

Animal Reproduction Technology Small Ruminants and Camelids





MINITUBE INTERNATIONAL

We need detailed knowledge of reproductive physiology in order to ensure that you are successful in the use of artificial insemination. Veterinarians and agro-scientists specialized in this field therefore, are responsible at Minitüb for product development and for consulting with our clients. The technical demands of semen processing and preservation also require knowledge and expertise in other fields, such as electronics, sensorics, mechanics, chemistry, cryobiology and many others. At Minitüb, these demands are met by specially trained engineers and scientists.

For product development, our teams of veterinarians and engineers cooperate closely. Together, they offer all the knowledge and experience necessary to quarantee the best possible results.

Minitube International offers you specialized training programs, courses and technology transfer. In close cooperation with renowned research institutions we conduct fundamental research concerning assisted reproduction technologies as well as applied research that leads to improved techniques in production, evaluation and conservation of semen and embryos.

Originating in Tiefenbach, Bavaria, Minitüb has established its competence over many years in more than 100 different countries all over the world. With several companies, highly-trained local representatives, and multilingual professionals, we keep in contact with the international Al industry. Innovative ideas, modern production techniques and a keen appreciation of product quality are the basic ingredients of our knowledge and your success.

We thank you for your interest and your confidence placed in us.

DR. CHRISTIAN SIMMET

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Semen Collection

Electro ejaculator

Electro ejaculator set, consisting of heavy-duty carry case, with power supply unit and connecting cables for external battery (12 V), DC 100-240 V.

Electro ejaculator REF. : 11900/0000

Electro ejaculator probe 1" REF. : 11900/0021

Semen collection set for electro ejaculator REF. : 11900/0250



SEMEN COLLECTION

Artificial vagina

For small ruminants

- Rigid rubber casing with valve
- Latex inner liner with roll-up ends
- Rubber bands
- Graduated collection vial in tulip shape, 4 ml
- Warming bag

Artificial vagina, 11 cm REF. : 11320/0000

For cattle and camelids

AV casing with valve, 30 cm REF. : 11021/0033



Accessories

Latex inner liner, smooth, for 11320/0000 1	REF.	: 11322/0002
Latex inner liner, smooth, for 11021/0033	REF.	: 11022/0002

Latex inner liner, rough, for 11021/0033 **REF.** : 11022/0005

Semen collection vial, tulip shape, graduated	2
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2 ml	REF.	: 11323/0005
4 ml	REF.	: 11323/0004
8 ml	REF.	: 11023/0016
10 ml	REF.	: 11613/0010

Silicone plug for vial 11323/0004 **REF.** : 11023/1592

Semen collection vial for camelids, 3

8 ml, double walled, for 11021/0033	REF.	: 11023/0017

Silicone plug for the top of vial 11023/0017	REF.	: 11023/1591
Silicone plug for the bottom of vial 11023/0017	REF.	: 11023/1593

Warming bag 4 RE	F. :	11225/0026
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Semen collection glove, sperm safe REF. : 11128/0055

(available in various sizes)

Thermometer, up to +100°C, red filling **REF.** : 11027/0100





Semen Evaluation

AndroVision®

This highly efficient automated system for computerized semen analysis stands out for the integration of the classic CASA analysis with more advanced assays for sperm functionality.

Concentration and motility can be assessed accurately and quickly with up to 1000 cells per field. Morphology assessment can be added to one field, making AndroVision® the perfect tool for an objective and complete semen evaluation. All images and data are stored for later review.

The user interface is straightforward and easy to understand. An analysis report can be generated as a hard copy print or a digitized file. AndroVision® can be upgraded with a number of additional modules. These features and more make AndroVision® the ideal choice for semen assessment in a research and production lab.

AndroVision® software

with PC and accessories REF. : 12500/0000

AndroVision® camera

high speed colour camera REF. : 12500/4200



ANDROVISION® - MORE THAN CASA

AndroVision® software modules

Morphology and Morphometry

Interactive system for analysis of sperm morphology and morphometry. Identifies sperm in stained as well as unstained samples and measures length and width of the sperm head, head shape and midpiece asymmetry of each single sperm cell (acc. to Krüger). Results can be classified into a large range of morphologic abnormalities.

Module Morphology and Morphometry REF. : 12500/1300

Viability

Automated count of the percentage of membrane intact sperm, based on a double stain fluorescence assay.

Module Viability* REF. : 12500/1400

Acrosome Integrity

Automated count of percentage of sperm with damaged acrosome, based on a double stain fluorescence assay.

Module Acrosome Integrity* REF. : 12500/1600

Mitochondrial Activity

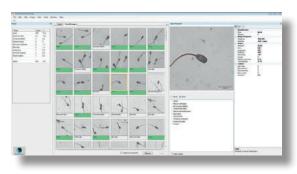
Automated count of percentage of sperm with active mitochondria, based on a double stain fluorescence assay.

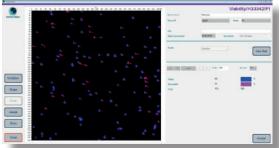
Module Mitochondrial Activity* REF. : 12500/1700

DNA Integrity

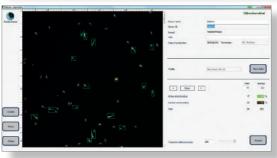
Automated reporting of the percentage of sperm with defective DNA based on the halo-technique combined with fluorescent staining.

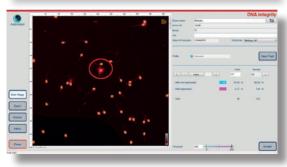
Module DNA Integrity* REF. : 12500/1800











^{*} requires fluorescence microscope

Phase contrast microscope MBL

Functional microscope for semen analysis with phase achromat objectives 10x, 40x, 100x, heating system with temperature control unit HT 50 with digital temperature display and freely selectable temperature adjustment.

Binocular REF. : 12010/2000

Binocular, with ocular colour camera and monitor REF. : 12010/2100

Semen dyes

Spermac* , semen dye for morphological evaluatio	n,	
4 x 50 ml	REF.	:15405/0000
Eosin G , solution for supravital staining,		
50 ml	REF.	: 15405/0025
Nigrosin, solution for supravital staining,		
50 ml	REF.	: 15405/0029
Farelly stain , for morphological evaluation,		
consisting of 3 components, 250 ml each	REF.	: 15405/0026

^{*}Not recommended for camelid semen

Microscopy supplies

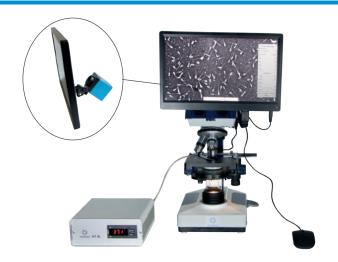
Microscope slide, 76 x 26 mm, 50/box	REF.	:15400/2400
Cover glass , 18 x 18 mm, 100/box	REF.	: 15401/0990
Immersion oil, 8 ml	REF.	: 12000/0101

Counting chambers (hemocytometers)

Thoma new	REF.	: 15150/4771
Neubauer improved	REF.	: 15152/4421
Bürker	REF.	: 15153/0000

Pipettor

Pipettor 10 – 100 μl	REF.	: 12425/4810	
Tips for pinettor, 1000/hag	RFF.	: 12425/9409	









SEMEN EVALUATION

Photometer SDM6

Your benefits

- With programs for the determination of sperm concentration of ram, buck, bull, boar and stallion semen
- Automatic calculation of extender volume and number of doses
- Display of semen concentration in 109 sperm cells/ml
- Optional: integrated printer for printout of ejaculate production data
- Serial and parallel interfaces for data transfer
- Large touch screen, easy to use

Photometer SDM6, for the determination of semen concentration and for dose calculation, with integrated printer

REF. : 12300/0006

Photometer SDM6, without printer REF. :12300/0008



Accessories

Paper for printer	REF.	: 12300/0311
Macro cuvette, 4 ml, 100/package	REF.	: 12301/0003



Photometer SDM 1

The SDM 1 is a **compact, highly accurate photometer** developed for measuring sperm cell concentrations. It can be calibrated for small ruminant species, bovine, canine, equine, and porcine. Cleaning is simple, maintenance is minimal. The semen concentration is displayed in million sperm cells/ml.

- Calibration for ram or buck semen
- · Raw semen samples can be used without dilution
- LED light source provides stable output
- Cuvette is securely fixed in the correct measuring position
- Calibration is performed automatically with each sample measurement

Photometer SDM 1 for buck semenREF.:12300/0104Photometer SDM 1 for ram semenREF.:12300/0106

Accessories

Microcuvette for SDM 1, 100/box REF. :12300/1111

Multispecies Software

for reprogramming to other species REF. : 12300/0130





Semen Extenders

Semen extenders

AndroMed®

- Egg yolk free medium for frozen and liquid semen of ruminants
- No risk of microbiological contamination
- Easy to prepare, time saving

AndroMed® 200 ml, for a total of 1000 ml of extender, with antibiotic formula according to EC requirements

iorificia according to EC requirements		
	REF.	: 13503/0200
AndroMed® CSS, One-step		
200ml, for a total of 1000 ml of extender	REF.	: 13503/1200
AndroMed® CSS, Two-step, fraction 1		
100 ml, for a total of 500 ml extender	REF.	: 13503/1250
AndroMed® CSS, Two-step, fraction 2		
200 ml, for a total of 500 ml extender	REF.	: 13503/1251

Steridyl®

- TRIS based semen freezing extender with sterile egg yolk included
- Easy to prepare, time saving

Steridyl® 500 ml concentrate, for a total of 1250 ml of extender, sterilised, with antibiotic formula according to EC requirements

	REF.	: 13500/0260
Steridyl® CSS, One-step		
500 ml, for a total of 1000 ml of extender	REF.	: 13500/0280
Steridyl® CSS, Two-step, fraction 1 500 ml, for a total of 1000 ml of extender	REF.	: 13500/0290
Steridyl® CSS, Two-step, fraction 2 500 ml. for a total of 1000 ml of extender	REF.	: 13500/0295

SEMEN EXTENDERS

Triladyl®

Since decades, one of the most successful extenders for bull semen freezing in the world. Used for one-step semen processing at room temperature, it stands for constantly optimal results of your bull population, even when using highly diluted ejaculates.

Triladyl® 250 g, for a total of 1250 g of extender, with antibiotic formula according to EC requirements **REF.** : 13500/0250

Triladyl® CSS, 200 g, for a total of 1000 g of extender,

without antibiotics REF. : 13500/1200

Biladyl®

The Two-step extender based on the proven Triladyl® formula, according to the CSS-requirements (Certified Semen Services). Consisting of fractions A, B and antibiotic supplement.

Biladyl®, fraction A, 49 g,

for a total of 500 g extender REF. : 13500/0004

Biladyl®, fraction B, 250 g,

for a total of 750 g extender REF. : 13500/0006

Antibiotic supplement for One-step extender

Antibiotic formula in powder according to CSS protocol, contains: 550 mg Gentamicin, 110 mg Tylosin, 330 mg Lincomycin and 660 mg Spectinomycin.

REF.: 13504/9000

Antibiotic supplement for Two-step extender

Antibiotic formula in powder according to CSS protocol, contains: 300 mg Gentamicin, 60 mg Tylosin, 180 mg Lincomycin, 360 mg Spectinomycin.

REF. : 13500/0005

Bovidyl®

Medium for preservation of liquid semen from ruminants, 270 ml. Needs addition of 30 ml egg yolk. With antibiotic formula according to EC requirements. For a total of 300 ml of extender.

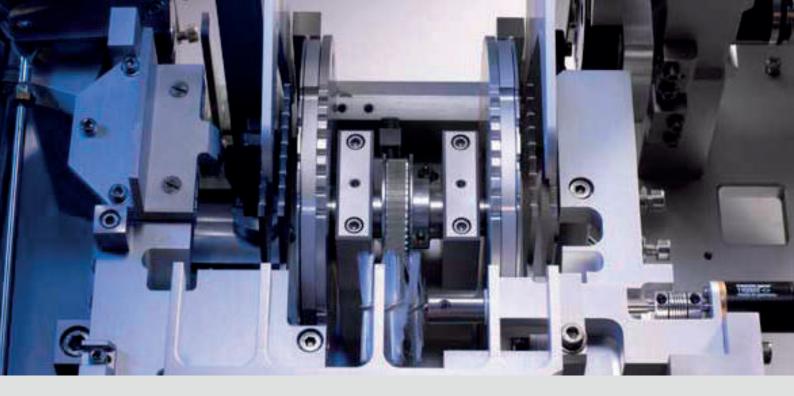
REF. : 13501/0150

OviPlus

Fresh semen extender concentrate, 24 ml, suitable for small ruminant semen. Requires addition of fresh egg yolk. For a total of 200 ml of extender.

REF. : 13610/0025





Straw Processing and Freezing

Semen straws 0.25/0.5ml

MiniStraw, 0.25 ml, clear, 2000/bag	REF.	: 13407/0010
MediumStraw, 0.5 ml, clear, 2500/bag	REF.	:13408/0010
EcoStraw, 0.25 ml, clear, 2000/bag	REF.	: 13407/3010
EcoStraw, 0.5 ml, clear, 2500/bag	REF.	: 13408/3010

EcoStraws feature a plug with a shorter inner wick section that absorbs 3 – 4 % fewer sperm cells than the corresponding symmetrical plugs of standard semen straws. They are ideal for overnight equilibration of semen at refrigerated temperatures. EcoStraws are used in exactly the same way as standard semen straws.

Semen straws made by Minitube are available in many different colours, and pre-printed upon request.



PRINTERS FOR SEMEN STRAWS

AHDR/HDR Printer

Clichés printer for straws

For 0.5 or 0.25 ml straws and Minitubes, with counter. Capacity approx. 5000/3000 straws/hour (AHDR/HDR).

AHDR, automatic printer	REF.	:13142/1000
HDR, manual printer	REF.	:13140/0000

Set of alpha-numerical characters		
for 0.5 ml straws and Minitubes	REF.	:13052/0000
for 0.25 ml straws	REF.	:13052/0010
Printing ink ER, 40 ml, black	REF.	:13056/0033
Thinner for ER printing ink, 1000 ml	REF.	:13056/9000
Double stick tape	REF.	:13050/0010







EasyCoder

Thermo transfer printer for straws with automatic straw feeder

Your benefits

- Unmatched neat and clear printing on 0.5 and 0.25 ml straws
- Immediately non-abrasive print
- Prints up to 3 lines per straw, even with barcodes, logos and specific characters
- Control via PC by a clear and user-friendly Minitube software
- Clean and odourless working without ink and solvents
- Very simple handling, only little maintenance required

EasyCoder	REF.	:13038/0000

Colour band for straw printer EasyCoder,

black, roll with 200 m REF. : 13038/0010

SFS 133

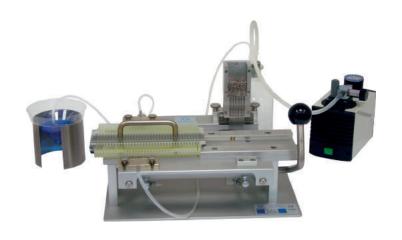
Semiautomatic filling and sealing machine

for 0.25 ml straws	REF.	: 13133/0135
for 0.5 ml straws	REF.	: 13133/0133

Low density vacuum pump, 30 - 60 Hg, with manometer and adjustable valve, 230 V/50 Hz

	REF.	:13133/0267
Loading device , for SFS 133 racks		
0.25 ml	REF.	: 13133/0025
0.5 ml	REF.	:13133/0005
Filling head with 6 nozzles	REF.	:13133/1000
Suction head with 6 nozzles	REF.	:13133/2000
Silicone tubing for SFS transparent, 3 x 1 mm	REF.	: 13133/3550
Washer for all filling and suction nozzles,		
2000/bag	REF.	:13021/3004
Metal sealing ball for 0.5 ml straw	REF.	:13400/9900
Metal sealing ball for 0.25 ml straw	REF.	: 13400/9970

Coloured glass sealing balls available.

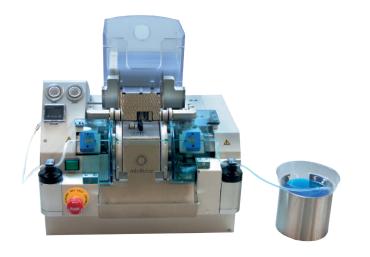


MPP UNO

Automatic filling and sealing machine for 0.25 and 0.5 ml straws with ultrasound sealer

Capacity approx. 4000 straws/hour. Power supply: 110 V/60 Hz or 230 V/50 Hz.

MPP UNO, complete REF. :13017/0000



Your benefits

- Conversion between 0.25 ml straws and 0.5 ml straws in only a few minutes
- Very compact device which requires minor space
- Best hygienic and safety conditions due to completely closed filling and sealing area

Accessories

Straw hopper	REF.	:13018/0006
Filling nozzle 0.25 ml	REF.	: 13017/0012
Suction nozzle 0.25 ml	REF.	: 13017/0022
Filling nozzle 0.5 ml	REF.	: 13017/0017
Suction nozzle 0.5 ml	REF.	: 13017/0027
Washer, 2000/bag	REF.	:13021/3004
Filling tubing, 100/bag	REF.	:13021/3801

:16821/5021

SEMEN FREEZING

IceCube 145 - Automatic freezer

Computer controlled freezer, with comfortable data input and automatic recording of the freezing curve.

Technical features

- Temperature range: +40 to -180°C
- Freezing rates: 0.01 to +60°C/min
- Heating rates: 0.01 to +15°C/min
- Temperature measurement via 2 Pt-100 resistance thermometers
- Capacity: approx. 900 straws per freezing cycle

Software for freeze program and control, unlimited storage of programs and processed files, colour graphic display of all temperature curves, wide possibility of parameter settings.

Dimensions: 540 x 420 x 520 mm (l x w x h). 29 kg.

IceCube 14S with connector kit for LN2 pressure container

with 10" tablet, no PC required	REF.	: 16821/3000
with 12" touch screen monitor to be connected to PC or laptop	REF.	: 16821/2000
without monitor to be connected to PC or laptop	REF.	: 16821/1000

^{*}Spacer included

Freezing units

Technical details

- Floating rack for straws included
- The distance between straws and liquid nitrogen level can be adjusted with floating rack
- Fits 0.5 ml and 0.25 ml straws
- With high quality styrofoam chest and stainless steel inner box with working tray

For 20 straws	REF.	: 15043/0636
For 90 straws	REF.	: 15043/0736

Accessories	
Loading block for 90 straws rack	REF. : 15043/0738
Additional racks:	
for freezing unit for 20 straws	REF.: 5015043/0600
for freezing unit for 90 straws	REF.: 5015043/0900

Accessories Rack for IceCube 14S, for 36 straws :16821/5036 REF. Handling rack for IceCube 14S :16821/5030 REF. Loading block for rack 16821/5036 :16821/5037 Spacer for IceCube :16821/5018 REF. Liquid Nitrogen pressure container for IceCube 14S, 60 I :16820/1900 REF. Roller base for LN container :16501/0204 **Autoseeding Preparation** required for freezing embryos :16821/5019 **Autoseeding Rack***, capacity: 35 x 0.5 ml straws **REF.** :16821/5020

Autoseeding Rack*, capacity: 43 x 0.25 ml straws **REF.**









Insemination and Pregnancy Detection

Insemination kit for small ruminants

Rugged plastic case contains:

- 1 Electronic thawing unit MT 30/54 (see page 18)
- 50 Universal sheaths for all types of straws, short length for small ruminants
- 1 QuickLock insemination gun, short length for small ruminants
- 1 ReproJelly semen friendly lubricant, 100 ml
- 1 Vaginal speculum for small ruminants, with 50 exchangeable transparent plastic tubes
- 1 MiniCutter
- 1 Thermometer
- 1 Pair of tweezers
- 1 Canister clamp

Insemination kit for small ruminants REF. : 17350/0100

Components also available individually!



Insemination pipettes for camelids

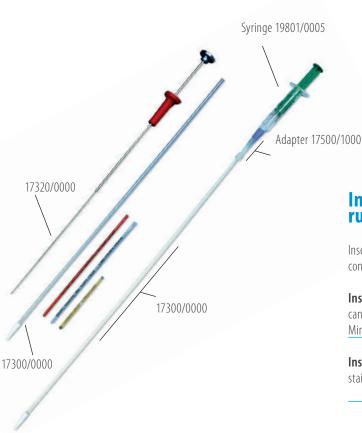
Long pipette with very flexible tube for deep intrauterine insemination. Smooth round tip for gentle introduction. Flexible shaft facilitates handling. 1/package, sterilised

Length: 65 cm	REF.	:17209/1265
Length: 75 cm	REF.	: 17209/1275

Flexible stylet used with insemination pipette and 0.5 ml straws

For 65 cm pipettes	REF.	:17209/1065
For 75 cm pipettes	REF.	:17209/1075





Insemination pipette for small ruminants

Insemination pipette with excentrical tip for intracervical Al under visual control (speculum), 50/bag.

Insemination pipette with excentrical tip

can be used with 0.25 ml and 0.5 ml straws,

Minitubes and syringe with adapter REF. :17300/0000

Inseminator for small ruminants, for 0.25/0.5 ml straws and Minitubes, stainless steel. To be used with pipettes with excentrical tip.

REF. :17320/0000

Disposable syringe, 5 ml, Luer mount, sterilised,

all plastic, non spermicidal, 100/package REF. : 19801/0005

Adapter for Liquid Semen Pipette, with tubing REF. :17500/1000

QuickLock and sheaths

QuickLock insemination gun for small ruminants, to be used with Universal sheaths. Suitable for all kinds of straws (0.25 ml, 0.5 ml and Minitubes). For intravaginal Al without speculum. Very handy lock system for sheaths. Secure emptying of straws without backflow.

REF. :17350/0000

Universal Al Sheath for QuickLock gun for sheep and goat. Round smooth tip, very easy to use. 50/package.

REF. :17350/0010



Vaginal specula

Vaginal speculum, with battery handle with incorporated lamp, for small ruminants and camelids, total length 240 x 17.3 mm diameter 1

REF. : 17373/0000

Exchangeable transparent plastic tube for speculum 17373/0000, smooth front edge, disposable, length 19 cm, diameter 17.3 mm,

50/package 2 REF. :17373/0001

Vaginal speculum, duckbill type, total length 200 mm, stainless steel 3

REF. :17370/3772

Disposable speculum for camels, made of cardboard, inside with reflecting aluminium coating, smooth front edge for gentle introduction, inner diameter: 3 cm, length: approx. 43 cm 4

REF. :17210/0000

LED-light, battery operated (up to 250 h), with clip for fixing length: 96 mm REF. : 17210/0010



Cytology Brush

Disposable set for collecting endometrial cells for cytology.

Cytology Brush for camelids, single packed, sterile,

single use, delivered with hygienic cover REF. :17075/0010



Laparoscopic Al equipment

Robertson pipette

For laparoscopic insemination, to be used with Lap Al gun or syringe, non sterile, 10/package **REF.** : 23700/2200

Robertson pipette

For donor ewes, FSH stimulated

and thick uterine walls **REF.** : 23700/2201

Lap Al Gun, for Robertson Pipettes 1

0.25 ml straws REF. : 23700/2205

Stylet for removal of emptied 0.25 ml straw 2

out of Robertson Pipette REF. : 23700/2206

Inner catheter for Lap Al Gun 3

for the insemination of bulk semen REF. :23700/2207



STORY (no) attrollus VET 624325 20

Laparoscope set for artificial insemination of small ruminants

REF. :23700/1010

Contains the following components:

Cold-light fountain with anti-fog pump,

400 A cable, 230 VAC, 50/60 Hz **REF.** : 23700/1512

2 Trocars 7 mm with blunt tip, consisting of spike and sheath, with multifunction valve. Trocar also separately available REF. :23700/1013

Hopkins forward oblique telescope 30°, enlarged view, \emptyset 6.5 mm, length 35 cm, autoclavable

REF. :23700/1400

Fibre optic light cable Ø 3.5 mm, length 300 cm REF. :23700/1514

Separately available:

CO₂ insufflator REF. : 23700/1450

Light source for endoscopes, portable,

including charger and spare battery REF. : 23700/1517

Cradle for laparoscopic Al in sheep

Facilitates secure fixation of the sheep during the whole procedure and allows tipping over in oblique position right before Al. **Foldability** and **light weight** allow easy transport and storage.

Dimensions (WxHxD): 1345 x 680 x 560 (Folded: 550 x 310 x 270)

Cradle for laparoscopic Al REF. : 23700/3000



Thawing Unit MT 30/54

- Electronic temperature control
- Accuracy: ± 0.2 °C
- Power supply: 12 V DC (car battery)

35°C	REF.	: 17044/0035
37°C	REF.	: 17044/0037
38°C	REF.	: 17044/0038
50°C	REF.	: 17044/0050

Accessories		
Converter for thawing device 12V/220V	REF.	: 17165/1395
Thermometer for thawing device	REF.	: 17049/0000



PBS Blue

Thaw medium for pellets, marker solution for



Lubricant ReproJelly

Non-spermicidal lubricant, water soluble

- Iso-osmotic and sperm friendly, supports the sperm cell viability
- Batches are tested for sperm compatibility
- Ideal viscosity to better coat gloves, Al equipment and instruments

Tube with 100 ml, resealable	REF.	: 11907/0100
3.0 I canister, without dispenser	REF.	: 11907/3000
Dispenser for canister	REF.	: 11907/3100





PREGNANCY DETECTION

Pregnancy tester

Instrument for diagnosis of pregnancy in **small ruminants** after 65 days by means of ultrasonic waves. Operated with rechargeable or normal battery. **Very handy, robust and easy to operate.**

Good freedom of movement due to a probe connected with a spiral cable. Complete with carry case, test body, wrist band, contact gel bottle and standard battery.

REF. :23350/2838

Charger for 100-240 V with rechargeable battery **REF.** :23350/2840







Ultrasound scanner for small ruminants

Portable ultrasound scanner for transabdominal pregnancy detection in sheep and goats. Very robust, battery operated, easy to clean.

Stable carrying case, electronic 3.5 MHz convex probe (70° forward), freeze-function, carrying strap, two rechargeable batteries, battery charger, USB cable to transmit pictures.

Ultrasound scanner with probe REF. : 23500/1000

Spare battery set (2 pcs.) **REF. :5023500/1010**

Ultrasound device for camelids

Portable ultrasound scanner for pregnancy detection. Suited for transrectal pregnancy check in camelids. Very robust, battery operated, easy to clean.

With rechargeable battery, power supply carry strap, ReproJelly and heavy duty case. 100-240 $\mbox{\rm V}$

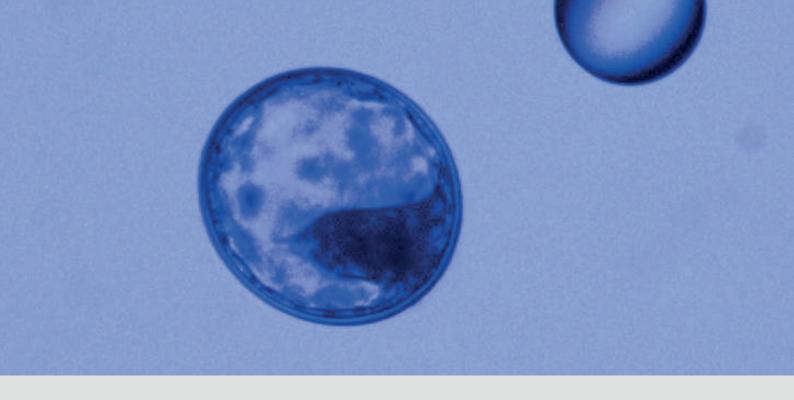
Ultrasound device REF. : 23500/1005

Linear Probe 6.5 MHz

for rectal pregnancy detection REF. : 23500/1106

Probes exchangeable. Convex probe available.





Embryo Collection and Transfer

Flushing media

BoviFlush

Medium for bovine and ovine embryo recovery

A complete formulation containing buffer solution, BSA or PVA and $\mbox{\sc Gentamic}\mbox{\sc in}$

- BSA of high protein purity
- No additives required
- Infusion bag with 3-way port configuration

With BSA and antibiotic, 1 litre	REF.	: 19982/6001
With PVA and antibiotic, 1 litre	REF.	: 19982/6011

CamelFlush

Medium for flushing embryos of camelids

CamelFlush is available in plastic bottles and infusion bags.

With BSA and antibiotic, 1 litre, bag	REF.	:19982/6601
With BSA and antibiotic, 1 litre, bottle	REF.	:19982/6701
With PVA and antibiotic, 1 litre, bag	REF.	:19982/6611



EMBRYO COLLECTION AND TRANSFER

Holding medium

A multiple application medium for:

- Holding in vivo or in vitro derived embryos at room temperature in atmospheric air
- Washing and rinsing embryos
- Loading embryos for transfer to recipients

BoviHold – Holding medium

Buffered solution containing Pyruvate, BSA and Antibiotic,

20 ml, vial **REF.** :19982/6050

Cryopreservation medium

Medium for conventional slow-rate freezing of embryos.

The cryopreservation solution contains a buffered solution with D-glucose, Sodium-pyruvate, BSA and antibiotic.

BoviFreeze

with ethylene glycol for conventional freezing and direct transfer after thawing, 5 ml, bottle

REF. : 19982/6051



EmGuard (Ref.: 19010/1000)

Refer to page 22

Embryo collection catheters

For small ruminants

Embryo collection catheter 8 CH, 1

silicone, 3 ml balloon, 2-way, Foley type REF. :19009/6008

 Single connector tubing
 REF.
 :19009/6001

 Y-Tubing
 REF.
 :19009/6002

Injection catheter

for embryo flushing medium in surgical recovery REF. :19810/0960

Babcock forceps for holding the uterine horn

in surgical collection and transfer, 28 cm REF. : 15010/6024

Tomcat catheter, disposable, 50/bag 3 REF. : 19001/0050

Syringe with injection catheter (Ref.: 19810/0960) Y-Tubing 2 (Ref.: 19009/6002) (Ref.: 19009/6002)

For camelids

Lampeter stainless steel tip catheter with 8 ports, rubber,

Luer end, 1/bag, CH 18 4 REF. : 19006/0017

Disposable Y-junction tubing with clamps,

to be used in combination with any catheter and inline filter. Sterilised, 1/bag. Tubing made of very smooth, flexible material. End for filter connection requires no extra adapter. (5)

Luer end REF. : 19011/0100

Mandrin for flushing catheter, CH 18/20 REF. :19007/0018

Also available: Silicone catheters in different sizes with Foley or Luer end



EMBRYO COLLECTION AND TRANSFER

EmSafe and EmGuard - Filters for embryo collection

Your benefits

- Filter mesh cannot get dry as it remains in contact with fluid
- Secure fixation of the lid during collection and easy to open after collection
- An integrated search dish engraved with a grid makes it easy to search and find embryos
- All-in-one filter and search dish
- Excess fluid is controlled and removed through outlet tubing with attached thumb clamp
- Connection to all types of Y-tubing is possible

EmSafe

EmSafe is ideal for both large and small embryos. The filter system automatically holds a minimum level of 60 ml rinsing fluid in the dish. An angled filter mesh provides an optimal flow-through rate and the air vent in the lid is secured by a filter.

EmSafe filter 1



REF. : 19010/6000

EmGuard

Due to its **shallow design**, the EmGuard filter system is perfectly suited for use with all microscopes even when the working distance is limited. Embryos are easily found with the aid of the highly visible grid.

EmGuard filter 2



REF. : 19010/1000





Embryo culture dish

Embryo culture dish, with lid, sterilised, 5 wells, rounded well edges, mouse embryo batch tested

4/bag, 100/box REF. : 19021/0001

EMBRYO COLLECTION AND TRANSFER

Straws

0.25 ml straw, clear, sterilised, 10/package

clear	REF.	:19042/0010
yellow	REF.	:19042/1010
with sealing balls	REF.	: 19041/0010

0.25 ml straw, clear, sterilised, 10/package, with ID rod seal in different colours:

white	REF.	:19040/0010
beige	REF.	:19040/0011
light yellow	REF.	:19040/0012
light blue	REF.	:19040/0013
red	REF.	:19040/0014
pink	REF.	:19040/0015
grey	REF.	:19040/0016
light green	REF.	:19040/0018
dark yellow	REF.	:19040/0020



0.25 ml straw, yellow-transparent with beige or light yellow ID-rod





Neopor transport box

Neopor transport box

for shipping embryos at 5°C REF. :17229/0005

Transport vial with secure snap cap

round bottom, 5 ml REF. :19180/5006

TRAINING AND EDUCATION

Minitube offers a variety of seminars and training opportunities in small ruminant reproduction techniques. These are also applicable for deer.

The seminars begin with a get-together meeting to discuss each participant's experience and practical expertise. A comprehensive theory presentation is followed by hands-on lessons during which the trainees repeatedly perform all steps under the supervision of the trainer. Minitube training sessions always offer many useful troubleshooting measures. The participants benefit greatly from a "learning by doing" approach.



Laparoscopic artificial insemination (3-5 days)

Theory:

- Physiology (heat, ovulation, fertilization...)
- Synchronization protocols
- Artificial insemination (semen handling, thawing and analysis, timing and frequency of AI, working with a range of preserved semen presentations)
- Preparation for laparoscopic Al (restraint and sedation of animals; care, maintenance and cleaning of equipment)
- Technique of laparoscopic Al (including hygienic aspects)
- Optimization (animal welfare and care, setup of workplace, manpower, . . .)
- Troubleshooting

Hands-on lessons:

- Demonstration of laparoscopic Al
- Trainees perform all steps repeatedly under supervision of trainer

Embryo flushing and transfer (3-5 days)

Theory:

- Physiology (heat, ovulation, fertilization, early embryonic development)
- Hormone treatments (synchronization, superovulation)
- Insemination (timing, frequency, effects on embryo recovery rates)
- Preparation for ET (including check lists)
- Donor management
- Recipient selection and management
- Restraint and sedation of animals
- Care, maintenance and cleaning of equipment
- Technique of uterine flushing (including hygienic aspects)
- Embryo handling (media, lab equipment, critical steps of work)
- Optimization (animal welfare and care, setup of workplace, manpower)
- Troubleshooting

Hands-on lessons:

- Demonstration of laparoscopic ET
- Trainees perform all steps repeatedly under supervision of trainer

Semen collection, evaluation and freezing (2 days)

Theory:

- Physiology (anatomy, spermatogenic cycle, ejaculate composition)
- Semen collection (instruments and techniques)
- Semen evaluation (criteria and instruments)
- Semen extenders (composition and use)
- Cryopreservation of semen (semen extenders, cryologic damage, freezing protocols, instruments, storage and management of semen)
- Preparation for semen collection, evaluation, processing and freezing (check lists)
- Optimization (animal welfare and care, setup of workplace, manpower)
- Troubleshooting

Hands-on lessons:

- Demonstration of all different steps of the process
- Trainees perform all steps repeatedly under supervision of trainer

Embryology

Theory:

- · Physiology (ovulation, fertilization, early embryonic development)
- Embryo handling (media, lab equipment, critical steps of the process)
- Troubleshooting

Hands-on lessons:

- Searching and grading of embryos
- Embryo preparation for fresh/chill & thaw transfer
- Embryo splitting
- · Embryo freezing

