

SPEBA[®]

INNOVATIVE BAUTECHNIK

Werkstoffdetails Schwingungsschutz

Frequenzdiagramme Serie SPEBA[®] vibra

In diesem Informationsblatt enthaltene Daten können im Zuge der technischen Weiterentwicklung ohne vorherige Ankündigung geändert und ergänzt werden.

1. Allgemeines

Wer kennt es nicht: laute Treppen, nervende Waschmaschinen, störende Lautsprecher, schwingende Maschinen von nebenan und vieles mehr stören unsere so dringend benötigte Ruhe. Das alles muss so nicht sein: mit **SPEBA vibra** bieten wir eine komplette Produktlinie und Techniken, mit denen diese Probleme entschärft werden können.

Gemeint sind sog. Recycling-Gummigranulatmatten, die ähnlich wie Stoßdämpfern und Federn im Fahrzeugbau die weiche und elastische Auflagerung von allen Bauteilen ermöglichen. Ob schwerste Maschinenfundamente, kleinere Treppenanlagen, großflächige Fußbodenkonstruktionen oder komplette Gebäudeisolierung – immer wieder findet **SPEBA vibra** eine Ideallösung.

Unterschiedliche Materialdichten, Härtegrade, Materialstärken und verschiedene aufwendige geometrische Formen passen sich den Anforderungen aus leichten oder schweren Gewichtssituationen an. Dabei liegt das Augenmerk der richtigen Produktwahl, entgegen der bisherigen Betrachtungsweisen, exakt auf den physikalischen Randbedingungen des eigentlichen Schwingungsproblems. Ein PKW braucht ja auch einen leichteren Stoßdämpfer als ein LKW – und nur eine individuelle und exakt ermittelte Lösung wirkt dabei optimal.

Hierzu bietet die Produktpalette der Serie **SPEBA vibra** für nahezu jeden Anwendungsfall die optimalen „Federn und Dämpfer“ an. Unsere Ingenieure helfen bei der Auswahl des richtigen Materials und bemessen die elastische Auflagerung individuell nach ihren Vorgaben. Besonders die neue Abstimmung der Konstruktion nach den Erregungsfrequenzen in Abhängigkeit zu den vorhandenen Lasten ist dabei zu erwähnen. Ziel dieser Abstimmung ist die beste Isolierwirkung zu erreichen. Endlich passen sog. Eigenfrequenzen der Entkoppelungsmatte und die Erregerfrequenzen der Verursacher ideal zusammen. So werden schlussendlich zu harte oder zu weiche Materialien vermieden und Sie finden Ihre wohlverdiente Ruhe!

2. Werkstoff

Mischungen aus hochwertigen Gummigranulaten, feinem Zellkautschuk auf Recyclingbasis mit PU-Elastomer gebunden.

(Details zum jeweiligen **SPEBA vibra**-Produkt finden Sie im entsprechenden Datenblatt)

3. Maße / Toleranzen / Farbe

SPEBA vibra-3D:

Standardbreite:	800 mm	± 1,5 %
Standardlänge:	12,5m (17/9, 23/12), 15m (8/4)	±1,5%
Dicke (profiliert):	8/4mm, 17/9mm und 23/12mm	-1,0 mm
Raumgewicht:	650 - 750 kg/m ³	
Farbe:	schwarz	



SPEBA vibra-soft:

Standardbreite:	1.250 mm	± 1,5 %
Dicke / Länge:	5mm/8m, 10/6, 12.5/1, 15/1, 20/1	± 1,0 mm/± 1,5 %
Raumgewicht:	400 - 500 kg/m ³	
Farbe:	anthrazit	



SPEBA vibra-medium:

Standardbreite:	1.250 mm	± 1,5 %
Dicke / Länge:	5mm/8m, 10/6, 12.5/1, 15/1, 20/1	± 1,0 mm/± 1,5 %
Raumgewicht:	500 - 600 kg/m ³	
Farbe:	anthrazit	



SPEBA vibra-hard:

Standardbreite:	1.250 mm	± 1,5 %
Dicke / Länge:	5mm/8m, 10/6, 12.5/1, 15/1, 20/1	± 1,0 mm/± 1,5 %
Raumgewicht:	600 - 700 kg/m ³	
Farbe:	anthrazit	



SPEBA vibra-ultra:

Standardbreite:	1.250 mm	± 1,5 %
Dicke / Länge:	5mm/8m, 10/6, 12.5/1, 15/1, 20/1	± 1,0 mm/± 1,5 %
Raumgewicht:	800 - 900 kg/m ³	
Farbe:	anthrazit	



4. Einsatzbereiche

Es gibt für **SPEBA vibra** ideale Einsatzbereiche in Abhängigkeit der Materialpressung. Im Einzelfall können unsere Empfehlungen hiervon auch abweichen. Grundlage für die Angaben sind statische Untersuchungen in Anlehnung an DIN EN 826.

SPEBA vibra-3D:	$\sigma_{\max} < 0,05 \text{ N/mm}^2$
SPEBA vibra-soft:	$0,05 \text{ N/mm}^2 < \sigma_{\max} < 0,10 \text{ N/mm}^2$
SPEBA vibra-medium:	$0,10 \text{ N/mm}^2 < \sigma_{\max} < 0,20 \text{ N/mm}^2$
SPEBA vibra-hard:	$0,20 \text{ N/mm}^2 < \sigma_{\max} < 0,30 \text{ N/mm}^2$
SPEBA vibra-ultra:	$\sigma_{\max} > 0,30 \text{ N/mm}^2$

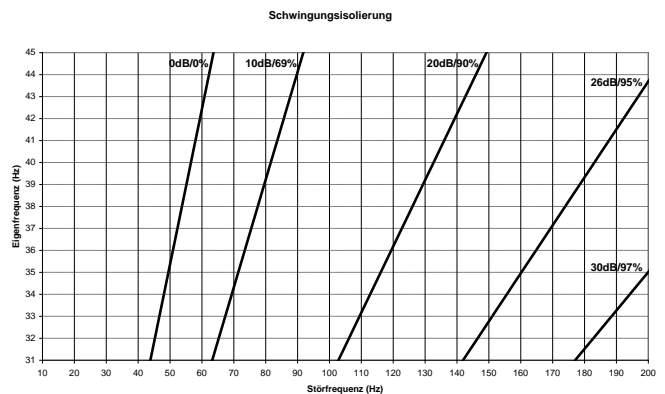
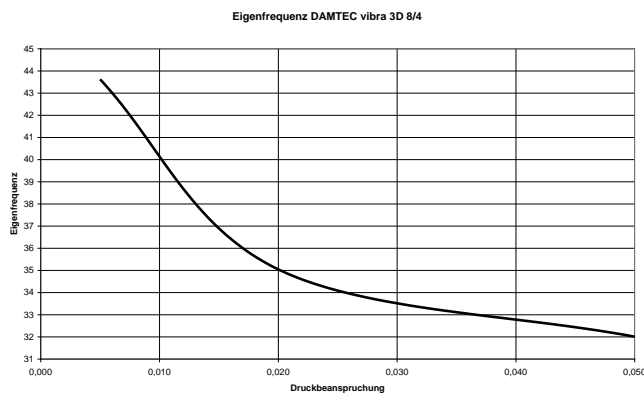
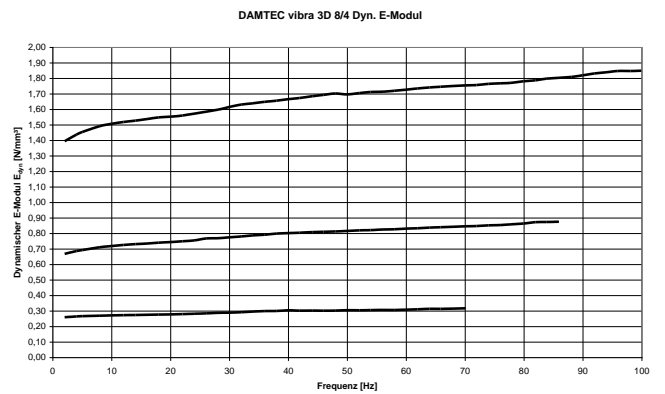
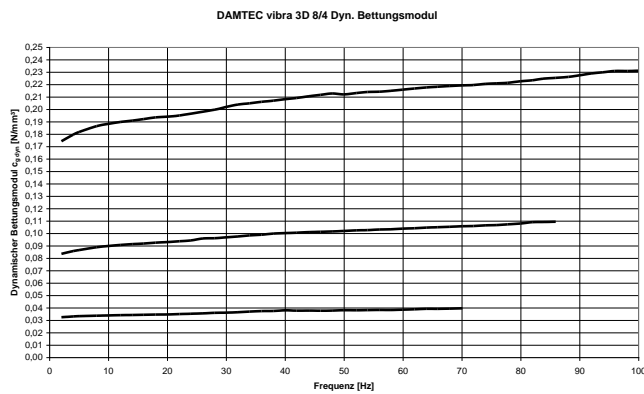
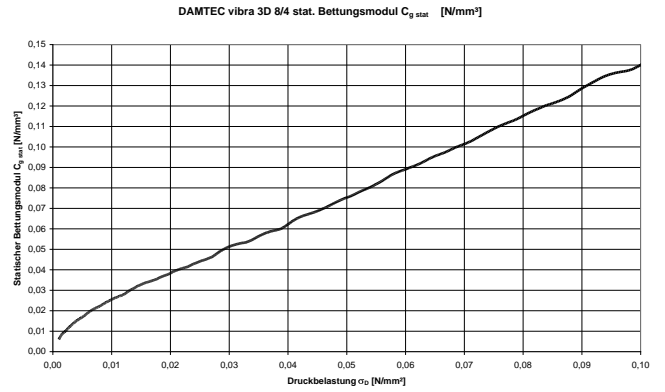
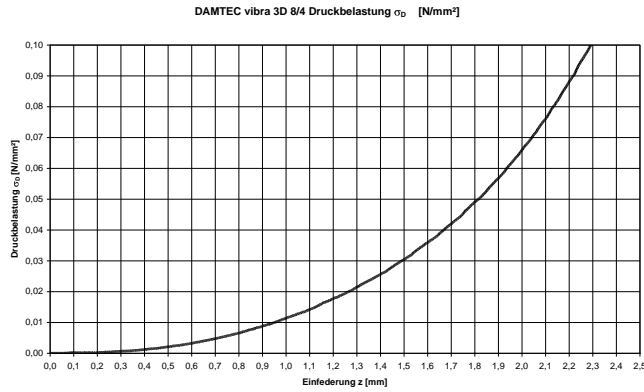
5. Produktprüfungen

	Dicke	Zugfestigkeit	Reißdehnung	Brandverhalten	Einfederung (einlagig)	Eigenfrequenz (einlagig)	Eigenfrequenz (dreilagig)
SPEBA		EN ISO 1798	EN ISO 1798	DIN EN 13501	DIN EN 826		
vibra	[mm]	[N/mm ²]	[%]		[mm]	[Hz]	[Hz]
3D	8/4 17/9 23/12	ca. 0,3	ca. 45	E _{fi}	[bei 0.05N/mm ²] 1,8 2,5 4,4	32,0 – 43,0 20,0 – 28,0 17,0 – 24,0	– 13,0 – 17,0 12,0 – 16,0
soft	5 10 15 20	ca. 0,2	ca. 70	E _{fi}	[bei 0.1 N/mm ²] 2,1 3,7 4,8 6,8	29,0 – 31,0 24,0 – 26,0 21,5 – 23,5 19,5 – 20,0	– – – 12,5
medium	5 10 15 20	ca. 0,4	ca. 70	E _{fi}	[bei 0.2 N/mm ²] 2,1 3,4 4,7 6,2	28,5 – 30,5 24,0 – 26,0 21,5 – 23,5 19,0 – 21,0	– – – 12,5 – 13,5
hard	5 10 15 20	ca. 0,6	ca. 60	E _{fi}	[bei 0.3 N/mm ²] 1,5 2,2 3,8 4,2	30,5 – 32,0 22,5 – 24,0 18,5 – 19,5 16,5 – 17,5	– – – 10,5
ultra	5 10 15 20	ca. 0,6	ca. 60	E _{fi}	[bei 0.6 N/mm ²] 1,85 1,90 2,8 3,8	28,5 – 30,0 25,0 – 28,0 21,5 – 25,0 18,5 – 21,5	– – – 10,5 – 11,5

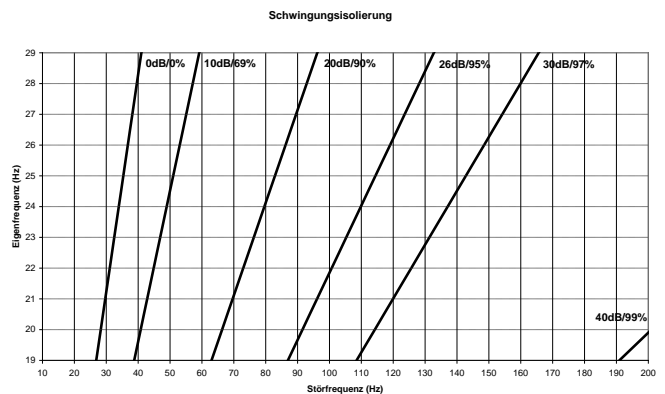
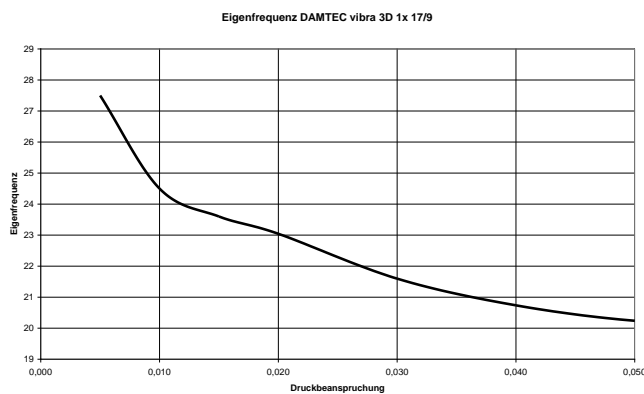
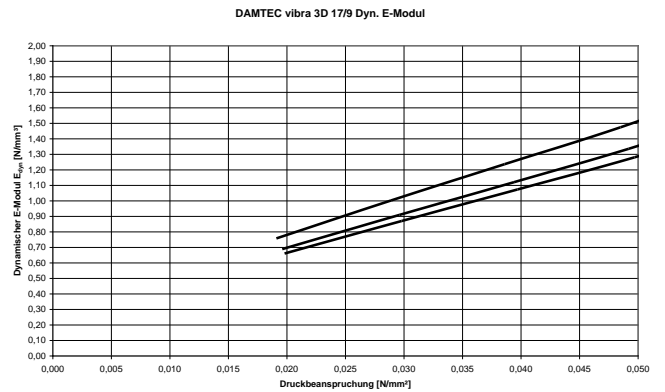
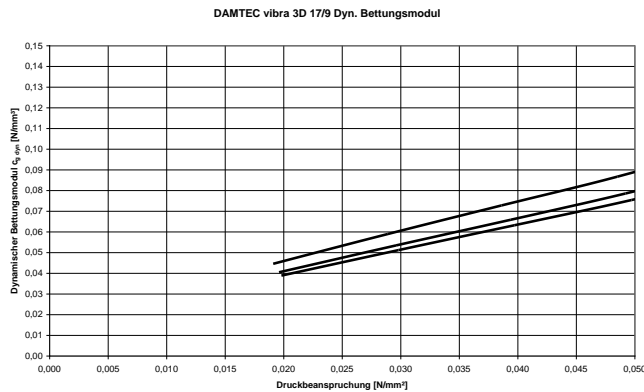
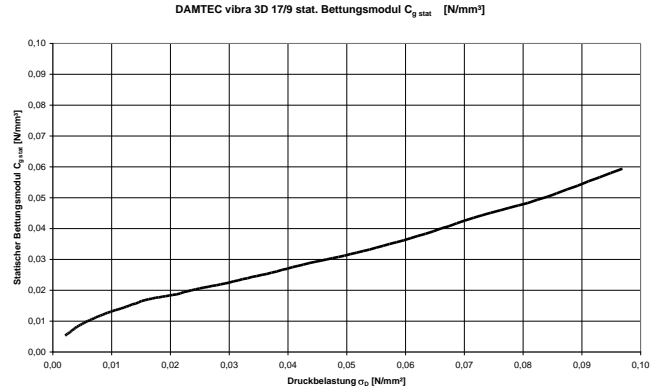
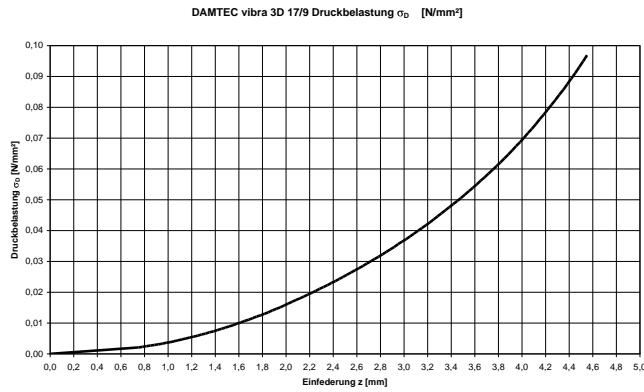
Auf den folgenden Seiten werden je Produkt und Produktdicke folgende Werte angegeben:

- Federkennlinie
- dynamischer Bettungsmodul
- Eigenfrequenz
- statischer Bettungsmodul
- dynamischer E-Modul
- Schwingungsisolierung

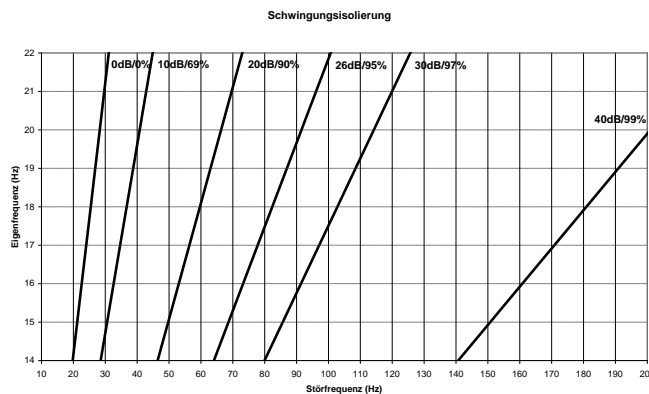
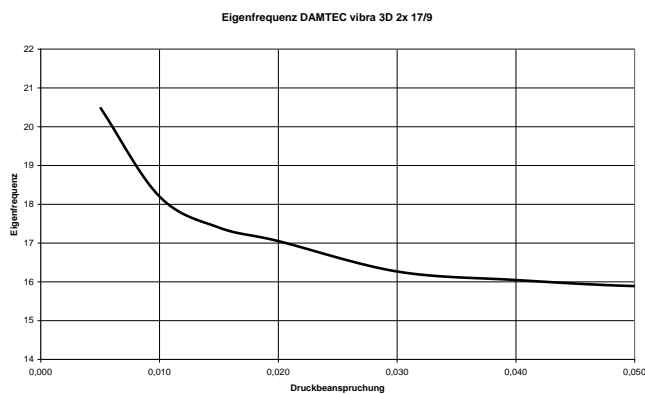
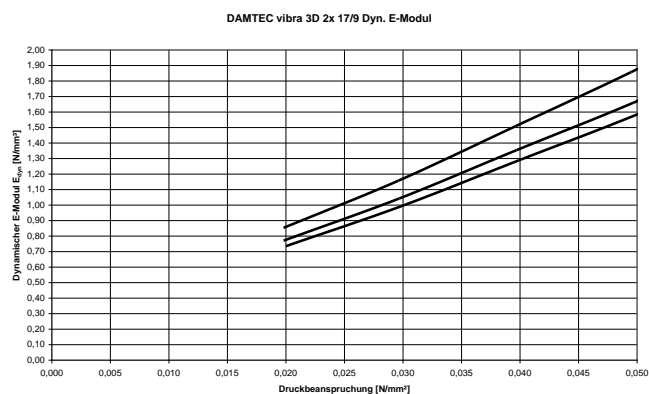
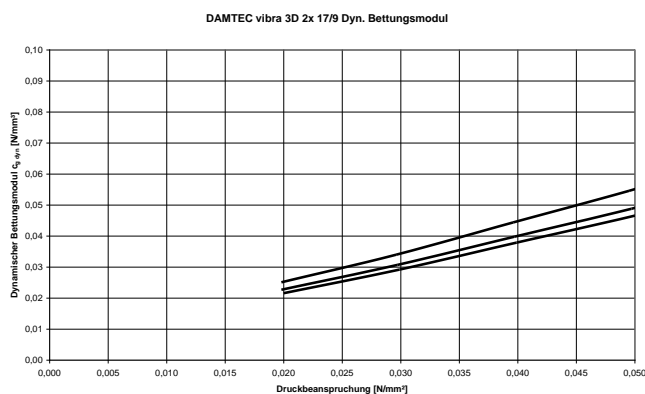
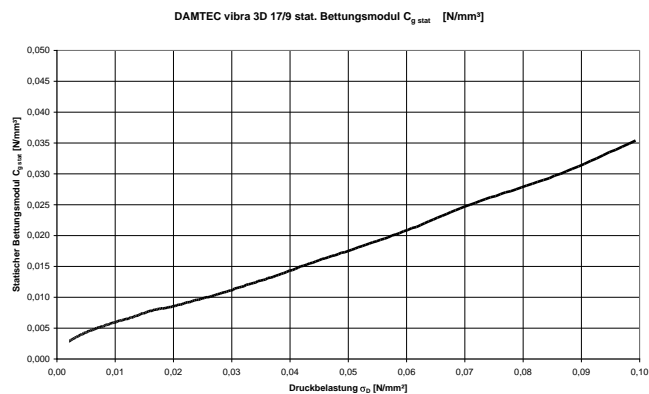
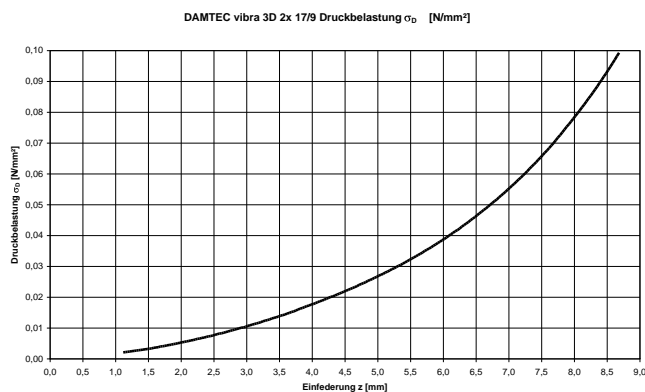
5.1. SPEBA vibra-3D 8/4



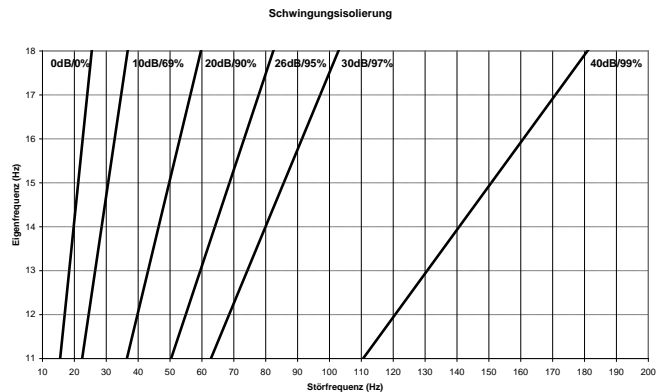
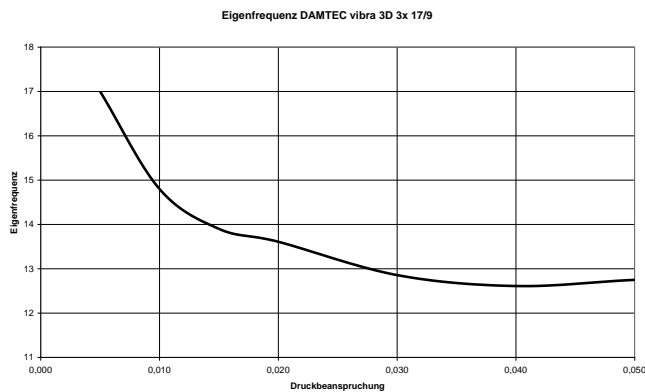
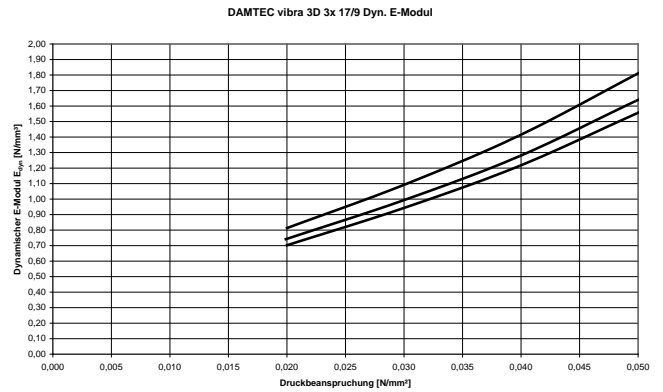
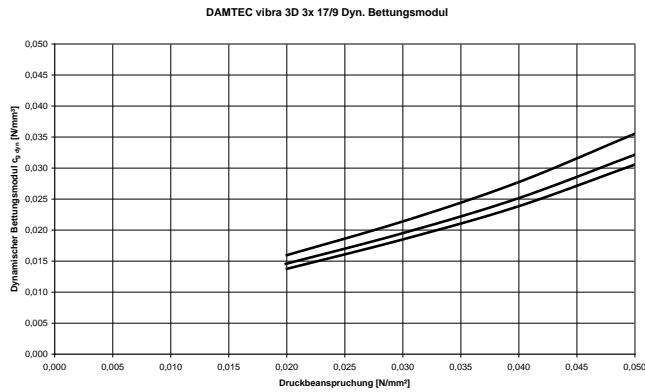
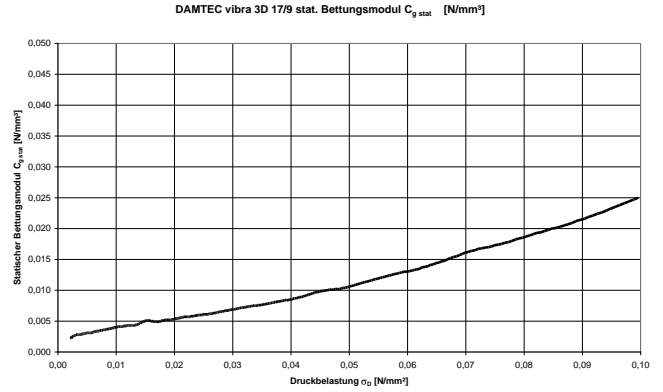
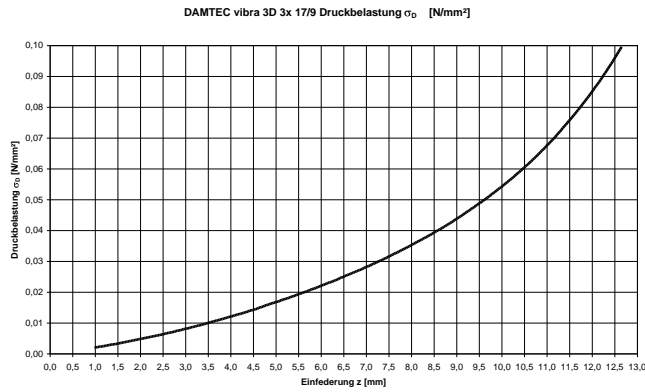
5.2. SPEBA vibra-3D 1x 17/9



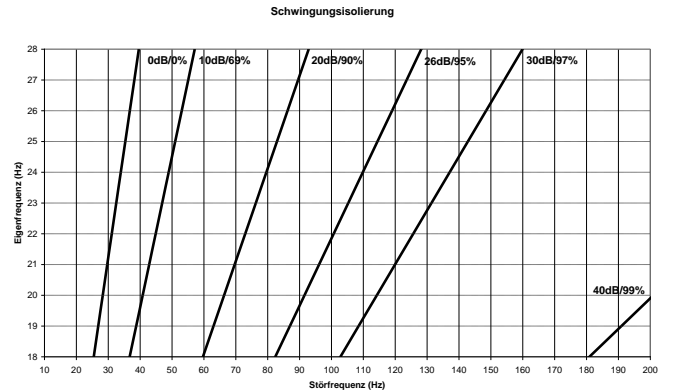
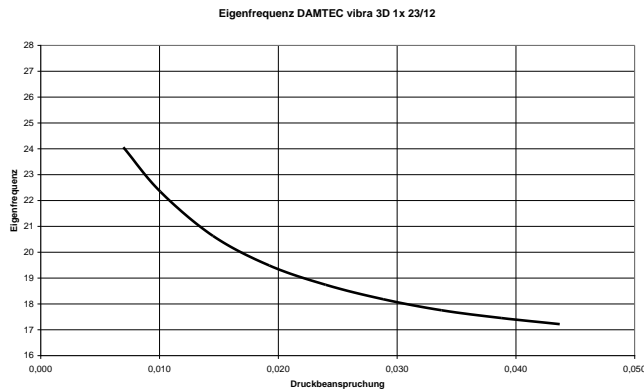
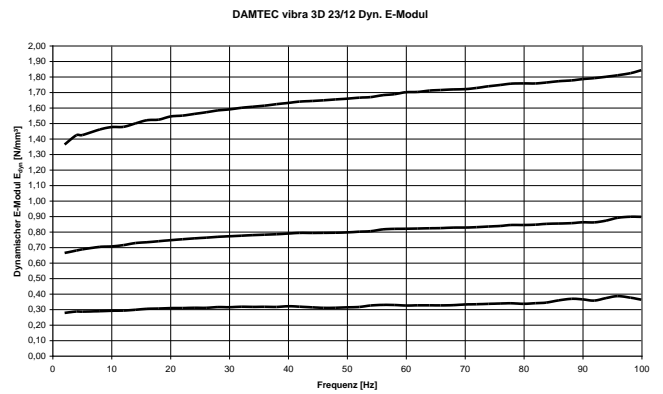
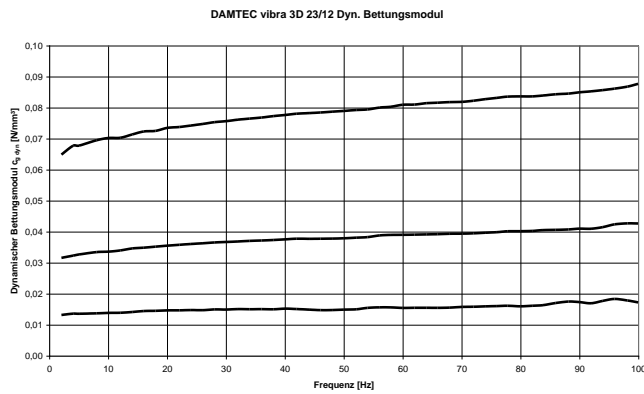
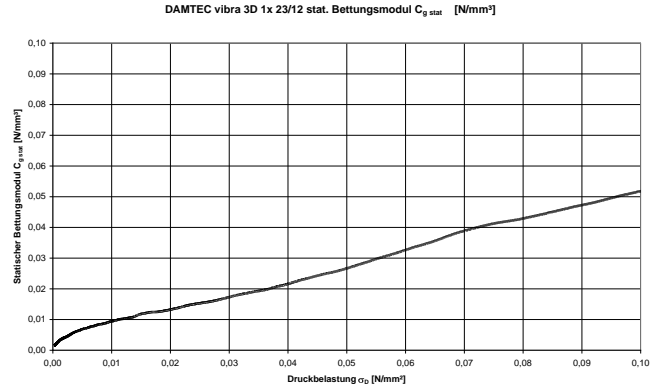
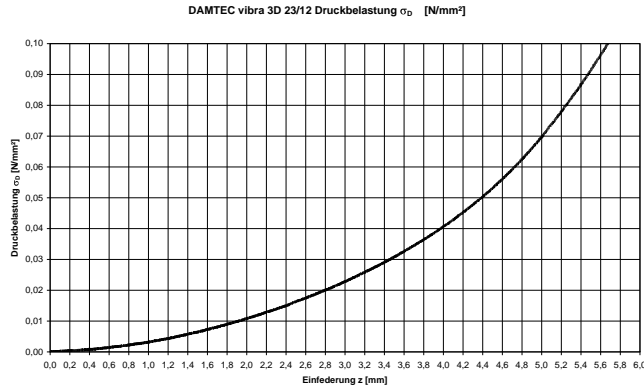
5.3. SPEBA vibra-3D 2x 17/9



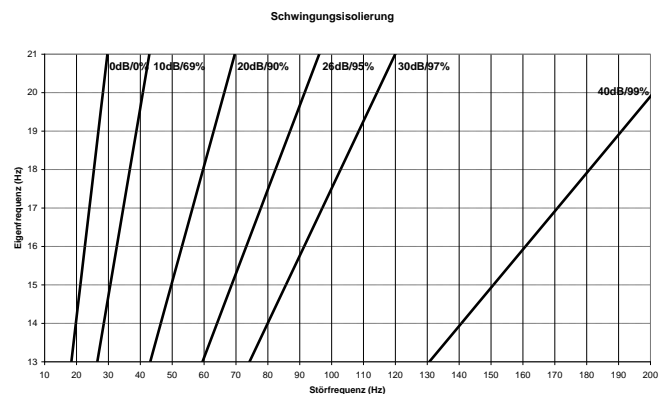
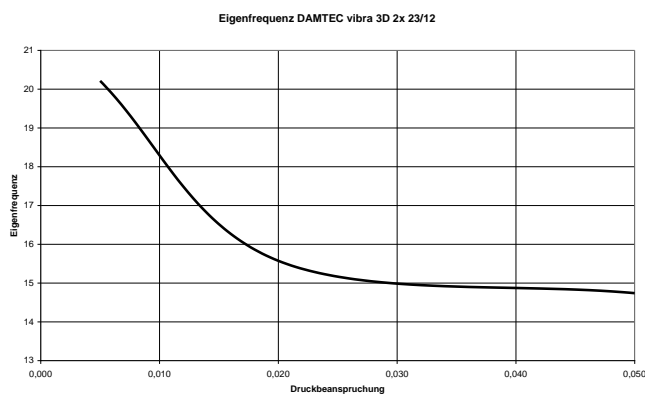
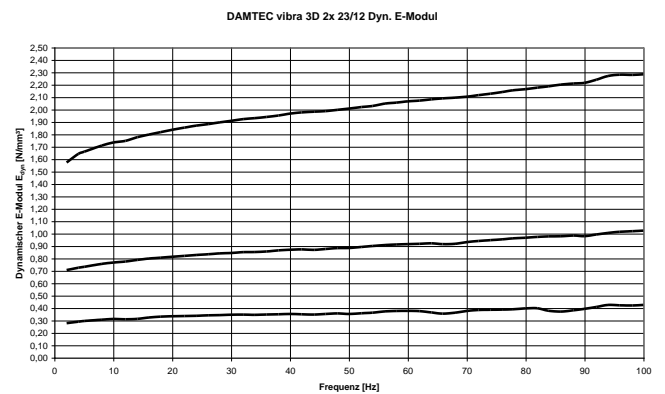
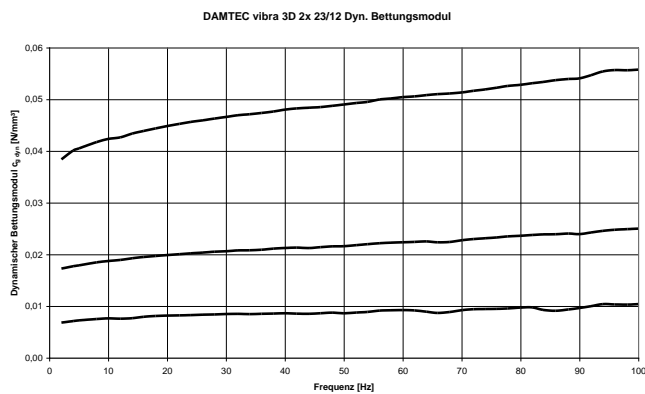
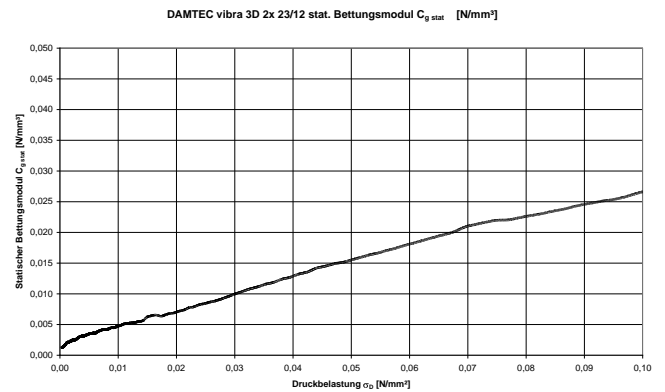
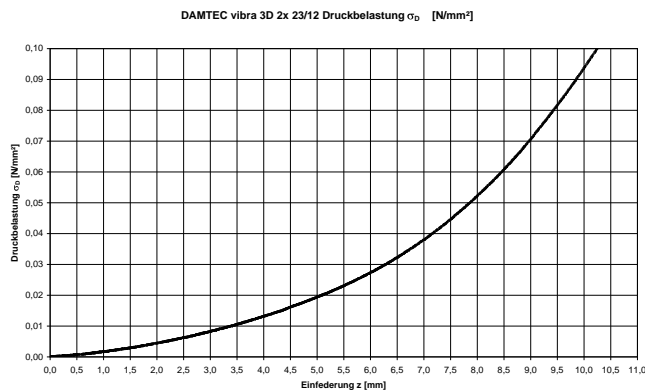
5.4. SPEBA vibra-3D 3x 17/9



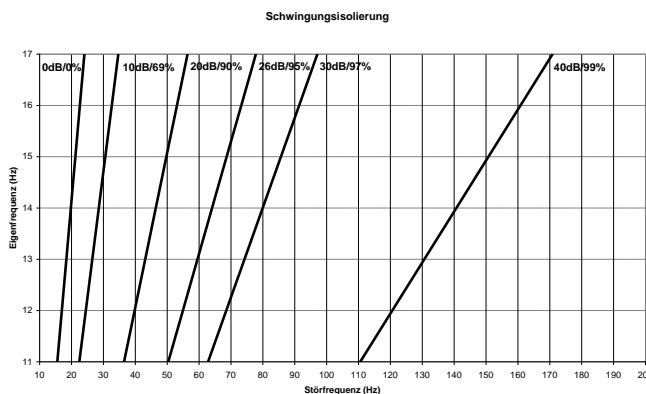
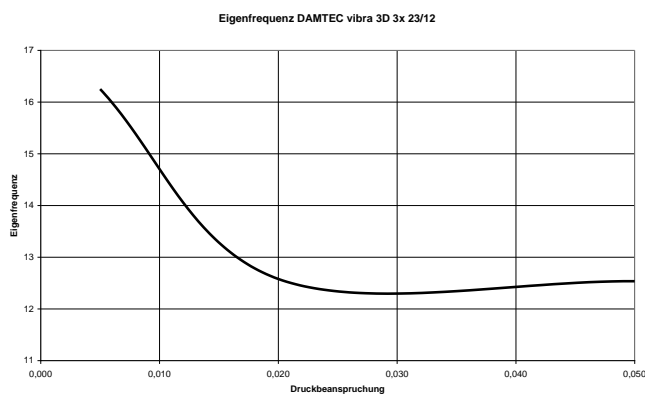
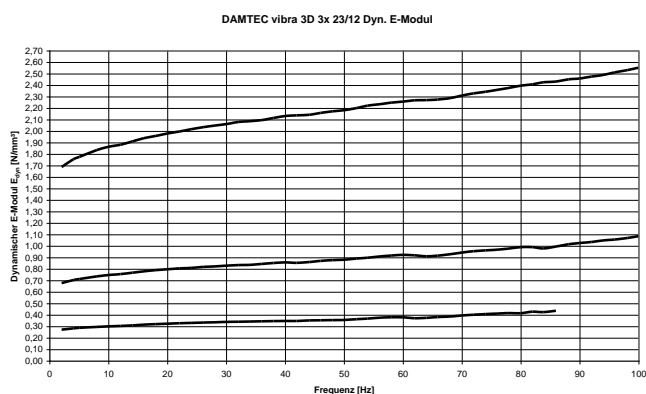
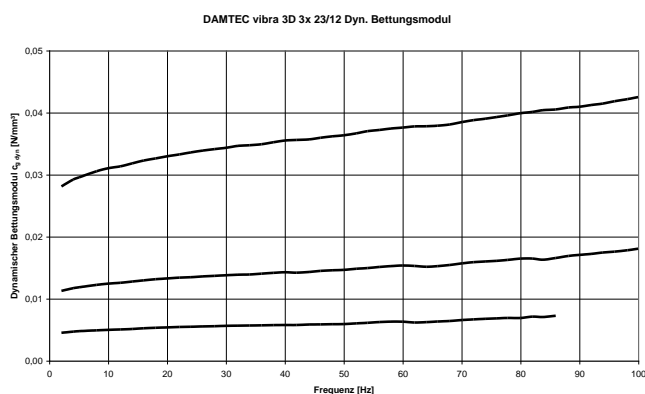
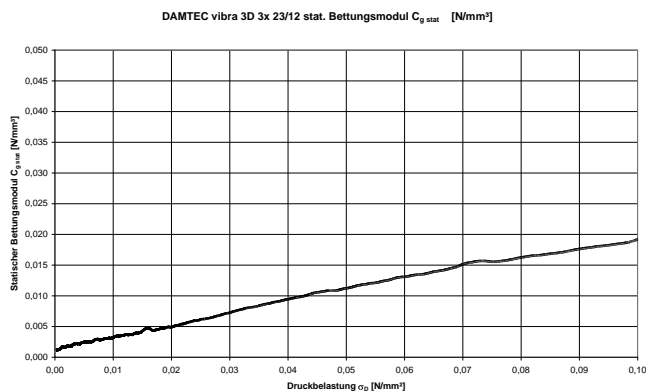
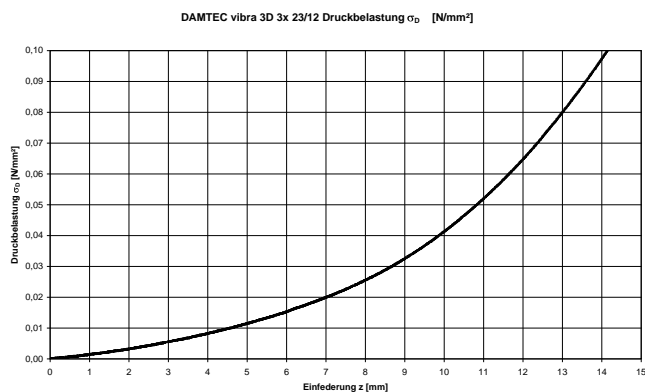
5.5. SPEBA vibra-3D 1x 23/12



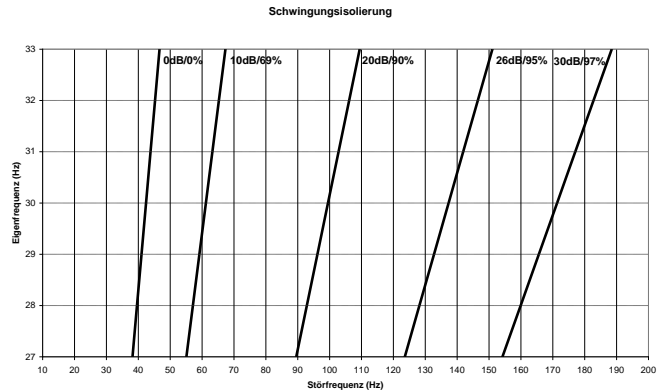
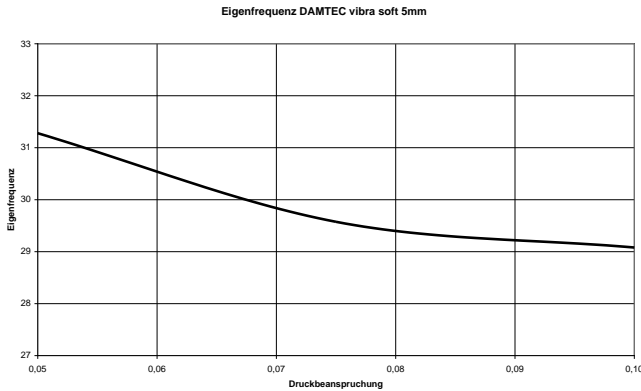
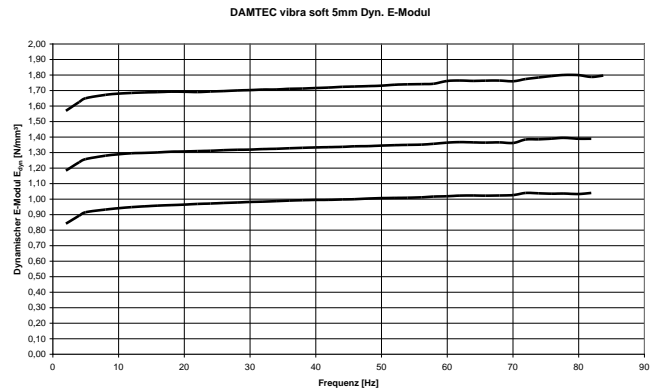
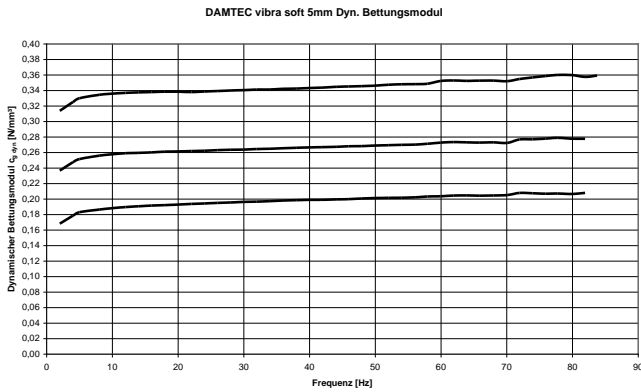
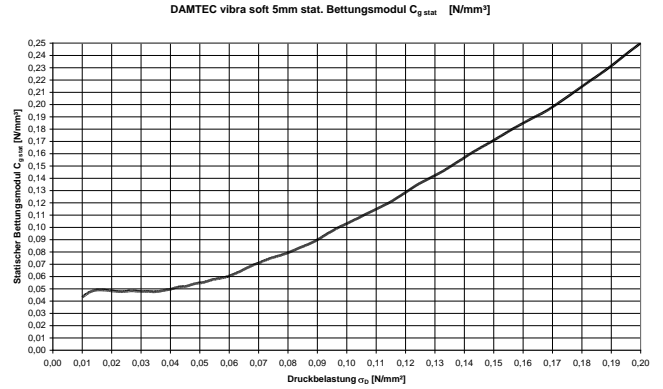
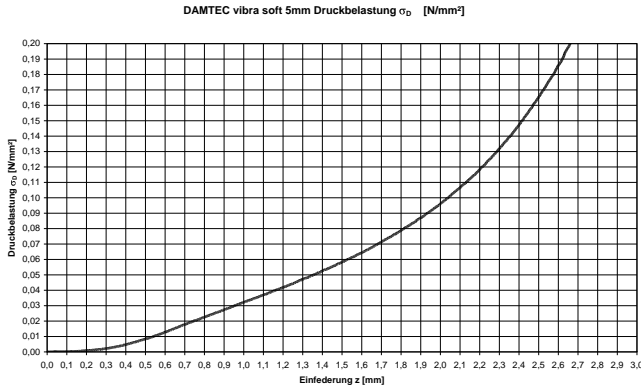
5.6. SPEBA vibra-3D 2x 23/12



5.7. SPEBA vibra-3D 3x 23/12

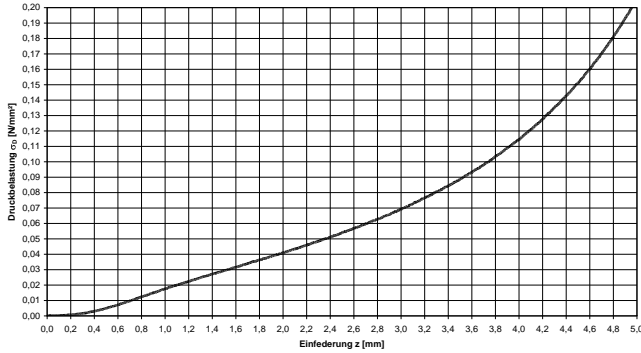


5.8. SPEBA vibra-soft 5mm

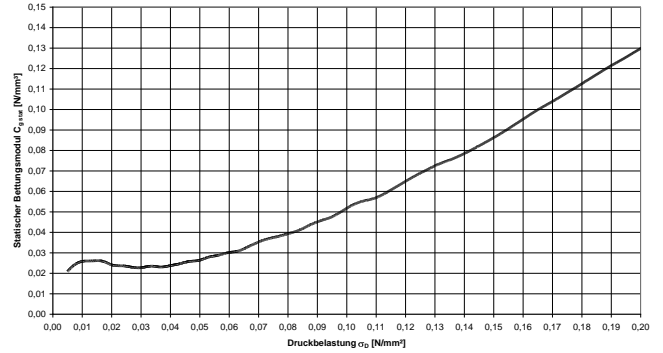


5.9. SPEBA vibra-soft 10mm

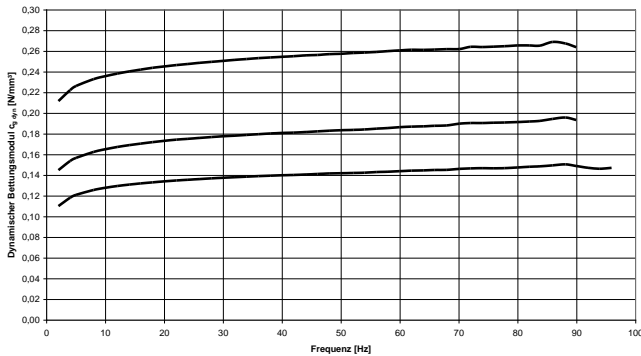
DAMTEC vibra soft 10mm Druckbelastung σ_0 [N/mm²]



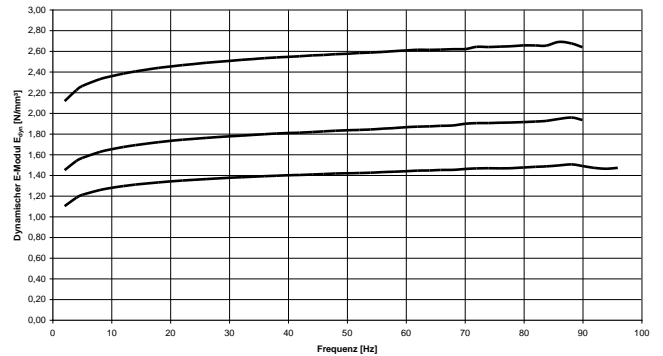
DAMTEC vibra soft 10mm stat. Bettungsmodul $C_{9,stat}$ [N/mm²]



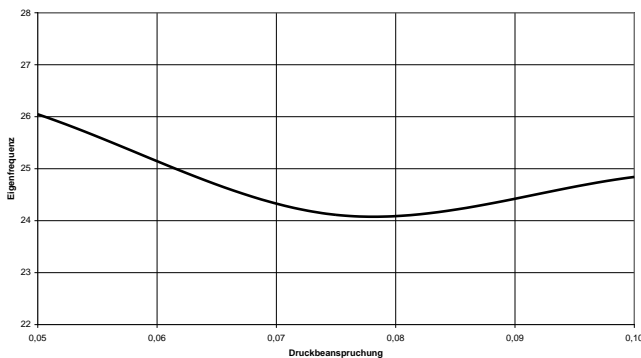
DAMTEC vibra soft 10mm Dyn. Bettungsmodul



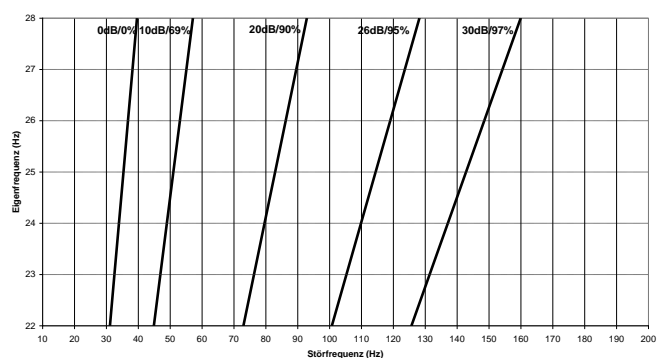
DAMTEC vibra soft 10mm Dyn. E-Modul



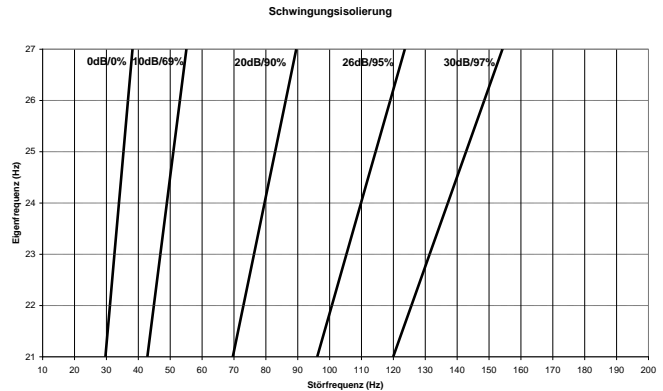
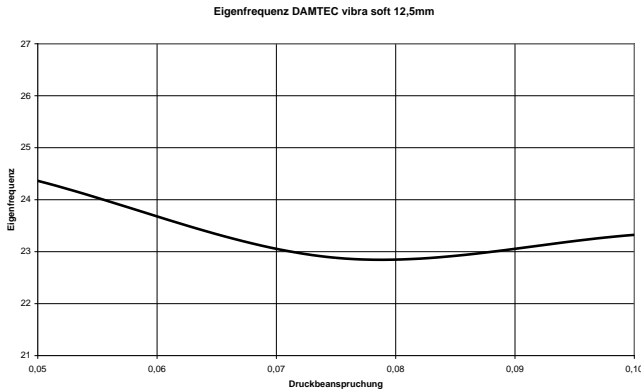
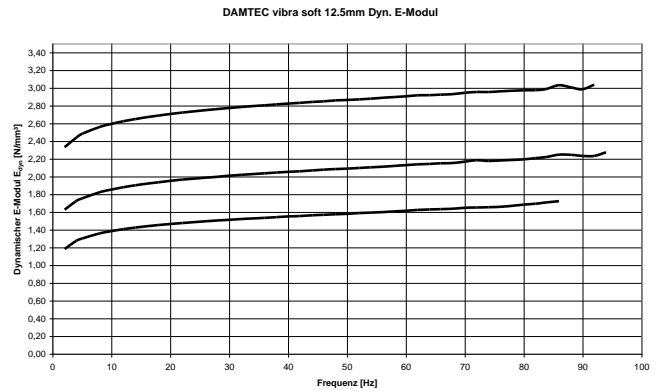
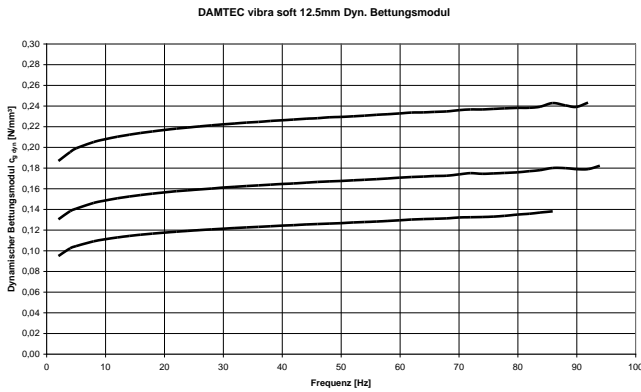
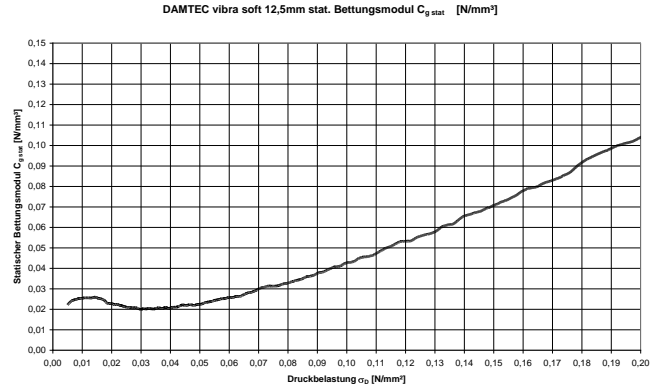
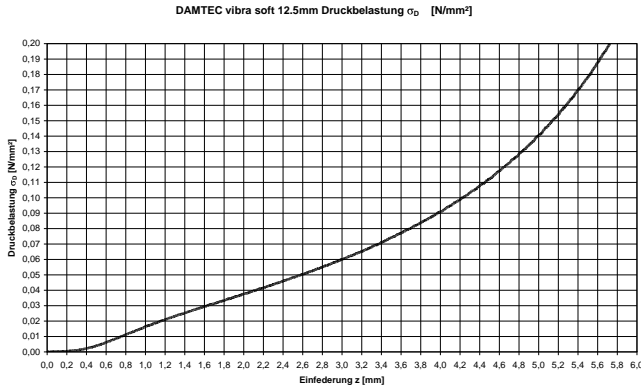
Eigenfrequenz DAMTEC vibra soft 10mm



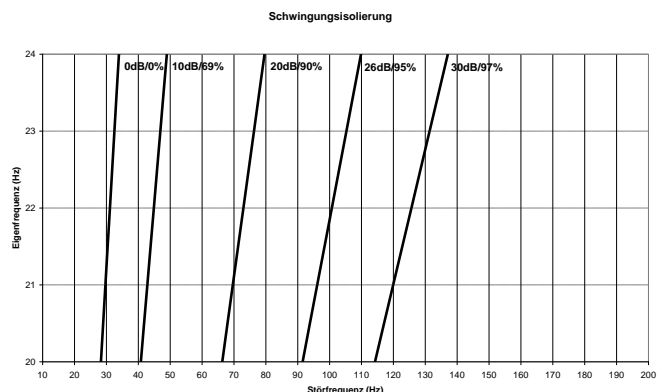
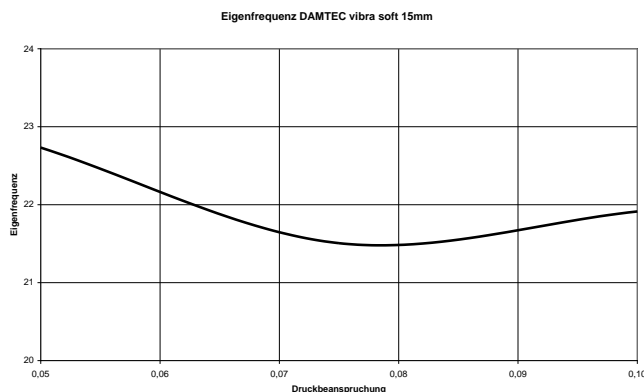
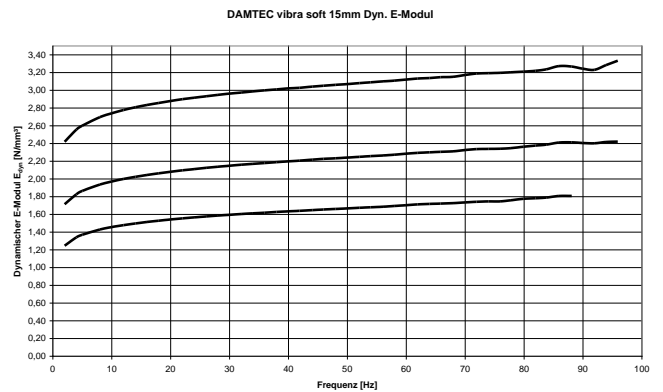
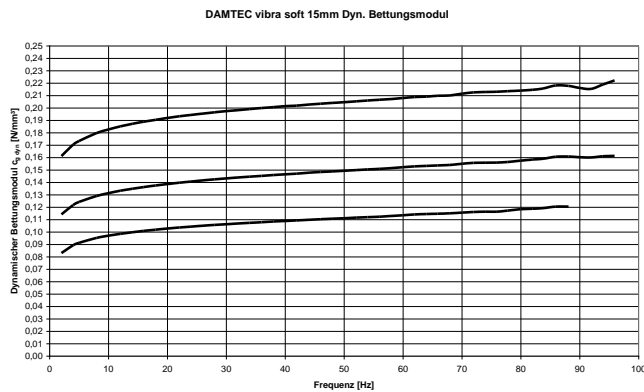
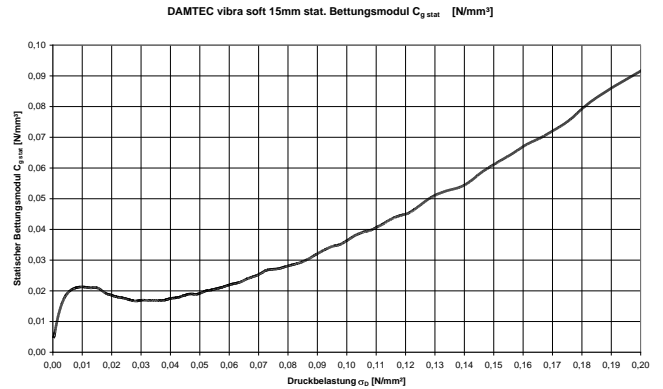
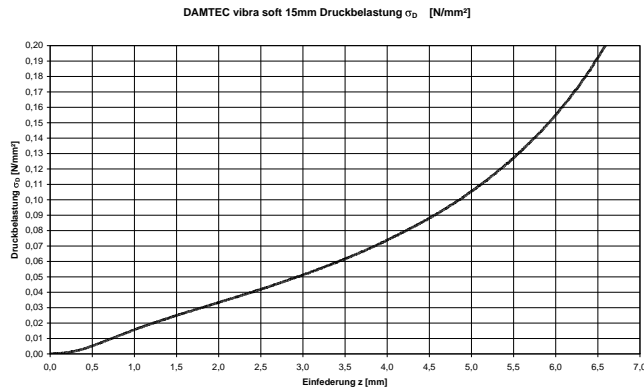
Schwingungsisolierung



5.10. SPEBA vibra-soft 12.5mm

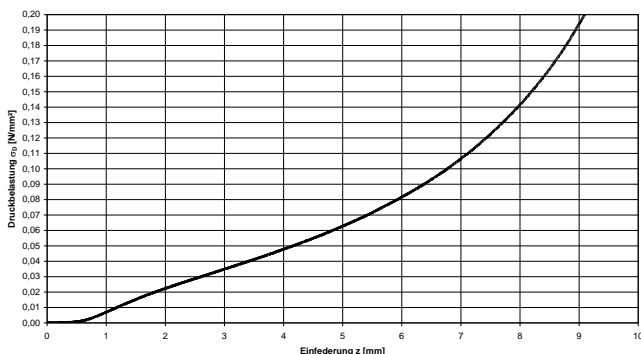


5.11. SPEBA vibra-soft 15mm

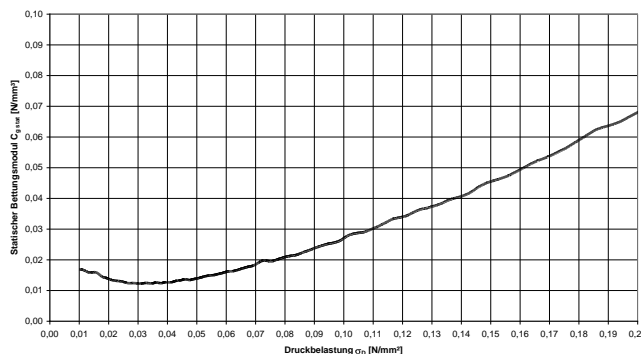


5.12. SPEBA vibra-soft 20mm

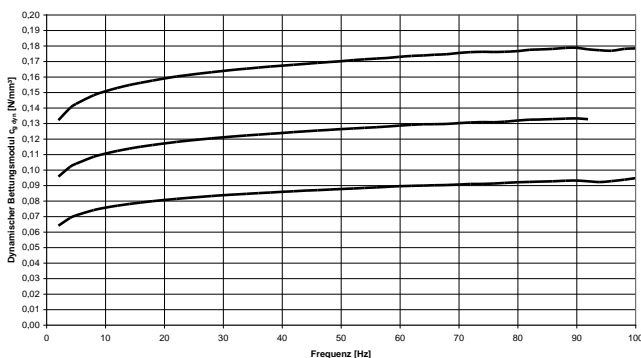
DAMTEC vibra soft 20mm Druckbelastung σ_D [N/mm²]



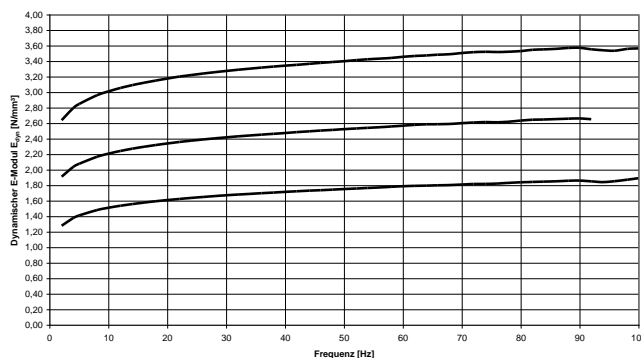
DAMTEC vibra soft 20mm stat. Bettungsmodul $C_{q,stat}$ [N/mm²]



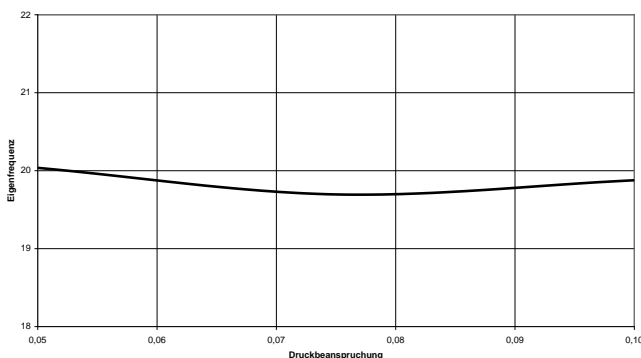
DAMTEC vibra soft 20mm Dyn. Bettungsmodul



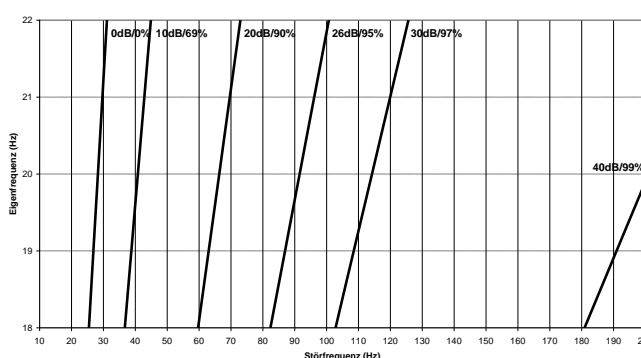
DAMTEC vibra soft 20mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra soft 20mm

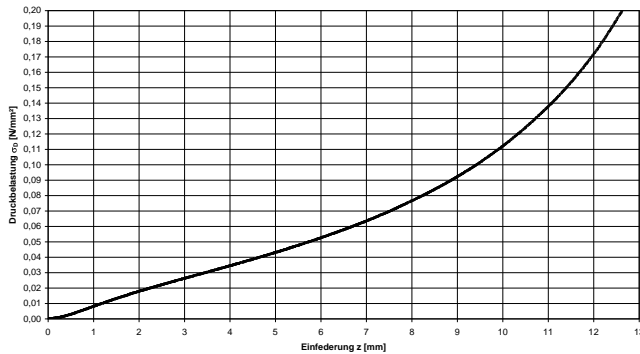


Schwingungsisolierung

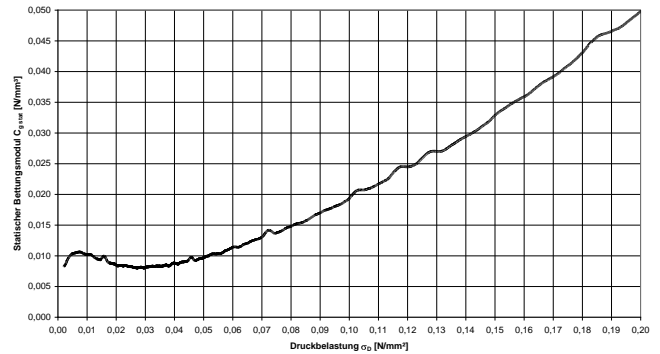


5.13. SPEBA vibra-soft 2x 15mm

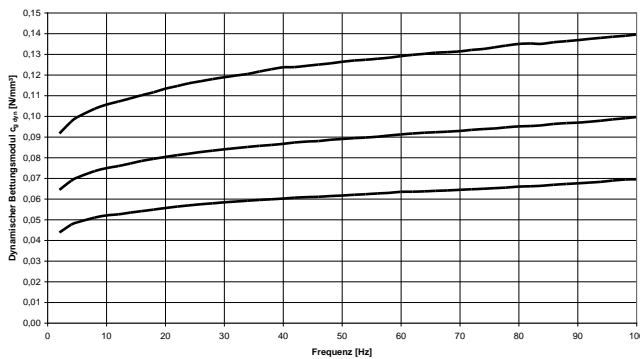
DAMTEC vibra soft 2x 15mm Druckbelastung σ_0 [N/mm²]



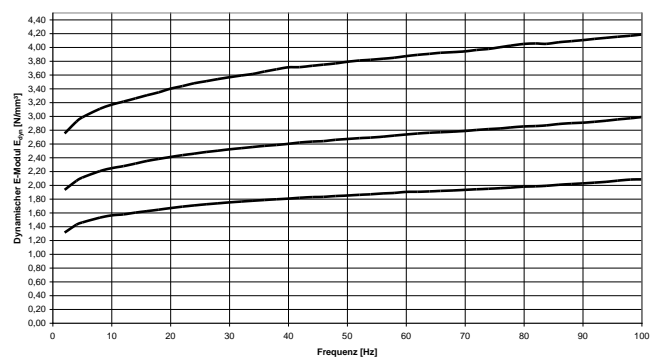
DAMTEC vibra soft 2x 15mm stat. Bettungsmodul $C_{0,stat}$ [N/mm³]



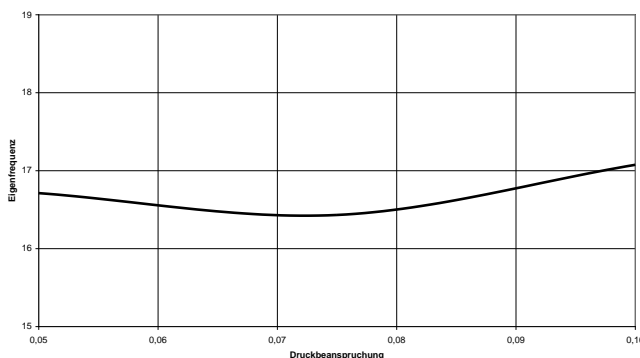
DAMTEC vibra soft 2x 15mm Dyn. Bettungsmodul



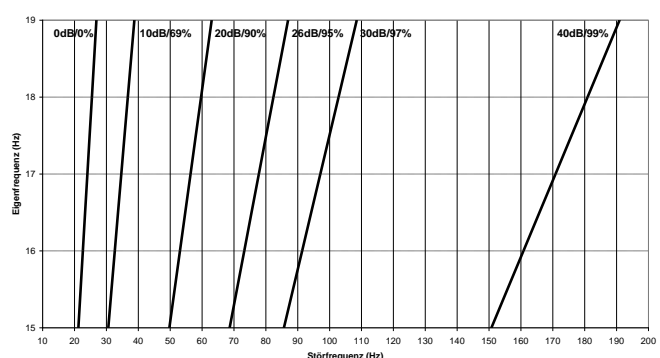
DAMTEC vibra soft 2x 15mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra soft 2x 15mm

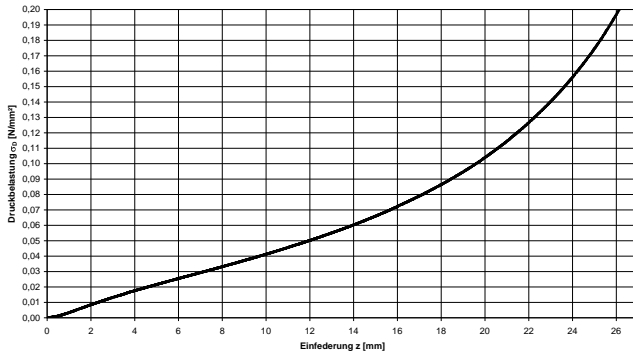


Schwingungsisolierung

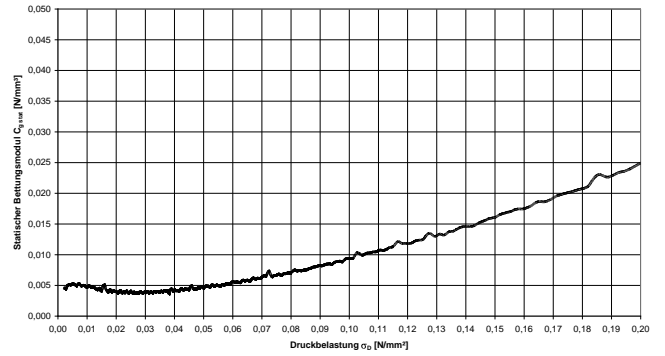


5.14. SPEBA vibra-soft 3x 20mm

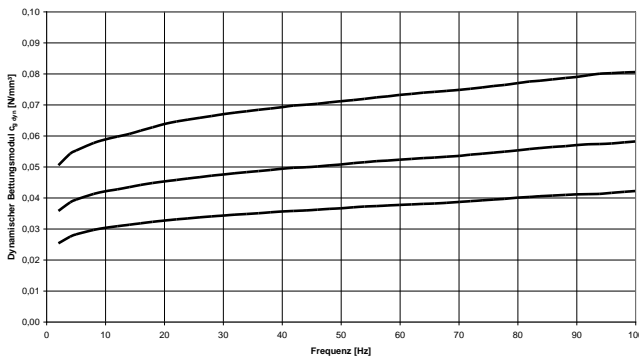
DAMTEC vibra soft 3x 20mm Druckbelastung σ_D [N/mm²]



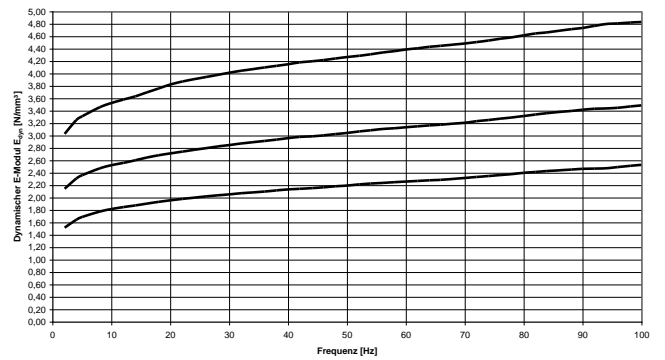
DAMTEC vibra soft 3x 20mm stat. Bettungsmodul $C_{9,stat}$ [N/mm²]



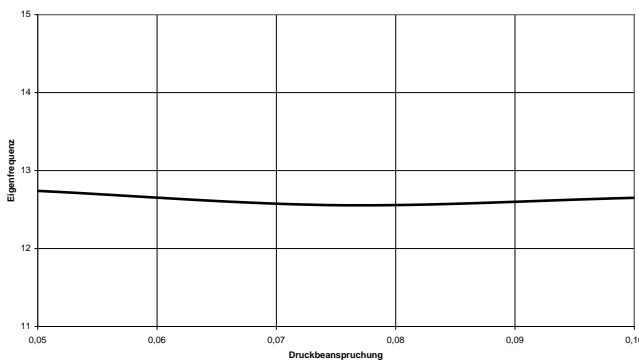
DAMTEC vibra soft 3x 20mm Dyn. Bettungsmodul



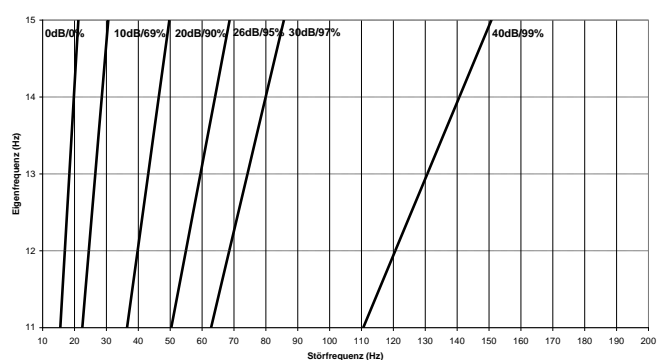
DAMTEC vibra soft 3x 20mm Dyn. E-Modul



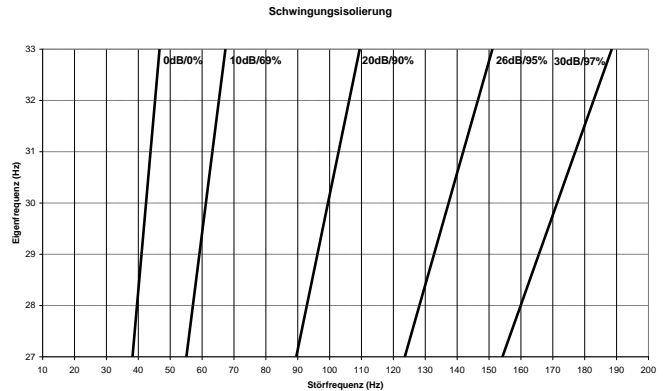
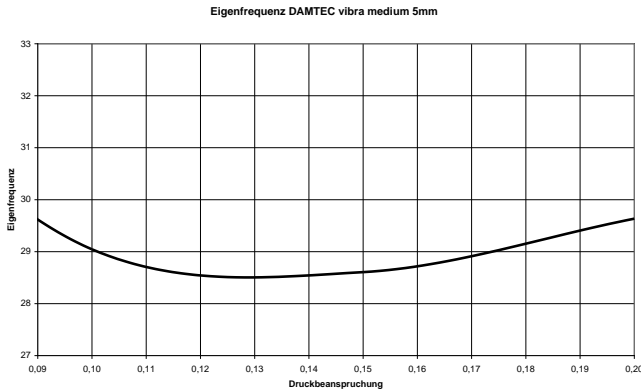
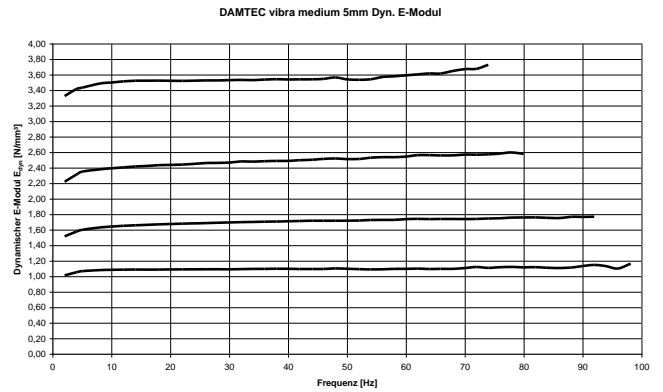
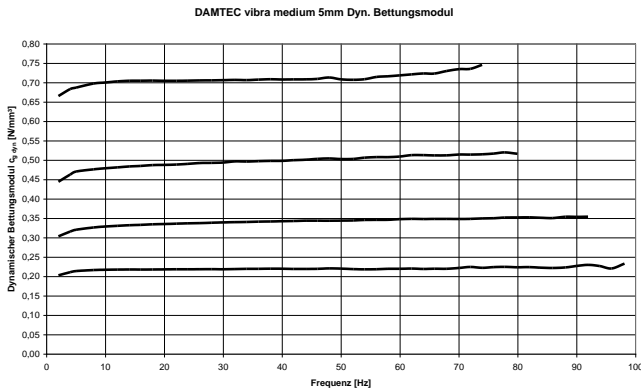
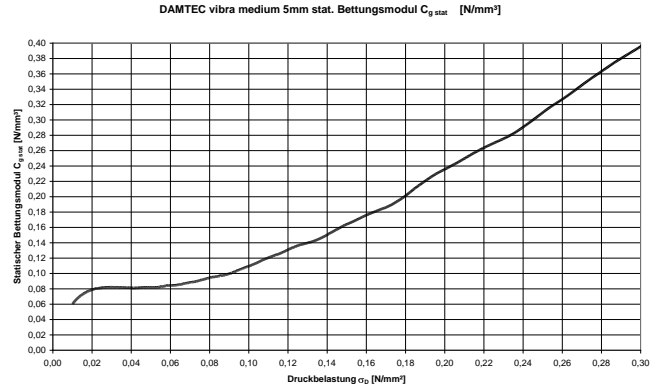
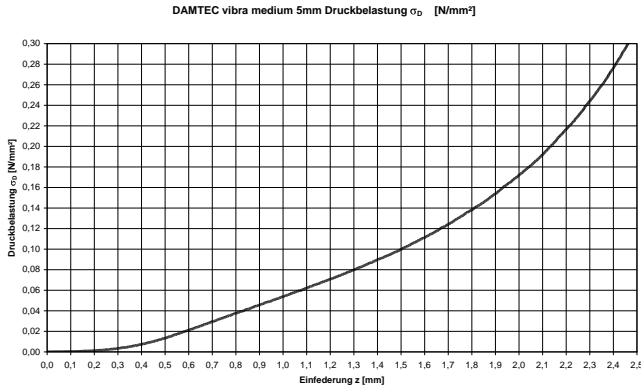
Eigenfrequenz DAMTEC vibra soft 3x 20mm



Schwingungsisolierung

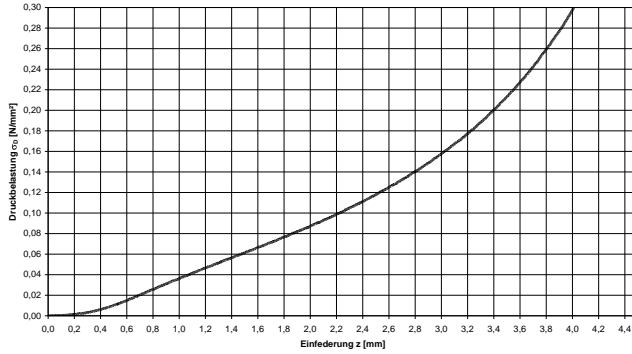


5.15. SPEBA vibra-medium 5mm

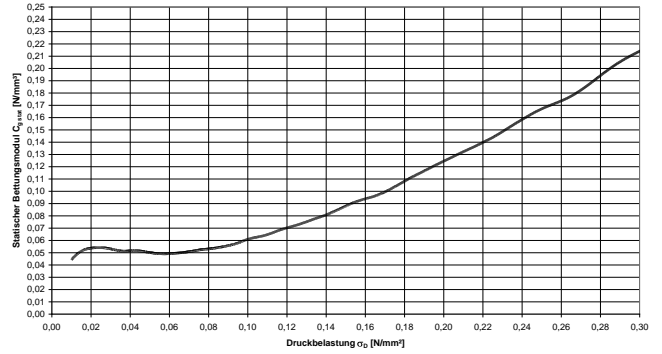


5.16. SPEBA vibra-medium 10mm

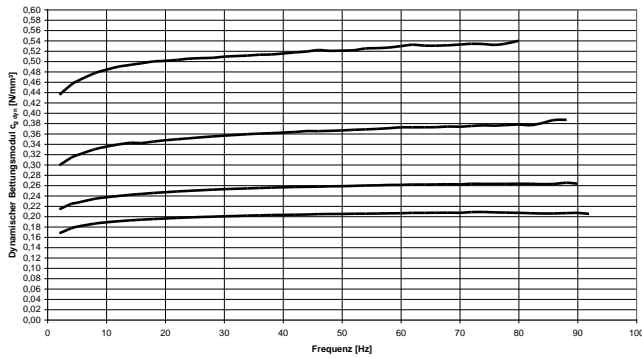
DAMTEC vibra medium 10mm Druckbelastung σ_0 [N/mm²]



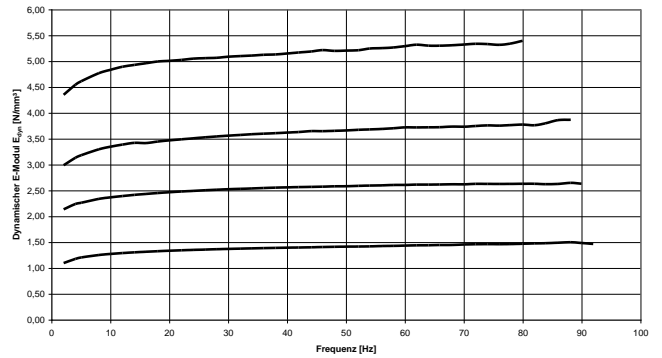
DAMTEC vibra medium 10mm stat. Bettungsmodul $C_{p, stat}$ [N/mm²]



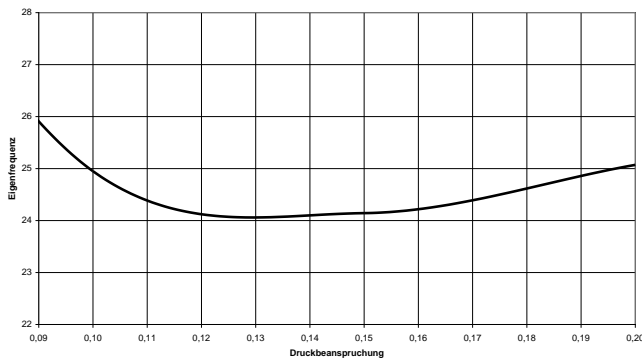
DAMTEC vibra medium 10mm Dyn. Bettungsmodul



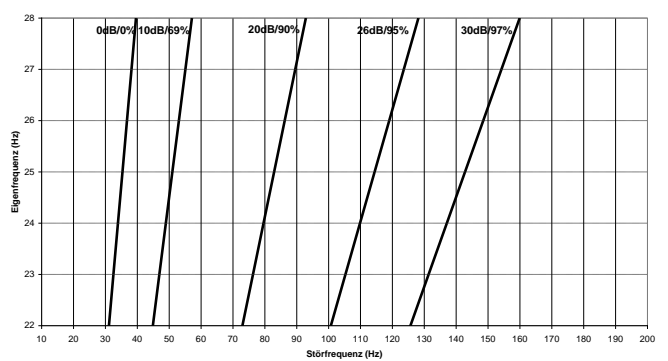
DAMTEC vibra medium 10mm Dyn. E-Modul



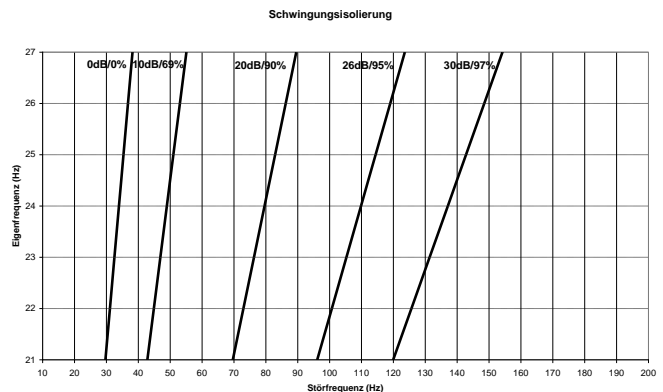
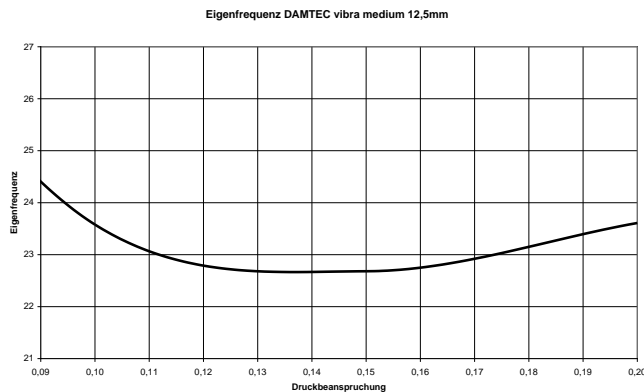
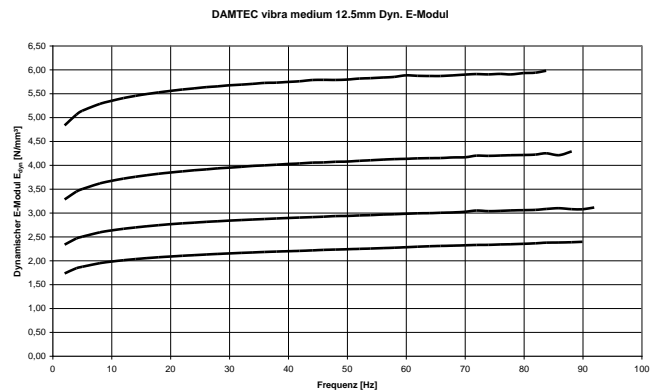
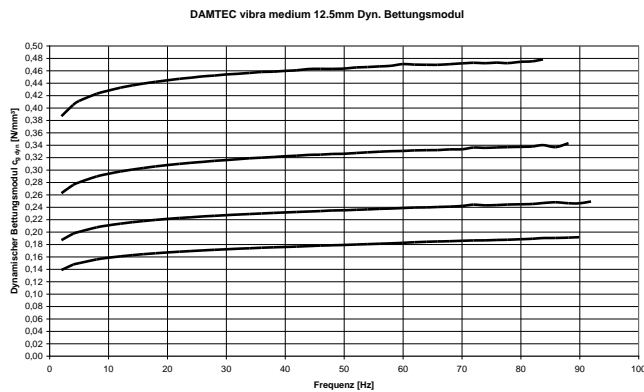
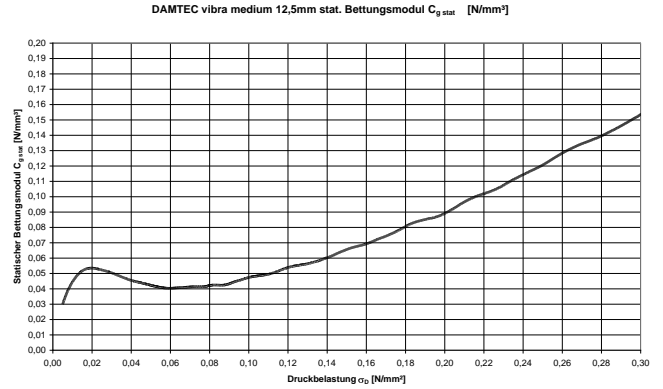
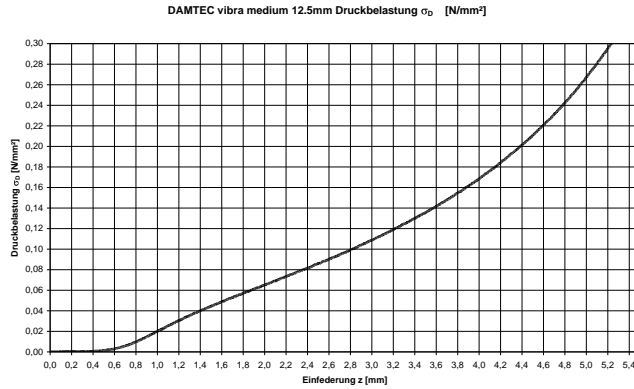
Eigenfrequenz DAMTEC vibra medium 10mm



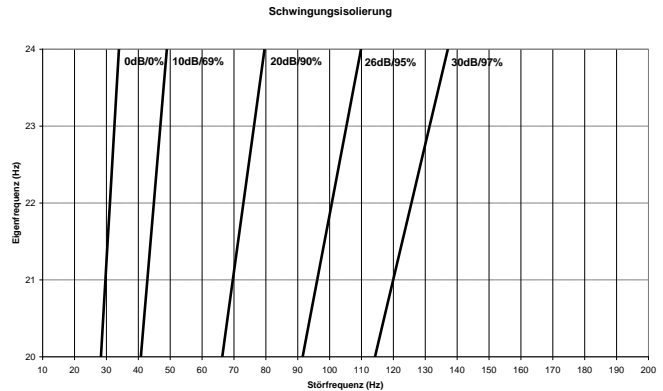
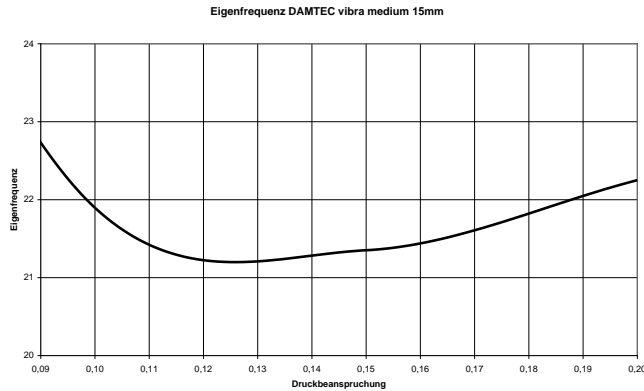
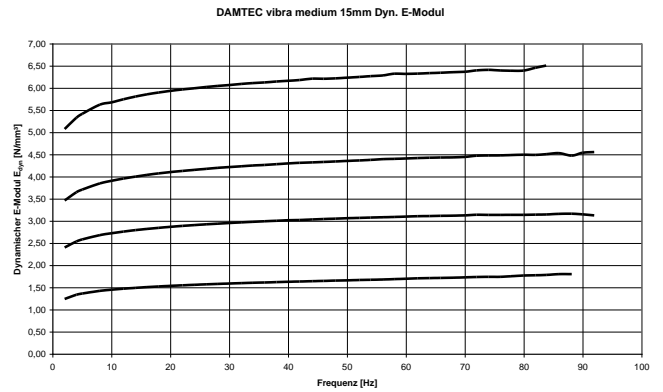
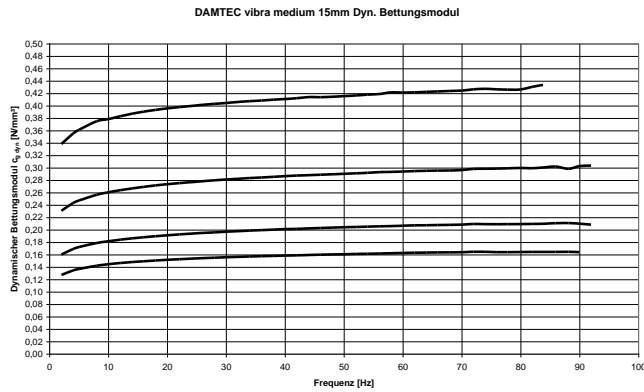
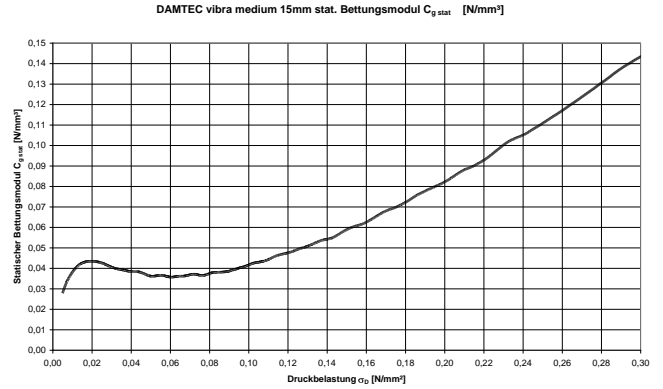
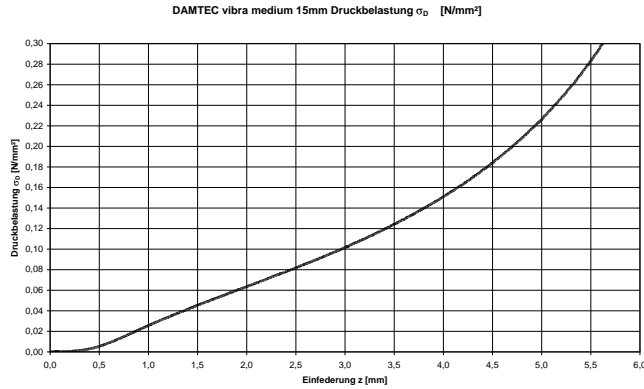
Schwingungsisolierung



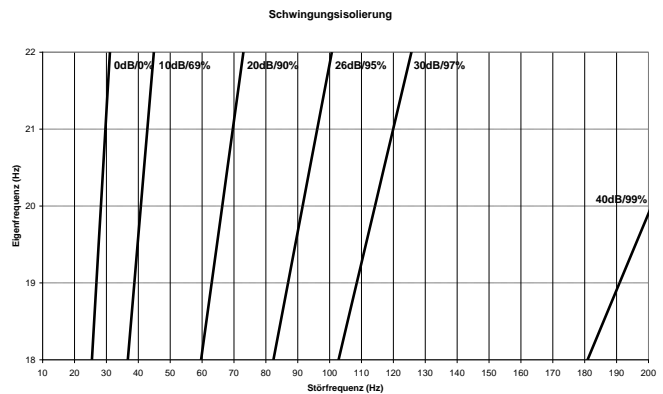
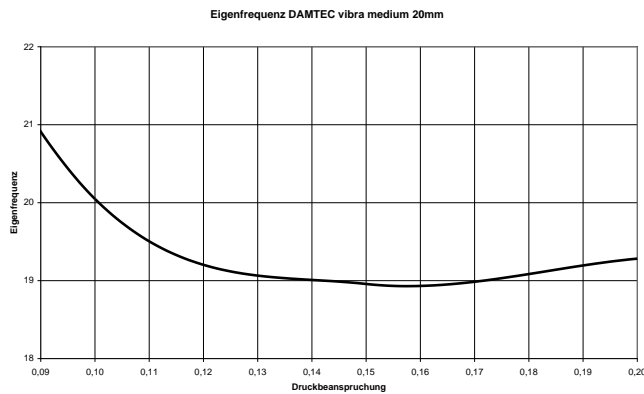
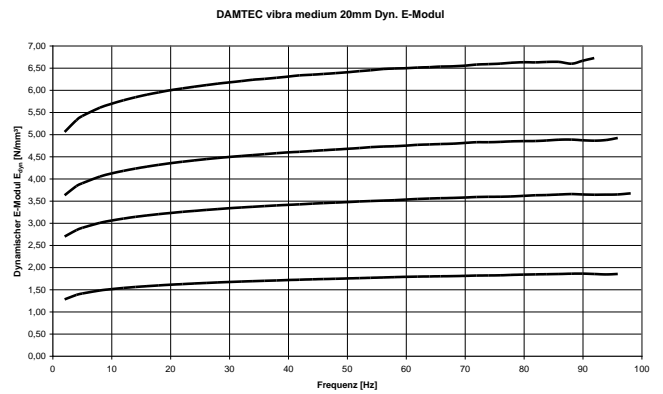
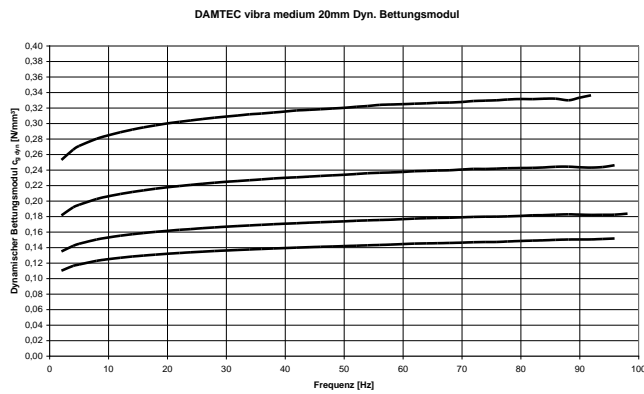
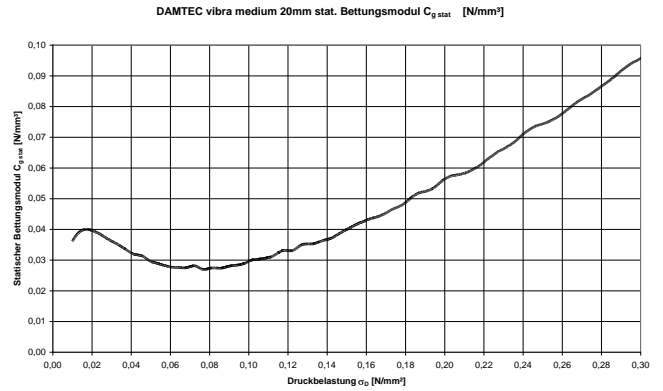
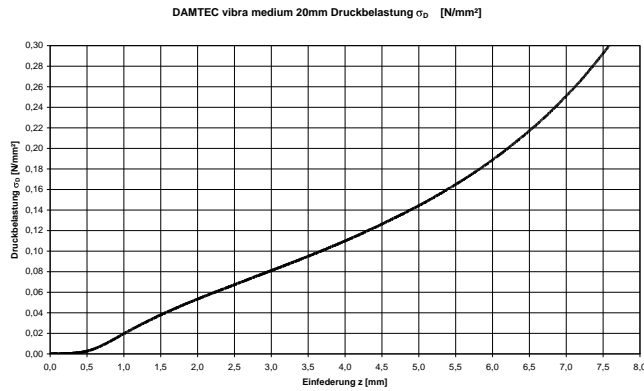
5.17. SPEBA vibra-medium 12.5mm



5.18. SPEBA vibra-medium 15mm

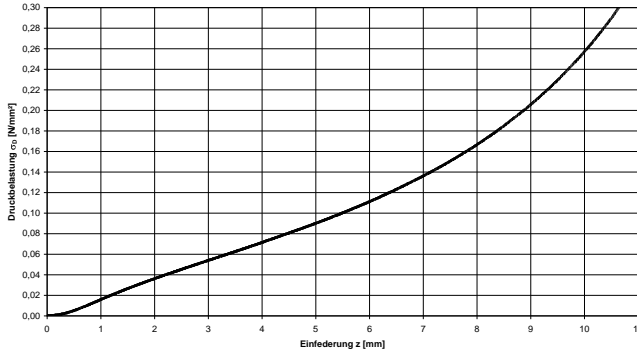


5.19. SPEBA vibra-medium 20mm

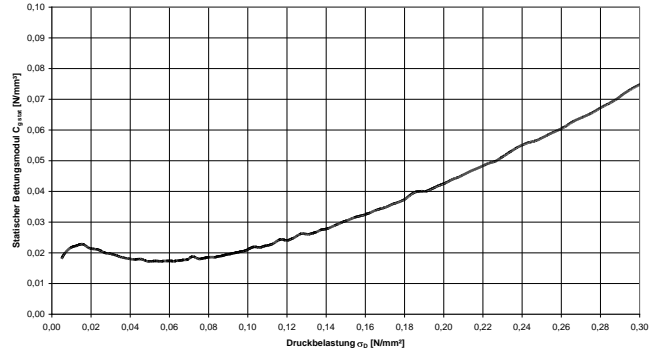


5.20. SPEBA vibra-medium 2x 15mm

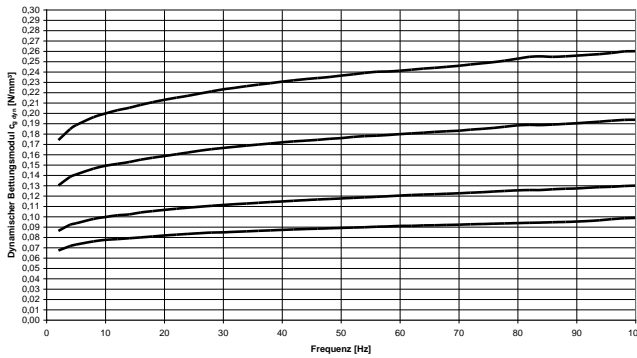
DAMTEC vibra medium 2x 15mm Druckbelastung σ_D [N/mm²]



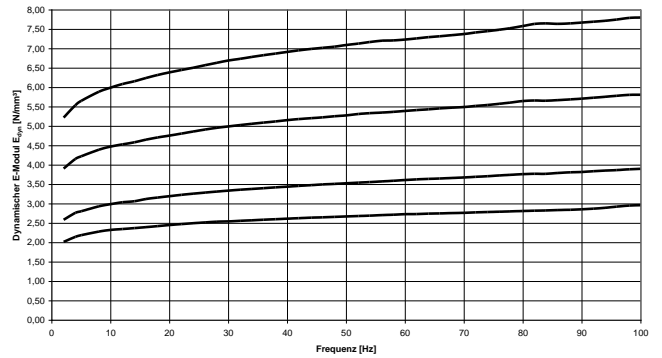
DAMTEC vibra medium 2x 15mm stat. Bettungsmodul $C_{D,stat}$ [N/mm²]



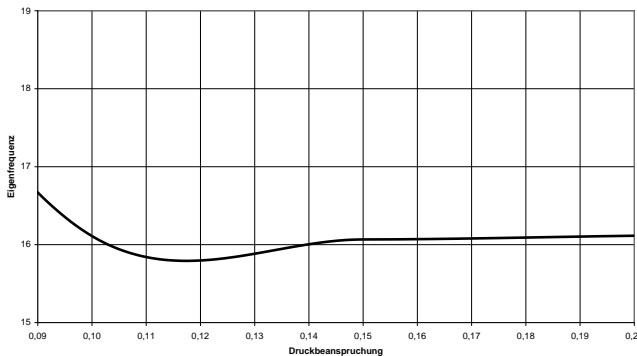
DAMTEC vibra medium 2x 15mm Dyn. Bettungsmodul



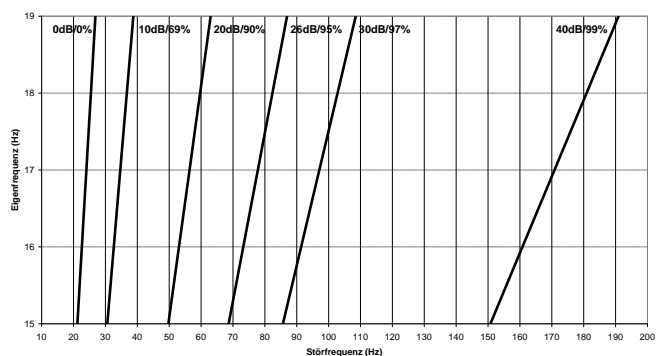
DAMTEC vibra medium 2x 15mm Dyn. E-Modul



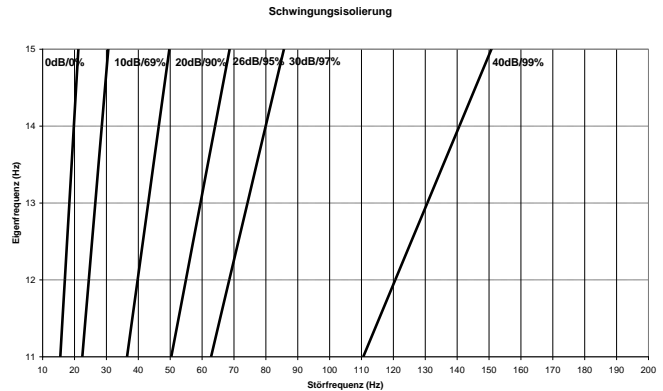
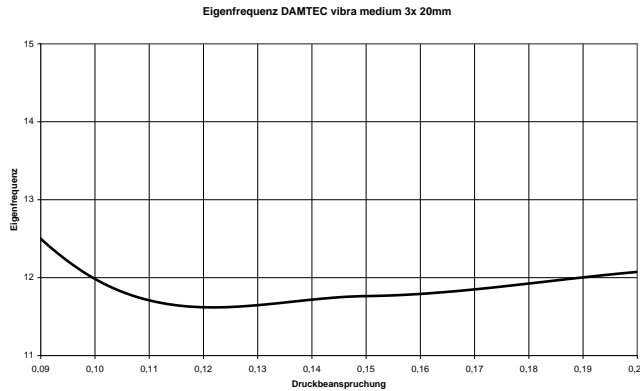
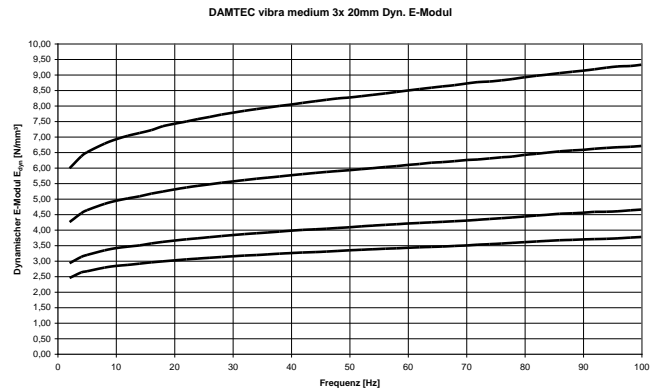
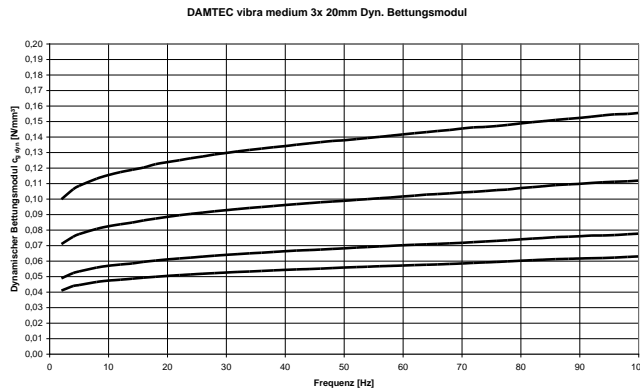
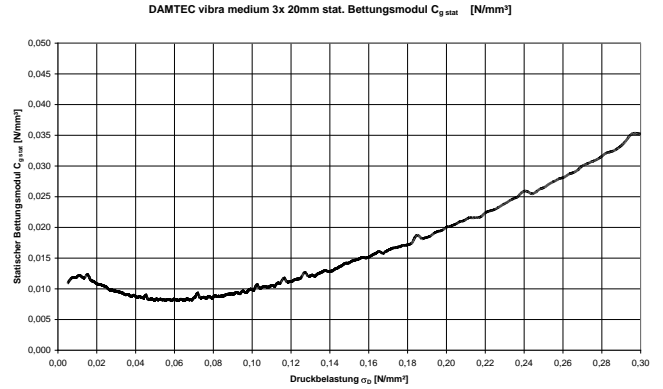
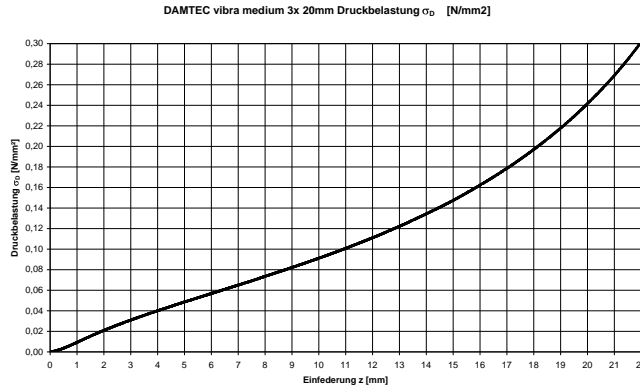
Eigenfrequenz DAMTEC vibra medium 2x 15mm



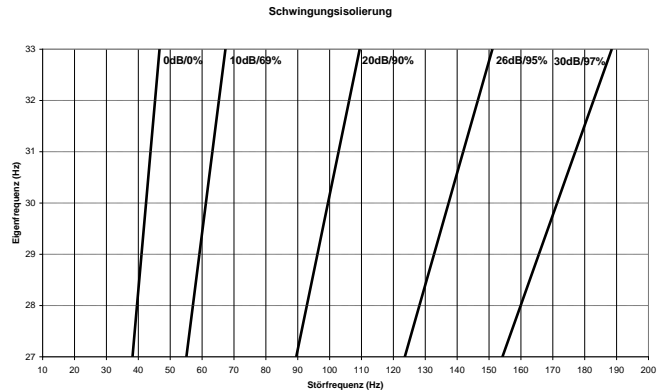
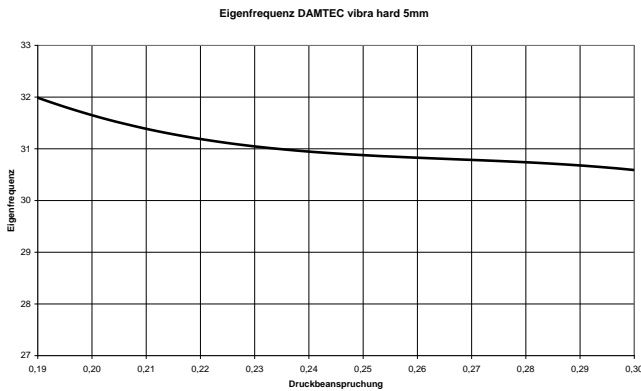
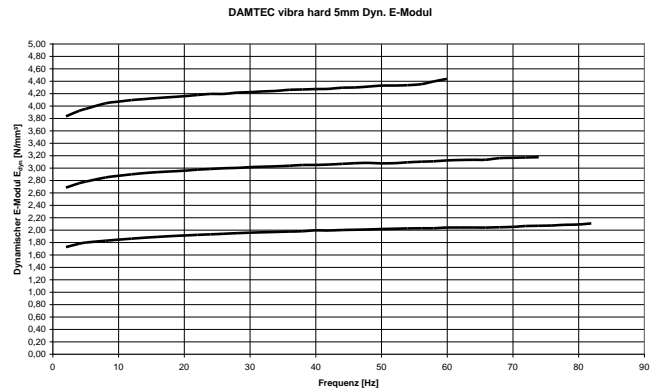
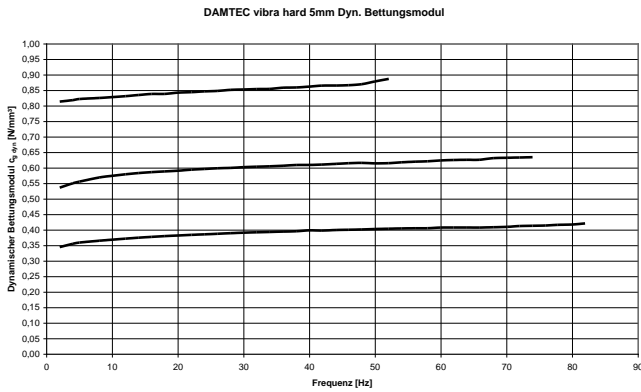
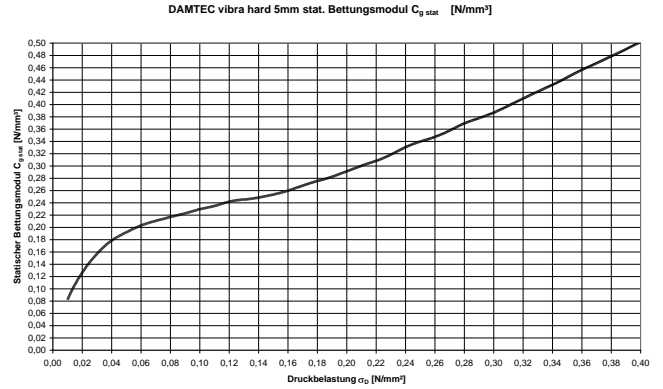
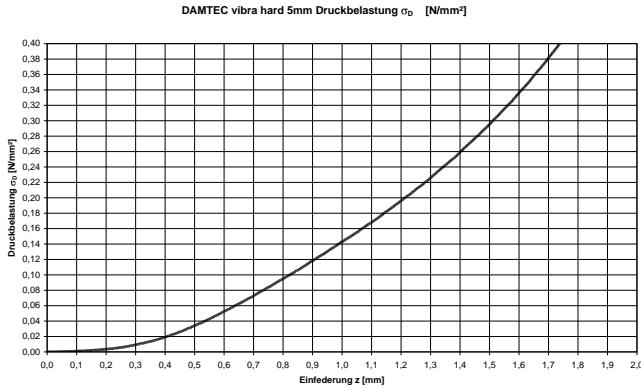
Schwingungsisolierung



5.21. SPEBA vibra-medium 3x 20mm

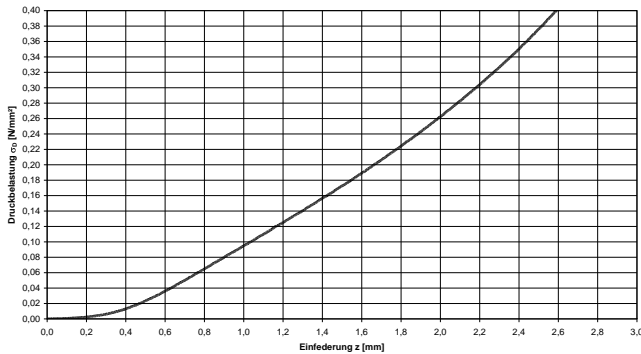


5.22. SPEBA vibra-hard 5mm

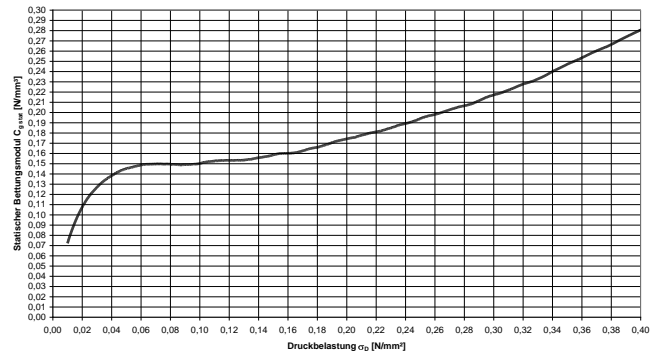


5.23. SPEBA vibra-hard 10mm

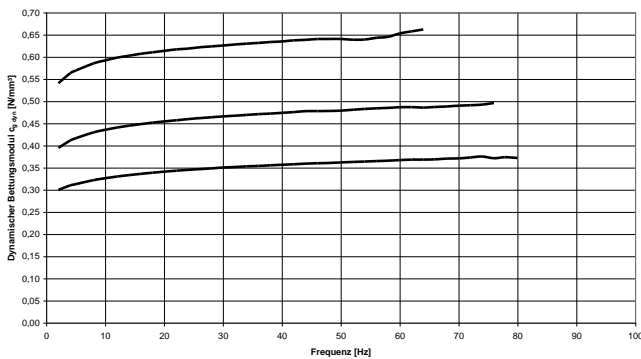
DAMTEC vibra hard 10mm Druckbelastung σ_0 [N/mm²]



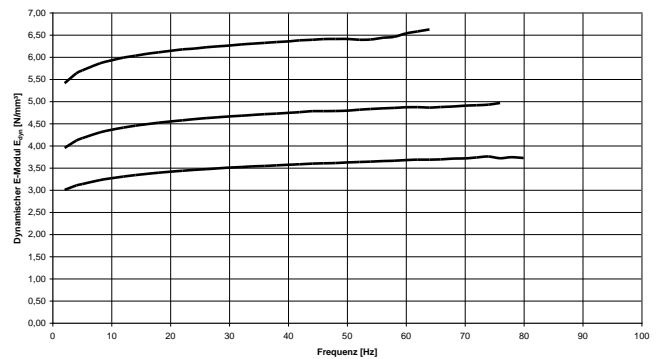
DAMTEC vibra hard 10mm stat. Bettungsmodul $C_{\beta \text{ stat}}$ [N/mm³]



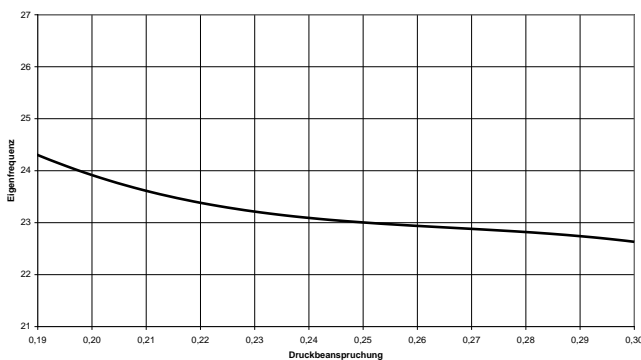
DAMTEC vibra hard 10mm Dyn. Bettungsmodul



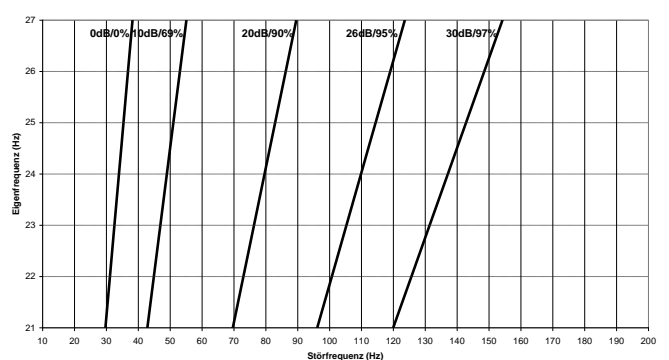
DAMTEC vibra hard 10mm Dyn. E-Modul



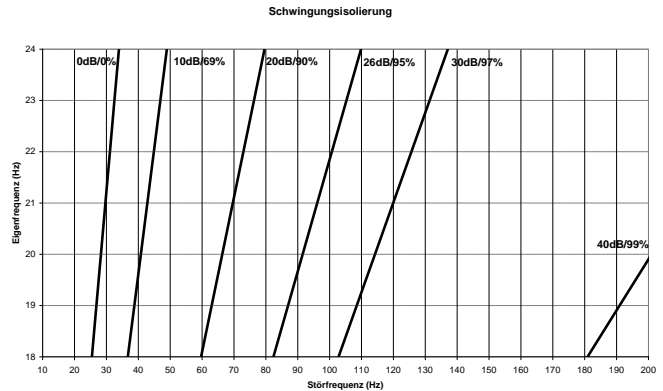
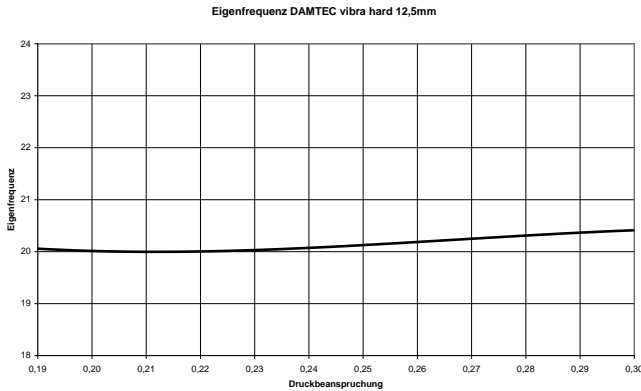
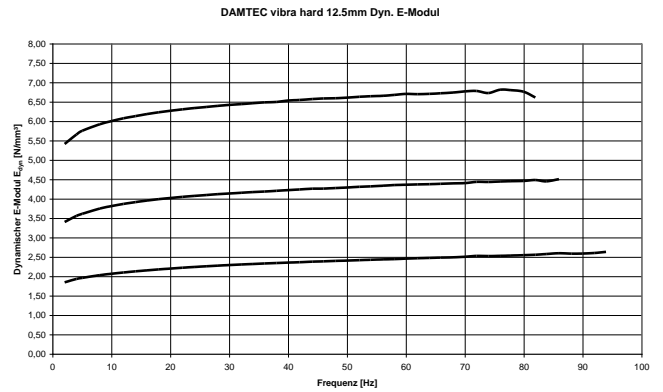
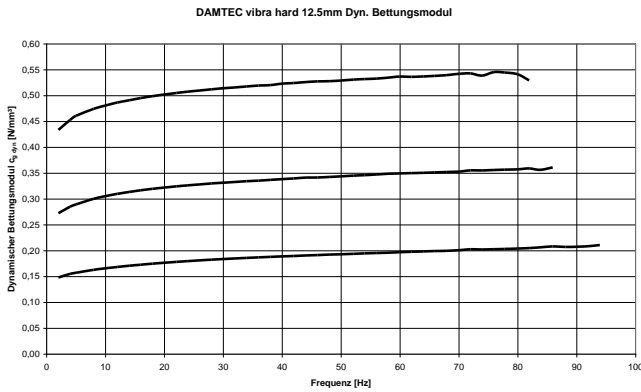
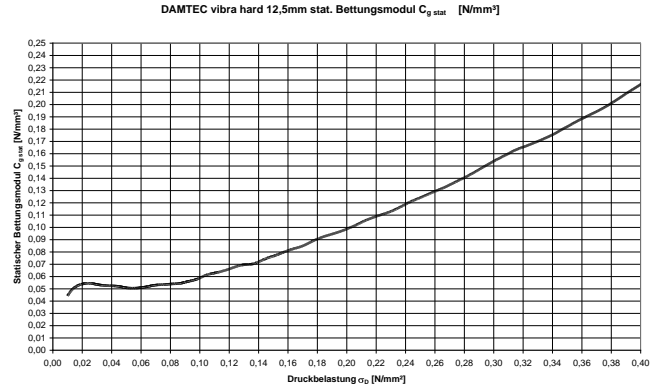
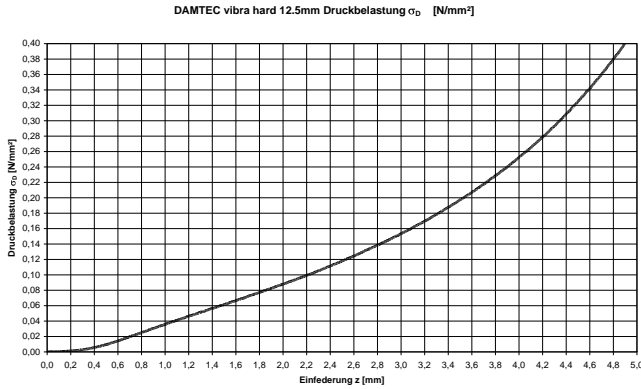
Eigenfrequenz DAMTEC vibra hard 10mm



Schwingungsisolierung

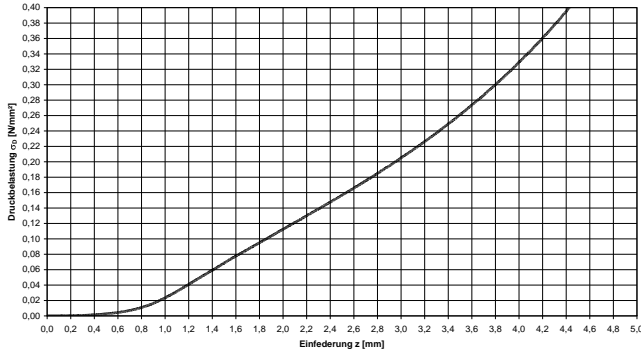


5.24. SPEBA vibra-hard 12.5mm

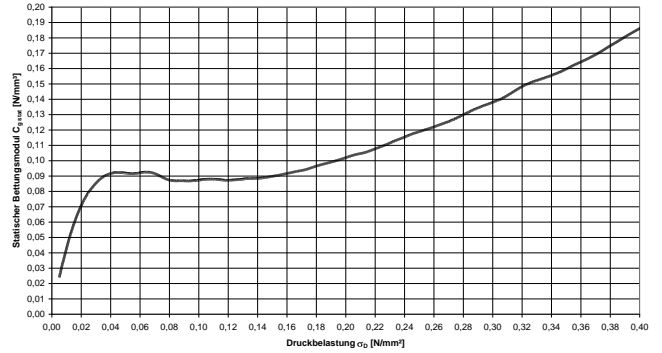


5.25. SPEBA vibra-hard 15mm

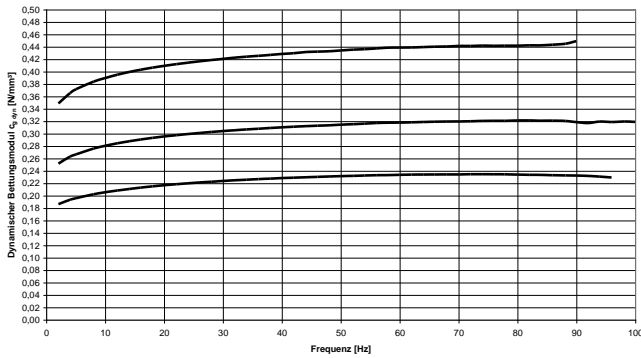
DAMTEC vibra hard 15mm Druckbelastung σ_0 [N/mm²]



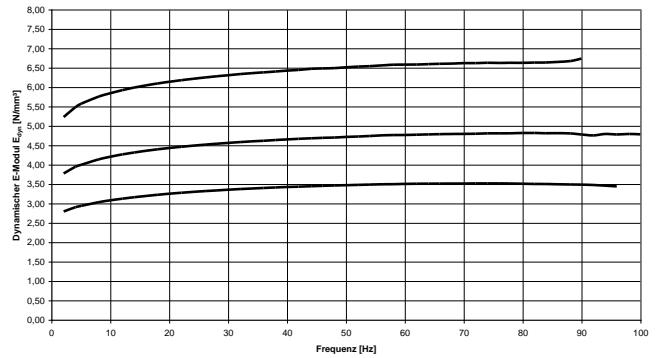
DAMTEC vibra hard 15mm stat. Bettungsmodul $C_{0\text{ stat}}$ [N/mm³]



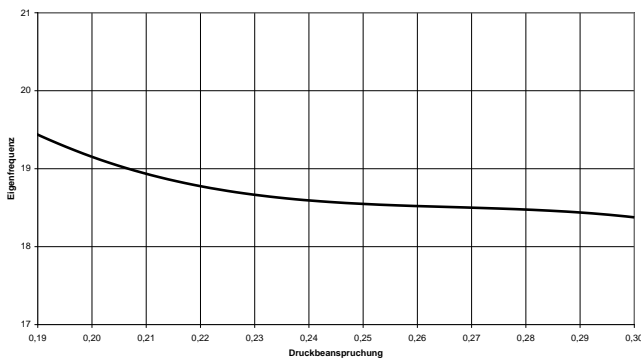
DAMTEC vibra hard 15mm Dyn. Bettungsmodul



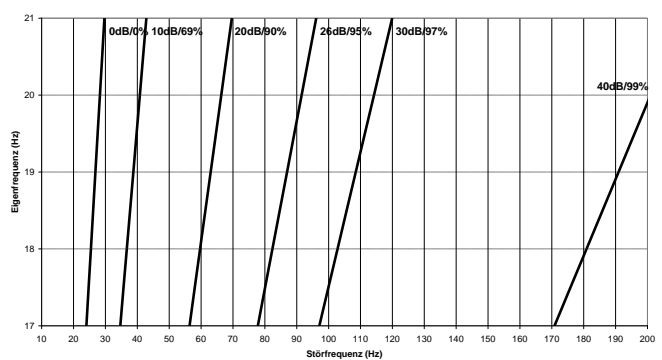
DAMTEC vibra hard 15mm Dyn. E-Modul



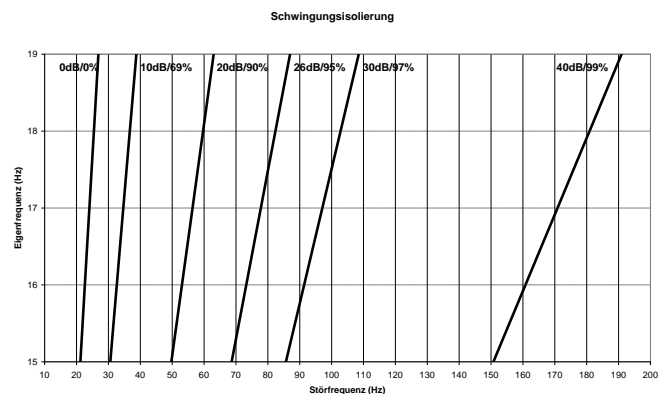
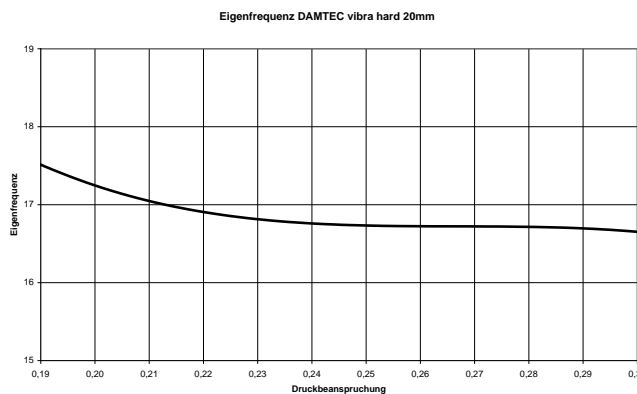
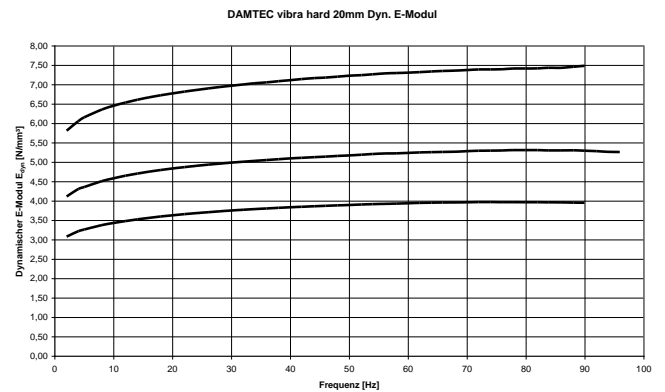
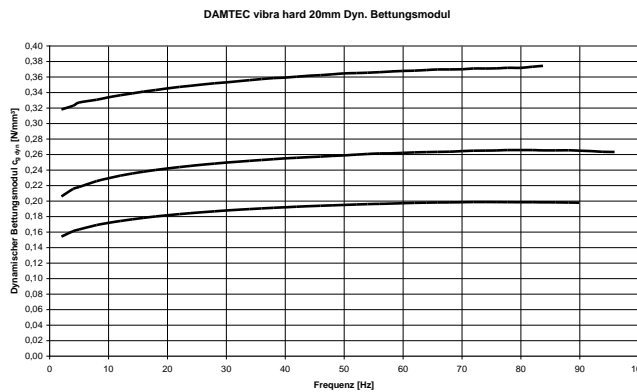
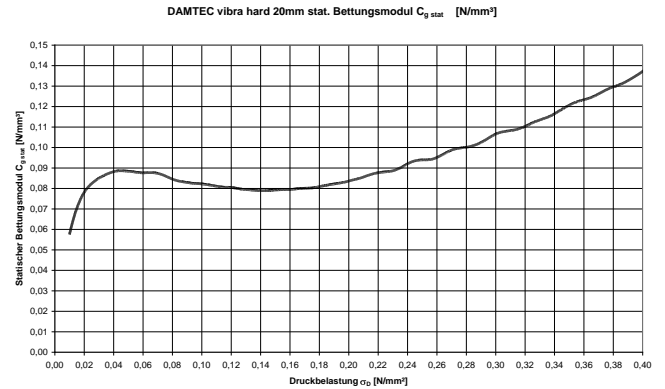
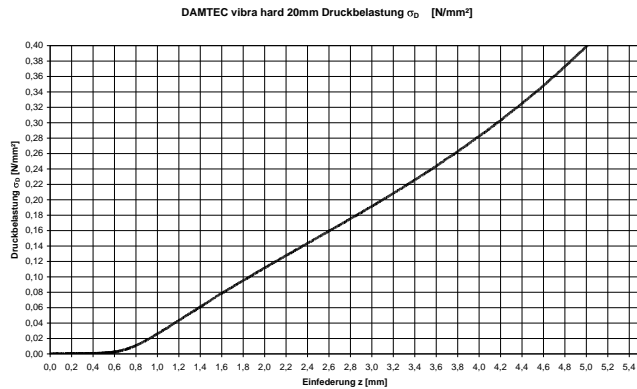
Eigenfrequenz DAMTEC vibra hard 15mm



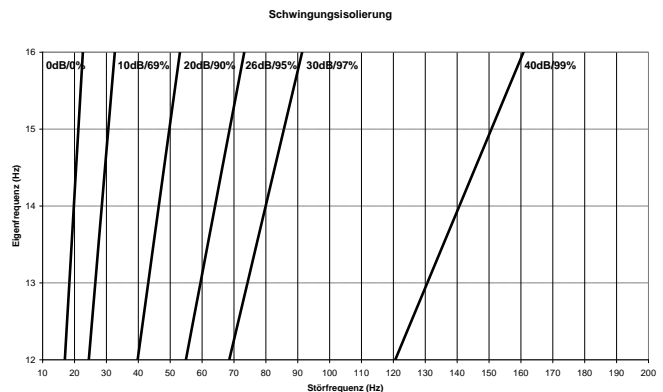
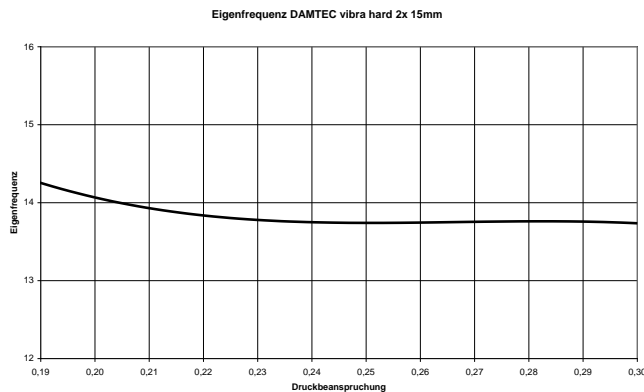
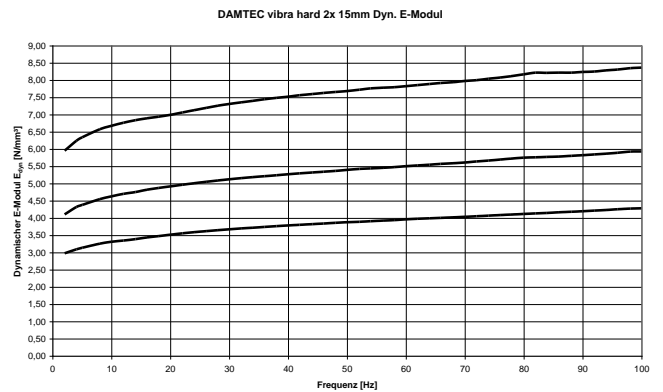
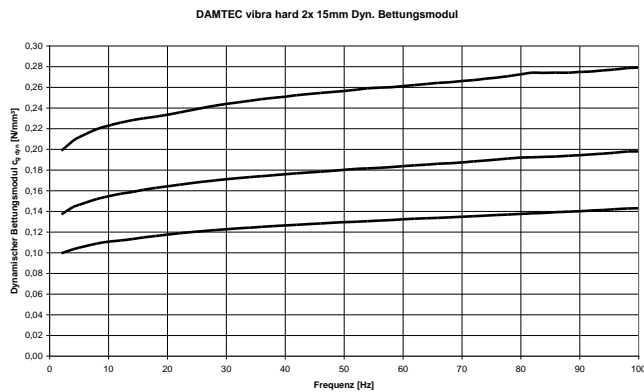
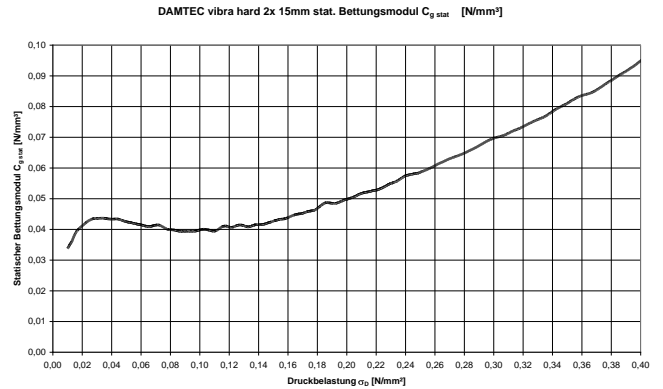
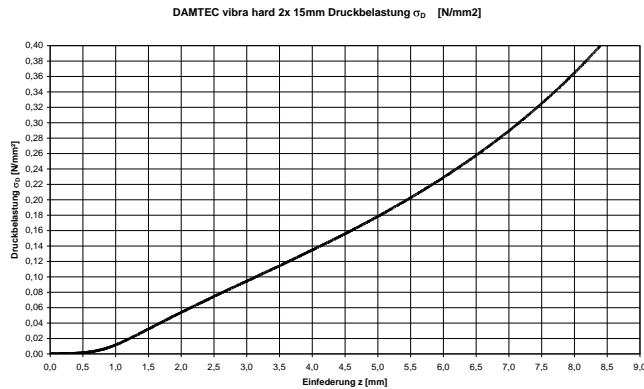
Schwingungsisolierung



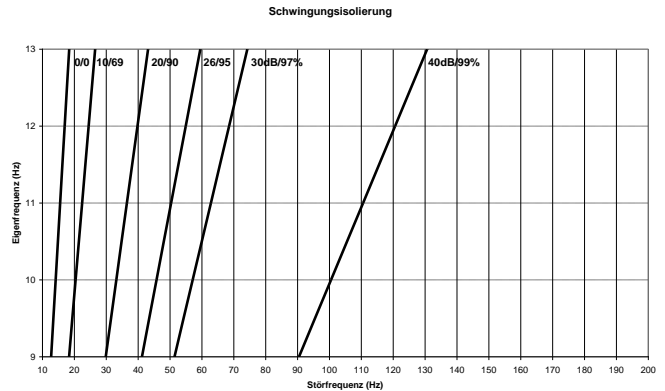
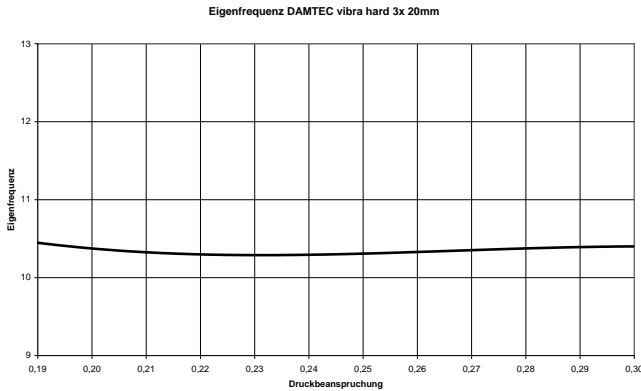
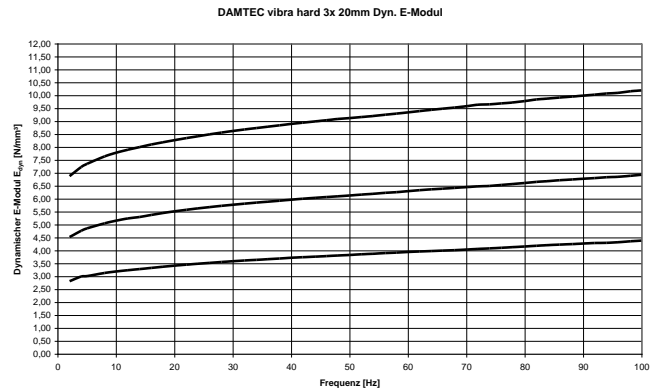
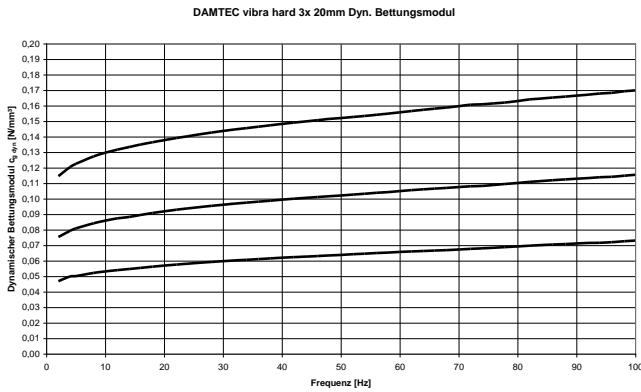
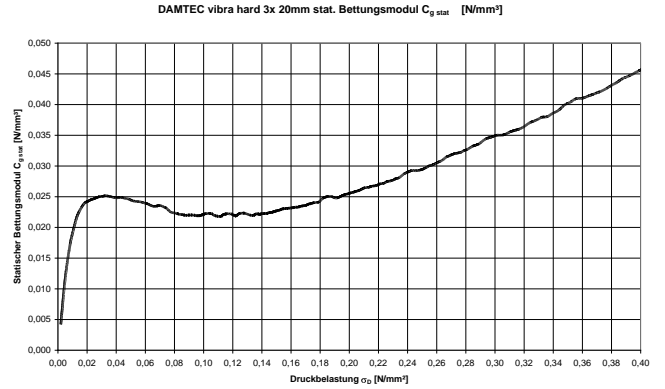
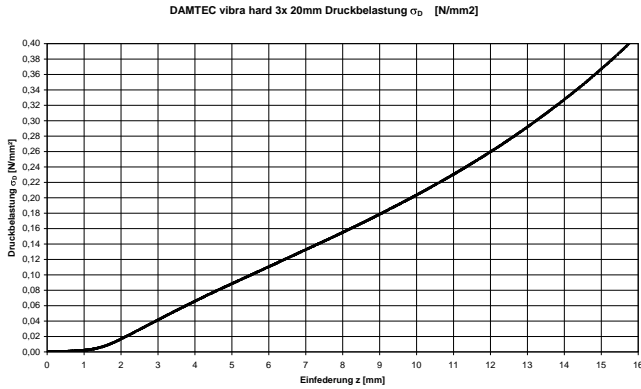
5.26. SPEBA vibra-hard 20mm



5.27. SPEBA vibra-hard 2x 15mm

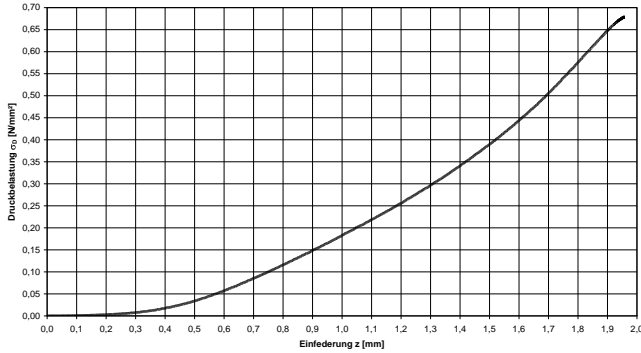


5.28. SPEBA vibra-hard 3x 20mm

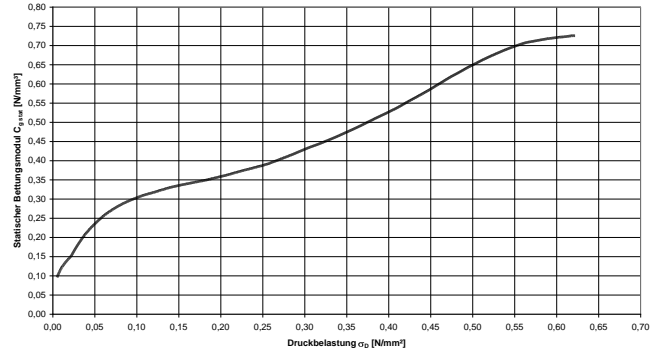


5.29. SPEBA vibra-ultra 5mm

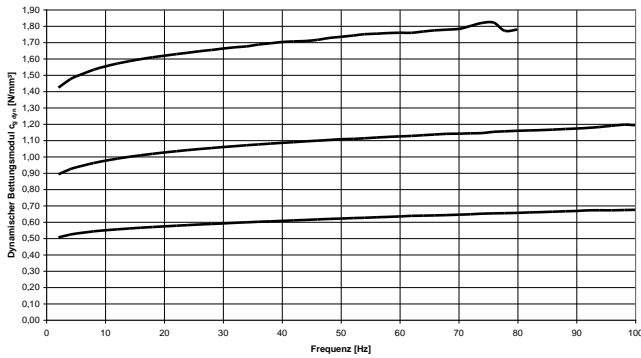
DAMTEC vibra ultra 5mm Druckbelastung σ_0 [N/mm²]



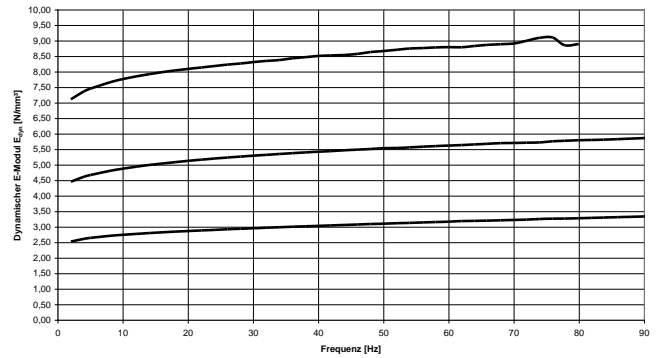
DAMTEC vibra ultra 5mm stat. Bettungsmodul $C_{9, stat}$ [N/mm²]



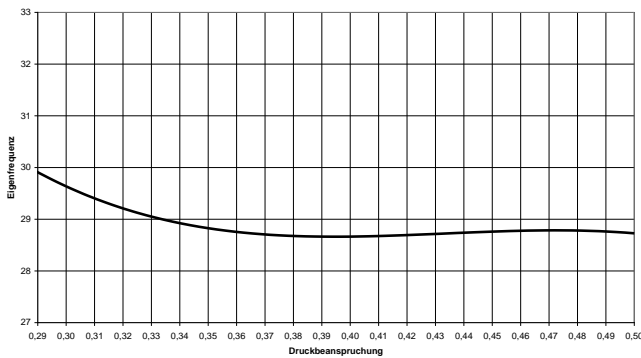
DAMTEC vibra ultra 5mm Dyn. Bettungsmodul



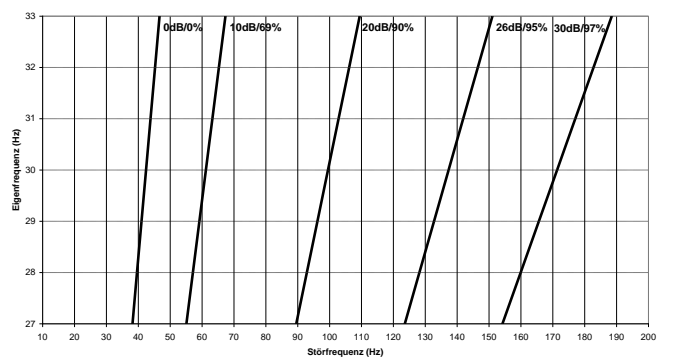
DAMTEC vibra ultra 5mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra ultra 5mm

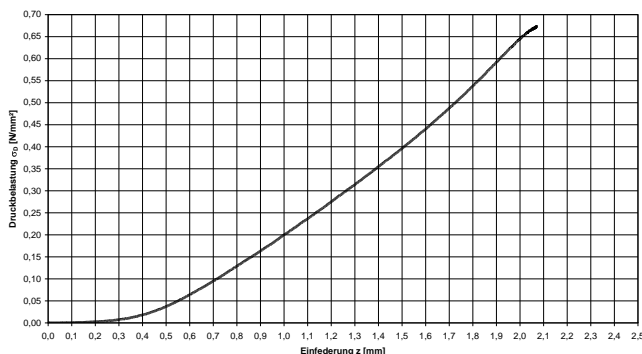


Schwingungsisolierung

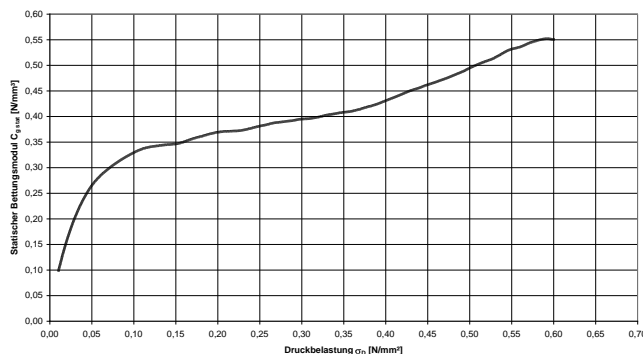


5.30. SPEBA vibra-ultra 10mm

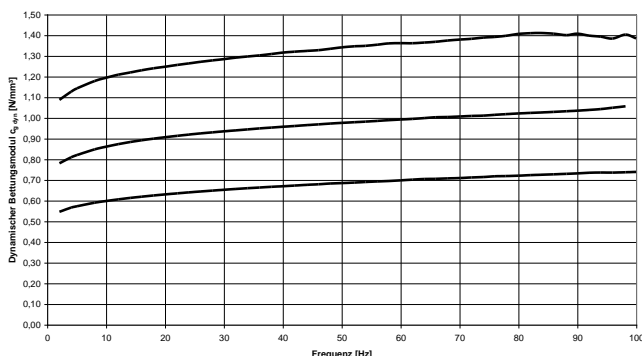
DAMTEC vibra ultra 10mm Druckbelastung σ_D [N/mm²]



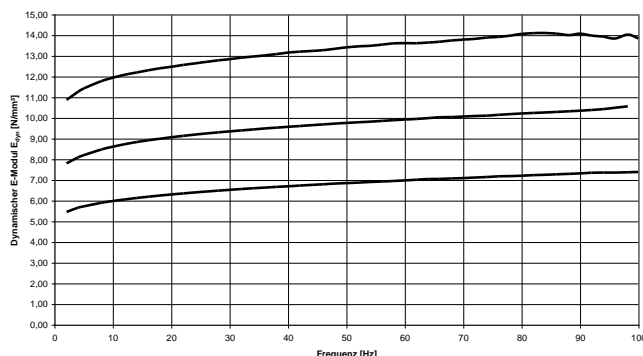
DAMTEC vibra ultra 10mm stat. Bettungsmodul $C_{D,stat}$ [N/mm²]



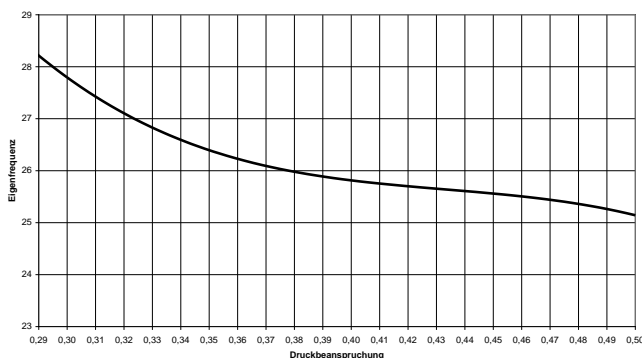
DAMTEC vibra ultra 10mm Dyn. Bettungsmodul



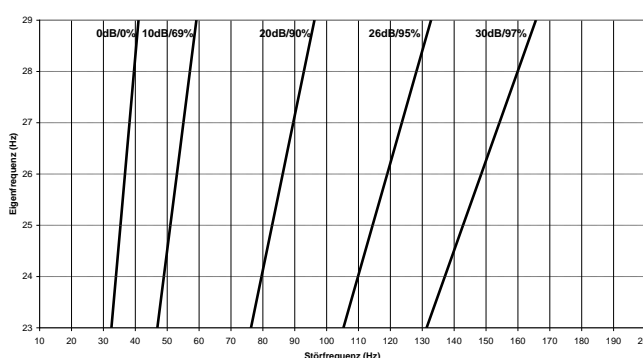
DAMTEC vibra ultra 10mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra ultra 10mm

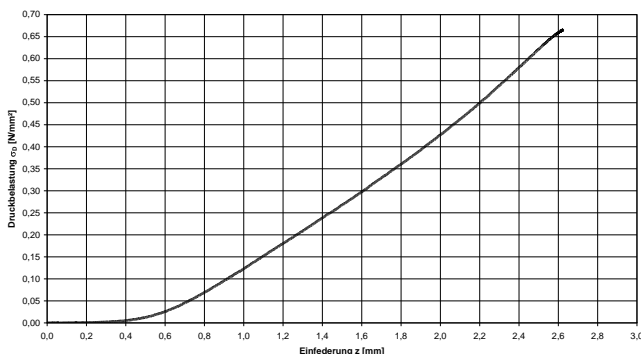


Schwingungsisolierung

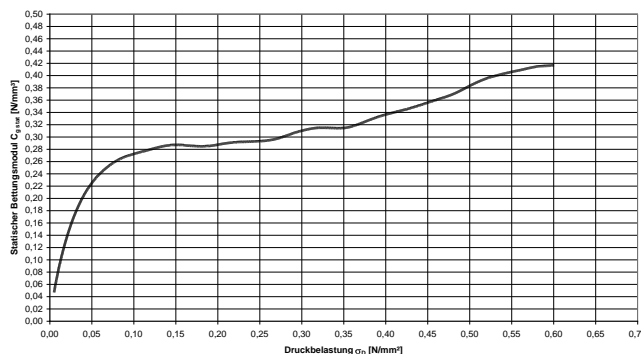


5.31. SPEBA vibra-ultra 12.5mm

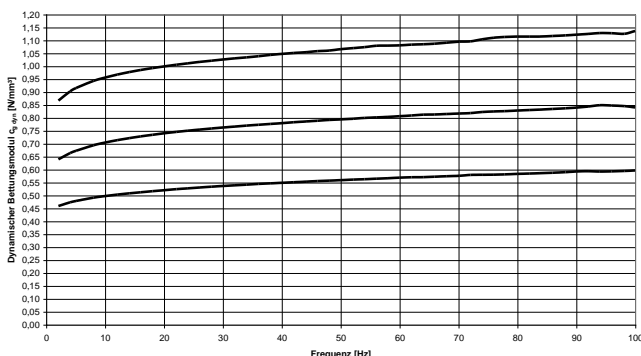
DAMTEC vibra ultra 12.5mm Druckbelastung σ_0 [N/mm²]



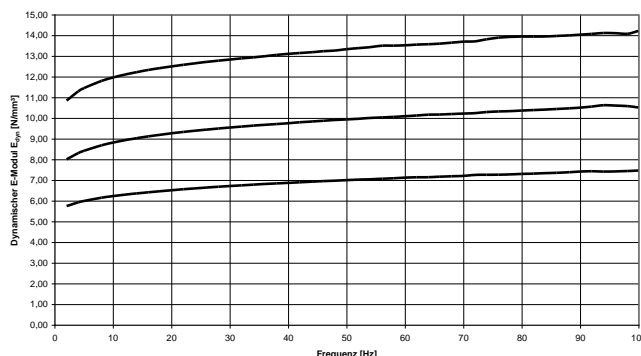
DAMTEC vibra ultra 12,5mm stat. Bettungsmodul $C_{0\text{ stat}}$ [N/mm²]



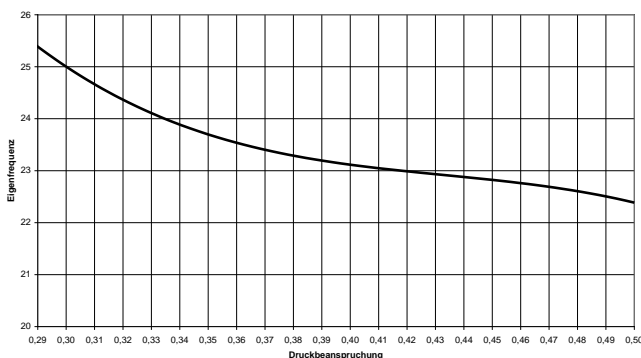
DAMTEC vibra ultra 12.5mm Dyn. Bettungsmodul



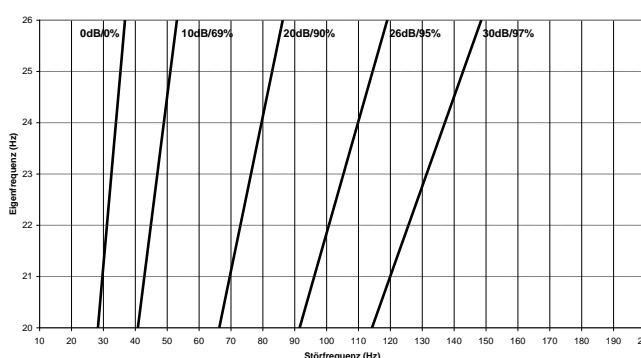
DAMTEC vibra ultra 12.5mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra ultra 12,5mm

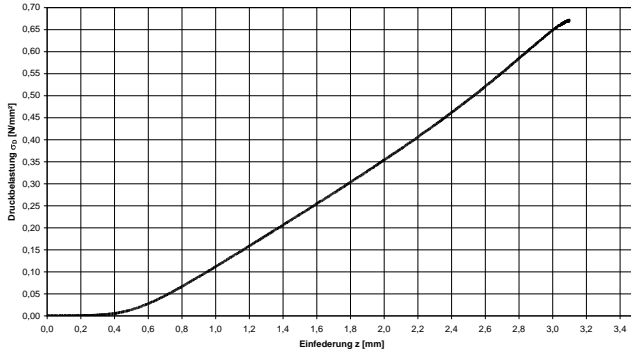


Schwingungsisolierung

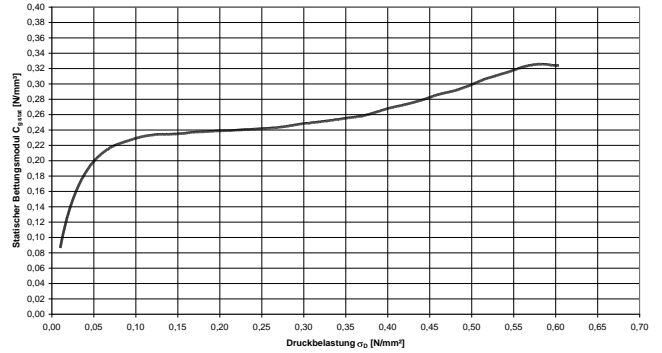


5.32. SPEBA vibra-ultra 15mm

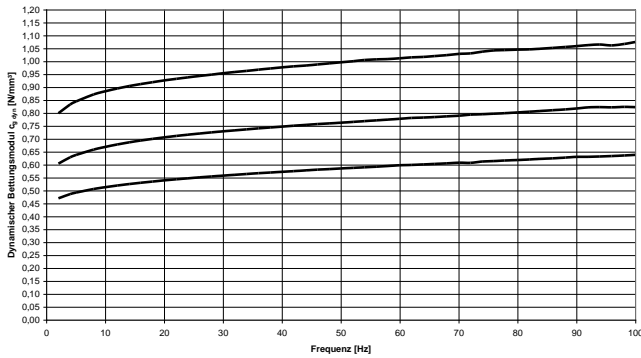
DAMTEC vibra ultra 15mm Druckbelastung σ_D [N/mm²]



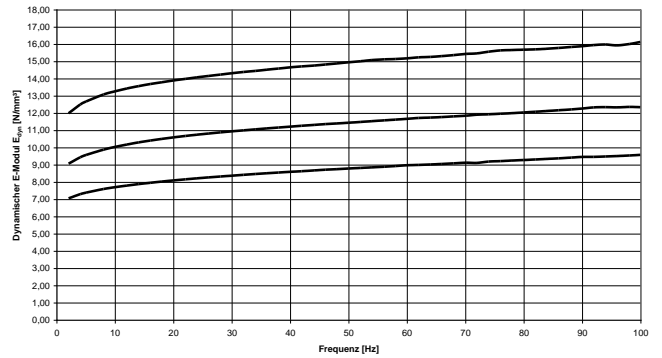
DAMTEC vibra ultra 15mm stat. Bettungsmodul $C_{D, stat}$ [N/mm²]



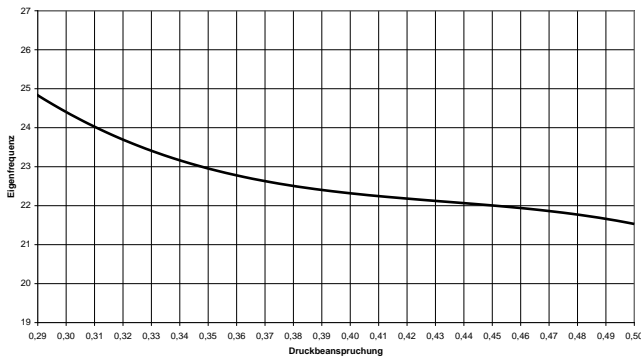
DAMTEC vibra ultra 15mm Dyn. Bettungsmodul



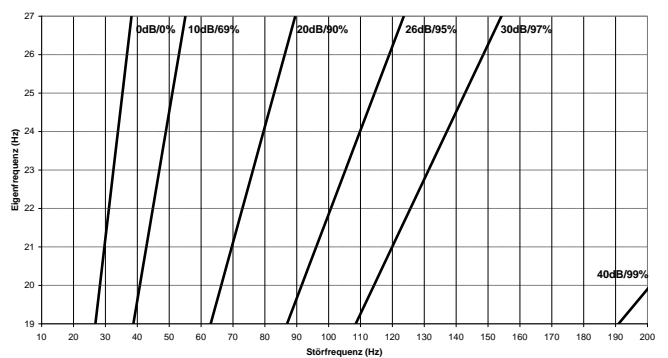
DAMTEC vibra ultra 15mm Dyn. E-Modul



Eigenfrequenz DAMTEC vibra ultra 15mm

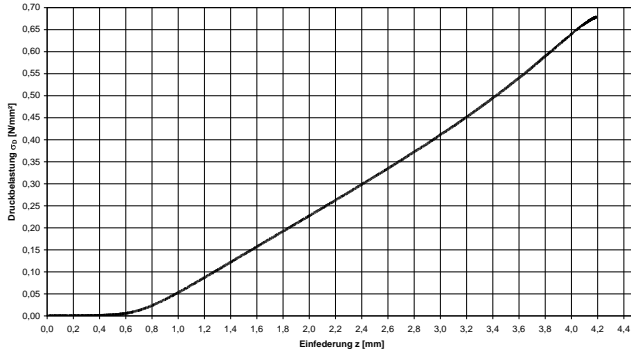


Schwingungsisolierung

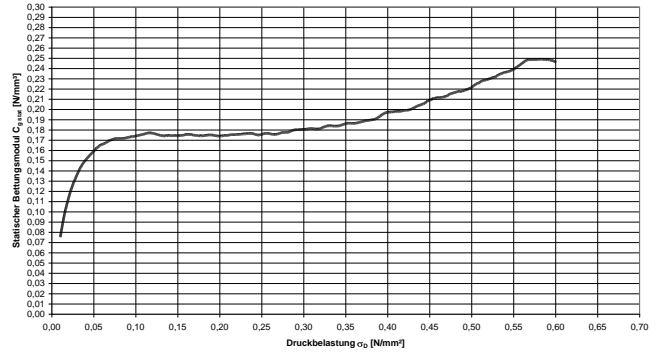


5.33. SPEBA vibra-ultra 20mm

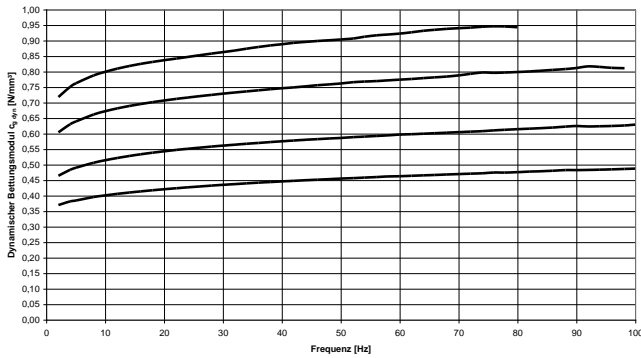
DAMTEC vibra ultra 20mm Druckbelastung σ_D [N/mm²]



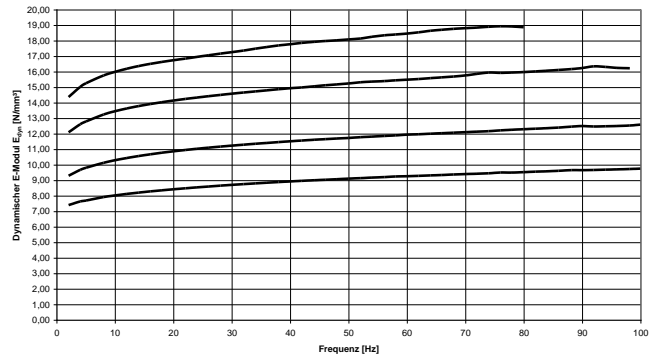
DAMTEC vibra ultra 20mm stat. Bettungsmodul $C_{D,stat}$ [N/mm²]



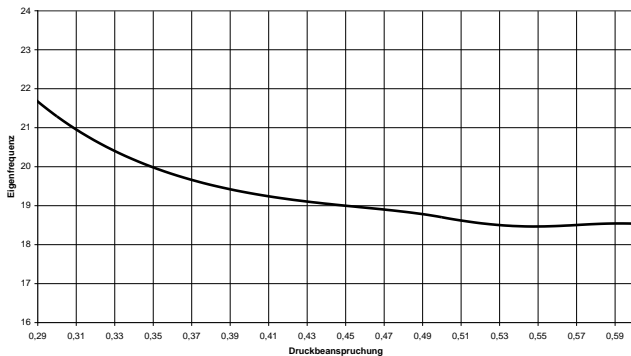
DAMTEC vibra ultra 20mm Dyn. Bettungsmodul



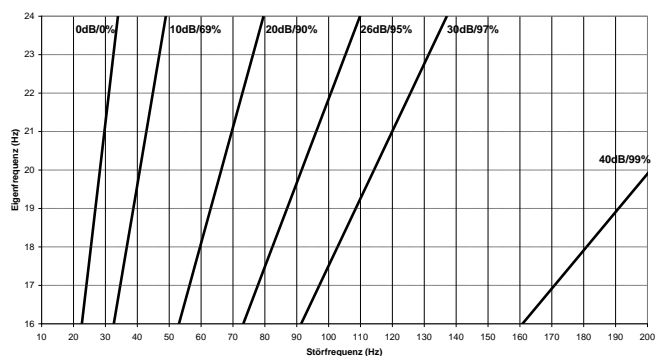
DAMTEC vibra ultra 20mm Dyn. E-Modul



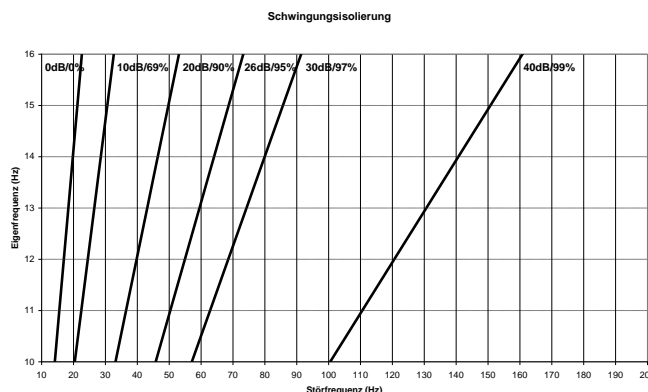
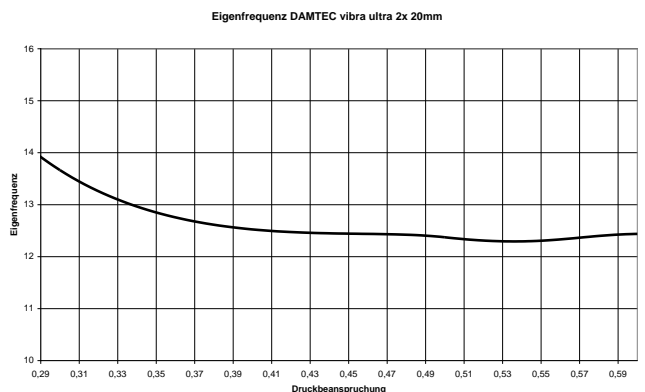
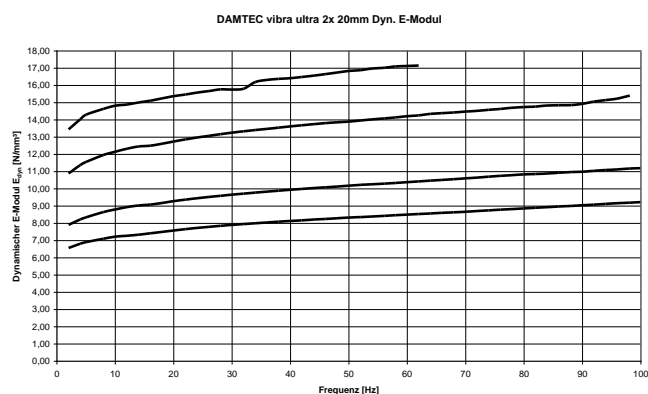
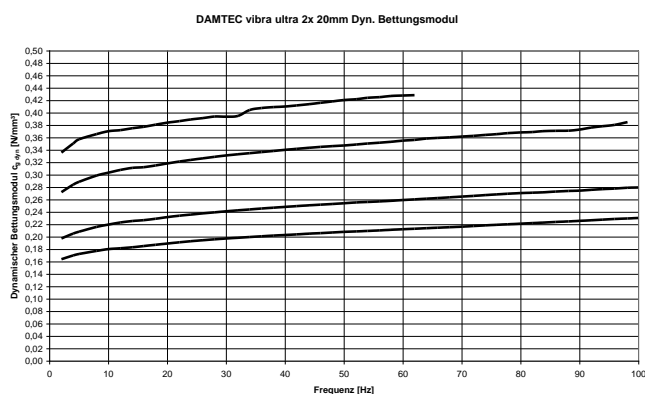
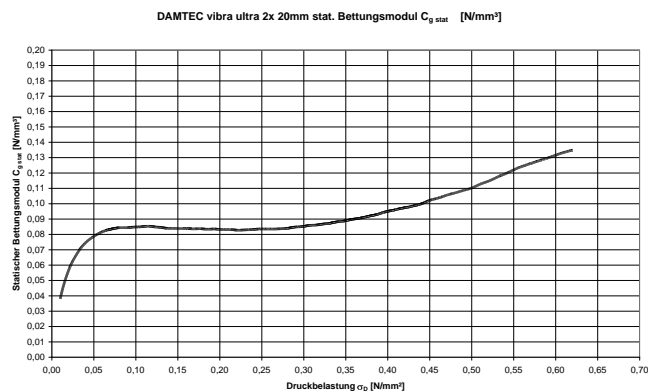
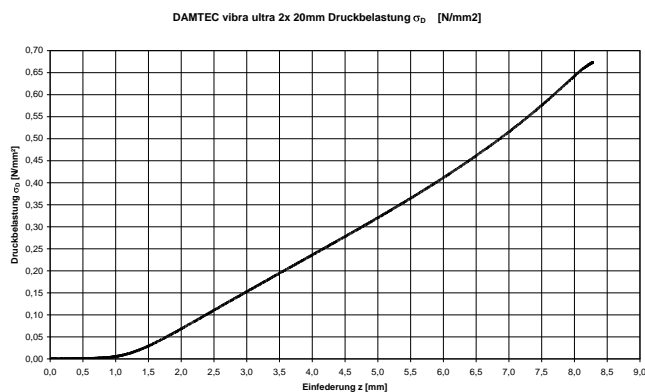
Eigenfrequenz DAMTEC vibra ultra 20mm



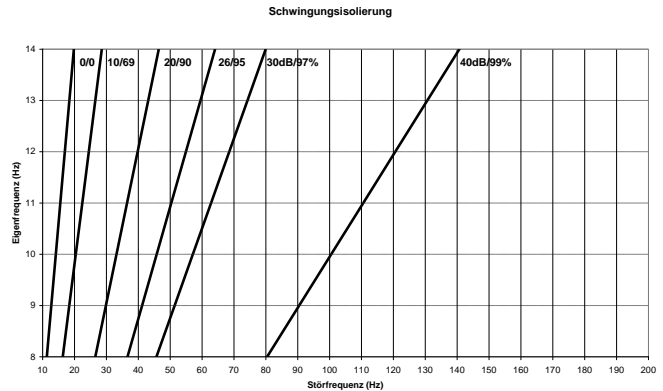
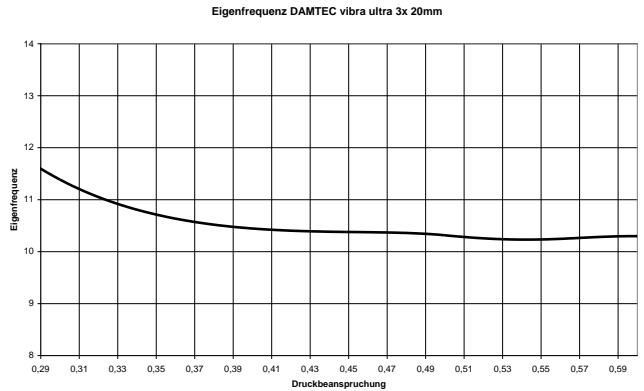
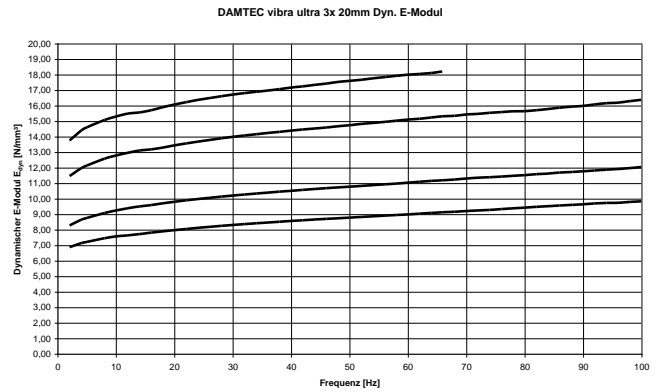
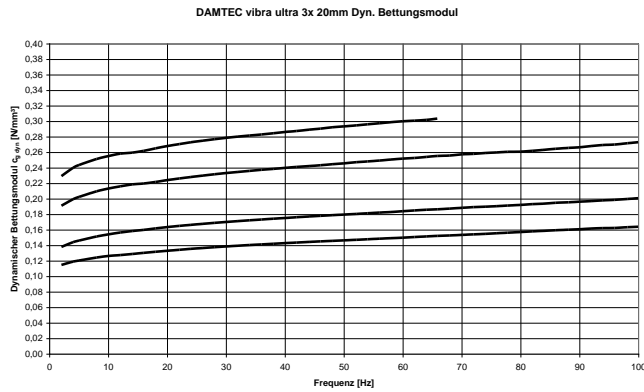
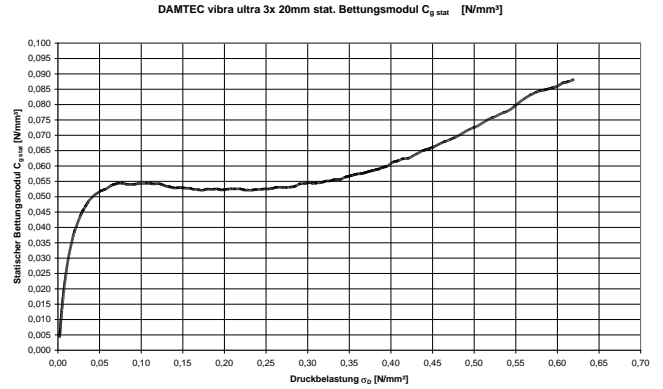
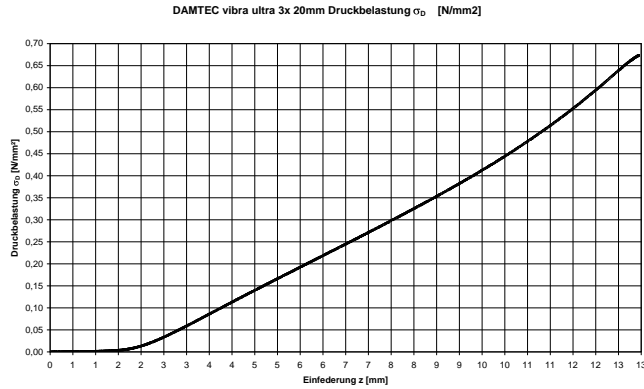
Schwingungsisolierung



5.34. SPEBA vibra-ultra 2x 20mm



5.35. SPEBA vibra-ultra 3x 20mm

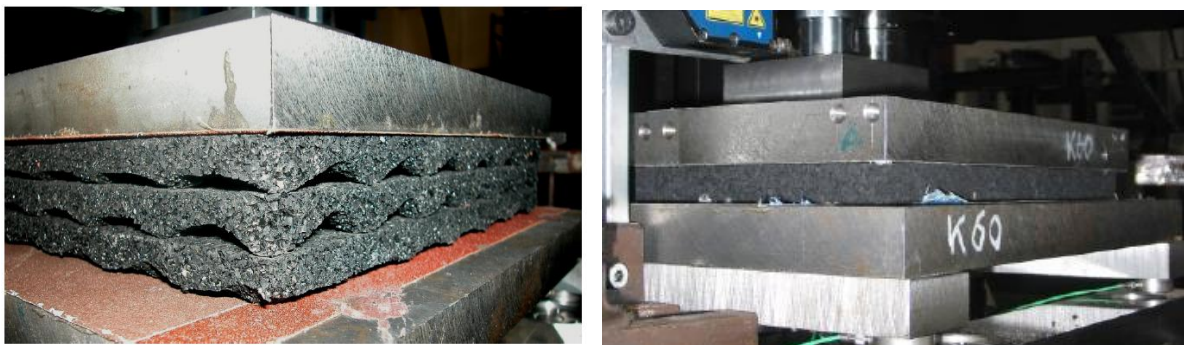


6. Prüfberichte

Prüfungen zu statischen und dynamischen Materialeigenschaften von **SPEBA vibra** wurden an der TU Dresden, Institut für Festkörpermechanik, durchgeführt.

Prüfberichte:

- TU Dresden, Institut für Festkörpermechanik, Prüfbericht Nr. 24/06
- TU Dresden, Institut für Festkörpermechanik, Prüfbericht Nr. 12/09
- TU Dresden, Institut für Festkörpermechanik, Prüfbericht Nr. 13/09
- TU Dresden, Institut für Festkörpermechanik, Prüfbericht Nr. 14/09
- TU Dresden, Institut für Festkörpermechanik, Prüfbericht Nr. 15/09



3-lagige Konfiguration von **SPEBA vibra-3D** beim Versuch und 1-lagige Konfiguration von **SPEBA vibra-soft**.

Die vollständigen Prüfberichte stellen wir Ihnen auf Anfrage gerne zur Verfügung. Außerdem beraten wir Sie gerne bei der richtigen Produktauswahl.

7. Verlegung bei vollflächiger Anwendung

Die vorhandene Betondecke muss vor der Verlegung trocken und besenrein sein. Überstehende Spitzen und Steine sind entsprechend zu beseitigen. Leichten Unebenheiten passt sich das Material problemlos an.

Um Körperschallbrücken zu vermeiden, ist vor dem Einbringen der Elemente für den weiteren Aufbau zu allen aufgehenden Bauteilen, wie Wänden, Rohrleitungen und anderen, ein Randstreifen zu verlegen. Der Randdämmstreifen muss ausreichend dimensioniert sein und bis über die fertige Aufbauhöhe gezogen werden.

1. Randstreifen zu allen aufgehenden Bauteilen verlegen
2. Verlegen der ersten Lage
3. Größe mit Teppichmesser zurechtschneiden
4. Stöße stumpf stoßen
5. Verlegen der zweiten Lage (falls erforderlich)
6. Verlegen der dritten Lage (falls erforderlich)
7. die gesamte Fläche mit 0,2 mm PE - Folie abdecken und fixieren



Beachten Sie auch die ausführlichen Verlegeanleitungen für **SPEBA vibra-3D** und **SPEBA vibra**.

DISCLAIMER:

Mit unseren Angaben wollen wir Sie aufgrund unserer Versuche und Erfahrungen nach bestem Wissen und Gewissen beraten. Eine Gewährleistung für das Verarbeitungsergebnis kann SPEBA-Bauelemente GmbH im Einzelfall jedoch wegen der Vielzahl an Verwendungsmöglichkeiten und der außerhalb unseres Einflusses liegenden Lagerungs-, Verarbeitungs- und Baustellenbedingungen für seine SPEBA vibra-Produkte nicht übernehmen. Eigenversuche sind durchzuführen. Unser technischer Kundenservice steht Ihnen gerne zur Verfügung.

Diese Produktinformation unterliegt keinem Änderungsdienst! Alle Angaben erfolgen ohne Gewähr. Mit Veröffentlichung dieser Produktinformation verlieren alle vorherigen Ausgaben Ihre Gültigkeit.