



Controlling Motion

THROUGH ENGINEERED SOLUTIONS



Founded in 1905, The Hilliard Corporation has evolved from a single product business into a special applications engineering company serving customers worldwide.

Located in Elmira, New York, and independently owned for more than four generations, the company has grown and prospered for more than a century.



Hilliard Products are
Made in the USA

The Hilliard Corporation solves problems. Based on extensive knowledge of motion control and filtration technologies, we make thousands of unique products, reaching markets globally.

Serving the needs of both small businesses and Fortune 500 companies, Hilliard products are found all over the world. We offer a broad line of motion control products, oil-filtration and reclaiming equipment, as well as plate and frame filter presses used in the food industry. We also manufacture starters for industrial gas and diesel engines and gas turbines. Our filtration systems are sold under the trade names of HILCO* and Star* Filters.

Our products are designed, manufactured, and sold according to our customer's applications. As a result, we have a large portfolio of custom engineered products that can be modified to meet new applications. At Hilliard, we embrace the challenge of product development.

With over 500,000 square feet and more than 500 highly skilled employees, we are able to meet desired requirements cost-competitively, even for short runs. Our experienced technical staff values craftsmanship, manufacturing efficiency, and responsiveness. In order to meet customer requirements, improve quality, and increase efficiency, Hilliard is continuously investing in new equipment and technologies.

In fact, we measure Hilliard's success based on our customers' ongoing satisfaction with our product and associated services. We are proud of our product reliability and durability. We often collaborate with customers in developing solutions that are integral to their product's profitable niche in the market place.



Engineered Solutions FOR CUSTOM APPLICATIONS

At Hilliard, custom applications are our specialty. As a result of our strong emphasis on engineering, we can provide economical design solutions for unique motion control problems. If your application doesn't fall within our standard product lines, or requires more than just a clutch, we can work with you either by modifying an existing design, or developing a complete drive package to accommodate your requirements.

We welcome the challenge of product development, and respond efficiently with practical solutions.

- Rapid cycling
- High torque, speed and/or heat
- Bi-directional drive
- Special motions on demand

We'll respond promptly with the quality you need and the reliability you demand.





HILLIARD

MOTION CONTROL PRODUCTS

Stop.
Start.
Slip.
Hold.

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

- Clutches and Brakes
- Hilco Oil Reclaimers, Filters and Cartridges
- Turbine and Engine Starters
- Star Filter Presses

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.

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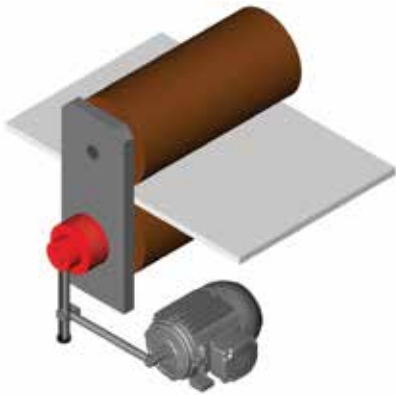
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OVERRUNNING CLUTCHES

MAGNA TORQUE (MT) FOR BACKSTOPPING & INDEXING

Hilliard's line of overrunning clutches is economically priced and ideally suited for backstopping and gearbox applications. Custom designs and rapid prototyping are available.



Indexing

The overrunning clutch can be used for ratchet-type operations such as packaging equipment and printing presses.



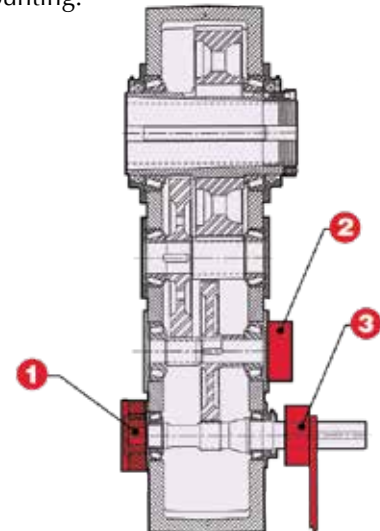
Backstopping Applications

When used in conjunction with a torque arm to hold the output shaft, Hilliard overrunning clutches provide instant protection with zero backlash from reversed rotation whenever power to the conveyor's drive unit is interrupted.

Gear Box Mounting Options

Typical gear box application allowing for internal or external mounting.

1. Mounted as internal backstop
2. Mounted on intermediate shaft as an internal backstop
3. Mounted as an external backstop



Specifications/Size Range

	Size	Torque		Bore		O.D.		Length		Max. Speed RPM
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm	
Smallest	MT-60A	60	80	1/4	(6.3)	2-1/2	(63.5)	2-1/8	(54)	3,600
Largest	MT-32000A	43,600	59,100	6-7/16	(163.5)	15	(381)	7	(177.8)	775

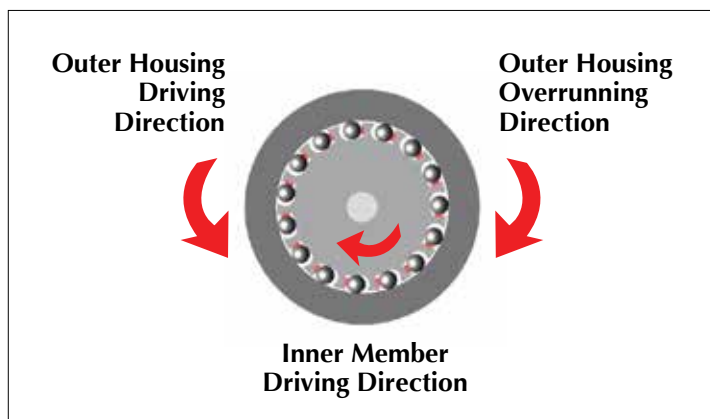
OVERRUNNING CLUTCHES

MAGNA TORQUE (MTR) FOR CLUTCH COUPLINGS, DUAL-DRIVE & TURNING GEAR

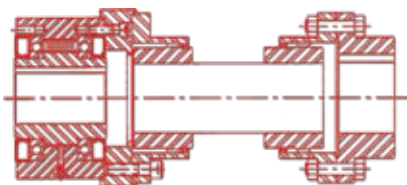
Roller-Ramp design for increased reliability and longer life.

An integral part of many Hilliard motion control products is our roller-ramp design. The use of hardened cams and precision-machined rollers maximizes service life.

There is almost no wear during freewheeling operations because rollers are free to rotate between the outer member and the inner cam. When the rollers are engaged, the load falls at random positions on the rollers. The result is superior service life and reliability. The MTR is similar to the MT design except the cam surface is reversed allowing it to be used in multi-speed/dual drive applications.



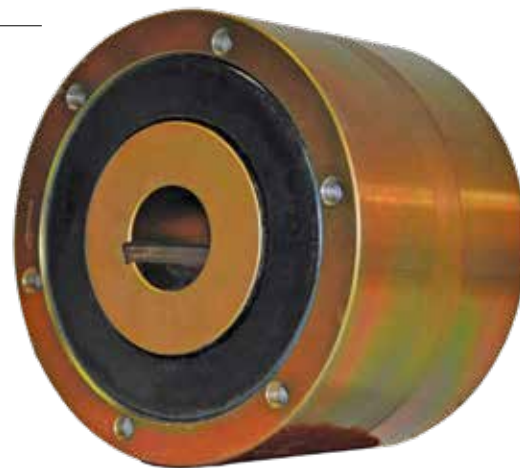
The contact point between housing and rollers changes continually with each engagement. This application illustrates an inclined plane cam, but a flat cam is utilized in other applications.



MTR-AC Clutch Coupling

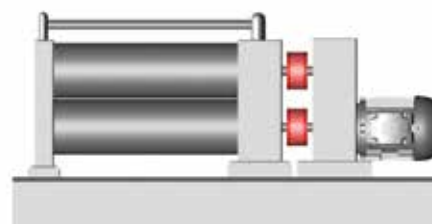
Specifications/Size Range

	Size	Torque		Bore		O.D.		Length		Max. Speed RPM
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm	
Smallest	MTR-60A	60	81	1/4	(6.3)	2-1/2	(63.5)	2-1/8	(54)	3,600
Largest	MTR-32000A	43,600	59,100	6-7/16	(163.5)	15	(381)	7	(177.8)	775



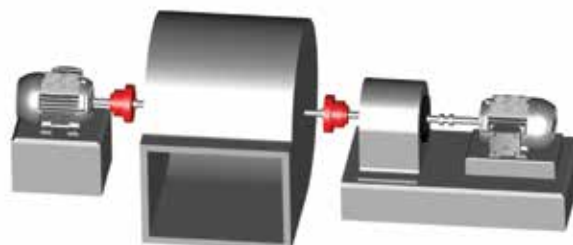
Overrunning Couplings

Typical applications are press ink rolls, coal feeders, press feeds, honing machines, speed reducers, bakery equipment and textile machines.



Multi-Speed Drives/Dual Drives

Typical applications for dual-source drives are blowers, pumps and fans. For multi-speed drives, our overrunning clutches are ideal in such operations as conveyors and forming rolls.

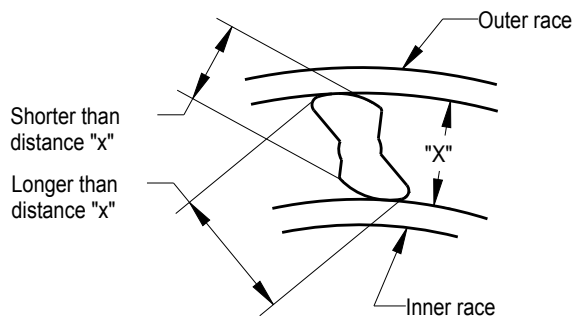


SPRAG CLUTCHES

HSO/HSX SPRAG CLUTCHES

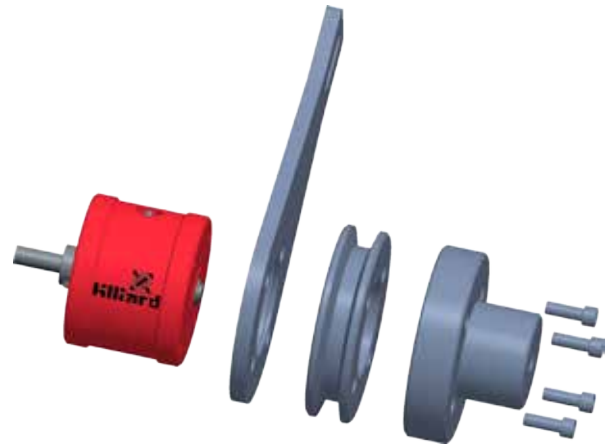
Introduction

The Hilliard Sprag Clutch is a freewheel device having an inner race and an outer race, either of which can be the input or output member. The input can drive the output in a chosen direction and permit the output to overrun in the same direction. The clutch consists of a cage full of steel sprags or wedges, located in the space between concentric inner and outer races. Power is transmitted from one race to the other by the wedging action of the sprags between them. Each sprag is shaped so that one diagonal dimension is longer than the distance between races while the other dimension is shorter. Rotation in one direction causes the sprags to tilt and wedge, preventing rotation. This allows free rotation in the opposite direction.



HSO and HSX Clutches

Hilliard Sprag Clutches are equipped with heavy duty ball bearings to ensure concentricity and handle radial and axial loads. The clutches are designed to mount on a shaft with the inner race driven by a hardened key (not supplied). The tolerance of the outside diameter of the outer race is suitable for use as a pilot for attaching torque arms, pulleys or couplings. Hilliard Sprag Clutches are able to transmit more torque in a given package size than other styles of freewheel devices.



HSO Series

Hilliard Sprag Overrunning (HSO) clutches are designed for overrunning, backstopping, and light to medium indexing (up to 150 indexes per minute). Oil lubricated models are equipped with lip type seals for oil retention and protection in hostile environments. Grease lubricated models incorporate a steel labyrinth plate, allowing higher overrunning speeds.

HSX Series

Hilliard Sprag Indexing (HSX) clutches are designed for medium to heavy indexing (over 150 indexes per minute). This design incorporates higher spring forces used to bias the sprags in the engaged position. Grease and oil options are also available.

Typical Mounting Options

HSO/HSX clutch bore sizes are slip fit therefore must be retained on the shaft with the use of locking collars, retaining rings, bolts and washers, etc.



ENCLOSED OVERRUNNING CLUTCHES

Hilliard's enclosed overrunning clutch incorporates superior MTR design in a totally enclosed package. Designed for power transmission operations, this clutch is totally contained in a stationary housing for constant protection from hostile environments or wash-downs.

- Self-contained
- Lubrication system provides continuous oil circulation
- Breather filter attached to equalize pressure without introducing contaminants
- Shown with optional Hilco Filtration and Heat Exchanger



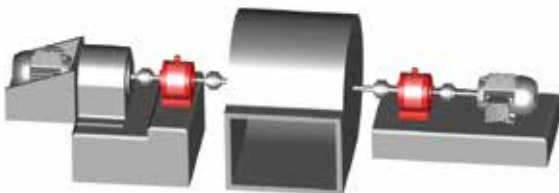
Specifications/Size Range

	Size	Torque		Shaft Diameter		Height		Length		Max. Speed RPM
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm	
Smallest	EO-0450	450	610	1-1/2	(38)	18	(458)	16-1/16	(408)	3600
Largest	EO-370	32,000	43,366	6	(152)	32	(813)	39-3/4	(1010)	900



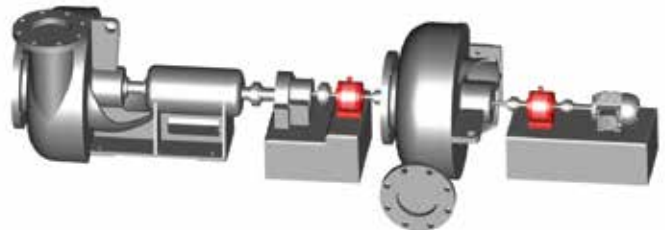
Turning Gear Package

Self-contained, skid-mounted drive system. An example of Hilliard's capability for special designs.



Dual-Source Drives

Enclosed overrunning clutches permit a small turning gear motor to drive an induced draft fan during startups and cool-downs. One clutch drives while the other overruns.



Stand-By Drives

As a stand-by drive, the enclosed overrunning clutches allow an alternate drive source to be automatically coupled to the driven equipment, such as a centrifugal pump, in case of motor shutdown or failure.

HIGH SPEED OVERRUNNING STARTER DRIVE

The Hilliard High-Speed Overrunning Clutch provides positive engagement and high torque on demand. Featuring a unique roller-ramp design, the clutch when engaged transmits power via the precision-machined cam and roller assembly connected to the input shaft. A ball bearing at each end of the roll cage supports and aligns the cam in relation to the drive (output) shaft.

The roller-cam assembly provides a large, variable contact surface between the roller and the drive shaft. Localized wear is minimized, promoting reliability of operation and maximizing the service life of the clutch.

Typical applications include hydraulic, electric, and pneumatic turbine starters; turbine drives, and turbine auxiliary drives.

- Automatic disengagement
- Maintains high torque while engaged
- Ball bearing support and alignment of cam to drive shaft
- Bronze roll cage
- Positive engagement
- Clockwise or counterclockwise rotation available



Specifications/Size Range

	Torque		Bore		O.D.		Maximum OR Speed RPM
	Lb-Ft	Nm	in.	mm	in.	mm	
Smallest	275	373	1	(25.4)	3	(76.2)	16,000
Largest	925	1,253	1-1/2	(38.1)	4-1/2	(114.3)	10,000

INTERMITTENT MOTION CLUTCHES

INTERMITTENT DRIVE ASSEMBLY (IDA) WITH SINGLE REVOLUTION CLUTCHES

This easy-to-install, self-contained package includes a solenoid-operated, single revolution clutch with available anti-rollback and anti-overrun features.

- Rugged roller-ramp clutch design
- Dimensionally interchangeable with wrap-spring units

- Heavy-duty rotary solenoids operate on 115 VAC or 12, 24, or 90 VDC
- Pneumatic operation available
- Available in clockwise or counterclockwise rotation
- Convenient four-bolt mounting flange
- Options include rubber shock mounts, non-standard key location and multiple stops feature



Specifications/Size Range

	Size	Torque		Bore		Height		Width		Length		Speed Range RPM
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm	in.	mm	
Smallest	IDA-4B	22	30	1/2	(12.7)	4-9/16	(115.9)	3-3/8	(85.7)	3-27/32	(97.6)	50-500
Largest	IDA-12B	420	569	1-1/2	(38.1)	8-15/16	(226)	6	(152)	7-3/4	(197)	50-200

TORQUE LIMITING CLUTCHES

FRICITION TORQUE LIMITER

Overload protection. Controlled motion.

Hilliard torque limiters and couplings are designed to slip during a torque overload, while still transmitting the adjusted torque. They provide dependable solutions to the problems of torque control and overload protection in power transmission equipment.

- Includes one or more friction discs mounted on an inner hub
- Single nut adjustment easily pre-sets the torque
- Similar static and dynamic coefficients of friction provide extremely smooth torque control
- Torque setting + / - 10%
- Clutches operate dry – optional friction material can be ordered to operate in oil
- Low maintenance
- Tensioning control



Specifications/Size Range

	Size	Torque		Bore		O.D.		Length		Max. Speed RPM
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm	
Smallest	L2	fractional	fractional	1/2	(12.7)	2-3/8	(60.3)	1-13/16	(46)	1800
Largest	24	33,825	45,833	8	(203)	27	(686)	31-5/8	(803)	700

PTO HAND DISCONNECT CLUTCH

The PTO Clutch can be used for most start and stop applications that require positive engagement/disengagement and overload protection.

- Full control of clutch engagement
- Adjustable torque setting
- Bearing engagement collar
- Simplified internal no-linkage design
- Up to 13 HP or 45 lb. ft.

Some typical applications include stationary powerunits, mortar/concrete mixers, cable winches, portable sawmills, trailer-mounted power equipment.



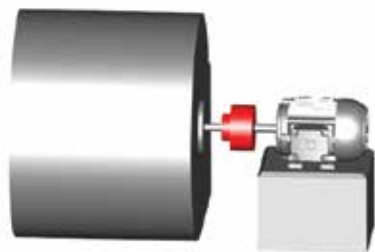
CENTRIFUGAL CLUTCHES

HILLIARD INDUSTRIAL CENTRIFUGAL CLUTCHES

Improved starting conditions. Smooth acceleration.

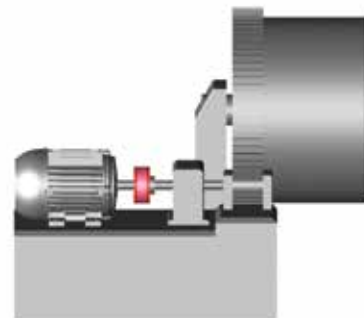
The Hilliard centrifugal clutch provides automatic, gradual, cushioned engagement over a speed range on high-inertia loads. It smooths out and reduces starting current surge.

- Slip-free at rated load and speed
- Protects against overload by limiting torque
- Absorbs shock, eliminates torsional resonance
- Soft transmission of power
- P.T.O. drives
- Load free starting



Blower or Fan Drive

Frees motor from load at start. Reduces inrush current to permit across-the-line starting. Provides smooth acceleration of high inertia drives. Serves as a flexible coupling.

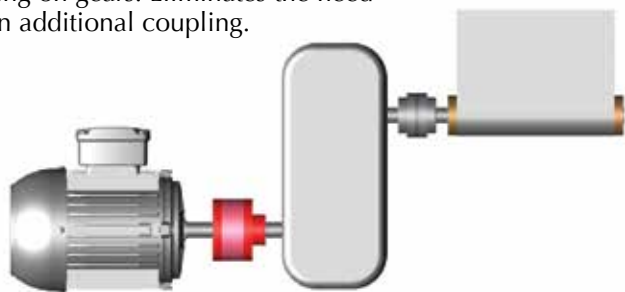


Mill or Kiln Drive

Uses standard squirrel cage motor with across-the-line starting. Eliminates costly reduced voltage starter. Reduces shock loading on gear teeth. Smooths out pulsating loads and current peaks. Eliminates the need for an additional coupling.

Conveyor Drive

Provides a smooth start. Eliminates dumping or displacing of material being conveyed. Provides overload protection against jams. Eliminates costly starting equipment. Softens shock loading on gears. Eliminates the need for an additional coupling.



Speed Limiter

Centrifugal clutch mechanism provides a safe, constant velocity for heavy loads that are gravity lowered.



Specifications/Size Range

	Size	Rating		Bore		O.D.		Length	
		HP	kW	in.	mm	in.	mm	in.	mm
Smallest	42	min. fractional	fractional	5/8	(15.9)	4-3/4	(120.6)	3-9/16	(90.5)
Largest	3012	1,600 max	1,194	8	(203.2)	33	(838)	18-1/2	(470)

CENTRIFUGAL CLUTCHES

LINKLESS CENTRIFUGAL CLUTCHES

Reliable, longer life.

Experience and communication have led to the development of a new concept in centrifugal clutches. The Hilliard Corporation's linkless centrifugal clutches now combine a dowel pin, vibration dampening bushing and a symmetrical spring design. The results are a long service life at an economical price.

Other benefits include soft starts, load-free starting and overload protection.

Our centrifugal clutches are ideal for applications such as fans, blowers, conveyor drives and mills. Our engineering and manufacturing capabilities offer a wide range of choices, from common mounts to custom designs.



Specifications/Size Range

	Size	Rating		Max. Bore		O.D.	
		HP	kW	in.	mm	in.	mm
Smallest	4	1 min	fractional	1-1/8	(28.5)	4.92	(125)
Largest	6	50 max	37	1-7/16	(36.5)	7	(178)

EXTREME DUTY CENTRIFUGAL CLUTCHES

The patented Hilliard Extreme Duty Centrifugal Clutch has been engineered in pulley and sprocket versions, to provide long service life and is ideal for retrofit or new equipment applications. A thermodynamically designed clutch shoe increases the clutch's capacity to absorb heat without damaging the integrity of the clutch.



Specifications/Size Range



	Stock Bore Sizes		Output O.D.	Rating	
	IN	MM		HP	kW
Pulley	3/4", 1" *	*	3" or 3.7" AB Groove	up to 13 hp	9.5
Sprocket	5/8" or 3/4"	not avail. in metric	12T, #35 chain 10T, #40/41 chain	up to 8 hp	6
	1"	not avail. in metric	17T, #35 chain 14T #40/412 chain	13	9.5

* Not standard bore sizes are available in OEM quantities.

DRIVE TRAIN PRODUCTS

CVT SYSTEMS WITH ENGINE BRAKING AND BELT PROTECTION TECHNOLOGY

Hilliard's Continuously Variable Transmission

The Hilliard Corporation has designed a CVT system that is more advanced than any other belt drive system currently available on the market. The Hilliard clutch system utilizes a tight belt which allows for seamless engine braking and belt protection at start up and during overload situations, to extend belt life. The Hilliard Continuously Variable Transmission system is designed to fit a wide variety of clutch envelopes so no expensive modifications are required for new vehicles or on replacements for vehicles currently in the field.



Engine Braking

The patented Hilliard CVT system incorporates a one-way overrunning clutch into the system to allow consistent, seamless and reliable engine braking to fully utilize the compression of the engine. The system provides engine braking from high speed all the way down to and including idle.

Hilliard's Belt Protection

The patented Hilliard CVT system provides constant belt grip, even at idle which protects the belt from scrubbing during start-up. Our unique belt protection design allows the torque limiting mechanism to slip and absorb all of the energy instead of damaging the belt. This provides for a much longer belt life. Severe applications have seen belt life increase from 200hrs to over 1000hrs. The design of torque limiting mechanism allows the torque output of the system to increase to 150% of a standard CVT system.



Tuning

The Hilliard torque limiting mechanism is an independent system from the shift mechanism. The acceleration and engine brake performance of the clutch system can be tuned for any platform without affecting belt protection. The Hilliard clutch system is currently tuned for many platforms, including ATVs, UTVs, and side by sides.

DRIVE TRAIN PRODUCTS

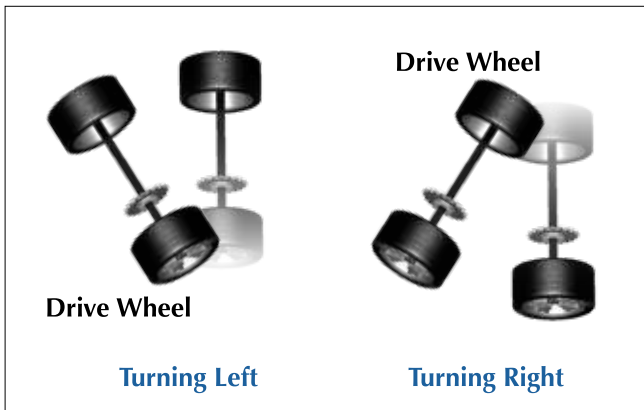
AUTO-LOK™

The Hilliard Auto-Lok™ Differential offers equal power transferred to both wheels regardless of traction, allowing positive back drive through both wheels.

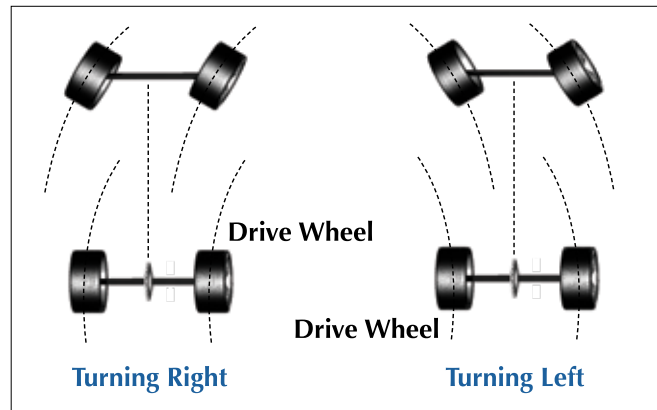
- Locks and unlocks automatically
- Self-contained
- Easy operation and steering

Typical applications include snowthrowers, lawnmowers, trenchers, self-propelled and walk-behind equipment. Larger Auto-Loks can be used on Golf carts and utility vehicles.

While the machine moves in a straight path in a two-wheeled application, both wheels have positive drive. When the machine turns left or right, the inner wheel will be the drive wheel and the outer wheel can move at its own speed independent of the inner wheel. When the machine is returned to a straight path, both wheels once again have positive drive. In a four-wheeled application, when the machine turns right, the rear left wheel travels at ground speed while the rear right wheel is the drive wheel. When turning left, the rear right wheel travels at ground speed, while the rear left is the drive wheel.



Two-Wheeled Application



Four-Wheeled Application

FRONT DRIVE SYSTEM (DIFFERENTIAL)

Our patented design consists of a dual bi-directional overrunning clutch for use as a secondary front drive for 4-wheel drive applications.

- Acts like a locking differential when engaged, but like an open differential when cornering
- Offers positive engagement of both front wheels in forward and reverse as a differential package
- Automatic engagement on the fly -- no shift linkages required
- Electric on/off engagement

Horsepower range: 10 to 65 hp



Applications

- utility vehicles
- commercial mowers
- all-terrain vehicles

BRAKES

ELECTRIC BRAKES

Positive stopping. Reliable holding.

Designed for maximum flexibility and long, dependable service, our electric brake is electromagnetically released when voltage is applied and spring-engaged when current is interrupted.

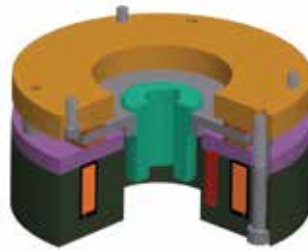
- Heavy-duty friction disc for long service life
- Fully epoxy-potted coil
- Easy-to-adjust wear bolt compensates for friction surface wear and extends brake life
- Conservatively rated helical springs
- Wall or bearing mounted
- Many different voltages available

Industries/Applications

- Elevators
- Escalators
- Amusement Rides
- People Movers



Robotics
Rapid response holds mechanisms precisely in place.



Forklifts and similar equipment
Provides reliable emergency stops and holds mechanisms in place when not being driven.

Specifications/Size Range

	Size	Static Torque		Bore		O.D.		Length	
		Lb-Ft	Nm	in.	mm	in.	mm	in.	mm
Smallest	0350	7-1/2	10	3/4	(19)	3-1/2	(89)	2-13/32	(61)
Largest	2000	4,500	6,098	4	(101.6)	20	(508)	5-1/2	(140)



BRAKES

MK ELECTRICALLY RELEASED CALIPER BRAKES

Powerful floating caliper design can be used on conventional disc or rail applications. The compact spring-applied design provides easy installation and maintenance. Spring force and air gap can be adjusted to match torque requirements.

Size	Min. Disc Diameter		Braking Force		Input Voltage
	in.	mm	lbs.	kN	
MK-350	6	(152)	350	1.6	100/210 VDC
MK-750	10	(254)	750	3.3	100/210 VDC
MK-1400	12	(304)	1400	6.2	100/210 VDC
MK-4800	20	(508)	4800	21.3	100/210 VDC

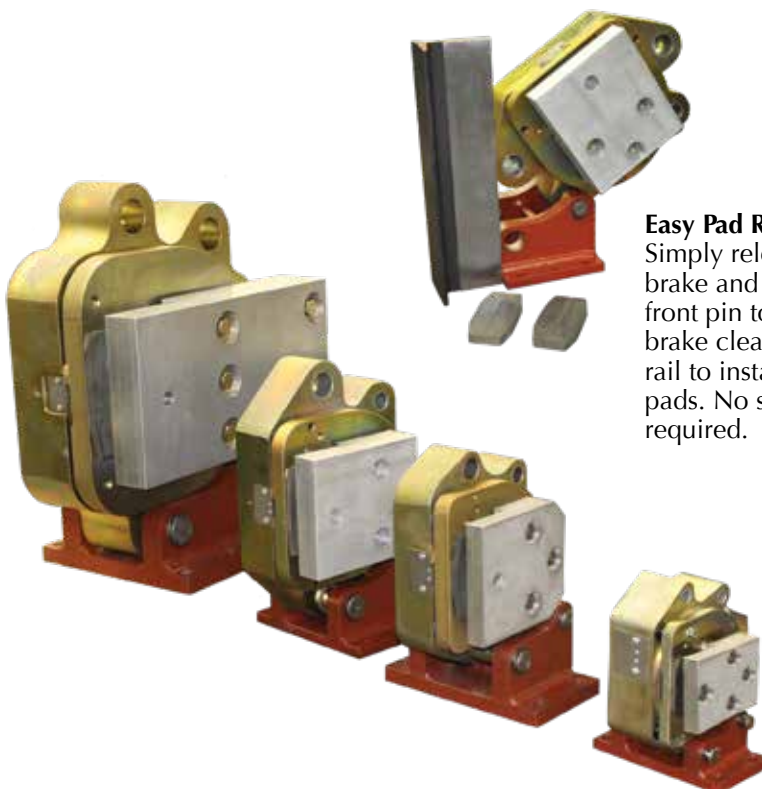
The patented Hilliard MK Guide Rail Brake is designed for use on elevators, conveyors, cranes, or other devices requiring a spring-applied electromagnetically released brake. The patented MK brake can be applied to a guide rail or a brake disc. It is unique in that it is direct acting with only one moving part. The brake incorporates an electromagnetic coil that uses a voltage dropping circuit to minimize current draw and heat when the brake is released. Shipped with manual release bolts for easy assembly to the rail or disc, it can also be equipped with a manual release mechanism for a momentary release of the brake with a standard open-end or socket wrench.



MK Guide Rail Brake



MK Disc Brake



Easy Pad Replacement

Simply release the brake and remove the front pin to rotate the brake clear from the rail to install new brake pads. No special tools required.

- Designed for holding duty and emergency stopping
- Manual release mechanism automatically reapplies the brake when force is removed
- Equipped with a microswitch for monitoring brake status
- Can be configured for various rail or disc thickness
- Easy to install - equipped with manual release bolts
- Can be adjusted for wear by adding shims behind the brake pads
- Mounted on pins allowing for axial movement

ELEVATOR MODERNIZATION

Hilliard offers its customers two styles of spring applied electric released brakes that can be easily fitted to “A” frame elevator drives. These brakes are designed to apply when unintended travel of the car occurs. Hilliard offers a friction disc plate-style brake that attaches to the drive shaft of the pulley and a caliper-style that acts on a ring attached to the pulley. These brakes are an alternative to a rope gripper when performing a modification job which requires lifting or moving a drive or extra construction to the elevator. Hilliard offers certain models of these two styles of brakes that meet CSA approval.

SECONDARY BRAKING SYSTEM

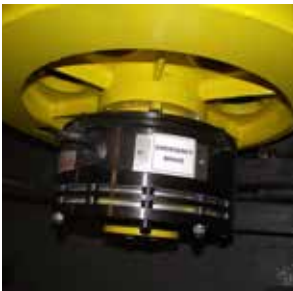
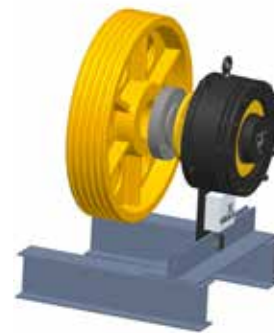
Hilliard Electric Brakes provide positive stopping and reliable holding of rotating devices on demand – every time.

Spring engaged when current is interrupted and electromagnetically released when voltage is applied, these brakes are designed for maximum flexibility and long, dependable service.

Each brake has an easy-to-adjust mechanism that compensates for friction surface wear, and extends the life of the brake.

The ideal complement to Hilliard’s full line of motion control products, they are available in a variety of sizes, voltages, and torque ratings.

ELECTRIC BRAKE (Spring Applied/Electric Released)



EASES MODERNIZATION | REDUCES LABOR COSTS

MK BRAKE (Spring Applied/Electric Released)



(See MK Brake details on previous page)



PORTABLE FILTRATION

Inexpensive, heavy-duty filtration systems for removing water and particulate from oils, fuel and other fluids.

HILCO® HP4 OFF-LINE PORTABLE FILTRATION SYSTEMS

Cost is everything.

When justifying the cost to purchase a filter, pay back is the primary concern. Today, customers take for granted the fact that brand name products are of good quality and readily available. In the final analysis, it comes down to what saves the most money.

HILCO's HP4 Off-line Filtration System is competitively priced, features reasonably priced high efficiency elements, and has the heavy-duty construction you expect from HILCO®. The HILCO® HP4 offers a variety of elements to remove particulate and water. Cartridges are available in inexpensive cellulose or ultra-efficient synthetic medias. Cartridges constructed of HILCO's proprietary PD media to remove water and particulate to 3 micron are also available.

HILCO® HP4 filter elements have the technology to get your fluids in tip-top shape.

Clean, properly maintained fluid means longer maintenance intervals and less equipment downtime. Elements are o-ring sealed and are available to filter to 1 micron absolute.

A quality product means reduced cost.

Customers turn to HILCO® when they desire sturdy construction that will last. Our 95+ year reputation is based on providing our customers with heavy-duty equipment that will last far beyond the justification period. You'll also feel comfortable knowing there will be someone to turn to 10 years down the road after your purchase.

Benefits

- Low initial cost offers quick return on investment.
- Lightweight system that is easy to carry or wheel from location to location. Easily fits in a trunk of an automobile or even the back seat!
- Reasonably priced elements. Compare to other inexpensive systems with outrageously expensive refills.
- Wide range of elements to choose from to remove particulate or water.
- Heavy-duty aluminum construction.



Applications

- Lubrication Fluids
- Hydraulic Fluids (EHC, other)
- Elevator Maintenance
- Transformer/LTC Maintenance
- Stand-by Diesel Fuel Tanks
- Bucket Trucks
- Vacuum Pumps
- Wire Drawing
- Mining Equipment
- Wind Turbines

As bulk material handling machinery designs become more powerful and increasingly efficient, braking system designs must also progress to satisfy the demand to control speed and stop machines in routine and, most importantly, during emergency stopping events.

Brakes are no longer straightforward on or off mechanical devices. Sophisticated Smart Brake deceleration controls with system status monitoring, fault acknowledgement, and feedback are required to maintain system integrity under all stopping conditions. This is particularly crucial on belt conveyor systems, where tension management and personnel safety are of paramount importance.

With these considerations in mind, Hilliard has developed a line of power units capable of controlling braking systems for a multitude of scenarios and applications. Hilliard's power units are designed and assembled in Elmira, N.Y. with only top quality components to ensure the integrity and longevity of each braking system.

The Hilliard Corporation takes pride in meeting and exceeding our customers' expectations. If you don't see a power unit that fits your need or application, we can develop a custom unit for you. Contact your Hilliard representative today for more information.

BBH1 POWER UNIT

The H1 Power Unit is Hilliard's base model that includes on/off and ramped braking modes. There are many options available to customize the system to the specific needs of the application.

- Low cost alternative
- Integral manifold mounting
- Heavy duty pump with failsafe design

Industries/Applications

- marine/shipping
- energy/wind
- cranes/hoists
- steel/metal



BBH2 POWER UNIT

The Hilliard H2 Power Unit incorporates an engineered hydraulic circuit to control the brake torque during a typical stop. Large capacity hydraulic accumulators provide additional volume for precise control of brake pressure.

- Controlled braking mode
- Fully enclosed in NEMA 4 cabinet
- High pressure filtration ensures trouble free operation
- Equipped with manual overrides and a hand pump for brake operation during power outage
- Each power unit is tested before it leaves The Hilliard Corporation's facility



Industries/Applications

- lifts/elevators
- energy/wind
- rail/conveyors



BBH3 POWER UNIT

The H3 Power Unit is Hilliard's most advanced Brake Control System. PID Loop Control monitors speed and continuously adjusts brake pressure to follow a preselected Start/Stop profile for typical applications. However, this power unit can be configured to accept other signals based on the application. For instance, the H3 can be configured to accept a 4-20 mA signal to control tension in a cable.



- Controls start time on applications with high overhauling load conditions
- Controls stop time, independent of load and speed
- UPS battery backup to make a controlled stop during power failure
- Superior belt tension management for long conveyors or conveyors with horizontal and vertical curves
- On-board 5.5" color display for fault diagnostics with alarms that interface with the customer's PLC
- Adjustments can be made by the user to achieve the desired stopping sequence. Each power unit incorporates customized settings based on the customer's requirements for torque and is tested for functionality before it leaves Hilliard's facility.

Industries/Applications

- rail/conveyors
- marine/shipping
- wind energy

BBH4 POWER UNIT

The H4 Power Unit is designed for use with brakes that require pressures over 3,000 PSI. These power units are highly customizable, allowing the customer to specify what type of component is used for many of the items in the system.



Industries/Applications

- grinding mills

- On/Off and ramped braking
- Customizable components include but are not limited to the motor, electrical panel, RTD, and pressure transmitter
- Bilingual labels as required
- An isolated hand pump is installed for use during power outages
- High pressure filters work on the supply and return side to ensure system integrity
- Every system is tested before it ships to verify the functionality of all equipment supplied
- Hydraulic manifold and valving are contained in a lockable enclosure for protection against environmental contamination and tampering from untrained employees
- Operator interface included on the electrical panel for local control, brake status monitoring and visual alarm status



MODULAR BRAKES

M200 HYDRAULIC

The Hilliard M200 brake caliper is a hydraulic applied, spring retracted brake caliper for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M200 brake caliper is capable of producing a maximum 5,000 lbf of braking force at 1600 psi. Positive retraction mechanism maintains consistent air gap throughout the life of the brake pads.



Industries/Applications

- hydro turbines
- electric generators
- marine propulsion
- winches
- dynamometers
- nuclear cooling pumps

M300 HYDRAULIC

The Hilliard M300 brake caliper is a hydraulic applied, spring retracted brake caliper for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M300 brake caliper is capable of producing a maximum 10,600 lbf of braking force at 1600 psi. Positive retraction mechanism maintains consistent air gap throughout the life of the brake pads.



Industries/Applications

- hydro turbines
- electric generators
- marine propulsion
- winches
- dynamometers
- friction welders

M400 HS HYDRAULIC APPLIED/SPRING RELEASED

The Hilliard M400HS brake caliper is a hydraulic applied, spring retracted brake caliper for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M400HS brake caliper is capable of producing a maximum 12,960 lbf of braking force at 1800 psi. Positive retraction mechanism maintains consistent air gap throughout the life of the brake pads.



Industries/Applications

- crane bridge drives
- winches
- theatrical/stage equipment
- marine propulsion

M400 SH SPRING APPLIED/HYDRAULIC RELEASED

The Hilliard M400SH brake caliper is a spring applied, hydraulically released brake for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M400SH is available with standard force ratings which when paired with the correct disc size produces an exact braking torque for the application. The caliper features "Maintenance Mode" which removes all stored spring energy within the cylinder assembly. This allows for brake pad replacement, monitor unit adjustment and seal replacement without the need to remove the brake from service.



Industries/Applications

- crane hoists
- mine hoists
- elevators
- escalators
- marine propulsion
- mining conveyors
- theatrical/stage equipment

MODULAR BRAKES

M500 HS HYDRAULIC APPLIED/SPRING RELEASED

The Hilliard M500HS brake caliper is a hydraulic applied, spring retracted brake caliper for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M500HS brake caliper is capable of producing a maximum 27,000 lbf of braking force at 1600 psi on the M500HS. Positive retraction mechanism maintains consistent air gap throughout the life of the brake pads.



Industries/Applications

- stage equipment
- winches
- marine propulsion

M500 SH SPRING APPLIED/HYDRAULIC RELEASED

The Hilliard M500SH brake caliper is a spring applied, hydraulically released brake for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M500SH is available with standard force ratings which when paired with the correct disc size produces an exact braking torque for the application. The caliper features "Maintenance Mode" which removes all stored spring energy within the cylinder assembly.



Industries/Applications

- conveyors
- mine hoists
- stage equipment
- cranes
- car shredders
- theatrical/stage equipment

M700 SH SPRING APPLIED/HYDRAULIC RELEASED

The Hilliard M700SH brake caliper is a spring applied, hydraulically released brake for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M700SH is available with standard force ratings which when paired with the correct disc size produces an exact braking torque for the application. The caliper features "Maintenance Mode" which removes all stored spring energy within the cylinder assembly. This allows for brake pad replacement, monitor unit adjustment and seal replacement without the need to remove the brake from service. Engineered fasteners eliminate the need for special tools such as torque multipliers or hydraulic tensioners.



Industries/Applications

- conveyors
- mine hoists
- theatrical/stage equipment
- cranes

M900 SH SPRING APPLIED/HYDRAULIC RELEASED

The Hilliard M900SH brake caliper is a floating spring applied, hydraulically released brake for use in heavy duty industrial applications. The brake comes standard with marine grade coatings suitable for extreme environments. The M900SH is capable of producing 170,000 lbf of braking force. The floating design can accommodate up to 3/4 inch of axial movement due to thermal expansion of large equipment such as grinding mills and kilns. The caliper features "Maintenance Mode" which removes all stored spring energy within the cylinder assembly. This allows for brake pad replacement, monitor unit adjustment and seal replacement without the need to remove the brake from service. Engineered fasteners eliminate the need for special tools such as torque multipliers or hydraulic tensioners.



Industries/Applications

- grinding mills
- mine hoists
- kilns
- theatrical/stage equipment

CALIPER BRAKES

Pneumatic Applied/ Spring Released

A300

The A300 is an arm style caliper brake designed to accept a large selection of Hilliard thrusters. The A300 requires a minimum disc diameter of 12" and is offered in 4 sizes to accommodate a 1/2", 1", 1-3/16", and 1-1/2" thick disc. The design of the caliper allows the user to quickly convert between right and left handed designs eliminating the need for multiple part numbers.

A300-T200 AS

Industries/Applications

- general machinery
- paper mills
- textile machinery

Max Braking Force 950 lbf
Operating Pressure 80 psi



A300-T300 AS

Industries/Applications

- general machinery
- packaging machinery
- paper mills
- textile machinery

Max Braking Force 3200 lbf
Operating Pressure 66 psi



A400

The A400 is an arm style caliper brake designed to accept a large selection of Hilliard thrusters. The A400 requires a minimum disc diameter of 24" and is offered in 2 sizes to accommodate a 1" and 1-1/2" thick disc. The design of the caliper allows the user to quickly convert between right and left handed designs eliminating the need for multiple part numbers.

A400-T400 AS

Industries/Applications

- marine
- general machinery
- power plant fans

Max Braking Force 8400 lbf
Operating Pressure 67 psi



Spring Applied/ Pneumatic Released

A300-T200 SA

Industries/Applications

- general machinery
- paper converting
- wire payoffs
- steel processing lines
- amusement rides

Max Braking Force 930 lbf
Operating Pressure 95 psi



A300-T300 SA

Industries/Applications

- general machinery
- material handling
- steel processing lines

Max Braking Force 3180 lbf
Operating Pressure 75 psi



A400-T300 SA

Industries/Applications

- draglines
- mining conveyors
- marine
- general machinery
- amusement rides

Max Braking Force 5580 lbf
Operating Pressure 88 psi



A400-T400 SA

Industries/Applications

- draglines
- mining conveyors
- marine
- general machinery
- bucket elevators
- skip hoists

Max Braking Force 8366 lbf
Operating Pressure 85 psi



CALIPER BRAKES

Hydraulic Applied/ Spring Released

A300

The A300 is an arm style caliper brake designed to accept a large selection of Hilliard thrusters. The A300 requires a minimum disc diameter of 12" and is offered in 4 sizes to accommodate a 1/2", 1", 1-3/16", and 1-1/2" thick disc. The design of the caliper allows the user to quickly convert between right and left handed designs eliminating the need for multiple part numbers.

A300-T300 HS

Industries/Applications

- general machinery
- crane bridge drives
- marine propulsion

Max Braking Force 3200 lbf
Operating Pressure 1400 psi



A400

The A400 is an arm style caliper brake designed to accept a large selection of Hilliard thrusters. The A400 requires a minimum disc diameter of 24" and is offered in 2 sizes to accommodate a 1" and 1-1/2" thick disc. The design of the caliper allows the user to quickly convert between right and left handed designs eliminating the need for multiple part numbers.

A400-T400 HS

Industries/Applications

- marine propulsion
- general machinery
- crane bridge drives

Max Braking Force 8081 lbf
Operating Pressure 1600 psi



Spring Applied/ Hydraulic Released

A300-T300 SH

Industries/Applications

- general machinery
- barge unloaders
- rail car dumpers
- rail car positioners

Max Braking Force 3180 lbf
Operating Pressure 1450 psi



A400-T300 SH

Industries/Applications

- draglines
- mining conveyors
- marine winches
- general machinery

Max Braking Force 5580 lbf
Operating Pressure 1720 psi



A400-T400 SH

Industries/Applications

- draglines
- mining conveyors
- marine winches
- general machinery

Max Braking Force 8366 lbf
Operating Pressure 1875 psi



Engineered Solutions

SINCE 1905



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

- Clutches and Brakes
- HILCO® Oil Reclaimers, Filters and Cartridges
- Gas Turbine Engine Starters
- Star Filter Presses
- Wastewater Filtration Systems

The Hilliard Corporation reserves the right to change specifications and dimensions at any time. Please contact the factory for the most current information.



Hilliard Products are
Made in the USA.

ALL HILLIARD PRODUCTS ARE DESIGNED AND MANUFACTURED IN ELMIRA, NEW YORK.

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