



• Technology • Innovation • Excellence

ISO 9001
ISO 14001
OHSAS 18001

ROTARY

TWIN-LOBE COMPRESSORS

(ROOTS TYPE BLOWERS)

For compression evacuation boosting and conveyance of oil-free air & neutral gases

ADVANCE TECHNOLOGY NEXT
GENERATION AXCEL SERIES



- Durable
- Cost effective
- Energy efficient



Bulletin SP-22

Swam a leader in Rotary Blower technology, has during its nearly three decades of experience in design & manufacturing of blowers has acquired exceptional product development capabilities to meet the stringent quality and performance requirements and to conform to the customer's tough & diversified specification. Emphasis has been on innovative design, precision engineering and responsiveness to customers.

Swam, thus offers its advance technology next generation **Axcel series blowers**; equipped with latest features, enabling it more reliable, energy efficient and lower maintenance.

Blowers are ruggedly built with appropriate rotor shaft design, aiming at low deflection & critical consideration. The rotors are supported on heavy duty antifriction oil lubricated bearings. The rotor profile of Axcel Series are computer generated enabling better uniform clearances and higher volumetric efficiency.

The blowers have very high accuracies and manufactured on CNC machines. The blowers are available for flows upto 65000 m³/hr. and pressure upto 1.10 kg /cm².

The blowers are suitable for continuous operation to work as compressors or as exhausters.

FOCUS ON QUALITY & RELIABILITY

Emphasis on quality & performance is a commitment of every individual at **SWAM** beginning at grass root level.

The quality control is practiced at all levels of the organization and all its aspects are thoroughly complied with the specified standard and specification, till the product gets delivered.

The quality assurance system encompasses self quality control by each worker, supervised by quality control engineers. Each blower undergoes thorough & stringent tests at different stages of manufacturing and are test run for several hours prior to despatch as per the relevant code, customers' specification & approved quality plan.

These functions are carried out by our team of dedicated, qualified & experienced engineers.

In pursuit and in recognition there of, our products are accredited to ISO 9001:2008 certification. Our blowers comply to European standard of machinery directives and CE certified.

ADVANCE MANUFACTURING SYSTEM

Swam has the most advance manufacturing system with a large number of CNC Machines installed in our four plants. The blowers and every accessory are manufactured with most optimum profile resulting higher efficiencies, high displacement, lower slippage. Thus these are more energy efficient blowers compared to any other.



ROTARY

TWIN-LOBE COMPRESSORS / BLOWERS

Swam Rotary Twin Lobe Blowers / Compressors have been developed through its extensive experience and technical expertise. The present series, feature high performance, low maintenance and embody the **state-of-the-art** design.

The blowers have been standardized, with a wide applicable working pressures, ranging from low to high and can be effectively used for air and gas conveying, exhausting and boosting applications for positive & negative pressures.

The **Twin-Lobe Compressors** are commonly known as **Rotary Positive Displacement Blowers** and **Roots Type Blowers**.

AIR BLOWERS

Economical and ideal for pneumatic conveying, humidification, blending & fluidising of powdered or granular materials and aeration of liquids.

The flow capacities up to 65,000 CMH and pressures up to 2.0 kg/cm² in multi staging.

The blowers for high suction pressure are with mechanical seals and pressurized lubrication.

GAS BOOSTERS

Gas boosters are used for circulation of gases for chemical processes. The gases mostly handled are Hydrogen, Nitrogen, Oxygen, Bio Gas, Carbon Dioxide, Methane mixed gas, Coke oven gas etc. The boosters are fitted with improved sealing system to make it leak-proof. The mechanical seals are fitted, if application so warrants. The construction materials are special, depending upon the nature of gas.

The boosters with water injection (WI) are suitable for evacuation of dusty air of gases and are fitted with gland seals (P) with or without external flushing. In these the compression chamber and the oil chambers are separated by air space. Double action Mechanical Seal (M) can also be fitted.

VACUUM BLOWERS & PUMPS

For negative suction, the blowers are ideally suited for processes requiring medium vacuums such degassing, exhausting and pneumatic conveying.

Maximum vacuum of 5500 mmwg is achievable with standard blowers. Special designs are available for higher vacuum. Pumps with secondary cooling (MHV Series) develop vacuum upto 8000 mmwg. The operation is completely dry.

HIGH PRESSURE BLOWERS

Two or three stage blowers for high suction pressure upto 9.0 kg/cm²g packaged for differential pressure of about 2.5 kg/cm²g, complete with inter stage coolers, silencers, air dyers, control panel and instrumentation making is suitable for automatic or semi-automatic operation. Ideally for process industries handling Nitrogen and other process gases. The complete package can be mounted on a platform of bulk carrying vehicle.

Besides this there are Vacuum Boosters and other Vacuum Products.



AIR BLOWER



DRY VACUUM PUMP
(Pumps with secondary suction)

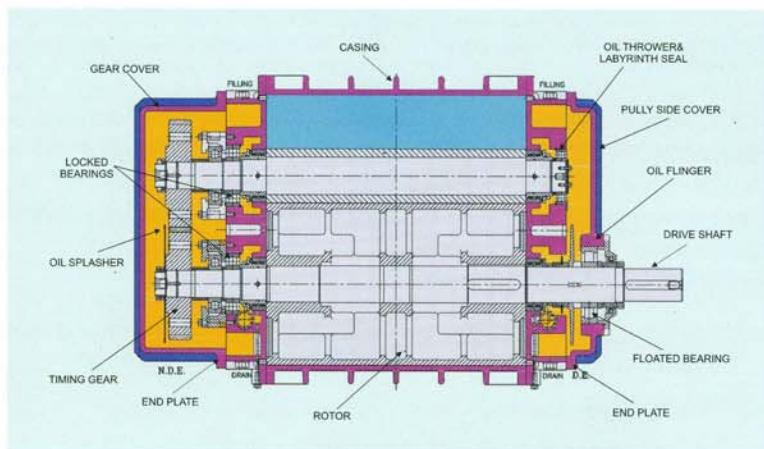


GAS BOOSTER



VACUUM BOOSTER

CONSTRUCTION



CROSS SECTION DRAWING OF A PARTICULAR MODEL

SALIENT FEATURES

- Rugged construction and State-of-the-art design.
- Heavy-Duty bearings, including one on outboard shaft for durability.
- Helical timing gears with taper bore, shrunk fit on the shaft under high pressure fitment highly reliable.
- Splash oil lubrication on both ends ensure longer bearing life.
- Double acting metallic Rotary Seals, guaranteed oil free conveying.
- Rotary parts dynamically balanced to grade 2.5
- High volumetric & mechanical efficiencies.

CONSTRUCTION

Casing

Integral cast body normally of grey or ductile iron. The casings have large in-built suction and discharge ports and heavy cast ribs. High pressure blowers have its casing jacketed for cooling water. The suction & discharge flanges are standardized as per IS-6418. Depending on application, the casing can be on carbon steel, alloy cast iron, etc.

Rotors

Rotor lobes are generally of grey or ductile iron with pressed in steel shaft, but can be out of forged steel with integral shaft. The rotors are precision machined and dynamically balanced to grade 6.3 of ISO-1940/ but mostly to a very finegrade of 2.5 of ISO-1940.



Forged Steel Rotors with integral shaft

End Covers

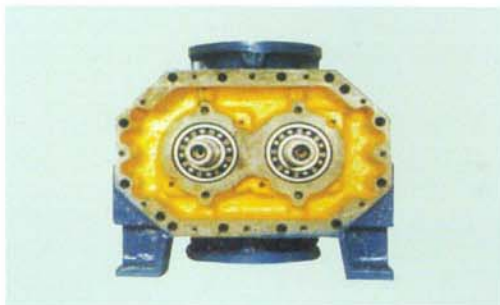
End covers are of grey cast iron and function as intermediate chambers. The labyrinth seals, oil thrower discs are placed in these covers with neutral space for preventing leakage of oil into casing.

Timing Gears

The timing gears form important part of the blower. These drive the rotors in synchronized motion and help maintain clearances between matching lobes. The gears are out of case hardened alloy steel, hardened and ground to high accuracy. Gears are heavy duty, have excellent characteristic to withstand wear and shrunk fit on shafts under high pressure.

Bearings

The bearings are heavy duty ball and roller type with load capacity suited for working conditions, stable performance and long service life.



Shaft - Sealing

The sealing system consist of labyrinth seals, oil thrower discs with a neutral chamber. The compression chamber is thus effectively sealed from the oil chamber and media conveyed is free from oil contamination.

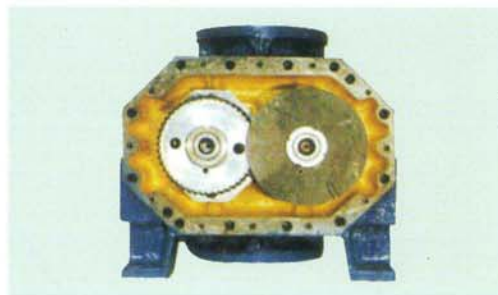
The rubber lip oil seals are abandoned limiting only to out board location.

This combination is for standard execution handling air, & pumps of medium vacuum. For blowers handling toxic or hazardous gases, the mechanical seals (M) are provided at one or more shaft locations.

Gland packed seals (P) are provided in certain applications with or without liquid flushing.

Lubrication

In order to ensure ideal lubrication and excellent durability, the bearings located on either end are splash oil lubricated. Depending on atmospheric and operation conditions, the oil baths have cooling arrangements for preventing its deterioration. The forced lubrication (L) is provided for high pressure blowers and on request.



Special Materials

Apart from the standard material of construction the blowers can be supplied out of special materials like nodular graphite iron, stainless steel, cast steel, Ni. Cr. cast iron.

High Mechanical Efficiency

Since the lobes run without contact, the mechanical power loss is determined by the friction of ball and roller bearings and of timing gears. The gears being helical, hardened and ground to high accuracy and with antifriction bearings, the mechanical power loss is thus reduced to bare minimum.

High Volumetric Efficiency

The rotor-lobes are machined to high precision and under rigid quality checks before assembly to the blower. Due to the close tolerances, very fine clearances are maintained and thus enable, achieve high volumetric efficiency.

Oil Free Conveyance

The lobes rotate inside the compression chamber maintaining fine clearances without contact or friction and require no lubrication, consequently ensure conveyance absolutely oil free. Due to this feature, it is a decisive advantage to use these blowers in various plants like water purification, food and chemical and pneumatic conveying etc.

PERFORMANCE TABLE FOR AXCEL SERIES BLOWERS

FLOW RATE - FAD M³/Hr. at Suction Conditions : Pressure - 760 mm hg. Temperature - 20° C

PERFORMANCE DATA FOR HANDLING AIR AT POSITIVE PRESSURE

Pressure mmwg		1000		2000		3000		4000		5000		6000		7000		8000		9000		10000	
Model	Speed	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW
RM-30	2900	302	1.06	284	2.12	272	3.18	260	4.24	250	5.30	242	6.36	—	—	—	—	—	—	—	—
	2000	194	0.68	178	1.36	164	2.04	152	2.72	142	3.40	134	4.10	—	—	—	—	—	—	—	—
	1450	128	0.47	112	0.94	98	1.41	86	1.41	76	2.40	—	—	—	—	—	—	—	—	—	—
	1200	98	0.40	82	0.80	70	1.25	60	1.25	—	—	—	—	—	—	—	—	—	—	—	—
RH-45	2900	436	1.50	418	3.00	403	4.50	390	6.00	377	7.50	364	9.00	352	10.50	340	12.00	329	13.50	319	15.00
	2000	284	0.95	266	1.90	249	2.90	230	3.85	217	4.80	204	5.75	192	6.70	180	7.65	169	8.60	155	9.55
	1450	190	0.68	172	1.36	154	2.04	138	2.72	124	3.40	111	4.10	—	—	—	—	—	—	—	—
	1200	148	0.50	130	1.00	115	1.50	100	2.00	84	2.60	—	—	—	—	—	—	—	—	—	—
RM-70	2900	592	1.90	568	3.80	550	5.70	536	7.60	524	9.50	512	11.40	500	13.40	—	—	—	—	—	—
	2000	386	1.30	362	2.60	344	3.90	330	5.20	318	6.50	306	7.80	—	—	—	—	—	—	—	—
	1450	260	1.00	236	2.00	218	3.00	204	4.00	192	5.00	181	6.00	—	—	—	—	—	—	—	—
	1200	202	0.70	178	1.40	160	2.10	146	2.80	134	3.50	—	—	—	—	—	—	—	—	—	—
RL-77	2500	630	2.10	600	4.20	578	5.30	561	8.40	536	10.50	—	—	—	—	—	—	—	—	—	—
	2000	490	1.70	460	3.40	438	5.10	421	6.80	406	8.50	—	—	—	—	—	—	—	—	—	—
	1450	336	1.10	306	2.20	284	3.30	267	4.40	252	5.50	—	—	—	—	—	—	—	—	—	—
	1200	266	0.90	236	1.80	214	2.70	197	3.60	182	4.50	—	—	—	—	—	—	—	—	—	—
RH-80	2900	925	3.00	889	6.00	862	8.90	840	11.90	821	14.80	804	17.80	789	20.70	774	23.70	760	26.70	745	29.60
	2000	646	2.20	610	4.40	583	6.60	561	8.80	542	11.00	525	13.20	510	15.40	495	17.60	480	19.80	465	22.00
	1450	475	1.60	439	3.20	412	4.80	390	6.40	371	8.00	354	9.60	339	11.20	324	12.80	309	14.40	295	16.00
	1000	304	1.10	268	2.20	241	3.30	219	4.40	200	5.50	183	—	—	—	—	—	—	—	—	—
RM-100	2900	1462	4.60	1417	9.20	1382	13.80	1352	18.40	1325	23.00	1300	27.60	1280	32.20	—	—	—	—	—	—
	2000	992	3.15	947	6.30	912	9.50	882	12.70	855	15.90	830	19.00	810	22.20	—	—	—	—	—	—
	1450	731	2.35	656	4.70	651	7.10	621	9.40	594	11.80	569	14.20	549	16.50	—	—	—	—	—	—
	1000	470	1.65	425	3.30	390	5.00	360	6.70	333	8.40	303	10.00	—	—	—	—	—	—	—	—
RL-110	2000	1281	4.05	1233	8.10	1195	12.20	1162	16.20	1132	20.30	1107	24.40	—	—	—	—	—	—	—	—
	1450	896	2.90	848	5.80	810	8.70	777	11.60	747	14.50	722	17.40	—	—	—	—	—	—	—	—
	1200	721	2.35	673	4.20	635	7.00	602	9.40	572	11.80	547	15.20	—	—	—	—	—	—	—	—
	1000	581	2.10	533	4.20	495	6.30	462	8.40	432	10.50	—	—	—	—	—	—	—	—	—	—
RL-115	2000	1554	5.00	1495	10.00	1450	15.00	1410	20.00	1375	25.00	—	—	—	—	—	—	—	—	—	—
	1450	1092	3.50	1034	7.00	988	10.50	948	14.00	913	17.50	—	—	—	—	—	—	—	—	—	—
	1200	882	2.90	824	5.80	778	8.70	738	11.60	703	14.50	—	—	—	—	—	—	—	—	—	—
	1000	714	2.35	656	4.70	610	7.00	570	9.40	535	11.80	—	—	—	—	—	—	—	—	—	—
RH-120	2250	1599	5.10	1526	10.20	1503	15.30	1468	20.40	1438	25.50	1411	30.60	1386	35.70	1364	40.80	1343	46.00	1324	51.00
	1800	1250	4.00	1197	8.00	1154	12.00	1119	16.00	1089	20.00	1062	24.00	1040	28.00	1015	32.00	996	36.00	974	40.00
	1450	980	3.15	926	6.30	884	9.50	849	12.70	819	15.90	792	19.00	767	22.20	745	25.40	724	28.60	704	31.80
	1200	784	2.55	731	5.10	688	7.70	653	10.30	623	12.90	596	15.50	571	18.00	549	20.60	528	23.20	510	25.80
RM-180	2250	2299	7.20	2223	14.40	2173	21.60	2131	28.80	2096	36.00	2066	43.20	2039	50.40	2012	57.60	1988	64.80	1967	72.00
	1450	1488	4.55	1412	9.10	1362	13.70	1320	18.30	1285	22.90	1255	27.50	1228	32.10	1201	36.70	1177	41.30	1156	46.00
	1200	1235	3.90	1158	7.80	1108	11.70	1066	15.60	1031	19.50	1001	23.40	974	27.30	947	31.20	923	35.10	902	39.00
	1000	1031	3.20	955	6.40	905	9.60	863	12.80	828	16.00	798	19.20	—	—	—	—	—	—	—	—
RL-190	1750	1990	6.25	1923	12.50	1869	18.80	1825	25.00	1789	31.50	1759	37.50	—	—	—	—	—	—	—	—
	1450	1738	5.10	1671	10.20	1617	15.30	1573	20.40	1537	25.50	1507	30.60	—	—	—	—	—	—	—	—
	1200	1423	4.45	1356	8.90	1302	13.40	1258	17.90	1222	22.40	1192	26.90	—	—	—	—	—	—	—	—
	1000	1171	3.65	1104	7.30	1050	11.00	1006	14.70	970	18.40	940	22.00	—	—	—	—	—	—	—	—
RL-195	1450	2461	7.80	2381	15.60	2331	23.10	2290	31.20	2258	39.00	—	—	—	—	—	—	—	—	—	—
	1200	2041	6.10	1961	12.80	1911	19.20	1870	25.60	1835	32.00	—	—	—	—	—	—	—	—	—	—
	1000	1705	5.50	1625	11.00	1575	16.50	1535	22.00	1500	27.50	—	—	—	—	—	—	—	—	—	—
	850	1455	4.80	1375	9.60	1325	14.40	1285	19.20	1250	24.00	—	—	—	—	—	—	—	—	—	—
RH-200	1800	2610	8.10	2535	16.20	2472	24.30	2425	32.40	2385	40.50	2349	48.60	2313	56.70	2278	64.80	2246	72.90	2216	81.00
	1460	2050	6.60	1975	13.20	1915	19.80	1865	26.40	1825	33.00	1789	39.60	1753	46.20	1718	52.80	1686	59.40	1656	66.00
	1200	1650	5.50	1575	11.00	1515	16.50	1465	22.00	1425	27.50	1389	33.00	1353	38.50	1318	44.00	1286	49.50	1256	55.00
	1000	1330	4.30	1255	8.60	1195	12.50	1145	17.20	1105	21.50	1069	25.80	1033	30.10	998	34.40	960	38.70	936	43.40
RM-290	1650	3293	10.3	3193	20.6	3118	30.9	3053	41.2	2998	51.5	2950	61.8	2905	72.1	2860	82.4	2820	92.7	—	—
	14600	2942	9.4	2842	18.8	2767	28.2	2702	37.6	2647	47.0	2599	56.4	2554	65.8	2509	75.2	2469	84.6	—	—
	1200	2366	7.4	2266	14.8	2191	22.2	2126	29.6	2071	37.0	2023	44.4	1978	51.8	1933	59.2	1893	66.6	—	—
	1000	1944	6.4	1844	12.8	1769	19.2	1704	25.6	1649	32.0	1601	38.4	1556	44.8	1511	51.2	1471	57.6	—	—
RL-300	1460	4081	12.8	3961	25.6	3871	38.4	3796	51.2	3731	64.0	3671	76.8	—	—	—	—	—	—	—	—
	1200	3280	10.3	3160	20.6	3070	30.9	2995	42.2	2930	51.5	2870	61.8	—	—	—	—	—	—	—	—
	1000	2708	8.4	2588	16.8	2499	25.2	2424	33.6	2359	42.0	2299	50.4	—	—	—	—	—	—	—	—
	850	2300	7.2	2180	14.4	2090	21.6	2015	28.8	1950	36.0	1890	43.2	—	—	—	—	—	—	—	—
RH-320	1460	4746	17.7	4616	29.4	4516	41.1	4431	58.8	4356	73.5	4286	88.2	4226	102.9	4171	117.6	4121	132.3	4076	147.0
	1200	4010	12.6	3880	25.2	3780	37.8	3695	50.4	3620	63.0	3550	75.6	3490	88.2	3435	100.8	3385	113.4	3340	126.0
	985	3293	10.2	3162	20.4	3062	30.6	2977	40.8	2902	51.0	2832	61.2	2772	71.4	2717	81.6	2667	91.8	2622	102.0
	850	2874	9.1	2744	18.2	264															

PERFORMANCE TABLE FOR AXCEL SERIES BLOWERS

FLOW RATE - FAD M³/Hr. at Suction Conditions : Pressure - 760 mm hg. Temperature - 20° C

PERFORMANCE DATA FOR HANDLING AIR AT POSITIVE PRESSURE

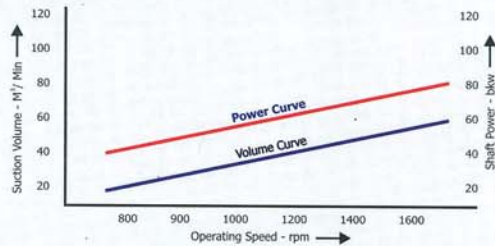
Pressure mmwg		1000		2000		3000		4000		5000		6000		7000		8000		9000		10000	
Model	Speed	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW	FAD	KW
RM-450	1460	6892	21.3	6722	42.6	6587	61.9	6472	85.2	6372	106.5	6297	127.8	6232	149.1	6172	170.4	6117	191.7	6067	213.0
	1200	5528	17.7	5358	35.4	5223	53.1	5108	70.8	5008	88.5	4933	106.2	4868	123.9	4808	141.6	4753	159.3	4703	177.0
	985	4604	14.6	4434	29.2	4299	43.8	4184	58.4	4084	73.8	4009	88.4	3944	103.0	3884	117.6	3829	132.2	3779	146.8
	850	4024	12.8	3854	25.6	3719	38.4	3604	51.2	3504	64.0	3428	76.8	3364	89.6	3304	102.4	3249	115.2	3199	128.0
RL-500	1200	7362	23.4	7162	46.8	7000	70.2	6865	93.6	6745	114.80	--	--	--	--	--	--	--	--	--	--
	985	6077	19.3	5877	38.6	5712	57.9	5580	77.2	5460	11.00	--	--	--	--	--	--	--	--	--	--
	850	5449	17.6	5249	35.2	5087	52.8	4952	70.4	4832	8.00	--	--	--	--	--	--	--	--	--	--
	740	4848	15.7	4648	31.4	4486	47.1	4351	62.8	4231	5.50	--	--	--	--	--	--	--	--	--	--
RL-550	1460	12100	39.0	11990	78.0	11800	117.0	11675	156.0	--	--	--	--	--	--	--	--	--	--	--	--
	1200	9900	32.0	9760	64.0	9600	96.0	9500	128.0	--	--	--	--	--	--	--	--	--	--	--	--
	985	7990	26.0	7890	52.0	7790	78.0	7680	104.0	--	--	--	--	--	--	--	--	--	--	--	--
RH-600	1300	8904	28.0	8679	56.0	8504	84.0	8359	112.0	8229	140.0	8114	168.0	7999	196.0	7909	224.0	7829	252.0	7759	280.0
	1150	7899	24.8	7699	44.6	7534	74.4	7404	99.2	7289	124.0	7189	148.8	7104	173.6	7029	198.4	6964	223.2	6904	248.0
	985	6104	19.3	5904	38.6	5744	57.9	5614	77.2	5499	96.5	5399	115.8	5319	135.1	5244	154.4	5179	173.7	5119	193.0
	850	5334	17.2	5134	34.2	4974	51.4	4844	68.6	4729	85.8	4629	103.0	4549	120.3	4474	137.4	4409	154.6	4349	171.8
RH-1000	1250	11820	36.5	11580	73.0	11385	109.5	11190	146.0	11030	182.5	10900	219.0	10780	225.5	10665	292.0	10550	328.5	10450	365.0
	985	9180	28.4	8940	56.8	8745	85.2	8550	113.6	8390	142.0	8260	170.4	8130	198.8	8015	272.2	7900	255.6	7790	284.0
	850	7839	24.4	7599	48.8	7404	73.2	7209	97.6	7049	122.0	6919	146.4	6789	170.4	6674	195.2	6559	219.6	6449	244.0
	740	6740	21.2	6500	42.4	6305	63.6	6110	84.8	5950	106.0	5820	127.2	5700	148.4	5585	169.6	5470	189.8	5360	212.0
RH-1150	1250	14190	41.9	13950	83.8	13755	125.7	13560	167.6	13470	209.5	13320	251.4	13170	293.3	13020	335.2	--	--	--	--
	985	11180	33.0	11100	66.0	10960	99.0	10660	131.0	10440	163.0	10280	195.0	10130	227.0	9990	262.0	--	--	--	--
	850	9648	28.6	9580	57.2	9440	85.8	9013	114.4	8863	143.0	8713	171.6	8573	199.0	8433	227.8	--	--	--	--
RM-1250	1250	16500	51.0	16140	102.0	15840	153.0	15600	204.0	15420	255.0	15240	306.0	15120	357.0	15000	408.0	--	--	--	--
	985	12816	39.6	12456	79.2	12156	118.8	11915	158.4	11716	198.0	11536	237.6	11416	272.2	11296	316.8	--	--	--	--
	850	10940	33.8	10580	67.6	10280	101.4	10040	135.2	9800	169.0	9660	202.8	9540	236.6	9420	270.4	--	--	--	--
	740	9411	28.7	9150	57.4	8751	86.1	8511	114.8	8311	143.5	8131	172.2	8011	201.0	7891	229.7	--	--	--	--
RH-1500	985	13345	42.0	12980	84.0	12675	126.0	12430	168.0	12290	210.0	12075	252.0	11915	294.0	11765	336.0	11630	378.0	11510	420.0
	850	11428	36.5	11063	73.0	10758	109.5	10513	146.0	10323	182.5	10158	219.0	9998	255.5	9848	292.0	9713	328.5	9593	365.0
	740	9866	32.0	9501	64.0	9136	96.0	8951	128.0	8761	160.0	8596	192.0	8436	224.0	8286	256.0	8151	288.0	8031	320.0
	600	7878	25.0	7513	50.0	7208	75.0	6963	100.0	6773	125.0	6608	150.0	6448	175.0	6298	200.0	--	--	--	--
RH-1650	985	19135	57.0	18748	113.0	18410	169.0	18099	225.0	17814	281.0	17552	337.0	17303	393.0	--	--	--	--	--	--
	850	16492	49.0	16123	97.0	15785	145.0	15474	193.0	15163	241.0	14896	289.0	14656	337.0	--	--	--	--	--	--
	740	14338	43.0	13951	85.0	13613	127.0	13302	169.0	13017	211.0	12733	253.0	12497	295.0	--	--	--	--	--	--
RM-1800	985	21500	62.5	20900	125.0	20600	187.0	20200	250.0	19850	312.5	19600	375.0	19400	437.5	--	--	--	--	--	--
	850	17557	54.0	17047	108.0	16607	162.0	16237	216.0	15937	270.0	15682	324.0	15472	378.0	--	--	--	--	--	--
	740	15159	46.5	14649	93.0	14209	139.5	13839	186.0	13539	232.5	13284	279.0	13074	325.5	--	--	--	--	--	--
	600	12107	38.0	11597	76.0	11157	114.0	10787	152.0	10487	190.0	10232	228.0	--	--	--	--	--	--	--	--
RH-2000TR	985	26840	123	26540	214	26270	299	26010	390	25750	480	25500	576	25200	626	24900	776	24000	876	23227	986
	740	20164	92.4	19940	161	19716	225	19492	293	19268	361	19018	433	18768	507	18596	581	18518	653	18990	725
	600	16400	75	16200	131	16000	183	15800	238	15600	293	15420	351	15240	410	15060	469	14880	511	--	--
RM-2500TR	985	35750	137	35120	237	34610	336	34170	435	33765	534	33390	633	33015	732	32690	831	--	--	--	--
	740	29781	114	29800	198	30110	282	30410	364	30680	450	30950	534	31200	618	31500	702	--	--	--	--
	600	24041	85	23411	156	22901	226	22461	296	22056	366	21681	465	21306	506	--	--	--	--	--	--
RH-2650TR	740	38600	115.0	38050	225.0	37500	335.0	36950	445.0	36400	554.0	35950	662.0	35350	770.0	34950	880	34550	998	40900	1374
	600	31300	95.0	30850	189.0	30400	282.0	29950	377.0	29600	472.0	29200	567.0	28800	662.0	28400	787	28000	897	32700	1032
	500	26100	82.0	25700	163.0	25300	245.0	24900	327.0	24450	409.0	24200	491.0	23850	573.0	23500	655	23200	737	26960	853
RH-3000TR	740	43800	164.0	42960	255.0	42210	381.0	41510	508.0	40880	634.0	40280	760.0	39720	932.0	39210	1060	38700	1192	--	--
	600	35126	138.0	34286	235.0	33536	335.0	32836	435.0	32206	535.0	31606	635.0	31046	735.0	30486	835	29976	935	--	--
	500	28936	112.0	28096	194.0	27346	276.0	26646	358.0	26016	440.0	25416	522.0	24856	604.0	24296	686	23786	768	--	--
RM-3500TR	600	58650	190.0	56753	361.1	55660	531.3	54625	702.0	53820	872.0	--	--	--	--	--	--	--	--	--	--
	500	48070	159.85	46920	296.7	46639	664.7	43700	573.0	42780	711.0	--	--	--	--	--	--	--	--	--	--
	400	37375	125.5	36179	233.45	35075	34097.5	29650	447.0	33235	554.0	--	--	--	--	--	--	--	--	--	--
RH-4000TR	500	71940	252.0	70560	465.0	69510	680.0	68640	885.0	67800	1095.0	66940	1305	66080	1515	--	--	--	--	--	--
	420	60500	200.0	59270	380.0	58040	555.0	56770	735.0	55700	906.0	54540	1076	53540	1246	--	--	--	--	--	--
	300	43200	143.0	42340	275.0	41400	395.0	40620	525.0	39820	650.0	39020	775	38220	900	--	--	--	--	--	--

• Due to constant development activity, the figures given are subject to change without notice.

The suffixes used indicate : G - Gas Duty WJ - Water Injection P - Gland Packed WC - Water Cooled
V - Vacuum Application L - Force Lubrication TR - Tri-lobe Type C - Lube Oil Cooling
P - Gland Packed H - High Inlet Pressure M - Mechanical Seal

To Illustrate : Model : RH-320 WCGML = Gas duty blower model RH-320, water cooled, fitted with mechanical seal and with force lubrication

AIR FLOW REGULATION AT CONSTANT DISCHARGE PRESSURE



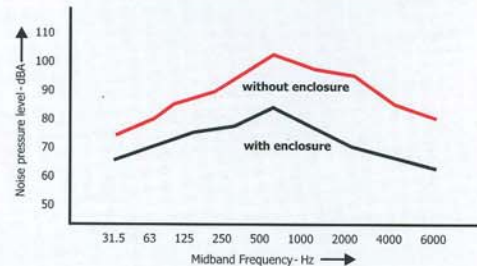
Performance characteristic of a specific model operating at 0.7 kg./cm² gauge pressure.

If it is intended to regulate the air flow from blower while maintaining constant discharge pressure, it can be obtained by:

- Blower operation at constant speed and the excess air vented or by-passed through a manually operated valve or an automatic pneumatic control valve.
- By regulating blower speed either by change of pullies or by variable speed drive.

The second method is recommended as there is saving in power consumption. The energy input to the blower is proportional to its operating speed.

NOISE CHARACTERISTIC



The noise characteristic of a specific model at gauge pressure of 0.7 kg./cm² and operating at 1480 rpm.

The rotary machines generate high pitch sound due to its operational characteristics. The noise level of the machines, however, depends on operation speed, discharge pressure, construction and internal clearance.

The noise level can be reduced by special design absorptive silencers. The reactive or semi reactive silencers are used for large blowers but are less preferred.

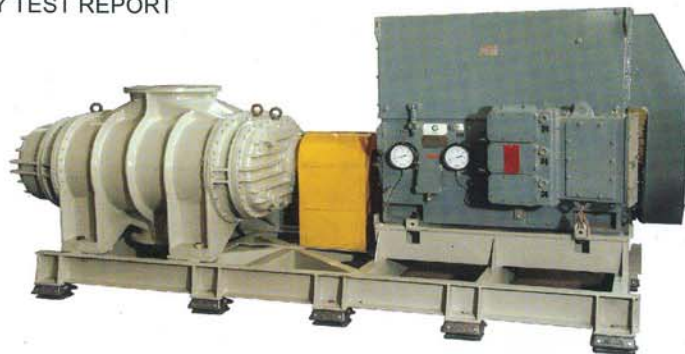
There are, however, limitations to the sound getting reduced by the use of silencers. For further reduction the acoustic enclosures are used. In this case the complete blower unit, consisting of the blower, motor, filter, pressure, relief valve, silencers etc. are placed within the enclosure.

PERFORMANCE TESTING

The performance testing of blowers is carried out for several hours at the rated conditions at the shop prior to dispatch as per the standard test procedure. Swam has the biggest shop test facilities with testing up to 1500 HP with voltages 415 V, 690 V & 6.6 kv / 6600 V.

During testing the various aspects are checked, such as rated flow, discharge pressure, absorbed power, vibration, noise and outlet temperature etc. as per the approved quality plan.

Each blower dispatched, carries a FACTORY TEST REPORT and a Guarantee Certificate.



Process Air Blower-41000 cmh, Pressure of 0.86 Bar driven by 1300 kw motor.

BLOWER PACKAGES

Standard execution:

The standard blower unit consists of

- Fabricated steel base frame with C.I. slide rails.
- V-Belts and pulleys or coupling with guard.
- Pressure relief valve.
- Non return valve.
- Suction filter.
- Suction & discharge silencers.
- Anti-vibration mountings or pads.
- Pressure gauge with isolation valve.

Optional Accessories

- Sound reducing hood/ enclosure.
- Blow off control valve with silencer.
- Special instruments such as temperature, pressure switches, vibration probes, RTD's / Thermocouples etc.
- Pressurised lubrication.
- Automatic unloading device (no load starting).
- Water injection system.
- Instrument control panel with alarm annunciators.
- Flow controller.
- Gear box drive.

Silenceflo Package

The package consists of blower unit placed within a suitably designed sound proof housing.

The package is despatched in fully assembled condition on ready to install basis. Fig.1 & Fig.2

A blower package at Fig.1 is driven by 450 HP Motor, 1465 rpm, directly coupled, flow 15000 cmh & is shown placed within an acoustic enclosure. The sound reduced from 107 dBA to 85 dBA outside the enclosure.



Fig.1



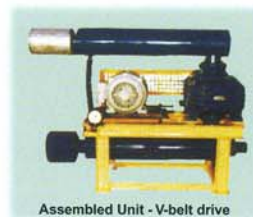
Fig.2



Fig.3



Fig.-4



Assembled Unit - V-belt drive



Silenceflo Unit



Assembled Unit - Direct coupled

Swam Compact Design : The blower unit with accessories in a compact assembly, aiming at reduction of space and ready to install without concrete foundation. It has a rectangular discharge silencer-cum-base frame with adjustable legs. The inlet filter-cum-silencer is a single unit, box type, compact and easy to maintain. The complete unit shown in Fig.-3. This super silence operation assembly can be placed in an enclosure.

Process Gas Blowers and Vacuum Pumps :

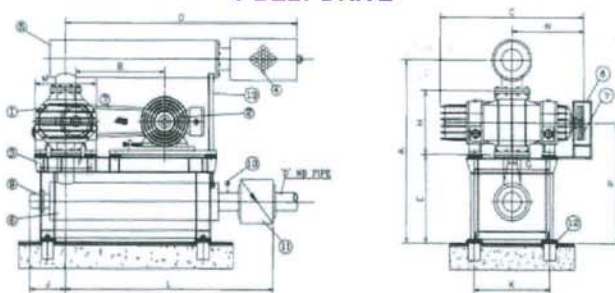
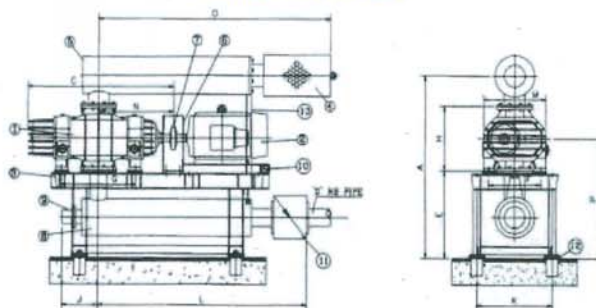
For conveying or exhausting industrial gases laden with chemical dust, the blowers Fig.-4 to have following features :-

- To have provision for water injection for cooling the suction gas and for removal of dust .
- The oil chambers are separated through air spaces from the compression chamber.
- The compression chamber is sealed through gland pack or mechanical seals.
- Large capacity models are provided with a sealed chambers at discharge for quieter operation.

DIMENSION TABLE - VERTICAL FLOW

Model/Dimn.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
RM-30	810	525	595	50	365	275	226	226	375	470	977	325	291	1157	525
RH-45	810	525	631	65	365	275	262	295	375	500	977	325	291	1157	525
RM-70	865	525	704	80	390	275	335	295	375	570	1058	325	328	1258	550
RL-77	865	525	759	80	390	275	390	295	375	630	1058	325	356	1258	550
RH-80	1035	600	771	100	445	350	315	410	400	560	1183	416	361	1353	655
RM-100	1075	600	911	125	470	350	455	410	405	690	1183	416	431	1563	680
RL-110	1075	600	961	125	470	350	505	410	405	740	1183	416	456	1563	680
RL-115	1075	600	1057	125	470	350	505	410	405	740	1183	416	503	1563	680
RH-120	1212	725	876	125	498	440	365	504	465	690	1432	525	405	1563	768
RM-180	1178	725	1015	150	464	440	505	504	465	830	1432	525	475	1762	734
RL-190	1178	725	1096	150	464	440	585	504	465	910	1432	525	515	1812	734
RL-195	1178	725	1237	150	464	440	650	504	465	910	1432	525	585	1812	734
RH-200	1265	900	1033	150	485	530	435	570	565	740	1678	624	472	1812	785
RM-290	1400	900	1073	200	595	530	575	570	665	880	1678	624	530	1812	895
RL-300	1400	900	1267	250	595	530	635	570	665	880	1678	624	599	2058	895
RH-320	1640	950	1247	250	650	660	568	710	665	900	1808	783	565	2108	1015
RM-450	1640	950	1449	250	650	660	770	710	665	933	1808	783	673	2108	1015
RL-500	1640	950	1664	250	650	660	840	710	665	933	1808	783	708	2108	1015
RH-600	2050	1050	1552	300	920	760	745	820	750	1250	1955	914	845	2288	1355
RH-1000	2350	1100	1410	350	1055	810	775	1000	750	1290	2005	960	621	2870	1355
RM-1250	2350	1200	1690	400	1055	610	990	1000	750	1290	2005	960	934	2870	1555
RH-1500	2500	1200	1860	450	1100	850	810	1120	800	1400	2200	1170	1050	3150	1660
RM-1800	2500	1200	2100	500	1100	850	810	1120	800	1400	2200	1170	1050	3150	1660

(APPROX. IN M.M.)

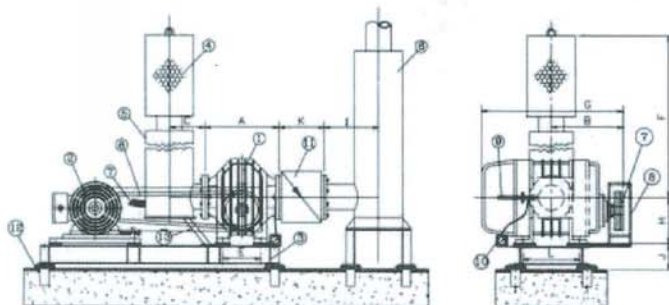
V-BELT DRIVE

DIRECT COUPLED


1. Blower
2. Electric Motor
3. Skid Type Common Base Frame
4. Suction Filter
5. Suction Silencer
6. Discharge Silencer
7. V-Belts & Pulleys or Coupling
8. Belt or Coupling Guard
9. Pressure Relief Valve
10. Pressure Gauge
11. Non Return Valve
12. Anti-Vibration Pad
13. Silencer Support

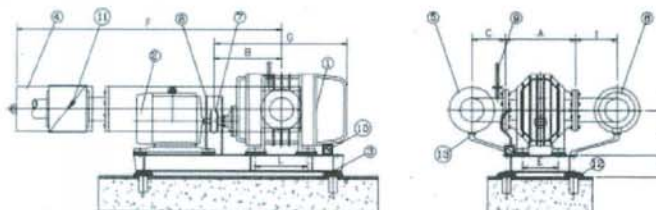
DIMENSION TABLE - HORIZONTAL FLOW

Model/Dimn.	A	B	C	D	E	F	G	H	I	J	K	L
RM-30	226	291	140	50	180	1270	595	160	235	95	140	226
RH-45	295	291	140	65	180	1270	631	160	235	95	140	262
RM-70	295	328	155	80	180	1290	704	160	235	95	155	335
RL-77	295	356	155	80	180	1290	759	160	235	95	155	390
RH-80	410	361	180	100	210	1440	771	210	290	120	190	315
RM-100	410	431	195	125	210	1515	911	210	300	120	220	455
RL-110	410	456	195	125	210	1515	961	210	300	120	220	505
RL-115	410	503	195	125	210	1515	1057	210	300	120	220	505
RH-120	504	405	195	125	275	1515	876	270	325	122	220	387
RM-180	504	475	210	150	275	1765	1016	270	330	122	350	527
RL-190	504	515	210	150	275	1845	1096	270	330	122	350	607
RL-195	504	585	210	150	275	1845	1237	270	330	122	350	607
RH-200	570	472	210	150	335	1895	1033	300	350	170	350	455
RM-290	570	530	235	200	335	1940	1173	300	380	170	320	595

V-BELT DRIVE



DIRECT COUPLED



1. Blower
2. Electric Motor
3. Base Frame
4. Suction Filter
5. Suction Silencer
6. Discharge Silencer
7. V-Belts & Pulleys or Coupling
8. Belt or Coupling Guard
9. Pressure Relief Valve
10. Pressure Gauge
11. Non Return Valve
12. Anti-Vibration Pad
13. Silencer Support

ISO 9001
ISO 14001
OHSAS 18001

Customer Support Services:

A team of experienced and qualified engineers are deployed to rendering all kind of technical post supply services to our esteemed customers; such as pre-commissioning and post commissioning services, trouble shooting etc. etc., to make the equipment to user's satisfaction.

Professionally & technically competent personnel are always ready to render these services, promptly and expeditiously.

For details contact H.O. or the nearest service network.

Diversified Product Range:

Swam offers a comprehensive and diversified product range of products for the Process, Chemical, Oil & Gas, Steel, Aluminum, Cement, Water & Waste Water and Power Industries.

Blowers & Fans

- Rotary Piston Blowers (Tri & Twin)
- Process Air Blowers
- Gas Boosters
- Truck Blowers
- Centrifugal Fans
- Process Air Fans
- Multistage Centrifugal Blowers

Vacuum Pumps & Systems

- Dry Vacuum Pumps
- Mechanical Vacuum Boosters
- Vacuum System

Noise Reduction Equipments

- Industrial Silencers
- Acoustic Enclosures

Heat Transfer Equipments

- Shell & Tube Type Heat Exchangers
- Finned Tube Heat Exchangers

Industrial Valve

- Butterfly Control Valves up to 1400 mm.

Noise Reduction Equipments

- Industrial Silencers
- Acoustic Enclosures



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Corporate Head Office & Plant-I :

C-2, Sector-3, Noida-201301, Gautam Budh Nagar (INDIA)

Tel : +91-120-4696222, Fax : +91-120-2443283, 4696200

E-mail : sales@swamatics.com

Plant-II : B-9, Sector-57, Noida-201301 (INDIA)

Plant-III : B-111, Sector-67, Noida-201307 (INDIA)

Plant-IV : C-52, Sector-57, Noida-201301 (INDIA)

Website : www.swamatics.com

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