

## **P R E S S   R E L E A S E**

### **The Iveco Magirus Dragon 6x6 sets new standards within its segment**

At the largest worldwide trade fair for rescue, fire and civil protection services, INTERSCHUTZ 2010, Iveco Magirus presented a new range of Aircraft Rescue and Firefighting Vehicles for airport applications (ARFF Vehicles). ARFFV is a special category of airport tank pumpers that involves response hazard mitigation, evacuation and rescuing of passengers and crew of an aircraft involved in an airport ground emergency.

The models of the Iveco Magirus Dragon 2 range represent a completely new generation of customized ARFF vehicles with performances that exceed current ICAO and NFPA requirements. Fire fighters from around the world are very impressed with this newly developed concept. Once again, innovations from Iveco Magirus have set new standards for the entire fire-fighting industry.

In keeping with the Iveco Magirus philosophy, this consistent solution has been developed in-house and is made using a 'one-stop shop' approach. The modular structure makes it possible to implement different configurations and drive variants that include a 4x4 on a two-axle chassis, a 6x6 on a three-axle chassis and a 8x8 on a four-axle chassis with single motorization and with Twin Engine Power Pack (TEP) drive system based on a powerful Iveco engines and as a special option also a Deutz engine.



The 6x6 and 8x8 Dragon chassis with a “Twin Engine Power Pack” solution drives the vehicle and the fire pump and results in a better performance single engine solution. The two electronically controlled Iveco CURSOR 13 engines provide a total power of 1,080 HP in Euro 3 or 1,120 HP in Euro 5 version. Iveco Cursor engines have long been known for their exceptional efficiency, light weight and high specific power output.

Independently from one or two engines the Dragon ARFF chassis surpass by far the ICAO and NFPA requirements.

The development of the new ARFFV chassis from Iveco Magirus Brandschutztechnik was featured by only one manufacturer. All innovative concepts were specifically developed for this range: drive train, extinguishing systems, controls and bodywork design are perfectly matched to the chassis – and represent integral parts of a consistent overall vehicle concept as only Iveco Magirus can supply. The modular design makes it possible to create different vehicle configurations according to customer needs, exceeding ICAO and NFPA standards.

Iveco Magirus established the ARFFV business unit 1992 with the first model called TUCANO of which we delivered worldwide 45 units until 1997. After that the first DRAGON models of 4x4 and 6x6 followed with 293 units from 1998 to 2012, including the air transportable version of the 4x4.

The successful story continues with our new range of high performance ARFF vehicles. The first customer was the Hong Kong International Airport and as a result of good experience here Iveco Magirus received in the last 3 years over 30 next orders. Our reference customer countries include Poland, Kuwait, Turkey, Romania, Philippines, India and Laos.

Already 9 Dragons of the new generation were delivered to airports worldwide. Additional 12 units will be delivered in 2012 and other will follow 2013.

The success is based on the following strong points:

The new driver cab which provides space for 3, 4 or 6 people of whom up to 4 with breathing apparatus, due to the generous internal dimensions. The driver seat can be positioned on the left, on the right or in the centre. The cab is a well-designed workplace and satisfies all demands for maximum comfort and functionality.

The vehicle entry is ergonomically optimised for fire-fighting operations. Large, lowered windows provide optimal visibility in all directions.

The crew cab features hinged doors or alternatively, automatic sliding doors (coach type). Sliding doors in particular enable more comfortable entry to the spacious cabin. Large, lowered windows provide optimal visibility in all directions.

The bodywork realised in AluFire 3 design is a perfect combination of functionality and progressive design: large air grilles guarantee maximum cooling efficiency; the rear cover panel facilitates access for maintenance and repairs. The AluFire 3 modular bodywork system provides also optimum usability and variability of equipment lockers. This thousands fold proven system was developed with a significant contribution from the users and very much directed to fully meet the individual needs of fire fighters everywhere.

### ***Chassis***

Newly-developed, rough terrain capability all-wheel airport rescue fire fighting ARFF chassis with rear engine and rigid axle suspension with coil springs, single tyres with same track width for faster forward progress and larger track for maximum stability. Planetary hub reduction axles with disc brakes for maximum ground clearance as well lower starting torque thus ensuring less wear of drive chain. All thousand-fold



proven chassis components are from the large-scale production truck “Iveco Range”, still in service and modified to meet the specific requirements of applications. Benefits are derived in particular from the global presence of Iveco as a world market leader in the manufacture of trucks and engines and in terms of reliability and availability of spare parts.

The electrical installations are all in 24 V version according to the European Standard. 24 Volt system of course being more powerful and safer than 12 volt. The control of all vehicle electronic apparatus of the Dragon ARFF is provided by an advanced CANBUS system as standard equipment.

### ***Engines / Power pack***

The Dragon ARFF is powered by original Iveco Cursor engines which allow a fast-response acceleration time from 0 to 80 km/h in much less than 25 seconds for the Dragon 8x8 chassis and less than 23 seconds for Dragon 6x6. Top speed of up to 135 km/h.

Iveco Cursor engines have long been known for their exceptional efficiency, light weight and high specific power outputs. The new-generation Cursor engines are more responsive, and interact to a higher degree with the automatic gear-box. The Cursor engine's variable geometry turbocharger assists in delivering high torque across a wide range of engine speeds and works in harmony with the quietly efficient Iveco Turbo Brake.

For the ARFFV Dragon 6x6 and 8x8 the advantages of the “twin-engines” concept are not only evident in more power availability. More important are pump and roll operations where there are no limits and you can go up to 70 km/h whereas on a ARFF vehicle with one engine you have some limits in operation and the maximum speed achievable is 20 km/h. Furthermore, in case of engine failure of a single engine vehicle, this is stopped and there is a risk of losing the vehicle to the fire.

With the “twin engines” solution in case of failure of one engine of the power pack, the vehicle can be driven safely out of the danger area by means of the other engine.

The pump & roll operation with maximum water flow rate is already available above an engine speed of 900 rpm.

### ***Brake system***

The maximum speed achieved by the Dragon 6x6 and 8x8 is 135 km/h (depending on model and GVW). The brake system of the Dragon is fitted with EBS (Electronic Brake System) and disk brakes with ABS which is the best and latest technology in brake systems. Only Iveco Magirus offers an ARFF chassis with an EBS System. The advanced EBS system permits an extremely fast response time and short braking distance with at the same time low wear on brake parts. Additionally there is perfect stability and high comfort when braking even at high speed and any load distribution under full traction control.

Further to the brake system on the wheels, the Dragon features an engine brake system (Iveco Turbo Brake System). This Iveco system is provided as a standard feature in all Dragon ARFF vehicles. This device allows great brake performances and acts automatically when the engine throttle is released.

### ***Gear-box***

Fully automatic Allison power shifting transmission with hydraulic retarder. An automatic transmission responds instantly, accelerating faster by providing smooth, uninterrupted, full power shifts. The engine-driven PTO facilities provide optimum auxiliary power and efficiency whilst operating on the move or when stationary.

The transfer box is mounted separately from the gearbox on the 6x6 and 8x8 Dragon chassis. This solution provides advantages for maintenance and repair. No need to be dismantled in the case of gear-box replacement or disassembling.

### ***Drive line***

The Kessler-Magirus drive line system, with the “summation box” enables operations in “Driving Mode” and in “Pump & Roll” mode. In the driving mode the power of both engines is transmitted to the axles and assures high road performance of the vehicle. In the Pump & Roll mode the system by the PTO of the Power Divider will couple the left engine to the fire pump, whilst the right engine will drive the vehicle independently, allowing a full Pump & Roll operation.

Due to the power divider, pump operation is possible during driving or in reverse travel at any speed, maximum pump power consumption 272 hp, thus even at maximum pump output there are enough power reserves for rapid acceleration. Water flow rate is adjustable independently of vehicle speed. Pump & Roll operation with maximum water flow is possible from an engine speed of just 900 rpm.

No system-related overheating of oil, no friction in the coupling mechanisms - for greater reliability, lower efficiency losses and longer service life.

### ***Modular range and extinguishing technology***

Through the modular system of the Iveco Magirus new Dragon ARFF Range it is possible to configure a wide range of models. Water tank capacities from 5,500 up to 19,000 litres. Foam tanks with different capacity options and several types of proportioning systems as well as a 500 kg dry powder and 120 kg CO<sub>2</sub> installation are available.

Different types of Iveco Magirus fire fighting pumps with normal pressure or combined pumps with normal pressure and high pressure are available. Pump output of 5,400 l/min up to 10,000 l/min.

To be able to direct these large amounts of extinguishing agents as accurately and efficiently as possible, apart from the powerful throw roof monitor, there are a front-

mounted monitor, quick-attack hose-reels inside the bodywork for water, foam or powder. Alternatively, a telescopic piercing nozzle can be mounted instead of the monitor as well as an extendable turret HRET.

Whether 8x8 or 6x6, all vehicles of the DRAGON 2 model series are equipped with standardised components and assemblies. This standardisation not only makes production and spare parts management far more efficient, it also facilitates training and orientation of new fire-fighting personnel.

### ***All in one***

No other manufacturer of fire fighting vehicles can offer chassis, superstructure and components – everything from only one source! Our principle “all in-house manufacturing” has always proven to be a convincing argument. From the chassis to the bodywork all these are in-house developments and so optimally matched to one another. Iveco Magirus is a partner who takes the end-to-end responsibility of the whole product and this for as long as an Iveco Magirus vehicle is operating for his customers.

Company-owned testing facility, allowing thorough testing of all performance parameters of the final product including engine power, torque, brake force, brake balance and ABS operation as well as on- and off-road-behaviour such as climbing ability, side slope testing etc. Iveco Magirus can therefore develop vehicles which guarantee the highest levels of robustness and reliability for all conditions of use.

### ***New Dragon 6x6 TEP***

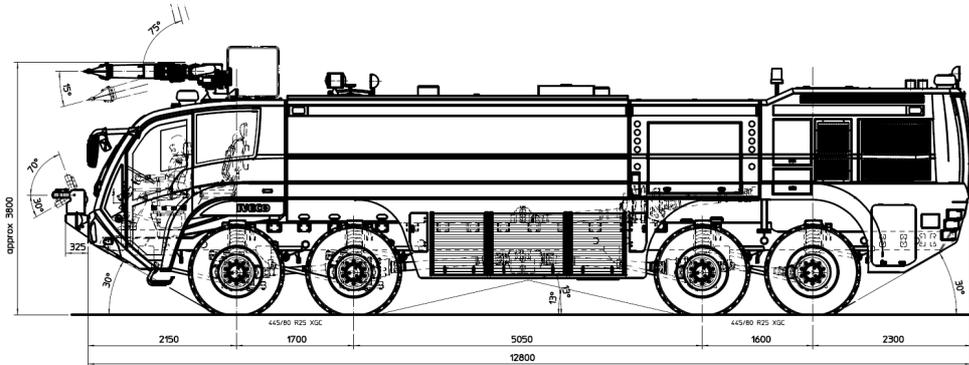
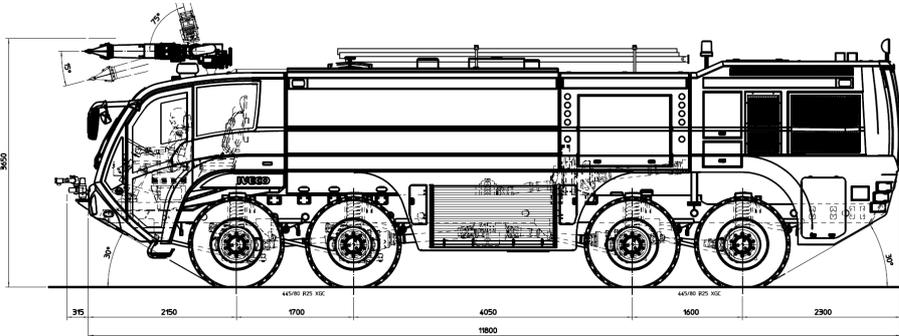
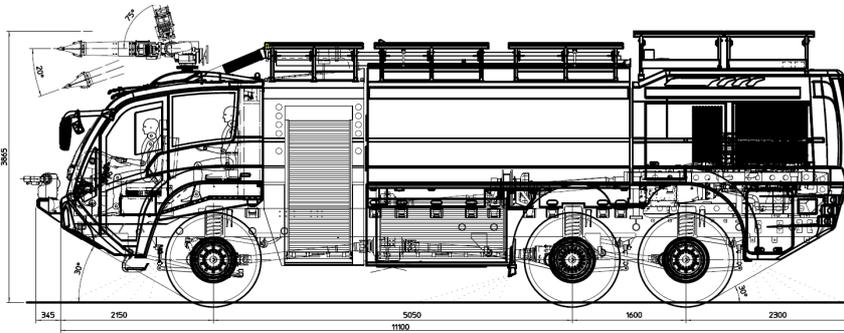
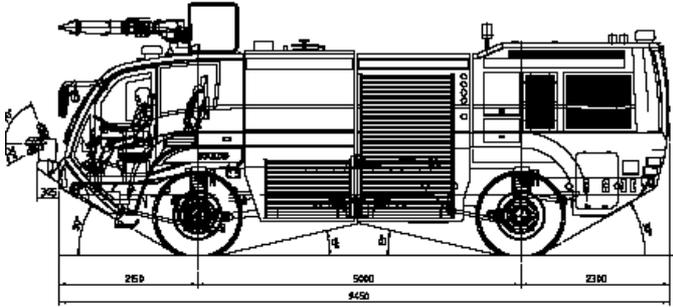
As a unique product in its segment the new DRAGON 6x6 TEP is providing the best power to weight ratio value. This is an essential indicator for the performance needed for acceleration and the Pump&Roll speed, beside top speed and the braking performance within the ARFF market.

Fulfilling latest environment requirements with EURO 5 engines and with full flexibility in terms of customization of this product it is offering the most efficient solution for highest level ARFF vehicles.

### ***The Dragon range***

Items	Dragon 4x4	Dragon 6x6 TEP	Dragon 8x8 TEP
GVW	25 t	39 t	52 t
Wheel base	5050 mm	5050 mm	4050 / 5050 mm
Engine power	397 kW / 540 hp up to 520 kW / 707 hp	794 kW / 1080 hp or 824 kW / 1120 hp	794 kW / 1080 hp up to 824 kW / 1120 hp
Maximum speed	> 120 km/h *	> 135 km/h	> 135 km/h
Acceleration	< 25 sec *	< 23 sec	< 25 sec
Pump&Roll speed	> 20 km/h *	> 60 km/h	> 60 km/h
Tank volume, water	Up to 6,000 litres	10,000 – 12,500 litres	12,500 – 17,000 litres
Tank volume, foam	Up to 720 litres	1,200 – 1,500 litres	1,500 – 2,000 litres
Dry powder	250 kg	250 kg	250 / 500 kg
CO2	120 kg	120 kg	120 kg
Pump output NP	5,200 l/min	10,000 l/min	10,000 l/min
Pump output HP	250 l/min at 40 bar	250 l/min at 40 bar	250 l/min at 40 bar

(\*) depending on the engine type





In Europe the Iveco Magirus Group develops and manufactures a worldwide unique range of vehicles and appliances for fire fighting and civil protection. Iveco Magirus is considered internationally to be one of the largest manufacturers and world leader in technology in the sector. Sales and service are globally oriented to customer structure. In respect of turntable ladders, the traditional Magirus brand is still the undisputed global market leader.

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