



## Overview

The RDC™ drive controls a rotary die cutter for corrugated, paper, and other non-metallic web applications. Specifically engineered die cutter application software embedded within the drive eliminates the need for an external controller. When used in conjunction with a programmable logic controller (PLC), the drive forms a powerful automation work cell that can be easily integrated with other Unico automation cells to build a complete processing line control system. The drive can also be configured to stand alone with discrete I/O and a dedicated HMI. Embedded control reduces system complexity while taking full advantage of the exceptional performance, flexibility, and ease of use of Unico drives.

## Features **Cut-to-Register**

The rotary die cutter control cuts a continuously moving web or precut sheets of material into specified register lengths. Two different modes offer the choice of cutting relative to either a leading-edge sheet sensor or to printed registration marks using a mark detector to scan the web. Windowing features minimize spurious mark errors during registration cutting.

## **Constant-Velocity or Cyclic Modes**

Master/slave control simulates line shafting and can replace traditional mechanical gearing in constant-velocity applications. A cyclic mode allows single or multiple die plates/toolings per revolution of the cylinder, giving the flexibility to run repeat registers longer than the register repeat length of the machine. A typical example is leading and trailing edge tab cutouts with scoring within the body of the sheet.

## **Dynamic Register Correction**

A dynamic correction feature ensures repeated registration on the fly, eliminating the traditional trial and error as well as the associated scrap. In constant-velocity mode, this feature may or may not be used depending upon the web and tooling on the die cylinder. Small corrections are possible within the revolution when the tooling is not in contact with the web or where there is minimal contact without web or tooling damage. In cyclic mode, correction is automatic and occurs during disengaged angle(s) of the tooling on die cylinder. The maximum correction per cylinder revolution is a scalable variable.

## **Simulators**

Two simulation tools facilitate setting up, testing, and troubleshooting a rotary cutoff system. A line simulator makes it possible to run the cutoff without material by simulating material feedback. A mark detector simulator provides marks at a specified separation to allow testing in cut-to-mark mode.

## **Micro Advance/Retard Adjustment**

A micro adjust feature compensates for errors caused by slippage or register mark variation.

## Features **Maximum Line Velocity Calculation**

(continued)

The program calculates the maximum velocity at which the line can operate in cyclic mode. The velocity is computed using a number of parameters that describe the die angles of engagement and number of stops per revolution of the cylinder.

## Cam Outputs

Software-generated programmable limit switch (PLS) outputs replace mechanical cams by electronically following the position of the rotary die cutter. These cams can be used to trigger/cycle external devices with each cylinder revolution.

## Smart AC Digital Drives

Unico's 1000 and 2000 drive families provide powerful, flexible digital flux vector control for sophisticated, performance-oriented applications. The drives have been designed for complete flexibility and offer a variety of feedback, programmable I/O, and communication options. They incorporate a number of energy-conserving features, including line regenerative capabilities for exporting energy back to the power grid. Both drive families can take advantage of a modular DC bus configuration for sharing or recirculating energy among multiple drives.

## 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
- fault reset
- motor thermal ok
- motor blower ok
- jog forward
- goto position
- goto auto off
- auto
- order change
- follow source
- dereference
- cut to mark
- skip mark
- set window
- advance offset
- retard offset
- reference switch

### Outputs

- motor on
- no fault
- no warning
- manual
- auto
- reference
- at position
- line too fast
- cut error
- at goto position
- at auto off position
- goto auto off
- batch complete
- early warning
- missed mark
- open window
- cut to mark
- cam 1
- cam 2
- cam 3
- cam 4
- cam 5
- cam 6
- cam 7
- cam 8
- motion
- forward motion
- reverse motion
- motor rms warning
- thermal warning
- no reference warning

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