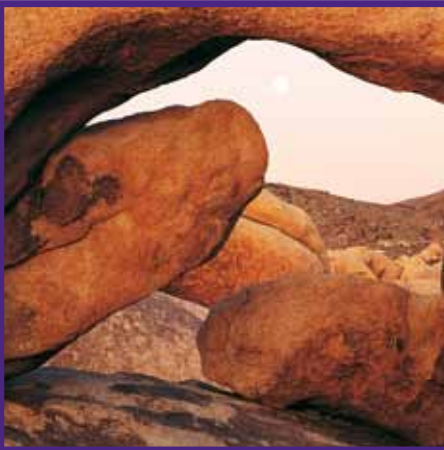
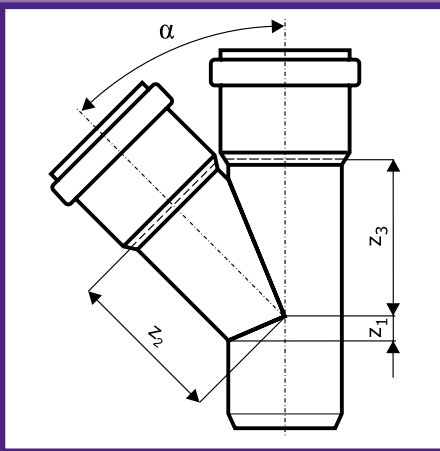




Skolan dB
Soundproof Pipe System

Skolan dB

Silence is an important essential of human living. Only seldom we experience true silence in our surroundings. It is precisely this pleasant quietness which distinguishes the Skolan dB discharge system from others.





Benefits and
Advantages of
the System

Material Properties

Don't give noise a chance!

Skolan dB meets the maximum requirements of the enhanced Sound Insulation Class III of DIN 4109 and VDI 4100. During tests carried out at the Fraunhofer Institut für Bauphysik in Stuttgart in 2010 Skolan dB demonstrated its excellent sound absorbing properties under practical installation conditions - measured according to Test Reports P-BA 63/2010 with commercial pipe clamps.

- **WALL THICKNESS = QUIETNESS = PLEASANTNESS OF LIVING**
- **VALUE 20 DB (A) ACC. TO DIN 4109 AND VDI 4100**

Strength and stability

Skolan dB is long-lasting, corrosion-proof and provides resistance to aggressive waste water. There are no incrustations thanks to the smooth surface. It is available from dimensions DN 56 to DN 200. The reliable push-fit connection makes the system easy to install and fulfils all requirements.

- **CORROSION-PROOF**
- **EASY-TO-INSTALL**

Quality guarantee

Our Skolan dB pipes and fittings are quality labelled and are subject to constant quality checks. We run a certificated quality management system based on DIN EN ISO 9001, Reg. No. 289722-QMO 8, environment ISO : 14001 : 2004.

- **DIN EN ISO 9001**
- **CONSTANT QUALITY CHECKS**

Quality of living

Skolan dB fulfils the ecological and economical expectations particularly in the matter of raised demands in housing and decisively contributes to raising the quality of living and increasing the value of property.

- **INCREASES THE PROPERTY VALUE**
- **FULFILS ECONOMIC AND ECOLOGICAL CRITERIA**

Just trust what you hear

The unique low-noise Skolan dB system is a top quality product made of mineral-reinforced polypropylene. This base material provides Skolan dB with excellent mechanical and acoustic properties. It thus has those ideal requirements to be used in a pioneering way in any area of building construction (including houses, blocks of flats, industrial buildings, hospitals and hotels).

- **FOR USE IN ALL AREAS OF BUILDING CONSTRUCTION**
- **EXCELLENT MECHANICAL AND ACOUSTIC PROPERTIES**

Sound development in the waste water pipe

Impact and flow noises are responsible for airborne and structure-borne sounds developing at piping walls. For instance, the impacting of waste water, which can reach relatively high speeds, induces noise at many points such as bends, pipe branches and collecting pipes. The biggest problem facing building engineering is with the transfer of structure-borne sound at the point of pipe fixing and where the pipes are installed in walls and ceilings.

- **AIRBORNE NOISE**
- **STRUCTURE-BORNE NOISE**

Skolan dB stops noise

Skolan dB - the original soundproof pipe system – is a sound-absorbing, hot water resistant pipe system suitable for all pressureless waste water pipes in acc. with DIN EN 12056 and DIN 1986-100. The fact that pipes and fittings are made of mineral-reinforced polypropylene ensures continuous sound insulation. Thanks to the molecular structure and the high density of 1.6g / cm³ (+/- 0,05) for pipes and fittings, both the airborne and structure-borne sounds can be dampened.

- **EXTREMELY SOUND ABSORBING**
- **STOPS SOUNDS BEING TRANSFERRED**



Skolan dB

Soundproof Pipe System

Description

Discharge pipes and fittings of mineral-reinforced polypropylene. The requirements of DIN EN 1451-1 in association with DIN 19560-10 apply. Production acc. to Z-42.1-217.

Application

In view of the excellent mechanical and acoustic properties, this system is suitable for all fields of building construction.

Colour

Light grey RAL 7035.

Nominal diameter

56, 70, 90, 100, 125, 150 and 200 mm.

Chemical resistance

Discharge of aggressive media in the range of pH 2 to pH 12
– see chapter Chemical resistance page 124ff.

Use in central vacuum cleaning systems

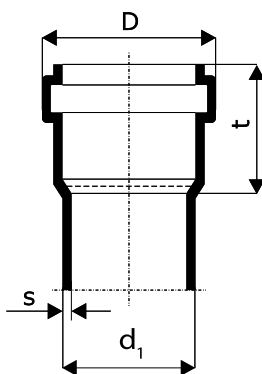
Ostendorf Skolan dB has been authorised by the Staatliche Materialprüfungsanstalt Darmstadt for use in central vacuum cleaning systems. Maximum continuous vacuum negative pressure load: DN 56 to DN 150 0.5 bar.

Quality assurance

Skolan dB pipes and fittings are quality labelled and are subject to constant quality controls. Quality management according to DIN EN ISO 9001, environment.

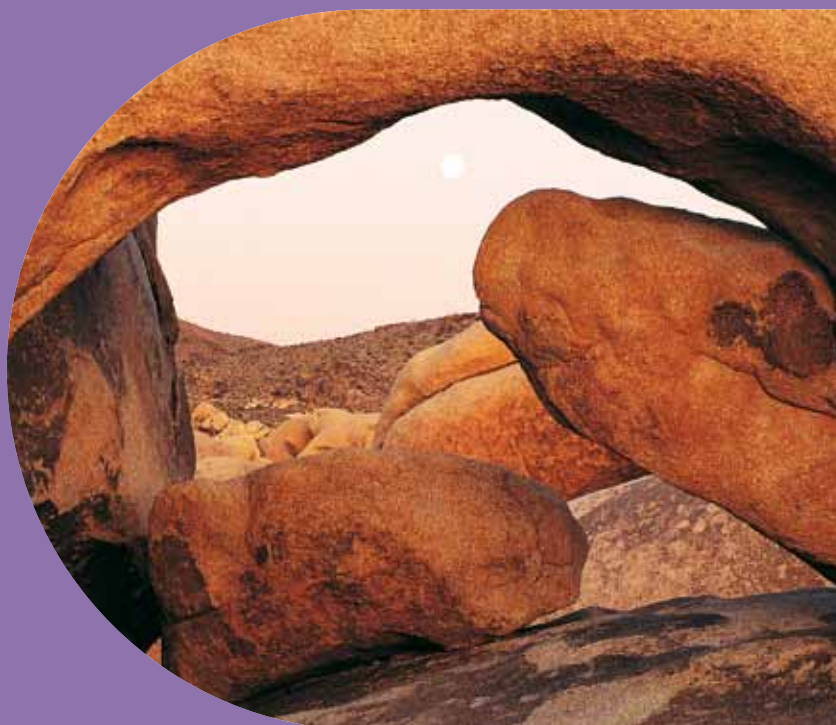
Associated documents

- Laying instruction of KRV e.V. Bonn
- List of the mechanical and thermal properties

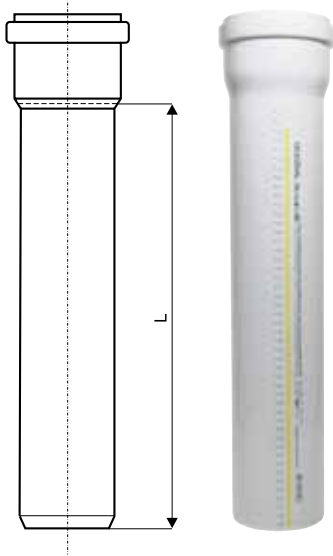


DN(OD)	d_1	s [mm]	D [mm]	t [mm]
56	58	4,0	76	55
70	78	4,5	97	61
90	90	4,5	110	55
100	110	5,3	132	76
125	135	5,3	158	61
150	160	5,3	185	64
200	200	6,2	234	123

Product range
Skolan dB

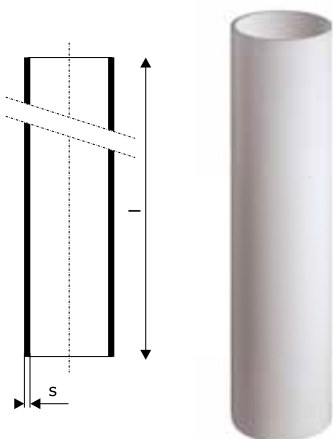


Skolan – Pipe



SKEM – Single socket pipe (push-fit)

No.	DN	L [mm]	Unit
332000	56	150	4/660
332010	56	250	4/440
332020	56	500	4/220
332040	56	1000	1/114
332060	56	2000	1/114
333000	70	150	4/360
333010	70	250	4/240
333020	70	500	4/152
333040	70	1000	1/70
333060	70	2000	1/70
334000	90	150	4/224
334010	90	250	4/168
334020	90	500	4/100
334040	90	1000	1/60
334060	90	2000	1/60
335000	100	150	4/180
335010	100	250	4/120
335020	100	500	2/78
335040	100	1000	1/40
335060	100	2000	1/40
336000	125	150	1/120
336010	125	250	1/96
336020	125	500	1/48
336040	125	1000	1/24
336060	125	2000	1/24
337000	150	150	1/84
337010	150	250	1/48
337020	150	500	1/35
337040	150	1000	1/21
337060	200	2000	1/21
338000	200	150	1/45
338010	200	250	1/30
338020	200	500	1/20
338040	200	1000	1/15
338060	200	2000	1/15



SKGL – Plain ended pipe

No.	DN	s [mm]	l [mm]	Unit
332080	56	4,0	3000	1/114
333080	70	4,5	3000	1/70
334065	90	4,5	2000	1/60
334080	90	4,5	3000	1/60
335080	100	5,3	3000	1/40
336080	125	5,3	3000	1/24
337080	150	5,3	3000	1/21
338080	200	6,2	3000	1/15

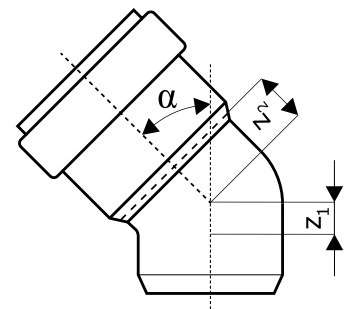
Skolan – Fitting

SKB – Bend 15°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
332100	56	15°	6	8	4/1000
333100	70	15°	7	11	4/600
334100	90	15°	9	12,5	4/500
335100	100	15°	6	14	4/300
336100	125	15°	10	16	4/192
337100	150	15°	24	19	4/100
338100	200	15°	15	31	1/40

SKB – Bend 30°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
332110	56	30°	10	15	4/1000
333110	70	30°	12	15	4/600
334110	90	30°	13	18,5	4/480
335110	100	30°	17	21	4/300
336110	125	30°	20	24,5	4/160
337110	150	30°	24	34	4/100
338110	200	30°	29	46	1/40



SKB – Bend 45°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
332120	56	45°	14	16	4/1000
333120	70	45°	18	31	4/600
334120	90	45°	20	25,5	4/400
335120	100	45°	25	29	4/240
336120	125	45°	30	34	4/140
337120	150	45°	37	45	4/60
338120	200	45°	46	57	1/38



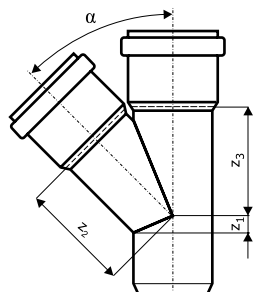
SKB – Bend 67°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
332130	56	67°	23	21	4/880
333130	70	67°	28	31	4/500
335130	100	67°	40	44	4/200

SKB – Bend 87°

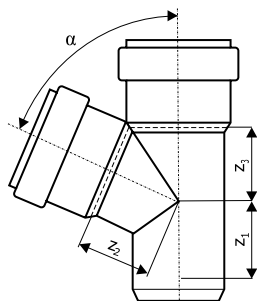
No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
332140	56	87°	32	35	4/880
333140	70	87°	40	43	4/480
334140	90	87°	46	49,4	4/320
335140	100	87°	69	70,5	4/220
336140	125	87°	96	102	4/96
337140	150	87°	84	91	2/60

SKEA – Branch 45°



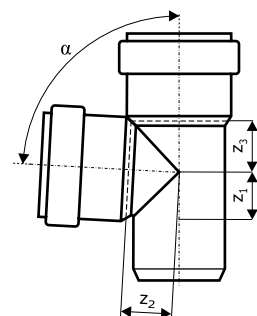
No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
332200	56/56	45°	13	74	74	4/60
333210	70/56	45°	3	88	85	4/320
333200	70/70	45°	20	98	98	4/260
334220	90/56	45°	3	97	84	4/264
334210	90/70	45°	12	105	103	4/216
334200	90/90	45°	20	110	110	4/180
335220	100/56	45°	17	108	95	4/180
335210	100/70	45°	6	122	115	4/140
335200	100/100	45°	25	136	136	4/100
336210	125/100	45°	11	155	152	2/70
336200	125/125	45°	49	169	169	2/56
337210	150/100	45°	2	168	159	2/46
337200	150/150	45°	36	194	194	2/28
338210	200/150	45°	19	221	218	1/20
338200	200/200	45°	46	244	244	1/15

SKEA – Branch 67°



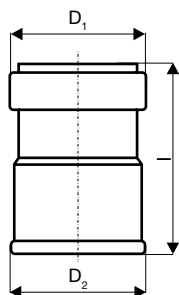
No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
332300	56/56	67°	22	45	45	4/500
333310	70/56	67°	18	55	51	4/360
333300	70/70	67°	29	61	61	4/280
335320	100/56	67°	21	73	57	4/180
335310	100/70	67°	22	81	67	4/140
335300	100/100	67°	40	84	84	4/120

SKEA – Branch 87°



No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
332400	56/56	87°	33	34	34	4/500
333410	70/56	87°	32	43	32	4/360
333400	70/70	87°	40	43	43	4/320
334420	90/56	87°	32	48	31	4/320
334410	90/70	87°	43	49	40	4/240
334400	90/90	87°	56	70	51	4/160
335420	100/56	87°	28	60	32	4/200
335410	100/70	87°	40	60	45	4/160
335400	100/100	87°	57	59	59	4/140
336410	125/100	87°	70	73	72	4/80
336400	125/125	87°	70	72	72	2/80

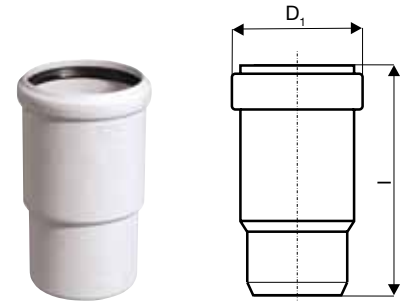
SKAM – Single socket



No.	DN	D_1 [mm]	D_2 [mm]	l [mm]	Unit
332810	56	74	79	117	4/1000
333810	70	95	100	119	4/640
334810	90	108	110	120	4/416
335810	100	129	132	124	4/300
336810	125	156	159	142	4/160
337810	150	183	184	144	4/120
338810	200	235	225	228	1/45

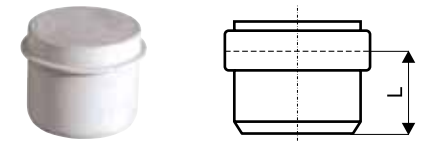
SKL – Long socket

No.	DN	D ₁ [mm]	l [mm]	Unit
335930	100	110	196	4/200



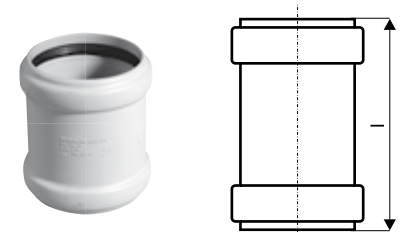
SKM – Plug

No.	DN	L [mm]	Unit
332620	56	49	4/2380
333620	70	52	4/1372
334620	90	38	4/720
335620	100	57	4/720
336620	125	60	4/376
337620	150	49	4/260
338620	200	84	1/160



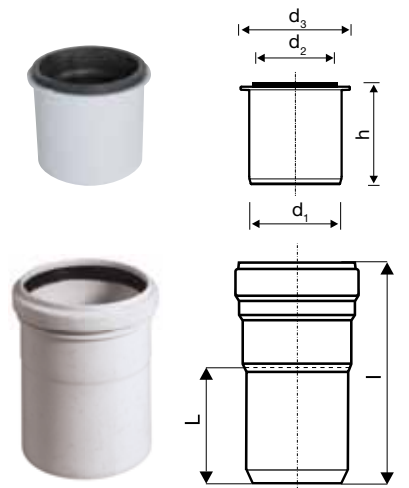
SKU – Coupler

No.	DN	l [mm]	Unit
332500	56	105	4/1100
333500	70	107	4/640
334500	90	98	4/320
335500	100	125	4/300
336500	125	123	4/180
337500	150	129	4/96
338500	200	239	1/54



Connection to HT

No.	DN	L [mm]	l [mm]	Unit
332820	56	50	52	4/2200
333820	70	59	112	4/800

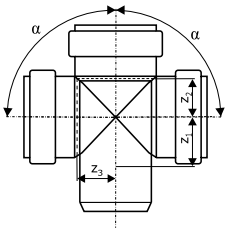


Connection to HT/KG*

No.	DN	L [mm]	l [mm]	Unit
336820	125	64	255	4/200

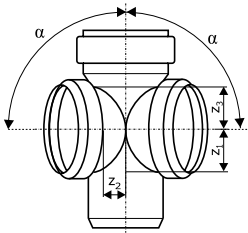


* (delivered with socket DN 125)



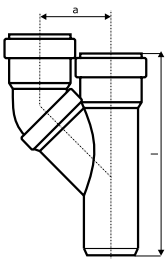
SKDA – Double branch 87°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
334900	90/90/90	87°	46	51	51	1/121
335900	100/100/100	87°	56	60	60	4/80



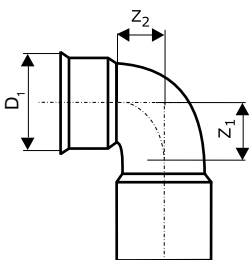
SKED – Double corner branch 87°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
335910	100/100/100	87°	59	73	62	1/72



SKPA – Parallel branch

No.	DN	z_1 [mm]	a [mm]	l [mm]	Unit
335920	100/100	199,5	129	320	2/90

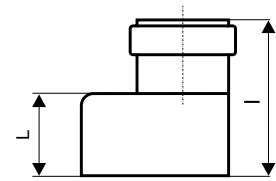


SKSW – Siphon bend 90° (Gasket for siphon bend see Accessories)

No.	DN	D_1 [mm]	z_1 [mm]	z_2 [mm]	Unit
335940	56/40	50	30,5	25	4/1200

SKR – Reducer, eccentric

No.	DN	l [mm]	L [mm]	Unit
333710	70/56	102	60	4/1000
334720	90/56	84	65	4/864
334710	90/70	105	60	4/800
335720	100/56	102	61	4/800
335710	100/70	102	61	4/800
335700	100/90	127	58	4/540
336710	125/110	133	90	4/240
337710	150/100	195	100	4/240
337700	150/125	190	100	1/120
338710	200/150	272	143	1/60



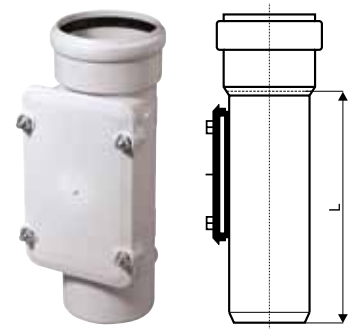
SKRHT – Reducer Skolan/HT

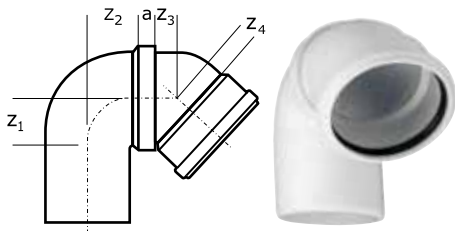
No.	DN	l [mm]	L [mm]	Unit
332750	56/40	89	60	4/1000
333750	70/50	110	76	4/1140



SKRE – Inspection pipe

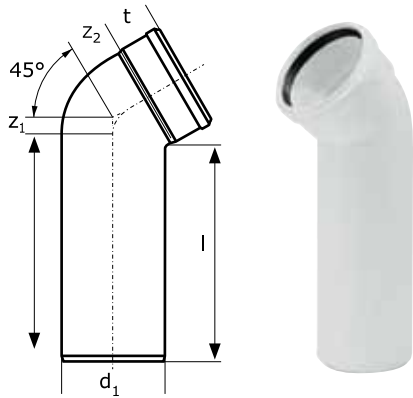
No.	DN	L [mm]	Unit
332600	56	151	4/480
333600	70	208	4/320
334600	90	170	4/240
335600	100	298	4/96
336600	125	316	2/40
337600	150	380	1/40
338600	200	380	1/20





Return air bend 135°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	z_4 [mm]	a [mm]	Unit
335950	100/100/100	135°	78	58	44	44	19,5	1/110



Long bend 45°

No.	DN	α	t [mm]	l [mm]	D_1 [mm]	z_1 [mm]	z_2 [mm]	Unit
335960	100	45°	57	250	110	24	28	2/112

Skolan – Accessories

SK – Lip seal



No.	DN	Unit
880600	56	-
880610	78	-
880620	90	-
880630	100	-
880640	125	-
880650	150	-
880660	200	-

SK – NBR gasket (oil resistant)



No.	DN	Unit
880700	56	-
880710	70	-
880720	90	-
880730	100	-
880740	125	-
880750	150	-
880760	200	-

SK – Gasket for siphon bend



No.	DN	Unit
881210	40/30 B	20
881220	40/40 C	20

Gasket for SKAM – Single sockets

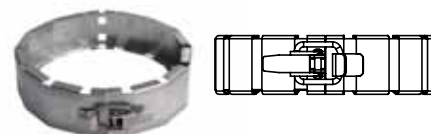
No.	DN	Unit
881440	56	-
881450	70	-
881460	90	-
881470	100	-
881480	125	-
881490	150	-
881495	200	-

Skolan – Accessories



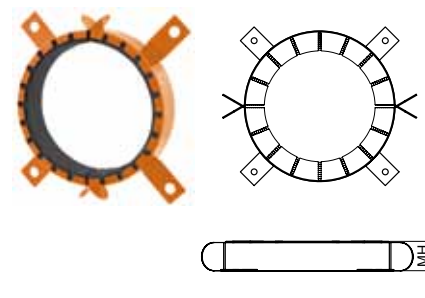
SK – Pull-out protection

No.	DN	Sleeve size	Carton	Unit
881505	DN 56	56	50	1
881515	DN 78	78	30	1
881520	DN 90	90	20	1
881530	DN 110	110	20	1
881545	DN 135	135	9	1
881550	DN 160	160	10	1



SK – Ostendorf BS Fire protection sleeve

No.	Sleeve size	Carton	Unit
881605	56	25	1
881610	75–78	25	1
881620	90	10	1
881630	110	10	1
881650	160	5	1



SK – Safety clamps for plugs

No.	DN	Unit
839010	56	-
839020	70	-
839030	90	-
839040	100	-
839050	125	-
839060	150	-



SK – Connection clamp to cast iron pipes / steel pipes

No.	DN	Unit
839080	56	-
839090	70	-
839100	90	-
839110	100	-
839120	125	-
839130	150	-



SK – Lubricant

No.	ml	Unit
881800	150	50/1750
881810	250	50/1500
881820	500	24/720





Sound Insulation

THE SKOLAN dB HOUSE DISCHARGE PIPE SYSTEM – High degree of sound insulation

System description

Skolan dB represents a complete range available to you in DN 56 to DN 200 nominal diameter. It is suitable for all pressureless waste water pipes in acc. with DIN EN 12056 and DIN 1986-100.

Pipes and fittings consist of mineral-reinforced polypropylene and are resistant to hot water. The consistently thick-walled pipes and fittings meet the raised requirements of Sound Insulation Class III of DIN 4109 / VDI 4100.

Just as with all synthetic materials, Skolan dB is corrosion-proof, long-lasting and resistant to chemically aggressive waste water in the range of pH 2 to pH 12. The smooth inner surfaces and high degree of resistance to abrasion make sure that no deposits develop and this, in turn, ensures that the pipes can be reliably operated for a very long time.

Sound insulation

Tests conducted by the Fraunhofer Institut in 2010 in accordance with DIN EN 14366 confirmed the excellent sound insulation properties and the maximum Sound Insulation Class III requirements. It has been proved for many years now on the physical construction side that thick-walled pipe systems with very high molecular weight minerals have excellent sound insulation properties.

The high density of 1.6 g/cm³ (+/- 0,05) contributes to the absorption of sound which is transmitted by air and conducted by solids.

Sources of noise in building equipment

The sources of noise in building services installations are:

- Filling noises
- Intake noises
- Noises from fittings
- Draining noises
- Impact noises

How does sound develop in building equipment?

The biggest problem in building equipment is where structure-borne noise is transmitted at the point of pipe fixing and where pipes are installed in walls and ceilings.

The following are the most important steps in actively furthering sound insulation:

- No sound bridges to adjacent rooms with pre-wall installation. The pre-wall installation is to be acoustically disconnected
- No exposed installation of waste water pipes on the walls of rooms to be sound insulated
- Use of low-noise fittings of Group I as per DIN 52218
- Use of walls which are suitable for installations, e.g. 220 kg/m² (large mass)
- In waste water system pipe planning, no waste water pipes are to be installed in partition walls between flats/houses

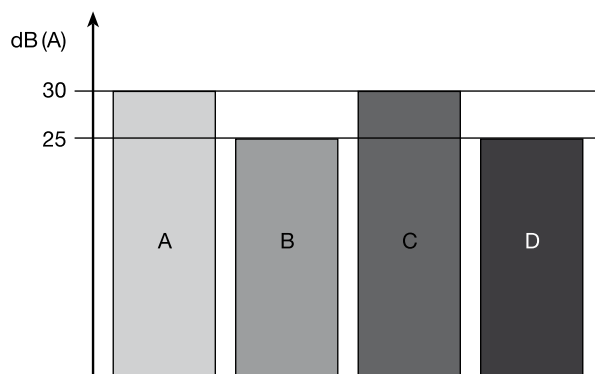
- Skolan dB pipes are to be jacketed in insulating material as conforming to the requirements of sound/heat insulation and fire protection when installed in walls and ceilings/floors
- Acoustically favourable floor plans should be drawn up so that rooms in need of sound insulation are not arranged directly next to rooms with sanitary installation-equipped walls or under bathrooms/toilets.

DIN 4109

Recommendation for normal sound insulation according to Supplement 2 to DIN 4109.

VDI 4100

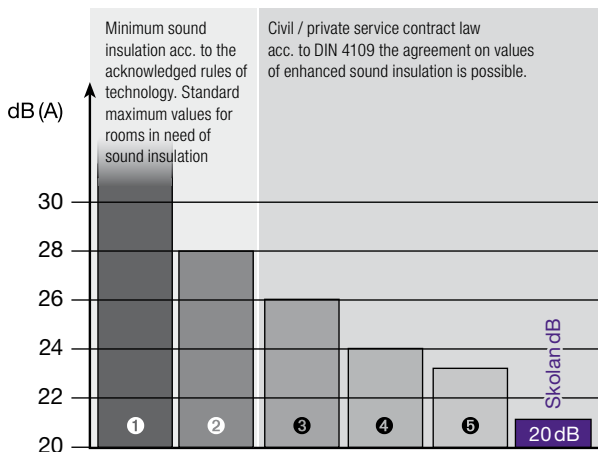
Compared to the DIN 4109 requirements taken on as Sound Insulation Class Stage I (SST I), this regulation includes characteristic values for the two others Sound Insulation Classes - namely SST II and SST III. An enhanced level of sound insulation is detailed in these two sound insulation stages.



A: DIN 4109 (official public minimum requirement) B: DIN 4109 Supplement 2
 C: VDI 4100 Sound Insulation Stage II D: VDI 4100 Sound Insulation Stage III

Basic terms and sound insulation minimum requirements

Anyone in rooms which require sound insulation on the basis of DIN 4109 is to be protected from outside noise, noise from other rooms (music, voices, steps etc.) and noises coming from building engineering installations and from operations in the same building.



- 1 **Detached house** – no sound insulation requirements unless agreed upon in a service contract
- 2 **DIN 4109 + additional table A1 30 dB(A) apartment blocks** – from 2 apartments, in rooms in need of sound insulation max. 30 dB(A). Improved sound insulation possible – has to be agreed in a service contract!
- 3 **Sound Insulation Class I 30 dB (A) (SST I)**
- 4 **Sound Insulation Class II apartment blocks 27 dB(A) semi-detached houses/row of houses 25 dB(A) (SST II)**
- 5 **Sound Insulation Class III apartment blocks 24 dB(A) semi-detached houses/row of houses 22 dB(A) (SST III)**

Benefits – DN 90

DN 90 can now be used for collecting pipes, downpipes and pipelines. As a result, a complete discharge pipe can now be installed with only two dimensions (DN 56 and DN 90). DN 90 also provides other benefits such as little space needed in the supply shaft and in pre-wall installation. The smaller diameter ensures effective automatic cleaning in the pipe. A DN 90 collecting pipe can be used:

- Up to a 10 m length
- For connecting a maximum of 2 six litre flushing tanks
- For connecting a maximum of 6 sanitary items
- Given a gradient of 1 cm/m (1:100)
- With a max. 3 changes of direction of 90° or 2 x 45°

Approvals and tests

Skolan dB pipes and fittings are of an assured quality and subject to constant quality checks. They are provided with general construction supervision approval with Approval No. Z-42.1-217 of DIBT (German Institute of Construction Technology), Berlin.

Technical data

Material

Skolan dB, mineral-reinforced polypropylene

Sound insulation

Sound-adsorbing, DIN 4109, VDI Regulation 4100
Value: 20 dB (A)

Skolan dB, measurement and evaluation as to DIN EN 14366 dated 2010, result of the Fraunhofer Institut measurement of 24. March 2010

20 dB(A) Soundproofing with Bismat standard 108-114 clamps

15 dB(A) Comfort soundproofing with Bismat soundproof pipe clamps „type 1000“

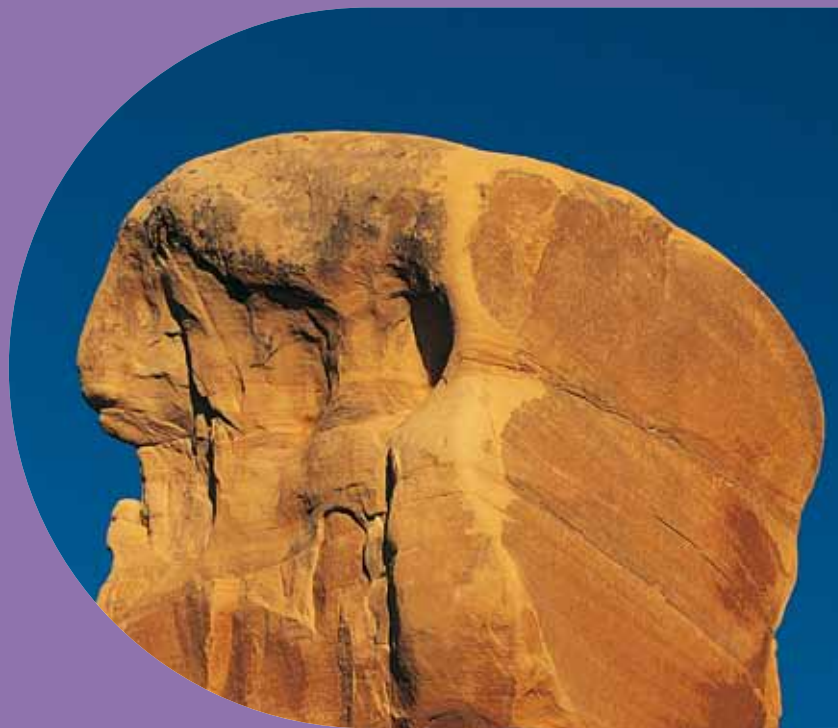
Marking

Skolan dB, standard diameter, year of manufacture, registration number, material, building material class (fire behaviour)

Registration number

Skolan dB pipes and fittings bear the registration number Z-42.1-217 of DIBt, Berlin.

Fire protection



Skolan dB in association with the Ostendorf BS fire sleeve







The Ostendorf BS fire protection provides practical and reasonably priced solutions for fire protection in buildings. The Ostendorf BS fire sleeve generation features not only reduced dimensions but also the fire retarding of many special solutions, such as socket seal-off in the fire sleeve. The Ostendorf BS fire sleeve can seal off all Ostendorf house drainage pipe systems. This and other outstanding features provide for considerable flexibility in the implementation of your building projects. The Ostendorf BS fire sleeve is designed and approved especially for soundproof pipe systems (Z-19.17-1651). The fact that the fire sleeve consists

of two half shells also makes it possible for installation to be done at a later stage. „Zero spacing“ – the gap between adjoining fire sleeves can be 0 mm – ensures maximum flexibility in planning.

By turning over the retaining tabs, the Ostendorf BS fire sleeve can be both bed in mortar and plugged.

Introduction of the 2002 Model Building Regulation (MBO) and the 2005 Model Pipe Line System Provision (MLAR) have both defined the goal of preventing fires in buildings.

Table 1

OVERVIEW OF THE BUILDING CATEGORIES AND REQUIREMENTS PLACED ON PIPES PENETRATING WALLS AND CEILINGS ACC. TO MBO 2002							
BUILDING CHARACTERISTICS		GK 1 (a + b)	GK 2	GK 3	GK 4	GK 5	Special Buildings
	Illustration						
	MBO	§2 (3) ¹⁾	§2 (3) ¹⁾	§2 (3) ¹⁾	§2 (3) ¹⁾	§2 (3) ¹⁾	§2 (4) ²⁾
	Statement (OKFFB = Top edge of finished floor of day rooms to top edge of earth)	Detached building ≤ 7m OKFFB - max. 2 useable floor units - total ≤ 400m ² or detached agricultural or forestry utilized building	Building ≤ 7m OKFFB - max. 2 useable floor units - total ≤ 400m ²	Other buildings ≤ 7m OKFFB	Other buildings ≤ 13m OKFFB - Useable floor units each under 400m ²	Other buildings ≤ 22m OKFFB	e.g. - Hotels - Kindergartens - Schools - Sports centres and halls - Hospitals of any height and high-rise buildings
Comment	Detached house, Small office buildings	Semi-detached house, Row of houses	Apartment blocks, Office buildings	Apartment blocks, Office buildings	Apartment blocks, Office buildings	---	
STRUCTURAL COMPONENT PROPERTY	Structural components of basement ceilings MBO §31(2)	F 30 (No requirements placed on fire protection; observe sound and thermal insulation aspects!)	F 30 (No requirements placed on fire protection; observe sound and thermal insulation aspects!)	F 90⁴⁾	F 90	F 90	F 90 / F 120³⁾
	Upper storey ceiling structural components MBO §31(1) ²⁾	No requirements placed	F 30³⁾ (No requirements placed on fire protection; observe sound and thermal insulation aspects!)	F 30²⁾	F 60* / F 90²⁾	F 90²⁾	F 90²⁾
	Space-enclosing partition walls in upper storeys (e.g. apartment partition wall)	No requirements placed	F 30	F 30	F 60* / F 90	F 90	F 90³⁾
	Walls of required corridors and exits to the outside MBO §36(4)	No requirements placed	No requirements placed	Upper storey: F 30 Basement: F 30	Upper storey: F 30 Basement: F 90	Upper storey: F 30 Basement: F 90	Upper storey: F 30 Basement: F 90
	Walls of required staircases MBO § 35(4)	No requirements placed	F 30-A	F 30-A	F 60-A* / F 90-A	F 30-A	F 30-A³⁾
	Fire walls/building partition walls MBO § 30(3)	No requirements placed	F 60-AB* / F 90-AB	F 60-AB* / F 90-AB	F 60-AB* / F 90-AB	F 90-A	F 30-A³⁾

¹⁾ In acc. with §40 no requirements are placed on the sealing of pipe systems, installation shafts and channels within flats/apartments and useable floor units not exceeding 400 m² in not more than 2 useable floor units.

²⁾ Given that there is no day room in the loft, then no particular requirements are placed on ceilings in lofts and for flat roofs.

³⁾ Particular requirements apply to special-purpose buildings. These can be taken from the special purpose building directives and/or respective specific fire protection concept as an integral part of building approval.

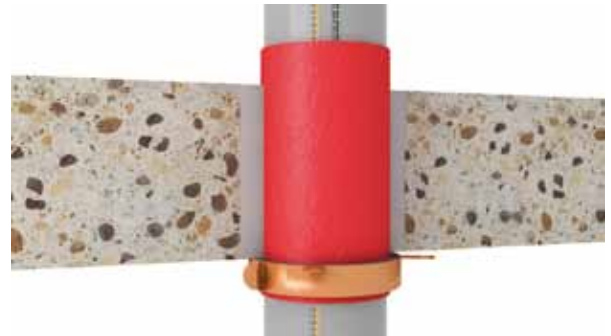
⁴⁾ F30 requirements for supporting structural parts (walls and ceilings) in basements hold good in Bavarian, Hesse and Hamburg.

* Sealings for F 60 structural components are not currently available on the market. For this reason sealings for F 90 structural components are to be used to ensure that the protection goal requirements can be met!

Their implementation has considerably eased the work of the technical planner. DIN 4102 (fire protection) and DIN 4109 (sound insulation) also apply.

The compressed explanations here are to help the interested user in avoiding any planning and implementation errors. To this end, Table 1 charts the MBO 2002 building categories and requirements placed on the structural parts of these buildings. Pipes which, for instance, penetrate these structural parts in the course of equipping the building must have a proper fire stop to shut off any fire or smoke. These pipe seals can be achieved in R 90 quality with the Ostendorf BS fire protection. Since the Ostendorf BS fire sleeve has been tested and approved for practically all fitting situations, such as inclined fittings and socket installation at the sleeve, it offers maximum flexibility. If you would like more information on the Ostendorf BS Fire Protection contact us under +49(0)4441-874-10.

Installation

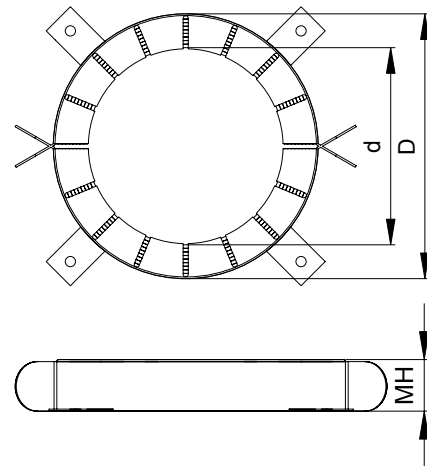


Installation in ceilings ≥ 150 mm



Installation in wall (lightweight partition wall or solid wall) ≥ 100 mm

Technical Drawings



Application table

No.	Pipe- outside \varnothing mm	Sleeve		No. Fastening brackets
		inside \varnothing mm d	outside- \varnothing mm D	
881605	56	69	82	4
881610	75-78	81	94	4
881620	90	96	114	4
881630	110	116	134	4
881650	160	164	188	4

Installation Instructions



Install pipe (and possibly the sound insulation flexible tube included in the supply)



Close remaining or ring gap in a flue gas-tight manner



Select sleeve size



If necessary, mark and construct the fixing points

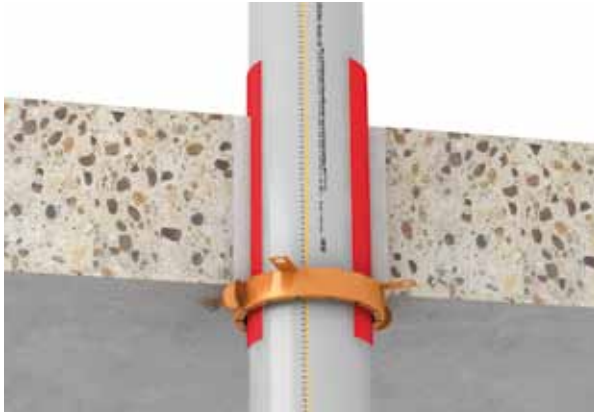


Plugging the retaining tab with the jointly supplied fixing set (as an option the tabs can also be bent through 90° and bedded in plaster!)

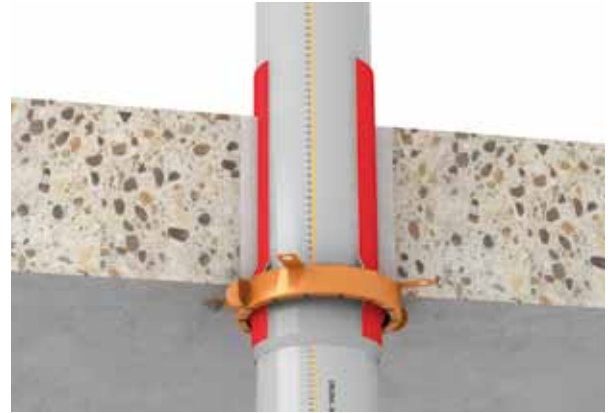


Fill in the supplied identification plate and attach next to the fire-retarding seal.

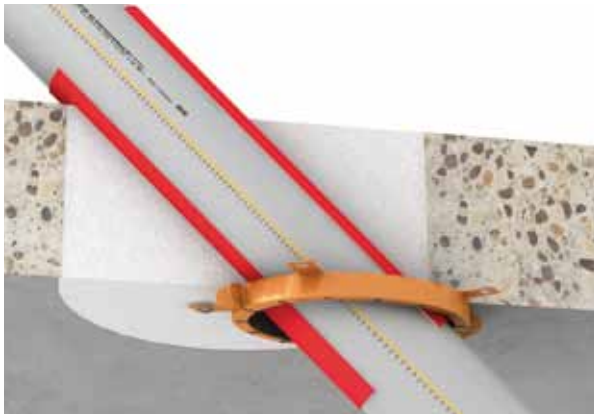
Special applications



Straight pipe penetration (possibly with sound insulation hose $\leq 4\text{mm}$)



Straight pipe bushing with socket at the sleeve



Inclined bushing



Zero spacing one under the other

Seal-offs in existing ceilings (special-purpose ceilings)

According to Useability Certificate (ABP/ABZ) for pipe and/or cable sealing, special-purpose ceilings are different to a solid ceiling. These ceilings must have a lining at the fire protection seal. In the case of „special-purpose ceilings“, these seals are only to be fitted inside structurally non-supporting ceiling areas. At all events it is recommended consulting a structural analyst.

As detailed in ABP/ABZ, the planned pipe or cable sealing is fitted inside the lining using a concrete or mortar casting. The minimum component thickness as per useability certificate must be adhered to. The component rebate could protrude should the minimum component thickness for the sealing step vary from that of the structural pNo.

The fitting deviation of the sealing in accordance with building regulations as against the solid ceiling must be agreed upon beforehand with the project manager responsible, architects

and/or fire protection specialist monitoring the work.. The following documents should be made available:

- Planning and fire-retarding sealing
- Detailed diagram and description of the constructional fitting situation
- Expert opinion involving project-specific classification of the deviation (major or minor deviation)
- Application by the house builder or his representative for deviation approval from the „Building requirements introduced (ETBs)“ at the secondary-level building authority.

Given that classification is judged to represent a major deviation from the Useability Certificate (ABP/ABZ), the house builder or his representative must apply for approval in individual instances from the first-level building authority.



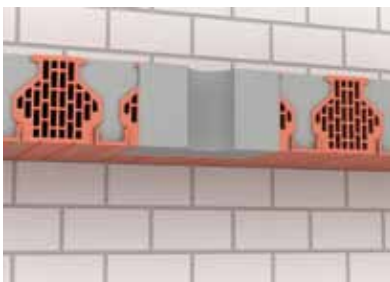
Wooden beam ceiling without ceiling substructure



Wooden beam ceiling with classified ceiling substructure



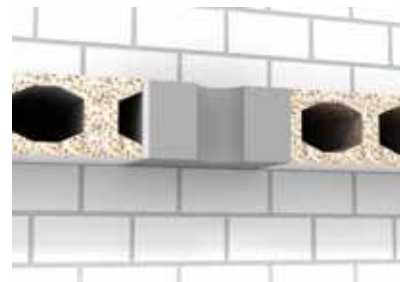
Porous concrete ceiling (possibly with cavities)



Ribbed or brick element ceiling



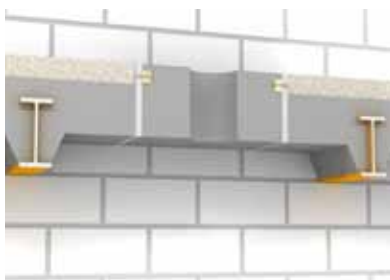
Cap ceiling



Cavity ceiling



Beamed ceiling



Steel support composite ceiling

Installation Instructions

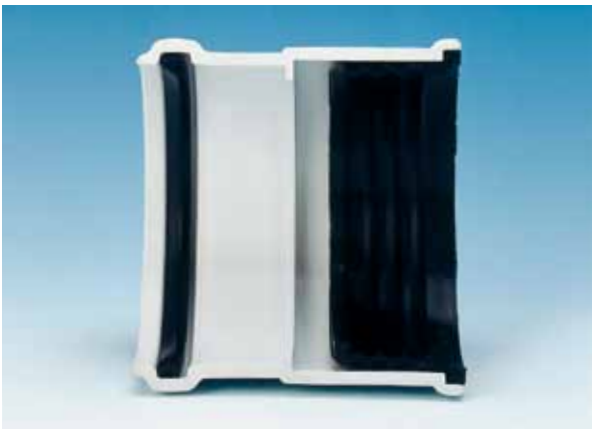


1. TRANSPORT, HANDLING AND STORAGE

Skolan-dB pipes must not be bent during transport; the full length of the pipes should be supported. The pipes are to be laid down in such a manner that no damage occurs through deformation. Sockets must be unencumbered all around. At the construction site, stacking must not be carried out in excess of 1.50 m even if wood is laid down in between layers. Sealing elements may not be stored outside for longer than 2 years.

2. CUTTING THE PIPES TO LENGTH

The pipes can be cut to length with a commercial pipe cutter or with a fine-toothed saw. The cuts are to be made at an angle of 90° to the pipe shaft. Remove any trimmings or bumps at the disconnecting point. The cutting edges are to be smoothed on the inside and on the outside.

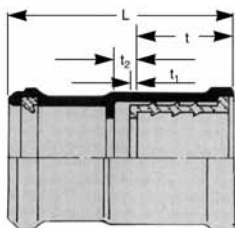


3. SKOLAN-DB CONNECTIONS

3.1 PUSH-FIT CONNECTIONS WITH GASKET (SINGLE SOCKET)

Single sockets are equipped with larger sealing element: These gaskets are the standard connection between pipes and fittings. They have an extension compensator so that no measures need to be taken to allow for changes in length. The following procedure is to be observed:

- Trim the spigot end of the pipe and clean if necessary. Chamfering is not required.
- Remove the gasket from the socket and pull it - without any lubricant - onto the spigot end of the pipe.
- Smear the outside of the gasket with lubricant (do not use oil or grease) and also provide the inside of the socket with lubricant .
- Push the spigot end with the gasket into the socket.
- Push the single socket onto the spigot end until it resists.
- Check the correct position of the gasket.



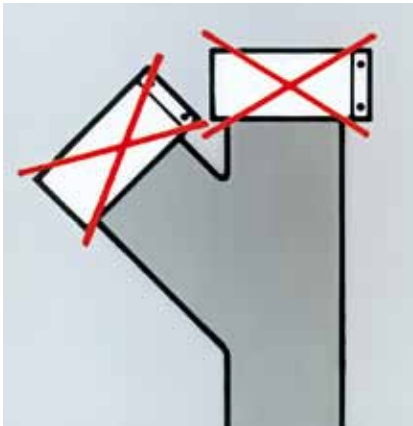
DN	L [mm]	t [mm]	t ₁ [mm]	t ₂ [mm]
56	126	49	5	15
75	119	48	6	16
90	123	47	6	16
100	125	63	6	16
125	132	63	6	16
150	144	63	6	16
200	228,5	109	6	16



3.2 OTHER PUSH-FIT CONNECTIONS

Push-fit connections between pipes and fittings which are not produced with a single socket must, in the case of a maximum pipe length of 3 metres, compensate thermal changes in length of maximum 10 mm. Therefore pipes are to be pulled back 10 mm in the socket after the connection has been made.

- Clean the spigot end, the socket and the gasket if necessary.
- Check the position and the intactness of the gasket in the socket corrugation.
- Smear the spigot end with lubricant.
- Place the spigot end in a central position and push it into the socket until it resists.
- Pull the pipe – not the fitting – back by 10 mm and - in case of a vertical position - protect the pipe from subsequent slipping by means of clamps



Additional connection couplings (such as those required in the case of cast-iron pipes) are not necessary with Skolan dB.

Push-fit connections are easier and quicker. This saves time and material.

4. INSTALLATION

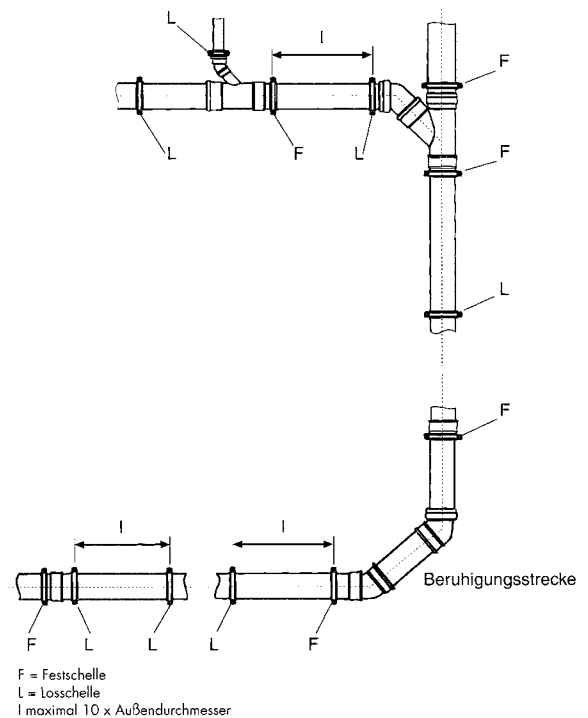
Skolan dB pipes are to be installed in such a manner that they are free of tension and that changes in lengths are not hindered. The Skolan dB soundproof pipe system is installed by using commercial pipe clamps with inserting tapes made of profile rubber.

Arranging the pipe clamps

- The distance between the pipe clamps in the case of horizontal piping is approx. 10 x the exterior pipe diameter
- In the case of vertical installation the distance between clamps should be 1 – 2 metres, however, 2 metres should not be exceeded.
- If possible, do not install pipe clamps directly at the zones of impact
- A fixed clamp and a loose clamp per pipe length (storey height of more than 2.50 m) are recommended for drop pipe lines
- Fixed clamps are fixed points in the piping system. In the case of pipes without sockets, the fixed clamp is to be placed directly above the shaped part at the bottom end of the pipe. Fittings or groups of shaped parts are always to be located as fixed points
- Even when they are installed, loose clamps enable unhindered lengthways movements in order to allow for thermal changes in length
- In multi-storey buildings, drop pipes are to be secured against subsidence. The use of an adjustment length with a fixed clamp under the socket is recommended.



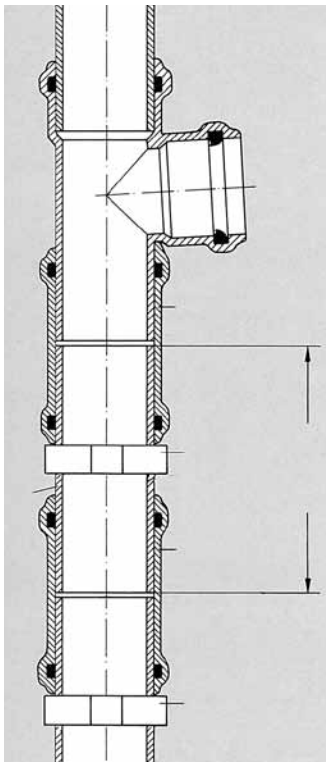
Pipe clamp with inserting tape as a loose clamp



Examples for the arrangement of fixed clamps and loose clamps

5. INSTALLATION IN CONCRETE/ BRICKWORK

Skolan-dB pipes and fittings can be directly set in concrete or plaster provided that adequate care is taken. In order to prevent the concrete mixture from seeping into the socket gap, it should be sealed with adhesive tape. Open piping components are to be closed. The piping is to be installed in such a manner that it is prevented from moving during the cementing process. Should the piping be plastered under a gap in the wall, a layer of plaster of at least 1.5 cm should be applied onto a plaster support (e.g. metal mesh). No acoustic bridge for structure-borne sound should be allowed to develop between the piping and the plaster support. In order to prevent this, the piping should be fully covered with sound insulation material (e.g. mineral wool, insulating sheaths).



6. RAINFALL DRAINPIPES

Should rainfall drainpipes run through living quarters, condensed water insulation is also recommended for Skolan dB.

7. CEILING PIPES

Pipes installed through ceilings must be sound-insulated with structure-borne sound insulation material and be damp-proof. Should melted asphalt be put onto the floors, the piping parts in the region where the pipe runs through the ceiling must be protected by means of protective pipes or by means of being wrapped in heat-insulating materials.

8. SUBSEQUENT INSTALLATION OF PIPING PARTS

Subsequent connections can be produced by means of the installation of a branch or by using couplers. In order to install, a sufficiently long piece of pipe ($L = \text{length of the shaped part} + 2.5 d$) is removed and the branch is inserted. Cutting edges are to be cleaned and smoothened. A coupler is pushed onto both the remaining pipe without a socket and onto a piece of pipe equivalent to the gap. The piece of pipe is then inserted into the piping and the couplers are pushed over the cutting edges. The couplers are to be secured by means of clamps.

