

MIC80 REBAR FIXZ

HYBRID MORTAR INJECTION SYSTEM



FEATURES

- Co-axial cartridges with self mixing action.
- Flexible embedment depth.
- Close anchor spacing and edge distance applications.
- Excellent resistance to dynamic and cyclic loadings.
- Chemical resistance to many types of contaminant agents.
- Can apply to all directional holes.

APPLICATIONS

- Starter bar installation for structural extension and rectification works.
- Chemical anchoring for curtain walling/cladding.
- All types of machines installation where dynamic loading is high.
- Hold down bolts for steel structure fixing.
- Tie back for temporary structures or permanent fixings.
- Decorative panel fixings or architectural finishes.

SHELF LIFE

- Shelf life is 12 months with the cartridges stored in their original packing, the correct way up and in cool dry conditions (+5°C to +25°C) out of direct sunlight.

RANGE OF CONCRETE QUALITY

C20/25 ~ C50/60

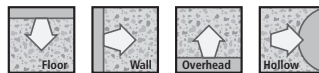
RANGE OF LOADING

5.1 kN ~ 80.6 kN (SWL)



Medium loads

HOLE ORIENTATION



BASE MATERIALS



Concrete



Concrete block
solid stone



Solid brick










Hollow block

VA RODS AVAILABILITY

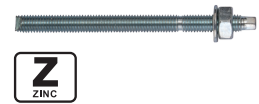


► ORDERING DETAILS

PRODUCT DESCRIPTION	PACKING CONTENT (PCs.)	PRODUCT PART NO.	
MIC80 - 380ml (Co-axial Cartridge System)	20	MIC80	
Applicator Handgun - 380ml (For 380ml Cartridge)	1	GZ80	
Mixing Nozzle - 215mm	Bulk	NZ80	
Nozzle Extension - 220mm	Bulk	NE20	
Hole Blower	1	HCP	
Hole Cleaning Brush Cleaning Brush - 10mm Cleaning Brush - 12mm Cleaning Brush - 18mm Cleaning Brush - 28mm	1 1 1 1	CB10 CB12 CB18 CB28	
Hollow Sleeve M15 x 85mm M20 x 85mm	Bulk Bulk	HBS15 HBS20	

VA CHEMICAL STUD RODS - STEEL CLASS 5.8 ZINC GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VA8110
M10 x 130mm	12	20	10	VA10130
M12 x 160mm	14	30	10	VA12160
M16 x 190mm	18	40	10	VA16190
M20 x 260mm	22	50	6	VA20260
M24 x 300mm	28	55	6	VA24300



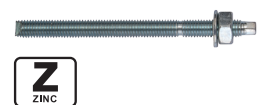
VA CHEMICAL STUD RODS - STEEL CLASS 5.8 HOT-DIPPED GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VA8110GH
M10 x 130mm	12	20	10	VA10130GH
M12 x 160mm	14	30	10	VA12160GH
M16 x 190mm	18	40	10	VA16190GH
M20 x 260mm	22	50	6	VA20260GH
M24 x 300mm	28	55	6	VA24300GH



VAH CHEMICAL STUD RODS - STEEL CLASS 8.8 ZINC GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAH8110
M10 x 130mm	12	20	10	VAH10130
M12 x 160mm	14	30	10	VAH12160
M16 x 190mm	18	40	10	VAH16190
M20 x 260mm	22	50	6	VAH20260
M24 x 300mm	28	55	6	VAH24300



VAH CHEMICAL STUD RODS - STEEL CLASS 8.8 HOT-DIPPED GALVANISED

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAH8110GH
M10 x 130mm	12	20	10	VAH10130GH
M12 x 160mm	14	30	10	VAH12160GH
M16 x 190mm	18	40	10	VAH16190GH
M20 x 260mm	22	50	6	VAH20260GH
M24 x 300mm	28	55	6	VAH24300GH



VAR CHEMICAL STUD RODS - STAINLESS STEEL CLASS 304 (A2)

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAR8110
M10 x 130mm	12	20	10	VAR10130
M12 x 160mm	14	30	10	VAR12160
M16 x 190mm	18	40	10	VAR16190
M20 x 260mm	22	50	6	VAR20260
M24 x 300mm	28	55	6	VAR24300



VAS CHEMICAL STUD RODS - STAINLESS STEEL CLASS 316 (A4)

PRODUCT DESCRIPTION	FIXTURE HOLE DIAMETER (mm)	MAX. FIXTURE THICKNESS (mm)	PACKING CONTENT (PCs.)	PRODUCT PART NO.
M8 x 110mm	9	15	10	VAS8110
M10 x 130mm	12	20	10	VAS10130
M12 x 160mm	14	30	10	VAS12160
M16 x 190mm	18	40	10	VAS16190
M20 x 260mm	22	50	6	VAS20260
M24 x 300mm	28	55	6	VAS24300



► INSTALLATION PERIMETER & LOADING DATA

MIC80 WITH VA (STEEL CLASS 5.8) RODS - ZINC GALVANISED & HOT DIPPED GALVANISED

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD ¹ (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	6.0	5.1
M10	12	90	120	20	180	90	45	45	8.1	8.6
M12	14	110	140	40	220	110	55	55	10.5	12.0
M16	18	125	155	80	250	125	65	65	13.5	22.3
M20	24	170	220	150	340	170	85	85	22.0	34.9
M24	28	210	270	200	420	210	105	105	28.9	50.3

¹ Loading based on non-cracked concrete, $f_{ck,cube} = 25 \text{ N/mm}^2$ (C20/25).

MIC80 WITH VAH (STEEL CLASS 8.8) RODS - ZINC GALVANISED & HOT DIPPED GALVANISED

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD ¹ (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	6.0	8.6
M10	12	90	120	20	180	90	45	45	8.1	13.1
M12	14	110	140	40	220	110	55	55	10.5	19.4
M16	18	125	155	80	250	125	65	65	13.5	36.0
M20	24	170	220	150	340	170	85	85	22.0	56.0
M24	28	210	270	200	420	210	105	105	28.9	80.6

¹ Loading based on non-cracked concrete, $f_{ck,cube} = 25 \text{ N/mm}^2$ (C20/25).

MIC80 WITH VAR & VAS (STAINLESS STEEL) RODS - CLASS 304 (A2) & CLASS 316 (A4)

ANCHOR SIZE	HOLE DIAMETER (mm)	ANCHORAGE DEPTH (mm)	MINIMUM CONCRETE THICKNESS (mm)	TIGHTENING TORQUE (Nm)	RECOMMENDED SPACING & EDGE DISTANCE TO FULL LOAD (mm)		ABSOLUTE MINIMUM SPACING & EDGE DISTANCE (mm)		RECOMMENDED LOAD ¹ (kN)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	10	80	110	10	160	80	40	40	6.0	6.0
M10	12	90	120	20	180	90	45	45	8.1	9.2
M12	14	110	140	40	220	110	55	55	10.5	13.7
M16	18	125	155	80	250	125	65	65	13.5	25.2
M20	24	170	220	150	340	170	85	85	22.0	39.4
M24	28	210	270	200	420	210	105	105	28.9	56.8

¹ Loading based on non-cracked concrete, $f_{ck,cube} = 25 \text{ N/mm}^2$ (C20/25).

LOADING DATA FOR HOLLOW & SOLID BRICKWORK OR BLOCKWORK

ANCHOR SIZE	HOLE DIAMETER (mm)		MINIMUM ANCHORAGE DEPTH (mm)	MINIMUM WALL THICKNESS (mm)	HOLLOW SUBSTRATE		SOLID SUBSTRATE							
	HOLLOW ¹	SOLID			(< 7 N/mm ²)		(< 2.8 N/mm ²)		(< 3.5 N/mm ²)		(< 7 N/mm ²)		(< 14 N/mm ²)	
					TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR	TENSION	SHEAR
M8	12	10	75	100	0.3	0.2	0.4	0.3	0.5	0.5	0.6	0.7	1.4	1.0
M10	15	12	85	110	0.5	0.3	0.7	0.3	0.9	0.5	1.3	0.7	2.9	1.2
M12	20	14	85	110	0.5	0.4	0.9	0.3	1.1	0.5	1.5	0.7	3.5	1.5

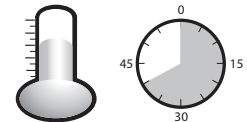
¹ Hole diameter is inclusive of the recommended perforated sleeve.

² Safety factor of 5.0 is recommended.

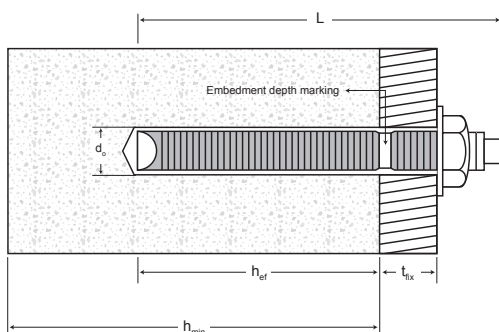
GEL AND CURING TIME

BASE MATERIAL TEMPERATURE $T_{\text{base material}} \text{ (}^\circ\text{C)}$	GEL TIME (WORKING TIME) $t_{\text{gel}} \text{ (mins)}$	CURING TIME $t_{\text{cure}} \text{ (mins)}$
min +5	18	120
$+5 \leq T_{\text{base material}} < +10$	12	120
$+10 \leq T_{\text{base material}} < +20$	6	80
$+20 \leq T_{\text{base material}} < +25$	4	40
$+25 \leq T_{\text{base material}} < +30$	3	30
$+30 \leq T_{\text{base material}} < +35$	2	20
$+35 \leq T_{\text{base material}} < +40$	1.5	15
+40	1.5	10

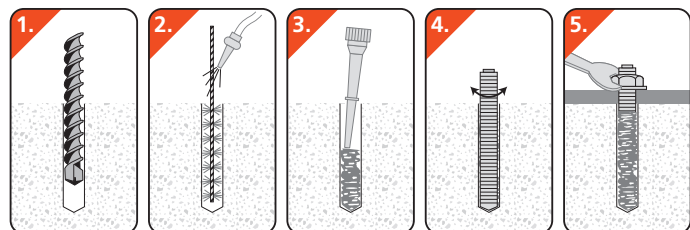
Note: If during the installation of the rod the temperature drop below -6°C or rises above 60°C , please contact our Engineers for the proper procedures.



SETTING DIAGRAM



INSTALLATION PROCEDURE



MIC80 REBAR FIXZ (HYBRID MORTAR) FOR POST-INSTALLED REBAR APPLICATIONS

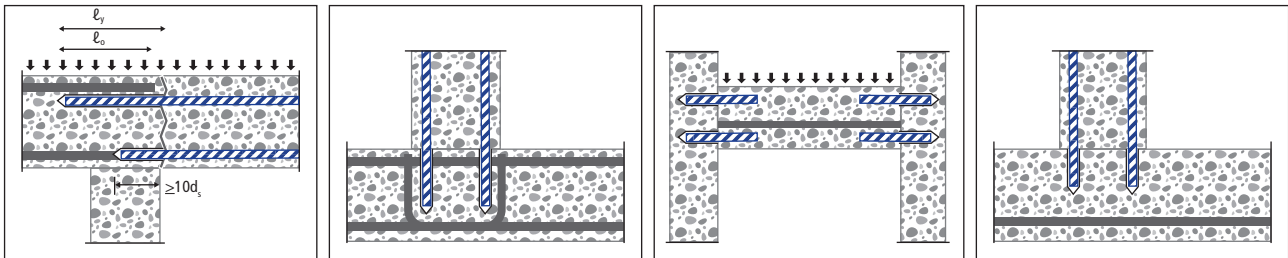
(Design Load Approach with BS8110 Bond Strength Method)

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

Rebar Size, d_s		$\phi 8$	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$		
Design Steel Resistance, $N_{Rd,s}$	[kN]	20.1	31.4	45.2	80.4	125.7	196.4		
Design Bond Stress, τ_{Rd}	[N/mm ²]	5.9	5.9	5.2	4.2	3.7	3.3		
Drilled Hole Diameter, d_o	[mm]	10 ~ 12	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32		
Bar Spacing, s	[mm]	50	50	65	80	100	125		
Edge Distance, c	[mm]	40	40	40	40	50	65		
$L_{b,Rd} / \text{Rebar } \phi$		17	17	19	24	27	30		
Anchorage Length, L_b [mm]		Design Tensile Bonding Capacity, N_{Rd} [kN]							
	80	11.8	<i>"Minimum depth to develop full steel shear"</i>						
	100	14.8						18.5	
	120	17.8						22.2	23.7
	160	20.1						29.6	31.6
	200	31.4		39.5	42.0	46.6			
	250				45.2	52.5	58.3	64.8	
	325					68.3	75.8	84.2	
	385						80.4	89.8	99.7
	475							110.7	123.0
	540								125.7
	650								168.4
	760								196.4
Length to Develop Steel Yield, $L_{b,Rd}$ [mm]		136	170	229	383	539	758		

- 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) Safety factor for design tensile concrete cone resistance: $\gamma_{Mc,N} = 1.5$.
- 4) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 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.

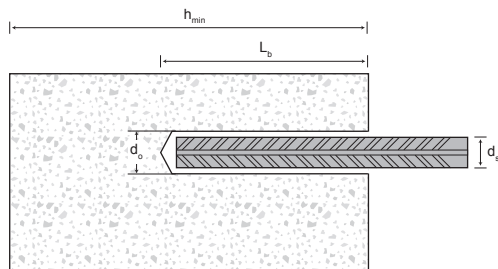
SUGGESTED APPLICATIONS



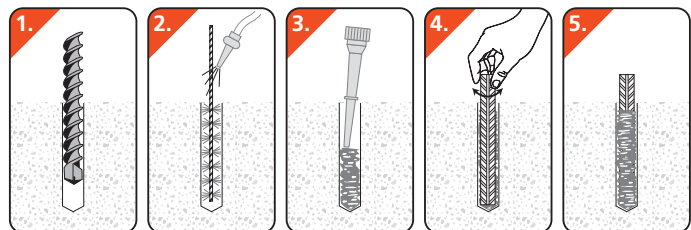
Overlap joints for slabs and beams or foundation column or wall; rebar connection for simply supported slabs or beams; shear connector or compression component joints.

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

SETTING DIAGRAM



INSTALLATION PROCEDURE



MIC80 REBAR FIXZ (HYBRID MORTAR) FOR POST-INSTALLED REBAR APPLICATIONS

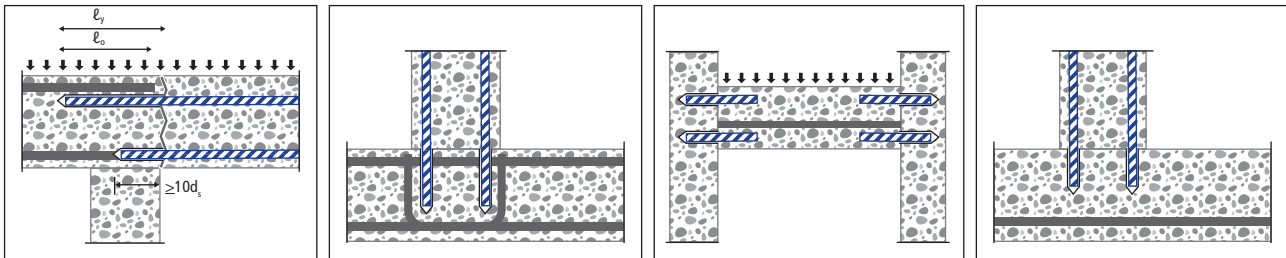
(Design Load Approach with BS8110 Bond Strength Method)

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

Rebar Size, d_s		$\phi 8$	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$		
Design Steel Resistance, $N_{Rd,s}$	[kN]	20.1	31.4	45.2	80.4	125.7	196.4		
Design Bond Stress, τ_{Rd}	[N/mm ²]	6.2	6.2	5.5	4.4	3.9	3.5		
Drilled Hole Diameter, d_o	[mm]	10 ~ 12	13 ~ 14	15 ~ 16	20 ~ 22	25 ~ 28	30 ~ 32		
Bar Spacing, s	[mm]	50	50	65	80	100	125		
Edge Distance, c	[mm]	40	40	40	40	50	65		
$L_{b,Rd} / \text{Rebar } \phi$		16	16	18	23	26	29		
Anchorage Length, L_b [mm]		Design Tensile Bonding Capacity, N_{Rd} [kN]							
	80	12.4	<i>"Minimum depth to develop full steel shear"</i>						
	100	15.5						19.4	
	120	18.6						23.3	24.8
	160	20.1						31.0	33.1
	200		31.4	41.4	44.0	48.8			
	250			45.2	55.0	61.0	67.8		
	300				66.0	73.2	81.4		
	365				80.4	89.1	99.0		
	425					103.8	115.3		
	515					125.7	139.7		
	625						169.5		
	725						196.4		
Length to Develop Steel Yield, $L_{b,Rd}$ [mm]		130	162	218	365	515	724		

- 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) Safety factor for design tensile concrete cone resistance: $\gamma_{Mc,N} = 1.5$.
- 4) Loading applicable to non-cracked concrete with design comply in accordance to BS8110.
- 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.

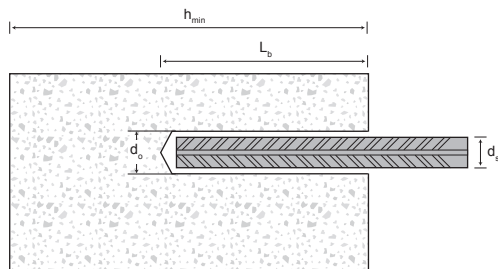
SUGGESTED APPLICATIONS



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.

SETTING DIAGRAM



INSTALLATION PROCEDURE

