Released Parts List Mechanics

for the production

of the engine, gearbox, chassis, and foundry

of the Volkswagen Group

„technology specific part“

1 Change journal

Version	Date	Change	Page
1.0	15.06.2007	First edition	all
1.1	30.06.2008	Extension of Hanover Foundry site	1, 4
1.2	01.09.2009	Extension of Wolfsburg site	1, 4
1.3	01.07.2010	Addition for foundry machinery and plants	1.3
1.3 en	01.07.2011	English edition of version 1.3	all
1.4	01.07.2012	Mechanical specifications revised (version 1.4) Adaption acc. to the group template Revision of contact and service partners Sm-x filter material replaced by PS filter material Addition of bypass filters NG 1000 Addition of filter with reverse flow valve for lubrication systems Fineness of filter for lubrication systems 10 and 25µm Revision of all tables filter for lubrication systems	all
1.5	01.01.2013	Adaption mechanical specifications 1.5 Adaption acc. to the group template dated 01.01.2013	all
1.5.1	01.11.2013	Adaption hyperlinks data sheets	all
1.6	01.01.2014	Adaption mechanical specifications 1.6	all
1.6.1	01.07.2014	Addition released parts list filter for cooling lubricant	12, 34-36
1.7	01.01.2015	Addition with tank-top-return-line filters	14, 15, 25, 26
1.8	01.01.2016	Mechanical specifications revised (Version 1.8) Adaption of the list of released parts for low flammable fluids. (HFC) will be handled separately.	all
1.8	04.02.2016	Exchange of the MAHLE logo and adaption of the document links because of the new MAHLE homepage www.mahle.com	all
1.8	16.03.2016	Translation	all
1.9	08.02.2017	Adaption of the Released Parts List Foundry Name change of MAHLE Industriefiltration to Filtration Group. New Logo of Filtration Group. Contact persons have been updated	1, 2, 4, 5
2.0	01.01.2018	Mechanical specifications revised (2.0)	all

Table of contents

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3 Notes

3.1 Hydraulic filters for mineral oil based pressure fluids

Hydraulic filters — **Filters and filter elements according to DIN 24550**

General

The required oil purity of the system is specified according to ISO 4406:1999. According to ISO 4406, the number of particles per 100 ml is assigned to a class.

ISO 4406/1999 defines one class each for particles >4µm (c), >6µm(c) and >14µm (c). A complete specification according to ISO 4406/1999 therefore encompasses a 3-digit code.

The separation efficiency of the filter is determined according to the multi-pass test according to ISO 16889. According to DIN 24550, the filter fineness is defined by the particle size x at which the filtration ratio $\beta_{x\,(c)} \geq 200$.

Specified minimum filter service life 6 months (= approx. 3,000 operating hours).

In order that the required oil purity class and the filter service life can be achieved, the manufacturer of the system must coordinate the filter concept with the filter manufacturer in advance.

A sign with the VW material number for the replacement element and the repair set must be attached directly next to the filter.

Simplex filters are primarily used.

Duplex filters are specified for production-dependent machines and systems at SKODA AUTO a.s.

Pressure filters without bypass must be used before continuous valves.

At a container volume of >1000 l, partial flow filters must always be used.

In the case of widely branched systems, strongly fluctuating volume flows and hydrostatic bearings, Filtration Group also recommends partial flow filtration, following consultation with the purchaser.

Return-line filters as line filters according to DIN 24550

Return-line filter as simplex filter/ duplex filter

Filter with bypass valve, opening pressure 3.5 bar and opt./elec. service indicator switching pressure 1.7 / 2.2 bar

Collapse pressure of the filter element Δp 20 bar

Range of application: **return filter in the primary flow**

Separation efficiency		purity class
$\beta_{10\,(c)} \geq 200$		17/15/11 for "normal hydraulics" and Hydraulics with proportional valves
$\beta_{5\,(c)} \geq 200$	→	14/12/9 for hydraulics with control and servo valves

Return-line filters as tank installation filter according to DIN 24550

Return-line filter as simplex filter

Filter with bypass valve, opening pressure 3.5 bar and opt./elec. service indicator switching pressure 1.7 / 2.2 bar

Collapse pressure of the filter element Δp 10 bar

Range of application: **return filter in the primary flow**

Separation efficiency		purity class
$\beta_{10\,(c)} \geq 200$		17/15/11 for "normal hydraulics" and Hydraulics with proportional valves
$\beta_{5\,(c)} \geq 200$	→	14/12/9 for hydraulics with control and servo valves

Pressure filter as line filter according to DIN 24550 / nominal pressure 200/400 bar

Pressure filter as simplex filter/ duplex filter

Filter without bypass valve, with opt./elec. service indicator switching pressure 3.7 / 5.0 bar

Collapse pressure of the filter element Δp 210 bar

Range of application: **Working filter in the primary flow**

Separation efficiency		purity class
$\beta_{10\,(c)} \geq 200$		17/15/11 for "normal hydraulics" and hydraulics with proportional valves
$\beta_{5\,(c)} \geq 200$	→	14/12/9 for hydraulics with control and servo valves

Range of application: **protection filters**

Separation efficiency		purity class
$\beta_{10\,(c)} \geq 200$		17/15/11 "General hydraulics" and hydraulics with proportional valves
$\beta_{5\,(c)} \geq 200$	→	14/12/9 for hydraulics with control and servo valves

Partial flow filter as line filter according to DIN 24550

Partial flow filters are always to be used as additional filters to existing working filters (return or pressure filters). The filter capacity must be selected to be equivalent to the volume flow occurring in the system. Guideline value for circulation: 2 to 3 times container volume per hour.

Range of application: permanent filtration of the hydraulic oil in the partial flow.

Design of the partial flow filter:

Maximum initial Δp: 0.15 bar

Filter surface load of the filter element: max. 0.01 l/min cm².

Filter element differential pressure stable up to Δp 10 bar. Filter without bypass valve, with opt./elec. service indicator switching pressure 1.7 / 2.2 bar

Separation efficiency		purity class
$\beta_{10\,(c)} \geq 200$		17/15/11 "General hydraulics" and Hydraulics with proportional valves
$\beta_{5\,(c)} \geq 200$	→	14/12/9 for systems with servo valves

Air breathers

Air filters with flange connection, pitch circle diameter 73 accord-

	ing to DIN 24557-2 The listed air filters are equipped with filling protection and a mechanical-optical service indicator. Filter fineness 3µm, replaceable filter element **Design of the air filter**: Initial differential pressure ≤ 0.01 bar in clean state at maximum air throughput rate but at least five times the maximum volume change in the tank
Maintenance indicators	Each hydraulic filter must be provided with an optical / electrical service indicator. Design with 2 switch points (75%/100%) Contact type normally open (75%), normally closed (100%) 3 LED (green=ready / yellow=75% / red=100%) Plug connection M 12 x 1 In the case of duplex filters for SKODA AUTO a.s., only the 100% signal is processed. The service indicator is included in the type designations of the complete filters. **Service indicator for pressure filter nominal pressure 200/250/315/350/400 bar:** **Type PiS 3155 / 5.0 M12x1** **Service indicator for return filter as line filter** **Nominal pressure 25/63 bar:** **Type PiS 3154 / 2.2 M12x1** **Service indicator for return filter as tank installation filter** **Nominal pressure 10 bar:** **Type PiS 3153 / 2.2 M12x1** **Service indicator for partial flow filter nominal pressure 10 bar:** **Type PiS 3154 / 2.2 M12x1**

3.2 Hydraulic filter for low flammable fluids

Hydraulikkomponenten für Anlagen mit schwerentflammbaren Druckflüssigkeiten der Gruppe HFC sind gelistet in der

Released parts list
For the
foundry
of the Volkswagen Group
„Technology specific part“

3.3 Lubrication oil filter

Filter

Filter and filter elements according to DIN 24550

General information

When designing the filter, the lubricant used, its viscosity and the operating temperature of the planned system must be taken into consideration.

The manufacturer of the lubrication system must agree upon the filter concept with the filter manufacturer so that the required oil purity class can be achieved and the service life of the filter elements correspond with the requirements of the user – generally 3,000 operating hours.

The initial Δp of 0.8 – 1.0 must not be exceeded.

The fineness of the filter is specified as 10 µm → $\beta_{10\,(c)} \geq 200$ respectively 25 µm → $\beta_{20\,(c)} \geq 200$.

A sign with the VW material number for the replacement element and the repair kit must be attached directly next to the filter by the system manufacturer.

Simplex filters are primarily used.

DSF are subject to approval.

Systems whose filling capacities amount to > 1,000 litre are to be fitted with bypass filters.

The operator must be consulted about this.

Pressure filter as line filter according to DIN 24550 / nominal pressure 63 bar, for total loss lubrication systems

Pressure filter as simplex filter

In discharger-total loss lubrication systems, the primary line after the filter must be pressure compensated in order to ensure the functionality of the distributor. A reversing valve is therefore required in the filter.

Filter with reversing valve without bypass valve, with opt./elec. service indicator switch pressure 3.7 / 5 bar

Collapse pressure of the filter element Δp 210 bar

Filter fineness		→Separation efficiency
10 µm	→	$\beta_{10\,(c)} \geq 200$
20 µm	→	$\beta_{20\,(c)} \geq 200$

Pressure filter as line filter according to DIN 24550 / nominal pressure 63 bar, for circulation lubrication systems

Pressure filter as simplex filter / duplex filter

Filter without bypass valve, with opt./elec. service indicator switch pressure 3.7 / 5 bar

Collapse pressure of the filter element Δp 210 bar

Filter fineness	→	Separation efficiency
10 µm	→	$\beta_{10\,(c)} \geq 200$
20 µm	→	$\beta_{20\,(c)} \geq 200$

Partial flow filters

See hydraulic filters

Air filters

See hydraulic filters

Maintenance indicators

Each filter must be provided with an optical / electrical maintenance indicator.

Design with 2 switch points (75%/100%)

Contact type normally open (75%), normally closed (100%)

3 LED (green=ready / yellow=75% / red=100%)

Plug connection M 12 x 1

In the case of duplex filters for SKODA AUTO a.s., only the 100% signal is processed.

The maintenance indicator is included in the type designations of the complete filters.

Maintenance indicator for line filter nominal pressure 63 bar

Type PiS 3154 / 2.2 M12x1

3.4 Filter for cooling lubrication

Filter

Filter according to DIN 24550,
filter elements according to the dimensions DIN 24550-3
▪

General

The filters for cooling lubrication included in this approval list are conceived solely as security or control filters. When designing the filters, the cooling lubricant type used (emulsion or oil), the viscosity and the operating temperature must be taken into consideration.

Solely duplex filters are used. Filter housings are only made from spheroidal graphite and steel. Thread connections made from these materials are insensitive when using cooling lubricants and the dirt particles occurring there.

In wire mesh filter elements for emulsion, the filter fineness equals the largest spherical particle that can pass through the mesh. The depth filter elements for oil consist of a multi-layer structure of filter materials especially for cooling lubricants. In these elements, the separation efficiency is determined according to the multi-pass test according to ISO 16889.

The filter fineness is 25µm according to the filtration ratio $\beta_{25\,(c)} \geq 5$..

A sign with the VW material number for the replacement element and the repair set must be attached directly next to the filter by the system builder.

The filters must be provided after the pump in the pressure line directly before the component to be protected.

We recommend coordinating the filter design of the cooling lubricant system with Filtration Group as filter manufacturer.

Pressure filter as reversible line filter according to DIN 24550 / nominal pressure 200 bar

Design

Filter without bypass valve, with opt./elec. service indicator switch pressure 1.7 / 2.2 bar

Collapse pressure of the filter element Δp 20 bar

Filter elements:

	Filter material:	Filter fineness
with emulsion:	wire mesh	25µm / 100µm
with oil:	depth filter	25µm ($\beta_{25} \geq 5$)

Air breathers

See hydraulic filters

Maintenance indicators

Each filter must be provided with an optical / electrical service indicator.

Design with 2 switch points (75%/100%)

Contact type normally open (75%), normally closed (100%)

3 LED (green=ready / yellow=75% / red=100%)

Plug connection M 12 x 1

The service indicator is included in the type designations of the complete filters.

Service indicator for reversible line filter nominal pressure 200 bar

Type PiS 3154 / 2.2 FPM M12x1

4 Overview

4.1 Hydraulic filters for hydraulic fluids on the basis of mineral oil

4.1.1 Return-line filter line installation as simplex filter according to DIN 24550

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 17/15/11 → $\beta_{10\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	40	Pi 23010 DN PS 10 Mat. no. 77925597	63	Pi 20010-058/PiS 3154-2,2/Pi 23010 DN PS 10 Mat. no. 70347162	Pi 2000 to NG 400
160	85	Pi 23016 DN PS 10 Mat. no. 77925605	25	Pi 20016-058/PiS 3154-2,2/Pi 23016 DN PS 10 Mat. no. 70347163	Pi 2000 to NG 400
250	120	Pi 23025 DN PS 10 Mat. no. 77925613	25	Pi 20025-058/PiS 3154-2,2/Pi 23025 DN PS 10 Mat. no. 76332449	Pi 2000 to NG 400
400	135	Pi 23040 DN PS 10 Mat. no. 77925621	25	Pi 20040-058/PiS 3154-2,2/Pi 23040 DN PS 10 Mat. no. 76938880	Pi 2000 to NG 400

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	20	Pi 21010 DN PS 3 Mat. no. 78227472	63	Pi 20010-058/PiS 3154-2,2/Pi 21010 DN PS 3 Mat. no. 70347164	Pi 2000 to NG 400
160	45	Pi 21016 DN PS 3 Mat. no. 78261034	25	Pi 20016-058/PiS 3154-2,2/Pi 21016 DN PS 3 Mat. no. 70347165	Pi 2000 to NG 400
250	70	Pi 21025 DN PS 3 Mat. no. 78227514	25	Pi 20025-058/PiS 3154–2,2/Pi 21025 DN PS 3 Mat. no. 70347167	Pi 2000 to NG 400
400	85	Pi 21040 DN PS 3 Mat. no. 78227522	25	Pi 20040-058/PiS 3154-2,2/Pi 21040 DN PS 3 Mat. no. 76952931	Pi 2000 to NG 400

Spare parts list for filters according to 4.1.1:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 20010	Mat. no. 79328485	Mat. no. 77760309	Pi 2000 to NG 400
Pi 20016 - Pi 20040	Mat. no. 79357617	Mat. no. 77760309	Pi 2000 to NG 400

4.1.2 Tank-Top Return-line as simplex filter according to DIN 24550

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 17/15/11 → $\beta_{10\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	65	Pi 23010 RN PS 10 Mat. no. 77924046	10	Pi 50010-058/PiS 3153-2,2/Pi 23010 RN PS 10 Mat. no. 70315496	Pi 5000 to NG 100
160	115	Pi 23016 RN PS 10 Mat. no. 77924145	10	Pi 50016-058/PiS 3153-2,2/Pi 23016 RN PS 10 Mat. no. 79768276	Pi 5000 to NG 100
250	160	Pi 23025 RN PS 10 Mat. no. 77924160	10	Pi 50025-058/PiS 3153-2,2/Pi 23025 RN PS 10 Mat. no. 76130710	Pi 5000 NG 160-1000
400	240	Pi 23040 RN PS 10 Mat. no. 77924186	10	Pi 50040-058/PiS 3153-2,2/Pi 23040 RN PS 10 Mat. no. 70328726	Pi 5000 NG 160-1000

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	40	Pi 21010 RN PS 3 Mat. no. 77924038	10	Pi 50010-058/PiS 3153-2,2/Pi 21010 RN PS 3 Mat. no. 70307878	Pi 5000 to NG 100
160	65	Pi 21016 RN PS 3 Mat. no. 77924152	10	Pi 50016-058/PiS 3153-2,2/Pi 21016 RN PS 3 Mat. no. 72377823	Pi 5000 NG 160-1000
250	100	Pi 21025 RN PS 3 Mat. no. 77924152	10	Pi 50025-058/PiS 3153–2,2/Pi 21025 RN PS 3 Mat. no. 70304984	Pi 5000 NG 160-1000
400	145	Pi 21040 RN PS 3 Mat. no. 77924178	10	Pi 50040-058/PiS 3153-2,2/Pi 21040 RN PS 3 Mat. no. 72377861	Pi 5000 NG 160-1000

Spare parts list for filters according to 4.1.2:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 50010	Mat. no. 77999709	Mat. no. 78383382	Pi 5000 to NG 100
Pi 50016 - Pi 50025	Mat. no. 78227902	Mat. no. 78383382	Pi 5000 NG 160-1000
Pi 50040	Mat. no. 78227936	Mat. no. 78383382	Pi 5000 NG 160-1000

4.1.3 Return-line filter line installation as duplex filter according to DIN 24550 (duplex filters)

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max. 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 17/15/11 → $\beta_{10\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation duplex filter	Document
100	40	Pi 23010 DN PS 10 Mat. no. 77925597	63	Pi 21010-058/PiS 3154-2,2/Pi 23010 DN PS 10 Mat. no. 76389282	Pi 2100 to NG 400
160	85	Pi 23016 DN PS 10 Mat. no. 77925605	25	Pi 21016-058/PiS 3154-2,2/Pi 23016 DN PS 10 Mat. no. 70354673	Pi 2100 to NG 400
250	120	Pi 23025 DN PS 10 Mat. no. 77925613	25	Pi 21025-058/PiS 3154-2,2/Pi 23025 DN PS 10 Mat. no. 70347171	Pi 2100 to NG 400
400	135	Pi 23040 DN PS 10 Mat. no. 77925621	25	Pi 21040-058/PiS 3154-2,2/Pi 23040 DN PS 10 Mat. no. 70347173	Pi 2100 to NG 400

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max 0,5 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	recommended volume flow [l/min]	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation duplex filter	Document
100	20	Pi 21010 DN PS 3 Mat. no. 78227472	63	Pi 21010-058/PiS 3154-2,2/Pi 21010 DN PS 3 Mat. no. 70347174	Pi 2100 to NG 400
160	45	Pi 21016 DN PS 3 Mat. no. 78261034	25	Pi 21016-058/PiS 3154-2,2/Pi 21016 DN PS 3 Mat. no. 70347175	Pi 2100 to NG 400
250	70	Pi 21025 DN PS 3 Mat. no. 78227514	25	Pi 21025-058/PiS 3154-2,2/Pi 21025 DN PS 3 Mat. no. 70347176	Pi 2100 to NG 400
400	85	Pi 21040 DN PS 3 Mat. no. 78227522	25	Pi 21040-058/PiS 3154-2,2/Pi 21040 DN PS 3 Mat. no. 70347177	Pi 2100 to NG 400

Spare parts list for filters according to 4.1.2:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 21010	Mat. no. 79774258	Mat. no. 77760309	Pi 2100 to NG 400
Pi 21016 - Pi 21040	Mat. no. 79774282	Mat. no. 77760309	Pi 2100 to NG 400

4.1.4 Pressure filter line installation as simplex filter according to DIN 24550

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max. 1 bar
- Oil purity according to ISO 4406:1999/purity class 17/15/11 → $\beta_{10\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 210 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	55	Pi 73010 DN PS vst 10 Mat. no. 77925670	315	Pi 30010-015/PiS 3155-5,0/Pi 73010 DN PS vst 10 Mat. no. 76333645	Pi 3000 to NG 400
100	55	Pi 73010 DN PS vst 10 Mat. no. 77925670	400	Pi 40010-015/PiS 3155-5,0/Pi 73006 DN PS vst 10 Mat. no. 76321723	Pi 4000 to NG 400
160	125	Pi 73016 DN PS vst 10 Mat. no. 77925688	200	Pi 30016-015/PiS 3155-5,0/Pi 73016 DN PS vst 10 Mat. no. 76317259	Pi 3000 to NG 400
160	125	Pi 73016 DN PS vst 10 Mat. no. 77925688	400	Pi 40016-015/PiS 3155-5,0/Pi 73016 DN PS vst 10 Mat. no. 70348174	Pi 4000 to NG 400
250	180	Pi 73025 DN PS vst 10 Mat. no. 77925696	200	Pi 30025-015/PiS 3155-5,0/Pi 73016 DN PS vst 10 Mat. no. 76332431	Pi 3000 to NG 400
250	180	Pi 73025 DN PS vst 10 Mat. no. 77925696	400	Pi 40025-015/PiS 3155-5,0/Pi 73025 DN PS vst 10 Mat. no. 76321756	Pi 4000 to NG 400
400	220	Pi 73040 DN PS vst 10 Mat. no. 77930829	200	Pi 30040-015/PiS 3155-5,0/Pi 73040 DN PS vst 10 Mat. no. 70347178	Pi 3000 to NG 400
400	220	Pi 73040 DN PS vst 10 Mat. no. 77930829	400	Pi 40040-015/PiS 3155-5,0/Pi 73040 DN PS vst 10 Mat. no. 70348175	Pi 4000 to NG 400

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max. 1 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommende volume flow [l/min]	Resistance to collapsing Δp 210 bar replacement element	ND housing	Complete filter designation simplex filter	Document
100	35	Pi 71010 DN PS vst 3 Mat. no. 78227480	315	Pi 30010-015/PiS 3155-5,0/Pi 71010 DN PS vst 3 Mat. no. 70348167	Pi 3000 to NG 400
100	35	Pi 71010 DN PS vst 3 Mat. no. 78227480	400	Pi 40010-015/PiS 3155-5,0/Pi 71010 DN PS vst 3 Mat. no. 70348176	Pi 4000 to NG 400
160	70	Pi 71016 DN PS vst 3 Mat. no. 77940638	200	Pi 30016-015/PiS 3155-5,0/Pi 71016 DN PS vst 3 Mat. no. 70348170	Pi 3000 to NG 400
160	70	Pi 71016 DN PS vst 3 Mat. no. 77940638	400	Pi 40016-015/PiS 3155-5,0/Pi 71016 DN PS vst 3 Mat. no. 70348177	Pi 4000 to NG 400
250	120	Pi 71025 DN PS vst 3 Mat. no. 77940646	200	Pi 30025-015/PiS 3155-5,0/Pi 71025 DN PS vst 3 Mat. no. 70348172	Pi 3000 to NG 400
250	120	Pi 71025 DN PS vst 3 Mat.Nr. 77940646	400	Pi 40025-015/PiS 3155-5,0/Pi 71025 DN PS vst 3 Mat. no. 70348178	Pi 4000 to NG 400
400	180	Pi 71040 DN PS vst 3 Mat. no. 77940653	200	Pi 30040-015/PiS 3155-5,0/Pi 73040 DN PS vst 3 Mat. no. 70348173	Pi 3000 to NG 400
400	180	Pi 71040 DN PS vst 3 Mat. no. 77940653	400	Pi 40040-015/PiS 3155-5,0/Pi 71040 DN PS vst 3 Mat. no. 70348179	Pi 4000 to NG 400

Spare parts list for filters according to 4.1.3:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 30010	Mat. no. 78383747	Mat. no. 77760275	Pi 3000 to NG 400
Pi 30016 - Pi 30040	Mat. no. 78383770	Mat. no. 77760275	Pi 3000 to NG 400
Pi 40010	Mat. no. 78383804	Mat. no. 77760275	Pi 4000 to NG 400
Pi 40016 - Pi 40040	Mat. no. 78383838	Mat. no. 77760275	Pi 4000 to NG 400

4.1.5 Pressure filter line installation as duplex filter according to DIN 24550 (duplex filters)

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max. 1 bar
- Oil purity according to ISO 4406:1999/purity class 17/15/11 → $\beta_{10\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 210 bar replacement element	ND housing	Complete filter designation duplex filter	Document
100	50	Pi 73010 DN PS vst 10 Mat. no. 77925670	250	Pi 37010-015/PiS 3155-5,0/Pi 73010 DN PS vst 10 Mat. no. 76938971	Pi 3700 to NG 400
100	50	Pi 73010 DN PS vst 10 Mat. no. 77925670	350	Pi 47010-015/PiS 3155-5,0/Pi 73010 DN PS vst 10 Mat. no. 70348194	Pi 4700 to NG 400
160	125	Pi 73016 DN PS vst 10 Mat. no. 77925688	200	Pi 37016-015/PiS 3155-5,0/Pi 73016 DN PS vst 10 Mat. no. 70348183	Pi 3700 to NG 400
160	125	Pi 73016 DN PS vst 10 Mat. no. 77925688	315	Pi 47016-015/PiS 3155-5,0/Pi 73016 DN PS vst 10 Mat. no. 70348195	Pi 4700 to NG 400
250	180	Pi 73025 DN PS vst 10 Mat. no. 77925696	200	Pi 37025-015/PiS 3155-5,0/Pi 73025 DN PS vst 10 Mat. no. 70348185	Pi 3700 to NG 400
250	180	Pi 73025 DN PS vst 10 Mat. no. 77925696	315	Pi 47025-015/PiS 3155-5,0/Pi 73025 DN PS vst 10 Mat. no. 70348196	Pi 4700 to NG 400
400	220	Pi 73040 DN PS vst 10 Mat. no. 77930829	200	Pi 37040-015/PiS 3155-5,0/Pi 73040 DN PS vst 10 Mat. no. 70348187	Pi 3700 to NG 400
400	220	Pi 73040 DN PS vst 10 Mat. no. 77930829	315	Pi 47040-015/PiS 3155-5,0/Pi 73040 DN PS vst 10 Mat. no. 70348197	Pi 4700 to NG 400

- Maximum volume flows at 46 mm²/s; initial Δp of the complete filter in pure state max. 1 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended volume flow [l/min]	Resistance to collapsing Δp 210 bar replacement element	ND housing	Complete filter designation duplex filter	Document
100	35	Pi 71010 DN PS vst 3 Mat. no. 78227480	250	Pi 37010-015/PiS 3155-5,0/Pi 71010 DN PS vst 3 Mat. no. 70348188	Pi 3700 to NG 400
100	35	Pi 71010 DN PS vst 3 Mat. no. 78227480	350	Pi 47010-015/PiS 3155-5,0/Pi 71010 DN PS vst 3 Mat. no. 70348198	Pi 4700 to NG 400
160	70	Pi 71016 DN PS vst 3 Mat. no. 77940638	200	Pi 37016-015/PiS 3155-5,0/Pi 71016 DN PS vst 3 Mat. no. 70348190	Pi 3700 to NG 400
160	70	Pi 71016 DN PS vst 3 Mat. no. 77940638	315	Pi 47016-015/PiS 3155-5,0/Pi 71016 DN PS vst 3 Mat. no. 70348199	Pi 4700 to NG 400
250	120	Pi 71025 DN PS vst 3 Mat. no. 77940646	200	Pi 37025-015/PiS 3155-5,0/Pi 71025 DN PS vst 3 Mat. no. 70348191	Pi 3700 to NG 400
250	120	Pi 71025 DN PS vst 3 Mat. no. 77940646	315	Pi 47025-015/PiS 3155-5,0/Pi 71025 DN PS vst 3 Mat. no. 70348200	Pi 4700 to NG 400
400	180	Pi 71040 DN PS vst 3 Mat. no. 77940653	200	Pi 37040-015/PiS 3155-5,0/Pi 71040 DN PS vst 3 Mat. no. 70348192	Pi 3700 to NG 400
400	180	Pi 71040 DN PS vst 3 Mat. no. 77940653	315	Pi 47040-015/PiS 3155-5,0/Pi 71040 DN PS vst 3 Mat. no. 70348201	Pi 4700 to NG 400

Spare parts list for filters according to 4.1.4:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 37010	Mat. no. 79322009	Mat. no. 77760275	Pi 3700 to NG 400
Pi 37016 - Pi 37040	Mat. no. 79322033	Mat. no. 77760275	Pi 3700 to NG 400
Pi 47010	Mat. no. 70304944	Mat. no. 77760275	Pi 4700 to NG 400
Pi 47016 - Pi 47040	Mat. no. 70304922	Mat. no. 77760275	Pi 4700 to NG 400

4.1.6 Bypass filter line installation as simplex filter with filter elements acc. to DIN 24550

- Recommended volume flows for the circulation pump for bypass filtration:
  - Design viscosity: 46 mm²/s
  - Max. initial Δp: 0.15 bar
- Oil purity according to ISO 4406:1999/purity class 14/12/09 → $\beta_{5\,(c)} \geq 200$
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Recommended circulating performance of the pump Qp in l/min	Tank capacity in litres	Filter area in cm²	Resistance to collapsing Δp 20 bar replacement element	Complete filter designation	Document
350	20 - 60	>400	13515	1 piece Pi 21063 RN PS 3 Mat. no. 77924194	Pi 15035/10-069/PiS 3154/-2,2/Pi 21063 RN PS 3 Mat. no. 76357040	Pi 1500
600	50 - 120	>1000	27030	2 pieces Pi 21063 RN PS 3 Mat. no. 77924194	Pi 15060/10-069/PiS 3154/-2,2/2 x Pi 21063 RN PS 3 Mat. no. 70348244	Pi 1500
1000	100 – 150	>2000	37520	2 pieces Pi 21100 RN PS 3 Mat. no. 77924210	Pi 230200-069/PiS 3154/-2,2/2xPi 21100 RN PS 3 Mat. no. 70579851	Pi 2300

Spare parts list for filters according to 4.1.5:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 15035	Mat. no. 77831407	Mat. no. 77760309	Pi 1500
Pi 15060	Mat. no. 77831407	Mat. no. 77760309	Pi 1500
Pi 230200	Mat. no. 76321244	Mat. no. 77760309	Pi 2300

4.1.7 Breather filter with filling protection according to DIN 24557

- for container volumes < 1000 liter

Complete filter designation	NG	Fineness of filter in µm	Oil oscil-lating volume	Order reference replacement element	Document
Pi 0125 Sm-L/UM-OS Mat. no. 76391619	1000	3	230	852 519 Sm-L 3x package Mat. no. 77643554	Pi 0101-Pi 0185

Spare parts list for filters according to 4.1.6:

Designation	Document
Cover with maintenance indicator Mat. no. 79343013	Pi 0101-Pi 0185

4.1.8 Filling filter

The assembly units must be filled and refilled exclusively via the system filter.
A filling filter is to be provided as a simplex return-line filter according to DIN 24550 NG 100 if required
See point 4.1.1.

4.2 Lubrication oil filter

4.2.1 Pressure filter line installation as simplex filter with reverse flow valve for lubrication systems

- Fineness of the filter is specified as 25 µm → $\beta_{20\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation simplex filter	Document
		10	22	33	46	68			
		Initial Δp						Nom. pressure 63 bar housing	
40	15	0,35	0,40	0,45	0,50	0,55	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69RV/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584948	Pi 2000 to NG 400
40	20	0,50	0,60	0,65	0,70	0,80	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69RV/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584948	Pi 2000 to NG 400
40	25	0,70	0,75	0,80	0,90	1,05	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69RV/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584948	Pi 2000 to NG 400
100	40	1,00	1,10	*)	*)	*)	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 20010-69RV/PiS 3154/-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70587179	Pi 2000 to NG 400

***)** Nominal sizes for this viscosity are not recommended
Please consult Filtration Group

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

- The table contains the initial differential pressure of the complete filter unit in pure status at the given volume flow.
- Fineness of the filter is specified as 10 µm → $\beta_{10\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation simplex filter	Document
		10	22	33	46	68			
		Initial Δp						Nom. pressure 63 bar housing	
40	15	0,50	0,55	0,60	0,65	0,70	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69RV/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70579848	Pi 2000 to NG 400
40	20	0,75	0,80	0,85	0,90	1,00	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69RV/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70579848	Pi 2000 to NG 400
40	25	1,00	1,05	1,10	1,20	*)	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69RV/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70579848	Pi 2000 to NG 400
100	40	1,10	1,20	*)	*)	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 20010-69RV/PiS 3154/-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70587178	Pi 2000 to NG 400

***)** Nominal sizes for this viscosity are not recommended
Please consult Filtration Group

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

Spare parts list for filters according to 4.3.1:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 20004 – Pi 20010	Mat. no. 79328485	Mat. no. 77760309	Pi 2000 to NG 400

4.2.2 Pressure filter line installation as simplex filter for circular lubrication systems

- Fineness of the filter is specified as 25 µm → $\beta_{20\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation simplex filter	Document
		10	22	33	46	68			
		Initial Δp						Nom. pressure 63 bar housing	
40	15	0,03	0,10	0,18	0,26	0,41	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584939	Pi 2000 to NG 400
40	20	0,04	0,13	0,23	0,35	0,56	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584939	Pi 2000 to NG 400
40	25	0,05	0,17	0,30	0,46	0,72	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 20004-69/PiS 3154/-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584939	Pi 2000 to NG 400
100	40	0,12	0,20	0,26	0,33	0,45	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 20010-69/PiS 3154/1,7-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70584943	Pi 2000 to NG 400
100	55	0,20	0,30	0,39	0,49	0,66	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 20010-69/PiS 3154/1,7-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70584943	Pi 2000 to NG 400
100	70	0,31	0,49	0,54	0,67	0,89	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 20010-69/PiS 3154/1,7-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70584943	Pi 2000 to NG 400

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

- Fineness of the filter is specified as 10 µm → $\beta_{10\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation simplex filter	Document
		10	22	33	46	68			
		Initial Δp						Nom. pressure 63 bar housing	
40	15	0,04	0,19	0,34	0,51	0,81	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70311300	Pi 2000 to NG 400
40	20	0,05	0,26	0,46	0,7	1,1	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70311300	Pi 2000 to NG 400
40	25	0,06	0,34	0,59	0,89	*)	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 20004-69/PiS 3154/-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70311300	Pi 2000 to NG 400
100	40	0,14	0,26	0,37	0,5	0,72	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 20010-69/PiS 3154/1,7-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344726	Pi 2000 to NG 400
100	55	0,23	0,39	0,55	0,73	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 20010-69/PiS 3154/-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344726	Pi 2000 to NG 400
100	70	0,33	0,54	0,74	0,98	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 20010-69/PiS 3154/-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344726	Pi 2000 to NG 400

***)** Nominal sizes for this viscosity are not recommended
Please consult Filtration Group

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

Spare parts list for filters according to 4.3.2:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 20004 - Pi 20010	Mat. no. 79328485	Mat. no. 77760309	Pi 2000 to NG 400

4.2.3 Pressure filter line installation as duplex filter for circular lubrication systems

- Fineness of the filter is specified as 25 µm → $\beta_{20\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation duplex filter	Document
		10	22	33	46	68		Nom. pressure 63 bar housing	
		Initial Δp							
40	15	0,11	0,19	0,27	0,36	0,51	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 21004-69/PiS 3154-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584930	Pi 2100 to NG 400
40	20	0,15	0,26	0,37	0,49	0,70	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 21004-69/PiS 3154-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584930	Pi 2100 to NG 400
40	25	0,19	0,34	0,47	0,62	0,88	Pi 75004 DN PS vst 25 Mat. no. 78216095	Pi 21004-69/PiS 3154-2,2/ Pi 75004 DN PS vst 25 Mat. no. 70584930	Pi 2100 to NG 400
100	40	0,24	0,32	0,39	0,47	0,61	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 21010-69/PiS 3154-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70549428	Pi 2100 to NG 400
100	55	0,40	0,51	0,61	0,72	0,92	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 21010-69/PiS 3154-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70549428	Pi 2100 to NG 400
100	70	0,59	0,73	0,86	*)	*)	Pi 75010 DN PS vst 25 Mat. no. 78216160	Pi 21010-69/PiS 3154-2,2/ Pi 75010 DN PS vst 25 Mat. no. 70549428	Pi 2100 to NG 400

***)** Nominal sizes for this viscosity are not recommended
Please consult Filtration Group

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

- Fineness of the filter is specified as 10 µm → $\beta_{10\,(c)} \geq 200$.
- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1

NG	Q in l/min	Viscosities Δp					Resistance to collapsing 210 bar replacement element	Complete filter designation duplex filter	Document
		10	22	33	46	68			
		Initial Δp						Nom. pressure 63 bar housing	
40	15	0,13	0,29	0,44	0,62	0,92	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 21004-69/PiS 3154-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70344732	Pi 2100 to NG 400
40	20	0,17	0,4	0,6	0,84	*)	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 21004-69/PiS 3154-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70344732	Pi 2100 to NG 400
40	25	0,22	0,5	0,76	1,1	*)	Pi 73004 DN PS vst 10 Mat. no. 77925654	Pi 21004-69/PiS 3154-2,2/ Pi 73004 DN PS vst 10 Mat. no. 70344732	Pi 2100 to NG 400
100	40	0,29	0,46	0,6	0,78	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 21010-69/PiS 3154-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344729	Pi 2100 to NG 400
100	55	0,47	0,7	0,9	*)	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 21010-69/PiS 3154-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344729	Pi 2100 to NG 400
100	70	0,69	0,98	*)	*)	*)	Pi 73010 DN PS vst 10 Mat. no. 77925670	Pi 21010-69/PiS 3154-2,2/ Pi 73010 DN PS vst 10 Mat. no. 70344729	Pi 2100 to NG 400

***)** Nominal sizes for this viscosity are not recommended
Please consult Filtration Group

By agreement with the bearing manufactures the fineness of filter can be designed according to their requirements.

Spare parts list for filters according to 4.3.3:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 21004 - Pi 21010	Mat. no. 79774258	Mat. no. 77760309	Pi 2100 to NG 400

4.3 Filters for cooling lubricants

4.3.1 Switchable line filters (duplex filters) according to DIN 24550 for emulsions in the low pressure range

Pressure < 30bar and usage of centrifugal pumps

- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1 and built-in filter elements
- Filter material: wire mesh made from 1.4301, cleanable
- Fineness of the filter: 100µm
- Collapse resistance: 20bar
- Connection of all filters G 1 ½ (deviating from DIN24550)

NG	Recommended max. volume flow	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation duplex filter	Document
160	32	Pi 38016 DF DRG100 FKM Mat.no. 72362930	200	Pi 37016-069/PiS 3155-2,2FKM/Pi 38016 DF DRG 100 Mat.no. 72362960	Pi 3700 to NG 400
250	50	Pi 38025 DF DRG100 FKM Mat.no. 70310745	200	Pi 37025-069/PiS 3155-2,2FKM/Pi 38025 DF DRG 100 Mat.no. 72362975	Pi 3700 to NG 400
400	80	Pi 38040 DF DRG100 FKM Mat.no. 70360367	200	Pi 37040-069/PiS 3155-2,2FKM/Pi 38040 DF DRG 100 Mat.no. 72362989	Pi 3700 to NG 400

Spare parts list for filters according to 4.4.1:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 37016 – Pi 37040	Mat.no. 79375221	Mat.no. 77760283	Pi 3700 to NG 400

4.3.2 Switchable line filters (duplex filters) according to DIN 24550 for emulsions in the high pressure range

Pressure <30 bar and usage of screw spindle pumps

- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1 and built-in filter elements
- Filter material: wire mesh made from 1.4301, cleanable
- Fineness of the filter: 25µm
- Collapse resistance: 20bar
- Connection of all filters G 1 ½ (deviating from DIN24550)

NG	Recommended max. volume flow	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation duplex filter	Document
160	28	Pi 35016 DF DRG25 FKM Mat.no. 72362927	200	Pi 37016-069/PiS 3155-2,2FKM/Pi 35016 DF DRG 25 Mat.no. 72362967	Pi 3700 to NG 400
250	44	Pi 35025 DF DRG25 FKM Mat.no. 76353809	200	Pi 37025-069/PiS 3155-2,2FKM/Pi 35025 DN DRG 25 Mat.no. 72362980	Pi 3700 to NG 400
400	66	Pi 35040 DN DRG25 FKM Mat.no. 76929673	200	Pi 37040-069/PiS 3155-2,2FKM/Pi 35040 DN DRG 25 Mat.no. 72362997	Pi 3700 to NG 400

Spare parts list for filters according to 4.4.2:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 37016 – Pi 37040	Mat.no. 79375221	Mat.no. 77760283	Pi 3700 to NG 400

4.3.3 Switchable line filter (duplex filter) according to DIN 24550 for oil-based cooling lubricants

- The complete filter designation includes the visual/electr. maintenance indicator with LEDs, 2 setting points 75/100 % and connector M 12 x 1 and built-in filter elements
- Filter material: depth filter, multi-layer, made from filter materials free of binding agents, not cleanable
- Fineness of the filter: 25µm ($\beta_{25} \geq 5$)
- Collapse resistance: 20bar
- Connection of all filters G 1 ½ (deviating from DIN24550)

NG	Recommended max. volume flow	Resistance to collapsing Δp 20 bar replacement element	ND housing	Complete filter designation duplex filter	Document
160	22	Pi 15016 DF KS Mic 25/K197 Mat.no. 72362942	200	Pi 37016-069/PiS 3155-2,2FKM/Pi 15016 DF KS Mic 25 Mat.no. 72362968	Pi 3700 to NG 400
250	34	Pi 15025 DF KS Mic 25/K197 Mat.no. 70317053	200	Pi 37025-069/PiS 3155-2,2FKM/Pi 15030 DF KS Mic 25 Mat.no. 72362988	Pi 3700 to NG 400
400	55	Pi 15040 DN KS Mic 25/K197 Mat.no. 70316665	200	Pi 37040-069/PiS 3155-2,2FKM/Pi 15040 DF KS Mic 25 Mat.no. 72362999	Pi 3700 to NG 400

Spare parts list for filters according to 4.4.3:

Housing type designation	Housing gasket set	Maintenance indicator gasket set	Document
Pi 37016 – Pi 37040	Mat.no. 79375221	Mat.no. 77760283	Pi 3700 to NG 400

5 Data sheets

Access data sheets via the respective hyperlink in the relevant tables (document).

5.1 Data sheets filter elements according to DIN 24550

Designation	Document
Filter elements for line filter according to DIN 24550	**Filter elements for liquid filters**

5.2 Data sheets maintenance indicators

Designation	Document
Differential pressure indicators PiS 3154 and PiS 3155	**Maintenance indicators**