DURO ZONE

SUMMARY OF N.Y. TESTING LABS REPORT ON DURO ZONE DAMPERS

Velocity

All dampers worked properly at 2500 FPM

Most dampers worked properly up to 4500 FPM

Exceptions: 12x24 Multiblade failed at 3000 FPM
8x18 Multiblade failed at 4000 FPM

Pressure Drop

Pressure drop in inches of H_2O through damper ranged from a high of .08 (6x12 Multiblade Damper at 3000 FPM) to less than .01 (most dampers).

By Pass:

Multiblade dampers had bypass ranging from 3.2% (6x12 at 3000 FPM) to 13.3% (8x18 at 1400 FPM. Average *8.6%.

Multisize Dampers had bypass ranging from 5.3% (6x12 at 1500 FPM to 16.7% (12x24 at 3000 FPM). Average * 7.3%

Round Dampers had bypass ranging from 14.1% (6" at 850 FPM) to 1.7% (12" at 3000 FPM). Average * 6.4%

*Average figured by throwing out high and low figure.

Lab No: 90-87893

Date: October 26, 1990

NEW YORK TESTING LABORATORIES, INC.
CALL BOX 1021, 75 URBAN AVENUE, WESTBURY, L.I., N.Y. 11590 • (516) 334-7770 •

REPORT OF TESTS

Client — 90-87893 - Duro Dyne Corporation

Material — Ten (10) Dampers

Client's Order No. — 22517

Identification — See Data Sheets

Submitted for — R & D Testing

SCOPE:

The purpose of this test is to determine the pressure drop across the various duct-damper configurations and air flows with dampers at specified positions and at specified air velocities. It is also required to determine the damper tall point of operation.

PROCEDURE:

The air source was developed by the use of four (4) squirrel cage fans capable of an air flow of approximately fifty two hundred feet per minute (5200 FPM) through two fifteen and three quarter by eighteen and one quarter outlets (15-3/4" x 18-1/4") and exhausting through a single thirty nine & a half by sixteen (39-1/2" x 16") transition piece.

The pressure drop across the dampers was determined by utilizing a type B Oehling Instrument Co. Draft Gauge - LE No. 162. The temperature was monitored utilizing a thermo electric instrument ultramite - PS No. 1600.

The air velocity was determine by utilizing an Omega Portable Air Velocity Meter Model HH-617-Rental.

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PROCEDURE - cont'd.

The data sheets have been organized to treat each duct test run separately. The back pressure (AP) across the dampers was determined at three initial velocity levels, nominally at 3000 FPM, 1300 FPM and 850 FPM as a minimum level. For the single blade dampers, the AP values, flow values and by pass values were determine just for the open and closed positions. The above values for the multi-blade dampers also have values for the intermediate 1/3 & 2/3 positions. There are also comments on the operation of each damper. Stalls did not occur on the smaller dimensioned ducts, but did occur on the 18" diameter duct and larger.

REMARKS:

Comments for each test run are as follows:

6" Dia. Duct - Single Blade
Full travel of operation at 3000 FPM

12" Dia. Duct - Single Blade
Full travel of operation at 4500 FPM

6"x12" Duct - Single Blade
Full travel of operation at 4500 FPM

6"x12" Duct - Multiblade
Full travel of operation at 4500 FPM

18" Dia. Duct - Multiblade
Damper will operate through full travel at 4000 FPM and AP = 0.95" H_2O

8"x18" Duct - Single blade
Damper blade failed to open at 5000 FPM and AP = 0.99" H_2O

8"x18" Duct - Multiblade
Damper failed to open at 4000 FPM and AP = 0.95" H_2O

12"x24" Duct - Multiblade
Damper failed to open at 3000 FPM and AP = 0.80" H_2O
Damper did function properly at 2500 FPM and AP = 0.60" H_2O

12"x24" Duct - Single Blade
Damper operated properly up to 3200 FPM

14"x30" Duct - Multiblade
Damper failed to operate properly at 3000 FPM and AP = 0.85" H_2O
Failed to close at 1100 FPM and AP = 0.28" H_2O

AP = Back Pressure

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Lab No. 90-87893

CERTIFICATION AND SIGNATURES:

Test conducted by: _____
Juan Zaccarini

_____
George DeMott
Operations/Quality Manager

We certify that this report is a true report of results obtained from our tests of this material.

Respectfully submitted,

NEW YORK TESTING LABORATORIES, INC.

_____
Gerald J. Harvey, Managing Director

To:

Duro Dyne Corporation
120 Rt. 110
Farmingdale, N. Y. 11735
Attn: Mr. John Lyons

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NEW YORK TESTING LABORATORIES, INC.

Lab No. 90-87893

Duro Zone Duct Data Sheet

Duct Size: 6" Diameter - Area = 0.197 FT^2

Damper Configuration: Single

Q.C. No.: 6719

Temp.: 23.7°C

Sample Position	Down Stream Velocity Ft/Min.	Damper AP inch of H_2O	Flow CFM
Open	1350	0.02	266
Closed	125	0.18	25
By Pass	-	-	9.4%
Open	850	0.018	167.5
Closed	120	0.125	23.64
By Pass	-	-	14.1%

AP = Back Pressure