

PRODUCT FEATURES

- Ideal for wide range of substrates with close spacing and edge distance.
- Economical with wide range of fixings and bonding applications.
- Suitable for damp hole, cored hole and oversized holes.
- Recommended for chemical studs and rebar fixings.
- Extended working time ideally for tropical climate.
- Low shrinkage with high load applications.

RESIN SPECIFICATIONS

- 100% Solid Epoxy Resin - grey after mixing.
- Specific weight: 1.5 g/cm³.
- Compressive strength (ASTM D 695): 95 N/mm².

SHELF LIFE

- Cartridges should be stored in their original packaging in cool conditions (+5°C ~ +25°C) out of direct sunlight. When stored in this condition, the shelf life will be 18 months from the date of manufacture.

SUBSTRATES

- RC concrete C20/25 to C50/60 at maximum according to EN 206-1:2000-12.
- Solid stone & other solid masonry.



HOLE ORIENTATION



LOADING ZONES



VA RODS AVAILABILITY



BASIC LOADING DATA

- For static and quasi-static loadings.
- Only a single anchor is considered.
- No anchor spacing and edge distance influences.
- Loading applicable to dry or wet concrete.
- Concrete compressive strength C20/25 ($f_{ck,cube} = 25 \text{ N/mm}^2$).
- Loading based on standard anchorage depth.
- For non-cracked concrete.

CHARACTERISTIC RESISTANCE [F_{Rk}]

							STEEL CLASS 5.8		
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rk}	[kN]	18.0	29.0	42.0	57.6	93.4	125.8	176.0	212.0
Shear Load, V_{Rk}	[kN]	9.0	15.0	21.0	39.0	61.0	88.0	115.0	140.0

DESIGN RESISTANCE [F_{Rd}]

Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rd}	[kN]	12.0	17.0	24.9	32.0	51.9	69.9	97.8	117.8
Shear Load, V_{Rd}	[kN]	7.2	12.0	16.8	31.2	48.8	70.4	92.0	112.0

RECOMMENDED LOAD [F_{Rec}]

Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rec}	[kN]	8.6	12.1	17.8	22.9	37.1	49.9	69.9	84.1
Shear Load, V_{Rec}	[kN]	5.1	8.6	12.0	22.3	34.9	50.3	65.7	80.0

* Bold italic numbers represent steel failure.

CHARACTERISTIC RESISTANCE [F_{Rk}]						HIGH TENSILE STEEL CLASS 8.8			
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rk}	[kN]	21.8	30.6	44.8	57.6	93.4	125.8	176.0	212.0
Shear Load, V_{Rk}	[kN]	15.0	23.0	34.0	63.0	98.0	141.0	184.0	224.0

DESIGN RESISTANCE [F_{Rd}]									
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rd}	[kN]	12.1	17.0	24.9	32.0	51.9	69.9	97.8	117.8
Shear Load, V_{Rd}	[kN]	12.0	18.4	27.2	50.4	78.4	112.8	147.2	179.2

RECOMMENDED LOAD [F_{Rec}]									
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rec}	[kN]	8.6	12.1	17.8	22.9	37.1	49.9	69.9	84.1
Shear Load, V_{Rec}	[kN]	8.6	13.1	19.4	36.0	56.0	80.6	105.1	128.0

* Bold Italic numbers represent steel failure.

CHARACTERISTIC RESISTANCE [F_{Rk}]						STAINLESS STEEL CLASS A2/A4			
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rk}	[kN]	21.8	30.6	44.8	57.6	93.4	125.8	176.0	212.0
Shear Load, V_{Rk}	[kN]	13.0	20.0	30.0	55.0	86.0	124.0	161.0	196.0

DESIGN RESISTANCE [F_{Rd}]									
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rd}	[kN]	12.1	17.0	24.9	32.0	51.9	69.9	97.8	117.8
Shear Load, V_{Rd}	[kN]	8.3	12.8	19.2	35.3	55.1	79.5	103.2	125.6

RECOMMENDED LOAD [F_{Rec}]									
Anchor Size		M8	M10	M12	M16	M20	M24	M27	M30
Tensile Load, N_{Rec}	[kN]	8.6	12.1	17.8	22.9	37.1	49.9	69.9	84.1
Shear Load, V_{Rec}	[kN]	6.0	9.2	13.7	25.2	39.4	56.8	73.7	89.7

* Bold Italic numbers represent steel failure.

► SERVICE TEMPERATURE RANGE

The Statheros EPG65 is 100% Solid Epoxy Resin performance based on the tabulated temperature range as given below. A gradual temperature increase in base material may lead to a reduction of design bond stress.

TEMPERATURE RANGE	BASE MATERIAL TEMPERATURE	MAXIMUM LONG TERM BASE MATERIAL TEMPERATURE	MAXIMUM SHORT TERM BASE MATERIAL TEMPERATURE
Temperature Range	+10 °C to + 45 °C	+ 20 °C	+ 40 °C

Maximum Short Term Base Material Temperature

Short term temperature refers to those elevated base material temperature occurred over brief moment such as diurnal cycling intervals.

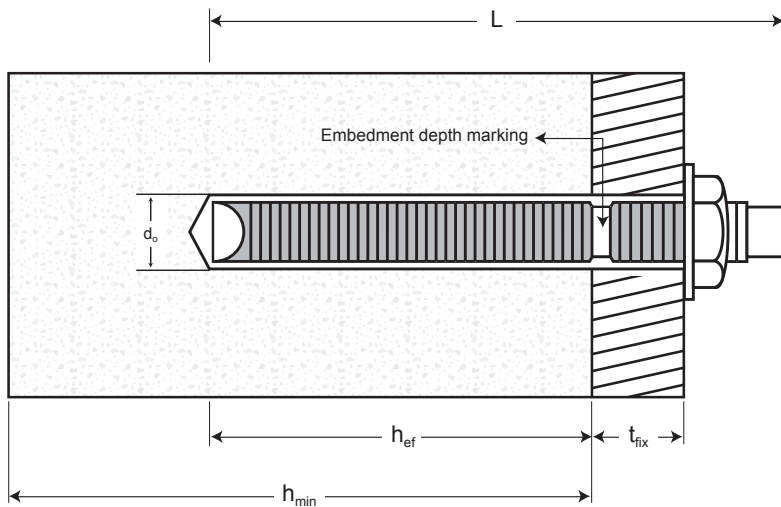
Maximum Long Term Base Material Temperature

Long term temperature refers to those elevated base material temperature occurred over a significant long period of time.

▶ SETTING DETAILS

ANCHOR SIZE		M8	M10	M12	M16	M20	M24	M27	M30
Standard Anchor Length, L	[mm]	110	130	160	190	260	300	340	380
Nominal Drill Hole Diameter, d_o	[mm]	10	12	14	18	24	28	32	35
Fixture Hole Diameter, d_{fix}	[mm]	9	12	14	18	22	26	30	33
Maximum Fixture Thickness, t_{fix}	[mm]	15	20	30	40	50	55	60	70
Recommended Torque, T_{inst}	[Nm]	10	20	40	80	135	200	240	270
Minimum Anchorage Depth, $h_{et,min}$									
Minimum Anchorage Depth, $h_{et,min}$	[mm]	60	60	70	80	90	96	108	120
Minimum Spacing, s_{min}	[mm]	40	40	40	45	50	55	60	65
Minimum Edge Distance, c_{min}	[mm]	40	40	40	45	50	55	60	65
Minimum Concrete Thickness, h_{min}	[mm]	100	100	100	115	130	160	180	200
Maximum Anchorage Depth, $h_{et,max}$									
Maximum Anchorage Depth, $h_{et,max}$	[mm]	160	200	240	320	400	480	540	600
Minimum Spacing, s_{min}	[mm]	40	40	40	45	50	55	60	65
Minimum Edge Distance, c_{min}	[mm]	40	40	40	45	50	55	60	65
Minimum Concrete Thickness, h_{min}	[mm]	200	224	268	336	444	532	600	670
Standard Anchorage Depth, $h_{et,std}$									
Standard Anchorage Depth, $h_{et,std}$	[mm]	80	90	110	125	170	210	250	270
Minimum Spacing, s_{min}	[mm]	40	45	55	65	85	105	125	135
Minimum Edge Distance, c_{min}	[mm]	40	45	55	65	85	105	125	135
Minimum Concrete Thickness, h_{min}	[mm]	$h_{et,std} + 30mm \geq 100mm$			$h_{et,std} + 2d_o$				

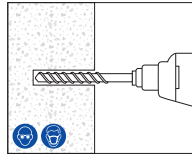
▶ SETTING DIAGRAM



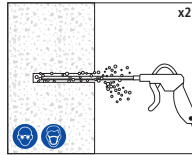
► INSTALLATION PROCEDURES

Before commencing installation ensure the operative is equipped with appropriate personal protection equipment, SDS Hammer Drill, Air Blower, Hole Cleaning Brush, good quality Dispensing Tool – either manual or power operated, Chemical Cartridge with mixing nozzle and extension tube, if needed.

- Using the SDS Hammer Drill in rotary hammer mode for drilling, with a carbide tipped drill bit of the appropriate size, drill the hole to the specified hole diameter and depth.

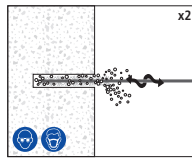


- Insert the Air Lance to the bottom of the hole and depress the trigger for 2 seconds. The compressed air must be clean – free from water and oil – and at a minimum pressure of 6bar.



Perform the blowing operation twice.

- Select the correct size Hole Cleaning Brush. Ensure that the brush is in good condition and the correct diameter. Insert the brush to the bottom of the hole, use a brush extension if needed to reach the bottom of the hole and withdraw with a twisting motion. There should be positive interaction between the steel bristles of the brush and the sides of the drilled hole.



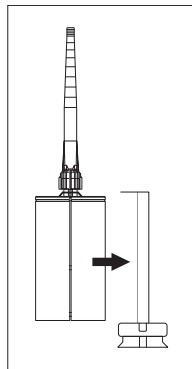
Perform the brushing operation twice.

- Repeat 2

- Repeat 3

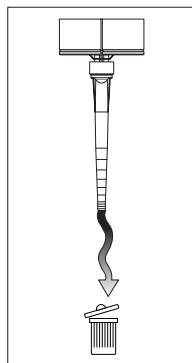
- Repeat 2

- Select the appropriate static mixer nozzle, check that the mixing elements are present and correct (**do not modify the mixer**). Attach mixer nozzle to the cartridge. Check the Dispensing Tool is in good working order. Place the cartridge into the dispensing tool.

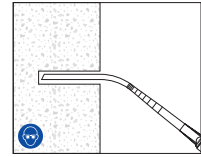


Note: The Nozzle type 4 is in two sections. One section contains the mixing elements and the other section is an extension piece. Connect the extension piece to the mixing section by pushing the two sections firmly together until a positive engagement is felt.

- Extrude some resin to waste until an even-colored mixture is extruded. The cartridge is now ready to use.

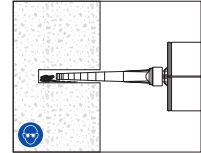


- Attach an extension tube with resin stopper (if required) to the end of the mixing nozzle with a push fit.

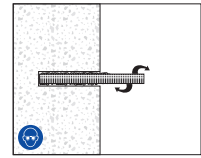


(The extension tubes may be pushed into the resin stoppers and are held in place with a coarse internal thread).

- Insert the mixing nozzle to the bottom of the hole. Extrude the resin and slowly withdraw the nozzle from the hole. **Ensure no air voids are created** as the nozzle is withdrawn. Inject resin until the hole is approximately 3/4 full and remove the nozzle from the hole.

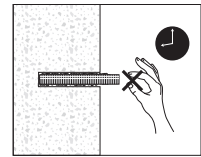


- Select the steel anchor element and ensure it is free from oil or other contaminants, and mark with the required embedment depth. Insert the steel element into the hole using a back and forth twisting motion to ensure complete cover, until it reaches the bottom of the hole. Excess resin will be expelled from the hole evenly around the steel element and there shall be no gaps between the anchor element and the wall of the drilled hole.

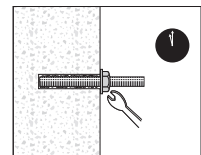


- Clean any excess resin from around the mouth of the hole.

- Do not disturb the anchor until at least the minimum curing time has elapsed. Refer to the Gel and Curing Timetable to determine the appropriate cure time.



- Position the fixture and tighten the anchor to the appropriate installation torque.



Do not over-torque the anchor as this could adversely affect its performance.

► GEL AND CURING TIME

BASE MATERIAL TEMPERATURE $T_{\text{base material}} (^{\circ}\text{C})$	GEL TIME (WORKING TIME) $t_{\text{gel}} (\text{mins})$	CURING TIME FOR DRY HOLE $t_{\text{cure}} (\text{hrs})$	CURING TIME FOR DAMP HOLE $t_{\text{cure}} (\text{hrs})$
$+10 \leq T_{\text{base material}} < +20$	60	12	24
$+20 \leq T_{\text{base material}} < +30$	15	7	14
$+30 \leq T_{\text{base material}} < +40$	7	5	10
Above +40	4	3	6

* Cartridge should be $\geq +10^{\circ}\text{C}$.

► MATERIAL SPECIFICATIONS

DESIGNATION	MATERIAL
VA Rods - Class 5.8 & 8.8 M8 - M30	Strength class 5.8, 8.8 to EN ISO 898-1 Steel, zinc plated $\geq 5\mu\text{m}$ to EN ISO 4042 Steel, hot dipped galvanised $\geq 40\mu\text{m}$ to EN ISO 10684
Washer ISO 7089	Steel, zinc plated to EN ISO 4042 Steel, hot dipped galvanised to EN ISO 10684
Hexagon Nut EN ISO 4032	Strength class 5.8, 8.8 to EN ISO 898-2 Steel galvanised $\geq 5\mu\text{m}$ to EN ISO 4042 Hot dipped galvanised $\geq 40\mu\text{m}$ to EN ISO 10684
VAS Rods - Class A2 & A4 M8 - M30	Strength class A2-70 & A4-70 to EN ISO 3506-1 Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 to EN 10088
Washer ISO 7089	Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 EN 10088
Hexagon Nut EN ISO 4032	Strength class A2-70 & A4-70 to EN ISO 3506-2 Stainless steel 1.4401; 1.4404; 1.4578; 1.4571; 1.4439; 1.4362 to EN 10088

► MECHANICAL PROPERTIES

ANCHOR SIZE		M8	M10	M12	M16	M20	M24	M27	M30
Cross Sectional Area, A_s	[mm ²]	36.6	58.0	84.3	157.0	245.0	353.0	459.0	519.0
Nominal Tensile Strength, f_{uk}	[N/mm ²]								
~ Carbon Steel: Class 5.8		500	500	500	500	500	500	500	500
~ High Tensile Steel: Class 8.8		800	800	800	800	800	800	800	800
~ Stainless Steel: Class A2/A4		700	700	700	700	700	700	700	700
Nominal Yield Strength, f_{yk}	[N/mm ²]								
~ Carbon Steel: Class 5.8		400	400	400	400	400	400	400	400
~ High Tensile Steel: Class 8.8		640	640	640	640	640	640	640	640
~ Stainless Steel: Class A2/A4		450	450	450	450	450	450	450	450
Elastic Moment Of Resistance, W_{el}	[mm ³]	31.2	62.3	109.2	277.5	540.9	935.5	1,245.0	1,668.0
Design Bending Moment, $M_{Rd,s}$	[Nm]								
~ Carbon Steel: Class 5.8		15.2	29.6	52.8	132.8	260.0	448.8	665.6	900.0
~ High Tensile Steel: Class 8.8		24.0	48.0	84.0	212.8	415.2	718.4	1,065.6	1,439.2
~ Stainless Steel: Class A2/A4		16.7	33.3	59.0	149.4	291.0	503.8	746.8	1,009.0

The design bending moment is derived from $M_{Rd,s} = M_{Rk,s} / \gamma_{Mk,N}$ where the partial safety factor is 1.25 for carbon steel 5.8 and high tensile steel 8.8; 1.56 for stainless steel A2/A4. The recommended bending moment is derived from $M_{Rec,s} = M_{Rd,s} / \gamma_f$ where the partial safety factor is 1.4.

TENSION LOAD [N_{Rd}]

Design Tensile Resistance, N_{Rd} :

lower value of [$N_{Rd,s}$; $N_{Rd,p}$; $N_{Rd,c}$]

Design Steel Tensile Resistance:

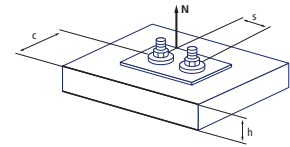
$N_{Rd,s}$

Design Pull-Out Resistance:

$N_{Rd,p} = N_{Rd,p}^0 \cdot \Psi_{h,N} \cdot \Psi_{\beta,N}$

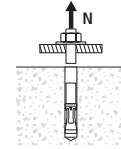
Design Concrete Cone Resistance:

$N_{Rd,c} = N_{Rd,c}^0 \cdot \Psi_{h,N} \cdot \Psi_{\beta,N} \cdot \Psi_{s,N} \cdot \Psi_{c,N}$



STEEL TENSILE RESISTANCE [$N_{Rd,s}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- For non-cracked and cracked concrete.
- Data valid only for specified steel grade.

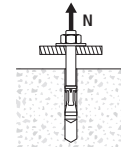


ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
Carbon Steel: Class 5.8								
$N_{Rd,s}$ [kN]	12.0	19.3	28.0	52.7	82.0	118.0	153.3	187.3
High Tensile Steel: Class 8.8								
$N_{Rd,s}$ [kN]	19.3	30.7	44.7	84.0	130.7	188.0	244.7	299.3
Stainless Steel: Class A2/A4								
$N_{Rd,s}$ [kN]	13.7	21.6	31.1	57.9	90.5	130.0	168.9	206.8

The design steel tensile resistance is derived from $N_{Rd,s} = N_{Rk,s} / \gamma_{Ms,N}$ where the partial safety factor is 1.5 for carbon steel 5.8 and high tensile steel 8.8; 1.9 for stainless steel A2/A4. The recommended load is derived from $N_{Rec,s} = N_{Rd,s} / \gamma_F$ where the partial safety factor is 1.4.

PULL-OUT RESISTANCE [$N_{Rd,p}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- No anchor spacing and edge distance influences.
- Loading applicable to dry and wet concrete.
- Concrete compressive strength C20/25 ($f_{ck,cube} = 25 \text{ N/mm}^2$).
- For non-cracked concrete.

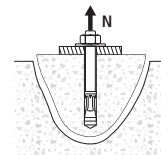


ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
$h_{ef, std}$ [mm]	80	90	110	125	170	210	250	270
$N_{Rd,p}^0$ [kN]	12.1	17.0	24.9	32.0	51.9	69.9	97.8	117.8

The design pull-out resistance is derived from $N_{Rd,p}^0 = N_{Rk,p}^0 / \gamma_{Mc,N}$ where the partial safety factor is 1.8. The recommended load is derived from $N_{Rec,p}^0 = N_{Rd,p}^0 / \gamma_F$ where the partial safety factor is 1.4.

CONCRETE CONE RESISTANCE [$N_{Rd,c}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- No anchor spacing and edge distance influences.
- Loading applicable to dry and wet concrete.
- Concrete compressive strength C20/25 ($f_{ck,cube} = 25 \text{ N/mm}^2$).
- For non-cracked concrete.

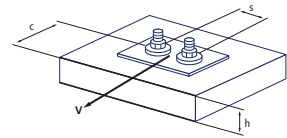


ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
$h_{ef, std}$ [mm]	80	90	110	125	170	210	250	270
$N_{Rd,c}^0$ [kN]	24.1	28.7	38.8	47.1	74.6	102.5	133.1	149.4

The design concrete cone resistance is derived from $N_{Rd,c}^0 = N_{Rk,c}^0 / \gamma_{Mc,N}$ where the partial safety factor is 1.5. The recommended load is derived from $N_{Rec,c}^0 = N_{Rd,c}^0 / \gamma_F$ where the partial safety factor is 1.4.

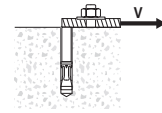
SHEAR LOAD [V_{Rd}]

Design Shear Resistance, V_{Rd} : lower value of [$V_{Rd,s}$; $V_{Rd,c}$; $V_{Rd,cp}$]
 Design Steel Shear Resistance: $V_{Rd,s}$
 Design Concrete Edge Shear Resistance: $V_{Rd,c} = V_{Rd,c}^0 \cdot \Psi_{\beta,V} \cdot \Psi_{\alpha,V} \cdot \Psi_{sc,V}$
 Design Concrete Pry-Out Resistance: $V_{Rd,cp} = V_{Rd,cp}^0 \cdot \Psi_{\beta,V} \cdot \Psi_{s,N} \cdot \Psi_{c,N}$



STEEL SHEAR RESISTANCE [$V_{Rd,s}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- For non-cracked and cracked concrete.
- Data valid only for specified steel grade.

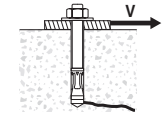


ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
Carbon Steel: Class 5.8								
$V_{Rd,s}$ [kN]	7.2	12.0	16.8	31.2	48.8	70.4	92.0	112.0
High Tensile Steel: Class 8.8								
$V_{Rd,s}$ [kN]	12.0	18.4	27.2	50.4	78.4	112.8	147.2	179.2
Stainless Steel: Class A2/A4								
$V_{Rd,s}$ [kN]	8.3	12.8	19.2	35.3	55.1	79.5	103.2	125.6

The design steel shear resistance is derived from $V_{Rd,s} = V_{Rk,s} / \gamma_{M2,V}$ where the partial safety factor is 1.25 for carbon steel 5.8 and high tensile steel 8.8; 1.56 for stainless steel A2/A4. The recommended load is derived from $V_{Rec,s} = V_{Rd,s} / \gamma_F$ where the partial safety factor is 1.4.

CONCRETE EDGE SHEAR RESISTANCE [$V_{Rd,c}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- No anchor spacing and edge distance influences.
- Loading applicable to dry and wet concrete.
- Concrete compressive strength C20/25 ($f_{ck,cube} = 25 \text{ N/mm}^2$).
- For non-cracked concrete.

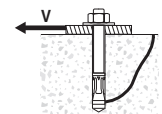


ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
$h_{ef,std}$ [mm]	80	90	110	125	170	210	250	270
c_{min} [mm]	40	45	55	65	85	105	125	135
$V_{Rd,c}^0$ [kN]	3.6	4.7	6.9	10.1	17.4	25.8	35.8	42.1

The design concrete edge shear resistance is derived from $V_{Rd,c} = V_{Rk,c}^0 / \gamma_{M2,V}$ where the partial safety factor is 1.5. The recommended load is derived from $V_{Rec,c} = V_{Rd,c}^0 / \gamma_F$ where the partial safety factor is 1.4.

CONCRETE PRY-OUT RESISTANCE [$V_{Rd,cp}$]

- For static and quasi-static loadings.
- Only a single anchor is considered.
- No anchor spacing and edge distance influences.
- Loading applicable to dry and wet concrete.
- Concrete compressive strength C20/25 ($f_{ck,cube} = 25 \text{ N/mm}^2$).
- For non-cracked concrete.



ANCHOR SIZE	M8	M10	M12	M16	M20	M24	M27	M30
$h_{ef,std}$ [mm]	80	90	110	125	170	210	250	270
$V_{Rd,cp}^0$ [kN]	48.2	57.5	77.7	94.1	149.2	204.9	266.2	298.7

The design concrete pry-out resistance is derived from $V_{Rd,cp} = V_{Rk,cp}^0 / \gamma_{M2,V}$ where the partial safety factor is 1.5. The recommended load is derived from $V_{Rec,cp} = V_{Rd,cp}^0 / \gamma_F$ where the partial safety factor is 1.4.

COMBINED TENSION & SHEAR

$$\text{Combined Tension \& Shear: } \frac{N_{sd}}{N_{Rd}} + \frac{V_{sd}}{V_{Rd}} \leq 1.2$$

The resultant force must be satisfied to the above conditions. The designer must cross check the loading conditions, types of applied loads and substrate to ensure the recommended anchor is applicable to the actual site applications. This would avoid any design faults which commonly caused by inconclusive load requirements with respective to actual site conditions.

► INFLUENCING FACTORS - TENSION

INFLUENCE OF ANCHORAGE DEPTH [$\Psi_{h,N}$]

$$\Psi_{h,N} = \frac{h_{act}}{h_{ef,std}} \quad \text{Limits: } h_{ef,min} \leq h_{act} \leq 20 * d$$

INFLUENCE OF CONCRETE STRENGTH ON PULL-OUT AND CONCRETE CONE RESISTANCE [$\Psi_{\beta,N}$]

$$\Psi_{\beta,N} = \left(\frac{f_{ck,cube}}{25} \right)^{0.1} \quad \text{Limits: } 25 \text{ MPa} \leq f_{ck,cube} \leq 60 \text{ MPa}$$

Concrete Strength Designation (ENV 206)	C 20/25	C 25/30	C 30/37	C 35/45	C 40/50	C 50/60
Concrete Cylinder Strength, $f_{ck,cyl}$ [MPa]	20	25	30	35	40	50
Concrete Cube Strength, $f_{ck,cube}$ [MPa]	25	30	37	45	50	60
Concrete Strength Factor, $\Psi_{\beta,N}$	1.00	1.02	1.04	1.06	1.07	1.09

INFLUENCE OF ANCHOR SPACING [$\Psi_{s,N}$]

Anchor Spacing 's' [mm]	M8	M10	M12	M16	M20	M24	M27	M30
40	0.63							
45	0.64	0.63						
55	0.67	0.65	0.63					
65	0.70	0.68	0.65	0.63				
85	0.77	0.74	0.69	0.67	0.63			
105	0.83	0.79	0.74	0.71	0.65	0.63		
125	0.89	0.85	0.78	0.75	0.68	0.65	0.63	
135	0.92	0.88	0.81	0.77	0.70	0.66	0.64	0.63
160	1.00	0.94	0.86	0.82	0.74	0.69	0.66	0.65
180		1.00	0.91	0.86	0.76	0.71	0.68	0.67
220			1.00	0.94	0.82	0.76	0.72	0.70
250				1.00	0.87	0.80	0.75	0.73
340					1.00	0.90	0.84	0.81
420						1.00	0.92	0.89
500							1.00	0.96
540								1.00
Critical Spacing 's _{cr} ' [mm]	160	180	220	250	340	420	500	540
Minimum Spacing 's _{min} ' [mm]	40	45	55	65	85	105	125	135

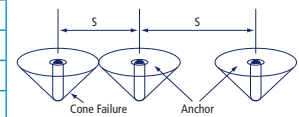
$$\Psi_{s,N} = 0.5 + \frac{s}{4 * h_{ef,std}}$$

Limits:

$$s_{min} \leq s \leq s_{cr}$$

$$s_{min} = 0.5 * h_{ef,std}$$

$$s_{cr} = 2.0 * h_{ef,std}$$



INFLUENCE OF EDGE DISTANCE [$\Psi_{c,N}$]

Edge Distance 'c' [mm]	M8	M10	M12	M16	M20	M24	M27	M30
40	0.65							
45	0.69	0.65						
55	0.78	0.73	0.65					
65	0.87	0.81	0.71	0.66				
80	1.00	0.92	0.81	0.75				
85		0.96	0.84	0.78	0.65			
90		1.00	0.87	0.80	0.67			
105			0.97	0.89	0.73	0.65		
110			1.00	0.92	0.75	0.67		
125				1.00	0.81	0.72	0.65	
135					0.86	0.75	0.68	0.65
170					1.00	0.87	0.78	0.74
210						1.00	0.89	0.84
250							1.00	0.95
2710								1.00
Critical Edge Distance 'c _{cr} ' [mm]	80	90	110	125	170	210	250	270
Minimum Edge Distance 'c _{min} ' [mm]	40	45	55	65	85	105	125	135

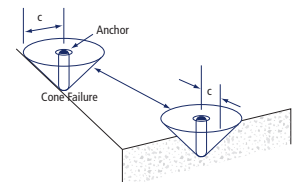
$$\Psi_{c,N} = 0.3 + 0.7 * \frac{c}{h_{ef,std}}$$

Limits:

$$c_{min} \leq c \leq c_{cr}$$

$$c_{min} = 0.5 * h_{ef,std}$$

$$c_{cr} = 1.0 * h_{ef,std}$$



► INFLUENCING FACTORS - SHEAR

INFLUENCE OF CONCRETE STRENGTH ON CONCRETE EDGE SHEAR RESISTANCE [$\Psi_{\beta,V}$]

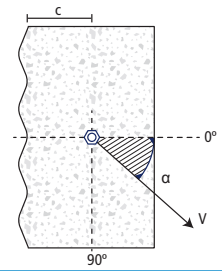
$$\Psi_{\beta,V} = \sqrt{\frac{f_{ck,cube}}{25}}$$

Limits: 25 MPa \leq $f_{ck,cube}$ \leq 60 MPa

Concrete Strength Designation (ENV 206)	C 20/25	C 25/30	C 30/37	C 35/45	C 40/50	C 50/60
Concrete Cylinder Strength, $f_{ck,cyl}$ [MPa]	20	30	30	35	40	50
Concrete Cube Strength, $f_{ck,cube}$ [MPa]	25	30	37	45	50	60
Concrete Strength Factor, $\Psi_{\beta,V}$	1.00	1.10	1.22	1.34	1.41	1.55

INFLUENCE OF SHEAR LOAD DIRECTION [$\Psi_{\alpha,V}$]

Load Type	Angle, α [°]	$\Psi_{\alpha,V}$
Oblique 0°	0° < α \leq 15°	1.00
Oblique 30°	15° < α \leq 37.5°	1.14
Oblique 45°	37.5° < α \leq 52.5°	1.35
Oblique 60°	52.5° < α \leq 67.5°	1.71
Oblique 90°	67.5° < α \leq 90°	2.00



INFLUENCE OF ANCHOR SPACING AND EDGE DISTANCE ON CONCRETE EDGE SHEAR RESISTANCE [$\Psi_{sc,V}$]

$$\Psi_{sc,V} = \frac{c}{c_{min}} * \sqrt{\frac{c}{c_{min}}}$$

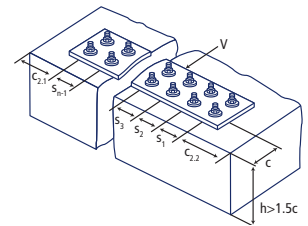
for single anchor towards a concrete edge

$$\Psi_{sc,V} = \frac{3c + s}{6c_{min}} * \sqrt{\frac{c}{c_{min}}}$$

for two anchors when $s \leq 3c$

$$\Psi_{sc,V} = \frac{3c + s_1 + s_2 + s_{n-1}}{3nc_{min}} * \sqrt{\frac{c}{c_{min}}}$$

for multiple anchors when s_1 to $s_{n-1} \leq 3c$ and $c_2 \geq 1.5c$



$\Psi_{sc,V}$	Edge influence with single anchor	c / c_{min}															
		1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
		1.00	1.31	1.66	2.02	2.41	2.83	3.26	3.72	4.19	4.69	5.20	5.72	6.27	6.83	7.41	8.00
s/c_{min}	1.0	0.67	0.84	1.03	1.22	1.43	1.65	1.88	2.12	2.36	2.62	2.89	3.16	3.44	3.73	4.03	4.33
	1.5	0.75	0.93	1.12	1.33	1.54	1.77	2.00	2.25	2.50	2.76	3.03	3.31	3.60	3.89	4.19	4.50
	2.0	0.83	1.02	1.22	1.43	1.65	1.89	2.13	2.38	2.63	2.90	3.18	3.46	3.75	4.05	4.35	4.67
	2.5	0.92	1.11	1.32	1.54	1.77	2.00	2.25	2.50	2.77	3.04	3.32	3.61	3.90	4.21	4.52	4.83
	3.0	1.00	1.20	1.42	1.64	1.88	2.12	2.37	2.63	2.90	3.18	3.46	3.76	4.06	4.36	4.68	5.00
	3.5		1.30	1.52	1.75	1.99	2.24	2.50	2.76	3.04	3.32	3.61	3.91	4.21	4.52	4.84	5.17
	4.0			1.62	1.86	2.10	2.36	2.62	2.89	3.17	3.46	3.75	4.05	4.36	4.68	5.00	5.33
	4.5				1.96	2.21	2.47	2.74	3.02	3.31	3.60	3.90	4.20	4.52	4.84	5.17	5.50
	5.0					2.33	2.59	2.87	3.15	3.44	3.74	4.04	4.35	4.67	5.00	5.33	5.67
	5.5						2.71	2.99	3.28	3.57	3.88	4.19	4.50	4.82	5.15	5.49	5.83
	6.0						2.83	3.11	3.41	3.71	4.02	4.33	4.65	4.98	5.31	5.65	6.00
	6.5							3.24	3.53	3.84	4.16	4.47	4.80	5.13	5.47	5.82	6.17
	7.0								3.67	3.98	4.29	4.62	4.95	5.29	5.63	5.98	6.33
	7.5									4.11	4.43	4.76	5.10	5.44	5.79	6.14	6.50
	8.0										4.57	4.91	5.25	5.59	5.95	6.30	6.67
	8.5											5.05	5.40	5.75	6.10	6.47	6.83
	9.0											5.20	5.55	5.90	6.26	6.63	7.00
	9.5												5.69	6.05	6.42	6.79	7.17
	10.0													6.21	6.58	6.95	7.33
10.5														6.74	7.12	7.50	
11.0															7.28	7.67	
11.5																7.83	
12.0																8.00	

EPG65 HIGH STRENGTH EPOXY FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 Bond Strength Method)

Concrete Compressive Strength: $f_{ck,cube} = 25 \text{ N/mm}^2$

Rebar Size, d_s		$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Design Steel Resistance, $N_{Rd,s}$	[kN]	31.4	45.2	80.4	125.7	196.4	321.7	502.7
Design Bond Stress, τ_{Rd}	[N/mm ²]	7.2	7.8	8.1	7.3	7.3	7.3	7.2
Drilled Hole Diameter, d_o	[mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52
Bar Spacing, s	[mm]	50	65	80	100	125	160	200
Edge Distance, c	[mm]	40	40	40	50	65	80	100
$L_{b,req} / \text{Rebar } \phi$		14	13	12	14	14	14	14
Anchorage Length, L_b [mm]		Design Tensile Bonding Capacity, N_{Rd} [kN]						
100		22.6						
120		27.1	35.3					
140		31.4	41.2					
160			45.2	65.2				
175				71.3				
200				80.4	91.7			
225					103.2			
250					114.7	143.4		
275					125.7	157.7		
320						183.5	234.9	
345						196.4	253.2	
400							293.6	362.0
440							321.7	398.2
560								502.7
Length to Develop Steel Yield, $L_{b,req}$ [mm]		139	154	197	274	343	438	556

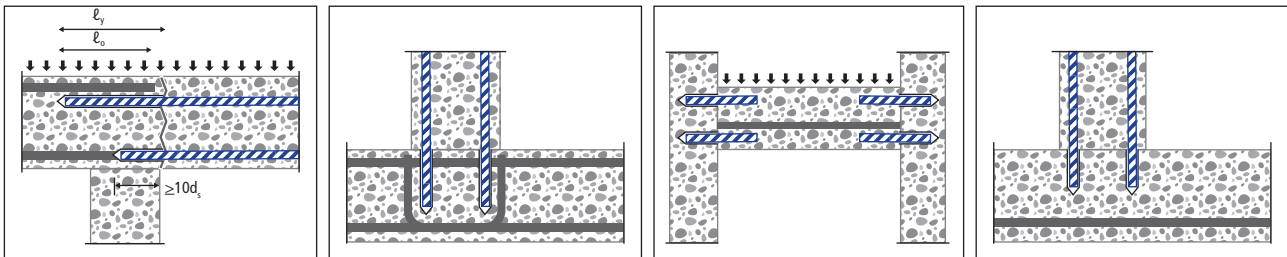
"Minimum depth to develop full steel shear"

- 1) Safety factor for design tensile steel resistance: $\gamma_{Ms,N} = 1.15$ (based on steel yield strength of 460 N/mm²).
- 2) Safety factor for design tensile pull-out resistance: $\gamma_{Mc,N} = 1.8$
- 3) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 4) Safety factor for design tensile concrete cone resistance: $\gamma_{Mc,N} = 1.5$
- 5) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 6) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

EPG65 HIGH STRENGTH EPOXY FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 Bond Strength Method)

Concrete Compressive Strength: $f_{ck,cube} = 30 \text{ N/mm}^2$

Rebar Size, d_s	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Design Steel Resistance, $N_{Rd,s}$ [kN]	31.4	45.2	80.4	125.7	196.4	321.7	502.7
Design Bond Stress, τ_{Rd} [N/mm ²]	7.3	8.0	8.3	7.4	7.4	7.4	7.3
Drilled Hole Diameter, d_o [mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52
Bar Spacing, s [mm]	50	65	80	100	125	160	200
Edge Distance, c [mm]	40	40	40	50	65	80	100
$L_{b,reqd} / \text{Rebar } \phi$	14	13	12	13	13	13	14
Anchorage Length, L_b [mm]	Design Tensile Bonding Capacity, N_{Rd} [kN]						
100	23.1						
120	27.7	36.0					
140	31.4	42.0					
160		45.2	66.5				
180			74.8				
200			80.4	93.6			
250				117.0	146.2		
270				125.7	157.9		
320					187.2	239.6	
340					196.4	254.5	
400						299.5	369.2
430						321.7	396.9
550							502.7
Length to Develop Steel Yield, $L_{b,reqd}$ [mm]	136	151	194	269	336	430	545

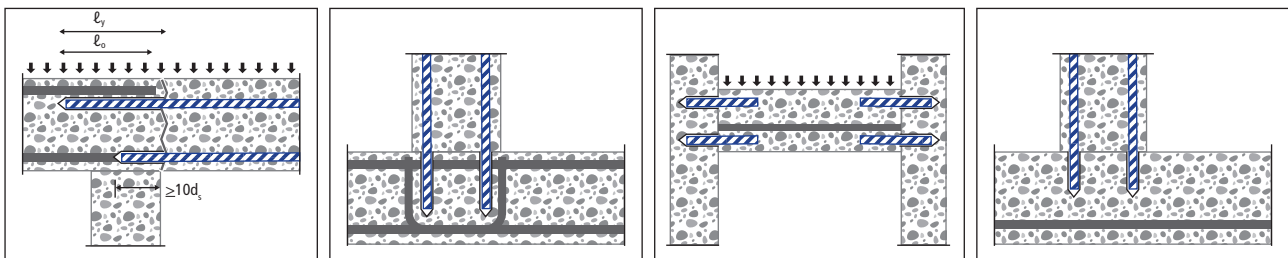
"Minimum depth to develop full steel shear"

- 1) Safety factor for design tensile steel resistance: $\gamma_{Ms,N} = 1.15$ (based on steel yield strength of 460 N/mm²).
- 2) Safety factor for design tensile pull-out resistance: $\gamma_{Mc,N} = 1.8$
- 3) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 4) Safety factor for design tensile concrete cone resistance: $\gamma_{Mc,N} = 1.5$
- 5) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 6) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

EPG65 HIGH STRENGTH EPOXY FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 Bond Strength Method)

Concrete Compressive Strength: $f_{ck,cube} = 35 \text{ N/mm}^2$

Rebar Size, d_s	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Design Steel Resistance, $N_{Rd,s}$ [kN]	31.4	45.2	80.4	125.7	196.4	321.7	502.7
Design Bond Stress, τ_{Rd} [N/mm ²]	7.4	8.1	8.4	7.5	7.5	7.5	7.4
Drilled Hole Diameter, d_o [mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52
Bar Spacing, s [mm]	50	65	80	100	125	160	200
Edge Distance, c [mm]	40	40	40	50	65	80	100
$L_{b,req} / \text{Rebar } \phi$	13	12	12	13	13	13	13
Anchorage Length, L_b [mm]	Design Tensile Bonding Capacity, N_{Rd} [kN]						
100	23.4						
120	28.1	36.5					
140	31.4	42.6					
160		45.2	67.4				
180			75.8				
200			80.4	94.9			
250				118.6	148.3		
265				125.7	157.2		
320					189.8	242.9	
335					196.4	254.3	
400						303.6	374.3
425						321.7	397.7
500							467.9
540							502.7
Length to Develop Steel Yield, $L_{b,req}$ [mm]	134	149	191	265	331	424	537

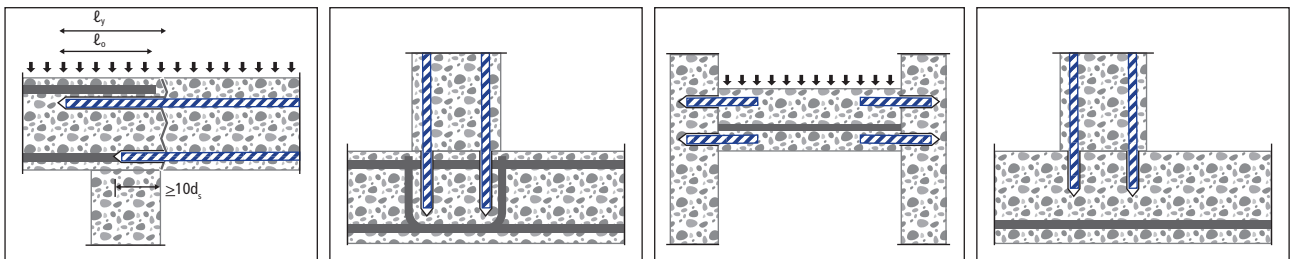
"Minimum depth to develop full steel shear"

- 1) Safety factor for design tensile steel resistance: $\gamma_{Ms,N} = 1.15$ (based on steel yield strength of 460 N/mm²).
- 2) Safety factor for design tensile pull-out resistance: $\gamma_{Mc,N} = 1.8$
- 3) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 4) Safety factor for design tensile concrete cone resistance: $\gamma_{Mc,N} = 1.5$
- 5) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 6) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

EPG65 HIGH STRENGTH EPOXY

FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 & ACI 318 Concrete Splitting Criteria)

Concrete Compressive Strength: $f_{ck,cube} = 25 \text{ N/mm}^2$

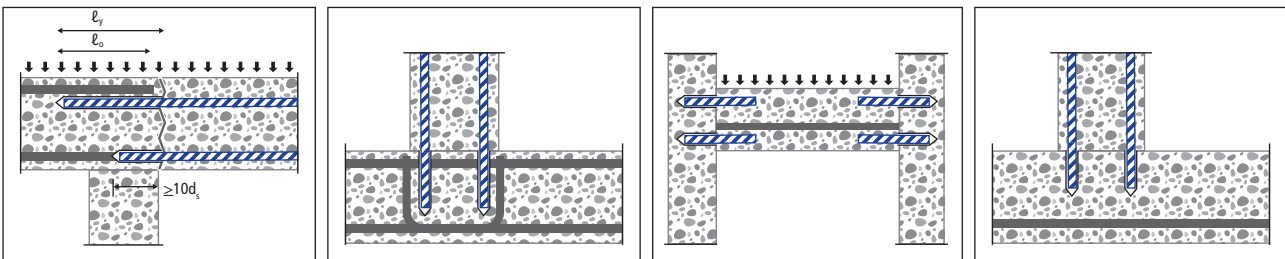
Rebar Size, d_s	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Design Steel Resistance, $N_{Rd,s}$ [kN]	34.4	49.6	88.1	137.6	215.1	352.4	550.6
Splitting Bond Stress, $\tau_{sp,d}$ [N/mm ²]	3.49	3.49	3.49	3.25	2.80	2.80	2.80
Drilled Hole Diameter, d_o [mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52
Bar Spacing, s [mm]	50	60	80	100	125	160	200
Edge Distance, c [mm]	40	40	40	50	65	80	100
$L_{b,reqd} / \text{Rebar } \phi$	31	31	31	34	39	39	39
Anchorage Length, L_b [mm]	Design Tensile Pull-Out / Concrete Cone Resistance, N_{Rd} [kN]						
100	11.0						
120	13.2	15.8					
160	17.5	21.1	28.1				
200	21.9	26.3	35.1	40.8			
250	27.4	32.9	43.9	51.1	55.0		
300	32.9	39.5	52.6	61.3	66.0		
320	34.4	42.1	56.1	65.4	70.4	90.1	
400		49.6	70.2	81.7	88.0	112.6	140.8
450			79.0	91.9	99.0	126.7	158.4
500			88.1	102.1	110.0	140.8	176.0
600				122.5	132.0	168.9	211.1
675				137.6	148.5	190.0	237.5
750					165.0	211.1	263.9
980					215.1	275.9	344.9
1000						281.5	351.9
1250						352.4	439.9
1400							492.7
1565							550.6
Length to Develop Steel Yield, $L_{b,reqd}$ [mm]	314	377	502	674	978	1,252	1,565

- 1) Design tensile steel resistance: $N_{Rd,s} = f_y * A_s / \gamma_{Ms,N}$ where $\gamma_{Ms,N} = 1.05$ (based on steel yield of 460 N/mm²).
- 2) Design value complied in accordance to BS8110 and ACI 318 concrete splitting criteria.
- 3) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 4) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.
- 5) Applicable to dry and wet concrete application.
- 6) Design value based on non-cracked concrete.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

EPG65 HIGH STRENGTH EPOXY FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 & ACI 318 Concrete Splitting Criteria)

Concrete Compressive Strength: $f_{ck,cube} = 30 \text{ N/mm}^2$

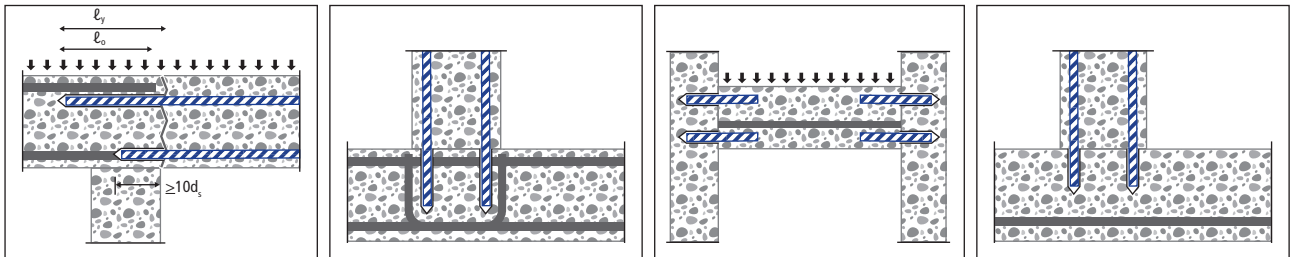
Rebar Size, d_s	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$						
Design Steel Resistance, $N_{Rd,s}$ [kN]	34.4	49.6	88.1	137.6	215.1	352.4	550.6						
Splitting Bond Stress, $\tau_{sp,d}$ [N/mm ²]	3.91	3.91	3.91	3.63	3.13	3.13	3.13						
Drilled Hole Diameter, d_o [mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52						
Bar Spacing, s [mm]	50	60	80	100	125	160	200						
Edge Distance, c [mm]	40	40	40	50	65	80	100						
$L_{b,req} / \text{Rebar } \phi$	28	28	28	30	35	35	35						
Anchorage Length, L_b [mm]	Design Tensile Pull-Out / Concrete Cone Resistance, N_{Rd} [kN]												
100	12.3	<i>"Minimum depth to develop full steel shear"</i>											
120	14.7							17.7					
160	19.7							23.6	31.5				
200	24.6							29.5	39.3	45.6			
250	30.7							36.9	49.1	57.0	61.5		
275	33.8							40.5	54.1	62.7	67.6		
280	34.4							41.3	55.0	63.9	68.8		
320								47.2	62.9	73.0	78.7	100.7	
335								49.6	65.8	76.4	82.4	105.4	
400									78.6	91.2	98.3	125.9	157.4
450									88.1	102.6	110.6	141.6	177.0
525										119.8	129.1	165.2	206.5
605										137.6	148.7	190.4	238.0
750											184.4	236.0	295.0
875					215.1	275.4	344.2						
950						299.0	373.7						
1120						352.4	440.6						
1300							511.4						
1400							550.6						
Length to Develop Steel Yield, $L_{b,req}$ [mm]	280	336	448	603	875	1,120	1,400						

- 1) Design tensile steel resistance: $N_{Rd,s} = f_y * A_s / \gamma_{Ms,N}$ where $\gamma_{Ms,N} = 1.05$ (based on steel yield of 460 N/mm²).
- 2) Design value complied in accordance to BS8110 and ACI 318 concrete splitting criteria.
- 3) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 4) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.
- 5) Applicable to dry and wet concrete application.
- 6) Design value based on non-cracked concrete.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.

EPG65 HIGH STRENGTH EPOXY FOR POST-INSTALLED REBAR APPLICATIONS

(Design Load Approach with BS8110 & ACI 318 Concrete Splitting Criteria)

Concrete Compressive Strength: $f_{ck,cube} = 35 \text{ N/mm}^2$

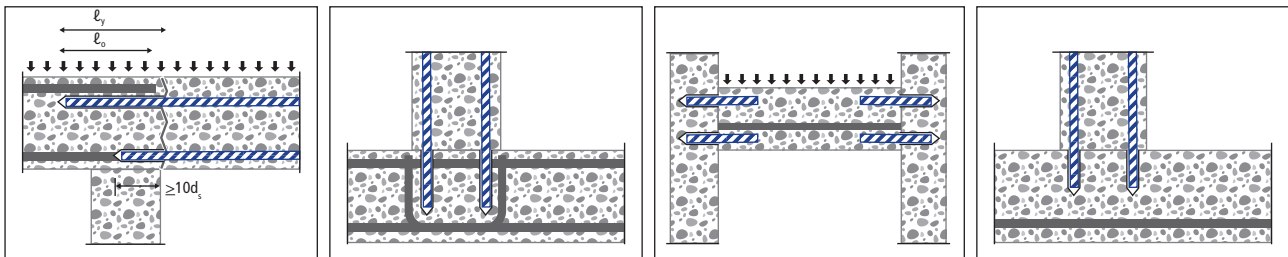
Rebar Size, d_s	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$						
Design Steel Resistance, $N_{Rd,s}$ [kN]	34.4	49.6	88.1	137.6	215.1	352.4	550.6						
Splitting Bond Stress, $\tau_{sp,d}$ [N/mm ²]	4.17	4.17	4.17	3.88	3.34	3.34	3.34						
Drilled Hole Diameter, d_o [mm]	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32	40 ~ 42	50 ~ 52						
Bar Spacing, s [mm]	50	60	80	100	125	160	200						
Edge Distance, c [mm]	40	40	40	50	65	80	100						
$L_{b,reqd} / \text{Rebar } \phi$	26	26	26	28	33	33	33						
Anchorage Length, L_b [mm]	Design Tensile Pull-Out / Concrete Cone Resistance, N_{rd} [kN]												
100	13.1	<i>"Minimum depth to develop full steel shear"</i>											
120	15.7							18.9					
160	21.0							25.2	33.5				
200	26.2							31.4	41.9	48.8			
250	32.8							39.3	52.4	61.0	65.6		
265	34.4							41.7	55.6	64.6	69.5		
300								47.2	62.9	73.1	78.7		
320								49.6	67.1	78.0	84.0	107.5	
375									78.6	91.4	98.4	125.9	
400									88.1	97.5	104.9	134.3	167.9
450										109.7	118.1	151.1	188.9
565										137.6	148.2	189.7	237.2
700											183.6	235.1	293.8
820											215.1	275.4	344.2
900												302.2	377.8
1050												352.4	440.8
1100							461.7						
1200							503.7						
1310							550.6						
Length to Develop Steel Yield, $L_{b,reqd}$ [mm]	263	315	420	565	820	1,049	1,312						

- 1) Design tensile steel resistance: $N_{Rd,s} = f_y * A_s / \gamma_{Ms,N}$ where $\gamma_{Ms,N} = 1.05$ (based on steel yield of 460 N/mm²).
- 2) Design value complied in accordance to BS8110 and ACI 318 concrete splitting criteria.
- 3) Minimum spacing shall be $4d_s$ bar to bar or $5d_s$ centre-to-centre.
- 4) Minimum edge distance shall be $2d_s$ bar to bar or $2.5d_s$ centre-to-centre.
- 5) Applicable to dry and wet concrete application.
- 6) Design value based on non-cracked concrete.

TEST CERTIFICATIONS

- 1) Tested to SIRIM QAS to BS 5950 Part 1 for studs and rebars.

SUGGESTED APPLICATIONS



Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

Important note: Architect or design engineer must conduct final checked with the actual site condition for any variations against tabulated data.



Head Office

No. 37, Jalan Serendah 26/41, Sekitar 26 Seksyen 26,
40400 Shah Alam, Selangor Darul Ehsan, Malaysia.

E info@rfmcp.com **W** www.statheros.com

T (603) 5614 3186 **F** (603) 5614 3187

Johor Branch Office

No. 63, Jalan Bakawali 50, Taman Johor Jaya,
81100 Johor Bahru, Johor Darul Takzim, Malaysia.

T (607) 351 9414

F (607) 351 9254

Penang Branch Office

No. 23, Tingkat Bawah, Lorong Kelasah 2, Taman Kelasah,
13700 Sebarang Jaya, Perai Penang, Malaysia.

T (604) 399 3372

F (604) 398 3372