



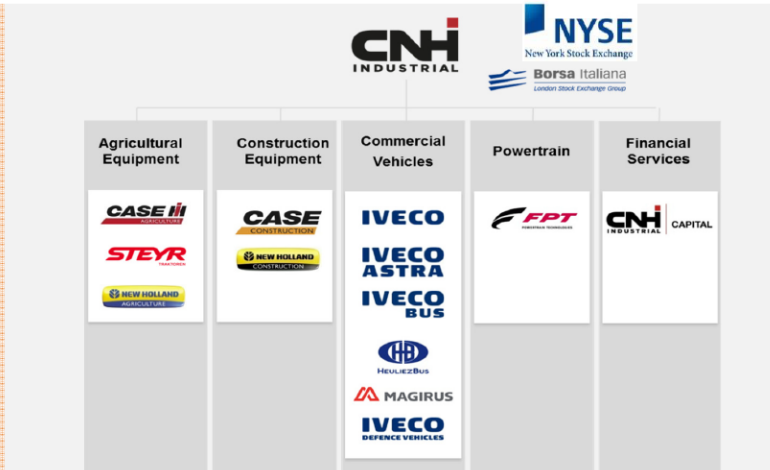
IVECO ASTRA

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



Oil & Gas:

Mission highlights

Oil & gas are not a resource unless they are extracted, refined, channeled and distributed. To carry them from (and to) the most remote locations, thousands of kilometers of pipelines must be constructed – crossing borders, climbing over mountains, spanning through different climate zones. In doing so, any kind of terrain and obstacle is encountered.

Building these infrastructures is one of the most difficult jobs on the planet – and this is why they call us.

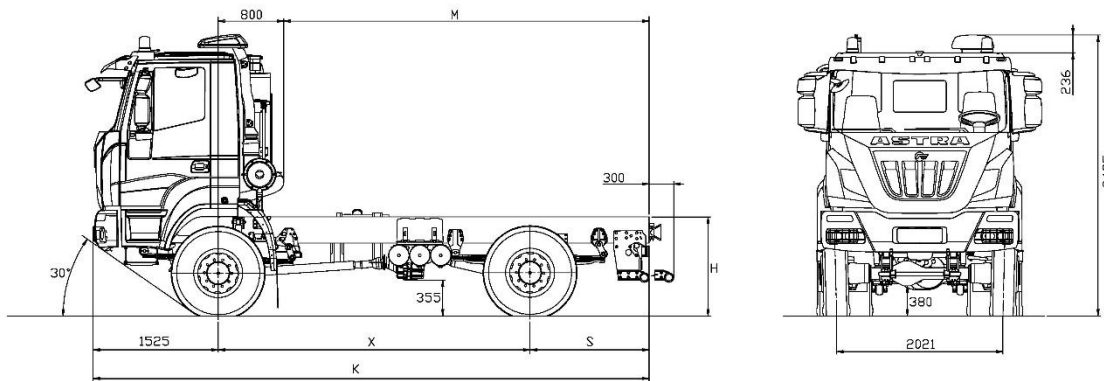
Astra for Oil & Gas

ASTRA machines are designed to travel and operate in the most unfavorable weather, driving the worst off-road tracks. Ample radiator surfaces and additional heat exchangers make engines withstand even the highest temperatures – while special cables can be adopted for extreme cold. Large-diameter wheels (with automatic inflation system on request) maximize floatability, grip and maneuvering on soft surfaces. The extraordinary robustness of our chassis frame allows the fabrication of extra-long wheelbases of more than 6.000 mm to transport pipes and drilling shafts. Snorkels and high-efficiency air filters make work possible in water, mud and sand.

Optional features include fully automatic or manual (with torque converter) gearbox solutions, winter kit and cab pressurization to protect the crew from temperature and dust.

Drive configurations are available up to 8×8 (including the 2.9 m-wide HHD version) for full traction and control also on irregular and slippery ground.

We start where others stop.


EURO 3
HD
chassis 4x4
44.38 / 44.42 / 44.44 / 44.48

DIMENSIONS (mm)

X	K	M max (*)	S	H		TURNING DIAMETER (wall to wall)
				unloaded	loaded	
3800	6775	4450	1450	1210	1103	16000
4200	7575	5250	1850			17300
4600	8375	6050	2250			18600
5100	8875	6550	2250			20200
6700	11675	9350	3450			25300

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

(Tyres 315/80R22.5)


WEIGHT (kg)

X	Distribution net weight (*)			Max technical weight			
	1 st axle	2 nd axle	Net weight	1 st axle	2 nd axle	Gross Vehicle Weight	Gross Combination Weight
3800	5233	2509	7742	8000 9000 (1) 10000 (2)	13000 16000 (3)	21000 25000 (3)	55000
4200	5224	2567	7791				
4600	5225	2636	7861				
5100	5261	2633	7894				
6700	6167	1835	8002				

(*) 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).

(2) With Kessler front axle and max speed limited to 70 km/h, depending on tyre type and brand.

(3) Subject to specific configuration and 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

Chassis 4x4
EURO 3

**7-2016
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 cm³. Bore for stroke: 135 x 150 mm. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler.

	44.38	44.42	44.44	44.48
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 44.38 / HD9 44.42 / HD9 44.44

ZF16S2520TO: HD9 44.48

On request:

ZF16S2320TD: HD9 44.38 / HD9 44.42 / HD9 44.44 / HD9 44.48

ZF ASTRONIC 16AS2630TO: HD9 44.42 / HD9 44.44 / HD9 44.48

		Speed [kph] calculated at maximum power rpm																			
		Gears																RM		RM	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RM	RM		
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 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	103.0*	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		
	Rear axle ratio with transfer 1:1.6	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	
		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 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, etc
ZF NH/1c	0.91/1.09:1	1000	For tipping unit pumps, pumps for cranes, unit pumps for concrete, etc
ZF NH/4c	1.17/1.40:1	430	For tipping unit pumps, etc
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 disc wear recovery slave cylinder.

On request:

Ceramic clutch 17".



TRANSFER BOX

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

	380 / 420 / 440 / 480 HP
Model	IVECO TC2200
Transmission ratio	1:1 - 1:1.6
Front/rear torque distribution ratio	1:2.2



AXLES

FRONT

1st axle driving and steering, with double reduction: central by bevel gear, final by planetary gear in wheel hubs.

On request:

Cross-axle differential lock.

Kessler front axle:

Version	Max technical weight on 1 st axle (ton)	Available axle ratio
HD9 K	8	5.01 - 5.47 - 5.96 - 6.28
	9 (with reinforced suspension)	
	10 (with reinforced suspension and steering system)	

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

1st 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 2nd 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
12.00R20 156/150G	S	D
13 R22.5 156/150K		
385/65R22.5 160J (*)	S	
315/80R22.5 156/150K		D
325/95R24 162/160K (*) (**)	S	D
12.00R24 160/156G (*)		
16.00R20 173G (*) (**)	S	S
16.00R20 173G (*) (**)	S	
24R20.5 176F		S
14.00R20 164G (*) (**)	S	S
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.

(**) Mandatory with 10 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.

ABS system and EBL (Electronic Brake Limiter)



BRAKES

Front and rear drum brakes, Duo-Duplex with automatic slack adjuster.

ABS + EBL system.

Chassis 4x4



EURO 3



 7-2016
ENGLISH

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

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

Solo vehicles: two independent circuits, one for 1st axle, one for 2nd axle.

Towing vehicles: three independent circuits, one for 1st axle, one for 2nd axle and another for the trailer.

Emergency brake: Integrated in service brake.

Parking brake: Mechanical spring-type with pneumatic control acting on 2nd 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).

1st axle immobiliser system.

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

Front and rear "simplex" brakes NO ABS (only for manual gearbox w/out Intarder, engine power up to 420 HP).

Front and rear "duo duplex" brakes NO ABS (only for manual gearbox w/out 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.



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
Transferer oil	6.5
Front axle with final red. oil	6.5
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 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

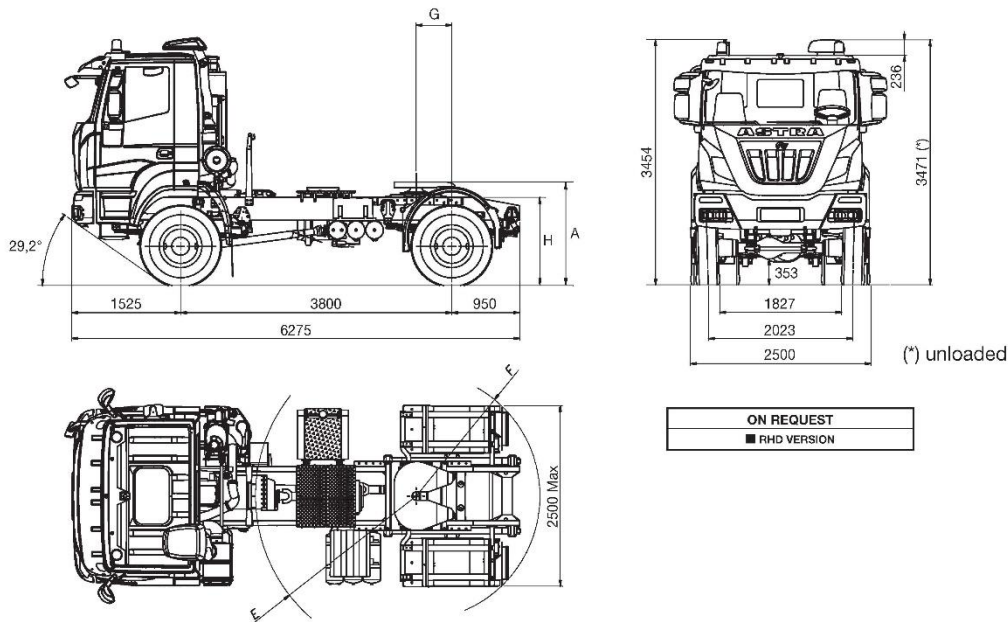
Characteristics and equipment are subject to changes without prior notice.

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

07 - 2016 A3502288


EURO 3

HD9

tractor 4x4
44.38T / 44.42T / 44.44T / 44.48T

DIMENSIONS (mm) (Tyres 315/80R22.5 156/150G)

X	K	G (1)			H		A (2)		E (1)	F (1)	TURNING DIAMETER	
		STD	UNLOADED	LOADED	UNLOADED	LOADED	UNLOADED	LOADED	front radius	rear radius	SIDEWALKS	WALL TO WALL
3800	6275	500	1208	1124	1433	1349		2245	1765	14400	1600	

- (1) Standard fifth wheel position. In case of different positioning needs, the quote may change in relation with the technical GVW of the vehicle. Values to be confirmed in combination with the semitrailer.
 (2) Fifth Wheel h 185 mm (opt)


WEIGHT (kg)

X	Distribution net weight (*)			Max technical weight					
	1 st axle	2 nd axle	NET WEIGHT	1 st axle	2 nd axle	Fifth Wheel	Tractor	Gross Combination Weight	
3800	5530	2690	8220	8000	8500 (1) 9000 (1)	13000	12780	21000 (2)	55000

- (*) Weight including oil, fuel, spare wheel, driver Kg.75
 (1) With tyres 1st axle 385/65R22,5160 J or 365/85R20144G. Other tyres available, subject to the Astra technical office approval.
 (2) HD9 44.48T only at max speed 50 km/h. Michelin/Pirelli tyres. Higher speeds/loads are allowed with load/speed reductions, subject to the Astra Technical office approval.

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

Tractor 4x4
EURO 3
**2-2013
ENGLISH**



ENGINES

CURSOR 13 F3B turbo intercooler euro 3 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

	44.38T	44.42T	44.44T	44.48T
Model	IVECO F3B	IVECO F3B	IVECO F3B	IVECO F3B
Max. power (EEC)	280 kW (380 HP)	309 kW (420 HP)	324 kW (440 HP)	353 kW (480 HP)
Corresponding rpm	1900			
Max. torque (EEC)	1800 Nm (184 kgm)	1900 Nm (194 kgm)	2100 Nm (214 kgm)	2200 Nm (224 kgm)
Corresponding rpm	1000-1440			
Turbine	WG Waste Gate		VGT variable geometry	



GEARBOX

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

ZF 16 S 2220 TO: HD9 44.38T / HD9 44.42T / HD9 44.44T

ZF 16 S 2520 TO: HD9 44.48T

On request:

ZF 16 S 2320 TD: HD9 44.38T/HD9 44.42T/ HD9 44.44T

		Speed [kph] at maximum power(*)																		
		Gears																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RM1	RM2	
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	3.8	4.5	5.5	6.6	8.1	9.6	11.5	13.7	17.4	20.7	25.3	30.1	36.8	43.7	52.6	62.6	4.1	4.8
		4.229	3.4	4.1	5.0	5.9	7.2	8.6	10.3	12.3	15.6	18.6	22.7	27.0	33.0	39.2	47.1	56.1	3.7	4.3
		5.009	2.9	3.4	4.2	5.0	6.1	7.3	8.7	10.4	13.2	15.7	19.2	22.8	27.9	33.1	39.8	47.4	3.1	3.7
		5.558	2.6	3.1	3.8	4.5	5.5	6.5	7.9	9.3	11.9	14.1	17.3	20.5	25.1	29.9	35.9	42.7	2.8	3.3
		6.095	2.4	2.8	3.5	4.1	5.0	6.0	7.2	8.5	10.8	12.9	15.8	18.7	22.9	27.2	32.7	38.9	2.5	3.0
6.588	2.2	2.6	3.2	3.8	4.6	5.5	6.6	7.9	10.0	11.9	14.6	17.3	21.2	25.2	30.3	36.0	2.3	2.8		
ZF 16S2220TOZF 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	4.5	5.4	6.6	7.9	9.6	11.5	13.7	16.4	20.7	24.7	30.1	35.9	43.7	52.1	62.6	74.5	4.8	5.8
		4.229	4.1	4.9	5.9	7.1	8.6	10.3	12.3	14.7	18.6	22.2	27.0	32.2	39.2	46.8	56.1	66.8	4.3	5.2
		5.009	3.4	4.1	5.0	6.0	7.3	8.7	10.4	12.4	15.7	18.7	22.8	27.2	33.1	39.5	47.4	56.4	3.7	4.4
		5.558	3.1	3.7	4.5	5.4	6.5	7.8	9.3	11.2	14.1	16.9	20.5	24.5	29.9	35.6	42.7	50.8	3.3	4.0
		6.095	2.8	3.4	4.1	4.9	6.0	7.1	8.5	10.2	12.9	15.4	18.7	22.4	27.2	32.4	38.9	46.3	3.0	3.6
6.588	2.6	3.1	3.8	4.5	5.5	6.6	7.9	9.4	11.9	14.2	17.3	20.7	25.2	30.0	36.0	42.9	2.8	3.3		

(*) 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...

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



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

Mechanical with two ratios. It consists of a series of helical spur gears, mounted on three propeller 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

Steering cast iron type; with dual reduction, central by pinion-crown gear, lateral by means of epicycloid assembly in wheel hubs.

On request:

Lockable differential by pneumatic control from driver's seat.

REAR

Driving axle with dual reduction, central with bevel gear pair, final in wheel hubs by means of epicycloid assembly. Lockable differential with pneumatic control from driver seat.

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 with bushings, n° 4 leaves 24x90 mm, with shock absorbers and stabilizer bar.

On request:

Reinforced parabolic springs, n° 5 leaves 24x90 mm.

REAR

Parabolic springs with bushings, n° 4 leaves 24x90 mm, + 1 leaf 50x90 mm, with shock absorbers and stabilizer bar.



CHASSIS

Special steel with high elasticity limit, two flat and parallel side members width 820 mm., C section 320x70x8 mm, cross members riveted to the frame. Steel front bumpers with headlamp protection grids, front manoeuvring hook, rear underrun bar, steel fuel tank capacity 300 litres.

Fifth wheel helper frame, spot and side alighting step.

Rubber mudguards on 2nd axle, toolbox.

On request:

Rapid attachment for compressed air for tyres' inflation.

Rear manoeuvring hook.

Fixed 2" fifth wheel h 150.

Fixed 2" fifth wheel h 185.

Front bumper climbing step.

Side winch 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.

ABS system and EBL (Electronic Brake Limiter)



STEERING

ZF 8098 hydraulic power steering on front axle wheels with variable ratio 1:22.2/1:26.2.

Steering rods with self-lubricating joints.

Height and inclination mechanically adjustable steering wheel.



TYRES

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

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

Other Possible combinations:

TYRES	ASSEMBLY	
	FRONT	REAR
13 R22.5 156/150G 12.00 R20 156/150G	S	D
385/65 R22.5 160J*	S	
315/80 R22.5 156/150K		D
365/85 R20 164G*	S	S
395/85 R20 168G*	S	S
525/65 R20.5 173F		S

S single

D double

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

* Mandatory with 9t front axle load.



BRAKES

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

Total net braking surface 5.874 cm².

ABS system.

Service brake: Pedal controlled air brake, acting on all wheels, three independent circuits, one for 1st axle, one for 2nd axle and another for the semi-trailer.

Emergency brake: Incorporated in service brake.

Parking brake: Mechanical spring-type with pneumatic control acting on 2nd axle wheels.

IVECO BRAKE TURBO engine brake:

HD9 380/420 HP braking power 200 kW (272 HP)

HD9 440/480 HP braking power 295 kW (408 HP)

On request:

Hydraulic intarder (HD9 44.38T and HD9 44.42T excluded).

1st axle immobiliser system.

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

HD9 380/420 HP

Front and rear "simplex" self-adjusting brake system.

No ABS system.

No hydraulic intarder.





ELECTRICAL SYSTEM

Voltage: 24 V
 Alternator generator 90 A - 28 V (2520 W).
 Accumulators: 2 in series, 160 Ah.
 Starter motor 24 V 5,5 kW.
 Mechanically controlled electrical circuit breaker.
 Phonic wheels and sensors on 1st and 2nd axle.
 1 electrical joint 7-pole (ISO 7638) for semi-trailer ABS.
 1 electrical joint 15-pole (ISO 12089-4091) for semi-trailer lighting.
 Electrical provision for bodybuilders.
 Provision for diagnostics.
 Provision for radio/cb (without speakers).
 Glow plug for cold start.

On request:

160 Ah tropicalized accumulators;
 170 Ah accumulators;
 170 Ah tropicalized accumulators;
 220 Ah accumulators; Reverse alarm;



CAB

White cab built in galvanized pressed steel with hydraulic tilting up to 60°. Cab suspension with 4 helical 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 fire-proof. 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, 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.



SERVICE DATA(I)

Engine oil sump and filters	28
Gearbox oil ZF16S2220TO/ZF16S2520TO:	13
Power steering oil	8,5
Cab tipping oil	1
Clutch circuit oil	0,5
Transfer oil	6,5
Front axle with final red. oil	6,5
Rear axle with final red. oil	16
Cooling system water	33
Diesel	300



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, semi-trailer ABS, main steering circuit failure, steering auxiliary circuit failure.

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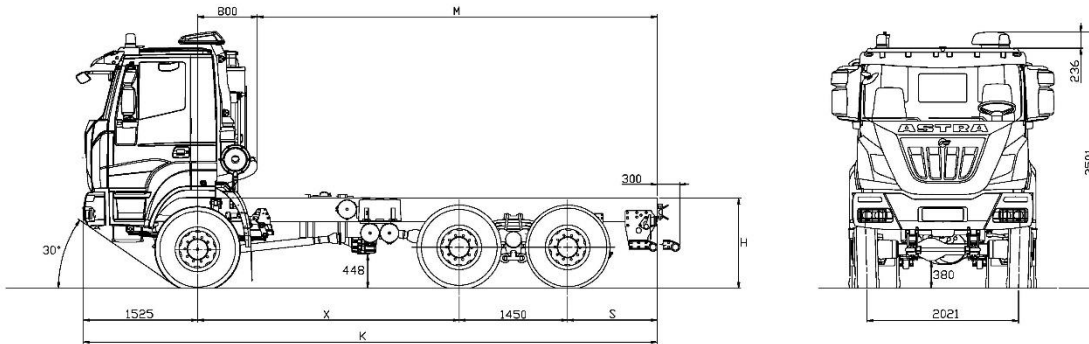
DEALER

2 - 2013 A3502300

Characteristics and equipment are subject to changes without prior notice.

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


EURO 3

chassis 6x6
66.38 / 66.42 / 66.44 / 66.48 / 66.54

DIMENSIONS (mm)

X	K	M max (*)	S	S ON REQUEST	H		TURNING DIAMETER (wall to wall)
					unloaded	loaded	
3500	7675	5350	1200	-	1250	1189	17400
3800	7975	5650	1200	1800			18300
4100	8275	5950	1200	1500/1900			19300
4500	8675	6350	1200	1900/2600			20600
4750	9625	7300	1900	-			21200
5100	9975	7650	1900	-	22400		

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

WEIGHT (kg)

X	Distribution net weight (*)			Max technical weight			
	1 st axle	2 nd +3 rd axle	Net weight	1 st axle	2 nd +3 rd axle	Gross Vehicle weight	Gross Combination weight
3500	5365	4938	10303	8000 8500 (1) 9000 (1) (2) 10000 (3)	32000 (2)	40000 (2)	121500
3800	5409	4929	10338				
4100	5447	4919	10366				
4500	5503	4921	10424				
4750	5554	4950	10504				
5100	5655	4890	10545				

 (*) 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.
 (3) With Kessler front axle and 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 cm³. Bore for stroke: 135 x 150 mm. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler.

	66.38	66.42	66.44	66.48	66.54*
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)	1800 Nm (183 kgm)	1900 Nm (194 kgm)	2100 Nm (214 kgm)	2200 Nm (224 kgm)	2350 Nm (240 kgm)
Corresponding rpm	1000-1440 rpm				1000-1690 rpm
Turbine	WG Waste Gate		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 66.48 / HD9 66.54

ZF16S2520TO: HD9 66.48 / HD9 66.54

On request:

ZF16S2320TD: HD9 66.38 / HD9 66.42 / HD9 66.44 / HD9 66.48

ZF ASTRONIC 16AS2630TO: HD9 66.44 / HD9 66.48 / HD9 66.54

ALLISON HD4700: HD9 66.44 / HD9 66.48 / HD9 66.54 (wheelbase>4100mm)

ZF WSK440 + 16S251: HD9 66.54

		Speed [kph] calculated at maximum power rpm																		
		Gears																RM	RM	
		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 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	103.0*	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	
	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	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	Max. torque	Application
P.T.O.	Ratio	Nm	
ZF NH/1b	0,91/1,09:1	1000	For tipping unit pumps, pumps for cranes, etc..
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.

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 propeller shafts, engaged with each other. Lockable differential by pneumatic control from driver seat.

	380 / 420 / 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

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

On request:

Lockable differential by pneumatic control from driver seat. Kessler front axle:

Version	Max technical weight on 1 st axle (ton)	Available axle ratio
HD9 K	8	5,01 - 5,47 - 5,96 - 6,28
	9 (with reinforced suspension)	
	10 (with reinforced suspension and steering system)	

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

1st 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:

Stabiliser bar on 2nd axle.

Stabiliser 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 2nd and 3rd 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 (*) (**)	S	D
12.00R24 160/156G (*)		
16.00R20 173G (*) (**)	S	S
16.00R20 173G (*) (**)	S	
24R20.5 176F		S
24R20.5 176F (*) (**)	S	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

(*) Mandatory with 9 ton front axle load.

(**) Mandatory with 10 ton front axle load.

S single

D double

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 cm².

ABS + EBL system.

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

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

Chassis 6x6

HD9

EURO 3



 3-2016
ENGLISH

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

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

Emergency brake: Incorporated in service brake.

Parking brake: Mechanical spring-type with pneumatic control acting on 2nd and 3rd 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 interarder (HD9 64.38 and HD9 64.42 excluded).
1st 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 interarder.



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.



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
Transferer oil 66.38-66.42-66.44-66.48.....	6,5
Transferer oil 66.54.....	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 1st and 3rd 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

Characteristics and equipment are subject to changes without prior notice.

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

3 - 2016 A3502172

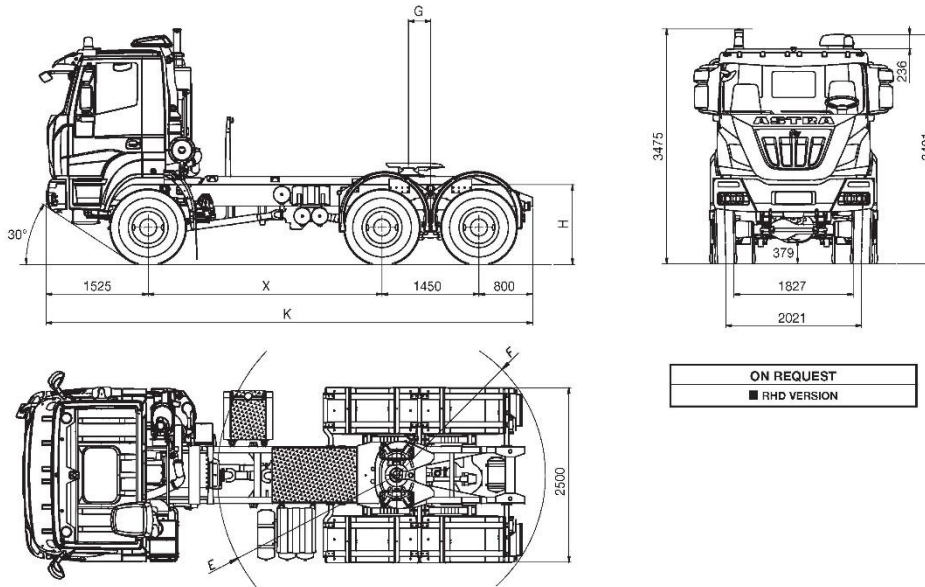


EURO 3

HD9

tractor 6x6

66.38T / 66.42T / 66.44T / 66.48T / 66.54T



ON REQUEST
■ RHD VERSION



DIMENSIONS (mm) short cab (Tyres 13R22.5 156/150G)

X	G(1)	E(1)	F(1)	K	H		A (2)		TURNING DIAMETER	
	STD	STD	STD		UNLOADED	LOADED	UNLOADED	LOADED	SIDEWALKS	WALL TO WALL
3500	300	2670	2170	7275	1252	1189	1572	1509	15700	17400
3800	300	2970	2170	7575					16700	18300

(1) Standard fifth wheel position. In case of different positioning needs, the quote may change in relation with the technical GVW of the vehicle. Values to be confirmed in combination with the semitrailer.

(2) With swivelling fifth wheel + 100 mm.



WEIGHT (kg)

X	Distribution net weight (*)			Max technical weight				
	1 st axle	2 nd +3 rd axle	NET WEIGHT	1 st axle	2 nd +3 rd axle	Fifth Wheel	Gross Vehicle Weight	Gross Combination Weight
3500	5575	5605	11180	8000	8500	28820	40000 (2)	104000
3800	5625	5585	11210		9000 (1) 10000 (3)			

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

(1) With tyres 1st axle 385/65R22.5 160J or 365/85R20 166G. Other tyres available, subject to the Astra technical office approval.

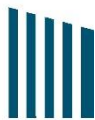
(2) HD9 66.48T and HD9 66.54T only at max speed 50 km/h. Michelin/Pirelli tyres. Higher speeds/loads are allowed with load/speed reductions subject to the Astra Technical office approval.

(3) 10.000 Kg optional: see description on the following pages 10 t.

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



EURO 3



**2-2013
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 cm³. Bore for stroke: 135 x 150 mm. 6 in-line cylinders. Water cooling. Viscostatic cooling fan. Dry air filter with safety cartridge. Vertical muffler

	66.38T	66.42T	66.44T	66.48T	66.54T
Model	IVECO F3B	IVECO F3B	IVECO F3B	IVECO F3B	IVECO F3B
Max. power (EEC)	279 kW (380 HP)	309 kW (420 HP)	324 kW (440 HP)	353 kW (480 HP)	397 kW (540 HP)
Corresponding rpm	1900				
Max. torque (EEC)	1800 Nm (183 kgm)	1900 Nm (194 kgm)	2100 Nm (214 kgm)	2200 Nm (224 kgm)	2.350 Nm (240 kgm)
Corresponding rpm	1000-1440				1.000-1.690
Turbine	WG Waste Gate			VGT variable geometry	



GEARBOX

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

ZF 16 S 2220 TO: HD9 66.42T/HD9 66.44T

ZF 16 S 2520 TO: HD9 66.48T/ HD9 66.54T

Optional:

ZF 16 S 2320 TD: HD9 66.38T/ HD9 66.42T/ HD9 66.44T

ASTRONIC ZF 16AS2601 OD: HD9 66.44 T/ HD9 66.48T and HD9 66.54T

Automatic gearbox ALLISON 4700: HD9 66.44T/HD9 66.48T/ HD9 66.54T wheelbase >4100mm

		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		
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	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	68.8	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	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, etc..
ZF NH/1c	0,91/1,09:1	1000	For tipping unit pumps, unit pumps for concrete, pumps for cranes, etc.
ZF NH/4c	1,17/1,40:1	430	For tipping unit pumps, etc.
ZFN221/10bpl+N353/1c	1,75/2,09:1+0,91/1,09:1	560+600	double PTO for concrete pumps

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



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

Mechanical with two ratios. It consists of a series of helical spur gears, mounted on three propeller shafts, engaged with each other. Differential can be locked by pneumatic control.
Transmission ratio: 1:1 - 1:1,6
Front/rear torque distribution ratio: 1:4,0



AXLES

FRONT

Steering cast iron type; with double reduction, central with bevel pinion-crown, lateral by means of epicycloid assembly in wheel hubs.

On request: Kessler front axle.

Version	Weight on 1 st axle	Available axle ratio	Pneus
HD9 K	8 t @ 90Km/h	5,01; 5,47; 5,96; 6,28	13 R22.5; 12.00R20; 14.00 R20

REAR:

Two drive axles in tandem with double reduction, central by bevelled pair and final by epicycloid group in wheel hubs. The intermediate axle is fitted with distributor that distributes torque between the two axles Lockable differential by pneumatic control from driver 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



10t FRONT AXLE G.V.W. 10t

Kessler front axle for a Gross Vehicle Weight of 10,000 Kg. Parabolic springs 5 leaves size 24x90 mm. Hydraulic power steering ZF 8099 with variable ratio 1:22.2/1:26.2.

Tyres combination subject to approval of Astra Technical Office. Maximum speed 70 Km/h.

Available axle ratios: 1: 5,01; 1: 5,47; 1: 5,96; 1: 6,28.



SUSPENSIONS

FRONT

Parabolic leaf springs with bushings, 4 leaves 24x90 mm, with shock absorbers and standard stabiliser bar.

On request:

Reinforced parabolic springs, n° 5 leaves 24x90 mm.

REAR

Parabolic springs, swivelling on central pin: 4 leaves 40x100 mm, supplemented by torque bars and stiffening brackets.

On request:

Stabiliser bar on 2nd axle.

Stabiliser bar on 3rd axle.

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



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.

Steel front bumpers with headlamp protection grids, front manoeuvring hook, rear underrun bar, steel fuel tank capacity 300 litres. Fifth wheel helper frame, spot and side alighting step. Rubber mudguards on 2nd and 3rd axles, toolbox.

On request:

Rapid attachment for compressed air for tyres' inflation.

Rear manoeuvring hook.

Fixed 3½" fifth wheel.

Swivelling 3½" fifth wheel.

Front bumper climbing step.

Side winch 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 + 1 with 20 litres. ABS system and EBL (Electronic Brake Limiter).



STEERING

Hydraulic power steering ZF 8098 with variable ratio 1:22.2/1:26.2 with auxiliary cylinder.

Steering linkage with self lubricating floating joints.

Height and inclination mechanical adjustable steering 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
13 R 22,5 156/150G 12 00 R 20 156/150G 315/80 R 22,5 156/150G	S	D
365/85 R 20 164G(*)	S	S
365/80 R 20 160K(*) 385/65 R 22,5 158K(*)	S	
315/80 R 22,5 156/150G		D
395/85 R 20 168G(*)	S	
525/65 R 20,5 173F		S
16 00 R 20 173G(*)	S	S
16 00 R 20 163G(*)	S	
24 R 20,5 176F		S

(*) Mandatory with 9 ton front axle load.

S single

D double

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



EURO 3

 2-2013
ENGLISH

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



BRAKES

Front and rear "duo-duplex" self-adjusting wedge type brakes with automatic play take-up. Total net braking surface 9.276 cm².

ABS system.

Service brake: Pedal controlled air brake, acting on all wheels, three independent circuits, one for 1st axle, one for 2nd and 3rd axle and another for the semi-trailer.

Emergency brake: Incorporated in service brake.

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

IVECO BRAKE TURBO engine brake:

HD9 380/420 HP braking power 200 kW (272 HP)

HD9 440/480/540 HP braking power 295 kW (408 HP)

On request:

Hydraulic intarder (HD9 66.38T and HD9 66.42T excluded).

1st 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.



ELECTRICAL SYSTEM

Voltage: 24 V

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

Accumulators: 2 in series, 160 Ah.

Starter motor 24 V 5,5 kW.

Mechanically controlled electrical circuit breaker.

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

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

Electrical provision for bodybuilders.

Provision for diagnostics.

Provision for radio/cb (without speakers) Glow plug for cold start.

On request:

170 Ah accumulators;

160 Ah tropicalized accumulators;

170 Ah tropicalized accumulators;

170 Ah tropicalized accumulators; Reverse alarm.



CAB

White cab built in galvanized pressed steel with hydraulic tilting up to 60°. Cab suspension with 4 helical springs with co-axial 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:

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.



SERVICE DATA(I)

Engine oil sump and filters	28
Gearbox oil ZF16S2220TO/ZF16S2520TO:	13
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



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, semi-trailer turn indicators, rotating lights, cab lifted, axles differential locked, differential lock, front brakes air pressure low, rear brakes air pressure low, semi-trailer brakes air pressure low, 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, semi-trailer ABS, main steering circuit failure, steering auxiliary circuit failure.

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DEALER

2 - 2013 A3502295

Characteristics and equipment are subject to changes without prior notice.

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