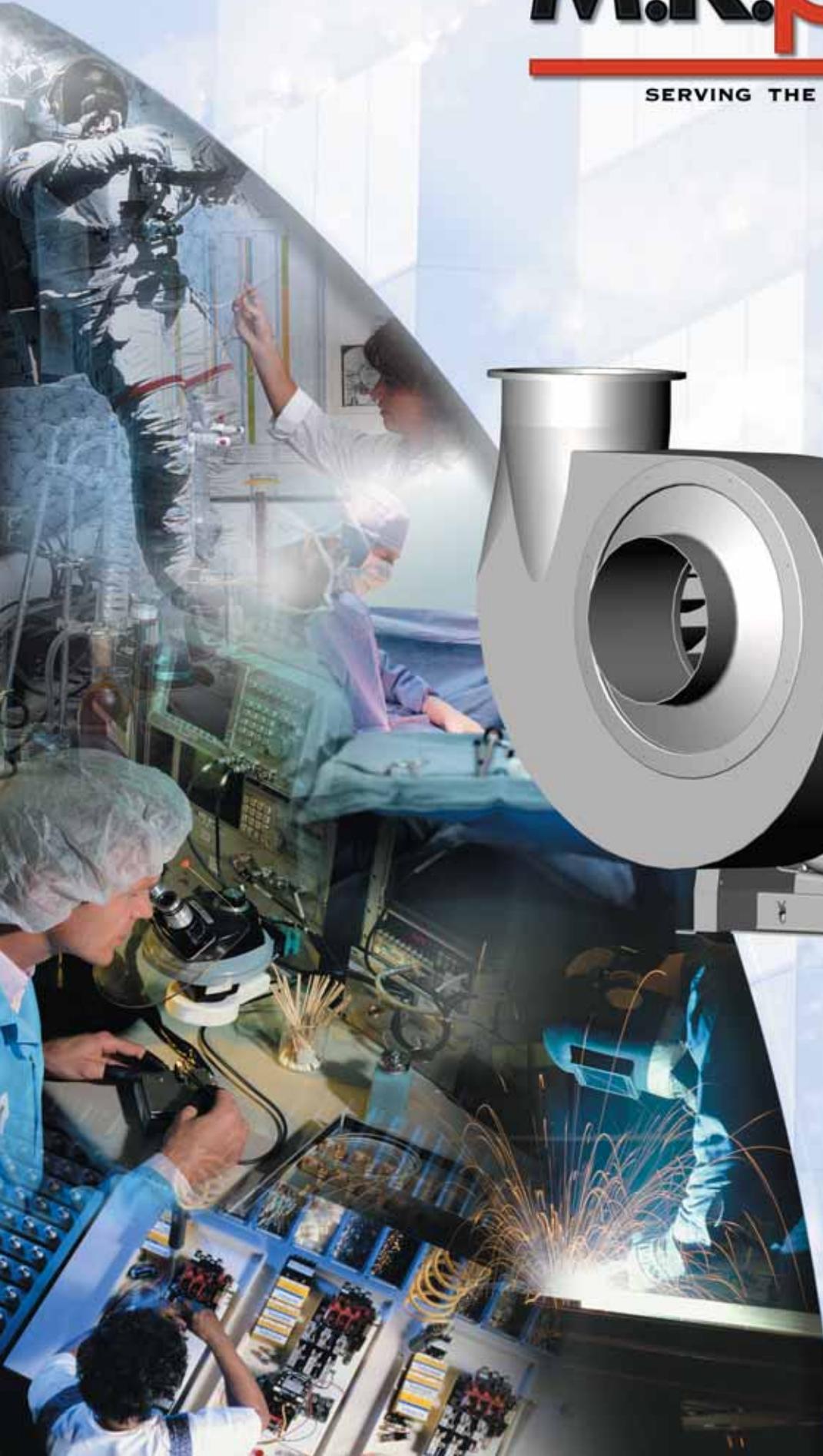
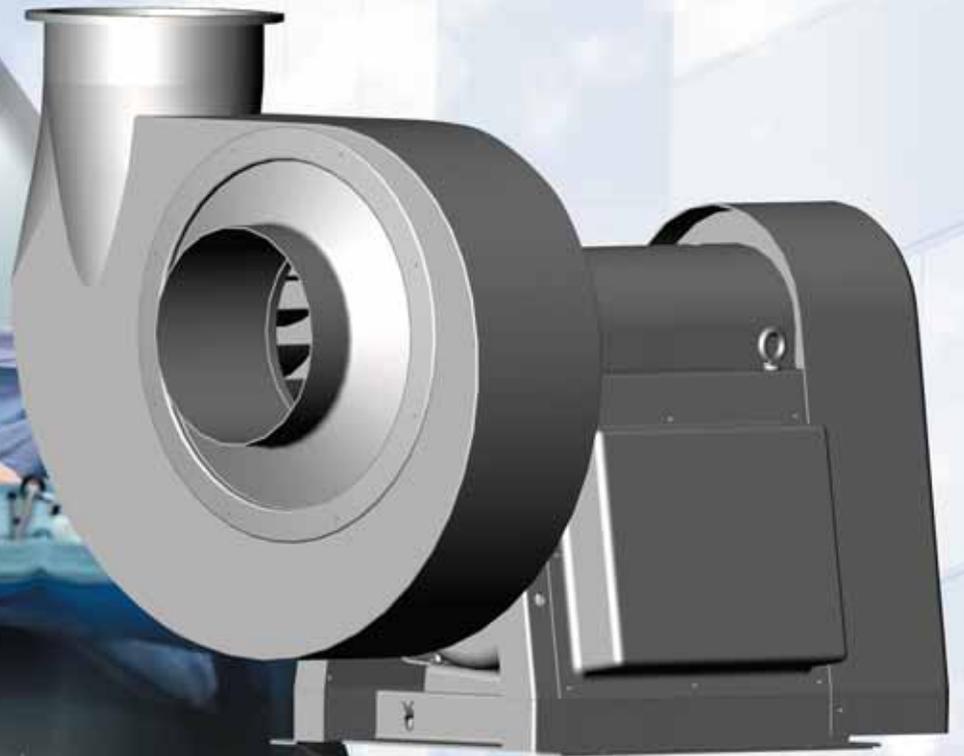


M.K. plastics

CORPORATION

SERVING THE NEEDS OF MODERN INDUSTRY



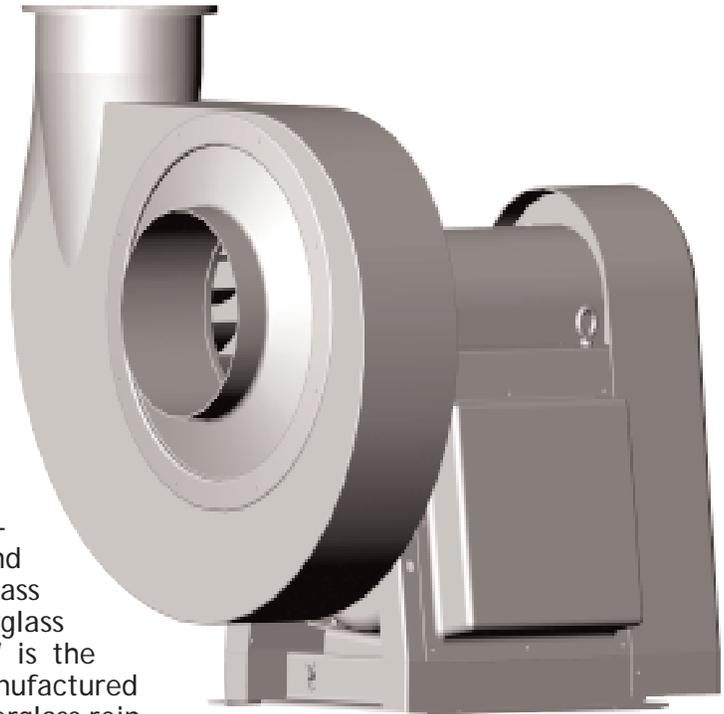
CNW
CENTRIFUGAL
FIBERGLASS FAN

We are pleased to provide you with this Engineering brochure for the CNW Centrifugal Fiberglass Blower. The information contained within is also available on the M. K. Plastics Electronic Catalog (CD ROM). This CD includes information on all of the M. K. Plastics fans, exhaust systems and their components, and is available from your technical sales representative or M. K. Plastics directly. We look forward to assisting you with your important application.

For over 40 years, M. K. Plastics has been engineering, designing, and fabricating thermoplastic and FRP ventilation components and systems for institutional and industrial applications. Founded in 1963, today M. K. Plastics has facilities and offices in Montréal, Québec, Canada; Spiez, Switzerland; Troy, OH and Mooers, NY, USA. In major cities throughout the United States and Canada, M.K. Plastics is represented by technical sales representatives.

Other quality corrosion resistant fans are available from M.K. Plastics Corp. Your local M.K. Plastics representative will be pleased to provide you with technical information upon request.

Axijet[®] High Plume Dilution Fan
Plastifer[®] Venturi Exhaust System
DHK Medium Pressure Centrifugal Fan
DHK-NW High Pressure Centrifugal Fan
PRVS High Pressure/Low Volume Centrifugal Blower
AXT Axial Tubular Fan
AXCL Centrifugal Inline Fan
RKW Medium Pressure Ventilator
AXPR Axial Panel Fan
PVC Duct and Fittings



INTRODUCTION

M. K. Plastics Corporation's CNW is a centrifugal utility fan assembly in which the impeller and housing are completely fabricated of fiberglass reinforced plastic (FRP). A revolution in fiberglass fan manufacturing, the impeller of the CNW is the result of years of R & D. The impeller is manufactured with high quality corrosion resistant resins, fiberglass reinforced by a unique machine molding process. This innovative design has no metal in the airstream, for superior corrosion resistance and long life in corrosive atmospheres.

M.K. PLASTICS QUALITY ASSURANCE

Each CNW fan is statically & dynamically balanced and test run with vibration measurements taken before shipment. The fans are standard AMCA A, spark resistant construction.

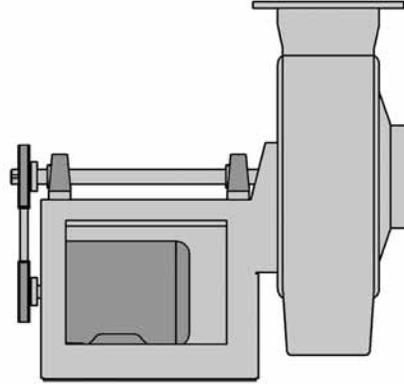
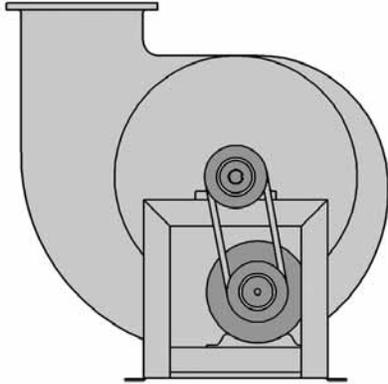
M.K. Plastics Corporation certifies that all CNW models shown herein are licensed to bear the AMCA seal for air & sound. The ratings shown are based upon tests and procedures performed in accordance with AMCA Publication 211 and 311, and comply with the requirements of the AMCA Certified Ratings Program.



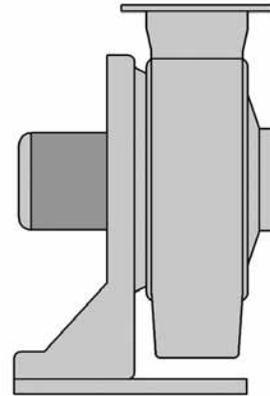
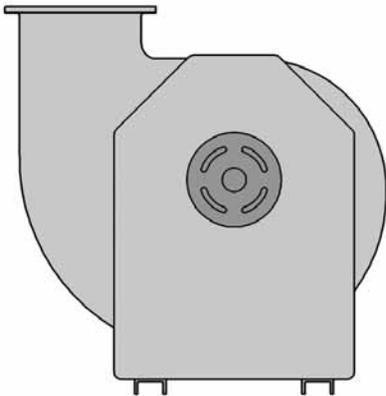
DESIGN AND CONSTRUCTION

- Five sizes are available, 160, 200, 250, 315 and 400 (6", 8", 10", 12" and 16") with capacities from 50 to 6500 CFM and up to 9" S.P.
- The CNW impeller is a self cleaning curved radial tip design allowing for stability at high S.P., at low to medium flow rates.
- The fans are manufactured with high quality, corrosion resistant resins and are fiberglass reinforced, able to withstand temperatures up to 210 deg. F., subject to the exhaust chemicals and their concentrations. UV inhibitors are added to the resins and are flame retardant class 1 of 25 or less. The housings are smooth both exterior for aesthetic appearance and interior for unrestricted airflow.
- Built in compliance with ASTM Standard D4167-97, for Fiber-Reinforced Plastic Fans and Blowers.
- The CNW housing has round slip-connection inlets, and undrilled flanged outlets, for quick installation of round ducts. Inlet flange and flange drilling are available.
- The CNW stands are baked polyester coated, designed to withstand harsh environmental conditions. A panel is built into the stand to access the motor wiring junction box. Adjusting belt tension is easily done by raising or lowering the motor support plate.
- The standard blower shaft is carbon steel (C1045) and isolated from the corrosive airstream by the FRP impeller hub and internally by a FRP cap and O-ring. A 304 or 316 stainless steel shaft is available when required.
- Regreasable cast iron pillow block bearings are selected for L10-200,000 hrs, complete with lube-line kits to the exterior of the fan housing.
- A neoprene hub seal is standard on all CNW fans to minimize air leakage. A Teflon shaft seal is available for more severe environments. A Vacuum Seal is also available to eliminate any leakage when exhausting toxic or hazardous fumes.
- Standard arrangement #10 allows for a compact footprint when space is an issue, such as mechanical rooms with multiple fans. Arrangement #1 is available for larger motors and special designs. Direct drive arrangement #4 is available with an FRP stand which assures long life even when the fan is installed in a corrosive environment.
- For different arrangements, the housings are field reversible and rotatable in 8 positions, as required.





ARR.10



ARR.4

***FAN POSITION - VIEW FROM DRIVE SIDE**

CCW BH 1	CW BH 2	CW TH 3	CCW TH 4	CCW UB 5	CW UB 6	CW DB 7
CCW DB 8	CCW TAD 9	CW TAD 10	CW TAU 11	CCW TAU 12	CCW BAU 13	CW BAU 14

*Bottom Angular Down (CW/CCW-BAD) position is available. Contact MK Plastics for details.

Impeller DIA. [in] = 10.0

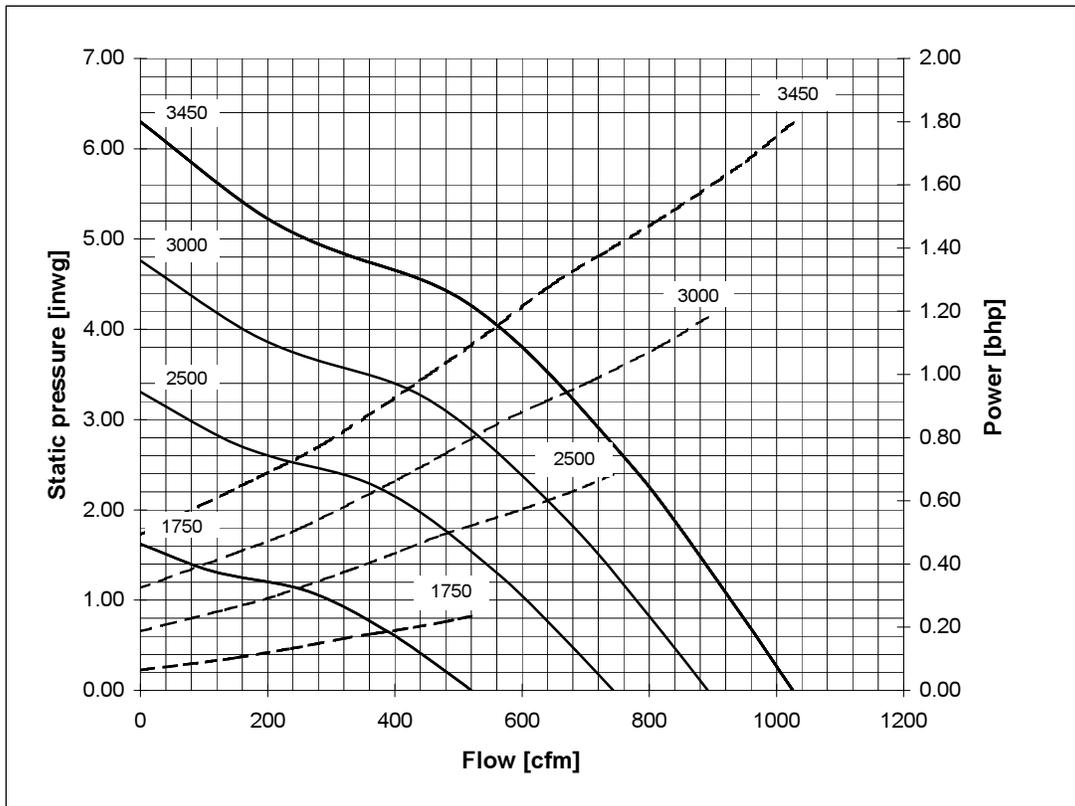
Max. speed [rpm] = 3900

Outlet area [ft²] = 0.2

Tip speed [fpm] = 0.262 * DIA. * RPM

Ov = CFM / Outlet area

Flow		Ov	Static pressure Ps [inwg / Pa]																	
CFM	m ³ /h		0.50 / 63		1.00 / 250		1.50 / 375		2.00 / 500		2.50 / 625		3.00 / 750		3.50 / 875		4.00 / 1000		5.00 / 1250	
		FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
200	340	1000	1219	0.05	1613	0.10	1938	0.15	2213	0.21										
300	510	1500	1434	0.10	1758	0.16	2042	0.22	2296	0.29	2538	0.37	2756	0.46	2958	0.54	3144	0.63		
400	680	2000	1687	0.17	1971	0.25	2216	0.33	2438	0.41	2652	0.50	2854	0.59	3040	0.68	3227	0.79	3568	1.01
500	850	2500	1972	0.29	2216	0.38	2439	0.48	2639	0.58	2830	0.68	3006	0.78	3177	0.88	3348	0.99	3660	1.22
600	1020	3000	2268	0.46	2483	0.56	2683	0.68	2868	0.79	3044	0.91	3204	1.03	3365	1.15	3515	1.26	3800	1.51
700	1190	3500	2574	0.69	2768	0.81	2942	0.93	3116	1.06	3277	1.19	3433	1.33	3578	1.47	3716	1.61		
800	1360	4000	2886	0.98	3063	1.12	3225	1.26	3374	1.39	3528	1.55	3672	1.70	3810	1.86				
900	1530	4500	3202	1.36	3365	1.52	3515	1.67	3656	1.82	3789	1.98								



Performance certified is for installation type D: Ducted Inlet, Ducted Outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

Standard Conditions
70°F
0.075 lb/ft³

———— CFM vs. SP
----- BHP

Impeller DIA. [in] = 12.7

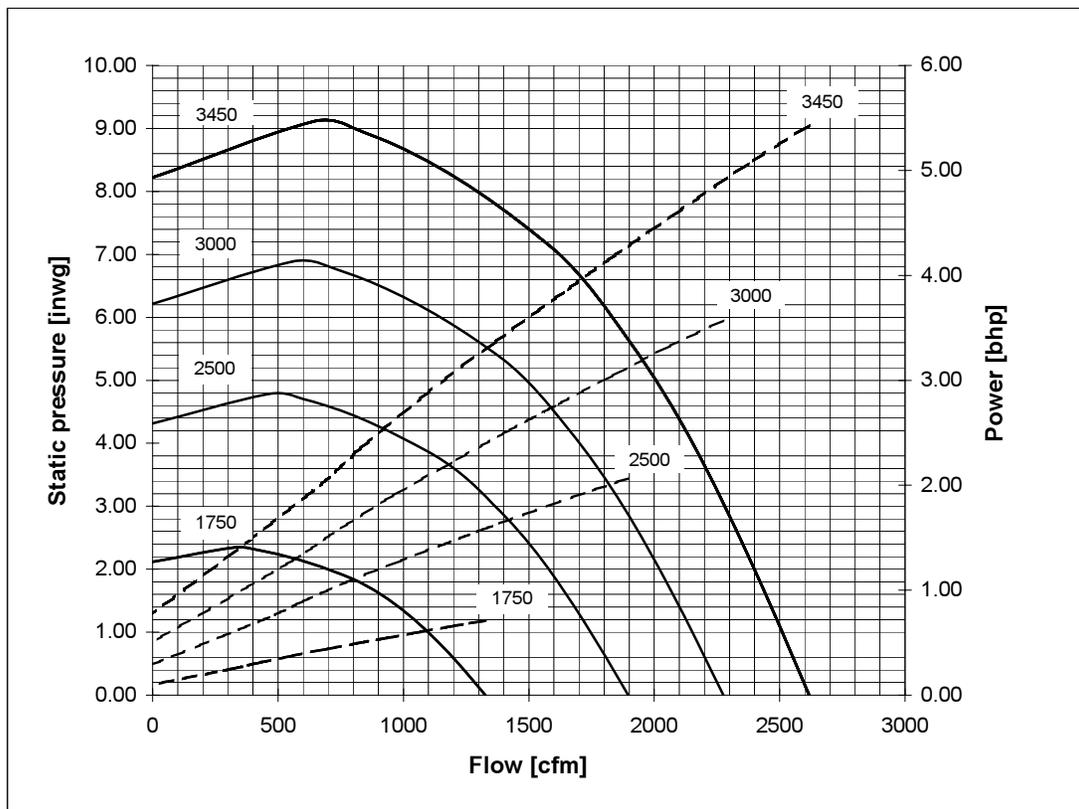
Max. speed [rpm] = 3600

Outlet area [ft²] = 0.34

Tip speed [fpm] = 0.262 * DIA. * RPM

Ov = CFM / Outlet area

Flow		Ov	Static pressure Ps [inwg / Pa]																			
CFM	m ³ /h		1.00 / 250		2.00 / 500		3.00 / 750		4.00 / 1000		5.00 / 1250		6.00 / 1500		7.00 / 1750		8.00 / 2000		9.00 / 2250			
		FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
400	680	1176	1194	0.124	1632	0.253	1984	0.393														
600	1020	1765	1298	0.201	1705	0.373	2034	0.559	2320	0.753	2574	0.955	2811	1.165								
800	1360	2353	1455	0.321	1807	0.524	2118	0.753	2389	0.992	2635	1.240	2862	1.495	3070	1.755	3265	2.021				
1000	1700	2941	1647	0.502	1945	0.730	2224	0.989	2482	1.270	2719	1.563	2935	1.862	3136	2.167	3329	2.481				
1200	2040	3529	1862	0.758	2122	1.016	2363	1.297	2594	1.602	2821	1.937	3027	2.276	3225	2.629	3410	2.986				
1400	2380	4118	2090	1.104	2313	1.385	2533	1.702	2740	2.032	2937	2.377	3138	2.760	3326	3.152	3502	3.547				
1600	2720	4706	2324	1.549	2527	1.869	2722	2.209	2910	2.569	3091	2.945	3267	3.336	3439	3.747						



Performance certified is for installation type D: Ducted Inlet, Ducted Outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

Standard Conditions
70°F
0.075 lb/ft³

————— CFM vs. SP
- - - - - BHP

Impeller DIA. [in] = 15.9

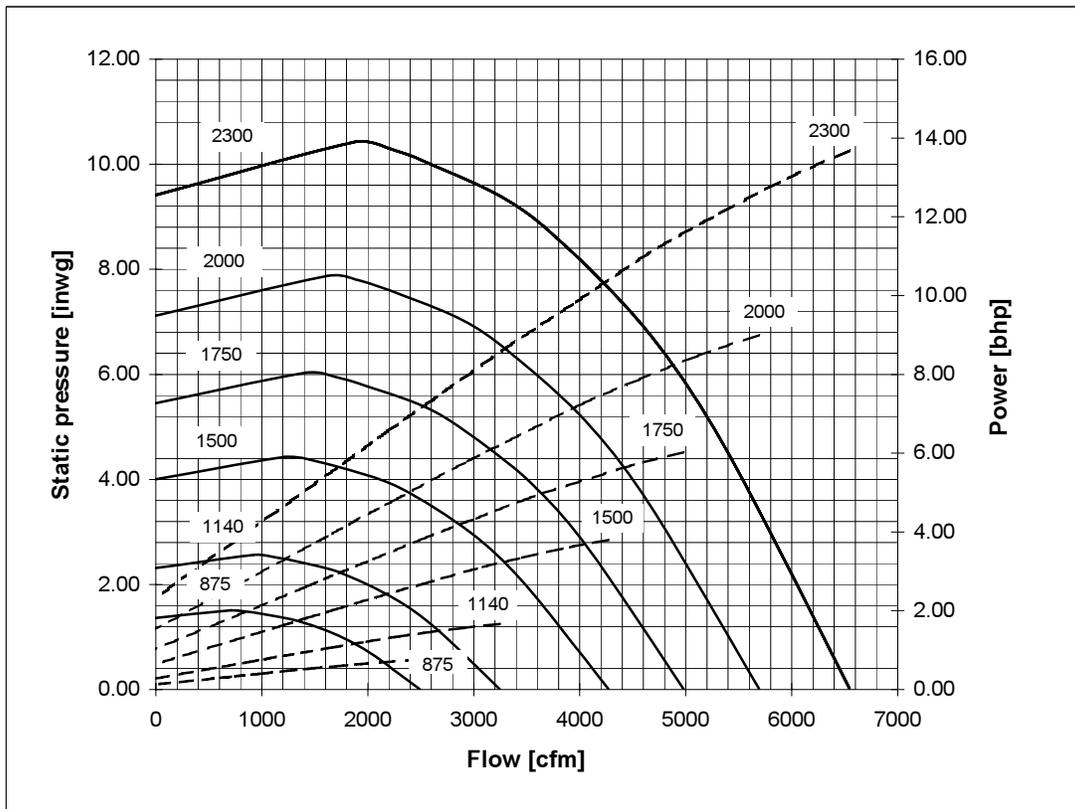
Max. speed [rpm] = 2900

Outlet area [ft²] = 0.49

Tip speed [fpm] = 0.262 * DIA. * RPM

Ov = CFM / Outlet area

Flow		Ov	Static pressure Ps [inwg / Pa]																			
CFM	m ³ /h		1.00 / 250	2.00 / 500		3.00 / 750		4.00 / 1000		5.00 / 1250		6.00 / 1500		7.00 / 1750		8.00 / 2000		9.00 / 2250				
		FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
700	1190	1423	947	0.208	1266	0.404	1520	0.616	1735	0.841												
900	1530	1829	1018	0.293	1317	0.527	1561	0.780	1772	1.044	1961	1.321	2133	1.607	2292	1.902	2438	2.204	2577	2.514		
1100	1870	2236	1109	0.415	1373	0.669	1612	0.966	1818	1.275	2002	1.588	2170	1.913	2328	2.251	2475	2.596	2613	2.947		
1300	2210	2642	1209	0.567	1450	0.856	1667	1.173	1870	1.526	2050	1.889	2216	2.255	2367	2.627	2511	3.008	2649	3.404		
1500	2550	3049	1314	0.758	1542	1.098	1737	1.431	1924	1.805	2103	2.210	2266	2.626	2417	3.047	2558	3.470	2691	3.898		
1700	2890	3455	1427	0.999	1639	1.381	1825	1.759	1992	2.137	2158	2.565	2319	3.020	2468	3.488	2609	3.961	2740	4.439		
1900	3230	3862	1543	1.293	1741	1.712	1919	2.144	2079	2.561	2227	2.984	2377	3.462	2521	3.960	2661	4.479				
2100	3570	4268	1664	1.647	1847	2.101	2018	2.579	2172	3.050	2314	3.509	2448	3.981	2584	4.499	2714	5.034				
2300	3910	4675	1786	2.064	1958	2.556	2119	3.073	2267	3.599	2406	4.109	2534	4.612	2656	5.121						



Performance certified is for installation type D: Ducted Inlet, Ducted Outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

Standard Conditions
70°F
0.075 lb/ft³

————— CFM vs. SP
- - - - - BHP

Impeller DIA. [in] = 19.8

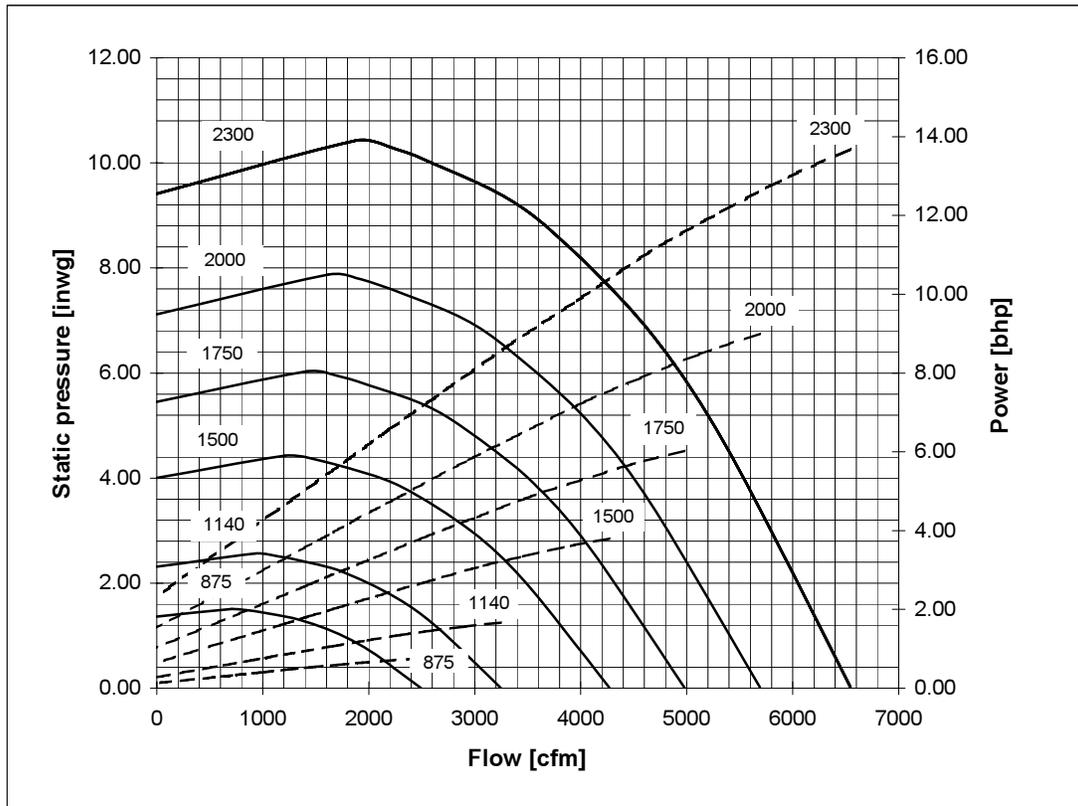
Max. speed [rpm] = 2300

Outlet area [ft²] = 0.83

Tip speed [fpm] = 0.262 * DIA. * RPM

Ov = CFM / Outlet area

Flow		Ov	Static pressure Ps [inwg / Pa]																			
			1.00 / 250		2.00 / 500		3.00 / 750		4.00 / 1000		5.00 / 1250		6.00 / 1500		7.00 / 1750		8.00 / 2000		9.00 / 2250			
CFM	m ³ /h	FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
1300	2210	1574	787	0.383	1041	0.730	1249	1.115	1430	1.531												
1600	2720	1937	843	0.522	1074	0.907	1277	1.348	1451	1.814	1608	2.305	1751	2.823								
1900	3230	2300	912	0.704	1123	1.132	1308	1.606	1480	2.133	1632	2.677	1772	3.243	1903	3.829	2024	4.435				
2200	3740	2663	989	0.937	1181	1.412	1354	1.929	1511	2.482	1662	3.087	1800	3.708	1927	4.345	2047	5.005	2161	5.681		
2500	4250	3027	1071	1.230	1245	1.748	1408	2.309	1557	2.908	1695	3.533	1830	4.213	1956	4.911	2074	5.622	2185	6.344		
2800	4760	3390	1160	1.596	1317	2.150	1468	2.759	1609	3.396	1742	4.074	1866	4.772	1987	5.512	2105	6.286	2215	7.073		
3100	5270	3753	1251	2.037	1395	2.627	1533	3.278	1668	3.971	1793	4.673	1914	5.429	2027	6.201	2136	6.996	2245	7.838		
3400	5780	4116	1345	2.559	1476	3.190	1606	3.884	1729	4.612	1852	5.384	1965	6.159	2075	6.979	2181	7.824	2281	8.675		
3700	6290	4479	1440	3.171	1563	3.855	1683	4.582	1798	5.349	1913	6.165	2024	7.004	2128	7.850	2229	8.729				



Performance certified is for installation type D: Ducted Inlet, Ducted Outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

Standard Conditions
70°F
0.075 lb/ft³

————— CFM vs. SP
- - - - - BHP

Impeller DIA. [in] = 22.6

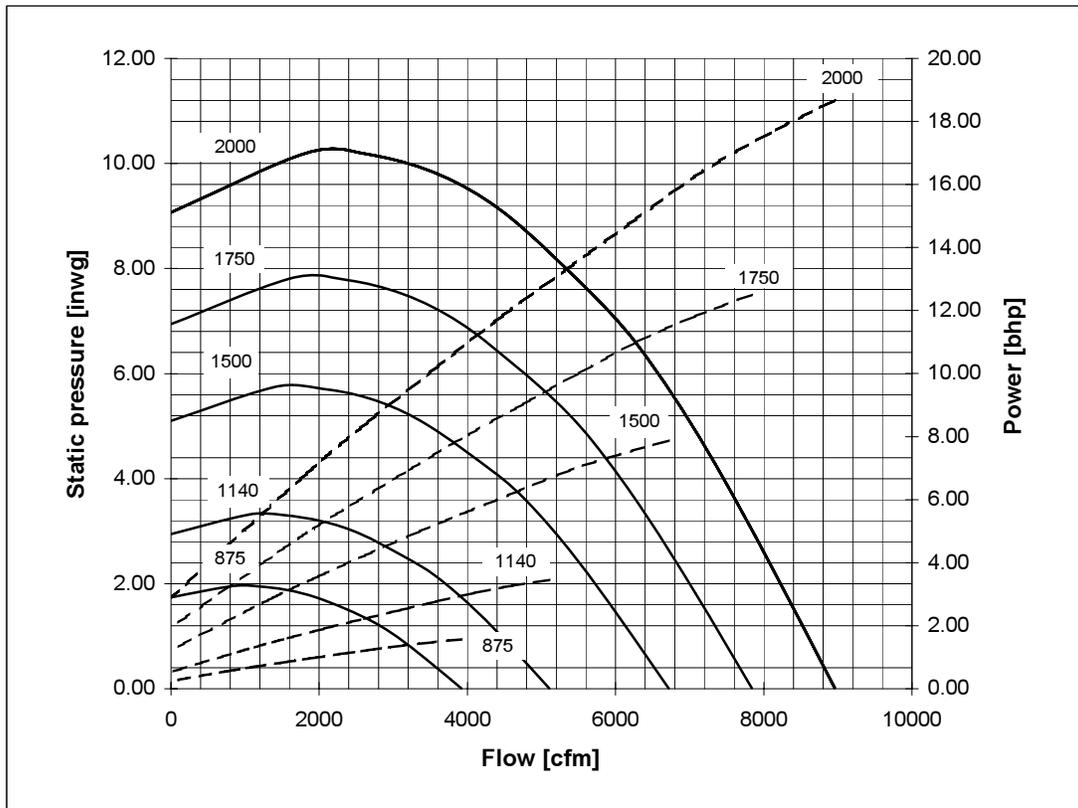
Max. speed [rpm] = 2000

Outlet area [ft²] = 1.29

Tip speed [fpm] = 0.262 * DIA. * RPM

Ov = CFM / Outlet area

Flow		Ov	Static pressure Ps [inwg / Pa]																										
CFM	m ³ /h		1.00 / 250	2.00 / 500	3.00 / 750	4.00 / 1000	5.00 / 1250	6.00 / 1500	7.00 / 1750	8.00 / 2000	9.00 / 2250																		
		FPM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP							
1500	2550	1164	665	0.440	899	0.883	1087	1.393	1252	1.956																			
2000	3400	1552	720	0.642	930	1.162	1107	1.740	1265	2.388	1407	3.067	1535	3.785	1657	4.548													
2500	4250	1939	788	0.920	981	1.526	1144	2.184	1292	2.892	1425	3.643	1552	4.455	1669	5.293	1778	6.154	1881	7.043									
3000	5100	2327	870	1.315	1040	1.983	1196	2.728	1331	3.511	1459	4.344	1577	5.207	1689	6.107	1797	7.067	1899	8.053									
3500	5950	2715	958	1.827	1110	2.558	1253	3.384	1384	4.257	1503	5.158	1615	6.100	1723	7.092	1824	8.099	1920	9.131									
4000	6800	3103	1051	2.476	1190	3.301	1318	4.171	1442	5.131	1557	6.126	1664	7.151	1763	8.194	1861	9.290	1956	10.42									
4500	7650	3491	1148	3.284	1275	4.203	1392	5.138	1507	6.157	1616	7.235	1719	8.346	1817	9.495	1909	10.65											
5000	8500	3879	1248	4.267	1364	5.280	1474	6.315	1576	7.362	1680	8.520	1779	9.712	1873	10.94	1963	12.20											
5500	9350	4267	1349	5.444	1457	6.559	1559	7.687	1660	8.826	1750	10.01	1843	11.27	1934	12.59													



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Standard Conditions
70°F
0.075 lb/ft³

———— CFM vs. SP
----- BHP

CNW 160

rpm	Sp		Frequency [Hz]							LwA dB
	inwg		63	125	250	500	1000	2000	4000	
1750	0.25	73	72	71	75	71	67	64	63	76
	0.75	74	72	71	74	69	66	64	64	75
	1.00	74	73	70	73	69	66	64	64	75
2500	0.25	78	83	76	82	81	78	73	72	85
	1.50	78	85	76	81	79	76	72	72	84
	2.25	76	86	76	80	78	75	72	72	83
3000	0.25	81	86	82	85	86	83	78	76	90
	2.00	81	87	82	84	84	81	77	76	88
	3.25	80	87	82	82	83	79	77	76	87
3450	0.25	83	88	87	87	90	87	82	79	94
	3.00	84	89	87	86	88	84	81	79	92
	4.50	82	88	87	85	87	83	80	79	91

CNW 200

rpm	Sp		Frequency [Hz]							LwA dB
	inwg		63	125	250	500	1000	2000	4000	
1750	0.25	78	75	75	79	75	73	69	63	81
	1.25	79	74	73	77	71	69	64	58	77
	2.00	78	74	74	76	67	63	58	54	75
	2500	0.25	87	84	81	85	84	82	80	74
2500	2.50	89	84	80	83	81	78	75	69	86
	4.25	90	83	81	82	76	72	67	63	82
	3000	0.25	90	89	86	88	89	86	84	80
3000	3.50	92	90	85	86	85	83	80	75	90
	6.25	93	88	86	86	82	77	72	68	87
	3450	0.25	93	92	89	90	94	90	88	84
3450	4.50	94	93	89	89	91	86	84	79	94
	8.00	95	93	89	89	91	81	77	72	93

CNW 250

rpm	Sp		Frequency [Hz]							LwA dB
	inwg		63	125	250	500	1000	2000	4000	
1140	0.25	90	90	87	83	76	71	64	55	84
	0.75	89	88	84	80	73	67	60	52	81
	1.50	86	88	84	80	71	65	59	54	81
1750	0.25	97	100	99	97	90	85	79	71	97
	1.75	97	99	96	92	86	80	75	66	93
	3.75	94	97	97	92	86	77	71	66	93
2100	0.25	101	104	103	101	96	90	85	78	102
	2.50	100	103	101	97	92	85	80	72	98
	5.25	97	100	101	97	92	84	77	72	98
2500	0.25	104	107	107	106	103	95	90	84	107
	3.75	103	106	106	102	98	91	85	78	104
	7.50	100	103	105	102	98	90	82	77	103
2900	0.25	106	109	111	110	108	100	95	89	112
	5.00	105	108	109	106	103	95	89	83	108
	10.0	103	106	108	106	103	95	87	81	107

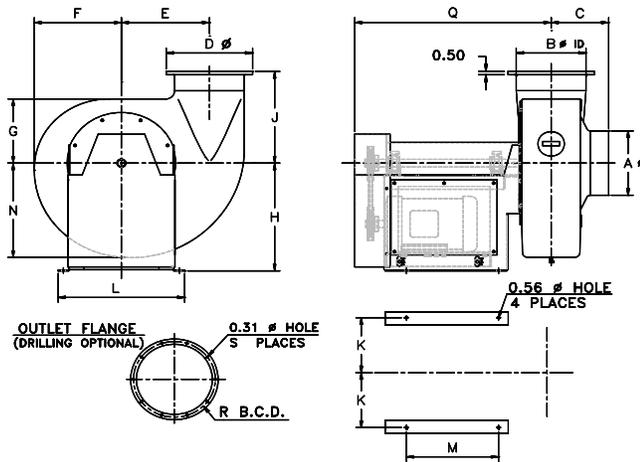
CNW 315

rpm	Sp		Frequency [Hz]							LwA dB
	inwg		63	125	250	500	1000	2000	4000	
875	0.25	84	85	80	76	71	67	60	53	78
	1.00	86	83	76	72	67	62	54	47	74
	1.25	82	80	74	70	65	60	52	44	72
1140	0.25	91	90	88	85	79	75	69	62	86
	1.50	92	91	85	80	75	70	64	57	82
	2.25	88	86	81	77	72	67	60	52	79
1750	0.25	103	99	99	96	92	87	83	76	98
	3.00	101	101	99	92	88	83	78	71	95
	5.25	99	97	95	89	85	80	75	67	92
2000	0.25	105	102	102	100	96	91	87	80	101
	4.00	103	104	102	97	92	87	82	76	99
	6.75	102	100	98	93	89	84	79	71	95
2300	0.25	108	106	105	103	100	95	91	85	105
	5.00	105	107	106	101	97	91	86	80	103
	9.00	104	104	101	97	93	88	83	76	99

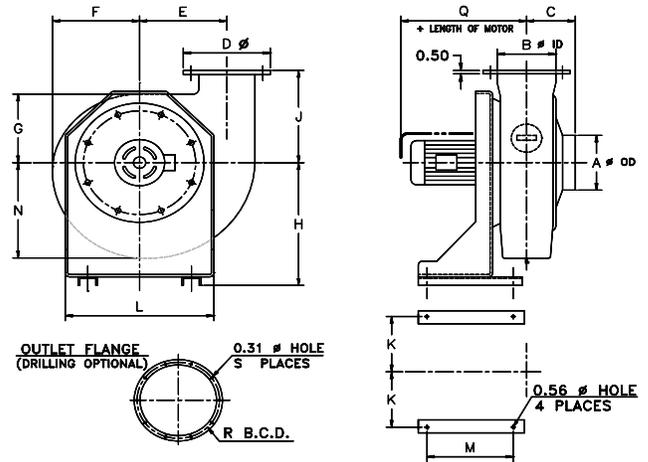
CNW 400

rpm	Sp		Frequency [Hz]							LwA dB
	inwg		63	125	250	500	1000	2000	4000	
875	0.25	90	89	85	82	77	72	66	59	83
	1.25	90	85	80	77	72	67	60	53	79
	1.50	88	84	79	76	71	66	59	51	78
1140	0.25	95	95	93	89	85	80	75	68	91
	1.75	94	95	88	85	81	75	70	63	87
	2.75	92	92	86	82	78	73	67	59	84
1500	0.25	100	101	101	97	94	88	84	77	99
	3.00	97	105	96	92	89	83	79	72	95
	5.00	96	99	94	89	86	80	75	67	92
1750	0.25	103	104	104	101	98	92	88	82	103
	4.50	100	106	101	96	93	87	83	76	99
	6.75	99	102	99	94	90	85	80	72	96
2000	0.25	105	107	107	105	101	97	92	86	107
	6.00	102	107	105	99	96	91	86	80	102
	9.00	101	104	102	97	93	89	83	77	99

The sound power level ratings shown are in decibels, referred to 10-12 watts calculated per AMCA Standard 301. Values shown are for (inlet Lwi) sound power levels for installation Type D: Ducted Inlet, Ducted Outlet. Ratings include the effects of duct end correction.



Belt Drive (Arrangement #10)



Direct Drive (Arrangement #4)

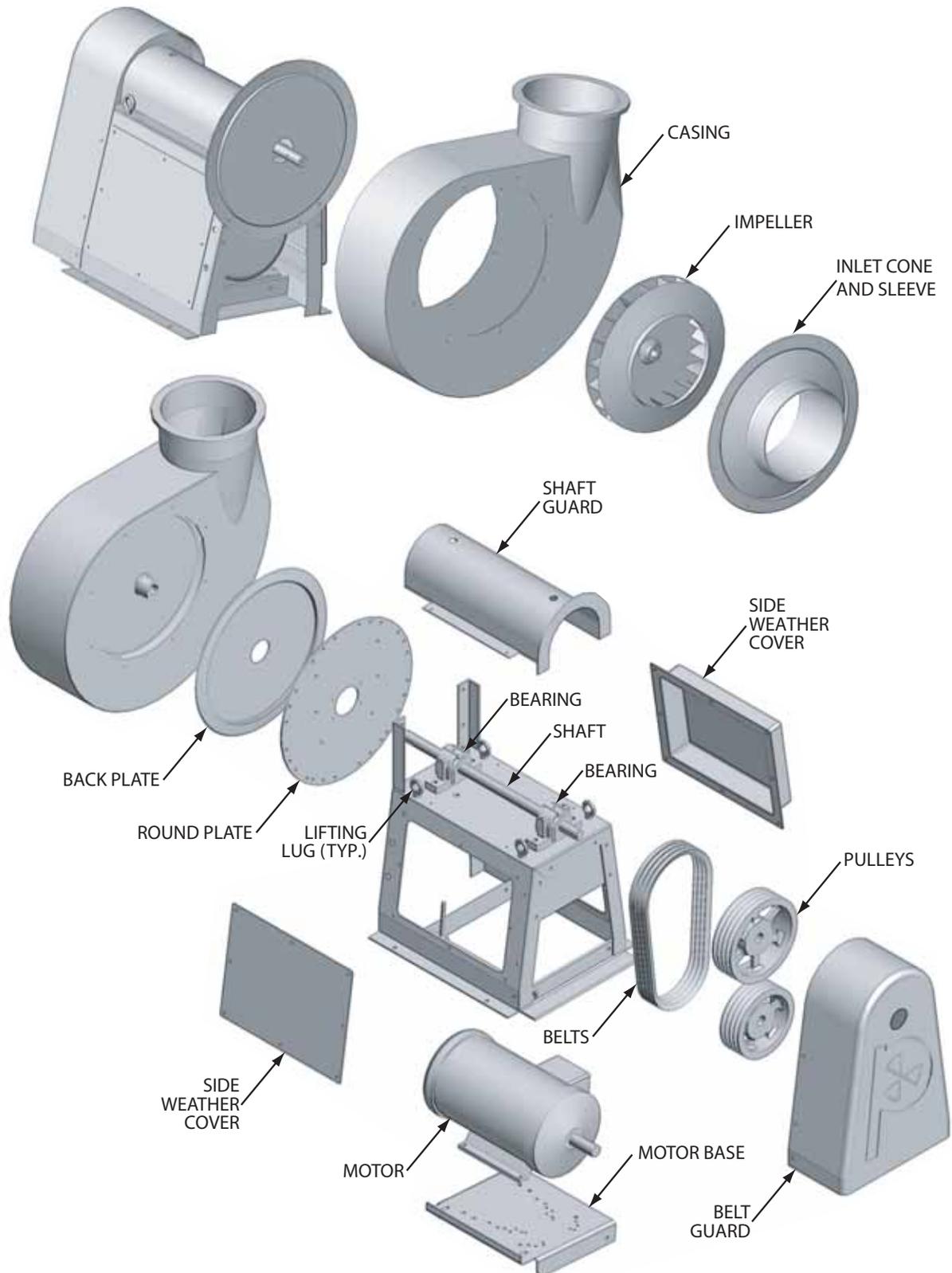
DIM	CNW	CNW	CNW	CNW	CNW
[in]	160	200	250	315	400
A	6.30	7.87	9.84	12.40	15.75
B	6.04	7.61	9.58	12.04	15.39
C	4.68	5.96	8.13	9.31	10.81
D	8.69	10.31	12.32	14.76	18.78
E	8.10	10.04	12.44	15.60	17.36
F	7.81	9.75	12.31	14.94	16.19
G	6.44	8.06	9.81	11.91	13.00
H	14.50	16.50	16.50	23.50	23.50
H*	14.50	16.50	19.50	23.50	27.50
J	9.17	11.54	14.02	17.52	18.78
K	7.13	8.19	8.19	10.75	10.75
L	15.88	17.88	17.88	22.75	22.75
M	9.25	13.00	13.00	16.50	16.50
N	9.31	11.54	14.44	17.88	19.00
Q	22.19	26.78	27.88	38.96	40.19
R	7.68	9.38	11.22	13.78	17.52
S	8	10	10	12	18

H* dimension for fan positions 1,2,13,14

DIM	CNW	CNW	CNW	CNW	CNW
[in]	160	200	250	315	400
A	6.30	7.87	9.84	12.40	15.75
B	6.04	7.61	9.58	12.04	15.39
C	4.68	5.96	8.13	9.31	10.81
D	8.69	10.31	12.32	14.76	18.78
E	8.10	10.04	12.44	15.60	17.36
F	7.81	9.75	12.31	14.94	16.19
G	6.44	8.06	9.81	11.91	13.00
H	12.50	15.38	18.88	23.50	27.00
H*	13.50	16.38	19.88	23.50	27.00
J	9.17	11.54	14.02	17.52	18.78
K	5.00	6.50	8.75	11.00	12.50
L	15.00	18.00	22.50	27.00	30.00
M	11.00	13.00	16.50	19.00	24.00
N	9.31	11.54	14.44	17.88	19.00
Q	6.44	7.16	8.00	8.86	10.06
R	7.68	9.38	11.22	13.78	17.52
S	8	10	10	12	18

H* dimension for fan positions 1,2,13,14

Dimensions are subject to change.
Certified prints are available.



Maximum allowed temperature °F. All concentrations are 100% of saturated solutions, unless otherwise stated.

Chemical	FRP	Chemical	FRP	Chemical	FRP	Chemical	FRP
Acetic Acid, 25%	210	Citric Acid	210	Lactic Acid 25%	220	Sodium Fluoride	*180
Acetone, up to 10%	180	Coconut Oil	220	Lauric Acid	220	Sodium Hydroxide, 70%	*210
Acrylic Acid, up to 25%	100	Copper Acetate	220	Lead Acetate	220	Sodium Hypochlorite	*125
Alum (Aluminum Potassium Sulfate)	240	Copper Chloride	220	Lead Nitrate	220	Sodium Hyposulfite, up to 20%	210
Aluminum Chloride	240	Copper Cyanide	180	Linoleic Acid	100	Sodium Lauryl Sulfate	160
Aluminum Fluoride	*120	Copper Fluoride	170	Linseed Oil	220	Sodium Mono-phosphate	210
Aluminum Hydroxide	210	Copper Nitrate 30%	170	Lithium Bromide	220	Sodium Nitrate	210
Aluminum Nitrate	180	Copper Sulfate	240	Lithium Chloride	210	Sodium Nitrite	*220
Aluminum Potassium Sulfate	210	Cresol, up to 10%	80	Magnesium Bicarbonate	210	Sodium Silicate, pH-12	210
Aluminum Sulfate	210	Crude Oil	220	Magnesium Bisulfite	180	Sodium Sulfate	210
Ammonia, dry gas	*170	Cyclohexane	110	Magnesium Carbonate	180	Sodium Sulfide	210
Ammonium Acetate, up to 65%	100	Dechlorinated Brine Storage	180	Magnesium Chloride	240	Sodium Sulfite	210
Ammonium Carbonate	150	Diallylphthalate	210	Magnesium Hydroxide	*210	Sodium Tetraborate	180
Ammonium Chloride	210	Diammonium Phosphate, up to 65%	*150	Magnesium Nitrate	210	Sodium Thiosulfate	180
Ammonium Fluoride 10%	*150	Dibutyl Ether	150	Magnesium Sulfate	240	Sodium Triphosphate	210
Ammonium Hydroxide, up to 10%	150	Dibutyl Phthalate	200	Maleic Acid	210	Sodium Xylene Sulfonate	160
Ammonium Nitrate	220	Diesel Fuel	210	Mercuric Chloride	210	Sorbitol Solution	180
Ammonium Persulfate	210	Diethanolamine	150	Merthyl Ethyl Ketone, up to 10%	80	Stannic Chloride	210
Ammonium Phosphate	210	Diethylene Glycol	210	Monochloroacetic Acid	N.R.	Stannous Chloride	210
Ammonium Sulfate	220	Dimethyl Phthalate	170	Nickel Chloride	210	Stearic Acid	210
Ammonium Sulfide	100	Dimethyl Sulfoxide	80	Nickel Nitrate	210	Styrene	80
Ammonium Sulfite	110	Diethyl Phthalate	210	Nickel Sulfate	210	Sulfamic Acid	210
Ammonium Thiocyanate, 60%	*150	Diphenyl Ether	140	Nitric Acid, 30%	140	Sulfated Detergents	210
Amyl Acetate	100	Ethyl Alcohol	120	Nitrous Acid	73	Sulfite Liquors	210
Amyl Alcohol	210	Ethylene Chlorohydrin	100	Oleic Acid	200	Sulfonated Detergents	170
Amyl Chloride	100	Ethylene Glycol	210	Oxalic Acid 50%	220	Sulfur Dioxide, dry gas	250
Amyl Chloride	100	Fatty Acids	220	Palmitic Acid 10%	220	Sulfur Dioxide, wet gas	250
Aniline Sulfate	220	Ferric Chloride	210	Perchloroethylene	100	Sulfur Troxide	220
Aqua Regia	80	Ferric Nitrate	210	Perchloric Acid, up to 10%	150	Sulfuric Acid, up to 25%	220
Arsenic Acid	180	Ferric Sulfate	210	Phenol, up to 10%	80	Sulfuric Acid, up to 50%	210
Barium Acetate	180	Ferrous Chloride	210	Phenol	170	Sulfuric Acid, up to 70%	180
Barium Carbonate	*240	Ferrous Nitrate	210	Phosphoric Acid up to 85%	210	Sulfurous Acid, above 10%	110
Barium Chloride	210	Ferrous Sulfate	210	Phthalic Anhydride	210	Tall Oil	160
Barium Hydroxide, up to 10%	*170	Fluoboric Acid	*210	Photographic Solution	80	Tannic Acid	210
Barium Sulfate	240	Fluosilicic Acid	170	Picric Acid	170	Tartaric Acid	210
Barium Sulfide	210	Formaldehyde 50%	170	Plating Solutions	180	Tetrachloroethylene	100
Benzene Sulfonic Acid 10%	210	Formic Acid	150	Potassium Aluminum Sulfate	240	Tetrapotassium Pyrophosphate 60%	150
Benzoic Acid	220	Fuel Oil	210	Potassium Bicarbonate, up to 10%	*170	Tetrasodium Ethylene Diamine	120
Black Liquor Recovery Gasses	350	Gallic Acid	*80	Potassium Bromide	120	Tetrasodium Pyrophosphate	150
Bleach Liquor (Pulp mill)	210	Gasoline	180	Potassium Chloride	210	Toluene	80
Borax	210	Gluconic Acid, up to 50%	180	Potassium Cy-Amp	240	Toluene Di-isocyanate, fumes	80
Boric Acid	210	Glucose	240	Potassium Dichromate	210	Toluene Sulfonic Acid	210
Brine	210	Glycerine	210	Potassium Ferricyanide	210	Trichlorethylene, fumes	170
Bromine, dry gas	140	Glycolic Acid	200	Potassium Ferrocyanide	210	Trichloroacetic Acid, up to 50%	210
Bromine, wet gas	100	Green Liquor, Pulp MLL	200	Potassium Hydroxide, up to 25%	*120	Trimethylamine Hydrochloride	210
Butyl Acetate	100	Hexachlorocyclopentadiene	100	Potassium Manganate 10%	210	Triphenyl Phosphite	140
Butyric Acid	100	Hydraulic Fluid	180	Potassium Persulfate	210	Trisodium Phosphate	210
Cadmium Chloride	180	Hydrobromic Acid, up to 20%	170	Potassium Sulfate	210	Turpentine, Pure Gum	150
Calcium Bisulfate	200	Hydrochloric Acid, up to 37%	180	Sea Water	180	Urine / Urea	150
Calcium Carbonate	180	Hydrocyanic Acid, up to 10%	170	Sillicic Acid	220	Vegetable Oils	210
Calcium Chlorate	220	Hydrofluoric Acid, 20%	*120	Silver Cyanide, up to 5%	200	Vinegar	210
Calcium Chloride	240	Hydrofluosilicic Acid, up to 30%	*120	Silver Nitrate	210	Water, Distilled / Demineralized	180
Calcium Hydroxide	*210	Hydrogen Bromide, gas	180	Sodium Acetate	210	Water, Organic Vapors	175
Calcium Hypochlorite	*150	Hydrogen Chloride, dry gas	300	Sodium Benzoate	180	Water Sea / Salt	180
Calcium Nitrate	210	Hydrogen Fluoride	*180	Sodium Bisulfate	210	Water, waste	180
Calcium Sulfate	240	Hydrogen Peroxide, up to 30%	150	Sodium Bisulfite	210	White Liquor, Pulp Mill	180
Camphor	80	Hydrogen Sulfide, wet/dry gas	210	Sodium Borate (Borax)	210	Xylene	80
Carbon Dioxide, gas	350	Hyroiodic Acid, up to 10%	150	Sodium Bromide	210	Zinc Chlorate	210
Carbonic Acid	210	Hypochlorous Acid, up to 20%	110	Sodium Chlorate	210	Zinc Chloride	220
Carbon Monoxide, gas	350	Iodine (solid, solution and vapor)	170	Sodium Chloride	210	Zinc Nitrate	220
Carbon Tetrachloride, vapor	200	Isodecanol	180	Sodium Chlorite	150	Zinc Sulfate	220
Caustic Soda	130	Isopropyl Alcohol	120	Sodium Cyanide	210	Zinc Sulfite	220
Chloric Acid 10%	170	Kerosene	210	Sodium Dichromate	210		
Chlorine, dry gas	210			Sodium Di-phosphate	210		
Chlorine, wet gas	210			Sodium Ferricyanide	220		
Chlorinated water	210			Sodium Ferrocyanide	220		
Chloroacetic acid	120						
Chromic Acid, up to 10%	120						
Chromium Sulfate	180						
Chromous Sulfate	200						

*Indicates synthetic fiber surfacing mat recommended. N.R. - 'Not Recommended'

FRP - Fiber Reinforced Polyester or Vinyl Ester are Thermosetting Products that use Polyester or Vinyl Ester resins in conjunction with glass fibers in fabrication of a wide variety of products. They possess outstanding resistance to corrosion to many different chemicals including both acids and alkalis at room and elevated temperatures. They have high impact resistance, excellent electrical and thermal insulation properties. They require little maintenance repair over a long service life and provide high strength and low weight. Industrial applications include process vessels, storage tanks, piping hoods, scrubbers, ducts and ventilation equipment. All M.K. Plastics FRP fans have inherent UV inhibitors and are available in different classes of flame spread.



PVC FLEXIBLE CONNECTOR

DRAIN CONNECTION

A 0.5" female threaded drain connection with plug is located at the lowest point of the fan housing, for draining any fluids that may accumulate. The elbow design, which extends 1.5" below the casing, allows for easy access.

ACCESS DOORS

Gasketed, bolted, FRP access doors that provide easy access for cleaning and inspection. Located at approximately 3 or 12 o'clock positions.

HUB SEAL

Neoprene or Teflon hub seals are available. Also, a patent pending Vacuum Seal, for highly sensitive exhaust situations.

GRAPHITE IMPREGNATION

A graphite liner may be laminated to the inside of the fan casing to remove any build up of static electricity when handling potentially explosive gases. The gas-stream surfaces are grounded to the fan base.

INLET AND OUTLET FLANGES

For applications where bolted duct connections are required. Flanges are available un-drilled or pre-drilled to MK Plastics standard hole pattern and size. Un-drilled outlet flange is standard on all fans.

COMPANION FLANGE AND SLEEVE

A pre-drilled PVC or FRP mating flange with a 2" sleeve, for use with a flexible connection at both inlet and outlet of fan.

PVC FLEXIBLE CONNECTOR

A 0.08" Plastifer PVC flexible connector is fabricated from plasticized poly vinyl chloride sheet. It is flame resistant and corrosion resistant to acid and base effluents. Due to UV inhibitors, it is suitable for outdoor applications. Available 8" wide, diameter to suit both inlet and outlet fan dimensions. The fastening straps are in stainless steel.

DISCONNECT SWITCHES

A wide selection of NEMA rated fusible, or non-fusible disconnect switches, mounted and pre-wired to the fan motor, if required.



VACUUM SEAL



DRAIN CONNECTION

STAINLESS STEEL SHAFTS

304 and 316 stainless steel shafts are available on all CNW fan sizes, where possible corrosion on standard carbon steel shafts may be of concern.

DAMPERS

Single blade gravity or control type dampers for both inlet and outlet of fan. Manufactured in either PVC or FRP. Control dampers are supplied with a quadrant lever for manual, or an extended shaft and actuator mounting plate for motorized operation.

VIBRATION ISOLATORS

The standard unitary base allows for easy installation of both rubber vibration pads or spring vibration isolators.

SAFETY ACCESSORIES

A standard vented FRP belt and shaft guards are supplied on all arrangement #10 CNW fans. Inlet or outlet PVC, polyethylene, stainless steel screens are available, as required.

MOTORS

UL and CSA, Open Drip Proof (ODP), TENV, TEFC, Chem Duty, Washdown and Explosion Proof motors are available. All complying with EPAC standards. Premium High Efficiency are offered, as required.



ACCESS DOORS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. FRP Medium Pressure Centrifugal Fans

1.02 RELATED WORK

- A. All sections, drawing plans, and contract documents.

1.03 REFERENCES

- A. AMCA -99 Standards Handbook
- B. AMCA 210 - Laboratory Methods of Testing Fans for Rating Purposes.
- C. AMCA 211 - Certified Ratings Procedure - Air Performance.
- D. AMCA 300 - Test Code for Sound Rating Air Moving Devices.
- E. AMCA 311 - Certified Sound Ratings Program for Air Moving Devices.
- F. AFMBA - Method of Evaluating Load Ratings of Bearings (ASA - B3.1 1).
- G. AMCA 204 - Balance Quality and Vibration Levels for Fans.
- H. ASTM D4167-97 - Standard Specification for Fiber-Reinforced Plastic Fans and Blowers.

1.04 QUALITY ASSURANCE

- A. Fans to be tested in accordance with AMCA Standard 210 (Air) and 300 (Sound). Performance ratings to be published in accordance with AMCA Publication 211 (Air) and 311 (Sound). Fans shall be licenced to bear the AMCA Certified Ratings Seal for Sound and Air Performance.
- B. Classification for Spark Resistant Construction; Conform to AMCA 99.
- C. Each fan to be tested before shipping. Motors to be tested for amperage drawn.
- D. A certificate to be supplied with each fan as to quality control before shipping and compliance to specifications.

1.05 SUBMITTALS

- A. M. K. Plastics to submit product data on each CNW fan.
- B. Provide fan curves for each fan at the specified operating point, with the flow, static pressure and horsepower clearly plotted.

PART 2 EQUIPMENT

2.01 GENERAL

- A. Base fan performance at standard conditions (density 0.075 Lb/ft³).
- B. Fans selected to be capable of accommodating static pressure and airflow of scheduled values.
- C. Each fan to be belt drive in arrangement #10 or according to drawings.

2.02 FAN HOUSING

- A. Fan housing to be aerodynamically designed with high-efficiency inlet, engineered to reduce incoming air turbulence. Casings to be smooth exterior and resin rich interior.
- B. Fan housing to be manufactured in specifically formulated resins, for maximum corrosion

resistance, UV inhibited and reinforced with fiberglass for structural strength. Fastening bolts holding the casing to the support plate are to be encapsulated in FRP. No uncoated metal fan parts in the corrosive air stream will be tolerated.

- C. CNW fans to be supplied with a graphite liner and grounding strap to remove static electricity, as well as a flame retardancy of 25 or less, if required.
- D. Inside the casing, a FRP ridge to be attached to divert condensation from dripping over the hub.
- E. When specified, provide a casing drain attached to the casing at the lowest point for condensation removal.
- F. Fan outlet to be flanged. Fan inlet to be slip connection.
- G. An access door, when requested, to be supplied for impeller inspection and service.
- H. Standard finish color to be light gray.
- I. Hub seal to be neoprene or Teflon (when required).
- J. M. K. Plastics when requested will supply a Vacuum Hub Seal to avoid any contaminated air from escaping (patent pending).

2.03 FAN IMPELLER

- A. Impellers should be solid molded FRP With radial tip curved blades. FRP hub to have a tight fitting cap to protect shaft end. The hub to extend out side the casing. Impellers manufactured in steel and coated with a plastic material are not acceptable. The impeller to be electronically balanced both statically and dynamically Grade GS.3 per AMCA 204 Standard.

2.04 BASE SUPPORT

- A. Arr. #10 support to be manufactured in formed steel and to be baked polyester coated. Arr. #4 support to be FRP.
- B. An access panel to be standard to provide accessibility to the motor junction box.
- C. An FRP weather cover to be provided with adequate motor ventilation.

2.05 FAN MOTORS AND DRIVES

- A. Motors to be TEFC with a 1.15 service factor, or accordance to fan schedule.
- B. Belts and pulleys are to be accessible for service and maintenance.
- C. CNW fans to have self-lube, cast iron, pillow block bearings.
- D. Shafts to be AISI -1045 carbon steel. The shaft shall not be in the corrosive air stream.
- E. All bearings to have a minimum L-10 life of 200,000 hours life.
- F. Drive guard to be supplied and manufactured according to OSHA standards.
- G. Fans up to 5 HP motor to have variable pitch.

2.06 ACCEPTABLE MANUFACTURERS

- A. M.K. Plastics Corporation, Model CNW.
- B. Approved Equal.

CONDITIONS OF SALE

1. Prices quoted are current, prices prevailing at time of shipping will apply. Material in stock is offered subject to prior sale. All Sales Contracts arising out of this quotation shall be subject to our regular conditions show on this side.
2. All deliveries quoted are based on availability of material and labor at the time of quotation and subject to change. Deliveries are contingent upon strikes, accidents, fires, and other causes and we shall not be liable for any loss or damage caused by delays beyond the control of the company.
3. Goods invoiced up to and including the last day of the calendar month shall be paid for not later than the last business day of the following month. The company reserves the right to charge interest at commercial rates on any overdue account.
4. Any order accepted by us cannot be countermanded, revised or cancelled without our written consent and upon such terms as will indemnify us against any loss. The word "loss" as used herein shall include, but not limited to, cost of materials, special machinery, tools, jigs and fixtures built or purchased for the contract and all parts in process, fabricated in whole or in part by previous customer authorization.
5. No contract arising from the acceptance of this quotation shall be valid and binding until approved by the company, such contract shall be governed by and interpreted in accordance with the laws of Province of Quebec.
6. All memoranda, drawings and information furnished by the company shall remain its property and shall be considered business or trade secrets received in trust and confidence for the sole purpose of assisting the buyer.
7. Orders to customer's drawings or descriptions are filled with the understanding that the customer assumes the obligation to protect M.K. Plastics Corp. from any action for infringements of patents.
8. No modification of the above conditions of sale shall be effected by our receipt or acknowledgement of a purchase order containing additional or different conditions.

LIMITATION OF WARRANTY AND LIABILITY

We will not be responsible for the damage to equipment or materials through improper installation, storage, improper servicing, or through attempts to operate it in excess of its rated capacity or recommended use, intentional or otherwise. We will not be responsible for consequential damage.

Based on the fact that M.K. Plastics Corp. has no direct control over the actual handling and use of its products in the field, M.K. Plastics Corp. does not assume any liability for any loss of customer or any personnel or any physical damages that claimed by anyone due to a failure or cause attributed to the use of its products. In no event shall M.K. Plastics Corp. be responsible for consequential damages of any such defective material or workmanship, including but not limited to the buyer's loss of material or profit, increase expense of operation, downtime or reconstruction of the work and in no event shall M.K. Plastics Corp. obligation under this warranty exceed the original contract price of the defective item.

M.K. Plastics Corp. warrants its equipment, products and parts, to be free from defects in workmanship and material under normal use and service for one (1) year after delivery to the first user. Our obligation under this warranty being limited to repairing or replacing, at our option, without cost at our factory any part, or parts which shall, within such warranty period, be returned to us with transportation charged prepaid, and which our examination shall disclose to our satisfaction to have been defective.

M.K. Plastics Corp. will not be responsible for the cost of removal of a defective product or parts or the installation of a replaced product or parts, or for costs due for its removal, crating or shipping.

On account of variables including but not limited to, vibration, system noise characteristics, motor overloading or change in voltage conditions, the specifics of customer application of equipment or other system conditions, M.K. Plastics Corp. does not expressly warrant its equipment for any specific purpose.

The customer and its agents are responsible for the selection and application of M.K. Plastics Corp. products, including their fitness for the purpose and performance intended. Consequently, the customer on behalf of its agents assumes all liability related to the user/misuse, application and selection of the M.K. Plastics Corp.

M.K. Plastics
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