

# MANNOL

## ANTIFREEZE - APPLICATION OVERVIEW

30 % of the heat generated by an engine is dissipated by the coolant, which is why its role in maintaining the thermal balance of the engine is so important and why there are very high demands on it.

MANNOL antifreezes are designed to fully meet the needs of owners of European, Asian, American and Russian series vehicles. Recommended for passenger car engines and modern commercial vehicle engines.

### THE MANNOL COOLANT RANGE INCLUDES ANTIFREEZE FROM FOUR MAIN GROUPS:

**INORGANIC** (mainly silicate) – traditional, conventional, IAT (inorganic acid technology) coolants



<b>MN4011</b>	MANNOL Antifreeze AG11 (-40) Longterm	Ready-to-use solution
<b>MN4111</b>	MANNOL Antifreeze AG11 Longterm	Concentrate
<b>MEET SPECIFICATIONS:</b> AFNOR FRANCE NF R15-601; ASTM USA D3306; BSI GB BS 6580:2010; VOLKSWAGEN TL 774 C; MTU MTL 5048; TESLA; BMW GS 94000; CHRYSLER MS-7170; MAN 324 Typ NF; MINI GS 94000; OPEL GME L1301; VAUXHALL GME L1301		
<b>VOLUMES:</b> 1L; 5L; 10L; 20L; 60L; 208L; 1000L		
Service life of up to 3 years		

**ORGANIC** (carboxylate) – use carboxylic acids as the main corrosion inhibitor – carboxylate, OAT (organic acid technology) coolants



<b>MN4012</b>	MANNOL Antifreeze AF12+ (-40) Longlife	Ready-to-use solution
<b>MN4112</b>	MANNOL Antifreeze AF12+ Longlife	Concentrate
<b>MEET SPECIFICATIONS:</b> SAE J1034; AFNOR FRANCE NF R15-601 (except for RA); ASTM USA D3306; ASTM USA D4656; BSI GB BS 6580:2010; BMW GS 94000; FVV GERMANY Heft R443; KSM SOUTH KOREA 2142; VOLKSWAGEN TL 774 D; VOLKSWAGEN TL 774 F; MINI GS 94000 and more		
<b>VOLUMES:</b> 1L; 5L; 10L; 20L; 60L; 208L; 1000L		
Service life of up to 5 years		

**HYBRID** (contain organic anti-corrosion additives) – hybrid, HOAT (hybrid organic acid technology) coolants



<b>MN4013</b>	MANNOL Antifreeze AG13 (-40) Hightec	Ready-to-use solution
<b>MN4113</b>	MANNOL Antifreeze AG13 Hightec	Concentrate
<b>MEET SPECIFICATIONS:</b> SAE J1034; AFNOR FRANCE NF R15-601; NATO S-759; ASTM USA D3306; ASTM USA D4340; BMW GS 94000; CHRYSLER MS-7170; JAGUAR; DEUTZ DQC CA-14; FORD ESE-M978B4H-A; GM SATURN; JAGUAR; JOHN DEERE; MAN 324 Typ NF; MB 325.0; MINI GS 94000; MTU MTL 5048 and more		
<b>VOLUMES:</b> 1L; 5L; 10L; 20L; 60L; 208L; 1000L		
Service life of up to 3 years		



<b>MN4014</b>	MANNOL Antifreeze AG13+ (-40) Advanced	Ready-to-use solution
<b>MN4114</b>	MANNOL Antifreeze AG13+ Advanced	Concentrate
<b>MEET SPECIFICATIONS:</b> SAE J1034; AFNOR FRANCE NF R15-601; MB 325.0; ASTM USA D3306; ASTM USA D4340; BSI GB BS 6580:2010; NATO S-759; BMW GS 94000; CHRYSLER MS-7170; DEUTZ DQC CA-14; MTU MTL 5048; FORD ESE-M978B4H-A; FORD AF Plus; GM 1825 M; OPEL GME L1301 and more		
<b>VOLUMES:</b> 1L; 5L; 10L; 20L; 60L; 208L; 1000L		
Service life of up to 5 years		

**LOBRID** (low hybrid - containing more organic components, up to 99 %) – lobrid or SOAT (silicon enhanced organic acid technology) coolants

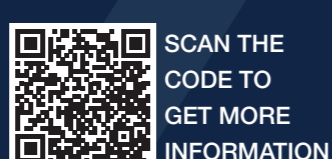


<b>MN4015</b>	MANNOL Antifreeze AF13++ (-40)	Ready-to-use solution
<b>MN4115</b>	MANNOL Antifreeze AF13++	Concentrate
<b>MEET SPECIFICATIONS:</b> SAE J1034; BSI GB BS 6580:2010; NATO S-759; AFNOR FRANCE NF R15-601 (except for RA); ASTM USA D3306; IRIZAR; VOLKSWAGEN TL 774 J; CUMMINS CES 14603; SCANIA; SMART MB 326.0; DEUTZ DQC CC-14; MAN 324 Si-OAT; MB 325.5; MB 325.6; SCANIA and more		
<b>VOLUMES:</b> 1L; 5L; 10L; 20L; 60L; 208L; 1000L		
Service life of up to 5 years		

MANUFACTURER	MODEL	YEAR OF MANUFACTURE		PRODUCT NAME	CODE
		from	to		
Alfa Romeo	All models	1983	2005	Antifreeze AG11 Longterm	MN4111
	All models	2006		Antifreeze AF12+ Longlife	MN4112
Audi	All models	1980	1994	Antifreeze AG11 Longterm	MN4111
	All models	1995	2005	Antifreeze AF12+ Longlife	MN4112
Audi	All models	2005	2019	Antifreeze AF13++	MN4115
	All models	2019		Auf Anfrage	
Bentley	Only Arnage, Continental, Azure, Eight, Mulsanne	1986	2006	Antifreeze AF12+ Longlife	MN4112
	All models	2003		Antifreeze AF13++	MN4115
BMW	All models	1987	2018	Antifreeze AG11 Longterm	MN4111
	All models	2019		Antifreeze AF12+ Longlife	MN4112
Bugatti	All models			Auf Anfrage	
Chevrolet (EU) (Daewoo)	All models	1997	2005	Antifreeze AF12+ Longlife	MN4112
	All models	2006		Auf Anfrage	
Chrysler	Only Grand Voyager RT 2.8 CRD, Grand Voyager LX 3.0 V6 CRD, Grand Voyager LX 5.7 Hemi V8, Dodge Stratus	1990	2015	Antifreeze AF12+ Longlife	MN4112
	All models except Grand Voyager 3.6 CRD, LX 3.0 V6 CRD, LX 5.7 Hemi V8, Dodge Stratus	1986	2012	Antifreeze AG13 Hightec	MN4113
Citroën	All models	1982	2002	Antifreeze AF12+ Longlife	MN4112
	All models	2003		Auf Anfrage	
Dacia	All models	1984	1999	Antifreeze AG11 Longterm	MN4011
	All models	2003		Antifreeze AG13 Hightec	MN4113
Daihatsu	All models	1974	2004	Antifreeze AF12+ Longlife	MN4112
	All models	2005		Auf Anfrage	
Dodge	Only Avenir 2.0 CRD, Caliber 2.0 CRD, Journey 2.0 CRD	2006	2010	Antifreeze AF12+ Longlife	MN4112
	All models except Avenir 2.0 CRD, Caliber 2.0 CRD, Journey 2.0 CRD	2003	2012	Antifreeze AG13 Hightec	MN4113
Ferrari	All models except F430	1980	2006	Antifreeze AG11 Longterm	MN4111
	All models except F430	2006		Antifreeze AF12+ Longlife	MN4112
Ferrari	Only F430	2005	2010	Antifreeze AG13 Hightec	MN4113
	All models	1983	2002	Antifreeze AG11 Longterm	MN4111
Fiat	All models	2003		Antifreeze AF12+ Longlife	MN4112
	All models	1998		Antifreeze AF12+ Longlife	MN4112
Ford (EU)	All models except Cougar	1980	2001	Auf Anfrage	
	All models	1984		Antifreeze AG11 Longterm	MN4111
Honda	All models	1980		Antifreeze AF12+ Longlife	MN4112
	All models	1986	1997	Antifreeze AG11 Longterm	MN4111
Jaguar	All models except Sovereign 3.24.0, XJ12 6.0, XJ6 3.2 Sport, XJ6 3.2 Type, XJ6 3.2 Type, XJ6 3.2 Type	1986	1997	Antifreeze AG11 Longterm	MN4111
	All models except Sovereign 3.24.0, XJ12 6.0, XJ6 3.2 Sport, XJ6 3.2 Type, XJ6 3.2 Type, XJ6 3.2 Type	1998		Antifreeze AF12+ Longlife	MN4112
Jaguar	Only Sovereign 3.24.0, XJ12 6.0, XJ6 3.2 Sport, XJ6 3.2 Type, XJ6 3.2 Type	1995	2010	Auf Anfrage	
	All models	1985		Auf Anfrage	
Jeep	All models	1993	2000	Antifreeze AG11 Longterm	MN4111
	All models	2001	2016	Antifreeze AF12+ Longlife	MN4112
Kia	All models	2017		Auf Anfrage	
	Only Samara 2	2001	2013	Antifreeze AG11 Longterm	MN4111
Lada	All models except Samara 2, Priora, Largus	1970		Antifreeze AF12+ Longlife	MN4112
	Only Priora, Largus	2007	2018	Auf Anfrage	
Lamborghini	All models	1990	2001	Antifreeze AF12+ Longlife	MN4112
	All models	2002		Antifreeze AF13++	MN4115
Lancia	All models	1983	2004	Antifreeze AG11 Longterm	MN4111
	All models	2005		Antifreeze AF12+ Longlife	MN4112
Land Rover	All models	1989		Auf Anfrage	
	All models	1995		Antifreeze AF12+ Longlife	MN4112
Lexus	Only RX, XU 10	2000	2003	Antifreeze AG13 Hightec	MN4113
	Only GS, LS, LX, SC, XJ	1998	2010	Auf Anfrage	
Lotus	All models	1981		Antifreeze AF12+ Longlife	MN4112
	All models	1978	2002	Antifreeze AF12+ Longlife	MN4112
Mazda	All models	2003		Auf Anfrage	
	All models	1982		Antifreeze AF13++	MN4115
Mercedes-Benz	All models	2001		Antifreeze AF12+ Longlife	MN4112
	All models	1982		Auf Anfrage	
Mitsubishi	All models	1982		Auf Anfrage	
	All models	1984		Auf Anfrage	
Nissan	All models	1981		Auf Anfrage	
	All models	1983		Auf Anfrage	
Peugeot	All models	1983		Auf Anfrage	
	Only 911, 986/928/944/986/988/990 Cayenne Turbo	1981	2010	Antifreeze AF12+ Longlife	MN4112
Porsche	All models except 911, 986/928/944/986/988/990 Cayenne Turbo	2005		Auf Anfrage	
	All models except Alashan	1981		Antifreeze AG13 Hightec	MN4113
Renault	Alashan	2017	2019	Antifreeze AG11 Longterm	MN4111
	All models	1989		Antifreeze AF12+ Longlife	MN4112
Rolls-Royce	All models	1984	2005	Antifreeze AF12+ Longlife	MN4112
	All models	1981	2011	Antifreeze AF12+ Longlife	MN4112
Saab	All models	1984	1998	Antifreeze AG11 Longterm	MN4111
	All models	1999	2004	Antifreeze AF12+ Longlife	MN4112
Seat	All models	2005	06/2019	Antifreeze AF13++	MN4115
	All models	07/2019		Auf Anfrage	
Škoda	All models	1984	1996	Antifreeze AG11 Longterm	MN4111
	All models except Octavia, Suberb	1996	2005	Antifreeze AF12+ Longlife	MN4112
Škoda	Octavia, Suberb	2000		Antifreeze AF13++	MN4115
	All models	2005		Antifreeze AF13++	MN4115
Smart	All models except forlux, 453, forlux, 453	1998	2015	Antifreeze AG13 Hightec	MN4113
	Only forlux, 453, forlux, 453	2014		Antifreeze AF13++	MN4115
Subaru	All models except Impreza, GD, GG	1984	2004	Antifreeze AG13 Hightec	MN4113
	All models	2005		Auf Anfrage	
Suzuki	All models	1985	2008	Antifreeze AF12+ Longlife	MN4112
	All models	2009		Auf Anfrage	
Tesla	All models	2013		Antifreeze AG11 Longterm	MN4111
	All models	1978	1999	Antifreeze AG11 Longterm	MN4111
Toyota	All models	1999	2003	Antifreeze AG13 Hightec	MN4113
	All models	2003		Antifreeze AF12+ Longlife	MN4112
Volkswagen	All models	1983	1997	Antifreeze AG11 Longterm	MN4111
	All models	1998	2007	Antifreeze AF12+ Longlife	MN4112
Volkswagen	All models	2007		Antifreeze AF13++	MN4115
	All models	1982	2006	Antifreeze AF12+ Longlife	MN4112
Volvo	All models	2007	2017	Antifreeze AG13 Hightec	MN4113
	All models	2018		Auf Anfrage	

For a detailed information please visit [www.mannol.de](http://www.mannol.de)

POUR POINT, °C	MIX RATIO, %	
	COOLANT FLUID RATIO	WATER RATIO
-20	35	65
-25	40	60
-29	45	55
-38	50	50



SCAN THE CODE TO GET MORE INFORMATION