|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Problem size |  |  |  |  |  |  |
| Small | 0.111469 | -0.001273 | 0.000479 | 0.014809 | -0.005002 | 0.866968 |
| Medium | 0.223098 | -0.005044 | 0.016572 | 0.057675 | -0.002315 | 0.695297 |
| Large | 0.178264 | -0.015508 | 0.0935 | 0.034235 | -0.001162 | 0.677331 |
| All test problems | 0.194916 | -0.005531 | 0.062083 | 0.029695 | -0.001927 | 0.705848 |

|  |  |
| --- | --- |
| Problem size | Rank order |
| Small | NSGA-II – PESA-II – SPEA-II – MOEA/D – Hybrid |
| Medium | SPEA-II – PESA-II – NSGA-II – Hybrid – MOEA/D |
| Large | SPEA-II – NSGA-II – PESA-II – Hybrid – MOEA/D |
| All test problems | SPEA-II – NSGA-II – PESA-II – Hybrid – MOEA/D |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Problem size | NPS | MID | DM | SNS | RAS | QM | Best algorithm |
|  |  |  |  |  |  |
| Small | 0.30 | 0.20 | 0.30 | 0.30 | 0.20 | 0.20 | SPEA-II |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | NSGA-II |
| 0.30 | 0.40 | 0.30 | 0.30 | 0.40 | 0.30 | Hybrid |
| 0.25 | 0.40 | 0.25 | 0.25 | 0.40 | 0.40 | NSGA-II |
| 0.20 | 0.35 | 0.20 | 0.20 | 0.35 | 0.50 | SPEA-II |
| 0.20 | 0.50 | 0.20 | 0.20 | 0.50 | 0.50 | NSGA-II |
| Medium | 0.30 | 0.20 | 0.30 | 0.30 | 0.20 | 0.20 | NSGA-II |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | NSGA-II |
| 0.30 | 0.40 | 0.30 | 0.30 | 0.40 | 0.30 | NSGA-II |
| 0.25 | 0.40 | 0.25 | 0.25 | 0.40 | 0.40 | NSGA-II |
| 0.20 | 0.35 | 0.20 | 0.20 | 0.35 | 0.50 | NSGA-II |
| 0.20 | 0.50 | 0.20 | 0.20 | 0.50 | 0.50 | NSGA-II |
| Large | 0.30 | 0.20 | 0.30 | 0.30 | 0.20 | 0.20 | SPEA-II |
| 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | PESA-II |
| 0.30 | 0.40 | 0.30 | 0.30 | 0.40 | 0.30 | SPEA-II |
| 0.25 | 0.40 | 0.25 | 0.25 | 0.40 | 0.40 | PESA-II |
| 0.20 | 0.35 | 0.20 | 0.20 | 0.35 | 0.50 | SPEA-II |
| 0.20 | 0.50 | 0.20 | 0.20 | 0.50 | 0.50 | PESA-II |