# RESULTS

*F:* *Feasible Solution*
*N/A:* *No Solution Found*

| Test | Input sizes | | Exact methods | | | | | | Heuristics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CP 1 | | CP 2 | | MIP | | | | | | |
| | n_packs | n_bins | f | t(s) | f | t(s) | f | t(s) | f_min | f_max | f_avg | std_dev | t_avg(s) |
| 0007.txt | 7 | 3 | 250 | 0.027932056 | 250 | 0.029741828 | 250 | 3.176666667 | 300 | 300 | 300 | 0 | 0.000029500 |
| 0010.txt | 10 | 10 | 51 | 0.049313393 | 51 | 0.082288480 | 51 | 2.642000000 | 51 | 51 | 51 | 0 | 0.000037000 |
| 0011.txt | 11 | 11 | 79 | 0.053943779 | 79 | 0.194204638 | 79 | 14.00300000 | 79 | 79 | 79 | 0 | 0.000035500 |
| 0012.txt | 12 | 12 | 54 | 0.057868931 | 54 | 0.088900393 | 54 | 7.898000000 | 54 | 54 | 54 | 0 | 0.000040500 |
| 0013.txt | 13 | 13 | 103 | 0.109191075 | 103 | 0.248680102 | F | F | 145 | 145 | 145 | 0 | 0.000039000 |
| 0014.txt | 14 | 14 | 50 | 0.218952388 | 50 | 0.156991295 | 50 | 27.73466667 | 55 | 55 | 55 | 0 | 0.000051000 |
| 0015.txt | 15 | 15 | 106 | 0.513134012 | 106 | 0.859766784 | F | F | 106 | 106 | 106 | 0 | 0.000057500 |
| 0016.txt | 16 | 16 | 113 | 0.905138111 | 113 | 0.434518921 | F | F | 130 | 130 | 130 | 0 | 0.000049000 |
| 0017.txt | 17 | 17 | 105 | 117.0229775 | 105 | 48.88790709 | F | F | 105 | 105 | 105 | 0 | 0.000052500 |
| 0018.txt | 18 | 18 | F | F | F | F | F | F | 121 | 121 | 121 | 0 | 0.000059000 |
| 0019.txt | 19 | 19 | 106 | 5.214479066 | 106 | 4.515408114 | F | F | 129 | 129 | 129 | 0 | 0.000058500 |
| 0020.txt | 20 | 20 | 171 | 2.519827466 | 171 | 3.259184459 | F | F | 188 | 188 | 188 | 0 | 0.000053500 |
| 0021.txt | 21 | 21 | 108 | 8.500796449 | 108 | 13.22533175 | F | F | 120 | 120 | 120 | 0 | 0.000060000 |
| 0022.txt | 22 | 22 | F | F | F | F | F | F | 171 | 171 | 171 | 0 | 0.000060500 |
| 0023.txt | 23 | 23 | F | F | F | F | F | F | 147 | 147 | 147 | 0 | 0.000075500 |
| 0024.txt | 24 | 24 | F | F | F | F | F | F | 181 | 181 | 181 | 0 | 0.000084500 |
| 0025.txt | 25 | 25 | F | F | F | F | F | F | 237 | 237 | 237 | 0 | 0.000071500 |
| 0026.txt | 26 | 26 | F | F | F | F | F | F | 161 | 161 | 161 | 0 | 0.000070500 |
| 0027.txt | 27 | 27 | F | F | F | F | N/A | N/A | 180 | 180 | 180 | 0 | 0.000069000 |
| 0028.txt | 28 | 28 | F | F | F | F | F | F | 158 | 158 | 158 | 0 | 0.000079000 |
| 0029.txt | 29 | 29 | F | F | F | F | F | F | 186 | 186 | 186 | 0 | 0.000077000 |
| 0030.txt | 30 | 30 | F | F | F | F | F | F | 182 | 182 | 182 | 0 | 0.000080000 |
| 0031.txt | 31 | 31 | F | F | F | F | F | F | 215 | 215 | 215 | 0 | 0.000090000 |
| 0032.txt | 32 | 32 | F | F | F | F | F | F | 187 | 187 | 187 | 0 | 0.000096500 |
| 0033.txt | 33 | 33 | F | F | F | F | F | F | 178 | 178 | 178 | 0 | 0.000101500 |
| 0034.txt | 34 | 34 | F | F | F | F | F | F | 182 | 182 | 182 | 0 | 0.000091500 |
| 0035.txt | 35 | 35 | F | F | F | F | F | F | 237 | 237 | 237 | 0 | 0.000098000 |
| 0036.txt | 36 | 36 | F | F | F | F | F | F | 345 | 345 | 345 | 0 | 0.000098500 |
| 0037.txt | 37 | 37 | F | F | F | F | F | F | 163 | 163 | 163 | 0 | 0.000095000 |
| 0038.txt | 38 | 38 | F | F | F | F | F | F | 260 | 260 | 260 | 0 | 0.000102000 |
| 0039.txt | 39 | 39 | F | F | F | F | F | F | 229 | 229 | 229 | 0 | 0.000116500 |
| 0040.txt | 40 | 40 | F | F | F | F | F | F | 236 | 236 | 236 | 0 | 0.000121500 |
| 0041.txt | 41 | 41 | F | F | F | F | F | F | 251 | 251 | 251 | 0 | 0.000117500 |
| 0042.txt | 42 | 42 | F | F | F | F | F | F | 412 | 412 | 412 | 0 | 0.000109000 |
| 0043.txt | 43 | 43 | F | F | F | F | F | F | 243 | 243 | 243 | 0 | 0.000109000 |
| 0044.txt | 44 | 44 | F | F | F | F | F | F | 356 | 356 | 356 | 0 | 0.000149500 |
| 0045.txt | 45 | 45 | F | F | F | F | N/A | N/A | 239 | 239 | 239 | 0 | 0.000117000 |
| 0046.txt | 46 | 46 | F | F | F | F | N/A | N/A | 301 | 301 | 301 | 0 | 0.000118000 |
| 0047.txt | 47 | 47 | F | F | F | F | F | F | 284 | 284 | 284 | 0 | 0.000160000 |
| 0048.txt | 48 | 48 | F | F | F | F | N/A | N/A | 287 | 287 | 287 | 0 | 0.000124500 |
| 0049.txt | 49 | 49 | F | F | F | F | N/A | N/A | 275 | 275 | 275 | 0 | 0.000134500 |
| 0050.txt | 50 | 50 | F | F | F | F | N/A | N/A | 314 | 314 | 314 | 0 | 0.000125000 |
| 0051.txt | 51 | 51 | F | F | F | F | N/A | N/A | 291 | 291 | 291 | 0 | 0.000162000 |
| 0052.txt | 52 | 52 | F | F | F | F | N/A | N/A | 358 | 358 | 358 | 0 | 0.000135500 |
| 0053.txt | 53 | 53 | F | F | F | F | N/A | N/A | 404 | 404 | 404 | 0 | 0.000130500 |
| 0054.txt | 54 | 54 | F | F | F | F | N/A | N/A | 278 | 278 | 278 | 0 | 0.000134000 |
| 0090.txt | 90 | 90 | F | F | F | F | N/A | N/A | 591 | 591 | 591 | 0 | 0.000233000 |
| 0120.txt | 120 | 120 | F | F | F | F | N/A | N/A | 701 | 701 | 701 | 0 | 0.000335500 |
| 0150.txt | 150 | 150 | F | F | F | F | N/A | N/A | 770 | 770 | 770 | 0 | 0.000483500 |
| 0180.txt | 180 | 180 | F | F | F | F | N/A | N/A | 965 | 965 | 965 | 0 | 0.000588500 |
| 0210.txt | 210 | 210 | F | F | F | F | N/A | N/A | 1098 | 1098 | 1098 | 0 | 0.000721500 |
| 0240.txt | 240 | 240 | F | F | F | F | N/A | N/A | 1161 | 1161 | 1161 | 0 | 0.000794500 |
| 0270.txt | 270 | 270 | N/A | N/A | N/A | N/A | N/A | N/A | 1243 | 1243 | 1243 | 0 | 0.001095500 |
| 0300.txt | 300 | 300 | N/A | N/A | N/A | N/A | N/A | N/A | 1817 | 1817 | 1817 | 0 | 0.001208500 |
| 0330.txt | 330 | 330 | N/A | N/A | N/A | N/A | N/A | N/A | 1942 | 1942 | 1942 | 0 | 0.001404500 |
| 0350.txt | 360 | 360 | N/A | N/A | N/A | N/A | N/A | N/A | 2052 | 2052 | 2052 | 0 | 0.001529000 |
| 0550.txt | 550 | 550 | N/A | N/A | N/A | N/A | N/A | N/A | 2841 | 2841 | 2841 | 0 | 0.003081500 |
| 0600.txt | 600 | 600 | N/A | N/A | N/A | N/A | N/A | N/A | 3633 | 3633 | 3633 | 0 | 0.004040500 |
| 0650.txt | 650 | 650 | N/A | N/A | N/A | N/A | N/A | N/A | 3775 | 3775 | 3775 | 0 | 0.004719500 |
| 0700.txt | 700 | 700 | N/A | N/A | N/A | N/A | N/A | N/A | 3835 | 3835 | 3835 | 0 | 0.005014500 |
| 0750.txt | 750 | 750 | N/A | N/A | N/A | N/A | N/A | N/A | 4017 | 4017 | 4017 | 0 | 0.005300000 |
| 0800.txt | 800 | 800 | N/A | N/A | N/A | N/A | N/A | N/A | 4489 | 4489 | 4489 | 0 | 0.006496500 |

| Test | Input sizes | | Exact methods | | | | | | Heuristics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CP 1 | | CP 2 | | MIP | | | | | | |
| | n_packs | n_bins | f | t(s) | f | t(s) | f | t(s) | f_min | f_max | f_avg | std_dev | t_avg(s) |
| 0850.txt | 850 | 850 | N/A | N/A | N/A | N/A | N/A | N/A | 4503 | 4503 | 4503 | 0 | 0.007256500 |
| 0900.txt | 900 | 900 | N/A | N/A | N/A | N/A | N/A | N/A | 4625 | 4625 | 4625 | 0 | 0.007605000 |
| 0950.txt | 950 | 950 | N/A | N/A | N/A | N/A | N/A | N/A | 5308 | 5308 | 5308 | 0 | 0.008947000 |
| 10000.txt | 10000 | 10000 | N/A | N/A | N/A | N/A | N/A | N/A | 53952 | 53952 | 53952 | 0 | 0.774925500 |
| 1000.txt | 1000 | 1000 | N/A | N/A | N/A | N/A | N/A | N/A | 5579 | 5579 | 5579 | 0 | 0.010288000 |
| 2000.txt | 2000 | 2000 | N/A | N/A | N/A | N/A | N/A | N/A | 11217 | 11217 | 11217 | 0 | 0.032937001 |
| 3000.txt | 3000 | 3000 | N/A | N/A | N/A | N/A | N/A | N/A | 16019 | 16019 | 16019 | 0 | 0.057311000 |
| 4000.txt | 4000 | 4000 | N/A | N/A | N/A | N/A | N/A | N/A | 21701 | 21701 | 21701 | 0 | 0.101622500 |
| 5000.txt | 5000 | 5000 | N/A | N/A | N/A | N/A | N/A | N/A | 27568 | 27568 | 27568 | 0 | 0.127237998 |
| 6000.txt | 6000 | 6000 | N/A | N/A | N/A | N/A | N/A | N/A | 32746 | 32746 | 32746 | 0 | 0.178141996 |
| 7000.txt | 7000 | 7000 | N/A | N/A | N/A | N/A | N/A | N/A | 38368 | 38368 | 38368 | 0 | 0.224725999 |
| 8000.txt | 8000 | 8000 | N/A | N/A | N/A | N/A | N/A | N/A | 43364 | 43364 | 43364 | 0 | 0.288765997 |
| 9000.txt | 9000 | 9000 | N/A | N/A | N/A | N/A | N/A | N/A | 49632 | 49632 | 49632 | 0 | 0.362545997 |