

Versa-Dek® 3.5 LS
Allowable Diaphragm Shear Values, S (plf) and Stiffness Factors, G' (kpi)



SUPPORT CONNECTION: 1/2" Effective Weld Diameter
 SIDELAP CONNECTION: 1-1/2" Seam Welds
 ATTACHMENT PATTERN: 24 / 3

S = Allowable Diaphragm Shear (lbs/ft)
 G' = Stiffness Factor (kips/in.)

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT								
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	
20 0.0358	6"	S	1222	1195	1178	1166	1156	1149	995*	822*	
		G'	13.2	16.1	18.9	21.6	24.1	26.5	28.9	31.1	
	12"	S	933	897	872	853	839	828	818	811	
		G'	13.0	15.8	18.5	21.0	23.3	25.6	27.7	29.8	
	18"	S	763	718	687	664	647	633	622	613	
		G'	12.9	15.6	18.1	20.5	22.7	24.8	26.8	28.7	
	24"	S	664	614	580	555	537	522	510	500	
		G'	12.7	15.3	17.8	20.0	22.1	24.1	26.0	27.7	
	30"	S	600	548	512	486	466	450	438	428	
		G'	12.6	15.2	17.5	19.7	21.7	23.5	25.2	26.9	
	36"	S	555	501	464	438	417	401	388	378	
		G'	12.5	15.0	17.3	19.3	21.3	23.0	24.6	26.1	
19 0.0418	6"	S	1439	1408	1388	1373	1362	1354	1254*	1036*	
		G'	19.0	23.0	26.8	30.4	33.8	37.1	40.2	43.1	
	12"	S	1099	1056	1027	1005	988	975	964	955	
		G'	18.6	22.4	26.0	29.3	32.5	35.4	38.2	40.8	
	18"	S	899	846	809	783	762	746	733	722	
		G'	18.3	21.9	25.3	28.4	31.3	34.0	36.5	38.8	
	24"	S	782	724	684	654	632	614	600	589	
		G'	18.0	21.5	24.7	27.7	30.3	32.8	35.1	37.2	
	30"	S	707	645	603	572	549	531	516	504	
		G'	17.8	21.2	24.3	27.0	29.5	31.8	33.9	35.8	
	36"	S	654	591	547	516	492	473	458	445	
		G'	17.7	20.9	23.9	26.5	28.8	30.9	32.9	34.6	
18 0.0474"	6"	S	1646	1610	1587	1570	1558	1548	1513*	1250*	
		G'	25.3	30.5	35.4	40.0	44.2	48.3	52.1	55.6	
	12"	S	1257	1208	1174	1149	1130	1115	1103	1092	
		G'	24.7	29.5	34.0	38.2	42.0	45.6	48.9	52.0	
	18"	S	1028	967	925	895	871	853	838	826	
		G'	24.2	28.8	32.9	36.7	40.2	43.4	46.4	49.1	
	24"	S	894	828	782	748	723	703	686	673	
		G'	23.8	28.1	32.1	35.6	38.7	41.6	44.3	46.7	
	30"	S	808	738	689	654	628	607	590	576	
		G'	23.5	27.6	31.3	34.6	37.5	40.1	42.5	44.6	
	36"	S	748	675	626	590	562	541	523	509	
		G'	23.2	27.2	30.7	33.7	36.4	38.8	41.0	42.9	
16 0.0598"	6"	S	2114	2069	2039	2017	2001	1989	1979	1768*	
		G'	42.5	50.6	58.0	64.8	71.1	76.8	82.1	87.0	
	12"	S	1614	1552	1508	1476	1452	1432	1416	1403	
		G'	40.9	48.3	54.8	60.7	66.1	70.9	75.3	79.3	
	18"	S	1321	1243	1189	1150	1119	1096	1076	1061	
		G'	39.7	46.5	52.4	57.6	62.2	66.3	70.0	73.4	
	24"	S	1149	1063	1004	961	928	903	882	865	
		G'	38.8	45.0	50.4	55.0	59.1	62.6	65.8	68.6	
	30"	S	1038	948	886	841	806	779	758	740	
		G'	38.0	43.8	48.7	52.9	56.5	59.6	62.4	64.8	
	36"	S	961	868	804	757	722	694	672	654	
		G'	37.4	42.9	47.4	51.2	54.4	57.1	59.5	61.6	

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
 SIDELAP CONNECTION: 1-1/2" Seam Welds
 ATTACHMENT PATTERN: 24 / 6

S = Allowable Diaphragm Shear (lbs/ft)
 G' = Stiffness Factor (kips/in.)

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT								
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	
20 0.0358	6"	S	1375	1318	1280	1253	1233	1217	995*	822*	
		G'	13.2	16.1	18.9	21.6	24.1	26.6	28.9	31.1	
	12"	S	1125	1062	1019	987	964	945	930	822*	
		G'	13.0	15.8	18.5	21.0	23.4	25.6	27.8	29.8	
	18"	S	891	823	776	743	718	698	682	669	
		G'	12.9	15.6	18.2	20.5	22.8	24.9	26.9	28.8	
	24"	S	767	697	650	615	590	570	553	540	
		G'	12.8	15.4	17.9	20.2	22.3	24.3	26.1	27.9	
	30"	S	692	620	572	537	511	491	475	461	
		G'	12.7	15.3	17.7	19.8	21.9	23.7	25.5	27.1	
	36"	S	641	568	520	485	459	438	422	408	
		G'	12.6	15.2	17.5	19.6	21.5	23.3	24.9	26.4	
19 0.0418	6"	S	1620	1553	1508	1476	1453	1434	1254*	1036*	
		G'	19.0	23.0	26.8	30.5	33.9	37.1	40.2	43.1	
	12"	S	1326	1251	1200	1163	1135	1114	1096	1036*	
		G'	18.6	22.5	26.1	29.4	32.5	35.5	38.3	40.9	
	18"	S	1049	969	915	875	846	823	804	789	
		G'	18.4	22.0	25.4	28.6	31.6	34.2	36.7	39.0	
	24"	S	904	821	765	725	695	671	652	636	
		G'	18.2	21.7	24.9	27.9	30.6	33.1	35.4	37.5	
	30"	S	815	731	674	633	602	578	559	543	
		G'	18.0	21.4	24.5	27.3	29.9	32.2	34.3	36.2	
	36"	S	755	670	612	571	540	516	497	481	
		G'	17.9	21.2	24.2	26.8	29.2	31.4	33.4	35.1	
18 0.0474"	6"	S	1852	1776	1725	1688	1661	1640	1513*	1250*	
		G'	25.3	30.5	35.4	40.0	44.3	48.3	52.1	55.7	
	12"	S	1516	1430	1372	1330	1298	1273	1253	1237	
		G'	24.7	29.6	34.2	38.3	42.2	45.7	49.1	52.2	
	18"	S	1200	1108	1046	1001	967	940	919	902	
		G'	24.3	28.9	33.2	37.0	40.5	43.7	46.7	49.4	
	24"	S	1034	939	875	829	794	767	745	728	
		G'	24.0	28.4	32.4	35.9	39.1	42.1	44.7	47.1	
	30"	S	932	835	771	724	689	661	639	621	
		G'	23.7	28.0	31.7	35.0	38.0	40.7	43.1	45.2	
	36"	S	863	766	700	653	618	590	568	550	
		G'	23.5	27.6	31.2	34.3	37.1	39.5	41.7	43.7	
16 0.0598"	6"	S	2380	2281	2216	2169	2134	2107	2085	1768*	
		G'	42.5	50.7	58.1	64.9	71.2	76.9	82.2	87.1	
	12"	S	1948	1837	1763	1709	1668	1636	1610	1589	
		G'	41.1	48.5	55.1	61.0	66.4	71.2	75.7	79.7	
	18"	S	1542	1423	1343	1286	1242	1208	1181	1159	
		G'	40.1	46.9	52.8	58.1	62.8	66.9	70.6	74.0	
	24"	S	1328	1206	1124	1065	1020	985	958	935	
		G'	39.3	45.6	51.1	55.8	59.9	63.5	66.7	69.6	
	30"	S	1197	1073	990	930	885	849	821	798	
		G'	38.6	44.6	49.6	53.9	57.6	60.7	63.5	65.9	
	36"	S	1108	984	899	839	793	758	729	706	
		G'	38.1	43.8	48.4	52.3	55.6	58.4	60.9	63.0	

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
 S values have been divided by a Safety Factor of 3.00 to obtain (ASD) Diaphragm Shear values for seismic loading (worst case).
 The following Safety Factors shown are from Table D5 of 2004 Supplement AISI Specifications.
Seismic: Phi = .55 for LRFD and SF = 3.00 for ASD for welds.
Wind: Phi = .70 for LRFD and SF = 2.35 for ASD for welds.
Other: Phi = .60 for LRFD and SF = 2.65 for ASD for welds.
 Calculations are based on a "SINGLE SPAN CONDITION". For "Other Span Conditions" contact the Metal Dek Group for additional information.
 Fy = 40 ksi and Fu = 55 ksi
 * Indicates Shear Buckling controls. A Safety Factor of 2.00 was used as referenced in SDI DDM03.

Versa-Dek® 3.5 LS Allowable Diaphragm Shear Values, S (plf) and Stiffness Factors, G' (kpi)



SUPPORT CONNECTION: 1/2" Effective Weld Diameter
 SIDELAP CONNECTION: S/L Screws #10
 ATTACHMENT PATTERN: 24 / 3

S = Allowable Diaphragm Shear (lbs/ft)
 G' = Stiffness Factor (kips/in.)

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"
20 0.0358	6"	S	689	652	626	607	593	582	573	566
		G'	12.9	15.7	18.2	20.7	23.0	25.2	27.2	29.2
	12"	S	481	438	408	386	370	358	347	339
		G'	12.6	15.1	17.4	19.6	21.6	23.4	25.1	26.8
	18"	S	405	360	329	307	290	277	266	258
		G'	12.3	14.7	16.8	18.7	20.5	22.1	23.6	24.9
	24"	S	366	320	288	266	249	236	225	216
		G'	12.1	14.3	16.3	18.1	19.7	21.1	22.4	23.5
	30"	S	342	295	264	241	224	211	200	191
		G'	12.0	14.1	15.9	17.6	19.0	20.3	21.4	22.4
	36"	S	326	279	247	225	208	194	183	175
		G'	11.9	13.9	15.7	17.2	18.5	19.6	20.6	21.5
19 0.0418	6"	S	807	763	733	711	694	681	670	662
		G'	18.4	22.1	25.6	28.8	31.8	34.7	37.3	39.8
	12"	S	564	513	478	453	433	418	406	397
		G'	17.7	21.1	24.1	26.8	29.3	31.6	33.7	35.6
	18"	S	475	422	386	359	340	324	312	302
		G'	17.2	20.3	23.0	25.4	27.5	29.4	31.1	32.7
	24"	S	429	375	338	312	292	276	264	253
		G'	16.9	19.7	22.2	24.3	26.2	27.8	29.2	30.5
	30"	S	401	347	310	283	263	247	235	224
		G'	16.7	19.3	21.6	23.5	25.1	26.5	27.7	28.8
	36"	S	383	328	290	264	243	228	215	205
		G'	16.4	19.0	21.1	22.8	24.2	25.4	26.5	27.4
18 0.0474"	6"	S	919	868	833	808	789	774	762	752
		G'	24.3	29.1	33.4	37.4	41.1	44.5	47.6	50.5
	12"	S	642	583	544	515	493	476	462	451
		G'	23.2	27.4	31.0	34.3	37.2	39.8	42.2	44.4
	18"	S	541	480	439	409	386	369	355	343
		G'	22.5	26.2	29.3	32.1	34.5	36.5	38.5	40.1
	24"	S	489	427	385	355	332	314	300	288
		G'	21.9	25.3	28.1	30.5	32.5	34.2	35.7	37.0
	30"	S	458	395	353	322	299	281	267	255
		G'	21.5	24.6	27.2	29.2	31.0	32.4	33.6	34.7
	36"	S	436	373	331	300	277	259	245	233
		G'	21.2	24.1	26.4	28.3	29.7	30.9	32.0	32.8
16 0.0598"	6"	S	1168	1102	1057	1025	1000	981	965	952
		G'	40.1	47.2	53.4	59.0	64.0	68.5	72.6	76.3
	12"	S	817	742	690	653	625	603	586	571
		G'	37.5	43.3	48.1	52.3	55.9	59.1	61.9	64.3
	18"	S	690	611	558	520	491	468	450	435
		G'	35.8	40.7	44.6	47.9	50.6	52.9	54.9	56.6
	24"	S	624	544	490	452	422	399	381	366
		G'	34.6	38.8	42.1	44.7	46.8	48.6	50.0	51.2
	30"	S	584	504	449	410	381	358	339	324
		G'	33.7	37.5	40.2	42.4	44.0	45.3	46.4	47.2
	36"	S	557	476	422	383	353	330	311	296
		G'	33.0	36.4	38.8	40.5	41.8	42.8	43.6	44.2

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
 SIDELAP CONNECTION: S/L Screws #10
 ATTACHMENT PATTERN: 24 / 6

S = Allowable Diaphragm Shear (lbs/ft)
 G' = Stiffness Factor (kips/in.)

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"
20 0.0358	6"	S	798	741	703	675	654	638	625	614
		G'	13.0	15.7	18.3	20.8	23.1	25.3	27.3	29.3
	12"	S	558	499	459	430	408	392	378	367
		G'	12.7	15.2	17.6	19.7	21.8	23.6	25.4	27.0
	18"	S	476	416	375	346	325	308	294	283
		G'	12.5	14.9	17.1	19.0	20.8	22.5	24.0	25.4
	24"	S	435	374	333	304	282	265	252	241
		G'	12.3	14.6	16.7	18.5	20.1	21.6	22.9	24.1
	30"	S	410	349	308	279	257	240	226	215
		G'	12.2	14.4	16.4	18.1	19.6	20.9	22.1	23.2
	36"	S	393	332	291	262	240	223	209	198
		G'	12.1	14.3	16.2	17.8	19.2	20.4	21.5	22.4
19 0.0418	6"	S	935	868	823	790	766	747	731	719
		G'	18.5	22.2	25.7	28.9	32.0	34.8	37.5	39.9
	12"	S	655	585	537	504	478	458	443	430
		G'	17.9	21.3	24.4	27.2	29.7	32.0	34.1	36.1
	18"	S	559	488	440	406	380	360	344	331
		G'	17.5	20.7	23.5	25.9	28.1	30.1	31.9	33.4
	24"	S	510	439	391	357	331	311	295	282
		G'	17.3	20.2	22.8	25.0	27.0	28.6	30.1	31.4
	30"	S	481	410	362	327	302	281	265	252
		G'	17.1	19.9	22.3	24.3	26.1	27.6	28.8	29.9
	36"	S	462	390	342	308	282	262	246	232
		G'	16.9	19.7	21.9	23.8	25.4	26.7	27.8	28.8
18 0.0474"	6"	S	1063	987	935	898	870	848	831	816
		G'	24.4	29.2	33.6	37.6	41.3	44.7	47.8	50.8
	12"	S	746	665	612	573	544	521	503	488
		G'	23.5	27.7	31.5	34.8	37.7	40.4	42.8	45.0
	18"	S	637	556	501	462	433	410	392	377
		G'	22.9	26.8	30.1	32.9	35.4	37.5	39.5	41.2
	24"	S	582	500	446	406	377	354	336	321
		G'	22.5	26.1	29.1	31.5	33.7	35.5	37.0	38.4
	30"	S	549	467	412	373	343	321	302	287
		G'	22.2	25.6	28.3	30.5	32.4	33.9	35.2	36.3
	36"	S	526	445	390	351	321	298	280	265
		G'	22.0	25.2	27.7	29.7	31.4	32.7	33.8	34.7
16 0.0598"	6"	S	1351	1252	1186	1138	1102	1074	1052	1033
		G'	40.4	47.5	53.8	59.4	64.4	69.0	73.1	76.8
	12"	S	949	846	777	728	690	661	638	619
		G'	38.2	44.1	49.1	53.3	57.0	60.2	63.0	65.5
	18"	S	812	708	638	588	550	521	498	478
		G'	36.8	42.0	46.1	49.5	52.3	54.7	56.7	58.4
	24"	S	742	638	568	518	480	451	427	408
		G'	35.9	40.5	44.0	46.8	49.0	50.8	52.3	53.5
	30"	S	701	596	526	475	438	408	385	365
		G'	35.3	39.4	42.5	44.8	46.8	48.0	49.1	49.9
	36"	S	673	568	497	447	409	380	356	337
		G'	34.7	38.6	41.3	43.3	44.8	45.8	46.6	47.2

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
 S values have been divided by a Safety Factor of 3.00 to obtain (ASD) Diaphragm Shear values for seismic loading (worst case).
 The following Safety Factors shown are from Table D5 of 2004 Supplement AISI Specifications.
Seismic: Phi = .55 for LRFD and SF = 3.00 for ASD for welds.
Wind: Phi = .70 for LRFD and SF = 2.35 for ASD for welds.
Other: Phi = .60 for LRFD and SF = 2.65 for ASD for welds.
 Calculations are based on a "SINGLE SPAN CONDITION". For "Other Span Conditions" contact the Metal Dek Group for additional information.
 Fy = 40 ksi and Fu = 55 ksi
 * Indicates Shear Buckling controls. A Safety Factor of 2.00 was used as referenced in SDI DDM03.