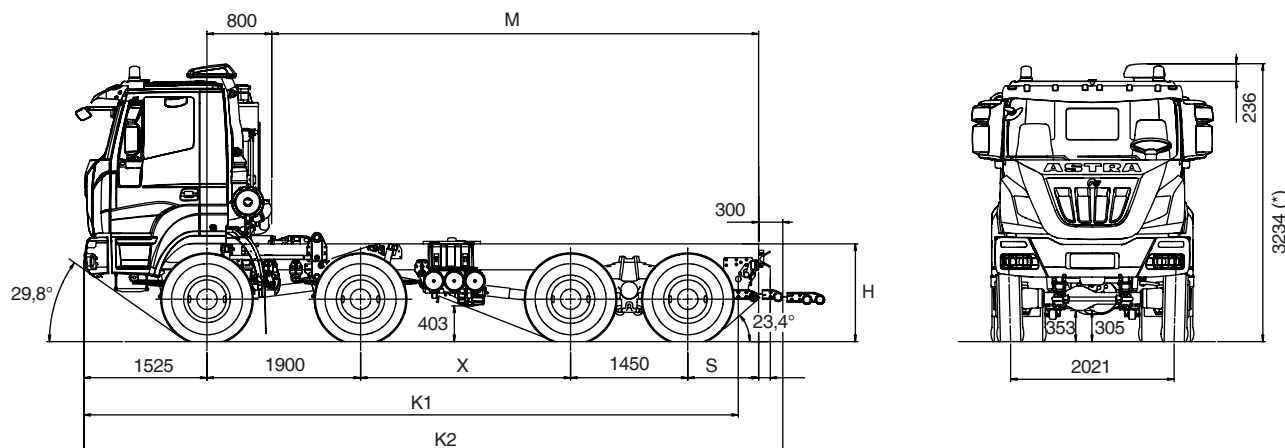




**chassis 8x8**  
**88.48 / 88.52 / 88.56**



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

X	K1	K2	M max (*)	S	S ON REQUEST	H		TURNING DIAMETER (wall to wall)
						UNLOADED	LOADED	
2850	8925	9225	6600	1200	875/1500	1253	1189	21400
3100	9175	9475	6850	1200	875/1500			22200
3350	9425	9725	7100	1200	1500			23000
3600	9975	10275	7650	1500				23800
3960	10335	10635	8010	1500				25400

(\*) M max.: indicative value to be confirmed by bodybuilder.



**WEIGHT (kg)**

X	Distribution net weight (*)				Max. technical weight			
	1 <sup>st</sup> axle	2 <sup>nd</sup> axle	3 <sup>rd</sup> +4 <sup>th</sup> axle	net weight	1 <sup>st</sup> +2 <sup>nd</sup> axle	3 <sup>rd</sup> +4 <sup>th</sup> axle	Gross Vehicle weight	Gross Combination weight
2850	3959	3559	4308	11826	16000	32000	50000 (1)	104000
3100	3958	3558	4332	11848				
3350	3959	3559	4353	11871				
3600	3955	3555	4427	11937				
3960	3958	3558	4454	11970				

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

(1) Only for HD9 88.48, HD9 88.52 and HD9 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 cm<sup>3</sup>. 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 ZF Ecosplit 4 technology gearbox with servoshift, 16 synchronised forward speeds + 2 reverse:

**ZF16S2520TO:** HD9 88.48/HD9 88.52/HD9 88.56

**On request:**

**ZF16S2320TD:** HD9 88.48

**ASTRONIC ZF16AS2601OD**

**ALLISON HD4700:** HD9 88.48/ HD9 88.52 only for wheelbase 3100 mm

		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 16S2520TO	Gear ratios	16.41	13.80	11.28	9.49	7.76	6.53	5.43	4.57	3.59	3.02	2.47	2.08	1.70	1.43	1.19	1.00	15.36	12.92	
	Rear axle ratio with transfer 1:1.0	3.793	7.5	8.9	10.9	13.0	15.8	18.9	22.5	27.0	34.1	40.7	49.5	59.2	72.0*	85.9*	103*	122.7*	8.0	9.5
		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
		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
		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
		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
		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	16.41	13.80	11.28	9.49	7.76	6.53	5.43	4.57	3.59	3.02	2.47	2.08	1.70	1.43	1.19	1.00	15.36	12.92	
	Rear axle ratio with transfer 1:1.6	3.793	4.7	5.6	6.8	8.1	9.9	11.8	14.1	16.9	21.3	25.5	31.0	37.0	45.0	53.7	64.4	76.7	5.0	6.0
		4.229	4.2	5.0	6.1	7.3	8.8	10.6	12.6	15.1	19.1	22.8	27.8	33.2	40.4	48.1	57.8	6	8.8 4	5 5.3
		5.009	3.5	4.2	5.1	6.1	7.5	8.9	10.7	12.8	16.1	19.3	23.4	28.0	34.1	40.6	48.8	58.0	3.8	4.5
		5.558	3.2	3.8	4.6	5.5	6.7	8.0	9.6	11.5	14.6	17.4	21.1	25.3	30.7	36.6	43.9	52.3	3.4	4.1
6.095		2.9	3.5	4.2	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	
6.588		2.7	3.2	3.9	4.7	5.7	6.8	8.1	9.7	12.3	14.7	17.8	21.3	25.9	30.9	37.1	44.1	2.9	3.4	

(\*) Max speed 90 km/h. Other speeds available, subject to the Astra technical office approval.



## 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** (ratio 1,55:1) max available torque 1300 Nm for concrete pumps.

**ZF NMV 221 Power take-off** (ratio 0,98:1) max available torque 2000 Nm for concrete pumps.

**Power take off at flywheel** (ratio 1,29:1) 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.  
**On request:** Ceramic clutch 17"

## 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**  
 1<sup>st</sup> axle, steering, in cast iron with double reduction, central by crown wheel and pinion, lateral by epicyclical group in wheel hubs. 2<sup>nd</sup> axle, steering, in cast iron with double reduction, central by crown wheel and pinion, lateral by epicyclical group in wheel hubs. The axle is fitted with distributor that distributes torque between the 1<sup>st</sup> and 2<sup>nd</sup> axles. 1<sup>st</sup> and 2<sup>nd</sup> axle wheel stud protection.  
**On request:**  
 differential lockable by pneumatic control from driver's seat.

**REAR:**  
 Two drive axles in tandem with double reduction, central by bevelled pair and final by epicyclical 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 1:3.793  
 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  
 1<sup>st</sup> and 2<sup>nd</sup> axle transverse differential lock

## SUSPENSIONS

**FRONT**  
 1<sup>st</sup> and 2<sup>nd</sup> axle, parabolic springs, n° 3 leaves 26x90 mm, hydraulic shock absorbers.  
 Standard stabilizer bar on 1<sup>st</sup> axle.

**On request:**  
 Stabilizer bar on 2<sup>nd</sup> axle.  
 Reinforced parabolic springs, n° 4 leaves 26x90 mm.

**REAR**  
 Parabolic springs, swivelling on central pin: n° 4 leaves 40x100 mm, torque bars and stiffening brackets.  
 Standard stabilizer bar on 4<sup>th</sup> axle.

**On request:**  
 Stabilizer bar on 3<sup>rd</sup> axle. Extra-reinforced conventional springs, n° 10 leaves 25x100 mm.

## 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).

## 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	S	D
12 00 R 20 156/150G		
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  
 Other tyres available, subject to Astra technical office approval.

## 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 2<sup>nd</sup> 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 3<sup>rd</sup> and 4<sup>th</sup> axle.  
 Side windlass for spare wheel (wheelbases 2600 - 2850 excluded).

## BRAKES

Front and rear "duo-duplex" self-adjusting wedge type brakes with automatic play take-up.  
 Total net braking surface 11.748 cm<sup>2</sup>. ABS.

**Service brake:** Pedal controlled air brake, acting on all wheels.  
**Solo vehicles,** two independent circuits, one for 1<sup>st</sup> and 2<sup>nd</sup> axle, one for 3<sup>rd</sup> and 4<sup>th</sup> axle; 1<sup>st</sup> category wheels anti-lock system.

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

**Emergency brake:** Incorporated in service brake.  
**Parking brake:** Manual spring-type mechanical with pneumatic control acting on 3<sup>rd</sup> and 4<sup>th</sup> axle wheels.

**IVECO BRAKE TURBO engine brake:**  
**Braking power 255 kW (347 cv)**

**On request:**  
 Hydraulic intarder.  
 1<sup>st</sup> and 2<sup>nd</sup> 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 2<sup>nd</sup> and 4<sup>th</sup> 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;  
 Electric main current cut-off switch.



## CAB

White cab built in galvanized pressed steel with hydraulic tilting up to 60°. Cab suspension with 4 helicoidal springs with coaxial shock absorbers and integrated dampers, anti-roll bar and end-of-stroke pads. Tinted electric door windows. Internal panels completely washable and fireproof. Compressed air quick coupling for cab cleaning. 4-speed ventilation and heating system with air recirculation system. Air suspended 3-way adjustable driver seat with seat belts. Mechanical passenger seat with seat belts.

### On request:

Air conditioning with anti-pollen filter  
 Cab rear window.  
 Car radio RDS, CD.  
 Car radio RDS, CD with steering wheel controls  
 Car radio RDS, CD, MP3 Bluetooth technology.  
 External sun visor.  
 Extra cab colour: to be specified in the order.  
 Heated and electric powered rear view mirrors.  
 Remote controlled and centralized closing of doors.  
 Roof hatch.  
 Rotating lights on top of the cab.  
 White engine hood with central mask in IC575 colour



## SERVICE DATA(I)

Engine oil sump and filters .....	28
Gearbox oil: .....	13
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.....	13
1 <sup>st</sup> axle with final red. Oil .....	6,5
2 <sup>nd</sup> axle with final red. Oil .....	8,8
3 <sup>rd</sup> axle with final red. Oil .....	27
4 <sup>th</sup> axle with final red. Oil .....	16
Cooling system water.....	33
Diesel .....	300
AD BlueI .....	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.