AutoFilt® TwistFlow Strainer ATF for Process Technology.

The HYDAC AutoFilt® TwistFlow Strainer ATF is suitable for the intermittent filtration of solid particles from water or fluids similar to water. Since only a portion of the flow is used to clean the filter, filtration can continue virtually unaffected. The filter is of course particularly suitable for offline applications which can operate for a short time with a slightly reduced flow.

The fluid enters the housing tangentially. As a result of the tangential flow and the tapered housing cross-section, the fluid flows down spirally. The centrifugal forces created separate the high density particles (e.g. sand, glass, metal particles, ...) to the edge of the housing. These are then deposited in the lower part of the housing and can be cleaned out periodically.

The remaining low-density particles which are not deposited at the bottom of the housing by the centrifugal force are separated by the conical slotted tube which has a defined filtration rating.

The cost effectiveness of the AutoFilt® TwistFlow Strainer ATF.

Particle contamination in operating fluids accelerates the rate of wear of system components, pipelines and valves and often leads to their premature failure. In many cases the use of TwistFlow Strainers ATF leads to a significant increase in service life and maintenance intervals.

Costs for new purchases, maintenance and waste disposal can thus be minimized.
Application examples from automotive industry to environmental technology.

**Automotive industry**
- Filtering the cooling and service water protects cooling channels and pipelines from clogging.

**Hydroelectric power plants**
- Treatment of industrial water for cooling generators and filtration of sealing water to increase the service life of the turbine shaft floating ring seals in hydroelectric power stations.

**Alpine technology**
- Filtration of water for protection of snow cannons and snow lances to ensure the snow quality.

**Paper industry**
- For example: the protection of spray nozzles for the screens of paper machines. This results in fewer failures caused by clogging and wear.

**Chemical industry**
- Improving product quality by filtering process media.

**Steel industry**
- Protection of nozzles and pumps during high-pressure descaling, water treatment for cooling blast furnaces and rolling mills.

**Sewage treatment plants**
- During the production of service water, filtration of a take-off of the clear run can be used to save valuable drinking water or well water.

**Environmental technology**
- TwistFlow Strainers ATF are used as pre-filters before waste treatment plants (UV treatment, reverse osmosis, membrane filtration ...).

**Areas of application of the AutoFil® TwistFlow Strainer ATF.**

The TwistFlow Strainer ATF is suitable for separating solid particles from low-viscosity fluids and is used, for example, as a:
- Pre-filter before AutoFil® RF3 / RF4
- Pre-filter to relieve sand filters
- Pre-filter before membrane systems
- Surface water filter
- Seawater filter
- Process water filter

**Special features of the AutoFil® TwistFlow Strainer ATF.**

In order to ensure that process and service water is produced reliably from surface water, the separation process used to treat the water must cope with vigorous fluctuations in the quality of the untreated water.

For conventional filters, these surges in concentration often cause a considerable reduction in performance, and even system downtime, and as a result a reduction in their cost-effectiveness or operating reliability as well.

This problem has led to the development of a new, patented filter for solid-liquid separation to cope with these vigorous fluctuations in concentration, a filter which at the same time always guarantees consistent quality of the filtrate – irrespective of fluctuations in the operating pressure or flow rate.

With filtration ratings of between 200 and 3,000 µm, the AutoFil® TwistFlow Strainer ATF is particularly suited to the separation of solid particles in suspension up to several grams per litre from preferably water-based or low-viscosity fluids.
AutoFilt® TwistFlow Strainer ATF – a Hybrid of Centrifugal Separator and Inline Filter.

Operation of the AutoFilt® TwistFlow Strainer ATF.

This filter is a hybrid system consisting of a centrifuge separator and an inline filter.

The fluid to be cleaned enters the housing tangentially – similar to a centrifuge separator – and accelerates down as a result of the tapered housing cross-section. The resulting spiral flow with its centrifugal force carries the coarsest contamination first – its density is obviously higher than that of the fluid – to the inner wall of the housing.
Conical slotted tube – in specific micron ratings.

The higher density particles flowing down the housing wall by centrifugal force fall into the lower section of the filter housing and are eventually removed. The remaining particles which differ in density only negligibly from the fluid, are separated by a conical filter element which is located in the middle of the filter.

The conical filter element specially developed for this filter ensures optimum flow characteristics which on the one hand make continual self-cleaning of the filter possible during operation and on the other, lower the pressure drop of the whole filter, compared with a centrifugal separator of the same size.

Both the separated particles and those filtered by the element finally collect in the lower part of the housing and can be discharged from the system periodically or continuously via a discharge valve.

Since only a portion of the flow is used for flushing, filtration can continue virtually unaffected.

The filter is of course particularly suitable for offline applications which can operate for a short time with a slightly reduced flow. Depending on the application and the quantity of particles which accumulate, the contamination removal intervals can be individually adapted to the treatment process using a timer control.

Special features of the AutoFilt® TwistFlow Strainer ATF.

The AutoFilt® TwistFlow Strainer ATF is particularly suited to high levels of contamination and large fluctuations in the solid particle content of the untreated water.

By using conical slotted tube elements with micron ratings of between 200 and 3,000 µm, a specific filtration rating and, as a result, consistent filtrate quality is always guaranteed, irrespective of fluctuations in operating pressure and flow rate.

The special flow characteristics which are the result of the element geometry and their configuration mean that the pressure drop of the filter is comparatively low over the whole operating range and in contrast to conventional centrifugal separators is only approximately 30%.

The pre-filtration of solid particles of a higher density means that the filter surface area can take a correspondingly higher load and the filter size can be smaller comparatively speaking.

The filter elements are cleaned solely by flushing with untreated fluid. Traditional back-flushing of the filter or the use of other fluids or cleaning chemicals is not required with the TwistFlow Strainer ATF.

In terms of size and space the TwistFlow Strainer ATF is comparable with conventional separators such as gravity purification plants or sand filters.

Several TwistFlow Strainers ATF can be integrated in almost any quantity into systems and as a result can be flexibly adapted to the required flow rates.
AutoFilt® TwistFlow Strainer ATF – technical specifications at a glance.

- **Maximum operating pressure:**
  - 10 bar or 16 bar

- **Operating temperatures:**
  - 0 to 90 °C

- **Filtration ratings:**
  - Conical slotted tube with or without Superflush
  - 200 to 3,000 µm

- **Types of control:**
  - Without control or with timer control

- **Material of filter housing:**
  - Carbon steel or stainless steel

- **Material of filter elements:**
  - Stainless steel

- **Corrosion protection – external:**
  - 2 coats of primer
  - (not necessary for stainless steel housings)

- **Corrosion protection – internal:**
  - (carbon steel housing)
  - Highly abrasion-resistant special lining

- **Material of seals:**
  - FPM (Viton), asbestos-free gasket (C4400)

- **Ports:**
  - DIN flanges, ANSI flanges, JIS flanges
  - NPT-thread optional (size 1 only)

- **Documentation:**
  - Operating and maintenance instructions
  - Other models on request

To filter larger volumes, the AutoFilt® TwistFlow Strainer ATF can also be supplied mounted on a skid.
The advantages of the AutoFilt® TwistFlow Strainer ATF...

... and the benefits to you:

- Extensive standard features for individual applications ➤ Excellent price / performance ratio
- Service-friendly ➤ Low maintenance costs
- Conical filter elements ➤ Low pressure drop, continual self-cleaning
- Slotted tube filter elements ➤ Long service life, optimum filtration and cleaning characteristics
- Individually adjustable control parameters ➤ Customized adaptation to the particular application
- Flow-optimized filter ➤ High through-put with compact dimensions
- Static sealing between contaminated and clean sides ➤ Guaranteed high filtrate quality, low maintenance
- Variable housing isometry ➤ Reduced costs due to space-saving and simple installation
- Numerous equipment options ➤ Customized adaptation to the particular application
- Ready-to-operate unit ➤ Simple installation and commissioning. Guaranteed reliability due to HYDAC system test
- ISO 9001 certification ➤ Consistently high quality
- No rotating parts ➤ No wear – no costs for replacement parts

Dimensions of the AutoFilt® TwistFlow Strainer ATF.

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<th>Size</th>
<th>NW1</th>
<th>NW2</th>
<th>H max.</th>
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<th>h2</th>
<th>h3</th>
<th>b1</th>
<th>b2</th>
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