

m a n h o l e c o v e r s
a n d g r a t i n g s
p r o g r a m m e

2 0 1 8



livar
industries

SQUARE CAST-IRON COVERS

	P.	Product	Load capacity in kN	Nominal dimension	Installation	Type	Locking	Noise barrier insert	Sealing	Fastened cover	Concrete ring
Square covers smaller dimensions	8	500 A	A 15	350 × 350	footways						
	8	500 B	A 15	350 × 450	footways						
	8	513	B 125	400 × 400	parking lots	smell sealed, oil gutter					
	8	520	B 125	500 × 500	parking lots						
	8	521	C 250	500 × 500	edge of road					2x	
Square covers 600 × 600	9	501	A 15	600 × 600	footways						
	9	502	B 125	600 × 600	parking lots						
	9	503	C 250	600 × 600	edge of road		single	EPDM rubber			
Square covers with sealing 600 × 600											
	9	504	D 400	600 × 600	road		double	EPDM rubber			optional
	10	803	B 125	600 × 600	parking lots		double symmetrical	NBRM rubber	water and sludge barrier		
Square covers with sealing 600 × 1250	10	802 A	D 400	600 × 600	road		double symmetrical	EPDM rubber	water and sludge barrier	1x	optional
	10	804	D 400	600 × 600	road		double symmetrical	EPDM rubber	water and sludge barrier		optional
	11	811	B 125	600 × 1250	parking lots	detachable crossbar	double symmetrical	NBRM rubber	water and sludge barrier		
Square covers 800 × 800											
	11	812 A	D 400	600 × 1250	road	detachable crossbar	double symmetrical	EPDM rubber	water and sludge barrier	1x	
	12	903	B 125	800 × 800	parking lots	detachable crossbar					
Classic square grating for drainage	12	904	D 400	800 × 800	road	detachable crossbar		EPDM rubber		1x	
	19	700	C 250	300 × 300	edge of roads	concave, cast-iron dirt catcher 700 A	locking				
	19	705	C 250	400 × 400	edge of roads	flat	locking				
	19	706	C 250	400 × 400	edge of roads	concave	locking				
	19	701	D 400	400 × 400	road	flat, cast-iron dirt catcher 702 A	locking				
Line gratings	19	701 B	D 400	400 × 400	road	flat	locking				
	19	702	D 400	400 × 400	road	concave, cast-iron dirt catcher 702 A	locking				
	19	702 B	D 400	400 × 400	road	concave	locking				
	20	711	C 250	500 × 200	edge of roads	with frame	locking				
	20	721	C 250	500 × 100	edge of roads	with cast-iron channel	locking				
Square gratings 600 × 600	20	723	C 250	500 × 200	edge of roads	with cast-iron channel	locking				
	20	724	D 400	500 × 300	road	with cast-iron channel	locking				
	21	707 A	D 400	600 × 600	road	flat	double symmetrical	EPDM rubber		1x	optional
Round gratings Ø 600											
	23	703	B 125	Ø 600	parking lots	flat					
Curb gratings											
	23	704	D 400	Ø 600	road	flat	double symmetrical	PVC			
Curb gratings											
	22	708	C 250	400 × 400	edge of roads	curb	double symmetrical	EPDM rubber			

GRATINGS

	P.	Product	Load capacity in kN	Nominal dimension	Installation	Type	Locking	Noise barrier insert	Sealing	Fastened cover	Concrete ring
Round covers, Ø 500	13	621	B 125	Ø 500	parking lots	bolted crossbar		NBRM rubber	water and sludge barrier	1x	
	13	622	B 125	Ø 500	parking lots						
Round covers, Ø 600	14	600	B 125	Ø 600	parking lots						optional
	14	601	B 125	Ø 600	parking lots	ventilated					optional
	14	603	C 250	Ø 600	edge of road	ventilated	single	EPDM rubber			optional
	14	603 B.L.	C 250	Ø 600	edge of road		single	EPDM rubber			optional
	14	604	D 400	Ø 600	road		double symmetrical	EPDM rubber			optional
	14	604 A	D 400	Ø 600	road		double symmetrical	EPDM rubber	water and sludge barrier	1x	optional
	14	605	D 400	Ø 600	road	ventilated	double symmetrical	EPDM rubber			optional
	14	605 A	D 400	Ø 600	road	ventilated	double symmetrical	EPDM rubber	water and sludge barrier	1x	optional
Round covers with space for filling	15	610	B 125	Ø 450	parking lots	ventilated					
	15	611	B 125	Ø 600	parking lots	ventilated					
Special round covers - with extended frame	16	634	D 400	Ø 600	road		double symmetrical	EPDM rubber			
	16	635	D 400	Ø 600	road	ventilated	double symmetrical	EPDM rubber			
Special round covers - high loads, highway, watertight 1 bar	17	607	D 400	Ø 600	road	watertight, flood areas		EPDM rubber	watertight 1 bar	3x	optional
	17	606	E 600	Ø 600	high loads	highways, tunnels, industrial plants, etc.		PVC		4x	optional
Special round covers - telescopic, with adjustable height	18	654	D 400	Ø 600	road		double symmetrical	EPDM rubber			optional
	18	655	D 400	Ø 600	road	ventilated	double symmetrical	EPDM rubber			optional
Reinforced concrete rings dimensions Ø 1000 and	24										
Dirt catchers	25										
Accessories	26	Entry part									
	26	Pliers for opening covers									
	26	Universal opening bar									

WHY CHOOSE LIVAR?



OUR KNOW-HOW and commitment had a key role in creating the largest specialised foundry for the production of grey and ductile cast iron in

Slovenia. With our products we are present almost all over the world in several different industries. Reliability, solution-orientation and control of all technological process in the foundry industry are particularly reflected in the sales programme for civil engineering of our Livar brand.

The municipal programme is entirely the result of our knowledge, our own development and more than fifty years of experience. In the region and beyond we are considered as an excellent and reliable developmental supplier, investing a lot of effort in building partnership relations with customers and in the final satisfaction of shareholders. The quality and safety of the entire programme is ensured by certification in accordance with the SIST EN 124-2 standard, where the characteristics of products (geometry), the compliance with the classification with regard to classes and loads, and the suitability of the system for the installation and quality of materials are regularly monitored.

The renewed catalogue of the Livar civil engineering programme presents our entire line through a transparent system, where all individual products are presented in detail in data sheets, which are accessible on our website www.livar.si or by contacting our administrators and sales representatives.



SECURITY:

- product compliance with the requirements of standard SIST EN 124-2:2015, SIST EN 1433,
- quality system in accordance with the requirements of ISO 9001 since 2015,
- product compliance certificates obtained from the ZAG Ljubljana certification body.

FUNCTIONALITY:

- wide range of products,
- own production,
- more than five decades of experience,
- adjusting products to specific user requirements.

DEVELOPMENT

- All our products are the result of our own development and we are able to adjust them and further develop them according to our client's wishes.

QUALITY ASSURANCE

- All our products are certified in accordance with SIST EN 124-2:2015, which includes the following requirements:
 - product characteristics (geometry),
 - classification (capacity classes),
 - installation locations,
 - materials that may be used for manufacturing,
 - product labelling,
 - testing and monitoring.

CERTIFICATES:

SIST EN 124-2:2015
SIST EN 1433



ZAG

QUALITY

ISO 9001

PROTECTION OF THE
ENVIRONMENT

ISO 14001

SATISFACTION GUARANTEE

7-year warranty

OUR PRODUCTS

PRODUCT FEATURES:

- easy to handle during transportation, installation and maintenance,
- during loading the products are stable, fixed in their seat, thus preventing annoying noise,
- improved frame design is well suited to the installation location, consequently the
- frame cannot depart from the base,
- in accordance with the standard, the covers are installed with a sealing rubber,
- noise-barrier insert and are closed with springs or a screw system,
- compliance with the requirements of standards SIST EN 124-2 and SIST EN 1433,
- continuous monitoring of production by the certification body
- and additional safeguards provide security.

MATERIAL

Frame and cover are made of ductile cast iron (in accordance with SIST EN GJS 500-7). Due to its composition at the same hardness, it has a much greater tensile strength than grey cast iron, and a major advantage is also its toughness and stretching abilities.

FEATURES

When choosing a suitable cover pay attention to its characteristics: noise-barrier sealing rubber, noise-barrier insert, locking system, ventilation holes or no ventilation, waterproof insert, screw system option, etc.

INSCRIPTIONS AND PERSONALISATION

Covers come with various standard inscriptions and under special circumstances we also offer custom-made inscriptions. The central part of the covers which have this option can be cast with your crest or according to your design.

PROTECTION

All products are protected from corrosion by environmentally-friendly black water based paint.

PACKAGING

The products are stacked on wooden pallets and wrapped in PVC foil and bound together with PVC tape.

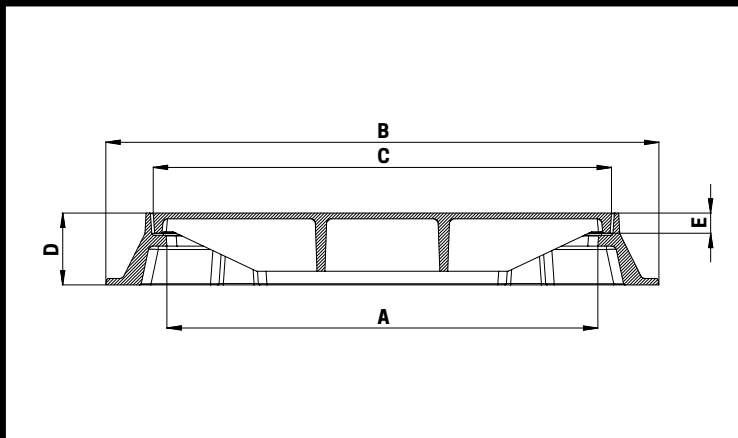
08 SQUARE COVERS

13 ROUND COVERS

19 GRATINGS

24 OTHER

27 INSTRUCTIONS



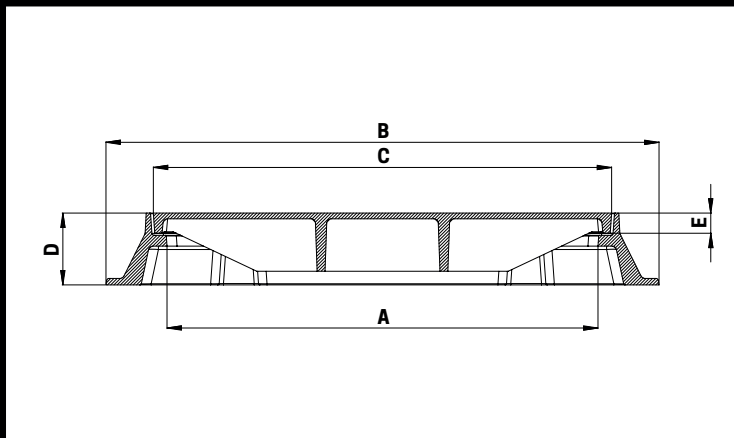
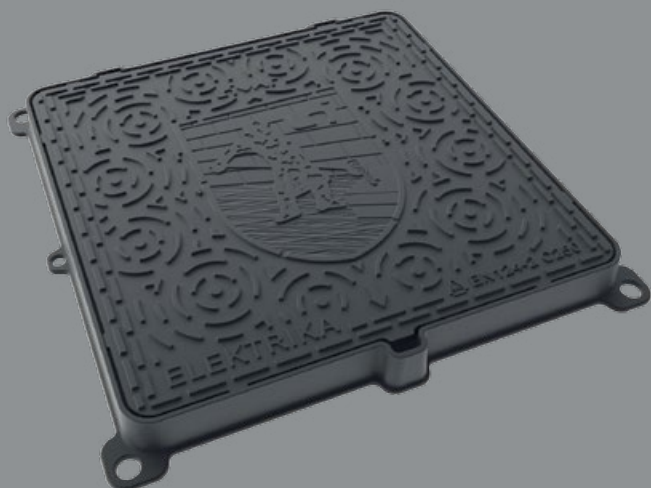
SQUARE COVERS OF SMALLER DIMENSIONS

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
FOOTWAYS	A 15	500 A	350 × 350	320	380 × 430	350	46	36	17	
FOOTWAYS	A 15	500 B	350 × 450	320 × 420	380 × 530	350 × 450	36	46	23	
PARKING LOTS	B 125	513	400 × 400	400	500	440	38	30	21	oil gutter
PARKING LOTS	B 125	520 (in the figure)	500 × 500	500	595	530	40	30	28	
EDGE OF ROAD	C 250	521	500 × 500	500	595	530	50	39	38	2-times fastened

FEATURES:

500 A, 500 B	inscription not possible
513	SEWAGE inscription, smell sealed (oil gutter for paraffin oil)
520	SEWAGE inscription
521	SEWAGE inscription, 2-times fastened



SQUARE COVERS WITH DIMENSIONS 600 MM × 600 MM

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)
FOOTWAYS	A 15	501	600 × 600	600	720	630	40	30	41
PARKING LOTS	B 125	502	600 × 600	600	720	630	40	30	42
EDGE OF ROAD	C 250	503 (in the figure)	600 × 600	600	725	640	60	27	52
ROAD	D 400	504	600 × 600	600	770	640	100	28	67

FEATURES:

501, 502, 503, 504

option with city coat of arms, inscription:

SEWAGE - WATER - PUBLIC LIGHTING - ELECTRICITY - TELEPHONE - CATV - without inscription

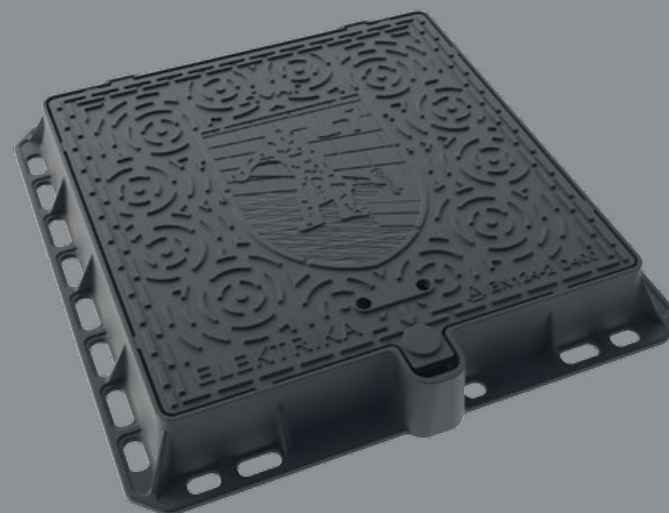
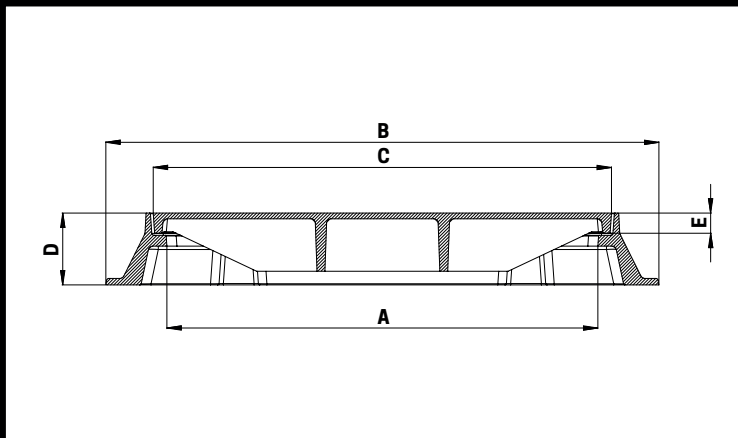
503

single locking, noise barrier insert, EPDM rubber

504

double symmetrical locking, noise barrier insert, EPDM rubber, option with concrete ring

**504:
OPTION
WITH
CONCRETE
RING**



SQUARE COVERS WITH SEALING WITH DIMENSIONS 600 MM × 600 MM

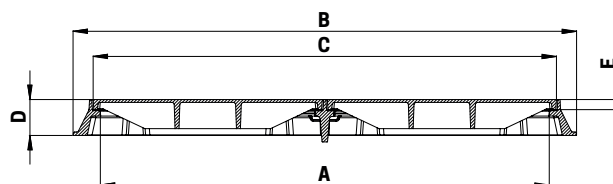
SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	803	600 × 600	600	762	640	80	30	59	sealing
ROAD	D 400	802 A (in the figure)	600 × 600	600	770	640	100	28	67	sealing, fastened cover
ROAD	D 400	804	600 × 600	600	770	640	100	28	67	sealing

FEATURES:

- 803
 - ELECTRICITY inscription
 - double symmetrical locking, sealing, NBRM rubber - water and sludge barrier
- 802 A
 - option with city coat of arms
 - option with inscription: ELECTRICITY - TELEPHONE - option with inscription upon agreement - without inscription
 - double symmetrical locking, noise barrier insert, EPDM rubber - water and sludge barrier
 - fastened cover, option with concrete ring
- 804
 - option with city coat of arms
 - option with TELECOM inscription - option with inscription upon agreement - without inscription
 - double symmetrical locking, noise barrier insert, EPDM rubber - water and sludge barrier
 - option with concrete ring

**802A, 804:
OPTION
WITH
CONCRETE
RING**



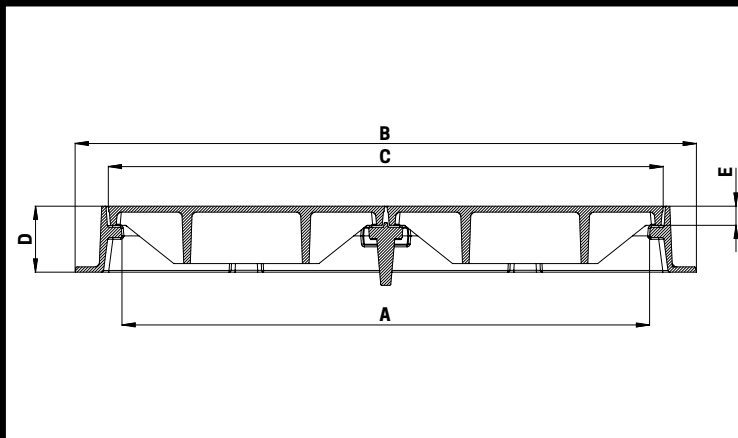
SQUARE COVERS WITH SEALING WITH DIMENSIONS 600 MM × 1250 MM

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	811	600 × 1250	600 × 1250	740 × 1390	640 × 1290	70	30	105	sealing, detachable crossbar
ROAD	D 400	812 A (in the figure)	600 × 1250	600 × 1250	785 × 1400	640 × 1290	100	28	131	sealing, detachable crossbar

FEATURES:

811	ELECTRICITY inscription or without inscription sealing, NBRM rubber - water and sludge barrier double symmetrical locking, detachable frame crossbar
812 A	option with city coat of arms, ELECTRICITY inscription or without inscription noise barrier insert, EPDM rubber - water and sludge barrier double symmetrical locking, detachable frame crossbar



SQUARE COVERS WITH DIMENSIONS 800 MM × 800 MM

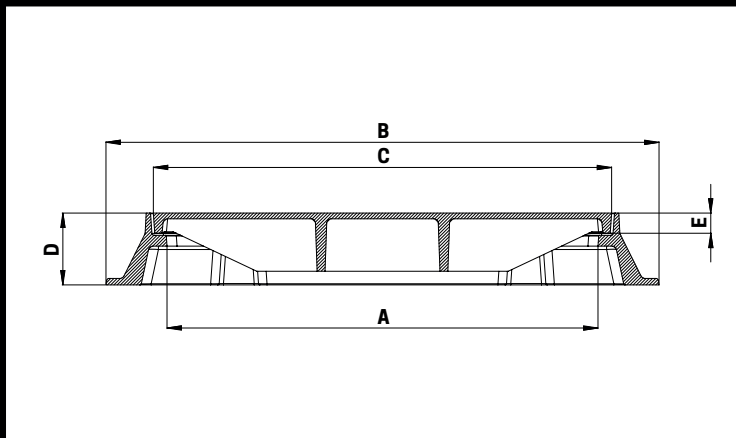
SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	903	800	800 × 800	930 × 930	850	56	41	106	detachable crossbar
ROAD	D 400	904 (in the figure)	800	800 × 800	920 × 942	840 × 800	100	29	128	detachable crossbar

POSEBNOSTI:

FEATURES:

- 903 ELECTRICITY inscription
detachable frame crossbar
- 904 ELECTRICITY inscription
detachable frame crossbar, EPDM rubber, fastened cover, detachable frame crossbar



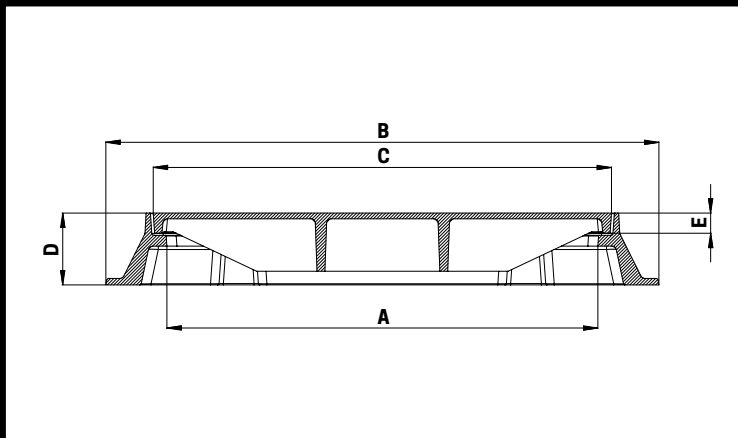
ROUND COVERS Ø 500

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	621 (in the figure)	Ø 500	500	600	545	58	16	26,5	bolted crossbar
PARKING LOTS	B 125	622	Ø 500	500	600	545	58	16	25	

FEATURES:

- 621, 622 without inscription
- 621 detachable bolted crossbar, sealing as a water and sludge barrier (NBRM rubber)



ROUND COVERS Ø 600

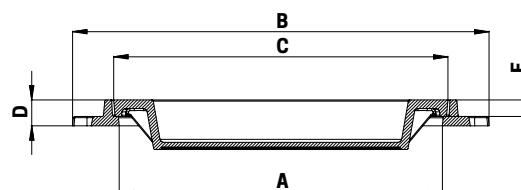
SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	600	Ø 600	615	760	650	55	23	38	
PARKING LOTS	B 125	601	Ø 600	615	760	650	55	23	37,5	ventilated
EDGE OF ROAD	C 250	603	Ø 600	600	785	640	70	23	44,5	ventilated
EDGE OF ROAD	C 250	603 B.L.	Ø 600	600	785	640	70	23	45	
ROAD	D 400	604 (in the figure)	Ø 600	600	800	640	100	24	53	
ROAD	D 400	604 A	Ø 600	600	800	640	100	24	53	with screw, with sealing
ROAD	D 400	605	Ø 600	600	800	640	100	24	52	ventilated
ROAD	D 400	605 A	Ø 600	600	800	640	100	24	52	ventilated with bolt

FEATURES:

600, 601	option with city coat of arms, SEWAGE inscription, option with concrete ring
603, 603 B.L.	option with city coat of arms, SEWAGE inscription, option with concrete ring, single locking, noise barrier insert, EPDM rubber, self-standing cover opening at a 120° angle with an anti-closing lock at a 90° angle
603 B.L.	non-ventilated (without holes)
604, 605	option with city coat of arms, SEWAGE inscription, option with concrete ring, double symmetrical locking, noise barrier insert, EPDM rubber, self-standing cover opening at a 120° angle with an anti-closing lock at a 90° angle
604 A	with bolt, suitable for wheel tracks locations and areas with sealing requirement - water and sludge barrier
605 A	with bolt, suitable for wheel tracks locations

OPTION
WITH
CONCRETE
RING



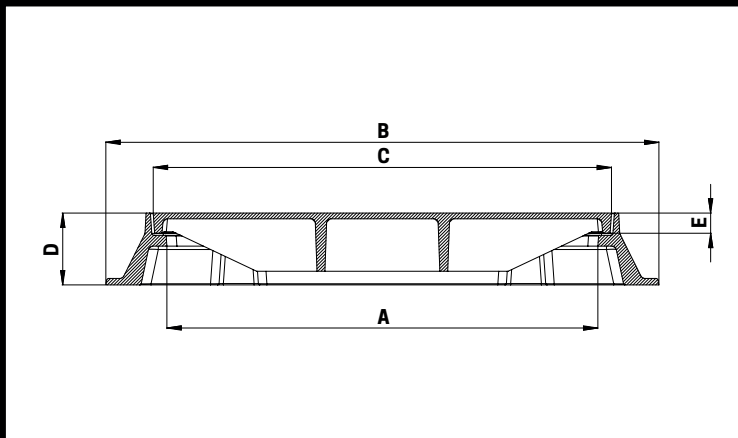
ROUND COVERS WITH FILLING OPTION

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
PARKING LOTS	B 125	610 (in the figure)	Ø 450	450	580	465	36	23	20	ventilated
PARKING LOTS	B 125	611	Ø 600	610	778	650	39	28	43	ventilated

FEATURES:

- 610 inscription is not possible, ventilated, filling volume 5.5 L, height of the space for filling 59 mm
- 611 inscription is not possible, ventilated, filling volume 9 L, height of the space for filling up to 58 mm



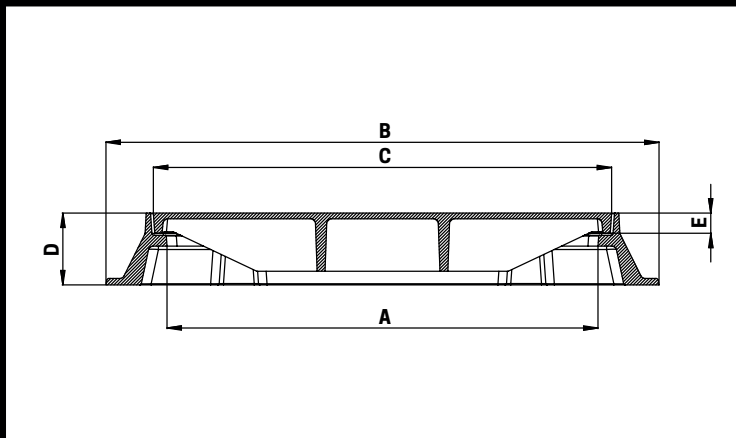
SPECIAL ROUND COVERS: COVERS WITH EXTENDED CAST-IRON FITTING Ø 600

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
ROAD	D 400	634 (in the figure)	Ø 600	600	765 × 800	640	100	24	63	
ROAD	D 400	635	Ø 600	600	765 × 800	640	100	24	62	ventilated

FEATURES:

- 634, 635
- structurally stronger frame for more demanding terrain and high-traffic roads
- option with city coat of arms, SEWAGE inscription,
- with double symmetrical locking, noise barrier insert, EPDM rubber
- self-standing cover opening at a 120° angle with an anti-closing lock at a 90° angle



HIGH LOADS / HIGHWAY / WATERTIGHT Ø 600

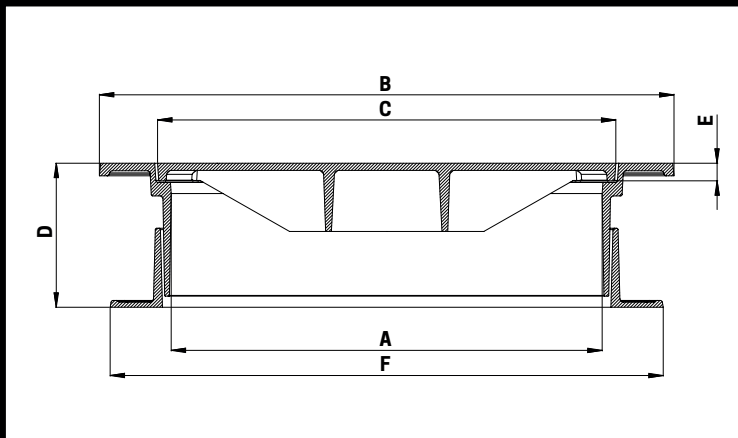
SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
ROAD	D 400	607 (in the figure)	Ø 600	600	800	640	100	30	56	highways, watertight 1 bar
HIGH LOADS	E 600	606	Ø 600	600	800	650	100	50	93	highways, high loads

POSEBNOSTI:

- 607 option with city coat of arms, SEWAGE inscription, option with concrete ring
3-times fastened cover (requirement for HIGHWAYS)
WATERTIGHT 1 bar (certificate), suitable for flood areas, noise barrier insert, EPDM rubber
- 606 SEWAGE inscription, option with concrete ring
4-times fastened cover (for high loads: factories, warehouses, tunnels, etc.), noise barrier insert, PVC

OPTION
WITH
CONCRETE
RING



TELESCOPIC ROUND COVERS

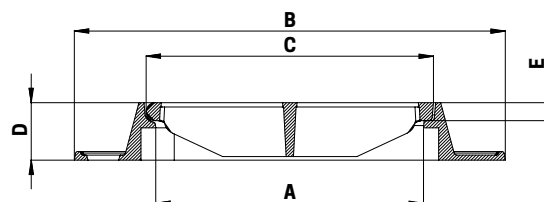
Ø 600

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Cover width (mm)	D Installation height of the frame (mm)	E Bearing height of the cover (mm)	Weight (kg)	Type
ROAD	D 400	654 (in the figure)	Ø 600	600	800	640	120 - 260	24	102	telescopic
ROAD	D 400	655	Ø 600	600	800	640	120 - 260	24	102	telescopic, ventilated

FEATURES:

- 654, 655 with adjustable height 180 - 260 mm
- option with city coat of arms, SEWAGE inscription,
- double symmetrical locking, noise barrier insert, EPDM rubber, optionally fastened cover
- self-standing cover opening at a 120° angle with an anti-closing lock at a 90° angle
- anchoring openings



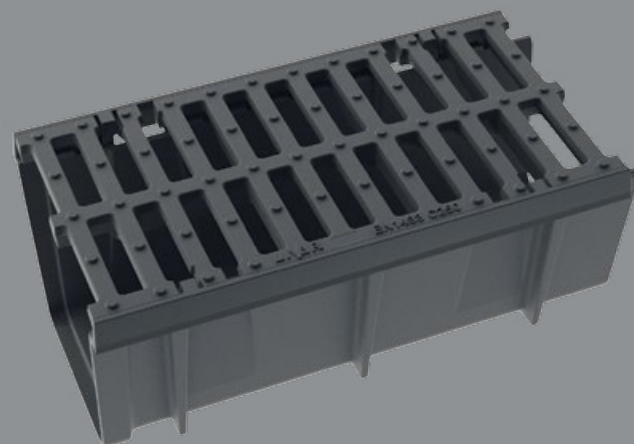
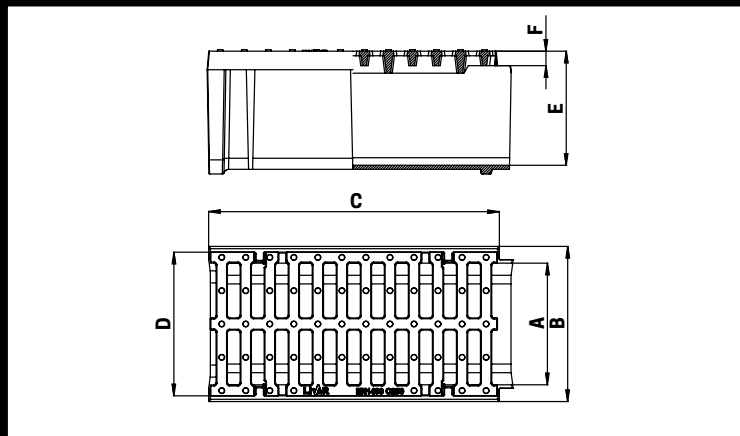
SQUARE GRATINGS FOR DRAINAGE

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Grating width	D Installation height of the frame (mm)	E Bearing height of the grating (mm)	Weight (kg)	Type
EDGE OF ROAD	C250	700	300 × 300	240	420 × 440	300	80	25	26	concave, possible cast-iron dirt catcher
EDGE OF ROAD	C250	705	400 × 400	372 × 400	600 × 560	400	80	25	34	flat
EDGE OF ROAD	C250	706	400 × 400	372 × 400	600 × 560	400	80	25	31	concave
ROAD	D400	701	400 × 400	330	600 × 560	400	80	25	44	flat, possible cast-iron dirt catcher
ROAD	D400	701 B (in the figure)	400 × 400	372 × 400	600 × 560	400	80	25	39	flat
ROAD	D400	702	400 × 400	330	600 × 560	400	80	25	40	concave, possible cast-iron dirt catcher
ROAD	D400	702 B	400 × 400	372 × 400	600 × 560	400	80	25	35	concave

FEATURES:

700	grating with locking, option with cast-iron dirt catcher, product 700 A
705, 706, 701 B, 702 B	grating with locking, cast-iron dirt catcher is not possible
701, 702	grating with locking, option with cast-iron dirt catcher, product 702 A



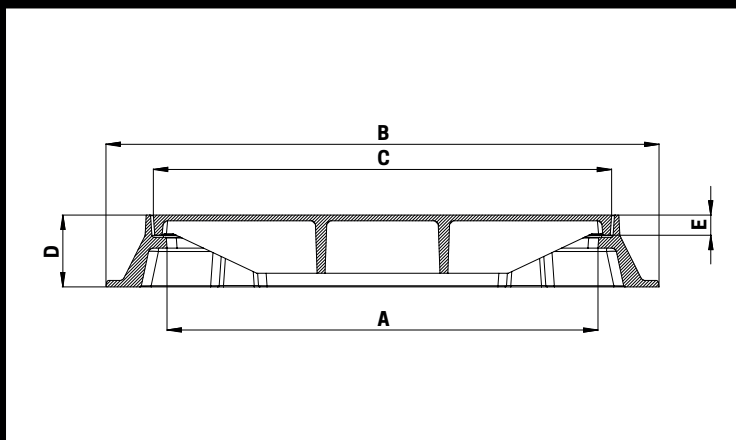
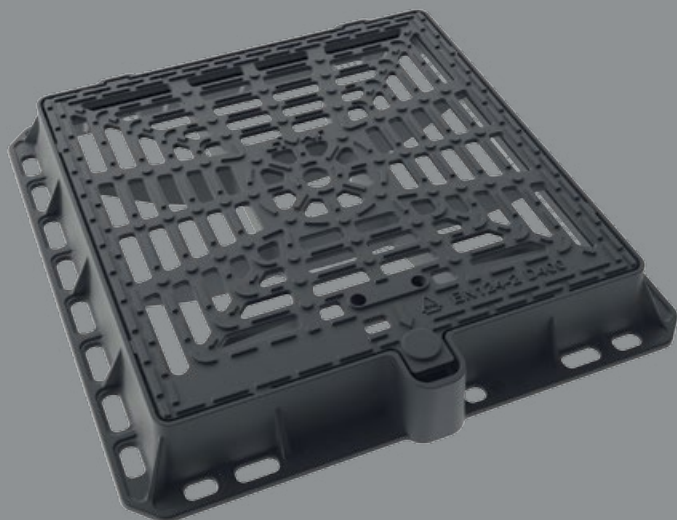
LINE GRATINGS

SIST EN 1433,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Grating length	D Grating width	E Bearing height of the set	F Bearing height of the grating	Weight (kg)	Type
EDGE OF ROAD	C250	711	500 × 200	200	340	500	245		25	15	with frame
EDGE OF ROAD	C250	721	500 × 100	110	175	500	150	120	25	16	with cast-iron channel
EDGE OF ROAD	C250	723 (in the figure)	500 × 200	210	270	500	245	197	25	25	with cast-iron channel
ROAD	D400	724	500 × 300	305	375	500	350	230	26	41	with cast-iron channel

FEATURES:

- 711 line grating and frame, without cast-iron channel, with locking, merging
installation height of the frame is 32 mm
- 721, 723, 724 line grating and frame with cast-iron channel (frost resistant), with locking, merging



SQUARE GRATINGS 600 X 600

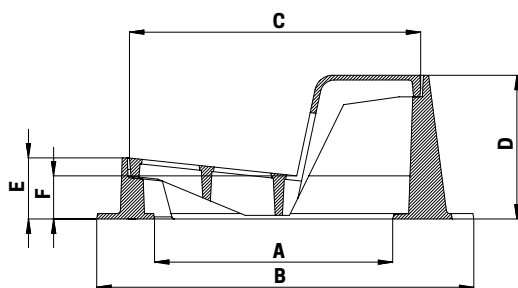
SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Grating width	D Installation height of the frame (mm)	E Bearing height of the grating (mm)	Weight (kg)	Type
ROAD	D400	707 A (in the figure)	600 × 600	600	770	640	100	28	61	flat

FEATURES:

707 A	without inscription
	double symmetrical locking, noise barrier insert, EPDM rubber, fastened cover
	option with concrete ring

OPTION
WITH
CONCRETE
RING



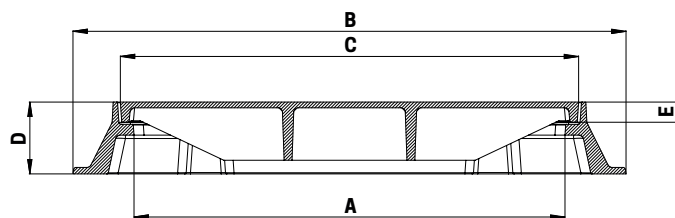
CURB GRATINGS

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening (mm)	B Frame width with ears (mm)	C Grating width	D Installation height of the frame, curb (mm)	E Installation height of the frame, road (mm)	F Bearing height of the grating	Weight (kg)	Type
EDGE OF ROAD	C250	708 (in the figure)	400 × 400	330 × 330	500 × 525	400 × 405	200	85	60	43,5	double locking

FEATURES:

- 708 without inscription
- double symmetrical locking, noise barrier insert, EPDM rubber, detachable and self-standing grating opening at a 120° angle



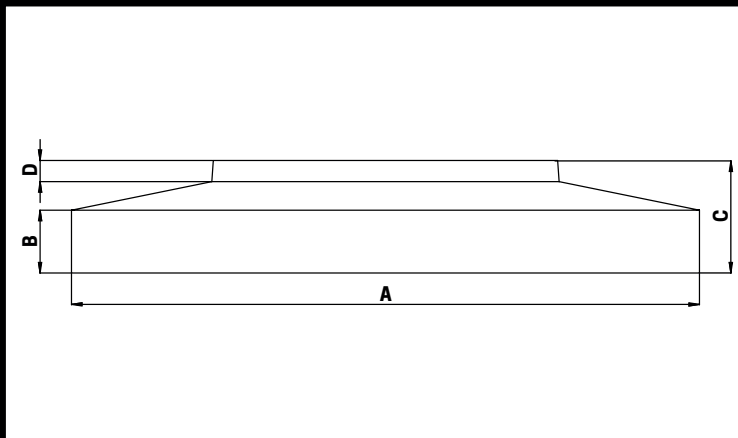
ROUND GRATINGS Ø 600

SIST EN 124-2,
DUCTILE CAST IRON EN GJS 500-7

Application	Class	Product	Nominal dimension	A Illuminated inspection opening Ø (mm)	B Frame width with ears (mm)	C Grating width	D Installation height of the frame (mm)	E Bearing height of the grating (mm)	Weight (kg)	Type
PARKING LOTS	B125	703 (in the figure)	Ø 600	610	778	648	39	28	38	
ROAD	D400	704	Ø 600	600	800	640	100	30	53	double locking

FEATURES:

703, 704	SEWAGE inscription
704	double symmetrical locking, noise barrier insert

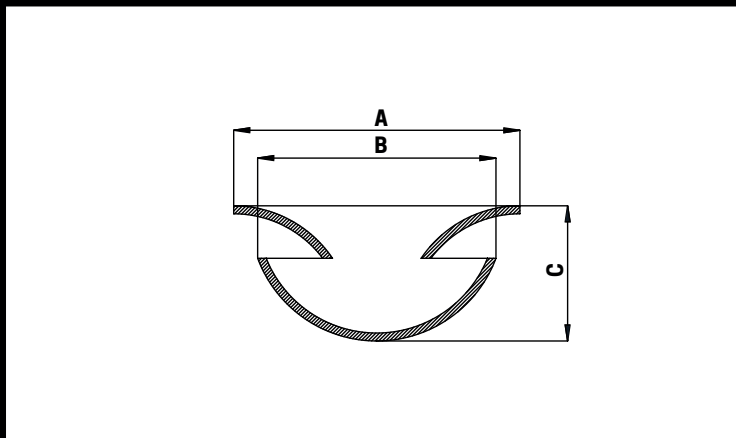
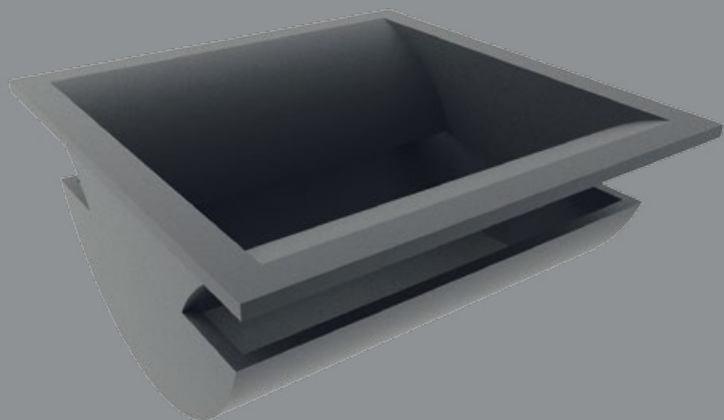


REINFORCED CONCRETE RINGS WITH DIMENSIONS Ø 1000 AND Ø 1200

NAME	COMPATIBLE WITH THE PRODUCT	LOAD CAPACITY	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)*
V1	603 B.L./603	25 t	1200	120	210	35	324 kg
V1.1	603 B.L./603	25 t	1000	140	210	35	216 kg
V2	604/605	40 t	1200	120	215	40	328 kg
V2.1	604/605 (in the figure)	40 t	1000	140	215	40	220 kg
V3	600/601, 611, 703	12,5 t	1200	80	150	18	247 kg
V3.1	600/601	12,5 t	1000	105	150	18	175 kg
V4	504, 707, 802 A, 804	40 t	1200	120	200	30-50	314 kg
V5	606	60 t	1200	122	210	35	360 kg
V6	607	40 t	1200	120	210	35	326 kg

FEATURES:

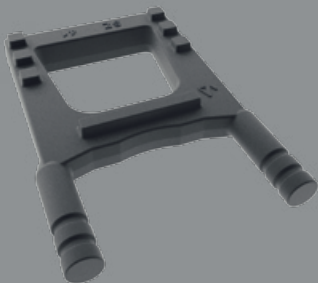
* data applies to the AB ring with an integrated cast-iron cover, possible deviations in weight up to 2%.



DIRT CATCHERS

DUCTILE CAST IRON EN GJS 500-7

NAME	COMPATIBLE WITH THE PRODUCT	A (mm)	B (mm)	C (mm)	Weight (kg)*
700 A (in the figure)	700	255 × 260	200 × 235	120	6,5 kg
702 A	701, 702	320 × 360	300	170	16 kg



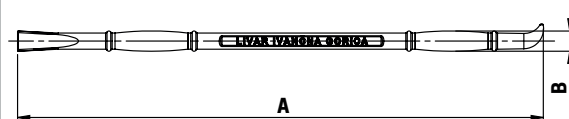
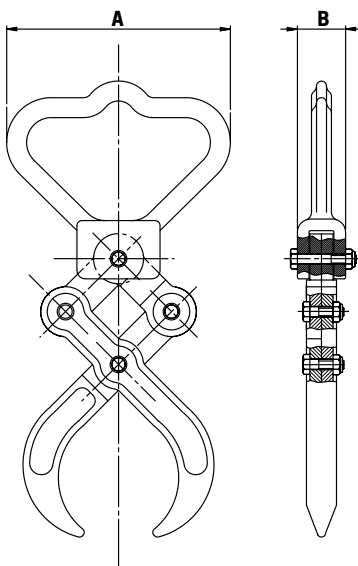
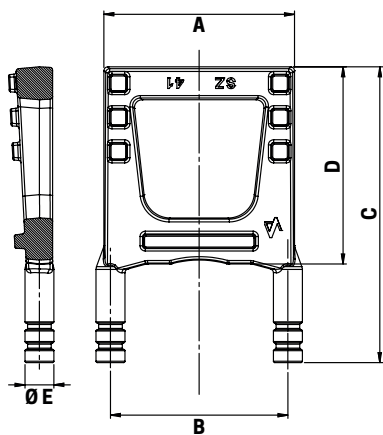
1



2



3



ACCESSORIES

NAME	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Weight (kg)
Entry part (picture 1)	145	135	225	150	22	2,5
Pliers for opening covers (picture 2)	135	30				1,5
Universal opening bar (picture 3)	650	25				1,5

1. SELECTION BASED ON PURPOSE

Be careful at the selection of type of manhole covers by knowing correct usage. Carefully check and select proper classes and types of manhole covers (ventilated covers, covers with tightening) and channel gratings.

2. PROPER INSTALATION OF FRAMES AND COVERS

All frames must be installed on concrete flange, which assure stable fixing of installation place.

3. INSTALATION OF COVERS RESPECTING WAY OF TRAFFIC DRIVING

Covers must be properly installed respecting way of traffic driving, which prevent sudden opening of manhole cover.

Covers must be installed in the middle of traffic way, so intensity of traffic is lower, which prevent sudden opening of manhole cover. At the channel gratings is important orientation of holes against traffic way (must be 90 degrees moved).

4. COMPLETE MANHOLE COVER CONSIST OF:

- cover
- frame
- noise barrier insert (assure proper contact between frame and cover, prevent vibrations and noise)
- tightening gum at locking of cover (assure proper contact between frame and cover and tightening)
- tightening gum

Warning!

Missing elements can lead to serious problems in phase of usage!

5. CHANNEL GRATING

At assembling of gratings help yourself with locks to attach one gratings with another one.

6. TOOLS FOR OPENING OF COVERS AND GRATINGS

For opening always use nippers and opening bars.

7. PAINTING OF COVERS - BASIC ANTICORROSIVE WATER BASE PAINTING

As requested in standards we paint manhole covers and gratings with basic anticorrosive water base painting.

In case of sudden appearance of rust, we do not cover any costs.

COMMON ERRORS AT INSTALATION OF MANHOLE COVERS, WHICH NEEDS TO BE PREVENTED:

- Wrong selection of product (group, tightening, locking system, ventilated holes, ...).
- Removed or damaged noise barrier insert (consequences are noise, vibrations and cracks on asphalt).
- Removed or damaged tightening gum at locking of cover.
- Not clean contact surface of cover (damage of noise barrier insert, bending of locks, damage of tightening gum on the covers with tightening, which can lead to leakage, difficult closing of frame, breaking or damage of cover or frame at closing with force).
- Not cleaned place for locking on frame (can lead to damage of tightening gum, breaking, bending and cracks of locks or breaking or damage of cover).
- Closing of manhole cover with a force (can lead to breaking or damage of cover).

INSTRUCTIONS FOR INSTALLATION OF MANHOLE COVERS

1. IMPORTANT:

- Do not place the frame directly on top of the shaft.
- Cut the top of the shaft and ensure the adhesion of concrete.
- Remove the dust.
- Enable at least 30 mm thick layer under the frame flange.

2. FRAME SETTING:

- Levelling of the height of frame before the laying of asphalt is unreliable, so it is usually installed later.
- The best way for smoothing is to use the cross-bars, on which the manhole frame is tied.
- Levelling is enabled regardless of the transverse or longitudinal slope.
- Avoid movement of the frame due of its own weight before the base lining is solidified.
- Levelling with supporting of the frame is not recommended.

3. INSTALLATION

- When installing the frame make sure that the opening of the cover is the same as the direction of driving the direction of driving.
- Fix (fasten) frame with two horizontal slats.
- Place the slats over the holes, so they lie at the level of asphalt.
- Center the frame on the shaft.
- Leave approximately 3 centimeters of space between the shaft and frame flange.
- Use concrete quality 30 MB.
- Fill the cavity beside the frame with concrete until it penetrates through the openings in the flange and fill the space below.
- Do not fill the hole to the top, but leave approx. 3 cm for final layer.
- With the template prevent falling of the concrete in the shaft.
- Filling the space under the frame seat with a fine concrete, as shown in the above diagram, is not necessary and is left to the contractor.
- Locking seat under the frame must remain empty (the styrofoam input before filling with concrete).
- Protect wet padding with the appropriate resources (old bags) to prevent rapid drying and cracking of concrete.
- Consider setting time of concrete before releasing the traffic, depending on weather conditions and relative humidity.
- When installing the final layer of asphalt be careful not to fill the hole, which is used for lifting the cover with a metal bar (protect with sand or paper).
- We suggest that you protect the surface of the cover with appropriate material, which will protect the color from damage and subsequent corrosion, before laying the final layer.

EXTRACT FROM THE STANDARD

SIST EN 124-2

Determination of classes for manhole covers according to their installation location is not an integral part of this norm. However, it is recommended to divide the installation locations in to following groups (see picture):

GROUP 1

Traffic areas which can be used only by pedestrian and cyclists.

GROUP 2

Footpaths, pedestrian* and similar areas, car park areas etc.

GROUP 3

Kerb areas, extending max. of 0,5 m into the carriageway and max. of 0,2 m into the footway (picture 1a), road shoulders without vehicle traffic (picture 1b) and similar.

GROUP 4

Road surfaces (also pedestrian streets**), road shoulders and parking spaces for all kinds of road-going vehicles.

GROUP 5

Surfaces, required to bear heavy wheel loads, e.g. harbours and dock facilities.

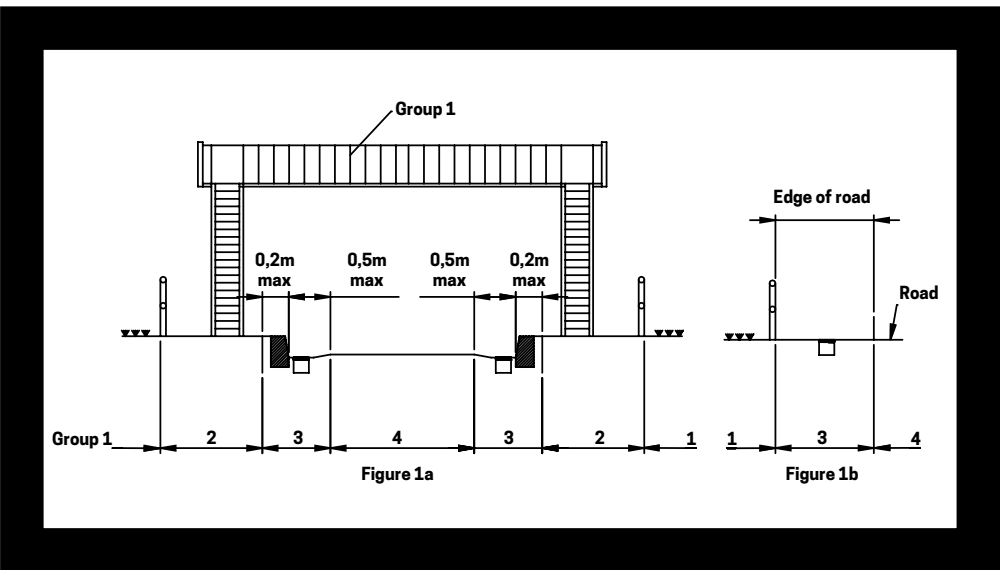
GROUP 6

Surfaces subjected to extremely high wheel loads, e.g. airport operation areas. Covers for manholes shall have an inner width of 600 mm, to allow entry to the manhole

COMPARISON OF GROUPS WITH RELEVANT CAPACITIES (NOT SUBJECT TO STANDARD)

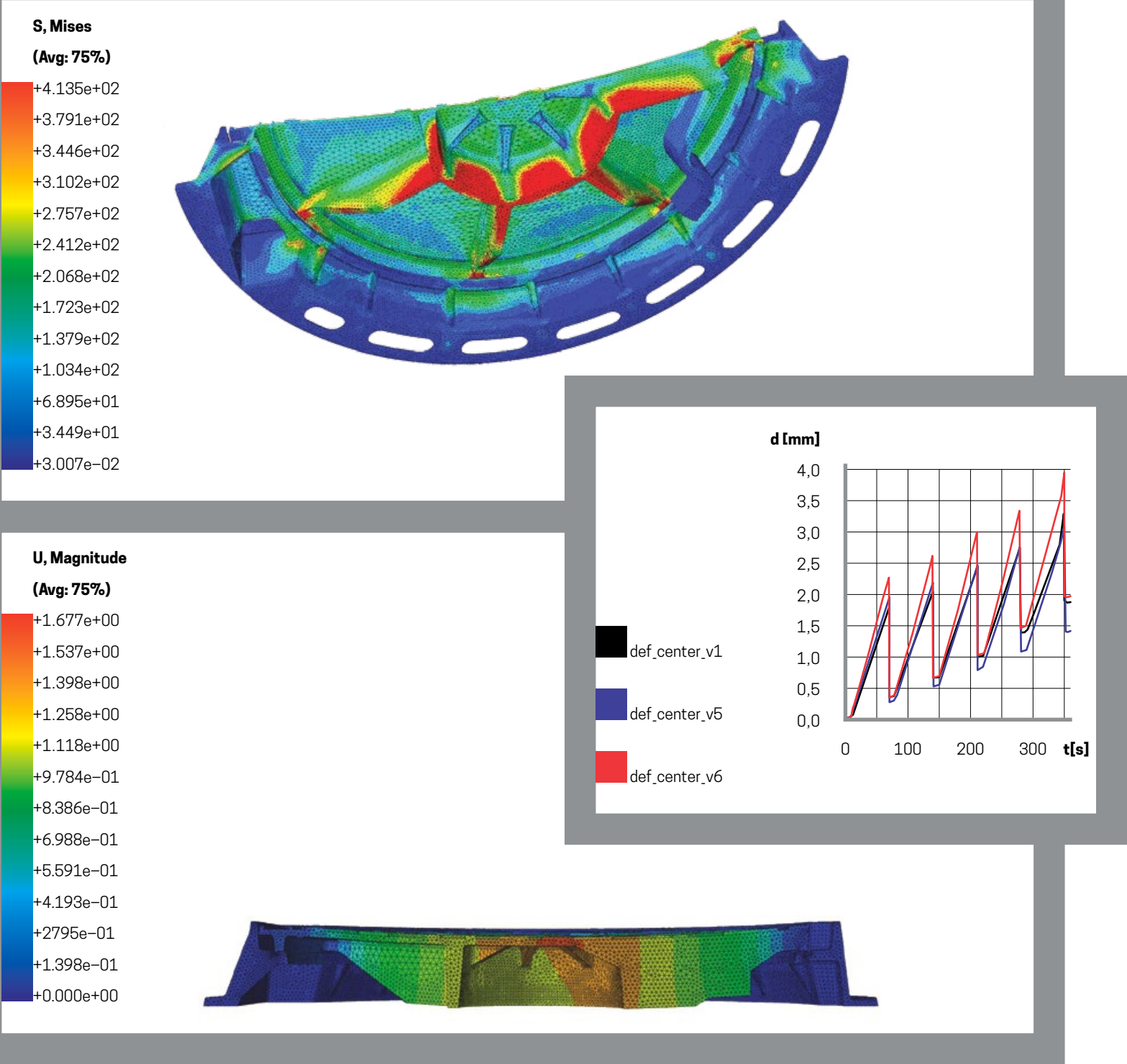
GROUP 1	MEETS	CLASS A	CAPACITY 15 kN
GROUP 2	MEETS	CLASS B	CAPACITY 125 kN
GROUP 3	MEETS	CLASS C	CAPACITY 250 kN
GROUP 4	MEETS	CLASS D	CAPACITY 400 kN
GROUP 5	MEETS	CLASS E	CAPACITY 600 kN
GROUP 6	MEETS	CLASS F	CAPACITY 900 kN

PLACE OF INSTALLATION SCHEME ACCORDING TO SIST EN 124-2



- * Area, which is intended only for pedestrians, driving only in case of supply or emergency.
- ** Area, where vehicles traffic is prohibited at certain times (e.g. at the end of working hours, otherwise normal movement of vehicles).

NUMERICAL SIMULATION OF THE LOAD TEST ACCORDING TO SIST EN124



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