

## ANJ Series Acoustical Noise Jackets

Over 10 dBA Additive Acoustical Noise Attenuation for Your Control Valve and Regulator Applications

### Description

Becker Acoustical Noise Jackets (ANJ) provides noise attenuation in the range of 9-13 dBA when applied to high noise applications where noise exceeds 95 dBA. The ANJ offers a cost effective solution for noise attenuation and may be applied during initial design, or retrofit to existing problem installations. The ANJ features a rugged, modular design custom fit to the piping configuration available. The custom fit design ensures maximum efficiency of noise attenuation and easy removal/reinstallation during maintenance.



Before

**Figure 1** - Typical Becker Control Valve Installation BEFORE Installing ANJ

This application incorporates a Becker Model QTCV-T2 T-Ball Quiet Trim Control Valve. While the QTCV-T2 can provide 15 dBA noise attenuation alone. Control valve installations within buildings provide a challenge for operators due to reflective noise phenomenon. Noise prior to installation of ANJ Acoustical Noise Jackets was measured at 100 dBA. Noise following installation was measured at 88dBA. Installation location: Russian Natural Gas Pipeline



After

**Figure 2** - Typical Becker Control Valve Installation AFTER Installing ANJ

The ANJ Acoustical Noise Jacket system was custom designed to ensure a guaranteed fit of the piping system and control valve components. The ANJ features a rugged, modular, easily replaceable design that ensures implementation by the operating technicians. The ANJ is custom fits all piping components to minimize noise leakage and provide 9-13 dBA noise attenuation for high noise applications (unattenuated noise >95 dBA).

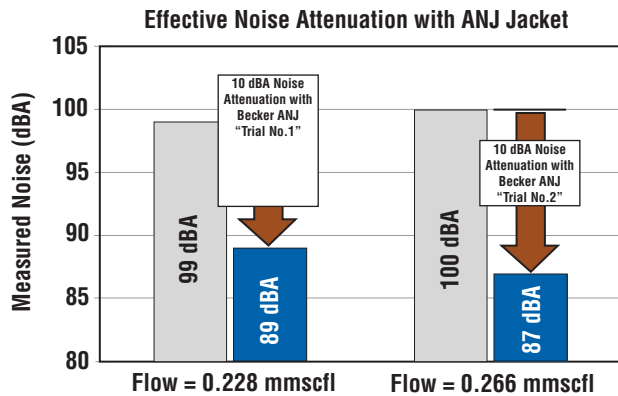
### Benefits

- Provides noise attenuation of 9-13 dBA for high noise applications
- May be combined with other Becker noise attenuation solutions for
- Custom design guaranteed to fit with ease and maximize performance
- Modular design permits easy removal/reinstallation during maintenance
- Easily retrofits to existing problem installations without requiring equipment shutdown
- No pressure drop presented as compared to in-line silencing technologies
- Provides benefit of reduced heat loss (thermal insulation)
- Relatively inexpensive when including labor and materials

**Table 1** - Acoustical Noise Jacket ANJ Specifications

Specifications	
<b>Color</b>	Gray (standard)
<b>Inner Jacketing</b>	17 oz./yard <sup>2</sup> Teflon <sup>®</sup> impregnated fiberglass cloth
<b>Outer Jacketing</b>	17 oz./yard <sup>2</sup> Teflon <sup>®</sup> impregnated fiberglass cloth
<b>Gussets</b>	17 oz./yard <sup>2</sup> Teflon <sup>®</sup> impregnated fiberglass cloth
<b>Liner</b>	16.5 oz./ft <sup>2</sup> mass loaded acoustical septum
<b>Insulation (2 Layer)</b>	2.0 in THK/11 lb. density "E" type material mechanically bound
<b>Decoupler</b>	1.0 in (3.0 in uncompressed), LD fiberglass
<b>Thread</b>	Teflon <sup>®</sup> coated fiberglass thread
<b>Attachments</b>	Teflon <sup>®</sup> Impregnated fiberglass cloth straps with 316SS Double-D rings Hook & Loop seam fasteners
<b>ID Tags</b>	ATC Type 304SS with embossed lettering, add tufting here
<b>Other</b>	Circumferential belts on ends of cover and on bonnet
<b>Dimensions</b>	Custom specific to application
<b>Installation</b>	Outdoor/Indoor
<b>Flammability</b>	Class 1 flame spread and smoke develop rating per ASTM
<b>Mildew and Rot</b>	Full resistance
<b>Abrasion Resistance</b>	Excellent
<b>Temperature Limits</b>	-40°F to +500°F (-40°C to +260°C)
<b>Chemical Resistance</b>	Resists oils, grease moisture, mild acids, alkalis, dirt, dust, and salt atmospheres
<b>Cleanability</b>	Outer/Inner jacket may be cleaned with standard industrial cleaners
<b>Performance</b>	9-13 dBA passive noise attenuation at high noise applications (>95 dBA)

## Becker Rugged ANJ Acoustical Noise Jackets Feature Rugged, Cost-Effective Design with Easy Serviceability



**Figure 3** - ANJ Acoustic Noise Jacket Demonstrates 10-13 dBA Noise Attenuation

The Becker ANJ Series Acoustic Noise Jacket demonstrates an effective noise attenuation from ranging from 10 dBA to 13 dBA in the two cases above. Trial conditions as follows: 4.0 in model QTCV-T3;  $P_1=417$  psig (2,875 kPa);  $P_2=57$  psig (939 kPa);  $T=75^\circ\text{F}$  ( $24^\circ\text{C}$ ). The above empirical data was taken during case study on Midwest USA natural gas distribution utility.

**Valves: 4" T3 300 ANSI**

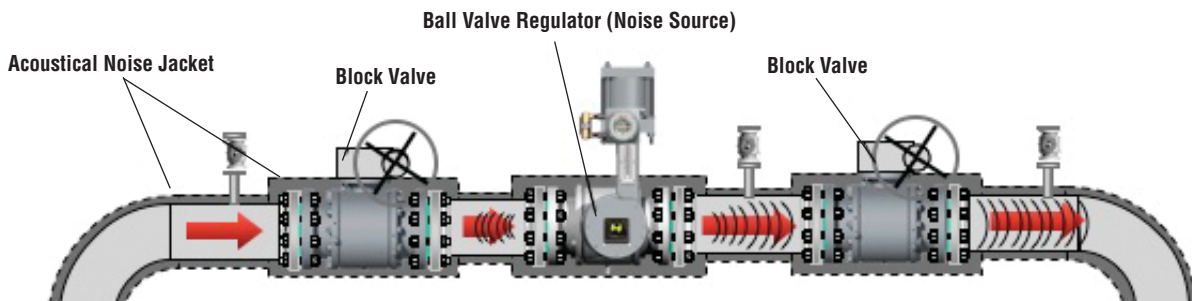
**Conditions:  $P_1=417$  psig (2,875 kPa),  $P_2=57$  psig (939 kPa),  $T= 75^\circ\text{F}$  ( $24^\circ\text{C}$ )**

### Products

- ANJ Acoustical Noise Jacket for Natural Gas Control Valves
- ANJ Acoustical Noise Jacket for Natural Gas Regulators
- ANJ Acoustical Noise Jacket for Natural Gas Piping Systems
- Other Custom ANJ Acoustical Noise Jackets available per applications

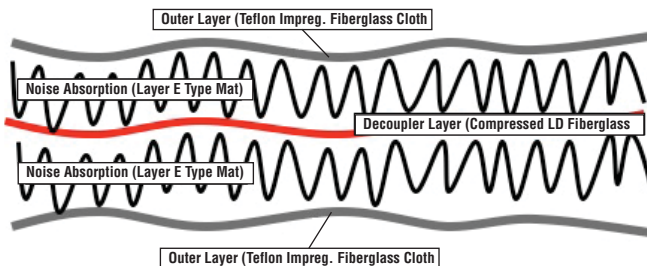
### Other Noise Attenuation Solutions from Becker

- QTCV Series Quiet Trim Control Valves (T-Ball®)
- CVET Series Globe Control Valves with Noise Trim
- CVS Control Valve Silencers
- CVD Control Valve Diffusers
- Becker Below Ground Ball Valve Regulator Solution



**Figure 4** - Typical Ball Valve Regulator Installation with Acoustical Noise Jacket (ANJ)

The image above represents a typical ball valve regulator installation with a custom Acoustical Noise Jacket (ANJ). The ANJ provides noise attenuation ranging from 9-13 dBA. The ANJ noise attenuation is additive to other noise attenuating technologies which have been implemented. For example, if a Model QTCV-T2 Quiet Trim Control Valve provides 12 dBA noise attenuation combined with ANJ noise attenuation of 10 dBA results in a cumulative noise attenuation of 22 dBA.



**Figure 5** - Cross Section of ANJ Acoustical Noise Jacket

The ANJ Acoustical Noise Jacket consists of multiple layers of porous insulating materials, an acoustic decoupling layer, and inner/outer protective jacketing. The porous insulation provides absorption of the airborne sound, and it structurally decouples the outer jacketing layer from the radiating pipe wall. The Teflon-impregnated fiberglass cloth jacketing provides additional mass for reduction of sound transmission. The composite of the multiple materials laminated together dampens vibratory energy while providing a modular, easily installed and easily serviceable noise attenuation solution.

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