Wavin Overseas
01 | 04132 | 3000
April 2004

Wavin AS

Product and Technical Guide

MADE IN GERMANY

LOW NOISE, SOIL & WASTE SYSTEM
THE PLASTIC ALTERNATIVE TO CAST IRON

Intelligent Solutions for Above Ground Projects

Content

Flying the Flag in the World

Wavin

The Wavin group of companies is one of the largest manufacturers of complete plastic pipe systems for the Building, Civil and Utility markets in Europe. In addition to having its own production facilities in almost every country on the European continent, Wavin also participates in the equity of plastic pipe companies in Australia, New Zealand and Singapore. In the remainder of the world the company is proud of an ever increasing impressive network of licensees, distributors and agents. Wavin has manufactured and supplied plastic pipe systems since 1955. The strength of the Wavin Group in terms of manufacturing capability and technical resources places the company at the forefront of the industry for product quality, innovation, technical support and customer service.
A survey carried out by international consultants for European Plastic News, a leading trade journal, identified Wavin as the foremost contributor in the development of plastic pipe systems and the leader in the field of marketing and technology.

Wavin Overseas

Wavin Overseas B.V., situated in The Netherlands, is the central export organisation of the Wavin Group dedicated to providing a global service. Wavin Overseas sells Wavin products, supplies technology (under licence) and equipment to manufacture these products locally. Wavin Overseas is experienced in setting up complete factories, delivering a comprehensive package of manufacturing equipment, ancillaries and services such as production know-how and technical support. In effect Wavin Overseas can supply all the help you need to supply your market. Wavin Overseas operates under a Quality Management System, which is accredited to EN ISO 9001:2000 by the Dutch Council for Accreditation.

A Wide Range of Products

Wavin's extensive range of plastic pipe systems is designed and manufactured to meet the highest standards set by the building and construction industry world-wide.

Wavin's products are generally available ex-stock from one of our numerous distributors around the world or directly through our export department at Wavin Overseas.

The Wavin product range comprises:

- Hot & Cold Water Systems
  (PEX, Metalplastic, PPR and PB)
- Soil & Waste (DWV) Systems
  (PVC, PE and PP)
- Sanitary Systems
  (traps, siphons and flushing tanks)
- Rainwater Management Systems (collection, re-use and infiltration)
- Gutter Systems
- Road Drainage Systems / Road gullies
- Surface Drainage / Channel drainage
- Sewer Systems (PVC, PE and PP/solid and structured wall)
- Inspection Chambers & Manholes
- Pressure Systems
  (U-PVC, O-PVC and PE)
- Cable Duct Systems
- Relining/No-Dig Pipe Renovation Systems (gas/water/sewer)
- Land Drainage Systems
- Irrigation Systems

www.wavinoverseas.com

More information about all Wavin products can be found in our extensive on-line product catalogue on our website www.wavinoverseas.com

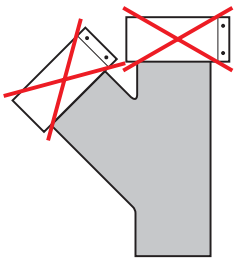
Furthermore this website contains information about Wavin Overseas, latest news and developments, licensing, machinery and equipment and environmental issues.

Wavin AS

Wavin AS is a complete low noise, soil and waste system made of Astolan®. It is the plastic alternative to Cast Iron. The pipes are manufactured in Germany in a range of nominal pipe sizes from 56, 70, 90, 100, 125, 150 and 200 mm in diameter. Complemented by a full range of Astolan® fittings, the system offers flexibility of an extensive choice, excellent quality and reliability. Compared to Cast Iron, Wavin AS is quick and easy to install, because of its socket connections.

Wavin AS is resistant to hot water and fulfils the requirements of DIN 1986, which means 95ºC short term and 90ºC long term temperature loading. Wavin AS can be used for the drainage of wastewater between pH 2 and pH 12.

The system is designed for professional wastewater installations in buildings. Moreover it can be used for roof-, estate- and bridge drainage. Compared to Cast Iron Wavin AS soil and waste system provides the specifier, the plumber and end-user with many advantages:



Complete

low noise system

Wavin AS pipes and fittings are produced entirely in Astolan®, from 56 mm up to 200 mm in diameter.
Of course with the same high wall thickness and overall high density.
No improvisation or system change.
Sound insulation without gaps.

Magic

formula of Astolan®

Wavin AS is made of Astolan®; a minerally reinforced polypropylene. Because of its high specific weight and its special molecular structure, Astolan® is able to absorb airborne sound as well as structure borne sound.

Easy installation

quick and economic

Wavin AS is lightweight thus easy to handle. Installation is quick and easy, due to the proven socket connections and easy pipe cutting.
Time and cost savings.

DN 90 Optimal

for wall mounting

Dimension DN 90 is our modern solution for wall mounting. It is easy to install and prevents damage to floors.

Long lives

the sound insulation

Wavin AS is extremely robust, resistant to corrosion, internally very smooth and free of incrustations. Approved for underground installation. Optimum conditions for a long life.

Hot and greasy?

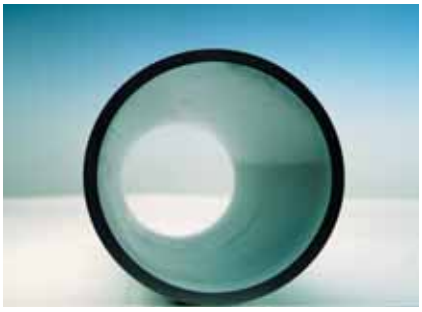
No problem!

Wavin AS has an optimal performance with hot and greasy wastewater, eg from professional kitchens.

Absolutely

not selective

Wavin AS can be fixed with any commercial pipe bracket (with rubber insert). Expensive fixing techniques are not necessary.



Specialist

pipe products

Wavin constantly strives for new and innovative techniques to provide cost effective solutions to pipe system renewal and renovation. In addition to our own research we work closely with plumbers and independent consultants to bring innovative plastic materials and installation techniques to the building industry.

Quality

assurance and approvals

Rigorous testing and quality control throughout the entire production process ensures that Wavin AS pipes and fittings together build a highly reliable and extremely effective low noise system.

They have the RAL – quality mark of the German Community of Plastic Pipes (GKR), Bonn, and a general building inspection approval with the approval number Z.-42.1-228 of the German Institute for Building (DiBt). This also allows Wavin AS to be used as main pipeline for underground installations.

Wavin AS

worldwide certificates and approvals:

Denmark: ETA Denmark VA 2.14 DK 6858
Norway: Godkjenningsnmnda vor Sanitärmateriell Nr. 61-090
Sweden: Boverket DNR 83-4480/90
Australia: Watermark Nr.: MP52 Spec 005
Germany: DiBt, Z.-42.1-228
Turkey: Turkish Standards Quality Appropriateness Certificate
Poland: Aprobata techniczna COBRTI INSTAL Nr AT-99-02-0670

Noise Insulating

properties

With its unsurpassed noise insulating characteristics, Wavin AS is the optimal solution where noise insulation is required. The patented raw material Astolan® has a high specific weight and special molecular structure, which enables absorption of airborne sound as well as structure borne sound.

Airborne

sound

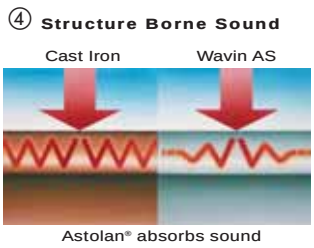
Sound which diffuses in the air. ① Occurs inside the pipe due to impact and flow noises. Sound energy is absorbed in the pipe wall. ② Wavin AS pipe material provides excellent airborne sound absorbing behaviour, because of its high specific weight and special molecular structure.

Structure

borne sound

Sound which diffuses in solid materials. ③ Structure borne sound is created by the impact of wastewater on the pipe wall, especially in vertical stacks in the area of bends and branches.

Structure borne sound transmits from the shock or impact zone over the whole pipe. ④ Due to vibration of the pipe additional airborne sounds are generated. The special molecular structure of Wavin AS enables the absorbtion of structure borne sound.



Weight per meter

of Wavin AS

The weight per meter of a soil and waste system is of great importance in absorbing airborne and structure borne sounds. The combination of high specific weight and low elasticity gives the optimal results in damping the transmission of both sounds through a pipe system. Wavin AS is specifically developed to make optimal use of both properties and resulted in relative thick walls and high specific material weight. Therefore pipe weights should not be less than indicated in the following table:

Weight per meter:		
DN 56	=	1,40 kg/m
DN 70	=	2,10 kg/m
DN 90	=	2,30 kg/m
DN 100	=	3,55 kg/m
DN 125	=	4,40 kg/m
DN 150	=	5,15 kg/m
DN 200	=	7,50 kg/m

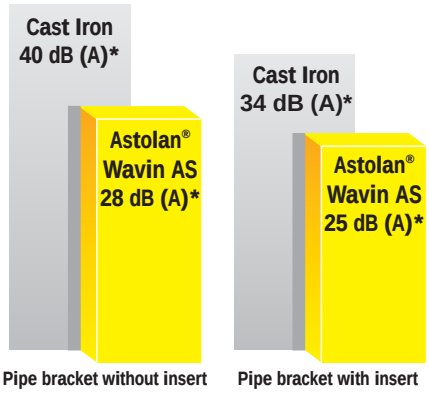
The Sonic

behaviour of Wavin AS

Wavin AS is the modern alternative to cast iron. In contrast to metallic materials, Astolan® displays a low level of noise transmission. Sound energy cannot spread over the pipe wall. The extreme sound insulating behaviour of Wavin AS has been proven in extensive comparative measurements at the Institute for Sound and Heat Protection, Prof. Dr. Zeller, Essen, Germany. Test results have confirmed that Wavin AS gives an excellent performance compared to Cast Iron.

The sonic behaviour of Wavin AS compared to Cast Iron

Installation: outside the measuring room



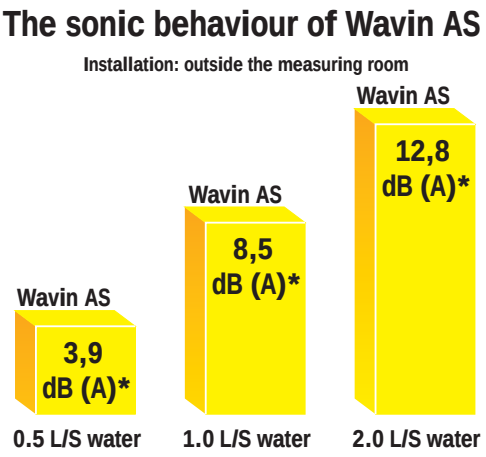
*Institute for Sound and Heat Protection, Prof. Dr. Zeller, Germany. Test report of 30-09-1986/15.216. * Installation wall 80 kg/m²*

The Sonic

behaviour of Wavin AS

In case of correct installation of the Wavin AS system (see page 20-21, recommendations) extremely low levels of noise emission are achieved.
This has been confirmed by noise measurements at the Frauenhofer Institute for Building Physics, Stuttgart, Germany.

Noise measurement at
Frauenhofer Institute for Building
Physics, Stuttgart, P-BA 130/1997
** Installation wall 220 kg/m2*



Technical Data

Material:

Astolan®; polypropylene, mineral reinforced, resistant to hot water, DIN 4102, B2.

Physical characteristics:

Density	~ 1,9 g/cm3 3 DIN 53479
Elongation at break	~ 29%
Tensile strength	~ 13 N/mm2
E-modulus	~ 3800 N/mm2
Coefficient of thermal linear expansion	~ 0,09 mm/mK
Fire resistancy	~ DIN 4102, B2
Colour	Light grey RAL 7035

Marking:

Wavin AS, nominal diameter, production year, quality mark, approval, material, control mark, fire classification.

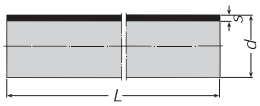
Example:

Wavin AS, DN 100, 2002,
Z.-42.1-228, ASTOLAN®, Ü DIN 4102, B2.

Product list

AS - plain ended pipe

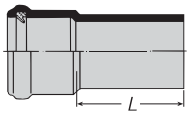
Dim. DN	Article No.	d mm	s mm	L mm	Weight kg/m	Standard Packing
56	91.1.0000	58	4,0	3000	1,40	30
70	91.1.0002	78	4,5	3000	2,30	38
90	91.1.0003	90	4,5	2000	2,30	35
100	91.1.0004	110	5,3	3000	3,55	29
125	91.1.0006	135	5,3	3000	4,40	23
150	91.1.0008	160	5,3	3000	5,15	20
200	91.1.0010	200	6,2	3000	7,50	14



AS - socketed short length

Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
56	91.1.0100	150	0,30	672
70	91.1.0102	150	0,70	360
90	91.1.0103	150	0,50	240
100	91.1.0104	150	1,05	196
125	91.1.0106	150	1,40	140
150	91.1.0108	150	1,50	100

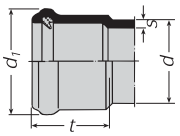
Other short lengths on request.



Socket dimension

Dim. DN	d mm	d1 mm	s mm	t mm
56	58	75	4,0	54
70	78	96	4,5	56
90	90	110	4,5	55
100	110	132	5,3	61
125	135	161	5,3	64
150	160	181	5,3	66
200	200	227	6,2	85

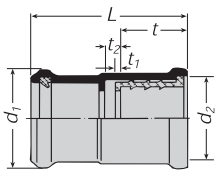
All fittings with sockets are pre-assembled with sealing rings.
For spare sealing rings see page 15.



AS - compensator socket

Dim. DN	Article No.	d1 mm	d2 mm	t mm	t1 mm	t2 mm	L mm	Weight kg/pc.	Standard Packing
56	91.1.2000	75	72	49	5	15	126	0,20	924
70	91.1.2002	96	84	48	6	16	119	0,30	576
90	91.1.2003	110	104	47	6	16	123	0,30	400
100	91.1.2004	132	116	48	6	16	124	0,49	308
125	91.1.2006	161	141	63	6	16	132	0,66	192
150	91.1.2008	181	166	63	6	16	144	0,75	120

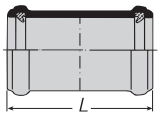
All compensator sockets are pre-assembled with collars and sealing rings.
For spare collars and sealing rings see page 15.



AS - double socketed sleeve, with central register

Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
200	91.1.2022	168	1,33	75

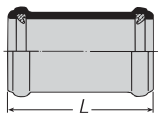
Connecting element between pipes as well as between pipes and fittings.



Product list

Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
56	91.1.2010	105	0,18	1000
70	91.1.2012	107	0,26	640
100	91.1.2014	117	0,43	336
125	91.1.2016	124	0,56	216
150	91.1.2018	143	0,62	140
200	91.1.2020	168	1,30	140

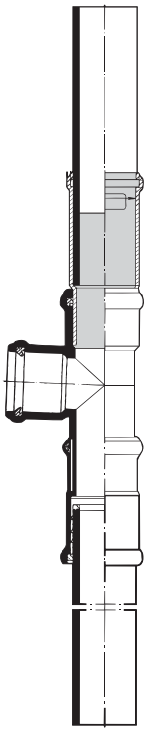
Only for subsequent installation or repair purposes.



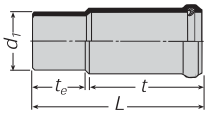
AS - double socketed sleeve

Dim. DN	Article No.	d1 mm	t mm	te mm	L mm	Weight kg/pc.	Standard Packing
100	91.1.2400	110	127	74	210	0,80	196

For constructing a branch or prefabrication at a later date.



AS - long socket

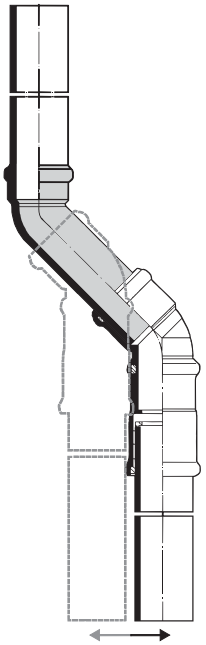


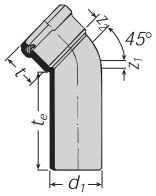
Product list

Dim. DN	Article No.	d1 mm	t mm	te mm	Z1 mm	Z2 mm	Weight kg/pc.	Standard Packing
100	91.1.2390	110	57	250	24	28	1,30	112

AS - long bend 45°

For a simple adjustment of long leg bend (or long leg elbow 45°) in narrow installation with 45° change of direction, or stepped 90° change of direction.

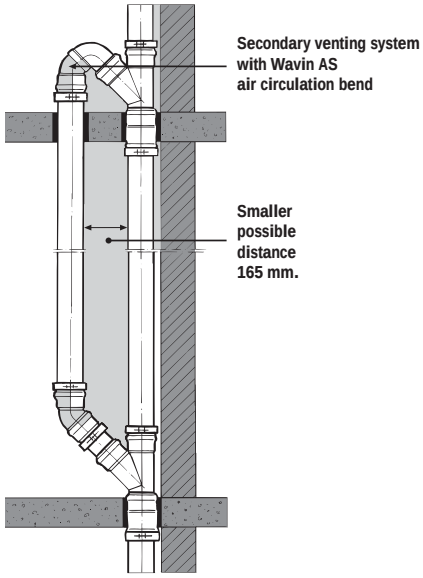


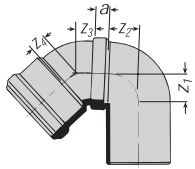


Dim. DN	Article No.	Z1 mm	Z2 mm	Z3 mm	Z4 mm	a mm	Weight kg/pc.	Standard Packing
100	91.1.2290	78	58	44	28	19,5	1,24	110

AS - air circulation bend 135°

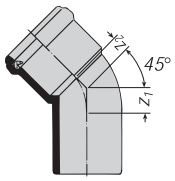
For secondary venting systems





Product list

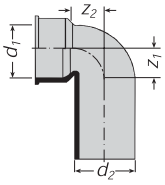
Dim. DN	°	Article No.	z1 mm	z2 mm	Weight kg/pc.	Standard Packing
56	15°	91.1.2200	19	8	0,22	960
56	30°	91.1.2220	24	16	0,21	800
56	45°	91.1.2240	28	17	0,22	800
56	67°	91.1.2260	43	21	0,23	660
56	87°	91.1.2270	47	32	0,25	768
70	15°	91.1.2202	26	10	0,33	500
70	30°	91.1.2222	30	17	0,37	480
70	45°	91.1.2242	37	21	0,39	480
70	67°	91.1.2262	48	31	0,42	400
70	87°	91.1.2272	62	42	0,46	340
90	15°	91.1.2203	8	8	0,33	380
90	30°	91.1.2223	15	14	0,35	340
90	45°	91.1.2243	22	20	0,36	320
90	87°	91.1.2273	49	42	0,41	256
100	15°	91.1.2204	27	15	0,61	220
100	30°	91.1.2224	37	19	0,65	224
100	45°	91.1.2244	44	28	0,71	196
100	67°	91.1.2264	60	44	0,74	168
100	87°	91.1.2274	78	58	0,89	144
125	15°	91.1.2206	29	16	0,81	160
125	30°	91.1.2226	38	45	0,91	120
125	45°	91.1.2246	50	34	0,98	120
125	87°	91.1.2276	96	102	1,37	80
150	15°	91.1.2208	13	19	0,89	100
150	30°	91.1.2228	24	30	1,00	100
150	45°	91.1.2248	36	42	1,10	64
150	87°	91.1.2278	83	89	1,77	48
200	45°	91.1.2250	47	42	1,99	40
200	87°	91.1.2280	103	93	2,51	32



AS - bends
15°, 30°, 45°, 67° and 87°

Dim. DN	Article No.	d1 mm	d2 mm	Z1 mm	Z2 mm	Weight kg/pc.	Standard Packing
56/40	91.1.2380	50	58	30,5	25	0,08	800

Seals DN 40/30 B and DN 40/40 C are part of the Wavin PP delivery programme.

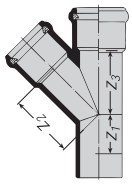


AS - trap conversion bend

Product list

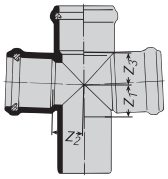
Dim. DN	°	Article No.	Z1 mm	Z2 mm	Z3 mm	Weight kg/pc.	Standard Packing
56/56	45°	91.1.2030	28	74	74	0,43	424
56/56	67°	91.1.2060	36	45	45	0,38	400
56/56	87°	91.1.2080	48	32	32	0,37	336
70/56	45°	91.1.2032	17	83	79	0,58	280
70/56	67°	91.1.2062	31	54	46	0,51	280
70/56	87°	91.1.2082	48	42	28	0,49	320
70/70	45°	91.1.2034	38	99	99	0,75	216
70/70	67°	91.1.2064	47	61	60	0,64	252
70/70	87°	91.1.2084	62	43	43	0,59	240
90/56	45°	91.1.2037	-3	97	84	0,70	224
90/90	45°	91.1.2035	19	113	106	0,70	168
100/56	45°	91.1.2036	1	110	97	0,94	140
100/56	67°	91.1.2066	24	75	52	0,82	140
100/56	87°	91.1.2086	47	61	27	0,78	160
100/70	45°	91.1.2038	21	122	115	1,22	112
100/70	67°	91.1.2068	40	81	67	1,00	120
100/70	87°	91.1.2088	60	61	43	0,94	140
100/100	45°	91.1.2040	44	136	136	1,50	88
100/100	67°	91.1.2070	58	84	84	1,20	96
100/100	87°	91.1.2090	78	58	58	1,10	112
125/100	45°	91.1.2042	31	155	152	1,79	62
125/100	87°	91.1.2092	78	73	59	1,39	72
125/125	45°	91.1.2044	49	169	169	2,04	56
125/125	87°	91.1.2094	90	72	72	1,56	60
150/100	45°	91.1.2046	2	168	159	1,80	46
150/150	45°	91.1.2048	36	194	194	2,20	24
200/200	45°	91.1.2050	42	247	239	4,40	16

AS - branches 45°, 67°, 87°



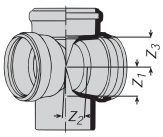
Dim. DN	Article No.	Z1 mm	Z2 mm	Z3 mm	Weight kg/pc.	Standard Packing
100/100/100	91.1.2100	78	58	58	1,40	72

AS - double branche 87°



Dim. DN	Article No.	Z1 mm	Z2 mm	Z3 mm	Weight kg/pc.	Standard Packing
100/100/100	91.1.2110	78	58	58	1,58	80

AS - corner branche 87°

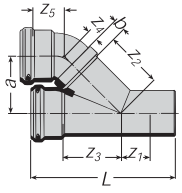


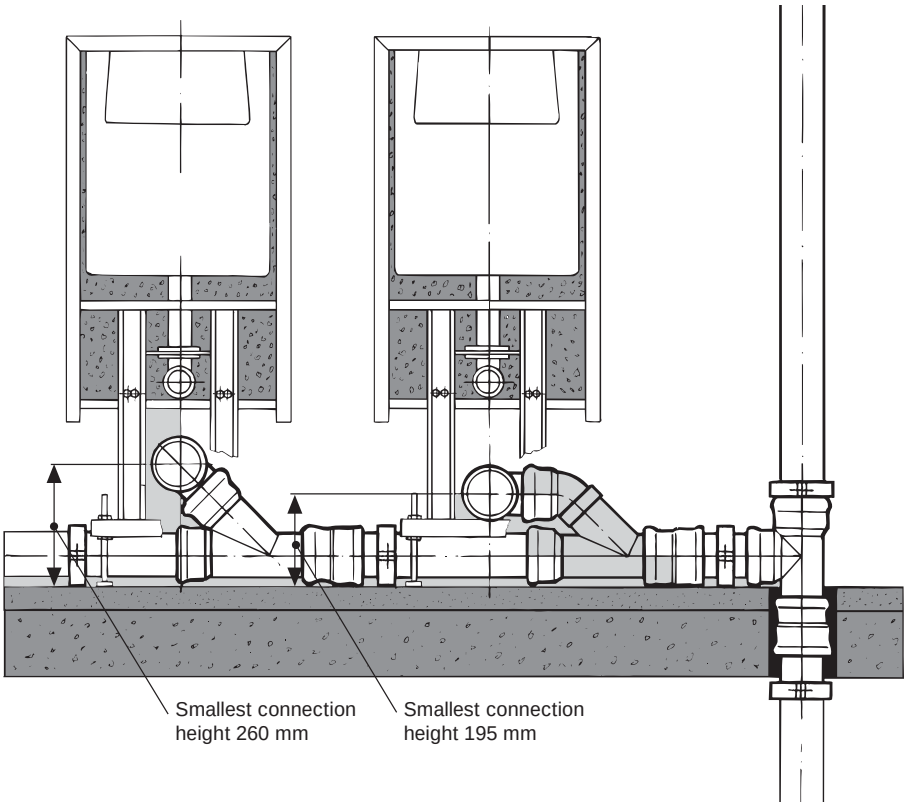
Product list

Dim. DN	Article No.	Z1 mm	Z2 mm	Z3 mm	Z4 mm	Z5 mm
100/100	91.1.2120	44	136	136	44	28

a mm	b mm	L mm	Weight kg/pc.	Standard Packing
129	19,5	320	1,93	70

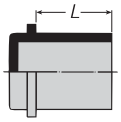
AS - parallel branche





Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
56	91.1.2340	49	0,11	1000
70	91.1.2342	52	0,20	1000
90	91.1.2343	40	0,18	800
100	91.1.2344	57	0,37	500
125	91.1.2346	60	0,51	200
150	91.1.2348	49	0,54	300

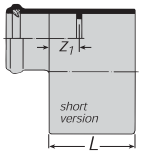
AS - socket plug

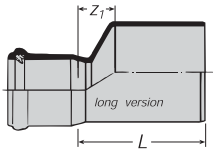


Product list

AS - reducer

Dim. DN	Article No.	z1 mm	L mm	Weight kg/pc.	Standard Packing
56/ 40	91.1.2300	18	60	0,03	1000
70/ 56*	91.1.2302	28	76	0,05	1000
70/ 56	91.1.2304	28	76	0,20	1012
90/ 56	91.1.2303	-32	84	0,30	864
90/ 70	91.1.2305	-29	82	0,40	800
100/ 56	91.1.2306	10	87	0,45	360
100/ 70	91.1.2308	-10	87	0,47	336
100/ 90	91.1.2309	-35	87	0,47	540
125/100	91.1.2310	-13	90	0,63	240
150/100**	91.1.2312	44	115	0,98	112
150/125**	91.1.2314	33	125	1,00	120
200/150**	91.1.2316	32	142	1,32	60



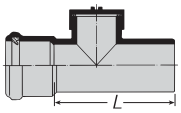


*Internal diameter of socket: 50 mm (PP)
** long version

AS - acces pipe type RU

Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
56	91.1.2320	151	0,30	480
70	91.1.2322	208	0,87	196

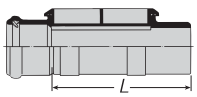
With round access lid.



AS - acces pipe type RE

Dim. DN	Article No.	L mm	Weight kg/pc.	Standard Packing
100	91.1.2330	298	1,12	72
125	91.1.2332	316	1,46	60
150	91.1.2334	345	3,52	40

With rectangular access lid.



Safety clip for socket plug

Dim. DN	Article No.	Standard Packing
56	91.1.2491	1
70	91.1.2493	1
100	91.1.2496	1
125	91.1.2497	1
150	91.1.2498	1
200	91.1.2499	1

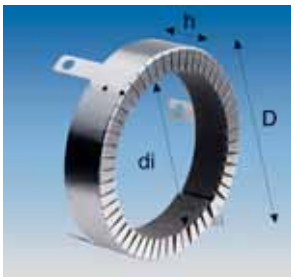
Axially fixed.

Product list

Dim. DN	Article No.	h mm	D mm	di mm	Standard Packing
56- 70	91.1.2530	20	108	88	2
90-100	91.1.2532	30	150	120	2
125-150	91.1.2534	40	210	170	2
200	on request	-	-	-	-

Easy installation below the ceiling or on the wall by a folding system.
Approval nr.: Z-19.17-1390

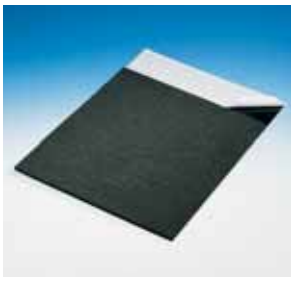
Fire protection collar type NE/Compact



Dim. DN	Article No.	Standard Packing
50	91.1.2540	10
70	91.1.2542	10
100	91.1.2544	10
125	91.1.2546	10
150	91.1.2548	10

ARMAFLEX.

Coating for wall duct



Dim. DN	Collar Art.-No.	Standard Packing	Sealing rings Art.-No.	Standard Packing
40	-	-	91.1.2440	20
56 (50 mm)	91.1.2461	10	91.1.2441	20
56 (58 mm)	91.1.2462	10	91.1.2442	20
70 (75 mm)	91.1.2463	10	91.1.2443	20
70 (78 mm)	91.1.2464	10	91.1.2444	20
90	91.1.2465	10	91.1.2445	20
100	91.1.2466	10	91.1.2446	20
125	91.1.2467	10	91.1.2447	20
150	91.1.2468	10	91.1.2448	20
200	-	-	91.1.2450	20

Spare collar and sealing ring

Contents per bottle	Article No.	Standard Packing
500 ml	91.1.2480	648

Dimension DN	Consumption of lubricant per/500ml
56	approx. 40 connections
70	approx. 35 connections
90	approx. 32 connections
100	approx. 30 connections
125	approx. 25 connections
150	approx. 20 connections
200	approx. 10 connections

It is recommended to use the Wavin Lubricant.
When using a local lubricant, always use a clear lubricant.

Lubricant

Product list

Dim. DN	Article No.
56	11.5.1800
70	11.5.1802
90	11.5.1804
100	11.5.1806
125	11.5.1808
150	11.5.1810
200	11.5.1812

Bracket with rubber insert
Fixed bracket

Note: This bracket can be used both as a fixed bracket and as a sliding bracket.

The only difference is the small plastic rings. When the bracket is used as a fixed bracket; the plastic rings should be removed. When using the bracket as a sliding bracket; the plastic rings should be put in place (see picture sliding bracket).

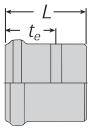
Bracket with rubber insert
Sliding bracket

Transition Fittings to other Soil & Waste Systems

Dim. DN	Article No.	te mm	L mm	Weight kg/pc.	Standard Packing
56*	91.1.2360	-	50	0,04	2000
70	91.1.2361	77	130	0,07	720

* Short version

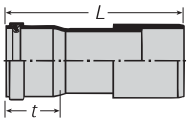
Wavin AS DN		Other Plastic Systems OD
56	X	50
70	X	75



Connection to PP, PVC-U and PE spigot end

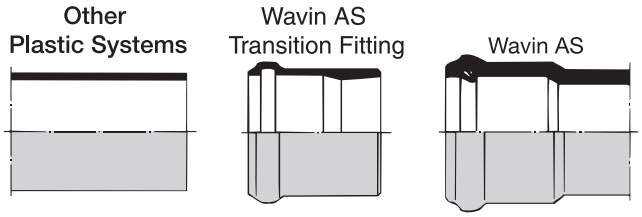
Dim. DN	Article No.	t mm	L mm	Weight kg/pc.	Standard Packing
125	91.1.2370	82	245	1,34	120

Wavin AS DN		Other Plastic Systems OD
125	X	110



Connection to PP, PVC-U and PE spigot end

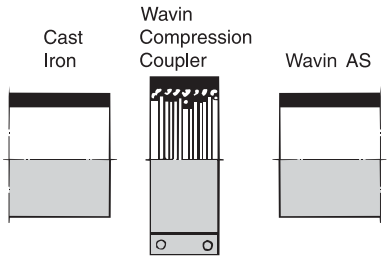
Connection from other Plastic Systems to Wavin AS



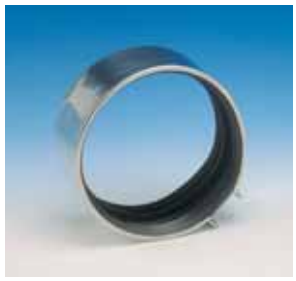
Product list

Connection from Cast Iron to Wavin AS

Dim. DN	Article No.	Standard Packing
56	91.1.2420	1320
70	91.1.2421	960
100	91.1.2422	540
125	91.1.2423	360
150	91.1.2424	240
200	91.1.2425	-



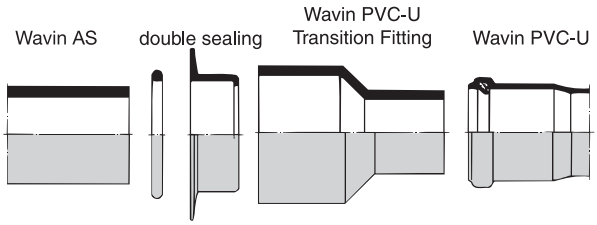
Compression Coupler



Can also be used for subsequent installation of pipes and fittings.

Connection from Wavin AS to PVC-U

Description	Article No.	Dim. DN
Wavin PVC-U Transition Fitting	91.1.2620	125



Direct connection from Wavin AS to other Plastic Systems

Wavin AS DN		Other Plastic Systems OD
90	X	90
100	X	110
150	X	160
200	X	200

Flexible transition fittings with Konfix from Wavin AS to PP, PE-HD and Cast Iron

Dim. DN	Article No.
56	91.1.2600
70	91.1.2602
90	91.1.2604
100	91.1.2606
125	91.1.2608

Connection with Konfix

Fields

of application

This product and installation guide is valid for soil and waste installations in buildings and dwellings which are constructed in Wavin AS pipes and fittings – raw material: Astolan®.

Multiple storey buildings requiring noise insulation:

- *Hotels*
- *Hospitals*
- *Shopping Malls*
- *Office Buildings*
- *Residential homes*
- *Apartments*
- *Schools and Universities*

Wavin AS pipes and fittings can be installed in the following fields of application:

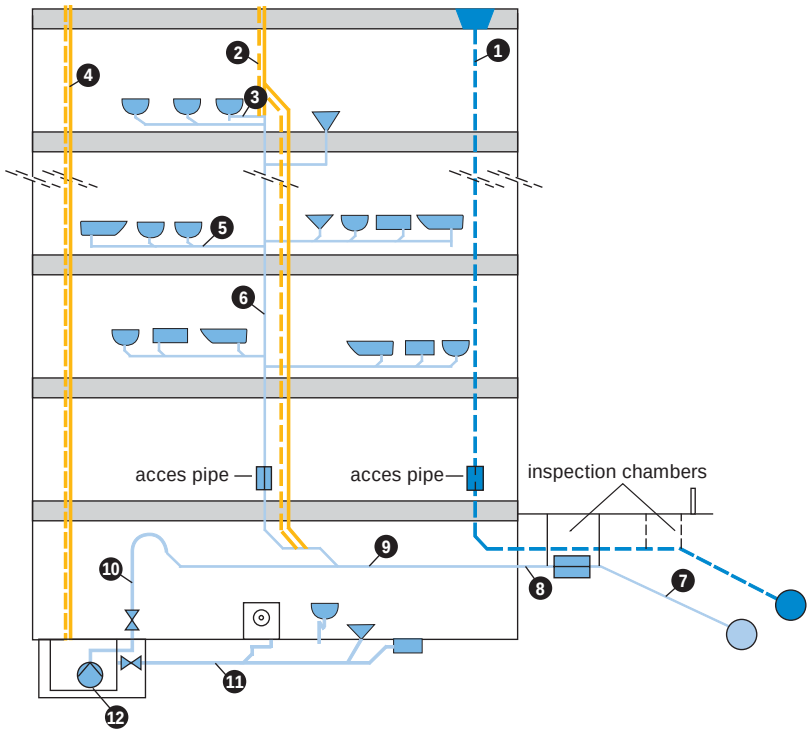
- *Single waste or drain pipes*
- *Collector pipes*
- *Stack pipes*
- *Ventilation pipes*
- *Rain stack pipes*
- *Underground pipes up to inspection chamber / manhole*

Waste

and ventilation pipes

Examples

1. *Rain stack pipe*
2. *Main ventilation*
3. *Single drain / waste pipe*
4. *Vents for collector pump cellars*
5. *Collector pipe*
6. *Stack pipe for waste water*
7. *Connecting sewer pipe (PVC-U)*
8. *Soil pipe*
9. *Collector pipe*
10. *Rising sewer pipe (PVC-U)*
11. *Underground collector pipeline*
12. *Faecal collection (cellar) pit*



Packing

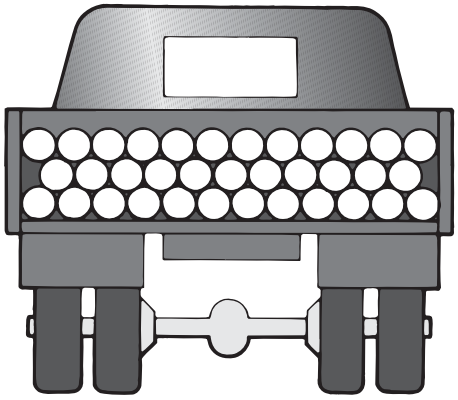
Wavin AS pipes and fittings are packed ready for transport in a customer friendly way. The packing guarantees optimal security, efficient storage and easy handling.

Standard delivery unit for pipes is per pallet. It contains 14 to 38 pipes depending on the pipe diameter. Due to the standardized 3 metre length of all pipes there is only one pallet type for each dimension (DN 56, DN 70, DN 100, DN 125, DN 150 and DN 200). This saves space in the warehouse. Further, Wavin offers DN 90 (wall mounting) in 2 metre length.
The pallets can be handled with a forklift truck.

Wavin AS fittings are packed in practical carton box pallets.

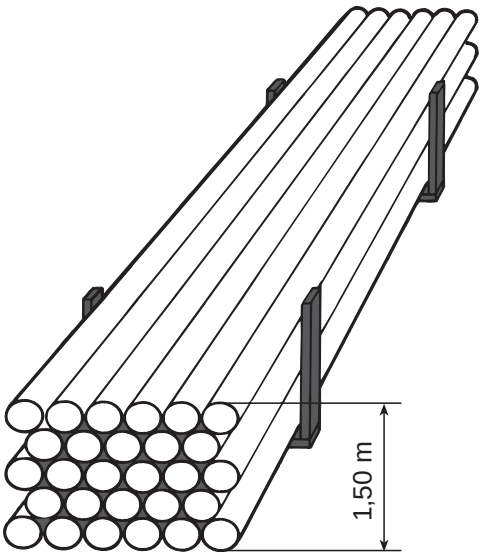
Transport

Wavin AS pipes – when no longer packed in original pallets – must lie fully supported over their total length during transport. Bending of the pipes should be avoided. Impact stress on pipes and fittings must be prevented.



Storage

If stored correctly no lasting deformations or damage to pipes and fittings will occur. Factory bundled pipe pallets can be stacked.
The stack of loose pipes should never be higher than 1,5 metre. The elastomeric sealing rings should peferably not be stored in the open air.



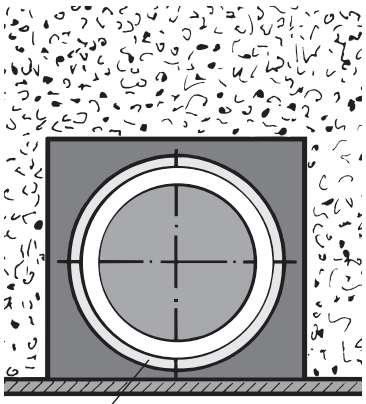
Sound

insulation

National / Local building regulations should be observed where applicable. In order to achieve optimal sound insulation it is highly recommended to implement the following instructions. These instructions are based on years of experience in compliance with strict and clear German Standards and Regulations (eg DIN 4109 and DIN 1053).

Waste pipes should not be used in living, sleeping and working rooms. Should the waste pipe system be fixed on massive walls adjacent to living, sleeping and working rooms, the specific area weight of that wall should be at least 220 kg/m2.

The same requirement also applies when installed in a shaft and fixed on the intermediate wall. Shafts can be closed with a minimum 1,5 cm plaster layer on an appropriate support. The Wavin AS pipe system must be free from the plaster layer, avoiding sound bridges. It is recommended to wrap a layer of mineral wool around the pipe, where contact with the plaster layer cannot be avoided. ⑤



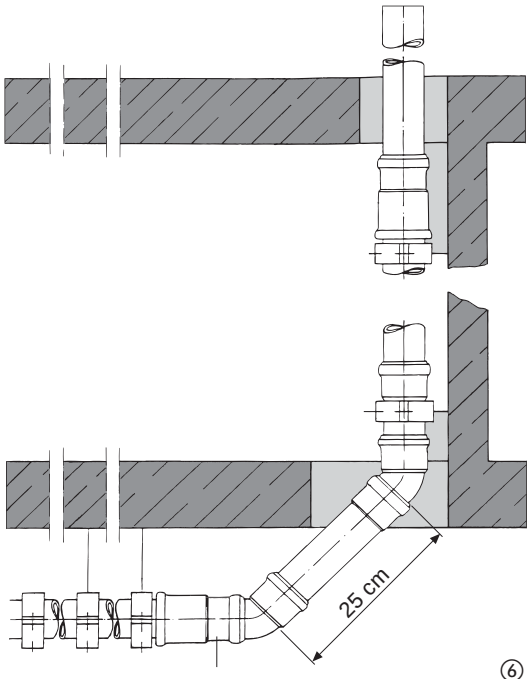
⑤

Sound

insulation

Emitted sounds depend highly on the course of the pipe.
The prevention or reduction of impact zones leads to less sound emission. It is therefore recommended to prevent abrupt directional changes. Instead of installing a 90° elbow it is far better to change the direction from vertical to horizontal with two 45° elbows, interconnected by a short piece of straight pipe with a minimum length of 25 cm. ⑥ For this purpose the 45° long bend is included in the Wavin AS program (see page 10).

For optimal sound insulation, use full encircling brackets with inserts of corrugated rubber. ⑦



⑥
WAVIN AS-Socket compensator

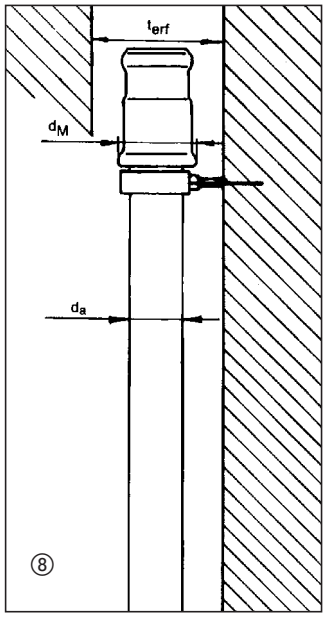

⑦

Installation

in walls

In case Wavin AS is to be installed against a wall with separate decorative top layer (e.g. plaster boards), it is required that the brackets are fixed to the construction wall and not to the decorative layer. Passing holes in the decorative layer can be mended by using elastic filler.
As long as stability and bearing capacity are not impaired, it is allowed to cut shafts and channels in brick work walls.
External heating of Wavin AS pipes should be limited by heat insulating the source; eg central heating pipes as well as hot tap water pipes.

Pipe and shaft dimensions to be taken from the table below and figure ⑧.



⑧

Table: Space requirement for Wavin AS pipes DN 56 upto DN 100 mm

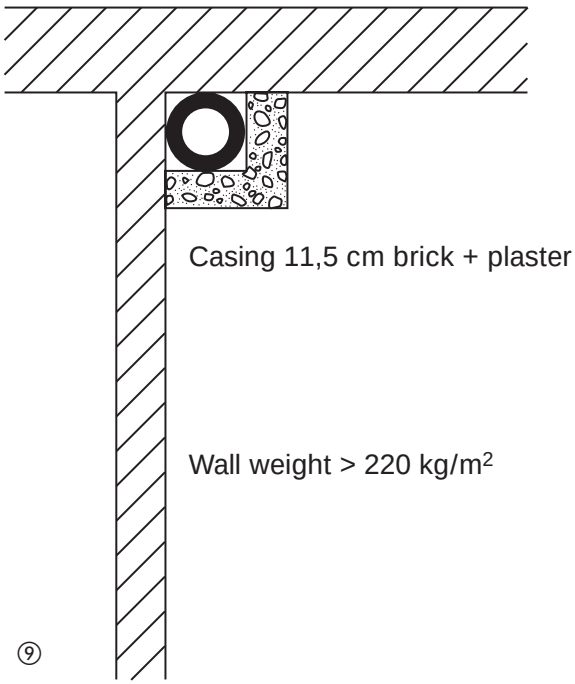
DN (mm)	OD of pipe d_a (mm)	OD of socket d_m (mm)	Min. required spacing*, t_{erf} (mm)
56	58	79	125
70	78	96	142
90	90	110	156
100	110	132	179

* The stated depths are not including pipe crossings

Installation

in concrete

Wavin AS pipes and fittings can be casted in concrete. Thermal induced lateral movements to be dealt with, according to previous instructions. Pipes and fittings must be secured properly in order to prevent lateral movement during casting of the concrete. Close the annular gap between pipe and socket with sealing tape to prevent ingres of mortar in the sealing ring.



⑨

Roof

drainage pipes

Roof drainage pipes projected through living, sleeping and working rooms can be installed as pictured in figure ⑨. The specific area weight of the casting should be at least equal to the wall and preferably for both at least 220 kg/m². Although the formation of condensation on the outside of Wavin AS pipes is less than on metallic pipes, it is recommended to insulate the pipes and fittings.

Floor

crossings

Floor crossings should be made leak resistant and sound absorbent. In the case of the floor being concreted, Wavin AS pipes and fittings should be protected by using a protection sleeve or heat insulating wrapping material.

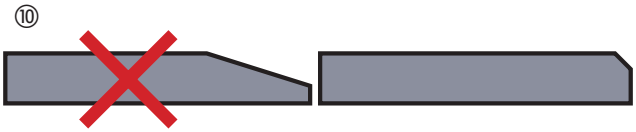
Pipe

cutting

Wavin AS can be cut simply with a commercial pipe cutter or saw. Always cut the pipe straight. Remove all swarf and burrs from the cut end and clean the pipe end. Bevel sharp cutting edge – do not chamfer! (figure ⑩)

For connections to socketed pipe systems with roll-rings, the ends of the Wavin AS pipes must be chamfered. (Note: Does not apply for PVC-U fittings with elastomeric sealing ring as well as PP pipes and fittings).

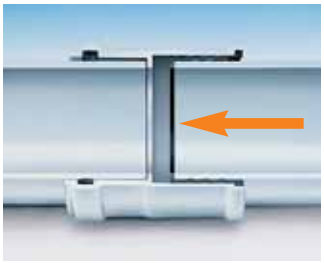
⑩

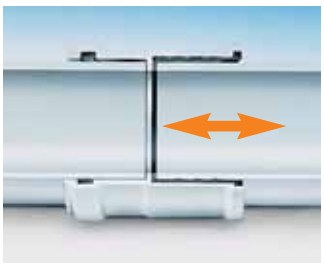


Joints with

the compensator socket

The Wavin AS compensator socket is used to connect two pipes as well as a pipe and fitting where compensation for axial movements is required. For conventional plastic soil and waste pipe systems the expansion margin is created by marking and withdrawing the pipe to the expansion length. This is not required for Wavin AS, as the compensator socket adapts to temperature changes in the system. This not only saves working time, but also gives additional technical security to the system.





Mounting

instructions

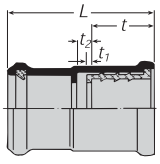
When making the connection with the compensator socket the following instruction rules should be adhered to:

- *Clean pipe end.*
- *Check the position and condition of the elastomeric sealing ring in the groove.*
  Further check the condition of the elastomeric expansion collar.
  If necessary, clean fitting, sealing ring and collar.
- *Push the expansion collar over the pipe end (1).*
  ATTENTION: The expansion collar may only be pushed over the plain pipe ends, never over the spigot end of fittings.
- *Apply Wavin lubricant* sparsely inside compensator socket of fitting (2).*
- *Apply and distribute Wavin lubricant evenly on outside of elastomeric compensator collar (3).*
- *Push fitting over compensator collar to full insertion depth. Check final position of compensator collar** (4-6).*
- *Apply Wavin lubricant on the next pipe end or spigot fitting and insert in the socket end to full depth.*

*) *Never use oil or grease*

**) *Insertion depth for pipe with collar into the compensator socket, see figure ⑪*

⑪



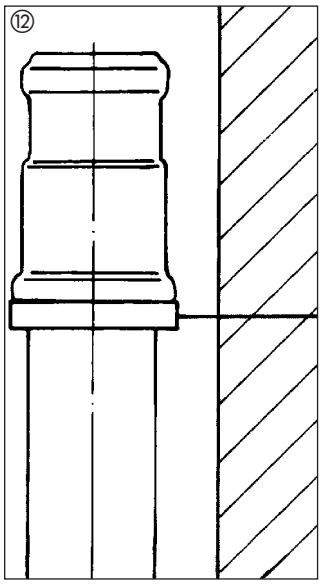
DN (mm)	L (mm)	t (mm)	t_1 (mm)	t_2 (mm)
56	126	49	5	15
70	119	48	6	16
90	123	47	6	16
100	124	48	6	16
125	132	63	6	16
150	144	63	6	16

Joints without

the compensator socket

Push-fit joints between pipes of maximum 3 metre lengths and fittings must be capable of absorbing lateral thermal expansion of up to 10 mm.
In case no use is made of the compensator socket, the required lateral expansion tolerance can be created by inserting the pipe end to full depth and subsequently withdrawing the pipe end by 10 mm. (figure ⑫).
Socket connections between fittings only, need no consideration for lateral compensation due to temperature differences and can therefore be fully inserted.

⑫



Installation

Wavin AS socket connection

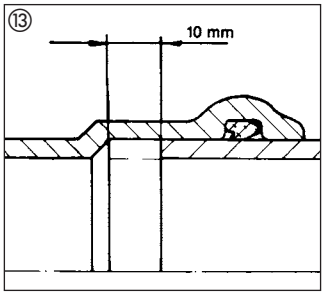
The socket connection is to be installed as follows:

- *Check the position and condition of the elastomeric sealing ring in the groove.*
  If necessary, clean fitting and sealing ring.
- *Clean pipe end or spigot fitting.*
- *Apply Wavin lubricant* in a thin and equal layer on pipe end.*
- *Insert pipe end straight to the central register of the socket.*
- *Withdraw pipe by 10 mm.*
  – never the fitting –

*) Never use oil or grease

In case of vertical installation of pipes, the individual pipe lengths must be fixed immediately after assembly with pipe brackets, in order to avoid the pipe from sliding downwards and eliminating the 10 mm expansion / contraction allowance. ⑬

⑬



Making a connection

on an already installed pipe

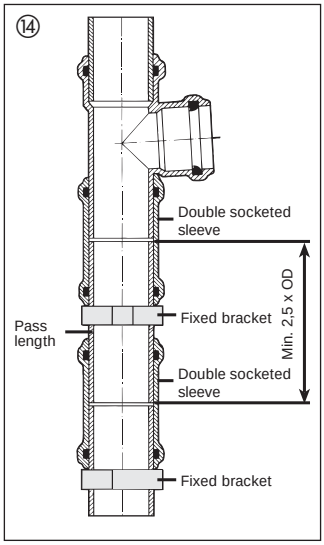
This can easily be executed using standard Wavin AS fittings.

Installation instructions using double socketed sleeves:

1. *Cut out a sufficient length of pipe (length of fitting plus 2,5x OD of pipe)*
2. *Cut required pass length*
3. *Deburr and bevel cutting edges*
4. *Slide branch or access pipe on upper pipe end*
5. *Fit one double socketed sleeve, over its full length, on pass length*
6. *Fit one double socketed sleeve, over its full length, on lower pipe end*
7. *Fit in pass length and close the pipe by sliding the double socketed sleeves in position*
8. *Fix double socketed sleeves as pictured in figure* ⑭

Alternatively Wavin compression couplers or Wavin AS long socket (only DN 100) can also be used.

⑭



General

instructions

In principle Wavin AS soil and waste systems should be installed tension free and with free lateral allowance for temperature compensation. Use sound absorbing brackets, dimensionally compatible to the pipe diameter. Recommended are screw-pipe brackets with inserts of corrugated rubber, which are fixed to the wall by screws and plastic plugs*. o

For pipe systems in which inner-pressures can arise, the joints have to be secured to avoid them from sliding apart and deviating from the centre axis.

The Wavin safety clips prevent the joints from sliding apart. ⑯ Alternatively the fixing brackets can be arranged appropriately.

*) *Metal plugs can be used, but will lead to disadvantageous sound emission.*

Fixing way:

Fixed bracket

The fixed bracket creates a fixed point in the pipe system. With fixed brackets the pipe or fitting cannot be moved through the bracket after the screws are tightened (no longitudinal movement is possible). In order to prevent sliding down of the vertical stack, each individual pipe length must be secured on one point by a fixed bracket. Fittings or groups of fittings must always be shaped as fixed points.

Also every horizontally installed pipe should always be fixed with one fixed bracket. All remaining pipe brackets – in the vertical as well as in the horizontal installation – must be sliding brackets. The prescribed bracket distances should not be exceeded.

Fixing way:

Sliding bracket

By using sliding brackets the pipe can still be moved through the bracket after the screws are tightened (longitudinal movement is possible once installed).

Arrangement

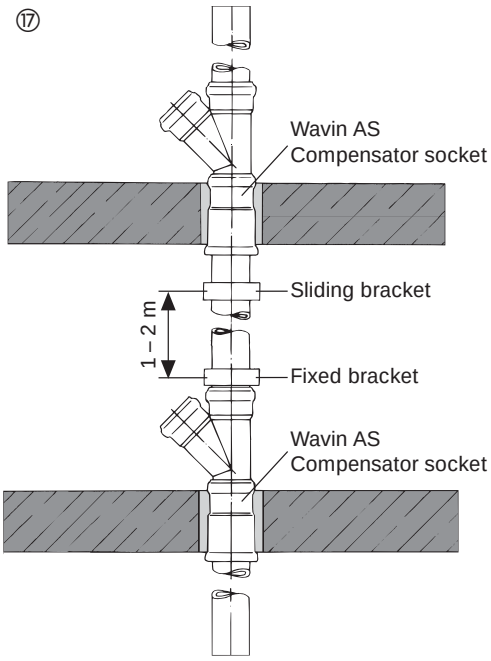
of the brackets

During installation of Wavin AS pipes, the following should be considered:

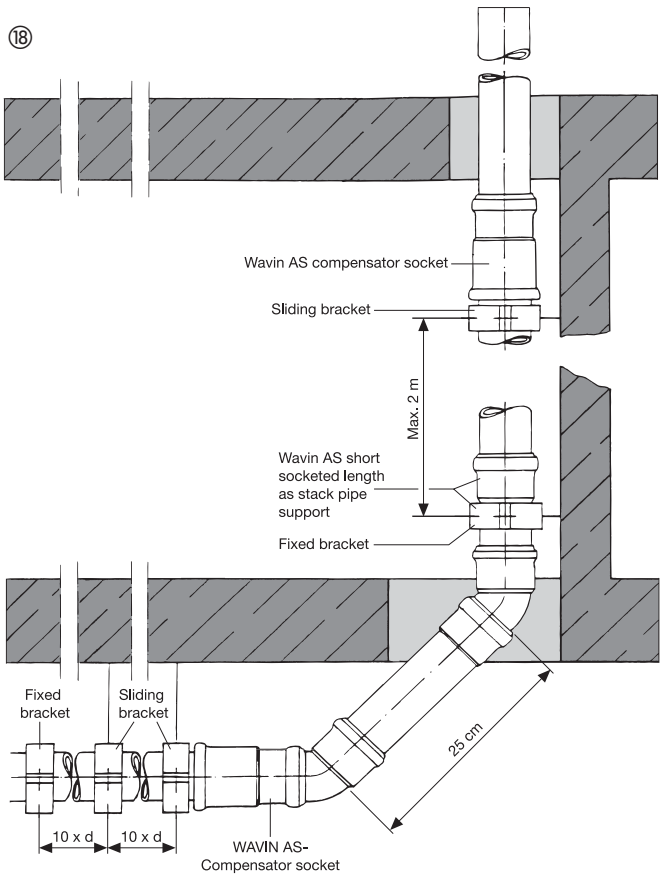
- *In case of horizontal installation, the pipe bracket distances 10X the outside diameter of the pipe. ⑱ In case of vertical pipe installation, depending on outside diameter, 1-2 metre (1). ⑰*
- *Generally pipe brackets should not be installed in impact areas. (eg diameter reductions and changes of directions in the system).*
- *Pipe brackets to be fixed to building materials with high specific area weight.*
- *For stack pipes in open mounting shafts and high rooms (storey height over 2,5 metres) it is advised to use one fixed bracket and one sliding bracket per pipe length.*
- *The fixed bracket must be installed directly above the fitting at the bottom of the pipe end. The sliding bracket must be installed at a distance of maximum of 2 metres above the fixed bracket. ⑱*
- *In multiple storey buildings (from 3 storeys and more) the stack pipes of DN 100 or bigger must be secured by additional fixing (stack pipe support) against sliding. ⑱ In this case we advise using the Wavin AS socketed short length with a fixed bracket. Stack segments with fittings or short pipes are to be secured in such short distances with pipe brackets, that they cannot slide apart.*

In exceptional cases, where connecting elements other than the compensator socket are used (eg double socketed sleeve), per maximum allowable pipe length (3 metres), one fixed bracket and one sliding bracket should be installed in line with the illustrations ⑰ and ⑱ shown on this page of this manual. The double socketed sleeves to be fixed.

⑰



⑱



Fire

protection

In exceptional cases where fire protecting measures are necessary, the Wavin AS Fire Protection Collar (Type NE/compact) is the integral solution in the Wavin AS System.

The fireproof blowing material inside the collar creates a mechanical pipe seal. Thus preventing fire transmission and providing a smoke tight lock for at least 90 minutes.

Type NE / Compact

- *For fire isolation, of minimal 90 minutes, in Wavin AS systems crossing walls and floors (fire protection classification F90, according to DIN 4102-part 11)*
- *For installation at a later date on walls and ceilings*
- *Optimally attuned to Wavin AS, as part of the low noise soil & waste system*
- *Approved by the German Institute for Building (Approval nr.: Z-19.17-1390)*
- *Small and compact – only 3 cm high for DN 100 mm*
- *Only three articles cover the range from DN 56 to DN 150 mm*
- *Easy, Quick and Safe installation*

Assembly fire

protection collar:

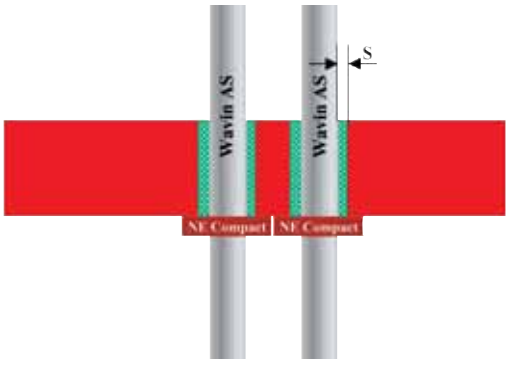
1. *Lead Wavin AS pipe through ceiling or wall and insulate against structure borne sound (material thickness ≤ 15 mm Armaflex or non- combustible mineral wool.)*
2. *Fill the annular gap between insulation and ceiling or wall with concrete.*
3. *Open fire protection collar NE Compact (loosen screw on the side) and bend the three fixing straps by 90°.*
4. *Bend up fire protection collar and put it around the Wavin AS pipe, close it and secure it with the screw on the side.*
5. *Mark the three holes for fixing on the ceiling or wall and drill the holes with a drilling machine.*
6. *Fix the collar with three screws, and the assembly is completed.*

Note:

This is only a short description of the assembly instruction. Please take notice of the extensive instruction which will be enclosed in the packing of the fire protection collar.

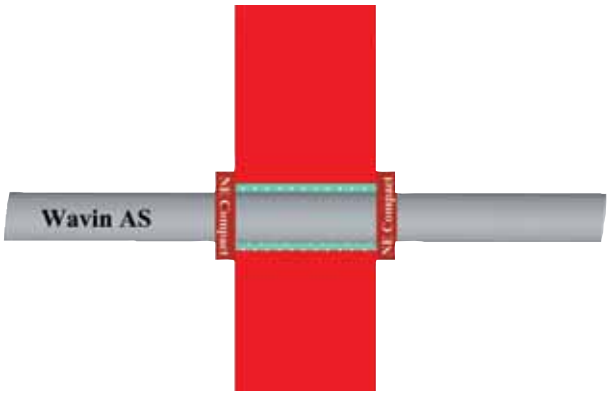
Fire protection

Installation of Wavin AS fire protection collar at ceiling crossing



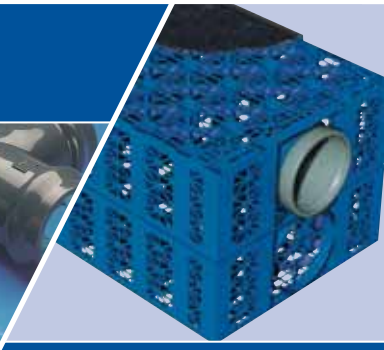
Fire protection

Installation of Wavin AS fire protection collar at wall crossing



Wavin AS

Product and Technical Guide



Meeting your needs

Wavin AS low noise, soil & waste system forms part of a comprehensive range of plastic pipe systems to provide intelligent solutions for all building, construction and utilities projects. These include:

Above Ground Projects

- Wavin Soil & Waste Systems
- Wavin Rainwater Systems
- Wavin Electrical Conduit Systems

Plumbing & Heating Projects

- Wavin Hot & Cold Water Systems
- Wavin Underfloor Heating Systems

Below Ground Projects

- Wavin Sewer Systems
- Wavin Inspection Chambers & Manholes
- Wavin Road Gullies
- Wavin Stormwater Infiltration Systems
- Wavin Cable Duct Systems
- Wavin Land Drainage

Pressure Pipe Projects

- Wavin PE Pressure Systems
- Wavin PVC Pressure Systems
- Wavin Pipe Relining Systems

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