

#### Technical data sheet

## SpeedDigester K-439

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 250 mL 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:

	K-439
Insulation plate	2
Hose set (EPDM)	1
Rack	2
Connector to suction module	2
Suction module (incl. FKM seals)	2
Sample tubes (300 mL)*	12
Sample tubes (500 mL)*	10
Micro sample tubes (100 mL)*	12
Rubber plug for connector to suction module	1
Weighing Boats	20

\* either 100 mL, 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 configuraion

- 0 Only digester (without any accessory for individual configuration)
- 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
- 6 100 mL sample tubes (micro-Kjeldahl) and standard suction module

## Sample tube configurations and max. number of samples

Sample tube configuration	Max. number of samples K-439
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
3rd party tubes	12

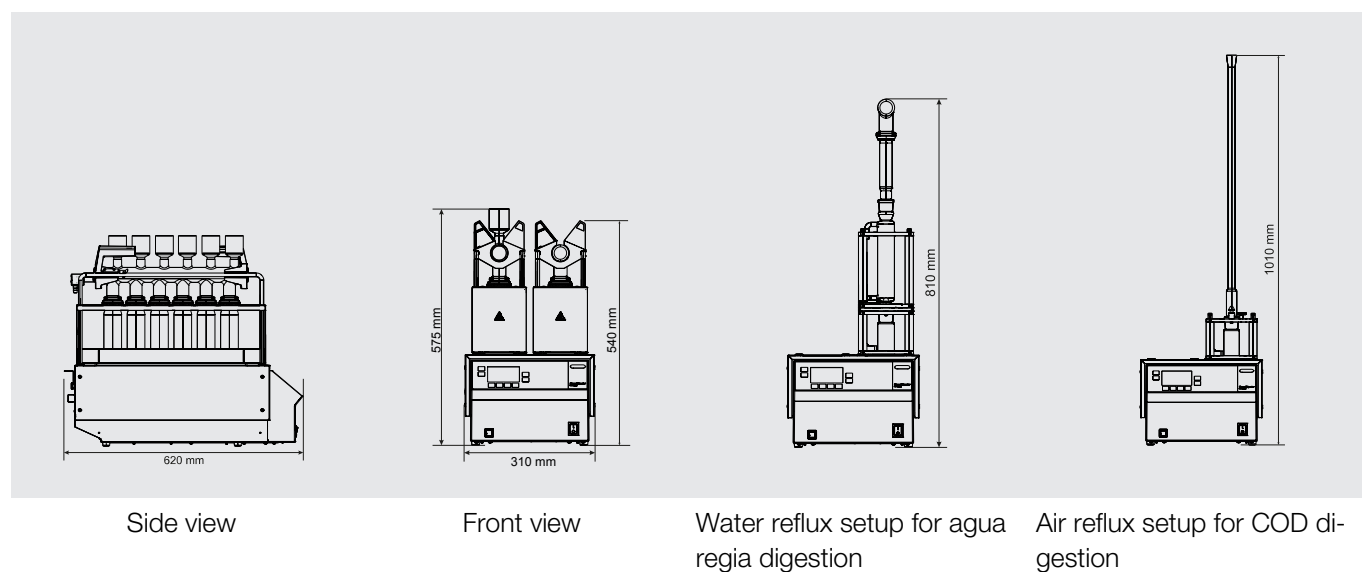
## Technical data

### SpeedDigester

#### K-439

Dimensions (W x D x H)	310 mm x 620 mm x 540 mm
Weight	15.5 kg
Operating voltage	220–240 V $\pm$ 10 %
Frequency	50 / 60 Hz
Power consumption	2,200 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
IP Code	IP20
Certificate	CE / CSA

## Dimensions



## Ambient conditions

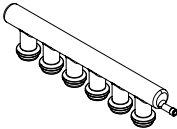
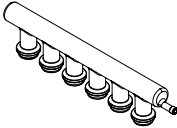
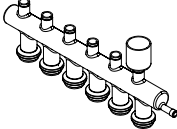


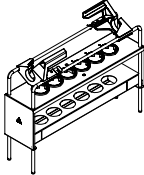
For indoor use only.

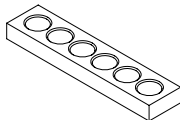
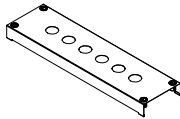
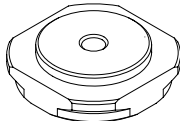
Specification	Value
Max. altitude above sea level	2,000 m
Ambient and storage temperature	5–40 °C
Max. relative humidity	80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C

## Spare parts and accessories

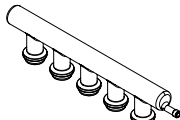
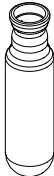
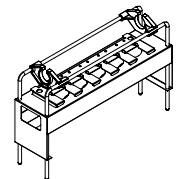
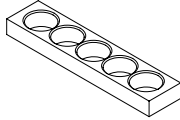
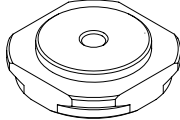
### Accessories

#### For 300 mL tubes

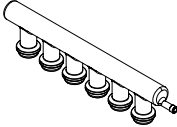

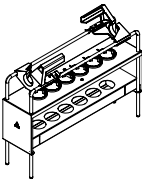
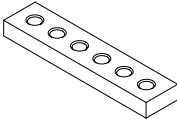
	Order no.	Image
Suction module standard Suitable for most applications	11055849	
Suction module with condensate trap For aqueous samples, prevents backflow of condensate into the sample tube	11055865	
Suction module for H2O2 addition	11055853	
Sample tubes 300 mL, 4 pcs. For sample volumes up to 200 mL or 5 g in weight	037377	
Sample tubes 300 mL 20 pcs.	11059690	
Rack for 300 mL/micro tubes	11055248	

	Order no.	Image
Insulation plate for 300 mL tubes	11055142	
Bed-plate to raising the sample tubes For raising the 300 mL sample tubes in the rack, for easier removal	11055943	
Insulation cap for unused positions To cover individual unoccupied positions of the insulation plate, for 300 mL and 500 mL sample tubes	11056024	

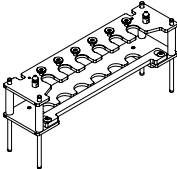
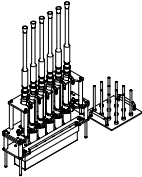
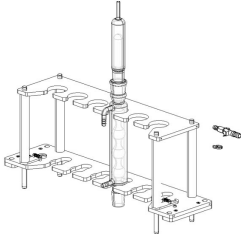
## For 500 mL tubes

	Order no.	Image
Suction module with condensate trap	11055851	
Sample tubes 500 mL, 4 pcs. For sample volumes up to 400 mL in volume or more than 4 g in weight	043982	
Rack for 500 mL tubes (incl. base and interlock spring)	11056966	
Insulation plate for 500 mL tubes	11055143	
Insulation cap for unused positions To cover individual unoccupied positions of the insulation plate, for 300 mL and 500 mL sample tubes	11056024	

## For micro-Kjeldahl tubes

	Order no.	Image
Suction module standard Suitable for most applications	11055849	
Sample tubes micro (100 mL), 4 pcs. 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.	11057442	
Rack for 300 mL/micro tubes	11055248	
Insulation plate for micro tubes	11055204	

## For reflux and COD digestion

	Order no.	Image
Reflux rack For reflux digestion and COD digestion	11058226	
Air reflux condenser, 6 pcs. For COD digestion, length 700 mm, NS 29/32	11058300	
Water reflux setup For reflux digestion, incl. holder with 6 water condensers, 6 absorption vessels and silicone hoses with quick coupling  Add insulation plate for reflux (11055877) and reflux rack and ground joint sample tubes (11058697) for complete set	11058227	


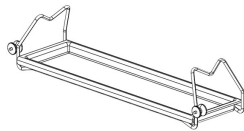
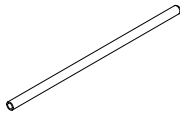
	Order no.	Image
Absorption vessels for water reflux For reflux digestion	11058377	
Insulation plate (reflux and 3rd party tubes)	11055877	
Sample tubes ground joint (NS 29/32) For reflux digestion and COD digestion	11058697	
Stand for air reflux condensers For COD digestion, stand for 12 condensers	11058700	
Cooling tray For COD digestion, to cool the sample tubes when adding the chemicals	11058701	
Suction module standard Suitable for most applications	11055849	
Connector to suction module (PVDF)	11056804	

## High resistance parts

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

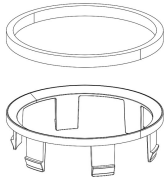
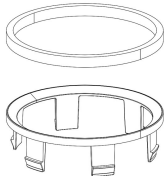
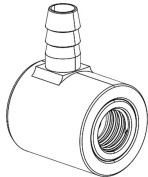
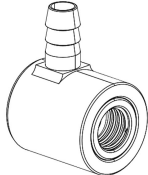


	Order no.	Image
Sealing (PTFE)	022442	
Hose set (FKM)	11056891	
Connector to suction module (PVDF)	11056804	

## General accessories

	Order no.	Image
Weighing boats Nitrogen-free weighing paper 58 x 10 x 10 mm, 100 pcs.	11060522	
Glass caps, 4 pcs. For occupying empty sample positions, to close the suction circuit	040049	
Stand with drip tray (for suction manifold)	11055216	
Connection cable to digester The Scrubber is controlled by the digester by the cable connection (already incl. at Scrubber ECO models)	030973	
Digestion rods To prevent boiling delays, 10 pcs.	043087	
Scrubber K-415 For the corresponding order number see Technical Data Sheet K-415		



## Spare parts

	Order no.	Image
Set welding spring holder 6 pcs.	11055984	
Set welding spring holder 4 × 6 pcs.	11085445	
Hose coupling	11055367	
Hose coupling 4 pcs.	11085450	
Set gasket Viton 6 pcs.	038122	
Set gasket Viton 4 × 6 pcs.	11085452	

## Kjeldahl tablets

	Order no.
Kjeldahl Tablets Titanium For efficient digestions, 1000 tablets (3.5 g $\text{K}_2\text{SO}_4$ / 0.105 g $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ / 0.105 g $\text{TiO}_2$ )	11072627
Kjeldahl Tablets Titanium Micro For small sample sizes, 1000 tablets (1.5 g $\text{K}_2\text{SO}_4$ / 0.045 g $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ / 0.045 g $\text{TiO}_2$ )	11072628
Kjeldahl Tablets Missouri For efficient digestions without Titanium, 1000 tablets (4.98 g $\text{K}_2\text{SO}_4$ / 0.02 g $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ )	11072629
Kjeldahl Tablets ECO For eco-friendly digestions with minimum amount of copper, 1000 tablets (3.998 g $\text{K}_2\text{SO}_4$ / 0.002 g $\text{CuSO}_4 \cdot 5 \text{H}_2\text{O}$ )	11072630

	Order no.
Kjeldahl Tablets Antifoam	11072631
For foaming samples in digestions to avoid cross contamination due to foaming, 1000 tablets (0.97 g Na <sub>2</sub> SO <sub>4</sub> / 0.03 g Silicone)	
Kjeldahl Tablets Copper Micro	11072632
For small sample sizes without Titanium, 1000 tablets (1.5 g K <sub>2</sub> SO <sub>4</sub> / 0.15 g CuSO <sub>4</sub> * 5 H <sub>2</sub> O)	

## Documentation

	Order no.
Kjeldahl Guide (EN)	11055033
Comprehensive guide covering all aspects of the theoretical and practical know-how	
Kjeldahl Practice Guide (EN)	11592548
Provides theoretical background information, useful hints and calculation tables for daily routine work	
Kjeldahl Practice Guide (DE)	11592547
Kjeldahl Practice Guide (CN)	11592549
IQ/OQ set for K-439 (EN)	11056167
IQ/OQ set for K-439 (DE)	11057207
Repeating OQ K-439 (EN)	11056253
Repeating OQ K-439 (DE)	11057209

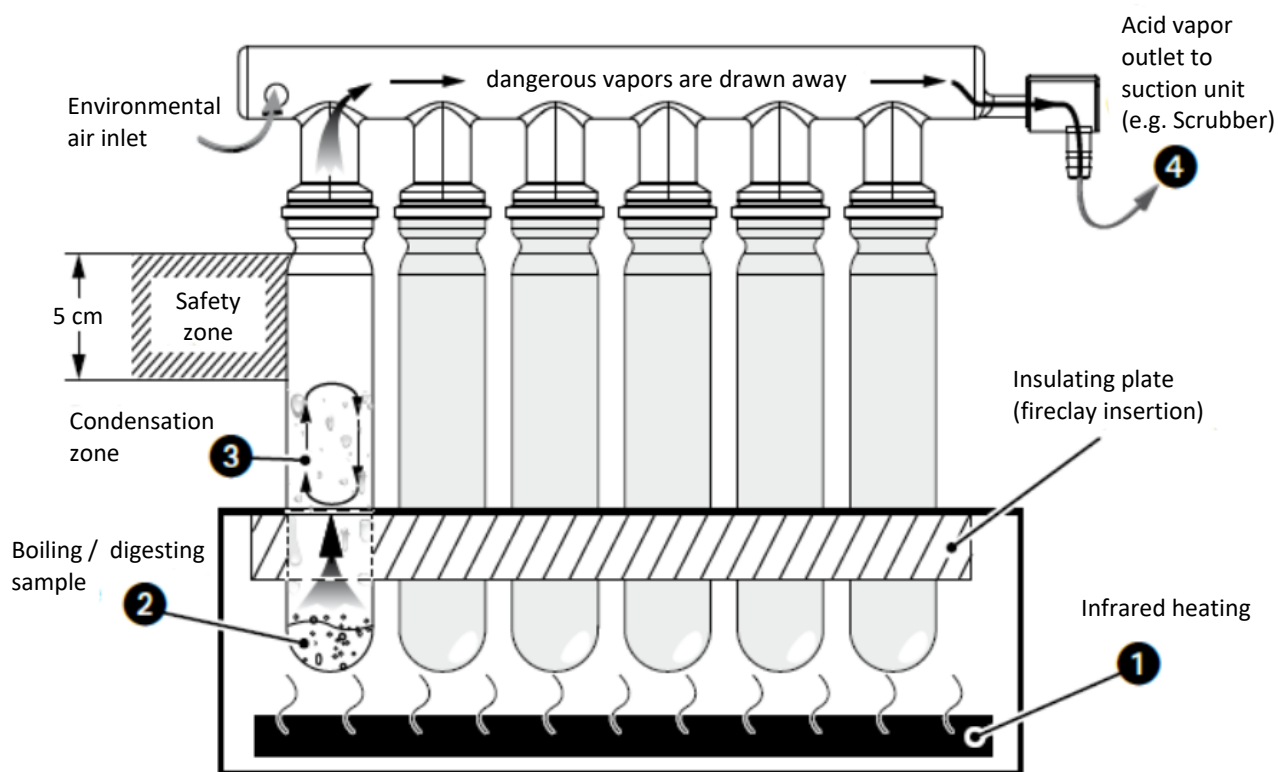
## Functional principle

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 escape the condensation zone are highly corrosive and must be withdrawn and efficiently neutralized (i.e. with the Scrubber K-415) (4).





11594705G en SpeedDigester K-439 11.2025  
Technical data are subject to change without notice  
Quality Systems ISO 9001

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