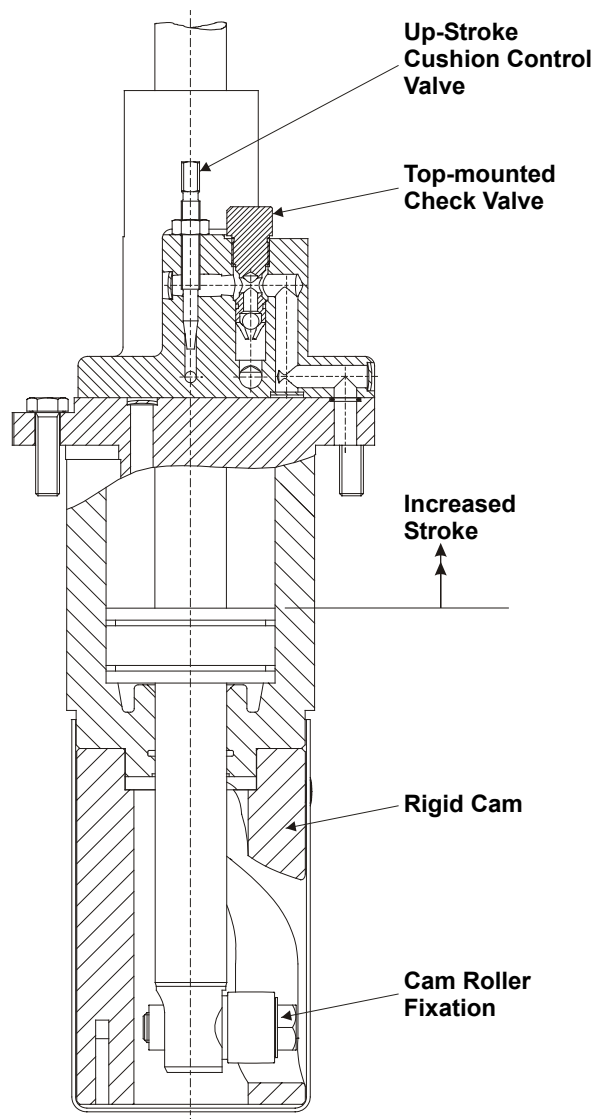


Technical News Bulletin

Cham, January 2003

Two-way air operated Funnel Mechanism 200-2100



1. Description

To meet the requirements for small ware production EMHART GLASS now offers a new funnel mechanism for the Type 4 ¼ and Type 5" IS machines.

The principle new features of this mechanism are increased piston stroke and air operation for both the upward and the downward motion of the piston. The increased stroke allows the blank mold baffle match line to be lowered relative to the invert center line - as essential for small ware production. Due to the increased stroke, machines operating in 5" DG, 3" TG and 85 TG require pantographic baffle arms to avoid collisions between funnels and baffles of adjoining sections.

The absence of the spring for the up-stroke movement (commonly used with conventional funnel mechanisms) allows better motion control and reduces the risk of the funnels being thrown out.

The up-stroke cushion control valve is incorporated into the cylinder head, while speed is controlled through the Electro Pneumatic Valve Block (EPVB) or an external valve unit located on the overhead manifold.

This new funnel mechanism incorporates many design improvements of the 200-247 Funnel Mechanism, as described in detail in TNB 39:

- Rigid cam with CNC machined cam track closed at both ends
- Cam roller arrangement with optimal mechanical connection
- Top mounted ball check valve for full down stroke air flow
- Up-stroke cushion control valve located on the top of the cylinder head
- Integrated lubrication line for the piston rod bearing

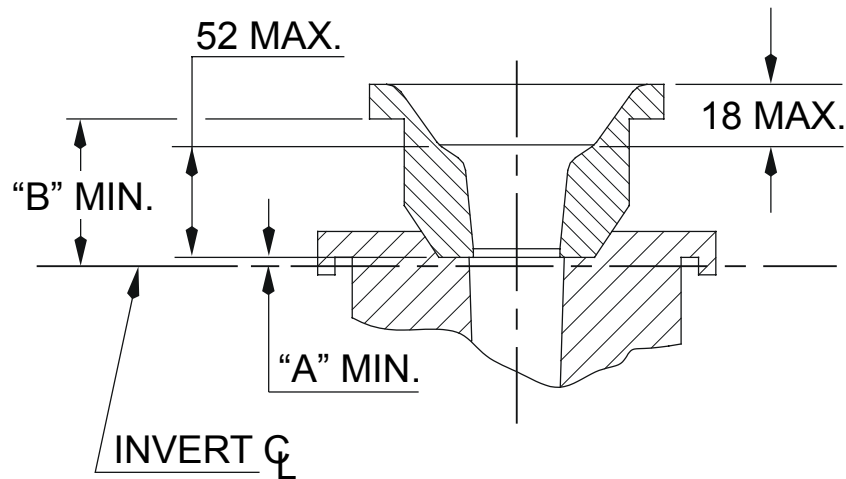
2. Specification

Straight lift	34 mm
Swing angle	59°
Total lift	106 mm
Operating air pressure	2.1 bar
Operating air consumption	0.04 Nm ³ /min at 15 cycles
Lubrication	Mineral or synthetic oil Emhart Glass Specification "A"
Funnel Arms	Quick Change or Conventional
Funnels	According to Emhart Glass Mold Design Data
Pantograph Baffle Arm	Required for 5" DG, 3" TG & 85 TG

3. Mold Design Limits

The minimum “A” dimensions between blank mold baffle match and invert center line - as specified in the table below - are valid for blank mold supports with an anti-deflection bracket. These dimensions result from the minimum funnel arm adjustment range and the maximum funnel height possible. In the case of a 3” TG, the “A” dimension may be further reduced when using blank mold supports without an anti-deflection bracket.

The “B” dimensions represent the minimum adjustment range of the funnel arms to clear the top of the mold holder arms. The maximum height dimensions of the funnels are set by the stroke of the baffle mechanism with respect to the path of the baffle in order to clear the tops of the funnels.



Funnel Size	Single Gob		4 1/4" DG		5" DG		3" TG		85 TG	
	A	B	A	B	A	B	A	B	A	B
No. S	---	---	---	---	---	---	-7	48	0	58
No. 00	---	---	-5	53	5	63	-5	48	0	58
No. 0	-23	35	-5	53	5	63	-3	48	3	58
No. 1	-23	35	-2	53	5	63	---	---	---	---
No. 2	-20	35	0	53	5	63	---	---	---	---

NOTE: The figures given in the table are only valid for the 200-2100 Funnel Mechanism.

4. Availability

The 200-2100 Funnel Mechanism is available for the following machine types and configurations:

Part No.	Machine Type	Configuration
200-2100-1	E & EF 4¼"	SG, 4¼" DG & 3" TG
	EF 5"	SG, 5" DG & 85 TG

The new funnel mechanism is a standard option to the 200-247 Funnel Mechanism.

5. Installation Requirements

The new funnel mechanism can be operated with either a direct air supply from the EPVB through the section frame or with an external air supply from a valve located on the overhead manifold. The position of the mechanism mounting screw holes has been maintained, facilitating field conversion.

5.1 Air supply through section frame

This application is generally used together with the 26-line EPVB. The installation requires use of the 200-187-2 Centering Ring, which has additional porting for the piston-up operating air. The dowel holes of this centering ring are in a different position, requiring realignment of the centering ring and redrilling of the dowel holes. Using the centering ring as a drilling template, a $\frac{3}{8}$ " pipe hole must be drilled and tapped in the section frame for the piston-up operating air connection. The air supply pipe needs to be installed according to the valve block configuration.

Section frames delivered after January 2002 have the correct hole configuration and centering ring for the installation of the 200-2100 Funnel Mechanism.

5.2 Air supply through an external valve

This application is generally used where there is no spare timing event available from the EPVB. The operating air supply lines from the external valve for piston up and down are connected to a special centering ring - part number 200-2033-1. In cases where the existing air supply line for piston down is used to actuate the external valve, the valve trip air line is also connected to this centering ring.

The centering ring is designed to allow aligning and doweling with the funnel mechanism installed. Since this centering ring is 30 mm taller, the QC Funnel Arm Clamping Device has to be set 19 points lower on the scale of the mounting sleeve.

For installation requirements, refer to drawing 210-D-712 for the Air Supply Piping Funnel Mechanism. With the air supply from the overhead manifold, the operating air pressure in this configuration is 3.1 bar.

6. Features and Benefits

6.1 Features

- Increased straight and total stroke
- Improved cam design and cam roller fixation
- Enlarged air passages
- Easily accessible ball check valve
- Optimised up-stroke cushioning
- Improved motion control
- Precise mechanism movement

6.2 Benefits

- Increased wear range for small ware production
- Less mold equipment wear
- Faster operating speed
- Prolonged mechanism life
- More convenient maintenance