Table 1: Summary of the test data of the circular CFST column.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (mm) | (mm) | (MPa) | (MPa) | Ref. |  | (mm) | (mm) | (MPa) | (MPa) | Ref. |
| 14 | 76-153 | 1.7-4.9 | 363-633 | 21-43 | [1] | **13** | 114-115 | 3.8-5 | 343-365 | 25-95 | [2] |
| 11 | 168-169 | 2.6-5 | 221-317 | 18-37 | [3] | **12** | 100-200 | 3 | 304 | 50 | [4] |
| 1 | 83 | 1.4 | 483 | 41 | [5] | **26** | 108-450 | 3-6.5 | 279-853 | 25-85 | [6] |
| 12 | 100-160 | 1.5-4.5 | 232-410 | 28-40 | [7] | **4** | 120-180 | 1.5 | 223 | 37-41 | [8] |
| 10 | 92-210 | 1.5-4 | 232-434 | 20-47 | [9] | **6** | 165-219 | 2.7-4.8 | 350 | 35-68 | [10] |
| 30 | 101-160 | 0.6-5.3 | 265-357 | 23-39 | [11] | **4** | 100 | 1.9 | 404 | 112 | [12] |
| 1 | 109 | 4.6 | 272 | 30 | [13] | **3** | 112-114 | 1.9-3.6 | 260-261 | 40-48 | [14] |
| 16 | 166-320 | 5-7 | 250-275 | 27-47 | [15] | **7** | 76 | 2.5-3.3 | 278-305 | 145 | [16] |
| 3 | 108 | 4 | 339 | 29 | [17] | **6** | 114 | 2.7-5.9 | 235-355 | 56-107 | [18] |
| 10 | 100-102 | 0.5-5.7 | 244-320 | 18-37 | [19] | **2** | 165 | 2.4 | 288 | 24 | [20] |
| 2 | 150 | 0.7 | 245 | 23-33 | [21] | **3** | 558-559 | 16.5 | 546 | 25 | [22] |
| 10 | 159-1020 | 5.1-13.3 | 291-392 | 15-46 | [23] | **36** | 153-477 | 1.5-11.4 | 290-345 | 76 | [24] |
| 12 | 174-179 | 3-9 | 249-283 | 22-46 | [25] | **11** | 114-219 | 3.6-10 | 300-428 | 50-178 | [26] |
| 1 | 324 | 5.6 | 444 | 92 | [27] | **7** | 100-168 | 2.5-3 | 318-446 | 34-95 | [28] |
| 2 | 152 | 1.7 | 270 | 73 | [29] | **20** | 140 | 4.4-16.7 | 359-1153 | 53-125 | [30] |
| 4 | 111-133 | 2-4.5 | 324-355 | 67 | [31] | **9** | 108-115 | 2.1-8 | 252-304 | 59-131 | [32] |
| 6 | 190 | 1.1 | 203 | 95-110 | [33] | **40** | 89-169 | 2.1-12.1 | 336-460 | 40-79 | [34] |
| 13 | 108-133 | 1-4.7 | 232-358 | 77-85 | [35] | **36** | 153-477 | 1.5-11.4 | 290-345 | 76 | [24] |
| 15 | 165-190 | 0.9-2.8 | 186-363 | 41-108 | [36] | **12** | 297-302 | 4.5-11.9 | 348-472 | 27-79 | [37] |
| 13 | 101-319 | 3-10.4 | 331-452 | 23-53 | [38] | **36** | 129-133 | 3-5 | 306 | 46-67 | [39] |
| 2 | 120 | 2.7 | 340 | 15-29 | [40] | **26** | 60-250 | 1.9-2 | 282-404 | 76-80 | [41] |
| 2 | 158 | 1.5-2.1 | 286-308 | 19 | [42] | **4** | 76 | 2-3 | 225 | 30 | [43] |
| 4 | 114 | 6-8 | 368-370 | 79-82 | [44] | **3** | 280 | 8 | 495 | 38-117 | [45] |
| 6 | 76-100 | 2-3 | 255 | 30 | [46] | **2** | 140-180 | 3 | 295-321 | 37 | [47] |
| 2 | 180 | 4 | 340 | 45 | [48] | **8** | 275-1100 | 4.14-16.48 | 260-281 | 46 | [49] |
| 4 | 240 | 3.05 | 571-649 | 49.82 | [50] | **1** | 327 | 2 | 289 | 35 | [51] |
| 11 | 219-376 | 3.28-7.06 | 305-429 | 45-73 | [52] | **1** | 112 | 3 | 392 | 19 | [53] |
| 15 | 141-262 | 2.11-3.04 | 691-734 | 39 | [54] | **3** | 89-169 | 3.98-7.96 | 330-411 | 23 | [55] |
| 1 | 140 | 4 | 310 | 27 | [56] | **3** | 133 | 4.75 | 338 | 25 | [57] |
| 6 | 108 | 6-10 | 344-385 | 101-117 | [58] | **2** | 60.3 | 4.5 | 225 | 47 | [59] |
| 1 | 159 | 4 | 467 | 25 | [60] | **21** | 600-1000 | 8-20 | 435-735 | 110-190 | [61] |
| 4 | 114 | 6-8 | 400-406 | 66-69 | [62] | **4** | 76 | 2-3 | 255 | 30 | [63] |
| 6 | 165 | 4.25 | 351 | 34-49 | [64] | **2** | 189 | 5.09-5.11 | 347-464 | 38 | [65] |
| 2 | 102 | 3.4 | 311 | 72 | [66] | **2** | 159 | 4.64 | 397 | 47 | [67] |
| 6 | 114-133 | 4.5-6 | 335-382 | 42-64 | [68] | **2** | 90 | 3-4.5 | 357-381 | 36 | [69] |
| 2 | 114 | 2.5 | 365 | 47-66 | [68] | **4** | 159 | 4.5-6 | 318-325 | 31 | [70] |
| 1 | 203 | 4 | 300 | 36.7 | [68] | **2** | 140-180 | 3 | 295-321 | 31-37 | [71] |
| 4 | 140-180 | 3-6 | 300-320 | 37 | [72] | **10** | 165 | 2.3-4.5 | 332-386 | 34 | [73] |
| 2 | 150 | 3.55 | 326 | 25-31 | [74] | **3** | 114 | 4 | 330 | 29-43 | [75] |
| 2 | 114 | 3.01-4.03 | 301-331 | 48 | [76] | **2** | 250-300 | 4 | 276 | 26 | [77] |
| 4 | 87 | 1.9 | 255 | 26 | [78] | **3** | 165 | 2-4 | 242 | 29 | [79] |
|  |  |  |  |  |  | **674** | **60-1020** | **0.5-16.7** | **186-1153** | **15-178** | **Total** |

Table 2: Summary of the test data of the rectangular CFST column.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (mm) | (mm) | (mm) | (MPa) | (MPa) | Ref. |  | (mm) | (mm) | (mm) | (MPa) | (MPa) | Ref. |
| 7 | 100 | 100 | 2.2-4.3 | 194-339 | 20-32 | [80] | **3** | 250-251 | 250-251 | 3.7-3.8 | 324 | 33 | [81] |
| 4 | 150-200 | 150 | 0.7-1.4 | 245 | 23-34 | [21] | **6** | 150 | 150 | 4-6 | 416-437 | 88 | [82] |
| 13 | 150 | 100 | 5 | 363 | 41 | [83] | **4** | 200-300 | 200-300 | 3-8 | 414-464 | 47 | [84] |
| 17 | 120-250 | 120-250 | 5-8 | 300-439 | 31-103 | [85] | **2** | 200 | 200 | 2-3.5 | 301-315 | 50 | [86] |
| 4 | 305 | 305 | 5.8-8.9 | 269-660 | 110 | [87] | **8** | 110-180 | 110-180 | 5 | 701 | 21-55 | [88] |
| 7 | 100-301 | 100-301 | 2.2-6.1 | 300-395 | 27-64 | [38] | **3** | 150-203 | 102-150 | 8.3 | 488 | 36-47 | [89] |
| 20 | 120-200 | 120-200 | 3.8-5.9 | 321-330 | 12-46 | [90] | **2** | 300 | 300 | 3.7-3.8 | 311 | 32-49 | [91] |
| 30 | 101-173 | 101-142 | 2-5.1 | 255-347 | 47-67 | [92] | **7** | 74-150 | 74-150 | 4.9 | 762 | 100 | [93] |
| 18 | 90-160 | 70-135 | 2.9-7.6 | 194-228 | 51 | [94] | **9** | 150 | 150 | 8-12.5 | 446-779 | 141-158 | [26] |
| 6 | 100-183 | 98-181 | 4.2 | 550 | 62-73 | [95] | **6** | 197-201 | 197-201 | 6.1-10.3 | 382-438 | 19-21 | [96] |
| 38 | 119-323 | 119-323 | 4.4-9.5 | 262-835 | 25-91 | [6] | **9** | 200-402 | 200-203 | 3.7-3.8 | 311 | 29-49 | [97] |
| 6 | 125 | 125 | 3.2-6 | 285-299 | 36-51 | [98] | **4** | 300-500 | 300-500 | 6-10 | 302-334 | 28 | [99] |
| 17 | 101-143 | 101-143 | 2-5.1 | 255-347 | 49-67 | [100] | **3** | 300 | 300 | 2-6 | 177-356 | 53 | [101] |
| 10 | 106-160 | 106-140 | 4 | 495 | 60-89 | [102] | **1** | 200 | 200 | 5.6 | 397 | 112 | [103] |
| 2 | 129-250 | 128-249 | 2.5 | 234 | 51-53 | [104] | **2** | 130 | 130 | 5 | 1031 | 76-125 | [105] |
| 3 | 120-180 | 120-180 | 1.5 | 223 | 48-49 | [8] | **22** | 60-250 | 60-250 | 1.9-2 | 282-404 | 43-72 | [41] |
| 6 | 80-149 | 80-149 | 1.5-3.6 | 280-284 | 34-45 | [106] | **4** | 110-160 | 110-160 | 5 | 750 | 28-30 | [107] |
| 6 | 190-250 | 190-250 | 2.5 | 270-342 | 50-58 | [108] | **2** | 120-170 | 120-170 | 5 | 761 | 20 | [109] |
| 3 | 160-280 | 160-280 | 2.5 | 202-221 | 33-39 | [110] | **19** | 80-162 | 51-162 | 3.9-5 | 629-1022 | 36-115 | [111] |
| 4 | 410-500 | 410-500 | 10-16 | 358-389 | 43 | [112] | **4** | 200 | 200 | 4-6 | 293 | 25-40 | [113] |
| 8 | 100-318 | 100-201 | 4.4-5.99 | 310-733 | 40-92 | [114] | **1** | 200 | 200 | 4 | 293 | 36 | [115] |
| 1 | 92 | 92 | 3 | 420 | 19 | [53] | **9** | 120 | 120 | 2.5-4 | 268-274 | 23-39 | [116] |
| 2 | 151 | 151 | 3.55 | 341.7 | 29 | [117] | **2** | 100 | 100 | 2.8 | 361.6 | 71.8 | [66] |
| 3 | 250-350 | 250-350 | 4-6 | 351-498 | 29 | [118] | **1** | 150 | 150 | 3.5 | 341.7 | 30.88 | [119] |
| 11 | 99-138 | 98-140 | 5.09-12.04 | 400-730 | 88 | [120] | **8** | 200-1001 | 200-1001 | 3.68-20.35 | 261-279 | 46 | [121] |
| 1 | 130 | 130 | 3 | 737 | 78 | [122] | **1** | 120 | 120 | 2.75 | 398 | 47 | [123] |
| 1 | 158 | 158 | 3 | 330 | 23 | [124] | **4** | 200-300 | 200 | 2.973 | 732 | 31-86 | [125] |
|  |  |  |  |  |  |  | **396** | **60-500** | **51-500** | **0.7-16** | **177-1031** | **12-158** | **Total** |

Table 3: Summary of concrete-filled double-skin circular steel tubular (CFDST) stub column test data.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (mm) | (mm) | (mm) | (mm) | (MPa) | (MPa) | (MPa) | Ref. |
| 26 | 75-114 | 0.6-1.8 | 61-89 | 0.6-1.6 | 255-524 | 216-512 | 59 | [126] |
| 12 | 114-300 | 3 | 48-165 | 3 | 276-295 | 295-396 | 47 | [127] |
| 14 | 114-165 | 1.7-6 | 48-102 | 2.8-3.3 | 395-454 | 394-425 | 63 | [128] |
| 5 | 160 | 1-2.1 | 75-112 | 1-2.1 | 220-300 | 220-300 | 24 | [129] |
| 4 | 240 | 3-4 | 80-120 | 3-4 | 280 | 280 | 29 | [130] |
| 9 | 157-159 | 0.9-2.1 | 38-115 | 0.9-2.1 | 221-308 | 221-308 | 19 | [131] |
| 2 | 350 | 3.8 | 231 | 2.9 | 439 | 397 | 44 | [132] |
| 5 | 139 | 2 | 75 | 3 | 250 | 250 | 47 | [133] |
| 6 | 114 | 2 | 48-89 | 1.6 | 279 | 235 | 40 | [134] |
| 19 | 102-203 | 1.6-3.2 | 50-114 | 1.5-3.2 | 226-353 | 226-399 | 40 | [135] |
| 23 | 140-166 | 2.9 | 22-89 | 3.9-10.8 | 276-300 | 433-1029 | 41-116 | [136] |
| 4 | 356 | 5.5 | 168-219 | 3.3 | 618 | 356-357 | 39 | [137] |
| 8 | 114 | 2.7-5.9 | 60 | 2.5-5.8 | 285-455 | 310-396 | 39-64 | [138] |
| 8 | 114 | 2.7-6.1 | 60 | 2.5-5.8 | 355-535 | 310-396 | 41-68 | [139] |
| 24 | 188-191 | 4.2-6.8 | 34-102 | 3.1-4.1 | 327-464 | 342-348 | 29-51 | [140] |
| 24 | 494-496 | 165 | 3.7-6 | 43-76 | 3 | 347-429 | 386-410 | [141] |
| 2 | 300 | 2-4 | 180 | 2 | 250 | 250 | 28 | [142] |
| 8 | 140-180 | 3-5 | 48-78 | 3-5 | 285-320 | 285-320 | 35 | [143] |
| 4 | 300 | 6 | 100-135 | 4 | 763 | 748 | 89 | [144] |
| 2 | 170 | 3.58 | 76-114 | 3.58 | 365 | 320-380 | 35 | [145] |
| 12 | 189-191 | 4.26-6.77 | 33.7-101.6 | 3.08-4.1 | 327-464 | 342-348 | 29-51 | [65] |
| 2 | 121 | 4.37-4.43 | 58 | 4.03 | 4.86 | 450 | 39-52 | [146] |
| 3 | 200 | 2.74 | 60-140 | 2.74 | 359 | 359 | 36-58 | [147] |
| 3 | 140-180 | 3 | 48-102 | 3 | 276-342 | 321-396 | 37 | [148] |
| 16 | 86-114 | 1-2.5 | 39-41 | 1-2 | 345 | 345 | 9.8-22 | [149], [150] |
| 195 | **75-356** | **0.6-6.8** | **22-231** | **0.6-10.8** | **220-618** | **216-1029** | **19-141** | **Total** |

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