

KUAB Type P Undercut Seismic Anchor Selection Guide

The **Kinetics Noise Control** model **KUAB Type P** Undercut Seismic Anchors are purchased from **HILTI, Inc.**, and are described in Document P.10.2.2. The Seismic Restraint Envelopes for this type of anchor will be constructed according to the information found in **ICC ES Report** number **ESR-1546**, Section 4.2.1. In this document, the following definitions will apply.

T = the applied tensile load in the anchor.

T_A = the allowable tensile load in the anchor, **ASD** or **LRFD**.

P = the applied shear load in the anchor.

P_A = the allowable shear load in the anchor, **ASD** or **LRFD**.

F_C = the combined load case where $T = P$.

For applied shear loads $P \leq 0.2P_A$ the full allowable load in tension T_A may be taken. For applied tensile loads $T \leq 0.2T_A$ the full allowable load in shear P_A may be taken. For all other conditions;

$$(T/T_A) + (P/P_A) \leq 1.2 \quad (\text{Eq. P10.3.2-1})$$

Setting $T = P = F_C$, and solving for the combined load F_C will provide the closing data point for the Seismic Restraint Envelopes.

$$F_C = 1.2T_AP_A/(P_A+T_A) \quad (\text{Eq. P10.3.2-2})$$

The ASD, and LRFD Allowable Tensile, Shear, Combined Loads for the **Kinetics Noise Control** model **KUAB Type P** Undercut Seismic Anchors are given in Table P10.3.2-1. The Seismic Restraint Envelopes for those anchors are presented in Figures P10.3.2-1 and P10.3.2-2 for ASD values, and Figures P10.3.2-3 and P10.3.2-4 for LRFD values.

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P10.3.2



**Table P10.3.2-1; KUAB Type P Undercut Seismic Type Anchor Capacities
(HILTI HDA-P Undercut Concrete Anchors)**

Anchor Size ¹ (mm) [ϕ Stud] (in)	Min. Req.'d Embed. Depth (in)	ASD Allow. Tensile Load ² (T=0) (lbs)	ASD Allow. Shear Load ² (P=0) (lbs)	ASD Allow. Comb. Load ² (F _C =T=P) (lbs)	LRFD Allow. Tensile Load ² (T=0) (lbs)	LRFD Allow. Shear Load ² (P=0) (lbs)	LRFD Allow. Comb. Load ² (F _C =T=P) (lbs)
M10 [3/8]	4	4,365	1,993	1,642	6,111	2,790	2,299
M12 [1/2]	5	5,457	2,889	2,267	7,640	4,045	3,174
M16 [5/8]	7-1/2	10,914	5,380	4,324	15,280	7,532	6,054
M20 [3/4]	9-7/8	16,371	8,269	6,593	22,919	11,577	9,230

- 1) If the Clearance Hole Diameter is greater than or equal to 1/8" more than the Anchor Size, fill the clearance space with grout or epoxy, or use the appropriate Kinetics Noise Control model TG Grommet.
- 2) These values may not be inflated by 33-1/3% for seismic and wind applications!

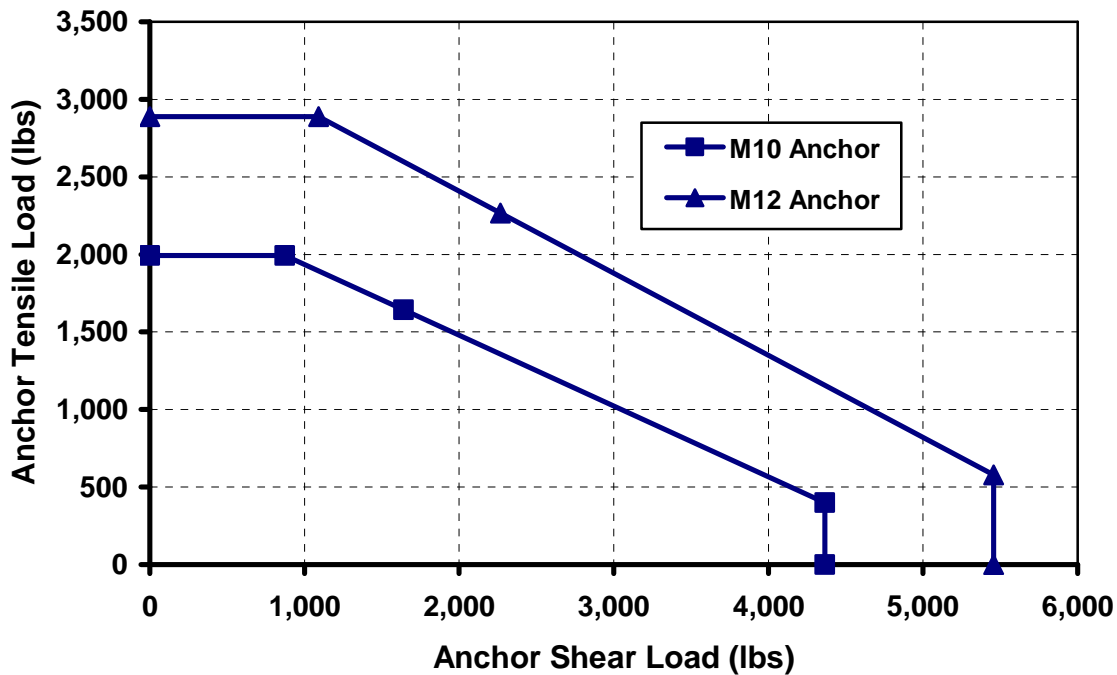


Figure P10.3.2-1; Basic ASD Values for M10 and M12 Anchors.

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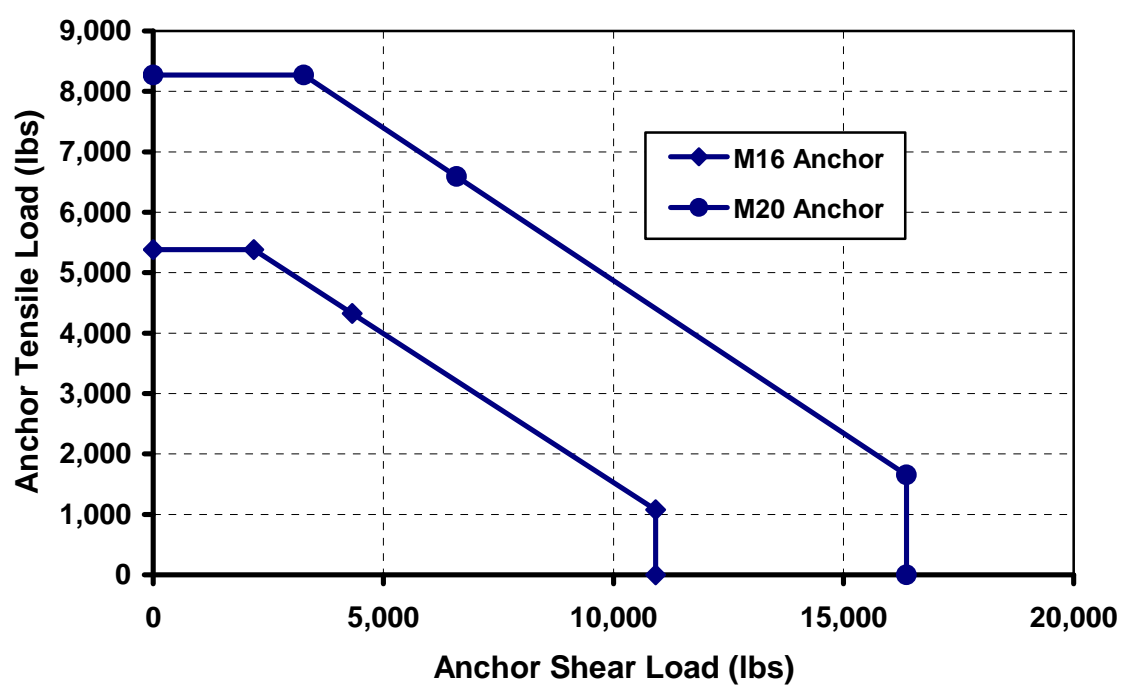


Figure P10.3.2-2; Basic ASD Values for M16 and M20 Anchors.

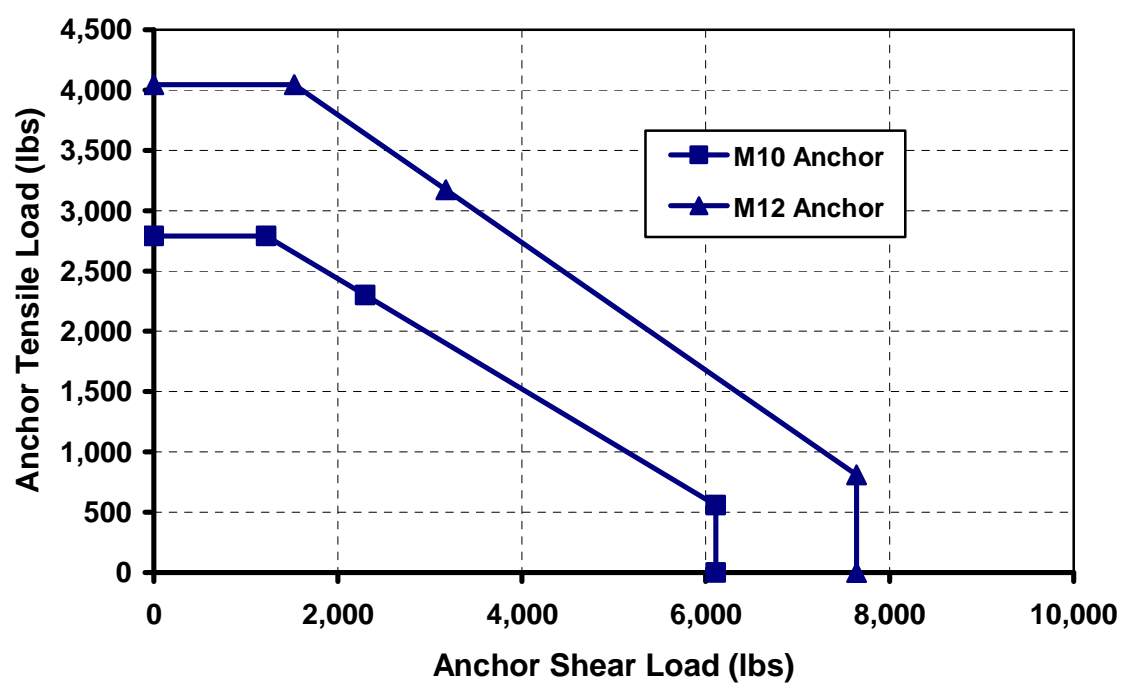
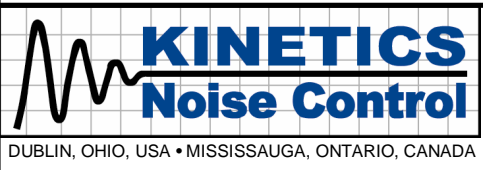


Figure P10.3.2-3; Basic LRFD Values for M10 and M12 Anchors.

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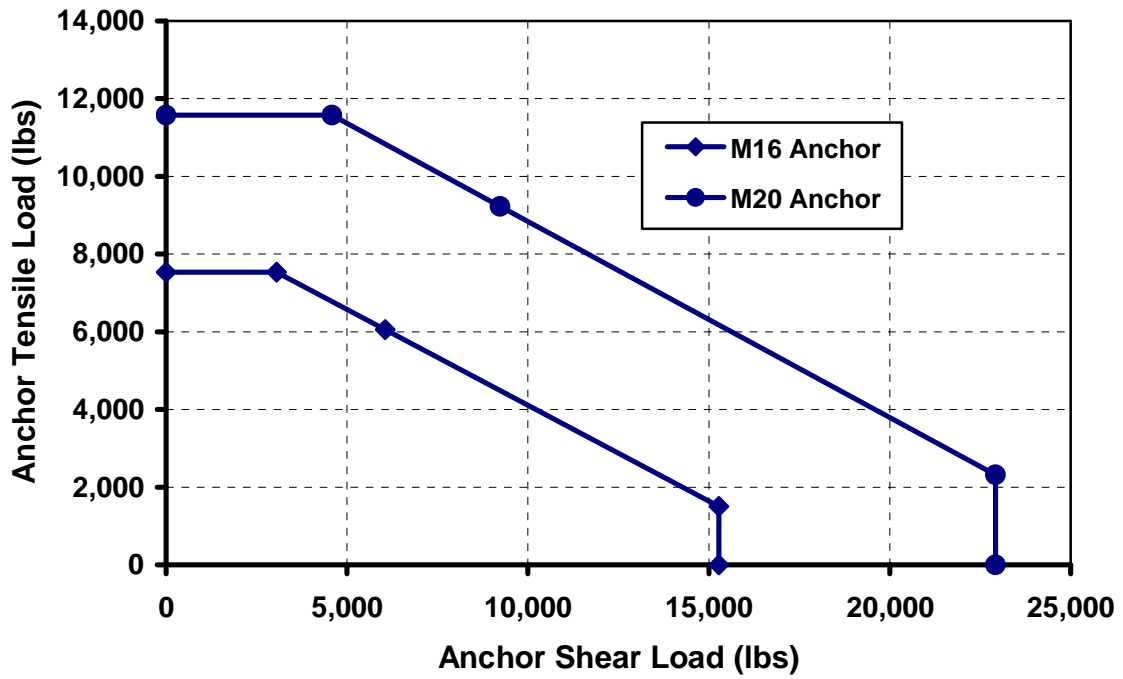
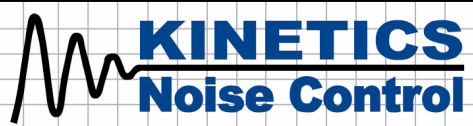


Figure P10.3.2-4; Basic LRFD Values for M16 and M20 Anchors.

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