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| **IGD** | **UF1 (bi-objective)** | | | | **UF2 (bi-objective)** | | | | **UF3 (bi-objective)** | | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** |
| Average | 0.0014 | 0.1024 | 0.1370 | 0.1871 | 0.0014 | 0.0576 | 0.0604 | 0.1223 | 0.0015 | 0.2628 | 0.3139 | 0.2886 |
| Median | 0.0014 | 0.1026 | 0.1317 | 0.1828 | 0.0013 | 0.0580 | 0.0483 | 0.1201 | 0.0015 | 0.2424 | 0.3080 | 0.2892 |
| STD. Dev. | 0.0001 | 0.0062 | 0.0440 | 0.0507 | 0.0002 | 0.0048 | 0.0276 | 0.0107 | 0.0002 | 0.0727 | 0.0447 | 0.0159 |
| Worst | 0.0016 | 0.1093 | 0.2278 | 0.2464 | 0.0018 | 0.0657 | 0.1305 | 0.1436 | 0.0019 | 0.4005 | 0.3777 | 0.3129 |
| Best | 0.0011 | 0.0897 | 0.0899 | 0.1265 | 0.0010 | 0.0479 | 0.0369 | 0.1048 | 0.0011 | 0.1711 | 0.2564 | 0.2634 |
| **IGD** | **UF4 (bi-objective)** | | | | **UF5 (bi-objective)** | | | | **UF6 (bi-objective)** | | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** |
| Average | 0.0014 | 0.0902 | 0.1360 | 0.0681 | 0.1206 | 0.6659 | 2.2023 | 1.2914 | 0.0738 | 0.1903 | 0.6475 | 0.6881 |
| Median | 0.0014 | 0.0891 | 0.1343 | 0.0684 | 0.1206 | 0.6931 | 2.1257 | 1.3376 | 0.0738 | 0.1962 | 0.5507 | 0.6984 |
| STD. Dev. | 0.0001 | 0.0040 | 0.0073 | 0.0021 | 0.0000 | 0.0986 | 0.5530 | 0.1348 | 0.0000 | 0.0457 | 0.2661 | 0.0553 |
| Worst | 0.0016 | 0.0984 | 0.1518 | 0.0703 | 0.1206 | 0.7914 | 3.0383 | 1.4674 | 0.0739 | 0.2666 | 1.2428 | 0.7401 |
| Best | 0.0011 | 0.0855 | 0.1273 | 0.0646 | 0.1206 | 0.4495 | 1.4647 | 1.1230 | 0.0737 | 0.1163 | 0.3793 | 0.5523 |
| **IGD** | **UF7 (bi-objective)** | | | **UF8 (tri-objective)** | | | **UF9 (tri-objective)** | | | **UF10 (tri-objective)** | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** |
| Average | 0.0009 | 0.0690 | 0.3539 | 0.0111 | 0.2743 | 0.5367 | 0.0121 | 0.4441 | 0.4885 | 0.0111 | 0.9769 | 1.6371 |
| Median | 0.0008 | 0.0686 | 0.3873 | 0.0111 | 0.2655 | 0.5364 | 0.0120 | 0.4222 | 0.4145 | 0.0111 | 0.9190 | 1.5916 |
| STD. Dev. | 0.0001 | 0.0059 | 0.2044 | 0.0001 | 0.0447 | 0.1825 | 0.0003 | 0.1084 | 0.1444 | 0.0001 | 0.2189 | 0.2987 |
| Worst | 0.0011 | 0.0796 | 0.6151 | 0.0114 | 0.3794 | 0.7963 | 0.0127 | 0.6422 | 0.7221 | 0.0113 | 1.3142 | 2.1622 |
| Best | 0.0007 | 0.0610 | 0.0540 | 0.0110 | 0.2249 | 0.2453 | 0.0116 | 0.2849 | 0.3335 | 0.0110 | 0.6082 | 1.2200 |

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| **Rank** | **UF1 (bi-objective)** | | | | **UF2 (bi-objective)** | | | | **UF3 (bi-objective)** | | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** |
| Average | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 2.00 | 4.00 | 3.00 |
| Median | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 3.00 | 2.00 | 4.00 | 1.00 | 2.00 | 4.00 | 3.00 |
| STD. | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 4.00 | 3.00 | 2.00 |
| Worst | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 4.00 | 3.00 | 2.00 |
| Best | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 3.00 | 2.00 | 4.00 | 1.00 | 2.00 | 3.00 | 4.00 |
| Mean | 1.00 | 2.00 | 3.00 | 4.00 | 1.00 | 2.40 | 2.80 | 3.80 | 1.00 | 2.80 | 3.40 | 2.80 |
| ***Final*** | ***1.00*** | ***2.00*** | ***3.00*** | ***4.00*** | ***1.00*** | ***2.00*** | ***3.00*** | ***4.00*** | ***1.00*** | ***2.00*** | ***3.00*** | ***2.00*** |
| **Rank** | **UF4 (bi-objective)** | | | | **UF5 (bi-objective)** | | | | **UF6 (bi-objective)** | | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** | **MH5N1** | **MSSA** | **MOPSO** | **MOEA/D** |
| Average | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 3.00 | 4.00 |
| Median | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 3.00 | 4.00 |
| STD. | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 4.00 | 3.00 |
| Worst | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 4.00 | 3.00 |
| Best | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 3.00 | 4.00 |
| Mean | 1.00 | 3.00 | 4.00 | 2.00 | 1.00 | 2.00 | 4.00 | 3.00 | 1.00 | 2.00 | 3.40 | 3.60 |
| ***Final*** | ***1.00*** | ***3.00*** | ***4.00*** | ***2.00*** | ***1.00*** | ***2.00*** | ***4.00*** | ***3.00*** | ***1.00*** | ***2.00*** | ***3.00*** | ***4.00*** |
| **Rank** | **UF7 (bi-objective)** | | | **UF8 (tri-objective)** | | | **UF9 (tri-objective)** | | | **UF10 (tri-objective)** | | |
|  | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** | **MH5N1** | **MSSA** | **MOPSO** |
| Average | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 |
| Median | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 3.00 | 2.00 | 1.00 | 2.00 | 3.00 |
| STD. | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 |
| Worst | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 |
| Best | 1.00 | 3.00 | 2.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 | 1.00 | 2.00 | 3.00 |
| Mean | 1.00 | 2.20 | 2.80 | 1.00 | 2.00 | 3.00 | 1.00 | 2.20 | 2.80 | 1.00 | 2.00 | 3.00 |
| ***Final*** | ***1.00*** | ***2.00*** | ***3.00*** | ***1.00*** | ***2.00*** | ***3.00*** | ***1.00*** | ***2.00*** | ***3.00*** | ***1.00*** | ***2.00*** | ***3.00*** |