

<b>Technical static values BRAWOLINER® EP</b>		
<b>BRAWO SYSTEMS</b>		<b>Stand: 2022-02-07</b>

### Technical values for the stability calculation (BRAWO® I, BRAWO® III)

Circumference E-modulus 3-min short-term:	DIN EN 1228	2600 N/mm <sup>2</sup>
Circumference E-modulus long-term:	DIN EN 1228	1800 N/mm <sup>2</sup>
3-point bending E-modulus short-term:	DIN EN ISO 178	2200 N/mm <sup>2</sup>
3-point bending E-modulus long-term:	DIN EN ISO 178	1520 N/mm <sup>2</sup>
3-point flexural strength short-time:	DIN EN ISO 178	44,29 N/mm <sup>2</sup>
3-point flexural strength long-time:	DIN EN ISO 178	31 N/mm <sup>2</sup>
Compressive strength short-term:	DIN EN ISO 604	77,5 N/mm <sup>2</sup>
Compressive strength long-term:	DIN EN ISO 604	53,8 N/mm <sup>2</sup>
Attenuation factor:		1,44
Poisson's ratio $\mu$ :		0,20
Partial safety factor $\gamma_m$ :		1,35
Annular gap (according to DWA-A 143-2)		0,5 %
Material characteristic group according to DWA-M 144-3		2

### Achievable wall thicknesses for the BRAWOLINER®

BRAWOLINER® / BRAWOLINER® HT	DN tube	Wall thickness <sup>1)</sup>	SN <sup>2)</sup>
BRAWOLINER® DN100	DN 100	3,5 mm	10337 N/m <sup>2</sup>
	DN 120	3,0 mm	3653 N/m <sup>2</sup>
BRAWOLINER® DN125	DN 125	3,5 mm	5179 N/m <sup>2</sup>
	DN 150	3,0 mm	1842 N/m <sup>2</sup>
BRAWOLINER® DN150	DN 150	3,5 mm	2954 N/m <sup>2</sup>
	DN 175	3,0 mm	1150 N/m <sup>2</sup>
BRAWOLINER® DN200	DN 200	3,5 mm	1224 N/m <sup>2</sup>
	DN 250	3,0 mm	388 N/m <sup>2</sup>

BRAWOLINER® XT/ BRAWOLINER® HT XT	DN tube	Wall thickness <sup>1)</sup>	SN <sup>2)</sup>
BRAWOLINER® XT DN100 / HT XT DN 100	DN 100	4,5 mm	22668 N/m <sup>2</sup>
	DN 125	4,0 mm	7827 N/m <sup>2</sup>
BRAWOLINER® XT DN125 / HT XT DN125	DN 125	4,5 mm	11284 N/m <sup>2</sup>
	DN 150	4,0 mm	4456 N/m <sup>2</sup>
BRAWOLINER® XT DN150 / HT XT DN150	DN 150	4,5 mm	6410 N/m <sup>2</sup>
	DN 175	4,0 mm	2773 N/m <sup>2</sup>
BRAWOLINER® XT DN200/250 / HT XT DN200/250	DN 200	4,5 mm	2642 N/m <sup>2</sup>
	DN 250	4,0 mm	931 N/m <sup>2</sup>

BRAWOLINER® 3D	DN tube	Wall thickness <sup>1)</sup>	SN <sup>2)</sup>
BRAWOLINER® 3D DN 70-100	DN 70	4,0 mm	48233 N/m <sup>2</sup>
	DN 80	3,5 mm	20750 N/m <sup>2</sup>
	DN 100	3,0 mm	6410 N/m <sup>2</sup>
BRAWOLINER® 3D DN 100-150	DN 100	4,0 mm	15673 N/m <sup>2</sup>
	DN 125	3,5 mm	5179 N/m <sup>2</sup>
	DN 150	3,0 mm	1842 N/m <sup>2</sup>
BRAWOLINER® 3D DN 150-225	DN 150	4,0 mm	4456 N/m <sup>2</sup>
	DN 200	3,5 mm	1224 N/m <sup>2</sup>
	DN 225	3,0 mm	535 N/m <sup>2</sup>
BRAWOLINER® 3D DN 200-300	DN 200	5,3 mm	4370 N/m <sup>2</sup>
	DN 250	4,8 mm	1625 N/m <sup>2</sup>
	DN 300	4,5 mm	765 N/m <sup>2</sup>

<sup>1)</sup> These wall thicknesses are achieved in accordance with the recommended rolling distances least.  
A wear layer of 0.2 mm has already been deducted the listed values.

<sup>2)</sup> Calculation of nominal ring stiffness (SN) in accordance with DIN EN 1228  
E = Circumference E-modulus 3-min short-term ; e = wall thickness ; d<sub>0</sub> = internal diameter old pipe

$$SN = \frac{E \cdot e^3}{12 \cdot (d_0 - e)^3}$$