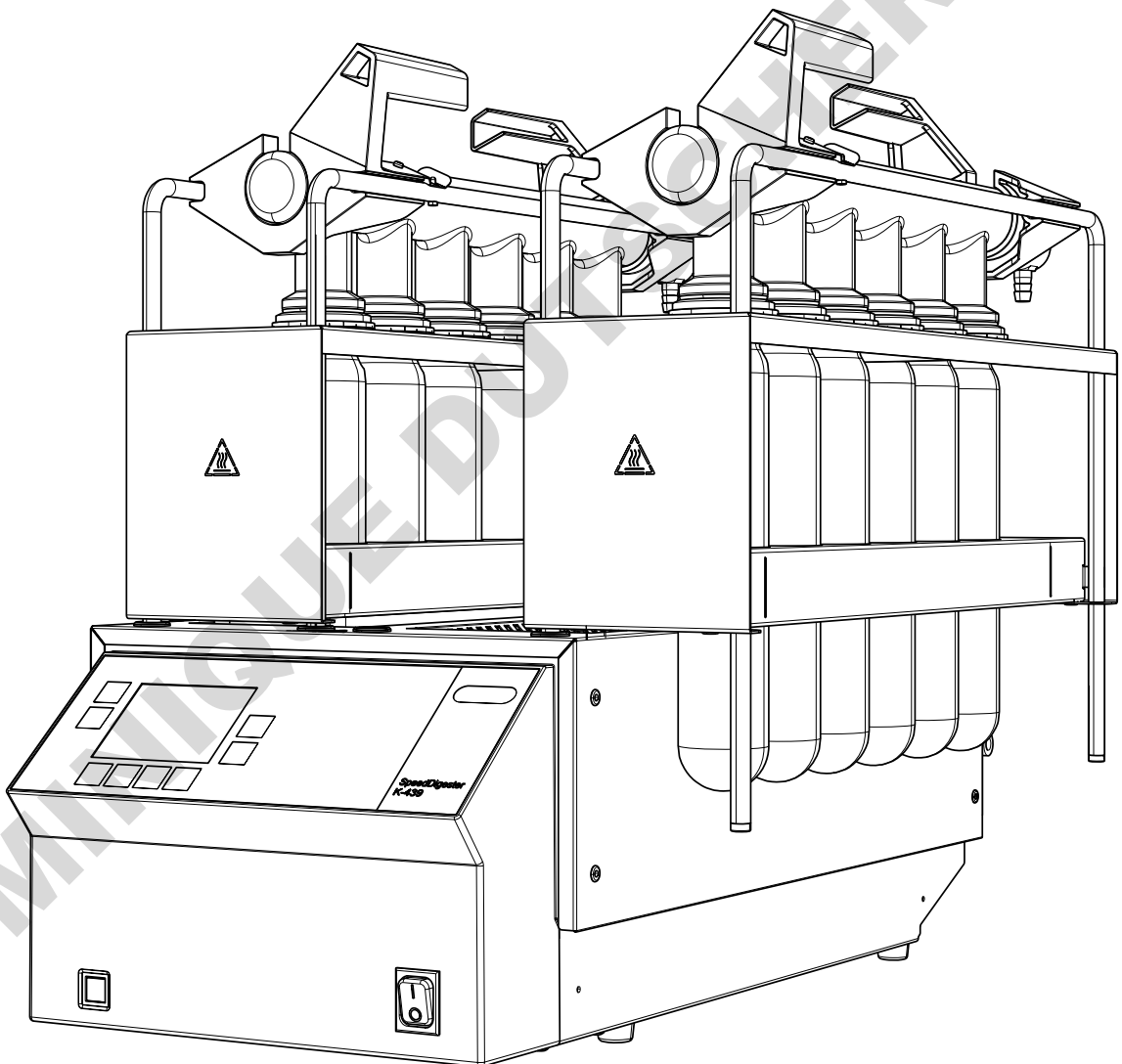




# SpeedDigester K-439

## Technical data sheet

The SpeedDigester K-439 combines all advantages of IR and block heating digestion systems and is revolutionizing Kjeldahl digestion. It is the only IR digestion system with an integrated temperature sensor, so that fast IR digestion is achievable at precise temperatures.



## Scope of delivery

The SpeedDigester matches different and changing needs, and is available ready to be used with 100 mL, 300 mL, 500 mL, ground joint or 250mL 3<sup>rd</sup> party sample tubes.

The delivered rack and suction module type is depending on the sample tube size. For all configurations with 300 mL sample tubes three different suction module variants are available (standard, with condensate trap and for H<sub>2</sub>O<sub>2</sub> addition). The configuration “only digester” does not contain any accessory, and can be used for individual configurations like micro-Kjeldahl, or reflux digestion (e.g. COD or aqua regia).

The scope of delivery is not valid for the configuration “only digester” and depends on the ordered instrument configuration:

	Qty
Insulation plate	2
Hose set (EPDM)	1
Rack	2
Connector to suction module	2
Suction module	2
Sample tubes (300 mL)*	12
Sample tubes (500 mL)*	10
Rubber plug for connector to suction module	1
Weighing Boats	20

\* either 300 mL or 500 mL

## Order code

Choose the configuration according to your needs:

1 1 5 4 3 9 2 0 0

### SpeedDigester K-439 configuration

- 0 only digester (without any accessory for individual configuration e.g. reflux or micro)
- 1 300 mL sample tubes and standard suction module
- 2 300 mL sample tubes and suction module with condensate trap
- 3 300 mL sample tubes and suction module for H<sub>2</sub>O<sub>2</sub> addition
- 4 suction module for 250 mL 3<sup>rd</sup> party sample tubes
- 5 500 mL sample tubes and suction module with condensate trap

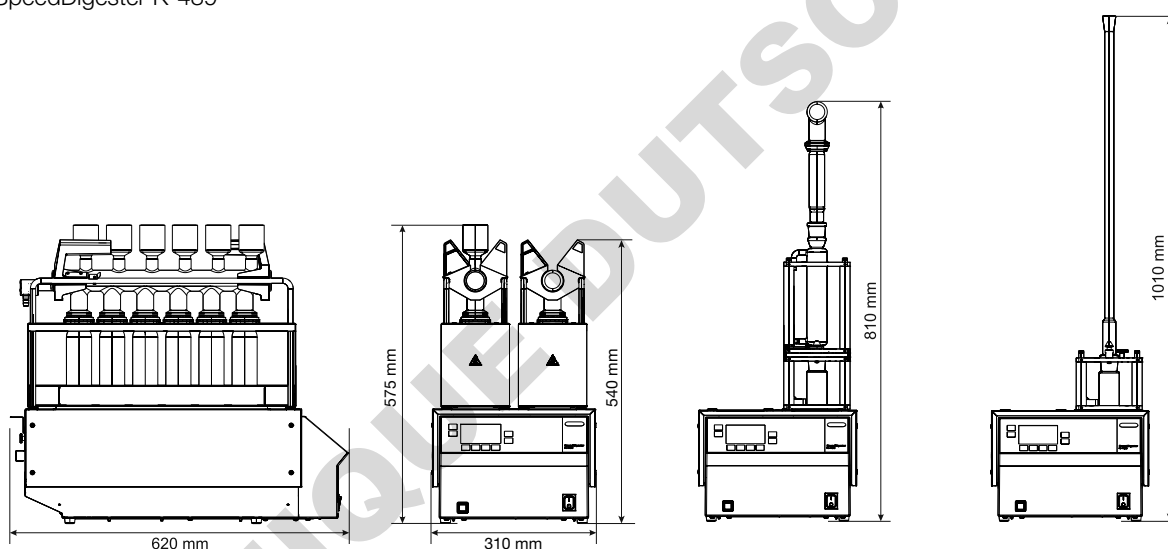
## Possible configurations and maximum number of samples

Possible sample tube configurations	Max. numbers of samples
100 mL tubes (micro-Kjeldahl)	12
300 mL tubes (standard Kjeldahl)	12
500 mL tubes (TKN)	10
Ground joint tubes (NS 29/32; COD / reflux)	12
3 <sup>rd</sup> party tubes	12

## Dimensions and weight

Dimensions with standard Kjeldahl setup (WxHxD)	310 x 540 x 620 mm
Weight without accessory	15.5 kg

### SpeedDigester K-439







## Technical data

Operating voltage	220 – 240 V $\pm$ 10 %
Frequency	50/60 Hz
Power consumption	2000 W
Temperature range	50 – 580 °C
Temperature error	$\pm$ 5 °C at 200 °C / $\pm$ 10 °C at 550 °C
Temperature resolution	1 °C
Display	QVGA 240 x 320 pixels
Degree of protection	IP 20
Approval	CE / CSA



## Accessories

For 300 mL tubes	Qty	Order number	Picture
Suction module standard Suitable for most applications	1	11055849	①
Suction module with condensate trap For aqueous samples, prevents backflow of condensate into the sample tube	1	11055865	②
Suction module for H <sub>2</sub> O <sub>2</sub> addition	1	11055853	③
Sample tubes 300 mL For sample volumes up to 200 mL in volume or 5 g in weight	4	037377	④
Sample tubes (300 mL)	20	11059690	④
Rack for 300 mL/micro tubes	1	11055248	⑤
Insulation plate for 300 mL tubes	1	11055142	⑥
Bed-plate to raising the sample tubes For raising the 300 mL sample tubes in the rack, for easier removal	1	11055943	⑦
Insulation cap for unused positions To cover individual unoccupied positions of the insulation plate, for 300 mL and 500 mL sample tubes	1	11056024	⑫
<b>For 500 mL tubes</b>			
Suction module with condensate trap	1	11055851	⑧
Sample tubes (500 mL) For sample volumes up to 400 mL in volume or more than 4 g in weight	4	043982	⑨
Rack for 500 mL tubes (incl. base and interlock spring)	1	11056966	⑩
Insulation plate for 500 mL tubes	1	11055143	⑪
Insulation cap for unused positions To cover individual unoccupied positions of the insulation plate, for 300 mL and 500 mL sample tubes	1	11056024	⑫
<b>For micro-Kjeldahl tubes</b>			
Suction module standard	1	11055849	⑬
Sample tubes micro For sample volumes up to 3 mL in volume or 0.2 g in weight. Reduction of chemicals of approx. 80% compared to the 300 mL tubes.	4	11057442	⑭
Rack for 300 mL/micro tubes	1	11055248	⑮
Insulation plate for micro tubes	1	11055204	⑯

For reflux and COD digestion	Qty	Order number	Picture
Reflux rack	1	11058226	
Air reflux condenser Length 700 mm, NS 29/32	6	11058300	
Water reflux setup Incl. holder with 6 water condensers, 6 absorption vessels and silicone hoses with quick coupling	1	11058227	
Absorption vessels for water reflux	6	11058377	
Insulation plate (reflux and 3 <sup>rd</sup> party tubes)	1	11055877	
Sample tubes ground joint (NS 29/32)	6	11058697	
Stand for air reflux condensers Stand for 12 condensers	1	11058700	
Cooling tray To cool the sample tubes when adding the chemicals	1	11058701	
Suction module standard	1	11055849	
Connector to suction module (PVDF; high resistant)	1	11056804	

High resistant parts *	Qty	Order number	Picture
Sealing (PTFE)	1	022442	
Hose set (FKM)	1	11056891	
Connector to suction module (PVDF)	1	11056804	

\* For digestions using nitric acid, hydrochloric acid or aqua regia, special system requirements are necessary

General Accessories	Qty	Order number	Picture
Weighing Boats Nitrogen-free paper, 58 x 10 x 10 mm	100	11060522	
Glass caps For occupying empty sample positions, to close the suction circuit	4	040049	
Stand with drip tray (for suction manifold)	1	11055216	
Connection cable to Scrubber The Scrubber is controlled by the digester by the cable connection (already incl. at Scrubber <sup>ECCO</sup> models)	1	030973	
Digestion rods To prevent boiling delays	10	043087	
Scrubber K-415	1	see Data Sheet Scrubber	

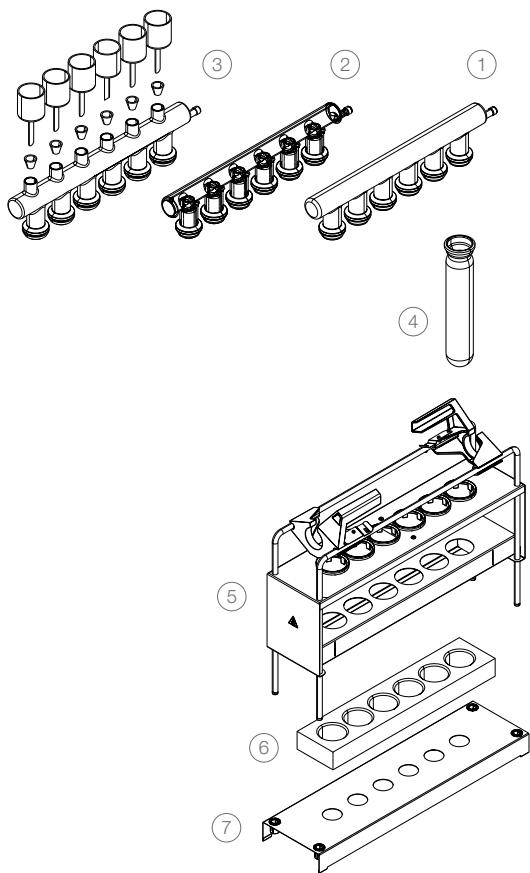
Documentation	Qty	Order number
Kjeldahl Guide (EN) Comprehensive guide covering all aspects of the theoretical and practical know-how	1	11055033
Kjeldahl Practice Guide (EN) Provides theoretical background information, useful hints and calculation tables for daily routine work	1	11592548
Kjeldahl Practice Guide (DE)	1	11592547
Kjeldahl Practice Guide (CN)	1	11592549
IQ/OQ set for K-439 (EN)	1	11056167
IQ/OQ set for K-439 (DE)	1	11057207
Repeating OQ K-439 (EN)	1	11056253
Repeating OQ K-439 (DE)	1	11057209

Kjeldahl Tablets*			Order number
Titanium	3.71 g	(3.500 g K <sub>2</sub> SO <sub>4</sub> , 0.105 g CuSO <sub>4</sub> • 5 H <sub>2</sub> O, 0.105 g TiO <sub>2</sub> )	11057980
Missouri	5.00 g	(4.980 g K <sub>2</sub> SO <sub>4</sub> , 0.020 g CuSO <sub>4</sub> • 5 H <sub>2</sub> O)	11057982
ECO	4.00 g	(3.998 g K <sub>2</sub> SO <sub>4</sub> , 0.002 g CuSO <sub>4</sub> • 5 H <sub>2</sub> O)	11057983
Titanium Micro	1.59 g	(1.500 g K <sub>2</sub> SO <sub>4</sub> , 0.045 g CuSO <sub>4</sub> • 5 H <sub>2</sub> O, 0.045 g TiO <sub>2</sub> )	11057981
Copper Micro	1.65 g	(1.500 g K <sub>2</sub> SO <sub>4</sub> , 0.150 g CuSO <sub>4</sub> • 5 H <sub>2</sub> O)	11057985
Antifoam	1.00 g	(0.970 g Na <sub>2</sub> SO <sub>4</sub> , 0.030 g Silicone Antifoam)	11057984

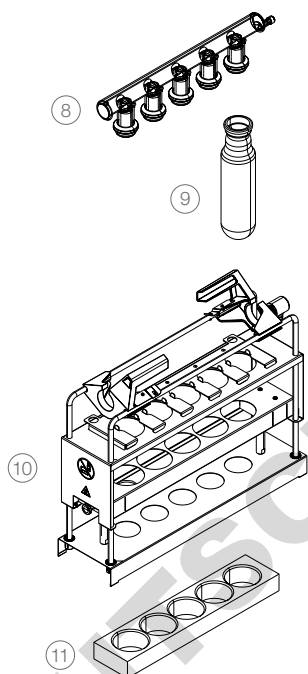
\* Box of 1000 tablets

# Accessories pictures

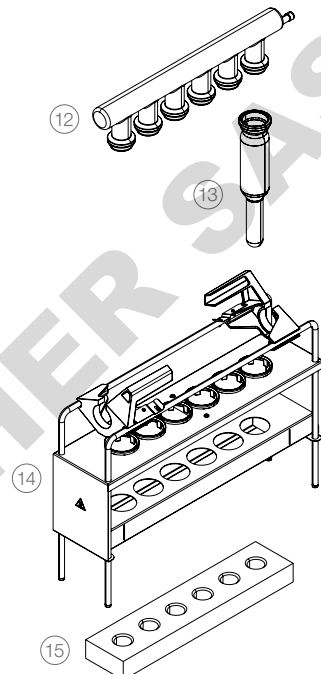
For 300 mL tubes



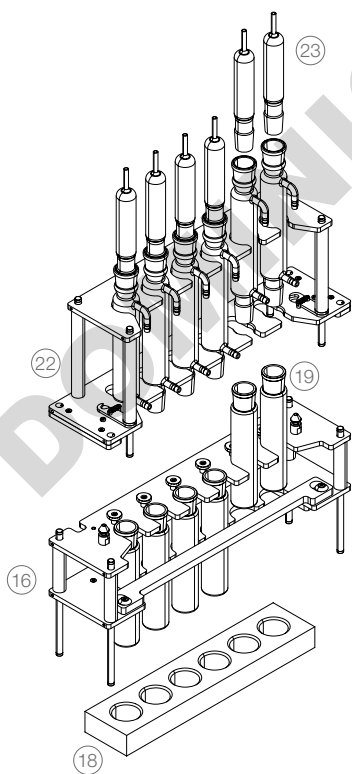
For 500 mL tubes



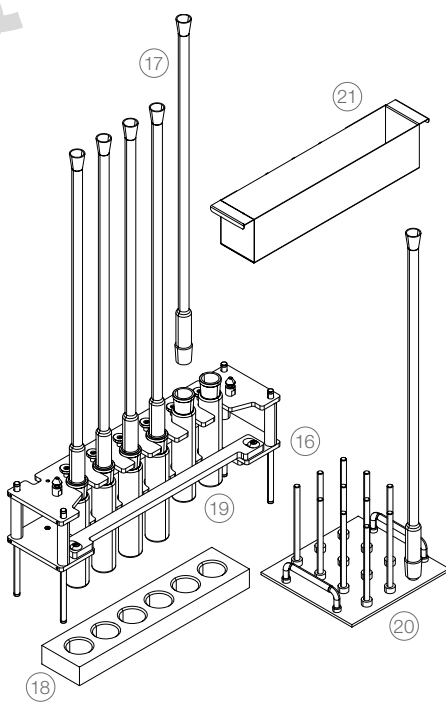
For micro-Kjeldahl tubes



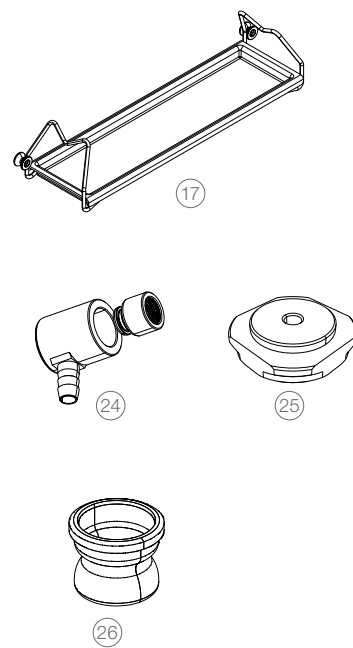
For Reflux digestion



For Reflux digestion COD



Other accessories



## Functional principle

- The infrared heating ① generates high temperatures in the sample ②.
- The sample ② is digested in the constantly boiling acid.
- Hot acid fumes rise into the condensation zone ③, condense and rinse back down to the sample creating a constant reflux.
- Residual fumes which escapes the condensation zone is highly corrosive and must be withdrawn and efficiently neutralized (i.e. with the Scrubber K-415) ④.

