


PERMISSIBLE EMBEDMENT DEPTH OF CABLE PROTECTION PIPES


EVOcab HARD



Compression strength class: 750
Impact resistance: N

Material: polyethylene (HDPE)

Go to *EVOcab HARD*
calculation table



Installation places - according to EN 124-1





- A15

Areas which can only be used by pedestrians and pedal cyclists.
- B125

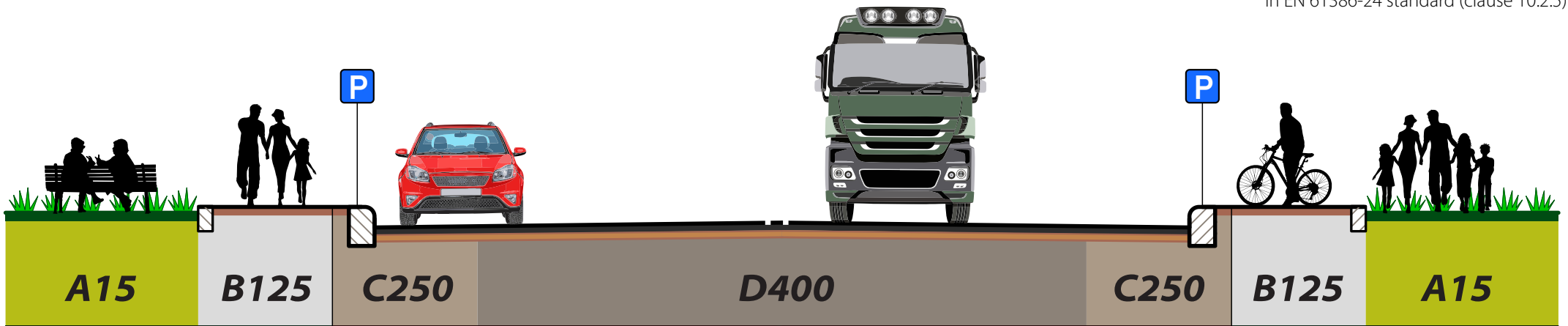
Pedestrian areas and comparable areas, car parks or car parking decks.
- C250

Area of kerbside channels of roads which, when measured from kerb edge, extends a maximum of 0.5m into carriageway and a maximum of 0.2 m into pedestrian area.
- D400

Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all types of road vehicles.

Installation place:	 A15	 B125	 C250	 D400
Single wheel load:	10 kN	60 kN	100 kN	120 kN
Minimum depth of embedment				
DN/OD 50 mm:	0.3 m	0.4 m	0.5 m	0.5 m
DN/OD 63 mm:	0.3 m	0.4 m	0.5 m	0.6 m
DN/OD 75 mm:	0.3 m	0.4 m	0.5 m	0.6 m
DN/OD 90 mm:	0.5 m	0.5 m	0.6 m	0.6 m
DN/OD 110 mm:	0.3 m	0.5 m	0.6 m	0.7 m
DN/OD 125 mm:	0.3 m	0.5 m	0.6 m	0.7 m
DN/OD 160 mm:	0.3 m	0.5 m	0.7 m	0.7 m

* by not exceeding 5% borderline value of initial deflection specified in EN 61386-24 standard (clause 10.2.5)



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 50 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load < 10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		62.3	40.1	30.9	26.9	25.3	25.0	25.5	26.4	29.7	33.2	35.0	38.9	43.2	45.2	75.8	117.0
Initial deflection of the pipe after construction, %		2.71	2.46	2.35	2.31	2.29	2.28	2.29	2.30	2.33	2.37	2.39	2.43	2.48	2.50	2.81	3.20
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.1	196.3	130.9	96.4	76.3	64.1	56.4	51.4	49.8	50.0	50.6	52.7	57.3	58.9	84.9	122.1
Initial deflection of the pipe after construction, %		5.48	4.01	3.34	2.98	2.77	2.65	2.57	2.52	2.50	2.50	2.50	2.52	2.56	2.58	2.78	3.07
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		562.3	321.3	210.9	151.9	117.2	95.4	81.1	71.4	67.3	65.5	65.3	67.3	73.6	74.9	93.1	126.7
Initial deflection of the pipe after construction, %		7.76	5.29	4.15	3.55	3.19	2.96	2.82	2.72	2.67	2.65	2.65	2.66	2.72	2.73	2.86	3.11
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		673.4	383.8	250.9	179.7	137.6	111.0	93.4	81.4	75.6	72.7	71.9	73.5	80.2	81.4	96.9	128.8
Initial deflection of the pipe after construction, %		8.90	5.93	4.56	3.83	3.40	3.12	2.94	2.82	2.76	2.72	2.71	2.72	2.79	2.80	2.90	3.13

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 63 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load <10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		62.4	40.2	31.1	27.1	25.5	25.2	25.6	26.6	29.8	33.3	35.2	39.0	43.3	45.3	75.9	117.1
Initial deflection of the pipe after construction, %		2.87	2.56	2.43	2.38	2.35	2.35	2.35	2.37	2.41	2.45	2.47	2.52	2.58	2.60	2.98	3.43
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.2	196.5	131.1	96.5	76.5	64.2	56.5	51.6	49.9	50.2	50.7	52.9	57.4	59.1	85.1	122.2
Initial deflection of the pipe after construction, %		6.17	4.40	3.60	3.17	2.93	2.78	2.68	2.62	2.59	2.59	2.60	2.62	2.67	2.68	2.92	3.25
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		562.4	321.5	211.1	152.1	117.3	95.5	81.2	71.6	67.4	65.7	65.4	67.4	73.7	75.1	93.2	126.8
Initial deflection of the pipe after construction, %		8.89	5.93	4.58	3.85	3.42	3.15	2.98	2.86	2.80	2.78	2.77	2.79	2.86	2.87	3.01	3.29
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		673.5	384.0	251.1	179.8	137.7	111.1	93.5	81.6	75.8	72.8	72.1	73.6	80.4	81.6	97.1	129.0
Initial deflection of the pipe after construction, %		10.25	6.69	5.06	4.19	3.67	3.34	3.13	2.98	2.90	2.86	2.85	2.86	2.93	2.94	3.05	3.31

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 75 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load < 10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		62.5	40.3	31.2	27.2	25.6	25.3	25.8	26.7	29.9	33.5	35.3	39.2	43.4	45.4	76.0	117.2
Initial deflection of the pipe after construction, %		3.02	2.66	2.51	2.44	2.41	2.41	2.42	2.43	2.48	2.53	2.55	2.61	2.67	2.70	3.13	3.64
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.3	196.6	131.2	96.6	76.6	64.4	56.6	51.7	50.1	50.3	50.9	53.0	57.5	59.2	85.2	122.4
Initial deflection of the pipe after construction, %		6.78	4.75	3.83	3.34	3.06	2.89	2.78	2.71	2.68	2.68	2.68	2.71	2.76	2.78	3.04	3.40
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		562.5	321.6	211.2	152.2	117.4	95.6	81.3	71.7	67.6	65.8	65.5	67.5	73.8	75.2	93.4	126.9
Initial deflection of the pipe after construction, %		9.90	6.51	4.95	4.12	3.63	3.32	3.12	2.98	2.92	2.89	2.88	2.90	2.98	2.99	3.14	3.45
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		673.7	384.1	251.2	180.0	137.8	111.2	93.7	81.7	75.9	72.9	72.2	73.8	80.5	81.7	97.2	129.1
Initial deflection of the pipe after construction, %		11.46	7.38	5.51	4.50	3.91	3.54	3.29	3.12	3.03	2.98	2.97	2.98	3.06	3.08	3.19	3.47

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 90 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load < 10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		62.7	40.5	31.3	27.3	25.7	25.5	25.9	26.8	30.1	33.6	35.5	39.3	43.6	45.6	76.2	117.4
Initial deflection of the pipe after construction, %		3.19	2.77	2.59	2.52	2.49	2.48	2.49	2.50	2.56	2.61	2.64	2.71	2.78	2.82	3.30	3.88
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.5	196.7	131.3	96.8	76.8	64.5	56.8	51.8	50.2	50.4	51.0	53.2	57.7	59.3	85.4	122.5
Initial deflection of the pipe after construction, %		7.45	5.14	4.09	3.53	3.21	3.01	2.89	2.81	2.77	2.77	2.78	2.80	2.86	2.88	3.17	3.55
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		562.7	321.7	211.3	152.3	117.6	95.8	81.5	71.8	67.7	66.0	65.7	67.7	74.0	75.3	93.5	127.1
Initial deflection of the pipe after construction, %		11.00	7.13	5.36	4.41	3.85	3.50	3.27	3.12	3.04	3.01	3.00	3.02	3.10	3.12	3.28	3.61
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		673.8	384.2	251.3	180.1	138.0	111.4	93.8	81.8	76.0	73.1	72.3	73.9	80.6	81.8	97.4	129.2
Initial deflection of the pipe after construction, %		12.78	8.13	6.00	4.85	4.17	3.75	3.46	3.27	3.17	3.12	3.10	3.11	3.20	3.22	3.33	3.63

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 110 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load <10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		62.9	40.7	31.6	27.5	26.0	25.7	26.1	27.1	30.3	33.8	35.7	39.5	43.8	45.8	76.4	117.6
Initial deflection of the pipe after construction, %		3.40	2.90	2.70	2.61	2.57	2.56	2.57	2.59	2.65	2.72	2.75	2.83	2.91	2.95	3.50	4.14
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.7	197.0	131.6	97.0	77.0	64.7	57.0	52.1	50.4	50.7	51.2	53.4	57.9	59.6	85.6	122.7
Initial deflection of the pipe after construction, %		8.20	5.57	4.38	3.74	3.38	3.15	3.01	2.92	2.88	2.87	2.88	2.91	2.97	3.00	3.30	3.72
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		562.9	322.0	211.6	152.5	117.8	96.0	81.7	72.1	67.9	66.2	65.9	67.9	74.2	75.6	93.7	127.3
Initial deflection of the pipe after construction, %		12.24	7.83	5.82	4.74	4.11	3.71	3.44	3.27	3.18	3.14	3.13	3.15	3.25	3.26	3.43	3.78
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		674.0	384.5	251.6	180.3	138.2	111.6	94.0	82.1	76.3	73.3	72.6	74.1	80.8	82.1	97.6	129.4
Initial deflection of the pipe after construction, %		14.26	8.97	6.54	5.24	4.47	3.98	3.66	3.44	3.33	3.26	3.24	3.26	3.36	3.37	3.49	3.81

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 125 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load <10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		63.1	40.9	31.7	27.7	26.1	25.8	26.3	27.2	30.4	34.0	35.8	39.7	43.9	46.0	76.5	117.7
Initial deflection of the pipe after construction, %		3.53	2.99	2.77	2.67	2.63	2.62	2.63	2.65	2.71	2.78	2.82	2.90	2.99	3.03	3.63	4.30
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		340.8	197.1	131.7	97.1	77.1	64.9	57.1	52.2	50.6	50.8	51.4	53.5	58.1	59.7	85.7	122.9
Initial deflection of the pipe after construction, %		8.67	5.84	4.56	3.88	3.48	3.24	3.08	2.99	2.94	2.94	2.94	2.97	3.04	3.07	3.39	3.82
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		563.1	322.1	211.7	152.7	118.0	96.1	81.8	72.2	68.1	66.3	66.0	68.1	74.4	75.7	93.9	127.5
Initial deflection of the pipe after construction, %		13.01	8.28	6.11	4.95	4.26	3.84	3.55	3.36	3.27	3.22	3.21	3.24	3.34	3.35	3.52	3.88
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		674.2	384.6	251.7	180.5	138.4	111.8	94.2	82.2	76.4	73.5	72.7	74.3	81.0	82.2	97.7	129.6
Initial deflection of the pipe after construction, %		15.18	9.49	6.89	5.48	4.66	4.13	3.79	3.55	3.43	3.36	3.34	3.35	3.46	3.47	3.58	3.92

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page



CABLE PROTECTION PIPES FOR UNDERGROUND SYSTEMS



DN/OD 160 mm

EVOCAB HARD N750

Characteristics accepted in the calculations:

Water table level from the top of the ground surface - 0,1 m

Unit weight of dry soil - 20 kN/m³

Unit weight of wet soil - 11 kN/m³

Unit weight of water - 10 kN/m³

Standard Proctor Density (SPD) ≥ 95 %	Place of installation:	Group 1 (class A15) - Areas which can only be used by pedestrians and pedal cyclists (single wheel load < 10 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		63.4	41.2	32.1	28.1	26.5	26.2	26.7	27.6	30.8	34.3	36.2	40.0	44.3	46.3	76.9	118.1
Initial deflection of the pipe after construction, %		3.69	3.09	2.85	2.74	2.70	2.69	2.70	2.72	2.79	2.86	2.91	2.99	3.09	3.14	3.77	4.48
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 2 (class B125) - Pedestrian areas and comparable areas, car parks or car parking decks (single wheel load 60 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		341.2	197.5	132.1	97.5	77.5	65.3	57.5	52.6	50.9	51.2	51.7	53.9	58.4	60.1	86.1	123.3
Initial deflection of the pipe after construction, %		9.19	6.14	4.76	4.03	3.60	3.34	3.17	3.07	3.02	3.01	3.02	3.05	3.12	3.15	3.48	3.93
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 3 (class C250) - For gully tops, installed in the area of kerbside channels of roads which, when measured from the kerb edge, extends a maximum of 0,5 m into carriageway and a maximum of 0,2 m into the pedestrian area (single wheel load 100 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		563.4	322.5	212.1	153.1	118.3	96.5	82.2	72.6	68.4	66.7	66.4	68.4	74.7	76.1	94.3	127.8
Initial deflection of the pipe after construction, %		13.87	8.77	6.43	5.18	4.44	3.98	3.68	3.47	3.37	3.32	3.31	3.33	3.44	3.46	3.62	4.00
Standard Proctor Density (SPD) ≥ 98 %	Place of installation:	Group 4 (class D400) - Carriageways of roads (including pedestrian streets), hard shoulders and parking areas, for all type of road vehicles (single wheel load 120 kN) .															
Depth of embedment (H) from the ground surface to the top of the pipe, m		0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5	1.7	1.9	2.0	3.5	5.5
Total vertical load (Q) to the pipe after construction, kN/m ²		674.5	385.0	252.1	180.8	138.7	112.1	94.6	82.6	76.8	73.8	73.1	74.7	81.4	82.6	98.1	130.0
Initial deflection of the pipe after construction, %		16.21	10.08	7.27	5.76	4.86	4.30	3.93	3.67	3.54	3.46	3.44	3.45	3.57	3.58	3.69	4.03

5.38

Initial deflection of the pipe exceeds 5% borderline specified in EN 61386-24 standard (clause 10.2.5)

Notes.

Groups of place of installation according to EN 124-1 standard.

For backfilling of the trench, it is recommended to use G1, G2, G3, G4 soil group material.

Soil groups - according to CEN/TR 1046 standard annex A table A.1.

Soil type: G1, G2, G3 – granular, e.g., crushed rock, river and beach gravel, dune and drift sand, moraine sand, weathered gravel, liquid sand, loamy sand, G4 - cohesive, e.g., loess, loam, alluvial marl, clay.

Initial deflection of the pipe must not exceed 5% borderline specified in EN 61386-24 standard.



Go to **EVOCAB HARD**
summary page

