

# Product catalogue 2010





## DEFA WarmUp, Marketing leader on car heating

DEFA is a traditional and Norwegian owned group of companies with a leading position for electrical preheating systems in Europe. Several years with an increasing volume has given us a strong position in the market and solid partners among the distributors. Since starting up in 1946 we have focused on new technological developments and confidence in the market.

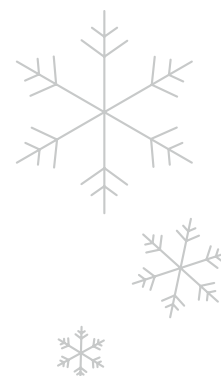
DEFA WarmUp is developed for petrol engines, diesel engines and ethanol engines (E85). We can offer tailor made cable- and contact solutions for electrical cars and PlugIn hybrid cars. Our products are usable from 42V and up to 230V.

Today we are the market leaders in Europe within electrical car preheating when it comes to DEFA WarmUp comfort systems for private cars, delivery trucks, buses, agricultural machines, construction machines and GenSet. Start and stop is managed with a control unit or remote control. That DEFA WarmUp gives considerable environmental gains when starting a cold engine is also important these days.

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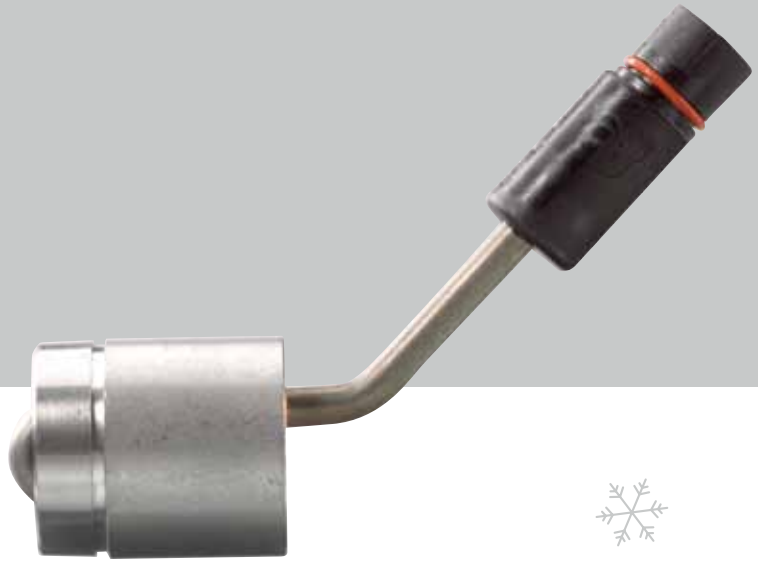


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Less emissions,  
Less fuel consumption  
and better comfort



# DEFA WarmUp



When starting a cold engine,  
pollution and consumption is at its very worst



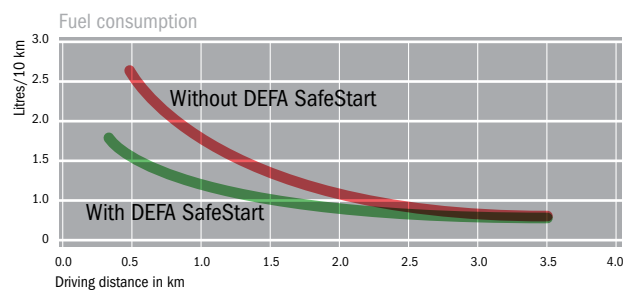
It doesn't matter if the temperature outside is  $-15$  or  $+4^{\circ}\text{C}$ . The engine is cold anyway, and cold engines consume a lot more fuel to get started. Additionally, the emissions are much higher during this cycle. The catalyst, for cleansing the emissions from the engine, does not work properly before the temperature exceeds  $600^{\circ}\text{C}$ .

Electrical car heating is the most environmentally friendly way to preheat your car. If you start driving with a warm engine, both emissions and fuel consumption will be reduced the first 4-5 kilometers.

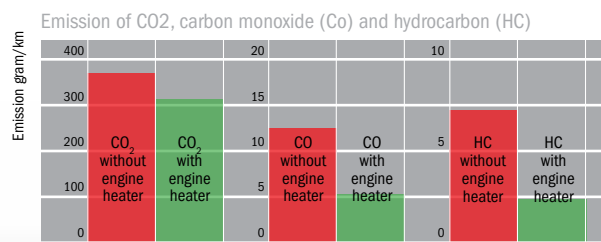
If all cars had engine heaters, the environment would benefit in several ways. To day, the authorities throughout Europe are taking dramatic measures to restrict the use of cars. Introduction of car free zones and times, increased car taxes and environmental taxes during rush-hour are a result of the environmental threat. At the same time the society depends on efficient solutions for collective transportation.

Every car owner is able to give the environment a helping hand by starting their car every day with a warm engine. One single car owner will not be able to make such a big difference one winter morning – but the entire European car fleet will absolutely make a big difference during a year.

Electrical car heating has only environmental advantages. In contrast to solutions based on fuel, DEFA car heating ensures less emissions and fuel consumption. A preheated engine during the cold winter season will also ensure less engine wear and tear.



Starting of a preheated engine reduces the fuel consumption with 50% the first 4 km



Starting of a preheated engine gives 15-30% less pollution the first 4 km



# ENGINE HEATERS

The purpose with an engine heater is to create and transfer heat to the engine on an effective and best possible way. This can be done directly through heating the antifreeze fluid or oil, or indirectly through heating the engine block or oil pan utilizing a contact heater. DEFA offers optimal engine heater solutions for most air-and water-cooled petrol- and diesel engines on the market.

We also have smart solutions for tractors, trucks and other engine vehicles and stationary engines. More than 600 different engine heaters are on the market supporting more than 3400 different engines. We have basically 9 series in our product range where the differences are to be found in the manner of operation and the principal of installation.



## DEFA SafeStart 000-series

Characteristic	Flat conic flange
DEFA No.	001-099
The 000-series can only be used on engines with cast iron block. The heaters flange consists of a conic slice, and the heater is kept in place in the engines frost hole by a press fit solution.	



## DEFA SafeStart 100-series

Characteristic	Conic cup flange
DEFA No.	101-199
100-series heaters are only used on vehicles with cast iron block. The heaters flange is formed as a cup in order to keep a small profile on the active heating area. The heater is used on engines with little space inside the water jacket. Press fit heater.	



## DEFA SafeStart 200-series

Characteristic	Threaded flange
DEFA No.	201-299
The flange of the 200-series is threaded and is used on cars which have a threaded plug into the water jacket.	



## DEFA SafeStart 300-series

Characteristic	T- or spread rail
DEFA No.	301-399
The heater is fastened to the engine block with a fixed spreader rail or a T- rail. The 300-series is also used in areas where there is too little space around the element for press fit on cast iron block or in aluminum blocks.	



### DEFA SafeStart 400-series

Characteristic	Hose heater without thermostat
DEFA No.	401-499

Heaters with DEFA number series from 401 to 499. Number series from 420 to 423 are heaters with thermostat. The flange on this type of engine heater consists of a metal pipe. This pipe can encompass the whole or parts of the active element. The heater is attached to a specific point in one of the engines coolant hoses and is butted against a metal support (eg water pump end pipe stub) With this method, the entire active part of the heating element is surrounded by metal.



### DEFA SafeStart 500-series

Characteristic	Special fastening point of the bracket
DEFA No.	501-599, 2501-2599

Some engine types have hatches in different shapes which open to the water jacket of the engine block. This heater has a flange which is identical to the original hatch.



### DEFA SafeStart 600-series

Characteristic	Oil heater
DEFA No.	601-699

The oil heater is used on air cooled engines or in combination with engine heater for coolant.



### DEFA SafeStart 700-series

Characteristic	Hose heater
DEFA No.	700-799

These can be divided into two categories:  
Heaters without thermostat. Number series from 701-709 and 758-799.  
Heaters with thermostat. Number series 710-757.



### DEFA SafeStart 800-series

Characteristic	Contact heater
DEFA No.	800 - 899, 2800 - 2899, 3800 - 3899

The contact heater can be divided into two categories:  
Heaters for engine block and heaters for sump. The contact heaters consist of an element cast in aluminum, adapted to the place of installation.



# INTERIOR HEATERS



## DEFA Termini™ 1350

Item No. Mini contact/Schuko plug	430050/430051
Collection box [pcs]	12
Output -25°C [W]	0/1350
Width/Height/Depth [mm]	138/35/181
Weight [gr]	595
Bracket weight [gr]	20
IP rate	20



## DEFA Termini™ 1350 blister-package

Item No. Schuko plug	430052
Collection box [pcs]	8
Output -25°C [W]	0/1350
Width/Height/Depth [mm]	138/35/181
Weight [gr]	595
Bracket weight [gr]	20
IP rate	20



## DEFA Termini™ 1850

Item No. Mini contact/Schuko plug	430062/430063
Collection box [pcs]	10
Output -25°C [W]	0/850/1850
Width/Height/Depth [mm]	141/47/183
Weight [gr]	745
Bracket weight [gr]	20
IP rate	20



## DEFA Termini™ 2100

Item No. Mini contact/Schuko plug	430060/430061
Collection box [pcs]	10
Output -25°C [W]	0/1350/2100
Width/Height/Depth [mm]	141
Weight [gr]	745
Bracket weight [gr]	20
IP rate	20



DEFA interior heaters use a PTC (PTC= Positive Temperature Coefficient) heating element which self adjust the output power according to the inside temperature of the car. A 20°C temperature increase will result in a 10% power reduction and as the interior temperature increases the power will gradually be reduced accordingly. The interior heater is equipped with an automatic over-temperature protection.

All interior heaters are approved by; Safety EN 60335-1, EN60 335-2-30, NEK 554, EMC EN 55014-1:2000; A1; A2, EN 61000-3-2:2000, EN 61000-3-3:1995; A1 EN 55014-2:1997; A1



### DEFA Termina 1200

Item No. Schuko plug	430012
Collection box [pcs]	8
Output -25°C [W]	1200
Width/Height/Depth [mm]	146/75/165
Weight [gr]	890
Bracket weight [gr]	20
IP rate	20



### DEFA Termina 1200 S

Item No. Schuko plug	430012
Collection box [pcs]	8
Output -25°C [W]	700/1200
Width/Height/Depth [mm]	146/75/165
Weight [gr]	890
Bracket weight [gr]	20
IP rate	20



### DEFA Termina 1400 S

Item No. Schuko plug	430015
Collection box [pcs]	8
Output -25°C [W]	0/800/1400
Width/Height/Depth [mm]	146/75/165
Weight [gr]	890
Bracket weight [gr]	20
IP rate	20



### DEFA Termina 2000 S

Item No. Schuko plug	430022
Collection box [pcs]	8
Output -25°C [W]	0/1100/2000
Width/Height/Depth [mm]	200/90/200
Weight [gr]	1300
Bracket weight [gr]	20
IP rate	20

# BATTERY CHARGERS

DEFA's chargers always charge the battery when 230V is connected regardless of the control unit.

## Qualities:

- High efficient switch mode operation advanced charging profiles prevent from damaging the battery.
- The charger can therefore be continuously connected
- Temperature compensated charging voltage ensures that the battery is fully charged whatever battery condition. No risk for excess charging.
- Light indication of charging mode
- The chargers are short circuit and reverse polarity protected
- Does not harm advanced electronics
- Small dimensions
- Protects the battery from breaking down (sulphating) and extends the batteries lifetime.

DEFA's chargers are all approved by; Safety EN 50081-1, EN 50082-1, EN 60335-1, EN 60 335-2-29.



## DEFA MultiCharger 1204

Item No.	450020
Collection box [pcs]	8
Rated output [W]	65
Voltage [V]/Charging Current [A]	12/4
Charging voltage boost mode [V]	>14,3
Maintenance charging [V]	13,3-13,8
Width/Height/Depth [mm]	84/103/42
Weight [gr]	260
Fuse [A]	7,5
IP rate	65



## DEFA ChargerKit 1204

Item No.	450030
Collection box [pcs]	12
450020	DEFA Multicharger 1204
418902	DEFA Kabel sett 12 V
460915	DEFA MiniPlug Apparatinntak 1,5 m
460920	DEFA MiniPlug Tilkoblingsledning 2,5 m
418801	DEFA MiniPlug Apparatinntak - Festeutstyr



Full power  
during start,  
longer  
battery life



#### DEFA MultiCharger 1203 with relay

Item No.	450009
Collection box [pcs]	8
Rated output [W]	45
Voltage [V]/Charging Current [A]	12/3
Charging Voltage boost mode [V]	>14,7
Maintenance charging [V]	13,7
Width/Height/Depth [mm]	70/80/45
Weight [gr]	252
Fuse [A]	5
IP rate	44



#### DEFA MultiCharger 1210

Item No.	450011
Collection box [pcs]	8
Rated output [W]	125
Voltage [V]/Charging Current [AA]	12/10
Charging Voltage boost mode [V]	>14,7
Maintenance charging [V]	13,7
Width/Height/Depth [mm]	120/205/65
Weight [gr]	505
Fuse [A]	15
IP rate	44

# DEFA CONTROL UNIT/SmartStart™

The control units DEFA SmartStart™ 12/24V and DEFA Futura, which are parts of DEFA WarmUp, make sure the car is warm when you need it to be warm. DEFA SmartStart™ is a wireless remote control. DEFA Futura is a control unit which is installed inside the compartment. The unit has two programmable departure times independent of each other. These periods of time repeat themselves every 24 hours, which is very practical for car owners who start their car at the same time every day. The connection time, which is the time the heating system is connected before the car is used, can easily be chosen. The connection time can also be automatically controlled by the system via a temperature sensor recording the outdoor temperature.

The following programs can be used:

- Automatic start controlled by the outside temperature · 1 hour connection time · 2 hours connection time · 3 hours connection time · 4 hours connection time (only DEFA SmartStart™) · Control of fuel heat (analog control signal only DEFA SmartStart™)
- Direct start of DEFA WarmUp · DEFA WarmUp OFF



## DEFA SmartStart™

Item No. 12V with car unit	440020
Item No. 24V with car unit	440021
Operating temperature remote control (RC) [°C]	-10 - + 60
Operating temperature car unit(VU) [°C]	-40 - + 80
Battery RC Lithium 2CR-1/3N [V]	6 ⚠
Range	up to 1,2km in clear visibility
Frequency [MHz]	868,370
Current consumption RC	<5µA
Width/Height/Depth RC [mm]	34/78/16
Width/Height/Depth VU [mm]	54/69/23
Weight RC [gr]	29
Test and approval	EN 301 489-1:2005-04, ETSI EN 300 220-1:2000-09 EN 301489-1

## Spare parts

SmartStart™ remote control RC	418100
SmartStart™ VU	418101
Lithium Battery	418103
Cable	418072



## DEFA Futura control unit

Item No. without relay box	440010
Item No. with relay box	440011
Voltage [V]	12
Current consumption [mA]	3,5
Width/Height/Depth [mm]	47/37/13
Weight [gr]	19
Test and approval	EN 50081-1, EN 50082-1

## Spare parts

Cable mat 12V with temperature sensor	418007
Cable mat 12V without temperature sensor	418059
Temperature sensor	418071
Control unit	418067



# CONNECTION EQUIPMENT



**DEFA Connection Cable** is adjusted to DEFA MiniPlug and gives a safe and reliable connection from the electrical outlet to the car.



## DEFA MiniPlug Connection Cable

Item No. 2,5m	460920
Item No. 2,5m with angle contact	460933
Item No. 5,0m	460921
Item No. 10,0m	460924
Number of pcs in collection box	920/22 pcs. - 921/12 pcs. - 924 and 936 individually
Voltage [V]	250
Max current [A]	16
Weight [gr]	920/420 - 921/695 - 924/1180 - 926/1700
Test and approval	EN 50066-, EN 60309-1

**DEFA connection cable 2,5 mm<sup>2</sup>.** Is used for vehicles with special requirements for connection cables, for instance ambulances and fire engines with special equipment. Even if the cable is available with a 2,5mm<sup>2</sup> core cross-section, the maximum power consumption is 16A.



## DEFA MiniPlug Connection cable 2,5mm<sup>2</sup>

Item No. 2,5m	460960
Item No. 5,0m	460961
Item No. 10,0m	460962
Number of pcs. in collection box	960/22 - 961/12 - 962/1
Voltage [V]	250
Max current [A]	16
Weight [gr]	530/915/1520 (2,5/5,0/10,0m)
Test and approval	EN 50066-1, EN 60309-1



## 460785 DEFA Connection Set

DEFA MiniPlug Inlet plug 1,5 m	460915
DEFA MiniPlug Connection Cable 2,5 m	460920
DEFA MiniPlug Inlet plug - Fitting equipment	418801

## 460787 DEFA Connection Set

DEFA MiniPlug Inlet plug 1,5 m	460915
DEFA MiniPlug Connection Cable 5,0 m	460921
DEFA MiniPlug Inlet plug - Fitting equipment	418801

# CONNECTION EQUIPMENT

**DEFA MiniPlug Inlet plug** is adjusted to all new cars. It is as functional and easy to install flush mounted as with a bracket. During the development of DEFA MiniPlug we have emphasized the importance of correct design, safety, easy to install and easy to use.



DEFA MiniPlug Inlet plug	
Item No. 1,5m	460915
Item No. 2,0m	460939
Number of pcs in collection box [pcs]	915/22 - 939/12
Voltage [V]	250
Max current [A]	16
Weight [gr]	915/410 -939/570
Test and approval	EN 50066-, EN 60309-1
DEFA MiniPlug Inlet plug - Fitting equipment	418801

**Extension cables.** The components in DEFA car preheating system can easily be connected together with DEFA extension cables. The system guarantees a reliable and watertight connection. The PlugIn contacts are mechanically keyed to avoid wrong insertion.



DEFA Termini™ Interior heater cable with Mini Contact	
Item No.	460860
Length [m]	1,75 (soft part 0,6 m - armored part 1,75 m)
Number of pcs in collection box	Single box or 22 pcs.
Voltage [V]	250
Max current [A]	16
Weight [gr]	250
IP rate	44
Test and approval	EN 50066-, EN 60309-1



DEFA PlugIn Extension cable	
Length [m]	0,5 - 1 - 2 - 3 - 4 - 5 - 8 - 12
Voltage [V]	250
Max current [A]	16
IP rate	44
Test and approval	EN 50066-, EN 60309-1

DEFA PlugIn Extension Cable			
Item No.	Length [m]	Weight [gr]	No. of pcs. in collection box
460802	0,5	145	22 pcs.
460803	1,0	265	22 pcs.
460843	1,5	380	22 pcs.
460804	2,0	497	22 pcs.
460844	3,0	731	12 pcs.
460846	4,0	965	12 pcs.
460809	5,0	1200	1 pcs.
460847	8,0	1900	1 pcs.
460850	12,0	2838	1 pcs.

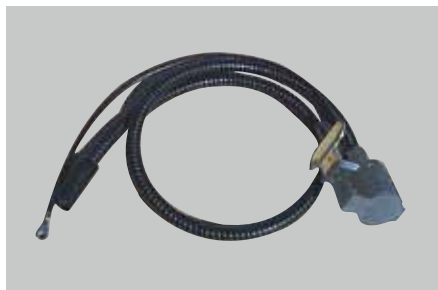
# OLDER CONNECTION EQUIPMENT

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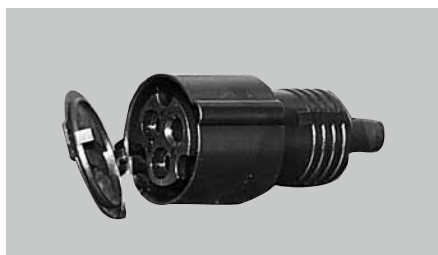
## DEFA Connection Cable

Item No. 2,5m	460820
Item No. 5,0m	460821
No. of pcs. in collection box [pcs]	820/22 - 821/12
Voltage [V]	250
Max current [A]	16
Weight [gr]	465/805 (2,5/5,0m)
Test and approval	EN 50066-1, EN 60309-1



## DEFA Inlet Cable

Item No. 1,5m	460815
Item No. 2,0m	460839
Voltage [V]	250
Max current [A]	Maks 16
Weight [gr]	510/630 (1,5/2,0m)
Test and approval	EN 50066-1, EN 60309-1



## DEFA Contact

Item No.	460824
Voltage [V]	250
Max current [A]	16
Test and approval	EN 50066-1, EN 60309-1

# BRANCHES AND CONTACTS

**DEFA relay contacts and relay boxes** are available in 12 and 24V versions and can be used together with DEFA SmartStart™ and DEFA Futura Control Unit.



## DEFA PlugIn Relay Contact 12V

Item No.	460854
Range of use [°C]	-40 / +80
Width/Height/Depth [mm]	31/61/67
Voltage [V]	230/12
Max current [A]	16
Weight [gr]	59
Insulation class [cl]	II
IP rate	44
Approval safety	EN 60335-1, EN60 335-2-30 , NEK 554
Approval EMC	EN 55014-1:2000; A1; A2 EN 61000-3-2:2000 EN 61000-3-3:1995; A1 EN 55014-2:1997; A1



## DEFA PlugIn Relay Box

Item No. 12V	460838
Item No. 24V	460863
Range of use °C	-40 / +80
Width/Height/Depth [mm]	56/63/70
Voltage [V]	230V/12 - 230/24
Max current [A]	16
Weight [gr]	101
Insulation class [cl]	II
IP rate	44
Approval safety	EN 60335-1, EN60 335-2-30 , NEK 554
Approval EMC	EN 55014-1:2000; A1; A2 EN 61000-3-2:2000 EN 61000-3-3:1995; A1 EN 55014-2:1997; A1



## DEFA PlugIn Y-connector

Item No.	460853
Width/Height/Depth [mm]	48/53/24
Voltage [V]	250
Max current [A]	16
IP rate	44
Test and approval	EN 50066-1, EN 60309-1





### DEFA PlugIn T-connector

Item No.	460831
Width/Height/Depth [mm]	63/42/21
Voltage [V]	250
Max current [A]	16
IP rate	44
Test and approval	EN 50066-1, EN 60309-1



### DEFA PlugIn Interior Heater Socket

Item No.	460829
Width/Height/Depth [mm]	54/70/41
Voltage [V]	250/12
Max current [A]	10
IP rate	20
Test and approval	EN 50066-1, EN 60309-1



### DEFA Termini™ Adapter Cable

Item No.	418069
Length [m]	0,25
Voltage [V]	250/12
Max current [A]	16
Weight [gr]	54
IP rate	44
Test and approval	EN 50066-1, EN 60309-1

# BRANCH SET

DEFA branch set consists of DEFA PlugIn extension cables in different lengths and DEFA PlugIn Y-connector for connecting interior- and engine heaters. The sets are also suitable for those who have engine heaters and wish to upgrade to a car heating system combined with an interior heater. If you wish to connect DEFA Termini™ together with Termini™ Mini Contact, you can use branch set 460750 or 460751.

If the interior heater has a Schuko plug, use 760/762/766/768/769. The differences are the lengths of the cables. Whatever set that fits depends on the vehicle model. See Code Type List column 8. The connection set 460785 or 460787 is not necessary if you buy DEFA WarmUp or DEFA ComfortKit. The connection sets are parts of these products.



460750 – Branch set		No. of pcs.
460803	DEFA PlugIn Extension Cable (1,0 m)	1
460853	DEFA PlugIn Y-connector	1
460860	DEFA Interior Heater Cable (1,75 m)	1
	Fitting equipment	1
460751 – Branch set		
460843	DEFA PlugIn Extension Cable (1,5 m)	1
460853	DEFA PlugIn Y-connector	1
460860	DEFA Interior Heater Cable (1,75 m)	1
	Fitting equipment	1
460760 – Branch set		
460802	DEFA PlugIn Extension Cable (0,5 m)	1
460803	DEFA PlugIn Extension Cable (1,0 m)	1
460853	DEFA PlugIn Y-connector	1
460829	DEFA PlugIn Interior Heater Socket	1
460762 – Branch set		
460803	DEFA PlugIn Extension Cable (1,0 m)	2
460853	DEFA PlugIn Y-connector	1
460829	DEFA PlugIn Interior Heater Socket	1
460766 – Branch set		
460803	DEFA PlugIn Extension Cable (1,0 m)	1
460843	DEFA PlugIn Extension Cable (1,5 m)	1
460853	DEFA PlugIn Y-connector	1
460829	DEFA PlugIn Interior Heater Socket	1
460768 – Branch set		
460802	DEFA PlugIn Extension Cable (0,5 m)	1
460843	DEFA PlugIn Extension Cable (1,5 m)	1
460853	DEFA PlugIn Y-connector	1
460829	DEFA PlugIn Interior Heater Socket	1
460769 – Branch set		
460802	DEFA PlugIn Extension Cable (0,5 m)	1
460804	DEFA PlugIn Extension Cable (2,0 m)	1
460853	DEFA PlugIn Y-connector	1
460829	DEFA PlugIn Interior Heater Socket	1
Fitting equipment 760 ingår i 460760 - 460769.		

# DEFA ComfortKit – Interior Heater Set

www.defa.com

An easy way to a warm engine and compartment. All you need in addition to a DEFA ComfortKit is an engine heater element. The sets are different because of different output on Termini™ interior heater 1350, 1850 or 2100W.

DEFA ComfortKit does NOT include a battery charger, DEFA Control Unit/ SmartStart™ or engine heater.



470050 DEFA ComfortKit 1350		No. of pcs.
430050	DEFA Termini™ 1350	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460803	DEFA PlugIn Extension Cable 1,0m	1
460853	DEFA PlugIn Y-connector	1
460860	DEFA Termini™ Extension Cable 1,75m	1
46091510	DEFA MiniPlug Inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1
470062 DEFA ComfortKit 1850		
430062	DEFA Termini™ 1850	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460803	DEFA PlugIn Extension Cable 1,0m	1
460853	DEFA PlugIn Y-connector	1
460860	DEFA Termini™ Extension plug 1,75m	1
46091510	DEFA MiniPlug Inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1
470060 DEFA ComfortKit 2100		
430060	DEFA Termini™ 2100	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460803	DEFA PlugIn Extension Cable 1,0m	1
460853	DEFA PlugIn Y-connector	1
460860	DEFA Termini™ Extension Cable 1,75m	1
46091510	DEFA MiniPlug inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1

# DEFA WarmUp – The complete car heating system



With DEFA WarmUp installed you will always have a warm and comfortable car ready to start with a fully charged battery. DEFA WarmUp reduces fuel expenses and harmful emissions. DEFA WarmUp consists of everything a car heating system should include, except for engine heater which has to be ordered separately. DEFA WarmUp is delivered in different versions dependent on the output on DEFA Termini™ interior heater, with DEFA Futura or SmartStart™ control unit.



## 471253 DEFA WarmUp Termini™ 1350 - SmartStart™ Pcs.

430050	DEFA Termini™ 1350	1
450020	DEFA MultiCharger 1204	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460802	DEFA PlugIn Extension cable 0,5m	2
460803	DEFA PlugIn Extension cable 1,0m	1
440020	DEFA SmartStart™ Remote control unit	1
460860	DEFA Termini™ Extension cable 1,75m	1
46091510	DEFA MiniPlug Inlet plug - Connection equipment	1
460853	DEFA PlugIn Y-connector	1
460854	DEFA PlugIn Relay	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1

## 471252 DEFA WarmUp Termini™ 1350 - Futura

430050	DEFA Termini™ 1350	1
450009	DEFA MultiCharger 1203	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460802	DEFA PlugIn Extension cable 0,5m	1
460803	DEFA PlugIn Extension cable 1,0m	1
440010	DEFA Futura Control unit	1
460860	DEFA Termini™ Extension cable 1,75m	1
46091510	DEFA MiniPlug Inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1

## 471263 DEFA WarmUp Termini™ 1850 - SmartStart™

430062	DEFA Termini™ 1850	1
450020	DEFA MultiCharger 1204	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460802	DEFA PlugIn Extension cable 0,5m	2
460803	DEFA PlugIn Extension cable 1,0m	1
440020	DEFA SmartStart™ Wireless control unit	1
460860	DEFA Termini™ Extension cable 1,75m	1
460853	DEFA PlugIn Y-connector	1
460854	DEFA PlugIn Relay	1
46091510	DEFA MiniPlug Inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
46075010	Connection equipment	1





470212 DEFA WarmUp Termina 1400 - Futura		Pcs.
430015/430062	DEFA Termina 1400	1
450009	DEFA MultiCharger 1203	1
460915	DEFA MiniPlug Inlet plug 1,5m	1
460803	DEFA PlugIn Extension cable 1,0m	2
460802	DEFA PlugIn Extension cable 0,5m	1
460829	DEFA PlugIn Compartment socket	1
418801	DEFA MiniPlug Inlet plug - Connection equipment	1
460920	DEFA MiniPlug Connection cable 2,5m	1
440010	DEFA Futura Control unit	1
418212/46075010	Connection equipment WarmUp 1400/2000	1

## DEFA SPECIAL TOOLS



### DEFA Installation tools

Item No.	460840
Hull saw Ø24mm	For MiniPlug Inlet plug
Hull saw Ø20mm	For interior heater cable
File	For MiniPlug feed track
Hull saw retainer	With pilot hole drill



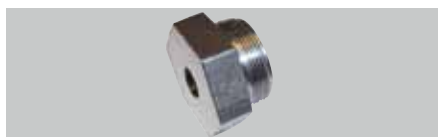
### DEFA tools for feed through bulkhead

Item No.	460862
Lead-in wire	For PlugIn male
Lead-in wire	For PlugIn female



### DEFA tools for feed through bulkhead

Item No.	460864
No. of pcs.	3
Lead-in wire	For Termini™ Interior heater cable



### DEFA tools for heater 241

Item No.	460861
Steering tools for Allen wrench	



### DEFA Engine heater tester for MiniPlug

Item No.	490265
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# DEFA Extractor tools

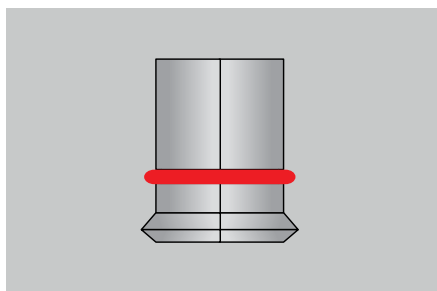
Are available separately or in a complete set. To be able to use the tools, one needs main tool, extractor and taper clamping. Extractor and taper clamping can be purchased separately in 5 different sizes dependent on the inside diameter of the frost plug that is to be removed (see diameter list). The tool is suitable for deep frost lid.

Complete extractor tools consists of main tools, 5 extractors and 5 taper clamping with different diameters.  
Item No. 490887.



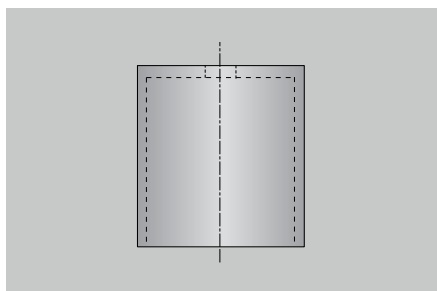
## DEFA Main tool

490888



## DEFA Extractor

Complete extractor set	490871
Ø20mm	490843
Ø27mm	490845
Ø31mm	490846
Ø35mm	490847
Ø41mm	490848



## DEFA Taper clamping

Complete Taper clamping set	490886
Ø27mm	490881
Ø31mm	490882
Ø35mm	490883
Ø41mm	490884
Ø46mm	490885



## DEFA Extractor hook

30,5mm	460835
37,5mm	460836
44,5mm	460837

For more information about our products please see [www.defa.com](http://www.defa.com),  
Technical Handbook (Order no. 490274 UK) or List of Vehicles (Order no. 490100 NO).





[www.defa.com](http://www.defa.com)

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