

All-Purpose Equipment Program, Universal Gear  
UG

## Instruction Manual



## Table of Contents

<b>1. Introduction</b>	<b>3</b>
1.1 About this document	3
1.2 Service	4
1.3 Hints and symbols of this manual	4
1.4 Version table	5
<b>2. Safety and Environment</b>	<b>6</b>
2.1 Safety instructions	6
2.2 Protection of the environment	6
2.3 Intended use	6
2.4 Foreseeable misuse	7
2.5 Danger area	7
<b>3. Overview</b>	<b>8</b>
3.1 Description	8
3.2 Construction	8
3.3 Technical data	8
3.4 Type label	9
3.5 Connected devices	9
<b>4. Installation</b>	<b>10</b>
4.1 Storage and transport conditions	10
4.2 Unpacking and checking	10
4.3 Assembly	10
4.3.1 Safety instructions	10
4.3.2 Mounting the universal gear	11
4.3.3 Adjusting the angle	12
<b>5. Operation</b>	<b>13</b>
<b>6. Maintenance</b>	<b>14</b>
6.1 Cleaning	14
6.2 Inspection and maintenance	14
6.3 Lubrication	15
6.4 In longer standstills	15
6.5 Spare parts	15
<b>7. Appendix</b>	<b>16</b>
7.1 Attachment units (optional)	16
7.2 New attachment units	16
7.3 Old attachment units with safety sensor	17
7.4 Old attachment units without safety sensor	17
7.5 Contents of the EC Declaration of Incorporation	19

# 1. Introduction

Thank you for purchasing the ERWEKA All-Purpose Equipment Program, Universal Gear UG!

## Document request



If you miss a document or need documents for any devices purchased previously, you can request them via our website. For this purpose, go to <https://www.erweka.com/contact-services/contact-form>, fill out the request form and click Submit.

## 1.1 About this document

This instruction manual supports you when working with your ERWEKA device. It describes the device, its operation and gives you useful tips on its handling. Furthermore, read descriptions of installation and setting as well as detailed step-by-step processes in the present manual. Figures facilitate the understanding of processes described here.

### Document information

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### Storage

Read this instruction manual completely before using the device and make sure that you have understood the content. The instruction manual is a part of the product. Keep this instruction manual in a safe place so that it will be available for any questions at a later date. This is important for the long-term and accurate function of the device.

### Accompanying documents

The universal gear type UG is an attachment unit of the ERWEKA all-purpose equipment program. An all-purpose device consists of a drive unit and an attachment unit. Also read the instruction manual of the used drive unit.

### Feedback



The editorial team of ERWEKA appreciates your feedback regarding the present manual. Just send an e-mail to [redaktion@erweka.com](mailto:redaktion@erweka.com) with your topic and “technical documentation” as a subject. Your feedback will also help us to meet our high quality requirements.

## 1.2 Service

Contact ERWEKA at [service@erweka.com](mailto:service@erweka.com) to order spare parts, in case of technical questions or possible repairs. Please state the following information:

- Type of the device (on the type label)
- Serial number of the device (on the type label)
- Short description of the case

## 1.3 Hints and symbols of this manual

The following hints and symbols are used in the present manual.



**WARNING** indicates a possible hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a possible hazardous situation which, if not avoided, could result in moderate or minor injury.



**HAZARD** of electric shock! Indicates a possible hazardous situation which, if not avoided, can lead to injuries caused by electric shock.

**NOTICE**

This symbol indicates a possible hazardous situation which, if not avoided, can lead to equipment damage.



This notice indicates a potentially hazardous situation. Information from the accompanying technical documents is required at this point to proceed. Pay attention to the safety precautions listed there.



This symbol indicates information that ensures a smooth work process.



This symbol indicates additional useful information.



This notice gives you the necessary links or e-mail addresses for the document request or your feedback.

The following text markings are used in the present instruction manual:

Indicator	Meaning
1.	Numbered lists present a sequence of action steps.
→	Arrows indicate device reactions or consequences of actions.
Element	Text formatted in this way displays an operation/control element (UI, display, softkey, etc.).
<u>Element</u>	Text formatted in this way displays the element to be used at this point.

## 1.4 Version table

Date	Document Version	Amendment
2015-07-15	1.0	Initial version
2017-12-05	1.1	New document no. (new: 21860, old: 2xx(201)-309-0001), editorial revision, new design of certificate of compliance
2020-05-12	1.2	Type label, CE certificate of compliance
2020-08-03	1.3	Editorial revision
2022-05-03	1.4	CE certificate of compliance
2022-06-03	1.5	CE certificate of compliance with FDS II, abas numbers in appendix
2022-08-30	1.6	Lubrication
2024-12-12	2.0	Document migration, EC declaration of incorporation

**Note:** When the document version X.Y is increased, X means a technical change and Y a document change only.

## 2. Safety and Environment

### 2.1 Safety instructions

To ensure health and safety, read the following safety instructions before using the device.

Pay attention to the on-site safety instructions for work in the laboratory and with the laboratory equipment!

### 2.2 Protection of the environment

Note that product residues must be properly disposed of in accordance with the applicable environmental legislation.

According to the currently valid EU guidelines, all electrical parts (electrical scrap) must be disposed of appropriately.

### 2.3 Intended use

The ERWEKA universal gear type UG should be used only as a gear between an attachment unit and a drive unit proposed in the ERWEKA all-purpose equipment program in the installation environment defined by ERWEKA. At that the conditions defined by ERWEKA for the used attachment units and drive units should be considered.

The device should be operated and maintained only as intended and in accordance with the instructions presented in this manual.

## 2.4 Foreseeable misuse

The installation and operation of the device in a potentially explosive atmosphere (Ex areas) is not permitted.

Products with the following properties may not be used in ERWEKA devices:

- Products that are easily flammable or explosive
- Products that generate vapors which may create flammable or explosive mixtures of air and gas
- Products that release hazardous or poisonous substances

The device is also not to be used for following products:

- Substances that react with stainless steel
- Powders, dusty products and granulates

## 2.5 Danger area

### In the setup mode of the drive unit

- Manual access!
- Moving rotating parts!

## 3. Overview

### 3.1 Description

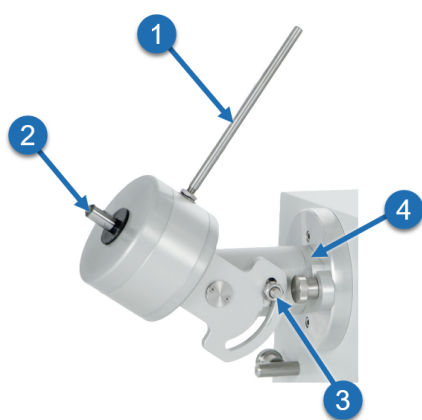
The universal gear UG can be attached to all ERWEKA drive units. The drive unit speed is reduced by the universal gear.

For the required work position or discharge of the attachment unit, the universal gear can be swiveled and locked in each position with a holding nut.

The UG version 2 is made of a new aluminum material and has a larger swivel range.

The pivoting and power transmission are carried out via a shaft joint. The universal gear is distinguished by the smooth and maintenance-free operation during a longer life cycle.

### 3.2 Construction



[1] Handle

[2] Motor axis for attachment unit

[3] Holding nut on swivel range

[4] Accepting flange with two knurled nuts

Fig.: mounted universal gear

### 3.3 Technical data

	UG	UG, version 2
Reduction ratio	1:5.75	1:6
Swivel range	$\pm 40^\circ$	$\pm 80^\circ$
Environmental conditions		
Ambient temperature during operation	+10°C to +30°C	
Storage and transport temperature	-10 °C to +55 °C	
Relative air humidity	25–80% no condensation	

### 3.4 Type label

The type label is placed on the device side and contains following data:



Typ: Device type

Serial No: Serial number

CW/YY: Calendar week/year of manufacture

P: Power output in volts-amperes [VA] or in watts [W] \*

I: Current in amperes [A] \*

U: Voltage in volts [V]

F: Frequency in hertz [Hz]

\* This data is optional, depending on the device.

### 3.5 Connected devices

#### Compatible drive units

- AR 400
- AR 400E
- AR 401/-S
- AR 402/-S
- AR 403/-S
- AMD

#### Attachment units for which the universal gear is necessary

Universal gear	Type	Type
UG + UG, version 2	Double cone mixer	DKM
	Coating pan	DKE / DKS
	Cube mixer	KB 15/20 / S
	Pelletizer	GTE
	Polishing drum	PT
UG, version 2	Ball mill	KM 0

## 4. Installation

### 4.1 Storage and transport conditions

The device should not be exposed to punches and vibrations. Temperature and humidity should not fall below or exceed the values defined by ERWEKA.

During transport it must be ensured that the equipment used complies with the prescribed safety requirements.

### 4.2 Unpacking and checking

After receipt of the delivery, check the packaging and the device for transport damage. On some packages you can see indicator labels, which change color in case of improper transport. Check these labels for discoloration.



If improper transport or damage is obvious, take a photo of it and send the facts immediately to our ERWEKA service ([service@erweka.com](mailto:service@erweka.com)).

### 4.3 Assembly

#### 4.3.1 Safety instructions

**WARNING**

Falling object!

Insecure positioning can lead to injuries.

**WARNING**

Danger of squashing and clamping! Danger of seizing! Moving parts!

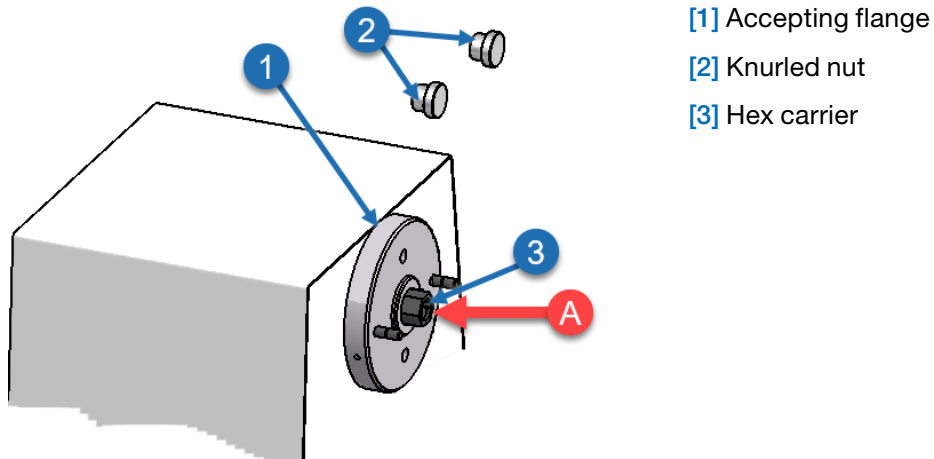
Perform the settings on the switched off drive unit only!

**NOTICE**

After each mounting of an attachment unit set the initial speed of the drive unit to the lowest value.

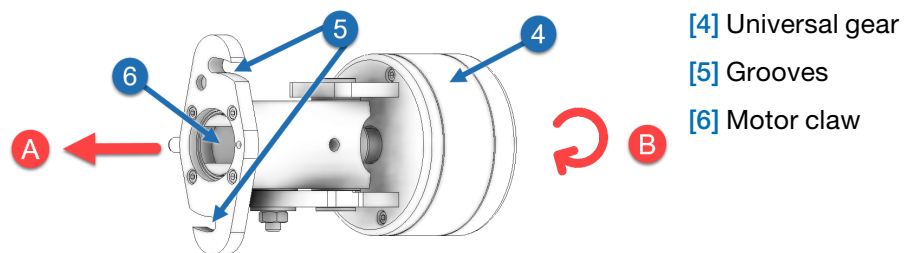
The speed can be adjusted as necessary within the permitted limits after operation start.

## 4.3.2 Mounting the universal gear



- [1] Accepting flange
- [2] Knurled nut
- [3] Hex carrier

Fig.: Drive unit without universal gear



- [4] Universal gear
- [5] Grooves
- [6] Motor claw

Fig.: Universal gear with motor claw

### Procedure

1. Attach the universal gear [4] to the drive unit. (A)



The hex carrier [3] of the drive unit must be engaged in the motor claw [6].

2. Turn the universal gear counter-clockwise (B), so that the groove ends [5] lie on the screw bolts of the knurled nuts [2].
3. Fix the universal gear by fastening both knurled nuts [2].

### 4.3.3 Adjusting the angle

**WARNING**

Danger of squashing and clamping! Danger of seizing! Moving parts!  
Perform the settings on the switched off drive unit only!

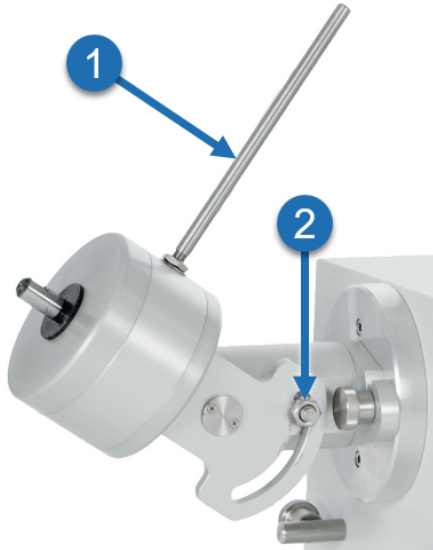


Fig.: Drive unit with universal gear

**Procedure**

1. Loosen the holding nut [2] on the universal gear.
2. Using the handle [1] set the required angle.



The angle of the universal gear depends on the used attachment unit.

3. Fasten the holding nut [2] for fixation.

## 5. Operation



### WARNING

Injury due to rotating parts or heavy weights!

Do not change the device position during the operation. Attachment units cannot be rotated from the outside by hand or stopped forcibly during the operation.



The universal gear is not intended for work with the attachment units that require a safety interlock. Old universal gears must be provided with an extra hole for operation on the drive unit AR 403/-S. (See [7 Appendix on page 16.](#))

## 6. Maintenance

### 6.1 Cleaning

Ensure that the device is cleaned regularly (at least once a month).

Read the following instructions carefully before you begin with the cleaning.



#### HAZARD

Electric shock when cleaning the electrical devices!

- Disconnect the mains supply for cleaning the electrical devices.
- Switch the device off and unplug it.
- Clean the electrical devices without liquids.

To clean the device:

1. Dismount the attachment unit before the cleaning.
2. Wipe the universal gear with a soft and slightly damp cloth.

#### NOTICE

Do not use a wet cloth but slightly dampened one. Do not add any chemical cleansing agents to the cleaning water. For lacquered housing parts use no cleansing agents which attack this material.

If necessary, e.g. for heavy soiling, use a damp cloth and dab the cleaned surface dry.

### 6.2 Inspection and maintenance

Ensure that the device is regularly inspected and maintained in a clean condition.

Joint shaft and ball bearings from universal gear are maintenance-free.

### 6.3 Lubrication

When necessary, the device must be lubricated with a penetrating oil in the following points:

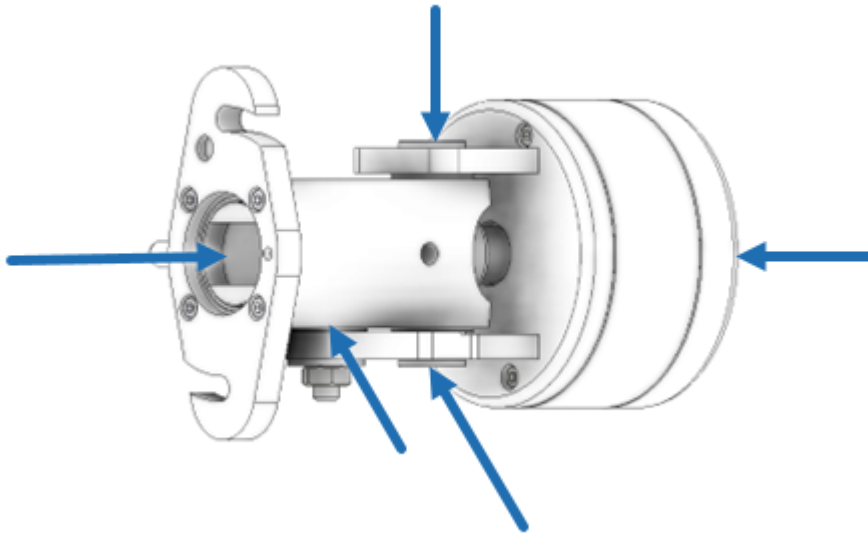


Fig.: Lubrication points

### 6.4 In longer standstills

- Clean the device thoroughly.
- Store the device and its components together with the corresponding instruction manual. See the storage conditions defined by ERWEKA in Technical Data.

**NOTICE** Non-compliance with the instructions given above can lead to damages.

### 6.5 Spare parts

**NOTICE** Electronic and mechanical replacements are to be made by the ERWEKA personnel or approved by ERWEKA.

Only original spare parts or components approved by ERWEKA may be used. Only repairs or changes on the device performed by the ERWEKA technicians or approved explicitly by ERWEKA are to be made.

## 7. Appendix

### 7.1 Attachment units (optional)

The devices of the ERWEKA all-purpose equipment program are subject to constant improvement and development. To guarantee safe work with the devices also in future, the safety interlock on the AR 403/-S drive unit was changed according to applicable guidelines.

All ERWEKA attachment units regarding the compatibility with the further developed drive unit are listed and the adaption possibilities of old attachment units are described below.

### 7.2 New attachment units

An overview of the new ERWEKA attachment units driven with or without the Universal Gear.

Device designation	Type	UG
3D mixer		
Double cone mixer	DKM	Y
Coating pan	DKE / DKS	Y
Three-roller mill	SM / SMS	
Wet granulator	FGS	
Filling and dosing machine for ointments	FDS II	
Filling and dosing machine for liquids	FDF	
Homogenizer	HO	
Conical mill	CM	
Cube mixer	KB 15 / KB 15 S / KB 20 / KB 20 S / KB 30 / KB 30 S	Y
Ball mill	KM 0 / KM 5 / KM D 5 / KM 10 / KM D 10	KM 0 Y
Laboratory kneader	LK 5	
Laboratory high speed mixer	SW 1/S	
Pelletizer	GTE	Y
Planetary stirrer	PRS	
Polishing drum	PT	Y
Drum hoop mixer	RM 5 / RM 10	
Dry granulator	TG 2000	
V-mixer	VB-3	
Y-mixer	YB-5	



To connect a new attachment unit with safety sensor, plug the 8-pin connector of the attachment unit into the safety interlock jacket on the AR 403/-S.





UG is the type designation for the Universal Gear which is also available as a new attachment unit.

### 7.3 Old attachment units with safety sensor

These devices have a safety sensor recognized by the AR 403/-S when connected to the motor via an adapter cable.

Device designation	Type
Wet granulator	FGS
Conical mill	CM
Laboratory kneader	LK 5
Laboratory high speed mixer	SW 1/S
Planetary stirrer	PRS
Dry granulator	TG 2000

 To connect an old attachment unit with safety sensor, use the adapter cable (article No. 19307). Plug the round connector of the adaptor cable into the safety interlock jacket on the AR 403/-S. Then plug the connector of the attachment unit into the angular connector of the adaptor cable.

 When using a foot switch (see drive unit instruction manual) connect it between the adaptor cable and AR 403/-S.

### 7.4 Old attachment units without safety sensor

These devices have no safety sensor. If you use them with the AR 403/-S further on, you must drill the device flange in a predefined place.



#### WARNING

Hazard of injuries in case of changing existing safety facilities!

The drilling procedure described below should be applied only to the attachment units without safety sensor listed in the table.

Device designation	Type	UG
Double cone mixer	DKM	Y
Coating pan	DKE / DKS	Y
Three-roller mill	SM / SMS	
Filling and dosing machine for ointments	FDS II	
Filling and dosing machine for liquids	FDF	
Homogenizer	HO / HHO	
Cube mixer	KB	Y
Ball mill	KM	KM 0 Y
Pelletizer	GTE	Y
Polishing drum	PT	Y
Drum hoop mixer	RM 5 / RM 10	

Device designation	Type	UG
Suppository and lipstick moulding machine	SG 4/W	
Universal gear	UG	---
Y-mixer	YB-5	

### Drilling procedure



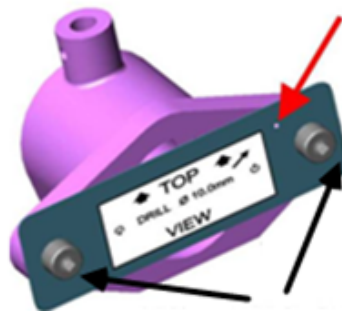
#### **WARNING**

Hazard of injuries in case of false performance!

The procedure described here should be performed by the authorized personnel only (metall processing). Safety instructions for metall processing must be followed.



*Fig.: Drilling template*



*Fig.: Fixing the drilling template with screws*

1. Fix the drilling template (article No. 12364) with two M8 screws (black arrows) on the old attachment unit without safety sensor.
2. Fix the attachment unit.
3. Drill a hole of 10.0 mm diameter and 5.0 mm depth (red arrow).



*Fig.: Mounting the attachment unit*

4. Mount the old attachment unit without safety sensor with drilled hole.

## 7.5 Contents of the EC Declaration of Incorporation

### EC Declaration of Incorporation

We, ERWEKA GmbH, declare under our sole responsibility that the product All-Purpose Equipment, Drive Unit and Attachment Units, AR 403/-S, CM, DKM, DKE/DKS, FGS, FDF, FDS II, GTE, HO/HHO/-UA, KB/-S, KM/KMD, LK 5/DER, PT, PRS/DER/DW, RM, SG 4/W, SW/1S, SM/S, TG 2000, UG, VB-3, VT/VS/PS/S, YB-5, 3D-Mixer complies with the following essential requirements of the Machinery Directive 2006/42/EC as well as all relevant provisions of the applicable legal regulations (hereinafter) – including their amendments in force at the time of the declaration.

The following legislation has been applied:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU
- RoHS Directive 2011/65/EU

The commissioning of this product is prohibited until the machine or system in which this product is to be installed or of which it is a component complies with the provisions of all relevant legal regulations.

The following harmonized standards have been applied:

- Safety of machinery – General principles for design – Risk assessment and risk reduction; EN ISO 12100:2010
- Safety of machinery – Electrical equipment of machines – Part 1: General requirements; EN 60204-1:2018
- Safety requirements for electrical equipment for measurement, control and laboratory use; EN 61010-1:2010 + A1:2019
- Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements; EN IEC 61326-1:2021

For the product, the special technical documentation has been prepared in accordance with Part B of Annex VII, and on a reasoned request, these documents can be sent to a national body by e-mail.

Name and address of the person authorized to compile the technical documentation:

Sevgi Klier, ERWEKA GmbH, Pittlerstr. 45, 63225 Langen.

Langen, 2024-12-12, signed ppa. Sevgi Klier –Authorized Representative–

# **ERWEKA**

ERWEKA GmbH, Pittlerstraße 45, 63225 Langen · Germany  
info@erweka.com · www.erweka.com