

K & L SERIES SIDEWALL PROPELLER FANS

The Carnes Sidewall Propeller Fan series Models LW/LM and LR/LN have been designed for quiet and efficient air flow performance with the lowest possible sound levels. Quality materials, components and manufacturing methods guarantee high standards of reliability and durability for commercial and light industrial applications.

For LW/LM sizes range from 20" through 48" diameter propellers with air flow capacities from 500 CFM to over 40,000 CFM and static pressures to 1" W.C. LR/LN sizes range from 24" through 60" diameter propeller with air flow capacities from 2,000 CFM to 70,000 CFM and static pressure to 1.25" W.C. All sizes are available in either exhaust or supply configurations.

ACCESSORIES AND OPTIONS

Carnes complete line of accessories enables a simple installation that will be attractive and reliable. Optional accessory packages should be specified for safety and weather protection. Corrosion resistant coatings and electrical accessories are also available. For the ultimate in ease of installation, factory assembly of the fan and most accessories is available. For specific information and pressure loss due to accessories, please refer to the accessories section near the end of this section. For complete details and specifications, please refer to the Carnes Submittal Sheets.

COMPUTERIZED PRODUCT SELECTION

Carnes Fan-C-Lect™ is the user friendly product selection program that is the most efficient and effective method for selecting a fan. Complete fan performance ratings, as well as additional sound data and fan curves are conveniently viewed or printed.

Make the right choice with Carnes Fan-C-Lect™.

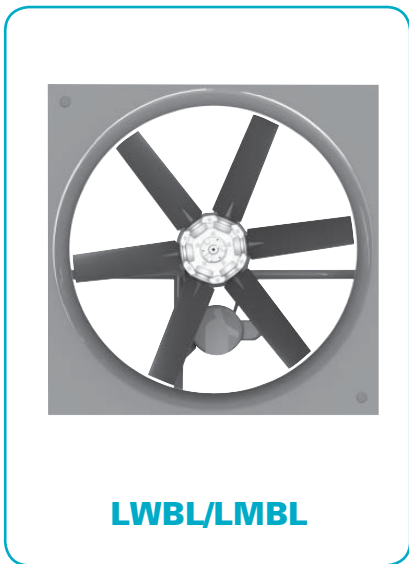
AMCA LICENSED RATINGS

Carnes Models LWBL and LMBL propeller fans are licensed to bear the AMCA Certified Ratings Seal for air performance. Carnes Models LRBK and LNBK propeller fans are licensed to bear the AMCA Certified Ratings Seal for sound and air performance. You may rest assured that cataloged performance is accurate and reliable.

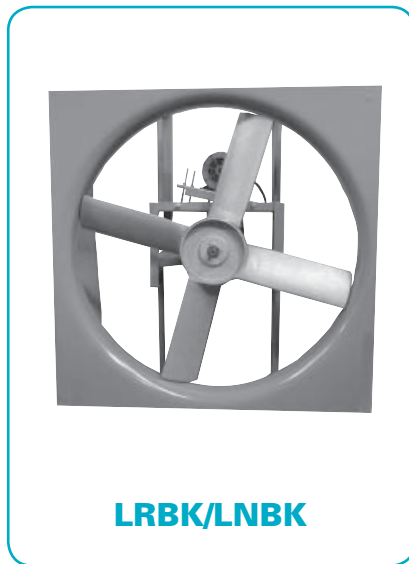
The Carnes Company certifies that the Models LW and LM shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.



The Carnes Company certifies that the Models LR and LN shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.



LWBL/LMBL



LRBK/LNBK

FANS — Belt Drive Exhaust and Supply

MOTOR SERVICE FACTOR

Carnes sidewall propeller fans are designed with the motor located in the exhaust (or supply) airstream. This continuous flow of cooling air allows for operation above the name plate horsepower without damage due to overheating. For applications with Totally Enclosed or Explosion Proof motors, or with elevated airstream temperatures, lower motor loading is recommended.

SAFETY AND RELIABILITY

Each motorized unit is run-tested at the factory for assurance of quality and reliability. Optional UL-705 listing and Canadian cUL listing are available to further ensure electrical safety and reliability. Protective guards are strongly recommended and are required when the fan is within reach of occupants or personnel. The appropriate guards should be specified and ordered with the fan (or must be provided by the installer).

Please consult and comply with all applicable codes, guidelines and safe installation practices.

WARRANTY (General)

Carnes guarantees this equipment to be free from defects in material and workmanship for a period of one year from the date of shipment. Any parts which prove defective during the warranty period may, at our option, be repaired or replaced.

The motor is guaranteed by the motor manufacturer for a period of one year. Should the motor prove defective during this period, it should be returned to the nearest authorized motor warranty service station.

Carnes will not be responsible for any costs associated with removal, installation or freight.

For a complete statement of Carnes Warranty Terms and Conditions, please refer to the back side of your Carnes Invoice or Acknowledgement or contact Carnes or your local Carnes Representative.



SIDEWALL PROPELLER FANS — Models LWBL, LMBL, LRBK, LNBK

CONSTRUCTION AND SPECIFICATIONS

LW/LM PROPELLER

Die formed galvanized steel blades (aluminum is optional) are fastened to a heavy steel hub which is keyed to the shaft. The assembled propeller is statically balanced for smooth operation.

LR/LN PROPELLER

The hub and blades are cast aluminum with airfoil shaped blades.

BEARINGS

Cast iron self aligning pillow block ball bearings with factory installed grease fittings have a minimum average life of two hundred thousand hours (L50 = 200,000 hrs).

SHAFT

Precision turned, ground and polished steel is keyed to the propeller and to the drive pulley. A corrosion inhibiting coating is applied after assembly.

PANEL

Single piece fan panel and venturi construction of galvanized material with welded corners has pre-punched mounting holes and electrical wiring knockout.

DRIVE FRAME

LWBL, LMBL

All welded schedule 40 steel pipe frame construction.

LRBK, LNBK

All welded and bolted structural steel angle frame.

MOTOR PLATE

LWBL, LMBL

The motor mounting plate and bearing support are formed from a single piece of heavy-gauge steel which is welded to the drive frame.

LRBK, LNBK

The motor mounting plate is heavy-gauge steel with dual “J” bolt adjustments to ensure consistent and proper drive belt tension.

MOTORS

Heavy-duty sealed ball bearing motors from nationally recognized manufactures. Open drip-proof (ODP) is standard. Two speed, explosion proof, totally enclosed and high efficiency motors are also available.

DRIVES

Cast iron construction, sized for a minimum of 150% of the installed motor HP and keyed to both the motor and the fan shaft. The motor sheave is adjustable for final system balancing. Belts are oil resistant, static free and are designed for a minimum of 25,000 hours average life. Two groove sheaves are standard for 3 HP and larger.

FACTORY RUN TEST

Every motorized unit is pre-set for the specified fan RPM and a factory run test is performed for quality assurance and reliability.

U.L. LISTED

For electrical safety and reliability - specify the optional UL-705 or Canadian cUL listing. Supply fans require the use of a totally enclosed motor for UL/cUL listing.

AMCA LICENSED

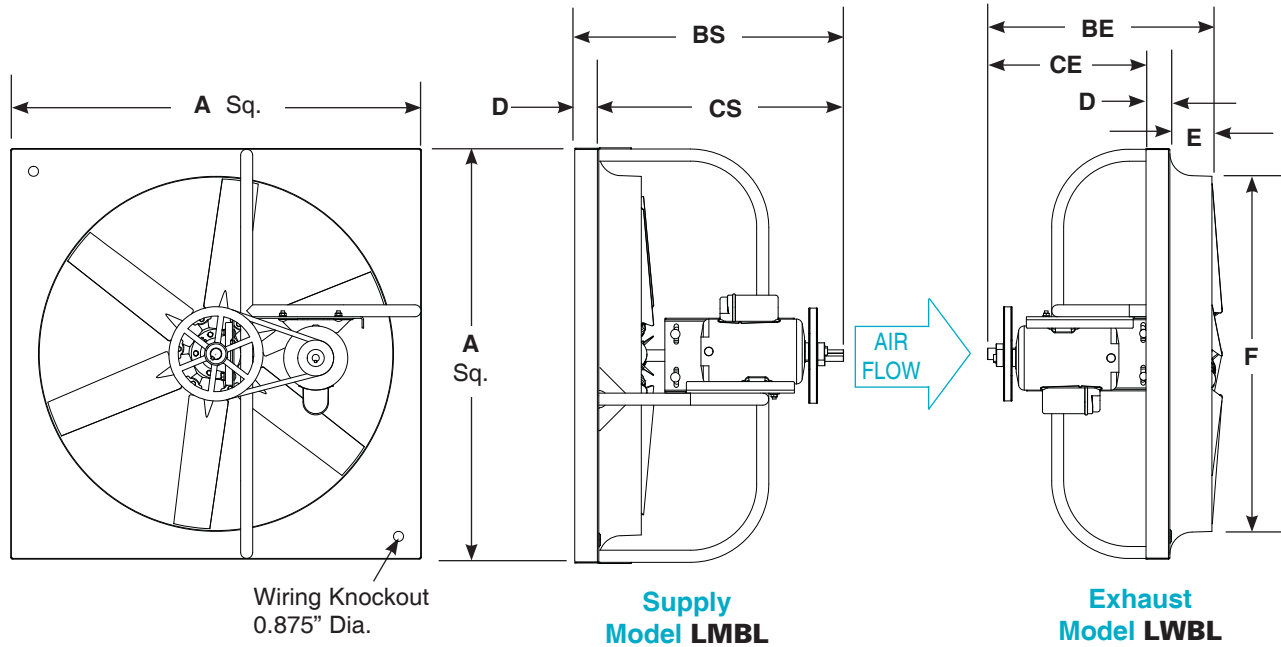
Models LW/LM are licensed to bear the AMCA Certified Ratings Seal for air performance.

Models LR/LN are licensed to bear the AMCA Certified Ratings Seal for sound and air performance.

PACKAGING

A fine product can be useless if it is damaged before it reaches its destination. Sturdy wood crating is utilized to help protect the buyer’s investment during shipment and handling.

▼ DIMENSIONAL DATA



DIMENSIONS LISTED IN INCHES

Fan Size	A Panel Sq.	BE	BS	CE	CS	D	E	F Dia.	Weight (Lbs.) Less Motor
20	26	23-5/8	20	18	17-7/8	2-1/8	3-1/2	20-1/2	30
24	30	23-5/8	20	18	17-7/8	2-1/8	3-1/2	24-1/2	36
30	36	27-5/8	23	21	20-7/8	2-1/8	4-1/2	30-1/2	60
36	42	29-5/8	25	23	22-7/8	2-1/8	4-1/2	36-1/2	75
42	48	29-7/8	25	23	22-7/8	2-1/8	4-3/4	42-1/2	96
48	54	29-7/8	25	23	22-7/8	2-1/8	4-3/4	48-1/2	116

MATERIAL GAUGES & SHIPPING WEIGHT

Fan Size	Material Gauges						Drive Frame Pipe	Shaft Diameter (Inches)	Max. Motor Frame	Approx. Ship Weight (Lbs.)
	Panel Venturi	Bearing Mount	Motor Plate	Propeller						
				Hub Spider	Blades					
			Steel	Alum.						
20	16	10	10	12	—	.063	1" Dia. Sched. 40	0.75	145T	60
24	16	10	10	10	18	.063	1" Dia. Sched. 40	0.75	145T	75
30	16	10	10	10	18	.063	1" Dia. Sched. 40	1.00	145T	100
36	16	10	10	7	16	.080	1" Dia. Sched. 40	1.00	215T	120
42	16	10	10	7	14	.080	1" Dia. Sched. 40	1.00	215T	160
48	16	10	10	7	14	.080	1" Dia. Sched. 40	1.00	215T	195

Model LWBL/LMBL Size 20 - Belt Drive



SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

TIP SPEED = RPM x 5.23

RPM Range/ Motor HP	RPM	STATIC PRESSURE, INCHES W.G.													
		0		0.10		0.25		0.375		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
L1 1/4 M2 1/3	850	3321	0.13	2772	0.14	986	0.15								
	875	3419	0.15	2896	0.16	1144	0.15								
	900	3517	0.16	3019	0.17	1298	0.16	376	0.21						
	925	3614	0.17	3141	0.18	1477	0.17	573	0.22						
	950	3712	0.19	3261	0.20	1757	0.19	718	0.23						
	975	3810	0.20	3381	0.21	2031	0.20	845	0.24						
	1000	3907	0.22	3500	0.23	2300	0.22	970	0.25						
	1025	4005	0.23	3614	0.25	2512	0.24	1105	0.26	301	0.32				
	1050	4103	0.25	3722	0.26	2669	0.26	1265	0.27	533	0.33				
	1075	4200	0.27	3829	0.28	2824	0.28	1422	0.29	710	0.34				
1100	4298	0.29	3936	0.30	2977	0.30	1576	0.30	845	0.35					
M2 1/3 P3 1/2 R3 3/4	1125	4396	0.31	4042	0.32	3128	0.33	1727	0.31	972	0.37				
	1150	4494	0.33	4148	0.34	3277	0.35	2002	0.33	1096	0.38				
	1175	4591	0.35	4254	0.37	3426	0.38	2279	0.36	1221	0.40				
	1200	4689	0.38	4359	0.39	3579	0.40	2551	0.38	1382	0.41				
	1225	4787	0.40	4464	0.41	3731	0.43	2819	0.41	1540	0.43				
	1250	4884	0.43	4569	0.44	3881	0.46	3043	0.43	1696	0.45				
	1275	4982	0.45	4674	0.47	4030	0.49	3201	0.46	1849	0.46	552	0.60		
	1300	5080	0.48	4778	0.49	4162	0.52	3356	0.49	2000	0.48	753	0.61		
	1325	5177	0.51	4882	0.52	4288	0.54	3510	0.53	2279	0.51	920	0.63		
	1350	5275	0.54	4988	0.55	4413	0.57	3663	0.56	2557	0.54	1049	0.65		
R3 3/4 S5 1	1375	5373	0.57	5099	0.58	4537	0.61	3814	0.60	2831	0.57	1176	0.67		
	1400	5470	0.60	5209	0.61	4660	0.64	3963	0.63	3100	0.60	1301	0.70		
	1425	5568	0.63	5319	0.64	4783	0.67	4111	0.67	3366	0.64	1424	0.72		
	1450	5666	0.66	5428	0.68	4905	0.71	4263	0.71	3556	0.68	1566	0.74	429	0.92
	1500	5861	0.74	5647	0.75	5147	0.78	4568	0.79	3869	0.76	1884	0.79	861	0.94
	1550	6056	0.81	5864	0.82	5386	0.86	4867	0.87	4176	0.85	2194	0.84	1166	0.99
	1600	6252	0.89	6081	0.9	5624	0.94	5137	0.96	4477	0.94	2534	0.89	1420	1.05
	1650	6447	0.98	6287	0.99	5841	1.03	5387	1.05	4774	1.05	3094	0.98	1667	1.12
	1700	6643	1.07	6488	1.08	6056	1.12	5635	1.14	5080	1.15	3640	1.08	1973	1.18

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

Model LWBL/LMBL Size 24 - Belt Drive



SIDEWALL PROPELLER FAN
 EXHAUST — LWBL
 SUPPLY — LMBL

TIP SPEED = RPM x 6.28

RPM Range/ Motor HP	RPM	STATIC PRESSURE (INCHES W.G.)													
		0		0.10		0.25		0.38		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
L1 (1/4) M1 (1/3) P1 (1/2)	650	4209	0.14	3544	0.16	1442	0.18	611	0.23						
	675	4371	0.15	3754	0.18	1688	0.19	852	0.24						
	700	4533	0.17	3969	0.20	1927	0.20	1078	0.26	446	0.31				
	725	4695	0.19	4181	0.22	2330	0.22	1260	0.28	557	0.33				
	750	4857	0.21	4372	0.24	2752	0.25	1437	0.29	700	0.35				
	775	5018	0.23	4561	0.26	3163	0.28	1611	0.31	941	0.37				
	800	5180	0.25	4748	0.29	3565	0.31	1805	0.33	1176	0.39				
	825	5342	0.28	4934	0.31	3956	0.34	2051	0.35	1367	0.41				
M2 (1/3) P2 (1/2) R2 (3/4) S2 (1)	850	5504	0.31	5119	0.34	4184	0.37	2290	0.36	1547	0.44				
	875	5666	0.33	5292	0.37	4409	0.41	2630	0.39	1723	0.46	625	0.59		
	900	5828	0.36	5461	0.40	4632	0.44	3059	0.43	1895	0.48	735	0.62		
	925	5990	0.39	5630	0.44	4852	0.47	3477	0.47	2097	0.51	920	0.65		
	950	6152	0.43	5798	0.47	5056	0.51	3887	0.52	2342	0.53	1161	0.68		
	1000	6475	0.50	6133	0.55	5409	0.59	4684	0.61	2857	0.58	1598	0.75	676	0.88
	1025	6619	0.56	6285	0.60	5605	0.64	5000	0.67	3122	0.66	1672	0.79	473	0.94
R3 (3/4) S3 (1) T3 (1-1/2)	1050	6781	0.60	6455	0.64	5795	0.69	5211	0.72	3647	0.71	1864	0.83	701	0.99
	1100	7104	0.69	6795	0.73	6173	0.78	5636	0.82	4785	0.84	2184	0.89	1162	1.07
	1125	7265	0.74	6964	0.78	6365	0.83	5848	0.87	5133	0.90	2340	0.93	1397	1.11
	1150	7426	0.79	7133	0.83	6648	0.88	6048	0.92	5443	0.96	2495	0.97	1628	1.16
	1175	7588	0.84	7301	0.88	6830	0.93	6244	0.98	5701	1.02	2647	1.01	1854	1.20
	1200	7749	0.90	7469	0.93	7009	0.99	6438	1.04	5913	1.08	2797	1.05	2070	1.25
	1225	7911	0.95	7637	0.99	7187	1.06	6631	1.10	6123	1.14	3209	1.17	2233	1.29
S4 (1) T4 (1-1/2)	1250	8072	1.01	7806	1.05	7365	1.12	6823	1.16	6336	1.20	3716	1.19	2394	1.34
	1275	8234	1.07	7973	1.11	7542	1.19	7014	1.23	6549	1.27	4214	1.27	2552	1.39
	1300	8395	1.14	8141	1.18	7718	1.26	7204	1.30	6761	1.34	4790	1.36	2709	1.43
	1325	8557	1.21	8308	1.24	7894	1.33	7393	1.37	6961	1.41	5361	1.46	2863	1.48
	1350	8718	1.27	8476	1.31	8070	1.40	7581	1.44	7157	1.48	5923	1.55	3015	1.53
	1375	8879	1.35	8643	1.39	8245	1.48	7768	1.52	7352	1.56	6251	1.64	3166	1.59
	1400	9041	1.42	8810	1.46	8419	1.56	8047	1.59	7545	1.64				
	1425	9202	1.50	8976	1.54	8594	1.64								

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

Model LWBL/LMBL Size 30 - Belt Drive



SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

TIP SPEED = RPM x 7.85

RPM Range/ Motor HP	RPM	STATIC PRESSURE (INCHES W.G.)													
		0.00		0.10		0.25		0.38		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
L1 (1/4) M1 (1/3) P1 (1/2)	425	5734	0.12	3799	0.14										
	450	6071	0.14	4345	0.16										
	475	6408	0.17	4864	0.19	991	0.25								
	500	6746	0.20	5348	0.22	1456	0.27								
	525	7083	0.23	5822	0.25	1935	0.30								
	550	7420	0.26	6286	0.29	2395	0.32								
	600	7852	0.31	6659	0.33	2746	0.34	1180	0.44						
M2 (1/3) P2 (1/2) R2 (3/4) S2 (1) T2 (1-1/2)	625	8180	0.34	7101	0.37	3091	0.37	1690	0.47						
	650	8507	0.39	7537	0.42	3538	0.41	2182	0.51						
	700	9161	0.48	8256	0.52	5594	0.53	2997	0.58	1511	0.69				
	725	9488	0.54	8604	0.58	6620	0.59	3273	0.61	2017	0.74				
	750	9816	0.59	8951	0.64	7178	0.66	3547	0.65	2509	0.78				
	775	10143	0.66	9296	0.70	7725	0.73	3953	0.70	2926	0.83				
	800	10470	0.72	9640	0.77	8157	0.80	4403	0.77	3329	0.87				
	825	10797	0.79	9982	0.85	8546	0.87	5199	0.86	3666	0.92	1175	1.20		
850	11124	0.86	10342	0.92	8932	0.95	6489	0.95	3897	0.96	1700	1.26			
S3 (1) T3 (1-1/2) V3 (2)	900	11779	1.03	11067	1.09	9746	1.12	8378	1.13	4658	1.10	2710	1.38		
	925	12106	1.11	11427	1.18	10150	1.22	8933	1.23	5106	1.20	3185	1.45	760	1.76
	950	12433	1.21	11786	1.27	10551	1.32	9479	1.34	5866	1.31	3597	1.52	1300	1.83
	1000	13087	1.41	12499	1.48	11434	1.53	10305	1.56	8367	1.55	4392	1.67	2343	2.00
	1025	13415	1.52	12855	1.59	11870	1.64	10693	1.67	9355	1.67	4625	1.73	2847	2.08
	1050	13742	1.63	13209	1.70	12257	1.76	11082	1.79	9914	1.80	4856	1.79	3340	2.17
V4 (2) W4 (3)	1075	14069	1.75	13562	1.82	12608	1.89	11492	1.92	10466	1.94	5238	1.88	3792	2.26
	1100	14396	1.87	13909	1.95	12959	2.02	11900	2.05	11011	2.08	5663	2.00	4203	2.35
	1150	15051	2.14	14595	2.22	13656	2.30	12706	2.34	11826	2.37	6556	2.36	5003	2.55
	1175	15378	2.28	14936	2.36	14003	2.46	13127	2.49	12215	2.52	7784	2.48	5261	2.63
	1200	15705	2.43	15278	2.51	14348	2.61	13570	2.64	12600	2.68	9070	2.66	5493	2.72
W5 (3)	1250	16359	2.75	15959	2.83	15037	2.95	14445	2.98	13412	3.02	11336	3.04	6182	2.93
	1300	17014	3.09	16639	3.17	15722	3.31	15209	3.34	14223	3.38	12453	3.42	7076	3.32
	1325	17341	3.27	16978	3.35	16075	3.50	15560	3.53						

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Model LWBL/LMBL Size 36 - Belt Drive



SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

TIP SPEED = RPM x 9.42

RPM Range/ Motor HP	RPM	STATIC PRESSURE (INCHES W.G.)													
		0.00		0.10		0.25		0.38		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
M1 (1/3) P1 (1/2) R1 (3/4)	400	8211	0.20	5762	0.21										
	425	8724	0.25	6638	0.26	815	0.35								
	450	9237	0.29	7462	0.31	2101	0.37								
	475	9750	0.34	8171	0.36	2703	0.41								
	500	10263	0.40	8821	0.43	3236	0.46								
	525	10776	0.46	9461	0.49	3890	0.51	1234	0.65						
	550	11290	0.53	10058	0.56	4620	0.55	2516	0.68						
R2 (3/4) S2 (1) T2 (1-1/2)	575	11803	0.61	10619	0.64	6265	0.63	3164	0.74						
	600	12316	0.69	11176	0.72	7846	0.72	3703	0.81	1098	0.99				
	625	12829	0.78	11730	0.81	8824	0.83	4234	0.89	2396	1.02				
	650	13342	0.88	12280	0.91	9753	0.92	4968	0.95	3345	1.09				
	675	13855	0.98	12827	1.01	10596	1.04	5751	1.02	3894	1.18				
	700	14369	1.10	13371	1.12	11423	1.16	7400	1.14	4428	1.28				
	725	14882	1.22	13914	1.24	12232	1.30	9000	1.27	4988	1.39				
T3 (1-1/2) V3 (2) W3 (3)	750	15395	1.35	14463	1.37	12892	1.44	10206	1.41	5721	1.47	2139	1.85		
	775	15908	1.49	15010	1.51	13544	1.58	11173	1.56	6436	1.55	3417	1.90		
	800	16421	1.64	15556	1.66	14190	1.74	12078	1.72	8004	1.70	4184	2.02		
	825	16934	1.80	16099	1.82	14829	1.91	12921	1.90	9620	1.87	4732	2.16	1217	2.72
	850	17448	1.97	16641	1.99	15459	2.09	13750	2.08	11154	2.05	5268	2.31	1630	2.79
	875	17961	2.15	17181	2.17	16024	2.27	14566	2.28	12135	2.24	5793	2.47	2933	2.87
V4 (2) W4 (3) X4 (5)	900	18474	2.33	17720	2.36	16585	2.45	15301	2.48	13097	2.45	6465	2.60	4202	2.95
	925	18987	2.53	18258	2.56	17144	2.65	15958	2.69	13989	2.67	7193	2.72	4858	3.11
	950	19500	2.75	18795	2.77	17700	2.86	16610	2.92	14831	2.90	7906	2.85	5407	3.31
	1000	20527	3.20	19865	3.23	18806	3.31	17897	3.40	16483	3.40	11115	3.32	6473	3.72
	1025	20790	3.26	20199	3.31	19130	3.41	17855	3.48	16610	3.50	11165	3.37	7425	3.72
	1050	21297	3.51	20718	3.55	19727	3.66	18470	3.73	17256	3.77	11215	3.65	7961	3.89
X5 (5)	1100	22311	4.03	21754	4.08	20912	4.19	19688	4.26	18531	4.33	15324	4.26	8847	4.28
	1150	23326	4.61	22796	4.65	22058	4.78	20891	4.85	19786	4.94	17195	4.91	9861	4.74
	1175	23833	4.91	23319	4.96	22590	5.09	21491	5.16	20406	5.25	18113	5.26	10894	5.08
	1200	24340	5.23	23842	5.28	23121	5.41	22098	5.49	21022	5.58	18895	5.62	11910	5.43

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

Model LWBL/LMBL Size 42 - Belt Drive



SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

TIP SPEED = RPM x 10.99

RPM Range/ Motor HP	RPM	STATIC PRESSURE, INCHES W.G.													
		0.00		0.10		0.25		0.38		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
M1 (1/3) P1 (1/2)	350	9012	0.16	4621	0.20										
	375	9655	0.20	6050	0.24										
	400	10299	0.24	7162	0.28	1669	0.42								
	425	10943	0.29	8278	0.32	2468	0.46								
	450	11586	0.34	9071	0.38	3448	0.51								
P2 (1/2) R2 (3/4) S2 (1)	475	12230	0.40	9848	0.44	4438	0.56	1641	0.74						
	500	12874	0.47	10612	0.51	5118	0.62	2311	0.79						
	525	13518	0.54	11391	0.59	5871	0.69	3184	0.86						
	550	14161	0.62	12168	0.67	7076	0.77	4164	0.94	1936	1.14				
R3 (3/4) S3 (1) T3 (1-1/2) V3 (2)	575	14805	0.71	12935	0.77	8741	0.87	5248	1.01	2606	1.21				
	600	15449	0.81	13694	0.87	9874	0.97	5935	1.09	3453	1.30				
	625	16092	0.91	14421	0.98	10982	1.07	6633	1.19	4339	1.40				
	650	16736	1.03	15140	1.09	12121	1.18	7405	1.29	5579	1.49				
	675	17380	1.15	15854	1.22	13185	1.30	8761	1.42	6366	1.60	2410	2.10		
T4 (1-1/2) V4 (2) W4 (3)	700	18023	1.28	16564	1.35	13980	1.43	10428	1.56	7047	1.72	3081	2.21		
	725	18667	1.43	17269	1.50	14764	1.58	11663	1.72	7762	1.84	3873	2.34		
	750	19311	1.58	17971	1.65	15539	1.74	12749	1.88	8534	1.98	4771	2.49		
	775	19954	1.74	18669	1.81	16306	1.91	13888	2.03	9816	2.15	5742	2.63	2661	3.21
	800	20598	1.92	19364	1.99	17065	2.09	15021	2.19	11494	2.34	7033	2.76	3337	3.35
	825	21242	2.10	20056	2.18	17852	2.28	16094	2.37	12931	2.54	7750	2.93	4026	3.51
W5 (3) X5 (5)	875	22529	2.51	21430	2.58	19406	2.71	17678	2.79	15119	2.96	9104	3.29	5825	3.90
	900	23173	2.73	22114	2.80	20173	2.94	18458	3.02	16269	3.17	9882	3.48	6897	4.09
	925	23817	2.97	22796	3.04	20935	3.19	19230	3.26	17400	3.39	10648	3.69	8180	4.26
	950	24460	3.21	23476	3.29	21692	3.45	19996	3.51	18499	3.61	12078	3.95	8877	4.48
	975	25104	3.47	24155	3.55	22419	3.71	20755	3.78	19297	3.89	13759	4.24	9562	4.72
X6 (5)	1000	25748	3.75	24832	3.82	23142	3.99	21537	4.07	20087	4.17	15375	4.55	10236	4.96
	1050	27035	4.34	26182	4.41	24575	4.59	23098	4.69	21647	4.78	17570	5.17	11743	5.48
	1075	27679	4.65	26855	4.72	25288	4.91	23870	5.02	22417	5.11	18673	5.49	12505	5.76
	1100	28323	4.99	27528	5.06	25997	5.25	24638	5.37	23182	5.45				
	1125	28966	5.33	28199	5.40	26704	5.60	25400	5.74	23941	5.81				

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

Model LWBL/LMBL Size 48 - Belt Drive



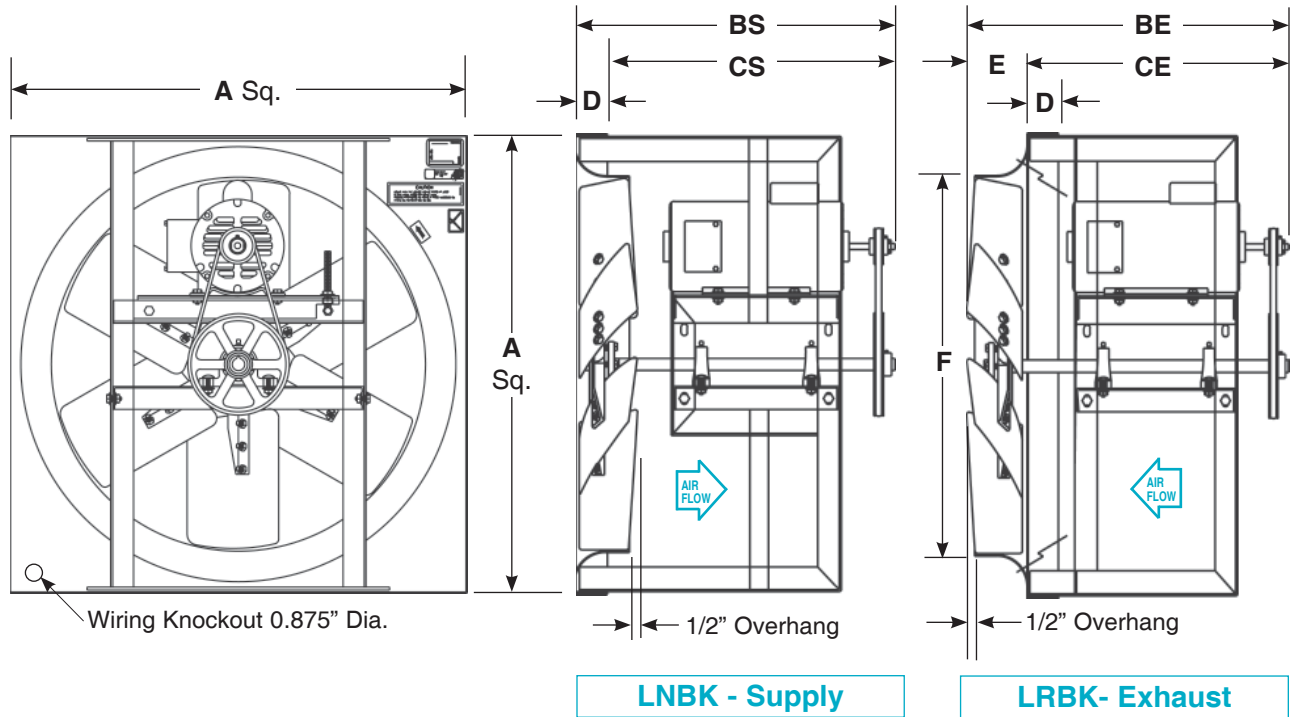
SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

TIP SPEED = RPM x 12.57

RPM Range/ Motor HP	RPM	STATIC PRESSURE, INCHES W.G.													
		0.00		0.10		0.25		0.38		0.50		0.75		1.00	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
P1 (1/2) R1 (3/4) S1 (1)	350	11454	0.23	7327	0.27										
	375	12272	0.28	8847	0.33	1901	0.45								
	400	13090	0.34	10126	0.39	3006	0.50								
	425	13908	0.41	11190	0.45	4215	0.56								
	450	14726	0.49	12231	0.53	5423	0.62	1317	0.83						
R2 (3/4) S2 (1) T2 (1-1/2)	475	15544	0.58	13272	0.61	6662	0.70	3033	0.88						
	500	16362	0.67	14298	0.71	7934	0.80	4137	0.95	1635	1.21				
	525	17180	0.78	15310	0.82	10132	0.89	5382	1.04	2445	1.27				
	550	17998	0.89	16308	0.94	11413	1.04	6586	1.14	3569	1.35				
S3 (1) T3 (1-1/2) V3 (2) W3 (3)	575	18817	1.02	17256	1.07	12890	1.19	7808	1.24	4658	1.45				
	600	19635	1.16	18152	1.21	14416	1.33	9094	1.39	5910	1.57				
	625	20795	1.20	18938	1.30	15669	1.40	11272	1.43	7455	1.60	1773	2.22		
	650	21627	1.35	19854	1.45	16742	1.56	12900	1.62	8397	1.72	2413	2.33		
	675	22459	1.52	20765	1.62	17798	1.74	14486	1.81	9079	1.89	3033	2.44		
	700	23291	1.69	21670	1.80	18840	1.93	15899	2.01	11058	2.04	4634	2.57		
	725	24122	1.88	22573	1.99	19869	2.13	17176	2.21	13234	2.24	6546	2.71	2134	3.44
V4 (2) W4 (3) X4 (5)	750	24954	2.08	23471	2.19	20886	2.35	18430	2.43	14860	2.48	8401	2.84	2773	3.58
	800	26618	2.52	25256	2.64	22878	2.82	20671	2.91	17930	3.01	10392	3.19	4758	3.90
	825	27450	2.77	26144	2.88	23836	3.08	21727	3.17	19216	3.27	11074	3.45	6637	4.08
	850	28282	3.03	27029	3.15	24788	3.35	22771	3.46	20481	3.55	12643	3.69	8519	4.26
W5 (3) X5 (5) Y5 (7-1/2)	875	29113	3.30	27912	3.42	25732	3.63	23804	3.75	21726	3.84	15351	3.93	10168	4.45
	900	29945	3.59	28792	3.72	26671	3.93	24827	4.07	22854	4.16	16998	4.29	11215	4.65
	975	32233	4.56	31039	4.75	29031	4.97	27640	5.12	26239	5.26	21551	5.52	13909	5.70
	1000	33060	4.92	31899	5.12	29946	5.34	28552	5.50	27229	5.65	22852	5.95	15051	6.12
X6 (5) Y6 (7-1/2)	1025	33886	5.29	32756	5.50	30857	5.74	29458	5.90	28190	6.06	24430	6.32	17548	6.43
	1050	34713	5.69	33612	5.90	31765	6.15	30360	6.32	29122	6.48	25985	6.72	19970	6.86
	1075	35539	6.11	34467	6.32	32669	6.58	31258	6.76	30048	6.93	27313	7.15	22090	7.41
	1100	36366	6.54	35321	6.76	33569	7.03	32152	7.22	30970	7.39	28340	7.63	23526	7.94
	1125	37192	7.00	36174	7.22	34467	7.50	33042	7.70	31886	7.87	29359	8.14		
	1150	38019	7.48	37025	7.70	35361	8.00								

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

▼ DIMENSIONAL DATA — Models LNBK and LRBK



DIMENSIONS LISTED IN INCHES

Fan Size	A Panel Sq.	BE	CS	CE	BS	D	E	F Dia.	Weight (Lbs.) Less Motor
24	30	22	22	18-1/2	19-7/8	2-1/8	3-1/2	24-1/2	100
30	36	22	22	17-1/2	19-7/8	2-1/8	4-1/4	30-1/2	112
36	42	22	22	17-1/2	19-7/8	2-1/8	4-1/4	36-1/2	126
42	48	26	26	21-1/4	23-7/8	2-1/8	4-3/4	42-1/2	136
48	54	29	29	24-1/4	26-7/8	2-1/8	4-3/4	48-1/2	161
54	60	32-1/2	32-1/2	27	34-5/8	2-1/8	5-1/2	55	N/A
60	66	33-1/4	33-1/4	27-1/4	35-3/8	2-1/8	6	61	N/A

MATERIAL GAUGES & SHIPPING WEIGHT

Fan Size	Material Gauges			Drive Frame Angle	Shaft Diameter (Inches)	Max. Motor Frame	Approx. Ship Weight (Lbs.)
	Panel Venturi	Bearing Mount	Motor Plate				
24	16	10	10	10	1.00	184T	140
30	16	10	10	10	1.00	184T	150
36	16	10	10	10	1.00	215T	170
42	16	10	10	10	1.00	254T	200
48	16	10	10	10	1.1875	254T	240
54	16	10	10	10	1.1875	254T	N/A
60	16	10	10	10	1.4375	254T	N/A

Model LRBK/LNBK

Size 24 - Belt Drive



SIDEWALL PROPELLER FAN

EXHAUST — LRBK

SUPPLY — LNBK

TIP SPEED = RPM x 6.28
[Tip Speed Based on FPM]

Motor HP	Drive Range	Fan RPM	Sones (0.125" SP)	STATIC PRESSURE (INCHES W.G.)																
				0.000	0.100	0.125	0.200	0.250	0.300	0.375	0.400	0.500	0.625	0.750	1.00	1.25				
1/4	L1	880	10.1	4275 .18	3645 .19	3425 .19	2720 .20	2127 .19												
		950	11.6	4615 .22	4035 .24	3867 .24	3232 .25	2778 .25	2191 .24											
		985	12.5	4785 .25	4228 .27	4082 .27	3478 .27	3050 .27	2538 .27											
		1020	13.3	4955 .27	4419 .29	4278 .30	3720 .30	3312 .30	2877 .30	1960 .29	1575 .29									
1/3	M1	1055	14.1	5125 .30	4608 .32	4472 .33	3955 .33	3563 .34	3155 .34	2378 .33	2060 .32									
		1090	14.9	5295 .33	4797 .36	4665 .36	4183 .37	3810 .37	3425 .37	2726 .37	2460 .36									
		1125	15.8	5465 .37	4983 .39	4856 .39	4408 .40	4053 .41	3684 .41	3068 .41	2809 .40									
1/2	P1	1160	16.7	5635 .40	5168 .43	5047 .43	4630 .44	4292 .45	3934 .45	3375 .45	3151 .45	1891 .41								
		1180	17.2	5732 .42	5273 .45	5155 .45	4756 .46	4425 .47	4075 .47	3532 .47	3343 .47	2314 .45								
		1230	18.5	5975 .48	5534 .51	5424 .51	5068 .52	4750 .53	4423 .53	3915 .53	3735 .53	2864 .52								
		1280	19.7	6218 .54	5795 .57	5689 .58	5354 .59	5070 .59	4764 .60	4278 .60	4116 .60	3358 .60	2002 .56							
		1320	21	6435 .54	6001 .58	5888 .58	5542 .60	5277 .61	5012 .62	4566 .62	4416 .62	3718 .62	2650 .60							
		1345	21	6557 .57	6132 .61	6021 .62	5687 .64	5427 .64	5167 .65	4737 .66	4590 .66	3923 .66	3014 .64							
3/4	R1	1395	23	6800 .64	6392 .68	6285 .68	5964 .71	5723 .72	5473 .72	5074 .73	4932 .73	4325 .74	3462 .73	2219 .69						
		1445	24	7044 .71	6650 .75	6548 .76	6238 .78	6017 .79	5775 .80	5405 .81	5268 .82	4718 .82	3898 .81	2888 .78						
		1520	26	7410 .83	7035 .87	6940 .88	6645 .90	6449 .92	6222 .93	5877 .94	5761 .95	5243 .95	4517 .95	3720 .94						
		1540	26	7507 .86	7138 .90	7045 .91	6753 .94	6559 .95	6340 .96	5999 .98	5885 .98	5380 .99	4678 .99	3896 .98						
1	S1	1600	28	7800 .96	7444 1.01	7355 1.02	7076 1.04	6889 1.06	6691 1.07	6363 1.09	6254 1.09	5786 1.11	5153 1.11	4416 1.11						
		1660	29	8092 1.08	7749 1.12	7664 1.14	7396 1.16	7216 1.18	7036 1.19	6722 1.21	6617 1.22	6185 1.23	5590 1.24	4907 1.24	3205 1.18					
1-1/2	T1	1720	31	8300 1.17	7983 1.21	7904 1.22	7659 1.25	7490 1.27	7322 1.28	7031 1.30	6930 1.31	6527 1.34	5979 1.36	5426 1.37	4011 1.34					
		1740	32	8397 1.21	8083 1.26	8005 1.27	7764 1.30	7597 1.31	7430 1.33	7147 1.35	7048 1.35	6650 1.38	6117 1.41	5562 1.42	4193 1.39	2485 1.36				
		1790	33	8638 1.32	8333 1.36	8257 1.38	8025 1.41	7863 1.42	7700 1.44	7437 1.46	7341 1.47	6954 1.49	6458 1.53	5900 1.54	4641 1.53	2765 1.44				
		1890	36	9120 1.55	8832 1.60	8760 1.61	8543 1.65	8390 1.67	8236 1.68	8006 1.71	7919 1.72	7553 1.74	7095 1.78	6590 1.81	5515 1.82	4039 1.85				
		1940	38	9362 1.68	9081 1.73	9010 1.74	8800 1.78	8652 1.80	8502 1.81	8278 1.84	8203 1.85	7848 1.88	7402 1.91	6933 1.95	5941 1.98	4639 1.93				
2	V1	1960	38	9458 1.73	9180 1.78	9110 1.79	8902 1.83	8757 1.85	8609 1.87	8386 1.90	8312 1.90	7966 1.93	7524 1.97	7069 2.00	6086 2.04	4820 2.00				
		2020	40	9748 1.90	9478 1.95	9410 1.96	9208 2.00	9069 2.02	8926 2.04	8710 2.07	8638 2.08	8316 2.11	7887 2.14	7459 2.18	6496 2.22	5178 2.13				
		2060	42	9941 2.01	9676 2.06	9610 2.08	9411 2.11	9277 2.14	9136 2.16	8925 2.19	8854 2.20	8548 2.23	8128 2.27							
		2100	43	10134 2.13	9874 2.18	9809 2.20	9614 2.24	9484 2.26	9346 2.28											

CFM
BHP

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

For additional sound data and for selections at other static pressures, please refer to the Carnes Fan-C-Let computerized selection program.

Model LRBK/LNBK

Size 36 - Belt Drive



SIDEWALL PROPELLER FAN
 EXHAUST — LRBK
 SUPPLY — LNBK

TIP SPEED = RPM x 9.42
[Tip Speed Based on FPM]

Motor HP	Drive Range	Fan RPM	Sones (0.125" SP)	STATIC PRESSURE (INCHES W.G.)															
				0.000	0.100	0.125	0.200	0.250	0.300	0.375	0.400	0.500	0.625	0.750	1.00	1.25			
3/4	R1	620	15.0	11777	10067	9608	8011	5946											
		645	15.8	12252	10618	10177	8703	7122											
		670	16.7	12727	11163	10739	9367	8128	5422										
1	S1	720	18.7	13677	12239	11846	10662	9699	8397										
		740	19.5	14057	12665	12283	11131	10232	9122										
		765	20	14532	13195	12825	11711	10889	9984	7570									
1-1/2	T1	790	21	15006	13721	13363	12285	11536	10659	8724	7814								
		810	22	15386	14140	13791	12740	12038	11192	9571	8744								
		820	23	15576	14349	14004	12967	12273	11457	9934	9194								
		860	24	16336	15181	14852	13864	13202	12498	11290	10732								
		890	26	16906	15792	15483	15428	13890	13250	12098	11709	9066							
2	V1	910	27	17286	16196	15901	14968	14344	13719	12630	12249	9974							
		920	27	17359	16280	16015	15207	14638	14018	12962	12529	10556							
		960	29	18114	17079	16824	16061	15516	14971	13984	13652	12002							
3	W1	1000	31	18868	17873	17629	16896	16385	15862	14974	14655	13181							
		1040	33	19623	18666	18430	17725	17246	16743	15949	15642	14334	12224	7969					
		1060	33	20000	19062	18829	18138	17674	17180	16431	16130	14902	12955	8769					
		1100	36	20755	19851	19625	18959	18515	18048	17334	17095	15935	14209	11927					
5	X1	1140	38	21510	20637	20419	19775	19347	18909	18219	17990	16929	15373	13418					
		1180	40	22265	21421	21210	20587	20173	19759	19096	18875	17909	16516	14826					
		1200	41	22642	21813	21605	20992	20585	20178	19532	19314	18395	17065	15418	9175				
		1260	45	23901	23180	22999	22459	22098	21709	21091	20884	20060	18847	17593	14169				
		1300	47	24659	23961	23786	23262	22912	22553	21953	21754	20954	19837	18622	15762				
7-1/2	Y1	1340	49	25418	24740	24571	24062	23723	23384	22811	22617	21841	20815	19637	17067	10728			
		1360	50	25798	25130	24963	24462	24128	23794	23237	23046	22282	21301	20139	17669	12864			
		1430	55	27125	26490	26331	25855	25537	25219	24721	24539	23813	22904	21876	19667	16694			
		1500	60	28453	27848	27696	27242	26939	26636	26182	26018	25326	24460	23580	21474	19137			
10	C1	1550	63	29402	28816	28669	28229	27936	27643	27204	27057	26397	25559	24721	22743	20634			

CFM
BHP

Performance certified is for wall ventilators for installation type A: Free inlet, Free outlet. Performance ratings (bhp) do not include transmission losses. Performance ratings do not include the effects of accessories.

Sound ratings are loudness values in fan sones at 5 feet (1.5m) in a hemispherical free field calculated per AMCA Standard 301. Values are for installation type A: Free inlet hemispherical sone levels. For additional sound data and for selections at other static pressures, please refer to the Carnes Fan-C-Let computerized selection program.

**Model LRBK/LNBK
Size 54 - Belt Drive**

TIP SPEED = RPM x 14.14
[Tip Speed Based on FPM]

SIDEWALL PROPELLER FAN
EXHAUST — LRBK
SUPPLY — LNBK



Motor HP	Drive Range	Fan RPM	Sones (0.125" SP)	STATIC PRESSURE (INCHES W.G.)															
				0.000	0.100	0.125	0.200	0.250	0.300	0.375	0.400	0.500	0.625	0.750	1.00	1.25			
1	S1	395	17.0	23025.91	19521.98	18638.100	15184.104	10413.102	6797.110										
		410	18.1	23900.102	20526.109	19675.111	16702.115	13071.116	8250.118										
		425	19.1	24774.113	21521.121	20701.123	17917.128	15186.130	9973.127										
1-1/2	T1	440	20	25648.126	22508.134	21716.136	19111.141	16808.143	12722.142	7440.152									
		450	21	26231.134	23162.143	22388.145	19898.151	17862.153	14469.159	8417.165	7275.165								
		460	22	26814.144	23813.152	23055.154	20676.161	18805.163	16025.165	9377.172	8230.172								
		480	23	27980.163	25107.172	24381.174	22201.182	20419.184	18194.186	12054.183	10151.186								
2	V1	490	24	28563.174	25749.182	25038.185	22903.192	21214.195	19256.197	13882.196	11375.195								
		500	24	29146.184	26388.193	25693.196	23601.204	22002.207	20280.209	15636.210	13238.228	7890.228							
		510	25	29729.196	27025.205	26345.207	24294.215	22783.219	21095.221	17362.224	15031.222	8781.236							
		530	27	30895.220	28293.229	27641.232	25667.240	24326.245	22702.247	19627.251	18377.252	10717.254							
3	W1	550	28	32060.245	29554.255	28927.258	27026.266	25758.272	24281.275	21757.279	20552.280	13124.276							
		560	29	32643.259	30181.269	29566.272	27700.280	26455.286	25601.290	22755.294	21621.295	14982.292	8899.319						
		580	30	33809.288	31432.298	30838.301	29039.310	27837.316	26603.321	24377.325	23634.326	18516.328	10774.341						
		610	33	35558.335	33298.346	32733.349	31027.357	29883.364	28740.370	26761.376	26055.377	22448.382	13749.415	9477.415					
5	X1	630	35	36724.369	34535.380	33988.383	32339.392	31232.399	30125.405	28321.413	27638.414	24586.420	17463.416	11281.441					
		640	36	37307.387	35152.398	34614.401	32992.410	31902.417	30812.423	29094.432	28421.433	25639.439	19227.439	12252.454					
	X2	660	38	38450.418	36432.431	35927.435	34391.445	33276.451	32161.457	30443.465	29817.468	27313.476	22749.482	14436.481					
		680	40	39615.457	37656.471	37166.475	35697.485	34617.491	33535.498	31912.507	31319.509	28888.518	24995.526	17159.523					
		700	42	40780.498	38877.513	38401.517	36974.527	35949.534	34898.540	33322.550	32796.553	30443.563	27015.572	21478.573					
		720	44	41945.542	40095.557	39633.561	38245.572	37272.579	36251.586	34718.596	34207.599	31978.609	28999.621	2447.625					
	730	45	42528.565	40703.580	40247.584	38878.596	37931.603	36923.609	35411.619	34908.623	32738.634	29908.646	25852.652						
	7-1/2	Y1	760	48	44275.638	42523.654	42085.658	40770.669	39894.677	38928.684	37476.695	36992.698	34996.711	32277.724	28910.733	16409.735			
790			51	46023.716	44337.733	43916.737	42651.749	41808.757	40914.765	39517.776	39052.779	37189.794	34604.807	31893.820	21483.821				
Y2		810	54	47188.772	45544.789	45133.793	43889.806	43077.814	42230.822	40867.833	40413.837	38596.852	36134.867	33584.880	25060.889				
		830	56	48353.831	46749.848	46347.852	45114.865	44341.874	43538.882	42209.894	41765.898	39992.913	37649.929	35159.943	28058.958				
10	C1	860	59	50169.919	48589.937	48193.942	47008.955	46217.964	45427.973	44184.986	43766.990	42095.106	39985.106	37553.104	31733.103	19615.1057			
		880	62	51336.984	49791.1003	49405.1008	48246.1022	47474.1031	46701.1040	45500.1053	45092.1057	43459.1074	41417.1095	39098.1111	33751.1137	23210.1132			
		900	64	52503.1053	50992.1072	50615.1077	49482.1091	48726.1101	47971.1110	46809.1124	46410.1128	44813.1145	42817.1166	40627.1184	35741.1214	26921.1215			
		910	65	53086.1089	51592.1108	51219.1113	50098.1127	49351.1137	48604.1146	47462.1160	47067.1164	45488.1182	43513.1203	41387.1222	36726.1254	28585.1258			
15*	N1	940	69	54836.1200	53390.1220	53028.1225	51944.1240	51220.1250	50497.1259	49411.1274	49029.1279	47500.1296	45588.1319	43646.1340	39196.1374	33277.1391			
		970	73	56586.1318	55185.1339	54834.1344	53783.1359	53082.1370	52382.1380	51330.1395	50978.1400	49496.1419	47644.1442	45792.1464	41565.1500	36340.1524			
	N2	1000	78	58337.1445	56977.1466	56637.1471	55617.1487	54938.1497	54258.1508	53288.1524	52898.1529	51478.1548	49682.1572	47885.1596	43902.1635	39343.1666			
		1025	81	59795.1556	58469.1577	58137.1583	57142.1599	56479.1610	55816.1621	54821.1637	54489.1642	53120.1663	51367.1687	49615.1711					
		1035	83	60378.1602	59065.1624	58736.1629	57751.1645	57094.1656	56438.1667	55452.1684	55124.1689	53744.1710							

CFM
BHP

*Fans with 15 HP motors are not available with UL Listing

Model LRBK/LNBK
Size 60 - Belt Drive

SIDEWALL PROPELLER FAN
EXHAUST — LRBK
SUPPLY — LNBK



TIP SPEED = RPM x 15.71
[Tip Speed Based on FPM]

Motor HP	Drive Range	Fan RPM	Sones (0.125" SP)	STATIC PRESSURE (INCHES W.G.)																
				0.000	0.100	0.125	0.200	0.250	0.300	0.375	0.400	0.500	0.625	0.750	1.00	1.25				
1	S1	350	15.9	26627.93	21978.100	20604.102	14771.104	9062.107												
		360	16.7	27388.101	22890.109	21620.111	16417.114	10438.114												
		370	17.5	28149.110	23794.118	22602.120	17777.123	12352.123	8051.130											
1-1/2	T1	380	18.2	28910.119	24692.127	23531.129	19114.134	14265.132	9451.138											
		390	19.0	29670.129	25583.137	24452.139	20429.144	16255.144	10838.146											
		410	21	31192.150	27348.158	26272.160	22665.166	19379.168	14433.166											
2	V1	430	22	32714.173	29093.182	28066.184	24755.190	22050.193	18355.195	11284.198	9670.203									
		440	23	33474.184	29958.194	28955.197	25785.203	23357.207	19982.208	12661.208	11083.214									
		450	24	34235.198	30819.208	29838.210	26804.217	24448.220	21346.222	14515.221	12469.225									
		470	26	35757.226	32511.236	31591.238	28774.245	26560.249	24017.252	18386.250	16007.251									
3	W1	490	28	37278.256	34165.266	33327.269	30625.276	28630.281	26467.285	22074.287	19904.285	12119.296								
		500	29	38039.272	34988.282	34189.285	31541.293	29651.297	27531.302	23443.305	21877.310	13512.310								
		520	31	39561.306	36627.317	35893.319	33357.327	31659.333	29630.337	26128.342	24701.343	16836.341								
		540	33	41388.337	38556.351	37848.354	35531.363	33862.367	32099.372	29331.380	28178.381	21137.382	12067.396							
5	X1	560	34	42921.375	40190.390	39507.394	37333.403	35723.408	34093.413	31424.420	30535.423	25451.426	15332.431							
		570	35	43688.396	41004.411	40333.414	38227.425	36646.429	35065.434	32458.442	31584.445	27041.449	17046.450							
	X2	590	37	45221.439	42628.454	41980.458	40005.469	38477.474	36950.479	34501.487	33657.490	29706.497	20877.498	13037.518						
		610	39	46754.485	44246.501	43619.505	41738.517	40291.522	38813.528	36515.535	35698.538	32315.549	24497.550	16199.558						
		630	41	48287.534	45858.551	45251.555	43430.567	42089.574	40658.579	38503.587	37712.590	34549.602	29248.606	19753.607						
		640	42	49053.560	46663.577	46065.581	44273.594	42982.601	41574.606	39461.614	38709.617	35596.629	30599.635	21671.636						
7-1/2	Y1	660	44	50586.614	48268.632	47689.636	45951.649	44759.657	43393.663	41345.671	40662.674	37666.686	33259.696	25589.697						
		680	47	52119.672	49869.690	49307.694	47620.708	46495.716	45197.723	43209.731	42546.734	39709.746	35870.760	29922.762	14904.794					
		700	49	53652.733	51466.751	50920.756	49281.770	48189.779	46988.786	45056.795	44413.798	41726.810	38168.826	33373.831	17945.846					
		730	53	55804.831	53667.849	53133.853	51531.867	50462.876	49334.884	47561.896	46970.900	44606.915	41119.930	37104.942	23236.952					
10	C1	740	54	56568.866	54461.884	53934.888	52353.902	51299.911	50203.920	48454.932	47871.935	45538.951	42168.967	38402.981	25158.990					
		760	57	58097.938	56045.956	55532.961	53993.975	52966.984	51933.994	50230.1006	49662.1010	47391.1026	44246.1044	40820.1059	28940.1068	18283.1148				
		780	60	59626.1014	57626.1033	57127.1038	55627.1052	54627.1062	53627.1071	51994.1084	51441.1088	49228.1105	46301.1124	42962.1140	33492.1156	21531.1223				
		790	61	60391.1053	58416.1073	57923.1078	56442.1092	55455.1102	54467.1111	52872.1125	52326.1129	50141.1146	47320.1166	44023.1182	35732.1202	23129.1262				
		800	62	61155.1094	59205.1113	58718.1118	57256.1133	56281.1143	55306.1153	53747.1166	53208.1170	51051.1187	48333.1209	45078.1225	37159.1246	24783.1302				
15*	N1	820	65	62684.1178	60782.1198	60306.1203	58880.1218	57928.1228	56977.1238	55491.1253	54965.1257	52860.1274	50229.1296	47170.1314	39831.1339	28634.1396				
		840	69	64213.1266	62356.1287	61892.1292	60499.1307	59571.1318	58642.1328	57225.1343	56711.1348	54656.1365	52088.1388	49239.1407	42462.1436	32424.1494				
		860	72	65742.1359	63928.1380	63475.1385	62114.1401	61207.1412	60301.1422	58940.1438	58448.1443	56441.1461	53933.1484	51286.1505	45055.1538	36979.1604				
		880	75	67271.1456	65498.1478	65055.1483	63726.1499	62839.1510	61953.1521	60624.1537	60176.1542	58215.1561	55764.1584	53312.1608	47396.1643	40947.1717				
		900	78	68799.1557	67066.1580	66633.1585	65333.1602	64467.1613	63600.1624	62300.1640	61867.1646	59979.1665	57582.1689	55185.1713						
		915	81	69946.1637	68241.1659	67815.1665	66537.1682	65684.1693	64832.1704	63554.1721										

CFM
BHP

*Fans with 15 HP motors are not available with UL Listing

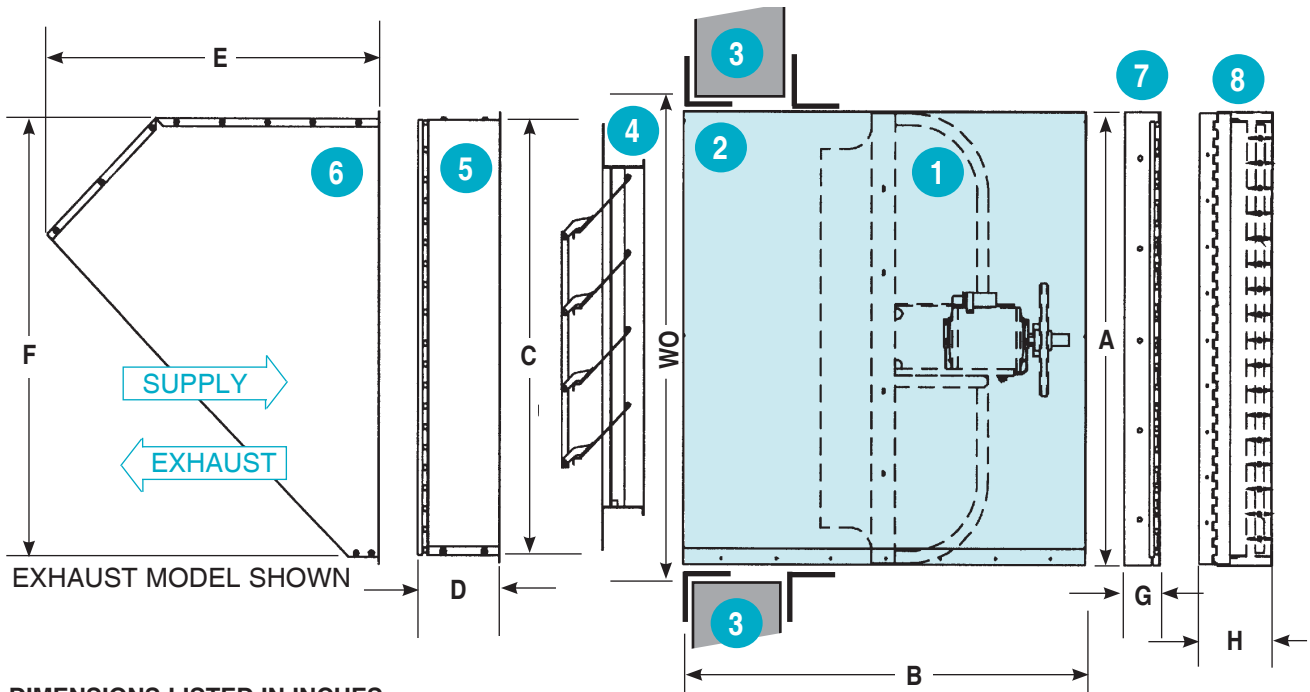
Sidewall Propeller Fans

SIDEWALL PROPELLER FANS TYPICAL INSTALLATIONS _____ **WALL BOX**

The wall box (wall housing) provides a safe and sturdy platform for mounting the Models LWBL, LMBL, LRBK, LNBK Sidewall Propeller Fans and the complete selection of optional accessories shown here. The wall box allows for the exhaust or supply fan to be mounted in the wall opening and projects either into the building or outside the exterior wall. Normally, the fan and wall box are installed so that the motor and drive side of the fan are accessible from inside the building. When access is required from outside, the fan and wall box assembly may be reversed; in this case the standard exhaust Model LWBL and LRBK would function as a supply fan when reverse mounted. The heavy-gauge galvanized steel construction provides corrosion resistance. Heavy-duty center pivot motorized backdraft dampers or end pivot backdraft shutters attach to the pre-punched wall box flanges ensuring adequate clearance between the fan blades and damper. The heavy-duty OSHA style damper guard completely encloses the exterior wall opening, protects the damper from damage and prevents the entrance of birds and other unwanted animals. When additional weather protection is desired for either exhaust or supply installations, a rainhood should be installed in place of the damper guard. Rainhoods are strongly recommended for all supply applications. Rotating fan parts should always be adequately guarded. A hinged and lockable OSHA style motorside guard should be specified for safety and allows quick and easy access to the fan for routine inspection and maintenance. For supply applications, an airfoil 4-way adjustable industrial grille may be substituted for the motorside guard to efficiently direct the air flow in four directions.

Please remember that all accessories ship loose and knocked down (KD) unless specified and ordered factory assembled.

▼ **DIMENSIONAL DATA** _____ **WALL BOX and ACCESSORIES**



DIMENSIONS LISTED IN INCHES

1 FAN SIZE	2 WALL BOX		3 WALL OPENING	4 DAMPER		5 DAMPER GUARD	6 WEATHER HOOD			7 OSHA GUARD		8 SUPPLY GRILLE
	A	B	WO	C	SIZE	D	E	F	WIDTH	A	G	H
20	26-1/4	37-1/2	27-1/2	24	20	7-1/4	22-1/8	26	26	24	2-1/4	9
24	30-1/4	37-1/2	31-1/2	28	24	7-1/4	25	30	30	28	2-1/4	9
30	36-1/4	39-1/2	38	34	30	7-1/4	29-1/8	36	36	34	2-1/4	9
36	42-1/4	43-1/4	44	40	36	7-1/4	33-3/8	42	42	40	2-1/4	9
42	48-1/4	45-1/2	50	46	42	7-1/4	37-5/8	48	48	46	2-1/4	9
48	54-1/4	47-3/4	56	52	48	7-1/4	42	54	54	52	2-1/4	9
54	60-1/4	47-3/4	62	58	54	7-1/4	47	58-1/2	58-1/2	58	2-1/4	9
60	66-1/4	47-3/4	68	64	60	7-1/4	51-1/4	64-1/2	64-1/2	64	2-1/4	9

For more complete dimensional data, weights and material specifications - please refer to the Carnes Submittal Sheets.

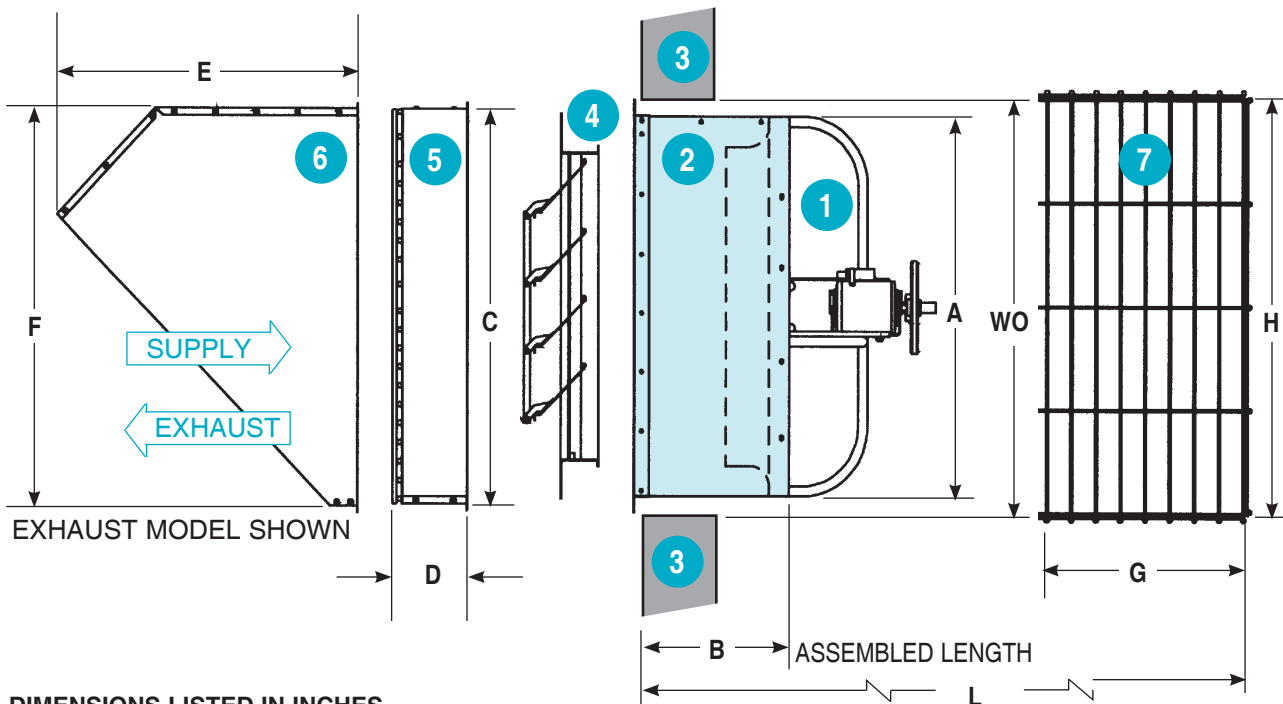
**SIDEWALL PROPELLER FANS
TYPICAL INSTALLATIONS**

MOUNTING COLLAR

The wall mounting collar provides an alternate choice for mounting the Models LWBL, LMBL, LRBK, LNBK Sidewall Propeller Fans and the selection of accessories shown here. The mounting collar allows for the exhaust or supply fan to be mounted within the wall opening and must be flush with the exterior wall surface - extending entirely inside the building. The materials and construction are similar to the wall box. Rotating fan parts should always be adequately guarded. Factory designed fan guards provide protection while allowing easy access for routine inspection and maintenance of the fan, motor, bearings and drives. The basket style motorside guard attaches to the mounting collar and completely encloses the motor and drive side of the fan. For OSHA requirements, the wall box arrangement with guard must be specified and ordered. When factory supplied guards are not specified and ordered, proper fan guards must be provided by others and installed. Also, for supply applications where the adjustable 4-way airfoil grille is desired, the wall box must be used in lieu of the mounting collar. Backdraft dampers and damper guards or rainhoods can be mounted in a similar fashion as described for the wall box.

Please remember that all accessories ship loose and knocked down (KD) unless specified and ordered factory assembled.

▼ DIMENSIONAL DATA MOUNTING COLLAR and ACCESSORIES

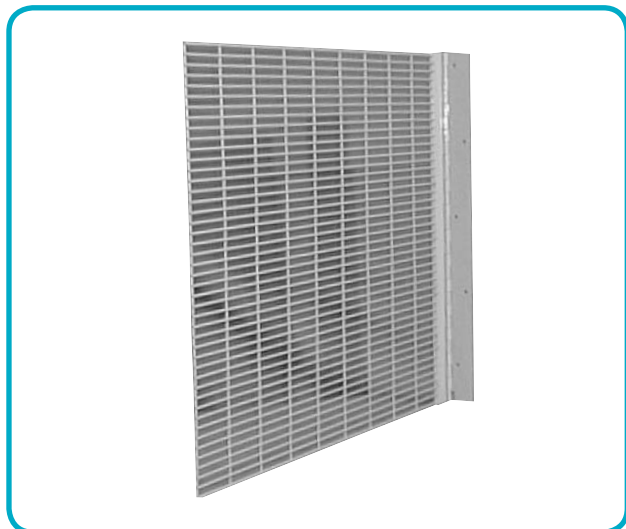


DIMENSIONS LISTED IN INCHES

1 FAN SIZE	2 WALL COLLAR		3 WALL OPENING WO	4 DAMPER		5 DAMPER GUARD D	6 WEATHER HOOD			7 MOTOR SIDE GUARD		ASS'Y LENGTH L
	A	B		C	SIZE		E	F	WIDTH	G	H	
20	26-1/4	17-1/2	27-1/2	24	20	7-1/4	22-1/8	26	26	22	27	33-1/2
24	30-1/4	17-1/2	31-1/2	28	24	7-1/4	25	30	30	22	31	33-1/2
30	36-1/4	17-1/2	38	34	30	7-1/4	29-1/8	36	36	25	37	39-1/2
36	42-1/4	18-1/2	44	40	36	7-1/4	33-3/8	42	42	27	43	43-1/2
42	48-1/4	20-3/4	50	46	42	7-1/4	37-5/8	48	48	27	49	45-1/2
48	54-1/4	22-3/4	56	52	48	7-1/4	42	54	54	27	55	47-3/4
54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

For more complete dimensional data, weights and material specifications - please refer to the Carnes Submittal Sheets.

Most sidewall propeller fan installations require one or more of the accessories shown. The factory designed wall box or mounting collar provide the most effective platform for mounting the fan and accessories. Ease of installation, safety, reliability and weather protection are among the many reasons to specify and purchase these factory fabricated accessories. Please remember that all accessories ship loose and knocked down for field assembly unless specified and ordered to be factory assembled. For complete specifications and details - please refer to the Carnes Submittal Sheets.

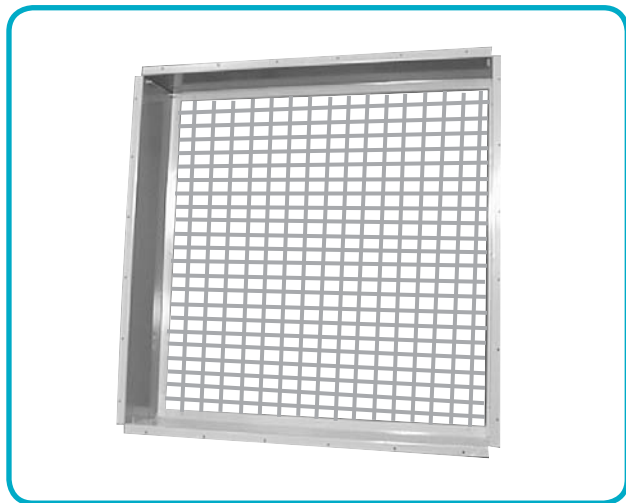
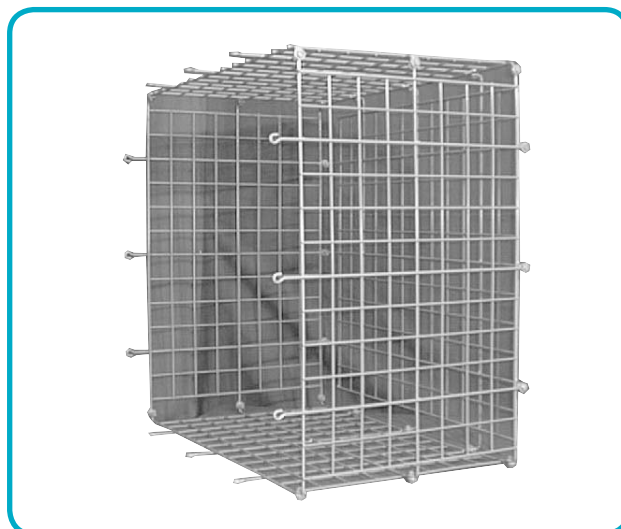


HINGED MOTOR SIDE GUARD - OSHA STYLE

Attaches to the wall box on the motor and drive side and may be used for exhaust or supply. This protective heavy-duty guard is welded to a full length steel piano hinge which allows easy access to the fan, motor, bearings and drives for routine maintenance and service. The welded steel guard is coated with gray enamel paint then baked for a durable general service finish.

MOTOR SIDE GUARD - BASKET STYLE

Attaches to the mounting collar completely enclosing the motor and drives and may be used for exhaust or supply applications. The welded steel sections are bolted together allowing easy removal for access to the fan, motor, bearings and drives for routine maintenance and service. The standard finish is gray baked enamel paint.



DAMPER GUARD

Attaches to either the wall box or mounting collar on the propeller side of the fan. The heavy-duty steel guard meets OSHA requirements and completely encloses the damper and exterior wall opening. The pre-punched mounting flanges simplify installation. The standard finish is gray baked enamel paint. The damper guard may not be used with the weather hood.

WEATHER HOOD

Attaches to either the wall box or mounting collar and may be used with gravity or motorized dampers, but not with the damper guard. The weather hood shields the wall opening from rain and snow and is recommended for supply applications and for all applications where additional weather protection is desired. The mounting flanges are pre-punched for easy installation. The optional heavy-duty style flat guard may be substituted for the standard galvanized mesh birdscreen.



SPECIFY THE WEATHER HOOD FOR ALL SUPPLY FAN INSTALLATIONS.



EXTRUDED ALUMINUM OPERABLE LOUVER

Attaches to either the wall box or mounting collar. The extruded aluminum louver/damper combination incorporates Carnes exclusive “S” design blade with every other blade fully adjustable from open to close. With the operable blades in the open position, the louver is provided with 2” blade spacing; when the operable blades are closed, the remaining fixed blades appear to be a 4” spaced louver. However the operable blades are closed off, serving as a damper. Damper blades feature full-length gaskets to assure quiet operation and maximum closure when the operable blades are shut. Mill finish aluminum construction is standard, and a variety of custom finishes are also available. Two position power open spring close (POSC) electric operators are available for 24, 115, 230 or 460 volts.

AIRFOIL INDUSTRIAL SUPPLY GRILLE

Attaches to the wall box on the motor side of the supply fan. Horizontal and vertical aluminum airfoil blades are individually adjustable to quietly and efficiently direct the supply air flow in any of four directions. The heavy-duty welded frame is hinged to allow quick and easy access to the fan, motor, bearings and drives for routine maintenance and service. The standard finish is gray electrocoat baked enamel paint.



SPECIAL PAINTS and COATINGS — A wide selection of decorative paints and corrosion resistant coatings including enamel, epoxy and Heresite are available for factory application to the fan and accessories. Please contact Carnes or your local Carnes Representative for selection assistance and details.

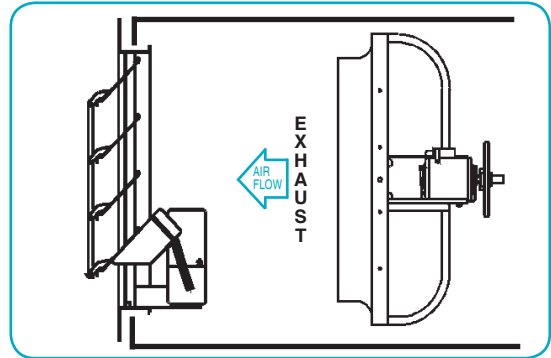
UL LISTING — To further ensure electrical safety and reliability, specify the UL-705 listing and Canadian cUL listing. Please check with your local code authority and comply with all applicable codes.

The aluminum backdraft dampers and wall shutters can significantly reduce the infiltration of outside air (or loss of inside conditioned air) when the fan is not operating. Dampers may be mounted on the optional wall box housing or wall mounting collar or may be used alone with provisions for adequate clearance from the fan blades. Motorized dampers provide better weather protection (especially for intake applications) and prevent blade chatter due to air velocity, wind or building pressure variations. **For complete information, please refer to the Carnes Submittal Sheets.**

END PIVOT - EXHAUST

GRAVITY OR MOTORIZED — EXHAUST

The Model LXVBA Gravity Operated Backdraft Shutter and Model LXVBM Motorized Shutter are constructed with all aluminum blades and frame. The pre-punched flanged frames recess the damper body and optional electric actuator into the wall opening for a neat and clean flush exterior appearance. Adequate clearance must be maintained between shutter and fan blades to prevent damage to the fan or shutter. When used in conjunction with the factory wall box or mounting collar, the proper clearance is guaranteed.

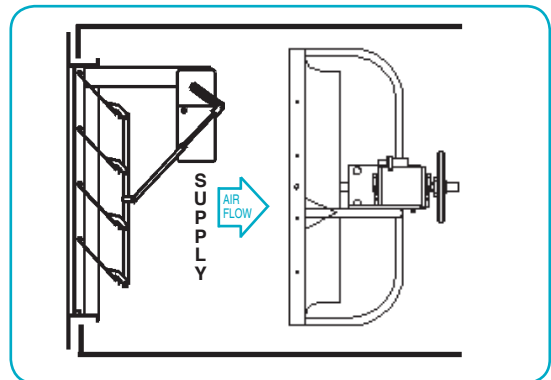


Damper shown with optional motor kit.

END PIVOT - SUPPLY

GRAVITY OR MOTORIZED — SUPPLY

The Model LXXBA Gravity Operated Backdraft Shutter and Model LXXBM Motorized Shutter are constructed with all aluminum blades and frame. The pre-punched flanged frames recess the damper body and optional electric actuator into the wall opening for a neat and clean flush exterior appearance. Adequate clearance must be maintained between shutter and fan blades to prevent damage to the fan or shutter. When used in conjunction with the factory wall box or mounting collar, the proper clearance is guaranteed. The motorized option provides superior weather protection and is recommended for supply applications.

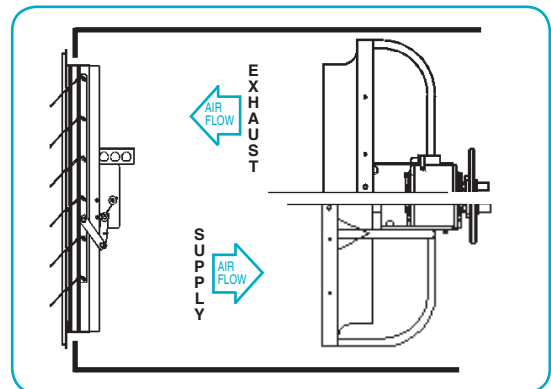


Damper shown with optional motor kit.

CENTER PIVOT

MOTORIZED — EXHAUST and SUPPLY

The Model LXCMB Center Pivot Backdraft Damper is constructed with all aluminum blades and frame. The blade pivots in the center which eliminates binding and provides increased damper free area thereby reducing pressure drop. The flanged frame recesses the damper body into the wall opening for a flush exterior appearance. When used in conjunction with the factory wall box or mounting collar, the proper minimum clearance is maintained between the damper and the fan blades. Please note that center pivot backdraft dampers must be motorized and are not suitable for gravity operation.



ACTUATORS

ELECTRIC DAMPER OPERATORS

The power open-spring close (POSC) damper motors are available in 24, 115, 230 or 460 volts. Transformers are also available for voltage reduction. The stall type motor draws a maximum 0.5 amps at 115/60/1 power supply. Typically, the electric actuator with complete hardware and linkage kit ships loose for field attachment to the damper. For the installers' convenience, a conduit J-box or Greenfield adapter is provided to simplify the power connection. In order to protect the damper blades from damage when the fan is first energized, a 'Delay-On' timer should be provided and installed by others (usually in the control circuit) which will permit the damper to open prior to allowing fan operation.

To ensure that the actual fan air flow matches the specified air flow, good fan selection practice accounts for the pressure losses due to the fan accessories. The performance graphs on this page assist you in quickly sizing and selecting the proper fan with confidence.

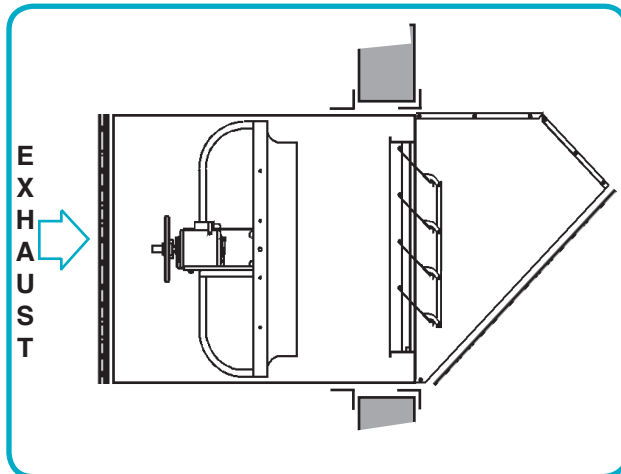
CARNES®
PERFORMANCE DATA

SIDEWALL PROPELLER FAN
EXHAUST — LWBL
SUPPLY — LMBL

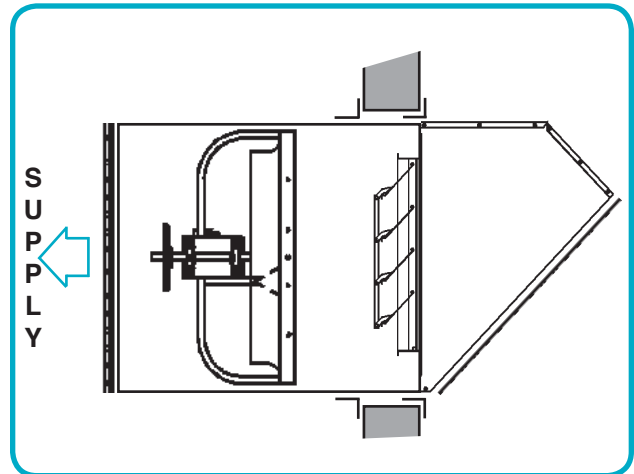
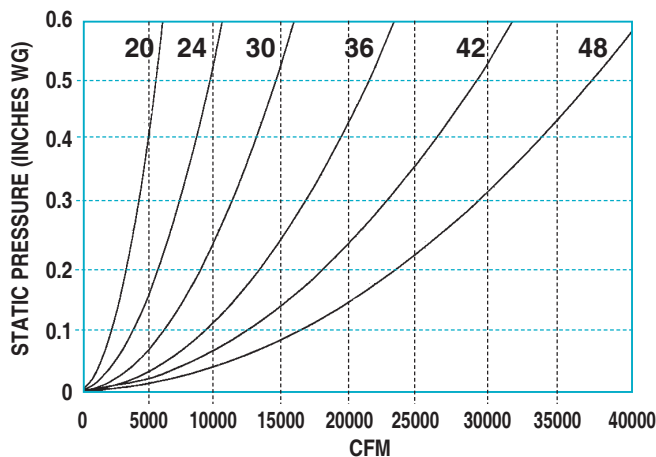
SELECTION PROCEDURE

1. Determine the air flow and system external static pressure from the design conditions.
2. Locate the proper performance graph below for exhaust or supply installation.
3. From the CFM desired, move vertically up to the intersection of a fan curve, then horizontally left to read the pressure loss due to the accessory package. It is good practice to make your selection well below 0.4" w. g. (internal static pressure) for this step.
4. Add this accessory pressure loss to the system design external static pressure loss to arrive at the total static pressure for use in the fan selection.
5. Use the fan performance tables in this catalog or the Carnes Fan-C-Lect program, to determine the fan size, RPM, motor Hp and sound level that best satisfies the application.

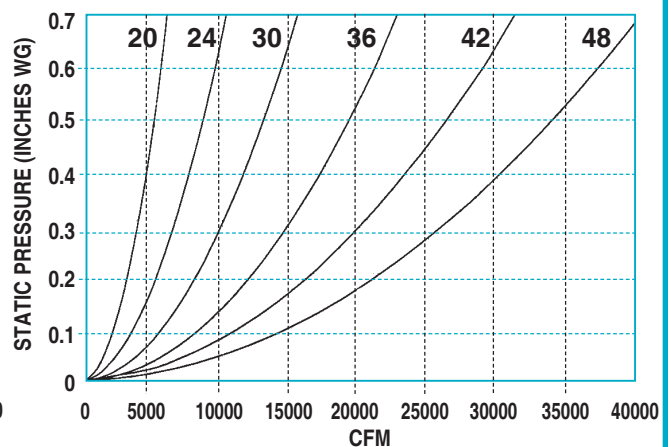
For estimating the pressure loss due to accessory combinations not shown, a good rule of thumb is that for the two arrangements below, approximately 50% of the pressure loss is due to the damper while the OSHA guard and the rainhood account for about 25% each.

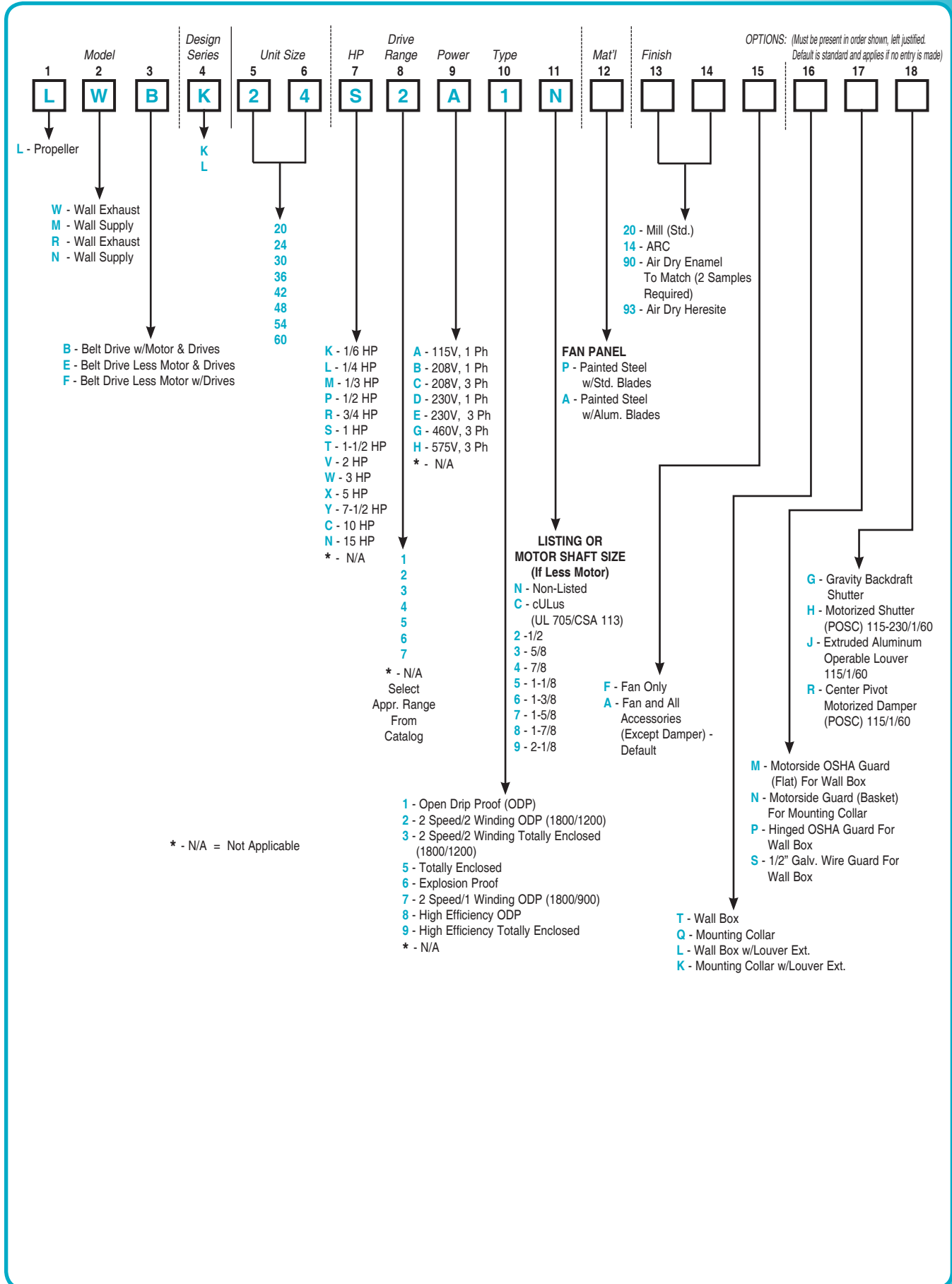


PROP FAN ACCESSORIES
STATIC PRESSURE LOSS - EXHAUST

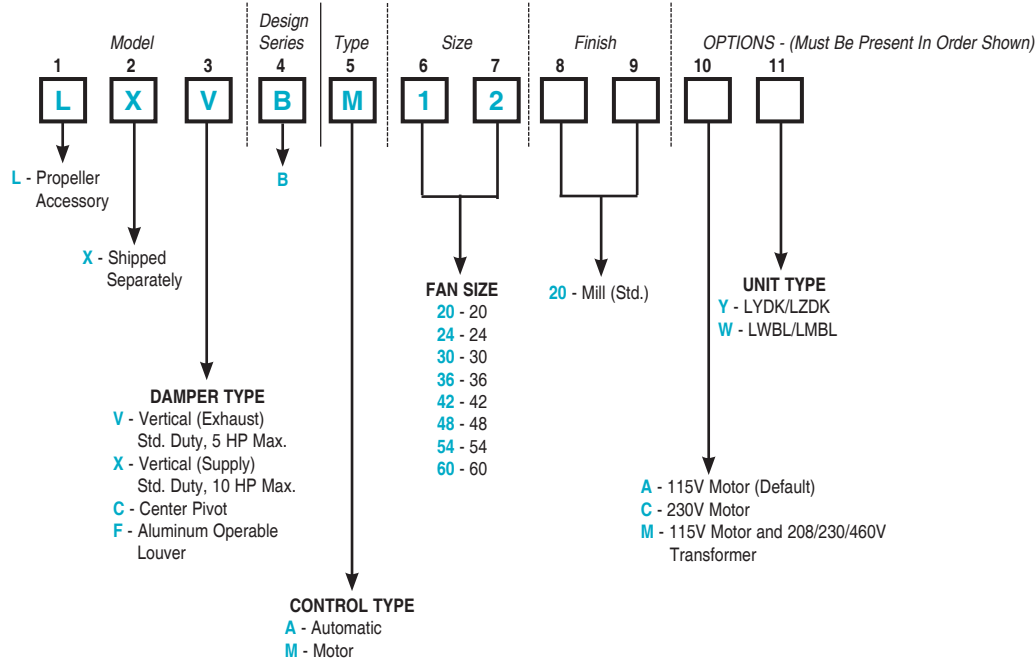


PROP FAN ACCESSORIES
STATIC PRESSURE LOSS - SUPPLY





▼ Dampers



▼ Mounting Accessories

