



# AndroVision® eFlow

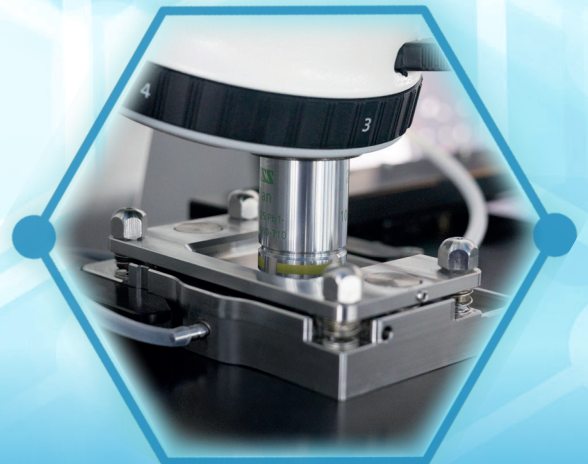
Simply the best in boar semen analysis



See it in motion



- + Less effort.
- + Higher precision.
- + More doses.



Achieve more doses per ejaculate with ultimate precision and minimal effort.

Gefördert durch:



Bundesministerium  
für Wirtschaft  
und Energie

aufgrund eines Beschlusses  
des Deutschen Bundestages



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# The eFlow effect



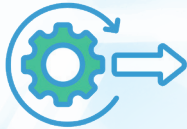
## Less effort

Automated workflows reduce stress and errors.



## Higher precision

Advanced algorithms deliver ultimate accuracy.



## More doses

All centers get the maximum yield from every ejaculate.

## With AndroVision® eFlow,

you can automate and standardize semen analysis, ensuring efficient sample preparation with **high inter-operator reproducibility** and the **most precise results** every time.



## eFlow

The unique, reusable chamber with its patented dual-layer design is automatically filled and flushed by the eFlow tower.

## Standardized sample preparation

## AndroVision®

Sets the CASA standard with advanced image processing, powerful algorithms, and a high-efficiency particle filter.

## High accuracy and repeatability



"The eFlow system helps reduce operator variability, speeds up the analysis process, and delivers precise sperm quality data, resulting in higher utilization of each collection and more doses produced. This allows us to increase our production by approximately 12%."

*Rodrigo Moreira, Corporate Manager Swine Reproduction,  
BRF, Brazil*



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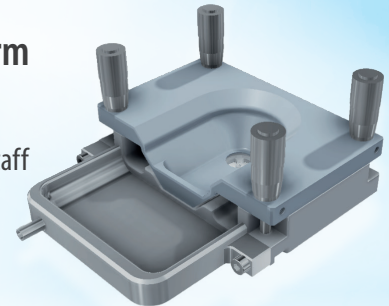
# Turning precision into profit

**The problem:** Traditional analysis is subjective. To compensate for uncertainty, labs use high "safety margins" (overfilling doses), wasting millions of sperm.

## The eFlow solution

**Absolute precision allows you to lower the sperm count per dose with 100% confidence.**

**Strategic impact:** Fewer boars, fewer collections, and optimized staff requirements lead to a significantly lower cost per dose.



## benchmark calculation

### AndroVision® eFlow enables up to 12 extra doses per ejaculate (+34%)

#### Basic ejaculate values

Concentration: 300 Mio./ml

Volume: 250 ml

#### Motility

Visual estimate: 85% *vs.* CASA: 95%

#### Sperm per dose

Visual estimate: 1.8 billion / 90 ml *vs.* CASA: 1.5 billion / 90 ml

#### Visual estimate

$300 \text{ Mio./ml} \times 85\% = 255 \text{ Mio. motile/ml}$

$255 \text{ Mio.} \times 250 \text{ ml} = 63.8 \text{ billion motile}$

$63.8 \text{ billion} \div 1.8 \text{ billion} = 35.4 \text{ doses}$



More accurate, higher motility readings

→ sperm per dose can be reduced

#### CASA

$300 \text{ Mio./ml} \times 95\% = 285 \text{ Mio. motile/ml}$

$285 \text{ Mio.} \times 250 \text{ ml} = 71.3 \text{ billion motile}$

$71.3 \text{ billion} \div 1.5 \text{ billion} = 47.5 \text{ doses}$



34% (+12 doses)



### Field-validated

With precise CASA analysis, the number of intact sperm cells per dose can be significantly reduced without affecting field fertility.\*



\* <https://www.gfs-topgenetik.de/spermaqualitaet-texte/gfs-unterstuetzt-bachelorarbeiten-witt.html>

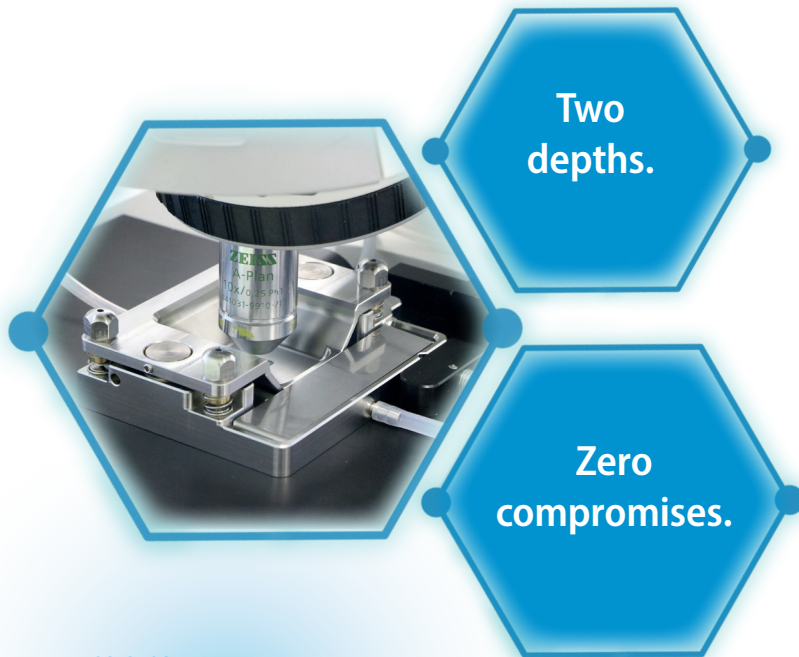


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# Unique analysis chamber design

## Reusable, dual-layer chamber

- The reusable chamber (US Patent 10,768,087) eliminates the variables of disposables
- Two distinct chamber depths allow for the exact measurement of sperm concentration, motility, and morphology – a feature unique to the eFlow system
- The optimized chamber design preserves sperm motility to provide more accurate (higher) readings
- eFlow prevents passive sperm drifting within the field, a common source of error in disposable counting chambers
- The large sample volume improves robustness and repeatability while minimizing the influence of pipetting inaccuracies



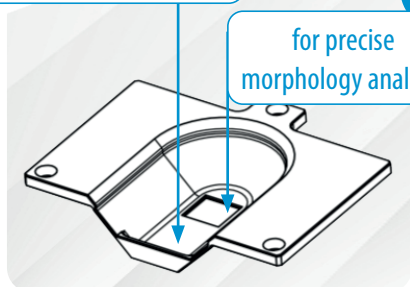
more accurate + reliable motility results

30  $\mu\text{m}$  eFlow: two different chamber depths

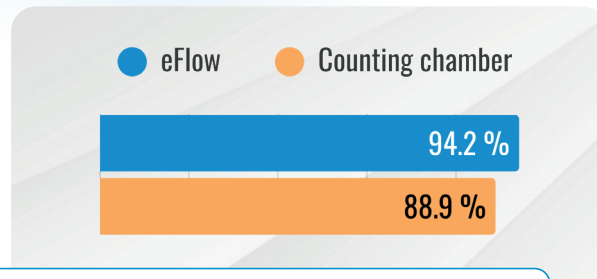
for accurate concentration & motility measurement

15  $\mu\text{m}$

for precise morphology analysis



eFlow: ejaculates show higher total motility



The 30  $\mu\text{m}$  chamber gap provides more natural space for movement than traditional 20  $\mu\text{m}$  chambers.

## Research-proven

### AndroVision® eFlow:

- Provides a significantly more precise determination of sperm concentration than traditional photometric methods<sup>1</sup>
- Shows near-perfect agreement with NucleoCounter reference measurements<sup>1</sup>
- Measurably improves the accuracy of sperm content per insemination dose<sup>2</sup>
- Validated against manual counts: reliably identifies 98% of ejaculates unsuitable for production<sup>3</sup>



(1) <https://www.nature.com/articles/s41598-022-16280-6>

(2) R. Grossfeld PhD, Rodrigo Morales, J. Quackenbush, Dr. K. Simmet: Sperm Concentration Measurement with AndroVision® eFlow (AASV)

(3) [https://www.minitube.com/userdata/filegallery/original/1469\\_technical-report-validation-androvision-automorph\\_211117.pdf](https://www.minitube.com/userdata/filegallery/original/1469_technical-report-validation-androvision-automorph_211117.pdf)



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# Unique sample preparation workflow

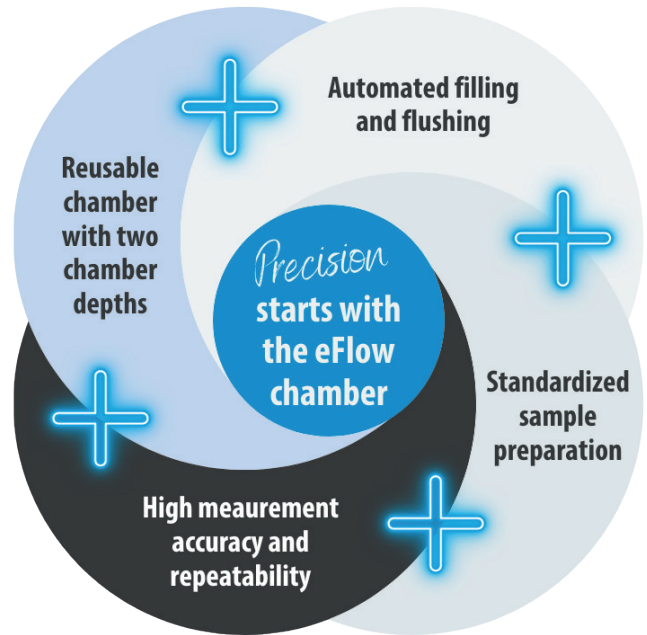
## Automated filling and flushing

- The eFlow tower automates filling and flushing of the chamber, ensuring fully standardized sample preparation
- Minimal variation between trained and untrained operators guarantees high consistency and reproducibility
- eFlow's reusable design ensures consistent chamber depths and prevents exposure of sperm samples to potentially toxic substances

## Disadvantages

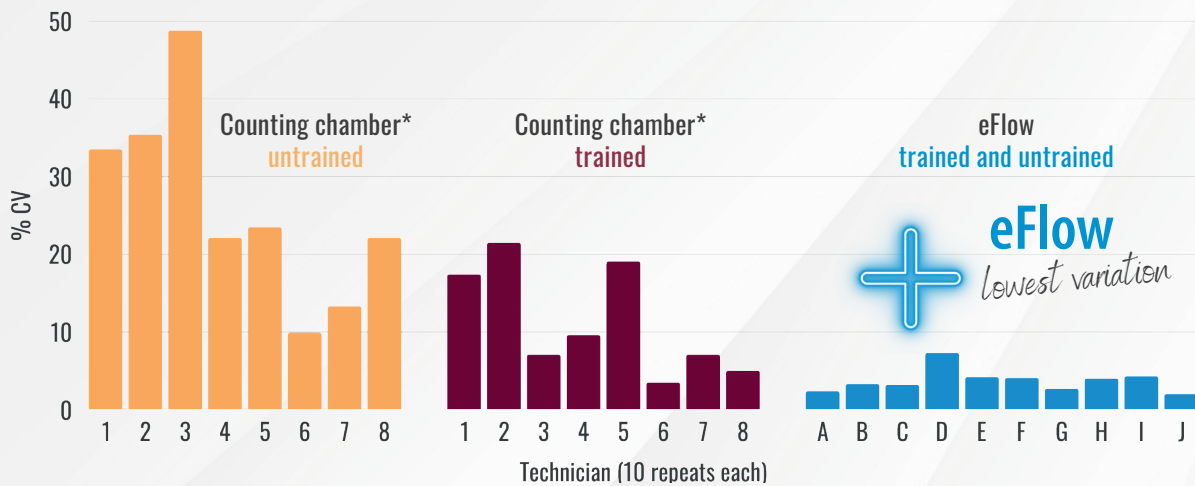
of disposable counting chambers:

- Filling the chamber is tricky
- Glue and coating can be toxic
- Coating can contain particles, bubbles, etc., which can disturb the analysis



## eFlow minimizes user-dependent variability

Coefficient of variation of repeated concentration measurements



\*Behr, Martin (2010), Standardisierung der computergestützten Spermienanalyse durch Einsatz einer E-Learning-Applikation, Thesis, Tierärztliche Hochschule Hannover, [https://elib.tiho-hannover.de/servlets/MCRFileNodeServlet/etd\\_derivate\\_00001259/behm\\_ss10.pdf](https://elib.tiho-hannover.de/servlets/MCRFileNodeServlet/etd_derivate_00001259/behm_ss10.pdf)



Automated filling and flushing

# Simple operation, total confidence

## From sample to report in minutes



AndroVision® eFlow analyzes thousands of sperm per measurement without compromising speed



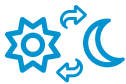
A single sample is analyzed in just 90 seconds, and the complete workflow, from boar ID to the end of flushing, takes only 145 seconds



All data is securely stored in a comprehensive database and easily accessible at any time



Customizable reports and statistics can be generated in just a few clicks to support fast and informed decision-making



The system can be quickly assembled and disassembled at the start and end of the workday, with cleaning taking approximately 15 minutes

## Intuitive and automated workflows



The high level of automation minimizes mistakes, such as pipetting inaccuracies and delivers consistent outcomes, even in high-pressure situations



Intuitive operation reduces training requirements and provides operators with maximum confidence



Seamless integration with Prism10 lab software enables full connectivity, workflow control, and streamlined data management



The **autofocus camera** provides the AndroVision® system with **fully automatic focusing** and **digital light adjustment**, ensuring high-quality images and consistent results for every user and analysis



eFlow  
workflow  
video ▶▶▶



“We started using AndroVision® eFlow in one of our labs in 2021 and were immediately convinced by how precise and objective the analyses are. Sample preparation is much easier now, and the team really enjoys working with the system.

The stricter, more objective analysis compared to subjective microscope evaluation gives us much greater confidence when assessing ejaculate quality and helps prevent surprises later on. That’s why we decided to roll out the system in three additional production labs. Switching to AndroVision® eFlow has truly been a win for us.”

*Michael Krog Markussen, Head of Engineering, Ornestation Mors, Denmark*



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# Multilingual training, worldwide support

## Installation and training made easy

- Professional installation and training (on-site and online) provided by experienced Minitube specialists
- Step-by-step videos and posters in multiple languages facilitate smooth workflows and efficient staff training
- Worldwide multilingual support ensures assistance whenever needed
- Maximum production security ensured by two chambers per system on site, with manual counting chambers as the ultimate backup
- Continuous updates and development keep the system state-of-the-art and future-proof

## + Tested and proven

AndroVision® brings decades of proven reliability, built on a long track record of consistent performance and trusted use across the industry.

The eFlow system was introduced in 2019 and has since enjoyed a steadily growing international user community.



"The CASA system AndroVision® eFlow enables us to perform a standardized and operator-independent analysis of boar semen across all GFS laboratories. Its ease of use and low susceptibility to errors ensure reliable examination results. This guarantees the production of semen doses with a standardized number of fertile sperm cells, allowing our customers to benefit from the consistently high fertility performance."

*Dr. Sabine Brüning, Station Veterinarian and  
Member of the Extended Management Board, GFS, Germany*



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## AndroVision®

AndroVision® software	
with PC and accessories	12500/0000
with touchscreen and barcode scanner	12500/0001
AndroVision® module "eFlow"	12500/2000
Autofocus camera for AndroVision®	12500/4500



AndroVision® software

## eFlow system

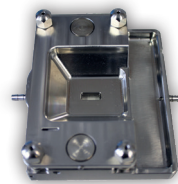
For boar semen processing labs with 200+ boars.

The system is available on a rental basis. Contact us to learn more about installing AndroVision® eFlow in your lab or to request a customized offer.

eFlow chamber for AndroVision®	12510/0020
eFlow tower for AndroVision®	12510/0010



Autofocus camera



eFlow chamber



eFlow tower



eFlow sample container

## Accessories and consumables

Phase contrast microscope Zeiss Axiolab 5	12008/0020
ScanStage, automatic microscope stage for eFlow	12048/0035
Sample container for eFlow, 100/bag	12510/0100
Cleaning kit for eFlow chamber	12510/0104
Electronic pipette, 200 µl - 2 ml	12050/0517
Heated extender vat, 3 l	13201/0503



"We have been successfully using Minitube's eFlow CASA system for many years to produce high-quality boar semen at our four boar stations.

The system is impressive and makes an important contribution to our daily work and to ensuring the highest quality standards."

*Gabriele Bullan, Head of Operations, BUS, Germany*



**Are you ready...**

**...to maximize your production efficiency?**

Contact our specialists for a personalized cost-benefit analysis:

[news@minitube.de](mailto:news@minitube.de)



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