



Overview

Unico's Smart Web AOC Shear Drive can be used alone or as part of a multidrive corrugator dry-end system. The drive controls the shear during automatic-order-change (AOC) sequence and during scrap chop-out. The drive uses the same control algorithm as the Unico rotary cutoff knife drives and is therefore superior to typical drive packages.

Hardware

The system consists of a Unico 2000 family or 1000 family flux vector AC drive and a properly sized AC motor. A parallel interface module with 32 points of optically isolated, configurable I/O is supplied with the system. Optional communication interface modules support high-speed communications with a programmable logic controller (PLC). The same functionality and performance is available with the 1000 family drive platform with some limitations on hardware-mapped I/O and high-speed serial communications.

Software

The software provided in the drive is Unico's standard embedded RCO software with additional, pre-engineered UEdit® AOC shear functionality. The shear portion of the program can be modified using standard IEC 1131 ladder diagrams and function blocks to further customize the drive for a particular installation.

Features Chop-Out After Line Stop

The system provides a means by which the shear will automatically chop out a preset length of material after the line has stopped for a selectable time period.

Chop-Out Wet-End Scrap

The embedded AOC shear software will track scrap material when initiated by a push button or other wet-end signal and chop it out when it reaches the shear.

Scrap Reject Gate Control

The software is capable of controlling the scrap reject gate in real time with feed-forward timing to compensate for electromechanical delays during scrap chop-out mode.

Scrap Jam Prevention

Once a chop-out has been completed, the shear drive will not allow another until enough material has passed into the dry end. This eliminates jam-ups caused by short lengths of material getting stuck between the web shear and the cut-off knife.

Automatic Reference/Homing

Upon power-up, the shear will automatically go to a home position. The system readies itself for the first chop-out without operator intervention.

Features
(continued)

Communication Protocols

The drive supports a variety of serial communication protocols for connecting to virtually any PLC or HMI. The drive can also operate in a stand-alone mode using the built-in keypad/display with an ANSI protocol connection to a simple serial display unit.

- CANopen
- CC-Link
- ControlNet
- DeviceNet
- Ethernet
- Interbus
- Modbus Plus
- Modbus RTU
- Profibus
- Remote I/O†
- RS-232/422/485

†Supported only by the 2000 family platform

Inputs & Outputs

All inputs and outputs are user-enabled and are mapped to hardware I/O points to allow customization of the control. They are also accessible through a high-speed serial communication link.

Inputs

- motor on
- fast stop
- automatic
- continuous cut
- single cut
- jog forward
- jog reverse
- reference/home/auto
- scrap track
- scrap bin full
- motor air flow OK
- motor thermal OK

Outputs

- motor on
- no fault
- reject gate close
- reject gate open
- shear cutting
- shear ready

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Corporate Headquarters

UNICO, Inc.
3725 Nicholson Road
P. O. Box 0505
Franksville, Wisconsin
53126-0505
USA

voice: 262.886.5678
fax: 262.504.7396

www.unicous.com

United States

Wixom, Michigan
248.380.7610

New Lenox, Illinois
815.485.5775

Sandy, Utah
801.942.2500

Canada

Mississauga,
Ontario
905.602.4677

South America

El Tigre, Venezuela
58.283.241.4024

Europe
Milton Keynes,
England

44.1908.260000

Wilnsdorf, Germany
49.2739.303.0

Asia

Osaka, Japan
81.66.945.0077

Beijing, China
86.10.6218.6365