Deep-Dek® 4.5

Metal Dek Group
a unit of CSi

Allowable Diaphragm Shear

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
SIDELAP CONNECTION: 1-1/2" Seam Welds
ATTACHMENT PATTERN: 12 / 2

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

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
20 0.0358"	6"	S	1141	1134	1129	1124	1121	1118	978*	834*
		G'	9.1	10.5	11.8	13.1	14.4	15.7	16.9	18.2
	12"	S	906	887	872	861	852	844	838	832
		G'	8.9	10.2	11.4	12.7	13.9	15.0	16.1	17.2
	18"	S	687	665	648	635	625	617	609	603
		G'	8.7	9.9	11.1	12.3	13.4	14.4	15.5	16.4
	24"	S	567	544	527	513	502	493	486	479
		G'	8.5	9.7	10.8	11.9	13.0	13.9	14.9	15.8
	30"	S	492	469	451	437	426	417	409	403
		G'	8.4	9.5	10.6	11.6	12.6	13.5	14.4	15.2
	36"	S	442	418	400	385	374	365	357	351
		G'	8.3	9.4	10.4	11.4	12.3	13.1	13.9	14.7
18 0.0474"	6"	S	1537	1528	1520	1515	1510	1507	1489*	1269*
		G'	17.5	20.1	22.6	25.0	27.3	29.5	31.7	33.7
	12"	S	1221	1195	1175	1160	1147	1137	1129	1121
		G'	16.9	19.2	21.4	23.5	25.5	27.4	29.3	31.0
	18"	S	925	896	873	856	842	830	821	813
		G'	16.3	18.4	20.4	22.3	24.1	25.8	27.4	28.9
	24"	S	764	733	709	691	677	664	654	646
		G'	15.8	17.8	19.6	21.3	22.9	24.4	25.8	27.1
	30"	S	663	631	607	589	574	561	551	542
		G'	15.5	17.3	19.0	20.5	21.9	23.3	24.5	25.6
	36"	S	595	563	538	519	504	491	481	472
		G'	15.1	16.8	18.4	19.8	21.1	22.3	23.4	24.4
16 0.0598"	6"	S	1975	1963	1953	1946	1940	1936	1932	1796*
		G'	29.8	33.9	37.8	41.5	45.1	48.4	51.7	54.8
	12"	S	1568	1535	1510	1490	1474	1461	1450	1441
		G'	28.1	31.6	34.9	38.0	40.9	43.7	46.2	48.6
	18"	S	1188	1151	1122	1100	1082	1067	1055	1044
		G'	26.7	29.9	32.7	35.3	37.8	40.0	42.1	44.0
	24"	S	981	941	911	888	869	854	841	830
		G'	25.6	28.4	30.9	33.2	35.2	37.1	38.9	40.4
	30"	S	852	811	780	756	737	721	708	697
		G'	24.8	27.2	29.5	31.4	33.2	34.8	36.2	37.6
	36"	S	764	723	691	667	647	631	618	606
		G'	24.0	26.3	28.2	30.0	31.5	32.9	34.1	35.2
14 0.0747"	6"	S	2521	2505	2493	2484	2476	2470	2465	2461
		G'	48.5	54.7	60.5	65.9	70.9	75.7	80.2	84.4
	12"	S	2002	1959	1927	1902	1881	1864	1850	1838
		G'	44.6	49.6	54.1	58.3	62.1	65.6	68.9	71.9
	18"	S	1517	1469	1432	1403	1380	1362	1346	1332
		G'	41.6	45.8	49.5	52.8	55.8	58.5	60.9	63.2
	24"	S	1252	1202	1163	1133	1109	1089	1073	1059
		G'	39.3	42.8	45.9	48.6	50.9	53.1	55.0	56.7
	30"	S	1087	1035	996	965	941	920	903	889
		G'	37.4	40.4	43.0	45.3	47.2	48.9	50.4	51.7
	36"	S	975	922	882	851	826	806	788	774
		G'	35.9	38.5	40.7	42.6	44.2	45.5	46.7	47.8

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
S values have been divided by a Safety Factor of 3 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: ϕ = .55 for LRFD and Ω = 3.00 for ASD for welds.

Wind: ϕ = .70 for LRFD and Ω = 2.35 for ASD for welds.

Other: ϕ = .60 for LRFD and Ω = 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.

Deep-Dek® 4.5

Metal Dek Group
a unit of CSi

Allowable Diaphragm Shear

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
SIDELAP CONNECTION: S/L Screws #10
ATTACHMENT PATTERN: 12 / 2

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

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
20 0.0358"	6"	S	618	601	589	579	571	565	559	555
		G'	8.8	10.0	11.3	12.5	13.6	14.7	15.8	16.9
	12"	S	382	364	350	340	331	325	319	314
		G'	8.4	9.5	10.6	11.6	12.5	13.4	14.3	15.1
	18"	S	299	281	268	257	248	241	235	230
		G'	8.1	9.1	10.0	10.9	11.7	12.5	13.2	13.9
	24"	S	258	239	226	215	206	199	193	188
		G'	7.8	8.7	9.6	10.4	11.1	11.7	12.3	12.9
	30"	S	233	214	200	190	181	174	168	163
		G'	7.6	8.5	9.2	9.9	10.6	11.1	11.7	12.1
	36"	S	216	197	183	173	164	157	151	146
		G'	7.5	8.3	9.0	9.6	10.1	10.6	11.1	11.5
18 0.0474"	6"	S	821	799	782	769	758	749	742	736
		G'	16.5	18.8	20.9	22.9	24.8	26.6	28.3	30.0
	12"	S	508	484	466	452	440	431	423	417
		G'	15.3	17.1	18.8	20.4	21.8	23.1	24.4	25.5
	18"	S	399	374	356	342	330	321	313	306
		G'	14.4	16.0	17.4	18.6	19.7	20.7	21.7	22.5
	24"	S	344	319	301	286	274	265	257	250
		G'	13.8	15.1	16.3	17.3	18.2	19.0	19.7	20.3
	30"	S	310	286	267	253	241	231	224	217
		G'	13.3	14.4	15.4	16.3	17.0	17.6	18.2	18.7
	36"	S	288	263	245	230	219	209	201	194
		G'	12.9	13.9	14.7	15.5	16.1	16.6	17.0	17.4
16 0.0598"	6"	S	1040	1011	990	973	959	948	939	931
		G'	27.3	30.6	33.7	36.6	39.3	41.8	44.1	46.3
	12"	S	644	613	590	572	558	546	536	527
		G'	24.4	26.9	29.1	31.1	32.9	34.5	36.0	37.4
	18"	S	507	475	452	433	418	406	396	388
		G'	22.5	24.4	26.1	27.5	28.8	29.9	30.9	31.8
	24"	S	437	405	382	363	348	336	326	317
		G'	21.1	22.6	23.9	25.0	25.9	26.7	27.4	28.1
	30"	S	395	363	339	321	306	294	284	275
		G'	20.0	21.3	22.3	23.2	23.8	24.4	24.9	25.3
	36"	S	367	335	311	293	278	265	255	247
		G'	19.2	20.3	21.1	21.7	22.2	22.6	23.0	23.3
14 0.0747"	6"	S	1306	1269	1241	1220	1203	1188	1176	1166
		G'	42.8	47.4	51.6	55.4	58.8	61.9	64.8	67.5
	12"	S	810	771	741	718	700	685	672	661
		G'	36.7	39.8	42.4	44.7	46.7	48.4	50.0	51.4
	18"	S	638	598	568	545	526	510	498	487
		G'	32.9	35.0	36.8	38.3	39.5	40.6	41.5	42.3
	24"	S	551	511	480	457	438	423	410	399
		G'	30.3	31.8	33.0	34.0	34.8	35.5	36.0	36.5
	30"	S	498	458	428	404	385	370	357	346
		G'	28.4	29.5	30.3	31.0	31.5	31.9	32.2	32.4
	36"	S	463	423	392	369	350	334	321	310
		G'	26.9	27.7	28.3	28.7	29.0	29.2	29.3	29.4

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
S values have been divided by a Safety Factor of 3 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: ϕ = .55 for LRFD and Ω = 3.00 for ASD for welds.
Wind: ϕ = .70 for LRFD and Ω = 2.35 for ASD for welds.
Other: ϕ = .60 for LRFD and Ω = 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.

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Allowable Diaphragm Shear

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
SIDELAP CONNECTION: 1-1/2" Seam Welds
ATTACHMENT PATTERN: 12 / 4

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

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
20 0.0358"	6"	S	1282	1255	1235	1219	1206	1164*	978*	834*
		G'	9.1	10.5	11.8	13.2	14.4	15.7	17.0	18.2
	12"	S	1072	1034	1006	984	966	952	940	834*
		G'	8.9	10.2	11.5	12.7	13.9	15.1	16.2	17.3
	18"	S	818	779	750	727	709	694	681	670
		G'	8.7	10.0	11.2	12.3	13.5	14.5	15.6	16.5
	24"	S	688	649	619	595	577	561	549	538
		G'	8.6	9.8	10.9	12.0	13.1	14.1	15.0	15.9
	30"	S	609	569	539	516	497	481	469	458
		G'	8.5	9.7	10.7	11.8	12.8	13.7	14.6	15.4
	36"	S	556	516	486	462	443	428	415	404
		G'	8.4	9.5	10.6	11.6	12.5	13.3	14.2	14.9
18 0.0474"	6"	S	1728	1691	1663	1642	1624	1610	1489*	1269*
		G'	17.6	20.1	22.6	25.0	27.3	29.5	31.7	33.8
	12"	S	1444	1393	1355	1325	1302	1282	1266	1252
		G'	16.9	19.3	21.5	23.6	25.6	27.6	29.4	31.2
	18"	S	1102	1050	1010	979	955	934	917	903
		G'	16.5	18.6	20.6	22.5	24.3	26.0	27.6	29.2
	24"	S	927	874	833	802	777	756	739	725
		G'	16.1	18.1	19.9	21.7	23.3	24.8	26.2	27.5
	30"	S	820	767	726	694	669	648	631	617
		G'	15.7	17.6	19.4	20.9	22.4	23.7	25.0	26.2
	36"	S	749	695	654	622	597	576	559	544
		G'	15.5	17.3	18.9	20.3	21.7	22.9	24.0	25.0
16 0.0598"	6"	S	2220	2172	2137	2109	2087	2069	2054	1796*
		G'	29.9	34.0	37.9	41.6	45.2	48.5	51.8	54.9
	12"	S	1855	1790	1741	1703	1672	1647	1626	1608
		G'	28.3	31.9	35.2	38.3	41.2	44.0	46.5	49.0
	18"	S	1416	1349	1298	1258	1226	1200	1178	1160
		G'	27.1	30.3	33.2	35.8	38.3	40.5	42.6	44.6
	24"	S	1191	1122	1071	1030	998	972	950	931
		G'	26.2	29.0	31.6	33.9	36.0	37.9	39.6	41.2
	30"	S	1054	985	933	892	860	833	811	792
		G'	25.4	28.0	30.3	32.3	34.1	35.8	37.2	38.6
	36"	S	962	893	840	800	767	740	718	699
		G'	24.8	27.2	29.2	31.0	32.6	34.0	35.3	36.4
14 0.0747"	6"	S	2833	2772	2727	2692	2664	2640	2621	2505*
		G'	48.7	54.9	60.7	66.1	71.1	75.9	80.4	84.6
	12"	S	2368	2285	2222	2173	2134	2102	2075	2052
		G'	45.0	50.1	54.7	58.9	62.7	66.3	69.5	72.6
	18"	S	1808	1721	1656	1606	1565	1532	1504	1480
		G'	42.4	46.6	50.4	53.7	56.8	59.5	62.0	64.2
	24"	S	1520	1432	1366	1315	1274	1240	1212	1188
		G'	40.3	44.0	47.1	49.9	52.3	54.5	56.4	58.1
	30"	S	1345	1257	1190	1139	1097	1063	1035	1011
		G'	38.8	41.9	44.6	46.9	48.9	50.6	52.1	53.4
	36"	S	1228	1139	1072	1020	979	945	916	892
		G'	37.5	40.3	42.6	44.5	46.1	47.5	48.7	49.8

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
S values have been divided by a Safety Factor of 3 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: ϕ = .55 for LRFD and Ω = 3.00 for ASD for welds.
Wind: ϕ = .70 for LRFD and Ω = 2.35 for ASD for welds.
Other: ϕ = .60 for LRFD and Ω = 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.

Deep-Dek® 4.5

Metal Dek Group
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Allowable Diaphragm Shear

SUPPORT CONNECTION: 1/2" Effective Weld Diameter
SIDELAP CONNECTION: S/L Screws #10
ATTACHMENT PATTERN: 12 / 4

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

GAGE	SIDE LAP SPACING	FACTOR	DECK SPAN - C to C SUPPORT							
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
20 0.0358"	6"	S	743	710	685	665	650	637	627	618
		G'	8.8	10.1	11.3	12.5	13.7	14.8	15.9	16.9
	12"	S	494	460	435	415	399	386	376	366
		G'	8.5	9.6	10.7	11.7	12.7	13.6	14.5	15.4
	18"	S	410	376	351	331	315	302	291	282
		G'	8.2	9.3	10.3	11.2	12.0	12.8	13.5	14.2
	24"	S	368	334	308	288	272	259	249	239
		G'	8.1	9.0	9.9	10.7	11.5	12.2	12.8	13.4
	30"	S	343	308	283	263	247	234	223	214
		G'	7.9	8.8	9.7	10.4	11.1	11.7	12.2	12.8
	36"	S	326	291	266	246	230	217	206	197
		G'	7.8	8.7	9.5	10.1	10.8	11.3	11.8	12.2
18 0.0474"	6"	S	988	944	911	885	864	847	832	820
		G'	16.7	18.9	21.0	23.1	25.0	26.8	28.5	30.2
	12"	S	659	614	580	553	532	514	500	487
		G'	15.6	17.5	19.2	20.8	22.3	23.6	24.9	26.1
	18"	S	548	502	468	441	420	402	388	375
		G'	14.9	16.6	18.0	19.3	20.5	21.5	22.5	23.4
	24"	S	492	446	412	385	364	346	331	319
		G'	14.4	15.9	17.1	18.2	19.2	20.0	20.8	21.4
	30"	S	458	413	378	351	330	312	298	285
		G'	14.1	15.4	16.5	17.4	18.2	18.9	19.5	20.0
	36"	S	436	390	356	329	307	290	275	263
		G'	13.8	15.0	15.9	16.8	17.4	18.0	18.5	18.9
16 0.0598"	6"	S	1254	1197	1154	1121	1094	1072	1054	1038
		G'	27.6	31.0	34.1	37.0	39.7	42.2	44.6	46.8
	12"	S	838	780	736	702	675	653	634	618
		G'	25.1	27.7	30.0	32.0	33.9	35.5	37.0	38.4
	18"	S	698	639	595	561	534	511	492	477
		G'	23.6	25.6	27.4	28.9	30.2	31.4	32.4	33.3
	24"	S	628	569	525	490	463	440	421	406
		G'	22.5	24.2	25.6	26.8	27.8	28.6	29.3	29.9
	30"	S	585	526	482	448	420	398	379	363
		G'	21.7	23.2	24.3	25.2	26.0	26.6	27.1	27.5
	36"	S	557	498	454	419	392	369	350	334
		G'	21.1	22.4	23.3	24.0	24.6	25.0	25.4	25.7
14 0.0747"	6"	S	1577	1504	1450	1407	1373	1345	1322	1302
		G'	43.5	48.1	52.3	56.1	59.6	62.7	65.6	68.3
	12"	S	1058	983	928	884	849	821	797	777
		G'	38.2	41.3	44.0	46.4	48.4	50.2	51.7	53.1
	18"	S	882	807	751	708	673	644	620	600
		G'	35.0	37.3	39.2	40.7	42.0	43.0	43.9	44.7
	24"	S	794	719	663	619	584	555	531	511
		G'	32.9	34.6	36.0	37.0	37.8	38.4	38.9	39.3
	30"	S	741	666	610	566	531	502	478	458
		G'	31.4	32.8	33.7	34.4	34.8	35.2	35.4	35.6
	36"	S	706	631	574	531	495	467	443	422
		G'	30.3	31.3	32.0	32.4	32.7	32.8	32.9	32.9

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, DDM03
S values have been divided by a Safety Factor of 3 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: ϕ = .55 for LRFD and Ω = 3.00 for ASD for welds.
Wind: ϕ = .70 for LRFD and Ω = 2.35 for ASD for welds.
Other: ϕ = .60 for LRFD and Ω = 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.