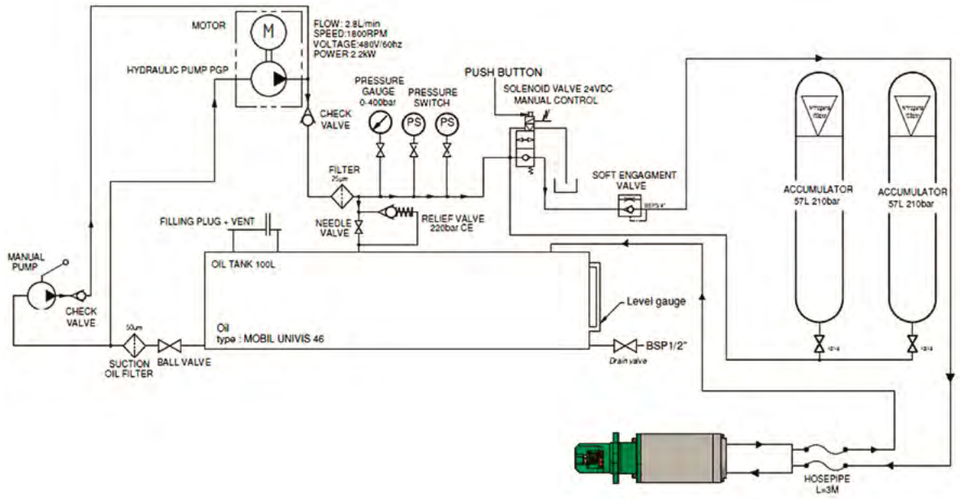
## Installations (Pipping & Instrumentation drawing hydraulic unit)




## Customized Hydraulic Starting Systems

**Hydraulic station with ATEX components.**

**All our Hydraulic Starter are available in ATEX version.**


Technical Solutions since 1951

**GALI INTERNACIONAL, SA**
C/ Josep Tura, 5
Pol. Ind. Mas d'En Cisa
08181 Sentmenat (Barcelona)
SPAIN
T +34 93 715 31 11
gali@galigrup.com

**GALI FRANCE, SA**
Rue Barthélémy Thimonnier, 1
66200 Elne
FRANCE
T +33 468 22 20 05
F +33 468 22 47 44
comexp@gali-france.fr

**GALI ITALIA, Srl**
Via Dante snc
22070 Cirimido (CO)
ITALY
T +39 031 46 12 24
F +39 031 46 12 45
gali@gali-italia.it

**GALI DEUTSCHLAND, GmbH**
Am Ockenheimer Graben, 32
55411 Bingen
GERMANY
T +49 672 11 00 26
F +49 672 11 31 44
info@gali.de

**ZHENJIANG GALI INT. TRADING CO, Ltd.**
Runzhou Industrial Park
212004 Zhenjiang
CHINA
T +86 051185725611
china@galigrup.com

**GALI MALAYSIA**
GALI Malaysia Office
KUALA LUMPUR
M +60 16 2777 602
r.sowald@galigrup.com

www.galigrup.com


# Hydraulic Starters

## Applications

The Hydraulic Starters are mainly used to start diesel engines generally emergency sets for marine, oil and gas, off-shore, etc.

## Advantages

Very reliable as an emergency starting system, because it is a closed and independent circuit with few mechanisms.

The hydraulic starting unit can be activated manually so it is a solution when there is no external energy available (black start).

It can be used under extreme environmental conditions just using the suitable hydraulic oil.

Unaffected when stopped for long periods of inactivity, even being under damp and hostile environmental, due to its closed ad sealed design that don't allow the entrance of dirt for it. The unit is always ready to start the engine.

Very low maintenance required.

Easy assembly on the engine by frontal flange.

## How is the energy supplied to the starter?

The starter gets the power from the oil contained in the hydraulic unit.

This equipment includes a tank with oil and $N_2$ accumulator with the compressed gas and it may incorporate an electric pump or hand pump (manual), or both.

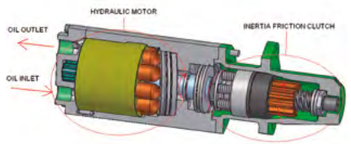
The hydraulic unit compresses the oil until 210 bar and this oil goes into the starter forcing the movement of the hydraulic motor.

We can adapt the whole system according customer technical specifications.

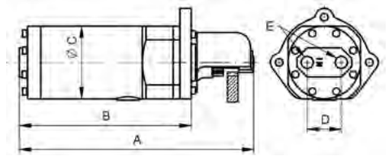
## How it works

The oil goes into the starter and activate the hydraulic motor. The pistons start moving the disc and that transforms the linear movement into circular one which is transmit to the inertia friction clutch. Inertia friction clutch's pinion turns.

**Hydraulic starter:**
**Hydraulic motor**
**+**
**Inertia friction clutch**




## Dimensions




| Model | Displacement | Maximum torque | Maximum speed | Engine displacement | A | B | C | D | E |
|---|---|---|---|---|---|---|---|---|---|
| H5 | 8,65 cm³/rev | 20 Nm | 7000 rpm | 0 to 5 dm³ | 325 | 237 | 89 | 44 | 3/8" NPT |
| H10 | 21,95 cm³/rev | 61 Nm | 7000 rpm | 5 to 8 dm³ | 330 | 242 | 102 | 48 | 3/8" NPT |
| H15 | 33,80 cm³/rev | 98 Nm | 4500 rpm | 8 to 18 dm³ | 381,5 | 266,5 | 122 | 58 | 1/2" NPT |
| H20 | 57,26 cm³/rev | 163 Nm | 4500 rpm | 18 to 41 dm³ | 400 | 284 | 130 | 62 | 1/2" NPT |
| H25 | 96,28 cm³/rev | 271 Nm | 3000 rpm | 41 to 74 dm³ | 471 | 343 | 143 | 75 | 3/4" NPT |
| H30 | 131,88 cm³/rev | 365 Nm | 3000 rpm | 74 to 110 dm³ | 480 | 352 | 150 | 81 | 3/4" NPT |

## GALI complete hydraulic engine starting system

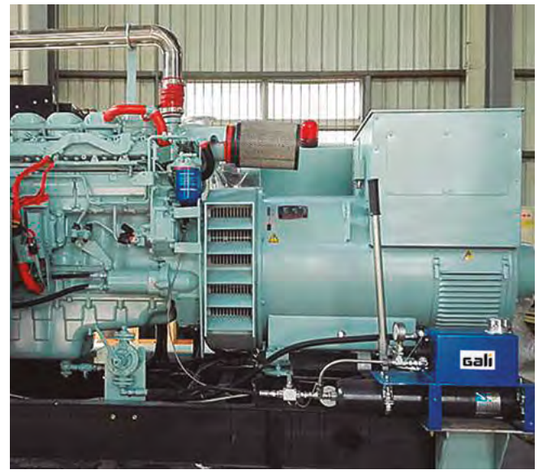
We provide a full package to ensure to our customer the right solution for each different application, from offshore project in hazardous areas to auxiliary marine generator sets.

We provide installations drawings and make the technical calculation to assure the correct size and the correct number of accumulators needed for the oil consumption for each type of engine.

We design and manufacture our hydraulic starting systems following the demands of our customers: according required number of starts, cracking time, rule NFPTA, etc.

## Manual hydraulic starting system

We supply them completely assembled with hoses and the suitable hydraulic starter.




## Electric Hydraulic Starting System

We supply them according to the customer request with many different options: see our request for quotation to check the different alternatives on our website.