**Table ‎3.1.** Summary of the test data of the circular CFST column.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| n\* | D (mm) | t (mm) | (MPa) | (MPa) | L/D | D/t | Source |
| 14 | 76-153 | 1.7-4.9 | 363-633 | 21-43 | 2 | 30-48 | (Gardner, N. J. and Jacobson, 1967) |
| 11 | 168-169 | 2.6-5 | 221-317 | 18-37 | 1.8 | 34-65 | (Gardner, 1968) |
| 1 | 83 | 1.4 | 483 | 41 | 3.1 | 59 | (Knowles, R. B. and Park, 1969) |
| 12 | 100-160 | 1.5-4.5 | 232-410 | 28-40 | 2.2-3.5 | 24-67 | (Zhong, S. T., and Wang, 1978) |
| 10 | 92-210 | 1.5-4 | 232-434 | 20-47 | 2.1-4 | 27-84 | (Tang, G. Z., Zhao, B. Q., Zhu, H. X., and Shen, 1982) |
| 30 | 101-160 | 0.6-5.3 | 265-357 | 23-39 | 2.6-3.1 | 24-184 | (Zhong, S. T., and He, 1983) |
| 1 | 109 | 4.6 | 272 | 30 | 3 | 24 | (Zhong, 1983) |
| 16 | 166-320 | 5-7 | 250-275 | 27-47 | 1.4-4 | 33-46 | (Zhanshuan, 1984) |
| 3 | 108 | 4 | 339 | 29 | 3 | 27 | (Cai, S. H. and Gu, 1985) |
| 10 | 100-102 | 0.5-5.7 | 244-320 | 18-37 | 2 | 18-192 | (Sakino, K., Tomii, M., and Watanabe, 1985) |
| 2 | 150 | 0.7 | 245 | 23-33 | 3.2 | 214 | (C. Y. Lin, 1988) |
| 10 | 159-1020 | 5.1-13.3 | 291-392 | 15-46 | 3 | 31-106 | (Luksha, L. K. and Nesterovich, 1991) |
| 12 | 174-179 | 3-9 | 249-283 | 22-46 | 2-2.1 | 20-58 | (Sakino, K. and Hayashi, 1991) |
| 1 | 324 | 5.6 | 444 | 92 | 3.1 | 58 | (Bergmann, 1994) |
| 2 | 152 | 1.7 | 270 | 73 | 3.3 | 89 | (Prion & Boehme, 1994) |
| 4 | 111-133 | 2-4.5 | 324-355 | 67 | 3 | 30-57 | (L. H. Han, 1997) |
| 6 | 190 | 1.1 | 203 | 95-110 | 3.5 | 171 | (O’Shea & Bridge, 1994) |
| 13 | 108-133 | 1-4.7 | 232-358 | 77-85 | 3.5 | 24-125 | (Tan et al., 1999) |
| 15 | 165-190 | 0.9-2.8 | 186-363 | 41-108 | 3.5 | 59-221 | (D. & Q., 2000) |
| 13 | 101-319 | 3-10.4 | 331-452 | 23-53 | 3 | 31-34 | (Yamamoto et al., 2000) |
| 2 | 120 | 2.7 | 340 | 15-29 | 3 | 45 | (Lin Hai Han & Yao, 2003) |
| 2 | 158 | 1.5-2.1 | 286-308 | 19 | 2.9 | 74-105 | (Uenaka, K., Hayami, M., Kitoh, H., and Sonoda, 2003) |
| 13 | 114-115 | 3.8-5 | 343-365 | 25-95 | 2.6 | 23-31 | (Giakoumelis & Lam, 2004) |
| 12 | 100-200 | 3 | 304 | 50 | 3 | 33-67 | (Lin Hai Han & Yao, 2004) |
| 26 | 108-450 | 3-6.5 | 279-853 | 25-85 | 3 | 17-152 | (Sakino et al., 2004) |
| 4 | 120-180 | 1.5 | 223 | 37-41 | 3.1 | 79-121 | (Zhang, Y. C., Wang Q. P., Mao, X. Y., and Cao, 2005) |
| 6 | 165-219 | 2.7-4.8 | 350 | 35-68 | 3-3.1 | 46-61 | (Z. wu Yu et al., 2007) |
| 4 | 100 | 1.9 | 404 | 112 | 3 | 53 | (Q. Yu et al., 2008) |
| 3 | 112-114 | 1.9-3.6 | 260-261 | 40-48 | 3.5-3.6 | 31-59 | (Chang et al., 2013) |
| 7 | 76 | 2.5-3.3 | 278-305 | 145 | 3.9-4 | 23-31 | (Guler et al., 2013) |
| 6 | 114 | 2.7-5.9 | 235-355 | 56-107 | 2.6 | 19-42 | (Ekmekyapar & Al-Eliwi, 2016) |
| 2 | 165 | 2.4 | 288 | 24 | 3.7 | 70 | (Y. Ye et al., 2016) |
| 3 | 558-559 | 16.5 | 546 | 25 | 1.8 | 34 | (L. Zhu et al., 2016) |
| 36 | 153-477 | 1.5-11.4 | 290-345 | 76 | 2 | 42-102 | (Y. Wang et al., 2017) |
| 11 | 114-219 | 3.6-10 | 300-428 | 50-178 | 2.2-2.7 | 18-44 | (Xiong et al., 2017) |
| 7 | 100-168 | 2.5-3 | 318-446 | 34-95 | 1.8-3 | 33-60 | (Ibañez et al., 2018) |
| 20 | 140 | 4.4-16.7 | 359-1153 | 53-125 | 3 | 8-32 | (J. Wei et al., 2020) |
| 9 | 108-115 | 2.1-8 | 252-304 | 59-131 | 3-3.2 | 13-55 | (S. Chen et al., 2018) |
| 40 | 89-169 | 2.1-12.1 | 336-460 | 40-79 | 2.5-3 | 14-72 | (Y. Cai et al., 2020) |
| 36 | 153-477 | 1.5-11.4 | 290-345 | 76 | 2 | 42-102 | (Y. Wang et al., 2017) |
| 12 | 297-302 | 4.5-11.9 | 348-472 | 27-79 | 2 | 25-67 | (KATO, 1995) |
| 36 | 129-133 | 3-5 | 306 | 46-67 | 3 | 27-43 | (Y. Lu et al., 2015) |
| 26 | 60-250 | 1.9-2 | 282-404 | 76-80 | 3 | 30-134 | (Lin Hai Han et al., 2005) |
| 509 | 60-1020 | 0.5-16.7 | 186-1153 | 15-178 | 1-4 | 8-221 | **Total** |

\* n defines the number of samples

**Table ‎3.2.** Summary of the test data of rectangular CFST columns.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n\* | B (mm) | H (mm) | B/H | t (mm) | (MPa) | (MPa) | L/B | D/t | Source |
| 7 | 100 | 100 | 1 | 2.2-4.3 | 194-339 | 20-32 | 3 | 19.8-32 | (Tomii & Sakino, 1979) |
| 4 | 150-200 | 150 | 1-1.3 | 0.7-1.4 | 245 | 23-34 | 3.2 | 22.6-33.7 | (C. Y. Lin, 1988) |
| 13 | 150 | 100 | 1.5 | 5 | 363 | 41 | 2.5 | 40.5 | (Shakir-Khalil, H. and Mouli, 1990) |
| 17 | 120-250 | 120-250 | 1 | 5-8 | 300-439 | 31-103 | 2-4.2 | 31-103 | (Grauers, 1993) |
| 4 | 305 | 305 | 1 | 5.8-8.9 | 269-660 | 110 | 3.9 | 110 | (Varma, 2000) |
| 7 | 100-301 | 100-301 | 1 | 2.2-6.1 | 300-395 | 27-64 | 3 | 26.5-63.7 | (Yamamoto et al., 2000) |
| 20 | 120-200 | 120-200 | 1 | 3.8-5.9 | 321-330 | 12-46 | 3 | 11.8-46.4 | (Han, L.-H., Zhao, X.-L., and Tao, 2001) |
| 30 | 101-173 | 101-142 | 1-1.3 | 2-5.1 | 255-347 | 47-67 | 3-3.9 | 46.6-67.1 | (Z. L. Ye, 2001) |
| 18 | 90-160 | 70-135 | 1-1.3 | 2.9-7.6 | 194-228 | 51 | 3-4 | 50.8 | (L. H. Han, 2002) |
| 6 | 100-183 | 98-181 | 1 | 4.2 | 550 | 62-73 | 3-3.1 | 61.7-72.6 | (D. Liu et al., 2003) |
| 38 | 119-323 | 119-323 | 1 | 4.4-9.5 | 262-835 | 25-91 | 3 | 25.4-91.1 | (Sakino et al., 2004) |
| 6 | 125 | 125 | 1 | 3.2-6 | 285-299 | 36-51 | 2.4 | 36.1-51.1 | (Shang, 2004) |
| 17 | 101-143 | 101-143 | 1 | 2-5.1 | 255-347 | 49-67 | 2.9-3 | 48.9-67.1 | (Zhang, S., Guo, L., Ye, Z., and Wang, 2004) |
| 10 | 106-160 | 106-140 | 1-1.3 | 4 | 495 | 60-89 | 3-3.8 | 60-89 | (D. Liu, 2005) |
| 2 | 129-250 | 128-249 | 1 | 2.5 | 234 | 51-53 | 3 | 51.2-53.1 | (Zhong Tao et al., 2005) |
| 3 | 120-180 | 120-180 | 1 | 1.5 | 223 | 48-49 | 3.1 | 48.1-49.5 | (Zhang, Y. C., Wang Q. P., Mao, X. Y., and Cao, 2005) |
| 6 | 80-149 | 80-149 | 1 | 1.5-3.6 | 280-284 | 34-45 | 3 | 34.2-44.5 | (Guo, 2006) |
| 6 | 190-250 | 190-250 | 1 | 2.5 | 270-342 | 50-58 | 3 | 49.8-58.1 | (Zhong Tao et al., 2008) |
| 3 | 160-280 | 160-280 | 1 | 2.5 | 202-221 | 33-39 | 3 | 33.4-39.3 | (Huang, H., Zhang, A. G., Li, Y., and Chen, 2011) |
| 4 | 410-500 | 410-500 | 1 | 10-16 | 358-389 | 43 | 3 | 42.5 | (C. C. Chen et al., 2012) |
| 3 | 250-251 | 250-251 | 1 | 3.7-3.8 | 324 | 33 | 3 | 33.2 | (F. X. Ding et al., 2014) |
| 6 | 150 | 150 | 1 | 4-6 | 416-437 | 88 | 3 | 87.9 | (Y. Liu, 2014) |
| 4 | 200-300 | 200-300 | 1 | 3-8 | 414-464 | 47 | 3 | 47.3 | (Liu, Y. J., Cheng, G., Zhang, N., and Zhang, 2014) |
| 2 | 200 | 200 | 1 | 2-3.5 | 301-315 | 50 | 3 | 49.9 | (Y. Yang et al., 2014) |
| 8 | 110-180 | 110-180 | 1 | 5 | 701 | 21-55 | 3-3.2 | 21-54.5 | (Aslani et al., 2015) |
| 3 | 150-203 | 102-150 | 1-2 | 8.3 | 488 | 36-47 | 0.6-3 | 35.8-47 | (Du et al., 2016) |
| 2 | 300 | 300 | 1 | 3.7-3.8 | 311 | 32-49 | 3 | 32.2-49 | (F. xing Ding et al., 2017) |
| 7 | 74-150 | 74-150 | 1 | 4.9 | 762 | 100 | 3.4-3.8 | 100 | (M. Khan et al., 2017) |
| 9 | 150 | 150 | 1 | 8-12.5 | 446-779 | 141-158 | 3 | 141.1-157.5 | (Xiong et al., 2017) |
| 6 | 197-201 | 197-201 | 1 | 6.1-10.3 | 382-438 | 19-21 | 3 | 19.1-20.9 | (A. Zhu et al., 2017) |
| 9 | 200-402 | 200-203 | 1-2 | 3.7-3.8 | 311 | 29-49 | 3-4 | 28.8-49 | (F. xing Ding et al., 2018) |
| 4 | 300-500 | 300-500 | 1 | 6-10 | 302-334 | 28 | 3 | 27.9 | (Wu et al., 2018) |
| 3 | 300 | 300 | 1 | 2-6 | 177-356 | 53 | 3 | 53.3 | (Zhou et al., 2019) |
| 1 | 200 | 200 | 1 | 5.6 | 397 | 112 | 3 | 112 | (Hu et al., 2020) |
| 2 | 130 | 130 | 1 | 5 | 1031 | 76-125 | 3.8 | 75.6-125.4 | (Huang et al., 2020) |
| 22 | 60-250 | 60-250 | 1 | 1.9-2 | 282-404 | 43-72 | 2 | 42.9-71.5 | (Lin Hai Han et al., 2005) |
| 4 | 110-160 | 110-160 | 1 | 5 | 750 | 28-30 | 3 | 28-30 | (Uy, 2001) |
| 2 | 120-170 | 120-170 | 1 | 5 | 761 | 20 | 3.4-3.6 | 20 | (Mursi & Uy, 2004) |
| 19 | 80-162 | 51-162 | 1-2 | 3.9-5 | 629-1022 | 36-115 | 2.9-3 | 35.5-114.9 | (Y. Cai et al., 2021) |
| 337 | 60-500 | 51-500 | 1-2 | 0.7-16 | 177-1031 | 12-158 | 0.6-4.2 | 11.8-157.5 | Total |

\* n defines the number of samples

**Table ‎3.3.** Summary of concrete-filled double-skin steel tubular stub column test data.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n\* | D (mm) | t (mm) | (mm) | (mm) | D/t |  | L/D | (MPa) | (MPa) | (MPa) | Source |
| 26 | 75-114 | 0.6-1.8 | 61-89 | 0.6-1.6 | 43-169 | 51-146 | 2-3.1 | 255-524 | 216-512 | 59 | (S. Wei et al., 1994) |
| 12 | 114-300 | 3 | 48-165 | 3 | 38-100 | 16-55 | 3 | 276-295 | 295-396 | 47 | (Zhong Tao et al., 2004b) |
| 14 | 114-165 | 1.7-6 | 48-102 | 2.8-3.3 | 19-96 | 17-33 | 2.4-3.5 | 395-454 | 394-425 | 63 | (Xiao Ling Zhao et al., 2010) |
| 5 | 160 | 1-2.1 | 75-112 | 1-2.1 | 76-160 | 36-75 | 2.5 | 220-300 | 220-300 | 24 | (Chen, J. Y., & Hai, 2010) |
| 4 | 240 | 3-4 | 80-120 | 3-4 | 60-80 | 20-40 | 3 | 280 | 280 | 29 | (Fan et al., 2008) |
| 9 | 157-159 | 0.9-2.1 | 38-115 | 0.9-2.1 | 73-177 | 19-127 | 2.8-2.9 | 221-308 | 221-308 | 19 | (Uenaka et al., 2010) |
| 2 | 350 | 3.8 | 231 | 2.9 | 92 | 79 | 3 | 439 | 397 | 44 | (W. Li et al., 2012) |
| 5 | 139 | 2 | 75 | 3 | 70 | 25 | 0.8-4 | 250 | 250 | 47 | (Hastemoglu, 2017) |
| 6 | 114 | 2 | 48-89 | 1.6 | 57 | 30-56 | 3 | 279 | 235 | 40 | (Wen XF., 2017) |
| 19 | 102-203 | 1.6-3.2 | 50-114 | 1.5-3.2 | 37-102 | 17-60 | 2-3.1 | 226-353 | 226-399 | 40 | (Y. L. Li et al., 2018) |
| 23 | 140-166 | 2.9 | 22-89 | 3.9-10.8 | 48-57 | 5-23 | 2.5 | 276-300 | 433-1029 | 41-116 | (F. Wang et al., 2019) |
| 4 | 356 | 5.5 | 168-219 | 3.3 | 65 | 51-66 | 3 | 618 | 356-357 | 39 | (W. Li & Cai, 2019) |
| 8 | 114 | 2.7-5.9 | 60 | 2.5-5.8 | 20-42 | 10-24 | 3 | 285-455 | 310-396 | 39-64 | (Ekmekyapar & Ghanim Hasan, 2019) |
| 8 | 114 | 2.7-6.1 | 60 | 2.5-5.8 | 19-42 | 10-24 | 3 | 355-535 | 310-396 | 41-68 | (Ekmekyapar et al., 2019) |
| 24 | 188-191 | 4.2-6.8 | 34-102 | 3.1-4.1 | 28-45 | 11-25 | 2.9-3 | 327-464 | 342-348 | 29-51 | (Yan & Zhao, 2020) |
| 24 | 494-496 | 165 | 3.7-6 | 43-76 | 2.8-3.2 | 27-45 | 13-27 | 3 | 347-429 | 386-410 | (Yan et al., 2021) |
| 2 | 300 | 2-4 | 180 | 2 | 75-150 | 90 | 3.7 | 250 | 250 | 28 | (M. L. Lin & Tsai, 2001) |
| 195 | 75-356 | 0.6-6.8 | 22-231 | 0.6-10.8 | 19-177 | 5-146 | 0.8-4 | 220-618 | 216-1029 | 19-141 | Total |

\* n defines the number of samples

**Table ‎3.4.** Comparison results of FE predictions with measured test capacity.