

Technical News Bulletin

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565 AC Servo Shear

Introduction

The 565 AC Servo Shear is a parallel shearing mechanism that precisely cuts the glass stream fed from the spout. The 565 AC Servo Shear has been designed to cut glass at rates of 1 to 250 cuts/min. The low inertia servo motor and unique mechanism design allows for minimum blade-to-glass contact time of 40 milliseconds (1" or 25 mm diameter gob). The synchronized cutting of the 565 AC Servo Shear forms consistent gob shapes and weights with reduced shear marks. The 565 AC Servo Shear delivers the unique ability to adjust the length of the Shear stroke and blade overlap. This permits optimum Shear performance no matter what type of Gob you are forming.

Product Description

The 565 AC Servo Shear can be easily configured for single, double or triple gob applications. The mechanism for the 565 AC Servo Shear was developed from the highly reliable original 565 Servo Shear. The only major changes done to the mechanism were to accommodate the new AC Servo motor. The remaining mechanical components are the same. The design allows for easy adjustment of the drop guides, and the blade tension, while 565 Shear is operating.

The new AC Servo Control is modular and compact. The AC Servo Control utilizes a PC motherboard as the primary data processor and the modular design permits component compatibility with other Emhart servo devices. The standard Emhart Hand Held Terminal (HHT) can now be used to configure and diagnose the AC Servo Shear. The new Servo Shear Control is composed of three major modules. They are the General Purpose Control module, Amplifier module, and Data Storage module. These modules provide fast precisely controlled blade motion with direct motion feedback. The direct motion feedback permits adjustment of blade stroke and blade overlap. The blade stroke adjustment is made while the Shear is in maintenance stop. This is because different motion profiles are selected based on the distance selected for the blade stroke. The blade stroke can range from 4.00 to 3.00 inches. Adjustments are selected in 0.25 inch increments with the home

position sensor set at the 4.00 inch stroke position. The blade overlap is adjustable inward up to 0.200 inches and outward up to 0.050 inches. This adjustment should only be used to compensate for worn shear blades.

The 565 AC Servo Shear is currently available as a standalone control system. This makes the control system easily applied to most applications. The current configuration of the 565 AC Servo controls does not presently mount inside the extension cabinet of a VLAN Forming Control. The VLAN integrated version of the AC Servo Shear is scheduled for release in the third quarter of 1999.

565 Shear patents

US patent # 5,486,221 US patent # 5,236,489 US patent # 5,232,483
US patent # 5,224,979 US patent # 5,189,938 US patent # 5,180,413
US patent # 5,174,187 US patent # 4,813,994

Benefits of the 565 AC Servo Shear

- **AC Servo motor provides quick reliable cutting.**
 - Improves gob loading.
 - Precise blade overlap control.
 - Minimal glass contact time.
 - Reduces shear marks.
 - Lengthens blade life.
 - Reduces Shear Spray consumption.
 - Electronic Adjustment of blade stroke.
 - Decreasing the time for a shear cycle.
 - Minimizes mechanism load .
 - Electronic Adjustment of blade overlap.
 - Permits compensation for slightly worn blades.
 - Allows production to continue while planning needed maintenance.

- **Reduces setup and maintenance time**
 - Individual blade tension adjustments.
 - While operating or stationary.
 - Modular Drop Guides are easily adjustable.
 - While operating or stationary.
 - Modular blade holder.
 - Modular Controls.
 - Standard control modules - Interchangeable with other servo devices.
 - Compact with helpful diagnostics.
 - Moving parts are running in a sealed oil bath.
- **Readily installs into existing applications.**
 - Can be installed as a Standalone Shear Control.
 - Universal mounting design.
 - Simplifies installation.
 - Reduces the number of mechanism spare parts.

Operational Specifications

Operating criteria:

Shear configurations readily available for single, double and triple gob applications

Speed: 1- 250 cuts Minute

Range of stroke adjustment:

4.00 inches - 3.00 inches per blade side (adjusts in 0.25 inch increments)

10.16 cm - 7.62 cm per blade side (adjusts in 0.63 cm increments)

Range of blade overlap adjustment:

Inward 0.200 inches - outward 0.050 inches per blade side
(adjusts in 0.001 inch increments)

Inward 5.08 mm - 1.27 mm per blade side
(adjusts in 0.0254 mm increments)

Operational Specifications (cont'd)

Power Requirements:

Line voltage: 230 volt +/- 10%, 3 phase, 20 Amps, 50/60 Hz
3260-310
Optional external transformer:
Primary 380/ 415/ 440, 3 phase, 12 KVA, 50/60 Hz
Secondary 240 volts 3 phase

Ambient Conditions:

Air cooled cabinet maximum ambient temperature = 30 C = 86 F
2220 BTU's generated from the fan cooled cabinet
Air-conditioned cabinet maximum ambient temperature = 40 C = 104 F

Cabinet dimensions:

24.5" H x 24" W x 24.5" L = 62.3 cm H x 61 cm W x 62.3 cm L
Wall mounted cabinet with double hinging to provide front and back access.
The cabinet provides IP23 protection.

Cable requirements:

Shear Mechanism (MP) cable	— 720-103 maximum cable length = 300 ft = 92 meters
Shear Encoder (ENC) cable	— 720-93 maximum cable length = 300 ft = 92 meters
Shear Operator Station (OS) cable	— 565-146 maximum cable length = 300 ft = 92 meters
Shear Motor (SM) cable	— 565-145 maximum cable length = 300 ft = 92 meters
System interface (TE) cable	— 600-148 maximum cable length = 300 ft = 92 meters

Input signals needed :

Synchronization signal - 24 volt input with + and - connections
Feeder running signal - + 24 volt input (Using 24 volts in the TE cable)

Signals output:

Shear Spray activation signal - + 24 volt signal
Shear running (contacts close) - contact ratings = 15Amps at 240 volts AC

Optional - TE bulk head wiring K600-100-G01
(Used to interface to other manufactures equipment)

Ordering Information (Questionnaires, Spare Parts, Print List)

Documents needed to order a 565 AC Shear

Questionnaire	565-1-M.DOC	This specifies the 565's standard mechanical parts
Questionnaire	565-150.DOC	This specifies the 565 standalone controls with AC motor Controls
Questionnaire	565-1-SP.DOC	This specifies recommended spare parts for the 565 shear
Print list	565-Prints.DOC	This lists all of the prints needed to support the 565 shear

Below are the questionnaires for other 565 Shear configurations

Questionnaire	565-2.DOC	This specifies the 565 older standalone control with DC motor
Questionnaire	707-4.DOC	This specifies the 565 VLAN standalone controls with DC motor
Questionnaire	707-4-SP.DOC (DC motor)	Specifies spare parts for VLAN standalone controls
Questionnaire	600-4.DOC	Specifies the 565 control integrated into T-600 VLAN (DC motor)

Installation Requirements

TW1522 Manual for 565 AC Servo Shear

Drawings that help with quoting and specifying a 565 AC Shear

565-1	Servo Shear System Master List
565-3	Basic Shear Mechanism
565-6	Recommended mechanical spare parts
565-7	Lubrication and Air Piping assembly
565-27	Mounting assembly
565-48	Drop guide selection
565-73	Master list of 565 Special Applications
565-90	Shear Spray Heads
565-1108	Installation requirements of 565 Shear
565-1109	Clearance Diagram, 565 Shear
565-1110	Clearance Diagram, Spout Casing
565-1111	Installation Diagram, 503, 513, & 515 Spouts
565-1171	Installation Diagram, 81 spout
94-2935	Tools and Fixtures
535-25	Air Supply for Shear

Drawings that help with quoting and specifying a Shear Spray System

502-301	Shear Spray System
502-310	Shear spray documentation package
502-6217	Shear Spray wiring diagram
502-6221	Shear Spray Installation requirements
502-6222	Shear Spray Installation & Setup requirements
565-90	Shear Spray Heads
TP-1156	Injection Shear Spray Manual

Drawings for AC Servo Standalone controls (not for T-600 VLAN or 707 Controls).

565-18	Recommended Spare parts for AC Brussels controls
565-150	AC Servo control System
565-1108	Installation Requirements
565-1425	AC Servo - Standalone Shear installation diagram
600-3055	Feeder Proximity switch assembly (optional)
720-1149	AC Servo Shear System Schematic & Wiring diagram