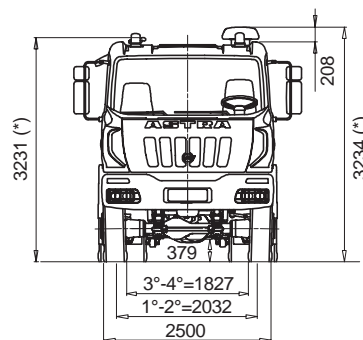
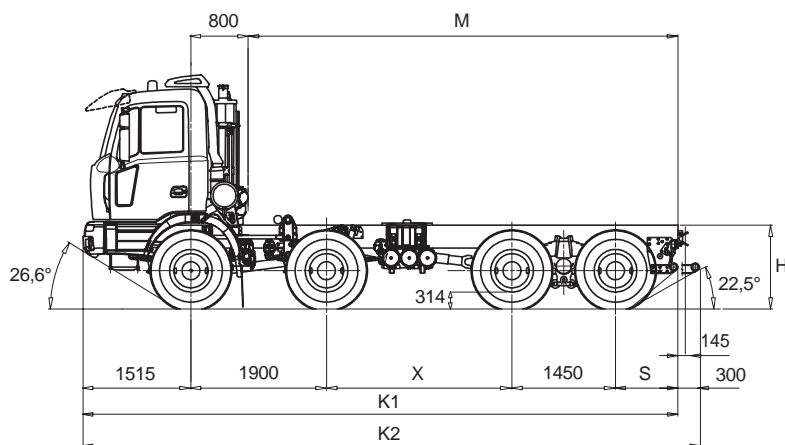


H&D €5

chassis 8x8
88.48 / 88.52 / 88.56



(*) Unloaded



DIMENSIONS (mm) (Tyres 13R22,5 156/150 G)

wheelbases	X	K1	K2	M	S	S ON REQUEST	H		TURNING DIAMETER
							UNLOADED	LOADED	
C	2850	8915	9215	6600	1200	875/1500	1253	1189	19000
D	3100	9165	9465	6850	1200	875/1500			19700
E	3350	9415	9715	7100	1200	1500			20500
F	3600	9965	10265	7650	1500				21300
G	3960	10325	10625	8010	1500				22800



WEIGHT (kg)

wheelbases	Distribution net weight (*)				Max. technical weight			
	1st axle	2nd axle	3rd+4th axle	net weight	1st+2nd axle		Gross Vehicle weight	Gross Combination weight
C	4020	3885	4520	12425	16000	18000 (1)	32000	50000 (2)
D	4045	3910	4540	12495				
E	4030	3895	4640	12565				
F	4025	3890	4680	12595				
G	4035	3895	4700	12630				

(*) Weight including oil, fuel, spare wheel, driver Kg. 75

(1) With tyres 1st - 2nd axle 385/65R22,5 160 J, reinforced springs (OPT). Other tyres available, subject to the Astra technical office approval.

(2) Only for HD8 88.48, HD8 88.52 and HD8 88.56 at max speed 50 Kph. Michelin/Pirelli tyres. Higher speed are allowed with load reductions subject to the Astra Technical office approval.



ENGINES

CURSOR 13 turbo intercooler diesel injection/cycle with electronic unit injection pumps. 6 in-line cylinders. Single block head, four valves per cylinder, light alloy pistons. Total displacement: 12.882 cm³. Bore for stroke: 135 x 150 mm. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler. Emissions according to **€ 5** regulation norms SCR (Selective Catalytic Reduction) system composed of catalytic muffler, AdBlue-tank, injection and control system.

	88.48	88.52	88.56
Model	IVECO F3B E3681F	IVECO F3B E3681E	IVECO F3B E3681A
Max. power (EEC)	353 kW (480 HP)	382 kW (520 HP)	412 kW (560 HP)
Corresponding rpm	1.900 rpm	1.900 rpm	1.900 rpm
Max. torque (EEC)	2.300 Nm (234 kgm)	2.400 Nm (245 kgm)	2.500 Nm (255 kgm)
Corresponding rpm	1.000-1.440 rpm	1.000-1.440 rpm	1.000-1.690 rpm
Turbine	VGT variable geometry		



GEARBOX

Manual gear ZF 16 S 2520 TO with servoshift, 16 synchronised forward speeds + 2 reverse

			Speed [kph] calculated at maximum power rpm																	
			Gears																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RM	RM
ZF 16 S 2520TO	Gear ratios		13,80	11,54	9,49	7,93	6,53	5,46	4,57	3,82	3,02	2,53	2,08	1,74	1,43	1,20	1,00	0,84	12,92	10,80
	Rear axle ratio with transfer 1:1.0	1:4,229	6,7	8,0	9,7	11,7	14,2	16,9	20,2	24,2	30,6	36,5	44,4	53,1	64,6	77,0	92,4	110,0	7,2	8,6
		1:5,009	5,7	6,8	8,2	9,8	11,9	14,3	17,1	20,4	25,8	30,8	37,5	44,8	54,6	65,0	78,0	92,9	6,0	7,2
		1:5,558	5,1	6,1	7,4	8,9	10,8	12,9	15,4	18,4	23,3	27,8	33,8	40,4	49,2	58,6	70,3	83,7	5,4	6,5
		1:6,095	4,6	5,6	6,8	8,1	9,8	11,7	14,0	16,8	21,2	25,3	30,8	36,8	44,8	53,4	64,1	76,3	5,0	5,9
		1:6,588	4,3	5,1	6,3	7,5	9,1	10,9	13,0	15,5	19,6	23,4	28,5	34,1	41,5	49,4	59,3	70,6	4,6	5,5
	Gear ratios		13,80	11,54	9,49	7,93	6,53	5,46	4,57	3,82	3,02	2,53	2,08	1,74	1,43	1,20	1,00	0,84	12,92	10,80
	Rear axle ratio with transfer 1:1.6	1:4,229	4,2	5,0	6,1	7,3	8,9	10,6	12,6	15,1	19,1	22,8	27,8	33,2	40,4	48,1	57,5	68,7	4,5	5,4
		1:5,009	3,6	4,3	5,1	6,1	7,4	8,9	10,7	12,8	16,1	19,3	23,4	28,0	34,1	40,6	48,8	58,1	3,8	4,5
		1:5,558	3,2	3,8	4,6	5,6	6,8	8,1	9,6	11,5	14,6	17,4	21,1	25,3	30,8	36,6	43,9	52,3	3,4	4,1
		1:6,095	2,9	3,5	4,3	5,1	6,1	7,3	8,8	10,5	13,3	15,8	19,3	23,0	28,0	33,4	40,1	47,7	3,1	3,7
		1:6,588	2,7	3,2	3,9	4,7	5,7	6,8	8,1	9,7	12,3	14,6	17,8	21,3	25,9	30,9	37,1	44,1	2,9	3,4



P.T.O.

On request:

Gearbox	ZF16S2520TO	Max. torque	Application
P.T.O.	Ratio	Nm.	
ZF NH/1b	0,91/1,09:1	1000	For tipping unit pumps, pumps for cranes, ecc..
ZF NH/1c	0,91/1,09:1	1000	For tipping unit pumps, unit pumps for concrete, pumps for cranes, ecc..
ZF NH/4c	1,17/1,40:1	430	For tipping unit pumps, ecc..
ZFN221/10b+PL+NL/1c	1,75/2,09:1+0,91/1,09:1	560+600	double PTO for concrete pumps

- **ZF NMV1 221 Power take-off** (ratio1,55:1) max available torque 1300 Nm for concrete pumps.
- **Power take off at flywheel** (ratio1,29:1) max available torque 900 Nm for concrete mixers.



CLUTCH

Single dry plate, diameter 17". Pull type engagement with diaphragm spring. Hydro-pneumatic power steering engagement control, with driven disk wear recovery slave cylinder.



TRANSFER

Mechanical with two ratios. It consists of a series of helical spur gears, mounted on three shafts, engaged with each other. Differential can be locked by pneumatic control.

Transmission ratio: 1:1 - 1:1,6
Front/rear torque distribution ratio: 1:2,2



AXLES

FRONT

1st axle, steering, in cast iron with double reduction, central by crown wheel and pinion, lateral by epicyclic group in wheel hubs. 2nd axle, steering, in cast iron with double reduction, central by crown wheel and pinion, lateral by epicyclic group in wheel hubs. The axle is fitted with distributor that distributes torque between the 1st and 2nd axles. 1st and 2nd axle wheel stud protection.

REAR:

Two drive axles in tandem with double reduction, central by bevelled pair and final by epicyclic group in wheel hubs. The intermediate axle is fitted with distributor that distributes torque between the two axles. Differential lockable by pneumatic control from driver's seat.

The tandem is anchored to the chassis by silent block mounted torque arms.

On request:

Rear-axle ratio 1:4.229

Rear-axle ratio 1:5.009

Rear-axle ratio 1:5,558

Rear-axle ratio 1:6.095

Rear-axle ratio 1:6.588

1st and 2nd axle transverse differential lock



SUSPENSIONS

FRONT

1st and 2nd axle, parabolic springs, n° 3 leaves 26x90 mm, chord 1600 mm, hydraulic shock absorbers.

Stabilizer bar standard on 1st axle.

On request:

Stabilizer bar on 2nd axle.

Reinforced parabolic springs, n° 4 leaves 26x90 mm, chord 1600 mm. Mandatory with 1st + 2nd 9t axle load.

REAR

Parabolic springs, swivelling on central pin: n° 4 leaves 40x100 mm, chord 1450mm, torque bars and stiffening brackets.

Stabilizer bar as standard on 4th axle.

On request:

Stabilizer bar on 3rd axle.

Extra-reinforced conventional springs, n° 10 leaves 25x100 mm, chord 1450 mm. Mandatory for heavy duty version.



STEERING

ZF 8099 quadrilateral power steering on front axle wheels with variable ratio 1:22.2/1:26.2 with auxiliary cylinder. Circuit with main hydraulic pump on engine and emergency pump on gearbox.

Steering rods with self-lubricating joints. Height and inclination pneumatic adjustable steering column.



TYRES

FRONT: 13R22,5 156/150 G Single tubeless

REAR: 13R22,5 156/150 G Twin tubeless

Spare wheel on the chassis.

Other Possible combinations:

TYRES	ASSEMBLY	
	FRONT	REAR
315/80 R 22,5 156/150K 12 00 R 20 156/150G	S	D
385/65 R 22,5 160J*	S	
315/80 R 22,5 156/150K		D
365/85 R 20 164G*	S	S
395/85 R 20 168G*	S	S
525/65 R 20,5 173F		S

S single

D double

(*) Mandatory with 9 ton front axle load.



CHASSIS

Special steel with high elasticity limit, two flat and parallel side members (width 820 mm.), C section (320x90x10mm), cross members riveted to the frame.

R.B.M. (Rail Bending Moment): 202.020 Nm (20.593 Kgm.).

Steel front bumpers with headlamp protection grids, front manoeuvring hook, rear underrun bar, rubber mud-guard 2nd axle, steel fuel tank capacity 300 litres.

On request:

Rapid attachment for compressed air for tyres'inflation.

Rear underrun bar in set back position.

Extra long underrun bar for concrete mixer.

Rear manoeuvring hook.

Rear automatic towing hook.

Rubber mudguards on 3rd and 4th axle.

Side windlass for spare wheel.



PNEUMATIC SYSTEM

Two-cylinder 630 cc compressor, APU (Air Processing Unit) that includes: regulation valve set at 10.3 bar, drier, 4-way safety valve, pressure reduction valve for parking circuit and services, 3 air tanks, capacity 30 litres + 2 with 20 litres. ABS system and EBL (Electronic Brake Limiter).



BRAKES

Front and rear "duo-duplex" self-adjusting wedge type brakes with automatic play take-up.

Total net braking surface 11.748 cm². ABS.

Service brake: Pedal controlled air brake, acting on all wheels.

Solo vehicles, two independent circuits, one for 1st and 2nd axle, one for 3rd and 4th axle; 1st category wheels anti-lock system.

Towing vehicles, three independent circuits, one for 1st and 2nd axle, one for 3rd and 4th axle and another for the trailer; 1st category wheels anti-lock system.

Emergency brake: Incorporated in service brake.

Parking brake: Manual spring-type mechanical with pneumatic control acting on 3rd and 4th wheels.

IVECO BRAKE TURBO engine brake:

Braking power 255 kW (347 cv)

On request:

Hydraulic interarder.

1st and 2nd axle immobiliser system.

OFF/ROAD button for excluding ABS for speed < 15 kph.



ELECTRICAL SYSTEM

Voltage: 24 V

Alternator generator 90 A - 28 V (2520 W).

Accumulators: 2 in series, 170 Ah.

Starter motor 24 V 5,5 kW.

Mechanically controlled electrical circuit breaker.

Anti-block system ABS with 4-conduits and 4-electric valves-electronic system.

Phonic wheels and sensors on 2nd and 4th axle.

1 electrical joint 7-pole(ISO 7638) for trailer ABS(if applicable).

1 electrical joints 15-pole(ISO 12089-4091) for trailer lighting (if applicable).

Headlamp geometry corrector .

Electrical provision for outfitters.

Provision for diagnostics.

Provision for radio/cb (without speakers)

Glow plug for cold start.

On request:

170 Ah tropicalised accumulators;

Reverse alarm;

Electrically controlled main current circuit breaker.



CAB

White cab with hydraulic tipping. Built in moulding fiberglass with tubular steel armature. Tested on the most demanding off road routes. Cab suspension with guiding arms, spiral springs, double action shock absorbers, anti-roll bar and end-of-stroke pads. Internal panels completely washable and fireproof. 4-speed ventilation and heating system with air recirculation system. Collapsible first step. Electric power windows on driver and passenger doors. Beacon lights on cab roof. Driver seat with pneumatic suspension and seat belt. Passenger seat with mechanical suspension with seat belt.

Tinted athermic windows. Steering wheel adjustable hight and slope with pneumatic control.

On request:

Car radio RDS, CD;

Car radio RDS, CD on the steering wheel controls;

Car radio RDS, CD, MP3, Blue Tooth technology;

Compressed air quick coupling for cab cleaning;

Roof hatch;

Air conditioning;

Centralized closing of the doors with remote control;

Metallic colour cab;

Non-metallic colour cab;

Heated and electric powered rear view mirrors;

Cab rear window;

External sun visor.



SERVICE DATA(I)

Engine oil sump and filters	28
Gearbox oil:	11
Power steering oil.....	18
Cap tipping oil	1
Clutch circuit oil	0,5
Integral PTO oil	3
Transferer oil 88.48.....	6,5
Transferer oil 88.52-88.56.....	10
1 st axle with final red. Oil	6.5
2 nd axle with final red. Oil	8,8
3 rd axle with final red. Oil	27
4 th axle with final red. Oil	16
Cooling system water.....	33
Diesel	300
AD BlueL	45



INSTRUMENTATION

Trip Computer multifunction display. Multiplex electronic system for fundamental information for the driver: average speed, consumption and general information about the main components for ideal use of the vehicle.

It also allows to carry out the daily controls on the vehicle at any moment, thus optimizing the time and energies needed for production's purposes. Dashboard and ergonomic instrument board contain the function buttons and the identification commands.

Indicator lights: engine oil low pressure, alternator charging low, main beam lights, side lights, engine warm-up, rear fog light, hazard lights, tractor turn indicators, trailer turn indicators (if applicable), rotating lights, cab lifted, axles differential locked, differential lock, front brakes air pressure low, rear brakes air pressure low, trailer brakes air pressure low (if applicable), parking brake engaged, splitter (reduction on), slow speeds (1-4/9-12), power take-off on (if applicable) air filters clogged, power steering oil level low, rear view mirrors heated (if applicable), tractor ABS, trailer ABS (if applicable), main steering circuit failure, steering auxiliary circuit failure, low ureas' level.

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DEALER

Characteristics and equipment are subject to changes without prior notice.

Technical data and general specifications - validity to be checked according to each individual country.

