



AT-HP is a styrene free methacrylate resin suitable for high performance fixing applications in threaded rod and rebar concrete.



[ETA-14/0383](#), [ETA-13/0416](#), [UK-DoP-e14/0383](#), [UK-DoP-e13/0416](#), [FDS-ATHP-A+B\(1.5\)UK](#)

FEATURES



Material

- Styrene free methacrylate resin.
- Threaded rod: galvanised steel and stainless steel A4-70.

Benefits

- Fast curing.
- Low odour.
- Non-flammable.
- Easy to dispense.



APPLICATIONS

Header member

- Non-cracked concrete.
- Solid blocks.
- Hollow blocks.
- AAC Blocks.

For Use With

- Threaded rod and rebar connections.
- Racking.
- Balconies.
- Facades.

TECHNICAL DATA

Reference

| References | Item Code | Tun / DB nr. | NOB nr. | Content [ml] | Weight [kg] | Packaging [pcs] |
|--------------------------|-----------|--------------|---------|--------------|-------------|-----------------|
| AT-HP + LMAS M8* | - | - | - | - | - | - |
| AT-HP + LMAS M10* | - | - | - | - | - | - |
| AT-HP + LMAS M12* | - | - | - | - | - | - |
| AT-HP + LMAS M16* | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - |

Recommended loads

| References | Tension - Nrec [kN] | | | | | | | |
|--------------------------|-----------------------------|------------------------------|--------------------------|-------------------------|------------------------|------------------------------|-------------------------------------|--------------------------------------|
| | Concrete C20/25 [hef=h0=8d] | Concrete C20/25 [hef=h0=12d] | Masonry brick - RT 307 * | Hollow Brick - RT 301 * | Hollow Brick - POROTON | Hollow Brick - LS BGV THERMO | Hollow clay brick - HOLLOW BLOCKS * | Autoclaved aerated concrete blocks * |
| AT-HP + LMAS M8* | 6.1 | 8.7 | 0.43 | 0.43 | 0.26 | 0.43 | 0.34 | 0.26 |
| AT-HP + LMAS M10* | 9 | 13.5 | 0.43 | 0.43 | 0.34 | 0.57 | 0.57 | 0.34 |
| AT-HP + LMAS M12* | 12.9 | 19.4 | 0.43 | 0.57 | 0.34 | 0.86 | 0.57 | 0.34 |
| AT-HP + LMAS M16* | 20.4 | 30.6 | - | - | - | - | - | - |
| AT-HP + LMAS M20* | 29.9 | 44.9 | - | - | - | - | - | - |
| AT-HP + LMAS M24* | 40.2 | 60.3 | - | - | - | - | - | - |
| AT-HP + LMAS M27* | 47.3 | 70.9 | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | 53.9 | 80.8 | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - |

Recommended loads

| References | Shear - Vrec [kN] | | | | | | | Bending moment [Nm] |
|-------------------|-------------------|--------------------------|-------------------------|------------------------|------------------------------|-------------------------------------|--------------------------------------|---------------------|
| | Concrete C20/25 | Masonry brick - RT 307 * | Hollow Brick - RT 301 * | Hollow Brick - POROTON | Hollow Brick - LS BGV THERMO | Hollow clay brick - HOLLOW BLOCKS * | Autoclaved aerated concrete blocks * | |
| AT-HP + LMAS M8* | 5.3 | 0.57 | 0.43 | 0.43 | 0.43 | 0.34 | 0.26 | 10.7 |
| AT-HP + LMAS M10* | 8.3 | 0.57 | 0.43 | 0.43 | 0.57 | 0.57 | 0.34 | 21.4 |
| AT-HP + LMAS M12* | 12.1 | 0.57 | 0.43 | 0.57 | 0.86 | 0.57 | 0.34 | 37.4 |
| AT-HP + LMAS M16* | 22.5 | - | - | - | - | - | - | 95.1 |
| AT-HP + LMAS M20* | 35 | - | - | - | - | - | - | 185.4 |

| References | Shear - Vrec [kN] | | | | | | | Bending moment [Nm] |
|--------------------------|-------------------|--------------------------|-------------------------|------------------------|------------------------------|-------------------------------------|--------------------------------------|---------------------|
| | Concrete C20/25 | Masonry brick - RT 307 * | Hollow Brick - RT 301 * | Hollow Brick - POROTON | Hollow Brick - LS BGV THERMO | Hollow clay brick - HOLLOW BLOCKS * | Autoclaved aerated concrete blocks * | |
| AT-HP + LMAS M24* | 50.5 | - | - | - | - | - | - | 320.7 |
| AT-HP + LMAS M27* | 65.6 | - | - | - | - | - | - | 475.5 |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | 80.2 | - | - | - | - | - | - | 642.9 |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - |

M16, M20, M24, M27 and M30 not covered by masonry ETA.

Load specifications for single anchor without influence of spacing and edge distances in the temperature range I in the use of threaded rods of quality 5.8.

* Masonry:

| | Dimensions L x W x H [mm] | Compressive strength fb [N/mm²] | Bulk density p [kg/m³] |
|---|---------------------------|---------------------------------|------------------------|
| Solid clay brick RT 307 according to EN 771-1 – HD | ≥228x108x54 | ≥22 | ≥1830 |
| Hollow clay brick RT 301– Type 1 according to EN 771-1 – LD | ≥228x108x54 | ≥22 | ≥1305 |
| Hollow clay brick POROTON– Type 2 according to EN 771-1 – LD | ≥248x365x249 | ≥8 | ≥650 |
| Hollow clay brick POROTON– Type 2 according to EN 771-1 – LD | ≥500x200x314 | ≥6 | ≥570 |
| Hollow clay brick BLOCS CREUX – Type 4 according to EN 771-1 – LD | ≥500x200x200 | ≥4 | ≥900 |

| | | | |
|--|--------------|----|------|
| Autoclaved aerated concrete blocks according to EN 771 – 4 | ≥635x250x300 | ≥3 | ≥350 |
|--|--------------|----|------|

- 1) For combined tension and shear loads or anchor groups and/or in the case of edge influence, a calculation per ETAG 029, Annex C, design method A shall be performed. For details see the ETA- approval(s).
- 2) The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_f=1.4$.
- 3) Temperatur range I: -40°C to +80°C (max. long-term temperatur: +50°C; max. short-term temperatur: +80°C).
- 4) Lunit: max. dimensions of the bricks
- 5) Non-bearing layers (eg. as plaster) have to be bridged.
- 6) The installation can be carried out in dry and wet base material.
- 7) The installation must be carried out in dry base material.

**** Concrete:**

The design resistances have been calculated using the partial safety factors for resistances stated in ETA- approvals(s).

The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_f=1.4$.

The load figures are valid for reinforced concrete with a rebar spacing $\geq 15\text{cm}$ (any diameter) or with a rebar spacing $\geq 15\text{cm}$ if the rebar diameter is 10mm or smaller.

The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to the edges ($c \leq \text{hef } 60d$) the concrete edge failure shall be calculated per EOTA Technical Report - TR 029 or acc. to CEN/TS 1992-4.

Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

For combined tension and shear loads or anchor groups and/or in the case of edge influence, a calculation per EOTA Technical Report - TR 029 or acc. to CEN/TS 1992-4 shall be performed. For details see the ETA- approval(s).

Design Resistance in tension

| References | Design resistance - tension [Nrd] [kN] | | | |
|--------------------------|--|---------------------------------|---------------------|--------------------|
| | Concrete C20/25 | Massiv mursten fb>43,8MPa 1) | Hulsten fb>30MPa 2) | Gasbeton 2,5MPa 3) |
| AT-HP + LMAS M8* | 6.9 | 0.8 | 0.6 | 0.4 |
| AT-HP + LMAS M10* | 10.2 | 0.8 | 0.6 | 0.5 |
| AT-HP + LMAS M12* | 14.6 | 0.8 | 0.6 | 0.5 |
| AT-HP + LMAS M16* | 24.5 | - | - | - |
| AT-HP + LMAS M20* | 35.9 | - | - | - |
| AT-HP + LMAS M24* | 52.3 | - | - | - |
| AT-HP + LMAS M27* | 66.2 | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - |
| AT-HP + LMAS M30* | 75.4 | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - |

Design resistance in shear

| References | Design resistance - shear [VRd] [kN] | | | |
|--------------------------|--------------------------------------|------------------------------------|------------------------|--------------------|
| | Concrete C20/25 | Massiv mursten fb>43,8MPa 1) | Hulsten fb>30MPa 2) | Gasbeton 2,5MPa 3) |
| AT-HP + LMAS M8* | 7.4 | 0.8 | 0.6 | 0.4 |
| AT-HP + LMAS M10* | 11.6 | 0.8 | 0.6 | 0.5 |
| AT-HP + LMAS M12* | 16.9 | 0.8 | 0.6 | 0.5 |
| AT-HP + LMAS M16* | 31.4 | - | - | - |
| AT-HP + LMAS M20* | 49 | - | - | - |
| AT-HP + LMAS M24* | 70.6 | - | - | - |
| AT-HP + LMAS M27* | 91.8 | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - |
| AT-HP + LMAS M30* | 112.2 | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - |

M16, M20, M24, M27 and M30 not covered by masonry ETA.

Load specifications for single anchor without influence of spacing and edge distances in the temperature range I in the use of threaded rods of quality 5.8.

* Masonry:

| | Dimensions L x W x H [mm] | Compressive strength fb [N/mm²] | Bulk density p [kg/m³] |
|---|---------------------------------|---------------------------------------|------------------------------|
| Solid clay brick RT 307 according to EN 771-1 – HD | ≥228x108x54 | ≥22 | ≥1830 |
| Hollow clay brick RT 301– Type 1 according to EN 771-1 – LD | ≥228x108x54 | ≥22 | ≥1305 |
| Hollow clay brick POROTON– Type 2 according to EN 771-1 – LD | ≥248x365x249 | ≥8 | ≥650 |
| Hollow clay brick POROTON– Type 2 according to EN 771-1 – LD | ≥500x200x314 | ≥6 | ≥570 |
| Hollow clay brick BLOCS CREUX – Type 4 according to EN 771-1 – LD | ≥500x200x200 | ≥4 | ≥900 |
| Autoclaved aerated concrete blocks according to EN 771 – 4 | ≥635x250x300 | ≥3 | ≥350 |

1) For combined tension and shear loads or anchor groups and/or in the case of edge influence, a calculation per ETAG 029, Annex C, design method A shall be performed. For details see the ETA- approval(s).

2) The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_f=1.4$.

3) Temperatur range I: -40°C to +80°C (max. long-term temperatur: +50°C; max. short-term temperatur: +80°C).

4) lunit: max. dimensions of the bricks

5) Non-bearing layers (eg. as plaster) have to be bridged.

6) The installation can be carried out in dry and wet base material.

7) The installation must be carried out in dry base material.

** Concrete:

The design resistances have been calculated using the partial safety factors for resistances stated in ETA- approvals(s).
 The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of $\gamma_f=1.4$.

The load figures are valid for reinforced concrete with a rebar spacing $\geq 15\text{cm}$ (any diameter) or with a rebar spacing $\geq 15\text{cm}$ if the rebar diameter is 10mm or smaller.

The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to the edges ($c \leq \text{hef } 60d$) the concrete edge failure shall be calculated per EOTA Technical Report - TR 029 or acc. to CEN/TS 1992-4.

Concrete is considered non-cracked when the tensile stress within the concrete is $\sigma_L + \sigma_R \leq 0$. In the absence of detailed verification $\sigma_R = 3 \text{ N/mm}^2$ can be assumed (σ_L equals the tensile stress within the concrete induced by external loads, anchors loads included).

For combined tension and shear loads or anchor groups and/or in the case of edge influence, a calculation per EOTA Technical Report - TR 029 or acc. to CEN/TS 1992-4 shall be performed. For details see the ETA- approval(s).

Technical data for rebar

| References | Ø rebar [mm] | Ø drilling diameter [mm] | Embedment depth [ldb] [mm] | Tension load in Concrete C20/25 [Rds,N] [kN] | Resin Volum [ml] |
|--------------------------|--------------|--------------------------|----------------------------|--|------------------|
| AT-HP + LMAS M8* | - | - | - | - | - |
| AT-HP + LMAS M10* | - | - | - | - | - |
| AT-HP + LMAS M12* | - | - | - | - | - |
| AT-HP + LMAS M16* | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | 8 | 12 | 115 | 9.5 | 9 |
| AT-HP + fer Ø10 x lbdmax | 10 | 14 | 300 | 31 | 27 |
| AT-HP + fer Ø14 x lbdmin | 14 | 18 | 200 | 28.9 | 24 |
| AT-HP + LMAS M30* | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | 8 | 12 | 280 | 16.5 | 15 |
| AT-HP + fer Ø12 x lbdmin | 12 | 16 | 170 | 21.1 | 18 |
| AT-HP + fer Ø14 x lbdmax | 14 | 18 | 420 | 60.7 | 51 |
| AT-HP + fer Ø10 x lbdmin | 10 | 14 | 145 | 15 | 13 |
| AT-HP + fer Ø12 x lbdmax | 12 | 16 | 130 | 44.6 | 38 |
| AT-HP + fer Ø16 x lbdmin | 16 | 20 | 230 | 38 | 31 |
| AT-HP + fer Ø16 x lbdmax | 16 | 20 | 480 | 79.3 | 65 |
| AT-HP + fer Ø20 x lbdmin | 20 | 25 | 285 | 58.8 | 60 |
| AT-HP + fer Ø20 x lbdmax | 20 | 25 | 600 | 123.9 | 127 |
| AT-HP + fer Ø25 x lbdmin | 25 | 30 | 355 | 91.6 | 92 |
| AT-HP + fer Ø25 x lbdmax | 25 | 30 | 750 | 193.5 | 194 |
| AT-HP + fer Ø28 x lbdmin | 28 | 35 | 840 | 173.4 | 249 |
| AT-HP + fer Ø28 x lbdmax | 28 | 35 | 1000 | 267.7 | 387 |
| AT-HP + fer Ø32 x lbdmin | 32 | 40 | 685 | 226.3 | 372 |
| AT-HP + fer Ø32 x lbdmax | 32 | 40 | 1000 | 330.3 | 543 |

Rebar resistance (Ha B500B) Ø8 to Ø32 mm. Embedment depth under static loads (Eurocode 2) according to ETA-11/0139. Minimum spacing =7x diameter and no influence of the edges.

INSTALLATION

Curing Schedule

| Mortar temperature T _{mortar} [°C] | Base material temperature T _{base material} [°C] | Gel time (working time) in dry/wet concrete t _{gel} [min] | Curing time in dry/wet concrete t _{cure} [h; min] |
|---|---|---|---|
| +5°C | -5°C to -1°C | 15min | 9h |
| +5°C | 0°C to 4°C | 12min | 4h |
| +5°C | 5°C to 9°C | 9min | 1,5h |
| +10°C | 10°C to 19°C | 4min | 60min |
| +20°C | 20°C to 29°C | 1min | 30min |
| +30°C | 30°C and above | <1min | 20min |

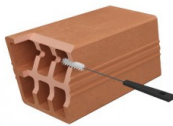
Concerning the version of the mortar with changing color proof, after the minimum curing time the blue colored injection mortar changed into grey. The curing color proof is available for standard version of the mortar only and the curing color proof is working above 5°C.

Drilling methods

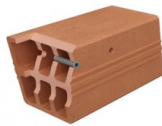
| | |
|-------------------------|----------------------------|
| Solid brick/concrete | Percussion/hammer drilling |
| Hollow/perforated brick | Rotation drilling |
| Aerated concrete | Percussion/hammer drilling |



Drill.



Brush.



Insert sieve.



Inject the resin.



Insert the rod,
turning slowly.



Once set, full
load capacity is
reached.



Drill.



Remove dust
by brushing and
blowing,



Fill the hole
to half or
two thirds,
Withdrawing
the nozzles with
each pump.



Insert the rod,
turning slowly.



Once set, full
load capacity is
reached.

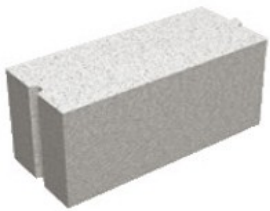
Installation parameters - Concrete



| References | Ø drilling diameter [d0] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h0=hef=8d] [mm] | Depth of the drilling hole [h0=hef=12d] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Characteristic spacing (4) [scr,N] [mm] | Minimum spacing [smin] | Characteristic edge distance (4) [ccr,N] [mm] | Minimum edge distance [cmin] [mm] | Min member thickness - hef=8d [hmin] [mm] |
|--------------------------|-------------------------------|---|---|--|------------------|----------------------------------|---|------------------------|---|-----------------------------------|---|
| AT-HP + LMAS M8* | 10 | 9 | 64 | 96 | 13 | 10 | 175 | 40 | 88 | 40 | 100 |
| AT-HP + LMAS M10* | 12 | 12 | 80 | 120 | 17 | 20 | 213 | 50 | 106 | 50 | 110 |
| AT-HP + LMAS M12* | 14 | 14 | 96 | 144 | 19 | 40 | 255 | 60 | 128 | 60 | 126 |
| AT-HP + LMAS M16* | 18 | 18 | 128 | 192 | 24 | 80 | 330 | 80 | 165 | 80 | 164 |
| AT-HP + LMAS M20* | 22 | 22 | 160 | 240 | 30 | 150 | 400 | 100 | 200 | 100 | 204 |
| AT-HP + LMAS M24* | 28 | 26 | 192 | 288 | 36 | 200 | 447 | 120 | 223 | 120 | 248 |
| AT-HP + LMAS M27* | 30 | 30 | 216 | 324 | 41 | 270 | 503 | 135 | 251 | 135 | 276 |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | 35 | 33 | 240 | 360 | 46 | 300 | 537 | 150 | 268 | 150 | 310 |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |

| References | Ø drilling diameter [d0] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h0=hef=8d] [mm] | Depth of the drilling hole [h0=hef=12d] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Characteristic spacing (4) [scr,N] [mm] | Minimum spacing [smin] | Characteristic edge distance (4) [ccr,N] [mm] | Minimum edge distance [cmin] [mm] | Min member thickness - hef=8d [hmin] [mm] |
|--------------------------|-------------------------------|---|---|--|------------------|----------------------------------|---|------------------------|---|-----------------------------------|---|
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |

Installation parameters - Autoclaved aerated concrete blocks



| References | Ø drilling diameter [d0] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|------------------|-------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + LMAS M8* | 10 | 9 | 85 | 13 | 4 | 80 | 160 | 50 | 80 | 50 |

| References | Ø drilling diameter [d0] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|--------------------------|-------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + LMAS M10* | 12 | 12 | 85 | 15 | 6 | 80 | 200 | 50 | 100 | 50 |
| AT-HP + LMAS M12* | 14 | 14 | 85 | 18 | 8 | 80 | 240 | 50 | 120 | 50 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - | - | - |

Installation parameters - Solid brick



| References | Ø drilling diameter [d0] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|-----------------------------|-------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + LMAS M8* | 10 | 9 | 85 | 13 | 4 | 80 | 160 | 50 | 80 | 50 |
| AT-HP + LMAS M10* | 12 | 12 | 85 | 15 | 6 | 80 | 200 | 50 | 100 | 50 |
| AT-HP + LMAS M12* | 14 | 14 | 85 | 18 | 8 | 80 | 240 | 50 | 120 | 50 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - | - | - |

Installation parameters - Hollow brick



| References | Ø drilling diameter [d0] [mm] | Size of the Sieve [ds x ls] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|--------------------------|-------------------------------|----------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + LMAS M8* | 16 | 16 x 85 & 16 x 130 | 9 | 135 | 13 | 4 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M10* | 16 | 16 x 85 & 16 x 130 | 12 | 135 | 15 | 6 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M12* | 16 | 16 x 85 & 16 x 130 | 14 | 135 | 18 | 8 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |

| References | Ø drilling diameter [d0] [mm] | Size of the Sieve [ds x ls] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [SW] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|--------------------------|-------------------------------|----------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |

Installation parameters - Hollow blocks



| References | Ø drilling diameter [d0] [mm] | Size of the Sieve [ds x ls] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [Sw] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|--------------------------|-------------------------------|----------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + LMAS M8* | 16 | 16 x 130 | 9 | 135 | 13 | 4 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M10* | 16 | 16 x 130 | 12 | 135 | 15 | 6 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M12* | 16 | 16 x 130 | 14 | 135 | 18 | 8 | 130 | 500 | 100 | 250 | 100 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |

| References | Ø drilling diameter [d0] [mm] | Size of the Sieve [ds x ls] [mm] | Maximum diameter of hole in the fixture [df] [mm] | Depth of the drilling hole [h1] [mm] | Wrench Size [Sw] | Installation Torque [Tinst] [Nm] | Depth of the drilling hole [hef] [mm] | Characteristic spacing (4) - Scr,N [mm] | Minimum spacing - Smin [mm] | Characteristic edge distance (4) - Ccr,N [mm] | Minimum edge distance - Cmin [mm] |
|--------------------------|-------------------------------|----------------------------------|---|--------------------------------------|------------------|----------------------------------|---------------------------------------|---|-----------------------------|---|-----------------------------------|
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - | - | - | - |

Installation parameters - Massive mursten fb>22 MPa 1)



| References | Min. member thickness [hmin] [mm] | Eff. embedment depth [hef] [mm] | Ø drilling diameter [d0] [mm] | Depth of the drilling hole [h1] [mm] | Installation torque [Tinst] [Nm] | Maximum diameter of hole in the fixture [df] [mm] | Char. edge distance [C1 & C2] [mm] | Char. spacing 2) [S1 & S2] [mm] |
|--------------------------|-----------------------------------|---------------------------------|-------------------------------|--------------------------------------|----------------------------------|---|------------------------------------|---------------------------------|
| AT-HP + LMAS M8* | 108 | 80 | 10 | 85 | 4 | 9 | 250 | 250 |
| AT-HP + LMAS M10* | 108 | 80 | 12 | 85 | 6 | 12 | 250 | 250 |
| AT-HP + LMAS M12* | 108 | 80 | 14 | 85 | 8 | 14 | 250 | 250 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - |

| References | Min. member thickness [hmin] [mm] | Eff. embedment depth [hef] [mm] | Ø drilling diameter [d0] [mm] | Depth of the drilling hole [h1] [mm] | Installation torque [Tinst] [Nm] | Maximum diameter of hole in the fixture [df] [mm] | Char. edge distance [C1 & C2] [mm] | Char. spacing 2) [S1 & S2] [mm] |
|--------------------------|-----------------------------------|---------------------------------|-------------------------------|--------------------------------------|----------------------------------|---|------------------------------------|---------------------------------|
| AT-HP + fer Ø8 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x lbdmax | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmin | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x lbdmax | - | - | - | - | - | - | - | - |

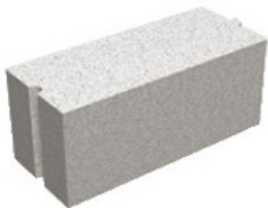
Installation parameters - Hulsten fb>22 MPa 1)



| References | Min. member thickness [hmin] [mm] | Eff. embedment depth [hef] [mm] | Ø drilling diameter [d0] [mm] | Depth of the drilling hole [h1] [mm] | Installation torque [Tinst] [Nm] | Maximum diameter of hole in the fixture [df] [mm] | Char. edge distance [C1 & C2] [mm] | Char. spacing 2) [S1 & S2] [mm] |
|-------------------|-----------------------------------|---------------------------------|-------------------------------|--------------------------------------|----------------------------------|---|------------------------------------|---------------------------------|
| AT-HP + LMAS M8* | 108 | 85 | 16 | 90 | 4 | 9 | 250 | 250 |
| AT-HP + LMAS M10* | 108 | 85 | 16 | 90 | 6 | 12 | 250 | 250 |
| AT-HP + LMAS M12* | 108 | 85 | 16 | 90 | 6 | 14 | 250 | 250 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - |

| References | Min. member thickness [h _{min}] [mm] | Eff. embedment depth [h _{ef}] [mm] | Ø drilling diameter [d ₀] [mm] | Depth of the drilling hole [h ₁] [mm] | Installation torque [T _{inst}] [Nm] | Maximum diameter of hole in the fixture [d _f] [mm] | Char. edge distance [C1 & C2] [mm] | Char. spacing 2) [S1 & S2] [mm] |
|---|--|--|--|---|---|--|------------------------------------|---------------------------------|
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x l _b d _{max} | - | - | - | - | - | - | - | - |

Installation parameters - Gasbeton fb>3,0 MPa 3)



| References | Min. member thickness [h _{min}] [mm] | Eff. embedment depth [h _{ef}] [mm] | Ø drilling diameter [d ₀] [mm] | Depth of the drilling hole [h ₁] [mm] | Installation torque [T _{inst}] [Nm] | Maximum diameter of hole in the fixture [d _f] [mm] | Char. edge distance [C1 & C2] [mm] | Char. spacing [S1 & S2] [mm] |
|---|--|--|--|---|---|--|------------------------------------|------------------------------|
| AT-HP + LMAS M8* | 100 | 80 | 10 | 85 | 2 | 9 | 250 | 250 |
| AT-HP + LMAS M10* | 100 | 80 | 12 | 85 | 3 | 12 | 250 | 250 |
| AT-HP + LMAS M12* | 100 | 80 | 14 | 85 | 4 | 14 | 250 | 250 |
| AT-HP + LMAS M16* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M20* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M24* | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M27* | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + LMAS M30* | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø8 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø14 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø10 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø12 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø16 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø20 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø25 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø28 x l _b d _{max} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x l _b d _{min} | - | - | - | - | - | - | - | - |
| AT-HP + fer Ø32 x l _b d _{max} | - | - | - | - | - | - | - | - |

1) Mursten iht. EN 771-1, fuger som eller bedre end KC 50/50/700, ingen ankre i fugerne.

2) Mindre end 250 mm hvis kun 1 anker i hver mursten.

3) Gasbeton iht. EN771-4.

Forudsætninger:

Gevindstænger er LMAS i el-galvaniseret og rustfri A4. Stålkvalitet er min. 5,8 samt A4-70. Alle angivne installationsdetaljer skal være opfyldt. Lastbæreevnen er angivet i kN (1 kN = 100 kg) og gælder for hvert anker. Alle værdier er regningsmæssige værdier og testet iht. relevante standarder. Indbyrdes ankerafstande (S) og kantafstande (C) i ovenstående tabel er minimumsafstande, uden reduktion i ankerbæreevnen pga. indbyrdes ankerafstande og kantafstande.

Hvis der er fuger tættere på ankeret end angivne kantafstand, skal det sikres at disse vil være i stand til at overføre lasterne. Ved brug af ovenstående lastbæreevner, skal lasten regnes ned til hvert enkelt anker i hvert enkelt lasttilfælde. Betonen forudsættes armeret. Ved tværlast må max. to ankre optage lasten.

De angivne forudsætninger kan ikke afviges, ved tvivl kontakt Simpson Strong-Tie® A/S på tlf:

+45 8781 7400, eller anvend Teknisk Håndbog fra www.strongtie.dk

Kontrol:

1. $NRd \geq NSd$ og $VRd \geq VSd$ og for kombinerede

2. $(NSd/NRd) + (VSd/VRd) \leq 1,2$

Både 1 og 2 skal være opfyldt.

NRd (ankerets tilladelige træklastbæreevne) skal være større end eller lig med NSd (ankerets aktuelle trækbelastning) eller VRd (ankerets tilladelige tværlastbæreevne) skal være større end eller lig med VSd (ankerets aktuelle tværbelastning).