

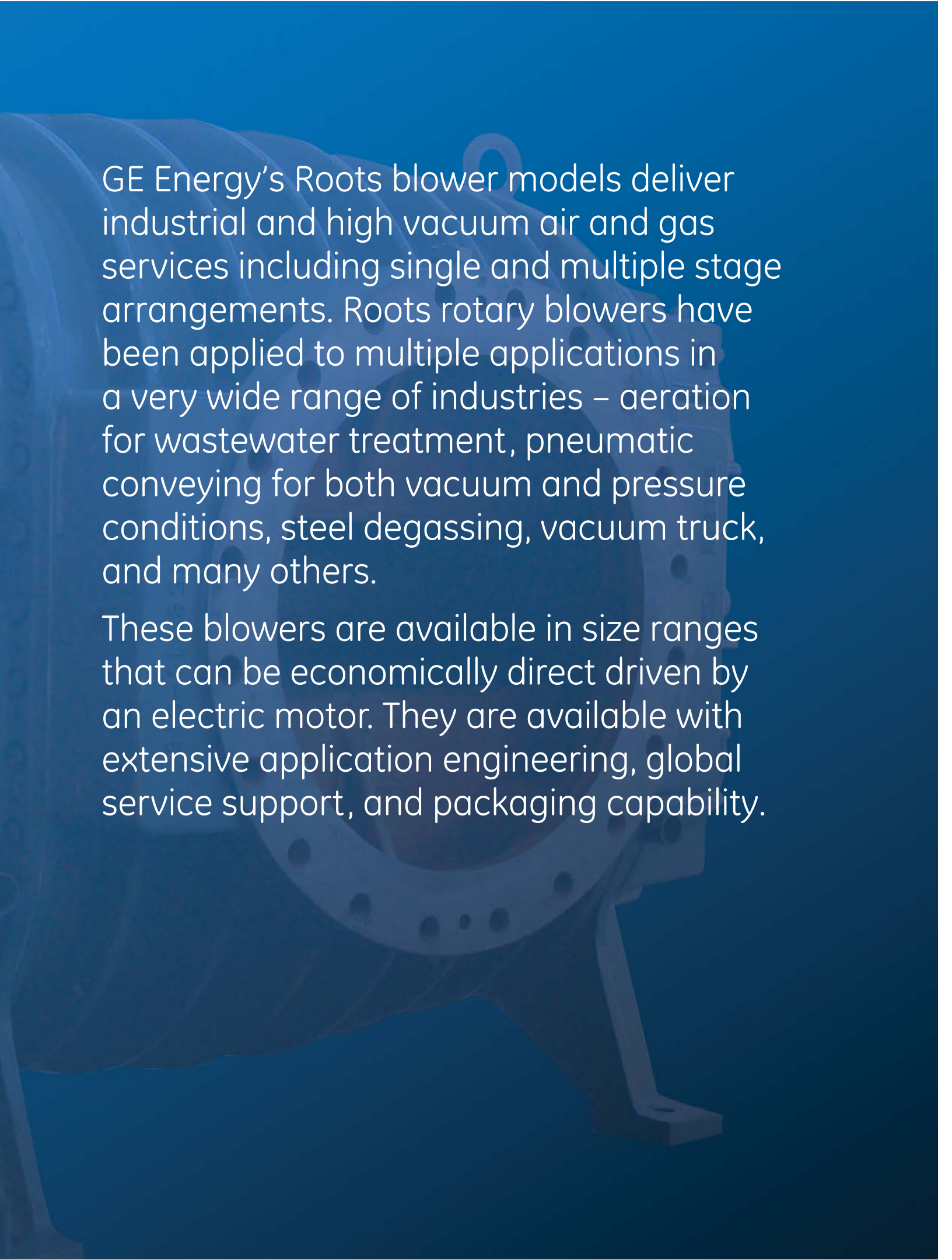


## Roots\* RAS-J Air & RGS-J Gas Blowers

Wide range of performance for pressure and vacuum applications on air or gas service for both dry and wet (liquid injection) conditions.



imagination at work



GE Energy's Roots blower models deliver industrial and high vacuum air and gas services including single and multiple stage arrangements. Roots rotary blowers have been applied to multiple applications in a very wide range of industries – aeration for wastewater treatment, pneumatic conveying for both vacuum and pressure conditions, steel degassing, vacuum truck, and many others.

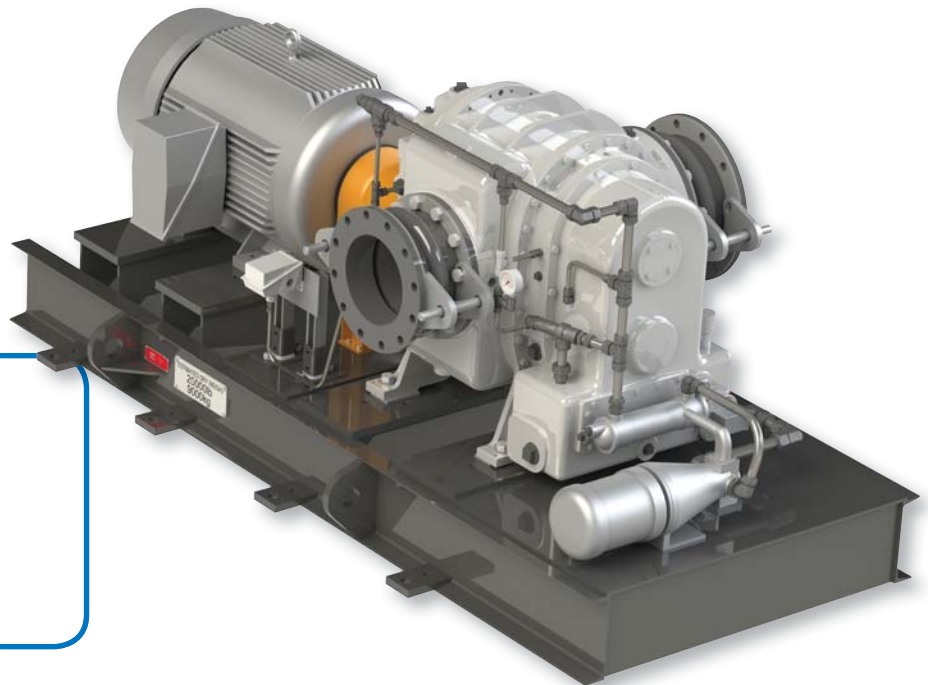
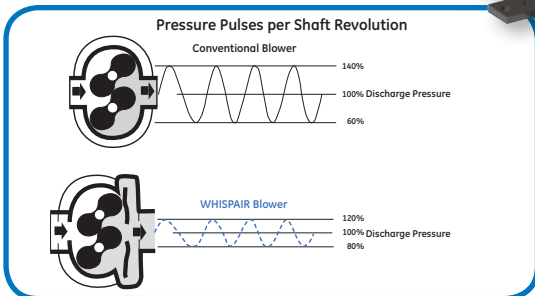
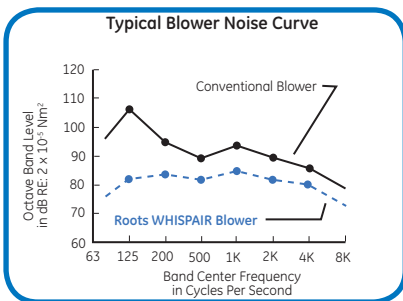
These blowers are available in size ranges that can be economically direct driven by an electric motor. They are available with extensive application engineering, global service support, and packaging capability.

The GE proprietary WHISPAIR® design reduces stress, vibration and noise in your blower and piping system. Conventional blowers produce downstream pressure pulse waves which buffet your air or gas delivery system up to 120 times per second. These pulses and vibrations can steal power and shorten the life of every bearing, gear and other drive train component.

WHISPAIR technology reduces the strength of the blower pulse up to 40%, throughout the air/gas delivery system.

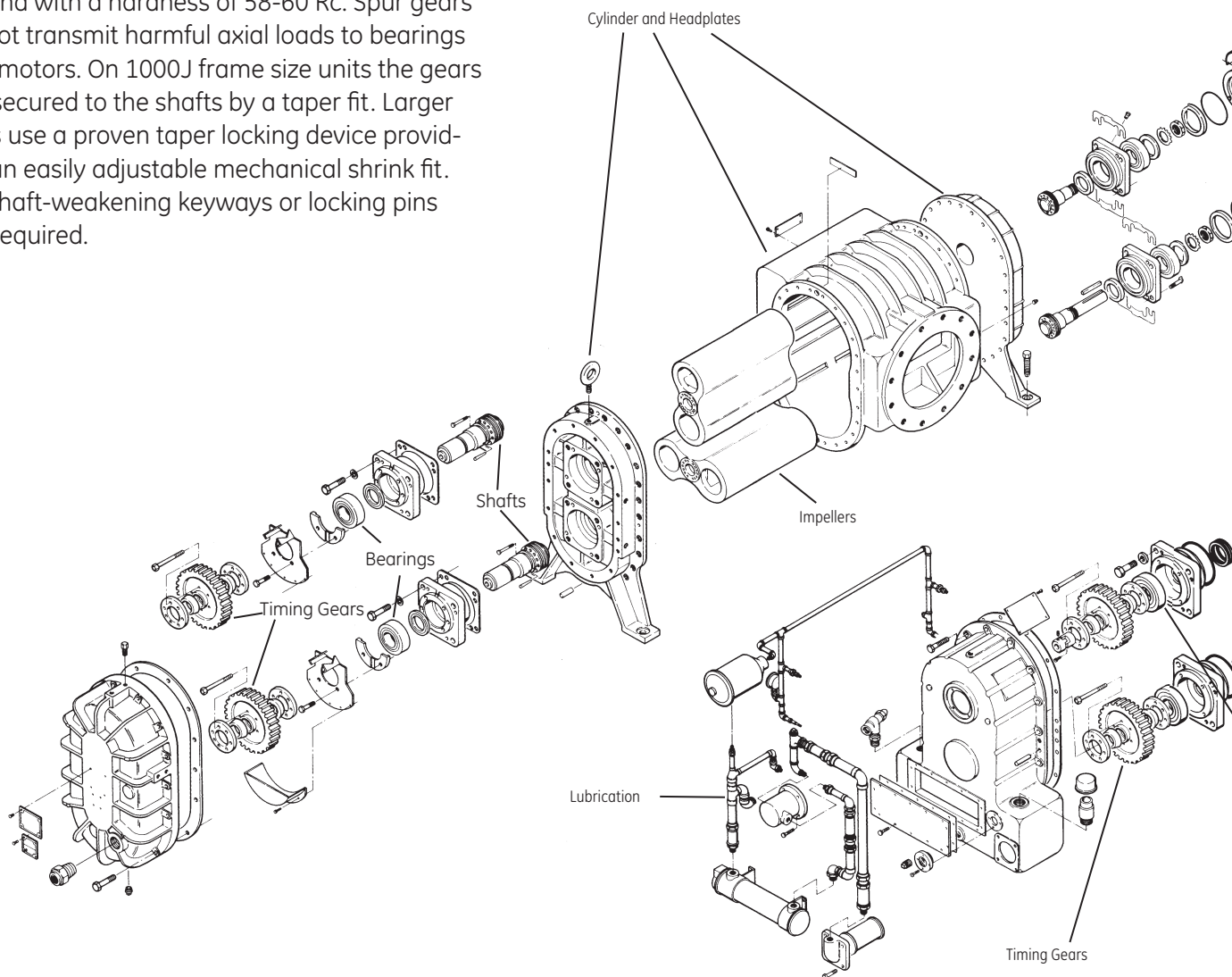
### WHISPAIR Technology Features

- Lower energy consumption.** The patented WHISPAIR jet design precisely meters back-flow and channels air pressure in the direction of impeller rotation. The result is an extra “push” that reduces the power required to drive the impellers.
- Longer bearing life.** Less pulse transmitted through the impellers means approximately 20% longer bearing life. With less pulse and vibration, other components such as timing gears, drive couplings, v-belts and motor bearings suffer less stress.
- Less noise.** Pressure pulses are often the major source of blower and gas blower noise. The pressure equalizing effect of the WHISPAIR design reduces noise by approximately 5 dBA, while reducing wear on your piping valves and sensitive instrumentation.
- Cylinder and headplates.** All RAS-J and RGS-J blower units are configurable to horizontal or vertical flows. Cylinders and headplates are precision machined grey iron, with cast ribs for improved strength and heat transfer. Castings may be subjected to strenuous pressure and leak testing to help preserve integrity in the most demanding applications. Each RGS-J machine is leaked tested to 1.25 times casing design pressure; optional hydrostatic testing available to 1.5 times casing design pressure.
- Impellers.** Made from ductile iron with a tensile strength of 60,000 psi impellers are statically and dynamically balanced to industry accepted standards, providing you with years of trouble-free performance and durability.



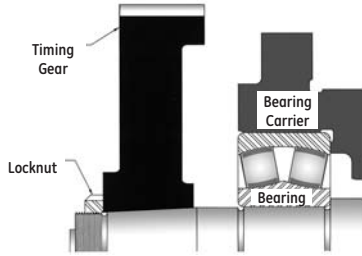
- **Shafts.** Impeller shafts are alloy steel forgings; flange connected to the impeller bodies with high-tensile socket head capscrews. Standard blowers have precision machined labyrinth seals where the shaft passes the casing headplate. A single piston ring or multiple piston rings may also be employed with various purge gas configurations to meet customer specific requirements.
- **Bearings.** Long-life, double - row spherical roller bearings support the shaft assemblies and control axial location of the impellers at the thrust end. An inboard 5th bearing helps reduce drive shaft stress on 1000J through 1400J frame size, V-belt driven blowers.
- **Timing gears.** The impellers rotation is timed by a pair of precision machined, forged steel gears. These wide-faced spur gears are manufactured to AGMA standards and are carburized and ground with a hardness of 58-60 Rc. Spur gears do not transmit harmful axial loads to bearings and motors. On 1000J frame size units the gears are secured to the shafts by a taper fit. Larger sizes use a proven taper locking device providing an easily adjustable mechanical shrink fit. No shaft-weakening keyways or locking pins are required.

- **Lubrication** Both RAS-J blowers and RGS-J blowers offer a positive pressure lubrication system which can extend bearing life by up to 50%. This system is entirely self-contained and includes an integral drive oil pump, distribution piping. Every pressure lubrication option includes, gearbox oil sump, oil filter oil cooler, pressure gauge, relief valve and low oil pressure safety switch. This is a pressure lubrication system that supplies cool, clean pressurized oil into every critical area. The Roots RAS-J blower is also available with an energy-saving splash lubrication system in place of the pressure system.



### RAS-J/RGS-J Blower

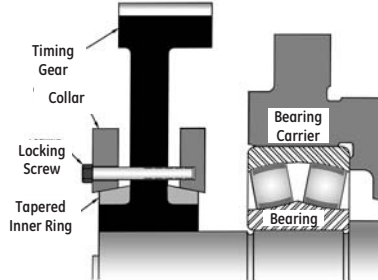
Timing gear locking arrangement for 1000J frame sizes



Taper Fit

### RAS-J/RGS-J Blower

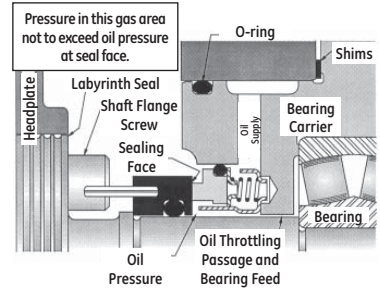
Timing gear locking arrangement for 1200J - 2000J frame sizes



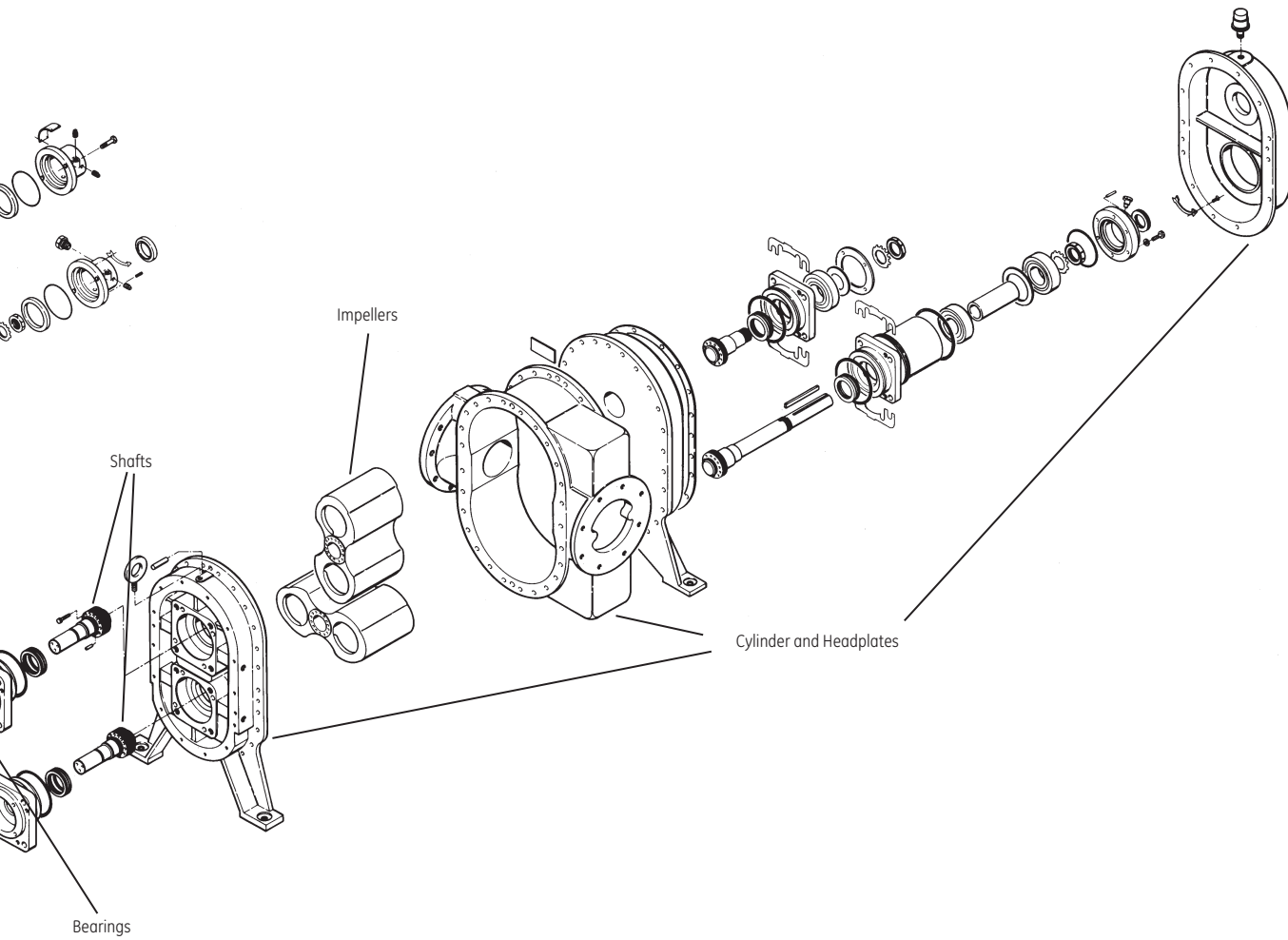
Locking Ring

### RGS-J Gas Blower

Detail Mechanical Seal



Detail Options





## Dimensions (Refer to drawings on page 9)

Frame Size	Pressure Lubrication							Weight (Kg)
	Horizontal Flow		Vertical Flow		Both			
	O	P	O	P	C	C <sup>1</sup>		
1006	883	724	730	914	1005	1230	907	
1009	883	724	730	914	1081	1307	957	
1012	883	724	730	914	1157	1383	1034	
1016	886	724	730	914	1272	1497	1139	
1018	886	724	730	914	1329	1554	1175	
1021	886	724	730	914	1386	1611	1211	
1024	886	724	730	914	1462	1688	1411	
1030	886	724	730	914	1614	1840	1660	
1212	1029	838	842	1016	1157	1267	1436	
1216	1029	838	842	1016	1259	1369	1622	
1220	1029	838	842	1016	1360	1470	1721	
1222	1029	838	842	1016	1424	1534	1810	
1225	1029	838	842	1016	1487	1597	1898	
1228	1029	838	842	1016	1576	1686	1971	
1236	1029	838	842	1016	1767	1877	2211	
1412	1200	978	965	1149	1296	1443	2046	
1414	1200	978	965	1149	1356	1503	2186	
1418	1200	978	965	1149	1457	1605	2327	
1422	1200	978	965	1149	1559	1707	2477	
1425	1200	978	965	1149	1623	1770	2586	
1428	1200	978	965	1149	1699	1846	2694	
1431	1200	978	965	1149	1788	1935	2821	
1435	1200	978	965	1149	1864	2024	2948	
1442	1200	978	965	1149	2054	2202	3216	
1616	1365	1130	1099	1295	1227	-----	2806	
1620	1365	1130	1099	1295	1329	-----	2933	
1625	1365	1130	1099	1295	1456	-----	3085	
1627	1365	1130	1099	1295	1506	-----	3236	
1630	1365	1130	1099	1295	1583	-----	3393	
1633	1365	1130	1099	1295	1659	-----	3552	
1636	1365	1130	1099	1295	1735	-----	3675	
1639	1365	1130	1099	1295	1811	-----	3867	
1643	1365	1130	1099	1295	1913	-----	4024	
1648	1365	1130	1099	1295	2040	-----	3987	
1821	1505	1257	1219	1422	1456	-----	3828	
1824	1505	1257	1219	1422	1532	-----	3978	
1827	1505	1257	1219	1422	1608	-----	4169	
1830	1505	1257	1219	1422	1684	-----	4359	
1833	1505	1257	1219	1422	1773	-----	4550	
1838	1505	1257	1219	1422	1887	-----	4672	
1841	1505	1257	1219	1422	1964	-----	4740	
1845	1505	1257	1219	1422	2065	-----	4931	
1849	1505	1257	1219	1422	2167	-----	5067	
1854	1505	1257	1219	1422	2294	-----	5203	
2022	1680	1384	1340	1556	1557	-----	4831	
2026	1680	1384	1340	1556	1659	-----	5044	
2030	1680	1384	1340	1556	1748	-----	5273	
2033	1680	1384	1340	1556	1832	-----	5502	
2037	1680	1384	1340	1556	1934	-----	5956	
2040	1680	1384	1340	1556	1997	-----	6183	
2044	1680	1384	1340	1556	2099	-----	6409	
2047	1680	1384	1340	1556	2175	-----	6573	
2050	1680	1384	1340	1556	2251	-----	6736	
2055	1680	1384	1340	1556	2378	-----	6958	
2057	1680	1384	1340	1556	2429	-----	7047	
2060	1680	1384	1340	1556	2505	-----	7181	
2062	1680	1384	1340	1556	2556	-----	7270	
2064	1680	1384	1340	1556	2607	-----	7360	
2022**	1711	1384	1378	1556	1775	-----	5211	
2026**	1711	1384	1378	1556	1877	-----	5424	
2030**	1711	1384	1378	1556	1965	-----	5653	
2033**	1711	1384	1378	1556	2054	-----	5882	
2037**	1711	1384	1378	1556	2156	-----	6336	
2040**	1711	1384	1378	1556	2219	-----	6563	
2044**	1711	1384	1378	1556	2321	-----	6789	
2047**	1711	1384	1378	1556	2397	-----	6858	
2050**	1711	1384	1378	1556	2473	-----	6940	
2055**	1711	1384	1378	1556	2600	-----	7087	
2057**	1711	1384	1378	1556	2651	-----	7155	
2060**	1711	1384	1378	1556	2727	-----	7303	
2062**	1711	1384	1378	1556	2791	-----	7530	
2064**	1711	1384	1378	1556	2829	-----	7756	
2070**	1969	1753	1448	1556	2981	-----	9582	
2072**	1969	1753	1448	1556	3032	-----	9696	
2080**	1969	1753	1448	1556	3235	-----	10603	

All dimensions in mm.

\*\* For 40 PSL rating

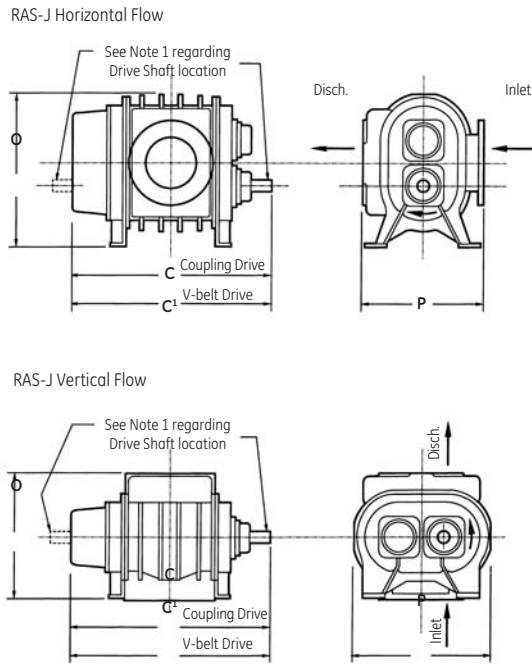
## Dimensions

Splash Lubrication									
Horizontal Flow		Vertical Flow		Both		Weight (kg)	Inlet Diameter DN	Discharge Diameter DN	
O	P	O	P	C	C <sup>1</sup>				
883	724	730	781	775	1000	880	150	150	
883	724	730	781	851	1076	930	250	200	
883	724	730	781	927	1153	998	250	200	
886	724	730	781	1041	1267	1089	300	250	
886	724	730	781	1099	1324	1111	300	250	
886	724	730	781	1156	1381	1157	350	300	
886	724	730	781	1232	1457	1361	350	300	
886	724	730	781	1384	1610	1588	400	350	
1029	838	842	933	1018	1127	1406	300	250	
1029	838	842	933	1120	1229	1542	350	300	
1029	838	842	933	1221	1330	1656	400	350	
1029	838	842	933	1284	1394	1724	400	350	
1029	838	842	933	1348	1457	1814	400	350	
1029	838	842	933	1437	1546	1882	450	400	
1029	838	842	933	1627	1737	2109	500	450	
1200	978	965	1092	1086	1234	1951	300	250	
1200	978	965	1092	1146	1294	2087	350	300	
1200	978	965	1092	1248	1395	2223	350	300	
1200	978	965	1092	1350	1497	2359	400	350	
1200	978	965	1092	1413	1561	2404	450	400	
1200	978	965	1092	1489	1637	2563	450	400	
1200	978	965	1092	1578	1726	2676	450	400	
1200	978	965	1092	1667	1815	2812	500	450	
1200	978	965	1092	1845	1992	3062	600	500	
1365	1130	1099	1257	1227	-----	2586	350	300	
1365	1130	1099	1257	1329	-----	2722	400	350	
1365	1130	1099	1257	1456	-----	2858	500	450	
1365	1130	1099	1257	1506	-----	2994	500	450	
1365	1130	1099	1257	1583	-----	3107	500	450	
1365	1130	1099	1257	1659	-----	3289	600	500	
1365	1130	1099	1257	1735	-----	3414	600	500	
1365	1130	1099	1257	1811	-----	3651	600	500	
1365	1130	1099	1257	1913	-----	3629	750	600	
1365	1130	1099	1257	2040	-----	3720	750	600	
1505	1257	1219	1372	1456	-----	3538	450	400	
1505	1257	1219	1372	1532	-----	3674	500	400	
1505	1257	1219	1372	1608	-----	3810	500	400	
1505	1257	1219	1372	1684	-----	4014	600	500	
1505	1257	1219	1372	1773	-----	4219	600	500	
1505	1257	1219	1372	1887	-----	4355	600	500	
1505	1257	1219	1372	1964	-----	4423	750	600	
1505	1257	1219	1372	2065	-----	4581	750	600	
1505	1257	1219	1372	2167	-----	4717	750	650	
1505	1257	1219	1372	2294	-----	4831	750	650	
1680	1384	1340	1556	1557	-----	4445	500	400	
1680	1384	1340	1556	1659	-----	4649	500	450	
1680	1384	1340	1556	1748	-----	4865	600	500	
1680	1384	1340	1556	1832	-----	5080	600	500	
1680	1384	1340	1556	1934	-----	5353	750	600	
1680	1384	1340	1556	1997	-----	5647	750	600	
1680	1384	1340	1556	2099	-----	5942	750	600	
1680	1384	1340	1556	2175	-----	6101	750	600	
1680	1384	1340	1556	2251	-----	6260	750	650	
1680	1384	1340	1556	2378	-----	6487	900	750	
1680	1384	1340	1556	2429	-----	6569	900	750	
1680	1384	1340	1556	2505	-----	6691	900	750	
1680	1384	1340	1556	2556	-----	6772	900	750	
1680	1384	1340	1556	2607	-----	6854	900	750	
1711	1384	1378	1556	1775	-----	4825	500	400	
1711	1384	1378	1556	1877	-----	5029	500	450	
1711	1384	1378	1556	1965	-----	5245	600	500	
1711	1384	1378	1556	2054	-----	5460	600	500	
1711	1384	1378	1556	2156	-----	5733	750	600	
1711	1384	1378	1556	2219	-----	6027	750	600	
1711	1384	1378	1556	2321	-----	6322	750	600	
1711	1384	1378	1556	2397	-----	6722	750	600	
1711	1384	1378	1556	2473	-----	6804	750	650	
1711	1384	1378	1556	2600	-----	6940	900	750	
1711	1384	1378	1556	2651	-----	7008	900	750	
1711	1384	1378	1556	2727	-----	7144	900	750	
1711	1384	1378	1556	2791	-----	7371	900	750	
1711	1384	1378	1556	2829	-----	7598	900	750	
1969	1753	1448	1556	2981	-----	9412	1050	1050	
1969	1753	1448	1556	3032	-----	9525	1050	1050	
1969	1753	1448	1556	3235	-----	10433	1050	1050	

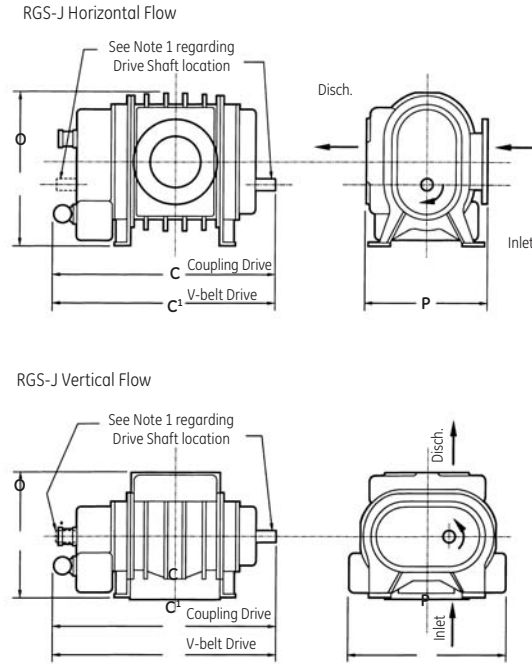
All dimensions in mm.



## RAS-J Air WHISPAIR Blower



## RGS-J Gas WHISPAIR Blower



**Note 1:** Standard drive shaft location is dependent upon frame size:

10xx through 14xx frame sizes - drive shaft is located on the opposite gear end of the machine and is shown in heavy type.

16xx through 20xx frame size - drive shaft is located on the gear end of the machine as shown by dotted lines.

For all direct drive applications torsional analysis of the whole drive train is required and in the case of drivers other than electric motors, gear end drive must be specified.

Frame sizes 10xx through 14xx can be belt driven with the addition of an optional extra bearing and selection of correct pulley combination.



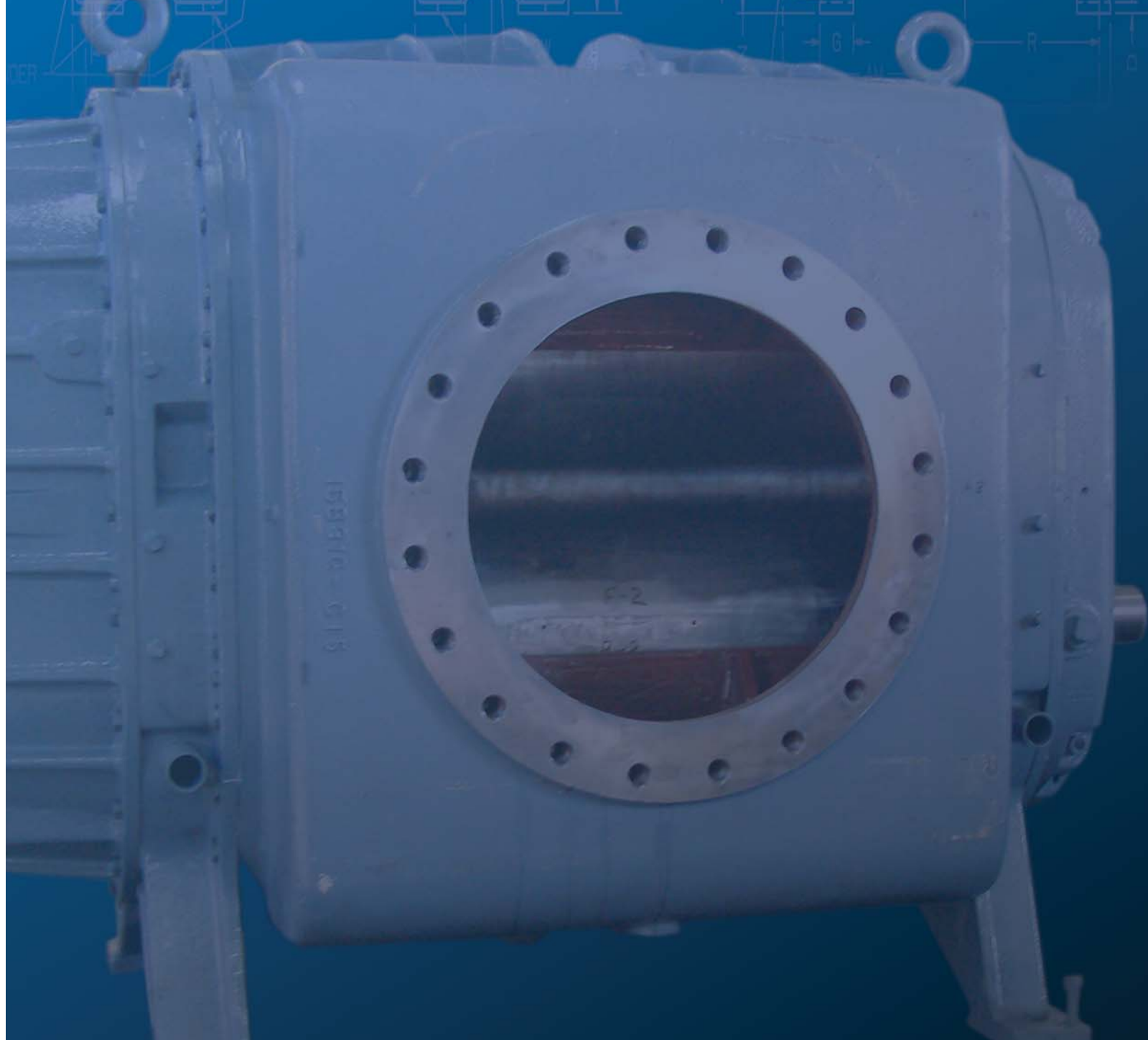
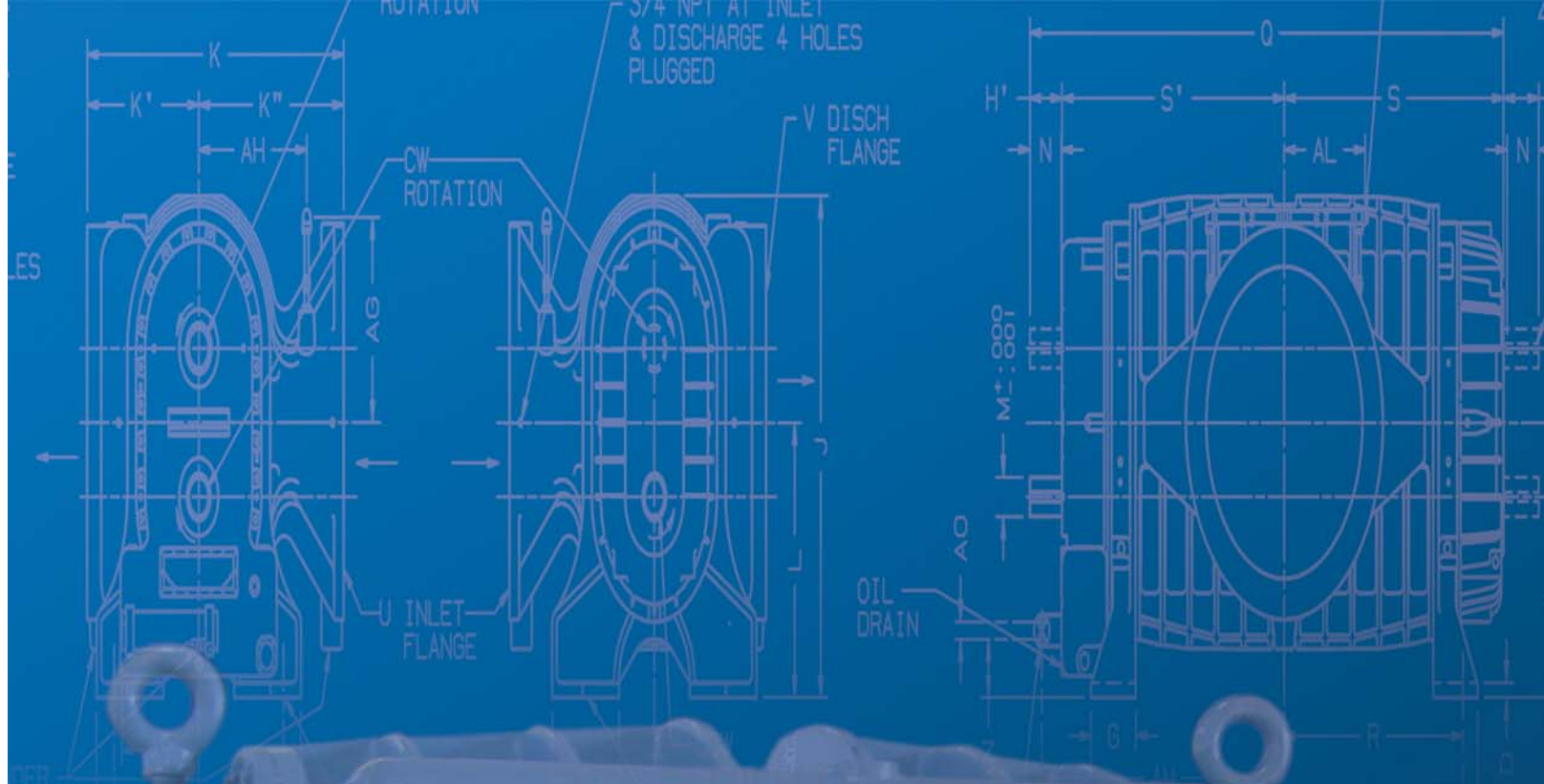
### **Each unit tested and certified**

Each RAS-J blower and RGS-J gas blower is mechanically tested to ensure that the unit meets performance specifications. Our units are tested to design extremes of speed, pressure and temperature. We validate flow capacity oil circulation, operating clearances and vibration at these critical performance levels. We also offer testing that meets your special process requirements and qualifications.

### **Global presence**

Our sales professionals are available around the globe and we offer blower service and repair from facilities in Connersville, Indiana, Houston, Texas, Skelmersdale, United Kingdom, Mexico City, Mexico, Dubai, UAE, and Shanghai, China.

A network of authorized Roots blowers & compressors distributors is available around the globe to support your blower requirements. Each distributor facility is equipped and staffed with factory trained service personnel to meet your unique needs. These facilities regularly service unit from many OEMs and keep parts on hand for quick turn-around.



**GE Energy**

Houston, Texas | U.S. Toll Free Phone: 1 877-363-ROOT(S) (7668) | Direct Phone: +1 832-590-2600

Connersville, Indiana Operations | Direct Phone: +1 765-827-9200

Waukesha, Wisconsin Operations | Direct Phone: +1 262-650-5965

European Operations | Phone: +44 (0) 1695 52600 | Email: roots.europe@ge.com

USA/Canada Sales | Phone: +1 773-444-3360

Houston, Texas Factory Service | Phone: +1 713-896-4810

Mexico City Sales and Factory Service | Phone: +52 55 5889 5811

Dubai Sales and Factory Service | Phone: +971 4-8855481

Malaysia Sales | Phone: +60 3 2267 2600

China Sales | Phone: +86 10 8486 2440

Shanghai Factory Service | Phone: +86 21 5858 7638

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