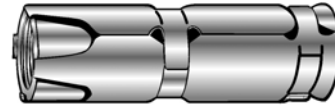


MACSIM MACLOC SOCKET EXPANSION ANCHOR

Description

MACLOC IS A 'TRADITIONAL' FEMALE SHELL TYPE EXPANSION ANCHOR WHICH GIVES A FLUSH FINISH SOCKET AND THE SAFETY OF FOLLOW UP EXPANSION IN THE CASE OF OVER LOADING. IT CAN BE APPLIED IN ANY SOLID MASONRY BASE MATERIAL THAT HAS A COMPRESIVE STRENGTH > 15N/mm²

PERFORMANCE DATA



INSTALLATION

Code	Thread Size	hole dia mm	Anchor Length mm	Min Hole Depth mm	max screw engagement mm
1106	1/4"	12.70	32	40	35
1108	5/16"	15.80	50	60	55
1110	3/8"	15.80	50	60	55
1113	1/2"	22.00	65	80	70
11M06	M6	12.70	32	40	35
11M08	M8	15.80	50	60	55
11M10	M10	15.80	50	60	55
11M12	M12	22.00	65	80	70

INSTALLATION PROCEDURE

Drill correct Diameter and depth of Hole in base material. Select correct thread gauge bolt or set screw and ensure total length will not exceed fixture thickness plus maximum engagement depth. Clean hole and insert Macloc ensuring the threaded end is inserted first. Tap in until top is flush with surface. Position fixture and insert bolt through until it properly engages the thread at the base of the Macloc. Use a spanner to tighten bolt and expand Macloc. Do not Over-tighten.

MATERIAL SPECIFICATION

Code	Size	Expansion Shell	Expansion Cone
11	imperial	460	580
12	metric	460	580

TECHNICAL PERFORMANCE

Code	Size	Advisory SWL Tension Min 15N/mm Base Kn	Advisory SWL Shear Min 15N/mm Base Kn	Min Edge Distance mm	Min Anchor Spacing mm	Min Structural Depth mm
1106/11M06	12.70	2.60	1.30	105	120	75
1108/11M08	15.80	6.20	2.40	160	190	100
1110/11M10	15.80	6.20	2.40	160	190	100
1112/11M12	22.00	9.20	5.50	200	230	150

MACSIM MACPLUG NYLON WALL PLUG

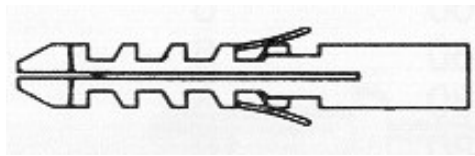
Description

NYLON POLYAMIDE QUALITY PLUG WITH SCREW GUIDE AND ANTI ROTATION LUGS. EXPANDED BY TURNING SCREW INTO PLUG. DESIGNED FOR GENERAL FIXING INTO SOLID BRICK OR CONCRETE.

PERFORMANCE DATA

INSTALLATION

Code	Size	hole dia mm	Embedment Depth mm	Screw Guage
1505	5 x 25	5	25	4 - 6
1506	6 x 30	6	30	6 - 8
1507	7 x 38	7	40	8 - 10
1508	8 x 40	8	40	10 - 14
1510	10 x 50	10	50	8mm dia
1512	12 x 60	12	60	10mm dia

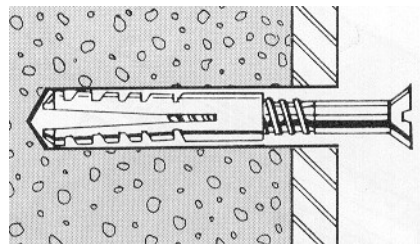


INSTALLATION PROCEDURE

Drill correct Diameter Hole in base material at least as deep as overall plug length. Insert Macplug into hole. Align hole in fastened component to Macplug position and insert correct gauge screw with enough length to reach end of plug. Tighten screw until component is securely fixed.

MATERIAL SPECIFICATION

Code	Size	Plug
1505	5 x 25	Nylon 6
1506	6 x 30	Nylon 6
1507	7 x 38	Nylon 6
1508	8 x 40	Nylon 6
1510	10 x 50	Nylon 6
1512	12 x 60	Nylon 6



TECHNICAL PERFORMANCE

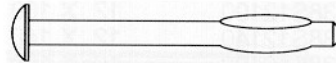
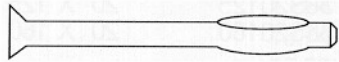
Code	Size	Advisory SWL Tension;	Advisory SWL Tension	Advisory SWL Tension;	Advisory SWL Shear N
		Concrete N	Brick N	Light agg. N	
1505	5 x 25	300	300	80	n/a
1506	6 x 30	500	500	120	n/a
1507	7 x 38	500	500	120	n/a
1508	8 x 40	800	800	200	n/a
1510	10 x 50	1200	1100	350	n/a
1512	12 x 60	1800	1500	500	n/a

Nylon 6 is heat (60°) and UV resistant. Loads assume correct quality/ size screw is employed.

MACSIM SPLITZ FRICTION GRIP ANCHOR

Description

MUSHROOM OR COUNTERSUCK HEAD ONE PIECE, PRE TENSIONED STEEL KNOCK IN ANCHOR. OVERSIZE SHANK COMPRESSES IN CONCRETE HOLE TO FORM HIGH FRICTION GRIP AND GIVE SUPERIOR HEAT RESISTANT FASTENENING.



PERFORMANCE DATA

INSTALLATION

Code Mushroom Head plug	Code Csk Head plug	Size; dia x length	hole dia mm; Concrete	min hole dia mm; component	Minimum Drill Depth mm	Embedment Depth mm	max fasten thickness mm
SAM06038	SAC06038	6 x 38	6	7	40	28	10
	SAC06050	6 x 50	5	7	40	28	20
	SAC06065	6 x 65	6	7	40	28	35
	SAC06075	6 x 75	6	7	40	28	45
	SAC06100	6 x 100	6	7	40	28	70

INSTALLATION PROCEDURE

Drill correct Diameter and depth of Hole in concrete and timber component. A larger hole in other material component will be needed. This anchor is only suitable for fixing into concrete.
Push into hole and then hammer in until the head is in the desired position.

MATERIAL SPECIFICATION

Code	Size	Head Diameter mm	MATERIAL
SAM06	6mm	12	Hi Tensioned Steel
SAC06	6mm	12	Clear Zinc Plated

TECHNICAL PERFORMANCE

Code	Size	Advisory SWL Tension; Concrete N	Advisory SWL Tension Brick N	Advisory SWL Shear N
All	6mm	2.40	1.00	2.50

MACSIM NAIL-IN PLUG 23

MACSIM NYLON NAIL-IN PLUG

Description

NYLON PLUG WITH ASSEMBLED NAIL WITH THREE HEAD OPTIONS. EXPANDED BY HAMMERING NAIL INTO PLUG. DESIGNED FOR QUICK LOCATION ONLY FIXING INTO SOLID BRICK OR CONCRETE.

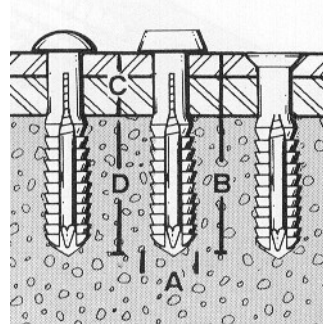
PERFORMANCE DATA

INSTALLATION

Code Round Head plug	Code Mushroom Head plug	Code Csk Head plug	Size; dia x length	hole dia mm	Embedment Depth mm	max fasten thickness mm
	05M519		5 x 19	5	15	3
05R525	05M525	05C525	5 x 25	5	18	5
05R540	05M540	05C540	5 x 40	6.5	18	20
05R625	05M625	05C625	6.5 x 25	6.5	20	4
05R640	05M640	05C640	6.5 x 40	6.5	25	13
05R650	05M650	05C650	6.5 x 50	6.5	25	23
05R675	05M675	05C675	6.5 x 75	6.5	25	48
	05M6100		6.5 x 100	6.5	25	73

INSTALLATION PROCEDURE

Drill correct Diameter Hole through component and into base at least as deep as plug length (B). Insert Nail-in plug into hole. Hammer home nail until head is located in plug. Do not over hit or the plug will be damaged.



MATERIAL SPECIFICATION

Code	Size	Nail size	Plug	Nail	Nail (525 625 only)
519 - 540	5	n/a	Nylon 6	Steel YZP	Stainless 304
640 - 6100	6.5	n/a	Nylon 6	Steel YZP	Stainless 304

TECHNICAL PERFORMANCE

Code	Size	Advisory SWL Tension; Concrete N	Advisory SWL Tension Brick N	Advisory SWL Tension; light agg. N	Advisory SWL Shear N
519	5	150	125	n/a	400
525/40	5	175	150	n/a	470
625	6.5	250	225	n/a	750
640 - 6100	6.5	270	250	n/a	750



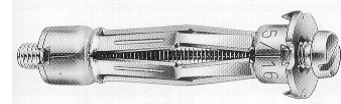
This Nylon is heat (50°) and UV resistant.

MACSIM HOLLOW WALL ANCHOR

Description

FOUR/FIVE ARM METAL CAVITY WALL ANCHOR. GIVES MAXIMUM POSSIBLE STRENGTH BY UNFOLDING AND KEYING ON TO LARGE AREA BEHIND PLASTER OR WALL BOARD. CHOOSE THE CORRECT SIZE TO SUIT THE WALL THICKNESS AND DIAMETER OF SCREW REQUIRED. STRENGTH IS LARGELY DEPENDANT ON THE WALL BOARD.

PERFORMANCE DATA

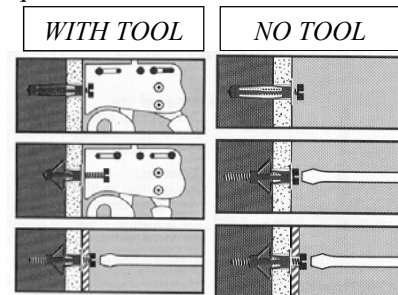


INSTALLATION

Code	Screw Size	hole dia mm	Wall Thick. mm	Min Cavity Depth mm	screw length mm
09405	M4	8	1 to 5	30	40
09409	M4	8	5 to 10	30	45
09415	M4	8	3 to 20	45	55
09416	M4	8	10 to 16	45	50
09423	M4	8	16 to 23	50	60
09438	M4	8	23 to 38	60	75
09510	M5	11	5 to 10	35	45
09516	M5	11	10 to 16	45	50
09527	M5	11	16 to 32	50	75
09616	M6	13	10 to 16	35	45
09627	M6	13	16 to 32	60	75
09410	M4	6.5	3 to 10	30	40

INSTALLATION PROCEDURE:

Drill correct hole in plaster or wall board. Insert assembled screw and body until lugs underside of head engage. Either apply special expansion tool or carefully tighten screw until body has fully expanded, ensuring the body does not rotate. In weaker substrates the tool will be required.



MATERIAL SPECIFICATION

Code	Size	Screw Hd Type	Body Specification	Screw
094/5/6	all	Machine ph	Steel YZP	Steel ZP Pass.
09410	M4 x 6.5	Machine ph	Aluminium	Aluminium

TECHNICAL PERFORMANCE

Code	Size	Advisory SWL tension Plasterboard 10mm N	Advisory SWL tension Plasterboard 13mm N	Advisory SWL tension Plywood 10mm N	Advisory SWL Shear N
094**	4mm	100	150	300	n/a
095**	5mm	100	200	400	n/a
096**	6mm	150	220	500	n/a
9410	4mm	100	n/a	200	n/a

MACSIM METAL TOGGLE ANCHORS 25

MACSIM SPRING AND GRAVITY TYPE TOGGLE ANCHORS

Description

SPRING OR GRAITY TOGGLE ANCHORS DESIGNED TO PROVIDE MAXIMUM HOLDING POWER IN CAVITY PLASTERBOARD WALLS. THESE ARE SUPPLIED WITH BOTH PAN AND COUNTERSUNK SCREWS FOR FIXTURE ATTACHMENT.

PERFORMANCE DATA

INSTALLATION

Code	Screw Size	hole dia mm	Max. Wall Thick. mm	Min Cavity Depth mm	Screw Length mm		
					round head	csk head.	Hook end
07S3050	1/8"	11	40	30	50	-	-
07S3075	1/8"	11	65	30	75	-	-
07S5050	3/16"	15	35	30	50	-	-
07S5075	3/16"	15	60	30	75	75	75
07S5100	3/16"	15	80	30	100	100	-
07S6075	1/4"	19	55	40	75	-	-
07G3050	1/8"	10	20	30	50	-	-
07G5050	3/16"	11	15	30	50	-	-
07G5075	3/16"	11	40	30	75	-	-

INSTALLATION PROCEDURE:

1: Spring Toggle

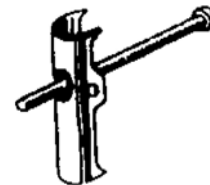
Drill clearance hole in plaster or wall board. Insert assembled screw and compressed body through fixture and into hole. Ensure toggle has fully passed into cavity and pull to ensure wings have opened. Tighten Screw to desired position. Do not remove screw or toggle will be lost.



INSTALLATION PROCEDURE:

2: Gravity Toggle

Drill clearance hole in plaster or wall board. Insert assembled screw and body through fixture and into hole. Ensure toggle has fully passed into cavity and has dropped down. Tighten Screw to desired position. Do not remove screw or toggle will be lost.



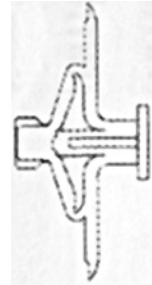
TECHNICAL PERFORMANCE AND MATERIAL SPECIFICATION

Code	Size	Advisory SWL tension Plasterboard 10mm N	Advisory SWL tension Plasterboard 13mm N	Advisory SWL Tension; Plywood 10mm N	Advisory SWL Shear N	Material
07S3	1/8"	100	150	300	n/a	steel YZP
07S5	3/16"	100	200	400	n/a	steel YZP
07S6	1/4"	150	220	500	n/a	steel YZP
07G3	1/8"	100	150	300	n/a	steel YZP
07G5	3/16"	100	200	400	n/a	steel YZP

MACSIM PLASTIC TYPE TOGGLE ANCHORS

Description

PLASTIC TOGGLE ANCHORS ARE DESIGNED TO GIVE SIMPLE COST EFFECTIVE PERFORMANCE IN PLASTERBOARD BY SPRINGING OUT IN THE CAVITY. THEY WILL ACCEPT STANDARD SELF TAPPING OR CHIPBOARD SCREWS AND CAN BE



PERFORMANCE DATA

INSTALLATION

Code	Size	hole dia mm	Wall Thick. mm	Screw Size	Min Screw Length mm
<i>SPRING TYPE</i>					
606	6mm	8	3 - 6	6 - 8g	20
612	12mm	8	8 - 12	6 - 8g	30
<i>BUTTERFLY TYPE</i>					
06B12	12mm	8	4 - 12	6 - 8g	30
06B19	19mm	8	15 - 19	6 - 8g	40

INSTALLATION PROCEDURE:

1: Spring Type

Drill clearance hole in plaster or wall board. Attach Toggle to supplied insertion tool. Push assembly through hole and release. Screw attachment using correct length of 6 or 8 g screw.

INSTALLATION PROCEDURE:

2: Butterfly Type

Drill clearance hole in plaster or wall board. Insert toggle into hole by compressing the wings together so that they enter the hole. Tap into place gently until the collar meets the plasterboard surface.

TECHNICAL PERFORMANCE AND MATERIAL SPECIFICATION

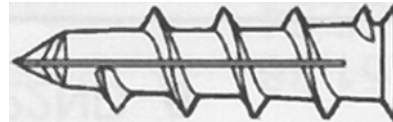
Code	Size	Advisory SWL tension Plasterboard 10mm N	Advisory SWL tension Plasterboard 19mm N	Material
606	n/a	n/a	n/a	Nylon 60
612	12mm	80	n/a	Nylon 60
06B12	12mm	100	n/a	Nylon 60
06B19	19mm	n/a	150	Nylon 60

MACSIM WALL LOK HOLLOW WALL ANCHOR

Description

THREADED ZINC ALLOY OR NYLON PLUG WHICH SELF DRILLS AND TAPS INTO PLASTERBOARD AND ACCEPTS 8 TO GAUGE TAPPING SCREWS. PLUG WILL SPLIT ON INSERTION OF SCREW TO END OF PLUG; GIVING SUPERIOR HOLDING POWER.

PERFORMANCE DATA



INSTALLATION

INSTALLATION PROCEDURE:

Wall lok can be simply screwed into plasterboard with a hand PH2 Screw Driver. For easier insertion, push a No.2 Phillips Screw Driver through Plasterboard in the position required for the fixing.

Insert Wall Lok and Screw in.

Use either an 8g or 10g Chipboard or Self Tapping Screw of a length long enough to insert 25mm into the plug and through the component to be fixed. Do not over tighten.

Code	Screw Size	hole dia mm	Wall Thick. mm	Min Cavity Depth mm	min screw length mm
52WZ	8g	self drilling	10mm +	25	25
52WN	8 or 10g	self drilling	10mm +	25	25

MATERIAL SPECIFICATION

Code	Size	Body Specification	Temp. Rating
52WZ	8g	Zinc Alloy	200 ⁰ max
52WN	8 or 10g	Nylon	60 ⁰ max

TECHNICAL PERFORMANCE

Code	Desc	Advisory SWL tension Plasterboard 10mm N	Advisory SWL tension Plasterboard 16mm N	Advisory SWL shear Plasterboard 10mm N	Advisory SWL shear Plasterboard 16mm N
52WZ	Zinc	120	150	200	300
52WN	Nylon	120	150	200	300

MACSIM PLASTIC WALL PLUGS AND SUPER PLUGS

Description

DUCTILE PLASTIC PLUGS PACKED INDIVIDUALLY IN FRAMES OR IN POLYBAGS. IDEAL FOR INTERNAL LIGHT DUTY FIXING TO SOLID SUBSTRATE.

PERFORMANCE DATA

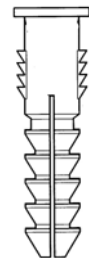
MACSIM WALL PLUG

Code	Colour	Size dia x length	hole dia mm	Embedment Depth mm	Screw Gauge	Safe Tensile Load N
000425	yellow	4 x 25	4	30	4	-
000525	white	5 x 25	5	30	6	270
000535	white	5 x 35	5	40	6	270
000625	red	6 x 25	6	30	8	490
000635	red	6 x 35	6	40	8	490
000650	red	6 x 50	6	55	8	490
000725	green	7 x 25	7	30	10-12	800
000730	green	7 x 30	7	35	10-12	850
000735	green	7 x 35	7	40	10-12	900
000750	green	7 x 50	7	55	10-12	920
000825	blue	8 x 25	8	30	12-14	960
000835	blue	8 x 35	8	40	12-14	1000
000850	blue	8 x 50	8	55	12-14	1040
001035	orange	10 x 35	10	45	5/16" Coach	1000
001050	orange	10 x 50	10	60	5/16" Coach	1050
001065	orange	10 x 65	10	75	5/16" Coach	1100
001250	grey	12 x 50	12	60	3/8" Coach	1400
001265	grey	12 x 65	12	75	3/8" Coach	1500



MACSIM SUPER PLUG

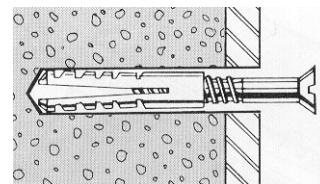
Code	Colour	Size dia x length	hole dia mm	Embedment Depth mm	Screw Gauge	Safe Tensile Load N
	Green	6.5 x 30	6.5	35	6 - 10	1000
	Green	6.5 x 45	6.5	50	6 - 10	1050
	Blue	8 x 37	8	45	10 - 14	1100



INSTALLATION PROCEDURE

Drill correct Diameter Hole in base material at least as deep as overall plug length.

Insert plug into hole. Align hole in fastened component to plug position and insert correct gauge screw with enough length to reach end of plug. Tighten screw until component is securely fixed.



Macsim Wall and Super plugs are made from high quality first grade plastic materials. They are ideal for internal application for light duty location purposes.

MACSIM CONCRETE INSERTS 29

MACSIM CONCRETE INSERTS MECHANICAL KEY ANCHOR

Product Description

Macsim Threaded Inserts are for casting into precast and in-situ concrete elements, giving a stress free, vibration resistant fixing.

Features and Benefits

- Stress free anchoring allows close to edge and reduced spacing installations.
- Cast in placement eliminates the need for drilling. This is particularly beneficial when reinforcement congestion makes drilling difficult.
- Cast In Concrete Inserts have high tensile load capacities and are suitable for applications in tension zones and where subject to dynamic load cases
- Ideal for shallow embedment as the component reinforcement can be tied into structural reinforcement for improved load distribution.
- The use of a cross bar in the Concrete Insert promotes ductile behaviour if exposed to an overlaid event.

Principal Applications

- Small and Lightweight pre-cast fixing point.
- Structural Connections.
- Curtain Wall and panel facade fixings.
- Exposure to industrial environments
- Marine applications

29.1 INSTALLATION

Installation and working load limit performance details

Concrete Insert size	Installation Details			Minimum Dimensions*				Working Load Limit (kN) †					
	Effective depth, (mm)	Tighten Torque, (Nm)**	Cross Hole to suit	Edge distance, (mm)	Anchor Spacing (mm)	Substrate thickness (mm)	Shear V	Tension					
								Unreinforced derrule			Reinforced ferrule		
20MPa	32MPa	40MPa	20MPa	32MPa	40MPa								
M10	29	17	R8 X 300	45	100	50	6.7	4.0	5.0	5.6	5.0	6.3	7.0
M12	37	30	R8 X 300	55	120	65	10.7	5.7	7.3	8.1	7.2	9.1	10.2
M16	52	75	Y12 X 300	75	160	85	18.3	9.7	12.3	13.7	12.1	15.3	17.2
M20	57	144	Y12 X 300	85	180	100	20.2	11.0	13.9	15.5	13.7	17.4	19.4
M24	100.5	250	Y12 X 300	150	300	160	29.0	25.7	32.5	36.3	32.2	40.7	45.4

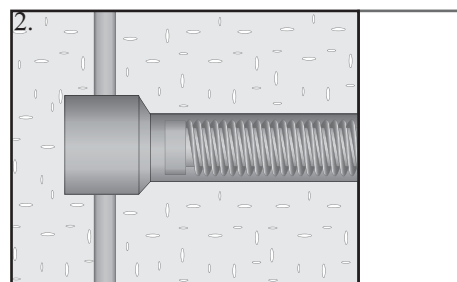
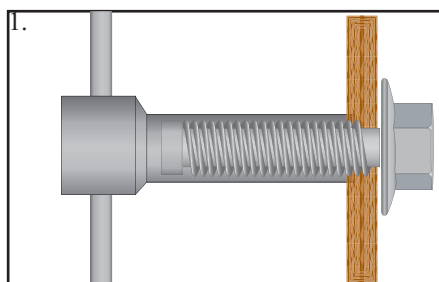
* For shear loads acting towards an edge or where these minimum dimensions are not achievable, please use the simplified limit state design process to verify capacity

** Recommended tightening torques are based on the use of grade 4.6 bolts

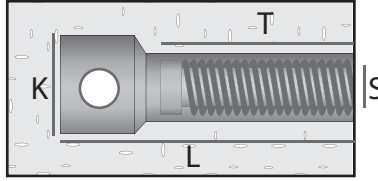
† Working Load include 4.1 safety factor

NOTE: Confirm bolt capacity independently of tabulated values

1. Drill hole in formwork. Pass the bolt through the hole into the concrete insert and tighten. Tie the insert to the reinforcing system.
2. Pour the concrete. Remove the bolt and formwork leaving the concrete insert firmly embedded.



29.2 DESCRIPTION AND PART NUMBERS



Concrete Insert Size, S	Length, L (mm)	Base Diameter, K (mm)	Effective Depth, H (mm)	Thread Length, T LKTS(mm)	Cross hole to suit	Part no. - Zinc
M10	44		29	20	R8 X 300	CIZ10
M12	54		37	25	R8 X 300	CIZ12
M16	75		52	32	Y12 X 300	CIZ16
M20	80		57	38	Y12 X 300	CIZ20
M24	125		101	50	Y12 X 300	CIZ24

29.3 ENGINEERING PROPERTIES

Concrete Insert Size	Stress area threaded section (mm ²)	Carbon Steel	
		Yield Strength (MPa)	UTS (MPa)
M10	71.4	300	430
M12	120.4	330	430
M16	176.5	330	430
M20	193.8	330	430
M24	278.6	330	430