

Düker

DRAINAGE TECHNOLOGY



Fire protection coupling BSV 90

The easiest solution for cast iron pipe penetrations
through fire-rated ceilings



new

BSV 90 – The First Fire Protection Coupling for Cast Iron Pipes

Why fire protection for cast iron pipelines?

Pipe penetrations through fire-rated ceilings have to prevent any fire spreading for at least the indicated duration of time in order to give the inhabitants sufficient time to escape.

Building practice has been showing for many years that cast iron drainage pipe systems offer optimal safety in a fire. There is no upward or downward transmission of fire through or along the pipeline. Furthermore, Düker cast iron pipe systems do not emit toxic gas or smoke (European reaction to fire classification A1 as per EN 13501-1).

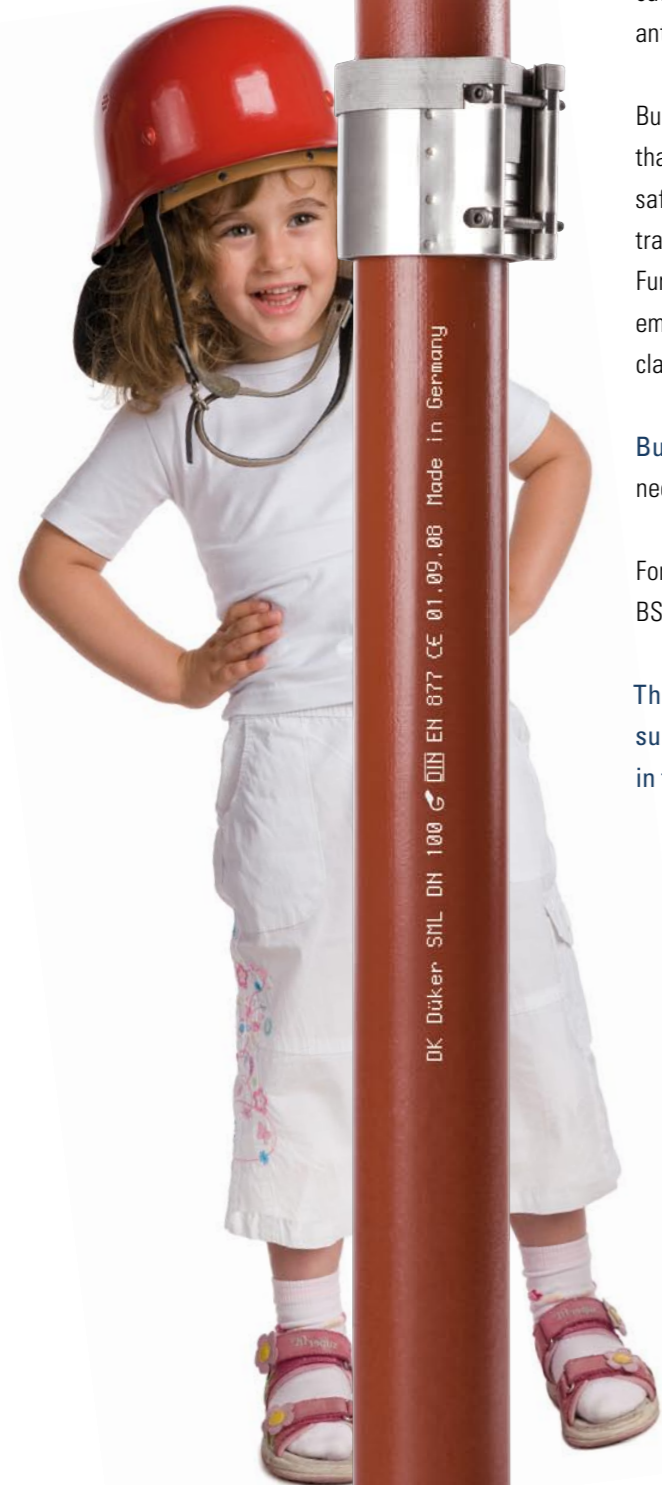
But: cast iron transmits heat – a hazard that needs to be eliminated.

For this reason our specialists have developed the BSV 90.

This is the first time that a single coupling succeeds in preventing the heat transmission in the pipeline.

The advantages of BSV 90 for cast iron drainage pipe systems

- **No fire transmission**
Cast iron is a non-combustible material.
- **No smoke formation**
The outside materials do not form any gas; therefore Düker SML pipelines have received the European "reaction to fire" classification A1 as per EN 13501-1.
Any gas building up in the pipeline is kept within by the expanding intumescence material.
- **No heat transmission**
The cast iron pipe pieces are insulated thermally from each other.
- **No chimney effect**
The pipe diameter and the gap around the pipe are closed in the event of fire, the future test requirements as per EN 1366-3 have been fulfilled in various fire tests.
- **No installation problems**
The installation corresponds to that of a normal coupling, the pipeline shape is hardly restricted. The fire-rated ceiling penetration requires hardly more room than a normal penetration.

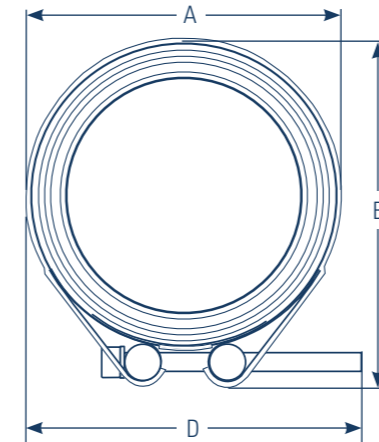
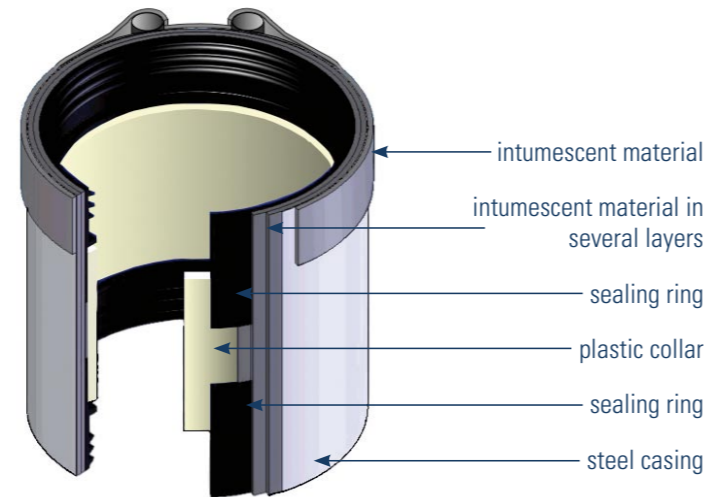


BSV 90 – Operation and Technical Details

The construction of the BSV 90

A short collar made of PE is equipped with EPDM sealing rings on both sides. These sealing rings can be pushed onto cast iron pipelines. Around the PE collar and the sealing rings, there are several layers of intumescent material.

The whole is contained by a stable metal casing. An additional strip of intumescent material on the outside of the metal casing guarantees that the ceiling penetration is completely closed down in case of a fire.



DN	A _≈	B _≈	C	D _≈	ceiling perforation _≈
80	106	115	135	125	160
100	133	145	135	140	180
125	160	175	150	155	200
150	188	198	150	170	240

all dimensions in mm

This is how the BSV 90 works

Inside the fire protection coupling, the cast iron pipeline is interrupted by a plastic collar. The intumescent material around it multiplies its volume in case of a fire. The heat of a fire makes the plastic collar melt away and the intumescent material expand. The result: the pipe is obstructed completely.

The expanded material assures a thermal insulation. Therefore it prevents excessive heat transmission and prevents any possible chimney effect.

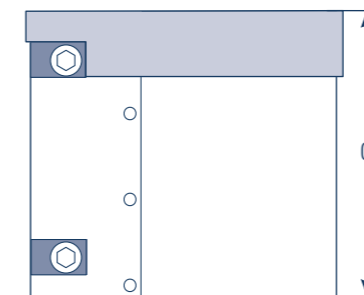
Fire protection coupling in the fire test



Before the fire test (below the ceiling)



After the test (pipeline obstructed by the intumescent material)



The future test standard EN 1366-3

For years already the EN 1366-3 „Fire resistance tests for service installations - Part 3: Penetration seals” has been in preparation. The test assembly includes a higher number of different variations than before as well as a higher test pressure. All pipe sealing systems will have to pass this test in the future in order to be approved.

Approval

The Düker BSV 90 has been tested against EN 1366-3 and has been approved with certificate no. Z.19.19-1893 by DIBt Berlin for the sealing of ceiling penetrations in the event of fire; it is a building product with a fire rating of 90 minutes (EI 90).

It is suitable for the penetration of vertical cast iron pipelines through ceilings made of concrete, armoured concrete or cellular concrete (fire rated at least 90 minutes) of a thickness of at least 15 cm.

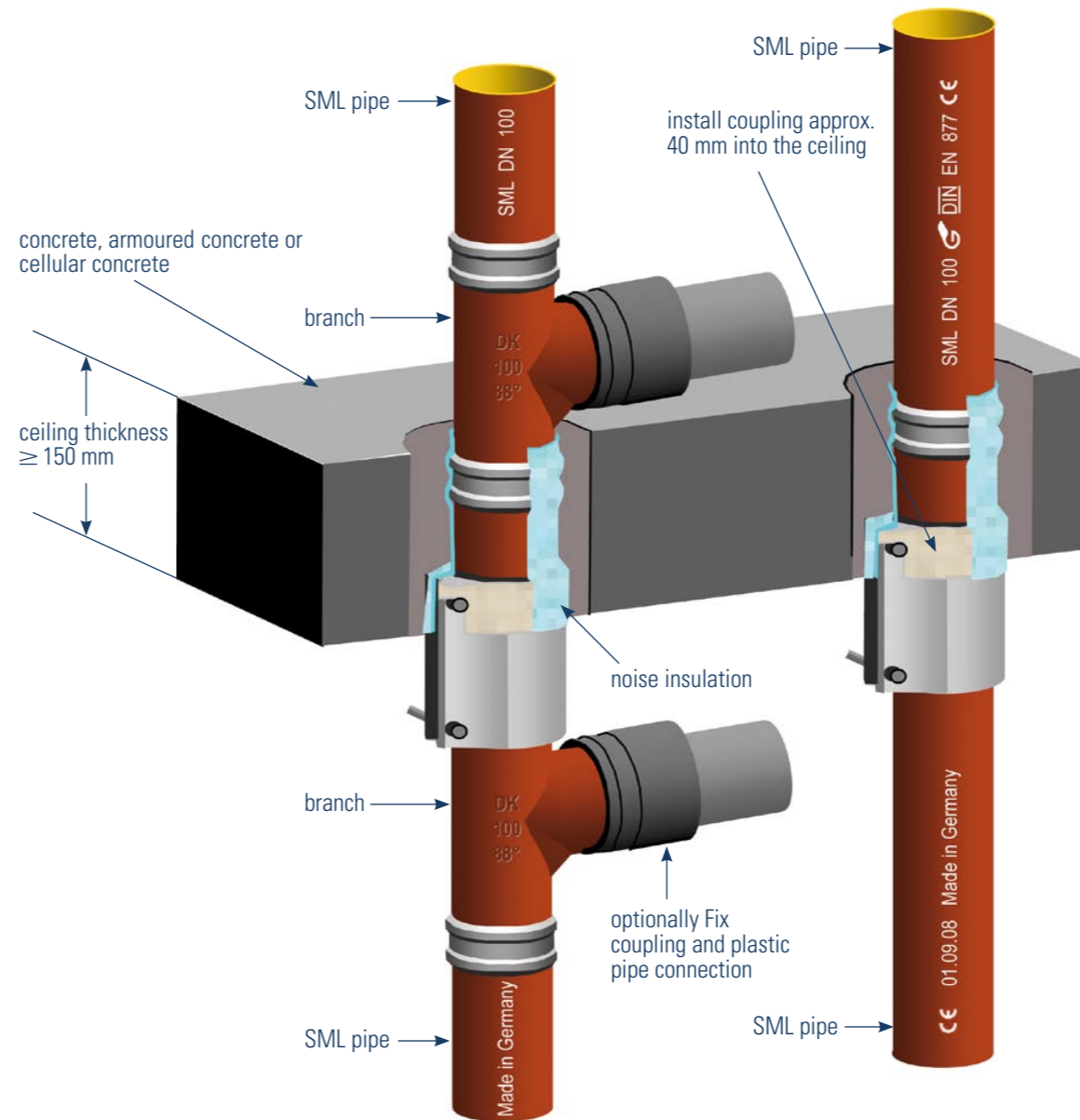
BSV 90 – Child's Play Assembly and Flexible Installation

Assembly

The fire protection coupling BSV 90 must be installed in vertical penetrations so that only the upper 40 mm protrude into the ceiling. This ensures that the intumescent material is sufficiently subject to heat in the event of fire, while the cast iron pipe connected above is protected from excessive heat by the ceiling.

Except for the usual noise insulation - made of normal combustibility PE cellular material - no additional measures need to be taken.

Fittings and connections to other materials above and below the ceiling can be installed at choice.



Flexible installation

Thanks to the intumescent strip fixed to the outside, which safely closes down the gap around the pipe, a sound insulation of normal combustibility (class B2) can be used.

The inferior outside diameter and height of the BSV 90 hardly impair the pipeline shape - branches and bends can be installed both above and below the ceiling without problems. The branch above the ceiling can be placed just as low as if there was no sealing.

The safe thermal insulation also allows to connect a plastic pipeline above the ceiling without trouble - branch and Fix coupling can be integrated into the down pipe as usual.

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