TSURUMI PUMP
For The **Earth**, For All The **People**

SERIES

TSR

ROTARY AIR BLOWERS

Major Components & Specifications

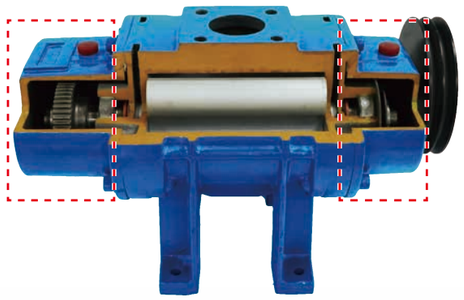
Discharge Bore mm			50	65	80	100	125	150	200	250	300
Treating fluid	Type		Air								
	Temperature		0 to 40°C								
Blower	Structure	Rotor	3-lobe rotor								
		Shaft Seal	Labyrinth								
		Bearing	Shielded ball bearing								
	Material	Casing	Gray cast iron								
		Shaft	Chromium molybdenum steel								
		Rotor	Gray cast iron								
		Gear	Nickel chromium molybdenum steel								
Discharge Connection			JIS 10kg/cm² flange								

Standard Accessories

- Common base
- Silencer (Suction & Discharge)
- Filter
- Safety valve
- Check valve
- Pressure gauge
- T-joint
- Belt cover
- V-belt
- Pulley
- Anti-vibration joint
- Anti-vibration rubber

Optional Accessories

- Acoustic hood



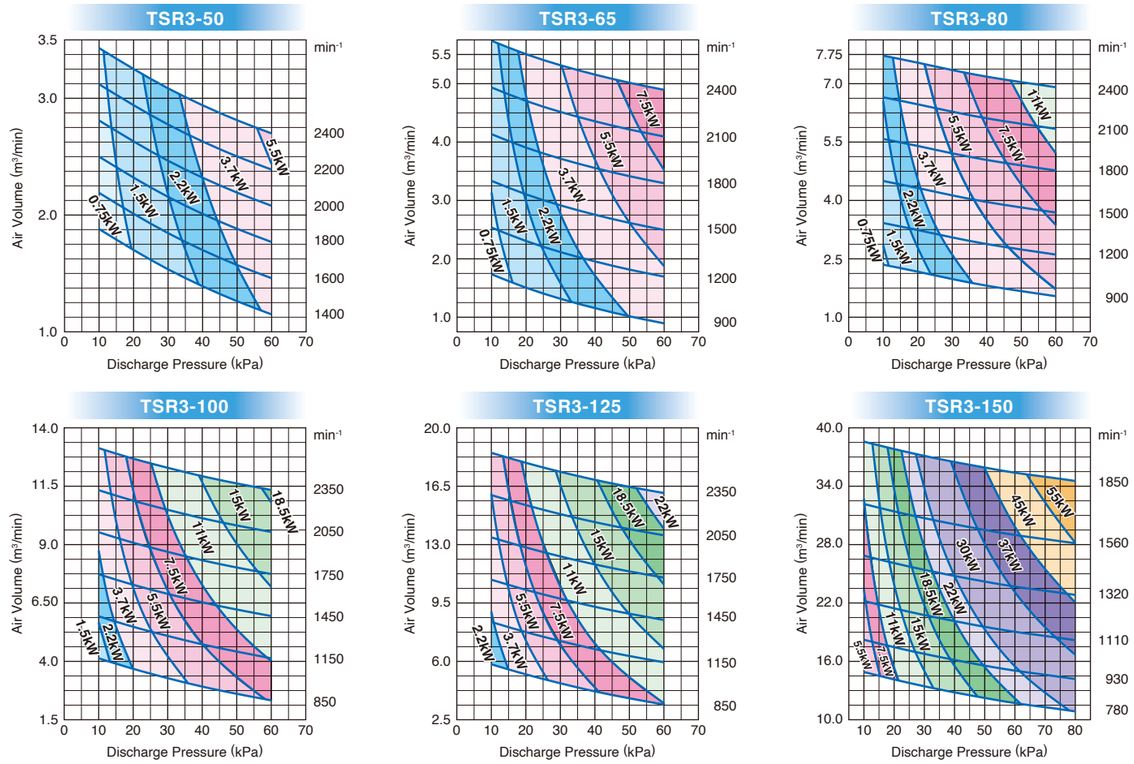
Structural Features

The double-sided oil chamber design effectively maintains lower temperatures during high-pressure and high-speed operations in comparison to traditional models.

High pressure (70 to 80kPa) is available as a air-cooled type (discharge bore diameter : 150 and 300mm).

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 suited for various applications, such as for aeration at wastewater treatment facilities, agitation of wastewater and sewage, decomposition and scum prevention, and oxygen supply at fish farms.

Performance Curves



How To Select The Blower Model

The Selection Chart indicates the relationships between blower model, bores, revolutions, discharge pressures, actual air flow rates, and the shaft powers.

1. The amount of air indicated in the Selection Chart represents the suction amount under the following standard conditions: temperature 20°C, absolute pressure 101.3kPa, and relative humidity 65%.
2. The amount of air under reference conditions (0°C, absolute pressure 101.3kPa, dry) can be converted to amounts of air under standard suction conditions by the formula below if the suction pressures are the same:

$$Qs = Qn \times \frac{273 + t\,s}{273}$$

where
Qs, amount of air (m³/min) under standard suction conditions indicated on the Selection Chart;
Qn, amount of air (m³/min) under reference suction conditions;
Suction pressure is ambient pressure, 101.3kPa;
t s, suction temperature in °C

3. To convert amounts of air under discharge conditions to amounts of air under standard suction conditions indicated on the Selection Chart, use the following formula:

$$Qs = Qd \times \frac{101.3 + Pd}{101.3} \times \frac{273 + t\,s}{273 + t\,d}$$

Qd, amount of air (m³/min.) under discharge conditions;
Pd, discharge pressure (kPa)
ts, suction temperature in °C
td, discharge temperature in °C

4. Using the amount of air and the necessary discharge pressure obtained from the above calculations, determine your blower model, bore, revolution, and shaft power referring to the Selection Chart.
5. Your selectable range can overlap several models. It is recommended that one with a smaller model number be selected for cost economy, or one with a larger model number be selected for lower noise.
6. For necessary motor output, refer to required power (La) in the Selection Chart.

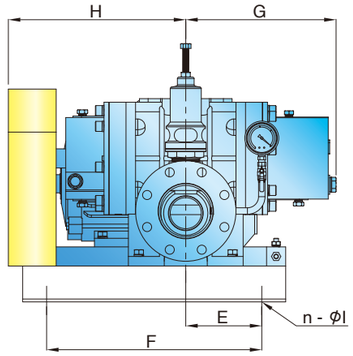
Selection Chart

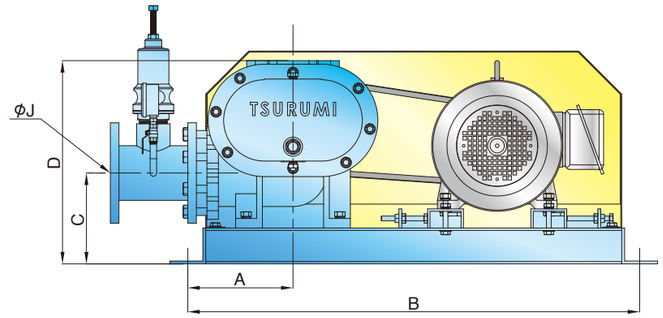
Model	RPM	Suction air volume at standard condition (Qs in m³/min) and required power (La in kW)															
		10kPa		20kPa		30kPa		40kPa		50kPa		60kPa		70kPa		80kPa	
		Qs	La	Qs	La	Qs	La	Qs	La	Qs	La	Qs	La	Qs	La	Qs	La
TSR3-50	1400	1.88	0.39	1.70	0.78	1.54	1.16	1.39	1.55	1.26	1.94	1.15	2.32				
	1600	2.19	0.44	2.01	0.89	1.85	1.33	1.70	1.77	1.57	2.21	1.46	2.66				
	1800	2.50	0.50	2.32	1.00	2.16	1.49	2.01	1.99	1.88	2.49	1.77	2.99				
	2000	2.81	0.55	2.63	1.11	2.47	1.66	2.32	2.21	2.19	2.77	2.08	3.32				
	2200	3.12	0.61	2.94	1.22	2.78	1.82	2.63	2.43	2.50	3.05	2.39	3.65				
	2400	3.43	0.66	3.25	1.33	3.09	1.99	2.94	2.65	2.81	3.32	2.70	3.99				
TSR3-65	900	1.74	0.47	1.51	0.93	1.32	1.37	1.16	1.80	1.02	2.22	0.90	2.63				
	1200	2.54	0.63	2.31	1.24	2.12	1.83	1.96	2.40	1.82	2.96	1.70	3.51				
	1500	3.34	0.79	3.11	1.55	2.92	2.29	2.76	3.00	2.62	3.70	2.50	4.38				
	1800	4.14	0.95	3.91	1.86	3.72	2.75	3.56	3.60	3.42	4.44	3.30	5.26				
	2100	4.94	1.11	4.71	2.17	4.52	3.21	4.36	4.20	4.22	5.18	4.10	6.13				
	2400	5.74	1.27	5.51	2.48	5.32	3.67	5.16	4.80	5.02	5.92	4.90	7.01				
TSR3-80	900	2.35	0.65	2.17	1.28	1.98	1.86	1.81	2.44	1.67	2.98	1.54	3.51				
	1200	3.42	0.87	3.24	1.70	3.05	2.48	2.88	3.24	2.74	3.97	2.61	4.68				
	1500	4.50	1.09	4.32	2.12	4.13	3.11	3.96	4.06	3.82	4.96	3.69	5.85				
	1800	5.58	1.30	5.40	2.54	5.21	3.73	5.04	4.87	4.90	5.96	4.77	7.02				
	2100	6.65	1.52	6.47	2.96	6.28	4.35	6.11	5.68	5.97	6.95	5.84	8.19				
	2400	7.72	1.74	7.54	3.39	7.35	4.98	7.18	6.50	7.04	7.95	6.91	9.36				
TSR3-100	850	4.13	1.16	3.68	2.21	3.28	3.18	2.92	4.06	2.61	4.88	2.33	5.64				
	1150	5.93	1.56	5.48	2.98	5.09	4.30	4.73	5.49	4.42	6.61	4.13	7.63				
	1450	7.73	1.97	7.28	3.76	6.89	5.42	6.53	6.93	6.22	8.33	5.94	9.62				
	1750	9.53	2.38	9.08	4.54	8.69	6.53	8.33	8.36	8.02	10.04	7.74	11.61				
	2050	11.33	2.79	10.88	5.32	10.49	7.65	10.13	9.80	9.82	11.76	9.54	13.60				
	2350	13.13	3.21	12.68	6.10	12.29	8.77	11.93	11.24	11.62	13.49	11.34	15.59				
TSR3-125	850	5.83	1.50	5.22	2.92	4.69	4.15	4.20	5.36	3.79	6.43	3.41	7.42				
	1150	8.36	2.07	7.76	3.93	7.22	5.66	6.74	7.25	6.32	8.74	5.95	10.16				
	1450	10.90	2.61	10.29	4.94	9.76	7.11	9.27	9.13	8.86	11.04	8.48	12.84				
	1750	13.43	3.13	12.83	5.96	12.29	8.55	11.81	11.01	11.39	13.32	11.02	15.41				
	2050	15.97	3.68	15.37	6.98	14.83	10.02	14.35	12.90	13.93	15.62	13.56	18.08				
	2350	18.50	4.24	17.90	7.99	17.36	11.49	16.88	14.78	16.46	17.92	16.09	20.74				
TSR3-150	780	14.90	3.69	14.14	7.05	13.44	10.14	12.81	12.99	12.24	15.62	11.71	18.06	11.29	20.33	10.86	22.41
	930	18.22	4.40	17.46	8.42	16.77	12.10	16.15	15.50	15.56	18.64	15.05	21.55	14.62	24.27	14.19	26.78
	1110	22.21	5.25	21.45	10.04	20.76	14.44	20.14	18.49	19.55	22.24	19.04	25.72	18.61	28.97	18.18	31.94
	1320	26.86	6.26	26.10	11.94	25.41	17.18	24.78	22.00	24.20	26.47	23.68	30.62	23.26	34.33	22.83	38.02
	1560	32.17	7.38	31.41	14.12	30.72	20.30	30.09	26.00	29.51	31.28	28.99	36.15	28.56	40.71	28.14	44.93
	1850	38.58	8.76	37.82	16.75	37.12	24.07	36.49	30.85	35.92	37.09	35.39	42.90	34.97	48.30	34.54	53.28
TSR3-200	620	17.89	4.94	16.82	9.52	15.89	13.73	15.05	17.59	14.36	21.19	13.75	24.56	13.21	27.67	12.79	30.55
	740	22.47	5.91	21.40	11.37	20.47	16.39	19.63	21.02	18.94	25.30	18.33	29.33	17.79	33.06	17.37	36.52
	880	27.82	7.04	26.75	13.54	25.82	19.50	24.98	25.03	24.29	30.09	23.68	34.89	23.14	39.33	22.72	43.49
	1050	34.31	8.41	33.24	16.16	32.31	23.28	31.47	29.89	30.78	35.91	30.17	41.64	29.63	46.96	29.21	51.93
	1250	41.95	10.07	40.87	19.30	39.94	27.76	39.10	35.65	38.41	42.93	37.79	49.74	37.25	56.00	36.82	61.81
	1470	50.34	11.90	49.26	22.75	48.33	32.70	47.49	41.99	46.80	50.63	46.18	58.55	45.64	65.88	45.21	72.70
TSR3-250	620	32.49	8.21	30.56	15.92	28.86	23.01	27.35	29.49	26.08	35.58	24.98	41.09	23.99	46.18	23.23	51.11
	740	40.65	9.89	38.71	19.08	37.03	27.55	35.52	35.36	34.27	42.57	33.16	49.49	32.19	56.04	31.42	62.14
	880	50.11	11.84	48.18	22.77	46.51	32.82	45.00	42.19	43.75	50.70	42.66	58.95	41.67	66.72	40.93	74.70
	1050	61.50	14.18	59.58	27.24	57.91	39.23	56.41	50.49	55.17	60.57	54.08	70.41	53.11	79.71	52.35	89.37
	1250	74.78	17.12	72.85	32.66	71.20	46.90	69.71	60.37	68.47	72.72	67.36	84.43	66.41	95.56	65.64	106.66
	1470	89.22	20.35	87.31	38.65	85.67	55.36	84.17	71.24	82.95	85.42	81.86	99.86	80.90	113.03	80.14	125.72
TSR3-300	620	44.38	11.65	41.65	22.23	39.45	31.81	37.63	40.75	35.97	49.00	34.49	56.66	33.18	63.77	32.04	70.38
	740	55.34	13.91	52.70	26.63	50.50	38.30	48.67	49.05	47.01	58.98	45.53	68.21	44.22	76.87	43.09	84.83
	880	68.14	16.54	65.51	31.67	63.31	45.55	61.47	58.35	59.82	70.14	58.33	81.11	57.03	91.41	55.90	100.89
	1050	83.49	19.74	80.89	37.79	78.62	54.35	76.79	69.63	75.13	96.79	73.65	96.79	72.33	109.07	71.20	120.40
	1250	101.34	23.52	98.72	45.01	96.41	64.72	94.53	82.90	92.87	99.70	91.39	115.28	90.08	129.89	88.95	143.40
	1470	120.66	27.68	118.08	52.95	115.79	76.13	113.83	97.51	112.18	117.29	110.71	135.63	109.41	152.78	108.38	168.71

0.75kW	3.7kW	11kW	22kW	45kW	90kW	150kW
1.5kW	5.5kW	15kW	30kW	55kW	110kW	160kW & Over
2.2kW	7.5kW	18.5kW	37kW	75kW	132kW	

Note
The above motors have been selected with minimum 5% margin.
The standard condition is difined as the temperature of 20°C, absolute pressure of 101.3kPa, and relative humidity of 65%.

Dimensions





Unit: mm

Model	A	B	C	D	E	F	G	H	n-φI	J	Weight (kg)
TSR3-50	207.5	795	179	360	182	375	219.4	233	4-φ14	50	66
TSR3-65	207.5	795	178.5	367	141	375	259.4	274	4-φ14	65	80
TSR3-80	207.5	795	185	375	112	375	289.4	303	4-φ14	80	88
TSR3-100	220	945	190	425	159	450	314.4	371	4-φ14	100	152
TSR3-125	220	945	220	455	109	450	363.4	431	4-φ14	125	175
TSR3-150	137.5	900	263.5	553	209	550	504.6	558	4-φ19	150	347
TSR3-200	313	1300	323	755	583	935	489.5	559.5	6-φ20	200	717
TSR3-250	313	1300	343	785	437.5	935	611	675	6-φ20	250	929
TSR3-300	273	1530	405	825	402	925	714.5	800	6-φ24	300	1071

• Weight excluding motor and silencer

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We reserve the right to change the specifications and designs without prior notice. The OO series and model OO are indicated with our series/model codes in this catalog.

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