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Conform necesităților
Î.S. „AEROPORTUL INTERNAȚIONAL CHIȘINĂU”

AUTOSPECIALA DE STINS INCENDII CU APĂ
ȘI SPUMĂ PENTRU AERODROMURI

IMPACT 6X6

Technical Description

IVECO T-WAY

ARFF 10.000 DP 250 (Euro 3)



ICAO fully compliant

IMPACT RANGE

- The IMPACT x 6 ARFF series has been developed by Magirus to meet and exceed ICAO requirements, offering an effective vehicle for regional airports as well as for military airfield.
- “IMPACT” series means all-wheel drive Aircraft Rescue Fire Fighting Vehicles with extinguishing capacity of water/foam and dry powder or gas, in accordance to ICAO recommendations (doc. 9137-AN/898).
- The vehicle is based on special heavy duty chassis of the IVECO series production, specially customized for airport rescue and fire operations.
- A strong all-wheel-drive chassis proven in everyday life thousands of times, millions of kilometres, for many years in service all over the world.
- Global spare parts support by any Iveco service station all around the world.
- The “IMPACT” can discharge the extinguishing agents either while moving or standing, according to ICAO requirements.

Similar vehicle

VEHICLE PERFORMANCES

Acceleration:	From 0 to 80 km/h within \leq 40 sec (fully loaded).
Max. Speed:	110 km/h.
Pump & Roll:	The vehicle can discharge while moving forward and reverse.

VEHICLE DIMENSIONS

Approach angle:	30°
Departure angle:	30°
Tilting angle:	28°
Overall length:	9.400 mm (approx.)
Overall width:	2.500 mm
Overall height:	3.900 mm
Minimum ground clearance:	> 330 mm

Body ground clearance: ≈ 450 mm
Wall to wall turning diameter: < 23 m

CHASSIS SPECIFICATIONS

Make: IVECO
Model: T-WAY
Type: SPECIAL SERIES for airport and military applications.
Drive: 6x6
Operational weight: ≈27.000 kg
G.V.W. (max admissible): 29.000 kg

Towing devices:

- Towing pin or two towing eyes at front;
- Two towing eyes at rear.



CABIN

Make: IVECO
Construction: Steel made protected against corrosion, installed with four shock absorbers.
Doors: Four (two on each side)
Seats: 1+2

- Adjustable type driver's seat pneumatic seat;
- two co-driver seats;

Air-conditioning for hot areas
Safety Grab handles colored in yellow
2 sun visors
Dome light
2 portable light (LED) with battery charged will installed in a comfortable position
Cab entrance handrails provided as standard

Cab tilting system: With hydraulic pump for an angle of 60/65° approx.

Fire Fighting controls:

In the cabin, easy accessible from driver and co-driver (see the chapter "Fire Fighting control panels").

Reverse rear view camera with buzzer

ENGINE

Make:**IVECO-FPT.****Model:****CURSOR 13.****Type:**

6 in-line cylinders, 4 strokes, diesel direct high pressure injection, turbocharged by variable geometry turbine, inter-cooler.

**Maximum power:****480 HP****Emissions:****Euro 3****Lubrication system****Type:**

Heavy duty forced feed lubrication, using standard engine oil types.

Engine cooling system**Type:**

Heavy-duty water-cooling system.

Fuel tank capacity:

300 litres, diesel.

Exhaust system:**Muffler:**

One integrated box.

Discharge:

At side.

ELECTRICAL SYSTEM

Voltage:

24 V DC.

Batteries:

2 x 12V, low maintenance type, 220 Ah.

Type:

Lead acid type with sufficient capacity to assure good performance with adequate safety margin at

different hard ambient conditions. Manual switch for battery system.

Auxiliary batteries charger (Rapid Starting Kit):

On-board battery charger unit drive away plug located at the rear vehicle side. The Rapid Starting Kit, working at 220 V 50 Hz through electric cable and quick-release plug with socket located at the rear part of the vehicle, allows the following operations:

- Immediate vehicle start by keeping the air pressure at constant level in the pneumatic circuit while garaged;
- Automatic battery recharging.

Alternator:

120 A x 28V.

Starter voltage:

24 V.

TRANSMISSION

Gearbox:

ZF Hi- Tronix (16 Speeds)

Function mode:

Automatic and semi-automatic

Transfer box:

Iveco mechanical type with two ratios for on and off-road

AXLES

Front Axle:

Iveco rigid driving and steering axle with double reduction with pneumatic differential lock.

Rear Axles:

Iveco rigid driving axles with double reduction with pneumatic differential lock.

SUSPENSIONS

Front axle:

Heavy duty parabolic type leaf springs with shock absorbers.

Rear axles:

Heavy duty semi-elliptic type leaf springs.

WHEELS AND TYRES

Tyres:

Single at front and rear.

Tread: On-Off road.
Spare tyre: One, supplied loose.
Driver tools kit: Provided, including hydraulic jack.

STEERING

Type Hydraulic power steering.
Steering wheel: Left hand drive.

BRAKES

Service brake system: Dual circuits, fully pneumatic type, with air dryer
Type: Duo-Duplex wedge **drum type** on every wheels.
Emergency (parking) brake: Spring loaded with emergency release, acting on rear wheels.
EBS: **Engine Brake System**, provided, decompression type (IVECO Turbo Brake).
ABS: **Anti-Brake System**, provided.
EBL: **Electronic Brakeforce Limitation**, provided.
Auxiliary air brakes charger: Provided (see Rapid Starting Kit chapter).

Service brakes stopping distance:
from 33 to 0 Kph in ≤ 11 m.
from 64 to 0 Kph in ≤ 39 m.

CHASSIS LIGHTS

Voltage: 24 V DC
Chassis:

- Two head lights with high/low beam
- Two red stop & tail lights
- Two backwards lights
- Two fog lights at front and rear
- Four direction lights (two at front and two at rear)
- Cab interior lights

FIRE FIGHTING INSTALLATION

Construction: Made of "**MAGIRUS Alufire-system**".

"Alufire" concept:

Body frame entirely made of high quality anodized aluminium profiles, assembled by screws and bolts, without any welding; the body is exteriorly panelled with aluminium anodized sheets, in order to have light weight and avoid rust.

Compartments:

Modular designed units:

- One body compartment behind the cabin with two lockers (one on each side) closed by anodised light alloy roller shutters;
- One body compartment at the rear of the vehicle with two lockers (one on each side) closed by anodised light alloy roller shutters and one rear locker closed by anodised light alloy roller shutter.

Roller shutters:

Water and dust proof anodized light alloy shutter with locking hand bar for easy operation.

Internal illumination:

Automatic internal illumination of each locker through fixed lamps.

External illumination:

Working area illumination by side-lights through a switch in the cabin.

Access steps:

All lockers are provided with foldable foot-steps to allow an easy carrying out of the fire fighting equipment and easy maintenance.

PIPING, COUPLINGS AND VALVES

All the pipes, couplings and valves are treated against corrosion; moreover, all pipes, couplings and valves which may enter in contact with foam are made of special resistant stainless steel or high-quality rubber.

WATER TANK

Water tank capacity:

9.000 L geometric capacity.

Material:

High quality GRP (Glass Reinforced Plastic) suitable for any kind of water

Mounting:

Torsion free mounting with rubber/steel shock absorbers (Silent-blocks)

Connections:

- One connection to the pump;

Manhole:	• One tank filling connection by pump;
Overflow pipe:	• Two tank filling connections by hydrant 2 1/2" with anti-corrosion filter mesh, ball valve and coupling. One manhole Ø 500 mm with quick opening lid. One, discharging under the chassis level, working also as over/under pressure device.
Additional over/under pressure device:	One, with protection cap.
Drain valve:	Provided.
Water tank level:	One electrical level sensor with gauges on control panels.
Tank sump:	Provided.
Baffles plates:	Inside the tank to prevent surges.

FOAM TANK

Foam tank capacity:	1.000 L
Material:	High quality GRP (Glass Reinforced Plastic) suitable for any kind of water.
Mounting:	Together with the water tank on the sub-frame. The foam tank is fully integrated into water tank structure, therefore removable together with the water tank.
Connections:	<ul style="list-style-type: none">• One connection line to the foam proportioning system;• One connection line Ø 1 1/2" to refill the foam tank from external sources.
Manhole:	One, Ø 500 mm with quick opening lid.
Overflow pipe:	One, discharging under the chassis level, working also as over/under pressure device.

Additional over/under pressure device:	One, with protection cap.
Drain valve:	Provided.
Foam tank level:	One, electrical level sensor with gauges on control panels.

PTO SYSTEM

Pump-Drive system:	MAGIRUS MPR-M , the pump is driven by the P.T.O. on engine allowing "pump and roll"
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operations. Engagement can be done also when vehicle is moving according to ICAO recommendation.

Operations:

Both when vehicle is standing or moving.

FIRE FIGHTING PUMP

Make:

MAGIRUS MPN600

Type:

Centrifugal, 2-stage.

Location:

Rear-ship mounted.

Material:

Pump body, impellers and diffuser made of bronze.
Pump shaft made of special stainless steel.

Pump delivery output:

5.000 l/min at 10 bar

Pump priming system:

Automatic priming pump. Made of corrosion resistant material

Suction connections

- One outside suction connection Ø 4" with female coupling, manual check valve, blind cap and chain;
- One tank suction line Ø 150 mm with butterfly valve;
- One tank filling flexible connection Ø 80 mm with ball valve.

Discharge connections:

- Roof monitor;
- Bumper monitor;
- 1 hose reels with water/foam nozzle;
- Water and foam free delivery outlets;
- Pump drainage (mechanical);

Pump instruments and controls:

- Inside the cabin on the "Cabin F.F. control panel" (see chapter "Fire Fighting control panels");

In a small independent locker with internal illumination just beside the rear pump locker ("Rear Pump control panel"). The locker is closed by a see-through anodized light alloy roller shutter. This solution prevent water to damage the pump control panel (see chapter "Fire Fighting control panels").

Make:	MAGIRUS
Model:	MAFP-M 480.
Type:	"Around the Pump" automatic foam proportioner.
Mixing ratios:	1%-3%-6%
Types of foam compounds:	AFFF , synthetic and proteins foam compounds.
Connections:	<ul style="list-style-type: none">• One suction connection line with the foam tank .• One suction / flushing connection c/w blind caps and chain.
Proportioner controls:	<ul style="list-style-type: none">• From "Cabin F.F. control panel" inside the cabin;• From "Rear Pump control panel".

ROOF MONITOR AND BUMPER MONITOR

Roof Monitor

Make:	Alco
Model:	APF3
Type:	No-aspirated type with variable stream (straight stream and dispersed pattern) suitable for water and foam.
Material:	Light alloy
Position:	On the roof of the cab
Control:	Through a joystick located inside the cab on the "Cabin F.F. control panel", useable either by driver or co-driver
Discharge rates:	<ul style="list-style-type: none">• Full jet: 4.000 l/min• Half jet: 2.000 l/min
Max. throw range:	Water straight stream : ≥ 65 m Water/Foam straight stream : > 60 m
Horizontal rotation:	105° on each side (210° total sweep)
Vertical movement:	From -45° up to +60° above the horizontal
Controls in the cab:	<ul style="list-style-type: none">• Discharge control: on/off switch• Pattern control: straight stream/dispersed stream switch• 50% output switch• Monitor position indicator device
Emergency control:	External handles for use from outside.

Make:	Magirus
Model:	IM1
Type:	No-aspirated type with variable stream (straight stream and dispersed pattern) suitable for water and foam.
Material:	Light alloy
Position:	On the roof of the cab
Control:	Through a joystick located inside the cab on the Cabin F.F. control panel", useable either by driver or co-driver
Discharge rates:	Full jet: 1200 l/min
Max. throw range:	Water straight stream : ≥ 40 m

WATER/FOAM SIDELINES

Quantity:	Four (4).
Location:	TWO on the left side and TWO on the right side of the vehicle.
Type:	Provided with manual controls, suitable for 2 1/2" instant coupling hoses, with pre-connected collapsible hoses of 15 m length
Backflow	<ul style="list-style-type: none"> - 1 water/foam delivery with DN 45 hoses lg=1x30 m with a water/foam nozzle - fixed flow rate > 450 l/min

UNDERTRUCK NOZZLES

Quantity:	6.
Location:	Under the truck. 2 at front, 2 in central position, 2 at rear.
Purpose:	To protect the tyres and the vehicle from ground fires.

Actuation:

From inside the cabin.

Discharge rates:

Total 300 L/min (50 L/min each)

DRY POWDER SYSTEM

Powder tank

Capacity:

250 kg

Material:

High Quality Steel

Working pressure:

10 bar (approx.)

Test pressure:

14 bar.

Location:

Protected inside the bodywork between the cab and the water tank (middle ship mounted).

Including:

- Gas ejectors for tank pressurisation
- Charging orifice with plug
- Pressure reducer from 200 to 14 bar
- Safety valve
- Filter and drain plug

Pressurisation group

Cylinder:

One nitrogen bottle allowing the full discharge of the powder as well as rinsing of the system.

Charging pressure:

160 / 200 bar

Fittings:

Rapid flow valve

Operation:

From control panel positioned inside the locker

Hand-line:

1 (one) collapsible hose, 20 m long, ending with a pistol:

- output = about **2,3 Kg/s** .
- stream range: ≥ 8 m

Operation:

From control panel positioned inside the locker.

FIRE FIGHTING CONTROL PANELS

Quantity:

Two.

Purpose:

To control the Fire Fighting system.

Location:

I - One inside the cabin;

II - One inside a locker at the rear of the vehicle

Actuation type:

All actuations are pneumatically operated. All switches are back-lighted.

I - Cabin F.F. control panel

Instruments:

- Pump manometer;
- Electric water tank level indicator;
- Electric foam tank level indicator;
- Pump revolution counter;
- Powder tank pressure manometer.

Indicator lights:

- Pump engaged light;
- Priming pump light;
- Opened roller shutters light;
- Footsteps warning light.

Actuations:

- Pump engagement (P.T.O.) switch;
- Water tank filling from external source through the pump switch;
- Pump suction to fill the water tank switch;
- Foam proportioning system actuation/admixing rate adjustment (1%-3%-6%) switches;
- Roof monitor joystick with delivery switch;
- Roof monitor straight/dispersed stream switch;
- Roof monitor 50% output switch;
- Bumper monitor joystick and switches;
- Manual engine throttle control (electronic type);
- Engine emergency stop switch;
- Ground sweep and under-truck nozzles switch;
- Pump to hose reel delivery switch;
- Nitrogen bottle opening switch;
- Powder tank pressurization switch;
- Hose-reel delivery switch;
- Flushing switch;
- Rotating beacons switch.



II - Rear Pump control panel

Instruments:

- Pump manometer;
- Electrical type water level gauge;
- Electrical type foam level gauge;
- Pump revolution counter;
- Vacuum gauge.

Indicator lights:

- Pump engagement (P.T.O.) light;
- Priming pump light.

Actuations:

- Pump suction from water tank switch;
- Water tank filling from external source through the pump switch;
- Foam proportioning system actuation/admixing rate adjustment (1%-3%-6%) switch;
- Throttle control for pump pressure (engine speed);
- Engine emergency stop switch;
- Hose-reel delivery switch (if provided);
- Flushing switch;
- Control panel illumination switch.

FIRE FIGHTING LIGHTS

Body:

- Each storage is equipped with internal lights automatically activated at the opening of the roller shutters;
- Each storage is equipped with external working area lights with actuation from the cabin. The lights are located above each locker;
- Four aircraft obstruction lights (clearance lights), red color (one light mounted at each corner of the roof of the vehicle);

Emergency lights:

- Two rotating beacons mounted in front of the cabin roof (red, yellow or blue colour);
- Two rotating beacons mounted at rear of the vehicle (red, yellow or blue colour).

Additional lights:

- Two search lights, with control in the cabin.

SIREN AND RADIO

Siren:

Multi-tone siren system, 100 W amplifier with microphone and controls inside the cabin.

Radio:

Three exits to the cabin for connecting two radio stations and one radar identification system 12V/5A.

EQUIPMENT LIST INCLUDED IN EACH TRUCK		Quantity
4170223007	ADJUSTABLE NEEDLE WRENCH MM.450	1
2051501414	SMASHING AXE "FIRE AXE"	1
2051502515	AXE X AIRPORT VEHICLES	1
2051501895	BOLT CUTTER FOR D.12	1
2050728009	LEVER MM.1000 ACC. FORGED	1
4170105004	RIBBED CHISEL 200X25	1
2121801042	LAMP 5/5 PORTABLE GREEN OVA	3
4170502012	MALLET W/HANDLE KG.2	1
2051501089	CRAMPON COMPLETE WITH HANDLE	1
2051501216	AIRPORT FIRST AID TOOLS	1
2051501902	FIBERGLASS DECK MM 1500X1200	1
2051801028	LADDER 2 EXTENSIONS ALUMINUM DEVELOPMENT MT. 6,6	1
2050713065	NYLON ROPE D.12 L=MT. 15 LIB.+LIB.	1
4170305002	ADJUSTABLE PLIERS L.190 BETA 1052	1
4170222001	SWEDISH TYPE GYRATORY 45° MM.240 (1/2")	1
4170305002	ADJUSTABLE PLIERS L.190 BETA 1052	1
99430053	PLASTIC CHOCKER	1
2051502332	OLEO MAC 983 TTA 16" MOTOR CUTTER	1
2051502528	V-SHAPED BELT CUTTER KNIFE	1
2051502682	KEVLAR EN 659 VVF GLOVES	3
2051502790	AUTOPROT. SINGLE TANK PSS 3000 ATT. DIN	2
2051502410	AIR CYLINDER LT. 6.8 ATT. DIN 300 BAR	4
2051502505	PNEUMATIC CHISEL IN CASE	1

FINISHING AND PAINTING

Chassis frame:	Manufacturer standard colour (black);
Rims:	Manufacturer standard colour (black);
Front bumper and fenders:	Black. White or Red optional.
Cab and bodywork:	Fire RED RAL 3000. Other colours upon request.
Roller shutters:	Anodized aluminium colour

MANUALS

Use and Maintenance manual:	2 copies (one paper and one Pdf Digital Version) for each vehicle, in English language.
Preventive Maintenance manual:	2 copies (one paper and one in PDF DIGITAL VERSION) for each vehicle, in English language.
Spare Parts catalogue:	2 copies (one paper and one in PDF DIGITAL VERSION) for each vehicle, in English language.



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