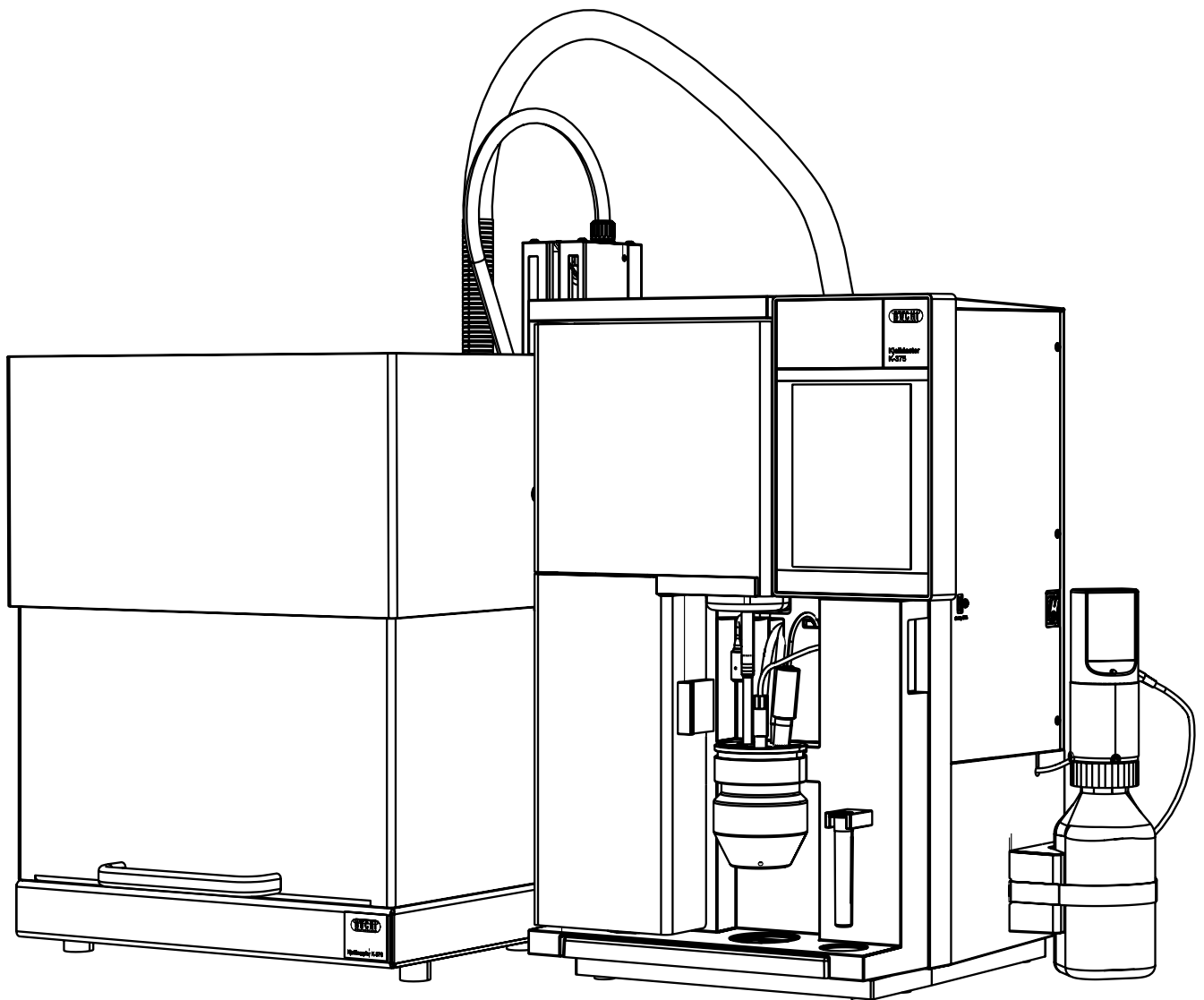




# KjelMaster K-375 / KjelSampler K-376 / K-377

## Technical data sheet

The automatic distillation unit KjelMaster K-375 is designed for convenient nitrogen and protein analysis. The reduced need for user interaction and an intelligent software save time and costs. Automation and throughput are increased significantly by using the KjelSampler K-376 or K-377.



## Scope of delivery

### KjelMaster K-375

Ready to use instrument with steam generator, titrator, pumps for dosage of alkali, boric acid, water, automatic aspiration of sample and receiver residues.

Components	K-375 potentiometric titration	K-375 colorimetric titration
Sample tube (300 mL)	1	1
Pair of glass tongs	1	1
pH electrode	1	
Buffer set pH 4 and pH 7	3 x 20 mL each	
KCl electrolyte, saturated	250 mL	
Colorimetric sensor		1
Protection mesh for colorimetric sensor		1
Indicator according to Sher		100 mL
Bottle (1 L) for titrant solution	1	1
Storage tanks (10 L) for chemicals	2	2
Storage tanks (20 L) for water and waste	2	2
Capacitive level sensors for tanks with o-rings	4	4
Hose connector for waste tank	1	1
Hose for chemical feed	6.0 m	6.0 m
Suction tubes to chemical tanks	3	3
Hose for waste drain	1.8 m	1.8 m
Hose for cooling water feed	1.5 m	1.5 m
Hose for cooling water drain	1.8 m	1.8 m
Connection cable RJ45 (network cable)	2.0 m	2.0 m
Mini gender for changer for balance connection	1	1
Test gauge for sample tube holder	1	1
Connection grommet for Chiller	1	1
Weighing boats	20	20
CD KjelLink PC software (with 60 days test license)	1	1
Kjeldahl Practice Guide	1	1

## KjelSampler K-376 and K-377

The K-376 accommodates up to 24 sample tubes of 300 mL capacity. The K-377 allows processing up to 48 samples in 300 mL tubes.

Components	K-376	K-377
RS232 communication cable	1.5 m	1.5 m
Sample tubes (500 mL)	1	1
Sample tubes (300 mL)	28	52
Rack trays	1	2
Rack for 20 x 300 mL sample tubes	1	2
Express rack for 4 x 300 mL sample tubes	1	2
Test gauge for sample tubes	1	1

## Order code

Choose the configuration according to your needs:

**1 1 3 7 5** **7** **0**

### KjelMaster K-375

- 0 Without distillation unit\*
- 1 Potentiometric titration, glass splash protector
- 2 Colorimetric titration, glass splash protector
- 3 Potentiometric titration, plastic splash protector
- 4 Colorimetric titration, plastic splash protector

### KjelSampler K-376 or K-377

- 0 Without auto sampler
- 1 KjelSampler K-376 (24 positions)
- 2 KjelSampler K-377 (48 positions)

\* Set "0" to order a KjelSampler without KjelMaster

## Technical data

	KjelMaster K-375
Dimensions (WxHxD)	458 x 670 x 431 mm
Weight	32 kg
Screen	8.4 inch color touch
Memory	>100'000 results
User administration	Administrator and operator level
Minimal titrator volume	2 µl / step
Language versions	DE, EN, FR, IT, ES, JA, CN, RU, PL, KO
Pumps	NaOH, H <sub>3</sub> BO <sub>3</sub> , H <sub>2</sub> O
Adjustable steam output	30 – 100 %
Measuring range	0.02 – 200 mg N
Reproducibility (RSD)	<1 %
Recovery	>99.5 % (1 – 200 mg N)
RS232 ports	2 (balance, KjelSampler)
USB ports	3 (printer, barcode reader, memory stick)
Ethernet ports	1 (LAN)
Safety sensors	3 (service door, protecting door, sample tube)
Power supply	220 – 240 V ± 10 %
Frequency	50/60 Hz
Power consumption	2400 W
Water consumption (during distillation only)	0.7 L/min at 10 °C / 2.5 L/min at 30 °C
Ambient	5 – 40 °C, max 80 % relative humidity

	KjelSampler K-376	KjelSampler K-377
Dimensions (WxHxD)	505 x 750* x 655 mm	1015 x 750** x 655 mm
Weight	40 kg	64 kg
Safety sensor - Shield closed	1	2
Safety sensor - Sample tube detection	1	1
Safety sensor - Crash detection	1	1
Power supply	100 – 240 V ± 10 %	
Frequency	50/60 Hz	
Power consumption	150 W	
Ambient	5 – 40 °C, max. 80 % relative humidity	

\* 1000 mm height required to allow free movement of the sampler arm

\*\* 1250 mm height required to allow free movement of the sampler arm

## Accessories

KjelMaster K-375	Qty	Order number	Picture
KjelLink PC software license	1 CD	11058664	
Temperature sensor for distillate	1	11056851	
Dosing unit for back titration (20 mL)	1	11056836	①
Driving motor for dosing unit	1	11056835	②
Storage tank (10 L) for chemicals	1	043468	③
Storage tank (20 L) for chemicals	1	043469	
Storage tank (20 L) for waste	1	043471	
Level sensor for tank	1	11055914	④
pH Electrode	1	11056842	⑤
Colorimetric sensor	1	11057410	⑥
Protection mesh for colorimetric sensor	1	11061562	
Glass splash protector	1	043332	⑦
Plastic splash protector	1	043590	⑧
Devarda splash protector	1	043335	
Adapter set for 3 <sup>rd</sup> party sample tubes	1	11058410	⑨

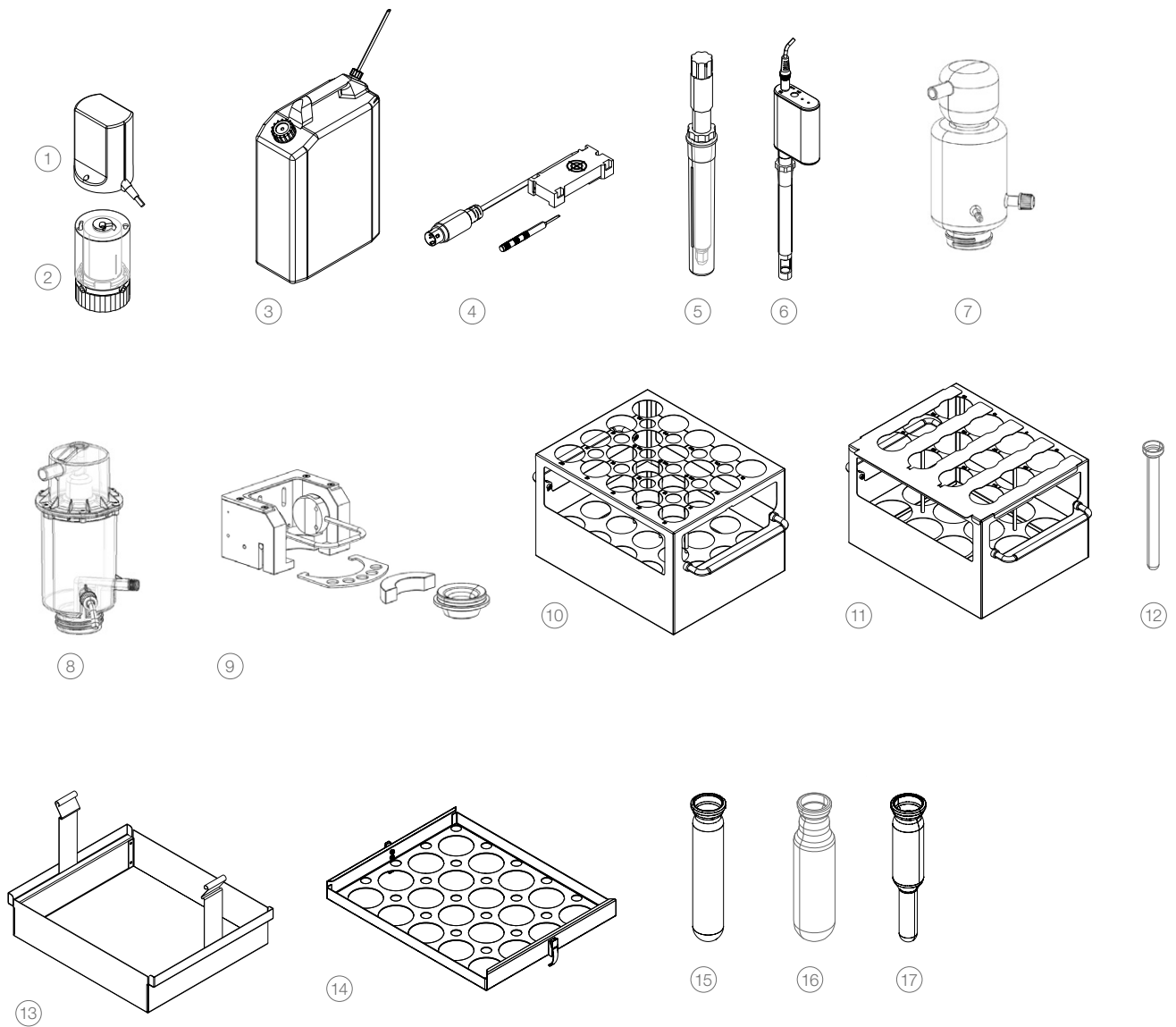
KjelSampler K-376 / K-377	Qty	Order number	Picture
Rack with 20 positions for 300 mL tubes	1	11059831	⑩
Rack with 12 positions for 500 mL tubes	1	043970	⑪
Dip tube with cross-slot for soil samples prevents stones to be aspirated from sample tube	1	047845	
Sample tube insert for soil samples prevents stones to be aspirated from sample tube	1	048638	⑫
Stand for rack Protects the sample tubes from smashing, as well as other damage	1	11058659	⑬
Retaining plate Holds the tubes firmly in the rack when it is placed into the dish-washer for cleaning	1	038559	⑭

Chemicals	Qty	Order number
Indicator according to Sher	100 mL	003512
KCl electrolyte, saturated	250 mL	11059759
Buffer solution pH 4	1000 mL	026321
Buffer solution pH 7	1000 mL	026322
Reference substance Ammonium phosphate monobasic	25 g	045527
Weighing boats	100	11060522

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 K-375 (EN)	1	11058677
IQ/OQ set K-375 / K-376 / K-377 (EN)	1	11058678
Repeating OQ K-375 (EN)	1	11058679
Repeating OQ K-375 / K-376 / K-377 (EN)	1	11058680

Sample tubes	Qty	Order number	Picture
Sample tubes (300 mL) For sample volumes up to 200 mL or 5 g in weight	4	037377	
Sample tubes (300 mL)	20	11059690	
Sample tubes (500 mL) For the use with the KjølSampler	1	026128	
Sample tube (500 mL) For sample volumes up to 400 mL or >4 g in weight	4	043982	
Sample tubes micro (100 mL)	4	11057442	

## Accessories pictures



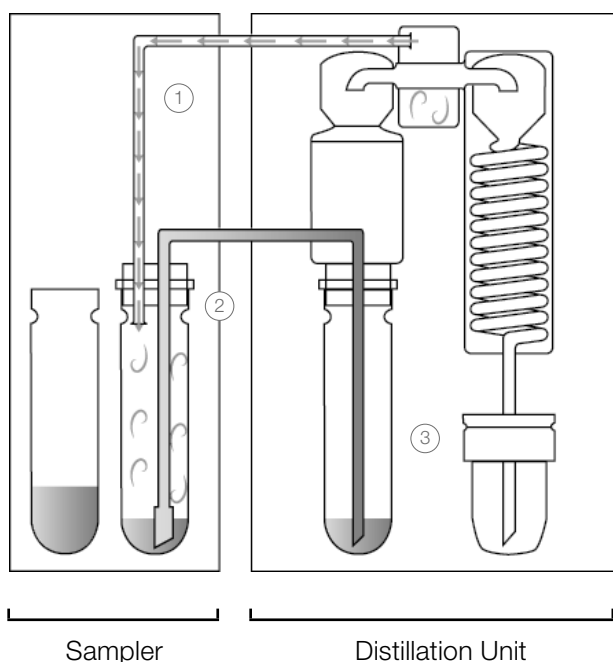
## PC system requirements for KjelLink software

Operating system	Windows 7 Professional / Enterprise / Ultimate, (32-bit / 64-bit, SP1), Windows 8.1 Pro (64-bit), Windows 10 (64-bit)
Processor	Dual Core 2.4 GHz
Hard disk	>15 GB free memory
RAM	2 GB
Ports	USB 1.1 or higher, Ethernet
Display	1280 x 1024 (minimum 1024 x 768)

## Functional principle

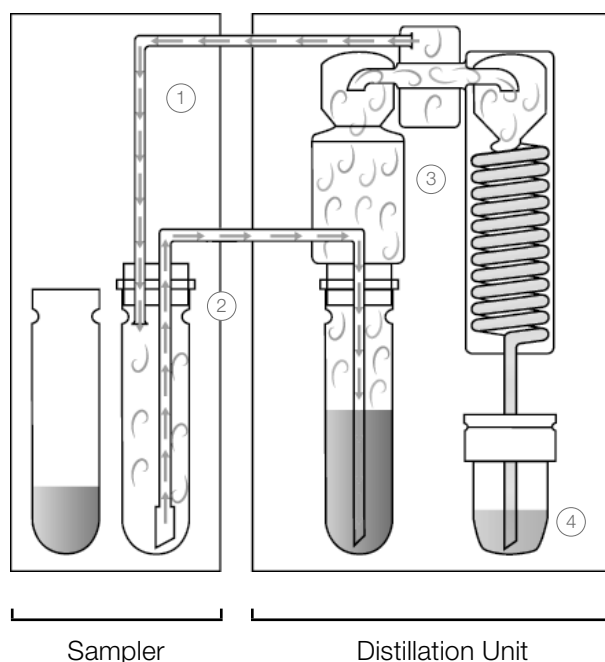
The combination of the KjelMaster K-375 with the KjelSampler K-376 or K-377 uses a unique and very effective method of transferring samples and carrying out distillations. Steam overpressure is used to transfer the digested sample from a sample tube in the autosampler to the distillation unit. During the distillation, steam continuously purges the sample tube of the KjelSampler, thus minimizing the need for cleaning and extending the lifetime of the tubes.

### Sample transfer



- ① Steam inducted into the sample tube
- ② Sample is transferred to the distillation unit
- ③ Sample is collected in the distillation vessel

### Distillation



- ① Steam inducted into the sample tube
- ② Steam extends to the sample
- ③ Analyte passes through the splash protector by means of steam distillation
- ④ Volatile components are condensed and collected in the receiver

