

PRODUCT INFORMATION



High-Speed Overrunning Clutches for Speeds up to 16,000 RPM.

Hilliard's new High-Speed Overrunning Clutches provide positive engagement and high torque on demand.

Designed specifically to replace sprag-type units, the Hilliard high-speed overrunning clutches are built to be more reliable, durable and long-lasting.

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.

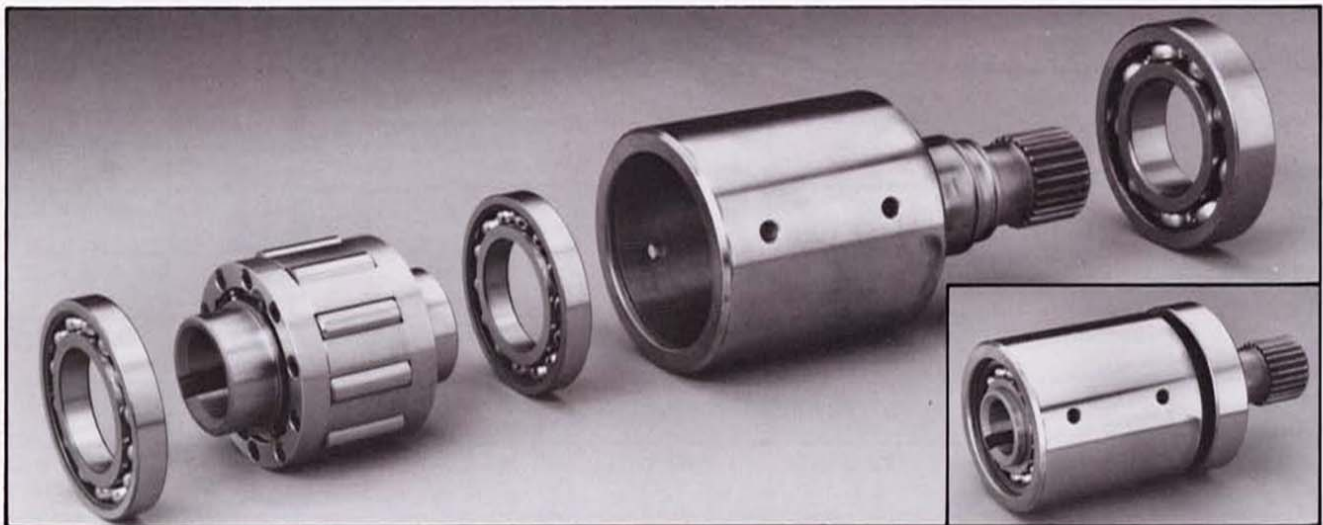
The roller-cam assembly provides a large, variable contact surface between the roller and the drive shaft. Localized wear is minimized, promoting reliability of

operation and maximizing the service life of the clutch.

A key feature of the Hilliard High-Speed Overrunning Clutch is the automatic disengagement of the input shaft when the input torque drops to zero, allowing the output shaft to overrun. The input shaft can be accelerated to engage the clutch while the output shaft is either stopped or accelerating or decelerating.

These clutches are engineered to be lubricated with a continuous supply of oil for cooler operation. The result: longer life, minimal downtime and greater savings.

The Hilliard High-Speed Overrunning Clutch is available in three sizes: 275 lb.-ft. torque for up to 16,000 RPM, 650 lb.-ft. torque for up to 10,000 RPM, and 925 lb.-ft. torque for up to 10,000 RPM.



Typical turbine starter drive.

Applications:

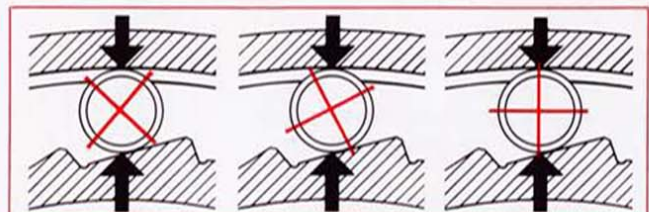
- Hydraulic Turbine Starters
- Electric Turbine Starters
- Pneumatic Turbine Starters
- Turbine Drives
- Turbine Auxiliary Drives

Features:

- Precision-machined roller-ramp design.
- Bronze roll cage.
- Ball bearing support and alignment of cam to drive shaft.
- Clockwise or counterclockwise rotation available.

Benefits:

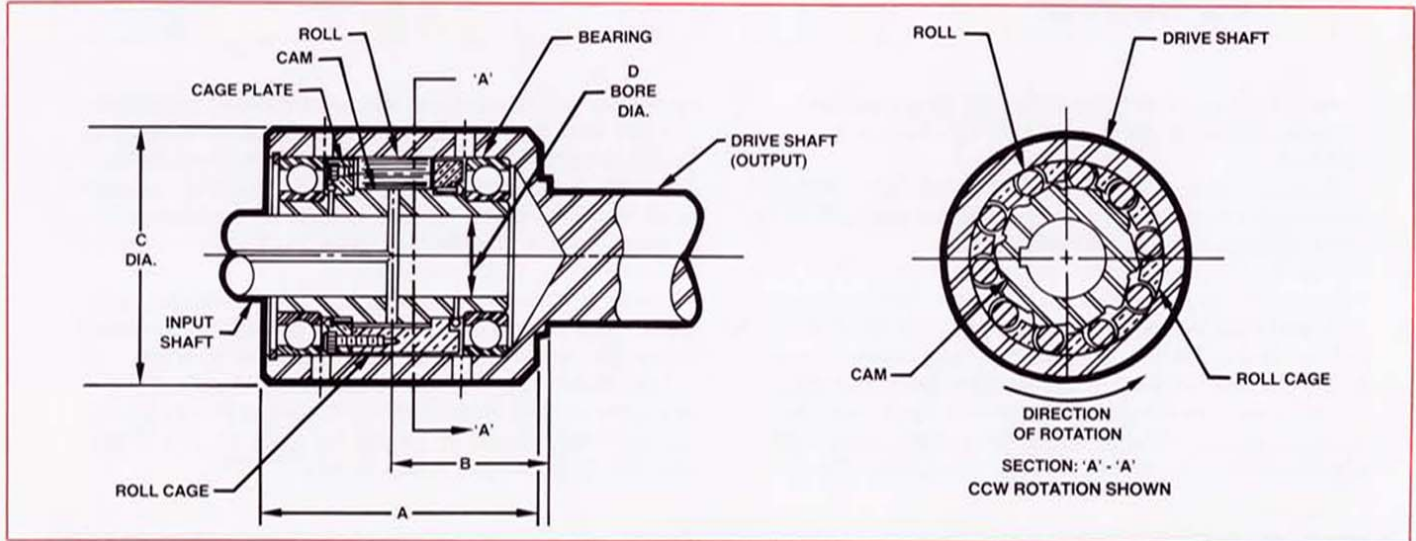
- Positive engagement.
- Automatic disengagement.
- Maintains high torque while engaged.
- More reliable, durable, and long-lasting.



Load bearing surface of Hilliard's roller-ramp design constantly changes with each engagement.

Specifications

Model Number	Maximum Torque load (lb.-ft.)	Maximum Capacity HP. per 100 RPM	Max. OR. Speed Output Shaft (RPM)	Approx. Net Weight lbs. (kg)
HC-275	275	5.2	16,000	6½ (3.0)
HC-650	650	12.3	10,000	13 (5.9)
HC-925	925	17.6	10,000	20½ (9.3)



Dimensions

Model Number		A	B	C	D	Key
HC-275	in.	3.37	2.64	3.06	1.0005 1.0000	.250 x .250
	mm.	85.6	67.1	77.7	25.413 25.400	6.35 x 6.35
HC-650	in.	3.43	1.87	4.50	1.5005 1.5000	.375 x .375
	mm.	87.1	47.5	114.3	38.113 38.100	9.53 x 9.53
HC-925	in.	4.81	3.27	4.50	1.5005 1.5000	.375 x .375
	mm.	122.2	83.1	114.3	38.113 38.100	9.53 x 9.53

Service Factors

Type of Load	Factor
1. Ideal Conditions: steadily applied load with no shock	1.0
2. Gradually applied load with no shock, such as fan drives, inching drives or turning gear drives	1.2
3. Suddenly applied load with little shock, such as cyclic loads	2.4
4. Suddenly applied load with appreciable shock	3.0
5. High torque with severe shock	5.0

Selection Procedures:

- Calculate the load torque in pound-feet to be transmitted by the High-Speed Overrunning Clutch.

$$\text{Torque} = \frac{\text{Driving HP} \times 5252}{\text{Operating RPM}}$$
- Refer to the adjacent Service Factors Table and select the appropriate service factor for the application.
- Multiply the load torque of the application by the appropriate service factor to obtain the required clutch torque.
- Select the High-Speed Overrunning Clutch having the nearest higher torque rating.
- Check to ensure that the maximum output shaft overrunning speed does not exceed the maximum recommended rating of the selected unit.
- Check the dimensions of the selected unit to ensure that it will fit into the available space.
- Consult with Hilliard Application Engineers regarding output shaft and mounting configurations for the application.

Note: The clutch may also be sized using HP/100 by applying the appropriate service factor.



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