703 Ti Stand

Manual
8.703.1003

Metrohm

METROHM Ltd. CH-9101 Herisau (Switzerland)

Ti Stand 703

Series 01 ...

Table of contents

89.10 Ti

8.703.1003

1. Parts and controls

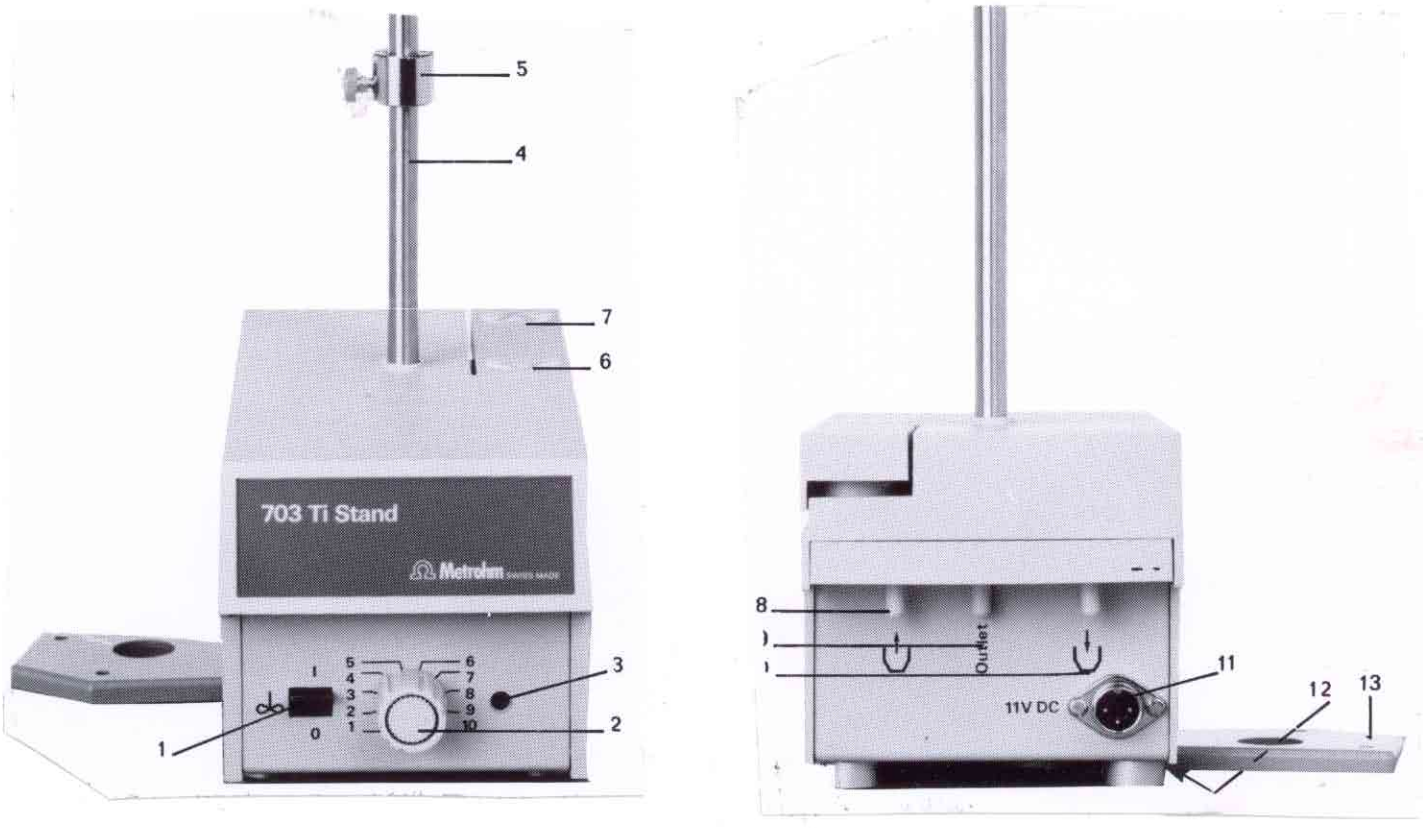

Fig. 1: Front and rear of the 703 Ti Stand

1 Stirrer on/off

2 Stirring speed adjustment

3 On/off indicator lamp for stirrer

4 Stand rod (screw-in)

5 Clamping ring to position titration vessel

6 Front of key: dispensing solvent

7 Rear of key: siphoning off solutions

8 Connection for waste bottle

9 Vent pipe

10 Connection for solvent bottle

11 Connection socket for power supply (11 V DC/0.2 A)

12 Pump protective filter. The filter must be changed periodically. A suitable filter material is app. 0.5 g cotton wool.

13 Baseplate for permanent attachment of the 703 Ti Stand to a Dosimat or a Titrator.

2. Preparations

2.1 Mounting the accessories for volumetric titration vessels

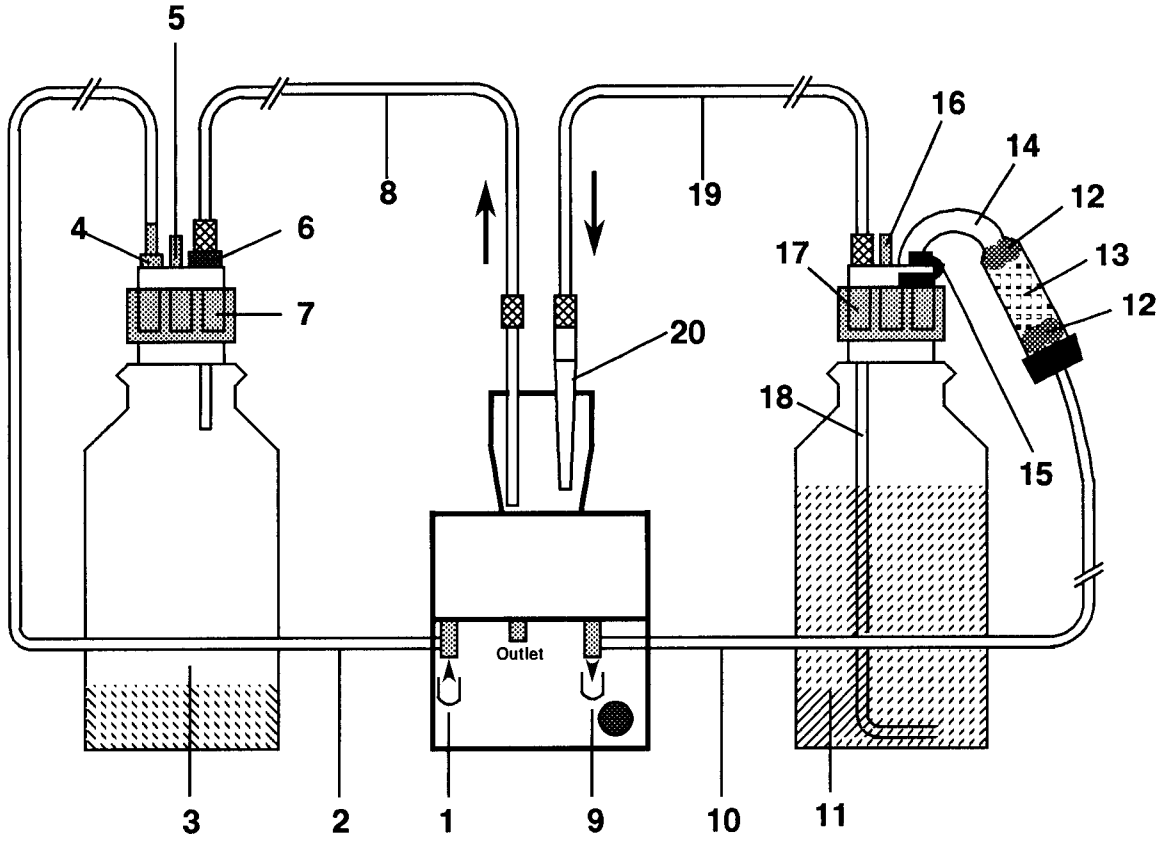

Fig. 2: 703 Ti Stand for volumetric titration vessels

Siphoning, waste bottle:

1 Connecting nipple for aspiration tubing
2 6.1801.000 Aspiration Tubing, PVC
3 6.1608.030 Waste Bottle
4 6.1808.050 Tubing Connector
5 6.1446.040 Threaded Stopper
6 6.1446.060 PP Stopper
7 6.1602.100 Bottle Siphon
8 6.1818.000 Siphoning Tubing, PTFE

Addition of solvent:

9 Connecting nipple for pressure tubing
10 6.1801.000 Pressure Tubing, PVC
11 6.1608.023 Solvent Bottle
12 Cotton wool
13 Molecular Sieves
14 6.1609.010 Drying Tube, adsorber
15 6.2023.020 Clip for SGJ14
16 6.1446.040 Threaded Stopper
17 6.1602.100 Bottle Siphon
18 6.1819.030 PTFE Tubing
19 6.1805.200 Dispensing Tubing, PTFE
20 6.1543.110 Transfer Tip

Mounting procedure for accessories

Siphoning, waste bottle:

1. Screw bottle siphon (**7**) onto waste bottle (**3**).
2. Fit bottle siphon with
   – threaded stopper (**5**)
   – tubing connector (**4**).
3. Attach aspiration tubing (**2**) to tubing connector (**4**) and connecting nipple (**1**).
4. Insert stopper (**6**) in bottle siphon (**7**) and thread ca. 5 cm siphoning tubing (**8**) into bottle through hole in stopper. Secure O-ring and screw siphoning tubing in stopper (**6**).
5. Insert other end of siphoning tubing (**8**) in vessel to be emptied, push to bottom and secure in titration vessel lid.
   Note:
   With titration vessel lids with SGJ14, siphoning tubing (**8**) is fixed with a guide sleeve (METROHM ordering number 6.2705.000).

Warning:
The waste bottle must be emptied from time to time to prevent solvent being aspirated into the pump and damaging it!

Addition of solvent:

1. Fill drying tube (**14**) with molecular sieves (separate order required for molecular sieves, METROHM ordering number 6.2811.000).
2. Attach pressure tubing (**10**) to drying tube (**14**) and connecting nipple (**9**).
3. Fit bottle siphon (**17**) with:
   – threaded stopper (**16**)
   – drying tube (**14**), secure with joint clip (**15**).
4. Thread PTFE tubing (**18**) through the last free opening in bottle siphon (**17**).
5. Attach dispensing tubing (**19**) to bottle siphon (**17**).
6. Screw transfer tip (**20**) to other end of PTFE tubing (**19**) and insert in measuring vessel.
   Note:
   To secure transfer tip (**20**) in titration vessel lids with SGJ14, a ball stopper (METROHM ordering number 6.1446.030) is used.
7. Screw bottle siphon (**17**) onto solvent bottle (**11**). In place of the 6.1608.023 Brown Glass Bottle, other reagent bottles with GL45 thread can also be used (e.g. RIEDEL DE HAEN, (1 liter), BAKER).
   Other bottles require the use of a different bottle siphon or an additional thread adapter:

– MERCK bottles:	6.1602.110 Bottle Siphon
– FLUKA bottles, RIEDEL DE HAEN (500 ml):	6.1602.100 Bottle Siphon with 6.1618.000 Thread Adapter
– Fisher bottles:	6.1602.100 Bottle Siphon with 6.1618.010 Thread Adapter

2.2 Mounting the accessories for the KF coulometer cell without diaphragm

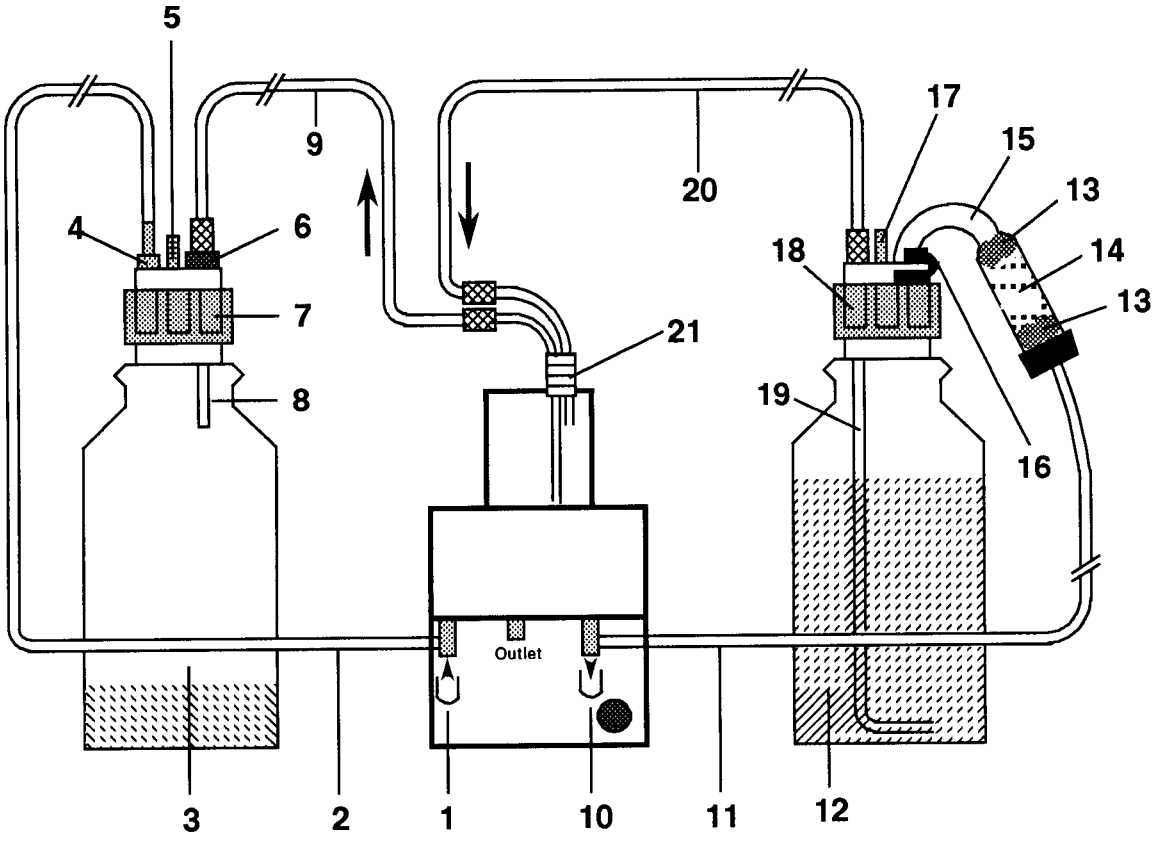

Fig. 3: 703 Ti Stand for the KF coulometer cell without diaphragm

Siphoning off waste solution:

1 Connecting nipple for aspiration tubing
2 6.1801.000 Aspiration Tubing, PVC
3 6.1608.030 Waste Bottle
4 6.1808.050 Tubing Connector
5 6.1446.040 Threaded Stopper
6 6.1446.090 PP Stopper
7 6.1602.100 Bottle Siphon
8 6.1543.110 Transfer Tip
9 6.1805.200 Siphoning Tubing, PTFE
(from the accessories of the KF cell)

Addition of fresh solvent:

10 Connecting nipple for pressure tubing
11 6.1801.000 Pressure Tubing, PVC
12 6.1608.023 Solvent Bottle
13 Cotton wool
14 Molecular Sieves
15 6.1609.010 Drying Tube, adsorber
16 6.2023.020 Clip for SGJ14
17 6.1446.040 Threaded Stopper
18 6.1602.100 Bottle Siphon
19 6.1819.030 PTFE Tubing
20 6.1805.200 Dispensing Tubing, PTFE
21 6.1439.010 Inlet/Outlet Tube
(from the accessories of the KF cell)

Mounting procedure for accessories

Siphoning off waste solution:

1. Screw bottle siphon (**7**) onto waste bottle (**3**).
2. Fit bottle siphon with
   – threaded stopper (**5**)
   – tubing connector (**4**).
3. Attach aspiration tubing (**2**) to tubing connector (**4**) and connecting nipple (**1**).
4. Insert stopper (**6**) in bottle siphon (**7**) and push transfer tip (**8**) through the hole. Secure with O-ring and screw from 6.1818.000 Siphoning Tubing.
5. Fasten siphoning tubing (**9**) to transfer tip (**8**).
   Note:
   6.1805.200 Siphoning Tubing is available in the accessories of the KF cell. (The 6.1818.000 Tubing is not needed for siphoning off the coulometry solution.)
6. Fasten other end of siphoning tubing (**9**) to the longer tube of inlet/outlet tube (**21**).

Warning:
The waste bottle must be emptied from time to time to prevent solvent being aspirated into the pump and damaging it!

Addition of fresh solvent:

1. Fill drying tube (**15**) with molecular sieves (separate order required for molecular sieves, METROHM ordering number 6.2811.000).
2. Attach pressure tubing (**11**) to drying tube (**15**) and connecting nipple (**10**).
3. Fit bottle siphon (**18**) with:
   – threaded stopper (**17**)
   – drying tube (**15**), secure with joint clip (**16**).
4. Thread PTFE tubing (**19**) through the last free opening in bottle siphon (**18**).
5. Fasten dispensing tubing (**20**) to bottle siphon (**18**).
6. Fasten other end of dispensing tubing (**20**) to the shorter tube of inlet/outlet tube (**21**).
7. Screw bottle siphon (**18**) onto solvent bottle (**12**). In place of the 6.1608.023 Brown Glass Bottle, other reagent bottles with GL45 thread can also be used (e.g. RIEDEL DE HAEN, (1 liter), BAKER).
   Other bottles require the use of a different bottle siphon or an additional thread adapter:

– MERCK bottles:	6.1602.110 Bottle Siphon
– FLUKA bottles, RIEDEL DE HAEN (500 ml):	6.1602.100 Bottle Siphon with 6.1618.000 Thread Adapter

2.3 Connecting the power supply

The 703 Ti Stand is operated with 11 V DC/0.2 A. The power is supplied by

- a Metrohm unit, e.g. Metrohm 665 Dosimat, 701 KF Titrino. The Ti Stand is attached to these instruments via the stirrer socket (⌀) with the 6.2108.100 (50 cm) or 6.2108.110 (1 m) Cable.
- one of the following mains units:

Mains unit	*Mains voltage*	*Mains frequency*	*Plug*
6.2117.030	220 ... 240 V	50 ... 60 Hz	Euro
6.2118.030	100 ... 117 V	50 ... 60 Hz	Euro
6.2119.030	100 ... 117 V	50 ... 60 Hz	NEMA/ASA

3. Troubleshooting

Trouble	Measure
After addition the solution continues to flow into the titration vessel although the dispensing key has not been pressed.	Set up the solvent bottle such that the liquid level in bottle is lower than the level in the titration vessel.
Solvent is added at the same time as siphoning is being performed.	The drying tube in the titration vessel is constricted: – Enlarge hole in the drying tube cover to at least 2 mm. – Refill drying tube, do not pack too tightly.
The pump conveys no liquid.	– Press dispensing/siphoning key harder. – Check tightness of all connections.
In work with the KF coulometer cell a drop clings to the dispensing tube after the addition of solvent.	Press addition key briefly several times.

4. Technical specifications

Pump capacity at 25 °C	(the capacity of the diaphragm pump depends on the temperature)
Dispensing/Siphoning	more than 400 ml/min
Max. pressure on solvent bottle during dispensing	≤ 0.5 bar
Stirrer speed	200 ... 1900 revolutions/min, stabilized
Ambient temperature	
Effective operational range	+5 ... +40 °C
Storage, transport	– 40 ... +70 °C
Power supply	11 V DC/ 0.2 A
Power consumption	app. 2 VA
Safety specifications	in compliance with IEC 348
Housing	polybutylene terephthalate (PBTP)
Dimensions	
Width	102 mm
Height	
without stand rod	105 mm
with stand rod	312 or 432 mm, resp.
Depth	229 mm
Weight	
instrument alone	app. 1 kg
Including standard accessories	app. 3.2 kg

5. Warranty

The warranty regarding our products is limited to rectification free of charge in our workshops of defects that can be proved to be due to material, design or manufacturing faults which appear within 12 months from the day of delivery. Transport costs are chargeable to the orderer.

For day and night operation, the warranty is valid for 6 months.

Glass breakage in the case of electrodes or other glass parts is not covered by the warranty. Checks which are not a result of material or manufacturing faults are also charged during the warranty period. For parts of outside manufacture insofar as these constitute an appreciable part of our instrument, the warranty stipulations of the manufacturer in question apply.

With regard to the guarantee of accuracy, the technical specifications in the Instructions for Use are authoritative.

Concerning defects in material, construction or design as well as the absence of guaranteed features, the orderer has no rights or claims except those mentioned above.

If damage of the packaging is evident on receipt of a consignment or if the goods show signs of transport damage after unpacking, the carrier must be informed immediately and a written damage report demanded. Lack of an official damage report releases METROHM from any liability to pay compensation.

If any instruments and parts have to be returned, the original packaging should be used if at all possible. This applies above all to instruments, electrodes, burette cylinders and PTFE pistons. Before embedment in wood shavings or similar material, the parts must be packed in a dustproof package (for equipment, use of a plastic bag is imperative). METROHM disclaims any warranty responsibility for damage arising from the failure to observe these directions.

6. Scope of delivery and ordering designations

703 Ti Stand	**2.703.0010**
including the following accessories:	
2 Threaded Stoppers with M6 thread, PVDF	6.1446.040
1 Stopper with SGJ14 and M10 thread, PP	6.1446.060
1 Transfer Tip with M8 thread, ETFE/PTFE	6.1543.110
2 Bottle Siphons for bottles with GL45 thread	6.1602.100
1 Brown Glass Bottle with GL45 thread	6.1608.023
1 Glass Bottle with GL45 thread	6.1608.030
1 Adsorption Tube, complete	6.1609.010
2 Tubing, each 1 m, PVC	6.1801.000
1 Tubing with 2 screw nipples, M8 thread, 50 cm, PTFE	6.1805.200
1 Tubing connector with M8 thread	6.1808.050
1 Siphoning tubing, 80 cm, PTFE	6.1818.000
1 PTFE tubing, 25 cm	6.1819.030
1 Stand Rod comprising two parts of length 12 cm and 30 cm, with base plate	6.2001.010
1 Clamping ring	6.2013.010
1 Clip for SGJ14	6.2023.020
1 Cable Ti Stand - Metrohm unit, 50 cm, for the power supply	6.2108.100
1 Wrench to tighten screw fittings	6.2739.000
1 Instructions for Use	8.703.1003

Options

To customer's order and on payment of extra charge:	
Bottle siphon for Merck reagent bottles with S40 thread	6.1602.110
Thread adapter for Fluka bottles and Riedel de Haen (500 ml)	6.1618.000
Thread adapter for Fisher bottles	6.1618.010
Thinner siphoning tubing (instead of tubing 6.1818.000). The following parts are necessary:	
Siphoning tip with thread M8	6.1543.120
Tubing with thread M8 M8, 50 cm	6.1805.200
Stopper SGJ14/thread M8	6.1446.090
PTFE tubing, 88 mm	6.1819.050
Ball stopper for securing 6.1543.110 and 6.1543.120 Tips in titration vessels with SGJ14	6.1446.030
Guide sleeve for securing 6.1818.000 Siphoning Tubing in titration vessels with SGJ14	6.2705.000
Molecular sieves, pore size 0.3 nm, with moisture indicator, 250 g	6.2811.000
Magnetic stirring bars:	
Length 8 mm, Ø 4 mm	6.1903.000
Length 12 mm, Ø 4 mm	6.1903.010
Length 16 mm, Ø 4 mm	6.1903.020
Length 25 mm, Ø 5 mm	6.1903.030
Length 42 mm, ∇, length of side 15 mm	6.1906.000
Cable Ti Stand - Metrohm unit, 1 m, for the power supply	6.2108.110
Mains units:	
220...240 V, Euro plug	6.2117.030
110...117 V, Euro plug	6.2118.030
110...117 V, NEMA/ASA plug	6.2119.030