

| Dataset       | 10% CS          |                 |                |                 |              |              | KMEANS   | GT       |
|---------------|-----------------|-----------------|----------------|-----------------|--------------|--------------|----------|----------|
|               | PCCC            | PCCC-R          | COPKM          | CSC             | DILS         | LCC          |          |          |
| Appendicitis  | <b>544.2</b>    | <b>544.2</b>    | –              | 726.0           | 553.7        | 621.5        | 451.8    | 612.9    |
| Breast Cancer | <b>12,185.0</b> | <b>12,185.0</b> | –              | 16,686.3        | 12,214.6     | 13,499.0     | 11,595.7 | 12,214.6 |
| Bupa          | 2,041.6         | 2,041.6         | –              | <b>1,850.9</b>  | 2,048.0      | 2,049.1      | 1,496.1  | 2,047.3  |
| Circles       | 598.8           | 598.8           | –              | 599.8           | 599.8        | <b>590.0</b> | 410.4    | 600.0    |
| Ecoli         | <b>962.1</b>    | <b>962.1</b>    | 1,045.1        | 1,795.6         | 2,000.2      | 1,225.3      | 703.6    | 1,335.3  |
| Glass         | 1,084.3         | <b>1,071.5</b>  | 1,187.0        | 1,618.8         | 1,777.1      | 1,130.6      | 811.2    | 1,429.3  |
| Haberman      | 889.4           | 889.4           | 889.4          | <b>870.2</b>    | 893.2        | 910.4        | 701.4    | 891.4    |
| Hayesroth     | 520.6           | <b>515.9</b>    | –              | 614.0           | 563.0        | 521.0        | 425.9    | 553.5    |
| Heart         | <b>3,085.1</b>  | <b>3,085.1</b>  | –              | 3,432.4         | 3,086.2      | 3,440.5      | 2,941.9  | 3,120.5  |
| Ionosphere    | <b>10,944.9</b> | <b>10,944.9</b> | –              | 11,332.8        | 11,021.0     | 11,131.9     | 9,086.0  | 10,971.5 |
| Iris          | <b>146.2</b>    | <b>146.2</b>    | 156.1          | 437.0           | 147.4        | <b>146.2</b> | 141.2    | 167.9    |
| Led7Digit     | 1,383.8         | <b>1,364.3</b>  | 1,450.7        | 3,324.8         | 2,830.5      | 1,423.1      | 1,103.6  | 1,511.4  |
| Monk2         | 2,382.7         | 2,382.7         | 2,382.7        | <b>2,382.6</b>  | 2,384.1      | 2,488.1      | 2,306.5  | 2,384.3  |
| Moons         | 322.1           | 322.1           | –              | 322.9           | 322.1        | <b>313.2</b> | 249.7    | 322.9    |
| Movement      | 11,688.3        | <b>11,542.3</b> | 12,515.9       | 30,041.1        | 22,619.6     | 12,121.3     | 10,433.8 | 19,779.5 |
| Libras        |                 |                 |                |                 |              |              |          |          |
| Newthyroid    | <b>536.0</b>    | <b>536.0</b>    | <b>536.0</b>   | 969.2           | 1,025.5      | 589.2        | 462.3    | 550.9    |
| Saheart       | 3,924.3         | 3,924.3         | 3,924.3        | <b>3,905.9</b>  | 3,924.3      | 4,055.0      | 3,235.8  | 3,927.7  |
| Sonar         | <b>11,873.8</b> | <b>11,873.8</b> | –              | 12,166.3        | 11,923.6     | 12,232.8     | 10,649.6 | 11,962.9 |
| Soybean       | <b>367.1</b>    | <b>367.1</b>    | <b>367.1</b>   | 906.4           | 666.1        | 428.4        | 367.1    | 367.1    |
| Spectfheart   | 11,210.5        | 11,210.5        | –              | <b>11,042.8</b> | 11,281.3     | 11,189.0     | 8,983.9  | 11,268.3 |
| Spiral        | <b>558.2</b>    | <b>558.2</b>    | –              | 584.3           | <b>558.2</b> | 567.0        | 379.7    | 564.5    |
| Tae           | <b>594.1</b>    | <b>594.1</b>    | –              | 729.0           | 637.8        | 600.3        | 480.1    | 713.8    |
| Vehicle       | <b>13,250.1</b> | <b>13,250.1</b> | –              | 14,038.4        | 13,616.6     | –            | 5,980.7  | 13,334.2 |
| Wine          | <b>1,285.1</b>  | <b>1,285.1</b>  | <b>1,285.1</b> | 2,020.2         | 1,743.2      | 1,287.3      | 1,279.7  | 1,300.0  |
| Zoo           | <b>553.1</b>    | <b>553.1</b>    | 579.9          | 1,067.5         | 1,152.1      | 574.4        | 527.2    | 579.6    |
| Mean          | 3,717.3         | <b>3,709.9</b>  | –              | 4,938.6         | 4,383.6      | –            | 3,008.2  | 4,100.5  |

Table W14: Minimum Inertia values of the PCCC and the PCCC-R algorithms and the four state-of-the-art algorithms (COPKM, CSC, DILS, LCC) for the constraint sets of size 10% CS. Lower values indicate more coherent clusters. The lowest values are stated in bold. The column KMEANS reports the minimum inertia value obtained with the k-means algorithm. The hyphen indicates that the respective algorithm returned no solution within the time limit of 1,800 seconds.