FRIDURIT®

FRIDURIT® Neutraliser unit

Technical description

October 2004

Safety and competence for successful laboratory projects

TÜV CERT ISO 9001

FRIATEC

FRIDURIT®

1.1 What you can expect

Safety and protection of the environment:

- neutralisation of acid and alkaline waste water on the spot
- helps meet legal environmental requirements
- high rate of neutralisation up to 200 l/h
- user level adjustment of neutralisation control to suit local requirements
- reliable and fully automatic
- injection of acid and alkaline directly, without hose, tube and pumps
- test run and 100% testing before delivery

Display of FRIDURIT® neutraliser unit

User friendly and convenient:

- easy to install, compact and space-saving
- quiet, max. 54 dB
- simple operation
- multilingual display
- hard-wearing film keyboard
- easy calibration of pH-probe
- safe and easy filling of integrated chemical tanks
- service-friendly construction
- delivered ready for use, thus easy to install
- connection to fume scrubbers and cup sinks possible
- optional: error message signal to facility management
- extensive accessories

Experience and competence:

- supplier of fume scrubbers and neutraliser units for many years
- many diverse projects supplied
- service organisation in Germany and abroad for many years
- quick and reliable delivery of spare parts
- certified according to DIN ISO 9000-2000
- EMC tested

FRIDURIT® neutraliser unit and fume scrubber

Our technical specifications are based on the current DIN, EN and ISO norms.

1.2 Declaration of conformity

Konformitätserklärung
Declaration of conformity
Déclaration de conformité

Wir/We/Nous:

FRIATEC AG
FRIDURIT Labortechnik
Steinzeugstraße 50
D - 68229 Mannheim

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product
déclarons sous notre seule responsabilité que le produit

FRIDURIT® Neutra-Anlage C100 / Neutraliser / Appareil de neutralisation

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder Richtlinien übereinstimmt.
to which this declaration relates is in conformity with the following standards or other normative documents.
auquel se réfère cette déclaration est conforme aux normes et aux documents normatifs.

CE-Konformität / CE Conformity / Conformité CE

DIN EN 61000-6-1	Fachgrundnorm Störungsaussendung/ Generic emission standard/ Norme générique émission
DIN EN 91000-6-3	Fachgrundnorm Störfestigkeit/ Generic immunity standard/ Norme générique imunnité
79/23/EWG	EMV-Richtlinie/ EMC Directive/ Directive concernant la CEM
89/336/EWG	EMV-Richtlinie/ EMC Directive/ Directive concernant la CEM
ATV Regelwerk	Abwasser-Abfall, Arbeitsblatt A 115

Mannheim, 29. Januar 2004

ppa. Dr. Reinhard Grybowski
Bereichsleiter

i.V. H.P. Cuntz
Leiter Anwendungstechnik

2.1 The Material

The FRIDURIT® neutraliser unit is made from finished polypropylene (PP). PP has several advantages:

- it remains rigid and has a high and predictable firmness
- it is very resistant to chemical attack
- it is durable and resistant to ageing

2.2 The system

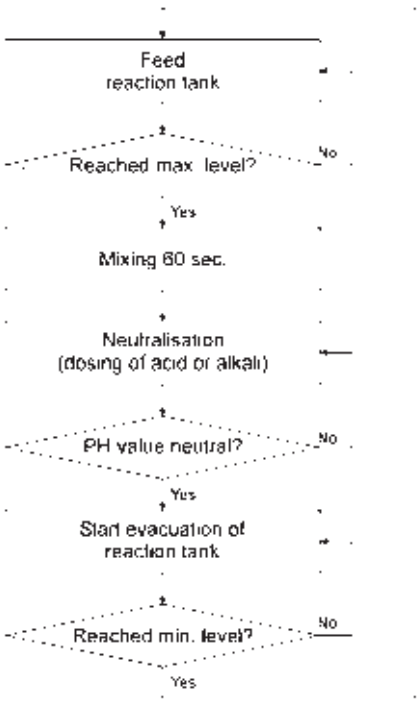
The FRIDURIT® neutraliser unit C100 with its electronic controller and specially designed mixer/pump unit is fully automatic, self regulating and quickly and reliably neutralises acidic and alkaline effluent. It is compact, easy to assemble and service and extremely robust.

mixer/ pump unit

The FRIDURIT® neutraliser unit C100 has been specially designed to be fitted to laboratory fume cupboards and bench tops, but it can also be used as a free-standing unit for automatic neutralisation of both acid and alkaline waste water. The unit neutralises this waste water on the spot and is thus a great help in reducing environmental pollution. The FRIDURIT® neutraliser unit C100 meets the most recent environmental requirements.

2.3 How it works

The acid and alkaline waste water formed in the laboratory is collected in the mixing tank of the FRIDURIT® neutraliser unit C100. When the maximum level is reached (100 litres), the neutralisation process is started and the unit operates as follows:



2.4 Instrumentation / Control

The pH-value of the acid and alkaline waste water is established by a measuring electrode and shown on a display.
Acid or alkaline is dispensed proportionally to the pH-value measured.

2.5 Quality assurance

Every FRIDURIT® neutraliser unit C100 is set for optimum performance before it leaves our plant. This is ensured by a test run and by checking electrical and control functions. The units satisfy current VDE- and EMC regulations (see declaration of conformity, point 1.2).

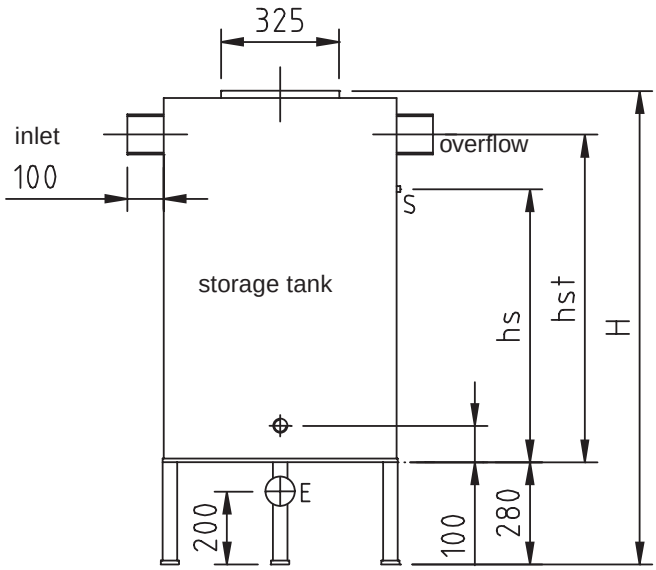
2.6 Equipment supplied

The FRIDURIT® neutraliser unit is supplied ready for use after connection to the electrical supply and plumbing.

Connections

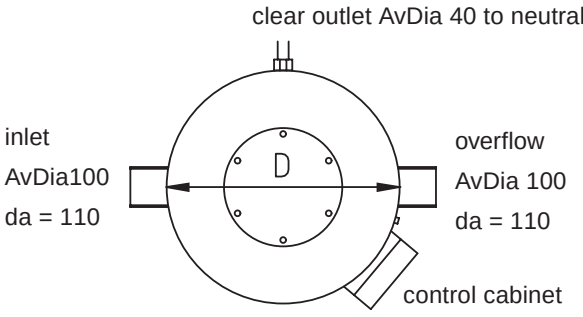
2.7 Accessories

Storage tank



E = ventilation AvDia 50
S = Float switch

	V300	V500	V1000	V2000
Dimensions: (mm)				
D	640	750	995	1310
H	1315	1560	1820	2175
hst	920	1460	1420	1770
hs	820	1080	1320	1670
Dead weight: (kg)	ca. 28	ca. 40	ca. 90	ca. 110



Built-in example
FRIDURIT® neutraliser unit with storage tank

More accessories see specification.

2.8 Technical data at a glance

FRIDURIT® Neutraliser unit C100	
General:	neutralises acidic and alkaline laboratory effluent
Placement:	to be fitted in laboratory fume cupboards, under tables or as free-standing unit
Materials used Parts in contact with media:	casing polypropylene, polyvinylchloride (PVC) and ethylene-propylene-caoutchouc (EPDM)

Performance:	
	Maximum 200 l/h (depending on the level of contamination of the waste water)

Capacity:	
Mixing tank:	ca. 100 l
Acid tank:	ca. 25 l
Alkali tank:	ca. 25 l

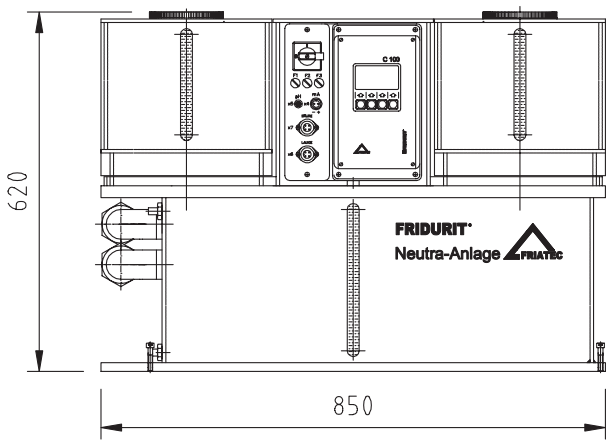
Electrical data:	
Operating voltage:	three phase current 400 V, 50 Hz, max. performance 0.75 kWh

Weights and dimensions:	
Width:	850 mm
Depth:	570 mm
Height:	620 mm (height required = 640 mm)
Dead weight:	55 kg

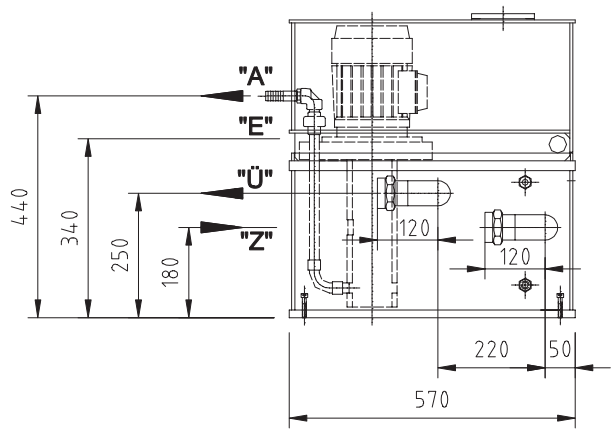
Connections:	
Inlet size / inlet height "Z":	R 1 ½" interior thread / 180 mm
Outlet size / outlet height "A":	Hose connector AvDia 15 / 440 mm
Overflow / overflow height "Ü":	R 1 ½" interior thread / 250 mm
Ventilation / ventilation height "E":	Hose connector AvDia 25 / 340 mm

Optional accessories:	
	feed installation set AvDia 40, sedimentation tank, storage tank, lifting pump, pen- or paperless recorder for documentation of the neutralisation process

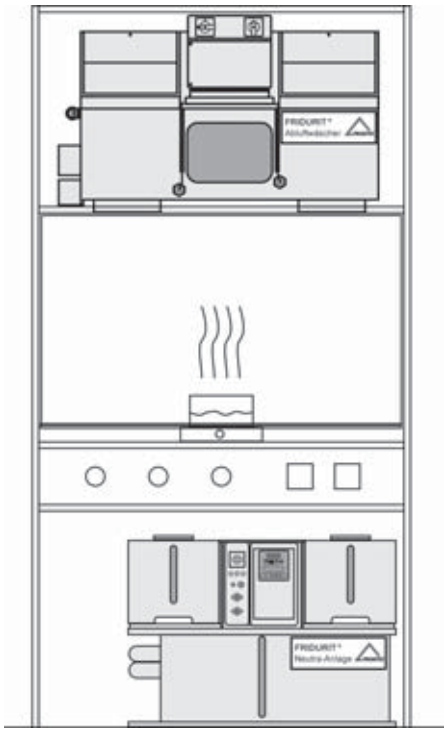
3. Drawings



Front view



Side view (connection)



Built-in situation
FRIDURIT® neutraliser unit
and fume scrubber

4.1 Specification

Fully-automatic and compact **neutraliser unit "FRIDURIT® neutraliser unit C100"** fabricated from polypropylene. Self regulating neutralisation control.

Dimensions:	width = 850 mm, depth = 570 mm, height = 620 mm (height required: 640 mm)
Weight:	55 kg empty, 220 kg full
rate of neutralisation:	ca. 200 l/h at maximum, depending on the level of contamination of the water

1 **mixing tank**, usable capacity approx. 100 litres with:

1 inlet, R 1 ½" interior thread	inlet height:	180 mm
(For secure installation we recommend the feed installation set, see accessories)		
1 overflow, R 1 ½" interior thread	overflow height:	250 mm
1 outlet AvDia 15, hose connector	outlet height:	440 mm
1 ventilation AvDia 25, hose connector	ventilation height:	340 mm

1 inspection opening with cover
2 float switches "MAX" und "MIN"
1 pH-measuring electrode

complete **dispensing unit** comprises:
1 integral alkali tank, capacity approx. 25 l, with lock, filler neck with cover, ventilation, window and dispensing valve
1 integral acid tank, as per alkali tank

1 **mixer/pump unit** complete with three-phase motor 0.75 kW

1 **electronic control and adjustment unit** consisting of:
pH-measuring and adjustment unit with extended functions, display of the pH-value and operator guidance, control of the pulse width of the metering valves
circuit elements for triggering the motor and solenoid valves
1 voltage-free contact to lock the unit with a FRIDURIT® fume scrubber
1 voltage-free fault relay contact (no/nc)

necessary plugs for electrical connection (enclosure)

installation and operating instruction

4.2 Specification accessories

1 **feed installation set** AvDia 40 made from PVC consisting of:
hand ball valve, soil trap and motor ball valve to lock the inlet during neutralisation

1 **sedimentation tank** made from PP for larger quantities of dirt, with 3-chamber-sedimentation system, removable basket and odourtight cover

D = 400 mm	L = 495 mm	H = 450 mm
inlet G 1 ½"	inlet height: 285 mm	
outlet G 1 ½"	outlet height: 215 mm	

1 **storage tank / lifting pump V50** made from PP, volume 35 litres, with control cabinet and feed pump made from PP

dimensions:	B = 545 mm	H = 474 mm	T = 575 mm
inlet and overflow:	R 1 ½"		

oulet (pump pressure pipe) AvDia 20 (hose connection)
lifting capacity - lifting height: max. 20 l/min - max. 6 m

1 **storage tank** V300 made from PE, capacity 300 l with control cabinet

dimensions:	diameter:	640 mm
	overall height:	1315 mm
	inlet size:	AvDia 100
	overflow/ventilation:	AvDia 100
	outlet size:	R 1 ½"
	ventilation:	DN 50

1 **storage tank** V500 made from PE, capacity 500 l with control cabinet

dimensions:	diameter:	750 mm
	overall height:	1560 mm
	inlet size:	AvDia 100
	overflow/ventilation:	AvDia 100
	outlet size:	R 1 ½"
	ventilation:	AvDia 50

Other sizes: 1000 l and 2000 l capacity

1 **single colour line recorder** for documentation of the neutralisation process

commissioning and instruction (an appointment must be pre-arranged) by technical service organisation (not available in every country)

service by technical service organisation (not available in every country)

FRIDURIT® system solutions
To protect the environment and the laboratory
- and for your safety

Laboratory benchtops and sinks made from FRIDURIT® technical ceramics

Perfect safety for you and your laboratory, the highest resistance to virtually all chemicals commonly used in the laboratory. Easily cleaned and safe thanks to the jointless scratch and abrasion proof surface. Resistant to high temperatures, non combustible, and of course 100% recyclable.

FRIDURIT® Fume scrubber
Absorbs organic contaminants in the waste air from the laboratory safely and reliably. A mature solution to the problem.

FRIDURIT® Neutraliser unit
For safe neutralisation of all laboratory effluent. Fully automatic, quiet as a whisper, and reliable.

FRIDURIT® Fume filter
For the adsorption of organic solvents in waste air from the laboratory. Environmental protection thought through to the end.

TÜV CERT
DIN EN ISO 14001
Zertifikat: 01 104 042131

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