OFF ROAD

FPT
POWERTRAIN TECHNOLOGIES

THE STRENGTH OF INNOVATION

Innovation, performance and constant improvement, these are the drivers for our industrial machinery: earthmoving and construction machinery, agriculture, irrigation and special machines.

Every type of engine is designed to fulfill the needs of all industrial applications, adopting the most advanced technologies: innovative structure, multi-valve systems, fixed or variable geometry turbochargers, state-of-the-art mechanical injection systems, high pressure Common Rail injection systems and electronically controlled unit injectors. The experience in different application fields, combined with a wide range of tailor-made engine configurations, helps in matching the variety requirements in all sector.

FPT Industrial succeeded in transforming emission legislation constraints into a competitive advantage for its engines, by exploiting their technological excellence to achieve better performance and lower operating costs.

FPT Industrial offers superior technology and outstanding advantages

PERFORMANCE	Power demand and torque response guaranteed in the most severe operating conditions for a wide range of applications State-of-the-art injection systems and turbocharging solutions for improved fuel economy Proven and breakthrough after-treatment technologies for emissions reduction and low operating costs
RESPECT FOR THE ENVIRONMENT	Compliance with the most stringent emissions legislations (Tier 4B/Stage IV) thanks to HI-eSCR without DPF
RUNNING COSTS REDUCTION	Best in class in maintenance intervals Low fuel consumption
FLEXIBILITY	Availability of a wide range of options to create tailor-made products On request supply of interface components such as radiators, air filters, silencers, DOC, SCR catalyst + CUC and cold start accessories Compact engine layout

THE TIER 4B/STAGE IV *SCR ONLY* TECHNOLOGY

Technological excellence and product innovation for FPT Industrial represent the truly determining factor and part of its primary strategic mission. The company has focused its research and development activities in order to become the innovation leader in the agriculture and construction powertrain field and a reference provider of the most cost efficient powertrain solutions for Tier 4B/Stage IV.

FPT Industrial complies with emission legislations ensuring a minimal impact on the vehicle architecture and the lowest possible increase in cost, an objective that will be achieved through HI-eSCR technology. The breakthrough patented technology, based on an experience of more than 11 years and 500,000 engines produced, allows our engines to meet Tier 4B/Stage IV guaranteeing a very high NO_x conversion efficiency (over 95% versus 80-85% of best competitors), without resorting to ec-EGR and DPF.

Scenario

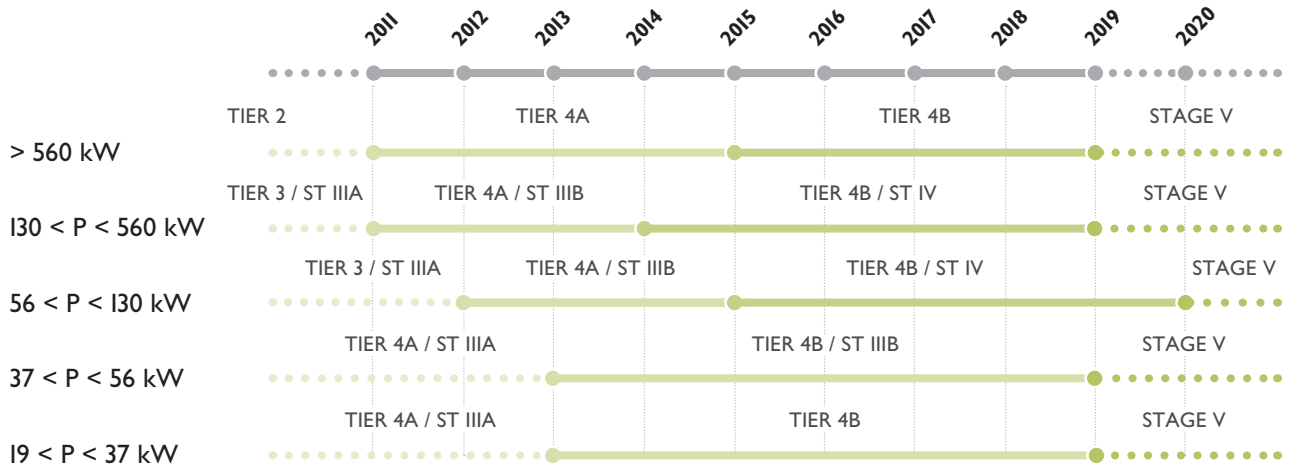
During the combustion process, inside a Diesel engine, the chemical energy is transformed into a mechanical one. Because of the chemistry of combustion, several toxic substances are produced, of which the most harmful are Nitrogen Oxides (NO_X) and Particulate Matter (PM).

Since 2011, when Tier 4A/Stage IIIB came into force, many efforts have been made to reduce pollutants that are damaging the environment.

Tier 4B/Stage IV compliance, introduced in 2014, implied a further significant reduction of NOx (- 80% vs. Tier 4A/Stage IIIB levels), while PM is not affected by further reduction, having already reached a 90% abatement in the previous step.

Emission regulations-roadmap

EUROPEAN NON ROAD MOBILE MACHINERY, AGRICULTURAL AND FORESTRY TRACTORS & USA NON ROAD COMPRESSION-IGNITION ENGINE EMISSION STANDARDS



After the introduction of Tier4B / StageIV emission limits in 2014-2015, a further regulation re-enforcement is under discussion for European Non-Road applications; new Stage V regulation is expected to be introduced in 2019 or 2020 depending on power levels

Emission Durability Period: 8000 hours, 10 years
No new type approval in Europe for existing emission stage permitted in the year before new emission stage introduction
No emission regulation in Europe for P < 19 kW and P ≥ 560 kW

	STAGE IIIA / TIER 3[4]				STAGE IIIB / TIER 4A INTERIM				STAGE IV / TIER 4B FINAL			
	CO	HC[1]	NO_x	PM	CO	HC[1]	NO_x	PM	CO	HC[1]	NO_x	PM
P > 560 kW US ONLY	3.5	6.4		0.2	3.5	0.40	3.5	0.10	3.5	0.19	3.5	0.04
130 ≤ P ≤ 560 kW	3.5	4.0		0.2	3.5	0.19	2.0	0.025[2]	3.5	0.19	0.40	0.025[2]
75 ≤ P < 130 kW	5.0	4.0		0.3	5.0	0.19	3.3[3]	0.025[2]	5.0	0.19	0.40	0.025[2]
56 ≤ P < 130 kW	5.0	4.7		0.4	5.0	0.19	3.3[3]	0.025[2]	5.0	0.19	0.40	0.025[2]
37 ≤ P < 56 kW	5.0	4.7		0.4	5.0	4.7		0.3 0.025[6]	5.0	4.7		0.03
19 ≤ P < 37 kW	5.5	7.5		0.6	5.5	7.5		0.3	5.5	4.7		0.03

LEGEND

CO Carbon Monoxide
HC Hydrocarbons
NO_x Nitrogen Oxides
PM Particulate Matter
PN Particle Number

1 NMHC for US Tier Limits
2 US Tier 4A and Tier 4B PM limit is 0.02, but with rounding allowed in US this limit is equivalent to 0.024999… ≈ 0.025
3 3.4 in US
4 Tier 2 for P ≥ 560 kW and P < 19 kW
5 8.0 for P < 8 kW
6 Tier 4A: 0.3; Stage IIIB: 0.025

Emission Durability Period: 8000 hours, 10 years
No new type approval in Europe for existing emission stage permitted in the year before new emission stage introduction
No emission regulation in Europe for P < 19 kW and P ≥ 560 kW

Tier 4B/Stage IV Engines

By way of continuous technical advances to an already state of the art engine range, Tier 4B/Stage IV sees also the introduction of reengineered engines, allowing our customers to retain their class leading features, such as minimized total cost of ownership and outstanding performance. Key to the optimization of combustion efficiency is high cylinder pressure and high injector nozzle pressures: engines adopting the latest generation of Common Rail system feature peak nozzle pressures of up to 2200 bar.

To achieve these targets, crankcase and cylinder head design has been improved to ensure increased structural stiffness. A new Electronic Control Unit has been introduced to manage engine parameters and guarantee an accurate control of the after-treatment system.

For optimal environmental performance, the closed circuit breathing systems already available at Tier 4A/ Stage IIIB is confirmed on Tier 4B/Stage IV engines.

In addition, since the engine only breathes clean filtered air, rather than re-circulated exhaust gases, engine wear is low and oil service intervals are up to 600h, without the need of an increased oil sump capacity. This brings further advantages in terms of operating costs and reduced downtime for scheduled maintenance.

Advantages

- Increase vehicle productivity thanks to better transient response
- No additional turbocharger's complexity while ensuring outstanding performance
- Low operating costs thanks to high combustion efficiency and long service intervals (up to 600h, depending on the mission)
- Engine lean design and state-of-the-art HI-eSCR after-treatment system, flexible and easy-to-install
- Lean technology improving durability and reliability
- No additional cooling requirements on both radiator dimensions or fan drive

HI-eSCR system

Due to the opposite reaction to combustion temperature, the reduction of either of the combustion products (NO_X or PM) necessarily implies the increase of the other one. In order to further reduce NO_X, as required by Tier 4B/Stage IV, it is necessary to work both on combustion management and exhaust gas treatment system.

This means that Tier 4B/Stage IV emission limits can be reached only through the use of SCR (Selective Catalytic Reduction), either with or without EGR. The use of an EGR system reduces the NO_X emissions in the combustion chamber, lowering combustion temperature through exhaust gas recirculation which however increases formation of particulate matter (PM) and reduction in combustion efficiency.

FPT Industrial has chosen to increase the combustion efficiency, reducing the PM without using EGR nor DPF, thus allowing engines to work at their performance best point; NO_X is then reduced in the SCR system, preserving fuel efficiency and overall system reliability.

FPT Industrial's patented HI-eSCR system is able to reduce the NO_X levels more than 95%, offering best-in-class conversion efficiency; moreover, thanks to no DPF, the FPT solution is maintenance free and requires no regeneration, improving productivity by avoiding downtime during operation for filter cleaning or replacement.

Patents

- *"Closed" loop control through NO_X and Ammonia sensors to provide accurate monitoring of exhaust gas composition; adaptive dosing system to reduce AdBlue*
- *Thermally insulated high turbulence mixer, to allow homogeneous hydrolysis of urea, ensuring correct distribution in exhaust gas flow*
- *Improved exhaust gas temperature control to speed up SCR light-off in the cold part of emission cycle through an electronically-controlled exhaust flap*

All after-treatment components are packaged in a compact and fully enclosed structure, providing flexible layout options to simplify installation on machines.

Main Components

HI-eSCR main components are:

- ✓ *The DEF/AdBlue Supply Module*
- ✓ *The DEF/AdBlue Dosing Module*
- ✓ *The Disel Oxydation Catalyst (DOC)*
- ✓ *The DEF/AdBlue Mixer*
- ✓ *The Selective Catalytic Reduction (SCR)*
- ✓ *The Clean Up Catalyst*

The whole system is fitted with a network of integrated sensors to control the NO_x and any excess of NH_3 (ammonia) produced.

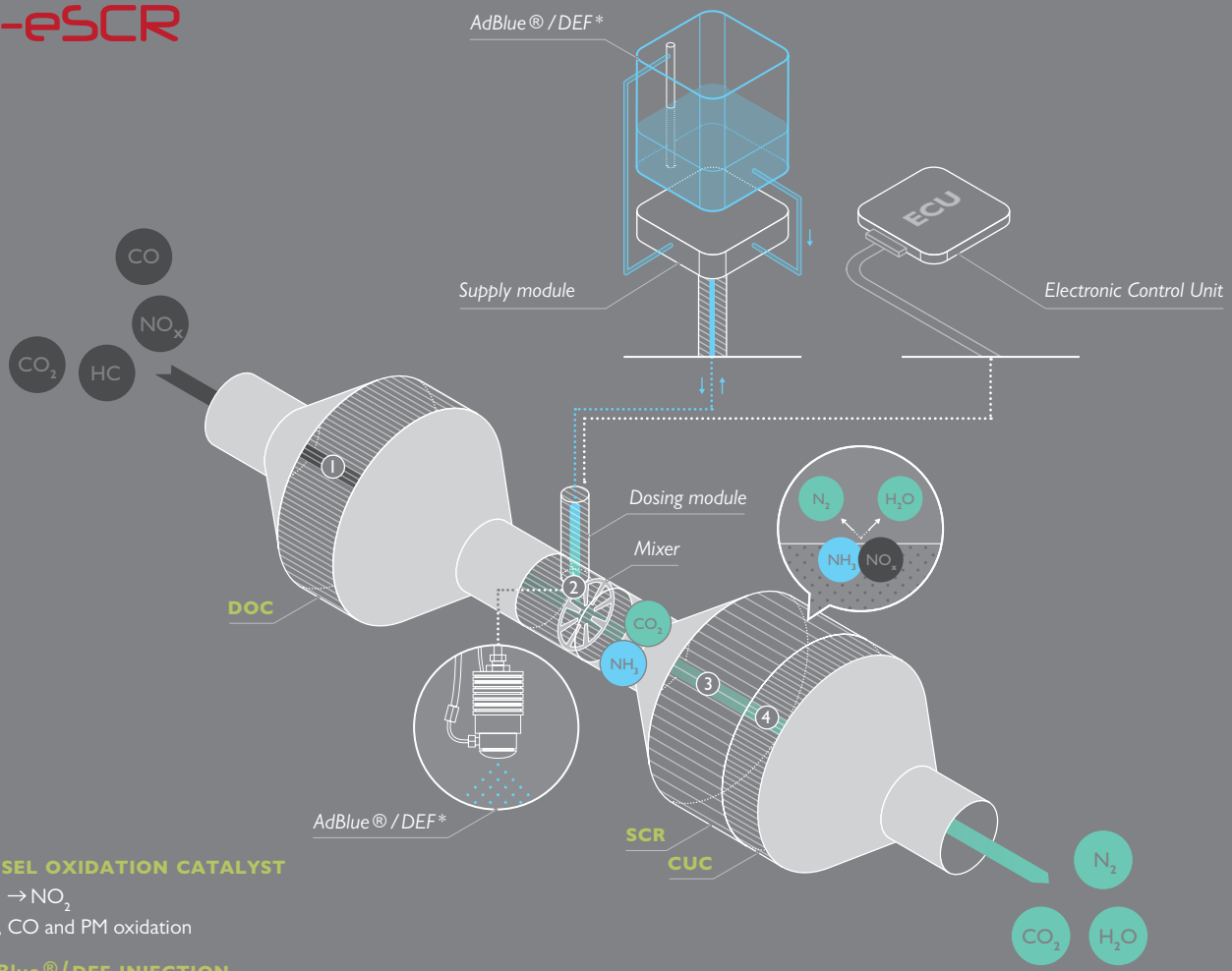
Exhaust gas flow coming from the engine enters the DOC, where NO is oxidised to NO_2, in order to maximize SCR catalyst's efficiency conversion.

The ECU (Engine Control Unit), the brain behind the HI-eSCR system, checks, through integrated sensors network, the amount of Water-Urea (DEF/AdBlue) solution to be injected in the exhaust pipe. To increase the durability of the injector, Dosing Module is cooled by the engine coolant.

The HI-eSCR after-treatment system adopts a catalyst converting NO_x into Nitrogen (N_2) and Water (H_2O) thanks to the chemical reaction with Ammonia (NH_3) generated from DEF/AdBlue. In the end, the integrated CUC eliminates the remaining ammonia (NH_3). The result is a reduction of NO_x superior to 95%.


CASE
EXTENDARC

HI-eSCR



1 **DIESEL OXIDATION CATALYST**
NO → NO_2
HC, CO and PM oxidation

2 **AdBlue® / DEF INJECTION**
Hydrolysis → NH_3 + CO_2

3 **SELECTIVE CATALYTIC REDUCTION**
NO and NO_2 reduction by NH_3 to N_2 and H_2O

4 **CLEAN-UP CATALYST**
Residual NH_3 oxidation

*AdBlue® / DEF = $CO(NH_2)_2$ + H_2O

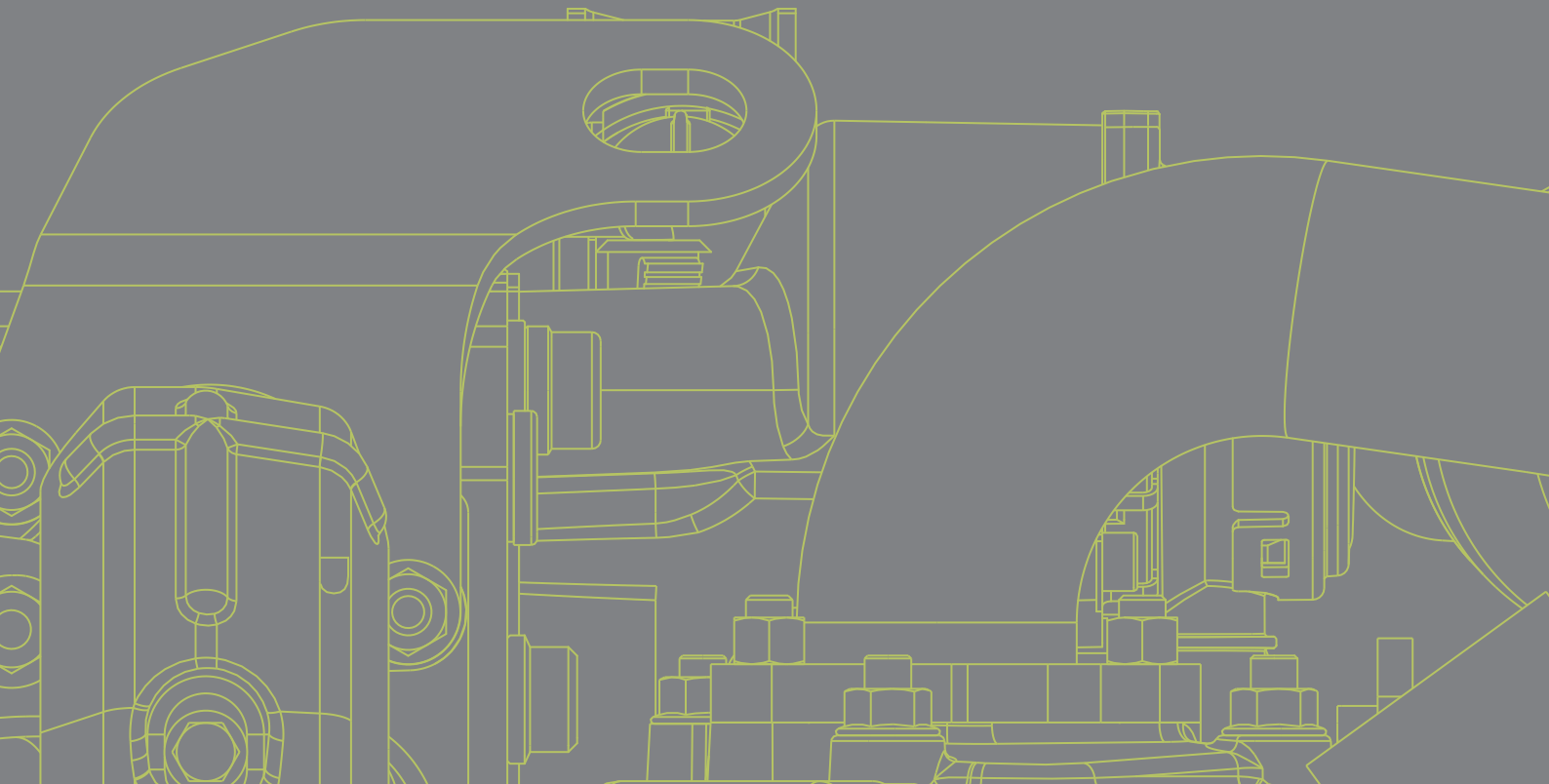
LEGEND

HC Unburnt Hydrocarbons
NO_x Nitrogen Oxides
CO Carbon Monoxide
N_2 Nitrogen
CO_2 Carbon Dioxide
H_2O Water

Six reasons to choose HI-eSCR

1	**SCR HERITAGE**	FPT Industrial's heritage in SCR technology is well-established. Since 2005 we have equipped more than 500,000 vehicles with this technology, of which 100,000 in off-road applications that have already operated for more than 230 million of hours in the extreme conditions.
2	**OUTSTANDING PERFORMANCE FOR INCREASED PRODUCTIVITY**	Our engines are developed to maximize torque and power density with the quickest load response time, without compromising the impact on the environment and improving machine productivity.
3	**EFFICIENCY**	The high efficiency EGR-free combustion process optimizes fuel consumption reducing customer running costs.
4	**MAINTENANCE AND REGENERATION FREE**	Oil service interval up to 600h (depending on mission) improves operating costs while DPF-free solution ensures the FPT system is maintenance and regeneration-free, not requiring any filter replacement nor operation stop for filter cleaning, increasing machine uptime.
5	**HIGH RELIABILITY**	HI-eSCR system allows simple and lean layout and reduced heat rejection improving product reliability.
6	**COMPACT PACKAGING**	High power output package maximizing installation efficiency.

THE R SERIES



The R Series

The new R22 engine marks FPT's entry into the low displacement off-road field. The three-cylinder, 2.2 liters provides 33 to 52 kW and up to 250 Nm of torque; compact and efficient, the R22 meets Tier 4B/Stage IIIB emissions regulations with a maintenance free after-treatment system.

Versatile and suitable for a wide range of applications such as low horsepower tractors and skid steer loaders, it can be tailored to suite the customer needs.

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
						KW	HP	RPM	NM	KGM	RPM		
● ○	R22	L3 / TAA	WG	ECR	2,2	33	45	2600	160	16,3	1800	Tier 4B / Stage IIIB	I-EGR + DOC + PMCAT
● ○	R22	L3 / TAA	WG	ECR	2,2	39	53	2600	180	18,3	1800	Tier 4B / Stage IIIB	I-EGR + DOC + PMCAT
● ○	R22	L3 / TAA	WG	ECR	2,2	45	60	2600	208	21,2	1800	Tier 4B / Stage IIIB	I-EGR + DOC + PMCAT
● ○	R22	L3 / TAA	WG	ECR	2,2	52	70	2600	246	25,1	1800	Tier 4B / Stage IIIB	I-EGR + DOC + PMCAT

LEGEND

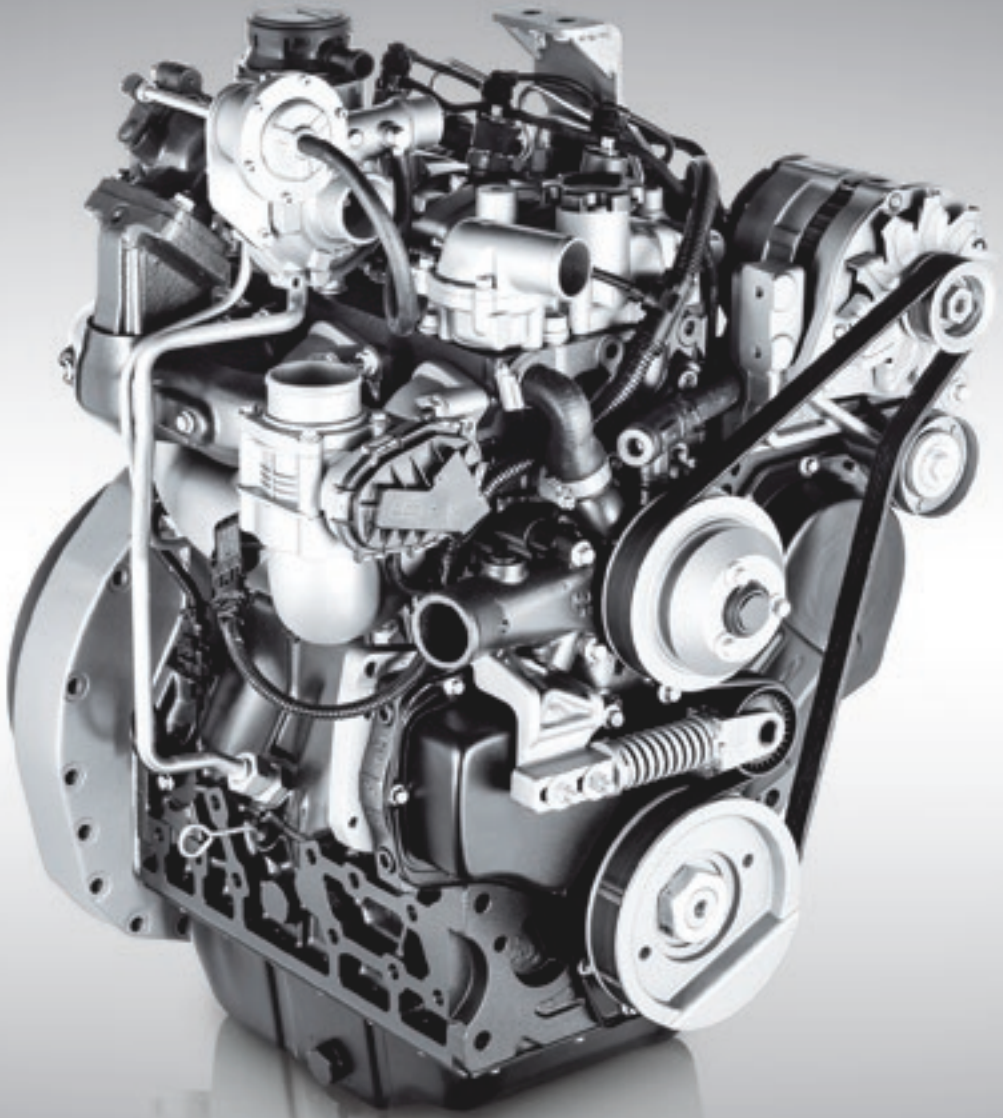
ARRANGEMENT
L In line

AIR INTAKE
TAA Turbocharged aftercooler

TURBOCHARGING
WG Fixed Geometry Turbo with Wastegate

INJECTION SYSTEM
ECR Electronic Common Rail

EXHAUST SYSTEM
I-EGR Internal Exhaust Gas Recirculation
DOC Diesel Oxidation Catalyst
PM CAT Through Flow Particulate Matter Filter



Features

ENGINE PERFORMANCE	R Series engines use a high pressure Common Rail injection system (1600 bar), which optimizes thermodynamic performance and ensures extremely precise injection in all engine operating conditions. The R22 combines impressive torque and power density (up to 8% better than average competitors) with minimum fuel consumption.
ENGINE DESIGN	R22 is the most compact engine of its segment, 5% smaller than average competitors. With the intake and exhaust manifolds on same engine side thanks to uniflow cylinder head design, hoses and pipes routing around engine is minimized, resulting in a clean layout and easy installation. The "Antiphone" insulated sheet metal front cover reduces engine noise thus improving end user's working experience. An extremely rigid, small and light tunnel block reduces vibrations and prevents the need for a structural sump, enabling compact dimensions (length × width × height: 519 × 524 × 723 mm) for maximum installation flexibility. Furthermore, the R22 features glow plugs for cold start.
AFTERTREATMENT SOLUTION	To meet specific emission requirements for applications up to 56 kW, the R22 adopts of internal Exhaust Gas Recirculation (EGR) with DOC and PM CAT. This compact, maintenance-free and cost-effective solution puts at forefront the value to the customer.
AIR HANDLING	The fixed geometry turbocharger with aftercooler and Wastegate valve optimizes torque curve and transient response, while offering high boost pressure and performance at high altitudes.
SERVICEABILITY & MAINTAINABILITY	All components requiring maintenance are placed on the left side of the engine, ensuring extremely simple maintenance activities. The use of hydraulic tappets, a state-of-the-art technology in terms of lubrication and timing systems, avoids the need for manual adjustment or servicing and helps to further minimize operating costs. The blow-by system is installed on the rocker cover, with a pre-separation system, which minimizes overall dimensions and oil consumption. R22 is best in class for oil change intervals (up to 600 hs). Furthermore, unlike the DPF, the PM-CAT proves to be maintenance-free, requiring no replacement during lifecycle reducing cost for operators.
WIDE OPTIONS LIST	Wide choice of specific options available: fans, alternators, SAE3/SAE4 interfaces for transmissions, different starter and power take off positions (frontal or lateral PTO with torque capability of up to 200 Nm), pulleys, and further accessories.

Benefits

- ✓ HIGH TORQUE AND OPTIMIZED PERFORMANCE WITH LOW FUEL CONSUMPTION
- ✓ SIMPLE AND EASY TO INSTALL, REDUCED VIBRATION & NOISE
- ✓ COMPACT AND COST EFFECTIVE LEAN AFTERTREATMENT SYSTEM
- ✓ HIGH PERFORMANCE GUARANTEED IN ALL CONDITIONS
- ✓ EASY MAINTENANCE, LOW OPERATING COSTS AND REDUCED VEHICLE DOWNTIME
- ✓ TAILORED CONFIGURATIONS BASED ON CUSTOMER REQUIREMENTS

THE F5 SERIES

The F5 Series

Featuring by customer oriented design, the **F5 Series** stands out for low operating costs and extremely easy maintenance thanks to single side servicing.

Benefits are combined with excellent performance, which allows these engines to be used for the most demanding missions (e.g. high engine inclination, cold starting at temperatures down to -25°C).

APPLICATION		MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
							KW	HP	RPM	NM	KGM	RPM		
●	○	F32 MNS	L4 / TC	FGT	M	3,2	55	75	2500	281	29	1250	Tier 3 / Stage IIIA	I-EGR
●	○	F32 MNS	L4 / TC	FGT	M	3,2	61	83	2500	320	33	1250	Tier 3 / Stage IIIA	ec-EGR
●	○	F32 MNT	L4 / TAA	FGT	M	3,2	65	88	2500	320	33	1400	Tier 3 / Stage IIIA	I-EGR

LEGEND

APPLICATION
○ Agriculture
● Industrial

ARRANGEMENT
L In line

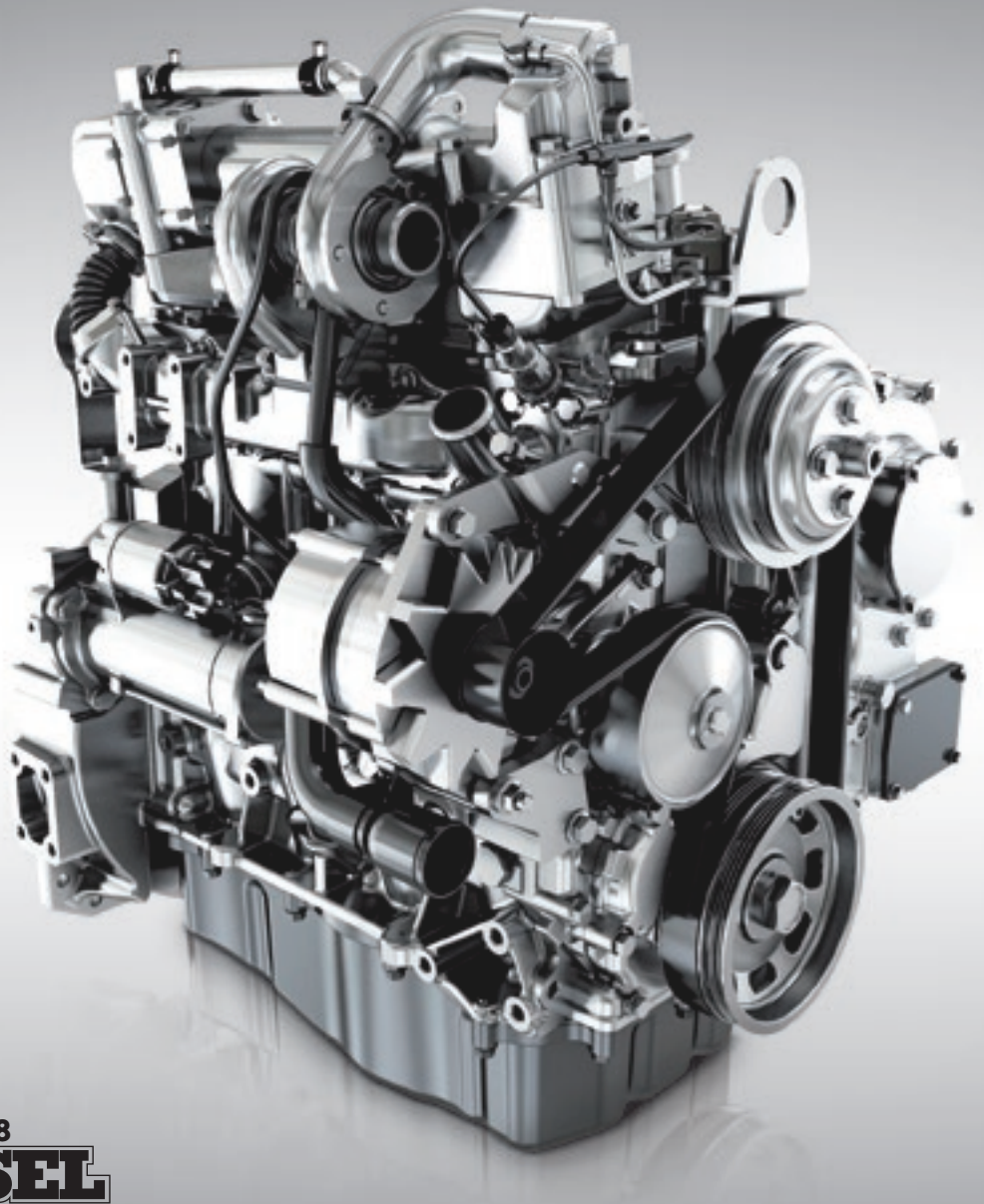
AIR INTAKE
TC Turbocharged
TAA Turbocharged aftercooler

TURBOCHARGING
FGT Fixed Geometry Turbo

INJECTION SYSTEM
M Mechanical

EXHAUST SYSTEM
I-EGR Internal Exhaust Gas Recirculation
ec-EGR External Cooled Exhaust Gas Recirculation

F32 engine is also available in structural version for agriculture application



2008

DIESEL

OF THE YEAR

FPT Industrial F32


NEW HOLLAND

Features

INJECTION SYSTEM	Based on simple and proven mechanical rotary pump, the F5 engine has a direct fuel injection system for accurate fuel delivery. The mechanical pump is the best trade-off between performance and easy engine installation.
ENGINE DESIGN	Camshaft in crankcase, suspended oil pan, balancer counterweights incorporated in crankshaft webs. Countershaft balancer also available as options.
COMPONENTS INTEGRATION	Integrated CCV (Closed Crankcase Ventilation) system and engine design oriented to high components integration. Water-oil cooler, oil and water pumps with by-pass are fully integrated in the block.
SPECIFIC FEATURES	Lean layout; starting temperature without auxiliaries down to -12°C (with auxiliaries down to -25°); high performance achieved with robust mechanical injection and no additional complexity; up to 35° continuous angle of inclination in all allowable directions.
AIR HANDLING	F5 Series is turbocharged with air-to-air aftercooler system depending on power output. Available with both internal and external cooled EGR, depending on application, to meet Tier 3/Stage IIIA emissions.
UP TO 600H OIL INTERVAL CHANGE	Optimized engine design in terms of mechanical clearances, piston rings, oil system and engine structure designed to limit cylinder liners deformation.
SERVICEABILITY & MAINTAINABILITY	One side engine maintenance layout and worldwide service network.
OPTION LIST	F5 engines are available with non-structural and structural engine architecture for industrial and agricultural application. Additional options are available such as radiators, air filters, mufflers, standard transmission interfaces SAE3/SAE4; two possible PTO arrangements DIN/SAE A-B; fan position flexibility; air conditioning compressor arrangement; consistency with standard and alternative fuels in compliance with regulatory requirements.

Benefits

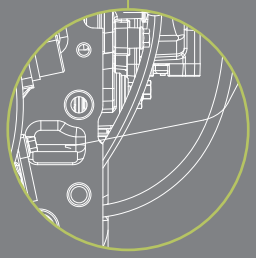
- ✓ SIMPLE AND EASY TO INSTALL SOLUTION CONSISTENT WITH STANDARD AND ALTERNATIVE FUELS
- ✓ VIBRATION & NOISE REDUCTION
- ✓ LEAKAGE PREVENTION
- ✓ HIGH PERFORMANCE GUARANTEED IN ALL CONDITIONS
- ✓ HIGH ENGINE POWER DENSITY WITH THE SHORTEST LOAD RESPONSE TIME
- ✓ REDUCED MAINTENANCE NEEDS AND OPERATING COST
- ✓ QUICK SERVICE SUPPORT AND FAST MAINTENANCE ACTIVITIES
- ✓ CUSTOMER ORIENTATION AND SPECIFIC ENGINE ARCHITECTURE BASED ON APPLICATION TYPE

THE NEF SERIES

The NEF Series

N45 ERT

N45 ENT



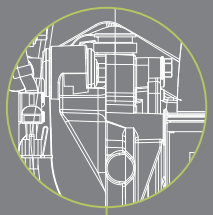
Developed to satisfy the most demanding customer requirements, the **NEF Series** is the evidence of FPT Industrial technological excellence.

Available in 4 and 6 cylinder configurations, both mechanical and electronic version, with non-structural and structural design for agricultural application.
NEF Series electronic engines are equipped with second generation Common Rail injection system, allowing to achieve top performance in terms of load response, maximum torque and top power with the minimum fuel consumption.

The **NEF Series** also stands out for its great flexibility and reliability, low fuel consumption and high performance, which make this engine the reference in its category.

N45 MSS

N45 MNT

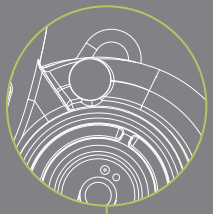


N45 MRT

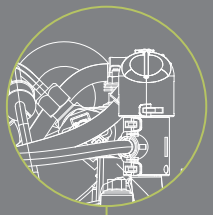
N45 MNS

N45 MRS

N45 MSS X



N67 ENT



N67 MNT

N45 MST

N67 ERT

N67 MRT


CASE
921F
CASE

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
						KW	HP	RPM	NM	KGM	RPM		
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5	104	141	2200	608	62	1600	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MNS	L4 / TC	FGT	M	4,5	66	90	2200	400	41	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MNT	L4 / TAA	FGT	M	4,5	74	101	2200	430	44	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MNT	L4 / TAA	FGT	M	4,5	93	126	2200	525	54	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MSS[1]	L4 / TC	FGT	M	4,5	74	101	2200	410	42	1400	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MSS[1]	L4 / TC	FGT	M	4,5	66	90	2200	400	41	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MST[1]	L4 / TAA	FGT	M	4,5	74	101	2200	430	44	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 MST[1]	L4 / TAA	FGT	M	4,5	93	126	2200	525	54	1250	Tier 3 / Stage IIIA	I-EGR
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5	89	121	2200	549	56	1500	Tier 4B / Stage IV	DOC + SCR
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5	103	140	2200	636	65	1500	Tier 4B / Stage IV	DOC + SCR
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5	125	170	2200	710	72	1500	Tier 4B / Stage IV	DOC + SCR

LEGEND

APPLICATION
- ○ Agriculture
- ● Industrial

ARRANGEMENT
- L In line

AIR INTAKE
- TC Turbocharged
- TAA Turbocharged aftercooler

TURBOCHARGING
- FGT Fixed Geometry Turbo
- WG Fixed Geometry Turbo with Wastegate
- VGT Variable Geometry Turbo

INJECTION SYSTEM
- ECR Electronic Common Rail
- M Mechanical

EXHAUST SYSTEM
- I-EGR Internal Exhaust Gas Recirculation
- SCR Selective Catalytic Reduction
- DOC Diesel Oxidation Catalyst

1. Narrow engines with dynamic balancing
N45 engine is also available in structural version for agriculture application

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
						KW	HP	RPM	NM	KGM	RPM		
● ○	**N67 ENT**	L6 / TAA	FGT	ECR	6,7	175	238	2200	1020	104	1500	Tier 3 / Stage IIIA	I-EGR
● ○	**N67 MNT**	L6 / TAA	FGT	M	6,7	129	175	2200	770	79	1250	Tier 3 / Stage IIIA	I-EGR
○	**N67 ENT** [3]	L6 / TAA	WG	ECR	6,7	200	272	2100	1170	119	1500	Tier 3 / Stage IIIA	I-EGR+
● ○	**N67 ENT**	L6 / TAA	WG	ECR	6,7	129	175	2200	805	82	1500	Tier 4B / Stage IV	DOC+SCR
● ○	**N67 ENT**	L6 / TAA	WG	ECR	6,7	151	205	2200	940	96	1500	Tier 4B / Stage IV	DOC+SCR
● ○	**N67 ENT**	L6 / TAA	WG	ECR	6,7	187	254	2200	1160	118	1500	Tier 4B / Stage IV	DOC + SCR
● ○	**N67 ENT**	L6 / TAA	WG	ECR	6,7	210	286	2200	1150	117	1500	Tier 4B / Stage IV	DOC+SCR
● ○	**N67 ENT**	L6 / TAA	VGT	ECR	6,7	221	301	2100	1282	131	1400	Tier 4B / Stage IV	DOC + SCR

LEGEND

APPLICATION
○ Agriculture
● Industrial

ARRANGEMENT
L In line

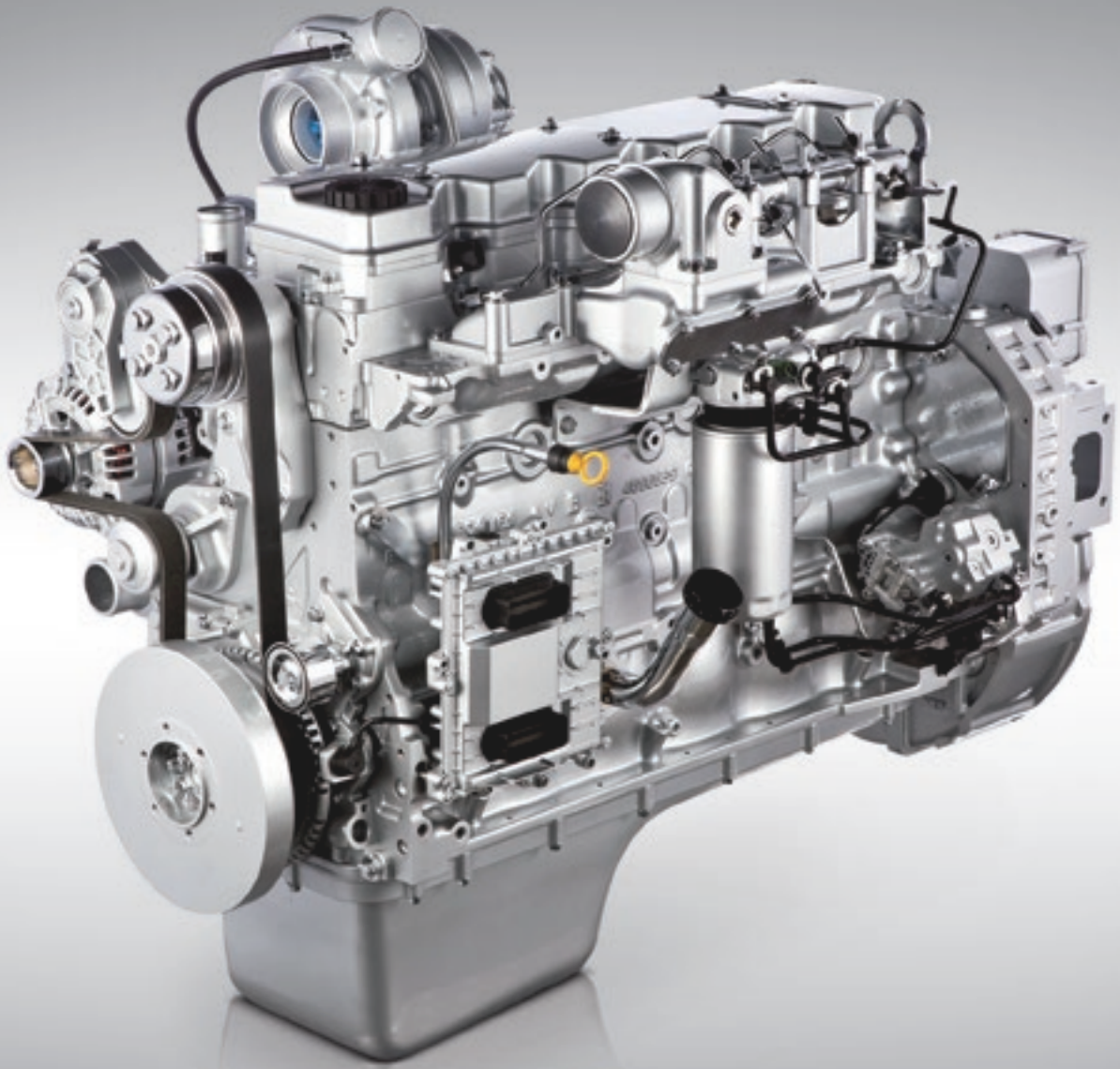
AIR INTAKE
TAA Turbocharged aftercooler

TURBOCHARGING
FGT Fixed Geometry Turbo
WG Fixed Geometry Turbo with Wastegate
VGT Variable Geometry Turbo

INJECTION SYSTEM
ECR Electronic Common Rail
M Mechanical

EXHAUST SYSTEM
I-EGR Internal Exhaust Gas Recirculation
SCR Selective Catalytic Reduction
DOC Diesel Oxidation Catalyst

2. Based on Tier 4 engine's hardware
N67 engine is also available in structural version for agriculture application



Mechanical Versions — Features

Tier 3/Stage IIIA Only

INJECTION SYSTEM	Mechanical rotary pump, with high worldwide serviceability, is the heart of the NEF mechanical engine series. The system is based on direct fuel injection for accurate fuel delivery and consistent with standard and alternative fuels. The NEF mechanical injection system is the best compromise between a cost effective product and performance.
ENGINE DESIGN	Balancer counterweights incorporated in crankshaft webs, rear geartrain layout, camshaft in crankcase, suspended oil pan and, for 4 cylinder engines, countershafts arrangements available as options.
COMPONENTS INTEGRATION	Integrated CCV (Closed Crankcase Ventilation) system and engine design oriented to high components integration. Water-oil cooler, oil and water pumps are completely integrated in the engine block.
SPECIFIC FEATURES	Engine specifically designed for off-road applications; lean layout; starting temperature without auxiliaries down to -15°C (with grid heater down to -25°, with water and oil heater down to -30°C); engine slope up to 35° continuous angle of inclination in all allowable directions. Tier 3 emissions compliance achieved without external EGR, VGT or electronics.
AIR HANDLING	All NEF mechanical engines are turbocharged and feature Internal EGR. Air to Air intercooler is available as an option in order to reach top engine performance in terms of load response and fuel consumption.
UP TO 600H OIL INTERVAL CHANGE	NEF Series engines adopt combustion chambers optimized to reduce oil dilution; they are developed with an optimum engine design in terms of mechanical clearances, piston rings and engine oil system.
SERVICEABILITY & MAINTAINABILITY	Worldwide service network. Engines featured with a proven mechanical injection system without electronic interfaces and external EGR.
OPTION LIST	NEF engines are available with non-structural and structural architecture for agricultural application and with a “narrow” or “wide” gear train distribution. Moreover, options are available for alternators, radiators, air filters, mufflers, oil pans, SAE standard transmission interfaces, PTO arrangement DIN/SAE A-B, air conditioning compressor arrangement; other customer specific options may be available upon request.

Benefits

- ✓ RELIABLE AND COST EFFECTIVE SOLUTION, CONSISTENT WITH STANDARD AND ALTERNATIVE FUELS
- ✓ VIBRATION & NOISE REDUCTION
- ✓ LEAKAGE PREVENTION
- ✓ HIGH PERFORMANCES GUARANTEED IN ALL CONDITIONS
- ✓ HIGH ENGINE POWER DENSITY WITH THE SHORTEST LOAD RESPONSE TIME
- ✓ REDUCED MAINTENANCE NEEDS AND OPERATING COST
- ✓ QUICK SERVICE SUPPORT AND EASY MAINTENANCE ACTIVITIES
- ✓ CUSTOMER ORIENTATION AND SPECIFIC ENGINE ARCHITECTURE BASED ON APPLICATION TYPE

Electronic Versions — Features

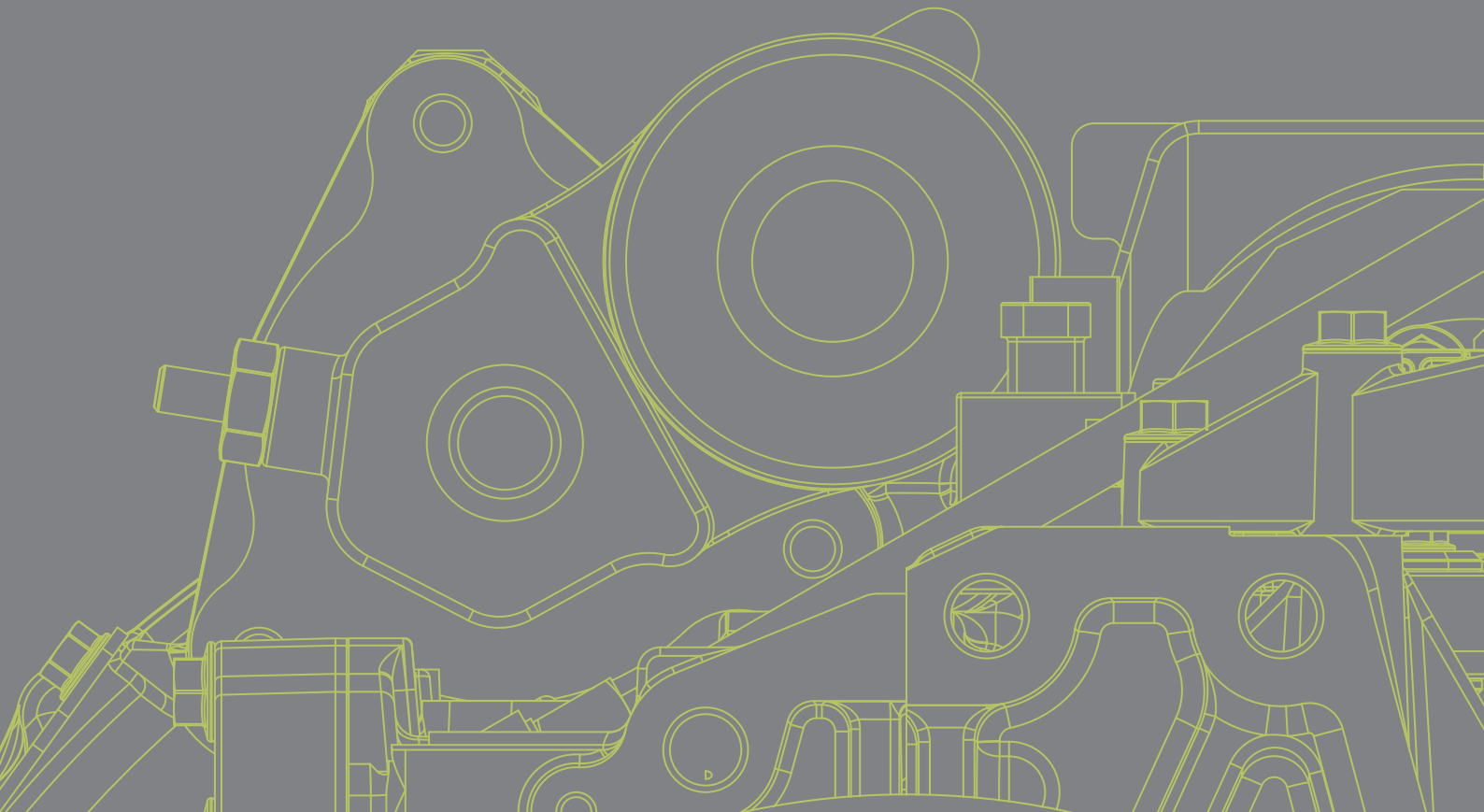
Tier 3/Stage IIIA - Tier 4B/ Stage IV

INJECTION SYSTEM	State-of-the-art system for accurate fuel delivery, based on a very compact direct injection 2nd generation Common Rail (1.600 bar) to achieve top performance in terms of load response, max torque and top power (power density up to 5% higher than average competitors at Tier 4B) with the minimum fuel consumption.
ENGINE DESIGN	Multiple injections, balancer counterweights incorporated in crankshaft webs, rear geartrain layout, camshaft in crankcase, suspended oil pan and, for 4 cylinder engines, countershafts arrangements available as options.
COMPONENTS INTEGRATION	Integrated CCV (Closed Crankcase Ventilation) system and engine design oriented to high components integration. Water-oil cooler, oil and water pumps are completely integrated in the engine block.
SPECIFIC FEATURES	Engine specifically designed for off-road applications; lean layout; starting temperature without auxiliaries down to -15°C (with grid heater down to -25°, with water and oil heater down to -30°C); max engine inclination up to 35° continuous in all allowed directions. Tier 3 compliance achieved without external EGR nor VGT. Tier 4B emission limits reached with EGR-free optimized combustion, reducing PM and increasing efficiency, and adoption of Hi-eSCR, without losing engine performance and improving running costs.
AIR HANDLING	All NEF electronic series engines are turbocharged with Air to Air intercooler and equipped with Internal EGR in Tier 3 and SCR in Tier 4. Wastegate and VGT turbocharger available at Tier 4B/Stage IV for improved engine performance.
UP TO 600H OIL INTERVAL CHANGE	NEF Series adopts combustion chambers and Common Rail injection system optimized to reduce oil dilution. Design is optimized in terms of mechanical clearances, piston rings and oil system.
SERVICEABILITY & MAINTAINABILITY	Worldwide service network. Engine ECU (Electronic Control Unit) with CAN-BUS control & monitoring interfaces can be used for advanced real time diagnosis. Maintenance and regeneration-free after-treatment system on Tier 4 thanks to no-DPF, not requiring any replacement nor operator stop for filter cleaning.
OPTION LIST	NEF engines feature both non-structural and structural architecture for agricultural application. Additional options are available for alternators, radiators, air filters, mufflers, oil pans, SAE standard transmission interfaces, PTO arrangement SAE A-B, air conditioning compressor arrangement. Specific options may be developed on demand. For Tier 4, wide range of options for after-treatment system such as SCR catalyst size and configuration (e.g. vertical and horizontal) and specific DEF/AdBlue tanks for each engine.

Benefits

- ✓ FLAT TORQUE AND HIGH ENGINE THERMODYNAMIC PERFORMANCE WITH LOW FUEL CONSUMPTION
- ✓ VIBRATION & NOISE REDUCTION
- ✓ LEAKAGE PREVENTION
- ✓ HIGH PERFORMANCES GUARANTEED IN ALL CONDITIONS
- ✓ HIGH ENGINE POWER DENSITY AND FAST LOAD RESPONSE TIME WITH THE LOWEST FUEL CONSUMPTION
- ✓ REDUCED MAINTENANCE NEEDS AND OPERATING COST
- ✓ QUICK SERVICE SUPPORT AND EASY MAINTENANCE ACTIVITIES
- ✓ CUSTOMER ORIENTATION AND SPECIFIC ENGINE ARCHITECTURE BASED ON APPLICATION TYPE

THE CURSOR SERIES

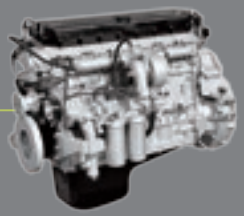


The Cursor Series

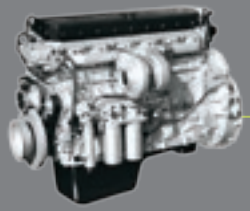
If you are looking for top power, fast load response, high power density together with the lowest fuel consumption, **CURSOR series** is the best choice you can do. Characterized by outstanding performance, the **CURSOR series** is dedicated to heavy duty applications from 200 to 570 kW.

Superb performance is just one of the benefits of these engines: high reliability, long maintenance intervals, which means extremely low operating cost, are the core values of the range.

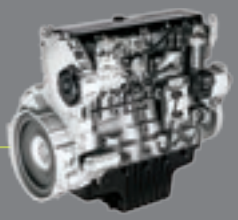
C87 ENT



C10 ENT



C13 ENT



C16 ENT


NEW HOLLAND


2014
DIESEL
OF THE YEAR
FPT Industrial CURSOR 16

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
						KW	HP	RPM	NM	KGM	RPM		
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7	200	272	2100	1300	133	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7	230	313	2100	1400	143	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7	260	354	2100	1500	153	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7	290	394	2100	1750	178	1500	Tier 3 / Stage IIIA	I-EGR+
● ○	C87 ENT	L6 / TAA	WG	ECR	8,7	245	333	2100	1510	154	1500	Tier 4B / Stage IV	DOC+SCR
● ○	C87 ENT	L6 / TAA	WG	ECR	8,7	305	415	2100	1800	184	1500	Tier 4B / Stage IV	DOC+SCR
● ○	C87 ENT	L6 / TAA	VGT	ECR	8,7	305	415	2000	1850	189	1300	Tier 4B / Stage IV	DOC + SCR
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3	265	360	2100	1700	173	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3	290	394	2100	1800	184	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3	315	428	2100	1890	193	1500	Tier 3 / Stage IIIA	I-EGR
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9	325	442	2100	2140	218	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9	350	476	2100	2140	218	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9	375	510	2100	2140	218	1400	Tier 3 / Stage IIIA	I-EGR
● ○	C13 ENT	L6 / TAA	WG	ECR	12,9	384	522	2100	2258	230	1400	Tier 4B / Stage IV	DOC+SCR
● ○	C13 ENT	L6 / TAA	WG	ECR	12,9	407	554	2100	2407	245	1400	Tier 4B / Stage IV	DOC+SCR
○	C16 ENT	L6 / TAA	WG	ECR	15,9	480	653	2100	2751	281	1500	Tier 4B / Stage IV	DOC+SCR
○	C16 ENT	L6 / TAA	WG	ECR	15,9	515	700	2100	2990	305	1500	Tier 4B / Stage IV	DOC+SCR
○	C16 ENT	L6 / TAA	WG	ECR	15,9	570	775	2100	3320	339	1500	Tier 4B / Stage IV	DOC+SCR

LEGEND

APPLICATION
- ○ Agriculture
- ● Industrial

ARRANGEMENT
- L In line

AIR INTAKE
- TAA Turbocharged aftercooler

TURBOCHARGING
- FGT Fixed Geometry Turbo
- WG Fixed Geometry Turbo with Wastegate
- VGT Variable Geometry Turbo

INJECTION SYSTEM
- ECR Electronic Common Rail
- EUI Electronic Unit Injector

EXHAUST SYSTEM
- I-EGR Internal Exhaust Gas Recirculation
- SCR Selective Catalytic Reduction
- DOC Diesel Oxidation Catalyst

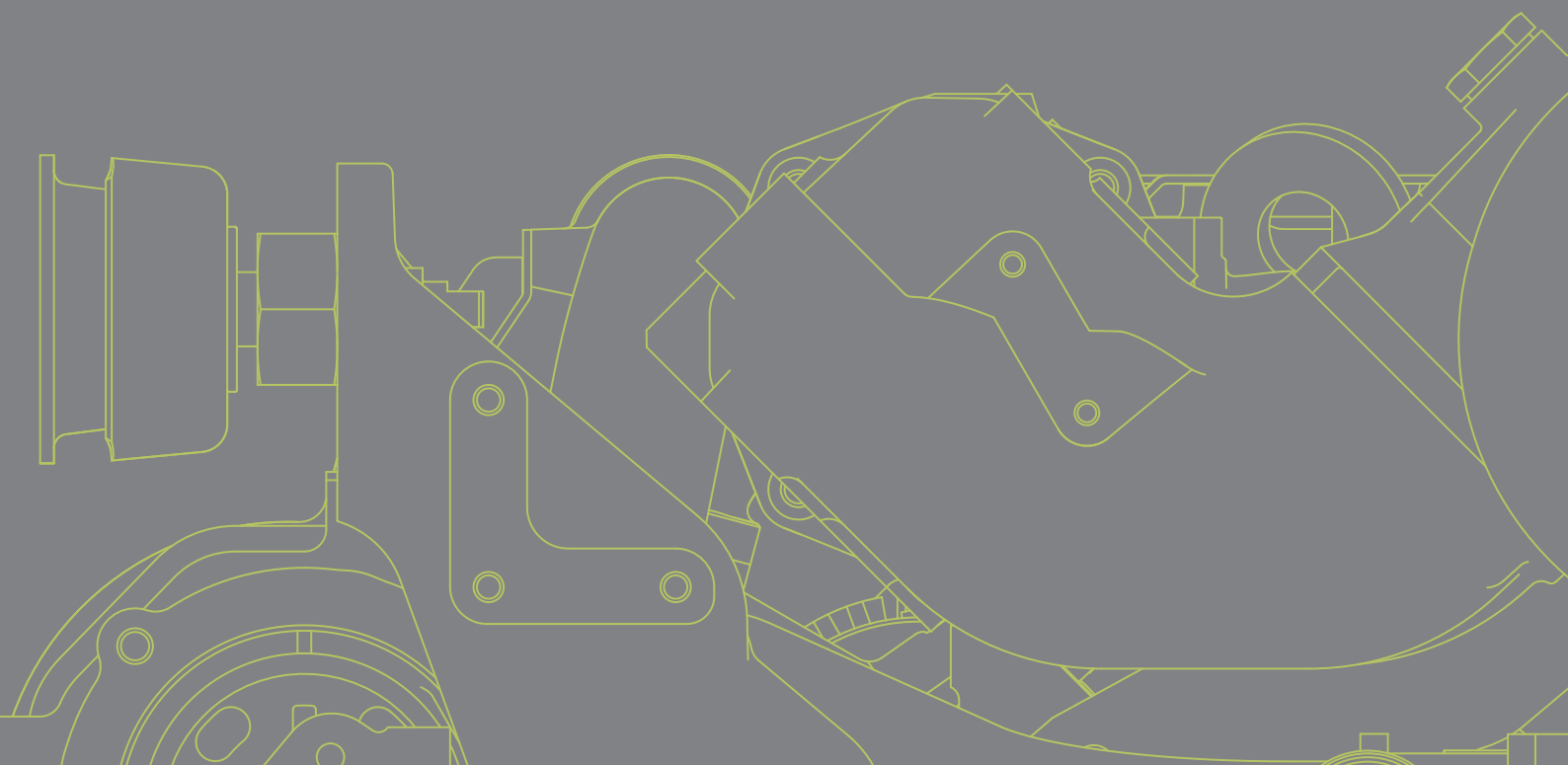
Features

INJECTION SYSTEM	State-of-the-art direct injection fuel system for high precision in fuel quantity injection in order to achieve top performance in terms of load response, torque and top power with the minimum fuel consumption: · C9: featuring very compact 2nd generation Common Rail System, delivering up to 8% higher torque density than average Tier 4B competitors. · C10 & C13: featuring electronically controlled unit injectors up to Tier 4A. · C13 & C16: adopting Heavy Duty Common Rail with up to 2200 bar injection pressure at Tier 4B to ensure robust and outstanding output.
ENGINE DESIGN	Superfinished helical timing gears, bed-plate in addition to engine block, crankshaft with net shape counterweights, rear geartrain layout and suspended oil pan. Specific double re-entrant bowl chamber design to optimize the EGR-free combustion process, further optimized by steel pistons for C13 and C16, increasing peak cylinder pressure to reduce PM output and deliver high power and torque density. C16 features a specific off-road design including high resistance Compact Graphite Iron (CGI) cylinder head and ball-bearing turbocharger. C16 delivers 18-litre performance in a 13-litre package, offering compact dimension (-7% vs. market average) and best-in-class power-to-weight ratio (+15% vs. market average).
COMPONENTS INTEGRATION	Improved technical solutions such as integrated patented CCV (Crank Case Ventilation), integrated oil cooler, integrated oil pump and integrated water pump.
SPECIFIC FEATURES	Functional lean layout; starting temperature without auxiliaries down to -15°C (with grid heater down to -25°); high engine inclination up to 35° continuous in all directions with secondary oil pump. Tier 3 performance achieved without external EGR nor VGT.
AIR HANDLING	Wastegate turbocharged with air-to-air charge cooled air system with 4 valves per cylinder for increase the engine efficiency by the optimization of thermodynamic performance in terms of time to torque, load response and reduced fuel consumption. VGT version available on C9 for improved performance. Ball bearing turbocharger on C16 to further improve fluid dynamic efficiency.
UP TO 600H OIL INTERVAL CHANGE	Optimum engine design in terms of mechanical clearances, piston rings, engine oil system to guarantee best-in-class oil change intervals.
SERVICEABILITY & MAINTAINABILITY	Worldwide service network. Enhanced engine serviceability and diagnosis by using the Electronic Control Unit on the engine with CAN-BUS control & monitoring systems interface. Maintenance and regeneration-free after-treatment system on Tier 4 thanks to no-DPF, not requiring any replacement nor operator stop for filter cleaning.
OPTION LIST	SAE1 as standard transmission interface; two possible PTO arrangements (SAE-A, B flange 9 or 13 teeth) up to 200Nm torque availability; air conditioning compressor arrangement. For Tier 4, wide range of options for after-treatment system such as SCR catalyst size and configuration (e.g. vertical and horizontal layout for C9) and specific DEF/AdBlue tanks for each engine.

Benefits

- ✓ HIGH ENGINE THERMODYNAMIC PERFORMANCE WITH LOW FUEL CONSUMPTION & SMOKE REDUCTION DURING THE TRANSIENT
- ✓ VIBRATION & NOISE REDUCTION MECHANICAL & THERMAL RESISTANCE
- ✓ LEAKAGE PREVENTION
- ✓ HIGH PERFORMANCE GUARANTEED IN ALL CONDITIONS
- ✓ HIGH ENGINE POWER DENSITY WITH THE SHORTEST LOAD RESPONSE TIME
- ✓ REDUCED MAINTENANCE NEEDS AND OPERATING COST
- ✓ QUICK SERVICE SUPPORT
- ✓ CUSTOMER ORIENTATION

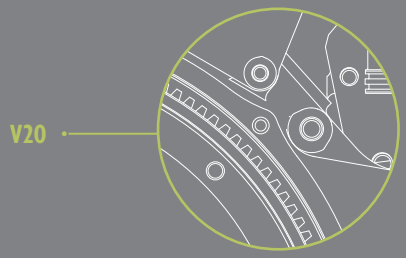
THE VECTOR SERIES



The Vector Series

The **VECTOR Series,** with its compact design and state of the art injection system, is FPT Industrial answer to high power demand. Characterized by excellent performance without any need of EGR system or variable geometry turbochargers, **VECTOR Series,** engines allow customer to increase productivity.

Thanks to 1000h maintenance intervals and low oil consumption, engine operating costs are optimized.



APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS	POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
						KW	HP	RPM	NM	KGM	RPM		
● ○	V20	8V / TAA	FGT	ECR	20,1	565	768	2100	3200	326	1400	Tier 2	–

LEGEND

APPLICATION
○ Agriculture
● Industrial

ARRANGEMENT
V 90° "V" configuration

AIR INTAKE
TAA Turbocharged aftercooler

TURBOCHARGING
FGT Fixed Geometry Turbo

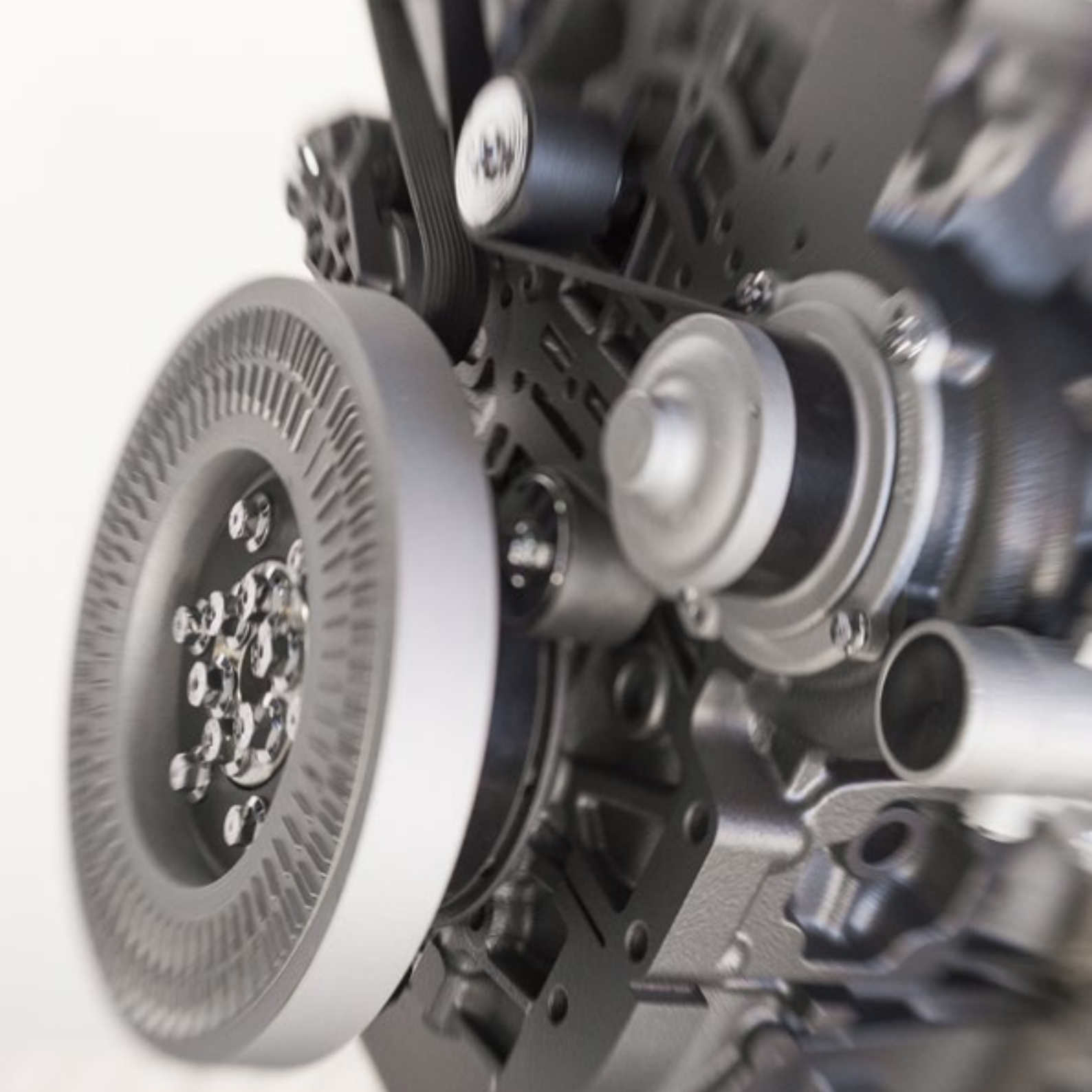
INJECTION SYSTEM
ECR Electronic Common Rail

Features

INJECTION SYSTEM	State-of-the-art direct injection fuel system, based on a compact 2nd generation Common Rail system, ensuring accuracy in fuel delivery with achieving top performance in terms of load response, torque and top power with the minimum fuel consumption.
ENGINE DESIGN	8 Vee engine architecture, minimized noise, cast iron single cylinder head, reinforced engine block, rear geartrain layout, suspended oil pan.
COMPONENTS INTEGRATION	CCV (Closed Crankcase Ventilation), oil pump and oil piping and all water circuit integrated in the engine block
SPECIFIC FEATURES	Starting temperature without auxiliaries down to -10°C (with grid heater down to -25°, with water and oil heater down to -30°C); performance achieved without EGR or VGT; high engine inclination: 22° continuous in all directions.
AIR HANDLING	Turbocharged with air-to-air or charge cooled air system with 4 valves per cylinder to increase the engine efficiency by the optimization of engine performance in terms of top power, load response and fuel consumption.
UP TO 1000H OIL INTERVAL CHANGE	Optimum engine design in terms of mechanical clearances, piston rings, engine oil system calculation in order to reduce oil consumption and maintenance needs.
SERVICEABILITY & MAINTAINABILITY	Worldwide service network. Enhanced engine serviceability and diagnosis by using the Electronic Control Unit on the engine with CAN-BUS control & monitoring systems interface.
OPTION LIST	Standard transmission interface SAE1-SAE0; gear housing with option for two water pumps; two PTO SAE B (400Nm each) and air conditioning compressor arrangement.

Benefits

- ✓ HIGH ENGINE THERMODYNAMIC PERFORMANCE WITH LOW FUEL CONSUMPTION
- ✓ VIBRATION & NOISE REDUCTION
- ✓ LEAKAGE PREVENTION
- ✓ HIGH PERFORMANCE GUARANTEED IN ALL CONDITIONS & MISSIONS
- ✓ HIGH ENGINE POWER DENSITY WITH THE SHORTEST LOAD RESPONSE TIME
- ✓ REDUCED MAINTENANCE NEEDS AND OPERATING COST
- ✓ QUICK SERVICE SUPPORT
- ✓ CUSTOMER ORIENTATION



Diesel engines
for Off Road application

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS
● ○	R22	L3 / TAA	WG	ECR	2,2
● ○	R22	L3 / TAA	WG	ECR	2,2
● ○	R22	L3 / TAA	WG	ECR	2,2
● ○	R22	L3 / TAA	WG	ECR	2,2
● ○	F32 MNS	L4 / TC	FGT	M	3,2
● ○	F32 MNS	L4 / TC	FGT	M	3,2
● ○	F32 MNT	L4 / TAA	FGT	M	3,2
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5
● ○	N45 MNS	L4 / TC	FGT	M	4,5
● ○	N45 MNT	L4 / TAA	FGT	M	4,5
● ○	N45 MNT	L4 / TAA	FGT	M	4,5
● ○	N45 MSS [1]	L4 / TC	FGT	M	4,5
● ○	N45 MSS [1]	L4 / TC	FGT	M	4,5
● ○	N45 MST [1]	L4 / TAA	FGT	M	4,5
● ○	N45 MST [1]	L4 / TAA	FGT	M	4,5
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5
● ○	N45 ENT	L4 / TAA	WG	ECR	4,5
● ○	N67 ENT	L6 / TAA	FGT	ECR	6,7
● ○	N67 MNT	L6 / TAA	FGT	M	6,7
○	N67 ENT [2]	L6 / TAA	WG	ECR	6,7
● ○	N67 ENT	L6 / TAA	WG	ECR	6,7

LEGEND

APPLICATION
- ○ Agriculture
- ● Industrial

ARRANGEMENT
- L In line
- V 90° "V" configuration

AIR INTAKE
- TC Turbocharged
- TAA Turbocharged aftercooler

TURBOCHARGING
- FGT Fixed Geometry Turbo
- WG Fixed Geometry Turbo with Wastegate
- VGT Variable Geometry Turbo

INJECTION SYSTEM
- ECR Electronic Common Rail
- EUI Electronic Unit Injector
- M Mechanical

EXHAUST SYSTEM
- I-EGR Internal Exhaust Gas Recirculation
- ec-EGR External Cooled Exhaust Gas Recirculation
- SCR Selective Catalytic Reduction
- DOC Diesel Oxidation Catalyst
- PM CAT Through Flow Particulate Matter Filter

1. Narrow engines with dynamic balancing
2. Based on Tier 4 engine's hardware

F32, N45 and N67 engines are also available in structural version for agriculture application

All ratings are for intermittent duty. Power at flywheel, compliant within CE 97/68 Directive (without fan) after 50 hours running, 3% tolerance Fuel Diesel EN 590. Test conditions ISO 3046/1: 100 kPa atmospheric pressure, 25°C air temperature, 30% relative humidity; applicable also to DIN 6271 – BS 5514 SAE J 1349 Standards. Additional rating may be available.
Values may be subject to variations on individual engines.

POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
KW	HP	RPM	NM	KGM	RPM		
33	45	2600	160	16,3	1800	Tier 4B/Stage IIIB	I-EGR + DOC + PMCAT
39	53	2600	180	18,3	1800	Tier 4B/Stage IIIB	I-EGR + DOC + PMCAT
45	60	2600	208	21,2	1800	Tier 4B/Stage IIIB	I-EGR + DOC + PMCAT
48	65	2600	220	22,4	1800	Tier 4B/Stage IIIB	I-EGR + DOC + PMCAT
55	75	2500	281	29	1250	Tier 3/Stage IIIA	I-EGR
61	83	2500	320	33	1250	Tier 3/Stage IIIA	ec-EGR
65	88	2500	320	33	1400	Tier 3/Stage IIIA	I-EGR
104	141	2200	608	62	1600	Tier 3/Stage IIIA	I-EGR
66	90	2200	400	41	1250	Tier 3/Stage IIIA	I-EGR
74	101	2200	430	44	1250	Tier 3/Stage IIIA	I-EGR
93	126	2200	525	54	1250	Tier 3/Stage IIIA	I-EGR
74	101	2200	410	42	1400	Tier 3/Stage IIIA	I-EGR
66	90	2200	400	41	1250	Tier 3/Stage IIIA	I-EGR
74	101	2200	430	44	1250	Tier 3/Stage IIIA	I-EGR
93	126	2200	525	54	1250	Tier 3/Stage IIIA	I-EGR
89	121	2200	549	56	1500	Tier 4B/Stage IV	DOC + SCR
103	140	2200	636	65	1500	Tier 4B/Stage IV	DOC + SCR
125	170	2200	710	72	1500	Tier 4B/Stage IV	DOC + SCR
175	238	2200	1020	104	1500	Tier 3/Stage IIIA	I-EGR
129	175	2200	770	79	1250	Tier 3/Stage IIIA	I-EGR
200	272	2100	1170	119	1500	Tier 3 /Stage IIIA	I-EGR+
129	175	2200	805	82	1500	Tier 4B/Stage IV	DOC + SCR

APPLICATION	MODEL	CYLINDER ARRANGEMENT AIR INTAKE	TURBOCHARGING	INJECTION SYSTEM	DISPLACEMENT LITERS
● ○	N67 ENT	L6 / TAA	WG	ECR	6,7
● ○	N67 ENT	L6 / TAA	WG	ECR	6,7
● ○	N67 ENT	L6 / TAA	WG	ECR	6,7
● ○	N67 ENT	L6 / TAA	VGT	ECR	6,7
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7
● ○	C87 ENT	L6 / TAA	FGT	ECR	8,7
● ○	C87 ENT	L6 / TAA	WG	ECR	8,7
● ○	C87 ENT	L6 / TAA	WG	ECR	8,7
● ○	C87 ENT	L6 / TAA	VGT	ECR	8,7
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3
● ○	C10 ENT	L6 / TAA	FGT	EUI	10,3
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9
● ○	C13 ENT	L6 / TAA	FGT	EUI	12,9
● ○	C13 ENT	L6 / TAA	WG	ECR	12,9
● ○	C13 ENT	L6 / TAA	WG	ECR	12,9
○	C16 ENT	L6/TAA	WG	ECR	15,9
○	C16 ENT	L6/TAA	WG	ECR	15,9
○	C16 ENT	L6/TAA	WG	ECR	15,9
● ○	V20	8V / TAA	FGT	ECR	20,1

LEGEND

APPLICATION
- ○ Agriculture
- ● Industrial

ARRANGEMENT
- L In line
- V 90° "V" configuration

AIR INTAKE
- TC Turbocharged
- TAA Turbocharged aftercooler

TURBOCHARGING
- FGT Fixed Geometry Turbo
- WG Fixed Geometry Turbo with Wastegate
- VGT Variable Geometry Turbo

INJECTION SYSTEM
- ECR Electronic Common Rail
- EUI Electronic Unit Injector
- M Mechanical

EXHAUST SYSTEM
- I-EGR Internal Exhaust Gas Recirculation
- ec-EGR External Cooled Exhaust Gas Recirculation
- SCR Selective Catalytic Reduction
- DOC Diesel Oxidation Catalyst
- PM CAT Through Flow Particulate Matter Filter

1. Narrow engines with dynamic balancing
2. Based on Tier 4 engine's hardware

F32, N45 and N67 engines are also available in structural version for agriculture application

All ratings are for intermittent duty. Power at flywheel, compliant within CE 97/68 Directive (without fan) after 50 hours running, 3% tolerance Fuel Diesel EN 590. Test conditions ISO 3046/1: 100 kPa atmospheric pressure, 25°C air temperature, 30% relative humidity; applicable also to DIN 6271 – BS 5514 SAE J 1349 Standards. Additional rating may be available.
Values may be subject to variations on individual engines.

POWER			TORQUE			EMISSION STANDARD	EXHAUST SYSTEM
KW	HP	RPM	NM	KGM	RPM		
151	205	2200	940	96	1500	Tier 4B/Stage IV	DOC + SCR
187	254	2200	1160	118	1500	Tier 4B/Stage IV	DOC + SCR
210	286	2200	1150	117	1500	Tier 4B/Stage IV	DOC + SCR
221	301	2100	1282	131	1400	Tier 4B/Stage IV	DOC + SCR
200	272	2100	1300	133	1400	Tier 3/Stage IIIA	I-EGR
230	313	2100	1400	143	1400	Tier 3/Stage IIIA	I-EGR
260	354	2100	1500	153	1400	Tier 3/Stage IIIA	I-EGR
290	394	2100	1750	178	1500	Tier 3/Stage IIIA	I-EGR+
245	333	2100	1510	154	1500	Tier 4B/Stage IV	DOC + SCR
305	415	2100	1800	184	1500	Tier 4B/Stage IV	DOC + SCR
305	415	2000	1850	189	1300	Tier 4B/Stage IV	DOC + SCR
265	360	2100	1700	173	1400	Tier 3/Stage IIIA	I-EGR
290	394	2100	1800	184	1400	Tier 3/Stage IIIA	I-EGR
315	428	2100	1890	193	1500	Tier 3/Stage IIIA	I-EGR
325	442	2100	2140	218	1400	Tier 3/Stage IIIA	I-EGR
350	476	2100	2140	218	1400	Tier 3/Stage IIIA	I-EGR
375	510	2100	2140	218	1400	Tier 3/Stage IIIA	I-EGR
384	522	2100	2258	230	1400	Tier 4B/Stage IV	DOC + SCR
407	554	2100	2407	245	1400	Tier 4B/Stage IV	DOC + SCR
480	653	2100	2751	281	1500	Tier 4B/Stage IV	DOC + SCR
515	700	2100	2990	305	1500	Tier 4B/Stage IV	DOC + SCR
570	775	2100	3320	339	1500	Tier 4B/Stage IV	DOC + SCR
565	768	2100	3200	326	1400	Tier 2	-

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