

NEW PRODUCT

available from



NOISE REDUCTION SYSTEM
NRS

RAJA LOVEJOY
High Quality Components

Patent applied for under DE 10 2009 002 447 A1

- Noise level reduction by more than 50%
- Universal retrofit kit
- Easy installation

System for noise level reduction on hydraulic equipment



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NOISE REDUCTION SYSTEM
NRS

System for noise level reduction on hydraulic equipment

The Problem:

www.hsimagazine.com/article.php?article_id=36

Standard bellhousings available on today's market are generally made of metal. Rising costs have meant that the cast steel originally used has now been replaced by aluminium. To save material, the wall thickness – especially in the case of cast aluminium – has been reduced more and more, with the load level remaining constant.

This reduced wall thickness means that there is only minimal absorption of the noise made by the coupling in the bellhousing. Unlike their cast steel counterparts, the more lightweight aluminium bellhousings have comparatively poor damping characteristics.

The pulsation of hydraulic pumps generates very strong vibrations that are not damped sufficiently by an aluminium bellhousing.

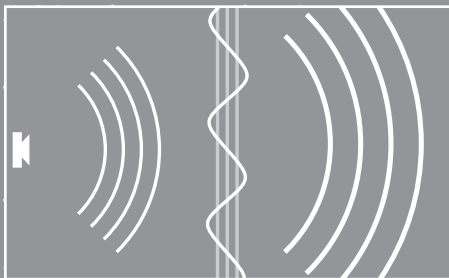
Moreover, at rigid bellhousings there is no isolation of mechanical vibration between the electric motor and the hydraulic pump due to the lack of damping characteristics.

Vibration studies have revealed that airborne and structure-borne vibration is at frequencies where human hearing is at its most sensitive.

Under certain unfavourable circumstances, the thin-walled aluminium bellhousing amplifies the running noise of the pump even more; in these cases, the bellhousing resonates in sympathy, similar to a real bell, which can then lead to an additional increase in oscillation amplitude.

Illustration 1: Generation of airborne / structure-borne vibration

Coupling



Airborne vibration

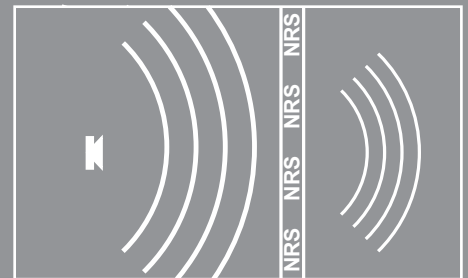
Output



Structure-borne vibration

Illustration 2: Noise level reduction NRS

NRS



Structure-borne vibration by using NRS

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The Solution:

www.jbj.co.uk/nrs.html

In line with EC Directive "Noise" (2003/10/EG), the planned retrofitting measures are intended to resolve acute problems caused by poor soundproofing and vibration damping, including problems that occur in hydraulic apparatus already in use.

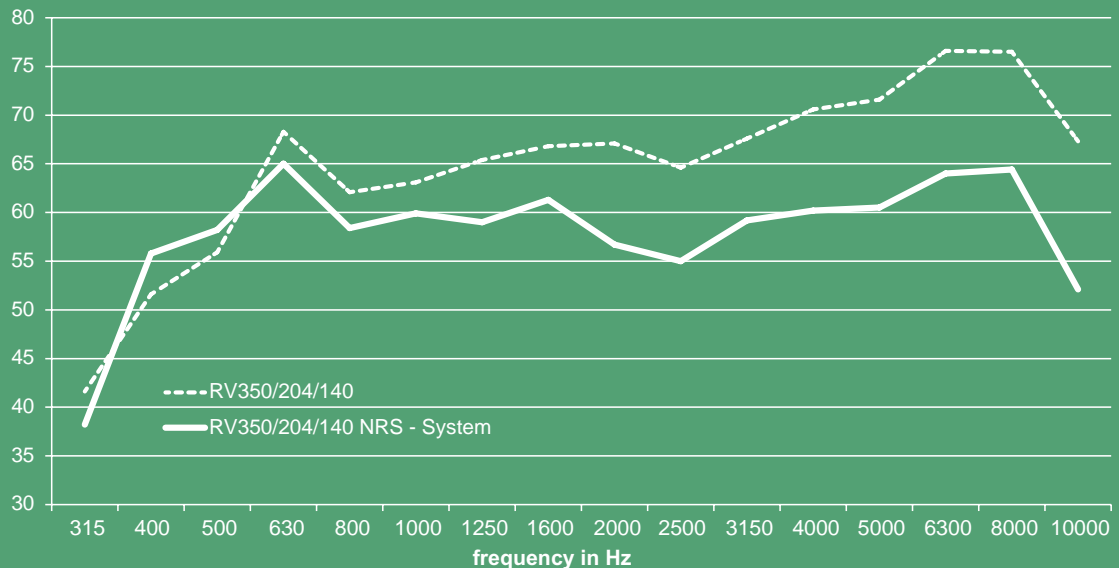
The best noise level reductions were achieved using the NRS System.

The NRS System is

- a newly-developed 3D "High Density- " polyester structure
- tear-proof and temperature-resistant from - 40° C to +120° C
- resistant to most currently available hydraulic oil types
- easy to fit and 100% recyclable
- available in 4 different system widths and 3 lengths for retrofitting or as original equipment.

With the NRS System, it was possible to reduce the total noise emission level of a cast aluminium bellhousing in critical frequency ranges by more than 10 dB. This reduction is clearly audible to the human ear. The graph shows examples of frequency ranges of a standard cast aluminium bellhousing and a version with NRS.

Illustration 3



The NRS System is a new development
in collaboration with:



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NRS Retrofitting kit

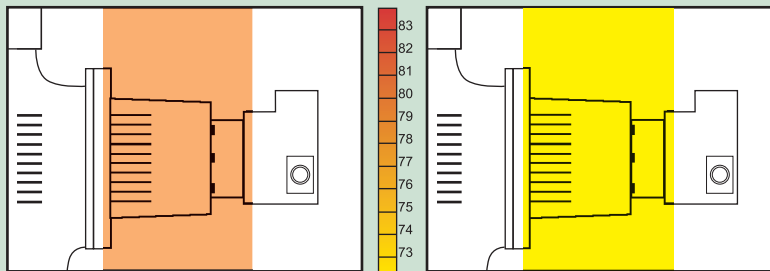


System for noise level reduction on hydraulic equipment
For type B5 / B35 hydraulic equipment



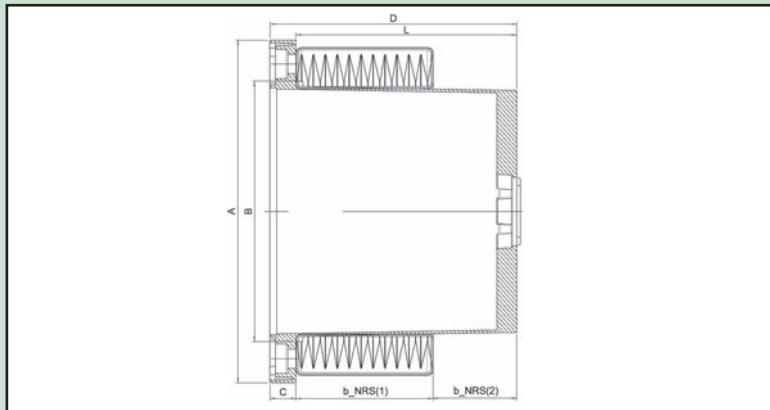
Illustration 4

Total dB scale



Sound field mapping without (left) and with (right) retrofitted version.

Illustration 5



Technical data

Article no:	Width b_NRS(1) b_NRS(2)	Length Circumference of the circle	Bellhousing	A	B	C	D	L (D-C)
NRS60900*	60	900	ø 250 bis ø 350	250	190	19	120-175	101-156
NRS80900*	80	900	ø 250 bis ø 350	300	234	20	144-196	124-176
NRS100900*	100	900	ø 250 bis ø 350	350	260	26	188-256	162-230
NRS120900*	120	900	ø 250 bis ø 350	350	260	26	188-256	162-230
NRS601200	60	1200	ø 400 bis ø 450	400	300	26	204-256	178-230
NRS801200	80	1200	ø 400 bis ø 450	400	300	26	204-256	178-230
NRS1001200	100	1200	ø 400 bis ø 450	450	350	26	234-315	208-289
NRS1201200	120	1200	ø 400 bis ø 450	450	350	26	234-315	208-289
NRS601900	60	1900	ø 550 bis ø 660	550	450	26	248-315	222-289
NRS801900	80	1900	ø 550 bis ø 660	550	450	26	248-315	222-289
NRS1001900	100	1900	ø 550 bis ø 660	660	550	32	310-345	278-313
NRS1201900	120	1900	ø 550 bis ø 660	660	550	32	310-345	278-313

Dimensions in mm, *ex stock.

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