

The English language version is the original and the reference in case of dispute.

Den engelska språkversionen är originalversion och skall åberopas i händelse av tvist.

HYDRAULIC APPLICATIONS

Filters for production systems

Requirements and a selection of specified filter elements

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1 Scope and field of application

The scope of this standard includes filters for hydraulic systems such as high-pressure filters, return filters and breathing filters. The standard shall be applied at new acquisitions or at reconstruction of production systems.

2 Requirements

Hydraulic systems shall be provided with high-pressure filters and/or return filters as well as breathing filters. All filters shall be equipped with electrical and optical indicators. Partial-flow filtration is not approved.

A separate filter circuit must be installed if the total oil flow of the system cannot be filtered directly.

Filter selection shall be made from this standard.

2.1 Filter dimensioning

If choosing a separate filter circuit, the flow through the circuit shall not be less than three times the tank volume per hour.

HYDRAULISKA APPLIKATIONER

Filter för produktions- utrustningar

Krav och urval av specificerade filterpatroner

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1 Omfattning och tillämpning

Denna standard omfattar filter för hydrauliska system såsom högtrycksfilter, returfilter samt andningsfilter. Standarden skall tillämpas vid nyanskaffning eller ombyggnad av produktionsutrustningar.

2 Krav

Hydrauliska system skall vara försedda med tryckfilter och/eller returfilter samt andningsfilter. Alla filter skall vara försedda med elektrisk och optisk indikering. Delflödesfiltrering godkänns ej.

Separat filterkrets måste installeras om inte hela systemets oljeflöde kan filtreras direkt.

Val av filter skall göras ur denna standard.

2.1 Dimensionering av filter

Vid val av separat filtrering i filterkrets skall flödet i kretsen motsvaras av att tankens volym passerar genom filtret minst tre gånger per timme.

When filters with high-collapse elements are needed, use filter housings without by-pass valve. The filter shall be fitted with a special indicator for 7 bar pressure drop. A high-collapse filter for pressure drop up to 210 bar shall be used.

All filters shall be dimensioned according to the oil viscosities in use.

All seals shall function satisfactorily in the relevant oil quality according to Volvo's oil specification.

2.2 Cleanliness requirements for hydraulic oil

In systems containing servo-hydraulic components or in systems with high cleanliness requirements, cleanliness requirements 16/13/10 according to ISO 4406:99 or NAS level 4 according to NAS 1638 must not be exceeded.

The number of particles in the hydraulic oil for normal hydraulics or proportional hydraulics shall not exceed cleanliness requirements 18/15/12 according to ISO 4406:99 or NAS-level 6 according to NAS 1638.

The set cleanliness level shall be verified by the machine/system supplier at start-up and during normal production within the applicable warranty period. Measuring method shall be specified.

Any deviations from this standard shall be approved by qualified Volvo personnel.

Vid behov av filter med högt kollapstryck skall filterhus utan by-pass ventil användas. Filtret skall förses med särskild indikering på 7 bar. Filterpatronen skall klara 210 bars tryckfall och benämns "high-collapse filter".

Alla filter skall dimensioneras för aktuell oljeviskositet.

Tätningar i filter skall klara för ändamålet avsedd oljekvalitet enligt Volvos oljespecifikation.

2.2 Renhetskrav för hydraulolja

I system innefattande servohydraulik och/eller system med höga renhetskrav skall inte renhetsnivå 16/13/10 enligt ISO 4406:99 eller NAS-klass 4 enligt NAS 1638 överstigas.

Partikelmängden i hydrauloljan för normal hydraulik eller proportionalhydraulik skall inte överstiga renhetsnivå 18/15/12 enligt ISO 4406:99 eller NAS-klass 6 enligt NAS 1638.

Angiven renhetsnivå skall verifieras av maskin-/systemleverantören vid uppstart och under normal drift inom gällande garantitid. Mätmetod skall anges.

Eventuella avvikelser från denna standard skall godkännas av behörig Volvopersonal.

3 Specification

Technical conditions: 32 mm²/s at 40 °C, max 0,5 bar pressure drop over the filter element.

3.1 Hydraulic filters for systems with standard components

Table / Tabell 1

3 Specifikation

Dimensionerande uppgifter: 32 mm²/s vid 40 °C, max 0,5 bars tryckfall över filterpatron.

3.1 Hydraulikfilter för system med standardkomponenter

Cleanliness requirements according to ISO 4406:1999 18/15/12 or NAS 6
Renhetsnivå enligt ISO 4406:1999 18/15/12 alt. NAS 6

HYDAC

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|----------------------|--|-------------------------------|-------------------------------|
| 15 | 0030D010BN/HC | 0030R010BN/HC | 0030R010BN/HC |
| 20 | 0060D010BN/HC | 0060R010BN/HC | 0060R010BN/HC |
| 50 | 0110D010BN/HC | 0110R010BN/HC | 0110R010BN/HC |
| 75 | 0160D010BN/HC | 0160R010BN/HC | 0160R010BN/HC |
| 100 | 0240D010BN/HC | 0240R010BN/HC | 0240R010BN/HC |
| 150 | 0240D010BN/HC | 0240R010BN/HC | 0240R010BN/HC |
| 200 | 0330D010BN/HC | 0330R010BN/HC | 0330R010BN/HC |
| 300 | 0500D010BN/HC | 0500R010BN/HC | 0500R010BN/HC |
| 400 | 0660D010BN/HC | 0660R010BN/HC | 0660R010BN/HC |
| 600 | - | 0660R010BN/HC | 0660R010BN/HC |

MAHLE

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|----------------------|--|-------------------------------|-------------------------------|
| 15 | PI3105smx10 | PI3105smx10 | PI23004RNsmx10 |
| 20 | PI3105smx10 | PI3105smx10 | PI23006RNsmx10 |
| 50 | PI3111smx10 | PI3111smx10 | PI23010RNsmx10 |
| 75 | PI3130smx10 | PI3130smx10 | PI23016RNsmx10 |
| 100 | PI3130smx10 | PI3130smx10 | PI23016RNsmx10 |
| 150 | PI3130smx10 | PI3130smx10 | PI23025RNsmx10 |
| 200 | PI3145smx10 | PI3145smx01 | PI23040RNsmx10 |
| 300 | - | - | PI23063RNsmx10 |
| 400 | - | - | PI23063RNsmx10 |
| 600 | - | - | PI23100RNsmx10 |

Cleanliness requirements according to ISO 4406:1999 18/15/12 or NAS 6
Renhetsnivå enligt ISO 4406:1999 18/15/12 alt. NAS 6

PALL

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|----------------------|--|-------------------------------|-------------------------------|
| 15 | UE219AS04H | UE219AS04H | UE299AS04H |
| 20 | UE219AS04H | UE219AS04H | UE299AS04H |
| 50 | UE219AS04H | UE219AS04H | UE299AS04H |
| 75 | UE219AS04H | UE219AS04H | UE299AS04H |
| 100 | UE219AS04H | UE219AS04H | UE299AS04H |
| 150 | UE219AS04H | UE219AS04H | UE299AS04H |
| 200 | UE219AS08H | UE219AS08H | UE299AS08H |
| 300 | UE319AS08H | UE319AS08H | UE319AS08H |
| 400 | UE319AS08H | UE319AS08H | UE319AS08H |
| 600 | - | - | - |

PARKER

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filter Returfilter | Tanktop filters Tankfilter |
|----------------------|--|------------------------------|-------------------------------|
| 15 | GO4244 | 936700Q | 937878Q |
| 20 | GO4244 | 936700Q | 937878Q |
| 50 | GO4252 | 936708Q | 937878Q |
| 75 | GO4252 | 936708Q | 937878Q |
| 100 | GO4268 | 936601Q | 937855Q |
| 150 | GO4268 | 936601Q | 937855Q |
| 200 | GO4284 | 936602Q | 937855Q |
| 300 | GO4284 | 936602Q | 937855Q |
| 400 | GO4284 | 936718Q | 937857Q |
| 600 | - | - | 937775Q |

**3.2 Hydraulic filters for systems with
servo hydraulics and/or high
requirements****3.2 Hydraulikfilter för system med
servohydraulik och/eller höga krav**

Table / Tabell 2

Cleanliness requirements according to ISO 4406:1999 16/13/10 or NAS 4
Renhetsnivå enligt ISO 4406:1999 16/13/10 alt. NAS 4

HYDAC

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|------------------------------|--|---------------------------------------|---------------------------------------|
| 15 | 0060D003BN/HC | 0060R003BN/HC | 0060R003BN/HC |
| 20 | 0110D003BN/HC | 0110R003BN/HC | 0110R003BN/HC |
| 40 | 0240D003BN/HC | 0160R003BN/HC | 0160R003BN/HC |
| 75 | 0280D003BN/HC | 0240R003BN/HC | 0240R003BN/HC |
| 100 | 0330D003BN/HC | 0330R003BN/HC | 0330R003BN/HC |
| 150 | 0500D003BN/HC | 0660R003BN/HC | 0660R003BN/HC |
| 200 | 0660D003BN/HC | 0660R003BN/HC | 0660R003BN/HC |
| 300 | 0990D003BN/HC | 0950R003BN/HC | 0950R003BN/HC |
| 400 | 1320D003BN/HC | 0950R003BN/HC | 0950R003BN/H |
| 600 | - | 1300R003BN/H | 1300R003BN/HC |

MAHLE

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|------------------------------|--|---------------------------------------|---------------------------------------|
| 15 | PI5105smx6 | PI5105smx6 | PI22004RNsmx6 |
| 20 | PI5105smx6 | PI5105smx6 | PI22006RNsmx6 |
| 40 | PI5111smx6 | PI5111smx6 | PI22010RNsmx6 |
| 75 | PI5130smx6 | PI5130smx6 | PI22016RNsmx6 |
| 100 | PI5130smx6 | PI5130smx6 | PI22016RNsmx6 |
| 150 | PI5130smx6 | PI5130smx6 | PI22025RNsmx6 |
| 200 | PI5145smx6 | PI5145smx6 | PI22040RNsmx6 |
| 300 | - | - | PI22063RNsmx6 |
| 400 | - | - | PI22063RNsmx6 |
| 600 | - | - | PI22100RNsmx6 |

Cleanliness requirements according to ISO 4406:1999 16/13/10 or NAS 4
Renhetsnivå enligt ISO 4406:1999 16/13/10 alt. NAS 4

PALL

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|----------------------|--|-------------------------------|-------------------------------|
| 15 | UE219AN04H | UE219AN04H | UE219AN04H |
| 20 | UE219AN04H | UE219AN04H | UE219AN04H |
| 40 | UE219AN04H | UE219AN04H | UE219AN04H |
| 75 | UE219AN04H | UE219AN04H | UE299AS04H |
| 100 | UE219AN08H | UE219AN08H | UE299AS08H |
| 150 | UE219AN08H | UE219AS08H | UE299AS08H |
| 200 | UE219AN13H | UE219AN13H | UE299AN13H |
| 300 | UE319AN08H | UE319AN08H | UE319AN08H |
| 400 | UE319AN13H | UE319AN13H | UE319AN13H |

PARKER

| Flow Flödesområde | High-pressure filters Högtrycksfilter | Return filters Returfilter | Tanktop filters Tankfilter |
|----------------------|--|-------------------------------|-------------------------------|
| 15 | GO4243 | 936703Q | 937879Q |
| 20 | GO4243 | 936703Q | 937879Q |
| 40 | GO4251 | 936703Q | 937879Q |
| 75 | GO4251 | 936711Q | 937879Q |
| 100 | GO4267 | 936711Q | 937846Q |
| 150 | GO4267 | 936711Q | 937846Q |
| 200 | GO4283 | 936717Q | 937846Q |
| 300 | GO4283 | 936717Q | 937846Q |
| 400 | GO4283 | 936717Q | 937840Q |
| 600 | - | - | 937840Q |

3.3 High-collapse filters (210 bar) for hydraulic system**3.3 Hydraulikfilter för system med behov av förstärkta filterpatroner (210 bar)**

Table / Tabell 3

| <i>Cleanliness requirements according to ISO 4406:1999 below</i> <i>Renhetsnivå enligt ISO 4406:1999 nedan</i> | | |
|---|--|--|
| HYDAC | | |
| Flow Flödesområde | High-pressure filters Högtrycksfilter ISO 18/15/12 (NAS 6) | High-pressure filters Högtrycksfilter ISO 16/13/10 (NAS 4) |
| 15 | 0060D005BH/HC | 0110D003BH/HC |
| 20 | 0110D005BH/HC | 0140D003BH/HC |
| 40 | 0160D005BH/HC | 0240D003BH/HC |
| 75 | 0240D005BH/HC | 0280D003BH/HC |
| 100 | 0280D005BH/HC | 0280D003BH/HC |
| 150 | 0500D005BH/HC | 0660D003BH/HC |
| 200 | 0500D005BH/HC | 0660D003BH/HC |
| 250 | 0660D005BH/HC | 0990D003BH/HC |
| 300 | 0990D005BH/HC | 1320D003BH/HC |
| MAHLE | | |
| Flow Flödesområde | High-pressure filters Högtrycksfilter ISO 18/15/12 (NAS 6) | High-pressure filters Högtrycksfilter ISO 16/13/10 (NAS 4) |
| 15 | PI3205SMX10VST | PI5205SMX6VST |
| 20 | PI3205SMX10VST | PI5205SMX6VST |
| 40 | PI3211SMX10VST | PI5211SMX6VST |
| 75 | PI3230SMX10VST | PI5230SMX6VST |
| 100 | PI3230SMX10VST | PI5230SMX6VST |
| 150 | PI3230SMX10VST | PI5230SMX6VST |
| 200 | PI3245SMX10VST | PI5245SMX6VST |
| PALL | | |
| Flow Flödesområde | High-pressure filters Högtrycksfilter ISO 18/15/12 (NAS 6) | High-pressure filters Högtrycksfilter ISO 16/13/10 (NAS 4) |
| 15 | HC9101FDT4H | HC9101FDS4H |
| 20 | HC9101FDT4H | HC9101FDS4H |
| 40 | HC9101FDT4H | HC9101FDS4H |
| 75 | HC9601FDT4H | HC9601FDS8H |
| 100 | HC9601FDT8H | HC9601FDS8H |
| 150 | HC9601FDT8H | HC9601FDS13H |
| 200 | HC9601FDT13H | HC9601FDS13H |
| 250 | HC9601FDT13H | HC9601FDS16H |
| 300 | HC9601FDT16H | - |

*Cleanliness requirements according to ISO 4406:1999 below
Renhetsnivå enligt ISO 4406:1999 nedan*

PARKER

| Flow Flödesområde | High-pressure filters Högtrycksfilter ISO 18/15/12 (NAS 6) | High-pressure filters Högtrycksfilter ISO 16/13/10 (NAS 4) |
|----------------------|--|--|
| 15 | GO4292 | GO4291 |
| 20 | GO4292 | GO4291 |
| 40 | GO4300 | GO4291 |
| 75 | GO4300 | GO4299 |
| 100 | GO4316 | GO4299 |
| 150 | GO4316 | GO4315 |
| 200 | GO4332 | GO4315 |
| 250 | GO4332 | GO4331 |
| 300 | GO4332 | GO4331 |
| 400 | - | GO4331 |

3.4 Breathing filters**3.4 Andningsfilter**

Table / Tabell 4

| PARKER | MAHLE | HYDAC |
|--------|----------------|--------------|
| QXWL13 | 852 519 mic 10 | 0007 L 010 P |