

Positive Displacement Air Blowers

HR41, 42, 43 Blower Range:
1199-7530 (M³/HR)

Based on Success

HR Blowers are one of the world's leading air blower manufacturers and have a reputation for quality, innovation and service.

Design Features

The conservative load carrying capacity of the larger diameter rolling element bearings ensures an extended operating life.

Timing gear life is also extended by controlled lubrication systems.

The computer calculated impeller profiles ensure maximum volumetric efficiency with minimum absorbed power without sacrificing torsional rigidity.

The high rigidity of the impeller / shafts permits a higher pressure rise to be obtained than with other machines of comparable size. The generous shaft diameter keeps drive stresses low.

Gear and shaft strength is substantially increased by the use of taper mounted gears which do not need keyways for location. Setting of the gear wheels to obtain correct timing of the impellers is simplified, a feature that facilitates field maintenance.

Precision ground and hardened steel gears are used to ensure smooth, silent running and accurate timing of the rotating impellers. A controlled lubrication system is provided to ensure efficient operation without waste of energy in the gearcase.

Specially designed rotary oil seals are used in the gearcase. This feature eliminates maintenance associated with the use of lip seals. Design and manufacture is in accordance with metric standards.

Use as an Exhauster

If used as an exhauster and dust or liquids could be drawn into the machine due to inadequate filtration, closed end rotors should be specified. This will minimise risk of loss of dynamic balance due to material inside the rotors.

Specification

CASING: The cylinder and headplates are manufactured from cast iron. The gearcase is manufactured from aluminium.

IMPELLERS AND SHAFTS: The impellers are made from SG iron, and cast with integral shafts. (size 3) and from mehanite and have pressed-in steel shafts (size 4). The shaft diameter of machines in the HR Blowers range is larger than that of earlier designs,

enabling increased operating pressures to be achieved without increasing blower size.

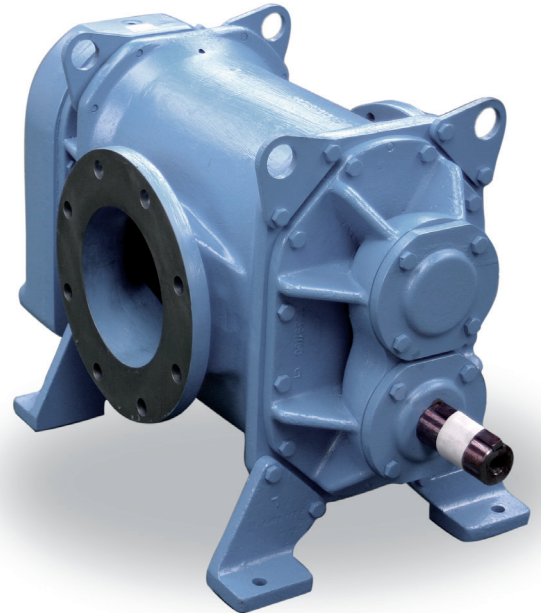
GEARS: The precision ground and hardened steel spur gears are taper mounted onto the impeller shafts. The timing of the impellers relative to each other is accurately maintained at all times.

BEARINGS: The bearings are of generous proportions to give long operational life. Grease lubricated double row ball bearings are used at the drive end of the size 3 Blower the size 4 blower has double angular roller bearings at the drive end. In addition to their normal duty of carrying radial loads associated with the differential air pressure on the rotating impellers, the ball bearings provide axial location of the impellers. Parallel roller bearings at the rear end splash lubrication by oil from the gears.

LUBRICATION: An advanced design of controlled gear wheel lubrication enables the gears to operate at a high pitch line velocity without the need for an oil pump. Simple, maintenance free oil throwers fitted behind each bearing in the gearcase prevent leakage of oil.

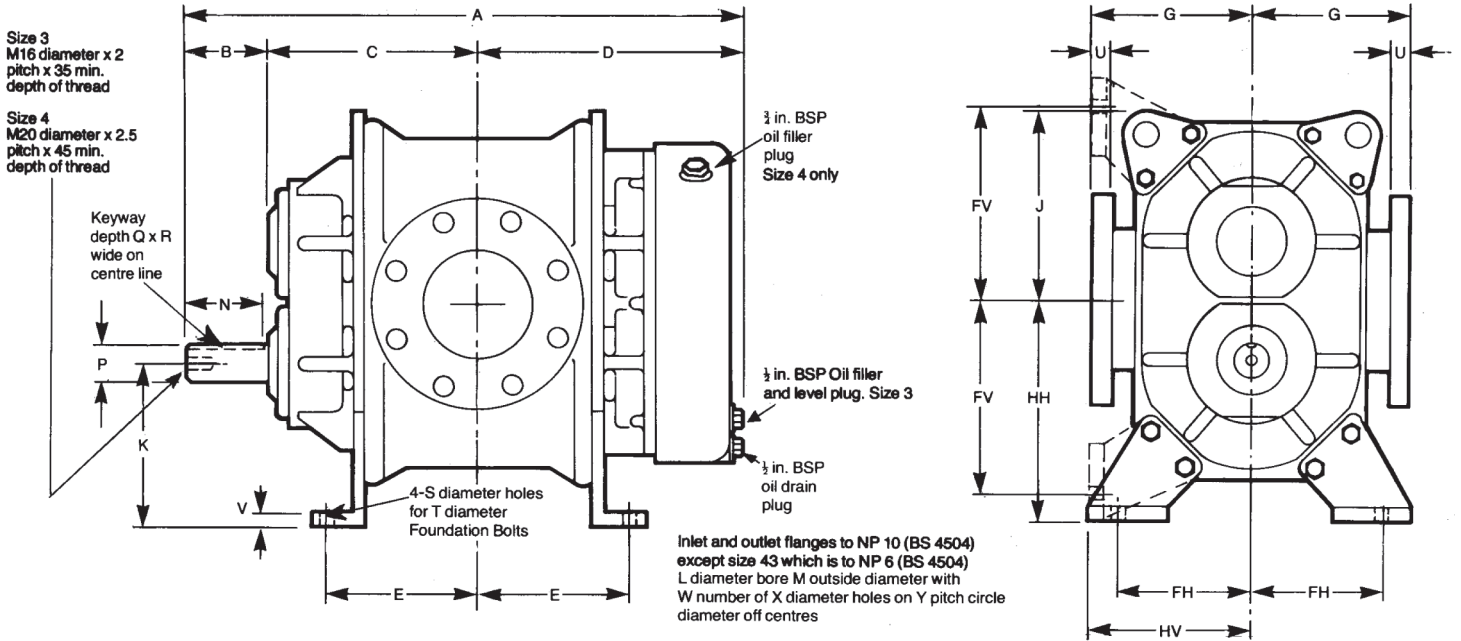
DIRECTION OF ROTATION: Detachable mounting feet enable the blower to be positioned for either vertical or horizontal air flow. Standard machines have a right hand drive shaft for vertical air flow, and a bottom drive shaft for horizontal air flow. If machines are required with a left hand or top drive shaft, all that needs to be done is turn the gearcase and trough through 180°. Centre timing permits clockwise or anti-clockwise drive shaft rotation.

BLOWER PROTECTION SYSTEM: (optional extra). A number of insulated probes projecting into the cylinder which are electrically connected to one another and to a junction box mounted on the blower can be fitted. To operate this system a control box is also required. The protection system (UK and foreign patents granted) detects excessive closure of the fine working clearances within the blower which might be caused by overload. Should this happen, the prime mover is shut down automatically to prevent seizure of the blower.



User Benefits

- The delivered air is guaranteed to be oil free because internal lubrication is unnecessary, and because all HR Blowers Positive Displacement Air Blowers are constructed with air gaps which completely isolate bearing and gear lubrication from the compression chamber.
- Noise levels are kept to a minimum. Mechanical noise levels have been reduced by the running accuracy of the taper mounted gears. Air noise is reduced by carefully designed air ports and the elimination of resonant unbraced surfaces.
- The blower can be installed for either vertical or horizontal air flow simply by repositioning the mounting feet. Installation costs can be reduced by versatility of mounting arrangement.
- The generous diameter of the drive shaft permits the use of V-belt drives without the need for a double outer bearing.
- Air blowers can also be used as air exhausters. Performance charts on application.



Dimensions

Size	Horizontal Flow				Vertical Flow				All dimensions in millimetres																		
	A	B	C	D	E	F _H	H _H	E	F _V	H _V	G	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	
HR41	954		353	456	260			260						200	340										8		295
HR42	1097	145	436	539	342.5	220	355	342.5	315	260	255	310	250	250	395	140	65.030/65.011	7.0/7.2	17.957/18.00	18	16	26	20	12	22	350	
HR43	1252		513.5	616.5	420			420						300	440									12		395	

Blower Performance

HR Size	Speed rpm	300 mbar		500 mbar		700 mbar		1000 mbar	
		M ³ /HR	kW	M ³ /HR	kW	M ³ /HR	kW	M ³ /HR	kW
41	2080	4226	43	4100	69	4001	96	3878	135
	1900	3817	39	3692	63	3592	87	3470	123
	1700	3363	35	3238	57	3138	78	3016	110
	1500	2909	31	2783	50	2684	69	2562	97
	1300	2455	27	2329	43	2230	60	2107	84
	1100	2001	23	1875	37	1776	51	1653	71
	900	1546	19	1421	30	1322	41	1199	58
42	2080	5921	59	5750	95	5614	132	—	—
	1900	5350	54	5179	87	5043	121	—	—
	1700	4715	48	4544	78	4408	108	—	—
	1500	4081	42	3909	69	3774	95	—	—
	1300	3446	37	3275	60	3139	83	—	—
	1100	2811	31	2640	50	2504	70	—	—
	900	2177	25	2006	41	1870	57	—	—
43	2080	7530	73	7319	120	Maximum pressure rise for size 43 is 550 mbar See performance chart for details.			
	1900	6806	67	6595	110				
	1700	6002	60	5791	98				
	1500	5197	53	4987	87				
	1300	4393	46	4183	75				
	1100	3589	39	3378	63				
	900	2785	3	2574	52				

The volume of air delivered is measured at inlet conditions of 15°C and 1013 mbar absolute

Weight

Net Weight	Size 41: 500kg Size 42: 600kg Size 43: 680kg
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For accurate performance characteristics please contact HR Blowers