Example 2: Selection Return Line Filter

System Information: A return line filter with a Cellulose element with a micron rating of 10 μm is required to clean the oil. No clogging indicator is required.

Please note: If the system incorporates either accumulators or cylinders, the return flow can dramatically exceed pump flow and the maximum surge flow should be the flow used to calculate the pressure drop through the filter.

Data given:
Q_{max}:	100 l/min
Oil type:	ISO 68
Temperature max.:	+60°C
Viscosity $\upsilon_{operating}$:	29 mm²/s
Density ρ:	0,882 kg/dm³
Micron rating:	10 μm (see table on page C11)

First Step

Pre-selection of the size: RF 030, $Q_{nominal} = 110$ l/min $> Q_{max}$

Pressure drop values (at viscosity of 30 mm²/s) from the flow characteristics:

$\Delta p_{Hous} = 0,30$ bar   (RF 030 ..., see page C66)
$\Delta p_{Elem} = 0,067$ bar   (RE-030 N 10 B, see page C66)

Determination of the correction factor (see page C14):

$$\Delta p_{Assy} = \frac{0,882}{0,86} \cdot 0,30 \text{ bar} + \frac{0,882}{0,86} \cdot \frac{29}{30} \cdot 0,067 \text{ bar}$$

$$\Delta p_{Assy} = 0,37 \text{ bar} \leq \Delta p_{max} = 0,5 \text{ bar}$$

In a clean state, this filter fulfills the requirements and is suitable for the application. No further calculation is necessary. The correct filter designation would be **RF030N10B/B**.

Filter Selection Software

For daily business, it is much easier to use a software tool for the calculation of filters.

The STAUFF Filter Selection Software gives an outstanding support in calculating and choosing a well-dimensioned filter. The tool assists in calculating the right size and creates a technical and order data sheet.

Please contact STAUFF or your distributor for a free copy of the STAUFF Filter Selection Software.
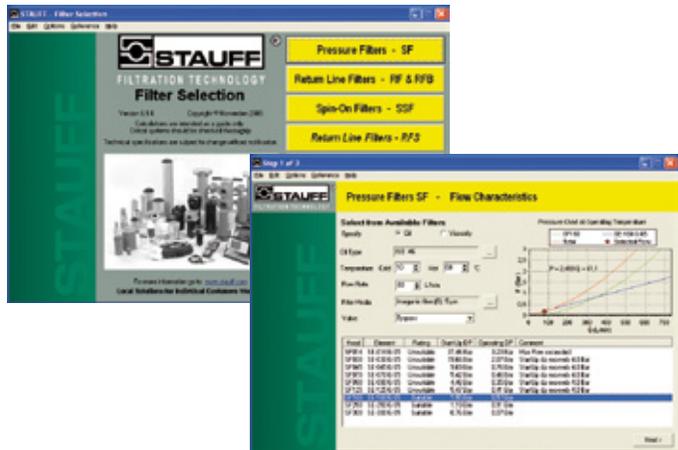
STAUFF Contamination Control Program (SCCP)
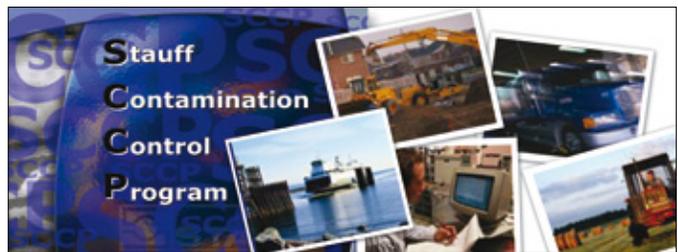
The STAUFF Contamination Control Program provides you with a proactive system to control the contamination levels in your hydraulic system.

We offer a Contamination Control Seminar, which includes a PowerPoint presentation and printed literature (only in english language available).

Topics covered include:

- Failures in hydraulic systems
- Contamination types and sources
- Damage caused by contamination
- Fluid cleanliness levels
- Target cleanliness levels
- Contamination control basics
- Filter efficiency
- Measuring fluid level cleanliness
- Practical applications of filtration

To arrange for a presentation contact STAUFF or your distributor.

Besides that, STAUFF has also a wide range of training tools and filtration software to support the proper application of filter systems and products. Software includes filter sizing programs as well as training presentations.

Contact STAUFF for more information.