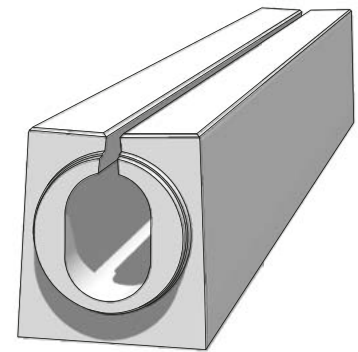


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

Technical data:

Profile I slot drains are suitable for draining rainwater contaminated with small quantities of oil products (drips) from surfaced areas such as high-capacity traffic structures (motorways, dual carriageways, main roads, tunnels, runways, lay-bys, large parking lots, etc.). Profile I-1 slot drains are designed for D400, E600 and F900 class traffic loads and transversal vehicle travel. Profile I-0 slot drains and slot drains with kerbstones are designed for D400 class traffic load and no transversal vehicle travel.



The system consists of the following components:

- 4 m-long slot drain, with or without internal flow gradient
- Slot drains with a 7/12/15/18 cm kerbstone
- Curved slot drain
- Exchangeable segment, I-0, I-1 profile

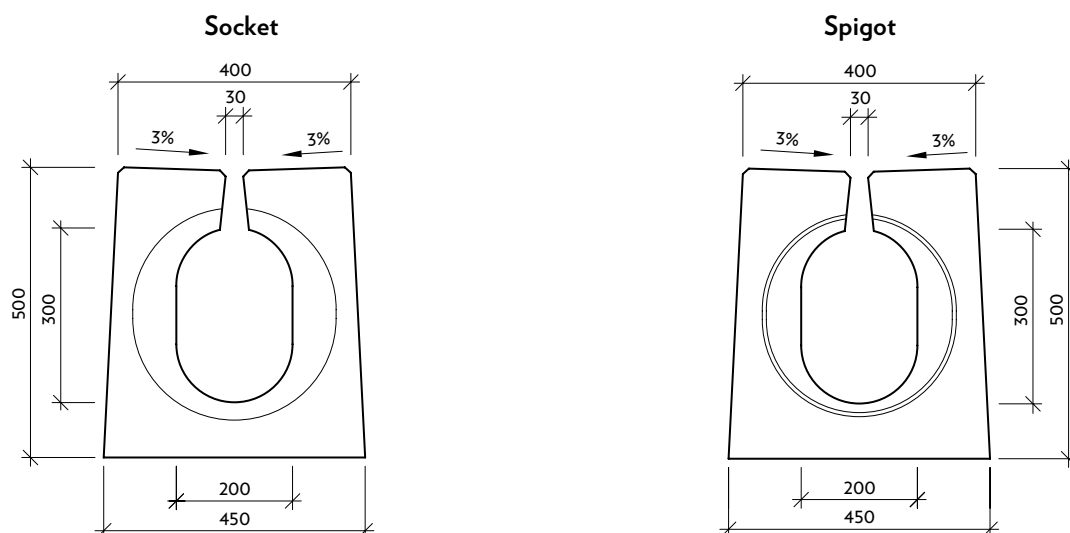
Accessories for all the above slot drains:

- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Complete gully assembly with steel cover for use in tunnels
- Cleaning segment incl. plastic cover/cast iron grille
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with continuous slot	I-0	VZ, GR	500	4000	400/450	0,25	1468 - 1656
Slot drain with continuous slot, 0.5% flow profile bottom gradient	I-0-G	VZ, GR	500	4000	400/450	0,25	1487 - 1637
Basic gully assembly V0	I-0-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-0-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-0-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-0-CS	VZ, GR	500	1000	400/450	1	442
Fire safety barrier	I-0-PP	VZ, GR	950	2000	400/495	0,5	1540
Slot drain with continuous slot – replaceable segment	I-0-V	VZ, GR	500	4000	400/450	-	823-1688
Spigot end cap	I-0-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-0-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

View

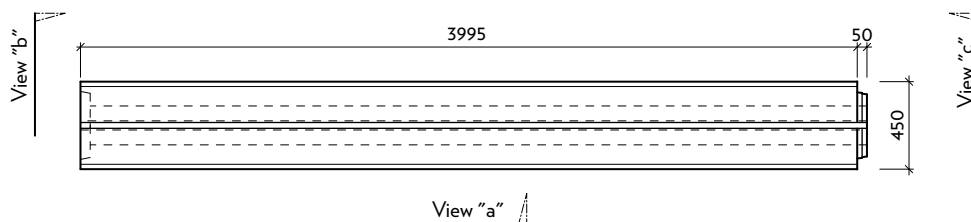


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

Profile I-0 - Slot drain

Plan

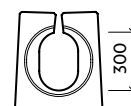
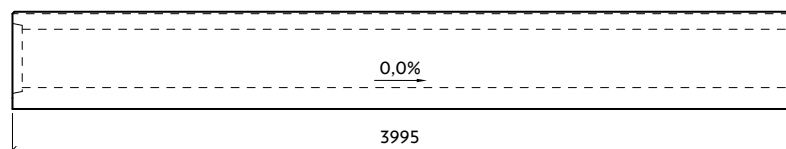
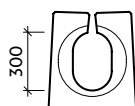


View "b" - socket

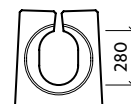
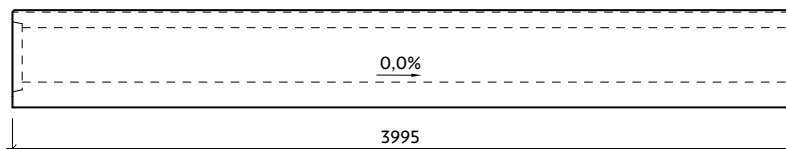
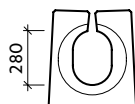
View "a"

View "c" - spigot

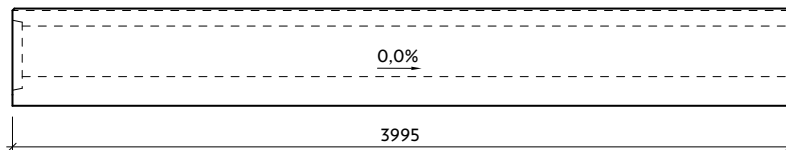
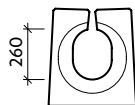
Profile I-0-T30/30 without internal flow gradient



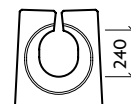
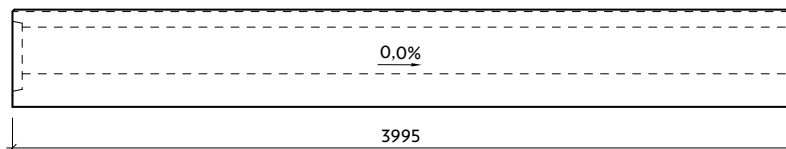
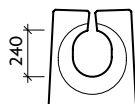
Profile I-0-T28/28 without internal flow gradient



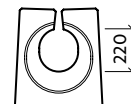
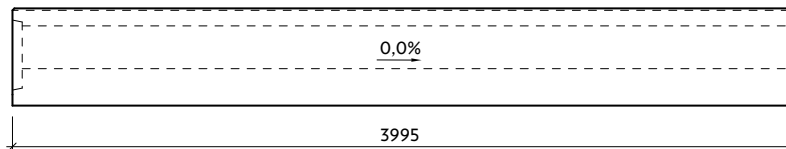
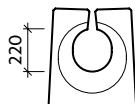
Profile I-0-T26/26 without internal flow gradient



Profile I-0-T24/24 without internal flow gradient



Profile I-0-T22/22 without internal flow gradient



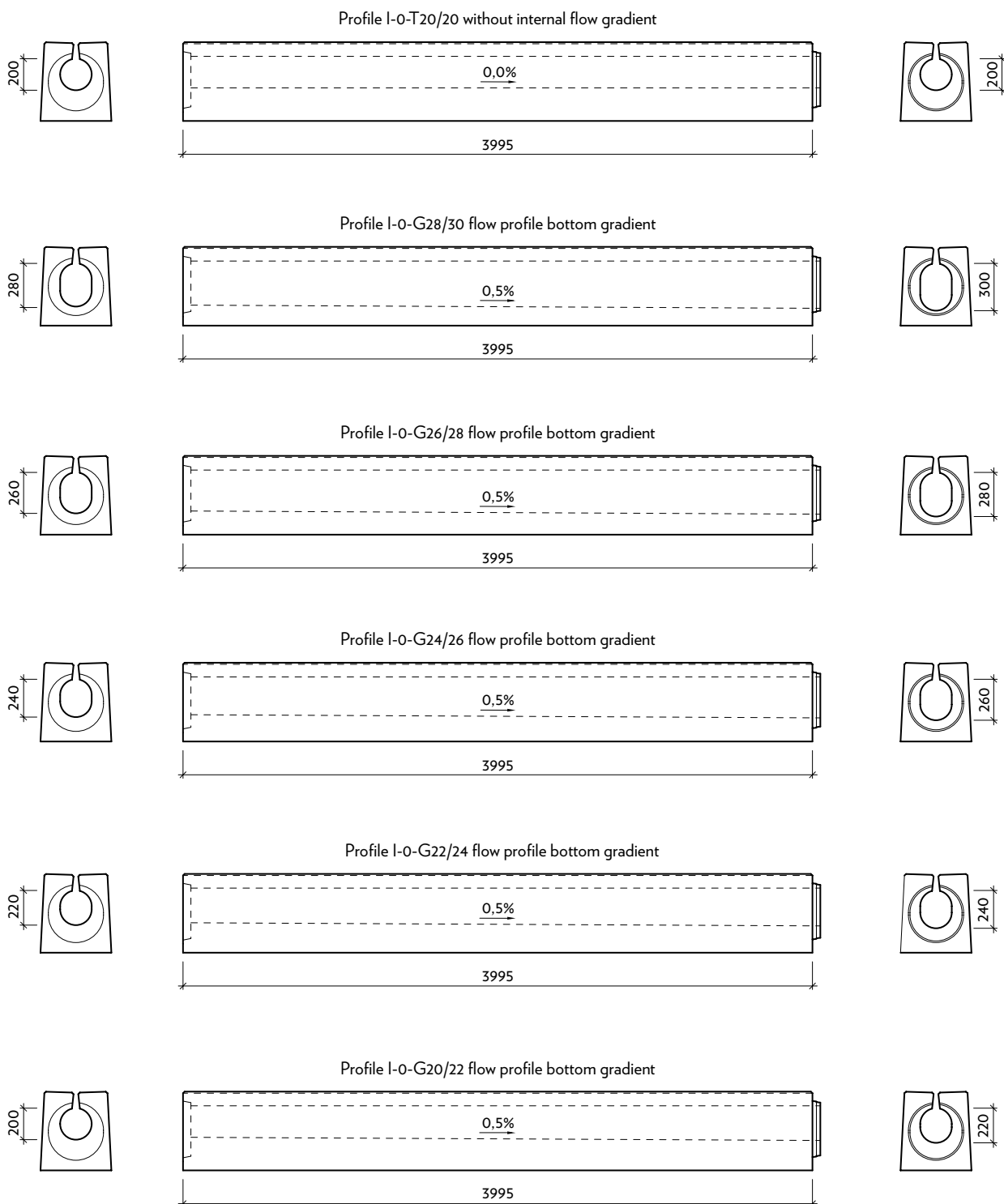
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

View "b" - socket

View "a"

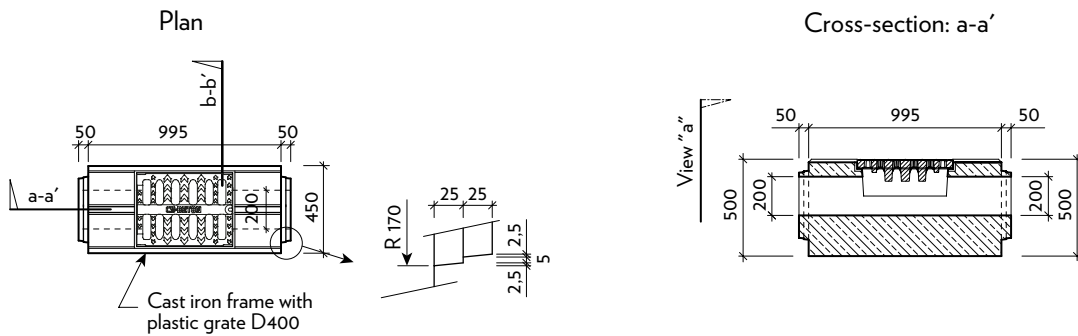
View "c" - spigot



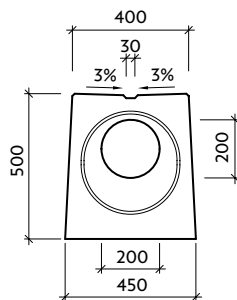
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

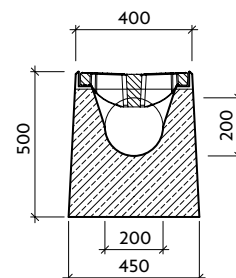
I-0-CS - Top cleaning segment with cast iron frame and plastic grate for D400



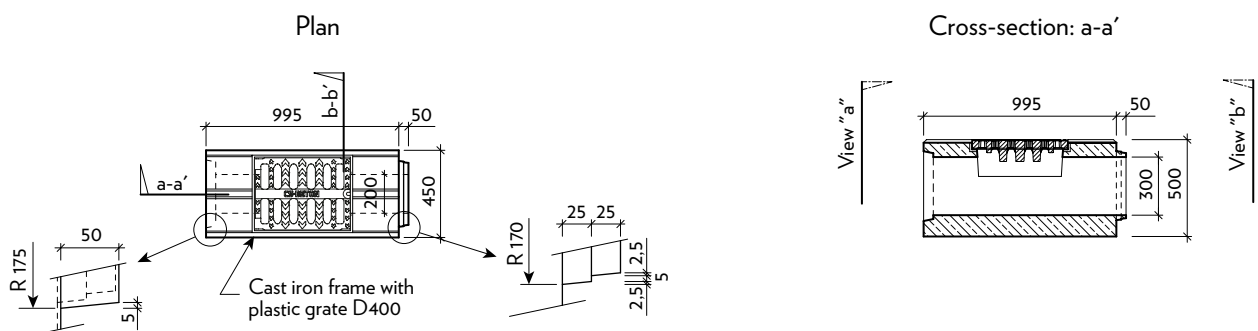
View "a" - spigot/spigot



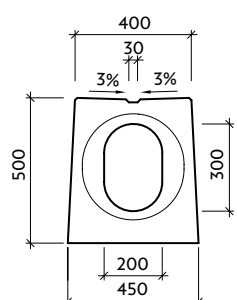
Cross-section: b-b'



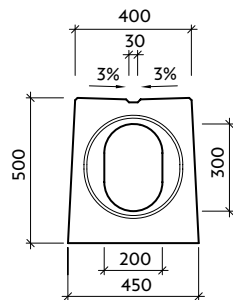
I-0-C0 - Basic cleaning segment with cast iron frame and plastic grate for D400



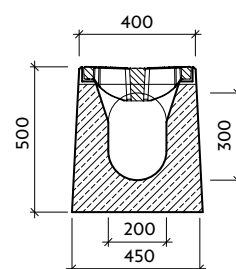
View "a" - socket



View "b" - spigot



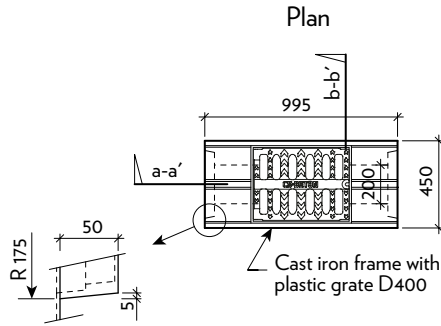
Cross-section: b-b'



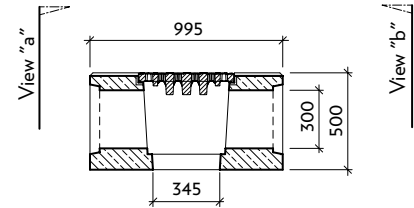
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

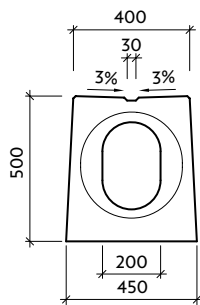
I-0-VU - Gutter gully assembly with cast iron frame and plastic grate for D400



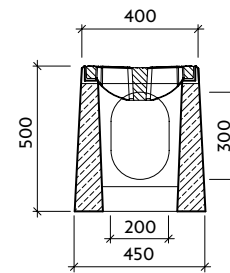
Cross-section: a-a'



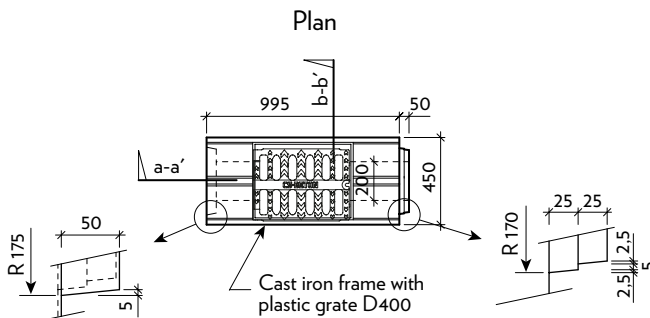
View "a" - socket/socket



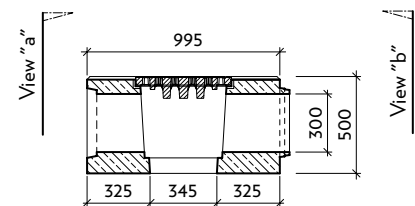
Cross-section: b-b'



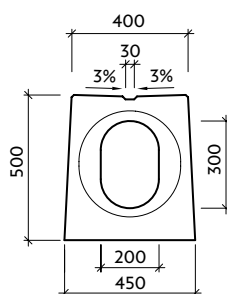
I-0-V0 - Basic gully assembly with cast iron frame and plastic grate for D400



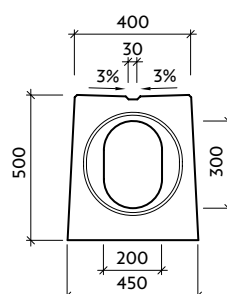
Cross-section: a-a'



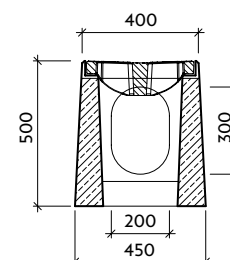
View "a" - socket



View "b" - spigot



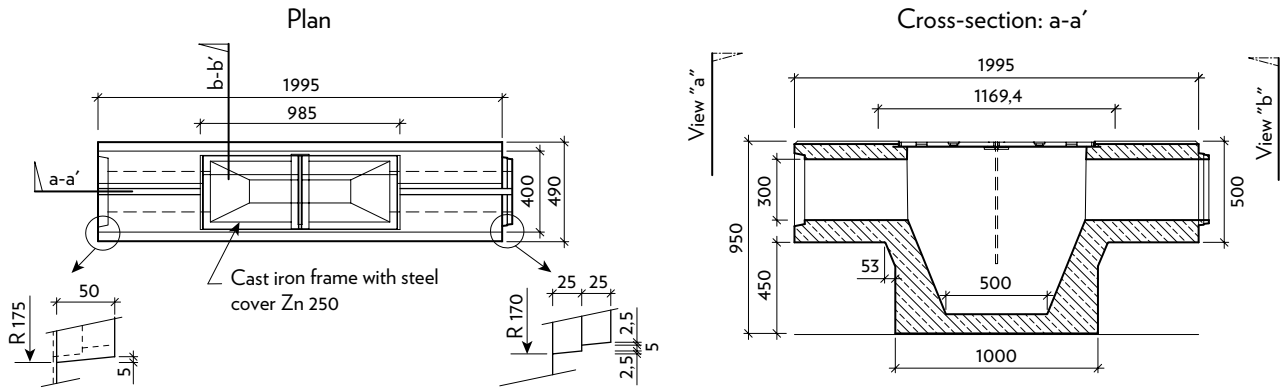
Cross-section: b-b'



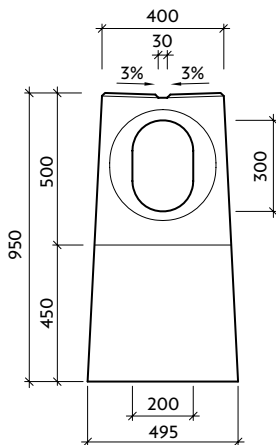
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

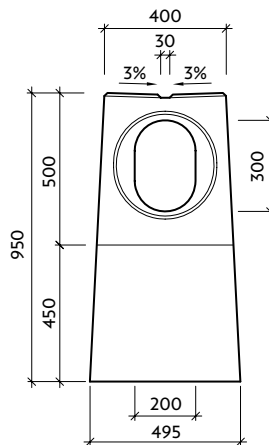
I-0-PP - Fire safety barrier



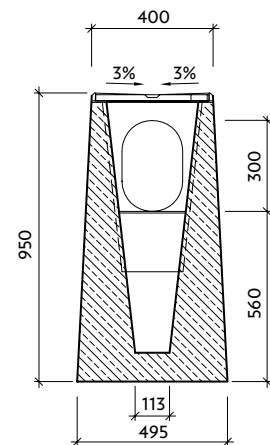
View "a" - socket



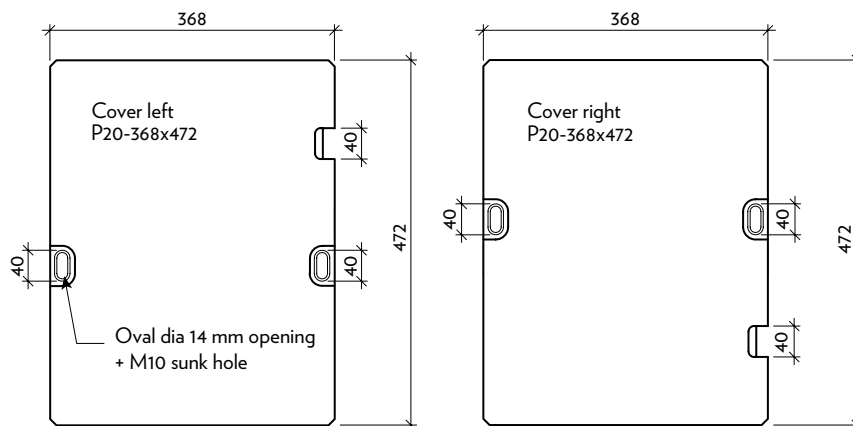
View "b" - spigot



Cross-section: b-b'



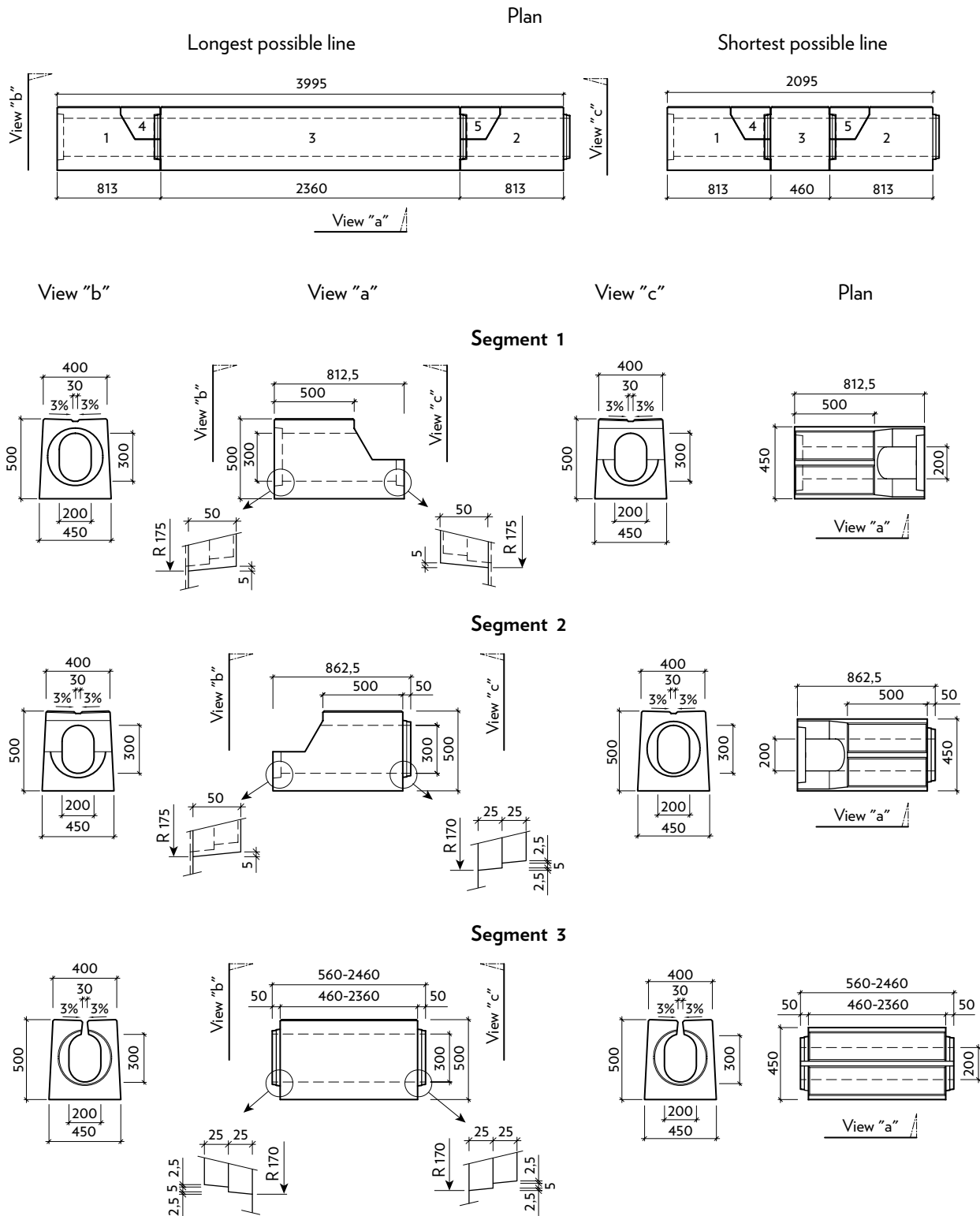
Detail of steel covers in frame (without kerbstone)



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

I-0-30/30 - Slot drain - Replaceable segment

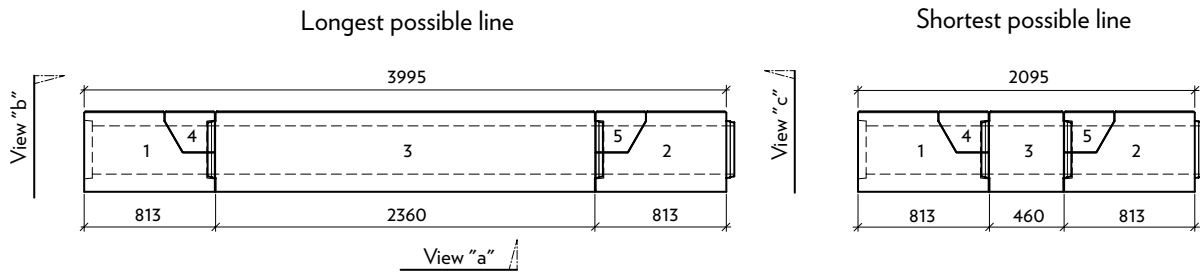


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

I-0-30/30 - Slot drain - Replaceable segment

Plan



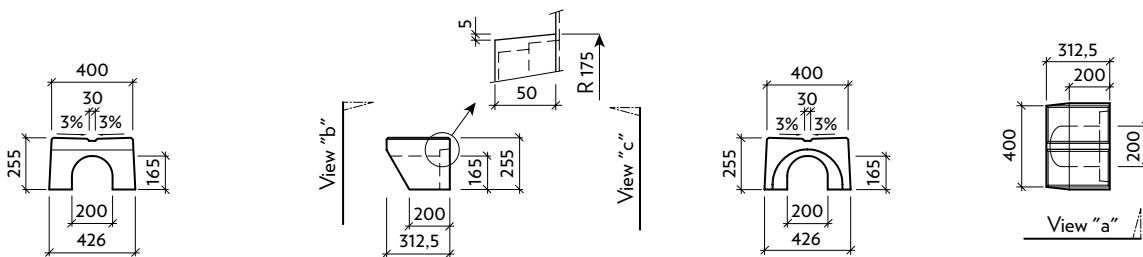
View "b"

View "a"

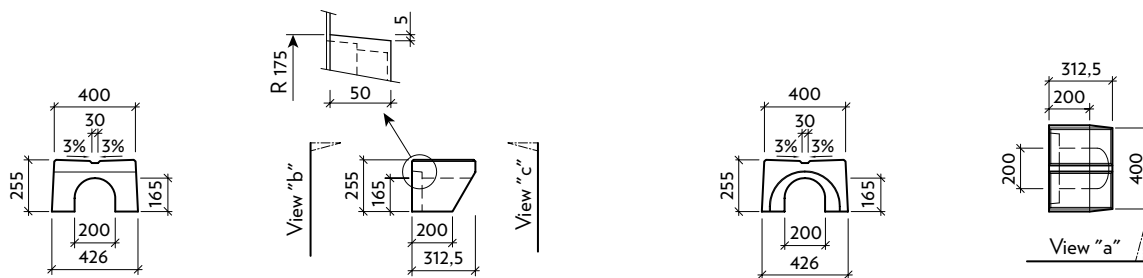
View "c"

Plan

Segment 4



Segment 5

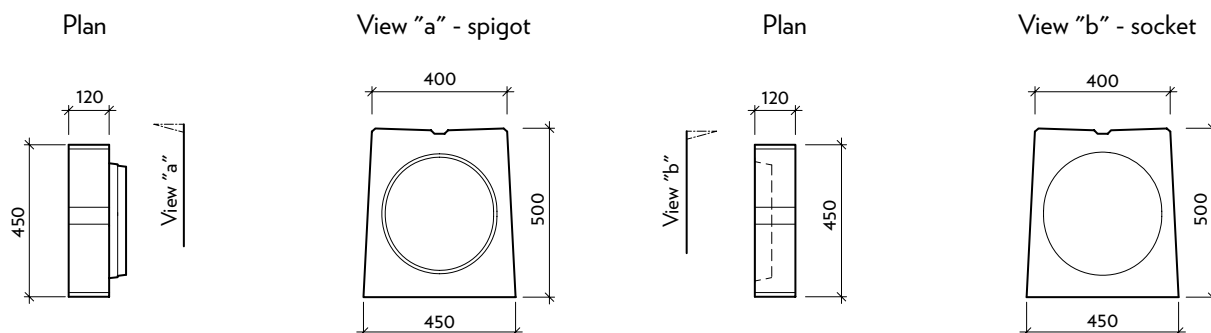


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0

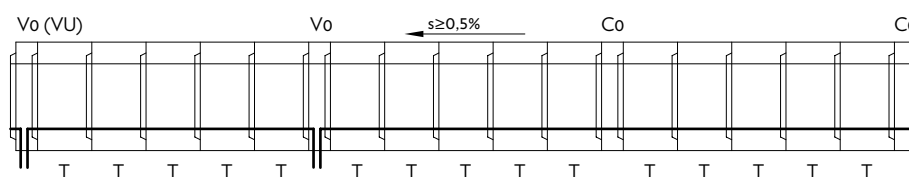
I-0-ZU - Spigot end cap

I-0-ZZ - Socket end cap



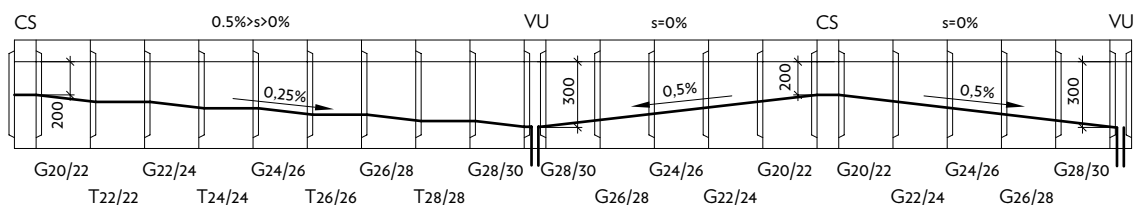
Suggested layout

i-0-T Slot drains - layout



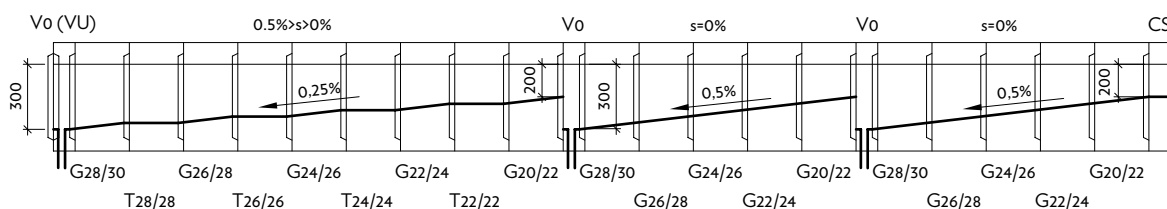
I-0-G Slot drains - layout

(slot drain with roof bottom)



I-0-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

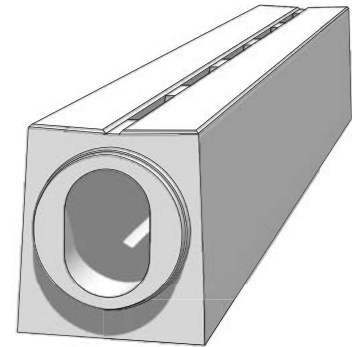
- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- C0 – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

Technical data:

Profile I slot drains are suitable for draining rainwater contaminated with small quantities of oil products (drips) from surfaced areas such as high-capacity traffic structures (motorways, dual carriageways, main roads, tunnels, runways, lay-bys, large parking lots, etc.). The 0,5 % internal gradient ensures efficient draining and prevents the risk of aquaplaning. Profile I-1 slot drains are designed for D400, E600 and F900 class traffic loads and transversal vehicle travel. Interrupted slot improves stability under transversal vehicle travel.



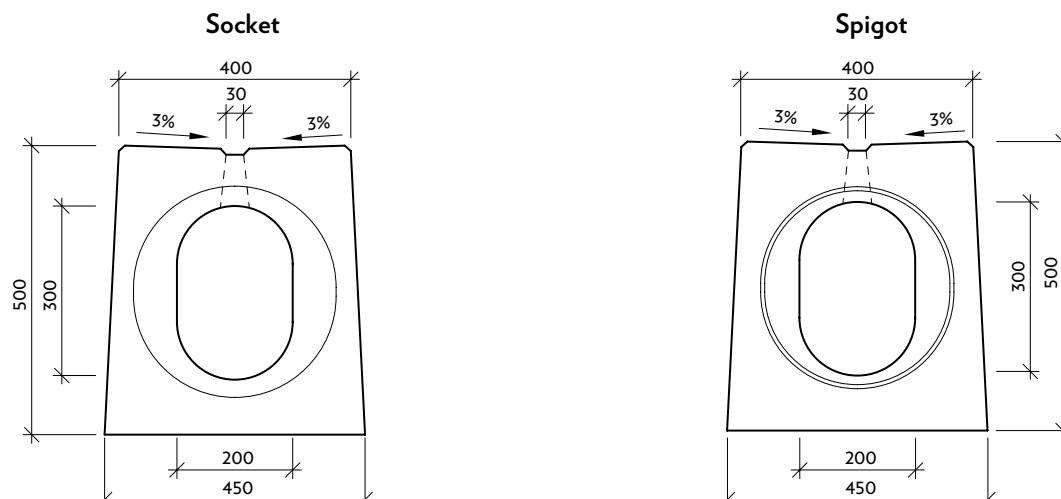
The system consists of the following components:

- 4 m-long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic grate/cast iron grate, gully trap and rectification cone
- Cleaning segment incl. plastic grate/cast iron grate
- Curved slot drain
- Fire safety barrier (with siphon)
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with interrupted slot	I-1	VZ, GR	500	4000	400/450	0,25	1510
Slot drain with interrupted slot, 0.5% flow profile bottom gradient	I-1-G	VZ, GR	500	4000	400/450	0,25	1529 - 1702
Slot drain with interrupted slot for cycling paths	I-1-CY	VZ, GR	500	4000	400/450	1	1520
Slot drain with interrupted slot for cycling paths, 0.5% flow profile bottom gradient	I-1-CY-G	VZ, GR	500	4000	400/450	1	1539 - 1712
Slot drain - curved segment	I-1-OB	VZ, GR	500	147-943	400/450	-	55 - 365
Basic gully assembly V0	I-1-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-1-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-1-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-1-CS	VZ, GR	500	1000	400/450	1	442
Fire safety barrier	I-1-PP	VZ, GR	950	2000	400/495	0,5	1540
Slot drain with interrupted slot - replaceable segment	I-1-V	VZ, GR	500	2100 - 4000	400/450	-	823 - 1688
Spigot end cap	I-1-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-1-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

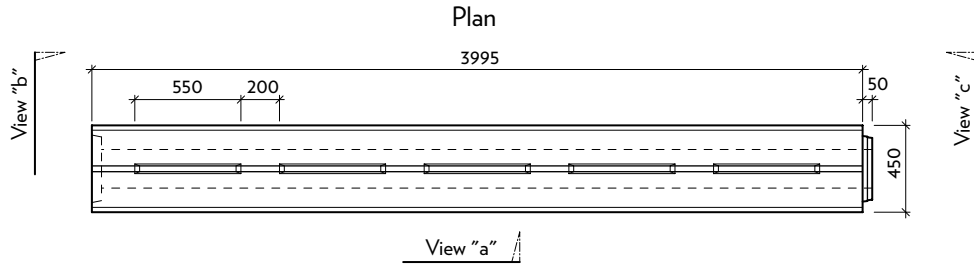
Side-view



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

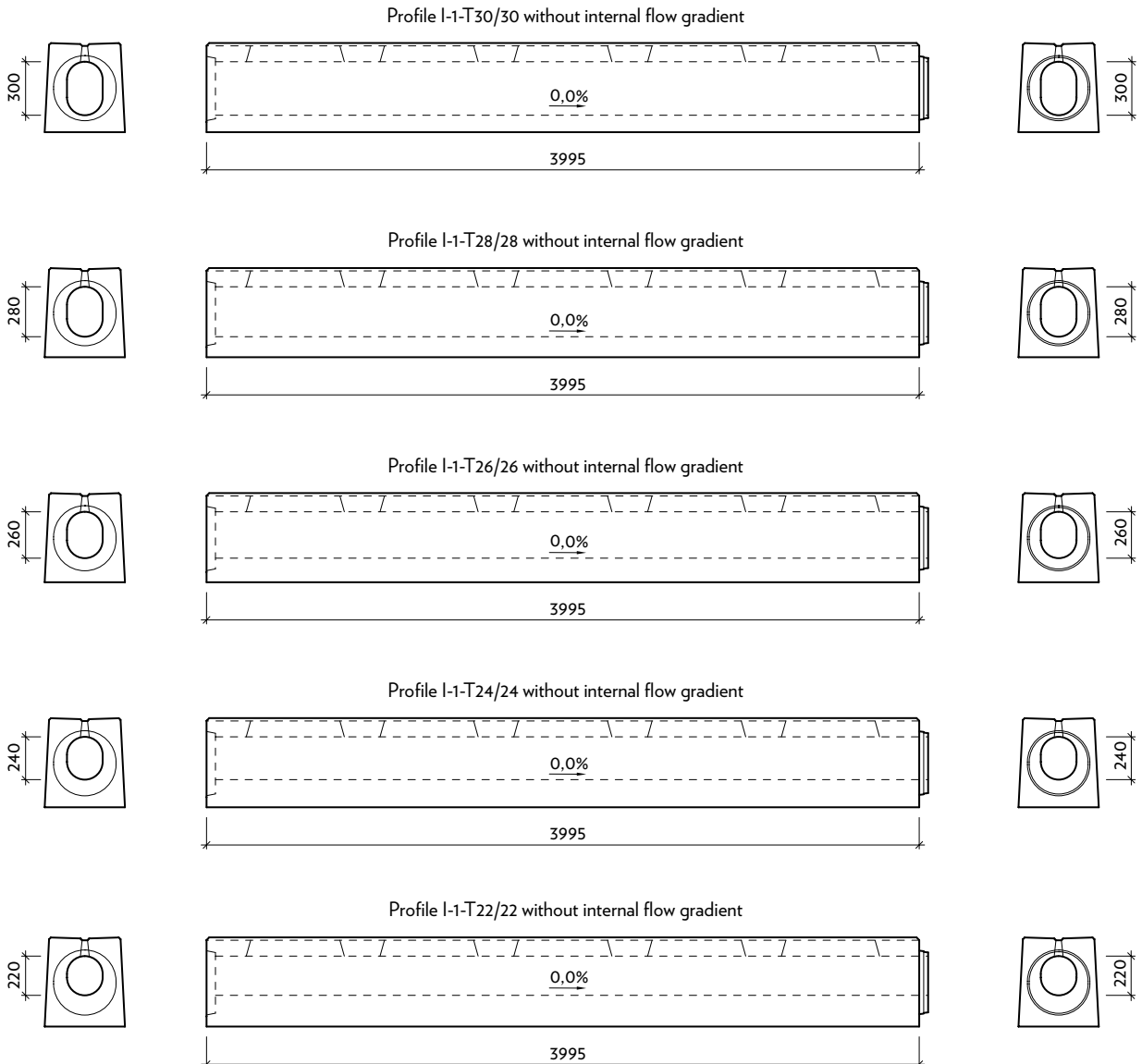
Profile I-1 - Slot drain with interrupted slot



View "b" - socket

View "a"

View "c" - spigot



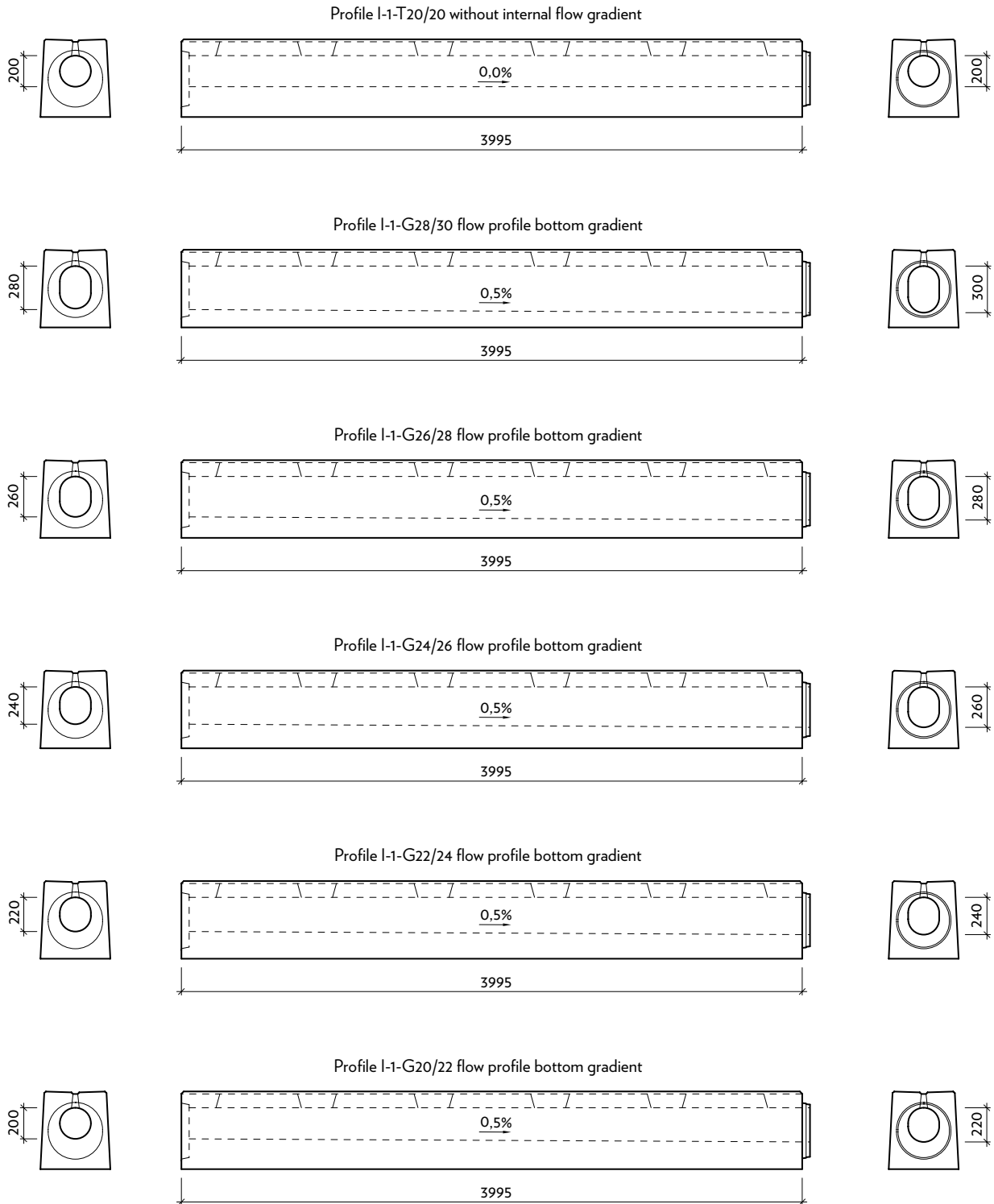
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

View "b" - socket

View "a"

View "c" - spigot



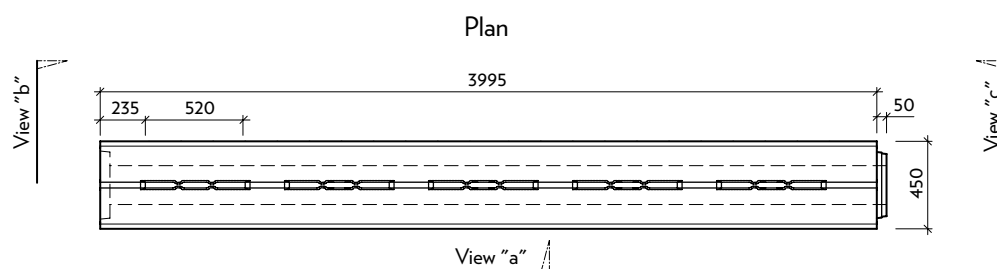
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

I-1-CY Profile - for cycle paths:

CS-BETON offers special slot drains with interrupted slots to prevent the risk of a bicycle tyre being caught in it. They have special slot connection bridges and the shape of the slot itself is also modified to comply with ČSN EN standards and provide the best comfort for cyclists. The nominal dimensions, however, are the same, so this special cycle path slot drain may be combined with other Profile I components. Custom-length segments and modified segments may be produced upon request.

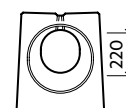
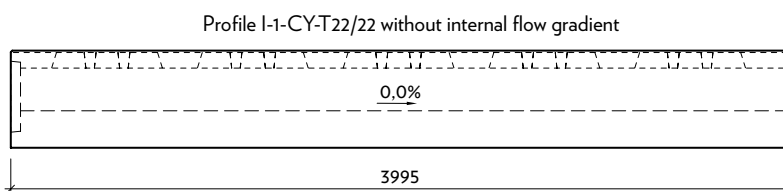
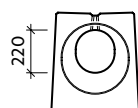
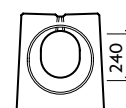
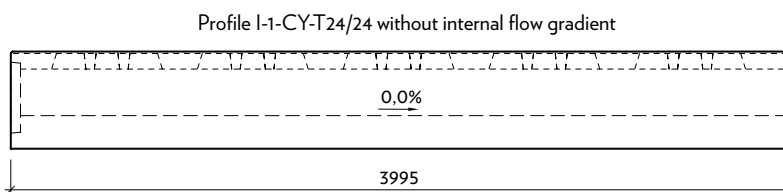
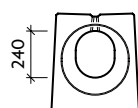
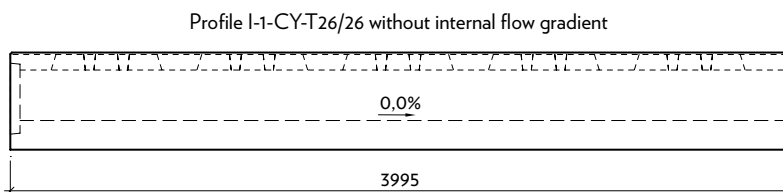
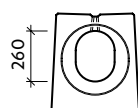
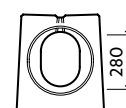
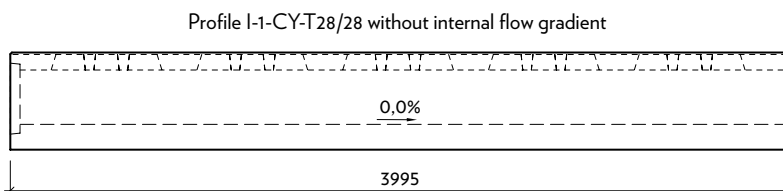
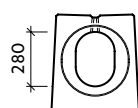
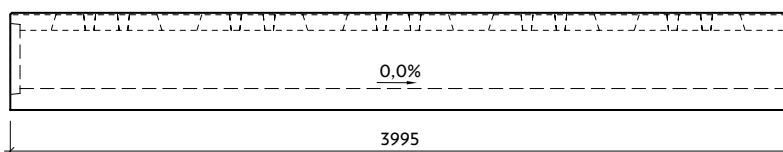
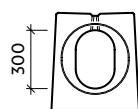
Profile I-1-CY - Slot drain



View "b" - socket

View "a"

View "c" - spigot



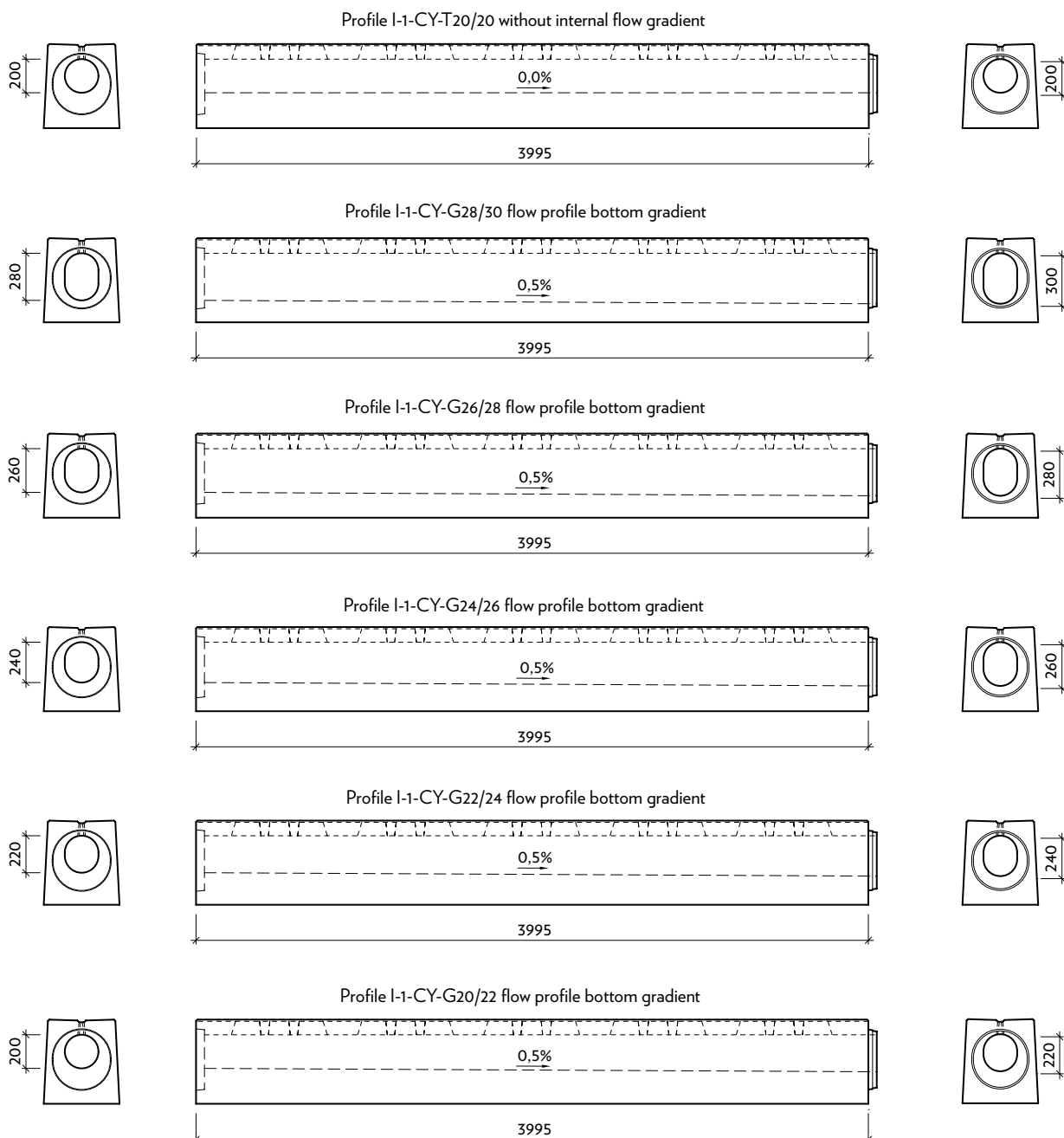
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

View "b" - socket

View "a"

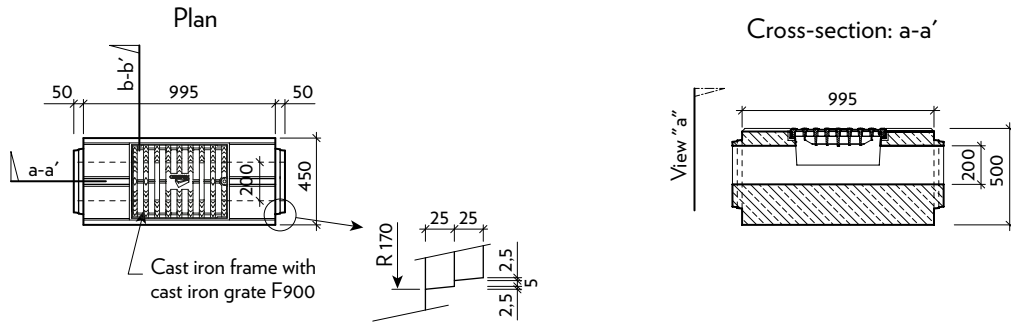
View "c" - spigot



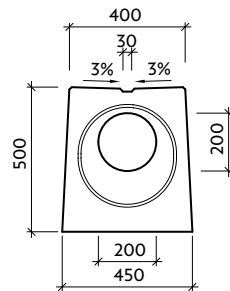
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

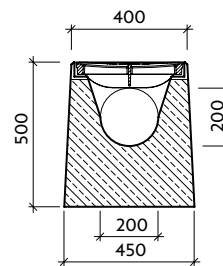
I-CS - Top cleaning segment with cast iron frame and cast iron grate for F900



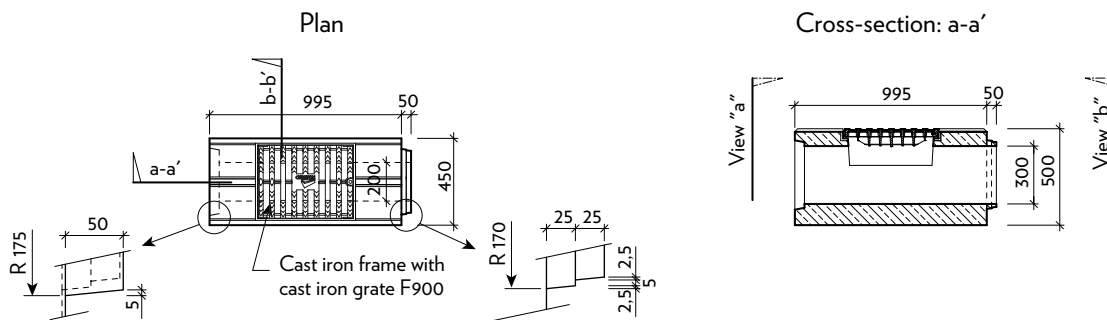
View "a"="b" - spigot/spigot



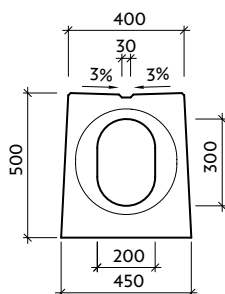
Cross-section: b-b'



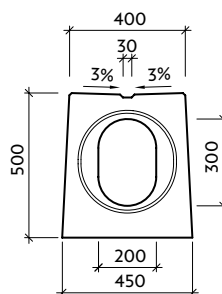
I-C0 - Basic cleaning segment with cast iron frame and cast iron grate for F900



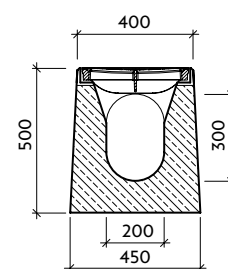
View "a" - socket



View "b" - spigot



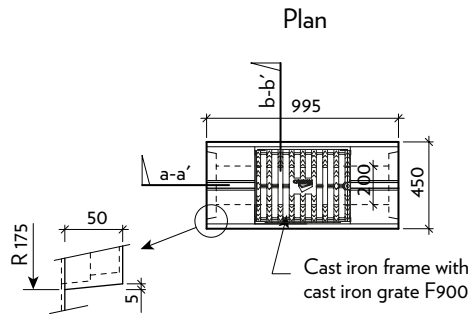
Cross-section: b-b'



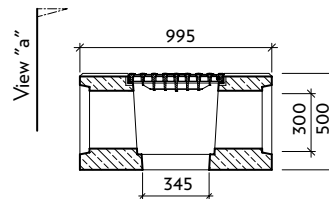
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

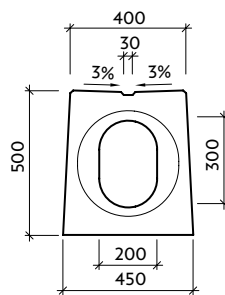
I-VU - Gutter gully assembly with cast iron frame and cast iron grate for F900



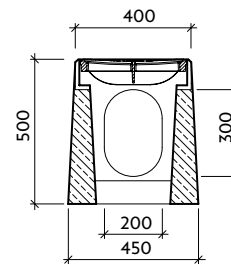
Cross-section: a-a'



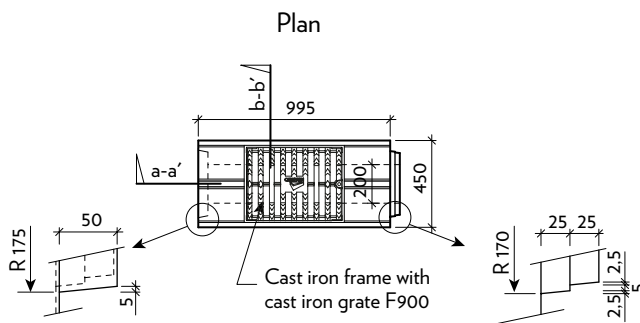
View "a" - socket



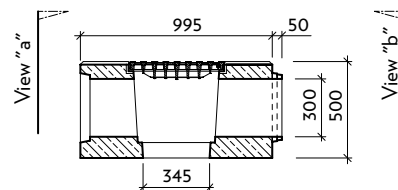
Cross-section: b-b'



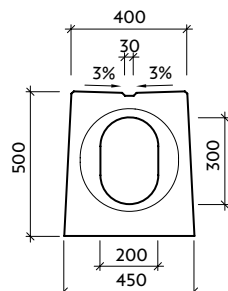
I-V0 - Basic gully assembly with cast iron frame and cast iron grate for F900



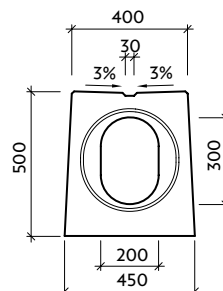
Cross-section: a-a'



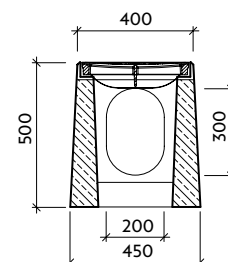
View "a" - socket



View "b" - spigot



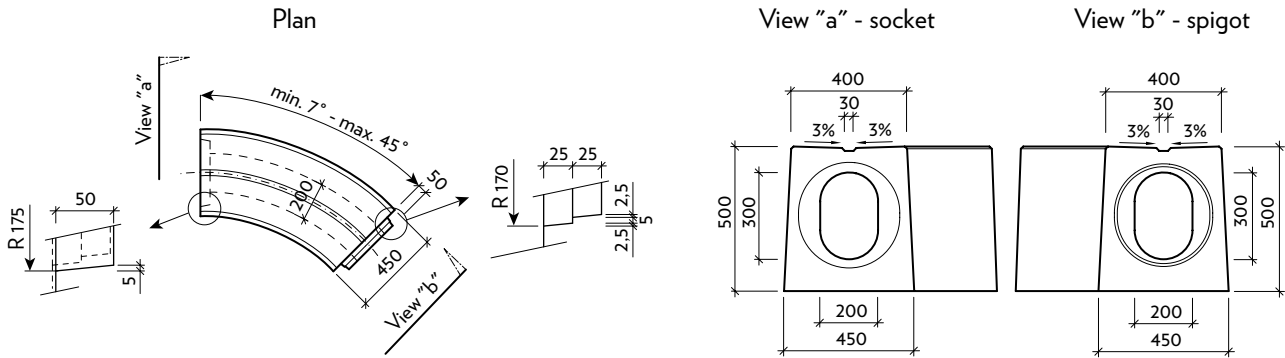
Cross-section: b-b'



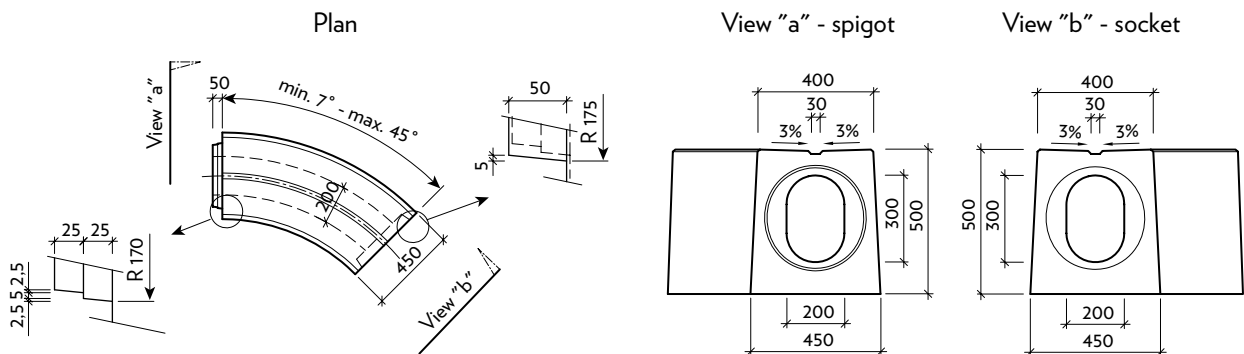
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

I-1-OB-P - Slot drain - Right - Curved segment



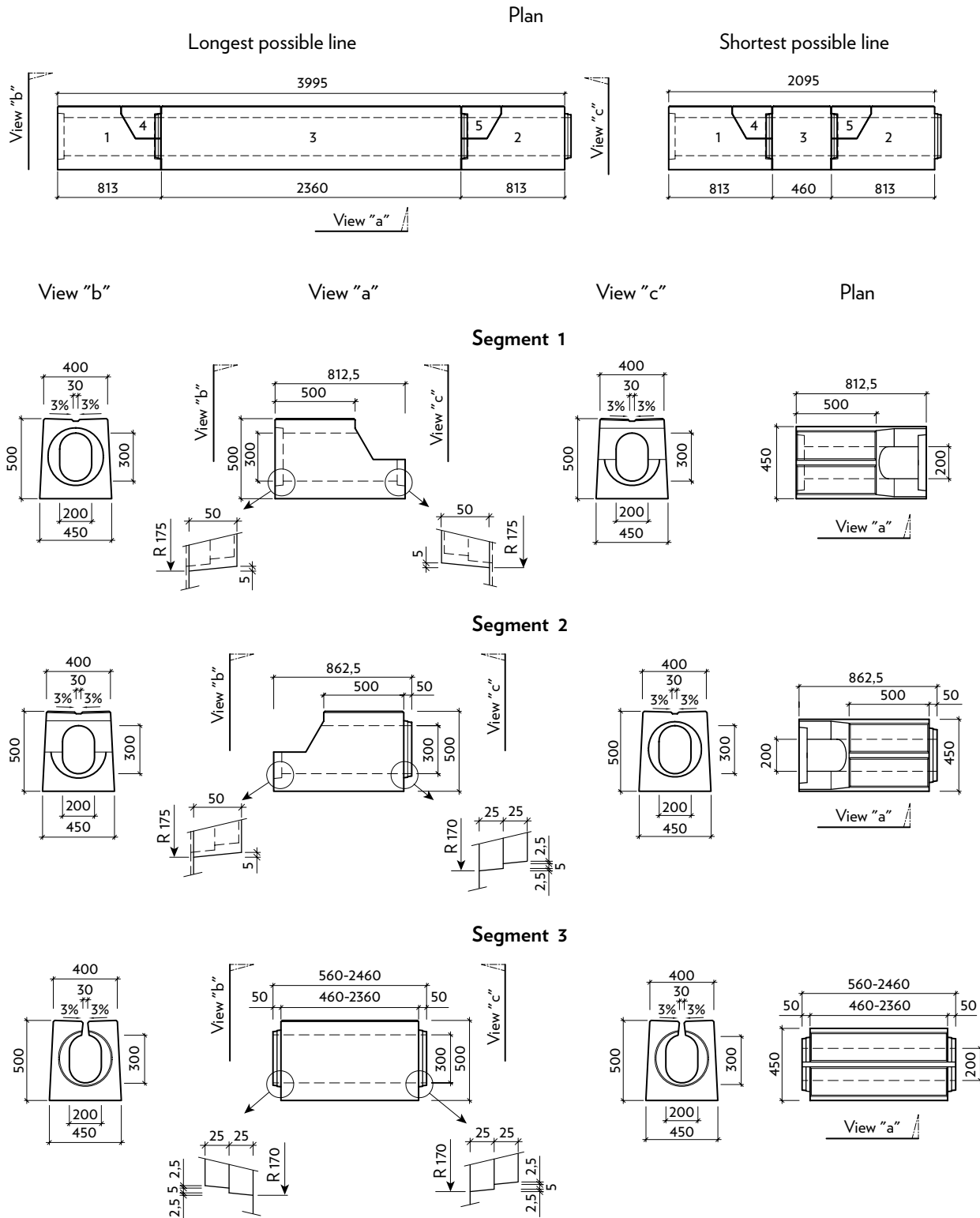
I-1-OB-L - Slot drain - Left - Curved segment



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

I-0-30/30 - Slot drain - Replaceable segment

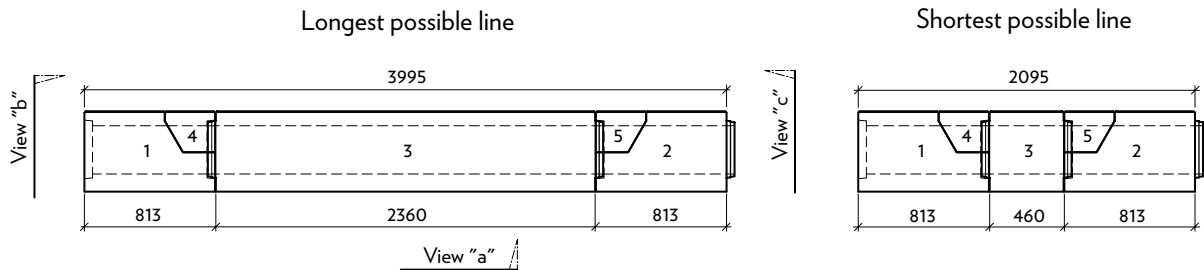


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

I-0-30/30 - Slot drain - Replaceable segment

Plan



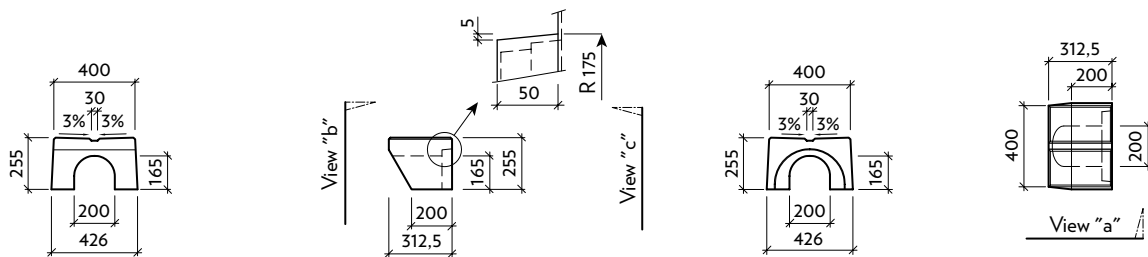
View "b"

View "a"

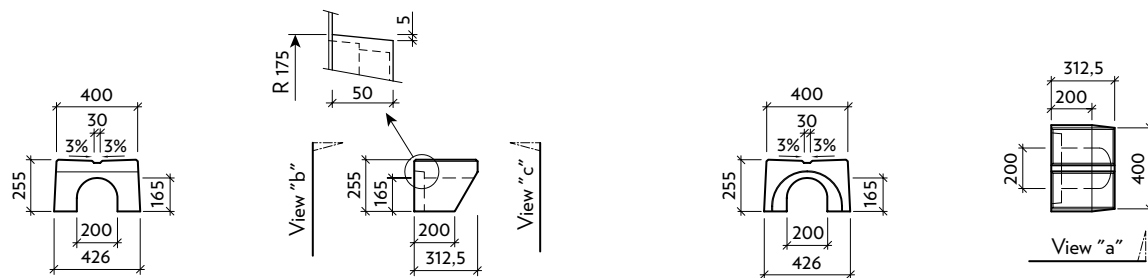
View "c"

Plan

Segment 4



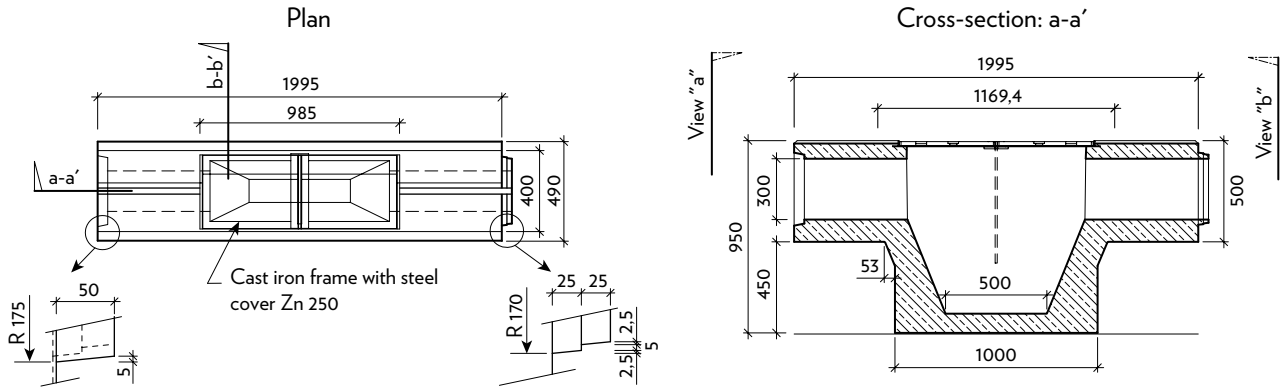
Segment 5



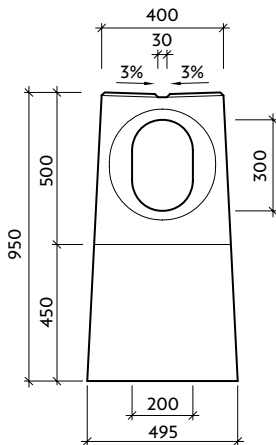
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

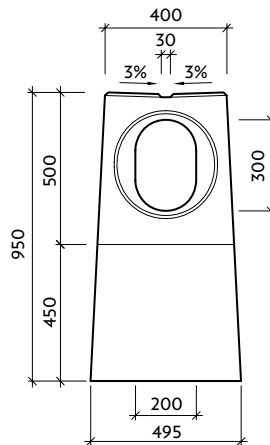
I-0-PP - Fire safety barrier



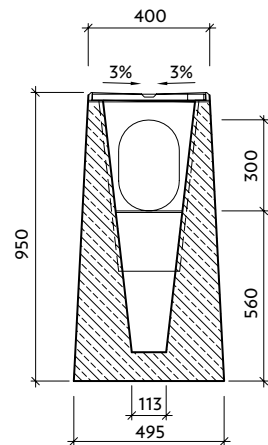
View "a" - socket



View "b" - spigot

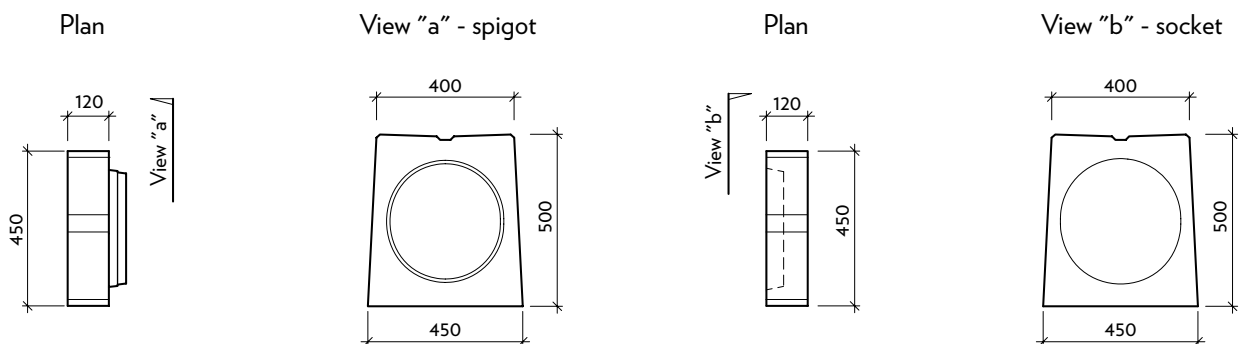


Cross-section: b-b'



I-ZU - Spigot end cap

I-ZZ - Socket end cap

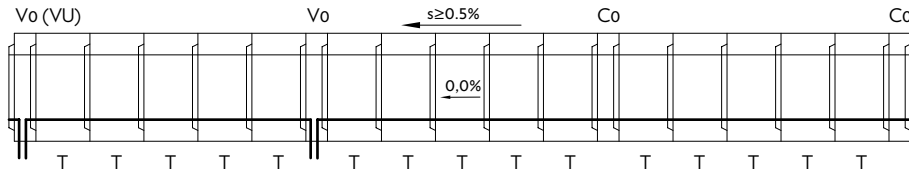


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1

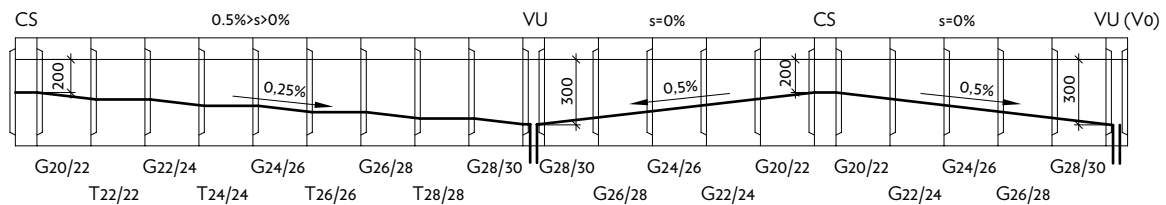
Suggested layout

I-1-T Slot drains - layout



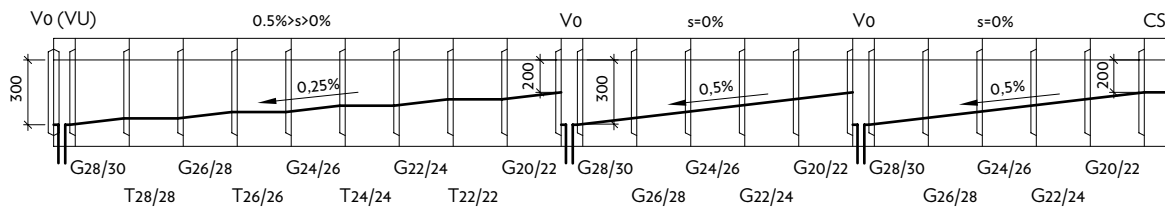
I-1-G Slot drains - layout

(slot drain with roof bottom)



I-1-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 - Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU - Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co - Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS - Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s - Longitudinal flow profile gradient

TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-K

Technical data:

During refurbishment of drained surfaces, the use of our standard slot drain products with slightly sloped sides is less practical because a gap of at least 25 mm would appear between the pipe and the surface edge. To prevent this unwanted phenomenon, we introduced a new type of slot drain segment with perpendicular side walls.

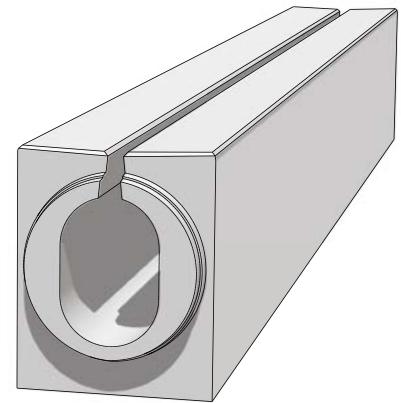
This new type of slot drain keeps all the advantages of our other standard profiles, but simplifies the installation process of a slot drain during refurbishment by:

- CREATING A STRAIGHT PERPENDICULAR MINIMUM GAP
- SIMPLE AND EASY TO USE OPTION FOR RECONSTRUCTION
- THE VOLUME OF GROUT NECESSARY FOR SEALING

This type of our most popular slot drain is offered across the entire portfolio, i.e. with internal gradient, elevated bottom, etc. Available bespoke lengths are between 0.5 and 4 m and can be altered by multiples of a centimetre.

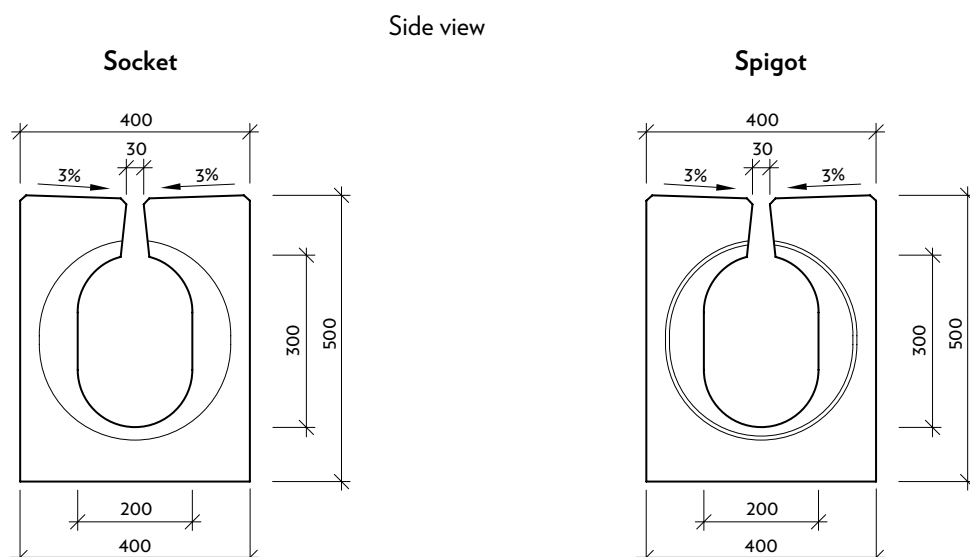
The system consists of the following components:

- 4 m-long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- End cap



Name	Order code	Production plant	Nominal dimensions* mm			Quantity	Weight
			Basic height	Length	Width	pcs/m	pcs
Slot drain with perpendicular side walls with continuous slot	I-0-K	VZ, GR	500	4000	400	0,25	1350-1538
Slot drain with perpendicular side walls with 0,5% bottom gradient and continuous slot	I-0-K-G	VZ, GR	500	4000	400	0,25	1369-1520
Basic gully assembly V0	I-K-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-K-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-K-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-K-CS	VZ, GR	500	1000	400/450	1	442
Spigot end cap	I-K-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-K-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

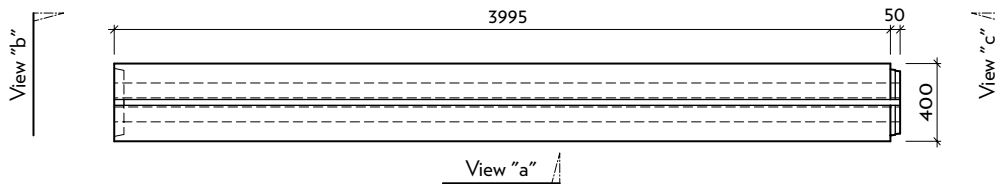


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-K

I-0-K - Slot drains with perpendicular side walls

Plan

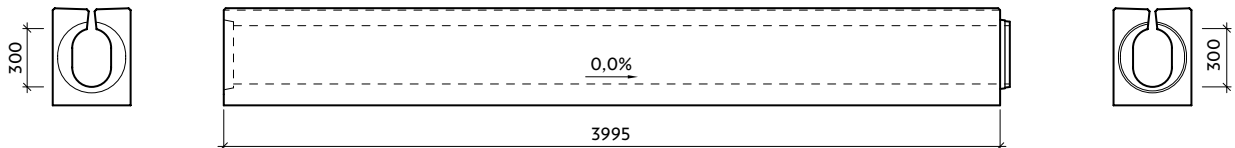


View "b" - socket

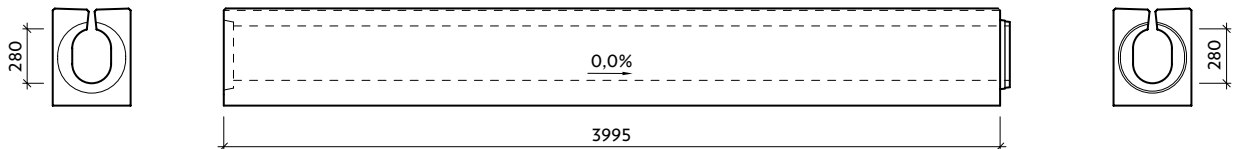
View "a"

View "c" - spigot

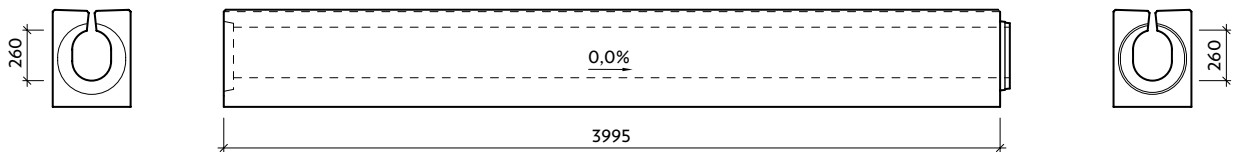
Profile I-0-K-T30/30 without internal flow gradient



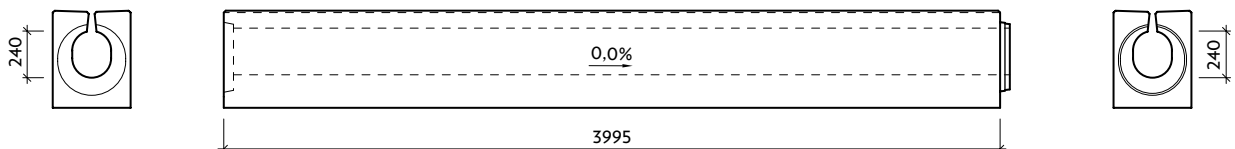
Profile I-0-K-T28/28 without internal flow gradient



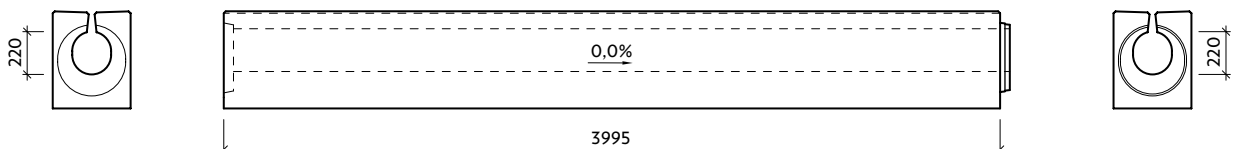
Profile I-0-K-T26/26 without internal flow gradient



Profile I-0-K-T24/24 without internal flow gradient



Profile I-0-K-T22/22 without internal flow gradient



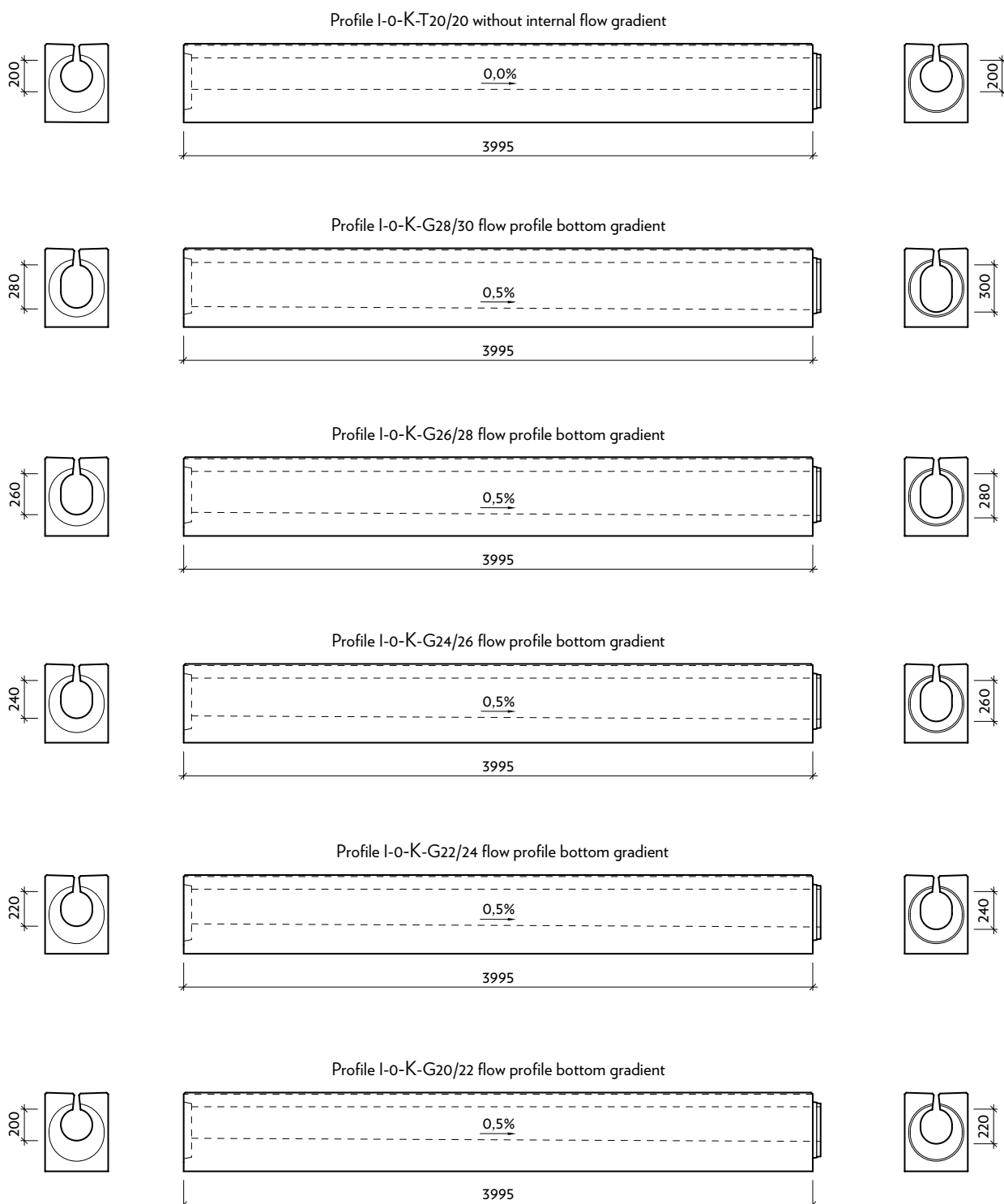
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-K

View "b" - socket

View "a"

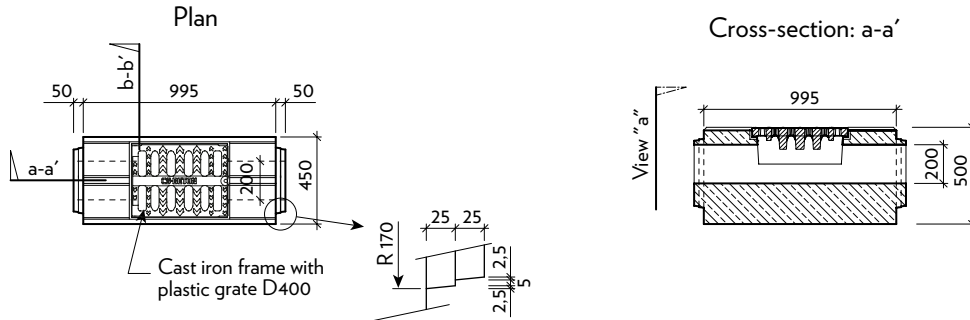
View "c" - spigot



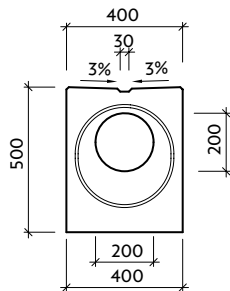
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-O-K

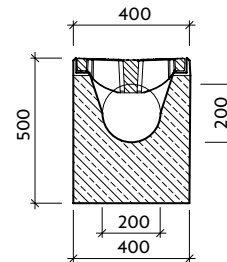
I-K-CS - Top cleaning segment with cast iron frame and plastic grate D400



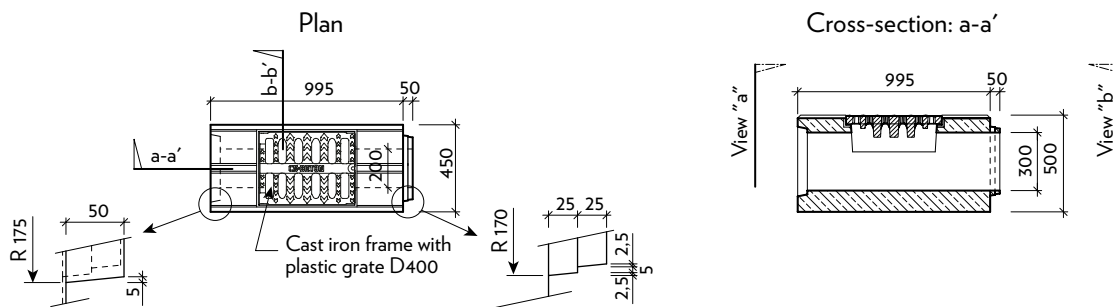
View "a" - spigot



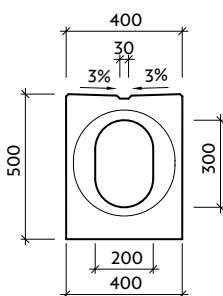
Cross-section: b-b'



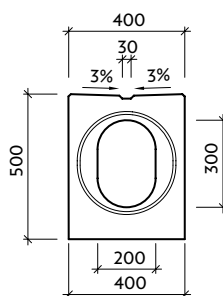
I-K-C0 - Basic cleaning segment with cast iron frame and plastic grate D400



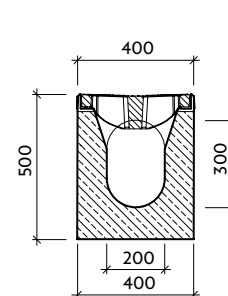
View "a" - socket



View "b" - spigot



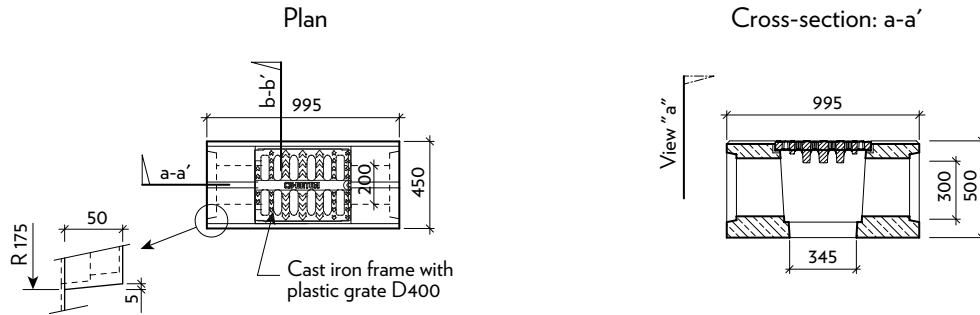
Cross-section: b-b'



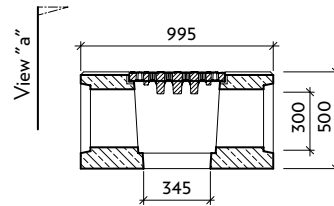
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-O-K

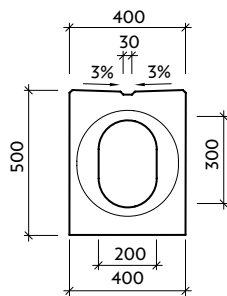
I-K-VU - Gutter gully assembly with cast iron frame and plastic grate D400



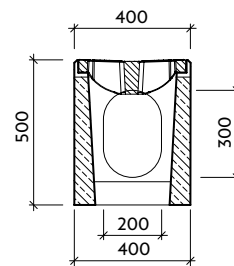
Cross-section: a-a'



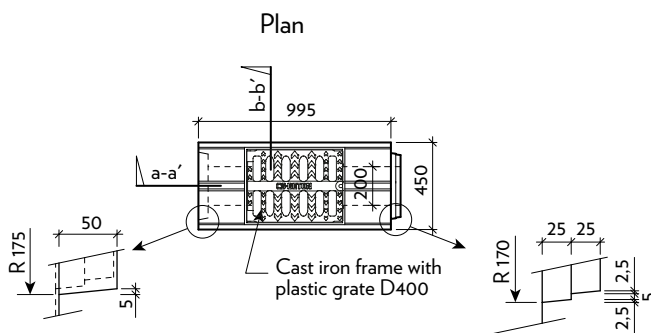
View "a" - socket



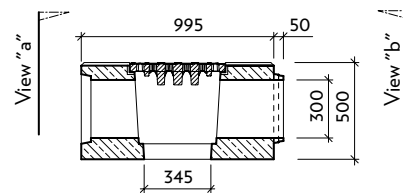
Cross-section: b-b'



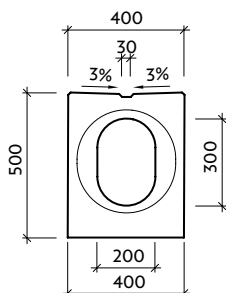
I-K-V0 - Basic gully assembly with cast iron frame and plastic grate D400



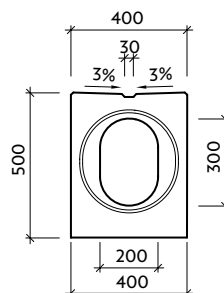
Cross-section: a-a'



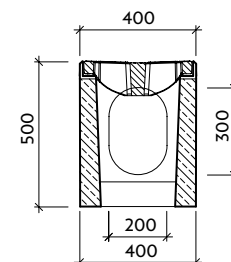
View "a" - socket



View "b" - spigot



Cross-section: b-b'

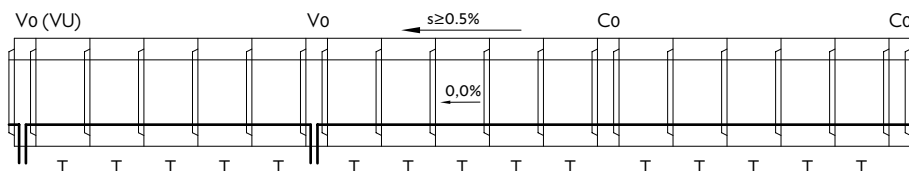


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-K

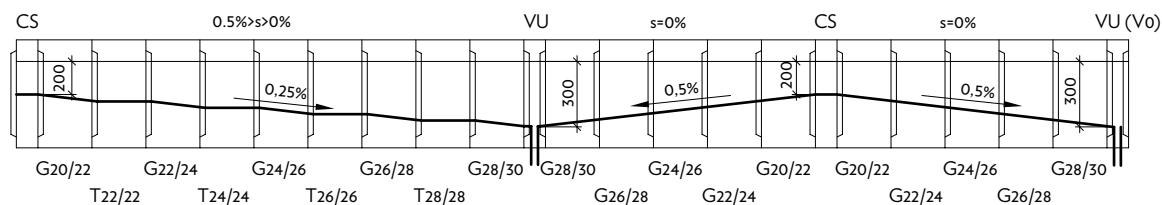
Suggested layout

I-0-K-T Slot drains - layout



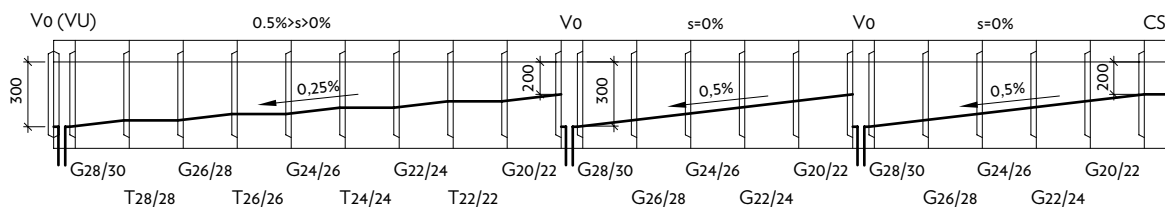
I-0-K-G Slot drains - layout

(slot drain with roof bottom)



I-0-K-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- C0 – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

Technical data:

During refurbishment of drained surfaces, the use of our standard slot drain products with slightly sloped sides is less practical because a gap of at least 25 mm would appear between the pipe and the surface edge. To prevent this unwanted phenomenon, we introduced a new type of slot drain segment with perpendicular side walls.

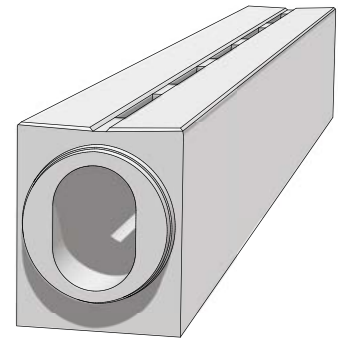
This new type of slot drain keeps all the advantages of our other standard profiles, but simplifies the installation process of a slot drain during refurbishment by:

- CREATING A STRAIGHT PERPENDICULAR MINIMUM GAP
- SIMPLE AND EASY TO USE OPTION FOR RECONSTRUCTION
- THE VOLUME OF GROUT NECESSARY FOR SEALING

This type of our most popular slot drain is offered across the entire portfolio, i.e. with internal gradient, elevated bottom, etc. Available bespoke lengths are between 0.5 and 4 m and can be altered by multiples of a centimetre.

The system consists of the following components:

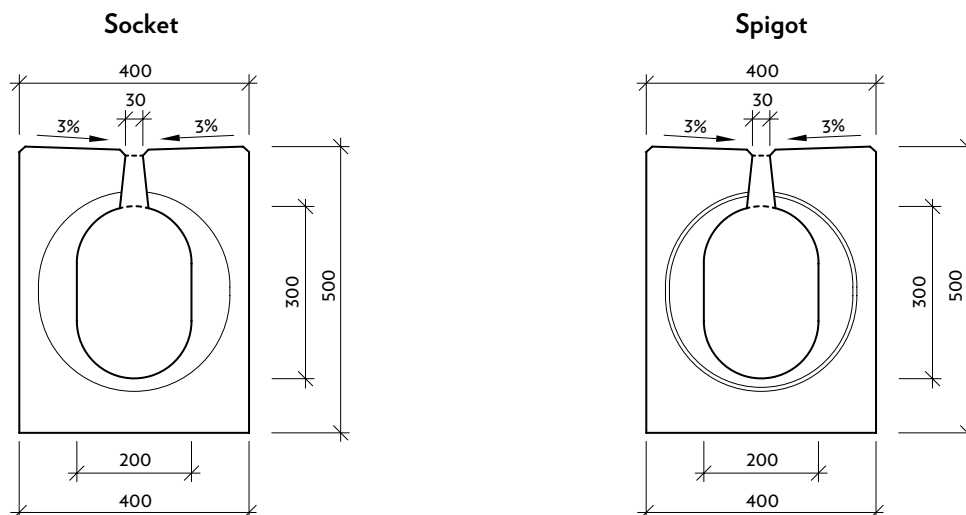
- 4 m-long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- End cap



Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with perpendicular side walls with intermittent slot	I-1-K	VZ, GR	500	4000	400	0,25	1361-1573
Slot drain with perpendicular side walls with 0.5% bottom gradient and intermittent slot	I-1-K-G	VZ, GR	500	4000	400	0,25	1380-1554
Basic gully assembly V0	I-K-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-K-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-K-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-K-CS	VZ, GR	500	1000	400/450	1	442
Spigot end cap	I-K-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-K-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

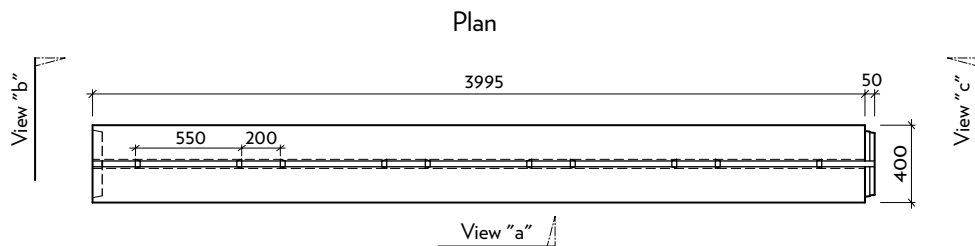
Side view



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

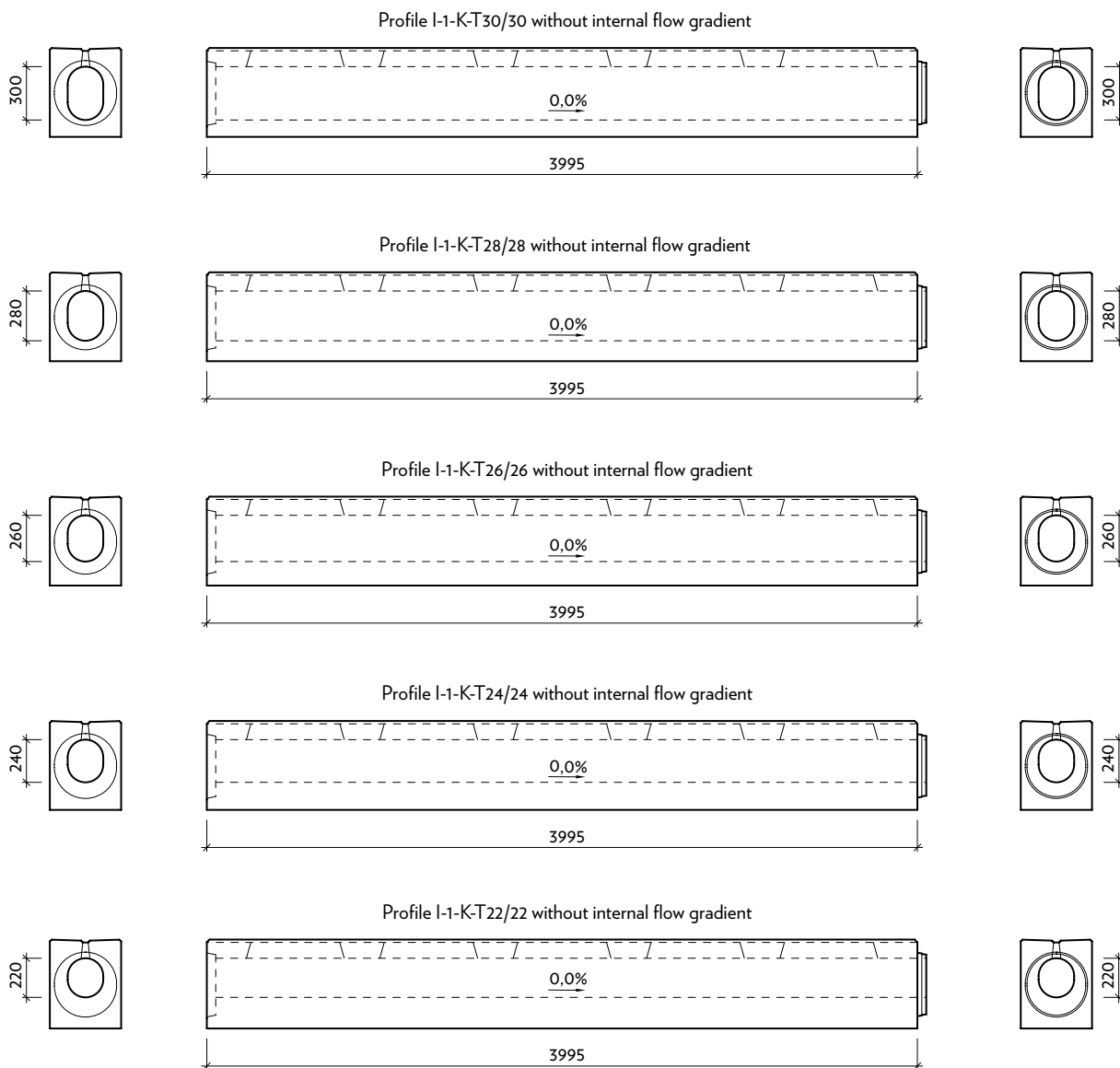
I-1-K - Slot drains with perpendicular side walls



View "b" - socket

View "a"

View "c" - spigot



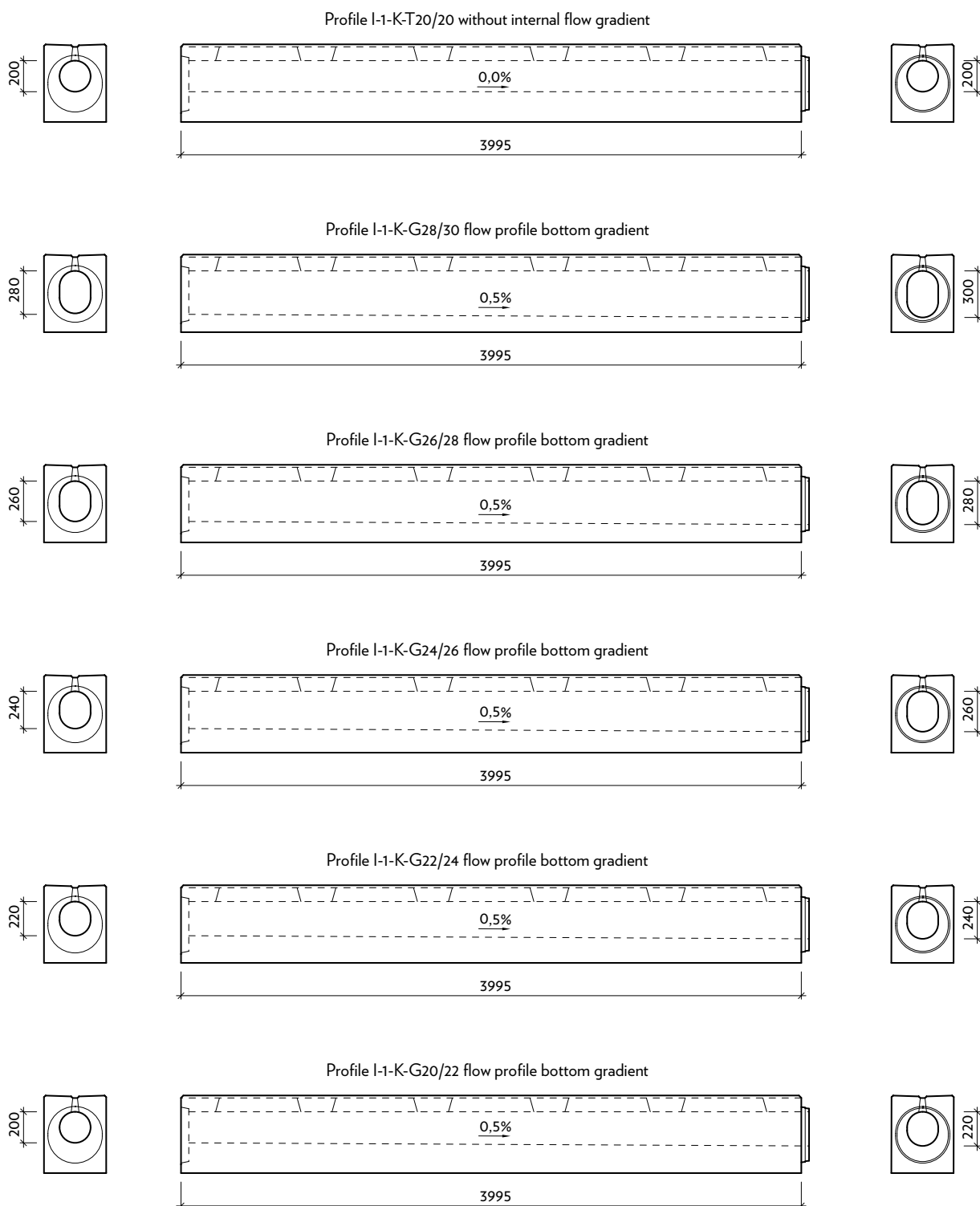
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

View "b" - socket

View "a"

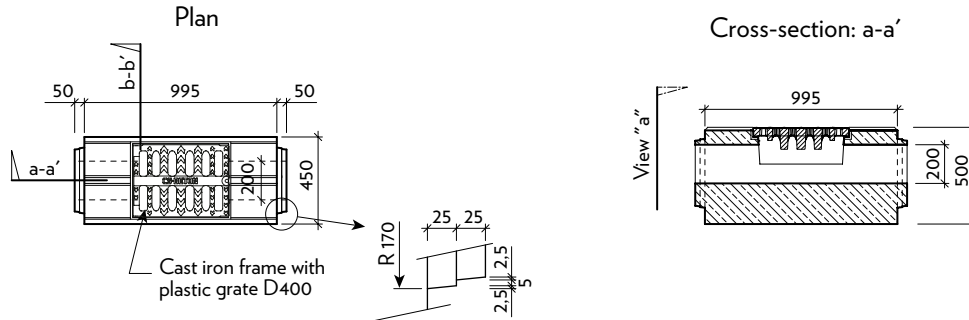
View "c" - spigot



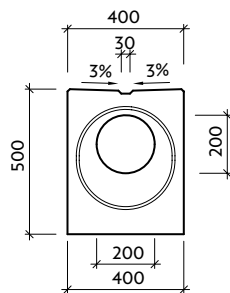
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

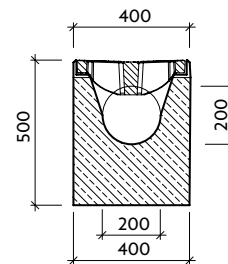
I-K-CS - Top cleaning segment with cast iron frame and plastic grate D400



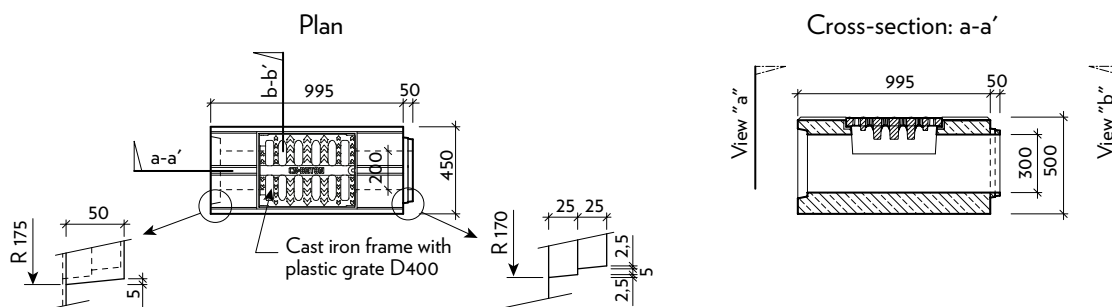
View "a" - spigot



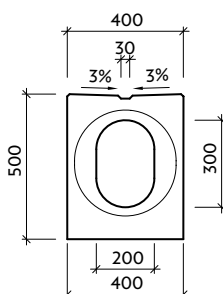
Cross-section: b-b'



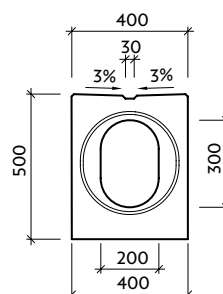
I-K-C0 - Basic cleaning segment with cast iron frame and plastic grate D400



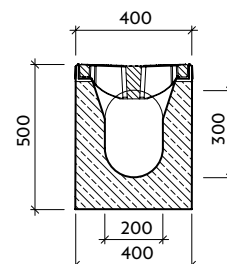
View "a" - socket



View "b" - spigot



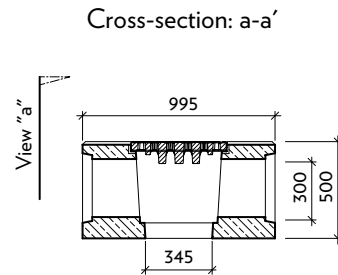
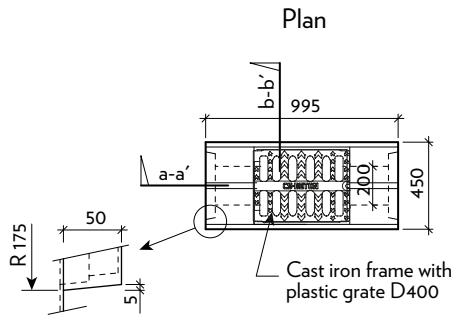
Cross-section: b-b'



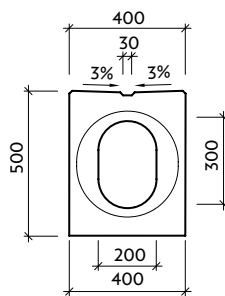
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

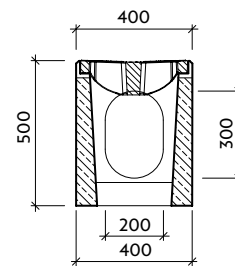
I-K-VU - Gutter gully assembly with cast iron frame and plastic grate D400



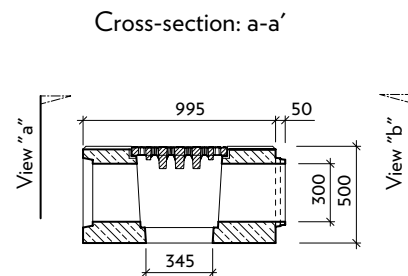
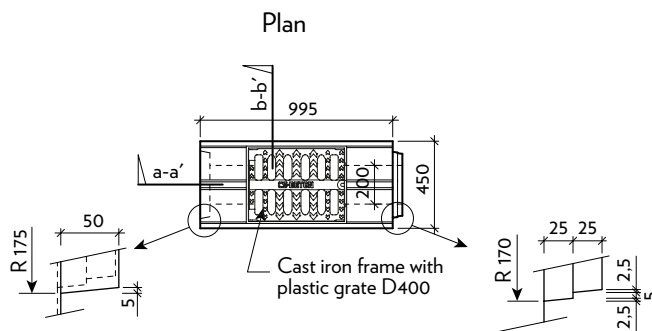
View "a" - socket



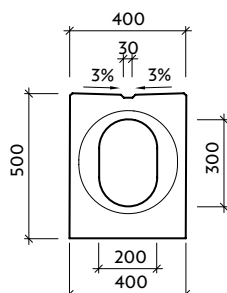
Cross-section: b-b'



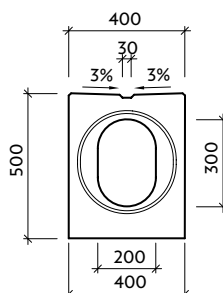
I-K-V0 - Basic gully assembly with cast iron frame and plastic grate D400



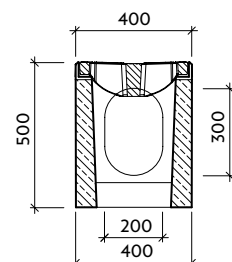
View "a" - socket



View "b" - spigot



Cross-section: b-b'

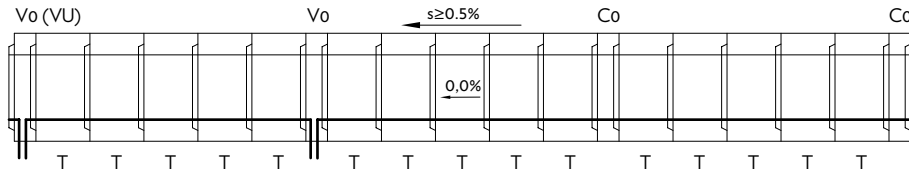


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-K

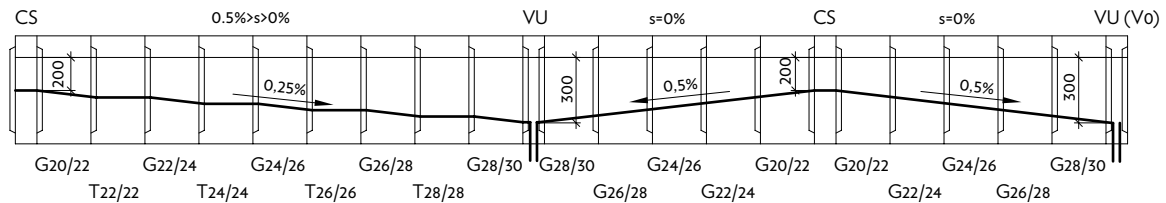
Suggested layout

I-1-K-T Slot drains - layout



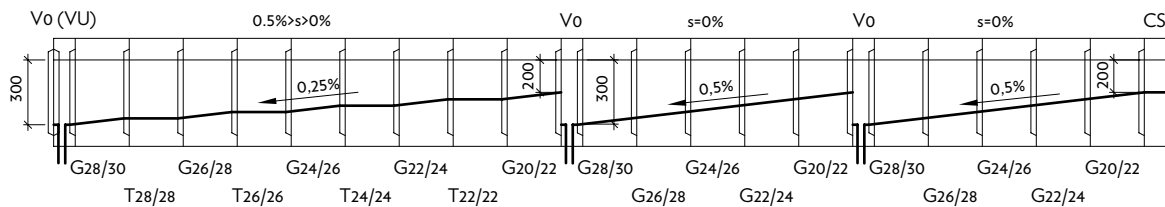
I-1-K-G Slot drains - layout

(slot drain with roof bottom)



I-1-K-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

TECHNICAL SHEET (IS03)

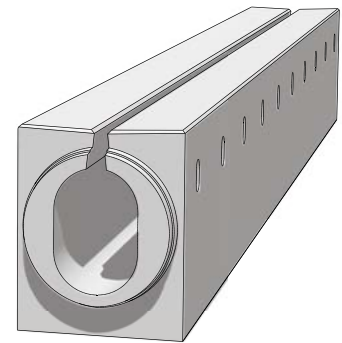
SLOT DRAIN PROFILE I-0-KD

Technical data:

Quiet or drainage asphalt is gaining popularity these days. It's higher water-draining ability brings along new requirements on water draining from roads. Roads made of quiet asphalt need to have water drained from both the surface and the road core.

Our innovative Profile I-K fully complies with these new requirements, because the slot drain's side wall also includes small drainage openings to drain water from the road's core. This type of drains has perpendicular side walls to ensure tight fit to the asphalt surface and to prevent gaps. This also simplifies installation of new slot drain segments during refurbishments.

Profile I portfolio includes all regular features (i.e. internal grade, elevated bottom pieces and bespoke lengths from 0,5 to 4 m).



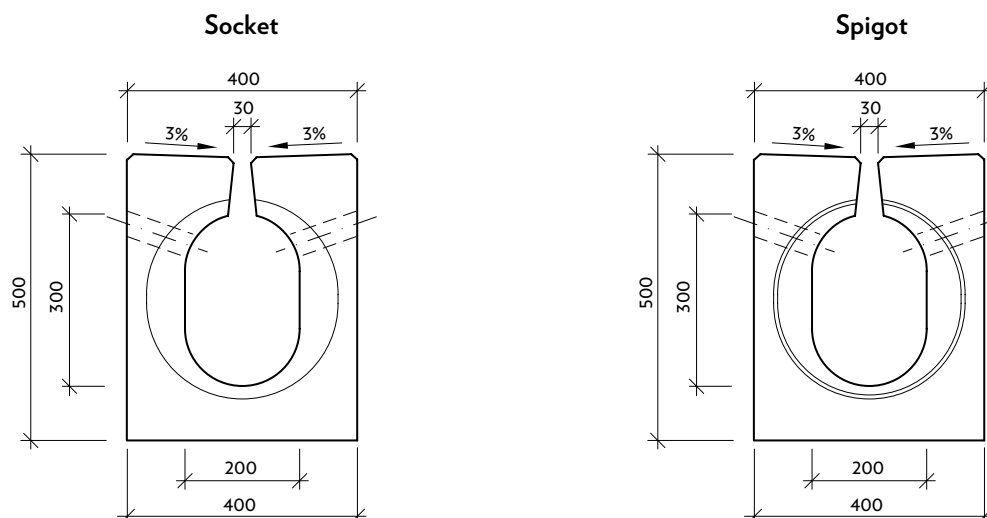
The system consists of the following components:

- 4 m - long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with perpendicular side walls with continuous slot and drainage openings (two-sided)	I-0-KD	VZ, GR	500	4000	400	0,25	1343-1531
Slot drain with perpendicular side walls with 0.5% bottom gradient and continuous slot, with drainage openings (two-sided)	I-0-KD-G	VZ, GR	500	4000	400	0,25	1362-1512
Basic gully assembly V0	I-K-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-K-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-K-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-K-CS	VZ, GR	500	1000	400/450	1	442
Spigot end cap	I-K-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-K-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

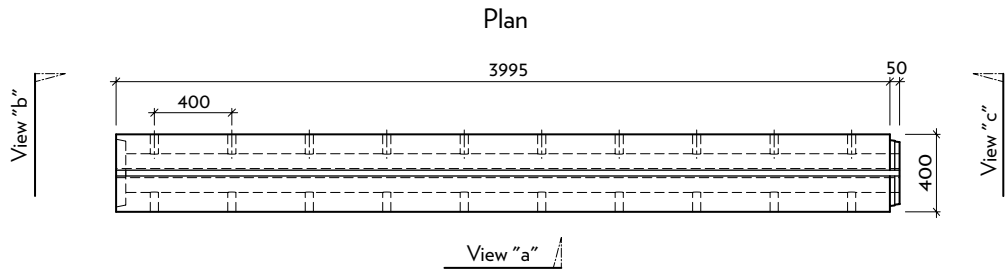
Side view



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-KD

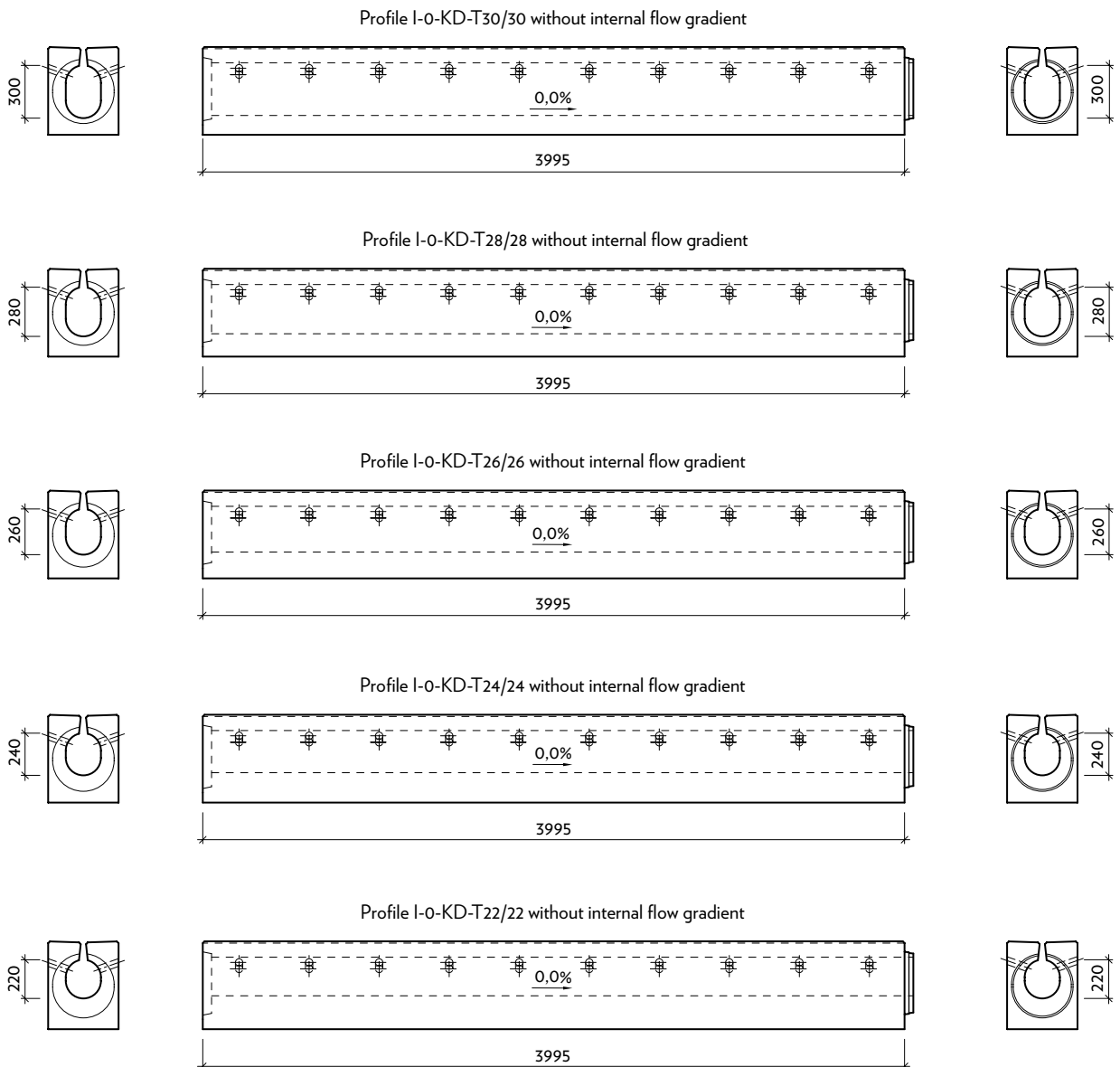
I-0-KD - Slot drains with drainage openings with perpendicular side walls



View "b" - socket

View "a"

View "c" - spigot



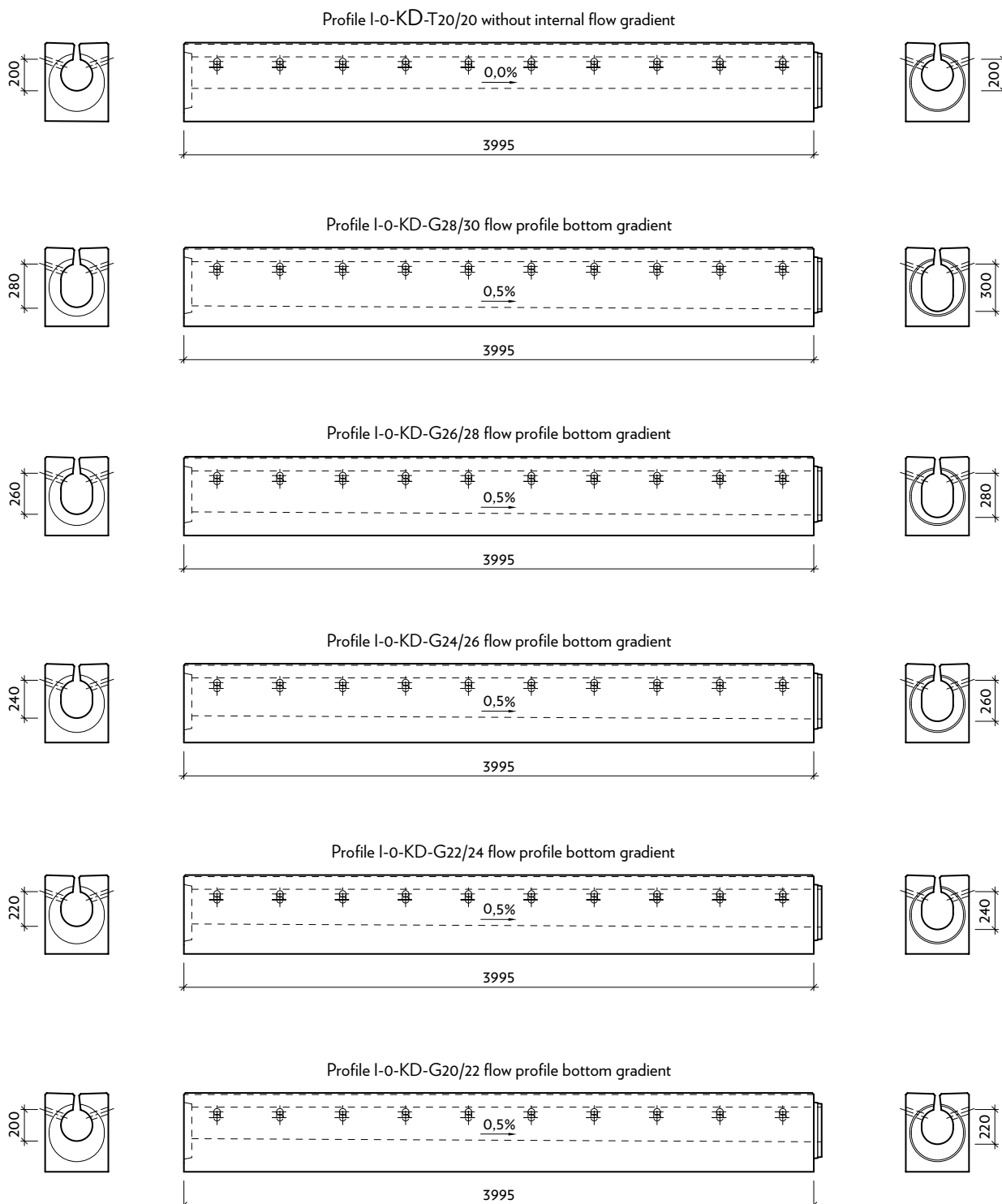
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-KD

View "b" - socket

View "a"

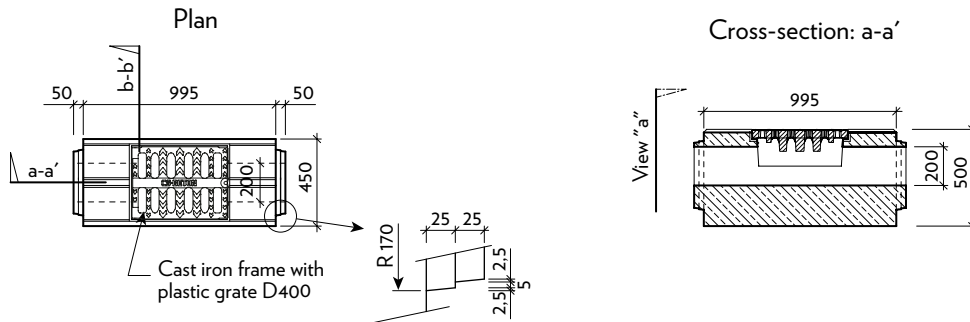
View "c" - spigot



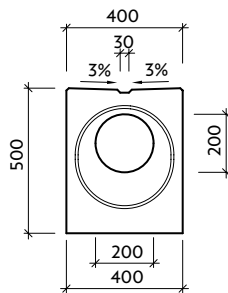
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-O-KD

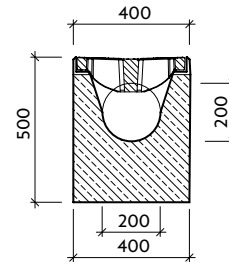
I-K-CS - Top cleaning segment with cast iron frame and plastic grate D400



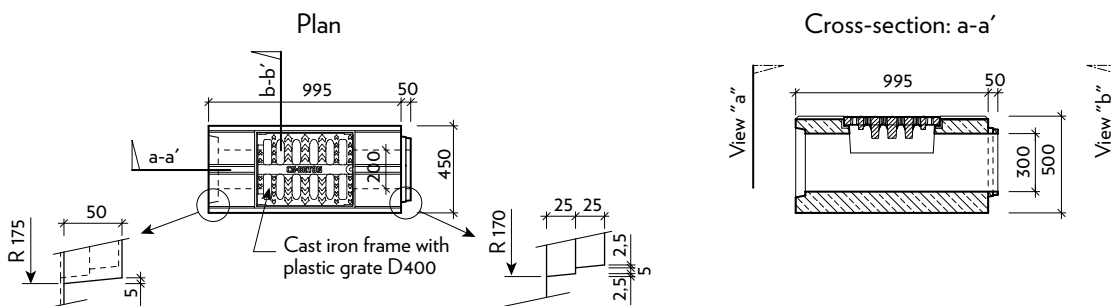
View "a" - spigot



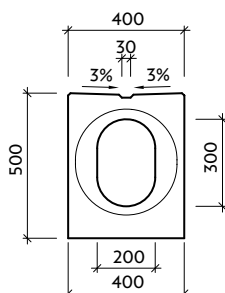
Cross-section: b-b'



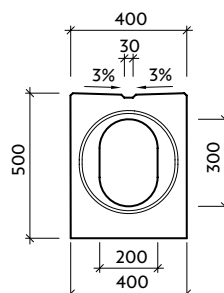
I-K-C0 - Basic cleaning segment with cast iron frame and plastic grate D400



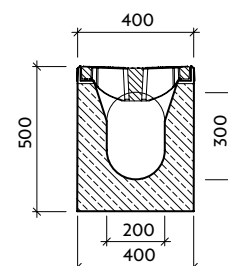
View "a" - socket



View "b" - spigot



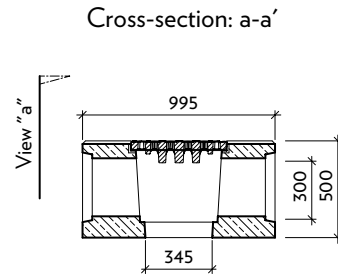
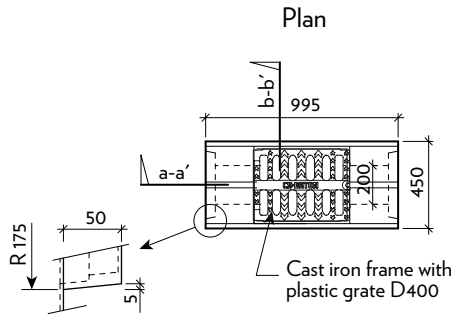
Cross-section: b-b'



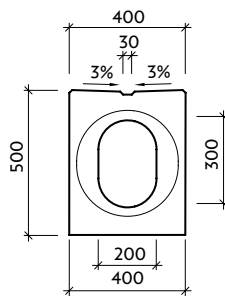
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-o-KD

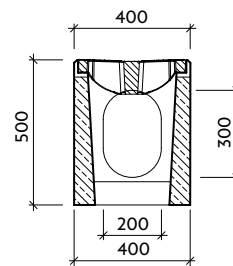
I-K-VU - Gutter gully assembly with cast iron frame and plastic grate D400



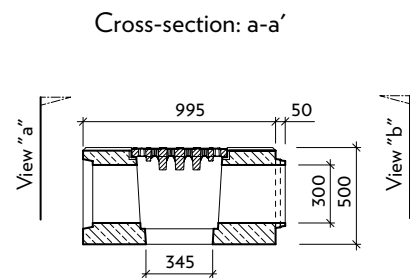
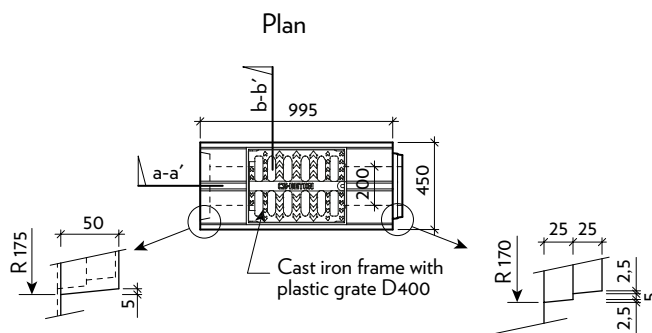
View "a" - socket



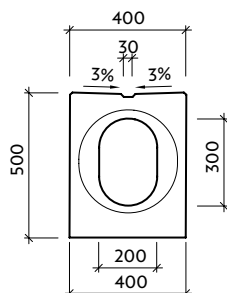
Cross-section: b-b'



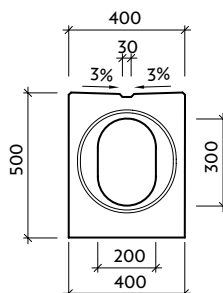
I-K-V0 - Basic gully assembly with cast iron frame and plastic grate D400



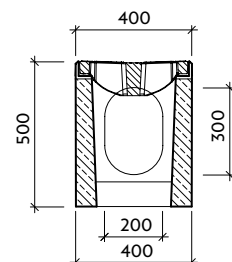
View "a" - socket



View "b" - spigot



Cross-section: b-b'

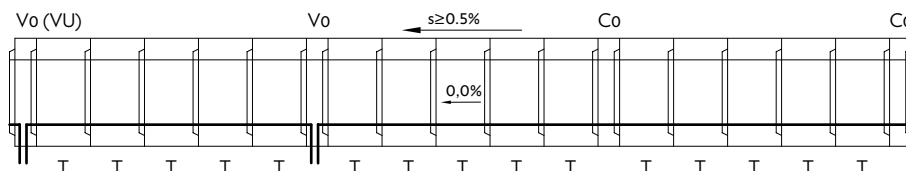


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-KD

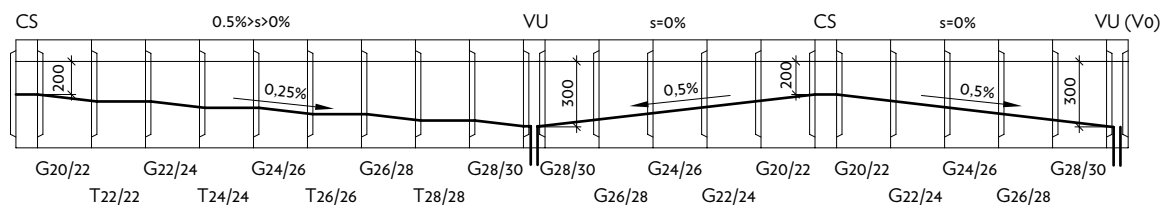
Suggested layout

I-0-KD-T Slot drains - layout



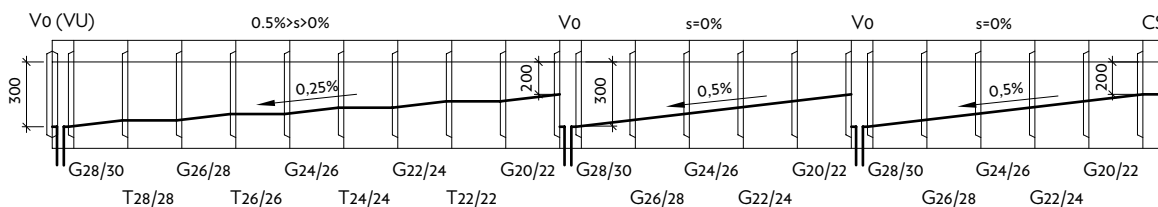
I-0-KD-G Slot drains - layout

(slot drain with roof bottom)



I-0-KD-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- C0 – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

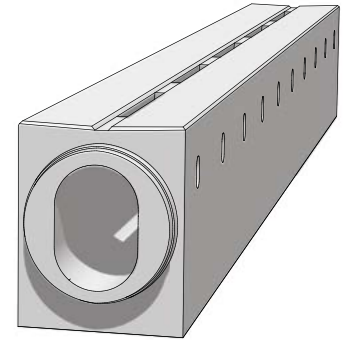
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

Technical data:

Quiet or drainage asphalt is gaining popularity these days. It's higher water-draining ability brings along new requirements on water draining from roads. Roads made of quiet asphalt need to have water drained from both the surface and the road core.

Our innovative Profile I-K fully complies with these new requirements, because the slot drain's side wall also includes small drainage openings to drain water from the road's core. This type of drains has perpendicular side walls to ensure tight fit to the asphalt surface and to prevent gaps. This also simplifies installation of new slot drain segments during refurbishments. Profile I portfolio includes all regular features (i.e. internal grade, elevated bottom pieces and bespoke lengths from 0,5 to 4 m).

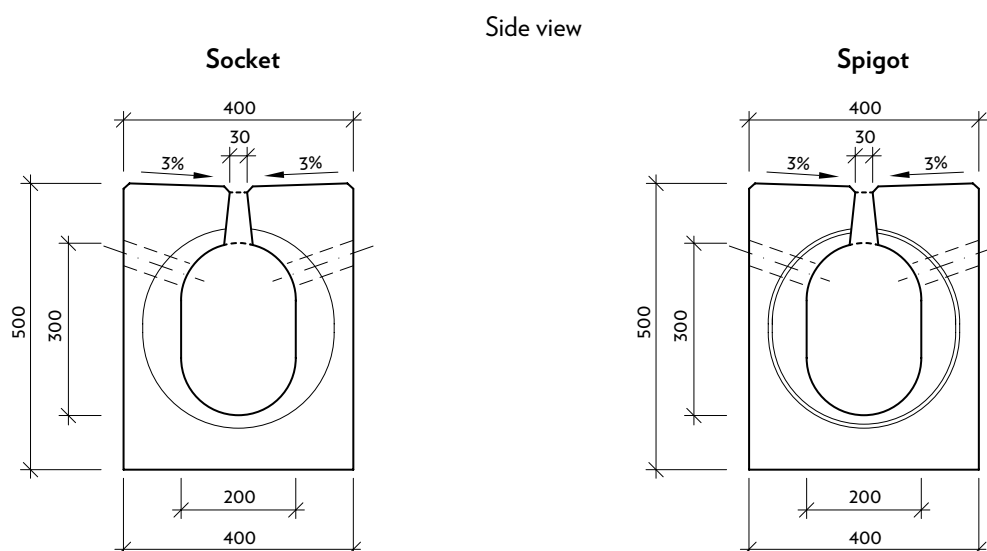


The system consists of the following components:

- 4 m-long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity	Weight
			Basic height	Length	Width	pcs/m	pcs
Slot drain - perpendicular with interrupted slot and drainage openings (two-sided)	I-1-KD	VZ, GR	500	4000	400	0,25	1354-1566
Slot drain with perpendicular side walls with 0.5% bottom gradient and interrupted slot, with drainage openings (two-sided)	I-1-KD-G	VZ, GR	500	4000	400	0,25	1372-1547
Basic gully assembly V0	I-K-V0	VZ, GR	500	1000	400/450	1	347
Gutter gully assembly VU	I-K-VU	VZ, GR	500	1000	400/450	1	338
Basic cleaning segment C0	I-K-C0	VZ, GR	500	1000	400/450	1	394
Top cleaning segment CS	I-K-CS	VZ, GR	500	1000	400/450	1	442
Spigot end cap	I-K-ZU	VZ, GR	500	120	400/450	-	76
Socket end cap	I-K-ZZ	VZ, GR	500	120	400/450	-	51

Nominal dimensions - basic shapes:

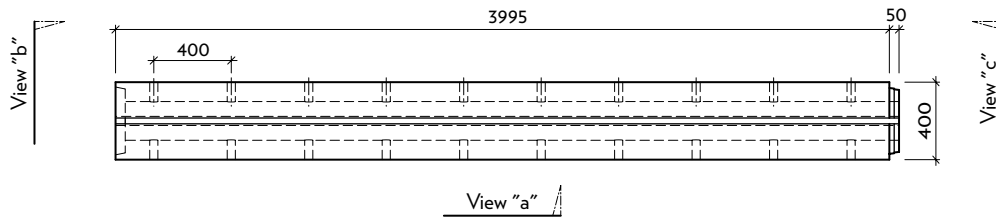


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

I-0-KD - Slot drains with drainage openings with perpendicular side walls

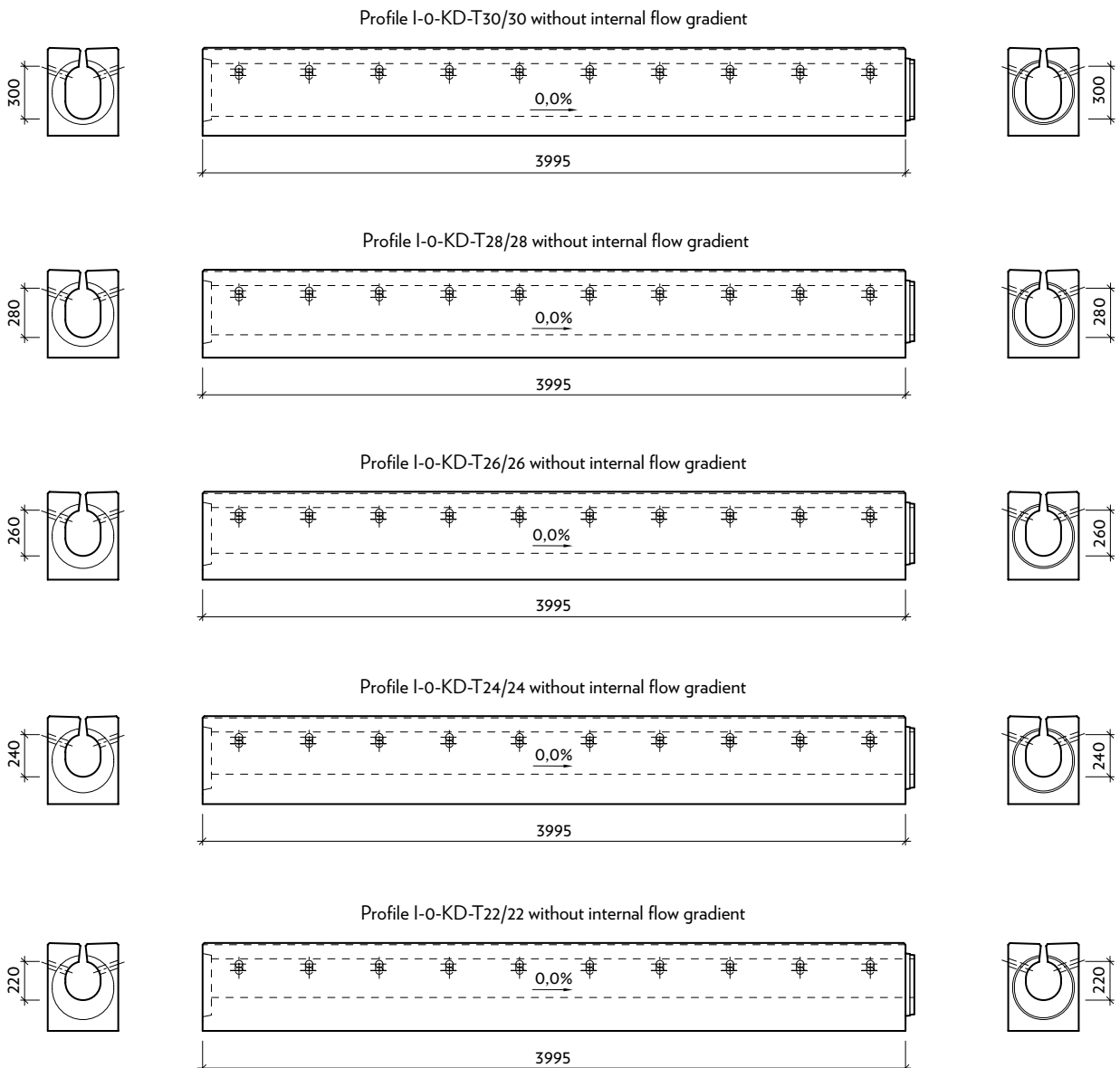
Plan



View "b" - socket

View "a"

View "c" - spigot



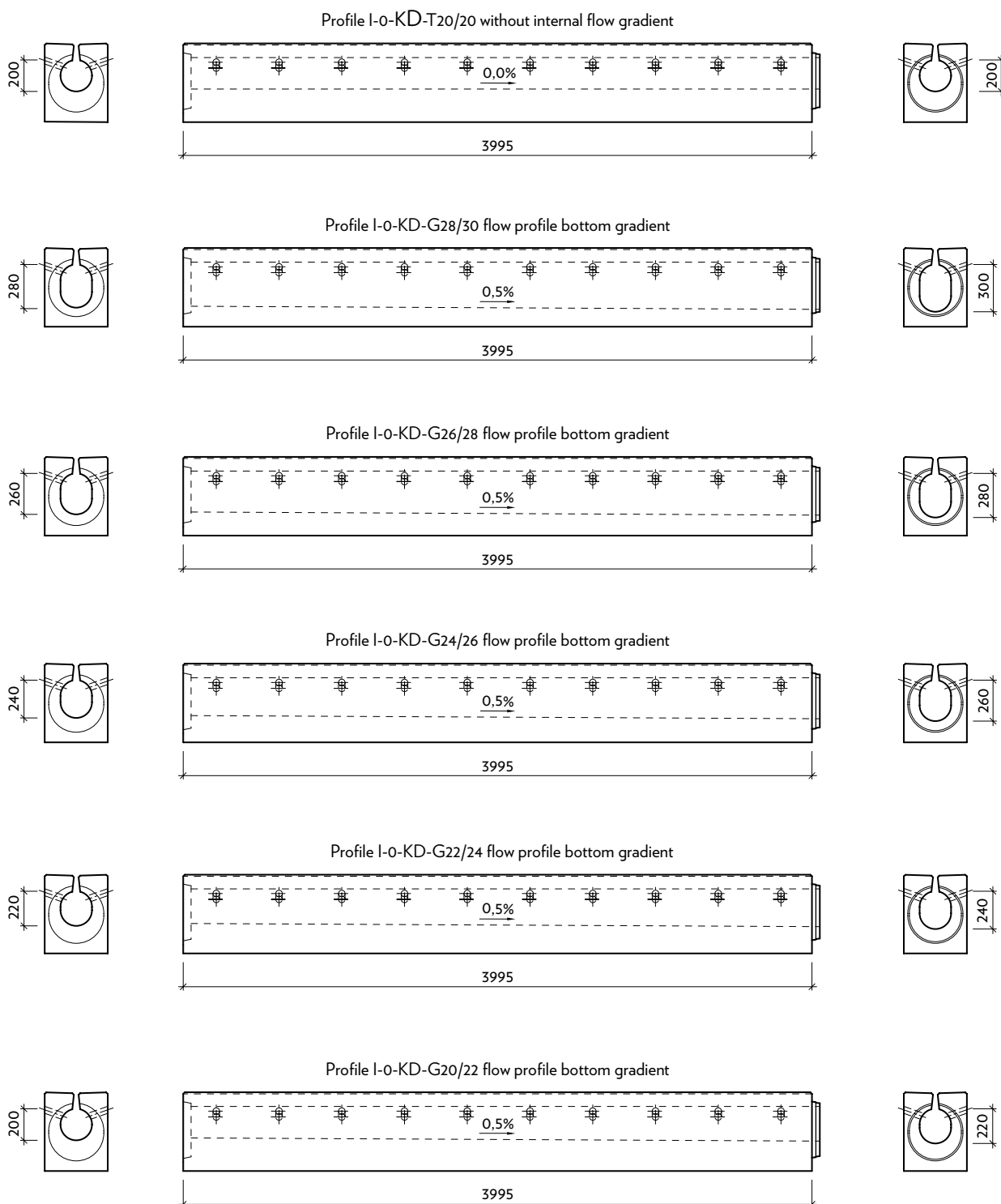
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

View "b"- socket

View "a"

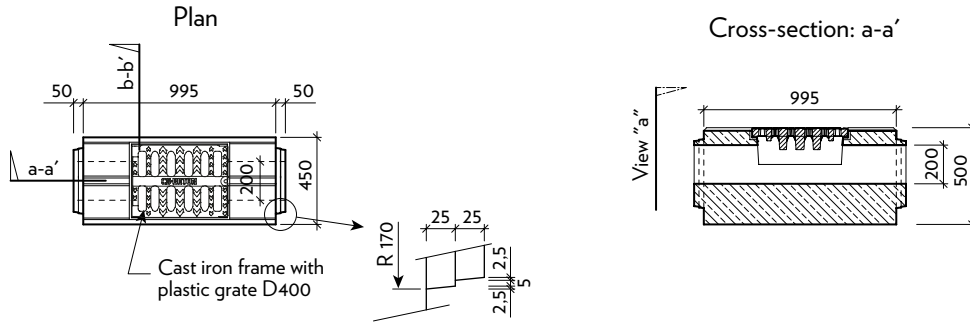
View "c"- spigot



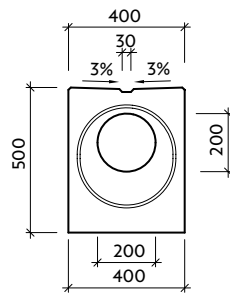
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

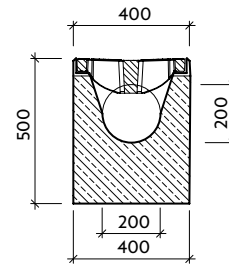
I-K-CS - Top cleaning segment with cast iron frame and plastic grate D400



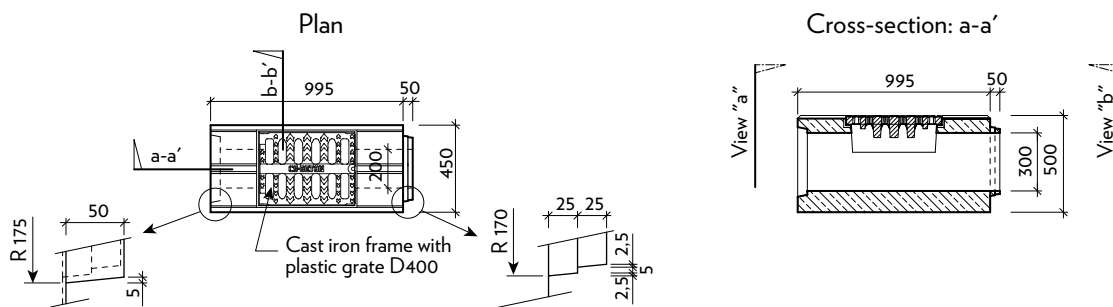
View "a" - spigot



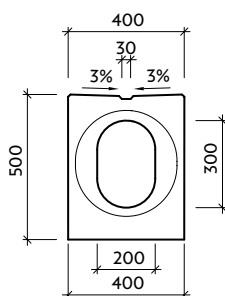
Cross-section: b-b'



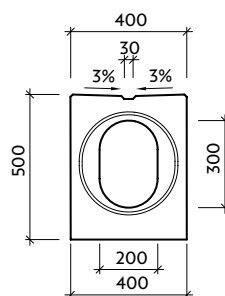
I-K-C0 - Basic cleaning segment with cast iron frame and plastic grate D400



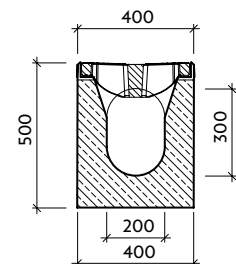
View "a" - socket



View "b" - spigot



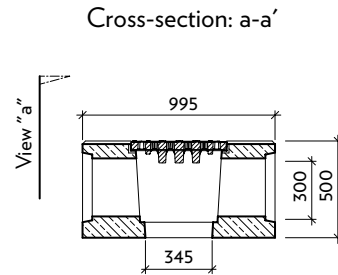
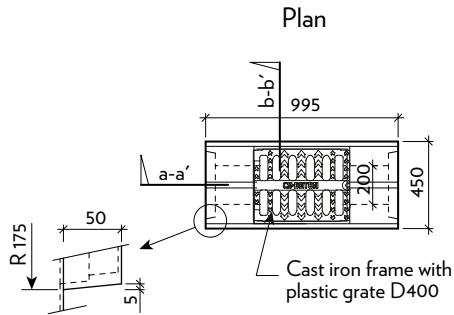
Cross-section: b-b'



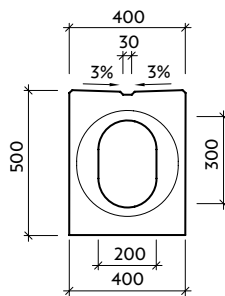
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

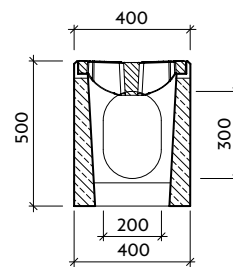
I-K-VU - Gutter gully assembly with cast iron frame and plastic grate D400



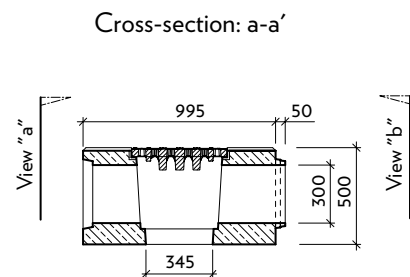
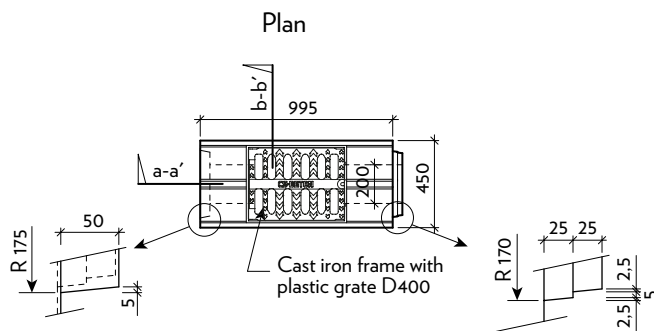
View "a" - socket



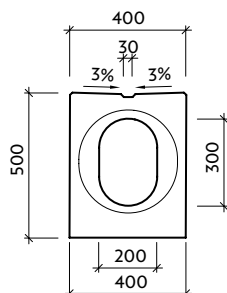
Cross-section: b-b'



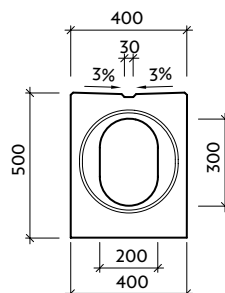
I-K-V0 - Basic gully assembly with cast iron frame and plastic grate D400



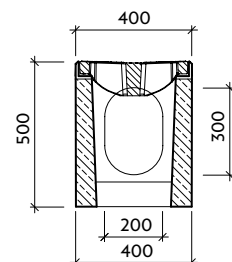
View "a" - socket



View "b" - spigot



Cross-section: b-b'

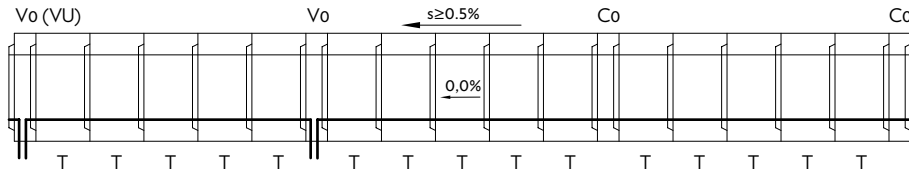


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-1-KD

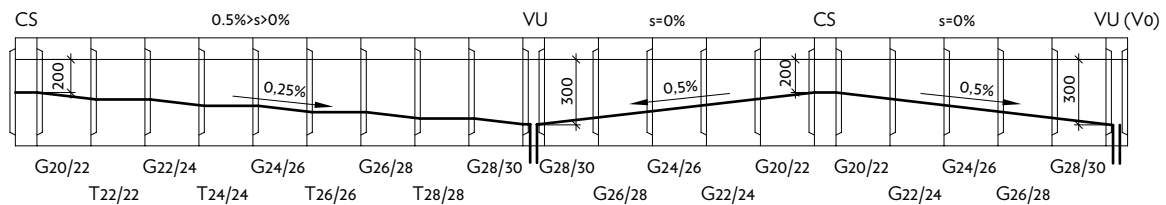
Suggested layout

I-1-KD-T Slot drains - layout



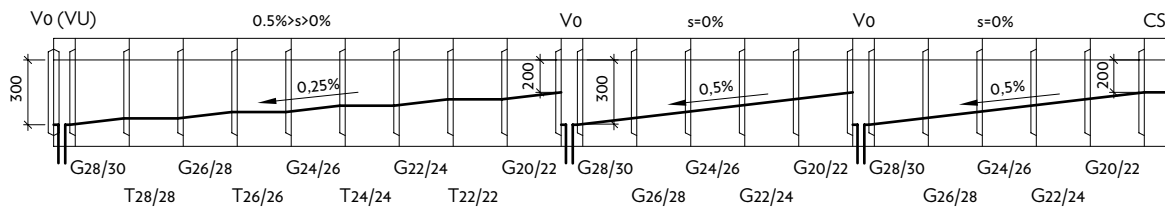
I-1-KD-G Slot drains - layout

(slot drain with roof bottom)



I-1-KD-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- Vo – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

TECHNICAL SHEET (IS03)

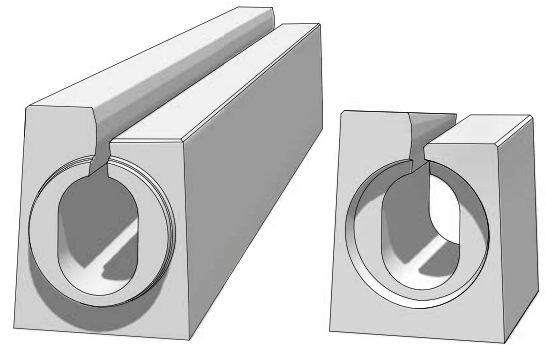
SLOT DRAIN PROFILE I-0-2

Technical data:

Slot drain with a 7 cm high kerbstone. This product is suitable for dividing roads from pavements and/or for use in tunnels. They are available without or with internal gradient 0.5%. Gradient-to-gradient components are provided for segments with internal gradient. Profile I-2 slot drains and slot drains with kerbstones are designed for D400 class traffic load and no transversal vehicle travel.

The system consists of the following components:

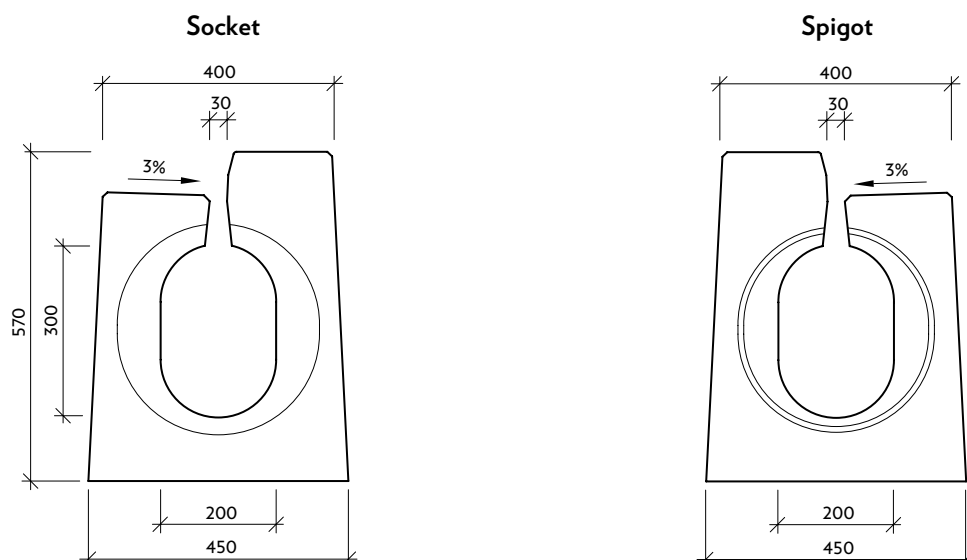
- 4 m-long slot drains with interrupted slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- Curved slot drain
- Fire safety barrier (with siphon)
- End cap



Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with continuous slot and 7 cm kerbstone	I-0-2	VZ	500	4000	400/450	0,25	1584
Slot drain with continuous slot and 7 cm kerbstone, 0,5% flow profile bottom gradient	I-0-2-G	VZ	500	4000	400/450	0,25	1603-1771
Slot drain without internal gradient, with rising kerbstone (left/right: 0-7/7-0 cm)	I-0-2-N	VZ	500	1000	400/450	1	383-430
Slot drain without internal gradient, with rising kerbstone 4 m (left/right: 0-7/7-0 cm)	I-0-2/4 N	VZ	500	4000	400/450	0,25	1529
Basic gully assembly V0	I-2-V0	VZ	500	1000	400/450	1	295
Gutter gully assembly VU	I-2-VU	VZ	500	1000	400/450	1	285
Basic cleaning segment C0	I-2-C0	VZ	500	1000	400/450	1	347
Top cleaning segment CS	I-2-CS	VZ	500	1000	400/450	1	404
Spigot end cap	I-2-ZU	VZ	500	120	400/450	-	76
Socket end cap	I-2-ZZ	VZ	500	120	400/450	-	51

Nominal dimensions - basic shapes:

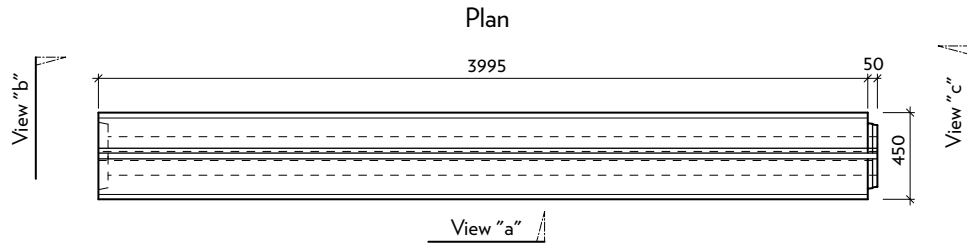
Side view



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

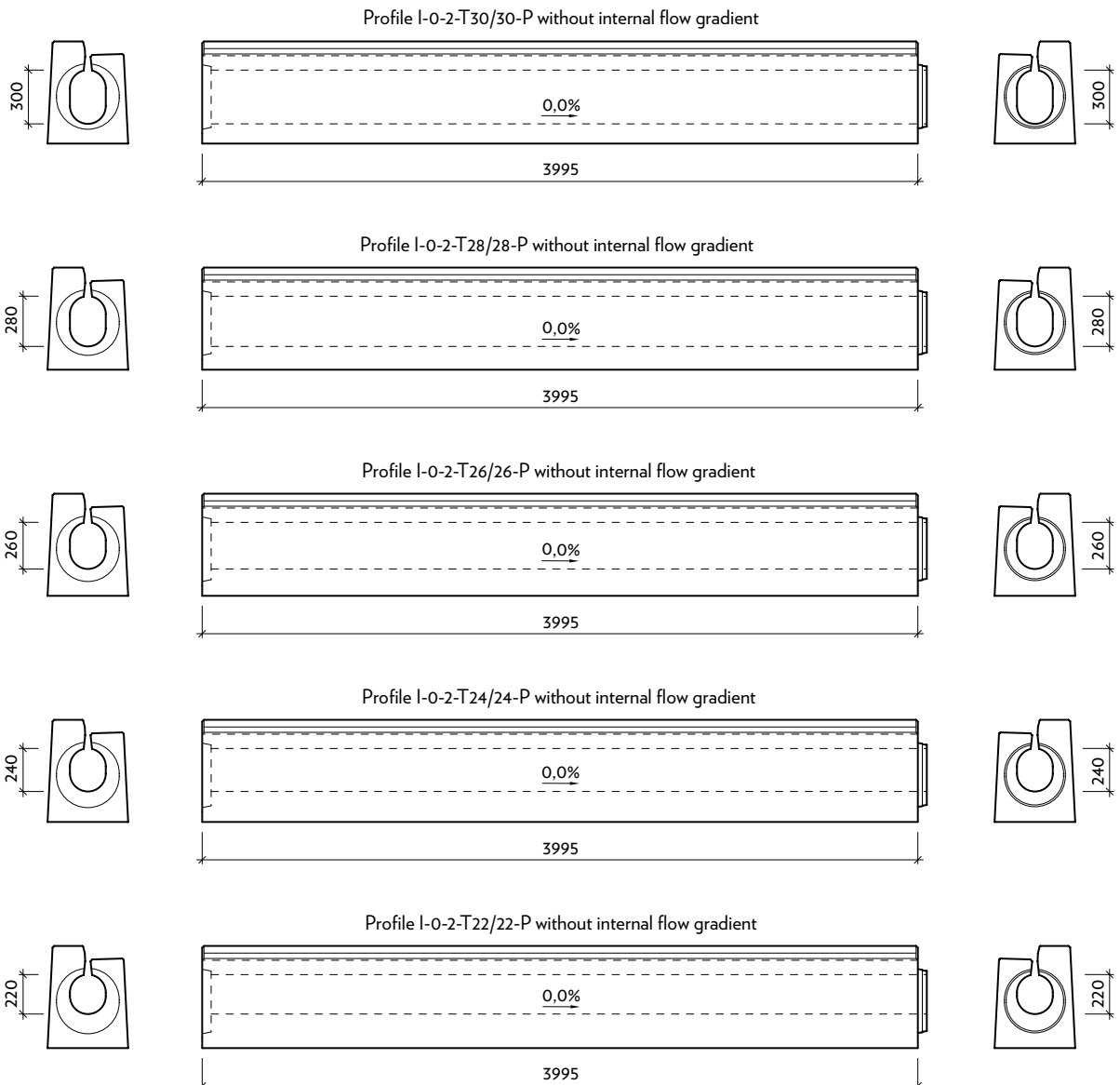
I-0-2 - Slot drain (right/left)



View "b" - socket

View "a"

View "c" - spigot



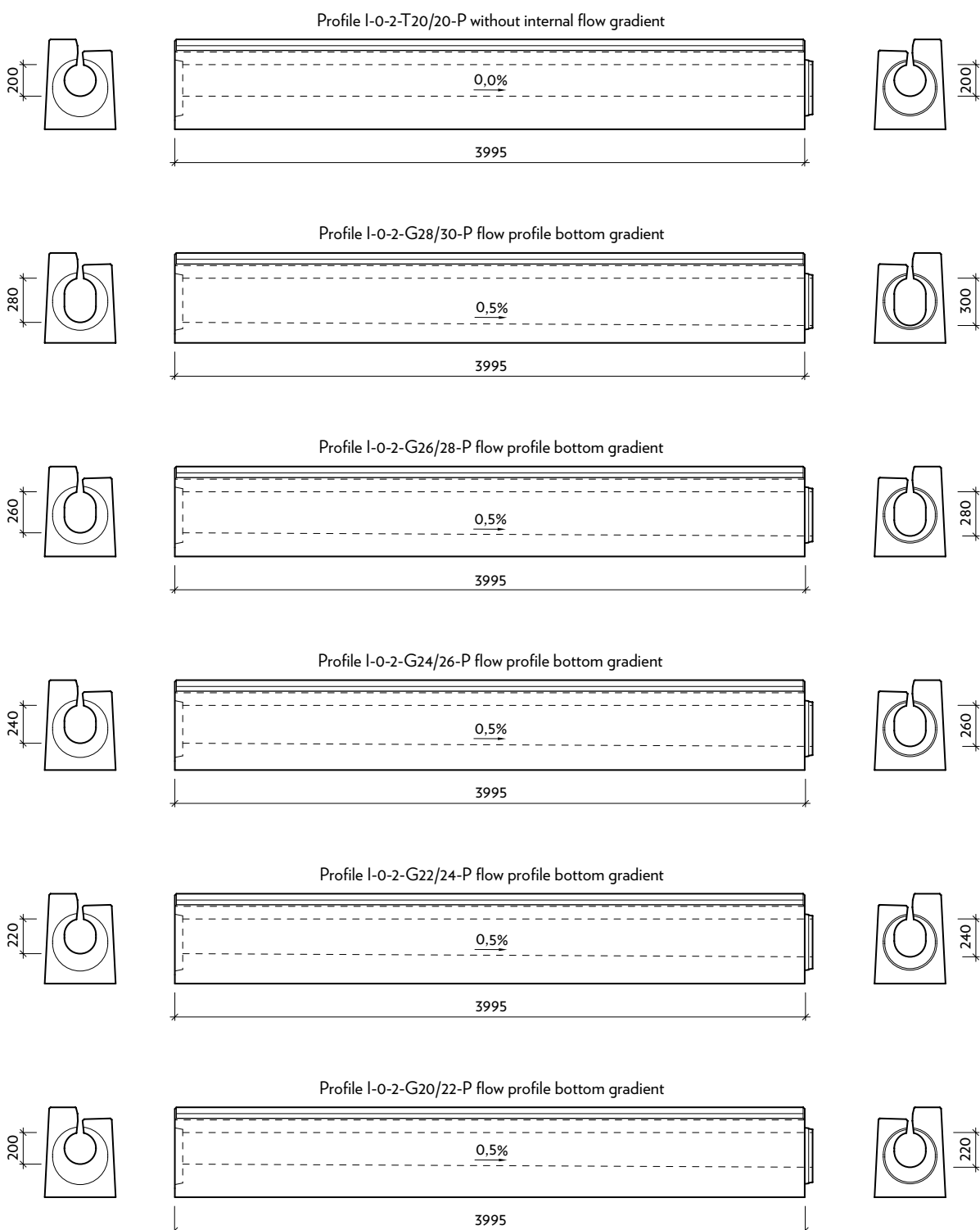
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

View "b" - socket

View "a"

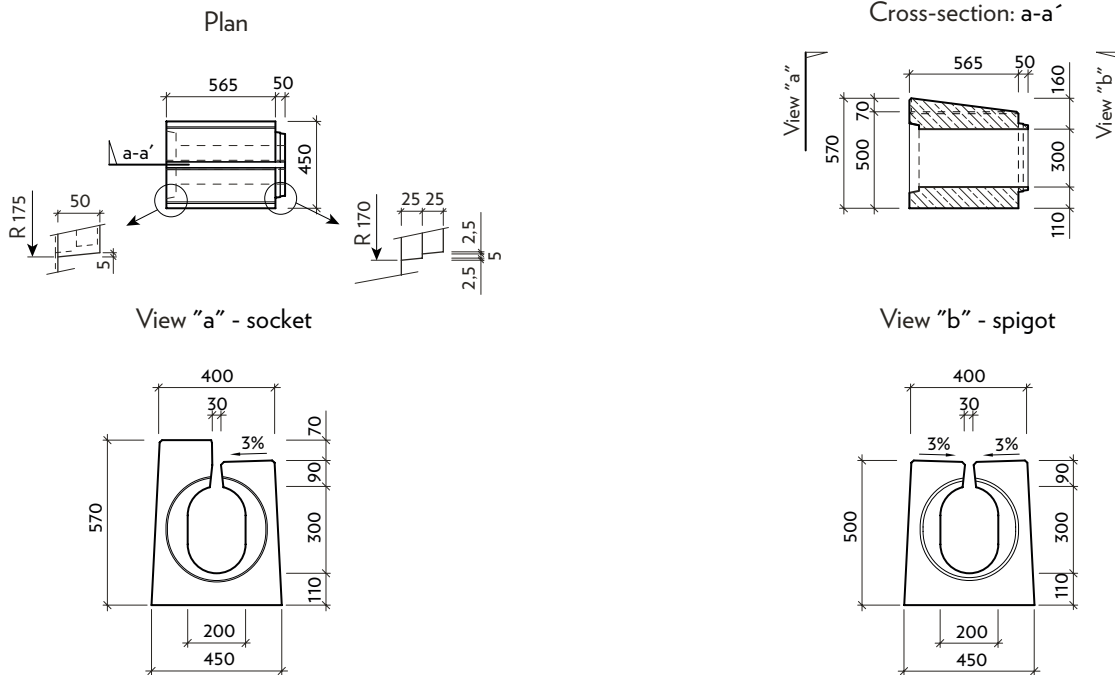
View "c" - spigot



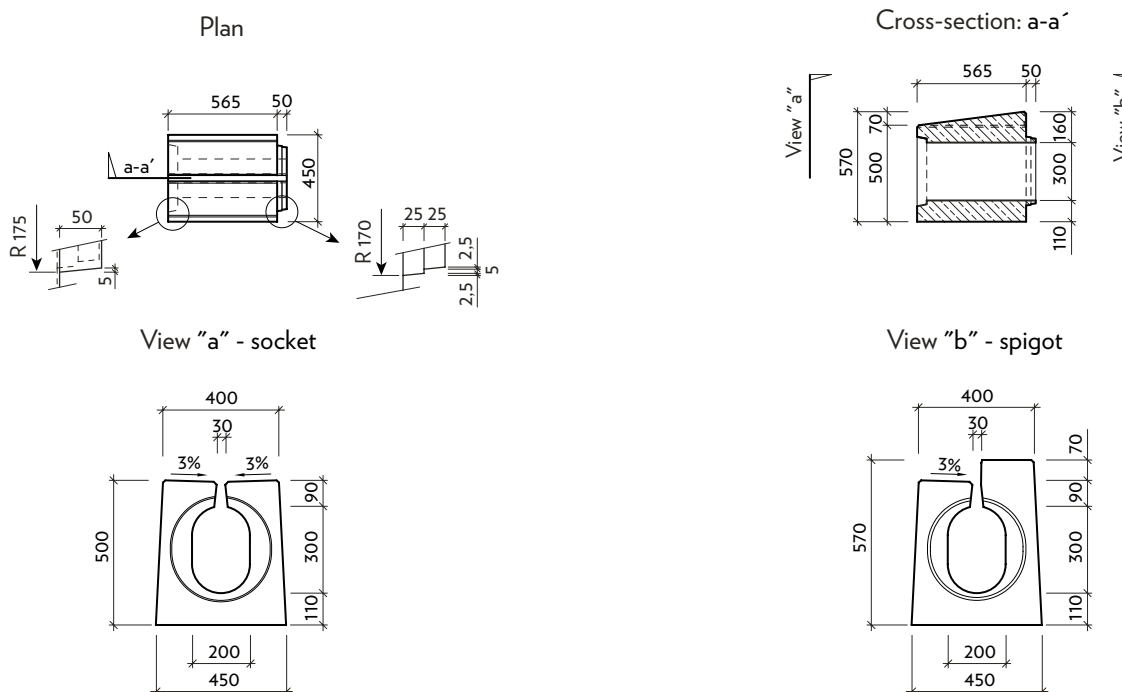
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

I-2-0-N - Right - Slot drain without internal gradient, with rising kerbstone 7-0 cm



I-0-2-N - Right - Slot drain without internal gradient, with rising kerbstone 0-7 cm

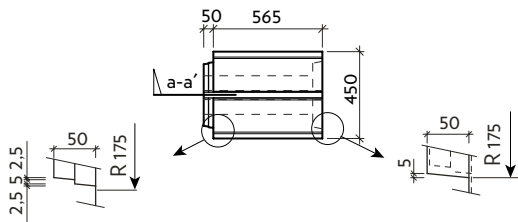


TECHNICAL SHEET (IS03)

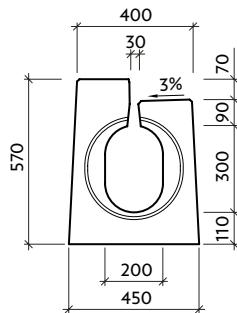
SLOT DRAIN PROFILE I-0-2

I-2-0-N - Left - Slot drain without internal gradient, with rising kerbstone 7-0 cm

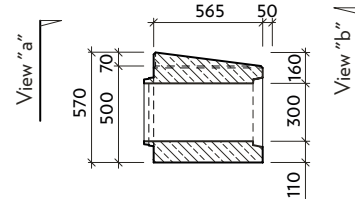
Plan



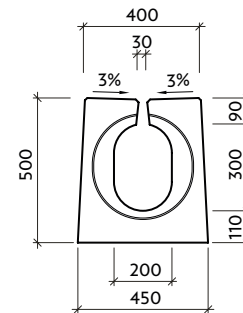
View "a" - spigot



Cross-section: a-a'

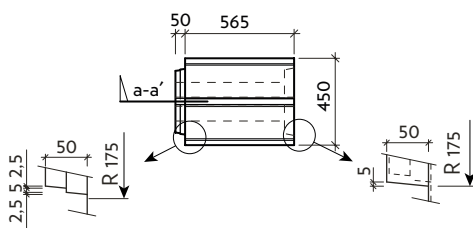


View "b" - socket

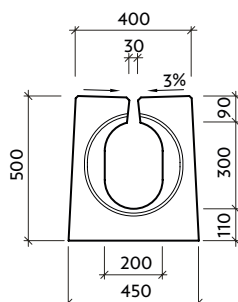


I-0-2-N - Left - Slot drain without internal gradient, with rising kerbstone 0-7 cm

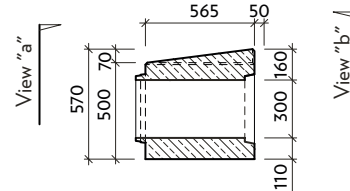
Plan



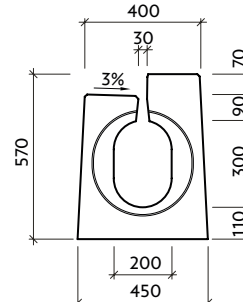
View "a" - spigot



Cross-section: a-a'



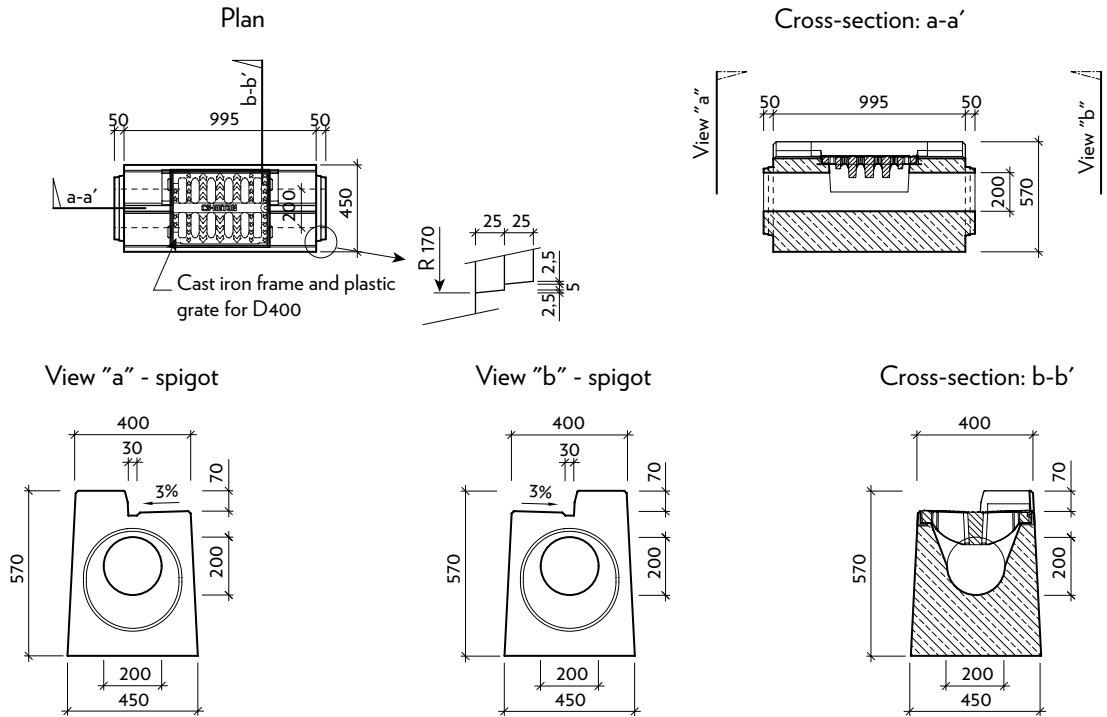
View "b" - socket



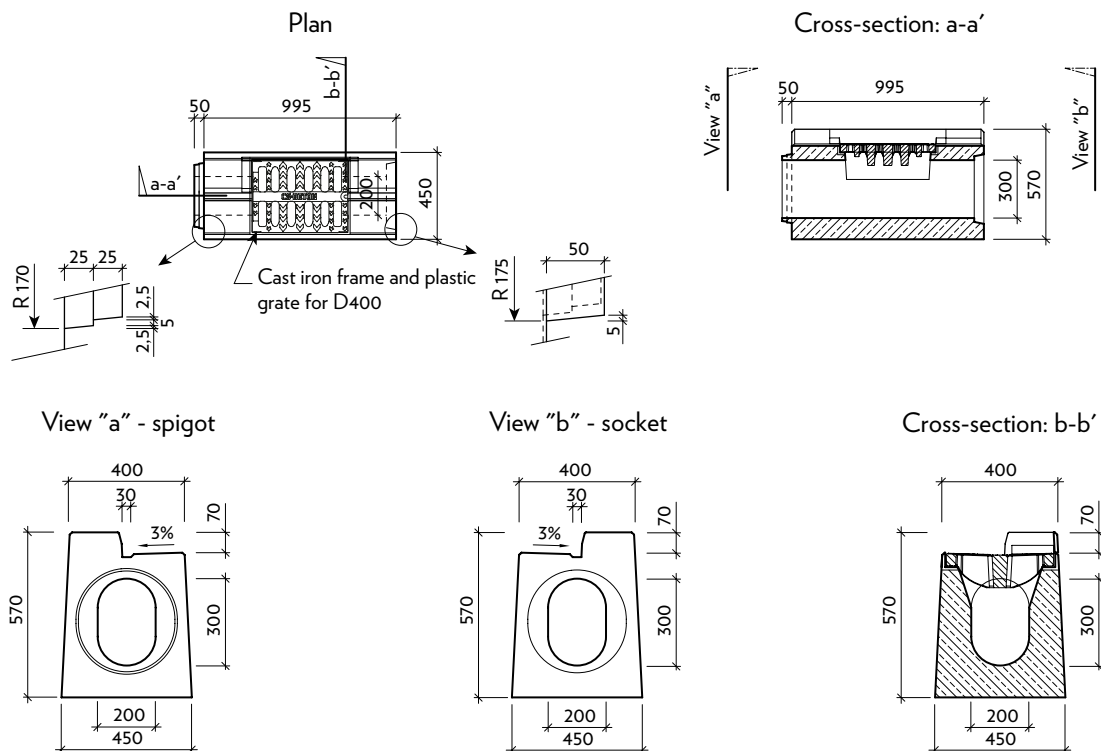
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

I-2-CS - Top cleaning segment with cast iron frame and plastic grate for D400 - 7 cm kerbstone



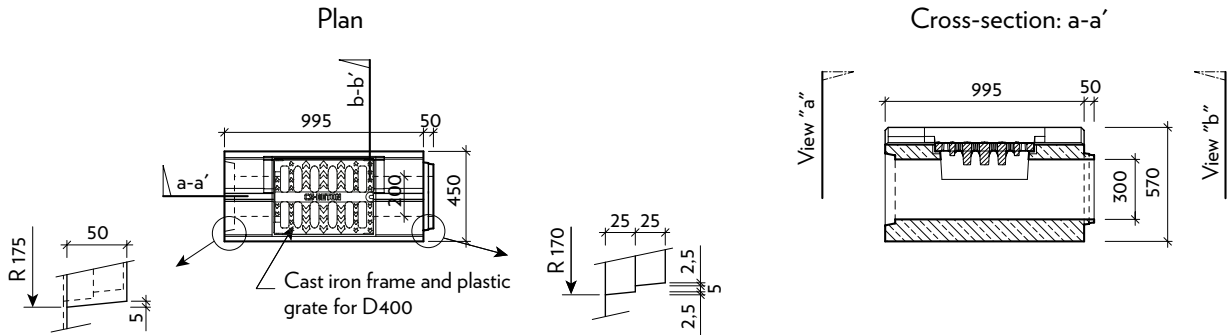
I-2-C0 - Left - Basic cleaning segment with cast iron frame and plastic grate for D400 - 7 cm kerbstone



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

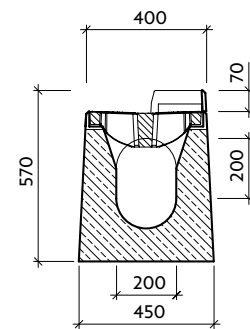
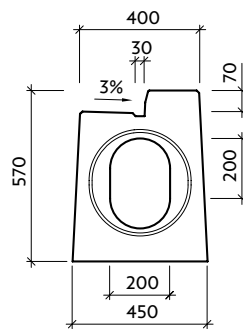
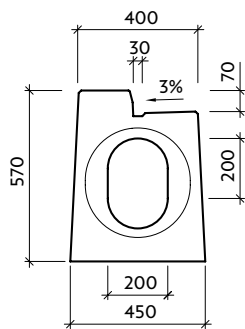
I-2-C0 - Right - Basic cleaning segment with cast iron frame and plastic grate for D400 - 7 cm kerbstone



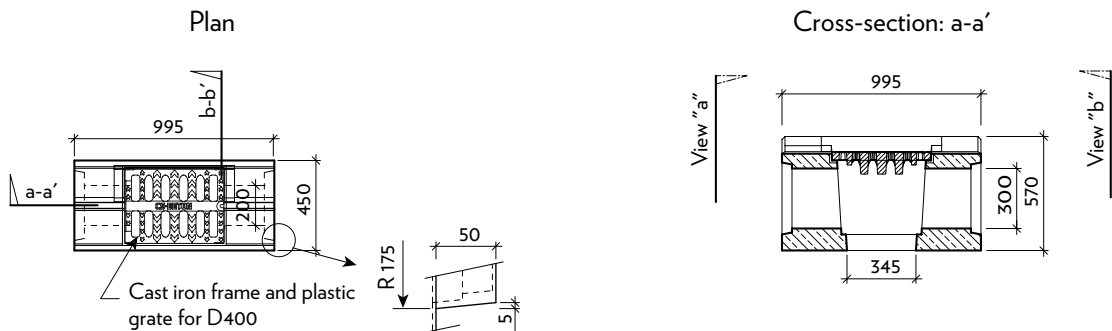
View "a" - socket

View "b" - spigot

Cross-section: b-b'



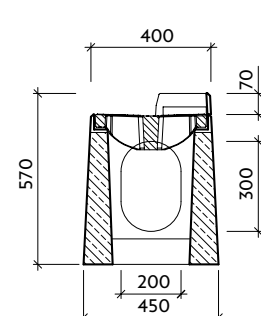
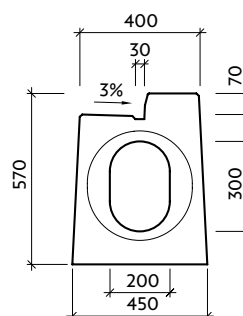
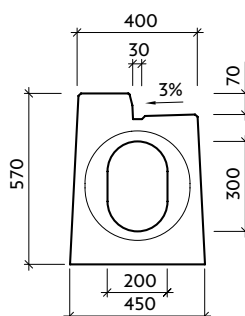
I-2-VU - Gutter gully assembly with 7 cm kerbstone with cast iron frame and plastic grate for D400



View "a" - socket

View "b" - socket

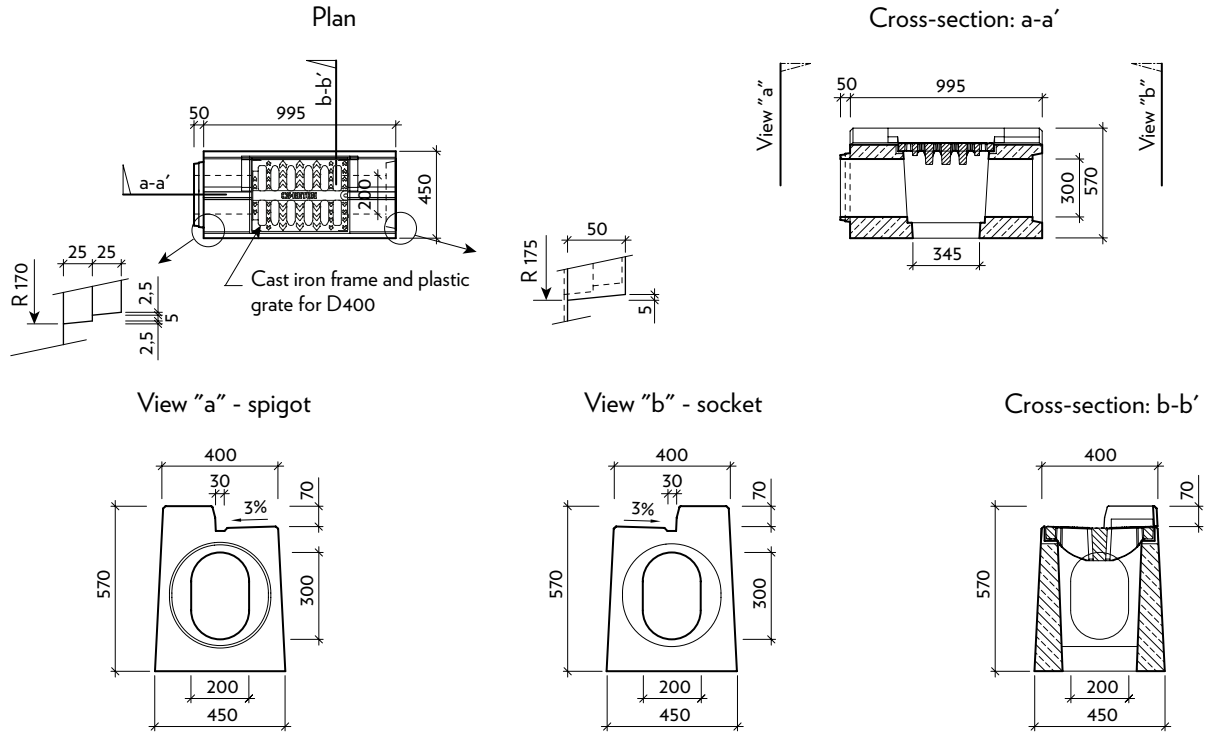
Cross-section: b-b'



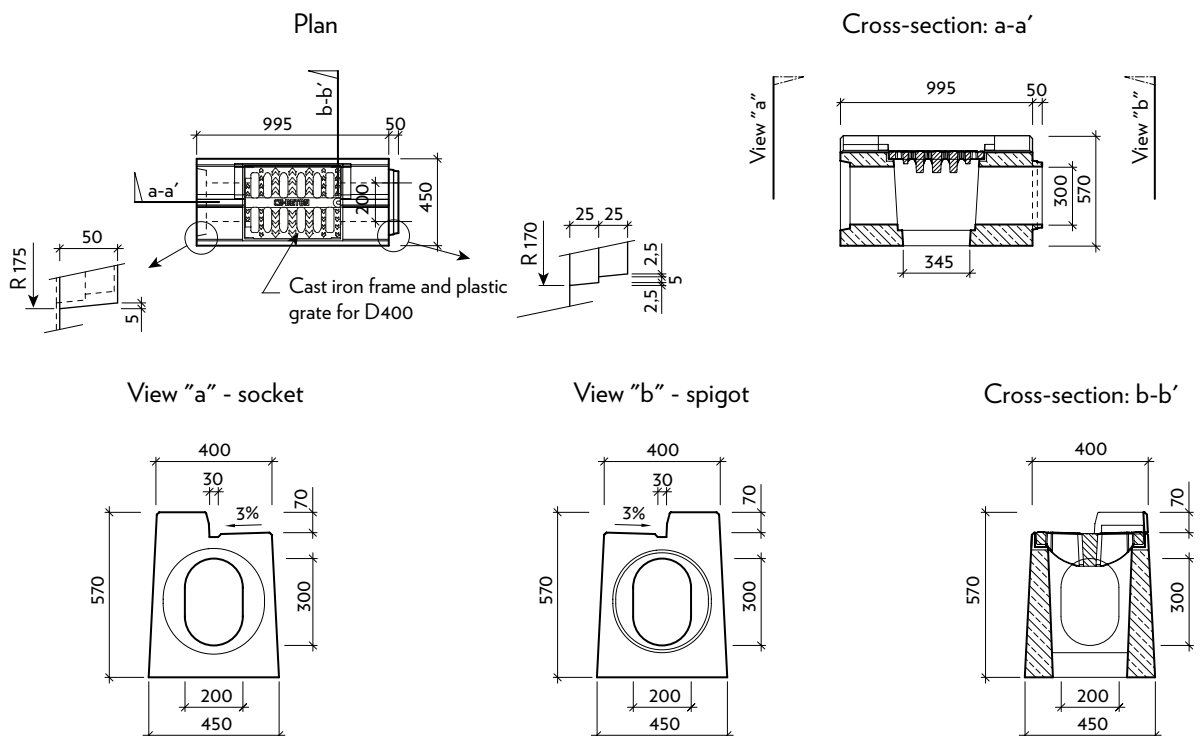
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

I-2-V0 - Left - Basic gully assembly with 7 cm kerbstone with cast iron frame and plastic grate for D400



I-2-V0 - Right - Basic gully assembly with 7 cm kerbstone with cast iron frame and plastic grate for D400

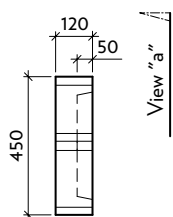


TECHNICAL SHEET (IS03)

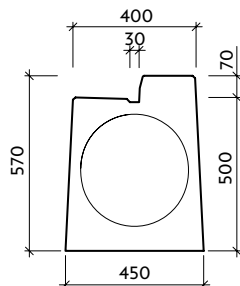
SLOT DRAIN PROFILE I-0-2

I-2-ZZ - Socket end cap - 7 cm kerbstone

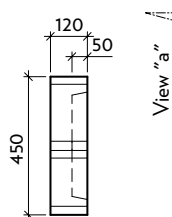
Plan - left



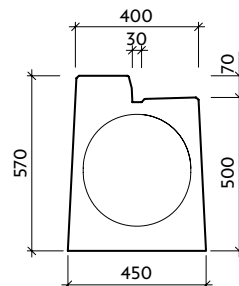
View "a" - left



Plan - right

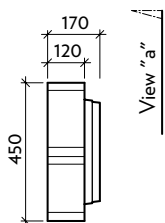


View "a" - right

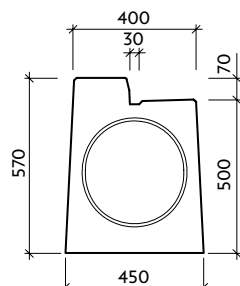


I-2-ZU - Spigot end cap - 7 cm kerbstone

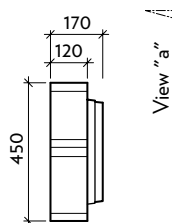
Plan - left



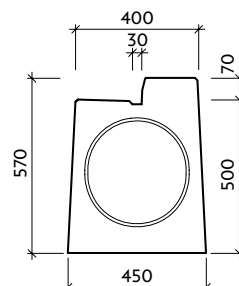
View "a" - left



Plan - right



View "a" - right

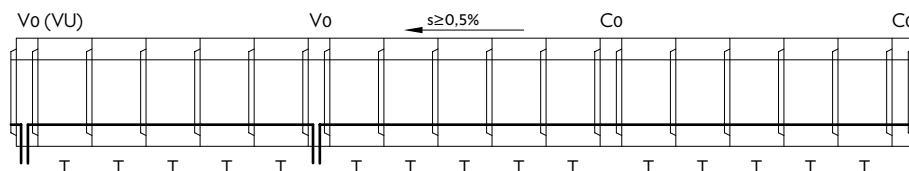


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-2

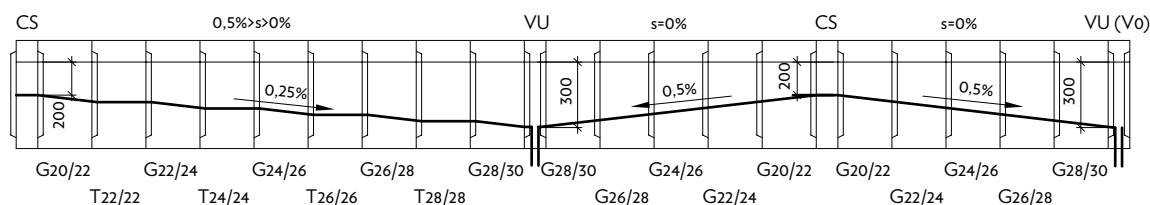
Suggested layout

I-0-2-T Slot drains - layout



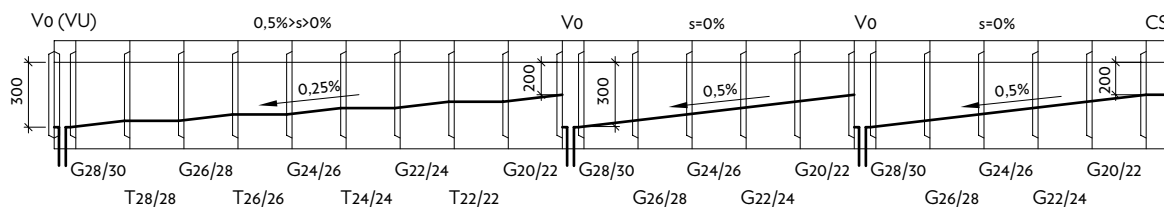
I-0-2-G Slot drains - layout

(slot drain with roof bottom)



I-0-2-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

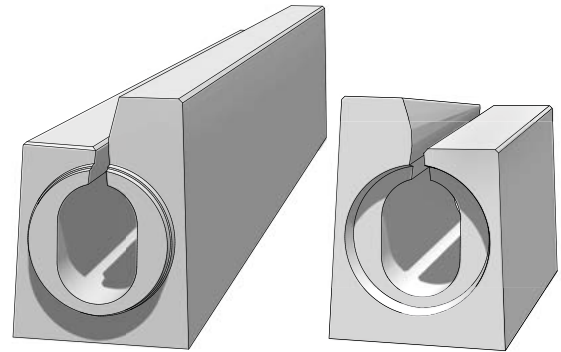
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

Technical data:

Slot drain with a 12 cm high kerbstone. This product is suitable for dividing roads from pavements and/or for use in tunnels. They are available with or without internal gradient (0,5%).

Gradient-to-gradient components are provided for segments with internal gradient. Profile I-0-3 slot drains and slot drains with kerbstones are designed for D400 class traffic load and no transversal vehicle travel.

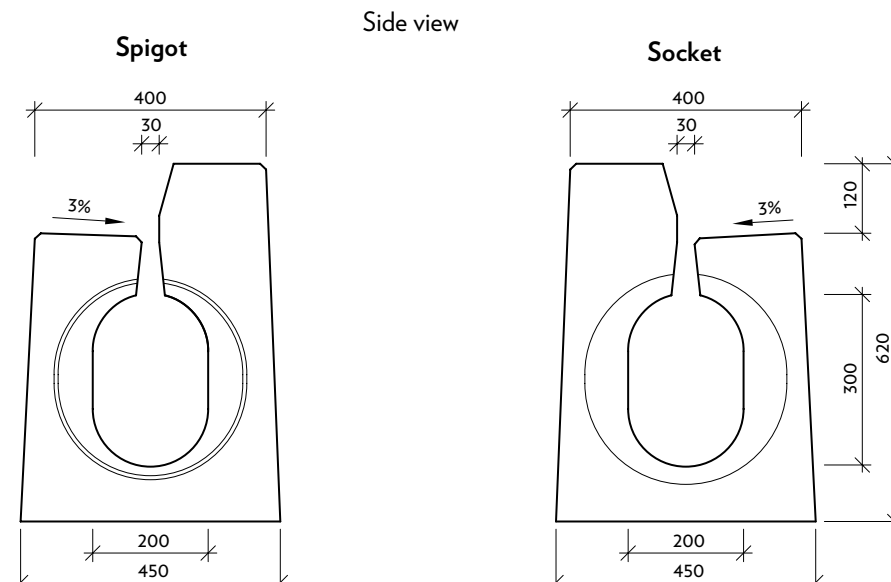


The system consists of the following components:

- 4 m-long slot drains with continuous slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- Fire safety barrier (with siphon)
- Slot drain with rising kerbstone
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity	Weight
			Basic height	Length	Width	pcs/m	pcs
Slot drain with continuous slot and 12 cm kerbstone	I-0-3	VZ	500	4000	400/450	0,25	1704
Slot drain with continuous slot and 12 cm kerbstone, 0,5% flow profile bottom gradient	I-0-3-G	VZ	500	4000	400/450	0,25	1723-1877
Slot drain without internal gradient, with rising kerbstone (left/right: 0-12/12-0 cm)	I-0-3-N	VZ	500	1000	400/450	1	392-439
Basic gully assembly V0	I-0-3-V0	VZ	500	1000	400/450	1	373
Gutter gully assembly VU	I-0-3-VU	VZ	500	1000	400/450	1	364
Basic cleaning segment C0	I-0-3-C0	VZ	500	1000	400/450	1	420
Top cleaning segment CS	I-0-3-CS	VZ	500	1000	400/450	1	468
Fire safety barrier	I-0-3-PP	VZ	950	2000	400/495	0,5	1739
Spigot end cap	I-0-3-ZU	VZ	500	120	400/450	-	76
Socket end cap	I-0-3-ZZ	VZ	500	120	400/450	-	51

Nominal dimensions - basic shapes:

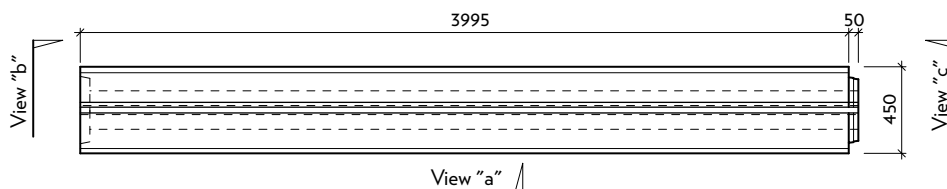


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

I-0-3 - Right - Slot drain

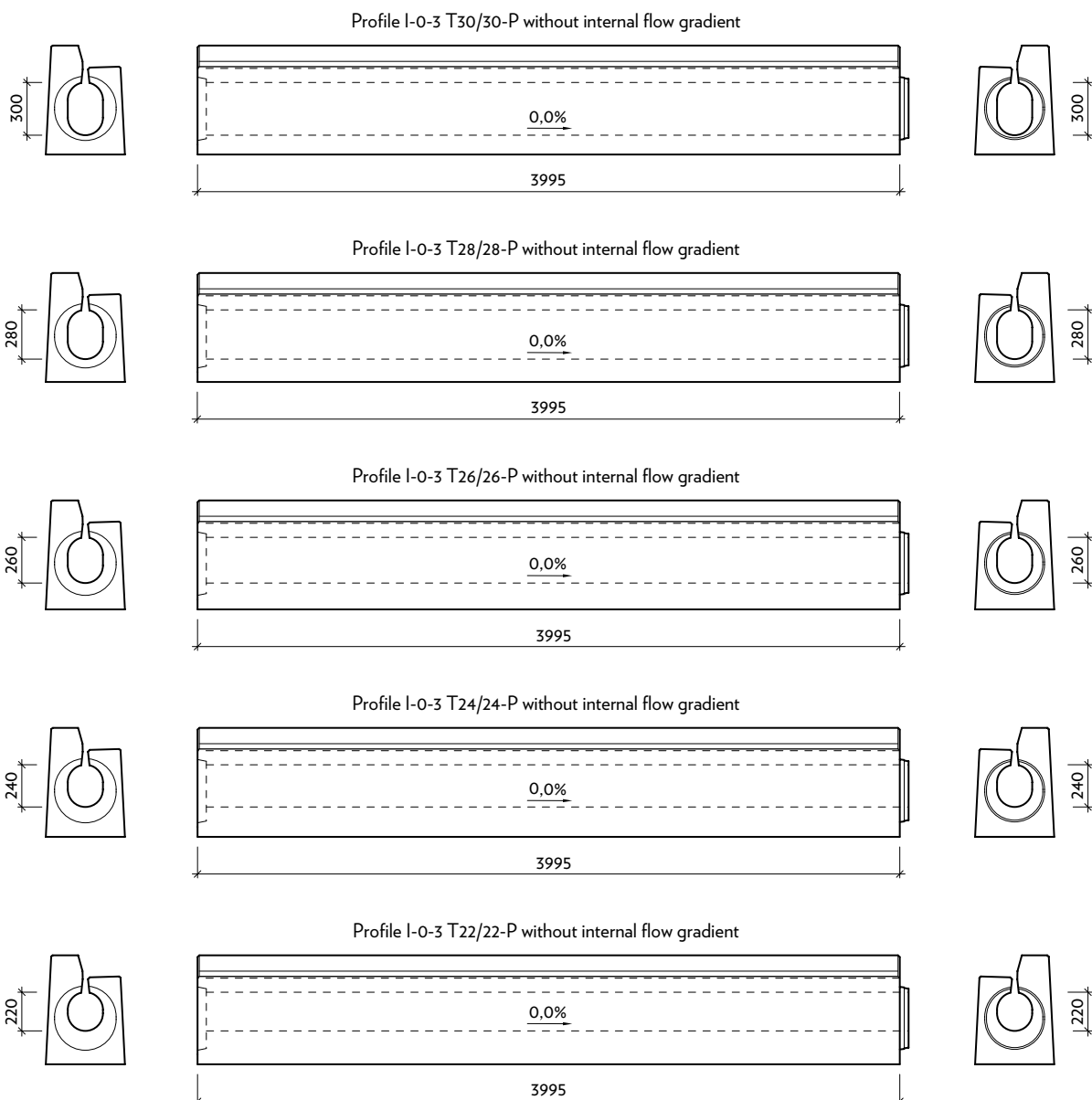
Plan



View "b" - socket

View "a"

View "c" - spigot



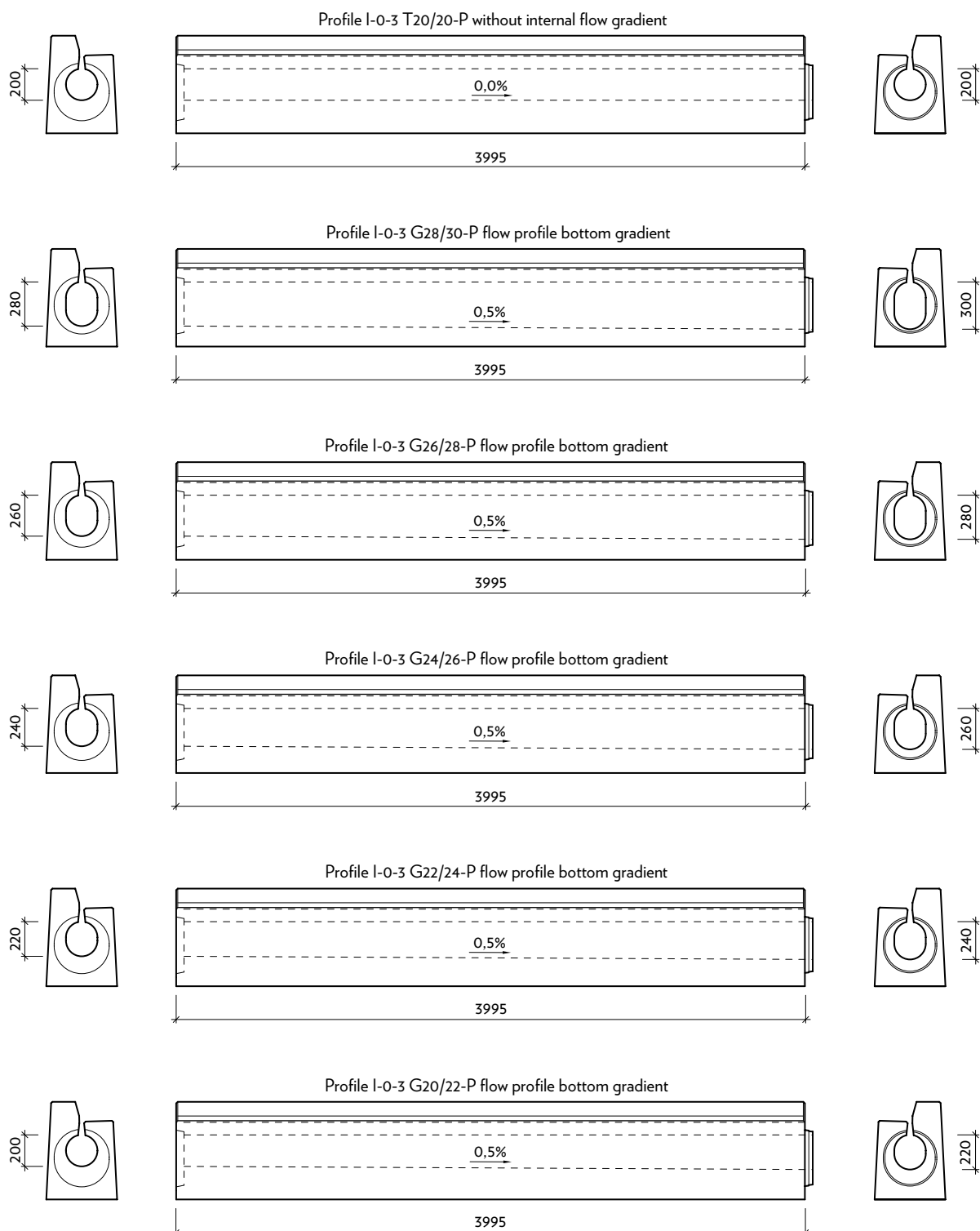
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

View "b" - socket

View "a"

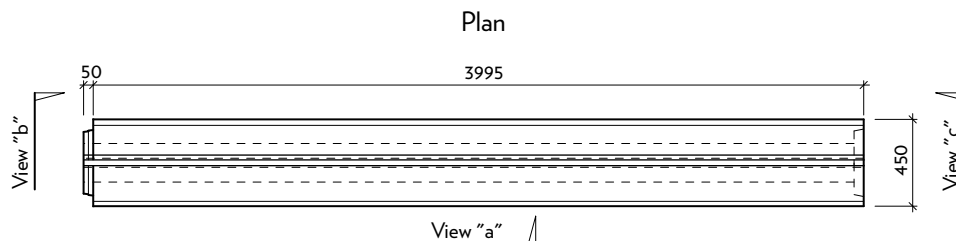
View "c" - spigot



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

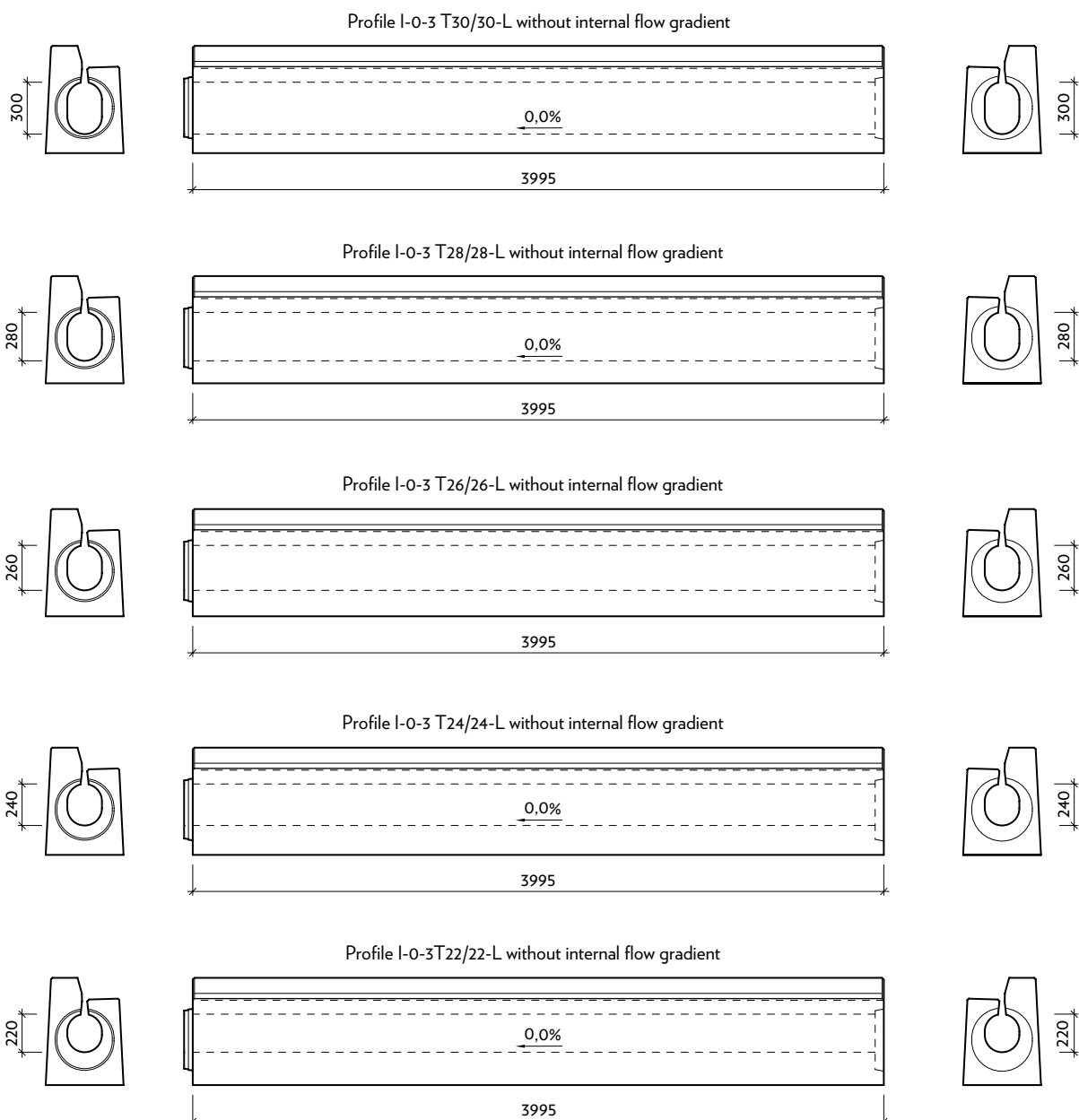
I-0-3 - Left - Slot drain



View "b" - spigot

View "a"

View "c" - socket



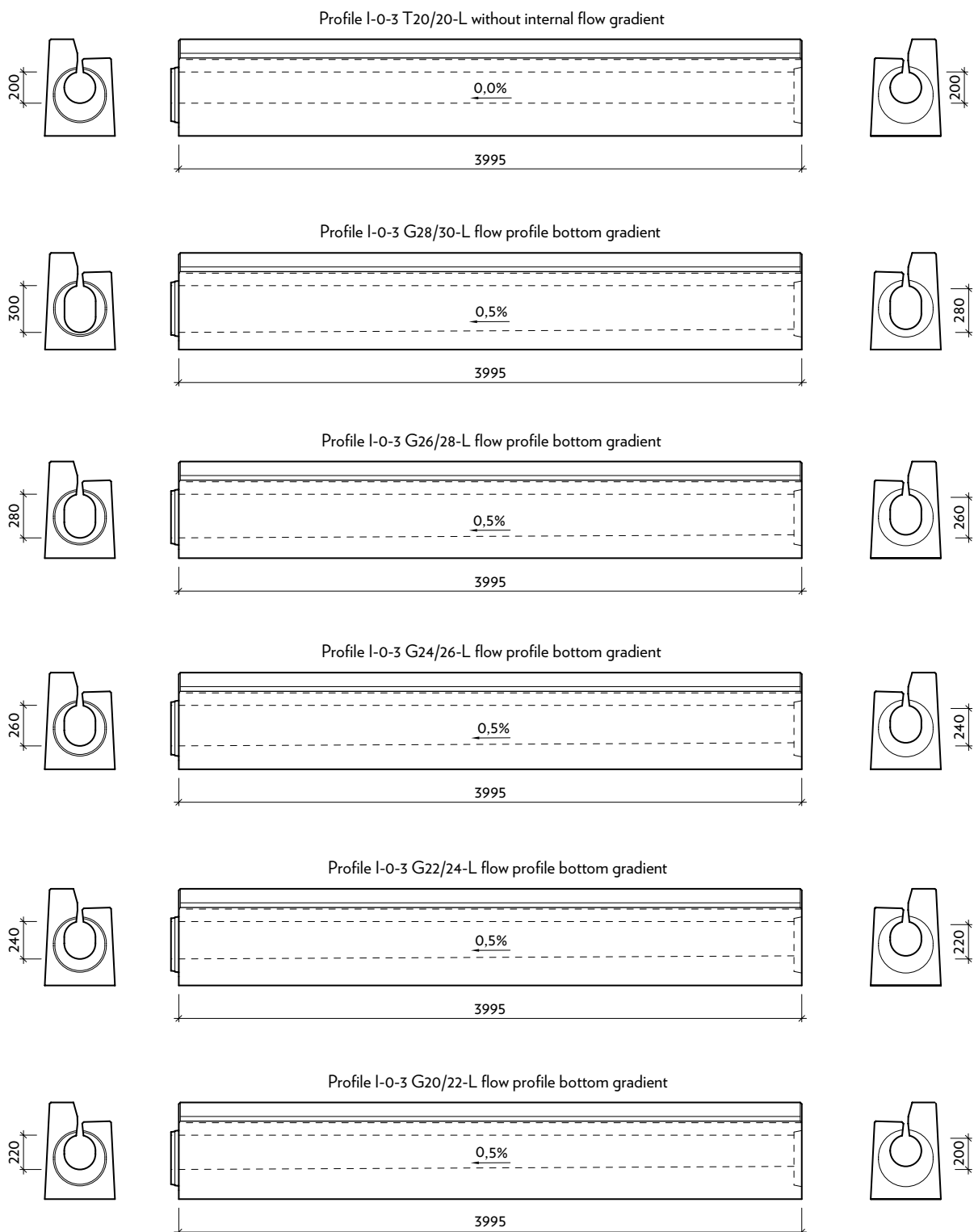
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

View "b" - spigot

View "a"

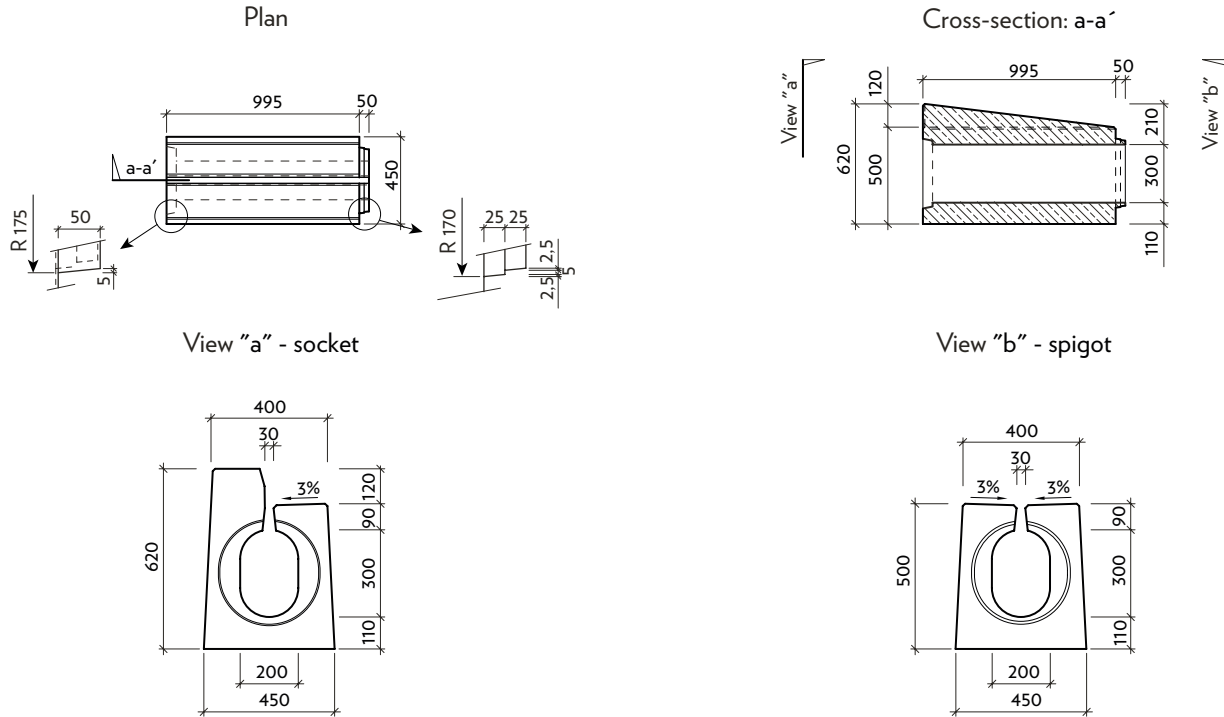
View "c" - socket



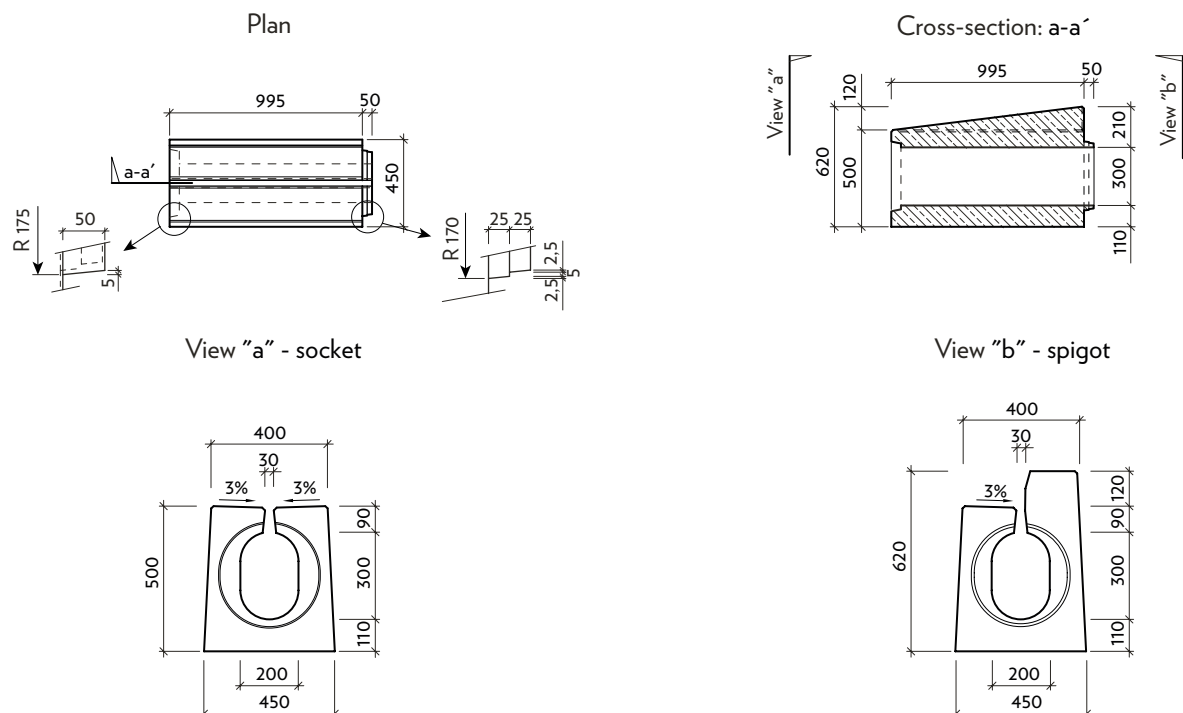
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

I-3-0-N - Right - Slot drain without internal gradient, with rising kerbstone 12-0 cm



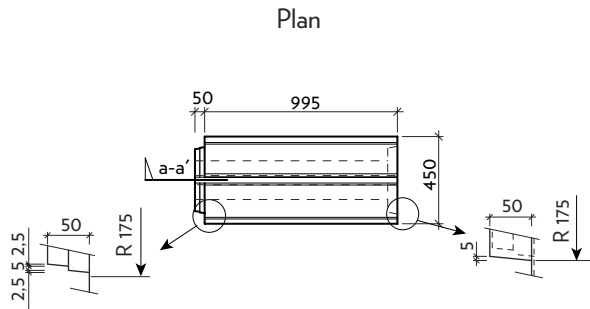
I-0-3-N - Right - Slot drain without internal gradient, with rising kerbstone 0-12 cm



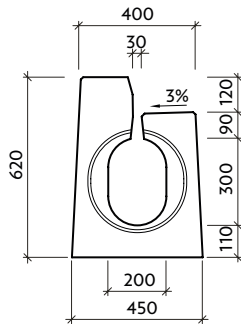
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

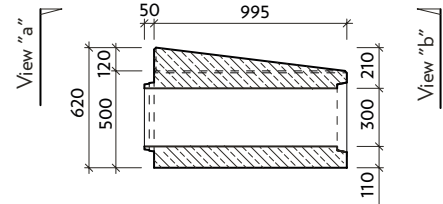
I-3-0-N - Left - Slot drain without internal gradient, with rising kerbstone 12-0 cm



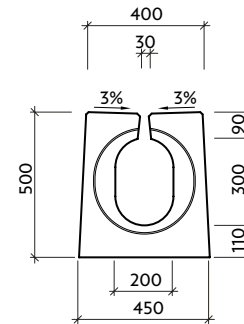
View "a" - spigot



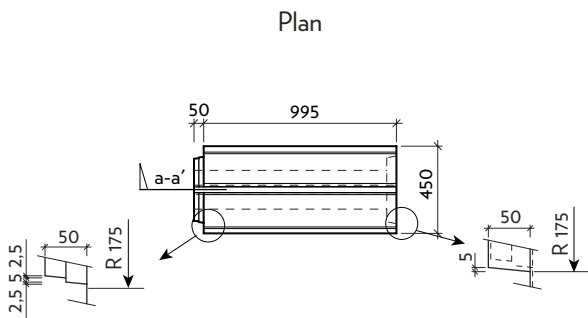
Cross-section: a-a'



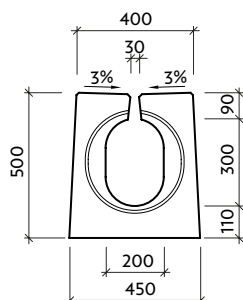
View "b" - socket



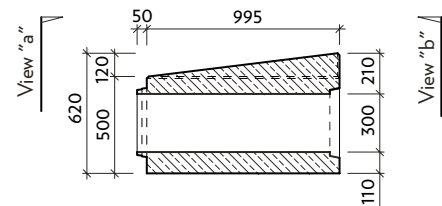
I-0-3-N - Left - Slot drain without internal gradient, with rising kerbstone 0-12 cm



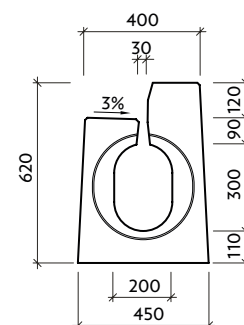
View "a" - spigot



Cross-section: a-a'



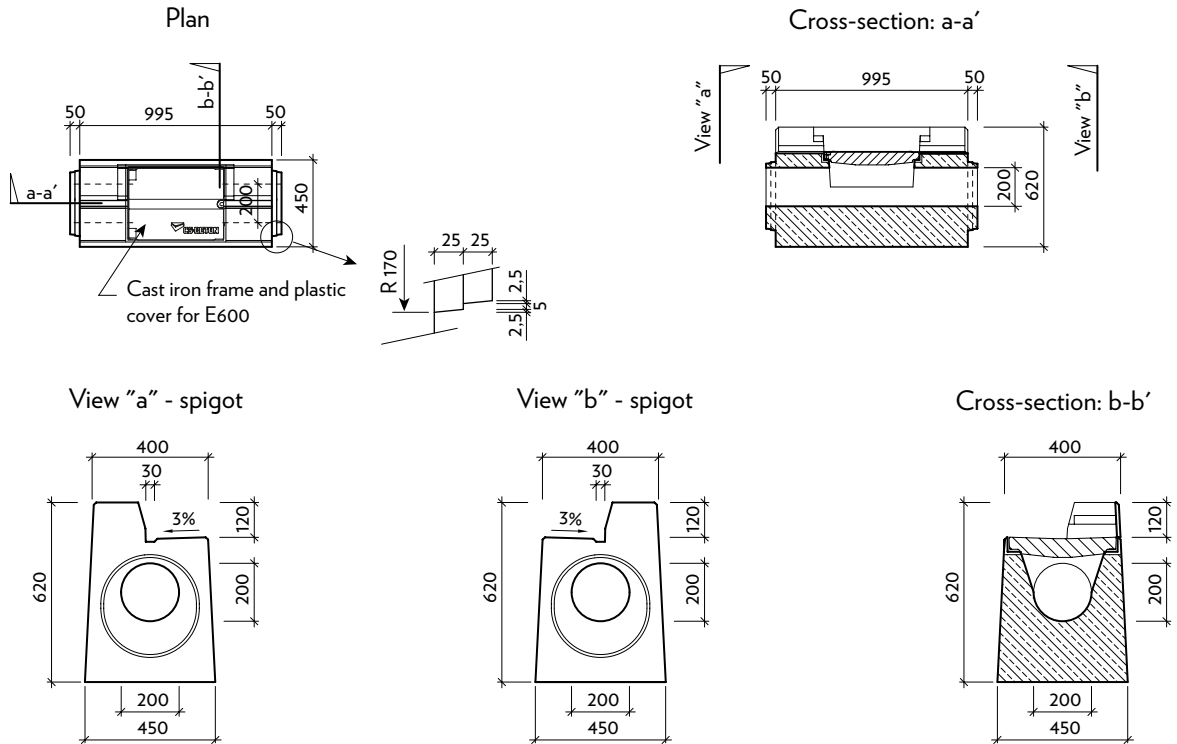
View "b" - socket



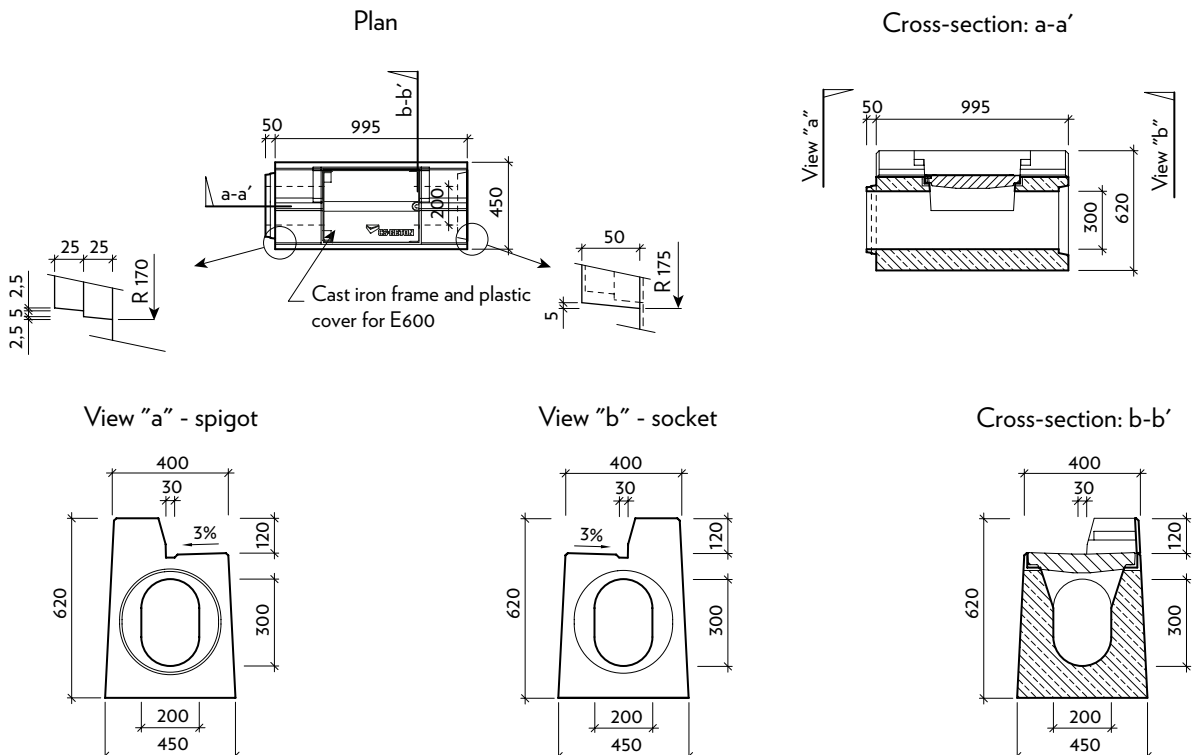
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

I-3-CS - Top cleaning segment with cast iron grille and plastic cover for F600 - 12 cm kerbstone



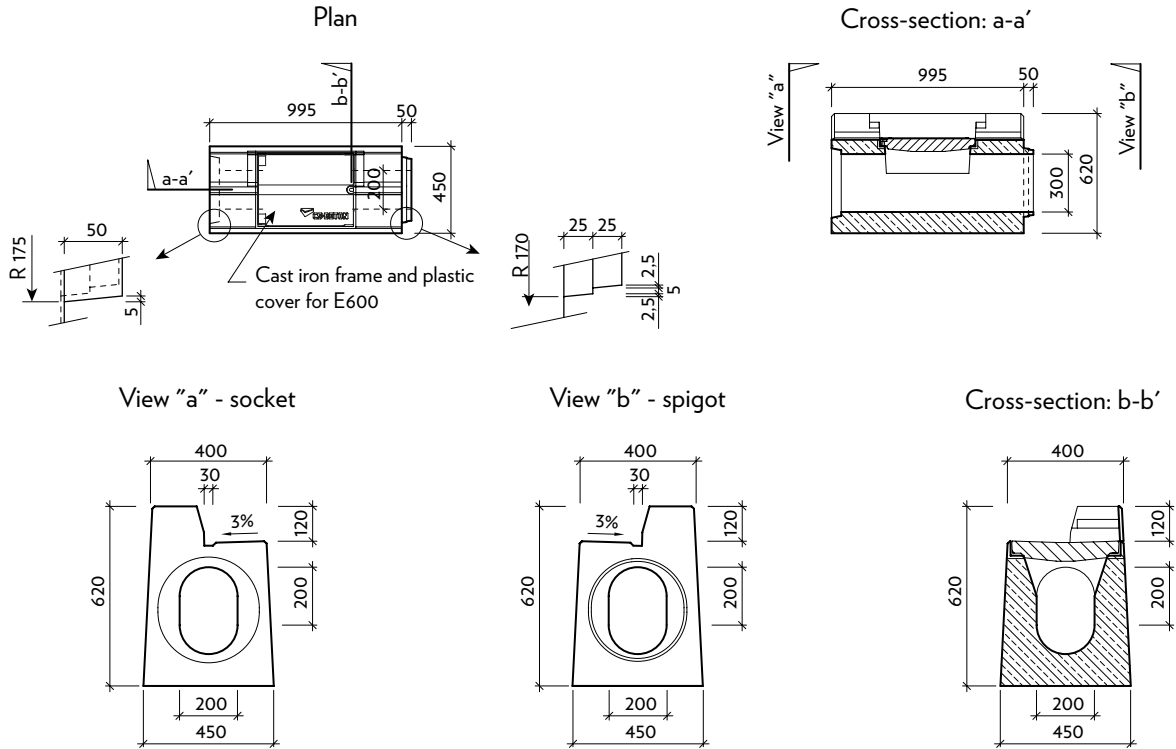
I-3-C0 - Left - Basic cleaning segment with cast iron frame and plastic cover for E600 - 12 cm kerbstone



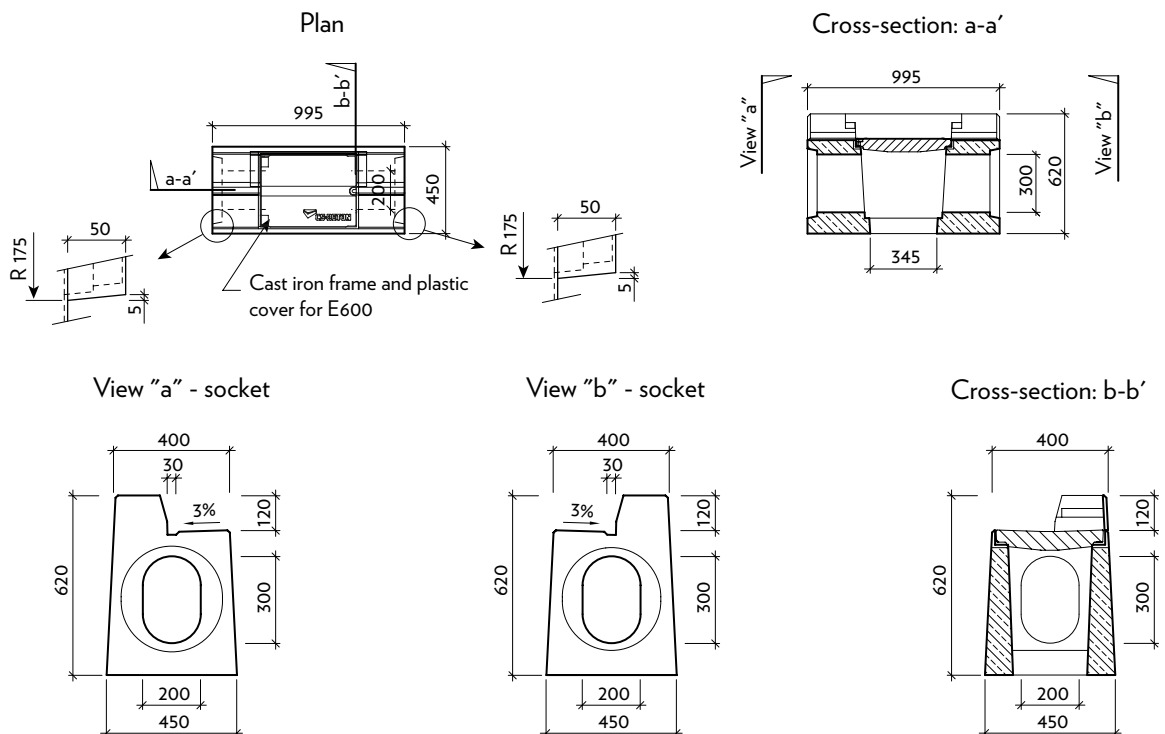
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

I-3-C0 - Right - Basic cleaning segment with cast iron frame and plastic cover for E600 - 12 cm kerbstone



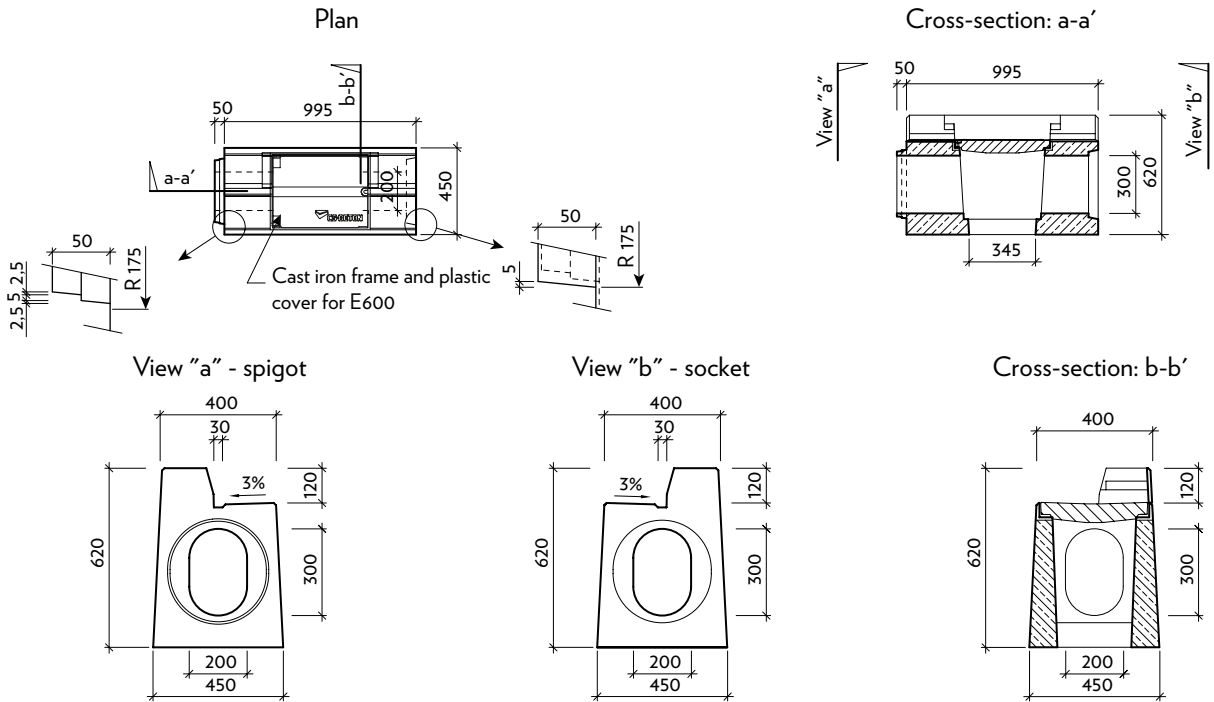
I-3-VU - Gutter gully assembly with cast iron grille and plastic cover for E600 - 12 cm kerbstone



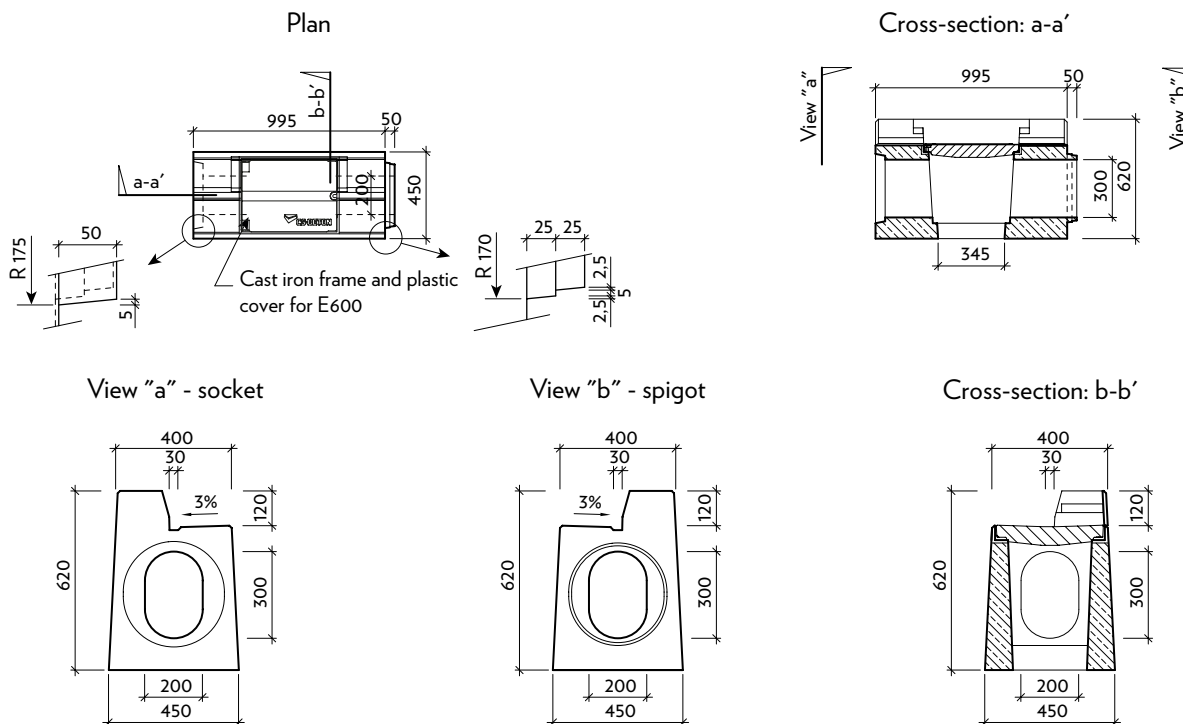
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

I-3-V0 - Left - Basic gully assembly with 12 cm kerbstone with cast iron frame and plastic cover for E600



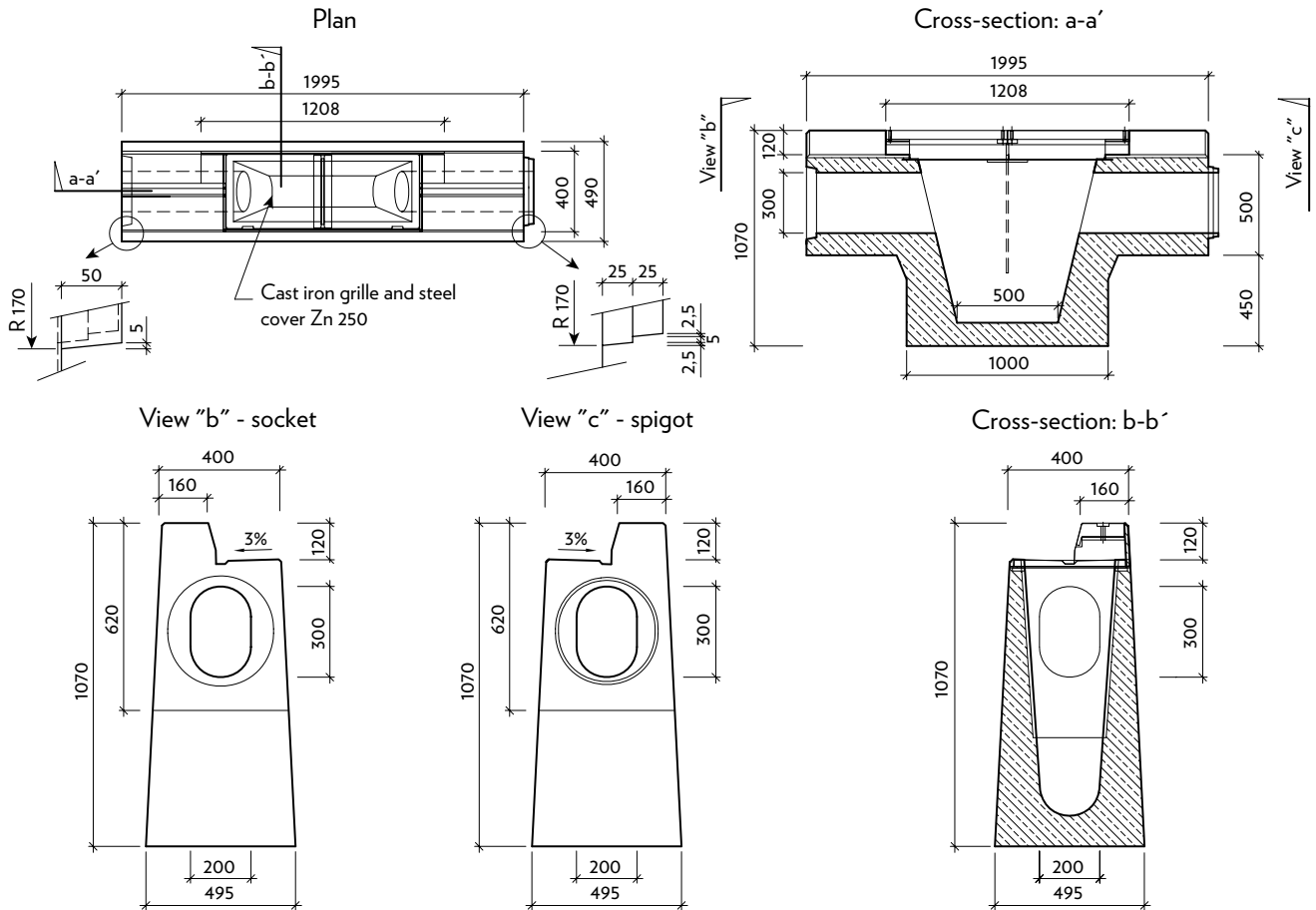
I-3-V0 - Right - Basic gully assembly with 12 cm kerbstone with cast iron frame and plastic cover for E600



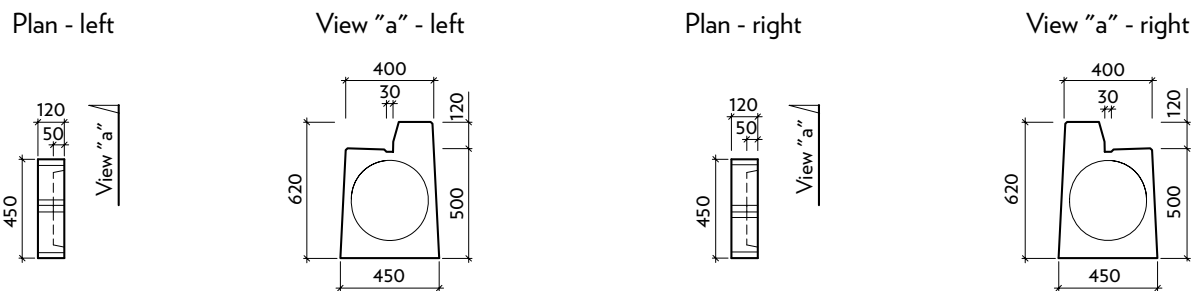
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

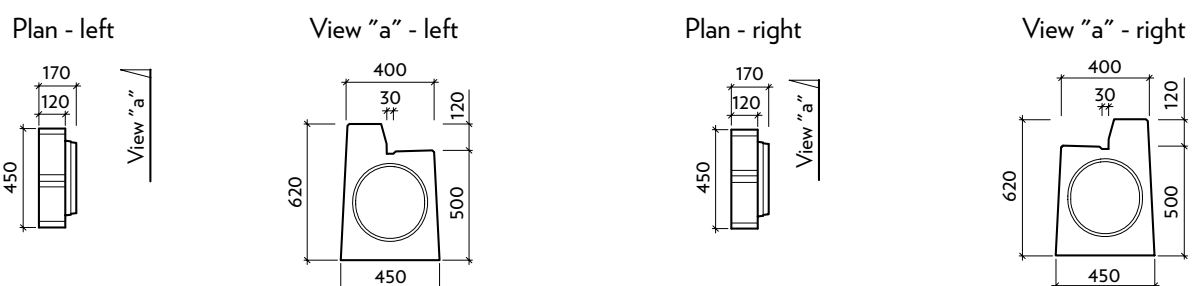
I-3-PP - Right - Fire safety barrier with cast iron grille and steel cover - 12 cm kerbstone



I-ZU - Socket end cap - 12 cm kerbstone



I-ZU - Spigot end cap - 12 cm kerbstone

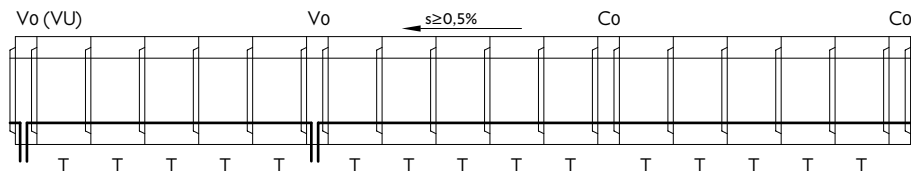


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-3

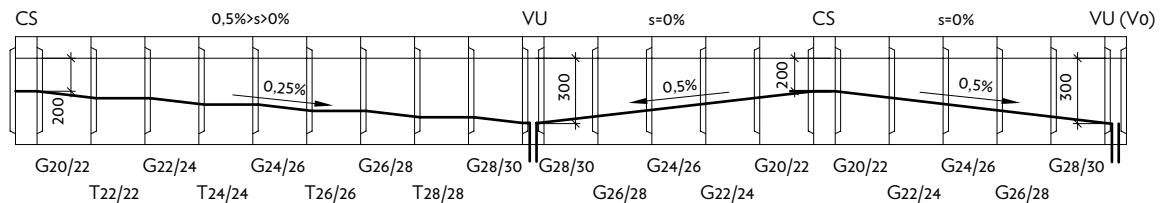
Suggested layout

I-0-3-T Slot drains - layout



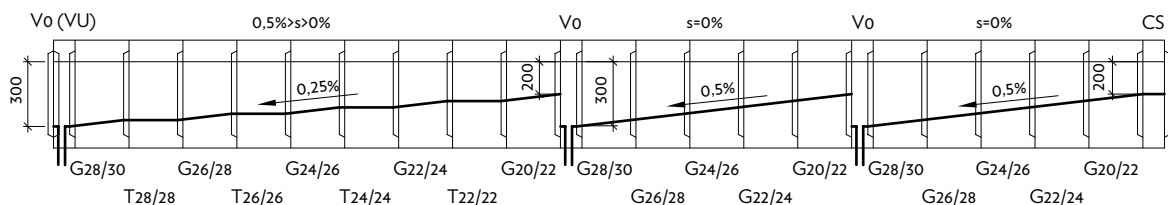
I-0-3-G Slot drains - layout

(slot drain with roof bottom)



I-0-3-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

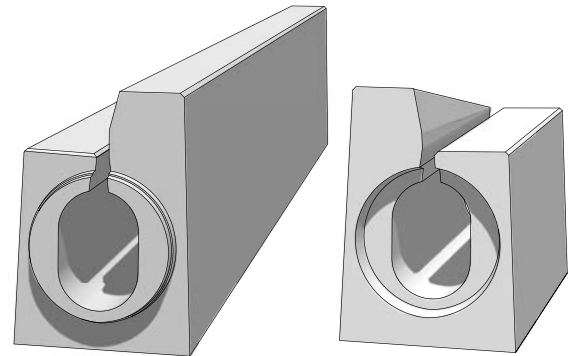
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

Technical data:

Slot drain with a 15 cm high kerbstone. This product is suitable for dividing roads from pavements and for use in tunnels. They are available with or without internal gradient (0.5%).

Gradient-to-gradient components are provided for segments with internal gradient. Profile I-0-4 slot drains and slot drains with kerbstones are designed for D400 class traffic load and no transversal vehicle travel.



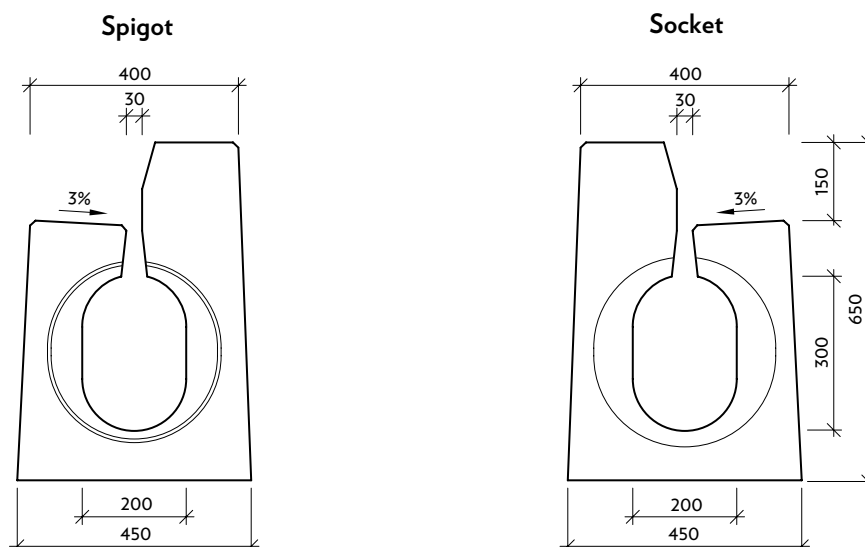
The system consists of the following components:

- 4 m-long slot drains with continuous slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- Fire safety barrier (with siphon)
- Slot drain with rising kerbstone
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with continuous slot and 15 cm kerbstone	I-0-4	VZ	500	4000	400/450	0,25	1710-1898
Slot drain with continuous slot and 15 cm kerbstone, 0,5% flow profile bottom gradient	I-0-4-G	VZ	500	4000	400/450	0,25	1730-1898
Slot drain without internal gradient, with rising kerbstone (left/right: 0-15/15-0 cm)	I-0-4 N	VZ	500	1000	400/450	1	398-445
Basic gully assembly V0	I-0-4-V0	VZ	500	1000	400/450	1	385
Gutter gully assembly VU	I-0-4-VU	VZ	500	1000	400/450	1	377
Basic cleaning segment C0	I-0-4-C0	VZ	500	1000	400/450	1	432
Top cleaning segment CS	I-0-4-CS	VZ	500	1000	400/450	1	514
Fire safety barrier	I-0-4-PP	VZ	950	2000	400/495	0,5	1728
Spigot end cap	I-0-4-ZU	VZ	500	120	400/450	-	76
Socket end cap	I-0-4-ZZ	VZ	500	120	400/450	-	51

Nominal dimensions - basic shapes:

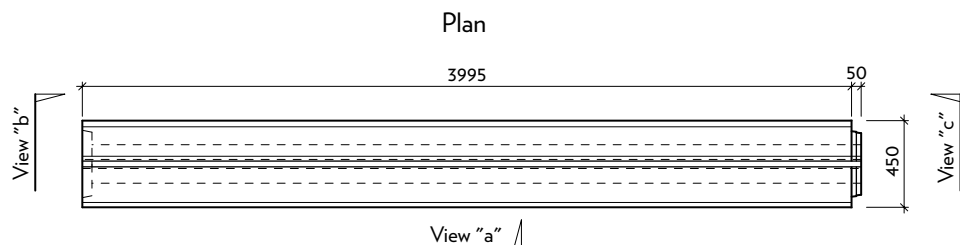
Side view



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

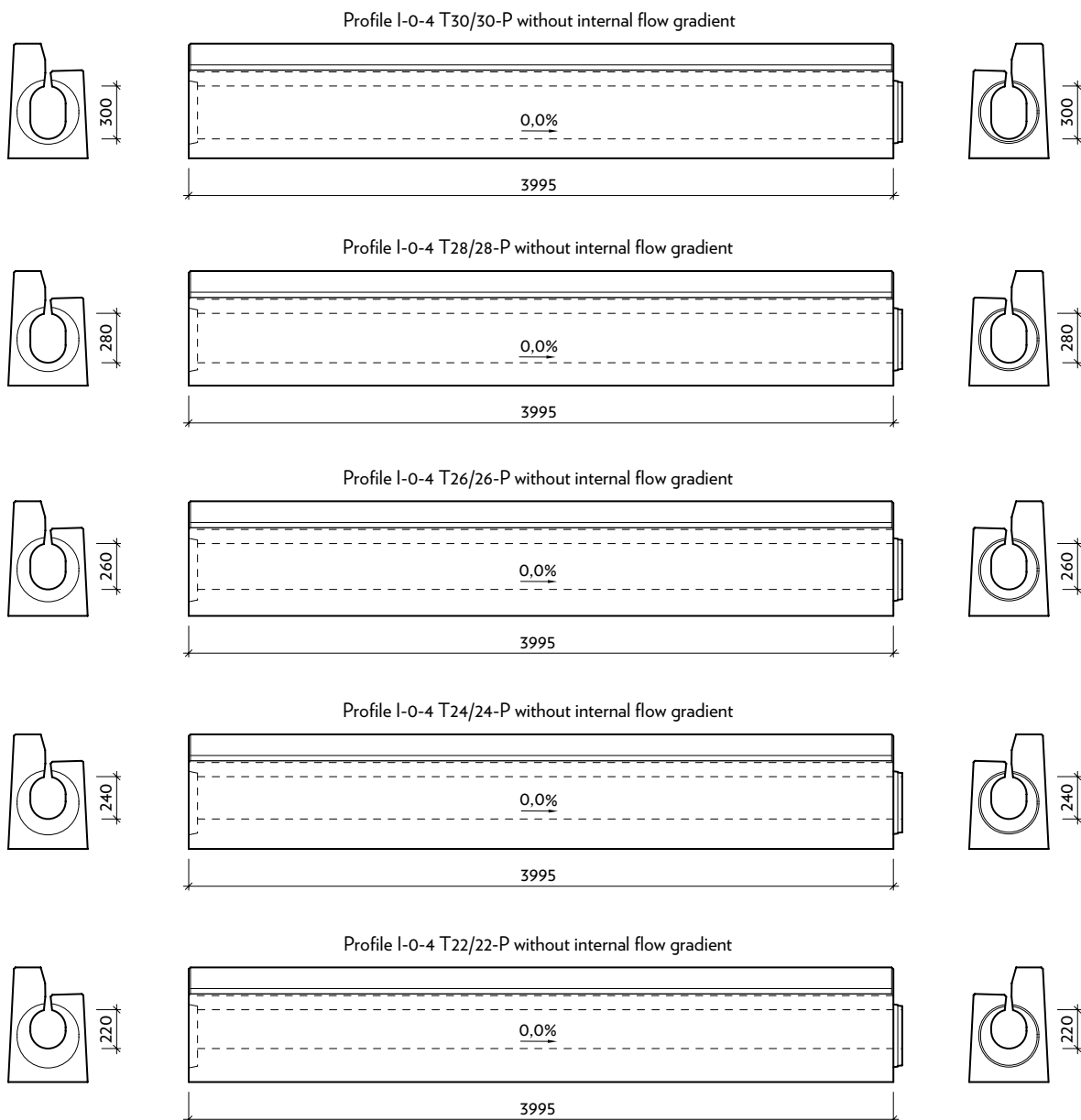
I-0-4 - Right - Slot drain



View "b" - socket

View "a"

View "c" - spigot



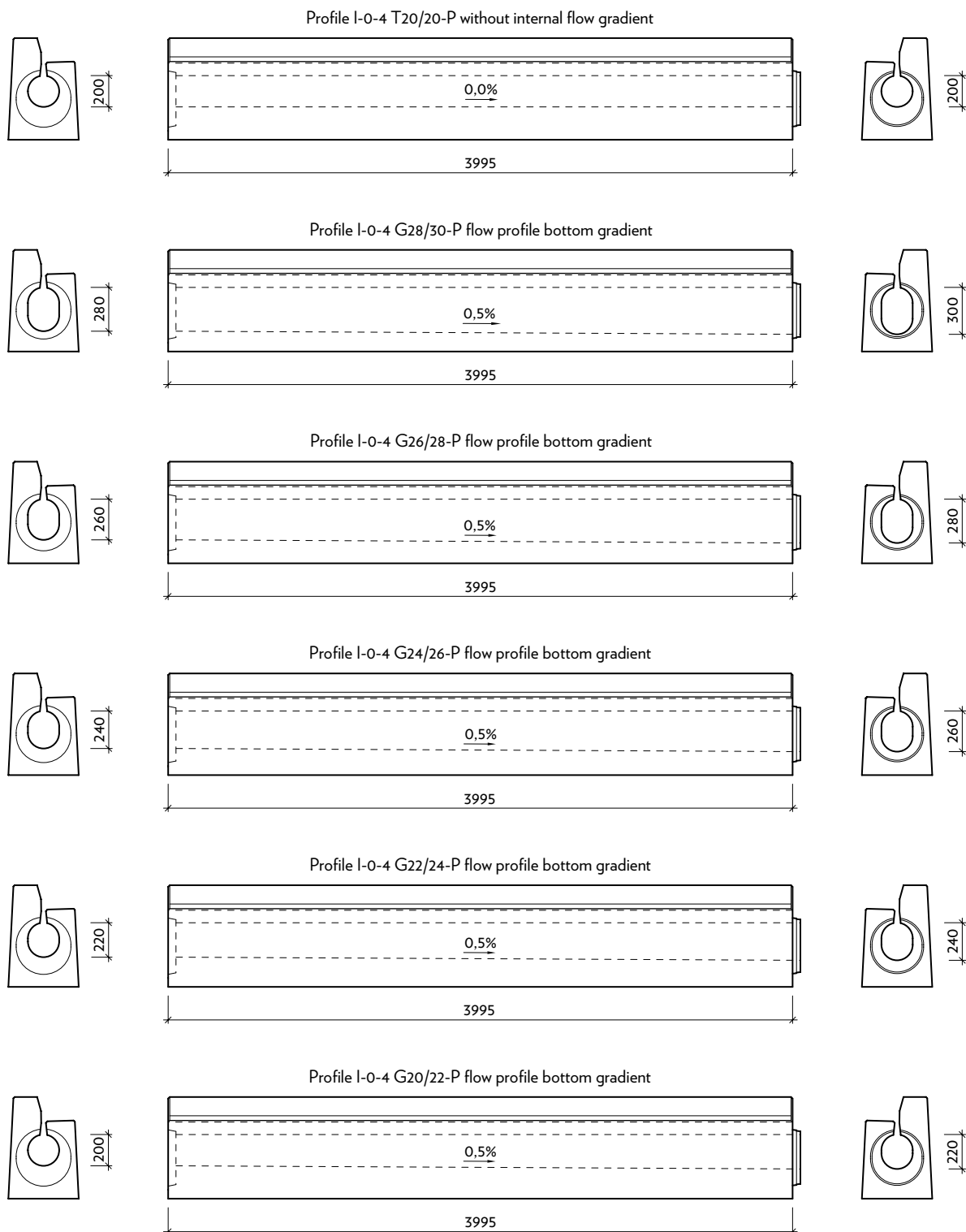
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

View "b" - socket

View "a"

View "c" - spigot

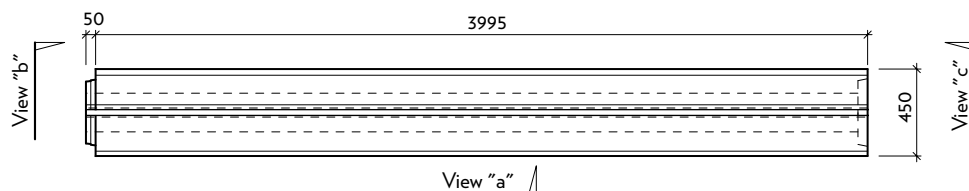


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

I-0-4 - Left - Slot drain

Plan

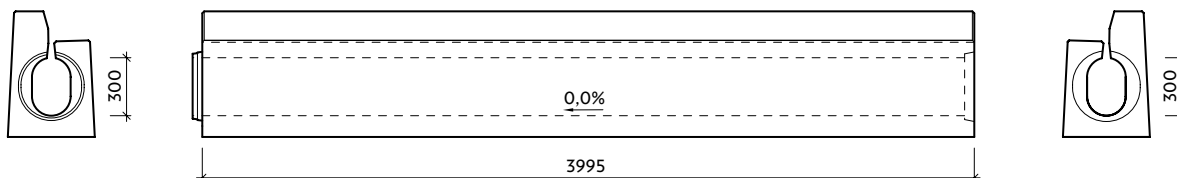


View "b" - spigot

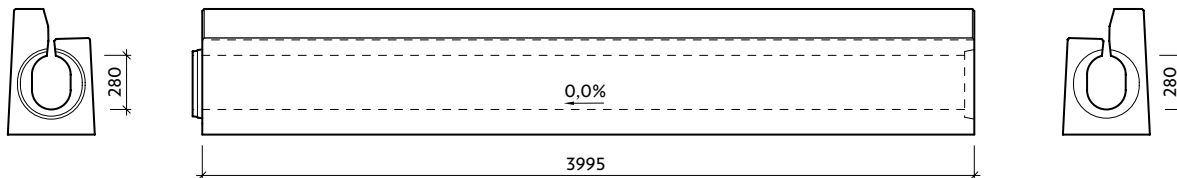
View "a"

View "c" - socket

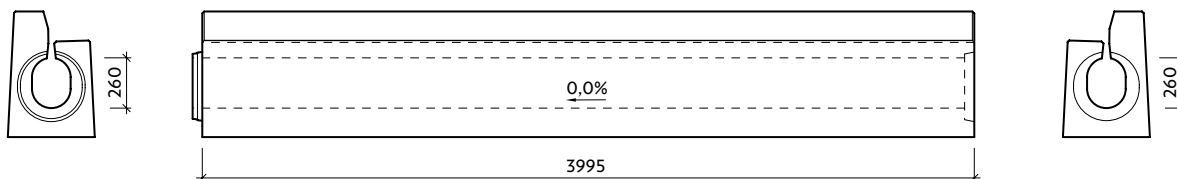
Profile I-0-4 T30/30-L without internal flow gradient



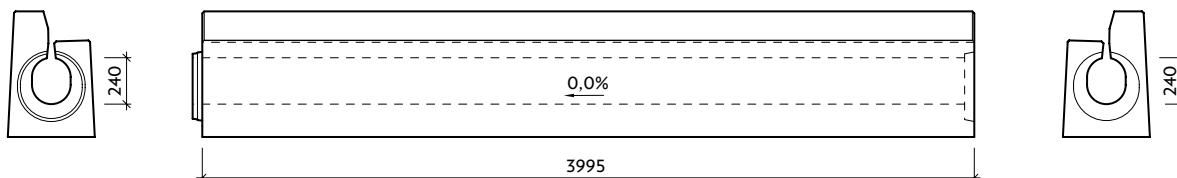
Profile I-0-4 T28/28-L without internal flow gradient



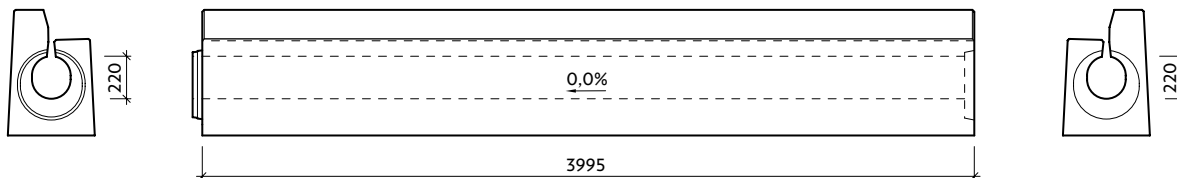
Profile I-0-4 T26/26-L without internal flow gradient



Profile I-0-4 T24/24-L without internal flow gradient



Profile I-0-4 T22/22-L without internal flow gradient



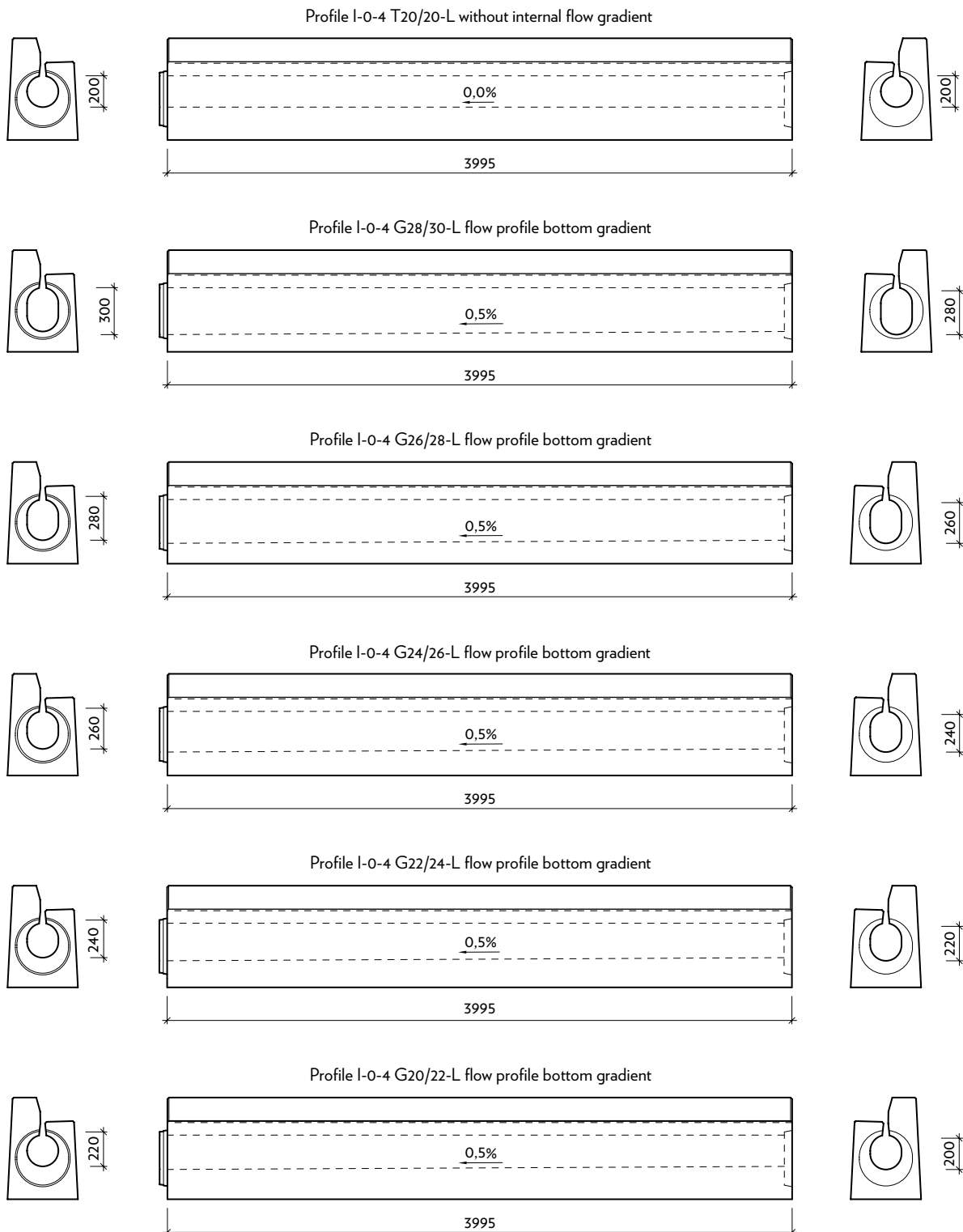
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

View "b" - spigot

View "a"

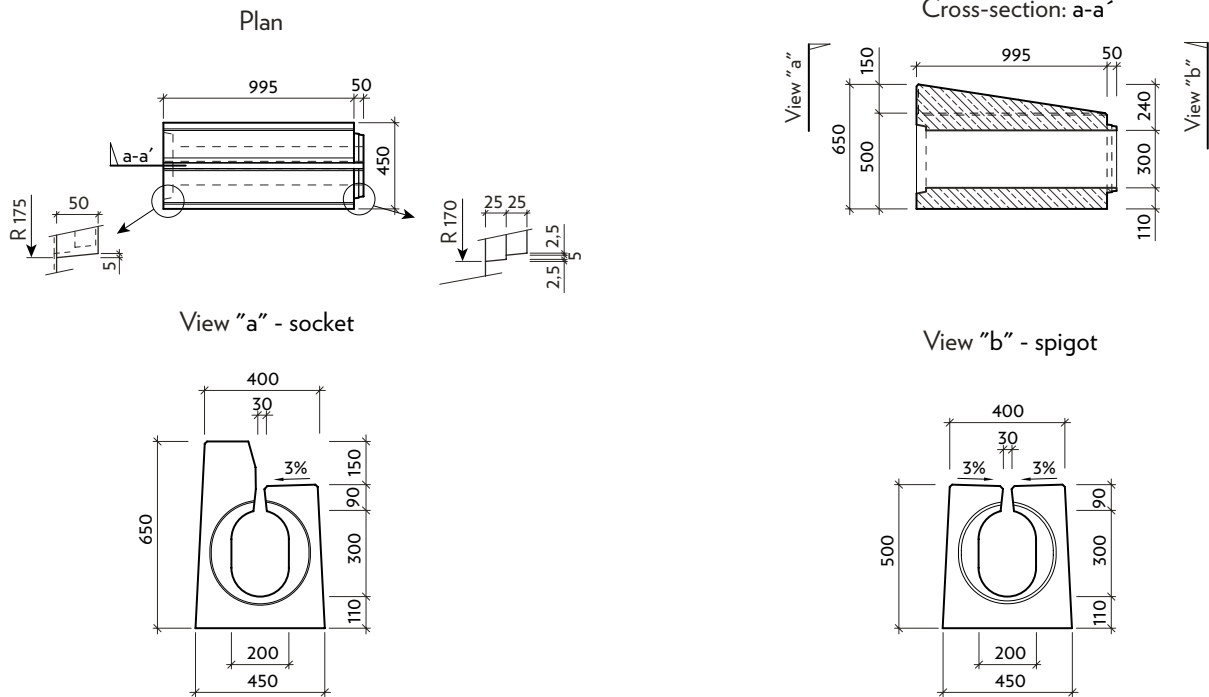
View "c" - socket



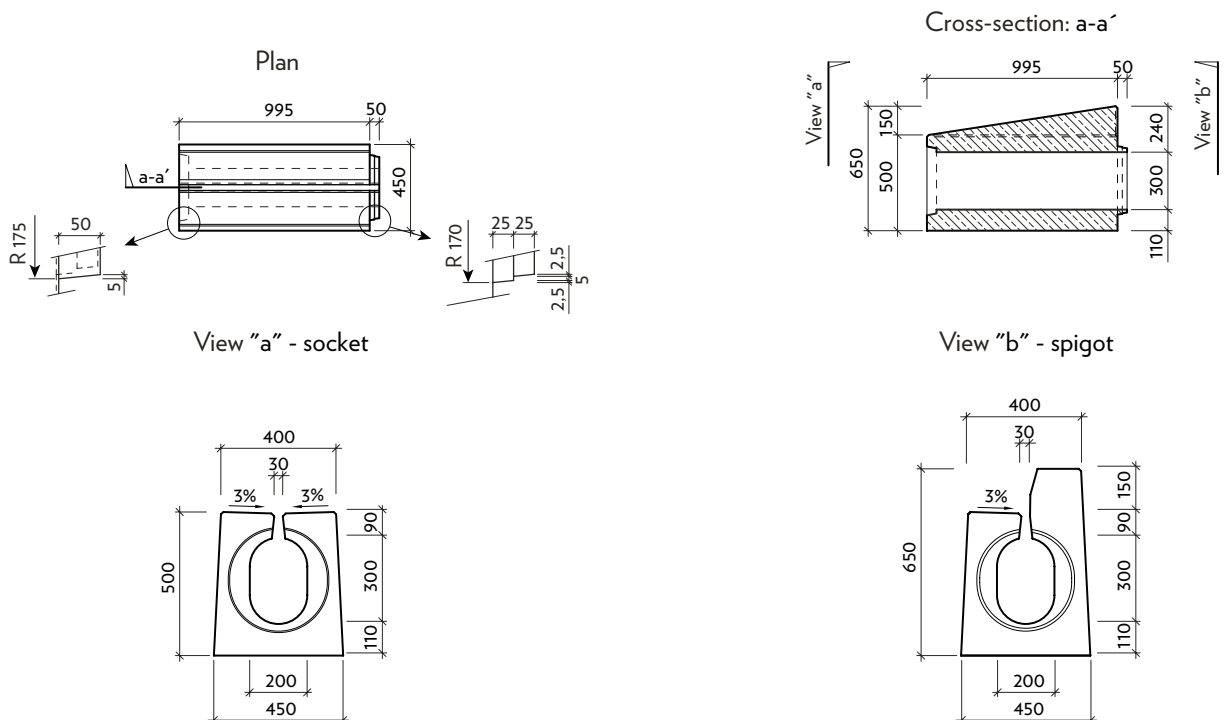
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

I-4-0-N - Right - Slot drain without internal gradient, with rising kerbstone 15-0 cm



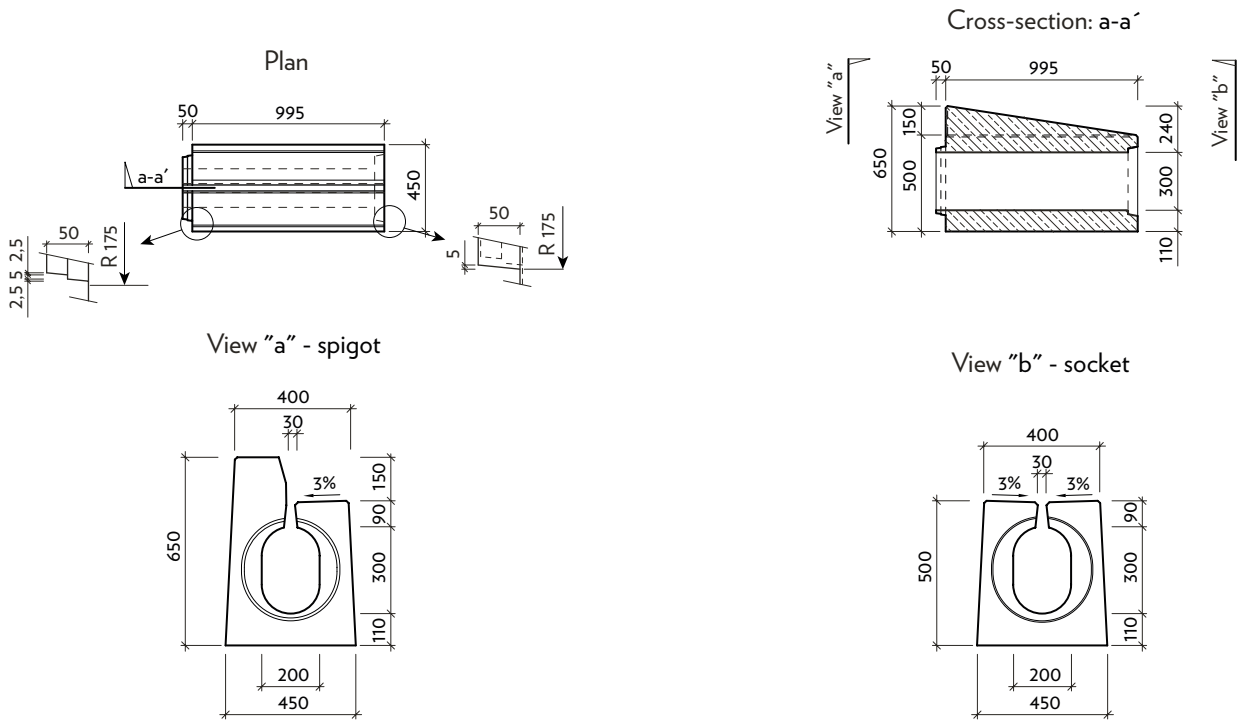
I-0-4-N - Right - Slot drain without internal gradient, with rising kerbstone 0-15 cm



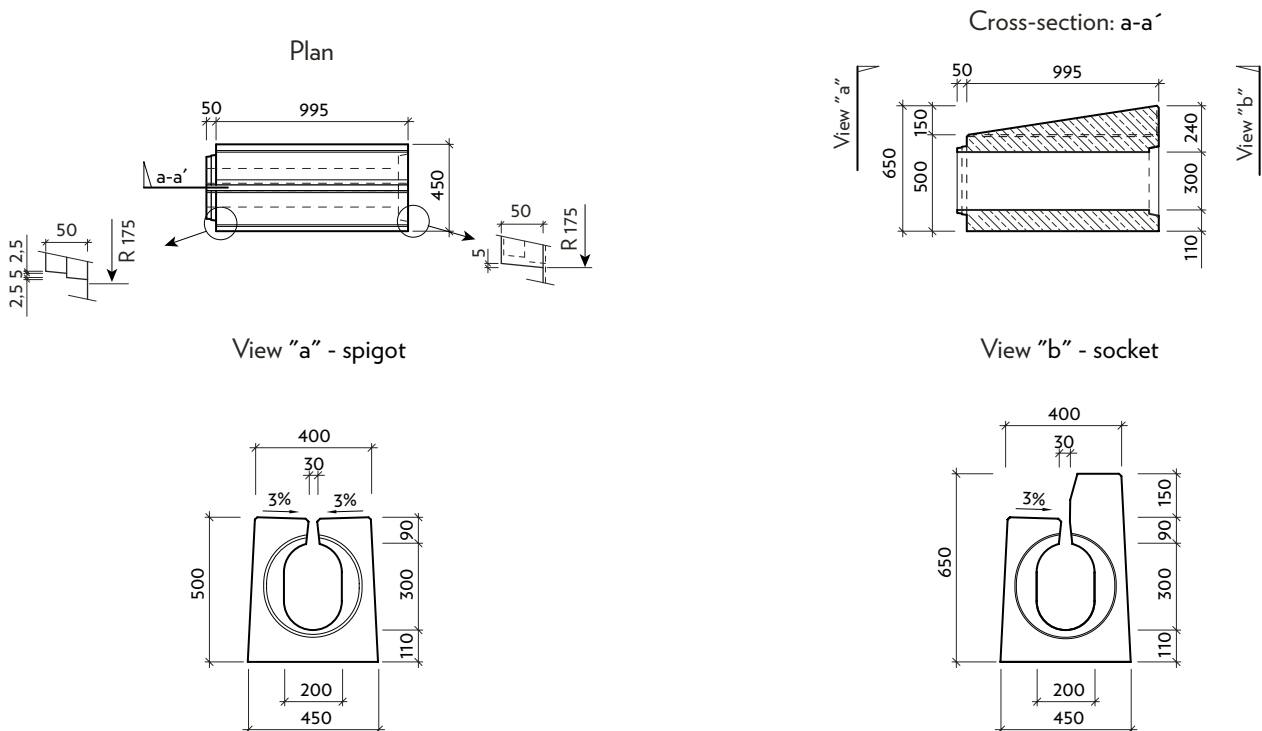
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

I-4-0-N - Left - Slot drain without internal gradient, with rising kerbstone 15-0 cm



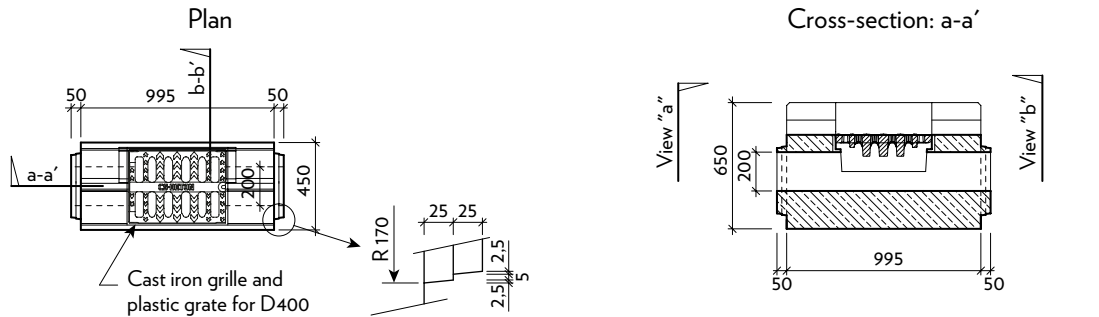
I-0-4-N - Left - Slot drain without internal gradient, with rising kerbstone 0-15 cm



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

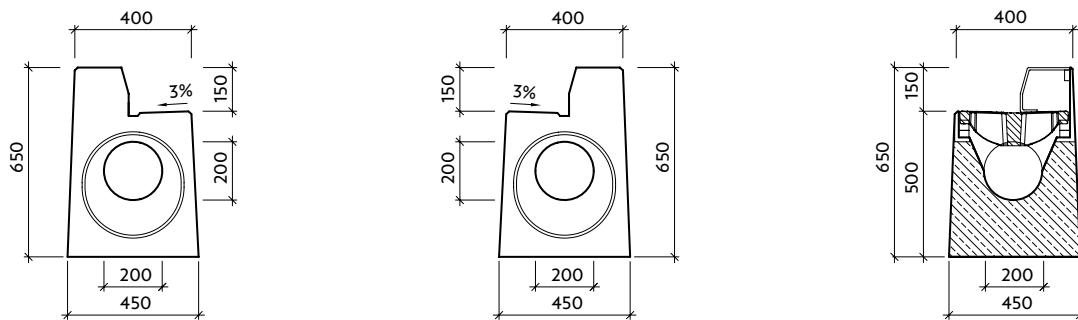
I-4-CS - Top cleaning segment with cast iron grille and plastic grate for D400 - 15 cm kerbstone



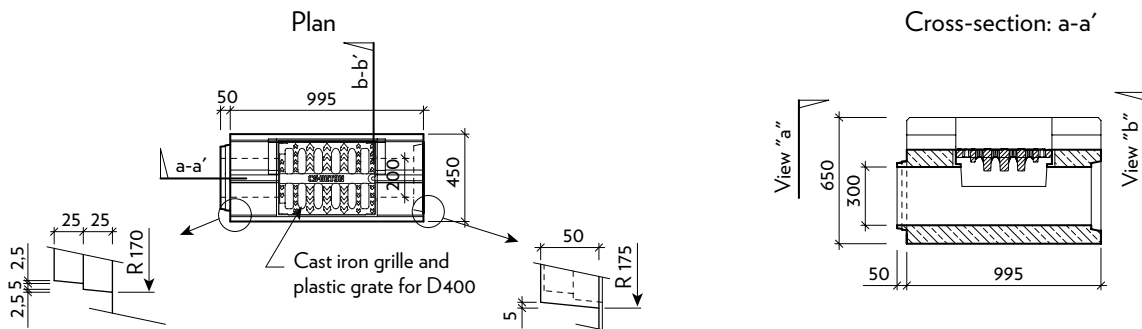
View "a" - spigot/spigot

View "b" - spigot/spigot

Cross-section: b-b'



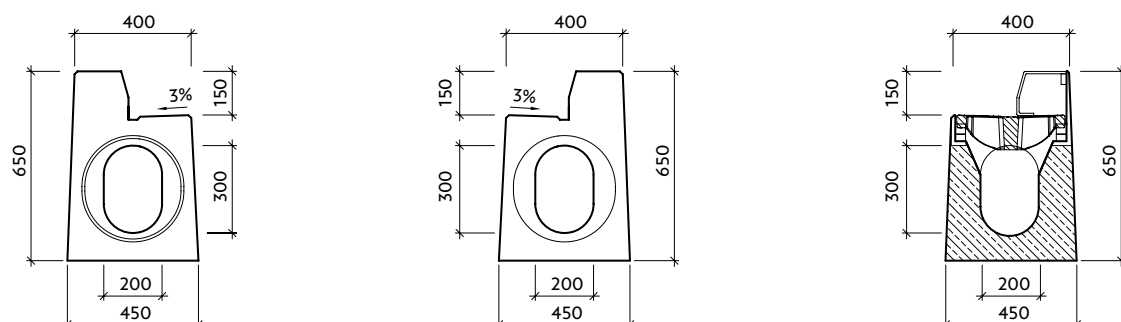
I-4-C0 - Left - Basic cleaning segment with cast iron frame and plastic grate for D400 - 15 cm kerbstone



View "a" - spigot

View "b" - socket

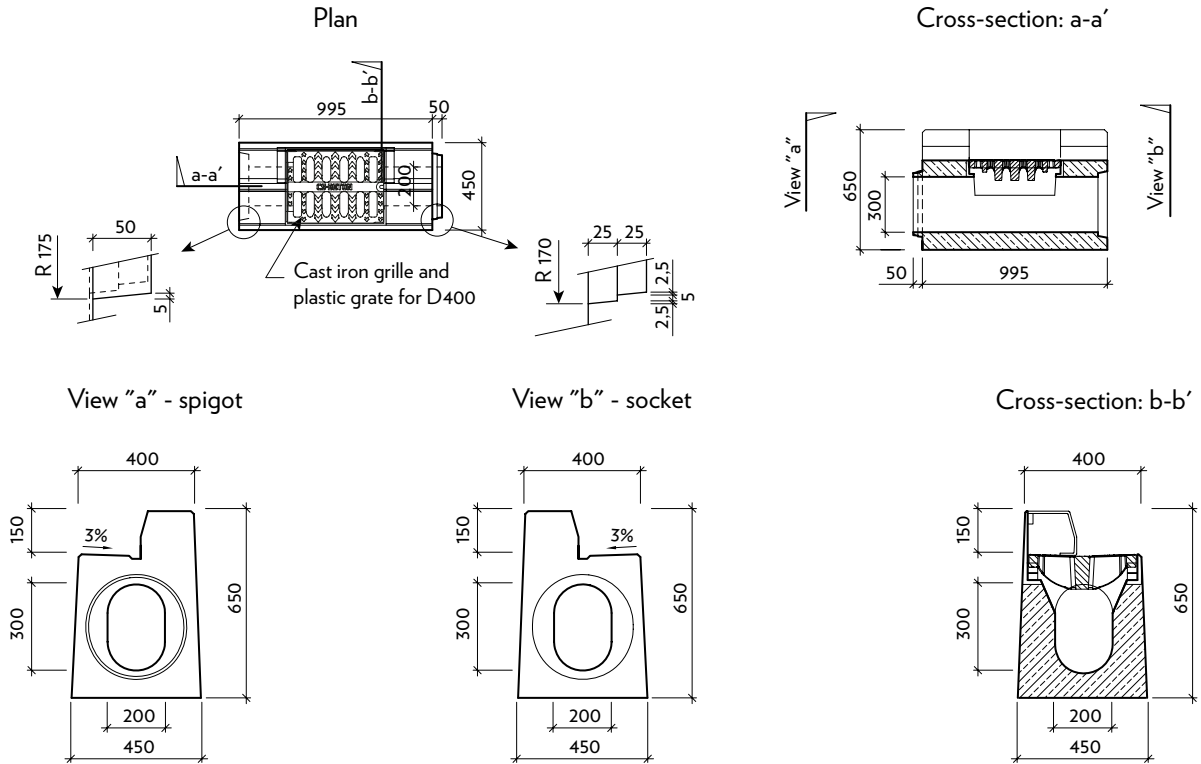
Cross-section: b-b'



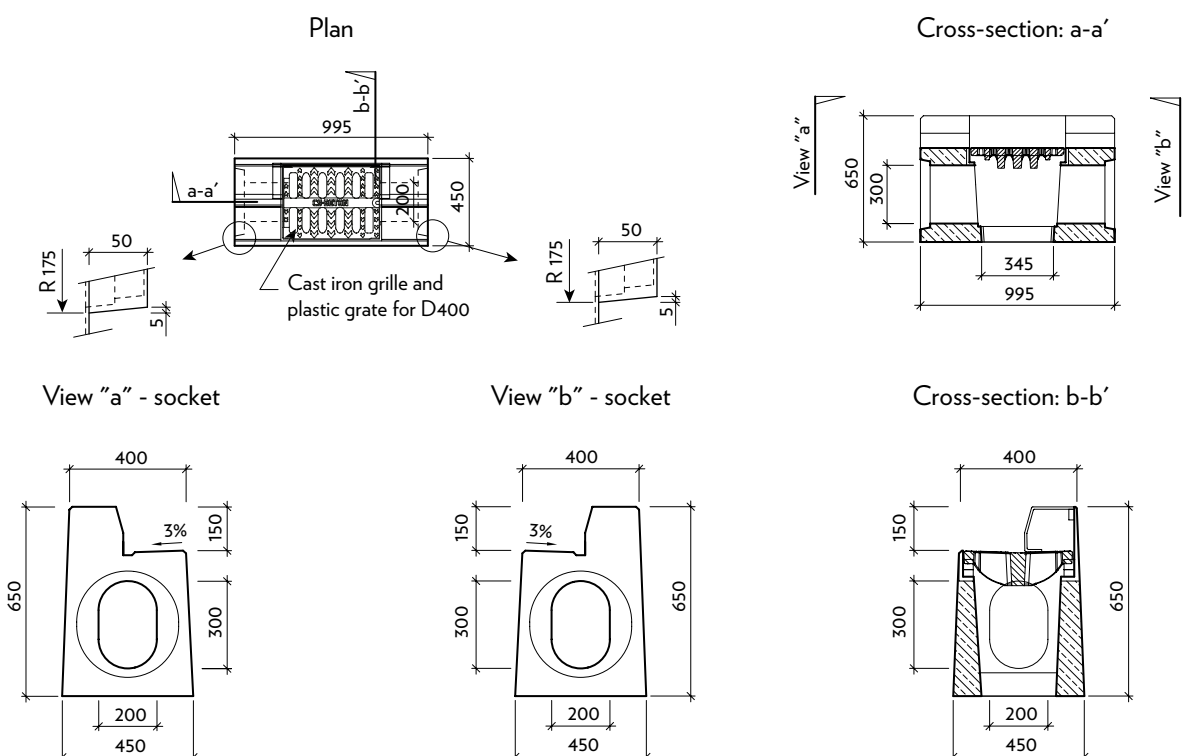
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

I-4-C0 - Right - Basic cleaning segment with cast iron frame and plastic grate for D400 - 15 cm kerbstone



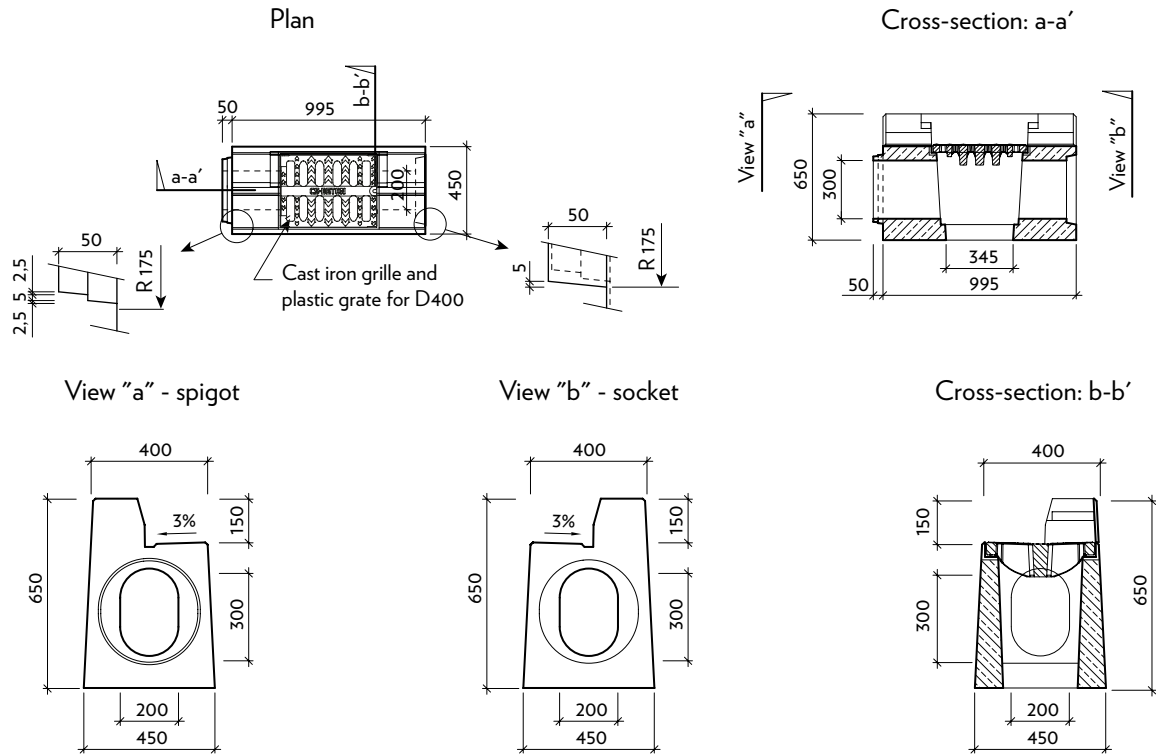
I-4-VU - Gutter gully assembly with 15 cm kerbstone with cast iron frame and plastic grate for D400



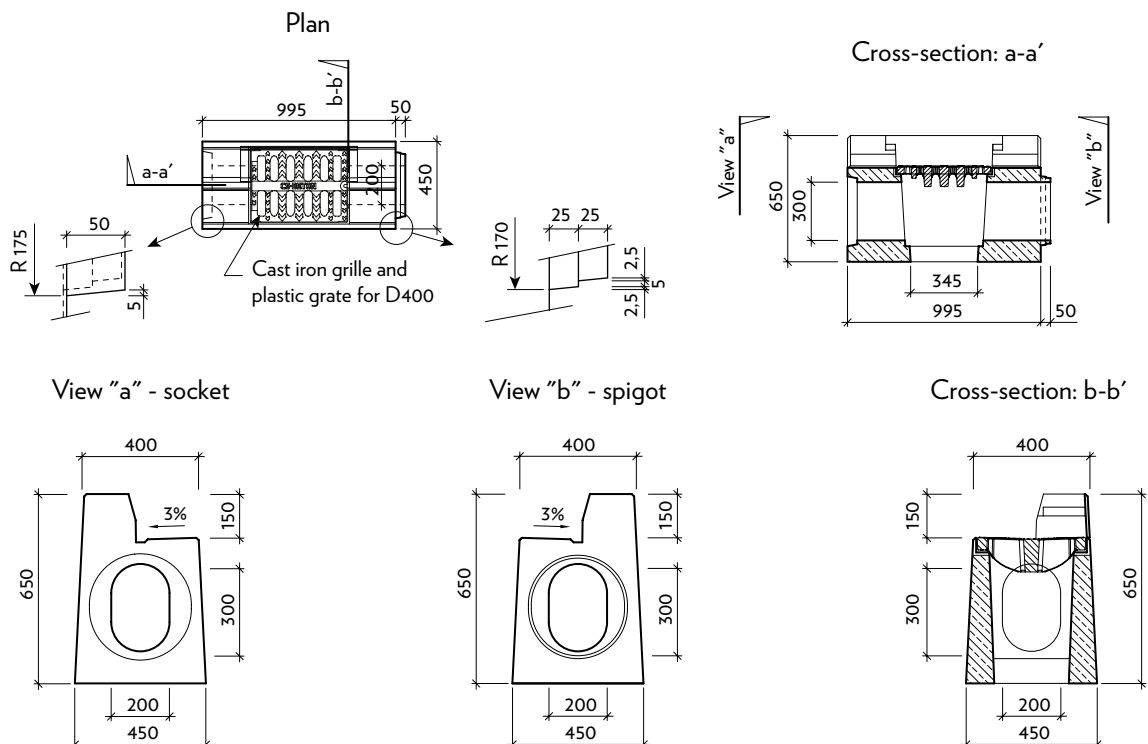
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

I-4-V0 - Left - Basic gully assembly with 15 cm kerbstone with cast iron frame and plastic grate for D400



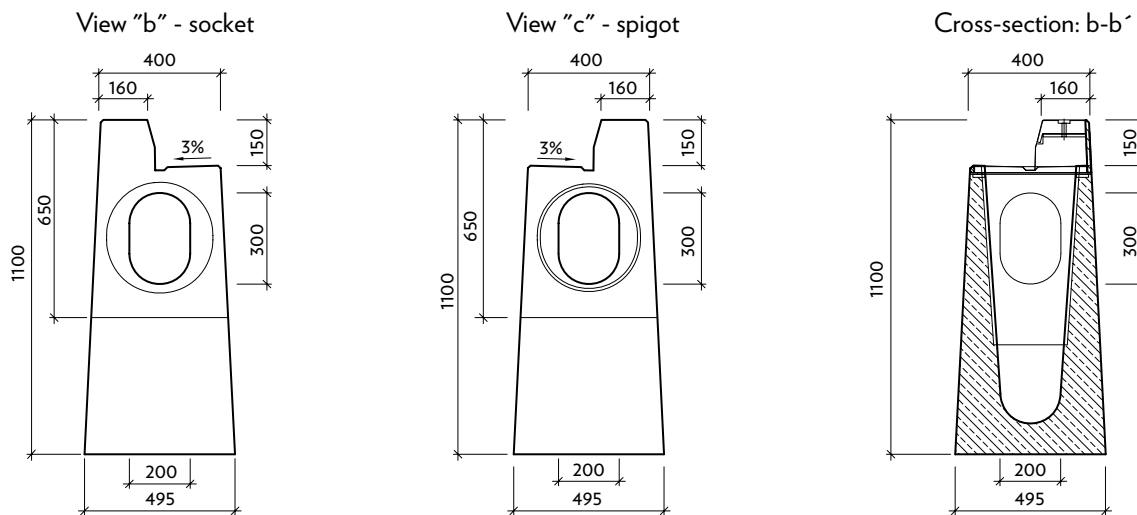
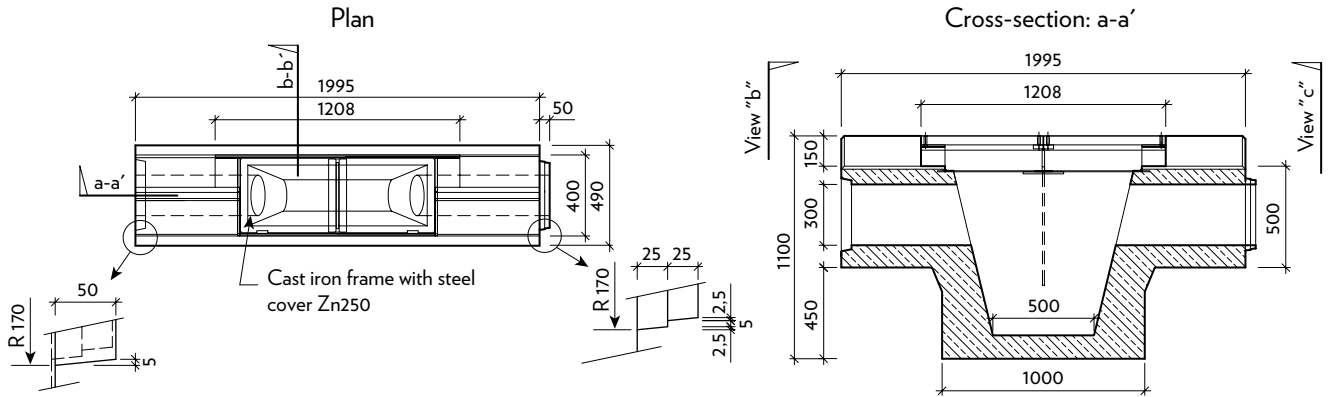
I-4-V0 - Right - Basic gully assembly with 15 cm kerbstone with cast iron frame and plastic grate for D400



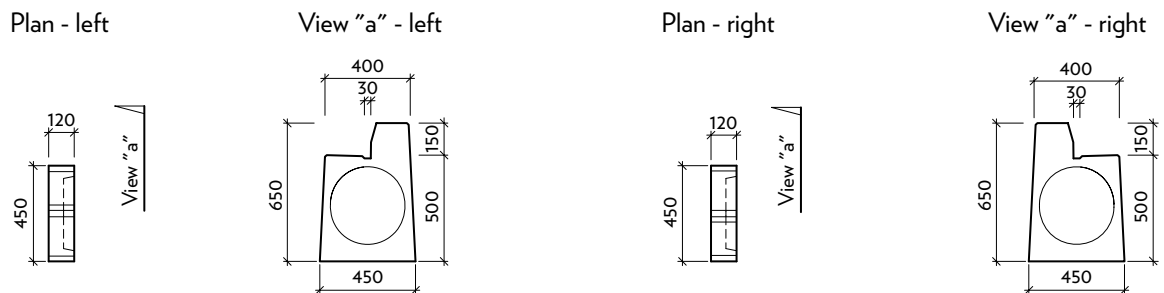
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

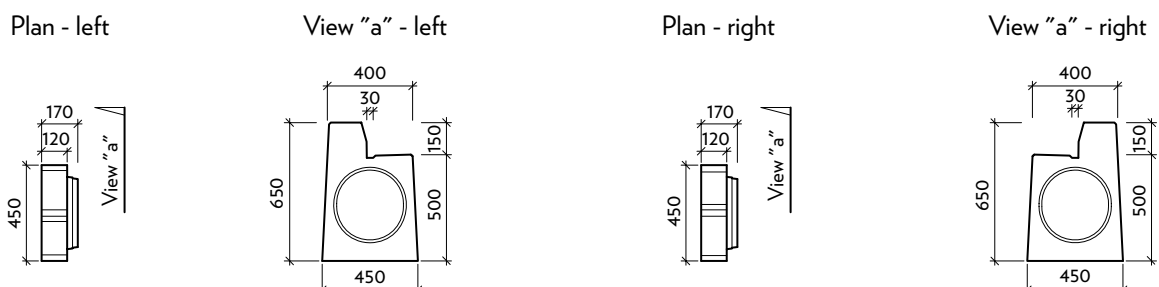
I-4-PP - Right - Fire safety barrier with steel cover for D400 and 15 cm kerbstone



I-4-ZZ - Socket end cap and 15 cm kerbstone



I-4-ZU - Spigot end cap and 15 cm kerbstone

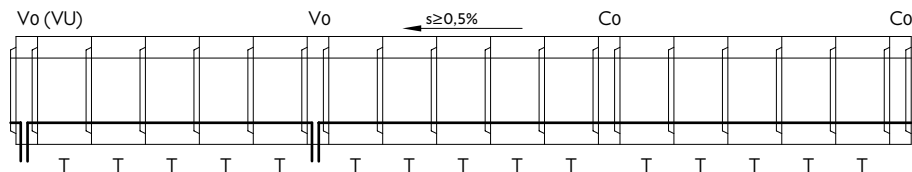


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-4

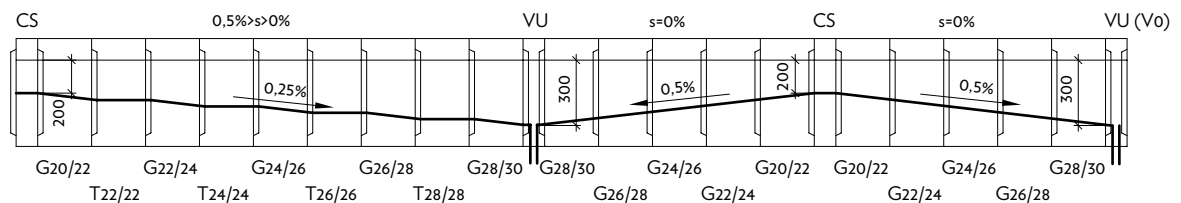
Suggested layout

I-0-4-T Slot drains - layout



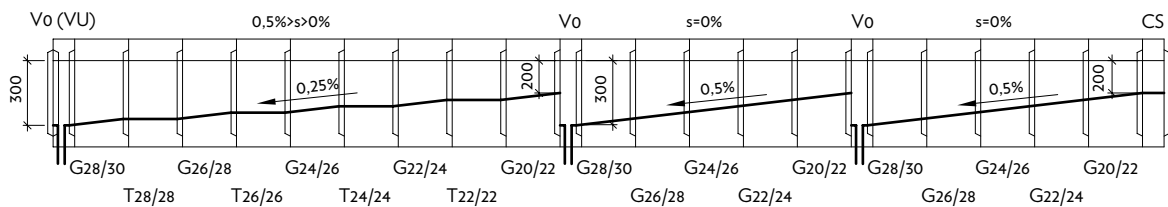
I-0-4-G Slot drains - layout

(slot drain with roof bottom)



I-0-4-G Slot drains - layout

(slot drain with saw tooth bottom)



Gully and cleaning element codes

- V0 – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- C0 – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

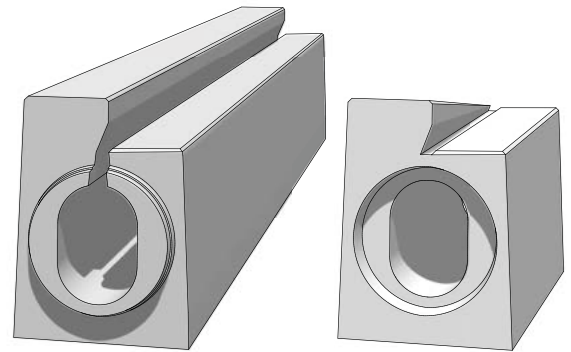
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

Technical data:

Slot drain with a 15 cm high kerbstone. This product is suitable for dividing roads from pavements and for use in tunnels. They are available with or without internal gradient (0.5%).

Gradient-to-gradient components are provided for segments with internal gradient. Profile I-0-4 slot drains and slot drains with kerbstones are designed for D400 class traffic load and no transversal vehicle travel.

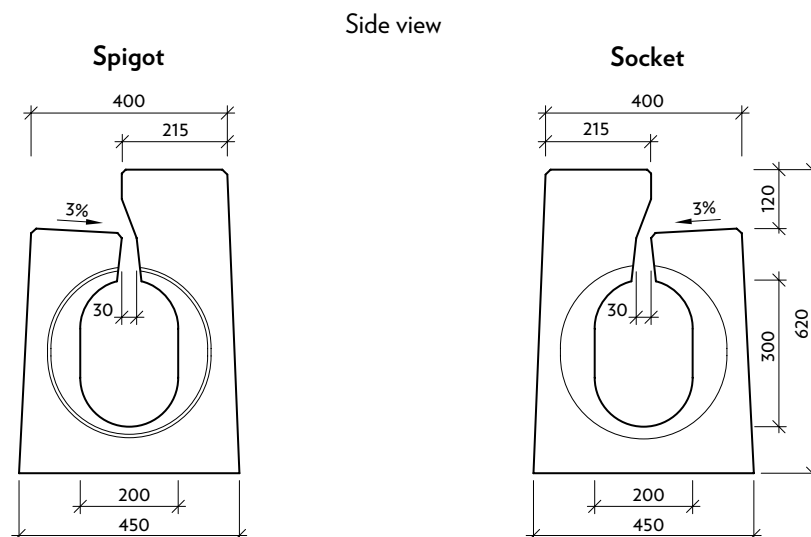


The system consists of the following components:

- 4 m-long slot drains with continuous slots, with or without internal gradient
- Complete gully assembly incl. plastic cover/cast iron grille, gully trap and rectification cone
- Cleaning segment incl. plastic cover/cast iron grille
- Fire safety barrier (with siphon)
- Slot drain with rising kerbstone
- End cap

Name	Order code	Production plant	Nominal dimensions* mm			Quantity pcs/m	Weight pcs
			Basic height	Length	Width		
Slot drain with continuous slot and 12 cm kerbstone	I-0-5	VZ	500	4000	400/450	0,25	1681
Slot drain with continuous slot and 12 cm kerbstone, 0,5% flow profile bottom gradient	I-0-5-G	VZ	500	4000	400/450	0,25	1700 - 1849
Slot drain without internal gradient, with rising kerbstone (left/right: 0-12/12-0 cm)	I-0-5 ZN	VZ	500	1000	400/450	1	404
Basic gully assembly V0	I-5-V0	VZ	500	1000	400/450	1	378
Gutter gully assembly VU	I-5-VU	VZ	500	1000	400/450	1	369
Basic cleaning segment C0	I-5-C0	VZ	500	1000	400/450	1	425
Top cleaning segment CS	I-5-CS	VZ	500	1000	400/450	1	473
Spigot end cap	I-5-ZU	VZ	500	120	400/450	-	76
Socket end cap	I-5-ZZ	VZ	500	120	400/450	-	51

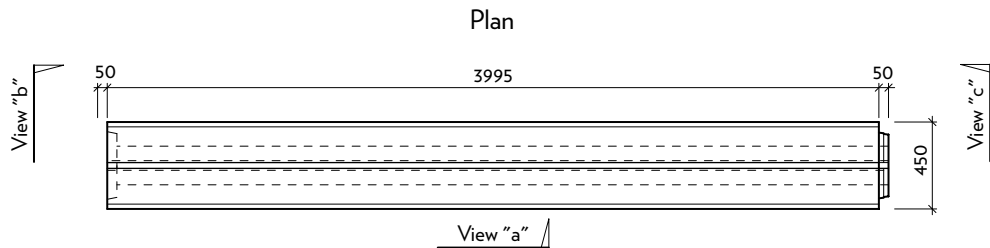
Nominal dimensions - basic shapes:



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

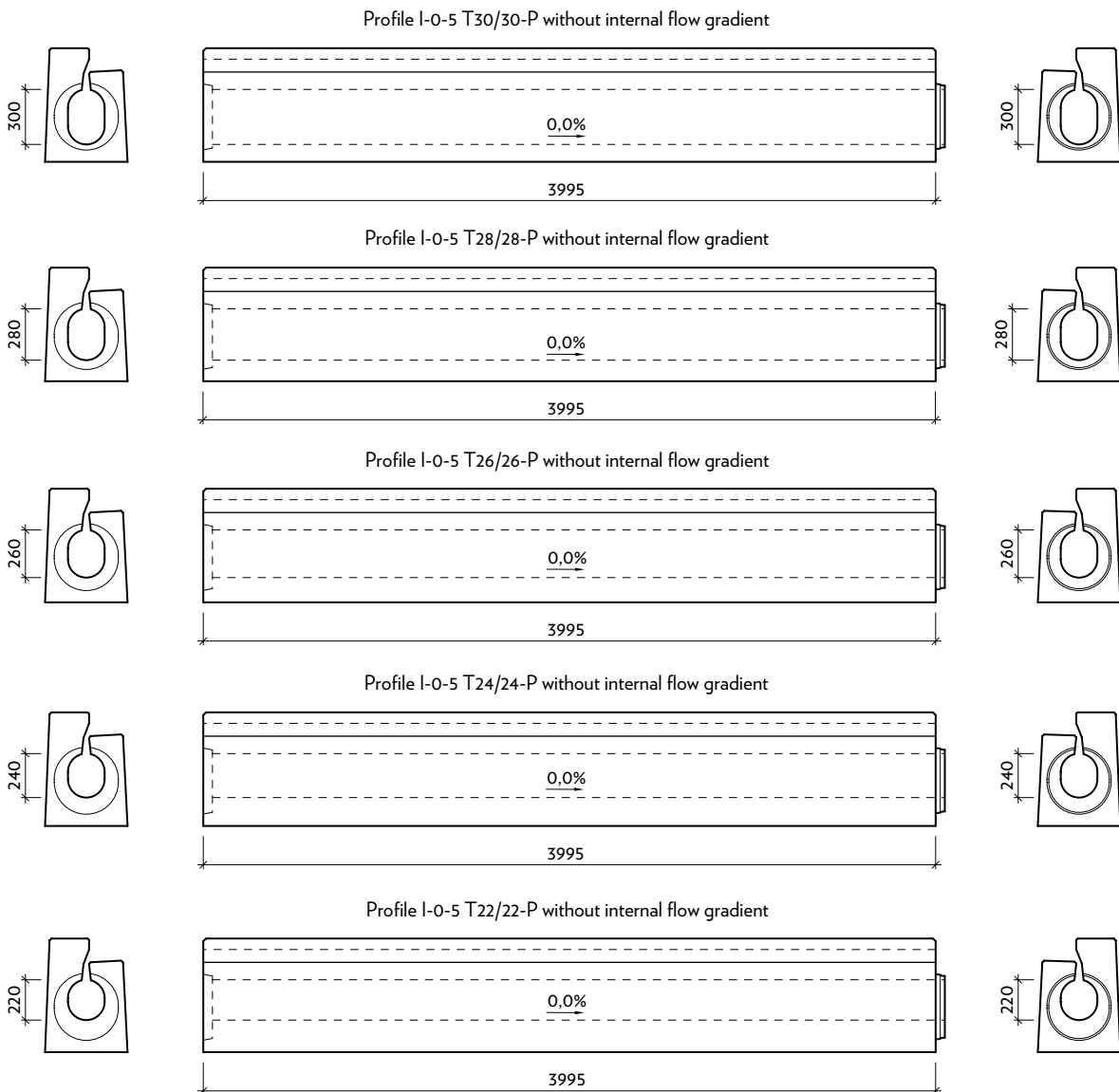
I-0-5 - Right - Slot drain



View "b" - socket

View "a"

View "c" - spigot



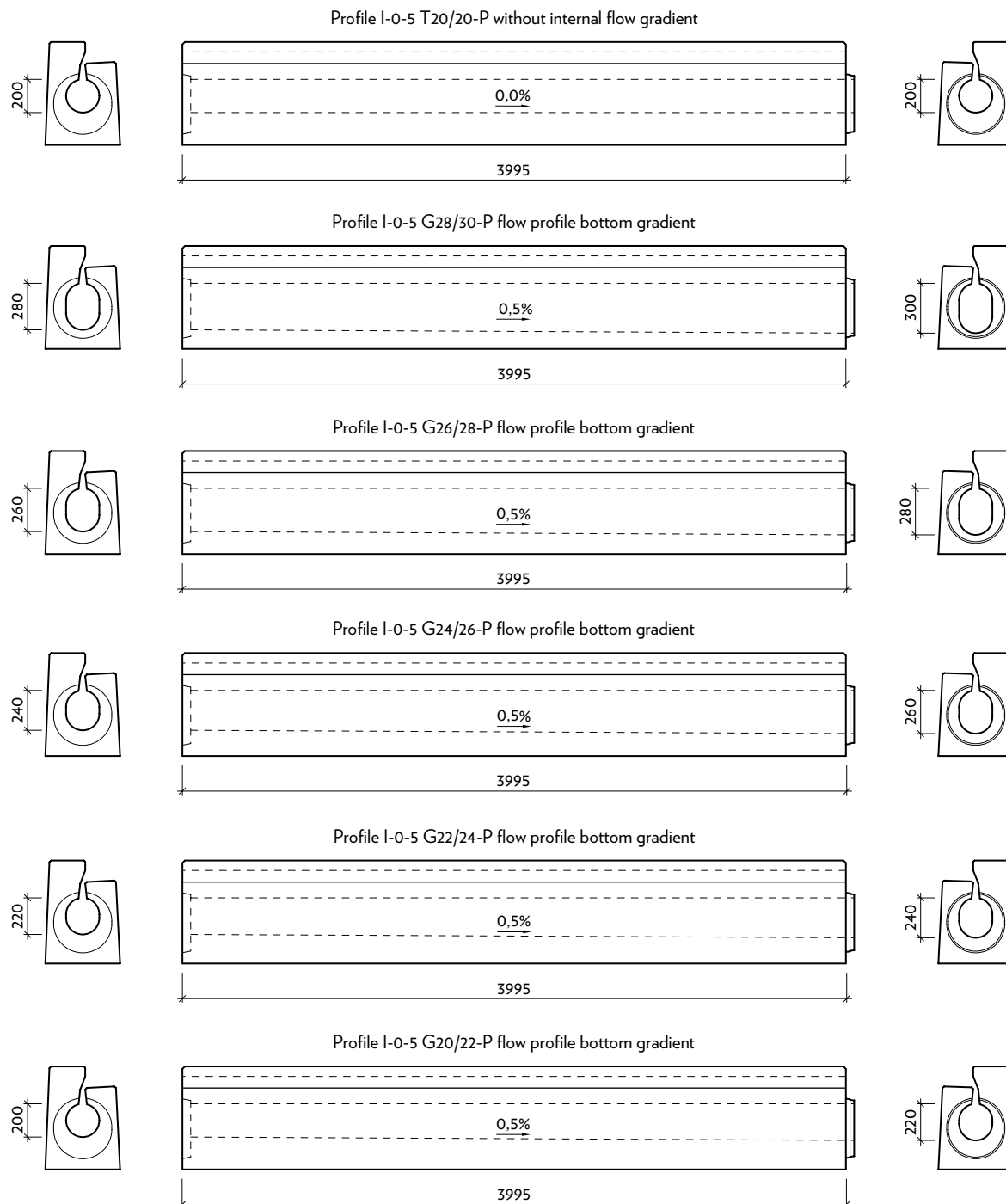
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

View "b" - socket

View "a"

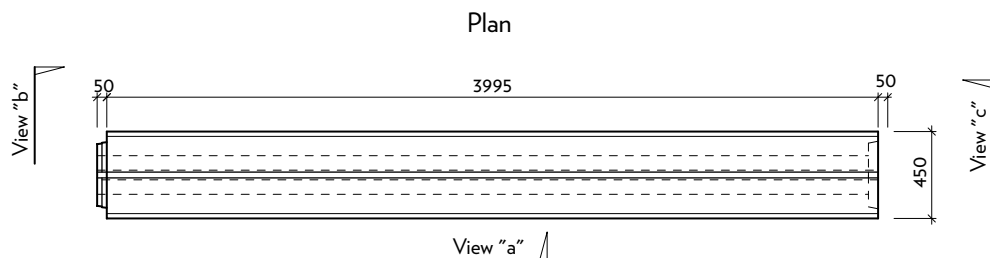
View "c" - spigot



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

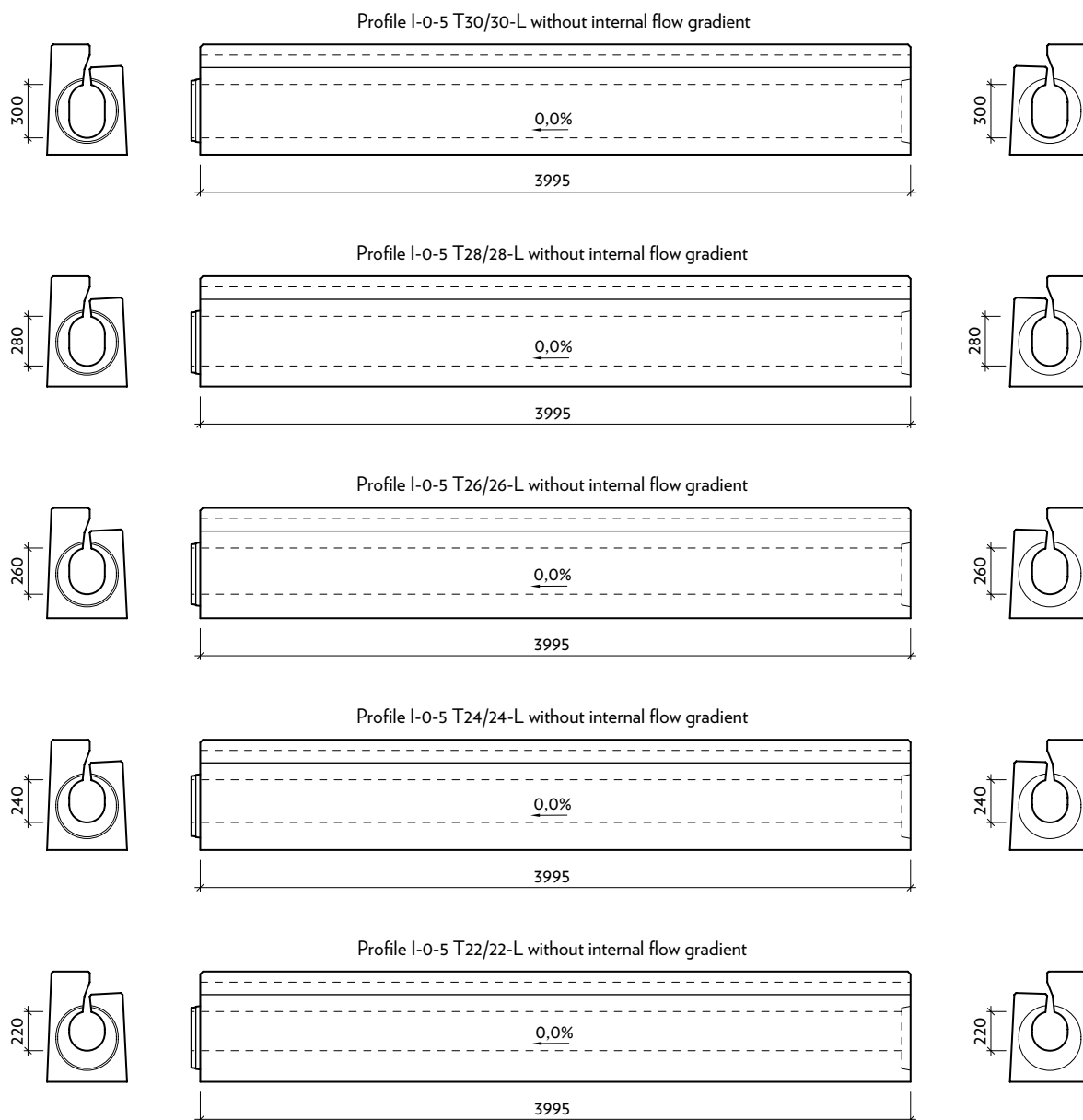
Profile I-0-5 - Left - Slot drain



View "b" - spigot

View "a"

View "c" - socket



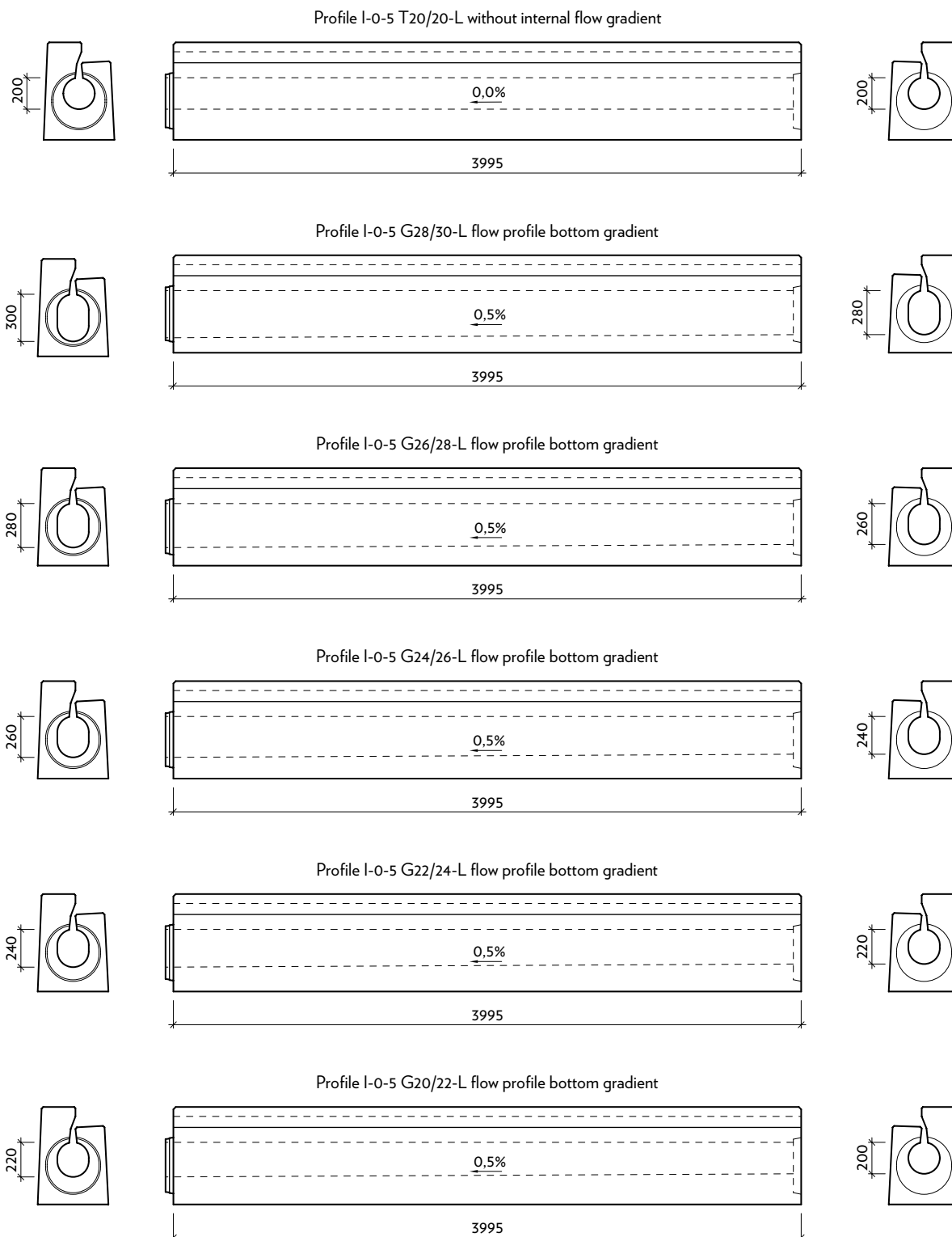
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

View "b" - spigot

View "a"

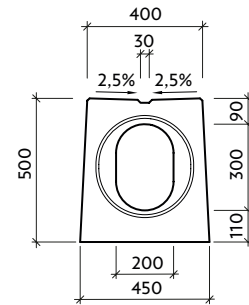
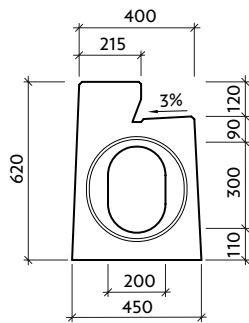
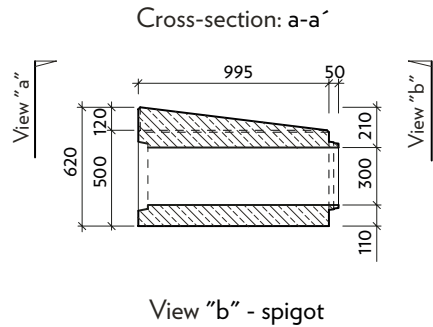
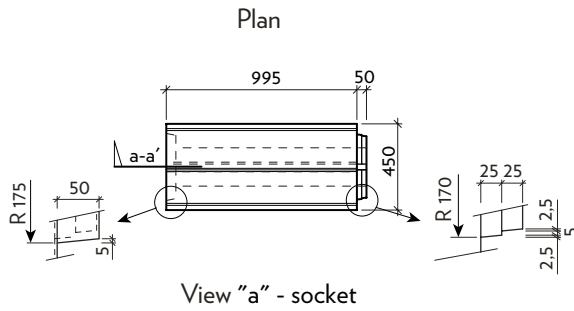
View "c" - socket



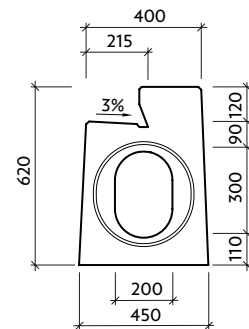
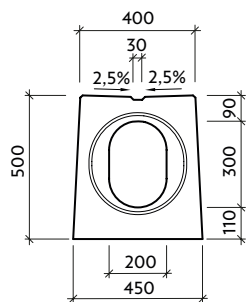
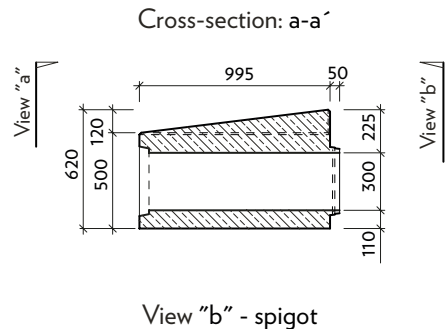
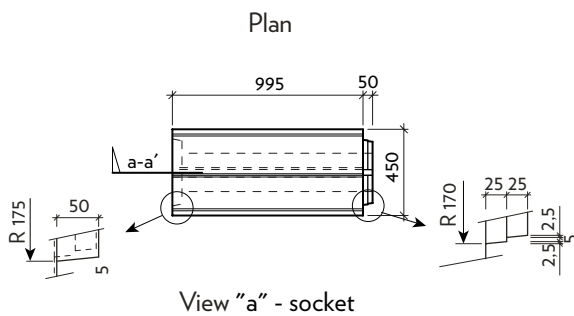
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

I-5-0-ZN - Right - Slot drain without internal gradient, with rising kerbstone 12-0 cm



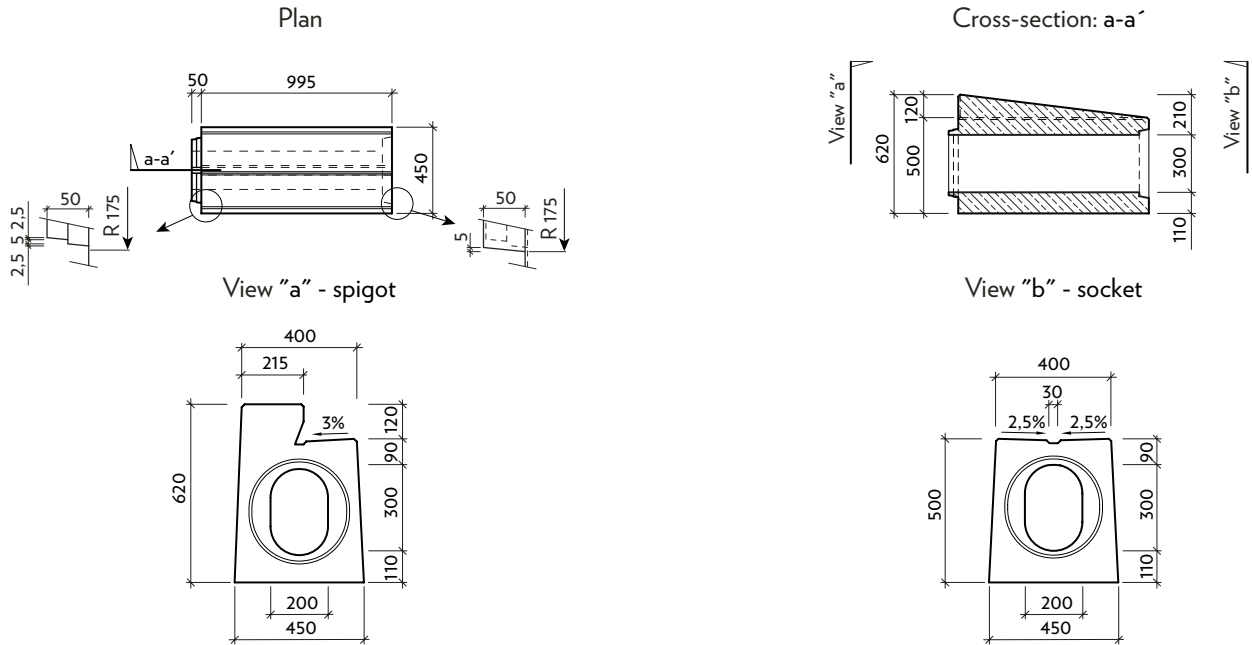
I-0-5-ZN - Right - Slot drain without internal gradient, with rising kerbstone 0-12 cm



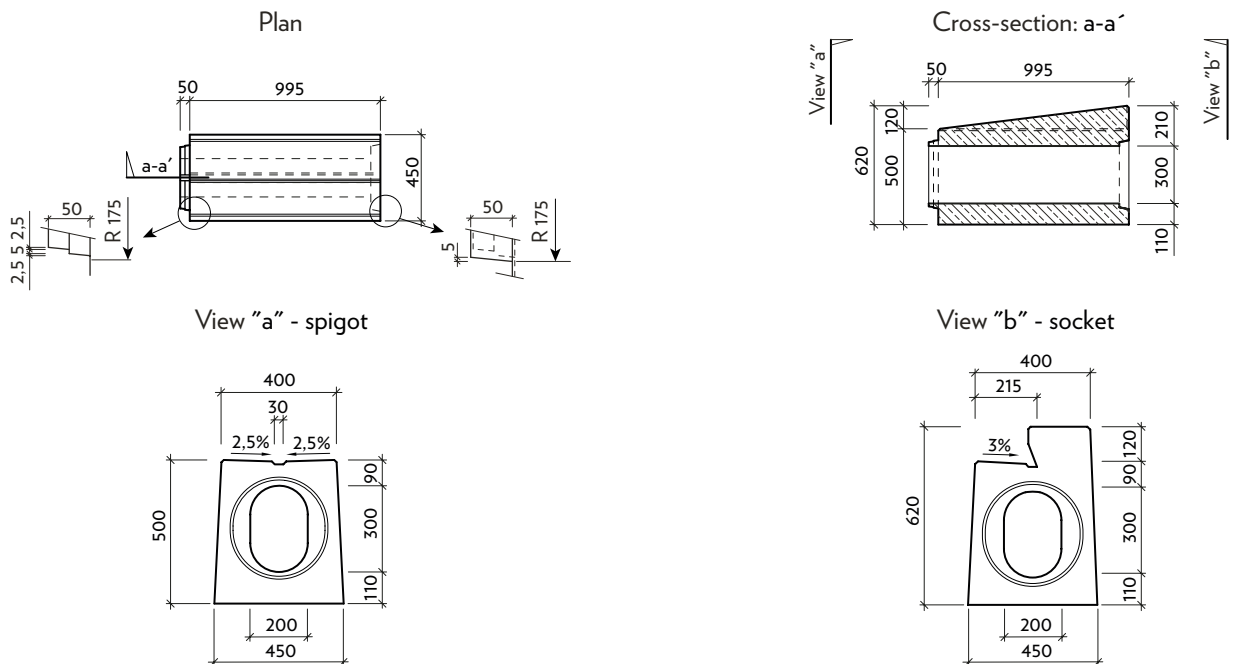
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

I-5-0-ZN - Left - Slot drain without internal gradient, with rising kerbstone 12-0 cm



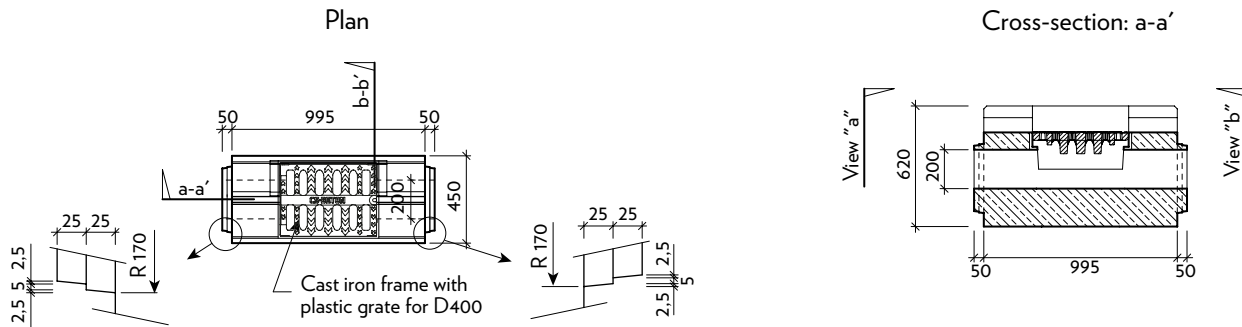
I-0-5-ZN - Left - Slot drain without internal gradient, with rising kerbstone 0-12 cm



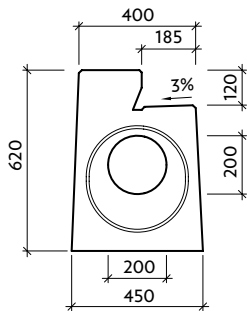
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

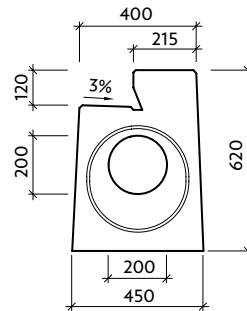
I-5-CS - Top cleaning segment with cast iron grille and plastic grate for D400 - 12 cm kerbstone



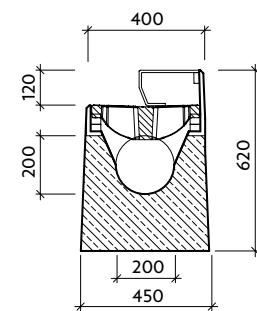
View "a" - spigot



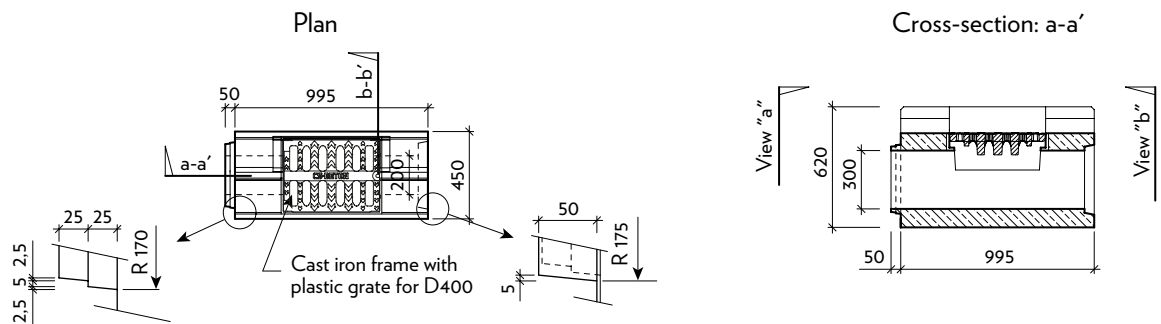
View "b" - spigot



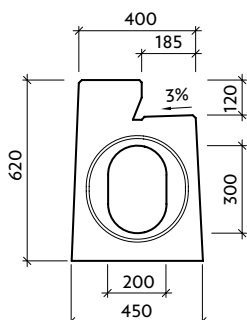
Cross-section: b-b'



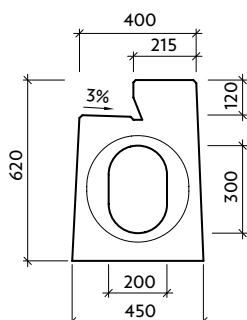
I-5-C0 - Left - Basic cleaning segment with cast iron frame and plastic grate for D400 - 12 cm kerbstone



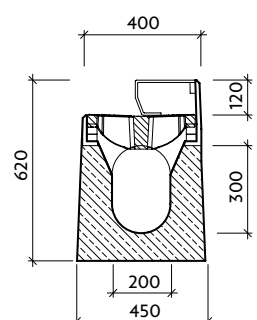
View "a" - spigot



View "b" - socket



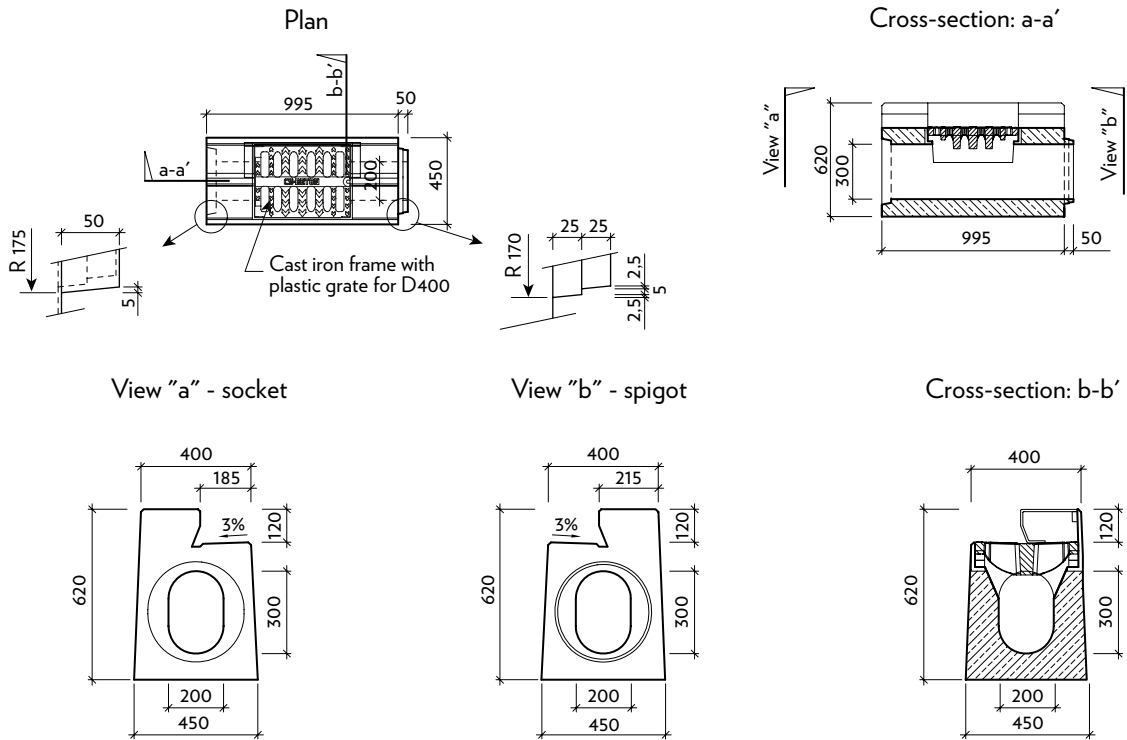
Cross-section: b-b'



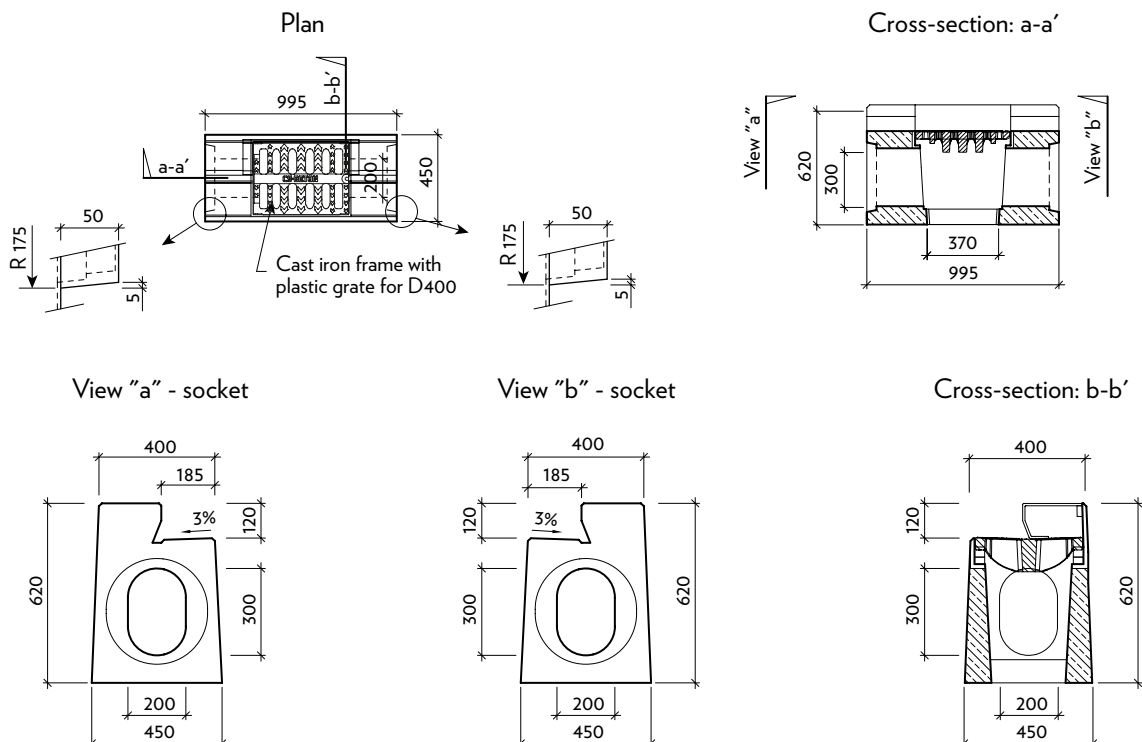
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

I-5-C0 - Right - Basic cleaning segment with cast iron frame and plastic grate for D400 - 12 cm kerbstone



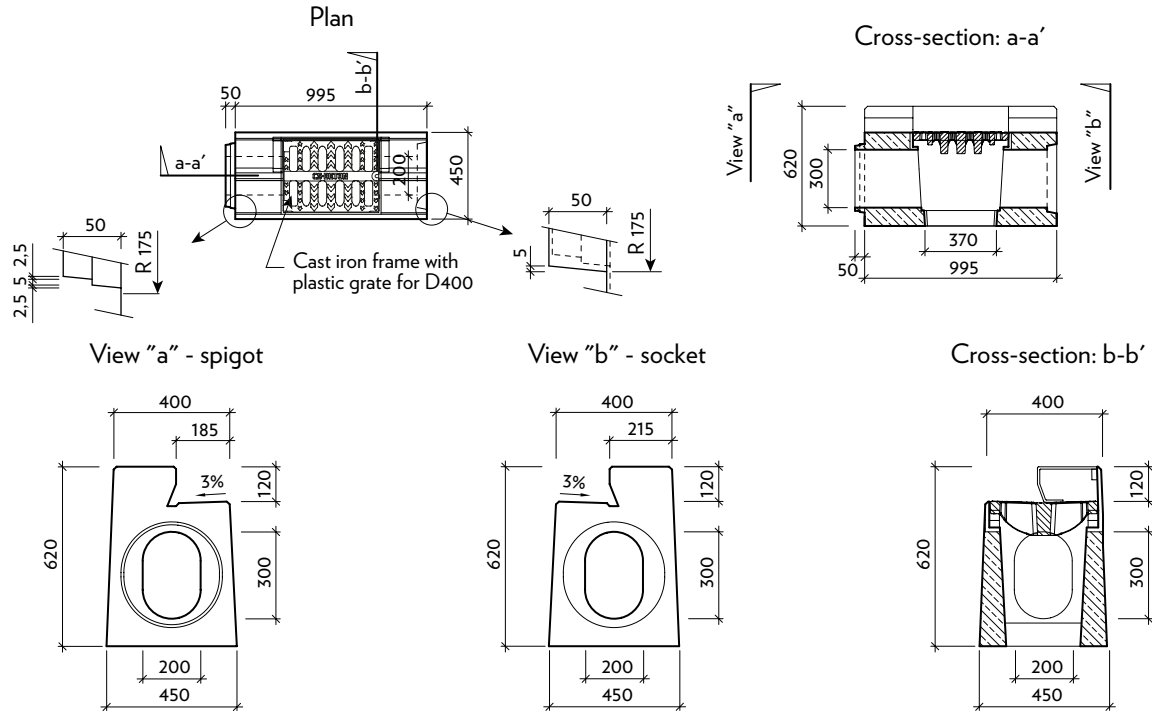
I-5-VU - Gutter gully assembly with 12 cm kerbstone with cast iron frame and plastic grate for D400



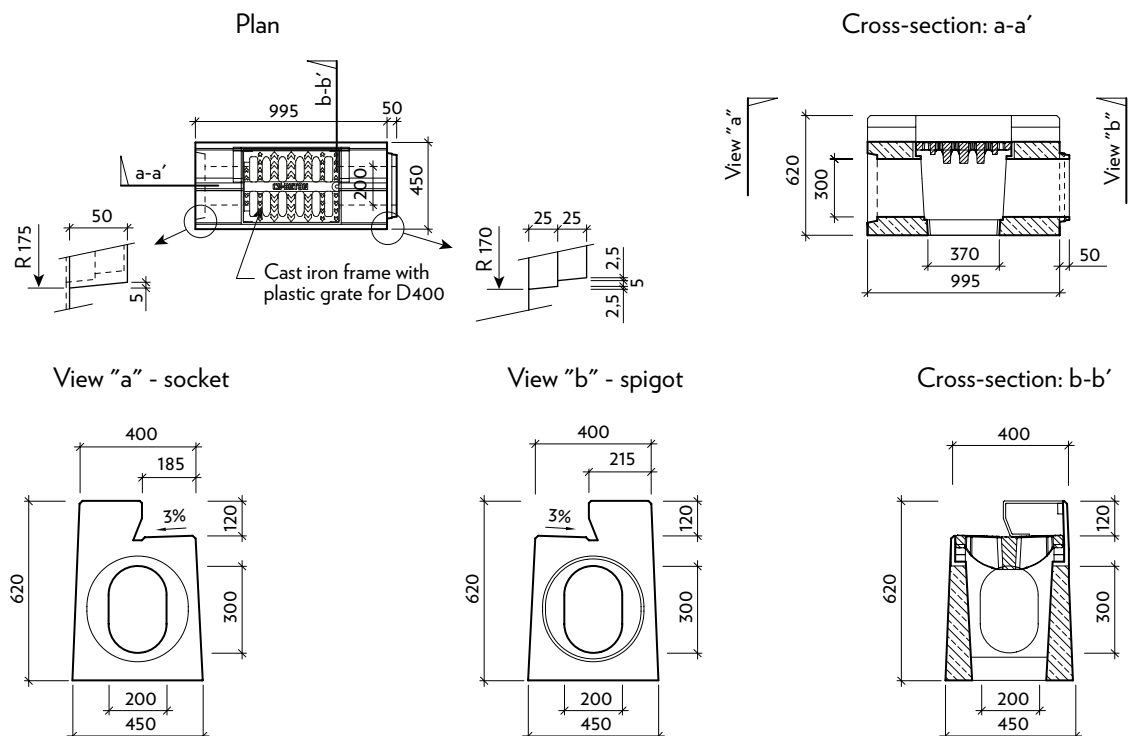
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

I-5-V0 - Left - Basic gully assembly with 12 cm kerbstone with cast ast iron frame and plastic grate for D400



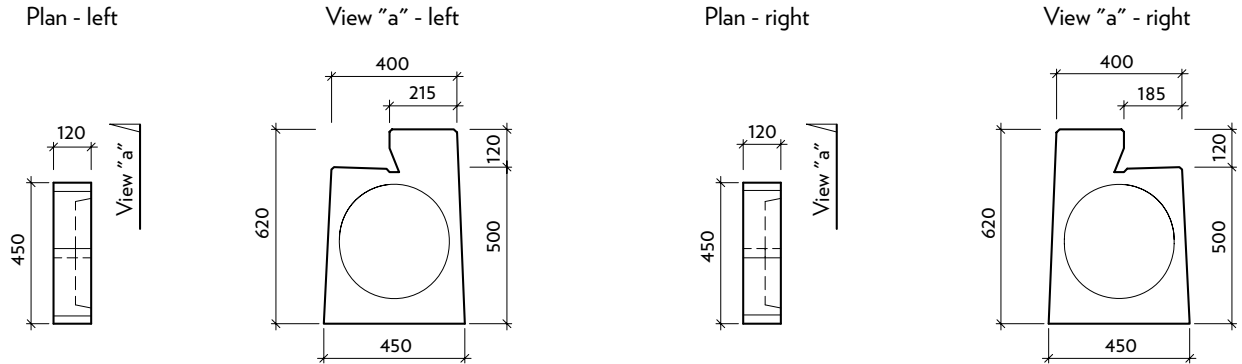
I-5-V0 - Right - Basic gully assembly with 12 cm kerbstone with cast ast iron frame and plastic grate for D400



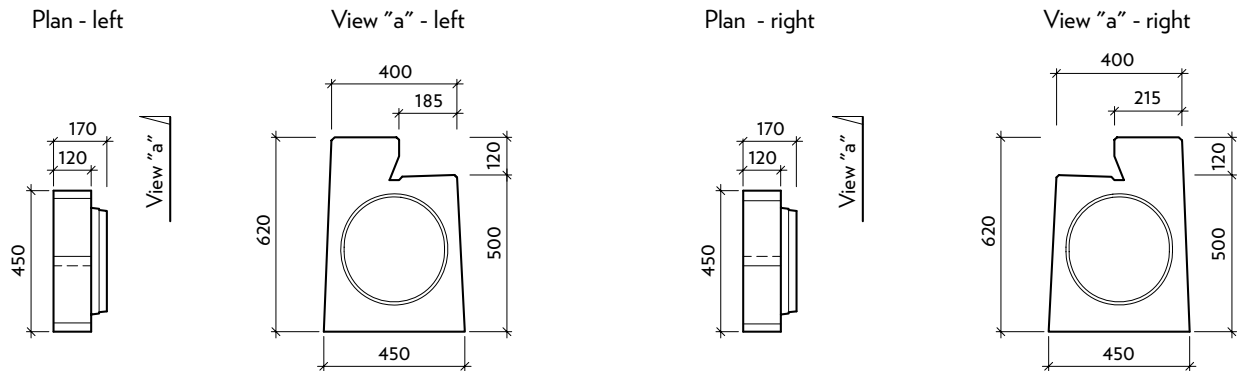
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

I-5-ZZ - Socket end cap and 12 cm kerbstone



I-5-ZU - Spigot end cap and 12 cm kerbstone

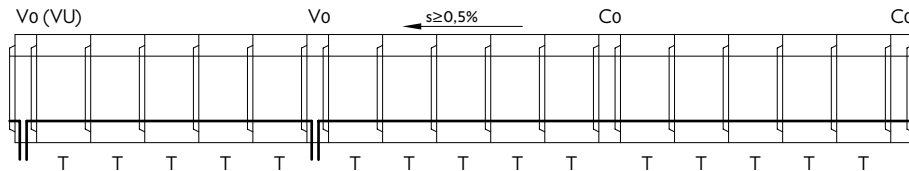


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I-0-5

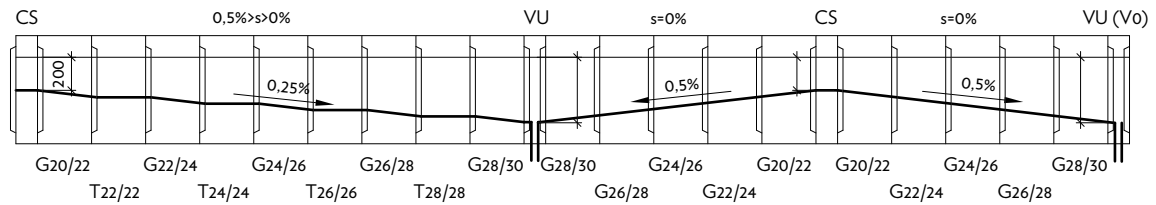
Suggested layout

I-0-5-T Slot drains - layout



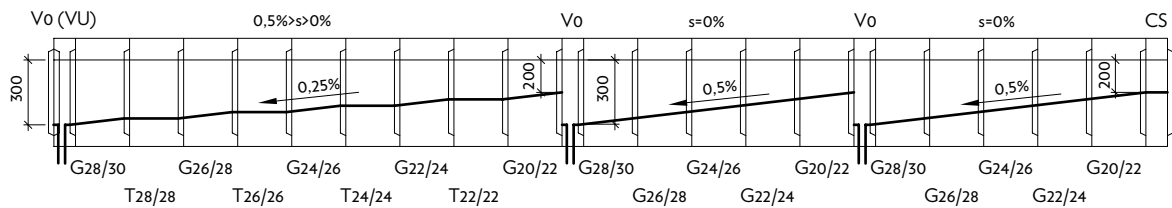
I-0-5-G Slot drains - layout

(slot drain with roof bottom)



I-0-5-G Slot drains - layout

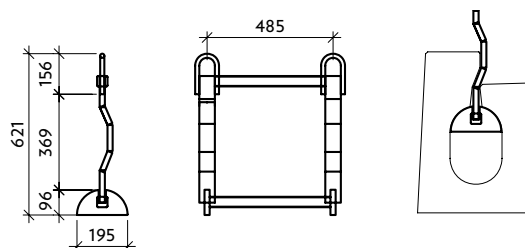
(slot drain with saw tooth bottom)



Gully and cleaning element codes

- Vo – Basic gully, spigot/socket, 300 mm flow profile height at both ends
- VU – Gutter gully, socket/socket, 300 mm flow profile height at both ends
- Co – Basic cleaning element, spigot/socket, 300 mm flow profile height at both ends
- CS – Ridge cleaning element, spigot/spigot, 200 mm flow profile height at both ends
- s – Longitudinal flow profile gradient

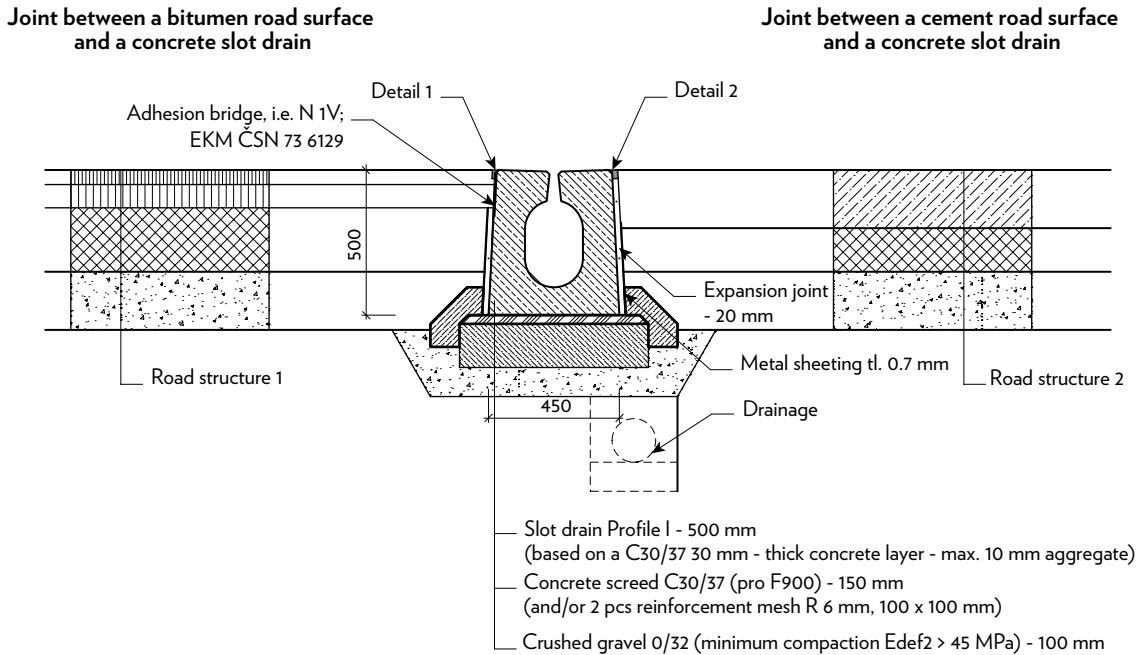
Handling equipment - PROFILE I-5



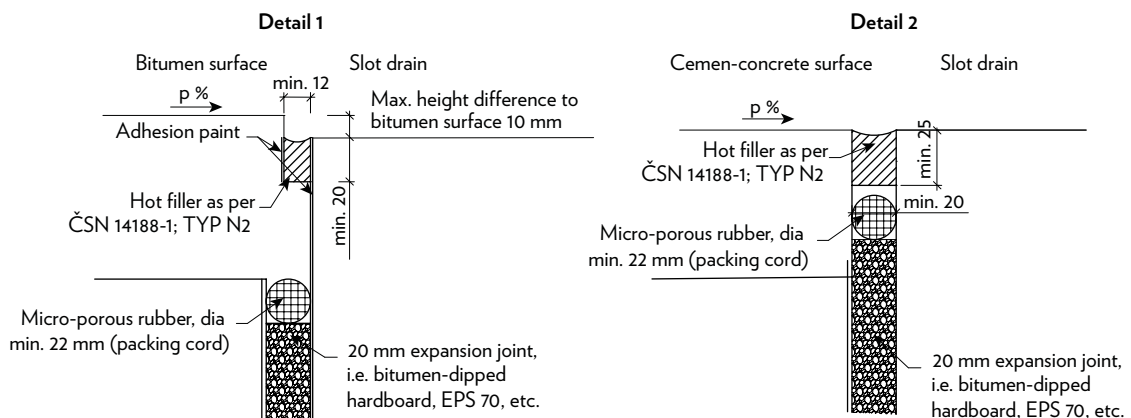
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

SAMPLE SLOT DRAIN PROFIL I - CROSS-SECTION



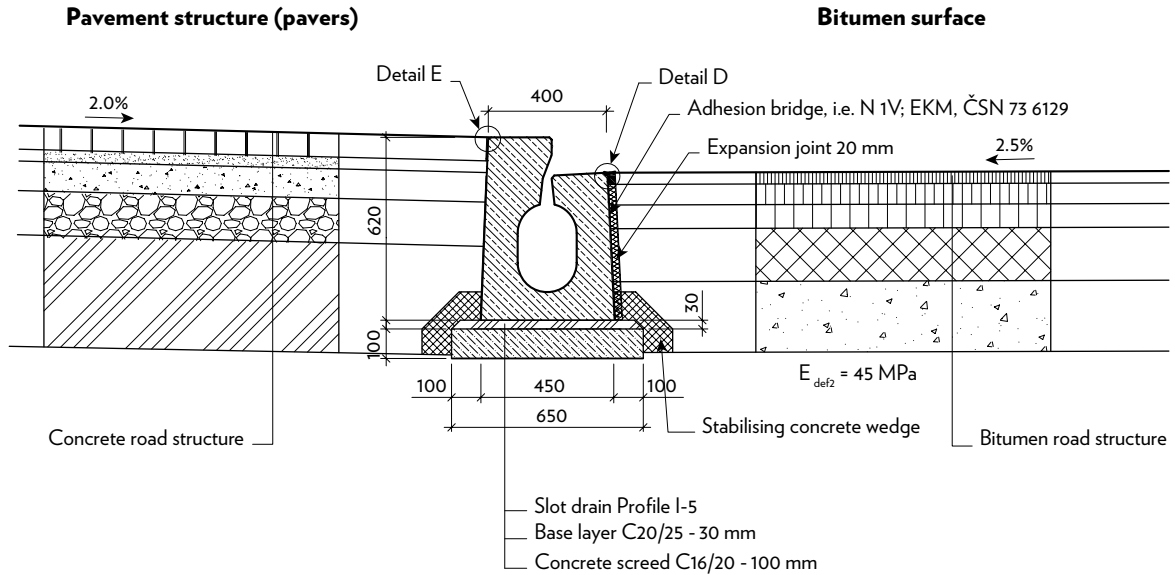
Note: USE AN ELASTIC, COMPRESSIBLE AND NON-EXPANDING MATERIAL FOR EXPANSION JOINTS (i.e. bitumen-dipped hardboard, EPS 70, etc.), with compacted layers, use 0.7 mm steel sheeting as protection; provide to a level at least 20 mm above the compacted layer. EXPANSION JOINT MAY ONLY BE OMITTED WHEN THE ADJOINING ROAD SURFACE HAS UNCONSOLIDATED LAYERS! When the adjoining road surface does not contain any consolidated layers (i.e. base concrete, concrete, cement-bonded aggregate, layers with hydraulic binders, etc.) over the entire height of the slot drain, the expansion joint may be omitted.



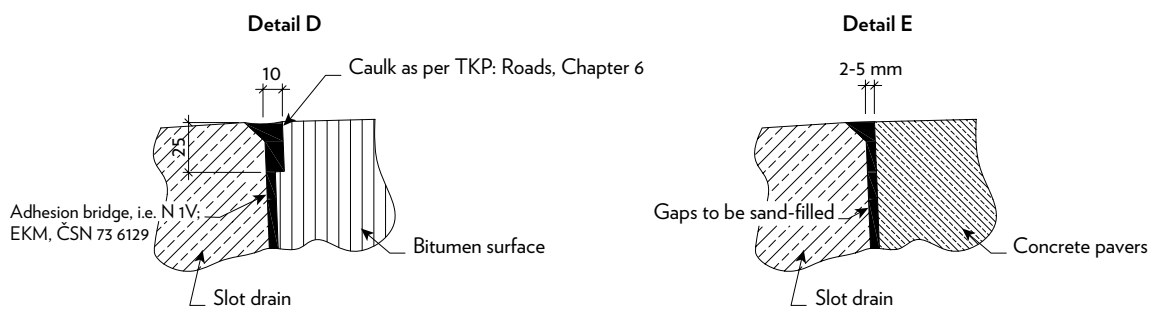
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

SAMPLE SLOT DRAIN CROSS-SECTION IN ROAD
(Profile I-5, Sidewalk - Bitumen surface)



Note: USE AN ELASTIC, COMPRESSIBLE AND NON-EXPANDING MATERIAL FOR EXPANSION JOINTS (i.e. bitumen-dipped hardboard, EPS 70, etc.), with compacted layers, use 0.7 mm steel sheeting as protection; provide to a level at least 20 mm above the compacted layer. EXPANSION JOINT MAY ONLY BE OMITTED WHEN THE ADJOINING ROAD SURFACE HAS UNCONSOLIDATED LAYERS! When the adjoining road surface does not contain any consolidated layers (i.e. base concrete, concrete, cement-bonded aggregate, layers with hydraulic binders, etc.) over the entire height of the slot drain, the expansion joint may be omitted.

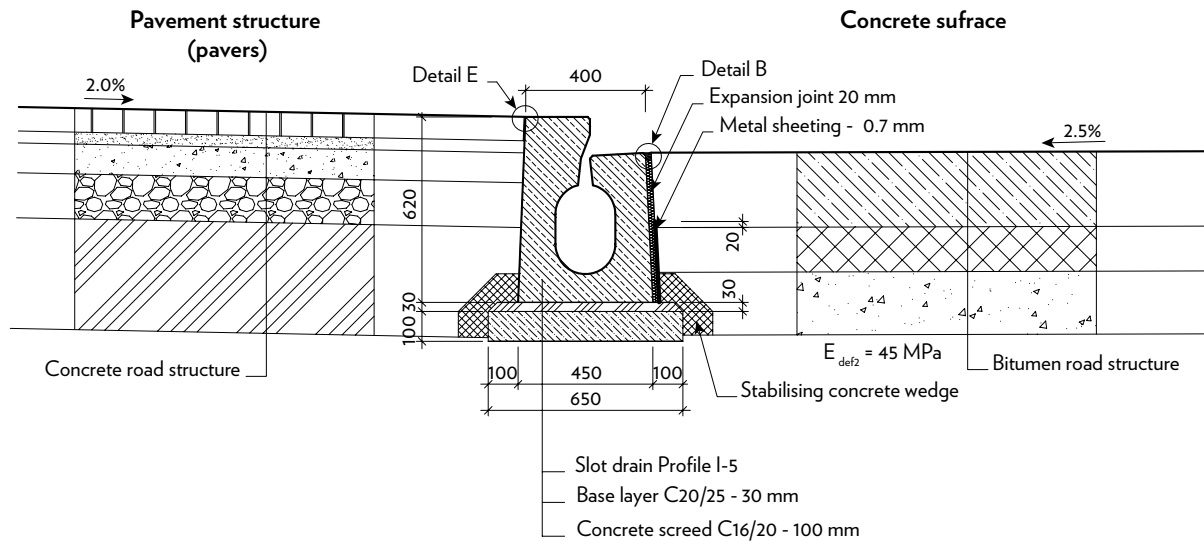


Caulking gap (prepared by cutting, or insertion of a batten)

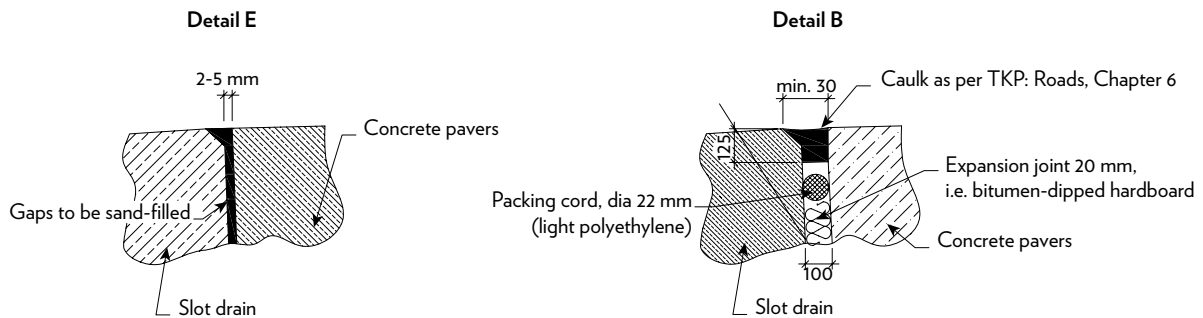
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

SAMPLE SLOT DRAIN CROSS-SECTION IN ROAD
(Profile I-5, Sidewalk - Concrete surface)



Note: USE AN ELASTIC, COMPRESSIBLE AND NON-EXPANDING MATERIAL FOR EXPANSION JOINTS (i.e. bitumen-dipped hardboard, EPS 70, etc.), with compacted layers, use 0.7 mm steel sheeting as protection; provide to a level at least 20 mm above the compacted layer. EXPANSION JOINT MAY ONLY BE OMITTED WHEN THE ADJOINING ROAD SURFACE HAS UNCONSOLIDATED LAYERS! When the adjoining road surface does not contain any consolidated layers (i.e. base concrete, concrete, cement-bonded aggregate, layers with hydraulic binders, etc.) over the entire height of the slot drain, the expansion joint may be omitted.

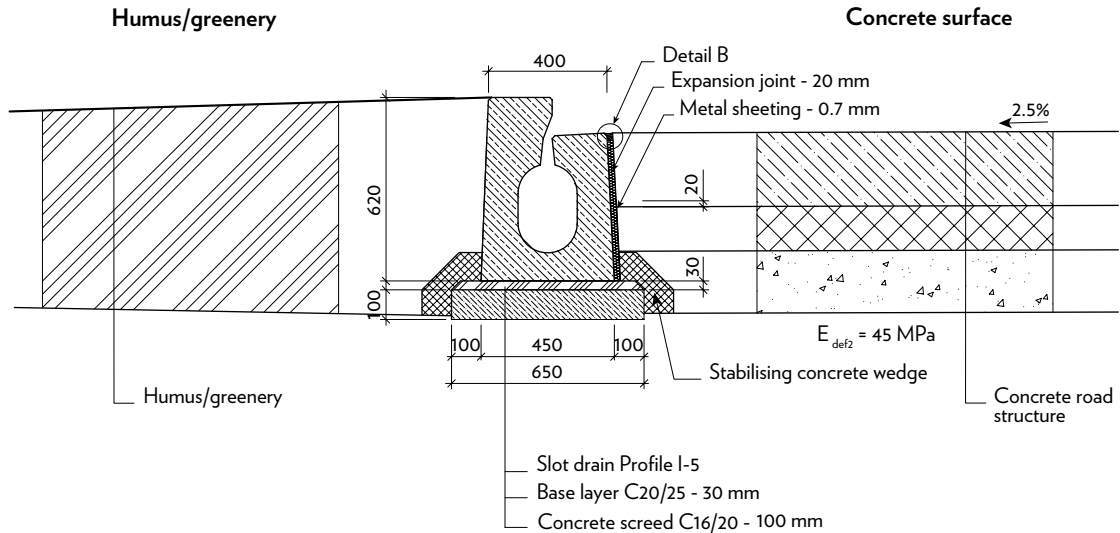


Caulking gap (prepared by cutting, or insertion of a batten)

TECHNICAL SHEET (IS03)

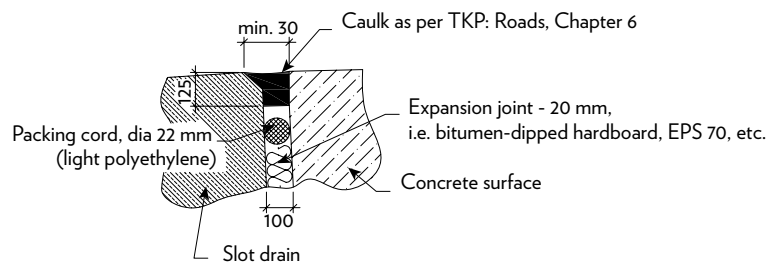
SLOT DRAIN PROFILE I

SAMPLE SLOT DRAIN CROSS-SECTION IN ROAD
(Profile I-5, Greenery - Concrete surface)



Note: USE AN ELASTIC, COMPRESSIBLE AND NON-EXPANDING MATERIAL FOR EXPANSION JOINTS (i.e. bitumen-dipped hardboard, EPS 70, etc.), with compacted layers, use 0.7 mm steel sheeting as protection; provide to a level at least 20 mm above the compacted layer. EXPANSION JOINT MAY ONLY BE OMITTED WHEN THE ADJOINING ROAD SURFACE HAS UNCONSOLIDATED LAYERS! When the adjoining road surface does not contain any consolidated layers (i.e. base concrete, concrete, cement-bonded aggregate, layers with hydraulic binders, etc.) over the entire height of the slot drain, the expansion joint may be omitted.

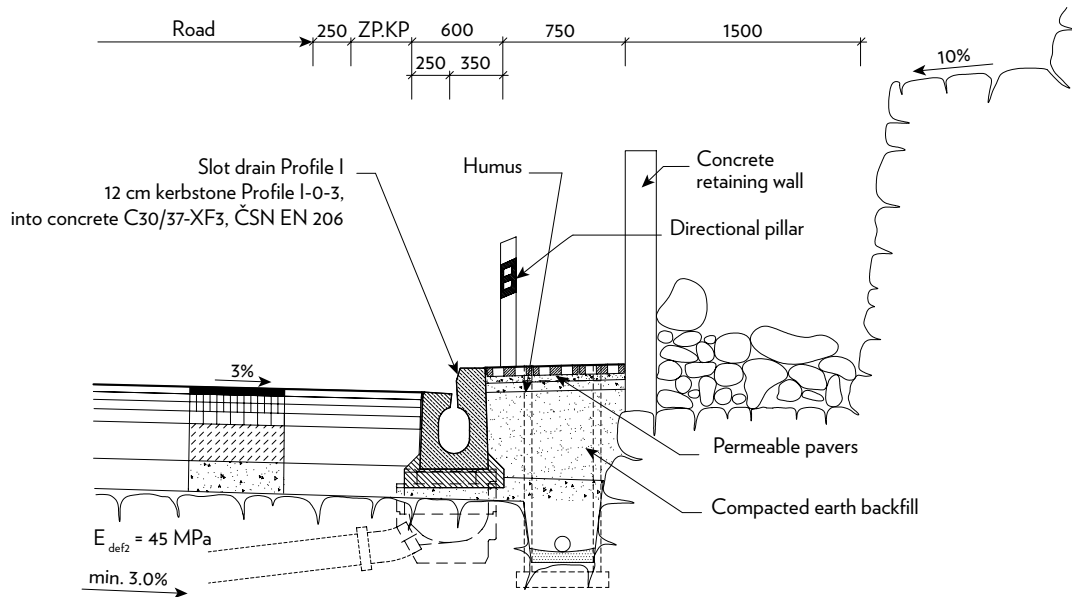
Detail B



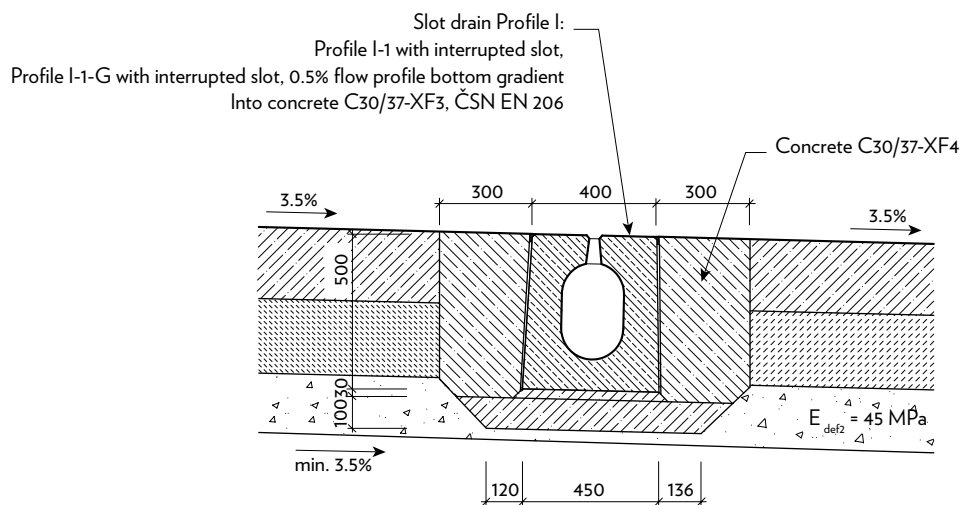
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN WITH KERBSTONE
in cut rock, central sewage
city road, < 60 kph speeds



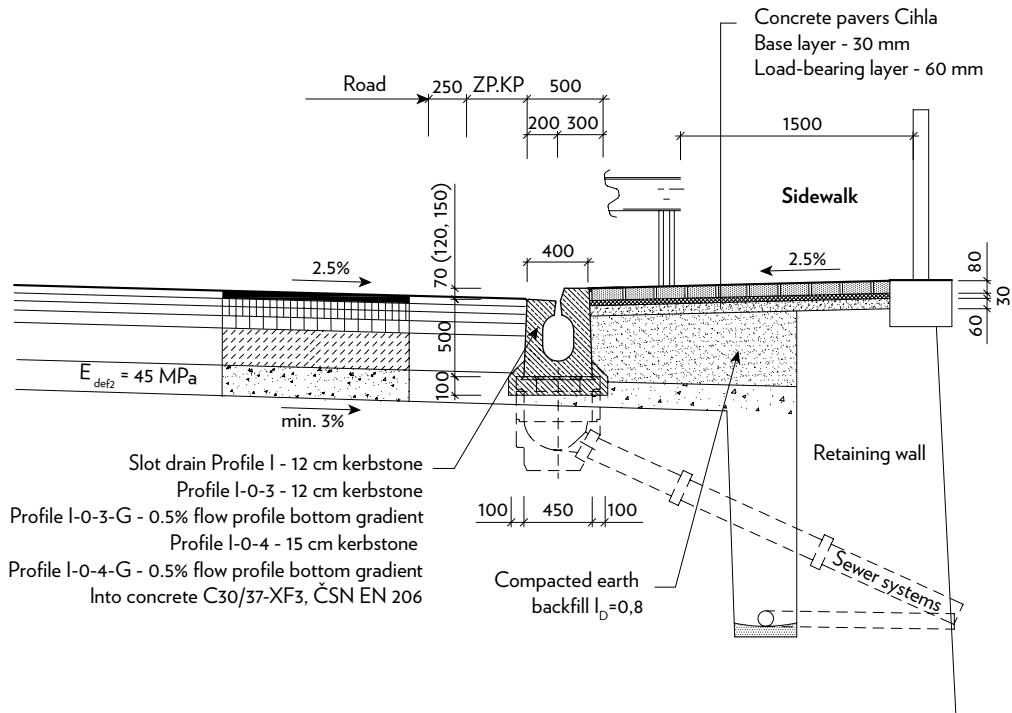
SLOT DRAIN PROFILE I
Refurbishment, as transversal road
draining - longitudinal cross-section



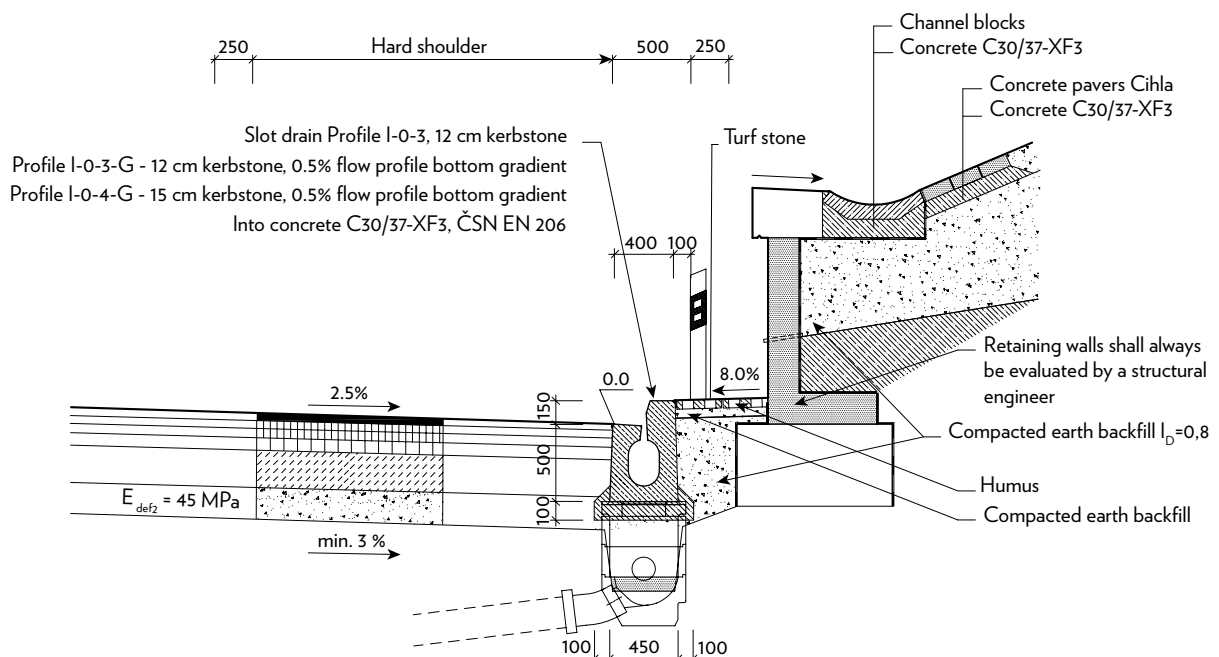
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN WITH KERBSTONE Above retaining wall, > 60 kph speeds



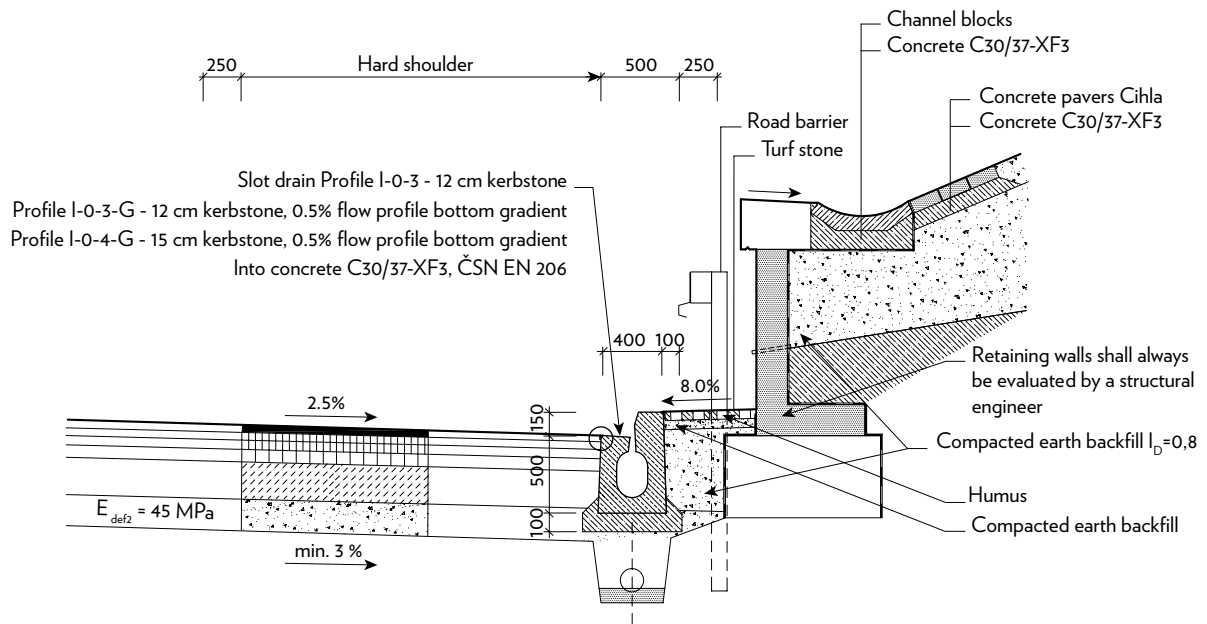
PROFILE I SLOT DRAIN WITH KERBSTONE in cut rock, central sewage city road, < 60 kph speeds



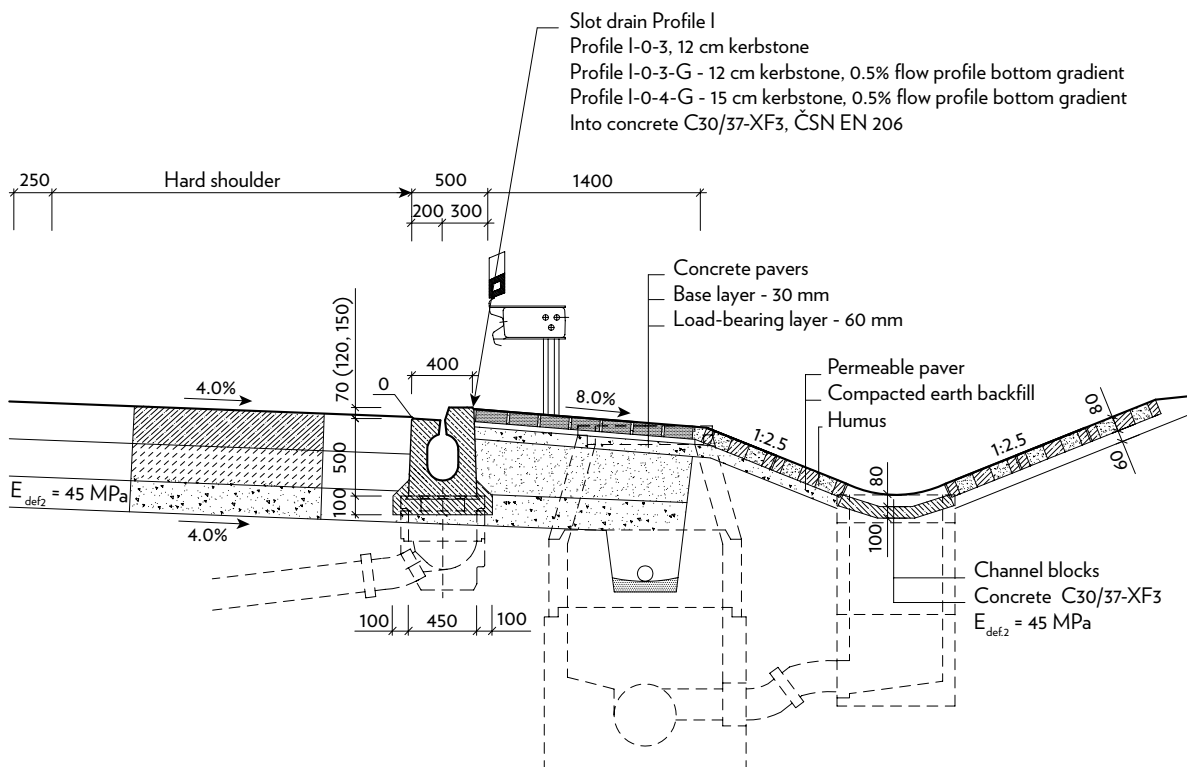
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN in a cutting with a retaining wall, > 60 kph speeds



PROFILE I SLOT DRAIN WITH KERBSTONE within a water source protection zone

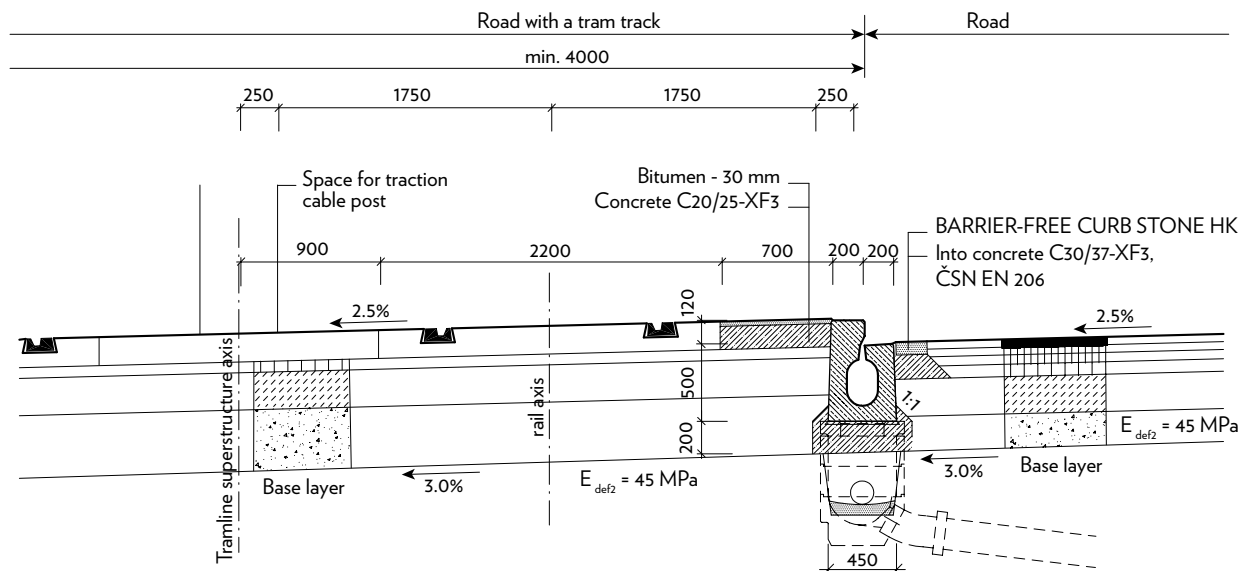


TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

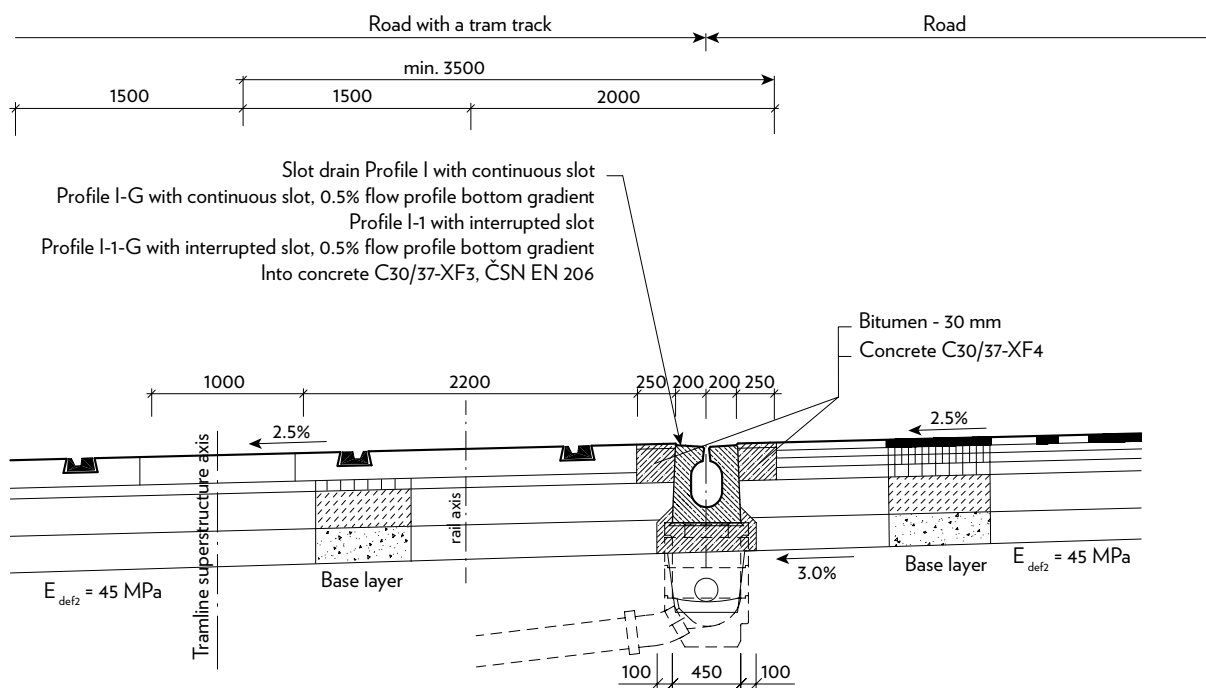
PROFILE I SLOT DRAIN WITH KERBSTONE

road next to a tramway track
city road, < 60 kph speeds, central drains



PROFILE I SLOT DRAIN

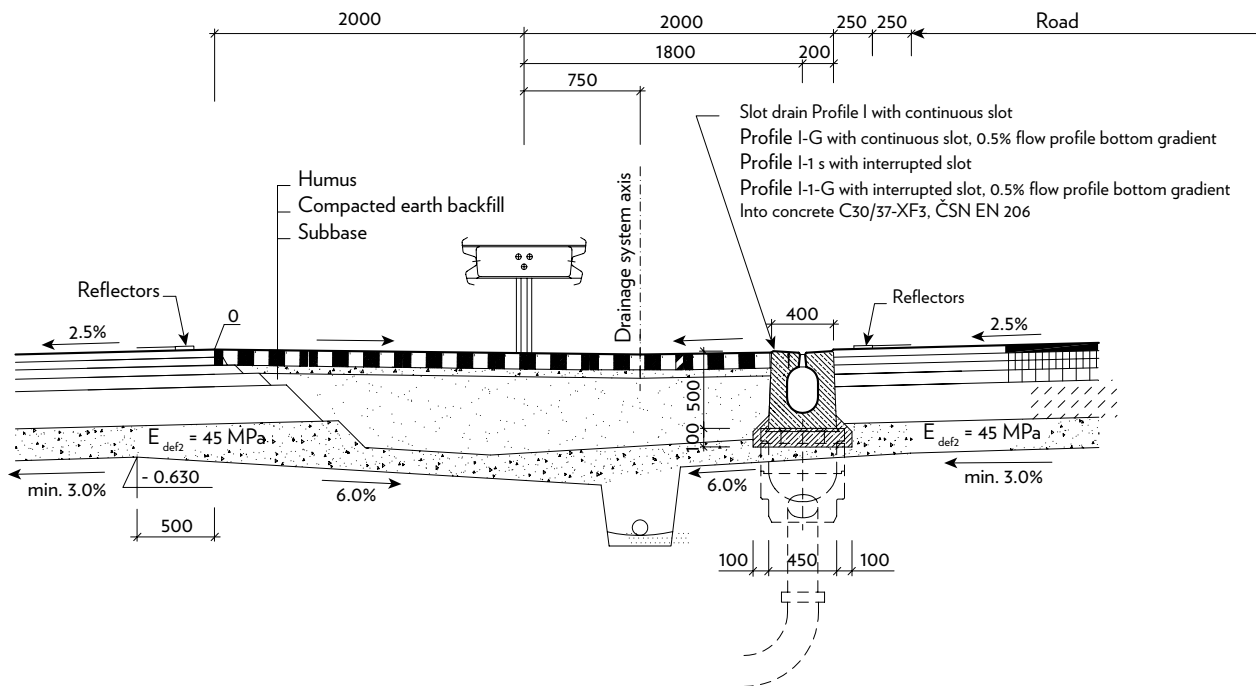
road next to a tram track - same level, city road, < 60 kph speeds



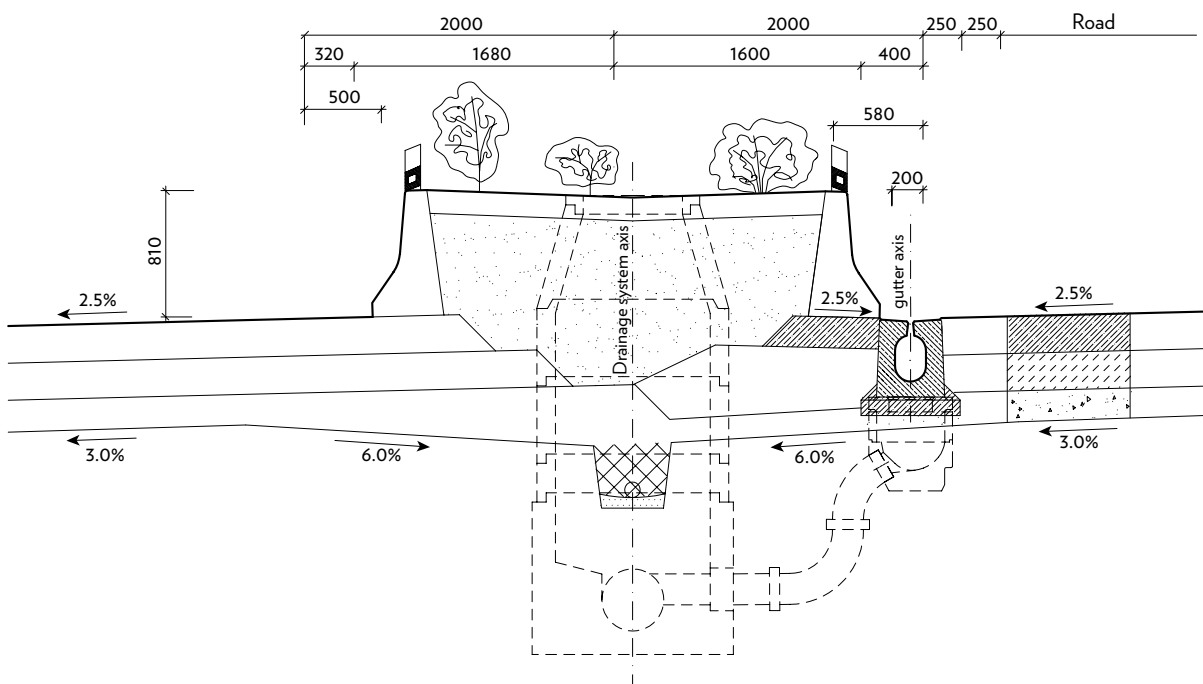
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN
in the central separation lane



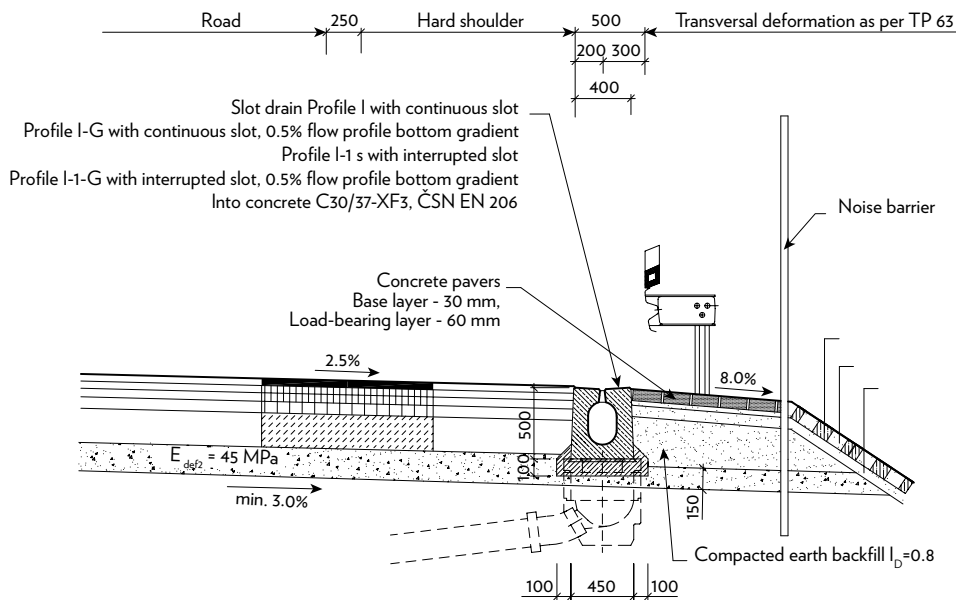
PROFILE I SLOT DRAIN
in the central separation lane with concrete road barriers



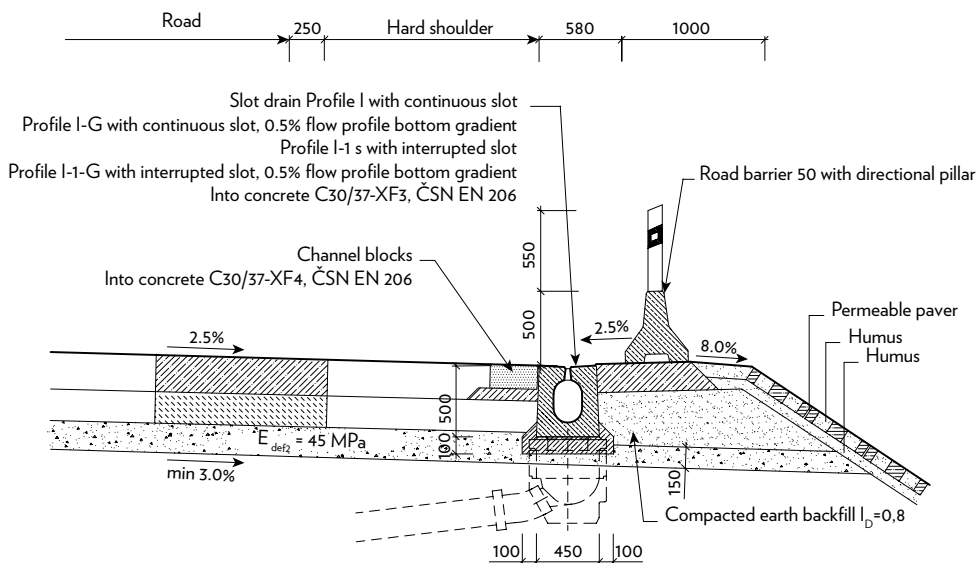
TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN on a mound as an erosion prevention



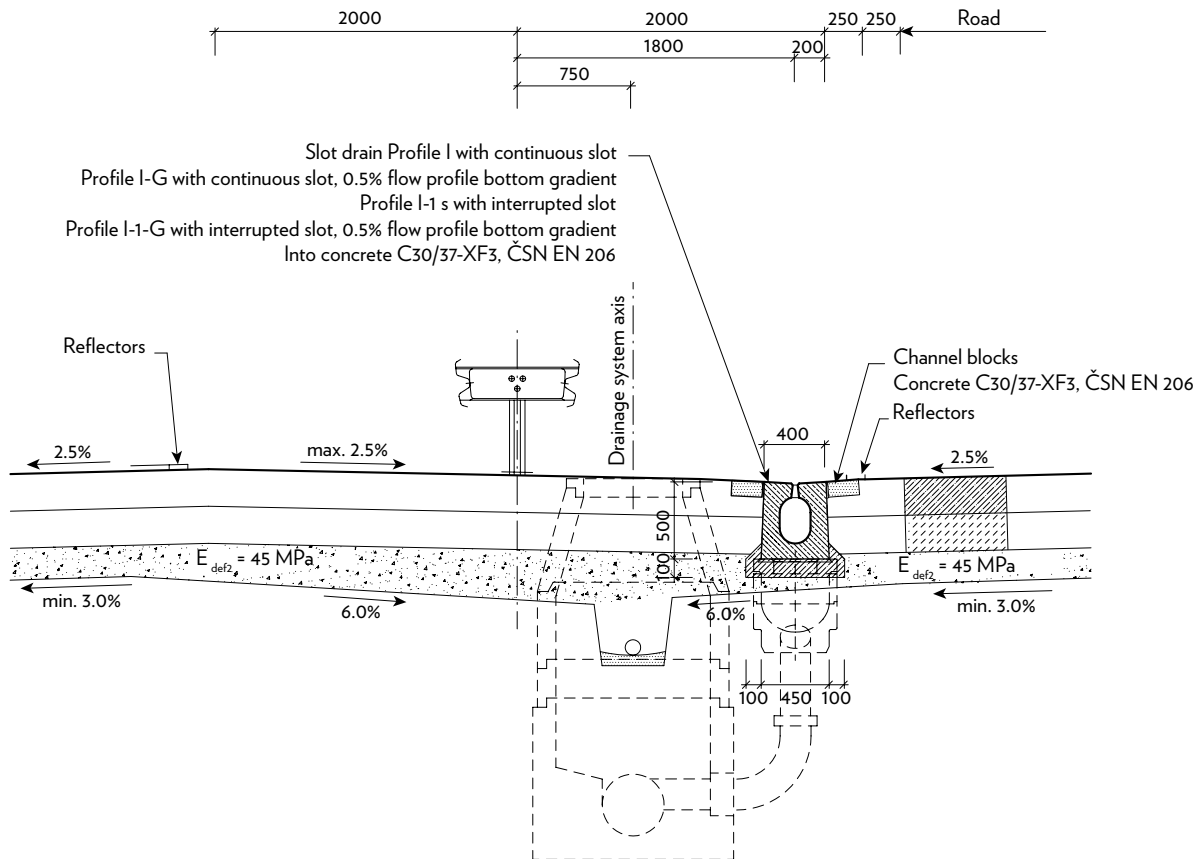
PROFILE I SLOT DRAIN on a high embankment, within a water source protection zone



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

PROFILE I SLOT DRAIN
central separation lane with different surface levels



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

Basic gully segment with gully trap

Cross-section: a-a'

Plastic cover (Cast iron grill) _____

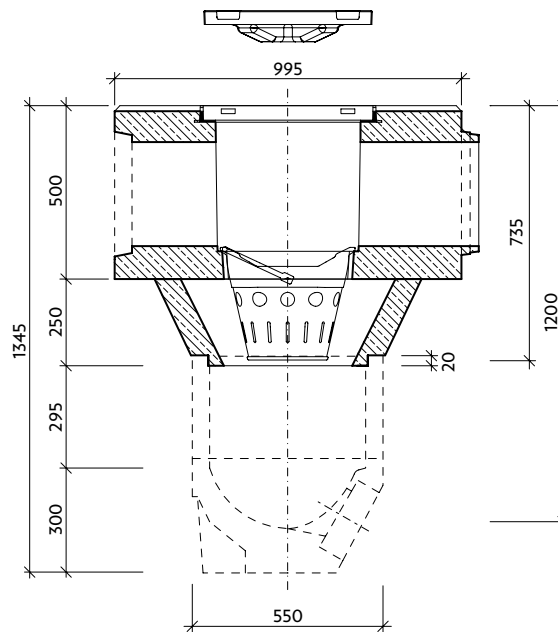
Basic gully segment _____

Gully trap _____

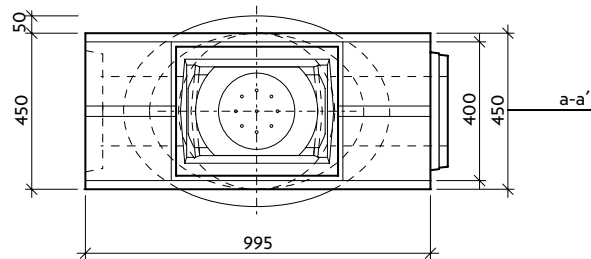
Taper top _____

Inspection shaft TBV-Q 450/295/6a _____

Shaft bottom TBV-Q 450/330/1a,
TBV-Q 450/330/1d _____



Plan



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

Product characteristics:

Slot drains are a modern, fast and efficient way of draining excess water from roads and surfaced areas. The system includes dedicated gully and cleaning segments.

Slot drains ensure efficient draining of excess water from surfaced areas even during extreme rainfall, its transport by means of high-capacity flow profile and removal to a storm sewer. This prevents aquaplaning from occurring and collects contaminated water from the road surface so that it does not come into contact with the surrounding environment. Even large capacity slot drains are relatively narrow, so they can be installed within a 0.5 m-wide soft shoulder. Thanks to large flow capacity and narrow flow profile, they are largely self-cleaning.

The slot drain system may be used to reduce the length of storm sewers and the number of its connectors and inlets.

CS-BETON also offers slot drains with internal flow profile gradient and gradient-to-gradient elements, which enable efficient drainage of level or very slightly sloped surfaces. The upper surface of the segment has a 3% gradient toward the slot. For transversal vehicle travel at high speeds (80 kph and higher), a flat upper surface is recommended.

Different segment profiles may be used for different applications, such as: slot drains with integrated kerbstones, curved slot drain segments, fire-safety barriers, custom-length segments, sloping segments, custom gully segments and shafts, etc.

CS-BETON slot drains have high load-carrying capacity and selection of a suitable type allows them to be used at airports, or the most demanding industrial applications. These segments are made in three versions, for D400, E600 and F900 traffic loads. Segments with interrupted slots are especially suitable for dynamic loading, or to withstand horizontal forces. The simple design and high-quality structural elements ensure long service life of drainage systems.

CS-BETON's slot drains and all the system components are made of high strength C 45/55 XF4 concrete as per ČSN EN 206. Efficient plasticiser and aeration admixtures and non-crystalline silicon dioxide (MICROSILICA) admixtures make our concrete extremely resistant to water and chemical defrosting agents. In European weather conditions, the systems are not affected by frost.

The design of the slot drain elements allows for a perfect connection to the surrounding road surface. The weight of the slot drain segments (4 m segments weigh approximately 1.5 - 2.1 t) enables compacting of road structure layers in the immediate vicinity without the risk of the segments being moved sideways, when suitable techniques such as vibration slabs are used. The slightly slanted side walls also help compacting and connection to the adjoining structures.

CS-BETON's slot drains include a proprietary two-ring AQUAFEST joint technology, which ensures perfect water tightness and resistance to oil residues and other aggressive substances. This prevents surrounding underground and surface waters from being contaminated. The rubber seal also creates an expansion joint between two adjoining drain segments.

Custom lengths (in 1 cm increments between 0.5 and 4.0 m) may also be supplied. Additional modifications are also possible upon request, such as surface modifications, side outlets, slanted ends, etc. Custom lengths and modified elements are more expensive and take longer to supply.

Installation of slot drains is relatively easy and fast when suitable equipment is used. Upon customer's request, CS-BETON will include a special handling and installation kit with the supply. Always follow manufacturer's installation instructions to ensure functional and long-lasting drainage systems.

Finished slot drain systems require minimum maintenance, only cleaning of the flow profile when it becomes clogged. Cleaning and gully segments are provided for this purpose and should be installed at regular intervals. Regular maintenance of gullies is relatively easy. According to TP 152, the gullies should be ideally spaced 40 m apart, in any case not more than 50 m. The only maintenance required is removal and emptying/cleaning of the gully traps.

TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

The cast iron grilles on gullies and cleaning segments are secured against lift-off from the passing traffic. The 900 kN load versions are made from ductile cast iron. Slot drains can be installed in curved layouts. The maximum directional angle between two adjacent segments is 3 degrees. This ensures watertight joints between the adjoining faces. This limitation suggests that 4 m segments could be used in curves down to a radius of $R = 80$ m and 2 m segments down to $R = 40$ m. We do not recommend this minimum value as the visible line of the slot segments appears too polygonal and compacting of adjacent road layers may damage the slot drain segments and joints. This means at least $R = 160$ m for 4 m segments. For smaller radius arcs, shorter segments and/or curved segments may be used.

In the overall context and given its reliability, safety and low operational cost, drainage systems using slot drains are more suitable and more economical than other systems in most cases. Slot drain systems are becoming more popular and some applications would be hard to solve without them.

Important information:

Slot drains are designed to collect water from surfaced areas, not from free terrain. Water from free terrain may be drained only in exceptional cases and in minimum quantities. However, blocking of the slot or the flow profile by stones and mud must always be prevented (rubble arresting benches, ditches, full lawn cover, more frequent maintenance, etc.). Installation of slot drain into minimum radius curves produces polygonal shapes. During compacting next to such shapes, compacting next to the segments must be ensured without any damage or movement to the segments must be ensured. Vibration slabs are recommended.

During installation, gullies must be precisely located in both transversal and longitudinal direction, because the micro-slot segments' length cannot be altered in situ. The nominal length of basic 4 m segments with the rubber seal is 4,000 mm.

The openings at the beginning and end of the line must be closed and sealed using end caps supplied by CS-BETON.

CAUTION!

The „Important information“ above includes only a few general rules for installing micro-slot draining systems.

Use the hydraulic calculation provided below to evaluate the flow capacity of I-series slot drain systems.

CS-BETON provides consulting services to designers and architects using micro-slot drain solutions. We will evaluate your preliminary design in the context of the overall technical solution of the roads, surfaced areas and rainwater drainage of your project. We will confirm the proposed drainage solution, or recommend changes and specify recommended elements and their location within the system, including a recapitulation/BoQ for ordering purposes, along with list prices and the total price. All the above services are provided free of charge as a courtesy to our clients.

CS-BETON s.r.o. is not the responsible designer of your project's documentation or its part. According to Section 159 of the Act no. 183/2006 Coll, the designer is responsible for the correct selection of products specified in project documentation based on guaranteed properties of individual products detailed in product property certificates.

When installing the Profil I slot drains by CS-BETON, always follow the manufacturer's installation recommendations!

TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

Hydraulic calculation:

1. Introduction

The I-series of slot drain systems is suitable for smaller areas such as courtyards, service stations, etc. and wherever manual handling during installation is preferable.

2. Initial assumptions

The hydraulic design of a I-slot system must always be based on the individual conditions at the given site, i.e. hydrogeology information, size, type and location of the catchment area. The capacity of the drainage system must then be calculated to reflect these conditions.

2.1 Geometrical characteristics

I-series slot drains are produced in two types. The I-G profile has an artificial bottom gradient of 5 ‰ and the I-T profile has a constant height of the flow profile. Further options include these: with interrupted slot, with integrated kerbstones, with covered slot, etc.

2.1.1 I-G type segments with internal gradient

This type of system is represented by a line of 20 basic segments with one gully segment ($20.0 + 1.0 = 21,0$ m) in a „saw teeth“ configuration and/or with one gully and one cleaning segment ($20.0 + 2.0 = 22$ m) when only one such line is used. Another option are two basic lines with the gully segment in the middle and cleaning segments at the ends - this configuration is $1.0 + 20.0 + 1.0 + 20.0 + 1.0$ m = 43.0 m. The basic 20.0 m line with a 5 ‰ flow profile bottom gradient has an upper part of the flow profile cross section formed by an $R = 45$ mm circle, a bottom part by an $R = 100$ mm circle, with a 200×100 mm rectangle in between. The height of this rectangle changes from 0 to 100 mm and is increased by 20 mm for each subsequent segment.

2.1.2 I-T type segments with constant internal gradient

This type of slot drain does not have a fixed maximum length of one line - individual parameters depend on the site conditions (slopes etc.). The distance between the beginning/end of the line and the first cleaning and/or gully segment should not exceed 6 m so that simple cleaning and maintenance is possible. Distances between individual cleaning gully segments depend on the maintenance and cleaning intervals. According to TP 152, the maximum distance is 50 m. The segments have a flow profile cross section formed by a top and bottom circle of a 100 mm radius, with a 200×100 mm rectangle in between - it is thus identical to the end profile of the above sloped type.

2.2 Hydrology information

For the hydraulic design of slot drain systems, the most important input parameter is the design rainfall volume, which is used to arrive to the total drained volume and the necessary number of gully segments. The design rainfall volume may be obtained, for instance, from the „Intenzity krátkodobých dešťů v povodích Labe, Odry a Moravy“ (Josef Trupl) Table [1], or by ordering the information from the relevant Hydrometeorology Institute branch. Generally speaking, for I Profile slot drain systems, ČSN 75 6101 (Stokové sítě a kanalizační přípojky) [2] specifies 15-minute rainfall with periodicity as per the type of area as the critical parameter. The same parameter is then used for the design of the storm sewer.

2.3 Terrain location

For the most economical system, the slot drains should be located on the catchment area so that their capacity is used to maximum and the number of storm sewer connections is minimal. The ideal scenario is slot drains in the lowest part of the area and a sufficient gradient sloping toward that part. When I-G type segments are used, the line is usually installed on a level surface. When I-T type segments are used, the gradient of the terrain in the longitudinal direction of the line must be at least 5 ‰ and the draining capacity depends on the gradient. Nomographic chart 1 below lists the flow capacity of slot drains and the flow rate for that capacity in relation to the longitudinal gradient. The total capacity of the system must correspond to the catchment area and the design rainfall as per above. The intensity of the design rainfall is reduced as per [2] using a recommended draining coefficient, which depends on type of structures present, type of site and its sloping. TP 152 MDS may be used for the design.

2.4 Connection to the storm sewer

Connections to storm sewer are installed in shafts provided under gully segments with a DN 150 or DN 200 connector. The gully segments include support surfaces for gully traps to protect the sewer connector from being blocked by debris.

3. Capacity flow through Profile I slot drains

Calculation of the capacity of this system is based on the „Hydraulické tabulky stok“ (Hydraulic tables: Sewage conduits by J. Herle, O. Štefan, J. Turi Nagy) [3]. The same method is also used to design sewage conduits. The roughness coefficient was assumed at $n = 0.014$ and velocity coefficient c was calculated as per Pavlovský. Our calculations do not assume (given the usual longitudinal sloping of up to 35 ‰) any aeration within the flow. The capacity itself was then calculated using the Chezy formula for gradients of 5 to 100 ‰ and the results were plotted in nomogram 1. The nomogram also shows flow speeds for the given flow rates. The calculation was only performed for M and T profiles, i.e. with constant cross-section, because with such systems, variable distances between gully segments is used depending on the size of the area drained. A basic 20 m line of IG profiles is theoretically capable (see prerequisites in Chapter 5) of draining water from an area of approximately 4,480 sq m. With a width of 20.0 m, that would represent a length of 224 m, which will not be possible in practice. As far as the DN 150 gully connectors are concerned, their capacity must be evaluated at critical points, see Literature [3]. To prevent blocking by debris, all connectors should have a gradient of at least 20 ‰. With smaller gradients of the slot drain lines, the connector capacity may become the limiting factor for the whole system and larger connector diameters and/or gradients are recommended.

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SLOT DRAIN PROFILE I

4. Example hydraulic calculation

This hydraulic calculation is based on theoretical input information. This specifies an application example involving Profile I slot drains and a motorway with a constant longitudinal gradient of 10 ‰. The road is in an area for which the hydrographical information is taken from data provided by the Roudnice nad Labem meteorological station. The segment which uses slot drains has a width of 12 m and a length of 125 m. The slot drains are installed at the edge of the road. The line includes one gully segment at the bottom end. The limiting parameter for the slot drain line is its cross-section at the bottom end. The road has a transversal gradient toward the slot drains of 25 ‰ and has a bitumen surface. Design rainfall intensity for $T = 15$ minutes and periodicity $p = 1$ is:

$$I_{NAV} = 112 \text{ [l/s.ha]}$$

The runoff coefficient is:

$$\varphi = 0,80$$

The drained area is:

$$F = 12 \times 125 \times 0,0001 \text{ [ha]} = 0,15 \text{ [ha]}$$

After reduction by coefficient $c = 0,80$ the drained area is:

$$F_{RED} = \varphi \times F \text{ [ha]} = 0,80 \times 0,150 = 0,120 \text{ [ha]}$$

The design flow Q_{NAV} is:

$$\begin{aligned} Q_{NAV} &= F_{RED} \times I_{NAV} \text{ [l/s]} \\ Q_{NAV} &= 0,120 \times 112 \\ Q_{NAV} &= 13,44 \text{ [l/s]} \end{aligned}$$

After comparing this value to the capacity of the slot drain from nomogram 1 for the gradient of 10‰, it is clear that:

$$Q_{KAP} = 61,92 \text{ [l/s]} > Q_{NAV} = 13,44 \text{ [l/s]}$$

Cleaning segments also have to be provided, with maximum spacing of 50 m.

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SLOT DRAIN PROFILE I

Nomograms:

1. Nomograms for preliminary design of drainage systems

For reference design of I-profile draining systems, some calculation assumptions may be simplified. The average rainfall intensity for 15 minute rainfalls and periodicity of $p = 1$ for the Czech Republic (Labe basin) is:

$$I_{OR} = 122 \text{ [l/s.ha]}$$

Since these slot-drains will not be used to drain water from unsurfaced areas, the average runoff coefficient c as per [2] is:

$$\varphi = 0,80$$

which is correct for concrete/bitumen surfaces with a gradient between 10 and 50 ‰. With these specifications, the following nominal runoff may be assumed:

per 1 sq m of drained area:

$$Q_{OR} = 1 \times 1 \times 0,0001 \times 0,8 \times 122 = 0,00976 \text{ [l/s]}$$

per 1 are, i.e. 100 sq m:

$$Q_{OR} = 10 \times 10 \times 0,0001 \times 0,8 \times 122 = 0,976 \text{ [l/s]}$$

per 1 hectare, i.e. 10,000 sq m:

$$Q_{OR} = 100 \times 100 \times 0,0001 \times 0,8 \times 122 = 97,6 \text{ [l/s]}$$

The relationship between design runoff and the drained area is shown in nomogram 2 for areas of 500 to 5000 sq m.

A comparison of the calculated runoff as per nomogram 2 with the capacity of the slot drain at the given gradient from nomogram 1 gives us enough information to specify the number of gully segments and to optimise the layout of the slot drain system.

6. Gully trap

Each gully contains two gully traps, which protect the storm sewer connections from being blocked by debris. The TP 152 recommends a distance between gully segments in a line of Profile I slot drains of 30 to 50 m, depending on the characteristics of the adjacent surfaced area.

The gully segments include small gully traps, which are sufficient for most applications. For applications where large flow rate is required, large gully traps may be used.

The gully traps have several rows of narrow rectangular openings.

The upper sides of the trap are 420 mm and 190 mm and a number of draining slots is provided below the filling openings. Every gully trap includes a holding rod for easy handling. Gully traps are made of 1.25 mm thick galvanised steel sheeting.

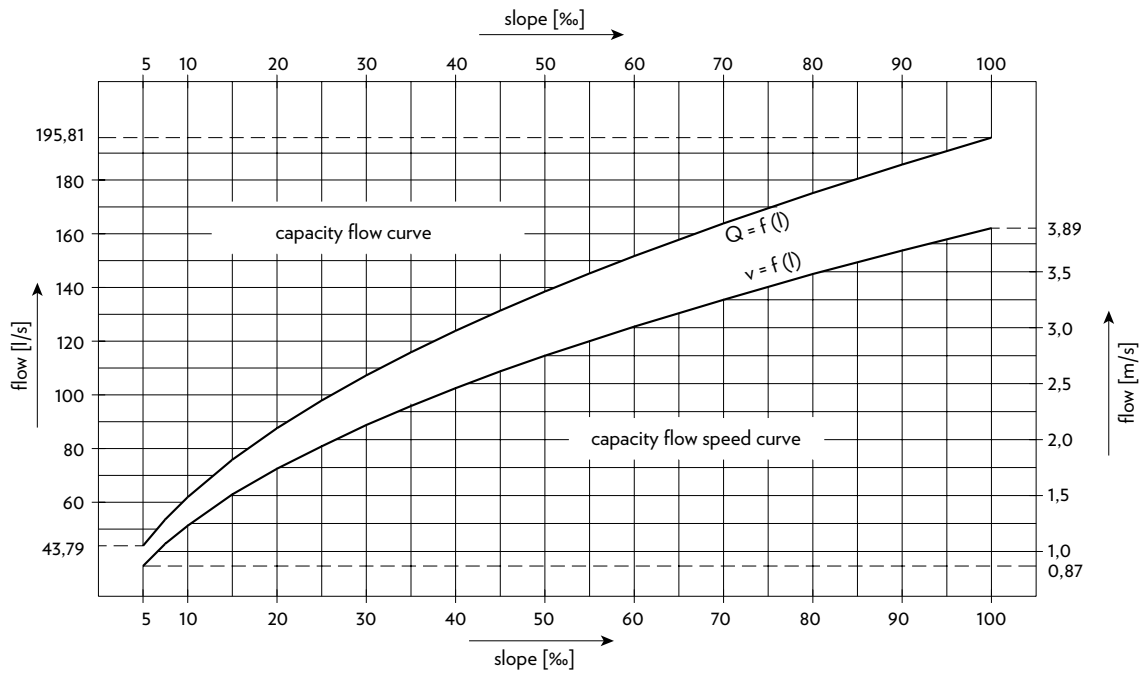
The gully trap has a height of 275 mm and a rectangular base of 325 x 145 mm. The shape is conical and fits the support elements within the gully segment. Filling openings are provided at the top of the narrower sides. The upper sides of the trap are 420 mm and 190 mm and a number of draining slots is provided below the filling openings. Every gully trap includes a holding rod for easy handling. The maximum flow rate through a gully trap is 40.4 l/s.

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SLOT DRAIN PROFILE I

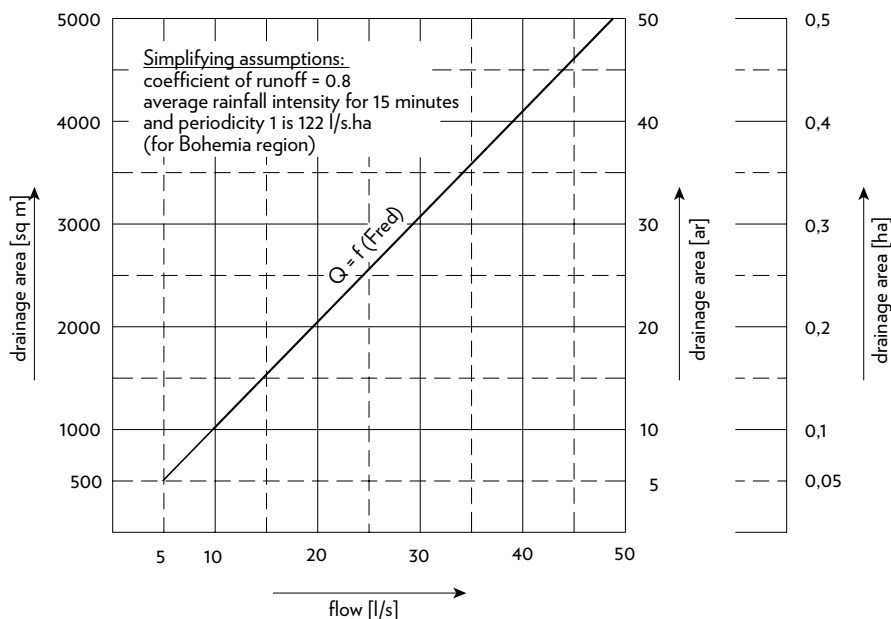
NOMOGRAMME No. 1

CAPACITY OF SLOT CHANNELS (roughness coefficient $n = 0,014$ - by Pavlovsky) PROFILE I



NOMOGRAM No. 2

Determination of surface runoff from 500 to 5000 sq m



TECHNICAL SHEET (IS03)

SLOT DRAIN PROFILE I

Input data:

The following literature has been used in designing the drainage system described in this brochure:

ČSN EN 1433 Odvodňovací žlábký pro dopravní a pěší plochy - konstrukční zásady zkoušení, označování, řízení jakosti

ČSN EN 206 Beton - specifikace, vlastnosti, výroba a shoda

DIN 19 580 Entwässerungsrinnen für Niederschlagswasser zum Einbau in Verkehrsflächen

ČSN 73 6056 Odstavné a parkovací plochy silničních vozidel

ČSN 73 6059 Servisy a opravy motorových vozidel. Čerpací stanice pohonných hmot

ČSN 73 6101 Projektování silnic a dálnic

ČSN 73 6110 Projektování místních komunikací

ČSN 73 6114 Vozovky pozemních komunikací

ČSN 75 6101 Stokové sítě a kanalizační přípojky

ČSN EN 124 Poklopy a vtokové mříže pro dopravní plochy

Vzorové listy staveb pozemních komunikací VL-1 Vozovky a krajnice, Ministry of Transport of the Czech republic, Dopravoprojekt

Vzorové listy staveb pozemních komunikací VL-2.2 Odvodnění, Ministry of Transport of the Czech republic, Dopravoprojekt

TKP 1 - Všeobecně

TKP 18 - Betonové konstrukce (vč. 10 příloh)

TKP 31 - Opravy betonových konstrukcí

TP 152 - Štěrbinové žláby na PK, 2001, VPÚ DECO

TP 170 - Navrhování vozovek PK (všeobecná část, katalog, návrhová metoda), 2004, VTU, Roadconsult

Technical documentation by CS-BETON Velké Žernoseky + VPÚ DECO 96-04

Company standard 7/99 Micro-slot drains as per DIN 19580, CSB

TPV 2/99 - Technologický předpis na montáž mikroštěrbinových trub, CSB

TPV 1/98 - Technologický předpis na opravy betonových prvků odvodňovacích systémů štěrbinových trub, CSB