

**Ramset fasteners may be specified by their type or catalog number to satisfy fastening requirements.**

## PIN SPECIFICATIONS

- Made from AISI 1060-1065 steel. Austempered to a core hardness of 52-56 Rc
- Typical tensile strength: 270,000 psi
- Typical shear strength: 162,000 psi
- **STANDARD FINISHES**
  - Proprietary black
  - Mechanical zinc plate to a minimum thickness of .0002 meets requirements of ASTM B695
  - Ramguard

## APPROVALS/LISTINGS

- **ICC Evaluation Service, Inc.**
  - #ESR-2690 Sill Plate
  - #ESR-1799 Powder Pins & Clips
- **City of Los Angeles**
  - #RR-22668 Powder pins

## FASTENERS IN NORMAL WEIGHT CONCRETE

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	INSTALLED IN STONE AGGREGATE CONCRETE CONCRETE COMPRESSIVE STRENGTH ALLOWABLE LOAD - <i>Ultimate Load</i>					
			2000 PSI		4000 PSI		6000 PSI	
			TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
1500/1600 SERIES	0.145	3/4	<b>50</b> <i>655</i>	<b>66</b> <i>739</i>	<b>100</b> <i>511</i>	<b>104</b> <i>552</i>	.....	.....
		1	<b>152</b> <i>943</i>	<b>166</b> <i>1229</i>	<b>157</b> <i>937</i>	<b>182</b> <i>1342</i>	.....	.....
		1-1/4	<b>159</b> <i>1078</i>	<b>265</b> <i>1665</i>	<b>179</b> <i>1043</i>	<b>267</b> <i>1538</i>	.....	.....
		1-1/2	<b>154</b> <i>1450</i>	<b>340</b> <i>2027</i>	<b>209</b> <i>1357</i>	<b>342</b> <i>1712</i>	.....	.....
SP	0.150	3/4	.....	.....	<b>150</b> <i>803</i>	<b>105</b> <i>786</i>	<b>81</b> <i>493</i>	<b>82</b> <i>454</i>
		1	<b>154</b> <i>1043</i>	<b>200</b> <i>1173</i>	<b>243</b> <i>1307</i>	<b>175</b> <i>1037</i>	<b>189</b> <i>1125</i>	<b>210</b> <i>1177</i>
SP SERIES	.150/.180	1-1/4	<b>207</b> <i>1553</i>	<b>230</b> <i>1636</i>	<b>298</b> <i>1749</i>	<b>218</b> <i>1471</i>	<b>213</b> <i>1568</i>	<b>305</b> <i>1780</i>
		1-1/2	.....	.....	<b>384</b> <i>2126</i>	<b>391</b> <i>1957</i>	<b>239</b> <i>1886</i>	<b>594</b> <i>2968</i>
1900	0.145	3/4	<b>105</b> <i>694</i>	<b>71</b> <i>458</i>	<b>101</b> <i>685</i>	<b>99</b> <i>627</i>	.....	.....

**Note 1:** ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for the fastener only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 6:** Job site testing may be required to determine actual job site values. **Note 7:** Minimum edge distance is 3 inches unless otherwise approved. **Note 8:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa

**FASTENER IN STEEL**

PART NUMBER SERIES	SHANK DIA (INCH)	TYPE OF SHANK	INSTALLED IN A36 STRUCTURAL STEEL-STEEL THICKNESS (INCHES)									
			ALLOWABLE LOAD - <i>Ultimate Load</i>									
			3/16		1/4		3/8		1/2		3/4	
TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	
1500/1600	0.145	SMOOTH	<b>81</b> <i>790</i>	<b>373</b> <i>2039</i>	<b>181</b> <i>1269</i>	<b>273</b> <i>1642</i>	<b>397</b> <i>2169</i>	<b>489</b> <i>2771</i>	<b>243</b> <i>1328</i> <sup>8</sup>	<b>277</b> <i>1514</i> <sup>8</sup>	.....	.....
		KNURLED	<b>296</b> <i>1633</i>	<b>636</b> <i>3516</i>	<b>584</b> <i>3384</i>	<b>659</b> <i>3822</i>	<b>680</b> <i>3755</i>	<b>730</b> <i>4030</i>	<b>253</b> <i>1459</i> <sup>8</sup>	<b>293</b> <i>1632</i> <sup>8</sup>	.....	.....
SP	0.150	SMOOTH	<b>385</b> <i>2107</i>	<b>662</b> <i>3618</i>	<b>445</b> <i>2549</i>	<b>477</b> <i>2736</i>	<b>393</b> <i>2145</i>	<b>574</b> <i>3137</i>	<b>948</b> <i>5180</i>	<b>597</b> <i>3500</i>	<b>234</b> <i>1244</i> <sup>8</sup>	<b>356</b> <i>1895</i> <sup>8</sup>

PART NUMBER SERIES	SHANK DIA (INCH)	TYPE OF SHANK	INSTALLED IN A572 GRADE 50 STRUCTURAL STEEL-STEEL THICKNESS (INCHES)									
			ALLOWABLE LOAD - <i>Ultimate Load</i>									
			3/16		1/4		3/8		1/2		3/4	
TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)	
1500/1600	0.145	SMOOTH	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
		KNURLED	<b>260</b> <i>1609</i>	<b>499</b> <i>3182</i>	<b>579</b> <i>3411</i>	<b>725</b> <i>4272</i>	<b>383</b> <i>2216</i> <sup>7</sup>	<b>595</b> <i>3431</i> <sup>7</sup>	.....	.....	.....	.....
SP	0.150	SMOOTH	<b>356</b> <i>2123</i>	<b>569</b> <i>3394</i>	<b>554</b> <i>3232</i>	<b>637</b> <i>3710</i>	<b>604</b> <i>3447</i>	<b>602</b> <i>3437</i>	<b>814</b> <i>4473</i> <sup>9</sup>	<b>820</b> <i>4503</i> <sup>9</sup>	<b>243</b> <i>1362</i> <sup>8</sup>	<b>381</b> <i>2141</i> <sup>8</sup>

**Note 1:** ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 5:** Job site testing may be required to determine actual job site values. **Note 6:** Values shown are for fastenings that have the entire pointed end of the fastener driven through the steel plate; except as noted below. **Note 7:** Fastener penetration is 3/8" minimum. **Note 8:** Fastener penetration is 7/16" minimum. **Note 9:** Fastener penetration is 1/2" minimum **Note 10:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa

**FASTENER IN LIGHTWEIGHT CONCRETE**

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES INSTALLED IN 3000 PSI LIGHTWEIGHT CONCRETE			
			ALLOWABLE LOAD - <i>Ultimate Load</i>			
			3000 PSI LIGHTWEIGHT W/DECKING		3000 PSI LIGHTWEIGHT	
LOWER FLUTE TENSION	LOWER FLUTE SHEAR	TENSION	SHEAR			
1500 SERIES	0.145	3/4	<b>76</b> <i>395</i>	<b>260</b> <i>1409</i>	<b>167</b> <i>837</i>	<b>179</b> <i>894</i>
		1	<b>134</b> <i>668</i>	<b>265</b> <i>1505</i>	<b>200</b> <i>998</i>	<b>228</b> <i>1141</i>
		1-1/4	<b>157</b> <i>784</i>	<b>269</b> <i>1344</i>	<b>333</b> <i>1664</i>	<b>400</b> <i>2090</i>
		1-1/2	<b>233</b> <i>1163</i>	<b>346</b> <i>1728</i>	<b>391</b> <i>1957</i>	<b>410</b> <i>2050</i>
SP SERIES	.150/.180	1	<b>119</b> <i>593</i>	<b>336</b> <i>1679</i>	<b>226</b> <i>1129</i>	<b>250</b> <i>1249</i>
		1-1/4	<b>175</b> <i>957</i>	<b>372</b> <i>1860</i>	<b>329</b> <i>1644</i>	<b>377</b> <i>1885</i>
		1-1/2	<b>179</b> <i>1055</i>	<b>426</b> <i>2128</i>	<b>406</b> <i>2030</i>	<b>380</b> <i>1900</i>

**Note 1:** ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for the fastener only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 6:** Job site testing may be required to determine actual job site values. **Note 7:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa

## ANGLE CLIP IN CONCRETE

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES INSTALLED IN NORMAL WEIGHT CONCRETE					
			ALLOWABLE LOAD - <i>Ultimate Load</i>					
			4000 PSI			6000 PSI		
			TENSION (LBS)	SHEAR (LBS)	OBLIQUE (LBS)	TENSION (LBS)	SHEAR (LBS)	OBLIQUE (LBS)
SDC100 SDC125	0.145	7/8	<b>115</b> <i>575</i>	<b>120</b> <i>1014</i>	<b>145</b> <i>726</i>	.....	.....	.....
SDC125	0.145	1-1/8	<b>130</b> <i>744</i>	<b>167</b> <i>1090</i>	<b>205</b> <i>1032</i>	.....	.....	.....
SPC78	0.150	3/4	<b>155</b> <i>897</i>	<b>188</b> <i>1050</i>	.....	<b>150</b> <i>788</i>	<b>153</b> <i>949</i>	<b>140</b> <i>769</i>
SPC114	.150/.180	1-1/8	<b>127</b> <i>811</i>	<b>226</b> <i>1130</i>	<b>181</b> <i>904</i>	<b>169</b> <i>853</i>	<b>300</b> <i>1500</i>	<b>223</b> <i>1114</i>

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES INSTALLED IN 3000 PSI LIGHTWEIGHT CONCRETE				
			ALLOWABLE LOAD - <i>Ultimate Load</i>				
			3000 PSI LIGHTWEIGHT WITH METAL DECKING				
			LOWER FLUTE TENSION (LBS)	LOWER FLUTE SHEAR (LBS)	LOWER FLUTE OBLIQUE (LBS)	UPPER FLUTE TENSION (LBS)	UPPER FLUTE SHEAR (LBS)
SDC100 SDC125	0.145	7/8	<b>67</b> <i>335</i>	<b>237</b> <i>1186</i>	<b>90</b> <i>448</i>	<b>104</b> <i>571</i>	<b>310</b> <i>1678</i>
SDC125	0.145	1-1/8	<b>94</b> <i>471</i>	<b>276</b> <i>1378</i>	<b>119</b> <i>596</i>	<b>106</b> <i>528</i>	<b>319</b> <i>1597</i>
SPC78	0.150	3/4	<b>59</b> <i>293</i>	<b>202</b> <i>1109</i>	<b>65</b> <i>323</i>	<b>84</b> <i>419</i>	<b>324</b> <i>1622</i>
SPC114	.150/.180	1-1/8	<b>157</b> <i>786</i>	<b>272</b> <i>1358</i>	<b>153</b> <i>766</i>	<b>180</b> <i>899</i>	<b>334</b> <i>1673</i>

**Note 1:** ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Testing conducted in accordance with ICC AC70 & ASTM E1190. **Note 3:** Safety factors are based on coefficient of variation. In accordance with ICC AC70, the safety factor will be no less than 5. **Note 4:** Values shown in concrete are for the clip assembly only. Connected members must be investigated separately. **Note 5:** Cyclic, fatigue, shock loads, and other design criteria may require a different safety factor. **Note 6:** Job site testing may be required to determine actual job site values. **Note 7:** Minimum edge distance is 3 inches unless otherwise approved. **Note 8:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa. **Note 9:** Metal deck is 20g.

## LADD 652 ANGLE CLIP ASSEMBLY

PART NUMBER SERIES	SHANK DIAMETER (INCH)	MINIMUM PENETRATION (INCH)	ALLOWABLE WORKING VALUES INSTALLED IN STONE AGGREGATE CONCRETE			
			CONCRETE COMPRESSIVE STRENGTH			
			ALLOWABLE LOAD - <i>Ultimate Load</i>			
			3000 PSI		4000 PSI	
			TENSION (LBS)	SHEAR (LBS)	TENSION (LBS)	SHEAR (LBS)
LADD CEILING SYSTEM	0.152	1-1/8	<b>211</b> <i>1688</i>	.....	<b>193</b> <i>1544</i>	.....

**Note 1:** ALLOWABLE loads are shown in the **LARGE BOLD** font, *Ultimate* loads are shown in *smaller italic* font. **Note 2:** Except as noted, values shown reflect an 8 to 1 safety factor. **Note 3:** Values shown are for concrete at the designed strength and are for the clip system only. **Note 4:** Cyclic, fatigue or shock loads and other design criteria may require a different safety factor. **Note 5:** Job site testing may be required to determine actual job site values. **Note 6:** Edge distance is 3 inches unless otherwise approved. **Note 7:** For SI: 1 lbf = 4.448 N, 1 inch = 25.4 mm, 1 ksi = 6.89MPa