

ZETOR CRYSTAL

CRYSTAL HD



Tractor is Zetor. Since 1946.

Zetor

ZETOR CRYSTAL HD

A TEAMMATE FOR HARD WORK

ZETOR CRYSTAL HD represents the most powerful and the best-equipped tractor in ZETOR portfolio. The six-cylinder engine with up to 171 HP predestines it for work on medium and large-sized farms, for use in crop production, for aggregation with various farm machines, as well as for transport and other applications.



Spacious and comfortable cab with low noise level

Electronically operated external hydraulic outlets

New PROFI seat for comfortable all-day work

Multifunctional right panel with integrated controls and joystick

New colour dashboard

Powerful six-cylinder engine with excellent traction from low speeds and with high torque

Innovated and economical ECO40 gearbox with improved shifting comfort

Low costs for maintenance and operation and reasonably priced spare parts

Straightforward and intuitive operation

Independent suspended axle providing excellent driving comfort

PERFORMANCE

The six-cylinder engine with a maximum power of up to 171 HP gives the tractor enough strength to easily cope with a hard workload.

ENDURANCE

In wind and in rain. In summer and in winter. In the daytime and at night. ZETOR CRYSTAL HD does not wait for ideal conditions. It supplies power at all times.

TOTAL COST OF OWNERSHIP

Every teammate needs to be replenished with some juice from time to time. However, the ZETOR will surprise you with its low fuel consumption. The spare parts are reasonably priced. You can get quick and high quality service all over the world.

INSPIRED BY LEGEND

ZETOR CRYSTAL HD draws from the legendary powerful machines which conquered the world. CRYSTAL tractors have been manufactured under the ZETOR brand since 1968. In more recent history, the manufacture of the CRYSTAL model was resumed in 2015. In 2018, new generation of this machine has been put on the market. Unlike its predecessor, it brings further innovation which aims to bring new functions and to improve user comfort.

ENGINE

SIX CYLINDERS UNDER THE HOOD

Six-cylinder engines made by DEUTZ AG guarantee the high power of the CRYSTAL tractor. The engines deliver a maximum output of 150 and 171 horsepower.

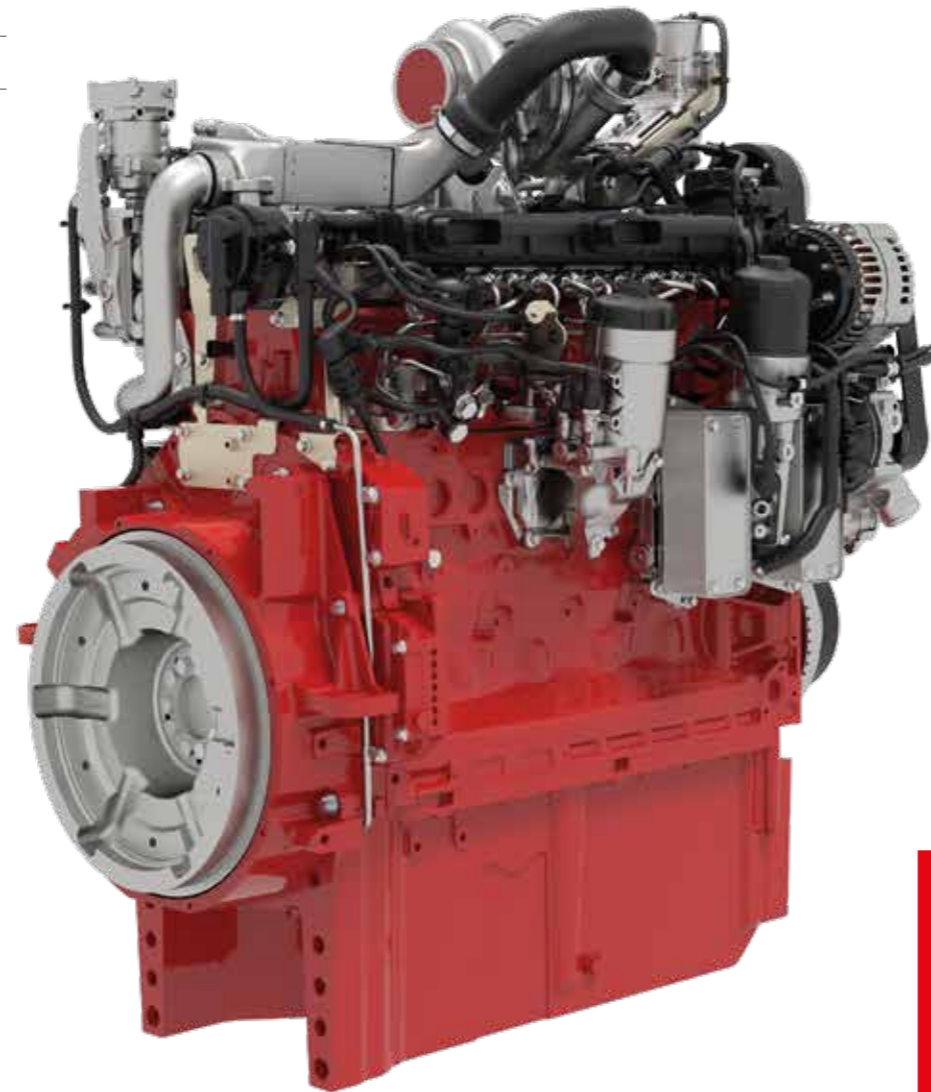
All CRYSTAL line engines come from the well-proven concept of six-cylinder diesel engines fitted with 24 valves and a Common Rail injection. Electronic control of the high-pressure injection allows for the very precise dosing and perfect dispersion of fuel and thus also its perfect combustion. This maximises the engine efficiency, lowers engine noise and vibrations and helps achieve excellent performance parameters and low fuel consumption.

POWER	CRYSTAL HD 150	CRYSTAL HD 170
Rated power (HP)	144.2	163.6
Maximum power (HP)	150.0	171.0

TENACITY IN ANY CONDITIONS

High torque incline guarantees high engine tenacity.

The engine's great property is its excellent pull at low RPM and high torque. When working in difficult conditions and at dropping RPMs the power remains almost constant while the torque increases, which provides the tractor with the necessary strength at increasing driving resistance.

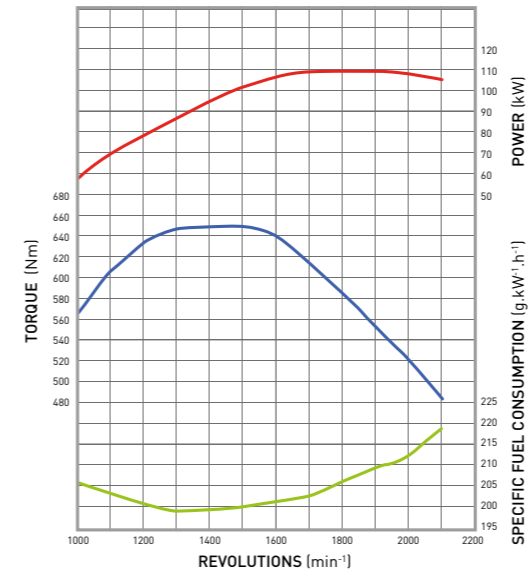


ENGINE CHARACTERISTICS

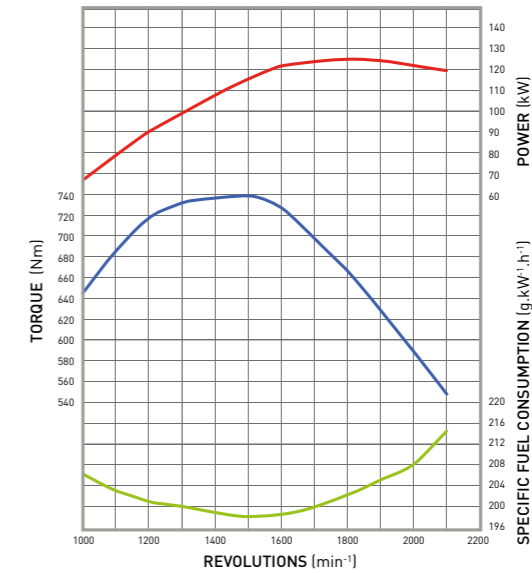
- diesel, straight and water cooled engine
- turbocharged
- state-of-the-art Common Rail injection system
- complies with the Stage IV emission standard
- engine is ready for the Stage V

ENGINE OUTPUT CHARACTERISTICS

TCD 6.1 L6 – 106.0 kW



TCD 6.1 L6 – 120.3 kW



The overhauled fuel tank with 300 l volume ensures sufficient fuel for an entire day's work in the field.



- high efficiency
- low fuel consumption
- high quality
- high durability
- minimum production of harmful emissions
- smooth operation without the need for a balance shaft
- low noise
- large fuel tank allowing for an entire day's work
- ease of starting at low temperatures

CLEAN AND ECOLOGICAL OPERATION

The engine meets the very strict emission limits according to the current Stage IV standard. A diesel particulate filter and SCR technology (urea) are used to clean the exhaust fumes. Thanks to these technologies, the engine not only decreases the amount of harmful substances released by the tractor, but also attains lower fuel consumption compared to engines of an older design. As such you not only protect your and your children's health, but also save on the costs of the tractor's operation.

TRANSMISSION

INNOVATED DESIGN

The transmission for CRYSTAL HD is developed and manufactured directly by ZETOR, which allows us to guarantee the quality of the design.

The transmission for CRYSTAL HD has undergone a number of improvements, the result of which is a more comfortable manner of gear shifting and economical operation at higher speeds.

The five-gear fully synchronised transmission has two driving speed ranges (standard and reduced speed) and a three-stage PowerShift. There are a total of 30 forward gears and 30 reverse gears.

The driving direction is changed by a hydraulic reverser lever (PowerShuttle) without the need to press the clutch pedal (reversing under load).



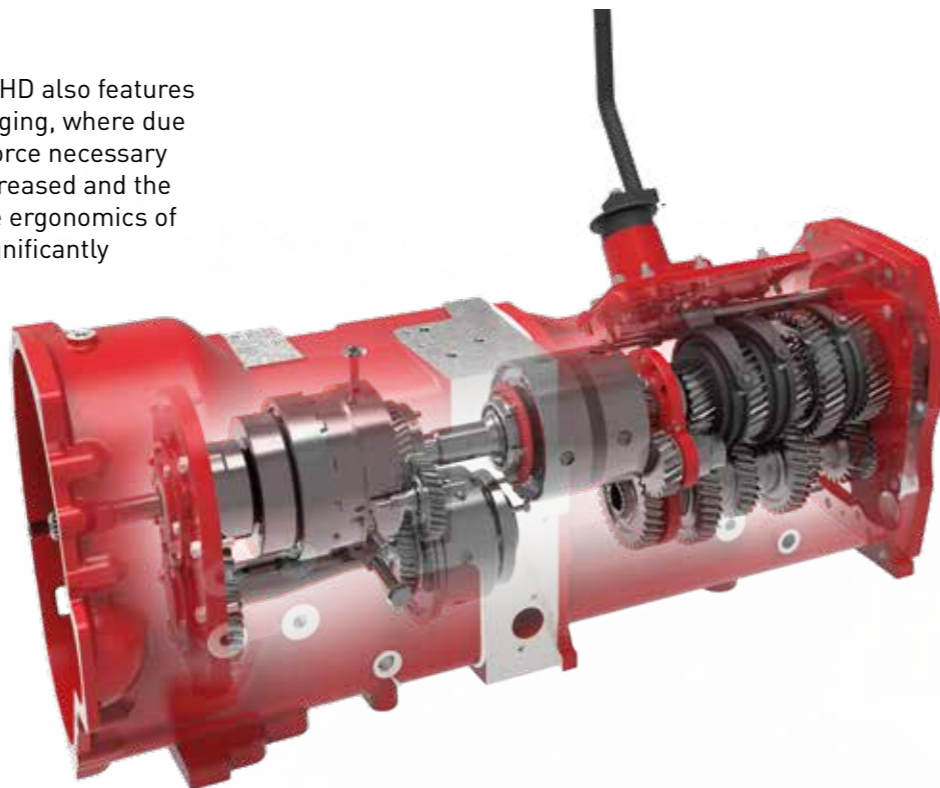
SAVES FUEL

The innovated ECO 40 transmission allows users to reach top speeds (40 km/h) at lower RPMs (1800 RPM). This optimisation results in fuel savings of up to 20% and decreases the noise and engine wear.



IMPROVED ERGONOMICS

The innovated transmission of CRYSTAL HD also features an overhauled mechanism for gear changing, where due to the utilisation of bowden cables, the force necessary to shift gears has been substantially decreased and the shifting tracks have been shortened. The ergonomics of the new gear shifting mechanism are significantly better in comparison to the previous generation of the CRYSTAL model.



- in-house development and production
- long lifetime
- innovated ECO40 transmission with substantially lower fuel consumption at higher speeds
- improved ergonomics of gear shifting
- 13 gears available in the working range (4-12 km/h)

FUNCTIONS SYMPLIFYING TRACTOR OPERATION

PowerShift

Three-stage torque multiplier



The multiplier gears can be changed by buttons on the gear lever. When the automatic function is selected, the multiplier gears are shifted automatically without any input from the driver.

PowerClutch

Clutch button



When shifting the driving gear, one may use the clutch button on the gear lever instead of pressing the clutch pedal. Using this button eliminates wear of the driving clutch.

PowerShuttle

Electro-hydraulic reverser

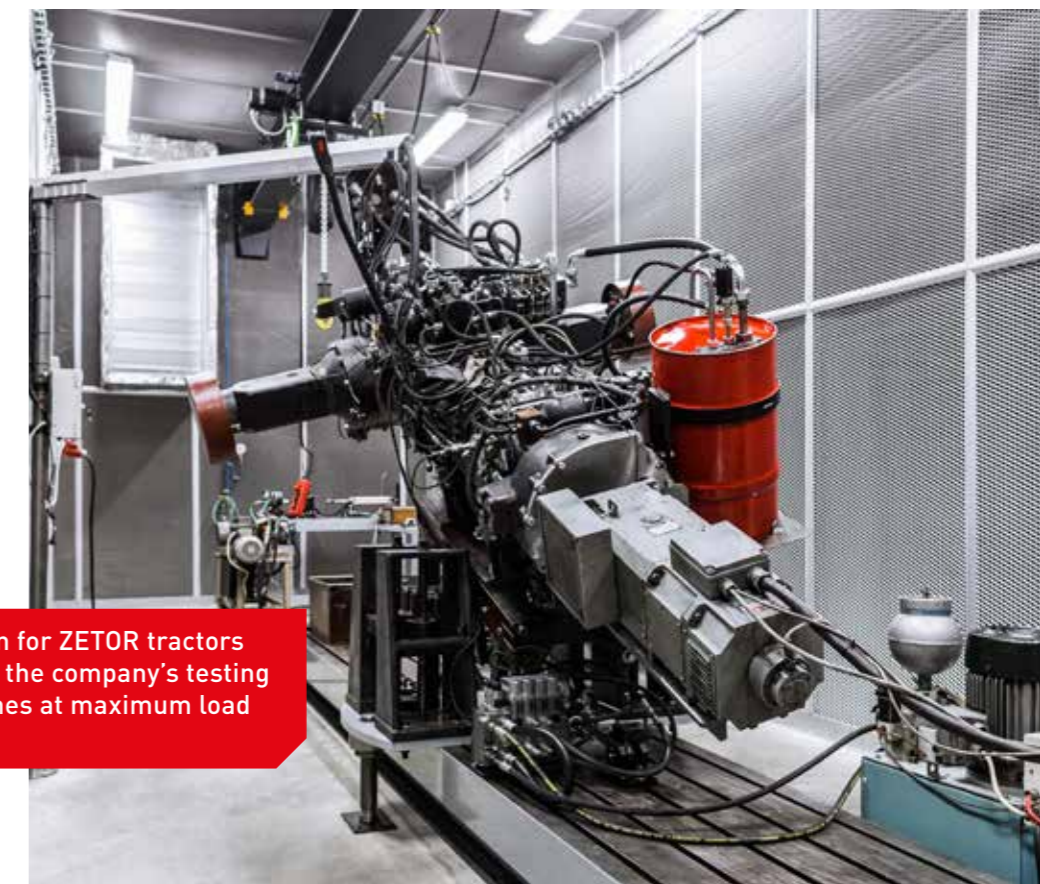


The driving direction of the tractor is changed by moving the reversion selector without the need to press the clutch pedal. The protective "cradle" under the reverser prevents the accidental move of the reverser.

AUTOMATIC POWERSHIFT

Automatic powershift shifting works depending on the engine RPMs according to pre-stored RPM values. The advantage of this mode is that it allows the engine RPMs to be kept in the range required by the driver without any input from the driver.

The new and innovated transmission for ZETOR tractors undergoes thorough testing, first at the company's testing centre and then in prototype machines at maximum load in real-life conditions in the field.



CABIN

MORE COMFORT

A drive in the new ZETOR CRYSTAL HD is comfortable. The suspended cabin along with suspended axle delivers a comfortable driving experience. The position of the cabin in the new CRYSTAL HD has been elevated by 10 cm, resulting to a better view for the the driver.

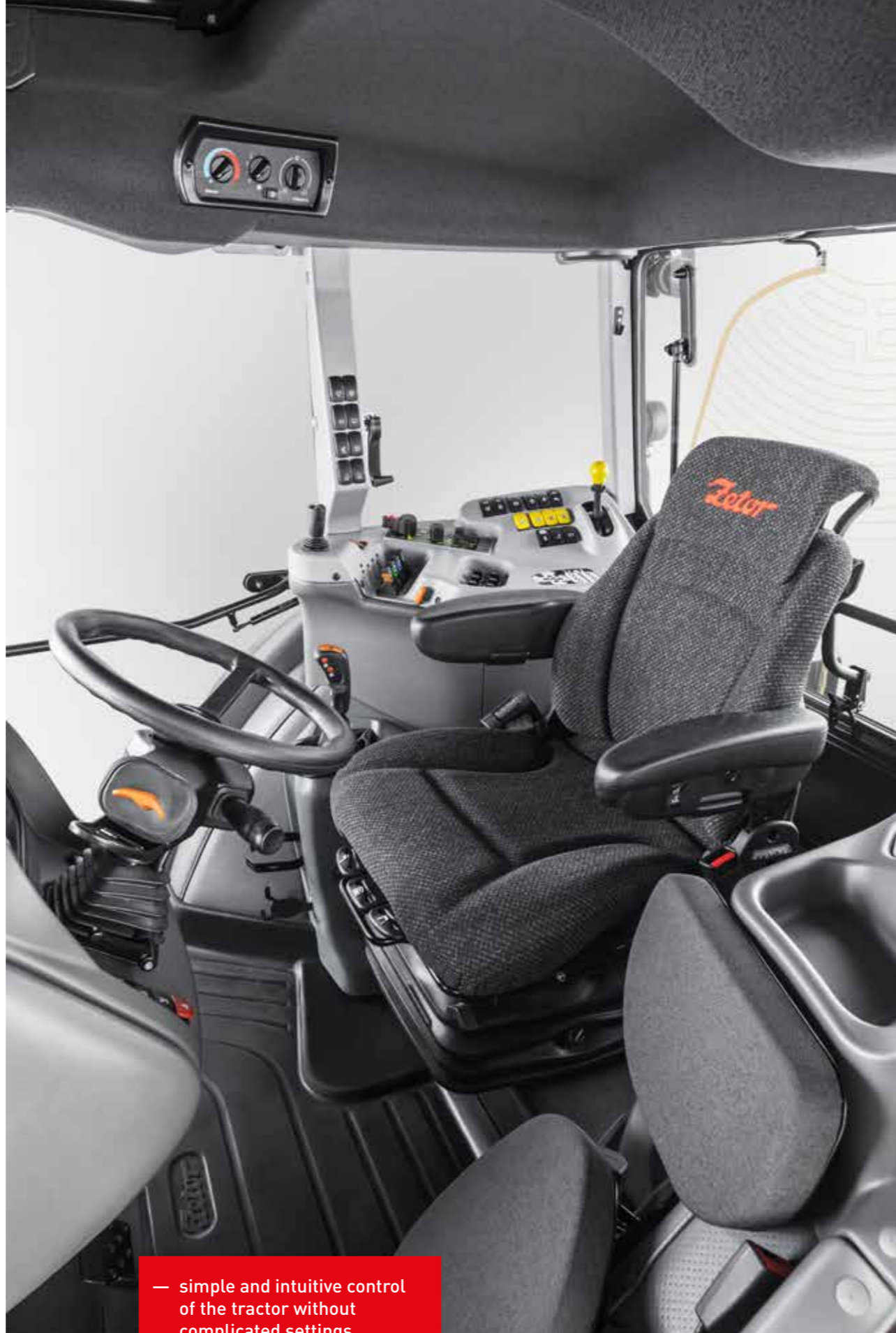
The cabin is spacious and comfortable. The quiet engine operation will literally take you by surprise. All controls are placed so as to provide the driver with good access – on the right panel or steering column.

EACH THING WILL FIND ITS OWN PLACE

There is also plenty of storage space in the cabin, where the driver may store his/her belongings – 2 storage shelves on the left side of the cabin, 2 bottle holders, document bag on the driver's seat, storage space for small items (mobile phone, keys, etc.).

WE AT ZETOR THINK ABOUT YOUR SAFETY

- The driver's seat and passenger's seat are equipped with a self-winding safety belt as a standard.
- The OPS sensor is built in the driver's seat, which automatically stops the PTO when the driver leaves the seat to prevent injury from the attached machinery.
- The rear view mirrors are newly panoramic – the driver has perfect overview of what's going on around the machine. An inside rear view mirror was added to the cabin.
- The automatic PTO stop function means that after the rear three-point hitch arms are raised, the output shaft automatically stops. After the subsequent lowering of the TPH arms and take-off, the PTO starts spinning again.



- simple and intuitive control of the tractor without complicated settings
- low noise level in the cabin
- opening sunroof
- right multifunction panel with joystick
- a lot of storage space
- elevated cabin for better view

ALL WITHIN AN ARM'S REACH

The multifunction panel on the right side of the cabin contains controls for controlling important functions of the tractor. As such all of the tractor's important controls are in one place.



1. Control of the lights and wipers, heating of the rear window and rear view mirrors
2. Joystick for controlling two hydraulic sections, three point hitch or front loader
3. Hydraulic circuit controls
4. Hand-held accelerator
5. Shut-down timer for hydraulic circuits
6. Settings for oil flow in the hydraulic circuit
7. Selector for the RPM mode of the PTO
8. Electro-hydraulic control of the rear TPH
9. Controls for:
 - PTO on/off
 - Differential locks
 - Setting of the height position of the front suspended axle
 - Torque multiplier pre-set settings



ALL INFORMATION IN ONE PLACE

ZETOR CRYSTAL HD received a new dashboard. The dashboard excels in its lucidity, simple control, large coloured display and good readability in daylight and at night.

The dashboard displays a number of basic and more advanced information.



A VIEW OF THE FRONT LOADER OR THE NIGHT SKY?

The cabin roof features an openable sunroof, which may be used for ventilation and it also provides good views when working with a front loader. If the sun is shining through the sunroof onto the driver, there is nothing simpler than pulling down the non-transparent plastic sun shield.



COMFORT WITHOUT COMPROMISE

When working hard for the whole day, the driver of a CRYSTAL deserves a high degree of comfort. The answer to these demands is the new PROFI seat, which is fitted as a standard in all CRYSTAL tractors. You do not need to think about whether to pay extra for a better seat, as CRYSTAL features it in the price of the basic model.

- Pneumatically suspended seat
- 20° turning
- Heated seat
- Horizontal suspension
- Lumbar back support
- Adjustable head support
- Adjustable elbow rests
- Self-winding seat belt
- Bag for documents
- Adjustable length and incline



AS WARM OR COLD AS YOU WISH

ZETOR CRYSTAL HD is equipped as a standard not only with heating, but also air conditioning, which guarantees good climatic conditions in the cabin in any weather.



PERFECT VIEW

Panoramic rear view mirrors and the inside mirror provide excellent views of the machine surroundings, attached machinery and terrain conditions. As such they make work easier while increasing safety.



MAKE YOURSELF VISIBLE

The tractor may be fitted with up to two beacon upon request.



SUFFICIENT REFRESHMENTS

Not only on hot summer day is it important to replenish your fluids. The CRYSTAL cabin is fitted with two bottle holders – one is positioned next to the shifting lever, the other on the right side next to the driver's seat.



PERFECT VISION EVEN AT NIGHT

CRYSTAL serves day and night. For night work it is fitted with 4 roof lights (in each corner) and 2 spotlights as standard. Upon request the combination of 8 LED roof lights (2 in each corner) and 2 LED spotlights is possible.



EASY ENTRY

The newly overhauled entry steps facilitate entry to the tractor cabin. The stepping surface has serrated anti-slip treatment that prevents slippage. The last step is placed on a rubber attachment so that it is not torn away in case of collision with an obstacle.



HEAVY METAL OR CHILL OUT?

To make the work more pleasant, the tractor is fitted with a radio with a standard FM and AM tuner. It can also play music from a CD or USB.

SUSPENDED AXLE

EXPERIENCE THE HIGH DRIVING COMFORT

The CRYSTAL HD model includes a suspended front axle in the basic configuration.

UNIQUE DESIGN

The axle consists of two separate and individually suspended semi-axles. It is characterised by its exceptional rigidity and large reserve against long-term straining. The suspension of the wheels is executed with a pair of trapezoid arms and is mutually independent. Both wheels are suspended individually. The trapezoid mechanism of the axle suspension is patented and technically very close to multi-link automobile wheel suspension.

100% LOCK

The front driving axle is fitted with a 100% lamellar and hydraulic-controlled differential lock. The 100% differential lock improves the traction properties of the tractor in adverse conditions. It allows up to a 100% transfer of traction power to one wheel.

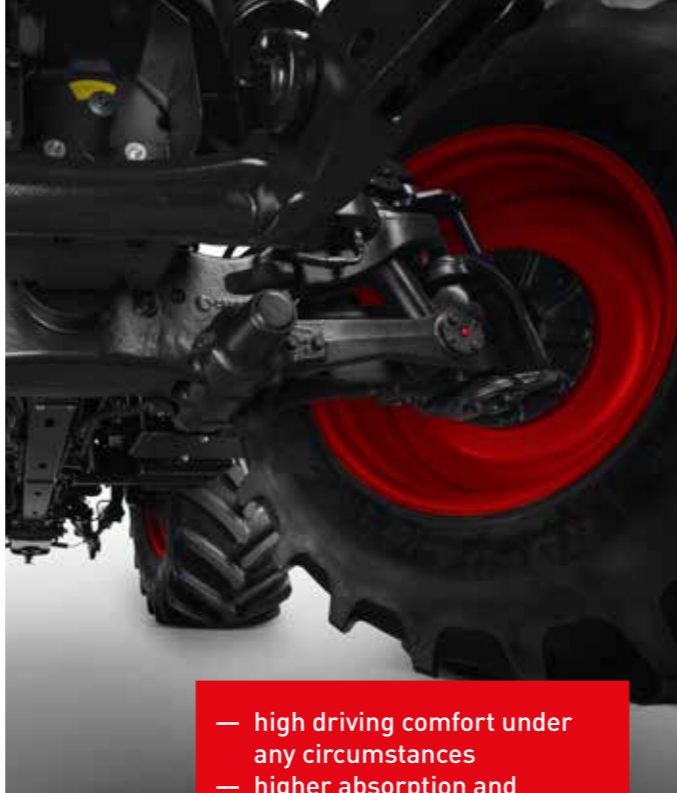
EFFECTIVE SHOCK ELIMINATION

The independent suspension of both wheels of CRYSTAL HD provides better shock elimination during the ride and thus brings much more comfort than is possible in the case of the central suspension of the whole axle used in other tractors.



Independent suspension of both wheels

Central suspension of the axle



- high driving comfort under any circumstances
- higher absorption and dampening properties thanks to less suspended mass – this helps to achieve a lower level of vibrations
- excellent feedback from the front wheels for increased control

HEADLAND SEMI-AUTOMATICS

CRYSTAL HD is equipped with a 100% differential lock and headland semi-automatic system. The headland semi-automatic system decreases the number of actions in every instance of turning on a headland, thus simplifying the machine operation and ensuring better manoeuvrability. This system consists of a combination of the automatic control of the 4WD forward driving axle, 100% differential lock on both axles, rear three-point hitch and rear output shaft.

HYDRAULICS

POWER AND ACCURACY IN ONE PACKAGE

The three-point hitch is controlled via the Bosch electro-hydraulic system (EHR) with HitchTronic function, which allows the automatic regulation of the rear three point hitch.

Two auxiliary hydraulic cylinders ensure the even load distribution of the tractor and maximum lifting force of up to 85 kN.

CRYSTAL HD is equipped with a 4-section hydraulic distributor with electro-hydraulic control. Category III hitches are compatible with a broad variety of attachments.

HYDRAULICS CHARACTERISTICS

- Category III three point hitch
- BOSCH electro-hydraulic system with HitchTronic function
- 4-section distributor (8 couplers +1 return circuit)
- Hydraulic pump output of 85 l/min
- Electronic regulation of hydraulic oil flow through couplers



ELECTRONIC CONTROL OF OUTSIDE HYDRAULICS



1. Switches control hydraulic sections I-IV. The colours of switches correspond to the colours of the coupler covers. The control of the III. and IV. section (or as the case may be, control of the front hydraulic circuits, if installed) may be switched to a joystick control mode.
2. A time interval may be set for the controller, after which the oil flow to the coupler is closed.
3. A flow-through capacity may be set for the controller (10%-100%).

Upon request, the tractor may be fitted with front three-point hitch and front hydraulic outputs (2 couplers + 1 return circuit).



HITCHTRONIC

HitchTronic is a unique system for the automatic regulation of the rear three point hitch. When using this system it is not necessary to adjust the types of regulation and their required sensitivity. The only parameter to set is the working depth of the plough. When the plough attached to the rear three point hitch reaches the set depth, the regulation system will measure the soil resistance and this value is used as the basis for the automatic regulation of the rear three point hitch.

— HitchTronic increases work productivity and decreases fuel consumption per unit of processed area by approximately 5-7%
 — HitchTronic simplifies EHR settings, it brings comfort and simplifies work by optimally setting the mixed regulation according to the current conditions



1. Lift control lever (4 positions)
2. TPH suspension
3. Depth setting
4. Limitation of the top position
5. Continuous setting (mixing) of power-based and position-based regulation ratio
6. Lowering speed

PTO

POWER FOR YOUR MACHINES

The rear PTO is executed with an independent rotation speed, meaning that the number of revolutions of the rear output shaft is only dependent on the engine's RPM. The tractor is equipped with a combination of the rear PTO speeds of 540/540E/1000/1000E.

The clutch of the rear output shaft is fitted with a feedback-controlled start. This achieves an easy, comfortable start and higher life time of the clutch.

POWER AT THE REAR PTO AT 2,100 RPM

MODEL	CRYSTAL HD 150	CRYSTAL HD 170
PTO Power (kW/HP)	94 / 128	102 / 139



Just as the three point hitch arms, the PTO may be controlled directly by buttons on the rear fender of the tractor.

CRYSTAL HD may be fitted with a front PTO in a clockwise or counter-clockwise sense of movement upon request.

WHAT THE PRESS WROTE ABOUT CRYSTAL

In our test with a six-blade semi-carried plough, the machine had to prove its worth – and it indeed surprised us: even from the low range RPM, the motor had not trouble climbing to 38% of the torque incline!

PROFI (Germany): Lucas Colzman, Sechs Zylinder für Jederman (11/2015)

We praise the automatic transmission control. Thanks to the PowerClutch system and hydraulic reversion we seldom had to use the clutch pedal, practically only during headland manoeuvring. Gear shifting is comfortable. The multipliers shift quickly and without any abrupt jerking. The tractor designers deserve a compliment for the good turnaround radius. Manoeuvring a 6-metre unit in the field was trouble-free.

AgroMechanika (Poland): Jacek Skudlarski, Nowy traktor Zetora (11/2015)

Crystal has good driving comfort due to the luxurious independently suspended Carraro front axle and mechanically suspended cabin. It dampens shocks effectively, as was evidenced when driving at top speed on an uneven cobble road. The cabin of the vehicle is pleasantly quiet.

TREKKER (Holland): Martijn Knuivers, Zetors Groe Diamant (1/2016)

The operator's area is generally one of Zetor's virtues. The Crystal's cabin with six columns provides comfort thanks to the mechanical suspension. "The cabin is spacious and well silenced. It comfortably accommodates two people and they can talk without having to raise their voices. The passenger's seat with a safety belt is really ideal for me, because I regularly bring along four-year old Clovis", summarises Jean-Noël Drouet.

Material Agricole: David Laisney, Plusieurs cordes à son arc (12/2015)



ZETOR ORIGINAL SPARE PARTS

ZETOR TRACTORS a.s. secures the world-wide sale of original ZETOR spare parts for the warranty and post-warranty service of ZETOR tractors through its distribution network. The quality of spare parts is continually checked during production and is identical to the quality of the parts used in the assembly of new products.

The original parts include all improvements and innovations ensuring the full restoration of the operational and utility characteristics of the repaired machine. The authenticity of the supplied spare parts is secured by packing in original packing with a unique identification number.

- Zetor spare parts attain high quality for reasonable prices.
- In order to maintain the high lifetime of the tractor, we recommend using only original ZETOR spare parts.



ZETOR original spare parts are available only through ZETOR authorised dealers. For more information, visit www.zetor.com/sales-and-service-network

ZETOR ORIGINAL OILS

For ZETOR tractors we recommend original oils, which are identical to the oils the tractors are filled with from the factory.

ZETOR Oils may be purchased through our sales and service network.

- Engine oils
- Transmission oils
- Front axle oil
- Hydraulic oil

Extend the lifetime of your tractor by using ZETOR original oils.



DEVELOPED AND MANUFACTURATED IN THE HEART OF EUROPE

MORE THAN ONE MILLION CUSTOMERS CANNOT BE WRONG

PRODUCTION

The manufacturing base of ZETOR tractors, engines and transmission is concentrated in the Czech Republic. The background of our own development and manufacturing centre contributes to the ultimate quality of the offered products and enables the effective management of innovation development and application. ZETOR TRACTORS a.s. is a corporately responsible company that emphasises the quality of its products, ecology and protection of the environment. These principles are guaranteed by the ISO 9001 quality certificate, which the company has acquired.



Since the beginning of the production of ZETOR brand tractors in 1946, more than 1.3 million units have been made, with the majority of these units being exported to over 90 countries around the world.

DEVELOPMENT

The technical section forms the long-term and stable research, development and testing background of ZETOR TRACTORS a.s. It represents the high professional level of the research staff team, which uses their extensive knowledge base and experience in the field, supported by cutting-edge technologies. It secures the comprehensive and systematic research and development of the manufacturing programme – from concept, design, assembly, and the production of functional samples and prototypes all the way to lab tests and operation tests of the tractors and engines.



ZETOR CRYSTAL HD

MODEL	UNITS	CRYSTAL HD 150	CRYSTAL HD 170
ENGINE			
Engine Type	•	TCD 6.1 L6	
Emission level	•	Stage IV / Tier 4 Final	
Max. Power	kW / HP	110.3 / 150.0	125.7 / 171.0
Rated Power	kW / HP	106.0 / 144.2	120.3 / 163.6
Rated Speed	rpm	2,100	
No. of Cylinders / Valves	•	6 / 24	
Aspiration	•	Turbocharged	
Fuel Injection System	•	Common Rail	
Cooling	•	Viscous fan clutch	
Displacement	cm ³	6,057	
Bore / Stroke	mm	101 / 126	
Max. Torque	Nm	650	739
Torque Rise	%	38	36
TRANSMISSION			
Type	•	ECO 40 transmission Reversing 5-stage with automatic 3-stage PowerShift	
Number of Gears	•	30/30	
Shifting	•	Fully synchronized	
Reverser	•	PowerShuttle (Electro-Hydraulic)	
Multiplier	•	3-stage PowerShift	
Max. Speed	km/h	40	
PTO			
Type	•	Multi-plate PTO clutch with feedback controlled starting	
Rear PTO			
— PTO Speeds	rpm	Independent (540/540E/1,000/1,000E)	
Front PTO ^{OPT}			
— Front PTO Speed	rpm	1,000	
— Max. Power of Front PTO	•	Up to 90 kW	
— End piece	•	CW/21 or CCW/6	
HYDRAULICS			
Type	•	Bosch electro-hydraulics with HitchTronic function, 2 auxiliary cylinders	
Rear Three-Point Hitch			
— Type	•	Category III	
— Max. Lifting Capacity	kN	85	
— Lifting Capacity in full range	kN	78	
Front Three-Point Hitch ^{OPT}			
— Type	•	In set with front 7 and 3 pole socket	
— Max. Lifting Capacity	kN	35,9	
Pump Capacity	l/min	85 (gear)	
Hydraulic remotes (Quickcouplers)	•	8+1	
Front Hydraulic remotes (Quickcouplers)	•	2+1	

MODEL	UNITS	CRYSTAL HD 150	CRYSTAL HD 170
CAB			
Suspension	•	Suspended cab	
Roof	•	With sunroof or FOPS protection with sunroof ^{OPT}	
Seat	•	Comfort seat pneumatic suspension, heating, backrest and seat belt	
Passenger Seat	•	Standard (with safety belt)	
Controls	•	Multifunctional panel with joystick	
Heating	•	Standard	
Air-Conditioning	•	Standard	
Heated Mirrors and Rear Defroster	•	Standard	
Radio	•	Standard	
Steering Wheel	•	Tiltable and telescopic	
UNDERCARRIAGE			
Drive System	•	4WD	
Front driven axle	•	Suspended with independent suspension of half-axles	
Operating brakes	•	Rear brakes: Independent pneumatically controlled brakes Front brakes: hydraulically controlled brakes	
Trailer brakes ^{OPT}	•	Pneumatic 2+1 hoses or hydraulic & pneumatic 2+0 hoses	
Fuel tank / Urea tank	l	300 / 32	
Front Mudguards	•	Pivoting	
OTHER SPECIFICATION			
Operating Weight*	kg	5,760–6,500	
Max. Technically Permissible Weight	kg	10,000	
Max. Front Ballast	kg	1,200	
Max. Rear Wheel Ballast	kg	472	
Max. Length	mm	5,410	
Max. Width	mm	2,550	
Max. Height	mm	3,045	
Ground clearance	•	400–522	
Wheelbase	mm	2,850	
WHEELS			
Front and Rear wheels combinations	•	480/65 R28 X 600/65 R38, DW18 540/65 R28 X 650/65 R38	

* Without front and rear ballast





^{OPT} Optional equipment

Zetor

My family.
My work.
My Zetor.



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