

SMARTLINE®

– a complete Norwegian pipe system





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Smartline offers three unique product benefits:

Modern design

What good is a stylish bathroom with unsightly pipes? Good design is becoming more and more important, which makes greater demands of new products coming onto the market. Design even plays a role in embedded pipe systems – in terms of hydraulics and installation.

- Ideal for the modern, design-conscious plumber and consumer
- Attractive solution for open fixtures in bathrooms and other wetrooms
- Smooth connections
- Easy to clean and maintain
- Plastic – plain and chromed surfaces

Easy to install

Smartline is every bit as smart as the name suggests. We have replaced the old way of installing pipes with a new, and simpler solution, which also gives much more attractive connections than before. This gives plumbers a number of advantages:

- Smartline is approved for all installation situations
- To replace all existing Pipelife pipe systems
- Pipes without muffs make less mess
- Need less space in concealed installations – for example, 110 mm is 20 mm thinner
- 40 mm minimum dimension
- A visually attractive product

All-in-one

Thanks to the new production technology, far fewer pipe components are needed when using Smartline. The system is an all-in-one product which replaces the standard range, all-muff range and Slimline. It also gives plenty of advantages to the wholesaler:

- Fewer components
- Faster turnover
- Space-saving
 - fewer pallets in your warehouse
- Better logistics
- Replaces the old pipe systems from Pipelife

Smartline



Smartline is a revolutionary indoors drainpipe system, with the emphasis on design. The innovative solutions give a host of benefits. Fewer pipe components and safe installation are vital parameters. The connector shape makes it easy to clean the system, and avoids lubricants leaking from the pipe ends.

Pipe and Pipe components

Most pipes have no muffs. The components have the same external diameter as the pipe. The cap found on all components with a nipple, covers the join between pipe and components, and is used as the mounting point for clips. The sealing element forms a seal with the internal surface. The muff is therefore replaced by the Smartline connection nipple. The complete range of dimensions is: 40 mm, 50 mm, 75 mm and 110 mm – i.e. everything you need. 40 mm and 50 mm pipes and components have a light, neutral colour, which fits in well with the surroundings. 40 mm chromed pipes and components are also available for visible installations. The 75 mm and 110 mm versions are black.



40 mm minimum dimension

Smartline complies with the international trend, increasing the dimension from 32 mm to 40 mm. Smartline is more compact, which means 40 mm will therefore not take any extra space. The risk of water damage due to limited dimension is reduced, and the system has demonstrated excellent hydraulic properties. In practice, the applications for 32 mm are limited.

For example, did you know that:

After a water lock, 32 mm is only approved for up to three drinking fountains – or one bidét – or one wash basin with a 1" plug hole – or one urinal!?

Fewer pipe components



Smartline means fewer pipe components and a selected range. This means that plumbers only need a smaller range, making installation faster.

Approvals

Pipes and components are approved and bear the Nordic Poly Mark. This means they adequately fulfil all requirements of the product standards for PP within drainage systems, NS-EN 1451 and NPG/PS 107, including those for certification.

This also means that we undertake to perform continuous quality control, and that a neutral end cap party audits our quality systems and tests our products. This means confidence for installers and homeowners.



Pipe materials

The material used in our pipes continues to be PP (polypropylene). PP is known for high temperature resistance, excellent impact-resistance and ability to tolerate chemicals. PP pipes are easy to cut and adapt.

Note! PP cannot be glued.

Product range

40 mm supplied chromed and in white. 50 mm supplied in white. 75 and 110 mm supplied in black, but reducers to 40 mm and 50 mm supplied in white. The rest of the plumbing range includes several reducers, 90 mm pipes and components, fire-cuffs, flap-valves, PILL drains etc.



NRF no. Smartline pipe

220 70 01	40 mm 1 m
220 70 02	40 mm 3 m
220 70 04	50 mm 1 m
220 70 05	50 mm 3 m
220 70 08	75 mm 3 m
220 69 96	110 mm 3 m
220 70 11	110 mm 6 m
220 69 72	75 mm 1 m with muff
220 70 12	75 mm 3 m with muff
220 69 73	110 mm 1 m with muff
220 69 98	110 mm 3 m with muff
220 69 99	110 mm 6 m with muff



NRF no. Smartline branch pipe

220 70 35	40 mm x 40 mm 45°
220 70 36	50 mm x 40 mm 45°
220 70 37	50 mm x 50 mm 45°
220 70 39	75 mm x 50 mm 45°
220 70 41	75 mm x 75 mm 45°
220 70 43	110 mm x 50 mm 45°
220 70 44	110 mm x 75 mm 45°
220 70 45	110 mm x 110 mm 45°



220 70 46	40 mm x 40 mm 90°
220 70 47	50 mm x 40 mm 90°
220 70 48	50 mm x 50 mm 90°
220 70 51	75 mm x 50 mm 90°
220 70 54	110 mm x 50 mm 90°



220 70 52	75 mm x 75 mm 88°
220 70 55	110 mm x 75 mm 88°
220 70 56	110 mm x 110 mm 88°



220 72 43	75 mm x 75 mm 88° with elbow inlet
220 72 41	110 mm x 110 mm 88° with elbow inlet



NRF no. Smartline bend

220 70 13	40 mm 15°
220 71 66	40 mm 30°
220 70 22	40 mm 45°
220 70 31	40 mm 88°
220 70 14	50 mm 15°
220 69 47	50 mm 30°
220 70 23	50 mm 45°
220 70 32	50 mm 88°
220 70 15	75 mm 15°
220 70 19	75 mm 30°
220 70 24	75 mm 45°
220 70 33	75 mm 88°
220 70 16	110 mm 15°
220 70 21	110 mm 30°
220 70 25	110 mm 45°
220 70 34	110 mm 88°



220 69 52	40 mm 90° wall box
220 69 53	50 mm 90° wall box



220 70 26	40 mm 67°
220 70 27	50 mm 67°



NRF no. Smartline connection nipples

220 70 77	40 mm
220 70 78	50 mm
220 70 79	75 mm
220 70 81	110 mm



NRF no. Smartline double branch

- 220 72 75 75 mm x 75 mm 45°
- 220 72 76 110 mm x 110 mm 45°
- 220 72 77 75 mm x 75 mm 88°
- 220 72 78 110 mm x 110 mm 88°



NRF no. Smartline top pieces

- 220 71 45 50 mm x 1/2"-1/4" top piece with branch
- 220 71 43 50 mm x 1/2"-1/4" top piece without branch



NRF no. Smartline corner branch

- 220 72 87 75 mm x 75 mm 88°
- 220 72 81 110 mm x 110 mm 88°



NRF no. Smartline threaded components

- 220 70 86 40 mm x 1/2" - 1/4" reducer with cap nut
- 220 71 65 40 mm x 1/4" reducer with internal thread
- 220 70 88 40 mm 88° elbow with 1/4" external thread
- 220 71 59 40 mm 88° elbow with cap nut
- 220 70 91 40 mm x 1/4" reducer to drain - with external thread
- 220 70 89 40 mm x 1/4" reducer to drain - with external thread



NRF no. Smartline Y branch

- 220 72 82 110 mm x 110 mm



Other dimensions and shapes can be produced

NRF no. Smartline clamps

- 220 70 73 40 mm
- 220 70 74 50 mm
- 220 70 75 75 mm
- 220 70 76 110 mm



NRF no. Smartline double and straight muffs

- 220 71 55 32 mm double muff
- 220 70 57 40 mm double muff
- 220 70 58 50 mm double muff
- 220 70 59 75 mm double muff
- 220 70 61 110 mm double muff
- 220 70 62 40 mm straight muff
- 220 70 63 50 mm straight muff
- 220 70 64 75 mm straight muff
- 220 70 65 110 mm straight muff



NRF no. Smartline stake pipe with screw lock

- 220 71 32 50 mm
- 220 72 63 75 mm
- 220 72 61 110 mm



NRF no. Smartline end cap

- 220 71 54 40 mm
- 220 71 34 50 mm
- 220 72 73 75 mm
- 220 72 71 110 mm



NRF no. Smartline end cap with screw lock

- 220 72 74 75 mm
- 220 72 72 110 mm



NRF no. Smartline dimension reducers
 220 71 52 40 mm x 32 mm with spigot ends



220 71 57 40 mm x 32 mm with nipple and muff

220 71 58 50 mm x 32 mm with nipple and muff

220 72 45 110 mm x 90 mm with nipple and muff



220 70 66 50 mm x 40 mm with nipple and spigot ends

220 72 46 75 mm x 40 mm with nipple and spigot ends

220 70 68 75 mm x 50 mm with nipple and spigot ends

220 70 71 110 mm x 50 mm with nipple and spigot ends

220 70 72 110 mm x 75 mm with nipple and spigot ends



220 69 49 75 x 40 mm universal reducer

220 69 51 75 x 50 mm universal reducer



220 69 75 75 x 40 mm short reducer

220 69 76 75 x 50 mm short reducer

220 69 77 110 x 40 mm short reducer

220 69 78 110 x 50 mm short reducer

220 69 79 110 x 75 mm short reducer



220 71 64 40 mm x 32 mm rubber reducer

220 71 63 50 mm x 40 mm rubber reducer



NRF no. Smartline pipe collars

220 70 92 40 mm high

220 70 93 40 mm low

220 71 46 50 mm high

220 71 47 50 mm low



NRF no. Smartline water locks

220 71 36 40 mm straight water lock



220 69 66 40 mm water lock

220 69 67 40 mm water lock with valve set

220 69 68 50 mm water lock



220 70 83 50 mm bottle water lock



220 71 62 40 mm short bottle water lock

220 71 61 40 mm short combined water lock



220 72 23 1" x 1 1/4" water lock reducer

452 20 51 Smartline valve set for water lock



NRF no. Smartline drain funnel

220 70 84 40 mm drain funnel

220 71 51 50 mm washing machine funnel



NRF no. Bevelling tool

220 72 02 Bevelling tool for 32 mm – 50 mm pipe



220 72 03 Universal bevelling tool

220 72 01 Smartline bevelling knife



NRF no. Lubricant

220 71 97 50 ml

220 71 99 250 ml



Chrome product range

NRF no. Smartline pipe - chrome
220 70 03 40 mm 1 m



NRF no. Smartline clip - chrome
220 71 17 40 mm



NRF no. Smartline elbow - chrome
220 70 94 40 mm 15°
220 69 48 40 mm 30°
220 70 98 40 mm 45°
220 71 03 40 mm 88°



220 71 01 40 mm 67°



NRF no. Smartline water lock - chrome
220 71 27 40 mm straight water lock



220 69 71 40 mm water lock
220 69 69 40 mm water lock with valve set



NRF no. Smartline branch pipe - chrome
220 71 05 40 mm x 40 mm 45°



220 71 08 40 mm x 40 mm 90°



NRF no. Smartline drain funnel - chrome
220 71 29 40 mm



NRF no. Smartline collar - chrome
220 71 22 40 mm high
220 71 24 40 mm low



NRF no. Smartline dimension reducer - chrome
220 71 53 40 mm x 32 mm with spigot ends



220 71 16 50 mm x 40 mm with nipple and spigot ends



NRF no. Smartline connection nipple - chrome
220 71 19 40 mm



ASSEMBLY INSTRUCTIONS

Smartline is approved for open and concealed installations. The 75 mm and 110 mm systems are also approved for bottom drainage and for use as the main pipe circuit. The pipes can be capped flush with wall or floor using a connection nipple. The clamp also fits the connection cap, making it a fixture point. Capped pipe ends can be bevelled internally – a simpler operation than external beveling. Remove all filings. The nipple fits the internal diameter of standard PP pipes and components. See table.

Dim. [mm]	Pipe range	e _{min}	Di _{max}	e _{max}	Di _{min}
40	S 16	1,8	36,4	2,2	35,6
50	S 16	1,8	46,4	2,2	45,6
75	S 16, S 14*	2,3	70,8	3,1*	68,8*
110	S 16, S 14*	3,4	103,6	4,4*	101,2*

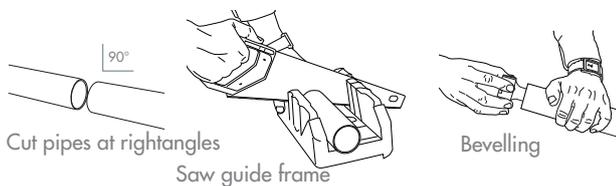
e – wall thickness, Di – internal diameter

* Smartline connection nipples can be fitted for thicker pipe range S 14, but force required will increase.



1. Cutting pipes

Cut pipes at rightangles using a fine-toothed saw or similar. When cutting with a saw, a saw guide frame is recommended. Pipe ends must be cleaned and bevelled using Pipelife's bevelling tool, a knife or similar.



Cut pipes at rightangles

Saw guide frame

Bevelling

2. Installation

2.1. General:

Pipe components have the same external dimensions as pipes. Connections are concealed by nipple cap. Most pipe components are supplied with one or two fixed connections. Some are supplied with spigot ends. See table above. A connection nipple is used to connect pipes and components with spigot ends, which forms a seal with the inner surface of the pipe. The material used in the seal element complies with NS-EN 681-2.

Note! PP cannot be glued because of its good resistance to chemicals and solvents.

2.2 Stretching - Expansion

PP stretches 0.13 mm per metre of pipe and °C. The thermal expansion is moderate in practice, due to the low heat conductivity of PP.

2.3 Fall

Minimum fall on horizontal pipes in a building is normally approx. 1:50 (20 mm/m) unless planned for a different specification.

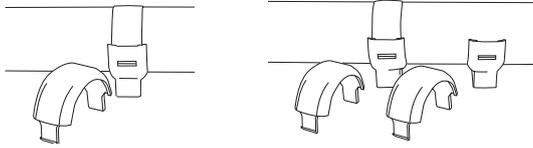


2.4. Clips

Fixed point clips are used to fix pipes to a building structure, and to provide a fixed point for expansion. It should also prevent connections from coming apart. Kinetic forces must not be transferred to the building structure. Slide clips should control the pipe during thermal movement against the nipple, which should absorb the expansion. Major temperature changes in the pipe and long pipe lengths can mean expansion has to be controlled using several fixed nipples.

Smartline clips can be used as fixed and slide clips, depending on whether they are located on a nipple or on the pipe.

NB: Slide muffs must be fixed using a clip on each side.



Retaining clips on nipple

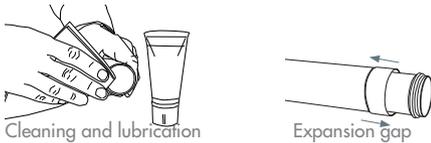
Retaining clips and slide clips

Dimensions [mm]	L	
	Horizontal pipes [m]	Vertical pipes [m]
40	0,5	1,2
50	0,5	1,5
75	0,8	2,0
110	1,1	2,0

Maximum recommended clip distance – L

2.5 Constructing connection with Smartline connection nipple

- Bevel cut pipe ends internally and remove filings. Clean the nipple and spigot ends.
- Apply a thin layer of lubricant to the pipe/pipe component spigot ends or nipple embedded seal element - or both places. Pipelife's own lubricant is recommended, as other lubricants can cause reduced performance or in the worst case, damage the sealing element or pipe/pipe component.
- Twist pipe gently whilst sliding the spigot end into the bottom of the nipple.
- Pull the spigot end back a little to create the recommended expansion gap for the nipple.



Cleaning and lubrication

Expansion gap

2.6 Connection to pipes of other materials

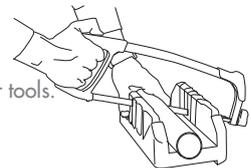
40 mm and 50 mm Smartline nipples are suitable for S 16 pipes and components, whilst 75 mm and 110 mm Smartline nipples are suitable for S 16 and S 14 pipes and components. Double muffs can be used for connection to other plastic pipe systems with the same external diameter, e.g. PVC ground drainpipes SN 8. If a nipple can be used, check that the insert length on the pipe spigot end is as long or longer than the nipple insert. If not, use a short pipe ring fitted to the end of the nipple.

Cast iron (MA) 75 mm and 110 mm.

The connection between spigot on cast iron pipes and PP drain pipes is achieved using a contraction muff or MA coupling (jet coupling) which should always be combined with a contraction muff. The connection between a muff on a cast iron pipe and PP spigot is achieved using a Mixer Ring, which consists of a flat and a round ring component. Connection to the cast iron pipe and other pipe types can also be achieved using suitable rubber nipples.

2.7 Metallised pipes and components

Pipes and components with chrome-like surfaces have undergone a metallisation process, and have an aluminium coating. Even though adhesion is good between pipe and coating, caution must be exercised when handling, cutting, bevelling, assembling and mounting. To avoid scratching the coating, wrap a cloth between pipe and work surface or tools.



3. Fire-resistance

Pipelife's drainage systems include a fireproof collar for use in buildings, where special requirements apply for fire protection. This applies when the pipe passes through a building part which forms a fire cell partition between two fire cells. Please refer to the brochure for fireproof collars.

4. Noise reduction for drainage systems

Noise occurs during the conversion of energy. Examples include water running down a vertical conduit, causing vibration. The noise spreads radially through the pipe to the air and also runs along the length of the pipe. Noise emissions due to vibrations are most common in plastic pipes. To meet national requirements for noise limit values, we recommend installing pipes in a way which avoids rapid velocity reductions, and clipping pipes in accordance with our recommendations described in item 2.3, preferably using rubber-covered clips. We recommend using two 45° elbows or three 30° elbows for the transition between vertical and horizontal conduits. Noise from pipes can be further reduced by using mineral wool and/or plasterboard.

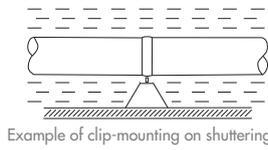
5. Embedded pipes

Embedding pipes is undesirable, but necessary in several situations. Maximum individual pipe length for embedded PP pipes in buildings must be three metres. Pipelife Norge AS recommends that S 16 pipes and pipe components are used for embedding PP drainpipe systems. Remember to clip and support pipes and pipe components adequately, to prevent them becoming deformed or out of positions when embedded in concrete. The figure below shows how to clip them in place. A pipe stretching for more than one pipe length must be secured using retaining clips.

Protect the connector with tape to prevent concrete seeping into the groove. Seal all open pipes/pipe components with an end cap or by other means to prevent water or concrete penetration. Expansion gap and use of retention clips for normal mounting.

Dimension [mm]	Horizontal pipes [m]	Vertical pipes [m]
40	0,5	1,0
50	0,5	1,0
75	1,0	1,5
110	1,0	2,0

Maximum recommended distance between clips – L



5.1 Partially embedded conduits

Always remember to install partially-embedded pipes and pipe components such that they are securely mounted in the ceiling or floor before casting.

6. Easy dimensioning

References:

Standard conditions for water supply and drains – Technical regulations (KS, 2008)
 NS 3055: Dimensioning pipe conduits for water supply and drainage in buildings (1989)
 Byggforskseriens Byggdetaljer 553.004: Drainpipes – Guidelines for dimensioning (2005).

6.1 Normal water volumes

Recommended dimensioning is based on guideline values for normal water volumes from each appliance. Volumes for larger buildings should be calculated proportionately.

Appliances	l/s
Drinking fountains	0,1
Bidét	0,3
Washbasin with 1" plughole	0,3
Urinal (per stand)	0,3
Shower	0,4
Washbasin with 1¼" plughole	0,4
Dishwasher	0,4
Washing machine or the like	0,6
Washing machine in apartment	0,6
Washtub	0,6

Appliances	l/s
Bathtub	0,9
Utility sink, laboratory sink, pan sink	0,9
Combined utility and kitchen sink	0,9
Washing machine in apartment block laundry	1,2
Commercial dishwasher, small	1,2
WC	1,8

Excerpt from Table , NS 3055 (1989): Dimensioning pipe conduits for water supply and drainage in buildings. Reproduced by Pipelife AS with the permission of Pronorm AS 02/2008. Pronorm AS cannot be held liable for any errors in the material reproduced. For details on Norsk Standard, go to www.standard.no.

6.2 Permitted loads for non-ventilated waste water pipes

Dim.	Vertical pipes		Horizontal pipes	
	Permitted load	Max. fall height	Permitted load	Max. length
40 mm	0,6 l/s	1 m	0,6 l/s	3 m
50 mm	1,2 l/s	2 m	1,2 l/s	10 m
75 mm	2,4 l/s	4 m	3,8 l/s	10 m
110 mm*	6,3 l/s	4 m	6,3 l/s	10 m

* Maximum 1 WC

6.3 Water lock load

Drain from water lock	Load
40 mm	0,4 l/s
50 mm	0,6 l/s



Pipelife Norge AS is a member of the Pipelife group, one of the world's leading manufacturers of plastic pipe systems. Pipelife is represented in 27 countries by no less than 27 factories – two of which are located in Norway. Our aim is to supply high quality plastic pipe systems at competitive prices from a manufacturer at the leading edge of technological development within the industry.

Pipelife offers the most complete range of pipes for water supply, waste water and drainage. Contact us as early as possible in the planning phase for advice, guidance and choice of materials.

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