Air Starters

Turbo Mot India

Gali

The GALI air starters are intended for use on internal combustion engines and gas turbines.

For their size and weight, these starters are extremely powerful, and additionally feature high torque, high speed, low air consumption and reduced maintenance.

GALI starters can be operated at a pressure ranging from 3/4 Mpa (30/40 bar) as the maximum and minimum working pressures depend on installation conditions.

The rapid response and the high speed of the GALI starters ensure that engines attain their ignition speed virtually instantly, thereby increasing the efficiency of the starting operation.

“The only starter on the market to operate directly at 30/40 bar and thus eliminate the need for problematic reduction valves.”

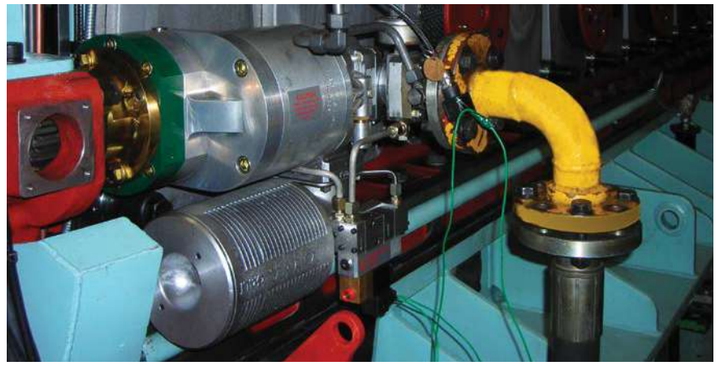
Since GALI starters require no external lubrication there is also no need for external pump lubricators which means a cleaner and more ecological installation area that is easier to maintain. They are additionally very resistant to humidity, saline atmosphere, and vibration, and they are unaffected by extreme temperatures.

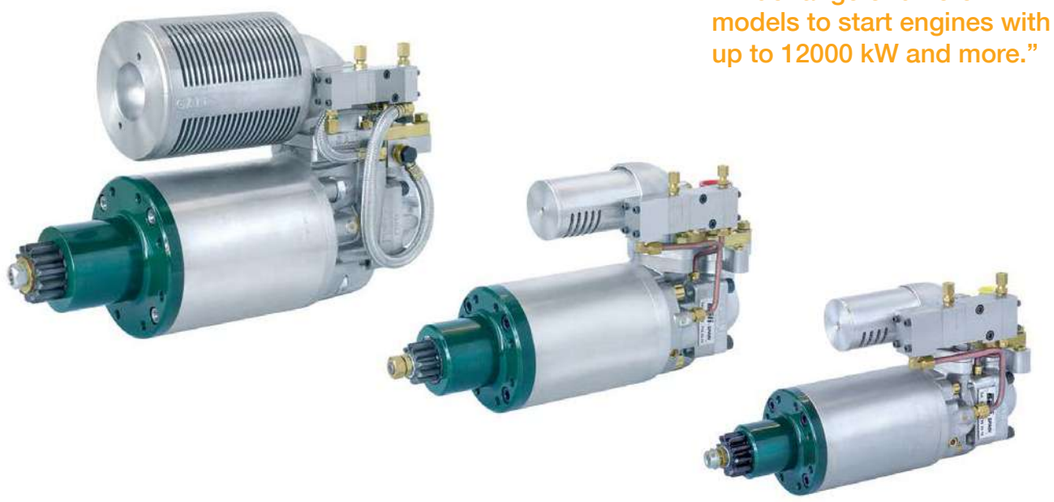
GALI starters are successfully implemented in a widest range of applications including marine engines (propulsion and auxiliary) generator sets, conventional and nuclear power plants, military, locomotives, offshore, mining, etc.

“Two step engine starting sequence comprised of pre-engagement and starting.”

“Very lightweight starters, left and right direction of rotation sensing, high endurance.”

“Lubrication free.”





“Wide range of different models to start engines with up to 12000 kW and more.”

Gali R&D

Our R&D department designs and develops all components of our air starters.

We apply our own technology to develop the main parts (rotors, crowns, shaft, main valve, servo -locker, etc) to assure the reliability and endurance of our starters.

We incorporate parts of high quality and resistance, avoiding any kind of material that might be affected by corrosion.

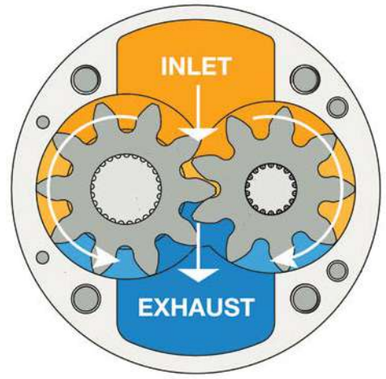
Main parts are distributed only by Gali.

“The reliability of an engine depends on the reliability of its starter.”

Gali starting system by rotors

The torque is produced as direct result of the pressure on the rotor side, obtaining the best results in initial compression and breakaway, which always ensures initial starting attempts even under adverse conditions.

"Long starter life and easy maintenance."



Gali twins starters - to start engines with more than 12.000 kW

Only Gali engagement systems are able to ensure the perfectly harmonized and synchronized torque required to engage two starters simultaneously. Well known are the problems of broken gear rims occurring using other systems not manufactured by Gali.

"Guarantee of first starting attempts."

Simple and easy assembly

- **Fully Integrated**

  The main and solenoid valves are incorporated in the starter body.

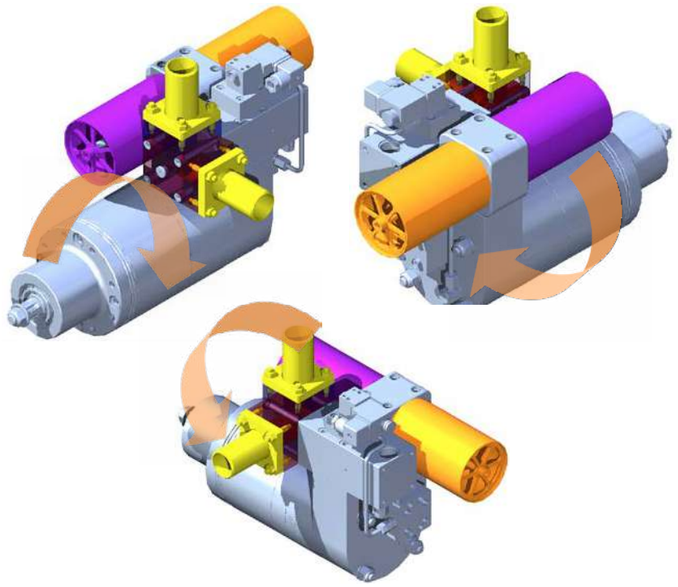
- **Versatile**

  The inlet pipe and independent flange facilitate installation.

- **Lighter in weight**

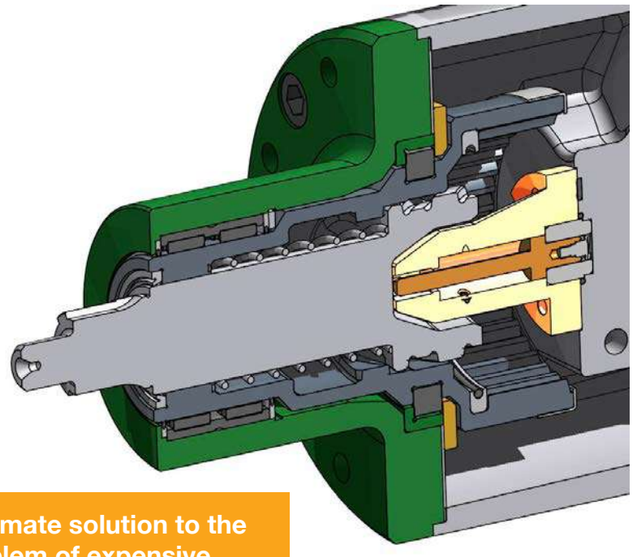
  Made of aluminum

- **Easy to mount on existing engine brackets.**



“Save additional piping, relief valve, gaugues & the problematic pressure reducing valve needed for other non Gali starters installations.”

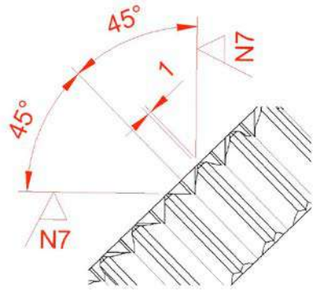
Alternative soft engagement system by Gali



Enables the use of soft crown and eliminates the need for chamfering (same gear rim for CW and CCW rotation engines) thereby reducing costs for engine manufacturers.

Also completely avoids the problem of damaged crowns.

No chamfer machining necessary.

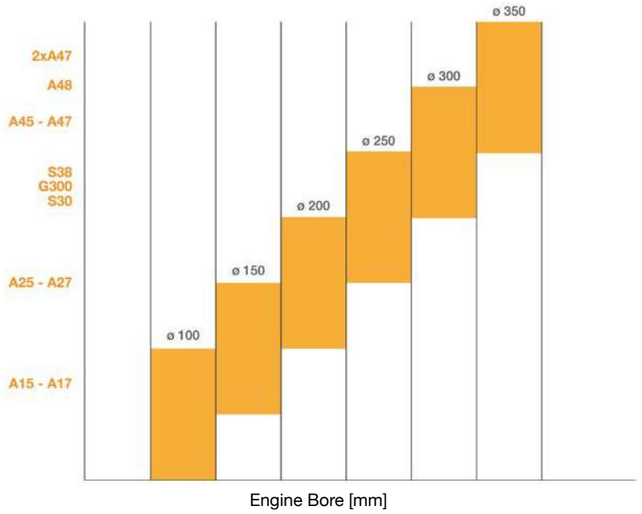


“Ultimate solution to the problem of expensive ring gear damage.”

Range of Gali Starters

Model	Max. Working Presure	Max. Torque	Speed Range	Speed at Max. Power	Max. Power	Net Weight
A17	30 bar	66 Nm	0 - 4000 rpm	4000 rpm	15 kW	6.6 kg
A27	40 bar	188 Nm	0 - 4000 rpm	2800 rom	30 kW	13 kg
A47	30 bar	540 Nm	0 - 3500 rpm	2300 rpm	66 kW	26 kg
A48	30 bar	640 Nm	0 - 3500 rpm	2200 rpm	77 kW	34 kg
S30	30 bar	305 Nm	0 - 3500 rpm	2500 rpm	41,5 kW	21 kg
S38	30 bar	360 Nm	0 - 3500 rpm	2500 rpm	42 kW	21.5 kg
G300	40 bar	380 Nm	0 - 3500 rpm	2500 rpm	46 kW	21 kg

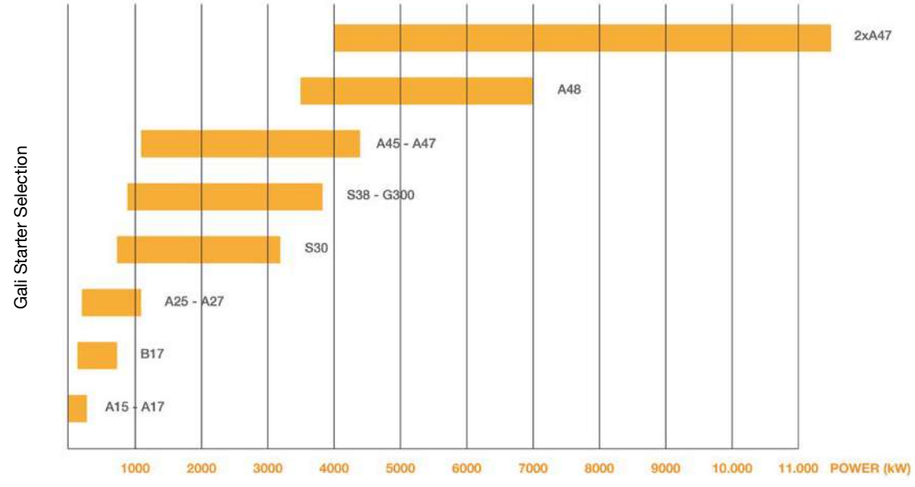
Starter selection chart by engine power & engine bore



The power and pressure required to start an engine depends exactly on the engine's technical characteristics such as the bore and stroke of the pistons, the number of crown teeth, the compression ratio, and the engine torque resistance in addition to the working temperature conditions and the specific characteristics of each installation.

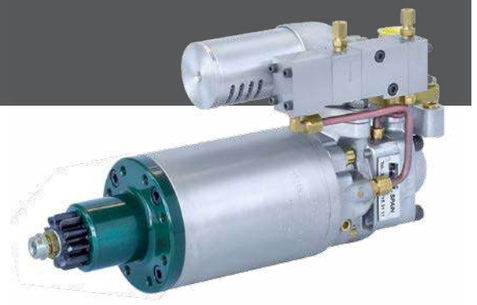
This is only a basic reference selection chart.

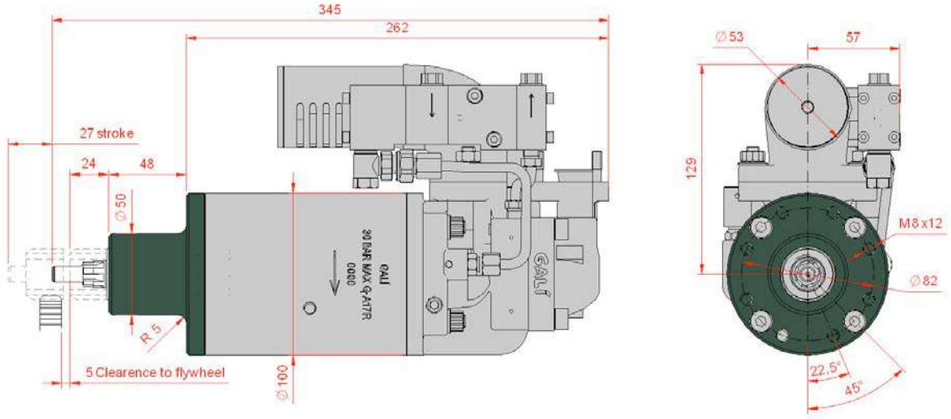
Before choosing a Gali starter for any application, contact your local dealer or our nearest representative.



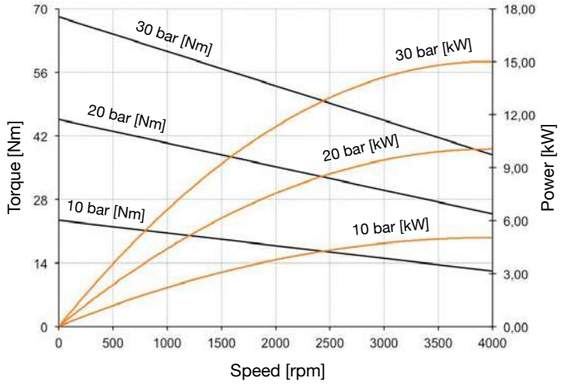
A17

The type A17 air starter is generally used for starting internal combustion engines of an approximate rating of up to 300 kW (400 HP), although the suitability depends, in practice, on the engine capacity, number of cylinders and the ratio of the driving pinion to the flywheel ring gear.

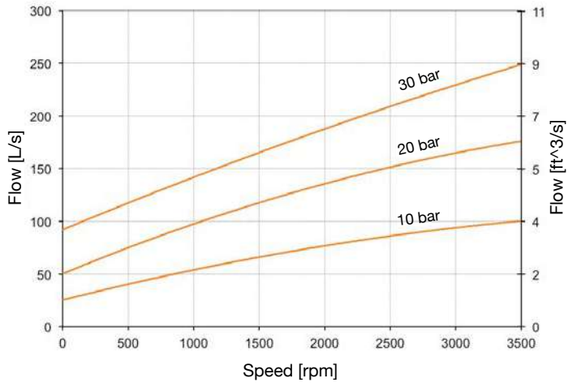




TORQUE / SPEED / POWER DIAGRAM



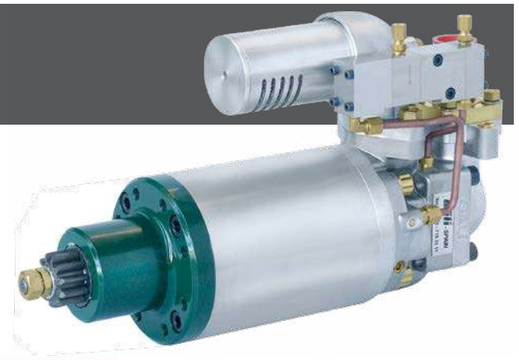
AIR FLOW DIAGRAM

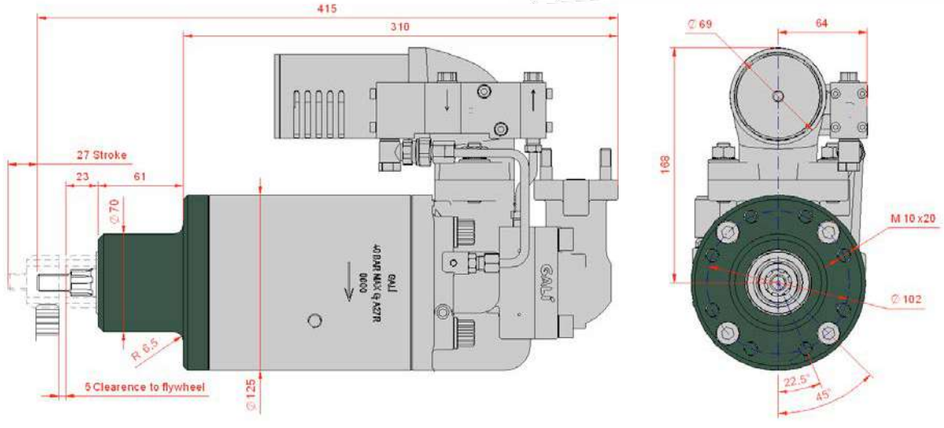


Technical Data	
Max. Working Pressure	3 MPa (30 bar)
Max. Power	15 kW
Speed at max. Power	4000 min^{-1}
Max. Torque	66 Nm
F.A.D.	90-260 dm^3/s
Minimum diameter of air feed pipework	20 mm (0,8 in)
Net weight	6.6 kg / 15 lb

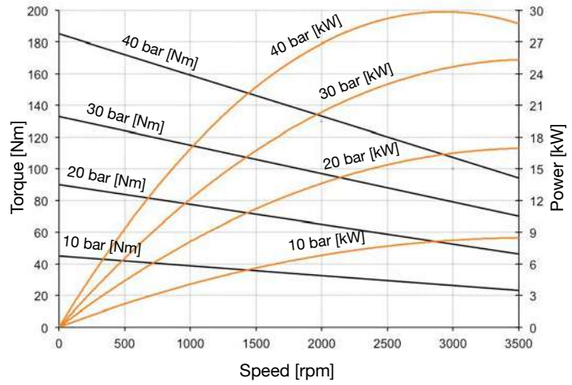
A27

The type A27 air starter is generally used for starting internal combustion of an approximate range of ratings of 220-1100 kW (300-1500 HP), although the suitability depends, in practice, on the engine capacity, number of cylinders and the ratio of the pinion to the flywheel ring gear.

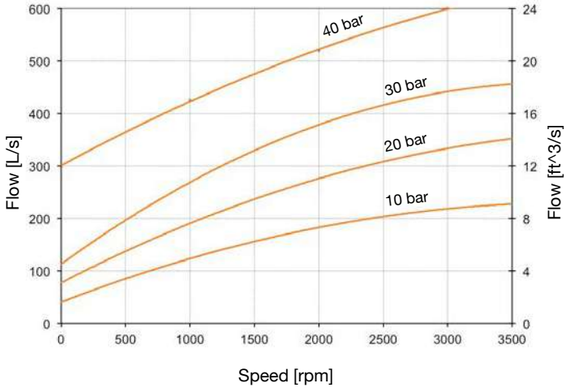




TORQUE / SPEED / POWER DIAGRAM



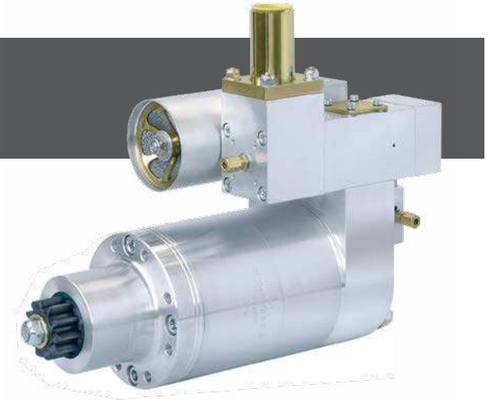
AIR FLOW DIAGRAM

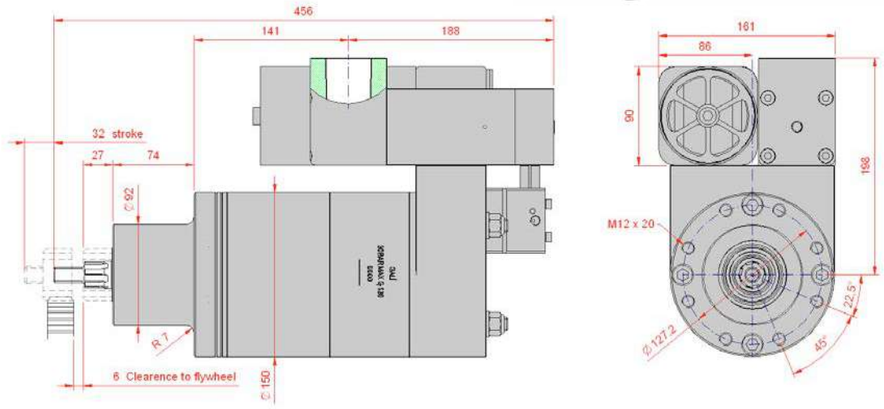


Technical Data	
Max. Working Pressure	4 MPa (40 bar)
Max. Power	30 kW
Speed at max. Power	2800 min^{-1}
Max. Torque	188 Nm
F.A.D.	110-460 dm^3/s
Minimum diameter of air feed pipework	25 mm (1 in)
Net weight	13 kg / 28.7 lb

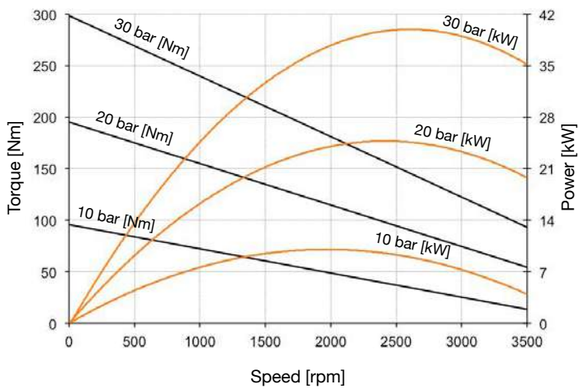
S30

The type S30 air starter has been developed to start internal combustion engines of a power range from 750 to 3200 kW (1020 to 4350 HP), although the suitability depends, in practice, on the engine capacity, number of cylinders and the ratio of the driving pinion to the flywheel ring gear.

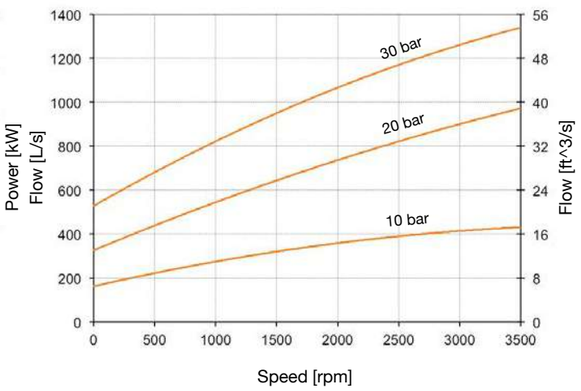


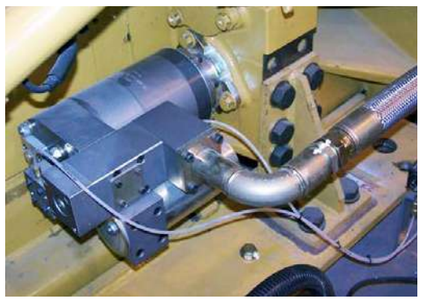


TORQUE / SPEED / POWER DIAGRAM



AIR FLOW DIAGRAM

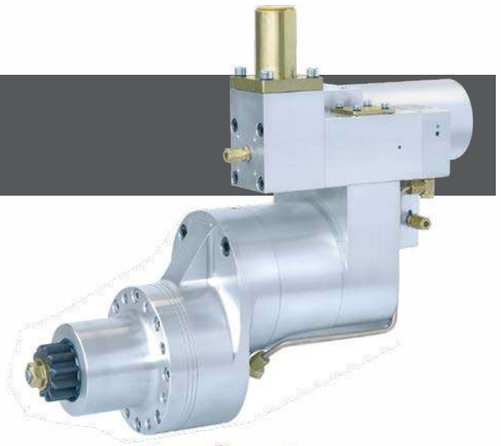


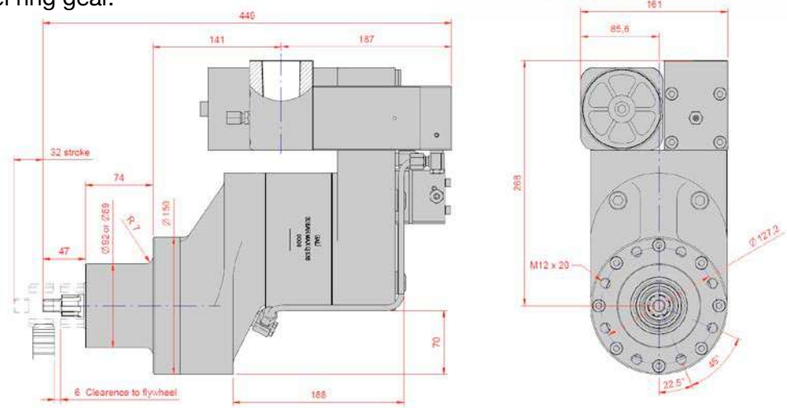


Technical Data	
Max. Working Pressure	3 MPa (30 bar)
Max. Power	41,5 kW
Speed at max. Power	2500 min^{-1}
Max. Torque	305 Nm
F.A.D.	180 - 1350 dm^3/s
Minimum diameter of air feed pipework	36 mm (1,42 in)
Net weight	21 kg / 46.3 lb

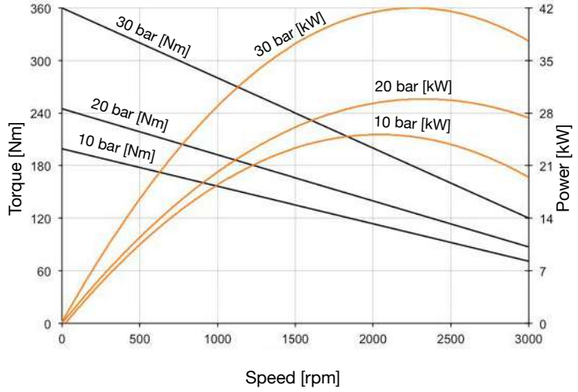
S38

The type S38 air starter belongs to the new generation of Gali Starters, to cover all the range of engine powers. The S38 is intended to start internal combustion engines of a power range from 900 to 3800 kW (1210 to 5100 HP), although the suitability depends, in practice, on the engine capacity, number of cylinders and the ratio of the driving pinion to the flywheel ring gear.

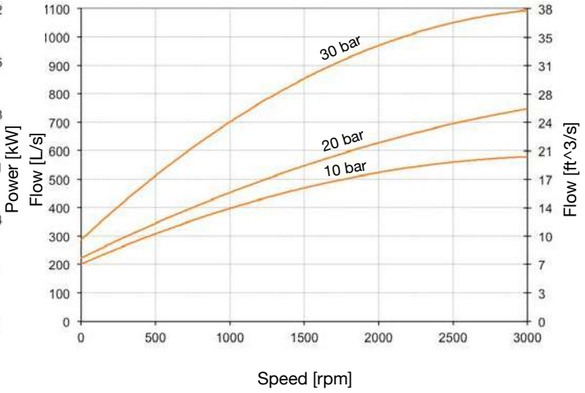




TORQUE / SPEED / POWER DIAGRAM



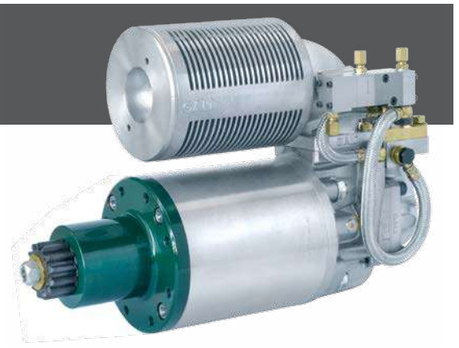
AIR FLOW DIAGRAM

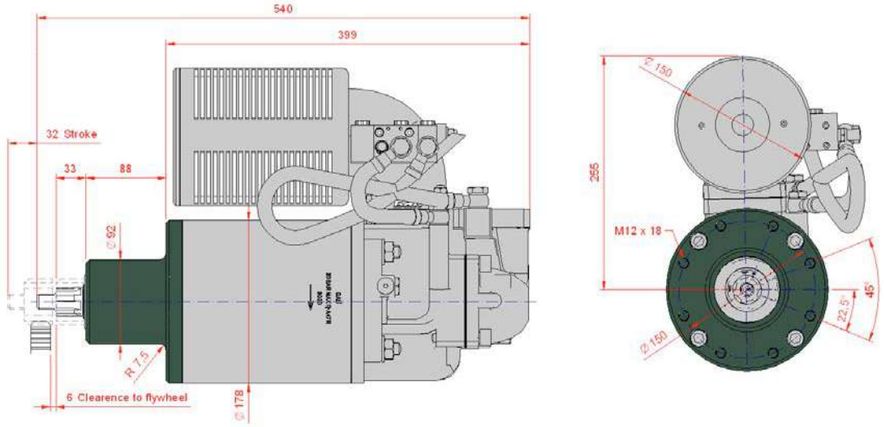


Technical Data	
Max. Working Pressure	3 MPa (30 bar)
Max. Power	42 kW
Speed at max. Power	2500 min^{-1}
Max. Torque	365 Nm
F.A.D.	200 - 1100 dm^3/s
Minimum diameter of air feed pipework	36 mm (1,42 in)
Net weight	21.5 kg / 47.4 lb

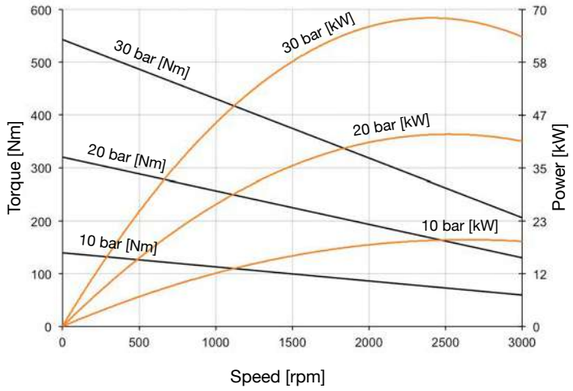
A47

The type A47 air starter is generally used for starting internal combustion engines of an approximate range of ratings of 1100-4400 kW (1500-6000 HP), although the suitability depends, in practice, on the engine capacity, number of cylinders and the ratio of the driving pinion to the flywheel ring gear.

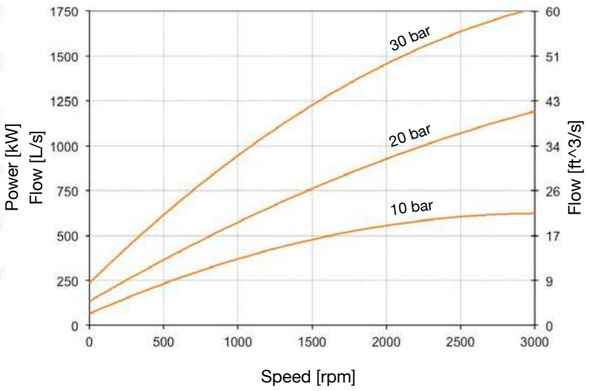




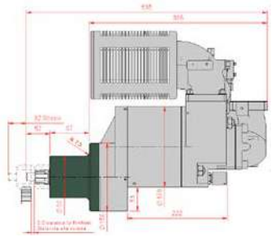
TORQUE / SPEED / POWER DIAGRAM



AIR FLOW DIAGRAM



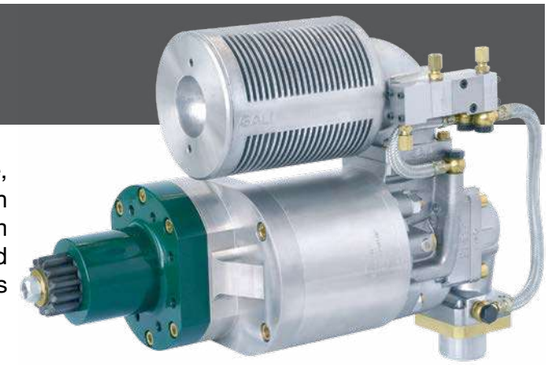
"Also available our A47 in 'Z' version to fit in reduce spaces."

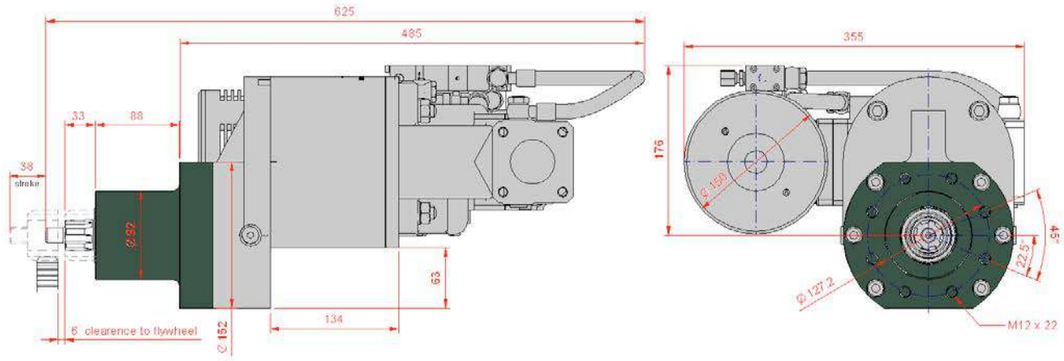


Technical Data	
Max. Working Pressure	3 MPa (30 bar)
Max. Power	66 kW
Speed at max. Power	2300 min^{-1}
Max. Torque	540 Nm
F.A.D.	250-1750 dm^3/s
Minimum diameter of air feed pipework	45 mm (1,77 in)
Net weight	26 kg / 57.3 lb

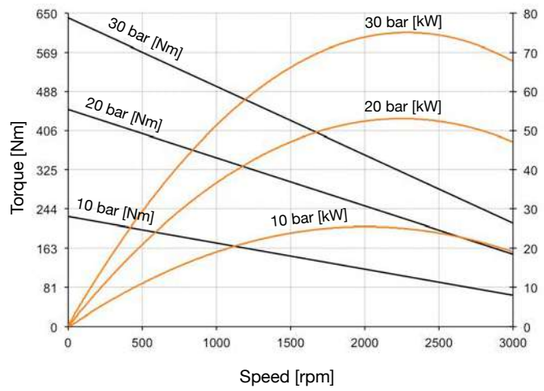
A48

The type A48 air starter, with their 640 Nm torque, is generally used for starting internal combustion engines -Diesel, Gas of Fuel- of power ratings from 3500 to 7000 kW (4750-9520 HP). Its 'Z' shaped allow the incorporations of this starter in engines with complex and reduced side spaces.

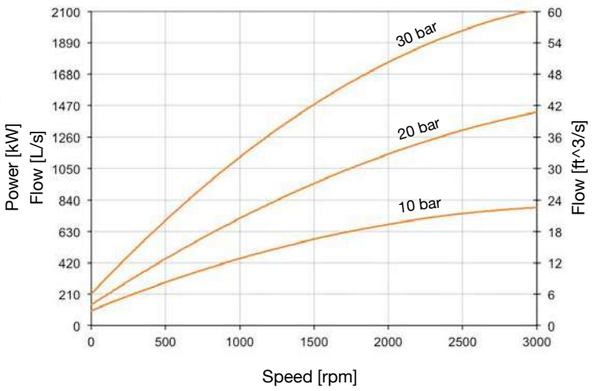




TORQUE / SPEED / POWER DIAGRAM



AIR FLOW DIAGRAM

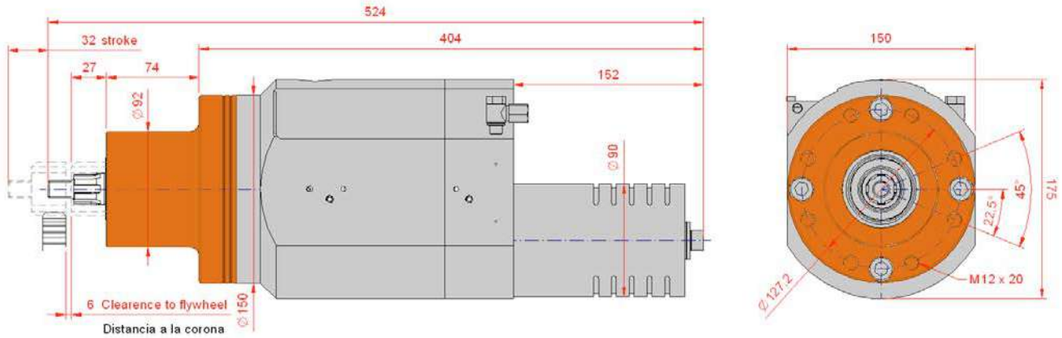


Technical Data	
Max. Working Pressure	3 MPa (30 bar)
Max. Power	77 kW
Speed at max. Power	2200 min^{-1}
Max. Torque	640 Nm
F.A.D.	210-2100 dm^3/s
Minimum diameter of air feed pipework	45 mm (1,77 in)
Net weight	34 kg / 75 lb

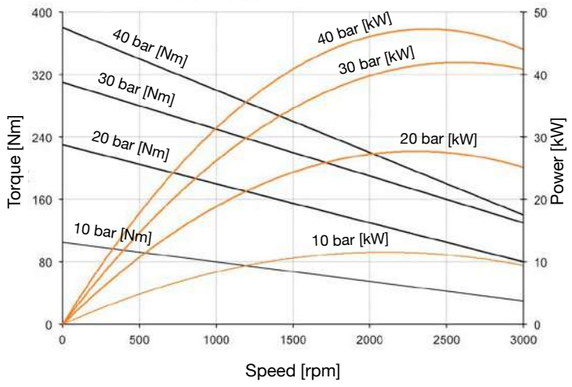
G300

This range of starter is designed to start internal combustion engines from 750 up to 3200 kW (1020 to 4350 CV) with a compact design to allow maximum clearance for engine components.

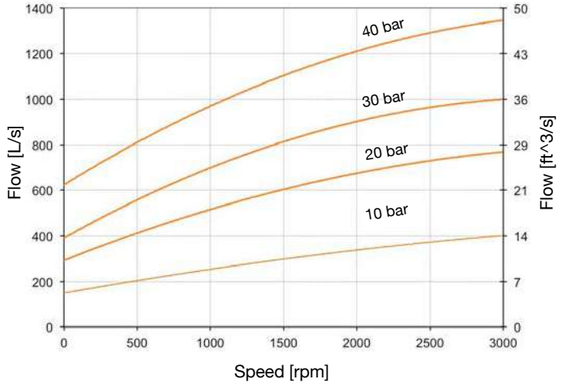
This new air starter is an evolution of actual S30 type improved to reduce maintenance operations and increase lifetime.



TORQUE / SPEED / POWER DIAGRAM



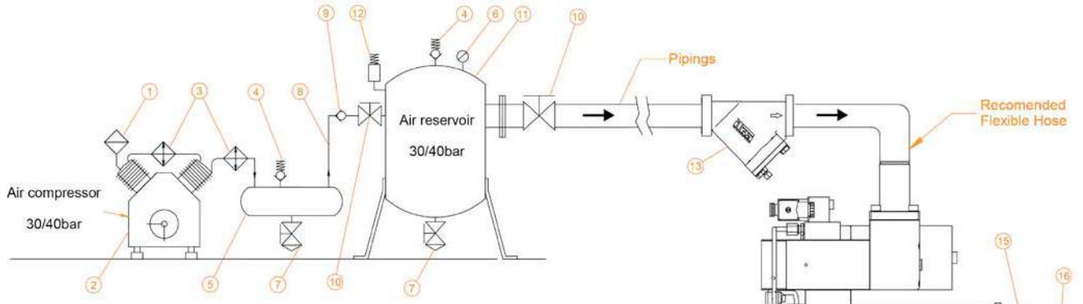
AIR FLOW DIAGRAM



"The Air Starter G300 has been designed to achieve the actual demand of compact starters on the market."

Technical Data	
Max. Working Pressure	4 MPa (40 bar)
Max. Power	46 kW
Speed at max. Power	2500 min^{-1}
Max. Torque	380 Nm
F.A.D.	200 - 1100 dm^3/s
Minimum diameter of air feed pipework	36 mm (1,42 in)
Net weight	21 kg / 46.3 lb

Full installation sketch

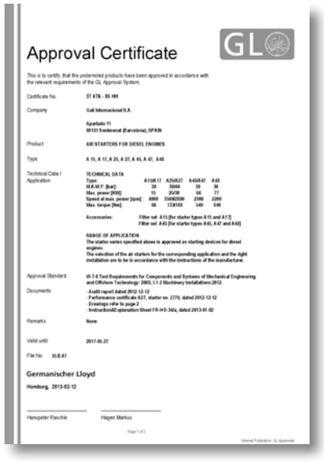


1 Compressor air filter	9 Check valve
2 Compressor	10 Ball valve
3 Refrigerator	11 Reservoir
4 Relief valve	12 Pressostat
5 Lube oil separator	13 Air strainer
6 Pressure gauge	14 Air starter
7 Drain valve	15 Coupling flange
8 Air hose	16 Driving pinion

Certificates

Our starters are homologated by **Bureau Veritas, Lloyd's Register, Germanischer Lloyds & American Bureau of Shipping.**

On request, we will be glad to provide other certificates such as **Korean Register, Rinna, etc.**



Accessories

Pinions

Gali starters can be equipped with pinions with any number of teeth, pressure angles, diameter pitches as required for the engine flywheel gear.

Coupling flanges

Designed for mounting air starters to internal combustion engines.

Centrifugal filter

Centrifugal force filters designed to drain all moisture and remove all particles from the air. Ideal for installations where engines are exposed to high humidity and rough working conditions (boats).

Filters

Strainer-principle separator and static filters designed to ensure minimum pressure loss.

Solenoid Valves

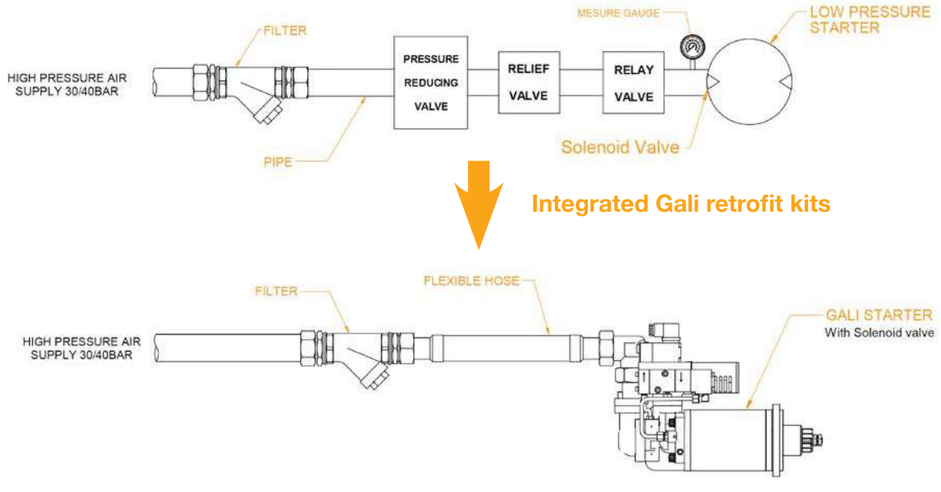
Many types are available upon request to be used for automatic control of air starter.

Retrofiting Gali Kits

“Fewer components -easier installation- only supplier.”

Gali provides complete retrofit kits for replacing other air starters on the market where 30 bars of air pressure is available. Our starters are connected directly to the main air supply pipe after removing problematic reduction valves and other elements.

Please contact Gali for information on the correct retrofit kit.



Gali starters are succesfully installed in

- Generator sets
- Motor pump sets
- Locomotives
- Forklift truck engines
- Industrial vehicles
- Offshore sea platforms
- Conventional and nuclear power plants
- Marine propulsion and auxiliary engines
- Mines

Our customers

GUANGZHOU DIESEL
GENERAL MOTORS
MAN
MTU
HENAN DIESEL
KIRLOSKAR OIL ENGINES
MWM
PERKINS
SCANIA

CATERPILLAR
ROLLS-ROYCE
ISOTTA FRASCHINI
WÄRTSILÄ
GE JENBACHER
MOTEURS BAUDOUIN
GUASCOR
STX
DOOSAN

DEUTZ
SMDERI-711
HYUNDAI
MITSUBISHI
SHAANXI DIESEL ENGINE
KAWASAKI
ZHENJIANG MARINE
FTP
DIESEL ABC
DAIHATSU

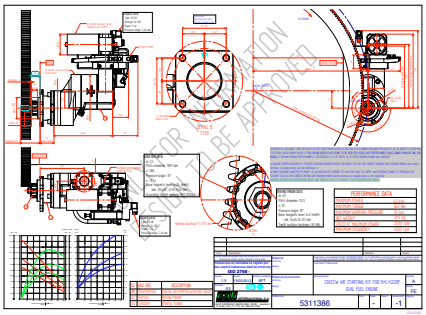
VOLVO PENTA
CSR YUCHAI
S.E.M.T. PIELSTICK
NIIGATA
FAIRBANKS MORSE ENGINE
CUMMINS
HATZ DIESEL
NANNI DIESEL
JOHN DEERE

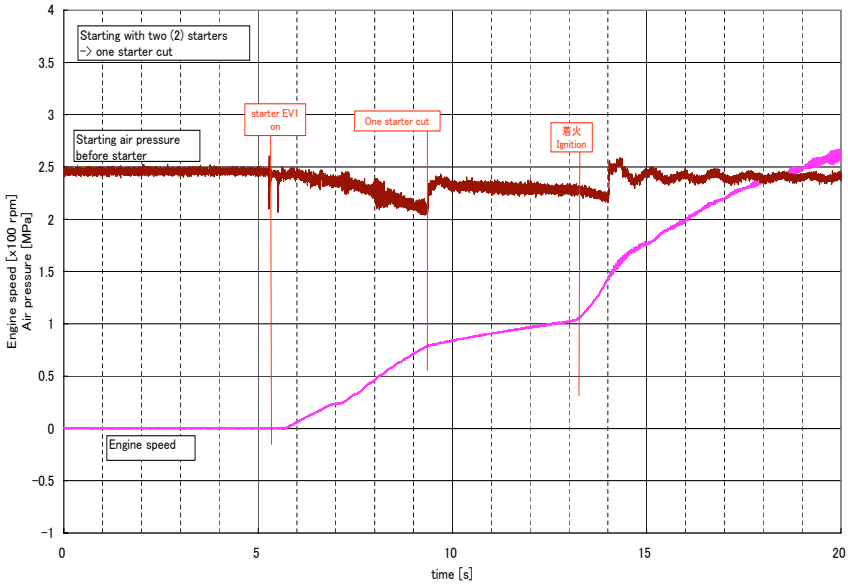
RIGAS DIESEL, AKSA, PROCO, ELECTRAMOLINS, INTERGEN, GRUPO ATURIA, MARGEN GRUPPI ELETTROGENI, ÇUKUROVA, LINDENBERG, FINANZAUTO, EUROGEN, SDMO, MPS, FGWILSON, MILAN TRACTOR, TELYME, FINBETA, CTM, ROLF JANSSEN ELEKTROTECHNISCHE WERKE, FPT POWERTRAIN, ENERIA, ENERCAL, BES, FLOWSERVE, AFRIQUE ENERGIE, DALKIA FRANCE, SEGUIN FOLLET, ADV ALTARES, TOTAL, SULZER POMPES, FAUCHE ENERGIE, ALSTOM HYDRO FRANCE, MUTHEC, DCNS

Customer support

We provide full support during all processes involved selecting the best starter solution.

We provide complete technical information (drawings, calculations, etc) and free cooperation in running trial tests on engines to ensure the optimal performance of our starters.





Gali service team

Maintenance tools

Carrying out maintenance on Gali starters is a very easy and simple task. We provide our customers support by supplying free digital materials which enable them to deal with maintenance issues confidently. If necessary, our experienced service team is also available to visit your installation site for testing or service.

"In addition to air starters, we also supply hydraulic starters, shutoff valves, hydraulic and compressor sets, ATEX-compliant engine starters, and more."

Contact Gali for information on the right starter system for your diesel or gas engines.

Gali

Technical Solutions since 1951

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