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HDI

MOTOR GRADER

DG130 / DG170  
DG190 / DG220

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DIPBE-00-2208



| Model | Engine           |                | Transmission                                           | Moldboard | Operating Weight |
|-------|------------------|----------------|--------------------------------------------------------|-----------|------------------|
| DG130 | Cummins 6BT5.9   | 97kW (130 hp)  | Power shift<br>(ZF Technology),<br>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) |                                                        | 4,268 mm  | 15.6 ton         |
| DG220 | Cummins 6CTA8.3  | 160kW (215 hp) |                                                        | 4,320 mm  | 15.8 ton         |

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



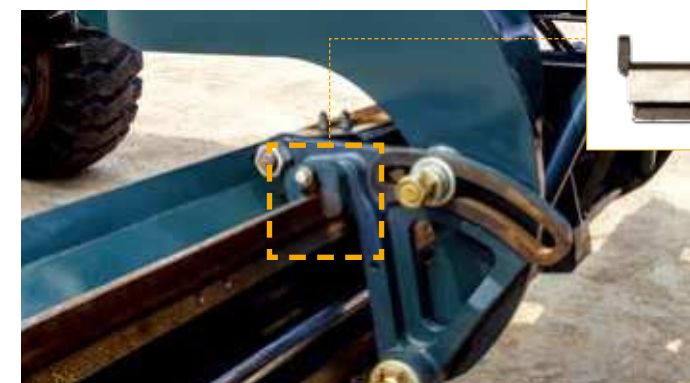
## EASY ACCESS TO SERVICE AREAS

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, 3,671cm² total braking surface |       | Foot operated, hydraulically actuated on four tandem wheels, 3,613cm² 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     |
|---------------|--------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|
|               | A-shaped, u-section press formed and welded construction for maximum strength with a replacable drawbar ball |           |           |           |
| Drawbar frame | 200*12 mm                                                                                                    | 210*16 mm | 210*16 mm | 210*16 mm |

## CIRCLE

|                                             | DG130                                                                                                  | DG170    | DG190    | DG220    |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------|----------|----------|----------|
|                                             | Four circle support shoes with replaceable wear surface. Circle teeth hardened on front 180° of circle |          |          |          |
| Diameter (outside)                          | 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           |
|--------------|------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
|              | Replaceable metal wear inserts, cutting edge and bits. Cutting edge and end bits are hardened. |                 |                 |                 |
| Dimensions   | 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   | 525 mm   |
|                                                           | Left  | 530 mm   | 530 mm   | 530 mm   | 530 mm   |
| Moldboard side shift                                      | Right | 815 mm   | 815 mm   | 965 mm   | 965 mm   |
|                                                           | Left  | 840 mm   | 840 mm   | 965 mm   | 965 mm   |
| Maximum shoulder reach outside rear tire (frame straight) | Right | 1,886 mm | 1,886 mm | 2,341 mm | 2,367 mm |
|                                                           | Left  | 1,916 mm | 1,916 mm | 2,346 mm | 2,372 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    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|
|                              | 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 |          |          |          |
| Output (at engine rated rpm) | 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 WEIGHTT (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 | 15,541kg  | 15,741kg  |
|                                               | On rear wheels  | 9,400 kg  | 10,800 kg | 10,879kg  | 11,019kg  |
|                                               | On front wheels | 3,600 kg  | 4,350 kg  | 4,662kg   | 4,722kg   |

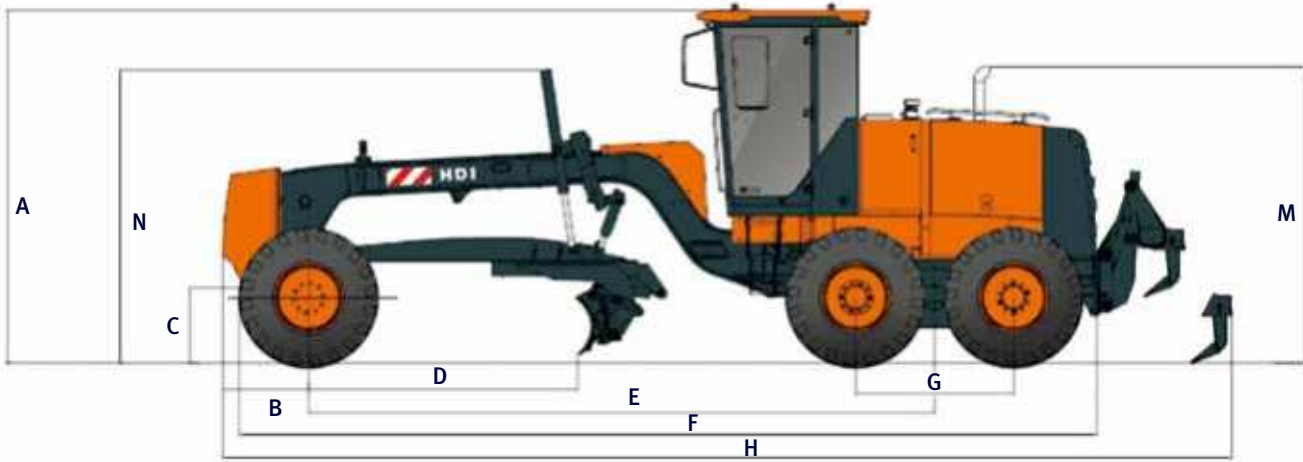
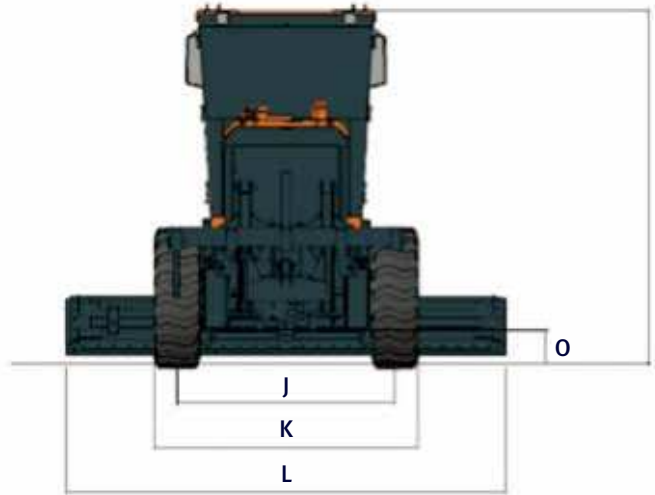
## SCARIFIER (OPTIONAL)

|                |                                 | 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)<br>5-teeth (optional) | 3-teeth (standard)<br>5-teeth (optional) | 3-teeth (standard)<br>5-teeth (optional) | 3-teeth (standard)<br>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   |