Vorpa **CSB COMBI**

Steel anchor with European Technical Assesment for cracked concrete

cracked concrete

products group

CSB COMBI
thread M8/M10

Approvato per
- cracked and non cracked concrete
- multiple use for non structural applications for cracked and non cracked concrete and pre-stressed hollow core slabs

Per ancorare
- industrial systems
- structural fixings
- profiles
- pipes
- plants engineering
- structural fixings

Idoneo anche per
- natural stone
- solid brick

EAD 330232-00-0601
for cracked and non cracked concrete

ETAG 001-046
for multiple use for non structural applications for cracked and non cracked concrete and pre-stressed hollow core slabs

R30-R120

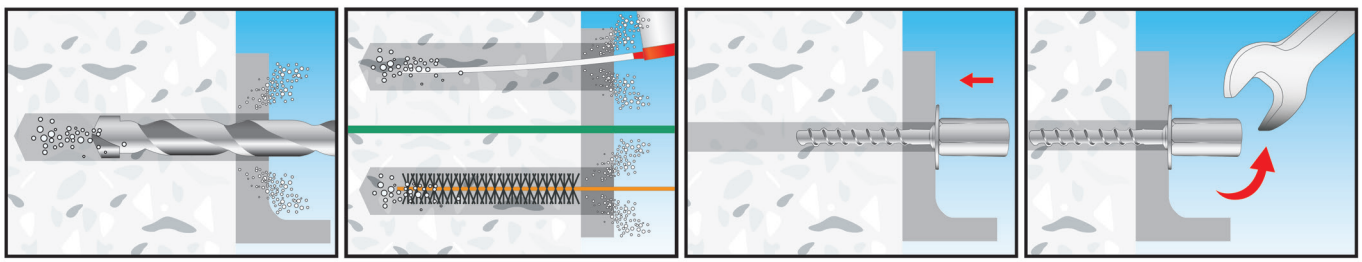
product information

Characteristics
- steel screw with European Technical Assesment for cracked concrete and multiple use for non structural applications for pre-stressed hollow core slabs.
- reduced hole diameter
- vibrations resistance
- ideal for permanent and removable fixing both inside and outside
- virtually expansion-free operation allows cost-efficient fixing with small axial spacing and edge distances.
- fire resistance ratings R30–R120

Installation
- through-setting anchor

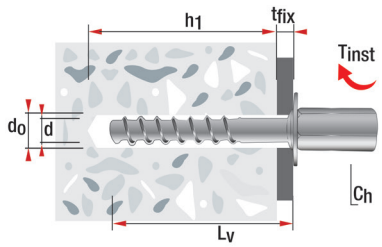
Suggestion for use
- choose the right size of the anchor according to the load
- always check load bearing capacity values in the table
- respect the installation data
- **clean the hole before the installation**

installation sequence



product code and technical data

Code	Description	t_{fix} mm	d_o mm	T_{inst} Nm	Ch	C_{min} mm	S_{min} mm
91151	CSB CE COMBI 6x35	-	6	10	13	40	40
91152	CSB CE COMBI 6x55	20	6	10	13	40	40



h_1 = Minimum depth of drill hole
L_v = Screw length
d_o = Drill hole diameter
d_v = Screw diameter
d_f = Diameter of clearance hole in the fixture
t_{fix} = Maximum thickness of fixture
T_{inst} = Torque moment
Ch = Spanner

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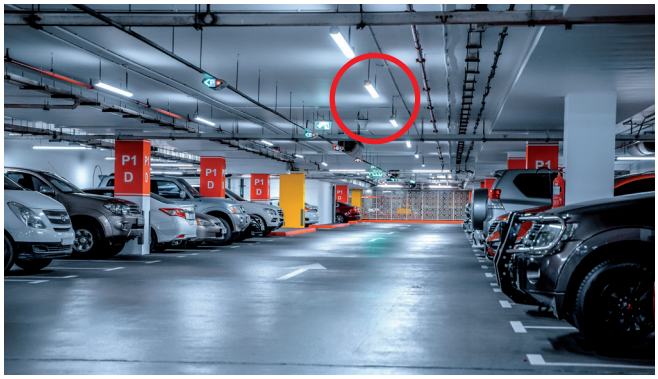
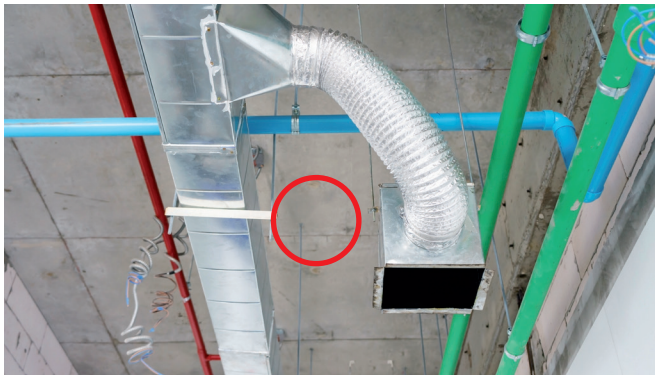
installation data

CSB COMBI			CSB COMBI 6x35		CSB COMBI 6x55	
Installation data						
Embedment depth	h_{nom}	mm	*35	*35	40	55
Fixture thickness	T_{fix}	mm	0	20	15	0
Hole diameter	d_o	mm	6	6	6	6
Hole depth	h_1	mm	40	40	45	60
Torque moment	T_{inst}	Nm	≤10	≤10	≤10	≤10
Hole diameter in the fixture	d_f	mm	8	8	8	8
Critical axial spacing	$S_{cr,N}$	mm	81	81	93	132
Critical edge distance	$C_{cr,N}$	mm	40,5	40,5	46,5	66
Minimum axial spacing	S_{min}	mm	35	35	40	40
Minimum edge distance	C_{min}	mm	35	35	40	40
Minimum structural thickness	h_{min}	mm	80	80	100	100
Characteristic values application in concrete non-cracked C20/C25						
Embedment depth	h_{nom}	mm	*35	*35	40	55
Pull out failuree	$N_{rk,P}$ C20/25	KN	3,0	3,0	4,0	9,0
ψc C30		KN	1,22	1,22	1,22	1,22
ψc C40		KN	1,41	1,41	1,41	1,41
ψc C50		KN	1,58	1,58	1,58	1,58
Characteristic values application in concrete cracked C20/C25						
Embedment depth	h_{nom}	mm	*35	*35	40	55
Pull out failure	$N_{rk,P}$ C20/25	KN	3,0	3,0	2,0	4,0
ψc C30		KN	1,22	1,22	1,22	1,22
ψc C40		KN	1,41	1,41	1,41	1,41
ψc C50		KN	1,58	1,58	1,58	1,58
Shear failure	$V_{Rk,S}$ C20/25	KN	7,0	7,0	7,0	7,0
Bending moment	$M_{RK,S}$	KN	10,9	10,9	10,9	10,9
Values with reduction factor						
Pull out failure non cracked concrete	$N_{rk,P}$	KN	2,0	2,0	2,6	6,0
Pull out failure cracked concrete	$N_{rk,P}$	KN	2,0	2,0	1,3	2,6
Shear failure	$V_{Rk,S}$	KN	5,6	5,6	5,6	5,6
Bending moment	$M_{RK,S}$	KN	8,7	8,7	8,7	8,7
Recommended loads						
Pull out failure non cracked concrete	$N_{rk,P}$	KN	1,40	1,40	1,80	4,2
Pull out failure cracked concrete	$N_{rk,P}$	KN	1,40	1,40	0,9	1,80
Shear failure	$V_{Rk,S}$	KN	4,0	4,0	4,0	4,0
Bending moment	$M_{RK,S}$	KN	6,2	6,2	6,2	6,2

* h_{nom}=35mm: Only for multiple use in non structural application. See ETA

Examples of applications





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