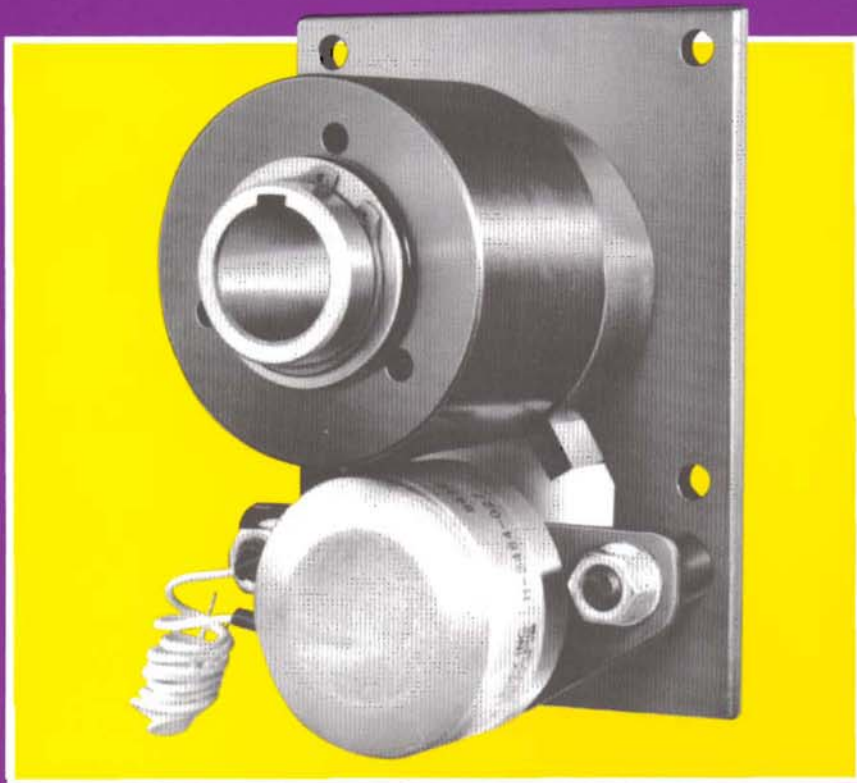


LOW RESOLUTION  
Scanned Version

**POSITIVE ENGAGEMENT  
WITHOUT SLIP, LAG  
OR CUMULATIVE  
ERROR.**



**Hilliard Intermittent Drive Assembly (IDA),  
a Single Revolution Clutch package,  
for automatic control of  
intermittent motion from a  
constantly rotating power source.**

# It's a self-contained package for ease of installation.

Hilliard's new Intermittent Drive Assembly (IDA) provides automatic control of intermittent motion from a constantly rotating power source.

This easy-to-install, self-contained package includes a solenoid-operated, single revolution clutch with anti-rollback and anti-overflow features. The rugged and proven, round-roller/cam-flat, single revolution clutch provides positive engagement at any point of revolution of the driving sleeve without slip, lag or cumulative error.

Designed to replace and to provide greater life than wrap-spring assemblies, the Hilliard IDA is built to last through millions of cycles. The result: minimal downtime and dependable service.

Hilliard's new Intermittent Drive Assembly is available in three sizes and five different bores.

### Operation:

The intermittently driven shaft is held stationary until the solenoid is energized, at which time the trip lever is actuated. The clutch then positively engages the drive shaft and the solenoid is de-energized. The clutch remains engaged until the output shaft rotates to its original starting point (for one-trip units) and the trip face contacts the trip lever. At this time, the clutch is disengaged and the shaft is stopped and held stationary, while the input continues to rotate. Multiple revolutions can be achieved by energizing the solenoid for extended periods (see "solenoid control") or by using step-up gearing. Fractions of a revolution can be obtained by multiple stop clutches or step-down gearing. Note: For applications other than single revolution, consult factory.

### Features:

- Self-contained package.
- Rugged round-roller/cam-flat single revolution clutch designed for up to 40 million cycles.
- Heavy-duty solenoids.
- Stopping accuracy of  $\pm 3/4$  degree (error is non-cumulative).
- Anti-overflow - prevents the driven shaft from running ahead of the driver.
- Anti-rollback - prevents the driven shaft from reversing after it is stopped.
- Available with clockwise or counter-clockwise rotation.
- Convenient four-bolt mounting.
- Five bore sizes with torque ratings up to 106 lb.-ft.

### Options:

- Four rubber shock mounts.
- Non-standard key location.
- Multiple stops feature - provides fractional revolution operation.

### Benefits:

- Self-contained package for ease of installation.
- Positive engagement without slip, lag or cumulative error.
- Dependable action through millions of cycles.
- Economical (low cost per cycle).
- Easy retrofit (replace wrap-spring units).



### Built to last:

The sleeve rotates continuously and the rolls engage at random positions, extending service life.

The round driving rolls turn freely, giving a continuous change of contact surface. The rolls are proportioned to carry an equal share of the load, and the cylindrical design helps guarantee uniform close tolerances. This results in minimized wear and reduced stresses.

The driven cam flats are precisely ground, ensuring maximum contact with the driving rolls. Avoiding unequal load distribution minimizes damaging stresses on clutch components.

### Solenoid Control

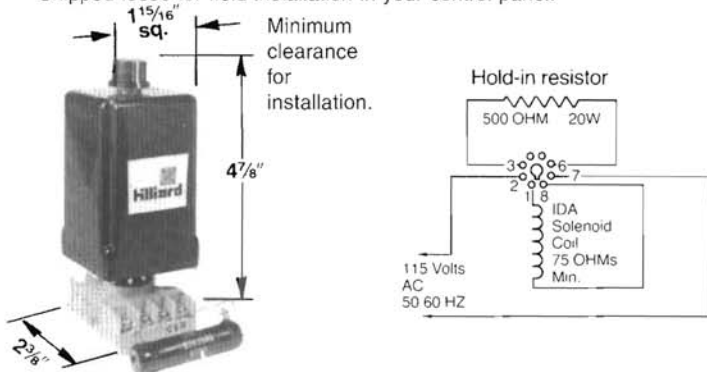
Each cycle is started by energizing the solenoid with an electrical signal. The length of the signal should be no longer than is necessary to reliably engage the clutch (normally less than 0.10 seconds). Multiple revolutions can be obtained by energizing the solenoid for extended periods as outlined below for the various sizes:

- IDA-4B, 5B, 6B and 8B units have heavy-duty rotary solenoids that operate on 12, 24 or 90 volts DC. Units ordered for use with 115 volts AC contain a bridge rectifier which converts the AC to 90 volts DC. The ratio of solenoid ON time to total cycle time (duty cycle) must be less than .25 to prevent coil damage. The maximum ON time is 36 seconds per cycle. For duty cycles over .25 or for extended periods of energization, the applied voltage must be reduced by 50% after 0.10 seconds at full rated voltage.
- IDA-10B units use a linear solenoid which is normally used with 115 volts AC. This solenoid can be energized continuously at full voltage.



Control Module No.	Description
6500-3D-004-B	Continuous duty/multiple cycle
6500-3D-002-B	Single cycle

Shipped loose for field installation in your control panel.



## IDA Control Module

(For use with IDA-4B, 5B, 6N and 8B only - cannot be used with IDA-10B).

This convenient optional accessory allows the solenoid coil to be controlled from 115 volt AC input while providing optimum clutch performance. In order to be compatible with the control module, the IDA unit must have a 90 volt DC solenoid coil.

The 6500-3D-004-B continuous duty module is designed to be used where the duty cycle is greater than .25. It is not to be used where the cycle rate is extremely high. The 6500-3D-002-B single cycle module is designed to be used where the duty cycle is less than .25 or where a high cycle rate is required.

## Installation

The mounting plate is attached to the machine frame perpendicular to the shaft and the clutch is attached to the shaft (pinned in the 4B and 5B models and keyed in

the 6B, 8B and 10B models). The pin holes in the 4B and 5B models and shaft key in the 6B, 8B and 10B models should be located to provide the proper stopping position of the driven shaft. The sleeve (clutch input member) is provided with a pilot fit and mounting bolt holes for easy attachment of the customer's input sprocket, pulley or coupling.

## Standard Key Location

The stop position for standard IDA Models 6B, 8B and 10B with the key at 0° position on the shaft as shown on Figure 2 on page 4. Other stopping positions are available at an additional charge.

Note: Orientation may also change by rotating the mounting plate relative to the frame.

## Size Selection

The correct size clutch for any particular installation is determined by the operation load and speed and also by the inertia (pound feet squared or  $WR^2$ ) in the mechanism controlled by the clutch. The torque load used for determining clutch size is the sum of the running torque at engagement and the shock torque from system inertia. Torques greater than this figure during the work cycle must be considered separately.

Shock torque (lbs.-ft.) =  $WR^2$  (lb.-ft.<sup>2</sup>) x RPM<sup>2</sup> x .01

Clutch torque limits and speed recommendations are listed in the chart on page 4.

## Lubrication

A film of oil should be maintained in the clutch mechanism. Monsanto Santotrac 50<sup>®</sup> is recommended for lubrication. Standard SAE non-additive 10, 20 or 30 may be used. If changing from Santotrac to standard SAE or from SAE to Santotrac, completely flush the clutch.

*\*Santotrac is a registered trademark of the Monsanto Company.*

## Typical Applications

### Photographic Printing. Processing.

Precise positioning of framing, trimming and processing of both film and paper. Clutch mounted on feed roll shaft.

### Indexing.

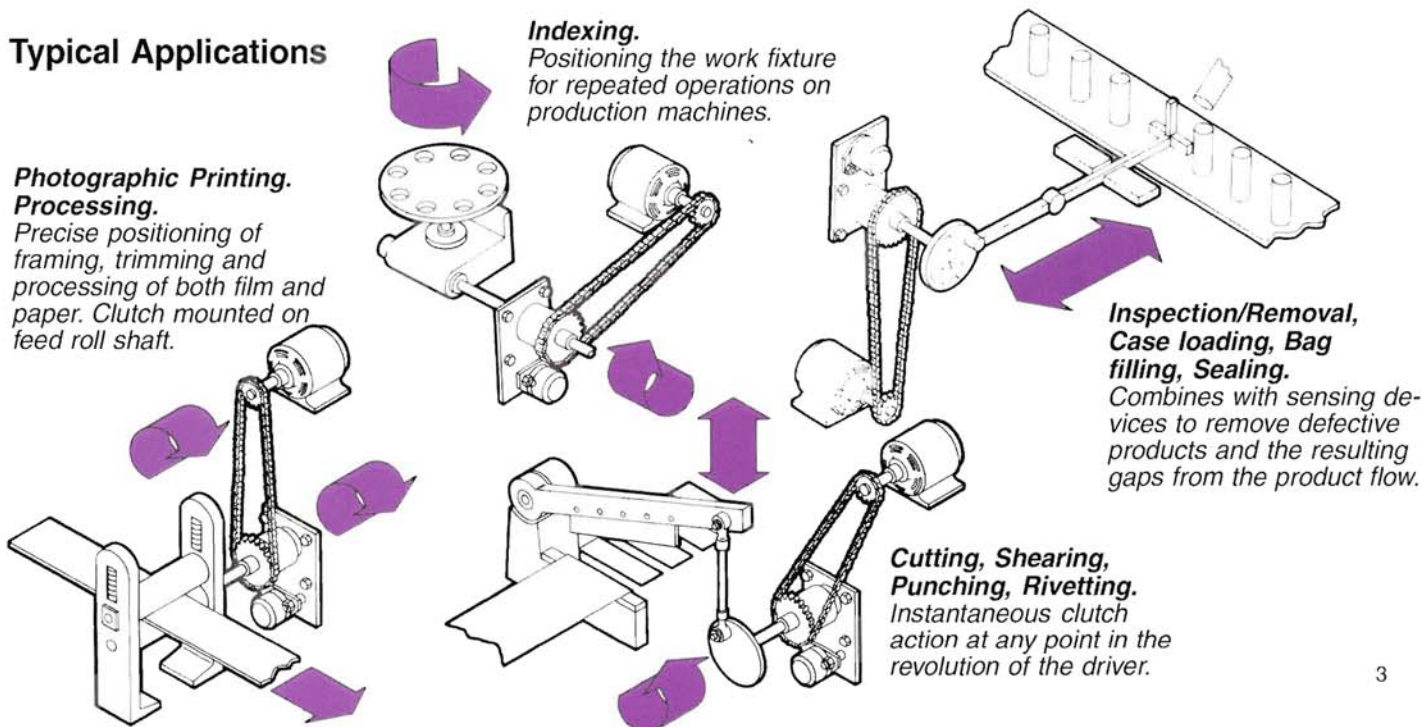
Positioning the work fixture for repeated operations on production machines.

### Inspection/Removal, Case loading, Bag filling, Sealing.

Combines with sensing devices to remove defective products and the resulting gaps from the product flow.

### Cutting, Shearing, Punching, Rivetting.

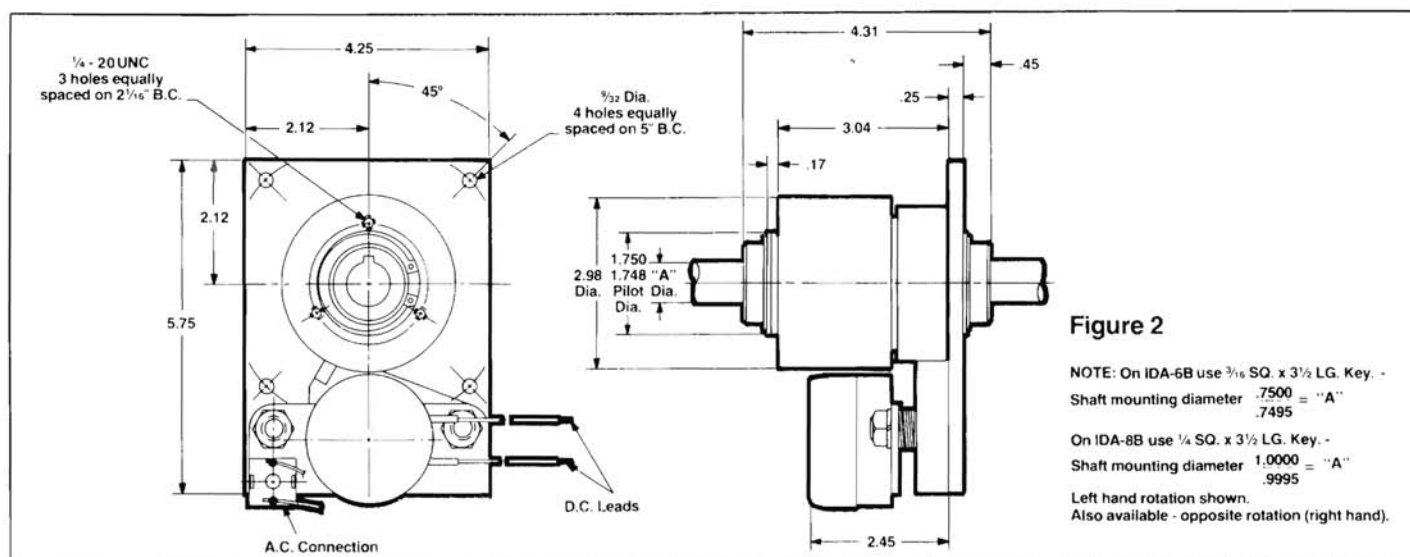
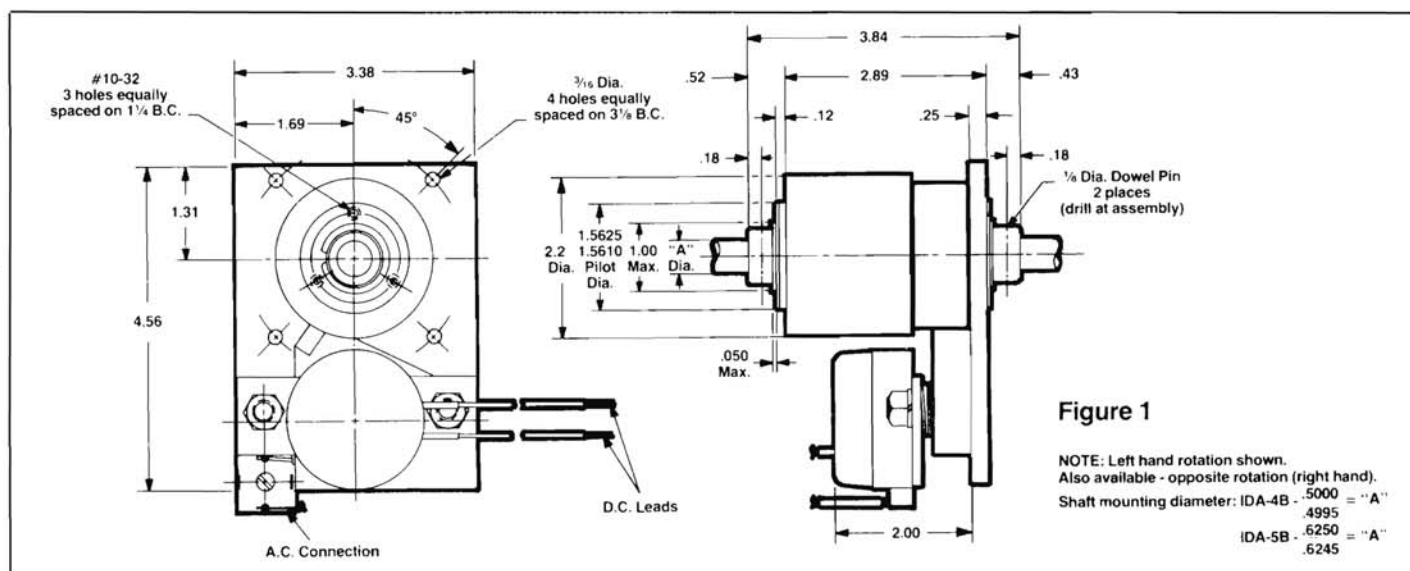
Instantaneous clutch action at any point in the revolution of the driver.



## Specifications

IDA Model No.	Figure No.	Maximum Torque Load (Lb.-Ft.)	Operation Speed (RPM)	Max. Cycle Rate (Cycles/Min)	Solenoid Voltage	Current (Amps)	Resistance (OHMS)	Clutch Response Time	Approx. Net Weight (Lbs.)
						At 68°F ±5%			
IDA-4B	1	22	50-500 50-320 (500*)	500 320(500*)	24 DC 90 DC 115 AC 50/60 HZ	3.1 .514 .58	7.72 175 175	25	4.1
IDA-5B	1	22	50-500 50-320 (500*)	500 320(500*)	24 DC 90 DC 115 AC 50/60 HZ	3.1 .514 .58	7.72 175 175.2	25	4.0
IDA-6B	2	44	50-425 50-200 (425*)	325 200(325*)	24 DC 90 DC 115 AC 50/60 HZ	4.58 .96 1.08	5.24 93.67 93.67	40	8.4
IDA-8B	2	44	50-425 50-200 (425*)	325 200(325*)	24 DC 90 DC 115 AC 50/60 HZ	4.58 .96 1.08	5.24 93.67 93.67	40	8.0

\*The addition of a control circuit will give you this operating speed and cycle rate. (See technical information sheet TI-3-1186).



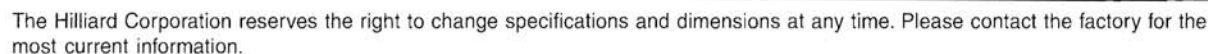
Dimensions for estimating only. Request certified prints for installation.  
Dimensions and specifications subject to change without notice.



## Pneumatic Control

- Available for models IDA-6B and IDA-8B.
- Same features as electrically controlled models; uses an air cylinder for operation.
- Operates in single-acting, spring return as well as double-acting for faster cycle speeds.
- Standard quick-connect coupling for 1/4" flexible tubing. (Optional second coupling available. Second coupling required to run in dual-acting mode.)

\*Includes both load torque and shock torque.



#### Motion Control Division



Centrifugal Clutch



Slip Clutch



Enclosed Overrunning Clutch



Single Revolution Clutch and Packages

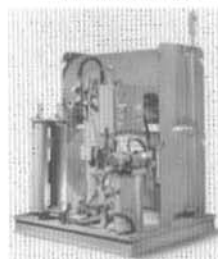


Electric Brake

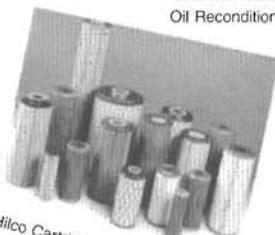


Twiflex Caliper Brake

#### Hilco Division



Oil Reconditioning System



Hilco Cartridges



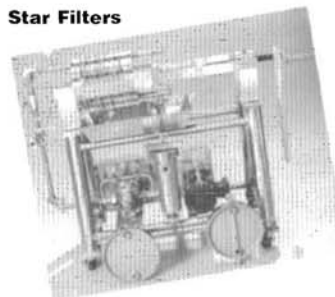
GS-200 Coolant Filter System

#### Turbine Starter



Turbine Engine Starter

#### Star Filters



Filter Press

# Quality since 1905.

Since The Hilliard Corporation was established in 1905, it has been a reliable source of quality industrial products.

Today, Hilliard offers a full line of motion control and fluid filtration products.

- Industrial clutches and brakes.
- Fluid filtration equipment.
- Pneumatic engine starters.



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