

MO-VH / MO-VHW

CERTIFICATES



BASE MATERIAL

CHARACTERISTICS

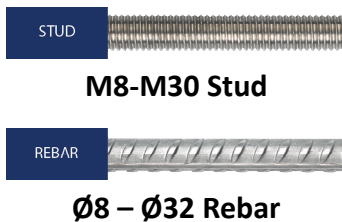


- Assessed for structural applications in cracked and non-cracked concrete, M8 to M30. Rebar used as stud from Ø8 to Ø32.
- Assessed for post-installed rebar connections Ø8 to Ø32.
- Assessed for use in masonry.
- Certificate of contact with drinking water (NSF).
- Fire resistance certificate for studs and rebar.
- LEED and A+ certificates, Styrene free.
- Use for high loads, static or quasi-static. Seismic loads C1&C2.
- Working life of 50 and/or 100 years.
- Valid for dry, wet and flooded holes.
- Valid for zinc plated steel, hot-dip galvanized, stainless steel A2, A4 and HCR.
- Service temperature range: from -40°C to +80°C (long term maximum temperature +50°C).

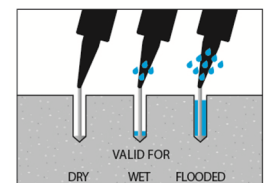
VALID FOR

APPLICATIONS

DRILL HOLE CONDITION

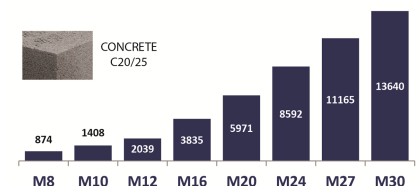


- Use in indoor and outdoor environments.
- Structural applications
- Fixing of building substructures.
- Rebar and start rebar.
- For fixing enginery, balconies, awnings, shelving units, billboards, catenaries, safety barriers, railings, handrails, etc.
- Large metric sizes, retaining walls.



APPLICATION EXAMPLES

MAXIMUM RECOMMENDED LOADS [kg]



1. RANGE

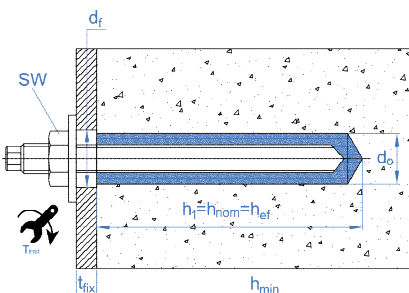
ITEM	CODE	SIZE	PHOTO	COMPONENT	MATERIAL	
1	MOVH300 MOVH410	300 ml. 410 ml.		VINYLESTER HYBRID RESIN STYRENE FREE	Viniylester Hybrid resin styrene free Format: cartridges de 300 y 410 ml	12
2	MOVHW300 MOVHW410	300 ml. 410 ml.		WINTER VINYLESTER HYBRID RESIN STYRENE FREE	Winter Viniylester Hybrid resin styrene free Format: cartridges de 300 y 410 ml	12

2. ACCESORIES

ITEM	CODE	PHOTO	COMPONENT	MATERIAL
1	MOPISSI		APPLICATION GUNS	Gun for 300 ml standard cartridges
	MOPISTO			Gun for 410 ml coaxial cartridges
2	EQ-AC EQ-8.8 EQ-A2 EQ-A4		STUD BOLTS	Threaded steel stud, class 5.8 ISO 898-1 Threaded steel stud, class 8.8 ISO 898-1 Threaded stainless steel stud A2-70 Threaded stainless steel stud A4-70
3	MORCEPKIT		CLEANING BRUSHES	3 Cleaning brushes kit of $\varnothing 14$, $\varnothing 20$ and $\varnothing 29$ mm.
4	MOBOMBA		CLEANING PUMP	Pump for cleaning dust and drill hole fragments
5	MORCANU		MIXING NOZZLE	Plastic. Helix static mixer.
6	MO-TN		NYLON SLEEVE	Plastic. Available in white and grey
7	MO-TR		METAL THREADED SLEEVE	Metal threaded sleeve M8, M10, M12, zinc plated.
8	MO-TM		METAL SLEEVE	Metal sleeve of $\varnothing 12$, $\varnothing 16$ and $\varnothing 22$,

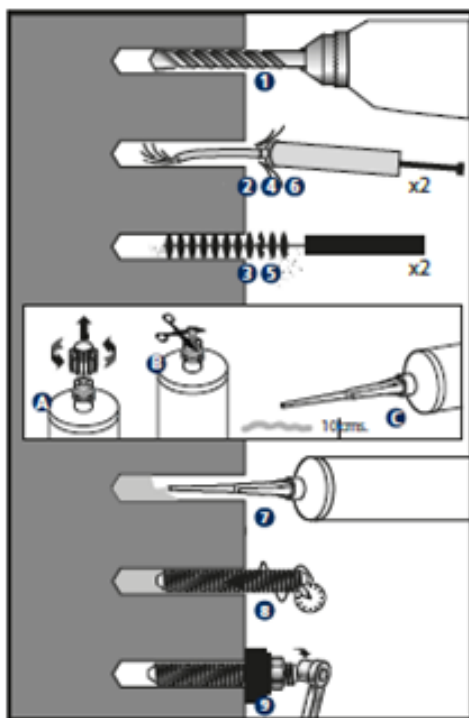
3. INSTALLATION DATA

3.1. CONCRETE FIXING (SET UP PARAMETERS)

SIZE		M8	M10	M12	M16	M20	M24	M27	M30
d ₀ : nominal diameter	[mm]	10	12	14	18	22	26	30	35
d _f : fixture hole diameter ≤	[mm]	9	12	14	18	22	26	30	33
T _{ins} : torque ≤	[Nm]	10	20	40	80	150	200	240	275
Circular cleaning brush diameter		Ø14		Ø20		Ø29		Ø40	
Assessment of seismic loads C1	[--]	✓	✓	✓	✓	✓	✓	✓	✓
Assessment of seismic loads C2	[--]	--	--	✓	✓	✓	--	--	--
h_{ef,min}									
h ₁ : drill hole depth	[mm]	40	40	48	64	80	96	108	120
s _{cr,N} : critical spacing	[mm]	120	120	144	192	240	288	324	360
c _{cr,N} : critical edge distance	[mm]	60	60	72	96	120	144	162	180
c _{min} : minimum distance to edge	[mm]	35	40	50	65	80	96	110	120
s _{min} : minimum spacing	[mm]	35	40	50	65	80	96	110	120
h _{min} : minimum concrete thickness	[mm]	100	100	100	100	120	144	164	180
Standard stud									
h ₁ : drill hole depth	[mm]	80	90	110	128	170	210	-	280
s _{cr,N} : critical spacing	[mm]	240	270	330	384	510	630	-	840
c _{cr,N} : critical edge distance	[mm]	120	135	165	192	255	315	-	420
c _{min} : minimum distance to edge	[mm]	35	40	50	65	80	96	-	120
s _{min} : minimum spacing	[mm]	35	40	50	65	80	96	-	120
h _{min} : minimum concrete thickness	[mm]	110	120	140	158	210	258	-	360
h_{ef,max}									
h ₁ : drill hole depth	[mm]	160	200	240	320	400	480	540	600
s _{cr,N} : critical spacing	[mm]	480	600	720	960	1200	1440	1620	1800
c _{cr,N} : critical edge distance	[mm]	240	300	360	480	600	720	810	900
c _{min} : minimum distance to edge	[mm]	35	40	50	65	80	96	110	120
s _{min} : minimum spacing	[mm]	35	40	50	65	80	96	110	120
h _{min} : minimum concrete thickness	[mm]	190	230	270	350	440	528	594	660
5.8 / 8.8 Zinc plated stud code		EQAC08110 EQ8808110	EQAC10130 EQ8810130	EQAC12160 EQ8812160	EQAC16190 EQ8816190	EQAC20260 EQ8820260	EQAC24300 EQ8824300	---	EQAC30330 EQ8830330
A2 / A4 Stainless steel stud code		EQA208110 EQA408110	EQA210130 EQA410130	EQA212160 EQA412160	EQA216190 EQA416190	EQA220260 EQA420260	EQA224300 EQA424300	---	EQA230330 EQA430330
		- The h_{ef} depth value may be selected by the user ranging between h_{ef,min} and h_{ef,max}. Any intermediate values may be interpolated. - Critical distances are those where anchors in a group of anchors are not influenced by one another with regard to tension load effects. For smaller distances, down to minimum distances, corresponding reduction coefficients must be applied. - Standard studs are available for each measurement, as shown in the table.							

4. PRODUCT SET UP

4.1. CONCRETE SET UP



1. DRILL

Check the concrete base is compact and porosity is insignificant.

Suitable for wet, dry or flooded drill holes.

Cartridge installation temperature: $\geq 5^{\circ}\text{C}$.

Base material installation temperature: MO-VH $\geq -10^{\circ}\text{C}$

MO-VHW $\geq -20^{\circ}\text{C}$

Use drill in hammer mode.

Drill to the specified diameter and depth values

2 - 6. BLOW AND CLEAN

Clear the drill holes completely of dust and fragments by following the procedure shown in the picture. If the drill hole is flooded, the water must be removed before mortar is injected.

A – B* – C. OPEN CARTRIDGE

Screw the nozzle into the cartridge and place the assembly in the application gun. Squeeze on the trigger repeatedly until the mortar comes out of the nozzle in a uniform grey color. Any iridescence indicates improper mixing. Always discard the first two doses of each cartridge: these are never to be used for fixing. *For 300 ml cartridges, cut end of bag, behind seal clip.

7. INJECT MORTAR

Insert the nozzle to the bottom of the drill hole and apply mortar: gradually remove the nozzle, ensuring there are no air bubbles. Fill the hole to $\frac{1}{2}$ and $\frac{3}{4}$ of its depth.

In the event of not fully using the cartridge, leave nozzle attached. Only change if using again and handling time has expired, remembering to discard the first two doses of mortar.

8. INSTALLATION

Introduce the stud to be installed by screwing it lightly down to the installation depth value manually; ensuring the mortar covers the stud thread. The introduction of the anchor must take place within the handling time. The mortar must seep from the top of the drill hole to ensure it is completely full and there are no gaps between the stud and the drill hole.

TEMPERATURE AND CURING TIME

TIPO	Cartridge temperature [°C]	Handling time [min]	Base material temperature [°C]	Curing time [min]
MO-VH	+10	30	-10 a -5	1440
	+5	20	-5 a 0	300
	0 a +5	15	0 a +5	210
	+5 a +10	10	+5 a +10	145
	+10 a +15	8	+10 a +15	85
	+15 a +20	6	+15 a +20	75
	+20 a +25	5	+20 a +25	50
	+25 a +30	4	+25 a +30	40
MO-VHW	+20	40	-20 a -15	1440
	+20	30	-15 a -10	1080
	+5	20	-10 a -5	720
	+5	5	-5 a 0	100
	0 a +5	10	0 a +5	75
	+5 a +20	5	+5 a +20	50
	+20	100 s	+20	20

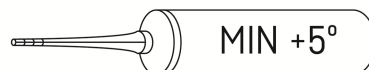
9. APPLY TORQUE

Once the curing time has elapsed, apply torque, never exceeding the values indicated in the table.

*Curing time not covered by ETA

5. STORAGE CONDITIONS

Keep the product stored in a cool, dry place, away from direct sunlight and heat sources, at an average temperature between +5 °C and +25 °C.



Shelf life of unopened cartridge: 18/12 months for the MO-H/MO-HW respectively from the date of manufacture. The expiration date is indicated on the cartridge.

6. RESISTANCES

6.1 CONCRETE FIXATION

Characteristic resistances for C20/25 concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects), for static or quasi-static loads and class 5.8,8.8 studs or A2-70 and A4-70 stainless steel are shown in tables below.

CHARACTERISTIC RESISTANCES

CONCRETE CLASS	SIZE					M8	M10	M12	M16	M20	M24	M27	M30
NON-CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{Rk}	[kN]	12,4	12,4	16,4	25,2	35,2	46,3	55,2	64,7
			$h_{ef,min} - 8.8$	N_{Rk}	[kN]	12,4	12,4	16,4	25,2	35,2	46,3	55,2	64,7
			Standard stud - 5.8	N_{Rk}	[kN]	<u>18,0</u>	<u>29,0</u>	<u>42,0</u>	65,6	105,7	121,9	--	174,1
			Standard stud - 8.8	N_{Rk}	[kN]	26,1	31,3	46,0	65,6	105,7	121,9	--	174,1
			$h_{ef,max} - 5.8$	N_{Rk}	[kN]	<u>18,0</u>	<u>29,0</u>	<u>42,0</u>	<u>79,0</u>	<u>123,0</u>	<u>177,0</u>	<u>230,0</u>	<u>281,0</u>
			$h_{ef,max} - 8.8$	N_{Rk}	[kN]	<u>29,0</u>	<u>46,0</u>	<u>67,0</u>	<u>126,0</u>	<u>196,0</u>	278,6	311,4	373,2
		Shear	$h_{ef,min} - 5.8$	V_{Rk}	[kN]	<u>9,0</u>	<u>15,0</u>	<u>21,0</u>	<u>39,0</u>	70,4	92,5	110,4	129,3
			$h_{ef,min} - 8.8$	V_{Rk}	[kN]	<u>15,0</u>	24,8	32,7	50,3	70,4	92,5	110,4	129,3
			Standard stud - 5.8	V_{Rk}	[kN]	<u>9,0</u>	<u>15,0</u>	<u>21,0</u>	<u>39,0</u>	<u>61,0</u>	<u>88,0</u>	--	<u>140,0</u>
			Standard stud - 8.8	V_{Rk}	[kN]	<u>15,0</u>	<u>23,0</u>	<u>34,0</u>	<u>63,0</u>	<u>98,0</u>	<u>141,0</u>	--	<u>224,0</u>
			$h_{ef,max} - 5.8$	V_{Rk}	[kN]	<u>9,0</u>	<u>15,0</u>	<u>21,0</u>	<u>39,0</u>	<u>61,0</u>	<u>88,0</u>	<u>115,0</u>	<u>140,0</u>
			$h_{ef,max} - 8.8$	V_{Rk}	[kN]	<u>15,0</u>	<u>23,0</u>	<u>34,0</u>	<u>63,0</u>	<u>98,0</u>	<u>141,0</u>	<u>184,0</u>	<u>224,0</u>
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{Rk}	[kN]	12,4	12,4	16,4	25,2	35,2	46,3	55,2	64,7
			Standard stud	N_{Rk}	[kN]	<u>26,0</u>	31,3	46,0	65,6	105,7	121,9	--	174,1
			$h_{ef,max}$	N_{Rk}	[kN]	<u>26,0</u>	<u>41,0</u>	<u>59,0</u>	<u>110,0</u>	<u>172,0</u>	<u>247,0</u>	<u>321,0</u>	<u>393,0</u>
		Shear	$h_{ef,min}$	V_{Rk}	[kN]	<u>13,0</u>	<u>20,0</u>	<u>30,0</u>	50,3	70,4	92,5	110,4	129,3
			Standard stud	V_{Rk}	[kN]	<u>13,0</u>	<u>20,0</u>	<u>30,0</u>	<u>55,0</u>	<u>86,0</u>	<u>124,0</u>	--	<u>196,0</u>
			$h_{ef,max}$	V_{Rk}	[kN]	<u>13,0</u>	<u>20,0</u>	<u>30,0</u>	<u>55,0</u>	<u>86,0</u>	<u>124,0</u>	<u>161,0</u>	<u>196,0</u>
CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{Rk}	[kN]	7,4	8,7	11,5	17,6	24,6	32,3	38,6	45,2
			$h_{ef,min} - 8.8$	N_{Rk}	[kN]	7,4	8,7	11,5	17,6	24,6	32,3	38,6	45,2
			Standard stud - 5.8	N_{Rk}	[kN]	14,8	20,9	30,6	39,8	65,1	88,7	--	116,1
			Standard stud - 8.8	N_{Rk}	[kN]	14,8	20,9	30,6	39,8	65,1	88,7	--	116,1
			$h_{ef,max} - 5.8$	N_{Rk}	[kN]	<u>18,0</u>	<u>29,0</u>	<u>42,0</u>	<u>79,0</u>	<u>123,0</u>	<u>177,0</u>	219,8	248,8
			$h_{ef,max} - 8.8$	N_{Rk}	[kN]	<u>29,0</u>	<u>46,0</u>	<u>67,0</u>	99,7	153,3	202,6	219,8	248,8
		Shear	$h_{ef,min} - 5.8$	V_{Rk}	[kN]	<u>9,0</u>	17,4	22,9	35,2	49,2	64,7	77,3	90,5
			$h_{ef,min} - 8.8$	V_{Rk}	[kN]	17,4	17,4	22,9	35,2	49,2	64,7	77,3	90,5
			Standard stud - 5.8	V_{Rk}	[kN]	<u>9,0</u>	<u>15,0</u>	<u>21,0</u>	<u>39,0</u>	<u>61,0</u>	<u>88,0</u>	--	<u>140,0</u>
			Standard stud - 8.8	V_{Rk}	[kN]	<u>15,0</u>	<u>23,0</u>	<u>34,0</u>	<u>63,0</u>	<u>98,0</u>	<u>141,0</u>	--	<u>224,0</u>
			$h_{ef,max} - 5.8$	V_{Rk}	[kN]	<u>9,0</u>	<u>15,0</u>	<u>21,0</u>	<u>39,0</u>	<u>61,0</u>	<u>88,0</u>	<u>115,0</u>	<u>140,0</u>
			$h_{ef,max} - 8.8$	V_{Rk}	[kN]	<u>15,0</u>	<u>23,0</u>	<u>34,0</u>	<u>63,0</u>	<u>98,0</u>	<u>141,0</u>	<u>184,0</u>	<u>224,0</u>
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{Rk}	[kN]	7,4	8,7	11,5	17,6	24,6	32,3	38,6	45,2
			Standard stud	N_{Rk}	[kN]	14,8	20,9	30,6	39,8	65,1	88,7	--	116,1
			$h_{ef,max}$	N_{Rk}	[kN]	<u>26,0</u>	<u>41,0</u>	<u>59,0</u>	<u>110,0</u>	<u>172,0</u>	<u>247,0</u>	219,8	248,8
		Shear	$h_{ef,min}$	V_{Rk}	[kN]	<u>13,0</u>	17,4	22,9	35,2	49,2	64,7	77,3	90,5
			Standard stud	V_{Rk}	[kN]	<u>13,0</u>	<u>20,0</u>	<u>30,0</u>	<u>55,0</u>	<u>86,0</u>	<u>124,0</u>	--	<u>196,0</u>
			$h_{ef,max}$	V_{Rk}	[kN]	<u>13,0</u>	<u>20,0</u>	<u>30,0</u>	<u>55,0</u>	<u>86,0</u>	<u>124,0</u>	<u>161,0</u>	<u>196,0</u>

DESIGN RESISTANCES

CONCRETE CLASS	SIZE					M8	M10	M12	M16	M20	M24	M27	M30
NON-CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{Rd}	[kN]	8,3	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			$h_{ef,min} - 8.8$	N_{Rd}	[kN]	8,3	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			Standard stud - 5.8	N_{Rd}	[kN]	<u>12,0</u>	<u>19,3</u>	<u>28,0</u>	43,7	70,5	81,2	--	116,1
			Standard stud - 8.8	N_{Rd}	[kN]	17,4	20,9	30,6	43,7	70,5	81,2	--	116,1
			$h_{ef,max} - 5.8$	N_{Rd}	[kN]	<u>12,0</u>	<u>19,3</u>	<u>28,0</u>	<u>52,6</u>	<u>82,0</u>	<u>118,0</u>	<u>153,3</u>	<u>187,3</u>
			$h_{ef,max} - 8.8$	N_{Rd}	[kN]	<u>19,3</u>	<u>30,6</u>	<u>44,6</u>	<u>84,0</u>	<u>130,6</u>	185,7	207,6	248,8
		Shear	$h_{ef,min} - 5.8$	V_{Rd}	[kN]	<u>7,2</u>	<u>12,0</u>	<u>16,8</u>	<u>31,2</u>	<u>46,9</u>	<u>61,7</u>	<u>73,6</u>	<u>86,2</u>
			$h_{ef,min} - 8.8$	V_{Rd}	[kN]	<u>12,0</u>	<u>16,5</u>	<u>21,8</u>	<u>33,5</u>	<u>46,9</u>	<u>61,7</u>	<u>73,6</u>	<u>86,2</u>
			Standard stud - 5.8	V_{Rd}	[kN]	<u>7,2</u>	<u>12,0</u>	<u>16,8</u>	<u>31,2</u>	<u>48,8</u>	<u>70,4</u>	--	<u>112,0</u>
			Standard stud - 8.8	V_{Rd}	[kN]	<u>12,0</u>	<u>18,4</u>	<u>27,2</u>	<u>50,4</u>	<u>78,4</u>	<u>112,8</u>	--	<u>179,2</u>
			$h_{ef,max} - 5.8$	V_{Rd}	[kN]	<u>7,2</u>	<u>12,0</u>	<u>16,8</u>	<u>31,2</u>	<u>48,8</u>	<u>70,4</u>	<u>92,0</u>	<u>112,0</u>
			$h_{ef,max} - 8.8$	V_{Rd}	[kN]	<u>12,0</u>	<u>18,4</u>	<u>27,2</u>	<u>50,4</u>	<u>78,4</u>	<u>112,8</u>	<u>147,2</u>	<u>179,2</u>
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{Rd}	[kN]	8,3	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			Standard stud	N_{Rd}	[kN]	<u>13,9</u>	20,9	30,6	43,7	70,5	81,2	--	116,1
			$h_{ef,max}$	N_{Rd}	[kN]	<u>13,9</u>	<u>21,9</u>	<u>31,5</u>	<u>58,8</u>	<u>91,9</u>	<u>132,0</u>	<u>171,6</u>	<u>210,1</u>
		Shear	$h_{ef,min}$	V_{Rd}	[kN]	<u>8,3</u>	<u>12,8</u>	<u>19,2</u>	<u>33,5</u>	<u>46,9</u>	<u>61,7</u>	<u>73,6</u>	<u>86,2</u>
			Standard stud	V_{Rd}	[kN]	<u>8,3</u>	<u>12,8</u>	<u>19,2</u>	<u>35,2</u>	<u>55,1</u>	<u>79,4</u>	<u>103,2</u>	<u>125,6</u>
			$h_{ef,max}$	V_{Rd}	[kN]	<u>8,3</u>	<u>12,8</u>	<u>19,2</u>	<u>35,2</u>	<u>55,1</u>	<u>79,4</u>	<u>103,2</u>	<u>125,6</u>
CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{Rd}	[kN]	4,9	5,8	7,6	11,7	16,4	21,5	25,7	30,1
			$h_{ef,min} - 8.8$	N_{Rd}	[kN]	4,9	5,8	7,6	11,7	16,4	21,5	25,7	30,1
			Standard stud - 5.8	N_{Rd}	[kN]	9,9	13,9	20,4	26,5	43,4	59,1	--	77,4
			Standard stud - 8.8	N_{Rd}	[kN]	9,9	13,9	20,4	26,5	43,4	59,1	--	77,4
			$h_{ef,max} - 5.8$	N_{Rd}	[kN]	<u>12,0</u>	<u>19,3</u>	<u>28,0</u>	<u>52,6</u>	<u>82,0</u>	<u>118,0</u>	146,5	165,8
			$h_{ef,max} - 8.8$	N_{Rd}	[kN]	<u>19,3</u>	<u>30,6</u>	<u>44,6</u>	66,4	102,2	135,1	146,5	165,8
		Shear	$h_{ef,min} - 5.8$	V_{Rd}	[kN]	<u>7,2</u>	<u>11,6</u>	<u>15,2</u>	<u>23,5</u>	<u>32,8</u>	<u>43,1</u>	<u>51,5</u>	<u>60,3</u>
			$h_{ef,min} - 8.8$	V_{Rd}	[kN]	<u>11,6</u>	<u>11,6</u>	<u>15,2</u>	<u>23,5</u>	<u>32,8</u>	<u>43,1</u>	<u>51,5</u>	<u>60,3</u>
			Standard stud - 5.8	V_{Rd}	[kN]	<u>7,2</u>	<u>12,0</u>	<u>16,8</u>	<u>31,2</u>	<u>48,8</u>	<u>70,4</u>	--	<u>112,0</u>
			Standard stud - 8.8	V_{Rd}	[kN]	<u>12,0</u>	<u>18,4</u>	<u>27,2</u>	<u>50,4</u>	<u>78,4</u>	<u>112,8</u>	--	<u>179,2</u>
			$h_{ef,max} - 5.8$	V_{Rd}	[kN]	<u>7,2</u>	<u>12,0</u>	<u>16,8</u>	<u>31,2</u>	<u>48,8</u>	<u>70,4</u>	<u>92,0</u>	<u>112,0</u>
			$h_{ef,max} - 8.8$	V_{Rd}	[kN]	<u>12,0</u>	<u>18,4</u>	<u>27,2</u>	<u>50,4</u>	<u>78,4</u>	<u>112,8</u>	<u>147,2</u>	<u>179,2</u>
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{Rd}	[kN]	4,9	5,8	7,6	11,7	16,4	21,5	25,7	30,1
			Standard stud	N_{Rd}	[kN]	9,9	13,9	20,4	26,5	43,4	59,1	--	77,4
			$h_{ef,max}$	N_{Rd}	[kN]	<u>13,9</u>	<u>21,9</u>	<u>31,5</u>	<u>58,8</u>	<u>91,9</u>	<u>132,0</u>	146,5	165,8
		Shear	$h_{ef,min}$	V_{Rd}	[kN]	<u>8,3</u>	<u>11,6</u>	<u>15,2</u>	<u>23,5</u>	<u>32,8</u>	<u>43,1</u>	<u>51,5</u>	<u>60,3</u>
			Standard stud	V_{Rd}	[kN]	<u>8,3</u>	<u>12,8</u>	<u>19,2</u>	<u>35,2</u>	<u>55,1</u>	<u>79,4</u>	--	<u>125,6</u>
			$h_{ef,max}$	V_{Rd}	[kN]	<u>8,3</u>	<u>12,8</u>	<u>19,2</u>	<u>35,2</u>	<u>55,1</u>	<u>79,4</u>	<u>103,2</u>	<u>125,6</u>

MAXIMUM LOADS RECOMMENDED (when $\gamma_f = 1.4$)

CONCRETE CLASS	SIZE					M8	M10	M12	M16	M20	M24	M27	M30
NON-CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{rec}	[kN]	5,9	5,9	7,7	11,9	16,7	22,0	26,2	30,7
			$h_{ef,min} - 8.8$	N_{rec}	[kN]	5,9	5,9	7,7	11,9	16,7	22,0	26,2	30,7
			Standard stud - 5.8	N_{rec}	[kN]	8,5	13,8	20,0	31,2	50,3	58,0	--	82,9
			Standard stud - 8.8	N_{rec}	[kN]	12,4	14,9	21,9	31,2	50,3	58,0	--	82,9
			$h_{ef,max} - 5.8$	N_{rec}	[kN]	8,5	13,8	20,0	37,6	58,5	84,2	109,5	133,8
			$h_{ef,max} - 8.8$	N_{rec}	[kN]	13,8	21,9	31,9	60,0	93,3	132,7	148,3	177,7
		Shear	$h_{ef,min} - 5.8$	V_{rec}	[kN]	5,1	8,5	12,0	22,2	33,5	44,0	52,5	61,5
			$h_{ef,min} - 8.8$	V_{rec}	[kN]	8,5	11,8	15,5	23,9	33,5	44,0	52,5	61,5
			Standard stud - 5.8	V_{rec}	[kN]	5,1	8,5	12,0	22,2	34,8	50,2	--	80,0
			Standard stud - 8.8	V_{rec}	[kN]	8,5	13,1	19,4	36,0	56,0	80,5	--	128,0
			$h_{ef,max} - 5.8$	V_{rec}	[kN]	5,1	8,5	12,0	22,2	34,8	50,2	65,7	80,0
			$h_{ef,max} - 8.8$	V_{rec}	[kN]	8,5	13,1	19,4	36,0	56,0	80,5	105,1	128,0
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{rec}	[kN]	5,9	5,9	7,7	11,9	16,7	22,0	26,2	30,7
			Standard stud	N_{rec}	[kN]	9,9	14,9	21,9	31,2	50,3	58,0	--	82,9
			$h_{ef,max}$	N_{rec}	[kN]	9,9	15,6	22,5	42,0	65,7	94,3	122,6	150,1
		Shear	$h_{ef,min}$	V_{rec}	[kN]	5,9	9,1	13,7	23,9	33,5	44,0	52,5	61,5
			Standard stud	V_{rec}	[kN]	5,9	9,1	13,7	25,1	39,3	56,7	--	89,7
			$h_{ef,max}$	V_{rec}	[kN]	5,9	9,1	13,7	25,1	39,3	56,7	73,7	89,7
CRACKED CONCRETE	ZINC-PLATED	Tension	$h_{ef,min} - 5.8$	N_{rec}	[kN]	3,5	4,1	5,4	8,4	11,7	15,4	18,4	21,5
			$h_{ef,min} - 8.8$	N_{rec}	[kN]	3,5	4,1	5,4	8,4	11,7	15,4	18,4	21,5
			Standard stud - 5.8	N_{rec}	[kN]	7,0	9,9	14,6	19,0	31,0	42,2	--	55,2
			Standard stud - 8.8	N_{rec}	[kN]	7,0	9,9	14,6	19,0	31,0	42,2	--	55,2
			$h_{ef,max} - 5.8$	N_{rec}	[kN]	8,5	13,8	20,0	37,6	58,5	84,2	104,7	118,4
			$h_{ef,max} - 8.8$	N_{rec}	[kN]	13,8	21,9	31,8	47,4	73,0	96,5	104,7	118,4
		Shear	$h_{ef,min} - 5.8$	V_{rec}	[kN]	5,1	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			$h_{ef,min} - 8.8$	V_{rec}	[kN]	8,3	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			Standard stud - 5.8	V_{rec}	[kN]	5,1	8,5	12,0	22,2	34,8	50,2	--	80,0
			Standard stud - 8.8	V_{rec}	[kN]	8,5	13,1	19,4	36,0	56,0	80,5	--	128,0
			$h_{ef,max} - 5.8$	V_{rec}	[kN]	5,1	8,5	12,0	22,2	34,8	50,2	65,7	80,0
			$h_{ef,max} - 8.8$	V_{rec}	[kN]	8,5	13,1	19,4	36,0	56,0	80,5	105,1	128,0
	STAINLESS STEEL	Tension	$h_{ef,min}$	N_{rec}	[kN]	3,5	4,1	5,4	8,4	11,7	15,4	18,4	21,5
			Standard stud	N_{rec}	[kN]	7,0	9,9	14,6	19,0	31,0	42,2	--	55,2
			$h_{ef,max}$	N_{rec}	[kN]	9,9	15,6	22,5	42,0	65,7	94,3	104,7	118,4
		Shear	$h_{ef,min}$	V_{rec}	[kN]	5,9	8,3	10,9	16,7	23,4	30,8	36,8	43,1
			Standard stud	V_{rec}	[kN]	5,9	9,1	13,7	25,1	39,3	56,7	--	89,7
			$h_{ef,max}$	V_{rec}	[kN]	5,9	9,1	13,7	25,1	39,3	56,7	73,7	89,7

1 kN $\approx$ 100 kg

The italic font underlined values indicate steel failure; rest indicates pull-out failure.

COEFFICIENTS FOR TENSION LOADS IN PULL-OUT FAILURE IN HIGH-RESISTANCE CONCRETE TYPES

CONCRETE COEFFICIENT	C25/30	C30/37	C35/45	C40/50	C45/55	C50/60
ψ_c	1,02	1,04	1,06	1,07	1,08	1,09

6.3 CHEMICAL RESISTANCE

Chemical resistance of the product for different kind of chemical environments and for a specific concentration.

Chemical Environment	Concentration	Result	Chemical Environment	Concentration	Result
Aqueous Solution Acetic Acid	10%	C	Hexane	100%	C
Acetone	100%	X	Hydrochloric Acid	10%	✓
Aqueous Solution Aluminium Chloride	Saturated	✓		15%	✓
Aqueous Solution Aluminium Nitrate	10%	✓		20%	C
Ammonia Solution	5%	X	Hydrogen Sulphide Gas	100%	✓
Jet Fuel	100%	X	Linseed Oil	100%	✓
Benzoic Acid	Saturated	✓	Lubricating Oil	100%	✓
Sodium Hypochlorite Solution	5 - 15%	✓	Mineral Oil	100%	✓
Butyl Alcohol	100%	C	Paraffin / Kerosene (Domestic)	100%	✓
Calcium Sulphate Aqueous Solution	Saturated	✓	Phenol Aqueous Solution	1%	X
Carbon Monoxide	Gas	✓	Phosphoric Acid	50%	✓
Carbon Tetrachloride	100%	C	Potassium Hydroxide	10% / pH13	✓
Chlorine Water	Saturated	X	Sea Water	100%	C
Chloro Benzene	100%	C	Sulphur Dioxide Solution	10%	✓
Citric Acid Aqueous Solution	Saturated	✓	Sulphur Dioxide (40°C)	5%	✓
Cyclohexanol	100%	✓	Sulphuric Acid	10%	✓
Diesel Fuel	100%	C		30%	✓
Diethylene Glycol	100%	✓	Turpentine	100%	C
Ethanol	95%	X	White Spirit	100%	✓
Heptane	100%	C	Xylene	100%	X
Resistant to 75°C with at least 80% of physical properties retained.		✓	Contact only to a maximum of 25°C.		C
			Not Resistant		X

7. OFFICIAL DOCUMENTATION

The following documents are available through our Sales Department or on our official website: www.indexfix.com:

- MOVH/MOVHW Safety Data Sheet.
- European Technical Assessment ETA 24/0867 for use on cracked and non-cracked concrete according to EAD 330449-01-0601 Guide, option 1, for M8 to M30. Assessment for seismic loads C1&C2.
- European Technical Approval ETA 24/0868 for the installation of post-installed concrete reinforcements with diameters from 8 to 32 mm according to guide EAD 330087-01-0601.
- Classified A+ according to French Regulation DEVL11044875A relative to the emission of volatile pollutants for indoor use.
- LEED MOVH/MOVHW Certification of sustainability.
- NSF certificate of material admitted for use in contact with drinking water.
- Declaration of Performance DoP MOVH.
- INDEXcal anchor calculation software.
- INDEXmor cartridge calculation needs software.