



CZECH REPUBLIC

Cast Basalt and Eucor Works

EUTIT s.r.o.

Stará Voda 196, 353 01 Mariánské Lázně

Beginning of production
on 1951

Tel.: +420 354 789 113, 141, 173

Fax: +420 354 691 480

e-mail: eutit@eutit.cz

<http://www.eutit.cz>

The firm EUTIT s.r.o. have the largest manufacturing capacity in the world for the production of Cast Basalt and Eucor ceramics. Natural basalt raw material is worked in a process of remelting and recrystallization. This technology of working has a basic influence that results in superior technical characteristics of the final products. Castings from cast basalt have been used successfully in industry and civil engineering for over 50 years. EUTIT s.r.o. received certification to ISO 9002 in 2001, ensuring the quality of products and the quality control system is maintained at a consistently high level.



Basalt liners for pipe jacking method

Basalt liners for pipe jacking method are produced by remelting of the natural basalt eruptive from the earth millions of years ago. The physical properties of the original raw basalt material are highly benefited during the final product stage. This predetermines the products from which cast basalt can be used and the overall application. Where high-level demands on the quality of material are required basalt is ideally suited.

Advantages of micro-tunneling

Intactness of existing engineering networks, no shut up, possibility of jacking in build-up area without limitation to site work, no danger regarding landslide, minimum quantity of removed earth, above-ground traffic and also vegetation are intact.

Drawing of liners, seals and couplings

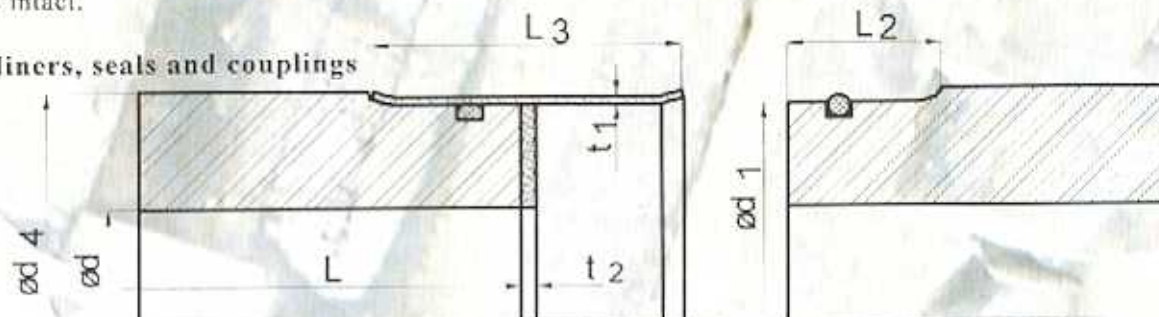


Table of prepared dimensions

DN	d	d ₁ ± 0.2	d ₄	t ₁	t ₂	L ± 1	L ₂ ± 1	L ₃ ± 1	Weight (Kg)	Class of Carrying capacity	Limiting Jacking Strength kN
100	100 ± 3	132	140	2	3 - 4	996	32	62	22	320	830
150	150 ± 3	182	190	2	3 - 4	996	32	62	30	280	1200
200	200 ± 3	232	240	2	3 - 4	996	32	62	39	160	1500
250	250 ± 3	284	292	2	3 - 4	996	40	82	51	120	1900
300	300 ± 3	342	350	2	3 - 4	996	40	82	73	120	3000
350	350 ± 3	400	408	2	3 - 4	996	40	82	99	120	4300
400	400 ± 4	458	466	2	3 - 4	996	40	82	128	120	5800
500	500 ± 4	576	584	2	3 - 4	996	40	82	205	120	9900
600	600 ± 5	678	688	2,5	3 - 4	996	50	102	254	95	11600

Advantages of basalt liners for pipe jacking method produced from cast basalt regarding EN 295-7

- physical properties retained across the entire cross-section
- high compression strength and wear resistance
- high carrying- capacity in vertical load
- high limiting jacking strength
- high chemical resistance
- absolute corrosion resistance
- zero water absorption
- frost resistance
- low hydraulic roughness
- smooth external surface of tube and accompanying lowered resistance against jacking
- increased accuracy to shape
- lower weight
- impervious to rodent attack
- ecological and hygienic perfection, suitable for contact with drinkable water
- high lifetime

Properties

Table shows the values of physical properties, verified by the state testing room TZÚS, branch Plzeň

Minimal compressive strength (ČSN EN 295-7)	193 MPa (required value 75MPa)
Mohse hardness (ČSN EN 101)	min. 8 *
Volume mass (ČSN EN 993-1)	2900 – 3000 kg.m ³
Water absorption (ČSN EN 99)	0%
Compression strength (ČSN EN 993-5)	min. 300 – 450 MPa**
Bending strength (ČSN EN 993-6)	min. 45 MPa
Wear resistance (ČSN EN 102)	max. loss 110 mm ³
Heat shock resistance (DIN 52313)	min. temp. dif. 150°C
Frost resistance (ČSN EN 202)	min. 50 cycles
	at -15 +15°C
* Diamond has Mohse hardness 10	
**Data were reached on samples of material, and because basalt is a natural material, these values must not be always measured on other samples or products of other shapes and dimensions	