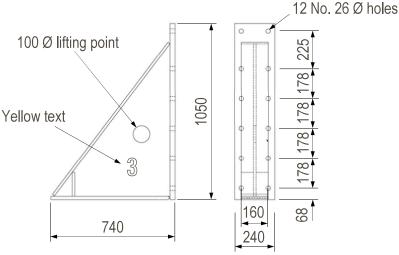
TRENCH LINING SYSTEM



GeoBrace 550 Uplift Brackets

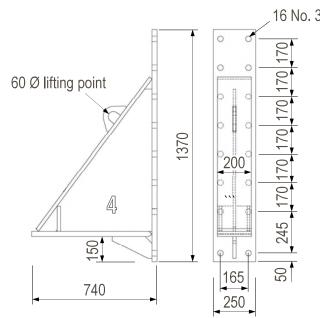
Used above GeoBrace 550 Inclined Prop Connector Plates to resist the uplift forces induced by a raking prop. Can either be welded to Sheet Piles or bolted to Concrete Capping Beams or D-Walls.

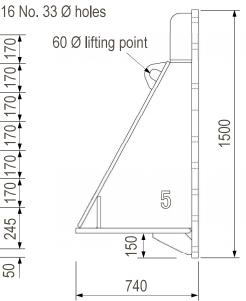
For allowable working loads, bolt and weld connection details refer to sheets 17 & 18.

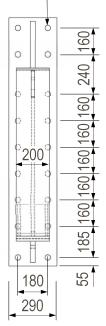


5

Elevation on Bracket 3 Bolt Face Details
Bracket 3







18 No. 33 Ø holes

Elevation on Bracket 4 Bolt Face Details Bracket 4

Elevation on Bracket 5

Bolt Face Details
Bracket 5

Code	Description	Weight
GBX55303	GeoBrace 550 Uplift Bracket 3	136 kg
GBX55304	GeoBrace 550 Uplift Bracket 4	191 kg
GBX55305	GeoBrace 550 Uplift Bracket 5	289 kg

European Data

COMPONENTS

Date: 23/04/2019

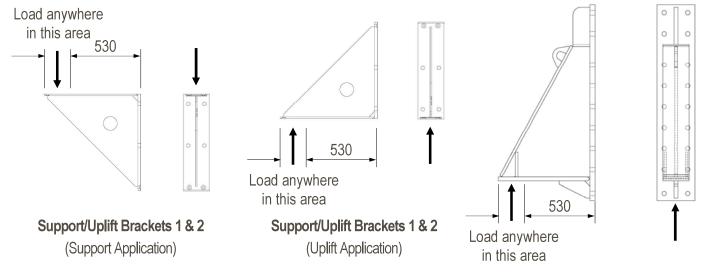
Issue: GB03

Sheet 16

TRENCH LINING SYSTEM



Support & Uplift Brackets Bolted to Concrete Structures



Uplift Brackets 3,4 or 5

Support/Uplift Bracket	1	2	3	4	5
AWL (kN)	60	125	200	300	500
Number of grade 8.8 ATR anchors	4	8	12	16	18
ATR diameter and thread	M24	M24	M24	M30	M30
Embedment Depth (mm)	300	450	450	600	600

Anchor design calculations have been carried out using the full bracket allowable working load and grade 8.8 all-thread rod (ATR) fixed into 50N/mm² cube strength un-cracked concrete using Hilti HIT-HY 200-A Injection Mortar in accordance with the manufacturer's recommendations.

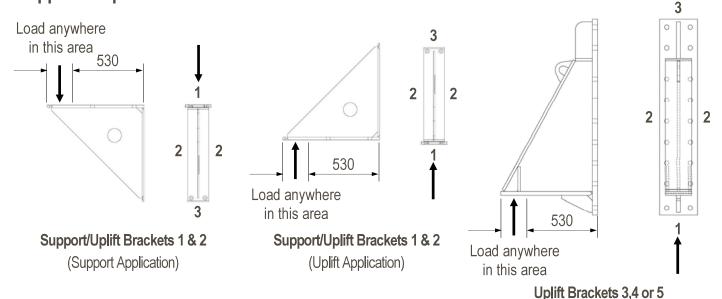
Un-reinforced concrete has been assumed and no account has been taken of edge or end distances. It is also assumed that appropriate strength grout is placed between the bracket and the prepared concrete surface.

The design, supply and correct installation of the anchors and grout for the applied loads are the responsibility of the Customer.

TRENCH LINING SYSTEM



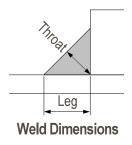
Support & Uplift Brackets Welded to Steel Sheet Piles



Sheet Steel	Fillet Weld	Bracket	1	2	3	4	5
Grade	Number	AWL	60	175	300	500	750
	1	Throat	5.0	10.6	13.0	14.4	15.6
		Leg	7.1	15.0	18.4	20.3	22.1
COSE	2	Throat	3.0	3.0	3.0	11.9	10.1
S235		Leg	4.2	4.2	4.2	16.8	14.3
	3	Throat	none	8.5	3.7	3.0	8.9
	S .	Leg	none	12.0	5.2	4.2	12.6
	4	Throat	4.5	9.5	11.6	12.8	13.9
	1	Leg	6.4	13.4	16.4	18.1	19.7
C075	2	Throat	3.0	3.0	3.0	10.6	9.0
S275	2	Leg	4.2	4.2	4.2	14.9	12.7
	3	Throat	none	7.1	3.1	3.0	7.4
	J	Leg	none	10.0	4.4	4.2	10.5
	1	Throat	4.2	8.8	10.8	11.9	12.9
	1	Leg	5.9	12.4	15.3	16.8	18.3
COEE	2	Throat	3.0	3.0	3.0	9.8	8.4
S355	2	Leg	4.2	4.2	4.2	13.9	11.9
	2	Throat	none	6.2	3.0	3.0	5.4

none

Leg



Weld sizes may be pro-rated according to applied load/AWL for the bracket however we recommend a minimum site weld throat dimension of 3mm. It is the Customer's responsibility to adjust the weld size in-situ to suit steel thickness, site conditions and welding methods. The sheet pile shall be at least equal in thickness to the weld throat dimension.

4.2

4.2

7.6

8.8

It is the Customer's responsibility to ensure that the sheet piles are not locally overstressed by bracket forces or weld connections and to weld the clutches between sheets or add shear plates as needed to prevent the ejection of individual sheets by uplift forces.

TRENCH LINING SYSTEM



4 Leg Lifting Chains

Used for unloading and moving individual leg assembles. SWL 6.7 tonnes.



It is the Customer's responsibility to provide longer and higher load capacity lifting chains if large assemblies of equipment are to be moved.

Code	Description	Weight
VAU10019	4 Leg Chains 3mtr - SWL 6.7TON 10mm	30.0 kg
VAU10020	4 Leg Chains 5mtr - SWL 6.7TON 10mm	60.0 kg

Diesel Power Pack LP 80 bar (blue) (GBX01000) weight 301kg

A grade 46 mineral oil only, diesel powered, hydraulic pump used with GeoBrace 390 and GeoBrace 550 Ram Units to adjust length and pre-load.

Grade 46 Mineral Oil - 5 Litres (VAU19005)



Hydraulic Connecting Hoses

For use with the Diesel Power Pack LP 80 bar (blue) (GBX01000).

Code	Description	Weight
AGU20103	3/8" Hose M/F ISO A, 2.5m - 350bar	1.7 kg
AGU20104	3/8" Hose M/F ISO A, 3.5m - 350bar	2.3 kg
AGU20049	3/8" Hose M/F ISO A, 5.0m - 350bar	3.2 kg

2 hoses are required to connect 1 hydraulic ram

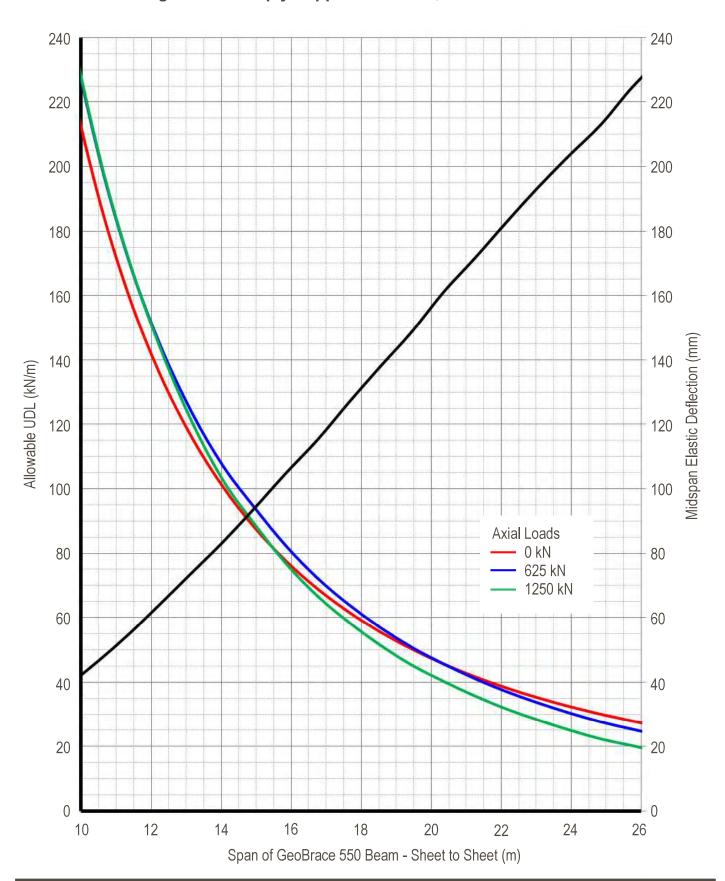


TRENCH LINING SYSTEM



Allowable Working Loads - Simply Supported Beams, Sheet to Sheet

Graph 550/1



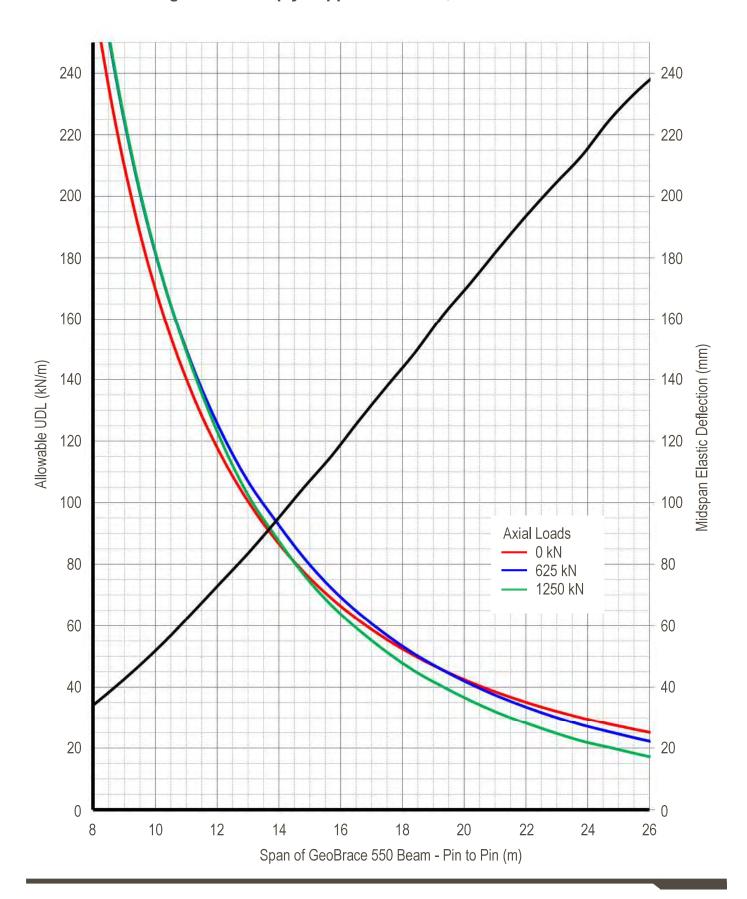
European Data DESIGN DATA Date: 23/04/2019 Issue: GB03 Sheet 20

TRENCH LINING SYSTEM



Allowable Working Loads - Simply Supported Beams, Pin to Pin

Graph 550/2



European Data

DESIGN DATA

Date: 23/04/2019

Issue: GB03 Sheet 21

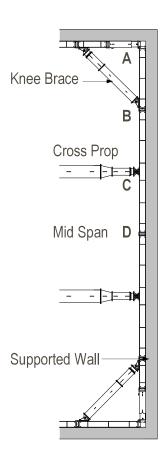
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TRENCH LINING SYSTEM



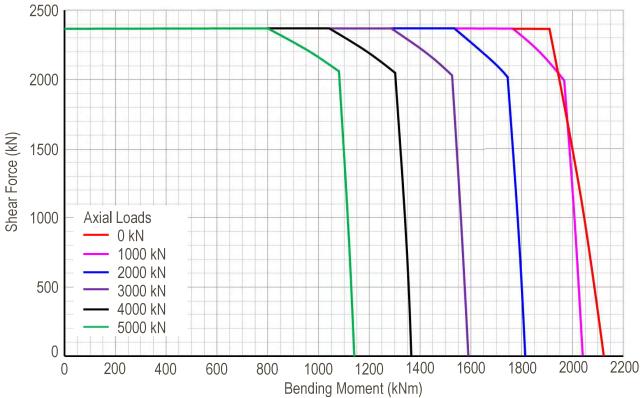
Design of Continuous Beams with or Without Knee Braces

It is not possible to produce graphs covering the design of these applications as there are too many variables; carry out analysis on a case by case basis. Care is needed to correctly consider axial compression arising as a result of connection with braces joining at the excavation corners (A) and knee brace props joining the 550 Brace at angles (B). Compression loads are carried by the GeoBrace flanges and joint pins remote from the supported wall. Critical points for consideration occur at point B and where props intersect the GeoBrace 550 (C). In these locations hogging bending moments also result in compression loads in the inner flanges which are additive to induced axial loads. In the mid-span (D), sagging bending moments place the inner flanges in tension which are reduced by the magnitude of any induced axial load. Deflection in the mid-span will also move the line of induced axial load towards the neutral axis of the GeoBrace section. For large excavations where supported perimeter walls have adequate in-plane stiffness, such as in D-wall or secant pile construction, it may be possible to shed axial loads from the GeoBrace 550 sections into the supported walls near the corners of the excavation by the use of substantial shear stubs welded to the wall-side flange of the GeoBrace which project and are grouted into purpose designed pockets cut into the perimeter wall. This allows fuller use of the allowable GeoBrace section bending moment in areas of hogging moment towards the central part of the excavation.



Working Load Envelope - Combined Axial / Bending / Shear

Graph 550/3



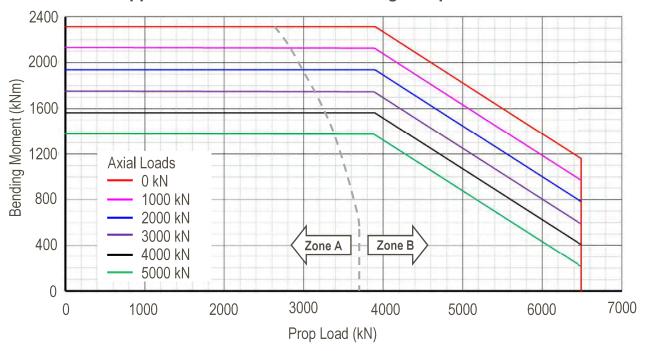
European Data DESIGN DATA Date: 23/04/2019 Issue: GB03 Sheet 22

TRENCH LINING SYSTEM



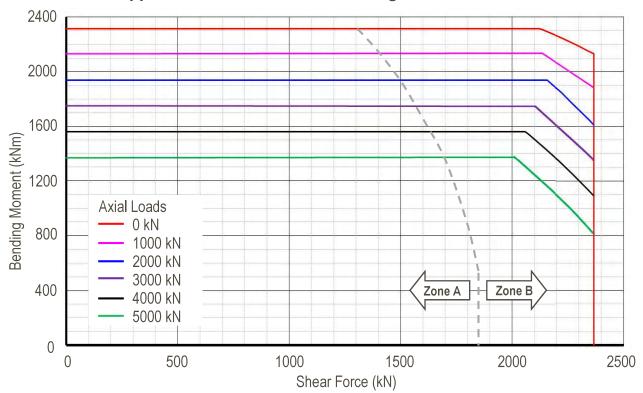
Intermediate Supports - Combined Axial / Bending / Prop Load

Graph 550/4



Intermediate Supports - Combined Axial / Bending / Shear

Graph 550/5



Zone A values have been limited due to the partial lateral and rotational restraint of the plate girder compression flange in accordance with BS5975 table K1 and for values of shear that do not exceed 55% of the prop load.

Separate calculations are required to access Zone B values in which detailed consideration is given to the lateral and rotational restraint of the girder compression flange in order to reduce the effective length of the plate girder web.

European Data DESIGN DATA Date: 23/04/2019 Issue: GB03 Sheet 23

TRENCH LINING SYSTEM



Table 1 - Component Makeup for a GeoBrace 550 Assembly with Ram Unit

Leg	Kit Code	Sheet to Dimensi	o Sheet on (mm)	GBX55000	GBX55009	GBX55013	GBX55027	GBX55054	GBX55108	GBX55001	BVU70001	Weight	Pin Hole Deflection
Туре	Nit Code	min	max	Ram Unit	900mm Extension	1350mm Extension	2700mm Extension	5400mm Extension	10800mm Extension	59x350mm Pin	8mm R-Clip	(kg)	(mm)
1	KTU16120	3250	4250	1						1	2	2640	5
2	KTU16121	4150	5150	1	1					3	6	3430	8
3	KTU16122	4600	5600	1		1				3	6	3600	9
4	KTU16123	5050	6050	1	2					5	10	4220	13
5	KTU16124	5500	6500	1	1	1				5	10	4390	14
6	KTU16125	5950	6950	1			1			3	6	4080	12
7	KTU16126	6400	7400	1	2	1				7	14	5180	20
8	KTU16127	6850	7850	1	1		1			5	10	4870	16
9	KTU16128	7300	8300	1		1	1			5	10	5040	18
10	KTU16129	7750	8750	1	2		1			7	14	5670	21
11	KTU16130	8200	9200	1	1	1	1			7	14	5840	22
12	KTU16131	8650	9650	1				1		3	6	5040	17
13	KTU16132	9100	10100	1	2	1	1			9	18	6630	29
14	KTU16133	9550	10550	1	1			1		5	10	5840	19
15	KTU16134	10000	11000	1		1		1		5	10	6010	20
16	KTU16135	10450	11450	1	2			1		7	14	6630	22
17	KTU16136	10900	11900	1	1	1		1		7	14	6800	23
18	KTU16137	11350	12350	1			1	1		5	10	6490	23
19	KTU16138	11800	12800	1	2	1		1		9	18	7590	29
20	KTU16139	12250	13250	1	1		1	1		7	14	7280	25
21	KTU16140	12700	13700	1		1	1	1		7	14	7450	27
22	KTU16141	13150	14150	1	2		1	1		9	18	8070	33
23	KTU16142	13600	14600	1	1	1	1	1		9	18	8240	36
24	KTU16143	14050	15050	1					1	3	6	7000	20
25	KTU16144	14500	15500	1	2	1	1	1		11	22	9030	46
26	KTU16145	14950	15950	1	1				1	5	10	7790	22
27	KTU16146	15400	16400	1		1			1	5	10	7960	22
28	KTU16147	15850	16850	1	2				1	7	14	8580	24
29	KTU16148	16300	17300	1	1	1			1	7	14	8750	24
30	KTU16149	16750	17750	1			1		1	5	10	8440	24
31	KTU16150	17200	18200	1	2	1			1	9	18	9550	29
32	KTU16151	17650	18650	1	1		1		1	7	14	9240	26
33	KTU16152	18100	19100	1		1	1		1	7	14	9400	27
34	KTU16153	18550	19550	1	2		1		1	9	18	10000	34
35	KTU16154	19000	20000	1	1	1	1		1	9	18	10200	37
36	KTU16155	19450	20450	1				1	1	5	10	9410	27
37	KTU16156	19900	20900	1	2	1	1		1	11	22	11000	50
38	KTU16157	20350	21350	1	1			1	1	7	14	10200	28
39	KTU16158	20800	21800	1		1		1	1	7	14	10400	36
40	KTU16159	21250	22250	1	2			1	1	9	18	11000	42
41	KTU16160	21700	22700	1	1	1		1	1	9	18	11200	45
42	KTU16161	22150	23150	1			1	1	1	7	14	10800	45
43	KTU16162	22600	23600	1	2	1		1	1	11	22	12000	56
44	KTU16163	23050	24050	1	1		1	1	1	9	18	11600	52
45	KTU16164	23500	24500	1		1	1	1	1	9	18	11800	56

TRENCH LINING SYSTEM



Table 1 (continued) - Component Makeup for a GeoBrace 550 Assembly with Ram Unit

Leg	Kit Code	Sheet to Dimensi	o Sheet on (mm)	GBX55000	GBX55009	GBX55013	GBX55027	GBX55054	GBX55108	GBX55001	BVU70001	Weight	Pin Hole Deflection
Туре	7 W. 0000	min	max	Ram Unit	900mm Extension	1350mm Extension	2700mm Extension	5400mm Extension	10800mm Extension	59x350mm Pin	8mm R-Clip	(kg)	(mm)
46	KTU16165	23950	24950	1	2		1	1	1	11	22	12400	62
47	KTU16166	24400	25400	1	1	1	1	1	1	11	22	12600	67
48	KTU16167	24850	25850	1					2	5	10	11400	43
49	KTU16168	25300	26300	1	2	1	1	1	1	13	26	13400	77
50	KTU16169	25750	26750	1	1				2	7	14	12200	47
51	KTU16170	26200	27200	1		1			2	7	14	12300	49
52	KTU16171	26650	27650	1	2				2	9	18	12900	54
53	KTU16172	27100	28100	1	1	1			2	9	18	13100	57
54	KTU16173	27550	28550	1			1		2	7	14	12800	55
55	KTU16174	28000	29000	1	2	1			2	11	22	13900	64
56	KTU16175	28450	29450	1	1		1		2	9	18	13600	61
57	KTU16176	28900	29900	1		1	1		2	9	18	13800	64
58	KTU16177	29350	30350	1	2		1		2	11	22	14400	69
59	KTU16178	29800	30800	1	1	1	1		2	11	22	14600	72
60	KTU16179	30250	31250	1				1	2	7	14	13800	65

Note: All legs are supplied fully assembled with 1 extra pin & R clip at the end to connect at the corner. If connecting end to end as parallel walers rather than a square or rectangular frame 1 extra pin & R clip will be required per leg.



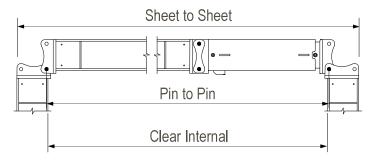
In order to minimise initial deflection caused by pin hole tolerances assemble the brace with the longest possible extensions in the middle and position shorter lengths at the ends. When assembling braces in accordance with RMDK drawings, follow the makeup shown.

When selecting the lengths of the GeoBrace 550 assemblies, make appropriate allowance for pin hole deflection, elastic deflection and adequate working space.

Dimension Conversions

To obtain the pin to pin, or clear internal dimensions for the GeoBrace 550 leg from the sheet to sheet dimension, subtract the following offsets:

Туре	Pin to Pin (mm)	Clear Internal (mm)
DAMB (A-C)	172	382
DAMB (D-F)	202	442
GeoBrace 254	476	652
GeoBrace 390	720	920
GeoBrace 550	1050	1240



TRENCH LINING SYSTEM



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European Data Date: 23/04/2019 Issue: GB03 Sheet 26



CALCULATIONS

www.deep-foundations.co.uk

Page: 37 of 38

Job No: DFS221011 Design Engineer: AR Date: 25 March 2023

Job Name: BROXWOOD VIEW, 29 ST.

EDMUND'S TERRACE LONDON

NW8 7QH

Calc Title: Detailed Design – Temporary Propping Scheme to Laterally Restrain

Pile Retaining Walls & Segmental Underpinning Wall Rev. 03

DEWALT SC-PRO Carbon Steel Threaded Anchor Rods
Technical Datasheets

GENERAL INFORMATION

SC-PRO

Vinylester Spinning Capsule Adhesive Anchoring System

PRODUCT DESCRIPTION

The SC-PRO anchor system consists of integrated two-component glass capsules and matching chisel pointed anchor rods which are installed using a rotary hammer. The adhesive is designed for installation of M8 to M30 threaded rods in concrete. It is suitable for a wide range of steel grades and can be used for installations in water filled holes.









APPLICATIONS AND USES



















FEATURES AND BENEFITS

- · Designed for use with chisel pointed threaded rod
- Simple and fast installation
- · Quick curing time and good chemical resistance
- · Versatile low odor formula with quick curing time
- · Capsule design allows pre-measured adhesive volumes and avoids waste

APPROVALS AND LISTINGS



LOADING CONDITIONS







SUITABLE BASE MATERIALS





General Information Installation Information **Design Information Material Information Ordering Information**

SYSTEM COMPONENTS



SC-PRO



Chisel Pointed Rod

GRADES

Carbon Steel 5.8 Carbon Steel 8.8 Stainless Steel A4 Stainless Steel HCR

APPROVALS

• ETA-13/0051



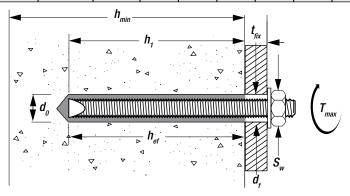
Real-Time Anchor Design Software www.DEWALTdesignassist.com



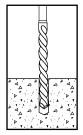
INSTALLATION INFORMATION

INSTALLATION DATA - THREADED ROD

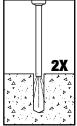
	No. 4 o Maria					SC-PRO) - Threa	ded rod			
	Notation	Unit	M8	M10	M12	M14	M16	M20	M22	M24	M30
Anchor diameter	d	[mm]	8	10	12	14	16	20	22	24	30
Nominal drill bit diameter	d ₀	[mm]	10	12	14	16	18	22	24	26	32
Diameter of hole clearance in fixture	d _f	[mm]	9	12	14	16	18	22	24	26	33
Diameter of steel brush	d _b	[mm]	11	13	16	18	20	24	26	28	34
Effective embedment and drill hole depth 1 Effective embedment and drill hole depth 2	$h_{ef,1} = h_{1,1} \\ h_{ef,2} = h_{1,2}$	[mm] [mm]	80	90	110 165	120 -	125 190	170 255	190 -	210 315	280
Minimum member thickness for h _{ef,1} Minimum member thickness for h _{ef,2}	h _{min,1} h _{min,2}	[mm] [mm]	110 -	120 -	140 195	150 -	160 225	220 300	240 -	260 370	340 -
Minimum spacing for h _{ef,1} Minimum spacing for h _{ef,2}	S _{min,1} S _{min,2}	[mm] [mm]	40 -	45 -	55 85	60 -	65 95	85 130	95 -	105 160	140 -
Minimum edge distance for h _{ef,1} Minimum edge distance or h _{ef,2}	C _{min,1} C _{min,2}	[mm] [mm]	40 -	45 -	55 85	60 -	65 95	85 130	95 -	105 160	140 -
Thickness of fixture	t _{fix}	[mm]				0 mm	≤ t _{fix} ≤ 15	00 mm			
Maximum torque	T _{max}	[Nm]	10	20	40	60	80	120	135	180	300
Torque wrench socket size	S _w	[mm]	13	17	19	22	24	30	32	36	46



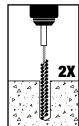
INSTALLATION INSTRUCTIONS



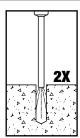




2.) Blow the hole clean using a hand pump or compressed air 2 times minimum.



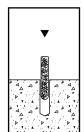
3.) Brush the hole with the proper wire brush 2 times minimum.



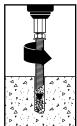
4.) Blow the hole clean using a hand pump or compressed air 2 times minimum.



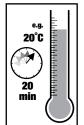
5.) Shake capsule to distribute adhesive components.



6.) Insert the capsule into the drilled hole.



7.) Thread hex nut on rod + coupler on nut. Insert drive unit in rotary hammer. In hammer drill mode, 250-500 rpm break glass.



8.) Allow the adhesive to cure for the time specified for the actual concrete temperature prior to applying any load.

For complete installation instructions, see technical approval.

Concrete temperature	Minimum curing time ¹⁾
≥ - 5°C	5 h
≥ + 5°C	1 h
≥ + 20°C	20 min
≥ + 30°C	10 min
1) Time data for dry concrete, double curi	ng time for wet concrete



DESIGN INFORMATION

TENSION LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

According to EOTA TR 029.

Notation	Unit	M8	M10	M12	M14	M16	M20	M22	M24	M30
	Ste	el failur	e							
N _{Rk,s}	[kN]	18	29	42	58	78	123	152	177	281
$N_{Rk,s}$	[kN]	29	46	67	92	126	196	242	282	449
γ_{Ms}^{-1}	[-]					1.50				
•										
N _{Rk,s}	[kN]	-	-	-	-	-	-	-	-	281
N _{Rk,s}	[kN]	26	40	59	81	110	172	212	247	-
$\gamma_{Ms}^{-1)}$	[-]			,	1.	87				2.86
Comb	ined pullo	ut and c	oncrete 1	ailure						
te, dry and we	t concrete									
τ _{Rk,uncr}	[N/mm²]	12	12	12	12	12	11	11	11	10
î .	[N/mm²]	10	10	10	10	10	9.5	9.5	9.5	9
1	[-]				1.	5 ²⁾				1.8 ³⁾
,			1		1					
ψ _C	[-]					1.14				
ψ _C	[-]					1.26				
ψ _C	[-]					1.34				
	Conc	rete fail	ure							
S _{cr,N}	[mm]					3.0·h _{ef}				
C _{cr,N}	[mm]					1.5⋅h _{ef}				
$\gamma_{Mc}^{-1)}$	[-]				1.	5 ²⁾				1.8 ³⁾
S _{cr,sp}	[mm]					2·c _{cr,sp}				
C _{cr,sp}	[mm]	160	135	140	150	160	215	240	265	350
$\gamma_{Msp}^{-1)}$	[-]				1.	5 ²⁾				1.8 ³⁾
ψς	[-]					1.14				
ψ _C	[-]					1.26				
ψ _C	[-]					1.34				
	$\begin{array}{c c} N_{Rk,s} \\ \gamma_{Ms}^{1} \end{array}$ $\begin{array}{c c} N_{Rk,s} \\ N_{Rk,s} \\ \gamma_{Ms}^{1} \end{array}$ $\begin{array}{c c} \textbf{Comt} \\ \textbf{ete, dry and we} \\ \hline \tau_{Rk,uncr} \\ \hline \tau_{Rk,uncr} \\ \hline \gamma_{Mc} = \gamma_{Mp}^{1} \end{bmatrix}$ $\begin{array}{c c} \psi_{C} \\ \psi_{C} \\ \hline \end{array}$ $\begin{array}{c c} S_{cr,N} \\ \hline C_{cr,N} \\ \hline \gamma_{Mc}^{1} \end{bmatrix}$ $\begin{array}{c c} S_{cr,sp} \\ \hline C_{cr,sp} \\ \hline \gamma_{Msp}^{1} \end{bmatrix}$ $\begin{array}{c c} \psi_{C} \\ \hline \psi_{C} \\ \hline \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c } \hline \textbf{N}_{Rk,s} & [kN] & 18 & 29 & 42 \\ \hline \textbf{N}_{Rk,s} & [kN] & 29 & 46 & 67 \\ \hline \textbf{γ_{Ms}}^{1)} & [\cdot] \\ \hline \hline \textbf{N}_{Rk,s} & [kN] & - & - & - \\ \hline \textbf{N}_{Rk,s} & [kN] & 26 & 40 & 59 \\ \hline \textbf{γ_{Ms}}^{1)} & [\cdot] \\ \hline \hline \textbf{Combined pullout and concrete failure} \\ \hline \textbf{$\tau_{Rk,uncr}$} & [N/mm^2] & 12 & 12 & 12 \\ \hline \textbf{$\tau_{Rk,uncr}$} & [N/mm^2] & 10 & 10 & 10 \\ \hline \textbf{γ_{Mc}} = \textbf{γ_{Mp}}^{1)} & [\cdot] \\ \hline \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{γ_{Mc}}^{1)} & [\cdot] \\ \hline \hline \textbf{$S_{cr,N}$} & [mm] \\ \hline \textbf{$c_{cr,N}$} & [mm] \\ \hline \textbf{γ_{Mc}}^{1)} & [\cdot] \\ \hline \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \end{bmatrix} \\ \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \hline \end{bmatrix} \\ \hline \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \hline \end{bmatrix} \\ \hline \hline \textbf{ψ_{C}} & [\cdot] \\ \hline \hline \end{bmatrix} \\ \hline \hline \end{tabular}$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	N _{Rk,s} [kN] 18 29 42 58 78 N _{Rk,s} [kN] 29 46 67 92 126 Y _{Ms} 1.50 N _{Rk,s} [kN] - - - - N _{Rk,s} [kN] 26 40 59 81 110 Y _{Ms} 1.87 Combined pullout and concrete failure T _{Rk,uncr} [N/mm²] 12 12 12 12 12 T _{Rk,uncr} [N/mm²] 10 10 10 10 10 Y _{Mc} = Y _{Mp} 1 1.5² Ψ _C [-] 1.34 Concrete failure S _{cr,N} [mm] 3.0·h _{ef} C _{cr,Sp} [mm] 1.5·h _{ef} Y _{Mc} 1.5·h _{ef} Y _{Mc} 1.5·h _{ef} Y _{Msp} 1.5·h _{ef} T _{Msp} 1.5·h _{ef} Y _{Msp} 1.5·h _{ef} T _{Msp} 1.5·h _{ef} 1.5·h _{ef}	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	N _{RK,S} [kN] 18 29 42 58 78 123 152 177 N _{RK,S} [kN] 29 46 67 92 126 196 242 282 Y _{Ms} [-]

³⁾ Partial safety factor γ_2 = 1.2 is included



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SHEAR LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

According to EOTA TR 029.

	N-4-N-					SC-PRO) - Threa	ded rod			
	V _{Rk,s} V _{Rk}	Unit	M8	M10	M12	M14	M16	M20	M22	M24	M30
		St	eel failur	е							
Data base for steel failure without level arm											
Carbon steel											
Characteristic resistance, strength class 5.8	$V_{Rk,s}$	[kN]	9	14	21	29	39	61	76	88	140
Characteristic resistance, strength class 8.8	$V_{Rk,s}$	[kN]	15	23	34	46	63	98	121	141	224
Partial safety factor	$\gamma_{\text{Ms}}{}^{\text{1)}}$	[-]					1.25				
A4 and HCR steel											
Characteristic resistance, strength class 50	$V_{Rk,s}$	[kN]	-	-	-	-	-	-	-	-	140
Characteristic resistance, strength class 70	$V_{Rk,s}$	[kN]	13	20	30	40	55	86	106	124	-
Partial safety factor	$\gamma_{Ms}^{-1)}$	[-]				1.	56				2.38
Steel failure with level arm											
Carbon steel											
Characteristic resistance, strength class 5.8	${\sf M}^0_{\sf Rk,s}$	[Nm]	19	37	65	105	166	325	448	561	1125
Characteristic resistance, strength class 8.8	$M^0_{Rk,s}$	[Nm]	30	60	105	168	266	519	716	898	1799
Partial safety factor	$\gamma_{Ms}^{-1)}$	[-]					1.25				
A4 and HCR steel	•										
Characteristic resistance, strength class 50	M ⁰ _{Rk,s}	[Nm]	-	-	-		-	-	-	-	1125
Characteristic resistance, strength class 70	$M^0_{Rk,s}$	[Nm]	26	52	92	146	233	454	627	786	-
Partial safety factor	$\gamma_{Ms}^{-1)}$	[-]				1.	56				2.38
	•	Cone	crete fail	ure							
Pry-out failure											
Factor in Equation (5.7) of TR 029	k	[-]					2				
Partial safety factor	γ _{Mcp} 1)	[-]					1.5 ²⁾				
Edge failure			•								
Partial safety factor	γ _м ,1)	[-]					1.5 ²⁾				

²⁾ The value contains an installation safety factor of $\gamma_{\text{2}}\!=\!\text{1.0}$



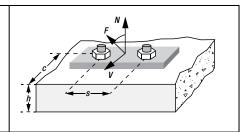
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PRECALCULATED TENSION AND SHEAR CAPACITIES

According to EOTA TR 029.

- The following tables are meant to give the designer aid in the preliminary design process. No responsibility is taken
 for the correctness of these data.
- The given values are valid for normal concrete C20/25 and static/quasi-static loads with the exact dimensional information given. For any other conditions, the use of DDA is recommended.
- The values in the table below are strength design level loads. This assumes a safety factor is included both on the loading and the resistance.
- For further details and background information please see the introduction of this manual.



		Influence of steel grade	s	
Size	Property	5.8	8.8	A4 / HCR
M8	N _{Rd} [kN]	12.0	19.3	13.9
IVIO	V _{Rd} [kN]	7.2	12.0	8.3
M 10	N _{Rd} [kN]	19.3	30.7	21.9
WITO	V _{Rd} [kN]	12.0	18.4	12.8
M10	N _{Rd} [kN]	28.0	44.7	31.6
M12	V _{Rd} [kN]	16.8	27.2	19.2
M 16	N _{Rd} [kN]	52.0	83.3	58.8
WITO	V _{Rd} [kN]	31.2	50.4	35.3
M20	N _{Rd} [kN]	81.3	130.7	91.4
IVIZU	V _{Rd} [kN]	48.8	78.4	55.1
M24	N _{Rd} [kN]	117.3	188.0	132.1
IVIZ4	V _{Rd} [kN]	70.4	112.8	79.5
M30	N _{Rd} [kN]	186.7	299.3	98.3
UCIVI	V _{Rd} [kN]	112.0	179.2	58.8

Instructions:

- The steel grade potentially influences the load capacity of the anchor. Table depicts ultimate steel strengths of threaded rods for given steel grades.
- The steel strength equals the load capacity of the anchor provided other failure modes, i.e. concrete failure or pullout failure, do not yield lower strengths and therefore do not control the anchor capacity.
- To determine the critical failure mode, the steel strength identified in the table has to be compared with the concrete and pullout strengths in the following tables.

	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchoring located close to an edge				
M8	8.8 steel dry/wet concrete				DEE.		i i i i i i i i i i i i i i i i i i i		a jiri	80	
Embedment depth	h _{ef} [mm]	80									
Member thickness	h [mm]		110								
Edge distance	c [mm]	-	-	-	-	-	40	40	40	40	40
Anchor spacing	s [mm]	0	40	240	40	240	0	40	240	40	240
40/24°C	N _{Rd} [kN]	16.1	21.3	32.2	28.8	64.3	9.2	12.1	18.4	15.8	36.7
	F _{Rd} ^{45°} [kN]	11.7	19.1	23.3	30.6	46.7	4.5	6.0	9.0	6.4	10.5
	V _{Rd} [kN]	12.0	24.0	24.0	48.0	48.0	3.7	5.0	7.5	5.0	7.5
80/50°C	N _{Rd} [kN]	13.4	18.4	26.8	26.0	53.6	8.0	10.9	15.9	15.8	31.9
F _{Rd} ^{45°} [kN]		10.7	17.7	21.5	28.6	43.0	4.3	5.8	8.6	6.4	10.3
	V _{Rd} [kN]	12.0	24.0	24.0	48.0	48.0	3.7	5.0	7.5	5.0	7.5

■ - Steel strengths controls ■ - Concrete strength controls ■ - Anchor pullout strength controls



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5546	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchoring located close to an edge				
M10	8.8 steel dry/wet concrete		ECE.				The state of the s		a jiri	80.	
Embedment depth	h _{ef} [mm]	90									
Member thickness	h [mm]		120								
Edge distance	c [mm]	-	-	-	-	-	45	45	45	45	45
Anchor spacing	s [mm]	0	45	270	45	270	0	45	270	45	270
40/24°C	N _{Rd} [kN]	22.6	28.5	45.2	36.8	90.5	12.4	15.6	24.7	21.6	49.5
	F _{Rd} ^{45°} [kN]	17.2	27.3	34.4	41.6	68.9	5.8	7.5	11.5	8.2	13.2
	V _{Rd} [kN]	18.4	36.8	36.8	73.5	73.6	4.7	6.2	9.3	6.2	9.3
80/50°C	N _{Rd} [kN]	18.8	24.9	37.7	33.9	75.4	10.7	14.2	21.4	20.6	42.8
	F _{Rd} ^{45°} [kN]	15.8	25.2	31.6	38.4	63.2	5.5	7.3	11.0	8.1	13.0
	V _{Rd} [kN]	18.4	36.8	36.8	67.8	73.6	4.7	6.2	9.3	6.2	9.3
- Steel strengths controls - Concrete strength controls - Anchor pullout strength controls											

C20/25	Anchorin	g locate	d far fro	m any e	ige	Anchoring located close to an edge				
	\$200 A 100 A								68.	
h _{ef} [mm]	110									
h [mm]		140								
c [mm]	-	-	-	-	-	55	55	55	55	55
s [mm]	0	55	330	55	330	0	55	330	55	330
N _{Rd} [kN]	33.2	41.1	66.4	51.7	132.7	18.3	22.6	36.6	30.2	73.1
F _{Rd} ^{45°} [kN]	25.4	39.7	50.7	58.5	101.5	8.2	10.7	16.4	11.5	18.6
V _{Rd} [kN]	27.2	54.4	54.4	103.5	108.8	6.6	8.7	13.1	8.7	13.1
N _{Rd} [kN]	27.6	36.1	55.3	48.4	110.6	15.8	20.7	31.6	29.7	63.3
F _{Rd} ^{45°} [kN]	23.3	36.9	46.5	54.8	93.1	7.9	10.4	15.7	11.5	18.4
V _{Rd} [kN]	27.2	54.4	54.4	96.8	108.8	6.6	8.7	13.1	8.7	13.1
	8.8 steel dry/wet concrete h _{ef} [mm] h [mm] c [mm] s [mm] N _{Rd} [kN] F _{Rd} ^{45°} [kN] V _{Rd} [kN] N _{Rd} [kN] F _{Rd} ^{45°} [kN]	8.8 steel dry/wet concrete h _{ef} [mm] h [mm] c [mm] c [mm] N _{Rd} [kN] 33.2 F _{Rd} 45° [kN] V _{Rd} [kN] 27.2 N _{Rd} [kN] 27.6 F _{Rd} 45° [kN] 23.3	8.8 steel dry/wet concrete h _{ef} [mm] h [mm] c [mm] c [mm] 0 55 N _{Rd} [kN] 33.2 41.1 F _{Rd} 45° [kN] 25.4 39.7 V _{Rd} [kN] 27.2 54.4 N _{Rd} [kN] 27.6 36.1 F _{Rd} 45° [kN] 23.3 36.9	8.8 steel dry/wet concrete hef [mm] h [mm] c [mm] - - s [mm] 0 55 330 NRd [kN] 33.2 41.1 66.4 FRd 45° [kN] 25.4 39.7 50.7 VRd [kN] 27.2 54.4 54.4 NRd [kN] 27.6 36.1 55.3 FRd 45° [kN] 23.3 36.9 46.5	8.8 steel dry/wet concrete hef [mm] - <	8.8 steel dry/wet concrete h _{ef} [mm] 11 h [mm] 12 c [mm] - - - - s [mm] 0 55 330 55 330 N _{Rd} [kN] 33.2 41.1 66.4 51.7 132.7 F _{Rd} ^{45°} [kN] 25.4 39.7 50.7 58.5 101.5 V _{Rd} [kN] 27.2 54.4 54.4 103.5 108.8 N _{Rd} [kN] 27.6 36.1 55.3 48.4 110.6 F _{Rd} ^{45°} [kN] 23.3 36.9 46.5 54.8 93.1	8.8 steel dry/wet concrete h _{ef} [mm] 110 h [mm] 140 c [mm] - - - - 55 55 330 0 0 N _{Rd} [kN] 33.2 41.1 66.4 51.7 132.7 18.3 F _{Rd} 45° [kN] 25.4 39.7 50.7 58.5 101.5 8.2 V _{Rd} [kN] 27.2 54.4 54.4 103.5 108.8 6.6 N _{Rd} [kN] 27.6 36.1 55.3 48.4 110.6 15.8 F _{Rd} 45° [kN] 23.3 36.9 46.5 54.8 93.1 7.9	8.8 steel dry/wet concrete h _{ef} [mm] 110 h [mm] 140 c [mm] - - - - 55 55 s [mm] 0 55 330 55 330 0 55 N _{Rd} [kN] 33.2 41.1 66.4 51.7 132.7 18.3 22.6 F _{Rd} ^{45°} [kN] 25.4 39.7 50.7 58.5 101.5 8.2 10.7 V _{Rd} [kN] 27.2 54.4 54.4 103.5 108.8 6.6 8.7 N _{Rd} [kN] 27.6 36.1 55.3 48.4 110.6 15.8 20.7 F _{Rd} ^{45°} [kN] 23.3 36.9 46.5 54.8 93.1 7.9 10.4	8.8 steel dry/wet concrete h _{ef} [mm] 110 h [mm] 140 c [mm] - - - - 55 55 55 55 s [mm] 0 55 330 55 330 0 55 330 N _{Rd} [kN] 33.2 41.1 66.4 51.7 132.7 18.3 22.6 36.6 F _{Rd} 45° [kN] 25.4 39.7 50.7 58.5 101.5 8.2 10.7 16.4 V _{Rd} [kN] 27.2 54.4 54.4 103.5 108.8 6.6 8.7 13.1 N _{Rd} [kN] 27.6 36.1 55.3 48.4 110.6 15.8 20.7 31.6 F _{Rd} 45° [kN] 23.3 36.9 46.5 54.8 93.1 7.9 10.4 15.7	8.8 steel dry/wet concrete h _{ef} [mm] 110 h [mm] 140 c [mm] - - - - 55 55 55 55 55 s [mm] 0 55 330 55 330 0 55 330 55 N _{Rd} [kN] 33.2 41.1 66.4 51.7 132.7 18.3 22.6 36.6 30.2 F _{Rd} ^{45°} [kN] 25.4 39.7 50.7 58.5 101.5 8.2 10.7 16.4 11.5 V _{Rd} [kN] 27.2 54.4 54.4 103.5 108.8 6.6 8.7 13.1 8.7 N _{Rd} [kN] 27.6 36.1 55.3 48.4 110.6 15.8 20.7 31.6 29.7 F _{Rd} ^{45°} [kN] 23.3 36.9 46.5 54.8 93.1 7.9 10.4 15.7 11.5

	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchoring located close to an edge				
M16	8.8 steel dry/wet concrete									\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	
Embedment depth	h _{ef} [mm]	125									
Member thickness	h [mm]		160								
Edge distance	c [mm]	-	-	-	-	-	65	65	65	65	65
Anchor spacing	s [mm]	0	65	375	65	375	0	65	375	65	375
40/24°C	N _{Rd} [kN]	47.1	55.2	94.1	64.8	188.2	25.5	29.9	50.9	37.6	108.8
	F _{Rd} ^{45°} [kN]	41.3	60.5	82.6	73.3	165.2	11.2	14.4	22.3	15.3	25.1
	V _{Rd} [kN]	50.4	100.8	100.8	129.6	201.6	8.9	11.8	17.7	11.8	17.7
80/50°C	N _{Rd} [kN]	41.9	51.1	83.8	63.1	167.6	22.8	27.8	45.6	36.8	91.2
	F _{Rd} ^{45°} [kN]	38.8	57.5	77.6	71.4	155.3	10.8	14.1	21.7	15.2	25.1
	V _{Rd} [kN]	50.4	100.8	100.8	126.2	201.6	8.9	11.8	17.7	11.8	17.7

- Steel strengths controls - Concrete strength controls - Anchor pullout strength controls

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5500	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchori	ng locat	ed close	to an ed	ge
M20	8.8 steel dry/wet concrete		ECE.		Sec.		The state of the s		a picto		
Embedment depth	h _{ef} [mm]	170									
Member thickness	h [mm]	220									
Edge distance	c [mm]	-	-	-	-	-	85	85	85	85	85
Anchor spacing	s [mm]	0	85	510	85	510	0	85	510	85	510
40/24°C	N _{Rd} [kN]	74.6	87.1	149.2	101.6	298.5	39.8	46.4	79.6	58.0	170.4
	F _{Rd} ^{45°} [kN]	64.9	95.0	129.8	114.9	259.5	17.6	22.7	35.3	24.1	39.8
	V _{Rd} [kN]	78.4	156.8	156.8	203.1	313.6	14.1	18.8	28.1	18.8	28.1
80/50°C	N _{Rd} [kN]	67.6	82.9	135.3	101.6	270.6	37.9	46.4	75.8	58.0	151.6
	F _{Rd} ^{45°} [kN]	61.6	92.0	123.3	114.9	246.5	17.4	22.7	34.8	24.1	39.8
	V _{Rd} [kN]	78.4	156.8	156.8	203.1	313.6	14.1	18.8	28.1	18.8	28.1
- Steel strengths controls - Concrete strength controls - Anchor pullout strength controls											

	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchoring located close to an edge				
M24	8.8 steel dry/wet concrete	and different to the second									8 [®] /1,3
Embedment depth	h _{ef} [mm]		210								
Member thickness	h [mm]		260								
Edge distance	c [mm]	-	-	-	-	-	105	105	105	105	105
Anchor spacing	s [mm]	0	105	630	105	630	0	105	630	105	630
40/24°C	N _{Rd} [kN]	102.5	119.5	204.9	139.5	409.8	54.6	63.7	109.3	79.7	255.5
	F _{Rd} ^{45°} [kN]	91.1	132.6	182.2	157.8	364.5	24.9	32.0	49.9	34.0	56.8
	V _{Rd} [kN]	112.8	225.6	225.6	278.9	451.2	20.1	26.8	40.2	26.8	40.2
80/50°C	N _{Rd} [kN]	100.3	119.5	200.6	139.5	401.1	54.6	63.7	109.3	79.7	227.4
	F _{Rd} ^{45°} [kN]	90.1	132.6	180.2	157.8	360.4	24.9	32.0	49.9	34.0	56.8
	V _{Rd} [kN]	112.8	225.6	225.6	278.9	451.2	20.1	26.8	40.2	26.8	40.2
■ - Steel strengths controls ■ - Concrete strength controls ■ - Anchor pullout strength controls											

	C20/25	Anchorin	g locate	d far fro	m any e	dge	Anchori	ng locat	ed close	to an ed	ge
M30	8.8 steel dry/wet concrete		Sectoria:		Acherica Acherica			6	# (S.)		
Embedment depth	h _{ef} [mm]	280									
Member thickness	h [mm]	340									
Edge distance	c [mm]	-	-	-	-	-	140	140	140	140	140
Anchor spacing	s [mm]	0	140	840	140	840	0	140	840	140	840
40/24°C	N _{Rd} [kN]	131.4	153.4	262.9	178.9	525.8	70.1	81.8	140.2	102.2	338.1
	F _{Rd} ^{45°} [kN]	128.7	182.3	257.4	214.3	514.7	37.6	48.0	75.3	51.6	91.7
	V _{Rd} [kN]	179.2	358.4	358.4	429.4	716.8	32.4	43.2	64.9	43.2	64.9
80/50°C	N _{Rd} [kN]	131.4	153.4	262.9	178.9	525.8	70.1	81.8	140.2	102.2	311.5
	F _{Rd} ^{45°} [kN]	128.7	182.3	257.4	214.3	514.7	37.6	48.0	75.3	51.6	91.1
	V _{Rd} [kN]	179.2	358.4	358.4	429.4	716.8	32.4	43.2	64.9	43.2	64.9
■ - Steel strengths controls ■ - Concrete strength controls ■ - Anchor pullout strength controls											



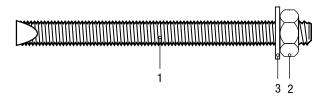
The DeWALT Design Assist is a powerful anchor design software which helps you to design simple and complex anchorages.

The design data of all DeWALT anchor products is readily available. To download this software for free, go to www.DeWALTdesignassist.com



MATERIAL INFORMATION

MATERIAL SPECIFICATIONS - CHISEL POINTED THREADED ROD



Part no.	Designation	Material
		Carbon steel 5.8
1	Anchor rod	Steel zinc plated \geq 5 μm or hot-dip galvanized \geq 40 μm ; Strength class 5.8, $R_m = 500$ MPa; $R_{p \ 0.2} = 400$ MPa
2	Hexagon nut	Steel zinc plated $\geq 5~\mu m$ or hot-dip galvanized $\geq 40~\mu m$; Strength class 5
3	Washer	Steel zinc plated $\geq 5~\mu m$ or hot-dip galvanized $\geq 40~\mu m$
		Carbon steel 8.8
1	Anchor rod	Steel zinc plated \geq 5 μm or hot-dip galvanized \geq 40 μm ; Strength class 8.8, $R_m = 800$ MPa; $R_{p~0.2} = 640$ MPa
2	Hexagon nut	Steel zinc plated \geq 5 μm or hot-dip galvanized \geq 40 μm ; Strength class 8
3	Washer	Steel zinc plated $\geq 5~\mu m$ or hot-dip galvanized $\geq 40~\mu m$
		Stainless steel A4
1	Anchor rod	Stainless steel 1.4401 / 1.4571; Strength class 50, R_m = 500 MPa; $R_{p~0.2}$ = 210 MPa (for > M24) Strength class 70, R_m = 700 MPa; $R_{p~0.2}$ = 450 MPa (for < M24)
2	Hexagon nut	Stainless steel 1.4401 / 1.4571; Strength class 50 for class 50 rod; Strength class 70 for class 70 rod
3	Washer	Stainless steel 1.4401 / 1.4571
		Stainless steel HCR
1	Anchor rod	Stainless steel 1.4529 / 1.4565; Strength class 50, R_m = 500 MPa; $R_{p~0.2}$ = 210 MPa (for > M24) Strength class 70, R_m = 700 MPa; $R_{p~0.2}$ = 450 MPa (for < M24)
2	Hexagon nut	Stainless steel 1.4529 / 1.4565; Strength class 50 for class 50 rod; Strength class 70 for class 70 rod
3	Washer	Stainless steel 1.4529 / 1.4565

ORDERING INFORMATION

SC-Pro Vinylester Spinning Capsules

	· · · · · · · · · · · · · · · · · · ·				
Art. no.	Туре	Drill hole dia. [mm]	Length [mm]	Box qty.	Carton qty.
DFC1510000	Spinning capsule M8	10	80	10	500
DFC1510050	Spinning capsule M10	12	90	10	500
DFC1510100	Spinning capsule M12	14	110	10	500
DFC1510150	Spinning capsule M16	18	125	10	200
DFC1510200	Spinning capsule M20	22	170	10	100
DFC1510250	Spinning capsule M24	26	210	10	100



Accessories

Art. no.	Туре	Drill hole dia. [mm]	Length [mm]	Box qty.	Carton qty.
DFC1650050	DEWALT blow pump	-	-	1	-
DFC1670000	SDS connection for steel brushes	-	-	1	20
DFC1670050	300mm extension for steel brushes	-	300	1	20
DFC1670100	Steel brush for SDS - 12mm diameter	M8	170	1	10
DFC1670150	Steel brush for SDS - 14mm diameter	M10	170	1	10
DFC1670200	Steel brush for SDS - 16mm diameter	M12	200	1	10
DFC1670250	Steel brush for SDS - 18mm diameter	-	200	1	10
DFC1670300	Steel brush for SDS - 20mm diameter	M16	300	1	10
DFC1670350	Steel brush for SDS - 22mm diameter	-	300	1	10
DFC1670400	Steel brush for SDS - 26mm diameter	M20	300	1	10
DFC1670450	Steel brush for SDS - 30mm diameter	M24	300	1	10
DFC1670500	Steel brush for SDS - 34mm diameter	M27	300	1	10
DFC1670550	Steel brush for SDS - 37mm diameter	M30	300	1	10
DFC1670600	Steel brush for SDS - 40mm diameter	-	300	1	10



STEEL BRUSH



CALCULATIONS

www.deep-foundations.co.uk

Page: 38 of 38

Job No: DFS221011 Design Engineer: AR Date: 25 March 2023

Job Name: BROXWOOD VIEW, 29 ST.

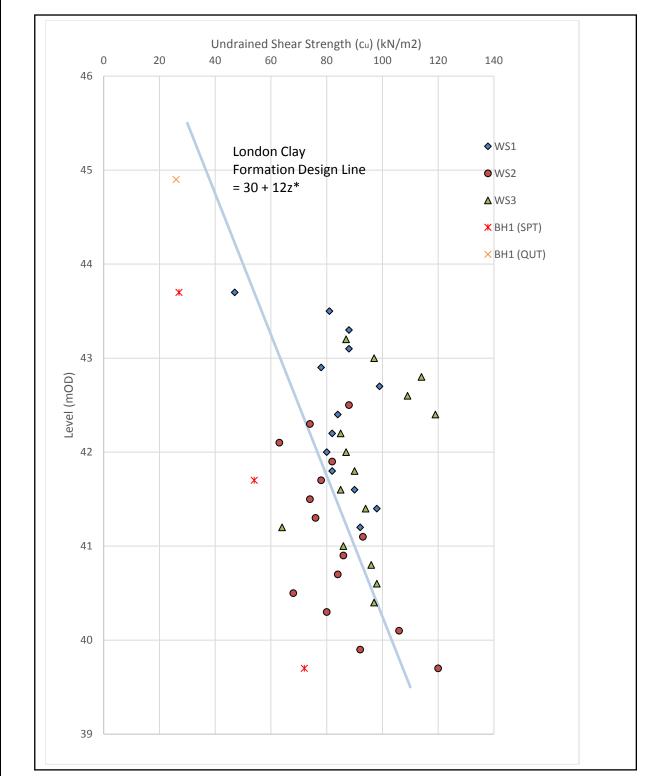
EDMUND'S TERRACE LONDON

NW8 7QH

Calc Title: Detailed Design – Temporary Propping Scheme to Laterally Restrain

Pile Retaining Walls & Segmental Underpinning Wall Rev. 03

Reference Exploratory Holes & Clay Strength Plot



z = depth below top of strata

Client	Project	Job No
Parmarbrook	Barrie House	CG/28408
	Title	
CGL	Undrained Shear Strength (c _u) vs Level	Figure 3

Site	Barrie House						Borehole No:	_	
Location	29 St Edmund	d's Te	errace	, Lo	ndor	NW8 7	QH	В	H1
Client:	Robert Morle	y, Ka	lemin	ster	Ltd		Sheet	1	of 1
Engineer:	StructureMod	le Ltd	I				Report No: 9	24	1/OT
	Comments		mples	Field		Strata	Strata Description		Legend
BH constru	ucted 17 Sep 2012	Туре	Depth[m]	Test	Depth[m	0 +46.00	MADE GROUND: asphalt [100mm] over grey/black mixture of ashy sand with asphalt, clinker and flint gravel; below about	0	
BH dia: 15 Cased to:		D	0.60		0.50	+45.50	0.35m becoming grey/brown clay with some ash and clinker Soft brown CLAY with grey patches	1	<u></u>
Groundwa	ter not observed	U	1.10			1		1	[
		D	1.60				below about 1.6m becoming firm brown CLAY with occasional grey gleying		
		S/D	2.30	6		2		2	[
		D U	2.703.00			3		3	1111
		D	3.50						[[
		S/D	4.30	12		4		4	11.11
		D	4.60] [[
		U D	5.00 5.50			5		5	[
		S/D D U	6.30 6.60 7.00	16		6	becoming stiff below about 6.0m	7	1,11,1,1,1,1,1
		D	7.50		7.50	+38.50	END OF BOREHOLE	8	
						9		9	
						10		10)
	sing cable percussive technique isturbed B = Bulk D = Small d		/ = Water S	S = SPT 'N	V [snlit er	ooon samnler1 C	= SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm²]		
Remarks :-								ehol	e No:
	Ground level interpol							В	H1



	Dawie Heuse							<u> </u>		
Site	Barrie House			_	_			Borehole No:	WS	1
Location	29 St Edmun	d's Te	errace	e, Lo	ndor	1 NV	V8 70	QН		
Client:	Robert Morle	y, Kal	lemin	ster	Ltd			Sheet	1 of :	2
Engineer:	StructureMod	de Ltd	I					Report No: 9	241/	ОТ
	Comments	Sar	mples	Field	9	Strata		Strata Description	Leg	and
	Comments	Туре	Depth[m]	Test	Depth[m	n] Lev	vel[mOD]	•	Legi	enu -
BH constru	ucted 17 Sep 2012				0.00	0 +	+45.60	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble	0	
BH dia: 60 with depth	Omm reducing									
Groundwa	ter at 0.95m on				0.90	1	+44.70	Concrete foundation [no reinforcement observed]	1	\ _
Groundwa	ter at 1.4m on									$\stackrel{\times}{\times}$
200mm of	urbance in upper clay due to coring	HV	1.90	47	1.75		+43.85	Stiff brown CLAY with occasional grey gleying, selenite crystals and rare orange sand partings	1) []	
operations	and HV testing	HV/D	2.10	81		2		incipient claystone at 2.05m	2 -	
		HV	2.30	88						_
		D HV	2.40 2.50	88		H			~	コー
		D	2.60							
		HV D	2.70 2.80	78						·-
		HV	2.90	99		3			3 -	-
		D	3.10							
		HV	3.20	84						· <u>-</u>
		HV/D	3.40	82					7	
		HV	3.60	80					-]
		D HV	3.70 3.80	82						. 1
		HV/D	4.00	90		4			4	1-1-1
		HV	4.20	98						-
		D	4.30	0.2					_	-
		HV D	4.40 4.60	92					ו	
			4.00							
						Ц		END OF DODELIOLE		
Constructed	sing hand held window sample	e equinment			5.00	5 +	-40.60	END OF BOREHOLE	5	
				S = SPT 'N	N' [split sr	poon sar	npler] C :	= SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm²]		
Remarks :-									ehole No	o:
	Standpipe installed to Ground level interpol	o 5.0m d	lepth						WS:	1



Cit-	Barrie House							Pourhell A		
Site				. La		. NI	\MO 7	Borehole N	10:	WS2
Location	29 St Edmun Robert Morle			-		ı IN	W8 /	Sheet		1 of 2
Client:				SICI	Ltu					
Engineer:	StructureMod							Report No:		9241/OT
	Comments		mples Depth[m]	Field Test	Depth[m	Strat	a Level[mOD]	Strata Description		Legend
BH constru	ucted 17 Sep 2012	Туре	Берин[т]	rest	0.00	_	+44.60	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble		0
BH dia: 60 with depth	Omm reducing					1				1
					1.13		+43.47	MADE GROUND: soft to firm brown clay with occasional f gravel and dark brown sand/silt lenses	lint	
15/10/12	ter at 3.5m on	HV/D HV/D HV/D HV/D HV/D HV/D HV/D HV/D	2.10 2.30 2.50 2.60 2.70 2.90 3.10 3.30 3.40 3.50 3.70 4.10 4.30 4.50 4.70 4.90	88 74 63 82 78 74 76 93 86 84 68 80 106 92 120	5.00	3	+42.50	Stiff, locally firm brown CLAY with orange patches and scattered selenite crystals below 2.25m becoming brown with occasional grey gley and selenite crystals END OF BOREHOLE	ʻing	2
	sing hand held window sample isturbed $B = Bulk D = Small c$			S = SPT 'N	N' [split sn	oon s	sampler1 C	= SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm	²]	
Remarks :-							, .	ing co.	_	ehole No:
	Standpipe installed t	_		_						WS2
	Cround lovel interne	E		:						VV 32

Ground level interpolated from topographical survey



Site	Barrie House							Borehole No:	W	IS3
Location	29 St Edmund	d's Te	errace	, Lo	ndor	n NW	V8 70	ЯН		
Client:	Robert Morle	y, Kal	lemin	ster	Ltd			Sheet	1	of 1
Engineer:	StructureMod	de Ltd	l					Report No:	924	1/OT
		Sar	mples	Field	9	Strata			Т	
	Comments	Туре	Depth[m]	Test	Depth[m	n] Lev	rel[mOD]	Strata Description		Legend
BH constru	ucted 17 Sep 2012				0.00	0 +	-45.30	MADE GROUND: [trial pit] - brown topsoil and clay with occasional building rubble	0	
BH dia: 60 with depth	Imm reducing									
Groundwat	ter not observed				0.90	1	-44.40	Concrete foundation [single reinforcement bar, c.10mm dia, observed at 0.5m in core]	1	
	urbance in upper				1.62	+	-43.68	Stiff brown CLAY with occasional grey gleying, selenite crystals and rare orange sand partings	5	
	clay due to coring and HV testing	HV D HV	2.10 2.20 2.30 2.50	87 97 114		2		incipient claystone at 2.05m	2	1,11,11,11,11
		D HV	2.70 2.80 2.90	109						11,
		HV/D	3.10	85		3			3	111
		HV	3.30	87						[]
		HV D HV	3.50 3.60 3.70	90 85						1111
		HV	3.90	94		4			4	
		HV D HV	4.10 4.20 4.30	64 86						111
		HV	4.50	96						}]]
		HV D	4.70 4.80	98						1,1
		HV	4.90	97	5.00	5 +	-40.30	END OF BOREHOLE	5	
	sing hand held window sample									
Key: U = Undi								= SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm²]	*** .	a Na
. C. Iui Ko I	Standpipe installed to Ground level interpol	o 5.0m d	lepth				osea th	e top of a footing and cored to base of footing at 75mm dia		e No: /S3





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