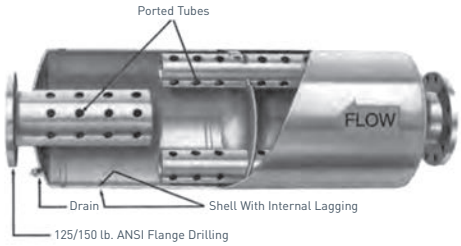
General Information

Rotary Positive Blowers

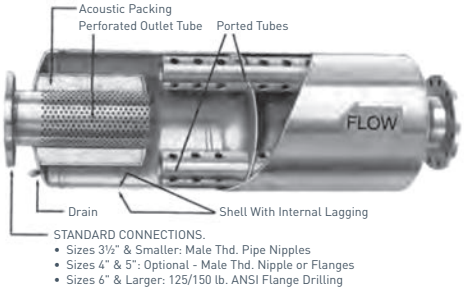
The silencers shown below are more fully described on the individual catalog pages. These units are designed specifically for use on Rotary Positive Blowers. There are fundamental similarities between blower silencers and other types, particularly reciprocating engine silencers, which also require a silencer design that provides effective pulse control as well as noise attenuation. However, blower silencers generally must be constructed more ruggedly to withstand prolonged exposure to severe pulsations produced by the blower. All silencers described are of standard with end-in, end-out design. Low or high side inlet and outlet connections are available and are described on the individual catalog pages.

TECHNICAL PRESENTATION



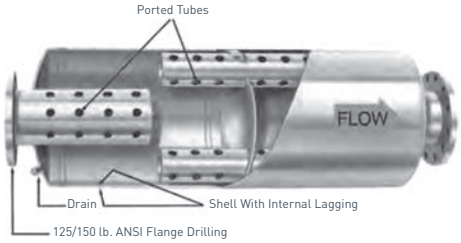
UCI SERIES INLET SILENCER

Chamber-type inlet silencer for use on subcritical PLV applications. Available in pipe sizes 8"–14". Smaller sizes use URB Series. Available with side connections and mounting brackets.



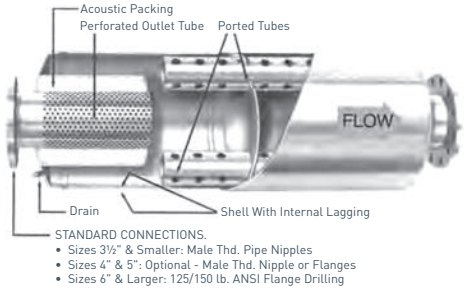
RIS SERIES INLET SILENCER

Combination chamber-absorptive type inlet silencer for critical PLV applications. Available in pipe sizes 2"–16". Low or high side outlet and mounting brackets available on most sizes.



URB SERIES (UP TO 8")
URD SERIES (8"-14")
DISCHARGE SILENCER

Chamber-type discharge silencer for use on sub-critical PLV applications. Available in pipe sizes 8"–14". (Smaller sizes use URB Series.) Low, high, or opposed side connections and mounting brackets available.



SD SERIES
RD SERIES
DISCHARGE SILENCERS

Combination chamber-absorptive type discharge silencers for critical PLV applications. Available in pipe sizes 2"–14". Low, high, or opposed side connections and mounting brackets available on most sizes.

ACCESSORIES, SPECIAL FEATURES

- Mounting Brackets
- Inspection Openings
- Pressure Vessel Construction
- Oversize Flanges
- Special Finishes
- Special Materials

Application, Capacity, Pressure Drop Data

SILENCER RECOMMENDATIONS

As mentioned on page 8 pitch line velocity (PLV) is the speed of the timing gear in feet per minute (ft/min). For purposes of silencer application PLV is considered "critical" at 3,300 ft/min for intake and 2,700 ft/min for discharge.

Table 1 gives transition speeds in RPM. Blowers running at these speeds or greater will have critical PLV. Operating speeds below transition will be in the sub-critical range. Blowers operating in the sub-critical speed range usually require only simple chambertype silencers while those in the critical range require combination chamber-absorptive type silencers. If there is doubt, it is best to use the combination-type silencers. When gear size and operating speeds are known, the proper type silencer is easily selected.

SILENCER SIZE SELECTION, CAPACITY

Table 4 gives the nominal capacity of the various size silencers. "Size" in this table refers to the silencer "nominal size," or its "inlet size." Capacities are expressed in inlet CFM (ICFM), thus, discharge silencers are rated at higher capacities than inlet silencers since the air is compressed to reduced volume at the discharge operating pressure.

A From Table 1 determine whether blower RPM is above or below the transition speed for critical PLV.
B Consult Table 2 for recommended silencer models.

PRESSURE DROP

The following formulas may be used to calculate pressure drop through the silencers covered in this catalog.

Inlet: $\Delta P = \left(\frac{V}{4005}\right)^2 c$

(assumes silencer inlet is open to atmosphere)

Discharge: $\Delta P = \left(\frac{V}{4005}\right)^2 c \times \frac{P}{14.7} \times \frac{530}{T}$

ΔP= pressure drop through silencer, inches of water

V = air velocity through silencer, ft/min*

c = individual silencer restriction coefficient—empirical constant (see Table 4)

P = discharge pressure, PSIA (operating pressure in PSIG + 14.7)

T = discharge temperature, °R absolute (operating temperature in °F + 460)

* To calculate velocity through silencer, divide flow in ACFM by cross-sectional area of silencer inlet diameter in square feet.

1 BLOWER TRANSITION SPEED

Blower Gear Size	Transition Speed-RPM	
	Inlet	Discharge
2	6,300	5,155
2½	5,040	4,125
3	4,200	3,435
4	3,150	2,575
5	2,520	2,060
6	2,100	1,720
7	1,800	1,470
8	1,575	1,290
10	1,260	1,030
12	1,050	860
14	900	735
16	785	645
18	700	570
20	630	515
22	570	470
24	525	430

2 SILENCER MODEL SPECIFICATIONS

Pitch Line	Inlet Silencer	Discharge Silencer
Below Transition	UCI, URB	URB, UCD,URD
Above Transition	RIS	SD, RD

4 PRESSURE DROP COEFFICIENTS

Model	Pressure Drop Coefficient *(C)*
URB, URBY UCI, UCIY, UCIH	4.2 4.2
RIS, RISY, RISH UCD, UCDY	4.2 4.2
URD, URDY, URDH, SD, SDY, SDH	4.2 4.2
RD, RDY, RDH RDS, SDS, URDS	4.2 7.0

3 SILENCER CAPACITY

Size	Capacity (Inlet CFM 14.7 PSIA at 70°F) Discharge Silencer					
	Inlet Silencer	4 PSIG	6 PSIG	8 PSIG	10 PSIG	15 PSIG
1	30	35	40	40	40	45
1½	70	80	85	90	95	105
2	120	140	150	160	165	185
2½	190	220	235	245	255	285
3	270	320	335	355	370	415
3½	370	430	455	480	505	560
4	480	560	600	630	660	735
5	750	880	935	985	1,030	1,150
6	1,080	1,260	1,340	1,410	1,480	1,650
8	1,920	2,250	2,390	2,510	2,630	2,940
10	3,000	3,520	3,730	3,930	4,110	4,590
12	4,300	5,070	5,370	5,660	5,920	6,600
14	5,900	6,890	7,310	7,700	8,060	8,990
16	7,700	9,000	9,550	10,000	10,500	11,800
18	9,700	11,400	12,100	12,700	13,300	14,900
20	12,000	14,000	14,900	15,700	16,400	18,400
22	14,500	17,000	18,100	19,000	19,900	22,200
24	17,300	20,200	21,500	22,600	23,700	26,400
26	20,300	23,800	25,200	26,600	27,800	31,000
28	23,500	27,600	29,300	30,800	32,200	36,000
30	27,000	31,700	33,600	35,400	37,000	41,300
Est Temp.	70°F	115°F	140°F	165°F	190°F	240°F

Specifications UCD Group

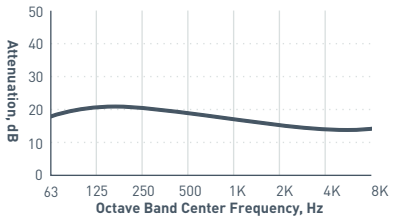
Chamber Type Discharge Silencer

The UCD Series Discharge Silencer is a heavy-duty, all-welded unit offering standard attenuation. Silencers are constructed of carbon steel, providing long service life. The UCD Series is designed for pulse control and silencing for most Sub Critical PLV Applications. For Premium Grade Silencing, please refer to the URD Series.

The UCD Series is the basic end-in, end-out configuration. A low side inlet version is offered as the UCDY Series. Silencers are designed for either vertical or horizontal mounting. Silencers with connection sizes of 8" and above are equipped with 125/150# ANSI drilled plate flanges.

The standard primer paint applied to exterior surfaces is a single-coat satin light blue alkyd primer rated for 325°F. A finish top coat may be applied in the field. Additional coating options are available upon request. Brackets and other mounting options are also available. Please note all side inlet designs have dual drains. Contact your Dürr Universal rep for updated drawing.

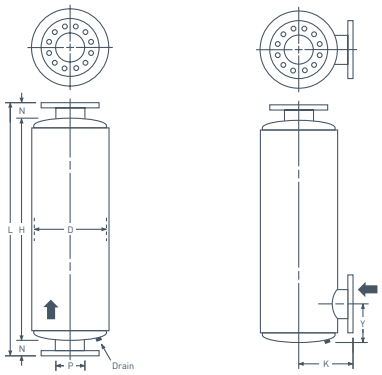
Typical Attenuation Curve



TECHNICAL PRESENTATION

UCD Series

UCDY Series
(Low Side Inlet)



CHAMBER TYPE DISCHARGE SILENCERS

P (Size)	Part Number	D	L	N	H	K	Y Min.	Y Max	Weight
1									
1½									
2									
2½									
3	Sizes 1"–6" use URB Series (page 15)								
3½									
4									
5									
6									
8	56-108-AA	22	61	3½	54	14½	9	21	250
10	56-110-AA	26	74	3½	67	16½	11	27	360
12	56-112-AA	30	87	3½	80	18½	12½	34	550
14	56-114-AA	30	99	3½	92	18½	13½	40	650

For connection sizes above 14" please contact Dürr Universal for price and availability.

Note: Dimensions (in) and weights (lbs) are nominal and may vary slightly with production models. Request certified drawings of specific models for exact dimensions.

Specifications URB Group & URD Group

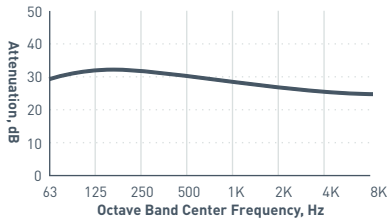
Chamber Type Inlet & Discharge Silencer

The URB/URD Series Discharge Silencer is a heavy-duty, all-welded unit offering premium attenuation. Silencers are constructed of carbon steel, providing long service life. The URB/URD Series is designed for pulse control and silencing for most subcritical PLV applications.

The URB/URD Series is the basic end-in, end-out configuration. A low side inlet (URBY/URDY), high side inlet (URDH), and opposed connection (URDS) versions are available providing added mounting and piping flexibility. Silencers are designed for either vertical or horizontal mounting. Silencers with connection sizes of 8" and above are equipped with 125/150# ANSI drilled plate flanges.

Connection sizes of 3-1/2" and smaller are offered with male NPT pipe threads. Connection sizes of 4" and 5" are available with either male NPT thread or 125/150# ANSI drilled plate flanges. The standard primer paint applied to exterior surfaces is a single-coat satin light blue alkyd primer rated for 325°F. A finish top coat may be applied in the field. Other coating options are available upon request. Brackets and other mounting options are also available. Please note all side inlet designs have dual drains. Contact your Dürr Universal rep for updated drawing.

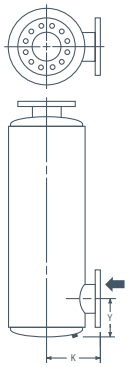
Typical Attenuation Curve



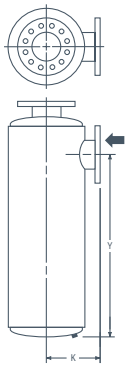
TECHNICAL PRESENTATION

URB, URD Series

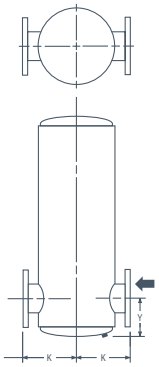
URBY, URDY Series (Low Side Inlet)



URDH Series (High Side Inlet)



URDS Series (Opposed Connection)



CHAMBER TYPE DISCHARGE SILENCERS

P (Size)	Part Number	D	L	N	H	K	URBY, URDY		Y URDH		URDS		Weight
							Min	Max	Min	Max	Min	Max	
1	55-101-AA	4½	21	2	17	—	—	—	—	—	—	—	10
1½	55-115-AA	6½	24	2	20	—	—	—	—	—	—	—	15
2	55-102-AA	8	33	3	27	7	FIXED AT 6		—	—	—	—	20
2½	55-125-AA	10	34	3	28	8	FIXED AT 7		—	—	—	—	30
3	55-103-AA	10	46	3	40	8	FIXED AT 7		—	—	—	—	40
3½	55-135-AA	12	52	3	46	9	FIXED AT 8		—	—	—	—	55
4	55-104-AA*	14	53	3	47	10	6	22	—	—	8	16	70
5	55-105-AA*	16	65	3	59	11	6½	29	—	—	9	19	120
6	55-106-AA	18	72	3	66	12	8	32	—	—	10	22	160
8	55-108-AA	22	97	3½	90	14½	9	48	62	82	12	29	370
10	55-110-AA	26	122	3½	115	16½	11	63½	76½	106	14	40½	550
12	55-112-AA	30	135	3½	128	18½	12½	69	88	117½	15½	42	800
14	55-114-AA	36	161	3½	154	21½	14½	81	107	141	17½	49	1,250

For connection sizes above 14" please contact Dürr Universal for price and availability.

Note: Connection sizes of 1" – 6" are designated as URB Series. Sizes 8" and larger are designated as URD Series. Both the URB and URD Series are fundamentally the same in design and the performance characteristics are identical.
Dimensions (in) and weights (lbs) are nominal and may vary slightly with production models. Request certified drawings of specific models for exact dimensions.
*Specify -TT for male pipe threaded units.