

engineering and technology in filtration

Entwicklung und Technologie in Filtration

Ingénierie et technologie de la filtration

ingegneria e tecnologia nella filtrazione

过滤工程与技术



Turbo-International

engineering and technology in filtrations

Trust and partnership



Rudie Bannwart
CEO / Owner

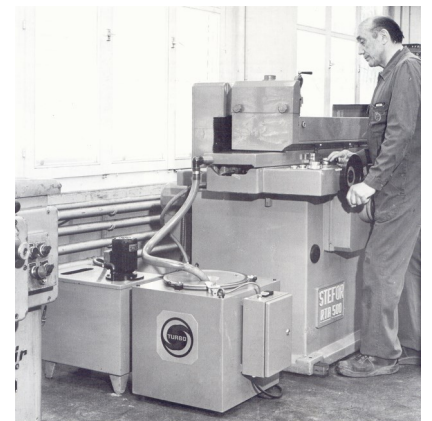
Together we are strong!

We believe in establishing longterm partnerships with customers and suppliers alike.

Since 1956, we have been successfully developing and manufacturing cleaning systems and Turbo centrifuges, which are used to clean and process contaminated industrial liquids without filtration aids from virtually all metalworking manufacturing processes. Our intelligent and internationally tried and tested solutions deliver extremely high levels of purification and offer our customers significant advantages. On the one hand, not only are machine downtimes reduced, but procurement costs and disposal costs for industrial fluids are also noticeably reduced. On the other hand, by recovering and reusing valuable raw materials our customers can make an important contribution to protecting the environment and the people who live in it.

Yours sincerely,
Rudie Bannwart

- 1956 Turbo-Separator AG founded by Walter Ruf Senior (engineer) and Oskar Maurer
- 1973 Transfer of ownership to Dr. Ing. Walter Ruf
- 1979 Doubling of the production floor space in Lichtensteig
- 1989 Foundation of Turbo-Separator GmbH in Ludwigsburg as the Sales and Service Organisation
- 1991 Move to the site in Wattwil
Production space doubled again
- 2004 Entry into the Chinese market
- 2005 Takeover of HKS Technology GmbH in Singen and integration of the company into the group
- 2007 Introduction of the ISO 9001 standard
- 2008 Expansion building work in Wattwil.
The entire production department is now brought together in the new facility.
- 2010 Foundation of Turbo-Filtration Science & Technology Ltd. in Shanghai (China)
- 2013 Death of Dr. Ing. Walter Ruf
Transfer of ownership to the Family of Rudie Bannwart
- 2014 Merging the two german companys Turbo-Separator GmbH an HKS-Filtration Technology GmbH to the new Turbo-HKS GmbH
- 2016 on our 60th anniversary we reunited our production and our administration after 18 years of separation through a new office floor in Wattwil



Technology and Development

By constantly developing and refining our products, we are able to ensure that we always remain at the cutting edge of modern engineering and are able to solve any problems quickly and with a minimum of fuss.

This starts with our own in-house development, which is conducted in cooperation with universities and institutes with a clear focus on the future, and continues across our professional manufacturing and assembly set-up right up to on-site commissioning and service.

Our sales engineers are competent partners who are highly capable of analysing the specific requirements of any problem and drawing up potential solutions, which are then turned into market-appropriate solutions by our internal Engineering Group.

In our in-house testing laboratory we can stimulate a wide range of different possibilities and can thus ensure that the solutions we offer are fully validated and tailored to the individual requirements of our customers' specific production processes.



Tool grinding

We are particularly interested in solving the problems associated with tool grinding. Regardless of whether our customers are processing HSS steels or carbide, at Turbo we have the perfect solution ready to hand.

The need for clean fluids in order to ensure that parts are clean and media can be properly separated for disposal is the perfect scenario for using a Turbo centrifuge.

Changing the raw materials which are used is no problem for a Turbo solution. The drum insert can be swapped before changing the material to prevent the waste materials from being cross-contaminated.

This universal quality of the centrifuge solution helps machine tool manufacturers to ensure that they can offer their customers the best product.

This is why many machine builders have added Turbo plants as an option in their product catalogues, including: Haas / Schneeberger / Walter / Saacke / Anca / Schütte Studer / Ewag / Willemin-Macodel

Suitable standalone centrifuge types for single workstations include:

MZF-T10 (80-100 l/min) and MZF-T22 (100-120 l/min)

Achievable purity level: 5-10 µm

Special solutions are increasingly becoming necessary in order to deal with the increased use of carbide in production tools. The response from Turbo-Separator is **Turbo-Clean**.

The Turbo-Clean solution is a modular reversible flow filter available in the sizes 80, 120, 240 and 360 l/min. as a compact system or as larger versions in the form of combined products.

The processing of the reverse-flow matter is handled either via manual/automatic centrifuges or with the aid of sedimentation solutions.

Purity levels of 2-3 µm can be achieved with Turbo-Clean systems.



Gear machining

Gear grinding and honing are forms of metalworking which really benefit from the use of centrifuges. The particular properties of the grinding swarf mean that many other types of cleaning system are unsuitable and cannot be used.

Turbo centrifuges are capable of dealing with the special shape and properties of grinding swarf without any problems at all.

Gear grinding machines from Gleason-Hurth and gear honing systems from Fässler are equipped with Turbo centrifuges at the factory. The upstream magnetic separator keeps sludge quantities low. The level of purity achieved thanks to the full-flow cleaning also makes it possible to use high-pressure pumps.

In extreme cases a downstream control filter is also used.

Turbo centrifuges are a perfect and highly adaptable solution for machining in gear manufacturing. Purities of up to 2-3 μm are possible.



Glass grinding



Turbo solutions are the perfect solution in the production of flat glass, whether as a standalone machine or as part of combined plants.

- Special system for Bystronic: simultaneous separation of air, medium and glass particles used in glass edging applications.
- Large-scale systems which serve entire sections of glass grinding plants, full-flow cleaning at rates of up to 600 l/min with automatic centrifuges of type AZA-T40, used at various sites of the company Glas Troesch in Switzerland and Germany.
- Production of optical glass and lenses at Swissoptics, Entire manufacturing plant serviced with 2 x 3 automatic centrifuges of type AZA-T40. Total output 1200 l/min in full-flow mode.

Complete monitoring and remote control via specially modified visualisation. The entire system is made of stainless steel.



Honing, polishing

Superfine particles which accumulate during honing and polishing are separated and disposed of. Centrifuges with a modular layout make it possible to filter out large amounts of sludge via the pre-filter and, at the same time, to separate the fine particles via the centrifuge.

The MZF-T10 compact system allows both processes to be performed but only has minimal space requirements.

It offers flow rates for manual centrifuges of:
MZF-T06 - 30 l/min with a sludge volume of 3kg
MZF-T10 - up to 100 l/min (with 5kg of sludge)
MZF-T22 - up to 130 l/min (with 10kg of sludge)
This is sufficient for most applications.

Automatic units like the AZF-T15 / T40 / T60 can be used to process much greater quantities.



Ceramics

Ceramics are the material of the future - but as well as their many advantages, ceramics also have a number of disadvantages. Although the tools or components are highly resistant to wear, the problems associated with cleaning the cooling fluids are often underestimated in production. Simple retaining filters like band-pass filters or cartridge filters quickly become clogged. The best results here can be achieved with solutions using centrifugal separators.



Turbo separators are used in the production of medical engineering systems, dental implants and in tool machining applications.

Whether as a standalone unit, in groups or central plants, they perform their duties to the full satisfaction of our customers.

Picture: Production of dental implants MZF-T10 as the cleaning system for a Mikron 5-axis milling and grinding machine. Correctly sorted separation of ceramic particles.

With low throughput rates, purities of up to 2-3 μm can be achieved.



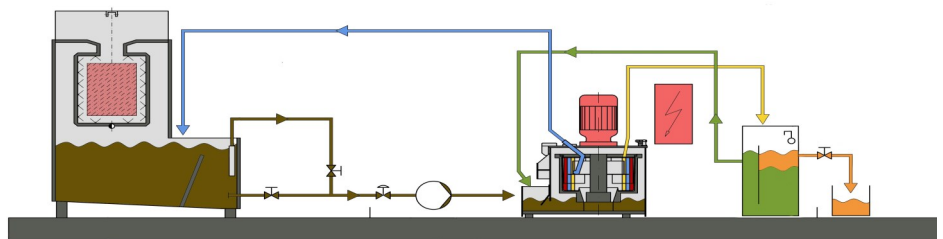
Washing

Washing fluids are used in a wide range of different cleaning methods. The AQS solutions from Turbo-Separator are the perfect way to make the most out of these fluids.

The three-phase centrifuges - shown here: AQS-T14 - separate the washing fluid from the dirt and oil which adheres to the parts.

This means that the washing fluid can be recirculated and used for a correspondingly much longer period of time.

The dirt remains in the centrifuge, while the oil is collected in a post-separation tank and drained off. As a result, clean washing fluid can be returned to the plant.



Emulsion waste



The problem:

Emulsion goes off after a short period of time and needs to be changed. Various solutions from Turbo-Separator are available to deal with this problem.

3-phase centrifuge:

Pre-cleaning is performed by the cleaning using, e.g. via a drag conveyor. An overflow directs the coolant, which carries dirt on its surface, to a station which pumps it to the processing stage.

Daytime operation: extraction from below > superfine cleaning

Nighttime operation: surface extraction > de-oiling

The plants are supplied with fresh coolant via a system of pipes. Water and emulsion concentrate are automatically fed into the system.

The coolants for production with 10 lathes and milling cutters have been in use for 3 years. The only things which need to be added are water and concentrate.

Our range also includes automatic large-scale systems.



Large-scale systems

The Turbo centrifuges and systems generally feature a modular layout. This modular design enables us to combine our different system components and create component groups or central plants which are able to meet a wide range of very different requirements.

Examples:

- 1) Total supply for centerless grinding of carbide. Sedimentation and bypass purification by 3 AZF-T15. AZF-T15 up to 80l / min oil or approx. 100l / emulsion
- 2) Grinding of sunglass lenses, cleaning by sedimentation and full flow cleaning 400 l / min. Modular design for easy installation and for on-site transport.
- 3) Complete system for the entire production facility for production of carbide tools. Sedimentation with bypass cleaning. 750 l / min. (Emulsion) 3 AZF-T40 automatic centrifuges.
- 4) Complete system for the supply of a whole machine hall of 250 x 80 m with a variety of CNC machine tools. Cleaning performance up to 4000 l/min. Sedimentation tank, backwash filters, oil removal with a T14 3-Phase and treatment by a T40 centrifuge. (Emulsion)
- 5) Group systems for 32 grinding machines in an application of glass grinding. T40 the installation is completely in housed. Cleaning capacity approx. 150l / min.

1)



2)



3)



4)



5)



Every group of units or complete system is planned by our Engineers and set up and taken into opera-



Innovations

Delivering innovation for about 60 years in the field of purification of industrial fluids:

The motto for our 50th anniversary was true to our vision of responsibly shaping the future: "Innovations for the environment".

We are still true to this motto today and face the challenges of our changing times every day with a demand-driven approach to innovation.

We aim to meet this goal of sustainability in everything that we do - with the ultimate target being to deliver what we consider to be an "honest" product.

Plants which have been in daily use for 20-30 years at our customers and which only have minimal servicing requirements deserve to be called "innovative" and "sustainable".

Our developments follow the specific and individual needs of our customers and offer complete solutions to their problems.

As a general contractor, we start every project at the engineering stage and complete every project with the handover of the keys.

Our company's mission is to deliver complete concepts covering every aspect from design to project management.

Our aim is to do (almost) anything for our customers.



Customer satisfaction

We create closeness to our customers and trust by offering long-term project support for our products and systems, right up to the point where they need to be disposed of or replaced. This trust is our ultimate goal for ensuring complete satisfaction on both sides.

Our support starts with the training we provide for customers or potential customers. We attempt to share our philosophy and our expertise with them in order to help the level of expertise to grow in our target sector.

Dedicated events and training courses can be held at our premises or at yours. We are also very happy to assist your employees with presentations or to help out at customer events . Please ask us for more information!

It is not possible for the market to offer an off-the-peg solution to every problem. This is why our sales engineers and our Engineering Team will work together with you to jointly develop the perfect solution for your requirements.

In many cases, this will also mean design-based solutions. We can help you with this.

Naturally, if anything goes wrong we will be there for you - either at short notice on-site and/ or from our own facilities.

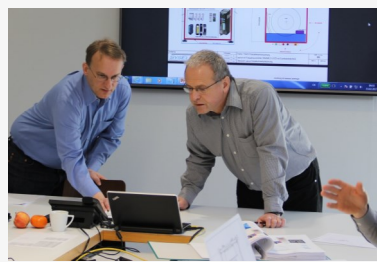
Customer satisfaction is our joint aim.



Events



Training



Specific customer solutions



Development and production



Service - in-house




Service - on-site



Quality and the environment

ZERTIFIKAT
CERTIFICATE
CERTIFICADO
EPRIMATAS
認証証書
CERTIFICATE
CERTIFICAT



**Fachbetrieb
nach § 19 I WHG**

Hiermit wird bestätigt, dass die Firma
Turbo-Separator AG
Rotenbach
Postfach 3 61
CH-9620 Lichtensteig
Betriebsstätte:
**Bleikenstrasse
CH-9630 Wattwil**

für nachstehende Tätigkeiten überprüft wurde
und einen Überwachungsvertrag abgeschlossen hat.

Anlagen zum	Stoffbezogene Anlagenart	Heizöl-Verbraucheranlagen (Typ 1)	Anlagen für brennbare Flüssigkeiten (Typ 2)	Anlagen für nicht brennbare Flüssigkeiten (Typ 3)
I. Lagern, Abfüllen, Umschlagen	-	-	-	X
II. Herstellen, Behandeln, Verwenden	-	-	-	X


Tätigkeiten	Anlagenart		11	11 I	12	11 2	13	11 3
Einbauen	-	-	-	-	-	-	X	X
Aufstellen	-	-	-	-	-	-	X	X
Instandhalten	-	-	-	-	-	-	X	X
Instandsetzen	-	-	-	-	-	-	X	X
Reinigen	-	-	-	-	-	-	-	-


Weitere Angaben zur Tätigkeit:

Der Fachbetrieb führt o.g. Tätigkeiten an Reinigungsanlagen zur Aufbereitung von Industrieflüssigkeiten, Waschwasser und Kühlschmierstoffen incl. zugehöriger Steuerung aus.

Mannheim, 14.10.2002

TÜV BAYERN HESSEN SACHSEN SÜDWEST E.V.
Technische Überwachungs-Organisation nach § 22 VAWs

Der Leiter

Dr. Bernd Haasner



gültig bis 06/04
 Anlage zur Überwachungsvertrag Nr. 930405/03



Every day the quality of our products is put to the test at our customers. For us, our quality claim extends to the "complete package" - i.e. everything that we do at Turbo-Separator, including our products and services.

Since 2007, we have the ISO-9001 2001/2008 certificate and have this recertified once. Our integrated management system is built on this basis and will be continued accordingly.

Through a complete reorganization of the entire Turbo International Group, we have decided the recertification ISO-9001 suspend.

Turbo Separator will further develop our Integrated Management System, with the aim to involve the entire group in the certificate.

However, our interpretation of "Quality" and the "Environment" extends beyond the limits of any certifications we have obtained..

We focus on having production facilities which are capable of manufacturing top quality products whilst using resources sparingly and minimising the amount of waste which is generated.

Production sites and suppliers are assessed and selected in accordance with these criteria.

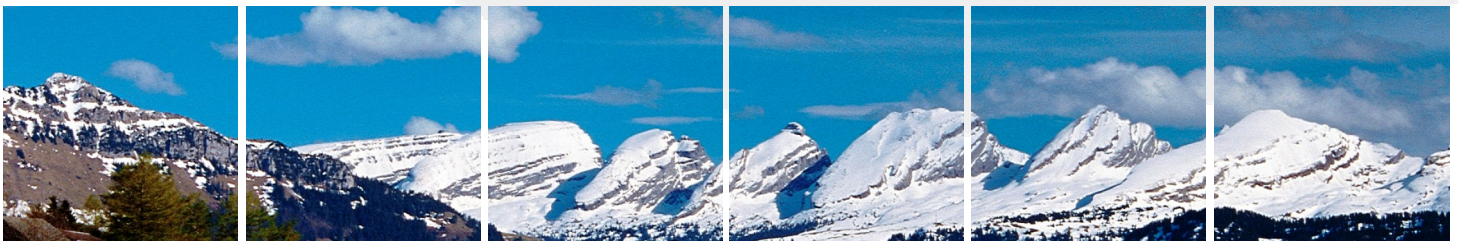
Although, of course, this does not mean that we will take our eye off the future and stop thinking about how we can ensure a strong future for our company - after all, "quality" also means still being a reliable partner much further down the road.



This will also enable us to take our products and services to the next level in the future.



Turbo-International Group



Turbo-International Gruppe:



Turbo-Separator
a Turbo-International company

Turbo-Separator AG
Bleikenstrasse 48
9630 Wattwil
Switzerland
Tel: +41 71 987 70 20
Fax: +41 71 987 70 29
www.turbo-separator.ch
info@turbo-separator.ch



Turbo-HKS
a Turbo-International company

Turbo-HKS GmbH
Robert Gerwig Strasse 25
78244 Gottmadingen
Germany
Tel: +49 7731 8801 0
Fax: +49 7731 8801 18
www.turbo-hks.com
info@turbo-hks.com



Turbo-Filtration
a Turbo-International company

Turbo Filtration Science & Technology Co., Ltd.
First Floor No. 1 Building, No. 21 Ye Ji Road,
Bao Shan District 200444 Shanghai,
P. R. China
Pho.: +86 21 3616 0508
Fax : +86 21 3616 0509
www.turbo-filtration.com.cn
info@turbo-filtration.com.cn