



230V~ 50Hz



## SafeStart 400 series

**Characteristics:** Hose installation without thermostat  
**DEFA no:** 401-499

DEFA number series 401 to 499. Heaters in number series 420 to 423 are an exception (420-423 product sheet).

For this type of engine heater, the flange consists of a metal pipe (A). The pipe can entirely or partially surround the heating element (B). The heater is attached to a specific point inside one of the engine's coolant hoses, and is butted against a metal support (e.g. water pump brackets). With this method, the entire heated part of the heating element is surrounded by metal.

Tests made on a medium size vehicle, shows that a 600W 100-series heater will increase the coolant temperature approx 50°C related to the outdoor temperature when connected in 195 minutes at an outdoor temperature of -17°C or colder. After 195 minutes the system has achieved thermal balance. Longer heating time that 195 minutes at -17°C or colder is energy dissipation. For that reason we recommend you to use a timer. Please look at the product sheet for DEFA SmartStart™ or DEFA Futura.

DEFA AS is conforming to the requirements of both ISO 9001-2008, ISO 14001:2004 and OHSAS 18001:2007. In addition to this, our engine heaters and cables are conforming to the requirements of ISO/TS 16949:2002.

### Item number

DEFA no.: From 411401 to 411499.  
Weight: Varies depending on diameter and size.  
Up to 26-pack. Varies with the size of the heater.

### Part of

Engine pre-heaters are supplied separately because of special adapted solutions for a variety of engines and vehicles.

### Installation

**Install the heater according to the enclosed installation guide.**  
**ONLY** Install the heater on vehicles listed in the installation guide.  
Installing DEFA heaters must only be executed by authorized garages.

### Use

**Normal usage** - DEFA engine heaters is dimensioned for "normal usage". DEFA defines "normal usage" as; 3 connections for 3 hours pr. 24 hour based upon 150 users days a year (5 months a year).

**Professional usage** - It is necessary to make a yearly function control and if necessary install a new heater to obtain necessary extent of service on emergency vehicles or power supplies where the heater is connected more or less 24/7. This yearly service cost will not be covered by DEFA AS.

**Pulse power** - Some car parking areas are using interval (pulse) power timers turning the power On and Off several times per hour. Using DEFA engine heater in suchlike parking facilities will not be considered as "Normal use" and claims will be declined.

### Technical specifications

Voltage [V]	230
Power [W]	550-820
IP rating [IP]	44
Test and approval	EMKO-TUB(61)NO 293/91 EN 60335-1, EMKO-TSB(61) NO293A94

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