CURSOR engines are the result of the unrelenting research process IVECO devotes to continuous product improvement. The unrivaled power output standards stem from cutting edge technologies and effective solutions providing, with minimum displacement and undisputed reliability, performance levels that are typical of engines of far greater size and weight. Their environmental performance, wholly compliant with the requirements set out by current and future exhaust gas and noise emission regulations, was a primary goal of the design.
AT THE TOP OF THE PYRAMID IN 8 TO 13 LITER CATEGORIES

A PRODUCT OF THE MOST ADVANCED ENGINE DESIGN, CREATED BY IVECO EXPERIENCE, MADE EXCEPTIONALLY EFFICIENT BY METICULOUS FINE TUNING.

Millions of IVECO engines at work all over the world in all possible applications are the bedrock of experience on which the design of this new range is built. CURSOR engines do not inherit any elements from previous models, and the choice to redesign them from the ground up has eliminated any compromise that might lead to an even minimal reduction in their best performance, as well as to provide them with exceptional reliability and durability.
The high technological level of the design, complemented by cutting edge machining and mounting solutions and processes, have expanded the range of the operating rpm of an engine characterized by minimal displacement, high power and low operating costs.

By fully exploiting the potential of modern electronic control technologies, new tradeoffs were achieved between performance and efficiency, made evident by the availability of the highest levels of torque and power in a broad range of engine rpm. With the adoption of electronically controlled turbochargers, this characteristic is emphasized even further, allowing not only highly reduced fuel and lubrication oil consumption, but veritable operating economies.
CURSOR engines adopt solutions able to guarantee the utmost in installation flexibility and top operating performance. By making the most of the potential offered by modern electronic control technologies, already intrinsically efficient engines were provided with the ability to customize performance for each specific operating profile. The adoption of variable geometry turbochargers provides the engines with unequalled elasticity capabilities and a more effective decompression exhaust brake. Equipped with turbocompound, the CURSOR 13 enhances its already considerable performance, leaving engine component stresses unchanged. The power takeoffs clutch-coupled to the timing system can be engaged, even with the engine running. Through the CAN bus interface, the Central Unit communicates with other electronic units present in the application to integrate the requirements of the different systems. The wide availability of set-up options further enhances versatility.

- Engine versions for horizontal use
- Lubrication oil sumps of adequate shape and size.
- Sumps for extreme slopes with second transfer pump.
- SAE 1 – SAE 2 – SAE 3 flywheel case.
- Coupling flywheels for different transmission types.
- Intake and exhaust manifolds with different shapes and orientations.
- Turbochargers with variable or fixed geometry with waste gate.
- Decompression exhaust brake.
- Front and rear power takeoffs up to 890 Nm.
- Hydraulic fluid pumps as required.
- Cooling fans on different positions and suitable for the application.
- Single and two cylinder air compressors.
- Compressors for conditioning.
- Air and water heat exchangers adequate for performance and position.
- Starting aid systems.
- 12 and 24V service and monitoring electrical systems.
The new design allowed for an intrinsically clean engine, and the meticulous optimization of the combustion process was made possible by the high efficiency of the injection system. Compliance with the EPA – CARB, EURO and EC directive standards expected over the next few years is possible without adopting devices such as exhaust gas recirculation or gas post-treatment. Total blow-by recirculation and the perfect combustion achieved in them not only minimizes hydrocarbon and nitrous oxide emissions, but also limits the consumptions and concur in the reduction of the greenhouse effect. The exceptional quietness, 95 dB(A) at maximum power, is assured by the rigid structure of engine block and sub-block with the adoption of rubber sealing gaskets on lid and sump. The gradual, progressive injection control avoids typical “Diesel knock” and reduces engine wear, extending its working life.
**TECHNOLOGICAL EXCELLENCE**

**UNPARALLELED PERFORMANCE**

**EXCELLENT SOLUTIONS BRING OUT THE BEST IN THE ENGINES**

**EUI pumping injectors** with total electronic control, mounted at the centre of the combustion chambers, able to operate at **pressures exceeding 1600 bar** and cross flow intake ducts are the core reasons for the extraordinary thermodynamic efficiency and **excellent fuel consumption levels** of these engines. The electronic control of the Variable Geometry Turbocharger, VGT, allows the supercharging pressures to be independent from engine rpm for **constant torque and power** over a wide range of engine rpm. The effectiveness of the decompression exhaust brake, IVECO Turbo Brake, has been improved by the joint control of brake and VGT. The constant electronic monitoring of environmental conditions and of the engine operation ensure **constant top level performance**.
* Maximum performance in accordance with the specific Directives
ISO 3046/1-DIN 6271- BS 5514-SAE J 1349 Test Conditions
** Maximum performance in accordance with ISO 8528
Control of all parameters, such as air, fuel and engine operation by the Electronic Unit, allows for the utmost flexibility in injection management, driving fuel delivery as required by the mission profile.

Instantaneous injection management, independent for each cylinder, is accompanied by control over other possible engine equipment, such as the variable geometry turbocharger and the exhaust brake or PTO rpm.

Electronic control also monitors the operating conditions of the engine and its equipment, providing a user friendly tool for troubleshooting to keep performance unchanged until the engine overhaul.
**SYSTEM PERFORMANCE**
- Computation of injection quantity and advance
- Combustion verification
- Management of starting aid systems
- Isochronous control over engine rpm setting
- Optimized acceleration transient management
- Balancing torque delivery among the cylinders
- Injection compensation with engine and fuel temperature variations
- Tailoring operation to different environmental conditions
- Limiting engine torque and maximum rpm
- Managing the PTO rpm and the torque increase mode
- Recording operating events: hours, consumption, utilization factors
- Communication with other electronic units connected to the application on “CAN” network
- Self-diagnosis of critical operating factors
- Alarm indication in preventive, present, critical mode
- Communication with programming and diagnosing tools
A new way of interpreting production targets: fabrication lines designed for **promptness and flexibility of response to Customer requirements**, while assuring high production volume capacity. CURSOR engines inherit no elements from previous engines or the use of existing assembly lines. **No compromise on quality**: strict process controls assure absolute machining precision, and each technical solution is expressly designed to simplify the machining and assembly phases and assure the **perfect quality of the final product** before it is delivered to the Customer.
TECHNOLOGICAL EXCELLENCE

THE POWER

OF INNOVATION

6 CYLINDERS IN LINE, 24 VALVES,
OVERHEAD CAM SHAFT.

MINIMUM SIZE – MAXIMUM
OPERATING VERSATILITY

CURSOR engines adopt solutions able to guarantee the utmost installation flexibility and top operating performance. By making the most of the potential offered by modern electronic control technologies, already intrinsically efficient engines were provided with the ability to customize performance for each specific operating profile. The adoption of variable geometry turbochargers provides the engines with unequaled elasticity capabilities and the effectiveness of the decompression exhaust brake is improved. The power takeoffs clutch-coupled to distribution mechanisms can be engaged even with the engine running. Through the CAN bus interface, the Central Unit communicates with other electronic units present in the application to integrate the requirements of the different systems. The wide availability of set-up options further enhances versatility.

TECHNOLOGICAL EXCELLENCE
Engine configuration was designed for compactness, component reduction and accessibility to every part; the tangible result is the 20% weight reduction with respect to engines of equal performance. The clean combustion achieved in the engines and the effectiveness of cooling and filtering limit lubrication oil deterioration, extending maintenance intervals to 3,000 hrs. The check of valve-rocker arm play is set to 6,000 hrs; the automatic tensioning of the auxiliary organ drive belt excludes the need for adjustment. The diagnostic check, realized by ECU and used to store information on the most significant operating events, allows service centers to plan maintenance intervals with precision and accuracy.

- Monolithic cylinder head complements the intake manifold and the cooling, lubrication and fuel supply conduits.
- Over head cam shaft having 7 supports.
- Timing system with 4 valves per cylinder.
- Roller rocker arms for the direct actuation of the valves and pump-injectors.
- Rear timing control with gear wheels to contain torsional effects and increase durability.
- Stabilized cast iron engine block and cast iron sub-block.
- Drive shaft made of micro-alloy steel with second balancing mass and seven main bearings.
- Pistons made of hyper-eutectic aluminium alloy with cooling tunnel and omega combustion chamber.
- Suspected oil sump, coupled to the engine block with elastic gasket.
- Lubrication oil heat exchanger incorporated in the engine block with by-pass thermostat.
- Front – end configurable with any number of accessories.
<table>
<thead>
<tr>
<th>ENGINE</th>
<th>CURSOR 8</th>
<th>CURSOR 10</th>
<th>CURSOR 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYLINDERS AND ARRANGEMENT</td>
<td>6 cylinders in line</td>
<td>6 cylinders in line</td>
<td>6 cylinders in line</td>
</tr>
<tr>
<td>displacement cm³</td>
<td>7,790</td>
<td>10,300</td>
<td>12,880</td>
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<tr>
<td>bore mm</td>
<td>115</td>
<td>125</td>
<td>135</td>
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<tr>
<td>stroke mm</td>
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<td>150</td>
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<tr>
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<tr>
<td>air feeding</td>
<td>TAA</td>
<td>TAA</td>
<td>TAA</td>
</tr>
<tr>
<td>injecton system</td>
<td>EL</td>
<td>EL</td>
<td>EL</td>
</tr>
<tr>
<td>rear PTO Nm</td>
<td>600</td>
<td>650</td>
<td>890</td>
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<tr>
<td>dimensions</td>
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<tr>
<td>L mm</td>
<td>1,110</td>
<td>1,256</td>
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<tr>
<td>W mm</td>
<td>803</td>
<td>869</td>
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<tr>
<td>H mm</td>
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<td>weight* kg</td>
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<td>932</td>
<td>1006</td>
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<tr>
<td>available versions</td>
<td>Horiz./Vert.</td>
<td>Vertical</td>
<td>Vertical</td>
</tr>
</tbody>
</table>

TAA: turbocharged after cooled  
EL: with electronic control  
*without liquids, standard configuration
The information provided herein is current as of the publication date. The figures illustrate only a few of the countless possible configurations and layouts of the engines. The manufacturer reserves the right to make modifications at any time and without advance notice, to meet technical or commercial requirements or to comply with legal and regulatory requirements.
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