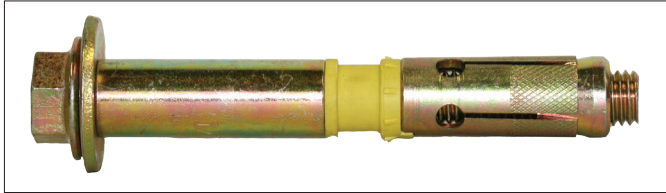


HIGH LOAD SAFETY ANCHOR



8.11 PRODUCT DATA

Head Type: Hexagon Bolt
 Material Coating: Yellow Zinc Plated

8.12 PRODUCT DESCRIPTION

The Macsim HLS produces ultimate power from its heavy duty mechanical expansion design.

The anchor is ideal for structural steel connections to concrete heavy equipment location, tilt-up prop anchoring and any other concrete based connection that requires a high degree of safety.

HLS can be used in areas where cracked concrete is a possibility as it will give a follow up expansion after slipping.

8.14 APPLICATIONS

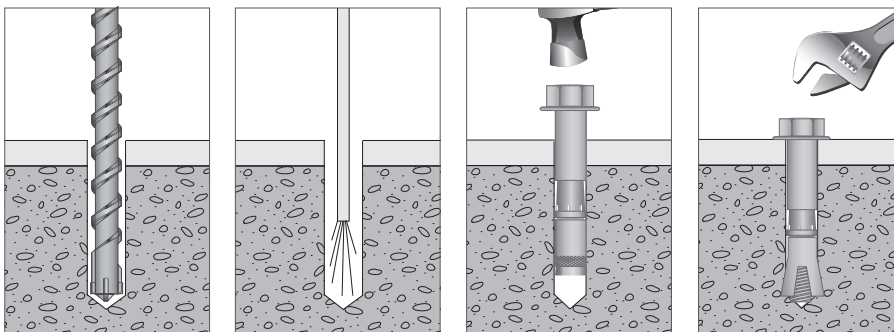
- Used for Heavy Loads
- Concrete (Cracked or Uncracked)
- Dynamic Loading

8.13 INSTALLATION METHOD

1. Drill Correct Diameter and depth of hole as specified.
2. Clean hole by brushing and blowing out dust carefully.
3. Push Anchor through fixture and hammer down until flush with surface.
4. Using a calibrated Torque Wrench apply correct torque setting as specified. The torque setting is critical, under torque may lead to slipping of the anchor before load capacity is reached, over torque may lead to permanent damage to the anchor and potential critical failure under loads.

8.15 ADVANTAGES

- High Tension Capacity
- Shear Load Capacity



| CODE | Thread Size (mm) | Anchor Diam. (mm) | Hole Diam. (mm) | Min. Hole Depth (mm) | Fixture Clearance Hole Diam. (mm) | Thickness Fastened Range (mm) | Minimum Structural Thickness (mm) | Rec. Tight Torque (Nm) |
|--------------|------------------|-------------------|-----------------|----------------------|-----------------------------------|-------------------------------|-----------------------------------|------------------------|
| HLS08 | M8 | 12 | 12 | 80 | 14 | 10-50 | 110 | 25 |
| HLS10 | M10 | 14 | 14 | 90 | 16 | 10-50 | 140 | 50 |
| HLS12 | M12 | 18 | 18 | 105 | 20 | 10-50 | 160 | 80 |
| HLS14 | M14 | 20 | 20 | 95 | 22 | 20 | 150 | 150 |
| HLS16 | M16 | 24 | 24 | 125 | 26 | 10-50 | 200 | 180 |
| HLS20 | M20 | 28 | 28 | 160 | 30 | 10-50 | 250 | 400 |

HIGH LOAD SAFETY ANCHOR

8.16 MATERIAL SPECIFICATIONS

| CODE | Thread Size (mm) | Anchor Diameter (mm) | Bolt | | Sleeve | |
|-------|------------------|----------------------|-------------------------------------|--|-------------------------------------|--|
| | | | Yield Strength (N/mm ²) | Ultimate Strength (N/mm ²) | Yield Strength (N/mm ²) | Ultimate Strength (N/mm ²) |
| HLS08 | M8 | 12 | 640 | 800 | 410 | 510 |
| HLS10 | M10 | 14 | 640 | 800 | 410 | 510 |
| HLS12 | M12 | 18 | 640 | 800 | 410 | 510 |
| HLS14 | M14 | 20 | 640 | 800 | 410 | 510 |
| HLS16 | M16 | 24 | 640 | 800 | 375 | 460 |
| HLS20 | M20 | 28 | 640 | 800 | 375 | 460 |

NOTE: HLS Anchors are Yellow Zinc Plated to minimum 6 microns in yellow passivation coating

8.17 SIMPLE LOAD CHARACTERISTICS

| Thread Size (mm) | Hole Diameter (mm) | Min. Embed. Depth (mm) | Ultimate Tensile (kN) | Ultimate Steel Tensile Strength (mm) | Working Load | | Anchor Spacing (mm) | Edge Distance (mm) |
|------------------|--------------------|------------------------|-----------------------|--------------------------------------|--------------|------------|---------------------|--------------------|
| | | | | | Tensile (kN) | Shear (kN) | | |
| M8 | 12 | 60 | 23.4 | 23.4 | 9.4 | 11.7 | 200 | 150 |
| M10 | 14 | 70 | 37.1 | 37.1 | 12.3 | 16.1 | 235 | 175 |
| M12 | 18 | 80 | 50.3 | 54.0 | 15.9 | 23.1 | 265 | 200 |
| M14 | 20 | 110 | 62.9 | 76.4 | 16.6 | 34 | 300 | 300 |
| M16 | 24 | 100 | 75.6 | 100.5 | 25.2 | 43.5 | 330 | 250 |
| M20 | 28 | 125 | 109.8 | 166.6 | 36.6 | 63.2 | 420 | 315 |

NOTE: Loads are applicable to 30MPa Concrete and on the correct torque setting. Factors such as Close Edge or neighbouring anchor spacing may need to be applied. A safety factor of 2.5:1 is included for M8 and 3:1 for M10-M20 of our recommended loads.

8.18 LOAD-SLIP CHARACTERISTICS

Macsim High Load Safety Anchor may be applied where the load at first slip is critical. This chart shows the complete load movement characteristics with the specified torque setting applied and 24 hour relaxation allowed.

