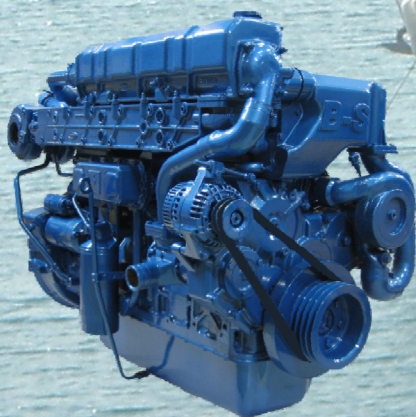




AGCO POWER CTIM marine engines



Clean and durable choice

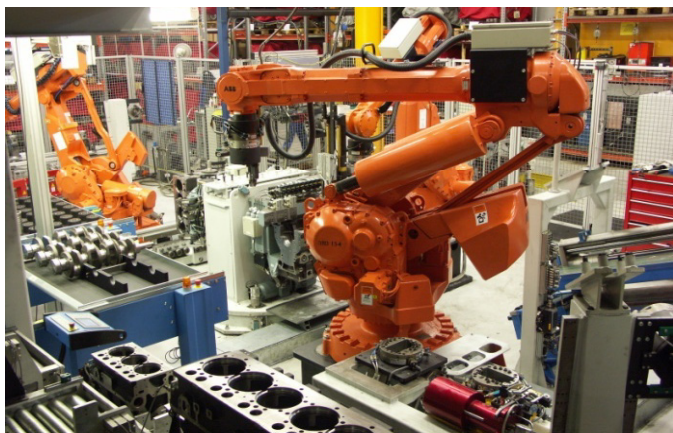
AGCO POWER

CTIM marine engines

AGCO POWER – power for the world with over 60 years' experience

AGCO Power Inc. (former Sisu Diesel) was founded in 1942. The company and its products were known under the Valmet brand until 1997. Since 2004 the company has been a part of international AGCO Group. AGCO is the third largest agricultural machine producer in the world and its well known brands include Massey Ferguson, Fendt and Valtra. Over 700 persons work at AGCO Power factory in Nokia, Finland. AGCO POWER engines are manufactured also in Brazil primarily for South American markets.

Over 60 years of engine construction has resulted as high technology, which can be seen both in products and in production. Throughout its history AGCO Power has developed many innovative technical solutions, which have not been introduced by our competitors until 21st century. For example direct injection technology, cross-flow cylinder head, centrally supported cylinder liners and advanced turbocharger technology have been everyday features in AGCO POWER engines already for decades.



Uncompromising professional skills

The assembly of basic engines as well as the painting of complete engines is handled entirely by robots. Skilled professionals make the final installations and inspections. Quality and environment systems are certified according to the ISO 9001 and ISO 14001 standards.



Clean and durable choice – AGCO POWER

No compromises are made in the development of AGCO POWER engines; all solutions aim to reliable and long-lasting engines with low operating costs. Our own R&D operations are further enhanced by a broad network of partners. Environmental friendliness is the cornerstone of AGCO Power R&D operations. AGCO POWER engines comply with the latest EU and North American emission regulations and development work for next stages is being carried out long before they come into force. AGCO POWER engines offer the same uncompromising performance also with 100% Biodiesel.

Engines for demanding marine use

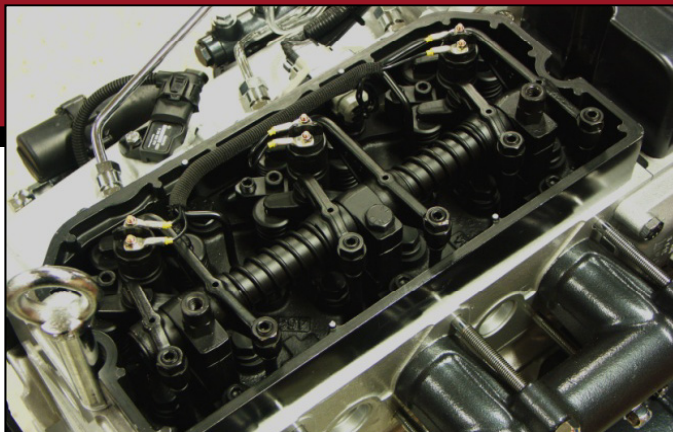
The basic construction of the AGCO POWER engines has been designed for extreme conditions – from blistering equatorial heat to the harsh winters in Northern Europe. A growing number of manufacturers are choosing reliable AGCO POWER engines to power their advanced machinery and equipment. Quality materials and advanced manufacturing processes ensure excellent reliability. That's why custom made AGCO POWER marine engines propel all kinds of watercrafts reliably on all seas throughout the world.



Strong and reliable marine engines in power range 130 – 410 hp

Four and six cylinder CTIM marine engines have been constructed for use where reliability, low operating costs and easy servicing are the most important features. When classic sturdy basic construction is combined with new generation control electronics and modern injection system, the result is an AGCO POWER engine that meets even the most demanding user needs.

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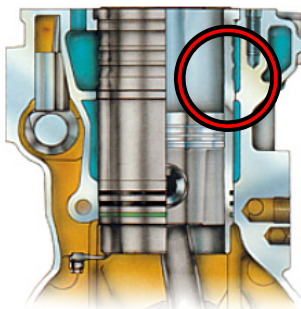
Four valve cylinder head

CTIM marine engines feature a four valve cylinder head. This facilitates injector arrangement between the valves in the middle of the cylinder while the combustion chamber is on the piston top. Two inlet and two exhaust valves with their own ports improve gas exchange. The fuel mixes better with air, which results as reduced emissions and improved fuel economy. In addition better gas exchange reduces heat load in the cylinder area.

44 CTIM-2V engine still has cross-flow two-valve head. Also there have port design and valve timing been optimized for emissions and fuel economy.

Centrally supported cylinder liners

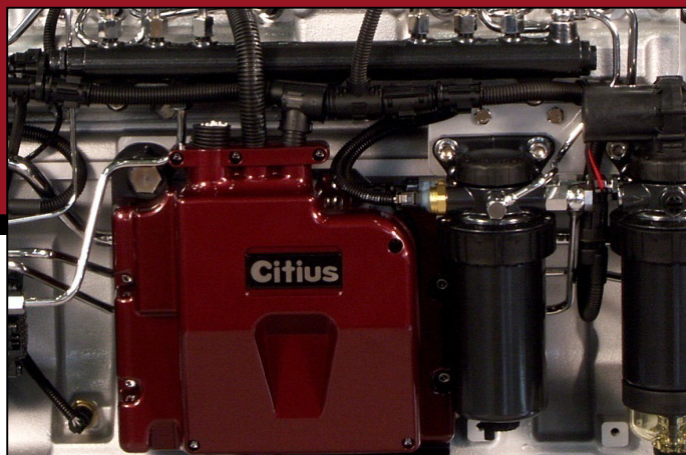
CTIM marine engines have centrally supported cylinder liners. This feature is unique for an engine of this size, but already traditional for AGCO POWER. When cylinder liner vibration is reduced, cooling becomes more effective, cylinder liner and piston ring wear as well as oil consumption are reduced, which results as longer engine life.



Common Rail injection system

CTIM marine engines use Common Rail injection system, which allows considerably higher injection pressure than before. In addition the control unit adjusts the injection pressure to optimum in all situations – it is high already at low engine speeds and at high speeds it is limited to adequate value.

Electronic control enables injection even at five different stages during the combustion process. The control system analyses and adjusts the fuel quantity to engine up to over a hundred times in second. Sequential injection is one of the most significant factors in reducing emissions while keeping the fuel economy as good as possible.



Third generation engine control electronics EEM3

The third generation electronic control system developed for Common Rail engines offers very versatile features for user's benefit. Bosch supplies Common Rail components and basic program ware; AGCO Power develops motor specific SisuTronic control program, though. The whole injection process is totally controlled, e.g. injection advance is adjusted to optimum depending on conditions. The advance has essential effect on emissions.

Cold start and cold running adjustments are controlled automatically depending on ambient and engine temperatures. Starting is good with only slight smoking. Electronic engine protection functions are built into the control system. The system analyses constantly possible injector faults, rail pressure and operation in every cylinder.

More enjoyable sound

In CTIM marine engines the combustion pressure raises slowly thanks to pre-injection and does not cause typical sharp diesel sound. So the running sound of CTIM engines is smooth and pleasantly low. The timing gear profile on CTIM engines is also reducing mechanical sound significantly. Lower noise level offers more pleasant environment on the watercraft.

Easy servicing

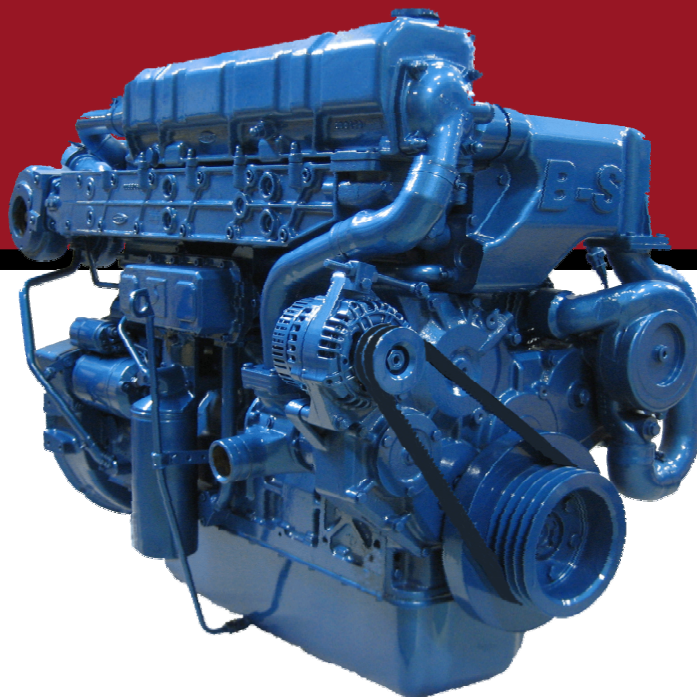
The motor has a clean-cut construction and service points are easily within reach. For example fuel filters can be changed quickly without tools and fuel spill. Spare parts are highly standardized between various engine types, which makes spare parts service and service labour rapid.

An EEM3 service tool has been developed for CTIM engines. It is a Windows based special program that makes reading fault codes and engine running history and reloading of new programs easy.



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CTIM marine engines

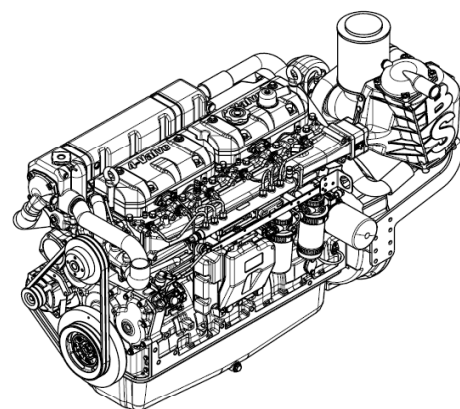
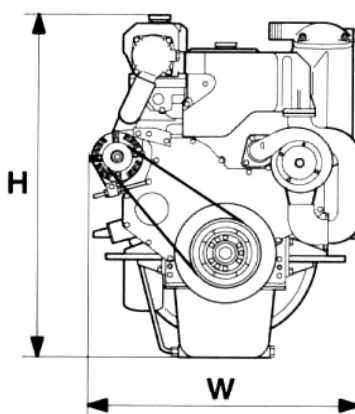
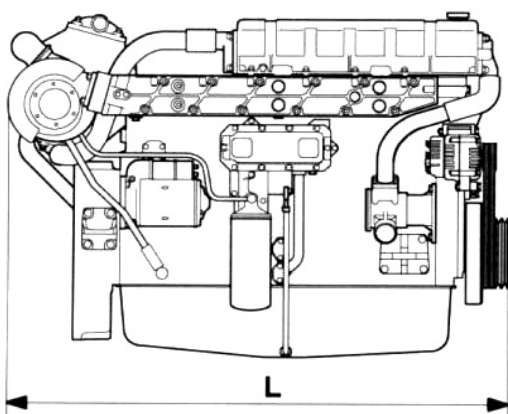


Complete equipment

CTIM marine engines have integrated lightweight alloy marine parts; water-cooled exhaust manifold, heat exchanger and raw water pump. Intercooler is connected to raw water circulation, when a better efficiency and cleaner exhaust gases are gained. CTIM marine engines can with their wide option range be customized according to customer request within short delivery time.

AGCO POWER CTIM marine engine range

Type	44 CTIM	49 CTIM	66 CTIM	74 CTIM	84 CTIM
No. of cylinder/Valves	4/2V	4/4V	6/4V	6/4V	6/4V
Displacement (l)	4,4	4,9	6,6	7,4	8,4
Power (kW/hp(r/min))	100/136 (2200)	133/180 (2200)	192/260 (2200)	235/320 (2200)	302/410 (2100)
Length (mm) (L)	1112	1112	1451	1451	1456
Width (mm) (W)	654	672	639	639	742
Height (mm) (H)	896	896	914	914	954
Weight (kg) (dry)	530	530	710	730	800



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