

ESCRFTZ

## Strukturell helgängad träskruv med cylinderhuvud

ESCRFTZ är en strukturella träskruv och finns tillgängliga i en rad olika dimensioner. ESCRFTZ är framtagen speciellt för korslimmat trä (KL-trä), limträkonstruktioner, balkförstärkning och generella applikationer inomhus eller i torr miljö.

### Egenskaper

#### Material

- Gulförzinkad ytbehandling för applikationer inomhus och i torra miljöer

#### Egenskaper

- Litet cylinderhuvud, kan försänkas i trä för dolda montage
- Helgängad för utmärkta utdragsvärden och hög lastkapacitet

### Användning

#### Applikationer

- Sammanfogning av KL-träpaneler: Vägg mot vägg, golv mot golv, splines etc.
- Andra generella applikationer i trä så som ramverk och bjälklag.

#### When to use

- Timber to timber assembly
- Timber reinforcement (to transversile tension or compression)
- **Crossed pair of screws assembly for optimal capacity**



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## Teknisk data

Mått



| Art. nr.       | Dimensioner [mm] |     |                |                |                | bit  | Box Quantity |
|----------------|------------------|-----|----------------|----------------|----------------|------|--------------|
|                | d                | l   | d <sub>h</sub> | d <sub>1</sub> | l <sub>g</sub> |      |              |
| ESCRFTZ8.0X120 | 8                | 120 | 10.2           | 5.2            | 110            | T-40 | 50           |
| ESCRFTZ8.0X140 |                  | 140 | 10.2           | 5.2            | 130            | T-40 | 50           |
| ESCRFTZ8.0X160 |                  | 160 | 10.2           | 5.2            | 150            | T-40 | 50           |
| ESCRFTZ8.0X180 |                  | 180 | 10.2           | 5.2            | 170            | T-40 | 50           |
| ESCRFTZ8.0X200 |                  | 200 | 10.2           | 5.2            | 190            | T-40 | 50           |
| ESCRFTZ8.0X220 |                  | 220 | 10.2           | 5.2            | 210            | T-40 | 50           |
| ESCRFTZ8.0X240 |                  | 240 | 10.2           | 5.2            | 230            | T-40 | 50           |
| ESCRFTZ8.0X260 |                  | 260 | 10.2           | 5.2            | 250            | T-40 | 50           |
| ESCRFTZ8.0X280 |                  | 280 | 10.2           | 5.2            | 270            | T-40 | 50           |
| ESCRFTZ8.0X300 |                  | 300 | 10.2           | 5.2            | 290            | T-40 | 50           |
| ESCRFTZ8.0X350 |                  | 350 | 10.2           | 5.2            | 340            | T-40 | 50           |
| ESCRFTZ8.0X400 |                  | 400 | 10.2           | 5.2            | 390            | T-40 | 50           |

Produktkaraktäristiska egenskaper

| Art. nr. | Yield Moment – M <sub>y,k</sub><br>[Nm] | Karakteristisk extrahering parameter - f <sub>ax,k,90°</sub><br>[N/mm <sup>2</sup> ] | Karakteristisk dragkraftstyrke - f <sub>tens,k</sub><br>[kN] | Torsional Strength f <sub>tor,k</sub><br>[kN] |
|----------|-----------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------|
| ESCRFTZ8 | 20.3                                    | 13.1                                                                                 | 24.1                                                         | 25.8                                          |

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## Montering

Spacing and Edge distances - Shear loaded screws

| Art. nr. | Minimum edge distances and spacing for shear loaded screws [mm] |                  |                    |                    |                    |                    |                                    |                   |                     |                     |                     |                     |
|----------|-----------------------------------------------------------------|------------------|--------------------|--------------------|--------------------|--------------------|------------------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|
|          | Angle between load and grain = 0°                               |                  |                    |                    |                    |                    | Angle between load and grain = 90° |                   |                     |                     |                     |                     |
|          | a <sub>1.0</sub>                                                | a <sub>2.0</sub> | a <sub>3.t.0</sub> | a <sub>3.c.0</sub> | a <sub>4.t.0</sub> | a <sub>4.c.0</sub> | a <sub>1.90</sub>                  | a <sub>2.90</sub> | a <sub>3.t.90</sub> | a <sub>3.c.90</sub> | a <sub>4.t.90</sub> | a <sub>4.c.90</sub> |
| ESCRFTZ8 | 40                                                              | 32               | 80                 | 32                 | 24                 | 24                 | 32                                 | 32                | 80                  | 56                  | 32                  | 24                  |

a<sub>1</sub> and a<sub>2</sub> can be multiplied by 0.85 for panel/timber assembly, and by 0.7 for steel/timber assembly.

Spacing and edge distances - Axially loaded screws

| Art. nr. | Minimum edge distances and spacing for axially loaded screws [mm] |                |                  |                  |
|----------|-------------------------------------------------------------------|----------------|------------------|------------------|
|          | a <sub>1</sub>                                                    | a <sub>2</sub> | a <sub>3.c</sub> | a <sub>4.c</sub> |
| ESCRFTZ8 | 40                                                                | 40             | 40               | 32               |

ESCRFTZ

Strukturell helgängad träskruv med cylinderhuvud

## Bärförmåga

Timber to Timber characteristic capacities

| Art. nr.       | Product characteristic capacities - Timber to Timber C24 |                           |                                                                                         |            |            |            |            |            |              |                                                                                               |            |            |            |            |            |              |
|----------------|----------------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|--------------|-----------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|--------------|
|                | Axial resistance                                         |                           | Shear resistance parallel to the grain depending of $t_1$<br>[R <sub>v.0.k</sub> ] [kN] |            |            |            |            |            |              | Shear resistance perpendicular to the grain depending of $t_1$<br>[R <sub>v.90.k</sub> ] [kN] |            |            |            |            |            |              |
|                | $t_1$<br>[mm]                                            | R <sub>ax.k</sub><br>[kN] | 35<br>[mm]                                                                              | 40<br>[mm] | 45<br>[mm] | 60<br>[mm] | 75<br>[mm] | 80<br>[mm] | ≥100<br>[mm] | 35<br>[mm]                                                                                    | 40<br>[mm] | 45<br>[mm] | 60<br>[mm] | 75<br>[mm] | 80<br>[mm] | ≥100<br>[mm] |
| ESCRFTZ8.OX120 | 60                                                       | 5.24                      | 4.47                                                                                    | 4.68       | 4.68       | 4.68       | 4.68       | 4.68       | -            | 3.63                                                                                          | 3.82       | 4.02       | 4.09       | 4.02       | 3.82       | -            |
| ESCRFTZ8.OX140 | 70                                                       | 6.29                      | 4.74                                                                                    | 4.94       | 4.94       | 4.94       | 4.94       | 4.94       | 4.94         | 3.9                                                                                           | 4.09       | 4.29       | 4.35       | 4.35       | 4.35       | 4.09         |
| ESCRFTZ8.OX160 | 80                                                       | 7.34                      | 5                                                                                       | 5.2        | 5.2        | 5.2        | 5.2        | 5.2        | 5.2          | 4.16                                                                                          | 4.35       | 4.55       | 4.61       | 4.61       | 4.61       | 4.61         |
| ESCRFTZ8.OX180 | 90                                                       | 8.38                      | 5.26                                                                                    | 5.46       | 5.46       | 5.46       | 5.46       | 5.46       | 5.46         | 4.42                                                                                          | 4.61       | 4.81       | 4.87       | 4.87       | 4.87       | 4.87         |
| ESCRFTZ8.OX200 | 100                                                      | 9.43                      | 5.52                                                                                    | 5.73       | 5.73       | 5.73       | 5.73       | 5.73       | 5.73         | 4.65                                                                                          | 4.87       | 5.07       | 5.14       | 5.14       | 5.14       | 5.14         |
| ESCRFTZ8.OX220 | 110                                                      | 10.48                     | 5.78                                                                                    | 5.99       | 5.99       | 5.99       | 5.99       | 5.99       | 5.99         | 4.65                                                                                          | 5.03       | 5.33       | 5.4        | 5.4        | 5.4        | 5.4          |
| ESCRFTZ8.OX240 | 120                                                      | 11.53                     | 6.05                                                                                    | 6.25       | 6.25       | 6.25       | 6.25       | 6.25       | 6.25         | 4.65                                                                                          | 5.03       | 5.43       | 5.56       | 5.56       | 5.56       | 5.56         |
| ESCRFTZ8.OX260 | -                                                        | -                         | -                                                                                       | -          | -          | -          | -          | -          | -            | -                                                                                             | -          | -          | -          | -          | -          | -            |
| ESCRFTZ8.OX280 | -                                                        | -                         | -                                                                                       | -          | -          | -          | -          | -          | -            | -                                                                                             | -          | -          | -          | -          | -          | -            |
| ESCRFTZ8.OX300 | 150                                                      | 14.67                     | 6.33                                                                                    | 6.74       | 6.74       | 6.74       | 6.74       | 6.74       | 6.74         | 4.65                                                                                          | 5.03       | 5.43       | 5.56       | 5.56       | 5.56       | 5.56         |
| ESCRFTZ8.OX350 | -                                                        | -                         | -                                                                                       | -          | -          | -          | -          | -          | -            | -                                                                                             | -          | -          | -          | -          | -          | -            |
| ESCRFTZ8.OX400 | -                                                        | -                         | -                                                                                       | -          | -          | -          | -          | -          | -            | -                                                                                             | -          | -          | -          | -          | -          | -            |

These capacities are valid for:

- Timber element under the head with thickness  $\leq t_1$  disclosed in adjacent column
- Screw axis between 45° and 90° from timber grain for ESCR(XXX), and 90° from timber grain for all other screws.

For tightening screws (partially threaded),  $t_1$  dimension is the maximum thickness of the under-head timber member for which the thread is fully in the pointside timber member, for an optimum installation and tightening.

The shear capacities are given for several timber thicknesses  $t_1$  of the under-head member under the following configurations:

- Load axis at 0° from both timber grains R<sub>v,0°.k</sub>
- Load axis at 90° from both timber grains R<sub>v,90°.k</sub>

These capacities are valid for C24 timber grades or higher

The pre-drilled hypothesis for capacity and distances calculation is fulfilled.

For partial threaded screws, capacities are only given for configurations where the thread is less than 5mm in under-head timber member, in order to achieve optimum installation and tightening.

Clause (2) in 8.3.1.2 from EN1995-1-1:2004+A2:2014 about embedment length is ignored in these calculations.

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Crossed pairs of screws - characteristic capacities

| Art. nr.       | Crossed pair of screws - characteristic capacities |                |                |                  |                       |            |                                                                                                              |                          |                       |                          |
|----------------|----------------------------------------------------|----------------|----------------|------------------|-----------------------|------------|--------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|--------------------------|
|                | Header                                             | Joist          |                |                  | Installation distance |            | Characteristic capacities (Pull-out / Buckling) $R_{v, pair} = \min(R_{w, k, pair}; R_{buck, k, pair})$ [kN] |                          |                       |                          |
|                | $b_h$ min [mm]                                     | $h_j$ min [mm] | 1 pair         | 2 pairs          | m [mm]                | $m_i$ [mm] | 1 pair                                                                                                       |                          | 2 pairs               |                          |
|                |                                                    |                | $b_j$ min [mm] | $b_j$ min 2 [mm] |                       |            | $R_{w, k, pair}$ [kN]                                                                                        | $R_{buck, k, pair}$ [kN] | $R_{w, k, pair}$ [kN] | $R_{buck, k, pair}$ [kN] |
| ESCRFTZ8.0X120 | 64                                                 | 128            | 84             | 124              | 68                    | 73         | 7.41                                                                                                         | 3.7 + 13.99 /kmod        | 13.82                 | 6.91 + 26.11 /kmod       |
| ESCRFTZ8.0X140 | 64                                                 | 128            | 84             | 124              | 68                    | 73         | 8.89                                                                                                         | 4.44 + 13.99 /kmod       | 16.59                 | 8.29 + 26.11 /kmod       |
| ESCRFTZ8.0X160 | 67                                                 | 128            | 84             | 124              | 68                    | 73         | 10.37                                                                                                        | 5.18 + 13.99 /kmod       | 19.35                 | 9.67 + 26.11 /kmod       |
| ESCRFTZ8.0X180 | 74                                                 | 140            | 84             | 124              | 68                    | 73         | 11.85                                                                                                        | 5.92 + 13.99 /kmod       | 22.12                 | 11.06 + 26.11 /kmod      |
| ESCRFTZ8.0X200 | 81                                                 | 154            | 84             | 124              | 75                    | 80         | 13.33                                                                                                        | 6.66 + 13.99 /kmod       | 24.89                 | 12.44 + 26.11 /kmod      |
| ESCRFTZ8.0X220 | 88                                                 | 168            | 84             | 124              | 82                    | 87         | 14.82                                                                                                        | 7.41 + 13.99 /kmod       | 27.65                 | 13.82 + 26.11 /kmod      |
| ESCRFTZ8.0X240 | 95                                                 | 182            | 84             | 124              | 89                    | 94         | 16.3                                                                                                         | 8.15 + 13.99 /kmod       | 30.42                 | 15.21 + 26.11 /kmod      |
| ESCRFTZ8.0X260 | 102                                                | 196            | 84             | 124              | 96                    | 101        | 17.78                                                                                                        | 8.89 + 13.99 /kmod       | 33.18                 | 16.59 + 26.11 /kmod      |
| ESCRFTZ8.0X280 | 109                                                | 210            | 84             | 124              | 103                   | 108        | 19.26                                                                                                        | 9.63 + 13.99 /kmod       | 35.95                 | 17.97 + 26.11 /kmod      |
| ESCRFTZ8.0X300 | 117                                                | 225            | 84             | 124              | 111                   | 116        | 20.74                                                                                                        | 10.37 + 13.99 /kmod      | 38.71                 | 19.35 + 26.11 /kmod      |
| ESCRFTZ8.0X350 | 134                                                | 260            | 84             | 124              | 128                   | 133        | 24.45                                                                                                        | 12.22 + 13.99 /kmod      | 45.63                 | 22.81 + 26.11 /kmod      |
| ESCRFTZ8.0X400 | 152                                                | 295            | 84             | 124              | 146                   | 151        | 28.15                                                                                                        | 14.07 + 13.99 /kmod      | 52.54                 | 26.27 + 26.11 /kmod      |

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