



# IVECO ASTRA

## CNH INDUSTRIAL

A GLOBAL LEADER IN THE CAPITAL GOODS SECTOR

### ONE GROUP

- ▶ 12 COMMERCIAL BRANDS
- ▶ 180 NATIONAL MARKETS
- ▶ 64 PLANTS
- ▶ 50 R&D CENTERS
- ▶ ~64,400 EMPLOYEES
- ▶ 25,9BLN US\$ REVENUES
- ▶ 4,05 US\$ INVESTED IN TRAINING
- ▶ ~ 0,9BLN US\$ INVESTED IN R&D



## Construction:

### Mission highlights

And ground needs to be transported, to and fro. Dams and generation plants, roads and railways, water supply networks and urban subway systems have something in common: large inflows and outflows of materials. Concrete, gravel, bricks and steel – and, of course, waste to be disposed of. We take charge of this part of the job: thanks to their flexibility of use, robustness and easy on-site repair ability, our trucks and dumpers assure maximum efficiency and an extraordinary uptime ratio.

### Astra for Construction

ASTRA machines support construction works along all phases, from site preparation to earth removal, from material handling to mud (or snow) sweeping.

High torsional rigidity and a simple mechanical and electronic architecture make our vehicles perfect for all transformations: they can be equipped with tanks, concrete mixers, pumps, tippers and cranes. In order to further improve mechanical strength, the new HD9 range features as standard increased-size steering linkages and cast iron rear suspension shoulders with the ASTRA-exclusive “Power Ring” rear tandem lower cross bar. The wide choice of ASTRA machines available for hard construction sites is completed by the dumper range. Together, the HD, HHD, RD and ADT product lines fulfil any transport need for the construction of dams, roads, bridges and power generation plants in the most remote areas of the world.

No matter where, and how heavy the load: we’ll be there.



## Astra in Action



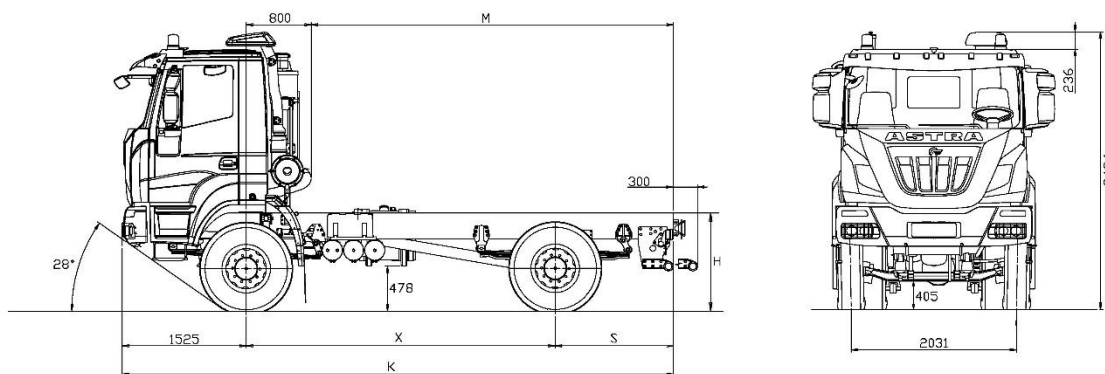







**EURO 3**
**HD**

chassis 4x2

**42.38 / 42.42 / 42.44 / 42.48**

**HD Chassis 4x2**

**DIMENSIONS (mm)**

X	K	M max (*)	S	H		TURNING DIAMETER (wall to wall)
				unloaded	loaded	
3800	6775	4450	1450	1150	1108	15500
4200	7575	5250	1850			16700
4600	8375	6050	2250			18000
5100	8875	6550	2250			19500

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

(Tyres 315/80R22.5)


**WEIGHT (kg)**

X	Distribution net weight (*)			Max technical weight			
	1 <sup>st</sup> axle	2 <sup>nd</sup> axle	Net weight	1 <sup>st</sup> axle	2 <sup>nd</sup> axle	Gross Vehicle Weight	Gross Combination Weight
3800	4920	2361	7281	8000 9000 (1)	13000	21000	55000
4200	4914	2415	7329				
4600	4922	2491	7413				
5100	4959	2509	7468				

(\*) Weight including oil, fuel, spare wheel, driver Kg.75, with 315/80R22.5 tyres.

(1) With tyres on front axles 385/65R22.5 or 325/95R24 and reinforced springs (OPT).

Higher speeds are allowed with load reductions subject to Astra technical office approval.

Other tyres available, subject to Astra technical office approval.

**EURO 3**
**7-2016  
ENGLISH**

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



## ENGINES

CURSOR 13 turbo intercooler euro 3 diesel injection/cycle with electronic unit injection pumps. 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. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler.

	42.38	42.42	42.44	42.48
Model	CURSOR 13	CURSOR 13	CURSOR 13	CURSOR 13
Max power (EEC)	280 kW (380 HP)	309 kW (420 HP)	324 kW (440 HP)	353 kW (480 HP)
Corresponding rpm	1.900 rpm			
Max torque (EEC)	1.800 Nm (183 kgm)	1.900 Nm (194 kgm)	2.100 Nm (214 kgm)	2.200 Nm (224 kgm)
Corresponding rpm	1.000-1.440 rpm			
Turbine	WG Waste Gate		VGT Variable Geometry Turbine	



## GEARBOX

Manual ZF Ecosplit 4 technology gearbox with servoshift, 16 synchronised forward speeds + 2 reverse:

**ZF16S2220TO:** HD9 42.38 / HD9 42.42 / HD9 42.44

**ZF16S2520TO:** HD9 42.48

On request:

**ZF16S2320TD:** HD9 42.38 / HD9 42.42 / HD9 42.44 / HD9 42.48

**ZF ASTRONIC 16AS2630TO:** HD9 42.42 / HD9 42.44 / HD9 42.48

		Speed [kph] calculated at maximum power rpm																		
		Gears																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RM1	RM2	
ZF 16S2220TO ZF 16S2520TO	<b>Gear ratios</b>	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	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	103.0*	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		
ZF16S2320TD	<b>Gear ratios</b>	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	3.793	6.3	7.5	9.1	10.9	13.3	15.8	19.0	22.5	28.7	34.1	41.7	49.5	60.6	72.0	86.6	103.0*	6.7	8.0
		4.229	5.6	6.7	8.2	9.7	11.9	14.2	17.0	20.2	25.7	30.6	37.4	44.4	54.4	64.6	77.7	92.4*	6.0	7.2
		5.009	4.8	5.7	6.9	8.2	10.1	11.9	14.4	17.1	21.7	25.8	31.6	37.5	45.9	54.6	65.6	78.0	5.1	6.0
		5.558	4.3	5.1	6.2	7.4	9.1	10.8	12.9	15.4	19.6	23.3	28.5	33.8	41.4	49.2	59.1	70.3	4.6	5.4
		6.095	3.9	4.6	5.7	6.8	8.3	9.8	11.8	14.0	17.9	21.2	26.0	30.8	37.7	44.8	53.9	64.1	4.2	5.0
6.588	3.6	4.3	5.3	6.3	7.6	9.1	10.9	13.0	16.5	19.6	24.0	28.5	34.9	41.5	49.8	59.3	3.9	4.6		

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



## P.T.O.

On request:

Gearbox	ZF16S2220TO-ZF16S2520TO	Mx. 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.
ZF N221/10B-PL + NL/1c	1.75/2.09:1+0.91/1.09:1	560+600	Double PTO for concrete pumps

**Power take-off Multipower** (ratio 1.29:1) max available torque 900 Nm for concrete mixers.

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





## CLUTCH

Single dry plate, diameter 17". Pull type engagement with diaphragm spring.

Hydro-pneumatic power steering engagement control, with driven disc wear recovery slave cylinder.

### On request:

Ceramic clutch 17"



## AXLES

Steering, hot moulding in high tensile steel.

### REAR

Driving axle with double reduction: central with bevel gear, final by planetary gear in wheel hubs. Cross-axle differential lock.

### 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



## SUSPENSIONS

### FRONT

1<sup>st</sup> axle, parabolic springs, 4 leaves 24x90 mm, with hydraulic shock absorbers.

Standard stabilizer bar.

### On request:

Reinforced parabolic springs, 5 leaves 24x90 mm.

(Mandatory with 9t version).

### REAR

Parabolic springs, 4 leaves 24x90 mm + 1 leaf 50x90 mm, with hydraulic shock absorbers.

Standard stabilizer bar.



## CHASSIS

Special steel with high tensile strength limit, two flat and parallel side members (width 820 mm.), C section (320x70x8 mm), cross members bolted to the frame.

R.B.M. (Rail Bending Moment): 143.149 Nm (14.597 Kgm.).

Steel front bumpers with headlamp protection grids, front manoeuvring hook, rear underrun bar, steel fuel tank capacity 300 litres.

### On request:

Rapid pneumatic connection for tyre inflation.

Rear manoeuvring hook.

Rear automatic towing hook.

Rubber mudguards on 2<sup>nd</sup> axle.

Front bumper climbing step.

Side winch for spare wheel.



## TYRES

**FRONT:** 315/80R22.5 156/150 K Single tubeless

**REAR:** 315/80R22.5 156/150 K Twin tubeless

Spare wheel on the chassis.

### Other Possible combinations:

TYRES	ASSEMBLY	
	FRONT	REAR
12.00 R20 156/150G	S	D
13 R22.5 156/150K		
385/65 R22.5 160J (*)	S	
315/80 R22.5 156/150K		D
325/95R24 162/160K (*)		
12.00R24 160/156G (*)	S	D

S single

D double

Other tyres available, subject to the Astra technical office approval.

(\*) Mandatory with 9t front axle load.



## 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.

ABS system and EBL (Electronic Brake Limiter).



## BRAKES

Front and rear drum brakes, Duo-Duplex with automatic slack adjuster. ABS + EBL system.

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

**Solo vehicles:** two independent circuits, one for 1<sup>st</sup> axle, one for 2<sup>nd</sup> axle.

**Towing vehicles:** three independent circuits, one for 1<sup>st</sup> axle, one for 2<sup>nd</sup> axle and another for the trailer.

**Emergency brake:** Integrated in service brake.

**Parking brake:** Mechanical spring-type with pneumatic control acting on 2<sup>nd</sup> axle wheels.

**IVECO BRAKE TURBO engine brake:**

HD9 380/420 HP braking power 255 kW (342 HP).

HD9 440/480 HP braking power 300 kW (402 HP).

### On request:

Hydraulic interarder (only for AS-Tronic gearbox).

1<sup>st</sup> axle immobiliser system.

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



## STEERING

ZF 8098 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 mechanical adjustable steering wheel.

Chassis 4x2

HD

EURO 3

 7-2016  
ENGLISH

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



## SERVICE DATA(I)

Engine oil sump and filters .....	28 (+2.5)
Gearbox oil .....	14.5
Power steering oil .....	8.5
Cab tipping oil .....	1
Clutch circuit oil .....	0.5
Integral PTO oil.....	3
Rear axle with final red. oil .....	16
Cooling system water .....	33
Diesel .....	300



## 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.  
 1 electrical joint 7-pole (ISO 7638) for trailer ABS (if applicable).  
 1 electrical joint 15-pole (ISO 12089-4091) for trailer lighting (if applicable).  
 Electrical provision for outfitters.  
 Provision for diagnostics.  
 Provision for radio/cb (without speakers).  
 Glow plug for cold start.

**On request:**  
 225 Ah accumulators;  
 Reverse alarm.



## CAB

Standard white short cab (AD 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.  
 Mechanical rear view mirrors, wide angle mirrors and front view mirror. 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:

RHD.  
 Air conditioning with anti-pollen filter.  
 Cab rear window.  
 Car radio RDS, CD.  
 Car radio RDS, CD, MP3 Bluetooth technology.  
 External sun visor.  
 Extra colour cab: 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.



## INSTRUMENTATION

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), ABS, trailer ABS (if applicable), main steering circuit failure, steering auxiliary circuit failure.

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**DEALER**

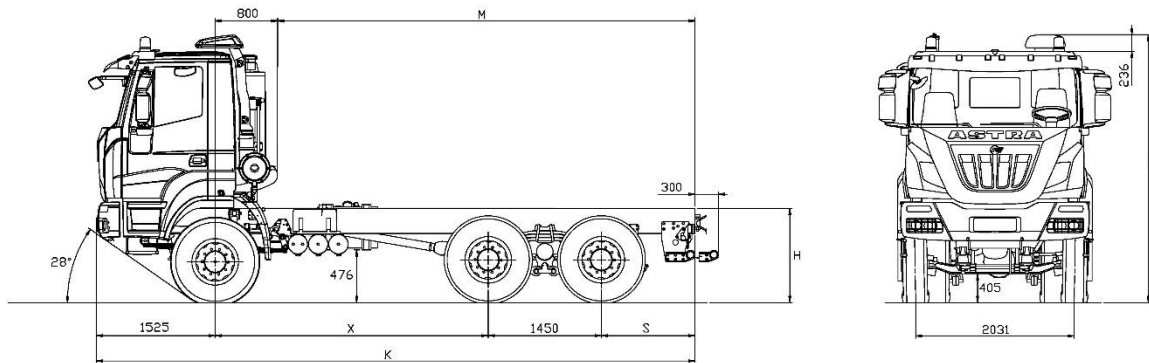
07 - 2016 A3502287

Characteristics and equipment are subject to changes without prior notice.

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




**EURO 3**

**chassis 6x4**
**64.38 / 64.42 / 64.44 / 64.48 / 64.54**

**DIMENSIONS (mm)**

X	K	M max (*)	S	S ON REQUEST	H		TURNING DIAMETER (wall to wall)
					unloaded	loaded	
3200	7375	5050	1200	-	1193	1129	15900
3500	7675	5350	1200	-			16800
3800	7975	5650	1200	-			17800
4100	8275	5950	1200	1500/1900			18700
4500	8675	6350	1200	1900/2600			20000
4750	9625	7300	1900	-			20700

 (\*) M max.: indicative value to be confirmed by bodybuilder  
(Tyres 13R22.5)

**WEIGHT (kg)**

X	Distribution net weight (*)			Max technical weight				
	1 <sup>st</sup> axle	2 <sup>nd</sup> + 3 <sup>rd</sup> axle	Net weight	1 <sup>st</sup> axle		2 <sup>nd</sup> + 3 <sup>rd</sup> axle	Gross Vehicle Weight	Gross Combination Weight
3200	4857	4733	9590	8000 8500 (1)	9000 (1) (2)	32000 (2)	40000 (2)	121.500
3500	4890	4730	9620					
3800	4929	4741	9670					
4100	4952	4743	9695					
4500	4985	4745	9730					
4750	4965	4845	9810					

(\*) Weight including oil, fuel, spare wheel, driver Kg.75, with 13R22.5 tyres

(1) With tyres on front axle 385/65R22.5 or 325/95R24 and reinforced springs (OPT).

(2) With tyres 325/95R24 or max speed limited to 70 Km/h depending on pneus type and brand.

Higher speeds are allowed with load reductions subject to Astra technical office approval.

Other tyres available, subject to Astra technical office approval.


**EURO 3**

**3-2016  
ENGLISH**

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



## ENGINES

CURSOR 13 turbo intercooler euro 3 diesel injection/cycle with electronic unit injection pumps. 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. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler

	64.38	64.42	64.44	64.48	64.54*
Model	CURSOR 13	CURSOR 13	CURSOR 13	CURSOR 13	CURSOR 13
Max power (EEC)	280 kW (380 HP)	309 kW (420 HP)	324 kW (440 HP)	353 kW (480 HP)	397 kW (540 HP)
Corresponding rpm	1900 rpm				
Max torque (EEC)	1.800 Nm (183 kgm)	1.900 Nm (194 kgm)	2.100 Nm (214 kgm)	2.200 Nm (224 kgm)	2.350 Nm (240 kgm)
Corresponding rpm	1.000-1.440 rpm				1.000-1.690 rpm
Turbine	WG Waste Gate		VGT Variable Geometry Turbine		

\*Requires additional engine radiator, for extremely hot climate (>42°C).



## GEARBOX

Manual ZF Ecosplit 4 technology gearbox with servoshift, 16 synchronised forward speeds + 2 reverse:

**ZF16S2220TO:** HD9 64.38/HD9 64.42 / HD9 64.44

**ZF16S2520TO:** HD9 64.48/HD9 64.54

On request:

**ZF16S2320TD:** HD9 64.38/HD9 64.42/ HD9 64.44/ HD9 64.48

**ZF ASTRONIC 16AS2630TO:** HD9 64.44/ HD9 64.48/ HD9 64.54

		Speed [kph] calculated at maximum power rpm																		
		Gears																RM1	RM2	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
ZF 16S2220TO ZF 16S2520TO	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	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	103.0	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		
ZF16S2320TD	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	3,793	6,3	7,5	9,1	10,9	13,3	15,8	19,0	22,5	28,7	34,1	41,7	49,5	60,6	72,0	86,6	103,0	6,7	8,0
		4,229	5,6	6,7	8,2	9,7	11,9	14,2	17,0	20,2	25,7	30,6	37,4	44,4	54,4	64,6	77,7	92,4*	6,0	7,2
		5,009	4,8	5,7	6,9	8,2	10,1	11,9	14,4	17,1	21,7	25,8	31,6	37,5	45,9	54,6	65,6	78,0	5,1	6,0
		5,558	4,3	5,1	6,2	7,4	9,1	10,8	12,9	15,4	19,6	23,3	28,5	33,8	41,4	49,2	59,1	70,3	4,6	5,4
		6,095	3,9	4,6	5,7	6,8	8,3	9,8	11,8	14,0	17,9	21,2	26,0	30,8	37,7	44,8	53,9	64,1	4,2	5,0
6,588	3,6	4,3	5,3	6,3	7,6	9,1	10,9	13,0	16,5	19,6	24,0	28,5	34,9	41,5	49,8	59,3	3,9	4,6		

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



## P.T.O.

On request:

Gearbox	ZF16S2220TO 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..
ZF N221/10B-PL + NL/1c	1,75/2,09:1+0,91/1,09:1	560+600	Double PTO for concrete pumps

**ZF NMV 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 Multipower** (ratio 1,29:1) max available torque 900 Nm for concrete mixers.

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





## 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".



## AXLES

### FRONT

Steering, hot moulding in high tensile steel.

Wheel stud protection.

### REAR

Two drive axles in tandem. Double reduction: central with beveled pair, final in the wheel hubs by means of epicycloidal assembly. Torque distribution between the axles by means of a distributor fitted on the intermediate axle. Differential lockable from driver seat. Tandem assembled to the chassis by reaction rods with silentblocks.

### 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



## SUSPENSIONS

### FRONT

1<sup>st</sup> axle, parabolic springs, n° 4 leaves 24x90 mm, with hydraulic shock absorbers.

Standard stabilizer bar.

### On request:

Reinforced parabolic springs, n° 5 leaves 24x90 mm (mandatory with 9t version).

### REAR

Parabolic springs, swivelling on central pin: n° 4 leaves 40x100 mm.

### On request:

stabilizer bar on 2nd axle.

stabilizer bar on 3rd axle.

Extra-reinforced conventional springs, n° 10 leaves 25x100 mm.



## CHASSIS

Special steel with high tensile strength limit, two flat and parallel side members (width 820 mm.), C section (320x90x10mm), cross members bolted 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, steel fuel tank capacity 300 litres.

### On request:

Rapid pneumatic connection for tyre 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 2<sup>nd</sup> and 3<sup>rd</sup> axle.

Side winch for spare wheel.



## 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
12.00R20 156/150G	S	D
315/80R22.5 156/150K		
385/65R22.5 160J (*)	S	
315/80R22.5 156/150K		D
325/95R24 162/160K (*)		
12.00R24 160/156G (*)	S	D

S single

D double

(\*) Mandatory with 9 ton front axle load

Other tyres available, subject to the Astra technical office approval.



## 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 9.276 cm<sup>2</sup>.

ABS + EBL system.

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

**Solo vehicles:** two independent circuits, one for 1<sup>st</sup> axle, one for 2<sup>nd</sup> and 3<sup>rd</sup> axle; 1<sup>st</sup> category wheels antilock system.

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

**Emergency brake:** Incorporated in service brake.

**Parking brake:** Mechanical spring-type with pneumatic control acting on 2<sup>nd</sup> and 3<sup>rd</sup> axle wheels.

**IVECO BRAKE TURBO engine brake:**

HD9 380/420 HP braking power 255 kW (342 HP).

HD9 440/480/540 HP braking power 300 kW (402 HP).

### On request:

Hydraulic intarder (HD9 64.38 and HD9 64.42 excluded).

1<sup>st</sup> axle immobiliser system.

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

**HD9 380/420 cv - Front and rear "simplex"**

self-adjusting brake system.

No ABS system.

No hydraulic intarder.



## STEERING

ZF 8098 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 mechanical adjustable steering wheel.

Chassis 6x4

HD9

EURO 3

 3-2016  
ENGLISH

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



### SERVICE DATA(I)

Engine oil sump and filters .....	28 (+2,5)
Gearbox oil .....	14,5
Power steering oil .....	8,5
Cab tipping oil .....	1
Clutch circuit oil .....	0,5
Integral PTO oil.....	3
Intermediate axle with final red. oil.....	27
Rear axle with final red. oil .....	16
Cooling system water .....	33
Diesel .....	300



### 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 1<sup>st</sup> and 3<sup>rd</sup> axle.  
 1 electrical joint 7-pole (ISO 7638) for trailer ABS (if applicable).  
 1 electrical joint 15-pole (ISO 12089-4091) for trailer lighting (if applicable).  
 Offset trim lights.  
 Electrical provision for outfitters.  
 Provision for diagnostics.  
 Provision for radio/cb (without speakers).  
 Glow plug for cold start.  
**On request:**  
 225 Ah accumulators;  
 Reverse alarm.



### CAB

Standard white short cab (AD/HD) 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.  
 Mechanical rear view mirrors, wide angle mirrors and front view mirror. 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:

RHD.  
 Air conditioning with anti-pollen filter.  
 Cab rear window.  
 Car radio RDS, CD.  
 Car radio RDS, CD, MP3 Bluetooth technology.  
 External sun visor.  
 Extra colour cab: to be specified in the order.  
 Heated and electric powered rear view mirrors.  
 Long cab (AT/HT) for wheelbase > 3500 mm with interior equipment (seats and beds) on request.  
 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.



### INSTRUMENTATION

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), ABS, trailer ABS (if applicable), main steering circuit failure, steering auxiliary circuit failure.

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**DEALER**

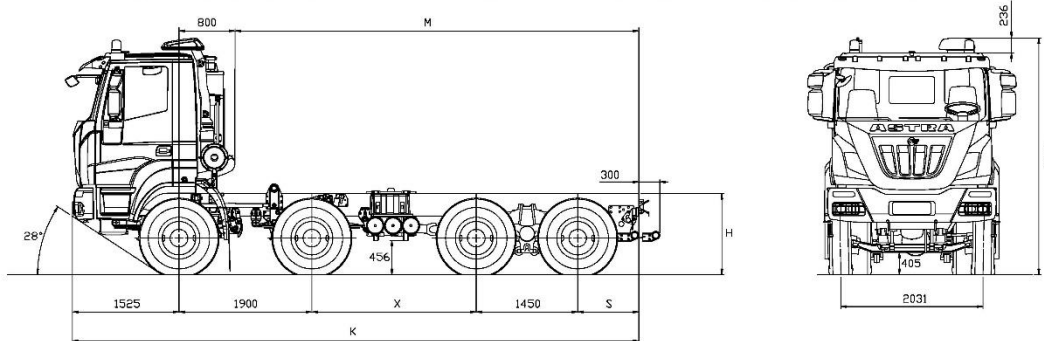
3 - 2016 A3502171

Characteristics and equipment are subject to changes without prior notice.

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




**EURO 3**

**chassis 8x4**
**84.38 / 84.42 / 84.44 / 84.48 / 84.54**

**DIMENSIONS (mm)**

X	K	M max (*)	S	S ON REQUEST	H		TURNING DIAMETER wall to wall
					unloaded	loaded	
2350	8425	6100	1200	875/1500	1194	1129	19100
2600	8675	6350	1200	875/1500			19900
2850	8925	6600	1200	875/1500			20700
3100	9175	6850	1200	875/1500			21500
3350	9425	7100	1200	1500			22200
3600	9975	7650	1500	-			23000
4100	10475	8150	1500	-			24600
5060	12035	9710	2100	-			27500

 (\*) M max.: indicative value to be confirmed by bodybuilder.  
 (Tyres 13R22.5)

**WEIGHT (kg)**

Distribution net weight (*)					Max technical weight				
X	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
2350	3550	3150	4120	10820	16000	18000 (1) (2)	32000 (2)	50000 (2)	121.500
2600	3543	3143	4159	10845					
2850	3536	3136	4194	10865					
3100	3548	3148	4268	10965					
3350	3546	3146	4298	10990					
3600	3534	3134	4363	11030					
4100	3529	3129	4417	11075					
5060	3502	3102	4536	11140					

 (\*) Weight including oil, fuel, spare wheel, driver Kg.75, with 13R22.5 tyres  
 (1) With tyres on front axles 385/65R22.5 or 325/95R24 and reinforced springs (OPT).  
 (2) With tyres 325/95R24 or max speed limited to 70 Km/h depending on pneus type and brand.  
 Higher speeds are allowed with load reductions subject to Astra technical office approval.  
 Other tyres available, subject to Astra technical office approval.

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


**3-2016  
ENGLISH**



## ENGINES

CURSOR 13 turbo intercooler **euro 3** diesel injection/cycle with electronic unit injection pumps. 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. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler.

	84.38	84.42	84.44	84.48	84.54*
Model	CURSOR 13	CURSOR 13	CURSOR 13	CURSOR 13	CURSOR 13
Max power (EEC)	280 kW (380 cv)	309 kW (420 cv)	324 kW (440 cv)	353 kW (480 cv)	397 kW (540 cv)
Corresponding rpm	1.900 rpm				
Max torque (EEC)	1.800 Nm (183 kgm)	1.900 Nm (194 kgm)	2.100 Nm (214 kgm)	2.200 Nm (224 kgm)	2.350 Nm (240 kgm)
Corresponding rpm	1.000-1.440 rpm				1.000-1.690 rpm
Turbine	WG - Waste Gate		VGT - Variable Geometry Turbine		

\*Requires additional engine radiator, for extremely hot climate (>42°C).



## GEARBOX

Manual ZF Ecosplit 4 technology gearbox with servoshift, 16 synchronised forward speeds + 2 reverse:

**ZF16S2220TO:** HD9 84.38/HD9 84.42 / HD9 84.44

**ZF16S2520TO:** HD9 84.48/HD9 84.54

**On request:**

**ZF16S2320TD:** HD9 84.38/HD9 84.42/ HD9 84.44/ HD9 84.48

**ZF ASTRONIC 16AS2630TO:** HD9 84.44/ HD9 84.48/ HD9 84.54

		Speed [kph] at maximum power(*)																		
		Gears																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RM1	RM2	
ZF 16S2220TO ZF 16S2520TO	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	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	103.0*	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		
ZF16S2320TD	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	3,793	6,3	7,5	9,1	10,9	13,3	15,8	19,0	22,5	28,7	34,1	41,7	49,5	60,6	72,0	86,6	103,0*	6,7	8,0
		4,229	5,6	6,7	8,2	9,7	11,9	14,2	17,0	20,2	25,7	30,6	37,4	44,4	54,4	64,6	77,7	92,4*	6,0	7,2
		5,009	4,8	5,7	6,9	8,2	10,1	11,9	14,4	17,1	21,7	25,8	31,6	37,5	45,9	54,6	65,6	78,0	5,1	6,0
		5,558	4,3	5,1	6,2	7,4	9,1	10,8	12,9	15,4	19,6	23,3	28,5	33,8	41,4	49,2	59,1	70,3	4,6	5,4
		6,095	3,9	4,6	5,7	6,8	8,3	9,8	11,8	14,0	17,9	21,2	26,0	30,8	37,7	44,8	53,9	64,1	4,2	5,0
6,588	3,6	4,3	5,3	6,3	7,6	9,1	10,9	13,0	16,5	19,6	24,0	28,5	34,9	41,5	49,8	59,3	3,9	4,6		

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



## P.T.O.

On request:

Gearbox	ZF16S2220TO-ZF16S2520TO	Mx. 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.
ZF N221/10B-PL + NL/1c	1,75/2,09:1+0,91/1,09:1	560+600	double PTO for concrete pumps

**ZF NMV 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 Multipower** (ratio 1,29:1) max available torque 900 Nm for concrete mixers.

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





## 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"



## AXLES

### FRONT

Steering axle, hot moulding in high tensile steel. Wheel stud protection.

### REAR

Two drive axles in tandem. Double reduction: central with beveled pair, final in the wheel hubs by means of epicycloidal assembly. Torque distribution between the axles by means of a distributor fitted on the intermediate axle. Differential lockable from driver seat. Tandem assembled to the chassis by reaction rods with silentblocks.

#### 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



## SUSPENSIONS

### FRONT

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 (mandatory with 9t version).

### REAR

Parabolic springs, swiveling on central pin: n° 4 leaves 40x100mm, 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.



## CHASSIS

Special steel with high tensile strength limit, two flat and parallel side members (width 820 mm.), C section (320x90x10mm), cross members bolted to the frame. R.B.M. (Rail Bending Moment): 202.020 Nm (20.593 Kgm.).

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

#### On request:

Rapid pneumatic connection for tyres inflation.  
Rear underrun bar in set back position.  
Extra-long underrun bar for concrete mixer.  
Rear maneuvering hook.  
Rear automatic towing hook.  
Rubber mudguards on 3<sup>rd</sup> and 4<sup>th</sup> axle.  
Side winch for spare wheel (wheelbase 2350 and 2850 excluded).



## 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
12.00R20 156/150G	S	D
315/80R22.5 156/150K	S	
385/65R22.5 160J (*)	S	
315/80R22.5 156/150K		D
325/95R24 162/160K (*)	S	D
12.00R24 160/156G (*)		D

S single

D double

(\*) Mandatory with 9 ton front axle load.

Other tyres available, subject to the Astra technical office approval.



## 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 12.368 cm<sup>2</sup>.

ABS + EBL system.

**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 antilock 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 antilock system.

**Emergency brake:** Incorporated in service brake.

**Parking brake:** Mechanical spring-type with pneumatic control acting on 3<sup>rd</sup> and 4<sup>th</sup> axle wheels.

**IVECO BRAKE TURBO engine brake:**

HD9 380/420 HP braking power 255 kW (342 HP)

HD9 440/480/540 HP braking power 300 kW (402 HP)

#### On request:

Hydraulic intarder (HD9 84.38 and HD9 84.42 excluded).

1<sup>st</sup> axle immobiliser system.

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

**HD9 380/420 cv -** Front and rear "simplex" self-adjusting brakes system.  
No ABS system.  
No hydraulic intarder



## 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 mechanical adjustable steering wheel.

Chassis 8x4

HD9

EURO 3

 3-2016  
ENGLISH

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



### SERVICE DATA(I)

Engine oil sump and filters .....	28 (+2,5)
Gearbox oil .....	14,5
Power steering oil .....	18
Cab tipping oil .....	1
Clutch circuit oil .....	0,5
Integral PTO oil .....	3
Intermediate axle with final red. oil .....	27
Rear axle with final red. oil .....	16
Cooling system water .....	33
Diesel .....	300



### 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 1<sup>st</sup> and 3<sup>rd</sup> axle.  
 1 electrical joint 7-pole (ISO 7638) for trailer ABS (if applicable).  
 1 electrical joint 15-pole (ISO 12089-4091) for trailer lighting (if applicable).  
 Offset trim lights.  
 Electrical provision for outfitters.  
 Provision for diagnostics.  
 Provision for radio/cb (without speakers).  
 Glow plug for cold start.  
**On request:**  
 225 Ah accumulators;  
 Reverse alarm.



### CAB

Standard white short cab (AD/HD) 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. Mechanical rear view mirrors, wide angle mirrors and front view mirror. 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:

RHD.  
 Air conditioning with anti-pollen filter.  
 Cab rear window.  
 Car radio RDS, CD.  
 Car radio RDS, CD, MP3 Bluetooth technology.  
 External sun visor.  
 Extra colour cab: 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.



### INSTRUMENTATION

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), ABS, trailer ABS (if applicable), main steering circuit failure, steering auxiliary circuit failure.

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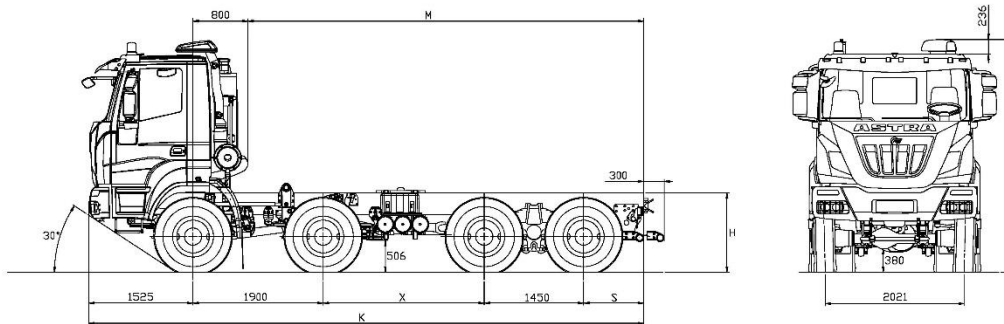
**DEALER**

3 - 2016 A3502173

Characteristics and equipment are subject to changes without prior notice.

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




**EURO 3**
**HD**
**chassis 8x6  
86.44 / 86.48 / 86.54**

**DIMENSIONS (mm)**

X	K	M max (*)	S	S ON REQUEST	H		TURNING DIAMETER (wall to wall)
					unloaded	loaded	
2350	8425	6100	1200	875/1500	1254	1189	19800
2600	8675	6350	1200	875/1500			20600
2850	8925	6600	1200	875/1500			21400
3100	9175	6850	1200	875/1500			22200
3350	9425	7100	1200	1500			23000
3600	9975	7650	1500	-			23800
4100	10475	8150	1500	-		25400	

 (\*) M max.: indicative value to be confirmed by bodybuilder.  
(Tyres 13R22.5)

**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
2350	3712	3277	4205	11195	16000	18000 (1) (2)	32000 (2)	50000 (2)	121.500
2600	3708	3273	4239	11220					
2850	3703	3268	4269	11240					
3100	3706	3271	4308	11285					
3350	3703	3268	4333	11305					
3600	3694	3259	4398	11350					
4100	3699	3264	4447	11410					

(\*) Weight including oil, fuel, spare wheel, driver Kg.75, with 13R22.5 tyres

(1) With tyres on front axles 385/65R22.5 or 325/95R24 and reinforced springs (OPT).

(2) With tyres 325/95R24 or max speed limited to 70 Km/h depending on pneus type and brand.

Higher speeds are allowed with load reductions subject to Astra technical office approval.

Other tyres available, subject to Astra technical office approval.

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


**EURO 3**

**3-2016  
ENGLISH**



## ENGINES

CURSOR 13 turbo intercooler euro 3 diesel injection/cycle with electronic unit injection pumps. 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. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler.

	86.44	86.48	86.54
Model	CURSOR 13	CURSOR 13	CURSOR 13
Max. power (EEC)	324 kW (440 HP)	353 kW (480 HP)	397 kW (540 HP)
Corresponding rpm	1.900 rpm		
Max. torque (EEC)	2.100 Nm (214 kgm)	2.200 Nm (224 kgm)	2.350 Nm (240 kgm)
Corresponding rpm	1.000-1.440 rpm		1.000-1.690 rpm
Turbine	VGT - Variable Geometry Turbine		



## GEARBOX

Manual ZF Ecosplit 4 technology gearbox with servoshift, 16 synchronised forward speeds + 2 reverse:

**ZF16S2220TO:** HD9 86.44

**ZF16S2520TO:** HD9 86.48/HD9 86.54

**On request:**

**ZF16S2320TD:** HD9 86.44/ HD9 86.48

**ZF ASTRONIC 16AS2630TO:** HD9 86.44/ HD9 86.48/ HD9 86.54

**ALLISON HD4700:** only for wheelbase>4100mm

		Speed [kph] at maximum power (*)																		
		Gears																RM1	RM2	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
ZF 16S2220TO - ZF 16S2520TO	<b>Gear ratios</b>	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	
	<b>Rear axle ratio with transfer 1:1.0</b>	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	103.0*	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
	<b>Gear ratios</b>	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	
	<b>Rear axle ratio with transfer 1:1.6</b>	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	69.0	4.5	5.4
		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 limited speed 90 km/h. Other speeds available, subject to the Astra technical office approval.



## P.T.O.

On request:

Gearbox	ZF16S2220TO-ZF16S2520TO	Mx. 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.
ZF N221/10B-PL + NL/1c	1,75/2,09:1+0,91/1,09:1	560+600	double PTO for concrete pumps

**ZF NMV 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.

**Multipower power take-off** (ratio 1,29:1) max available torque 900 Nm for concrete mixers.

**Parker Chelsea 870 XAF power take-off** (ratio 1,67:1) max available torque 908 Nm for Allison gearbox.

**Parker Chelsea 870 XBF power take-off** (ratio 1,56:1) max available torque 854 Nm for Allison gearbox.

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





## CLUTCH

Single dry plate, diameter 17". Pull type engagement with diaphragm spring.

Hydro-pneumatic power steering engagement control, with driven disc wear recovery slave cylinder.

**On request:** Ceramic clutch 17".



## TRANSFER BOX

Mechanical with two ratios. Helical spur gears, mounted on three shafts, engaged with each other. Lockable differential by pneumatic control from driver seat.

	440 / 480 HP	540 HP
Model	IVECO TC2200	STEYR VG2700
Transmission ratio	1:1 - 1:1,6	1:0,913 - 1:1,407
Front/rear torque distribution ratio	1:2,2	1:2,6



## AXLES

### FRONT

1<sup>st</sup> axle, driving and steering, in cast iron with double reduction, central by bevelled pair, lateral by epicyclic group in wheel hubs.

2<sup>nd</sup> axle in high tensile pressed steel, steering, not driving. Wheel stud protection.

**On request:** Lockable differential by pneumatic control from driver seat.

Kessler front axle:

Version	Max technical weight on 1 <sup>st</sup> axle (ton)	Available axle ratio
HD9 K	8 t	5,01 - 5,47 - 5,96 - 6,28
	9 (with reinforced suspension)	

### REAR:

Two drive axles in tandem. Double reduction: central with beveled pair, final in the wheel hubs by means of epicycloidal assembly. Torque distribution between the axles by means of a distributor fitted on the intermediate axle. Differential lockable from driver seat. Tandem assembled to the chassis by reaction rods with silentblocks.

### 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



## SUSPENSIONS

### FRONT

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 (mandatory with 9t version).

### REAR

Parabolic springs, swiveling on central pin: n° 4 leaves 40x100mm, 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.



## CHASSIS

Special steel with high tensile strength limit, two flat and parallel side members (width 820 mm.), C section (320x90x10mm), cross members bolted to the frame. R.B.M. (Rail Bending Moment): 202.020 Nm (20.593 Kgm.).

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

### On request:

Rapid pneumatic connection for tyres inflation.

Rear underrun bar in set back position.

Extra-long underrun bar for concrete mixer.

Rear maneuvering hook.

Rear automatic towing hook.

Rubber mudguards on 3<sup>rd</sup> and 4<sup>th</sup> axle.

Side winch for spare wheel (wheelbase 2350 and 2850 excluded).



## 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
12.00R20 156/150G	S	D
315/80R22.5 156/150K		
385/65R22.5 160J (*)	S	
315/80R22.5 156/150K		D
325/95R24 162/160K (*)		
12.00R24 160/156G (*)	S	D
16.00R20 173G (*)	S	S
16.00R20 173G (*)	S	
24R20,5 176F		S
14.00R20 164G (*)	S	S
14.00R20 164/160G (*)	S	D
395/85R20 168G (*)	S	
525/65R20,5 173F		S
395/85R20 168G (*)	S	S

S single

D double

(\*) Mandatory with 9 ton front axle load.

Other tyres available, subject to the Astra technical office approval.



## 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).

Chassis 8x6

HD9

EURO 3

 3-2016  
ENGLISH

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



## BRAKES

Front and rear "duo-duplex" self-adjusting wedge type brakes with automatic play take-up.  
Total net braking surface 12.058 cm<sup>2</sup>.  
ABS + EBL system.

**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 antilock 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 antilock system.

**Emergency brake:** Incorporated in service brake.

**Parking brake:** Mechanical spring-type with pneumatic control acting on 3<sup>rd</sup> and 4<sup>th</sup> axle wheels.

**IVECO BRAKE TURBO engine brake:**  
HD9 440/480/540 HP braking power 300 kW (402 HP)

**On request:**

Hydraulic interarder.

1<sup>st</sup> and 2<sup>nd</sup> axle immobiliser system.

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



## 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 mechanical adjustable steering wheel.



## SERVICE DATA(I)

Engine oil sump and filters .....	28 (+2,5)
Gearbox oil .....	14,5
Power steering oil .....	18
Cab tipping oil .....	1
Clutch circuit oil .....	0,5
Integral PTO oil .....	3
Transferer oil 86.44-86.48 .....	6,5
Transferer oil 86.54 .....	13
Front axle with final red. oil .....	6,5
Intermediate axle with final red. oil .....	27
Rear axle with final red. oil .....	16
Cooling system water .....	33
Diesel .....	300



## 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 1<sup>st</sup> and 3<sup>rd</sup> axle.

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

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

Offset trim lights.

Electrical provision for outfitters.

Provision for diagnostics.

Provision for radio/cb (without speakers)

Glow plug for cold start.

**On request:**

225 Ah accumulators;

Reverse alarm.



## CAB

Standard white short cab (AD/HD) 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. Mechanical rear view mirrors, wide angle mirrors and front view mirror. 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:**

RHD.

Air conditioning with anti-pollen filter.

Cab rear window.

Car radio RDS, CD.

Car radio RDS, CD, MP3 Bluetooth technology.

External sun visor.

Extra colour cab: 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.



## INSTRUMENTATION

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), ABS, trailer ABS (if applicable), main steering circuit failure, steering auxiliary circuit failure.

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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 configuration

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