

Declaration of Performance

According to Annex III of the Regulation (EU) Nr.305/2011
(Construction Products Regulation).

Walraven Drop-in Anchor WDI2R

DoP No. 22/0629-WDI2R

- 1. Unique identification code of the product-type:**
Walraven Drop-in Anchor WDI2R, Item numbers: 6103310825, 6103310825, 6103311225
- 2. Intended use/es:**
Metal anchors for use in concrete (light-duty type): for use in redundant systems for fixing and/or supporting to concrete elements, such as lightweight suspended ceilings, as well as installations.
- 3. Manufacturer:**
J. van Walraven Holding B.V., Industrieweg 5, 3641 RK Mijdrecht, The Netherlands
- 4. System/s of AVCP:**
System 2+
- 5. European Assessment Document:** EAD 330747-00-0601 "Fasteners for use in concrete for redundant non-structural systems", May 2018.
European Technical Assessment: ETA - 22/0629 (30/09/2022).
Technical Assessment Body: Instituto de Ciencias de la Construcción Eduardo Torroja
Notified body: 1219.
- 6. Declared performance/s:**

Essential Characteristic	Performance	Harmonized Technical Specification
Safety in use (BWR 4)		
Characteristic resistance for all load directions	See Annex C4 and C6, ETA-22/0629	EAD 330747-00-0601
Edge and spacing	See Annex C1 and C2, ETA-22/0629	EAD 330747-00-0601
Safety in case of fire (BWR 2)		
Resistance to fire	See Annex C7, ETA-22/0629	EOTA TR020
Reaction to Fire	Anchors satisfy requirements for Class A1	EN 13501-1

- 7. Appropriate Technical Documentation and/or Specific Technical Documentation:**
N/A
- 8. The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.**

Signed for and on behalf of the manufacturer by:

Frank Nijdam
Co-CEO
J. van Walraven Holding B.V.

Signature

Date 16-01-2025
Place: Mijdrecht

Table C3: Essential characteristics in concrete to loads of design method B according to EN 1992-4 for WDI2, WDI2L, WDI2R anchor

Essential characteristics of resistance to loads of design method B		Performances						
		M6	M8	M10	M12	M12D	M16	M20
Any load direction								
WDI2, WDI2L								
F^{0}_{Rk}	Characteristic resistance in C12/15 concrete: [kN]	1.5	3.0	4.0	6.0	--	9.0	16.0
F^{0}_{Rk}	Characteristic resistance in C20/25 to C50/60 concrete: [kN]	2.0	3.0	5.0	7.5	6.0	12.0	20.0
γ_{ins}	Installation safety factor: [-]	1.2	1.2	1.4	1.4	1.4	1.4	1.4
S_{cr}	Critical spacing: [mm]	75	90	120	150	200	195	240
C_{cr}	Critical edge distance: [mm]	40	45	60	75	150	100	120
WDI2R								
F^{0}_{Rk}	Characteristic resistance in C20/25 to C50/60 concrete: [kN]	--	2.5	4.0	4.0	--	--	--
γ_{ins}	Installation safety factor: [-]	--	1.2	1.2	1.2	--	--	--
S_{cr}	Critical spacing: [mm]	--	120	120	120	--	--	--
C_{cr}	Critical edge distance: [mm]	--	60	60	60	--	--	--
Shear loads: steel failure with lever arm								
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 4.6 [Nm]	6.1	15.0	29.9	52.4	52.4	133.3	259.8
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.67						
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 4.8 [Nm]	6.1	15.0	29.9	52.4	52.4	133.3	259.8
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.25						
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 5.6 [Nm]	7.6	18.8	37.4	65.5	65.5	166.6	324.8
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.67						
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 5.8 [Nm]	7.6	18.8	37.4	65.5	65.5	166.6	324.8
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.25						
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 6.8 [Nm]	9.2	22.5	44.9	78.7	78.7	199.9	389.7
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.25						
$M^{0}_{Rk,s}$	Characteristic bending moment, steel class 8.8 [Nm]	12.2	30.0	59.9	104.9	104.9	266.6	519.7
$\gamma_{Ms}^{1)}$	Partial safety factor: [-]	1.25						

1) In absence of other national regulations

WDI2, WDI2L, WDI2R anchor

Performances

Essential characteristics in concrete

Annex C4

Table C5: Essential characteristic in precast prestressed hollow core slabs to loads of design method B according to EN 1992-4 for WDI2R anchor

Essential characteristics of resistance to loads of design method B			Performances						
			M6	M8	M10	M12	M12D	M16	M20
Any load direction									
WDI2R									
F_{Rk}^0	Characteristic resistance in prestressed hollow core concrete slabs C30/37 to C50/60:	[kN]	--	5,5	6,0	6,5	--	--	--
γ_{Fs}	Installation safety factor:	(-)	--	1.2	1.4	1.4	--	--	--
S_{Cr}	Critical spacing:	[mm]	--	200	200	200	--	--	--
C_{Cr}	Critical edge distance:	[mm]	--	150	150	150	--	--	--
Shear loads: steel failure with lever arm									
$M_{Rk,s}^0$	Characteristic bending moment, steel class 4.6	[Nm]	--	15.0	29.9	52.4	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.67			--	--	--
$M_{Rk,s}^0$	Characteristic bending moment, steel class 4.8	[Nm]	--	15.0	29.9	52.4	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.25			--	--	--
$M_{Rk,s}^0$	Characteristic bending moment, steel class 5.6	[Nm]	--	18.8	37.4	65.5	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.67			--	--	--
$M_{Rk,s}^0$	Characteristic bending moment, steel class 5.8	[Nm]	--	18.8	37.4	65.5	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.25			--	--	--
$M_{Rk,s}^0$	Characteristic bending moment, steel class 6.8	[Nm]	--	22.5	44.9	78.7	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.25			--	--	--
$M_{Rk,s}^0$	Characteristic bending moment, steel class 8.8	[Nm]	--	30.0	59.9	104.9	--	--	--
$\gamma_{Ms}^{(1)}$	Partial safety factor:	(-)	--	1.25			--	--	--

1) In absence of other national regulations

WDI2R anchor

Performances

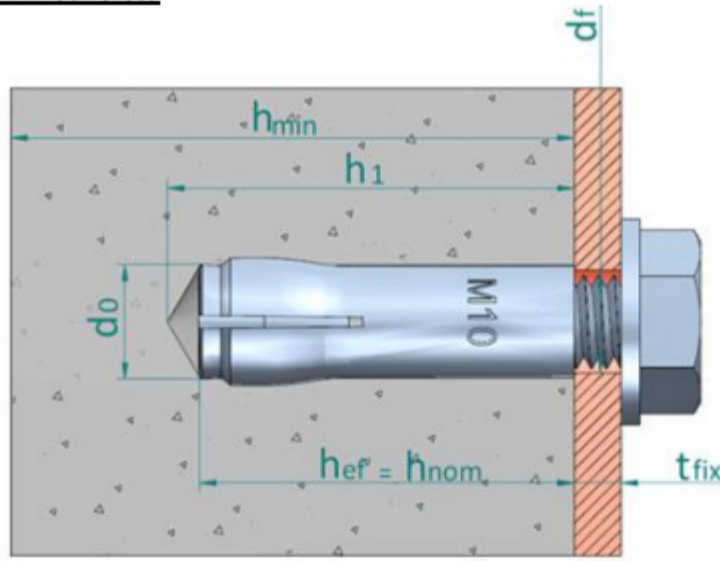
Essential charact. in precast prestressed hollow core concrete slabs

Annex C6

Table C1: Installation parameters in concrete for WDI2, WDI2L, WDI2R, WDI2 SSt, WDI2L SSt anchor

Installation parameters			Performances						
			M6	M8	M10	M12	M12D	M16	M20
d_0	Nominal diameter of drill bit:	[mm]	8	10	12	15	16	20	25
D	Thread diameter:	[mm]	M6	M8	M10	M12	M12	M16	M20
d_f	Fixture clearance hole diameter \leq	[mm]	7	9	12	14	14	18	22
T_{inst}	Maximum installation torque:	[Nm]	4	11	17	38	38	60	100
WDI2, WDI2L			M6 x 25 $\phi 8$	M8 x 30 $\phi 10$	M10 x 40 $\phi 12$	M12 x 50 $\phi 15$	M12 x 50 $\phi 16$	M16 x 65 $\phi 20$	M20 x 80 $\phi 25$
$l_{s,min}$	Minimum screwing depth:	[mm]	6	8	10	12	12	16	20
$l_{s,max}$	Maximum screwing depth:	[mm]	10	13	17	21	21	27	34
h_1	Depth of drilled hole:	[mm]	27	33	43	54	54	70	86
h_{nom}	Overall anchor embedment depth:	[mm]	25	30	40	50	50	65	80
h_{ef}	Effective anchorage depth:	[mm]	25	30	40	50	50	65	80
h_{min}	Minimum thickness of concrete member:	[mm]	100	100	100	100	100	130	160
s_{min}	Minimum allowable spacing:	[mm]	60	60	80	100	100	130	160
c_{min}	Minimum allowable distance:	[mm]	105	105	140	175	130	230	280
WDI2R			-	M8 x 25 $\phi 10$	M10 x 25 $\phi 12$	M12 x 25 $\phi 15$	-	-	-
$l_{s,min}$	Minimum screwing depth:	[mm]	-	7	8	10	-	-	-
$l_{s,max}$	Maximum screwing depth:	[mm]	-	12	13	13	-	-	-
h_1	Depth of drilled hole:	[mm]	-	28	28	29	-	-	-
h_{nom}	Overall anchor embedment depth:	[mm]	-	25	25	25	-	-	-
h_{ef}	Effective anchorage depth:	[mm]	-	25	25	25	-	-	-
h_{min}	Minimum thickness of concrete member:	[mm]	-	80	80	80	-	-	-
s_{min}	Minimum allowable spacing:	[mm]	-	75	75	75	-	-	-
c_{min}	Minimum allowable distance:	[mm]	-	60	60	60	-	-	-
WDI2 SSt, WDI2L SSt			M6 x 25 $\phi 8$	M8 x 30 $\phi 10$	M10 x 40 $\phi 12$	M12 x 50 $\phi 15$	---	16 x 65 $\phi 20$	M20 x 80 $\phi 25$
$l_{s,min}$	Minimum screwing depth:	[mm]	6	8	10	12	-	16	20
$l_{s,max}$	Maximum screwing depth:	[mm]	10	13	17	21	-	27	34
h_1	Depth of drilled hole:	[mm]	27	33	43	54	-	70	86
h_{nom}	Overall anchor embedment depth:	[mm]	25	30	40	50	-	65	80
h_{ef}	Effective anchorage depth:	[mm]	25	30	40	50	-	65	80
h_{min}	Minimum thickness of concrete member:	[mm]	80	80	80	100	-	130	160
s_{min}	Minimum allowable spacing:	[mm]	60	60	100	100	-	130	160
c_{min}	Minimum allowable distance:	[mm]	65	80	100	130	-	175	210
WDI2, WDI2L, WDI2R, WDI2 SSt, WDI2L SSt anchor							Annex C1		
Performances									
Installation parameters in concrete									

Installed condition in concrete



- h_{ef}: Effective anchorage depth
- h₁: Depth of drilled hole
- h_{nom}: Overall anchor embedment depth in the concrete
- h_{min}: Minimum thickness of concrete member
- t_{fix}: Thickness of fixture
- d₀: Nominal diameter of drill bit
- d_r: Fixture clearance hole diameter

Setting tool



Setting tool can be assembled with a plastic handle for hand protection purposes

Table A3: Setting tool dimensions

Setting tool dimensions	M6	M8	M10	M12	M16	M20
WDI2, WDI2L, WDI2 SSt, WDI2L SSt						
Ø D ₁ [mm]	8.0	10.0	12.0	15.0	20.0	25.0
Ø D ₂ [mm]	4.9	6.4	8.2	10.0	13.5	17.0
L _s [mm]	15.0	18.0	21.0	30.0	36.0	48.0
WDI2R						
Ø D ₁ [mm]	--	10.0	12.0	15.0	--	--
Ø D ₂ [mm]	--	6.4	8.2	10.0	--	--
L _s [mm]	--	15.0	16.0	10.4	--	--

WDI2, WDI2L, WDI2R, WDI2 SSt, WDI2L SSt anchor

Product description

Installed condition in concrete and setting tool

Annex A2

Table C2: Installation parameters in prestressed hollow core concrete slabs for WDI2R anchor

Installation parameters in prestressed hollow core concrete slabs			Performances						
			-	M8 x 25 φ10	M10 x 25 φ12	M12 x 25 φ15	-	-	-
WDI2R			-						
$l_{s,min}$	Minimum screwing depth:	[mm]	--	7	8	10	--	--	--
$l_{s,max}$	Maximum screwing depth:	[mm]	--	12	13	13	--	--	--
h_1	Depth of drilled hole:	[mm]	--	28	28	29	--	--	--
h_{nom}	Overall anchor embedment depth:	[mm]	--	25	25	25	--	--	--
h_{ef}	Effective anchorage depth:	[mm]	--	25	25	25	--	--	--
d_b	Minimum bottom flange thickness	[mm]	--	35	35	35	--	--	--
s_{min}	Minimum allowable spacing:	[mm]	--	200	200	200	--	--	--
c_{min}	Minimum allowable distance:	[mm]	--	150	150	150	--	--	--

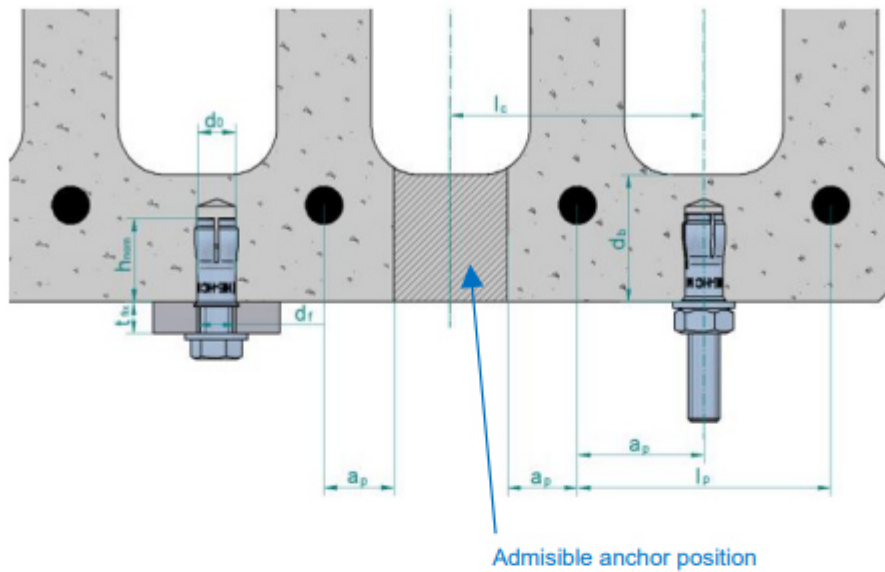
WDI2R anchor

Performances

Installation parameters in prestressed hollow core concrete slabs

Annex C2

Installed condition in precast prestressed hollow core concrete slabs



- d_0 : Nominal diameter of drill bit
- d_f : Fixture clearance hole diameter
- d_b : Bottom flange thickness
- a_p : Distance between anchor position and prestressing steel ≥ 50 mm
- l_c : Core distance ≥ 100 mm
- l_p : Prestressing steel distance ≥ 100 mm
- t_{fix} : Fixture thickness
- c : Edge distance

WDI2R anchor

Product description

Installed condition in precast prestressed hollow core concrete slabs

Annex A3

Table C6: Essential characteristics under fire exposure in concrete C20/25 to C50/50 in any load direction according to EN 1992-4 for WDI2, WDI2L anchor

Essential characteristics under fire exposure in concrete C20/25 to C50/60 in any load direction				Performances						
				M6	M8	M10	M12	M12D	M16	M20
R30	Characteristic resistance:	$F_{Rk,130}^{0,1)}$	[kN]	0.2	0.4	0.9	1.7	1.7	3.1	4.9
R60	Characteristic resistance:	$F_{Rk,160}^{0,1)}$	[kN]	0.2	0.3	0.8	1.3	1,3	2.4	3.7
R90	Characteristic resistance:	$F_{Rk,190}^{0,1)}$	[kN]	0.1	0.3	0.6	1.1	1,1	2.0	3.2
R120	Characteristic resistance:	$F_{Rk,1120}^{0,1)}$	[kN]	0.1	0.2	0.5	0.8	0,8	1.6	2.5
R30 to	Spacing	$S_{cr,f}$	[mm]	4 x hef						
R120	Edge distance	$C_{cr,f}$	[mm]	2 x hef						

¹⁾ in absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,f} = 1.0$ is recommended
If fire attack is from more than one side, the design method may be taken if edge distance of the anchor is $c \geq 300$ mm

Table C7: Essential characteristics under fire exposure in concrete C20/25 to C50/50 in any load direction according to EN 1992-4 for WDI2R anchor

Essential characteristics under fire exposure in concrete C20/25 to C50/60 in any load direction				Performances					
				M6	M8	M10	M12	M16	M20
R30	Characteristic resistance:	$F_{Rk,130}^{0,1)}$	[kN]	--	0.54	0.54	0.54	--	--
R60	Characteristic resistance:	$F_{Rk,160}^{0,1)}$	[kN]	--	0.54	0.54	0.54	--	--
R90	Characteristic resistance:	$F_{Rk,190}^{0,1)}$	[kN]	--	0.44	0.54	0.54	--	--
R120	Characteristic resistance:	$F_{Rk,1120}^{0,1)}$	[kN]	--	0.37	0.43	0.43	--	--
R30 to	Spacing	$S_{cr,f}$	[mm]	--	4 x hef			--	--
R120	Edge distance	$C_{cr,f}$	[mm]	--	2 x hef			--	--

¹⁾ in absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,f} = 1.0$ is recommended
If fire attack is from more than one side, the design method may be taken if edge distance of the anchor is $c \geq 300$ mm

Table C8: Essential characteristics under fire exposure in concrete C20/25 to C50/50 in any load direction according to EN 1992-4 for WDI2 SSt, WDI2L SSt anchor

Essential characteristics under fire exposure in concrete C20/25 to C50/60 in any load direction				Performances					
				M6	M8	M10	M12	M16	M20
R30	Characteristic resistance:	$F_{Rk,130}^{0,1)}$	[kN]	0.20	0.73	0.87	1.63	3.19	4.12
R60	Characteristic resistance:	$F_{Rk,160}^{0,1)}$	[kN]	0.18	0.59	0.87	1.63	3.19	4.12
R90	Characteristic resistance:	$F_{Rk,190}^{0,1)}$	[kN]	0.14	0.44	0.87	1.63	3.14	4.12
R120	Characteristic resistance:	$F_{Rk,1120}^{0,1)}$	[kN]	0.10	0.37	0.69	1.30	2.51	3.30
R30 to	Spacing	$S_{cr,f}$	[mm]	4 x hef					
R120	Edge distance	$C_{cr,f}$	[mm]	2 x hef					

¹⁾ in absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,f} = 1.0$ is recommended
If fire attack is from more than one side, the design method may be taken if edge distance of the anchor is $c \geq 300$ mm

WDI2, WDI2L, WDI2R, WDI2 SSt, WDI2L SSt anchor

Performances

Essential characteristics under fire exposure

Annex C7