TOUGH, SIMPLE AND COST-EFFECTIVE STARTING FOR DIESEL ENGINES

Our spring starters reliably start diesel engines up to 14 litres.

Our SureStart spring starter motors are a reliable and cost-effective way of providing manual starting for diesel engines. Coming in six different model sizes, they deliver reliability through simplicity.

To start an engine you simply engage the starter motor, wind the handle and remove the winding handle. When the trip lever is pulled the starter motor turns the engine. It is that simple.

Our spring starters are perfect for harsh environments and hazardous areas such as offshore and marine applications as they are unaffected by temperature extremes or damp conditions. Because they are pre-engaged, SureStart spring starters are also ATEX compliant.

Simple

Spring starters require no electricity, air pressure or hydraulic fluid. They are simple starting alternatives for most applications.

Cost-effective

Spring starters are a direct 'bolt-on' alternative to electric starters, providing quick and easy installation.

Tough

Spring starters are resistant to damp and extremes of temperature, making them ideal for offshore and marine environments.

Let's talk

+44 (0) 1224 592222

FOX AIR

VERSATILE & ECONOMICAL

Our SureStart spring starters are small, light, economical and easy to fit. They offer simplicity and reliability for applications where larger and more complex starting systems are unsuitable.

Backup starting for tugs & barges

A barge's on-board engines perform a vital role handling and preserving mineral, liquid and agricultural cargoes.

A single spring starter stored on the tug gives the operator a quick, easy and economical way to overcome a starter failure in any of the barges' hydraulic or electric starting systems without the problematic disposal of oils or risk of environmental damage.

There are many different applications for spring starters, including:

- Anywhere where simplicity, robustness and reliability are essential.
- Environments such as mines and oil refineries where electrical systems can be prohibited or dangerous.
- Where problematic conditions such as vibration, heat, dust or salt water need to be overcome.
- In remote locations or where poor operational skills mean simplicity is more important than sophistication.
- For emergency backup on lifeboats or on military, emergency or auxiliary generators.

SureStart spring starters can be used to start almost any diesel engine, including most electronic engines between 0.5 and 14 litre capacity with sufficient space to accommodate the starter motor.

Typical applications

- Generator sets.
- Pumps.
- Compressors.
- Winches.
- Drilling equipment.
- Boats.
- Tractors.
- Grain mills.
- Dump trucks.
- Fork lift trucks.
- Construction equipment.
- Hydraulic power units.
- Welders.

PRODUCT HIGHLIGHTS

Simplicity

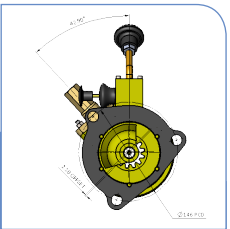
The simple 'wind and release' operation of SureStart spring starters delivers two benefits to operators:

- Training on how to use the starters safely is kept to a minimum. Safety features and operational guidelines can be covered in minutes and summarised on a short fact sheet.
- Simplicity means reliability.
- No external components or power needed.

Parts compatibility

SureStart motors have many common components throughout the size ranges. For simplicity, there are core components which are pre-assembled making repairs easy and quick without the need for special tools or specialist knowledge.

- Fewer spare parts need to be held in stock.
- Over 100 types of pinion are available. Small volume "specials" will be cut and produced on-demand in our own gear-cutting facility.



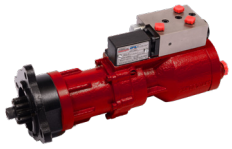
Flexible installation

SureStart motors are incredibly versatile. They can be oriented to suit the engine and its ancillary equipment.

The starter motor, nosecone and winding handle can be oriented independently for nearly infinite installation flexibility.

RELATED PRODUCTS

Hydraulic



Our hydraulic starter motors start diesel or gas engines up to 80 litres. They can be connected to an existing hydraulic supply or operate independently.

Air

Jetstream air starter motors provide a reliable method of starting diesel and gas engines up to 150 litres. They can use an existing air supply or operate independently.

Systems

We have over 40 years' experience designing, manufacturing and installing bespoke air and hydraulic starting systems to suit the exact needs of complex applications.

OPTIONS

Anti-clockwise

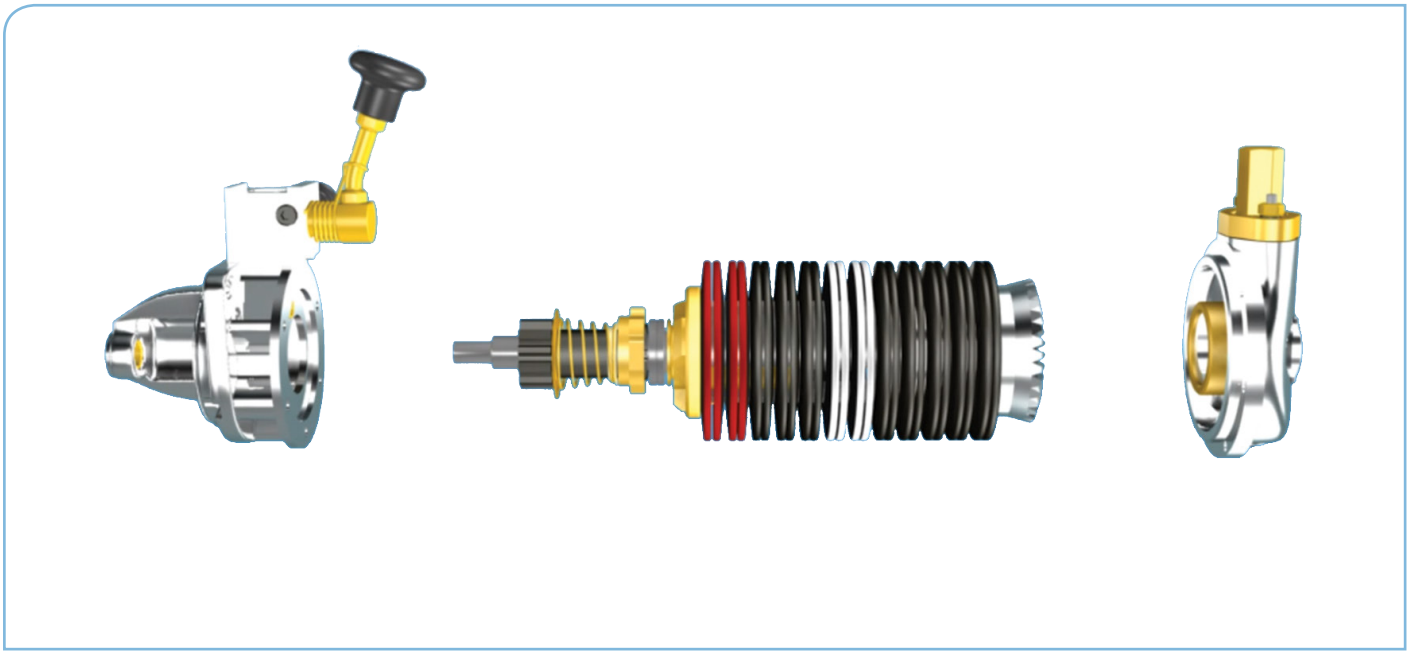
Most engines require a clockwise-rotating starter motor. However, many SureStart motors are also available with anti-clockwise rotation for special engines.

E-Switch Pack

An E-Switch Pack automatically disables the electric starter when the spring starter is engaged on a dual starter installation.

Pinions

A wide variety of pinion sizes are available to fit the numerous engine types in the field.



HOW A SPRING STARTER WORKS

SureStart spring starters require no external power systems unlike their electric, air (pneumatic) or hydraulic counterparts.

They are simple, compact, and dependable. They are often the preferred choice for backup starting because they can remain energized or de-energised without any performance or physical deterioration.

The SureStart range of spring starters are a direct replacement for an existing electric (or other) starter system, making them easy and simple to fit.

Using a SureStart spring starter is safe and easy.

The user winds the starter using the supplied cranking handle. This pre-engages the starter into the ring gear within the first two turns.

The winding ratchet means the user can wind as fast or as slowly as they wish and the starter will not unwind.

Once wound, the spring starter can be tripped as and when the user is ready and chooses to do so. This starts the engine.

There is none of the risk associated with electrical energy sources.

SureStart spring starters convert stored potential energy, in the form of a wound-up spring, into rotational kinetic energy used to turn over and start the engine. The spring is wound by hand cranking. The energy is released by pushing a lever on the starter.

SureStart spring starters use disc springs (also referred to as 'Belleville Washers'). These are conically-shaped steel washers which are compressed by a ball screw.

If the user wishes to de-energise the spring starter, they can simply reverse the winding procedure and unwind it back to its normal state.

E-Switch Pack

We recommend SureStart spring starters are fitted with an E-Switch Pack if they are intended for use in a dual starter installation with an electric starter.

SureStart's E-Switch Pack automatically disables the electric starter when the spring starter is engaged.

This is essential on dual starter engine applications where the spring starter is used as an emergency back-up to the electric starter. Typical installations are lifeboat engines and emergency generators.

In a dual starter application, the two starters should not be operated at the same time as this can cause damage to both starters and the engine. The E-Switch Pack prevents this damage occurring.

Spring starters with an E-Switch Pack will have an 'E' suffix on the model number.

SPECIFICATIONS

		SureStart S20	SureStart S30	SureStart S40
PERFORMANCE				
Max. torque at pinion	**Nm** **ft lb**	91 71	115 90	126 93
Engine capacity	**l** **cu in**	0.5 to 2.0 30.5 to 122	1.1 to 6.6 67.1 to 402.6	1.3 to 7.8 79.3 to 475.8
Engine cylinders	**max.**	4	6	
Rotation		S20C: clockwise S20A: anti-clockwise	S30C: clockwise S30A: anti-clockwise	S40C: clockwise
Mounting		Flange-mounted SAE1 SAE2	Flange-mounted SAE1 SAE2 SAE3 SAE4	
Pinion types		11 to 13 teeth 10/12 F/stub 11 to 13 teeth 8/10 F/stub 9 to 13 teeth Mod 3 10 to 13 teeth Mod 2.5		11 to 13 teeth 10/12 F/stub 11 to 13 teeth 8/10 F/stub 11 teeth 6/8 F/stub 9 to 13 teeth Mod 3 10 to 13 teeth Mod 3
Pinion to flange face	**mm**	20 or 28	20 or 28 or 47 or others	
Max. winding handle torque	**Nm** **ft lb**	64 50		81 60
Winding handle position		Variable in 8.5° increments		
Turns to fully wind	**engage** **full**	2.0 9.5	2.0 12.0	2.0 11.5
Starting aid below	**°C** **°F**	5 41		
PHYSICAL				
Length[1]	**mm** **in**	TBA TBA	345 13.6	347 13.7
Diameter[1]	**mm** **in**	TBA TBA	118 4.6	128 5.0
Weight	**kg** **lb**	12.0 26.5	16.0 35.3	18.0 39.7
Finish		Standard finish: zinc-plated body and housing; body painted with a further coat of primer and topcoat. Body can also be powder-coated.	Marine finish as standard: zinc-plated body and housing; powder-coated paint all over to withstand marine environment. Electroless nickel-plated shaft and pinion.	Standard finish: zinc-plated body and housing; body painted with a further coat of primer and topcoat.

SPECIFICATIONS

		SureStart S50	SureStart S60	SureStart S70
PERFORMANCE				
Max. torque at pinion	**Nm** **ft lb**	126 93	146 108	140 104
Engine capacity	**l** **l** **cu in** **cu in**	1.5 to 9.0 (6 cyl.) 1.25 to 10.0 (8 cyl.) 91.5 to 549.0 (6 cyl.) 76.3 to 612.8 (8 cyl.)	2.0 to 12.0 (6 cyl.) 1.75 to 14.0 (8 cyl.) 122.1 to 732.6 (6 cyl.) 106.8 to 854.4 (8 cyl.)	2.0 to 12.0 (6 cyl.) 1.5 to 12.0 (8 cyl.) 122.1 to 732.6 (6 cyl.) 91.5 to 732.0 (8 cyl.)
Engine cylinders	**max.**	6 or 8		
Rotation		S50C: clockwise	S60C: clockwise	S70C: clockwise
Mounting		Flange-mounted SAE1 SAE2 SAE3		
Pinion types		11 to 13 teeth 10/12 F/stub 11 to 12 teeth 6/8 F/stub 11 to 13 teeth Mod 3	11 to 13 teeth 8/10 F/stub 11 to 12 teeth 6/8 F/stub 11 teeth 6/8 F/stub 11 to 13 teeth Mod 3	11 to 13 teeth 10/12 F/stub 11 to 13 teeth 6/8 F/stub 11 to 12 teeth 6/8 F/stub 11 to 13 teeth Mod 3
Pinion to flange face	**mm**	47 (nominal)		
Max. winding handle torque	**Nm** **ft lb**	81 60	75 55	95 70
Winding handle position		Variable in 8.5° increments		
Turns to fully wind	**engage** **full**	2.0 15.0	2.0 18.0	2.0 17.5
Starting aid below	**°C** **°F**	5 41		
PHYSICAL				
Length[1]	**mm** **in**	417 16.4	417 16.4	TBA TBA
Diameter[1]	**mm** **in**	130 5.1	133 5.2	TBA TBA
Weight	**kg** **lb**	21.5 47.4	28.0 61.7	
Finish		Marine finish as standard: zinc-plated body and housing; powder-coated paint all over to withstand marine environment. Electroless nickel-plated shaft and pinion.		

Notes

1 Dimensions refer to the motor body excluding the trip mechanism, winding handle, options, etc.