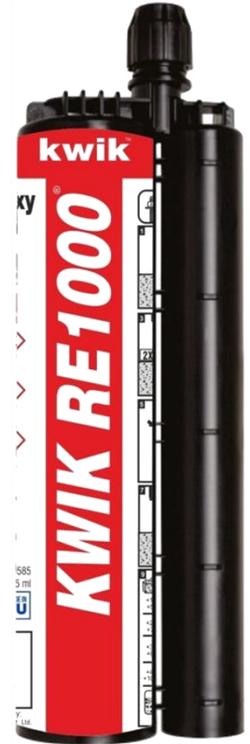


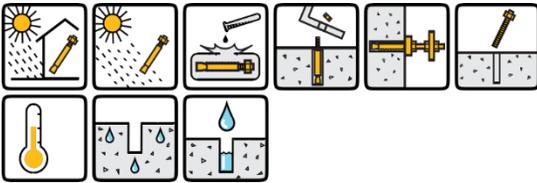
### PRODUCT DESCRIPTION

#### **KWIK RE1000®** Pure Epoxy Chemical Anchor

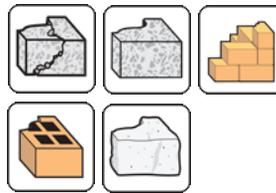
The **RE1000** is a two-component economical epoxy adhesive anchoring system. The system includes injection adhesive in plastic cartridges, mixing nozzles, dispensing tools and hole cleaning equipment. The **RE1000** is a high strength adhesive designed for bonding steel elements or post-installing reinforcement bars to cracked and uncracked concrete. The adhesive is suitable for a medium range of ambient temperatures but also for water filled holes.



### GENERAL APPLICATIONS AND USES



### BASE MATERIALS



### FEATURES AND BENEFITS

- Designed for use with threaded rod, internal threaded sleeve or rebar
- Consistent performance in uncracked and cracked concrete of variable strength.
- Wide range of steel element diameter and embedment depth.
- simple installation and allows flexible fixture thicknesses.
- Versatile low odor formula with long working time.
- High strengths in medium range of ambient temperatures.
- Cartridge design fits in popular competitor dispensers and allows multiple uses using extra mixing nozzles.

#### **KWIK RE1000** **EPOXY CHEMICAL**



Threaded Rod



Internal Threaded Sleeve



Reinforcement Bar

Carbon Steel 5.8

Carbon Steel 8.8

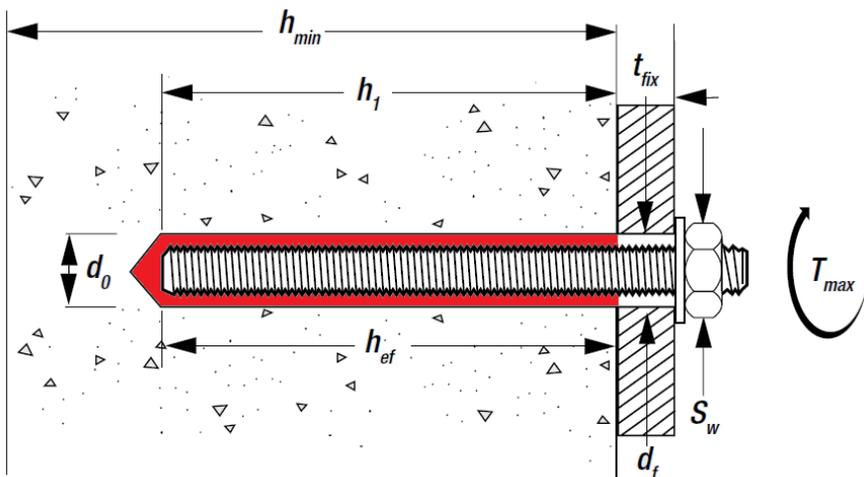
Stainless Steel A4

Stainless Steel HCR

Rebar fy = 400 to 600 Mpa

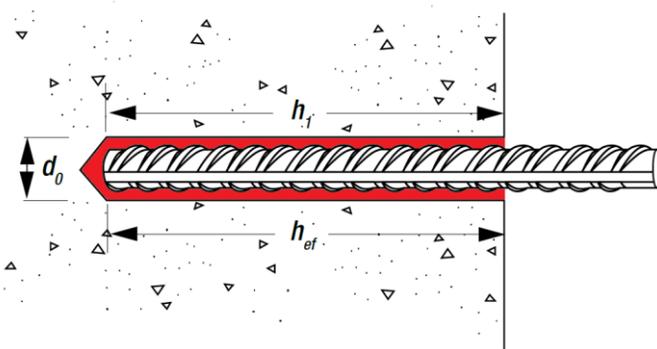
### INSTALLATION PARAMETERS – THREADED RODS

	Notation	M8	M10	M12	M16	M20	M24	M27	M30	M33	
Anchor Diameter	d	mm	8	10	12	16	20	24	27	30	33
Nominal drill bit dia.	d <sub>0</sub>	mm	10	12	14	18	24	28	32	35	38
Diameter of hole clearance in fixture	d <sub>f</sub>	mm	9	12	14	18	22	26	30	33	36
Dia. of steel brush	d <sub>b</sub>	mm	12	14	16	20	26	30	34	37	40
Minimum embedment & drill hole depth	h <sub>ef, min</sub>	mm	60	60	70	80	90	96	108	120	132
Maximum embedment & drill hole depth	h <sub>ef, max</sub>	mm	160	200	240	320	400	480	540	600	660
Minimum thickness of member	h <sub>min</sub>	mm	h <sub>ef</sub> + 30mm ≥100mm				h <sub>ef</sub> + 2 x d <sub>0</sub>				
Minimum spacing	s <sub>min</sub>	mm	40	50	60	80	100	120	135	150	165
Minimum edge dist.	c <sub>min</sub>	mm	40	50	60	80	100	120	135	150	165
Thickness of fixture	t <sub>fix</sub>	mm	0mm ≤ t <sub>fix</sub> ≤ 1500mm								
Maximum torque	T <sub>max</sub>	Nm	10	20	40	80	120	160	180	200	220
Torque wrench size	S <sub>w</sub>	mm	13	17	19	24	30	36	41	46	50



### INSTALLATION PARAMETERS – REINFORCEMENT BARS

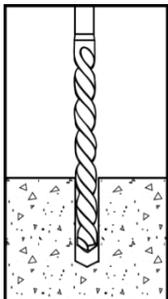
Rebar Size	mm		Ø 8	Ø 10	Ø 12	Ø 16	Ø 20	Ø 25	Ø 32
Nominal drill hole dia.	$d_0$	mm	12	14	16	20	24	32	37
Dia. of steel brush	$d_b$	mm	14	16	18	22	26	34	40
Effective anchorage depth (10xØ) – Min.	$h_{ef,min}$	mm	80	100	120	160	200	250	320
Effective anchorage depth (20xØ) – Max.	$h_{ef,max}$	mm	160	200	240	320	400	500	640
Minimum thickness of member	$h_{min}$	mm	$h_{ef} + 30mm$ $\geq 100mm$			$h_{ef} + 2 \times d_0$			
Minimum spacing	$s_{min}$	mm	40	50	60	80	100	125	160
Minimum edge distance	$c_{min}$	mm	40	50	60	80	100	125	160



Concrete temperature	Working time	Min. curing time#
$\geq + 5^\circ C$	120 min	50 h
$\geq + 10^\circ C$	90 min	30 h
$\geq + 20^\circ C$	30 min	10 h
$\geq + 30^\circ C$	20 min	6 h
$\geq + 40^\circ C$	12 min	4 h

# Time for dry concrete, double curing time for wet concrete.

### INSTALLATION INSTRUCTIONS



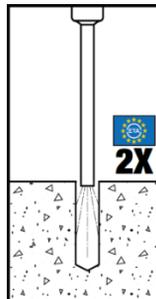
Using the proper drill bit size, drill a hole into the base material to a required depth.



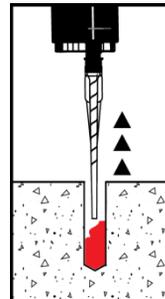
Blow the hole clean using a hand pump or compressed air 2 times minimum.



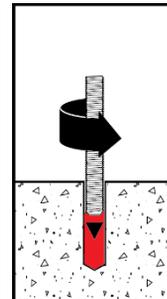
Brush the hole with the proper wire brush 2 times minimum.



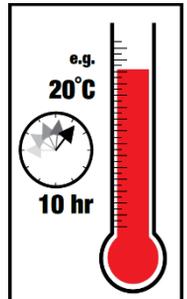
Blow the hole clean using a hand pump or compressed air 2 times minimum.



After dispensing a minimum of 3 strokes, fill the hole up to approximately 2/3 with adhesive.



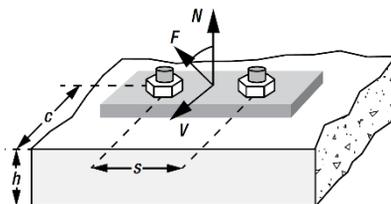
Push the steel element into the hole while turning slightly.



to cure for the time specified for the actual concrete temperature.

### PRECALCULATED TENSION AND SHEAR CAPACITIES

- 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, kindly get in touch with technical team of KWIK for specific designs calculations.
- The values in the table below are design level loads. This assumes a safety factor is included both on the loading and the resistance.
- For cracked concrete, splitting failure is not considered assuming that a reinforcement is present which limits the crack width to 0.3 mm.
- Precalculated design resistance capacities are given for threaded rods only, values for internal sleeves and reinforcement bars can be found in the relevant documents.
- For further details and background information please see the introduction of this manual.



#### Influence of steel grades

Size	Property	5.8	8.8	A4 / HCR
M8	$N_{Rd}$ [KN]	12.0	19.3	13.9
	$V_{Rd}$ [KN]	7.2	12.0	8.3
M10	$N_{Rd}$ [KN]	19.3	30.7	21.9
	$V_{Rd}$ [KN]	12.0	18.4	12.8
M12	$N_{Rd}$ [KN]	28.0	44.7	31.6
	$V_{Rd}$ [KN]	16.8	27.2	19.2
M16	$N_{Rd}$ [KN]	52.0	83.3	58.8
	$V_{Rd}$ [KN]	31.2	50.4	35.3
M20	$N_{Rd}$ [KN]	81.3	130.7	91.4
	$V_{Rd}$ [KN]	48.8	78.4	55.1
M24	$N_{Rd}$ [KN]	117.3	188.0	132.1
	$V_{Rd}$ [KN]	70.4	112.8	79.5
M27	$N_{Rd}$ [KN]	153.3	245.3	80.4
	$V_{Rd}$ [KN]	92.0	147.2	48.3
M30	$N_{Rd}$ [KN]	186.7	299.3	98.3
	$V_{Rd}$ [KN]	112.0	179.2	58.8

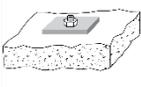
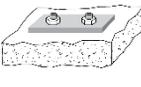
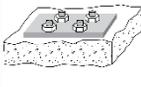
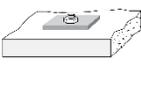
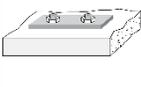
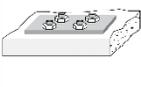
#### Instructions

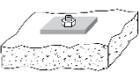
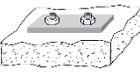
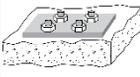
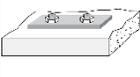
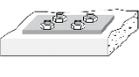
- The steel grade potentially influences the load capacity of the anchor. Left table depicts ultimate steel strengths of threaded rods for given steel grades.
- The steel strength equals the load capacity of the anchor provided other failure modes, i.e. concrete failure or pullout failure, do not yield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

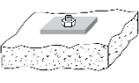
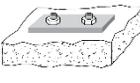
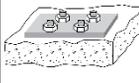
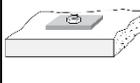
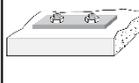
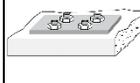
<b>M8</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
Embedment depth	$h_{ef}$ [mm]	80									
Member thickness	$h$ [mm]	110									
Edge distance	$c$ [mm]	-	-	-	-	-	40	40	40	40	40
Anchor spacing	$s$ [mm]	0	40	240	40	240	0	40	240	40	240
40/24°C 	$N_{rd}$ [KN]	16.8	20.8	33.5	26.3	67.0	9.1	10.5	15.7	12.4	32.8
	$F_{rd}^{45°}$ [KN]	11.9	18.9	23.7	28.9	47.5	4.5	5.7	8.6	6.0	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
72/43°C 	$N_{rd}$ [KN]	9.5	13.4	19.0	19.5	38.0	5.9	8.3	11.7	12.4	23.5
	$F_{rd}^{45°}$ [KN]	9.0	14.6	18.0	23.4	36.0	3.9	5.3	7.7	6.0	9.6
	$V_{rd}$ [KN]	12.0	24.0	24.0	46.8	48.0	3.7	5.0	7.5	5.0	7.5
		- Steel strength controls		- Concrete strength controls		- Anchor pullout strength controls					

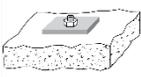
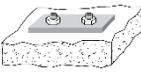
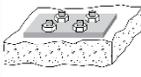
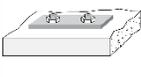
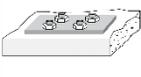
<b>M10</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
Embedment depth	$h_{ef}$ [mm]	100									
Member thickness	$h$ [mm]	130									
Edge distance	$c$ [mm]	-	-	-	-	-	50	50	50	50	50
Anchor spacing	$s$ [mm]	0	50	300	50	300	0	50	300	50	300
40/24°C 	$N_{rd}$ [KN]	26.2	31.5	52.4	38.2	104.7	12.9	14.3	21.0	16.7	42.7
	$F_{rd}^{45°}$ [KN]	18.3	28.8	36.7	42.7	73.4	6.5	8.2	12.2	8.6	14.8
	$V_{rd}$ [KN]	18.4	36.8	36.8	73.6	73.6	5.5	7.3	10.9	7.3	10.9
72/43°C 	$N_{rd}$ [KN]	14.8	20.7	29.7	29.8	59.3	9.2	12.8	18.3	16.7	36.7
	$F_{rd}^{45°}$ [KN]	13.9	22.5	27.9	35.7	55.8	5.8	7.9	11.6	8.6	14.3
	$V_{rd}$ [KN]	18.4	36.8	36.8	71.4	73.6	5.5	7.3	10.9	7.3	10.9
		- Steel strength controls		- Concrete strength controls		- Anchor pullout strength controls					

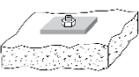
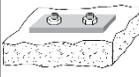
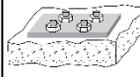
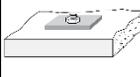
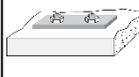
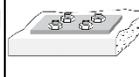
<b>M12</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge					
Embedment depth	$h_{ef}$ [mm]	120										
Member thickness	$h$ [mm]	150										
Edge distance	$c$ [mm]	-	-	-	-	-	60	60	60	60	60	
Anchor spacing	$s$ [mm]	0	60	360	60	360	0	60	360	60	360	
40/24°C 	$N_{rd}$ [KN]	18.8	24.3	37.7	32.1	75.4	10.3	13.3	20.6	18.8	52.8	
	$F_{rd}^{45°}$ [KN]	18.9	28.5	37.8	38.4	75.6	5.9	7.8	11.9	8.7	15.0	
	$V_{rd}$ [KN]	27.2	54.4	54.4	77.0	108.8	5.3	7.1	10.6	7.1	10.6	
72/43°C 	$N_{rd}$ [KN]	10.1	14.5	20.1	21.5	40.2	6.3	9.1	12.6	14.4	25.2	
	$F_{rd}^{45°}$ [KN]	12.0	17.4	24.1	25.8	48.2	4.9	6.7	9.8	8.0	12.7	
	$V_{rd}$ [KN]	24.1	34.8	48.3	51.7	96.5	5.3	7.1	10.6	7.1	10.6	
40/24°C 	$N_{rd}$ [KN]	36.9	43.0	73.8	50.2	147.5	17.0	18.8	27.6	22.0	56.2	
	$F_{rd}^{45°}$ [KN]	26.6	40.8	53.1	58.3	106.3	8.8	11.0	16.5	11.6	20.0	
	$V_{rd}$ [KN]	27.2	54.4	54.4	108.8	108.8	7.5	10.0	15.0	10.0	15.0	
72/43°C 	$N_{rd}$ [KN]	20.1	28.1	40.2	40.4	80.4	12.6	17.6	25.2	22.0	50.4	
	$F_{rd}^{45°}$ [KN]	19.6	31.4	39.2	48.4	78.5	8.0	10.8	15.9	11.6	19.6	
	$V_{rd}$ [KN]	27.2	54.4	54.4	96.9	108.8	7.5	10.0	15.0	10.0	15.0	

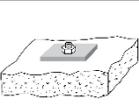
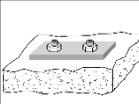
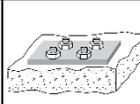
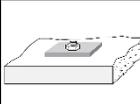
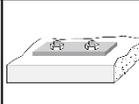
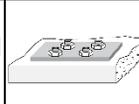
<b>M16</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
											
Embedment depth	$h_{ef}$ [mm]	160									
Member thickness	$h$ [mm]	196									
Edge distance	$c$ [mm]	-	-	-	-	-	80	80	80	80	80
Anchor spacing	$s$ [mm]	0	80	480	80	480	0	80	480	80	480
40/24°C 	$N_{rd}$ [KN]	29.0	37.6	58.1	49.8	116.2	16.1	20.8	32.1	29.5	83.8
	$F_{rd}^{45°}$ [KN]	31.3	45.0	62.5	59.7	125.1	9.6	12.6	19.1	14.1	24.4
	$V_{rd}$ [KN]	50.4	90.2	100.8	119.6	201.6	8.7	11.6	17.3	11.6	17.3
72/43°C 	$N_{rd}$ [KN]	15.6	22.6	31.3	33.7	62.6	10.0	14.4	19.9	22.9	39.9
	$F_{rd}^{45°}$ [KN]	18.7	27.1	37.5	40.4	74.9	7.9	10.9	15.7	13.0	20.5
	$V_{rd}$ [KN]	37.5	54.3	75.1	81.0	150.1	8.7	11.6	17.3	11.6	17.3
40/24°C 	$N_{rd}$ [KN]	56.8	66.2	113.6	77.3	227.1	26.2	28.9	42.5	33.9	86.5
	$F_{rd}^{45°}$ [KN]	45.3	67.8	90.6	92.6	181.2	14.2	17.7	26.4	18.7	32.4
	$V_{rd}$ [KN]	50.4	100.8	100.8	185.5	201.6	12.2	16.3	24.5	16.3	24.5
72/43°C 	$N_{rd}$ [KN]	33.5	46.6	67.0	66.6	134.0	21.4	28.9	42.5	33.9	85.5
	$F_{rd}^{45°}$ [KN]	34.2	54.1	68.3	79.8	136.6	13.2	17.7	26.4	18.7	32.3
	$V_{rd}$ [KN]	50.4	100.8	100.8	159.8	201.6	12.2	16.3	24.5	16.3	24.5
		 - Steel strength controls	 - Concrete strength controls	 - Anchor pullout strength controls							

<b>M20</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge					
												
Embedment depth	$h_{ef}$ [mm]	200										
Member thickness	$h$ [mm]	248										
Edge distance	$c$ [mm]	-	-	-	-	-	100	100	100	100	100	
Anchor spacing	$s$ [mm]	0	100	600	100	600	0	100	600	100	600	
40/24°C 	$N_{rd}$ [KN]	35.9	46.4	71.8	61.3	143.6	20.2	26.0	40.3	36.9	106.9	
	$F_{rd}^{45°}$ [KN]	41.8	58.0	83.6	76.7	167.2	13.2	17.4	26.5	19.7	34.8	
	$V_{rd}$ [KN]	78.4	129.9	156.8	171.7	313.6	12.7	16.9	25.4	16.9	25.4	
72/43°C 	$N_{rd}$ [KN]	18.0	26.2	35.9	39.3	71.8	11.6	17.0	23.3	27.2	46.6	
	$F_{rd}^{45°}$ [KN]	22.4	32.7	44.9	49.1	89.8	10.3	14.4	20.6	17.7	27.9	
	$V_{rd}$ [KN]	50.3	73.3	100.5	110.0	201.1	12.7	16.9	25.4	16.9	25.4	
40/24°C 	$N_{rd}$ [KN]	68.0	79.4	136.0	92.6	272.1	31.3	34.6	50.9	40.6	103.6	
	$F_{rd}^{45°}$ [KN]	61.8	89.4	123.6	115.8	247.2	19.4	24.0	35.7	25.5	45.2	
	$V_{rd}$ [KN]	78.4	156.8	156.8	259.2	313.6	17.9	23.9	35.9	23.9	35.9	
72/43°C 	$N_{rd}$ [KN]	41.9	58.2	83.8	83.1	167.6	27.2	34.6	50.9	40.6	103.6	
	$F_{rd}^{45°}$ [KN]	46.3	72.1	92.7	103.9	185.3	18.3	24.0	35.7	25.5	45.2	
	$V_{rd}$ [KN]	78.4	156.8	156.8	232.7	313.6	17.9	23.9	35.9	23.9	35.9	
		 - Steel strength controls	 - Concrete strength controls	 - Anchor pullout strength controls								

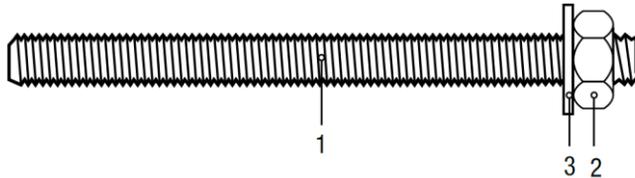
<b>M24</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge					
												
Embedment depth	$h_{ef}$ [mm]	240										
Member thickness	$h$ [mm]	296										
Edge distance	$c$ [mm]	-	-	-	-	-	120	120	120	120	120	
Anchor spacing	$s$ [mm]	0	120	720	120	720	0	120	720	120	720	
40/24°C 	$N_{rd}$ [KN]	47.4	61.5	94.8	81.7	189.6	27.1	35.1	54.1	49.7	146.1	
	$F_{rd}^{45°}$ [KN]	56.6	76.9	113.3	102.1	226.5	18.0	23.7	35.9	26.8	47.6	
	$V_{rd}$ [KN]	112.8	172.2	225.6	228.6	451.2	17.4	23.2	34.7	23.2	34.7	
72/43°C 	$N_{rd}$ [KN]	25.9	37.5	51.7	55.9	103.4	16.8	24.3	33.6	38.7	67.1	
	$F_{rd}^{45°}$ [KN]	32.3	46.8	64.7	69.9	129.3	14.5	20.1	29.0	24.6	38.8	
	$V_{rd}$ [KN]	72.4	104.9	144.8	156.6	289.5	17.4	23.2	34.7	23.2	34.7	
40/24°C 	$N_{rd}$ [KN]	89.4	104.3	178.8	121.7	357.6	41.2	45.5	66.9	53.3	136.2	
	$F_{rd}^{45°}$ [KN]	84.6	121.1	169.3	152.2	338.6	26.1	32.3	48.0	34.4	61.2	
	$V_{rd}$ [KN]	112.8	225.6	225.6	340.8	451.2	24.5	32.7	49.0	32.7	49.0	
72/43°C 	$N_{rd}$ [KN]	60.3	82.8	120.6	116.3	241.3	39.1	45.5	66.9	53.3	136.2	
	$F_{rd}^{45°}$ [KN]	66.7	102.8	133.4	145.5	266.8	25.6	32.3	48.0	34.4	61.2	
	$V_{rd}$ [KN]	112.8	225.6	225.6	325.7	451.2	24.5	32.7	49.0	32.7	49.0	
		- Steel strength controls	- Concrete strength controls	- Anchor pullout strength controls								

<b>M27</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
											
Embedment depth	$h_{ef}$ [mm]	270									
Member thickness	$h$ [mm]	334									
Edge distance	$c$ [mm]	-	-	-	-	-	135	135	135	135	135
Anchor spacing	$s$ [mm]	0	135	810	135	810	0	135	810	135	810
40/24°C 	$N_{rd}$ [KN]	60.0	76.9	120.0	100.5	239.9	34.3	43.9	68.5	59.3	185.0
	$F_{rd}^{45°}$ [KN]	72.3	96.1	144.6	125.7	289.3	22.3	29.2	44.5	32.5	58.7
	$V_{rd}$ [KN]	147.2	215.2	294.4	281.5	588.8	21.3	28.3	42.5	28.3	42.5
72/43°C 	$N_{rd}$ [KN]	32.7	47.5	65.4	70.9	130.9	21.7	31.4	43.3	49.9	86.6
	$F_{rd}^{45°}$ [KN]	40.9	59.3	81.8	88.7	163.6	18.2	25.3	36.4	30.7	48.4
	$V_{rd}$ [KN]	91.6	132.9	183.2	198.5	366.4	21.3	28.3	42.5	28.3	42.5
40/24°C 	$N_{rd}$ [KN]	106.7	124.5	213.4	145.2	426.8	49.1	54.3	79.9	63.6	162.5
	$F_{rd}^{45°}$ [KN]	105.0	148.5	209.9	181.6	419.9	31.6	39.1	58.2	41.7	74.4
	$V_{rd}$ [KN]	147.2	294.4	294.4	406.6	588.8	30.0	40.0	60.0	40.0	60.0
72/43°C 	$N_{rd}$ [KN]	70.9	98.1	141.8	139.1	283.6	46.9	54.3	79.9	63.6	162.5
	$F_{rd}^{45°}$ [KN]	81.2	122.6	162.4	173.9	324.8	31.1	39.1	58.2	41.7	74.4
	$V_{rd}$ [KN]	147.2	274.6	294.4	389.4	588.8	30.0	40.0	60.0	40.0	60.0
		 - Steel strength controls	 - Concrete strength controls	 - Anchor pullout strength controls							

<b>M30</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
											
Embedment depth	$h_{ef}$ [mm]	300									
Member thickness	$h$ [mm]	370									
Edge distance	$c$ [mm]	-	-	-	-	-	150	150	150	150	150
Anchor spacing	$s$ [mm]	0	150	900	150	900	0	150	900	150	900
40/24°C 	$N_{rd}$ [KN]	74.1	93.7	148.1	120.7	296.2	42.3	53.5	84.6	69.4	228.3
	$F_{rd}^{45°}$ [KN]	88.9	117.2	177.8	151.0	355.7	27.0	35.3	53.9	38.7	70.7
	$V_{rd}$ [KN]	179.2	262.4	358.4	338.1	716.8	25.5	33.9	50.9	33.9	50.9
72/43°C 	$N_{rd}$ [KN]	40.4	58.4	80.8	86.8	161.6	26.7	38.6	53.5	61.1	106.9
	$F_{rd}^{45°}$ [KN]	50.5	73.0	101.0	108.5	202.0	22.1	30.7	44.3	37.0	58.5
	$V_{rd}$ [KN]	113.1	163.4	226.2	243.0	452.4	25.5	33.9	50.9	33.9	50.9
40/24°C 	$N_{rd}$ [KN]	125.0	145.8	249.9	170.1	499.8	57.6	63.6	93.5	74.5	190.3
	$F_{rd}^{45°}$ [KN]	124.9	175.9	249.9	212.7	499.8	37.6	46.4	69.0	49.5	88.6
	$V_{rd}$ [KN]	179.2	358.4	358.4	476.2	716.8	35.9	47.9	71.9	47.9	71.9
72/43°C 	$N_{rd}$ [KN]	87.5	120.1	175.0	168.6	350.1	57.6	63.6	93.5	74.5	190.3
	$F_{rd}^{45°}$ [KN]	99.8	150.2	199.6	210.9	399.1	37.6	46.4	69.0	49.5	88.6
	$V_{rd}$ [KN]	179.2	336.3	358.4	472.2	716.8	35.9	47.9	71.9	47.9	71.9
		 - Steel strength controls	 - Concrete strength controls	 - Anchor pullout strength controls							

<b>M33</b>	C20/25 8.8 steel dry/wet concrete	Anchoring located far from any edge					Anchoring located close to an edge				
											
Embedment depth	$h_{ef}$ [mm]	330									
Member thickness	$h$ [mm]	400									
Edge distance	$c$ [mm]	-	-	-	-	-	165	165	165	165	165
Anchor spacing	$s$ [mm]	0	165	990	165	990	0	165	990	165	990
40/24°C 	$N_{rd}$ [KN]	88.2	110.5	176.2	140.9	352.5	50.3	63.1	100.7	79.5	271.6
	$F_{rd}^{45°}$ [KN]	105.5	138.3	211.0	176.3	422.1	31.7	41.4	63.3	44.9	82.7
	$V_{rd}$ [KN]	211.2	309.6	422.4	394.7	844.8	29.7	39.5	59.3	39.5	59.3
72/43°C 	$N_{rd}$ [KN]	48.1	69.3	96.2	102.7	192.3	31.7	45.8	63.7	72.3	127.2
	$F_{rd}^{45°}$ [KN]	60.1	86.7	120.2	128.3	240.4	26.0	36.1	52.2	43.3	68.6
	$V_{rd}$ [KN]	134.6	193.9	269.2	287.5	538.4	29.7	39.5	59.3	39.5	59.3
40/24°C 	$N_{rd}$ [KN]	143.3	167.1	286.4	195.0	572.8	66.1	72.9	107.1	85.4	218.1
	$F_{rd}^{45°}$ [KN]	144.8	203.3	289.9	243.8	579.7	43.6	53.7	79.8	57.3	102.8
	$V_{rd}$ [KN]	211.2	422.4	422.4	545.8	844.8	41.8	55.8	83.8	55.8	83.8
72/43°C 	$N_{rd}$ [KN]	104.1	142.1	208.2	198.1	416.6	68.3	72.9	107.1	85.4	218.1
	$F_{rd}^{45°}$ [KN]	118.4	177.8	236.8	247.9	473.4	44.1	53.7	79.8	57.3	102.8
	$V_{rd}$ [KN]	211.2	398.0	422.4	555.0	844.8	41.8	55.8	83.8	55.8	83.8
		 - Steel strength controls	 - Concrete strength controls	 - Anchor pullout strength controls							

### MATERIAL SPECIFICATIONS – THREADED ROD



Part No.	Designation	Material
<b>Carbon Steel 5.8</b>		
1	Anchor rod	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$ ; Strength class 5.8, $R_m = 500 \text{ MPa}$ ; $R_{p0.2} = 400 \text{ MPa}$
2	Hexagon nut	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$ ; Strength class 5
3	Washer	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$
<b>Carbon Steel 8.8</b>		
1	Anchor rod	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$ ; Strength class 8.8, $R_m = 800 \text{ MPa}$ ; $R_{p0.2} = 640 \text{ MPa}$
2	Hexagon nut	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$ ; Strength class 8
3	Washer	Steel zinc plated $\geq 5 \mu\text{m}$ or hot-dip galvanized $\geq 40 \mu\text{m}$
<b>Stainless Steel A4</b>		
1	Anchor rod	Stainless steel 1.4401 / 1.4404 / 1.457; Strength class 50, $R_m = 500 \text{ MPa}$ ; $R_{p0.2} = 210 \text{ MPa}$ (for $> M24$ ) Strength class 70, $R_m = 700 \text{ MPa}$ ; $R_{p0.2} = 450 \text{ MPa}$ (for $\leq M24$ )
2	Hexagon nut	Stainless steel 1.4401 / 1.4404 / 1.4571; Strength class 50 (for $> M24$ ); Strength class 70 (for $\leq M24$ )
3	Washer	Stainless steel 1.4401 / 1.4404 / 1.4571
<b>Stainless Steel HCR</b>		
1	Anchor rod	Stainless steel 1.4529 / 1.4565; Strength class 50, $R_m = 500 \text{ MPa}$ ; $R_{p0.2} = 210 \text{ MPa}$ (for $> M24$ ) Strength class 70, $R_m = 700 \text{ MPa}$ ; $R_{p0.2} = 450 \text{ MPa}$ (for $\leq M24$ )
2	Hexagon nut	Stainless steel 1.4529 / 1.4565; Strength class 50 (for $> M24$ ); Strength class 70 (for $\leq M24$ )
3	Washer	Stainless steel 1.4529 / 1.4565

### MATERIAL SPECIFICATIONS – REINFORCEMENT BAR



Extract of EN 1992-1-1 Annex C, Table C.1	Class B	Class C
Characteristic yield strength $f_{yk}$ or $f_{0.2k}$ [MPa]	400 to 600	
Minimum value of $k = (f_t / f_y)_k$ [-]	$\geq 1.08$	$\geq 1.15 < 1.35$
Characteristic strain at maximum force $\epsilon_{uk}$ [%]	$\geq 5.0$	$\geq 7.5$
Bendability	Bend / Rebend test	
Maximum deviation from nominal mass [%]	$\pm 6.0$ for nominal bar size $\leq 8$ mm; $\pm 4.5$ for nominal bar size $> 8$ mm	
Extract of EN 1992-1-1 Annex C, Table C.2N	Class B	Class C
Minimum value of related rib area $f_{R,min}$	0.040 for nominal bar size 8 mm to 12 mm; 0.056 for nominal bar size $> 12$ mm	

### ORDERING INFORMATION

Article No.	Product	Box Qty.	Product Image
KITRE10585	KWIK RE1000 (585ml) – Pure Epoxy Chemical	12 nos.	
KMDG0585	Manual Dispensing Gun – 585ml	1 no.	