

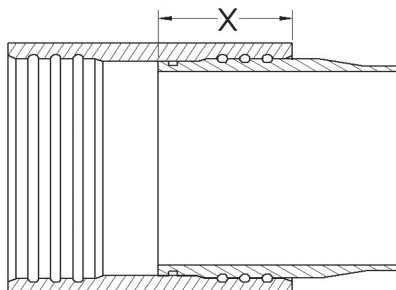
STAR™ Super-Seal Key-Lock

NOV Fiber Glass Systems provides a broad range of high pressure fiberglass fittings and accessories to accompany our high pressure Key-Lock pipe. This allows for a complete corrosion free piping system. All of these fittings are manufactured using the filament winding method of fabrication, using premium glass fibers, and quality epoxy resins. This ensures maximum pressure capabilities of these composite elements.

General Notes

1. All Bell x Bell fittings are hydrotested to 1.5 times the series pressure rating. Nipples are hydrotested at standard pipe frequency.
2. Service pressures are based on 150°F (65°C) operation. Pressure deratings follow the values listed in the Piping Specification Guide.
3. Listed weights are approximate.
4. Stub flange rings match ASME B16.5 and ASME B16.47 Series A thickness and bolt patterns.

Joint Insertion Length

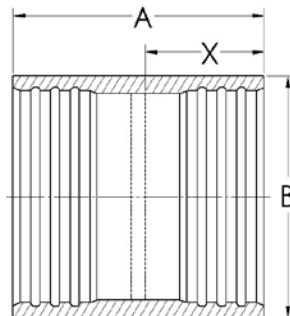


Diameter (in.)		8	10	12	14	16	18	20	24	30	36	40
Pipe Rating	Fitting Rating	X	X	X	X	X	X	X	X	X	X	X
psi	psi	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
3000 - 2900	3000	16.7	19.7	23.8	-	-	-	-	-	-	-	-
2800 - 2600	2800	15.4	18.3	22.0	-	-	-	-	-	-	-	-
2500 - 2400	2500	15.3	16.8	20.4	22.1	-	-	-	-	-	-	-
2300 - 2100	2300	13.9	15.4	18.6	20.3	22.7	-	-	-	-	-	-
2000 - 1900	2000	13.8	15.3	16.7	18.6	20.9	22.4	-	-	-	-	-
1800 - 1600	1800	12.3	13.9	16.7	16.8	19.1	20.3	22.3	-	-	-	-
1500 - 1400	1500	10.7	12.4	14.9	16.5	17.3	20.1	20.2	22.5	-	-	-
1300 - 1100	1300	10.4	12.0	14.5	14.4	15.2	17.7	18.0	20.4	24.1	-	-
1000 - 900	1000	8.1	10.7	12.4	12.3	13.0	15.2	15.4	17.8	21.5	23.9	-
800	800	-	-	-	9.8	11.3	11.5	13.5	14.0	20.6	20.8	-
750	750	8.1	8.1	9.7	9.8	9.8	11.5	13.5	13.8	18.3	20.8	21.2
700	700	-	-	-	9.8	9.8	11.5	13.5	13.8	18.3	20.8	21.2
600	600	-	-	-	9.8	9.8	11.5	13.5	13.8	18.3	20.8	21.2
500	500	8.1	8.1	9.7	9.8	9.8	11.5	13.5	13.8	15.6	17.0	17.4
300	300	8.1	8.1	9.7	9.8	9.8	11.5	13.5	13.8	15.6	17.0	14.8

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Couplings



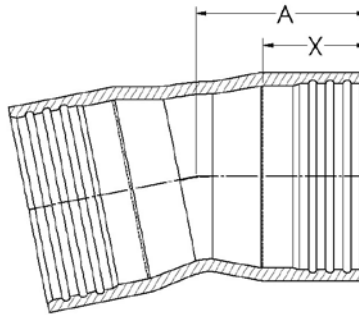
Diameter (in.)		8			10			12			14			16		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
3000 - 2900	3000	34.6	17.3	309	40.6	21.6	560	48.8	25.7	961	-	-	-	-	-	-
2800 - 2600	2800	32.0	16.6	257	37.8	20.7	465	45.2	24.7	797	-	-	-	-	-	-
2500 - 2400	2500	31.8	15.8	218	34.8	19.6	366	41.9	23.4	627	45.4	25.6	809	-	-	-
2300 - 2100	2300	29.0	15.2	176	32.0	18.8	297	38.4	22.4	508	41.7	24.5	658	46.6	27.8	941
2000 - 1900	2000	28.8	14.3	147	31.9	17.8	246	34.7	21.3	385	38.4	23.2	503	43.1	26.3	723
1800 - 1600	1800	25.9	13.8	115	29.0	17.0	194	34.7	20.3	332	34.8	22.2	396	39.5	25.2	574
1500 - 1400	1500	22.6	13.0	83	25.9	16.1	141	31.0	19.2	241	34.3	21.0	316	35.9	23.7	419
1300 - 1100	1300	22.0	12.5	69	25.2	15.4	117	30.1	18.4	200	30.0	20.1	236	31.5	22.7	314
1000 - 900	1000	17.4	11.8	43	22.5	14.8	83	26.0	17.3	134	25.9	18.9	157	27.2	21.4	207
800	800	-	-	-	-	-	-	-	-	-	20.7	18.3	103	23.7	20.7	148
750	750	17.4	11.4	34	17.4	13.9	49	20.6	16.6	83	20.7	18.2	98	20.8	20.6	123
700	700	-	-	-	-	-	-	-	-	-	20.7	18.0	93	20.8	20.4	116
600	600	-	-	-	-	-	-	-	-	-	20.7	17.8	82	20.8	20.1	102
500	500	17.4	10.9	25	17.4	13.3	36	20.6	15.9	61	20.7	17.5	72	20.8	19.8	89
300	300	17.4	10.6	19	17.4	12.9	26	20.6	15.4	44	20.7	16.9	51	20.8	19.1	63

Diameter (in.)		18			20			24			30			36			40		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	46.0	29.1	947	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	41.8	27.9	745	45.8	30.8	994	-	-	-	-	-	-	-	-	-	-	-	-
1500 - 1400	1500	41.3	26.3	595	41.6	29.0	724	46.3	34.5	1127	-	-	-	-	-	-	-	-	-
1300 - 1100	1300	36.7	25.1	447	37.3	27.7	546	41.9	32.9	856	49.3	42.6	1677	-	-	-	-	-	-
1000 - 900	1000	31.6	23.7	296	32.1	26.1	360	36.8	31.0	570	44.3	40.0	1129	49.1	47.8	1779	-	-	-
800	800	24.3	22.7	184	28.3	24.9	255	29.2	29.6	362	42.4	38.1	861	42.7	45.5	1221	-	-	-
750	750	24.3	22.5	175	28.3	24.7	241	28.9	29.3	337	37.8	37.8	725	42.7	45.2	1152	43.6	50.0	1426
700	700	24.3	22.3	165	28.3	24.5	228	28.9	29.1	317	37.8	37.5	682	42.7	44.8	1084	43.6	49.6	1340
600	600	24.3	22.0	146	28.3	24.1	201	28.9	28.6	278	37.8	37.0	598	42.7	44.2	949	43.6	48.8	1170
500	500	24.3	21.6	127	28.3	23.7	174	28.9	28.2	240	32.3	36.1	436	35.1	42.6	655	36.0	47.3	811
300	300	24.3	20.9	90	28.3	23.0	122	28.9	27.3	165	32.3	34.9	299	35.1	41.3	446	30.8	45.7	467

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

11.25° Elbows



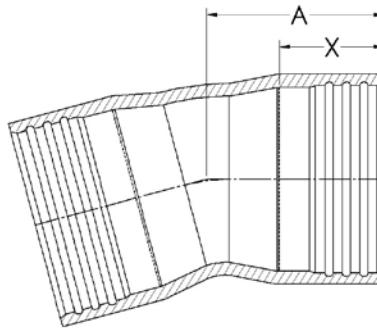
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	23.3	393	29.2	731	35.1	1257	-	-	-	-
2800 - 2600	2800	21.4	325	27.1	604	32.6	1043	-	-	-	-
2500 - 2400	2500	20.9	271	25.1	475	30.1	813	30.2	1041	-	-
2300 - 2100	2300	19.0	219	23.0	383	27.6	658	27.7	847	31.2	1223
2000 - 1900	2000	18.5	178	22.4	310	25.3	502	25.1	639	28.6	931
1800 - 1600	1800	16.7	140	20.4	244	24.4	419	22.7	501	26.0	736
1500 - 1400	1500	15.0	103	18.5	178	22.1	305	22.0	394	23.4	533
1300 - 1100	1300	14.7	87	18.1	149	21.7	255	19.9	303	21.2	412
1000 - 900	1000	12.4	56	16.8	106	19.6	174	17.8	207	19.1	281
800	800	-	-	-	-	-	-	15.2	142	17.4	205
750	750	12.4	43	14.2	66	17.0	112	15.2	134	15.9	176
700	700	-	-	-	-	-	-	15.2	126	15.9	165
600	600	-	-	-	-	-	-	15.2	110	15.9	144
500	500	12.4	31	14.2	47	17.0	80	15.2	95	15.9	123
300	300	12.4	22	14.2	32	17.0	54	15.2	64	15.9	82

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	31.1	1228	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	28.1	962	30.9	1295	-	-	-	-	-	-	-	-
1500 - 1400	1500	27.1	749	27.8	934	31.5	1490	-	-	-	-	-	-
1300 - 1100	1300	24.3	569	24.7	700	28.2	1120	33.7	2241	-	-	-	-
1000 - 900	1000	21.7	387	22.1	475	25.3	758	29.6	1475	33.8	2399	-	-
800	800	18.1	256	20.2	346	21.5	511	28.6	1130	29.4	1644	-	-
750	750	18.1	241	20.2	326	21.4	476	26.3	976	29.4	1547	31.1	1991
700	700	18.1	227	20.2	306	21.4	446	26.3	915	29.4	1450	31.1	1864
600	600	18.1	198	20.2	267	21.4	387	26.3	795	29.4	1258	31.1	1613
500	500	18.1	170	20.2	228	21.4	330	23.5	599	25.6	913	27.3	1179
300	300	18.1	114	20.2	153	21.4	217	23.5	393	25.6	595	24.7	681

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

15° Elbows



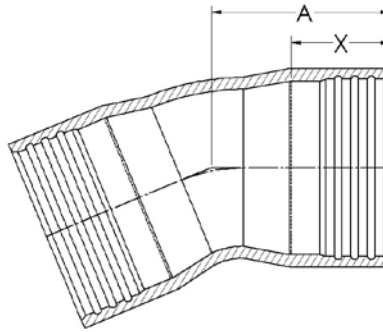
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	23.7	400	28.4	744	33.4	1279	-	-	-	-
2800 - 2600	2800	21.8	331	26.3	616	31.0	1064	-	-	-	-
2500 - 2400	2500	21.3	276	24.3	485	28.4	830	30.3	1059	-	-
2300 - 2100	2300	19.4	223	22.2	392	26.0	673	27.9	863	31.7	1247
2000 - 1900	2000	18.9	182	21.6	318	23.7	515	25.3	652	29.0	951
1800 - 1600	1800	17.1	144	19.6	250	22.8	430	22.8	513	26.4	753
1500 - 1400	1500	15.4	106	17.7	183	20.5	314	22.1	403	23.9	547
1300 - 1100	1300	15.1	89	17.3	153	20.1	262	20.0	311	21.7	423
1000 - 900	1000	12.8	58	16.0	109	18.0	180	17.9	213	19.5	289
800	800	-	-	-	-	-	-	15.3	147	17.8	212
750	750	12.8	45	13.5	68	15.3	116	15.3	139	16.3	183
700	700	-	-	-	-	-	-	15.3	130	16.3	171
600	600	-	-	-	-	-	-	15.3	114	16.3	149
500	500	12.8	32	13.5	48	15.3	82	15.3	97	16.3	127
300	300	12.8	22	13.5	33	15.3	56	15.3	66	16.3	84

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	31.7	1254	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	28.6	985	31.5	1326	-	-	-	-	-	-	-	-
1500 - 1400	1500	27.7	767	28.4	959	32.3	1534	-	-	-	-	-	-
1300 - 1100	1300	24.9	584	25.4	721	29.0	1157	34.7	2319	-	-	-	-
1000 - 900	1000	22.3	399	22.8	491	26.1	786	30.6	1533	35.0	2498	-	-
800	800	18.7	265	20.9	359	22.3	532	29.6	1175	30.6	1722	-	-
750	750	18.7	250	20.9	338	22.2	496	27.3	1018	30.6	1619	32.4	2089
700	700	18.7	235	20.9	317	22.2	465	27.3	954	30.6	1517	32.4	1955
600	600	18.7	205	20.9	276	22.2	403	27.3	828	30.6	1315	32.4	1691
500	500	18.7	175	20.9	236	22.2	343	24.5	626	26.8	960	28.6	1244
300	300	18.7	118	20.9	157	22.2	224	24.5	409	26.8	623	26.0	719

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

22.5° Elbows



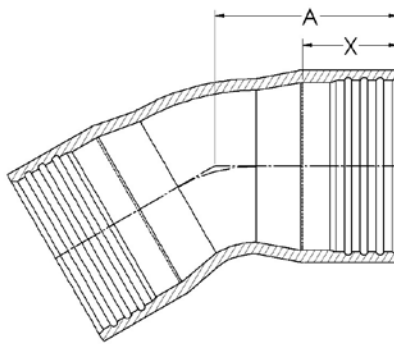
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	24.5	413	28.5	771	34.3	1325	-	-	-	-
2800 - 2600	2800	22.6	343	26.4	640	31.8	1104	-	-	-	-
2500 - 2400	2500	22.1	287	24.4	506	29.3	865	31.3	1095	-	-
2300 - 2100	2300	20.2	232	22.3	409	26.8	704	28.8	895	32.6	1294
2000 - 1900	2000	19.7	190	21.7	332	24.5	540	26.2	678	30.0	990
1800 - 1600	1800	17.9	150	19.7	263	23.6	452	23.8	536	27.4	787
1500 - 1400	1500	16.2	111	17.8	193	21.3	331	23.1	421	24.8	574
1300 - 1100	1300	16.0	94	17.4	162	20.9	277	21.0	327	22.6	446
1000 - 900	1000	13.6	61	16.1	116	18.8	191	18.9	224	20.5	307
800	800	-	-	-	-	-	-	16.3	156	18.7	226
750	750	13.6	47	13.6	73	16.1	125	16.3	147	17.3	195
700	700	-	-	-	-	-	-	16.3	138	17.3	183
600	600	-	-	-	-	-	-	16.3	120	17.3	159
500	500	13.6	34	13.6	51	16.1	88	16.3	103	17.3	135
300	300	13.6	23	13.6	34	16.1	59	16.3	69	17.3	89

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	32.9	1308	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	29.9	1032	32.9	1390	-	-	-	-	-	-	-	-
1500 - 1400	1500	28.9	804	29.8	1010	33.9	1622	-	-	-	-	-	-
1300 - 1100	1300	26.1	616	26.7	764	30.6	1230	36.7	2476	-	-	-	-
1000 - 900	1000	23.6	422	24.1	523	27.7	840	32.6	1648	37.4	2696	-	-
800	800	19.9	284	22.2	384	23.9	575	31.6	1265	33.0	1876	-	-
750	750	19.9	267	22.2	361	23.8	536	29.3	1102	33.0	1762	35.1	2286
700	700	19.9	251	22.2	339	23.8	502	29.3	1032	33.0	1650	35.1	2138
600	600	19.9	218	22.2	295	23.8	435	29.3	894	33.0	1428	35.1	1846
500	500	19.9	186	22.2	251	23.8	369	26.6	681	29.2	1054	31.3	1372
300	300	19.9	124	22.2	166	23.8	240	26.6	441	29.2	678	28.7	795

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

30° Elbows



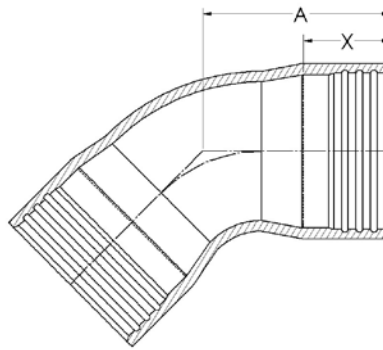
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	25.3	427	29.2	797	36.4	1370	-	-	-	-
2800 - 2600	2800	23.4	355	27.1	664	34.0	1145	-	-	-	-
2500 - 2400	2500	22.9	297	25.1	526	31.4	899	31.8	1131	-	-
2300 - 2100	2300	21.0	241	23.0	427	29.0	734	29.4	927	33.1	1342
2000 - 1900	2000	20.5	197	22.4	347	26.7	566	26.8	705	30.5	1030
1800 - 1600	1800	18.7	157	20.4	276	25.8	474	24.3	559	27.9	821
1500 - 1400	1500	17.1	117	18.5	204	23.5	349	23.6	440	25.3	602
1300 - 1100	1300	16.8	98	18.2	171	23.1	292	21.5	342	23.1	470
1000 - 900	1000	14.5	64	16.8	122	21.0	203	19.4	236	21.0	324
800	800	-	-	-	-	-	-	16.8	165	19.2	240
750	750	14.5	50	14.3	78	18.3	133	16.8	156	17.8	208
700	700	-	-	-	-	-	-	16.8	146	17.8	195
600	600	-	-	-	-	-	-	16.8	127	17.8	169
500	500	14.5	35	14.3	54	18.3	93	16.8	109	17.8	144
300	300	14.5	24	14.3	36	18.3	62	16.8	72	17.8	94

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	34.1	1361	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	31.1	1078	34.8	1454	-	-	-	-	-	-	-	-
1500 - 1400	1500	30.1	841	31.7	1061	35.6	1709	-	-	-	-	-	-
1300 - 1100	1300	27.3	647	28.7	806	32.3	1303	38.8	2632	-	-	-	-
1000 - 900	1000	24.8	446	26.1	555	29.4	895	34.7	1763	39.9	2895	-	-
800	800	21.1	302	24.2	409	25.6	618	33.7	1356	35.5	2030	-	-
750	750	21.1	284	24.2	384	25.4	576	31.4	1186	35.5	1906	37.8	2483
700	700	21.1	266	24.2	360	25.4	539	31.4	1111	35.5	1784	37.8	2321
600	600	21.1	232	24.2	313	25.4	466	31.4	961	35.5	1542	37.8	2002
500	500	21.1	197	24.1	266	25.4	395	28.6	736	31.7	1147	34.0	1500
300	300	21.1	131	24.1	175	25.4	255	28.6	474	31.7	733	31.4	870

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

45° Elbows



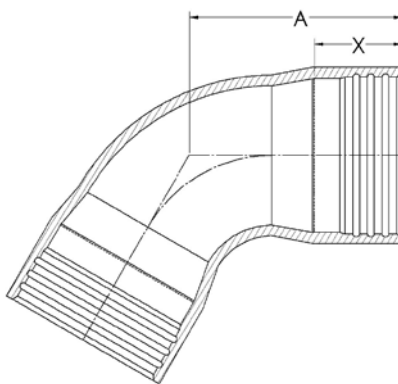
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	26.9	454	32.5	850	38.9	1460	-	-	-	-
2800 - 2600	2800	25.0	378	30.4	711	36.5	1227	-	-	-	-
2500 - 2400	2500	24.5	317	28.4	567	33.9	968	33.4	1203	-	-
2300 - 2100	2300	22.6	259	26.3	463	31.5	796	31.0	991	34.8	1437
2000 - 1900	2000	22.1	212	25.6	377	29.2	617	28.4	758	32.2	1108
1800 - 1600	1800	20.3	170	23.7	302	28.3	518	25.9	605	29.6	889
1500 - 1400	1500	18.7	127	21.8	224	26.0	384	25.2	477	27.0	656
1300 - 1100	1300	18.4	107	21.4	188	25.6	323	23.1	374	24.9	516
1000 - 900	1000	16.1	71	20.1	135	23.5	225	21.0	259	22.7	359
800	800	-	-	-	-	-	-	18.5	184	21.0	267
750	750	16.1	54	17.5	88	20.8	149	18.5	173	19.5	233
700	700	-	-	-	-	-	-	18.5	162	19.5	219
600	600	-	-	-	-	-	-	18.5	141	19.5	189
500	500	16.1	38	17.5	61	20.8	104	18.5	120	19.5	160
300	300	16.1	26	17.5	40	20.8	69	18.5	79	19.5	104

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	36.7	1468	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	33.7	1171	37.2	1581	-	-	-	-	-	-	-	-
1500 - 1400	1500	32.7	915	34.1	1162	39.1	1884	-	-	-	-	-	-
1300 - 1100	1300	30.0	709	31.0	891	35.8	1450	43.2	2945	-	-	-	-
1000 - 900	1000	27.4	493	28.4	619	32.9	1004	39.1	1993	45.2	3292	-	-
800	800	23.8	339	26.5	459	29.1	704	38.0	1536	40.8	2338	-	-
750	750	23.8	318	26.5	431	29.0	656	35.7	1355	40.8	2194	43.6	2877
700	700	23.8	298	26.5	404	29.0	613	35.7	1267	40.8	2051	43.6	2687
600	600	23.8	259	26.5	350	29.0	529	35.7	1094	40.8	1769	43.6	2313
500	500	23.8	220	26.5	296	29.0	447	33.0	846	37.0	1335	39.8	1757
300	300	23.8	144	26.5	193	29.0	286	33.0	538	37.0	844	37.2	1021

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

60° Elbows

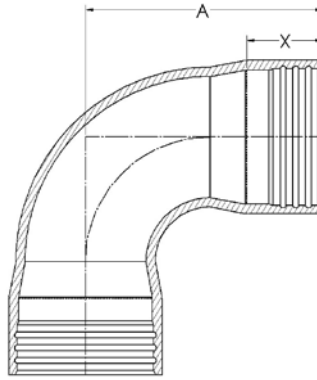


Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
1000 - 900	1000	18.2	78	22.7	149	26.8	248	24.7	283	-	-
800	800	-	-	-	-	-	-	22.2	202	25.2	294
750	750	18.2	59	20.1	97	24.1	166	22.2	190	23.8	259
700	700	-	-	-	-	-	-	22.2	178	23.8	242
600	600	-	-	-	-	-	-	22.2	154	23.8	209
500	500	18.2	42	20.1	67	24.1	114	22.2	131	23.8	177
300	300	18.2	28	20.1	44	24.1	75	22.2	85	23.8	114

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
800	800	26.7	375	29.8	508	-	-	-	-	-	-	-	-
750	750	26.7	353	29.8	478	-	-	-	-	-	-	-	-
700	700	26.7	330	29.8	447	-	-	-	-	-	-	-	-
600	600	26.7	286	29.8	387	32.9	592	-	-	-	-	-	-
500	500	26.7	242	29.8	327	32.9	499	37.9	956	-	-	-	-
300	300	26.7	157	29.8	211	32.9	316	37.9	603	42.9	954	43.7	1172

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

90° Elbows

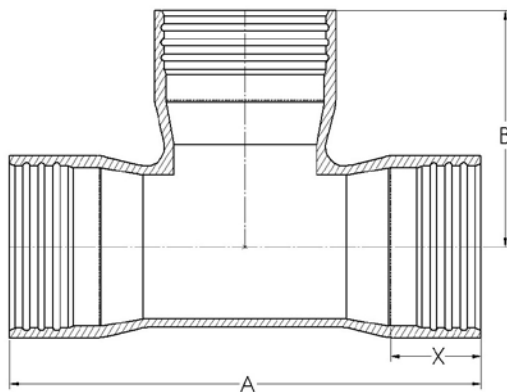


Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
1000 - 900	1000	23.1	91	28.8	175	34.0	293	30.4	330	-	-
800	800	-	-	-	-	-	-	27.9	239	31.2	349
750	750	23.1	69	26.3	117	31.3	199	27.9	224	29.8	310
700	700	-	-	-	-	-	-	27.9	210	29.8	289
600	600	-	-	-	-	-	-	27.9	181	29.8	249
500	500	23.1	48	26.3	80	31.3	136	27.9	153	29.8	210
300	300	23.1	32	26.3	51	31.3	88	27.9	99	29.8	133

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
800	800	34.3	449	38.3	608	-	-	-	-	-	-	-	-
750	750	34.3	421	38.3	571	-	-	-	-	-	-	-	-
700	700	34.3	394	38.3	534	-	-	-	-	-	-	-	-
600	600	34.3	340	38.3	460	43.0	719	-	-	-	-	-	-
500	500	34.3	287	38.2	387	43.0	603	50.6	1175	-	-	-	-
300	300	34.3	183	38.2	247	43.0	378	50.6	732	58.1	1175	60.5	1474

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Equal Tees

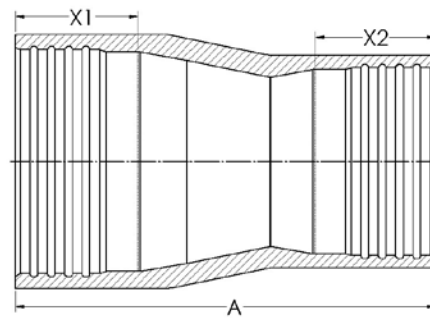


Diameter (in.)		8			10			12			14			16		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
1000 - 900	1000	36.1	18.1	145	44.6	22.3	276	52.4	26.2	455	53.6	26.8	552	-	-	-
800	800	-	-	-	-	-	-	-	-	-	48.5	24.2	387	54.0	27.0	553
750	750	36.1	18.1	109	39.6	19.8	175	47.0	23.5	296	48.5	24.2	363	51.1	25.5	482
700	700	-	-	-	-	-	-	-	-	-	48.5	24.2	338	51.1	25.5	450
600	600	-	-	-	-	-	-	-	-	-	48.5	24.2	291	51.1	25.5	386
500	500	36.1	18.1	75	39.6	19.8	118	47.0	23.5	201	48.5	24.2	245	51.1	25.5	324
300	300	36.1	18.1	49	39.6	19.8	76	47.0	23.5	129	48.5	24.2	156	51.1	25.5	204

Diameter (in.)		18			20			24			30			36			40		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
800	800	58.1	29.1	710	64.5	32.2	958	-	-	-	-	-	-	-	-	-	-	-	-
750	750	58.1	29.1	665	64.5	32.2	897	-	-	-	-	-	-	-	-	-	-	-	-
700	700	58.1	29.1	620	64.5	32.2	837	-	-	-	-	-	-	-	-	-	-	-	-
600	600	58.1	29.1	533	64.5	32.2	719	71.0	35.5	1086	-	-	-	-	-	-	-	-	-
500	500	58.1	29.1	448	64.4	32.2	603	71.0	35.5	908	81.2	40.6	1675	-	-	-	-	-	-
300	300	58.1	29.1	284	64.4	32.2	381	71.0	35.5	565	81.2	40.6	1040	92.1	46.0	1631	94.8	47.4	1987

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Concentric Reducers



Diameter (in.)		10 x 8		12 x 10		14 x 12		16 x 14		18 x 16	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
3000 - 2900	3000	40.9	346	49.3	594	-	-	-	-	-	-
2800 - 2600	2800	38.2	284	46.1	491	53.3	630	-	-	-	-
2500 - 2400	2500	36.7	222	43.0	381	49.8	494	53.0	711	-	-
2300 - 2100	2300	33.8	178	39.8	306	46.3	400	49.4	576	51.4	763
2000 - 1900	2000	33.7	144	37.8	232	42.7	300	45.9	436	47.6	574
1800 - 1600	1800	30.8	112	36.4	193	40.9	233	42.4	342	43.7	446
1500 - 1400	1500	27.6	81	33.0	139	38.8	183	40.3	246	41.7	347
1300 - 1100	1300	26.9	68	32.2	116	36.3	140	36.0	188	37.2	261
1000 - 900	1000	23.3	48	28.8	79	32.1	95	31.7	127	32.4	176
800	800	-	-	-	-	29.6	64	27.5	93	27.1	114
750	750	20.7	29	23.6	50	26.9	61	26.0	79	25.6	108
700	700	-	-	-	-	26.9	57	26.0	74	25.6	101
600	600	-	-	-	-	26.9	50	26.0	64	25.6	89
500	500	20.7	21	23.6	36	26.9	43	26.0	55	25.6	76
300	300	20.7	14	23.6	25	26.9	30	26.0	37	25.6	52

Diameter (in.)		20 x 18		24 x 20		30 x 24		36 x 30		40 x 36	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
psi	psi	in.	lb	in.	lb	in.	lb	in.	lb	in.	lb
2000 - 1900	2000	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	48	600	-	-	-	-	-	-	-	-
1500 - 1400	1500	45	429	53	679	-	-	-	-	-	-
1300 - 1100	1300	41	318	48	505	62	1003	-	-	-	-
1000 - 900	1000	36	214	43	338	57	651	61	1050	-	-
800	800	30	154	37	223	52	497	56	707	-	-
750	750	30	146	37	208	50	425	54	665	52	848
700	700	30	137	37	195	50	399	54	625	52	795
600	600	30	120	37	170	50	347	54	544	52	690
500	500	30	103	37	145	47	258	48	386	45	493
300	300	30	70	37	97	47	172	48	256	42	284

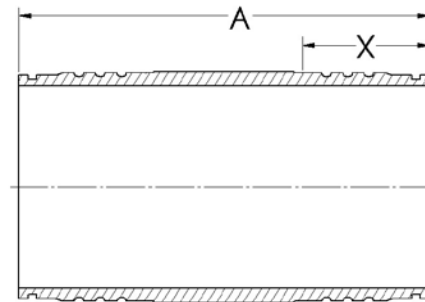
Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Nipples

$$A = 2X + \text{Lay Length}$$

Lay Length Options		
ft	in	mm
1	12	305
1.5	18	457
2	24	610
4	48	1219
6	72	1829
8	96	2438
10	120	3048
15	180	4572



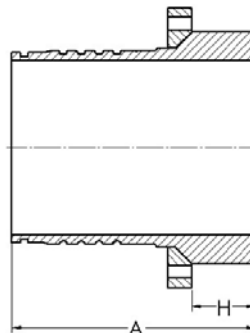
Diameter (in.)		8		10		12		14		16	
Pipe Rating	Fitting Rating	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.
psi	psi	in.	lb/ft	in.	lb/ft	in.	lb/ft	in.	lb/ft	in.	lb/ft
3000 - 2900	3000	33.4	37	39.4	57	47.6	80	-	-	-	-
2800 - 2600	2800	30.8	35	36.5	52	44.0	73	-	-	-	-
2500 - 2400	2500	30.6	32	33.6	47	40.7	67	44.2	78	-	-
2300 - 2100	2300	27.8	29	30.9	43	37.2	60	40.5	71	45.4	90
2000 - 1900	2000	27.6	26	30.6	38	33.5	54	37.2	64	41.9	80
1800 - 1600	1800	24.7	23	27.8	34	33.5	48	33.6	56	38.3	71
1500 - 1400	1500	21.4	21	24.7	30	29.8	43	33.1	50	34.7	62
1300 - 1100	1300	20.8	18	24.0	26	28.9	37	28.9	43	30.3	54
1000 - 900	1000	16.2	16	21.3	26	24.8	32	24.7	37	26.0	46
800	800	-	-	-	-	-	-	19.5	36	22.5	44
750	750	16.2	16	16.2	21	19.4	30	19.5	36	19.6	44
700	700	-	-	-	-	-	-	19.5	36	19.6	44
600	600	-	-	-	-	-	-	19.5	36	19.6	44
500	500	16.2	16	16.2	21	19.4	30	19.5	36	19.6	44
300	300	16.2	16	16.2	21	19.4	30	19.5	36	19.6	44

Diameter (in.)		18		20		24		30		36		40	
Pipe Rating	Fitting Rating	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.
psi	psi	in.	lb/ft	in.	lb/ft	in.	lb/ft	in.	lb/ft	in.	lb/ft	in.	lb/ft
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	44.8	98	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	40.6	87	44.6	104	-	-	-	-	-	-	-	-
1500 - 1400	1500	40.1	76	40.4	91	45.1	125	-	-	-	-	-	-
1300 - 1100	1300	35.5	66	36.1	79	40.7	107	48.1	176	-	-	-	-
1000 - 900	1000	30.4	56	30.9	67	35.6	90	43.1	147	47.9	205	-	-
800	800	23.1	49	27.1	55	27.9	77	41.2	119	41.5	165	-	-
750	750	23.1	49	27.1	55	27.6	73	36.6	119	41.5	165	42.4	197
700	700	23.1	49	27.1	55	27.6	73	36.6	119	41.5	165	42.4	197
600	600	23.1	49	27.1	55	27.6	73	36.6	119	41.5	165	42.4	197
500	500	23.1	49	27.1	55	27.6	73	31.1	107	33.9	127	34.8	155
300	300	23.1	49	27.1	55	27.6	73	31.1	107	33.9	127	29.6	155

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Stub Flanges



Diameter (in.)		8			10			12			14			16		
Pipe Rating	Fitting Rating	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
3000 - 2900	3000	32.6	9.5	136	38.3	11.7	245	46.0	14.5	427	-	-	-	-	-	-
2800 - 2600	2800	30.5	8.7	121	35.9	10.6	218	42.8	13.3	377	-	-	-	-	-	-
2500 - 2400	2500	29.8	8.0	111	33.4	9.8	192	39.9	11.9	331	45.6	13.6	461	-	-	-
2300 - 2100	2300	26.8	7.4	99	30.5	9.3	169	35.5	11.1	263	42.4	12.4	405	47.4	14.1	560
2000 - 1900	2000	26.1	6.6	88	29.5	8.2	151	32.4	9.7	225	37.9	11.3	287	43.1	13.8	402
1800 - 1600	1800	23.7	5.6	75	27.0	7.0	129	31.2	8.3	196	35.0	10.1	248	39.5	12.3	343
1500 - 1400	1500	21.4	5.5	54	24.3	6.4	93	28.2	7.9	144	33.0	9.1	192	35.3	10.3	272
1300 - 1100	1300	20.1	4.5	45	22.7	5.1	76	26.5	6.5	121	29.7	7.7	157	31.8	8.7	223
1000 - 900	1000	16.7	3.6	32	20.2	4.7	56	22.9	5.6	81	25.7	5.8	116	27.4	6.9	153
800	800	-	-	-	-	-	-	-	-	-	21.6	4.3	93	24.0	5.1	126
750	750	15.9	2.7	30	16.7	3.5	41	19.0	4.2	64	21.6	4.3	98	22.5	5.1	124
700	700	-	-	-	-	-	-	-	-	-	21.4	4.1	96	22.1	4.7	120
600	600	-	-	-	-	-	-	-	-	-	20.6	3.3	89	21.3	3.9	111
500	500	14.8	2.0	26	15.3	2.2	34	17.5	2.7	54	19.9	2.5	81	20.3	2.9	101
300	300	14.0	2.0	25	14.1	2.0	31	15.9	2.0	47	18.5	2.0	72	18.7	2.0	87

Diameter (in.)		18			20			24			30			36			40		
Pipe Rating	Fitting Rating	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.
psi	psi	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb	in.	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	46.7	15.7	548	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	43.0	14.0	472	47.4	16.2	624	-	-	-	-	-	-	-	-	-	-	-	-
1500 - 1400	1500	40.5	12.3	375	41.8	13.6	484	48.4	17.2	753	-	-	-	-	-	-	-	-	-
1300 - 1100	1300	36.2	10.5	308	37.8	11.5	398	43.7	14.7	622	53.3	18.9	1125	-	-	-	-	-	-
1000 - 900	1000	31.1	8.1	220	32.3	9.0	270	37.1	11.2	437	45.1	14.6	791	51.8	18.0	1263	-	-	-
800	800	25.5	6.1	164	28.5	7.0	209	30.9	8.6	334	40.8	11.2	611	44.5	13.9	947	-	-	-
750	750	25.2	5.7	165	28.4	6.9	209	30.1	7.8	324	36.9	10.3	566	42.7	12.9	899	50.0	15.3	1318
700	700	24.8	5.3	160	27.7	6.1	206	29.5	7.2	311	36.1	9.5	544	41.8	11.9	863	48.9	14.1	1263
600	600	23.8	4.3	147	26.5	4.9	188	28.3	6.1	285	34.3	7.8	493	39.8	9.9	792	46.5	11.7	1152
500	500	22.8	3.4	133	25.5	3.9	172	26.9	4.7	256	30.1	6.1	396	33.7	7.7	562	38.2	9.9	651
300	300	21.1	2.0	112	23.4	2.0	139	24.4	2.1	200	26.7	2.7	301	29.6	3.5	412	30.1	6.0	439

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (Imperial Units)

Flange Rings



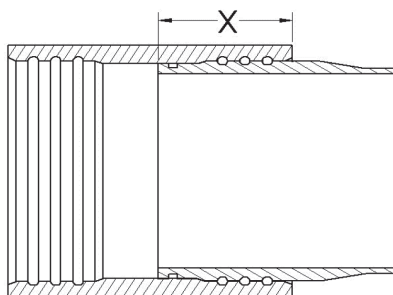
Diameter (in.)		8			10			12			14			16		
Pipe Rating	Fitting Rating	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.
psi	psi	Class	in.	lb	Class	in.	lb	Class	in.	lb	Class	in.	lb	Class	in.	lb
3000 - 2900	3000	1500	3.6	153	1500	4.3	255	1500	4.9	355	-	-	-	-	-	-
2800 - 2600	2800	1500	3.6	155	1500	4.3	258	1500	4.9	365	-	-	-	-	-	-
2500 - 2400	2500	1500	3.6	158	1500	4.3	265	1500	4.9	373	1500	5.3	498	-	-	-
2300 - 2100	2300	900	2.5	98	900	2.8	131	900	3.1	171	1500	5.3	506	1500	5.8	647
2000 - 1900	2000	900	2.5	100	900	2.8	132	900	3.1	174	900	3.4	200	900	3.5	241
1800 - 1600	1800	900	2.5	100	900	2.8	132	900	3.1	177	900	3.4	203	900	3.5	248
1500 - 1400	1500	600	2.2	69	600	2.5	107	600	2.6	118	600	2.8	142	600	3.0	195
1300 - 1100	1300	600	2.2	69	600	2.5	109	600	2.6	120	600	2.8	145	600	3.0	199
1000 - 900	1000	400	1.9	43	400	2.1	59	400	2.3	86	400	2.4	113	400	2.5	144
800	800	-	-	-	-	-	-	-	-	-	400	2.4	114	400	2.5	144
750	750	300	1.6	34	300	1.8	52	300	1.9	76	300	2.1	95	300	2.2	123
700	700	-	-	-	-	-	-	-	-	-	300	2.1	95	300	2.2	123
600	600	-	-	-	-	-	-	-	-	-	300	2.1	95	300	2.2	123
500	500	300	1.6	34	300	1.8	52	300	1.9	76	300	2.1	95	300	2.2	123
300	300	300	1.6	34	300	1.8	52	300	1.9	76	300	2.1	95	300	2.2	123

Diameter (in.)		18			20			24			30			36			40		
Pipe Rating	Fitting Rating	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.
psi	psi	Class	in.	lb	Class	in.	lb	Class	in.	lb	Class	in.	lb	Class	in.	lb	Class	in.	lb
2300 - 2100	2300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2000 - 1900	2000	900	4.0	345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1800 - 1600	1800	900	4.0	352	900	4.3	437	-	-	-	-	-	-	-	-	-	-	-	-
1500 - 1400	1500	600	3.3	248	600	3.5	304	600	4.0	439	-	-	-	-	-	-	-	-	-
1300 - 1100	1300	600	3.3	253	600	3.5	312	600	4.0	453	600	5.5	788	-	-	-	-	-	-
1000 - 900	1000	400	2.6	172	400	2.8	212	400	3.0	311	400	4.4	533	400	5.1	790	-	-	-
800	800	400	2.6	173	400	2.8	214	400	3.0	311	400	4.4	561	400	5.1	832	-	-	-
750	750	300	2.3	148	300	2.6	211	300	2.7	275	300	3.7	476	300	4.3	695	900	8.8	2480
700	700	300	2.3	148	300	2.4	185	300	2.7	275	300	3.7	476	300	4.3	695	900	8.8	2480
600	600	300	2.3	148	300	2.4	185	300	2.7	275	300	3.7	476	300	4.3	695	900	8.8	2480
500	500	300	2.3	148	300	2.4	185	300	2.7	275	300	3.7	480	300	4.3	725	600	6.4	975
300	300	300	2.3	148	300	2.4	185	300	2.7	275	300	3.7	480	300	4.3	725	300	4.4	464

Notes: For 16 in. >2200 psi, consult FGS Application Engineering for availability. For 30 in. >1200 psi, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Joint Insertion Length

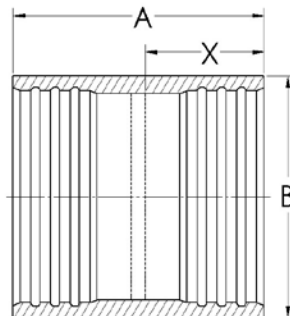


Diameter (mm)		200	250	300	350	400	450	500	600	750	900	1000
Pipe Rating	Fitting Rating	X	X	X	X	X	X	X	X	X	X	X
Bar	Bar	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
207 - 200	207	424	500	605	-	-	-	-	-	-	-	-
193 - 179	193	391	464	559	-	-	-	-	-	-	-	-
172 - 165	172	389	427	517	561	-	-	-	-	-	-	-
159 - 145	159	353	392	473	515	576	-	-	-	-	-	-
138 - 131	138	351	389	425	472	532	569	-	-	-	-	-
124 - 110	124	313	353	425	427	486	515	567	-	-	-	-
103 - 97	103	272	314	378	420	440	510	513	572	-	-	-
90 - 76	90	264	304	367	366	385	451	458	517	611	-	-
69 - 62	69	206	271	315	313	330	386	392	452	547	608	-
55	55	-	-	-	248	286	293	344	354	523	527	-
52	52	206	206	247	248	249	293	344	350	465	527	539
48	48	-	-	-	248	249	293	344	350	465	527	539
41	41	-	-	-	248	249	293	344	350	465	527	539
34	34	206	206	247	248	249	293	344	350	395	431	442
21	21	206	206	247	248	249	293	344	350	395	431	376

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Couplings



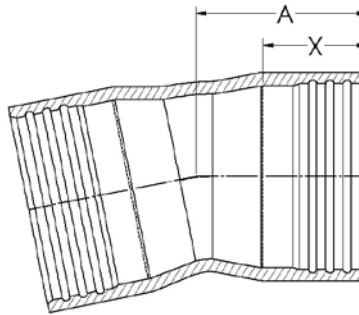
Diameter (mm)		200			250			300			350			400		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
207 - 200	207	878	439	140	1030	547	254	1240	654	436	-	-	-	-	-	-
193 - 179	193	813	423	116	959	525	211	1149	628	362	-	-	-	-	-	-
172 - 165	172	808	401	99	885	498	166	1065	595	285	1152	650	367	-	-	-
159 - 145	159	736	385	80	814	477	135	976	570	231	1060	623	299	1183	707	427
138 - 131	138	732	364	67	809	451	112	881	540	175	975	589	228	1094	668	328
124 - 110	124	657	349	52	736	432	88	881	516	151	884	564	180	1003	639	260
103 - 97	103	574	331	38	658	408	64	787	488	109	871	532	143	911	603	190
90 - 76	90	559	317	31	639	391	53	765	467	91	763	510	107	801	577	143
69 - 62	69	442	300	19	572	375	37	660	440	61	657	480	71	690	544	94
55	55	-	-	-	-	-	-	-	-	-	527	465	47	603	526	67
52	52	442	289	15	442	353	22	524	421	37	527	462	44	528	522	56
48	48	-	-	-	-	-	-	-	-	-	527	458	42	528	518	53
41	41	-	-	-	-	-	-	-	-	-	527	451	37	528	510	46
34	34	442	278	11	442	339	16	524	405	28	527	444	32	528	502	40
21	21	442	269	8	442	328	12	524	392	20	527	430	23	528	486	28

Diameter (mm)		450			500			600			750			900			1000		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	1168	739	429	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124 - 110	124	1061	707	338	1164	782	451	-	-	-	-	-	-	-	-	-	-	-	-
103 - 97	103	1050	668	270	1057	737	329	1175	877	511	-	-	-	-	-	-	-	-	-
90 - 76	90	932	638	203	947	704	248	1065	836	388	1253	1082	761	-	-	-	-	-	-
69 - 62	69	803	601	134	815	663	163	935	787	259	1125	1016	512	1247	1215	807	-	-	-
55	55	617	576	84	720	632	116	741	753	164	1077	968	390	1085	1157	554	-	-	-
52	52	617	572	79	720	627	110	733	745	153	960	961	329	1085	1148	523	1108	1270	647
48	48	617	567	75	720	623	103	733	739	144	960	953	309	1085	1139	492	1108	1260	608
41	41	617	558	66	720	613	91	733	727	126	960	939	271	1085	1122	430	1108	1241	531
34	34	617	549	58	718	603	79	733	716	109	821	916	198	892	1083	297	915	1200	368
21	21	617	532	41	718	584	55	733	692	75	821	887	136	892	1048	202	782	1161	212

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

11.25° Elbows



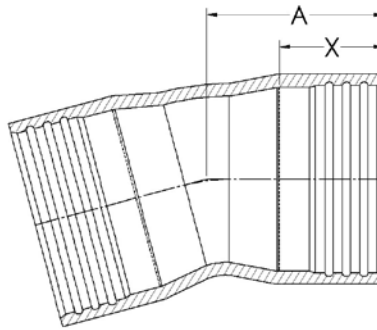
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	591	178	741	332	891	570	-	-	-	-
193 - 179	193	544	147	688	274	828	473	-	-	-	-
172 - 165	172	530	123	637	216	764	369	767	472	-	-
159 - 145	159	483	99	584	174	702	298	704	384	793	555
138 - 131	138	469	81	568	141	643	228	639	290	725	422
124 - 110	124	423	64	517	111	621	190	576	227	660	334
103 - 97	103	382	47	470	81	562	138	558	179	595	242
90 - 76	90	375	39	460	67	551	116	505	138	539	187
69 - 62	69	316	25	426	48	499	79	451	94	484	127
55	55	-	-	-	-	-	-	386	65	441	93
52	52	316	20	362	30	431	51	386	61	403	80
48	48	-	-	-	-	-	-	386	57	403	75
41	41	-	-	-	-	-	-	386	50	403	65
34	34	316	14	362	21	431	36	386	43	403	56
21	21	316	10	362	14	431	25	386	29	403	37

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	789	557	-	-	-	-	-	-	-	-	-	-
124 - 110	124	712	436	784	587	-	-	-	-	-	-	-	-
103 - 97	103	687	340	705	424	801	676	-	-	-	-	-	-
90 - 76	90	617	258	628	318	717	508	856	1016	-	-	-	-
69 - 62	69	552	176	562	216	644	344	753	669	859	1088	-	-
55	55	459	116	514	157	547	232	726	513	747	746	-	--
52	52	459	109	514	148	543	216	667	443	747	702	790	903
48	48	459	103	514	139	543	202	667	415	747	658	790	845
41	41	459	90	514	121	543	176	667	360	747	571	790	732
34	34	459	77	513	103	543	149	598	272	651	414	693	535
21	21	459	52	513	69	543	98	598	178	651	270	627	309

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

15° Elbows



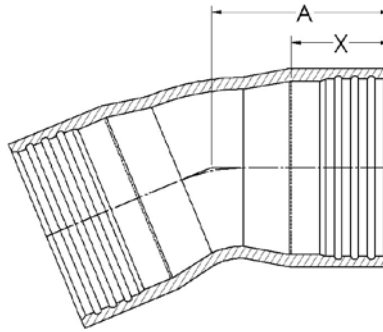
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	601	181	721	338	849	580	-	-	-	-
193 - 179	193	554	150	668	279	787	483	-	-	-	-
172 - 165	172	540	125	617	220	722	377	771	481	-	-
159 - 145	159	493	101	564	178	660	305	708	391	804	566
138 - 131	138	479	83	548	144	601	234	642	296	737	431
124 - 110	124	434	65	497	113	579	195	580	233	672	341
103 - 97	103	392	48	449	83	521	142	562	183	606	248
90 - 76	90	385	40	440	69	510	119	508	141	551	192
69 - 62	69	326	26	406	49	457	82	455	96	496	131
55	55	-	-	-	-	-	-	390	67	452	96
52	52	326	20	342	31	389	53	390	63	415	83
48	48	-	-	-	-	-	-	390	59	415	78
41	41	-	-	-	-	-	-	390	52	415	68
34	34	326	15	342	22	389	37	390	44	415	58
21	21	326	10	342	15	389	25	390	30	415	38

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	804	569	-	-	-	-	-	-	-	-	-	-
124 - 110	124	728	447	801	602	-	-	-	-	-	-	-	-
103 - 97	103	702	348	722	435	821	696	-	--	-	-	-	-
90 - 76	90	632	265	645	327	737	525	882	1052	-	-	-	-
69 - 62	69	568	181	578	223	664	356	778	695	890	1133	-	-
55	55	474	120	531	163	567	242	751	533	777	781	-	-
52	52	474	113	531	153	563	225	693	462	777	734	823	948
48	48	474	106	531	144	563	211	693	433	777	688	823	887
41	41	474	93	531	125	563	183	693	376	777	596	823	767
34	34	474	79	530	107	563	155	623	284	681	435	727	564
21	21	474	53	530	71	563	102	623	186	681	282	660	326

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

22.5° Elbows



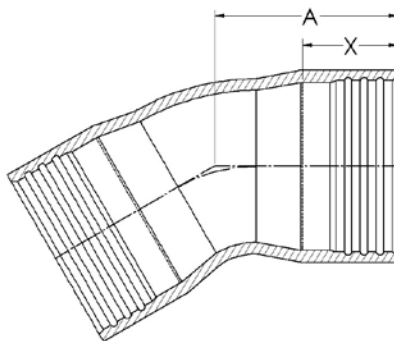
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	621	188	723	350	870	601	-	-	-	-
193 - 179	193	574	155	670	290	808	501	-	-	-	-
172 - 165	172	561	130	619	229	743	392	795	497	-	-
159 - 145	159	513	105	567	186	681	319	732	406	828	587
138 - 131	138	500	86	550	151	622	245	667	308	761	449
124 - 110	124	454	68	500	119	600	205	604	243	695	357
103 - 97	103	413	51	452	88	542	150	586	191	630	260
90 - 76	90	405	42	443	73	531	126	533	148	575	202
69 - 62	69	347	28	409	52	478	87	479	102	520	139
55	55	-	-	-	-	-	-	414	71	476	102
52	52	347	21	344	33	410	57	414	67	439	89
48	48	-	-	-	-	-	-	414	63	439	83
41	41	-	-	-	-	-	-	414	55	439	72
34	34	347	15	344	23	410	40	414	47	439	61
21	21	347	11	344	16	410	27	414	31	439	40

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	835	593	-	-	-	-	-	-	-	-	-	-
124 - 110	124	758	468	835	631	-	-	-	-	-	-	-	-
103 - 97	103	733	365	756	458	862	736	-	-	-	-	-	-
90 - 76	90	663	279	679	346	778	558	933	1123	-	-	-	-
69 - 62	69	598	192	613	237	705	381	829	747	951	1223	-	-
55	55	505	129	565	174	608	261	802	574	839	851	-	-
52	52	505	121	565	164	604	243	744	500	839	799	891	1037
48	48	505	114	565	154	604	228	744	468	839	749	891	970
41	41	505	99	565	134	604	197	744	406	839	648	891	838
34	34	505	85	564	114	604	167	674	309	742	478	795	622
21	21	505	56	564	75	604	109	674	200	742	308	728	360

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

30° Elbows



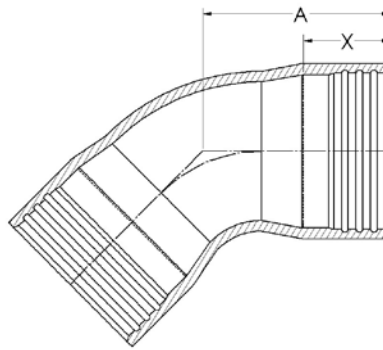
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	642	194	741	362	926	621	-	-	-	-
193 - 179	193	595	161	689	301	863	519	-	-	-	-
172 - 165	172	582	135	638	239	798	408	809	513	-	-
159 - 145	159	534	109	585	194	737	333	746	420	841	609
138 - 131	138	521	89	568	158	678	257	680	320	774	467
124 - 110	124	475	71	518	125	655	215	618	253	708	372
103 - 97	103	434	53	470	92	597	158	600	199	643	273
90 - 76	90	426	45	461	77	586	133	546	155	588	213
69 - 62	69	368	29	427	55	534	92	493	107	532	147
55	55	-	-	-	-	-	-	428	75	489	109
52	52	368	22	363	35	465	60	428	71	451	94
48	48	-	-	-	-	-	-	428	66	451	88
41	41	-	-	-	-	-	-	428	58	451	77
34	34	368	16	363	25	465	42	428	49	451	65
21	21	368	11	363	16	465	28	428	33	451	43

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	866	618	-	-	-	-	-	-	-	-	-	-
124 - 110	124	790	489	884	659	-	-	-	-	-	-	-	-
103 - 97	103	765	382	805	481	904	775	-	-	-	-	-	-
90 - 76	90	694	293	728	366	820	591	985	1194	-	-	-	-
69 - 62	69	630	202	662	252	747	406	882	800	1014	1313	-	-
55	55	537	137	614	185	650	280	855	615	902	921	-	-
52	52	537	129	614	174	646	261	796	538	902	865	961	1126
48	48	537	121	614	163	646	244	796	504	902	809	961	1053
41	41	537	105	614	142	646	211	796	436	902	699	961	908
34	34	537	90	613	121	646	179	727	334	806	520	864	680
21	21	537	59	613	79	646	116	727	215	806	333	798	395

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

45° Elbows



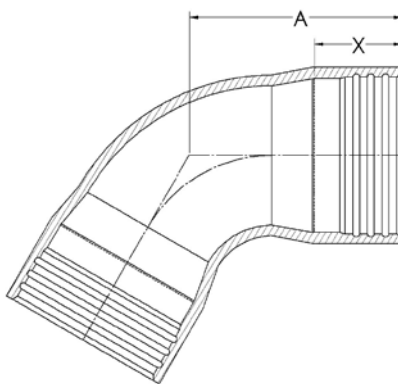
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	683	206	824	386	989	662	-	-	-	-
193 - 179	193	636	172	772	323	927	556	-	-	-	-
172 - 165	172	622	144	721	257	862	439	850	546	-	-
159 - 145	159	575	118	668	210	800	361	787	449	885	652
138 - 131	138	561	96	651	171	741	280	721	344	818	503
124 - 110	124	515	77	601	137	719	235	659	274	752	403
103 - 97	103	474	58	553	102	661	174	641	216	687	298
90 - 76	90	467	49	544	85	650	146	587	170	632	234
69 - 62	69	408	32	510	61	597	102	534	118	577	163
55	55	-	-	-	-	-	-	469	83	533	121
52	52	408	25	445	40	529	68	469	78	496	106
48	48	-	-	-	-	-	-	469	74	496	99
41	41	-	-	-	-	-	-	469	64	496	86
34	34	408	17	445	28	529	47	469	54	496	73
21	21	408	12	445	18	529	31	469	36	496	47

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	933	666	-	-	-	-	-	-	-	-	-	-
124 - 110	124	857	531	945	717	-	-	-	-	-	-	-	-
103 - 97	103	832	415	866	527	993	855	-	-	-	-	-	-
90 - 76	90	761	322	788	404	910	658	1097	1336	-	-	-	-
69 - 62	69	697	223	722	281	836	455	993	904	1148	1493	-	-
55	55	604	154	674	208	739	319	966	697	1036	1060	-	-
52	52	604	144	674	196	735	297	908	615	1036	995	1108	1305
48	48	604	135	674	183	735	278	908	575	1036	930	1108	1219
41	41	604	117	674	159	735	240	908	496	1036	802	1108	1049
34	34	604	100	673	134	735	203	838	384	939	605	1012	797
21	21	604	65	673	88	735	130	838	244	939	383	945	463

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

60° Elbows

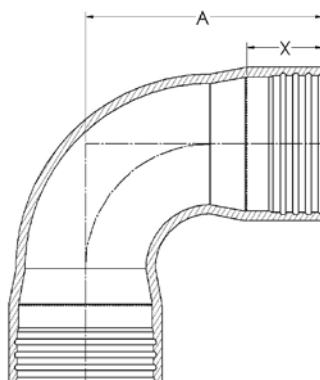


Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
69 - 62	69	462	35	576	67	680	112	629	128	-	-
55	55	-	-	-	-	-	-	564	92	641	133
52	52	462	27	511	44	612	75	564	86	604	117
48	48	-	-	-	-	-	-	564	81	604	110
41	41	-	-	-	-	-	-	564	70	604	95
34	34	462	19	511	30	612	52	564	59	604	80
21	21	462	13	511	20	612	34	564	39	604	51

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
55	55	678	170	757	231	-	-	-	-	-	-	-	-
52	52	678	160	757	217	-	-	-	-	-	-	-	-
48	48	678	150	757	203	-	-	-	-	-	-	-	-
41	41	678	130	757	175	835	269	-	-	-	-	-	-
34	34	678	110	756	148	835	226	963	434	-	-	-	-
21	21	678	71	756	96	835	143	963	274	1089	433	1110	532

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

90° Elbows

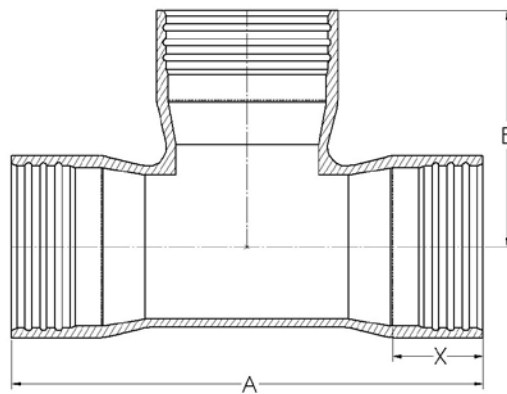


Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
69 - 62	69	586	42	732	79	864	133	773	150	-	-
55	55	-	-	-	-	-	-	708	108	793	158
52	52	586	31	668	53	796	90	708	102	756	140
48	48	-	-	-	-	-	-	708	95	756	131
41	41	-	-	-	-	-	-	708	82	756	113
34	34	586	22	668	36	796	62	708	70	756	95
21	21	586	14	668	23	796	40	708	45	756	60

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
55	55	871	204	972	276	-	-	-	-	-	-	-	-
52	52	871	191	972	259	-	-	-	-	-	-	-	-
48	48	871	179	972	242	-	-	-	-	-	-	-	-
41	41	871	154	972	209	1093	326	-	-	-	-	-	-
34	34	871	130	971	176	1093	273	1285	533	-	-	-	-
21	21	871	83	971	112	1093	171	1285	332	1475	533	1536	669

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Equal Tees

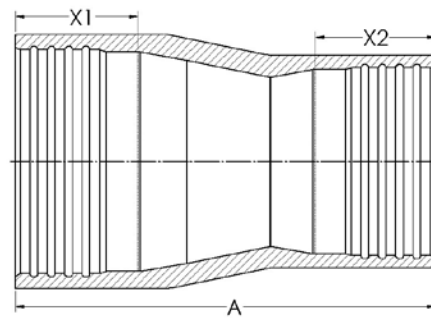


Diameter (mm)		200			250			300			350			400		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
69 - 62	69	918	459	66	1134	567	125	1330	665	207	1362	681	250	-	-	-
55	55	-	-	-	-	-	-	-	-	-	1231	616	175	1372	686	251
52	52	918	459	50	1005	502	79	1194	597	134	1231	616	164	1297	649	219
48	48	-	-	-	-	-	-	-	-	-	1231	616	154	1297	649	204
41	41	-	-	-	-	-	-	-	-	-	1231	616	132	1297	649	175
34	34	918	459	34	1005	502	54	1194	597	91	1231	616	111	1297	649	147
21	21	918	459	22	1005	502	34	1194	597	59	1231	616	71	1297	649	92

Diameter (mm)		450			500			600			750			900			1000		
Pipe Rating	Fitting Rating	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.	A	B	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
55	55	1476	738	322	1638	819	434	-	-	-	-	-	-	-	-	-	-	-	-
52	52	1476	738	302	1638	819	407	-	-	-	-	-	-	-	-	-	-	-	-
48	48	1476	738	281	1638	819	380	-	-	-	-	-	-	-	-	-	-	-	-
41	41	1476	738	242	1638	819	326	1804	902	492	-	-	-	-	-	-	-	-	-
34	34	1476	738	203	1636	818	273	1804	902	412	2062	1031	760	-	-	-	-	-	-
21	21	1476	738	129	1636	818	173	1804	902	256	2062	1031	472	2339	1170	740	2407	1204	901

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Concentric Reducers



Diameter (mm)		250 x 200		300 x 250		350 x 300		400 x 350		500 x 450	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
207 - 200	207	1039	157	1251	270	-	-	-	-	-	-
193 - 179	193	970	129	1170	223	-	-	-	-	-	-
172 - 165	172	931	101	1091	173	1266	224	-	-	-	-
159 - 145	159	859	81	1011	139	1175	181	1254	261	1306	346
138 - 131	138	855	65	961	105	1085	136	1167	198	1209	260
124 - 110	124	781	51	925	88	1040	106	1076	155	1109	202
103 - 97	103	701	37	839	63	986	83	1023	112	1058	157
90 - 76	90	684	31	819	53	922	63	914	85	944	118
69 - 62	69	591	22	732	36	816	43	806	58	824	80
55	55	-	-	-	-	751	29	697	42	687	52
52	52	527	13	600	23	683	28	660	36	650	49
48	48	-	-	-	-	683	26	660	33	650	46
41	41	-	-	-	-	683	23	660	29	650	40
34	34	527	9	600	16	683	20	660	25	650	35
21	21	527	7	600	11	683	13	660	17	650	24

Diameter (mm)		500 x 450		600 x 500		750 x 600		900 x 750		1000 x 900	
Pipe Rating	Fitting Rating	A	Wt.	A	Wt.	A	Wt.	A	Wt.	A	Wt.
bar	bar	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
138 - 131	138	-	-	-	-	-	-	-	-	-	-
124 - 110	124	1213	272	-	-	-	-	-	-	-	-
103 - 97	103	1154	195	1333	308	-	-	-	-	-	-
90 - 76	90	1040	144	1223	229	1569	455	-	-	-	-
69 - 62	69	910	97	1091	153	1440	295	1535	476	-	-
55	55	769	70	947	101	1320	226	1431	321	-	-
52	52	769	66	943	94	1257	193	1372	302	1324	384
48	48	769	62	943	89	1257	181	1372	283	1324	360
41	41	769	54	943	77	1257	158	1372	247	1324	313
34	34	768	47	942	66	1188	117	1206	175	1131	224
21	21	768	32	942	44	1188	78	1206	116	1065	129

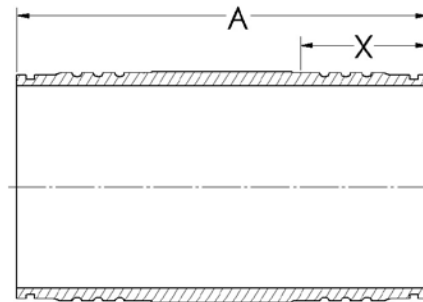
Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Nipples

$$A = 2X + \text{Lay Length}$$

Lay Length Options		
ft	in	mm
1	12	305
1.5	18	457
2	24	610
4	48	1219
6	72	1829
8	96	2438
10	120	3048
15	180	4572



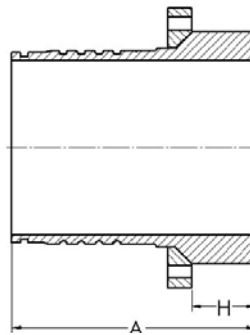
Diameter (mm)		200		250		300		350		400	
Pipe Rating	Fitting Rating	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.
bar	bar	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
207 - 200	207	848	55	1000	84	1209	119	-	-	-	-
193 - 179	193	782	52	928	77	1119	109	-	-	-	-
172 - 165	172	778	47	854	70	1035	99	1122	117	-	-
159 - 145	159	705	43	784	63	945	90	1030	105	1153	133
138 - 131	138	701	39	778	57	850	80	944	95	1064	119
124 - 110	124	627	35	706	51	850	72	853	84	972	106
103 - 97	103	544	31	628	45	756	63	840	74	881	93
90 - 76	90	529	27	609	39	734	55	733	64	770	80
69 - 62	69	412	24	541	39	630	48	626	55	660	68
55	55	-	-	-	-	-	-	496	54	573	66
52	52	412	24	412	32	493	45	496	54	498	66
48	48	-	-	-	-	-	-	496	54	498	66
41	41	-	-	-	-	-	-	496	54	498	66
34	34	412	24	412	32	493	45	496	54	498	66
21	21	412	24	412	32	493	45	496	54	498	66

Diameter (mm)		450		500		600		750		900		1000	
Pipe Rating	Fitting Rating	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.	2X	Wt.
bar	bar	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	1138	146	-	-	-	-	-	-	-	-	-	-
124 - 110	124	1030	130	1134	155	-	-	-	-	-	-	-	-
103 - 97	103	1019	114	1026	136	1145	186	-	-	-	-	-	-
90 - 76	90	901	99	917	117	1034	160	1223	261	-	-	-	-
69 - 62	69	772	84	785	99	904	134	1094	218	1216	305	-	-
55	55	586	73	687	82	709	114	1047	177	1054	246	-	-
52	52	586	73	687	82	701	109	930	177	1054	246	1077	294
48	48	586	73	687	82	701	109	930	177	1054	246	1077	294
41	41	586	73	687	82	701	109	930	177	1054	246	1077	294
34	34	586	73	687	82	701	109	791	159	862	189	884	230
21	21	586	73	687	82	701	109	791	159	862	189	751	230

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Stub Flanges



Diameter (mm)		200			250			300			350			400		
Pipe Rating	Fitting Rating	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
207 - 200	207	827	242	62	973	296	111	1168	368	194	-	-	-	-	-	-
193 - 179	193	774	220	55	913	269	99	1087	338	171	-	-	-	-	-	-
172 - 165	172	757	202	51	849	249	87	1014	303	150	1159	345	209	-	-	-
159 - 145	159	681	187	45	775	236	77	901	282	120	1077	315	184	1204	358	254
138 - 131	138	662	167	40	748	209	68	823	247	102	964	288	130	1094	351	182
124 - 110	124	602	142	34	685	179	59	792	212	89	890	256	112	1004	311	156
103 - 97	103	543	141	24	617	164	42	716	200	66	838	230	87	898	261	123
90 - 76	90	511	113	20	576	129	34	674	165	55	753	195	71	807	221	101
69 - 62	69	425	91	15	512	119	25	583	142	37	652	147	53	697	175	70
55	55	-	-	-	-	-	-	-	-	-	549	110	42	609	130	57
52	52	405	70	14	424	90	19	483	108	29	549	108	44	571	129	56
48	48	-	-	-	-	-	-	-	-	-	544	103	44	561	119	55
41	41	-	-	-	-	-	-	-	-	-	524	83	40	541	99	51
34	34	375	50	12	389	55	16	443	68	24	504	63	37	516	74	46
21	21	355	50	11	359	50	14	403	50	21	469	50	33	476	50	40

Diameter (mm)		450			500			600			750			900			1000		
Pipe Rating	Fitting Rating	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.	A	H.	Wt.
bar	bar	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	1186	400	249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124 - 110	124	1093	355	214	1204	412	283	-	-	-	-	-	-	-	-	-	-	-	-
103 - 97	103	1028	312	170	1061	345	220	1230	436	342	-	-	-	-	-	-	-	-	-
90 - 76	90	919	267	140	960	292	181	1110	373	282	1354	480	510	-	-	-	-	-	-
69 - 62	69	789	207	100	819	230	123	941	284	198	1146	371	359	1316	457	573	-	-	-
55	55	648	154	74	724	177	95	784	219	151	1036	286	277	1131	352	429	-	-	-
52	52	640	145	75	721	175	95	764	199	147	937	262	257	1086	327	408	1271	388	598
48	48	630	135	73	704	154	94	749	184	141	917	242	247	1061	302	392	1241	358	573
41	41	605	110	67	674	124	85	719	154	130	872	197	224	1011	252	359	1181	298	523
34	34	580	85	60	649	99	78	684	119	116	764	155	180	857	195	255	970	251	296
21	21	535	50	51	594	50	63	619	54	91	679	70	136	752	90	187	764	151	199

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide (SI Units)

Flange Rings



Diameter (mm)		200			250			300			350			400		
Pipe Rating	Fitting Rating	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.
bar	bar	Class	mm	kg	Class	mm	kg	Class	mm	kg	Class	mm	kg	Class	mm	kg
207 - 200	207	1500	92	69	1500	108	116	1500	124	161	-	-	-	-	-	-
193 - 179	193	1500	92	71	1500	108	117	1500	124	165	-	-	-	-	-	-
172 - 165	172	1500	92	72	1500	108	120	1500	124	169	1500	133	226	-	-	-
159 - 145	159	900	64	45	900	70	59	900	79	78	1500	133	230	1500	146	293
138 - 131	138	900	64	45	900	70	60	900	79	79	900	86	91	900	89	110
124 - 110	124	900	64	45	900	70	60	900	79	80	900	86	92	900	89	112
103 - 97	103	600	56	31	600	64	48	600	67	53	600	70	64	600	76	89
90 - 76	90	600	56	32	600	64	49	600	67	55	600	70	66	600	76	90
69 - 62	69	400	48	19	400	54	27	400	57	39	400	60	51	400	64	65
55	55	-	-	-	-	-	-	-	-	-	400	60	52	400	64	65
52	52	300	40	15	300	46	24	300	49	34	300	52	43	300	56	56
48	48	-	-	-	-	-	-	-	-	-	300	52	43	300	56	56
41	41	-	-	-	-	-	-	-	-	-	300	52	43	300	56	56
34	34	300	40	15	300	46	24	300	49	34	300	52	43	300	56	56
21	21	300	40	15	300	46	24	300	49	34	300	52	43	300	56	56

Diameter (mm)		450			500			600			750			900			1000		
Pipe Rating	Fitting Rating	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.	ANSI	Thk.	Wt.
bar	bar	Class	mm	kg	Class	mm	kg	Class	mm	kg	Class	mm	kg	Class	mm	kg	Class	mm	kg
159 - 145	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
138 - 131	138	900	102	156	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124 - 110	124	900	102	160	900	108	198	-	-	-	-	-	-	-	-	-	-	-	-
103 - 97	103	600	83	112	600	89	138	600	102	199	-	-	-	-	-	-	-	-	-
90 - 76	90	600	83	115	600	89	141	600	102	205	600	140	358	-	-	-	-	-	-
69 - 62	69	400	67	78	400	70	96	400	76	141	400	111	242	400	129	359	-	-	-
55	55	400	67	79	400	70	97	400	76	141	400	111	254	400	129	377	-	-	-
52	52	300	59	67	300	67	96	300	68	125	300	94	216	300	110	315	900	224	1125
48	48	300	59	67	300	62	84	300	68	125	300	94	216	300	110	315	900	224	1125
41	41	300	59	67	300	62	84	300	68	125	300	94	216	300	110	315	900	224	1125
34	34	300	59	67	300	62	84	300	68	125	300	94	218	300	110	329	600	162	442
21	21	300	59	67	300	62	84	300	68	125	300	94	218	300	110	329	300	113	210

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

STAR Super-Seal Key-Lock Fittings Specification Guide

Locking Keys per Joint

Diameter	in	8	10	12	14	16	18	20	24	30	36	40
	mm	200	250	300	350	400	450	500	600	750	900	1000
Fitting Pressure Rating		Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count
psi	bar	#	#	#	#	#	#	#	#	#	#	#
3000	207	8	10	10	-	-	-	-	-	-	-	-
2800	193	7	9	9	10	-	-	-	-	-	-	-
2500	172	7	8	8	9	10	-	-	-	-	-	-
2300	159	6	7	7	8	9	8	-	-	-	-	-
2000	138	6	7	6	7	8	7	8	-	-	-	-
1800	124	5	6	6	6	7	6	7	-	-	-	-
1500	103	4	5	5	6	6	6	6	7	-	-	-
1300	90	4	5	5	5	5	5	5	6	6	-	-
1000	69	3	4	4	4	4	4	4	5	5	5	-
800	55	-	-	-	3	3	3	4	4	4	4	-
750	52	3	3	3	3	3	3	4	4	4	4	4
700	48	-	-	-	3	3	3	3	4	4	4	4
600	41	-	-	-	3	3	3	3	3	4	4	4
500	34	2	2	2	2	2	2	3	3	3	3	3
300	21	1	2	2	2	2	2	2	2	2	2	2

Notes: For DN 400 >152 bar, consult FGS Application Engineering for availability. For DN 750 >83 bar, consult FGS Application Engineering for availability.

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