



AR 403

**OUR ALL-PURPOSE SOLUTION**

# IDEAL FOR R&D AND SMALL SCALE PRODUCTION

## THE ERWEKA AR 403

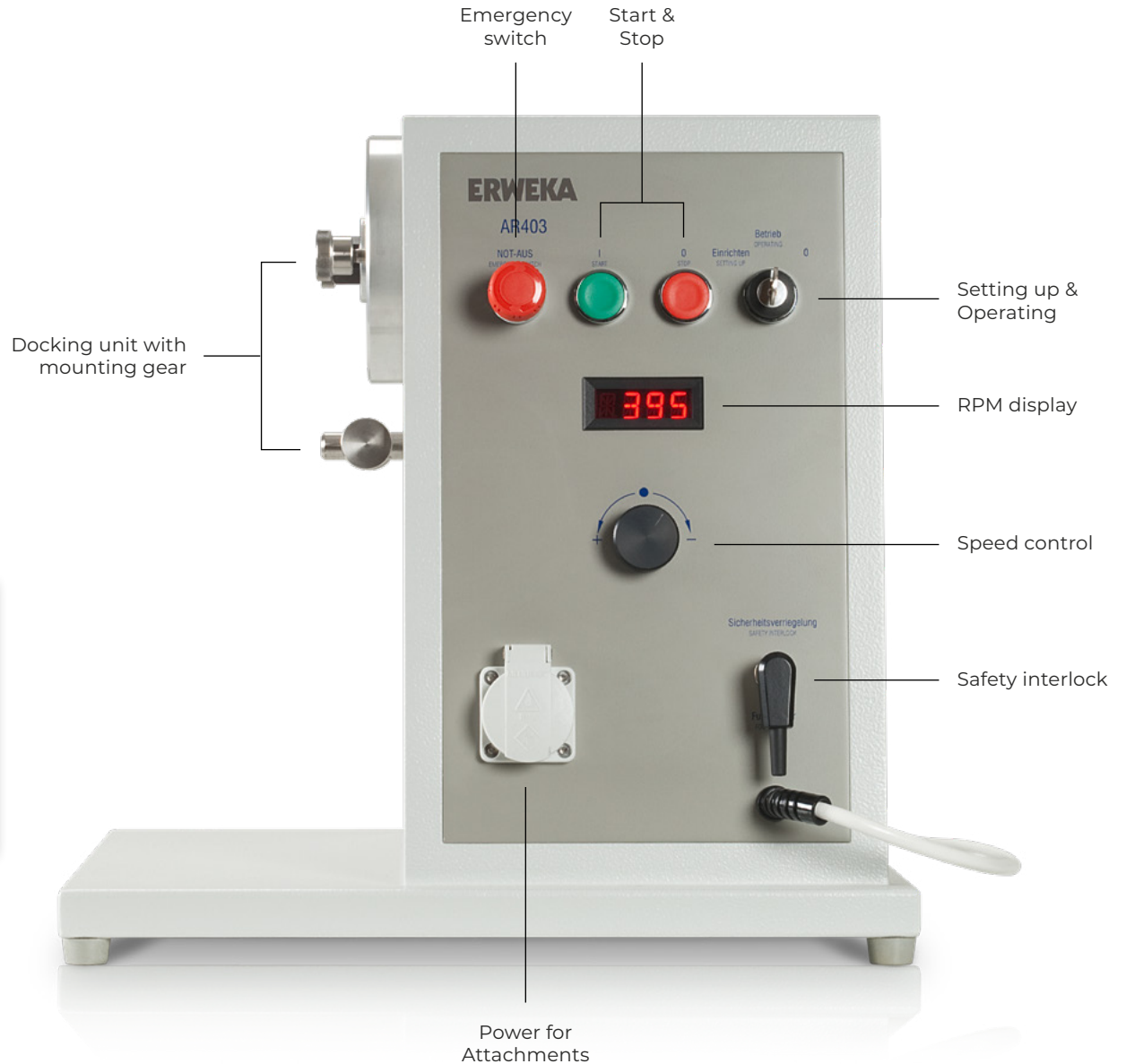
ERWEKA's All-Purpose equipment is ideal for small scale production in the pharmaceutical, chemical, cosmetic and food industries. In addition, it fits perfectly into R&D and the development of powder tablets, ointments, cremes and more. The modular design is compact, economical and offers a powerful motor drive with a wide range of easily interchangeable attachments for various purposes.

### DIFFERENT POSSIBILITIES

- | Stirring
- | Kneading
- | Mixing
- | Granulating
- | Coating
- | Polishing
- | Milling
- | Filling
- | Dosing

#### Main benefits of the modular ERWEKA method

- | Small footprint
- | High quality – Made in Germany
- | Constant product quality – improve production
- | Economical capital cost – one drive, many attachments
- | Safety interlocks and protection guards (not required for all attachments)



# BASED ON A POWERFUL DRIVE UNIT

## THE ERWEKA AR 403

The ERWEKA All-Purpose system is based on a powerful drive unit available in two versions. The various attachments can be easily and quickly connected by means of a coupling.

The drive unit AR 403 is equipped with a three-phase AC motor.

The sturdy ball bearing worm gear drive is completely maintenance free and provides an output torque of max 23 Nm. The unit features variable electronic speed

control between 20 and 400rpm. A digital dial regulates the speed. A special setup mode limits the rotations per minute to 20 rpm to ensure safe installation of the attachments. Through permanent nominal/actual adjustment the preselected speed is maintained, even under varying load.

The AR 403-S is similar to the AR 403 but has a different drive train for higher torque transmission.

## TECHNICAL SPECIFICATIONS:

	<b>AR 403</b> <b>AR 403-S (higher torque transmission)</b>
Voltage/ Frequency	230V 50/60Hz, 115V - 127V 50/60Hz
Motor type	three-phase AC motor
Power	750 W
Tropics insulation	class F
RPM	20 - 400 rpm
Tolerance rpm (coasting)	+/- 1rpm
Gear type	115 V or 230 V, 50/60 Hz
Gear max. torque	23 Nm
Efficiency	89%
Possible Set Time	hours / minutes
Set Time (max)	9 h 59 min
Tolerance timer	+/- 1 sec
Emergency Stop button	✓
Weight	30 kg
Dimensions (W x H x D)	450 x 440 x 400 mm

### Available options

- | Foot switch
- | IQ/OQ documents



# AR 403 ATTACHMENTS

## OVERVIEW



### **ERWEKA UG Version 2 – Universal Gear**

The Universal Gear uses a modernised CNC machined aluminium design for improved durability. It is required for adjusting the angle of operation ( $\pm 40^\circ$ ) and reduction of speed (1:5,7d). The UG is required for the operation of

- | Ball mills (KM)
- | Cube Mixer (KB 15/20)
- | Double Cone Mixer (DKM)
- | Pelletizer (GTE)
- | Coating pan (DKE)
- | Polishing drum (PT)

## MILLING



### **ERWEKA CM 60/UD – Conical Mill**

The CM is designed for homogenization of dry products to a specified particle size, reduction of oversized particles to the desired size and milling of agglomerates back to the initial size. A set of shims to adjust the clearance between the rotor and screen (0.5mm to 3.0mm) is supplied. It allows a flow rate of up to max 40 kg/h with a rotor speed of 0 - 1200 rpm. A safety interlock helps to prevent injuries.



### **ERWEKA KM – Ball Mill**

The Ball Mill is used for grinding crystalline materials and for mixing dry, or under certain circumstances, moist materials. The drum is available with 0.5, 5 and 10 l volume (designation: KM0, KM5, KM10). Balls are available from laboratory suppliers as needed and cannot be purchased through ERWEKA.

The balls have a diameter of 30-50 mm. The drum is driven by a frame with two rollers, which is also optionally available in an extended version for the use of two mills (KM 5 liters with an optimal working capacity of 40%).

## MIXING



### **ERWEKA KB – Cube Mixer**

The Cube Mixer uses a tumbling motion to produce a homogenous blend within a short time. The mixing action is assisted by three stainless steel rods positioned inside the cube. The device is attached to the drive unit via the ERWEKA Universal Gear UG, which permits operation at various angles for optimal efficiency. Our cube mixers are available in the following versions:

- | KB 15 cube mixer made of acrylic glass, 3.5l volume, opt. working capacity: 40%
- | KB 20 cube mixer made of acrylic glass, 8l volume, opt. working capacity: 40%
- | KB 20 S cube mixer made of stainless steel, 8l volume, opt. working capacity: 40%



### **ERWEKA DKM – Double Cone Mixer**

The Double Cone Mixer allows mixing of free flowing powders and granules. The arrangement of the mixer in combination with the angle adjustment of the universal gear UG allows a multi-dimensional mixing process. The mixing vessel (11,9 liter volume, working capacity 50%) is made of stainless steel.



### **ERWEKA RM – Drum Hoop Mixer**

Drum Hoop Mixer with diagonal placement of the drum within the hoop, available with 5 volumes. The rotation of the hoop itself produces a uniform, three-dimensional displacement of the material to be processed and hence a tumbling mixing action.

The mixer consists of two parts: the drive support and drum hoop with acrylic mixing drum. As an option, an extended drive support for simultaneous use of two mixers of the same size is available in lengthened version (RM 5 liter volume, working capacity max. 40%).

Ball Mill drums are available as optional accessories.



### **ERWEKA SW 1/S – Laboratory High Speed Mixer**

The Laboratory High Speed Mixer operates with the plough-share principle for mixing of powders, granules and other products of fibrous nature. Different quantities can be mixed homogeneously in only a few minutes.

The mixing drum (5 liter volume, working capacity max. 70%) offers a removable cover and can be rotated upside down for charging and emptying. A safety switch ensures that the drive unit AR 403 is switched off when the cover is removed. All parts coming into contact with the product are made of stainless steel.

## MIXING



### **ERWEKA VB-3 – V-Mixer**

The mixer VB-3 uses V-shaped stainless steel vessel for gentle mixing of solid well flowing materials (bulk materials).

The rotary motion of up to 140rpm results in an even more homogenous mixture of possible and suitable sensitive materials. It is equipped with three capacious openings for easy filling, emptying and cleaning. Volume of mixing container: 3 liter, recommended working conditions: minimum 0.2 liter to maximum 2 liter and 10-14rpm. All parts coming into contact with the product are made of stainless steel.



### **ERWEKA PRS – Planetary Stirrer**

Planetary stirring unit for mixing of ointments creams, pastes, moist powders and liquids. This powerful mixing attachment comes with various mixing/stirring accessories e.g. kneading hook, mixing paddle, whisk and a fluoropolymer scraper for removing any product adhering to the side of the bowl, thus ensuring a homogenous mixing in the shortest possible time.

The stirring/mixing accessories and vessel (5 liter volume, working capacity 60%) are made out of stainless steel. Optionally an electric heated bowl DER or a double jacket bowl DW for heating and cooling by water are available. An emergency stop helps to prevent injuries.

## COATING



### **ERWEKA DKE/DKS – Coating Pan**

The universal gear is required to attach the coating pan to the motor drive. This allows adjusting the angle of the pan and getting an optimal result from the coating process.

! DKE, stainless steel pan, volume 9,5l, max. capacity 30% 275mm outside diameter.

## FILLING & DOSING



### **ERWEKA FDS II – Salve Filling Machine**

Dosing Machine FDS is suitable for filling precise quantities of ointments, lotions, emulsions and similar products into tubes, cans, bottles etc..

The standard unit has a dosing range of 10-200 ml. Quick removal of the pump and hopper (19 liter volume) for cleaning. Filling nozzles of 2, 4 and 8 mm are part of the standard package. An additional cylinder unit to accommodate the filling range from 0.5 to 25 ml together with dispense heads with different apertures and special heads for filling tubes are available on request. The FDS can be operated with a foot switch.

## FILLING & DOSING



### ERWEKA FDF

The two-station dosing and filling unit is suitable for the drop-free filling of all types of different liquids. The dispense volume is easily adjustable. Quick removal of the pumps and valves for cleaning and sterilisation. The receiving container holder can be easily adjusted to accommodate various sizes. All parts coming into contact with the product are made of stainless steel. The ERWEKA FDF comes without pumps. Optional dosing pumps for filling volume 5 to 30 ml (DP 30) and 20 to 150 ml (DP 150) are available. The FDF comes with one set of filling nozzles 6 mm and 8 mm o.d.. Filling nozzles with different diameters are available on request. The FDF can be operated with a foot switch.

| Maximum output: 1200 fills/hour

## POLISHING



### ERWEKA PT – Polishing Drum

Polishing Drum to polish coated tablets. The drum is covered with interchangeable felt parts. The cover has a 120 mm diameter opening for observation of the polishing process and addition of the polishing agent during the production process. The polishing drum has 2 l volume with a working capacity of max. 40%.

The device is attached to the drive unit via the ERWEKA Universal Gear UG, which permits operation at various angles for optimal results.

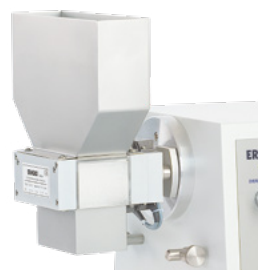
## PELLETISATION



### ERWEKA GTE – Pelletizer

The pelletizer GTE (400 mm diameter) is attached to the AR 403 via the Universal Gear UG which enables the operator to adjust the operating angle to the optimal position during operation. The material can be fed in manually or continuously. The rotary movement of the pan carries the product to the top of the pan and then flows down the pan in an even stream to the base. By addition of the requisite amount of liquid, this process can be converted into the formation of pellets. The angle of the pan and the amount of liquid added determines the pellet size. When the pan is full, the pellets will continuously roll over the edge of the pan into a waiting container. All parts coming into contact with the product are made of stainless steel.

## GRANULATING



### ERWEKA TG 2000 – Double Roll Crusher

Double Roll Crusher with two driven rollers running in opposing directions from the inside to the outside. The rollers are 70 mm long and made of stainless steel. They are equipped with teeth to produce a powerful grinding action by forcing the material against a series of braking combs. All parts coming into contact with the product are made of stainless steel. The maximum capacity of the double roll crusher is 20 kg/hour. An emergency stop helps to prevent injuries.

## GRANULATING



### ERWEKA FGS II – Wet Granulator

Wet Granulator with oscillating rotor for the production of wet granules. The granules can be produced in varying sizes depending on the employed sieve mesh. All parts coming into contact with the product are made of stainless steel. Working capacity is max. 30 kg/h depending on the material and mesh width of the sieve used. The unit is supplied as standard with two sieves 1.0 mm and 1.6 mm MW respectively. The following mesh sizes are also available: 0.315, 0.63, 0.8, 1.0, 1.25, 1.6, 2.0, 2.5 and 3.15 mm. Other special sieves are available on request. An emergency stop helps to prevent injuries.

## ATTACHMENT SPECIFICATIONS

Attachment	Type	Max. Volume	Max. Capacity	VT required	UG required	Liquids	Ointments & Creams	Powder	Granulates	Pellets	Tablets/Dragees
Conical Mill	CM		30 kg					■	■		
Ball Mill	KM 0	0,5 l	40%					■	■		
Ball Mill	KM 5	5 l	40%					■	■		
Ball Mill	KM 10	10 l	40%					■	■		
Cube Mixer	KB 15	3,5 l	40%		■			■	■		
Cube Mixer	KB 20	8 l	40%		■			■	■		
Cube Mixer	KB 20 S	8 l	40%		■			■	■		
Double Cone Mixer	DKM	11,9 l	50%		■			■	■		
Drum Hoop Mixer	RM 5	5 l	40%					■	■		
High Speed Mixer	SW 1/S	5 l	70%					■	■		
V-Mixer	VB-3	3 l	2 l					■	■		
Planetary Stirrer	PRS	5 l	60%			■	■	■			
Coating pan	DKE	9,5 l	30%		■						■
Filling & Dosing	FDS II	19 l	1.000/h			■	■				
Pelletizer	GTE	9,5 l			■					■	
Polishing drum	PT	2 l	40%		■						■
Double Roll Crusher	TG 2000		20 kg/h						■	■	■
Wet granulator	FGS II		30 kg					■			

# TABLET PRESS

## EP-1

The EP-1 is the ideal desktop tablet press for R&D purposes. The single punch eccentric Tablet Press EP-1 can manufacture tablets and odd shaped products with a diameter of up to 20 mm. It operates automatically i.e. the die is filled with powder or granule, the material compressed and the tablet ejected continuously. The compression force of up to 3 tons and the filling depth of up to 17 mm are easy to adjust.

All components are either covered with hard chrome, or made of stainless steel AISI 304 or acrylic glass for the front door. The throughput is max. 4.000 tablets per hour. Frame parts (plates) are made of 1.0332 StW22 and are bright chrome-plated.



### Technical Data

- | Press speed infinitely variable
- | Max. tablet diameter 20 mm
- | Max. filling depth 17 mm
- | Max. compression force 3 t
- | Max. tablet output 4.000 tablets/hour
- | Net weight 135 kg
- | Dimensions press 425/385/695 mm (L/W/H)
- | Dimensions with attachment parts 503/408/797 mm (L/W/H)
- | Power supply 240V -15%+10%/50-60Hz
- | Electrical load 2.2 kVA

### Options

- | EP-1 single punch tablet press with compression force
- | Support table in stainless steel
- | Single punch and die set, 4.0 mm to 20.0 mm diameter, type STR 1, for round tablets
- | Single punch and die set, 4.0 mm to 20.0 mm diameter, type STS 1, for shaped tablets
- | Transformer for EP-1 (from 230 V to 115 V)
- | IQ/OQ documents EP-1 without compression force

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