



**JUNG
JUNGENTHAL**

FIRE COMMANDER



FIRE COMMANDER

the tracked vehicle
with most modern
extinguishing technology
to fight large-scale fires

a cooperation of



**JUNG
JUNGENTHAL**

IFEX
TECHNOLOGIES

Document en anglais

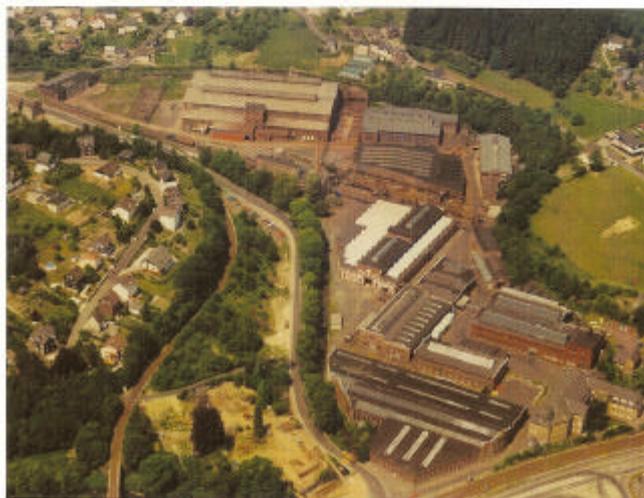


The **FIRE COMMANDER** is a tracked vehicle. It combines traditional and modern fire extinguishing technologies to fight large scale fires, e.g.:

- in forests,
- on oil-wells, oil- and gas-pipelines,
- on airports,
- in chemical and power plants.



JUNG JUNGENTHAL GMBH, KIRCHEN/SIEG is the successor of „Arnold Jung Lokomotivfabrik GmbH“, founded in 1885, which has not only produced a great variety of locomotives but also machine tools. Since 1955 Jung Jungenthal has played a major role in the development, design and manufacture of numerous tracked and wheeled tanks for the German Federal Army.





IFEX GMBH, SITTENSEN, was founded in 1994 by Frans Steur in order to market his revolutionary impulse technology. Today, the product range varies from the 1 litre impulse gun to the dual intruder cannon for vehicles and helicopters. The IFEX systems are protected by approximately 100 patents worldwide and employed by over 10.000 users.



The **FIRE COMMANDER** is based on the tank type Leopard 1 with a tracked chassis. Its fire extinguishing equipment represents latest technology. Owing to its multifunctional application the **FIRE COMMANDER** can be classified as a special type of most modern fire extinguishing vehicles, offering the following properties for fire fighting:

- outstanding off-road qualities,
- various fire fighting alternatives,
- preparation of firebreaks,
- rescue and recovery,

Technical Specification

Engine: MTU MB 838 Ca M / 500, 10 Zylinder, 610 KW = 830 HP,

Gearbox: ZF 4-gear shift and steering gear unit with hydraulic torque converter

Dimensions:

Length with dozer blade	ca. 8100 mm
Width	ca. 3400 mm
Height	ca. 3550 mm
Ground clearance	ca. 420 mm

Weight:

Chassis (with fire extinguishing system and 11.600 litres water & additives)	approx. 50 t
Ground pressure	approx. 10,5 N/cm ²
Ditch crossability	approx. 2,5 m
Turning radius	4,96 m
Max. speed	approx. 50 km/h
Fuel capacity	985 ltr.
Creep speed	approx. 4 km/h
Operating range:	
Gradeability	approx. 50 %
- road	ca. 450 km
Lateral tilt	approx. 25 %
- off-road	ca. 250 km

The two containers supply 11.000 litres of water and 600 litres of additives, such as foam agents. The water tank is a self-supporting welding construction and the inside is enforced with baffles and reinforcements. The water pump allows for a complete filling from open waters within 5 minutes. Hydrants can also be used.



The **FIRE-COMMANDER** has four fire fighting alternatives:

- the water cannon,
- with fire extinguishing hoses (B and C),
- hand impulse guns,
- front water-nozzles.

Two 25 litres IFEX DUAL INTRUDER IMPULSE CANNONS, mounted parallel, serve as the **water cannon** (Double Impulse Extinguishing Cannon). It is equipped with a hydraulic pan and tilt mechanism enabling horizontal movements of approx. $\pm 90^\circ$ and vertical movements of approx. -20° to $+70^\circ$. The camera mounted between the two cannon barrels enables the operator to control the movements of the cannon and to observe the target.



The water cannon uses the IFEX IMPULSE FIRE EXTINGUISHING TECHNOLOGY, which is based on the following principle:

The extinguishing agent – normally plain water – is pressurised with 6 bar into the water chamber. The pressure chamber is filled with compressed air of 25 bar. The shot is triggered off by a high speed valve between the two chambers which opens for only 20/1000 of a second. The extinguishing agent is discharged within milliseconds at a very high velocity into the seat of the fire.

When the trigger is pulled the water is discharged in a mist spray pattern. The impulse shot hits the fire at a speed of over 400 km/h. With its high kinetic energy the water penetrates the seat of the fire and extinguishes it within a very short time.

Air resistance acting on the water stream breaks the water droplets down and reduces the normal mean droplet size from about 700 microns to an average of 100 microns. This increases the cooling surface of 1 litre of water from a normal 5,8 m² to 60 m², which raises essentially the thermal absorption of the water.



Highly efficient usage of water is one of the great advantages of the impulse technology: The smaller the size of the water droplets the greater their absorption capacity; the higher the droplet velocity the greater the quantity of water reaching the base of the fire. The water consumption is reduced considerably.

The impulse cannon can use most fire extinguishing agents and additives.

With 11.000 litres of water and 600 litres of additives the **FIRE COMMANDER** can deliver 440 shots of 25 litres each. Choosing shooting intervals of 3 shots/min the vehicle is able to operate nearly 2½ hours continuously without being in need of water replenishments. If required the shot sequence can be increased.

The shot performance is as follows:

- The maximum range is 40-45 m.
- The shot spray of the water droplets resembles a cone, reaching a maximum width of 7-8 m at approx. 25 m and will then further again be tapering.

There are two connections for fire extinguishing hoses (B and C) at the rear of the **FIRE COMMANDER**.



Two 1 litre **IFEX hand impulse guns** with 100 m long hoses on reels are mounted at the rear.



Five **water-nozzles** installed at the front (5-6 bar) can be used to extinguish surface fires or alternatively for preventive soaking.



The **FIRE COMMANDER**, powered by an 830 HP engine, is able to transmit great force onto the **swept-back dozer blade**. With such a force it can excavate ditches of considerable depth and prepare firebreaks to arrest the advance of a fire and also overturn obstacles.



The **FIRE COMMANDER** is able to carry out fire fighting tasks even for a longer period at higher temperatures:

- Owing to its self-cooling device, a tubing system with special nozzles.
- If oxygen is lacking the crew can use a compressed air breathing apparatus providing additional breathing air. A similar system can provide the engine with extra combustion air.



The operating crew have the following tasks:

- Driver: Driving, clearance and observation.
- Operator: Handling of the complete fire extinguishing system.

The crew have protected seats inside the vehicle. Driver and operator have a direct outside view when the hatch is open; and when it is closed by means of an angled rear mirror. Using the built in camera the operator is additionally able to observe the effective range of the cannon.



With its multiple properties the **FIRE COMMANDER** is also capable of carrying out rescue operations. This can be for the rescue of endangered persons and also for the recovery of vehicles which are threatened or encircled by fire.



Fire fighting using a B-hose.



A shot with the 1 litre IFEX hand impulse gun



Filling of the water tank from open waters

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Sources : IFEX Technologies