Introduction

Designers and installers of anchors face an unlimited variety of anchoring products. This guide provides an overview of the Hilti anchors available for this market and all design data relevant to our anchoring products. It is intended to make user's work easier by providing a quick reference to solve fastening problems on site.

The guidet includes an anchor selection chart where anchors are grouped depending on the method of transferring load into concrete. They are mechanical anchors and chemical or adhesive anchors. Two additional groups complete the range:light duty anchors and insulation fasteners.

The design data shown in this guide is the factored characteristic load of the fastener or Design Resistance to be compared with your factored load or Design Load. Design data is not included for light duty anchors or insulation fasteners.

If you have any questions about this guide or any other technical enquiry, please contact Hilti Technical Advisory Service on GB - 0161 886 1144 / IRL - 01 886 4113 or visit the Tech Centre in our website www.hilti.co.uk / www.hilti.ie.

Design approach

Anchor design requires careful consideration of both the required loading capacity and the required safety of the anchorage. The safety aspect is taken care by the use of safety factors.

Your factored load (or **Design load**) must not exceed the factored characteristic load of the fastener (or **Design resistance**) for a successful anchor design.

Design load < Design resistance

- Design load = Working load x γ_F

The design resistance is the holding power of a fixing. Hilti establishes it by carrying out extensive anchor testing in accordance with recognised standards and building codes. We are therefore able to predict the performance of our fixings into concrete.

- Design resistance = Characteristic value of resistance / γ_M

γ_F and γ_M are partial safety factors which allow for the uncertainty of the applied loads and inaccuracies when defining limiting conditions. Greater degrees of safety can be associated with critical parts of design. These are usually specified in standards and codes of practice.

Factors influencing action and resistance:

Both the direction and magnitude of an applied load can vary. In fixing design, the following terms are generally accepted:

- Load direction:
  A **tensile** load, N is a load acting in a direction that is axial with the anchor.
  A **shear** load, V is a load applied transversely to the anchor rod.
  A **combined** load, F is a load, which includes both tensile and shear components.

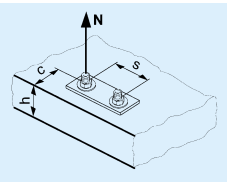
The resistance of the anchor results from a combination of the properties of the base material and the anchor itself.
Some of these are:

- Anchor spacing (s)
  The spacing is the distance from one anchor to another. If the spacings are small, the load capacity of the anchor decreases.

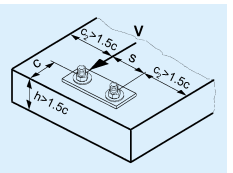
- Edge distance (c)
  If an anchor is placed close to an edge then the edge can cut into its zone of influence. This results in a reduction of the load capacity.

- Thickness of the structural components (h)
  If the thickness of the structural component is not adequate then the loading capacity of the anchorage will be reduced. The minimum reinforced base material thickness, h, is published for each product in this guide.

- Base material (f_b)
  The holding power of an anchor is dependent on the integrity and strength of the base material. Within limits the stronger the base material the higher will be the failure load of the anchor. The loads stated under each anchor in this guide are for non cracked concrete of compressive strength $f_{ck,cube}$ = 30 N/mm^2.



N: tensile resistance
V: shear resistance
c: edge distance
s: spacing between anchors
h: concrete thickness
$f_{ck,cube}$ concrete compressive strength: 30 N/mm^2



Please note that in order to use the data in this guide, minimum conditions for h and c must be met. Otherwise, consult Hilti Technical Advisory Service on 0161 886 1144.

Chemical anchors

HIT HY 150 Injection Adhesive

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HIT-HY 150 + HAS rod							
M8	7.4	7.9	235	160	40	40	80
M10	9.9	12.6	365	180	45	45	90
M12	14.8	18.3	425	220	55	55	110
M16	18.9	34.6	850	250	65	65	125
M20	32.1	54.0	855	340	90	90	170
M24	40.1	77.8	1005	420	110	120	210
HIT HY 150 + HIS-N							
M8	10.2	14.1	270	240	45	45	120
M10	15.2	22.3	345	300	55	55	150
M12	19.3	32.4	460	340	65	65	170
M16	33.3	60.3	660	460	90	90	230
M20	39.9	94.1	890	560	110	110	280
HIT HY 150 + rebar (Anchor Theory - existing reinforcement is not being considered)							
∅ **8**	6.2	9.2	285	160	40	40	120
∅ **10**	8.7	14.4	305	180	45	45	120
∅ **12**	12.3	20.8	405	220	55	55	140
∅ **14**	15.9	28.3	450	250	65	65	170
∅ **16**	19.5	37.0	785	290	65	65	180
∅ **20**	26.0	57.8	830	340	90	90	220
∅ **25**	32.4	90.2	950	420	110	120	270

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Chemical anchors

HIT RE 500 Injection Adhesive

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HIT RE 500 + rebar							
∅ **8**	11.9	11.1	455	160	40	40	100
∅ **10**	16.9	17.3	405	180	45	45	120
∅ **12**	24.7	24.9	535	220	55	55	140
∅ **14**	32.8	33.9	595	250	65	65	170
∅ **16**	37.5	44.3	820	250	65	65	170
∅ **20**	63.7	69.3	960	340	85	90	220
∅ **25**	98.3	108.0	1245	420	105	120	270
∅ **28**	123.5	135.3	1155	540	135	140	340
∅ **32**	145.2	176.7	1365	600	150	160	380
∅ **36**	165.5	237.3	1800	660	165	180	410
∅ **40**	185.5	276.4	1875	720	180	180	450

Load data applies for concrete compressive strength $F_{ck,\ cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[4] Concrete thickness applies for both minimum and optimum conditions.

HIT-HY150
HIT -RE
500

Chemical anchors

HVU Adhesive Anchor

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

Size	Design Resistance[1] (kN) Tension	Shear	Optimum Distance[2] (mm) (No influence on design resistance) Edge c	Spacing s	Minimum Distance[3] (mm) (Apply reduction factor to design resistance) Edge c_{min}	Spacing s_{min}	Concrete thickness[4] (mm) h ≥
HVU + HAS rods							
M8	10.9	7.9	185	160	40	40	100
M10	14.7	12.6	275	180	45	45	120
M12	21.0	18.3	335	220	55	55	140
M16	30.7	34.6	645	250	65	65	170
M20	55.6	54.0	670	340	85	85	220
M24	80.2	77.8	790	420	105	105	270
M27	98.1	164.0	1840	480	120	120	300
M30	128.9	199.3	1925	540	135	135	340
M33	151.3	248.4	2190	600	150	150	380
M36	180.0	291.5	2375	660	165	165	410
M39	206.2	350.6	2665	720	180	180	450
HVU + HIS-N rods							
M8	19.5	8.8	90	180	45	45	120
M10	30.9	13.9	110	220	55	55	150
M12	41.0	20.2	140	250	65	65	170
M16	74.5	37.7	180	340	90	90	230
M20	105.1	58.8	210	410	110	110	280

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Chemical anchors

HVZ Adhesive Anchor

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HVZ + HAS-TZ anchor rod							
M10	9.8	14.9	290	225	60	60	150
M12	19.0	21.6	320	285	75	75	190
M16	27.3	40.2	640	315	85	85	210
M16L	35.6	40.2	485	375	85	85	250
M20	53.0	62.7	645	510	135	135	340

Load data applies for concrete compressive strength $F_{ck, cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HLC Sleeve Anchor and

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

Size	Design Resistance[1] (kN) Tension	Shear	Optimum Distance[2] (mm) (No influence on design resistance) Edge c	Spacing s	Minimum Distance[3] (mm) (Apply reduction factor to design resistance) Edge c_{min}	Spacing s_{min}	Concrete thickness[4] (mm) h ≥
HLC Sleeve Anchor							
M5	0.7	1.1	30	60	30	60	60
M6	1.4	2.5	42	84	42	84	70
M8	2.1	4.5	48	96	48	96	80
M10	2.8	7.3	57	114	57	114	90
M12	4.2	8.8	72	144	72	144	100
M16	5.6	10.5	83	165	83	165	120

HB Bolt Anchor

HB Hilti Bolt							
M6	3.9	2.9	175	175	50	50	100
M8	6.2	5.5	192	192	55	55	110
M10	8.5	10.8	227	227	65	65	140
M12	15.1	14.6	297	297	85	85	170
M16	21.1	27.6	367	367	105	105	200

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

NOTE
For brickwork and masonry, specific performance data cannot be assured owing to the wide diversity and variety of these materials.
Contact Hilti Technical Advisory Service for guide values.

Metal anchors

HKD Flush Anchor

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

Size	Design Resistance[1] (kN) Tension	Shear	Optimum Distance[2] (mm) (No influence on design resistance) Edge c	Spacing s	Minimum Distance[3] (mm) (Apply reduction factor to design resistance) Edge c_{min}	Spacing s_{min}	Concrete thickness[4] (mm) h ≥
HKD Flush Anchor							
M6 x 25	3.4	2.8	90	100	90	50	100
M6 x 30	3.4	2.8	90	100	90	50	100
M8 x 30	5.3	4.5	105	105	105	60	100
M8 x 40	5.3	4.5	105	105	105	60	100
M10 x 30	5.3	5.6	140	140	140	60	100
M10 x 40	7.0	6.2	140	140	140	80	100
M12	11.9	11.3	175	175	175	100	120
M16	16.1	18.1	230	230	230	130	140
M20	22.4	27.3	280	280	280	160	180

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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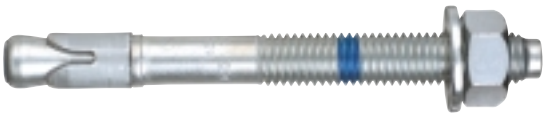
[4] Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HSA Stud Anchor



Size	Design Resistance[1] (kN) Tension	Shear	Optimum Distance[2] (mm) (No influence on design resistance) Edge c	Spacing s	Minimum Distance[3] (mm) (Apply reduction factor to design resistance) Edge c_{min}	Spacing s_{min}	Concrete thickness[4] (mm) h ≥
Deep Embedement							
M6	3.9	3.6	100	120	50	40	100
M8	6.1	6.5	205	144	60	50	100
M10	6.1	9.9	330	150	65	55	100
M12	10.9	14.2	315	210	90	75	140
M16	21.3	26.5	520	252	105	90	170
M20	30.5	41.5	655	309	125	105	210
Shallow Embedement							
M6	1.6	3.6	85	100	40	35	100
M8	5.0	6.5	235	105	45	35	100
M10	5.6	9.9	360	126	65	55	100
M12	6.3	14.2	505	150	100	100	100
M16	11.1	26.5	740	192	100	100	130
M20	16.7	41.5	955	234	115	100	160

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm²

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HUS-H Screw Anchor and

Size	Design Resistance[1] (kN) Tension	Shear	Optimum Distance[2] (mm) (No influence on design resistance) Edge c	Spacing s	Minimum Distance[3] (mm) (Apply reduction factor to design resistance) Edge c_{min}	Spacing s_{min}	Concrete thickness[4] (mm) h ≥
HUS-H Screw Anchor							
10.5 (60)	5.2	10.3	320	125	55	55	110
10.5 (50)	3.9	10.3	375	105	55	55	100
12.5 (70)	6.8	14.4	380	140	65	65	130
12.5 (60)	5.6	14.4	480	125	65	65	110

HST Stud Anchor

HST Stud Anchor							
M8	6.1	7.5	255	138	55	115	100
M10	7.6	11.7	330	174	65	155	120
M12	11.1	17.0	420	204	75	170	140
M16	17.2	26.3	555	246	110	215	160
M20	25.2	41.4	705	303	140	270	200
M24	33.3	61.8	845	375	170	295	250

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[4] Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HSC Safety Anchor

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HSC-A							
M8/40	8.6	11.0	140	140	40	40	80
M8/50	12.1	11.0	160	160	50	50	100
M10/40	8.6	17.4	160	160	40	40	80
M12/60	15.8	25.2	180	180	60	60	120
HSC-I							
M6/40	8.6	6.1	140	140	40	40	80
M8/40	8.6	8.5	140	140	40	40	80
M10/50	12.1	10.4	160	160	50	50	100
M10/60	17.3	10.4	180	180	60	60	100
M12/60	15.8	12.3	180	180	60	60	120

Load data applies for concrete compressive strength $F_{ck, cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HSL Heavy Duty Anchor

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HSL							
M8	9.6	13.7	162	195	65	65	120
M10	14.5	23.3	187	225	75	75	140
M12	20.9	34.2	200	240	80	80	160
M16	35.8	59.4	265	315	105	105	180
M20	48.3	81.8	325	395	130	130	220
M24	63.5	106.9	390	470	155	155	270
HSL-TZ							
M8	11.5	13.3	175	180	70	65	120
M10	16.9	21.1	200	200	80	75	140
M12	23.3	31.4	250	250	95	85	160
M16	38.9	57.1	300	300	115	100	180
M20	52.2	76.4	390	380	145	130	220
M24	71.1	112.5	390	470	250	155	270

Load data applies for concrete compressive strength $F_{ck,\,cube}$ = 30 N / mm^2

1 Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

2 Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) - 01 886 4113.

3 Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
(IRL) 01 886 4113.

4 Concrete thickness applies for both minimum and optimum conditions.

Metal anchors

HDA Design Anchor

Size	Design Resistance[1] (kN)		Optimum Distance[2] (mm) (No influence on design resistance)		Minimum Distance[3] (mm) (Apply reduction factor to design resistance)		Concrete thickness[4] (mm)
	Tension	Shear	Edge c	Spacing s	Edge c_{min}	Spacing s_{min}	h ≥
HDA-P (Pre fix)							
M10	30.7	17.6	205	300	80	100	200
M12	44.7	24.0	205	375	100	125	250
M16	84.0	49.6	325	570	150	190	380
M20	127.6	78.4	575	750	200	250	380
HDA-T (Through fix)							
M10	30.7	43.3	855	300	80	100	200
M12	44.7	53.3	790	375	100	125	250
M16	84.0	93.3	975	570	150	190	380
M20	127.6	140.0	1470	750	200	250	380

Load data applies for concrete compressive strength $F_{ck, cube}$ = 30 N / mm^2

[1] Factored characteristic load of the fastener (Design Resistance) to be compared with your factored load (Design Load).

[2] Optimum edge and spacing distances quoted in the table opposite are the allowable for the design resistance to apply.
These are the dimensions required for a pair of anchors to achieve the loads in this table.
If conditions are different, appropriate reduction factors must be applied. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144
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[3] Minimum edge and spacing distances quoted in the table opposite are the minimum allowable.
If this distance is required, the resistance from the anchor is affected by reduction factors. Contact Hilti Technical Advisory Service on (GB) - 0161 886 1144 (IRL) 01 886 4113.

[4] Concrete thickness applies for both minimum and optimum conditions.

Best value for you

For more detailed technical literature and calculation software visit our website www.hilti.co.uk or call 0800 886 100

How to change specifications safely

HBS MCA 31 – Clause 200

"Where the specification by the use of the words "or equivalent", permits substitution of a product of different manufacture to that specified and such substitution is desired, before ordering the product submit for approval documentary evidence that the alternative product is equivalent in respect of..."

Material ✔

- Does the anchor have the same **corrosion resistance** properties? ❑
- Have you carefully considered the **environment** in which the anchor is to be used? ❑
- Have you considered the material of the part fastened for **dissimilar materials**? ❑
- Is the resin **styrene free**, not a polyester and does it have a suitable **curing time**? ❑
- Does the resin anchor have a durable **foil capsule**? ❑
- Is the anchor a suitable **grade of steel**? **5.8 or 8.8**? ❑
- Has the anchor been designed taking into account **fire requirements**? ❑
- Is the anchor **cold formed** making it more ductile and durable? ❑

Safety

- Has the anchor been designed taking into account load **type and direction**? ❑
- Has the anchor been designed taking into account load **edge distance**? ❑
- Has the anchor been designed taking into account load **spacing between fixings**? ❑
- Has the anchor been designed taking into account load **concrete strength**? ❑
- Has the anchor been designed taking into account load **depth of embedment**? ❑
- Has the anchor been designed taking into account load **thickness of the component fastened**? ❑
- Has the anchor been designed taking into account **service temperature**? ❑
- Is the anchor suitable for the existing **base material**? Hard/soft/hollow? ❑

Reliability

- Has the anchor been tested and is the **test data** available/accurate? ✔
- Is the anchor suitable for **dynamic loads**? Fatigue/shock/seismic? ❑
- Does the anchor have the necessary **approvals**/ETA's/CE markings? ❑
- Have you considered the ease of **setting** of the anchor to avoid poor workmanship? ❑
- Does the anchor reliability **pull down** the part fastened? ❑
- Does the fixing **tighten up** without rotating? ❑
- Can the manufacturer of this anchor provide **site support and testing**? ❑

Fitness for purpose

- Is a **through fastening** required? ❑
- Is the anchor **externally/internally threaded**? ❑
- Is the anchor suitable to accommodate **shear loads**? ❑
- Can the anchor be used in **diamond drilled holes or wet holes**? ❑
- Is the anchor suitable for the **tensile zone**/ cracked concrete? ❑
- Is the anchor **pre-assembled** saving time? ❑

Appearance

- Does the anchor have a suitable **head type**? Countersunk/Torx/Hexagon? ❑
- Does the anchor have a h**ead marking** for identification after setting? ❑
- Will the anchor discolour over time through lack of **corrosion resistance**? ❑

Unless you are confident that <u>all</u> the above questions have been considered and where relevant, answered in the affirmative, you can not reliably and safely change the specification.

Should you require assistance please call Hilti Technical Advisory Services on 0161 886 1144.

Changing specifications Safely

Facsimile Message

To: **Hilti (Gt. Britain) Ltd - Technical Advisory Service**

Date:

Fax **0161 877 7393**

From:

No of Pages:

Company:

Our Fax No. / email:

DETAILS / NATURE OF ENQUIRY / SKETCH

(For anchor enquiries please include design loads, direction and nature of loads and limiting factors such as edge distance, anchor spacing, thickness of base material and concrete strength.)

[Please photocopy this page as a template for your enquiry.]