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| Problem size | J | I | B | F | Time | | |
| NSGA-II | Hybrid | MOEA/D |
| Small | 8 | 2 | 1 | 1 | 6.4396 | 3.7457 |  |
|  | 3 | 2 | 1 | 6.3983 | 4.0428 |  |
| 10 | 3 | 1 | 1 | 6.7213 | 3.7969 |  |
|  | 3 | 2 | 1 | 6.8484 | 4.3560 |  |
|  | 4 | 2 | 2 | 6.6140 | 3.7854 |  |
| 12 | 3 | 1 | 1 | 6.7359 | 4.0392 |  |
|  | 3 | 2 | 1 | 6.3839 | 3.6887 |  |
|  | 4 | 2 | 2 | 6.4692 | 4.8324 |  |
| Medium | 15 | 4 | 2 | 1 | 6.6534 | 3.7787 |  |
|  | 6 | 3 | 2 | 7.0574 | 5.2955 |  |
| 20 | 4 | 2 | 1 | 7.1017 | 4.1407 |  |
|  | 6 | 3 | 2 | 6.9953 | 4.0546 |  |
| 25 | 4 | 2 | 1 | 8.1506 | 4.9758 |  |
|  | 6 | 3 | 2 | 8.0938 | 5.1809 |  |
| 30 | 4 | 2 | 1 | 8.8394 | 5.7713 |  |
|  | 6 | 3 | 2 | 9.5120 | 6.6504 |  |
| Large | 40 | 8 | 3 | 2 | 9.9198 | 6.4978 |  |
|  | 10 | 4 | 3 | 10.0053 | 6.1485 |  |
| 50 | 10 | 3 | 2 | 11.5119 | 8.0329 |  |
|  | 12 | 4 | 3 | 13.8102 | 10.2472 |  |
| 60 | 12 | 3 | 2 | 14.1081 | 10.3775 |  |
|  | 15 | 4 | 3 | 14.8974 | 11.8191 |  |
| 80 | 15 | 3 | 2 | 23.5373 | 19.5768 |  |
|  | 20 | 4 | 3 | 23.4585 | 20.1366 |  |

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| Problem size | J | I | B | F | NPS | | |  | MID | | |  | DM | | |  |
| NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D |
| Small | 8 | 2 | 1 | 1 | 2 | 3 |  |  | 1.20710 | 1.31550 |  |  | 42.6465 | 10.7703 |  |  |
|  | 3 | 2 | 1 | 6 | 9 |  |  | 1.17950 | 1.11510 |  |  | 20.3940 | 43.8891 |  |  |
| 10 | 3 | 1 | 1 | 5 | 12 |  |  | 0.88722 | 1.02520 |  |  | 27.3542 | 34.4032 |  |  |
|  | 3 | 2 | 1 | 3 | 7 |  |  | 1.22150 | 1.13110 |  |  | 18.9451 | 51.3152 |  |  |
|  | 4 | 2 | 2 | 8 | 8 |  |  | 1.10740 | 1.20970 |  |  | 39.4873 | 83.9914 |  |  |
| 12 | 3 | 1 | 1 | 13 | 15 |  |  | 0.89456 | 1.11350 |  |  | 95.5925 | 41.3555 |  |  |
|  | 3 | 2 | 1 | 24 | 20 |  |  | 0.95882 | 1.15130 |  |  | 67.1600 | 79.5679 |  |  |
|  | 4 | 2 | 2 | 2 | 4 |  |  | 1.20710 | 1.19110 |  |  | 15.3080 | 16.6700 |  |  |
| Medium | 15 | 4 | 2 | 1 | 5 | 12 |  |  | 1.21780 | 1.04300 |  |  | 30.2292 | 55.4802 |  |  |
|  | 6 | 3 | 2 | 13 | 10 |  |  | 0.79831 | 1.18320 |  |  | 55.5388 | 70.9086 |  |  |
| 20 | 4 | 2 | 1 | 34 | 18 |  |  | 0.75994 | 1.05330 |  |  | 221.3999 | 60.2313 |  |  |
|  | 6 | 3 | 2 | 35 | 27 |  |  | 0.85848 | 1.08110 |  |  | 62.9232 | 104.0932 |  |  |
| 25 | 4 | 2 | 1 | 20 | 15 |  |  | 0.89604 | 1.24330 |  |  | 193.1032 | 217.4616 |  |  |
|  | 6 | 3 | 2 | 29 | 23 |  |  | 0.95488 | 1.07040 |  |  | 313.9602 | 341.4862 |  |  |
| 30 | 4 | 2 | 1 | 28 | 17 |  |  | 0.95112 | 1.01800 |  |  | 118.2066 | 254.4034 |  |  |
|  | 6 | 3 | 2 | 9 | 14 |  |  | 0.77857 | 0.83705 |  |  | 82.2560 | 29.1405 |  |  |
| Large | 40 | 8 | 3 | 2 | 29 | 22 |  |  | 0.98687 | 0.94546 |  |  | 252.2011 | 555.8149 |  |  |
|  | 10 | 4 | 3 | 15 | 32 |  |  | 0.72445 | 0.96391 |  |  | 185.2255 | 117.6464 |  |  |
| 50 | 10 | 3 | 2 | 26 | 31 |  |  | 0.53111 | 1.26520 |  |  | 231.3724 | 702.7936 |  |  |
|  | 12 | 4 | 3 | 41 | 26 |  |  | 0.79443 | 0.94391 |  |  | 235.3222 | 400.1603 |  |  |
| 60 | 12 | 3 | 2 | 35 | 25 |  |  | 0.83815 | 1.05710 |  |  | 192.6229 | 222.1746 |  |  |
|  | 15 | 4 | 3 | 34 | 31 |  |  | 0.81653 | 0.94037 |  |  | 214.6931 | 254.5107 |  |  |
| 80 | 15 | 3 | 2 | 32 | 34 |  |  | 0.71412 | 0.94944 |  |  | 394.5263 | 218.1734 |  |  |
|  | 20 | 4 | 3 | 24 | 19 |  |  | 0.87323 | 1.2602 |  |  | 205.8851 | 408.3436 |  |  |

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| Problem size | J | I | B | F | SNS | | |  | RAS | | |  | QM | | |
| NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D |
| Small | 8 | 2 | 1 | 1 | 0.29289 | 0.17100 |  |  | 0.56637 | 0.10727 |  |  |  |  |  |
|  | 3 | 2 | 1 | 0.12356 | 0.23232 |  |  | 0.49501 | 0.79807 |  |  |  |  |  |
| 10 | 3 | 1 | 1 | 0.35343 | 0.21249 |  |  | 0.27704 | 0.36614 |  |  |  |  |  |
|  | 3 | 2 | 1 | 0.20859 | 0.10274 |  |  | 0.24505 | 0.43953 |  |  |  |  |  |
|  | 4 | 2 | 2 | 0.26967 | 0.13735 |  |  | 0.49601 | 0.92559 |  |  |  |  |  |
| 12 | 3 | 1 | 1 | 0.22202 | 0.13300 |  |  | 0.68729 | 0.41411 |  |  |  |  |  |
|  | 3 | 2 | 1 | 0.15245 | 0.12799 |  |  | 0.56075 | 0.74174 |  |  |  |  |  |
|  | 4 | 2 | 2 | 0.29289 | 0.17414 |  |  | 0.20697 | 0.12222 |  |  |  |  |  |
| Medium | 15 | 4 | 2 | 1 | 0.14247 | 0.14438 |  |  | 0.36883 | 0.26653 |  |  |  |  |  |
|  | 6 | 3 | 2 | 0.31702 | 0.25840 |  |  | 0.47497 | 0.78000 |  |  |  |  |  |
| 20 | 4 | 2 | 1 | 0.18988 | 0.24195 |  |  | 1.05580 | 0.33971 |  |  |  |  |  |
|  | 6 | 3 | 2 | 0.14899 | 0.13117 |  |  | 0.41743 | 0.49420 |  |  |  |  |  |
| 25 | 4 | 2 | 1 | 0.23996 | 0.10709 |  |  | 0.36538 | 0.48401 |  |  |  |  |  |
|  | 6 | 3 | 2 | 0.17610 | 0.12571 |  |  | 1.03690 | 0.99084 |  |  |  |  |  |
| 30 | 4 | 2 | 1 | 0.11092 | 0.24911 |  |  | 0.18442 | 0.30112 |  |  |  |  |  |
|  | 6 | 3 | 2 | 0.32840 | 0.21850 |  |  | 0.15896 | 0.07973 |  |  |  |  |  |
| Large | 40 | 8 | 3 | 2 | 0.26570 | 0.18736 |  |  | 0.63128 | 0.71162 |  |  |  |  |  |
|  | 10 | 4 | 3 | 0.38901 | 0.10819 |  |  | 0.24026 | 0.2396 |  |  |  |  |  |
| 50 | 10 | 3 | 2 | 0.35776 | 0.16013 |  |  | 0.20539 | 1.0234 |  |  |  |  |  |
|  | 12 | 4 | 3 | 0.17918 | 0.11544 |  |  | 0.30148 | 0.53638 |  |  |  |  |  |
| 60 | 12 | 3 | 2 | 0.18163 | 0.11213 |  |  | 0.21860 | 0.22047 |  |  |  |  |  |
|  | 15 | 4 | 3 | 0.20906 | 0.12496 |  |  | 0.28342 | 0.30531 |  |  |  |  |  |
| 80 | 15 | 3 | 2 | 0.20691 | 0.17419 |  |  | 0.23598 | 0.11951 |  |  |  |  |  |
|  | 20 | 4 | 3 | 0.22982 | 0.21936 |  |  | 0.14572 | 0.44726 |  |  |  |  |  |

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| Problem size | J | I | B | F | NPS | | |  | MID | | |  | DM | | |  | SNS | | |  | RAS | | |  | QM | | |  | Time | | |
| NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D | NSGA-II | Hybrid | MOEA/D |
| Small | 8 | 2 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 3 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | 3 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 3 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 4 | 2 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | 3 | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 3 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 4 | 2 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Medium | 15 | 4 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 6 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | 4 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 6 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | 4 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 6 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 | 4 | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 6 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Large | 40 | 8 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 10 | 4 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 | 10 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 12 | 4 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 60 | 12 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 15 | 4 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80 | 15 | 3 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 20 | 4 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |