

# Technical Sheet

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**Local stable extinguish device (LSED)  
ELECTRO, ENGINE, IT, TIR-AGRO**

### **TECHNICAL SHEET CONTENT:**

1. Technical description of device (LSED) – purpose
2. Separate parts of device ELECTRO, ENGINE, IT, TIR-AGRO
3. Performance parameters of LSED – calculation of concentration
4. Testing, testing chamber FM200

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## 1. Technical description of device (LSED) – purpose

Local exhausting stable device is used to extinguish fire in closed areas by extinguishing media FM 200.

Working pressure : FM 200 - up to 1,8 MPa

Extinguishing concentration : FM 200 - minimal - 6,9%  
- projected - 7,9%

Achieving extinguishing concentration – up to 10 seconds from beginning extinguishing media floatation.

Initiation of the device:

- fire-through of the polyamid tube

The extinguishing media will be fully used in any case.

## 2. Separate parts of the device FM 200

- **LSED FM 200**

- Pressure tube 400, 100, 2100, 4000 mm / B.A. Zlín, ČR /
- Extinguishing media FM 200 / Du Pont, USA /
- Pressure closure / SR /
- Ending closure / SR /
- Accessories – catches / SR /

### 3. Performance parameters of LSED – calculation of concentration

#### 1. Projection of stable extinguishing device with extinguishing media FM 200

List of used shortcuts and mathematical symbols:

AL	Atmospheric Lifetime
GWP	Global Warming Potential
HBFC	Soft halons – halon substitutions of I.-st category
HCFC	Soft freons – halon substitutions of II.-nd category
HFC	Halon substitutions of III.-rd category
LC <sub>50</sub>	Half of Lethal concentration
LOAEL	Lowest Observable Adverse Effect Level
MV SR	Department of Interior of the Slovak republic
MŽP SR	Department of Environment of the Slovak republic
NOAEL	No Observable Adverse Effect Level
OBJ.	Capacity, volume (from Slovak language „objem“)
ODP	Global Warming Potential
PPM	Perpartes pro million
STN	Slovak technical norm

#### 1.1 General description of extinguishing media FM 200

The extinguishing media FM 200, has chemical name hexafluorpropan, commercial name FM 200<sup>®</sup>, was invented and still produced by company DuPont nevertheless it has several producers now. It's basic properties:

- FM – 200<sup>TM</sup> ( hexafluorpropan ) is new extinguishing media substitutes halons
- It is clear, colorless, nonconducting gas, without no traces nor waste material after use
- It is usable into areas with presence of the people.
- It is installing to the areas, where is necessary to protect lives of the persons or to protect very expensive equipment, which has to stay unharmed.
- It is suitable for protecting IT or telecommunication devices, archives, data or works of art etc.  
Safe concentration is calculated by specialized software, to achieve in protected area concentration between 7 – 9% obj.
- Minimal tolerable concentration is 6%
- Real LSED has to release extinguishing media to the space through tube (or tubes) up to 10 seconds from activating the system
- After releasing the extinguishing media protected area has to be ventilated to the outer space directly or ventilated by stabile or mobile air condition.

Card of safety instructions (CSI) for FM 200 is part of technical documentation of LSED. Stable extinguishing devices (LSED) with this extinguishing media has to be in Slovak republic designed and constructed according to norms STN EN 150004 – 1 a – 5 (<sup>1</sup>) and also according with public note of Department of Labor, Social Security and family of Slovak republic No. 508/2009 Z.z., where are specified details for establishing safety and protection



#### **4. Testing, testing chamber FM 200**

- Dimension 1000 x 1000 x 1000 mm
- Volume of extinguishing space – 1 m<sup>3</sup>
- Testing fire - container 230 x 170 x 170 mm
- Gasoline 1L, water 2L
- Burning up – until detection tube is destructed/ 10 - 20 sec./
- Extinguishing – up to 10 sec.
- Extinguishing media FM 200 – with concentration 8,6% - 5kg
- Testing – 3 tests – if there are two successful tests in a row, then third is not executed