



# Centrum stavebního inženýrství a.s.

Fire Technical Laboratory

AUTHORIZED  
BODY No. 212

NOTIFIED  
BODY No. 1390

## CLASSIFICATION OF REACTION TO FIRE IN ACCORDANCE WITH ČSN EN 13501-1+A1:2010

**Applicant:** Dura-Line CT, s.r.o.  
U Písáku 682  
763 62 Tlumačov  
Czech Republic

**Prepared by:** Centrum stavebního inženýrství a.s.  
Pražská 16  
102 00 Praha 10  
Czech republic

**Product name:** *Product family protective pipes*

**Classification  
report No.:** PK-17-133

**Issue number:** 1/2

**Date of issue:** 20<sup>th</sup> November 2017

This classification report consists of 7 pages and may only be used or reproduced in its entirety.

Address:  
PRAŽSKÁ 16, 102 00 PRAHA 10, Czech Republic, E mail: csias@csias.cz, <http://www.csias.cz>  
Reg. No. 45274860, VAT No. CZ45274860. The Company is registered in the Commercial Register administered by the Municipal Court of Prague (section B, inset 1595).  
Fire Technical Laboratory, E-mail: ptl@csias.cz  
Phone: +420 281 017 111, Fax: +420 281 017 455

## 1. DETAILS OF CLASSIFIED PRODUCT

### Nature and end use application:

The product family is defined as a type of products for protecting of cables.

### Description:

The product *Product family includes plastic pipes of various diameter*. Tested products are fully described in the test reports in support of the classification listed in clause 2.

Product family contains following products:

Pipe MicroDuct 12/10 mm LSHF  
 Pipe DuraMicro 5/3,5 mm LSHF SILICORE  
 Pipe NOVOMICRO FRLSOH 12x1 mm  
 Pipe 5x0,5 mm FRLSOH UF  
 Pipe DuraDuct 40/33 mm SILICORE LSHF  
 Pipe DuraMicro DB 7/4 mm LSHF SILICORE  
 Pipe MicroDuct LSHF 7/5,5 mm

## 2. TEST REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

### 2.1 Test reports of Pipe MicroDuct 12/10 mm LSHF

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P623	ČSN EN ISO 11925-2
		17/440P624	ČSN EN 13823+A1

### 2.2 Measured values and test results of Pipe MicroDuct 12/10 mm LSHF:

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	48,0	$\leq 120$ (B)
	$LFS < \text{edge}$	3	yes	yes (B,C)
	$THR_{600s}$ (MJ)	3	2,0	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600s}$ ( $m^2$ )	3	20,6	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

**2.3 Test reports of Pipe DuraMicro 5/3,5 mm LSHF SILICORE**

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P625	ČSN EN ISO 11925-2
		17/440P626	ČSN EN 13823+A1

**2.4 Measured values and test results of Pipe DuraMicro 5/3,5 mm LSHF SILICORE:**

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	8,5	$\leq 120$ (B)
	LFS < edge	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	0,9	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	21,3	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

**2.5 Test reports of Pipe NOVOMICRO FRLSOH 12x1 mm**

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P627	ČSN EN ISO 11925-2
		17/440P628	ČSN EN 13823+A1

**2.6 Measured values and test results of Pipe NOVOMICRO FRLSOH 12x1 mm:**

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	70,1	$\leq 120$ (B)
	LFS < edge	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	2,2	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	30,2	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

**2.7 Test reports of Pipe 5x0,5 mm FRLSOH UF:**

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P629	ČSN EN ISO 11925-2
		17/440P630	ČSN EN 13823+A1

**2.8 Measured values and test results of Pipe 5x0,5 mm FRLSOH UF:**

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	0	$\leq 120$ (B)
	$LFS < edge$	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	0,6	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	23,1	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

**2.9 Test reports of Pipe DuraDuct 40/33 mm SILICORE LSHF:**

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P631	ČSN EN ISO 11925-2
		17/440P632	ČSN EN 13823+A1

**2.10 Measured values and test results of Pipe DuraDuct 40/33 mm SILICORE LSHF:**

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,4 MJ}$ (W/s)	3	114,0	$\leq 250$ (C)
	$LFS < edge$	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	10,6	$\leq 15$ (C)
	$SMOGRA$ ( $m^2/s^2$ )	3	7,5	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	76,4	$\leq 200$ (s2)
	flaming droplets / particles (s)	3	>20	>10 (d2)

**2.11 Test reports of Pipe DuraMicro DB 7/4 mm LSHF SILICORE:**

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P633	ČSN EN ISO 11925-2
		17/440P634	ČSN EN 13823+A1

## 2.12 Measured values and test results of Pipe DuraMicro DB 7/4 mm LSHF SILICORE:

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	97,4	$\leq 120$ (B)
	$LFS < \text{edge}$	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	2,0	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	25,7	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

## 2.13 Test reports of Pipe MicroDuct LSHF 7/5,5 mm:

Name of laboratory	Name of sponsor	Test report ref. no.	Test method
CSI a.s., Fire technical laboratory	Dura-Line CT, s.r.o.	17/440/P635	ČSN EN ISO 11925-2
		17/440P636	ČSN EN 13823+A1

## 2.14 Measured values and test results Pipe MicroDuct LSHF 7/5,5 mm:

Test method	Parameter	Number of test	Results	
			Continuous parameter mean (m)	Compliance parameters
ČSN EN ISO 11925-2 exposition = 30 s surface flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN ISO 11925-2 exposition = 30 s edge flame attack	$F_s \leq 150$ mm ignition of filter paper	6	yes	yes (B - D)
		6	no	no (d0)
ČSN EN 13823+A1	$FIGRA_{0,2 MJ}$ (W/s)	3	24,2	$\leq 120$ (B)
	$LFS < \text{edge}$	3	yes	yes (B,C)
	$THR_{600 s}$ (MJ)	3	1,4	$\leq 7,5$ (B)
	$SMOGRA$ ( $m^2/s^2$ )	3	0	$\leq 30$ (s1)
	$TSP_{600 s}$ ( $m^2$ )	3	25,3	$\leq 50$ (s1)
	no flaming droplets / particles	3	yes	yes (d0)

## 3. CLASSIFICATION AND DIRECT FIELD OF APPLICATION

### 3.1 Reference and direct field of application

This classification has been carried out in accordance with the clause 11.6, 11.5, 11.9.2, 11.9.3 and 11.10.1 of ČSN EN 13501-1+A1:2010.

### 3.2 Classification

#### 3.2.1 Classification of products

**Pipe MicroDuct 12/10 mm LSHF,  
 Pipe DuraMicro 5/3,5 mm LSHF SILICORE,  
 Pipe NOVOMICRO FRLSOH 12x1 mm,  
 Pipe 5x0,5 mm FRLSOH UF,  
 Pipe DuraMicro DB 7/4 mm LSHF SILICORE,  
 Pipe MicroDuct LSHF 7/5,5 mm**

The products listed above, in relation to their reaction to fire behaviour are classified:

**B**

The additional classification in relation to smoke production is:

**s1**

The additional classification in relation to flaming droplets/particles is:

**d0**

The format of the reaction to fire classification is:

Fire behaviour		Smoke production				Flaming droplets	
B	-	s	1	,	d	0	

**Reaction to fire classification: B-s1, d0**

#### 3.2.2 Classification of the product Pipe DuraDuct 40/33 mm SILICORE LSHF

The product **Pipe DuraDuct 40/33 mm SILICORE LSHF**, in relation to its reaction to fire behaviour are classified:

**C**

The additional classification in relation to smoke production is:

**s2**

The additional classification in relation to flaming droplets/particles is:

**d2**

The format of the reaction to fire classification is:

Fire behaviour		Smoke production				Flaming droplets	
C	-	s	2	,	d	2	

**Reaction to fire classification: C-s2, d2**

### 3.3 Field of application

Classification is valid for the following end use conditions:

- Product fixed vertically or horizontally on substrates of reaction to fire class A1 or A2.
- Fixing of more pipes: valid for spacing between pipes at least 850 mm.

## 4. LIMITATIONS

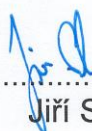
### Restrictions

This classification report is valid, provided that the technical specifications of the product will not be changed.

### Warning

This document does not represent type approval or certification of the product.

Prepared:



Jiří Socha



Reviewed:



Vít Slaboch  
technical manager of laboratory