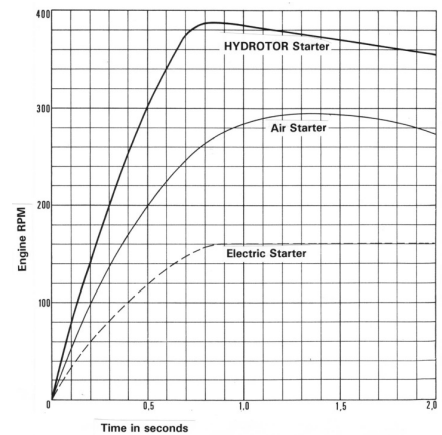


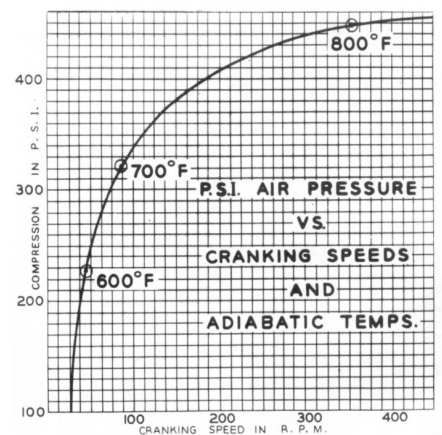
Why HYDROTOR Hydraulic Starting?

Here some Facts and Benefits

- 1) The HYDROTOR Starter, with over 90% efficiency, turns the engine **faster**.
Result: Higher combustion temperature.
Reliable ignition, positive start.
- 2) Even at -40°C the HYDROTOR provides the **same high torque as at normal temperature.**
- 3) The HYDROTOR Starter is **spark free.**
Ideal for fire hazard areas.
- 4) Each HYDROTOR System incorporates a Hand pump for manual recharging.
Starting is always possible, anywhere, anytime.
- 5) HYDROTOR Starting Systems are approved by classification societies.
Ideal for Marine applications.
- 6) HYDROTOR Starting Systems are **virtually maintenance free**, last the life of the engine, save costs
- 7) HYDROTOR Starting Systems can be tailored for a particular application.



Cranking speed comparison
Hydraulic – Air - Electric



Higher combustion temperatures
with faster cranking speeds

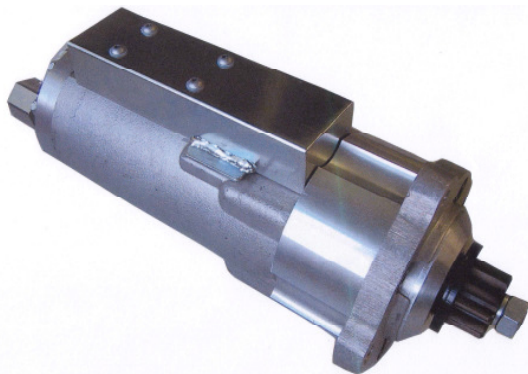
*Solutions for combustion engines,
that work right from the beginning.*

Murgenthalstrasse 30
CH-4900 Langenthal
Phone: +41 (0)62 916 50 30
Fax: +41 (0)62 916 50 35
E-Mail: sales@huegli-tech.com

HCA - Positive Engagement Noseless Hydraulic Starter

- For engines up to 15 Liter displacement
- Various Flange Configurations available
- Any steel or Spark free Pinion available

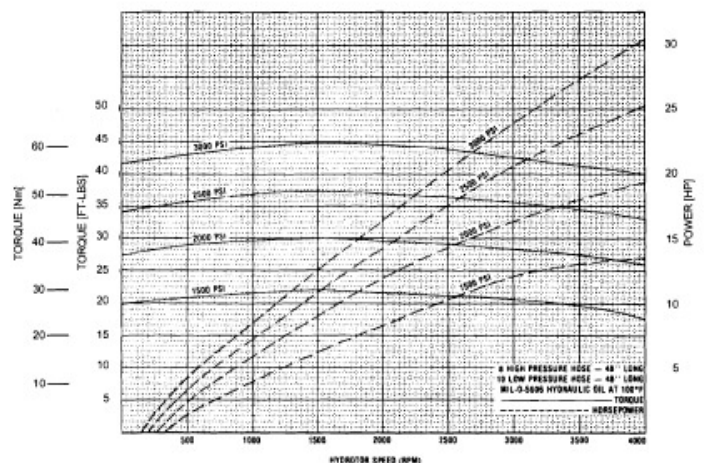
Because the HCA's torque is not reduced at subzero temperatures, the HCA starter always accelerates the engine reliably and fast to firing speed, any time



HCA Hydrotor Specifications

Motor housing	Aluminum
Barrel	Steel
Pistons (7)	Bronze
Displacement	22.12 cm ³ /Rev.
Speed range	0 to 7000 RPM
Drive type	Positive Engagement
Max. working pressure	207 bar (3000 PSI)
Rotation (viewing at drive end)	CW=standard CCW=optional
Duty cycle	intermittent
Torque	see torque chart
Overall volumetric efficiency	92 %
Weight	8 kg

Torque Chart HCA



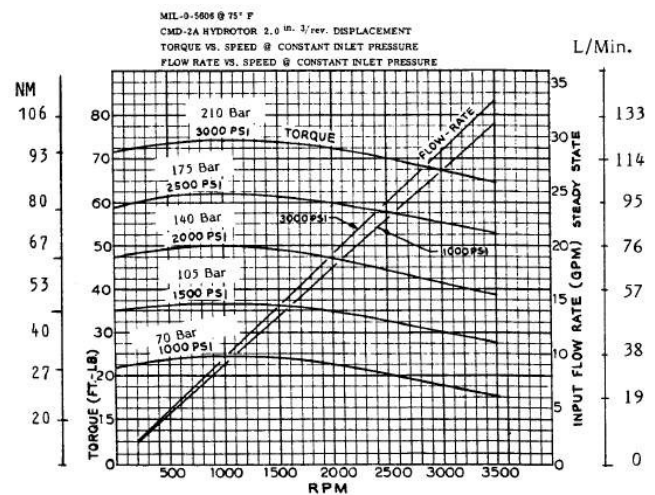
HCD - Positive Engagement Noseless Hydraulic Starter

- For engines up to 70 Liter displacement
- Various Flange Configurations available
- Any steel or Spark free Pinion available

Because the HCD's torque is not reduced at subzero temperatures, the HCD starter always accelerates the engine reliably and fast to firing speed, any time



Torque Chart HCD-2B



HCD Hydrotor Specifications

Motor housing	Aluminum
Barrel	Steel
Pistons (7)	Bronze
Displacement HCD-2B	37 cm ³ /Rev.
Displacement HCD-3B	57cm ³ /Rev.
Speed range	0 to 4500 RPM
Drive type	Positive Engagement
Max. working pressure	207 bar (3000 PSI)
Rotation (viewing at drive end)	CW=standard CCW=optional
Duty cycle	intermittent
Torque	see torque chart
Overall volumetric efficiency	92 %
Weight	20 kg

Torque Chart HCD-3B

