



TO WHOM IT MAY CONCERN

Roncello June 2007

ACOUSTICAL PROPERTIES FOR K-FLEX EC/SEMI OPEN CELL INSULATION SHEET/TUBE

Please find copies of the test results concerning above topic attached.

Also please consider some of the comments below:

1. Semi open cell elastomeric foam meets the function of both sound absorber and sound reflector. By nature, this product is able to reduce noise level and at the same time block sound from penetrating the system.
2. The relevance of the above is documented with test report 8125 (insertion loss index) as well as measurements undertaken in earlier years using sanitary piping systems being the origin for noise.
3. Test report 8124 and 8203 confirm the fact that at low frequencies the sound absorption characteristic are minimum, but effective at frequencies > 1kHz.

Results are applicable for all Kaimannflex, K-Flex or Mondoflex products.

This is again suggestsmthat if this is the material would be used even within an air duct, for example, it will serve its purpose being a true sound reflector with some sound absorption chracteristics.

4. It is also important to note that using closed cell elastomeric foam, phenolic foam, or mineral fibre for sound absorption testing against DIN EN 20140-3 and DIN EN ISO 717-1 comparable results will be achieved.
5. As a summary for above and taking into account that the sound reduction property of a product is a function of frequency, the SOUND REDUCTION PROFILE could be stated as follows:


FREQUENCY	(HZ)	<u>250</u>	<u>500</u>	<u>1000</u>	<u>2000</u>	<u>4000</u>	<u>10000</u>
NOISE REDUCTION	(dB)	10	23	30	33	35	50

The results could be expressed as well as the *weightd noise* reduction level of 33 dB. This figure compares well with other test results available.

For te calculation pruposes this value normally used.

We hope that this information will be of help of you. In case futher information's would be needed don't hesitate to ask

Kind Regards


Dr. H.F. Wöss
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Reg.Nr. 4331-04



DAP-P-02.164-00-99-01

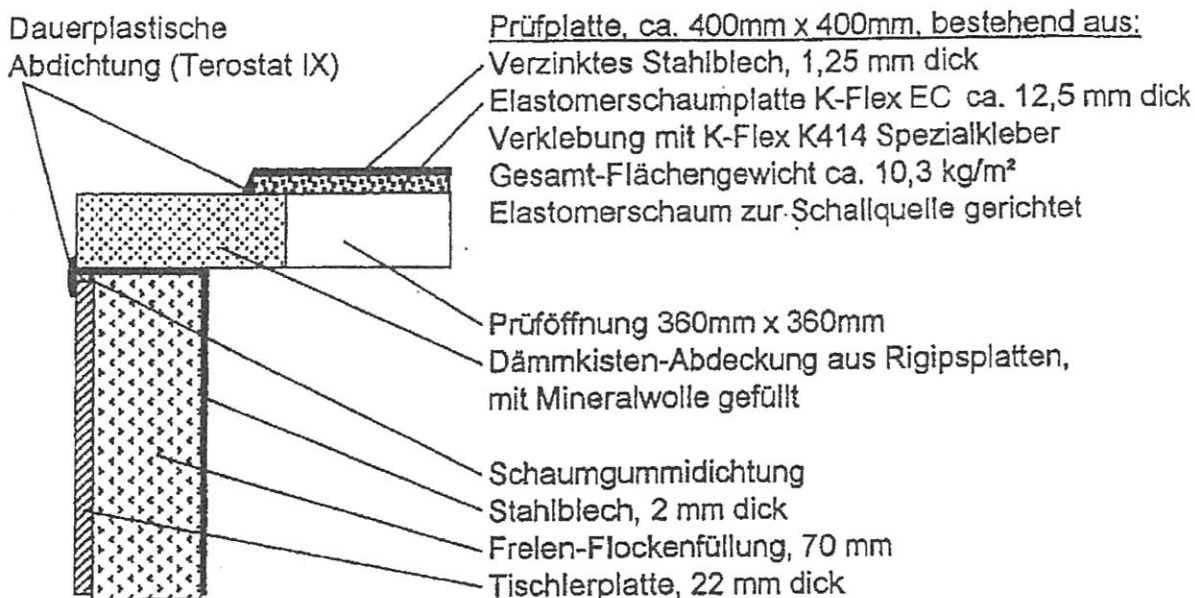
Prüflaboratorium Physikalische Prüfungen

Prüfbericht Neuausfertigung Nr. 1

Lfd. Nr.	Prüfer	Telefon	Seite
8125	Hechler	4460	2 von 3

Aufbau des Prüfgegenstands:

Dauerplastische
Abdichtung (Terostat IX)



Prüfplatte, ca. 400mm x 400mm, bestehend aus:

Verzinktes Stahlblech, 1,25 mm dick
Elastomerschaumplatte K-Flex EC ca. 12,5 mm dick
Verklebung mit K-Flex K414 Spezialkleber
Gesamt-Flächengewicht ca. 10,3 kg/m²
Elastomerschaum zur Schallquelle gerichtet

Prüföffnung 360mm x 360mm
Dämmkisten-Abdeckung aus Rigipsplatten,
mit Mineralwolle gefüllt

Schaumgummidichtung
Stahlblech, 2 mm dick
Frelen-Flockenfüllung, 70 mm
Tischlerplatte, 22 mm dick

Prüfdaten:

Versuch Nr.	4712 und 4714
Prüfklima	18°C, 67% r.F.
Prüfapparatur	Schalldämm-Messvorrichtung für den horizontalen Einbau von Dämmplatten ("Dämmkiste")
Aufstellungsort	Nord-Ost-Ecke des Hallraums K15, Wandabstand ca. 1,2 m
Schallquelle	Kugelmühle mit einer Drehzahl von 62 U/min in der Dämmkiste
Empfangsgerät	GenRad-Echtzeitanalysator Typ 1995, Terzpegel, Mittelungszeit 10 s
Mikrofon	GenRad-1/2" in der Hallraum-Mikrofon-Stellung 4



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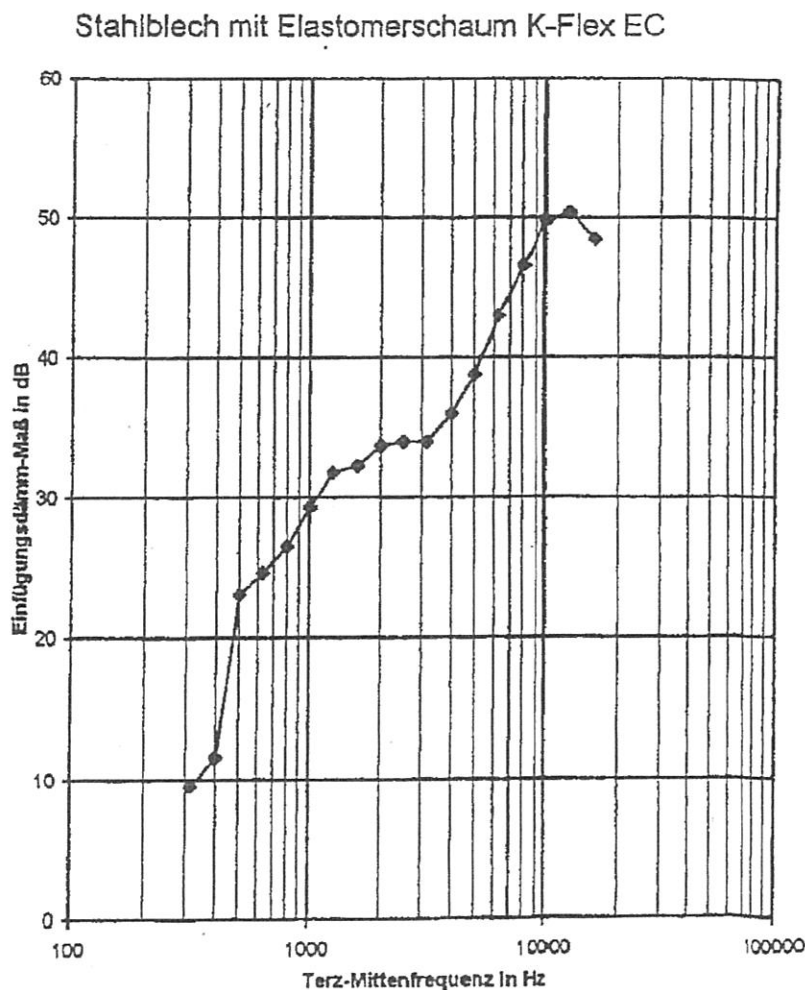
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Ergebnisse:

Das Einfügungsdämm-Maß (Schallpegel-Differenz zwischen der offenen und der mit Dämmmaterial abgedeckten Dämmkiste) in Abhängigkeit der Terz-Mittenfrequenz im Bereich 315 Hz bis 16 kHz ist im folgenden Diagramm graphisch dargestellt.

Terz-Mittenfrequenz in Hz	Einfüg.-Dämm-Maß in dB
315	9,5
400	11,5
500	23,0
630	24,6
800	26,5
1000	29,3
1250	31,8
1600	32,3
2000	33,7
2500	34,0
3150	34,0
4000	36,0
5000	38,8
6300	43,0
8000	46,5
10000	49,8
12500	50,3
16000	48,4





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Freudenberg Forschungsdienste KG (Freudenberg Research Services)

Test Laboratory for Physical Tests

Test Report New Edition No. 1

Serial No.	Tester	Telephone	Page
8125	Hechler	4460	2 of 3

Installation of the object to be tested

Permanently plastic
 sealing (Terostat IX)

Test plate, approx. 400 mm x 400 mm, consisting of
 Zinc coated steel plate, 1.25 mm thick,
 Elastomer foam plate K-Flex EC approx. 12.5 mm thick
 Adhesion with K-Flex K414 special adhesive,
 Total area weight approx. 10.3 kg/m²
 Elastomer foam pointed to the sound source

Test opening 360 mm x 360 mm
 Insulating box cover consisting of rigips plates,
 filled with mineral wool

Foam rubber sealing
 Steel plate, 2 mm thick
 Frelen flake filling, 70 mm
 Wood core plywood, 200 mm thick

Test data:

Test No.:	4712 and 4714
Test climate:	18 °C, 67 % rel. humidity
Test apparatus:	Sound insulation measuring apparatus for the horizontal arrangement of insulation plates ("insulating box")
Place of arrangement:	North-east corner of the echo room K15, Wall distance approx. 1.2 m
Sound source:	Ball mill with a rotation of 62 Rpm in the insulating box
Receiving device:	GenWheel real time analyzer Type 1995, Third level, communication period of time 10 sec
Microphone:	GenWheel-1/2" in the echo room microphone position 4



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Test Laboratory for Physical Tests

Test Report

Serial No. 8125	Tester Hechler	Telephone 4460	Page 3 of 3
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Results:

The insertion insulation factor (sound level difference between the open and the insulation box covered by insulation material) depending on the third medium frequency in the range 315 Hz to 16 kHz is graphically displayed in the following diagram:

Third medium frequency	Insertion insulating factor In dB	Steel plate with Elastomer foam K-Flex EC
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Insertion insulation factor in dB	
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Certified that this is a complete and faithful translation from the German language

26524 Hage, July 05, 2007

Paul Hohenadel

Sworn translator and interpreter for the English language for the courts of the District of the Regional Court Aurich

