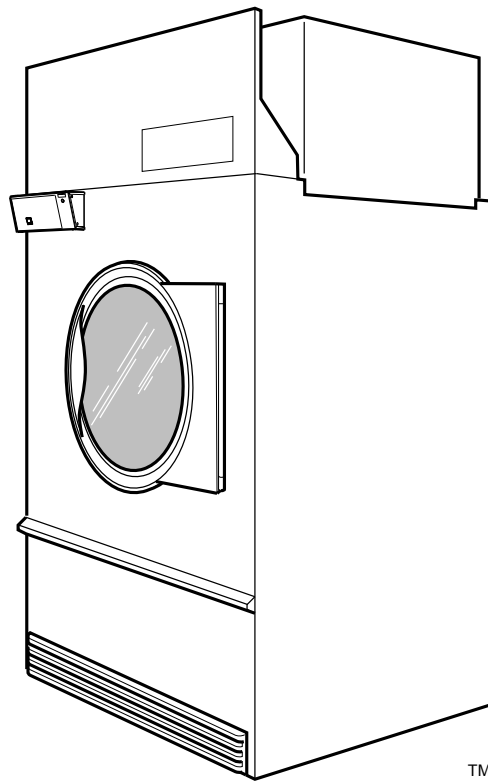


# On-Premise Laundry Planning Handbook



TMB1268C

## **120 and 170 Pound Tumblers Through Serial No. 0907000048**

Refer to Installation manual for full instructions.



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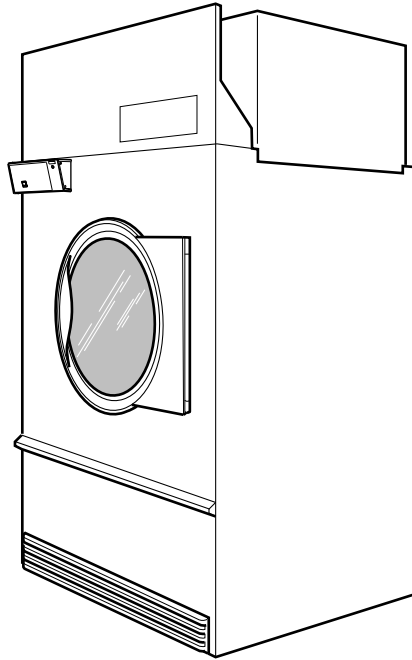
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# Tumblers – 120 and 170

## Introduction



TMB1268C

## Model Identification

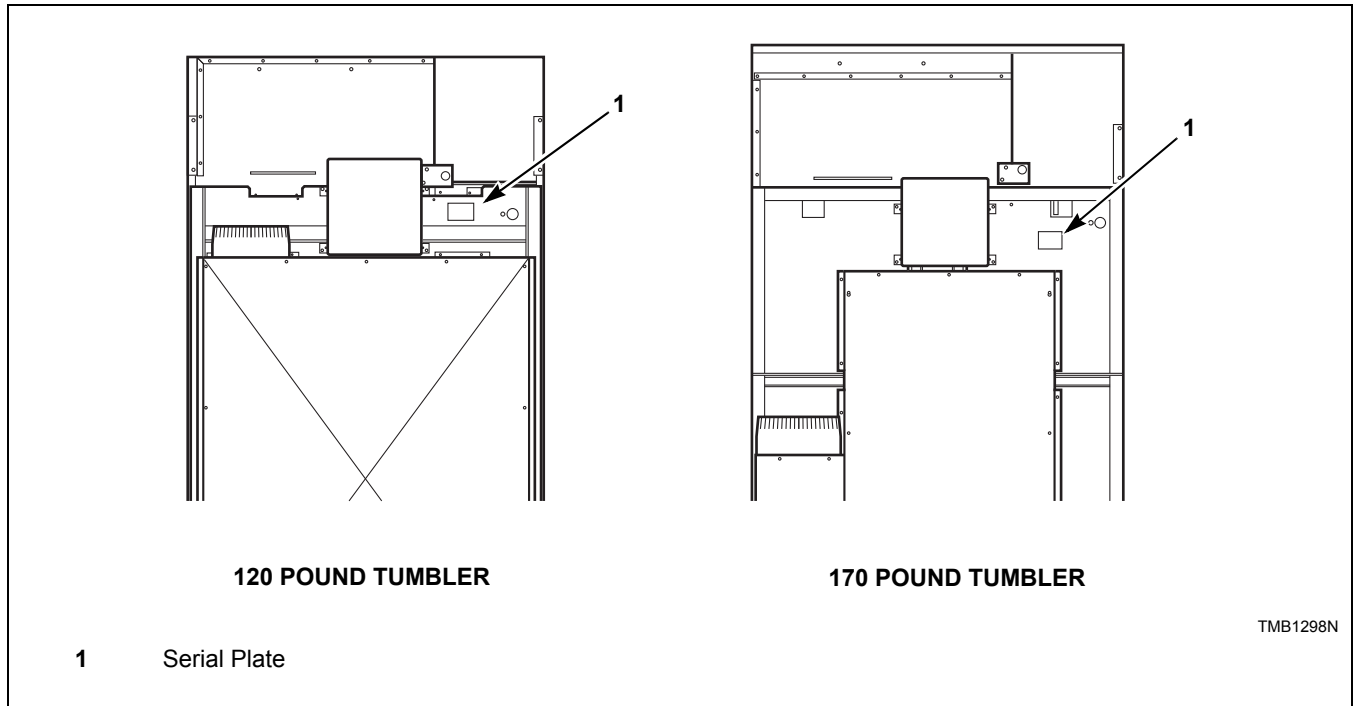
	Gas		Steam/Thermal Oil	
<b>120 Pound</b>	IPD120G2-IT120L	IPD120G2-IT120N	IPD120S2-IT120S	IPD120S2-IT120T
<b>170 Pound</b>	IPD170G2-IT170L	IPD170G2-IT170N	IPD170S2-IT170S	IPD170S2-IT170T

Includes models with the following control suffixes:

RD – reversing DMP OPL

RQ – reversing dual digital timer

**Tumblers – 120 and 170**



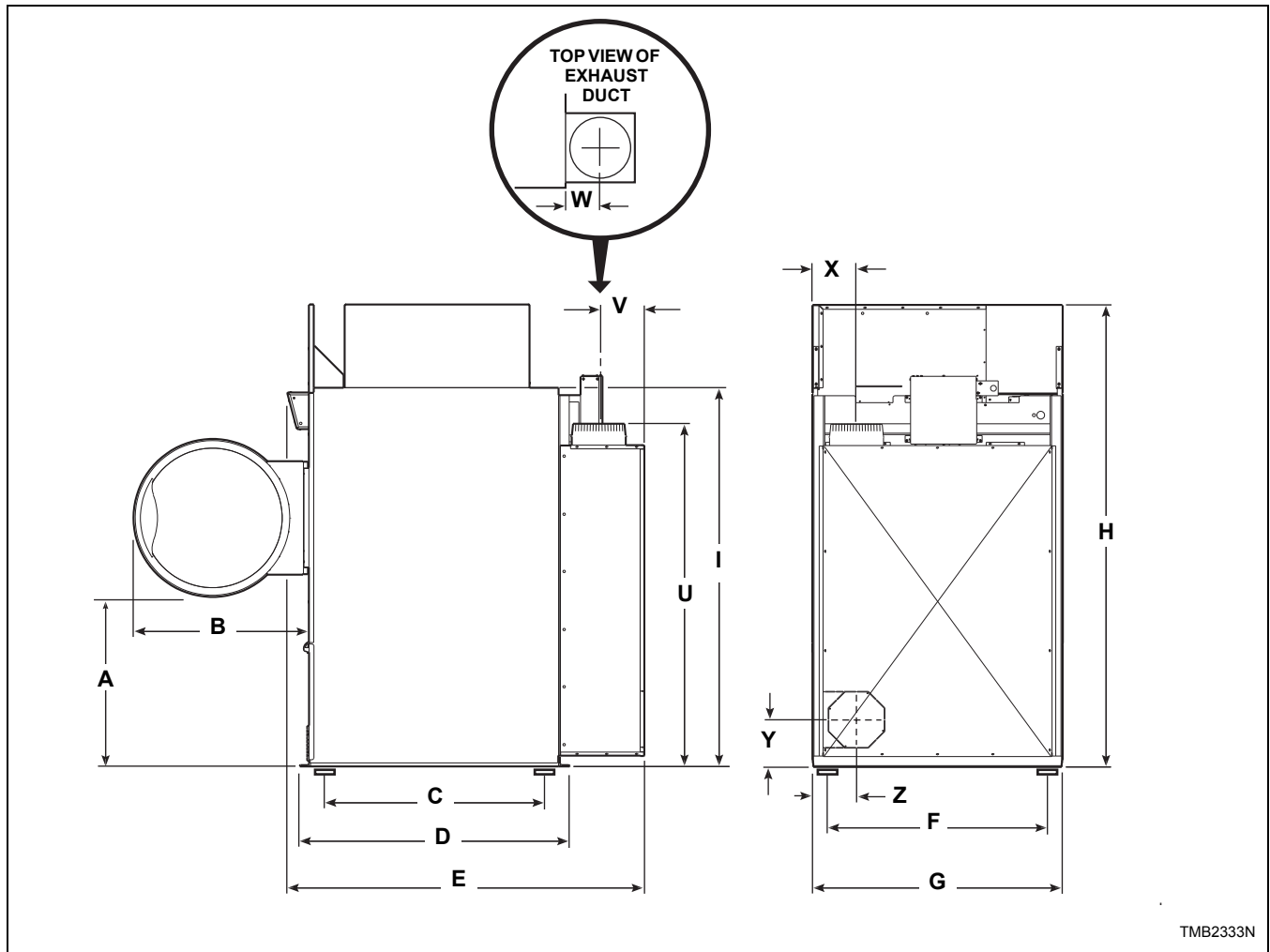
Conversion Table						
Multiply	By	To Obtain		Multiply	By	To Obtain
Btu	0.252	kCal		Pounds/sq. inch	0.06895	Bars
Btu	1055	Joules		Pounds/sq. inch	0.070	kg/sq. cm
Inch	25.4	Millimeters		Pounds (lbs.)	0.454	Kilograms
Inches W.C.	0.036	Pounds/sq. inch		Boiler Horsepower	33,479	Btu/hr.
Inches W.C.	0.249	kPa		Boiler Horsepower	34.5	lbs. steam/hr.
lb./inch <sup>2</sup> (psi)	6.895	kPa		CFM	0.471	liters/second
ft. <sup>3</sup>	28.32	Liters		kW	3414	Btu/hr.

## Specifications and Dimensions

Specifications	120 Pound	170 Pound
<b>Noise level measured during operation at operator position of 3.3 feet (1 meter) in front of machine and 5.2 feet (1.6 meters) from floor.</b>	66 dBA	66 dBA
<b>Cylinder Size: Inches (mm)</b>	44 x 41 (1118 x 1041)	50.75 x 42.5 (1289 x 1080)
<b>Cylinder Capacity dry weight: Pounds (kg)</b>	120 (54.4)	170 (77.1)
<b>Cylinder Motor Horsepower</b>	0.75	0.75
<b>Fan Motor Horsepower</b>	1	3
<b>Air Outlet Diameter: Inches (mm)</b>	10 (254)	12 (300)
<b>Maximum Static Back Pressure: W.C.I. (mbar)</b>	0.3 (0.8)	0.3 (0.8)
<b>Maximum Airflow: C.F.M (L/sec.)</b>	1600 (755)	2450 (1156)
<b>Gas Models</b>		
<b>Net Weight (approximate): Pounds (kg)</b>	1275 (580)	1575 (716)
<b>Gas Connection</b>	3/4 in. NPT	1 in. NPT
<b>Gas Burner Rating: Btu/hr. (Mj/hr.)</b>	300,000 (316)	395,000 (421)
<b>Steam Models</b>		
<b>Net Weight (approximate): Pounds (kg)</b>	1375 (625)	1675 (761)
<b>Steam Connection</b>	3/4 in. NPT inlet 3/4 in. NPT outlet	3/4 in. NPT inlet 1 in. NPT outlet
<b>Steam Coil Rating at 100 psig: Boiler Horsepower (Btu/hr.) (recommended operating pressure 80-100 psig)</b>	11.7 (405,000)	18.8 (648,000)

N/A = Not Applicable

**120 Pound Tumbler Dimensions and Exhaust Outlet Locations**



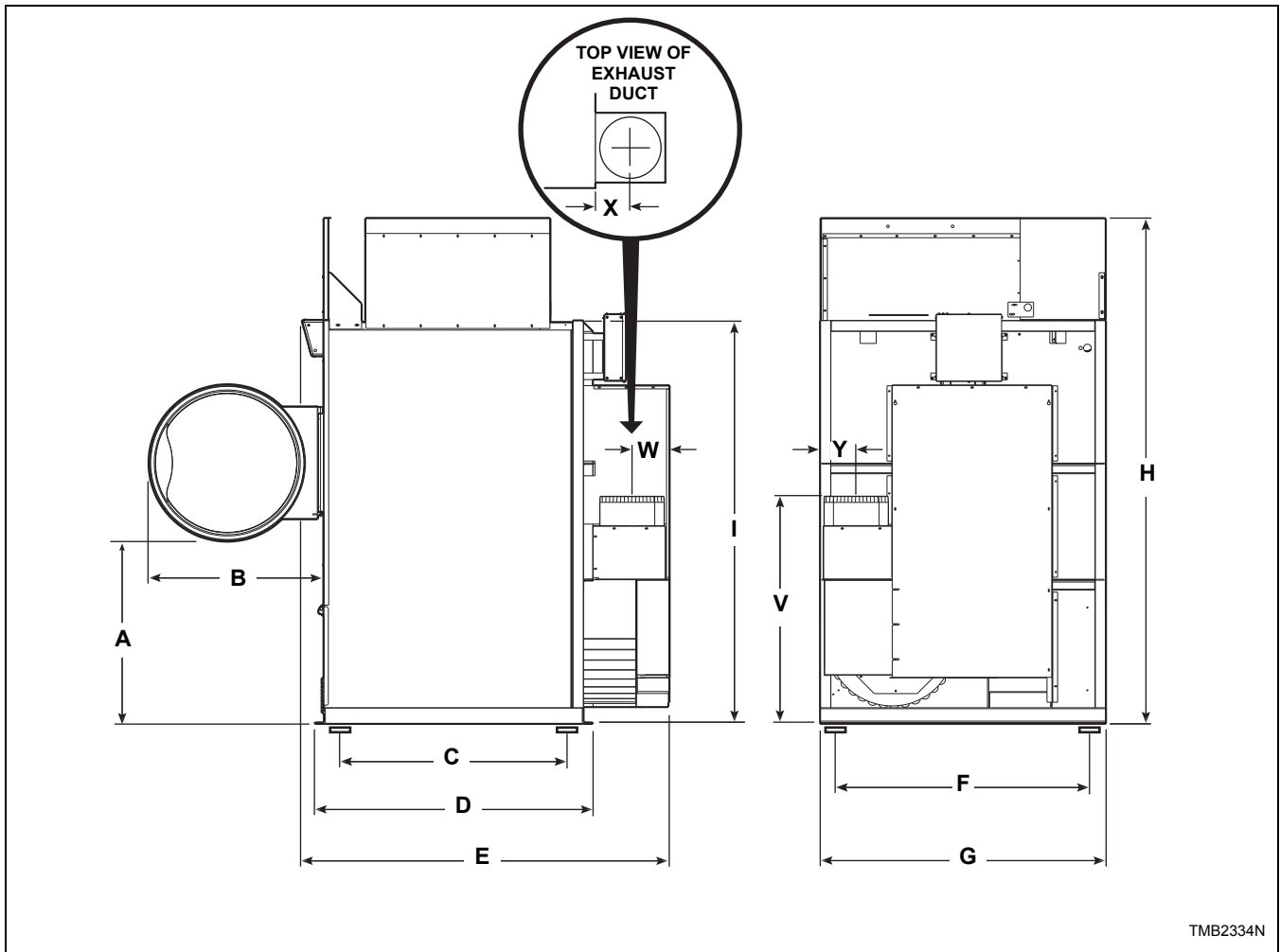
TMB2333N

Cabinet Dimensions									
Models	A	B	C	D	E	F	G	H	I
<b>120L/N</b>	31.38 in. (797 mm)	32.5 in. (826 mm)	48.91 in. (1242 mm)	49.91 in. (1268 mm)	67.92 in. (1725 mm)	45.38 in. (1153 mm)	46.38 in. (1178 mm)	85.7 in. (2177 mm)	70 in. (1778 mm)
<b>120S</b>	31.38 in. (797 mm)	32.5 in. (826 mm)	48.91 in. (1242 mm)	49.91 in. (1268 mm)	67.92 in. (1725 mm)	45.38 in. (1153 mm)	46.38 in. (1178 mm)	83.5 in. (2121 mm)	70 in. (1778 mm)

Refer to *Position and Level the Tumbler* to temporarily reduce the heights of these models.

Exhaust Outlet Dimensions and Locations						
Models	U	V	W	X	Y	Z
<b>120L/N</b>	63.45 in. (1612 mm)	8.44 in. (214 mm)	5 in. (127 mm)	8.18 in. (208 mm)	6.82 in. (173 mm)	8.18 in. (208 mm)
<b>120S</b>	60.7 in. (1542 mm)	8.44 in. (214 mm)	5 in. (127 mm)	8.18 in. (208 mm)	6.82 in. (173 mm)	8.18 in. (208 mm)

**170 Pound Tumbler Dimensions and Exhaust Outlet Locations**

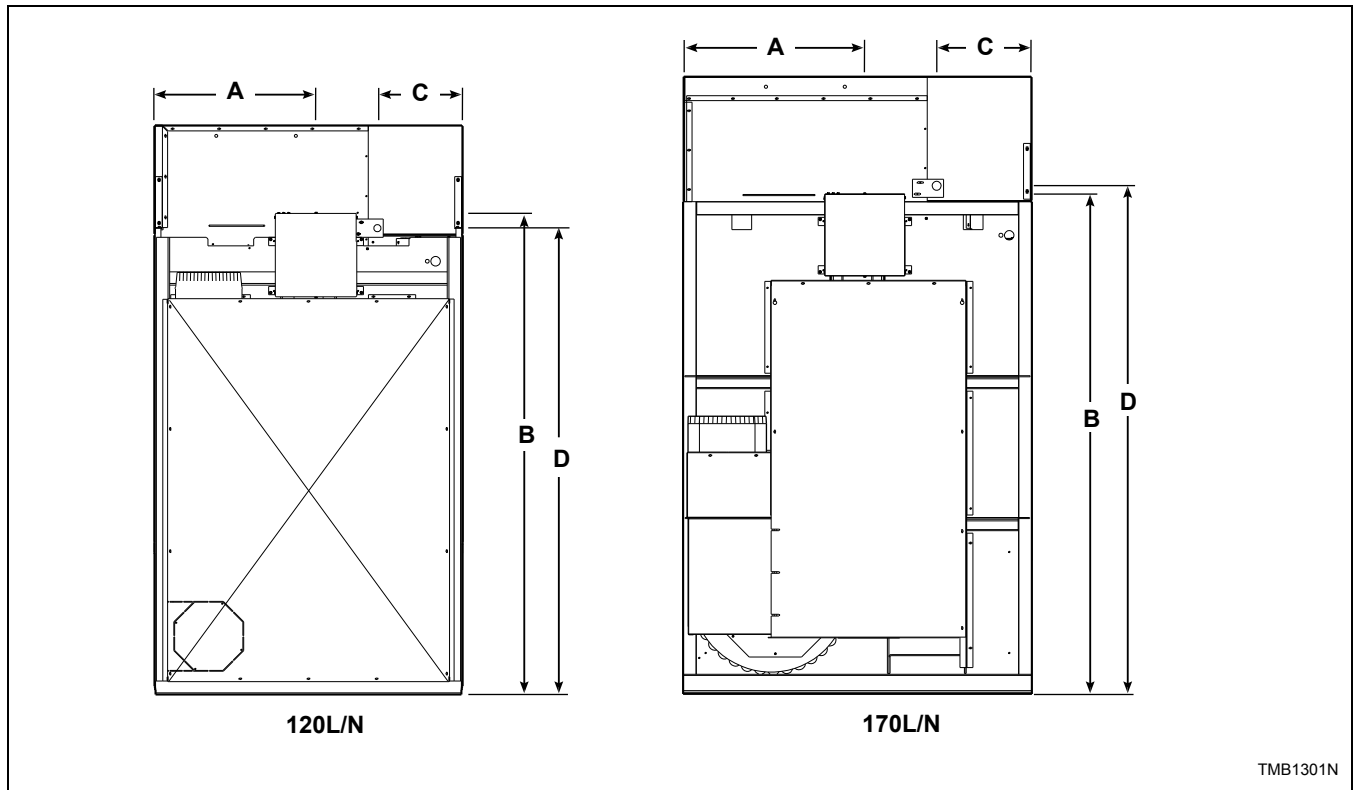


Cabinet Dimensions									
Models	A	B	C	D	E	F	G	H	I
<b>170L/N/S</b>	33.86 in. (860 mm)	32.5 in. (826 mm)	50.75 in. (1289 mm)	51.75 in. (1314 mm)	68.85 in. (1749 mm)	52.12 in. (1324 mm)	53.12 in. (1349 mm)	94 in. (2388 mm)	75.12 in. (1908 mm)

Refer to *Position and Level the Tumbler* to temporarily reduce the heights of these models.

Exhaust Outlet Dimensions and Locations				
Models	V	W	X	Y
<b>170L/N/S</b>	42.38 in. (1076 mm)	6.75 in. (171 mm)	6 in. (152 mm)	7 in. (178 mm)

**Electric and Gas Connection Locations  
for Gas Models**

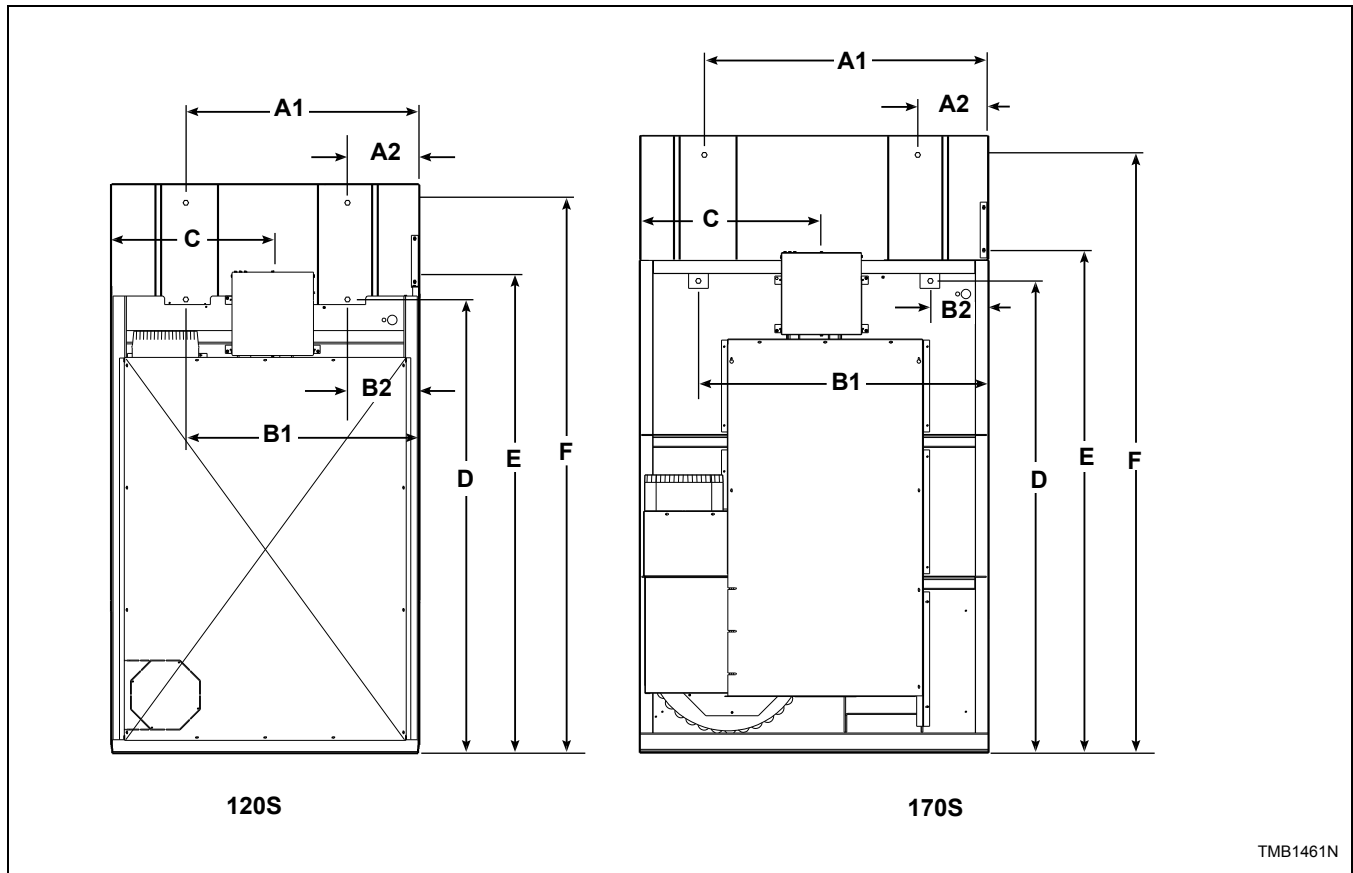


Models		Electrical Connection		Gas Connection		
		A	B	C	D	Diameter
Non-CE	120L/N	27.63 in. (702 mm)	72.24 in. (1835 mm)	12.78 in. (325 mm)	70.12 in. (1781 mm)	3/4 in. NPT
	170L/N	31.12 in. (790 mm)	76.11 in. (1933 mm)	14.5 in. (368 mm)	77.38 in. (1965 mm)	1 in. NPT
CE	120L/N	19.69 in. (500 mm)	74.98 in. (1904 mm)	12.78 in. (325 mm)	70.12 in. (1781 mm)	3/4 in. NPT
	170L/N	23.18 in. (589 mm)	78.85 in. (2003 mm)	14.5 in. (368 mm)	77.38 in. (1965 mm)	1 in. NPT

**NOTE: These figures are approximate dimensions only.**



**Electric and Steam Connection Locations  
for Steam Models**



Models	Steam Inlet			
	Diameter	A1	A2	F
120S	3/4 in. NPT	35.875 in. (911 mm)	13.375 in. (340 mm)	82.75 in. (2102 mm)
170S	3/4 in. NPT	37.625 in. (956 mm)	15.25 in. (387 mm)	88 in. (2235 mm)

Models	Steam Outlet			
	Diameter	B1	B2	D
120S	3/4 in. NPT	34.625 in. (879 mm)	13.125 in. (333 mm)	68.5 in. (1740 mm)
170S	1 in. NPT	44.625 in. (1133 mm)	8.75 in. (222 mm)	71.75 in. (1822 mm)

Models		Electrical Connection	
		C	E
Non-CE	120S	27.63 in. (702 mm)	72.24 in. (1835 mm)
	170S	31.12 in. (790 mm)	76.11 in. (1933 mm)
CE	120S	19.69 in. (500 mm)	74.98 in. (1904 mm)
	170S	23.18 in. (589 mm)	78.85 in. (2003 mm)

## Installation

### Pre-Installation Inspection

Upon delivery, visually inspect the crate, carton and parts for any visible shipping damage. If the crate, carton, or cover is damaged or signs of possible damage are evident, have the carrier note the condition on the shipping papers before the shipping receipt is signed, or advise the carrier of the condition as soon as it is discovered.

Remove the crate and protective cover as soon as possible and check the items listed on the packing list. Advise the carrier of any damaged or missing articles as soon as possible. A written claim should be filed with the carrier immediately if articles are damaged or missing.

**IMPORTANT: Warranty is void unless tumbler is installed according to instructions in this manual. Installation should comply with minimum specifications and requirements detailed herein, and with applicable local gas fitting regulations, municipal building codes, water supply regulations, electrical wiring regulations, and any other relevant statutory regulations. Due to varied requirements, applicable local codes should be thoroughly understood and all pre-installation work arranged for accordingly.**

**Tumbler Enclosure**

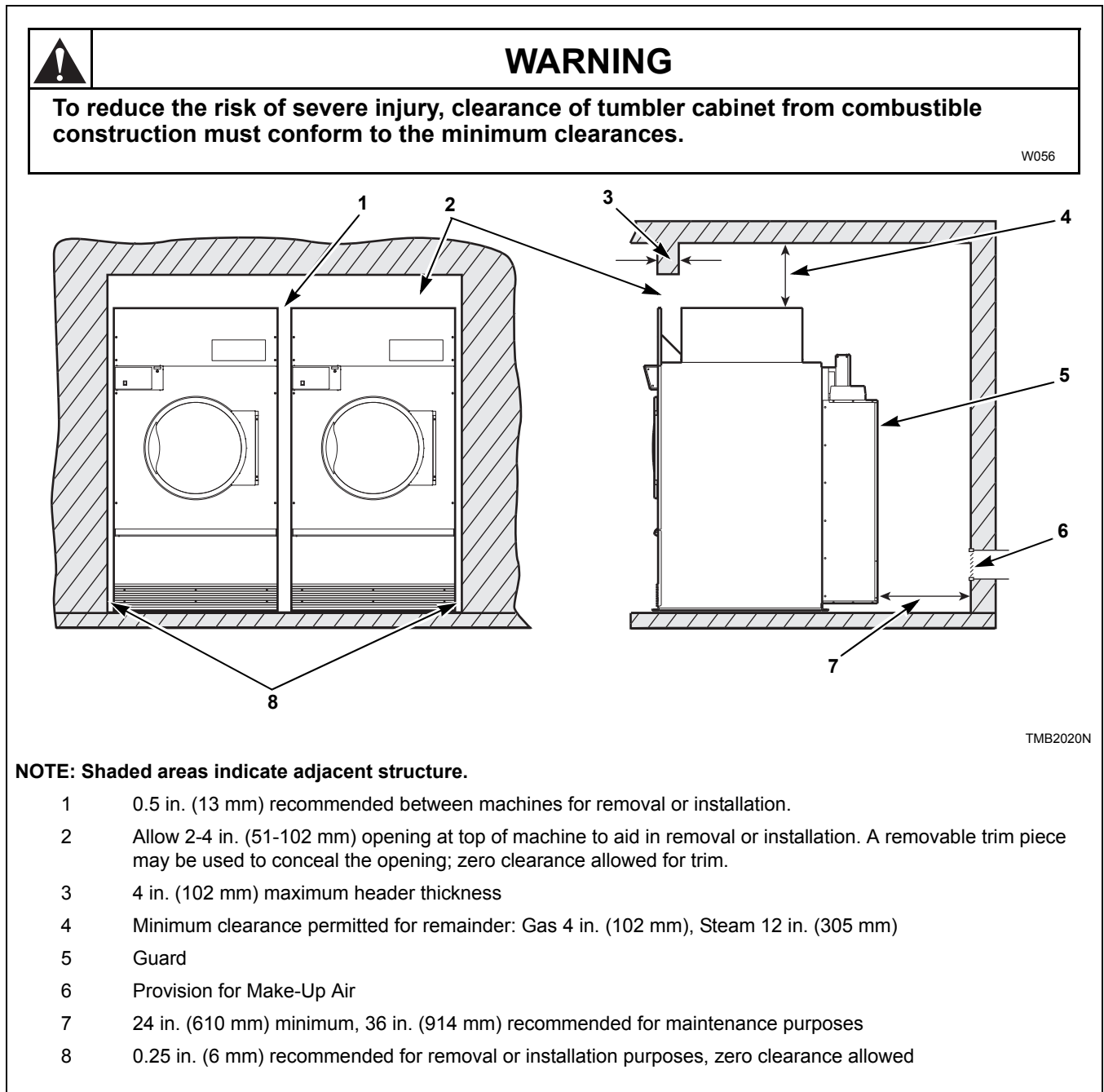



Figure 1

## Exhaust Requirements

	<b>WARNING</b>
<p><b>A drying tumbler produces combustible lint. To reduce the risk of fire, the tumbler must be exhausted to the outdoors.</b></p> <p style="text-align: right;">W057</p>	
<p><b>To reduce the risk of fire and accumulation of combustible gases, DO NOT exhaust tumbler air into a window well, gas vent, chimney or enclosed, unventilated area such as an attic wall, ceiling, crawl space under a building, or concealed space of a building.</b></p> <p style="text-align: right;">W059</p>	

### Layout

Whenever possible, install tumblers along an outside wall where duct length can be kept to a minimum, and make-up air can be easily accessed. Elbows and long vents tend to increase drying time. Construction must not block the airflow at the rear of the tumbler. Doing so would prevent adequate air supply to the tumbler’s combustion chamber.

### Make-Up Air

A tumbler is forced air exhausted and requires provisions for make-up air to replace the air exhausted by the tumbler.

**IMPORTANT: Do not obstruct the flow of combustion and ventilation air.**

Make-up air openings should be as close to the tumbler(s) as possible.

The required make-up air opening to the outside for each tumbler is:


Required Make-Up Air Opening (to the outside) for Each Tumbler	
Models	Opening
120 Pound	360 in. <sup>2</sup> (2323 cm <sup>2</sup> ) <i>free air</i>
170 Pound	525 in. <sup>2</sup> (3710 cm <sup>2</sup> ) <i>free air</i>

Table 1

Make-up air openings with louvers will restrict airflow. The opening must be increased to compensate for area taken up by louvers.

Make-up air openings for a room containing tumbler(s) and/or gas fired hot water heater or other gravity vented appliances must be increased sufficiently to prevent downdrafts in any of the vents when all tumblers are in operation. Do not locate gravity vented appliances between tumbler(s) and make-up air openings. If it is necessary to duct make-up air to the tumbler(s), increase the area of the ductwork by 25% to compensate for any restriction in air movement.

### Venting


	<b>WARNING</b>
<p><b>To reduce the risk of fire due to increased static pressure, we do not recommend installation of in-line secondary lint filters or lint collectors. If secondary systems are mandated, frequently clean the system to assure safe operation.</b></p> <p style="text-align: right;">W749</p>	

**IMPORTANT: Installing in-line filters or lint collectors will cause increased static pressure. Failure to maintain the secondary lint system will decrease tumbler efficiency and may void machine warranty.**

For maximum efficiency and minimum lint accumulation, tumbler air must be exhausted to the outdoors by the shortest possible route.

Proper sized exhaust ducts are essential for proper operation. All elbows should be sweep type. Exhaust ducts must be assembled so the interior surfaces are smooth, so the joints do not permit the accumulation of lint. DO NOT use plastic or thin foil ducts – rigid metal ducts are recommended. Use exhaust ducts made of sheet metal or other noncombustible material. DO NOT use sheet metal screws or fasteners on exhaust pipe joints which extend into the duct and catch lint. Use of duct tape or pop-rivets on all seams and joints is recommended, if allowed by local code.

Verify that old ducts are thoroughly cleaned out before installing new tumbler(s).

	<b>WARNING</b>
<p><b>Improperly sized or assembled ductwork causes excess back pressure which results in slow drying, lint collecting in the duct, lint blowing back into the room, and increased fire hazard.</b></p> <p style="text-align: right;">W355</p>	

**NOTE: Exhaust ducts must be constructed of sheet metal or other noncombustible material. Such ducts must be equivalent in strength and corrosion resistance to ducts made of galvanized sheet steel not less than 0.0195 inches (0.495 mm) thick. Local codes may require additional thickness.**

Where the exhaust duct pierces a combustible wall or ceiling the opening must be sized per local codes. The space around the duct may be sealed with noncombustible material. Refer to *Figure 2*.

**IMPORTANT: For best performance provide an individual exhaust duct for each tumbler. Do not install a hot water heater in a room containing tumblers. It is better to have the water heater in a separate room with a separate air inlet.**

**Individual Venting**

For maximum efficiency and performance, it is preferred to exhaust tumbler(s) individually to the outdoors.

**IMPORTANT: At no point may the cross sectional area of installed venting be less than the cross sectional area of the exhaust outlet of the tumbler.**

The exhaust duct must be designed so the static back pressure measured 12 inches (305 mm) from the exhaust outlet does not exceed the maximum allowable pressure specified on the installation sticker on the rear of the tumbler.

**NOTE: Static back pressure must be measured with the tumbler running.**

The maximum allowable length venting of the same diameter as the exhaust thimble is 14 feet (4.3 m) and two 90° elbows or equivalent. If the equivalent length of a duct required for an installation exceeds the maximum allowable equivalent length, the diameter of a round duct must be increased by 10% for each additional 20 feet (6.1 m). Cross section area of a rectangular duct must be increased by 20% for each additional 20 feet (6.1 m). Refer to *Table 2* to determine equivalent venting.

**NOTE: The maximum length of a flexible metal duct must not exceed 2.4 m (7.87 ft.) as required to meet UL2158, clause 7.3.2A.**

Duct Diameter	Equivalent Length of Rigid Straight Duct
6 in. (152 mm)	One 90° elbow = 7 ft. (2.1 m)
8 in. (203 mm)	One 90° elbow = 9.3 ft. (2.83 m)
10 in. (254 mm)	One 90° elbow = 11.6 ft. (3.5 m)
12 in. (305 mm)	One 90° elbow = 14 ft. (4.3 m)
14 in. (356 mm)	One 90° elbow = 16 ft. (4.9 m)
16 in. (406 mm)	One 90° elbow = 18.7 ft. (5.7 m)
18 in. (457 mm)	One 90° elbow = 21 ft. (6.4 m)
Equivalent Length (feet) = 1.17 x Duct Diameter (inches)	

Table 2

**Example: A 12 inch (305 mm) diameter duct’s equivalent length of 14 feet (4.3 m) of duct and two 90° elbows is:**

$$\begin{aligned} \text{Equivalent Length} &= 14 \text{ feet} + (2) \text{ 90° elbows} \\ &= 14 \text{ feet} + 14 \text{ feet} + 14 \text{ feet} \\ &= 42 \text{ feet (12.8 meters)} \end{aligned}$$

With the tumbler in operation, airflow at any point in the duct should be at least 1200 feet per minute (366 meters per minute) to ensure that lint remains airborne. If 1200 feet per minute cannot be maintained, schedule monthly inspections and cleaning of the ductwork.

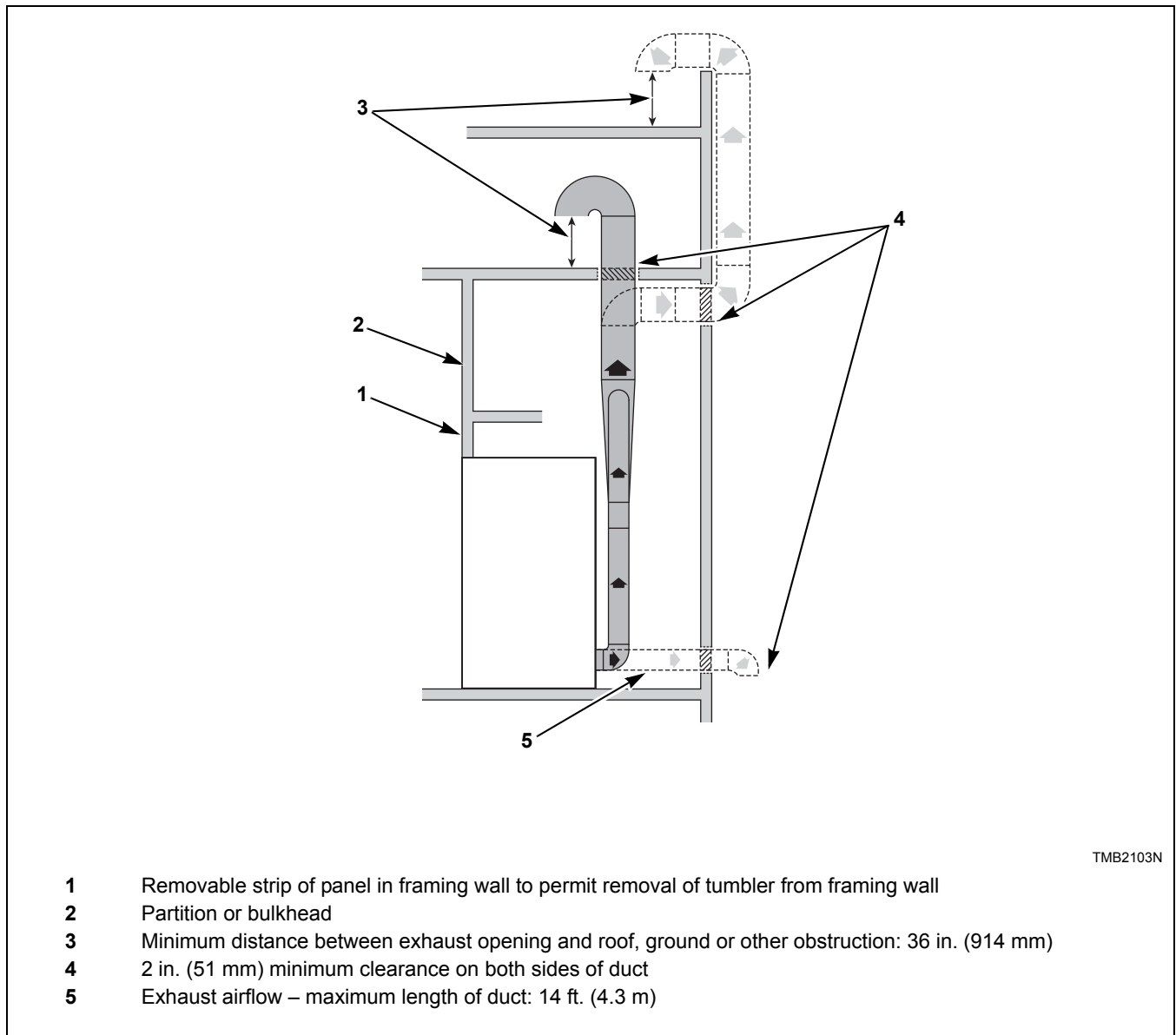


Figure 2

**NOTE: Do not install wire mesh or screen in exhaust duct opening to avoid lint build-up or impacting proper discharge of air from tumblers.**

**NOTE: Where exhaust duct pierces a combustible wall or ceiling, the opening must be sized per local codes.**

**NOTE: Inside of duct must be smooth. Do not use sheet metal screws to join sections.**

Consult your local building code for regulations which may also apply.

## Manifold Venting

While it is preferable to exhaust tumblers individually to the outdoors, a main collector duct may be used if it is sized according to *Figure 4* and *Figure 5*. This illustration indicates minimum diameters, which should be increased if the collector length exceeds 14 feet (4.3 meters) and two 90° elbows. The diameter of a round duct must be increased by 10% for each additional 20 feet (6.1 meters). Cross sectional area of a rectangular or square duct must be increased 20% for each additional 20 feet (6.1 meters). Refer to *Table 3* and *Table 4* to determine equivalent ducting sizing. The collector duct may be rectangular or square in cross section, as long as the area is not reduced. Provisions **MUST** be made for lint removal and cleaning of the collector duct.

The vent collector system must be designed so the static back pressure measured 12 inches (305 mm) from the exhaust outlet does not exceed the maximum allowable pressure specified on the installation sticker on the rear of tumbler. Static back pressure must be measured with all tumblers vented into the collector operating.

**NOTE: Never connect a tumbler duct at a 90° angle to the collector duct. Refer to *Figure 3*. Doing so will cause excessive back pressure, resulting in poor performance. Never connect two tumbler exhaust ducts directly across from each other at the point of entry to the collector duct.**

With the tumbler in operation, airflow at any point in the duct should be at least 1200 feet per minute (366 meters per minute) to ensure that lint remains airborne. If 1200 feet per minute cannot be maintained, schedule monthly inspections and cleaning of the ductwork.

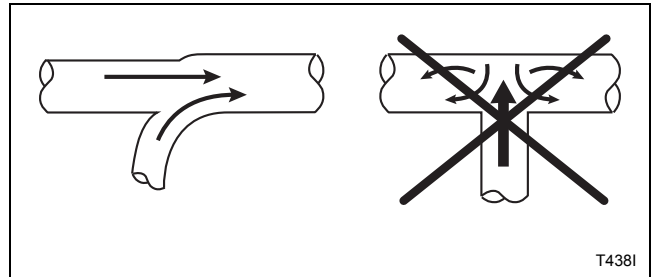


Figure 3

**Tumblers – 120 and 170**

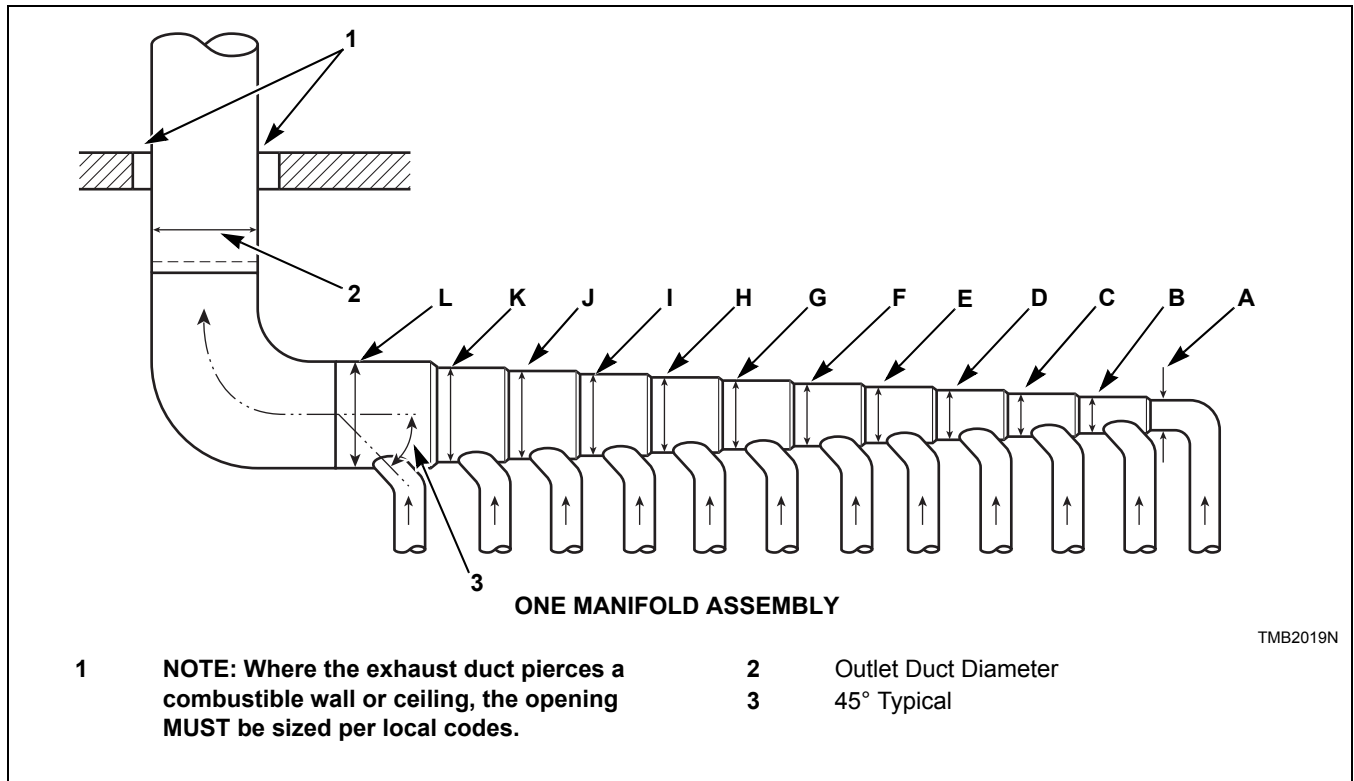


Figure 4

Duct Station	120 Pound	170 Pound
	10 in. (254 mm) Duct	12 in. (305 mm) Duct
A	10 in. (254 mm)	12 in. (305 mm)
B	15 in. (381 mm)	17 in. (432 mm)
C	18 in. (457 mm)	21 in. (533 mm)
D	21 in. (533 mm)	24 in. (610 mm)
E	24 in. (610 mm)	27 in. (686 mm)
F	26 in. (660 mm)	30 in. (762 mm)
G	28 in. (711 mm)	32 in. (813 mm)
H	30 in. (762 mm)	34 in. (864 mm)
I	32 in. (813 mm)	36 in. (914 mm)
J	33 in. (838 mm)	38 in. (965 mm)
K	35 in. (889 mm)	40 in. (1016 mm)
L	36 in. (914 mm)	42 in. (1067 mm)

Table 3



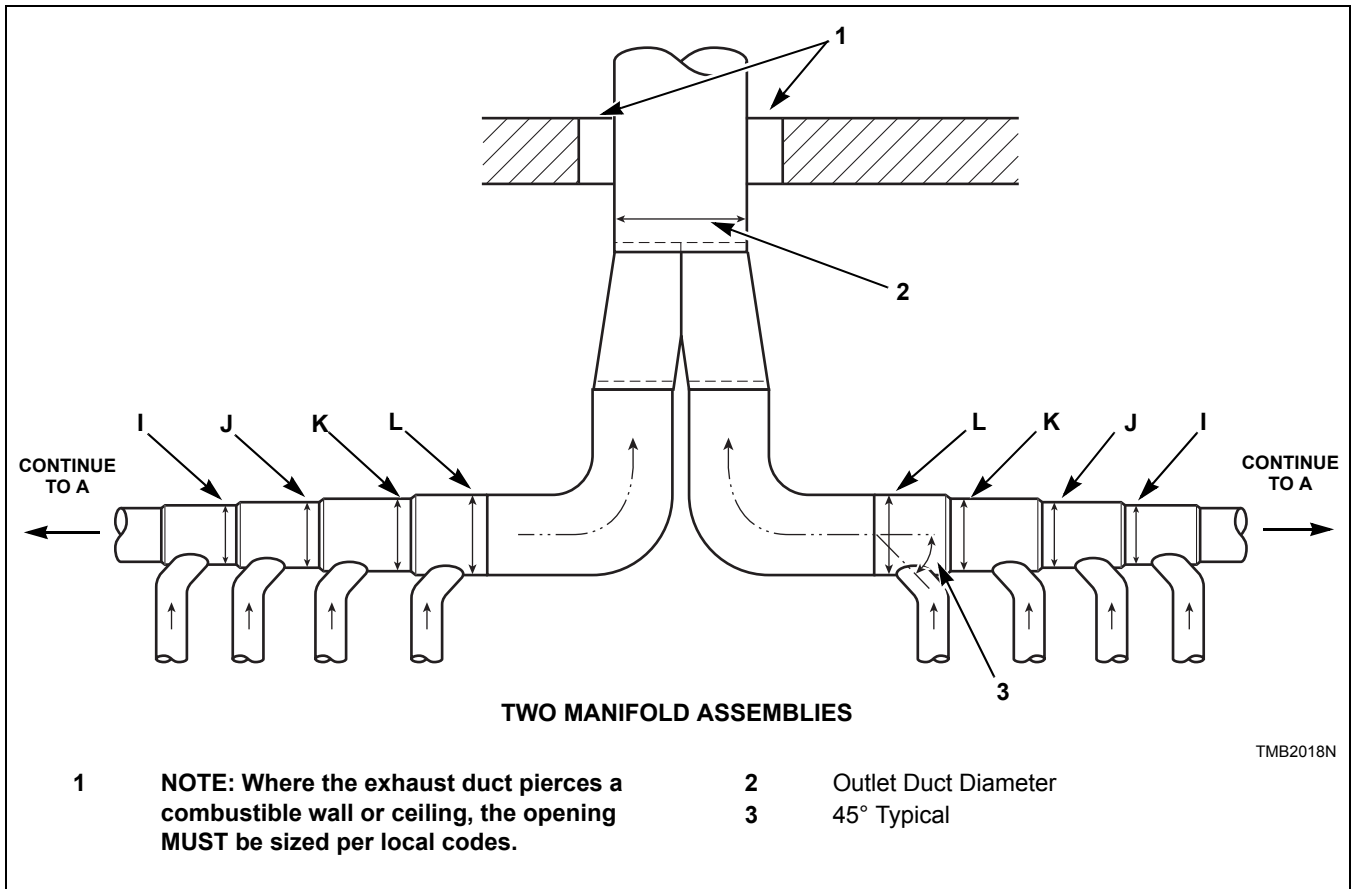


Figure 5

Duct Station	120 Pound	170 Pound
	10 in. (254 mm) Duct	12 in. (305 mm) Duct
A	15 in. (381 mm)	17 in. (432 mm)
B	21 in. (533 mm)	24 in. (610 mm)
C	26 in. (660 mm)	30 in. (762 mm)
D	30 in. (762 mm)	34 in. (864 mm)
E	33 in. (838 mm)	38 in. (965 mm)
F	36 in. (914 mm)	42 in. (1067 mm)
G	39 in. (991 mm)	45 in. (1143 mm)
H	42 in. (1067 mm)	45 in. (1143 mm)
I	45 in. (1143 mm)	52 in. (1321 mm)
J	47 in. (1194 mm)	54 in. (1372 mm)
K	49 in. (1245 mm)	57 in. (1448 mm)
L	51 in. (1295 mm)	60 in. (1524 mm)

Table 4

## Electrical Requirements

Refer to *Table 5*.

**NOTE:** Minimum wire sizes are obtained from Canadian Electrical Code and are intended for use as a guideline only. Electrical connections should be made only by a qualified electrical contractor in accordance with all applicable local and national requirements.

**NOTE:** Electrical specifications below are subject to change without notice. Always refer to product

serial plate for most current specifications of product being installed.

**NOTE:** Use copper conductors only.

**NOTE: 3 Phase Only–** Each tumbler must be connected to its own individual branch circuit breaker, not fuses, to avoid the possibility of “single phasing” and causing premature failure of the motor(s).

### For 120 Pound Tumbler Models

Serial Plate Rating	Terminal Block Connections Required	Rated Current*	Breaker Rating	Breaker Poles	Recommended Wire Size
208-230V/60Hz/3ph	L1, L2, L3 and ground	7.7	15 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
380-415V/50Hz/3ph	L1, L2, L3 and ground	3.8	10 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
380V/60Hz/3ph	L1, L2, L3 and ground	4.1	10 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
440V/60Hz/3ph	L1, L2, L3 and ground	3.8	10 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
460-480V/60Hz/3ph	L1, L2, L3 and ground	3.9	10 Amps	3	14 AWG (2.08 mm <sup>2</sup> )

\* Current ratings vary slightly depending on model; refer to serial plate.

### For 170 Pound Tumbler Models

Serial Plate Rating	Terminal Block Connections Required	Rated Current*	Breaker Rating	Breaker Poles	Recommended Wire Size
208-230V/60Hz/3ph	L1, L2, L3 and ground	13.5	20 Amps	3	12 AWG (3.31 mm <sup>2</sup> )
380-415V/50Hz/3ph	L1, L2, L3 and ground	6.9	15 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
380V/60Hz/3ph	L1, L2, L3 and ground	6.6	15 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
440V/60Hz/3ph	L1, L2, L3 and ground	6.4	15 Amps	3	14 AWG (2.08 mm <sup>2</sup> )
460-480V/60Hz/3ph	L1, L2, L3 and ground	6.7	15 Amps	3	14 AWG (2.08 mm <sup>2</sup> )

\* Current ratings vary slightly depending on model; refer to serial plate.

Table 5