

BSI

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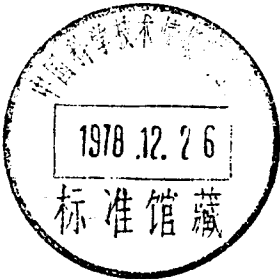
Specification for

Cast iron spigot and socket drain pipes and fittings

Spécification des tuyaux et raccords d'évacuation à emboîtement, en fonte

Spezifikation für Abflußrohre und Formstücke
mit Muffenverbindungen aus Gußeisen

一九八四年十月三十日



97 4085 42

Foreword

This revision of this British Standard has been prepared under the direction of the Hardware and Ironmongery Standards Committee. In addition to pipes, it includes a range of bends, branches and other fittings, which were previously covered in BS 1130 'Schedule of cast iron drain fittings'. BS 437 : Part 1 and BS 1130 will be withdrawn on the publication of this revision. The socket and pipe dimensions given in figure 1 render the pipes and fittings specified in this standard suitable for jointing with caulked joints to pipes complying with the requirements of BS 4622 (100 mm and 150 mm) and BS 1211.

The spigot and socket shown in figure 1 are given as a guide. Leading dimensions are specified but details of the socket outside profile and the provision of a bead to the spigot are left to the individual manufacturer.

Double socket lengths of pipes have been included and these should comply with the requirements and tests laid down for the corresponding spigot and socket pipes.

The angles of bends and branches have been redesignated using the method agreed in the International Organization for Standardization (ISO), i.e. the angle quoted is the angle through which the flow is diverted. Angles previously designated $92\frac{1}{2}^\circ$, $112\frac{1}{2}^\circ$, 135° , $157\frac{1}{2}^\circ$ and 170° are therefore now designated $87\frac{1}{2}^\circ$, $67\frac{1}{2}^\circ$, 45° , $22\frac{1}{2}^\circ$ and 10° .

The pipes and fittings covered by this standard are for use buried in the ground or suspended, and are also suitable for drainage above ground when their use is considered necessary. Cast iron pipes and fittings complying with the requirements of BS 416 are generally used for drainage above ground.



AMD 5877

Amendment No. 1
published and effective from 30 June 1988
to BS 437 : 1978

Specification for cast iron spigot and socket
drain pipes and fittings

Revised text

MD 5877
June 1988

Figure 1. Drain pipe, socket and spigot, and fittings
In the two tables, in the columns for nominal bore headed '225', delete '226' against 'Minimum bore' for pipes (dimension A) and substitute '225' in each case.

Cast iron spigot and socket drain pipes and fittings

1. Scope

This British Standard specifies requirements for single and double socket cast iron pipes and fittings, manufactured by the sand cast or centrifugally cast (spun) processes, for drainage purposes, where the installations will not be subjected to pressures greater than those specified in clause 7. Where pipes or fittings are ordered and supplied with some form of flexible joint, the requirements of this standard apply only to the body.

2. References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3. Quality of material

The metal used for the manufacture of pipes and fittings shall be suitable for the method of manufacture and shall be of a quality not less than that specified in BS 1452, grade 150.

Washers for access doors shall be at least 6.4 mm thick in a material complying with the requirements of BS 2494, type 2.

4. Freedom from defects

Castings shall be sound and free from defects that render them unsuitable for their purpose. Every casting shall ring clearly when tested for soundness by being struck with a light hammer.

5. Permissible deviations on dimensions and masses

Pipes and fittings, unless otherwise specified, shall conform to the appropriate dimensions shown in figures 1 to 66, and shall be subject to the following permissible deviations:

mass: -10 %

thickness: the wall thickness of the barrel of the pipe or body of the fitting shall at no point be less than 87½ % of the thickness given in figure 1

length: ± 12.5 mm

6. Depth of seal

The depth of seal in all fittings incorporating a water seal shall be 50 mm minimum unless otherwise shown in the relevant figure.

7. Hydrostatic requirement

Pipes and fittings, after coating, shall be capable of withstanding the following hydrostatic pressures:

pipes	345 kPa*
fittings	170 kPa

Pipes and fittings, when subjected to these test pressures, shall show no signs of leakage. The test pressure shall be applied internally and shall be maintained for not less than 15 s, or as much longer as may be required for proper proof and inspection, up to a maximum of 1 min.

8. Crushing requirement

Pipes and, where applicable, fittings, when tested in accordance with appendix A, shall be capable of withstanding a test load of 150 kN per metre run.

9. Coating

Unless otherwise specified by the purchaser, castings shall be thoroughly cleaned and dried and then coated by either:

- (a) cold applied coatings complying with the requirements of BS 3416; or
- (b) hot applied coatings complying with the requirements of BS 4147 or BS 4164, at the manufacturer's option.

The coatings by either method shall be smooth and tenacious, sufficiently hard not to flow when exposed to a temperature of 63 °C and not so brittle at a temperature of 0 °C as to chip off when scribed lightly with the point of a penknife.

Any casting that, by either method, is imperfectly coated, or the coating of which does not set or conform to the quality specified, shall be recoated.

10. Inspection

The representative appointed by the purchaser shall have access to the works of the manufacturer at all reasonable times; he shall be at liberty to inspect the manufacture at any stage and to reject any material or finished casting that does not comply with the requirements of this standard.

The manufacturer shall, at his own cost, supply labour and appliances for such inspection as may be carried out on his premises.

*1 kPa = 1 kN/m² = 10 mbar ≈ 100 mm water.

Should the metal used in the manufacture of the castings not comply with the requirements specified, or should any of the products not conform to the dimensions or other requirements, the product or products so failing shall be deemed not to comply with the requirements of this British Standard, and any marking indicating compliance shall be obliterated.

11. Marking

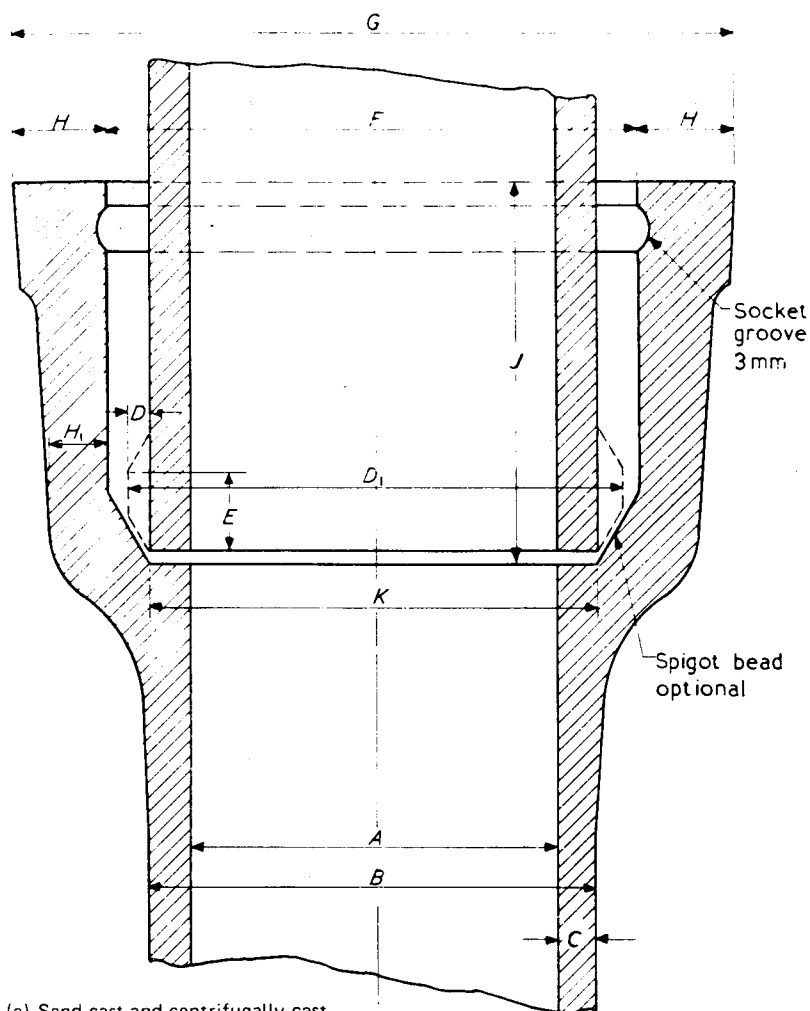
11.1 Every casting shall, where practicable, have cast upon it in a legible manner a figure indicating the nominal size, together with the manufacturer's name or trade mark and

the number of this British Standard, e.g.

100
manufacturer's name or trade mark
BS 437

11.2 Every centrifugally cast pipe shall be marked as required in 11.1, except that the letter 'S' shall be added to the marking.

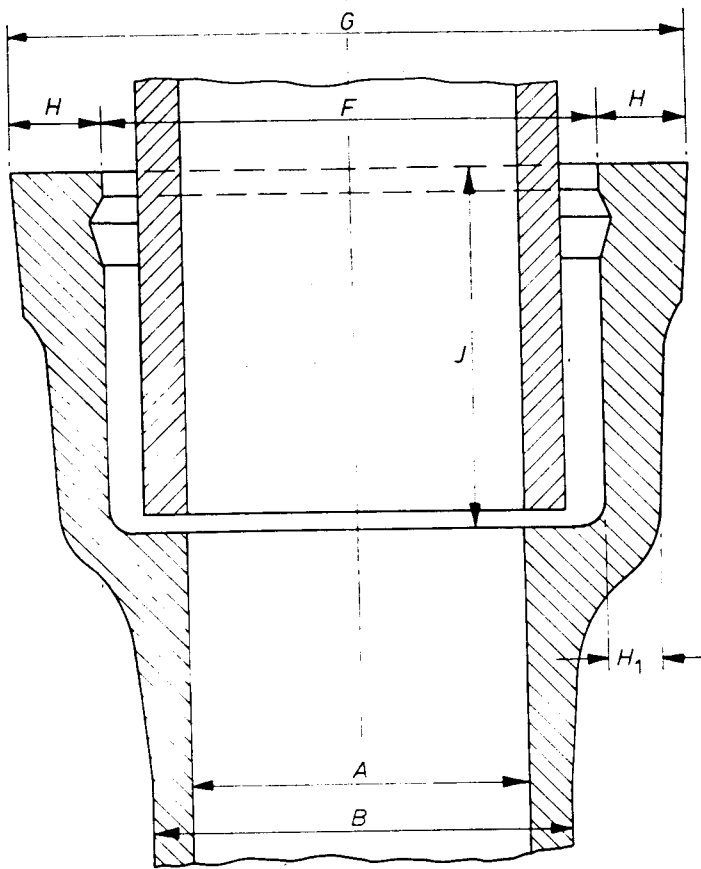
Pipes manufactured by this process shall be deemed to comply with the marking requirements if the particulars required in this clause are legibly marked on each pipe instead of being cast on.



(a) Sand cast and centrifugally cast

			Nominal bore				
			50	75	100	150	225
Pipe	Minimum bore	A	mm	mm	mm	mm	mm
	External diameter (max.)	B	65	92	119	173	256
	Thickness (nominal)	C	6	7	8	9	13
	Projection of spigot bead	D	5	5	5	5	5
	Spigot bead diameter (max.)	D ₁	75	102	129	183	265
	Width of spigot bead (nominal)	E	15	15	15	20	20
Socket	Minimum bore	F	81	108	136	190	276
	External diameter (nominal)	G	115	150	185	240	335
	Thickness (min.)	H	16	19	22	22	27
	Thickness (min.)	H ₁	9	13	14	14	17
	Internal depth (min.)	J	75	75	75	90	115
	Diameter at bottom	K	65	92	119	173	256
Caulking clearance (min.)			8	8	9	9	10
Nominal mass of pipe:			kg	kg	kg	kg	kg
per 1.83 m length (single socket)			17.7	28.6	40.8	71.2	143.8
per 1.83 m length (double socket)			—	33.1	46.7	80.3	162.8
per 2.74 m length (single socket)			—	40.8	58.5	102.1	206.4
per 3.66 m length (single socket)			—	52.6	76.2	132.9	268.5

Figure 1. Drain pipe, socket and spigot, and fittings



(b) Centrifugally cast only: alternative dimensions

			Nominal bore			
			75	100	150	225
Pipe	Minimum bore	A	mm	mm	mm	mm
	External diameter (max.)	B	74	99	150	226
	Thickness (nominal)	C	97	119	171	261
Socket			7.4	7.5	8.3	9.4
	Minimum bore	F	113	135	187	277
	External diameter (nominal)	G	160	185	240	340
	Thickness (min.)	H	19	22	22	27
	Thickness (min.)	H ₁	10	10.5	12	16
	Internal depth (min.)	J	76	76	89	102
Caulking clearance (min.)			8	8	8	8
Nominal mass of pipe:			kg	kg	kg	kg
per 3.60 m length (single socket)			60	75	122	214
per 5.50 m length (single socket)			86	109	177	310

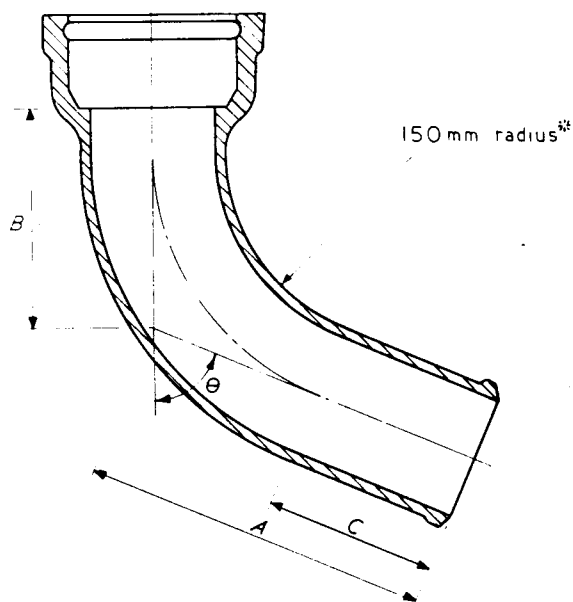
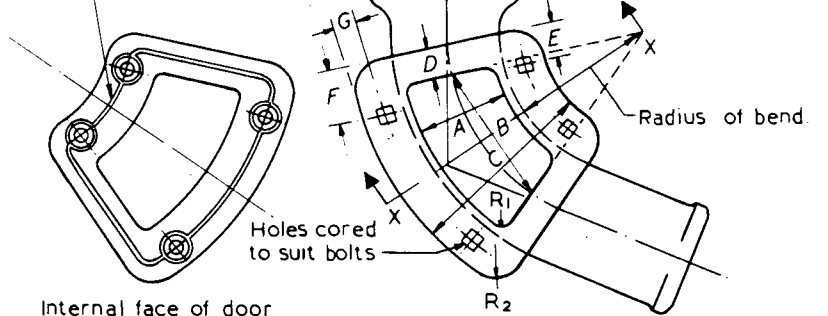


Figure 2. Drain bends

Dimensions		Nominal bore				
		50*	75	100	150	225
$\theta = 87\frac{1}{2}^\circ$	A	mm	mm	mm	mm	mm
	B	210	290	310	350	405
	C	130	230	240	265	315
$\theta = 67\frac{1}{2}^\circ$	A	180	255	280	290	355
	B	100	165	180	205	230
	C	110	120	140	135	170
$\theta = 45^\circ$	A	150	240	265	280	345
	B	75	115	140	140	180
	C	110	165	180	185	230
$\theta = 22\frac{1}{2}^\circ$	A	—	—	150	170	215
	B	—	—	75	90	100
	C	—	—	110	120	135
$\theta = 10^\circ$	A	—	—	130	140	160
	B	—	—	50	65	65
	C	—	—	110	120	135

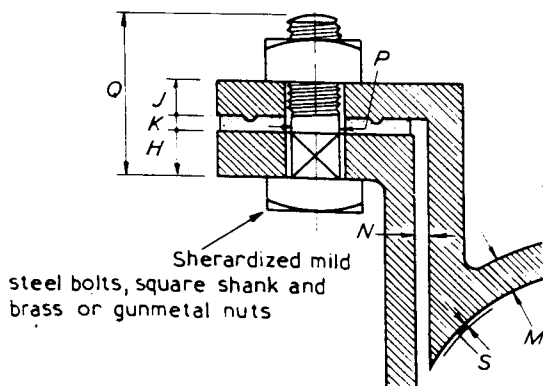
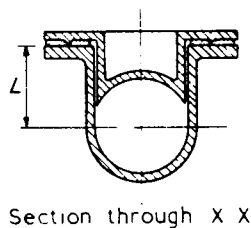
*For the 50 mm size bend, the throat radius shall be 75 mm.

Half round bead 2mm radius.



The interior surface of the door is in all cases to conform to the interior surface of the bend less 2 mm (S)

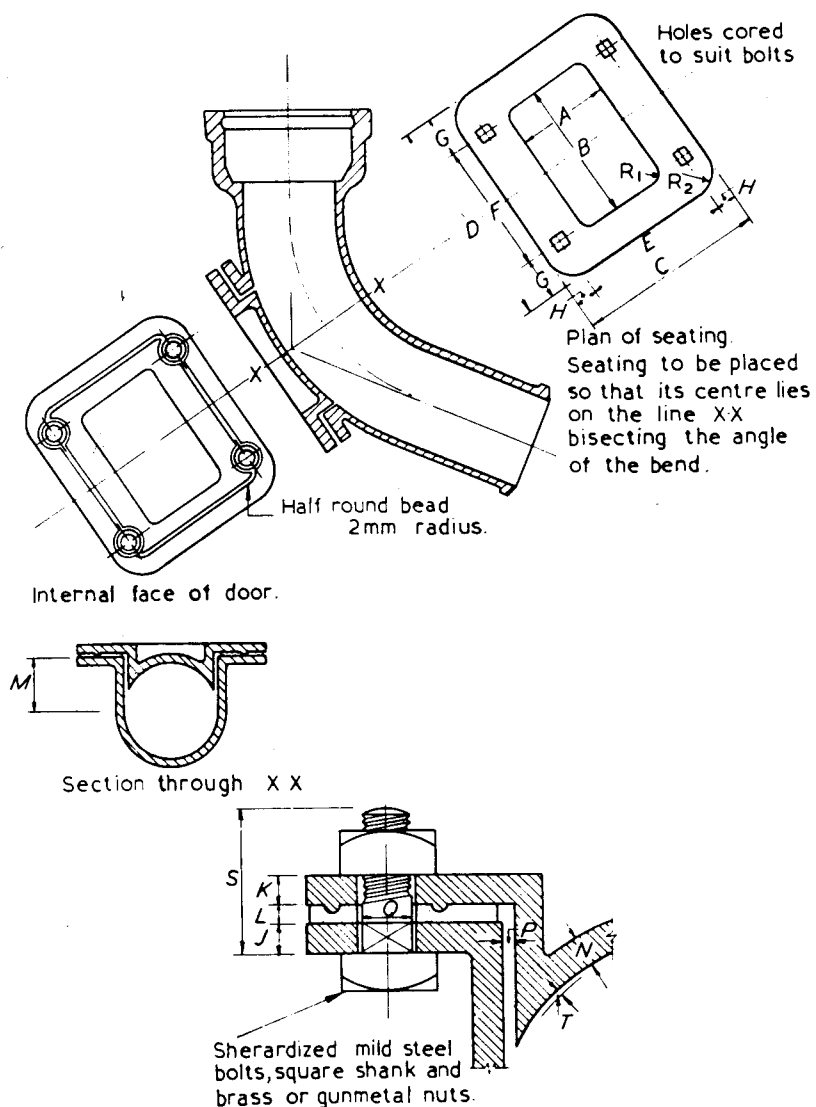
Illustration shows right-hand fitting; can also be supplied left-handed.



	Nominal bore		
	100	150	225
	mm	mm	mm
A	100	150	230
B	150	150	230
C	205	260	340
D	30	30	40
E	40	40	40
F	55	60	60
G	25	25	25
H	15	15	15
J	10	15	15
K	5	5	5
L	90	110	160
M	10	10	15
N	3	3	3
P	15	15	15
Q	45	50	50
R ₁	15	15	15
R ₂	35	35	35
S	2	2	2

For other dimensions of bends see figure 2.

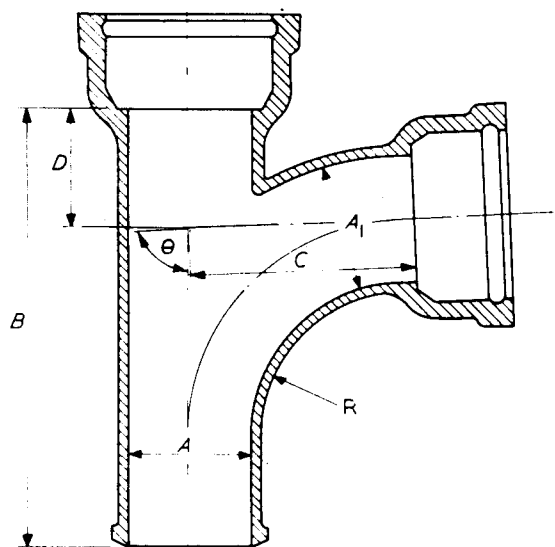
Figure 3. Drain bend with access door on side (87½°, 67½° and 45° only)



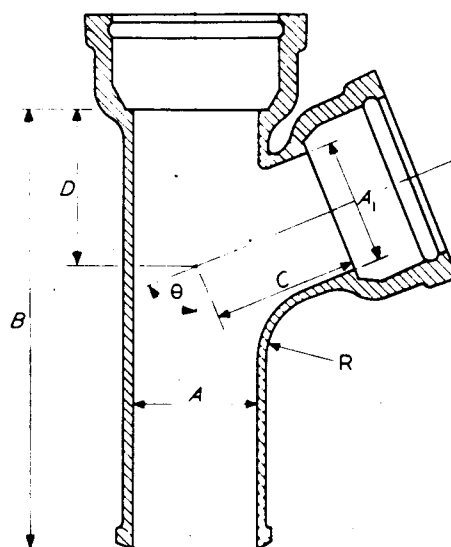
	Nominal bore		
	100	150	225
	mm	mm	mm
A	100	150	230
B	150	150	230
C	205	260	340
D	215	215	305
E	155	210	290
F	125	125	190
G	45	45	55
H	25	25	25
J	15	15	15
K	10	15	15
L	5	5	5
M	50	75	115
N	10	10	15
P	3	3	3
Q	15	15	15
R ₁	15	15	15
R ₂	35	35	35
S	45	50	50
T	2	2	2

For other dimensions of bends see figure 2.

Figure 4. Drain bend with rectangular access door on heel (87½°, 67½° and 45° only)



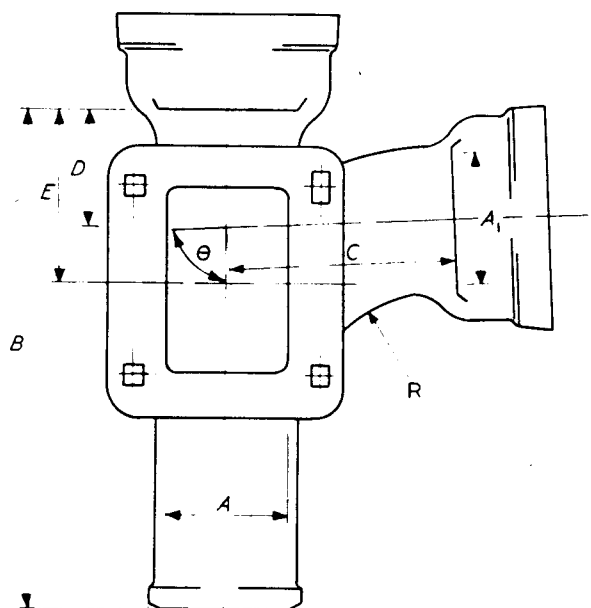
$\theta = 87\frac{1}{2}^\circ$



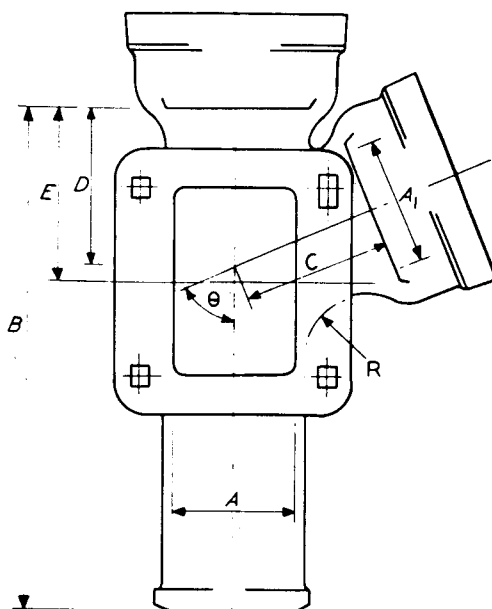
$\theta = 67\frac{1}{2}^\circ \text{ or } 45^\circ$

		mm	mm	mm	mm	mm	mm	mm
Nominal bore $\theta = 87\frac{1}{2}^\circ$	A	75	100	150	150	225	225	225
	A ₁	75	100	100	150	100	150	225
	B	305	355	355	430	405	455	585
	C	110	125	180	190	230	230	255
	D	80	100	95	125	100	125	165
	R	50	50	115	135	115	135	185
Nominal bore $\theta = 67\frac{1}{2}^\circ$	A	75	100	150	150	225	225	225
	A ₁	75	100	100	150	100	150	225
	B	305	355	355	430	405	455	585
	C	100	120	150	170	215	215	240
	D	100	125	135	185	170	195	240
	R	50	50	50	50	50	50	50
Nominal bore $\theta = 45^\circ$	A	75	100	150	150	225	225	225
	A ₁	75	100	100	150	100	150	225
	B	305	355	355	430	405	455	585
	C	150	185	220	260	280	310	370
	D	155	190	220	255	265	310	375
	R	50	50	50	50	50	50	50

Figure 5. Drain branch



$$\theta = 87\frac{1}{2}^{\circ}$$

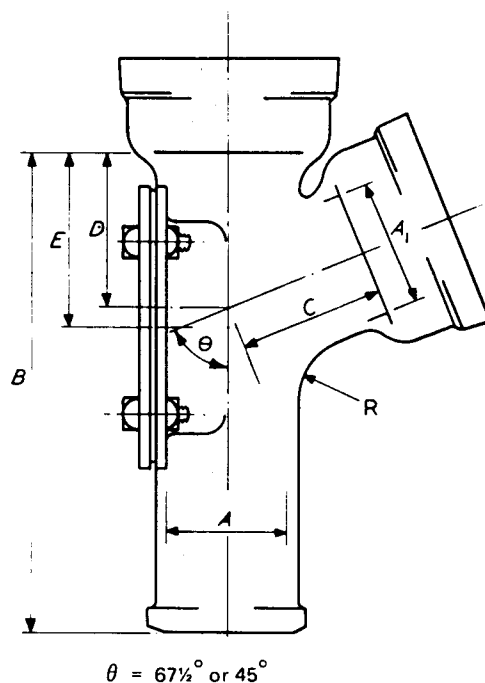
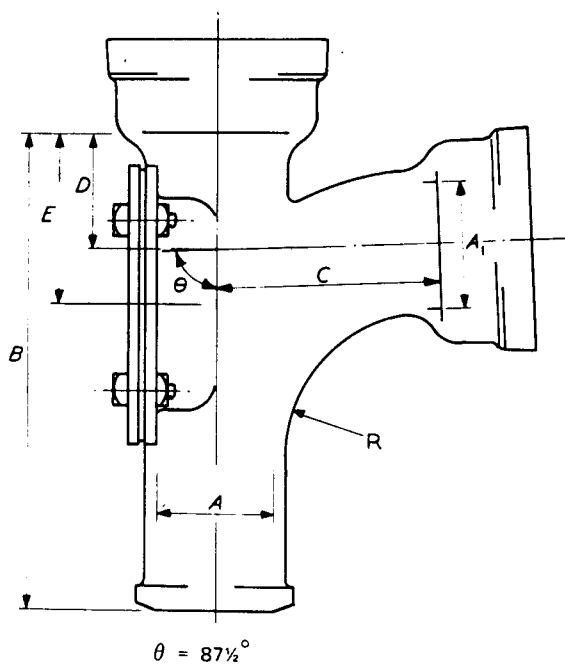


$$\theta = 67\frac{1}{2}^{\circ} \text{ or } 45^{\circ}$$

Illustration shows right-handed fitting: can also be supplied left-handed.

		mm	mm	mm	mm	mm	mm
Nominal bore $\theta = 87\frac{1}{2}^{\circ}$	$\left\{ \begin{array}{l} A \\ A_1 \end{array} \right.$	100	150	150	225	225	225
	$\left\{ \begin{array}{l} A_1 \\ B \end{array} \right.$	100	100	150	100	150	225
	$\left\{ \begin{array}{l} B \\ C \end{array} \right.$	395	430	430	535	535	585
	$\left\{ \begin{array}{l} C \\ D \end{array} \right.$	125	180	190	230	230	255
	$\left\{ \begin{array}{l} D \\ E \end{array} \right.$	100	95	125	100	125	165
	$\left\{ \begin{array}{l} E \\ R \end{array} \right.$	135	135	135	185	185	185
	$\left\{ \begin{array}{l} R \end{array} \right.$	50	110	135	115	135	185
Nominal bore $\theta = 67\frac{1}{2}^{\circ}$	$\left\{ \begin{array}{l} A \\ A_1 \end{array} \right.$	100	150	150	225	225	225
	$\left\{ \begin{array}{l} A_1 \\ B \end{array} \right.$	100	100	150	100	100	225
	$\left\{ \begin{array}{l} B \\ C \end{array} \right.$	395	430	430	535	535	585
	$\left\{ \begin{array}{l} C \\ D \end{array} \right.$	110	150	170	215	215	240
	$\left\{ \begin{array}{l} D \\ E \end{array} \right.$	125	135	185	170	195	240
	$\left\{ \begin{array}{l} E \\ R \end{array} \right.$	135	135	135	185	185	185
	$\left\{ \begin{array}{l} R \end{array} \right.$	50	50	50	50	50	50
Nominal bore $\theta = 45^{\circ}$	$\left\{ \begin{array}{l} A \\ A_1 \end{array} \right.$	100	150	150	225	225	225
	$\left\{ \begin{array}{l} A_1 \\ B \end{array} \right.$	100	100	150	100	150	225
	$\left\{ \begin{array}{l} B \\ C \end{array} \right.$	395	430	430	520	520	585
	$\left\{ \begin{array}{l} C \\ D \end{array} \right.$	185	220	260	280	310	370
	$\left\{ \begin{array}{l} D \\ E \end{array} \right.$	190	220	255	265	310	375
	$\left\{ \begin{array}{l} E \\ R \end{array} \right.$	135	135	135	185	185	155
	$\left\{ \begin{array}{l} R \end{array} \right.$	50	50	50	50	50	50

Figure 6. Drain branch with rectangular access door on side



		mm	mm	mm
Nominal bore $\theta = 87\frac{1}{2}^\circ$	A	100	150	150
	A ₁	100	100	150
	B	395	430	430
	C	125	180	190
	D	100	95	125
	E	135	135	135
	R	50	115	135
Nominal bore $\theta = 67\frac{1}{2}^\circ$	A	100	150	150
	A ₁	100	100	150
	B	395	430	430
	C	120	150	170
	D	120	135	185
	E	135	135	135
	R	50	50	50
Nominal bore $\theta = 45^\circ$	A	100	150	150
	A ₁	100	100	150
	B	395	430	430
	C	185	220	260
	D	190	220	255
	E	135	135	135
	R	50	50	50

Figure 7. Drain branch with rectangular access door at back

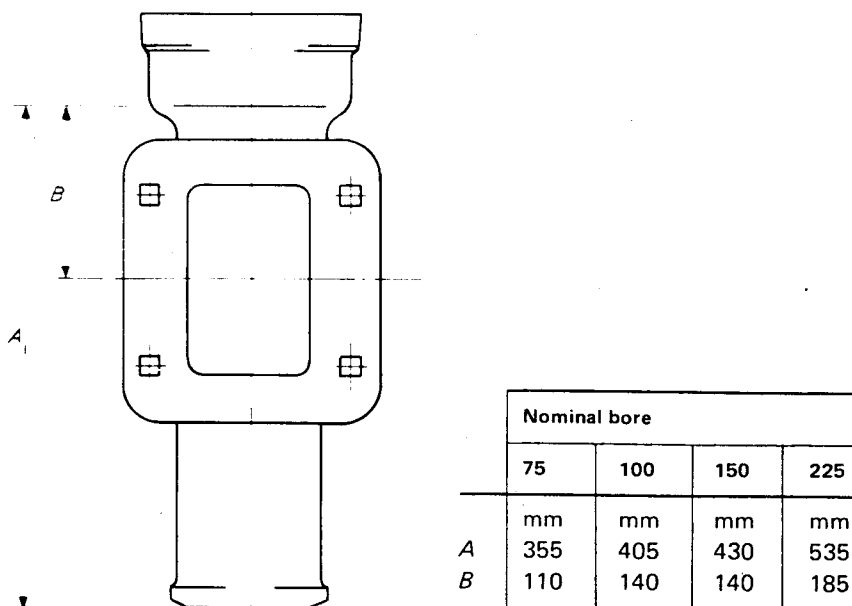
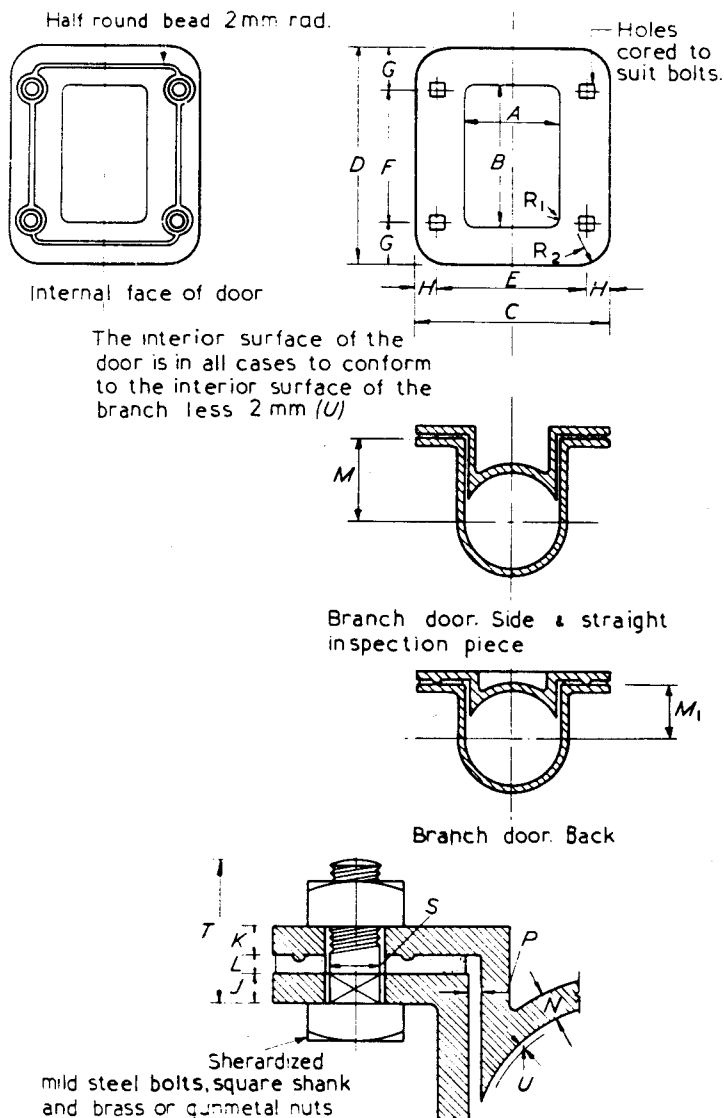
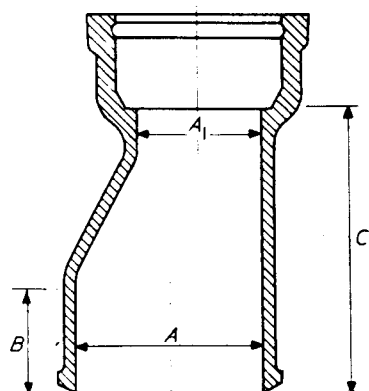


Figure 8. Straight access piece



		Nominal bore			
		75	100	150	225
		mm	mm	mm	mm
<i>A</i>	75	100	150	230	
<i>B</i>	115	150	150	230	
<i>C</i>	180	205	260	340	
<i>D</i>	165	215	215	305	
<i>E</i>	130	155	210	290	
<i>F</i>	75	130	125	190	
<i>G</i>	45	45	45	55	
<i>H</i>	25	25	25	25	
<i>J</i>	10	15	15	15	
<i>K</i>	10	10	15	15	
<i>L</i>	5	5	5	5	
<i>M</i>	75	90	115	160	
<i>M</i> ₁	50	65	80	130	
<i>N</i>	8	9	9	13	
<i>P</i>	3	3	3	3	
<i>R</i> ₁	15	15	15	15	
<i>R</i> ₂	35	35	35	35	
<i>S</i>	15	15	15	15	
<i>T</i>	45	45	50	50	
<i>U</i>	2	2	2	2	

Figure 9. Drain branch and straight access piece with rectangular door



Nominal bore						
A	75	100	100	150	225	225
A ₁	50	50	75	100	100	150
	mm	mm	mm	mm	mm	mm
B	85	85	85	95	110	110
C	230	230	230	255	305	305

NOTE. B dimension is minimum and may be increased.

Figure 10. Diminishing piece

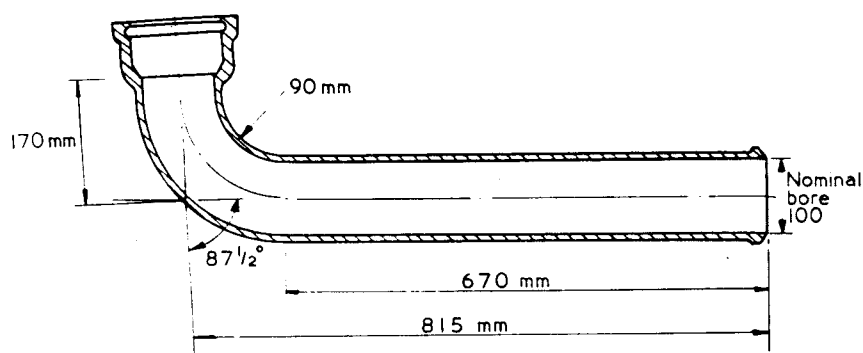
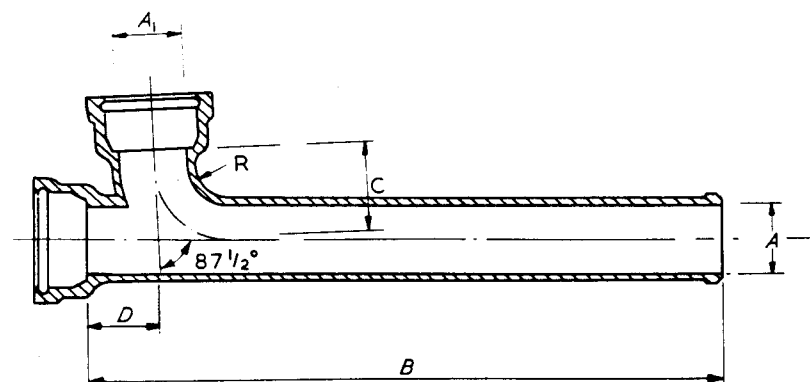


Figure 11. Long tail drain bend
(suitable for use with ranges of WCs)



Nominal bore A		
	100	150
	mm	mm
A ₁	100	100
B	915	915
C	180	205
D	100	100
R	75	75

Figure 12. Long tail drain branch
(suitable for use with ranges of WCs)

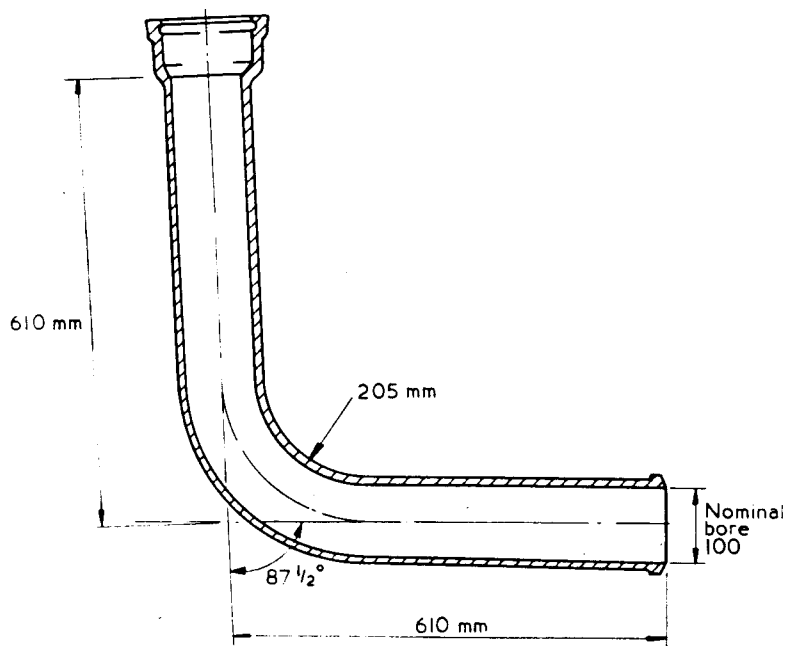


Figure 13. Long drain bend

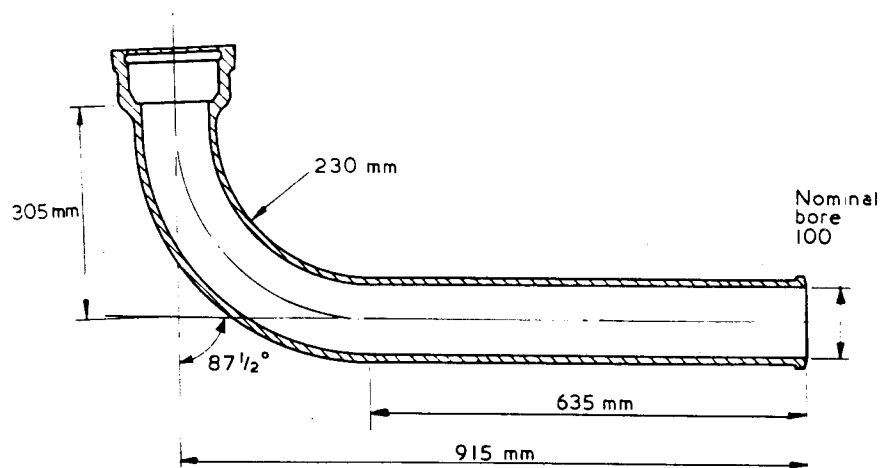


Figure 14. Large radius long tail drain bend

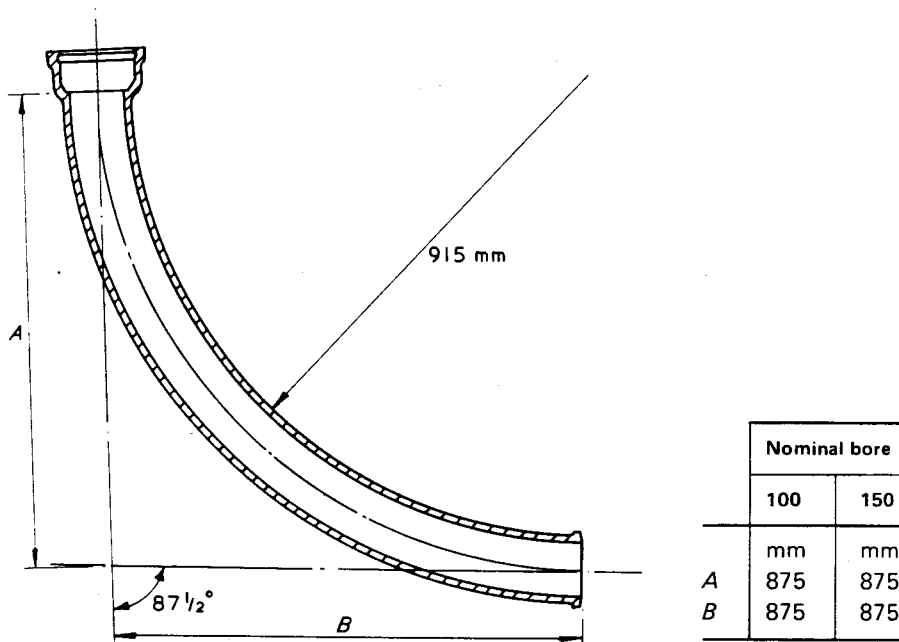


Figure 15. Large radius drain bend

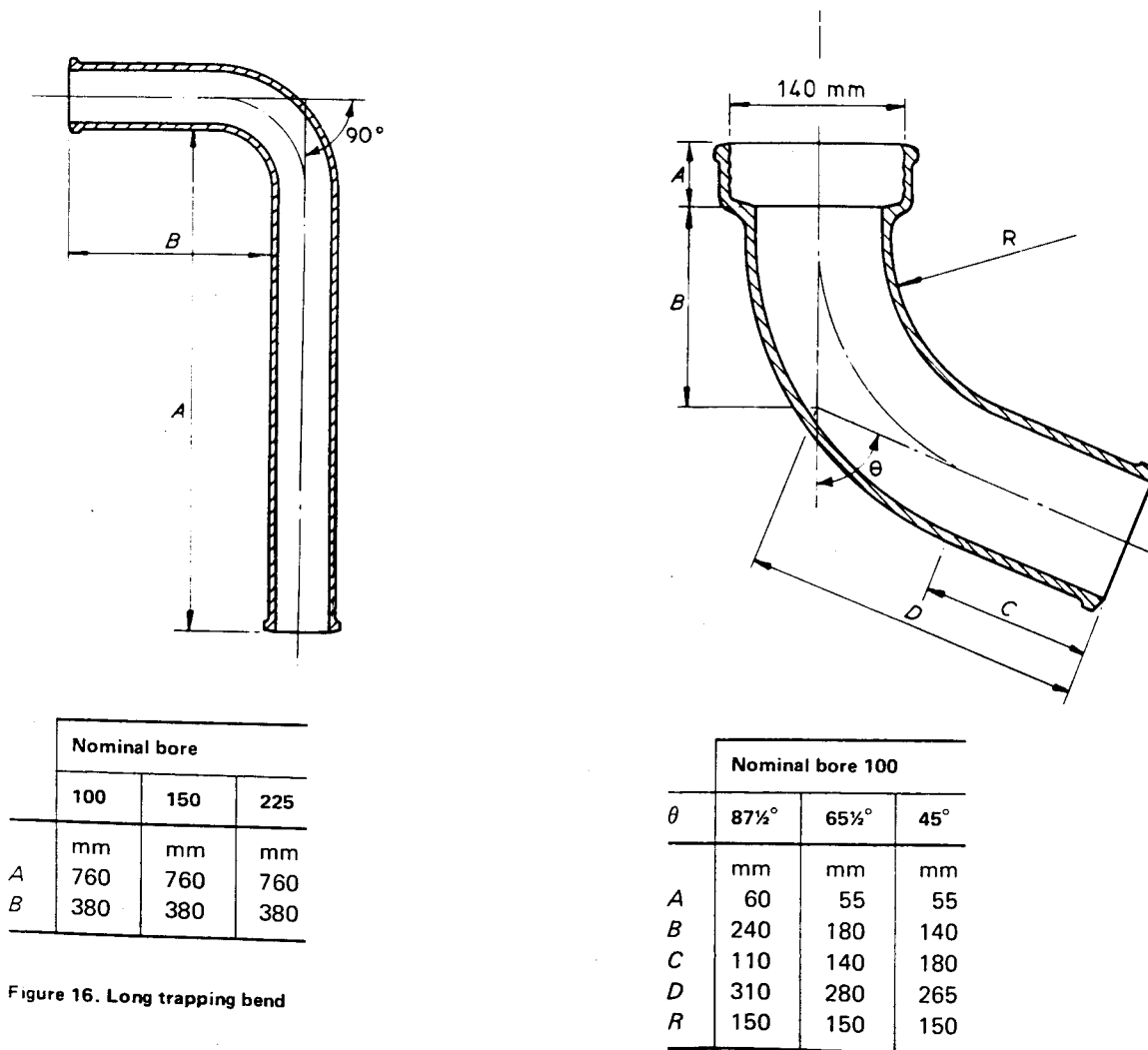


Figure 16. Long trapping bend

Figure 17. Drain bend with socket for WC outlet

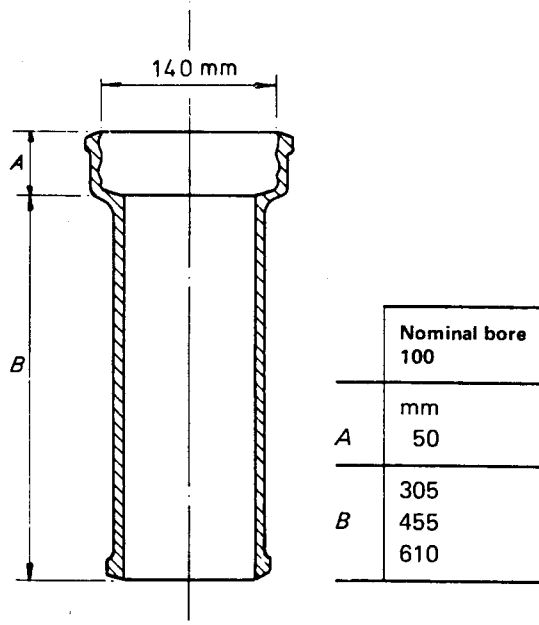


Figure 18. Drain connector with socket for WC outlet

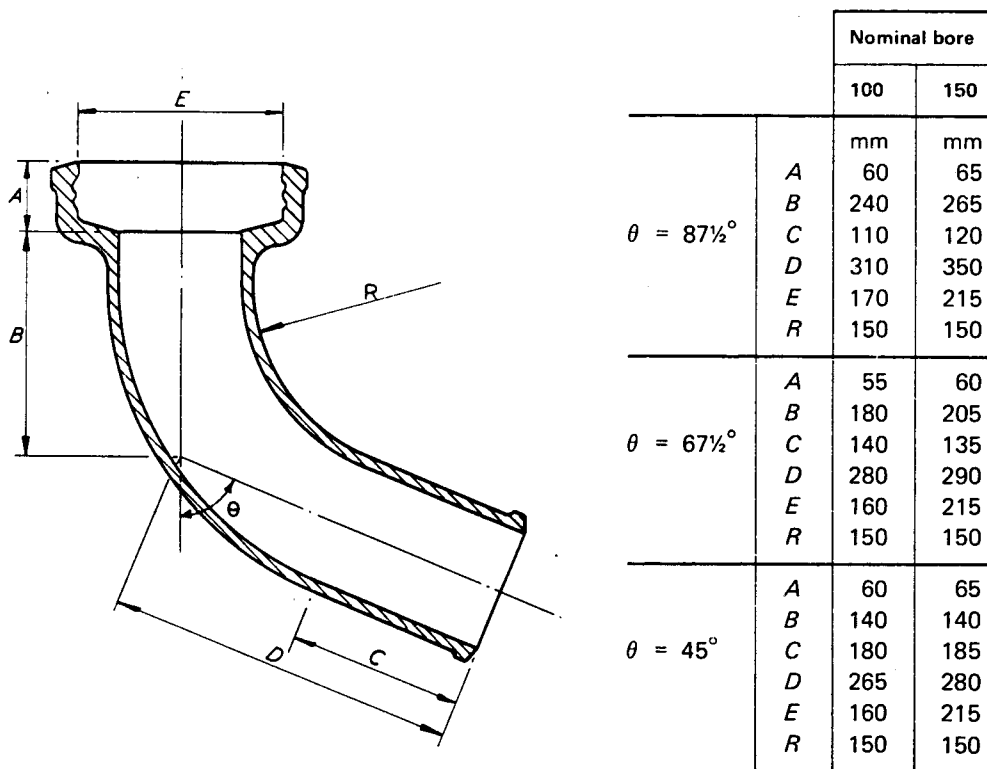
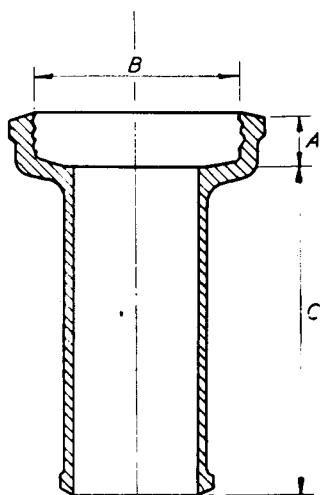
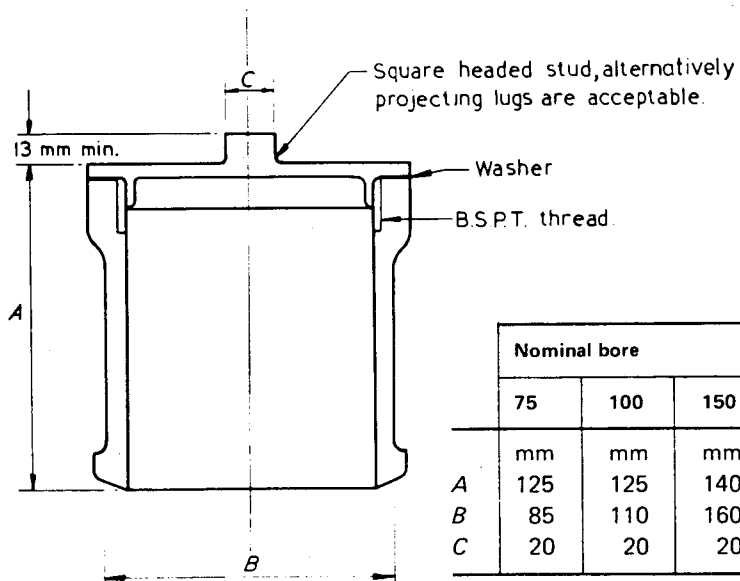


Figure 19. Drain bend with large socket for clayware



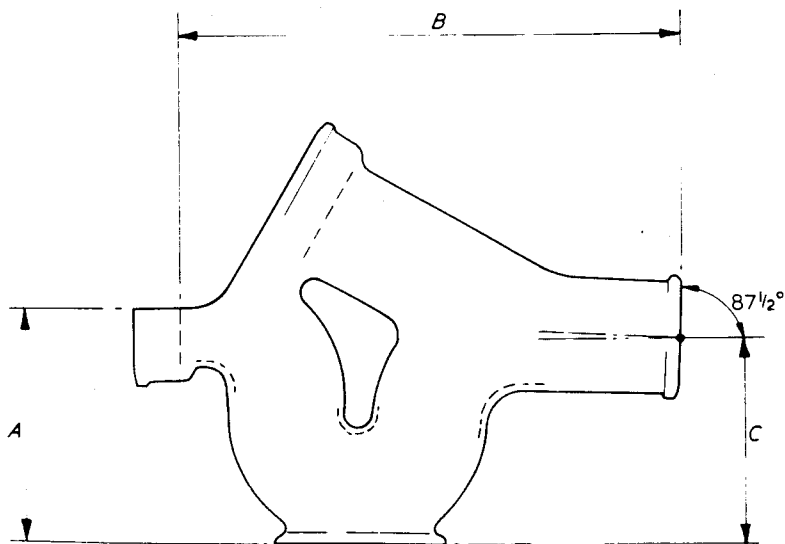
	Nominal bore		
	100	150	225
	mm	mm	mm
A	55	65	65
B	160	215	305
C	305	305	305

Figure 20. Drain connector with large socket for clayware



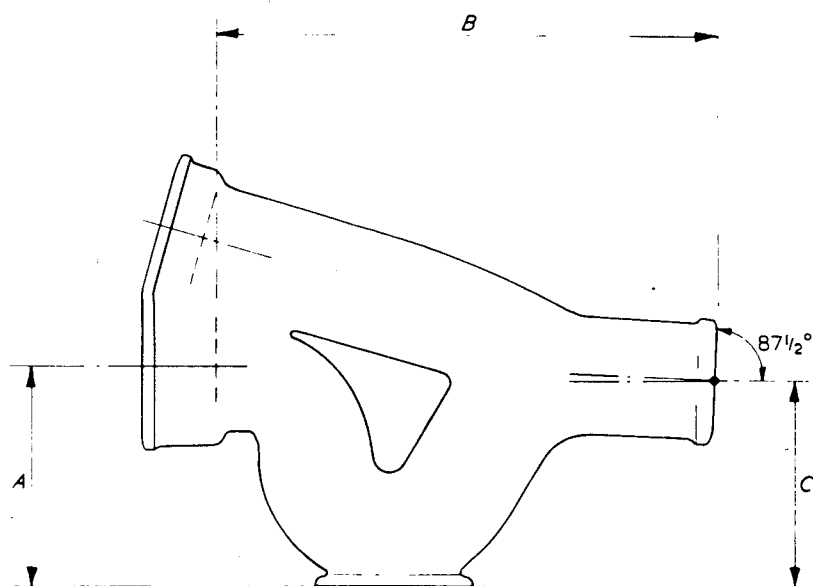
	Nominal bore		
	75	100	150
	mm	mm	mm
A	125	125	140
B	85	110	160
C	20	20	20

Figure 21. Cast iron socket ferrule with brass screwed cap



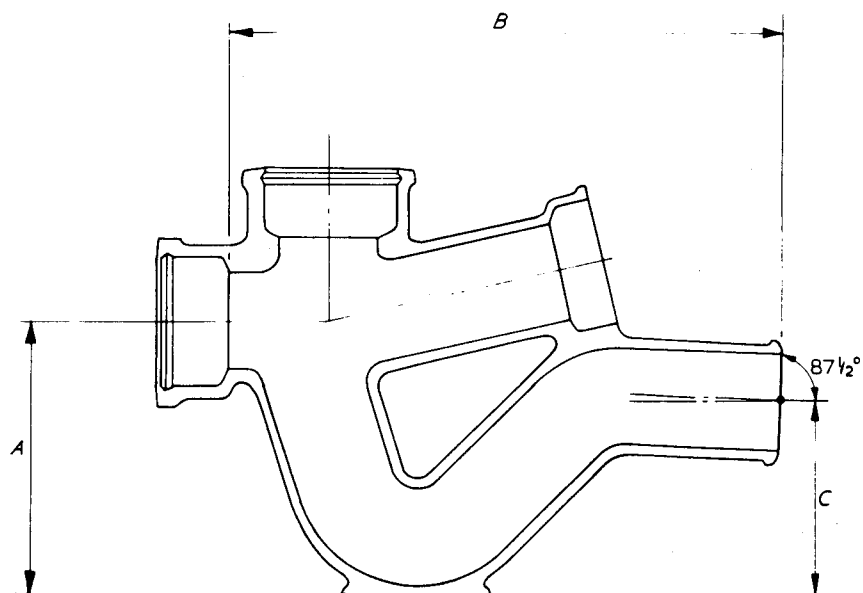
Nominal bore				
Trap	Arm	A	B	C
		mm	mm	mm
100	100	230	530	220
150	100	320	640	300

Figure 22. Disconnecting trap for clayware channel and clearing arm with or without plate, bridle and brass setscrew



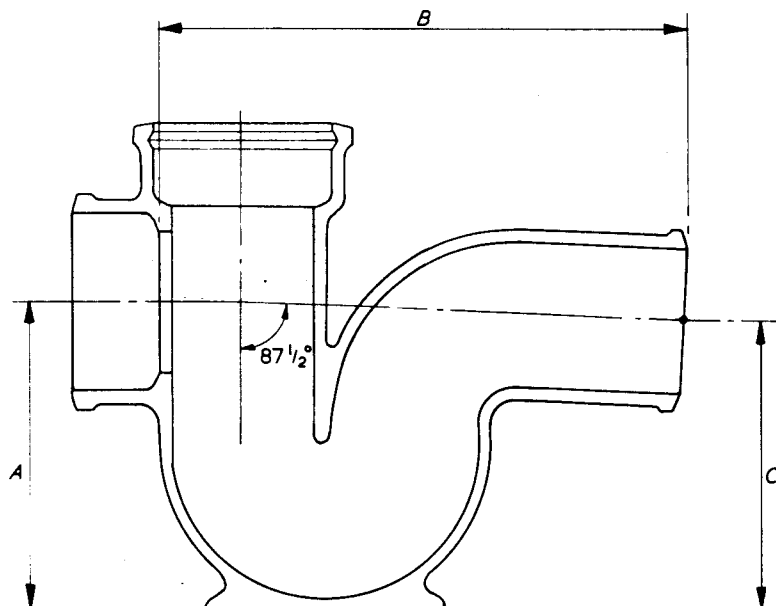
Nominal bore		A	B	C
Trap	Arm			
		mm	mm	mm
100	100	230	530	220
150	100	300	660	290

Figure 23. Disconnecting trap and clearing arm with or without plate, bridle and brass setscrew



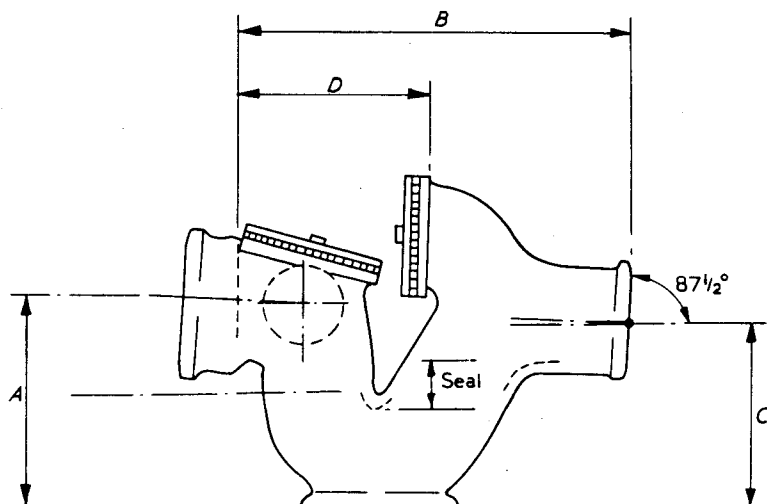
Nominal bore		A	B	C
Trap	Arm			
		mm	mm	mm
100	100	290	580	220
150	100	320	660	300

Figure 24. Disconnecting trap with reverse clearing arm fitted with plate, bridle and brass setscrew and 100 mm vent socket



Nominal bore	A	B	C
	mm	mm	mm
100	240	430	210
150	330	470	300

Figure 25. Gully trap (100 mm and 150 mm outlet 87½°)



Nominal bore		A	B	C	D	Seal
Trap	Arm					
		mm	mm	mm	mm	mm
100	100	240	530	230	240	50
150	100	320	630	300	255	62.5
225	150	440	840	420	375	100

Figure 26. Disconnecting trap and clearing arm (can be supplied with or without fresh air inlet on either side)

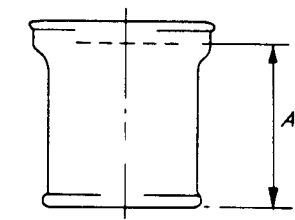


Figure 27. Plain raising piece*
(A = 115 mm, 150 mm, 225 mm or 300 mm)

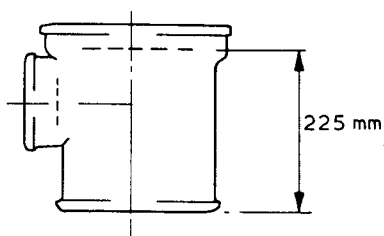
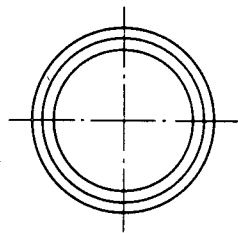


Figure 28. Raising piece: single inlet branch*

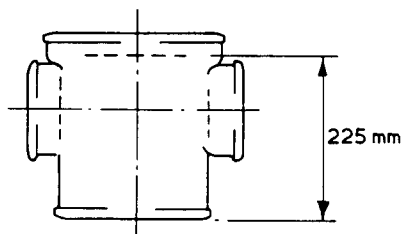
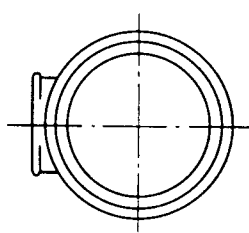


Figure 29. Raising piece: inlet branches at 180°*

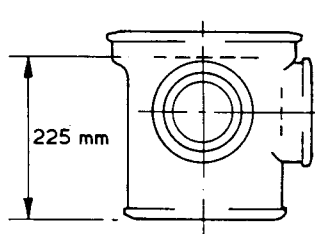
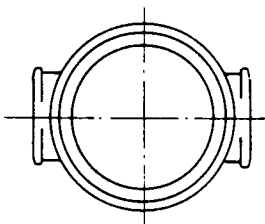
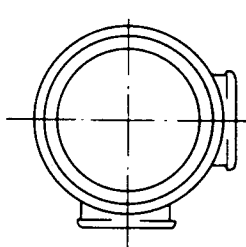


Figure 30. Raising piece: inlet branches at 90°*



*The above raising pieces, 225 mm, have top to suit 267 mm diameter grating or sealed cover; socket, 40 mm deep minimum; branches horizontal, 100 mm diameter.

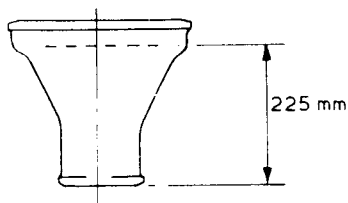


Figure 31. Plain tapered gully inlet*

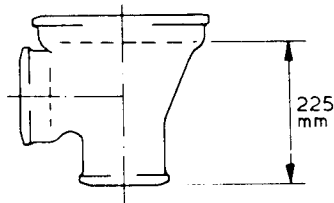


Figure 32. Tapered gully inlet: single branch*

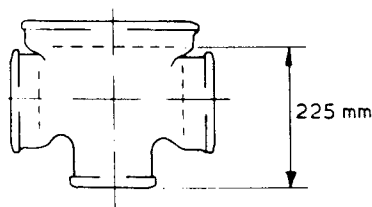
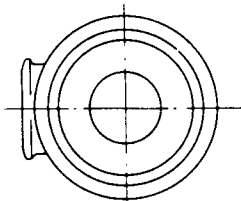
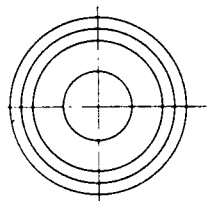


Figure 33. Tapered gully inlet: two branches at 180°*

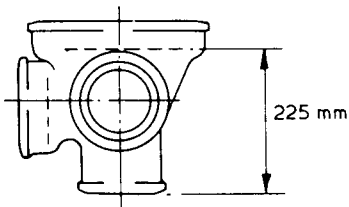
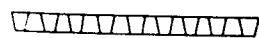
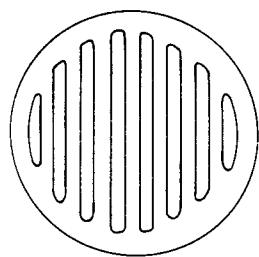
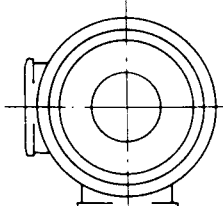
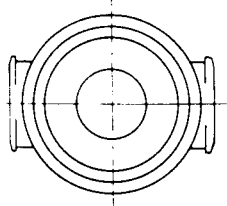


Figure 34. Tapered gully inlet: two branches at 90°*



Diameter	Thickness
270 mm	40 mm
350 mm	55 mm
420 mm	70 mm

Figure 35. Gully grating

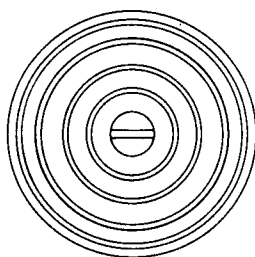


Figure 36. Grease seal cover and frame (270 mm diameter)

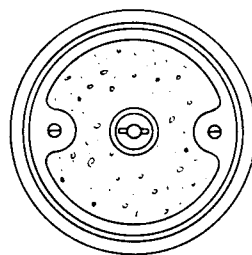
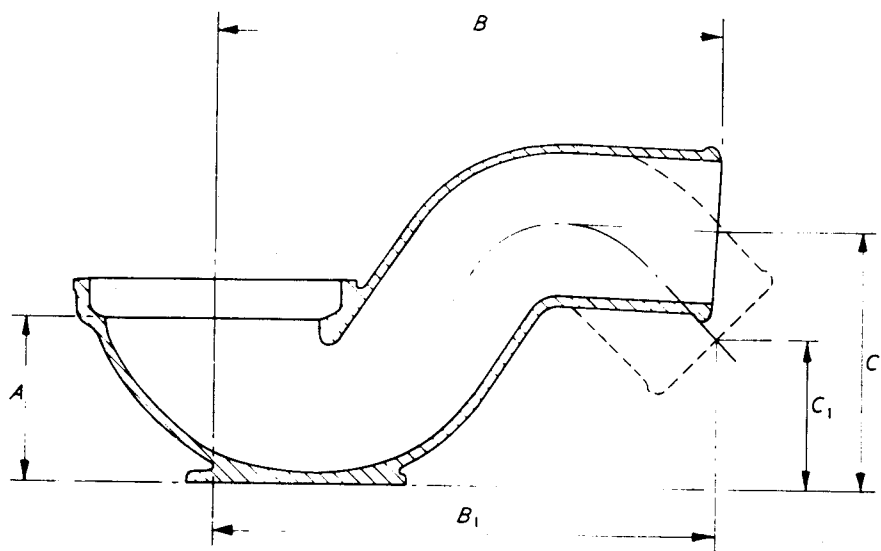


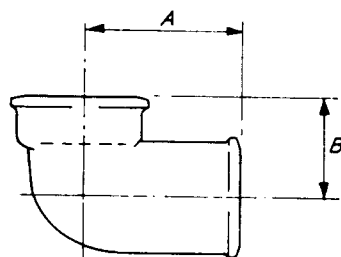
Figure 37. Recessed cover and frame (270 mm diameter; fitted with two brass screws)

* The above tapered gully inlets have 100 mm/150 mm outlets. Top to suit 270 mm diameter grating or sealed cover; socket, 40 mm deep minimum.



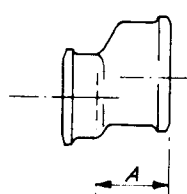
Nominal bore	A	B	C	B ₁	C ₁
	mm	mm	mm	mm	mm
100	130	450	220	450	90
150	180	530	290	550	170

Figure 38. Gully trap (225 mm inlet, 100 mm and 150 mm outlets at 87½° or 45°. Socket to suit raising piece to figures 27, 28, 29 and 30. Socket, 40 mm deep minimum)



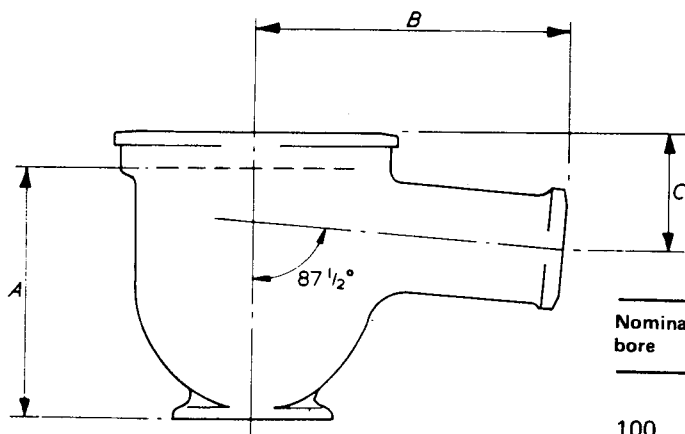
Nominal bore	A	B
	mm	mm
100/50	150	110
100/75	150	110

Figure 40. Diminisher with 90° bend (for use with gully branch)



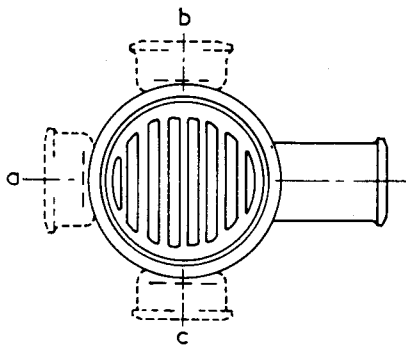
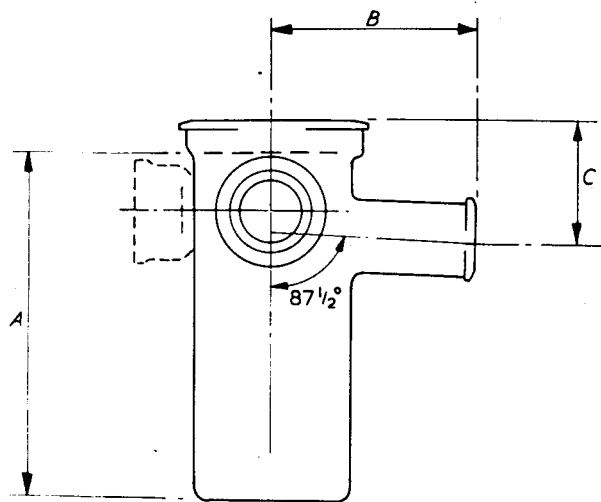
Nominal bore	A
	mm
100/50	110
100/75	110

Figure 39. Diminisher for use with gully branch



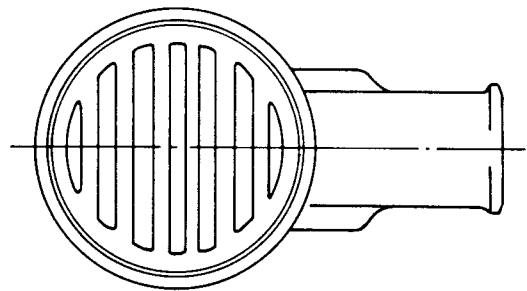
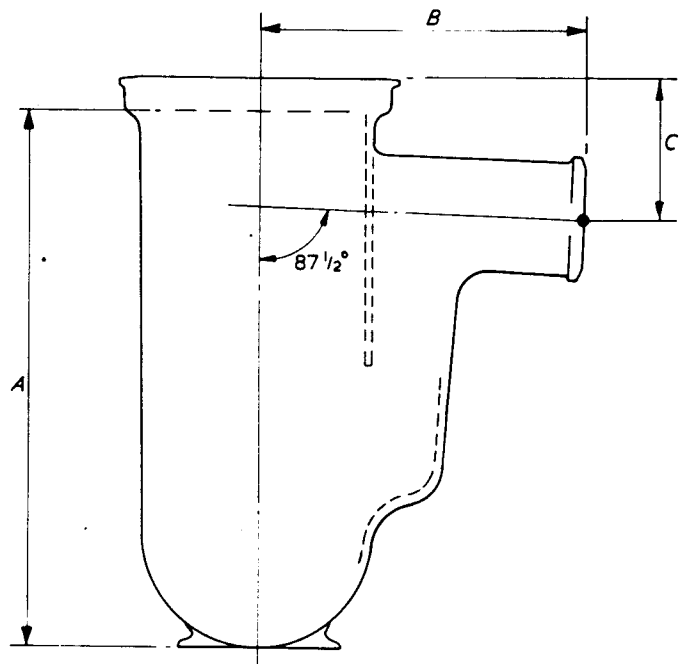
Nominal bore	A	B	C
	mm	mm	mm
100	225	280	130

Figure 41. Trapless gully (225 mm diameter inside. Socket to suit a 270 mm diameter grating to figure 35. Socket, 40 mm deep minimum)



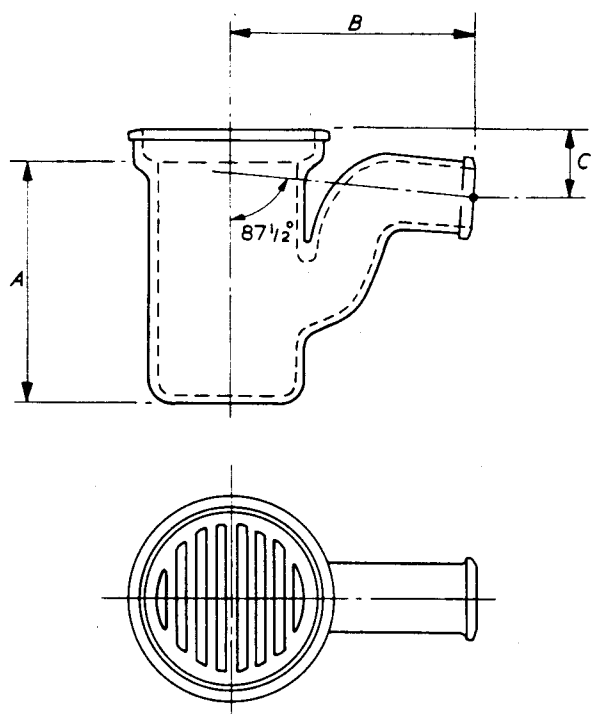
Nominal bore	A	B	C
100	mm 560	mm 300	mm 230

Figure 42. Trapless gully (225 mm diameter inside X 610 mm deep overall to suit a 270 mm diameter grating to figure 35. Inlet socket can be cast on in positions a, b, c)



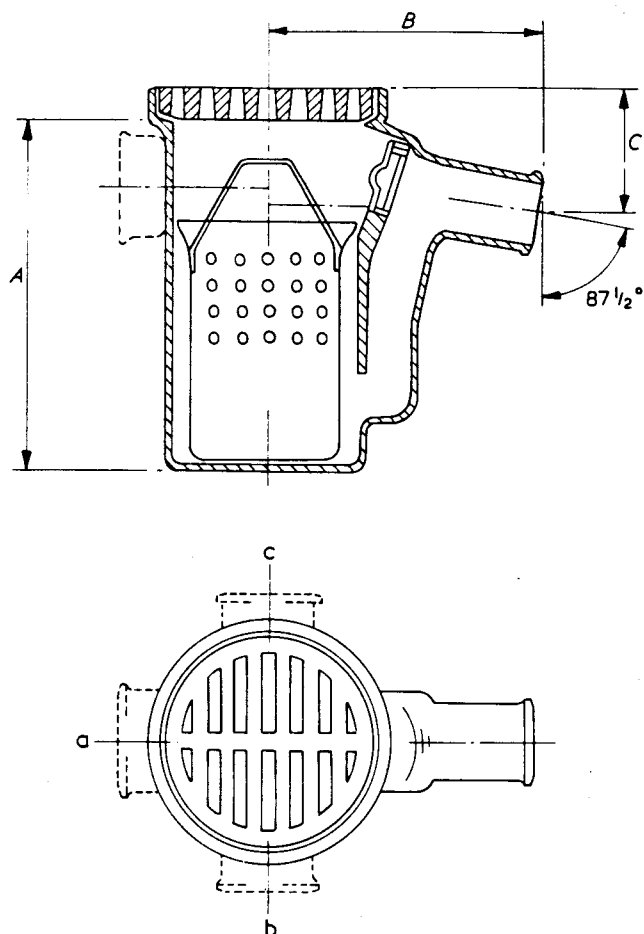
Nominal bore	A	B	C
100	mm 560	mm 340	mm 150

Figure 43. Gully trap (225 mm diameter inside X 610 mm deep overall to suit a 270 mm diameter grating to figure 35)



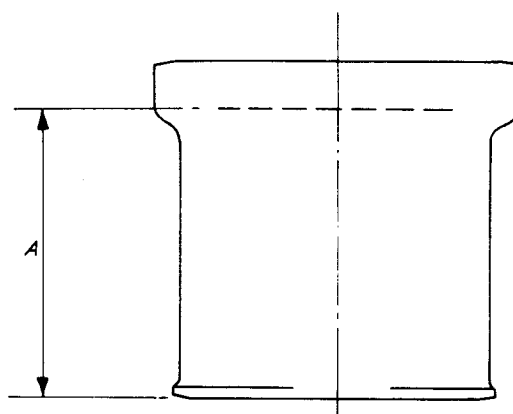
Nominal bore	A	B	C
100	mm 380	mm 440	mm 125

Figure 44. Gully trap (225 mm diameter inside X 430 mm deep overall to suit raising pieces to figures 27, 28, 29 and 30 or a 270 mm diameter grating to figure 35)



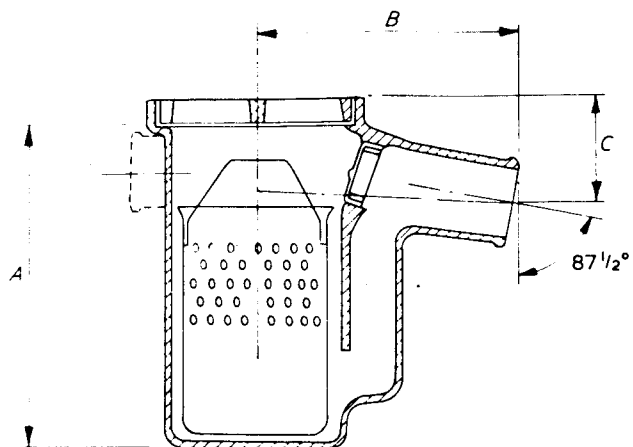
- (a)
 300 mm diameter inside.
 100 mm outlet.
 Grating 350 mm diameter X 55 mm thick.
 Galvanized mild steel sediment pan.
 Internal access fitted with screwed brass cap.
 100 mm inlet can be cast on in positions a, b or c.

Depth	A	B	C
mm	mm	mm	mm
610	560	430	190
760	710	430	190

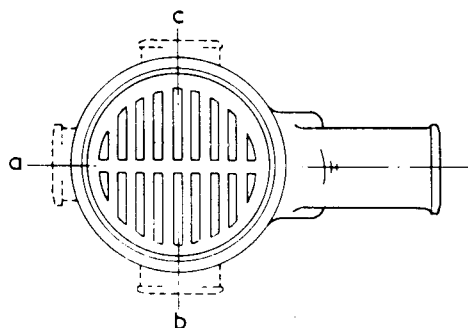


- (b)
 300 mm diameter inside. Socket depth = 55 mm.
 A = 75 mm, 115 mm, 150 mm, 225 mm, 300 mm

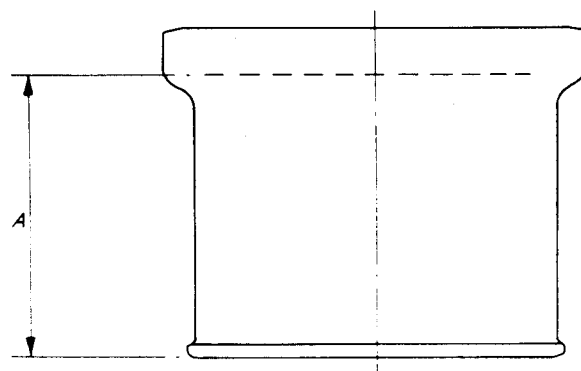
Figure 45. Garage gully and raising piece



Depth	A	B	C
mm	mm	mm	mm
760	710	560	200

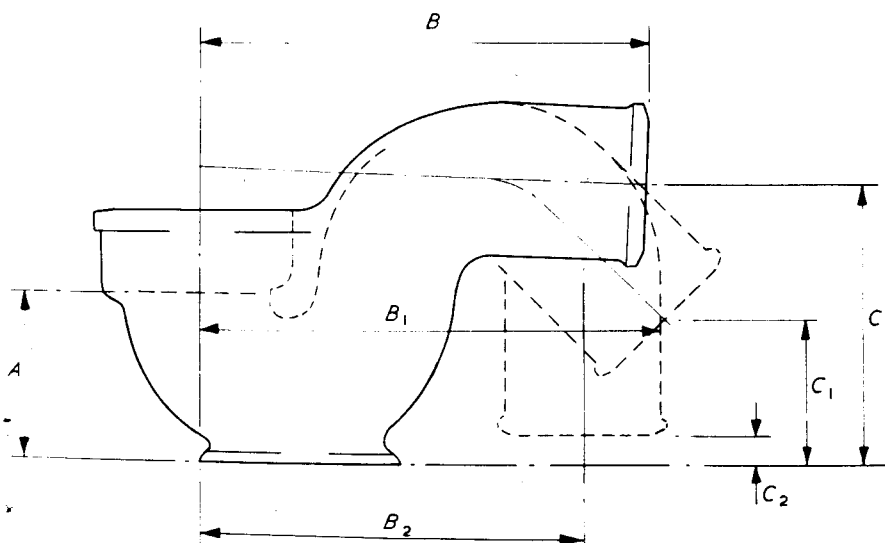


- (a)
 380 mm diameter inside.
 150 mm outlet.
 Grating 425 mm diameter x 70 mm thick.
 Galvanized mild steel sediment pan.
 Internal access fitted with screwed brass cap.
 100 mm or 150 mm inlets can be cast on in positions a, b or c.



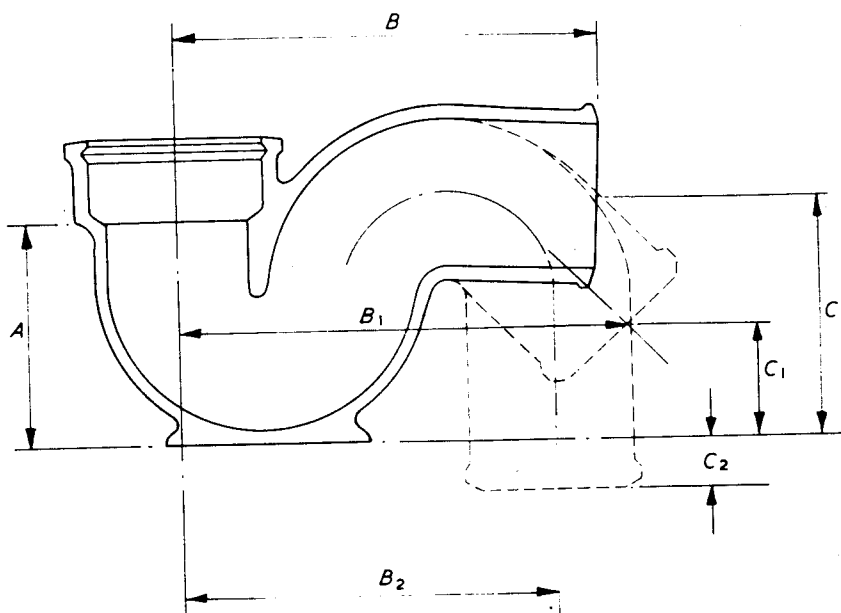
- (b)
 380 mm diameter inside. Socket depth = 70 mm.
 A = 75 mm, 115 mm, 150 mm, 275 mm, and 300 mm.

Figure 46. Garage gully and raising piece



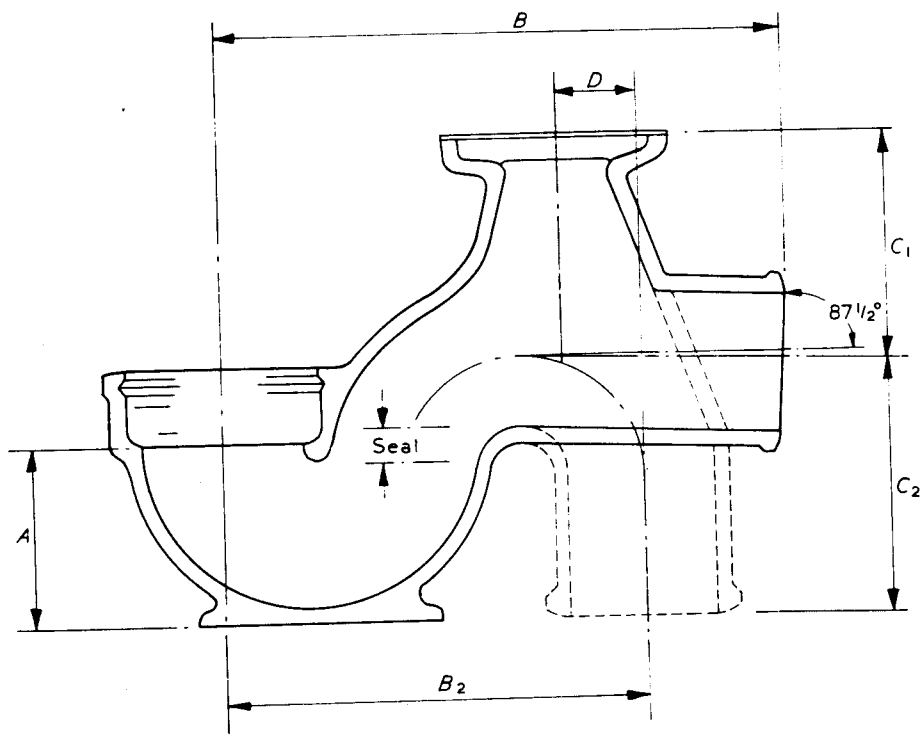
Nominal bore	A	B	B ₁	B ₂	C	C ₁	C ₂
	mm	mm	mm	mm	mm	mm	mm
75	115	330	360	270	180	70	20
100	125	380	410	300	240	115	10
150	180	495	500	410	310	165	10

Figure 47. High invert gully trap (87 1/2°, 45° or vertical outlet)



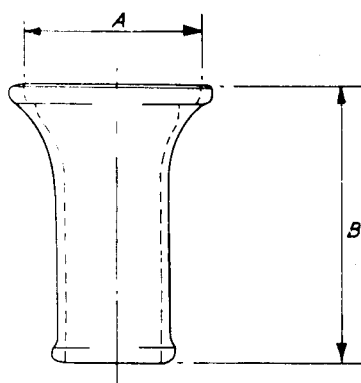
Nominal bore	A	B	B ₁	B ₂	C	C ₁	C ₂
	mm	mm	mm	mm	mm	mm	mm
75	150	300	300	230	160	60	25
100	180	380	380	290	200	80	25
150	240	440	485	410	290	155	10

Figure 48. Low invert gully trap (87½°, 45° or vertical outlet)



Nominal bore	A	B	B ₂	C ₁	C ₂	D	Seal
	mm	mm	mm	mm	mm	mm	mm
100	125	455	300	205	230	60	75

Figure 49. Gully trap with surface access fitted with brass screws and washer



Nominal bore	A dia	B
	mm	mm
75	205	300
100	205	300

Figure 50. Bellmouth gully inlet

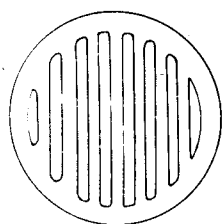


Figure 50a. Loose grating
(nominal 200 mm diameter X 12 mm deep)

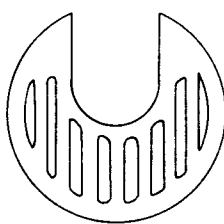


Figure 50b. Loose grating with notch for downpipe
(nominal 200 mm diameter X 12 mm deep)

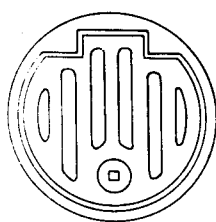


Figure 50c. Hinged and locking grating and frame
(nominal 200 mm diameter X 12 mm deep)

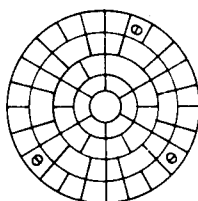


Figure 50d. Solid plate
(nominal 200 mm diameter X 12 mm deep screwed to bellmouth gully inlet with brass screws and a washer)

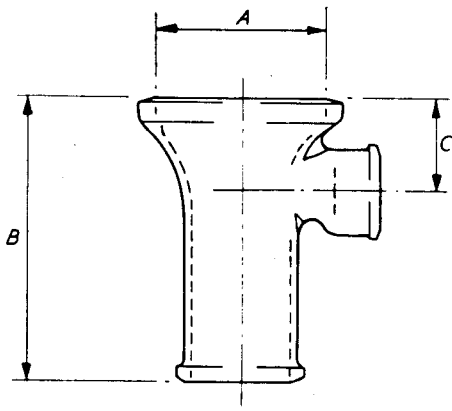


Figure 51. Bellmouth gully inlet with single branch

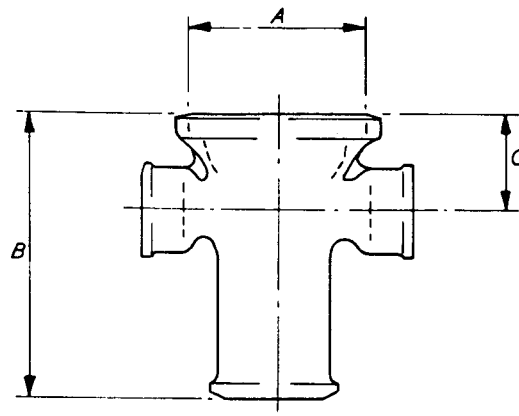


Figure 52. Bellmouth gully inlet with two branches at 180°

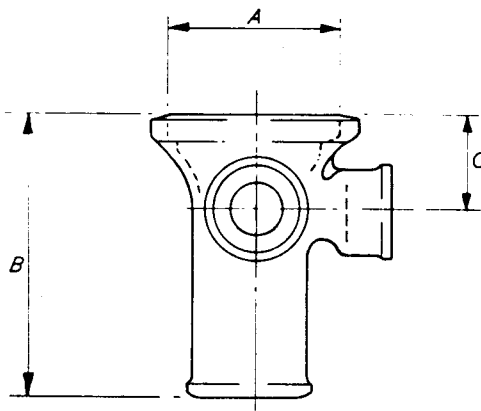


Figure 53. Bellmouth gully inlet with two branches at 90°

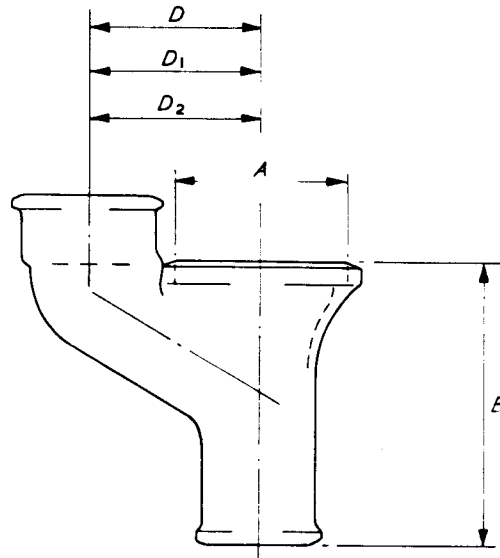


Figure 54. Bellmouth gully inlet with vertical branch

Dimensions for figures 51, 52, 53 and 54

Nominal bore							
Outlet	Branch	A dia	B	C	D	D ₁	D ₂
75*	50	205	300	80	—	—	—
75*	75	205	300	90	—	—	—
100	50	205	300	90	150	—	—
100	75	205	300	120	—	180	—
100	100	205	300	120	—	—	190

*Not available with vertical branch (figure 54)

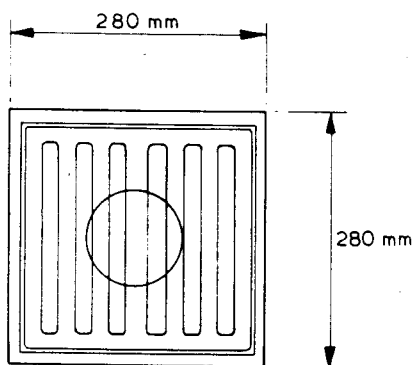
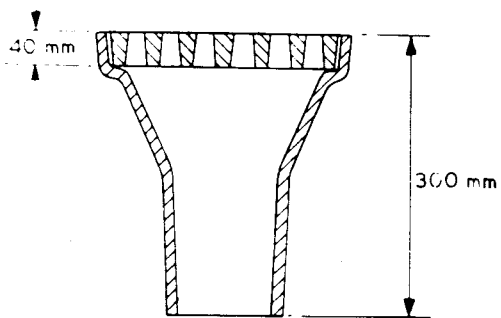
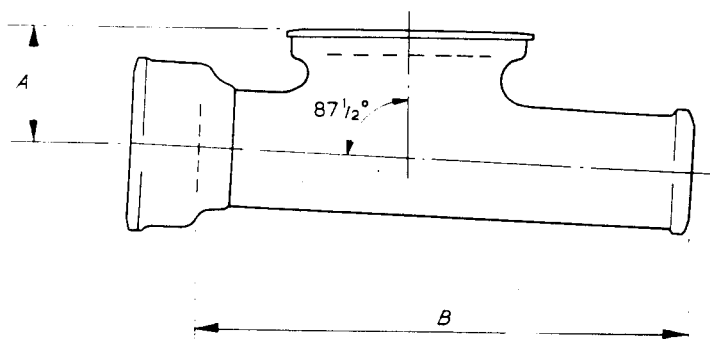
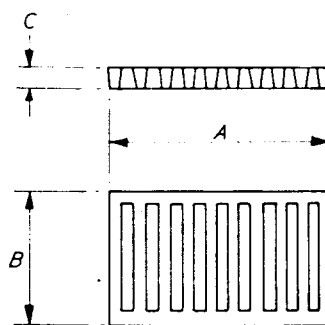


Figure 55. Gully inlet and grating
(100 mm outlet 280 mm X 280 mm over top grating
240 mm X 240 mm X 40 mm thick)



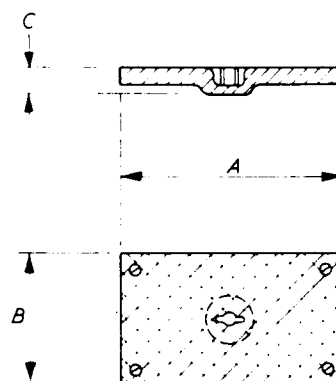
Nominal bore	A	B
100	mm 125	mm 530

Figure 56. Rainwater shoe with horizontal inlet



A	B	C
mm 240	mm 140	mm 20

Figure 56a. Rainwater shoe
loose grating



A	B	C
mm 240	mm 140	mm 20

Figure 56b. Solid cover screwed
to shoe with brass setscrews and
washer and closed keyway

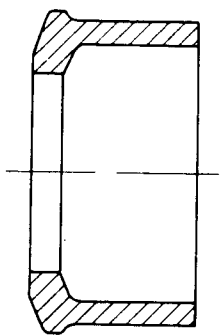
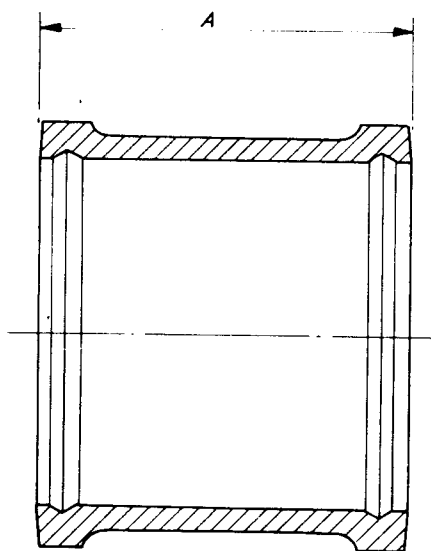
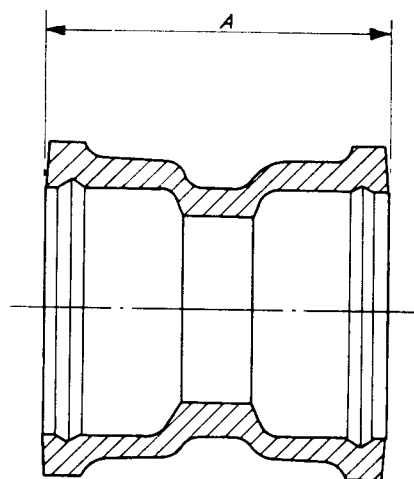


Figure 57. Socket reducer
(75 mm X 50 mm, 100 mm X 50 mm,
100 mm X 75 mm, 150 mm X 100 mm)



	mm	mm	mm	mm	mm
Size	50	75	100	150	225
A	165	180	180	200	250

Figure 58. Loose collar



	mm	mm	mm	mm	mm
Size	50	75	100	150	225
A	190	190	190	230	250

Figure 59. Double socket connector

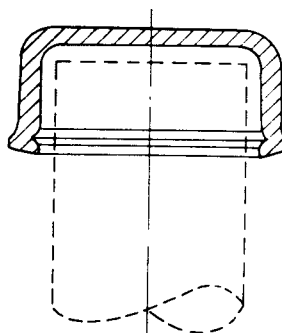


Figure 60. Spigot cap for spigot end of drain pipe
(50 mm, 75 mm, 100 mm, 150 mm, 225 mm)

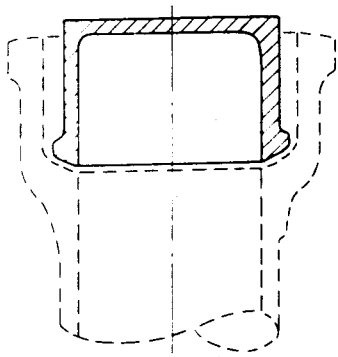
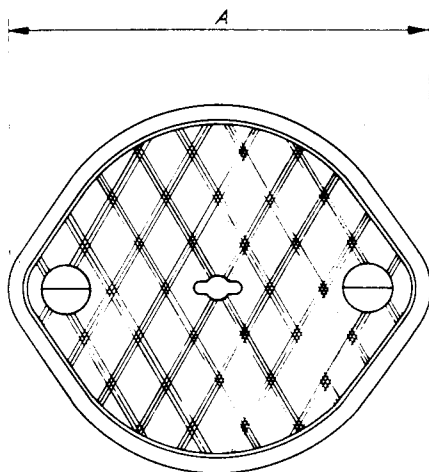
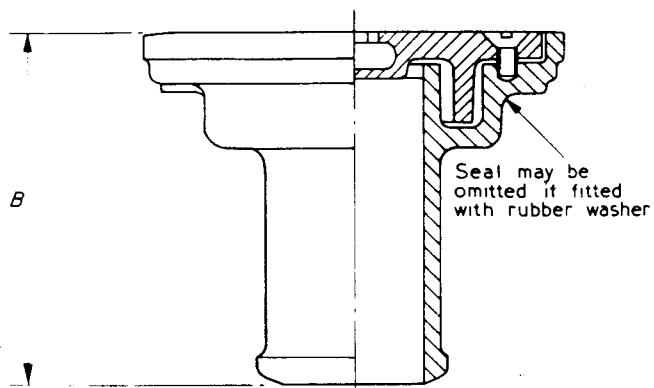
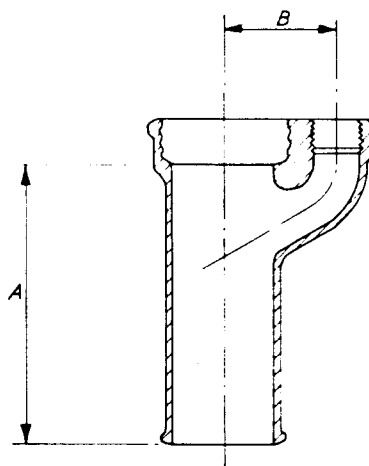


Figure 61. Socket plug for socket end of drainpipe
(50 mm, 75 mm, 100 mm, 150 mm, 225 mm bores)



Nominal bore	A	B
100	mm 270	mm 190

Figure 62. Airtight inspection eye cover fitted with two brass setscrews having closed keyway in cover



Nominal bore	A	B	Socket size
100	mm 300	mm 120	mm 140 mm dia x 50 mm deep

Figure 63. WC connector having 50 mm parallel branch
tapped 2 in B.S.P.T

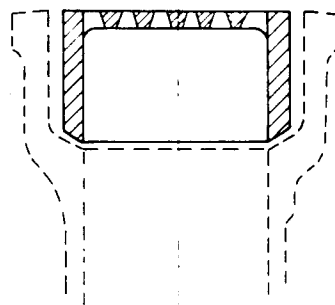
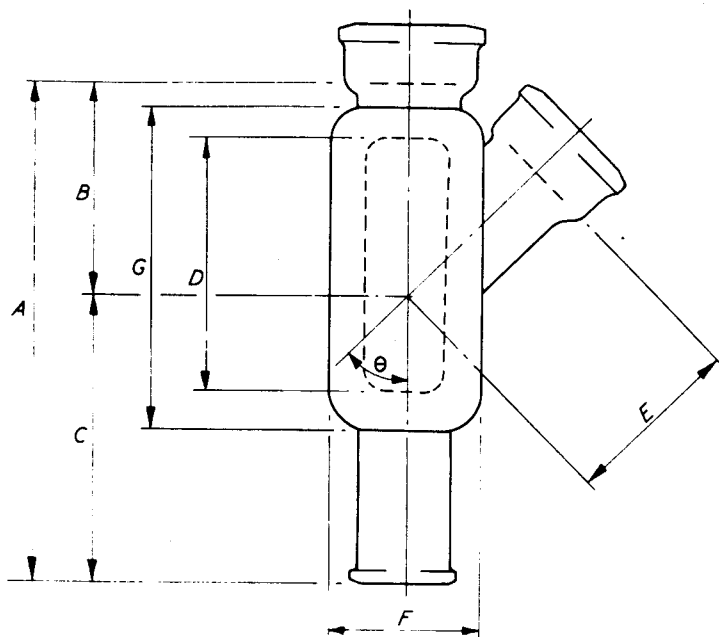
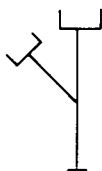


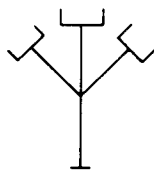
Figure 64. Flat grating to fit 100 mm and 150 mm drain sockets



010



110



111



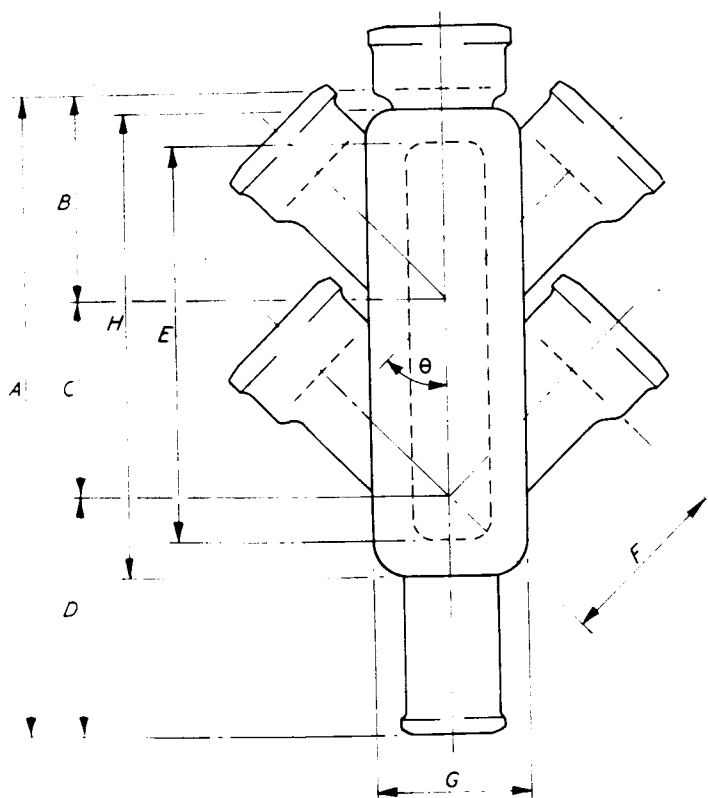
011

The minimum throat radius at branch entry shall be 50 mm

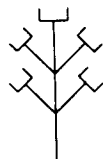
	mm	mm	mm	mm	mm	mm
Main bore	100	150	150	225	225	225
Branch bore	100	100	150	100	150	225
θ	45°	45°	45°	45°	45°	45°
A	540	560	580	690	740	810
B	240	260	290	330	360	420
C	300	300	290	360	380	390
D	270	270	310	330	380	460
E	220	250	280	310	330	380
F	220	260	260	355	355	355
G (max)	395	395	405	520	520	595

(a) For 010, 011, 110, 111

Figure 65. Inspection chambers



012



212



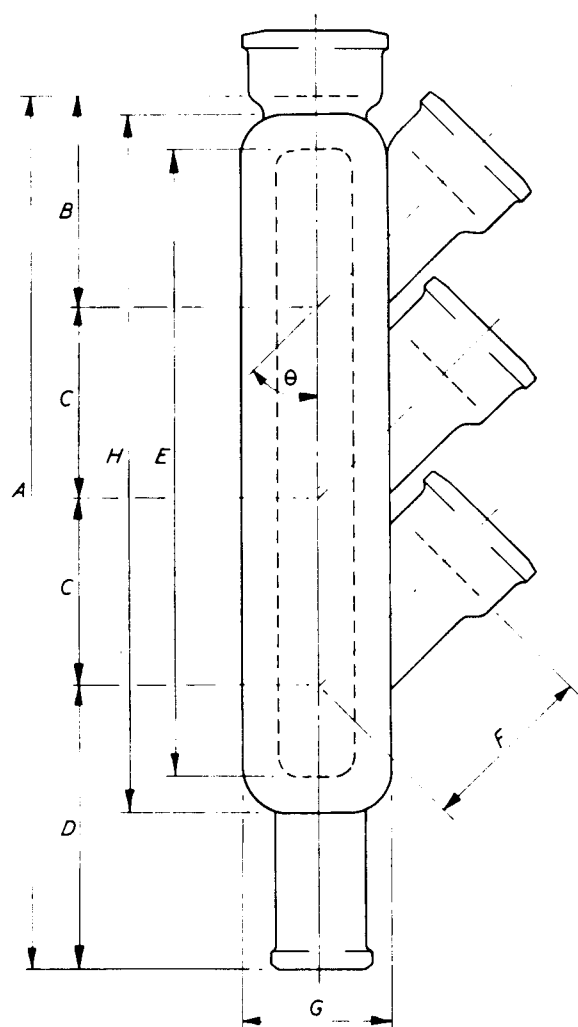
210

The minimum throat radius at branch entry shall be 50 mm.

	mm	mm	mm	mm	mm
Main bore	100	150	150	225	225
Branch bore	100	100	150	100	150
(<i>l</i>)	45°	45°	45°	45°	45°
A	770	790	940	950	1110
B	240	260	290	330	360
C	250	250	360	250	360
D	280	280	290	370	390
E	520	520	660	580	740
F	220	250	280	300	330
G	220	260	260	355	355
H	595	595	760	795	800

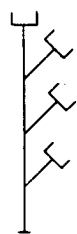
(b) For 012, 212, 210

Figure 65. Inspection chambers (continued)

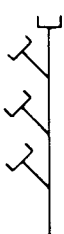


	mm	mm	mm	mm	mm
Main bore	100	150	150	225	225
Branch bore	100	100	150	100	150
θ	45°	45°	45°	45°	45°
A	1020	1040	1300	1200	1470
B	240	260	290	330	360
C	250	250	360	250	360
D	280	280	290	370	390
E	780	780	1030	840	1090
F	220	250	280	310	330
G	220	260	260	355	355
H	850	885	1120	1150	1145

(c) For 013, 310



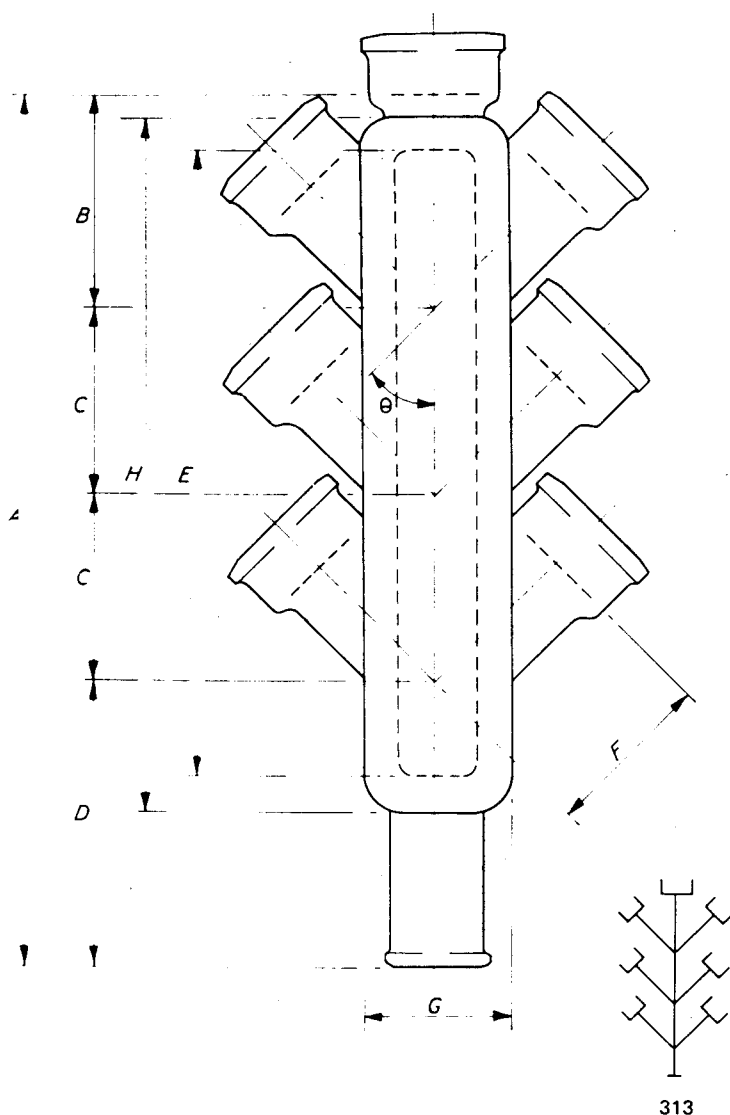
013



310

The minimum throat radius at branch entry shall be 50 mm.

Figure 65. Inspection chambers (continued)

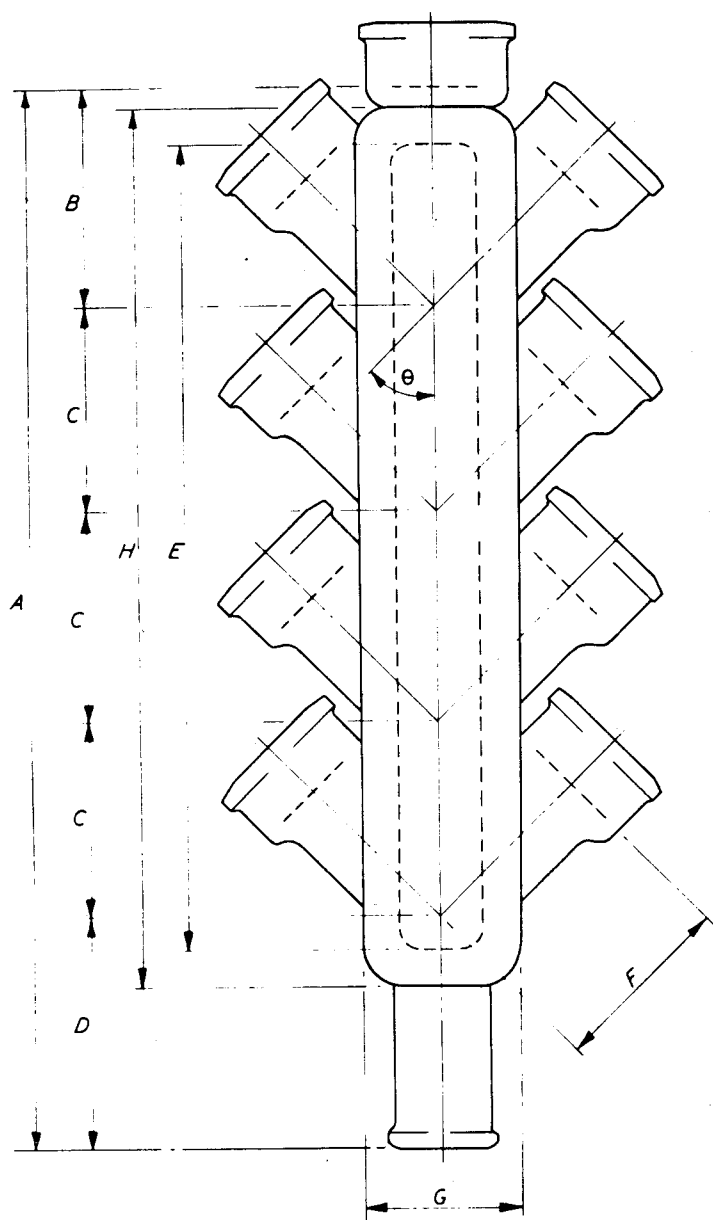


The minimum throat radius at branch entry shall be 50 mm.

	mm	mm	mm
Main bore	100	150	225
Branch bore	100	100	100
θ	45°	45°	45°
A	1020	1040	1200
B	240	260	330
C	250	250	250
D	280	280	370
E	780	780	840
F	220	250	310
G	220	260	355
H	850	885	1150

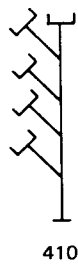
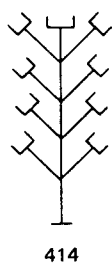
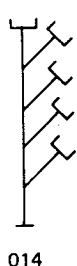
(d) For 313

Figure 65. Inspection chambers (continued)



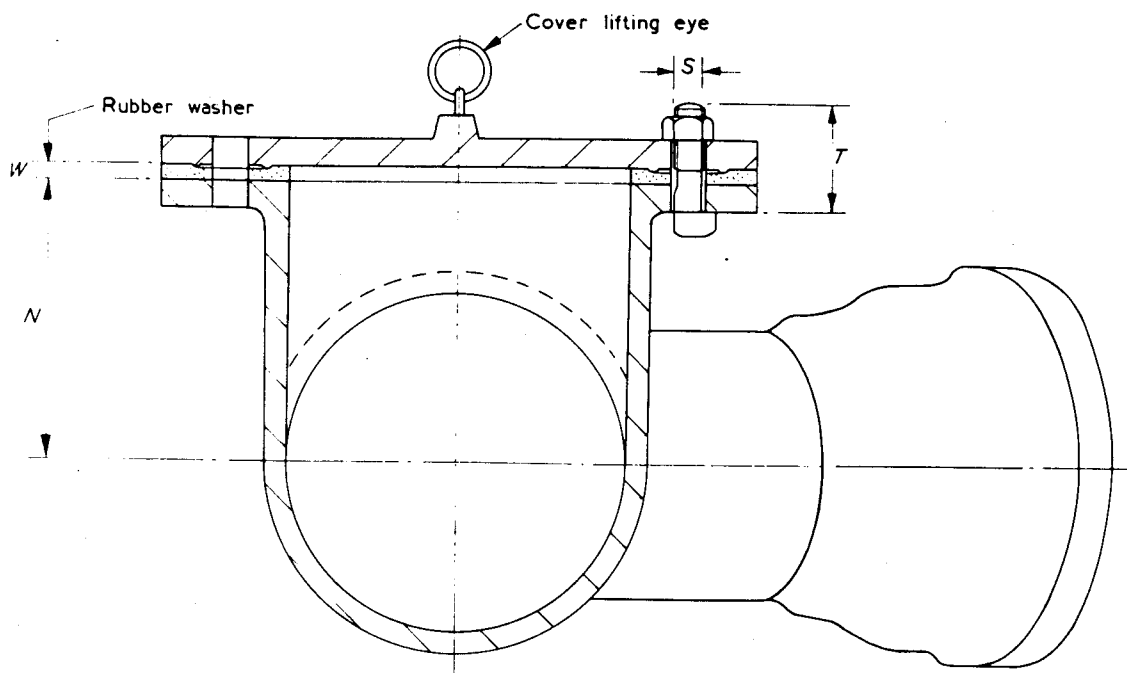
	mm	mm	mm
Main bore	100	150	225
Branch bore	100	100	100
θ	45°	45°	45°
A	1270	1290	1450
B	240	260	330
C	250	250	250
D	280	280	370
E	1030	1030	1030
F	220	250	310
G	220	260	355
H	1120	1120	1195

(e) For 414, 014, 410



The minimum throat radius at branch entry shall be 50 mm.

Figure 65. Inspection chambers (concluded)



Nominal bore	mm	mm	mm
	100	150	225
'N'	90	115	160
Diameter of bolt 'S'	13	13	16
Length of bolt 'T'	44	51	51
Rubber washer Minimum thickness 'W'	7	7	7

Figure 66. Detail of inspection chamber and cover

Appendix A

Crushing test

A.1 Apparatus (see figure 67)

A.1.1 A testing machine shall be used of an accuracy at least equal to that required by BS 1610, grade B.

A.1.2 The machine shall apply the load by way of bearing beams to upper and lower press blocks. The arrangement shall be such that the load is applied in a vertical plane through the longitudinal centre lines of bearings and pipe.

The bearing beams shall be of rigid materials, such as RSJs, at least 150 mm wide.

The upper press block shall be flat metal or hard wood 25 mm wide.

The lower press block shall be a metal or hard wood V-shaped support having an included angle of 150° and a minimum total width of 150 mm.

Bearing beams and press blocks shall be at least 305 mm long.

The press blocks shall be faced with rubber 15 mm thick having a hardness between 50 IRHD and 60 IRHD as defined in BS 903 : Part A26.

A.2 Size of test pieces. Cut a straight section 300 ± 5 mm long from the pipe to be tested. The ends of the piece shall be without bead or socket and shall be at right angles to the axis of the piece.

A.3 Method. Apply the proof crushing load specified in clause 8 evenly and continuously at such a rate that the proof load is reached in between 30 s and 1 min. Sustain the proof load for 30 s.

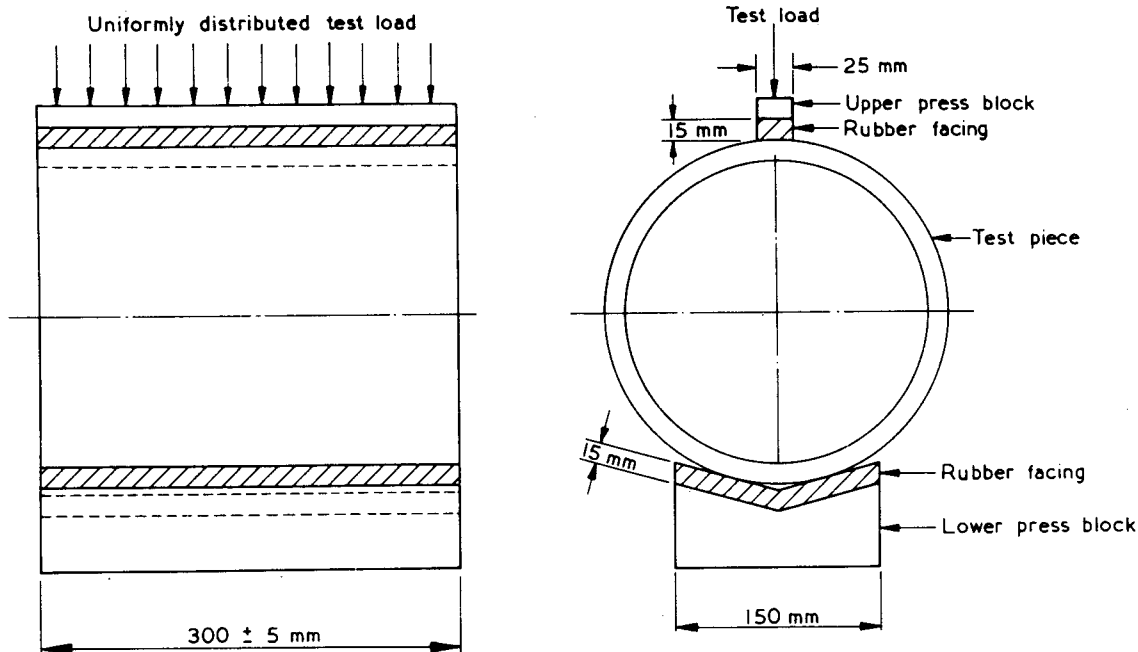


Figure 67. Crushing test apparatus