

F 130 Hamburg, 5.3.01 Claußen

To F 03230 through F 030 through F 200

Practical report of the testing of the IFEX 3000, Impulse extinguishing technology.

1.General:

The IFEX 3000 extinguishing unit has been tested by the Rotherbaum Fire and Rescue Department since August 1999.

2.System installation:

The fitting was done by the KLF and IHLF. As such we have separated the valuation of the system in a parts.

1. KLF- equipment (first response vehicle)
- 2 - IHLF- equipment. (Prototype) (pumper truck)

3.Valuation of the extinguishing system:

3.1 KLF- equipment:

A skid with a water container (72 L), a breathing apparatus cylinder holder for 2 BA's (300 bar / 6 L cylinders) a hosereel (55m) and a holder for the gun was mounted in an Opel Omega station wagon .The additional load capacity has been checked with the car manufacturers Opel and the technical division before the skid was mounted to the car. The handling from the KLF is good and comfortable. However the hose with its 55 mtr was often too short. A minimum 90 mtr hose length is therefor required. The extinguishing system was frequently used. Every single call, or use of the system, has been assessed and documented by the platoon leader in charge of each individual call.

With all reports by the platoon leaders the following points need to be highlighted.

Very little water damage, partial reduction of the water usage by app.. 75-90 % -, in comparison with other extinguishing technologies, such as a high pressure hose (Fog- Fighter), in case of indirect fire fighting even if the respective approach was not handled technically correct. This indicates to a careful use of natural resources (water) and a considerable avoidance of water damage.

A very fast cooling of the air temperature at a confined spaced fire scenario. As only very little water is used (1 1/ shot) a merely insignificant

quantity of hot steam formed. The attack team is not hindered by hot steam, which he is when using the fog fighter or a high-pressure hose. The supposed disadvantage of not having a continuous water supply when using the impulse technology is compensated by the improved visibility and therewith permanent orientation possibility. Even when confronted with a Flash-Over –during a test at the LFS it became clear that a well instructed FM is able to control the situation.

We noticed that for cooling off car fires only a small water quantity was needed. From this it follows that the water, 0,1 gasoline mixture was drastically reduced with reference to comparable extinguishing methods. The impulse extinguishing method is only suitable for liquid fires when the according additives are used. Again, also in this fire scenario the protection of the environment is considerably improved.

3.2 HLF- equipment:

In the HLF is at the suggestion of and in co-operation with the -F13-, a rapid attack unit modified into a rapid attack / IFEX gun unit allowing a **combined** use of both.

This resulted in a prototype which has never been used before.

For the actual use in case of fire this means that the fire fighter can choose at the side of the fire which equipment to use, the IFEX gun or the high-pressure hose.

A thin air pressure hose has been installed inside the rapid attack hose (app. 62 mtr which provides the air pressure connection to a Y piece and the built in BA bottles. The IFEX gun or alternatively the high-pressure hose can be connected to this Y piece. Both units are equipped with a C coupling. The Y piece is also equipped with an air pressure connection for the impulse gun..

The Y connection has a valve which can stop the water supply.

Two further BA bottles (6 L / 300 bar) were fitted into the electronic equipment room.

Advantages:

1. No separate pressure container – the required water pressure is provided by the fire extinguishing centrifugal pump.
2. Higher air reserves leading to more shots
- 3 - Higher water supply at the hose,- quicker filling procedure
4. Sufficient water quantity for a "regular" POG-Hose when hoses were exchanged

As with all prototypes further modifications were required during the practical testing of the equipment.

For example:

- A minimum 90 mtr hose length is needed.
- Improved mounting and holding of the impulse gun.

- Displacement of the hose piece directly connected to the impulse gun.
- More stable airpressure connections between the hose piece and the impulse gun.
- The tracking (roll up)of the hose should be remounted reverse to its current position. This will prevent a folding of the hose to the gun.
- It was difficult to move coupling when changing the IFEX gun spray. This will need to be improved.
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5.Training:

The Impulse extinguishing equipment should not be used by untrained personnel.

Training comprises device attributes, handling and action tactics.

During the training at the Rotherbaum fire and rescue department the following real fire training scenarios using the impulse extinguishing equipment were realised

Car fires at the DASA- factory premises.

Tire fires at the DASA- factory premises.

Fire fighting training and flash over container at the F 05 training premises.

Fully involved room fires were simulated during prominent trail testing by the Fire brigade Frankfurt. The extinguishing exercise was carried out by trained and qualified fire fighters.

For the results of the test please refer to Appendix 1.

It is clear that the fire fighter needs to experience the new extinguishing principle firsthand by undertaking practical fire tests. This ensures that the fire fighters gains the needed experience in the handling of the extinguishing equipment. The use should be integrated in the LAMD-training of the LFS and also in the guard duty training.

6.Operational tactics:

The use of the IFEX- gun takes place analogue to the rapid attack hose. In case of **unknown** fire extent a second C-hose with extensions should be brought along for safety reasons. (HLF 2) At fire scenarios such as room fires the IFEX gun used by trained personnel is sufficient to extinguish the fire with only a small amount of water.

7.Conclusion:

The IFEX- Impulse- Extinguishing Technology has proved its usefulness at the at the Rotherbaum fire and rescue brigade.

It remains to be checked whether the IFEX gun should be mounted in the ELF with the rapid handling facilities.

This is a system decision and should be tested with correspondingly equipped HFL's in a long term trial phase.

In my opinion it is desirable to equip the ELW at the Rotherbaum fire and rescue brigade with IFEX technology. The Hamburg fire brigade should set the trend and obtain IFEX equipment considering the ever dwindling resources and a duty to take care of the environment as well as the avoidance of water damage. It is a fact that with frequently occurring fire scenario (room fires and car fires) a considerable reduction of water damage was established.

Claußen

Appendix 1 Test BF - Frankfurt
Appendix 2-5 Extinguishing system
Appendix 6 Reference list IFEX GmbH

-F 133-
WAF/V

20.06.2000

Note:

IFEX-3000 Test in Frankfurt am Main

The Frankfurt fire brigade is currently also testing the IFEX-3000- System. To get a general impression the fire station 5 conducted a number of tests. Four FURW Rotherbaum officials were invited to join the series of tests carried out by the FfM fire brigade. The tests which were carried out in former US barracks showed that the IFEX equipment functions extremely well. The test run was then compared to a high-pressure pump and a fog gun. Two equivalent living spaces were provided with identical fire loads (old furniture), after which the rooms were set a light and we waited until the rooms were fully ignited.

The high-pressure hose was used first. To insure a qualified statement the BF Frankfurt leading officer went in first with the A-Team.

When using the high-pressure hose the team had to **frequently** retreat due to the hot steam. Furthermore the bad visibility proved to be a hindrance, making orientation at times impossible for the team which led to a delay in fire fighting efforts. The water quantity used with the high-pressure hose was app. 200 Litre. When using the IFEX equipment a constantly good visibility in the burning room during the complete fire extinguishing effort was ensured. The room was relatively hot as well, though the temperature did not rise as high as it did when using the high pressure hose (steam). A retreat of the team was never an issue during the

whole test. The rapid cooling of the radiant heat inside and outside of the fireroom was impressive. The heat outside, where the observers were located, was tremendous, this radiant heat was eliminated after two to four shots. This was in total contrast to the fog gun. Added to this the used extinguishing water quantity of 40 litre, was a fifth of that used by the high-pressure hose.

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