

起动机和发电机

启动-停止起动机SSM3 – 舒适性大大提高

Starter Motors and Generators

Start-stop starter motor SSM3 – for increased start-stop comfort



BOSCH

博世 科技成就生活之美



产品介绍

Product description

发动机熄火时没有油耗，这是启动-停止系统实现节油的基本前提，如启动-停止系统可以使车辆在遇红灯或交通拥堵时自动熄火。为进一步降低油耗和二氧化碳的排放，发动机熄火的时间应尽量延长，如在车辆滑行至停止的过程中，以及高速公路上无需加速的高速滑行过程。从2007年批量生产开始，博世已经销售出超过一千万台启动-停止起动机。

An engine uses no fuel when it is switched off. Therein lies the basic premise of start-stop systems, which simply switch the engine off at a red light or in a traffic jam. In an effort to reduce fuel consumption and CO₂ emissions still further, the periods during which the engine is switched off are steadily being extended. First while the vehicle coasts to a halt, soon while driving, whenever the driver is not accelerating. Since series production of the first start-stop system began in 2007, Bosch has already sold over ten million start-stop starter motors.

工作原理

How it works

第一代启动-停止系统只有当汽车停止时才会关闭发动机，高级版的启动-停止系统延长了发动机的关闭时间。如果在红灯前踩刹车，汽车滑行至停止的过程中，发动机熄火，司机只需松开刹车踏板，发动机就能迅速启动（自动挡汽车）。这是通过同步启动功能实现——起动机在发动机转速降低时与发动机飞轮啮合。首先加速小齿轮以与发动机转速同步，然后小齿轮与发动机飞轮啮合。除了改进发动机控制单元和特殊起动机设计（齿轮啮合和发动机启动两步进行）外，无需更多其他部件。

First-generation start-stop systems switch the engine off only when the vehicle is stationary. The new and improved start-stop system extends the engine-off periods. For instance, if a driver is coming up to a red light and applies the brakes, the engine is switched off while the vehicle coasts to a halt. When the driver wishes to drive off and releases the brake (if the vehicle has automatic transmission), the engine starts up again without any delay. This is achieved through a synchronized engine restart function that allows the starter motor to engage smoothly during the engine run-out. This includes the acceleration of the starter pinion to match the engine speed before the pinion engages with the ring gear. Apart from modified engine management software and a special starter motor design that separates the pinion engagement from the engine start-process, no further parts are needed.

滑行时油耗为零

Zero fuel consumption even while coasting

启动-停止滑行功能，在离合器和传动系统分离，发动机熄火的条件下利用车辆惯性滑行——此时油耗和二氧化碳排放为零。司机踩油门，发动机立即快速重新启动。同步启动功能确保滑行和发动机正常运转时的舒适无缝的连接。启动-停止滑行功能可在城市、城际间和高速公路的行驶中激活，在实际驾驶条件下，可以额外节省高达10%的油耗。即使在长时间滑行期间，特殊的车载网络设计确保车辆行驶的安全，如动力转向或刹车。

The start-stop coasting function uses the vehicle's momentum to allow you to coast with the clutch disengaged and the engine switched off – meaning zero fuel consumption and zero emissions. The engine starts up again as soon as the driver presses the accelerator pedal, while the synchronized engine restart function ensures a seamless and comfortable transition between coasting and standard engine operation. The system is active at routine speeds while urban, interurban, and freeway driving. At typical speeds in real driving conditions, this means an extra fuel saving of up to 10%. Even during long periods of coasting, redundancy in the design of the on-board electrical network ensures that safety-critical functions such as power steering or brakes are guaranteed.

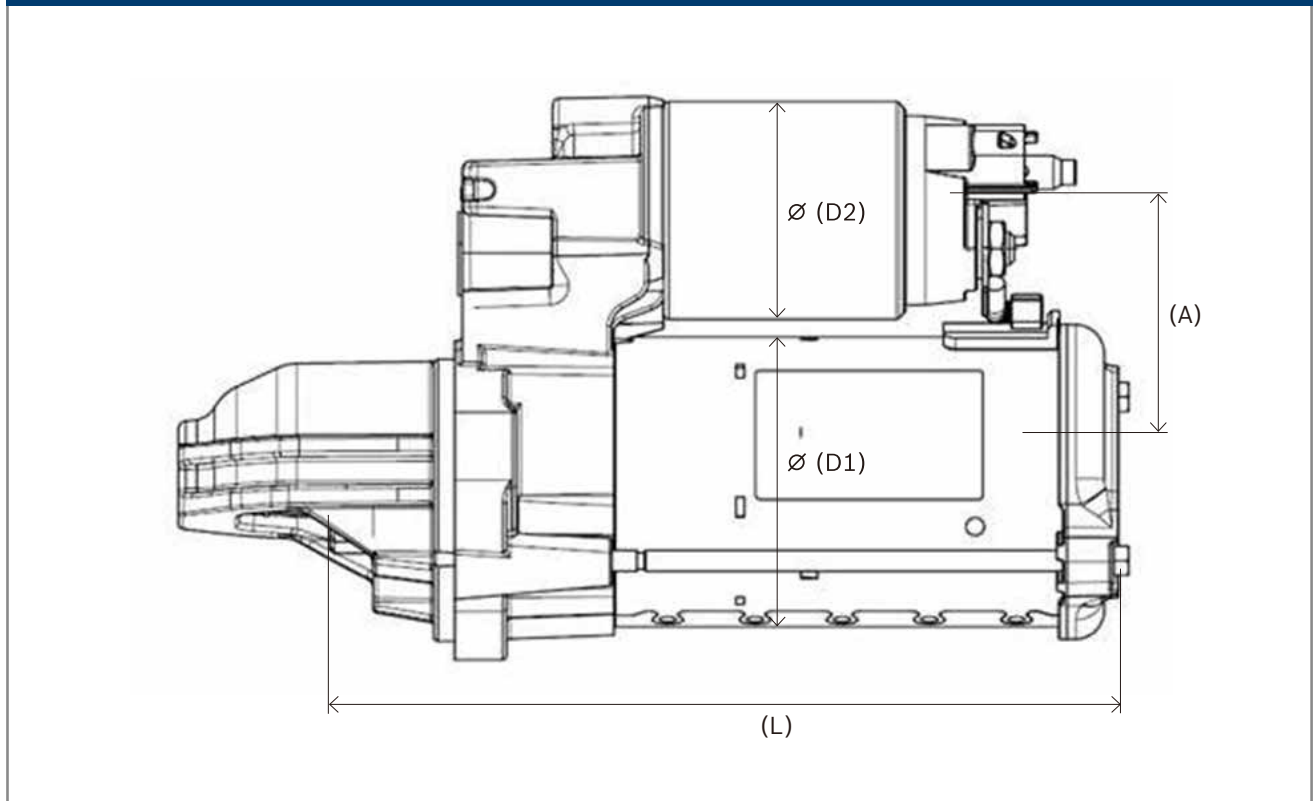
博世的启动-停止系统可以用于手动和自动挡汽车，即便高负载工作，起动机的设计寿命可以覆盖整个车辆生命周期。改良的启动-停止系统不仅确保舒适性，还有助于减少二氧化碳排放。简单的设计理念和直观的操作方式，为启动-停止系统在全球市场的和各类车型的广泛应用提供坚实的基础。

Bosch improved start-stop systems are available for vehicles with either manual or automatic transmission. Subject to higher loads, the starter has been designed to last the vehicle's entire lifetime. Our optimized start-stop systems are another example of how we are helping to reduce CO₂ emissions – without compromising driving comfort. The simple technical design and intuitive functions provide a solid platform for the system to become widespread across all markets and vehicle classes.

启动-停止起动机SSM3产品系列 | SSM3 starter motor family

	SCD70-S 1.2 kW	SCD70-M 1.4 kW	SCD70-L 1.7 kW	SD74-E+ 2.2 kW	SD78-M 2.4 kW
重量 Weight (kg)	2.9	3.0	3.2	3.6	4.4
长度 Length (mm)	166	170	180	183	188
定子直径 Polehousing \varnothing D1 (mm)	70	70	70	74	78
继电器直径 Solenoid \varnothing D2 (mm)	52	52	52	52	52
轴向距离 Axial distance A (mm)	65.5	65.5	65.5	71	71

启动-停止起动机SSM3产品尺寸 | Main dimensions – Start-stop starter motor SSM3



博世汽车部件(长沙)有限公司
Bosch Automotive Products(Changsha) Co., Ltd.

电话/Tel: +86 731 8292 9110
传真/Fax: +86 731 8292 9072

地址: 湖南省长沙市星沙漓湘中路26号
邮编: 410100
Address: No.26, Lixiang Road Middle, Xingsha,
Changsha Hunan, 410100, P.R.China

www.bosch.com.cn

中国印刷
SG-201403-CNEN