



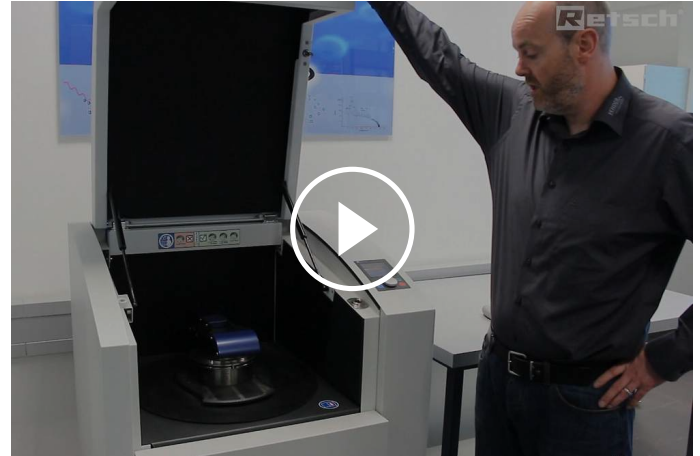
## 진동 디스크 밀 RS 200

Fast sample homogenization for spectral analysis

**No grinder can beat the speed of a Vibratory Disc Mill when it comes to preparing samples for spectral analyses. RETSCH's Vibratory Disc Mill RS 200 is ideally suited for fast and reproducible pulverization of hard, brittle and fibrous sample materials to analytical fineness.**

The RS 200 runs steadily and smoothly, even with heavy grinding sets and at maximum speed thanks to its powerful Stabilized-Plane-Drive. It achieves grind sizes between 20 and 100 microns within seconds and with excellent reproducibility.

Grinding sets are available in a variety of sizes and materials. A set of sensors will recognize jars of tungsten or agate and automatically sets the maximum permissible speed, ensuring optimum results while protecting the material.



[비디오 시청 클릭](#)

제품 비디오



## FAST & REPRODUCIBLE

- | Very short grinding times, typically in the range of 60 to 180 seconds to achieve a fineness around 100  $\mu\text{m}$
- | Ergonomic design and carry handles ensure easy handling of the grinding set
- | Quick-action clamping system enables convenient and safe tightening of the grinding set
- | Automatic speed reduction for agate and tungsten carbide sets
- | Powerful Stabilized-Plane-Drive improves reproducibility
- | Variable speed from 700 to 1500 rpm

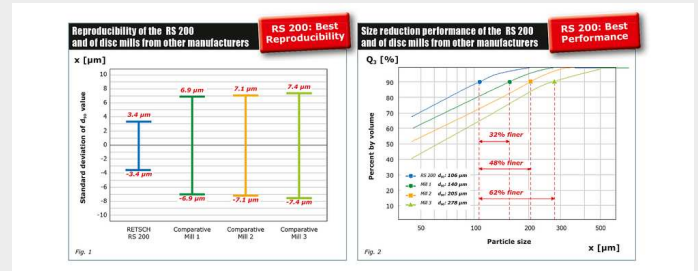
## 진동 디스크 밀 RS 200

# PERFORMANCE TEST: SIZE REDUCTION AND REPRODUCIBILITY

The grinding results of a vibratory disc mill are significantly influenced by the movement patterns of the free masses inside the grinding jar. The new, powerful Stabilized-Plane-Drive of the RS 200 allows for extremely rapid formation of the movement pattern which is reflected in higher fineness and ultimately leads to significantly better reproducibility.

Figure 1 shows the standard deviation after 60 sec grinding time. It only takes a few large particles to impair the reproducibility of XRF measurements. Because of that, a small standard deviation for the d90 value is crucial.

Fig. 2: A “Quarter Minute Test” (QMT) evaluates the formation and stability of the movement patterns of Vibratory Disc Mills. Figure 2 shows that with the RS 200 a d90 value of 106  $\mu\text{m}$  was obtained after a grinding time of only 15 seconds. The mills from three other manufacturers showed considerably inferior results.



## Grinding parameters

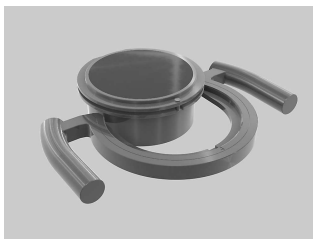
- | Grinding jar: 100 ml
- | Sample: 세멘트클랑크 0.85 to 3.15 mm
- | 속도: Maximum (1200 rpm)
- | Grinding time: 60 sec (Figure 1), 15 sec (Figure 2)

진동 디스크 밀 RS 200

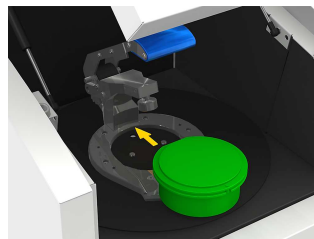
## EXCEPTIONALLY SAFE AND SIMPLE HANDLING

Operation and handling of the RS 200 and its grinding sets is convenient and ergonomic. The grinding jars are equipped with carry handles which facilitate transport of the heavy jar to the mill where it is slid on a rail into its grinding station. The clamping device allows for safe fastening of the jar with less force; a sensor checks its correct position.

The grinding parameters are entered using a single button. The user can store up to 10 parameter combinations and choose between 13 languages for menu guidance. In addition to the current settings a colored graphics display shows service and operating information.



*carry handles*



*rail*



*quick-action clamping device*



*graphic display*

The grinding sets have been developed especially for extreme test conditions such as high sample throughput and high mechanical stress. Features include.

- | safe, non-slip attachment with integral safety devices on cover and base
- | gap between dish and cover edge for easy opening
- | optimum sealing with O-ring
- | protective jacket made from stainless steel (for agate, zirconium oxide and tungsten carbide dishes)
- | grinding set identification (article number, material and volume)
- | marking field (e. g. for information about sample)
- | available in 3 sizes and 5 materials



## POWERFUL TWIN PACK FOR XRF ANALYSIS

To ensure accurate and reproducible XRF analysis results, the sample needs to have a uniform particle size distribution and the pellet to be pressed needs to be as dense as possible. Both requirements are easily met when using our vibratory disc mills and pellet presses for sample preparation to XRF analysis.



진동 디스크 밀 RS 200

## TYPICAL SAMPLE MATERIALS

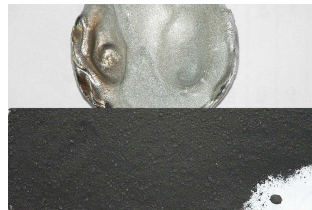
RETSCH's Vibratory Disc Mills rapidly pulverize materials such as cement, cement clinker, ceramics, coal, coke, concrete, corundum, glass, metal oxides, minerals, ores, silicate, slag, soil, etc.



슬래그



폐전자제품



iridium



dolomite

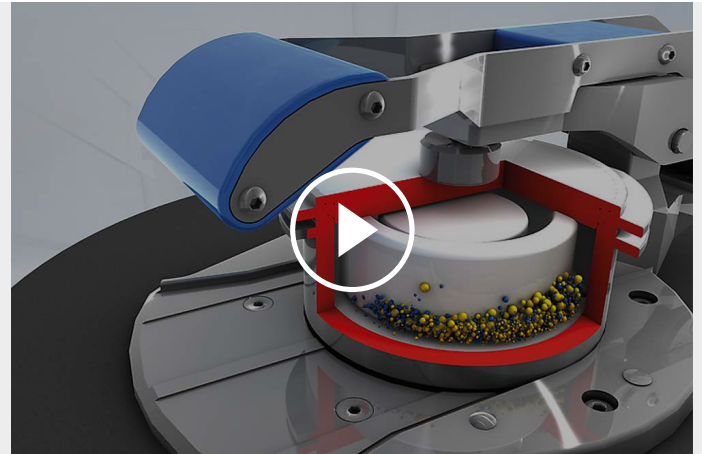
샘플 준비 작업에 가장 적합한 솔루션을 찾으려면 애플리케이션 데이터베이스를 방문하십시오.

진동 디스크 밀 RS 200

## 작동 원리

The Vibratory Disc Mill RS 200 comminutes by pressure and friction. The grinding set is firmly attached to the vibration plate with a quick-action lever. The plate with the grinding set is subjected to circular horizontal vibrations.

The centrifugal force acting on the grinding rings in the dish results in extreme pressure and frictional forces acting on the sample, producing analytical fineness in 1-3 minutes. The circular vibrations are produced by a frequency controlled 1.5 kW 3-phase motor. A sensor recognizes the presence of agate grinding sets and automatically limits the speed to 700 min<sup>-1</sup> to avoid damaging the agate. The cover of the noiseinsulated grinding chamber has a safety interlock and can only be opened when the mill is at a standstill.



비디오 시청 클릭

## 진동 디스크 밀 RS 200

### 기술 데이터

|                           |                                                             |
|---------------------------|-------------------------------------------------------------|
| 응용 분야                     | 입도 축소, 혼합, 분쇄                                               |
| 응용분야                      | 건축 자재, 유리 / 세라믹, 지질학 / 야금, 환경 / 재활용                         |
| 투입 시료                     | 중-경질, 경질, 취성, 섬유질                                           |
| 크기 축소 원리                  | 압력, 마찰                                                      |
| 최대 투입 크기*                 | < 15 mm                                                     |
| 최종 분말 입도*                 | < 20 µm                                                     |
| 시료 일괄 처리량*                | 15- 250 ml 중 분쇄 세트의 크기에 따라                                  |
| <b>50 Hz (60 Hz)에서 속도</b> | 700 - 1,500 min <sup>-1</sup> , 연속적으로 조절 가능                 |
| 분쇄 도구 재질                  | 경화 스틸, 탄화 텅스텐, 마노, 산화 지르코늄, 스틸 1.1740 (heavy-metal free 분쇄) |
| 분쇄 용기 크기                  | 50 ml / 100 ml / 250 ml                                     |
| 분쇄 시간 설정                  | digital, 00:01 to 99:59                                     |
| 표준 운영 절차 저장 가능 수          | 10                                                          |
| 구동                        | 주파수 변환기를 가진 3상 비동기식 모터                                      |
| 구동 전력                     | 1.5 kW                                                      |
| 전원 공급 데이터                 | 다른 전압                                                       |

|                   |                                 |
|-------------------|---------------------------------|
| 전원 연결             | 단상                              |
| 안전 보호 코드          | IP 20                           |
| 폭 x 높이 x 깊이 닫혔을 때 | 836 x 1220 x 780 mm             |
| 중량                | ~ 225 kg (without grinding set) |
| 표준                | CE                              |

\*투입 재료와 장비 환경, 설정에 따라

[www.retsch.com/rs200](http://www.retsch.com/rs200)

## 주문 정보

### 진동 디스크 분쇄기 RS 200

진동 디스크 분쇄기 **RS 200** 컴플리트 세트, 분쇄 세트 운반용 핸들, 바퀴 포함 (분쇄 세트, 운반용 핸들 어댑터 (필요 시) 별도 주문)

20.730.0001



RS 200 220-230 V, 50/60 Hz

다른 전력 버전도 동일한 가격으로 제공

### RS 200 분쇄 세트

#### HARDENED STEEL

01.462.0170



50 ml

01.462.0171



100 ml

01.462.0263



250 ml

#### TUNGSTEN CARBIDE

01.462.0353



50 ml (최대 1200 min-1)

01.462.0354



100 ml (최대 1200 min-1)

01.462.0355



250 ml (최대 1200 min-1)

#### 아게이트 (마노)

01.462.0178



50 ml (최대 700 min-1)

01.462.0179



100 ml (최대 700 min-1)

## ZIRCONIUM OXIDE

01.462.0193  50 ml

01.462.0192  100 ml

## 1.1740 강, 중금속 오염 방지 분쇄 용

01.462.0002  50 ml

01.462.0266  250 ml

## RS 200 액세서리

운반 용 핸들 및 액세서리, RS 200 분쇄 세트 용

03.225.0086  분쇄 세트 운반 용 핸들, 250 ml 재질 무관,  
100 ml 용 경화 강, 아게이트(마노), 지르코늄 옥사이드, 1.1740 강  
운반 용 핸들 인서트 사용 가능

02.225.0087 운반 용 핸들 인서트, 분쇄 세트 50 ml (경화 강, 텅스텐 카바이드, 1.1740 강) 용

02.225.0088 운반 용 핸들 인서트, 분쇄 세트 50 ml (아게이트; 마노) 용

02.225.0089  운반 용 핸들 인서트, 분쇄 세트 50 ml (지르코늄 옥사이드) 용

02.225.0090  운반 용 핸들 인서트, 분쇄 세트 100 ml (텅스텐 카바이드) 용

## RS 200 추가 항목

05.114.0075  O 링, 분쇄 세트 50 ml 스틸 용

05.114.0069  O 링, 분쇄 세트 50 ml 아게이트(마노) 및 지르코늄 옥사이드 용

05.114.0068  O 링, 분쇄 세트 50 ml 텅스텐 카바이드 용

|             |                                                                                   |                                                     |
|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------|
| 05.114.0067 |  | ○ 링, 분쇄 세트 100 ml 스틸 및 지르코늄 옥사이드, 250 ml 텅스텐 카바이드 용 |
| 05.114.0070 |  | ○ 링, 분쇄 세트 100 ml 아게이트(마노) 및 텅스텐 카바이드 용             |
| 05.114.0076 |  | ○ 링, 분쇄 세트 250 ml 스틸 용                              |
| 99.200.0035 |                                                                                   | RS 200 IQ / OQ 문서                                   |