

magnoplast

INSTRUCTION



SKOLAN dB



THICK WALLED SEWAGE SYSTEM

magnoplast

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.

Made in Germany





Benefits and
Advantages of
the System

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 supplementary sheet 1 on DIN 8078

Use in central vacuum cleaning systems

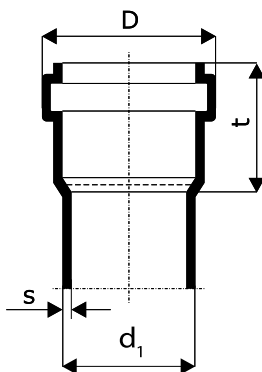
Ostendorf Skolan dB has been authorised by the Staatliche Materialprüfungsanstalt Darmstadt for use in central vacuum cleaning systems. Maximum continuous vacuum negative pressure load: DN 56 to DN 150 0.5 bar.

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

- a) Laying instruction of KRV e.V. Bonn
- b) 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

Material Properties



Skolan dB

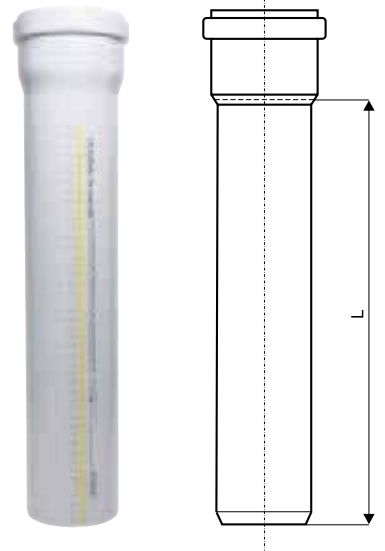


Product range
Skolan dB

Skolan – Pipe

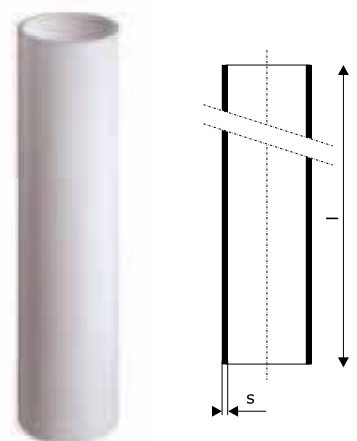
dBEM – Single socket pipe (push-fit)

No.	DN	L [mm]	Unit
15000	56	150	4/660
15010	56	250	4/440
15020	56	500	4/220
15040	56	1000	1/114
15060	56	2000	1/114
15100	70	150	4/360
15110	70	250	4/240
15120	70	500	4/152
15140	70	1000	1/70
15160	70	2000	1/70
15105	90	150	4/224
15115	90	250	4/168
15125	90	500	4/100
15145	90	1000	1/60
15165	90	2000	1/60
15200	100	150	4/180
15210	100	250	4/120
15220	100	500	2/78
15240	100	1000	1/40
15260	100	2000	1/40
15300	125	150	1/120
15310	125	250	1/96
15320	125	500	1/48
15340	125	1000	1/24
15360	125	2000	1/24
15400	150	150	1/84
15410	150	250	1/48
15420	150	500	1/35
15440	150	1000	1/21
15460	200	2000	1/21
15480	200	150	1/45
15481	200	250	1/30
15482	200	500	1/20
15484	200	1000	1/15
15486	200	2000	1/15



dBGL – Plain ended pipe

No.	DN	s [mm]	l [mm]	Unit
15070	56	4,0	3000	1/114
15170	70	4,5	3000	1/70
15175	90	4,5	3000	1/60
15270	100	5,3	3000	1/40
15370	125	5,3	3000	1/24
15470	150	5,3	3000	1/21
15487	200	6,2	3000	1/15



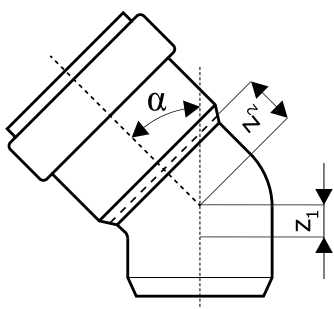
Skolan – Fitting

dBB – Bend 15°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
15500	56	15°	6	8	4/1000
15600	70	15°	7	11	4/600
15605	90	15°	9	12,5	4/500
15700	100	15°	6	14	4/300
15800	125	15°	10	16	4/192
15900	150	15°	24	19	4/100
15960	200	15°	15	31	1/40

dBB – Bend 30°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
15510	56	30°	10	15	4/1000
15610	70	30°	12	15	4/600
15615	90	30°	13	18,5	4/480
15710	100	30°	17	21	4/300
15810	125	30°	20	24,5	4/160
15910	150	30°	24	34	4/100



dBB – Bend 45°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
15520	56	45°	14	16	4/1000
15620	70	45°	18	31	4/600
15625	90	45°	20	25,5	4/400
15720	100	45°	25	29	4/240
15820	125	45°	30	34	4/140
15920	150	45°	37	45	4/60
15980	200	45°	46	57	1/38

dBB – Bend 67°

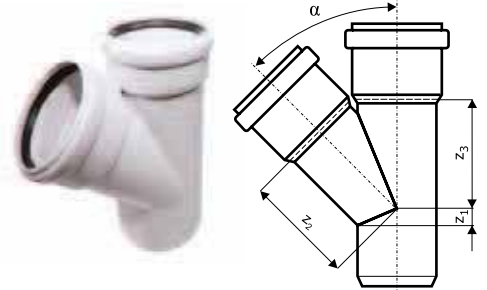
No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
15530	56	67°	23	21	4/880
15630	70	67°	28	31	4/500
15730	100	67°	40	44	4/200

dBB – Bend 87°

No.	DN	α	z_1 [mm]	z_2 [mm]	Unit
15550	56	87°	32	35	4/880
15650	70	87°	40	43	4/480
15655	90	87°	46	49,4	4/320
15750	100	87°	69	70,5	4/220
15850	125	87°	96	102	4/96
15950	150	87°	84	91	2/60

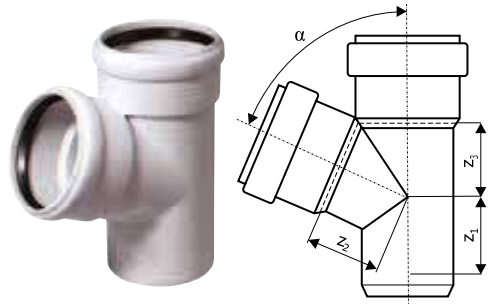
dBEA – Branch 45°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
16000	56/56	45°	13	74	74	4/440
16010	70/56	45°	3	88	85	4/320
16020	70/70	45°	20	98	98	4/260
16025	90/56	45°	3	97	84	4/264
16026	90/90	45°	20	110	110	4/180
16030	100/56	45°	17	108	95	4/180
16040	100/70	45°	6	122	115	4/140
16050	100/100	45°	25	136	136	4/100
16070	125/100	45°	11	155	152	2/70
16075	125/125	45°	49	169	169	2/56
16080	150/100	45°	2	168	159	2/46
16090	150/150	45°	36	194	194	2/28
16094	200/150	45°	19	221	218	1/20
16095	200/200	45°	46	244	244	1/15



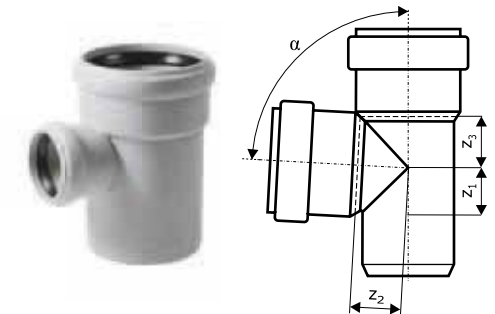
dBEA – Branch 67°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
16100	56/56	67°	22	45	45	4/500
16110	70/56	67°	18	55	51	4/360
16120	70/70	67°	29	61	61	4/280
16130	100/56	67°	21	73	57	4/180
16140	100/70	67°	22	81	67	4/140
16150	100/100	67°	40	84	84	4/120



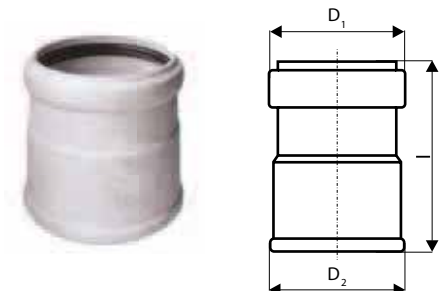
dBEA – Branch 87°

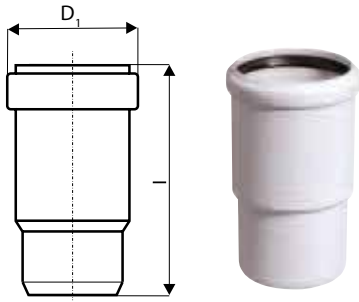
No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
16200	56/56	87°	33	34	34	4/500
16210	70/56	87°	32	43	32	4/360
16220	70/70	87°	40	43	43	4/320
16225	90/56	87°	32	48	31	4/320
16226	90/70	87°	43	49	40	4/240
16227	90/90	87°	56	70	51	4/160
16230	100/56	87°	28	60	32	4/200
16240	100/70	87°	40	60	45	4/160
16250	100/100	87°	57	59	59	4/140
16260	125/100	87°	70	73	72	4/80
16275	125/125	87°	70	72	72	2/80



dBA – Single socket

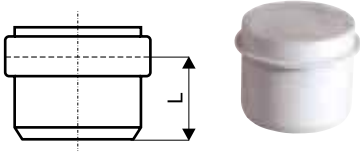
No.	DN	D_1 [mm]	D_2 [mm]	l [mm]	Unit
16500	56	74	79	117	4/860
16510	70	95	100	119	4/640
16515	90	108	110	120	4/416
16520	100	129	132	124	4/300
16530	125	156	159	142	4/160
16540	150	183	184	144	4/120
16550	200	235	225	228	1/45





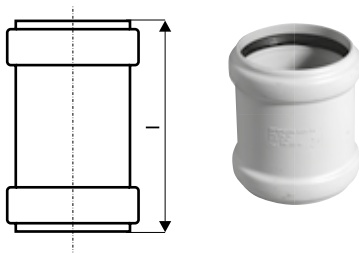
dBL – Long socket

No.	DN	D ₁ [mm]	L [mm]	Unit
16330	100	110	196	4/200



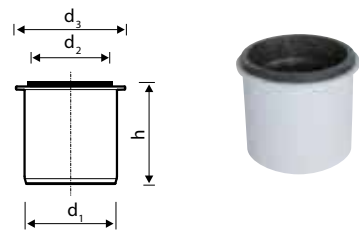
dBM – Plug

No.	DN	L [mm]	Unit
16800	56	49	4/1700
16810	70	52	4/1000
16815	90	38	4/720
16820	100	57	4/580
16830	125	60	4/376
16840	150	49	4/260
16850	200	84	1/160



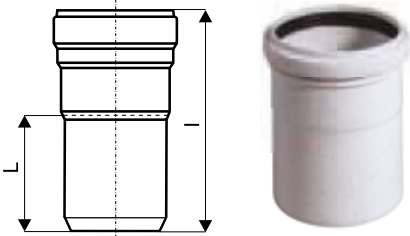
dBU – Coupler

No.	DN	L [mm]	Unit
16600	56	105	4/1100
16610	70	107	4/640
16615	90	98	4/320
16620	100	125	4/300
16630	125	123	4/180
16640	150	129	4/96
16650	200	239	1/54



Connection to HT

No.	DN	L [mm]	I [mm]	Unit
16400	56	50	52	4/2200
16410	70	59	112	4/800



Connection to HT/KG*

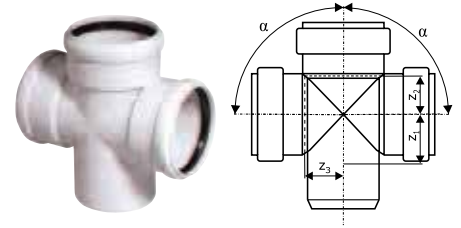
No.	DN	L [mm]	I [mm]	Unit
16420	125	64	255	4/200

* (delivered with socket DN 125)



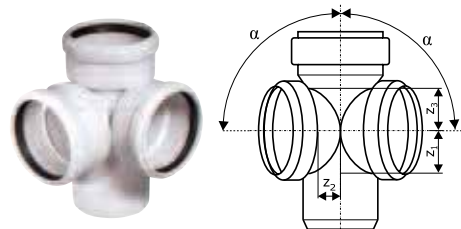
dBDA – Double branch 87°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
16299	90/90/90	87°	46	51	51	1/121
16300	100/100/100	87°	56	60	60	4/80



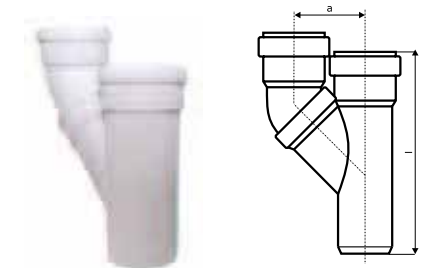
dBED – Double corner branch 87°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	Unit
16320	100/100/100	87°	59	73	62	1/72



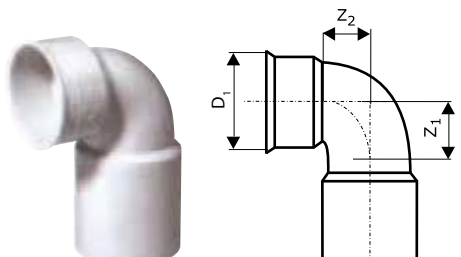
dBEA – Parallel branch

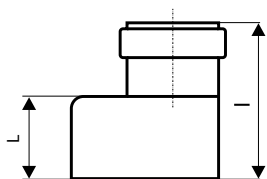
No.	DN	z_1 [mm]	a [mm]	l [mm]	Unit
16340	100/100	199,5	129	320	2/90



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

No.	DN	D_1 [mm]	z_1 [mm]	z_2 [mm]	Unit
16310	56/40	50	30,5	25	4/1200





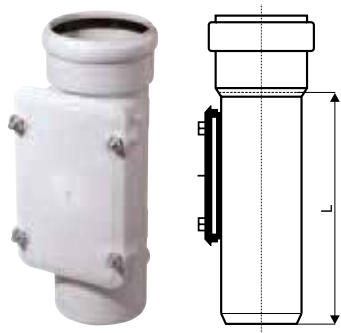
dBR – Reducer, eccentric

No.	DN	l [mm]	L [mm]	Unit
17000	70/56	102	60	4/1000
17002	90/56	84	65	4/800
17004	90/70	105	60	4/800
17010	100/56	102	61	4/660
17020	100/70	102	61	4/640
17022	100/90	127	58	4/540
17030	125/110	133	90	4/240
17040	150/100	195	100	4/212
17050	150/125	190	100	1/120
17055	200/150	272	143	1/60



dBRHT – Reducer Skolan/HT

No.	DN	l [mm]	L [mm]	Unit
17060	56/40	89	60	4/1000
17070	70/50	110	76	4/1140

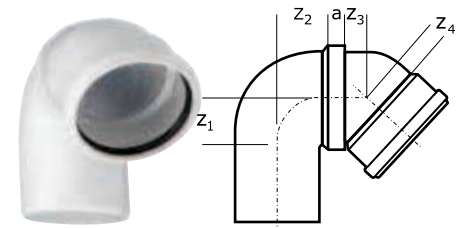


dBRE – Inspection pipe

No.	DN	L [mm]	Unit
16700	56	151	4/480
16710	70	208	4/320
16715	90	170	4/240
16720	100	298	4/96
16730	125	316	2/40
16740	150	380	1/40

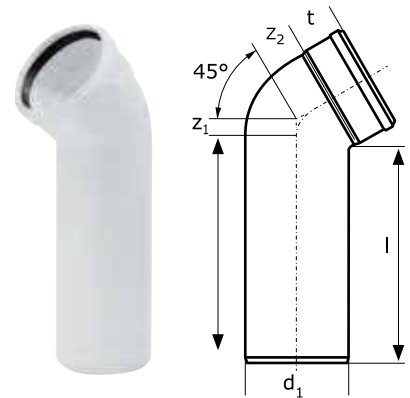
Return air bend 135°

No.	DN	α	z_1 [mm]	z_2 [mm]	z_3 [mm]	z_4 [mm]	a [mm]	Unit
16360	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
16350	100	45°	57	250	110	24	28	2/112



Skolan – Accessories

dBz – Lip seal

No.	DN	Unit
17100	56	-
17110	78	-
17115	90	-
17120	100	-
17130	125	-
17140	150	-



SK – Gasket for siphon bend

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

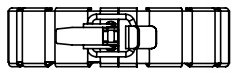


Skolan – Accessories



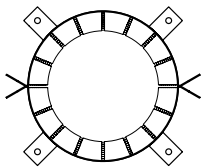
Gasket for dBA – Single sockets

No.	DN	Unit
17200	56	-
17210	70	-
17215	90	-
17220	100	-
17230	125	-
17240	150	-



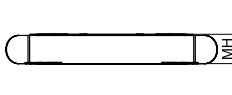
dBO – Pull-out protection

No.	DN	Sleeve size	Carton	Unit
17300	DN 56	56	50	1
17310	DN 78	78	30	1
17315	DN 90	90	20	1
17320	DN 110	110	20	1
17330	DN 135	135	9	1
17340	DN 160	160	10	1



SK – Magnaplast 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
13100	150	50/1750
13110	250	50/1500
13120	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

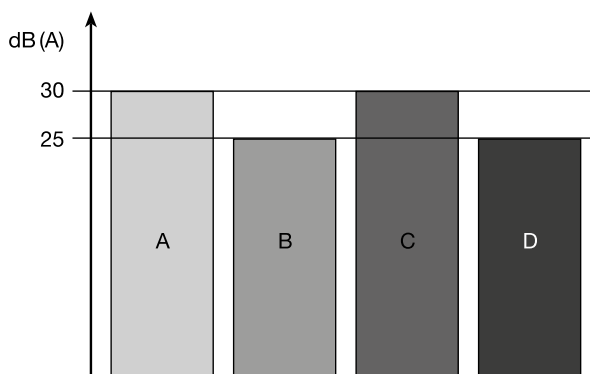
- Skolan dB pipes are to be jacketed in insulating material as conforming to the requirements of sound/heat insulation and fire protection when installed in walls and ceilings/floors
- Acoustically favourable floor plans should be drawn up so that rooms in need of sound insulation are not arranged directly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

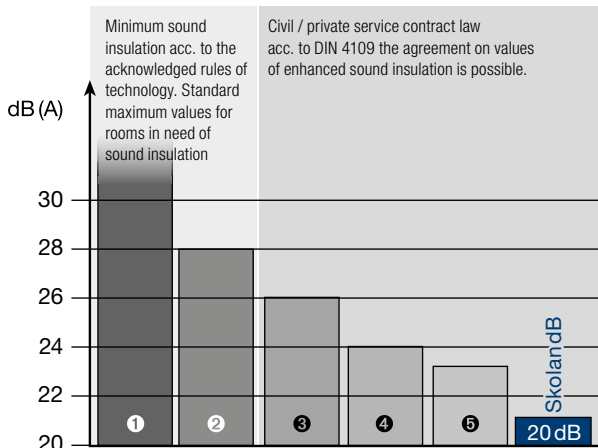
Compared to the DIN 4109 requirements taken on as Sound Insulation Class Stage I (SST I), this regulation includes characteristic values for the two others Sound Insulation Classes - namely SST II and SST III. An enhanced level of sound insulation is detailed in these two sound insulation stages.



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 magnaplast BS fire sleeve







The magnaplast BS fire protection provides practical and reasonably priced solutions for fire protection in buildings. The magnaplast 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 magnaplast BS fire sleeve can seal off all magnaplast house drainage pipe systems. This and other outstanding features provide for considerable flexibility in the implementation of your building projects. The magnaplast 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 identical fire sleeves can be 0 mm – ensures maximum flexibility in planning.

By turning over the retaining tabs, the magnaplast 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	F90 / 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⁾	

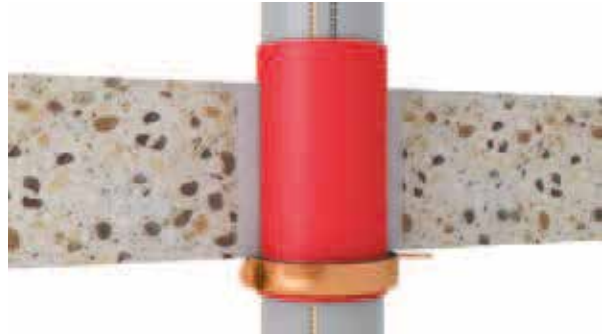
¹⁾ In acc. with §40 no requirements are placed on the sealing of pipe systems, installation shafts and channels within flats/apartments and useable floor units not exceeding 400 m² in not more than 2 useable floor units.
²⁾ Given that there is no day room in the loft, then no particular requirements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

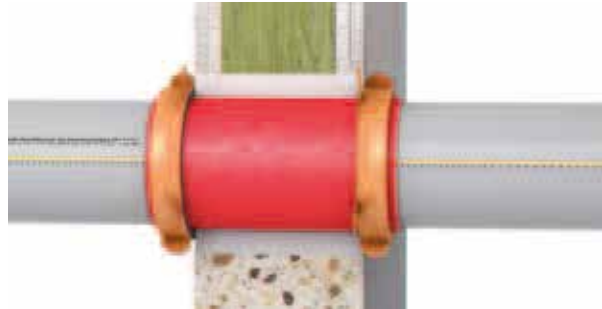
The compressed explanations here are to help the interested user in avoiding any planning and implementation errors. To this end, Table 1 charts the MBO 2002 building categories and requirements placed on the structural parts of these buildings. Pipes which, for instance, penetrate these structural parts 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 magnaplast BS fire protection. Since the magnaplast fire sleeve has been tested and approved for practically all fitting situations, such as inclined fittings. It offers maximum flexibility.

If you would like more information on the magnaplast BS Fire sleeve contact us under +49(0)4473-9490-0.

Installation

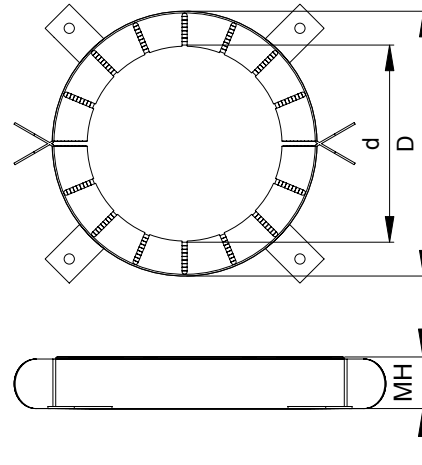


Installation in ceilings ≥ 150 mm



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

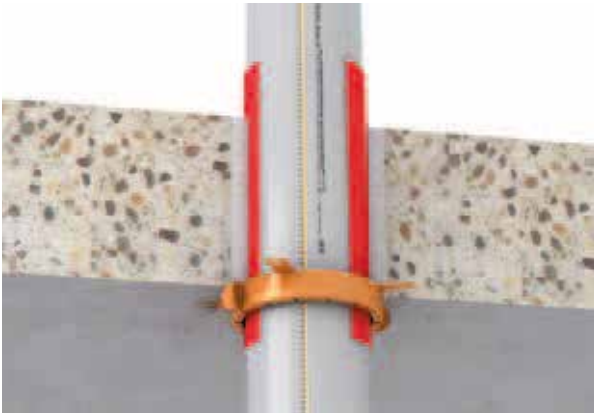


Plugging the retaining tab with the jointly supplied fixing set (as an option the tabs can also be bent through 90° and bedded in plaster!)

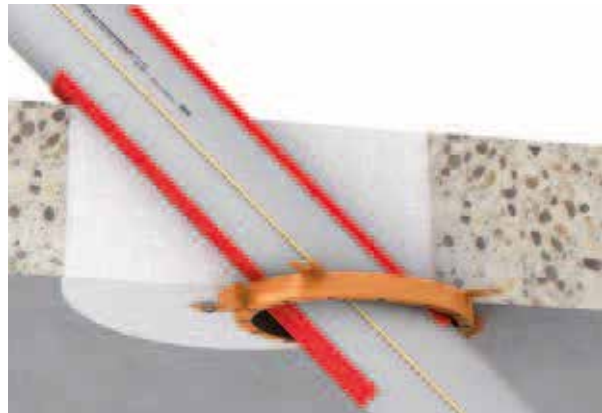


Fill in the supplied identification plate and attach next to the fire-retarding seal

Special applications



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



Inclined bushing



Zero spacing one under the other

**Seal-offs in existing ceilings
(Special-purpose ceilings)**

Special-purpose ceilings differ from a solid one as defined in the Usability Certificate (ABP/ABZ) for pipe and/or cable fire stops. These ceilings must have a lining at the fire protection stop.

The fire stops are only to be fitted inside the structurally non-supporting surfaces of "special-purpose ceilings". At all events, it is recommended consulting a structural analyst.

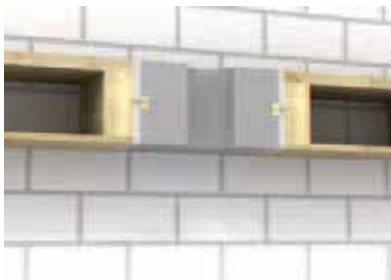
As detailed in ABP/ABZ, the planned pipe or cable fire stop is fitted inside the lining with a concrete or mortar casting. The minimum component thickness as per usability certificate must be adhered to. The component rebate could jut out should the minimum component thickness for the fire stop vary from that of the structural part.

The regulatory building fire stop fitting as against solid ceilings must be agreed to beforehand with the project manager responsible, architects and/or the fire protection

specialist monitoring the work. The following documents should be available:

- Planning and fire-stop
- Detailed diagram and description of the structural fitting
- Expert opinion involving project-specific classification of the deviation (major or minor deviation)
- Application by the house builder or his representative for approval of deviation from the "Eingeführten Technischen Baubestimmungen (ETBs)" at the secondary building authority.

Given that classification represents a major deviation from the Usability Certificate (ABP/ABZ), the house builder or his representative must apply for approval from the principal building authority.



Wooden beam ceiling without ceiling substructure



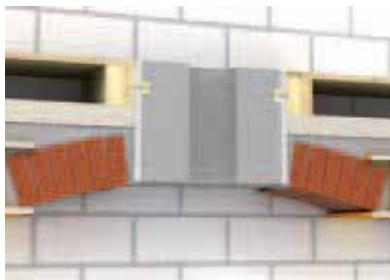
Wooden beam ceiling with classified ceiling substructure



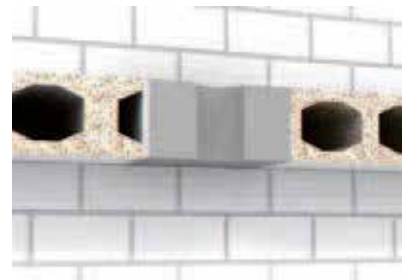
Porous concrete ceiling (possibly with cavities)



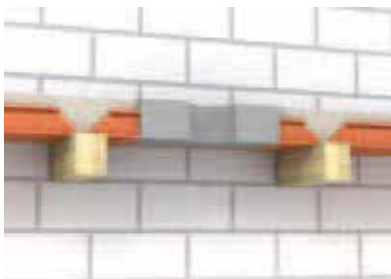
Ribbed or brick element ceiling



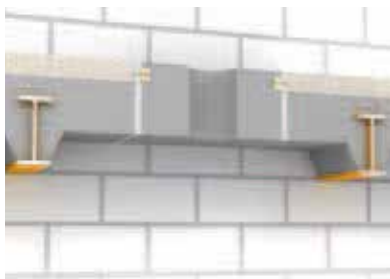
Cap ceiling



Cavity ceiling



Beamed ceiling



Steel support composite ceiling

Installation Instructions

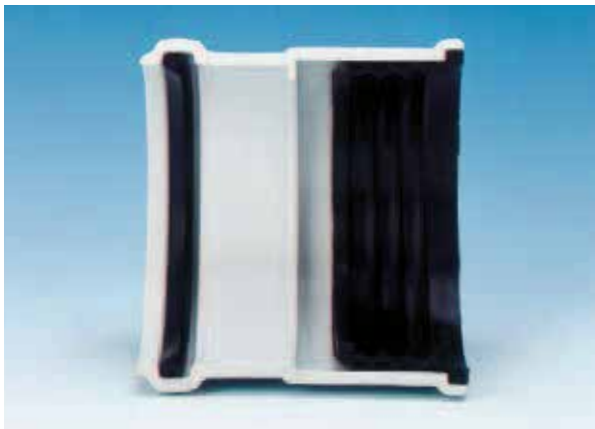


1. TRANSPORT, HANDLING AND STORAGE

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.

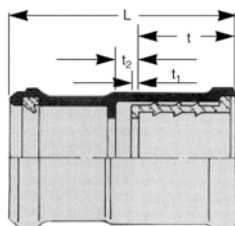


3. SKOLAN-DB CONNECTIONS

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.



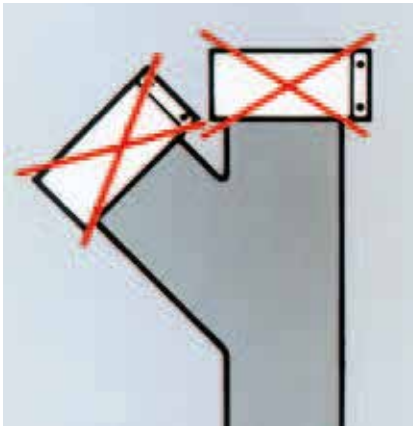
DN	L [mm]	t [mm]	t ₁ [mm]	t ₂ [mm]
56	126	49	5	15
75	119	48	6	16
90	123	47	6	16
100	125	63	6	16
125	132	63	6	16
150	144	63	6	16
200	228,5	109	6	16



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

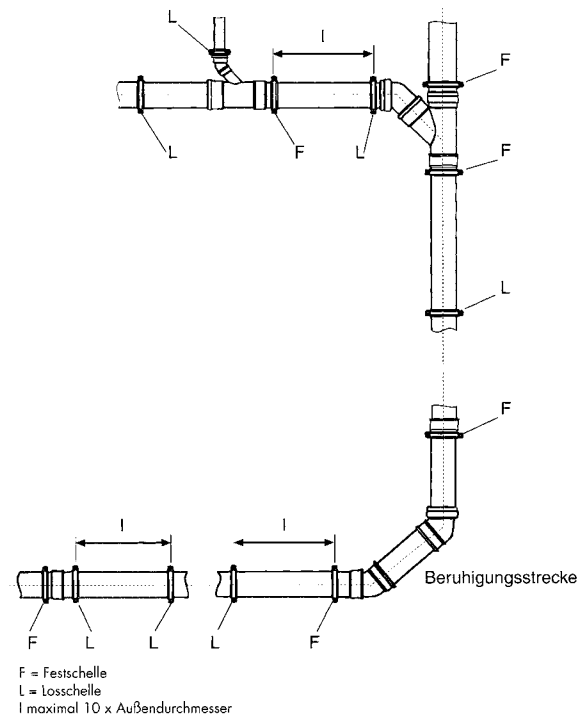
Skolan dB pipes are to be installed in such a manner that they are free of tension and that changes in lengths are not hindered. The Skolan dB soundproof pipe system is installed by using commercial pipe clamps with inserting tapes made of profile rubber.

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.



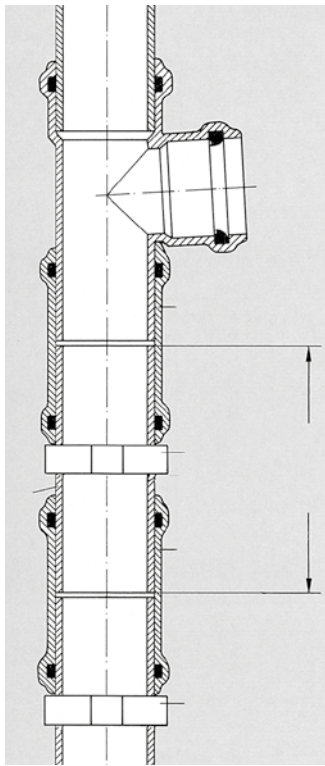
Pipe clamp with inserting tape as a loose clamp



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.



Chemical Resistance of Polypropylene – Skolan dB

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Acetone'	100	+	°	
Ammonia, gaseous	100	+	+	
Ammonia, aq.	conc.	+	+	
Ammonia, aq.	10	+	+	
Amyl alcohol, pure		+	+	
Acetic anhydride	100	+		
Aniline	100	+		+
Benzaldehyde	100	+		
Benzaldehyde, aq.	sat.	+		
Petrol	(see Industrial liquids)			
Benzene	100	-*	-	
Bromine, liquid	100	-		
Bromine vapours	high	-	-	
Bromine vapours	dil.	°	-	
Bromine water	sat.	-	-	
Butane, liquid	100	+		
Butane, gaseous	100	+	+	
Butyl acetate	100	+	°	
Cyclohexane	100	+		
Cyclohexanol	100	+	+	
Cyclohexanone	100	+	-	
Dibutyl phthalate	(see Industrial liquids)			
Diethyl ether	100	°		
Potassium dichromate, aq.	sat.	+	+	+
Dimethylformamide	100	+		
1.4-Dioxan	100	+	°	-
Ammonium nitrate, aq.	any.	+	+	+
Potassium nitrate, aq.	sat.	+	+	
Sodium nitrate, aq.	sat.	+	+	
Calcium nitrate, aq.	sat.	+	+	+
Ethyl acetate	100	°	°	
Ethyl alcohol	100	+		
Ethyl alcohol, aq.	96	+	+	
Ethyl alcohol, aq.	50	+	+	
Ethyl alcohol, aq.	10	+	+	
Ethyl benzene	100	°	-	
Ethylene chloride	100	°	-*	
2-Ethyl hexanol	100	+		
Ethyl chloride	100	-		
Ether - see diethyl ether				
Phenol	sat.	+	+	
Formaldehyde, aq.	40	+	+	
Formaldehyde, aq.	30	+	+	
Formaldehydw, aq.	10	+	+	
Ammonium phosphate, aq.	any	+	+	+
Sodium phosphate, aq.	sat.	+	+	+
Glycerol	100	+	+	
Glycerol, aq.	high	+	-	-
Glycerol, aq.	verdünnt	+	-	-
Glycol	100	+	+	
Glycol, aq.	high	+	+	
Glycol, aq.	dil.	+	+	+
Heptane	100	+	°	
Hexane	100	+	°	
Aluminium salts	any	+	+	+
Sodium disulphide, aq.	sat.	+	+	
Sodium hydrog. carbonate, aq.	sat.	+	+	+

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Potassium hydroxide	50	+	+	
Potassium hydroxide	25	+	+	
Potassium hydroxide	10	+	+	
Potassium hydroxide	100	+	+	
Chlorine liquid	100	-		
Chlorine, gaseous, dry	100	-	-	-
Chlorine, gaseous, damp	10	°	-	-
Chlorobenzene	100			
Sodium chlorate, aq.	5	+		
Ammonium chloride, aq.	any	+	+	+
Tin chloride	sat.	+	+	
Potassium chloride, aq.	sat.	+	+	+
Sodium chloride, aq.	sat.	+	+	+
Calcium chloride, aq.	sat.	+	+	+
Sodium perchlorate, aq.	5	+	+	
Potassium hypochlorite, aq.	sat.	+	+	
Sodium hypochlorite, aq.	25	+	+	
Chloroform	100	-*	-	
Chlorine water	sat.	°	-	
Hydrogen chloride, gaseous	high	+	+	
Isooctane	100	+	°	
Isopropyl alcohol	100	+	+	
Potassium iodide, aq.	sat.	+	+	
Cresol	100	+	°	
Cresol, aq.	sat.	+	°	
Benzoic acid	100	+	+	
Benzoic acid, aq.	sat.	+	+	+
Boric acid	100	+	+	
Boric acid, aq.	sat.	+	+	
Citric acid, aq.	sat.	+	+	+
Nitric acid	50	°	-	
Nitric acid	25	+	+	
Nitric acid	10	+	+	
Hydrofluoric acid	40	+	+	
Phosphoric acid	sat.	+	°	
Phosphoric acid	50	+	+	
Phosphoric acid	10	+	+	+
Hydrochloric acid	sat.	+	+	
Chlorosulphonic acid	100	-	-	
Chromic acid	sat.	+	-	
Chromic acid	20	+	°	
Succinic acid, aq.	sat.	+	+	
Lactic acid, aq.	90	+	+	
Lactic acid, aq.	50	+	+	
Lactic acid, aq.	10	+	+	+
Formic acid	98	+	°	
Formic acid	90	+		
Formic acid	50	+	+	
Formic acid	10	+	+	+
Glacial acetic acid	100	+	°	-
Acetic acid, aq.	50	+	+	
Acetic acid, aq.	10	+	+	+
Oleic acid	100	+		
Sulphuric acid	96	+	°	
Sulphuric acid	50	+	+	
Sulphuric acid	25	+	+	
Sulphuric acid	10	+	+	+
Stearolic acid	100	+		
Oxalic acid, aq.	sat.	+	+	+
Acidity of wine, aq.	sat.	+	+	

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Hyper manganese, aq.	sat.	+	+	+
Methanol	100	+	+	
Methanol, aq.	50	+	+	
Methyl ethyl keton	100	+	°	
Methyl chloride	100	°		
Mineral oils	(see Industrial liquids)			
Urea, aq.	sat.	+	+	
Naphthalene	100	+		
Naphthalene	100	-*	-	-
Soda lime	50	+	+	
Soda lime	25	+	+	
Soda lime	10	+	+	+
n-Buthanol	100	+	+	
Nitrobenzene	100	+	°	
Ammonium acetate, aq.	any	+	+	+
Acetate see isooctane				
Phosphorous pentoxide	100	+		
Sulphur dioxide	dil.	+	+	
Ozone < 0.5 ppm		+	-*	
Hydrogen peroxide, aq.	90			
Hydrogen peroxide, aq.	30	+	°	
Hydrogen peroxide, aq.	10	+	+	
Hydrogen peroxide, aq.	3	+	+	+
Potassium persulphate, aq.	sat.	+		
Propane, liquid	100	+		
Propane, gaseous	100	+	+	
Pyridine	100	+	°	
Mercury	100	+	+	
Sulphur	100	+	+	+
Ammonium sulphate	any	+	+	+
Potassium sulphate, aq.	sat.	+	+	+
Sodium sulphate, aq.	sat.	+	+	+
Carbon disulphide	100	°		
Hydrocarbon	dil.	+	+	
Sodium sulphite, aq.	sat.	+	+	
Barium salts	any	+	+	+
Magnesium salts, aq.	sat.	+	+	+
Chromium salts 2+, 3+	sat.	+	+	
Copper salts	sat.	+	+	+
Nickel salts	sat.	+	+	
Mercury salts, aq.	sat.	+	+	
Silver salts	sat.	+	+	
Zinc salts, aq.	sat.	+	+	
Iron salts, aq.	sat.	+	+	+
Sodium sulphide, aq.	sat.	+	+	
Trisodium tetraborate, aq.	sat.	+	+	+
Tetrahydrofuran	100	°	-	
Tetrahydronaphthalene	100	°	-	
Tetrachloroethane	100	°	-	
Tetrachloromethane	100	°	-	
Thiophene	100	°	-	
Sodium thiosulphate, aq.	sat.	+	+	
Toluene	100	°	-	
Trichloroethane	100	°	-*	
Ammonium carbonate	any	+	+	+
Potassium carbonate (potash)	sat.	+	+	
Sodium carbonate (soda)	sat.	+	+	
Sodium carbonate (soda)	10	+	+	+
Water	100	+	+	+
Xylene	100	°	-	

All information given in this brochure – including pictures and illustrations – is provided to the best of our knowledge but without our guarantee. The user of the products has to decide on its own authority about the suitability for the intended application. The products can be changed without prior notice. Magnaplast GmbH reserves its right to change materials or processes which do not affect the compliance with relevant specifications without informing the buyers.

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Industrial liquids				
Battery acid		+	+	
Asphalt		+	°	
Petrol, pure		+	°	
Petrol, natural		+	°	
Petrol, special		+	°	
Petrol, super		+	°	
Bleaching lye (12.5% Cl)		°	°	
Borax, aq.	sat.	+	+	
Wood turpentine		+	+	
Brake fluid		+	+	
Tar		+	°	
Formalin®		+	+	
Photographic developer	stand.	+	+	
Fridex®		+	+	
Chlorinated lime		+	+	
Chrome tanning bath		+	+	
Chromic-sulphuric acid mixture		-	-	
Alum saturated		+	+	
Shoe polish		+	°	
Kresolum Saponatum®		+		
Moth balls		+		
Lanolin®		+	°	
LITEX®		+	+	
Linseed oil		+	+	
Lysol®		+	°	
Mineral oils (free from aromatics)		+	°	-
Engine oils		+	°	-
Diesel oil		+	°	
Synthetic grease removal agent	stand.	+	+	+
Oil for two-stroke engines		°	°	
Oil for typewriters		+	+	
Transformer oil		+	°	
Oleum	any	-	-	
Paraffin	100	+	+	-
Paraffin oil	100	+	°	-
Pectin saturated		+	+	
Petroleum ether	100	+	°	
Furniture polish		+	°	-
Detergent		+	+	
Sagrotan®		+	°	
Surfactants for dishes		+	+	+
Silicone oil		+	+	
Pine essence		+	+	
Soda	see sodium carbonate			
Solvina		+	+	
Turpentine		°	-	
Heating oil		+	°	
China ink		+	+	
Fixing bath	10	+	+	
Sea water		+	+	+
Water glass		+	+	
Parquet wax		+	°	
Plasticizers – dibutyl phthalate		+	°	
Plasticizers – dibutyl sebacate		+		
Plasticizers – dihexyl phthalate		+		
Plasticizers – dioctyl adipate		+		

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Plasticizers – dioctyl adipate		+		
Plasticizers – dioctyl phthalate		+		
Plasticizers – tricresyl phosphate		+		
Plasticizers – trioctyl phosphate		+		

Pharmaceuticals and cosmetics				
Aspirin®		+		
Quinine		+		
Tincture of iodine		+		
Camphor		+		
Nail polish		+		
Menthol		+		
Soap and soap flakes		+		
Soap solution	sat.	+	+	+
Soap solution	10	+	+	+
Nail polish remover		+	°	
Perfume		+		
Hair shampoo		+	+	
Vaseline		+	°	
Toothpaste		+	+	

Foodstuffs and luxury items				
Potato salad		+		
Coca-Cola®		+		
Sugar dry		+	+	+
Tea – leaves		+	+	+
Tea – ready to drink		+	+	
Lemon puree and peel		+	+	+
Apple puree		+		
Orange puree and peel		+	+	+
Ether oils		+		
Gin		+	°	
Mustard	40	+		
Cocoa – ready to drink		+		
Cocoa – powder		+	+	+
Coffee (beans and ground)		+		
Coffee – ready to drink		+		
Ketchup		+	+	+
Cognac		+	+	
Spices		+		
Fish, pickled		+		
Sauerkraut (pickled cabbage)		+	+	+
Liquor	any	+	+	+
Lemonade		+	+	
Beef suet		+		
Mayonnaise		+	+	
Margarine		+	+	+
Marmalade		+	+	
Butter		+	+	
Honey		+	+	+
Milk-based foods		+	+	+
Milk		+		
Flour		+	+	
Vinegar	stand.	+		
Lemon peel oil		+	+	
Coconut oil		+		
Mint oil		+	+	
Olive oil		+	+	
Palm oil		+	°	
Orange peel oil		+		

Chemicals	Concentrate [%]	Temp. [°C]		
		20	60	100
Vegetable oil		+	°	
Soya bean oil		+	°	
Maize oil		+	°	
Groundnut oil		+	+	+
Animal fat		+	°	
Fruit salad		+		
Pastries		+	+	+
Beer		+		
Buttermilk		+		
Pudding		+	+	+
Rum	40	+	+	
Cod-liver oil		+		
Pork lard		+	°	
Salami		+	+	
Turnip syrup	any	+	+	+
Salted herrings		+		
Soda water		+		
Salt water		+	+	+
Cooking salt	see sodium chloride			
Cheese		+		
Starch solution	any	+	+	
Whipped cream		+		
Pineapple juice		+	+	
Lemon juice		+	+	
Grapefruit juice		+	+	
Apple juice		+	+	
Fruit juice		+	+	
Orange juice		+	+	
Tomato juice		+	+	
Baking juice		+	+	+
Lemon essence		+		
Almond essence		+		
Vinegar essence	stand.	+	+	
Rum essence		+		
Vanilla essence		+	+	
Curd		+		
Raw and boiled egg		+	+	+
Wine		+	+	
Whisky	40	+		
Vegetables		+	+	+
Gelatine		+	+	+

Key

+	resistant
+	partially resistant
°	resistant to a certain degree
-*	of low resistance
-	not resistant
no details	not tested
any	any concentration
conc.	concentrated solution
low	low concentration
stand.	standard concentration
serv.	service concentration
dil.	diluted solution
aq.	aqueous solution
sat.	cold saturated solution
hot sat.	hot saturated solution
trac.	traces

1 Boiling point 56.3 °C
 2 Boiling point 34.6 °C
 3 Boiling point 13.1 °C
 4 Discolouring with lead stabilisers
 5 Resistance depends on composition
 6 Free of solvents, plasticizers and other additives



HTplus indoor sewage system



Ultra dB low-noise indoor sewage system



Skolan-dB thick-walled, low-noise sewage system



KG PVC outdoor sewerage system



PP outdoor sewerage system Magnacor



PP KG 2000 outdoor sewerage system



Sewerage chambers system



Polyethylene (PE) pressure pipes



Drainage (DR) systems

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