

## Fire Test Report

valid for

**Single bossed clamp  
3/8 “ up to 170mm  
with / without lining**

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# TEST REPORT

## Short form

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## English version

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<b>Client:</b>	MÜPRO Services GmbH Hessenstraße 11  D-65719 Hofheim-Wallau
<b>Date of order:</b>	17.09.2013
<b>Validity:</b>	not limited in time
<b>Content:</b>	Extract from test reports no. 210006292-1, 210006292-2, 210006370-1 and 210006533-2 of MÜPRO single bossed clamps SRS size 3/8" to 170 mm with <b>DÄMMGULAST® yellow</b> lining together with threaded rods $\geq$ M 10 (strength class $\geq$ 4.6) loaded by centric tension.
<b>Fire test:</b>	The MÜPRO single bossed clamps of size 3/8" to 170 mm were exposed to fire according to DIN EN 1363-1 on 30.11.2012, 11.12.2012, 27.03.2013 and 11.12.2013 in the fire testing laboratory of MPA NRW. The loadbearing capability and the deflection of MÜPRO single bossed clamps SRS was determined in dependence of the testing duration.
<b>Application:</b>	The required minimum distances $a_{min}$ on installations in the intermediate ceiling area of suspended, fire safety relevant ceiling constructions between the top of the ceiling and the bottom of the clamps can be defined according to the drawing on page 3 and the details given in the tables in clause 2 by the determined deflection measurements of MÜPRO single bossed clamps SRS.

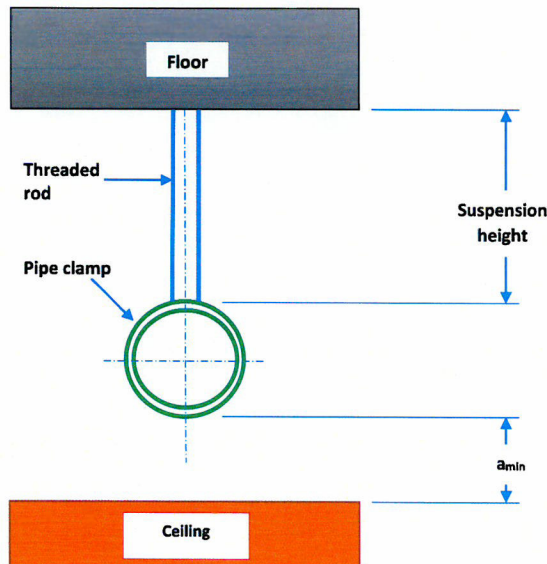
## 1 Fire resistance

According to the test results stated in the test reports no. 210006292-1, 210006292-2, 210006370-1 and 210006533-2 fire resistance durations (loadbearing capability of the clamps in dependence on time) can be assigned to MÜPRO single bossed clamps SRS (with lining) sizes 3/8" to 170 mm.

	Fire resistance duration in minutes:			
	30	60	90	120
	max. F	max. F	max. F	max. F
Dimensions:	[kN]	[kN]	[kN]	[kN]
3/8"	0.9	0.55	0.3	0.2
1/2"				
3/4"				
1"				
40 mm				
1 1/4"				
1 1/2"				
57 mm				
2"	0.85	0.7	0.4	0.25
65 mm				
70 mm				
2 1/2"				
83 mm				
3"				
102 mm				
110 mm				
4"				
125 mm				
133 mm	1.15	0.7	0.55	0.4
5"				
144 mm				
150 mm				
160 mm				
6"				
170 mm				

## 2 Deflection

The following drawing shows the application of MÜPRO single bossed clamps of sizes 3/8" to 170 mm in the intermediate ceiling area of suspended ceiling constructions with a minimum distance  $a_{min}$ , for which a fire resistance classification is required. In the shown deflections  $a_{min}$  according to the underlying fire tests, 10 mm additional distance, each, is included for security reasons.



### 2.1 MÜPRO single bossed clamps SRS 3/8" to 2" (with lining) Deflection in the 30<sup>th</sup> minute, load: 0.90 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	$a_{min}$ [mm]			
3/8"	14-20	52	55	59	62
1/2"	21-26	53	57	60	63
3/4"	26-30	55	58	61	65
1"	31-38	56	59	62	66
40 mm	35-42	57	60	64	67
1 1/4"	40-47	58	62	65	68
1 1/2"	48-54	60	63	66	70
57 mm	54-60	61	64	67	71
2"	60-66	62	65	69	72



## 2.2 MÜPRO single bossed clamps SRS 3/8" to 2" (with lining)

Deflection in the 60<sup>th</sup> minute, load: 0.55 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
3/8"	14-20	41	44	48	51
1/2"	21-26	42	46	49	52
3/4"	26-30	44	47	50	54
1"	31-38	45	48	51	55
40 mm	35-42	46	49	53	56
1 1/4"	40-47	47	51	54	57
1 1/2"	48-54	49	52	55	59
57 mm	54-60	50	53	56	60
2"	60-66	51	54	58	61

## 2.3 MÜPRO single bossed clamps SRS 3/8" to 2" (with lining)

Deflection in the 90<sup>th</sup> minute, load: 0.30 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
3/8"	14-20	22	25	29	32
1/2"	21-26	23	27	30	33
3/4"	26-30	25	28	31	35
1"	31-38	26	29	32	36
40 mm	35-42	27	30	34	37
1 1/4"	40-47	28	32	35	38
1 1/2"	48-54	30	33	36	40
57 mm	54-60	31	34	37	41
2"	60-66	32	35	39	42

## 2.4 MÜPRO single bossed clamps SRS 3/8" to 2" (with lining)

Deflection in the 120<sup>th</sup> minute, load: 0.20 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
3/8"	14-20	13	16	20	23
1/2"	21-26	14	18	21	24
3/4"	26-30	16	19	22	26
1"	31-38	17	20	23	27
40 mm	35-42	18	21	25	28
1 1/4"	40-47	19	23	26	29
1 1/2"	48-54	21	24	27	31
57 mm	54-60	22	25	28	32
2"	60-66	23	26	30	33

## 2.5 MÜPRO single bossed clamps SRS 65 mm to 133 mm (with lining)

Deflection in the 30<sup>th</sup> minute, load: 0.85 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
65 mm	63-68	34	37	41	44
70 mm	68-73	35	38	42	45
2 1/2"	73-80	36	40	43	46
83 mm	82-87	37	41	44	47
3"	87-94	38	42	45	48
102 mm	99-104	40	43	46	50
110 mm	105-112	41	44	47	51
4"	112-118	42	45	48	52
125 mm	122-128	43	46	50	53
133 mm	132-137	44	47	51	54

## 2.6 MÜPRO single bossed clamps SRS 65 mm to 133 mm (with lining) Deflection in the 60<sup>th</sup> minute, load: 0.70 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
65 mm	63-68	64	67	71	74
70 mm	68-73	65	68	72	75
2 1/2"	73-80	66	70	73	76
83 mm	82-87	67	71	74	77
3"	87-94	68	72	75	78
102 mm	99-104	70	73	76	80
110 mm	105-112	71	74	77	81
4"	112-118	72	75	78	82
125 mm	122-128	73	76	80	83
133 mm	132-137	74	77	81	84

## 2.7 MÜPRO single bossed clamps SRS 65 mm to 133 mm (with lining) Deflection in the 90<sup>th</sup> minute, load: 0.40 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
65 mm	63-68	30	33	37	40
70 mm	68-73	31	34	38	41
2 1/2"	73-80	32	36	39	42
83 mm	82-87	33	37	40	43
3"	87-94	34	38	41	44
102 mm	99-104	36	39	42	46
110 mm	105-112	37	40	43	47
4"	112-118	38	41	44	48
125 mm	122-128	39	42	46	49
133 mm	132-137	40	43	47	50



## 2.8 MÜPRO single bossed clamps SRS 65 mm to 133 mm (with lining) Deflection in the 120<sup>th</sup> minute, load: 0.25 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
65 mm	63-68	11	14	18	21
70 mm	68-73	12	15	19	22
2 1/2"	73-80	13	17	20	23
83 mm	82-87	14	18	21	24
3"	87-94	15	19	22	25
102 mm	99-104	17	20	23	27
110 mm	105-112	18	21	24	28
4"	112-118	19	22	25	29
125 mm	122-128	20	23	27	30
133 mm	132-137	21	24	28	31

## 2.9 MÜPRO single bossed clamps SRS 5" to 170 mm (with lining) Deflection in the 30<sup>th</sup> minute, load: 1.15 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
5"	137-142	75	78	82	85
144 mm	142-148	77	80	84	87
150 mm	149-156	79	82	86	89
160 mm	159-164	81	84	88	91
6"	164-169	83	86	90	93
170 mm	169-172	85	88	92	95

## 2.10 MÜPRO single bossed clamps SRS 5" to 170 mm (with lining) Deflection in the 60<sup>th</sup> minute, load: 0.70 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
5"	137-142	40	43	47	50
144 mm	142-148	42	45	49	52
150 mm	149-156	44	47	51	54
160 mm	159-164	46	49	53	56
6"	164-169	48	51	55	58
170 mm	169-172	50	53	57	60



## 2.11 MÜPRO single bossed clamps SRS 5" to 170 mm (with lining) Deflection in the 90<sup>th</sup> minute, load: 0.55 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
5"	137-142	61	64	68	71
144 mm	142-148	63	66	70	73
150 mm	149-156	65	68	72	75
160 mm	159-164	67	70	74	77
6"	164-169	69	72	76	79
170 mm	169-172	71	74	78	81

## 2.12 MÜPRO single bossed clamps SRS 5" to 170 mm (with lining) Deflection in the 120<sup>th</sup> minute, load: 0.40 kN

		Suspension height [mm]			
		250	500	750	1000
Size	Clamping range [mm]	a <sub>min</sub> [mm]			
5"	137-142	27	30	34	37
144 mm	142-148	29	32	36	39
150 mm	149-156	31	34	38	41
160 mm	159-164	33	36	40	43
6"	164-169	35	38	42	45
170 mm	169-172	37	40	44	47

### **3 Special information**

#### **3.1 Dimensions**

The assessment of MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm made of galvanized steel is valid for floor-sided mounting by threaded rods (galvanized)  $\geq$  M10 (strength class  $\geq$  4.6), U-washers and screw nuts  $\geq$  M10 (each made of galvanized steel).

#### **3.2 Restrictions**

The assessment of MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm is not valid for the application on cable systems for which a proof of functionality is requested according to DIN 4102-12:1998-11. Proofs on basis of fire tests are required for such applications.

#### **3.3 Application non-combustible pipes**

MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm may also be used for fastening of non-combustible pipes.

#### **3.4 Application combustible pipes**

In case of fastening of combustible pipes with an outer diameter of  $\leq$  160 mm by MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm the pipes have to be additionally equipped over the entire length with pipe shells with the appropriate fire resistance classification on basis of "allgemeine bauaufsichtliche Prüfzeugnisse".

#### **3.5 Application in the intermediate ceiling area**

In case of application of MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm in the area of the intermediate ceiling of suspended ceiling constructions with fire resistance classification a minimum distance  $a_{\min}$  is determined between the top of the ceiling and the bottom of the clamps according to the drawing on page 3 and the details given in the tables in clause 2.

By keeping the minimum distances  $a_{\min}$  of the above-mentioned MÜPRO single bossed clamps SRS (with lining) together with threaded rods the ceiling construction is not influenced in case of fire exposure due to the vertical deflections caused by the temperature.

#### **3.6 Suspension height**

For reasons concerning fire protection the suspension height of MÜPRO single bossed clamps SRS (with lining) of size 3/8" to 170 mm in conjunction with the fastenings listed in clause 3.1 has to be restricted to a maximum of 1000 mm.

### 3.7 Material of the single bossed clamps / threaded rods

The materials of the single bossed clamps and the threaded rods made of galvanized steel may also consist alternatively of stainless steel in A2 or A4 quality.

### 3.8 Single bossed clamps with linings

MÜPRO single bossed clamps SRS (with lining) of sizes 3/8" to 170 mm may alternatively be equipped with the below linings:

DÄMMGULAST® lining yellow  
or DÄMMGULAST® lining red, high temperature resistance up to 225°C  
or DÄMMGULAST® lining blue, flame resistant  
or DÄMMGULAST® lining green.

### 3.9 Single bossed clamps without linings

MÜPRO single bossed clamps SRS of sizes 3/8" to 170 mm may be alternatively used without lining.


### 3.10 Validity of the test report

The validity of the test report is not limited in time.

**This English version of the test report is issued additionally to the test report in German language with the same report number. In case of doubt the German version is valid solely.**

Erwitte, 10 December 2014

On behalf  
Head of fire resistance laboratory

  
Dipl.-Phys. Pennings



Engineer in charge

  
Dipl.-Ing. Heinrich Kötter

Date of issue of this English version: 20 January 2015