

SKR-CE | SKS-CE



SCREW ANCHOR FOR CONCRETE CE1

SEISMIC PERFORMANCE

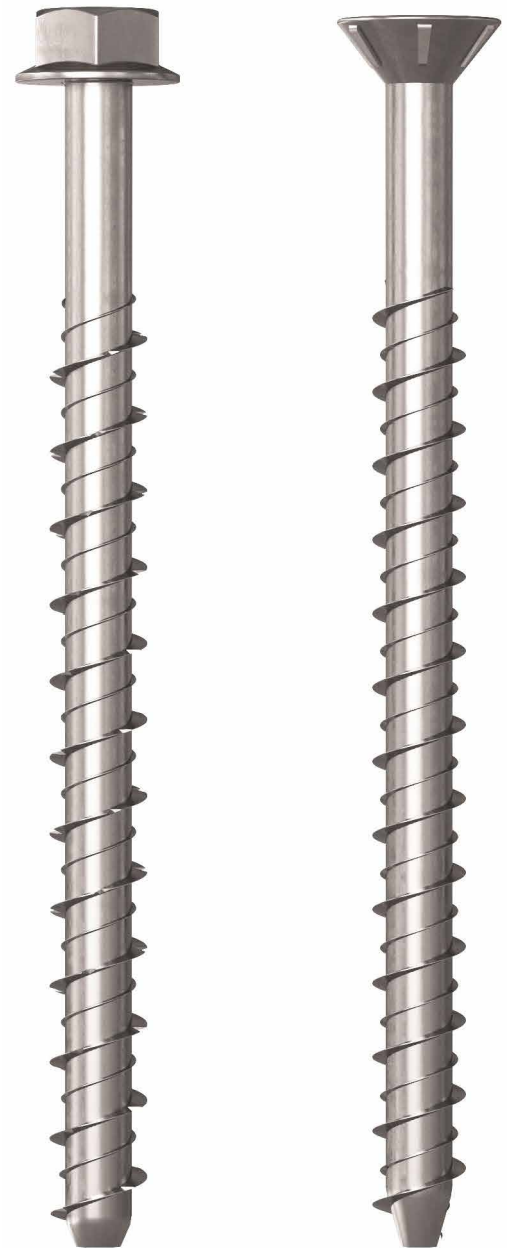
Certified for applications on cracked and non-cracked concrete and in performance class for seismic actions C1 (M10-M16) and C2 (M12-M16).

IMMEDIATE STRENGTH

Its operating principle allows the load to be applied after zero waiting times.

FIRE RESISTANCE

Certified for fire exposure class R120 according to Technical Report TR 020.



CHARACTERISTICS

| | |
|----------|---------------------------|
| FOCUS | screw for concrete |
| HEAD | hexagonal and countersunk |
| DIAMETER | from 7,5 to 16,0 mm |
| LENGTH | from 60 to 400 mm |



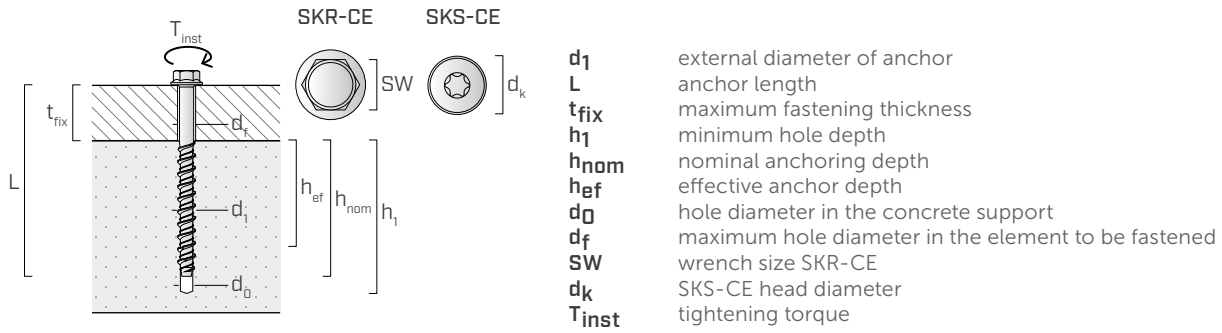
MATERIAL

Carbon steel with zinc coating.

FIELDS OF USE

Fastening of timber or steel elements to concrete supports. Service classes 1 and 2.

SKR-CE - SKS-CE GEOMETRY



CODES AND DIMENSIONS

SKR-CE hexagonal head with mock washer

| CODE | d_1 [mm] | L [mm] | t_{fix} [mm] | $h_{1,min}$ [mm] | h_{nom} [mm] | h_{ef} [mm] | d_0 [mm] | d_f [mm] | SW [mm] | T_{inst} [Nm] | pcs |
|------------|---------------|-------------|-------------------|---------------------|-------------------|------------------|---------------|---------------|--------------|--------------------|-----|
| SKR8100CE | 8 | 100 | 40 | 75 | 60 | 48 | 6 | 9 | 10 | 20 | 50 |
| SKR1080CE | | 80 | 10 | 85 | 70 | 56 | 8 | 12 | 13 | 50 | 50 |
| SKR10100CE | 10 | 100 | 30 | 85 | 70 | 56 | 8 | 12 | 13 | 50 | 25 |
| SKR10120CE | | 120 | 50 | 85 | 70 | 56 | 8 | 12 | 13 | 50 | 25 |
| SKR1290CE | | 90 | 10 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 25 |
| SKR12110CE | | 110 | 30 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 25 |
| SKR12150CE | | 150 | 70 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 25 |
| SKR12210CE | 12 | 210 | 130 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 20 |
| SKR12250CE | | 250 | 170 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 15 |
| SKR12290CE | | 290 | 210 | 100 | 80 | 64 | 10 | 14 | 15 | 80 | 15 |
| SKR16130CE | 16 | 130 | 20 | 140 | 110 | 85 | 14 | 18 | 21 | 160 | 10 |

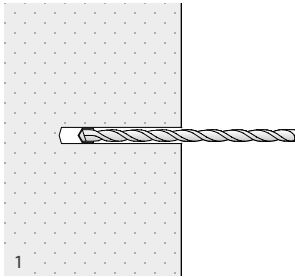
SKS-CE countersunk head

| CODE | d_1 [mm] | L [mm] | t_{fix} [mm] | $h_{1,min}$ [mm] | h_{nom} [mm] | h_{ef} [mm] | d_0 [mm] | d_f [mm] | d_k [mm] | TX | T_{inst} [Nm] | pcs |
|------------|---------------|-------------|-------------------|---------------------|-------------------|------------------|---------------|---------------|---------------|------|--------------------|-----|
| SKS75100CE | 8 | 100 | 40 | 75 | 60 | 48 | 6 | 9 | 16 | TX30 | 20 | 50 |
| SKS10100CE | 10 | 100 | 30 | 85 | 70 | 56 | 8 | 12 | 20 | TX40 | 50 | 50 |

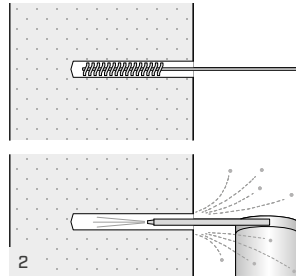
TECHNICAL FEATURES

- CE option 1 for cracked and uncracked concrete
- Seismic performance category C1 (M10-M16) and C2 (M12-M16)
- Flanged head with self-locking knurling (SKR-CE)
- Fire resistance R120
- Through fastening
- No fastener expansion

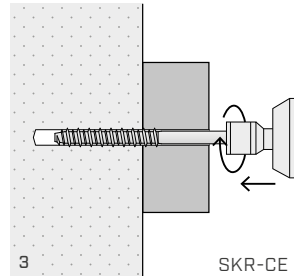
ASSEMBLY



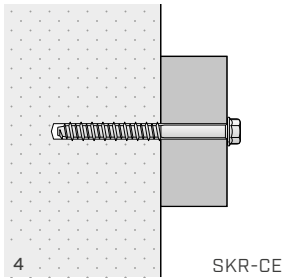
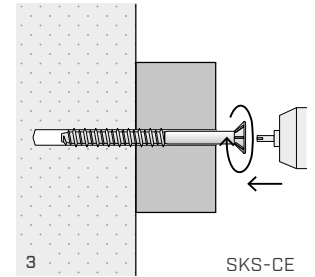
Drill a hole in rotary percussion mode



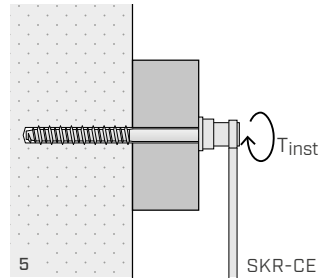
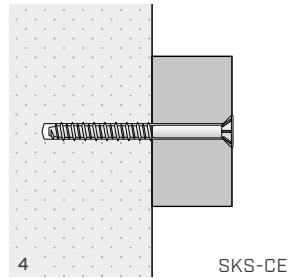
Clean the hole



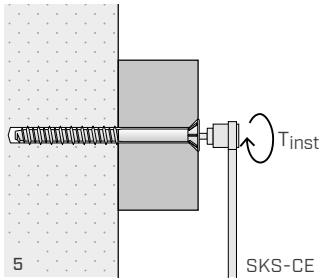
Position the object to be fixed and install the screw with a pulse screw gun



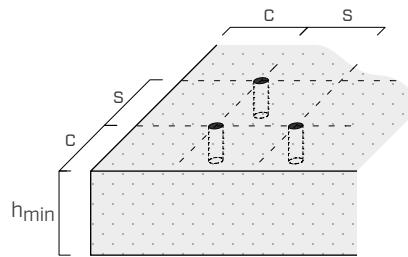
Make certain that the screw head is in complete contact with the object to be fixed



Check the tightening torque T_{inst}



INSTALLATION



| | | | SKR-CE/SKS-CE | | | |
|---------------------------------------|-------------------|------|---------------|-----|-----|-----|
| Spacing and minimum distances | | | Ø8 | Ø10 | Ø12 | Ø16 |
| Minimum spacing | s_{min} | [mm] | 45 | 50 | 60 | 80 |
| Minimum edge distance | c_{min} | [mm] | 45 | 50 | 60 | 80 |
| Minimum thickness of concrete support | h_{min} | [mm] | 100 | 110 | 130 | 170 |
| Spacing and critical distances | | | Ø8 | Ø10 | Ø12 | Ø16 |
| Critical spacing | $s_{cr,N}^{(1)}$ | [mm] | 144 | 168 | 192 | 255 |
| | $s_{cr,sp}^{(2)}$ | [mm] | 160 | 175 | 195 | 255 |
| Critical edge distance | $c_{cr,N}^{(1)}$ | [mm] | 72 | 84 | 96 | 128 |
| | $c_{cr,sp}^{(2)}$ | [mm] | 80 | 85 | 95 | 130 |

For spacing and distances smaller than the critical ones, strength values have to be reduced depending on the installation parameters.

STRUCTURAL VALUES

Valid for a single anchor in thickened C20/25 grade concrete with a thin reinforcing layer when spacing and edge-distance are not limiting parameters.

CHARACTERISTIC VALUES

| | | UNCRACKED CONCRETE | | | | CRACKED CONCRETE | | | |
|--------|----|------------------------|---------------|----------------------|---------------|------------------------|---------------|--------------------------|------------------|
| | | tension ⁽³⁾ | | shear ⁽⁴⁾ | | tension ⁽³⁾ | | shear | |
| | | $N_{Rk,p}$ [kN] | γ_{Mp} | $V_{Rk,s}$ [kN] | γ_{Ms} | $N_{Rk,p}$ [kN] | γ_{Mp} | $V_{Rk,s/Rk,cp}$ [kN] | $\gamma_{Ms,Mc}$ |
| SKR-CE | 8 | 16 | 2,1 | 9,4 | 1,5 | 4 | 2,1 | 9,4 ⁽⁴⁾ | 1,5 |
| | 10 | 20 | 1,8 | 20,1 | 1,5 | 7,5 | 1,8 | 15,1 ⁽⁵⁾ | 1,5 |
| | 12 | 25 | 2,1 | 32,4 | 1,5 | 9 | 2,1 | 32,4 ⁽⁴⁾ | 1,5 |
| | 16 | 40 | 2,1 | 56,9 | 1,5 | 16 | 2,1 | 56,4 ⁽⁵⁾ | 1,5 |
| SKS-CE | 8 | 16 | 2,1 | 9,4 | 1,5 | 4 | 2,1 | 9,4 ⁽⁴⁾ | 1,5 |
| | 10 | 20 | 1,8 | 20,1 | 1,5 | 7,5 | 1,8 | 20,1 ⁽⁴⁾ | 1,5 |

| incremental factor for $N_{Rk,p}$ ⁽⁶⁾ | | |
|--|--------|------|
| ψ_c | C30/37 | 1,22 |
| | C40/50 | 1,41 |
| | C50/60 | 1,58 |

NOTES:

- (1) Concrete cone failure mode.
- (2) Splitting failure mode.
- (3) Pull-out failure mode.
- (4) Steel failure mode ($V_{Rk,s}$).
- (5) Pry-out failure mode ($V_{Rk,cp}$).
- (6) Tensile-strength increment factor (excluding steel failure).

GENERAL PRINCIPLES:

- Characteristic values according to ETA-18/0279 or ETA-19/0100.
- The design values are obtained from the characteristic values as follows:
 $R_d = R_k/\gamma_M$.
Coefficients γ_M are listed in the table in accordance with the failure characteristics and product certificates.
- For the calculation of anchors with reduced spacing, or too close to the edge, please refer to ETA. Similarly, in case of fastening on concrete-supports with a better-grade, limited thickness or a thick reinforcing layer please see ETA.
- When designing anchors under seismic load please refer to the ETA referral document and information in the EOTA Technical Report 045.
- For the calculation of anchors subjected to fire refer to the ETA and the Technical Report 020.