

ZIEGLER –Aerial Platform TLF 100 / 00 - 00 + ALP 727

Hydraulic Platform 72m

Type plate: TLF 100/00-00+ALP 727

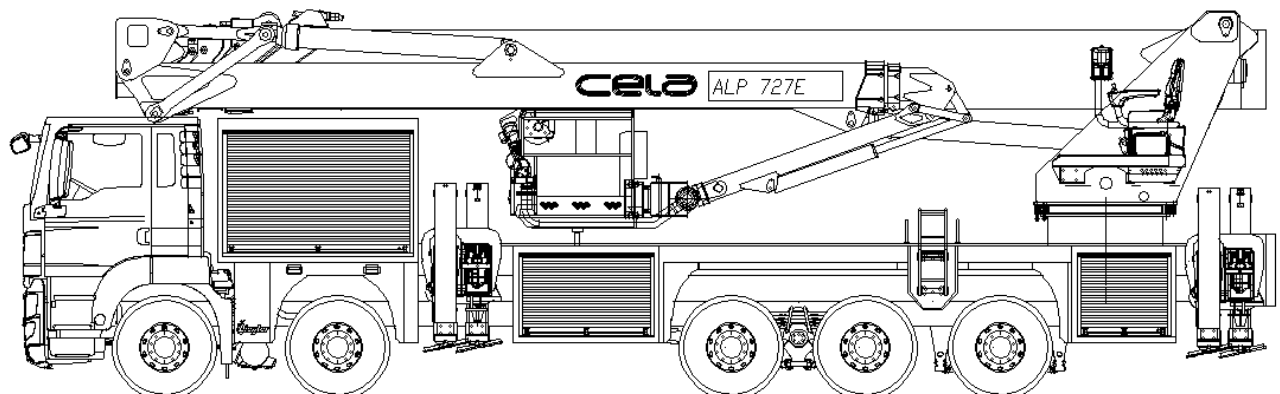
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Pictures may show similar units, finally the technical description is the basis of the offer!

Technical description: **T19111E**
Quotation Drawing: **P19534C**

000 Major Components:

200	MAN – Chassis TGS 41.540 8x4 (10x4) BB
210	MAN - Driver`s Cab, M, Crew 1+1
200	ZIEGLER – ALPAS-Superstructure
500	ZIEGLER – Centrifugal fire pump FPN 10-10.000-1H
580	ZIEGLER CELA – Aerial Platform ALP 727



Drawing can show a similar vehicle

OPTION	Optional equipment by request, additional price
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150 Information signs / labelling

In General:

Control elements: are marked by pictures or clear signs
Tire pressure: is stated in black above all wheels (kPa)

Maker's name plate: at the driver's door a maker's name plate, according to CCCF is mounted.

Reflective marking at the rear and at both sides of the truck, acc. CCCF (Ziegler).

Stickers with max. vehicle weight in kg mounted on the cabin door left and right side (CCCF).

Labelling:

The labels are in **chinese** language.

160 Paintwork

Paintwork acc. to standard

- Paintwork of the complete vehicle:
1 **Paintwork in red, RAL 3000**
Paintwork of driver's cab
1 **Smooth paint** - paintwork
Type of paint of superstructure:
1 **Standard ALPAS** paintwork
Paintwork of front bumpers:
1 **Original colour chassis white (MAN)**
Paintwork of mudguards in front:
1 **Original colour chassis, white (MAN)**
Paintwork of rims:
1 **Original colour of chassis, silver**

Further paintwork:

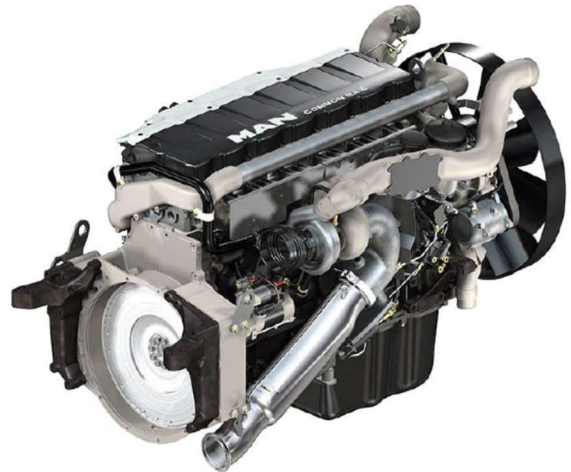
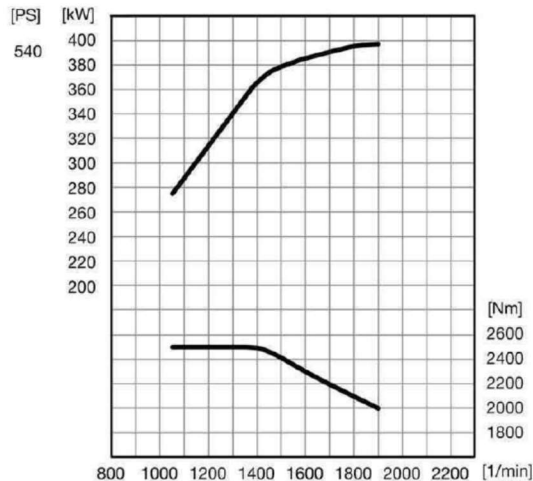
- 1 000018 **Greasing spots in yellow, RAL 1016**
1 000018 **Equipment lockers inside** aluminium coloured
1 000018 **Roller shutters**, aluminium coloured
1 000542 **Cavity coating**, floor unit crew cab, lower area of the superstructure
1 000018 **Undercoating:** the lower side of the equipment locker superstructure is provided with durable undercoating

De-wax detergent 25 lit., for remove paraffinic protecting waxes. Stored inside of superstructure (for transport only).

200 Chassis MAN TGS

Type:	TGS 41.540 8x4 (10x4) BB 050NN driver's cab, "M" medium cab, 1+1 crew, 2.240 mm wide, 1.880 mm long
Drive:	on road 10 x 4 (chassis 8x4 with add. axle)
Wheelbase:	1.795 + 4.105 + 1.400 mm, 005UR Rear overhang L=2.000 mm after 5 th axle, extended by MAN
Engine:	01817 R-6 cylinder Diesel engine D2676LF39 Euro5/CN5 with electronic control (EDC), common rail injection
Displacement:	12.419 cm ³

Output: 397 kW / 540 HP at 1.900 min⁻¹
Torque: 2.500 Nm at 1.050 until 1.350 min⁻¹



- 118MA EDC-engine control
- 124EA fuel filter, heated
- 124AT additional fuel filter heated with water separator
- 203ER control module f. external data exchange, KSM
- 210AA with flame starting system
- 280HL provision for engine start and stop at rear end of frame
- 345AZ speed limiter electronic 100 km/h
- 345EA cruise control

Intake/exhaust system:

- 201AS raised air intake with dry air filter
- 206AP exhaust upswept right (changed with ZW006=206EY, see page 5)

Gearbox: 022GE manual 16-speed gearbox ZF 16 S 252 OD

Power Take-Off:

- 122QG pto NH/1B with flange, $i = 0,91/1,09 \times n_{Mot}$ for ALP
- 125CN pto NMV221 with $i = 0,98 \times n_{Mot}$ for FPN
- 214CG output flange 120 mm for NMV cross-serrated (4-hole)
- 212AA gearbox shift lock, pneumatic

Front axle / - springs / - axle load

- 026EF front springs parabolic 9,5 t
- 363AA stabilizer for front axle

Rear axle / - springs / - axle load

- 028EC rear springs parabolic 13 t
- 037AC with differential lock in rear axle
- 362AH stabilizer for rear axle

Tyres:

- front axles 4 x 385/65 R 22,5
- rear axles 8 x 315/80 R 22,5
- 1 x spare wheel 385/65 R 22,5 delivered separately
- trailing axle tyre 2x 385/65 R 22,5

- Fuel tank:**
- 023JB fuel tank 300 L + 35 L AdBlue
 - 03KAA fuel tank fitted
 - 303AM lockable tank cap

Steering:	030EE	steering wheel with height and inclination adjustment
Frame:	230AH	with underride guard at rear
	230YX	without lateral underride guard
	241AC	without platform mounting brackets
		Note: without front shackles (front pin is enough)
Brake System:		
	032AB	MAN BrakeMatic (electronic brake system)
	258HA	anti-lock braking system (ABS)
	259CA	disc brake for front axle
	259CE	drum brake for rear axle
	262XX	without brake connections on frame end
	365AF	Parking brake with pneumatic application of front wheel brakes
	370CR	air dryer heated
Cab exterior:	050NN	medium cab "M" 2 doors
	052XA	without stowage boxes
	380AC	windscreen of laminated glass tinted
	380CA	door windows tinted
	381AA	cab rear wall without windows
	385AT	side windows tinted behind B-post
	272FA	entry lighting
	321EC	central locking
	386XA	without lifting roof
	392AR	Kerb mirror, right, heated and electrically adjustable
	392CL	EU front mirror on co-driver's side
	392CW	Heated, electrically adjustable rear-view and wide-angle mirrors, rear-view mirror on co-driver's side with electric manoeuvring aid
	392HA	Mirror brackets for body width 2500-2600 mm
	404AP	spray reducer
Cab interior:	058NH	driver's seat, air cushioned
	059NA	Co-driver's seat, static
	080AE	door interior paneling washable
	153KC	air conditioning system
	319AA	reading lamp for driver and co driver
	387AF	side panes, electrically liftable, driver and co driver
	388AH	roller blind for windscreen, mechanical
	389AC	handles left and right (on B-post)
	389AD	handles left and right (on A-post)
	538AE	plastic floor and engine tunnel covering
Instruments:	02AAG	Instrument panel km/h 'High-Line in colour'
	042XY	without digital tachograph
	325AA	MAN Tronic (on-board computer)
	325DZ	Language 1 'Chinese' for instrument panel display
	325FC	Language 2 'English' for display in instrument panel
	339FP	Display on the dashboard for operating data
	343CK	acoustic warning system for rear gear
Lights:	309AA	beam throw regulator
	310EE	halogen twin headlights H7 for right-hand traffic
	310CL	Additional high-beam headlights and fog lights
	318AK	lateral marker lights

Electrical system:

324AC two-tone horn, electric
326FZ Socket in cab 12V 2-pole and 24V 2-pole
329CZ 2 batteries 12 V 230 Ah
327AC battery main switch electric
331CY alternator 28 V 120 A
350NN MAN Media truck radio

Others:

194CL operator's manual in Chinese
373AE antifreeze effective down to -35 degrees
400AH mudflap front
405AC Bonding set, separate
405AK hazard-warning sign
405AR Hazard-warning lamp
405CP 20 m tyre inflator hose with pressure gauge
407AA jack, 25 t
411AF 2 chocks
417AC wheel bolt covers front
119EH general pto parameterization

External modification:

288BH 193 Fire service vehicle, aerial rescue platform vehicle
600AC Fittings for right-hand traffic
196KX adhesive film CCC (China)
280DD Straight cab flat roof, M cab, lowered by 190 mm, ZW009
28QFE Without vent flap in cab roof
Drive Configuration 10x4
Techn. axle loads 9000/9000/13000/13000/9000/51000 kg
wheelbase 1795/4105/1400/1425 mm
ZW001 extension of rear frame overhang to 2.000mm after 5th axle
ZW002 trailing axle NOL-09 steered, non-lifting type
~~ZW006 206EY exhaust on rh side with tail pipe to rear~~

Permissible weights:

total weight:	51.000 kg
front axle 1:	9.000 kg
front axle 2:	9.000 kg
rear axle 3:	13.000 kg
rear axle 4:	13.000 kg
trailing axle:	9.000 kg

Paint:

Cab: red, RAL 3000
Bumper in front: white, RAL 9010
Front mudguards: white, RAL 9010
Entries: white, RAL 9010

200**M.A.N. Driver's Cab:**

1

Full-steel forward control driver's cab, medium length, tiltable for **crew 1+1**, single seats for driver and passenger. The seats are fitted with head rests and three point automatic safety belts. Two-door cabin, with crank operated windows.

The windscreen is made from laminated glass and the side windows are manufactured from toughed glass.

Further equipment: cabin roof cutting 190mm, MAN code 280DD

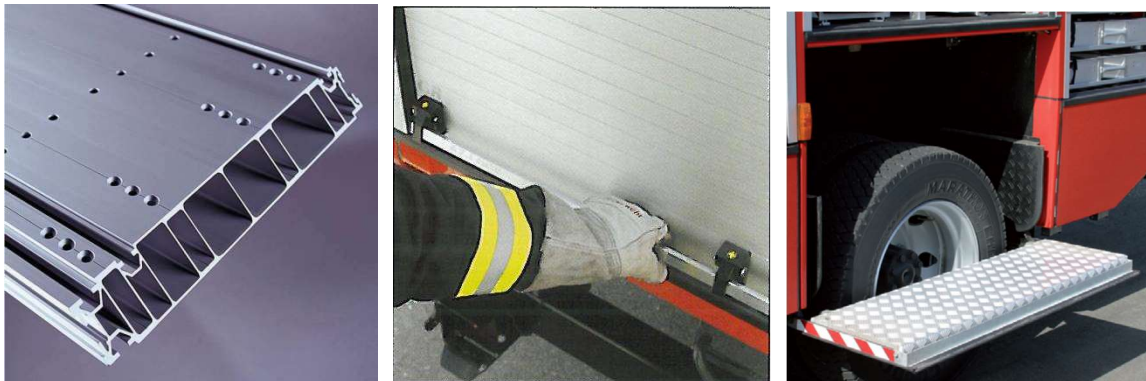


220 Equipment locker superstructure

- 1 The equipment locker superstructure consists of **solid aluminium profiles** with aluminium plates.
 The roof consists of aluminium padded plate.
 The equipment locker floors and the intermediate walls and shelves partially are made from aluminium double padded plate.
 The lateral equipment lockers are shut by 5 or 6 dust-proof and water-tight ZIEGLER shutters (depend of free space in rear lateral side). The handling of the shutters with the **AZ-Lock** over the whole width is very user friendly.
 The pump control station in the front equipment locker is comfortable to reach and operate.
 The superstructure between front axle and rear axle is lowered as far as possible (**lowered design**).
 The equipment locker lighting with **LED light-strips** is automatically done by magneto switches.
 The inside installation is **variable** done via an **aluminium profile rail system**.
 Access to the platform via a self-stopping hinged ascending ladder between the rear axles at both sides of the vehicle.

Further equipment of superstructure:

- 5 or 6 AZ Shutters lockable
 1 Hinged wheelhouse treads left-hand side and right-hand side in area of the 2nd front axle



410 Pneumatic system

Pneumatic pipes mounted by bodybuilder (Ziegler) are different painted in compare with original chassis pipes.

Additional main valve for firefighting pneumatic system (for prevention of leakage during the engine does not work).

- 1 **combination feed system Rettbox AIR 230V + compressed-air (without amplifier)**, (see pos. 700). Position: in front left side (see offer drawing).



500 ZIEGLER Firefighting pump FPN 10-10.000-1H

- Type:** 1-stage centrifugal fire pump FPN 10-10.000-1H
 With internal gearbox, $i=1:1,48$
- Nominal output:** 10.000 l/min @ 10 bar (1,0 MPa) and 3 m suction height
- Materials:** castings (impeller, pump cover, pump housing) are made from sea- water resistant light metal alloy. Pump shaft, split water rings are made from corrosion-resistant steel. Drain cocks are made from brass.
All water bearing aluminium castings are hard coated surface treated and additionally KTL lined.

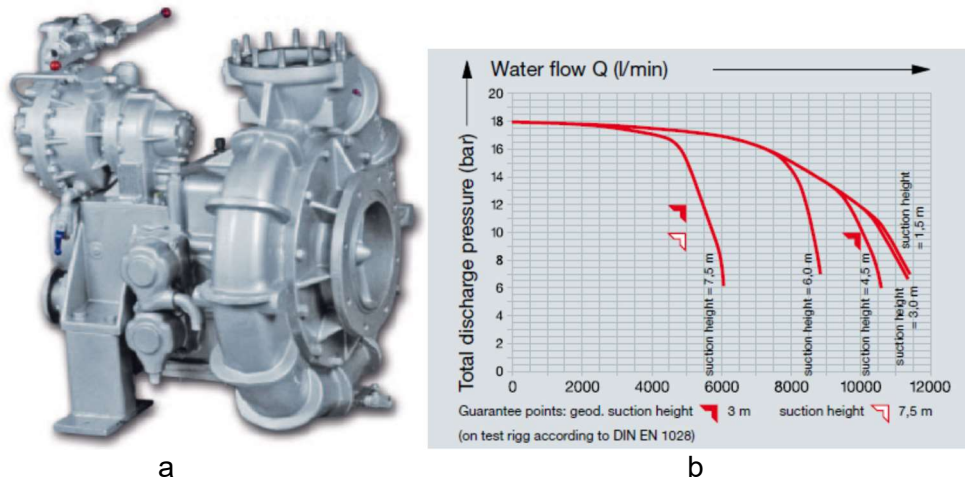


Illustration pump (a) and QH diagram (b)

Priming unit:

by automatic priming system **ZIEGLER - TROKOMAT - PLUS**

Advantages:

the centrifugal fire pump and its components are very solid and extremely reliable.

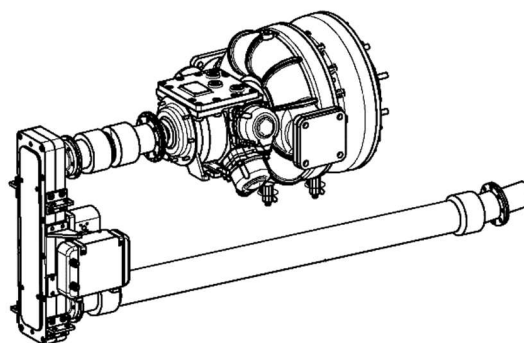
Insensitive against dirt water.

Insensitive against frost since the centrifugal fire pump can be quickly and completely drained.

No foreign agents are necessary for the priming system.

Drive:

by the vehicle engine via a joint shaft line from the p.t.o. of the gearbox and **external gearbox Tandler**, type S 3544-I, $i=1:1$, $N_{max}=1.800$ Nm ([article 1142225](#)).



Installation: in the front box of the vehicle

Control:

all switching operations for pump operation are made at the pump control station nearby the centrifugal fire pump.

Switching on of the centrifugal fire pump is made in the driver's cabin by **standard PTO switching (chassis)** or at the pump control station via **Z-Control**.

Equipment normal pressure pump:

- 4 pump inlets 6" (DN 150 Storz), each 2 laterally left-hand side and right-hand side, lockable
- 4 pump inlets 3" (DN 80), each 2 laterally left-hand side and right-hand side, lockable, without couplings
- 1 central check valve DN 250 directly mounted at pump outlet side
- 4 delivery outlets 3" (DN 80), 2x laterally left-hand side and 2x right-hand side, lockable, with turning handwheel valves, without couplings
- 1 delivery outlet, DN 125 (5"), to hydraulic platform, remote-controlled lockable
- 1 drain cocks at the centrifugal fire pump, remote-controlled lockable
- 1 drain cock for pump outlet side after check valve, remote-controlled lockable
- 1 Non-return valve(s) in delivery side of pump (for better suction effect)
- 1 Test connection in suction side of pump
- 1 Test connection in pressure side of pump
- 1 Test connection in monitor area



- 1 pressure releasing valve installed under the turntable, adjusted to 16 bar (for prevent pipeline damage in boom system), Cela

Further pump equipment:

- 1 1083937 **temperature control** for fire pump (normal pressure) with **electric warning signal**
- 1 1106059 **warning of cavitation** for fire pump: if the fire pump is operating in cavitation the system gives audible and visual warning. The operator can therefor initiate the necessary measures, such as to reduce the pressure.

520 Piping

All pipings being in contact with foam are **corrosion-resistant**. Partially, the pipings are **hot-galvanized pipes**, nondeformable **rubber hoses** and nondeformable **plastic hoses**.

Type of couplings: without coupling in **4x delivery outlets DN 65 and 4x external suctions DN 80 (couplings will be mounted in China)**

Type of other couplings: **German Storz**



- 1 **All pressure gauges in MPa**

Painting of pump, mixer and piping system like CCCF standard:

-pump and mixer: R03 bright red colour (RAL 3000)

-suction from water tank, external suction:	G05, dark green colour (RAL 6005)
-hydrant filling line:	G05, dark green colour (RAL 6005)
-piping in delivery side of water pump:	R03 bright red colour (RAL 3000)
-foam tank suction, external foam suction:	Y08, deep yellow colour (RAL 1028)
-filling / draining of foam tank:	Y08, deep yellow colour (RAL 1028)

1 Schematic diagram for water pipeline and operation instructions on the operation panel

580 Fire Fighting Hydraulic Platform (Standard equipment)

1	Hydraulic Platform 72 m	
	Manufacturer:	ZIEGLER
	Type:	Cela ALP 727
I.	Introduction	

The ALP 727E is a special product for the fire brigades. The unit can be used as a rescue equipment, for technical assistance, as a water tower for firefighting.

Cela builds on every type of chassis. Quotes will be customized. Country specific requirements will be taken into account.

II. References

The following norms, rules and general requests have been taken into account.

Directives:

- 2006/42/EC of the European parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)
- 2004/108/EC of the European parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EE
- 2006/95/EC of the European parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limit.

Standards:

- EN 13001-1 Cranes - General design - Part 1: General principles and requirements
- EN 13001-2 Cranes safety. General design. Load effects
- DIN 15018-1 Steel calculations
- DIN 15018-3 Steel structures. Mobile cranes calculations.
- pr EN 954-1 Safety related parts of control system.
- EN 280 Mobile elevating work platform
- EN 1777 Hydraulic platforms for fire fighting and rescue services.
- pr EN 982 General requirements for hydraulic components.
- EN 1846 fire fighting machines
- VBG 4 electrical installations

- VDE 0100 electrical standards

III. **Chassis Requirements**

PTO	If possible below the rim of the top chassis frame
Rpm	1600 rpm at PTO electrically controlled (chassis at about 1000 rpm)
Torque	at least 500 Nm
Flange	DIN 100 (cardan DIN 3100)

IV. **Description of ALP superstructure**

Mainframe

Drawing No.	is issued individually for each chassis type
Construction	Welded box frame
Assembly to the chassis	Screw connection in accordance with chassis manufacturer's body specification; firm and torsion-proof connection to the chassis frame
Including	Stabilizing jacking system (see stabilizing jacking system) Hydraulic tank (see hydraulic system) Support for the roof carrier system

Outrigger system

Type	Horizontal – Vertical
Construction	High – grade steel sections
Travel position	Self-locking function of the jacks and jacking plates within the chassis width of 2.500 mm
Jacking plates	15° multi directional,
Jacking plates surface	Non-skid, current-carrying
Max. jacking pressure	16kg/cm ²
Stabilisation beam guide	Plastic
Horizontal travel	Hydraulic cylinder, continuously adjustable
Vertical travel	Hydraulic cylinder inside steel tubular
Narrow jacking width	2,5 m

Wide jacking width	8,0 m (centre – centre)
Longitudinal gradient	7° (depend on chassis)
Transverse gradient	7° (depend on chassis)
Over pressure safety device	Over pressure valve for hydraulic system
Safety	Direct flange connection of check valves
Angle of repose, back	≥12° (depend on chassis)
Ground jacking plates	At least 250 mm (front and rear) clearance to the ground
Warning light	Blinking light, orange
Warning sign	Red and white markings on the vertical jacking Outriggers

Turntable

Design	Rigid welded compound made from high-grade sectional steel profiles and sheet-steel
Bearing	A rotating assembly (ball-bearing on flame hardened and grease lubricated guides) connects the turntable with the main structure
Rotary drive	Hydraulic engine coupled with planetary drive
Swivel range	360° Continuous
Position retainer	Spring pressure multi-disc brake, hydraulic
Swivel coupler	Centre opening for water, hydraulic and power lines

Boom system

Execution	High strength steel sheet and profiles
Telescopic main boom profile	Cross-section strong for bending and torsion.
Telescopic boom assembly	1 + 4 telescopic sections; length about. 12.000 mm fully retracted
Telescoping drive	Inboard telescoping cylinder; two extension chains, two inboard retraction chains over reversing pulley; drag chain inside boom
Elevation drive	Two elevation hydraulic cylinders
Elevation range	-0° to +89°

Telescopic jib boom profile	At the side of main boom
Telescopic jib boom assembly	1 + 2 telescopic sections; length about 20.000 mm fully extended
Jib boom operation	Hydraulic cylinder
Jib boom pivoting range	180°
Articulating tip boom assembly	1-part; length about 2.700 mm
Lifting eye	Positioned on the end of the main boom; load capacity 2.000 kg
Tip boom operation	Hydraulic cylinder
Tip boom pivoting range	180°
Rescue Cage	
Execution	High strength steel and some particular of aluminium
Construction	Boards and plates prevent any tools or equipment from being knocked out of the cage
Access	1x rear left side 1x right side (with stow-away gate) 1x front right side
Horizontal position	Automatic, positive self levelling system (hydraulic actuator) directly controlled by electronic levelling device
Rotation drive	Hydraulic motor; +45° left/ -45° right
Rescue cage size	2,2m x 1,2 m
Hand rail	Height 1,1 m, with cold protection
Rust protection	Rust conservation inside of the cage profiles
Equipment	5 x safety belts hooks 1x control panel with protection 1x load eye 500 kg. under the cage 1x water fog nozzle under rescue cage electrically driven 1x connection for water monitor and valve; Note: only N° 1 x extra water outlet can be fitted
Additional platform	Drop down platform with block

Hand rail of additional platform	Tiltable 90°
Material additional platform	Aluminium
Size additional platform	1,360 m x 520 m

Water system

Water inlet	1x A-coupling at rear side of chassis, opposite of drive position
Water line	Telescopic light weight marine aluminium alloy; knuckle joints with rubber hoses size 4" or special water connection
Safety	Overpressure valve (16bar), release valve, anti-suction valve.
Drain cock	Electrical valve is provided on the lowest point of the system
Control of water monitor	The monitor can be manual or electric
Movement water monitor	Up 45° / down -45° (depend on water monitor and project)
Movement water monitor	Left / right +/- 45° (depend on water monitor and project)
Spray / full jet	Continuous adjustable
Water curtain	Water fog action nozzle under the cage floor; Circular spray fog

Hydraulic system

Hydraulic pump drive	Power take-off and cardan shaft
Hydraulic pumps second system	Variable piston pump for main system; Constant gear pump for
Max pressure	320 bar
Line system	Corrosion-protected steel piping and rubber hoses only for parts with movements
Hydraulic tank	Integrated in the main frame
Oil tank capacity	Approx. 500 l
Tank cap execution	Tank drain plug, filler inlet, oil dipstick
Filter	1x filter on the main pressure line, 1 x filter on the cage line, 1 x filter on suction line

Control system

Function and philosophy	Please refer to users manual
Execution	Two independent control system
Technology	2 redundancies CAN – Bus line
Stability control	1x geometrical outreach control system; 1x cage load system
Sensors	Encoders, proximity switch, pressure transducer, length sensors; inclination sensors, optical sensor.
Outrigger control	2x identical operation panels, symmetrical.
Execution of outrigger controls	Each 1x joystick for outriggers movements 1 x automatic jacking button each 1x push button for automatic chassis levelling each 1x push button for manual chassis levelling each 2x push-button outrigger choice each 1x emergency push button b/w display for status information (back light for night vision)
Control for chassis levelling	1x optical libel with light and display on outriggers panels and into the chassis cab
Main control base	High priority through dead man switch;
Main seat at main control base	Comfortable with arm supports with automatic levelling (optional).
Cage control base	Fixed mounting on the cage; Controls are identical as in the main control stand
Execution of boom controls	- Display at main seat; Display at cage - 3x joysticks for movements - Soft keys menu control - Emergency push button - Dead man switch - Labels
Control functions	- 2x stability control - cab and jacks collision guard - speed regulation - crane function - automatic cage centring - automatic turntable centring - automatic closing in transport position - loudness regulation for intercom system - choose of rescue area - warnings before overload situation - bypass of emergency stop inside of the cage

Warning signals

Optical at outriggers	N° 8 orange warning led lights on the outriggers and N° 2 red lights under the cage
Travel position	display inside of cab
PTO engaged	display inside of cab
Warning messages	Text on all displays

Painting

Mainframe	RAL 3000 (red)
Outrigger system	RAL 3000 (red)
Turntable	RAL 9010 (white)
Boom system	RAL 9010 (white)
Tip boom	RAL 9010 (white)
Rescue cage	RAL 7035 (grey)

Note: Tolerances because of the production process are possible. All items with subject to changes!

Warranty: standard 12 months.

V. Performance of ALP

Technical datas

Length	: see offer drawing
Width	: 2,50 m
Height (depend on chassis)	: ≤ 4 m
Min. Gross vehicle weight	: 40 t
Max. Cage load	: 500 kg
Max. Rescue height (cage bottom 70m)	: 72,0 m
Max. outreach with 500 kg cage load (depend on project)	: 27 m
Max. outreach with 120 kg cage load (depend on project)	: 32,5 m
Max. down reach	: 11,0 m
Turning angle of turntable	: Continuous
Cage size	: 2,2m x 1,0 m
Turning angle of rescue cage	: + 45° / -45°
Additional platform	: 1.36 m x 0,52 m
Outrigger width with jacks full out (centre / centre)	: 8m (rear) - 6m (front)

Max. jack foot pressure	:	16 kg/cm ²
Min. level adjustment in travel direction	:	≤ 7° (depend of chassis)
Min. level adjustment in transversal direction	:	≤ 7° (depend of chassis)
Max. inlet pressure	:	16 bar
Monitor rotation range (left/right, depends on type)	:	+/- 45°
Monitor swivelling range (up/down, depends on type)	:	+ 45° / -45°
Max. wind speed	:	14 m/s

VI. Environment conditions

The ALP can be used under the following conditions:

Temperature:	-20°	-	+70°
Rel. water inside the atmosphere:	0%	-	100%
Wind speed:	0 m/s	-	14 m/s

VII. Maintenance

To guarantee the life time of the chassis, it is necessary to follow the maintenance instructions of the chassis manufacturer.

To guarantee the life time of the superstructure, it is necessary to follow the maintenance manual of the superstructure. The maintenance time schedule must be followed.

The fire brigade should control and follow the maintenance description.

All labels must be clear for understanding and cleaned. The fixing of these labels must be long lasting.

VIII. Documents

The following documents are prepared to complete the product ALP 727:

- Users and maintenance manual
- Electrical diagram
- Hydraulic diagram
- CE certificate

IX. Standard Equipment

1. 1x water inlet at the rear with lock valve
2. 1x water outlet at the bottom (drain valve)

3. 2 x outrigger controls (1x joystick, soft keys, 1x emergency push button, back light, b/w display)
4. 1x manual hand pump
5. 1x main operator seat ergonomically
6. 1x set of labels
7. 1x dip stick to check hydraulic oil level
8. 1x b/w display multifunction inside the chassis cab
9. 1x load hook at the main boom (2000kg)
10. 1x variable outrigger system
11. 1x automatic chassis levelling
12. 1x chassis cab collision guard
13. 1x collision guard between outriggers and cage
14. 1x bypass of emergency stop function of the cage at the main operator seat
15. 1x additional drop down rescue platform
16. 1x water fog nozzle under the cage (3 units in total: 1x front, 1x left and 1x right side)
17. 1x load eyes under of the cage
18. 2x dead man switch (cage operator, main operator)
19. 5x safety belts hooks in the cage
20. 1x intercom system
21. 1x water line from ground to cage
22. 1x hydraulic oil
23. 4x ultrasonic sensors under the cage
24. 1 x electric wire 400V to the cage + switch and plug
25. 1 x 220V CE plug in the cage
26. 1 x 380V CE plug in the cage
27. 1 x 220V SHUKO plug in the cage

28. 1 x 24V plug in the cage
29. 1 x warning led light in the cage
30. 1 x remote debug system by GSM modem
31. 2 x trailer hooks at the rear of the vehicle
32. 1x main operator seat (1x Display, 3x joystick, soft keys, 1x intercom system, 1x emergency stop button, 1x protection)
33. 1x cage operator console (1x Display, 3 x joystick, soft keys, 1x intercom system, 1x emergency stop button, 1x protection)
34. 1x 360° endless turntable rotation
35. 1x geometrical outreach system + load limiter on the cage
36. 1x label "max. outreach at turntable"
37. 1x painting:
 - mainframe RAL 3000 red
 - outriggers RAL 3000 red
 - turntable RAL 9010 white
 - main boom RAL 9010 white
 - tip boom RAL 9010 white
 - cage RAL 7035 grey
38. 3x users manual with maintenance manual

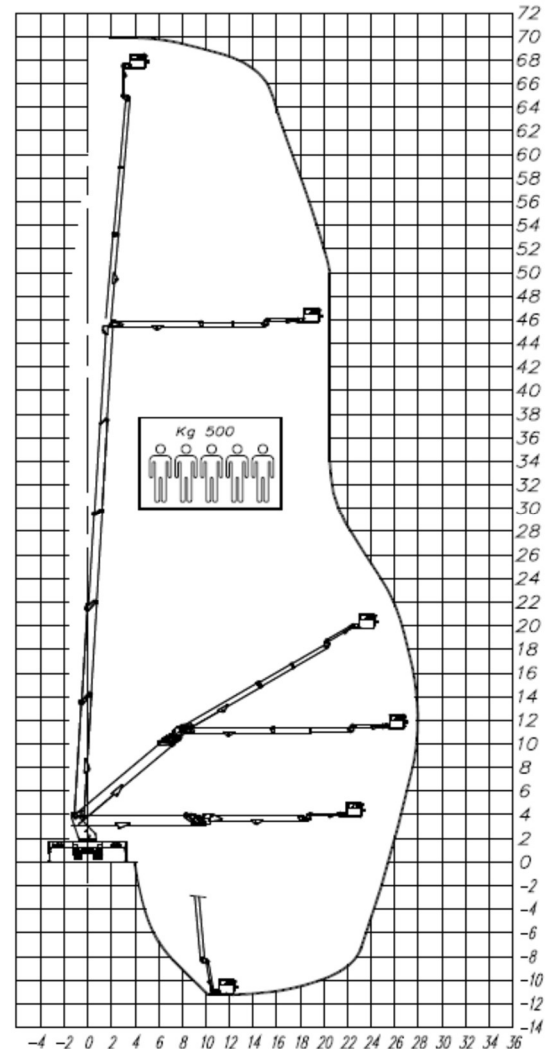
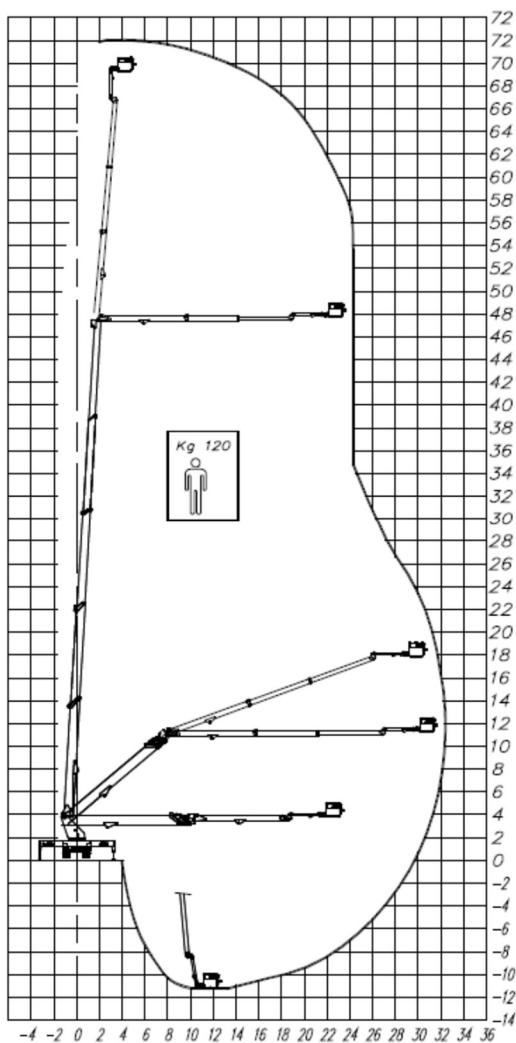
581 Fire Fighting Hydraulic Platform (add. equipment)

- TEL05 24V emergency pump
 - TEL17 Hydraulic oil-cooler with thermostat
 - CES10 Wind speed indicator integrated inside of the control system
 - CES53 Akron Stream master el. water monitor Style 3482 with Nozzle 5177 (4800 lt/min.)
 - TEL21 Acoustical warning during outriggers positioning
 - TEL24 24V/70W working light on the boom rest (2x)
 - TOR06-1 n. 1 LED working light on the turntable w/o switch (2x)
 - CES06-3 2x LED AMBER working light on the cage w/o switch (CCCF)
 - TEL33 Special covers on the outriggers for China Market
 - VAR03 Boom illumination with N° 3 x blinking red lamps
 - VAR17 hydraulic oil heat resistance
 - VAR55 Water pump parameters visualisation on display
 - VAR48 Service laptop
 - TEL02 Hatz Silent Pack emergency diesel engine 2 cylinders with pump
 - TOR08 Radio control for ALP and water monitor. It is possible to use as wire or wireless connection. Note: because of CCCF regulation, will be used only as wire remote controlled (not wireless)
- two flashlights on the top of main boom, 1x left side, 1x right side (CCCF), Cela

- additional roof cutting (if will be necessary), code TEL13, Cela
- overpressure valve adjusted at 16.5 bar, Cela
- controlling of pump and monitor from turntable seat (ALP, WT) and cage (ALP), Cela
- the vehicle can leveled at any width of outriggers, Cela
- documentation for CCCF, Cela

Note:

- N° 4 additional wooden plates 700x700x60mm (will be supplied and mounted by AZ Beijing)
- hydrant connection 4" on turntable will be extended and divided to: 2x DN80 in left rear side + 2x DN80 right rear side (with valves, without couplings). Made by Ziegler (ZIC).





650 Control and Adjustment:

1 1083968

Z-Control – Control panel in the driver cabin

In the driver cabin a multi-function control unit with automatically brightness controlled search light for the integrated push buttons is mounted on the original instrument panel with an individually adjustable bracket for operation and control of the firefighting superstructure.



The control panel both is excellently visible and operable for the driver and also easily visible and operable for the co-driver. Control is made by **CAN-BUS technology**.

The following list of functions is only an example and it will be adjusted accordingly to the equipment of the vehicle:

Display:

- Operation-hour counter hhh.min (stand.)

Max. 10 control warning lights:

- Equipment lockers OPEN (stand.)
- Centrifugal fire pump ON (stand.)
- External power supply Plugged in
- Chassis batteries Undervoltage (stand.)

Max. 17 pushbuttons:

- Large pushbutton for visual signaling unit (stand.)
- Large pushbutton for acoustic signaling unit (stand.)
- Flash light at front
- Beacons on superstructure front and rear
- Acoustic back-up warning "OFF"

1

Z-Control – control panel 550 at the pump operator's stand, lockable type, with key (276436)

In the pump bay a control panel with analogue display for operation and control of the centrifugal fire pump is mounted. The control is made electro-pneumatically by CAN-BUS technology.

The order of the pushbuttons and indicators from right-hand side (operator side) is in conformity with a proposal of the DFV (German fire brigade Association) for a standardized control panel.



The following list of functions is only an example and it will be adjusted accordingly to the equipment of the vehicle:

max. 12 push-buttons:

- | | | |
|------------------------------|--------------|----------|
| • Centrifugal fire pump | ON / OFF | (Stand.) |
| • Automatic pressure control | ON / OFF | |
| • Tourmat D regulation | 4-16 bar | |
| • Engine rpm | + | (Stand.) |
| • Engine rpm | - | (Stand.) |
| • Engine | Start / Stop | |
| • Central draining | ON / OFF | |
| • Water-foam turret | ON / OFF | |

Indicators:

- | | | |
|-----------------------|--------------|----------|
| • *Pressure gauge | -1 – 2.5 MPa | (Stand.) |
| • *Pressure gauge | 0 – 2.5 MPa | (Stand.) |
| • *Engine rpm meter | | |
| • *Pneumatic pressure | 0 – 1.0 MPa | (Stand.) |

max. 9 Control lamps:

- | | | |
|------------------------------|------------------|----------|
| • *Control lamp | error indication | |
| • * Pneumatic pressure | too low | |
| • *Generator | charge control | |
| • *Batteries chassis | low voltage | (Stand.) |
| • *Fuel | reserve | |
| • *Gearbox | not neutral | |
| • *Motor oil pressure | too low | |
| • *Cooling water temperature | overheating | |

1 000507 **PTO engagement ANS** for centrifugal fire pump
Electro-pneumatic system for switching of the centrifugal fire pump from the pump bay. The pumping system is **automatically** engaged/disengaged by a push-button.

1 000589 **Pump pressure control unit TOURMAT D**
In the vehicle a fully automatic pressure governor **ZIEGLER -TOURMAT D** is installed.

Function: A pre-set working pressure is kept constant by **ZIEGLER Tourmat D** even if different consumers will be switched on and off.

If the water head at the suction line is broken down (less than approx. 2 bar) the electronic system will start with increased rpm a new suction action again.

Advantages: The operator is relieved of stressing control tasks, e.g.

- observing the existing working pressure
- re-adjustment of the working pressure by changing of the engine rpm at too high / or too low pressure
- changing of the water supply etc.
- pressure variations are already sensed at their beginning and quickly corrected by **ZIEGLER TOURMAT D**.

If desired, the **ZIEGLER TOURMAT D** can be switched off and the centrifugal fire pump can be **manually** operated.

700 Power Supply

- 1 discharge protection with acoustic undervoltage alert
- 1 The automatic charging socket for vehicle battery and air system. When the engine of chassis is activated, the socket will be automatically disconnected (see pos. 410)
- 1 Vehicle battery charger 230 V, Votronic > 10 A incl. Installation and assembly
- 1 Additional mechanical main switch in area of battery box, if is not delivered with chassis (Ziegler)

710 Lighting

- 1 LED-light strips for all equipment lockers and the pump control station (standard)
- 1 LED-lateral marker lights, mounted on the left and right side of the superstructure. Quantity and adjustment according to regulations (standard)
- 1 Five-chamber rear lights, rear side below, at the superstructure (MAN)
- 1 Blinkers mounted on the lateral steps
- 1 LED-platform lighting, automatically done by hinge down the access ladder

720 Signalling Unit

- 1 ~~Light bar, Premier Hazard, Optimax 68", with integrated flasher modules, red~~
- 2 LED round flashlights, red, on driver's cab
- 1 Electronic signal system **Hänsch type 620 / 624**, with one speaker and one microphone in the cabin
- 1 **Alternate** mounting of blue and red **LED-flashing lights** lateral, with max. distance 3.000 mm between red and blue flashing lights for vehicle longer than 6.000 mm.

730 Radio and Intercom Unit

- 1 **preparation for radio unit** with converter 24/12 V, 12 A
- 1 **cabling** and installation **radio antenna** incl. antenna

740 Controls

- 2 **control lights** in the driver's cab for round beacon lights and signalling unit
- 1 **control light** in the driver's cab for started fire-fighting pump
- 1 **control light** in the driver's cab for opened equipment lockers
- 1 **Parking senzors** mounted on the rear bumper area
- 1 **Acoustic reverse gear warning signal** (see chassis specification or Ziegler)
- 1 **Reverse gear video system, WAECO Perfect View RVS 794** consisting of **color camera CAM44** with two lens, with motor powered camera cover, microphone and **7" LCD display**, incl. mounting and installation.



800 Brackets for equipment

- 1 bracket **for equipment** as specified and **agreed upon**

900 Other vehicle equipment

- 2 Shackle holders at the rear with shackles for a trailer load corresponding with the permissible weight of the vehicle (chassis producer or Ziegler).

910 Tools and accessories

All tools being necessary for maintenance are provided:

Chassis:	lifting jack with rod fitter's iron tool bag respectively box with tools
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920 Documentation

Documents (in English or chinese language*), 1 set:**

- Maintenance booklet for chassis and vehicle engine
- Operation instruction for chassis and vehicle engine
- Operation instruction for fire-fighting superstructure (print version + CD)***
- Wiring diagrams (*included in****)

Spare parts lists for fire-fighting superstructure (*included in****)

* - all documents available in Chinese language will be delivered by Ziegler. Others will be delivered in English version, with translation by AZ Beijing.

** - in case that tender asking for more copies, quantity will be agreed directly between ZIZ - AZB

930 Tech. design specifications for vehicles to China

Form: 04 / 09-2019

No.	Description	Standard, section	Y/N
1	Axle load limit : 9 ton for single tire, 13 ton for double tire	GB 7956.1-2014, 5.1.5.1	YES
2	Total weight of truck: ≤ 97% of GVW (3% reserve)	GB 7956.1-2014, 5.1.5.2	YES
3	Distance between lateral and rear underride protection and the ground: ≤ 550 mm. Lateral protection frame: ≤ 550 mm from the ground	GB 11567.1, GB 11567.2	YES
4	Location of the vehicle license plate. In rear: left position below. In front: middle or right position of vehicle. Dimension of plate in rear as chinese standard: 440x220 mm)	GB 15741	YES
5	Tire pressure labelling: in kPa (not bar)	GB 7956.1-2014, 5.2.6	YES
6	The PTO should be with cooling devices	GB 7956.1-2014, 5.4.1.2.2	YES
7	The power of PTO should be lower than 60% of the rated power of truck engine	GB 7956.1-2014, 5.4.1.2.1	YES
8	The space between seats in the same direction and space between seats in counter direction are required to be 650 mm and 1,200 mm respectively and the width of each crew member in occupation should be higher than 550 mm	GB 7956.1-2014, 5.5.2.2	YES
9	Blinkers mounted on the lateral steps, flashing toward the front and rear of truck	GB 7956.1-2014, 5.5.4	YES
10	Draining of water in pump inlet and outlet pipes, and hydrant line: ≤ 45 s.	GB 7956.1-2014, 5.6.6 GB 7956.2-2014, 4.4.2.2.3	YES
11	Non-return valve installed after pressure side of pump	GB 7956.2-2014, 4.4.2.3.4	YES
12	In the cabin of vehicle should be installed battery main switch, operated from driving position, with prompt tone during change from status „battery OFF“ to „battery ON“.	GB 7956.1-2014, 5.7.5 GB 7956.1-2014, 5.7.6	YES
13	The cabin signal lights / beam in red colour.	GB 7956.1-2014, 5.7.32	YES
14	The cabin signal lights / beam and the siren with CCCF certificate.	GB 7956.1-2014, 5.7.32	YES
15	Flashlights in red and blue on the lateral sides if the vehicle is over 6 m long (not for aerial trucks). The max. distance between each light is 3 m.	GB 7956.1-2014, 5.7.32	YES
16	Dimension of the ascending ladder for roof: first step max. 450 mm from ground, step inside distance ≥250 mm, length of handrail ≥300 mm. Position in rear: left or right.	GB 7956.1-2014, 5.12	YES
17	The fuel tank for the truck shall satisfy the requirement that the water pump will operate for 2 hours after the vehicle drives 100 km.	GB 7956.2-2014, 4.2.1.1	YES
18	Connections for FF gauges: M10x1.5 (male thread) with over 15 mm long thread in the inlet and outlet of water pump, on the water cannon and after high pressure pump	GB 7956.2-2014, 4.2.1.4	YES
19	It is necessary to prevent over 65 mm outlet access hole from appearing on the operation panel which is higher than 1.2 m above the ground. (The max. height of the coupling has to be max. 1.200 mm)	GB 7956.2-2014, 4.4.2.3.3 GB 7956.2-2014, 4.2.1.5	YES
20	Numerical display of engine water temperature on the operation panel (control lamp is enough)	GB 7956.2-2014, 5.4.7.3	YES
21	Emergency stop button for fire fighting system on the operation panel	GB 7956.2-2014, 4.2.2.1	YES
22	Schematic diagram for water pipeline and operation instructions on the operation panel.	GB 7956.2-2014, 4.2.2.2	YES
23	Painting of piping according standard GB/T 3181 (red, yellow, green colour)	GB 7956.2-2014, 4.4.2.1.3	YES
24	The tight and blank couplings, size 150 mm: must be 2-lug design instead of 3-lug, acc. to chinese standard GB 12514.2-2006 (for Ziegler production: will be changed in China)	GB 12514.2-2006	YES

25	The manual valves on the delivery outlets must be desinged for „open time“ more than 5 sec. (turning handwheel valves). Pneumatic valves on delivery outlets: open time must be adjusted on actuator (open time \geq 5 sec)	GB 7956.2-2014, 4.4.2.3.8	YES
26	Dimension of pipeline for filling the water tank from outside, or filling via fire pump: \geq DN 65 mm.	GB 7956.2-2014, 4.4.3.2.1	YES
27	The manhole cover on water tank must be with automatically pressure relief. If the tank is more than 1.000 lit., the manhole must be \geq 400mm	GB 7956.2-2014, 4.4.3.1.4	YES
28	Foam pump must be equipped with pressure relief valve. Valid only for mixer with pressure pump. Around the pump mixer (ejector pump principle): not required.	GB 7956.3-2014 4.4.4.2.6.4	YES
29	Foam mixing system must be designed with external suction pipeline	GB 7956.3-2014 4.4.4.1.3	YES
30	All labelling with Chinese characters	GB 7956.1-2014	YES
31	Treads and tailboard flaps max. 500 mm high from the ground	GB 7956.1-2014 6.5.3	YES
32	Pressure gauge in FF system in MPa instead of BAR	GB 7956.1-2014	YES
33	Pressure gauge on the monitor in MPa instead of BAR	GB 7956.1-2014	YES
34	Vehicle type plate according to CCCF standard	GB 7956.1-2014	YES
35	Pump type plate according to CCCF standard	GB 7956.1-2014	YES
36	Monitor type plate according to CCCF standard	GB 7956.1-2014	YES
37	Foam mixer type plate according to CCCF standard	GB 7956.3-2014 4.4.4.2.1	YES
38	Pump and foam mixer painted in red RAL 3000	GB 7956.3-2014 4.4.2.1.3	YES
39	Measuring of water suction time during suction from \geq 7 m	GB 7956.2-2014 4.4.6.1	YES
40	Reflective strips around the truck, 3M type: C000398 3M-2	GB 7956.1-2014 5.2.4	YES
41	Illumination of double cabin steps, automatically switch on/off	GB 7956.1-2014 5.7.7	YES
42	Battery charger 220V with automatic sockets (Rettbox). Air connection is not required.	GB 7956.1-2014 5.7.23	YES
43	Searchlight in rear side of superstructure, on the roof, switchable from pump control panel	GB 7956.1-2014 5.7.33	YES
44	Original rear lower lamps (tail lights) from chassis producer (CCCF certificated)		YES
45	Symmetrical position (quantity) of lateral water suction inlets (for vehicle with midship pump, aerial truck,...)		YES
46	Test report for cardan shafts in PTO - pump driveline		YES
47	Pneumatic pipes mounted by bodybuilder (Ziegler) must be different colour in compare with original chassis pipes (MB, MAN,...)	GB 7956.1-2014 5.4.1.7.2	YES
48	FF instruments: font height of pointer instrument should not be less than 4 mm. In digital instrument should not be less than 6 mm. All others as CCCF standard (for CAFS: see point 4.2 in GB 7956.6)	GB 7956.1-2014 5.6.2	YES
49	All pushbuttons and controls with stickers in chinese language		YES
50	Additional main valve for fire fighting pneumatic system (for prevention of leakage during the engine does not work)		YES
51	Stickers with max. vehicle weight in kg mounted on the cabin door left and right side		YES
52	Angle of depression on monitor should not be less than 7°	GB 7956.3-2014 4.4.4.3.2	YES
53	De-wax detergent 25 lit., for remove paraffinic protecting waxes. Stored inside of superstructure (for transport only)		YES
54	Additional mechanical main switch in area of battery box, if is not delivered with chassis (Ziegler)		YES
55	For vehicles with hydr. crane: A pressure gauge must be installed at the operating place to show the system pressure.	GB 7956. 14—201X 4.2.4.	YES
56	For vehicles with hydr. winch: A pressure gauge must be installed in area of operating place to show the system pressure.	GB 7956. 14—201X 4.2.4.	YES

Additional point 1, new regulation 09/2019 (instead of point 3)

No.	Description	Standard, section	Y/N
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1	Distance between rear underride protection and the ground: ≤ 500 mm (not 550 mm). Lateral protection frame: ≤ 550 mm from the ground See sketch below.	GB 11567-2017, 7.1 and 8.1	YES
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Distance from lateral protection to the ground: ≤ 550 mm, rear protection frame to ground: ≤ 500 mm when empty vehicle. The rear independent bumper height is not less than 120mm.

Have below different cases:

A. Rear without independent bumper, the distance from rear protection bottom to ground ≤ 500 mm.



B. If $H_1 > 500$ mm, must install independent bumper, the distance from bumper bottom to ground ≤ 500 mm, height of bumper must not less than 120mm.



C. The $H_1 \leq 500$ mm, at the same time also have bumper, the height of bumper must ≥ 120 mm.

Additional point 2, new regulation 09/2019 (instead of point 31)

No.	Description	Standard, section	Y/N
1	Treads and tailboard flaps max. 500 mm 450mm high from the ground See sketch below.	GB 7956.1-2014, 5.5.4	YES

The height from the surface for people to stand to the ground should not be more than 450 mm when empty load, GB 7956.1-2014, 5.5.4.



Above two points are not suitable for off-road chassis vehicle, such as airport vehicle, earthquake vehicle and rail vehicle.

Subject to alterations by technical progress