

TORNILLO DIRECTO HORMIGÓN HEXAGONAL INOXIDABLE A-4

STAINLESS STEEL AISI 316 DIRECT FIXING SCREW FOR CONCRETE WITH HEXAGONAL HEAD

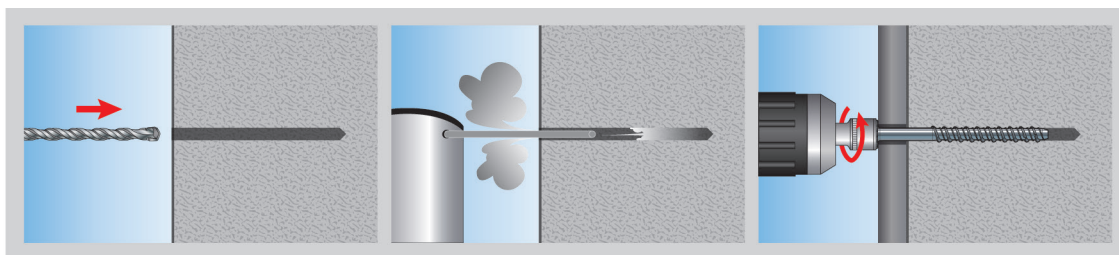
FICHA TÉCNICA

TECHNICAL DATA SHEET

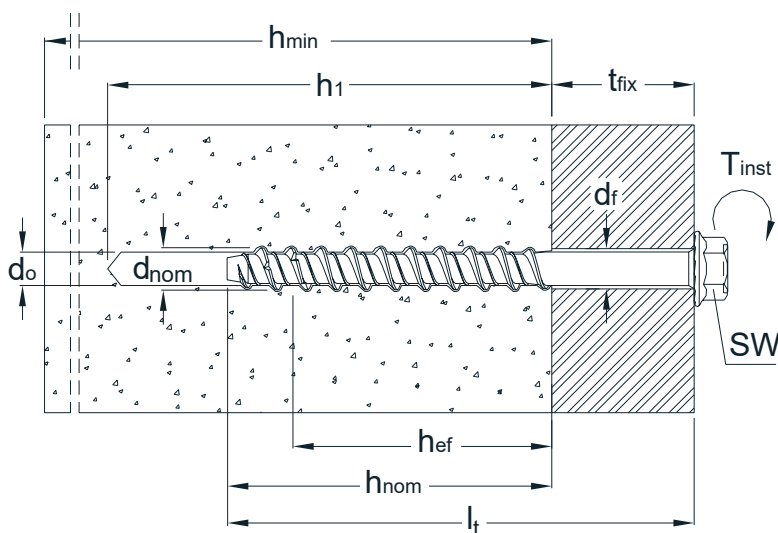
| | |
|---------------------------------|---|
| Material / Material: | Acero Inoxidable A-4 / Stainless Steel AISI 316 |
| Recubrimiento / Coating: | - |



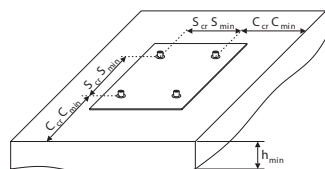
INSTALACIÓN / INSTALLATION



DATOS TÉCNICOS EN HORMIGÓN NO FISURADO / TECHNICAL DATA SCREWS IN NON-CRACKED CONCRETE



| | |
|---------------------------|---|
| d_{nom} : | Diámetro exterior del anclaje / Outside anchor diameter |
| l_t : | Largo del anclaje / Anchor length |
| ...std : | Referido a la profundidad de empotramiento estándar / Referred to standard embedment depth |
| ...red : | Referido a profundidad de empotramiento reducida. / Referred to reduced embedment depth |
| t_{fix} : | Grosor máximo a fijar / Maximum thickness of the fixture |
| d_o : | Diámetro del agujero / Drill hole diameter |
| h_{nom} : | Profundidad total de empotramiento del anclaje / Overall anchor embedment depth |
| h_{ef} : | Profundidad de empotramiento efectiva / Effective embedment depth |
| h₁ : | Profundidad del agujero / Drill hole depth |
| h_{min} : | Grosor mínimo del hormigón / Minimum thickness of concrete |
| d_f : | Diámetro del orificio de paso en el accesorio / Diameter of clearance hole in the fixture |
| T_{inst} : | Par de apriete recomendado / Recommended setting torque |
| SW : | Llave / Wrench |
| c_{min} : | Distancia mínima admisible al borde / Minimum allowable edge distance |
| s_{min} : | Distancia mínima admisible / Minimum allowable spacing |
| c_{cr} : | Distancia al borde para asegurar la transmisión de la resistencia característica de un solo anclaje / Edge distance for ensuring the transmission of the characteristic resistance of a single anchor |
| s_{cr} : | Separación para asegurar la transmisión de la resistencia característica de un solo anclaje / Spacing for ensuring the transmission of the characteristic resistance of a single anchor |



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DATOS TÉCNICOS EN HORMIGÓN NO FISURADO / TECHNICAL DATA SCREWS IN NON-CRACKED CONCRETE

Datos geométricos y de instalación / Geometrical and installation data

| d _{nom} x l _t m.m. | t _{fix} m.m. | | | d _o * m.m. | h _{nom} m.m. | | | h _{ef} m.m. | | | h ₁ m.m. | | | h _{min} m.m. | | | d _f m.m. | T _{inst} m.m. | SW | c _{min} m.m. | | | s _{min} m.m. | | | c _{cr} m.m. | | | s _{cr} m.m. | | |
|---|--------------------------|-----|-----------|--------------------------|--------------------------|-----|-----------|-------------------------|-----|-----------|------------------------|-----|-----------|--------------------------|-----|-----------|------------------------|---------------------------|----|--------------------------|-----|-----------|--------------------------|-----|-----------|-------------------------|-----|-----------|-------------------------|-----|-----------|
| | std | red | extra red | | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | | | | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red |
| 6x30 | 4 | - | - | 5 | 26 | - | - | 20 | - | - | 30 | - | - | 80 | - | - | 7 | 10 | 8 | 35 | 35 | 35 | 35 | 35 | 35 | 20 | - | - | 40 | - | - |
| 6x40 | 5 | 14 | - | | 35 | 26 | - | 27 | 20 | - | 50 | 35 | - | 80 | 80 | - | | | | 40 | 20 | - | 80 | 40 | - | 80 | 40 | - | 80 | 40 | - |
| 6x60 | 5 | 25 | 34 | 5 | 55 | 35 | 26 | 45 | 27 | 20 | 70 | 50 | 35 | 90 | 80 | 80 | 7 | 10 | 8 | 68 | 40 | 20 | 135 | 80 | 40 | 68 | 40 | 20 | 135 | 80 | 40 |
| 6x80 | 25 | 45 | 54 | | 55 | 35 | 26 | 45 | 27 | 20 | 70 | 50 | 35 | 90 | 80 | 80 | | | | 68 | 40 | 20 | 135 | 80 | 40 | 68 | 40 | 20 | 135 | 80 | 40 |

| d _{nom} x l _t m.m. | t _{fix} m.m. | | | d _o * m.m. | h _{nom} m.m. | | | h _{ef} m.m. | | | h ₁ m.m. | | | h _{min} m.m. | | | d _f m.m. | T _{inst} m.m. | SW | c _{min} m.m. | | | s _{min} m.m. | | | c _{cr} m.m. | | | s _{cr} m.m. | | |
|---|--------------------------|-----|-----------|--------------------------|--------------------------|-----|-----------|-------------------------|-----|-----------|------------------------|-----|-----------|--------------------------|-----|-----------|------------------------|---------------------------|----|--------------------------|-----|-----------|--------------------------|-----|-----------|-------------------------|-----|-----------|-------------------------|-----|-----------|
| | std | red | extra red | | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | | | | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red |
| 8x40 | 5 | - | - | 6 | 35 | - | - | 27 | - | - | 40 | - | - | 80 | - | - | 7 | 20 | 10 | 40 | - | - | 40 | - | - | 40 | - | - | 80 | - | - |
| 8x50 | 15 | - | - | | 35 | - | - | 27 | - | - | 40 | - | - | 80 | - | - | | | | 40 | - | - | 40 | - | - | 40 | - | - | 80 | - | - |
| 8x65 | 5 | 30 | - | | 60 | 35 | 48 | 27 | 70 | 40 | 100 | 80 | 50 | 40 | 50 | 40 | | | | 75 | 40 | 150 | 80 | 50 | 40 | 50 | 40 | 75 | 40 | 150 | 80 |
| 8x80 | 20 | 45 | - | | 60 | 35 | 48 | 27 | 70 | 40 | 100 | 80 | 50 | 40 | 50 | 40 | | | | 75 | 40 | 150 | 80 | 50 | 40 | 50 | 40 | 75 | 40 | 150 | 80 |
| 8x100 | 40 | 65 | - | | 60 | 35 | 48 | 27 | 70 | 40 | 100 | 80 | 50 | 40 | 50 | 40 | | | | 75 | 40 | 150 | 80 | 50 | 40 | 50 | 40 | 75 | 40 | 150 | 80 |
| 10x50 | 5 | - | - | 8 | 45 | - | - | 35 | - | - | 60 | - | - | 80 | - | - | 12 | * | 13 | 40 | - | - | 40 | - | - | 55 | - | - | 110 | - | - |
| 10x60 | 15 | - | - | | 45 | - | - | 35 | - | - | 60 | - | - | 80 | - | - | | | | 40 | - | - | 40 | - | - | 55 | - | - | 110 | - | - |
| 10x80 | 10 | 35 | - | | 70 | 45 | 56 | 35 | 90 | 60 | 120 | 80 | 50 | 40 | 50 | 40 | | | | 85 | 55 | 170 | 110 | 50 | 40 | 50 | 40 | 85 | 55 | 170 | 110 |
| 10x100 | 30 | 55 | - | | 70 | 45 | 56 | 35 | 90 | 60 | 120 | 80 | 50 | 40 | 50 | 40 | | | | 85 | 55 | 170 | 110 | 50 | 40 | 50 | 40 | 85 | 55 | 170 | 110 |
| 10x120 | 50 | 75 | - | | 70 | 45 | 56 | 35 | 90 | 60 | 120 | 80 | 50 | 40 | 50 | 40 | | | | 85 | 55 | 170 | 110 | 50 | 40 | 50 | 40 | 85 | 55 | 170 | 110 |
| 10x140 | 70 | 95 | - | | 70 | 45 | 56 | 35 | 90 | 60 | 120 | 80 | 50 | 40 | 50 | 40 | | | | 85 | 55 | 170 | 110 | 50 | 40 | 50 | 40 | 85 | 55 | 170 | 110 |
| 10x160 | 90 | 115 | - | | 70 | 45 | 56 | 35 | 90 | 60 | 120 | 80 | 50 | 40 | 50 | 40 | | | | 85 | 55 | 170 | 110 | 50 | 40 | 50 | 40 | 85 | 55 | 170 | 110 |

* Ajuste permitido solo con llave de impacto / Setting allowed only with impact wrench

Cargas características / Characteristic loads

| d _{nom} x l _t m.m. | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | |
|---|------------------------------|-----|-----------|----------------------------|-----|-----------|------------------------------|------|-----------|----------------------------|------|-----------|------------------------------|------|-----------|----------------------------|------|-----------|------------------------------|------|-----------|----------------------------|------|-----------|
| | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red |
| 6x30 | 2 | - | - | 4,5 | - | - | 2,44 | - | - | 5,49 | - | - | 2,82 | - | - | 6,35 | - | - | 3,10 | - | - | 6,50 | - | - |
| 6x40 | 3 | 2 | - | 6,5 | 4,5 | - | 3,66 | 2,44 | - | 6,50 | 5,49 | - | 4,23 | 2,82 | - | 6,50 | 6,35 | - | 4,65 | 3,10 | - | 6,50 | 6,50 | - |
| 6x60 | 9 | 3 | 2 | 6,5 | 6,5 | 4,5 | 11 | 3,66 | 2,44 | 6,50 | 6,50 | 5,49 | 12,70 | 4,23 | 2,82 | 6,50 | 6,50 | 6,35 | 13 | 4,65 | 3,10 | 6,50 | 6,50 | 6,50 |
| 6x80 | 9 | 3 | 2 | 6,5 | 6,5 | 4,5 | 11 | 3,66 | 2,44 | 6,50 | 6,50 | 5,49 | 12,70 | 4,23 | 2,82 | 6,50 | 6,50 | 6,35 | 13 | 4,65 | 3,10 | 6,50 | 6,50 | 6,50 |

| d _{nom} x l _t m.m. | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | |
|---|------------------------------|------|-----------|----------------------------|-------|-----------|------------------------------|-------|-----------|----------------------------|-------|-----------|------------------------------|-------|-----------|----------------------------|-------|-----------|------------------------------|-------|-----------|----------------------------|-------|-----------|
| | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red | std | red | extra red |
| 8x40 | 4,23 | - | - | 7,10 | - | - | 5,16 | - | - | 8,66 | - | - | 5,96 | - | - | 9,75 | - | - | 6,56 | - | - | 9,75 | - | - |
| 8x50 | 4,23 | - | - | 7,10 | - | - | 5,16 | - | - | 8,66 | - | - | 5,96 | - | - | 9,75 | - | - | 6,56 | - | - | 9,75 | - | - |
| 8x65 | 12,50 | 4,23 | - | 9,75 | 7,10 | - | 15,25 | 5,16 | - | 9,75 | 8,66 | - | 17,63 | 5,96 | - | 9,75 | 9,75 | - | 19,38 | 6,56 | - | 9,75 | 9,75 | - |
| 8x80 | 12,50 | 4,23 | - | 9,75 | 7,10 | - | 15,25 | 5,16 | - | 9,75 | 8,66 | - | 17,63 | 5,96 | - | 9,75 | 9,75 | - | 19,38 | 6,56 | - | 9,75 | 9,75 | - |
| 8x100 | 12,50 | 4,23 | - | 9,75 | 7,10 | - | 15,25 | 5,16 | - | 9,75 | 8,66 | - | 17,63 | 5,96 | - | 9,75 | 9,75 | - | 19,38 | 6,56 | - | 9,75 | 9,75 | - |
| 10x50 | 14 | - | - | 10,21 | - | - | 16,24 | - | - | 12,42 | - | - | 17,36 | - | - | 14,44 | - | - | 20,16 | - | - | 15,82 | - | - |
| 10x60 | 14 | - | - | 10,21 | - | - | 16,24 | - | - | 12,42 | - | - | 17,36 | - | - | 14,44 | - | - | 20,16 | - | - | 15,82 | - | - |
| 10x80 | 23 | 14 | - | 17,50 | 10,21 | - | 26,68 | 16,24 | - | 17,50 | 12,42 | - | 28,52 | 17,36 | - | 17,50 | 14,44 | - | 33,12 | 20,16 | - | 17,50 | 15,82 | - |
| 10x100 | 23 | 14 | - | 17,50 | 10,21 | - | 26,68 | 16,24 | - | 17,50 | 12,42 | - | 28,52 | 17,36 | - | 17,50 | 14,44 | - | 33,12 | 20,16 | - | 17,50 | 15,82 | - |
| 10x120 | 23 | 14 | - | 17,50 | 10,21 | - | 26,68 | 16,24 | - | 17,50 | 12,42 | - | 28,52 | 17,36 | - | 17,50 | 14,44 | - | 33,12 | 20,16 | - | 17,50 | 15,82 | - |
| 10x140 | 23 | 14 | - | 17,50 | 10,21 | - | 26,68 | 16,24 | - | 17,50 | 12,42 | - | 28,52 | 17,36 | - | 17,50 | 14,44 | - | 33,12 | 20,16 | - | 17,50 | 15,82 | - |
| 10x160 | 23 | 14 | - | 17,50 | 10,21 | - | 26,68 | 16,24 | - | 17,50 | 12,42 | - | 28,52 | 17,36 | - | 17,50 | 14,44 | - | 33,12 | 20,16 | - | 17,50 | 15,82 | - |

Las cargas de extracción y cizalladura que se muestran en la tabla son cargas características de las pruebas sin efecto de espaciado y distancia al borde.

/ Pull-out and shear showed in the table are characteristic loads from tests without edge and spacing effect.

1 kN = 100 kg

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Cargas máximas sugeridas (calculadas con un factor de seguridad general de 3) / Maximum suggested loads (Calculated with overall safety factor of 3)

| d _{nom} x l _t m.m. | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | | Extracción Pull out kN | | | Cizalladura Shear kN | | |
|---|------------------------------|------|------|----------------------------|-----|-----|------------------------------|------|------|----------------------------|------|------|------------------------------|------|------|----------------------------|------|------|------------------------------|------|------|----------------------------|------|------|
| | C20/25 extra | | | C20/25 extra | | | C30/37 extra | | | C30/37 extra | | | C40/50 extra | | | C40/50 extra | | | C50/60 extra | | | C50/60 extra | | |
| | std | red | red | std | red | red | std | red | red | std | red | red | std | red | red | std | red | red | std | red | red | std | red | red |
| 6x30 | 0,67 | - | - | 1,5 | - | - | 0,81 | - | - | 1,83 | - | - | 0,94 | - | - | 2,12 | - | - | 1,03 | - | - | 2,17 | - | - |
| 6x40 | 1 | 0,67 | - | 2,17 | 1,5 | - | 1,22 | 0,81 | - | 2,17 | 1,83 | - | 1,41 | 0,94 | - | 2,17 | 2,12 | - | 1,55 | 1,03 | - | 2,17 | 2,17 | - |
| 6x60 | 3 | 1 | 0,67 | 2,17 | 2,2 | 1,5 | 3,67 | 1,22 | 0,81 | 2,17 | 2,17 | 1,83 | 4,23 | 1,41 | 0,94 | 2,17 | 2,17 | 2,12 | 4,33 | 1,55 | 1,03 | 2,17 | 2,17 | 2,17 |
| 6x80 | 3 | 1 | 0,67 | 2,17 | 2,2 | 1,5 | 3,67 | 1,22 | 0,81 | 2,17 | 2,17 | 1,83 | 4,23 | 1,41 | 0,94 | 2,17 | 2,17 | 2,12 | 4,33 | 1,55 | 1,03 | 2,17 | 2,17 | 2,17 |

| d _{nom} x l _t m.m. | Extracción Pull out kN | | Cizalladura Shear kN | | Extracción Pull out kN | | Cizalladura Shear kN | | Extracción Pull out kN | | Cizalladura Shear kN | | Extracción Pull out kN | | Cizalladura Shear kN | |
|---|------------------------------|------|----------------------------|------|------------------------------|------|----------------------------|------|------------------------------|------|----------------------------|------|------------------------------|------|----------------------------|------|
| | C20/25 | | C20/25 | | C30/37 | | C30/37 | | C40/50 | | C40/50 | | C50/60 | | C50/60 | |
| | std | red | std | red | std | red | std | red | std | red | std | red | std | red | std | red |
| 8x40 | 1,41 | - | 2,37 | - | 1,72 | - | 2,89 | - | 1,99 | - | 3,25 | - | 2,19 | - | 3,25 | - |
| 8x50 | 1,41 | - | 2,37 | - | 1,72 | - | 2,89 | - | 1,99 | - | 3,25 | - | 2,19 | - | 3,25 | - |
| 8x65 | 4,17 | 1,41 | 3,25 | 2,40 | 5,08 | 1,72 | 3,25 | 2,89 | 5,88 | 1,99 | 3,25 | 3,25 | 6,46 | 2,19 | 3,25 | 3,25 |
| 8x80 | 4,17 | 1,41 | 3,25 | 2,40 | 5,08 | 1,72 | 3,25 | 2,89 | 5,88 | 1,99 | 3,25 | 3,25 | 6,46 | 2,19 | 3,25 | 3,25 |
| 8x100 | 4,17 | 1,41 | 3,25 | 2,40 | 5,08 | 1,72 | 3,25 | 2,89 | 5,88 | 1,99 | 3,25 | 3,25 | 6,46 | 2,19 | 3,25 | 3,25 |
| 10x50 | 4,67 | - | 3,40 | - | 5,41 | - | 4,14 | - | 5,79 | - | 4,81 | - | 6,72 | - | 5,27 | - |
| 10x60 | 4,67 | - | 3,40 | - | 5,41 | - | 4,14 | - | 5,79 | - | 4,81 | - | 6,72 | - | 5,27 | - |
| 10x80 | 7,67 | 4,67 | 5,83 | 3,40 | 8,89 | 5,41 | 5,83 | 4,14 | 9,51 | 5,79 | 5,83 | 4,81 | 11,04 | 6,72 | 5,83 | 5,27 |
| 10x100 | 7,67 | 4,67 | 5,83 | 3,40 | 8,89 | 5,41 | 5,83 | 4,14 | 9,51 | 5,79 | 5,83 | 4,81 | 11,04 | 6,72 | 5,83 | 5,27 |
| 10x120 | 7,67 | 4,67 | 5,83 | 3,40 | 8,89 | 5,41 | 5,83 | 4,14 | 9,51 | 5,79 | 5,83 | 4,81 | 11,04 | 6,72 | 5,83 | 5,27 |
| 10x140 | 7,67 | 4,67 | 5,83 | 3,40 | 8,89 | 5,41 | 5,83 | 4,14 | 9,51 | 5,79 | 5,83 | 4,81 | 11,04 | 6,72 | 5,83 | 5,27 |
| 10x160 | 7,67 | 4,67 | 5,83 | 3,40 | 8,89 | 5,41 | 5,83 | 4,14 | 9,51 | 5,79 | 5,83 | 4,81 | 11,04 | 6,72 | 5,83 | 5,27 |

Las cargas de extracción y cizalladura que se muestran en la tabla son cargas características de las pruebas sin efecto de espaciado y distancia al borde.
 / Pull-out and shear showed in the table are characteristic loads from tests without edge and spacing effect.

1 kN = 100 kg