, but typically <1 minute

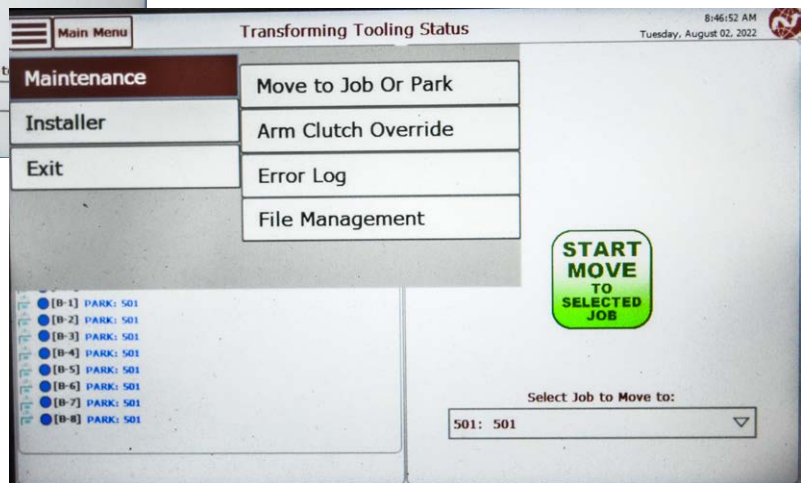
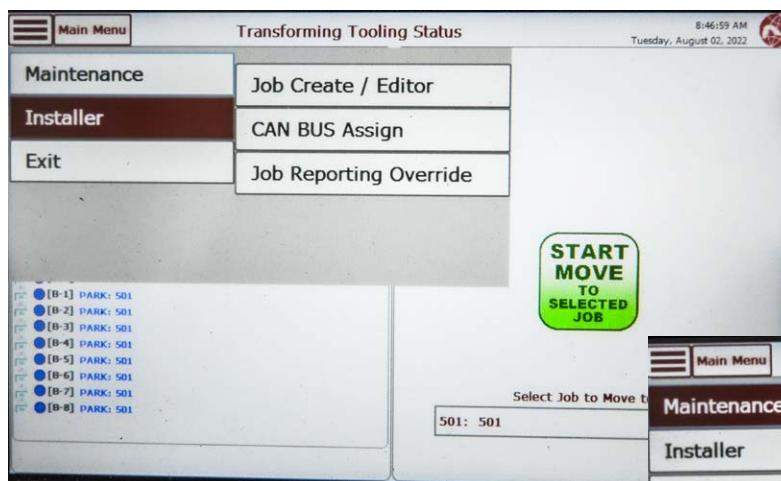
Motion Plan

- » Defines individual arm movement timing and position for each job. Stored in the Supervisor Controller

Arm Repair

- » Communication is restored without secondary tools within minutes. No need to home or calibrate.

Features



Human Machine Interface Highlights:

Hardware

- » Industrial Tablet, Pendent, PLC, PC

Operating Software

- » Java, Win CC

Status Screen

- » Provides status. Cell PLC provides the commands for what job, when to change

Adjustment

- » Provides the ability to adjust position of arms and ability to save

Health

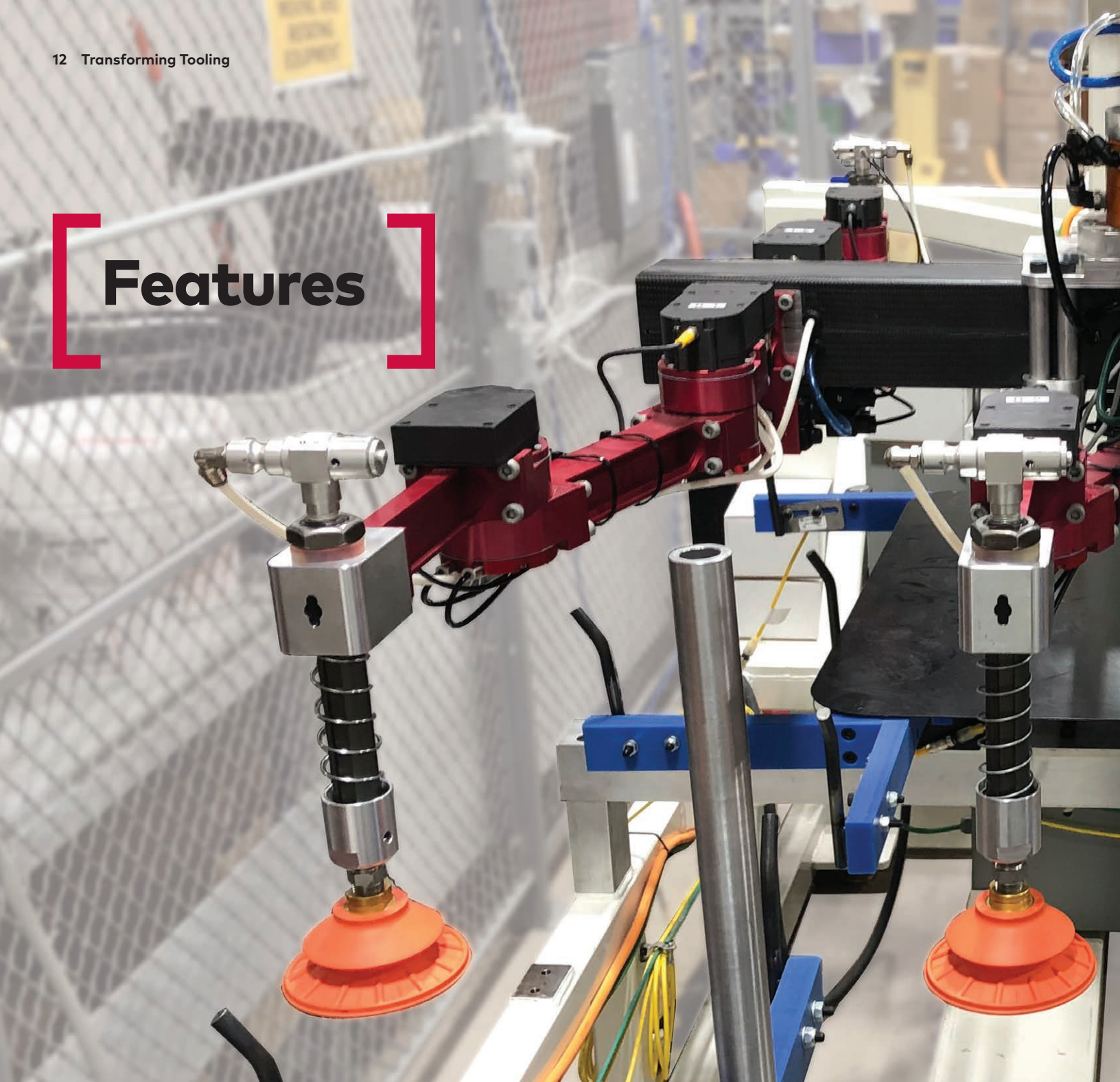
- » Provides information on the health of the system. Supports Industry 4.0 – tracking, trends, predictive maintenance

Motion Plan

- » Ability to import engineered motion plans
- » Ability to create new motion plans on the fly or in emergency situations



Features



Crash Mitigation/Recovery Highlights:

Arm motion to a new job

- » Arm collision will cause clutch slippage and notify operator to clear obstruction – no damage possible

Arm/Joint moves out of position

- » Sensor, Signal, HMI, Emergency Stop, Clutches, Auto Adjust – all provide protection

Severe System crash

- » Swap the arm, restore communication within minutes



Arm/Joint Highlights:

Position Sensing

- » Absolute positioning technology joint to joint

Life Span

- » 15 years, 50,000 Changes

Arm Weight

- » 2-joint shown – 6.8 kg (15 lbs)

Dynamic Rating

- » 200 Nm (150 ft lb) when locked for part transfer

Safety

- » Clutch slips at 30 Nm (20 ft lb) when unlocked for job change

Power

- » 480 watt typical for 16 arm system
- » 30 watt per arm

Maximum Arm Reach

- » Variable to application needs (limited by dynamic rating)

Our Global Reach

With established manufacturing facilities globally, we have the capability to cope with the most demanding of international projects. With a sales and service network in 50 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed.

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Norgren operates four global centres of technical excellence and a sales and service network in 50 countries, as well as manufacturing capability in Brazil, China, Czech Republic, Germany, India, Mexico UK and the USA.

For information on all Norgren companies visit

www.norgren.com

Supported by distributors worldwide.

For further information, scan this QR code or visit <https://materialhandling.norgren.com/en>



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Incorporating



IMI

