

Tension Brakes

Mistral II Brakes

Mistral II



Wichita Clutch developed the Mistral II series of pneumatic tension brakes to meet the needs of the global paper converting industry. Building on the success of the original Mistral design widely used in corrugating, foil and film processing, and paper converting lines, the new range addresses market demand for an updated brake without compromising the industry-leading performance of the legacy model.

Extensively tested in-house, the Mistral II has been benchmarked against products from competing brands and meets or exceeds all performance criteria. The result is a compact, high-performance and versatile product capable of fulfilling tensioning needs of the latest machine designs.

Safety

Mistral II retains the integral guard of the original, eliminating the costs associated with providing additional guarding.

Design

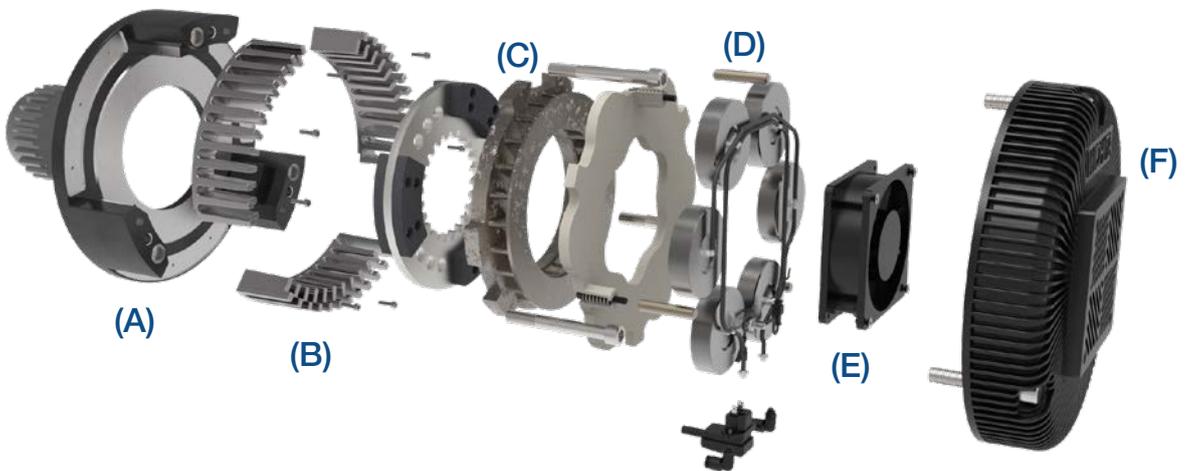
Mistral II is compact at 295 mm diameter, facilitating the pick-up of small or part-reels used in short batch runs. The new, vented housing is semi-gloss black powder coated for durability and aesthetics. Internally, an integrated high-performance, low energy cooling fan enables high heat dissipation to support increased productivity. Removing just three cap screws provides access to the internal parts. Fine tuning of torque capacity is achieved with a variable number of actuators for optimum tension control.

Mounting

Three bolts mount the brake to the arm of the mill roll stand or machine frame and a pilot location simplifies new build and retro-fit installations.

Fine Tuning

The brake may be fitted with a variable number of actuators, allowing precise selection of brake torque capacity for optimum tension control.



Exploded view of the Mistral II, showing major components (A) ring and backplate, (B) heat sinks, (C) floating plate, (D) actuator assembly, (E) Fan and (F) cover

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Front Cover Fixing

By removing just three cap screws, the front cover can be removed, allowing easy and fast access to the internal parts, which will also automatically disconnect the air and electricity supply.

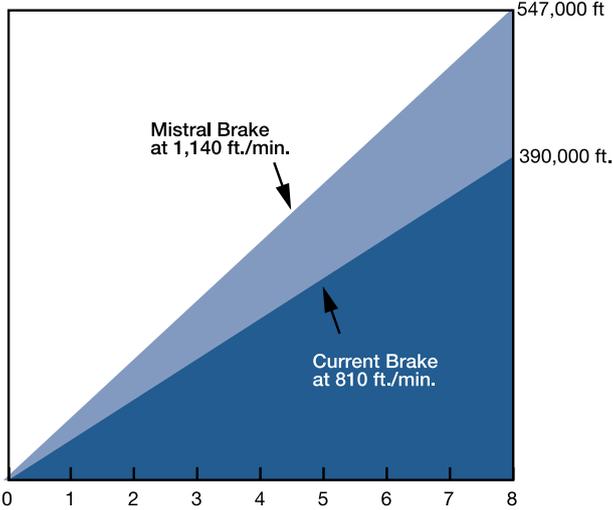
Integrated Cooling

A high performance, low energy cooling fan is housed within the brake to provide high heat dissipation - a must for higher productivity through controlled tension at high web speeds.



B

Performance Curve



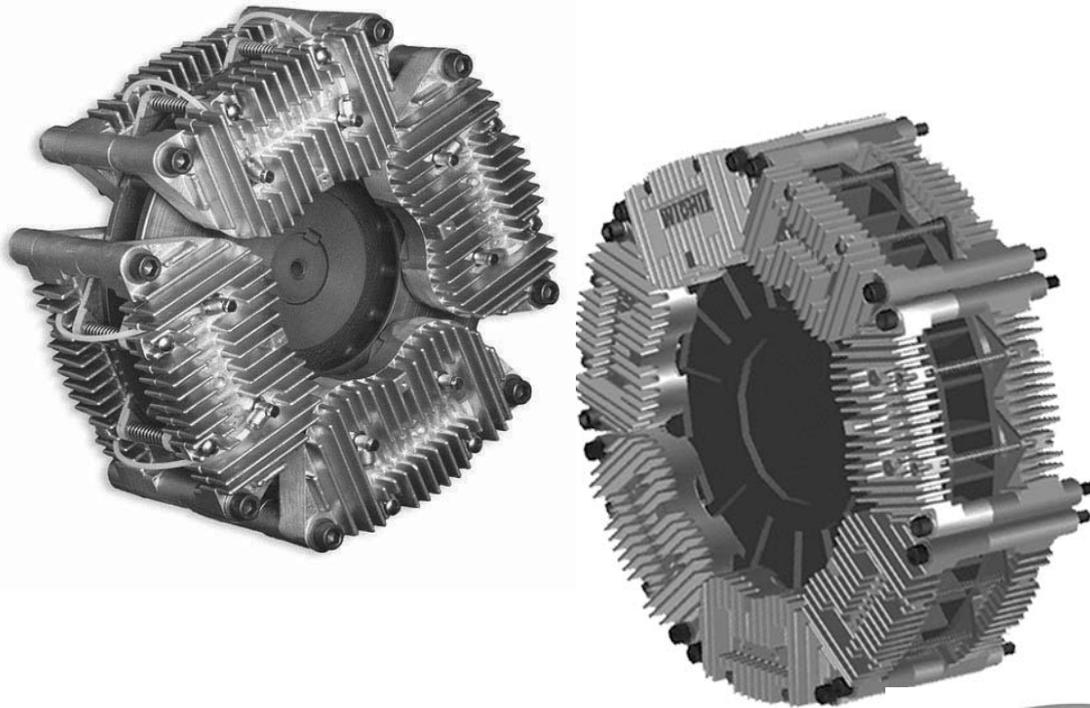
Performance

Model	Dynamic Slipping Torque Capacity			Heat Transfer Capacity			Max Speed	Inertia of Rotating Parts	Weight	
	Standard Friction Material			No Fan	With Fan				Total Brake	Rotating Parts
	0.2 bar	5.5 bar	6 bar		Cont.	30 Min On/Off				
	Nm	Nm	Nm	kW	kW	kW	rpm	kgm ²	kg	kg
200/2	7	198	216	1.1	2.4	2.8	2860	0.01	21.3	3.5
200/4	14	396	432						21.8	
200/6	22	594	648						22.2	

The Mistral II is highly linear in its response: The dynamic braking torque is directly proportional to the incoming air supply pressure and the quantity of actuators employed.

Tension Brakes Air Cooled

ModEvo Tension Brakes



Brake Discs and Cooling

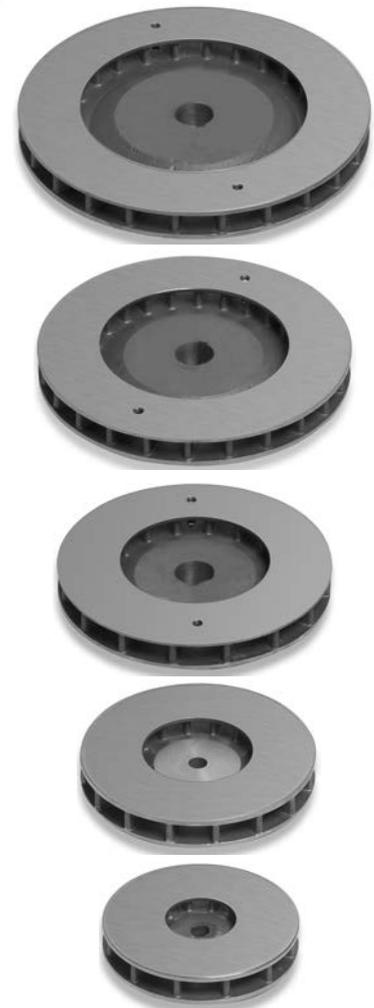
The ModEvo brake disc was developed at the Bedford, UK factory using Finite Element Analysis techniques to ensure maximum strength with minimum weight. The design is optimized to make best use of the cooling air available at slow speeds, and being bidirectional, it achieves high heat dissipation capacity in either rotational direction. An optional electric cooling fan is available where space is limited or more extreme heat handling is required.

Available in five sizes: 250 mm, 300 mm, 350 mm, 400 mm and 450 mm diameters, all discs are the same thickness and use the same brake modules and actuators. Each disc can be specified with a minimum of a single module, up to the maximum number of modules that can be fitted

around the disc. This allows torque-handling capabilities ranging from a maximum of 893 Nm for the 250 mm disc, up to 4313Nm for the 450 mm disc.

NOTE: If using a high speed ductile iron disc the catalog heat rating should be reduced by 10% as the thermal conductivity of the ductile iron is less than grey cast iron.

Maximum Rotational Speed		
Disc Diameter mm	Standard Speed rev./min.	High Speed rev./min.
250	2,250	3,375
300	1,900	2,850
350	1,650	2,475
400	1,450	2,175
450	1,250	1,875



Actuator Options

Newly developed rolling diaphragm actuators are used in ModEvo, producing more force than previous designs to allow higher torque ratings. However, the sensitivity for which rolling diaphragms are favoured is not compromised. Three actuator options are available, offering clamping forces of 100%, 60% or 25%.

The finned, die cast aluminum brake module is common to all brake disc diameters. Each module houses two pairs of actuators, and allows friction pads to be changed quickly without dismantling the module.



100%

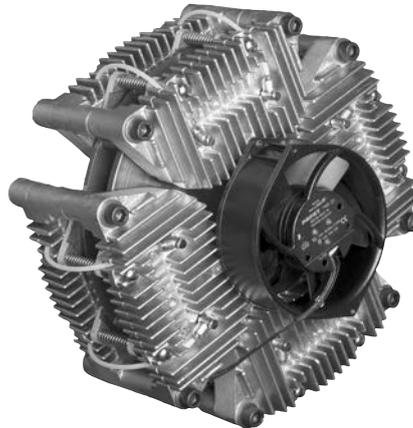


60%



25%

ModEvo 300/8 with Fan



Brake Size (fan Diameter)	24v DC	115v AC	230v AC
250 (150 mm)	Yes	Yes	Yes
300 (150 mm)	Yes	Yes	Yes
350 (150 mm)	Yes	Yes	Yes
400 (150 mm)	Yes	Yes	Yes
(200 mm)	not available	Yes	Yes
450 (150 mm)	Yes	Yes	Yes
(200 mm)	not available	Yes	Yes
(250 mm)	not available	Yes	Yes

Optional Guard

The optional guard has a plastic front with 'ModEvo' molded in and a metal ventilated perimeter.

Mounting is by four brackets on customer's machine frame.

The centre of the guard is designed such that it may be cut-out by customer to suit the diameter of the shaft in through-shaft installations.

Other low cost guards are also available.

The mesh guard below is designed to fit the Modevo 250mm and 350mm. It has a sturdy welded steel construction.

