HYDAC VFL

Virtual **F**luid **L**ab
for Increased Machine Availability

Intelligent components with a functional plus for OEM and end user as well as connected systems are essential development topics for HYDAC. Motivated by that HYDAC developed a new smart concept, which combined with intelligent in-house sensors not only determines the remaining service life of filter elements, but even contributes to Predictive Maintenance of the machine. A **reduction of Life Cycle Cost** and therefore an **increased machine reliability** are relevant benefits for our customers.

Why is the determination of remaining service life useful?

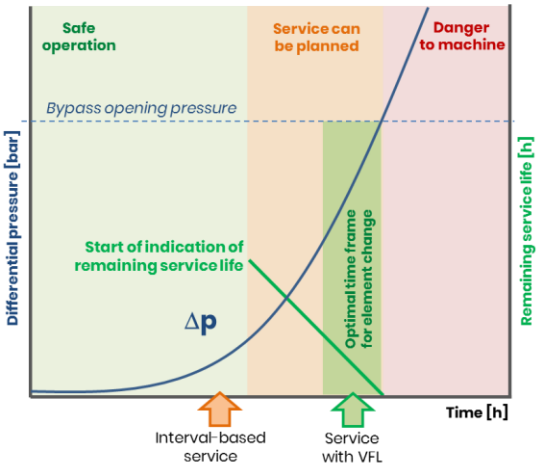
Cost reduction:

- A condition based element change is possible (not based on fixed intervals)
  > full use of filter element service life and hence maximisation of service intervals
- Time of element change is always readable
  > service can be scheduled in a proactive way
  > no unexpected machine downtimes
  > punctual, smooth organisation of the service

Reliability and Productivity:

The determination of remaining service life identifies „dirt conspicuous“ machines and hence importantly contributes to Predictive Maintenance concept within fleet management

> An unscheduled, but necessary service can be done, before total machine failure occurs



Example: Expanding the service life through the use of VFL

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The VFL Concept

Thanks to our experiences for decades in the field of filtration of hydraulic and lube oils and based on our knowledge about the interactions between filtration, filter design and element development, we released a precisely synchronised **algorithm**, which is directly integrated into the high-performing electronics of our smart sensors. By means of the sensors VD ... VFL (differential pressure measurement) or VR ... VFL / VMF ... VFL (dynamic pressure measurement) the concept can be used independently from filter type and size. The remaining service life determination is specially attuned to HYDAC filter elements, which have been validated by comprehensive laboratory and field tests particularly in regard to service life extension . Thanks to our **patented Quality Protection** interfaces the use of original HYDAC elements is secured.

VD ... VFL: based on differential pressure measurement

VR ... VFL / VMF ... VFL: based on dynamic pressure measurement

Customer Benefits

- **Maximised service intervals thanks to VFL and high-class, original HYDAC filter elements (Quality Protection)**
  > **Cost savings** thanks to reduced number of element changes per year
- **Predictive Maintenance is enabled**
- **No unexpected machine downtime** and hence **no downtime costs**
- **Increased machine availability** and hence **reduction of Life Cycle Cost**
- With **HYDAC as development partner** you benefit from our competence in the field of filtration and contamination combined with the know-how of the VFL concept.
- **Attractive, innovative machines**