

## Highlights of the FOX Pouring Machine



The FOX 15™ is an economical metal pouring system with a number of important and unique operational features built into the semi-automatic machine's overall operations; such as the optional vertical height adjustments for moulding lines with different flask heights and virtual pouring point.

### FOX™ Semi-Automatic Pouring Machine 15

#### Equipment Features

#### Description

General Overall Design:		Newly designed with full operating flexibility using the latest in servo-motor, numerical control interface combination technologies proven by Bosch Rexroth.
Year of Design:	1997	Originally patented design.
	2007	Complete re-design and full implementation to Bosch Rexroth servo-drives system and the newly adaptation of an additional axis (Z) for vertical height adjustment. Re-design for either right-hand or left-hand pouring configurations.
Mechanical Design:		F. Lauper
Model Versions:		Capacity up to 1500 kg (3300 lbs)
Modularity:		Fully realized in design layout and operation for placement and commissioning.
Space Requirement::		Compact requires very little floor space
Dimensions (mm):		2900 x 1440 x 2280* * denotes without ladle and inoculation system
Weight:	6,5	tonnes, ca * denotes without ladle and inoculation system
Operational Modes:		Manual and semi-automatic
Pouring Curve:		Virtual pouring position which is controlled mechanically. Full freedom in programming ladle movements and virtual pouring position (Patented). Spout up/down movement permits quick pre-pouring and clean at the end of pour. Permits height adjustment and pattern related adjustment of pouring height. Pour in far located pouring cups with optimal pouring quality and low pouring height. Smaller pouring cup to be used.
Pouring Height::		Readily adjustable with freedom in programming to allow low pouring heights.
Longitudinal Drive:	0 – 1200	mm/second (Y axis) Easily transverse along the rail system on the floor. Adaptation of a newly designed two (2) wheel drives system that is directly coupled to a gear drive. Mounting technique and the placement of the rails may be built and installed flushed with the floor with no disability for manual pouring. Design with very low maintenance requirements
Way Signal:	Yes	The adaptation of an absolute incremental encoder connected directly to servo drive.
Servo Drives Units:		<b>A</b> axis (tilting) <b>Y</b> axis (longitudinal)

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Height Adjustment:	Optional	<p><b>X</b> axis (horizontal)  <b>C</b> axis (ladle change)  <b>Z</b> axis (vertical)</p>
Synchronization:	0 - 550 0 - 350	<p>mm (X-axis) – cross movemnt          (depending on flask dimensions)          mm (Z-axis) – height movement          (depending on flask dimensions)</p>
Pouring Modes:		<p>Synchronous cycle pouring is when the pouring robot is pouring in synchronous with moulding line movement and automatically pours from one flask to the next.          Asynchronous cycle pouring is when the pouring robot is not pouring within the moulding cycle and automatically pouring within the movement of the moulding line.</p>
Type of Pouring Function:		Mass – semi-automatic mode
End of Pouring Signal:	Optional	
Ladle Design:		<p>Newly designed <i>round ladles</i> with capacity up to 1500 kg (3300 lbs)          Round shaped ladles advantages are; low temperature drop and greater reduction in turbulence within the ladle during moving and pouring.          Longer spout design for low pouring heights and distanced pouring positions on the flask.</p>
Ladle Transportation:		<p>The ladle design incorporates the lifting features for fork lift transportation.          Excellent accessibility to the ladle on all three sides.</p>
Ladle Changer		<p>Modular and separated from the pouring system          Stationary or movable          Placement depends on the length of rails and the position of the ladle change system.</p>
Metal Treatment	Optional	<p>Tundish cover          New design with a thermal efficient – temperature loss 4° K a minute.          Treatment of ductile iron can be done directly into the pouring ladle – no additional transfer of metal is required.</p>
Pigging Function:	Optional	Reverse tilting
Cover Handling Module:	Optional	
Inoculation	Optional	<p>Possible by KW-SLS Swisspour AG Inoculation System; <b>COBRA™</b>          Inoculant flow control          Filtered compressed air requirement: 14,4 m<sup>3</sup>/hour; 5 bar</p>
Power Supply:	Standard	3φ, 400-V <sub>AC</sub> + NE + PE, 50/60 Hz
Control Supply:	24-V <sub>DC</sub>	Internal control power supply
Control System:	Yes	PLC S7 – 300 by Siemens with Profibus DP Siemens Visualization Touch Panel 170B
Power Consumption:	22	kW
Indexing Configurations:		<p>Single inline          Double inline for high speed moulding cycles</p>
Designed for Usage:		Cycled or continuous driven moulding lines
Types of Metal Poured:		Grey and ductile iron, aluminium and steel.
Temperature Measuring System		By a two phase colour photo resistive optical sensor.
Pouring Speed:	2 - 35	kg/s
Average Pouring Speed:	7,5	kg/s
Pouring Capacity:	230 221 212	<p>Moulds*/hour – 36 kg iron per mould and pouring with movement of the line.          Moulds*/hour – 56,5 kg per mould pouring while stopping of the moulding line.          Moulds*/hour – 82 kg iron per mould only at stopping of moulding line.</p>

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\* denotes indirectly is defined by pouring rate

Quality Management Parameters:	No	Quality assurance parameter data can not be stored of flask characteristics.
Safety Features:		Fully built in compliance to current CE Equipment Safety and Securities Standards. Safety barriers around perimeter linked with interlocking safety switches (within the design). Bumper guard system on rear position (longitudinal).
Factory Acceptance Test	Yes	
Training	Yes	
Documentation	Yes	On request
Pouring Sequence and Timing Charts:	Yes	On request
Preliminary Layout Drawing:	Yes	On request
Reference List:	Yes	On request