

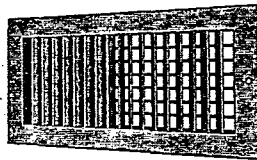
WATERLOO REGISTER COMPANY, INC.

"Since 1902"

P. O. Box 72

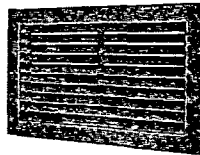
Waterloo, Iowa

WATERLOO offers a complete line of Air Diffusion Equipment designed particularly for commercial and industrial heating, ventilating and air conditioning



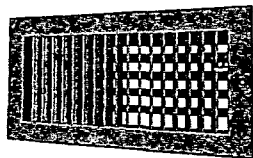
2V Supply Grille

Two sets of extruded aluminum louvers, each individually adjustable for four-way deflection at degree desired.



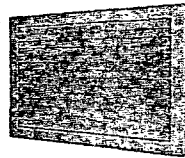
3H Return Air Grille

Fixed fins at 45 degrees of 0 degree deflection, in heavy gage frame, strengthened with adequately spaced support bars.



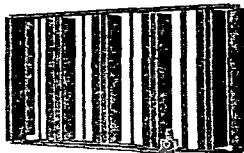
1VMH Supply Register

One set of adjustable louvers for easy control of air, right or left, with multi-shutter damper, horizontal blades. Ideally suited for residential installations because of narrow stack depth.



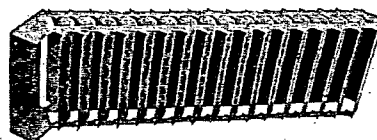
DV Door Ventilator

Inverted V-shaped fins are permanently affixed to channel frame providing rigidity and complete sight proofing. Provides 72 percent free area. Available flange both sides, one side or channel frame only.



OB Damper

Opposed Blade Volume Controller may be purchased as a separate unit or can be incorporated as integral part of all Waterloo grilles.



DUCTROL Air Volume Extractor

Volume controller and extractor adjusts from full open to full closed, to provide even distribution to entire grille surface. Completely assembled at the factory—ready to install on job.



Airline Grille

This product of all extruded aluminum construction features solid 1/4 in. face bars on 1/2 in. spacing. Available with or without dampers. Ideally suited for wall, sill or floor applications.

The complete Waterloo catalog is available upon request containing illustrations and engineering data on all products.

Representatives in Principal Cities of United States and Canada • Specialists in Low Loss Components For High Velocity Systems • Manufacturers of Prefabricated Metal Spiral "Lockseam" Pipe and Matched Fittings; Die-Stamped, Two-Piece "Laminar-Flo" 45 and 90 Degree Elbows; Sound Absorbers—For High Velocity Systems.

spiral pipe division

United

SHEET METAL COMPANY, INC.
COLUMBUS, OHIO STOKES, CALIFORNIA

SPIRAL "LOCKSEAM" DUCT-For High Velocity Systems

EXTREME RIGIDITY PERMITS INSTALLATION OF LONG LENGTHS WITHOUT BUCKLING.
AS FEW AS 9 JOINTS PER 100 FT.

SPECIFICATIONS

Standard lengths 12 ft (furnished to 20 ft on special order)
Diameters 3 in.-12 in. (1 in. increments)
Materials 12 in.-22 in. (2 in. increments)
Rust-resistant, zinc-coated steel

INSIDE SECTIONAL AREA, WEIGHT, GAGE, AND STRENGTH PROPERTIES OF UNITED SPIRAL PIPE

Nominal diameter (inches)	Exact ID (inches)	Weight (lb/ft)	Square feet	Hydrostatic Pressure to Seam Failure (PSI)	Internal Negative Pressure to Collapse (PSI)
3	2.954	8.9	.047	25	450
4	3.750	11.1	.077	25	350
5	4.018	13	.08	25	351
6	4.993	20	.136	25	210
8	6.008	35	.25	25	127
10	7.953	58	.43	25	76
12	9.077	81	.63	25	50
14	10.324	114	.94	25	34
16	11.600	150	1.27	25	25
18	12.926	194	1.79	25	18
20	14.294	244	2.40	25	13
22	15.703	302	3.14	25	10
24	17.154	366	3.96	25	8
26	18.644	436	4.86	25	6
28	20.172	512	5.84	25	5
30	21.738	594	6.90	25	4
32	23.342	681	8.04	25	3
34	24.984	774	9.26	25	2
36	26.664	872	10.56	25	2
38	28.382	976	11.94	25	2
40	30.138	1086	13.40	25	2
42	31.932	1202	14.94	25	2
44	33.764	1324	16.56	25	2
46	35.634	1452	18.26	25	2
48	37.542	1586	20.04	25	2
50	39.488	1726	21.90	25	2
52	41.472	1872	23.84	25	2
54	43.494	2024	25.86	25	2
56	45.554	2182	27.96	25	2
58	47.652	2346	30.14	25	2
60	49.788	2516	32.40	25	2
62	51.962	2692	34.74	25	2
64	54.174	2874	37.16	25	2
66	56.424	3062	39.66	25	2
68	58.712	3256	42.24	25	2
70	61.038	3456	44.90	25	2
72	63.402	3662	47.64	25	2
74	65.804	3874	50.46	25	2
76	68.244	4092	53.36	25	2
78	70.722	4316	56.34	25	2
80	73.238	4546	59.40	25	2
82	75.792	4782	62.54	25	2
84	78.384	5024	65.76	25	2
86	80.914	5272	69.06	25	2
88	83.482	5526	72.44	25	2
90	86.088	5786	75.90	25	2
92	88.732	6052	79.44	25	2
94	91.414	6324	83.06	25	2
96	94.134	6602	86.76	25	2
98	96.892	6886	90.54	25	2
100	99.688	7176	94.40	25	2

CONSTRUCTION

United Spiral "Lockseam" Pipe is made from continuous strips of premium grade sheet metal, rolled spirally by high production machinery. The method of manufacture makes a smooth interior surface, free of welded, soldered, or riveted seams, plus extreme rigidity through the spiral outside rib formed by the four-ply Lockseam. Seams are pressure tight.

ADVANTAGES OF SPIRAL "LOCKSEAM" DUCT OVER CONVENTIONAL SQUARE, RECTANGULAR OR ROUND GALVANIZED DUCT

- LIGHTER WEIGHT:** United's Spiral "Lockseam" Pipe is 20 percent lighter than conventional, galvanized round duct of equal strength; can be two gages lighter and still retain equal strength properties.
- GREATER STRENGTH:** Spiral construction, with United's Lockseam feature, imparts extreme rigidity which permits the installation of long lengths without buckling or sagging.
- READY TO INSTALL:** United Spiral Pipe is delivered ready to assemble into the system. Fittings are factory-engineered to eliminate job-site measuring, calculation, or modification.
- EASY STORAGE:** United Spiral Pipe can be stored with little hazard if delays prevent immediate installation. It need not be kept under cover. If storage space is available, the entire order for a large building may be placed at once.
- EASIER TO SEAL:** United Spiral round pipe is easier to seal at joints.
- CUSTOM LENGTHS:** Spiral "Lockseam" Pipe can be furnished in any specified length up to 20 ft. 12 ft lengths are standard.
- KNOWN COSTS—KNOWN QUANTITY**

SOUND ABSORBERS—FOR HIGH VELOCITY SYSTEMS

Construction Specifications:
Wire Screen
19 gage galvanized 1/2 in. mesh
Protective Cloth
Fireproof glass cloth
Absorbing Lining
Fireproof glass fiber absorbing media compressed to 3 in. thickness

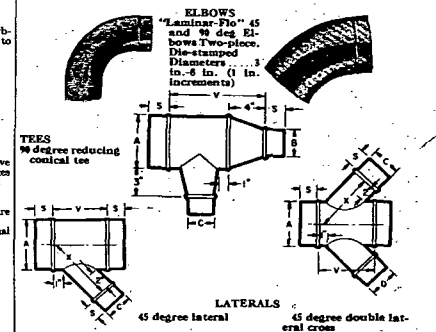
ACTUAL DB ATTENUATION PER FOOT, UNITED SOUND ABSORBERS

Duct Dia.	2	3	4	5	6	7
8"	3.83	5.85	7.05	7.15	6.77	5.87
10"	3.79	5.80	6.85	6.15	5.73	4.97
12"	2.88	4.37	5.30	4.35	5.00	4.25
14"	2.56	3.82	4.70	4.75	4.65	3.78
16"	2.30	3.60	4.23	4.30	4.09	3.63
18"	2.09	3.18	3.85	3.91	3.64	3.09
20"	1.85	2.72	3.32	3.36	3.23	2.84
22"	1.64	2.50	3.02	3.07	2.86	2.43
24"	1.44	2.19	2.65	2.69	2.50	2.12
26"	1.25	1.85	2.35	2.39	2.22	1.86
28"	1.15	1.76	2.11	2.15	2.00	1.70
30"	1.04	1.59	1.92	1.96	1.82	1.55
32"	.96	1.45	1.77	1.79	1.67	1.42
34"	.88	1.35	1.63	1.65	1.54	1.31
36"	.82	1.25	1.51	1.53	1.43	1.21
38"	.76	1.17	1.41	1.43	1.33	1.13
40"	.71	1.09	1.32	1.34	1.25	1.06
42"	.66	1.03	1.24	1.26	1.18	1.00
44"	.61	.975	1.18	1.19	1.11	.94
46"	.57	.92	1.11	1.12	1.05	.89
48"	.53	.87	1.06	1.07	1.00	.85
50"	.51	.83	1.01	1.02	.95	.81

For Complete Specifications, Capacity Ratings, Installation Instructions, write to United Sheet Metal Company, Inc., 144 Duval Ave., Columbus, O., for Engineering Data Catalog

MATCHED LOW LOSS FITTINGS

20 gage galvanized steel. Inspection and quality control of weld by Magnaflex equipment. Nine-step factory production control of size tolerance. Corrosion resistant continuous weld. Available for every diameter of spiral pipe. CONICAL AND ANGULAR TAKE-OFFS AS RECOMMENDED, PAGE 306 OF 1960 ASHRAE GUIDE



The above fittings are representative of the dozens of types of low loss fittings produced by United Sheet Metal Company. United is also a major producer of standard fittings, which are available for every diameter of round duct.