



MANN+HUMMEL EDM Filters

Technical know-how for EDM technology



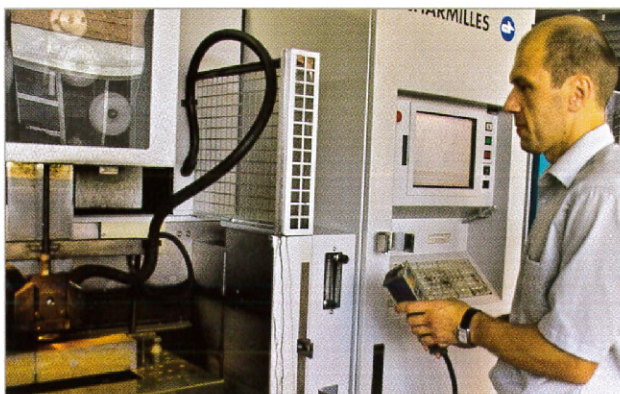


Keeping up with international competitors

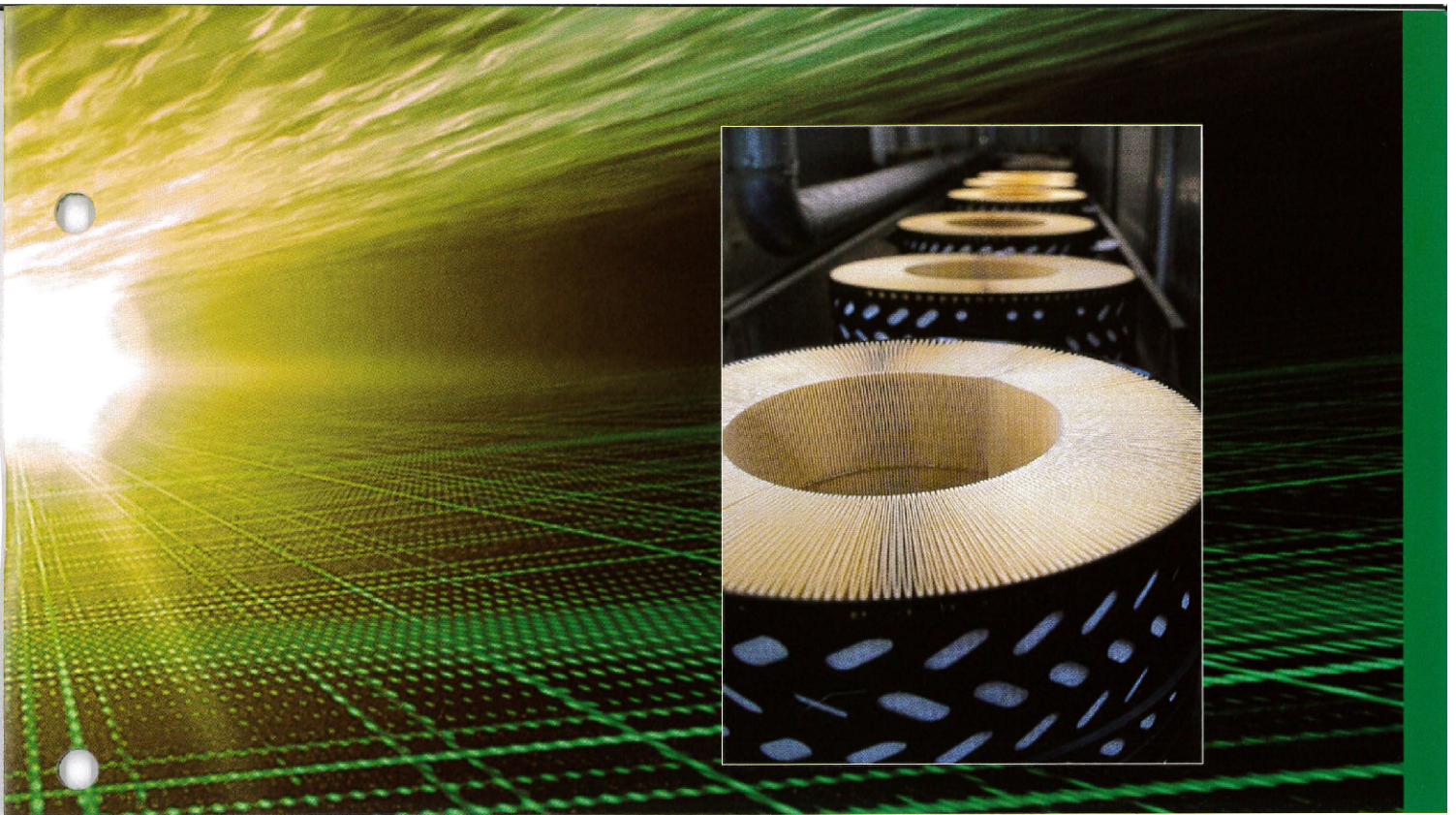
Tight schedules and pressure on costs combined with high quality specifications and complex components all mean that today producers of tools and moulds are subject to demanding requirements. In order to keep up with international competitors and consolidate a leading position it is necessary to have products which satisfy the complex requirements of electrical discharge machining. The increasing pressure to create new products and simultaneously improve reliability and availability underlines the importance of fully integrated production solutions in the field of EDM.

MANN+HUMMEL has many years of experience developing and producing highly efficient filter elements for EDM machines. In cooperation with major EDM machine producers we have been able to produce a large number of customised filter elements for many varied applications.

This has been made possible by our in-house development and testing laboratories with their special testing equipment. Comprehensive functional tests under real operating conditions right up to the validation of OE filters enable us to consistently provide our customers with first class EDM filters.



Validation in the MANN+HUMMEL testing laboratory

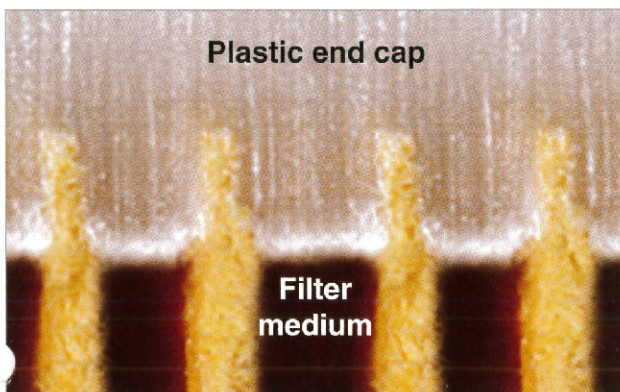


Development and production expertise

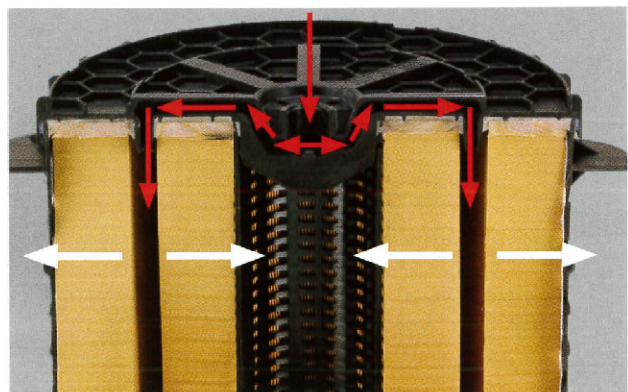
MANN+HUMMEL offers a range of 150 mm diameter plastic EDM filters and is the only manufacturer worldwide to completely do without any adhesive or metal. Using modern butt-welding technology, the filter bellows is welded directly to the plastic end cap and forms a permanently sealed connection. This design concept reliably removes any undesired chemical influences on the dielectric fluid and thereby ensures the stability of the EDM process.

Modern development methods have enabled the improvement of the connection and inflow areas in the end caps of large-size filters. This design enables production of the plastic parts with low stress and low torsion using a gas assisted injection moulding process.

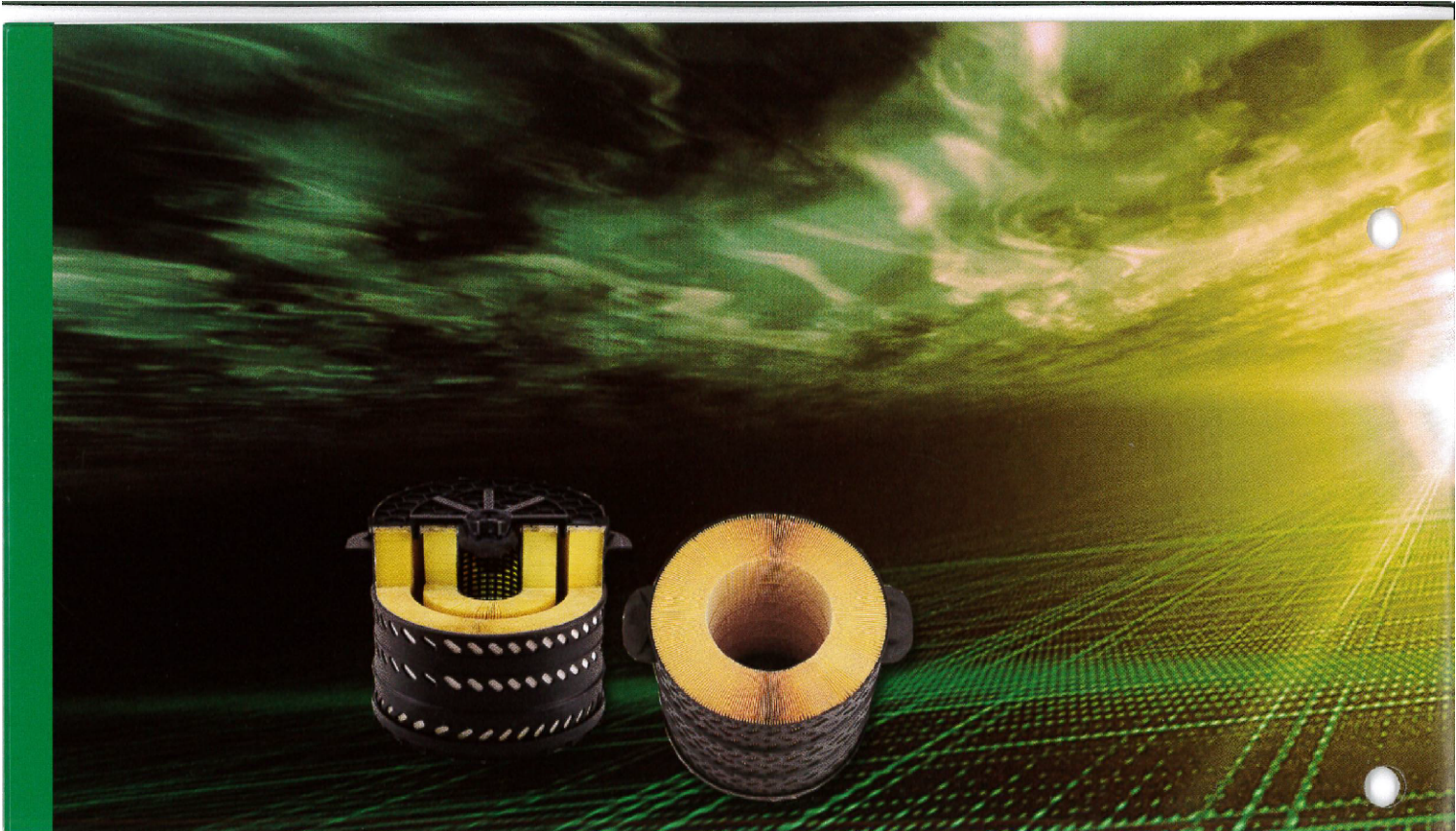
Further benefits for EDM filtration are that the filters have a consistent flow, the filter bellows are continuously loaded and the service life is improved.



Adhesive-free joining techniques using butt-welding



End caps with improved flow design



High expertise in media and filtration technology

Modern testing methods in the development phase make for a comprehensive range of filter media. Filter finenesses of 1-2, 3-5, 10 and 25 microns with different cellulose and mixed fibre media offer the right solution for each respective machining material. In addition, the filter media are impregnated and hardened. This results in filtration paper which is highly resistant to pressure and water.

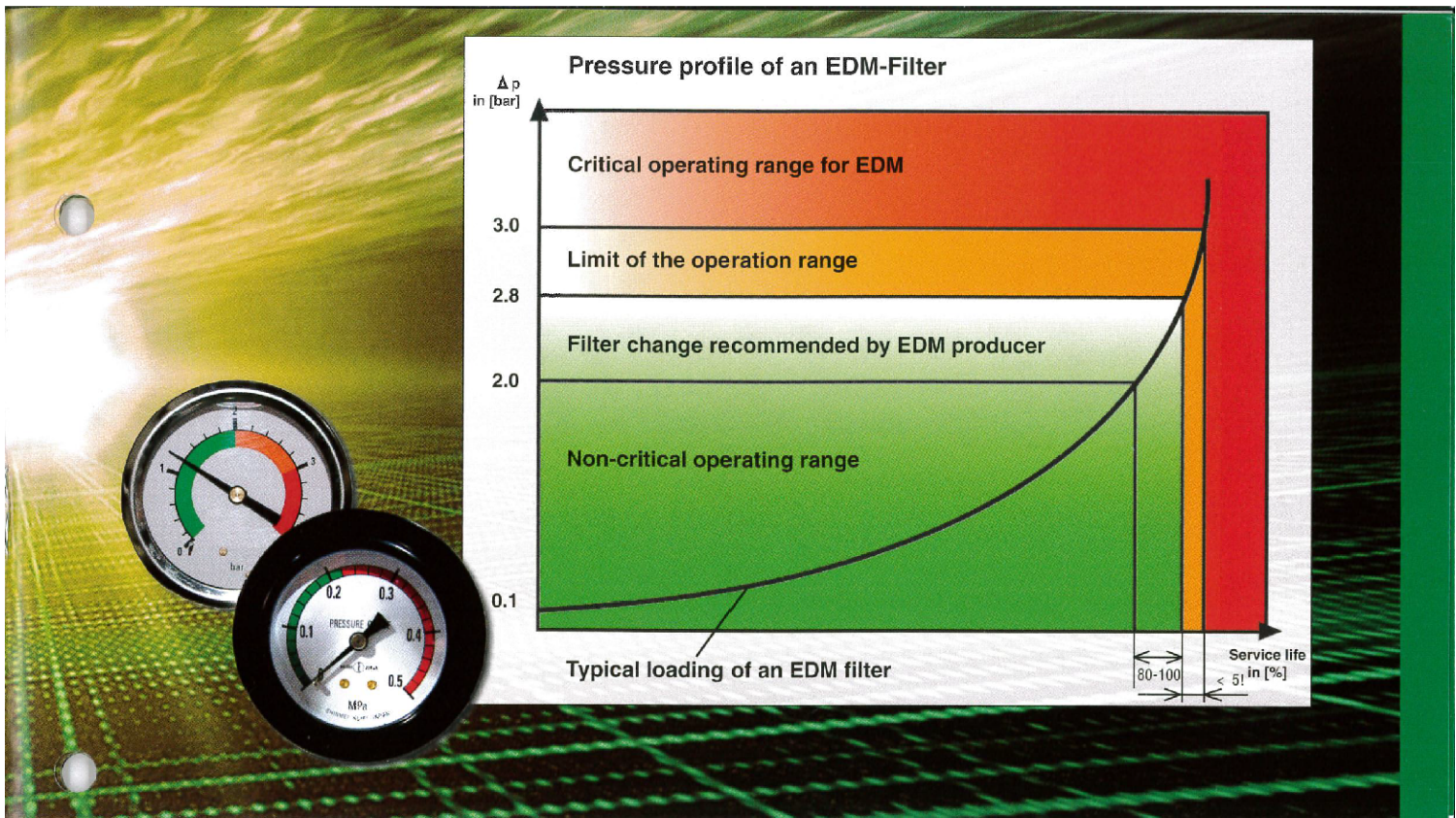
Extending capacity

Different bellows technologies are available to achieve a higher filtration surface and performance. Macropleating technology uses enlarged end pleats with a height of 75 mm. Double bellows technology with a pleat height of 2 x 48 mm exploits the installation space to the maximum and increases the dirt holding capacity. In comparison to standard filters these two technologies add to the filter efficiency and service life.

SEM micrograph of filter media



Joachim Stinzendörfer,
Media Development
MANN+HUMMEL Industrial Filters



Reliability through pressure stability

A pressure stability test for a filter producer is as important as a brake test for an automotive supplier. And just as the automotive industry is concerned with the safety of its customers, we want to offer long-term and reliable EDM filtration to our customers. MANN+HUMMEL EDM filters are therefore designed for a short-term differential pressure of 3 bar.

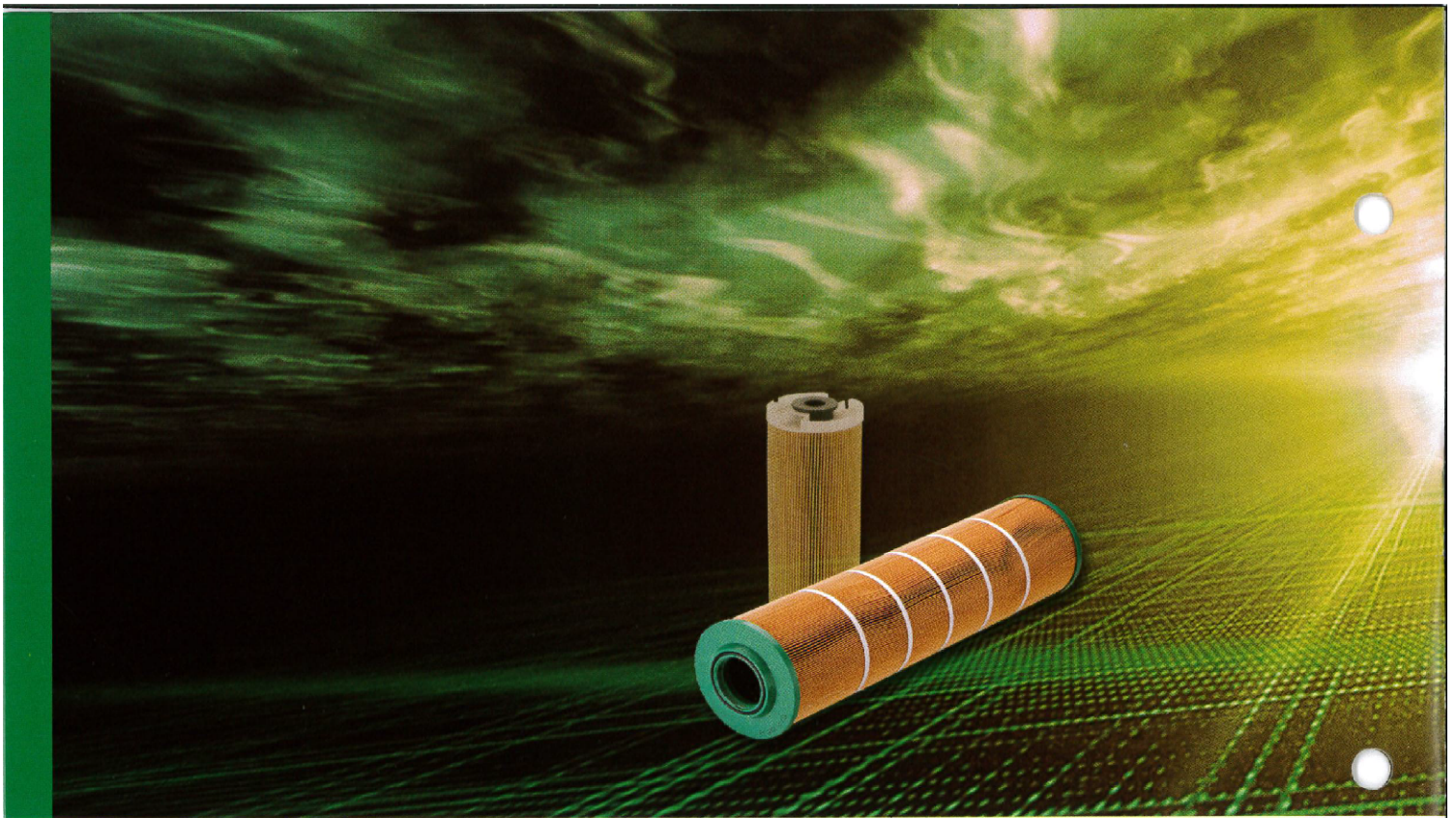
What happens to the filter as the pressure increases?

As the particle load increases the differential pressure in the EDM filter rises over proportionally (see figure). This increases the internal pressure in the filter much faster at the end of its service life than at the beginning, i.e. towards the limit of the operating range the filter can only be further used for a short time. If this range is exceeded, this could result in damage to the EDM machine.

Be on the safe side

In order to protect the filter system from permanently high pressure and ensure process reliability, the permissible operating pressure on the machine side is in the range of 2 to 2.8 bar. Even if MANN+HUMMEL EDM filters offer a safety reserve of up to 3 bar for a short period, the specifications of the EDM machine producer are always authoritative for the long-term reliable operation of the EDM machine.





Plug & Play - more than just filters

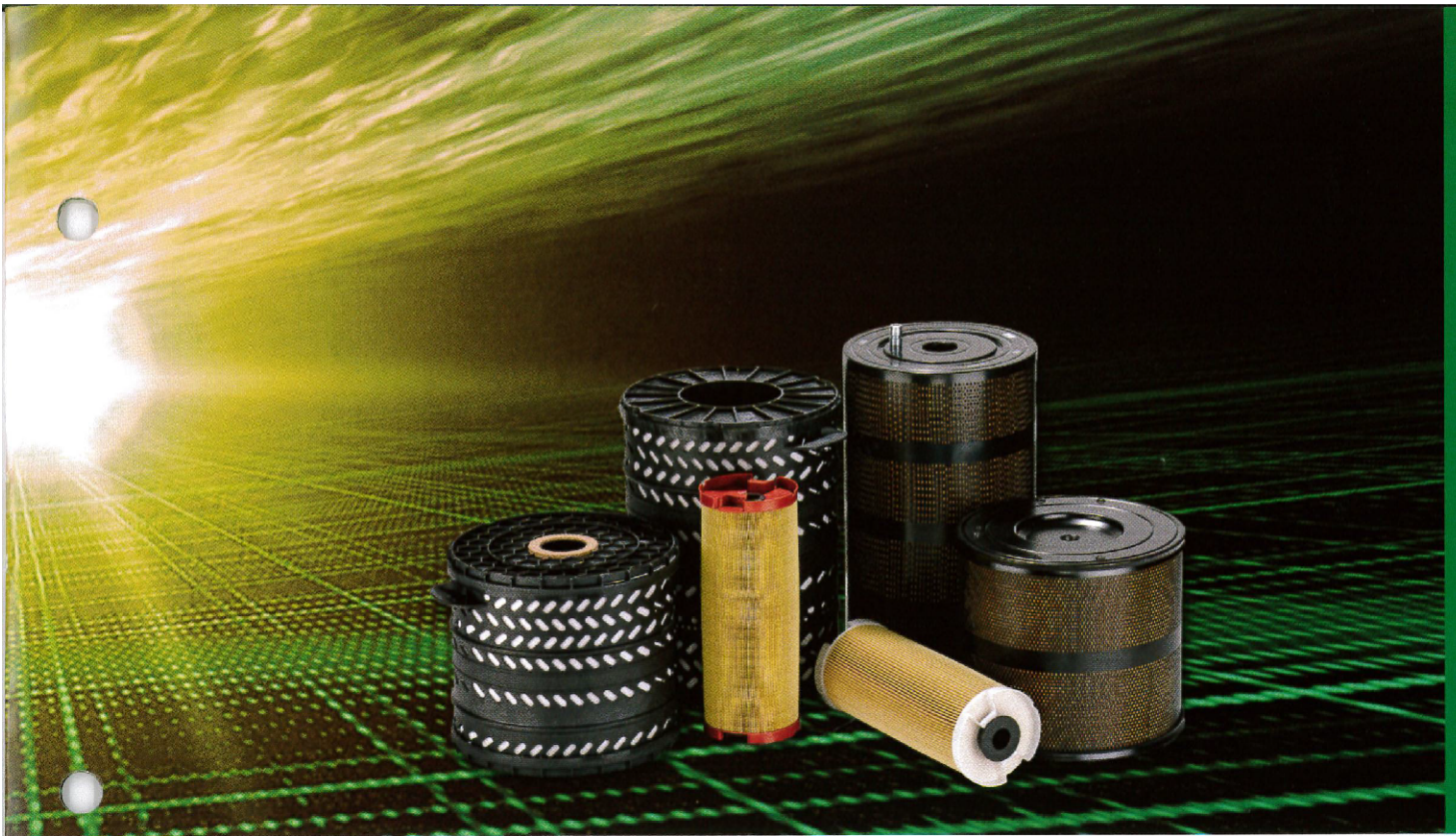
The MANN+HUMMEL range of filters gives you the highest standard for precision and flexibility. The comprehensive range of filters is complemented by an extensive selection of accessories.

Our filter solutions incorporate products proven in the field which are especially selected for their easy handling and operation.

MANN+HUMMEL therefore offers you exactly the flexibility necessary for the most varied process requirements in the field of EDM filtration.

And all from a single source.





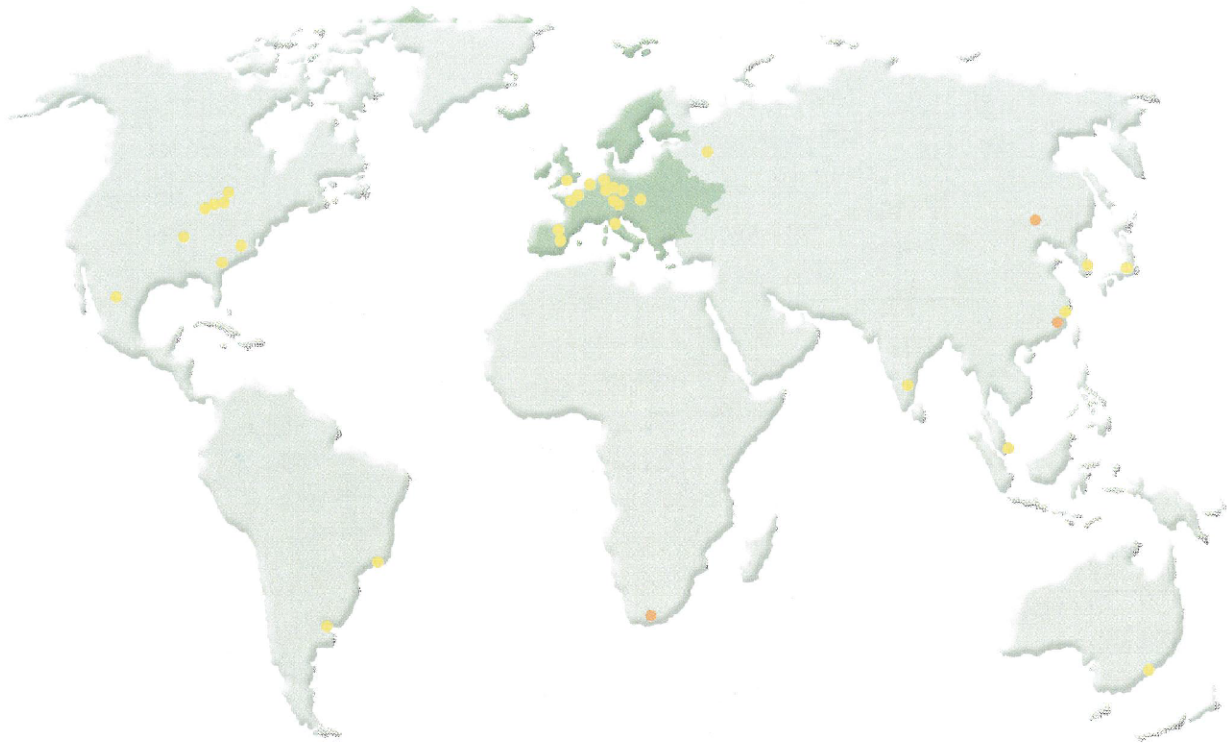
Top technology for top results

You benefit from a technological advantage through our expertise in EDM filtration. You can take advantage of highly efficient MANN+HUMMEL EDM filter elements which are exactly matched to the market requirements.

Your advantages

- Higher cutting speeds
- Faster wire cutting to the final dimension
- Reduction of secondary erosion
- High quality surface finish
- Good, reproducible workpiece accuracy
- Stable conductance of the dielectric fluid
- Reduced consumption of the ionisation resin
- Reduced machine wear
- Reduced maintenance costs





- MANN+HUMMEL Companies
- Joint ventures

MANN+HUMMEL locations near you!

Our sales representatives in all the major countries of Europe, America, South America and Asia will provide you with comprehensive support on site. Wherever your location, if you need further information or if you have any questions, simply call us or send us an email!

UK (West Malling, Kent)
Tel.: +44 1732 523533
Email: uk.info@mann-hummel.com

France (Sartrouville)
Tel.: +33 2 43 49 73 74
Email: marketing.si@mann-hummel.com

Italy (Sondrio, SO)
Tel.: +39 0342 2112 70
Email: it.info@mann-hummel.com

Russia (Moscow)
Tel.: +7 495 742 7976
Email: info.ru@mann-hummel.com

Spain / Portugal (Zaragoza)
Tel.: +34 (976) 287 300
Email: mhес@mann-hummel.com

Czech Republic (Okříšky)
Tel.: +420 568 898 111
Email: cz.info@mann-hummel.com

Argentina (Buenos Aires)
Tel.: +54 11 4208 1200
Email: info@mann-hummel.com.ar

Brazil (Indaiatuba-SP)
Tel.: +55 19 3894 94 00
Email: marketec@mann-hummel.com.br

Mexico (Santiago de Querétaro)
Tel.: +52 442 103 1100
Email: infomx@mann-hummel.com

USA / Canada (Portage MI)
Tel.: +1 (269) 329-7200
Email: info-us@mann-hummel.com

Australia (Newington, NSW)
Tel.: +61 2 9647 1700
Email: info@mann-hummel.com.au

China (Shanghai)
Tel.: +86 21 6104 3222
Email: infomhcn@mann-hummel.com

India (Bangalore)
Tel.: +91 80 4020 7100
Email: office.india@mann-hummel.com

Japan (Yokohama)
Tel.: +81 (45) 470-4588
Email: info.jp@mann-hummel.com

Korea (Seoul)
Tel.: +82 (2) 2059 5781
Email: info.kr@mann-hummel.com

Singapore
Tel.: +65 6586 8181
Email: mhsg@mann-hummel.com



MANN+HUMMEL GMBH, Industrial Filters Business Unit
67346 Speyer, Germany, Tel.+49 (62 32) 53-80, Fax +49 (62 32) 53-88 99
Email: edm.info@mann-hummel.com, Internet: www.mann-hummel.com