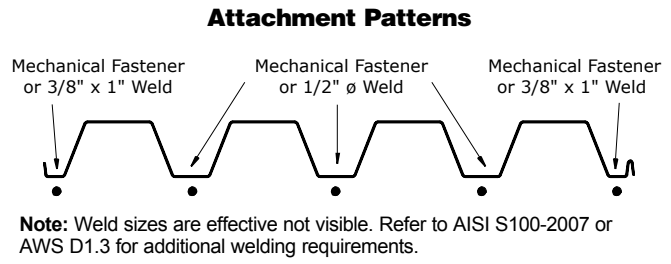
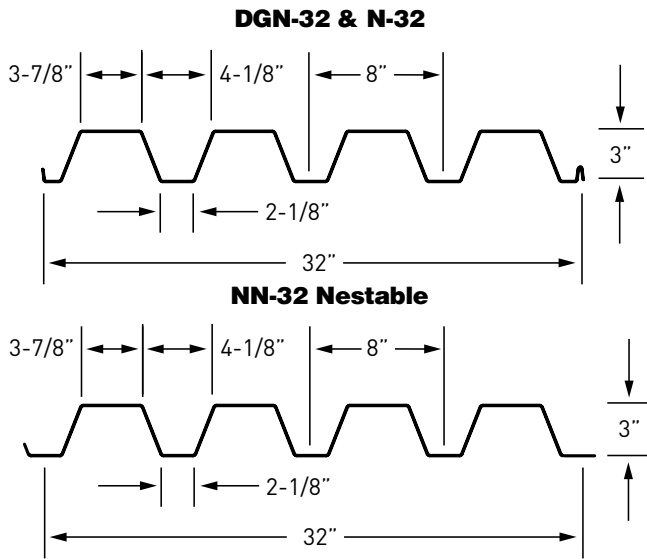


# 3.1 DGN-32, N-32 & NN-32



## Panel Properties

Gage	Weight	Base Metal Thickness	Yield Strength	Tensile Strength	Gross Section Properties				
					Area	Moment of Inertia	Distance to N.A. from Bottom	Section Modulus	Radius of Gyration
22	1.97	0.0299	50	65	0.569	0.814	1.68	0.483	1.195
20	2.35	0.0359	50	65	0.681	0.968	1.68	0.576	1.193
18	3.10	0.0478	50	65	0.902	1.275	1.69	0.755	1.189
16	3.86	0.0598	50	65	1.123	1.575	1.69	0.931	1.185

Gage	Effective Section Modulus for Bending at $F_y$					Effective Moment of Inertia for Deflection at Service Load			
	Area	Section Modulus	Distance to N.A. from Bottom	Section Modulus	Distance to N.A. from Bottom	Moment of Inertia	Moment of Inertia	Uniform Load Only	
								$I_d = (2I_e + I_g)/3$	
								$I_e^+$ in <sup>4</sup> /ft	$I_e^-$ in <sup>4</sup> /ft
22	0.272	0.349	1.37	0.402	1.78	0.668	0.754	0.716	0.774
20	0.372	0.446	1.41	0.505	1.76	0.848	0.930	0.888	0.943
18	0.604	0.661	1.48	0.715	1.72	1.219	1.275	1.238	1.275
16	0.871	0.879	1.54	0.927	1.70	1.556	1.575	1.563	1.575

## Reactions at Supports (plf) Based on Web Crippling

Gage	Condition	Bearing Length of Webs							
		Allowable ( $R_n/\Omega$ )				Factored ( $\Phi R_n$ )			
		1"	1.5"	2"	3"	1"	1.5"	2"	3"
22	End	500	566	622	716	764	866	952	1095
	Interior	876	973	1056	1194	1303	1448	1570	1776
20	End	709	799	876	1004	1084	1223	1340	1536
	Interior	1240	1371	1482	1669	1844	2040	2205	2482
18	End	1221	1367	1490	1697	1868	2092	2280	2597
	Interior	2133	2343	2519	2816	3173	3485	3748	4189
16	End	1864	2076	2254	2554	2852	3176	3449	3907
	Interior	3260	3560	3814	4239	4849	5296	5673	6305

Web Crippling Constraints

$h=3.06''$

$r=0.125''$

$\theta=70.7^\circ$

# DGN-32, N-32 & NN-32 3.1

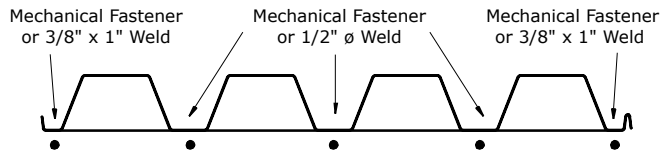
**Inward Allowable ( $f_b/\Omega$ ) and Factored ( $\Phi f_b$ ) Distributed Load (lbs/ft<sup>2</sup>)**

Gage	Span	Limit Condition	Panel Span (Support Spacing)								
			4'-0"	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"
22	SS	$f_b / \Omega$	435	193	109	70	48	36	27	21	17
		$\Phi f_b$	690	307	173	110	77	56	43	34	28
		L/360	-	145	61	31	18	11	8	5	4
		L/240	-	-	92	47	27	17	11	8	6
		L/180	-	-	-	63	36	23	15	11	8
	L/120	-	-	-	-	-	34	23	16	12	
	DS	$f_b / \Omega$	502	223	125	80	56	41	31	25	20
		$\Phi f_b$	796	354	199	127	88	65	50	39	32
		L/360	-	-	-	-	47	30	20	14	10
		L/240	-	-	-	-	-	-	30	21	15
		L/180	-	-	-	-	-	-	-	-	-
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	627	279	157	100	70	51	39	31	25
		$\Phi f_b$	995	442	249	159	111	81	62	49	40
		L/360	-	-	146	75	43	27	18	13	9
L/240		-	-	-	-	65	41	27	19	14	
L/180		-	-	-	-	-	-	36	26	19	
L/120	-	-	-	-	-	-	-	-	-		
20	SS	$f_b / \Omega$	557	247	139	89	62	45	35	27	22
		$\Phi f_b$	883	393	221	141	98	72	55	44	35
		L/360	-	180	76	39	22	14	9	7	5
		L/240	-	-	114	58	34	21	14	10	7
		L/180	-	-	-	78	45	28	19	13	10
	L/120	-	-	-	-	-	42	28	20	15	
	DS	$f_b / \Omega$	630	280	158	101	70	51	39	31	25
		$\Phi f_b$	1000	444	250	160	111	82	63	49	40
		L/360	-	-	-	99	57	36	24	17	12
		L/240	-	-	-	-	-	-	36	26	19
		L/180	-	-	-	-	-	-	-	-	25
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	788	350	197	126	88	64	49	39	32
		$\Phi f_b$	1250	556	313	200	139	102	78	62	50
		L/360	-	-	178	91	53	33	22	16	11
L/240		-	-	-	-	79	50	33	23	17	
L/180		-	-	-	-	-	-	44	31	23	
L/120	-	-	-	-	-	-	-	-	-		
18	SS	$f_b / \Omega$	825	367	206	132	92	67	52	41	33
		$\Phi f_b$	1308	582	327	209	145	107	82	65	52
		L/360	-	250	106	54	31	20	13	9	7
		L/240	-	-	158	81	47	30	20	14	10
		L/180	-	-	-	108	63	39	26	19	14
	L/120	-	-	-	-	-	59	40	28	20	
	DS	$f_b / \Omega$	892	396	223	143	99	73	56	44	36
		$\Phi f_b$	1415	629	354	226	157	116	88	70	57
		L/360	-	-	-	134	78	49	33	23	17
		L/240	-	-	-	-	-	-	49	35	25
		L/180	-	-	-	-	-	-	-	-	34
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	1115	496	279	178	124	91	70	55	45
		$\Phi f_b$	1769	786	442	283	197	144	111	87	71
		L/360	-	-	240	123	71	45	30	21	15
L/240		-	-	-	-	107	67	45	32	23	
L/180		-	-	-	-	-	90	60	42	31	
L/120	-	-	-	-	-	-	-	-	-		
16	SS	$f_b / \Omega$	1097	487	274	175	122	90	69	54	44
		$\Phi f_b$	1740	773	435	278	193	142	109	86	70
		L/360	1067	316	133	68	40	25	17	12	9
		L/240	-	474	200	102	59	37	25	18	13
		L/180	-	-	267	137	79	50	33	23	17
	L/120	-	-	-	-	119	75	50	35	26	
	DS	$f_b / \Omega$	1156	514	289	185	128	94	72	57	46
		$\Phi f_b$	1834	815	458	293	204	150	115	91	73
		L/360	-	-	-	166	96	60	40	28	21
		L/240	-	-	-	-	-	91	61	43	31
		L/180	-	-	-	-	-	-	-	57	41
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	1445	642	361	231	161	118	90	71	58
		$\Phi f_b$	2292	1019	573	367	255	187	143	113	92
		L/360	-	-	297	152	88	55	37	26	19
L/240		-	-	-	228	132	83	56	39	28	
L/180		-	-	-	-	-	111	74	52	38	
L/120	-	-	-	-	-	-	-	-	57		

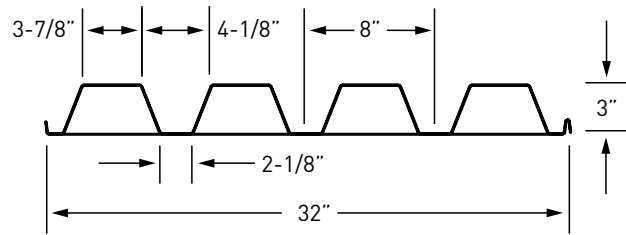
N PANELS

# 3.1 DGNF-32 & NF-32

## Attachment Patterns



Note: Weld sizes are effective not visible. Refer to AISI S100-2007 or AWS D1.3 for additional welding requirements.



## Panel Properties

Gage					Gross Section Properties				
					Area	Moment of Inertia	Distance to N.A. from Bottom	Section Modulus	Radius of Gyration
	Weight	Base Metal Thickness	Yield Strength	Tensile Strength					
	w psf	t in	F <sub>y</sub> ksi	F <sub>u</sub> ksi	A <sub>g</sub> in <sup>2</sup> /ft	I <sub>g</sub> in <sup>4</sup> /ft	y <sub>b</sub> in	S <sub>g</sub> in <sup>3</sup> /ft	r in
20/20	3.96	0.0359 / 0.036	50	65	1.114	1.740	1.07	0.867	1.250
20/18	4.44	0.0359 / 0.047	50	65	1.254	1.877	0.96	0.884	1.223
20/16	4.96	0.0359 / 0.059	50	65	1.406	1.999	0.87	0.899	1.192
18/20	4.71	0.0478 / 0.036	50	65	1.330	2.143	1.19	1.129	1.269
18/18	5.19	0.0478 / 0.047	50	65	1.470	2.316	1.09	1.153	1.255
18/16	5.71	0.0478 / 0.059	50	65	1.622	2.474	1.00	1.173	1.235
16/20	5.47	0.0598 / 0.036	50	65	1.547	2.522	1.27	1.385	1.277
16/18	5.95	0.0598 / 0.047	50	65	1.687	2.725	1.18	1.415	1.271
16/16	6.47	0.0598 / 0.059	50	65	1.839	2.914	1.10	1.442	1.259

Gage	Effective Section Modulus for Bending at F <sub>y</sub>					Effective Moment of Inertia for Deflection at Service Load			
	Area	Section Modulus	Distance to N.A. from Bottom	Section Modulus	Distance to N.A. from Bottom	Moment of Inertia	Moment of Inertia	Uniform Load Only	
								I <sub>u</sub> = (2I <sub>e</sub> +I <sub>g</sub> )/3	I <sub>+</sub>
	A <sub>e</sub> <sup>+</sup> in <sup>2</sup> /ft	S <sub>e</sub> <sup>+</sup> in <sup>3</sup> /ft	y <sub>b</sub> in	S <sub>e</sub> <sup>-</sup> in <sup>3</sup> /ft	y <sub>b</sub> in	I <sub>e</sub> <sup>+</sup> in <sup>4</sup> /ft	I <sub>e</sub> <sup>-</sup> in <sup>4</sup> /ft	I <sub>+</sub> in <sup>4</sup> /ft	I <sub>-</sub> in <sup>4</sup> /ft
20/20	0.547	0.488	0.76	0.808	1.39	1.381	1.454	1.501	1.549
20/18	0.622	0.490	0.66	0.838	1.24	1.480	1.623	1.612	1.708
20/16	0.729	0.522	0.62	0.863	1.11	1.515	1.816	1.676	1.877
18/20	0.784	0.798	0.99	1.057	1.45	1.835	1.839	1.938	1.940
18/18	0.859	0.816	0.90	1.093	1.33	1.972	2.019	2.087	2.118
18/16	0.966	0.810	0.81	1.123	1.22	2.107	2.234	2.230	2.314
16/20	1.057	1.073	1.13	1.306	1.49	2.316	2.218	2.385	2.319
16/18	1.132	1.098	1.04	1.346	1.39	2.495	2.405	2.572	2.512
16/16	1.238	1.119	0.96	1.380	1.30	2.661	2.636	2.746	2.729

## Reactions at Supports (plf) Based on Web Crippling

Gage	Condition	Bearing Length of Webs							
		Allowable (R <sub>n</sub> /Ω)				Factored (ΦR <sub>n</sub> )			
		1"	1.5"	2"	3"	1"	1.5"	2"	3"
22	End	500	566	622	716	764	866	952	1095
	Interior	876	973	1056	1194	1303	1448	1570	1776
20	End	709	799	876	1004	1084	1223	1340	1536
	Interior	1240	1371	1482	1669	1844	2040	2205	2482
18	End	1221	1367	1490	1697	1868	2092	2280	2597
	Interior	2133	2343	2519	2816	3173	3485	3748	4189
16	End	1864	2076	2254	2554	2852	3176	3449	3907
	Interior	3260	3560	3814	4239	4849	5296	5673	6305

Web Crippling Constraints

h=3.06"

r=0.125"

θ=70.7°

## Inward Allowable ( $f_b/\Omega$ ) and Factored ( $\Phi f_b$ ) Distributed Load (lbs/ft<sup>2</sup>)

Gage	Span	Limit Condition	Panel Span (Support Spacing)								
			4'-0"	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"
20/20	SS	$f_b / \Omega$	609	271	152	97	68	50	38	30	24
		$\Phi f_b$	966	429	241	155	107	79	60	48	39
		L/360	-	-	128	66	38	24	16	11	8
		L/240	-	-	-	-	57	36	24	17	12
		L/180	-	-	-	-	-	48	32	22	16
	L/120	-	-	-	-	-	-	-	-	-	
	DS	$f_b / \Omega$	1008	448	252	161	112	82	63	50	40
		$\Phi f_b$	1600	711	400	256	178	131	100	79	64
		L/360	-	-	-	-	94	59	40	28	20
		L/240	-	-	-	-	-	-	60	42	31
		L/180	-	-	-	-	-	-	-	-	-
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	951	423	238	152	106	78	59	47	38
		$\Phi f_b$	1509	671	377	241	168	123	94	75	60
		L/360	-	-	-	149	86	54	36	26	19
L/240		-	-	-	-	-	-	55	38	28	
L/180		-	-	-	-	-	-	-	-	37	
L/120	-	-	-	-	-	-	-	-	-		
20/18	SS	$f_b / \Omega$	611	272	153	98	68	50	38	30	24
		$\Phi f_b$	970	431	242	155	108	79	61	48	39
		L/360	-	-	138	70	41	26	17	12	9
		L/240	-	-	-	-	61	39	26	18	13
		L/180	-	-	-	-	-	-	34	24	18
	L/120	-	-	-	-	-	-	-	-	-	
	DS	$f_b / \Omega$	1045	464	261	167	116	85	65	52	42
		$\Phi f_b$	1658	737	414	265	184	135	104	82	66
		L/360	-	-	-	-	104	66	44	31	22
		L/240	-	-	-	-	-	-	-	46	34
		L/180	-	-	-	-	-	-	-	-	-
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	955	424	239	153	106	78	60	47	38
		$\Phi f_b$	1515	673	379	242	168	124	95	75	61
		L/360	-	-	-	-	95	60	40	28	21
L/240		-	-	-	-	-	-	-	42	31	
L/180		-	-	-	-	-	-	-	-	-	
L/120	-	-	-	-	-	-	-	-	-		
20/16	SS	$f_b / \Omega$	652	290	163	104	72	53	41	32	26
		$\Phi f_b$	1034	459	258	165	115	84	65	51	41
		L/360	-	-	143	73	42	27	18	13	9
		L/240	-	-	-	-	64	40	27	19	14
		L/180	-	-	-	-	-	-	36	25	18
	L/120	-	-	-	-	-	-	-	-	-	
	DS	$f_b / \Omega$	1076	478	269	172	120	88	67	53	43
		$\Phi f_b$	1707	759	427	273	190	139	107	84	68
		L/360	-	-	-	-	114	72	48	34	25
		L/240	-	-	-	-	-	-	-	51	37
		L/180	-	-	-	-	-	-	-	-	-
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	1018	453	255	163	113	83	64	50	41
		$\Phi f_b$	1615	718	404	258	179	132	101	80	65
		L/360	-	-	-	-	105	66	44	31	23
L/240		-	-	-	-	-	-	-	47	34	
L/180		-	-	-	-	-	-	-	-	-	
L/120	-	-	-	-	-	-	-	-	-		

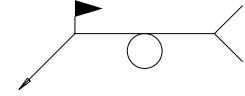


## Inward Allowable ( $f_b/\Omega$ ) and Factored ( $\Phi f_b$ ) Distributed Load (lbs/ft<sup>2</sup>)

Gage	Span	Limit Condition	Panel Span (Support Spacing)								
			4'-0"	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"
16/20	SS	$f_b / \Omega$	1338	595	335	214	149	109	84	66	54
		$\Phi f_b$	2123	944	531	340	236	173	133	105	85
		L/360	-	483	204	104	60	38	25	18	13
		L/240	-	-	305	156	90	57	38	27	20
		L/180	-	-	-	208	121	76	51	36	26
	L/120	-	-	-	-	-	-	76	54	39	
	DS	$f_b / \Omega$	1630	724	407	261	181	133	102	80	65
		$\Phi f_b$	2586	1149	646	414	287	211	162	128	103
		L/360	-	-	-	244	141	89	60	42	31
		L/240	-	-	-	-	-	-	89	63	46
		L/180	-	-	-	-	-	-	-	-	61
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	2037	905	509	326	226	166	127	101	81
		$\Phi f_b$	3232	1436	808	517	359	264	202	160	129
		L/360	-	-	437	224	129	82	55	38	28
L/240		-	-	-	-	194	122	82	58	42	
L/180		-	-	-	-	-	163	109	77	56	
L/120	-	-	-	-	-	-	-	-	-		
16/18	SS	$f_b / \Omega$	1369	609	342	219	152	112	86	68	55
		$\Phi f_b$	2172	966	543	348	241	177	136	107	87
		L/360	-	520	220	112	65	41	27	19	14
		L/240	-	-	329	169	98	61	41	29	21
		L/180	-	-	-	-	130	82	55	39	28
	L/120	-	-	-	-	-	-	82	58	42	
	DS	$f_b / \Omega$	1679	746	420	269	187	137	105	83	67
		$\Phi f_b$	2663	1184	666	426	296	217	166	132	107
		L/360	-	-	-	264	153	96	65	45	33
		L/240	-	-	-	-	-	-	97	68	50
		L/180	-	-	-	-	-	-	-	-	66
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	2098	933	525	336	233	171	131	104	84
		$\Phi f_b$	3329	1480	832	533	370	272	208	164	133
		L/360	-	-	473	242	140	88	59	42	30
L/240		-	-	-	-	210	132	89	62	45	
L/180		-	-	-	-	-	-	118	83	61	
L/120	-	-	-	-	-	-	-	-	-		
16/16	SS	$f_b / \Omega$	1396	621	349	223	155	114	87	69	56
		$\Phi f_b$	2215	985	554	354	246	181	138	109	89
		L/360	-	556	234	120	69	44	29	21	15
		L/240	-	-	-	180	104	66	44	31	23
		L/180	-	-	-	-	139	87	59	41	30
	L/120	-	-	-	-	-	-	-	62	45	
	DS	$f_b / \Omega$	1721	765	430	275	191	141	108	85	69
		$\Phi f_b$	2731	1214	683	437	303	223	171	135	109
		L/360	-	-	-	-	166	105	70	49	36
		L/240	-	-	-	-	-	-	105	74	54
		L/180	-	-	-	-	-	-	-	-	-
	L/120	-	-	-	-	-	-	-	-	-	
	TS	$f_b / \Omega$	2152	956	538	344	239	176	134	106	86
		$\Phi f_b$	3414	1517	853	546	379	279	213	169	137
		L/360	-	-	514	263	152	96	64	45	33
L/240		-	-	-	-	228	144	96	68	49	
L/180		-	-	-	-	-	-	129	90	66	
L/120	-	-	-	-	-	-	-	-	-		

# 3.2 DGN-32 & DGNF-32

## Arc Spot/Seam Welds to Supports with DeltaGrip® Side Seam Attachment



### Allowable Diaphragm Shear, $q_a$ (plf) and Factored Shear, $q_f$ (plf)

Flexibility Factor, F (10<sup>-6</sup>in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	4397	7254	4333	7149	4299	7093	4277	7057	4263	7033	3794	6070	2905	4647	2295	3672	1859	2974
			F		1.7+12.5R		1.9+8.3R		2+6.2R		2.1+5R		2.2+4.2R		2.2+3.6R		2.2+3.1R		2.2+2.8R		2.3+2.5R	
		6"	$q_a$	$q_f$	3869	6385	3749	6186	3684	6078	3643	6011	3615	5965	3595	5931	2905	4647	2295	3672	1859	2974
			F		1.7+12.5R		2+8.3R		2.1+6.2R		2.2+5R		2.2+4.2R		2.3+3.6R		2.3+3.1R		2.3+2.8R		2.3+2.5R	
		8"	$q_a$	$q_f$	3446	5687	3279	5411	3189	5262	3133	5169	3094	5105	3066	5059	2905	4647	2295	3672	1859	2974
			F		1.8+12.5R		2.1+8.3R		2.2+6.2R		2.3+5R		2.3+4.2R		2.3+3.6R		2.4+3.1R		2.4+2.8R		2.4+2.5R	
		12"	$q_a$	$q_f$	2862	4722	2634	4345	2511	4144	2435	4018	2384	3933	2346	3871	2318	3824	2295	3672	1859	2974
			F		1.9+12.5R		2.2+8.3R		2.3+6.2R		2.4+5R		2.4+4.2R		2.5+3.6R		2.5+3.1R		2.5+2.8R		2.5+2.5R	
		18"	$q_a$	$q_f$	2495	4722	2088	3444	2094	3454	1915	3160	1792	2956	1839	3034	1755	2896	1689	2786	1733	2859
			F		2.1+12.5R		2.4+8.3R		2.5+6.2R		2.6+5R		2.6+4.1R		2.7+3.6R		2.7+3.1R		2.7+2.8R		2.7+2.5R	
		24"	$q_a$	$q_f$	2044	3373	1721	2840	1579	2605	1494	2465	1437	2371	1396	2304	1366	2254	1342	2215	1323	2184
			F		2.3+12.4R		2.6+8.3R		2.7+6.2R		2.8+5R		2.8+4.1R		2.9+3.5R		2.9+3.1R		2.9+2.8R		2.9+2.5R	
		36"	$q_a$	$q_f$	1676	2765	1337	2206	1291	2130	1263	2031	1053	1737	1067	1761	1078	1778	958	1581	977	1613
			F		2.6+12.4R		2.9+8.2R		3.1+6.2R		3.2+4.9R		3.2+4.1R		3.3+3.5R		3.3+3.1R		3.3+2.7R		3.4+2.5R	
18	32/5	4"	$q_a$	$q_f$	3459	5707	3379	5575	3335	5503	3308	5459	3290	5428	2737	4379	2096	3353	1656	2649	1341	2146
			F		1.8+21.9R		2.2+14.6R		2.4+10.9R		2.5+8.7R		2.6+7.3R		2.7+6.2R		2.7+5.5R		2.8+4.9R		2.8+4.4R	
		6"	$q_a$	$q_f$	2969	4899	2835	4677	2762	4558	2717	4483	2686	4432	2664	4379	2096	3353	1656	2649	1341	2146
			F		1.9+21.8R		2.3+14.6R		2.5+10.9R		2.6+8.7R		2.7+7.3R		2.8+6.2R		2.8+5.5R		2.9+4.9R		2.9+4.4R	
		8"	$q_a$	$q_f$	2611	4309	2439	4025	2346	3872	2289	3776	2249	3711	2221	3664	2096	3353	1656	2649	1341	2146
			F		2+21.8R		2.4+14.6R		2.6+10.9R		2.8+8.7R		2.8+7.3R		2.9+6.2R		3+5.5R		3+4.9R		3+4.4R	
		12"	$q_a$	$q_f$	2155	3555	1938	3198	1823	3007	1751	2889	1703	2809	1667	2751	1641	2707	1620	2649	1341	2146
			F		2.2+21.8R		2.6+14.5R		2.8+10.9R		3+8.7R		3.1+7.3R		3.1+6.2R		3.2+5.5R		3.2+4.8R		3.2+4.4R	
		18"	$q_a$	$q_f$	1851	3555	1474	2432	1489	2457	1344	2218	1248	2059	1289	2127	1224	2019	1173	1935	1209	1995
			F		2.4+21.8R		2.9+14.5R		3.1+10.9R		3.3+8.7R		3.4+7.3R		3.4+6.2R		3.5+5.4R		3.5+4.8R		3.6+4.4R	
		24"	$q_a$	$q_f$	1468	2422	1219	2011	1106	1824	1038	1712	993	1638	960	1584	936	1545	917	1513	902	1489
			F		2.7+21.7R		3.2+14.5R		3.4+10.9R		3.6+8.7R		3.7+7.2R		3.7+6.2R		3.8+5.4R		3.8+4.8R		3.9+4.3R	
		36"	$q_a$	$q_f$	1356	2237	963	1589	914	1508	884	1459	737	1216	741	1223	744	1228	662	1092	672	1109
			F		3.2+21.6R		3.7+14.4R		4+10.8R		4.2+8.6R		4.3+7.2R		4.3+6.2R		4.4+5.4R		4.4+4.8R		4.5+4.3R	
20	32/5	4"	$q_a$	$q_f$	2374	3917	2282	3766	2233	3684	2202	3633	2181	3598	1796	2874	1375	2200	1087	1738	880	1408
			F		1.5+44.7R		2.4+29.8R		2.8+22.4R		3.1+17.9R		3.3+14.9R		3.4+12.8R		3.5+11.2R		3.6+9.9R		3.6+8.9R	
		6"	$q_a$	$q_f$	1988	3280	1855	3061	1783	2943	1739	2869	1708	2819	1686	2783	1375	2200	1087	1738	880	1408
			F		1.7+44.7R		2.6+29.8R		3+22.3R		3.3+17.9R		3.5+14.9R		3.6+12.8R		3.7+11.2R		3.8+9.9R		3.8+8.9R	
		8"	$q_a$	$q_f$	1714	2827	1573	2595	1492	2462	1440	2376	1404	2317	1378	2275	1359	2200	1087	1738	880	1408
			F		1.8+44.7R		2.8+29.8R		3.2+22.3R		3.5+17.9R		3.7+14.9R		3.8+12.8R		3.9+11.2R		4+9.9R		4+8.9R	
		12"	$q_a$	$q_f$	1279	2110	1138	1877	1071	1767	1031	1700	1004	1656	985	1625	970	1601	959	1583	880	1408
			F		2.2+44.6R		3.1+29.7R		3.6+22.3R		3.8+17.8R		4+14.9R		4.2+12.7R		4.3+11.2R		4.3+9.9R		4.4+8.9R	
		18"	$q_a$	$q_f$	1061	2110	848	1399	853	1408	770	1270	714	1178	736	1215	698	1152	669	1104	689	1137
			F		2.6+44.6R		3.6+29.7R		4.1+22.3R		4.4+17.8R		4.6+14.8R		4.7+12.7R		4.8+11.1R		4.9+9.9R		5+8.9R	
		24"	$q_a$	$q_f$	844	1392	703	1160	636	1049	596	983	569	939	550	907	535	883	524	865	515	850
			F		3.1+44.5R		4.1+29.6R		4.6+22.2R		4.9+17.7R		5.1+14.8R		5.2+12.7R		5.3+11.1R		5.4+9.9R		5.5+8.9R	
		36"	$q_a$	$q_f$	844	1392	558	920	527	870	509	839	424	699	425	702	427	704	379	626	385	635
			F		3.8+44.2R		4.9+29.4R		5.5+22R		5.9+17.6R		6.1+14.7R		6.3+12.6R		6.4+11R		6.5+9.8R		6.6+8.8R	
22	32/5	4"	$q_a$	$q_f$	1901	3137	1805	2978	1753	2892	1720	2838	1698	2801	1375	2200	1053	1684	832	1331	674	1078
			F		0.9+70.6R		2.3+47.1R		3+35.3R		3.4+28.2R		3.7+23.5R		3.9+20.2R		4+17.7R		4.2+15.7R		4.3+14.1R	
		6"	$q_a$	$q_f$	1554	2564	1447	2387	1377	2272	1334	2200	1304	2152	1283	2116	1053	1684	832	1331	674	1078
			F		1.1+70.6R		2.5+47.1R		3.3+35.3R		3.7+28.2R		4+23.5R		4.2+20.2R		4.3+17.6R		4.4+15.7R		4.5+14.1R	
		8"	$q_a$	$q_f$	1242	2049	1139	1879	1088	1796	1058	1746	1038	1712	1023	1688	1012	1670	832	1331	674	1078
			F		1.4+70.6R		2.8+47R		3.5+35.3R		3.9+28.2R		4.2+23.5R		4.4+20.2R		4.6+17.6R		4.7+15.7R		4.8+14.1R	
		12"	$q_a$	$q_f$	930	1534	827	1364	776	1281	746	1231	726	1197	711	1173	700	1155	692	1141	674	1078
			F		1.8+70.5R		3.3+47R		4+35.2R		4.5+28.2R		4.8+23.5R		5+20.1R		5.1+17.6R		5.2+15.7R		5.3+14.1R	
		18"	$q_a$	$q_f$	774	1534	619	1021	620	1023	559	922	517	854	533	879	505	833	484	798	498	821
			F		2.4+70.4R		4+46.9R		4.7+35.1R		5.2+28.1R		5.5+23.4R		5.7+20.1R		5.9+17.6R		6+15.6R		6.1+14R	
		24"	$q_a$	$q_f$	618	1019	515	849	464	766	434	716	413	682	399	658	388	640	380	626	373	615
			F		3+70.2R		4.6+46.7R		5.4+35R		5.9+28R		6.2+23.3R		6.5+20R		6.7+17.5R		6.8+15.5R		6.9+14R	
		36"	$q_a$	$q_f$	618	1019	411	678	386	637	371	613	309	510	310	511	310	512	276	455	279	461
			F		4+69.9R		5.7+46.4R		6.7+34.8R		7.2+27.8R		7.6+23.1R		7.9+19.8R		8.1+17.3R		8.3+15.4R		8.4+13.8R	

# DGN-32 & DGNF-32 3.3

## No. 12 Self-Drilling Screws to Supports with DeltaGrip® Side Seam Attachment



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1703	1703	1702	1702	1702	1702	1701	1701	1701	1701	1701	1701	1701	1701	1514	1514		
			F	1.6+12.3R	1.9+8.2R	2+6.2R	2.1+4.9R	2.1+4.1R	2.1+3.5R	2.2+3.1R	2.2+2.7R	2.2+2.5R										
		6"	$q_a$	$q_f$	1666	2707	1663	2703	1662	2700	1661	2699	1660	2698	1660	2697	1660	2697	1659	2696	1514	2422
			F	1.7+12.3R	1.9+8.2R	2.1+6.2R	2.1+4.9R	2.2+4.1R	2.2+3.5R	2.2+3.1R	2.3+2.7R	2.3+2.5R										
		8"	$q_a$	$q_f$	1621	2634	1615	2625	1612	2620	1610	2617	1609	2615	1608	2613	1607	2612	1607	2611	1514	2422
			F	1.8+12.3R	2+8.2R	2.1+6.1R	2.2+4.9R	2.3+4.1R	2.3+3.5R	2.3+3.1R	2.3+2.7R	2.4+2.5R										
		12"	$q_a$	$q_f$	1519	2468	1504	2445	1497	2432	1492	2424	1488	2419	1486	2415	1484	2412	1483	2410	1482	2408
			F	1.9+12.3R	2.1+8.2R	2.3+6.1R	2.3+4.9R	2.4+4.1R	2.4+3.5R	2.5+3.1R	2.5+2.7R	2.5+2.5R										
		18"	$q_a$	$q_f$	1415	2468	1335	2170	1377	2237	1334	2168	1302	2115	1333	2167	1310	2128	1290	2096	1314	2136
			F	2.1+12.3R	2.3+8.2R	2.5+6.1R	2.5+4.9R	2.6+4.1R	2.6+3.5R	2.7+3.1R	2.7+2.7R	2.7+2.5R										
		24"	$q_a$	$q_f$	1232	2003	1187	1930	1163	1890	1148	1865	1138	1848	1130	1836	1124	1827	1120	1820	1116	1814
			F	2.3+12.3R	2.5+8.2R	2.7+6.1R	2.7+4.9R	2.8+4.1R	2.8+3.5R	2.9+3.1R	2.9+2.7R	2.9+2.4R										
		36"	$q_a$	$q_f$	1232	2003	968	1573	999	1623	1016	1651	895	1454	925	1503	947	1538	869	1412	893	1452
			F	2.6+12.2R	2.9+8.1R	3+6.1R	3.1+4.9R	3.2+4.1R	3.2+3.5R	3.3+3.1R	3.3+2.7R	3.3+2.4R										
18	32/5	4"	$q_a$	$q_f$	1402	1402	1401	1401	1400	1400	1400	1400	1399	1399	1399	1399	1399	1399	1348	1348	1092	1092
			F	1.7+21.5R	2.1+14.4R	2.3+10.8R	2.5+8.6R	2.6+7.2R	2.6+6.2R	2.7+5.4R	2.7+4.8R	2.7+4.3R										
		6"	$q_a$	$q_f$	1358	2207	1354	2200	1352	2197	1350	2195	1350	2193	1349	2192	1348	2191	1348	2157	1092	1747
			F	1.8+21.5R	2.2+14.4R	2.5+10.8R	2.6+8.6R	2.7+7.2R	2.7+6.2R	2.8+5.4R	2.8+4.8R	2.8+4.3R										
		8"	$q_a$	$q_f$	1307	2123	1299	2110	1294	2103	1291	2099	1290	2096	1288	2093	1287	2092	1286	2091	1092	1747
			F	1.9+21.5R	2.3+14.4R	2.6+10.8R	2.7+8.6R	2.8+7.2R	2.8+6.2R	2.9+5.4R	2.9+4.8R	3+4.3R										
		12"	$q_a$	$q_f$	1198	1947	1179	1917	1169	1900	1163	1890	1159	1883	1156	1878	1154	1874	1152	1871	1092	1747
			F	2.1+21.5R	2.6+14.3R	2.8+10.8R	2.9+8.6R	3+7.2R	3.1+6.1R	3.1+5.4R	3.1+4.8R	3.2+4.3R										
		18"	$q_a$	$q_f$	1096	1947	1016	1651	1051	1708	1009	1639	978	1589	1006	1634	983	1597	964	1566	986	1602
			F	2.4+21.5R	2.9+14.3R	3.1+10.7R	3.2+8.6R	3.3+7.2R	3.4+6.1R	3.4+5.4R	3.5+4.8R	3.5+4.3R										
		24"	$q_a$	$q_f$	934	1518	886	1440	861	1399	845	1373	834	1355	826	1342	820	1332	815	1325	811	1319
			F	2.7+21.4R	3.1+14.3R	3.4+10.7R	3.5+8.6R	3.6+7.1R	3.7+6.1R	3.7+5.4R	3.8+4.8R	3.8+4.3R										
		36"	$q_a$	$q_f$	934	1518	710	1155	727	1182	737	1198	641	1041	661	1075	677	1100	616	1001	633	1029
			F	3.2+21.3R	3.7+14.2R	4+10.6R	4.1+8.5R	4.2+7.1R	4.3+6.1R	4.3+5.3R	4.4+4.7R	4.4+4.3R										
20	32/5	4"	$q_a$	$q_f$	1038	1038	1035	1035	1034	1034	1033	1033	1033	1033	1032	1032	1032	1032	885	885	717	717
			F	1.4+44.1R	2.3+29.4R	2.8+22R	3+17.6R	3.2+14.7R	3.3+12.6R	3.4+11R	3.5+9.8R	3.6+8.8R										
		6"	$q_a$	$q_f$	987	1604	981	1594	977	1588	975	1585	974	1583	973	1581	972	1580	885	1416	717	1147
			F	1.6+44R	2.5+29.4R	2.9+22R	3.2+17.6R	3.4+14.7R	3.5+12.6R	3.6+11R	3.7+9.8R	3.7+8.8R										
		8"	$q_a$	$q_f$	932	1515	921	1497	915	1487	911	1481	909	1477	907	1473	905	1471	885	1416	717	1147
			F	1.8+44R	2.7+29.4R	3.1+22R	3.4+17.6R	3.6+14.7R	3.7+12.6R	3.8+11R	3.9+9.8R	3.9+8.8R										
		12"	$q_a$	$q_f$	828	1346	806	1310	794	1291	787	1278	782	1270	778	1264	775	1259	773	1256	717	1147
			F	2.1+44R	3+29.3R	3.5+22R	3.8+17.6R	4+14.7R	4.1+12.6R	4.2+11R	4.3+9.8R	4.3+8.8R										
		18"	$q_a$	$q_f$	742	1346	670	1089	693	1126	657	1067	630	1024	651	1058	632	1027	616	1001	633	1028
			F	2.6+43.9R	3.5+29.3R	4+21.9R	4.3+17.6R	4.5+14.6R	4.6+12.5R	4.7+11R	4.8+9.7R	4.9+8.8R										
		24"	$q_a$	$q_f$	619	1006	574	933	550	894	535	869	525	853	517	841	512	831	507	824	504	818
			F	3+43.8R	4+29.2R	4.5+21.9R	4.8+17.5R	5+14.6R	5.2+12.5R	5.3+10.9R	5.4+9.7R	5.4+8.7R										
		36"	$q_a$	$q_f$	619	1006	455	740	459	746	462	750	396	643	407	661	415	674	375	609	385	625
			F	3.8+43.6R	4.9+29R	5.5+21.7R	5.8+17.4R	6+14.5R	6.2+12.4R	6.3+10.8R	6.4+9.6R	6.5+8.7R										
22	32/5	4"	$q_a$	$q_f$	878	878	874	874	873	873	872	872	871	871	871	871	857	857	677	677	549	549
			F	0.8+69.6R	2.2+46.4R	2.9+34.8R	3.3+27.8R	3.6+23.2R	3.8+19.9R	4+17.4R	4.1+15.5R	4.2+13.9R										
		6"	$q_a$	$q_f$	822	1336	815	1324	810	1317	808	1312	806	1310	805	1307	804	1306	677	1084	549	878
			F	1.1+69.6R	2.5+46.4R	3.2+34.8R	3.6+27.8R	3.9+23.2R	4.1+19.9R	4.2+17.4R	4.3+15.5R	4.4+13.9R										
		8"	$q_a$	$q_f$	766	1245	753	1223	745	1211	741	1204	738	1199	735	1195	734	1192	677	1084	549	878
			F	1.3+69.5R	2.7+46.4R	3.4+34.8R	3.9+27.8R	4.1+23.2R	4.3+19.9R	4.5+17.4R	4.6+15.5R	4.7+13.9R										
		12"	$q_a$	$q_f$	667	1084	643	1045	630	1023	622	1010	616	1001	612	994	609	989	606	985	549	878
			F	1.8+69.5R	3.2+46.3R	3.9+34.7R	4.4+27.8R	4.7+23.1R	4.9+19.8R	5+17.4R	5.2+15.4R	5.2+13.9R										
		18"	$q_a$	$q_f$	591	1084	524	852	541	879	508	825	485	787	501	814	484	786	470	764	484	786
			F	2.4+69.3R	3.9+46.2R	4.7+34.6R	5.1+27.7R	5.4+23.1R	5.7+19.8R	5.8+17.3R	5.9+15.4R	6+13.8R										
		24"	$q_a$	$q_f$	489	795	446	725	423	687	409	664	399	648	392	637	387	628	382	621	379	616
			F	3+69.2R	4.6+46.1R	5.4+34.5R	5.9+27.6R	6.2+23.1R	6.4+19.7R	6.6+17.2R	6.7+15.3R	6.8+13.8R										
		36"	$q_a$	$q_f$	489	795	354	575	352	572	351	571	299	486	306	498	312	506	280	456	287	467
			F	4+68.9R	5.8+45.8R	6.7+34.3R	7.2+27.4R	7.6+22.8R	7.8+19.5R	8+17.1R	8.2+15.2R	8.3+13.7R										

N PANELS

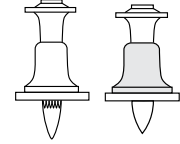


# 3.4 DGN-32 & DGNF-32

Hilti X-EDNK-22, X-EDN19 or HSN 24 Fasteners to Supports with DeltaGrip® Side Seam Attachment



**HILTI**



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2127	3457	2125	3453	2124	3451	2123	3450	2123	3449	2122	3449	2122	3448	1869	2990	1514	2422
			F		1.6+12.3R		1.9+8.2R		2+6.2R		2.1+4.9R		2.1+4.1R		2.1+3.5R		2.2+3.1R		2.2+2.7R		2.2+2.5R	
		6"	$q_a$	$q_f$	2059	3346	2053	3336	2049	3330	2047	3327	2046	3325	2045	3323	2044	3322	1869	2990	1514	2422
			F		1.7+12.3R		1.9+8.2R		2.1+6.2R		2.1+4.9R		2.2+4.1R		2.2+3.5R		2.2+3.1R		2.3+2.7R		2.3+2.5R	
		8"	$q_a$	$q_f$	1980	3218	1968	3197	1961	3186	1957	3180	1954	3175	1952	3172	1950	3169	1869	2990	1514	2422
			F		1.8+12.3R		2+8.2R		2.1+6.1R		2.2+4.9R		2.3+4.1R		2.3+3.5R		2.3+3.1R		2.3+2.7R		2.4+2.5R	
		12"	$q_a$	$q_f$	1814	2948	1785	2901	1770	2876	1760	2860	1754	2850	1749	2842	1745	2836	1742	2831	1514	2422
			F		1.9+12.3R		2.1+8.2R		2.3+6.1R		2.3+4.9R		2.4+4.1R		2.4+3.5R		2.5+3.1R		2.5+2.7R		2.5+2.5R	
		18"	$q_a$	$q_f$	1659	2948	1536	2496	1589	2582	1525	2478	1477	2400	1520	2470	1485	2413	1456	2366	1489	2420
			F		2.1+12.3R		2.3+8.2R		2.5+6.1R		2.5+4.9R		2.6+4.1R		2.6+3.5R		2.7+3.1R		2.7+2.7R		2.7+2.5R	
		24"	$q_a$	$q_f$	1412	2294	1339	2176	1300	2112	1275	2073	1259	2046	1247	2026	1237	2011	1230	1999	1224	1990
			F		2.3+12.3R		2.5+8.2R		2.7+6.1R		2.7+4.9R		2.8+4.1R		2.8+3.5R		2.9+3.1R		2.9+2.7R		2.9+2.4R	
		36"	$q_a$	$q_f$	1412	2294	1073	1743	1098	1784	1113	1808	966	1570	997	1621	1021	1658	928	1509	955	1552
			F		2.6+12.2R		2.9+8.1R		3+6.1R		3.1+4.9R		3.2+4.1R		3.2+3.5R		3.3+3R		3.3+2.7R		3.3+2.4R	
18	32/5	4"	$q_a$	$q_f$	1700	2762	1697	2757	1695	2754	1694	2753	1693	2752	1693	2751	1692	2730	1348	2157	1092	1747
			F		1.7+21.5R		2.1+14.4R		2.3+10.8R		2.5+8.6R		2.6+7.2R		2.6+6.2R		2.7+5.4R		2.7+4.8R		2.7+4.3R	
		6"	$q_a$	$q_f$	1626	2642	1618	2629	1613	2621	1610	2617	1609	2614	1607	2612	1606	2610	1348	2157	1092	1747
			F		1.8+21.5R		2.2+14.4R		2.5+10.8R		2.6+8.6R		2.7+7.2R		2.7+6.2R		2.8+5.4R		2.8+4.8R		2.8+4.3R	
		8"	$q_a$	$q_f$	1544	2510	1529	2484	1520	2471	1515	2462	1512	2457	1509	2452	1507	2449	1348	2157	1092	1747
			F		1.9+21.5R		2.3+14.4R		2.6+10.8R		2.7+8.6R		2.8+7.2R		2.8+6.2R		2.9+5.4R		2.9+4.8R		3+4.3R	
		12"	$q_a$	$q_f$	1385	2250	1353	2198	1335	2170	1324	2152	1317	2140	1312	2131	1308	2125	1304	2119	1092	1747
			F		2.1+21.5R		2.5+14.3R		2.8+10.8R		2.9+8.6R		3+7.2R		3.1+6.1R		3.1+5.4R		3.1+4.8R		3.2+4.3R	
		18"	$q_a$	$q_f$	1247	2250	1135	1844	1175	1909	1117	1815	1075	1747	1109	1803	1079	1753	1054	1712	1081	1747
			F		2.4+21.5R		2.8+14.3R		3.1+10.7R		3.2+8.6R		3.3+7.2R		3.4+6.1R		3.4+5.4R		3.5+4.8R		3.5+4.3R	
		24"	$q_a$	$q_f$	1045	1699	976	1586	939	1526	916	1488	900	1463	889	1444	880	1430	873	1419	868	1410
			F		2.7+21.4R		3.1+14.3R		3.4+10.7R		3.5+8.6R		3.6+7.1R		3.7+6.1R		3.7+5.4R		3.8+4.8R		3.8+4.3R	
		36"	$q_a$	$q_f$	1045	1699	776	1260	786	1277	792	1287	681	1107	702	1140	717	1165	648	1053	666	1082
			F		3.2+21.3R		3.7+14.2R		3.9+10.6R		4.1+8.5R		4.2+7.1R		4.3+6.1R		4.3+5.3R		4.4+4.7R		4.4+4.2R	
20	32/5	4"	$q_a$	$q_f$	1255	2040	1250	2032	1248	2028	1246	2025	1245	2023	1244	2022	1120	1791	885	1416	717	1147
			F		1.4+44.1R		2.3+29.4R		2.8+22R		3+17.6R		3.2+14.7R		3.3+12.6R		3.4+11R		3.5+9.8R		3.6+8.8R	
		6"	$q_a$	$q_f$	1173	1906	1161	1887	1155	1876	1151	1870	1148	1865	1146	1862	1120	1791	885	1416	717	1147
			F		1.6+44R		2.5+29.4R		2.9+22R		3.2+17.6R		3.4+14.7R		3.5+12.6R		3.6+11R		3.7+9.8R		3.7+8.8R	
		8"	$q_a$	$q_f$	1090	1772	1070	1739	1059	1721	1052	1710	1047	1702	1044	1696	1041	1692	885	1416	717	1147
			F		1.8+44R		2.7+29.4R		3.1+22R		3.4+17.6R		3.6+14.7R		3.7+12.6R		3.8+11R		3.9+9.8R		3.9+8.8R	
		12"	$q_a$	$q_f$	947	1538	910	1479	891	1448	879	1428	870	1414	864	1404	860	1397	856	1391	717	1147
			F		2.1+44R		3+29.3R		3.5+22R		3.8+17.6R		3.9+14.7R		4.1+12.6R		4.2+11R		4.3+9.8R		4.3+8.8R	
		18"	$q_a$	$q_f$	837	1538	740	1203	763	1240	716	1163	682	1109	705	1146	681	1107	662	1075	680	1105
			F		2.6+43.9R		3.5+29.3R		4+21.9R		4.3+17.5R		4.5+14.6R		4.6+12.5R		4.7+11R		4.8+9.7R		4.9+8.8R	
		24"	$q_a$	$q_f$	692	1124	629	1023	596	968	575	934	561	911	551	895	543	882	537	872	532	864
			F		3+43.8R		4+29.2R		4.5+21.9R		4.8+17.5R		5+14.6R		5.2+12.5R		5.3+10.9R		5.4+9.7R		5.4+8.7R	
		36"	$q_a$	$q_f$	692	1124	499	811	496	806	494	803	421	683	430	699	437	711	393	639	403	655
			F		3.8+43.6R		4.9+29R		5.5+21.7R		5.8+17.4R		6+14.5R		6.2+12.4R		6.3+10.8R		6.4+9.6R		6.5+8.7R	
22	32/5	4"	$q_a$	$q_f$	1030	1673	1024	1664	1021	1658	1019	1655	1017	1653	1016	1652	857	1372	677	1084	549	878
			F		0.8+69.6R		2.2+46.4R		2.9+34.8R		3.3+27.8R		3.6+23.2R		3.8+19.9R		4+17.4R		4.1+15.5R		4.2+13.9R	
		6"	$q_a$	$q_f$	948	1540	934	1518	927	1506	922	1499	919	1494	917	1490	857	1372	677	1084	549	878
			F		1.1+69.6R		2.5+46.4R		3.2+34.8R		3.6+27.8R		3.9+23.2R		4.1+19.9R		4.2+17.4R		4.3+15.5R		4.4+13.9R	
		8"	$q_a$	$q_f$	870	1414	848	1378	837	1359	829	1347	824	1339	820	1333	818	1329	677	1084	549	878
			F		1.3+69.5R		2.7+46.4R		3.4+34.8R		3.9+27.8R		4.1+23.2R		4.3+19.9R		4.5+17.4R		4.6+15.5R		4.7+13.9R	
		12"	$q_a$	$q_f$	744	1209	708	1150	689	1119	677	1099	668	1086	662	1076	658	1069	654	1063	549	878
			F		1.8+69.5R		3.2+46.3R		3.9+34.7R		4.4+27.8R		4.7+23.1R		4.9+19.8R		5+17.4R		5.1+15.4R		5.2+13.9R	
		18"	$q_a$	$q_f$	653	1209	569	924	583	948	543	883	515	837	532	865	512	832	496	806	510	829
			F		2.4+69.3R		3.9+46.2R		4.7+34.6R		5.1+27.7R		5.4+23.1R		5.6+19.8R		5.8+17.3R		5.9+15.4R		6+13.8R	
		24"	$q_a$	$q_f$	539	875	482	784	452	735	434	705	421	685	412	670	405	659	400	650	395	643
			F		3+69.2R		4.6+46.1R		5.4+34.5R		5.8+27.6R		6.2+23R		6.4+19.7R		6.6+17.2R		6.7+15.3R		6.8+13.8R	
		36"	$q_a$	$q_f$	539	875	384	624	377	613	373	606	316	513	322	523	326	530	292	475	299	486
			F		4+68.9R		5.7+45.8R		6.6+34.3R		7.2+27.4R		7.6+22.8R		7.8+19.5R		8+17.1R		8.2+15.2R		8.3+13.6R	

# DGN-32 & DGNF-32 3.4

## Hilti X-ENP-19 Fasteners to Supports with DeltaGrip® Side Seam Attachment



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2281	3706	2278	3701	2276	3699	2275	3697	2275	3696	2274	3695	2274	3695	1857	2972	1504	2407
			F		1.7+12.5R		1.9+8.3R		2+6.2R		2.1+5R		2.2+4.2R		2.2+3.6R		2.2+3.1R		2.2+2.8R		2.3+2.5R	
		6"	$q_a$	$q_f$	2199	3573	2191	3560	2186	3552	2183	3548	2182	3545	2180	3543	2179	3541	1857	2972	1504	2407
			F		1.7+12.5R		2+8.3R		2.1+6.2R		2.2+5R		2.2+4.2R		2.3+3.6R		2.3+3.1R		2.3+2.8R		2.3+2.5R	
		8"	$q_a$	$q_f$	2105	3421	2089	3395	2081	3381	2075	3372	2072	3366	2069	3362	2067	3359	1857	2972	1504	2407
			F		1.8+12.5R		2+8.3R		2.2+6.2R		2.3+5R		2.3+4.2R		2.3+3.6R		2.4+3.1R		2.4+2.8R		2.4+2.5R	
		12"	$q_a$	$q_f$	1913	3109	1878	3052	1859	3021	1847	3002	1839	2989	1833	2979	1829	2972	1825	2966	1504	2407
			F		1.9+12.5R		2.2+8.3R		2.3+6.2R		2.4+5R		2.4+4.2R		2.5+3.6R		2.5+3.1R		2.5+2.8R		2.5+2.5R	
		18"	$q_a$	$q_f$	1739	3109	1600	2600	1656	2691	1584	2574	1531	2487	1577	2562	1538	2499	1506	2447	1504	2407
			F		2.1+12.4R		2.4+8.3R		2.5+6.2R		2.6+5R		2.6+4.1R		2.7+3.6R		2.7+3.1R		2.7+2.8R		2.7+2.5R	
		24"	$q_a$	$q_f$	1471	2390	1387	2254	1342	2181	1314	2136	1295	2105	1281	2082	1271	2065	1262	2051	1256	2041
			F		2.3+12.4R		2.5+8.3R		2.7+6.2R		2.8+5R		2.8+4.1R		2.9+3.5R		2.9+3.1R		2.9+2.8R		2.9+2.5R	
36"	$q_a$	$q_f$	1471	2390	1107	1799	1129	1835	1142	1856	988	1605	1019	1656	1042	1694	946	1537	973	1581		
	F		2.6+12.3R		2.9+8.2R		3+6.1R		3.1+4.9R		3.2+4.1R		3.3+3.5R		3.3+3.1R		3.3+2.7R		3.3+2.5R			
18	32/5	4"	$q_a$	$q_f$	1862	3026	1861	3024	1860	3022	1859	3021	1859	3021	1859	3020	1696	2713	1340	2144	1085	1737
			F		1.8+21.9R		2.2+14.6R		2.4+10.9R		2.5+8.7R		2.6+7.3R		2.7+6.2R		2.7+5.5R		2.8+4.9R		2.8+4.4R	
		6"	$q_a$	$q_f$	1810	2941	1806	2934	1803	2930	1802	2928	1801	2926	1800	2925	1696	2713	1340	2144	1085	1737
			F		1.9+21.8R		2.3+14.6R		2.5+10.9R		2.6+8.7R		2.7+7.3R		2.8+6.2R		2.8+5.5R		2.9+4.9R		2.9+4.4R	
		8"	$q_a$	$q_f$	1748	2841	1739	2826	1734	2818	1731	2813	1729	2810	1728	2807	1696	2713	1340	2144	1085	1737
			F		1.9+21.8R		2.4+14.6R		2.6+10.9R		2.7+8.7R		2.8+7.3R		2.9+6.2R		2.9+5.5R		3+4.9R		3+4.4R	
		12"	$q_a$	$q_f$	1615	2624	1593	2589	1581	2570	1574	2558	1569	2550	1566	2544	1563	2540	1340	2144	1085	1737
			F		2.1+21.8R		2.6+14.5R		2.8+10.9R		3+8.7R		3+7.3R		3.1+6.2R		3.2+5.5R		3.2+4.8R		3.2+4.4R	
		18"	$q_a$	$q_f$	1486	2624	1385	2251	1432	2327	1379	2240	1339	2176	1376	2236	1347	2188	1323	2144	1085	1737
			F		2.4+21.8R		2.9+14.5R		3.1+10.9R		3.3+8.7R		3.4+7.2R		3.4+6.2R		3.5+5.4R		3.5+4.8R		3.5+4.3R	
		24"	$q_a$	$q_f$	1274	2070	1215	1975	1184	1924	1164	1892	1151	1870	1141	1854	1133	1842	1127	1832	1085	1737
			F		2.6+21.7R		3.1+14.5R		3.4+10.8R		3.5+8.7R		3.6+7.2R		3.7+6.2R		3.8+5.4R		3.8+4.8R		3.8+4.3R	
36"	$q_a$	$q_f$	1274	2070	979	1590	1005	1633	1020	1658	890	1446	919	1494	941	1529	858	1395	883	1434		
	F		3.1+21.6R		3.6+14.4R		3.9+10.7R		4.1+8.6R		4.2+7.1R		4.3+6.1R		4.4+5.4R		4.4+4.8R		4.4+4.3R			
20	32/5	4"	$q_a$	$q_f$	1339	2175	1332	2165	1329	2160	1327	2157	1326	2154	1325	2153	1113	1780	879	1407	712	1140
			F		1.5+44.7R		2.4+29.8R		2.8+22.3R		3.1+17.9R		3.3+14.9R		3.4+12.8R		3.5+11.2R		3.6+9.9R		3.6+8.9R	
		6"	$q_a$	$q_f$	1242	2019	1227	1994	1219	1981	1214	1973	1211	1968	1208	1964	1113	1780	879	1407	712	1140
			F		1.7+44.7R		2.6+29.8R		3+22.3R		3.3+17.9R		3.5+14.9R		3.6+12.8R		3.7+11.2R		3.8+9.9R		3.8+8.9R	
		8"	$q_a$	$q_f$	1148	1865	1123	1825	1110	1803	1101	1790	1096	1780	1091	1773	1088	1768	879	1407	712	1140
			F		1.8+44.7R		2.7+29.8R		3.2+22.3R		3.5+17.9R		3.6+14.9R		3.8+12.8R		3.9+11.2R		4+9.9R		4+8.9R	
		12"	$q_a$	$q_f$	989	1607	946	1538	924	1501	909	1478	900	1462	892	1450	887	1441	879	1407	712	1140
			F		2.1+44.6R		3.1+29.7R		3.5+22.3R		3.8+17.8R		4+14.9R		4.1+12.7R		4.2+11.1R		4.3+9.9R		4.4+8.9R	
		18"	$q_a$	$q_f$	871	1607	765	1243	787	1278	735	1195	699	1136	722	1174	697	1132	676	1098	695	1129
			F		2.5+44.5R		3.5+29.6R		4+22.2R		4.3+17.8R		4.5+14.8R		4.7+12.7R		4.8+11.1R		4.9+9.9R		4.9+8.9R	
		24"	$q_a$	$q_f$	719	1168	649	1055	612	994	589	957	573	931	562	913	553	899	546	888	541	879
			F		2.9+44.4R		3.9+29.5R		4.5+22.1R		4.8+17.7R		5+14.7R		5.2+12.6R		5.3+11.1R		5.4+9.8R		5.5+8.8R	
36"	$q_a$	$q_f$	719	1168	516	838	509	828	506	822	430	698	438	713	445	723	400	649	409	665		
	F		3.5+44.2R		4.7+29.3R		5.3+21.9R		5.7+17.5R		5.9+14.6R		6.1+12.5R		6.3+10.9R		6.4+9.7R		6.5+8.7R			
22	32/5	4"	$q_a$	$q_f$	1102	1791	1095	1780	1092	1774	1089	1770	1088	1768	1087	1766	852	1363	673	1077	545	872
			F		0.9+70.6R		2.3+47.1R		3+35.3R		3.4+28.2R		3.7+23.5R		3.9+20.2R		4+17.6R		4.2+15.7R		4.3+14.1R	
		6"	$q_a$	$q_f$	1011	1642	995	1617	987	1603	981	1595	978	1589	975	1585	852	1363	673	1077	545	872
			F		1.1+70.6R		2.5+47R		3.2+35.3R		3.7+28.2R		4+23.5R		4.2+20.2R		4.3+17.6R		4.4+15.7R		4.5+14.1R	
		8"	$q_a$	$q_f$	925	1503	900	1463	887	1441	879	1428	873	1418	869	1412	852	1363	673	1077	545	872
			F		1.3+70.5R		2.8+47R		3.5+35.3R		3.9+28.2R		4.2+23.5R		4.4+20.1R		4.6+17.6R		4.7+15.7R		4.8+14.1R	
		12"	$q_a$	$q_f$	788	1280	748	1216	727	1181	713	1159	704	1144	697	1133	692	1125	673	1077	545	872
			F		1.7+70.4R		3.2+46.9R		4+35.2R		4.4+28.2R		4.7+23.5R		4.9+20.1R		5.1+17.6R		5.2+15.6R		5.3+14.1R	
		18"	$q_a$	$q_f$	691	1280	600	974	614	998	571	928	541	879	558	907	537	873	520	845	535	869
			F		2.3+70.3R		3.8+46.8R		4.6+35.1R		5.1+28R		5.4+23.4R		5.7+20R		5.8+17.5R		6+15.6R		6.1+14R	
		24"	$q_a$	$q_f$	570	926	508	826	476	773	455	740	442	718	432	702	424	689	418	680	414	672
			F		2.7+70.1R		4.4+46.7R		5.2+34.9R		5.8+27.9R		6.1+23.2R		6.4+19.9R		6.6+17.4R		6.7+15.5R		6.8+13.9R	
36"	$q_a$	$q_f$	570	926	405	659	397	644	391	636	331	539	337	548	341	554	306	497	312	508		
	F		3.5+69.8R		5.3+46.3R		6.3+34.6R		6.9+27.6R		7.4+23R		7.7+19.7R		7.9+17.2R		8.1+15.3R		8.2+13.7R			

N PANELS

# 3.5 DGN-32 & DGNF-32

Pneutek SDK61 Fasteners to Supports with DeltaGrip® Side Seam Attachment



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F (10<sup>-6</sup>in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2108	3425	2106	3422	2105	3420	2104	3419	2103	3418	2103	3418	2103	3417	1858	2974	1505	2409
			F	1.7+12.4R	1.9+8.3R	2+6.2R	2.1+5R	2.2+4.1R	2.2+3.6R	2.2+3.1R	2.2+2.8R	2.3+2.5R										
		6"	$q_a$	$q_f$	2042	3318	2035	3308	2032	3302	2030	3299	2029	3297	2028	3295	2027	3294	1858	2974	1505	2409
			F	1.7+12.4R	2+8.3R	2.1+6.2R	2.2+5R	2.2+4.1R	2.3+3.6R	2.3+3.1R	2.3+2.8R	2.3+2.5R										
		8"	$q_a$	$q_f$	1964	3192	1952	3172	1946	3162	1942	3155	1939	3151	1937	3147	1935	3145	1858	2974	1505	2409
			F	1.8+12.4R	2+8.3R	2.2+6.2R	2.2+5R	2.3+4.1R	2.3+3.6R	2.4+3.1R	2.4+2.8R	2.4+2.5R										
		12"	$q_a$	$q_f$	1801	2927	1773	2882	1758	2857	1749	2842	1742	2832	1738	2824	1734	2818	1731	2814	1505	2409
			F	1.9+12.4R	2.2+8.3R	2.3+6.2R	2.4+5R	2.4+4.1R	2.5+3.6R	2.5+3.1R	2.5+2.8R	2.5+2.5R										
		18"	$q_a$	$q_f$	1649	2927	1528	2482	1580	2568	1517	2465	1470	2389	1512	2457	1478	2401	1449	2355	1482	2409
			F	2.1+12.4R	2.4+8.3R	2.5+6.2R	2.6+5R	2.6+4.1R	2.7+3.6R	2.7+3.1R	2.7+2.8R	2.7+2.5R										
		24"	$q_a$	$q_f$	1404	2282	1333	2166	1294	2103	1270	2064	1254	2038	1242	2018	1233	2004	1226	1992	1220	1983
			F	2.3+12.4R	2.6+8.3R	2.7+6.2R	2.8+5R	2.9+4.1R	2.9+3.5R	2.9+3.1R	2.9+2.8R	3+2.5R										
		36"	$q_a$	$q_f$	1404	2282	1068	1736	1094	1777	1109	1802	963	1565	995	1616	1018	1654	926	1505	952	1548
			F	2.7+12.4R	3+8.3R	3.1+6.2R	3.2+5R	3.3+4.1R	3.3+3.5R	3.3+3.1R	3.3+2.8R	3.4+2.5R										
18	32/5	4"	$q_a$	$q_f$	1743	2832	1741	2830	1741	2829	1740	2828	1740	2828	1740	2827	1697	2715	1341	2145	1086	1738
			F	1.8+21.8R	2.2+14.5R	2.4+10.9R	2.5+8.7R	2.6+7.3R	2.7+6.2R	2.7+5.4R	2.8+4.8R	2.8+4.4R										
		6"	$q_a$	$q_f$	1699	2761	1696	2755	1694	2752	1693	2750	1692	2749	1691	2748	1691	2715	1341	2145	1086	1738
			F	1.9+21.8R	2.3+14.5R	2.5+10.9R	2.6+8.7R	2.7+7.3R	2.8+6.2R	2.8+5.4R	2.9+4.8R	2.9+4.4R										
		8"	$q_a$	$q_f$	1647	2676	1640	2664	1636	2658	1633	2654	1632	2652	1631	2650	1630	2648	1341	2145	1086	1738
			F	2+21.8R	2.4+14.5R	2.6+10.9R	2.8+8.7R	2.8+7.3R	2.9+6.2R	2.9+5.4R	3+4.8R	3+4.4R										
		12"	$q_a$	$q_f$	1531	2489	1514	2460	1504	2445	1498	2435	1494	2428	1491	2424	1489	2420	1341	2145	1086	1738
			F	2.2+21.8R	2.6+14.5R	2.8+10.9R	3+8.7R	3.1+7.3R	3.1+6.2R	3.2+5.4R	3.2+4.8R	3.2+4.4R										
		18"	$q_a$	$q_f$	1417	2489	1329	2159	1372	2230	1325	2153	1290	2096	1323	2150	1297	2108	1276	2073	1086	1738
			F	2.5+21.8R	2.9+14.5R	3.2+10.9R	3.3+8.7R	3.4+7.3R	3.4+6.2R	3.5+5.4R	3.5+4.8R	3.6+4.4R										
		24"	$q_a$	$q_f$	1224	1988	1173	1906	1145	1861	1128	1833	1117	1814	1108	1801	1102	1790	1096	1782	1086	1738
			F	2.8+21.7R	3.2+14.5R	3.5+10.9R	3.6+8.7R	3.7+7.2R	3.8+6.2R	3.8+5.4R	3.8+4.8R	3.9+4.3R										
		36"	$q_a$	$q_f$	1224	1988	949	1543	977	1588	993	1614	870	1413	899	1461	920	1495	842	1368	865	1406
			F	3.4+21.7R	3.8+14.4R	4.1+10.8R	4.2+8.7R	4.3+7.2R	4.4+6.2R	4.4+5.4R	4.5+4.8R	4.5+4.3R										
20	32/5	4"	$q_a$	$q_f$	1275	2072	1270	2064	1267	2060	1266	2057	1265	2055	1264	2054	1114	1782	880	1408	713	1140
			F	1.5+44.6R	2.4+29.7R	2.8+22.3R	3.1+17.8R	3.3+14.9R	3.4+12.7R	3.5+11.1R	3.6+9.9R	3.6+8.9R										
		6"	$q_a$	$q_f$	1190	1933	1177	1913	1170	1902	1166	1895	1163	1890	1161	1887	1114	1782	880	1408	713	1140
			F	1.7+44.6R	2.6+29.7R	3+22.3R	3.3+17.8R	3.5+14.9R	3.6+12.7R	3.7+11.1R	3.8+9.9R	3.8+8.9R										
		8"	$q_a$	$q_f$	1104	1794	1083	1760	1071	1741	1064	1729	1059	1721	1055	1715	1053	1711	880	1408	713	1140
			F	1.9+44.6R	2.8+29.7R	3.2+22.3R	3.5+17.8R	3.7+14.9R	3.8+12.7R	3.9+11.1R	4+9.9R	4+8.9R										
		12"	$q_a$	$q_f$	957	1555	919	1494	899	1461	886	1440	877	1426	871	1415	866	1408	862	1401	713	1140
			F	2.2+44.5R	3.1+29.7R	3.6+22.3R	3.9+17.8R	4+14.8R	4.2+12.7R	4.3+11.1R	4.3+9.9R	4.4+8.9R										
		18"	$q_a$	$q_f$	845	1555	746	1212	769	1249	720	1171	686	1115	709	1152	685	1113	665	1081	684	1111
			F	2.8+44.5R	3.7+29.7R	4.1+22.2R	4.4+17.8R	4.6+14.8R	4.7+12.7R	4.8+11.1R	4.9+9.9R	5+8.9R										
		24"	$q_a$	$q_f$	698	1135	634	1030	600	974	578	940	564	916	553	899	545	886	539	876	534	868
			F	3.3+44.4R	4.2+29.6R	4.7+22.2R	5+17.8R	5.2+14.8R	5.3+12.7R	5.4+11.1R	5.5+9.9R	5.5+8.9R										
		36"	$q_a$	$q_f$	698	1135	503	818	499	811	497	808	423	687	432	702	439	714	395	641	404	657
			F	4.3+44.3R	5.3+29.5R	5.8+22.1R	6.1+17.7R	6.3+14.7R	6.4+12.6R	6.5+11.1R	6.6+9.8R	6.7+8.8R										
22	32/5	4"	$q_a$	$q_f$	1057	1718	1052	1709	1048	1704	1046	1701	1045	1698	1044	1697	853	1364	674	1078	546	873
			F	0.9+70.4R	2.3+46.9R	3+35.2R	3.4+28.2R	3.7+23.5R	3.9+20.1R	4+17.6R	4.2+15.6R	4.3+14.1R										
		6"	$q_a$	$q_f$	975	1584	961	1562	954	1550	949	1542	946	1537	944	1534	853	1364	674	1078	546	873
			F	1.1+70.4R	2.6+46.9R	3.3+35.2R	3.7+28.2R	4+23.5R	4.2+20.1R	4.3+17.6R	4.4+15.6R	4.5+14.1R										
		8"	$q_a$	$q_f$	896	1455	874	1420	862	1400	854	1388	849	1380	846	1374	843	1364	674	1078	546	873
			F	1.4+70.4R	2.8+46.9R	3.5+35.2R	4+28.2R	4.2+23.5R	4.4+20.1R	4.6+17.6R	4.7+15.6R	4.8+14.1R										
		12"	$q_a$	$q_f$	766	1245	730	1187	711	1155	698	1135	690	1121	684	1111	679	1104	674	1078	546	873
			F	1.9+70.4R	3.4+46.9R	4.1+35.2R	4.5+28.1R	4.8+23.5R	5+20.1R	5.1+17.6R	5.3+15.6R	5.4+14.1R										
		18"	$q_a$	$q_f$	673	1245	587	954	602	979	561	912	533	865	550	894	530	861	513	834	528	858
			F	2.7+70.3R	4.1+46.8R	4.9+35.1R	5.3+28.1R	5.6+23.4R	5.8+20.1R	6+17.6R	6.1+15.6R	6.2+14.1R										
		24"	$q_a$	$q_f$	555	902	498	809	467	759	448	729	436	708	426	693	419	681	414	672	409	665
			F	3.4+70.2R	4.9+46.8R	5.6+35.1R	6.1+28.1R	6.4+23.4R	6.6+20R	6.8+17.5R	6.9+15.6R	7+14R										
		36"	$q_a$	$q_f$	555	902	396	644	389	633	385	626	327	531	333	541	337	548	302	491	309	502
			F	4.7+70R	6.3+46.6R	7.1+34.9R	7.6+27.9R	7.9+23.3R	8.2+19.9R	8.3+17.4R	8.5+15.5R	8.6+14R										

# DGN-32 & DGNF-32 3.5

## Pneutek SDK63 Fasteners to Supports with DeltaGrip® Side Seam Attachment



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2041	3317	2039	3314	2038	3312	2038	3311	2037	3311	2037	3310	2037	3310	1858	2974	1505	2409
			F		1.7+12.4R		1.9+8.3R		2+6.2R		2.1+5R		2.2+4.1R		2.2+3.6R		2.2+3.1R		2.2+2.8R		2.3+2.5R	
		6"	$q_a$	$q_f$	1981	3219	1975	3210	1972	3205	1970	3202	1969	3200	1968	3199	1968	3197	1858	2974	1505	2409
			F		1.7+12.4R		2+8.3R		2.1+6.2R		2.2+5R		2.2+4.1R		2.3+3.6R		2.3+3.1R		2.3+2.8R		2.3+2.5R	
		8"	$q_a$	$q_f$	1909	3103	1898	3085	1892	3075	1889	3069	1886	3065	1885	3062	1883	3060	1858	2974	1505	2409
			F		1.8+12.4R		2+8.3R		2.2+6.2R		2.2+5R		2.3+4.1R		2.3+3.6R		2.4+3.1R		2.4+2.8R		2.4+2.5R	
		12"	$q_a$	$q_f$	1757	2855	1731	2813	1718	2791	1709	2777	1703	2768	1699	2761	1696	2756	1693	2752	1505	2409
			F		1.9+12.4R		2.2+8.3R		2.3+6.2R		2.4+5R		2.4+4.1R		2.5+3.6R		2.5+3.1R		2.5+2.8R		2.5+2.5R	
		18"	$q_a$	$q_f$	1612	2855	1498	2435	1549	2518	1489	2420	1445	2348	1486	2414	1453	2361	1426	2317	1458	2369
			F		2.1+12.4R		2.4+8.3R		2.5+6.2R		2.6+5R		2.6+4.1R		2.7+3.6R		2.7+3.1R		2.7+2.8R		2.7+2.5R	
		24"	$q_a$	$q_f$	1377	2238	1311	2130	1275	2071	1252	2035	1237	2010	1226	1992	1217	1978	1211	1967	1205	1958
			F		2.3+12.4R		2.6+8.3R		2.7+6.2R		2.8+5R		2.9+4.1R		2.9+3.5R		2.9+3.1R		2.9+2.8R		3+2.5R	
36"	$q_a$	$q_f$	1377	2238	1053	1711	1079	1754	1095	1779	953	1549	984	1600	1007	1637	918	1491	944	1534		
	F		2.7+12.4R		3+8.3R		3.1+6.2R		3.2+5R		3.3+4.1R		3.3+3.5R		3.3+3.1R		3.3+2.8R		3.4+2.5R			
18	32/5	4"	$q_a$	$q_f$	1762	2864	1761	2862	1760	2861	1760	2860	1760	2860	1760	2859	1697	2715	1341	2145	1086	1738
			F		1.8+21.8R		2.2+14.5R		2.4+10.9R		2.5+8.7R		2.6+7.3R		2.7+6.2R		2.7+5.4R		2.8+4.8R		2.8+4.4R	
		6"	$q_a$	$q_f$	1718	2791	1714	2785	1712	2782	1711	2780	1710	2779	1709	2778	1697	2715	1341	2145	1086	1738
			F		1.9+21.8R		2.3+14.5R		2.5+10.9R		2.6+8.7R		2.7+7.3R		2.8+6.2R		2.8+5.4R		2.9+4.8R		2.9+4.4R	
		8"	$q_a$	$q_f$	1664	2704	1656	2691	1652	2685	1650	2681	1648	2678	1647	2676	1646	2674	1341	2145	1086	1738
			F		2+21.8R		2.4+14.5R		2.6+10.9R		2.8+8.7R		2.8+7.3R		2.9+6.2R		2.9+5.4R		3+4.8R		3+4.4R	
		12"	$q_a$	$q_f$	1545	2511	1527	2481	1517	2466	1511	2456	1507	2449	1504	2444	1502	2440	1341	2145	1086	1738
			F		2.2+21.8R		2.6+14.5R		2.8+10.9R		3+8.7R		3.1+7.3R		3.1+6.2R		3.2+5.4R		3.2+4.8R		3.2+4.4R	
		18"	$q_a$	$q_f$	1429	2511	1338	2175	1382	2246	1334	2168	1298	2109	1332	2165	1306	2122	1284	2086	1086	1738
			F		2.5+21.8R		2.9+14.5R		3.2+10.9R		3.3+8.7R		3.4+7.3R		3.4+6.2R		3.5+5.4R		3.5+4.8R		3.6+4.4R	
		24"	$q_a$	$q_f$	1232	2002	1180	1918	1152	1872	1134	1843	1122	1824	1114	1810	1107	1799	1102	1790	1086	1738
			F		2.8+21.7R		3.2+14.5R		3.5+10.9R		3.6+8.7R		3.7+7.2R		3.8+6.2R		3.8+5.4R		3.8+4.8R		3.9+4.3R	
36"	$q_a$	$q_f$	1232	2002	954	1551	982	1595	998	1621	873	1419	902	1466	924	1501	844	1372	868	1411		
	F		3.4+21.7R		3.8+14.4R		4.1+10.8R		4.2+8.7R		4.3+7.2R		4.4+6.2R		4.4+5.4R		4.5+4.8R		4.5+4.3R			
20	32/5	4"	$q_a$	$q_f$	1356	2204	1350	2193	1346	2188	1344	2184	1343	2182	1341	2180	1114	1782	880	1408	713	1140
			F		1.5+44.6R		2.4+29.7R		2.8+22.3R		3.1+17.8R		3.3+14.9R		3.4+12.7R		3.5+11.1R		3.6+9.9R		3.6+8.9R	
		6"	$q_a$	$q_f$	1257	2042	1241	2017	1233	2003	1227	1995	1224	1989	1221	1985	1114	1782	880	1408	713	1140
			F		1.7+44.6R		2.6+29.7R		3+22.3R		3.3+17.8R		3.5+14.9R		3.6+12.7R		3.7+11.1R		3.8+9.9R		3.8+8.9R	
		8"	$q_a$	$q_f$	1160	1885	1134	1843	1120	1820	1111	1806	1105	1796	1101	1789	1098	1782	880	1408	713	1140
			F		1.9+44.6R		2.8+29.7R		3.2+22.3R		3.5+17.8R		3.7+14.9R		3.8+12.7R		3.9+11.1R		4+9.9R		4+8.9R	
		12"	$q_a$	$q_f$	998	1621	954	1550	930	1512	916	1488	906	1471	898	1460	893	1451	880	1408	713	1140
			F		2.2+44.5R		3.1+29.7R		3.6+22.3R		3.9+17.8R		4+14.8R		4.2+12.7R		4.3+11.1R		4.3+9.9R		4.4+8.9R	
		18"	$q_a$	$q_f$	878	1621	770	1251	791	1286	740	1202	703	1142	726	1180	700	1137	679	1103	698	1134
			F		2.8+44.5R		3.7+29.7R		4.1+22.2R		4.4+17.8R		4.6+14.8R		4.7+12.7R		4.8+11.1R		4.9+9.9R		5+8.9R	
		24"	$q_a$	$q_f$	725	1178	653	1062	615	1000	592	961	576	935	564	917	555	902	548	891	543	882
			F		3.3+44.4R		4.2+29.6R		4.7+22.2R		5+17.8R		5.2+14.8R		5.3+12.7R		5.4+11.1R		5.5+9.9R		5.5+8.9R	
36"	$q_a$	$q_f$	725	1178	519	844	513	833	508	826	432	701	440	716	447	726	401	652	410	667		
	F		4.3+44.3R		5.3+29.5R		5.8+22.1R		6.1+17.7R		6.3+14.7R		6.4+12.6R		6.5+11.1R		6.6+9.8R		6.7+8.8R			
22	32/5	4"	$q_a$	$q_f$	1156	1878	1148	1865	1143	1858	1141	1853	1139	1850	1113	1782	853	1364	674	1078	546	873
			F		0.9+70.4R		2.3+46.9R		3+35.2R		3.4+28.2R		3.7+23.5R		3.9+20.1R		4+17.6R		4.2+15.6R		4.3+14.1R	
		6"	$q_a$	$q_f$	1054	1712	1035	1682	1026	1666	1019	1656	1015	1650	1012	1645	853	1364	674	1078	546	873
			F		1.1+70.4R		2.6+46.9R		3.3+35.2R		3.7+28.2R		4+23.5R		4.2+20.1R		4.3+17.6R		4.4+15.6R		4.5+14.1R	
		8"	$q_a$	$q_f$	960	1560	932	1514	916	1489	907	1473	900	1463	895	1455	853	1364	674	1078	546	873
			F		1.4+70.4R		2.8+46.9R		3.5+35.2R		4+28.2R		4.2+23.5R		4.4+20.1R		4.6+17.6R		4.7+15.6R		4.8+14.1R	
		12"	$q_a$	$q_f$	814	1322	769	1250	745	1211	730	1187	720	1170	713	1158	707	1149	674	1078	546	873
			F		1.9+70.4R		3.4+46.9R		4.1+35.2R		4.5+28.1R		4.8+23.5R		5+20.1R		5.1+17.6R		5.3+15.6R		5.4+14.1R	
		18"	$q_a$	$q_f$	712	1322	615	999	628	1020	582	946	550	894	568	923	546	887	528	858	543	873
			F		2.7+70.3R		4.1+46.8R		4.9+35.1R		5.3+28.1R		5.6+23.4R		5.8+20.1R		6+17.6R		6.1+15.6R		6.2+14.1R	
		24"	$q_a$	$q_f$	588	955	521	847	486	789	464	754	449	730	438	712	430	699	424	689	419	681
			F		3.4+70.2R		4.9+46.8R		5.6+35.1R		6.1+28.1R		6.4+23.4R		6.6+20R		6.8+17.5R		6.9+15.6R		7+14R	
36"	$q_a$	$q_f$	588	955	417	677	406	659	399	648	337	548	342	556	346	562	310	504	316	514		
	F		4.7+70R		6.3+46.6R		7.1+34.9R		7.6+27.9R		7.9+23.3R		8.2+19.9R		8.3+17.4R		8.5+15.5R		8.6+14R			

# 3.5 DGN-32 & DGNF-32

## Pneutek K64 Fasteners to Supports with DeltaGrip® Side Seam Attachment



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F (10<sup>-6</sup>in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2628	4271	2623	4263	2620	4258	2619	4256	2618	4254	2617	4252	2351	3761	1857	2972	1504	2407
			F	1.7+12.5R	1.9+8.3R	2+6.2R	2.1+5R	2.2+4.2R	2.2+3.6R	2.2+3.1R	2.2+2.8R	2.3+2.5R										
		6"	$q_a$	$q_f$	2509	4077	2495	4055	2488	4043	2483	4035	2480	4030	2478	4027	2351	3761	1857	2972	1504	2407
			F	1.7+12.5R	2+8.3R	2.1+6.2R	2.2+5R	2.2+4.2R	2.3+3.6R	2.3+3.1R	2.3+2.8R	2.3+2.5R										
		8"	$q_a$	$q_f$	2378	3865	2353	3823	2339	3801	2330	3787	2324	3777	2320	3770	2317	3761	1857	2972	1504	2407
			F	1.8+12.5R	2.1+8.3R	2.2+6.2R	2.3+5R	2.3+4.2R	2.3+3.6R	2.4+3.1R	2.4+2.8R	2.4+2.5R										
		12"	$q_a$	$q_f$	2125	3454	2073	3369	2045	3323	2027	3294	2015	3275	2007	3261	2000	3250	1857	2972	1504	2407
			F	1.9+12.5R	2.2+8.3R	2.3+6.2R	2.4+5R	2.4+4.2R	2.5+3.6R	2.5+3.1R	2.5+2.8R	2.5+2.5R										
		18"	$q_a$	$q_f$	1910	3454	1733	2816	1793	2914	1703	2768	1638	2661	1690	2747	1642	2669	1604	2606	1504	2407
			F	2.1+12.5R	2.4+8.3R	2.5+6.2R	2.6+5R	2.6+4.2R	2.7+3.6R	2.7+3.1R	2.7+2.8R	2.8+2.5R										
		24"	$q_a$	$q_f$	1598	2596	1488	2419	1430	2323	1393	2263	1368	2223	1350	2193	1336	2171	1325	2154	1317	2139
			F	2.3+12.5R	2.6+8.3R	2.7+6.2R	2.8+5R	2.9+4.2R	2.9+3.6R	2.9+3.1R	2.9+2.8R	3+2.5R										
		36"	$q_a$	$q_f$	1598	2596	1182	1920	1195	1942	1204	1956	1034	1680	1064	1729	1086	1765	982	1595	1009	1639
			F	2.7+12.4R	3+8.3R	3.1+6.2R	3.2+5R	3.3+4.1R	3.3+3.6R	3.3+3.1R	3.4+2.8R	3.4+2.5R										
18	32/5	4"	$q_a$	$q_f$	2168	3523	2165	3519	2164	3516	2163	3515	2162	3514	2162	3513	1696	2713	1340	2144	1085	1737
			F	1.8+21.9R	2.2+14.6R	2.4+10.9R	2.5+8.7R	2.6+7.3R	2.7+6.2R	2.7+5.5R	2.8+4.9R	2.8+4.4R										
		6"	$q_a$	$q_f$	2090	3396	2082	3383	2077	3376	2075	3371	2073	3368	2072	3366	1696	2713	1340	2144	1085	1737
			F	1.9+21.9R	2.3+14.6R	2.5+10.9R	2.6+8.7R	2.7+7.3R	2.8+6.2R	2.8+5.5R	2.9+4.9R	2.9+4.4R										
		8"	$q_a$	$q_f$	2000	3250	1984	3224	1976	3211	1971	3203	1967	3197	1965	3193	1696	2713	1340	2144	1085	1737
			F	2+21.9R	2.4+14.6R	2.6+10.9R	2.8+8.7R	2.8+7.3R	2.9+6.2R	3+5.5R	3+4.9R	3+4.4R										
		12"	$q_a$	$q_f$	1816	2951	1782	2896	1764	2867	1753	2848	1745	2835	1739	2826	1696	2713	1340	2144	1085	1737
			F	2.2+21.8R	2.6+14.6R	2.8+10.9R	3+8.7R	3.1+7.3R	3.1+6.2R	3.2+5.5R	3.2+4.9R	3.2+4.4R										
		18"	$q_a$	$q_f$	1650	2951	1517	2465	1570	2552	1501	2440	1451	2357	1494	2429	1457	2368	1340	2144	1085	1737
			F	2.5+21.8R	2.9+14.6R	3.2+10.9R	3.3+8.7R	3.4+7.3R	3.4+6.2R	3.5+5.5R	3.5+4.8R	3.6+4.4R										
		24"	$q_a$	$q_f$	1395	2267	1315	2137	1272	2067	1245	2023	1227	1993	1213	1972	1203	1955	1195	1942	1085	1737
			F	2.8+21.8R	3.2+14.5R	3.5+10.9R	3.6+8.7R	3.7+7.3R	3.8+6.2R	3.8+5.4R	3.9+4.8R	3.9+4.4R										
		36"	$q_a$	$q_f$	1395	2267	1049	1705	1070	1738	1082	1758	935	1520	965	1568	987	1603	895	1455	921	1496
			F	3.4+21.7R	3.9+14.5R	4.1+10.9R	4.2+8.7R	4.3+7.2R	4.4+6.2R	4.5+5.4R	4.5+4.8R	4.5+4.3R										
20	32/5	4"	$q_a$	$q_f$	1494	2427	1484	2412	1479	2404	1476	2398	1474	2395	1453	2326	1113	1780	879	1407	712	1140
			F	1.5+44.7R	2.4+29.8R	2.8+22.4R	3.1+17.9R	3.3+14.9R	3.4+12.8R	3.5+11.2R	3.6+9.9R	3.6+8.9R										
		6"	$q_a$	$q_f$	1368	2223	1347	2188	1335	2169	1328	2157	1323	2149	1319	2144	1113	1780	879	1407	712	1140
			F	1.7+44.7R	2.6+29.8R	3+22.4R	3.3+17.9R	3.5+14.9R	3.6+12.8R	3.7+11.2R	3.8+9.9R	3.8+8.9R										
		8"	$q_a$	$q_f$	1251	2033	1217	1978	1199	1948	1187	1929	1179	1916	1173	1907	1113	1780	879	1407	712	1140
			F	1.9+44.7R	2.8+29.8R	3.2+22.3R	3.5+17.9R	3.7+14.9R	3.8+12.8R	3.9+11.2R	4+9.9R	4+8.9R										
		12"	$q_a$	$q_f$	1065	1730	1010	1641	980	1593	962	1563	949	1543	940	1528	933	1517	879	1407	712	1140
			F	2.2+44.7R	3.1+29.8R	3.6+22.3R	3.9+17.9R	4+14.9R	4.2+12.8R	4.3+11.2R	4.3+9.9R	4.4+8.9R										
		18"	$q_a$	$q_f$	933	1730	809	1315	828	1346	770	1251	729	1184	752	1222	723	1175	700	1138	712	1140
			F	2.8+44.6R	3.7+29.8R	4.2+22.3R	4.4+17.9R	4.6+14.9R	4.7+12.7R	4.8+11.2R	4.9+9.9R	5+8.9R										
		24"	$q_a$	$q_f$	770	1251	686	1115	641	1042	614	997	595	967	581	945	571	928	563	915	557	905
			F	3.3+44.6R	4.2+29.7R	4.7+22.3R	5+17.8R	5.2+14.9R	5.3+12.7R	5.4+11.1R	5.5+9.9R	5.5+8.9R										
		36"	$q_a$	$q_f$	770	1251	547	889	535	869	528	857	447	726	454	738	459	747	412	669	420	683
			F	4.3+44.4R	5.3+29.6R	5.8+22.2R	6.1+17.8R	6.3+14.8R	6.4+12.7R	6.5+11.1R	6.6+9.9R	6.7+8.9R										
22	32/5	4"	$q_a$	$q_f$	1159	1884	1151	1870	1147	1863	1144	1859	1142	1856	1113	1780	852	1363	673	1077	545	872
			F	0.9+70.6R	2.3+47.1R	3+35.3R	3.4+28.2R	3.7+23.5R	3.9+20.2R	4.1+17.7R	4.2+15.7R	4.3+14.1R										
		6"	$q_a$	$q_f$	1056	1717	1038	1687	1028	1670	1022	1660	1017	1653	1014	1648	852	1363	673	1077	545	872
			F	1.1+70.6R	2.6+47.1R	3.3+35.3R	3.7+28.2R	4+23.5R	4.2+20.2R	4.4+17.7R	4.4+15.7R	4.5+14.1R										
		8"	$q_a$	$q_f$	962	1564	934	1517	918	1492	908	1476	902	1465	897	1457	852	1363	673	1077	545	872
			F	1.4+70.6R	2.8+47.1R	3.5+35.3R	4+28.2R	4.2+23.5R	4.5+20.2R	4.6+17.6R	4.7+15.7R	4.8+14.1R										
		12"	$q_a$	$q_f$	815	1325	771	1252	746	1213	731	1188	721	1172	714	1159	708	1150	673	1077	545	872
			F	1.9+70.6R	3.4+47R	4.1+35.3R	4.5+28.2R	4.8+23.5R	5+20.2R	5.2+17.6R	5.3+15.7R	5.4+14.1R										
		18"	$q_a$	$q_f$	714	1325	616	1000	629	1022	583	947	551	895	569	924	546	888	528	859	543	872
			F	2.7+70.5R	4.1+47R	4.9+35.2R	5.3+28.2R	5.6+23.5R	5.8+20.1R	6+17.6R	6.1+15.7R	6.2+14.1R										
		24"	$q_a$	$q_f$	589	957	522	848	486	790	464	755	450	731	439	713	431	700	424	690	419	681
			F	3.4+70.4R	4.9+46.9R	5.6+35.2R	6.1+28.1R	6.4+23.4R	6.6+20.1R	6.8+17.6R	6.9+15.6R	7+14.1R										
		36"	$q_a$	$q_f$	589	957	417	678	406	660	399	649	338	549	343	557	346	563	310	504	317	514
			F	4.7+70.2R	6.3+46.7R	7.1+35R	7.6+28R	7.9+23.3R	8.2+20R	8.4+17.5R	8.5+15.6R	8.6+14R										

# DGN-32 & DGNF-32 3.5

## Pneutek K66 Fasteners to Supports with DeltaGrip® Side Seam Attachment



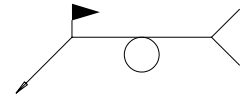
**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2893	4700	2885	4688	2881	4682	2879	4678	2877	4675	2876	4673	2875	4651	2297	3675	1860	2976
			F		1.7+12.4R		1.9+8.3R		2+6.2R		2.1+5R		2.2+4.1R		2.2+3.6R		2.2+3.1R		2.2+2.8R		2.3+2.5R	
		6"	$q_a$	$q_f$	2740	4452	2720	4420	2710	4403	2703	4393	2699	4386	2696	4381	2693	4377	2297	3675	1860	2976
			F		1.7+12.4R		2+8.3R		2.1+6.2R		2.2+5R		2.2+4.1R		2.3+3.6R		2.3+3.1R		2.3+2.8R		2.3+2.5R	
		8"	$q_a$	$q_f$	2577	4188	2542	4131	2524	4101	2512	4082	2504	4069	2498	4059	2494	4052	2297	3675	1860	2976
			F		1.8+12.4R		2+8.3R		2.2+6.2R		2.2+5R		2.3+4.1R		2.3+3.6R		2.4+3.1R		2.4+2.8R		2.4+2.5R	
		12"	$q_a$	$q_f$	2276	3699	2209	3590	2173	3531	2150	3494	2134	3468	2123	3450	2114	3436	2108	3425	1860	2976
			F		1.9+12.4R		2.2+8.3R		2.3+6.2R		2.4+5R		2.4+4.1R		2.5+3.6R		2.5+3.1R		2.5+2.8R		2.5+2.5R	
		18"	$q_a$	$q_f$	2031	3699	1824	2964	1886	3065	1783	2897	1708	2775	1764	2867	1710	2779	1666	2708	1711	2781
			F		2.1+12.4R		2.4+8.3R		2.5+6.2R		2.6+5R		2.6+4.1R		2.7+3.6R		2.7+3.1R		2.7+2.8R		2.7+2.5R	
		24"	$q_a$	$q_f$	1689	2745	1559	2533	1489	2420	1446	2349	1416	2301	1395	2266	1378	2240	1366	2219	1355	2203
			F		2.3+12.4R		2.6+8.3R		2.7+6.2R		2.8+5R		2.9+4.1R		2.9+3.5R		2.9+3.1R		2.9+2.8R		3+2.5R	
36"	$q_a$	$q_f$	1689	2745	1236	2008	1242	2018	1246	2024	1065	1731	1094	1778	1116	1813	1006	1635	1033	1678		
	F		2.7+12.4R		3+8.3R		3.1+6.2R		3.2+5R		3.3+4.1R		3.3+3.5R		3.3+3.1R		3.3+2.8R		3.4+2.5R			
18	32/5	4"	$q_a$	$q_f$	2261	3674	2257	3668	2256	3665	2254	3664	2254	3662	2253	3662	2097	3355	1657	2651	1342	2147
			F		1.8+21.8R		2.2+14.5R		2.4+10.9R		2.5+8.7R		2.6+7.3R		2.7+6.2R		2.7+5.4R		2.8+4.8R		2.8+4.4R	
		6"	$q_a$	$q_f$	2173	3531	2163	3516	2158	3508	2155	3503	2153	3499	2152	3497	2097	3355	1657	2651	1342	2147
			F		1.9+21.8R		2.3+14.5R		2.5+10.9R		2.6+8.7R		2.7+7.3R		2.8+6.2R		2.8+5.4R		2.9+4.8R		2.9+4.4R	
		8"	$q_a$	$q_f$	2074	3370	2056	3341	2046	3325	2040	3315	2036	3309	2033	3304	2031	3300	1657	2651	1342	2147
			F		2+21.8R		2.4+14.5R		2.6+10.9R		2.8+8.7R		2.8+7.3R		2.9+6.2R		2.9+5.4R		3+4.8R		3+4.4R	
		12"	$q_a$	$q_f$	1874	3045	1836	2983	1815	2950	1803	2929	1794	2915	1787	2904	1783	2897	1657	2651	1342	2147
			F		2.2+21.8R		2.6+14.5R		2.8+10.9R		3+8.7R		3.1+7.3R		3.1+6.2R		3.2+5.4R		3.2+4.8R		3.2+4.4R	
		18"	$q_a$	$q_f$	1697	3045	1554	2525	1609	2614	1535	2494	1481	2406	1526	2480	1487	2416	1454	2363	1342	2147
			F		2.5+21.8R		2.9+14.5R		3.2+10.9R		3.3+8.7R		3.4+7.3R		3.4+6.2R		3.5+5.4R		3.5+4.8R		3.6+4.4R	
		24"	$q_a$	$q_f$	1429	2323	1343	2182	1296	2106	1267	2059	1247	2026	1233	2003	1222	1985	1213	1971	1206	1960
			F		2.8+21.7R		3.2+14.5R		3.5+10.9R		3.6+8.7R		3.7+7.2R		3.8+6.2R		3.8+5.4R		3.8+4.8R		3.9+4.3R	
36"	$q_a$	$q_f$	1429	2323	1069	1737	1088	1768	1099	1786	948	1540	977	1588	999	1623	905	1471	931	1512		
	F		3.4+21.7R		3.8+14.4R		4.1+10.8R		4.2+8.7R		4.3+7.2R		4.4+6.2R		4.4+5.4R		4.5+4.8R		4.5+4.3R			
20	32/5	4"	$q_a$	$q_f$	1523	2475	1513	2459	1507	2450	1504	2444	1502	2440	1500	2438	1376	2202	1087	1740	881	1409
			F		1.5+44.6R		2.4+29.7R		2.8+22.3R		3.1+17.8R		3.3+14.9R		3.4+12.7R		3.5+11.1R		3.6+9.9R		3.6+8.9R	
		6"	$q_a$	$q_f$	1392	2262	1369	2224	1356	2204	1349	2191	1343	2183	1339	2176	1336	2172	1087	1740	881	1409
			F		1.7+44.6R		2.6+29.7R		3+22.3R		3.3+17.8R		3.5+14.9R		3.6+12.7R		3.7+11.1R		3.8+9.9R		3.8+8.9R	
		8"	$q_a$	$q_f$	1270	2064	1234	2006	1215	1974	1202	1954	1194	1940	1188	1930	1183	1923	1087	1740	881	1409
			F		1.9+44.6R		2.8+29.7R		3.2+22.3R		3.5+17.8R		3.7+14.9R		3.8+12.7R		3.9+11.1R		4+9.9R		4+8.9R	
		12"	$q_a$	$q_f$	1079	1753	1022	1660	991	1610	971	1579	958	1557	949	1542	941	1530	936	1520	881	1409
			F		2.2+44.5R		3.1+29.7R		3.6+22.3R		3.9+17.8R		4+14.8R		4.2+12.7R		4.3+11.1R		4.3+9.9R		4.4+8.9R	
		18"	$q_a$	$q_f$	945	1753	817	1328	836	1358	776	1261	734	1193	758	1231	728	1183	705	1145	725	1177
			F		2.8+44.5R		3.7+29.7R		4.1+22.2R		4.4+17.8R		4.6+14.8R		4.7+12.7R		4.8+11.1R		4.9+9.9R		5+8.9R	
		24"	$q_a$	$q_f$	780	1267	693	1126	647	1051	618	1005	599	973	585	951	575	934	566	920	560	909
			F		3.3+44.4R		4.2+29.6R		4.7+22.2R		5+17.8R		5.2+14.8R		5.3+12.7R		5.4+11.1R		5.5+9.9R		5.5+8.9R	
36"	$q_a$	$q_f$	780	1267	553	899	540	877	532	864	450	731	457	742	462	751	414	673	423	687		
	F		4.3+44.3R		5.3+29.5R		5.8+22.1R		6.1+17.7R		6.3+14.7R		6.4+12.6R		6.5+11.1R		6.6+9.8R		6.7+8.8R			
22	32/5	4"	$q_a$	$q_f$	1222	1985	1212	1969	1206	1960	1203	1954	1200	1951	1199	1948	1053	1686	832	1332	674	1079
			F		0.9+70.4R		2.3+46.9R		3+35.2R		3.4+28.2R		3.7+23.5R		3.9+20.1R		4+17.6R		4.2+15.6R		4.3+14.1R	
		6"	$q_a$	$q_f$	1106	1796	1084	1761	1072	1742	1064	1730	1059	1721	1056	1715	1053	1686	832	1332	674	1079
			F		1.1+70.4R		2.6+46.9R		3.3+35.2R		3.7+28.2R		4+23.5R		4.2+20.1R		4.3+17.6R		4.4+15.6R		4.5+14.1R	
		8"	$q_a$	$q_f$	1002	1628	969	1574	951	1545	940	1527	932	1514	926	1505	922	1498	832	1332	674	1079
			F		1.4+70.4R		2.8+46.9R		3.5+35.2R		4+28.2R		4.2+23.5R		4.4+20.1R		4.6+17.6R		4.7+15.6R		4.8+14.1R	
		12"	$q_a$	$q_f$	845	1373	794	1291	767	1246	750	1219	739	1200	730	1186	724	1176	719	1168	674	1079
			F		1.9+70.4R		3.4+46.9R		4.1+35.2R		4.5+28.1R		4.8+23.5R		5+20.1R		5.1+17.6R		5.3+15.6R		5.4+14.1R	
		18"	$q_a$	$q_f$	738	1373	633	1028	644	1047	596	968	562	913	579	941	556	903	537	872	552	897
			F		2.7+70.3R		4.1+46.8R		4.9+35.1R		5.3+28.1R		5.6+23.4R		5.8+20.1R		6+17.6R		6.1+15.6R		6.2+14.1R	
		24"	$q_a$	$q_f$	609	990	537	872	498	809	474	770	458	744	446	725	437	711	431	700	425	691
			F		3.4+70.2R		4.9+46.8R		5.6+35.1R		6.1+28.1R		6.4+23.4R		6.6+20R		6.8+17.5R		6.9+15.6R		7+14R	
36"	$q_a$	$q_f$	609	990	428	696	416	677	408	663	344	558	349	567	352	572	315	512	321	522		
	F		4.7+70R		6.3+46.6R		7.1+34.9R		7.6+27.9R		7.9+23.3R		8.2+19.9R		8.3+17.4R		8.5+15.5R		8.6+14R			

N PANELS

# 3.6 NN-32

## Arc Spot/Seam Welds to Supports with No. 12 Self-Drilling Side Lap Screws



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2656	4383	2467	4071	2365	3903	2302	3798	2258	3726	2227	3674	2203	3634	1858	2974	1505	2409
			F	2.8+12.3R	3.2+8.2R	3.3+6.1R	3.4+4.9R	3.5+4.1R	3.5+3.5R	3.6+3.1R	3.6+2.7R	3.6+2.4R										
		6"	$q_a$	$q_f$	2203	3635	1968	3247	1842	3040	1764	2911	1711	2823	1673	2760	1644	2712	1621	2675	1505	2409
			F	3.4+12.2R	3.7+8.1R	3.9+6R	4.1+4.8R	4.1+4R	4.2+3.4R	4.2+3R	4.3+2.7R	4.3+2.4R										
		8"	$q_a$	$q_f$	1937	3196	1678	2769	1541	2542	1456	2402	1398	2307	1357	2238	1325	2187	1301	2146	1281	2114
			F	3.8+12R	4.3+7.9R	4.5+5.9R	4.7+4.7R	4.8+3.9R	4.9+3.3R	4.9+2.9R	5+2.6R	5+2.3R										
	12"	$q_a$	$q_f$	1644	2713	1347	2223	1199	1979	1111	1833	1052	1735	1009	1665	978	1613	953	1572	933	1540	
		F	4.6+11.7R	5.2+7.6R	5.6+5.6R	5.8+4.5R	6+3.7R	6.1+3.1R	6.2+2.7R	6.2+2.4R	6.3+2.2R											
	18"	$q_a$	$q_f$	1488	2713	1096	1808	1011	1667	884	1459	800	1319	793	1309	741	1223	701	1157	706	1166	
		F	5.4+11.4R	6.3+7.2R	6.9+5.2R	7.3+4R	7.5+3.3R	7.7+2.7R	7.9+2.4R	8+2.1R	8.1+1.8R											
	24"	$q_a$	$q_f$	1304	2152	970	1600	822	1356	733	1209	674	1112	631	1042	600	990	575	949	555	916	
		F	6+11R	7.2+6.8R	8+4.8R	8.5+3.6R	8.9+2.8R	9.2+2.3R	9.4+1.9R	9.6+1.7R	9.8+1.4R											
18	32/5	4"	$q_a$	$q_f$	2102	3469	1956	3227	1877	3097	1827	3015	1794	2960	1769	2919	1697	2715	1341	2145	1086	1738
			F	3+21.6R	3.5+14.4R	3.8+10.8R	3.9+8.6R	4+7.2R	4.1+6.2R	4.2+5.4R	4.2+4.8R	4.2+4.3R										
		6"	$q_a$	$q_f$	1744	2878	1561	2575	1463	2413	1402	2313	1360	2245	1331	2195	1308	2158	1290	2129	1086	1738
			F	3.6+21.5R	4.2+14.3R	4.5+10.7R	4.7+8.5R	4.8+7.1R	4.9+6.1R	4.9+5.3R	5+4.7R	5+4.3R										
		8"	$q_a$	$q_f$	1533	2529	1330	2195	1223	2018	1157	1908	1112	1834	1079	1780	1055	1740	1035	1708	1020	1683
			F	4.1+21.3R	4.8+14.1R	5.1+10.5R	5.3+8.4R	5.5+7R	5.6+6R	5.7+5.2R	5.7+4.6R	5.8+4.2R										
	12"	$q_a$	$q_f$	1300	2145	1069	1763	952	1571	883	1457	836	1380	803	1325	778	1284	759	1252	743	1227	
		F	4.9+21R	5.8+13.8R	6.3+10.2R	6.6+8.1R	6.8+6.7R	7+5.7R	7.1+5R	7.2+4.4R	7.3+4R											
	18"	$q_a$	$q_f$	1172	2145	867	1431	801	1322	702	1158	635	1048	631	1040	589	973	558	920	562	928	
		F	5.9+20.6R	7.1+13.3R	7.8+9.8R	8.2+7.7R	8.6+6.3R	8.8+5.3R	9+4.6R	9.2+4R	9.3+3.6R											
	24"	$q_a$	$q_f$	1021	1685	767	1265	650	1073	581	958	534	882	501	827	476	786	457	754	441	728	
		F	6.6+20.2R	8+12.9R	9+9.3R	9.6+7.2R	10.1+5.8R	10.4+4.8R	10.7+4.1R	11+3.6R	11.1+3.2R											
20	32/5	4"	$q_a$	$q_f$	1380	2276	1309	2160	1270	2096	1246	2057	1230	2029	1218	2010	1114	1782	880	1408	713	1140
			F	2.8+44.4R	3.8+29.6R	4.3+22.2R	4.6+17.7R	4.8+14.8R	4.9+12.7R	5+11.1R	5.1+9.8R	5.2+8.9R										
		6"	$q_a$	$q_f$	1150	1898	1054	1740	1003	1655	971	1601	949	1565	933	1539	921	1519	880	1408	713	1140
			F	3.5+44.2R	4.5+29.4R	5.1+22R	5.4+17.6R	5.6+14.7R	5.8+12.6R	5.9+11R	6+9.8R	6.1+8.8R										
		8"	$q_a$	$q_f$	1007	1662	897	1480	838	1383	802	1323	777	1282	759	1252	745	1230	735	1212	713	1140
			F	4.1+44R	5.2+29.2R	5.8+21.9R	6.2+17.5R	6.5+14.5R	6.6+12.5R	6.8+10.9R	6.9+9.7R	7+8.7R										
	12"	$q_a$	$q_f$	843	1392	719	1186	653	1078	613	1011	585	966	565	933	551	908	539	889	529	874	
		F	5+43.7R	6.4+28.9R	7.2+21.5R	7.7+17.2R	8+14.2R	8.2+12.2R	8.4+10.6R	8.5+9.4R	8.6+8.5R											
	18"	$q_a$	$q_f$	754	1392	577	951	546	901	482	795	439	725	441	728	415	684	394	650	400	660	
		F	6.1+43.2R	7.9+28.3R	8.9+21R	9.5+16.6R	10+13.7R	10.3+11.7R	10.6+10.2R	10.8+9R	11+8.1R											
	24"	$q_a$	$q_f$	645	1064	501	827	432	713	391	646	364	600	344	568	330	544	318	525	309	510	
		F	6.9+42.8R	9+27.8R	10.3+20.4R	11.1+16.1R	11.7+13.2R	12.2+11.1R	12.6+9.6R	12.9+8.5R	13.1+7.6R											
22	32/5	4"	$q_a$	$q_f$	1053	1737	1009	1666	986	1626	971	1602	961	1585	953	1573	853	1364	674	1078	546	873
			F	2.2+70.2R	3.7+46.8R	4.4+35.1R	4.9+28.1R	5.2+23.4R	5.4+20R	5.6+17.5R	5.7+15.6R	5.8+14R										
		6"	$q_a$	$q_f$	884	1459	822	1356	788	1300	767	1265	752	1241	742	1224	734	1211	674	1078	546	873
			F	2.9+70R	4.5+46.6R	5.3+34.9R	5.8+27.9R	6.1+23.3R	6.4+19.9R	6.5+17.4R	6.7+15.5R	6.8+13.9R										
		8"	$q_a$	$q_f$	775	1278	700	1155	661	1090	636	1049	619	1021	607	1001	598	986	590	974	546	873
			F	3.6+69.8R	5.3+46.4R	6.1+34.8R	6.7+27.8R	7+23.1R	7.3+19.8R	7.5+17.3R	7.6+15.4R	7.8+13.9R										
	12"	$q_a$	$q_f$	645	1064	559	922	513	847	485	800	466	769	452	746	442	729	433	715	427	704	
		F	4.6+69.4R	6.6+46R	7.6+34.4R	8.3+27.4R	8.7+22.8R	9+19.5R	9.3+17R	9.5+15.1R	9.6+13.6R											
	18"	$q_a$	$q_f$	573	1064	449	740	431	711	383	631	350	578	354	584	334	550	318	524	324	534	
		F	5.8+68.9R	8.2+45.4R	9.5+33.8R	10.3+26.8R	10.9+22.2R	11.4+19R	11.7+16.5R	12+14.6R	12.2+13.1R											
	24"	$q_a$	$q_f$	486	801	386	637	337	555	307	507	287	474	273	451	263	434	255	420	248	409	
		F	6.7+68.4R	9.4+44.9R	11+33.2R	12.1+26.2R	12.8+21.6R	13.4+18.4R	13.9+15.9R	14.2+14.1R	14.5+12.6R											

## No. 12 Self-Drilling Screws to Supports with No. 12 Self-Drilling Side Lap Screws



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1490	2422	1476	2398	1468	2385	1463	2377	1460	2372	1457	2368	1455	2365	1454	2362	1453	2361
			F		2.8+12.2R	3.1+8.1R	3.3+6.1R	3.4+4.8R	3.4+4R	3.5+3.5R	3.5+3R	3.5+2.7R	3.6+2.4R									
		6"	$q_a$	$q_f$	1343	2183	1313	2133	1296	2106	1286	2089	1278	2078	1273	2069	1269	2063	1266	2058	1264	2054
			F		3.4+12R	3.7+8R	3.9+6R	4+4.8R	4.1+4R	4.2+3.4R	4.2+3R	4.2+2.6R	4.3+2.4R									
		8"	$q_a$	$q_f$	1215	1975	1170	1901	1145	1861	1130	1835	1119	1818	1111	1806	1105	1796	1101	1789	1097	1782
			F		3.8+11.9R	4.3+7.9R	4.5+5.9R	4.7+4.7R	4.8+3.9R	4.8+3.3R	4.9+2.9R	4.9+2.6R	5+2.3R									
		12"	$q_a$	$q_f$	1025	1665	957	1556	921	1497	898	1460	883	1434	871	1416	863	1402	856	1391	851	1382
			F		4.6+11.6R	5.3+7.6R	5.6+5.6R	5.8+4.4R	6+3.7R	6.1+3.1R	6.2+2.7R	6.2+2.4R	6.3+2.2R									
		18"	$q_a$	$q_f$	898	1665	765	1243	774	1257	713	1159	671	1091	691	1122	661	1075	638	1037	655	1065
			F		5.6+11.2R	6.5+7.1R	7+5.2R	7.4+4R	7.6+3.3R	7.8+2.8R	7.9+2.4R	8.1+2.1R	8.2+1.8R									
		24"	$q_a$	$q_f$	747	1213	651	1059	601	976	570	926	548	891	533	866	521	847	512	833	505	821
			F		6.3+10.9R	7.4+6.7R	8.2+4.7R	8.7+3.6R	9+2.8R	9.3+2.3R	9.6+2R	9.7+1.7R	9.9+1.5R									
18	32/5	4"	$q_a$	$q_f$	1191	1936	1180	1917	1173	1907	1169	1900	1167	1896	1165	1893	1163	1890	1162	1888	1092	1747
			F		3+21.4R	3.5+14.2R	3.7+10.7R	3.9+8.5R	4+7.1R	4.1+6.1R	4.1+5.3R	4.2+4.7R	4.2+4.3R									
		6"	$q_a$	$q_f$	1074	1745	1049	1705	1036	1683	1028	1670	1022	1661	1018	1654	1015	1649	1012	1645	1010	1641
			F		3.6+21.2R	4.2+14.1R	4.4+10.6R	4.6+8.4R	4.7+7R	4.8+6R	4.9+5.3R	4.9+4.7R	5+4.2R									
		8"	$q_a$	$q_f$	971	1579	935	1519	915	1487	903	1467	894	1453	888	1443	883	1436	880	1430	877	1425
			F		4.1+21.1R	4.8+14R	5.1+10.4R	5.3+8.3R	5.5+6.9R	5.6+5.9R	5.7+5.2R	5.7+4.6R	5.8+4.1R									
		12"	$q_a$	$q_f$	819	1331	765	1244	736	1196	718	1167	706	1146	696	1132	690	1121	684	1112	680	1105
			F		5+20.8R	5.9+13.7R	6.3+10.2R	6.6+8.1R	6.8+6.7R	7+5.7R	7.1+5R	7.2+4.4R	7.2+4R									
		18"	$q_a$	$q_f$	718	1331	611	993	618	1005	570	927	536	872	552	897	529	859	510	829	524	851
			F		6.1+20.3R	7.2+13.2R	7.9+9.7R	8.3+7.6R	8.7+6.3R	8.9+5.3R	9.1+4.6R	9.2+4R	9.3+3.6R									
		24"	$q_a$	$q_f$	597	970	521	846	480	780	455	740	438	712	426	692	417	677	410	666	404	656
			F		6.8+19.9R	8.3+12.7R	9.2+9.2R	9.8+7.1R	10.3+5.8R	10.6+4.8R	10.9+4.1R	11.1+3.6R	11.3+3.2R									
20	32/5	4"	$q_a$	$q_f$	895	1454	886	1440	881	1432	878	1427	876	1424	875	1422	874	1420	873	1416	717	1147
			F		2.8+43.9R	3.7+29.2R	4.2+21.9R	4.5+17.5R	4.7+14.6R	4.8+12.5R	4.9+11R	5+9.7R	5.1+8.8R									
		6"	$q_a$	$q_f$	806	1310	788	1281	778	1264	772	1254	768	1247	764	1242	762	1238	760	1235	717	1147
			F		3.5+43.7R	4.5+29.1R	5.1+21.8R	5.4+17.4R	5.6+14.5R	5.7+12.4R	5.9+10.9R	5.9+9.7R	6+8.7R									
		8"	$q_a$	$q_f$	730	1186	702	1141	687	1117	678	1102	672	1092	667	1084	664	1078	661	1074	659	1070
			F		4.1+43.5R	5.2+28.9R	5.8+21.7R	6.2+17.3R	6.4+14.4R	6.6+12.3R	6.7+10.8R	6.8+9.6R	6.9+8.6R									
		12"	$q_a$	$q_f$	615	1000	575	934	553	898	539	876	530	861	523	850	518	842	514	835	511	830
			F		5.1+43.2R	6.5+28.6R	7.2+21.3R	7.7+17R	8+14.1R	8.2+12.1R	8.4+10.5R	8.5+9.4R	8.6+8.4R									
		18"	$q_a$	$q_f$	539	1000	459	746	465	755	428	696	403	655	415	674	397	645	383	623	393	639
			F		6.3+42.6R	8.1+28R	9+20.8R	9.7+16.5R	10.1+13.6R	10.4+11.6R	10.7+10.1R	10.9+8.9R	11+8R									
		24"	$q_a$	$q_f$	448	728	391	636	361	586	342	556	329	535	320	520	313	509	308	500	303	493
			F		7.2+42.2R	9.3+27.5R	10.5+20.2R	11.4+15.9R	12+13.1R	12.4+11.1R	12.7+9.6R	13+8.4R	13.2+7.5R									
22	32/5	4"	$q_a$	$q_f$	745	1211	738	1199	734	1193	731	1189	730	1186	729	1184	728	1182	677	1084	549	878
			F		2.2+69.4R	3.6+46.2R	4.4+34.7R	4.8+27.7R	5.1+23.1R	5.3+19.8R	5.5+17.3R	5.6+15.4R	5.7+13.9R									
		6"	$q_a$	$q_f$	672	1091	656	1067	648	1053	643	1045	639	1039	637	1035	635	1031	633	1029	549	878
			F		2.9+69.2R	4.5+46.1R	5.3+34.5R	5.8+27.6R	6.1+23R	6.3+19.7R	6.5+17.3R	6.6+15.3R	6.7+13.8R									
		8"	$q_a$	$q_f$	608	987	585	950	573	930	565	918	559	909	556	903	553	898	550	894	548	878
			F		3.6+69R	5.3+45.9R	6.1+34.4R	6.7+27.5R	7+22.9R	7.3+19.6R	7.4+17.2R	7.6+15.2R	7.7+13.7R									
		12"	$q_a$	$q_f$	512	833	479	778	460	748	449	730	441	717	436	708	431	701	428	695	425	691
			F		4.7+68.6R	6.7+45.5R	7.7+34R	8.3+27.1R	8.7+22.6R	9+19.3R	9.3+16.9R	9.4+15R	9.6+13.5R									
		18"	$q_a$	$q_f$	449	833	382	621	387	629	357	580	336	545	345	561	331	537	319	518	328	533
			F		6.1+68.1R	8.4+44.9R	9.6+33.4R	10.5+26.6R	11+22R	11.4+18.8R	11.8+16.4R	12+14.5R	12.2+13R									
		24"	$q_a$	$q_f$	373	607	326	529	300	488	285	463	274	446	267	433	261	424	256	416	253	410
			F		7+67.6R	9.7+44.3R	11.3+32.8R	12.3+26R	13.1+21.4R	13.6+18.2R	14+15.8R	14.4+14R	14.7+12.5R									

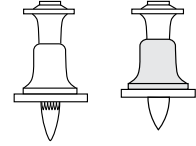


# 3.8 NN-32

## Hilti X-EDNK-22, X-EDN19 or HSN-24 Fasteners to Supports with No. 12 Self-Drilling Side Lap Screws



**HILTI**



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1810	2942	1779	2892	1763	2865	1752	2848	1745	2836	1740	2828	1736	2821	1733	2816	1514	2422
			F	2.8+12.2R	3.1+8.1R	3.3+6.1R	3.4+4.8R	3.4+4R	3.5+3.5R	3.5+3R	3.5+2.7R	3.6+2.4R										
		6"	$q_a$	$q_f$	1587	2579	1531	2488	1500	2438	1481	2407	1468	2385	1458	2370	1451	2358	1445	2349	1441	2341
			F	3.3+12R	3.7+8R	3.9+6R	4+4.8R	4.1+4R	4.2+3.4R	4.2+3R	4.2+2.6R	4.3+2.4R										
		8"	$q_a$	$q_f$	1413	2296	1336	2171	1294	2104	1268	2061	1251	2032	1238	2011	1228	1995	1220	1983	1214	1973
			F	3.8+11.9R	4.3+7.8R	4.5+5.9R	4.7+4.7R	4.8+3.9R	4.8+3.3R	4.9+2.9R	4.9+2.6R	5+2.3R										
		12"	$q_a$	$q_f$	1176	1912	1074	1745	1019	1655	984	1600	961	1562	944	1534	931	1513	921	1497	913	1484
			F	4.6+11.6R	5.2+7.6R	5.6+5.6R	5.8+4.4R	6+3.7R	6.1+3.1R	6.2+2.7R	6.2+2.4R	6.3+2.1R										
		18"	$q_a$	$q_f$	1030	1912	856	1390	851	1383	776	1261	724	1176	741	1204	706	1147	678	1102	694	1129
			F	5.5+11.2R	6.4+7.1R	7+5.2R	7.3+4R	7.6+3.3R	7.8+2.7R	7.9+2.4R	8+2.1R	8.1+1.8R										
		24"	$q_a$	$q_f$	864	1405	733	1192	664	1079	622	1010	593	963	572	930	556	904	544	884	534	868
			F	6.2+10.9R	7.4+6.7R	8.1+4.7R	8.6+3.6R	9+2.8R	9.3+2.3R	9.5+1.9R	9.7+1.7R	9.8+1.5R										
18	32/5	4"	$q_a$	$q_f$	1460	2373	1435	2332	1421	2309	1412	2295	1407	2286	1402	2279	1399	2273	1348	2157	1092	1747
			F	3+21.4R	3.5+14.2R	3.7+10.7R	3.9+8.5R	4+7.1R	4.1+6.1R	4.1+5.3R	4.1+4.7R	4.2+4.3R										
		6"	$q_a$	$q_f$	1279	2078	1232	2003	1207	1962	1191	1936	1181	1919	1173	1906	1167	1896	1162	1888	1092	1747
			F	3.6+21.2R	4.1+14.1R	4.4+10.6R	4.6+8.4R	4.7+7R	4.8+6R	4.9+5.3R	4.9+4.7R	5+4.2R										
		8"	$q_a$	$q_f$	1137	1848	1075	1746	1041	1691	1019	1656	1005	1633	994	1615	986	1602	980	1592	975	1584
			F	4.1+21.1R	4.8+14R	5.1+10.4R	5.3+8.3R	5.5+6.9R	5.6+5.9R	5.6+5.2R	5.7+4.6R	5.8+4.1R										
		12"	$q_a$	$q_f$	947	1539	863	1403	818	1330	790	1284	771	1253	757	1231	747	1214	739	1200	732	1190
			F	5+20.7R	5.8+13.6R	6.3+10.1R	6.6+8.1R	6.8+6.7R	7+5.7R	7.1+5R	7.2+4.4R	7.2+4R										
		18"	$q_a$	$q_f$	829	1539	688	1118	684	1111	623	1012	581	944	594	965	566	919	543	883	557	905
			F	6+20.3R	7.2+13.2R	7.8+9.7R	8.3+7.6R	8.6+6.2R	8.8+5.3R	9+4.6R	9.2+4R	9.3+3.6R										
		24"	$q_a$	$q_f$	696	1131	590	958	534	867	499	811	476	773	459	746	446	725	436	709	428	696
			F	6.7+19.9R	8.2+12.7R	9.1+9.2R	9.7+7.1R	10.2+5.8R	10.5+4.8R	10.8+4.1R	11+3.6R	11.2+3.2R										
20	32/5	4"	$q_a$	$q_f$	1107	1798	1087	1766	1076	1749	1070	1738	1065	1731	1062	1725	1059	1721	885	1416	717	1147
			F	2.8+43.9R	3.7+29.2R	4.2+21.9R	4.5+17.5R	4.7+14.6R	4.8+12.5R	4.9+11R	5+9.7R	5.1+8.8R										
		6"	$q_a$	$q_f$	968	1573	932	1515	913	1483	900	1463	892	1450	886	1440	881	1432	878	1416	717	1147
			F	3.5+43.7R	4.5+29.1R	5+21.8R	5.4+17.4R	5.6+14.5R	5.7+12.4R	5.8+10.9R	5.9+9.7R	6+8.7R										
		8"	$q_a$	$q_f$	860	1398	812	1320	786	1277	769	1250	758	1232	750	1219	744	1209	739	1201	717	1147
			F	4.1+43.5R	5.2+28.9R	5.8+21.6R	6.2+17.3R	6.4+14.4R	6.6+12.3R	6.7+10.8R	6.8+9.6R	6.9+8.6R										
		12"	$q_a$	$q_f$	716	1163	652	1059	617	1003	596	969	581	945	571	928	563	915	557	905	552	896
			F	5.1+43.1R	6.5+28.6R	7.2+21.3R	7.7+17R	8+14.1R	8.2+12.1R	8.4+10.5R	8.5+9.3R	8.6+8.4R										
		18"	$q_a$	$q_f$	627	1163	520	844	516	838	470	763	438	712	448	727	426	693	409	665	419	681
			F	6.2+42.6R	8+28R	9+20.8R	9.6+16.4R	10+13.6R	10.4+11.6R	10.6+10.1R	10.8+8.9R	11+8R										
		24"	$q_a$	$q_f$	527	856	446	724	403	655	377	612	359	583	346	562	336	546	329	534	323	524
			F	7.1+42.2R	9.2+27.5R	10.4+20.2R	11.3+15.9R	11.9+13R	12.3+11R	12.7+9.6R	13+8.4R	13.2+7.5R										
22	32/5	4"	$q_a$	$q_f$	926	1505	909	1477	900	1463	894	1453	890	1447	888	1442	857	1372	677	1084	549	878
			F	2.2+69.4R	3.6+46.2R	4.4+34.7R	4.8+27.7R	5.1+23.1R	5.3+19.8R	5.5+17.3R	5.6+15.4R	5.7+13.9R										
		6"	$q_a$	$q_f$	809	1315	779	1266	763	1239	752	1222	745	1211	740	1203	736	1196	677	1084	549	878
			F	2.9+69.2R	4.5+46.1R	5.3+34.5R	5.8+27.6R	6.1+23R	6.3+19.7R	6.5+17.2R	6.6+15.3R	6.7+13.8R										
		8"	$q_a$	$q_f$	719	1168	678	1102	656	1066	642	1044	633	1029	626	1018	621	1009	617	1002	549	878
			F	3.6+69R	5.3+45.9R	6.1+34.4R	6.6+27.5R	7+22.9R	7.2+19.6R	7.4+17.1R	7.6+15.2R	7.7+13.7R										
		12"	$q_a$	$q_f$	598	972	544	885	515	838	497	808	485	789	476	774	470	763	464	755	460	748
			F	4.7+68.6R	6.6+45.5R	7.6+34R	8.3+27.1R	8.7+22.6R	9+19.3R	9.2+16.9R	9.4+15R	9.6+13.5R										
		18"	$q_a$	$q_f$	524	972	434	705	431	700	392	637	365	594	373	607	356	578	341	555	350	568
			F	6+68.1R	8.3+44.9R	9.6+33.4R	10.4+26.5R	11+22R	11.4+18.8R	11.7+16.4R	12+14.5R	12.2+13R										
		24"	$q_a$	$q_f$	440	716	372	605	336	547	314	511	299	487	289	469	280	456	274	445	269	437
			F	6.9+67.6R	9.6+44.3R	11.2+32.8R	12.2+25.9R	13+21.4R	13.5+18.2R	14+15.8R	14.3+14R	14.6+12.5R										



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1909	3103	1872	3042	1851	3009	1839	2988	1830	2974	1824	2963	1819	2955	1815	2949	1514	2422
			F		2.7+12.1R		3+8R		3.2+6R		3.3+4.8R		3.4+4R		3.4+3.4R		3.5+3R		3.5+2.7R		3.5+2.4R	
		6"	$q_a$	$q_f$	1662	2700	1595	2592	1559	2534	1537	2497	1521	2472	1510	2453	1501	2439	1494	2428	1489	2420
			F		3.1+12R		3.6+7.9R		3.8+5.9R		3.9+4.7R		4+3.9R		4.1+3.3R		4.1+2.9R		4.2+2.6R		4.2+2.3R	
		8"	$q_a$	$q_f$	1473	2394	1385	2251	1337	2173	1307	2125	1287	2091	1272	2067	1261	2049	1252	2035	1245	2023
			F		3.5+11.8R		4+7.8R		4.3+5.8R		4.5+4.6R		4.6+3.8R		4.7+3.2R		4.8+2.8R		4.8+2.5R		4.9+2.2R	
		12"	$q_a$	$q_f$	1224	1989	1109	1803	1048	1703	1009	1640	983	1598	965	1567	950	1544	939	1526	930	1511
			F		4+11.6R		4.7+7.5R		5.2+5.5R		5.4+4.3R		5.6+3.5R		5.8+3R		5.9+2.6R		6+2.3R		6.1+2R	
		18"	$q_a$	$q_f$	1073	1989	885	1438	875	1422	795	1292	740	1203	756	1228	719	1168	690	1121	706	1147
			F		4.6+11.3R		5.6+7.1R		6.2+5.1R		6.6+3.9R		6.9+3.1R		7.2+2.5R		7.4+2.1R		7.5+1.8R		7.7+1.6R	
		24"	$q_a$	$q_f$	904	1468	760	1236	684	1112	638	1037	607	987	585	950	567	922	554	900	543	883
			F		5+11.1R		6.2+6.8R		7+4.7R		7.5+3.5R		8+2.7R		8.4+2.1R		8.6+1.7R		8.9+1.4R		9.1+1.2R	
18	32/5	4"	$q_a$	$q_f$	1540	2502	1509	2452	1492	2425	1482	2407	1474	2396	1469	2387	1465	2381	1348	2157	1092	1747
			F		2.8+21.3R		3.4+14.2R		3.7+10.6R		3.8+8.5R		3.9+7.1R		4+6.1R		4.1+5.3R		4.1+4.7R		4.2+4.2R	
		6"	$q_a$	$q_f$	1338	2175	1284	2086	1254	2038	1236	2008	1223	1987	1214	1972	1207	1961	1201	1952	1092	1747
			F		3.3+21.2R		4+14R		4.3+10.5R		4.5+8.4R		4.6+7R		4.7+6R		4.8+5.2R		4.9+4.6R		4.9+4.2R	
		8"	$q_a$	$q_f$	1186	1927	1114	1810	1075	1746	1050	1707	1034	1680	1022	1660	1012	1645	1005	1633	999	1624
			F		3.7+21R		4.5+13.9R		4.9+10.3R		5.1+8.2R		5.3+6.8R		5.4+5.8R		5.5+5.1R		5.6+4.5R		5.6+4.1R	
		12"	$q_a$	$q_f$	985	1601	892	1449	842	1367	810	1317	789	1282	774	1257	762	1238	753	1224	746	1212
			F		4.3+20.7R		5.3+13.6R		5.8+10R		6.2+7.9R		6.4+6.5R		6.6+5.5R		6.8+4.8R		6.9+4.2R		7+3.8R	
		18"	$q_a$	$q_f$	864	1601	711	1156	703	1142	638	1037	594	965	606	985	576	937	553	898	566	919
			F		5+20.4R		6.2+13.1R		7+9.5R		7.5+7.4R		7.9+6R		8.2+5.1R		8.4+4.3R		8.6+3.8R		8.8+3.4R	
		24"	$q_a$	$q_f$	728	1183	612	994	549	893	512	832	487	791	469	762	455	740	444	722	436	708
			F		5.4+20.2R		6.9+12.8R		7.9+9.1R		8.6+7R		9.1+5.6R		9.5+4.6R		9.8+3.9R		10.1+3.3R		10.4+2.9R	
20	32/5	4"	$q_a$	$q_f$	1167	1896	1143	1857	1130	1836	1121	1822	1116	1813	1112	1807	1109	1791	885	1416	717	1147
			F		2.6+43.8R		3.6+29.2R		4.1+21.9R		4.4+17.5R		4.6+14.6R		4.8+12.5R		4.9+10.9R		5+9.7R		5.1+8.7R	
		6"	$q_a$	$q_f$	1013	1646	971	1577	948	1540	934	1517	924	1501	917	1490	911	1481	885	1416	717	1147
			F		3.2+43.6R		4.3+29R		4.9+21.7R		5.2+17.3R		5.5+14.4R		5.6+12.4R		5.7+10.8R		5.8+9.6R		5.9+8.6R	
		8"	$q_a$	$q_f$	897	1457	841	1367	811	1319	793	1288	780	1267	771	1252	764	1241	758	1232	717	1147
			F		3.7+43.4R		4.9+28.8R		5.5+21.5R		5.9+17.2R		6.2+14.3R		6.4+12.2R		6.5+10.7R		6.7+9.5R		6.8+8.5R	
		12"	$q_a$	$q_f$	745	1210	673	1094	635	1032	611	993	595	967	583	948	574	933	567	922	562	913
			F		4.4+43.1R		5.8+28.4R		6.6+21.2R		7.2+16.8R		7.5+13.9R		7.8+11.9R		8+10.4R		8.2+9.2R		8.3+8.2R	
		18"	$q_a$	$q_f$	653	1210	537	873	530	862	481	782	448	728	457	742	434	706	416	677	426	692
			F		5.1+42.7R		6.9+28R		8+20.6R		8.7+16.3R		9.2+13.4R		9.6+11.3R		9.9+9.8R		10.2+8.6R		10.4+7.7R	
		24"	$q_a$	$q_f$	551	895	462	750	414	673	386	627	367	596	353	574	343	557	335	544	328	533
			F		5.6+42.5R		7.7+27.6R		9+20.1R		9.9+15.7R		10.6+12.8R		11.1+10.8R		11.6+9.3R		11.9+8.1R		12.2+7.2R	
22	32/5	4"	$q_a$	$q_f$	976	1586	956	1553	945	1535	938	1524	933	1516	929	1510	857	1372	677	1084	549	878
			F		2+69.3R		3.5+46.2R		4.3+34.6R		4.7+27.7R		5+23.1R		5.3+19.8R		5.4+17.3R		5.6+15.4R		5.7+13.8R	
		6"	$q_a$	$q_f$	847	1376	811	1318	792	1287	780	1267	772	1254	766	1244	761	1237	677	1084	549	878
			F		2.6+69.1R		4.2+46R		5.1+34.4R		5.6+27.5R		5.9+22.9R		6.2+19.6R		6.4+17.2R		6.5+15.3R		6.6+13.7R	
		8"	$q_a$	$q_f$	750	1218	703	1142	678	1101	662	1076	651	1058	643	1045	637	1036	633	1028	549	878
			F		3.1+68.9R		4.9+45.8R		5.8+34.2R		6.4+27.3R		6.8+22.7R		7+19.5R		7.2+17R		7.4+15.1R		7.5+13.6R	
		12"	$q_a$	$q_f$	622	1011	562	914	530	861	510	829	496	807	487	791	479	779	473	769	468	761
			F		3.9+68.6R		5.9+45.4R		7+33.8R		7.7+26.9R		8.2+22.4R		8.6+19.1R		8.8+16.7R		9.1+14.8R		9.2+13.3R	
		18"	$q_a$	$q_f$	546	1011	449	729	443	720	402	653	374	607	381	619	362	589	347	564	355	577
			F		4.7+68.2R		7.1+44.9R		8.5+33.3R		9.4+26.3R		10.1+21.8R		10.6+18.5R		10.9+16.1R		11.3+14.2R		11.5+12.7R	
		24"	$q_a$	$q_f$	461	748	386	626	346	562	322	523	306	497	295	479	286	465	279	454	274	445
			F		5.2+67.9R		7.9+44.4R		9.6+32.7R		10.7+25.8R		11.6+21.2R		12.2+17.9R		12.7+15.5R		13.2+13.6R		13.5+12.1R	

N PANELS

# 3.9 NN-32

## Pneutek SDK61 Fasteners to Supports with No. 12 Self-Drilling Side Lap Screws



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1797	2921	1768	2872	1751	2846	1741	2829	1734	2818	1729	2810	1725	2804	1722	2799	1514	2422
			F	2.9+12.2R	3.2+8.1R	3.3+6.1R	3.4+4.9R	3.5+4.1R	3.5+3.5R	3.5+3.1R	3.6+2.7R	3.6+2.4R										
		6"	$q_a$	$q_f$	1578	2564	1523	2474	1493	2425	1474	2395	1461	2374	1452	2359	1444	2347	1439	2338	1434	2331
			F	3.6+12.1R	3.9+8.1R	4+6.1R	4.1+4.8R	4.2+4R	4.2+3.5R	4.3+3R	4.3+2.7R	4.3+2.4R										
		8"	$q_a$	$q_f$	1405	2283	1330	2161	1289	2094	1263	2053	1246	2024	1233	2004	1223	1988	1216	1976	1210	1966
			F	4.2+12R	4.6+8R	4.7+6R	4.8+4.8R	4.9+4R	5+3.4R	5+3R	5+2.7R	5.1+2.4R										
		12"	$q_a$	$q_f$	1170	1902	1069	1738	1015	1649	981	1594	958	1557	941	1530	929	1509	919	1493	911	1480
			F	5.3+11.8R	5.8+7.8R	6.1+5.8R	6.2+4.6R	6.3+3.9R	6.4+3.3R	6.4+2.9R	6.5+2.6R	6.5+2.3R										
		18"	$q_a$	$q_f$	1025	1902	852	1384	848	1378	773	1257	722	1173	739	1200	704	1144	676	1099	693	1126
			F	6.8+11.4R	7.5+7.4R	7.9+5.5R	8.1+4.4R	8.3+3.6R	8.4+3.1R	8.5+2.7R	8.5+2.4R	8.6+2.1R										
		24"	$q_a$	$q_f$	860	1397	730	1186	662	1075	620	1007	591	960	571	927	555	902	543	882	533	866
			F	8.1+10.9R	9+7R	9.6+5.1R	9.9+4R	10.1+3.3R	10.3+2.8R	10.4+2.4R	10.5+2.1R	10.6+1.9R										
18	32/5	4"	$q_a$	$q_f$	1465	2381	1439	2339	1425	2316	1417	2302	1411	2293	1406	2285	1403	2280	1348	2157	1092	1747
			F	3.1+21.5R	3.6+14.3R	3.8+10.7R	3.9+8.6R	4+7.1R	4.1+6.1R	4.1+5.4R	4.2+4.8R	4.2+4.3R										
		6"	$q_a$	$q_f$	1283	2084	1236	2008	1210	1967	1194	1941	1183	1923	1175	1910	1169	1900	1165	1892	1092	1747
			F	3.8+21.4R	4.3+14.2R	4.6+10.7R	4.7+8.5R	4.8+7.1R	4.9+6.1R	5+5.3R	5+4.7R	5+4.3R										
		8"	$q_a$	$q_f$	1140	1853	1077	1750	1043	1694	1021	1659	1007	1636	996	1618	988	1605	981	1595	976	1586
			F	4.5+21.2R	5.1+14.1R	5.4+10.6R	5.5+8.5R	5.6+7.1R	5.7+6R	5.8+5.3R	5.8+4.7R	5.9+4.2R										
		12"	$q_a$	$q_f$	949	1542	865	1405	820	1332	792	1286	772	1255	758	1232	748	1215	740	1202	733	1191
			F	5.8+21R	6.5+13.9R	6.8+10.4R	7+8.3R	7.2+6.9R	7.3+5.9R	7.4+5.2R	7.4+4.6R	7.5+4.1R										
		18"	$q_a$	$q_f$	831	1542	689	1120	685	1113	624	1014	582	945	595	967	566	920	544	884	557	906
			F	7.5+20.5R	8.4+13.5R	8.9+10R	9.2+8R	9.4+6.6R	9.5+5.7R	9.7+4.9R	9.7+4.4R	9.8+3.9R										
		24"	$q_a$	$q_f$	698	1134	591	961	535	869	500	813	477	774	460	747	447	726	437	710	429	697
			F	8.9+20R	10.1+13R	10.8+9.6R	11.2+7.6R	11.5+6.3R	11.7+5.3R	11.8+4.7R	12+4.1R	12.1+3.7R										
20	32/5	4"	$q_a$	$q_f$	1121	1822	1100	1788	1089	1770	1082	1759	1077	1751	1074	1745	1071	1741	885	1416	717	1147
			F	2.9+44R	3.8+29.3R	4.3+22R	4.6+17.6R	4.8+14.6R	4.9+12.6R	5+11R	5.1+9.8R	5.1+8.8R										
		6"	$q_a$	$q_f$	979	1591	942	1530	921	1497	909	1476	900	1462	894	1452	889	1444	885	1416	717	1147
			F	3.8+43.9R	4.7+29.2R	5.2+21.9R	5.5+17.5R	5.7+14.6R	5.8+12.5R	5.9+11R	6+9.7R	6.1+8.8R										
		8"	$q_a$	$q_f$	869	1412	819	1331	792	1287	775	1260	764	1241	755	1227	749	1217	744	1209	717	1147
			F	4.6+43.7R	5.6+29.1R	6.1+21.8R	6.4+17.5R	6.6+14.5R	6.8+12.5R	6.9+10.9R	7+9.7R	7+8.7R										
		12"	$q_a$	$q_f$	723	1175	657	1068	622	1010	600	975	585	950	574	933	566	919	559	909	554	900
			F	6+43.4R	7.2+28.9R	7.8+21.6R	8.2+17.3R	8.4+14.4R	8.6+12.3R	8.7+10.8R	8.8+9.6R	8.9+8.6R										
		18"	$q_a$	$q_f$	633	1175	524	851	519	844	473	768	440	715	450	731	428	696	411	668	421	684
			F	8+42.9R	9.4+28.4R	10.2+21.2R	10.6+16.9R	10.9+14.1R	11.2+12R	11.4+10.5R	11.5+9.3R	11.6+8.4R										
		24"	$q_a$	$q_f$	533	865	450	731	406	660	379	616	361	586	348	565	338	549	330	536	324	526
			F	9.6+42.3R	11.4+27.9R	12.3+20.7R	12.9+16.5R	13.3+13.7R	13.6+11.7R	13.9+10.2R	14.1+9R	14.2+8.1R										
22	32/5	4"	$q_a$	$q_f$	943	1532	925	1502	915	1487	909	1477	905	1470	902	1465	857	1372	677	1084	549	878
			F	2.3+69.5R	3.7+46.3R	4.5+34.7R	4.9+27.8R	5.2+23.2R	5.4+19.9R	5.5+17.4R	5.7+15.4R	5.7+13.9R										
		6"	$q_a$	$q_f$	822	1335	790	1283	772	1255	762	1238	754	1225	749	1217	745	1210	677	1084	549	878
			F	3.2+69.4R	4.7+46.2R	5.5+34.7R	5.9+27.7R	6.2+23.1R	6.4+19.8R	6.6+17.3R	6.7+15.4R	6.8+13.9R										
		8"	$q_a$	$q_f$	729	1185	687	1116	663	1078	649	1055	639	1039	632	1027	626	1018	622	1011	549	878
			F	4.1+69.2R	5.7+46.1R	6.4+34.6R	6.9+27.7R	7.2+23R	7.4+19.7R	7.6+17.3R	7.7+15.4R	7.8+13.8R										
		12"	$q_a$	$q_f$	606	985	550	894	520	846	502	815	489	795	480	780	473	768	467	759	463	752
			F	5.7+68.9R	7.4+45.8R	8.3+34.3R	8.8+27.5R	9.2+22.9R	9.4+19.6R	9.6+17.1R	9.8+15.2R	9.9+13.7R										
		18"	$q_a$	$q_f$	531	985	439	713	435	706	395	642	368	598	376	611	358	581	343	558	352	571
			F	7.8+68.3R	9.8+45.3R	10.9+33.9R	11.5+27.1R	12+22.5R	12.3+19.3R	12.5+16.8R	12.7+15R	12.8+13.5R										
		24"	$q_a$	$q_f$	447	726	377	612	340	552	317	515	302	490	291	472	282	459	276	448	271	440
			F	9.6+67.7R	12+44.7R	13.3+33.4R	14+26.6R	14.6+22.1R	15+18.9R	15.3+16.5R	15.5+14.6R	15.7+13.1R										



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	1753	2849	1726	2805	1711	2781	1702	2766	1696	2755	1691	2748	1688	2742	1685	2738	1514	2422
			F		2.9+12.2R	3.2+8.1R	3.3+6.1R	3.4+4.9R	3.5+4.1R	3.5+3.5R	3.5+3.1R	3.6+2.7R	3.6+2.4R									
		6"	$q_a$	$q_f$	1544	2510	1493	2427	1466	2381	1448	2353	1436	2334	1427	2320	1421	2309	1416	2300	1411	2294
			F		3.6+12.1R	3.9+8.1R	4+6.1R	4.1+4.8R	4.2+4R	4.2+3.5R	4.3+3R	4.3+2.7R	4.3+2.4R									
		8"	$q_a$	$q_f$	1378	2239	1307	2125	1269	2062	1245	2024	1229	1997	1217	1977	1208	1963	1201	1951	1195	1942
			F		4.2+12R	4.6+8R	4.7+6R	4.8+4.8R	4.9+4R	5+3.4R	5+3R	5+2.7R	5.1+2.4R									
		12"	$q_a$	$q_f$	1149	1867	1053	1712	1002	1628	970	1576	948	1540	932	1514	920	1495	910	1479	903	1467
			F		5.3+11.8R	5.8+7.8R	6.1+5.8R	6.2+4.6R	6.3+3.9R	6.4+3.3R	6.4+2.9R	6.5+2.6R	6.5+2.3R									
		18"	$q_a$	$q_f$	1006	1867	839	1364	838	1361	765	1243	715	1161	732	1189	698	1134	671	1090	688	1118
			F		6.8+11.4R	7.5+7.4R	7.9+5.5R	8.1+4.4R	8.3+3.6R	8.4+3.1R	8.5+2.7R	8.5+2.4R	8.6+2.1R									
		24"	$q_a$	$q_f$	843	1369	718	1167	653	1061	612	995	585	950	565	918	550	894	538	875	529	860
			F		8.1+10.9R	9+7R	9.6+5.1R	9.9+4R	10.1+3.3R	10.3+2.8R	10.4+2.4R	10.5+2.1R	10.6+1.9R									
18	32/5	4"	$q_a$	$q_f$	1478	2401	1451	2358	1437	2335	1428	2320	1422	2310	1417	2303	1414	2297	1348	2157	1092	1747
			F		3.1+21.5R	3.6+14.3R	3.8+10.7R	3.9+8.6R	4+7.1R	4.1+6.1R	4.1+5.4R	4.2+4.8R	4.2+4.3R									
		6"	$q_a$	$q_f$	1292	2099	1244	2021	1218	1979	1201	1952	1190	1934	1182	1921	1176	1910	1171	1903	1092	1747
			F		3.8+21.4R	4.3+14.2R	4.6+10.7R	4.7+8.5R	4.8+7.1R	4.9+6.1R	5+5.3R	5+4.7R	5+4.3R									
		8"	$q_a$	$q_f$	1148	1866	1083	1760	1048	1703	1026	1668	1011	1643	1000	1625	992	1612	985	1601	980	1593
			F		4.5+21.2R	5.1+14.1R	5.4+10.6R	5.5+8.5R	5.6+7.1R	5.7+6R	5.8+5.3R	5.8+4.7R	5.9+4.2R									
		12"	$q_a$	$q_f$	955	1552	869	1413	823	1338	795	1291	775	1260	761	1237	750	1219	742	1206	735	1195
			F		5.8+21R	6.5+13.9R	6.8+10.4R	7+8.3R	7.2+6.9R	7.3+5.9R	7.4+5.2R	7.4+4.6R	7.5+4.1R									
		18"	$q_a$	$q_f$	837	1552	693	1126	688	1118	626	1018	584	948	597	970	568	923	546	886	559	908
			F		7.5+20.5R	8.4+13.5R	8.9+10R	9.2+8R	9.4+6.6R	9.5+5.7R	9.7+4.9R	9.7+4.4R	9.8+3.9R									
		24"	$q_a$	$q_f$	703	1142	595	966	537	873	502	816	478	777	461	749	448	728	438	712	430	699
			F		8.9+20R	10.1+13R	10.8+9.6R	11.2+7.6R	11.5+6.3R	11.7+5.3R	11.8+4.7R	12+4.1R	12.1+3.7R									
20	32/5	4"	$q_a$	$q_f$	1179	1916	1154	1875	1140	1853	1132	1839	1126	1830	1122	1823	1119	1791	885	1416	717	1147
			F		2.9+44R	3.8+29.3R	4.3+22R	4.6+17.6R	4.8+14.6R	4.9+12.6R	5+11R	5.1+9.8R	5.1+8.8R									
		6"	$q_a$	$q_f$	1022	1661	979	1590	955	1552	940	1528	930	1511	923	1499	917	1490	885	1416	717	1147
			F		3.8+43.9R	4.7+29.2R	5.2+21.9R	5.5+17.5R	5.7+14.6R	5.8+12.5R	5.9+11R	6+9.7R	6.1+8.8R									
		8"	$q_a$	$q_f$	904	1470	847	1377	817	1327	797	1296	784	1274	775	1259	767	1247	762	1238	717	1147
			F		4.6+43.7R	5.6+29.1R	6.1+21.8R	6.4+17.5R	6.6+14.5R	6.8+12.5R	6.9+10.9R	7+9.7R	7+8.7R									
		12"	$q_a$	$q_f$	751	1220	678	1101	639	1038	614	998	598	971	586	952	577	937	569	925	564	916
			F		6+43.4R	7.2+28.9R	7.8+21.6R	8.2+17.3R	8.4+14.4R	8.6+12.3R	8.7+10.8R	8.8+9.6R	8.9+8.6R									
		18"	$q_a$	$q_f$	659	1220	541	879	534	867	484	786	450	731	459	745	436	708	418	679	427	695
			F		8+42.9R	9.4+28.4R	10.2+21.2R	10.6+16.9R	10.9+14.1R	11.2+12R	11.4+10.5R	11.5+9.3R	11.6+8.4R									
		24"	$q_a$	$q_f$	556	903	465	755	416	677	388	630	368	599	355	576	344	560	336	546	329	535
			F		9.6+42.3R	11.4+27.9R	12.3+20.7R	12.9+16.5R	13.3+13.7R	13.6+11.7R	13.9+10.2R	14.1+9R	14.2+8.1R									
22	32/5	4"	$q_a$	$q_f$	1016	1650	992	1612	979	1591	971	1578	966	1569	962	1562	857	1372	677	1084	549	878
			F		2.3+69.5R	3.7+46.3R	4.5+34.7R	4.9+27.8R	5.2+23.2R	5.4+19.9R	5.5+17.4R	5.7+15.4R	5.7+13.9R									
		6"	$q_a$	$q_f$	876	1424	836	1359	814	1323	801	1301	792	1286	785	1275	780	1267	677	1084	549	878
			F		3.2+69.4R	4.7+46.2R	5.5+34.7R	5.9+27.7R	6.2+23.1R	6.4+19.8R	6.6+17.3R	6.7+15.4R	6.8+13.9R									
		8"	$q_a$	$q_f$	774	1257	722	1173	694	1128	677	1100	665	1080	656	1066	650	1055	644	1047	549	878
			F		4.1+69.2R	5.7+46.1R	6.4+34.6R	6.9+27.7R	7.2+23R	7.4+19.7R	7.6+17.3R	7.7+15.4R	7.8+13.8R									
		12"	$q_a$	$q_f$	642	1043	577	937	542	880	520	845	505	821	494	803	486	790	480	780	475	772
			F		5.7+68.9R	7.4+45.8R	8.3+34.3R	8.8+27.5R	9.2+22.9R	9.4+19.6R	9.6+17.1R	9.8+15.2R	9.9+13.7R									
		18"	$q_a$	$q_f$	564	1043	461	749	453	736	410	666	380	618	387	629	367	597	352	572	360	585
			F		7.8+68.3R	9.8+45.3R	10.9+33.9R	11.5+27.1R	12+22.5R	12.3+19.3R	12.5+16.8R	12.7+15R	12.8+13.5R									
		24"	$q_a$	$q_f$	477	775	395	642	353	573	328	532	311	505	299	486	290	471	283	459	277	450
			F		9.6+67.7R	12+44.7R	13.3+33.4R	14+26.6R	14.6+22.1R	15+18.9R	15.3+16.5R	15.5+14.6R	15.7+13.1R									

N PANELS

# 3.9 NN-32

## Pneutek K64 Fasteners to Supports with No. 12 Self-Drilling Side Lap Screws



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																			
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"			
16	32/5	4"	$q_a$	$q_f$	2122	3448	2066	3357	2036	3308	2017	3277	2004	3256	1994	3241	1987	3229	1869	2990	1514	2422
			F	2.9+12.2R	3.2+8.1R	3.3+6.1R	3.4+4.9R	3.5+4.1R	3.5+3.5R	3.5+3.1R	3.6+2.7R	3.6+2.4R										
		6"	$q_a$	$q_f$	1819	2956	1728	2809	1679	2728	1648	2678	1627	2644	1612	2619	1600	2600	1591	2585	1514	2422
			F	3.6+12.1R	3.9+8.1R	4+6.1R	4.1+4.8R	4.2+4R	4.2+3.5R	4.3+3R	4.3+2.7R	4.3+2.4R										
		8"	$q_a$	$q_f$	1603	2604	1487	2417	1425	2316	1386	2253	1360	2209	1340	2178	1326	2154	1314	2136	1305	2121
			F	4.2+12R	4.6+8R	4.7+6R	4.8+4.8R	4.9+4R	5+3.4R	5+3R	5+2.7R	5.1+2.4R										
	12"	$q_a$	$q_f$	1329	2160	1186	1927	1110	1803	1062	1726	1030	1674	1007	1636	989	1607	975	1584	964	1566	
		F	5.3+11.8R	5.8+7.8R	6.1+5.8R	6.2+4.6R	6.3+3.9R	6.4+3.3R	6.4+2.9R	6.5+2.6R	6.5+2.3R											
	18"	$q_a$	$q_f$	1169	2160	950	1544	928	1508	838	1361	776	1260	788	1280	747	1214	715	1162	730	1186	
		F	6.8+11.4R	7.5+7.4R	7.9+5.5R	8.1+4.4R	8.3+3.6R	8.4+3.1R	8.5+2.7R	8.5+2.4R	8.6+2.1R											
	24"	$q_a$	$q_f$	993	1614	812	1320	722	1174	669	1086	633	1028	607	987	588	955	573	931	561	912	
		F	8.1+10.9R	9+7R	9.6+5.1R	9.9+4R	10.1+3.3R	10.3+2.8R	10.4+2.4R	10.5+2.1R	10.6+1.9R											
18	32/5	4"	$q_a$	$q_f$	1720	2794	1673	2718	1647	2677	1632	2651	1621	2634	1613	2621	1607	2611	1348	2157	1092	1747
			F	3.1+21.5R	3.6+14.3R	3.8+10.7R	3.9+8.6R	4+7.1R	4.1+6.1R	4.1+5.4R	4.2+4.8R	4.2+4.3R										
		6"	$q_a$	$q_f$	1472	2392	1396	2269	1355	2202	1329	2160	1312	2132	1299	2111	1289	2095	1282	2083	1092	1747
			F	3.8+21.4R	4.3+14.2R	4.6+10.7R	4.7+8.5R	4.8+7.1R	4.9+6.1R	5+5.3R	5+4.7R	5+4.3R										
		8"	$q_a$	$q_f$	1296	2106	1200	1950	1149	1867	1117	1814	1095	1779	1079	1753	1067	1733	1057	1718	1049	1705
			F	4.5+21.2R	5.1+14.1R	5.4+10.6R	5.5+8.5R	5.6+7.1R	5.7+6R	5.8+5.3R	5.8+4.7R	5.9+4.2R										
	12"	$q_a$	$q_f$	1075	1746	957	1555	894	1453	855	1389	828	1346	809	1315	795	1291	783	1273	774	1258	
		F	5.8+21R	6.5+13.9R	6.8+10.4R	7+8.3R	7.2+6.9R	7.3+5.9R	7.4+5.2R	7.4+4.6R	7.5+4.1R											
	18"	$q_a$	$q_f$	946	1746	767	1246	748	1215	674	1096	624	1014	634	1029	600	976	574	933	586	952	
		F	7.5+20.5R	8.4+13.5R	8.9+10R	9.2+8R	9.4+6.6R	9.5+5.7R	9.7+4.9R	9.7+4.4R	9.8+3.9R											
	24"	$q_a$	$q_f$	804	1307	655	1065	582	946	538	874	509	827	488	793	472	767	460	748	450	732	
		F	8.9+20R	10.1+13R	10.8+9.6R	11.2+7.6R	11.5+6.3R	11.7+5.3R	11.8+4.7R	12+4.1R	12.1+3.7R											
20	32/5	4"	$q_a$	$q_f$	1275	2072	1241	2017	1223	1988	1212	1969	1204	1956	1198	1947	1120	1791	885	1416	717	1147
			F	2.9+44R	3.8+29.3R	4.3+22R	4.6+17.6R	4.8+14.6R	4.9+12.6R	5+11R	5.1+9.8R	5.1+8.8R										
		6"	$q_a$	$q_f$	1093	1776	1038	1687	1009	1639	990	1609	977	1588	968	1573	961	1562	885	1416	717	1147
			F	3.8+43.9R	4.7+29.2R	5.2+21.9R	5.5+17.5R	5.7+14.6R	5.8+12.5R	5.9+11R	6+9.7R	6.1+8.8R										
		8"	$q_a$	$q_f$	963	1565	893	1452	856	1391	833	1353	817	1327	805	1308	796	1294	789	1283	717	1147
			F	4.6+43.7R	5.6+29.1R	6.1+21.8R	6.4+17.5R	6.6+14.5R	6.8+12.5R	6.9+10.9R	7+9.7R	7+8.7R										
	12"	$q_a$	$q_f$	799	1298	712	1158	666	1083	638	1037	619	1005	604	982	594	965	586	951	579	941	
		F	6+43.4R	7.2+28.9R	7.8+21.6R	8.2+17.3R	8.4+14.4R	8.6+12.3R	8.7+10.8R	8.8+9.6R	8.9+8.6R											
	18"	$q_a$	$q_f$	702	1298	571	927	557	906	503	817	466	757	473	769	449	729	429	698	438	712	
		F	8+42.9R	9.4+28.4R	10.2+21.2R	10.6+16.9R	10.9+14.1R	11.2+12R	11.4+10.5R	11.5+9.3R	11.6+8.4R											
	24"	$q_a$	$q_f$	597	970	488	793	434	705	402	653	380	618	365	592	353	574	344	559	337	547	
		F	9.6+42.3R	11.4+27.9R	12.3+20.7R	12.9+16.5R	13.3+13.7R	13.6+11.7R	13.9+10.2R	14.1+9R	14.2+8.1R											
22	32/5	4"	$q_a$	$q_f$	1018	1654	994	1616	981	1595	973	1581	968	1572	964	1566	857	1372	677	1084	549	878
			F	2.3+69.5R	3.7+46.3R	4.5+34.7R	4.9+27.8R	5.2+23.2R	5.4+19.9R	5.5+17.4R	5.7+15.4R	5.7+13.9R										
		6"	$q_a$	$q_f$	878	1427	838	1361	816	1326	802	1303	793	1288	786	1277	781	1269	677	1084	549	878
			F	3.2+69.4R	4.7+46.2R	5.5+34.7R	5.9+27.7R	6.2+23.1R	6.4+19.8R	6.6+17.3R	6.7+15.4R	6.8+13.9R										
		8"	$q_a$	$q_f$	775	1260	723	1175	695	1130	678	1101	666	1082	657	1067	650	1057	645	1048	549	878
			F	4.1+69.2R	5.7+46.1R	6.4+34.6R	6.9+27.7R	7.2+23R	7.4+19.7R	7.6+17.3R	7.7+15.4R	7.8+13.8R										
	12"	$q_a$	$q_f$	643	1045	577	938	542	881	521	846	506	822	495	804	487	791	480	781	475	772	
		F	5.7+68.9R	7.4+45.8R	8.3+34.3R	8.8+27.5R	9.2+22.9R	9.4+19.6R	9.6+17.1R	9.8+15.2R	9.9+13.7R											
	18"	$q_a$	$q_f$	565	1045	462	750	453	737	410	667	381	618	387	630	368	598	352	573	360	585	
		F	7.8+68.3R	9.8+45.3R	10.9+33.9R	11.5+27.1R	12+22.5R	12.3+19.3R	12.5+16.8R	12.7+15R	12.8+13.5R											
	24"	$q_a$	$q_f$	478	777	395	643	353	574	328	533	311	506	299	486	290	471	283	460	277	451	
		F	9.6+67.7R	12+44.7R	13.3+33.4R	14+26.6R	14.6+22.1R	15+18.9R	15.3+16.5R	15.5+14.6R	15.7+13.1R											



**Allowable Diaphragm Shear,  $q_a$  (plf) and Factored Shear,  $q_f$  (plf)**  
Flexibility Factor, F ( $10^{-6}$ in/lbs)

Gage	Arc Spot Welds	Spacing	Span																					
			4'-0"		6'-0"		8'-0"		10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"					
16	32/5	4"	$q_a$	$q_f$	2273	3694	2201	3577	2163	3514	2138	3475	2121	3447	2109	3428	2100	3413	1869	2990	1514	2422		
			F		2.9+12.2R	3.2+8.1R	3.3+6.1R	3.4+4.9R	3.5+4.1R	3.5+3.5R	3.5+3.1R	3.6+2.7R	3.6+2.4R											
		6"	$q_a$	$q_f$	1932	3139	1821	2958	1760	2860	1723	2799	1697	2757	1678	2727	1664	2704	1653	2686	1514	2422		
			F		3.6+12.1R	3.9+8.1R	4+6.1R	4.1+4.8R	4.2+4R	4.2+3.5R	4.3+3R	4.3+2.7R	4.3+2.4R											
		8"	$q_a$	$q_f$	1697	2757	1559	2534	1486	2414	1440	2339	1408	2288	1385	2251	1368	2223	1355	2201	1344	2184		
			F		4.2+12R	4.6+8R	4.7+6R	4.8+4.8R	4.9+4R	5+3.4R	5+3R	5+2.7R	5.1+2.4R											
		12"	$q_a$	$q_f$	1408	2288	1242	2019	1154	1875	1100	1787	1063	1727	1036	1683	1015	1650	1000	1624	987	1604		
			F		5.3+11.8R	5.8+7.8R	6.1+5.8R	6.2+4.6R	6.3+3.9R	6.4+3.3R	6.4+2.9R	6.5+2.6R	6.5+2.3R											
		18"	$q_a$	$q_f$	1242	2288	999	1624	967	1572	869	1412	802	1303	812	1319	768	1248	733	1192	747	1214		
			F		6.8+11.4R	7.5+7.4R	7.9+5.5R	8.1+4.4R	8.3+3.6R	8.4+3.1R	8.5+2.7R	8.5+2.4R	8.6+2.1R											
		24"	$q_a$	$q_f$	1062	1726	852	1384	752	1222	692	1125	653	1061	624	1014	603	980	586	953	573	931		
			F		8.1+10.9R	9+7R	9.6+5.1R	9.9+4R	10.1+3.3R	10.3+2.8R	10.4+2.4R	10.5+2.1R	10.6+1.9R											
18	32/5	4"	$q_a$	$q_f$	1771	2878	1719	2793	1691	2747	1673	2718	1661	2699	1652	2684	1645	2673	1348	2157	1092	1747		
			F		3.1+21.5R	3.6+14.3R	3.8+10.7R	3.9+8.6R	4+7.1R	4.1+6.1R	4.1+5.4R	4.2+4.8R	4.2+4.3R											
		6"	$q_a$	$q_f$	1510	2454	1427	2320	1383	2247	1355	2201	1336	2170	1322	2148	1311	2130	1303	2117	1092	1747		
			F		3.8+21.4R	4.3+14.2R	4.6+10.7R	4.7+8.5R	4.8+7.1R	4.9+6.1R	5+5.3R	5+4.7R	5+4.3R											
		8"	$q_a$	$q_f$	1327	2157	1225	1990	1169	1900	1135	1844	1111	1806	1094	1778	1081	1757	1071	1740	1063	1727		
			F		4.5+21.2R	5.1+14.1R	5.4+10.6R	5.5+8.5R	5.6+7.1R	5.7+6R	5.8+5.3R	5.8+4.7R	5.9+4.2R											
		12"	$q_a$	$q_f$	1101	1789	976	1586	909	1477	868	1410	839	1364	819	1331	804	1306	792	1286	782	1271		
			F		5.8+21R	6.5+13.9R	6.8+10.4R	7+8.3R	7.2+6.9R	7.3+5.9R	7.4+5.2R	7.4+4.6R	7.5+4.1R											
		18"	$q_a$	$q_f$	970	1789	784	1273	761	1237	685	1113	633	1028	641	1042	607	987	581	943	592	962		
			F		7.5+20.5R	8.4+13.5R	8.9+10R	9.2+8R	9.4+6.6R	9.5+5.7R	9.7+4.9R	9.7+4.4R	9.8+3.9R											
		24"	$q_a$	$q_f$	828	1345	669	1086	592	962	546	887	516	838	494	802	477	775	464	755	454	738		
			F		8.9+20R	10.1+13R	10.8+9.6R	11.2+7.6R	11.5+6.3R	11.7+5.3R	11.8+4.7R	12+4.1R	12.1+3.7R											
20	32/5	4"	$q_a$	$q_f$	1295	2104	1259	2047	1240	2015	1228	1996	1220	1982	1214	1972	1120	1791	885	1416	717	1147		
			F		2.9+44R	3.8+29.3R	4.3+22R	4.6+17.6R	4.8+14.6R	4.9+12.6R	5+11R	5.1+9.8R	5.1+8.8R											
		6"	$q_a$	$q_f$	1108	1800	1051	1707	1020	1657	1000	1625	987	1603	977	1588	970	1576	885	1416	717	1147		
			F		3.8+43.9R	4.7+29.2R	5.2+21.9R	5.5+17.5R	5.7+14.6R	5.8+12.5R	5.9+11R	6+9.7R	6.1+8.8R											
		8"	$q_a$	$q_f$	975	1585	903	1467	864	1404	840	1365	823	1338	811	1318	802	1303	795	1292	717	1147		
			F		4.6+43.7R	5.6+29.1R	6.1+21.8R	6.4+17.5R	6.6+14.5R	6.8+12.5R	6.9+10.9R	7+9.7R	7+8.7R											
		12"	$q_a$	$q_f$	809	1314	720	1170	672	1093	643	1045	623	1012	608	989	597	971	589	957	582	946		
			F		6+43.4R	7.2+28.9R	7.8+21.6R	8.2+17.3R	8.4+14.4R	8.6+12.3R	8.7+10.8R	8.8+9.6R	8.9+8.6R											
		18"	$q_a$	$q_f$	712	1314	577	938	563	914	507	824	469	763	476	774	451	734	432	702	441	716		
			F		8+42.9R	9.4+28.4R	10.2+21.2R	10.6+16.9R	10.9+14.1R	11.2+12R	11.4+10.5R	11.5+9.3R	11.6+8.4R											
		24"	$q_a$	$q_f$	606	984	493	801	438	711	405	658	383	622	367	596	355	577	346	562	338	550		
			F		9.6+42.3R	11.4+27.9R	12.3+20.7R	12.9+16.5R	13.3+13.7R	13.6+11.7R	13.9+10.2R	14.1+9R	14.2+8.1R											
22	32/5	4"	$q_a$	$q_f$	1063	1728	1035	1682	1020	1658	1011	1642	1004	1632	999	1624	857	1372	677	1084	549	878		
			F		2.3+69.5R	3.7+46.3R	4.5+34.7R	4.9+27.8R	5.2+23.2R	5.4+19.9R	5.5+17.4R	5.7+15.4R	5.7+13.9R											
		6"	$q_a$	$q_f$	912	1481	866	1407	841	1367	825	1341	815	1324	807	1311	801	1302	677	1084	549	878		
			F		3.2+69.4R	4.7+46.2R	5.5+34.7R	5.9+27.7R	6.2+23.1R	6.4+19.8R	6.6+17.3R	6.7+15.4R	6.8+13.9R											
		8"	$q_a$	$q_f$	803	1305	745	1210	714	1160	694	1128	681	1106	671	1090	664	1078	658	1069	549	878		
			F		4.1+69.2R	5.7+46.1R	6.4+34.6R	6.9+27.7R	7.2+23R	7.4+19.7R	7.6+17.3R	7.7+15.4R	7.8+13.8R											
		12"	$q_a$	$q_f$	666	1082	594	965	556	903	532	864	515	838	504	819	495	804	488	793	482	784		
			F		5.7+68.9R	7.4+45.8R	8.3+34.3R	8.8+27.5R	9.2+22.9R	9.4+19.6R	9.6+17.1R	9.8+15.2R	9.9+13.7R											
		18"	$q_a$	$q_f$	586	1082	476	773	465	755	419	681	388	631	394	641	374	608	358	581	365	594		
			F		7.8+68.3R	9.8+45.3R	10.9+33.9R	11.5+27.1R	12+22.5R	12.3+19.3R	12.5+16.8R	12.7+15R	12.8+13.5R											
		24"	$q_a$	$q_f$	498	809	407	661	362	588	335	544	317	515	304	494	294	478	287	466	281	456		
			F		9.6+67.7R	12+44.7R	13.3+33.4R	14+26.6R	14.6+22.1R	15+18.9R	15.3+16.5R	15.5+14.6R	15.7+13.1R											

N PANELS