

# HDI

## MOTOR GRADER

# DG130 / DG170 DG190 / DG220

## Powered by Innovation



Model	Engine	Transmission	Moldboard	Operating Weight
DG130	Cummins 6BT5.9 97kW (130 hp)	Power shift (ZF Technology), 6 Fwd / 3 Rev Gears	3,658 mm	12.0 ton
DG170	Cummins 6BT A5.9 132kW (178 hp)		3,658 mm	14.5 ton
DG190	Cummins 6CTA8.3 142kW (190 hp)	6 Fwd / 3 Rev Gears	4,268 mm	15.6 ton
DG220	Cummins 6CTA8.3 160kW (215 hp)		4,320 mm	15.8 ton

Certain specification(s) are based on engineering calculations and are not actual measurements. Specification(s) are provided for comparison purposes only and are subject to change without notice. Specification(s) for your individual Doosan equipment will vary based on normal variations in design, manufacturing, operating conditions, and other factors. Pictures of Doosan units may show other than standard equipment.

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Photos may include optional equipment

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# WHAT'S NEWEST AND BEST

HDI strives to build state-of-the-art road machinery that meets various preferences and ensures maximum performance, higher precision and superior quality.

## THE BEST PRODUCTIVITY AND FUEL EFFICIENCY

- High performance and fuel-efficient engine
- Reliable and proven transmission
- Strong A&U-shaped drawbar and optimal curvature moldboard
- Wide tires (17.5-25 12PR L3)
- Bright and long-lasting LED lights

## EASY MAINTENANCE

- Easy access to service areas
- Disconnect switch
- Replaceable wear inserts

## EASY CONTROL AND OPERATOR'S SAFETY

- Spacious cabin with excellent visibility
- Dual (Lever & Pedal) throttle control
- ROPS Frame (Optional)
- Air-conditioner
- Adjustable Control Console
- Suspension Seat
- Beacon Lamp (Amber) (Optional)

## WORK TOOLS AND ATTACHMENTS

- Durable frame and attachments
- Automatic leveling device (Optional)
- Tire 13.00-24-12PR G-2 (for agriculture) (Optional)
- Scarifier (Mid, V-type, 11 shanks) (Optional)
- Ripper (3 or 5 shanks) (Optional)
- Front Dozer (Optional)



High Efficiency



High Stability



Low Fuel Consumption

Photos may include optional equipment



# THE BEST PRODUCTIVITY AND FUEL EFFICIENCY

## DRAWBAR, CIRCLE AND MOLDBOARD

The drawbar is composed of strong A & U-shaped frame for strength durability, and precise blading control. The heat-treated rotating ring structure is equipped with four turntable of inner gear guide type, can obtain 360° smooth rotation. The moldboard provides optimal curvature that helps move all soil types quickly and efficiently.



## HIGH PERFORMANCE AND LOW EMISSION ENGINE

HDI MOTOR GRADERS, Cummins turbocharged engine, realizes high productivity and low fuel consumption.

Durable mechanical inline fuel injection system provides precise throttle control and thus it delivers higher work speeds with high horsepower.



## RELIABLE AND PROVEN TRANSMISSION

ZF-technology powershift transmission is best matched with Cummins engine and is reliable and easy to operate, suited for all types of working conditions.



Photos may include optional equipment

\* Above result is based on internal test, against the same operation weight machine.



# MAINTENANCE



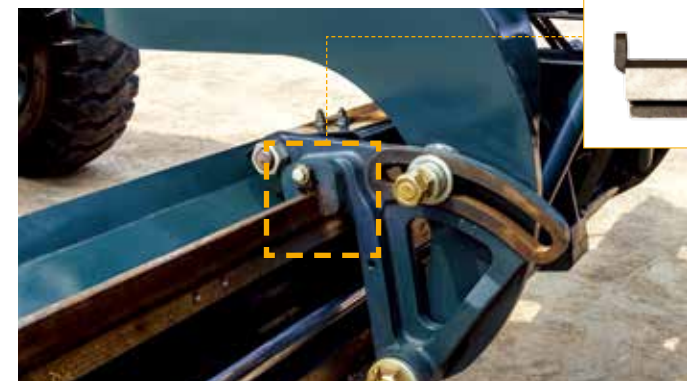
## EASY ACCESS TO SERVICE AREAS

Side-open engine hood doors improve accessibility to service points for daily check and replacing filters.



## DISCONNECT SWITCH

For maintenance, the batteries can be disconnected with this switch when repairing the machine or checking batteries.



## REPLACEABLE WEAR INSERTS

High load-resistant wear inserts are installed between the blade mounting group and moldboard. It can be replaced easily and helps keep components tight for fine grading.



# EASY CONTROL AND OPERATOR'S SAFETY



## EXCELLENT VISIBILITY

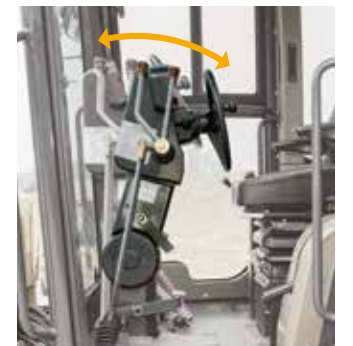
Excellent visibility and layout side pillar boosts operator's confidence and productivity in all grader applications. Well-positioned blade linkage provides an unobstructed view of the moldboard and front tires.

## REAR VIEW



## ADJUSTABLE CONTROL CONSOLE

The control console moves back and forth and the operator easily gets in and out of the operator compartment. The steering wheel also tilts to suit the operator's preference.



## LED LIGHTS

Bright and long-lasting LED lights are applied to cabin (Front/Rear) and attachment.



## AIR CONDITIONER

Increase air flow rate by refurbishing the shape of air outlets.



## SUSPENSION SEAT

Adopt high-rigidity suspension seat to enhance vibration absorption.





Durable frame and attachments Box-type frame and advanced transmission enable heavy-duty work, while the flexible blade suspension system and articulated frame allow for wide working ranges.

### FRONT DOZER (OPTIONAL)

The front dozer is a front mounted equipment used for spreading materials such as gravel piles or blading at the front of the machine where is difficult to access with the moldboard.



### RIPPER(REAR) AND SCARIFIER(MID-MOUNT) (OPTIONAL)

Digs up hard material cannot be removed by the moldboard. The V-type scarifier can accommodate up to 11 teeth, the ripper also accommodate 3 or 5 shanks.



### AUTOMATIC LEVELING DEVICE (OPTIONAL)

As a 2D control system, Automatic Leveling Device offers precise and reliable height and slope control and a high level of flexibility in the choice of sensors and fields of application.

# WORK TOOL AND ATTACHMENTS





# TECHNICAL SPECIFICATIONS

## ENGINE

	DG130	DG170	DG190	DG220
Model	6BT5.9-C130	6BTA5.9-C180	6CTA8.3-C190	6CTA8.3-C215
Type	Vertical, in-line, water-cooled, 4 strokes			
Aspiration	turbocharged aftercooling			
No. of cylinders	6	6	6	6
Bore	102 mm	102 mm	114 mm	114 mm
Stroke	120 mm	120 mm	135 mm	135 mm
Piston displacement	5.9 L	5.9 L	8.3 L	8.3 L
Horsepower - Gross	97kW/2,200rpm	132kW/2,200rpm	142kW/2,200rpm	160kW/2,200rpm
Maximum torque	560Nm/1,500rpm	750Nm/1,300rpm	860Nm/1,400rpm	908Nm/1,500rpm
Torque rise	32%	30%	39%	31%
Air cleaner	Dry type	Dry type	Dry type	Dry type
Electrical	28V, 70A	28V, 55A	28V, 70A	28V, 70A
Battery	12V*2 ; 900cca	12V*2 ; 900cca	12V*2 ; 900cca	12V*2 ; 900cca

## TRANSMISSION AND TORQUE CONVERTER

	DG130	DG170	DG190	DG220
Speed (at rated engine speed)	Forward / Reverse (km/h)			
1st	6.9/6.9	6.5/6.5	6.5/6.5	6.88/6.88
2nd	10.7/17.3	11.4/14.6	11.4/14.6	11.85/15.65
3rd	17.3/37.8	14.6/30	14.6/30	15.65/33.45
4th	26	24.8	24.8	26.68
5th	37.8	30	30	33.45
6th	53.4	49.2	49.2	52.74

## TANDEM DRIVE

	DG130	DG170	DG190	DG220
Oscillating welded box section	614*225 mm	614*225 mm	614*225 mm	614*225 mm
Side wall thickness	Inner	22 mm	22 mm	22 mm
	Outer	22 mm	22 mm	22 mm
Whell axle spacing	1,535.4 mm	1,535.4 mm	1,535.4 mm	1,535.4 mm
Tandem oscillation	±13 °	±13 °	±13 °	±13 °

## FRONT AXLE

	DG130	DG170	DG190	DG220
Type	Solid bar construction welded steel sections			
Ground clearance at pivot	610 mm	610 mm	610 mm	610 mm
Wheel lean angle, right or left	±17 °	±17 °	±17 °	±17 °
Oscillation, total	32 °	32 °	32 °	32 °

## REAR AXLE

	DG130	DG170	DG190	DG220
Alloy steel, heat treated, full floating axle with lock/unlock differential	NO-SPIN differential			

## STEERING

	DG130	DG170	DG190	DG220
Hydraulic power steering providing stopped engine steering meeting ISO 5010	Hydraulic power steering			
Minimum turning radius	6.6 mm	7.3 mm	7.3 mm	7.3 mm
Maximum steering range, right or left	49 °	49 °	49 °	49 °
Articulation	±26 °	±26 °	±26 °	±26 °

## BRAKES

	DG130	DG170	DG190	DG220
Service brake	Foot operated, hydraulically actuated on four tandem wheels, 3,671cm <sup>2</sup> total braking surface		Foot operated, hydraulically actuated on four tandem wheels, 3,613cm <sup>2</sup> total braking surface	
Parking brake	Flexible shaft control, drum brake			

## FRAME

	DG130	DG170	DG190	DG220
Height	299 mm	302 mm	302 mm	302 mm
Width	280 mm	280 mm	280 mm	280 mm
Side	16 mm	16 mm	16 mm	22 mm
Upper, Lower	16 mm	25 mm	25 mm	25 mm

## DRAWBAR

	DG130	DG170	DG190	DG220
Drawbar frame	A-shaped, u-section press formed and welded construction for maximum strength with a replacable drawbar ball			
	200*12 mm	210*16 mm	210*16 mm	210*16 mm

## CIRCLE

	DG130	DG170	DG190	DG220
Diameter (outside)	Four circle support shoes with replaceable wear surface. Circle teeth hardened on front 180° of circle			
	1,300 mm	1,410 mm	1,410 mm	1,410 mm
Circle reversing control hydraulic rotation	360 °	360 °	360 °	360 °

## MOLDBOARD

	DG130	DG170	DG190	DG220
Dimensions	Replaceable metal wear inserts, cutting edge and bits. Cutting edge and end bits are hardened.			
	3,658*580*18 mm	3,658*580*18 mm	4,268*580*18 mm	4,320*580*22 mm
Arc radius	329 mm	329 mm	329 mm	329 mm
Cutting edge	152*16 mm	152*16 mm	152*16 mm	152*16 mm

## BLADE RANGE

	DG130	DG170	DG190	DG220
Circle center shift	Right	525 mm	525 mm	525 mm
	Left	530 mm	530 mm	530 mm
Moldboard side shift	Right	815 mm	815 mm	965 mm
	Left	840 mm	840 mm	965 mm
Maximum shoulder reach outside rear tire (frame straight)	Right	1,886 mm	1,886 mm	2,341 mm
	Left	1,916 mm	1,916 mm	2,367 mm
Maximum lift above ground	410 mm	450 mm	450 mm	450 mm
Maximum cutting depth	560 mm	535 mm	535 mm	535 mm
Maximum blade angle, right or left	90 °	90 °	90 °	90 °
Blade tip angle	29-77 °	29-77 °	29-77 °	29-77 °

## HYDRAULICS

	DG130	DG170	DG190	DG220
Output (at engine rated rpm)	Hydraulic system of double pump and double multi way valve. Priority braking and steering. There are hydraulic locks on the scraper lifting, front wheel tilting, traction frame tilting, power tilting, frame articulation and other oil circuits			
	140.8 L/min	99 L/min	99 L/min	99 L/min
Maximum system pressure	17.5 MPa	17.5 MPa	17.5 MPa	17.5 MPa

# TECHNICAL SPECIFICATIONS

## INSTRUMENT

		DG130	DG170	DG190	DG220
Gauge	Standard	Engine coolant temperature, fuel level, torque converter oil temperature			
Warning lights / indicator	Standard	Battery charge, directional indicator, engine oil pressure, parking brake			

## CAPACITIES (REFILLING)

	DG130	DG170	DG190	DG220
Fuel tank	370 L	370 L	370 L	370 L
Cooling system	24 L	29 L	36.5 L	36.5 L
Crank case	17 L	17 L	27 L	27 L
Transmission	28 L	28 L	28 L	28 L
Final drive	18 L	18 L	18 L	18 L
Tandem housing (each)	45*2 L	45*2 L	45*2 L	45*2 L
Hydraulic system	65 L	65 L	65 L	65 L
Circle reverse housing	4 L	4 L	4 L	4 L

## OPERATING WEIGHT (APPROXIMATE)

		DG130	DG170	DG190	DG220
Includes lubricants, coolant, full fuel tank	Total	12,000 kg	14,500 kg	15,600 kg	15,800 kg
	On rear wheels	8,400 kg	10,150 kg	10,920 kg	11,060 kg
	On front wheels	3,600 kg	4,350 kg	4,680 kg	4,740 kg
With front mounted scarifier	Total	12,650 kg	15,150 kg	16,250 kg	16,450 kg
	On rear wheels	8,400 kg	10,150 kg	10,920 kg	11,060 kg
	On front wheels	4,250 kg	5,000 kg	5,330 kg	5,390 kg
With rear mounted ripper and front push plate	Total	13,000 kg	15,150 kg	15,541 kg	15,741 kg
	On rear wheels	9,400 kg	10,800 kg	10,879 kg	11,019 kg
	On front wheels	3,600 kg	4,350 kg	4,662 kg	4,722 kg

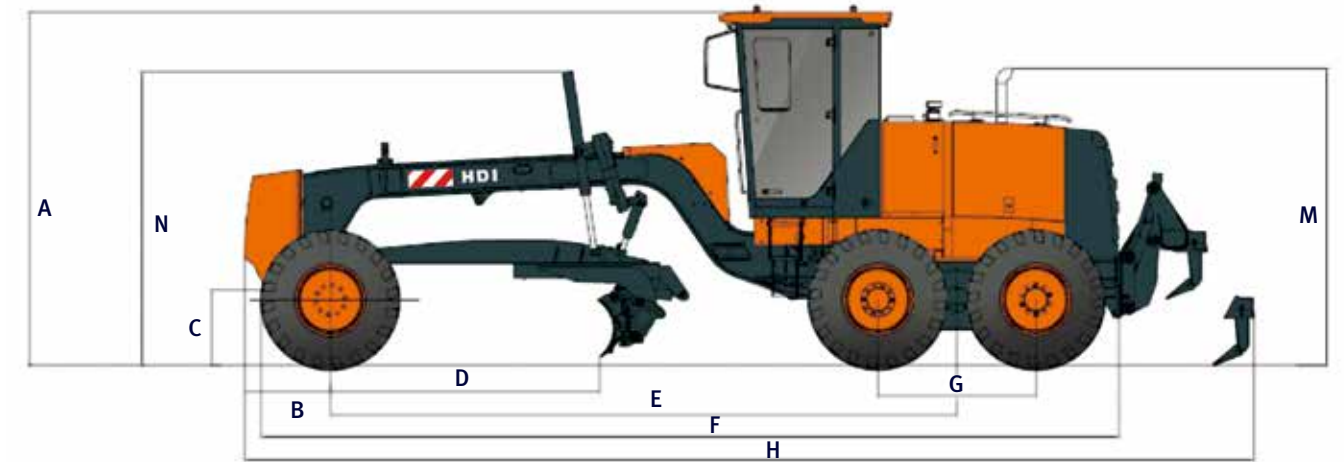
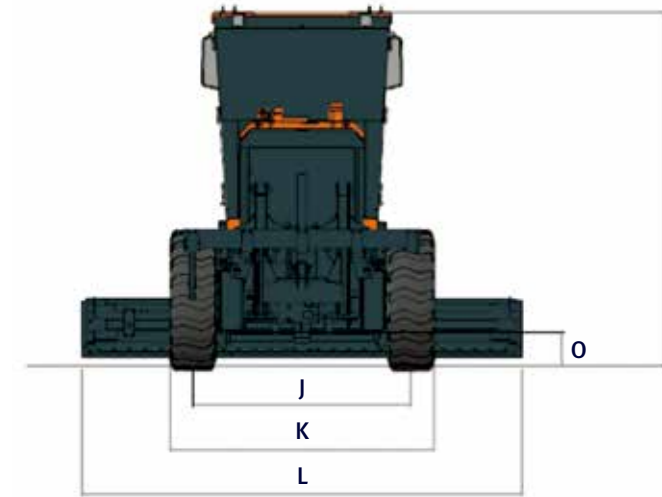
## SCARIFIER (OPTIONAL)

		DG130	DG170	DG190	DG220
Middle, V-type	Working width	1,325 mm	1,325 mm	1,325 mm	1,325 mm
	Scarifying depth, maximum	210 mm	210 mm	210 mm	210 mm
	Scarifier shank holders	11	11	11	11
	Scarifier shank holders spacing	130 mm	130 mm	130 mm	130 mm
Rear	Working width		2,161 mm	2,161 mm	2,161 mm
	Scarifying depth, maximum		249 mm	249 mm	249 mm
	Scarifier shank holders		9	9	9
	Scarifier shank holders spacing		267 mm	267 mm	267 mm

## RIPPER (OPTIONAL)

	DG130	DG170	DG190	DG220
Ripping depth, maximum	350 mm	436 mm	436 mm	436 mm
Ripper shank holders	3-teeth (standard) 5-teeth (optional)	3-teeth (standard) 5-teeth (optional)	3-teeth (standard) 5-teeth (optional)	3-teeth (standard) 5-teeth (optional)
Ripper shank holder spacing	455 mm	534 mm	534 mm	534 mm
Machine length increase, beam raised	1,000 mm	1,000 mm	1,000 mm	1,000 mm

# DIMENSIONS



Item	Description	DG130	DG170	DG190	DG220
A	Height to Top of Non-ROPS Cabin	3,448 mm	3,406 mm	3,420 mm	3,420 mm
	Height to Top of ROPS Frame	3,632 mm	3,590 mm	3,604 mm	3,604 mm
B	Center of Front Axle to counterweight	675 mm	833 mm	963 mm	963 mm
C	Ground Clearance to Center Front Axle	869 mm	725 mm	714 mm	714 mm
D	Length of Front Axle to Moldboard	2,470 mm	2,600 mm	2,600 mm	2,600 mm
E	Length of Front Axle to Mid Tandem	5,780 mm	6,100 mm	6,100 mm	6,100 mm
F	Length of Front Tire to Rear of Machine	8,125 mm	8,353 mm	8,353 mm	8,653 mm
G	Length of Between Tandem Axles	1,535 mm	1,535 mm	1,535 mm	1,535 mm
H	Length of Between Counterweight to Ripper	8,125 mm	8,353 mm	8,353 mm	8,653 mm
J	Width of Tire Center Lines	2,120 mm	2,120 mm	2,120 mm	2,120 mm
K	Width of Outside Tires	2,565 mm	2,565 mm	2,565 mm	2,565 mm
L	Width of Moldboard	3,658 mm	3,658 mm	4,268 mm	4,320 mm
M	Height to Exhaust Stack	2,582 mm	2,863 mm	2,846 mm	2,747 mm
N	Height to Top of Cylinders	2,793 mm	2,833 mm	2,908 mm	2,908 mm
O	Ground Clearance to Trans. Case	339 mm	339 mm	339 mm	339 mm