

# Cyclone Mill TWISTER



**Ideal for feeds,  
forage, cereals**

## Reproducible sample preparation to NIR analysis

The Cyclone Mill TWISTER was specially designed for the processing of food and feeds for subsequent NIR (Near Infrared Spectroscopy) analysis.

For NIR spectroscopy the precision and reproducibility of the analysis depend to a great extent on a uniform particle size distribution of the sample. To obtain meaningful analysis results, the quick and reproducible homogenization of the sample with TWISTER is essential.

### Benefits at a glance

- Ideal for grinding feeds, grains, forage and similar products
- 3 controlled speeds
- Cyclone separator with 250 ml collecting bottle for quick extraction of sample
- No cross contamination thanks to easy cleaning
- Convenient operating panel
- Professional industrial design with long lifetime

The TWISTER is equipped with a rotor and grinding ring with sieve insert. The high speed and the optimized geometry of rotor and grinding chamber generate an air stream which carries the sample through the **integrated cyclone** into the sample bottle. The cyclone provides additional cooling of the sample and the grinding tools. This **prevents loss of**

**moisture and thermal degradation** and ensures preservation of the sample properties to be determined. The ground material is separated in the cyclone and collected in a sample bottle for complete recovery. The provided sieves guarantee an optimum particle size distribution so that it is not necessary to recalibrate the NIR spectrometer

### Cyclone mill technology

In the Cyclone Mill TWISTER size reduction is effected by **impact and friction** between the rotor and the abrasive surface of the fixed grinding ring. The feed material passes through the hopper (with splash-back protection) onto the rotor, which is rotating with high speed, and is thus submitted to preliminary size reduction. The sample is then thrown outwards by centrifugal ac-

celeration and is pulverized between rotor and grinding ring until the particles are smaller than the aperture size of the sieve insert. The 2-step grinding ensures particularly gentle but fast processing. The feed material only remains in the grinding chamber for a very short time which **prevents the sample from getting too warm.**



## Easy operation and cleaning

Operating the cyclone mill via a clearly structured keypad is simple and safe. The user can choose between **3 preset rotor speeds** allowing for perfect adaptation to sample requirements. For most products the air stream effects a complete discharge of the material from the grinding chamber, particularly if a **vacuum cleaner** is connected, so that **hardly any cleaning is required**. This helps to avoid cross contaminations and is especially convenient when processing a series of samples. The quick and easy exchange of the sample bottles adds to the comfortable operation of the TWISTER mill.

Performance data		TWISTER	
<a href="http://www.retsch.com/twister">www.retsch.com/twister</a>			
Application	sample preparation to NIR analysis		
Fields of application	agriculture food & feeds, medicine/pharmaceuticals		
Feed material	fibrous, soft		
Feed size*	<10 mm		
Final fineness*	<500 µm		
Batch size/sample volume*	<250 ml		
Speed	10,000 / 12,000 / 14,000 min <sup>-1</sup>		
Rotor peripheral speed	52 / 62 / 93 m/s		
Connection for vacuum cleaner	inner Ø: 31.2 mm / outer Ø: 36 mm		
*depending on feed material and instrument configuration/settings			
Technical Data			
Drive	series-characteristic motor		
Drive power	900 W		
W x H x D	449 x 427 x 283 mm		
Weight, net	approx. 14 kg		
Noise values (noise measurement according to DIN 45635-31-01-KL3)			
Emission value with regard to workplace	L <sub>pAeq</sub> 67.5 dB(A)		
Measuring conditions	10,000 min <sup>-1</sup> , without sample material		

The Cyclone Mill TWISTER is supplied with the following components:

- aluminum rotor (1)
- stainless steel grinding ring with molybdenum coating (2)
- two stainless steel sieve inserts (1 mm and 2 mm) (3)
- adapter for connection of vacuum cleaner (4)
- filter bag (5)
- ten 250 ml sample bottles



## Cyclone technology and benefits

A rotating air stream is generated inside the cyclone either by a vacuum cleaner connected to the upper outlet of the cyclone and/or by the rotor revolutions of the mill to which it is attached. Due to centrifugal forces acting on the sample, the particles settle on the cyclone walls and are lead in spiraled tracks into the attached sample bottle.

By using a cyclone, the sample and grinding tools are cooled during the grinding process, the throughput is increased and the discharge of the material from the grinding chamber is improved.

The results are a complete recovery of the sample as well as reduced cleaning times.



## Order data for Cyclone Mill TWISTER

Cyclone Mill TWISTER		Item No.
Complete with rotor, grinding ring, sieve inserts (1.0 mm and 2.0 mm), 10 sample bottles 250 ml, filter bag and adapter for connection of vacuum cleaner		
TWISTER	220-240 V, 50/60 Hz	20.831.0001
TWISTER	110-120 V, 50/60 Hz	20.831.0002
Industrial vacuum cleaner		
HDS 2000	230 V, 50/60 Hz	22.748.0002
HDS 2000	110 V, 50/60 Hz	22.748.0003
Filter bags for industrial vacuum cleaner HDS 2000, 5 pieces		32.524.0005
HEPA filter for industrial vacuum cleaner HDS 2000, 1 piece		32.524.0006
Spare parts TWISTER		
Sieve insert	1.0 mm	03.647.0362
Sieve insert	2.0 mm	03.647.0361
Grinding ring		03.614.0004
TWISTER rotor		03.608.0100
Filter bag for cyclone		02.186.0004
Sample bottles	250 ml, 10 pcs.	22.523.0001
Sample bottles	250 ml, 50 pcs.	22.523.0006

