

Inlet filters remove 99% of air-borne dirt to help keep blowers and combustion systems clean and operating efficiently.

Two styles are available:

An oil-wetted **metal** screen that can be cleaned and reused indefinitely.

A **paper** element that normally can be reused 3-6 times, then is thrown away and replaced.

2923 assemblies allow field conversion from screen to paper style, or vice versa.

### BENEFITS OF CLEAN AIR

Today's precision burner orifices require clean combustion air.

Certain kinds of work in a furnace or kiln may be defaced or otherwise damaged by dirt coming through burners and depositing on the product.

Some dirt tends to collect on blower impellers, imbalancing them and causing blower damage, noise, and inefficiency.

Costs of filter and maintaining it are small compared to costs associated with dirt build-up in combustion air piping and manifolds, as well in the burners themselves:

Burner capacity may be reduced.

Burner efficiency--particularly air/fuel ratio--is likely to be affected adversely.

Dismantling large pipe is expensive and time-consuming (especially harmful if it necessitates unscheduled furnace shutdown), but it may be necessary to remove accumulated dirt.

### INSPECTION AND MAINTENANCE

To maintain its low pressure loss rating--less than 0.25 psi at maximum flow--filter element should be inspected regularly, as frequently as ambient conditions dictate. When dirty, elements are cleaned as described below. Do not attempt to clean any filter while it is mounted on blower.

Keeping a spare element on hand is recommended to avoid running the blower without filter while element is being cleaned.

#### CYLINDRICAL METAL SCREENS (add suffix W to filter designation)

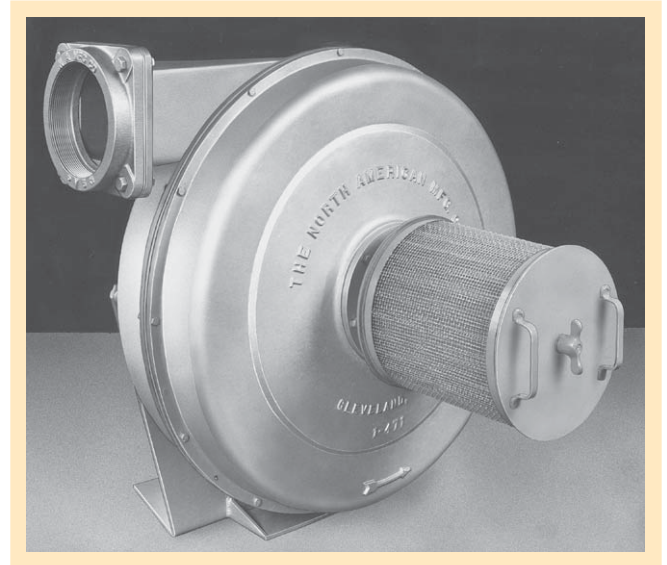
Unscrew wing nuts and remove screen element. Wash in kerosene or any commercial cleaning solution such as Oakite and water. Allow to dry thoroughly; drying can be expedited by carefully blowing compressed air through element. Immerse element in engine oil, S.A.E. 30 to 50 viscosity. Drain excess oil, and reassemble element onto blower inlet. **WARNING: Do not use gasoline to clean element—doing so could cause a gasoline vapor explosion in air piping.**

#### CYLINDRICAL PAPER ELEMENTS (add suffix T to filter designation)

Three alternate methods of cleaning:

1. "Reverse flush" with a stream of compressed air reduced to less than 30 psi, with effective personal protection equipment.
2. "Reverse flush" with a stream of clean, clear water (40 psi or less). Allow filter to air dry.
3. Filter can be submerged and gently agitated in a solution of lukewarm water (120 F or less) and a non-sudsing household detergent. Then rinse with clear water; shake the filter gently to remove excess water and allow it to air dry.

With proper care, an element can usually be cleaned 3 to 6 times. Be sure to inspect the element for damage after each cleaning.



Blower Designation	Filter Designation	Dimensions in inches			Approximate weight in lb <sup>Ⓞ</sup>
		E <sup>Ⓛ</sup>	N <sup>Ⓢ</sup>	R	
2304-11/1—3	2923-8-11A	12 <sup>7</sup> / <sub>8</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2304-44/1—10	2923-30-44A	44 <sup>1</sup> / <sub>4</sub>	16	30 <sup>5</sup> / <sub>8</sub>	218
2308-11/3—3	2923-8-11A	15	3	8 <sup>5</sup> / <sub>8</sub>	16
2308-14/1—5, .75, 1	2923-8-14A	13 <sup>1</sup> / <sub>2</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2308-17/1—1	2923-8-17A	14 <sup>5</sup> / <sub>8</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2308-17/1—1.5	2923-10-17A	17 <sup>1</sup> / <sub>4</sub>	4	10 <sup>5</sup> / <sub>8</sub>	21
2308-24/1—2	2923-10-24A	19	6	10 <sup>5</sup> / <sub>8</sub>	24
2308-24/1—3	2923-12-24A	21	6	12 <sup>5</sup> / <sub>8</sub>	32
2308-31/1—5, 7.5	2923-18-31A	28	8	18 <sup>5</sup> / <sub>8</sub>	73
2308-21/1—10	2923-22-21A	32 <sup>3</sup> / <sub>4</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115
2308-44/1—10, 15	2923-30-44A	44 <sup>1</sup> / <sub>4</sub>	16	30 <sup>5</sup> / <sub>8</sub>	218
2408-D—5, 7.5	2923-18-D	24 <sup>1</sup> / <sub>4</sub>	10	18 <sup>5</sup> / <sub>8</sub>	50
2408-F—10	2923-22-F	27 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	80
2408-F—15, 20	2923-22.5-F	33 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	88
2310-11/4—5	2923-8-11A	16 <sup>1</sup> / <sub>4</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2310-19/1—.75, 1	2923-8-19A	14 <sup>1</sup> / <sub>4</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2310-19/1—1.5	2923-8-19B	14 <sup>3</sup> / <sub>4</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2310-19/1—2	2923-10-19A	17 <sup>3</sup> / <sub>8</sub>	4	10 <sup>5</sup> / <sub>8</sub>	21
2310-26/1—3	2923-10-26A	18 <sup>3</sup> / <sub>4</sub>	6	10 <sup>5</sup> / <sub>8</sub>	24
2310-26/1—5	2923-12-26A	20 <sup>3</sup> / <sub>4</sub>	6	12 <sup>5</sup> / <sub>8</sub>	32
2310-35/1—7.5	2923-18-35A	27 <sup>1</sup> / <sub>2</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2310-21/1—10	2923-22-21A	32 <sup>3</sup> / <sub>4</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115
2312-11/4—5	2923-8-11A	16 <sup>1</sup> / <sub>4</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2312-19/1—1	2923-8-19A	14 <sup>1</sup> / <sub>4</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2312-19/1—1.5, 2	2923-8-19B	14 <sup>3</sup> / <sub>4</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2312-26/1—3	2923-10-26A	18 <sup>3</sup> / <sub>4</sub>	6	10 <sup>5</sup> / <sub>8</sub>	24
2312-26/1—5	2923-14-26A	23	6	14 <sup>5</sup> / <sub>8</sub>	49
2312-35/1—7.5, 10	2923-18-35A	27 <sup>1</sup> / <sub>2</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2312-21/1—15	2923-22-21B	40 <sup>3</sup> / <sub>4</sub>	14	22 <sup>5</sup> / <sub>8</sub>	158
2312-41/1—20, 25	2923-30-41A	49 <sup>3</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2412-D—7.5, 10	2923-18-D	24 <sup>1</sup> / <sub>4</sub>	10	18 <sup>5</sup> / <sub>8</sub>	50
2412-F—10	2923-18-F	24 <sup>1</sup> / <sub>4</sub>	12	18 <sup>5</sup> / <sub>8</sub>	50
2412-F—15	2923-22-F	27 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	80
2412-F—20	2923-22.5-F	33 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	88
2316-14/2—1, 1.5	2923-8-14A	16 <sup>7</sup> / <sub>8</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2316-17/2—1.5, 2	2923-8-17B	18	4	8 <sup>5</sup> / <sub>8</sub>	16
2316-19/1—2	2923-8-19B	17 <sup>3</sup> / <sub>8</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2316-19/1—3	2923-10-19A	17 <sup>1</sup> / <sub>8</sub>	4	10 <sup>5</sup> / <sub>8</sub>	21
2316-26/1—2	2923-8-26A	16 <sup>1</sup> / <sub>8</sub>	6	8 <sup>5</sup> / <sub>8</sub>	19
2316-17/2—3	2923-10-17A	20 <sup>5</sup> / <sub>8</sub>	4	10 <sup>5</sup> / <sub>8</sub>	21
2316-24/2—3, 5	2923-10-24A	22 <sup>1</sup> / <sub>4</sub>	6	10 <sup>5</sup> / <sub>8</sub>	24
2316-26/1—5	2923-12-26A	20 <sup>3</sup> / <sub>4</sub>	6	12 <sup>5</sup> / <sub>8</sub>	32
2316-28/1—5, 7.5	2923-14-28A	24 <sup>5</sup> / <sub>8</sub>	8	14 <sup>5</sup> / <sub>8</sub>	57
2316-26/1—7.5	2923-14-26A	23	6	14 <sup>5</sup> / <sub>8</sub>	49
2316-31/2—7.5	2923-14-31A	28 <sup>1</sup> / <sub>2</sub>	8	14 <sup>5</sup> / <sub>8</sub>	57
2316-31/2—10	2923-18-31A	32 <sup>5</sup> / <sub>8</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2316-35/1—10, 15	2923-18-35B	28 <sup>7</sup> / <sub>8</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2316-21/1—15, 20	2923-22-21A	32 <sup>5</sup> / <sub>8</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115
2316-33/1—25	2923-22.5-33A	40 <sup>1</sup> / <sub>2</sub>	12	22 <sup>5</sup> / <sub>8</sub>	205
2316-33/1—30	2923-30-33A	42 <sup>1</sup> / <sub>2</sub>	12	30 <sup>5</sup> / <sub>8</sub>	260
2316-41/1—20, 25, 30	2923-30-41A	49 <sup>3</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284

Blower Designation	Filter Designation	Dimensions in inches			Approximate weight in lb <sup>②</sup>
		E <sup>①</sup>	N <sup>③</sup>	R	
2416-D—7.5, 10	2923-18-D	24 <sup>1</sup> / <sub>4</sub>	10	18 <sup>5</sup> / <sub>8</sub>	50
2416-F—15, 20	2923-22-F	27 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	80
2416-F—25, 30	2923-22.5-F	33 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	88
2320-19/2—1.5	2923-8-19A	18 <sup>3</sup> / <sub>8</sub>	3	8 <sup>5</sup> / <sub>8</sub>	16
2320-19/2—2, 3	2923-8-19B	18 <sup>7</sup> / <sub>8</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2320-26/2—5	2923-10-26A	21 <sup>1</sup> / <sub>8</sub>	6	10 <sup>5</sup> / <sub>8</sub>	24
2320-26/2—7.5	2923-12-26A	23 <sup>1</sup> / <sub>8</sub>	6	12 <sup>5</sup> / <sub>8</sub>	32
2320-35/1—10	2923-14-35B	24 <sup>5</sup> / <sub>8</sub>	8	14 <sup>5</sup> / <sub>8</sub>	57
2320-35/2—10	2923-14-35A	28	8	14 <sup>5</sup> / <sub>8</sub>	57
2320-35/2—15	2923-18-35A	32 <sup>1</sup> / <sub>8</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2320-35/1—15	2923-18-35B	28 <sup>3</sup> / <sub>4</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2320-21/1—15	2923-18-21A	28 <sup>5</sup> / <sub>8</sub>	10	18 <sup>5</sup> / <sub>8</sub>	94
2320-21/1—20	2923-22-21A	32 <sup>5</sup> / <sub>8</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115
2320-33/1—25, 30	2923-22.5-33A	40 <sup>1</sup> / <sub>2</sub>	12	22 <sup>5</sup> / <sub>8</sub>	205
2320-33/1—40	2923-30-33A	42 <sup>1</sup> / <sub>2</sub>	12	30 <sup>5</sup> / <sub>8</sub>	260
2320-41/1—25, 30, 40	2923-30-41A	49 <sup>3</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2420-F—15	2923-18-F	24 <sup>1</sup> / <sub>4</sub>	12	18 <sup>5</sup> / <sub>8</sub>	50
2420-F—20, 25	2923-22-F	27 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	80
2420-F—30	2923-22.5-F	33 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	88
2324-14/3—1.5, 2	2923-8-14A	20	3	8 <sup>5</sup> / <sub>8</sub>	16
2324-19/2—3	2923-8-19B	19 <sup>1</sup> / <sub>8</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2324-26/2—5	2923-10-26A	21 <sup>1</sup> / <sub>8</sub>	6	10 <sup>5</sup> / <sub>8</sub>	24
2324-26/2—7.5	2923-12-26A	23 <sup>1</sup> / <sub>8</sub>	6	12 <sup>5</sup> / <sub>8</sub>	32
2324-35/2—10	2923-14-35A	28	8	14 <sup>5</sup> / <sub>8</sub>	57
2324-35/2—15	2923-18-35A	32 <sup>1</sup> / <sub>8</sub>	8	18 <sup>5</sup> / <sub>8</sub>	73
2324-21/1—20	2923-18-21A	28 <sup>3</sup> / <sub>8</sub>	10	18 <sup>5</sup> / <sub>8</sub>	94
2324-33/1—25, 30	2923-22-33A	34 <sup>1</sup> / <sub>2</sub>	12	22 <sup>5</sup> / <sub>8</sub>	147
2324-41/1—30, 40	2923-30-41A	49 <sup>3</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2324-33/1—40	2923-30-33A	42 <sup>1</sup> / <sub>2</sub>	12	30 <sup>5</sup> / <sub>8</sub>	260
2324-41/1—50	2923-30-41A	49 <sup>3</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2424-F—20	2923-18-F	24 <sup>1</sup> / <sub>4</sub>	12	18 <sup>5</sup> / <sub>8</sub>	50
2424-F—25, 30	2923-22-F	27 <sup>3</sup> / <sub>4</sub>	12	22 <sup>5</sup> / <sub>8</sub>	80
2332-19/3—3, 5	2923-8-19B	22 <sup>3</sup> / <sub>4</sub>	4	8 <sup>5</sup> / <sub>8</sub>	16
2332-28/2—7.5, 10, 15	2923-14-28A	29 <sup>1</sup> / <sub>2</sub>	8	14 <sup>5</sup> / <sub>8</sub>	57
2332-21/2—20, 25, 30	2923-18-21A	33 <sup>1</sup> / <sub>8</sub>	10	18 <sup>5</sup> / <sub>8</sub>	94
2332-21/2—40	2923-22-21A	37 <sup>1</sup> / <sub>8</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115
2332-33/2—50	2923-22.5-33A	46 <sup>1</sup> / <sub>8</sub>	12	22 <sup>5</sup> / <sub>8</sub>	205
2332-33/2—60	2923-30-33A	48 <sup>1</sup> / <sub>8</sub>	12	30 <sup>5</sup> / <sub>8</sub>	260
2332-41/2—75	2923-30-41A	60 <sup>1</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2338-41/2—75	2923-30-41A	60 <sup>1</sup> / <sub>8</sub>	16	30 <sup>5</sup> / <sub>8</sub>	284
2344-28/3—15, 20	2923-14-28A	35	8	14 <sup>5</sup> / <sub>8</sub>	57
2344-21/2—30, 40	2923-18-21A	35 <sup>3</sup> / <sub>4</sub>	10	18 <sup>5</sup> / <sub>8</sub>	94
2344-21/2—50	2923-22-21A	39 <sup>3</sup> / <sub>4</sub>	10	22 <sup>5</sup> / <sub>8</sub>	115

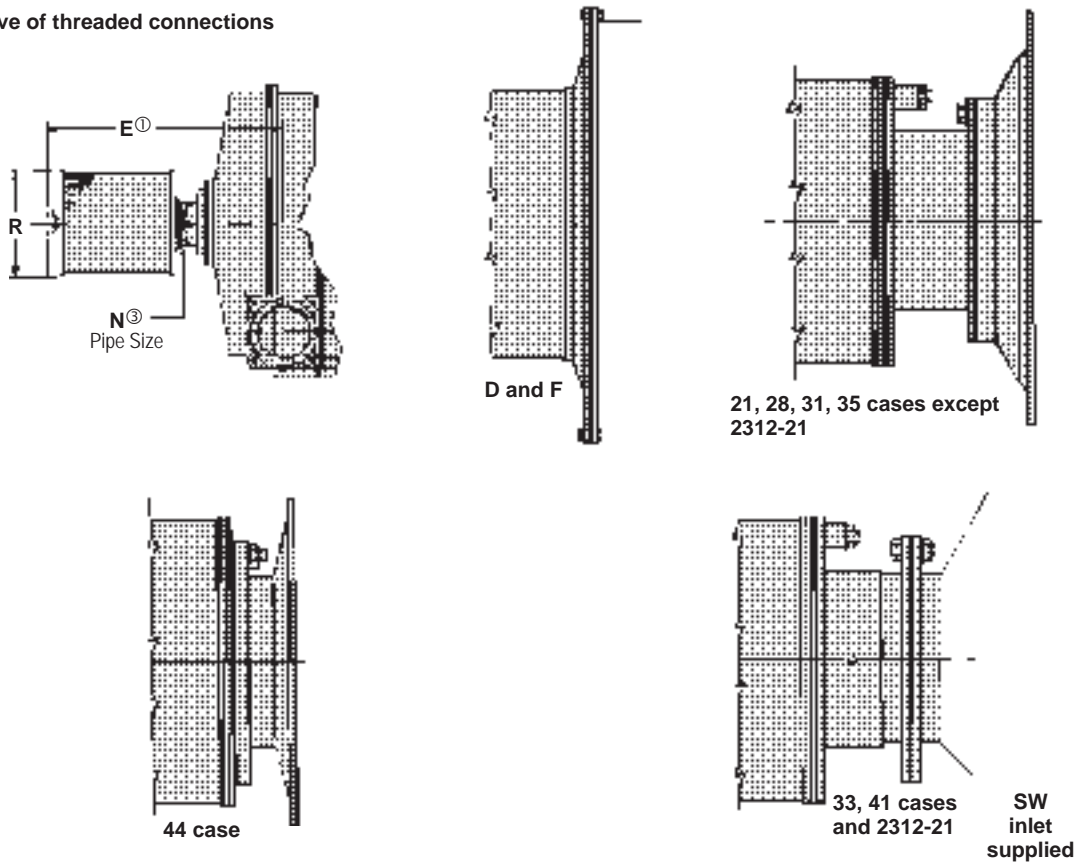
**See Sheet 2923-1 for 50 hertz Direct Drive Blowers.**

① When installing blower, allow sufficient space beyond filter for removal for cleaning.

② Approximate weight includes filter and flange.

③ Nominal pipe size of filter adapter. 6" size and smaller are threaded.

Representative of threaded connections



Screen Element



Base with Stem



Assembled Filter

Filter size	Element designation for /W	Element designation for /T	Capacity cfm	Element Dimensions (inches)		
				OD	ID	Height
8	R260-2160	R260-2900	400	8 <sup>1</sup> / <sub>8</sub>	4 <sup>15</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>8</sub>
10	R260-2240	R260-2910	700	10 <sup>1</sup> / <sub>8</sub>	6 <sup>15</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>8</sub>
12	R260-2300	R260-2920	1000	12 <sup>1</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	12 <sup>1</sup> / <sub>8</sub>
14	R260-2360	R260-2930	1350	14 <sup>1</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>8</sub>
18	R260-2420	R260-2940	2250	18 <sup>1</sup> / <sub>8</sub>	12 <sup>15</sup> / <sub>16</sub>	18 <sup>1</sup> / <sub>8</sub>
22	R260-2500	R260-2950	3250	22 <sup>1</sup> / <sub>8</sub>	16 <sup>15</sup> / <sub>16</sub>	22 <sup>1</sup> / <sub>8</sub>
22.5	R260-2580	R260-2960	4000	22 <sup>1</sup> / <sub>8</sub>	16 <sup>15</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>8</sub>
30	R260-2640	R260-2970	6000	30 <sup>1</sup> / <sub>8</sub>	25 <sup>3</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>8</sub>

- ① When installing blower, allow sufficient space beyond filter for removal for cleaning.
- ② Approximate weight includes filter and flange.
- ③ Nominal pipe size of filter adapter. 6" size and smaller are threaded.
- ④ 2400-D Blower. No adapter required.
- ⑤ 2400-F Blower. No adapter required.
- ⑥ No adapter required.

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of a combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American urges compliance with National Safety Standards and insurance Underwriters recommendations, and care in operation.

Fives North American Combustion, Inc., 4455 East 71st Street, Cleveland, OH 44105 USA, Phone 216.271.6000  
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