



LIQUID HANDLING SYSTEMS

Chemical Analysis
and Diagnostics



■ MÖLLER MEDICAL - YOUR PARTNER FOR CHEMICAL ANALYSIS & DIAGNOSTICS

We regard ourselves as problem solver and systems manufacturer for OEM clients in the sense of a partnership. In the beginning of a cooperation, our client usually brings to us a technological problem or specific demand whose solution/fulfillment we support from the development phase until series production. Of course, we guarantee confidentiality for the intellectual property of our client.

Some examples:

- Special cannulae for chemical analysis, diagnostics and medical applications

- DNA-analysis disposables for laboratory medicine
- Highly precise chromatography columns
- Laboratory pumps with electronic flow and volume control
- Flexible-tube pumps and tube systems, e.g. for dialysis treatment

Our customer list contains most large European companies in the field of chemical analysis and diagnostics.



■ EXAMPLE APPLICATIONS

Analysis Cannulae

Chemical analysis of bodily fluids (e.g., blood or urine) in laboratory medicine demands high cannulae quality and oftentimes special features such as grindings, reductions, coatings, heating, and the like.

DNA Analysis Disposables

A special membrane connection and ultrasound welding technique secure mutual tightness of both analysis chambers of the special cuvette.

Electronics/Software

Besides cannula heating and tube pump controllers, Möller produces finished devices with liquid crystal displays (LCD) and wireless communication capabilities. There are Möller patents pending in the field of RFID transponder technology.



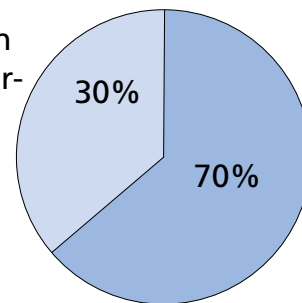
■ THE COMPANY

Möller Medical has been in existence since 1949 and producing components and finished devices for chemical analysis, medical technology and precision engineering for decades.

Möller Medical is particularly active in the demanding OEM business; as an ISO-13485-certified manufacturer, we develop and produce components and systems for in-vitro-diagnostics and highly sensitive medical applications. 70% of the turnover are generated in chemical analysis and medical technology.

In 2003, Möller Medical was acquired by Centrotec Sustainable AG. Centrotec is publicly listed in the German Prime Standard (ISIN DE0005407506) and contained in the indices SDAX and GEX.

Precision
Engineer-
ing



Chemical
Analysis
Medical
Technology



■ QUALITY MANAGEMENT

DIN EN ISO 9001

We have been certified since 1994.

DIN EN ISO 13485

The unlimited certification for medical devices is of vital importance to us; it allows us to act as a manufacturer ("organization") according with the Medizinproduktegesetz (MPG) and deliver end products or components to distribution partners and OEM customers.

CE-label

For our medical products, we issue the certificate of compliance with EU-directives 93/42/EWG (medical products) and 98/79/EWG (in-vitro diagnostics).

Intellectual Property




As a byproduct of our R&D efforts, innovations are continuously generated and protected by roughly 30 patents and utility patents.

FDA approval

We are inspected on a regular basis by the FDA, always with a positive outcome.

Our quality assurance system guarantees high product standards and reproducibility.

FITTINGS FOR EVERY PURPOSE...

Grip								
	Small For careful, manual tightening			Large For powerful, manual tightening			Square-end For tightening with a torque wrench	
Length	16 mm			20 mm			17 mm	
Diameter	6 mm		8 mm	11 mm			8 mm x 8 mm	
Thread	M6	1/4"28UNF	M8x1	M6	M8x1	1/4"28UNF	M6	1/4"28UNF
Interior diameter [mm]	1,8	•	•		•		•	•
	2,65	•	•		•		•	•
	2,8	•	•		•		•	•
	3,4	•	•		•		•	•
	3,6	•	•	•	•	•	•	•
	4,9			•		•		
	5			•		•		
	closed	•	•	•	•	•	•	•

corresponding

- Deliverable on short notice (injection moulds present)
- Special designs are possible in the framework of a project (in-house tool shop)
 Standard material POM in arbitrary colours / All threads have with a thread lock
 Interior bore hole end-to-end or displaced according to specification



...CORRESPONDING TUBE SYSTEMS AND PUMPS...

Version	V1 basic Brimmed tube with attached fitting										V2 dead volume reduced Precisely injection moulded bush around brimmed tube, attached fitting						V3 dead volume free Technology patented by Möller Medical										
Interior diameter [mm]	0,5	0,6	0,7	0,8	1,0	1,6	1,8	2,0	2,2	2,4	2,6	2,8	0,5	0,6	0,7	0,8	1,0	1,6	2,2	0,5	0,6	0,7	0,8				
Exterior diameter [mm]	1,6	•	•	•	•								•	•	•	•	•					•	•	•	•		
	2,45					•	•	•																			
	2,6					•	•	•	•																		
	3,2					•	•	•	•	•	•	•						•	•								
	3,4											•															

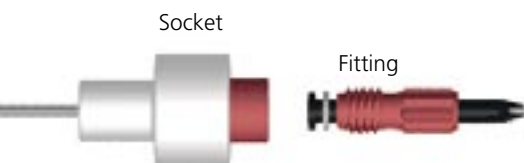
combinations

- Deliverable on short notice (injection moulds present)
- Special designs are possible in the framework of a project (in-house tool shop)
- Tube material PEP / PTFE, plastic injection-moulded piece around the tube POM / PVDF

HOSE PUMPS AS COMPONENTS OR FINISHED DEVICES

For more than a decade, Möller Medical has been producing high-quality hose pumps for medical and analysis applications. The product portfolio includes a range from basic hose pumps to powerful pumps with spring-supported castors and electronic controller; even multi-channel pumps are offered.

Please refer to our separate product information leaflets.

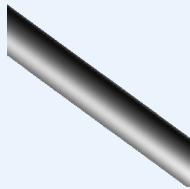


...SOPHISTICATED CANNULA TECHNOLOGY...



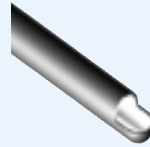
Socket

High quality laser welded metal sockets built to your specification



Surface finishing

Electroplating, electropolishing and nano composite coatings



Deformation

Various possibilities; shown here is a closed cannula with round tip



Bent tube parts

Precise 3D fine tube parts bent according to drawing



Extra cannula volume

Maximal volume combined with small installation size; heating available



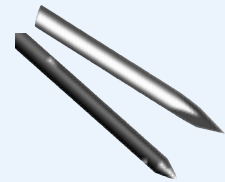
Heating

Integrated cannula heating, also complete with electronic controller and software



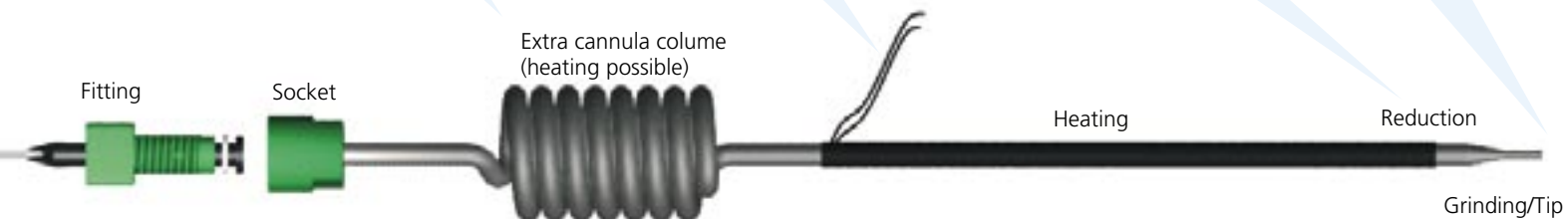
Reduction

Precise tube reduction down to ID 50 μm , conserving a high surface quality



Grinding

Diverse Grindings for cap piercing and other applications



...AND MÖLLER MEDICAL SPECIALTIES

MÖLLER NANOCOATINGS

- Surface finishing by nano composite coatings with NanoSkin® coating systems developed in-house
- Coating of the interior volume of thin canulae/tubes with easy-to-clean coatings
- Glass-ceramics-like, biocompatible coatings on the basis of a so-gel process, with excellent chemical resistance
- About 20 standardized and thoroughly tested coatings available - list is continuously being expanded
- Development of special coatings within a project framework possible on demand

Please refer to our separate brochure on Möller NanoCoatings.

MÖLLER SUPER FINISH®

- Interior surface finishing by a galvanic process developed and patented by Möller
- Resulting in very well polished interior surfaces with tube geometries down to 0,3 mm x 200 mm

SuperFinish-Treatment (magnification x2000)



before: Ra > 0,7



after: Ra <= 0,1

DRAWN-IN HOSES

Developed and patented by Möller, a process with many advantages:

- No interfaces between hoses, thus „unlimited“ sample intake possible
- Very good chemical resistance
- Excellent interior surface quality
- Combination of the advantages of a PTFE or FEP hose with the geometry and stability of a steel cannula



PRECISION INJECTION MOULDING



- Precision injection moulding of various, even autoclavable, plastics (PEEK, PVDF etc.)
- Moulds from our in-house tool shop secure top competence and flexibility for our clients
- Injection-moulding around metal or tube inserts, dead water free fittings
- Ultrasound welding technique and special know-how regarding tight membrane connections



Möller Medical

Member of CENTROTEC Group

Möller Medical GmbH & Co. KG
Wasserkuppenstrasse 29-31
36043 Fulda
Germany
Phone + 49 661 9 41 95 - 0
Fax + 49 661 9 41 95 - 90
info@moeller-medical.com
www.moeller-medical.com

