

DIAMOND

230 | 270



SAME
TRADITIONALLY INNOVATIVE



Think big

A unique range of machines. Powerful, easy to use, displaying all the commendable features of SAME technology: designed with professional farmers and contractors in mind, the Diamond range is a big tractor in every respect, offering top performance, matchless productivity, and comfort of the very highest order.

These are attributes deriving from the latest 200-HP-Plus tractor technology, new Deutz Common Rail engines with 4 valves per cylinder generating impressive power and torque curves, the convenience of an automatic powershift, the precision of an electronic power lift with radar and a versatile hydraulic system with three independent circuits designed to get the best out of any implement, even the heaviest and most power-hungry.

The Diamond range features a compact structure with modern and attrac-

tive lines: the perfect balance between size and practicality.

Low profile, functional design and unmistakable styling: these are the guiding principles behind the brand new look of the Diamond range, characterized by the streamlined and contemporary contours of the new one-piece zinc-treated steel hood, and a level of comfort second to none.

Attentive to operator well-being, the Diamond sets a new standard reflected in the comfort of the deluxe cab and its ergonomically correct controls, and there is more besides: the quality of the design is also evident in the vehicle's innovative cab and front axle suspension systems, in the various functions - all supremely easy to use - and in a manoeuvrability typical of much smaller machines.

The new Diamond range: a real gem of SAME technology.



ENGINE

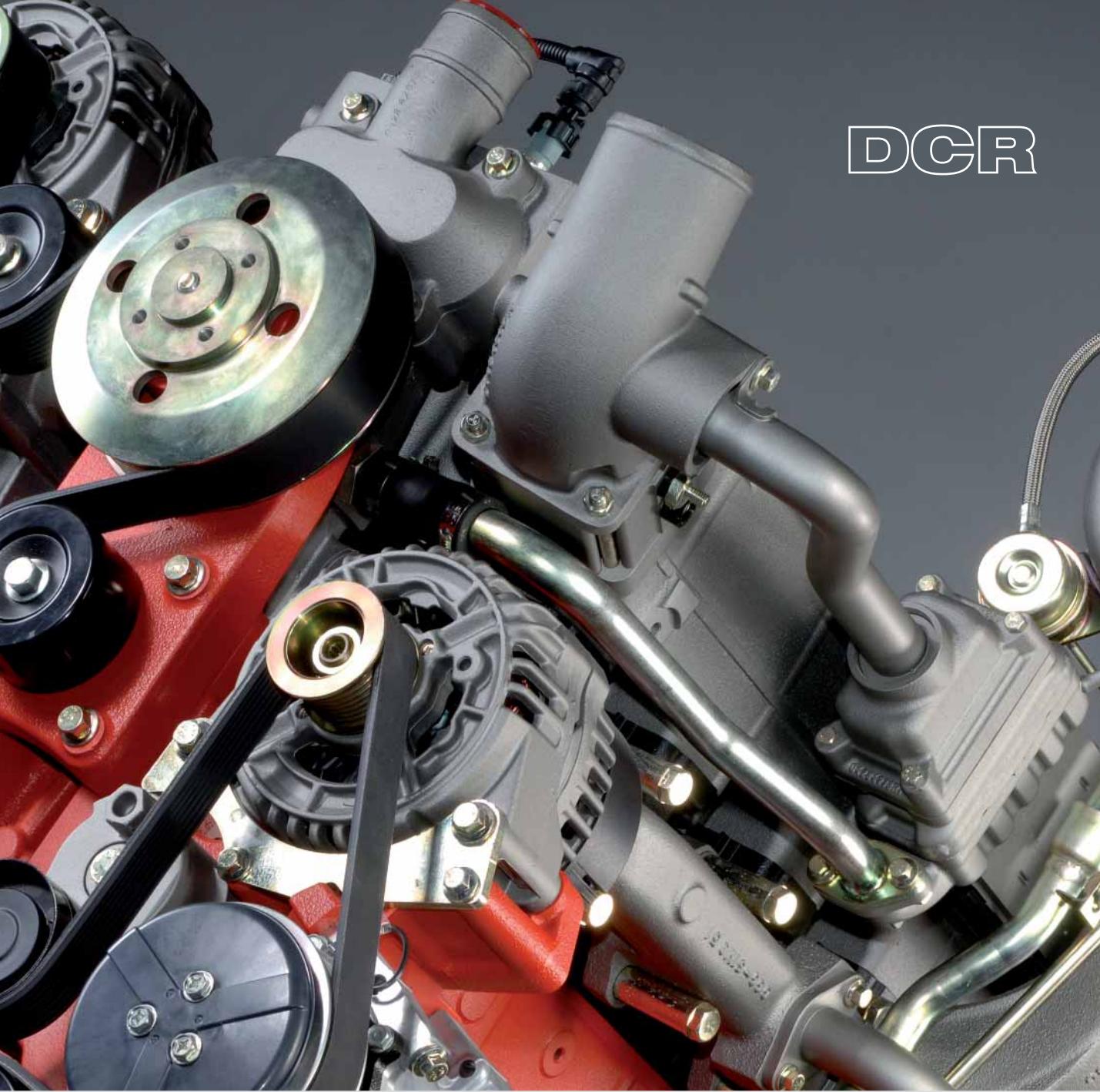
Power and comfort: a dual objective, fully achieved.

Deutz Common Rail (DCR) turbo intercooled engine with 24 valve cylinder head, Exhaust Gas Recirculation system (externally cooled), electronic fuel injection, dual circuit cooling (liquid/oil), and new fuel prefilter with water separator to ensure the injection system stays 100% efficient at all times. These are just some of the main specifications adopted for the new DEUTZ 2013 series Euro III engines fitted to DIAMOND machines.



4 valves per cylinder

With 24-valve timing, the cylinder fills perfectly on the intake stroke, and blending of the fuel-air mixture is optimized. Moreover, the design of the cylinder head is such that the injector can be positioned centrally and vertically, directing fuel onto the central area of the piston where ignition typically occurs, and consequently optimizing power and fuel consumption.



DCR

DCR: **Deutz Common Rail**

Thanks to the brand new high pressure common rail fuel injection system using two wet pumps, immersed in the cylinder block, and new combustion chambers in the piston crowns, the engine is able to deliver consistently high levels of efficiency even in the toughest of conditions.

More exactly, the common rail system delivers maximum injection pressures

up to 1800 bar, independent of engine revolutions, and this flexibility combined with electronic regulation ensures excellent torque rise even at low crankshaft speeds.

The result: Low noise levels both at idling and at nominal engine speed, very high cranking torque, minimal vibrations and low fuel consumption.

The advantage of the DCR solution over conventional common rail sys-

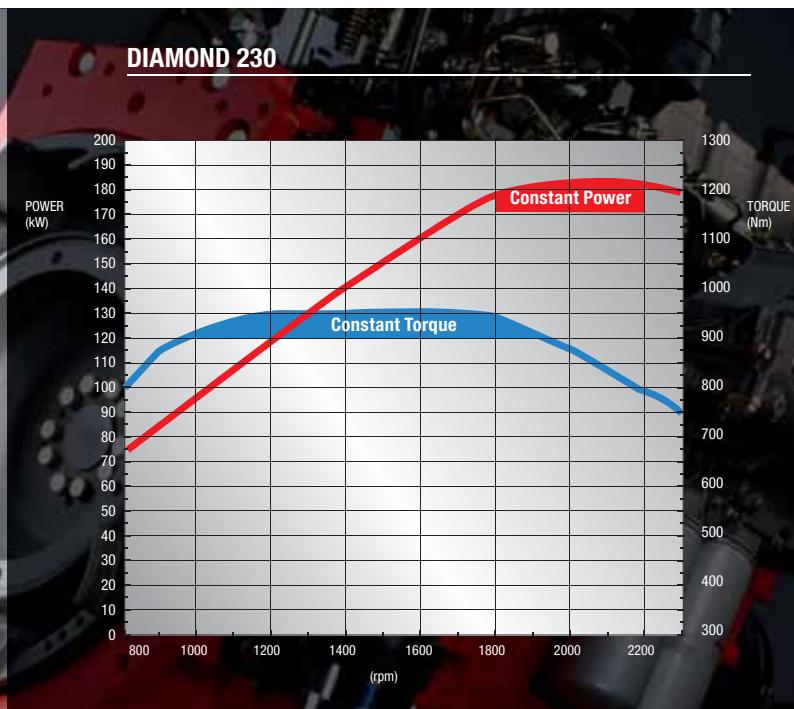
tems is that the two immersed pumps are lubricated by engine oil and not by the fuel, which translates into better safety and reliability. In addition, these pumps have a flow control system designed to avoid the recirculation of fuel to the tank, thereby minimizing pressure losses and temperature rise in the fuel.

The latest generation of electronic engine management

The innovative electronic engine management system runs a continuous analysis on information received from the engine, sensors and cab controls, and responds by delivering the power effectively needed at any given moment. Maximum power stays constant over a wide band of engine speeds, so that when revolutions drop under an increas-

ing load, not only does torque increase, but power will remain steady, while specific fuel consumption is significantly reduced.

Where high traction is needed — ploughing and heavy transport — these characteristics convert into lugging power and flexibility, for increased work rates.



Ec-EGR*

*Externally cooled Exhaust Gas Recirculation

The exhaust gas recirculation system significantly reduces nitrogen oxides (NOx), which are among the most powerful pollutants produced by the combustion of fossil fuels.

A butterfly valve governed by the engine control unit opens to allow some of the exhaust gases from the cylinder back into the inlet manifold, where they mix



with the air entering the cylinder; importantly, the external EGR system has its own cooler, by which the temperature of the recirculated exhaust gases is lowered, so as to ensure combustion efficiency is not jeopardized, and avoid increasing fuel consumption.

With electronic control, this externally cooled version delivers higher performance, especially in terms of acceleration and response.



B100

Thanks to a number of unique design features, the use of first-rate materials in construction, and a special conversion kit, the engines of Diamond models are able to ensure absolute functional efficiency and total compatibility with biodiesel fuel, allowing blend ratios of up to 100% (biodiesel responding to the specifications of EN 14214:2003). Biodiesel typically has a higher viscos-

ity than other engine fuels and is chemically more aggressive, but Deutz engines are equipped with a special fuel injection system utilizing 2 immersed pumps - lubricated by engine oil - and a fuel feed circuit with components manufactured from special materials, and consequently able to run on these new fuels without difficulty.

DIAMOND



More engine, more air

The operating temperature of Diamond power units is always just right, even when taking on the heaviest of duties. More particularly, these machines have a new cooling system that includes a new fan with blades and intake cone designed to improve the flow of air into the radiator-cooler stack, also new heat exchange cores with performance improved by 25%, a new intercooler delivering 20% improvement in performance to guarantee optimum fuel burn efficiency across the temperature range, and a new "combination" oil and fuel cooler.



TRANSMISSION

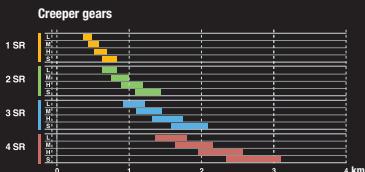
The power of the engine is translated into work by an exceptional transmission.

With 6 ranges, plus 4 creep speeds, each compounded by 4 powershift speeds (giving a total 40 ratios in both forward and reverse), the DIAMOND is able to progress from 450 m/h up to 50 km/h* with breathtaking smoothness and response.

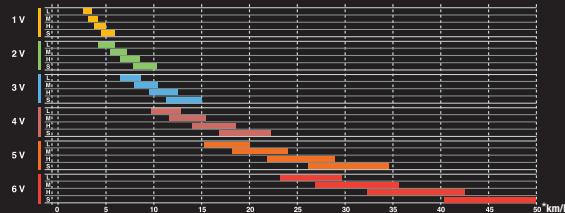
Also, with oil-immersed multi-disc clutches operating the powershift, the structural characteristics of the synchronising loads at different speeds can be scaled to guarantee maximum reliability and long service life.

With engine speed controlled electronically, the top speed of 40 km/h is gained with maximum fuel economy and minimal noise, at just 1870 rpm. 40 km/h registers at full power with the penultimate ratio selected.

Speed in km/h



Normal gears



*top speed may be limited by law to 40 km/h, in normal and economy operating modes alike.



In the band of speeds used most frequently (between 3 and 10 km/h), the Diamond has no less than 10 strategically scaled ratios available, giving the operator the right gear for the job, every time.

And changing gear is even easier and quicker, as the shift lever - besides carrying a pushbutton clutch control switch - is shorter and incorporated directly into the instrument console.

With powershift, the 4 speeds in each range can be selected on the go, allowing the driver to adapt the tractor speed to different working conditions quickly and precisely.

Powershift ratios can be selected either by pressing the 2 buttons on the transmission shift lever, or by moving the multifunction joystick back and forth.

DIAMOND



Automatic Powershift

For maximum comfort, the Diamond transmission is made fully automatic, so that ratios within the 4-speed range are selected without any action required on the part of the driver.

With automatic powershift, in command, it is the electronic control unit that selects and engages the right gear. Selection is electronic, precise and error-free, piloted constantly by load and engine speed data.

All the operator has to do is select either "performance" or "economy" mode (by way of a knob), which will set the parameters governing the automatic shift to give the preferred type of response: assertive or conservative.

Either way, the response of the electronics is always ultra-fast, and this makes automatic powershift invaluable for tasks requiring frequent changes of speed, as the operator is left to

focus entirely on the job in hand, while general engine performance and fuel economy are significantly improved.

The driveability of Diamond models is enhanced further by a clutchless hydraulic reverse shuttle: this is a device that renders the switch between forward and reverse smooth and effortless, particularly when making headland turns or manoeuvring in restricted spaces.

The shuttle also works on slopes and at speeds of up to 12 km/h without having to press the clutch pedal and is controlled by a handy lever under the steering wheel. The shuttle control is also duplicated on the multifunction joystick, where forward and reverse drive are selected simply by pressing one of two relative buttons.

SBA

Finally, manoeuvrability and traction are assisted still further by the SBA system:

An exclusive SAME feature, providing automatic control over the four wheel drive and differential lock functions.

According to the ground speed and the steering angle of the front wheels, the SBA engages or disengages 4WD and locks or unlocks the differential, giving added grip and traction (when ploughing, typically) or better manoeuvrability and safety (on the road, when carrying or towing).



POWER TAKE-OFF

Rear P.T.O.: two speeds

With two speeds: 540 Eco and 1000, selected by operating a simple switch, the efficiency of the rear power take-off on the SAME Diamond is fully optimized, allowing a wide range of tasks to be undertaken.

The 540 speed, generated with the engine at 1630 rpm, favours fuel economy and low noise, yet with supple response from the engine.

With the P.T.O. Auto function, moreover, the operator can program the power take-off to stop and restart when the rear lift links are raised and lowered to certain positions.

The multi-disc clutch is proportioned to absorb peak loads generated by the biggest and heaviest of implements, whilst the modulating clutch ensures maximum reliability even when using equipment with a high torque demand.



For maximum convenience, the P.T.O. can be operated both from the cab, and from the ground. Duplicate controls are provided on the rear fenders.

Diamond models can also be equipped with a front P.T.O. (1000 rpm), driven directly from the engine and push-button operated by way of an electro-hydraulic clutch.

With a front P.T.O., the tractor can be used to drive front-mounted implements, as well as multi-tasking with implements mounted front and rear.

HYDRAULIC SYSTEM

Powerful and versatile, Same Diamond models are able to tackle even the most punishing of workloads, using hydraulically operated implements of any description.

In effect, the new hydraulic system incorporates no less than three circuits powered by three separate pumps: one for the transmission lube circuit, powershift, hydraulic shuttle, P.T.O. clutch, four wheel drive and differen-

tial lock circuits, another for the hydrostatic power steering, and finally, a closed-centre load sensing pump rated 120 l/min serving the lift system and auxiliary spool valves.

The load-sensing pump uses a supply of hydraulic oil separate from the transmission oil; this ensures increased safety in operation, given that the transmission lube oil and the oil pumped to the implements are never

allowed to mix.

In addition, the design improves hydraulic efficiency, as the oil stays cooler and is less liable to emulsify.

The new system renders all functions totally independent of one another, ensuring that maximum power is always available to implements even when two or more services are activated simultaneously.



Auxiliary spool valves

The Diamond's hydraulic system includes 4 double-acting (8-way) spool valves with detent, kickout, float, flow regulator and timer functions. All hydraulic ports have "push-pull" type couplers and an individual oil recovery device (to catch any drops that may spill when connecting the implement hoses). All spool valves are electrohydraulic and can be controlled by the driver either from a small joystick on the multifunction armrest console, or using 4 pushbuttons on the main joystick.



Handling

The Diamond is a big horsepower machine, but nonetheless compact and extremely easy to handle.

With a new tapered front end frame section and pivoting front fenders, the steering angle can be widened to 52°, which significantly improves the minimum turning radius.

And the Diamond is no less agile and simple to manoeuvre when negotiating headland turns or on general yard duties, thanks to the independent power steering.





Front lift

Equipped with a powerful front lift of 5,100 kg rated capacity, Diamond models offer even greater versatility and productivity.

The unit is compact and has no additional bracket structure, so that the steering angle remains undiminished and the handling of the tractor unimpaired.

The front lift linkage also enables easy hitching of fast-attach front ballast weights, allowing swift changeover from one kind of job to another.



All kinds of implements naturally accommodated

The Diamond range has an electronic lift - with radar wheelslip control - capable of ensuring completely safe management of loads up to 10,500 kg.

An electronic control unit ensures precision management of lifting operations, proportioning the generous power of the hydraulic circuit to optimum advantage and monitoring all functions of the system continuously:

draft and position, quick soil engagement, mix, transport lock, lift height limiter, rate of drop, oscillation control and wheelslip.

Lift movements and settings are selected from a side console and indicated by

a digital display on the main instrument panel, in which the driver can view the various operating parameters.

The wheelslip setting, in particular, is selected directly with a knob operated by the driver.

With this highly efficient interactive electronic system, the occupant of the driving seat can check and monitor all the operating and productivity parameters of the tractor, in real time.

Also, for optimum management of control functions, especially repetitive actions, the on-board computer is equipped with a special S.D.S. feature: this is a handy device utilizing a mul-

tifunction joystick, which allows the operator to save up to 16 commands in sequence and select them at a single touch.

Operations saved and currently selected with the S.D.S. function can be viewed as easy-to-read icons in a dedicated display on the instrument panel.

COMFORT

The logic of well-being

The Same Diamond sets a new standard in matters of comfort, responding to the needs even of the most demanding user.

From the ergonomically designed interior of the cab to the use of the very latest technologies, and the improved ergonomics of the controls, the Diamond has everything needed to make life easier, in any operating condition and any climate.



All controls within easy reach

Functional and simple controls are a particularly important feature of tractors made by SAME. This being the case, the Diamond controls are intuitive to use, logically arranged and readily identifiable by shape and colour. The operator can therefore become quickly acquainted with the machine and its use, without the need to attend a special training course. The steering wheel is telescopic and height adjustable, whilst the driver's

seat is universally adjustable and transversely sprung, with reclining backrest and seat belt as standard. And to ensure that work is as much of a pleasure as possible, there are creature comforts too, including a drinks chiller or warmer of 2 litres capacity. The console to the right of the driver incorporates all the main control devices and has an anti-glare surface for optimum visibility.

DIAMOND



A driving position with minimal noise and vibration

Engine vibrations and judder from wheels and mounted implements are absorbed by a fully integrated suspension system.

The driving seat is fully adjustable for position, and fitted with an air suspension system that adapts automatically to the weight of the occupant.

The monolithic cab structure is kept at a constant height thanks to the automatic levelling action of the pneumatic suspension units.

Any variations in internal cab weight - however slight - are detected by a special sensor and compensated by special damper struts filled with compressed air.

This ensures that the travel of the suspension remains constant, and the cushioning effect is exploited to maximum effect.

The front axle suspension utilizes damper struts consisting of 2 hydraulic cylinders coupled to 3 nitrogen tanks.

These components are governed by an electronic control unit, ensuring

the suspension can be made harder or softer in response to the nature of the road surface.

Also, depending on the application (transport duties, for example, or tillage involving appreciable draft forces), the axle suspension can be engaged and disengaged by the driver.

Finally, to control the pitching motion of a mounted implement when on the road, the electronic linkage incorporates an anti-oscillation device that guarantees maximum safety, even when carrying heavy implements.

The system comes into operation automatically when accelerating past 8 km/h, activating special force sensors that pick up any vibration or swaying motion of the implement, which is then neutralized swiftly and precisely by a counteracting movement of the lift.

The cab

With the SAME Diamond, everything is easy from the word go. With big doors, wide non-slip steps and a continuous handrail provided, the operator can climb into and out of the cab quickly and safely. Courtesy lights are switched on automatically when the door is opened, for safety and convenience when stepping up and down in the dark.

A large expanse of window glass, no less than 7 m², ensures total all-round

visibility from the driving position. In effect, the width of the cab pillars is reduced to a minimum, and the exhaust pipe is routed up to the roof alongside the front pillar.

Accordingly, there is a clear view of the field and operated implement, with total visual control in all directions.

Lastly, a high visibility, opening glass roof hatch helps to maximize natural ventilation around the driving position. Air temperature and recirculation in

the cab are maintained steady by the air-conditioning and ventilation system: with 15 adjustable vents arranged intelligently around the cab, the driver can both adjust the temperature quickly and efficiently, and ensure the windows are kept demisted and defrosted.

Good air quality is assured by special filters installed in the cab side pillars, easily accessible for maintenance and quick cleaning (with compressed air).

TECHNICAL DATA

| | | Version | DIAMOND 230 | | | DIAMOND 270 | | | | |
|---|---------------------|---------|---|------|--|-------------|-----------|-------|-------|--------|
| | | | 4WD | | | 4WD | | | | |
| ENGINE | | | | | | | | | | |
| Cylinders/Displacement | no./cm ³ | | | | | 6/7146 | | | | |
| Valves | no. | | | | | 24 | | | | |
| Aspiration | | | | | Turbo Intercooler | | | | | |
| Homologated power at nominal engine speed (2000/25/CE) | HP/kW | | 242/178 | | | | 269/198 | | | |
| Max. power (2000/25/CE) | HP/kW | | 250/184 | | | | 275/202 | | | |
| Nominal engine speed | rpm | | 2300 | | | | 2350 | | | |
| Max. torque | Nm | | 961 | | | | 1052 | | | |
| Max. torque engine speed | rpm | | 1400-1600 | | | | 1500-1700 | | | |
| Torque backup | % | | 30 | | | | 31 | | | |
| Cooling | | | | | liquid-oil | | | | | |
| Engine control | | | | | electronic | | | | | |
| Air cleaner | | | | | dry with safety cartridge and dust ejector | | | | | |
| Silencer underhood | | | | | with exhaust on cab upright | | | | | |
| Fuel tank capacity | litres | | 360 (550) | | | | 550 | | | |
| DIMENSIONS AND WEIGHTS (with rear tyres) | | | | | 710/70 R 42 | | | | | |
| Max. length without link arms | mm | | | | 5000 | | | | | |
| Width min.- max. | mm | | | | 2750 | | | | | |
| Max. height at cab | mm | | | | 3255 | | | | | |
| Ground clearance | mm | | | | 600 | | | | | |
| Wheelbase | mm | | | | 3089 | | | | | |
| Front track min.- max. | mm | | | | 1800-2000 | | | | | |
| Rear track min.- max. | mm | | | | 1800-2000 | | | | | |
| Minimum steering radius without braking | mm | | | | 6100 | | | | | |
| Weight with cab | kg | | 8410 | | | | 9050 | | | |
| TRANSMISSION | | | | | | | | | | |
| Gearbox clutch | | | oil-immersed hydrostatically operated | | | | | | | |
| POWERSHIFT gearbox: 6 ranges for 4 power gears + creeper (min. speed: 0.48 km/h) | | | 40 FWD + 40 REV | | | | | | | |
| Max. speed | km/h | | 50 km/h limited by electronic regulator to 40 km/h* at nominal engine speed and economy engine speed (1840 rpm) | | | | | | | |
| Hydraulic power shuttle | | | double multidisc clutch in oil-immersed electronically operated with control lever under steering wheel | | | | | | | |
| Rear differential lock | | | electro-hydraulically operated | | | | | | | |
| Lubrication | | | forced with transmission oil cooler | | | | | | | |
| REAR P.T.O. | | | | | | | | | | |
| Clutch | | | multiple discs, oil-immersed | | | | | | | |
| Speed | rpm | | 540 ECON-1000 | | | | | | | |
| Operation | | | electro-hydraulically operated, push-button control | | | | | | | |
| FRONT P.T.O. | | | | | | | | | | |
| Clutch | | | multiple discs, oil-immersed | | | | | | | |
| Speed | rpm | | 1000 | | | | | | | |
| Operation | | | electro-hydraulically operated, push-button control | | | | | | | |
| BRAKES AND STEERING | | | | | | | | | | |
| Braking system | | | hydrostatically operated, integral braking by means of oil-immersed on rear wheels, and 4WD engagement | | | | | | | |
| Trailer braking | | | hydraulic braking valve | | | | | | | |
| Hydrostatic steering | | | pneumatic braking system | | | | | | | |
| Steering angle | | | independent pump, adjustable steering wheel | | | | | | | |
| DRIVING POSITION | | | | | | | | | | |
| Controls | | | | | multifunctional armrest with joystick | | | | | |
| Cab | | | | | storage and automation of repetitive actions | | | | | |
| Cab conditioning | | | | | original sound-proofed (72 dBA), with platform suspended on silent block, "high visibility" roof, rear wipers, 8 work lights, telescopic rear-view mirrors | | | | | |
| Instruments | | | | | as above with automatic compensation | | | | | |
| Driver's seat | | | | | pneumatic suspension | | | | | |
| with safety belt | | | | | air conditioning with drinks cooler, ventilation, heating, forced recirculation | | | | | |
| | | | | | analog with digital display | | | | | |
| | | | | | Driver's seat | | | | | |
| | | | | | with safety belt | | | | | |
| | | | | | pneumatic suspension, revolving | | | | | |
| POWERSHIFT GEARBOX 40 FWD + 40 REV - SPEED IN KM/H AT ENGINE SPEED OF 2350 RPM WITH 710/70 R 42 REAR TYRES | | | | | | | | | | |
| | 1 CR | 2 CR | 3 CR | 4 CR | 1 | 2 | 3 | 4 | 5 | 6 |
| L | 0,48 | 0,83 | 1,21 | 1,79 | 3,45 | 5,96 | 8,69 | 12,80 | 20,00 | 29,60 |
| M | 0,58 | 1,00 | 1,45 | 2,15 | 4,14 | 7,15 | 10,40 | 15,40 | 24,00 | 35,60 |
| H | 0,69 | 1,19 | 1,74 | 2,57 | 4,96 | 8,57 | 12,50 | 18,50 | 28,90 | 42,50 |
| S | 0,83 | 1,43 | 2,09 | 3,09 | 5,95 | 10,30 | 15,00 | 22,20 | 34,60 | 50,00* |

The above specifications refer to tractors with all available equipment. For standard equipment and options, refer to the current price list and ask your local dealer for details.

*=FOR SOME COUNTRIES SPEED LIMITED TO 40 KM/H FOR LEGALE PURPOSE
PLEASE NOTE: REVERSE SPEEDS ARE SLIGHTLY LOWER THAN THE CORRESPONDING FORWARD SPEEDS.

DEALER CONTACT



Akros

SPECIALISED LUBRICATION FOR SAME

Company with Quality System Certified
in compliance with ISO 9001:2000

SAME DEUTZ-FAHR GROUP S.p.A. _ Viale Cassani, 14 _ 24047 Treviglio (BG) _ Italy _ Ph: +39 0363 4211 _ www.samedeutz-fahr.com

SAME DEUTZ-FAHR U.K. LTD. _ Barby Lane, Barby, Nr Rugby _ CV23 8TD _ WARWICKSHIRE _ UK _ www.same-tractors.com