

**MAHLE**



## Product range 2023

Thermal management for agricultural  
and construction machinery

**BEHR®**

# WORK. DONE PERFECTLY.

*You give your all to ensure that your work is always as perfect as possible, so that farmers or construction workers can do their work with confidence. Which is why we've got your back with our thermal management products. We put a great deal of passion and commitment into providing you with an extensive range of the highest-quality products as well as top service, so that everything runs smoothly and you can fully concentrate on your job.*

## **You can rely on us: OE competence by MAHLE**

When it comes to commercial vehicles, you can rely on our extensive know-how and expertise. MAHLE stands for outstanding quality and durability. Our products and systems have earned this reputation through hard work all around the world—both on the road and in off-road applications.

One factor in this success is our OEM competence with almost all vehicle manufacturers and in all vehicle segments and product groups. And that's something we've offered for more than 100 years.

You can find MAHLE products almost anywhere in the world. We operate globally in order to be close to our original equipment, trade, and workshop customers. Our "Made by MAHLE" products always reflect the same quality—regardless of production location or region.

Today, we produce MAHLE quality at 160 locations in over 30 countries. And each of our locations manufactures according to the same standards, with German engineering and know-how.

## **Well equipped at all times**

In the future, MAHLE will continue to be your partner and first choice among your suppliers. We know what tomorrow's fleets will need because we're developing them together with the commercial vehicle manufacturers. In our research and development centers around the world, we're currently working on alternative drive concepts—whether battery-powered, hydrogen-based, or based on climate-neutral fuels. The resulting knowledge also finds its way directly into the MAHLE Aftermarket business unit, which is how we're able to offer and supply you with the right products for your work at any given time.

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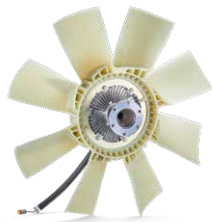
➤ In addition to maintaining the optimal drive temperature in all operating conditions, thermal management also means heating and cooling the vehicle cabin through the use of a modern thermal management system comprising many important components of the air conditioning system.

# Our thermal management range



## Radiators

Radiators are fundamental to the performance of an engine cooling module. The heat generated by combustion in the engine is absorbed by the coolant and released into the outside air via the radiator. All MAHLE components, such as the radiator core and water tank—including all connections and fastening elements—are carefully produced and offer a long service life.



## Fans

In addition to high-performance radiators, fans and fan drives that can supply cooling air efficiently are also needed to dissipate heat. Fans consist of a fan wheel and a clutch. With the products from our traditional Visco® brand, which has been around for more than 50 years, MAHLE offers a range of highly proven and powerful fans and clutches.



## Clutches

The clutch creates the frictional connection to the fan wheel as a function of temperature and influences its speed. The drive torque is transferred to the fan wheel via wear-free fluid friction. The electrically controlled clutch is controlled directly via sensors. Demand-based cooling optimizes coolant temperature levels, engine noise, and fuel consumption.



## Oil coolers

Engine oil/transmission oil coolers ensure an almost constant temperature spectrum. Oil change intervals are extended and the service life of the engine is increased. Stacked-plate oil coolers, which have an all-aluminum design, are particularly lightweight and space saving.



## Expansion tanks

When the coolant temperature rises, the coolant expands. This causes the pressure in the cooling system to rise at the same time. To keep this pressure constant, MAHLE's robust expansion tanks receive the expanding coolant via a valve located in the cap. In this way, they reliably ensure that the pressure is returned to the predefined level.



## Thermostats

MAHLE thermostats work just as well in tropical heat as in arctic cold. They quickly bring each engine to the correct operating temperature by controlling the cooling circuit. MAHLE provides a variety of thermostats and other temperature-regulating components for various requirements.



### Filter-driers

Refrigerant that is contaminated or contains moisture may damage the A/C compressor and other components. This is prevented by carefully produced filter-driers from MAHLE—also called accumulators, depending on the system.



### Pressure switches

The pressure switch controls various working shunt relays in order to guarantee the safe and effective use of air conditioning systems under all circumstances. This process switches individual systems components on and off at specified pressure points.



### Interior blowers

The interior blower is used to ventilate the cabin. It ensures a clear view and a pleasant climate inside the vehicle. For example, it prevents the windshield from fogging up by providing ventilation. MAHLE interior blowers thus play a major role in comfort and safety.

## Expansion/throttle valves

The expansion valve—or orifice tube, depending on the design of the air conditioning system—is located upstream of the evaporator and separates the high- and low-pressure areas in the refrigerant circuit. The liquid refrigerant is injected into the evaporator via the valve, where it is converted into gas, producing the required evaporation cooling. To achieve optimal cooling performance, MAHLE expansion valves or orifice tubes regulate the refrigerant flow precisely as needed.



### A/C compressors

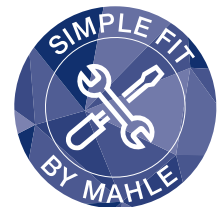
The air conditioning compressor is generally driven by the engine via a V-ribbed belt. It compresses or circulates the refrigerant in the system. The compressor sucks in gaseous refrigerant from the evaporator at low temperature and then passes it to the air conditioning condenser at high temperature and pressure. For lubrication, the A/C compressor is filled with a special oil, some of which circulates through the air conditioning system with the refrigerant.



### A/C condensers

The air conditioning condenser is needed to cool down the refrigerant that is heated during compression in the A/C compressor. The hot gas flows into the air conditioning condenser, where it releases its heat to the atmosphere via the pipe and fins. Once cooled, the refrigerant leaves the air conditioning condenser in a liquid state.

## SIMPLE FIT— making fitting simple!



- Certain installation accessories, such as O-rings and seals, are supplied with and/or preassembled in products bearing the special SIMPLE FIT label.
- The supplied and/or preassembled accessories don't need to be purchased separately.
- What's more, the supplied and/or preassembled accessories, which are matched to the relevant thermal management product, ensure easy, quick, and correct installation.
- In TecDoc and other electronic catalogs, the accessories supplied with and/or preassembled in products bearing the special SIMPLE FIT label are summarized in the blue bar above the product image and the accessories are referred to in the product description.



# Agricultural machines: on the move on all terrains

*Your customers' agricultural machines are in use day and night, especially during the harvest season. Tractors pull forage wagons, chippers, and balers; roll fodder piles in bunker silos; and are used for mixing, distributing feed, and transportation. They're powerful, versatile machines used on all terrains and in all seasons—essential to daily farm work.*

## For high productivity

Tractors have also become very important machines on construction sites, especially because of their outstanding off-road capabilities, good ride comfort, and excellent all-round visibility. You can usually plan tractor maintenance times well, so breakdowns are avoidable. In addition, by using high-quality spare parts for efficient cooling of the engine, transmission, fuel system, and hydraulic circuits, you increase the tractor's operating hours and reduce fuel consumption.

### **Perfectly air-conditioned**

Air conditioning of agricultural machines is becoming increasingly important. This is because their operating hours depend not only on the vehicles, but also on the driver's performance and concentration. And, in the various climate zones of the world, operators have to contend with intense heat, extreme dry cold, tropical climates with high humidity, or grain and road dust.

# Engine cooling — vehicle specific

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>AGCO</b>				
Various	Fan, engine cooling	CFF 518 000P	4353861M91; 4353861M92	
<b>Case IH</b>				
CS	Clutch, radiator fan	CFC 237 000P	84416325	
JX Series	Radiator	CR 108 000S	5098911	
JX80, TD80	Radiator	CR 1936 000P	84175586; 84250074; 87610780; 87637729	
Magnum	Fan wheel, engine cooling	CFW 86 000P	84278713	
Maxxum Series	Radiator	CR 2401 000P	87306757	
Maxxum Series	Radiator	CR 2408 000P	82033792; 87306754; 87352193	
Maxxum Series	Radiator	CR 2450 000P	74702268; 82023603; 82026513; 82028246; 82033523; 82033791; 82038687; 87306753; 87352191	
MX Series	Clutch, radiator fan	CFC 236 000P	84397784; 84416324	
MX Series	Fan, engine cooling	CFF 523 000P	82025805	
MX 150, 170	Clutch, radiator fan	CFC 231 000P	283132A1	
Puma Series	Fan, engine cooling	CFF 524 000P	87383690	
T Series	Clutch, radiator fan	CFC 247 000P	87383689	
T Series	Fan wheel, engine cooling	CFW 90 000P	5187803	
T Series	Fan wheel, engine cooling	CFW 91 000P	87383688	
TD Series	Radiator	CR 1926 000P	5099122; 84172100	
TM Series	Radiator	CR 2408 000P	82033792; 87306754; 87352193	
TM Series	Clutch, radiator fan	CFC 230 000P	82025803	
TM Series	Clutch, radiator fan	CFC 232 000P	82006847	
TM Series	Fan wheel, engine cooling	CFW 89 000P	82025804	

For more information on the differences, please consult TecDoc and the manufacturer specifications. This list is not necessarily exhaustive or correct.

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Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Case IH</b>				
TT Series	Radiator	CR 101 000S	5098910	
TL Series	Radiator	CR 1926 000P	5099122; 84172100	
7000 Series, 8000 Series	Radiator	CR 2415 000P	73401042; 81862952; 81872070; 81872072; 82015095; 82015099; 82015105; FON- N8005BA15M; F0NN8005BB15M; F0NN8005BC15M; F0NN8005BD15M; F0NN8005BE15M; F0NN8005BF15M	
Various	Thermostat, coolant	TH 34 80	1409060002; 4090302	
Various	Thermostat, coolant	TX 3 83D	G11065; G45788	■
Various	Thermostat, coolant	TX 23 79D	31100040036	■
<b>Caterpillar</b>				
D6N	Clutch, radiator fan	CFC 255 000P	218196401; 3096159	
320E, 320E L, 320E LN, 320E LRR, 320E RR, 323E	Clutch, radiator fan	CFC 252 000P	3592658	
320D, 320D FM, 320D FM RR, 320D L, 320D LN, 320D LRR, 320D RR, 321C, 321D LCR, 323D L, 323D LN	Clutch, radiator fan	CFC 253 000P	2813588	
328D, 329D	Clutch, radiator fan	CFC 254 000P	2813589	
953C DRIVE	Clutch, radiator fan	CFC 256 000P	3096160	
963C DRIVE	Clutch, radiator fan	CFC 257 000P	3096161	
320E, 320E L, 320E LN, 320E LRR, 320E RR, 323E L, 324D, 324D FM, 324D FM LL, 324D L, 324D LN, 324E, 324E L, 324E LN, 325D, 325D FM, 325D FM LL, 325D L, 325D MH, 326D L, 328D LCR, 329D, 329D L, 329D LN	Fan wheel, engine cooling	CFW 92 000P	2302892	
<b>CLAAS</b>				
Ares 600, 700, 800	Radiator	CR 2181 000P	7700057547	
Ares 800	Radiator	CR 2182 000P	7700068308	
ARION	Charge air cooler	CI 702 000P	7700079949; 11080831	
Celtis	Radiator	CR 2183 000P	7700060911; CT7700060911	

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>CLAAS</b>				
Celtis	Radiator	CR 2184 000P	7700060776; 7700060912; 7700065776; CT7700060912	
<b>DEUTZ</b>				
Agrotron	Fuel cooler	CK 12 000P	001880334	
Agrotron	Oil cooler, engine oil	CLC 308 000S	04102481; 04102024	
Agrotron	Oil cooler, engine oil	CLC 309 000S	4252960; 04252960	
Agrotron	Oil cooler, engine oil	CLC 311 000S	04903594; 04904214; 04905492; 04905483	
Agrotron	Oil cooler, engine oil	CLC 307 000S	04506191; 04292128; 04254617	
Agrotron	Oil cooler, engine oil	CLC 310 000S	04283746; 04297956	
Agrotron	Oil cooler, engine oil	CLC 303 000S	04902252; 04901764; 04901530	
Agrotron	Oil cooler, engine oil	CLC 305 000S	04150406; 04230097; 04230097KZ; 02231143	
Agrotron, Agrotron L Series	Thermostat, coolant	TX 59 83	0420 4796	
F3L912	Oil cooler, engine oil	CLC 312 000S	4150016	
F4L912	Oil cooler, engine oil	CLC 314 000S	2234414	
F4L912	Oil cooler, engine oil	CLC 313 000S	2234409	
Tcd2013	Oil cooler, engine oil	CLC 316 000S	3045952	
<b>Fendt</b>				
Favorit 712, 714, 716, 718, 815, 817, 818, 820	Clutch, radiator fan	CFC 246 000P	G718202040100	
Favorit Series	Clutch, radiator fan	CFC 248 000P	G816200040011	
Favorit Series	Clutch, radiator fan	CFC 249 000P	G916201040010	
Favorit Series	Clutch, radiator fan	CFC 250 000P	G926200040010	
Favorit Series	Fan wheel, engine cooling	CFW 83 000P	H816200040010	
Vario Series	Clutch, radiator fan	CFC 248 000P	G816200040011	
900, 916 Vario, 920 Vario, 924 Vario, 926 Vario	Radiator	CR 2667 000P	H954200051103	
<b>Ford</b>				
F Series, 5000 Series	Radiator	CR 2413 000P	81875325	

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>John Deere</b>				
40 Series 4/6 CYL	Oil cooler, engine oil	CLC 56 000P	AL31239; AL38448	
50 Series	Oil cooler, engine oil	CLC 26 000P	AL56373; AL66517	
1000 Series, 2000 Series	Radiator	CR 2412 000P	AL25255; AT20847	
5000 Series, 6000 Series	Cap, expansion tank	CRB 20 000P	AL76661	
6000 Series	Expansion tank, coolant	CRT 78 000P	AL153875; AL160274; AL169910	
6000 Series	Expansion tank, coolant	CRT 225 000P	AL170407; AL179270	
6000 Series	Radiator	CR 216 000S	AL110865; AL110996; AL115002; AL115731; AL115732; AL116668; AL78001; AL78003	
6000 Series	Radiator	CR 217 000S	AL110419; AL111000; AL111629; AL111639; AL115003; AL115004; AL115730; AL118571; AL118572; AL79036	
6000 Series	Radiator	CR 1729 000P	AL156285; AL157246; AL157248; AL161425; AL163359; AL164429; AL164431; AL168726; AL171542; AL176361	
6000 Series	Radiator	CR 1730 000P	AL157247; AL157249; AL160276; AL161426; AL163360; AL164432; AL168727; AL171543; AL176362	
6000 Series	Radiator	CR 2083 000P	AL170393; AL176123; AL179271; AL181229; AL207766; AL209032	
6000 Series	Radiator	CR 2084 000P	AL176124; AL181230; AL207768; AL209034	
6000 Series	Clutch, radiator fan	CFC 233 000P	AL81448	
6000 Series	Clutch, radiator fan	CFC 234 000P	AL111576	
6000 Series	Clutch, radiator fan	CFC 235 000P	AL167987	
6000 Series	Clutch, radiator fan	CFC 258 000P	AL155874	
6000 Series	Fan wheel, engine cooling	CFW 52 000P	AL160126	
6000 Series	Oil cooler, engine oil	CLC 35 000P	AL81176	
7000 Series	Radiator	CR 2085 000P	AL170395; AL176125; AL179273; AL181231; AL207770; AL209041	

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>John Deere</b>				
7000 Series	Fan wheel, engine cooling	CFW 52 000P	AL160126	
8000 Series	Radiator	CR 2560 000P	RE242251; RE242256	
<b>Massey Ferguson</b>				
MF 100 Series, 130 Series	Radiator	CR 2414 000P	124850020; 1660498M91; 1660499M92; 1660499R92; 1871721M91; 194275M93; 194275M94; 30/1504; 885856M1; 885856M94; 897188M91; 897188M94; 962071M93; 962072M3; S40095	
MF 200 Series	Radiator	CR 2416 000P	1669650A94; 1669650M94; RB1669650	
MF 5400	Clutch, radiator fan	CFC 228 000P	3783123M1	
6400 Series, MF 7400 Series	Clutch, radiator fan	CFC 200 000P	4281538M1	
6400 Series, MF 6600 Series, MF 7600 Series	Clutch, radiator fan	CFC 229 000P	4353860M1	
5400 Series, 6400 Series, 7400 Series	Clutch, radiator fan	CFC 244 000P	3786156M1	
6465, 6480, 6485, 6490, 6495	Clutch, radiator fan	CFC 245 000P	3789256M1	
7400 Series	Fan wheel, engine cooling	CFW 84 000P	4281537M1	
5465, 5475, 6465, 6475, 6480, 7465, 7475, 7480	Fan wheel, engine cooling	CFW 93 000P	4282823M1	
<b>Mercedes-Benz</b>				
SK Series	Cap, radiator	CRB 18 000P	A0005014615; A0005017215; A0005018515	
T2/LN1 Series	Thermostat, coolant	TX 18 60D	A0052030475	■
T2/LN1 Series	Thermostat, coolant	TX 18 65D	A0042036575	■
Unimog	Expansion tank, coolant	CRT 37 000P	A0005002149	
Unimog	Radiator	CR 215 000P	A0025012401; A4255000703; A4275010301; A4275010401; A4275010601; A4355000203	

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Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Mercedes-Benz</b>				
Various	Thermostat, coolant	TX 18 75D	0052035875	■
Various	Thermostat, coolant	TX 18 83	A0002037075; A0012037975; A0022030475; A0022033175; A0022033275; A0022034075; A0022034575; A0022034975; A0022035375; A0022035975; A0022037475; A0022037975; A0022039075; A0022039675; A0022039975; A0032031475; A0032032875; A0032033175; A0032034775; A0032037075; A0032037375; A0032037875; A0042038375; A0052032675	
Various	Thermostat, coolant	TX 18 83D	A0002037075; A0012036975; A0012037975; A0022030475; A0022030575; A0022033175; A0022033275; A0022034075; A0022034575; A0022034775; A0022034975; A0022035375; A0022035675; A0022035975; A0022037475; A0022037975; A0022039075; A0022039675; A0022039975; A0032031475; A0032032875; A0032033175; A0032034775; A0032037075; A0032037375; A0032037875; A0042038375; A0052032675; A0052035975; A1102000915; A1152000615; A1152000715; A3732037075; A83129996050; Q83129996050	■

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>New Holland Agriculture</b>				
JX Series	Radiator	CR 1936 000P	87681422	
T Series	Radiator	CR 1938 000P	5083735	
T Series	Fan wheel, engine cooling	CFW 91 000P	87383688	
TL Series, TD Series	Radiator	CR 1926 000P	5096595; 5099122; 84172100	
TM Series	Clutch, radiator fan	CFC 230 000P	82025803	
TM Series	Clutch, radiator fan	CFC 232 000P	82006847	
TT Series	Radiator	CR 101 000S	5098910; 5098910	
<b>PERKINS</b>				
Various	Thermostat, coolant	TX 3 83D	PF52842	■
<b>Valtra</b>				
MF 7400 Series, MF 7600 Series, MT Series	Fan wheel, engine cooling	CFW 84 000P	4281537M1	

# Air conditioning – vehicle specific

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>AGCO</b>				
Various	Filter-drier and accumulator	AD 292 000P	F334550010060	
<b>Case IH</b>				
Fastrac 100, 1000, 100-65, 2000	A/C compressor	ACP 992 000P	82011594	
Fastrac 100, 1000, 100-65, 2000	A/C compressor	ACP 992 000S	82011594	
FX58, FR9040, FR9050, FX60, FR9060, FR700 A3, FX48, FR9080	A/C compressor	ACP 986 000P	84039022; 84056429	
JX Series	A/C compressor	ACP 1062 000P	47132887; 5165549	
JX Series	A/C compressor	ACP 1062 000S	47132887; 5165549	■
JX Series	A/C condenser	AC 1138 000P	84201601; 84201602; 84342612	
Magnum Series	A/C compressor	ACP 1066 000P	504078610; 86993463	
Magnum Series	A/C compressor	ACP 1066 000S	317008A3; 504078610; 86993463	■
Maxxum Series	A/C compressor	ACP 1064 000P	87709785; 87802912	
Maxxum Series	A/C compressor	ACP 1064 000S	87709785; 87802912	■
MXM, TM Series	A/C compressor	ACP 983 000P	34672200; 81866263; 82008688; 82008689; 820161571; 82016158; 87709786	
MXM, TM Series	A/C compressor	ACP 983 000S	34672200; 81866263; 82008688; 82008689; 820161571; 82016158; 87709786	
T Series	A/C compressor	ACP 1041 000P	87709773	
T Series	A/C compressor	ACP 1045 000P	87519620	
T Series	A/C compressor	ACP 1045 000S	87519620	
TN Series	A/C compressor	ACP 960 000S	05811103; 3405689C3; 3405689R2; 5176185	■

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Case IH</b>				
1420, 1440, 1460, 1420, 1440, 1460, 1470	A/C compressor	ACP 1089 000P	117841C91; 118250C91; 1250629C91; 80417398; 80612384; 80618940; 80792787; R118393C91	
Various	A/C compressor	ACP 1058 000S	1999755C2; 1999755C3; 47050714; 86993462	
<b>CLAAS</b>				
Forage harvester	A/C compressor	ACP 1068 000P	0005640561; 5596223; 6210290; 6210290	
Maxi, Swaffer	A/C compressor	ACP 992 000P	3269930; 47742400; 9385600	
Maxi, Swaffer	A/C compressor	ACP 992 000S	3269930; 47742400; 9385600	
Series LEXION, MEDION, JAGUAR	A/C compressor	ACP 1049 000P	6259940; 6259932; 6259940; 7700037805; CT7700037805	
Series LEXION, MEDION, JAGUAR	A/C compressor	ACP 1049 000S	6259940; 6259932; 6259940; 7700037805; CT7700037805	
TUCANO	A/C compressor	ACP 594 000P	7969991; A4572300411; A4572300711	
XERION 4000, 4500, 5000	A/C compressor	ACP 942 000S	1789570	■
Various	A/C condenser	ACP 1069 000P	0005596223	■
<b>DEUTZ</b>				
Agroplus	A/C compressor	ACP 986 000P	4437339	
Agroplus	A/C compressor	ACP 986 000S	4437339	■
Agroplus	A/C compressor	ACP 989 000S	001103234	■
Agroplus	A/C condenser	AC 851 000S	1025492; 90008625	
Agrotron	A/C compressor	ACP 1057 000P	4437338	
4000 Series	A/C compressor	ACP 992 000P	16045127; 313785900; 99704600	
4000 Series	A/C compressor	ACP 992 000S	16045127; 313785900; 99704600	■
<b>Fendt</b>				
Allis, T2/L Series, Vario	A/C blower regulator and resistor	ABR 81 000P	4348008	
Farmer	A/C condenser	AC 1143 000S	H385551060100	

For more information on the differences, please consult TecDoc and the manufacturer specifications. This list is not necessarily exhaustive or correct.

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Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Fendt</b>				
Farmer	Interior blower	AB 179 000P	G715810130310; G716810130311	
Farmer, Favorit	A/C compressor	ACP 791 000S	F311550020010; G199552020100; G311550020100	
Farmer, Favorit	Interior blower	AB 180 000P	G524810130101	
Farmer, Favorit, Vario	Evaporator	AE 197 000P	F737812145060; F737812145310	
Farmer, Favorit, Vario	Cabin heat exchanger	AH 303 000P	FT7374812	
Farmer, Vario	A/C condenser	AC 54 000P	F260550010130	
Vario	Interior blower	AE 192 000S	G816550050010	
200 Series	A/C compressor	ACP 1009 000S	G117551020100	
200 Series	A/C condenser	AC 54 000P	F260550010130	
Various	Expansion valve and orifice tube	AVE 54 000P	395550050090; 395550050160	
<b>Ford</b>				
Various	A/C compressor	ACP 1089 000P	117841C91	
<b>JCB</b>				
2CX, 2CXL, 2CXS, 2CXSL	A/C compressor	ACP 992 000P	12304998	
2CX, 2CXL, 2CXS, 2CXSL	A/C compressor	ACP 992 000S	12304998	
<b>JCB (BAMFORD)</b>				
532	Expansion valve and orifice tube	AVE 47 000S	47614904	
<b>John Deere</b>				
70 Series	A/C compressor	ACP 776 000S	AT168543; AT172975; AT226273; RD511050	
86 Series	A/C compressor	ACP 1089 000P	AH84826	
450CLC, 450DLC, 600CLC, 650DLC, 850DLC	A/C compressor	ACP 1051 000S	4431081; 4436025; SE502087	
4000 Series	A/C compressor	ACP 1603 000S	AH116654	
6000 Series, 7000 Series	Interior blower	AB 181 000P	AZ43302	
3000 Series, 5000 Series, 6000 Series, 7000 Series	A/C compressor	ACP 739 000S	AL153386; AL154203; AL155836; AL176857; AL176858; AL78779; RE203758; RE257084	
6000 Series, 7000 Series	A/C compressor	ACP 792 000S	AZ44541	

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Kobelco</b>				
Various	A/C compressor	ACP 1062 000P	5800074	
Various	A/C compressor	ACP 1062 000S	5800074	■
<b>Komatsu</b>				
D155AX	A/C compressor	ACP 1051 000S	20Y8101260; 20Y9796121; 4210731220	
<b>Lamborghini</b>				
Various	A/C compressor	ACP 989 000S	01103234	■
Various	A/C compressor	ACP 1057 000P	04411400; 4437338	
Various	A/C condenser	AC 851 000S	9971626	
<b>Massey Ferguson</b>				
Agroplus, TN Series	A/C condenser	AC 851 000S	9971626	
MF Series	Filter-drier and accumulator	AD 323 000S	4285797M1	
MF 3600 Series, MF 5400	Filter-drier and accumulator	AD 132 000P	338332M2; 3712495M1	
MF 3600 Series, MF 5400	A/C compressor	ACP 1060 000P	3712528M2; 3782613M2	
MF 3600 Series, MF 5400	A/C compressor	ACP 1060 000S	3712528M2; 3782613M2	■
MF 5600, MF 6600, MF 7600 Series	A/C compressor	ACP 1047 000P	4281803M1	
MF 5400, MF 5600, MF 6600, MF 7600 Series	A/C compressor	ACP 1047 000S	4281803M1	
3000 Series	A/C compressor	ACP 1089 000P	269925M91; CL621029C0; D45054800	
3000 Series, 6000 Series, 8000 Series	Expansion valve and orifice tube	AVE 91 000P	3902334M91	
7600 Series	A/C compressor	ACP 1043 000P	3789035M1; 4789035M1	
7244, 8600 Series	A/C compressor	ACP 1062 000P	71379601	
7244, 8601 Series	A/C compressor	ACP 1062 000S	71379601	■
<b>New Holland Agriculture</b>				
TC52, TC54, TC56	A/C compressor	ACP 992 000P	82011594; 84011595; 84018087	
TC52, TC54, TC56	A/C compressor	ACP 992 000S	82011594; 84011595; 84018087	■

For more information on the differences, please consult TecDoc and the manufacturer specifications. This list is not necessarily exhaustive or correct.

\* OE numbers are provided for comparative purposes only.

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>New Holland Agriculture</b>				
T Series	Filter-drier and accumulator	AD 322 000S	47446235	
T Series	A/C compressor	ACP 1041 000P	87709773	
T Series	A/C compressor	ACP 1045 000P	87519620	
T Series	A/C compressor	ACP 1045 000S	87519620	■
T Series	A/C compressor	ACP 1066 000P	317008A3; 86993463	
T Series	A/C compressor	ACP 1066 000S	317008A3; 86993463	■
TN Series	A/C condenser	AC 851 000S	9971626	
TN Series	A/C compressor	ACP 960 000S	5176185; 80450805; 89508380	
TM Series	A/C compressor	ACP 983 000P	81866263; 82008688; 82008689; 820161571; 82016158; 87709786	
TC Series	A/C compressor	ACP 986 000P	84018077; 84018078; 89831429	
TC Series	A/C compressor	ACP 986 000S	84018077; 84018078; 89831429	■
TD5 Series, TL Series	A/C compressor	ACP 1062 000P	5144781; 47132887; 51219592; 5144781; 5165548; 5165549	
TD5 Series, TL Series	A/C compressor	ACP 1062 000S	5144781; 47132887; 51219592; 5144781; 5165548; 5165549	■
TF Series	A/C compressor	ACP 1089 000P	117841C91; 1250629C91; 80417398; 80612384; 80618940; 80792787	
TS Series	A/C compressor	ACP 1064 000P	87709785; 87802912	
TS Series	A/C compressor	ACP 1064 000S	87709785; 87802912	■
Various	A/C compressor	ACP 1058 000S	351130111; 86993462	
<b>Landini</b>				
Powermondial	A/C compressor	ACP 1575 000S	504002477	
<b>Sterling</b>				
Various	A/C compressor	ACP 776 000S	F7LZ19707AA	
<b>Steyr Tractor</b>				
Maxxum Series, TS Series	A/C compressor	ACP 1064 000P	87802912	

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Steyr Tractor</b>				
Maxxum Series, TS Series	A/C compressor	ACP 1064 000S	87802912	■
MX80C	A/C compressor	ACP 1058 000S	1999755C2; 1999755C3	
TN Series	A/C compressor	ACP 960 000S	5176185	■
<b>Valmet</b>				
A 75, 85, 95 N 111, 141, 101, 121 T 151, 161 T 202, 182	A/C compressor	ACP 992 000P	32838600	
A 75, 85, 95 N 111, 141, 101, 121 T 151, 161 T 202, 182	A/C compressor	ACP 992 000S	32838600	■
FL 7 Series	Interior blower	AB 79 000P	1810201311; 20503429	
<b>Valtra</b>				
FL 7 Series	Interior blower	AB 79 000P	1810201311	
Maxxum Series, TM Series	A/C compressor	ACP 983 000P	34672200	
N Series	Evaporator	AE 199 000P	ACV0236300	
T Series	Interior blower	AB 322 000P	ACV0236180	
<b>Volvo</b>				
E Series, F Series, G Series	A/C condenser	AC 951 000S	11006435; 11164324; 15053410; 15053413	

# Air conditioning — universal



Example: ACP 959 000P

## A/C compressors

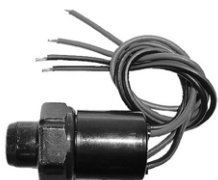
Reference no.	Vehicle	Cylinder head code	Simple Fit
ACP 941 000S	SD7B10, 12V, PV6, 112 MM; SN/PB		
ACP 959 000P	SD5H14; 24V; A2; 132 MM	FL	
ACP 960 000S	SE5H14; 12V; A2; 132 MM	M	■
ACP 984 000P	SD7H15; 12V; PV6; 119 MM	KG	
ACP 986 000P	SD7H15; 12V; A2; 132 MM	KG	
ACP 986 000S	SD7H15; 12V; A2; 132 MM	KG	■
ACP 992 000P	SE7H15; 12V; A2; 132MM	JE	
ACP 992 000S	SD7H15; 12V; A2; 132 MM	JE	■
ACP 994 000P	SD7H15; 24V; A2; 132 MM	FZ	
ACP 998 000P	SD7H15; 24V; PV8; 119 MM	JE	
ACP 989 000S	SE7H15; 12V; A2; 132 MM	MD	■
ACP 1089 000P	Universal; 210	—	



## Filter-driers

Reference no.	Vehicle	Input	Output	Length mm	Diameter mm	No. pressure switch connections	Simple Fit
AD 214 000S	Universal	3/8" MIO	3/8" MIO	203	60	2	
AD 235 000S	Universal	5/8" x 18UNF - FOR	5/8" x 18UNF - 6 FOR	220	64	1	

## Trinary pressure switches



Reference no.	Vehicle	Thread size	Simple Fit
ASW 24 000P	Universal	7/16" x 20UNF	■

# Construction machines: the work never stops

*These machines perform heavy-duty work day in and day out, and are always tested to the max. Engines, transmissions, and cooling systems of construction machines must reliably stand up to extreme demands. It's up to you to ensure that they start without a hitch, withstand high levels of pulling, hydraulic, and lifting action over a long period of time, and can also handle constant shifting between forward and reverse operations.*

Power  
when you  
need it

Construction machines are used in shifts by different operators and must perform around the clock, in all weather conditions, and on all terrains. They are used when it's extremely hot, cold, dry, or humid. In addition to maintaining full functionality, safe workflows are a top priority, which relies on construction machines

being in perfect technical condition. And the only way to be sure of this is to use high-quality spare parts for regular and professional maintenance.



# Engine cooling — vehicle-specific

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>BMC</b>				
PROFESSIONAL	Fan wheel	CFW 6 000P	52RS006545	
<b>Caterpillar</b>				
95 Series	Thermostat, coolant	THD 1 75	614954; 959160	■
Various	Thermostat, coolant	THD 1 82	1W5253; 2R2911; 4L7615; 4N2212; 5N6242; 6L5851; 6L7291; 8N4935; 9N3017; 9S9160	■
Various	Thermostat, coolant	THD 1 86	4W4842; 614956	■
Various	Thermostat, coolant	TX 13 80D	1028392; 4N6958; 4N6959; 7E1421; 9L9119; 9L9652; 9N5020; 9N5065; 9N5121; 9N5488	■
<b>Cummins</b>				
95 Series	Thermostat, coolant	THD 1 75	Y201365	■
Various	Thermostat, coolant	THD 1 82	146076; 146077; 204586; 205566; 3002742; 301737; 3629204; 3629205	■
Various	Thermostat, coolant	THD 1 86	3002964	■
<b>Komatsu</b>				
Various	Thermostat, coolant	TX 35 79	2871591M	
<b>Liebherr</b>				
Various	Charge air cooler	CI 44 000P	10331001; K01899990	
<b>Mitsubishi</b>				
GP20-30N, DP20-30N, FG18N, FG20N	Radiator	CR 869 000S	91B0100030; 93E0100010	
<b>Nissan</b>				
FORKLIFT	Radiator	CR 870 000S	SD15185K000	
FORKLIFT	Radiator	CR 871 000S	SD20256K000	
FORKLIFT	Radiator	CR 872 000S	SD30357K000	

For more information on the differences, please consult TecDoc and the manufacturer specifications. This list is not necessarily exhaustive or correct.

\* OE numbers are provided for comparative purposes only.



Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Terex</b>				
Various	Oil cooler, engine oil	CLC 233 000P	19631912	
<b>Toyota</b>				
Various	Radiator	CR 882 000S	16410U220071	
Various	Radiator	CR 888 000S	1641013600	

# Air conditioning — vehicle-specific

Vehicle	Description	MAHLE reference no.	OE no.*	Simple Fit
<b>Caterpillar</b>				
900 Series, D10 Series, IT Series	A/C compressor	ACP 1494 000S	1065122; 2004479	
<b>JCB</b>				
2CX, 2CXL, 2CXS, 2CXSL	A/C compressor	ACP 992 000P	12304998	
2CX, 2CXL, 2CXS, 2CXSL	A/C compressor	ACP 992 000S	12304998	
<b>JCB (BAMFORD)</b>				
F Series, FL Series	A/C compressor	ACP 994 000P	11104512	
400 Series	A/C compressor	ACP 1044 000P	123/04999; 12304999	
<b>Liebherr</b>				
900 Series	A/C compressor	ACP 1042 000P	10116769	
<b>Sterling</b>				
Various	A/C compressor	ACP 776 000S	F7LZ19707AA	
<b>Terex</b>				
Various	A/C compressor	ACP 1086 000P	3708064552; 5821660193; 5821662010	



# Air conditioning compressor oils



Oil plays an important role  
in air conditioning systems.

*Whether you're changing the air conditioning compressor oil or topping it up during an air conditioning service, the oil in the air conditioning system performs vital functions—just like the blood in the human body.*

That's why using a high-grade air conditioning compressor oil is crucial for ensuring that the system can be used safely and for a long time. Just like in an engine, the use of low-grade or incorrect oils results in increased wear, premature failure of the air conditioning compressor, and loss of the warranty or legally binding warranty.

The wrong choice can lead to damage. Vehicle- or manufacturer-specific instructions must be followed carefully.

# PAG oil

## Performance for a good atmosphere

### Product characteristics

- PAG oils are fully synthetic, hygroscopic oils based on polyalkylene glycol
- Used during construction by many vehicle and compressor manufacturers in air conditioning systems with refrigerant R134a, available at various viscosities
- Special new PAG oils 46 YF and 100 YF suitable for both R1234yf and R134a refrigerants

### Advantages and effect

- PAG oils are highly miscible with R134a (PAG oils 46 YF and 100 YF can also be mixed with R1234yf) and are suitable for lubricating the air conditioning systems of most passenger cars and commercial vehicles.
- It's important to choose the right viscosity class when using PAG oils (PAG 46, PAG 100, PAG 150). The vehicle manufacturer's specifications and approved products should be taken into account.

### Additional details

The disadvantage of PAG oils is that they are hygroscopic, which means that they absorb and bind moisture from the ambient air.

If the moisture content in the air conditioning system is too high, this can contribute to the formation of acids and corrosion, resulting in damage to components and leaks.

For this reason, any oil containers that have been opened must be resealed immediately; the residual oil will also only have a limited shelf life. This applies in particular to the fresh oil containers in air conditioning service units.



# PAO 68 oil and PAO 68 Plus UV oil

## Product characteristics

- Not hygroscopic: unlike other oils, these do not absorb any moisture from the ambient air
- Can be used as an alternative to a range of PAG oils (see the usage overview): stock one oil instead of three
- Successfully used in practice for more than 20 years
- Helps to increase the air conditioning system's performance
- No adverse effects on components in the air conditioning circuit (also applies to use in air conditioning service units/ confirmed by manufacturers on the basis of sealed tube tests in accordance with the ASHRAE 97 standard)
- Available with (PAO 68 Plus UV oil) or without the addition of a contrast agent (PAO 68 oil)

## Advantages and effect

### PAO 68 oil

- Being nonhygroscopic, PAO oil is easy to use in workshops. The required amount of oil can also be taken from large containers (e.g., 5 liters).
- A low degree of refrigerant solubility in the oil means that the PAO oil is not diluted and retains its full viscosity in the compressor.
- Oil film inside the components creates a better seal and decreases friction between the compressor's moving parts.
- Reduced operating temperature and wear.
- Results in increased operational safety and reduces noise, running time, and energy consumption by the compressor.



### PAO 68 Plus UV oil

- Same positive characteristics as PAO 68 oil
- Additional admixture of a fluorescent contrast agent for UV leak detection
- Low vol% concentration of the contrast agent with the following advantages: preserves the oil's positive characteristics and avoids negative effects on system components or service equipment

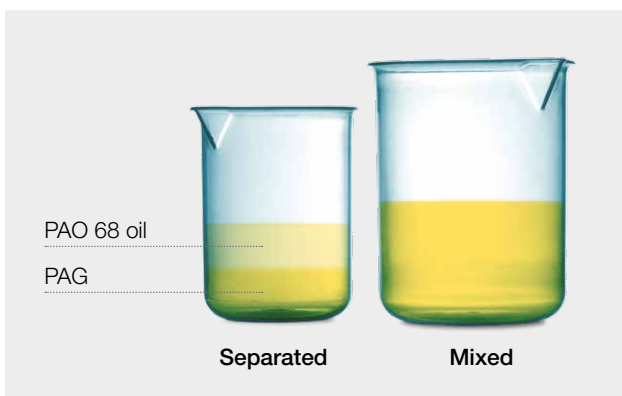
## Additional details

### Is PAO 68 oil compatible with other oils?

- PAO 68 oil does not damage fluoroelastomer materials, such as hoses and seals.
- Since PAO 68 oil is compatible with many other lubricants and refrigerants, it can be used both when topping up and when changing the system's entire oil volume. Its molecular structure and density mean that, although PAO 68 oil can be mixed to a certain extent with other oils, it separates from them again when it settles and does not form a permanent bond.
- This guarantees that the necessary viscosity of the oils is maintained and there is no change in the overall viscosity (see figures on the following page).

## How was PAO 68 Plus UV oil tested?

- PAO 68 Plus UV oil has been tested by the manufacturer and by independent institutes. For example, its chemical stability was established using the “sealed tube test” in compliance with the ASHRAE 97 standard. This test evaluates the interaction between the refrigerant, the refrigerant oil, the various O-ring materials, and the metals that are used in air conditioning systems.
- All the tests produced positive results, confirming that negative effects on components in the vehicle air conditioning system or the air conditioning service unit can be excluded. PAO 68 Plus UV oil can thus be added directly to a component, such as an air conditioning compressor, or introduced into the refrigerant circuit via the air conditioning service unit.



## Can PAO 68 oil be used in situations where there are problems with humidity?

- PAO 68 is not hygroscopic—i.e., unlike other oils, it does not absorb any moisture from the ambient air. This means that humidity-related problems, such as the icing up of components or the formation of acids, can be combated by using only PAO 68 oil. The range of possible uses and the storage stability of PAO 68 oil are significantly greater than for conventional oils.

## Special properties and characteristics

- No risk of oil collecting in the evaporator and the associated deterioration in cooling performance
- An oil film in the components improves the seal
- Reduction in the friction between the components
- Lower energy consumption by the compressor
- Unique combination of highly refined, synthetic oil and special performance-enhancing additives
- Extensive operating range (–68°C to 315°C)
- Low vol% concentration of the highly active contrast agent in PAO 68 Plus UV oil, which means the system components and service units are protected and subject to reduced wear



PAO 68 AA1 Clear Version oil (without leak detecting agent) is also approved for use with R1234yf and in electric air conditioning compressors in hybrid and electric vehicles.

# The oils in comparison

Type of oil	Application	Remark
<b>PAG oils</b> for refrigerant R134a	<p>There are various PAG oils with different flow characteristics (viscosities) for use with refrigerant R134a.</p> <p>As PAG oils are hygroscopic, cans do not have a long shelf life once opened.</p>	Standard PAG oils are not suitable for refrigerant R1234yf or for electrically driven air conditioning compressors.
<b>PAG YF oil</b> for refrigerants R1234yf and R134a	<p>There are also a number of PAG oils with different flow characteristics (viscosities) for use with refrigerant R1234yf.</p> <p>What makes these PAG oils from MAHLE/BRAIN BEE special is that they are not only suitable for use with the refrigerant R1234yf but can also be used with the refrigerant R134a.</p> <p>As PAG oils are hygroscopic, cans do not have a long shelf life once opened.</p>	PAG oil YF is suitable for both R1234yf and R134a refrigerants.
<b>PAG SP-A2 oil</b> for refrigerants R1234yf and R134a	For use in electrically driven air conditioning compressors that have been filled ex works with a special PAG oil.	
<b>PAO oil 68</b> for refrigerant R134a, and in some cases for refrigerant R1234yf and others	<p>Can be used as an alternative to the various PAG oils that are offered for R134a. Advantage: PAO 68 oil is nonhygroscopic, i.e., unlike other oils, it does not absorb any moisture from the ambient air.</p> <p>The two different PAO oils offered by MAHLE/BRAIN BEE (AA1 and AA3) can be used in conjunction with numerous different refrigerants (see product overview).</p>	<b>PAO 68 AA1 Clear Version oil (without leak detecting agent) can also be used with the new refrigerant R1234yf as well as in electrically driven air conditioning compressors in hybrid and electric vehicles.</b>



# Product overview

Product	Application	Air conditioning compressor type	Refrigerant	Viscosity class	Contents	MAHLE reference no./ MAHLE Service Solutions reference no.
PAG oil	Vehicle air conditioning systems*	All types**	R134a	PAG I (ISO 46)	250 ml	ACPL 19 000P 1010350038XX
	Vehicle air conditioning systems*	All types**	R134a	PAG II (ISO 100)	250 ml	ACPL 20 000P 1010350039XX
	Vehicle air conditioning systems*	All types**	R134a	PAG III (ISO 150)	250 ml	ACPL 21 000P 1010350040XX
PAG YF oil	Vehicle air conditioning systems*	All types**	R1234yf, R134a	PAG I (ISO 46)	250 ml	ACPL 22 000P 1010350284XX
	Vehicle air conditioning systems*	All types**	R1234yf, R134a	PAG II (ISO 100)	250 ml	ACPL 23 000P 1010350283XX
PAG SP-A2 oil	Air conditioning systems in hybrid and electric vehicles*	Electrically driven compressors filled ex works with special PAG oil	R1234yf, R134a	PAG (ISO 46)	250 ml	ACPL 9 000P 1010350482XX
PAO 68 oil	Vehicle air conditioning systems*	All types (except vane compressors)	R1234yf, R134a, R413a, R513a, R22	AA1 (ISO 68)	500 ml	ACPL 11 000P 1010350484XX
	Air conditioning systems in hybrid and electric vehicles*	Electric compressors	R1234yf, R134a, R513a	AA1 (ISO 68)	1.0 l	ACPL 10 000P 1010350483XX
	Refrigerated trucks (fresh produce delivery vehicles)	Reciprocating compressors	R1234yf, R134a, R507a, R500, R513a	AA1 (ISO 68)	5.0 l	ACPL 14 000P 1010350486XX
	Refrigerated trucks (fresh produce delivery vehicles)	Reciprocating compressors	R507a, R502, R513a, R22			
	Vehicle air conditioning systems*	Vane compressors	R134a, R413a, R513a	AA3 (ISO 100)	1.0 L	ACPL 13 000P 1010350485XX
PAO 68 Plus UV oil	Vehicle air conditioning systems*	All types** (except vane compressors)	R134a, R413a, R22	AA1 (ISO 68)	500 ml	ACPL 15 000P 1010350487XX
	Refrigerated trucks (fresh produce delivery vehicles)	Reciprocating compressors**	R134a, R507a, R500	AA1 (ISO 68)	1.0 l	ACPL 16 000P 1010350488XX
	Refrigerated trucks (freezer vans)	Reciprocating compressors**	R507a, R502, R22	AA1 (ISO 68)	5.0 l	ACPL 17 000P 1010350489XX
	Vehicle air conditioning systems*	Vane compressors**	R134a, R413a	AA3 (ISO 100)	1.0 L	ACPL 18 000P 1010350490XX

\* Passenger cars, trucks, and agricultural and construction machinery

\*\* Except for electric air conditioning compressors



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