

# Ducon

## DUST CONTROL EQUIPMENT

## DUCLONES® TYPE SD

### EXCLUSIVE DESIGN FEATURES ASSURE:

- HIGH COLLECTION EFFICIENCY
- LONG SERVICE LIFE
- LOW OPERATING AND MAINTENANCE COSTS

In spray drying, rotary drying, air conveying, catalyst recovery and other dry dust applications Type SD Duclones have proved their outstanding performance. Maximum recovery at minimum cost is assured through these 6 unique design and construction features:

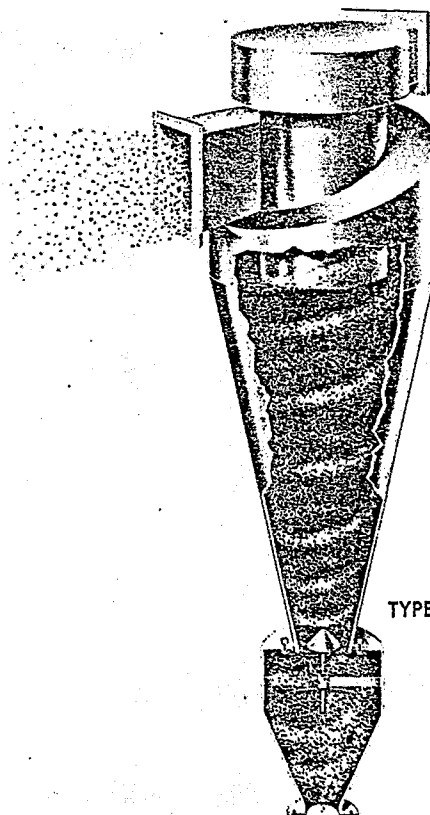
- Small diameter provides higher efficiency.
- Helical roof prevents turbulence and eliminates need for internal devices to reduce eddy currents.
- Steep Cone improves dust separation.
- Vortex Shield prevents re-entrainment—controls the point of formation of upward gas vortex so it will not converge with downward dust vortex.
- Dust Trap assures efficient dust removal—acts as expansion chamber, reduces spiralling dust velocity and promotes continuous free discharge.
- Scroll Outlet provides tangential, low resistance gas outlet.

### SPECIAL MATERIALS:

Any condition of temperature, pressure, erosion or corrosion can be met with special construction materials. Type SD Duclones are available in stainless steel, alloy steels, ceramic lined and other materials.

### MULTIPLE UNIT DUCLONES:

Duclones may be used in multiple units to gain efficiency where large volumes of gas are to be handled. Multiple units are also advantageous in reducing the overall height of the collection system.



TYPE-SD CYCLONE

### APPLICATIONS:

Some of the materials and processes for which Type SD Duclones are highly recommended include:

MATERIALS	PROCESSES
Abrasives	Spray Drying
Catalysts	Rotary Drying
Chemicals	Crushing
Dehydrated Foods	Sintering
Fertilizers	Fluid Bed
Foundry Dusts	Air Conveying
Grains	Calcining
Metal Powders	Cooling
Ore Dusts	Drilling
Stone & Aggregate	Packaging
Wall Board	Milling
Plastics	Mining
Coal	Grinding
Flyash	Power Plant
Cement	Reduction

## TYPE SD DUCLONES® OFFER A WIDE SELECTION OF SIZES AND CAPACITIES

In single or multiple units there is a type SD Duclone available to meet the collection requirements of a wide variety of dry dust applications. This bulletin presents detailed dimensional data on single, twin and quadruple units only. Larger groups can be supplied to meet other requirements.

In selecting a Duclone dust collector there are generally three operating requirements that must be met: (a) sufficient capacity, (b) a minimum allowable efficiency, and (c) a maximum allowable pressure drop. For a given inlet velocity the capacity and pressure drop are functions of the size and design characteristics of the Duclone only, whereas efficiency is also affected by many other factors—dust particle size, shape and density, dust loading, gas properties, etc.

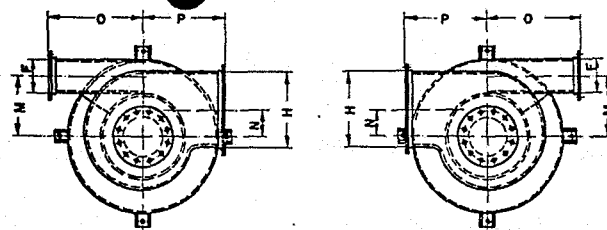
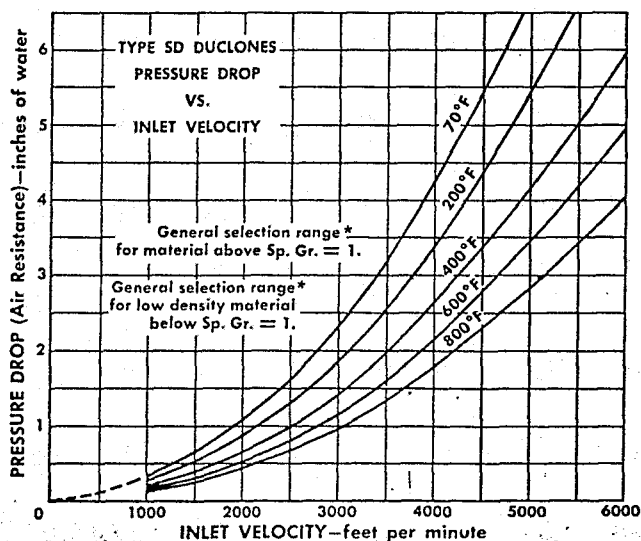
The optimum selection is the one which will most economically meet the necessary requirements with a satisfactory factor of safety. In some cases other considerations, such as space, power, etc. will influence the final selection.

Because of the many variable affecting efficiency the experience and laboratory facilities of the equipment manufacturer should be sought in the selection of cyclone dust collectors. The best procedure is to submit samples of dust to Ducon for analysis and test. From the test results and from detailed specifications on the required capacity, efficiency and pressure drop, Ducon engineers can recommend several units or multiples. The final selection can be made after considering other factors, such as cost, space requirements, etc.

Preliminary selection of Type SD Duclones can be made from the pressure drop curve, below. Knowing the allowable pressure drop and operating temperature one can readily determine the required inlet velocity. Dividing the required capacity by the inlet velocity gives the minimum inlet area of the Duclone. The accompanying charts list the inlet areas of each size Duclone, with dimensional details.

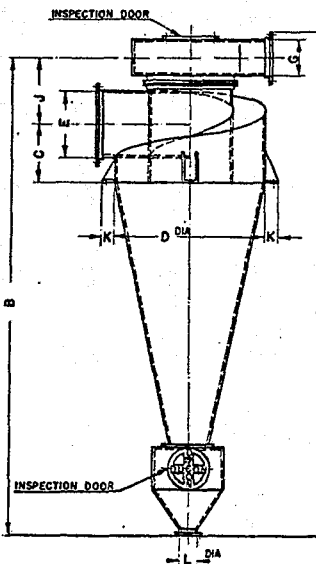
**EXAMPLE:** Allowable Pressure Drop . . . . . 2.5 inches of water  
 Operating Temperature . . . . . 70° F  
 Inlet Velocity, from curve . . . . . 3300 ft/min.  
 Required Capacity (known) . . . . . 5000 cu ft/min.  
 Required inlet area =  $\frac{\text{cap'y}}{\text{inlet vel.}} = \frac{5000}{3300} = 1.52 \text{ sq. ft.}$

A size 12 single Duclone would be necessary; for higher efficiency a size 2-9 twin Duclone; for exceptional efficiency a size 4-5 quadruple Duclone. In general practice final selection would be based on laboratory determinations of inlet velocity and diameter required to give the desired efficiency. Pressure drop would be determined from the curves as above.



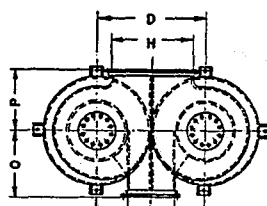
TOP VIEW  
CLOCKWISE ROTATION

TOP VIEW  
COUNTER CLOCKWISE ROTATION

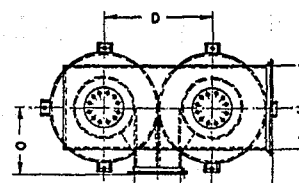


DUCLONE  
DUST COLLECTOR

ELEVATION

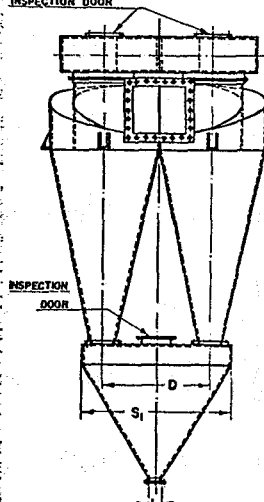


PLAN VIEW

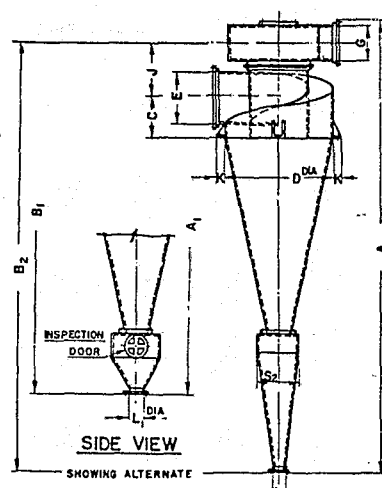


PLAN VIEW

SHOWING ALTERNATE CLEAN AIR DISCHARGE



ELEVATION



SIDE VIEW

SHOWING ALTERNATE INDIVIDUAL DUST DISCHARGES

SIDE VIEW

TWIN TYPE SD  
DUCLONE DUST COLLECTOR

# DIMENSION CHART

SIZE	INLET AREA SQ. FT.	GAUGE NO. *	A	B	C	D DIA.	E	F	G	H	J	K	L DIA.	M	N	O	P	SHIP. WTS. LBS.
1	0.10	14	4'- 9/4"	4'- 6 1/4"	6 1/2	16	5	3	3 1/2	5	8 1/2	2 1/2	4	6 1/2	4 1/2	12	10	115
2	0.14	14	5'- 3 1/4"	5'- 0"	6	18	6	3 1/2	4	6	9	2 1/2	4	7 1/4	5	13	11	130
3	0.21	14	6'- 3 1/4"	5'- 11 1/2"	10	20	8	4	5	8	10 1/2	3	5	8	5	14	12	160
4	0.28	14	6'- 6 1/2"	6'- 2 1/2"	9 1/4	22	8 1/2	5	5	10	10 1/2	3	5	8 1/2	5	15	13	180
5	0.39	12	7'- 3 1/2"	6'- 11"	10	24	12	5	6	11	13	3	6	9 1/2	5 1/2	16	14	290
6	0.48	12	8'- 1 1/2"	7'- 9"	12	28	12	6	6	14	13	3	6	11	6 1/2	18	16	360
7	0.56	12	8'- 9 1/2"	8'- 5"	13 1/2	30	13	6 1/2	6	16	13 1/2	4	6	11 1/4	7	20	17	420
8	0.74	12	9'- 9 1/2"	9'- 4"	13	34	16	7	8	16	16	4	6	13 1/2	7	22	19	510
9	0.84	10	10'- 5 1/2"	10'- 0"	15 1/2	36	17	7 1/2	8	18	16 1/2	4	6	14 1/4	8	23	20	720
10	1.02	10	11'- 5 1/2"	10'- 11"	15	40	18	8 1/2	10	18	19	4	6	15 1/4	8	2'- 2"	22	885
11	1.33	10	12'- 9 1/2"	12'- 2"	19 1/2	44	21	9 1/2	12	20	21 1/2	4	6	17 1/4	8 1/2	2'- 4"	2'- 0"	1000
12	1.62	10	13'- 7 1/2"	13'- 0"	19	50	22	11	12	2'- 0"	22	4	6	19 1/2	10 1/2	2'- 7"	2'- 3"	1250
13	2.15	10	14'- 10"	14'- 1"	19 1/2	54	2'- 1"	12	14	2'- 0"	2'- 1 1/2"	4	8	21	10 1/2	2'- 9"	2'- 5"	1410
14	2.45	10	16'- 4"	15'- 6 1/2"	22	60	2'- 4"	13	15	2'- 2"	2'- 2 1/2"	4	8	23 1/2	11	3'- 0"	2'- 10"	1760
15	2.84	10	17'- 8"	16'- 10"	21	64	2'- 6"	14	16	2'- 6"	2'- 4"	5	8	2'- 1"	12 1/2	3'- 2"	2'- 10"	1970
16	3.46	10	19'- 4"	18'- 5"	2'- 1"	68	2'- 10"	15	18	2'- 8"	2'- 7"	5	8	2'- 2 1/2"	13	3'- 4"	3'- 0"	2180
17	3.86	3/16"	20'- 10"	19'- 11"	2'- 0"	72	3'- 0"	16	18	3'- 0"	2'- 8"	5	8	2'- 4"	14	3'- 6"	3'- 2"	3000
18	4.35	3/16"	21'- 10"	20'- 10"	2'- 5"	78	3'- 2"	17	20	3'- 2"	2'- 10"	6	8	2'- 6 1/2"	14	3'- 9"	3'- 5"	3550
19	5.00	3/16"	23'- 4"	22'- 4"	2'- 7"	82	3'- 4"	18 1/2	20	3'- 6"	2'- 11"	6	8	2'- 7 1/2"	15	4'- 0"	3'- 8"	4000

\*Gauges shown are standard for carbon steel. Other gauges and materials furnished upon request.

All dimensions are in inches unless otherwise noted.

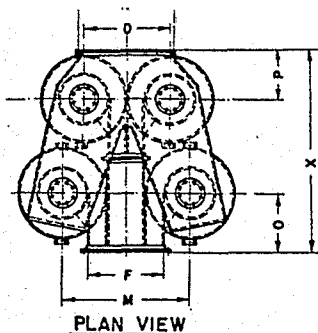
A discharge mechanism is required on all Duclones.

Please specify direction of rotation on single Duclone.

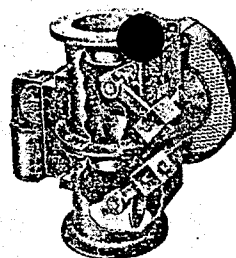
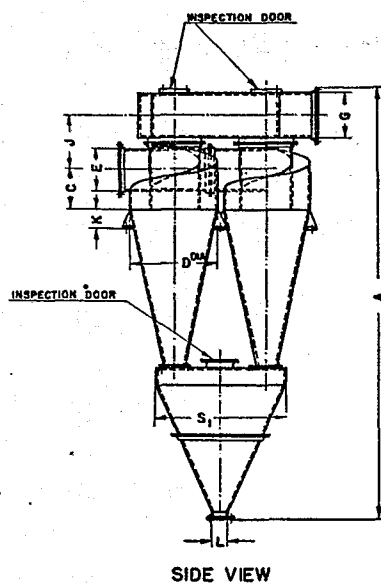
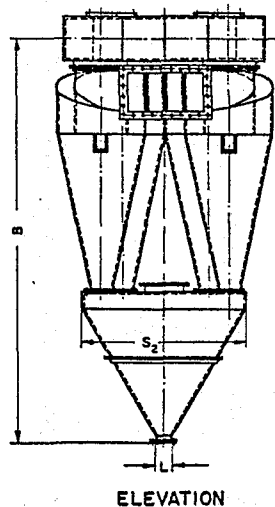
# DIMENSION CHART

SIZE	INLET AREA SQ. FT.	GAUGE NO. *	A <sub>1</sub>	A <sub>2</sub>	B <sub>1</sub>	B <sub>2</sub>	C	D DIA.	E	F	G	H	J	K	DIA. L <sub>1</sub> L <sub>2</sub>	O	P	S <sub>1</sub>	S <sub>2</sub>	SHIP. WTS. LBS.
2- 1	0.19	14	4'- 9/4"	5'- 8 1/4"	4'- 6 1/2"	5'- 5"	6 1/2	16	5	6	4	9	8 1/2	2 1/2	4 4	12	10	2'- 2"	10	260
2- 2	0.27	14	5'- 4 1/4"	6'- 3 1/4"	5'- 0 1/2"	5'- 11 1/2"	6	18	6	7	5	10	9 1/2	2 1/2	4 4	13	11	2'- 4"	10	300
2- 3	0.42	14	6'- 5 1/4"	7'- 7 1/4"	6'- 0 1/2"	7'- 2 1/2"	10	20	8	8	7	12	11 1/2	3	5 6	14	12	2'- 8"	12	350
2- 4	0.56	14	6'- 9 1/2"	8'- 2 1/2"	6'- 4"	7'- 9"	9 1/4	22	8 1/2	10	8	14	12 1/4	3	5 6	15	13	3'- 0"	14	400
2- 5	0.79	12	7'- 6 1/2"	9'- 0 1/2"	7'- 0 1/2"	8'- 6 1/2"	10	24	12	10	9	16	14 1/2	3	6 6	16	14	3'- 2"	14	600
2- 6	0.95	12	8'- 4 1/2"	10'- 2 1/2"	7'- 10 1/2"	9'- 8 1/2"	12	28	12	12	9	20	14 1/2	3	6 6	18	16	3'- 8"	16	820
2- 7	1.12	12	9'- 1 1/2"	11'- 0 1/2"	8'- 7"	10'- 6"	13 1/2	30	13	13	10	22	15 1/2	4	6 6	20	17	3'- 10"	16	940
2- 8	1.49	12	10'- 1 1/2"	12'- 0 1/2"	9'- 6"	11'- 5"	13	34	16	14	12	2'- 0"	18	4	6 8	22	19	4'- 4"	18	1150
2- 9	1.69	10	10'- 9 1/2"	12'- 10 1/2"	10'- 2"	12'- 3"	15 1/2	36	17	15	12	2'- 2"	18 1/2	4	6 8	23	20	4'- 6"	18	1650
2-10	2.04	10	11'- 8 1/2"	14'- 0 1/2"	11'- 0 1/2"	13'- 4 1/2"	15	40	18	17	13	2'- 4"	20 1/2	4	6 8	2'- 2"	22	4'- 10"	18	2000
2-11	2.66	10	13'- 0 1/2"	15'- 8 1/2"	12'- 3 1/2"	14'- 11 1/2"	19 1/2	44	21	19	15	2'- 8"	23	4	6 8	2'- 4"	2'- 0"	5'- 2"	18	2280
2-12	3.25	10	13'- 11 1/2"	17'- 0 1/2"	13'- 2"	16'- 3"	19	50	22	22	16	3'- 0"	2'- 0"	4	6 8	2'- 7"	2'- 3"	5'- 10"	20	2840
2-13	4.30	10	15'- 2"	18'- 5"	14'- 3"	17'- 6"	19 1/2	54	2'- 1"	2'	18	3'- 2"	2'- 2 1/2"	4	8 10	2'- 9"	2'- 5"	6'- 2"	20	3200
2-14	4.91	10	16'- 9"	20'- 9"	15'- 9"	19'- 9"	22	60	2'- 4"	2'- 2"	20	3'- 10"	2'- 3"	4	8 10	3'- 0"	2'- 8"	7'- 0"	2'- 0"	3990
2-15	5.68	10	18'- 1"	21'- 11"	17'- 0 1/2"	20'- 10 1/2"	21	64	2'- 6"	2'- 4"	21	4'- 2"	2'- 6 1/2"	5	8 10	3'- 2"	2'- 10"	7'- 4"	2'- 0"	4470
2-16	6.92	10	19'- 9"	23'- 10"	18'- 7 1/2"	22'- 8 1/2"	2'- 1"	68	2'- 10"	2'- 6"	23	4'- 6"	2'- 9 1/2"	5	8 10	3'- 4"	3'- 0"	7'- 10"	2'- 2"	4980
2-17	7.72	3/16"	21'- 4"	25'- 2"	20'- 2"	24'- 0"	2'- 0"	72	3'- 0"	2'- 8"	2'- 0"	4'- 10"	2'- 11"	5	8 12	3'- 6"	3'- 2"	8'- 2"	2'- 2"	7000
2-18	8.70	3/16"	22'- 3"	26'- 9"	21'- 0 1/2"	25'- 6 1/2"	2'- 5"	78	3'- 2"	2'- 10"	2'- 1"	5'- 2"	3'- 1 1/2"	6	8 12	3'- 9"	3'- 5"	8'- 10"	2'- 4"	8200
2-19	10.00	3/16"	23'- 11"	28'- 2"	22'- 7 1/2"	26'- 10 1/2"	2'- 6"	82	3'- 4"	3'- 1"	2'- 3"	5'- 6"	3'- 2 1/2"	6	8 12	4'- 0"	3'- 8"	9'- 2"	2'- 4"	9200

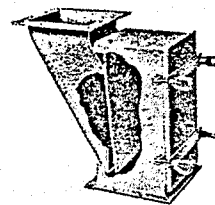
\*Gauges shown are standard for carbon steel. Other gauges and materials furnished upon request.



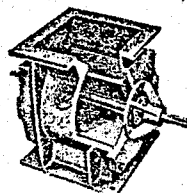
GROUP OF FOUR  
TYPE SD DUCLONE  
DUST COLLECTORS



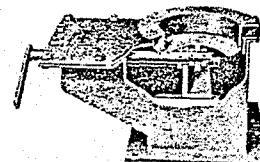
TWO-DOOR DISCHARGE GATE



TRICKLE VALVE  
(patented)



ROTARY DISCHARGE GATE



SLIDE GATE  
(patent pending)

## AUXILIARY EQUIPMENT

Ducon supplies four types of valves which will provide for free discharge of materials while maintaining a gas seal at the point of discharge . . . the Two-Door Discharge Gate, Rotary Gate, Slide Gate and Trickle Valve.

## DIMENSION CHART

SIZE	INLET AREA SQ. FT.	GAUGE NO. *	A	B	C	DIA. D	E	F	G	H	J	K	L	M	O	P	S <sub>1</sub>	S <sub>2</sub>	X	SHIP. WTS. LBS.
4-1	0.38	14	6'-3 1/4"	5'-11 1/2"	6 1/2"	16	5	12	5	14	9	4	4	22	12	10	2'-4"	2'-8"	3'-4"	560
4-2	0.54	14	6'-11 1/4"	6'-7"	6	18	6	14	6	16	10	4	4	2'-1"	13	11	2'-7"	3'-0"	3'-8"	640
4-3	0.84	14	8'-2 1/4"	7'-8 1/2"	10	20	8	16	9	18	12 1/2	4	5	2'-4"	14	12	2'-9"	3'-3"	4'-0"	760
4-4	1.12	14	8'-10 1/2"	8'-4"	9 1/2"	22	8 1/2	20	10	22	13 1/4	4	5	2'-8"	15	13	2'-11"	3'-7"	4'-4"	880
4-5	1.57	12	9'-10 1/2"	9'-3"	10	2'-0"	12	20	12	2'-0"	16	6	6	2'-10"	16	16	3'-3"	3'-11"	4'-10"	1,410
4-6	1.90	12	11'-2 1/2"	10'-6 1/2"	12	2'-4"	12	2'-0"	13	2'-2"	16 1/2	6	6	3'-4"	18	18	3'-8"	4'-6"	5'-6"	1,780
4-7	2.23	12	12'-3 1/2"	11'-7"	13 1/2	2'-6"	13	2'-2"	14	2'-4"	17 1/2	6	6	3'-7"	20	18	4'-0"	4'-11"	5'-10"	2,440
4-8	2.98	12	13'-6 1/2"	12'-9"	13	2'-10"	16	2'-4"	16	2'-8"	20	6	6	4'-0"	22	19	4'-6"	5'-6"	6'-5"	2,520
4-9	3.38	10	14'-4 1/2"	13'-6 1/2"	15 1/2	3'-0"	17	2'-6"	17	2'-10"	21	8	8	4'-3"	23	20	4'-8"	5'-9"	6'-9"	3,530
4-10	4.08	10	15'-7 1/2"	14'-8 1/2"	15	3'-4"	18	2'-10"	19	3'-2"	23 1/2	8	8	4'-9"	2'-2"	22	5'-0"	6'-3"	7'-6"	4,320
4-11	5.32	10	17'-5 1/2"	16'-5"	19 1/2	3'-8"	21	3'-2"	22	3'-8"	2'-2 1/2	8	8	5'-3"	2'-4"	2'-0"	5'-4"	6'-9"	8'-2"	4,930
4-12	6.50	10	19'-4 1/2"	18'-3"	19	4'-2"	22	3'-8"	2'-0"	4'-0"	2'-4"	8	8	6'-0"	2'-7"	2'-3"	6'-4"	8'-0"	9'-10"	6,130
4-13	8.60	10	20'-10"	19'-7"	19 1/2	4'-6"	2'-1"	4'-0"	2'-2"	4'-4"	2'-6 1/2	10	10	6'-6"	2'-9"	2'-5"	6'-8"	8'-6"	9'-10"	6,800
4-14	9.82	10	22'-11"	21'-7"	22	5'-0"	2'-4"	4'-4"	2'-4"	4'-8"	2'-9"	10	10	7'-2"	3'-0"	2'-8"	7'-2"	9'-2"	10'-10"	8,550
4-15	11.36	10	24'-10"	23'-4 1/2"	21	5'-4"	2'-6"	4'-8"	2'-7"	5'-2"	2'-11 1/2	10	10	7'-8"	3'-2"	2'-10"	7'-10"	10'-0"	11'-6"	9,600
4-16	13.84	10	27'-0"	25'-5"	25	5'-8"	2'-10"	5'-0"	2'-10"	5'-8"	3'-3"	10	10	8'-2"	3'-4"	3'-0"	8'-4"	10'-8"	12'-2"	10,700
4-17	15.45	3/16"	28'-8"	27'-0"	24	6'-0"	3'-0"	5'-4"	3'-0"	6'-0"	3'-5"	10	10	8'-8"	3'-6"	3'-2"	8'-8"	11'-2"	12'-10"	15,100
4-18	17.40	3/16"	30'-7"	28'-9 1/2"	29	6'-6"	3'-2"	5'-8"	3'-3"	6'-6"	3'-7 1/2	10	12	9'-4"	3'-9"	3'-5"	9'-6"	12'-4"	13'-10"	17,700
4-19	20.00	3/16"	32'-5"	30'-6 1/2"	31	6'-10"	3'-6"	6'-2"	3'-7"	6'-10"	3'-9 1/2	10	12	9'-11"	4'-0"	3'-8"	10'-0"	12'-11"	14'-8"	20,000

\*Gauges shown are standard for carbon steel. Other gauges and materials furnished upon request.



the name in Dust Control  
**Ducon**

COMPANY, INC.

147 EAST SECOND STREET • MINEOLA, L. I., NEW YORK

CYCLONES • CENTRIFUGAL WASH COLLECTORS • TUBULAR CLOTH FILTERS • DUST VALVES

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