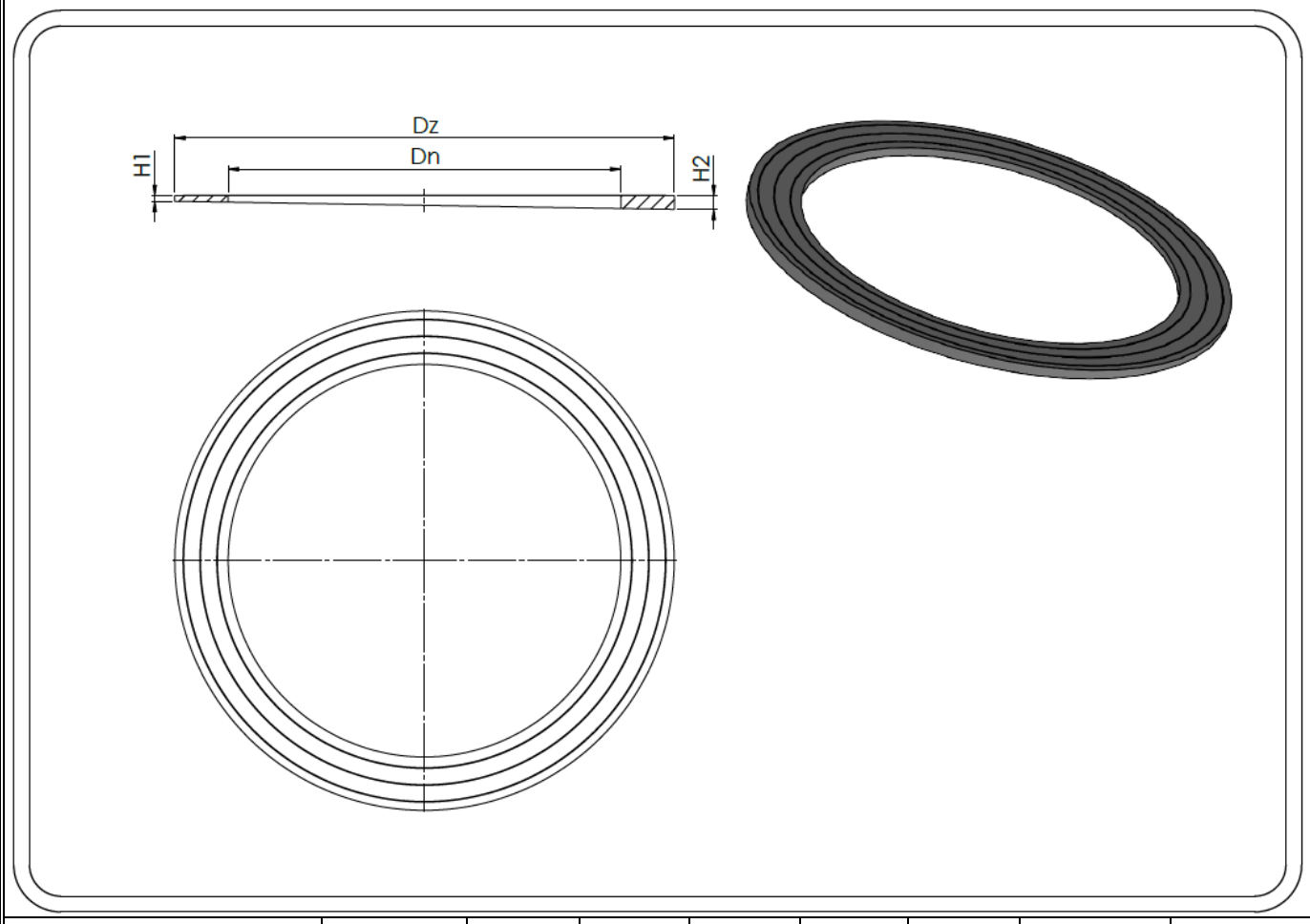
PRODUCT TECHNICAL SHEET

Rings for adjusting the angle of inclination of the T1K manhole

Intended for:

- adjusting the angle of inclination of manholes and rainwater inlets, leveling the finials to the road's crosswise and longitudinal slopes.
- direct foundation of flanged manholes and full inlets up to class D400 inclusive
- foundation of supporting elements of the TVR T system for direct support of manholes (setting plates T04) with foot shapes of square and octagonal bodies and inlets (adapters supporting rainwater inlets from the TX/765 and TX/4052/ group)
- direct foundation of the leading adapters (TXS) of the TVR T system for self-levelling manholes in the case of large surface slopes (over 4%)
- adjusting the height of the chambers

Wedge rings T1K/320 ÷ 800:



Index	DN(mm)	DZ(mm)	H1(mm)	H2(mm)	angle(%)	angle(°)	Weight(kg)	class
T1K/320/9/22	320	485	9	22	2,69	1,54	2,0	D400
T1K/435/9/22	435	580	9	22	2,23	1,28	2,7	D400
T1K/500/9/22	500	650	9	22	2,01	1,15	3,2	D400
T1K/600/9/22	600	785	9	22	1,66	0,95	4,2	D400
T1K/620/15/28	620	850	15	28	1,54	0,88	8,8	D400
T1K/625/9/22	625	790	9	22	1,64	0,94	4,3	D400

T1/635/30/60	**635**	**785**	**30**	**60**	**3,82**	**2,19**	**10,4**	**D400**
T1K/700/9/22	**700**	**875**	**9**	**22**	**1,48**	**0,85**	**4,6**	**D400**
T1K/800/15/28	**800**	**960**	**15**	**28**	**1,36**	**0,78**	**6,1**	**D400**

3.Application:

Plastic wedge rings T1K and T1RK are an element of the near-surface top of sewage chambers providing full support for cast iron reinforcement.

They make it possible to adjust the inclination angle of manholes within the suggested range of up to 4% (2÷3 wedge rings) of the cross slope of the pavement and adjust the height of manholes.

They are laid on: concrete reducers, cover plates, concrete and plastic compensating rings, relieving cones, elements of rainwater and sewage chambers, both internal diameter matched to the manhole, (inspection, outflow) hole and structurally to the dimensions of the manholes.

They are a direct basis for the assembly of standard manholes up to class D400, inclusive.

For use in communication engineering in accordance with the above-mentioned purpose in the field of public roads without restrictions, internal roads and railway engineering structures without restrictions. In traffic areas of groups 1-4, class D400 acc. PN-EN 124-1:2015-07u.

Technical parameters of rings for adjusting the inclination angle of manholes/gullies

Compressive strength. Class	400kN D400	PN-EN 124-1 07-2015
Tensile strength	3Mpa	PN-EN ISO 527-1:2012
Degree of resistance to frost in water	F 150	PB IBDIM PB/TB-1/23
Degree of frost resistance in 2% NaCl	F 50	PB IBDIM PB/TWm-36/98
Absorptivity	<0,2%	PN-EN ISO 62:2008
Mechanical loss	0,33 tg	
Hardness according to Schore	>46	PN-EN ISO 868:2005
Product dimensional tolerance	± 5mm in diameter, ± 3mm in height	
Thermal resistance	-30°C do +60°C	In continuous work conditions.
Short-term thermal resistance 170°C	2h	In the conditions of installation in the bituminous surface
PVC / PE material	80%	PN-EN 15346 2009

Product reference documents:

National Technical Assessment No. IBDiM-KOT-2017/0047 3rd edition

National Declaration of Performance No. 03 / EW / 22

Code CN 39259090

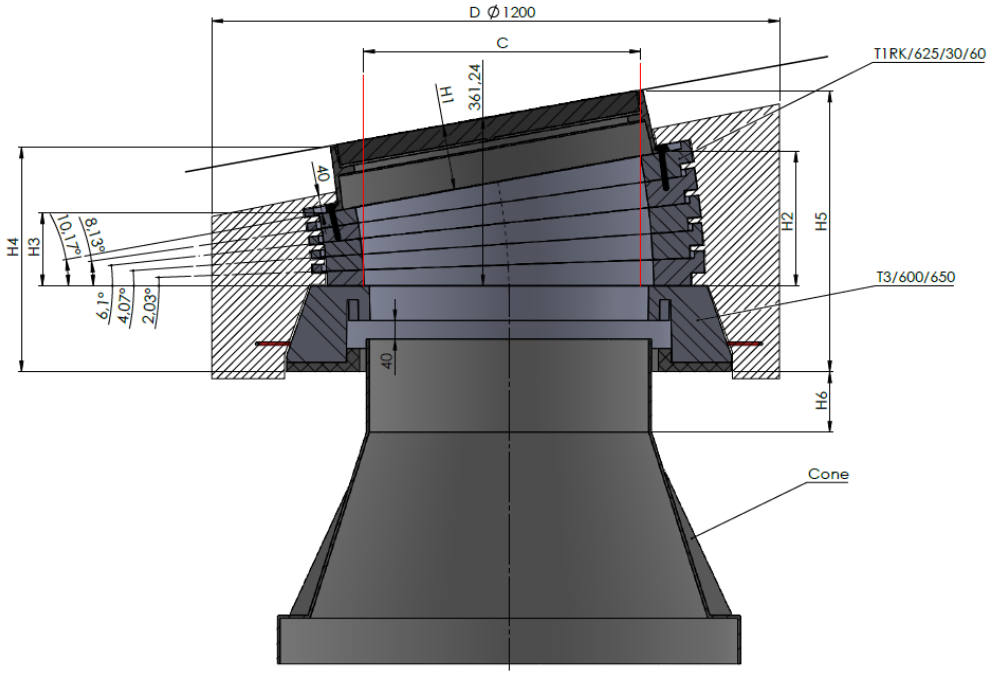
General assembly instructions:

- before starting the assembly works with the TVR T system compensating rings, check whether the diameters (external and internal) are appropriate for a given manhole and that all elements are structurally suited to the intended application
- assess the condition of the substrate on which the TVR T system elements are to be installed The primary requirement is to provide a leveled, heavy-duty, stable base for the installation of compensation rings
- any defects, unevenness, damage, leaks should be repaired before the installation of compensating rings by making a compensating and repair layer with the use of cement quick-setting masses or resins with appropriate strength and operating parameters, dedicated by the manufacturer to repair the finials of sewage manholes, anchoring manholes
- the thickness of the repair layer should be in accordance with the recommendations of the manufacturer of quick-setting compounds
- take measurements, determine the height and angle of inclination of the finial adjustment to the surface ordinate in the line of the road's transverse and longitudinal slope.
- determine the necessary amount, the height of the compensation rings for height adjustment, taking into account the angle of inclination (or the height of the supporting element), the height of the manhole, the thickness of the repair layer
- place the rings centrally over the manhole, one on top of the other, pressing firmly until the required adjustment height is achieved.
- the wedge rings are placed on the compensating rings and by coaxial rotation they are leveled to the desired angle of inclination of the upper edge of the manhole/cover in accordance with the level of inclination of the surface.
- the angle of inclination of the hatch can be adjusted up to approx. 15% slope, by arranging wedge rings in the amount of approx. 5-6 pcs. It should be remembered that at large angles of inclination, the manhole diameter is narrowed.
- over 4% slope wedge rings, manholes/gullies should be anchored with screws,
- the adapter for the self-leveling hatch is placed on the wedge ring (with the seal applied on the bottom)
- the surface of the manhole finial should be made in a tight manner, polymer adhesives and sealants should be used between all the elements of the top, i.e. compensation rings, supporting element, manhole
- around the top, make reconstruction / substructure of the road surface based on breakstone (approx. 65-70%) and cement quick-setting masses (approx. 30-35%)covering the foot of the manhole body. The housing will ensure the stability of the top and protect the top elements against horizontal shifts. The suggested casing diameter is +30cm.
- reconstruction of the road surface around the near-surface finial is made in layers with appropriate compaction (in accordance with the design)
- commissioning should take into account the necessary time of complete cooling of the bituminous mass, allowing it to be put into service

Notes on installation conditions

During adjusting the height of sewage chambers and sewage inlets with the use of plastic elements of the TVR T System, it is forbidden to:

- compensation rings installation on damaged elements of sewage chambers, on uneven, unrepaired, unprepared surfaces, not providing full permanent support for compensation rings.
- use any placing point destructive elements (bars, plates, cut rings, etc.) for height adjustment via putting them on the compensation rings
- use of concrete mortars between the plastic compensation rings
- install manholes that are structurally and dimensionally unadjusted to the elements directly supporting the TVR T system
- make high adjustments above 25cm only on the rings with low dimensions
- laying the surface without making the correct foundation, filling and compacting the space around the finial and the manhole



Quantity of rings T1R/625/30/60	Slope [°]	Slope [%]	Clearance "C" [mm]
1	2,03	3.61	623,4
2	4,07	7.12	620
3	6,1	10.69	614
4	8,13	14,29	606
5	10,17	17,94	596,5