

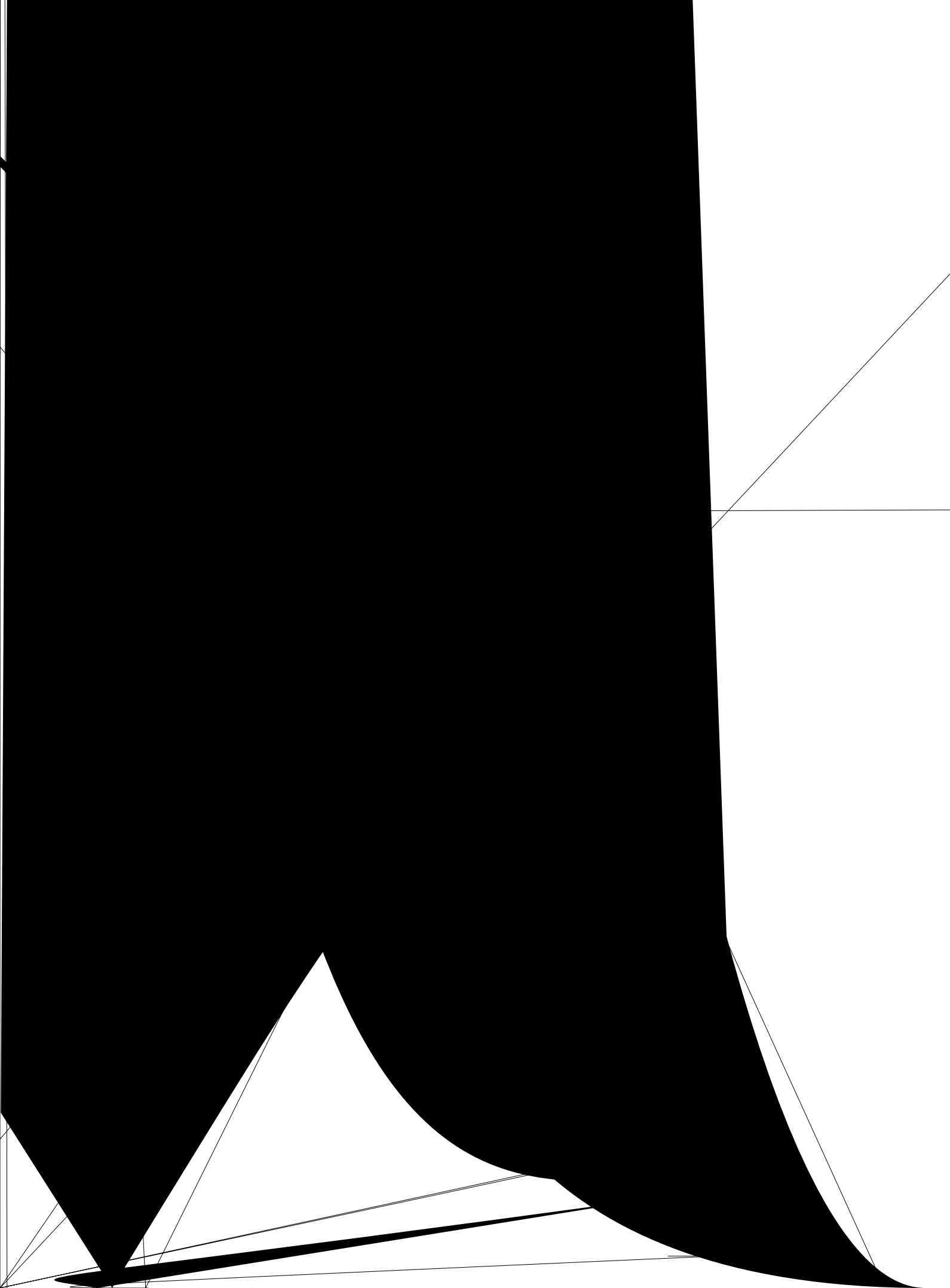
概述、性能范围、型号意义 .....

IS 80 — 65 160

└—— 叶轮切



结



## PERFORMANCE TABLE

| 型号<br>Model  | 流量<br>Flow             | 扬程<br>Head           | 功率<br>Power              | 效率<br>Efficiency     | 转速<br>Speed | 重量<br>Weight             | 噪音<br>Noise | 安装尺寸<br>Installation Size | 备注<br>Remarks |
|--------------|------------------------|----------------------|--------------------------|----------------------|-------------|--------------------------|-------------|---------------------------|---------------|
| IS50-32-125  | 22<br>20<br>18.5       | 10<br>9<br>8.5       | 1.1<br>1.0<br>0.9        | 75<br>72<br>70       | 2900        | 45                       | 116         | 2.0<br>2.0<br>2.5         |               |
| IS50-32-125A | 22                     | 10                   | 1.1                      | 75                   | 2900        | 45                       | 116         | 2.0                       |               |
| IS50-32-160  | 2.08<br>3.47<br>4.17   | 4.3<br>32<br>29.6    | 1.5<br>2.2<br>2.5        | 75<br>72<br>70       | 2900        | 56                       | 158         | 2.0<br>2.0<br>2.5         |               |
| IS50-32-160A | 2.08                   | 4.3                  | 1.5                      | 75                   | 2900        | 56                       | 148         | 2.0                       |               |
| IS50-32-160B | 2.08                   | 4.3                  | 1.5                      | 72                   | 2900        | 50                       | 137         | 2.0                       |               |
| IS50-32-200  | 7.5<br>12.5<br>15      | 2.1<br>50<br>48      | 2.2<br>3.7<br>4.5        | 75<br>72<br>70       | 2900        | 5.5<br>38<br>48<br>51    | 198         | 2.0<br>2.0<br>2.5         |               |
| IS50-32-200A | 7.5                    | 2.1                  | 2.2                      | 75                   | 2900        | 4                        | 186         | 2.0                       |               |
| IS50-32-200B | 7.5                    | 2.1                  | 2.2                      | 72                   | 2900        | 3                        | 173         | 2.0                       |               |
| IS50-32-250  | 7.5<br>12.5<br>15      | 2.1<br>50<br>48      | 2.2<br>3.7<br>4.5        | 75<br>72<br>70       | 2900        | 5.87<br>7.16<br>7.83     | 250         | 2.0<br>2.0<br>2.5         |               |
| IS50-32-250A | 7.5                    | 2.1                  | 2.2                      | 75                   | 2900        | 6.47                     | 234         | 2.0                       |               |
| IS50-32-250B | 7.5                    | 2.1                  | 2.2                      | 72                   | 2900        | 5.51                     | 217         | 2.0                       |               |
| IS65-50-125  | 17.8<br>20<br>18.5     | 8<br>7<br>6.5        | 2.2<br>2.5<br>2.2        | 75<br>72<br>70       | 2900        | 1.54<br>1.97<br>2.22     | 130         | 2.0<br>2.5<br>3.0         |               |
| IS65-50-160  | 22.4<br>15<br>25<br>30 | 6.2<br>4<br>5<br>6   | 2.8<br>1.8<br>3.0<br>3.7 | 75<br>72<br>70<br>65 | 2900        | 2.0<br>1.5<br>2.5<br>3.0 | 160         | 2.0<br>2.0<br>2.5<br>3.0  |               |
| IS65-50-200  | 23.4                   | 6.5                  | 3.0                      | 75                   | 2900        | 2.0                      | 160         | 2.0                       |               |
| IS65-50-200B | 23.4                   | 6.5                  | 3.0                      | 72                   | 2900        | 60                       | 143         | 2.0                       |               |
| IS65-50-250  | 15<br>25<br>30         | 4.17<br>6.94<br>8.33 | 1.5<br>2.5<br>3.0        | 75<br>72<br>70       | 2900        | 4.42<br>5.67<br>6.29     | 200         | 2.0<br>2.0<br>2.5         |               |
| IS65-50-250A | 15                     | 4.17                 | 1.5                      | 75                   | 2900        | 4.92                     | 188         | 2.0                       |               |
| IS65-50-250B | 15                     | 4.17                 | 1.5                      | 72                   | 2900        | 4.13                     | 175         | 2.0                       |               |
| IS65-50-300  | 22.4<br>15<br>25<br>30 | 6.2<br>4<br>5<br>6   | 2.8<br>1.8<br>3.0<br>3.7 | 75<br>72<br>70<br>65 | 2900        | 2.0<br>1.5<br>2.5<br>3.0 | 254         | 2.0<br>2.0<br>2.5<br>3.0  |               |
| IS65-50-300A | 22.4                   | 6.2                  | 2.8                      | 75                   | 2900        | 2.0                      | 254         | 2.0                       |               |
| IS65-50-300B | 22.4                   | 6.2                  | 2.8                      | 72                   | 2900        | 1.5                      | 254         | 2.0                       |               |

## IS型单级单吸离心泵

IS Series Single-stage End-suction Centrifugal Pump

性能参数表 PERFORMANCE TABLE

| 型号<br>Model   | 流量 Capacity         |       | 扬程<br>Head<br>(m) | 转速<br>Speed<br>(r/min) | 功率 Power (kW) |                     | 效率<br>Eff.<br>(%) | 叶轮名义直径<br>Impeller diameter<br>(mm) | 汽蚀余量<br>(NPSH)r<br>(m) |
|---------------|---------------------|-------|-------------------|------------------------|---------------|---------------------|-------------------|-------------------------------------|------------------------|
|               | (m <sup>3</sup> /h) | (L/s) |                   |                        | 轴功率<br>Shaft  | 电机功率<br>Motor power |                   |                                     |                        |
| IS65-40-250B  | 21.7                | 6     | 60                | 2900                   | 7.51          | 11                  | 47                | 220                                 | 2.0                    |
| IS65-40-315   | 15                  | 4.17  | 127               | 2900                   | 18.5          | 30                  | 28                | 315                                 | 2.5                    |
|               | 25                  | 6.94  | 125               |                        | 21.3          |                     | 40                |                                     | 2.5                    |
|               | 30                  | 8.33  | 123               |                        | 22.8          |                     | 44                |                                     | 3.0                    |
| IS65-40-315A  | 23.9                | 6.6   | 114               | 2900                   | 19.41         | 22                  | 38                | 301                                 | 2.5                    |
| IS65-40-315B  | 22.7                | 6.3   | 103               | 2900                   | 17.19         | 22                  | 37                | 286                                 | 2.5                    |
| IS65-40-315C  | 21.4                | 5.9   | 92                | 2900                   | 15.20         | 18.5                | 35                | 270                                 | 2.5                    |
| IS80-65-125   | 30                  | 8.33  | 22.5              | 2900                   | 2.87          | 5.5                 | 64                | 137                                 | 3.0                    |
|               | 50                  | 13.9  | 20                |                        | 3.63          |                     | 75                |                                     | 3.0                    |
|               | 60                  | 16.7  | 18                |                        | 3.98          |                     | 74                |                                     | 3.5                    |
| IS80-65-125A  | 44.7                | 12.4  | 16                | 2900                   | 2.66          | 3                   | 73                | 125                                 | 3.0                    |
| IS80-65-160   | 30                  | 8.33  | 36                | 2900                   | 4.82          | 7.5                 | 61                | 168                                 | 2.5                    |
|               | 50                  | 13.9  | 32                |                        | 5.97          |                     | 73                |                                     | 2.5                    |
|               | 60                  | 16.7  | 29                |                        | 6.59          |                     | 72                |                                     | 3.0                    |
| IS80-65-160A  | 46.8                | 13    | 28                | 2900                   | 5.10          | 5.5                 | 70                | 157                                 | 2.5                    |
| IS80-65-160B  | 43.3                | 12    | 24                | 2900                   | 4.15          | 5.5                 | 68                | 146                                 | 2.5                    |
| IS80-50-200   | 30                  | 8.33  | 55                | 2900                   | 7.87          | 15                  | 55                | 202                                 | 2.5                    |
|               | 50                  | 13.9  | 50                |                        | 9.87          |                     | 69                |                                     | 2.5                    |
|               | 60                  | 16.7  | 47                |                        | 10.8          |                     | 71                |                                     | 3.0                    |
| IS80-50-200A  | 46.8                | 13    | 44                | 2900                   | 8.37          | 11                  | 67                | 190                                 | 2.5                    |
| IS80-50-200B  | 43.6                | 12.1  | 38                | 2900                   | 6.83          | 11                  | 66                | 176                                 | 2.5                    |
| IS80-50-250   | 30                  | 8.33  | 84                | 2900                   | 13.2          | 22                  | 52                | 252                                 | 2.5                    |
|               | 50                  | 13.9  | 80                |                        | 17.3          |                     | 63                |                                     | 2.5                    |
|               | 60                  | 16.7  | 75                |                        | 19.2          |                     | 64                |                                     | 3.0                    |
| IS80-50-250A  | 46.8                | 13    | 70                | 2900                   | 14.87         | 18.5                | 60                | 238                                 | 2.5                    |
| IS80-50-250B  | 43.3                | 13    | 60                | 2900                   | 13.18         | 15                  | 58                | 218                                 | 2.5                    |
| IS80-50-315   | 30                  | 8.33  | 128               | 2900                   | 25.5          | 37                  | 41                | 315                                 | 2.5                    |
|               | 50                  | 13.9  | 125               |                        | 31.5          |                     | 54                |                                     | 2.5                    |
|               | 60                  | 16.7  | 123               |                        | 35.3          |                     | 57                |                                     | 3.0                    |
| IS80-50-315A  | 47.8                | 13.3  | 114               | 2900                   | 29.15         | 37                  | 51                | 301                                 | 2.5                    |
| IS80-50-315B  | 45.4                | 12.6  | 103               | 2900                   | 25.97         | 30                  | 49                | 286                                 | 2.5                    |
| IS80-50-315C  | 42.9                | 11.9  | 92                | 2900                   | 22.84         | 30                  | 47                | 270                                 | 2.5                    |
| IS100-80-125  | 60                  | 16.7  | 24                | 2900                   | 5.86          | 11                  | 67                | 140                                 | 4.0                    |
|               | 100                 | 27.8  | 20                |                        | 7.0           |                     | 78                |                                     | 4.5                    |
|               | 120                 | 33.3  | 16.5              |                        | 7.28          |                     | 74                |                                     | 5.0                    |
| IS100-80-125A | 89.4                | 24.8  | 16                | 2900                   | 5.19          | 7.5                 | 75                | 125                                 | 4.5                    |

性能参数表 PERFORMANCE TABLE

| 型 号<br>Model   | 流 量 Capacity |       | 扬程<br>Head<br>(m) | 转速<br>Speed<br>(r/min) |       |      | 效 率<br>Eff.<br>(%) |     |     |
|----------------|--------------|-------|-------------------|------------------------|-------|------|--------------------|-----|-----|
|                | (m³/h)       | (L/s) |                   |                        |       |      |                    |     |     |
| IS100-80-160   | 60           | 16.7  | 36                | 2900                   | 8.42  | 15   | 790                | 170 | 3.5 |
|                | 100          | 27.8  | 32                |                        | 11.2  |      | 78                 |     | 4.0 |
|                | 120          | 33.3  | 28                |                        | 12.2  |      | 75                 |     | 5.0 |
| IS100-80-160A  | 93.5         | 26    | 28                | 2900                   | 9.52  | 11   | 75                 | 159 | 4.0 |
| IS100-80-160B  | 86.6         | 24.1  | 24                | 2900                   | 7.77  | 11   | 73                 | 147 | 4.0 |
| IS100-65-200   | 60           | 16.7  | 54                | 2900                   | 13.6  | 22   | 65                 | 203 | 3.0 |
|                | 100          | 27.8  | 50                |                        | 17.9  |      | 76                 |     | 3.6 |
|                | 120          | 33.3  | 47                |                        | 19.9  |      | 77                 |     | 4.8 |
| IS100-65-200A  | 93.8         | 26.1  | 44                | 2900                   | 15.01 | 18.5 | 75                 | 190 | 3.6 |
| IS100-65-200B  | 87.2         | 24.2  | 38                | 2900                   | 12.52 | 15   | 72                 | 177 | 3.6 |
| IS100-65-250   | 60           | 16.7  | 87                | 2900                   | 23.4  | 37   | 61                 | 255 | 3.5 |
|                | 100          | 27.8  | 80                |                        | 30.3  |      | 72                 |     | 3.8 |
|                | 120          | 33.3  | 74.5              |                        | 33.3  |      | 73                 |     | 4.8 |
| IS100-65-250A  | 93.5         | 26    | 70                | 2900                   | 25.49 | 30   | 70                 | 239 | 3.8 |
| IS100-65-250B  | 86.6         | 24.1  | 60                | 2900                   | 20.85 | 30   | 68                 | 221 | 3.8 |
| IS100-65-315   | 60           | 16.7  | 133               | 2900                   | 39.6  | 75   | 55                 | 315 | 3.0 |
|                | 100          | 27.8  | 125               |                        | 51.6  |      | 66                 |     | 3.6 |
|                | 120          | 33.3  | 118               |                        | 57.5  |      | 67                 |     | 4.2 |
| IS100-65-315A  | 95.5         | 26.5  | 114               | 2900                   | 46.28 | 55   | 64                 | 301 | 3.6 |
| IS100-65-315B  | 90.8         | 25.2  | 103               | 2900                   | 41.04 | 45   | 62                 | 286 | 3.6 |
| IS100-65-315C  | 85.8         | 23.8  | 92                | 2900                   | 35.78 | 45   | 60                 | 271 | 3.6 |
| IS125-100-200  | 120          | 33.3  | 57.5              | 2900                   | 28.0  | 45   | 67                 | 216 | 4.5 |
|                | 200          | 55.5  | 50                |                        | 33.6  |      | 81                 |     | 4.5 |
|                | 240          | 66.7  | 44.5              |                        | 36.4  |      | 80                 |     | 5.0 |
| IS125-100-200A | 187          | 52    | 44                | 2900                   | 28.76 | 37   | 78                 | 203 | 4.5 |
| IS125-100-200B | 174.4        | 48.4  | 38                | 2900                   | 23.73 | 30   | 76                 | 188 | 4.5 |
| IS125-100-250  | 120          | 33.3  | 87                | 2900                   | 43.0  | 75   | 66                 | 255 | 3.8 |
|                | 200          | 55.6  | 80                |                        | 55.9  |      | 78                 |     | 4.2 |
|                | 240          | 66.7  | 72                |                        | 62.8  |      | 75                 |     | 5.0 |
| IS125-100-250A | 187          | 52    | 70                | 2900                   | 46.96 | 55   | 76                 | 239 | 4.2 |
| IS125-100-250B | 173.2        | 48.1  | 60                | 2900                   | 38.24 | 45   | 74                 | 221 | 4.2 |
| IS125-100-315  | 120          | 33.3  | 132.5             | 2900                   | 72.1  | 110  | 60                 | 317 | 4.0 |
|                | 200          | 55.6  | 125               |                        | 90.8  |      | 75                 |     | 4.5 |
|                | 240          | 66.7  | 120               |                        | 101.9 |      | 77                 |     | 5.0 |
| IS125-100-315A | 191          | 53.1  | 114               | 2900                   | 81.30 | 90   | 73                 | 303 | 4.5 |
| IS125-100-315B | 181.5        | 50.4  | 103               | 2900                   | 71.68 | 90   | 71                 | 288 | 4.5 |

|                |                    |      |     |
|----------------|--------------------|------|-----|
|                |                    |      |     |
| IS125-100-315C | 171.6              | 2900 | 272 |
| IS50-32-125    | 3.75<br>6.3<br>7.5 | 1450 | 130 |
| IS50-32-125A   | 5.6                | 1450 | 116 |
| IS50-32-160    | 3.75<br>6.3<br>7.5 | 1450 | 158 |
| IS50-32-160A   | 5.8                | 1450 | 148 |
| IS50-32-160B   | 5.4                | 1450 | 137 |
| IS50-32-200    | 3.75<br>6.3<br>7.5 | 1450 | 198 |
| IS50-32-200A   | 5.8                | 1450 | 186 |
| IS50-32-200B   | 5.4                | 1450 | 173 |
| IS50-32-250    | 3.75<br>6.3<br>7.5 | 1450 | 250 |
| IS50-32-250A   | 5.8                | 1450 | 234 |
| IS50-32-250B   | 5.4                | 1450 | 217 |
| IS65-50-125    | 7.5<br>12.5        | 1450 | 130 |
| IS65-50-125A   |                    | 1450 | 116 |
| IS65-50-160    |                    | 1450 | 165 |
| IS65-50-160A   |                    | 1450 | 154 |
| IS65-50-160B   |                    | 1450 | 143 |
| IS65-40-200    |                    | 1450 | 200 |
| IS65-40-200A   |                    | 1450 | 188 |
| IS65-40-200B   |                    | 1450 | 175 |
| IS65-40-250    |                    | 1450 | 254 |

|              |                   |                      |      |     |
|--------------|-------------------|----------------------|------|-----|
|              |                   |                      |      |     |
| IS65-40-250A | 11.7              | 3.3                  | 1450 | 238 |
| IS65-40-250B | 10.8              | 3.17                 | 1450 | 220 |
| IS65-40-315  | 7.5<br>12.5<br>15 | 2.08<br>3.47<br>4.17 | 1450 | 315 |
| IS65-40-315A | 11.9              | 3.3                  | 1450 | 301 |
| IS65-40-315B | 11.3              | 3.2                  | 1450 | 286 |
| IS65-40-315C | 10.7              | 3                    | 1450 | 270 |
| IS80-65-125  | 15<br>25<br>30    | 4.17<br>6.94<br>8.33 | 1450 | 137 |
| IS80-65-125A | 22.4              | 6.2                  | 1450 | 125 |
| IS80-65-160  | 15<br>25<br>30    | 4.17<br>6.94<br>8.33 | 1450 | 168 |
| IS80-65-160A | 23.4              | 6.5                  | 1450 | 157 |
| IS80-65-160B | 21.7              | 6.3                  | 1450 | 146 |
| IS80-50-200  | 15<br>25<br>30    |                      | 1450 | 202 |
| IS80-50-200A | 23.4              |                      | 1450 | 190 |
| IS80-50-200B | 21.8              |                      | 1450 | 176 |
| IS80-50-250  | 15<br>25<br>30    |                      | 1450 | 252 |
| IS80-50-250A | 23.4              |                      | 1450 | 238 |
| IS80-50-250B | 21.7<br>21.74     | 315                  | 1450 | 218 |
| IS80-50-315  | 15<br>25<br>30    |                      | 1450 | 315 |
| IS80-50-315A | 23.9              |                      | 1450 | 301 |
| IS80-50-315B | 22.7              |                      | 1450 | 286 |
| IS80-50-315C | 21.4              |                      | 1450 | 270 |
| IS100-80-125 | 30<br>50<br>60    |                      | 1450 | 140 |

## IS型单级单吸离心泵

IS Series Single-stage End-suction Centrifugal Pump

性能参数表 PERFORMANCE TABLE

| 型号<br>Model    | 流量 Capacity |       | 扬程<br>Head<br>(m) | 转速<br>Speed<br>(r/min) | 功率 Power (kW) |                     | 效率<br>Eff.<br>(%) | 叶轮名义直径<br>Impeller diameter<br>(mm) | 汽蚀余量<br>(NPSH)r<br>(m) |
|----------------|-------------|-------|-------------------|------------------------|---------------|---------------------|-------------------|-------------------------------------|------------------------|
|                | (m³/h)      | (L/s) |                   |                        | 轴功率<br>Shaft  | 电机功率<br>Motor power |                   |                                     |                        |
| IS100-80-125A  | 44.7        | 12.4  | 4                 | 1450                   | 0.68          | 1.1                 | 72                | 125                                 | 2.5                    |
| IS100-80-160   | 30          | 8.33  | 9.2               | 1450                   | 1.12          | 2.2                 | 67                | 170                                 | 2.0                    |
|                | 50          | 13.9  | 8.0               |                        | 1.45          |                     | 75                |                                     | 2.5                    |
|                | 60          | 16.7  | 6.8               |                        | 1.57          |                     | 71                |                                     | 3.5                    |
| IS100-80-160A  | 46.8        | 13    | 7                 | 1450                   | 1.24          | 1.5                 | 72                | 159                                 | 2.5                    |
| IS100-80-160B  | 43.3        | 12    | 6                 | 1450                   | 1.01          | 1.5                 | 70                | 147                                 | 2.5                    |
| IS100-65-200   | 30          | 8.33  | 13.5              | 1450                   | 1.84          | 4                   | 60                | 203                                 | 2.0                    |
|                | 50          | 13.9  | 12.5              |                        | 2.33          |                     | 73                |                                     | 2.0                    |
|                | 60          | 16.7  | 11.8              |                        | 2.61          |                     | 74                |                                     | 2.5                    |
| IS100-65-200A  | 46.9        | 13    | 11                | 1450                   | 1.95          | 3                   | 72                | 190                                 | 2.0                    |
| IS100-65-200B  | 43.6        | 12.1  | 9.5               | 1450                   | 1.63          | 2.2                 | 69                | 177                                 | 2.0                    |
| IS100-65-250   | 30          | 8.33  | 21.3              | 1450                   | 3.16          | 5.5                 | 55                | 255                                 | 2.0                    |
|                | 50          | 13.9  | 20                |                        | 4.00          |                     | 68                |                                     | 2.0                    |
|                | 60          | 16.7  | 19                |                        | 4.44          |                     | 70                |                                     | 2.5                    |
| IS100-65-250A  | 46.8        | 13    | 17.5              | 1450                   | 3.38          | 4                   | 66                | 239                                 | 2.0                    |
| IS100-65-250B  | 43.3        | 12    | 15                | 1450                   | 2.76          | 4                   | 64                | 221                                 | 2.0                    |
| IS100-65-315   | 30          | 8.33  | 34                | 1450                   | 5.44          | 11                  | 51                | 315                                 | 2.0                    |
|                | 50          | 13.9  | 32                |                        | 6.92          |                     | 63                |                                     | 2.0                    |
|                | 60          | 16.7  | 30                |                        | 7.67          |                     | 61                |                                     | 2.5                    |
| IS100-65-315A  | 47.7        | 13.3  | 28.5              | 1450                   | 6.09          | 7.5                 | 61                | 301                                 | 2.0                    |
| IS100-65-315B  | 45.4        | 12.6  | 25.8              | 1450                   | 5.40          | 7.5                 | 59                | 286                                 | 2.0                    |
| IS100-65-315C  | 42.9        | 11.9  | 23                | 1450                   | 4.71          | 5.5                 | 57                | 271                                 | 2.0                    |
| IS125-100-200  | 60          | 16.7  | 14.5              | 1450                   | 3.83          | 7.5                 | 62                | 216                                 | 2.5                    |
|                | 100         | 27.8  | 12.5              |                        | 4.48          |                     | 76                |                                     | 2.5                    |
|                | 120         | 33.3  | 11.0              |                        | 4.79          |                     | 75                |                                     | 3.0                    |
| IS125-100-200A | 93.5        | 26    | 11                | 1450                   | 3.84          | 5.5                 | 73                | 203                                 | 2.5                    |
| IS125-100-200B | 87.2        | 24.2  | 9.5               | 1450                   | 3.17          | 4                   | 71                | 188                                 | 2.5                    |
| IS125-100-250  | 60          | 16.7  | 21.5              | 1450                   | 5.59          | 11                  | 63                | 255                                 | 2.5                    |
|                | 100         | 27.8  | 20                |                        | 7.17          |                     | 76                |                                     | 2.5                    |
|                | 120         | 33.3  | 18.5              |                        | 7.84          |                     | 77                |                                     | 3.0                    |
| IS125-100-250A | 93.5        | 26    | 17.5              | 1450                   | 6.03          | 7.5                 | 74                | 239                                 | 2.5                    |
| IS125-100-250B | 86.6        | 24.1  | 15                | 1450                   | 4.92          | 7.5                 | 72                | 221                                 | 2.5                    |
| IS125-100-315  | 60          | 16.7  | 33.5              | 1450                   | 9.4           | 15                  | 58                | 317                                 | 2.5                    |
|                | 100         | 27.8  | 32                |                        | 11.9          |                     | 73                |                                     | 2.5                    |
|                | 120         | 33.3  | 30.5              |                        | 13.5          |                     | 74                |                                     | 3.0                    |
| IS125-100-315A | 95.5        | 26.5  | 28.5              | 1450                   | 10.43         | 15                  | 71                | 303                                 | 2.5                    |

性能参数表 PERFORMANCE TABLE

| IS125-100-315B | 90.8 | 25.2  | 25.8 | 1450 | 9.37  | 11   | 68 | 288 | 2.5 |
|----------------|------|-------|------|------|-------|------|----|-----|-----|
| IS125-100-315C | 85.8 | 23.8  | 23   | 1450 | 8.13  | 11   | 66 | 272 | 2.5 |
| IS125-100-400  | 60   | 16.7  | 52   | 1450 | 16.1  | 30   | 53 | 395 | 2.5 |
|                | 100  | 27.8  | 50   |      | 21.0  |      | 65 |     | 3.0 |
|                | 120  | 33.3  | 48.5 |      | 23.6  |      | 67 |     | 3.0 |
| IS125-100-400A | 93.5 | 26    | 44   | 1450 | 17.8  | 22   | 63 | 371 | 3.0 |
| IS125-100-400B | 86.6 | 24.1  | 38   | 1450 | 14.96 | 18.5 | 63 | 345 | 3.0 |
| IS150-125-250  | 120  | 33.3  | 22.5 | 1450 | 10.4  | 18.5 | 71 | 260 | 3.0 |
|                | 200  | 55.6  | 20   |      | 13.5  |      | 81 |     | 3.0 |
|                | 240  | 66.7  | 17.5 |      | 14.7  |      | 78 |     | 3.5 |
| IS150-125-250A | 187  | 52    | 17.5 | 1450 | 11.44 | 15   | 78 | 243 | 3.0 |
| IS150-125-250B | 173  | 48    | 15   | 1450 | 9.29  | 11   | 76 | 225 | 3.0 |
| IS150-125-315  | 120  | 33.3  | 34   | 1450 | 15.9  | 30   | 70 | 325 | 2.5 |
|                | 200  | 55.6  | 32   |      | 22.1  |      | 79 |     | 2.5 |
|                | 240  | 66.7  | 29   |      | 23.7  |      | 80 |     | 3.0 |
| IS150-125-315A | 187  | 52    | 28   | 1450 | 18.78 | 22   | 76 | 304 | 2.5 |
| IS150-125-315B | 173  | 48    | 24   | 1450 | 15.47 | 18.5 | 73 | 282 | 2.5 |
| IS150-125-400  | 120  | 33.3  | 53   | 1450 | 27.9  | 45   | 62 | 400 | 2.0 |
|                | 200  | 55.6  | 50   |      | 36.3  |      | 75 |     | 2.8 |
|                | 240  | 66.7  | 46   |      | 40.6  |      | 74 |     | 3.5 |
| IS150-125-400A | 187  | 52    | 44   | 1450 | 30.73 | 37   | 73 | 375 | 2.8 |
| IS150-125-400B | 173  | 48    | 38   | 1450 | 25.19 | 30   | 71 | 348 | 2.8 |
| IS200-150-250  | 240  | 66.7  | 22.6 | 1450 | 21.1  | 37   | 70 | 375 | 3.6 |
|                | 400  | 111.1 | 20   |      | 26.6  |      | 82 |     | 4.6 |
|                | 460  | 127.8 | 17.2 |      | 27.3  |      | 79 |     | 4.9 |
| IS200-150-250A | 374  | 104   | 17.5 | 1450 | 22.30 | 30   | 80 | 257 | 4.6 |
| IS200-150-250B | 346  | 96    | 15   | 1450 | 18.10 | 22   | 78 | 238 | 4.6 |
| IS200-150-315  | 240  | 66.7  | 37   | 1450 | 34.6  | 55   | 70 | 348 | 3.0 |
|                | 400  | 111.1 | 32   |      | 42.5  |      | 82 |     | 3.5 |
|                | 460  | 127.8 | 28.5 |      | 44.6  |      | 80 |     | 4.0 |
| IS200-150-315A | 374  | 104   | 28   | 1450 | 35.69 | 45   | 80 | 326 | 3.5 |
| IS200-150-315B | 346  | 96    | 24   | 1450 | 28.96 | 37   | 78 | 301 | 3.5 |
| IS200-150-400  | 240  | 66.7  | 55   | 1450 | 48.6  | 90   | 74 | 395 | 3.0 |
|                | 400  | 111.1 | 50   |      | 67.2  |      | 81 |     | 3.8 |
|                | 460  | 127.8 | 45   |      | 74.2  |      | 76 |     | 4.5 |
| IS200-150-400A | 374  | 104   | 44   | 1450 | 56.79 | 75   | 79 | 371 | 3.8 |
| IS200-150-400B | 346  | 96    | 38   | 1450 | 46.45 | 55   | 77 | 342 | 3.8 |



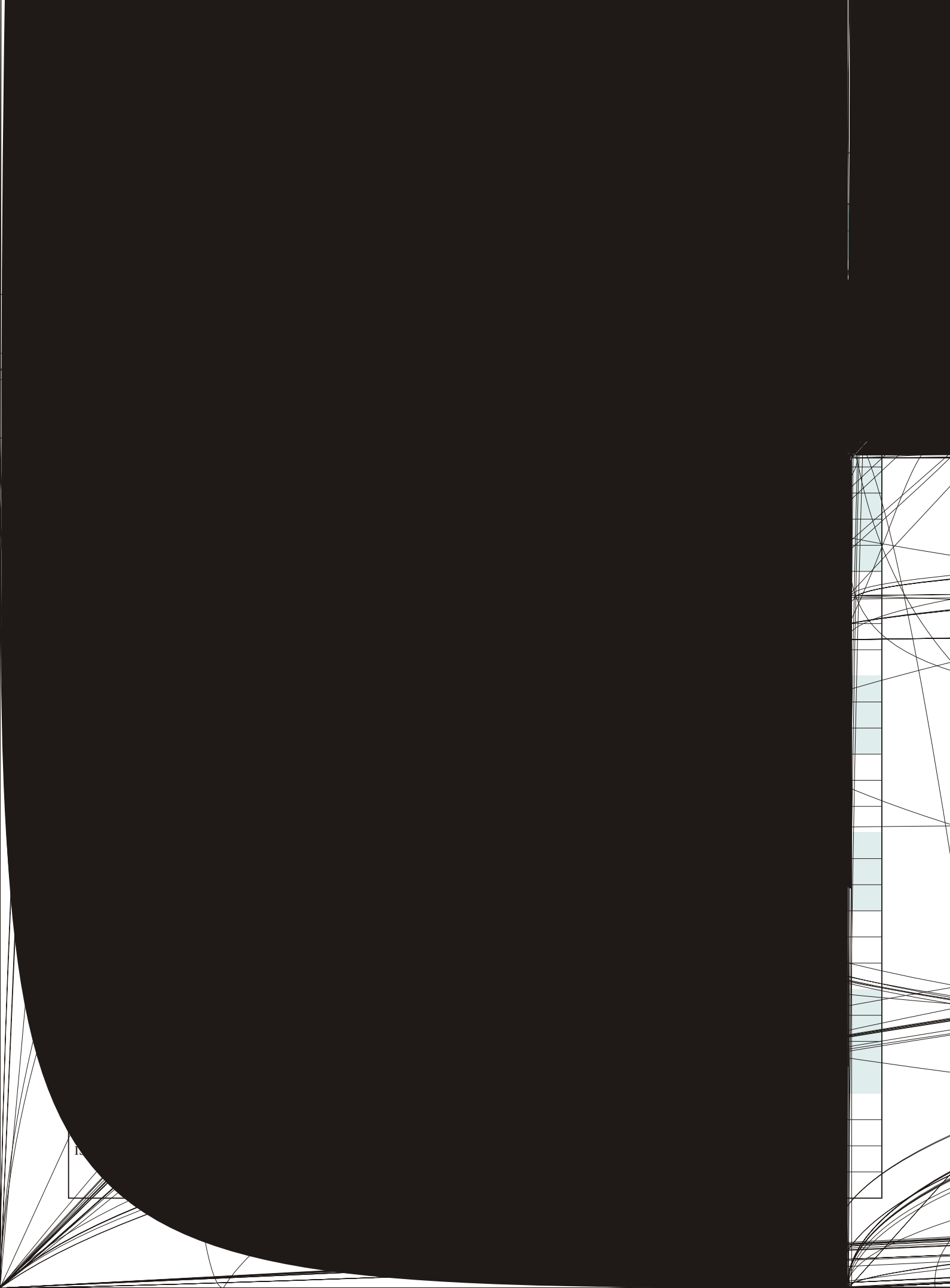


|             | 外形及安装尺寸 Out-form and installationdimension |                |                |                |   |                |                |                |   |                |                |     |           |
|-------------|--------------------------------------------|----------------|----------------|----------------|---|----------------|----------------|----------------|---|----------------|----------------|-----|-----------|
|             | L <sub>1</sub>                             | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | a | B <sub>2</sub> | B <sub>3</sub> | h <sub>1</sub> | H | H <sub>1</sub> | H <sub>2</sub> | n-d |           |
| IS50-32-125 | 80-4/0.55                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 80-2/1.1                                   |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90S-2/1.5                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90L-2/2.2                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
| IS50-32-160 | 80-4/0.55                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90S-2/1.5                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90L-2/2.2                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 100L-2/3.2                                 |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
| IS50-32-200 | 80-4/0.75                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 100L-2/3                                   |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 112M-2/4                                   |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 132S-2/5.5                                 |                |                |                |   |                |                |                |   |                |                |     | 4- φ 24   |
| IS50-32-250 | 90S-4/1.1                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 24   |
|             | 90L-4/1.5                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 24   |
|             | 132S-2/7.5                                 |                |                |                |   |                |                |                |   |                |                |     | 4- φ 24   |
|             | 160M-2/11                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 24   |
| IS65-50-125 | 88-4/0.55                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90S-2/1.5                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 90L-2/2.2                                  |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |
|             | 100L-2/3                                   |                |                |                |   |                |                |                |   |                |                |     | 4- φ 18.5 |

外形及安装尺寸表 OUT-FORM AND INSTALLATION DIMENSION TABLE

| 型号<br>Model | 机座号/功率<br>Seat No./power<br>(kw) | 外形及安装尺寸 Out-form and installation dimension |                |                |                |     |     |                |                |                |                |                |                |     |                |                |           |
|-------------|----------------------------------|---------------------------------------------|----------------|----------------|----------------|-----|-----|----------------|----------------|----------------|----------------|----------------|----------------|-----|----------------|----------------|-----------|
|             |                                  | L <sub>1</sub>                              | L <sub>2</sub> | L <sub>3</sub> | L <sub>4</sub> | a   | f   | L <sub>5</sub> | B <sub>1</sub> | B <sub>2</sub> | B <sub>3</sub> | h <sub>1</sub> | h <sub>2</sub> | H   | H <sub>1</sub> | H <sub>2</sub> | n-d       |
| IS65-50-160 | 88-4/0.75                        | 820                                         | 150            | 540            | 285            | 80  | 385 | 850            | 50             | 360            | 320            | 132            | 25             | 207 | 367            | 297            | 4- φ 18.5 |
|             | 100L-2/3                         | 920                                         | 170            | 600            | 380            | 80  | 385 | 945            | 180            | 390            | 350            | 132            | 25             | 207 | 367            | 352            | 4- φ 18.5 |
|             | 112M-2/4                         | 920                                         | 170            | 600            | 400            | 80  | 385 | 965            | 190            | 390            | 350            | 132            | 25             | 207 | 367            | 360            | 4- φ 18.5 |
|             | 132S-2/5.5                       | 1020                                        | 190            | 660            | 475            | 80  | 385 | 1040           | 210            | 450            | 400            | 132            | 30             | 207 | 367            | 390            | 4- φ 24   |
| IS65-40-200 | 80-4/0.75                        | 920                                         | 170            | 600            | 285            | 100 | 385 | 870            | 150            | 390            | 350            | 160            | 25             | 235 | 415            | 325            | 4- φ 18.5 |
|             | 90S-4/1.1                        | 920                                         | 170            | 600            | 310            | 100 | 385 | 895            | 155            | 390            | 350            | 160            | 25             | 235 | 415            | 335            | 4- φ 18.5 |
|             | 112M-2/4                         | 920                                         | 170            | 600            | 400            | 100 | 385 | 985            | 190            | 390            | 350            | 160            | 25             | 235 | 415            | 388            | 4- φ 18.5 |
|             | 132S-2/7.5                       | 1020                                        | 190            | 660            | 475            | 100 | 385 | 1060           | 210            | 450            | 400            | 160            | 30             | 235 | 415            | 418            | 4- φ 24   |
| IS65-40-250 | 90S-4/1.1                        | 1020                                        | 190            | 660            | 310            | 100 | 500 | 1010           | 155            | 450            | 400            | 180            | 30             | 255 | 480            | 355            | 4- φ 24   |
|             | 90L-4/1.5                        | 1020                                        | 190            | 660            | 335            | 100 | 500 | 1035           | 155            | 450            | 400            | 180            | 30             | 255 | 480            | 365            | 4- φ 24   |
|             | 100L-4/2.2                       | 1020                                        | 190            | 660            | 380            | 100 | 500 | 1080           | 188            | 450            | 400            | 180            | 30             | 255 | 480            | 400            | 4- φ 24   |
|             | 132S-2/7.5                       | 1160                                        | 210            | 740            | 475            | 100 | 500 | 1175           | 210            | 490            | 440            | 180            | 30             | 270 | 495            | 453            | 4- φ 24   |
|             | 160M-2/15                        | 1290                                        | 225            | 840            | 600            | 100 | 500 | 1300           | 255            | 540            | 490            | 180            | 30             | 290 | 515            | 515            | 4- φ 24   |
| IS65-40-315 | 100L-4/3                         | 1140                                        | 210            | 740            | 380            | 125 | 500 | 1105           | 180            | 490            | 440            | 200            | 30             | 290 | 540            | 435            | 4- φ 24   |
|             | 112-4/4                          | 1140                                        | 210            | 740            | 400            | 125 | 500 | 1125           | 190            | 490            | 440            | 200            | 30             | 290 | 540            | 443            | 4- φ 24   |
|             | 160L-2/18.5                      | 1290                                        | 225            | 840            | 645            | 125 | 500 | 1370           | 255            | 540            | 490            | 200            | 30             | 310 | 560            | 535            | 4- φ 24   |
|             | 180M-2/22                        | 1290                                        | 225            | 840            | 670            | 125 | 500 | 1395           | 285            | 540            | 490            | 200            | 30             | 310 | 560            | 560            | 4- φ 24   |
|             | 200L-2/30                        | 1420                                        | 250            | 940            | 775            | 125 | 500 | 1500           | 310            | 610            | 550            | 200            | 40             | 330 | 580            | 605            | 4- φ 28   |
| IS80-65-125 | 80-4/0.75                        | 820                                         | 150            | 540            | 285            | 100 | 385 | 870            | 150            | 360            | 320            | 132            | 25             | 207 | 367            | 297            | 4- φ 18.5 |
|             | 100L-2/3                         | 920                                         | 170            | 600            | 385            | 100 | 385 | 965            | 180            | 390            | 350            | 132            | 25             | 207 | 367            | 352            | 4- φ 18.5 |
|             | 112M-2/4                         | 920                                         | 170            | 600            | 400            | 100 | 385 | 985            | 190            | 390            | 350            | 132            | 25             | 207 | 367            | 360            | 4- φ 18.5 |
|             | 132S-2/5.5                       | 1020                                        | 190            | 660            | 475            | 100 | 385 | 1060           | 210            | 450            | 400            | 132            | 35             | 207 | 367            | 390            | 4- φ 24   |
| IS80-65-160 | 80-4/0.75                        | 920                                         | 170            | 600            | 285            | 100 | 385 | 870            | 150            | 390            | 350            | 160            | 25             | 235 | 415            | 325            | 4- φ 18.5 |
|             | 90S-4/1.1                        | 920                                         | 170            | 600            | 310            | 100 | 385 | 895            | 155            | 390            | 350            | 160            | 25             | 235 | 415            | 335            | 4- φ 18.5 |
|             | 90L-4/1.5                        | 920                                         | 170            | 600            | 335            | 100 | 385 | 920            | 155            | 390            | 350            | 160            | 25             | 235 | 415            | 335            | 4- φ 18.5 |
|             | 112M-2/4                         | 920                                         | 170            | 600            | 400            | 100 | 385 | 985            | 190            | 390            | 350            | 160            | 25             | 235 | 415            | 388            | 4- φ 18.5 |
|             | 132S-2/7.5                       | 1020                                        | 190            | 660            | 475            | 100 | 385 | 1060           | 210            | 450            | 400            | 160            | 30             | 235 | 415            | 418            | 4- φ 24   |
| IS80-50-200 | 90S-4/1.1                        | 920                                         | 170            | 600            | 310            | 100 | 385 | 895            | 155            | 390            | 350            | 160            | 25             | 235 | 435            | 335            | 4- φ 18.5 |
|             | 90L-4/1.5                        | 920                                         | 170            | 600            | 335            | 100 | 385 | 920            | 155            | 390            | 350            | 160            | 25             | 235 | 435            | 335            | 4- φ 18.5 |
|             | 100L-4/2.2                       | 920                                         | 170            | 600            | 380            | 100 | 385 | 965            | 180            | 390            | 350            | 160            | 25             | 235 | 435            | 380            | 4- φ 18.5 |
|             | 132S-2/7.5                       | 1020                                        | 190            | 660            | 475            | 100 | 385 | 1060           | 210            | 450            | 400            | 160            | 30             | 235 | 435            | 398            | 4- φ 24   |
|             | 160M-2/15                        | 1140                                        | 210            | 740            | 600            | 100 | 385 | 1185           | 255            | 490            | 440            | 160            | 30             | 250 | 450            | 475            | 4- φ 24   |
| IS80-50-250 | 100L-4/3                         | 1020                                        | 190            | 660            | 380            | 125 | 500 | 1105           | 180            | 450            | 400            | 180            | 30             | 255 | 480            | 400            | 4- φ 24   |
|             | 160M-2/15                        | 1290                                        | 225            | 840            | 600            | 125 | 500 | 1325           | 255            | 540            | 490            | 180            | 30             | 290 | 515            | 515            | 4- φ 24   |
|             | 160L-2/18.5                      | 1290                                        | 225            | 840            | 645            | 125 | 500 | 1370           | 255            | 540            | 490            | 180            | 30             | 290 | 515            | 515            | 4- φ 24   |
|             | 180M-2/22                        | 1290                                        | 225            | 840            | 670            | 125 | 500 | 1395           | 285            | 540            | 490            | 180            | 30             | 290 | 515            | 540            | 4- φ 24   |

|               |             | 外形及  |     |      |      |     |     |      |     |     |     |     |    |     |     |     |           |
|---------------|-------------|------|-----|------|------|-----|-----|------|-----|-----|-----|-----|----|-----|-----|-----|-----------|
|               |             |      |     |      |      |     |     |      |     |     |     |     |    |     |     |     |           |
| IS80-50-315   | 112M-4/4    | 1140 | 210 | 740  | 400  | 125 | 500 | 1125 | 190 | 490 | 440 | 225 | 30 | 315 | 595 | 468 | 4- Φ 24   |
|               | 132S-4/5.5  | 1160 | 210 | 740  | 475  | 125 | 500 | 1200 | 210 | 490 | 440 | 225 | 30 | 315 | 595 | 498 | 4- Φ 24   |
|               | 180M-2/22   | 1290 | 225 | 840  | 670  | 125 | 500 | 1395 | 285 | 540 | 490 | 225 | 30 | 335 | 615 | 585 | 4- Φ 24   |
|               | 200L-2/37   | 1420 | 250 | 340  | 775  | 125 | 500 | 1500 | 310 | 610 | 550 | 225 | 40 | 355 | 635 | 630 | 4- Φ 28   |
| IS100-80-125  | 80-4/0.75   | 920  | 170 | 600  | 285  | 100 | 385 | 870  | 150 | 390 | 350 | 160 | 25 | 235 | 415 | 325 | 4- Φ 18.5 |
|               | 90S-4/1.1   | 920  | 170 | 600  | 310  | 100 | 385 | 895  | 155 | 390 | 350 | 160 | 25 | 235 | 415 | 335 | 4- Φ 18.5 |
|               | 90L-4/1.5   | 920  | 170 | 600  | 335  | 100 | 385 | 920  | 155 | 390 | 350 | 160 | 25 | 235 | 415 | 335 | 4- Φ 18.5 |
|               | 132S-2/7.5  | 1020 | 190 | 660  | 475  | 100 | 385 | 1060 | 210 | 450 | 400 | 160 | 30 | 235 | 415 | 418 | 4- Φ 24   |
|               | 160M-2/11   | 1140 | 210 | 740  | 600  | 100 | 385 | 1185 | 255 | 490 | 440 | 160 | 30 | 250 | 430 | 475 | 4- Φ 24   |
| IS100-80-160  | 90L-4/1.5   | 1020 | 190 | 660  | 335  | 100 | 500 | 1035 | 155 | 450 | 400 | 160 | 30 | 235 | 435 | 335 | 4- Φ 24   |
|               | 100L-4/2.2  | 1020 | 190 | 660  | 380  | 100 | 500 | 1080 | 180 | 450 | 400 | 160 | 30 | 235 | 435 | 380 | 4- Φ 24   |
|               | 160M-2/15   | 1290 | 225 | 840  | 600  | 100 | 500 | 1300 | 255 | 540 | 490 | 160 | 30 | 270 | 470 | 495 | 4- Φ 24   |
| IS100-65-200  | 100L-4/3    | 1140 | 210 | 740  | 380  | 100 | 500 | 1120 | 180 | 490 | 440 | 180 | 30 | 270 | 495 | 415 | 4- Φ 24   |
|               | 112M-4/4    | 1140 | 210 | 740  | 400  | 100 | 500 | 1140 | 190 | 490 | 440 | 180 | 30 | 270 | 495 | 423 | 4- Φ 24   |
|               | 160M-2/15   | 1290 | 225 | 840  | 600  | 100 | 500 | 1340 | 255 | 540 | 490 | 180 | 30 | 290 | 495 | 495 | 4- Φ 24   |
|               | 160L-2/18.5 | 1290 | 225 | 840  | 645  | 100 | 500 | 1385 | 255 | 540 | 490 | 180 | 30 | 290 | 495 | 495 | 4- Φ 24   |
|               | 180M-2/22   | 1290 | 225 | 840  | 670  | 100 | 500 | 1410 | 285 | 540 | 490 | 180 | 30 | 290 | 495 | 520 | 4- Φ 24   |
| IS100-65-250  | 100L-4/3    | 1140 | 210 | 740  | 380  | 125 | 500 | 1145 | 180 | 490 | 400 | 200 | 30 | 290 | 540 | 435 | 4- Φ 24   |
|               | 112M-4/4    | 1140 | 210 | 740  | 400  | 125 | 500 | 1165 | 190 | 490 | 400 | 200 | 30 | 290 | 540 | 443 | 4- Φ 28   |
|               | 132S-4/5.5  | 1160 | 210 | 740  | 475  | 125 | 500 | 1240 | 210 | 490 | 400 | 200 | 30 | 290 | 540 | 473 | 4- Φ 24   |
|               | 180M-2/22   | 1290 | 225 | 840  | 670  | 125 | 500 | 1435 | 285 | 540 | 490 | 200 | 30 | 310 | 560 | 560 | 4- Φ 24   |
|               | 200L-2/37   | 1420 | 250 | 940  | 775  | 125 | 500 | 1540 | 310 | 610 | 550 | 200 | 40 | 330 | 580 | 605 | 4- Φ 28   |
| IS100-65-315  | 132S-4/5.5  | 1270 | 225 | 840  | 475  | 125 | 530 | 1270 | 210 | 540 | 490 | 225 | 30 | 335 | 615 | 518 | 4- Φ 24   |
|               | 132M-4/7.5  | 1270 | 225 | 840  | 515  | 125 | 530 | 1310 | 210 | 540 | 490 | 225 | 30 | 335 | 615 | 518 | 4- Φ 24   |
|               | 160M-4/11   | 1270 | 225 | 840  | 600  | 125 | 530 | 1395 | 255 | 540 | 490 | 225 | 30 | 335 | 615 | 560 | 4- Φ 24   |
|               | 200-2/37    | 1420 | 250 | 940  | 775  | 125 | 530 | 1575 | 315 | 610 | 550 | 225 | 40 | 355 | 635 | 630 | 4- Φ 28   |
|               | 225M-2/45   | 1620 | 290 | 1060 | 815  | 125 | 530 | 1610 | 345 | 660 | 600 | 225 | 40 | 375 | 655 | 580 | 4- Φ 28   |
|               | 250M-2/55   | 1620 | 290 | 1060 | 930  | 125 | 530 | 1725 | 385 | 660 | 600 | 225 | 40 | 375 | 655 | 700 | 4- Φ 28   |
|               | 280S-2/75   | 1820 | 320 | 1200 | 1000 | 125 | 530 | 1795 | 410 | 730 | 670 | 225 | 40 | 375 | 655 | 735 | 4- Φ 28   |
| IS125-100-200 | 112M-4/4    | 1140 | 210 | 740  | 400  | 125 | 500 | 1165 | 190 | 490 | 440 | 200 | 30 | 290 | 570 | 443 | 4- Φ 24   |
|               | 132S-4/5.5  | 1160 | 210 | 740  | 475  | 125 | 500 | 1240 | 210 | 490 | 440 | 200 | 30 | 290 | 570 | 473 | 4- Φ 24   |
|               | 132M-4/7.5  | 1160 | 210 | 740  | 515  | 125 | 500 | 1280 | 210 | 490 | 440 | 200 | 30 | 290 | 570 | 473 | 4- Φ 24   |
|               | 180M-2/22   | 1290 | 225 | 840  | 670  | 125 | 500 | 1430 | 285 | 540 | 490 | 200 | 30 | 310 | 590 | 560 | 4- Φ 24   |
|               | 200L-2/37   | 1420 | 250 | 940  | 775  | 125 | 500 | 1510 | 310 | 610 | 550 | 200 | 40 | 330 | 610 | 605 | 4- Φ 28   |
|               | 225M-2/45   | 1420 | 250 | 940  | 815  | 125 | 500 | 1580 | 345 | 610 | 550 | 200 | 40 | 330 | 610 | 635 | 4- Φ 28   |



## 泵装配与拆卸 PUMP ASSEMBLY AND DISASSEMBLY

在装配前应首先检查零件有无影响装配

的缺陷并清洗干净，方可进行装配。

1. 检查零件有无影响装配

的缺陷并清洗干净，方可进行装配。 Check if there is any defect with the parts and clean them.

1. Screw in the connecting bolts, screw corks for the cover and advance.

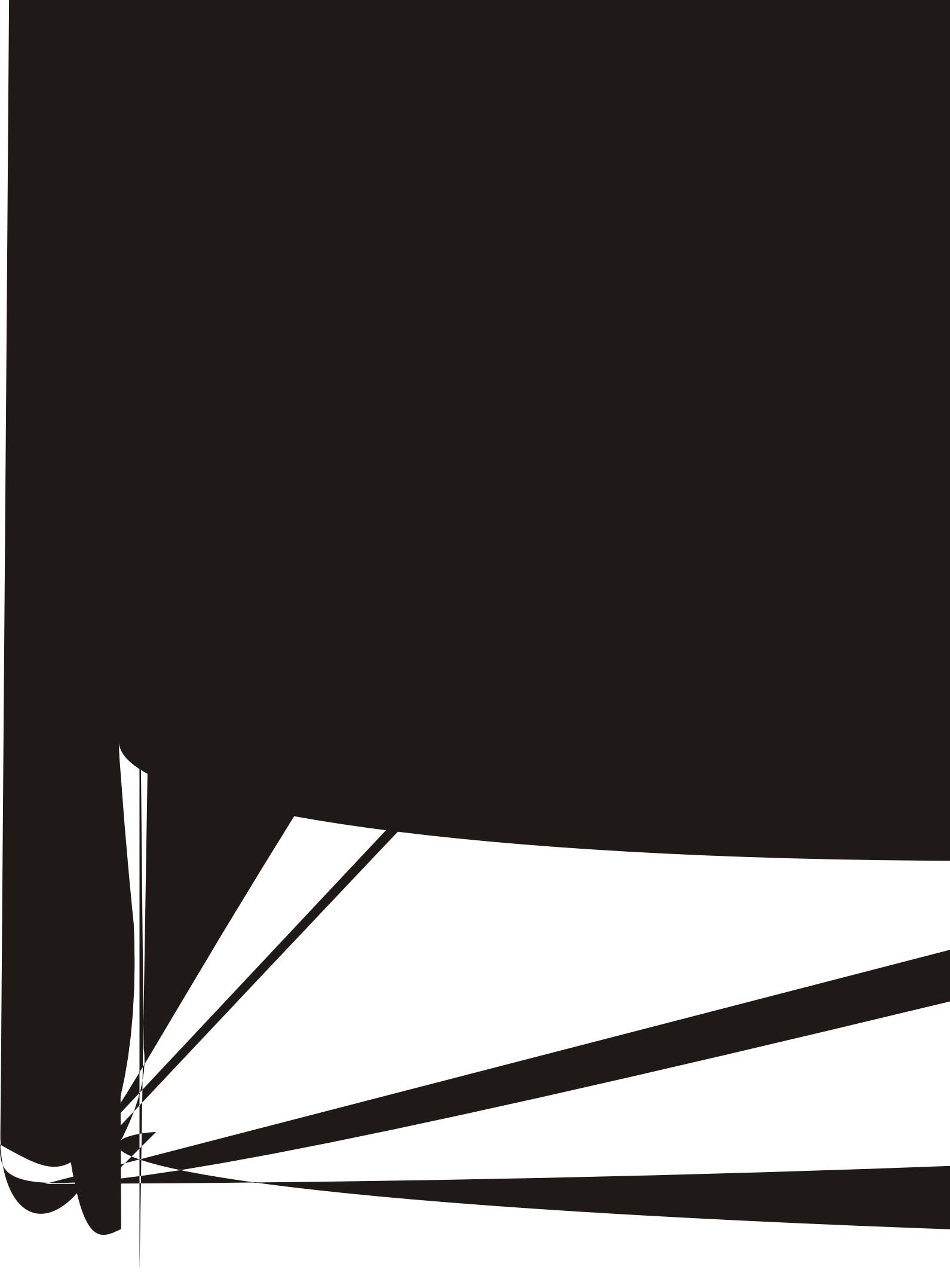
2. Place the O-seal rings, paper packing and the corresponding parts in advance.

3. Put the sealing, packing, packing rings, etc. in turn into the pump cover.

4. Mount the rolling bearing on the shaft, then mount it into the suspended stand, put on the gland to press the rolling bearing tightly and put the connecting bolt on the shaft.

5. Mount the muff on the shaft, then mount the pump into the suspended stand, mount the gland, adjust the trust curve and tighten the gland, then mount the connecting bolts and tighten the connecting bolts.

6. Carry out the assembly process to the pump, such as the disks, the side of the pump which are easily injured or moved. Carry out the reversed process.





8、轴温过热  
The shaft is overheated

Insufficient or excessive lubricating oil, or it gets too thick or too thin  
b、水泵与电机轴不同心  
The shafts of both pump and motor are not on the same central line

管