



# ***Roots Type Blowers***

# TSR



# ROOTS TYPE BLOWERS

## TSR Series

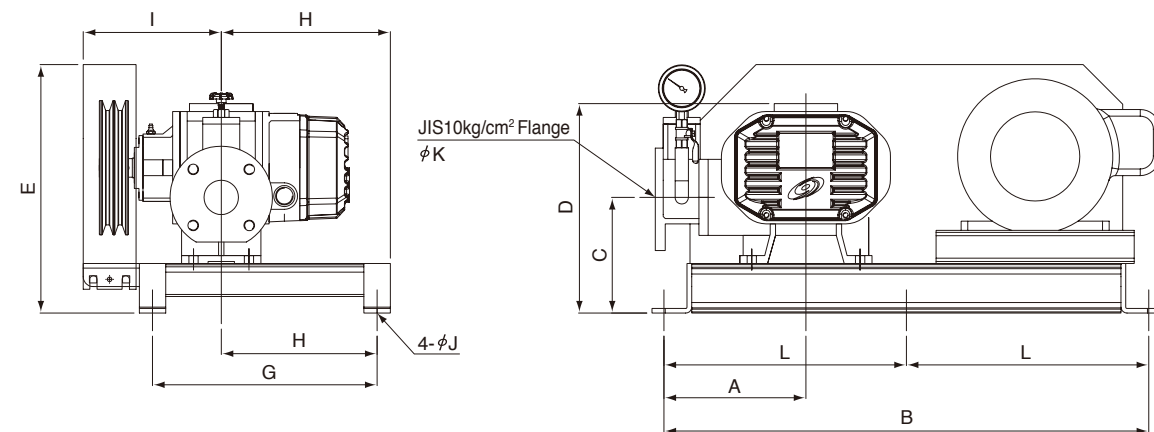
### Applications

- Wastewater Aeration
- Activated Sludge Process
- Aquaculture
- Combustion Furnace
- Pneumatic Conveyance
- Vacuum Packaging

### Accessories

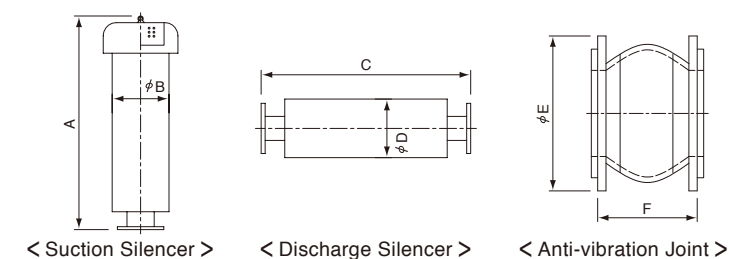
- Silencer (Suction & Discharge)
- T-joint
- Check Valve
- Safety Valve
- Pressure Gauge
- Anti-vibration Joint
- Vibration Rubber
- Anchor Bolt

### Dimensions



| Unit: mm |     |      |     |     |     |     |     |     |     |    |     |     |             |
|----------|-----|------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-------------|
| Model    | A   | B    | C   | D   | E   | F   | G   | H   | I   | J  | K   | L   | Weight (kg) |
| TSR2-50  | 215 | 734  | 175 | 317 | 343 | 236 | 340 | 256 | 199 | 15 | 50  | —   | 55          |
| TSR2-65  | 215 | 734  | 175 | 317 | 343 | 214 | 340 | 234 | 222 | 15 | 65  | —   | 58          |
| TSR2-80  | 257 | 934  | 190 | 372 | 466 | 277 | 420 | 297 | 259 | 15 | 80  | —   | 116         |
| TSR2-100 | 257 | 934  | 190 | 385 | 466 | 254 | 420 | 274 | 281 | 15 | 100 | —   | 131         |
| TSR2-125 | 303 | 1060 | 235 | 445 | 530 | 292 | 450 | 317 | 314 | 19 | 125 | —   | 223         |
| TSR2-150 | 329 | 1190 | 250 | 521 | 570 | 341 | 600 | 366 | 385 | 19 | 150 | —   | 362         |
| TSR2-200 | 235 | 1100 | 305 | 646 | 703 | 439 | 730 | 469 | 464 | 19 | 200 | 550 | 547         |

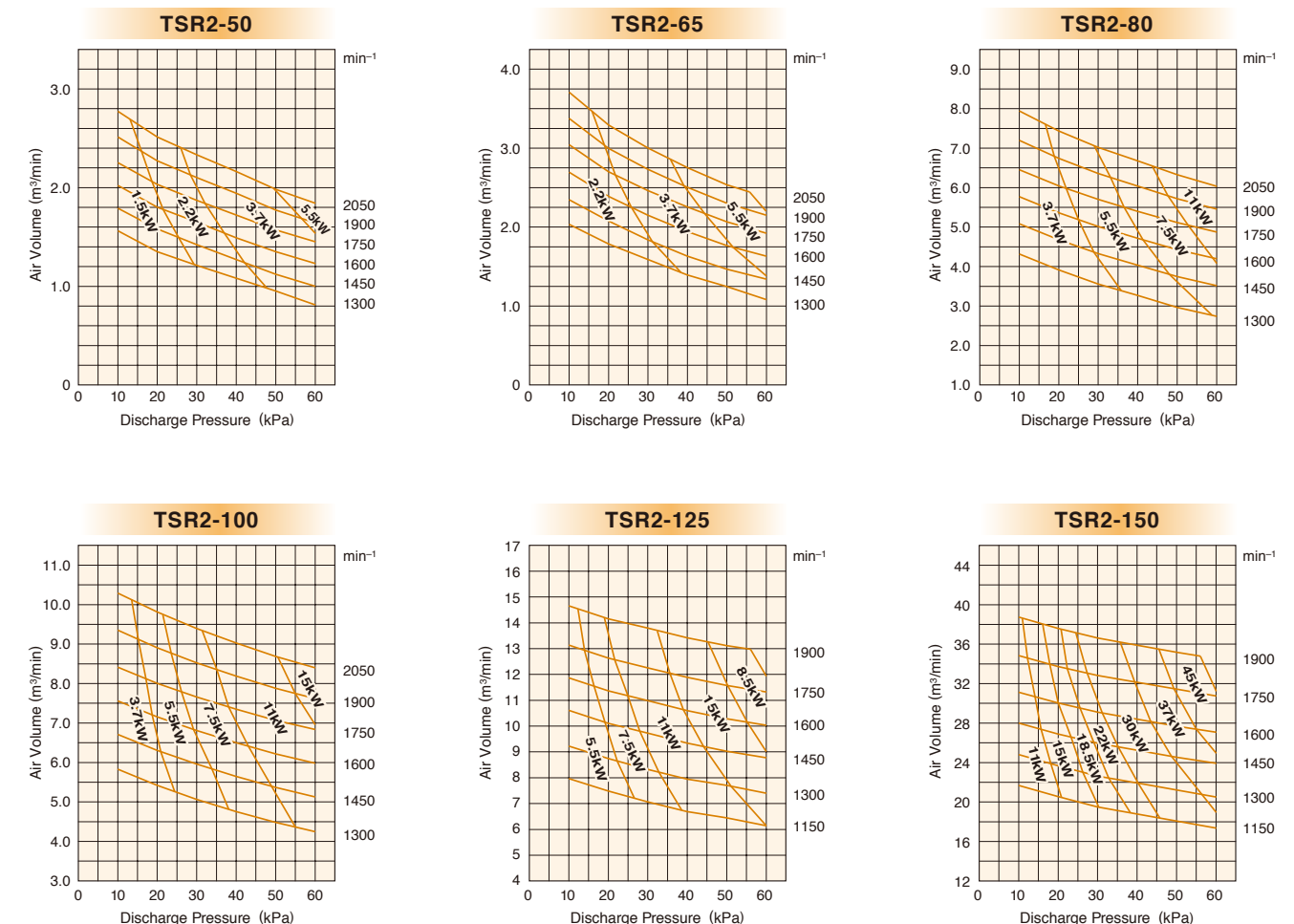
\* Weight excluding motor and silencer



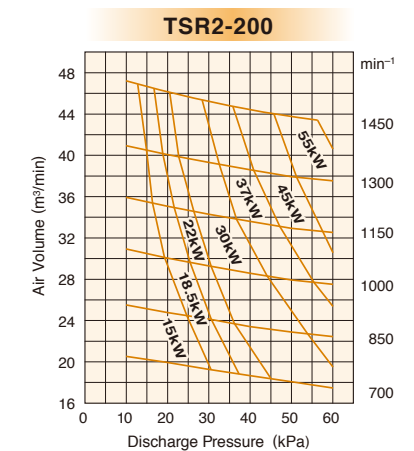
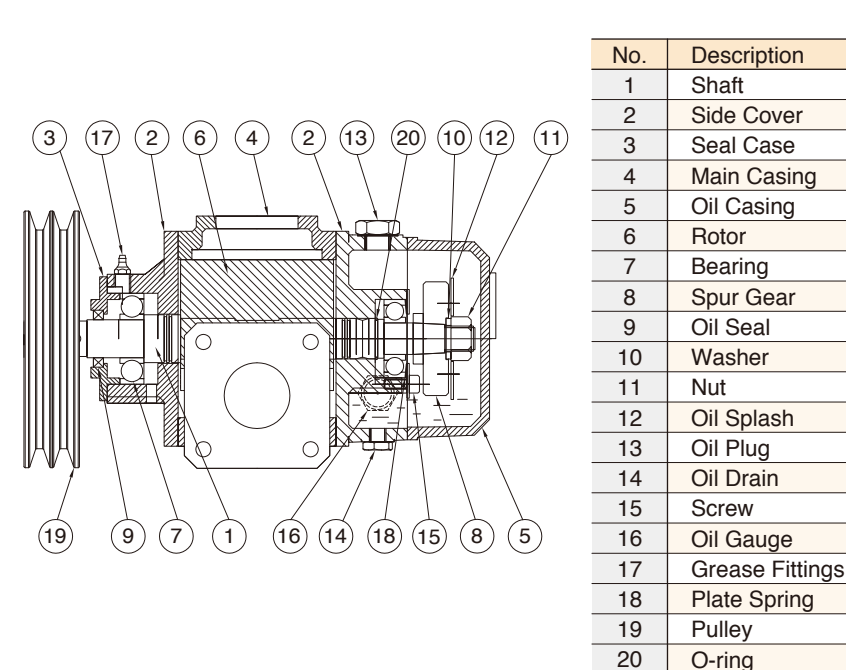
| Unit: mm  |      |     |      |     |     |     |
|-----------|------|-----|------|-----|-----|-----|
| Pipe Bore | A    | B   | C    | D   | E   | F   |
| φ 50      | 680  | 165 | 660  | 165 | 155 | 110 |
| φ 65      | 680  | 165 | 660  | 165 | 175 | 115 |
| φ 80      | 780  | 216 | 760  | 216 | 185 | 130 |
| φ 100     | 830  | 268 | 760  | 268 | 210 | 135 |
| φ 125     | 1010 | 280 | 1190 | 350 | 250 | 170 |
| φ 150     | 1150 | 350 | 1190 | 350 | 280 | 180 |
| φ 200     | 1575 | 500 | 1735 | 525 | 330 | 210 |

Tsurumi TSR-series is a V-belt driven, roots type blower designed for compressing air or creating vacuum. The precisely machined, well-balanced 3-lobe rotor reduces the pulsating noise and vibration, and also it ensures stable performance. The TSR-series is applicable to a wide variety of applications.

### Performance Curves



### Cross-Section



## Selection Table

| Model<br>(Discharge<br>Bore in mm) | Speed<br>(min <sup>-1</sup> ) | Suction air volume at standard condition (Qs in m <sup>3</sup> /min) and required power (La in kW) |       |                                |       |                                |       |                                |       |                                |       |                                |       |
|------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------|-------|--------------------------------|-------|--------------------------------|-------|--------------------------------|-------|--------------------------------|-------|--------------------------------|-------|
|                                    |                               | 10kPa (1020mmH <sub>2</sub> O)                                                                     |       | 20kPa (2040mmH <sub>2</sub> O) |       | 30kPa (3060mmH <sub>2</sub> O) |       | 40kPa (4080mmH <sub>2</sub> O) |       | 50kPa (5100mmH <sub>2</sub> O) |       | 60kPa (6120mmH <sub>2</sub> O) |       |
|                                    |                               | Qs                                                                                                 | La    | Qs                             | La    | Qs                             | La    | Qs                             | La    | Qs                             | La    | Qs                             | La    |
| TSR2-50<br>(50)                    | 1300                          | 1.56                                                                                               | 0.76  | 1.35                           | 1.11  | 1.21                           | 1.43  | 1.08                           | 1.76  | 0.95                           | 2.13  | 0.81                           | 2.45  |
|                                    | 1450                          | 1.79                                                                                               | 0.88  | 1.58                           | 1.25  | 1.42                           | 1.60  | 1.27                           | 1.97  | 1.12                           | 2.35  | 1.00                           | 2.73  |
|                                    | 1600                          | 2.02                                                                                               | 0.95  | 1.80                           | 1.38  | 1.65                           | 1.79  | 1.49                           | 2.21  | 1.35                           | 2.64  | 1.23                           | 3.06  |
|                                    | 1750                          | 2.25                                                                                               | 1.03  | 2.03                           | 1.50  | 1.87                           | 1.98  | 1.72                           | 2.44  | 1.57                           | 2.93  | 1.45                           | 3.40  |
|                                    | 1900                          | 2.51                                                                                               | 1.13  | 2.27                           | 1.66  | 2.10                           | 2.18  | 1.94                           | 2.71  | 1.77                           | 3.25  | 1.64                           | 3.77  |
|                                    | 2050                          | 2.77                                                                                               | 1.24  | 2.51                           | 1.81  | 2.32                           | 2.39  | 2.15                           | 2.97  | 1.97                           | 3.56  | 1.83                           | 4.14  |
| TSR2-65<br>(65)                    | 1300                          | 2.04                                                                                               | 1.00  | 1.79                           | 1.42  | 1.59                           | 1.79  | 1.39                           | 2.18  | 1.25                           | 2.53  | 1.08                           | 2.80  |
|                                    | 1450                          | 2.35                                                                                               | 1.11  | 2.08                           | 1.59  | 1.84                           | 2.01  | 1.63                           | 2.48  | 1.46                           | 2.91  | 1.34                           | 3.42  |
|                                    | 1600                          | 2.70                                                                                               | 1.24  | 2.39                           | 1.77  | 2.15                           | 2.28  | 1.94                           | 2.86  | 1.77                           | 3.41  | 1.63                           | 4.05  |
|                                    | 1750                          | 3.04                                                                                               | 1.37  | 2.70                           | 1.95  | 2.46                           | 2.55  | 2.25                           | 3.24  | 2.07                           | 3.91  | 1.92                           | 4.67  |
|                                    | 1900                          | 3.38                                                                                               | 1.49  | 3.00                           | 2.13  | 2.73                           | 2.79  | 2.50                           | 3.55  | 2.30                           | 4.29  | 2.15                           | 5.15  |
|                                    | 2050                          | 3.71                                                                                               | 1.62  | 3.29                           | 2.31  | 3.00                           | 3.02  | 2.75                           | 3.86  | 2.54                           | 4.66  | —                              | —     |
| TSR2-80<br>(80)                    | 1300                          | 4.32                                                                                               | 1.56  | 3.92                           | 2.40  | 3.56                           | 3.09  | 3.27                           | 3.77  | 2.97                           | 4.37  | 2.74                           | 5.24  |
|                                    | 1450                          | 5.09                                                                                               | 1.80  | 4.68                           | 2.79  | 4.33                           | 3.65  | 4.04                           | 4.58  | 3.75                           | 5.45  | 3.52                           | 6.32  |
|                                    | 1600                          | 5.77                                                                                               | 1.96  | 5.36                           | 3.05  | 5.02                           | 4.04  | 4.72                           | 5.11  | 4.43                           | 6.15  | 4.20                           | 7.18  |
|                                    | 1750                          | 6.46                                                                                               | 2.12  | 6.05                           | 3.31  | 5.70                           | 4.43  | 5.40                           | 5.64  | 5.12                           | 6.85  | 4.88                           | 8.05  |
|                                    | 1900                          | 7.20                                                                                               | 2.31  | 6.74                           | 3.62  | 6.36                           | 4.84  | 6.04                           | 6.17  | 5.72                           | 7.49  | 5.46                           | 8.82  |
|                                    | 2050                          | 7.94                                                                                               | 2.51  | 7.44                           | 3.93  | 7.02                           | 5.25  | 6.68                           | 6.69  | 6.33                           | 8.14  | 6.04                           | 9.60  |
| TSR2-100<br>(100)                  | 1300                          | 5.83                                                                                               | 1.98  | 5.42                           | 3.13  | 5.06                           | 4.20  | 4.75                           | 5.36  | 4.48                           | 6.51  | 4.25                           | 7.67  |
|                                    | 1450                          | 6.71                                                                                               | 2.21  | 6.31                           | 3.50  | 5.96                           | 4.72  | 5.65                           | 5.93  | 5.37                           | 7.22  | 5.13                           | 8.52  |
|                                    | 1600                          | 7.56                                                                                               | 2.39  | 7.16                           | 3.83  | 6.81                           | 5.23  | 6.50                           | 6.62  | 6.22                           | 8.01  | 5.98                           | 9.44  |
|                                    | 1750                          | 8.41                                                                                               | 2.58  | 8.01                           | 4.15  | 7.66                           | 5.74  | 7.35                           | 7.31  | 7.07                           | 8.80  | 6.83                           | 10.37 |
|                                    | 1900                          | 9.35                                                                                               | 2.81  | 8.91                           | 4.52  | 8.53                           | 6.25  | 8.19                           | 7.98  | 7.88                           | 9.59  | 7.62                           | 11.32 |
|                                    | 2050                          | 10.29                                                                                              | 3.04  | 9.81                           | 4.89  | 9.39                           | 6.76  | 9.03                           | 8.66  | 8.69                           | 10.39 | 8.40                           | 12.27 |
| TSR2-125<br>(125)                  | 1150                          | 7.97                                                                                               | 2.58  | 7.49                           | 4.16  | 7.06                           | 5.72  | 6.69                           | 7.29  | 6.45                           | 8.87  | 6.15                           | 10.45 |
|                                    | 1300                          | 9.22                                                                                               | 2.96  | 8.75                           | 4.78  | 8.32                           | 6.60  | 7.95                           | 8.43  | 7.71                           | 10.29 | 7.40                           | 12.24 |
|                                    | 1450                          | 10.61                                                                                              | 3.34  | 10.10                          | 5.41  | 9.73                           | 7.48  | 9.34                           | 9.56  | 9.02                           | 11.70 | 8.77                           | 14.04 |
|                                    | 1600                          | 11.87                                                                                              | 3.68  | 11.36                          | 5.97  | 10.99                          | 8.25  | 10.60                          | 10.55 | 10.28                          | 12.96 | 10.03                          | 15.48 |
|                                    | 1750                          | 13.13                                                                                              | 4.03  | 12.63                          | 6.52  | 12.26                          | 9.02  | 11.88                          | 11.53 | 11.57                          | 14.23 | 11.32                          | 16.92 |
|                                    | 1900                          | 14.66                                                                                              | 4.42  | 14.16                          | 7.13  | 13.79                          | 9.90  | 13.42                          | 12.70 | 13.12                          | 15.74 | —                              | —     |
| TSR2-150<br>(150)                  | 1150                          | 21.65                                                                                              | 6.05  | 20.52                          | 10.01 | 19.48                          | 14.10 | 18.77                          | 18.32 | 18.06                          | 22.48 | 17.34                          | 26.58 |
|                                    | 1300                          | 24.79                                                                                              | 6.88  | 23.66                          | 11.38 | 22.62                          | 16.02 | 21.91                          | 20.88 | 21.19                          | 25.62 | 20.48                          | 30.42 |
|                                    | 1450                          | 27.97                                                                                              | 7.70  | 26.86                          | 12.74 | 25.94                          | 17.94 | 25.23                          | 23.45 | 24.52                          | 28.77 | 23.91                          | 34.26 |
|                                    | 1600                          | 31.11                                                                                              | 8.50  | 30.00                          | 14.20 | 29.08                          | 20.00 | 28.37                          | 26.16 | 27.66                          | 32.13 | 27.05                          | 38.14 |
|                                    | 1750                          | 34.81                                                                                              | 9.30  | 33.71                          | 15.65 | 32.81                          | 22.06 | 32.11                          | 28.86 | 31.40                          | 35.49 | 30.71                          | 42.03 |
|                                    | 1900                          | 38.71                                                                                              | 10.15 | 37.55                          | 17.09 | 36.59                          | 24.08 | 35.86                          | 31.56 | 35.15                          | 38.89 | —                              | —     |
| TSR2-200<br>(200)                  | 700                           | 20.56                                                                                              | 5.93  | 19.96                          | 9.97  | 19.30                          | 14.22 | 18.70                          | 18.48 | 18.10                          | 22.41 | 17.50                          | 26.23 |
|                                    | 850                           | 25.53                                                                                              | 7.04  | 24.80                          | 12.08 | 24.16                          | 17.25 | 23.43                          | 22.43 | 22.90                          | 27.18 | 22.46                          | 31.82 |
|                                    | 1000                          | 30.93                                                                                              | 8.39  | 30.06                          | 14.32 | 29.30                          | 20.68 | 28.60                          | 26.82 | 27.93                          | 32.53 | 27.53                          | 38.38 |
|                                    | 1150                          | 35.93                                                                                              | 9.74  | 35.06                          | 16.38 | 34.30                          | 23.78 | 33.60                          | 30.85 | 32.93                          | 37.41 | 32.53                          | 44.14 |
|                                    | 1300                          | 40.93                                                                                              | 10.75 | 40.06                          | 18.43 | 39.30                          | 26.60 | 38.60                          | 34.59 | 37.93                          | 42.12 | 37.53                          | 49.92 |
|                                    | 1450                          | 47.19                                                                                              | 11.76 | 46.33                          | 20.47 | 45.23                          | 29.43 | 44.33                          | 38.33 | 43.76                          | 46.83 | —                              | —     |

|       |       |        |      |      |
|-------|-------|--------|------|------|
| 1.5kW | 5.5kW | 15kW   | 30kW | 55kW |
| 2.2kW | 7.5kW | 18.5kW | 37kW |      |
| 3.7kW | 11kW  | 22kW   | 45kW |      |

### Note

The above motors have been selected with minimum 5% margin.

The standard condition is defined as the temperature of 20°C, absolute pressure of 101.3kPa, and relative humidity of 65%.

We reserve the right to change the specifications and designs for improvement without prior notice.

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