ADDITION
Manufacturing Technologies

STANDARD FEATURES

+ Electric Components: Kuka and Siemens
+ Sensors: Keyence, IFM, Baluff
+ Pneumatic Components: Festo
+ Electrical Documentation & user manual provided
+ Electro Servo-Driven axes

EATON LEONARD | ELECTRIC BENDING MACHINE

TULIP 19

The Tulip 19 is an all-electric tube bending machine, for tubes up to 19mm outside diameter, with a patented design allowing bending on two levels in both directions (right or left hand). With fewer components and less tool complexity than conventional bending machines, the result is a simple and compact machine design that increases production at a lower cost.

For a fully automated cycle, the Tulip 19 bending machine is paired with a Kuka robot, with the robot handling the tube from loading to unloading. The flexibility and speed of the robot, combined with the patented multi-stack, two-radius bend head, allow the Tulip 19 to bend the most complex part shapes (up to three different compound bends) in a cycle time faster than conventional mandrel bending.

Other operations such as endforming, marking, or cutting can also be integrated into the Tulip 19 bending cell for a fully automated tube forming solution.

Among other applications, the Tulip 19 is well suited for bending components such as automotive fuel and brake lines, as well as air-conditioning lines. Additionally, it is capable of bending tubes with rubber fittings.

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MACHINE SPECIFICATIONS

PHYSICAL AND OPERATIVE DIMENSIONS

Bend Arm Rotation	unlimited degrees
Length of Tube over the mandrel rod into the collet - Y axis	n/a
Length of tube into collet before last bend - subject to tooling limitations	0 mm (possible to bend without collet)
Tube Height	1150 mm
Tube Height from Working Platform	200 mm
Mandrel Retraction Stroke	n/a
Follower Side Stroke	1.5 mm
Clamp Slide Stroke - direct acting only (Vertical Opening)	30 mm
Reaction slide stroke	500 mm
Flange Outside Diameter	n/a
Flange offset from the standard tibe end datum	n/a
Booster Force	n/a

TUBE DIAMETER & WALL THICKNESS

Minimum	
Maximum	19 mm
Tube Wall Thickness	2.5 mm @ 2xOD radius, mild steel

CENTERLINE RADIUS

Maximum	30mm (subject to tool limitations)

AXIS SPECIFICATIONS	SPEED	RESOLUTION	REPEATABILITY
Y - Feed	15 m/min	0.01 mm/count	0.05 mm
B - Rotate	30 rpm	0.01 deg/count	0.05 degrees
C - Bending	25 rpm	0.01 deg/count	0.05 degrees
X - Radius			

HYDRAULIC AND ELECTRICAL SPECIFICATIONS

Hydraulic Tank Capacity	n/a
Hydraulic System Pressure	n/a
Pneumatic Air Pressure	6 bar
Power Requirements	17kVa 380 - 575VAC
C Axis Stall Torque	1.25 KNm
Section Modulus	

DIMENSIONS (APPROXIMATE)

Overall length to the rear from the tool post	1,200 mm
Clamp & bend die vertical opening	n/a
Length forward from tool post	n/a
Length of reaction arm - at Max center line radius from Y axis center	n/a
Overall Width	2,400 mm
Overall Height	2,500 mm
Weight (approximate without options and tooling)	800 Kgs/1,700 Lbs

The ADDITION Brand Family

AddisonMckee | eaton leonard | tube fixture | EAGLE

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