

SIKA ANCHORFIX 2020 DESIGN TABLES

Strength design:

Fractional sized threaded rods in uncracked concrete

Anchor Dia. (inch)	h_{ef} (inch)	$f'_c = 2,500$ psi		$f'_c = 4,000$ psi		$f'_c = 6,000$ psi		$f'_c = 8,000$ psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
3/8	2 3/8	2,031	2,401	2,031	2,401	2,031	2,401	2,031	2,401
	5	4,276	9,347	4,276	11,372	4,276	11,372	4,276	11,372
	7 1/2	6,415	14,390	6,415	15,162	6,415	15,162	6,415	15,162
1/2	2 3/4	2,939	3,073	2,939	3,887	2,939	4,760	2,939	5,497
	6 1/2	6,946	11,817	6,946	14,947	6,946	17,050	6,946	17,050
	10	10,687	21,308	10,687	25,260	10,687	25,260	10,687	25,260
5/8	3 1/8	3,894	3,432	3,894	4,516	3,894	5,531	3,894	6,387
	8	9,970	13,275	9,970	16,792	9,970	20,566	9,970	22,092
	12 1/2	15,578	28,564	15,578	36,130	15,578	36,820	15,578	36,820
3/4	3 1/2	4,853	3,772	4,853	5,116	4,853	6,266	4,853	7,235
	9	12,480	18,086	12,480	22,877	12,480	28,019	12,480	31,136
	15	20,799	35,883	20,799	45,389	20,799	49,162	20,799	49,162
1	4	0	0	0	0	0	0	0	0
	12	0	0	0	0	0	0	0	0
	20	0	0	0	0	0	0	0	0
1 1/4	5	0	0	0	0	0	0	0	0
	15	0	0	0	0	0	0	0	0
	25	0	0	0	0	0	0	0	0

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3. Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.

4. Tabulated values are valid for single anchors without consideration for close edges or anchor spacing.

5. Strength reduction factors have been developed in accordance with ACI355.4 and ICC-ES AC308.

6. Calculated values assume sustained tension load acting on the anchor.

7. Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

Strength design:

Fractional sized threaded rods in cracked concrete

Anchor Dia. (inch)	h_{ef} (inch)	$f'_c = 2,500$ psi		$f'_c = 4,000$ psi		$f'_c = 6,000$ psi		$f'_c = 8,000$ psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
3/8	2 3/8	920	1,088	920	1,088	920	1,088	920	1,088
	5	1,937	4,579	1,937	4,579	1,937	4,579	1,937	4,579
	7 1/2	2,906	6,869	2,906	6,869	2,906	6,869	2,906	6,869
1/2	2 3/4	1,941	2,396	1,941	3,031	1,941	3,712	1,941	4,286
	6 1/2	4,588	8,706	4,588	10,844	4,588	10,844	4,588	10,844
	10	7,058	16,613	7,058	16,683	7,058	16,683	7,058	16,683
5/8	3 1/8	2,595	2,791	2,595	3,540	2,595	4,336	2,595	5,006
	8	6,644	11,463	6,644	14,500	6,644	15,703	6,644	15,703
	12 1/2	10,381	22,390	10,381	24,536	10,381	24,536	10,381	24,536
3/4	3 1/2	3,266	3,067	3,266	4,034	3,266	4,940	3,266	5,704
	9	8,397	13,149	8,397	16,632	8,397	19,849	8,397	19,849
	15	13,996	28,292	13,996	33,081	13,996	33,081	13,996	33,081
1	4	4,306	3,282	4,306	4,518	4,306	5,534	4,306	6,390
	12	12,918	18,560	12,918	23,477	12,918	28,754	12,918	30,533
	20	21,529	39,936	21,529	50,515	21,529	50,888	21,529	50,888
1 1/4	5	4,577	4,290	4,577	5,652	4,577	6,923	4,577	7,994
	15	13,731	23,220	13,731	29,371	13,731	35,972	13,731	39,667
	25	22,885	49,961	22,885	63,196	22,885	66,111	22,885	66,111

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2. Values are calculated assuming Condition B - without supplementary reinforcement.
3. Values are only valid for the given temperature range for anchors installed in dry concrete of compressive strength shown.
4. Tabulated values are valid for single anchors without consideration for close edges or anchor spacing.
5. Strength reduction factors have been developed in accordance with ACI355.4 and ICC-ES AC308.
6. Calculated values assume sustained tension load acting on the anchor.
7. Calculated values are for illustrative purposes only. Anchor design must be conducted by an engineer with experience in the design of fasteners and independently verified.

Strength design:

US customary reinforcing bars in uncracked concrete

Anchor Dia. (inch)	h_{ef} (inch)	$f'_c = 2,500$ psi		$f'_c = 4,000$ psi		$f'_c = 6,000$ psi		$f'_c = 8,000$ psi	
		ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)	ϕN_n (lbf)	ϕV_n (lbf)
#3	2 3/8	1,942	2,295	1,942	2,295	1,942	2,295	1,942	2,295
	5	4,089	9,098	4,089	10,872	4,089	10,872	4,089	10,872
	7 1/2	6,133	14,007	6,133	14,496	6,133	14,496	6,133	14,496
#4	2 3/4	2,789	2,978	2,789	3,767	2,789	4,613	2,789	5,327
	6 1/2	6,593	11,452	6,593	14,486	6,593	16,182	6,593	16,182
	10	10,143	20,650	10,143	23,973	10,143	23,973	10,143	23,973
#5	3 1/4	3,815	3,432	3,815	4,357	3,815	5,336	3,815	6,162
	8	9,391	12,807	9,391	16,200	9,391	19,841	9,391	20,810
	12 1/2	14,673	27,557	14,673	34,683	14,673	34,683	14,673	34,683
#6	3 1/2	4,536	3,772	4,536	4,912	4,536	6,016	4,536	6,947
	9	11,663	17,366	11,663	21,967	11,663	26,904	11,663	29,099
	15	19,439	34,456	19,439	43,583	19,439	45,946	19,439	45,946

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Strength design:

Metric threaded rods in uncracked concrete

Anchor Dia. (mm)	h_{ef} (mm)	$f'_c = 17.2$ MPa		$f'_c = 27.5$ MPa		$f'_c = 41.3$ MPa		$f'_c = 55.1$ MPa	
		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
M8	60	7.8	16.8	7.8	18.4	7.8	18.4	7.8	18.4
	110	14.3	33.7	14.3	33.7	14.3	33.7	14.3	33.7
	160	20.7	49.0	20.7	49.0	20.7	49.0	20.7	49.0
M10	60	9.4	15.7	9.4	19.8	9.4	22.1	9.4	22.1
	130	20.3	47.9	20.3	47.9	20.3	47.9	20.3	47.9
	200	31.2	73.7	31.2	73.7	31.2	73.7	31.2	73.7
M12	70	12.6	19.1	12.6	24.2	12.6	29.6	12.6	29.7
	155	27.8	65.7	27.8	65.7	27.8	65.7	27.8	65.7
	240	43.0	101.7	43.0	101.7	43.0	101.7	43.0	101.7
M16	83	18.2	22.3	18.2	29.0	18.2	35.5	18.2	41.0
	202	44.2	94.5	44.2	104.4	44.2	104.4	44.2	104.4
	320	70.2	165.8	70.2	165.8	70.2	165.8	70.2	165.8
M20	89	22.2	21.4	22.2	29.5	22.2	36.1	22.2	41.7
	245	60.9	119.3	60.9	144.0	60.9	144.0	60.9	144.0
	400	99.7	235.6	99.7	235.6	99.7	235.6	99.7	235.6
M24	102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	291	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	480	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M27	108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	324	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	540	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M30	127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	364	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
M8	60	5.1	12.0	5.1	12.0	5.1	12.0	5.1	12.0
	110	9.3	22.0	9.3	22.0	9.3	22.0	9.3	22.0
	160	13.6	32.0	13.6	32.0	13.6	32.0	13.6	32.0
M10	60	6.0	12.0	6.0	14.2	6.0	14.2	6.0	14.2
	130	13.0	30.7	13.0	30.7	13.0	30.7	13.0	30.7
	200	20.0	47.2	20.0	47.2	20.0	47.2	20.0	47.2
M12	70	8.3	14.9	8.3	18.9	8.3	19.6	8.3	19.6
	155	18.4	43.4	18.4	43.4	18.4	43.4	18.4	43.4
	240	28.4	67.2	28.4	67.2	28.4	67.2	28.4	67.2
M16	83	12.1	18.0	12.1	22.7	12.1	27.8	12.1	28.7
	202	29.5	69.7	29.5	69.7	29.5	69.7	29.5	69.7
	320	46.8	110.6	46.8	110.6	46.8	110.6	46.8	110.6
M20	89	14.9	17.4	14.9	23.2	14.9	28.5	14.9	32.9
	245	41.1	94.1	41.1	97.1	41.1	97.1	41.1	97.1
	400	67.2	158.8	67.2	158.8	67.2	158.8	67.2	158.8
M24	102	16.8	19.8	16.8	25.0	16.8	30.7	16.8	35.4
	291	47.9	108.3	47.9	113.2	47.9	113.2	47.9	113.2
	480	79.0	186.8	79.0	186.8	79.0	186.8	79.0	186.8
M27	108	16.8	20.2	16.8	27.3	16.8	33.5	16.8	38.7
	324	50.3	129.1	50.3	145.4	50.3	145.4	50.3	145.4
	540	83.9	242.4	83.9	242.4	83.9	242.4	83.9	242.4
M30	127	20.2	25.6	20.2	33.6	20.2	41.1	20.2	47.5
	364	57.8	146.0	57.8	167.0	57.8	167.0	57.8	167.0
	600	95.4	275.7	95.4	275.7	95.4	275.7	95.4	275.7

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Strength design:

Metric reinforcing bars in uncracked concrete

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		ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)	ϕN_n (kN)	ϕV_n (kN)
10	60	8.9	15.2	8.9	19.3	8.9	21.1	8.9	21.1
	130	19.3	45.7	19.3	45.7	19.3	45.7	19.3	45.7
	200	29.8	70.3	29.8	70.3	29.8	70.3	29.8	70.3
12	70	11.9	18.6	11.9	23.5	11.9	28.2	11.9	28.2
	155	26.4	62.5	26.4	62.5	26.4	62.5	26.4	62.5
	240	41.0	96.8	41.0	96.8	41.0	96.8	41.0	96.8
16	83	17.1	22.1	17.1	27.9	17.1	34.2	17.1	39.5
	200	41.3	91.1	41.3	98.4	41.3	98.4	41.3	98.4
	320	66.1	156.2	66.1	156.2	66.1	156.2	66.1	156.2

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