



# ULTRA-TURRAX® Tube Drive System



# ULTRA-TURRAX® Tube Drive

## ULTRA-TURRAX® Tube Drive control

### Principle

World’s first: universal disposable disperser system with hermetically sealable sample tubes. Protection and security are provided for infectious sample materials, toxic and high-odor substances under defined conditions (time, energy, volume). Test procedures are easily duplicated with no cross-contamination between samples. The control model provides a turbo function and reverse rotation switch to optimize mixing and crushing performance. The control USB interface enables PC operation and data storage.

### ULTRA-TURRAX® Tube Drive UTTD

One-of-a-kind disposable dispersing system with hermetically sealable disposable sample tubes. Provides a means for safe processing of infectious, toxic sample materials and strong-smelling substances.

- Dispersing, stirring, and grinding with a single drive unit
- No possibility of cross-contamination
- High level of user safety
- Suitable for individual use or use in series
- Anti-locking function
- Chemical-resistant plastic
- Simple and safe disposal

| Technical data                          |                              |
|-----------------------------------------|------------------------------|
| Motor rating input / output             | 20 / 17 W                    |
| Speed range / turbo speed               | 300 - 6.000 rpm              |
| Display                                 | LED (timer)                  |
| Speed display                           | scale (0 - 9)                |
| Timer                                   | 1 - 59 s (300 - 6.000 rpm)   |
|                                         | 1 - 29 min (300 - 4.000 rpm) |
| Reversal of rotating direction interval | -                            |
| General Data                            |                              |
| Dimensions (W x D x H)                  | 100 x 160 x 40 mm            |
| Weight                                  | 0,75 kg                      |
| Protection class acc. to DIN EN 60529   | IP 20                        |
| Ident. No. Single Unit                  | 3646000                      |
| Ident. No. Workstation*                 | 3645000                      |

### Procedure

The sample containers (tubes) are easily attached to the drive unit. Desired speed and duration are set, then the test is started. An acoustic signal indicates completion of experiment.



### All tubes are available in two sizes:

- 20 ml tube : working volume from 2 to 15 ml
- 50 ml tube : working volume from 15 to 50 ml

### ULTRA-TURRAX® Tube Drive control UTTD control

The control version offers these additional advantages:

- USB interface for experiment control and documentation
- Collecting tray for protection against leaking liquids
- Simple, precise and multilingual menu navigation with OLED display
- Programmable sample conditions (library)
- Turbo button for short-term, intensive mixing, dispersing and grinding
- Adjustable reverse operation

| Technical data                          |                                       |
|-----------------------------------------|---------------------------------------|
| Motor rating input / output             | 20 / 17 W                             |
| Speed range / turbo speed               | 400 - 6.000 rpm / 8.000 rpm           |
| Display                                 | OLED                                  |
| Speed display                           | digital                               |
| Timer                                   | 10 s - 30 min (infinitely adjustable) |
| Reversal of rotating direction interval | 10 - 60 s                             |
| General Data                            |                                       |
| Dimensions (W x D x H)                  | 122 x 178 x 48 mm                     |
| Weight                                  | 1,0 kg                                |
| Protection class acc. to DIN EN 60529   | IP 20                                 |
| Ident. No. Single Unit                  | 4135300                               |
| Ident. No. Workstation*                 | 3827500                               |

\* For information on workstation, see page 11.



# The IKA® Tubes

## ST TUBE

Tube with stirring device

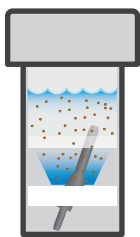


- Suitable for:
- Mixing
  - Stirring
  - Extractions
  - Preparation of soil sample suspensions

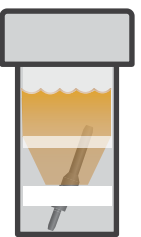
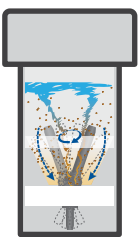


### Application examples for ST Tube

- Dissolving properties of drugs
- Incorporation of coloured pigments into a solvent
- Accelerated dissolution of sugar solutions
- Extraction of plant substances
- Accelerated dissolution of tablets, dragées, suppositories and capsules
- Mixing of fluids with higher viscosities



liquid + powder



## DT TUBE

Tube with rotor-stator element



- Suitable for:
- Dispersion
  - Homogenization
  - Suspensions
  - Pharmacokinetics
  - Metabolism studies
  - Diagnosis

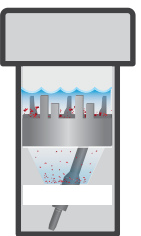


### Application examples for DT Tube

- Homogenization of tissue samples including brain, liver, muscle tissue, kidney and lung
- Milling of plant samples including rosemary, rapeseed, tomato seeds, grapes, potatoes, cress, leaves and roots
- Production of O/W and W/O emulsions
- Homogenization of effluent samples



liquid + sample



## BMT G / S TUBE

Tube for grinding with glass balls (G) or with stainless steel balls (S)

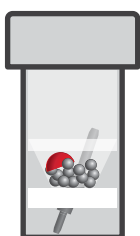


- Suitable for:
- Dry milling of dry and brittle samples (e.g. kaolin, gypsum, colored pigments, tablets)
  - Cell maceration
  - Processing of materials mixed with fluids

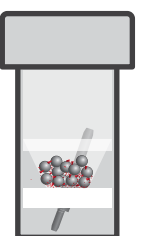
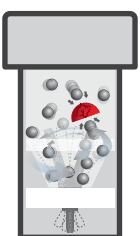


### Application examples for BMT G/S Tube

- Decomposition of animal, plant and human cells
- Dry milling of e.g. pigments, building materials and coal samples
- Dry milling of freeze-dried samples
- Milling of samples to determine water content



balls + sample



All tubes are also available with a pierceable membrane and gamma-sterilized



### Application examples for M Tube

- Sample extraction from dissolved pharmaceuticals
- Addition of a reaction partner, e.g. for pigment reactions
- Storage of samples in the tube, with option to remove material from the closed container at any time



### Application examples for gamma-sterilized Tube

- Homogenization of sterile samples e.g. for medical, pathology or pharmaceutical use
- Storage of sterile sample material after preparation directly in sample vessel (even at temperatures down to -20 °C)
- Simple handling preparation of aseptic samples in the laboratory

## DT TUBE

Tube lid

Rotor

Stator

Rotor drive

Pestle

Membrane

Membrane fixation

Vessel



# Applications and Industries



algae  
amion  
apple leaves  
brain of pigs  
capsules  
carrots  
catalysts  
cheese

grape pods  
grass  
heart  
hop pellets  
ivy  
kidney  
liver  
lung



potato beetle  
potatoes  
potato shells  
raspberry leaves  
roots  
rosemary  
sage dried  
salad oil



sediment  
seeds  
silicon carbid  
sludge  
soil samples  
starch grains  
sugar-coated tablet  
sunflower kernels



cherry leaves  
chicken, lean meat  
color pigments  
compost  
conductivity paste  
cress seeds  
crude oil  
dry frozen leaves



fat cream  
fibrin-cells  
flavor capsules  
food paste  
fruit juice concentrates  
fuel oil  
giblets  
grape leaves



lymph nodes  
malt pellets  
medicine analeptic  
muscle tissue  
mushrooms, dried  
nematode  
oil  
ointments



textiles paints and pigment  
thymus  
tobacco leaves  
tomato seeds  
trachea  
turkey liver  
turkey meat  
umbilical cord

oleander leaves  
olives without stone  
orange peel  
pills  
plant leaves  
plant lice  
plums leaves  
pork meat



vegetable  
vegetable mixture  
waste water  
wood

## Industries

- Agriculture
- Biology
- Botany
- Brewery
- Building Materials Industry
- Chemical Industry
- Cosmetics
- Ecology
- Environmental Protection
- Food Analysis
- Genetic Research
- Hematology
- Human Medicine
- Immunology
- Medicine
- Paint and Varnish Industry
- Pathology
- Pharmacy
- Petrochemistry
- Tobacco Industry
- Veterinary Institute

IKA® offers a free application hotline:  
00 8000 4522777 (00 8000 IKAAPPS)\*  
E-mail: [applicationsupport@ika.de](mailto:applicationsupport@ika.de)  
\* Monday - Thursday: 8:30 am - 4:30 pm  
Friday: 8:30 am - 3:30 pm

# How to work with the ULTRA-TURRAX® Tube Drive System



**STEP 1**  
Application: Dispersing of mint leaves.



**STEP 2**  
The mint leaves are combined with ethanol and are placed in a DT Tube.



**STEP 3**  
The tube is attached onto the drive system.



**STEP 4**  
The dispersion is started.



**STEP 5**  
The mint leaves are homogenized by the rotor-stator unit in the DT Tube.



**STEP 6**  
The dispersion is stopped.



**STEP 7**  
The tube is removed from the drive system.



**STEP 8**  
Test result: the mint leaves are dispersed homogeneously.



**STEP 9**  
If required the sample can be extracted for analysis with a syringe through the pierceable membrane of the tube lid.



**STEP 10**  
The tube is labeled and stored as a reference sample.

## Advantages

- ✓ Stir, disperse, homogenize and grind using a single drive unit
- ✓ No possibility of cross-contamination
- ✓ Hermetically sealable disposable sample tubes
- ✓ No cleaning required
- ✓ High level of user safety
- ✓ Suitable for individual use and use in series
- ✓ Gamma-sterilized tubes
- ✓ Tubes with pierceable membrane lids
- ✓ Tubes with 2 to 15 ml and 15 to 50 ml
- ✓ Anti-locking function
- ✓ Increases safety due to low voltage (24 V)
- ✓ Chemical-resistant plastic
- ✓ Simple and safe disposal
- ✓ Worldwide service guaranteed by IKA®
- ✓ Reproducible tests
- ✓ Patented

You can get a demo unit to test your application or send samples directly to our lab for a complimentary process analysis. IKA® will send you a customized test report along with your processed samples.



# Questions and Answers

## The IKA® Tubes:

What material are the tubes made of and against which solvents are they resistant?

The tubes are manufactured from polypropylene (PP), polyetheretherketone (PEEK), a thermoplastic elastomer (TPE), polyethersulfone (PES) and polyetheretherketone with teflon (PEEK + PTFE). The balls are manufactured from either stainless steel AISI 304 or soda-lime glass. All plastic materials conform to the FDA regulations. The parts have a good stability against weak acids, chlorides, hypochlorides and many other chemicals.

What volumes can be processed in the tubes?

Tubes are available in two sizes: 20 ml and 50 ml. The working volume range is from 2 to 50 ml.

What does cross-contamination mean?

Cross-contamination refers to the contamination of a sample with a second sample. For example, residue on a processing tool may be transferred into future tests. Because the UTTD tubes are closed and used only one time, cross-contamination is prevented.

Why can I use the tubes only once?

The tubes are intended for single use to prevent cross-contamination and avoid the need for cleaning. Also, the tube membrane is made of a flexible plastic which can only be exposed to high mechanical stress for a limited time.

Can the tubes be used several times or for longer periods (> 30 min)?

IKA® does not recommend using tubes multiple times or for periods longer than 30 minutes. Tubes may leak and cause fluid to pass into the drive. This may lead to serious drive damage or failure.

Can the balls of the BMT Tubes be used for several times?

After each experiment, balls can be cleaned, sterilized and reused.

Can other ball sizes and materials be used for the BMT Tubes?

It is possible to use balls made of other materials with the UTTD (e.g. ceramic). The size of the balls is variable, but should not exceed a diameter of 6 mm. For cell disruption, IKA® recommends using balls with a diameter < 2 mm.

Are the sterilized tubes really sterile?

The sterilized tubes are first blister packed and then gamma sterilized. To further guarantee sterility, an expiration date is printed on the packaging. On a rotational basis, revalidation is performed to ensure the tubes are sterile in accordance with ISO 11137-1.



## The IKA® ULTRA-TURRAX® Tube Drive:

Can I use the UTTD for my special application?

Please consult the IKA® application database to see if your application has already been tested. If no similar items have been tested, you may send a sample to our test laboratory. We will be happy to test, analyze and report results directly to you. If you prefer, we will send you a demo UTTD unit to test in the privacy of your own lab. IKA® provides these services at no cost to the customer.

What are the advantages of the UTTD against the conventional dispersing systems?

- Safety:** The hermetically sealed tubes prevent the user from coming in contact with toxic or infectious samples.
- Storage:** The tubes are used only once and can then be used for sample storage.
- Disposable:** Tubes can be discarded after one use. No time or money is wasted on expensive sterilization of a dispersing tool.

### ULTRA-TURRAX® Tube Drive Workstation

#### Included with delivery

|                                                                            |         |
|----------------------------------------------------------------------------|---------|
| ULTRA-TURRAX® Tube Drive                                                   | 1       |
| ULTRA-TURRAX® Tube Drive control                                           | -       |
| ST-20 Tube with stirring device                                            | 2       |
| DT-20 Tube with rotor-stator element                                       | 2       |
| BMT-20 G / S Tube for grinding with glass (G) or stainless steel balls (S) | 2       |
| Removal hook for removal of rotor-stator element                           | 1       |
| Power supply                                                               | 1       |
| Ident. No. Workstation                                                     | 3645000 |

### UTTD Workstation

|         |
|---------|
| 1       |
| -       |
| 2       |
| 2       |
| 2       |
| 1       |
| 1       |
| 3645000 |

### UTTD control Workstation

|         |
|---------|
| -       |
| 1       |
| 2       |
| 1       |
| 1       |
| 1       |
| 1       |
| 3827500 |

Why is the reproducibility better than similar systems?

Because the tests are carried out in a defined closed vessel (tube), the conditions are always identical. In addition, the test time and the speed can be precisely controlled. With the UTTD control, application programs can be stored so that the experiment conditions can be precisely duplicated.

What are the benefits of the turbo and reverse buttons on the UTTD control?

The turbo and reverse functions provide superior mixing and grinding effects. The additional functions provide the ability to achieve good process results with samples that are difficult to process with the basic version of the UTTD.

Our Product Manager  
**Mr. Oliver Vogelsang**  
is happy to provide answers to your questions regarding the UTTD:

Tel: +49 7633 831-173  
E-mail: [ov@ika.de](mailto:ov@ika.de)





*You are optimally equipped and ready to go with the UTDD case.*

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**Designed  
to work perfectly**

Subject to technical changes.

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