

# Fixing and support



## Vertical fixing

All vertical pipework should be provided with pipe brackets at maximum of 3 m intervals. Brackets to be placed under ring seal sockets whenever possible.

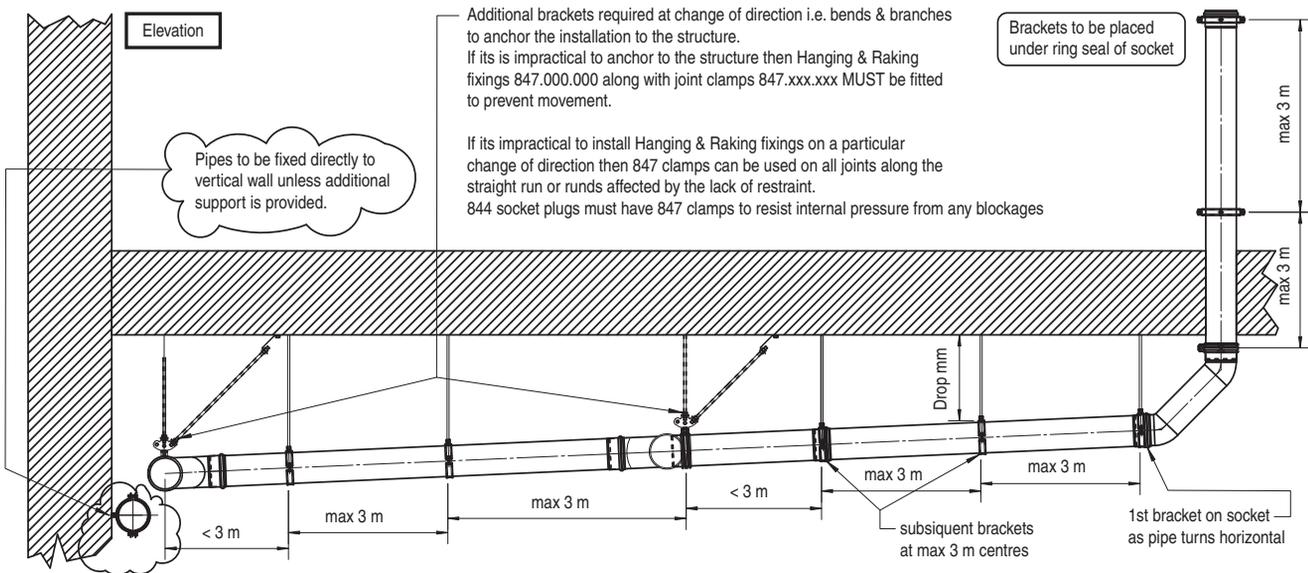
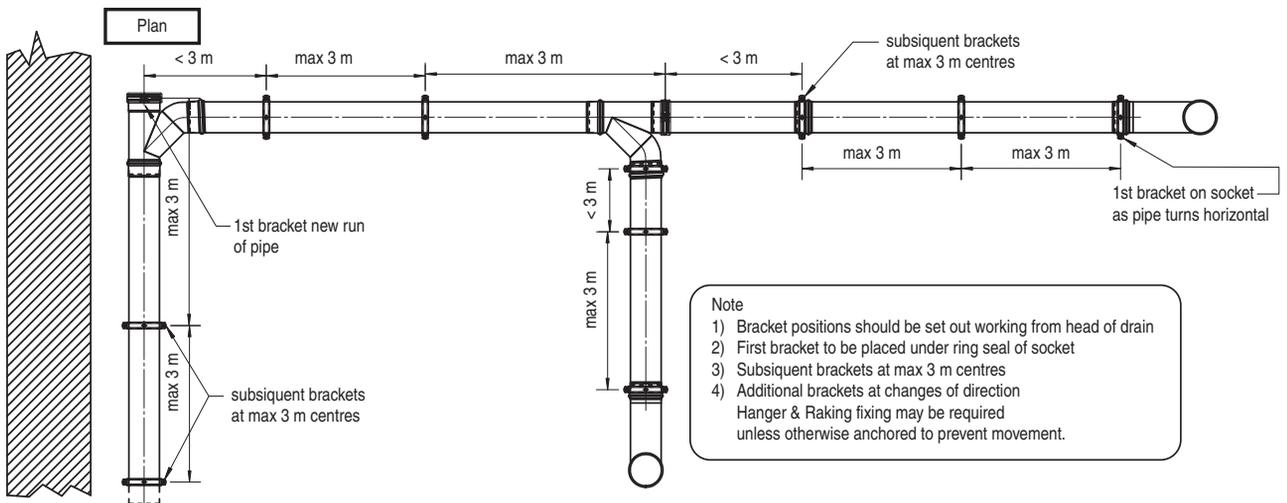
## Horizontal fixing

All horizontal pipework should be provided with pipe brackets at maximum of 3 m intervals. Brackets to be placed under ring seal sockets whenever possible.

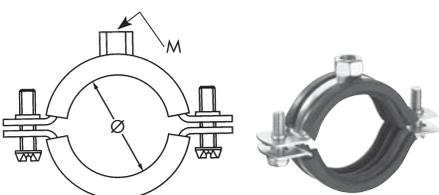
Additional brackets required at change of direction, ie bends and branches, to anchor the installation to the structure. If it is impractical to anchor to the structure then Hanging & Raking fixings 847.000.000 along with Joint Clamps 847.xxx.xxx **must** be fitted to prevent movement.

If it is impractical to install Hanging and Raking fixings on a particular change of direction then 847.xxx.xxx clamps can be used on all joints along the straight run or runs affected by the lack of restraint.

844 Socket plugs must have 847 clamp to resist internal pressure from any blockage



## Stainless steel pipe brackets



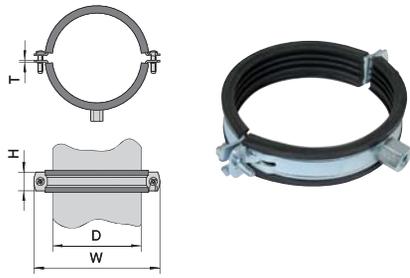
Type No.	Pipe dia.	Back Fixing Nut
895.403.050 S	50	M8
895.403.075 S	75	M8
895.403.082 S	82	M8
895.403.110 S	110	M10
895.403.125 S	125	M10
895.403.160 S	160	M10
895.403.200 S	200	M10
895.403.315 S	315	M10

2mm thick with back fixing as noted and EPDM insulating liner.

All dimensions in mm - If Stainless Steel grade AISI 316L is required specify type no. with suffix S

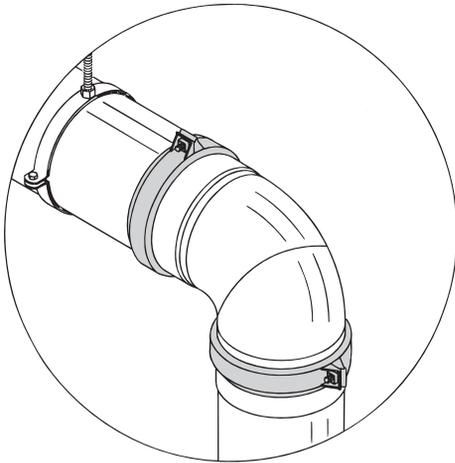
# Fixing and support

## Galvanised steel pipe brackets



Type No.	T	D	H	W	Nut
895.401.050	1.5	50	20	85	M8/10
895.401.075	2.0	75	23	126	M8/10
895.401.110	2.5	110	25	160	M8/10
895.401.125	2.5	125	23	173	M8/10
895.401.160	3.0	160	25	233	M10
895.401.200	3.0	200	25	273	M10
895.401.250	4.0	250	38	342	M16
895.401.315	5.0	315	48	414	M16

1.5mm to 2mm thick with back fixing as noted and EPDM insulating line.  
Note! 895.401.075 fits 75mm and 82mm.



Pipe joint clamptype no. 847.  
xxx.xxx S (see page 10) may be required if walls or soffits are not accessible for brackets.

## Connection to other pipe materials

The BLÜCHER® EuroPipe system can be easily connected to other pipe materials, being either compatible or by using adaptors.

up to  
600 mm



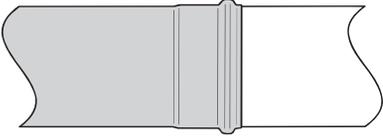
»TEEKAY« Couplers



»Flex-Seal« Couplers

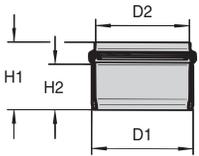
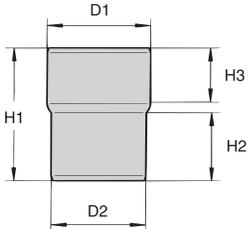
Can be supplied for connecting our stainless steel pipe upto 600mm dia and/or for connection to other materials.  
*Details on request.*

PVC u  
  
82/110/  
160



Compatible push-fit joint

54/82

**BLÜCHER stainless steel socket adaptor**

Type No.	D1	D2	H1	H2
*852.050.054 SOS	54	50	49	30
852.075.082.SOS	82	75	60	40

**BLÜCHER stainless steel spigot adaptor**

Type No.	D1	D2	H1	H2	H3
*852.050.054 S	54	50	97	49	38
852.075.082 S	82	75	123	63	50

\*Note 2" PVCu waste to BS5254

PAGE  
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All dimensions in mm - If Stainless Steel grade AISI 316L is required specify type no. with suffix S

For sales contact Gutter Centre Tel: 0330 2231731 or email: sales@guttercentre.co.uk

# Connection to other pipe materials



## Vitrified clay (plain end)

100



**Connector** (supplied by others)  
 Naylor Bros - Densleeve Type DC6  
 Hepworth - Supersleeve Type SA9

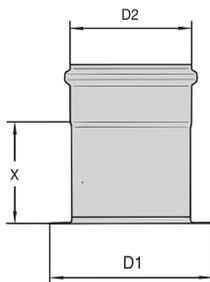
150



**Connector** (supplied by others)  
 Naylor Bros - Densleeve Type DC7  
 Hepworth - Supersleeve Type SA10

## Concrete or Vitrified clay (Socket) AISI 316L only

100/150

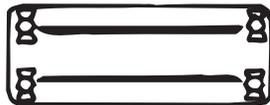


### BLÜCHER stainless steel adaptor

Type No.	D1	D2	X
851.150.110 S	150	110	100
851.200.160 S	200	160	125

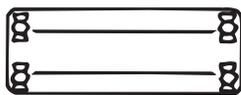
## Cast Iron (plain end)

150



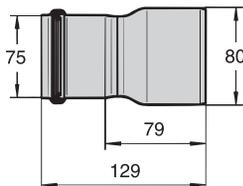
**Connector 150mm dia** (supplied by others)  
 Saint-Gobain - Timesaver TD02 (drain)  
 - Timesaver GT01 (soil)  
 - Ensign EC002  
 - SMU RB013

100



**Connector 100mm dia** (supplied by others)  
 Saint-Gobain - Timesaver TD02 (drain)  
 - Timesaver GT01 (soil)  
 - Ensign EC002  
 - SMU RB011

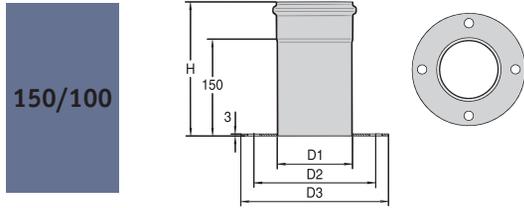
75



**Connector 75mm dia** (supplied by others)  
 Saint-Gobain - Timesaver TD01 (drain)  
 - Timesaver GT01 (soil)  
 - Ensign EC0033  
 Stanton - SMU RB010 + RB311  
 Use also BLÜCHER Stainless Steel Adaptor  
 Type No. 853.075.080 S (Special make)

# Connection to other pipe materials

## BS10 Table D Flange AISI 316L only

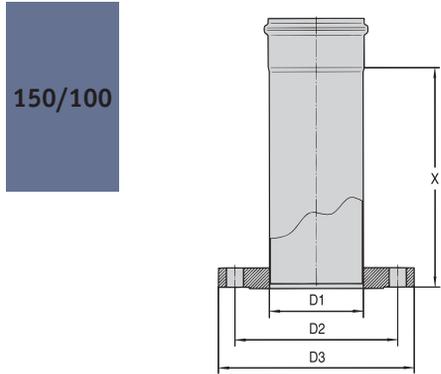


150/100

### BLÜCHER stainless steel adaptor

Type No.	D1	D2	D3	H	Holes
850.015.110 S FL	110	178	216	207	4
850.015.160 S FL	169	235	280	220	8

## Type 854 Flange AISI 316L only

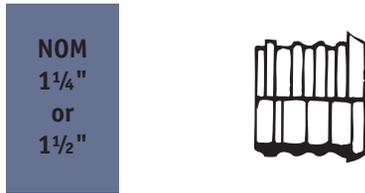


150/100

### BLÜCHER stainless steel adaptor

Type No.	D1	D2	D3	X	Holes
854.025.050 S	50	121	152	254	4
854.025.075 S	75	152	191	254	4
854.025.110 S	110	191	229	254	8
854.025.160 S	160	242	279	254	8

## Plastic, copper or stainless steel



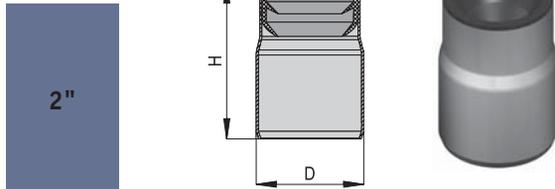
NOM  
1 1/4"  
or  
1 1/2"

### Reducer (rubber)

To 50 mm dia BLÜCHER® EuroPipe socket, enables nom. 1 1/4" or 1 1/2" pipes to be push fit connected to 50 mm dia BLÜCHER® EuroPipe.

Nom. 1 1/4" Type No. W 58  
Nom. 1 1/2" Type No. W 59

## PVC pipes



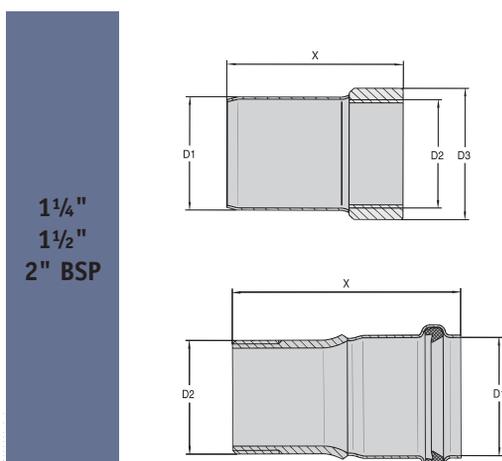
2"

### BLÜCHER adapter ø75 mm - 2" plastic pipe

Type No.	D	D1	H
852.075.052	75	53.9 to 55.7	108

The adapter is suitable for both dimensions used in the UK (Ø53.9mm and Ø55.7 mm).

## Threaded adaptors AISI 316L only



1 1/4"  
1 1/2"  
2" BSP

### BLÜCHER stainless steel adaptor

Type No.	D1	D2	D3	X
885.032.040 S	40	1 1/4"	45	70
885.040.040 S	40	1 1/2"	57	73
885.025.050 S	50	1"	40	93
885.032.050 S	50	1 1/4"	45	72
885.040.050 S	50	1 1/2"	58	75
885.050.050 S	50	2"	67	77

### BLÜCHER stainless steel adaptor

Type No.	D1	D2	X
886.050.032 S	50	1 1/4"	99
886.050.040 S	50	1 1/2"	98
886.050.050 S	50	2"	98

## ■ Introduction

Stainless Steel pipes are hydraulically smooth (Ks value 0.003mm) and are less susceptible to scaling than other pipe materials e.g. cast iron.

Pipe manufacturers often claim very low roughness coefficient values (Ks) but for design purposes 0.6mm for Surface Water drainage and 1.5mm for Foul drainage are recommended in BS EN 752:4 and should be used. BS EN 752:4 further recommends that where surface water drains remain clean, unsoiled and in good condition throughout their design life, the roughness will depend principally on the pipe material. In such cases, recommended pipe roughness values (ks) can be obtained from H R Wallingford Tables for Hydraulic design of pipes.

## ■ Flow Tables

The flow tables are based on the Colebrook-White equation and are full bore velocity and discharge values.

Velocities (V) are in metres/second (0.76 m/s is regarded as the minimum for self cleansing in foul sewers).

Discharge capacities (Q) are in litres/second.

## ■ Pipe Sizing

Internal Soil Waste and Rainwater pipes should be sized in accordance with the requirements of BS EN 12056 - Gravity drainage systems inside buildings.

External Below Ground Foul and Storm Drains should be sized in accordance with the requirements of BS EN 752 - Drain and sewer systems outside buildings.

**Hydraulic Flow Data - Roughness Coef Ks=0.6**

Gradient (1in)	50 mm Dia		75 mm Dia		82 mm Dia		110 mm Dia		125 mm Dia		160 mm Dia		200 mm Dia		250 mm Dia		315 mm Dia	
	V Velocity	Q Discharge																
10	1.50	2.71	1.99	8.33	2.12	10.63	2.58	23.64	2.81	33.39	3.30	64.32	3.82	116.29	4.42	211.34	5.11	387.98
15	1.22	2.21	1.62	6.78	1.72	8.66	2.10	19.26	2.29	27.21	2.69	52.43	3.11	94.81	3.60	172.32	4.16	316.39
20	1.06	1.91	1.40	5.87	1.49	7.49	1.82	16.67	1.98	23.55	2.33	45.39	2.69	82.08	3.12	149.20	3.61	273.97
25	0.94	1.70	1.25	5.24	1.33	6.69	1.63	14.89	1.77	21.05	2.08	40.56	2.41	73.36	2.79	133.37	3.22	244.91
30	0.86	1.55	1.14	4.78	1.21	6.10	1.48	13.58	1.61	19.19	1.90	36.98	2.19	66.89	2.54	121.61	2.94	223.34
35	0.79	1.44	1.06	4.42	1.12	5.65	1.37	12.57	1.50	17.77	1.76	34.25	2.03	61.95	2.35	112.65	2.72	206.89
40	0.74	1.34	0.99	4.13	1.05	5.28	1.28	11.74	1.40	16.60	1.64	32.00	1.90	57.89	2.20	105.27	2.55	193.35
45	0.70	1.26	0.93	3.89	0.99	4.97	1.21	11.06	1.32	15.63	1.55	30.14	1.79	54.52	2.07	99.15	2.40	182.13
50	0.66	1.20	0.88	3.69	0.94	4.71	1.14	10.49	1.25	14.83	1.47	28.59	1.70	51.72	1.97	94.07	2.27	172.80
55	0.63	1.14	0.84	3.51	0.89	4.49	1.09	10.00	1.19	14.13	1.40	27.26	1.62	49.32	1.87	89.70	2.17	164.79
60	0.60	1.09	0.80	3.36	0.85	4.30	1.04	9.57	1.14	13.53	1.34	26.10	1.55	47.22	1.79	85.89	2.08	157.80
65	0.58	1.05	0.77	3.23	0.82	4.12	1.00	9.19	1.09	12.99	1.29	25.05	1.49	45.33	1.72	82.45	1.99	151.48
70	0.56	1.01	0.74	3.11	0.79	3.97	0.97	8.85	1.05	12.51	1.24	24.12	1.43	43.66	1.66	79.42	1.92	145.92
75	0.54	0.97	0.72	2.99	0.76	3.83	0.93	8.53	1.01	12.05	1.19	23.25	1.38	42.09	1.60	76.57	1.85	140.68
80	0.52	0.94	0.69	2.90	0.74	3.71	0.90	8.26	0.98	11.68	1.16	22.53	1.34	40.79	1.55	74.20	1.79	136.35
85	0.50	0.91	0.67	2.82	0.72	3.60	0.88	8.02	0.95	11.34	1.12	21.89	1.30	39.62	1.51	72.07	1.74	132.44
90	0.49	0.88	0.65	2.73	0.69	3.49	0.85	7.78	0.93	11.00	1.09	21.22	1.26	38.41	1.46	69.88	1.69	128.42
95	0.48	0.86	0.63	2.65	0.67	3.39	0.83	7.56	0.90	10.69	1.06	20.63	1.23	37.34	1.42	67.94	1.64	124.86
100	0.46	0.84	0.62	2.59	0.66	3.31	0.80	7.37	0.88	10.43	1.03	20.12	1.20	36.43	1.39	66.29	1.60	121.82
105	0.45	0.82	0.60	2.52	0.64	3.22	0.78	7.18	0.86	10.16	1.01	19.61	1.16	35.50	1.35	64.59	1.56	118.71
110	0.44	0.80	0.59	2.47	0.63	3.15	0.77	7.03	0.84	9.94	0.98	19.18	1.14	34.73	1.32	63.20	1.53	116.16
115	0.43	0.78	0.58	2.41	0.61	3.08	0.75	6.87	0.82	9.71	0.96	18.75	1.11	33.95	1.29	61.78	1.49	113.55
120	0.42	0.76	0.56	2.35	0.60	3.01	0.73	6.71	0.80	9.48	0.94	18.31	1.09	33.15	1.26	60.32	1.46	110.88
125	0.42	0.75	0.55	2.31	0.59	2.95	0.72	6.58	0.78	9.31	0.92	17.97	1.07	32.53	1.24	59.21	1.43	108.83
130	0.40	0.73	0.54	2.26	0.58	2.89	0.70	6.45	0.77	9.13	0.90	17.62	1.05	31.91	1.21	58.07	1.41	106.75
135	0.40	0.72	0.53	2.22	0.56	2.83	0.69	6.32	0.76	8.95	0.89	17.27	1.03	31.27	1.19	56.92	1.38	104.63
140	0.39	0.70	0.52	2.17	0.55	2.78	0.68	6.19	0.74	8.76	0.87	16.91	1.00	30.62	1.17	55.74	1.35	102.46
145	0.38	0.69	0.51	2.14	0.54	2.73	0.67	6.10	0.73	8.63	0.86	16.66	0.99	30.18	1.15	54.93	1.33	100.99

**Hydraulic Flow Data - Roughness Coef Ks=1.5**

Gradient (1in)	50 mm Dia		75 mm Dia		82 mm Dia		110 mm Dia		125 mm Dia		160 mm Dia		200 mm Dia		250 mm Dia		315 mm Dia	
	V Velocity	Q Discharge																
10	1.26	2.29	1.70	7.11	1.81	9.10	2.22	20.38	2.43	28.87	2.87	55.91	3.33	101.54	3.87	185.49	4.50	341.60
15	1.03	1.87	1.39	5.80	1.48	7.42	1.81	16.62	1.98	23.55	2.34	45.61	2.72	82.83	3.16	151.40	3.67	278.68
20	0.89	1.61	1.20	5.02	1.28	6.43	1.57	14.39	1.72	20.39	2.03	39.50	2.35	71.74	2.74	131.08	3.18	241.39
25	0.80	1.44	1.07	4.49	1.14	5.74	1.40	12.88	1.53	18.23	1.81	35.31	2.10	64.15	2.45	117.21	2.84	215.85
30	0.73	1.32	0.98	4.09	1.04	5.24	1.28	11.73	1.40	16.63	1.65	32.21	1.92	58.50	2.23	106.97	2.59	196.90
35	0.67	1.22	0.91	3.79	0.97	4.85	1.19	10.87	1.30	15.40	1.53	29.84	1.78	54.20	2.07	99.01	2.40	182.44
40	0.63	1.14	0.85	3.54	0.90	4.53	1.11	10.16	1.21	14.40	1.43	27.89	1.66	50.66	1.93	92.60	2.24	170.54
45	0.59	1.07	0.80	3.34	0.85	4.27	1.04	9.57	1.14	13.56	1.35	26.27	1.57	47.73	1.82	87.29	2.12	160.67
50	0.56	1.02	0.76	3.16	0.81	4.05	0.99	9.08	1.08	12.87	1.28	24.93	1.49	45.29	1.73	82.79	2.01	152.48
55	0.54	0.97	0.72	3.02	0.77	3.86	0.95	8.66	1.03	12.27	1.22	23.78	1.42	43.20	1.65	78.93	1.91	145.43
60	0.51	0.93	0.69	2.89	0.74	3.70	0.91	8.29	0.99	11.75	1.17	22.77	1.36	41.37	1.58	75.55	1.83	139.29
65	0.49	0.89	0.66	2.77	0.71	3.55	0.87	7.96	0.95	11.28	1.12	21.86	1.30	39.72	1.51	72.58	1.76	133.73
70	0.47	0.86	0.64	2.67	0.68	3.42	0.84	7.67	0.91	10.87	1.08	21.06	1.26	38.27	1.46	69.93	1.70	128.85
75	0.46	0.83	0.62	2.58	0.66	3.30	0.81	7.39	0.88	10.48	1.04	20.31	1.21	36.90	1.41	67.55	1.64	124.24
80	0.44	0.80	0.60	2.50	0.64	3.20	0.78	7.17	0.85	10.16	1.01	19.68	1.17	35.76	1.36	65.39	1.59	120.43
85	0.43	0.78	0.58	2.42	0.62	3.10	0.76	6.96	0.83	9.87	0.98	19.12	1.14	34.74	1.32	63.43	1.54	117.00
90	0.42	0.75	0.56	2.35	0.60	3.01	0.74	6.75	0.81	9.57	0.95	18.54	1.11	33.69	1.29	61.64	1.49	113.46
95	0.41	0.73	0.55	2.29	0.58	2.93	0.72	6.56	0.78	9.30	0.93	18.03	1.07	32.76	1.25	59.99	1.45	110.34
100	0.40	0.72	0.53	2.23	0.57	2.85	0.70	6.40	0.76	9.08	0.90	17.59	1.05	31.97	1.22	58.46	1.42	107.66
105	0.39	0.70	0.52	2.17	0.55	2.78	0.68	6.24	0.74	8.84	0.88	17.14	1.02	31.15	1.19	57.04	1.38	104.93
110	0.38	0.68	0.51	2.13	0.54	2.72	0.67	6.10	0.73	8.65	0.86	16.77	1.00	30.48	1.16	55.73	1.35	102.68
115	0.37	0.67	0.50	2.08	0.53	2.66	0.65	5.97	0.71	8.46	0.84	16.40	0.98	29.80	1.14	54.49	1.32	100.39
120	0.36	0.65	0.48	2.03	0.52	2.60	0.64	5.83	0.70	8.26	0.82	16.01	0.95	29.10	1.11	53.34	1.29	98.04
125	0.35	0.64	0.48	1.99	0.51	2.55	0.62	5.72	0.68	8.11	0.81	15.72	0.94	28.57	1.09	52.26	1.27	96.24
130	0.35	0.63	0.47	1.95	0.50	2.50	0.61	5.61	0.67	7.95	0.79	15.42	0.92	28.03	1.07	51.24	1.24	94.41
135	0.34	0.62	0.46	1.91	0.49	2.45	0.60	5.50	0.66	7.80	0.78	15.11	0.90	27.47	1.05	50.27	1.22	92.54
140	0.33	0.60	0.45	1.87	0.48	2.40	0.59	5.39	0.64	7.63	0.76	14.80	0.88	26.90	1.03	49.36	1.19	90.54
145	0.33	0.59	0.44	1.85	0.47	2.37	0.58	5.31	0.63	7.53	0.75	14.59	0.87	26.52	1.01	48.50	1.18	89.35



# Chemical resistance table

The table is based on laboratory experiments with chemically pure substances. The values should therefore be regarded as for guidance only.

	AISI 316L Stainless	AISI 304 Stainless	Cast iron	Polyethylene	PVC	Polypropylene	EPDM	NBR	FPM
Acetone	A	A	A	D	D	B	A	D	D
Acetic acid (dilute.) 30%	A	A	A	C	C	A	A	B	B
Acetic acid 100%	A	A	A	D	D	C	A	C	C
Acetic acid anhydride	A	A	A	B	D	C	B	C	D
Aluminium chloride	D	D	B	A	A	A	A	A	A
Aluminium sulfate	A	D	B	A	A	A	A	A	A
Ammonium carbonate	A	A	B	A	A	A	A	D	-
Ammonium chloride	B	C	B	A	A	A	A	A	-
Ammonium hydroxide	A	A	B	A	A	A	A	D	B
Amyl chloride	A	A	B	D	D	D	-	-	-
Anilin	A	A	B	D	D	B	D	D	C
Anilin hydrochloride	D	D	B	B	D	D	B	B	B
Barium chloride	B	B	B	A	A	A	A	A	A
Barium hydroxide	A	A	B	A	A	A	A	A	A
Benzaldehyde	A	A	B	D	D	C	A	D	D
Benzene	A	A	A	D	D	D	D	D	A
Benzoic acid	A	A	B	A	A	B	-	-	A
Borax	A	A	B	A	A	A	A	B	A
Boric acid	A	A	B	A	A	A	A	A	A
Bromine	D	D	D	D	D	D	-	-	A
Bromine chloride acid	D	D	D	A	D	C	A	B	A
Bromine hydrogen acid	D	D	D	A	A	C	A	D	A
Bromoethylene	A	A	B	D	D	D	-	-	-
Butanol	A	A	A	D	D	D	D	A	A
Butyl acetat	A	A	B	D	D	D	B	-	D
Butyric acid	A	A	A	D	D	A	-	-	-
Calcium bisulfate el sulfite	A	A	D	A	A	A	D	A	A
Calcium chloride	B	B	B	A	A	A	A	A	A
Calcium hydroxide	A	A	C	A	A	A	A	A	A
Calcium hypoklorite	B	C	B	A	C	B	A	C	A
Carbon disulfide	A	A	A	D	D	D	-	-	-
Carbon tetrachloride	A	A	A	D	D	D	D	C	A
Chloroacetic acid (Mono)	D	D	B	D	D	D	B	-	-
Chloride	D	D	B	C	A	D	-	-	-
Chloril acid	D	D	B	C	A	D	-	-	-
Chlorine (dry)	A	A	B	D	D	D	-	-	A
Chlorobenzene	A	A	B	D	D	D	D	D	A
Chloroform	B	B	B	D	D	D	D	D	A
Chlorosulfonic acid	B	C	A	D	D	D	D	D	C
Copper chloride	B	B	B	A	A	B	A	A	A
Copper nitrate	A	A	A	A	A	B	-	-	-
Copper sulfate	A	A	A	A	A	B	A	A	A
Ether	A	A	A	D	D	D	-	-	-
Ethyl chloride	A	A	A	D	D	D	A	A	A
Fatty acid	A	A	A	D	A	B	D	B	A
Flouiner (dry)	A	A	D	D	B	D	-	-	-
Flourine hydrogen acid	D	D	D	B	C	C	B	D	A
Formaldehyde	A	A	A	A	A	B	A	B	A
Formic acid	A	A	A	C	D	B	A	B	C
Furfural	A	A	B	D	D	D	B	D	D
Gallic acid	A	A	A	A	A	A	B	B	B
A	Hydrochloric acid		D	D	D	A	A	A	A
D	Hydrogen peroxide		A	A	B	C	D	D	
C	Iodine (wet)		D	D	D	D	D	D	
D	Lead acetate		A	A	A	B	B	B	

**NOTE:** Concentration levels and length of exposure have a direct influence on the resistance of stainless steel to certain chemicals. Each application should therefore be carefully reviewed to determine the suitability of stainless steel.

**Assumptions:** Data represented is to be used as a guide only, for detailed information please contact our technical department.

	AISI 316L Stainless	AISI 304 Stainless	Cast iron	Polyethylene	PVC	Polypropylene	EPDM	NBR	FPM
Magnesium chloride	B	B	B	A	A	A	A	A	A
Magnesium sulfate	A	A	A	A	A	A	A	A	A
Mercury	A	A	A	A	A	A	A	A	A
Methanol	A	A	A	A	A	B	A	A	C
Methyl chloride	A	A	A	D	D	D	C	D	A
Methylene chloride	B	B	A	D	D	D	D	D	B
Natphalene	A	A	B	D	A	C	D	D	A
Nickel chloride	B	B	B	A	A	A	A	A	A
Nickel sulfate	A	A	B	A	A	A	A	A	A
Nitric acid	C	C	A	D	D	D	C	D	A
Oxalic acid	C	C	B	A	A	C	A	B	A
Perchloric acid	D	D	A	A	D	C	B	-	A
Phosphoric acid	A	A	B	A	A	B	B	D	A
Picric acid	A	A	B	C	D	D	B	B	A
Potassium bromide	A	A	B	A	A	A	-	-	-
Potassium carbonate	A	A	B	A	A	A	-	-	-
Potassium chlorate	A	A	B	A	A	A	-	-	-
Potassium cyanide	A	A	B	A	A	A	A	A	A
Potassium hydroxide	A	A	D	A	A	A	A	B	B
Potassium nitrate	A	A	A	A	A	A	A	A	A
Potassium permanganate	A	A	B	B	B	C	-	-	-
Potassium sulfate	A	A	A	A	A	A	A	A	A
Potassium sulfide	A	A	A	A	A	A	-	-	-
Potassiumchloride	B	B	A	A	A	A	A	A	A
Propylene dichloride	A	A	A	D	D	D	-	-	-
Sal ammoniac	B	C	B	A	A	A	A	A	-
Silver nitrate	A	A	A	A	A	A	A	B	A
Soda (ash)	A	A	B	A	A	A	-	-	-
Sodium acetate	A	A	B	A	A	A	A	B	D
Sodium bicarbonate	A	A	A	A	A	A	A	A	A
Sodium bisulfate	A	C	A	A	A	A	-	-	-
Sodium bisulfite	A	A	D	A	A	A	A	A	A
Sodium bromide	B	B	B	A	A	A	-	-	-
Sodium chlorate	A	A	A	A	C	A	-	-	-
Sodium chloride	D	D	B	C	A	D	-	-	-
Sodium cyanide	A	A	A	A	A	A	A	A	A
Sodium fluoride	A	A	D	A	A	A	-	-	-
Sodium hydroxide	A	A	D	A	A	A	A	B	B
Sodium hypoklorite	D	D	B	C	A	B	B	B	A
Sodium nitrate	A	A	A	A	A	A	A	B	-
Sodium sulfate	A	A	A	A	A	A	A	A	A
Sodium sulfide	A	A	B	A	A	A	-	-	-
Sodium sulfite	A	A	D	A	A	A	-	-	-
Stannicous chloride	B	C	B	A	A	A	B	A	A
Sulfur	A	A	A	C	A	B	A	D	A
Sulfur chloride	A	A	D	D	D	D	D	C	A
Sulfur dioxide	A	B	D	C	D	C	A	D	A
Sulfuric acid	D	D	A	D	D	C	B	D	A
Sulfurous acid	A	C	D	A	A	B	B	B	A
Tionyl chloride	A	A	B	D	D	C	D	-	A
Toluene (toluol)	A	A	A	D	D	D	D	D	A
Trichloroethylene	A	A	A	D	D	D	D	C	A
Turpentine	A	A	B	D	D	D	D	A	A
Xylene (xytol)	A	A	B	D	D	D	-	-	-
Zinc sulfate	A	A	A	A	A	A	-	-	-

**References:** Corrosion Data Survey, 1969 Edition, Nace  
Corrosion Data Survey, 1975, Nace  
Corrosion Tables, Stainless Steels, 1979, Jernkontoret  
Chemical Resistance of Plastic Piping Materials, Cabot Corporation, 1979

## Rubber types

International designation	EPDM	NBR	FPM
Rubber type	Ethylene propene	Nitrile	Fluorine (Viton)
Nominal hardness IRHD	60 (+/-5)	60 (+/-5)	60 (+/-5)
Colour	Black	Black/yellow dot	Purple
Tensile strength MPa	≥ 10 N/mm <sup>2</sup>	≥ 10 N/mm <sup>2</sup>	≥ 8 N/mm <sup>2</sup>
Elongation after fracture %	≥ 300%	≥ 300%	≥ 260%
Max. temperatur range	-35/+100° C	-30/+80° C	-25/+200° C

## Resistance

Resistance to	EPDM	NBR	FPM
Wearability	B	B	B
Resistance to mineral oil	D	A	A
Resistance to vegetable oil	B	A	A
Resistance to benzene/petrol	D	A	A
Resistance to aromatic compounds and hydrocarbons	D	B	A
Resistance to ketones	A	D	D
Resistance to ordinary diluted acids and alkalines	A	A	A
Resistance to ozone and weather stresses	A	C	A
Resistance to air diffusion	D	C	A

A = Very good service to operating limit of material - B = Moderate service - C = Limited or variable service - D = Unsatisfactory

# Installation



## ■ Below-ground installation

### ■ Filling around the pipe

Filling around the pipe can only start when the line and level of the pipe has been checked and approved.

### ■ Compression

Avoid tipping the filling directly down on to the pipe.

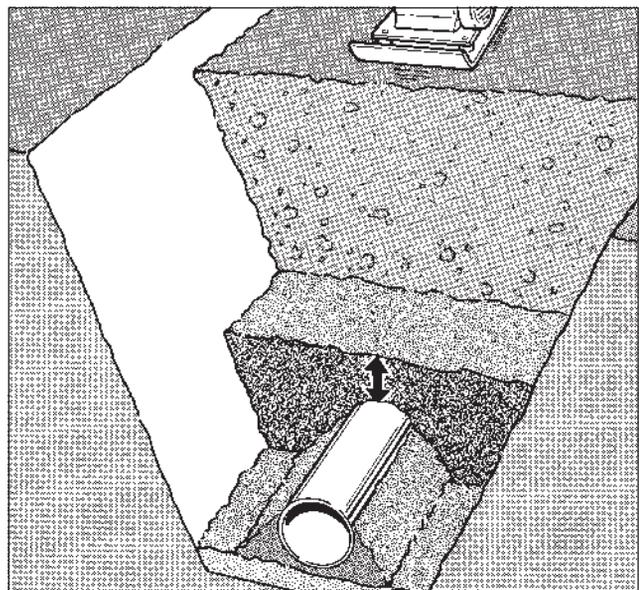
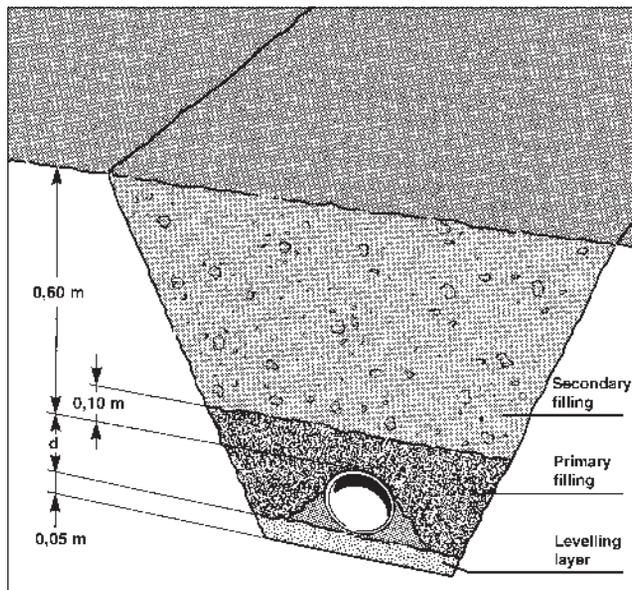
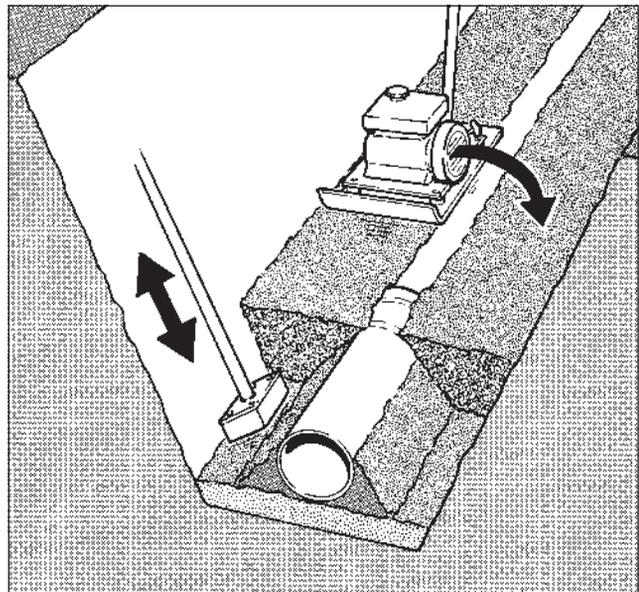
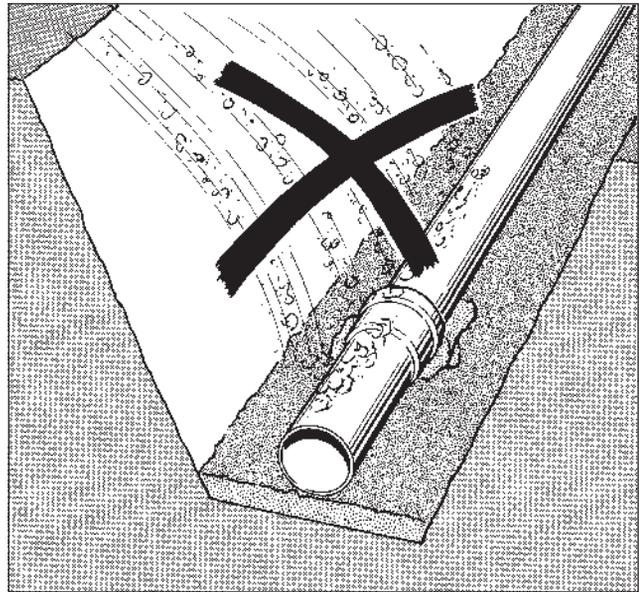
If a machine is used for compression, the equipment's own weight and impact force must be adapted to conditions.

The filling should be compressed to at least 93%.

### ■ Filling in the excavation

Soil from the excavation can be used for filling, but larger stones and blocks may not be used. Compression of the filling material outside reinforced areas is not necessary if the settling will not cause problems or damage.

Further guidance can be obtained from BS 5955 Pt 6



# Installation

## ■ Joint Clamps

Drainage systems for soil, waste water and rainwater in above-ground installations are gravity systems, which are free draining and should not become subjected to internal hydrostatic pressure unless a blockage occurs.

The BLÜCHER® EuroPipe drainage pipework system has push-fit joints and consequently will not resist internal hydrostatic pressure, unless precautions are taken to ensure that the joints will not slide apart.

Appropriate fixing to the building, as recommended, will prevent the joints from sliding apart in most cases, upto approx. 10 m head. If it is difficult or impossible to fix the pipes to the building, joint clamps (type 847.xxx.xxx) can be used to prevent the push-fit sockets and spigot ends from sliding apart in the event of a blockage causing internal pressure to be generated.

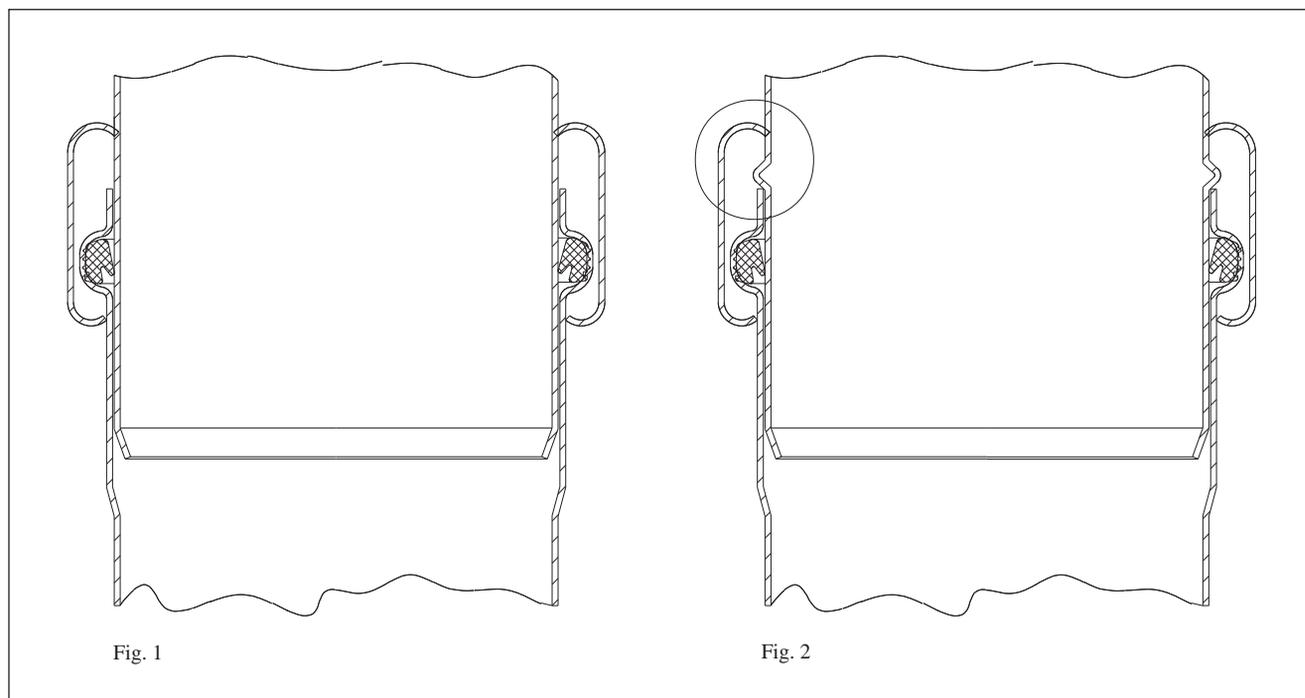


Fig. 1

Fig. 2

Joint clamps can be used in two ways:

They can simply be tightened (16Nm) (see Fig. 1), or the spigot end can be provided with dimples for the clamps to grip (see Fig. 2).

The max. acceptable pressure depends on the method chosen. A joint with dimples on the spigot end can, as shown below, withstand a higher pressure than a joint without dimples.

Push-fit socket and spigot end without dimples, with joint clamp type no. 847.xxx.xxx, can withstand the following pressures:

Pipe dimension	Max. pressure
ø 50 mm	+ 2.0 bar
ø 75 mm	+ 2.0 bar
ø 82 mm	+ 2.0 bar
ø110 mm	+ 2.0 bar
ø125 mm	+ 1.0 bar
ø160 mm	+ 1.0 bar
ø200 mm	+ 0.5 bar
ø250 mm	+ 0.2 bar

Push-fit socket and spigot end with dimples, with joint clamp type no. 847.xxx.xxx, can withstand the following pressures:

Pipe dimension	Max. pressure
ø 50 mm	+ 3.0 bar
ø 75 mm	+ 3.0 bar
ø 82 mm	+ 3.0 bar
ø110 mm	+ 3.0 bar
ø125 mm	+ 3.0 bar
ø160 mm	+ 3.0 bar
ø200 mm	+ 2.5 bar
ø250 mm	+ 2.0 bar

## ■ Dimples on the socket end

For pipe dimensions OD 50, 75, 110, 125, 160 and 200 mm, a number of dimples are pressed on the spigot end of the pipe with a special tool before jointing with the socket end.

The dimples can be pressed very quickly. When the spigot end has been mounted in the socket end, the joint clamp can be mounted in the usual way so that the part of the joint clamp holding the spigot end covers the dimples (see Figure 2).

The table below shows the number of dimples to be pressed on the pipe for the joint to be able to withstand 3 bar.

Pipe dimension	No. of dimples
∅ 50 mm	2
∅ 75 mm	2
∅ 82 mm	2
∅110 mm	4
∅125 mm	5
∅160 mm	8
∅200 mm	12
∅250 mm	16

The tool consists of a set of special jaws for the electro-mechanical tool used in pressfitting systems (see Fig. 3).

*It is important that the joints are completely tightened.*

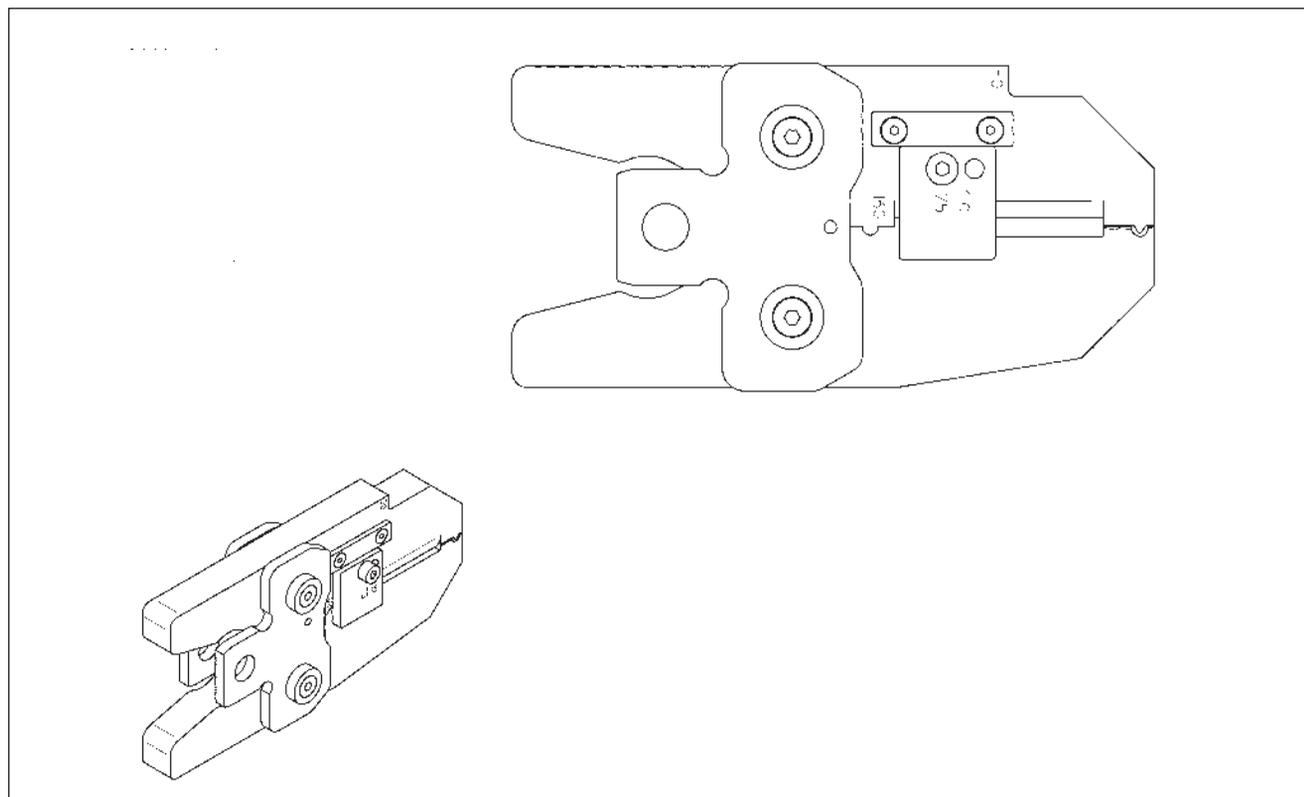


Fig. 3

## ■ Using socket plug clamps as access plugs

As stated above, drainage systems for waste water and rainwater in above-ground installations are gravity systems which are free draining and should not become subjected to internal hydrostatic pressure unless a blockage occurs.

Under these conditions, joint clamps are not necessary to retain the access plugs in place. As it can be difficult to remove the access plugs after the lubricant applied on the installation has been washed away, using non-drying silicone as lubricant on these joints should be considered. However, if the access plugs are to be secured to prevent being pushed out, e.g. as a result of an unforeseen blockage in the pipe system, 847 joint clamps should be used.

## Testing/leakage test

### ■ Sanitation

All pipework systems above or below ground should be tested in accordance with BS EN 12056 annex NG.3

This allows for an air test of 38mm water gauge to be applied without leakage for 3 mins.

There is no justification for a water test to be applied to the whole of the system. The part of the system mostly at risk is that below the lowest sanitary appliance. This may be subjected to a water test up to the level of the lowest appliance, but must not exceed 6m head.

All rainwater pipework should be tested in accordance with BS EN 12056 annex NG4.

This also allows for an air test of 38mm water gauge to be applied without leakage for 3 mins.

### ■ Leakage test

All fittings manufactured in Denmark are individually tested before leaving the factory.

The test is carried out with an air pressure of 0.5 bar (5m head). Any leak will then be immediately evident.

Products are also tested at regular intervals with water pressure and vacuum by BLÜCHER and by independent approval authorities.

