

Swing Check Valve

SICCA 900-3600 SCC

Class 900-3600
NPS 2-28 Inches

Type Series Booklet



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Type Series Booklet SICCA 900-3600 SCC

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Check Valves and Strainers

Swing Check Valves to ANSI/ASME

SICCA 900-3600 SCC



Main applications

- Boiler feed applications
- Fossil-fuelled power stations
- Petrochemical industry
- Pipelines and tank farms
- Refineries
- Process engineering

Fluids handled

- Steam
- Fluids containing gas
- Gas
- High-temperature hot water
- Volatile fluids
- Feed water

Operating data

Operating properties

| Characteristic | Value |
|-----------------------------------|------------------|
| Nominal pressure | Class 900 - 3600 |
| Nominal size [inch] | NPS 2 - 28 |
| Max. permissible pressure [bar] | 620 |
| Max. permissible pressure [psi] | 9000 |
| Min. permissible temperature [°C] | ≥ 0 |
| Max. permissible temperature [°C] | ≤ +650 |
| Min. permissible temperature [°F] | ≥ 0 |
| Max. permissible temperature [°F] | ≤ +1200 |

Selection as per pressure/temperature ratings (⇒ Page 5)

Body materials

Overview of available materials

| Material | Temperature limit | |
|----------------|-------------------|--------|
| | [°C] | [°F] |
| ASTM A216 WCB | ≤ 425 | ≤ 800 |
| ASTM A216 WCC | ≤ 425 | ≤ 800 |
| ASTM A217 WC6 | ≤ 593 | ≤ 1100 |
| ASTM A217 WC9 | ≤ 593 | ≤ 1100 |
| ASTM A217 C12A | ≤ 650 | ≤ 1200 |

Design details

Design

- Swing check valve to ASME B16.34
- Cast steel body
- Seat/disc interface made of wear-resistant and corrosion-proof Stellite
- Pressure seal design
- Internally mounted hinge pin
- Butt weld ends
- "Special Class" version
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.
- The valves meet the requirements of the Indian Boiler Regulations 1950.

Variants

- Drain plug
- Drain branch

Product benefits

- Additional features ensure safe sealing to atmosphere:
 - Risk of leakage is reduced by internally mounted hinge pin.
 - Fully confined cover gasket with controlled compression ensures leak-proof joint.
- Reliable, tight shut-off
 - Hard-faced body seat made of wear-resistant and corrosion-resistant 13 % chrome steel or Stellite.
 - High-grade surface finish: lapped seat/disc interface
 - Self-aligning valve disc ensures tight shut-off.
 - Valve disc opens at low differential pressure.
 - Zero leakage thanks to perfect contact at seat/disc interface.
- Economic benefits
 - Streamlined flow path minimises pressure losses.

Related documents

Information/documents

| Document | Reference number |
|---------------------|------------------|
| Type series booklet | 7246.1 |
| SICCA 150-600 SCC | |
| Operating manual | 0500.80 |

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Type 2. Class 3. Nominal size 4. Design pressure 5. Design temperature 6. Operating pressure 7. Operating temperature | <ol style="list-style-type: none"> 8. Differential pressure 9. Material 10. Fluid handled 11. Flow rate 12. Pipe connection 13. Pipe schedule 14. Variants 15. Reference number |
|--|---|

Always indicate the original serial number and the year of construction when ordering spare parts.

Pressure/temperature ratings

Permissible operating pressures [bar] (in acc. with ASME B16.34 Standard Class)

| Class | Material | [°C] | | | | | | | | | | | | | | | | | |
|-------|--------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | -29 to +38 | 93 | 149 | 204 | 260 | 316 | 343 | 371 | 399 | 427 | 454 | 482 | 510 | 538 | 566 | 593 | 621 | 649 |
| 900 | A216 WCB ¹⁾ | 153 | 140 | 136 | 131 | 125 | 118 | 114 | 110 | 105 | 85 | 66 | 48 | 28 | 18 | - | - | - | - |
| 1500 | | 256 | 234 | 226 | 219 | 208 | 196 | 189 | 184 | 175 | 142 | 110 | 79 | 47 | 30 | - | - | - | - |
| 2500 | | 425 | 390 | 376 | 364 | 347 | 326 | 315 | 305 | 292 | 237 | 183 | 132 | 79 | 49 | - | - | - | - |
| 3100 | | 528 | 482 | 466 | 453 | 433 | 400 | 388 | 376 | 359 | 297 | 238 | 180 | 121 | 61 | - | - | - | - |
| 3600 | | 613 | 559 | 541 | 526 | 503 | 465 | 451 | 436 | 417 | 345 | 276 | 209 | 141 | 71 | - | - | - | - |
| 900 | A216 WCC | 155 | 154 | 150 | 145 | 139 | 124 | 120 | 113 | 104 | 86 | 69 | 51 | 34 | 17 | - | - | - | - |
| 1500 | | 258 | 257 | 250 | 243 | 231 | 206 | 200 | 189 | 173 | 143 | 115 | 85 | 57 | 29 | - | - | - | - |
| 2500 | | 430 | 429 | 418 | 405 | 386 | 344 | 333 | 315 | 289 | 239 | 191 | 142 | 96 | 49 | - | - | - | - |
| 3100 | | 534 | 533 | 519 | 503 | 479 | 427 | 414 | 391 | 359 | 297 | 238 | 177 | 120 | 61 | - | - | - | - |
| 3600 | | 621 | 618 | 602 | 584 | 556 | 496 | 480 | 454 | 417 | 345 | 276 | 205 | 139 | 71 | - | - | - | - |
| 900 | A217 WC6 ²⁾³⁾ | 155 | 155 | 149 | 143 | 138 | 125 | 122 | 118 | 110 | 105 | 101 | 93 | 66 | 45 | 30 | 20 | 13 | 9 |
| 1500 | | 259 | 259 | 249 | 239 | 229 | 209 | 203 | 196 | 183 | 175 | 168 | 155 | 110 | 75 | 50 | 33 | 22 | 14 |
| 2500 | | 431 | 431 | 415 | 398 | 382 | 348 | 338 | 326 | 305 | 292 | 280 | 258 | 183 | 124 | 83 | 55 | 38 | 24 |
| 3100 | | 534 | 532 | 514 | 496 | 479 | 427 | 416 | 401 | 378 | 362 | 349 | 327 | 266 | 154 | - | - | - | - |
| 3600 | | 621 | 618 | 597 | 576 | 556 | 496 | 483 | 465 | 439 | 420 | 406 | 380 | 309 | 179 | - | - | - | - |
| 900 | A217 WC9 ²⁾³⁾ | 155 | 155 | 151 | 146 | 138 | 125 | 122 | 118 | 110 | 105 | 101 | 93 | 80 | 55 | 36 | 23 | 14 | 9 |
| 1500 | | 259 | 259 | 251 | 243 | 229 | 209 | 203 | 196 | 183 | 175 | 168 | 155 | 133 | 92 | 60 | 38 | 24 | 14 |
| 2500 | | 431 | 431 | 419 | 405 | 382 | 348 | 338 | 326 | 305 | 292 | 280 | 258 | 222 | 154 | 100 | 63 | 39 | 24 |
| 3100 | | 534 | 433 | 519 | 503 | 479 | 427 | 416 | 401 | 378 | 362 | 349 | 327 | 291 | 191 | - | - | - | - |
| 3600 | | 621 | 618 | 602 | 584 | 556 | 496 | 483 | 465 | 439 | 420 | 406 | 380 | 338 | 221 | - | - | - | - |
| 900 | A217 C12A | 155 | 155 | 151 | 146 | 138 | 125 | 122 | 118 | 110 | 105 | 101 | 93 | 80 | 75 | 75 | 62 | 46 | 30 |
| 1500 | | 259 | 259 | 251 | 243 | 229 | 209 | 203 | 196 | 183 | 175 | 168 | 155 | 133 | 126 | 124 | 104 | 77 | 50 |
| 2500 | | 430 | 431 | 419 | 405 | 382 | 348 | 338 | 326 | 305 | 292 | 280 | 258 | 222 | 209 | 207 | 173 | 128 | 83 |
| 3100 | | 534 | 533 | 519 | 503 | 479 | 427 | 416 | 401 | 378 | 362 | 349 | 327 | 291 | 259 | - | - | - | - |
| 3600 | | 621 | 618 | 602 | 584 | 556 | 496 | 483 | 465 | 439 | 420 | 401 | 380 | 338 | 301 | - | - | - | - |

Permissible operating pressures [bar] (in acc. with ASME B16.34 Special Class)

| Class | Material | [°C] | | | | | | | | | | | | | | | | | |
|-------|--------------------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | -29 to +38 | 93 | 149 | 204 | 260 | 316 | 343 | 371 | 399 | 427 | 454 | 482 | 510 | 538 | 566 | 593 | 621 | 649 |
| 900 | A216 WCB ¹⁾ | 155 | 155 | 153 | 152 | 152 | 152 | 148 | 143 | 131 | 107 | 82 | 59 | 35 | 22 | - | - | - | - |
| 1500 | | 259 | 259 | 255 | 253 | 253 | 253 | 247 | 238 | 218 | 177 | 138 | 99 | 59 | 37 | - | - | - | - |
| 2500 | | 430 | 431 | 425 | 421 | 421 | 421 | 411 | 397 | 364 | 295 | 229 | 165 | 99 | 62 | - | - | - | - |
| 3100 | | 534 | 534 | 527 | 523 | 522 | 518 | 505 | 487 | 449 | 372 | 297 | 225 | 152 | 76 | - | - | - | - |
| 3600 | | 621 | 621 | 613 | 606 | 606 | 606 | 592 | 572 | 525 | 426 | 330 | 238 | 142 | 89 | - | - | - | - |
| 900 | A216 WCC | 155 | 155 | 155 | 155 | 155 | 153 | 145 | 130 | 108 | 86 | 54 | 43 | 22 | - | - | - | - | |
| 1500 | | 259 | 259 | 259 | 259 | 259 | 256 | 242 | 217 | 180 | 144 | 107 | 72 | 37 | - | - | - | - | |
| 2500 | | 431 | 431 | 431 | 431 | 431 | 431 | 426 | 403 | 362 | 300 | 237 | 178 | 121 | 62 | - | - | - | - |
| 3100 | | 534 | 534 | 534 | 534 | 534 | 534 | 528 | 500 | 449 | 372 | 297 | 221 | 152 | 76 | - | - | - | - |
| 3600 | | 621 | 621 | 621 | 621 | 621 | 621 | 613 | 581 | 521 | 431 | 345 | 256 | 174 | 89 | - | - | - | - |
| 900 | A217 WC6 ²⁾³⁾ | 155 | 155 | 155 | 155 | 155 | 155 | 152 | 151 | 149 | 140 | 121 | 82 | 56 | 37 | 25 | 17 | 11 | |
| 1500 | | 259 | 259 | 259 | 259 | 259 | 259 | 253 | 251 | 248 | 233 | 202 | 138 | 93 | 62 | 41 | 28 | 18 | |
| 2500 | | 431 | 431 | 431 | 431 | 431 | 431 | 431 | 421 | 419 | 414 | 389 | 338 | 229 | 155 | 103 | 69 | 47 | 30 |
| 3100 | | 534 | 534 | 534 | 534 | 534 | 534 | 531 | 522 | 519 | 513 | 488 | 442 | 332 | 192 | - | - | - | - |
| 3600 | | 621 | 621 | 621 | 621 | 621 | 621 | 617 | 606 | 603 | 596 | 566 | 513 | 586 | 223 | - | - | - | - |
| 900 | A217 WC9 ²⁾³⁾ | 155 | 155 | 153 | 151 | 150 | 149 | 148 | 146 | 146 | 140 | 124 | 98 | 69 | 45 | 28 | 18 | 11 | |

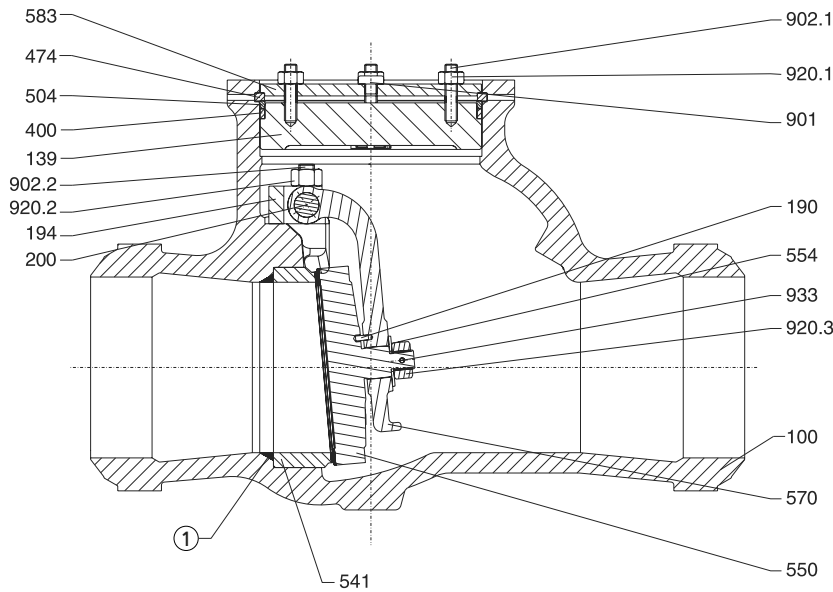
- 1) Permissible but not recommended for prolonged use above 427 °C (800 °F).
- 2) Use normalised and tempered materials only.
- 3) Cannot be used for temperatures above 593 °C (1100 °F)

| Class | Material | [°F] | | | | | | | | | | | | | | | | | |
|-------|-----------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | -20 to +100 | 200 | 300 | 400 | 500 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 | 1100 | 1150 | 1200 |
| 2500 | A217 C12A | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6250 | 6110 | 6070 | 6000 | 5645 | 5000 | 3930 | 3505 | 3505 | 3145 | 2320 | 1500 |
| 3100 | | 7750 | 7750 | 7750 | 7750 | 7750 | 7750 | 7708 | 7569 | 7524 | 7440 | 7070 | 6408 | 5350 | 4347 | - | - | - | - |
| 3600 | | 9000 | 9000 | 9000 | 9000 | 9000 | 9000 | 8951 | 8789 | 8738 | 8640 | 8210 | 7441 | 6213 | 5048 | - | - | - | - |

Test pressure

| Test | Test medium | Class 900 | Class 1500 | Class 2500 | Class 3100 | Class 3600 |
|------------------|-------------|-----------|------------|------------|------------|------------|
| | | [bar] | [bar] | [bar] | [bar] | [bar] |
| Shell | Water | 233 | 388 | 647 | 802 | 931 |
| Leak test (seat) | | 171 | 285 | 474 | 588 | 683 |

Materials



① Seal-welded

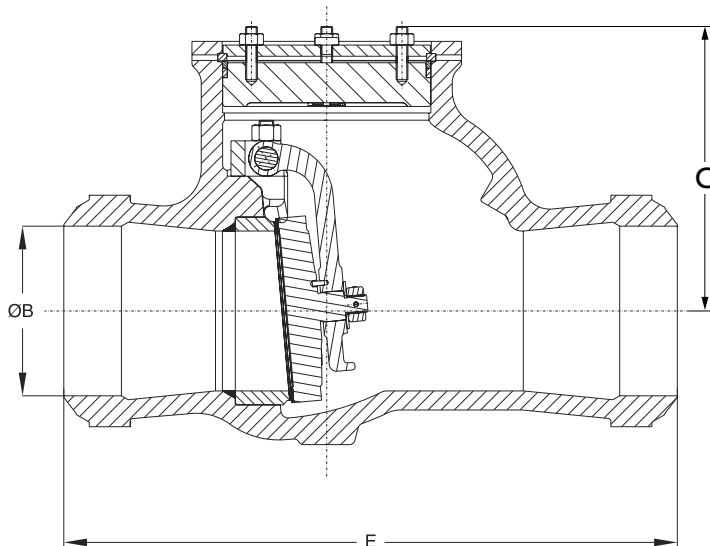
Parts list

| Part No. | Description | Class | Material | | | |
|----------|----------------------|---------------------------------|---|--------------------------|---------------------------------|--|
| 100 | Body | 900 / 1500 / 2500 / 3100 / 3600 | A216 WCB A217 WC6 A217 WC9 A217 C12A | | | |
| | | 3100 / 3600 | A216 WCC | | | |
| 139 | Bonnet ⁴⁾ | 900 / 1500 / 2500 / 3100 / 3600 | A216 WCB / A105 A217 WC6 / A182 F11 A217 WC9 / A182 F22 A217 C12A / A182 F91 | | | |
| | | | 190 | Parallel pin | 900 / 1500 / 2500 / 3100 / 3600 | SS304 |
| | | | 194 | Hinge bracket | 900 / 1500 / 2500 / 3100 / 3600 | A516 60 (IS 2002-2) A182 GR F22 CL3 |
| | | | 200 | Hinge pin | 900 / 1500 / 2500 / 3100 / 3600 | A479 410-2 |
| 400 | Gasket | 900 / 1500 / 2500 / 3100 / 3600 | Graphite | | | |
| 474 | Thrust ring | 900 / 1500 / 2500 / 3100 / 3600 | A336 F91 | | | |
| 504 | Spacer ring | 900 / 1500 / 2500 / 3100 / 3600 | A182 F22 CL3 | | | |
| 541 | Seat ring | 900 / 1500 / 2500 / 3100 / 3600 | A105+ST6 A182 F11+ST6 A182 F22+ST6 A182 F91+ST6 | | | |
| | | | 550 | Valve disc ⁵⁾ | 900 / 1500 / 2500 / 3100 / 3600 | A216 WCB+ST6 / A105+ST6 A217 WC9+ST6 / A182 F22+ST6 A182 F91+ST6 / A217 C12A+ST6 |
| | | | 554 | Washer | 900 / 1500 / 2500 / 3100 / 3600 | A276 TYPE 304 A182 F22 CL3 |
| | | | 570 | Hanger arm | 900 / 1500 / 2500 / 3100 / 3600 | A216 WCB A217 WC9 A217 C12A |
| 583 | Bonnet retainer | 900 / 1500 / 2500 / 3100 / 3600 | | | | A516 60 (IS 2002-2) |
| 902 | Stud | 900 / 1500 / 2500 / 3100 / 3600 | | | | A193 B7 A193 B16 |
| | | | 920.1 | Nut | 900 / 1500 / 2500 / 3100 / 3600 | A194 2H A194 4/7 |

4) Forged up to 6 inches with reduced bore
5) Forged up to 8 inches with reduced bore

| Part No. | Description | Class | Material |
|----------|-------------|---------------------------------|---------------------|
| 920.2 | Nut | 900 / 1500 / 2500 / 3100 / 3600 | A194 2H A194 4/7 |
| 920.3 | Nut | 900 / 1500 / 2500 / 3100 / 3600 | SS 304 |
| 933 | Splint | 900 / 1500 / 2500 / 3100 / 3600 | A276 TYPE 304 |

Dimensions and weights



Dimensions and weights

| Class | NPS | ØB | C ⁶⁾ | E | [kg] ⁶⁾ |
|-------|--------|-------|-----------------|--------|--------------------|
| | [inch] | [mm] | [mm] | [mm] | |
| 900 | 2 | 49,5 | 145 | 215,9 | 20 |
| | 3 | 73,5 | 180 | 304,8 | 35 |
| | 4 | 92,0 | 200 | 355,6 | 40 |
| | 5 | 116,0 | 200 | 356,0 | 45 |
| | 6 | 140,0 | 265 | 508,0 | 90 |
| | 8 | 182,5 | 290 | 660,4 | 145 |
| | 10 | 230,0 | 335 | 787,4 | 245 |
| | 12 | 273,0 | 410 | 914,4 | 380 |
| 1500 | 2 | 43,0 | 145 | 215,9 | 20 |
| | 3 | 66,5 | 180 | 304,8 | 35 |
| | 4 | 87,5 | 210 | 406,4 | 60 |
| | 5 | 109,5 | 220 | 406,0 | 65 |
| | 6 | 131,5 | 285 | 558,8 | 130 |
| | 8 | 173,0 | 315 | 711,2 | 210 |
| | 10 | 216,0 | 380 | 863,6 | 365 |
| | 12 | 257,0 | 440 | 990,6 | 570 |
| | 14 | 284,0 | 475 | 1066,8 | 750 |
| | 16 | 325,5 | 550 | 1194,0 | 1070 |
| | 18 | 366,5 | 620 | 1194,0 | 1415 |
| | 20 | 408,0 | 665 | 1346,0 | 1895 |
| 24 | 490,5 | 770 | 1473,0 | 2940 | |
| 2500 | 2 | 38,0 | 165 | 279,4 | 30 |
| | 3 | 58,5 | 195 | 368,3 | 50 |
| | 4 | 80,0 | 230 | 457,2 | 80 |
| | 5 | 103,0 | 240 | 457,0 | 95 |
| | 6 | 124,5 | 300 | 610,0 | 180 |
| | 8 | 174,5 | 340 | 762,0 | 300 |
| | 10 | 216,0 | 425 | 914,4 | 540 |
| | 12 | 257,0 | 495 | 1041,4 | 850 |
| | 14 | 284,0 | 545 | 1041,0 | 1075 |
| | 16 | 325,5 | 610 | 1118,0 | 1475 |
| | 18 | 366,5 | 700 | 1245,0 | 2035 |
| | 20 | 408,0 | 730 | 1397,0 | 2650 |
| 24 | 490,5 | 835 | 1575,0 | 4170 | |
| 3100 | 3 | 42,4 | 205 | 410 | 70 |
| | 4 | 49,8 | 225 | 452 | 95 |
| | 6 | 89,1 | 325 | 600 | 270 |

6) Approximate values

| Class | NPS | ØB | C ⁽⁶⁾ | E | [kg] ⁽⁶⁾ |
|-------|--------|-------|------------------|------|---------------------|
| | [inch] | [mm] | [mm] | [mm] | |
| 3100 | 8 | 119,1 | 390 | 700 | 475 |
| | 10 | 150,9 | 465 | 825 | 790 |
| | 12 | 180,8 | 550 | 1030 | 1330 |
| | 14 | 199,5 | 575 | 1030 | 1600 |
| | 16 | 229,5 | 650 | 1200 | 2290 |
| | 18 | 259,4 | 735 | 1245 | 3000 |
| | 20 | 289,4 | 785 | 1345 | 3815 |
| | 22 | 319,3 | 845 | 1450 | 4885 |
| | 24 | 348 | 890 | 1540 | 6025 |
| | 26 | 377,6 | 950 | 1665 | 7475 |
| | 28 | 406,6 | 995 | 1730 | 8885 |
| 3600 | 3 | 37,8 | 210 | 436 | 80 |
| | 4 | 44,7 | 230 | 475 | 115 |
| | 6 | 80,6 | 355 | 670 | 350 |
| | 8 | 107,9 | 410 | 795 | 605 |
| | 10 | 137 | 470 | 861 | 940 |
| | 12 | 164,3 | 565 | 1058 | 1610 |
| | 14 | 181,4 | 625 | 1177 | 2120 |
| | 16 | 208,8 | 665 | 1272 | 2815 |
| | 18 | 235,9 | 725 | 1380 | 3745 |
| | 20 | 262,1 | 795 | 1545 | 4950 |
| | 22 | 288,4 | 850 | 1615 | 6140 |
| | 24 | 314,6 | 945 | 1685 | 7745 |
| | 26 | 377,6 | 1010 | 1930 | 9940 |
| | 28 | 367 | 1010 | 1970 | 11380 |

Mating dimensions as per standard

Face-to-face lengths: ASME B16.10

Butt weld ends: ASME B16.25

Notes on installation

The valve bodies are marked with an arrow indicating the flow direction.

Swing check valves must preferably be installed in horizontal pipes. When installing them in vertical pipes, make sure that the flow direction is upward, so that in the unpressurised condition, the disc will be closed by its own weight.



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