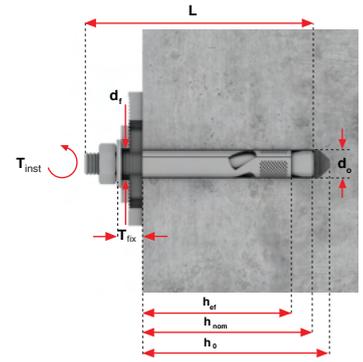
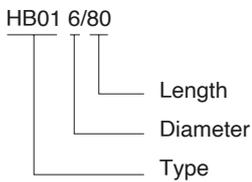


HB01 Sleeve Bolt - Technical Details



Product Code	Technical Details									
	Bolt Size	Embed. Depth	Maximum Fixture Thickness	Drilling Depth	Minimum Base Thickness	Thread Diameter	Drilling Diameter	Fixture Hole Diameter	Anchor Length	Max Torque
	(mm)	h_{nom} (mm)	t_{fix} (mm)	h_o (mm)	h_{min} (mm)	d (mm)	d_o (mm)	d_f (mm)	L (mm)	T_{inst} (Nm)
HB01-6/80	M6x80	40	10	65	100	6	8	9	80	10
HB01-8/80	M8x80	50	17	65	100	8	10	9	80	20
HB01-8/100	M8x100	50	37	80	100	8	10	9	100	20
HB01-10/80	M10x80	60	10	80	120	10	12	12	80	35
HB01-10/100	M10x100	60	20	80	120	10	12	12	110	35
HB01-12/100	M12x100	70	15	90	140	12	16	14	130	50
HB01-12/120	M12x120	70	35	90	140	12	16	14	145	50

Product Code Explanation:



Anchor Bolt Mechanical Properties				
Product Size	M6	M8	M10	M12
<i>Threaded part</i>				
$f_{uk, threaded}$ (N/mm ²) Min. tensile strength	645	645	645	645
$f_{yk, threaded}$ (N/mm ²) Yield strength	500	500	500	500
$A_{S, threaded}$ (mm ²) Stressed cross section	31.2	36.6	58	84.3
W_{el} (mm ³) Section modulus	21	31	60	105
$M^0_{k,S}$ (Nm) Characteristic bending	10.4	21	42	75

Application:

- Concrete walls
- Filled hollow block walls
- Solid concrete dense block 7 N /mm

Available in:

- Stainless steel AISI 304 & AISI 316
- E.galvanized Mild Steel

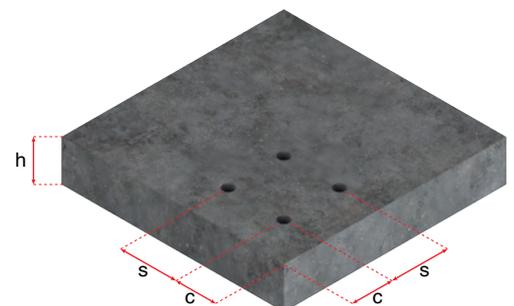
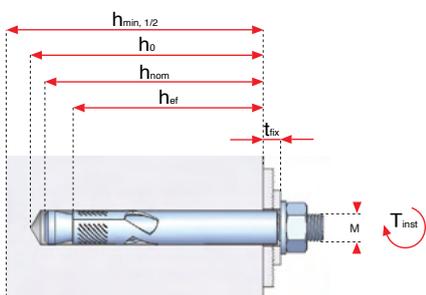
Fixing Instructions



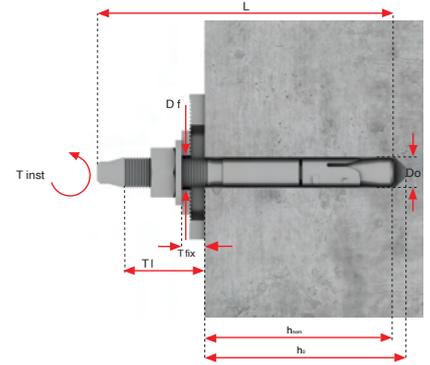
HB01 Sleeve Bolt - Technical Details

Loads and performance data

Product size			M6	M8	M10	M12	
Effective anchorage depth	h_{ef}	(mm)	45	50	70	84	
Characteristic loads, tension	$N_{Ru,m}$	(kN)	2	4	10	15	
Characteristic loads, shear	$V_{Ru,m}$	(kN)	7.5	12	20	57	
Non cracked concrete based values							
Recommended tensile loads	> C20/25	N_{Rec}	(kN)	1.2	2.05	4.65	6.95
	> C25/30	N_{Rec}	(kN)	1.36	2.35	4.95	7.4
	> C30/37	N_{Rec}	(kN)	1.72	2.60	5.35	8.2
	> C40/50	N_{Rec}	(kN)	2.05	3.1	6.4	9.2
	> C50/60	N_{Rec}	(kN)	2.4	3.7	6.95	9.7
Recommended shear loads	> C20/25	V_{Rec}	(kN)	5	6.2	12.40	16.25
Minimum spacing and edge distances for Concrete							
Effective anchorage depth	h_{ef}	(mm)	40	50	60	70	
Characteristic spacing	$S_{cr,N}$	(mm)	80	100	120	150	
Characteristic edge distance	$C_{cr,N}$	(mm)	65	80	80	120	
Minimum spacing and edge distance for concrete member - Concrete							
Thickness of concrete slab	h_{min1}	(mm)	80	100	120	150	
Minimum spacing	S_{min}	(mm)	40	50	60	70	
	For $C \geq$	(mm)	80	80	120	120	
Minimum edge distance	C_{min}	(mm)	50	60	80	80	
	For $S \geq$	(mm)	100	120	150	160	
Installation parameters							
Drill hole diameter	d_o	(mm)	6	8	10	12	
Drilling depth	h_o	(mm)	65	65	80	90	
Embedment length	h_{nom}	(mm)	47	50	60	70	
Maximum torque	T_{inst}	(N/m)	10	20	35	50	

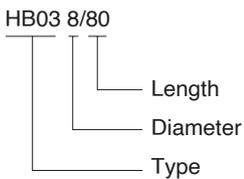


HB03 Through Bolt - Technical Details



Product Code	Technical Details									
	Bolt Size	Embed. Depth	Maximum Fixture Thickness	Drilling Depth	Minimum Base Thickness	Thread Diameter	Drilling Diameter	Fixture Hole Diameter	Anchor Length	Max Torque
	(mm)	h_{nom} (mm)	t_{fix} (mm)	h_o (mm)	h_{min} (mm)	d (mm)	d_o (mm)	d_f (mm)	L (mm)	T_{inst} (Nm)
HB03-8/80	M8x80	50	17	65	100	8	8	9	80	20
HB03-8/100	M8x100	50	37	65	100	8	8	9	100	20
HB03-8/120	M8x120	50	57	65	100	8	8	9	120	20
HB03-10/90	M10x90	60	10	80	120	10	10	12	90	35
HB03-10/110	M10x110	60	30	80	120	10	10	12	110	35
HB03-10/130	M10x130	60	50	80	120	10	10	12	130	35
HB03-12/110	M12x110	70	15	90	140	12	12	14	110	50
HB03-12/135	M12x135	70	35	90	140	12	12	14	130	50
HB03-12/145	M12x145	70	50	95	140	12	12	14	145	50
HB03-16/130	M16x130	84	15	110	160	16	16	18	130	120
HB03-16/140	M16x140	84	25	110	160	16	16	18	140	120
HB03-16/165	M16x165	84	50	110	160	16	16	18	165	120

Product Code Explanation:



Anchor Bolt Mechanical Properties				
Product Size	M8	M10	M12	M16
<i>Threaded part</i>				
$f_{uk, threaded}$ (N/mm ²) Min. tensile strength	645	645	645	645
$f_{yk, threaded}$ (N/mm ²) Yield strength	500	500	500	500
$A_{S, threaded}$ (mm ²) Stressed cross section	36.6	58	84.3	157
W_{el} (mm ³) Section modulus	31.77	62.22	109.16	277.5
$M^0_{k,s}$ (Nm) Characteristic bending	21.8	43.5	76.4	194.2

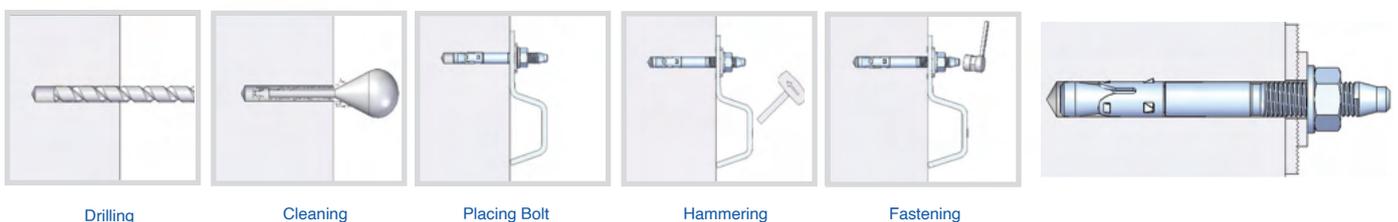
Application:

- Concrete walls

Available in:

- Stainless steel AISI 304 & AISI 316
- E.galvanized Mild Steel

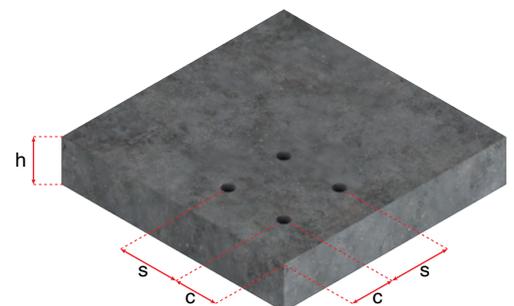
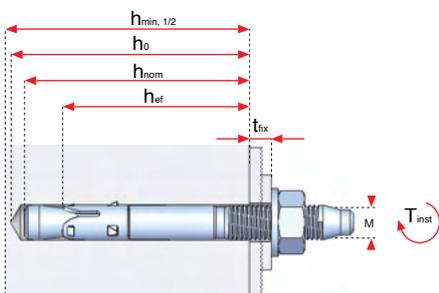
Fixing Instructions



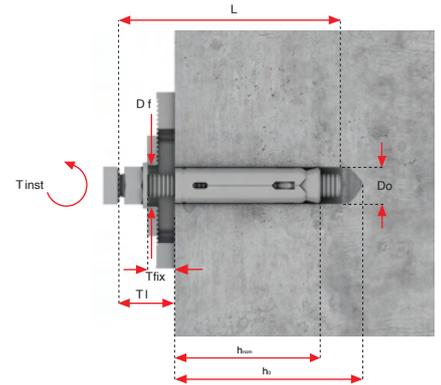
HB03 Through Bolt - Technical Details

Loads and performance data

Product size			M8	M10	M12	M16	
Effective anchorage depth	h_{ef}	(mm)	50	60	70	84	
Mean ultimate loads, tension	N_{Rk}	(kN)	4.5	12	16	24	
Mean ultimate loads, shear	V_{Rk}	(kN)	12.5	21.8	30.2	53.2	
Cracked concrete based values							
Recommended tensile loads	> C20/25	N_{Rec}	(kN)	2.14	5.71	7.62	11.43
	> C25/30	N_{Rec}	(kN)	2.40	6.28	8.53	12.57
	> C30/37	N_{Rec}	(kN)	2.61	6.97	9.29	13.94
	> C40/50	N_{Rec}	(kN)	3.02	8.05	10.74	16.11
	> C50/60	N_{Rec}	(kN)	3.32	8.85	12.03	17.71
Recommended shear loads	> C20/25	V_{Rec}	(kN)	7.14	12.45	17.25	33.26
Minimum spacing and edge distances for Concrete							
Effective anchorage depth	h_{ef}	(mm)	50	60	70	84	
Characteristic spacing	$S_{cr,N}$	(mm)	100	120	150	160	
Characteristic edge distance	$C_{cr,N}$	(mm)	80	80	120	120	
Minimum spacing and edge distance for concrete member - Concrete							
Thickness of concrete slab	h_{min1}	(mm)	100	120	140	160	
Minimum spacing	S_{min}	(mm)	40	50	60	70	
	For $C \geq$	(mm)	80	80	120	120	
Minimum edge distance	C_{min}	(mm)	50	60	80	80	
	For $S \geq$	(mm)	100	120	150	160	
Installation parameters							
Drill hole diameter	d_o	(mm)	8	10	12	16	
Drilling depth	h_o	(mm)	65	80	90	110	
Embedment length	h_{nom}	(mm)	50	60	70	84	
Maximum torque	T_{inst}	(N/m)	20	35	50	120	

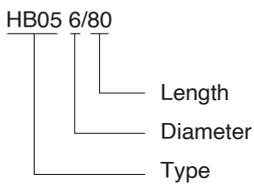


HB05 Shell Bolt - Technical Details



Product Code	Technical Details										
	Bolt Size	Sleeve Size	Embed. Depth	Maximum Fixture Thickness	Drilling Depth	Minimum Base Thickness	Thread Diameter	Drilling Diameter	Fixture Hole Diameter	Anchor Length	Max Torque
	(mm)	(mm)	h_{nom} (mm)	t_{fix} (mm)	h_o (mm)	h_{min} (mm)	d (mm)	d_o (mm)	d_f (mm)	L (mm)	T_{inst} (Nm)
HB05-6/60	M6x60	10x39	43	10	65	150	6	10	7	60	10
HB05-6/80	M6x80	10x39	43	30	65	150	6	10	7	80	10
HB05-8/80	M8x80	12x44	47	25	70	200	8	12	9	80	20
HB05-8/100	M8x100	12x44	47	45	70	200	8	12	9	100	20
HB05-10/80	M10x80	15x50	57	10	85	250	10	15	12	80	40
HB05-10/100	M10x100	15x50	57	20	85	250	10	15	12	100	40
HB05-12/110	M12x110	18x64	64	25	100	300	12	18	14	110	75

Product Code Explanation:



Anchor Bolt Mechanical Properties

Product Size	M6	M8	M10	M12
<i>Threaded part</i>				
$f_{uk, threaded}$ (N/mm ²) Min. tensile strength	700	700	700	700
$f_{yk, threaded}$ (N/mm ²) Yield strength	450	450	450	450
$A_{S, threaded}$ (mm ²) Stressed cross section	20.1	36.6	58	84.3
W_{el} (mm ³) Section modulus	12.72	62.22	109.16	277.5
$M_{k,s}^0$ (Nm) Characteristic bending	12	30	60	105

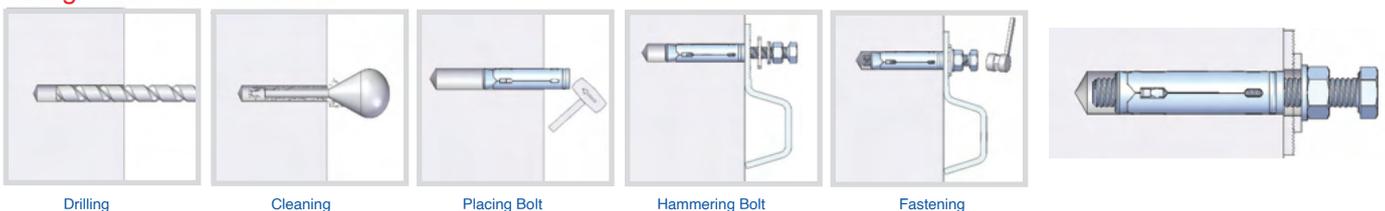
Application on:

- Concrete walls.
- Filled hollow block walls.
- Solid concrete dense block 7N /mm

Available in:

Stainless Steel AISI 304 & AISI 316 and
E.galvanized Mild Steel

Fixing Instructions



HB05 Shell Bolt - Technical Details

Loads and performance data

Product size			M6	M8	M10	M12
Effective anchorage depth	h_{ef}	(mm)	43	47	57	64
Mean ultimate loads, tension	$N_{Ru,m}$	(kN)	11	16	18	22
Mean ultimate loads, tension	$V_{Ru,m}$	(kN)	6.24	11.35	18	26.2
Recommended tensile loads						
> C20/25	N_{Rec}	(kN)	5.23	7.61	8.57	10.47
> C25/30	N_{Rec}	(kN)	5.86	8.52	9.60	11.73
> C30/37	N_{Rec}	(kN)	6.38	9.28	10.46	12.77
> C40/50	N_{Rec}	(kN)	7.37	10.73	12.08	14.76
> C50/60	N_{Rec}	(kN)	8.26	12.02	13.54	16.54
Recommended shear loads						
> C20/25	V_{Rec}	(kN)	3.56	6.48	10.29	14.97
Minimum spacing and edge distances for Concrete						
Effective anchorage depth	h_{ef}	(mm)	43	47	57	64
Characteristic spacing	$S_{cr,N}$	(mm)	110	130	210	220
Characteristic edge distance	$C_{cr,N}$	(mm)	65	72	105	110
Minimum spacing and edge distance for concrete member - Concrete						
Thickness of concrete slab	h_{min1}	(mm)	100	100	110	150
Minimum spacing for edge distance c	$S_{min / C}$	(mm)	80	90	110	160
Minimum spacing for edge distance s	$S_{min / S}$	(mm)	50	60	70	120
Installation parameters						
Drill hole diameter	d_o	(mm)	10	12	15	18
Drilling depth	h_o	(mm)	65	70	57	100
Embedment length	h_{nom}	(mm)	43	47	57	64
Maximum torque	T_{inst}	(N/m)	10	20	40	75

