

Torque Controlled anchors VSP

Intended use of the construction product according to EAD 330232-00-0601	
Generic type	Torque controlled expansion anchor
Base material	Non cracked concrete C20/25 a C50/60 - EN 206-1:2003
Material	Zincplated steel
Durability	Internal dry condition
Loads	Static, quasi-static
Manufacturer information	
VORPA s.r.l. Vial San Leo, 5 – 47838 – Riccione (RN) – ITALY Tel. +39 0541/607111 vorpa@vorpa.com – www.vorpa.com	
Certificate information	
ETA 17/0871 issued by (issued 22-11-2017)	ITeC Institut de Tecnologia de la Construcció de Catalunya Wellington 19 – ES08018 Barcelona
On the basis of	EAD 330232-00-0601 / 10/2016
Certificate of conformity 1220-CPR-1670 Issued by	ITeC Institut de Tecnologia de la Construcció de Catalunya Wellington 19 – ES08018 Barcelona
Under system	1

Declared performance according to EAD 330232-00-0601							
Essential Characteristics			Performance				
			M6	M8	M10	M12	M16
Installation parameters							
d_0	Nominal diameter of drill bit	[mm]	10	12	15	18	24
h_{ef}	Effective anchorage depth	[mm]	49	59	67	88	99
h_{nom}	Minimum installation depth	[mm]	60	70	79	102	113
h_{min}	Minimum thickness of the concrete member	[mm]	100	125	135	190	220
T_{inst}	Setting torque	[Nm]	10	25	50	80	150
s_{min}	Minimum spacing	[mm]	100	120	140	180	240
c_{min}	Minimum edge distance	[mm]	70	80	90	110	130
Tension – Steel failure							
$N_{Rk,s}$	Tension steel characteristic failure	[kN]	11	20	49	64	126
$\gamma_{m,sN}$	Partial safety factor	[-]	1.5				
Pull-out failure							
$N_{Rk,p,ucr}$	Tension characteristic load in non cracked concrete C20/25	[kN]	9	12	16	25	40
γ_2	Partial safety factor	[-]	1.0	1.2	1.2	1.0	1.2
γ_{mP}	Partial safety factor	[-]	1.8	2.16	2.16	1.8	2.16
$s_{cr,N}$	Critical spacing	[mm]	210	250	290	390	420
$c_{cr,N}$	Critical edge distance	[mm]	140	200	220	260	280
ψ_c C30/37	Increasing factor for concrete C30/37	[-]	1.22				

Ψ_c C40/50	Increasing factor for concrete C40/50	[-]	1.41				
Ψ_c C50/60	Increasing factor for concrete C50/60	[-]	1.55				
Splitting failure							
$S_{cr,sp}$	Critical spacing (splitting)	[mm]	210	250	290	390	420
$C_{cr,sp}$	Critical edge distance (splitting)	[mm]	140	200	220	260	280
Displacement on Tension load							
N_{ucr}	Service tension load in non cracked concrete	[kN]	3.6	4.0	5.3	9.9	13.2
$\delta_{NO,ucr}$	Short term displacement under tension load	[mm]	0.06	0.07	0.11	0.17	0.23
$\delta_{N\infty,ucr}$	Long term displacement under tension load	[mm]	-	-	1.47	-	-
Shear – Steel failure							
$V_{Rk,s}$	Shear characteristic failure	[kN]	8.0	16.8	25	33.7	62.8
$\gamma_{m,sV}$	Partial safety factor	[-]	1.25				
$M^0_{Rk,s}$	Bending moment characteristic failure	[Nm]	12	30	60	105	266
$\gamma_{m,sV}$	Partial safety factor	[-]	1.25				
Shear – Concrete edge failure							
l_{ef}	Effective anchorage length	[mm]	49	59	67	88	99
Displacement on shear load							
V	Service shear load in non cracked concrete	[kN]	4.6	9.6	14.3	19.3	35.9
δ_{V0}	Short term displacement under shear load	[mm]	2.3	3.7	3.8	4.0	4.1
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	3.5	5.6	5.7	6.0	6.2

The above performance apply for the following article numbers:

Code		d [mm]	d0 / tfix [mm]
VS-P V	VS-P B		
8860	9860	M6	Ø10/10
8861	9861		Ø10/20
8862	9862		Ø10/50
8864	9864	M8	Ø12/10
8865	9865		Ø12/20
8866	9866		Ø12/50
8868	9868	M10	Ø15/10
8869	9869		Ø15/20
8870	9870		Ø15/50
8872	9872	M12	Ø18/10
8873	9873		Ø18/25
8874	9874		Ø18/50
8875	9875		Ø18/100
8877	9877	M16	Ø24/25
8878	9878		Ø24/50

The performances of the product identified by the above identification code are in conformity with the declared performances.

This declaration of performance is issued on the basis of the European regulation (EU) N. 305/2011, under the sole responsibility of the indicated Manufacturer.

Signed for and in behalf of the manufacturer by:

Name and function	Place and date	Signature
Roberto Vorabbi Legale Rappresentante	Riccione, 14/12/2017	