

Pressing Calculations for FireSmith Tools & Machines

Item	Diameter	Area (Inch Square)
Portable Press (14.4 Ton)	3.5"	9.621
Shop Press (23.8 Ton)	4.5"	15.89
P2F Tool	2.5"	4.91
1lb Rocket	.75"	0.442
2lb Rocket	.875"	0.601
3lb Rocket	1"	0.785
4lb Rocket	1.25"	1.227
6lb Rocket	1.5"	1.767
3/16" Star Plate	.1875" x 110 Pin	3.036
1/4" Star Plate	.25" x 110 Pin	5.397
3/8" Star Plate	.375" x 72 Pin	7.948
1/2" Star Plate	.5" x 49 Pin	9.616
5/8" Star Plate	.625" x 30 Pin	9.199
3/4" Star Plate	.75" x 20 Pin	8.831
7/8" Star Plate	.875" x 16 Pin	9.616
1" Star Plate	1" x 12 Pin	9.42
1-1/4" Star Plate	1.25" x 9 Pin	11.04
1-1/2" Star Plate	1.5" x 6 Pin	10.598
15mm Color Change Plate	0.47" x 35 Pin	6.069
11/16" Color Change Plate	0.6" x 24 Pin	6.78
1" Comet Pump	1"	0.785
1.25" Comet Pump	1.25"	1.227
1.5" Comet Pump	1.5"	1.767
1.75" Comet Pump	1.75"	2.405
2" Comet Pump	2"	3.142
2.5" Comet Pump	2.5"	4.909
3.5" Comet Pump	3.5"	9.621
4.5" Comet Pump	4.5"	15.904
5.5" Comet Pump	5.5"	23.758

1lb Rocket Pressing Calculations (.75" Dia = .442 Square Inch Surface Area)

Loading Pressure on the Comp		5,000psi	6,000psi	7,000psi	8,000psi	9,000psi	10,000psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	230	276	322	368	414	460
23.8 Ton Shop Press	PSI on Gauge	139	167	195	223	250	278
P2F Tool	PSI on Gauge	450	540	629	719	809	899

2lb Rocket Pressing Calculations (.875" Dia = .601 Square Inch Surface Area)

Loading Pressure on the Comp		5,000psi	6,000psi	7,000psi	8,000psi	9,000psi	10,000psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	313	375	437	500	562	625
23.8 Ton Shop Press	PSI on Gauge	189	227	265	303	340	378
P2F Tool	PSI on Gauge	612	734	857	979	1102	1224

3lb Rocket Pressing Calculations (1" Dia = .785 Square Inch Surface Area)

Loading Pressure on the Comp		5,000psi	6,000psi	7,000psi	8,000psi	9,000psi	10,000psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	408	489	571	653	734	816
23.8 Ton Shop Press	PSI on Gauge	247	296	346	395	445	494
P2F Tool	PSI on Gauge	800	960	1120	1280	1440	1600

4lb Rocket Pressing Calculations (1.25" Dia = 1.227 Square Inch Surface Area)

Loading Pressure on the Comp		5,000psi	6,000psi	7,000psi	8,000psi	9,000psi	10,000psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	638	765	893	1020	1148	1276
23.8 Ton Shop Press	PSI on Gauge	386	463	541	618	695	772
P2F Tool	PSI on Gauge	1250	1500	1750	2000	2250	2500

6lb Rocket Pressing Calculations (1.5" Dia = 1.767 Square Inch Surface Area)

Loading Pressure on the Comp		5,000psi	6,000psi	7,000psi	8,000psi	9,000psi	10,000psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	919	1103	1287	1471	1654	1838
23.8 Ton Shop Press	PSI on Gauge	556	667	779	890	1001	1112
P2F Tool	PSI on Gauge	1799	2158	2518	2878	3237	3597

3/16" Star Plate Pressing Calculations (.1875" Dia x 110 Pins = 3.036 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
Pressure on the Gauge							
14.4 Ton Portable Press	PSI on Gauge	394	473	552	631	710	789
23.8 Ton Shop Press	PSI on Gauge	239	287	334	382	430	478
P2F Tool	PSI on Gauge	773	928	1082	1237	1391	1546

1/4" Star Plate Pressing Calculations (.25" Dia x 110 Pins = 5.397 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	701	841	981	1122	1262	1402
23.8 Ton Shop Press	PSI on Gauge	425	510	594	679	764	849
P2F Tool	PSI on Gauge	1374	1648	1923	2198	2473	2747

3/8" Star Plate Pressing Calculations (.375" Dia x 72 Pins = 7.948 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1033	1240	1446	1653	1860	2066
23.8 Ton Shop Press	PSI on Gauge	625	750	875	1000	1126	1251
P2F Tool	PSI on Gauge	2023	2427	2832	3236	3640	4045

1/2" Star Plate Pressing Calculations (.5" Dia x 49 Pins = 9.616 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1250	1500	1750	2000	2250	2500
23.8 Ton Shop Press	PSI on Gauge	757	908	1059	1211	1362	1513
P2F Tool	PSI on Gauge	2446	2935	3425	3914	4403	4892

5/8" Star Plate Pressing Calculations (.625" Dia x 30 Pins = 9.199 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1195	1434	1673	1912	2151	2390
23.8 Ton Shop Press	PSI on Gauge	724	869	1013	1158	1302	1448
P2F Tool	PSI on Gauge	2341	2809	3277	3745	4213	4682

3/4" Star Plate Pressing Calculations (.75" Dia x 20 Pins = 8.831 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1148	1377	1607	1837	2066	2296
23.8 Ton Shop Press	PSI on Gauge	695	834	973	1112	1250	1390
P2F Tool	PSI on Gauge	2248	2698	3147	3597	4047	4496

7/8" Star Plate Pressing Calculations (.875" Dia x 16 Pins = 9.616 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1250	1500	1750	2000	2250	2500
23.8 Ton Shop Press	PSI on Gauge	757	908	1059	1211	1362	1513
P2F Tool	PSI on Gauge	2446	2935	3424	3914	4403	4892

1" Star Plate Pressing Calculations (1" Dia x 12 Pins = 9.420 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1224	1469	1714	1959	2204	2449
23.8 Ton Shop Press	PSI on Gauge	741	889	1037	1186	1334	1482
P2F Tool	PSI on Gauge	2399	2879	3359	3839	4319	4798

1.25" Star Plate Pressing Calculations (1.25" Dia x 9 Pins = 11.040 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1435	1722	2009	2296	2583	2870
23.8 Ton Shop Press	PSI on Gauge	868	1042	1215	1389	1563	1736
P2F Tool	PSI on Gauge	2809	3371	3933	4494	5056	5618

1.5" Star Plate Pressing Calculations (1.5" Dia x 6 Pins = 10.598 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1377	1652	1927	2203	2478	2753
23.8 Ton Shop Press	PSI on Gauge	834	1001	1167	1334	1501	1668
P2F Tool	PSI on Gauge	2700	3240	3780	4320	4860	5400

1" Comet Pump Pressing Calculations (1" Dia = .785 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	102	122	143	163	184	204
23.8 Ton Shop Press	PSI on Gauge	62	74	86	99	111	123
P2F Tool	PSI on Gauge	200	240	280	320	360	400

1.25" Comet Pump Pressing Calculations (1.25" Dia = 1.227 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	159	191	223	255	287	319
23.8 Ton Shop Press	PSI on Gauge	97	116	135	154	174	193
P2F Tool	PSI on Gauge	313	375	438	500	563	625

1.5" Comet Pump Pressing Calculations (1.5" Dia = 1.767 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	230	276	322	368	414	460
23.8 Ton Shop Press	PSI on Gauge	139	167	195	222	250	278
P2F Tool	PSI on Gauge	450	540	630	719	809	899

1.75" Comet Pump Pressing Calculations (1.75" Dia = 2.405 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	313	375	438	500	563	625
23.8 Ton Shop Press	PSI on Gauge	189	227	265	303	341	378
P2F Tool	PSI on Gauge	613	735	858	980	1103	1225

2" Comet Pump Pressing Calculations (2" Dia = 3.142 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	408	490	572	654	735	817
23.8 Ton Shop Press	PSI on Gauge	247	297	346	395	445	494
P2F Tool	PSI on Gauge	801	962	1122	1282	1442	1603

2.5" Comet Pump Pressing Calculations (2.5" Dia = 4.909 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	638	765	893	1020	1148	1276
23.8 Ton Shop Press	PSI on Gauge	386	463	541	618	695	772
P2F Tool	PSI on Gauge	1250	1500	1750	2000	2250	2500

3.5" Comet Pump Pressing Calculations (3.5" Dia = 9.621 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	1250	1500	1750	2000	2250	2500
23.8 Ton Shop Press	PSI on Gauge	757	908	1059	1211	1362	1513
P2F Tool	PSI on Gauge	2451	2941	3431	3922	4412	4902

4.5" Comet Pump Pressing Calculations (4.5" Dia = 15.904 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	2066	2479	2893	N/A	N/A	N/A
23.8 Ton Shop Press	PSI on Gauge	11250	1500	1750	2000	2250	2500
P2F Tool	PSI on Gauge	4045	4854	N/A	N/A	N/A	N/A

5.5" Comet Pump Pressing Calculations (5.5" Dia = 23.758 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	N/A	N/A	N/A	N/A	N/A	N/A
23.8 Ton Shop Press	PSI on Gauge	1868	2242	2616	2989	N/A	N/A
P2F Tool	PSI on Gauge	N/A	N/A	N/A	N/A	N/A	N/A

15mm Color Change Star Plate Calculations (0.47" Dia x 35 Pins = 6.069 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	789	947	1104	1262	1420	1578
23.8 Ton Shop Press	PSI on Gauge	478	573	669	764	860	955
P2F Tool	PSI on Gauge	1546	1855	2165	2472	2783	3093

11/16" Color Change Star Plate Calculations (0.6" Dia x 24 Pins = 6.78 Square Inch Surface Area)

Loading Pressure on the Comp		1,250psi	1,500psi	1,750psi	2,000psi	2,250psi	2,500psi
14.4 Ton Portable Press	PSI on Gauge	881	1058	1234	1410	1586	1763
23.8 Ton Shop Press	PSI on Gauge	534	641	747	854	961	1068
P2F Tool	PSI on Gauge	1725	2070	2415	2760	3105	3450