Akustikbüro Oldenburg Dr. Christian Nocke

Test reports

for

BARRISOL® stretched ceilings

Part 1

Standard Setups

Version 2013

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Table 1 : List of tested Set-Ups.

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
1	BO200402 BL25	BARRISOL® unperforated white, 100 mm, no fibre	0.05	0.07	0.10	No class
2	BO200402 BL22	BARRISOL® unperforated white, 100 mm, 40 mm acoustic fibre	0.45	0.44	0.25	E
3	BO200402 BL28	BARRISOL® unperforated white, 100 mm, 70 mm acoustic fibre	0.50	0.52	0.25	E
4	20120069 M08	BARRISOL® A15, 100 mm, no fibre	0.60	0.60	0.55	D
5	20120233 M07	BARRISOL® A15, 100 mm, 10 mm molleton BA T1600	0.55	0.57	0.60	C
6	20120233 M10	BARRISOL® A15, 100 mm, 10 mm Kettinger® fleece AKF-B1	0.60	0.57	0.60	C
7	20120233 M09	BARRISOL® A15, 100 mm, 22 mm acoustic fibre	0.65	0.65	0.65	C
8	20120069 M05	BARRISOL® A15, 100 mm, 40 mm acoustic fibre	0.85	0.85	0.85	B
9	20120069 M09	BARRISOL® A15, 130 mm, no fibre	0.60	0.62	0.65	C
10	20120069 M12	BARRISOL® A15, 130 mm, 40 mm acoustic fibre	0.85	0.83	0.90	A
11	20120069 M16	BARRISOL® A15, 170 mm, no fibre	0.60	0.61	0.65	C
12	20120069 M13	BARRISOL® A15, 170 mm, 40 mm acoustic fibre	0.80	0.83	0.85	B
13	20120069 M07	BARRISOL® A20, 100 mm, no fibre	0.60	0.58	0.55	D
14	20120069 M06	BARRISOL® A20, 100 mm, 40 mm acoustic fibre	0.85	0.84	0.80	B
15	OL200808 BL12	BARRISOL® A20, 100 mm, 80 mm acoustic fibre	0.95	0.98	0.95	A
16	OL200808 BL07	BARRISOL® A30, 100 mm, no fibre	0.55	0.53	0.50	D
17	OL200808 BL06	BARRISOL® A30, 100 mm, 40 mm acoustic fibre	0.85	0.85	0.80	B
18	OL200808 BL11	BARRISOL® A30, 100 mm, 80 mm acoustic fibre	0.95	0.95	0.85	B
19	OL200808 BL08	BARRISOL® A40, 100 mm, no fibre	0.35	0.34	0.35	D
20	OL200808 BL09	BARRISOL® A40, 100 mm, 40 mm acoustic fibre	0.70	0.70	0.50	D
21	OL200707 M08	BARRISOL® A40, 100 mm, 70 mm acoustic fibre	0.85	0.83	0.65	C

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

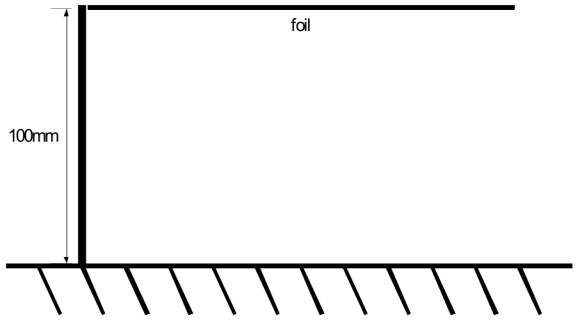
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

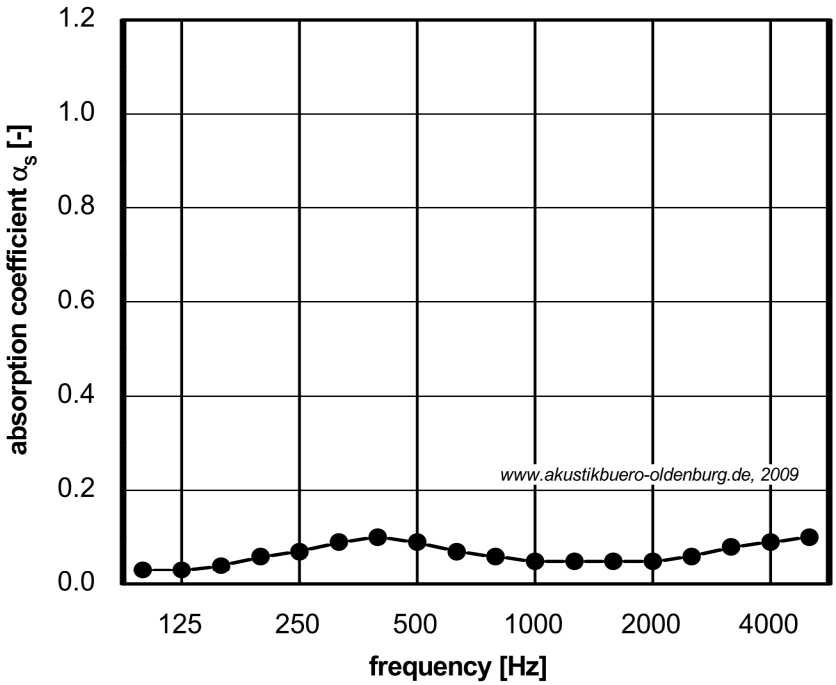
Assembly:

- BARRISOL® unperforated white
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.03
125	0.03
160	0.04
200	0.06
250	0.07
315	0.09
400	0.10
500	0.09
630	0.07
800	0.06
1000	0.05
1250	0.05
1600	0.05
2000	0.05
2500	0.06
3150	0.08
4000	0.09
5000	0.10



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.05
500	0.10
1000	0.05
2000	0.05
4000	0.10

NRC = 0.05

SAA = 0.07

α_w = 0.10

Not classified

Rev. chamber:	FH-Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p01-Unperf_100_Bo200402BL25

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

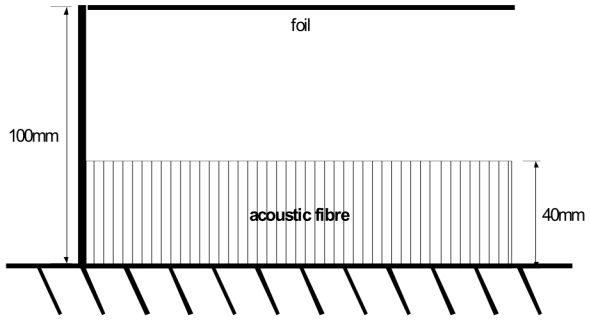
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

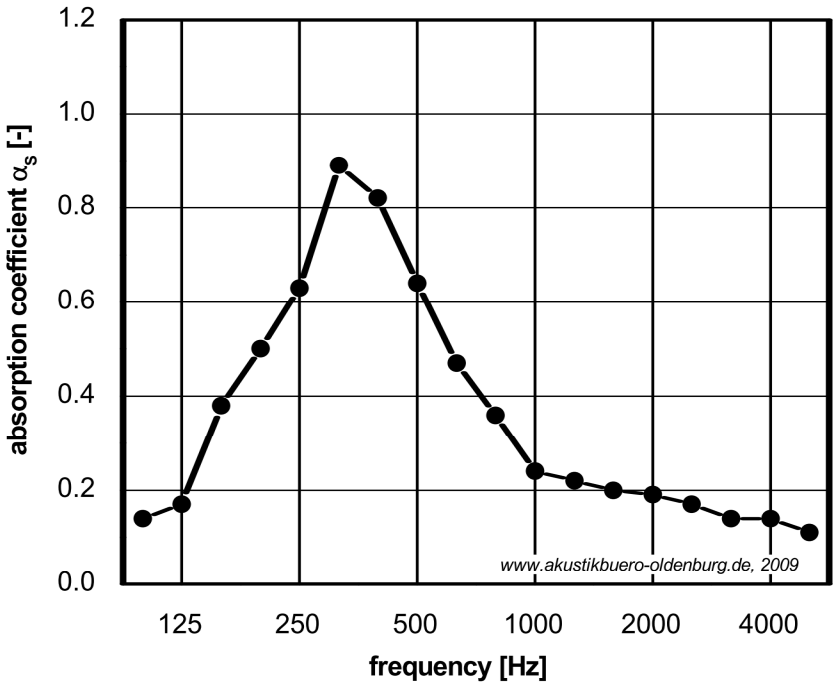
Assembly:

- BARRISOL® unperforated white
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.17
160	0.38
200	0.50
250	0.63
315	0.89
400	0.82
500	0.64
630	0.47
800	0.36
1000	0.24
1250	0.22
1600	0.20
2000	0.19
2500	0.17
3150	0.14
4000	0.14
5000	0.11



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.65
500	0.65
1000	0.25
2000	0.20
4000	0.15

NRC = 0.45

SAA = 0.44

α_w = 0.25 (LM)

Sound Absorption Class E

Rev. chamber:	FH-Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p02-Unperf_100mw40_Bo200402BI22

Oldenburg, May 15th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

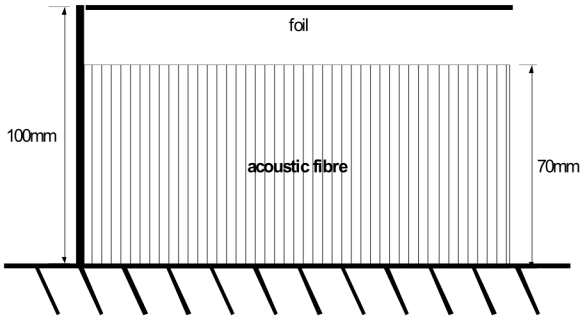
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

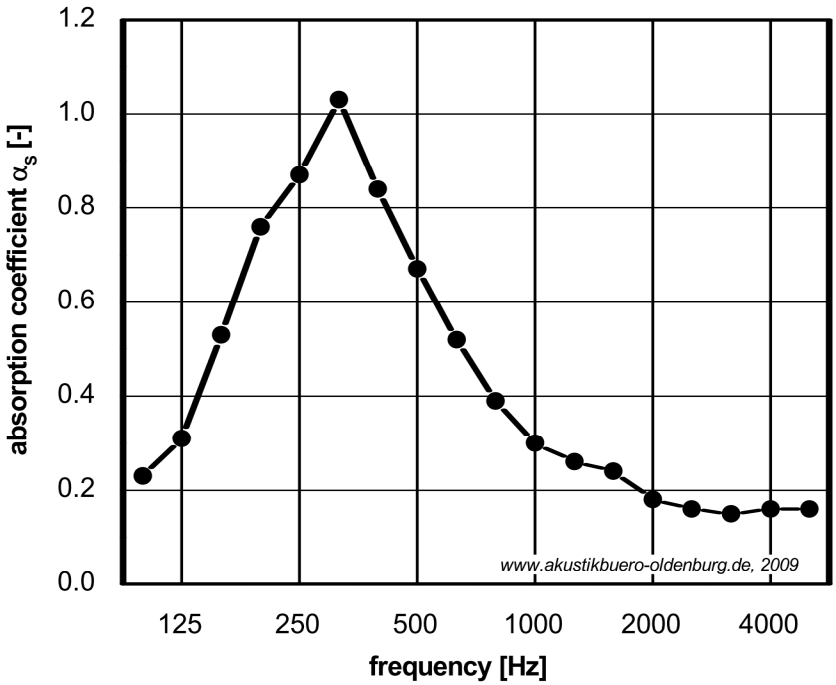
Assembly:

- BARRISOL® unperforated white
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.31
160	0.53
200	0.76
250	0.87
315	1.03
400	0.84
500	0.67
630	0.52
800	0.39
1000	0.30
1250	0.26
1600	0.24
2000	0.18
2500	0.16
3150	0.15
4000	0.16
5000	0.16



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.90
500	0.70
1000	0.30
2000	0.20
4000	0.15

NRC = 0.50

SAA = 0.52

α_w = 0.25 (LM)

Sound Absorption Class E

Rev. chamber:	FH-Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p03-Unperf_100mw70_Bo200402BL28

Oldenburg, May 15th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

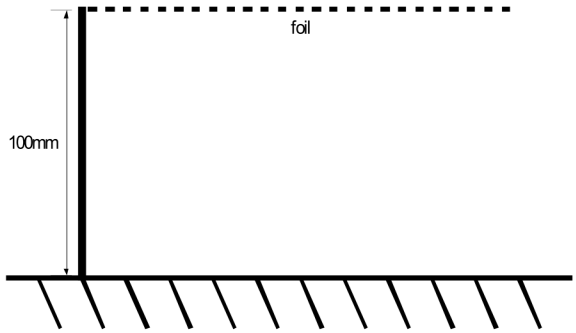
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

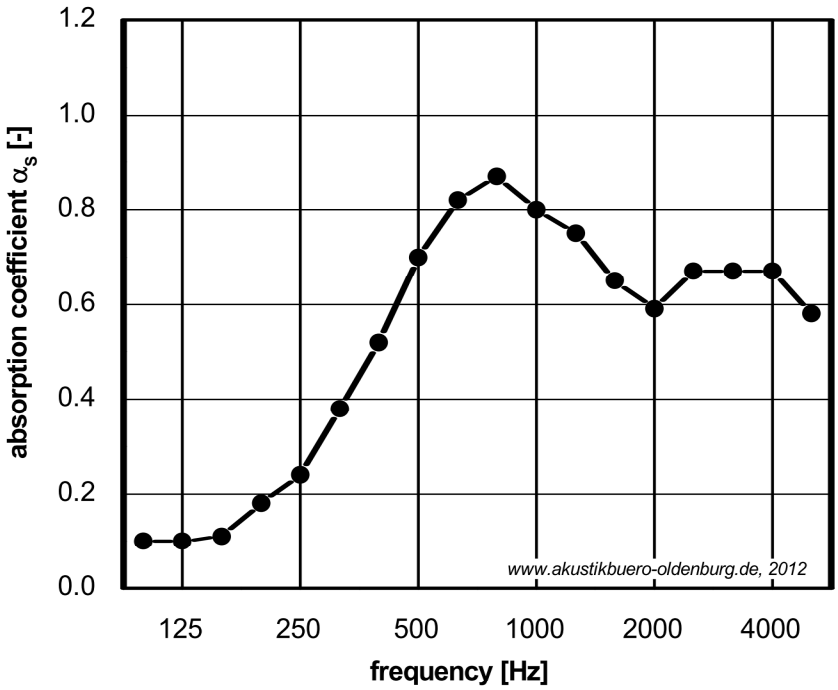
Assembly:

- BARRISOL® A15 Nanoperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.10
160	0.11
200	0.18
250	0.24
315	0.38
400	0.52
500	0.70
630	0.82
800	0.87
1000	0.80
1250	0.75
1600	0.65
2000	0.59
2500	0.67
3150	0.67
4000	0.67
5000	0.58



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.25
500	0.70
1000	0.80
2000	0.65
4000	0.65

NRC = 0.60

SAA = 0.60

α_w = 0.55

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M08 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

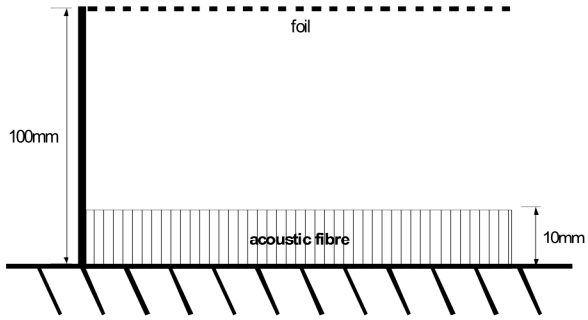
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

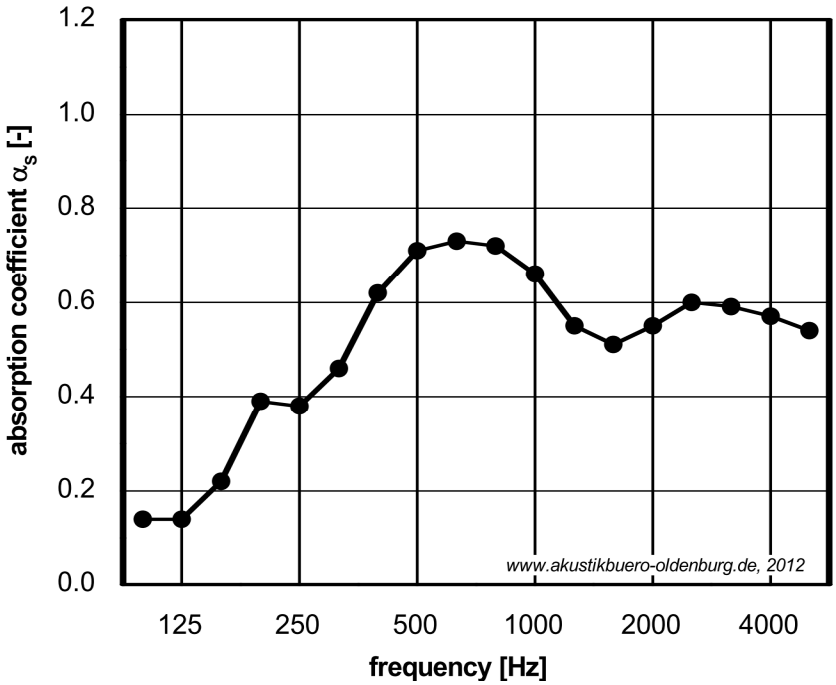
Assembly:

- BARRISOL® A15 Nanoperf
- 100 mm distance to the floor
- 10 mm molleton BA T1600
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.14
160	0.22
200	0.39
250	0.38
315	0.46
400	0.62
500	0.71
630	0.73
800	0.72
1000	0.66
1250	0.55
1600	0.51
2000	0.55
2500	0.60
3150	0.59
4000	0.57
5000	0.54



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.40
500	0.70
1000	0.65
2000	0.55
4000	0.55

NRC = 0.55

SAA = 0.57

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	23.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M07 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

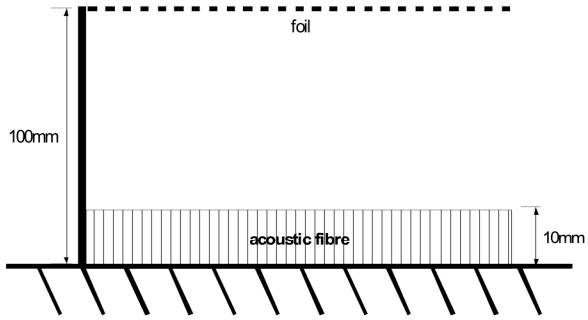
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

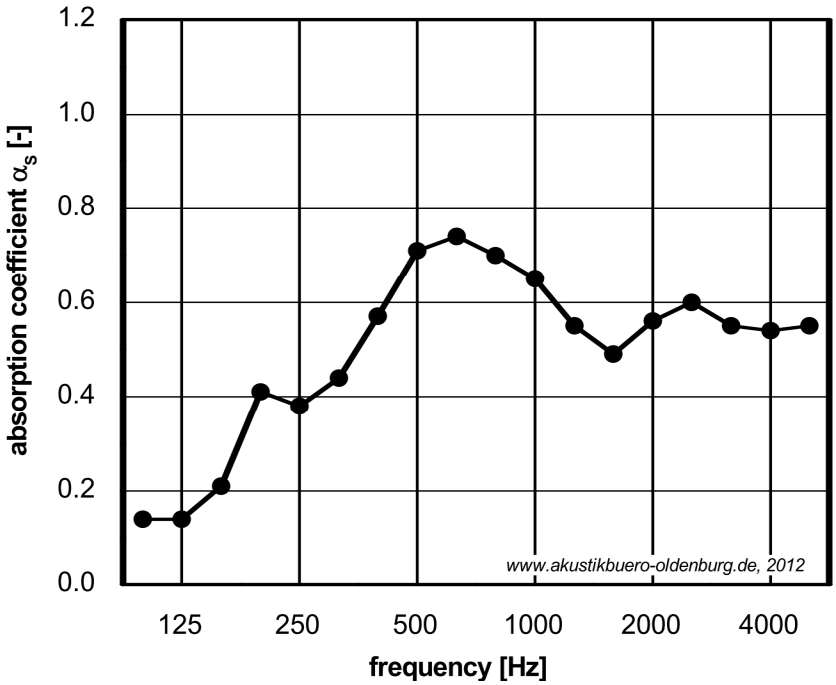
Assembly:

- BARRISOL® A15 Nanoperf
- 100 mm distance to the floor
- 10 mm fleece Kettinger® AKF B1
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.14
160	0.21
200	0.41
250	0.38
315	0.44
400	0.57
500	0.71
630	0.74
800	0.70
1000	0.65
1250	0.55
1600	0.49
2000	0.56
2500	0.60
3150	0.55
4000	0.54
5000	0.55



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.40
500	0.65
1000	0.65
2000	0.55
4000	0.55

NRC = 0.60

SAA = 0.57

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	23.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M10 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

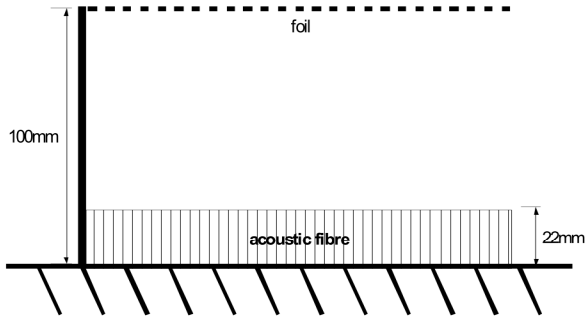
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

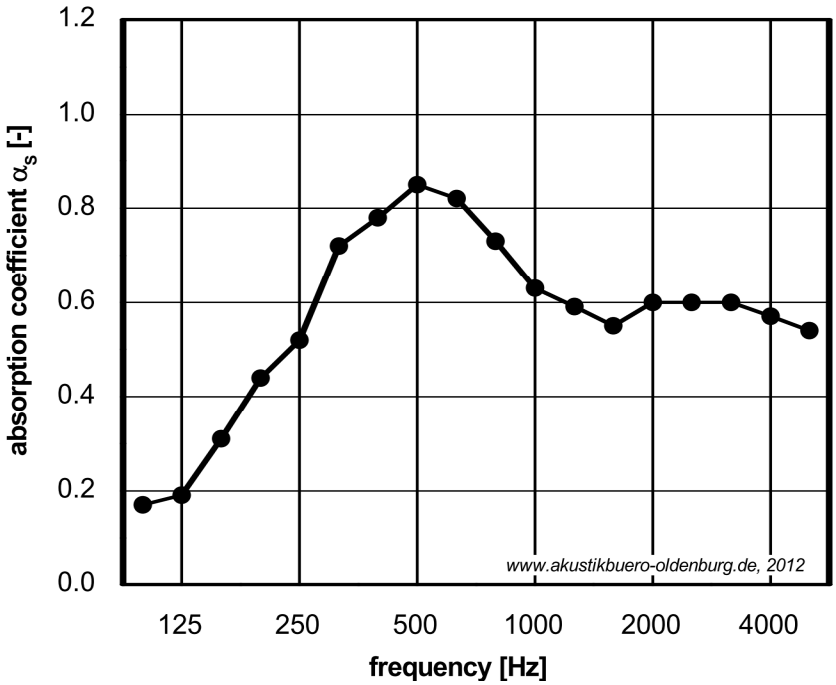
Assembly:

- BARRISOL® A15 Nanoperf
- 100 mm distance to the floor
- 22 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.17
125	0.19
160	0.31
200	0.44
250	0.52
315	0.72
400	0.78
500	0.85
630	0.82
800	0.73
1000	0.63
1250	0.59
1600	0.55
2000	0.60
2500	0.60
3150	0.60
4000	0.57
5000	0.54



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.55
500	0.80
1000	0.65
2000	0.60
4000	0.55

NRC = 0.65

SAA = 0.65

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	23.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M09 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

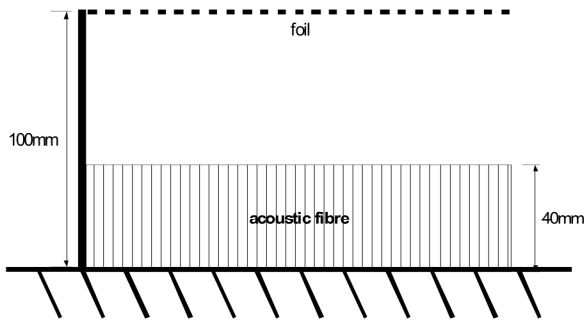
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

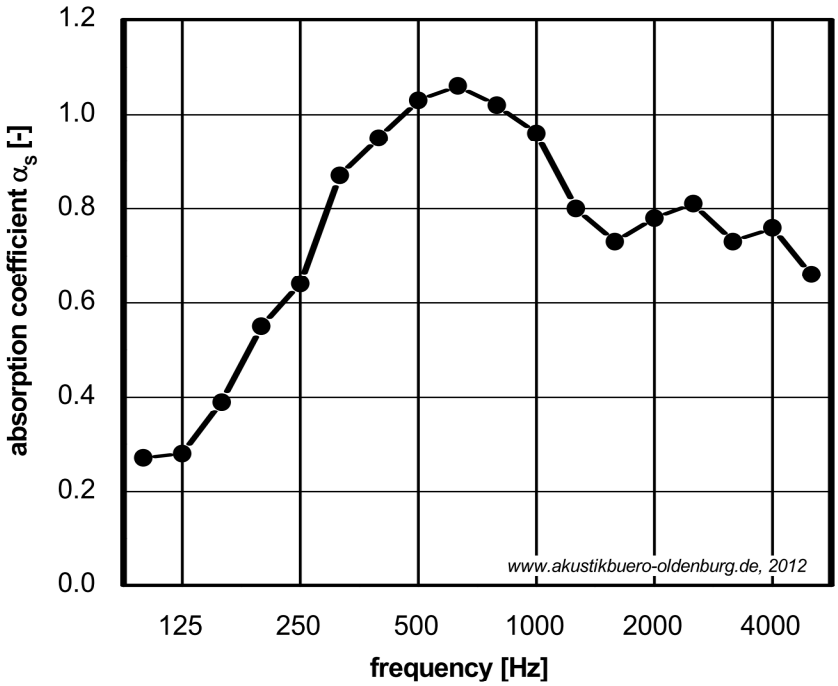
Assembly:

- BARRISOL® A15 Nanoperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.27
125	0.28
160	0.39
200	0.55
250	0.64
315	0.87
400	0.95
500	1.03
630	1.06
800	1.02
1000	0.96
1250	0.80
1600	0.73
2000	0.78
2500	0.81
3150	0.73
4000	0.76
5000	0.66



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.70
500	1.00
1000	0.95
2000	0.80
4000	0.70

NRC = 0.85

SAA = 0.85

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M05 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

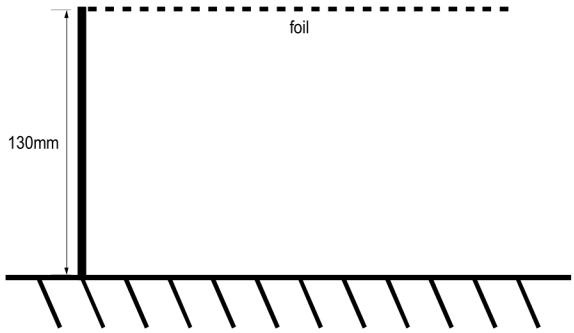
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

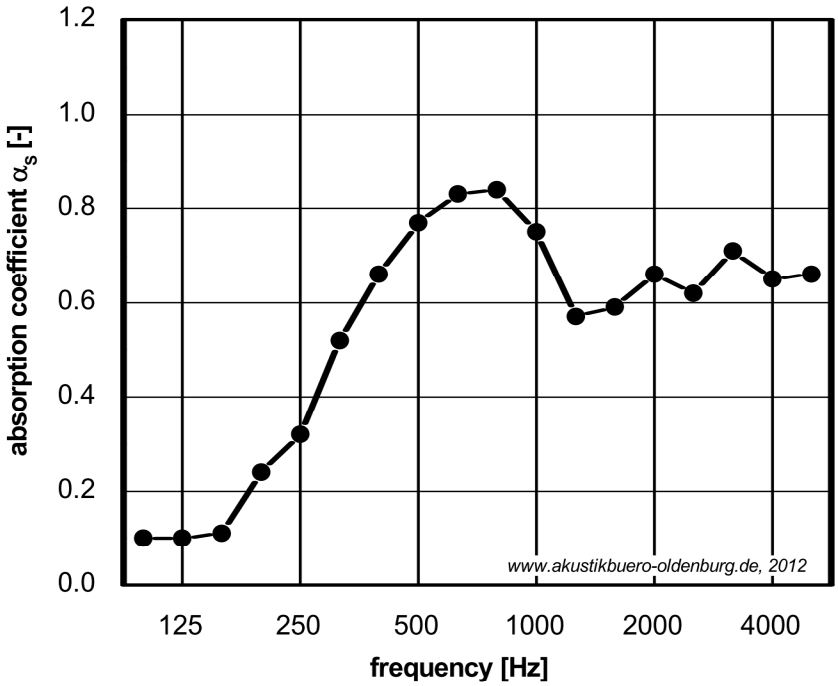
Assembly:

- BARRISOL® A15 Nanoperf
- 130 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.10
160	0.11
200	0.24
250	0.32
315	0.52
400	0.66
500	0.77
630	0.83
800	0.84
1000	0.75
1250	0.57
1600	0.59
2000	0.66
2500	0.62
3150	0.71
4000	0.65
5000	0.66



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.35
500	0.75
1000	0.70
2000	0.65
4000	0.65

NRC = 0.60

SAA = 0.62

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M09 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

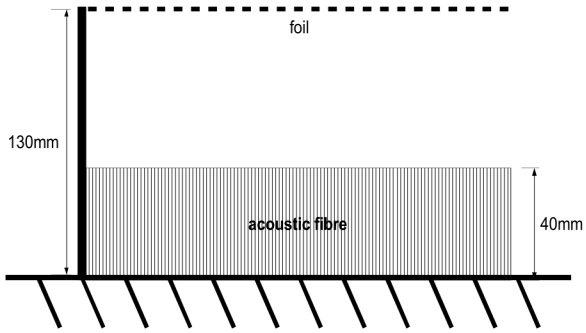
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

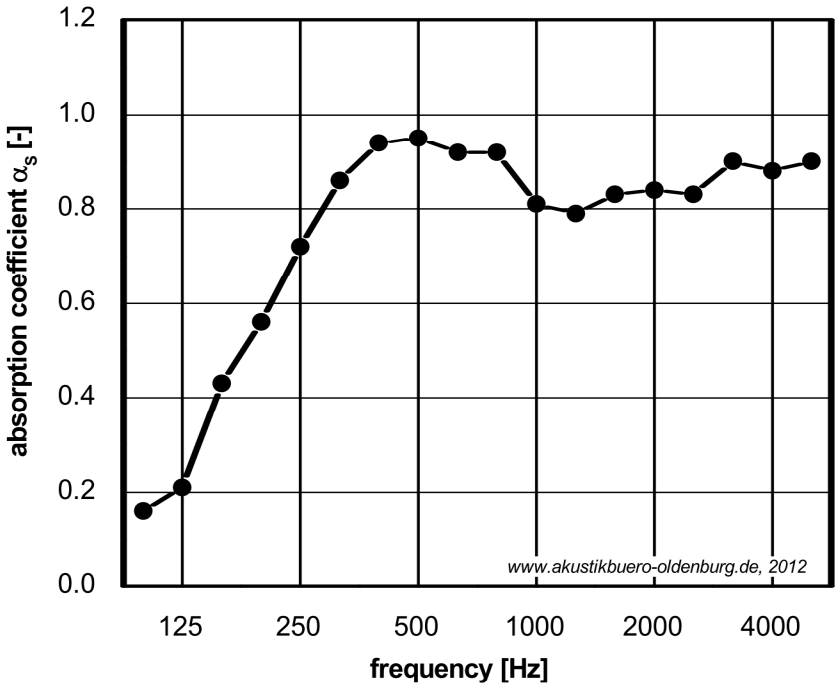
Assembly:

- BARRISOL® A15 Nanoperf
- 130 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.16
125	0.21
160	0.43
200	0.56
250	0.72
315	0.86
400	0.94
500	0.95
630	0.92
800	0.92
1000	0.81
1250	0.79
1600	0.83
2000	0.84
2500	0.83
3150	0.90
4000	0.88
5000	0.90



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.70
500	0.95
1000	0.85
2000	0.85
4000	0.90

NRC = 0.85

SAA = 0.83

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M12 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

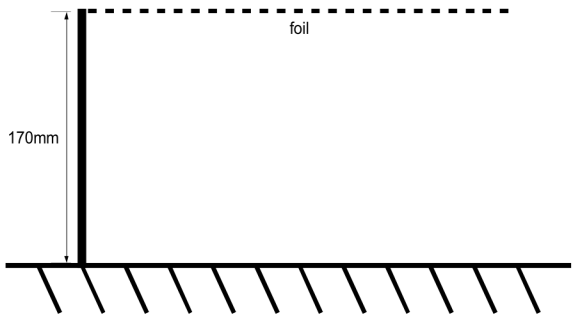
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

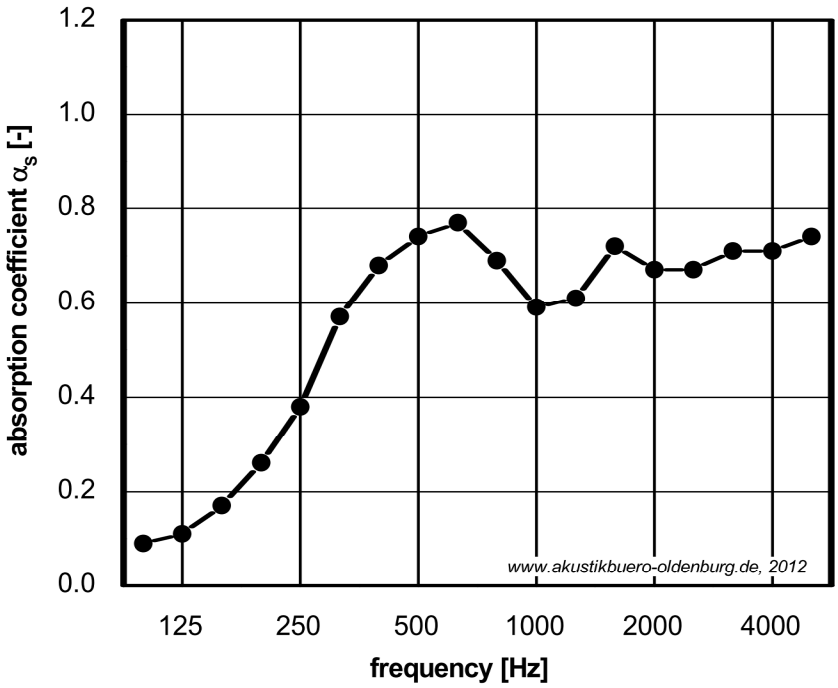
Assembly:

- BARRISOL® A15 Nanoperf
- 170 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.11
160	0.17
200	0.26
250	0.38
315	0.57
400	0.68
500	0.74
630	0.77
800	0.69
1000	0.59
1250	0.61
1600	0.72
2000	0.67
2500	0.67
3150	0.71
4000	0.71
5000	0.74



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.40
500	0.75
1000	0.65
2000	0.70
4000	0.70

NRC = 0.60

SAA = 0.61

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M16 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

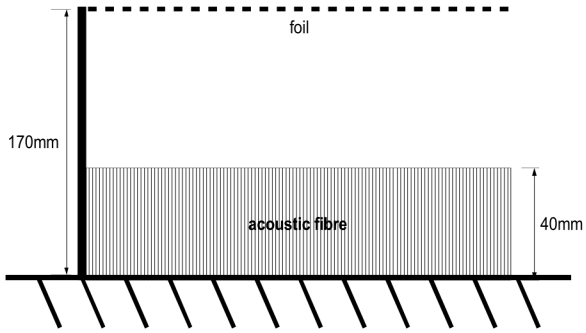
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

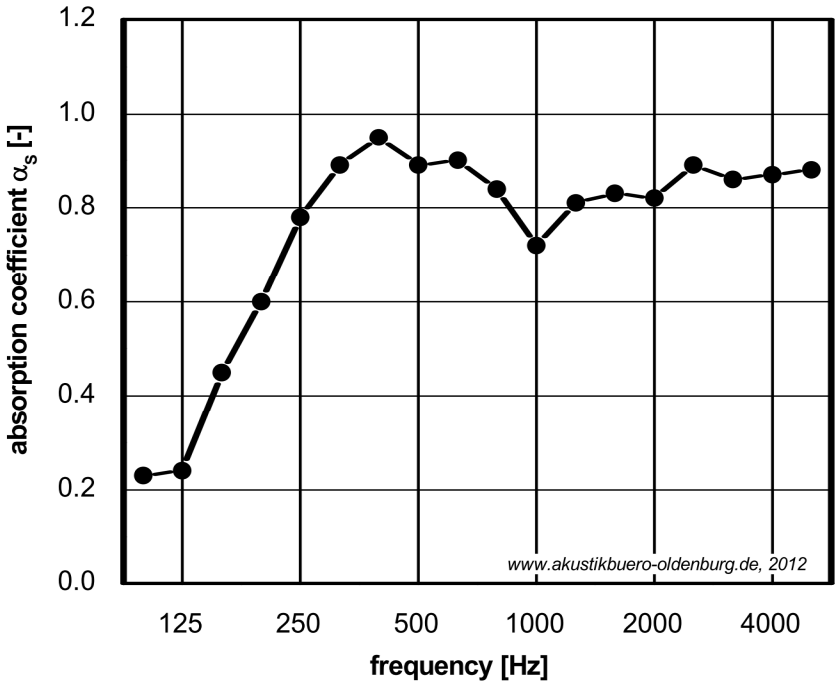
Assembly:

- BARRISOL® A15 Nanoperf
- 170 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.24
160	0.45
200	0.60
250	0.78
315	0.89
400	0.95
500	0.89
630	0.90
800	0.84
1000	0.72
1250	0.81
1600	0.83
2000	0.82
2500	0.89
3150	0.86
4000	0.87
5000	0.88



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.75
500	0.90
1000	0.80
2000	0.85
4000	0.85

NRC = 0.80

SAA = 0.83

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M13 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

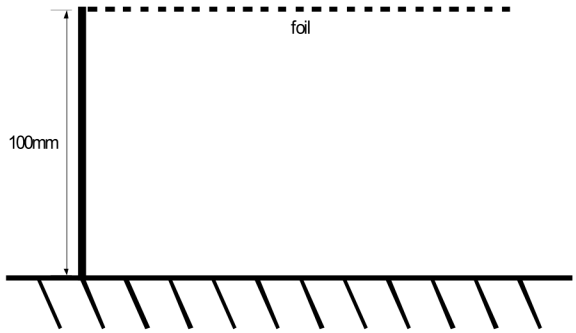
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

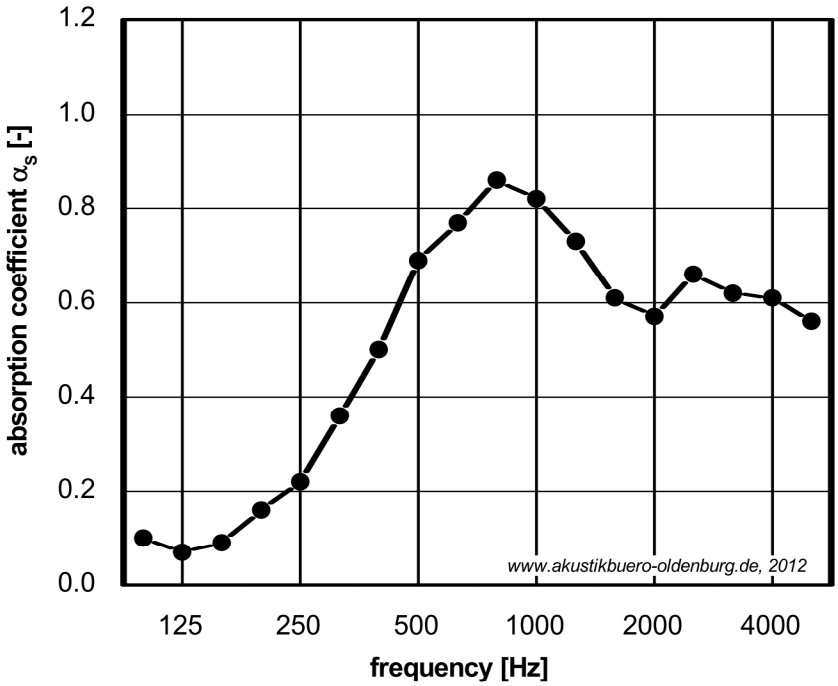
Assembly:

- BARRISOL® A20 Acoperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.07
160	0.09
200	0.16
250	0.22
315	0.36
400	0.50
500	0.69
630	0.77
800	0.86
1000	0.82
1250	0.73
1600	0.61
2000	0.57
2500	0.66
3150	0.62
4000	0.61
5000	0.56



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.25
500	0.65
1000	0.80
2000	0.60
4000	0.60

NRC = 0.60

SAA = 0.58

α_w = 0.55

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M07 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

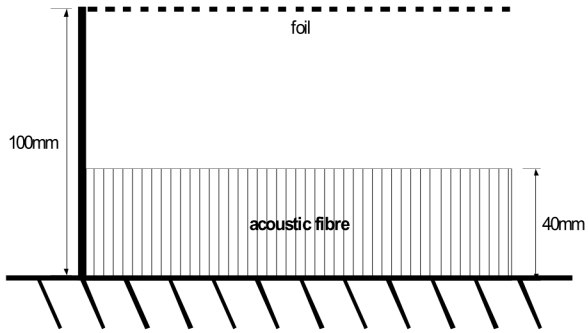
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

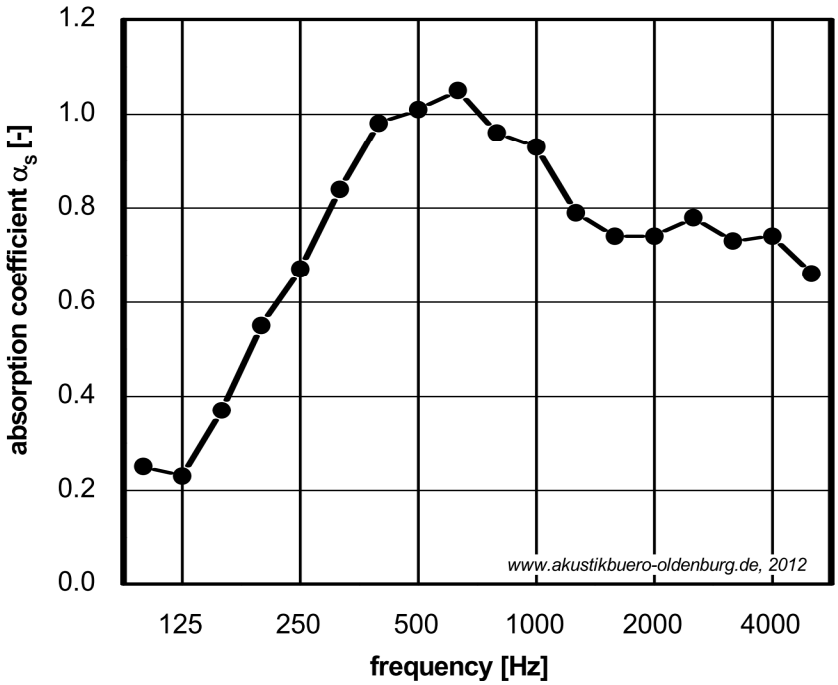
Assembly:

- BARRISOL® A20 Acoperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.25
125	0.23
160	0.37
200	0.55
250	0.67
315	0.84
400	0.98
500	1.01
630	1.05
800	0.96
1000	0.93
1250	0.79
1600	0.74
2000	0.74
2500	0.78
3150	0.73
4000	0.74
5000	0.66



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.70
500	1.00
1000	0.90
2000	0.75
4000	0.70

NRC = 0.85

SAA = 0.84

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M06 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

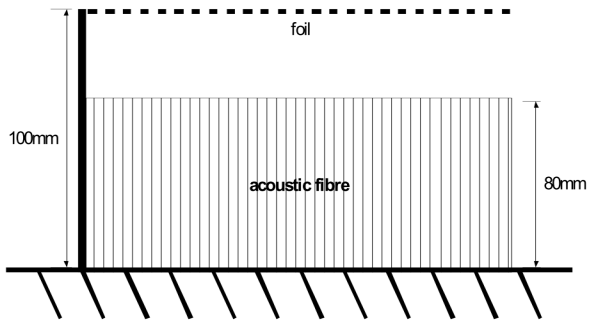
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

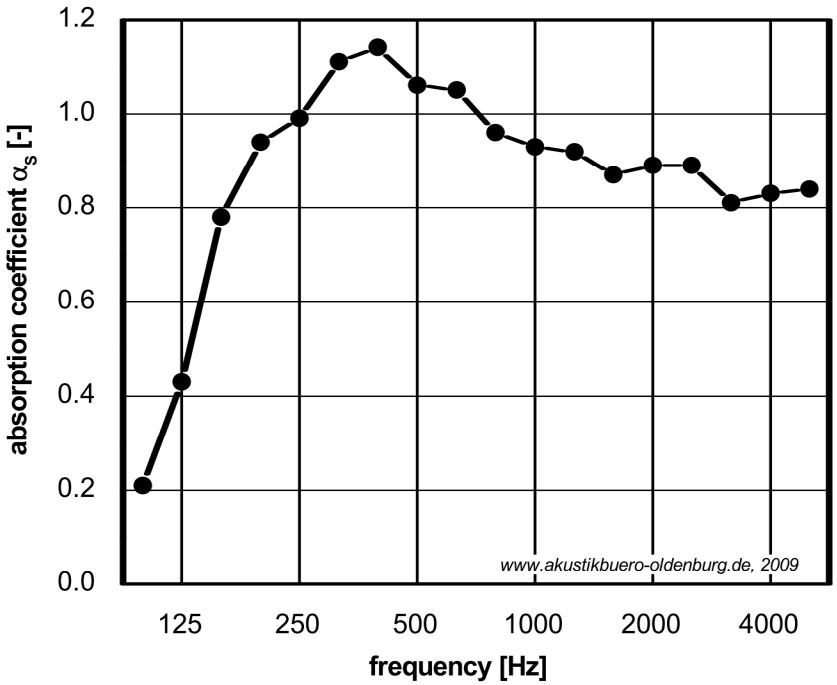
Assembly:

- BARRISOL® A20 Acoperf
- 100 mm distance to the floor
- 80 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.21
125	0.43
160	0.78
200	0.94
250	0.99
315	1.11
400	1.14
500	1.06
630	1.05
800	0.96
1000	0.93
1250	0.92
1600	0.87
2000	0.89
2500	0.89
3150	0.81
4000	0.83
5000	0.84



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.45
250	1.00
500	1.00
1000	0.95
2000	0.90
4000	0.85

NRC = 0.95

SAA = 0.98

α_w = 0.95 (L)

Sound Absorption Class A

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p11-A20_100mw80_OI200808BI12

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

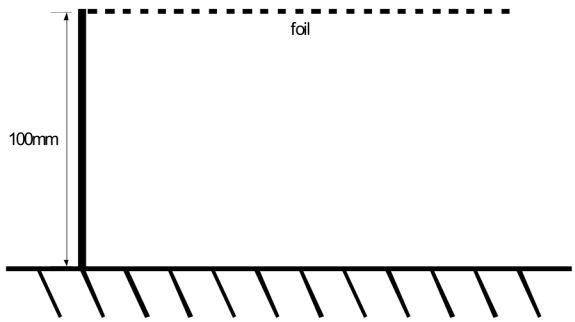
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

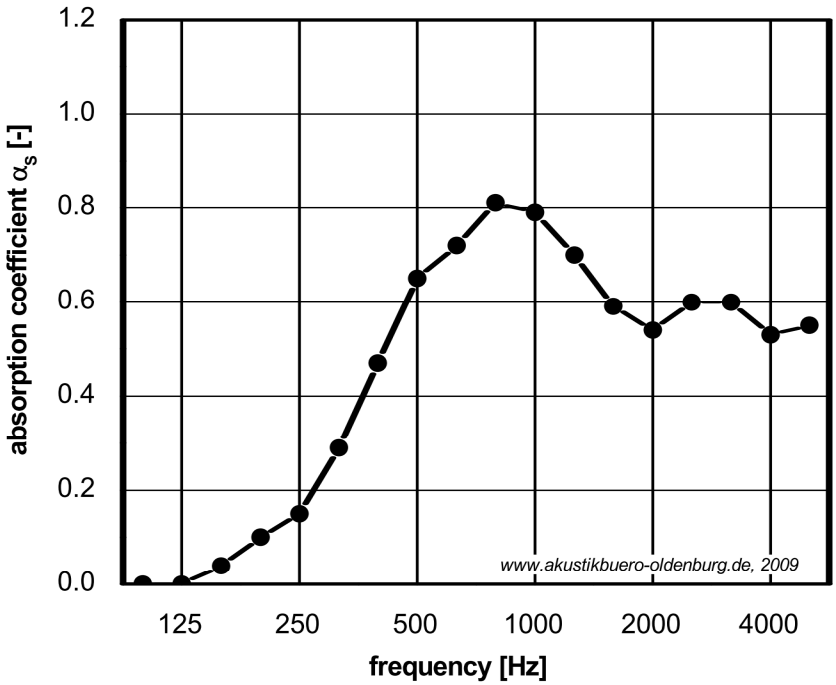
Assembly:

- BARRISOL® A30 Microacoustic
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.00
125	0.00
160	0.04
200	0.10
250	0.15
315	0.29
400	0.47
500	0.65
630	0.72
800	0.81
1000	0.79
1250	0.70
1600	0.59
2000	0.54
2500	0.60
3150	0.60
4000	0.53
5000	0.55



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.20
500	0.60
1000	0.75
2000	0.60
4000	0.55

NRC = 0.55

SAA = 0.53

α_w = 0.50 (M)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p14-A30_100_OI200808BL07

Oldenburg, May 15th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

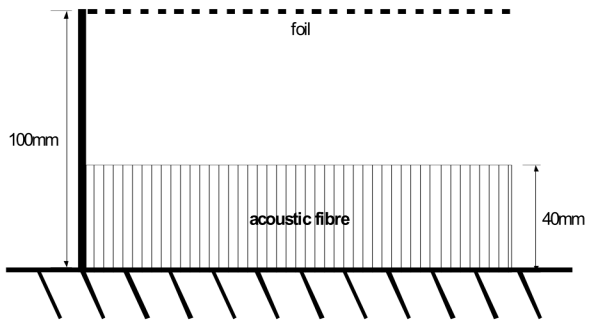
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

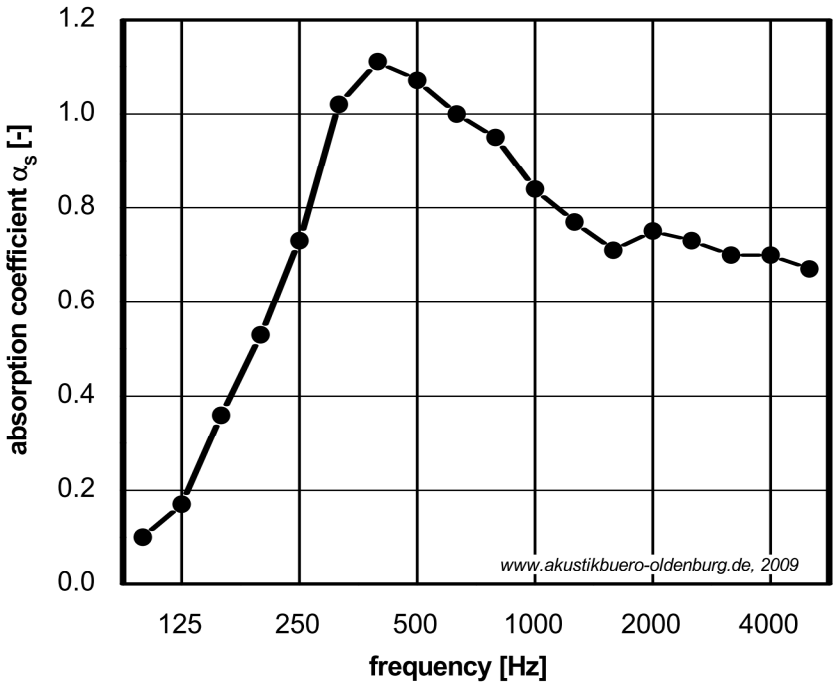
Assembly:

- BARRISOL® A30 Microacoustic
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.17
160	0.36
200	0.53
250	0.73
315	1.02
400	1.11
500	1.07
630	1.00
800	0.95
1000	0.84
1250	0.77
1600	0.71
2000	0.75
2500	0.73
3150	0.70
4000	0.70
5000	0.67



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.75
500	1.00
1000	0.85
2000	0.75
4000	0.70

NRC = 0.85

SAA = 0.85

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p15-A30_100mw40_OI200808BL06

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

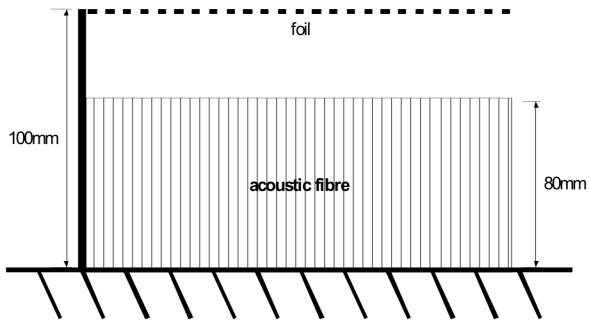
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

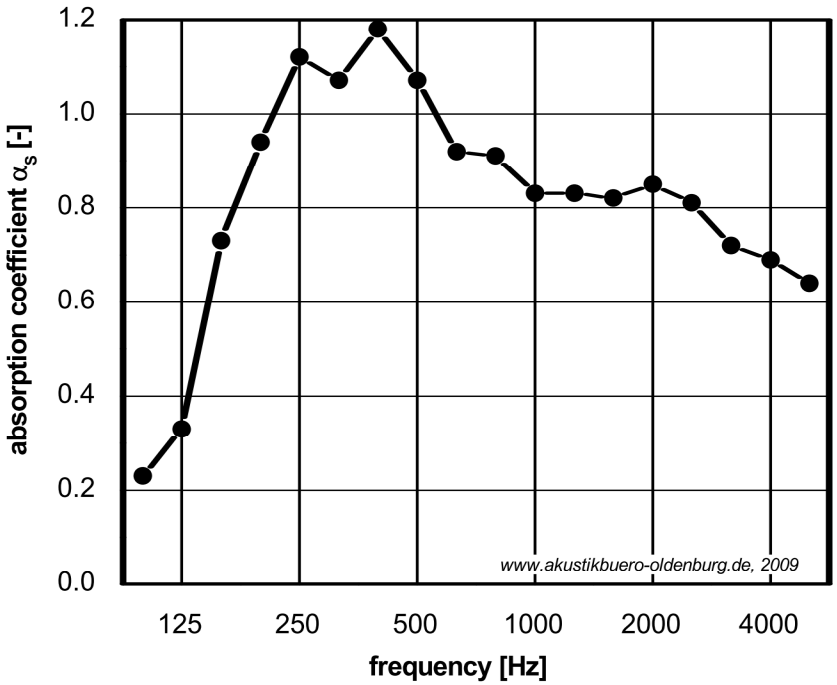
Assembly:

- BARRISOL® A30 Microacoustic
- 100 mm distance to the floor
- 80 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.33
160	0.73
200	0.94
250	1.12
315	1.07
400	1.18
500	1.07
630	0.92
800	0.91
1000	0.83
1250	0.83
1600	0.82
2000	0.85
2500	0.81
3150	0.72
4000	0.69
5000	0.64



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.45
250	1.00
500	1.00
1000	0.85
2000	0.85
4000	0.70

NRC = 0.95

SAA = 0.95

α_w = 0.85 (L)

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p16-A30_100mw80_OI200808BL11

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

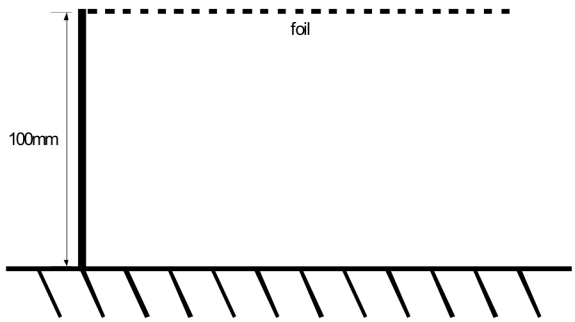
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

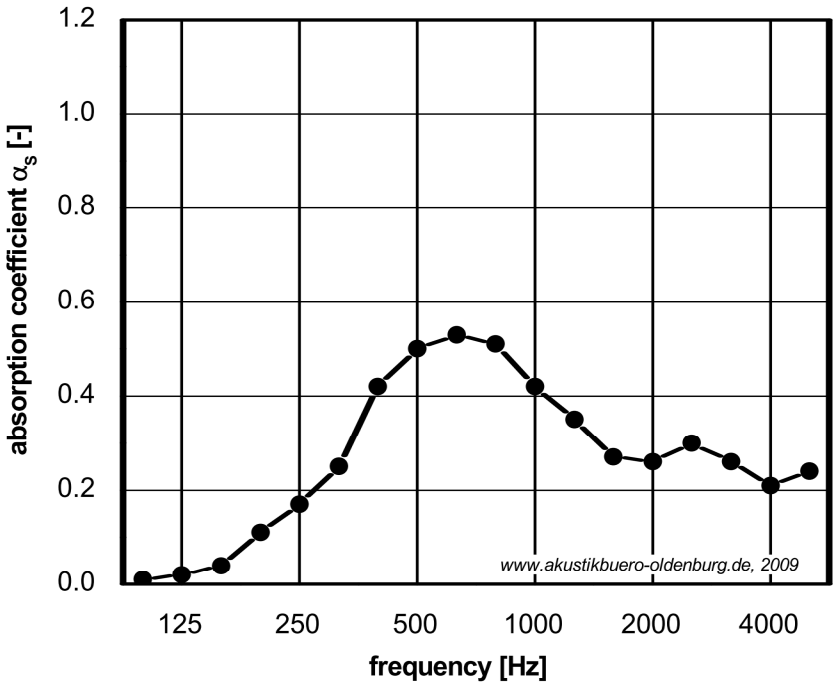
Assembly:

- BARRISOL® A40 Miniperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.01
125	0.02
160	0.04
200	0.11
250	0.17
315	0.25
400	0.42
500	0.50
630	0.53
800	0.51
1000	0.42
1250	0.35
1600	0.27
2000	0.26
2500	0.30
3150	0.26
4000	0.21
5000	0.24



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.20
500	0.50
1000	0.45
2000	0.30
4000	0.25

NRC = 0.35

SAA = 0.34

α_w = 0.35

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p19-A40_100_Ol200808BL08

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

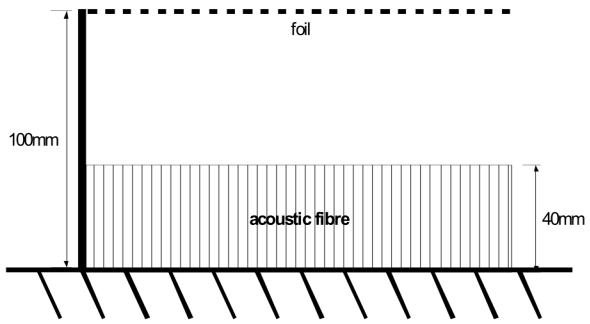
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

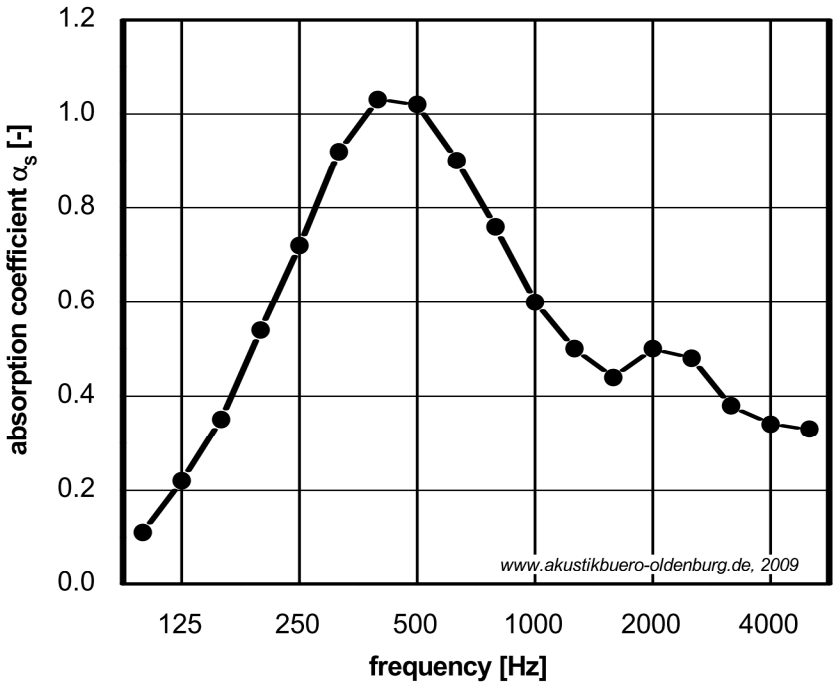
Assembly:

- BARRISOL® A40 Miniperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.22
160	0.35
200	0.54
250	0.72
315	0.92
400	1.03
500	1.02
630	0.90
800	0.76
1000	0.60
1250	0.50
1600	0.44
2000	0.50
2500	0.48
3150	0.38
4000	0.34
5000	0.33



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.75
500	1.00
1000	0.60
2000	0.45
4000	0.35

NRC = 0.70

SAA = 0.70

α_w = 0.50 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p20-A40_100mw40_Ol200808BL09

Oldenburg, May 7th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

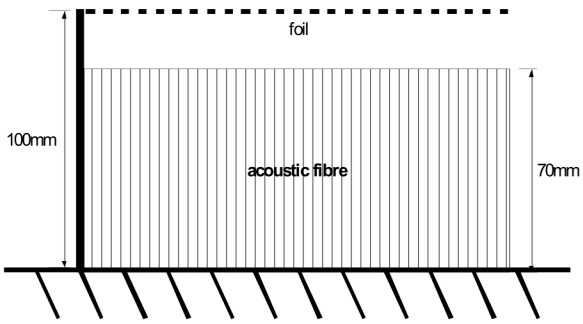
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

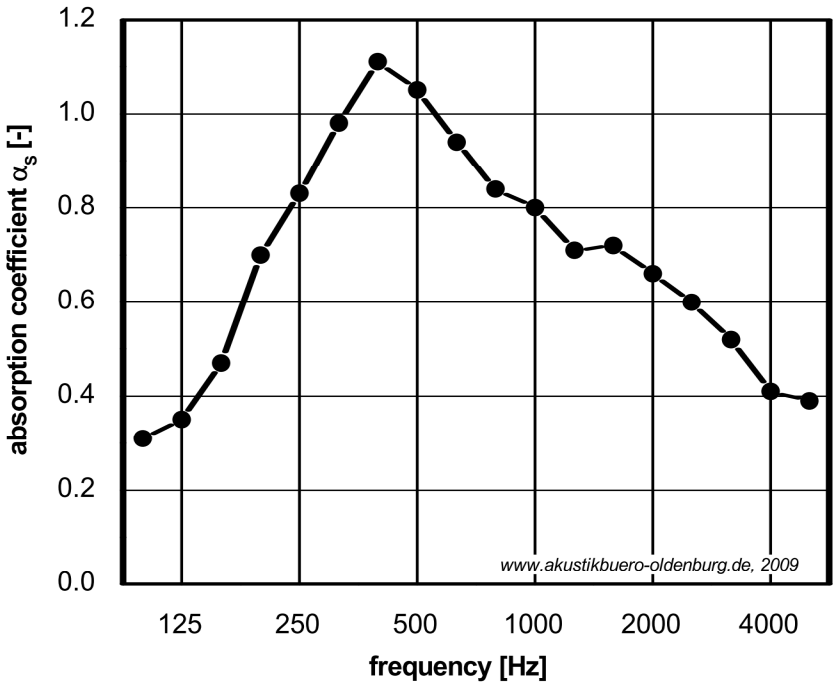
Assembly:

- BARRISOL® A40 Miniperf
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.31
125	0.35
160	0.47
200	0.70
250	0.83
315	0.98
400	1.11
500	1.05
630	0.94
800	0.84
1000	0.80
1250	0.71
1600	0.72
2000	0.66
2500	0.60
3150	0.52
4000	0.41
5000	0.39



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.40
250	0.85
500	1.00
1000	0.80
2000	0.65
4000	0.45

NRC = 0.85

SAA = 0.83

α_w = 0.65 (LM)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p21-A40_100mw70_Ol200708Mess08

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Akustikbüro Oldenburg Dr. Christian Nocke

Test reports

for

BARRISOL® stretched ceilings

Part 2

Special Distances

Version 2013

Address: Katharinenstr. 10, D-26121 Oldenburg fone +49 (0) 441 / 957993 0, fax +49 (0) 441 / 957993 21
e-mail : info@akustikbuero.info, web: www.akustikbuero.info

Table 1 : List of tested Set-Ups.

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
1	20120233 M28	BARRISOL® unperforated white, 50 mm, 45 mm acoustic fibre	0.55	0.57	0.35	D
2	20120233 M45	BARRISOL® A15, 30 mm, no fibre	0.35	0.37	0.25	E
3	20120233 M49	BARRISOL® A15, 30 mm, 22 mm acoustic fibre	0.65	0.66	0.55	D
4	20120233 M21	BARRISOL® A15, 50 mm, no fibre	0.50	0.51	0.45	D
5	20120233 M12	BARRISOL® A15, 50 mm, 45 mm acoustic fibre	0.75	0.75	0.70	C
6	20120233 M20	BARRISOL® A15, 60 mm, no fibre	0.50	0.50	0.45	D
7	20120233 M13	BARRISOL® A15, 60 mm, 45 mm acoustic fibre	0.75	0.74	0.70	C
8	20120069 M01	BARRISOL® A15, 80 mm, no fibre	0.60	0.59	0.50	D
9	20120069 M04	BARRISOL® A15, 80 mm, 40 mm acoustic fibre	0.85	0.86	0.80	B
10	20120069 M09	BARRISOL® A15, 130 mm, no fibre	0.60	0.62	0.65	C
11	20120069 M12	BARRISOL® A15, 130 mm, 40 mm acoustic fibre	0.85	0.83	0.90	A
12	20120069 M16	BARRISOL® A15, 170 mm, no fibre	0.60	0.61	0.65	C
13	20120069 M13	BARRISOL® A15, 170 mm, 40 mm acoustic fibre	0.80	0.83	0.85	B
14	20120233 M19	BARRISOL® A15, 200 mm, no fibre	0.45	0.44	0.50	D
15	20120233 M14	BARRISOL® A15, 200 mm, 45 mm acoustic fibre	0.60	0.62	0.65	C
16	20120233 M18	BARRISOL® A15, 300 mm, no fibre	0.40	0.43	0.40	C
17	20120233 M15	BARRISOL® A15, 300 mm, 45 mm acoustic fibre	0.60	0.61	0.60	C
18	20120233 M17	BARRISOL® A15, 400 mm, no fibre	0.40	0.41	0.40	D
19	20120233 M16	BARRISOL® A15, 400 mm, 45 mm acoustic fibre	0.60	0.59	0.65	C
20	20100148 M03	BARRISOL® A20, 50 mm, no fibre	0.45	0.45	0.35	D
21	20100148 M10	BARRISOL® A20, 50 mm, 40 mm acoustic fibre	0.80	0.77	0.75	C
22	20120069 M02	BARRISOL® A20, 80 mm, no fibre	0.55	0.57	0.50	D
23	20120069 M03	BARRISOL® A20, 80 mm, 40 mm acoustic fibre	0.85	0.84	0.80	B
24	20120069 M10	BARRISOL® A20, 130 mm, no fibre	0.60	0.59	0.60	C
25	20120069 M11	BARRISOL® A20, 130 mm, 40 mm acoustic fibre	0.80	0.81	0.85	B
26	20120069 M15	BARRISOL® A20, 170 mm, no fibre	0.55	0.58	0.60	C
27	20120069 M14	BARRISOL® A20, 170 mm, 40 mm acoustic fibre	0.75	0.81	0.85	B
28	OL200808 BL20	BARRISOL® A20, 200 mm, no fibre	0.50	0.52	0.55	D
29	OL200808 BL15	BARRISOL® A20, 200 mm, 40 mm acoustic fibre	0.85	0.86	0.90	A
30	OL200707 M23	BARRISOL® A20, 400 mm, no fibre	0.40	0.40	0.40	D
31	OL200707 M22	BARRISOL® A20, 400 mm, 45 mm acoustic fibre	0.65	0.69	0.70	C
32	OL200707 M24	BARRISOL® A20, 400 mm, 70 mm acoustic fibre	0.80	0.84	0.90	A

Table 1B : List of tested Set-Ups (continued).

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
33	20120069 M22	BARRISOL® A30, 30 mm, no fibre	0.45	0.46	0.30	D
34	20120069 M28	BARRISOL® A30, 30 mm, 10 mm acoustic fibre	0.70	0.68	0.50	D
35	20120233 M48	BARRISOL® A30, 30 mm, 22 mm acoustic fibre	0.75	0.73	0.55	D
36	20120233 M22	BARRISOL® A30, 50 mm, no fibre	0.55	0.54	0.45	D
37	20100148 M13	BARRISOL® A30, 50 mm, 20 mm acoustic fibre	0.65	0.65	0.60	C
38	20100148 M09	BARRISOL® A30, 50 mm, 40 mm acoustic fibre	0.75	0.76	0.70	C
39	20120233 M27	BARRISOL® A30, 50 mm, 45 mm acoustic fibre	0.80	0.78	0.75	C
40	20120233 M23	BARRISOL® A30, 60 mm, no fibre	0.55	0.53	0.45	D
41	20120233 M26	BARRISOL® A30, 60 mm, 45 mm acoustic fibre	0.80	0.78	0.75	C
42	OL200808 BL19	BARRISOL® A30, 200 mm, no fibre	0.55	0.56	0.60	C
43	OL200808 BL16	BARRISOL® A30, 200 mm, 40 mm acoustic fibre	0.80	0.78	0.80	C
44	20120233 M25	BARRISOL® A30, 200 mm, 45 mm acoustic fibre	0.70	0.69	0.70	C
45	OL200707 M33	BARRISOL® A30, 400 mm, no fibre	0.35	0.39	0.40	D
46	20100148 M07	BARRISOL® A40, 50 mm, no fibre	0.15	0.17	0.20	E
47	20100148 M8	BARRISOL® A40, 50 mm, 40 mm acoustic fibre	0.70	0.69	0.65	C
48	20100148 M19	BARRISOL® A40, 120 mm, no fibre	0.15	0.16	0.20	E
49	20100148 M18	BARRISOL® A40, 120 mm, 40 mm acoustic fibre	0.70	0.72	0.75	C
50	20100148 M17	BARRISOL® A40, 120 mm, 80 mm acoustic fibre	0.90	0.90	0.75	C
51	OL200808 BL18	BARRISOL® A40, 200 mm, no fibre	0.40	0.39	0.35	D
52	OL200808 BL17	BARRISOL® A40, 200 mm, 40 mm acoustic fibre	0.70	0.67	0.55	D
53	OL200707 M32	BARRISOL® A40, 400 mm, no fibre	0.25	0.27	0.25	E
54	20100148 M53	BARRISOL® A40, 400 mm, 40 mm acoustic fibre	0.50	0.52	0.55	D

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

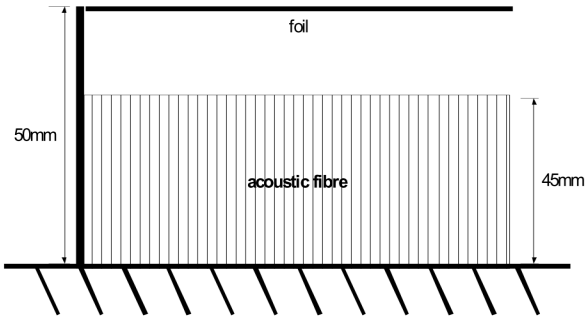
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

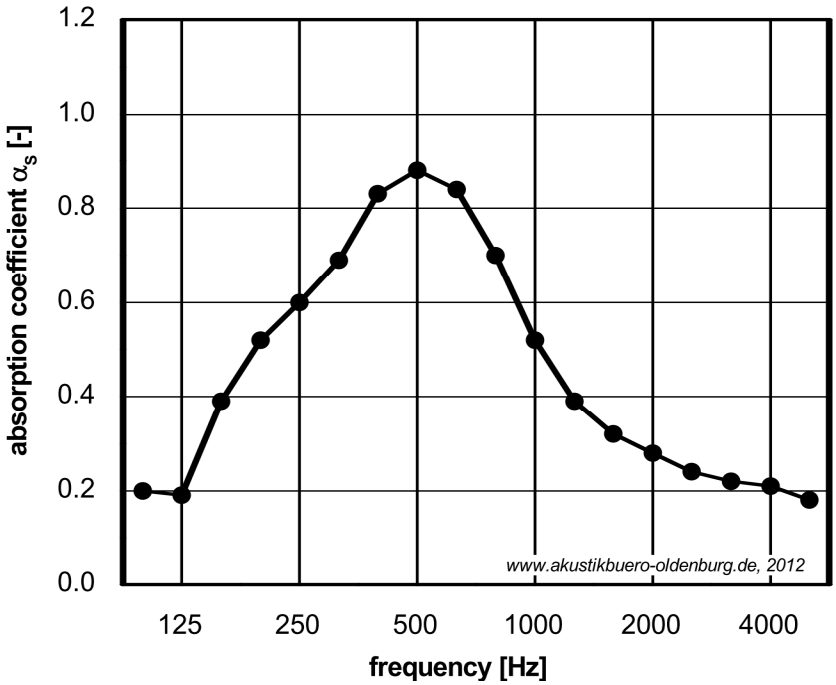
Assembly:

- BARRISOL® unperforated white
- 50 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.20
125	0.19
160	0.39
200	0.52
250	0.60
315	0.69
400	0.83
500	0.88
630	0.84
800	0.70
1000	0.52
1250	0.39
1600	0.32
2000	0.28
2500	0.24
3150	0.22
4000	0.21
5000	0.18



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.60
500	0.85
1000	0.55
2000	0.30
4000	0.20

NRC = 0.55

SAA = 0.57

α_w = 0.35 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M28 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

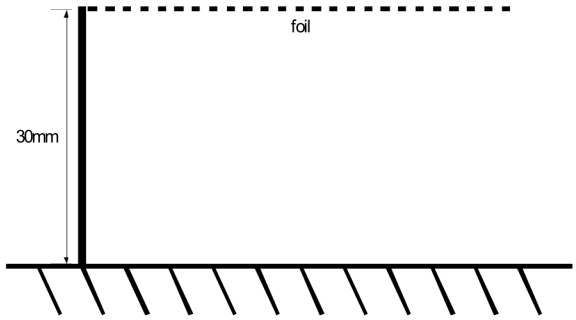
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

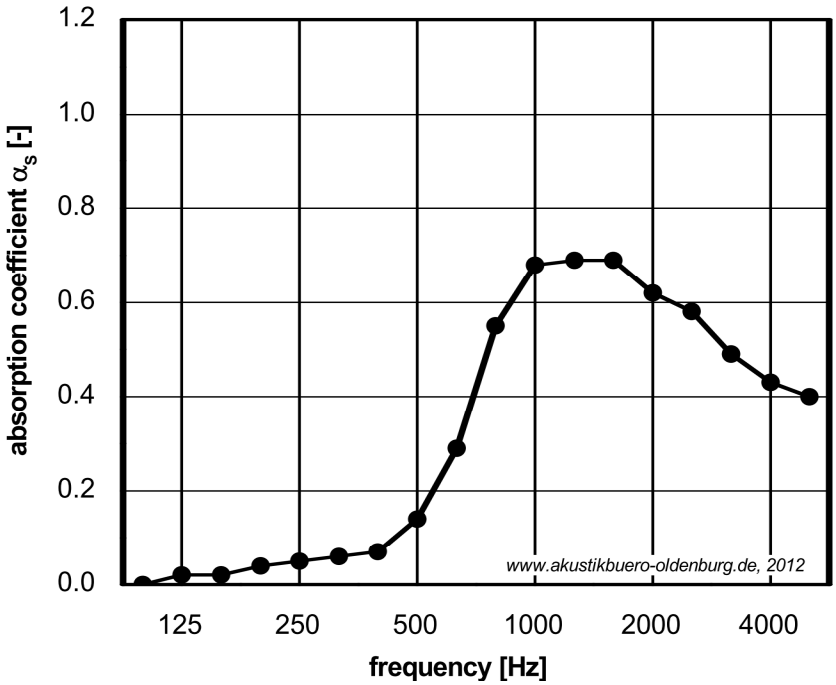
Assembly:

- BARRISOL® A15 Nanoperf
- 30 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.00
125	0.02
160	0.02
200	0.04
250	0.05
315	0.06
400	0.07
500	0.14
630	0.29
800	0.55
1000	0.68
1250	0.69
1600	0.69
2000	0.62
2500	0.58
3150	0.49
4000	0.43
5000	0.40



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.05
500	0.15
1000	0.65
2000	0.65
4000	0.45

NRC = 0.35

SAA = 0.37

α_w = 0.25 (MH)

Sound Absorption Class E

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M45 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

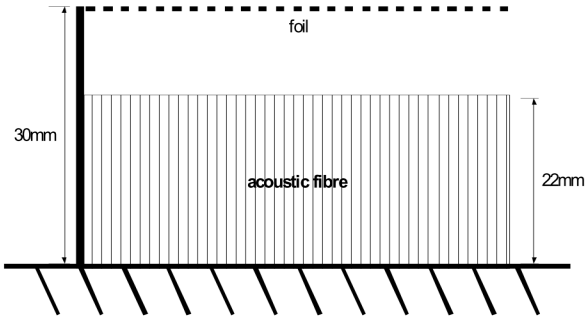
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

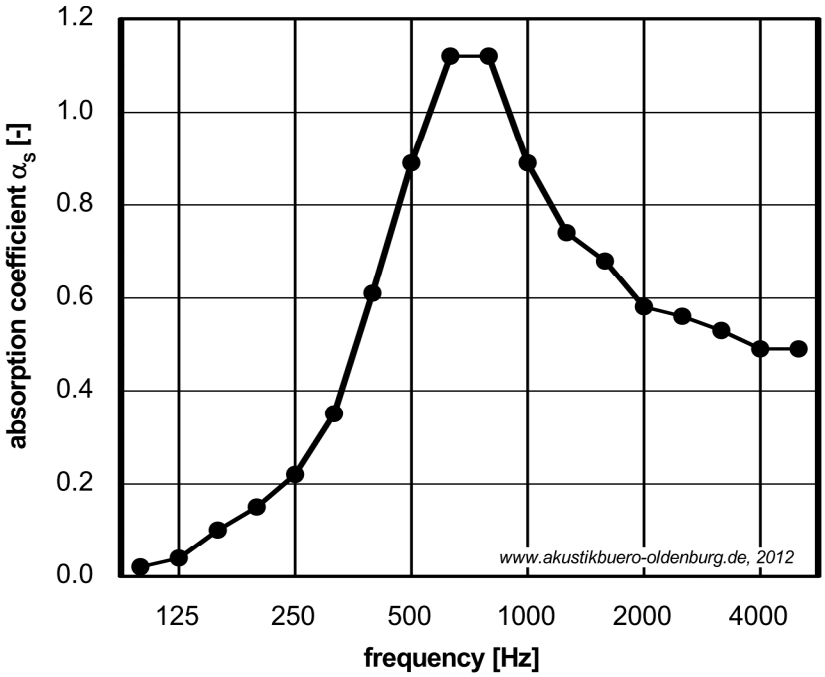
Assembly:

- BARRISOL® A15 Nanoperf
- 30 mm distance to the floor
- 22 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.04
160	0.10
200	0.15
250	0.22
315	0.35
400	0.61
500	0.89
630	1.12
800	1.12
1000	0.89
1250	0.74
1600	0.68
2000	0.58
2500	0.56
3150	0.53
4000	0.49
5000	0.49



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.25
500	0.85
1000	0.90
2000	0.60
4000	0.50

NRC = 0.65

SAA = 0.66

α_w = 0.55 (M)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M49 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

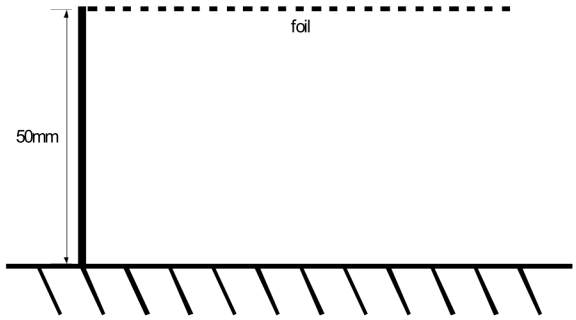
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

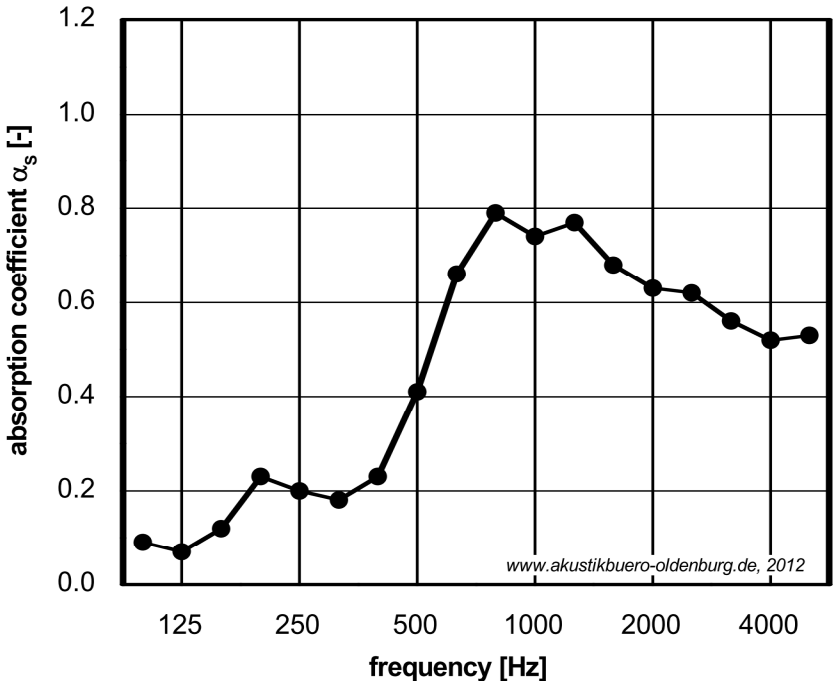
Assembly:

- BARRISOL® A15 Nanoperf
- 50 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.07
160	0.12
200	0.23
250	0.20
315	0.18
400	0.23
500	0.41
630	0.66
800	0.79
1000	0.74
1250	0.77
1600	0.68
2000	0.63
2500	0.62
3150	0.56
4000	0.52
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.45
1000	0.75
2000	0.65
4000	0.55

NRC = 0.50

SAA = 0.51

α_w = 0.45 (M)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M21 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

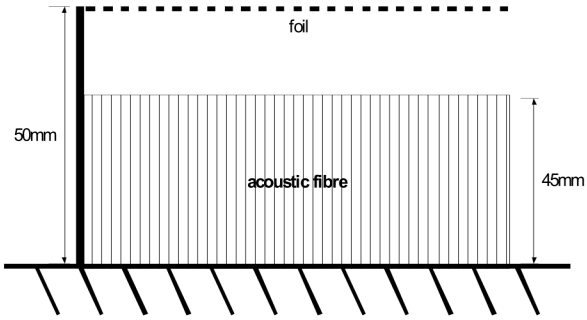
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

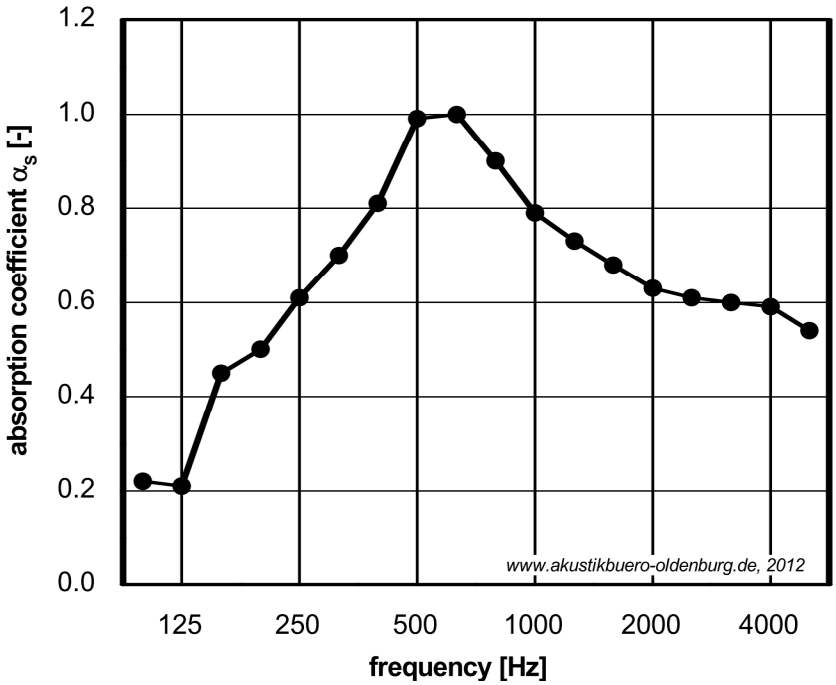
Assembly:

- BARRISOL® A15 Nanoperf
- 50 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.22
125	0.21
160	0.45
200	0.50
250	0.61
315	0.70
400	0.81
500	0.99
630	1.00
800	0.90
1000	0.79
1250	0.73
1600	0.68
2000	0.63
2500	0.61
3150	0.60
4000	0.59
5000	0.54



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.60
500	0.95
1000	0.80
2000	0.65
4000	0.60

NRC = 0.75

SAA = 0.75

α_w = 0.70 (M)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

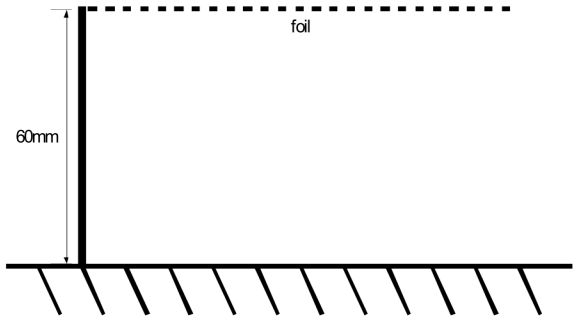
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

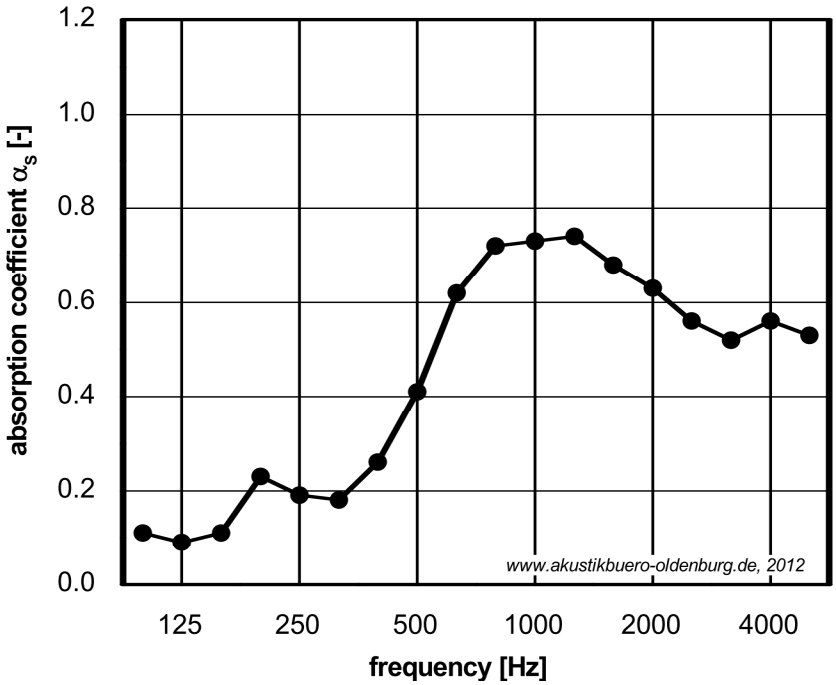
Assembly:

- BARRISOL® A15 Nanoperf
- 60 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.09
160	0.11
200	0.23
250	0.19
315	0.18
400	0.26
500	0.41
630	0.62
800	0.72
1000	0.73
1250	0.74
1600	0.68
2000	0.63
2500	0.56
3150	0.52
4000	0.56
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.45
1000	0.75
2000	0.60
4000	0.55

NRC = 0.50

SAA = 0.50

α_w = 0.45 (M)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M20 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

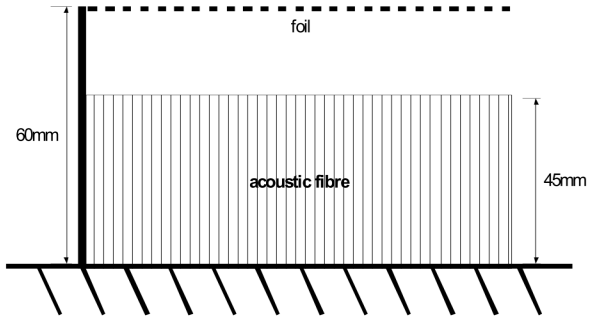
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

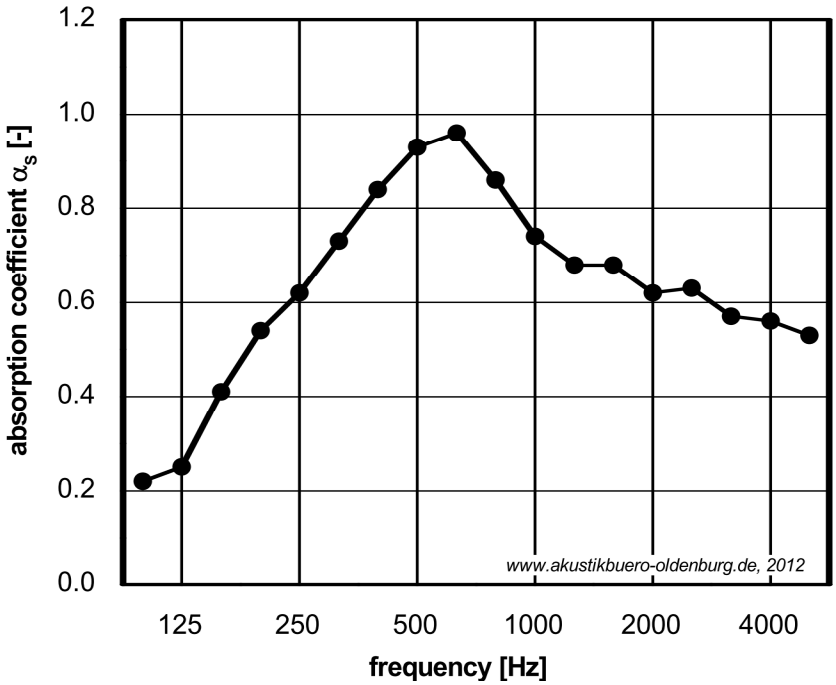
Assembly:

- BARRISOL® A15 Nanoperf
- 60 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.22
125	0.25
160	0.41
200	0.54
250	0.62
315	0.73
400	0.84
500	0.93
630	0.96
800	0.86
1000	0.74
1250	0.68
1600	0.68
2000	0.62
2500	0.63
3150	0.57
4000	0.56
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.65
500	0.90
1000	0.75
2000	0.65
4000	0.55

NRC = 0.75

SAA = 0.74

α_w = 0.70

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M13 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

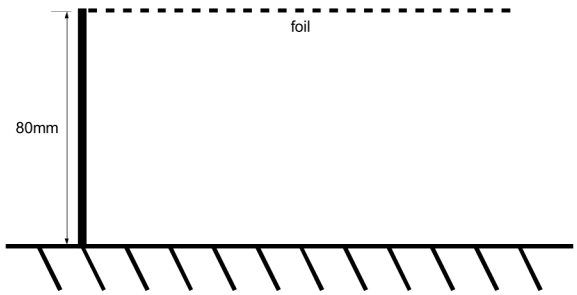
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

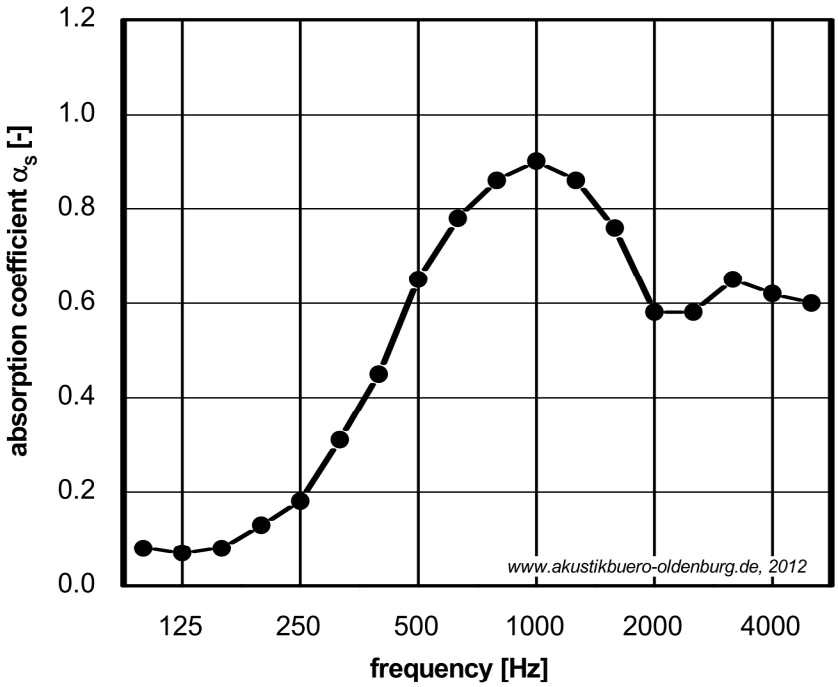
Assembly:

- BARRISOL® A15 Nanoperf
- 80 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.08
125	0.07
160	0.08
200	0.13
250	0.18
315	0.31
400	0.45
500	0.65
630	0.78
800	0.86
1000	0.90
1250	0.86
1600	0.76
2000	0.58
2500	0.58
3150	0.65
4000	0.62
5000	0.60



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.65
1000	0.85
2000	0.65
4000	0.60

NRC = 0.60

SAA = 0.59

α_w = 0.50

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M01 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

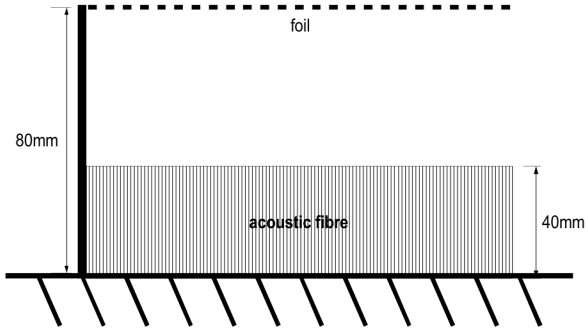
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

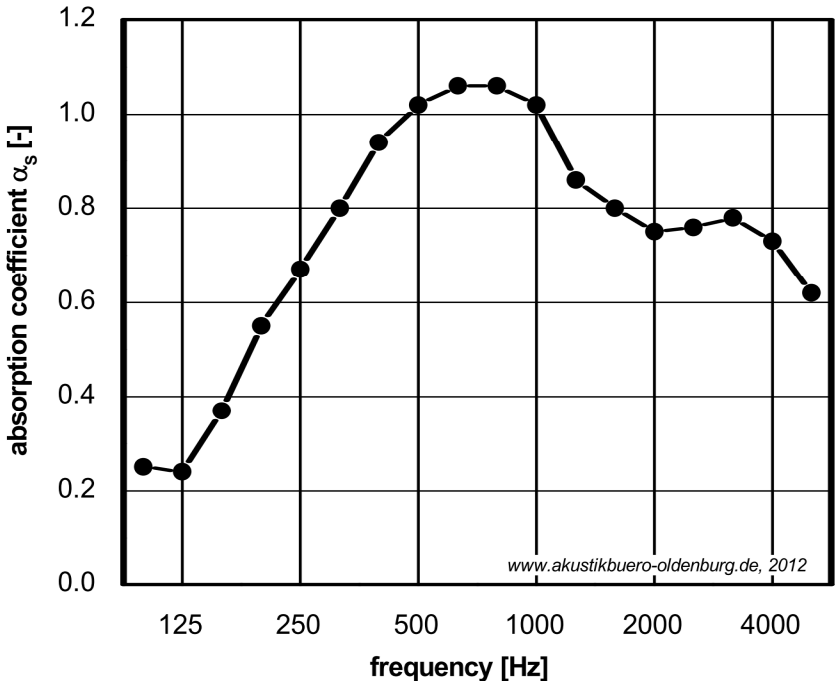
Assembly:

- BARRISOL® A15 Nanoperf
- 80 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.25
125	0.24
160	0.37
200	0.55
250	0.67
315	0.80
400	0.94
500	1.02
630	1.06
800	1.06
1000	1.02
1250	0.86
1600	0.80
2000	0.75
2500	0.76
3150	0.78
4000	0.73
5000	0.62



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.65
500	1.00
1000	1.00
2000	0.75
4000	0.70

NRC = 0.85

SAA = 0.86

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M04 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

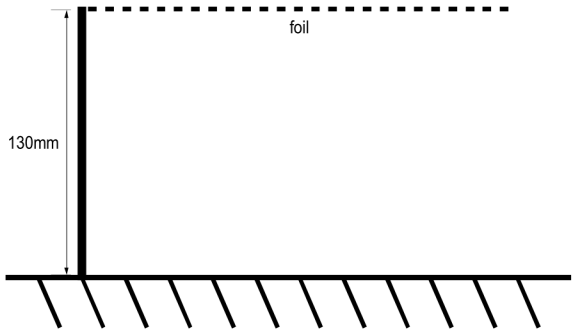
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

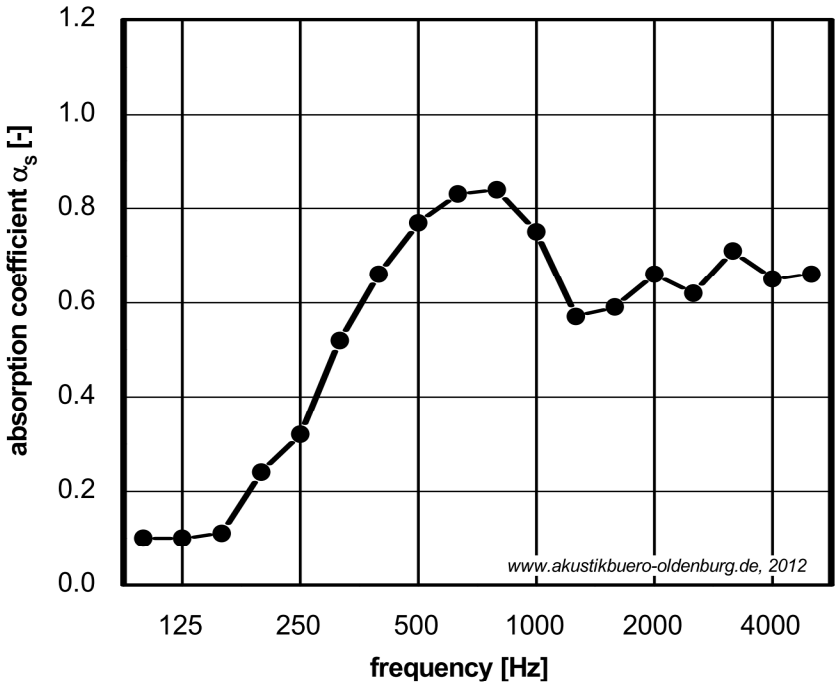
Assembly:

- BARRISOL® A15 Nanoperf
- 130 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.10
160	0.11
200	0.24
250	0.32
315	0.52
400	0.66
500	0.77
630	0.83
800	0.84
1000	0.75
1250	0.57
1600	0.59
2000	0.66
2500	0.62
3150	0.71
4000	0.65
5000	0.66



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.35
500	0.75
1000	0.70
2000	0.65
4000	0.65

NRC = 0.60

SAA = 0.62

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M09 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

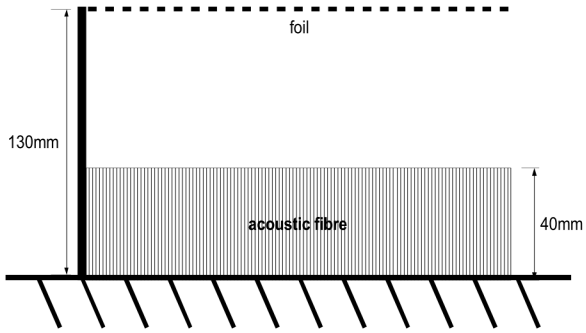
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

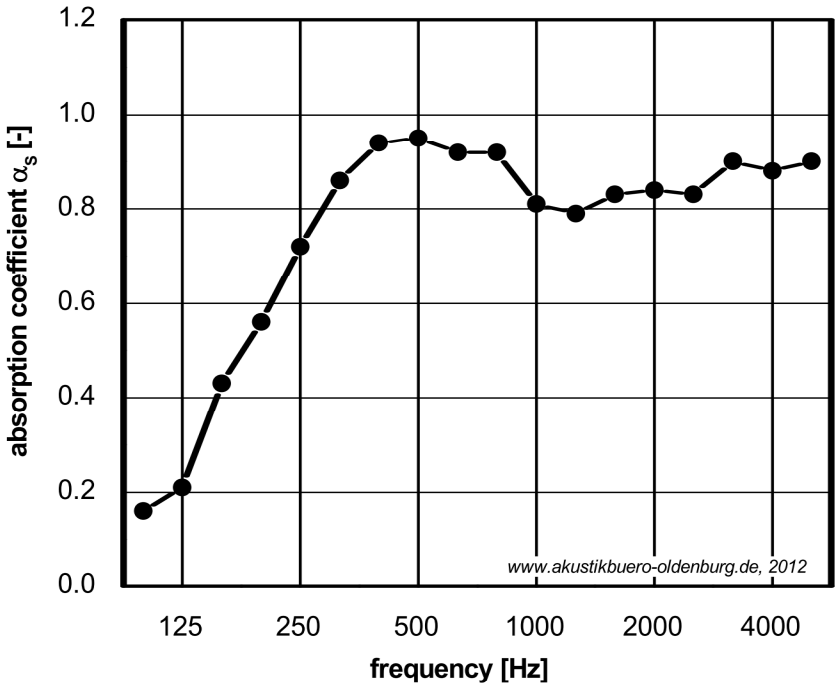
Assembly:

- BARRISOL® A15 Nanoperf
- 130 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.16
125	0.21
160	0.43
200	0.56
250	0.72
315	0.86
400	0.94
500	0.95
630	0.92
800	0.92
1000	0.81
1250	0.79
1600	0.83
2000	0.84
2500	0.83
3150	0.90
4000	0.88
5000	0.90



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.70
500	0.95
1000	0.85
2000	0.85
4000	0.90

NRC = 0.85

SAA = 0.83

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M12 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

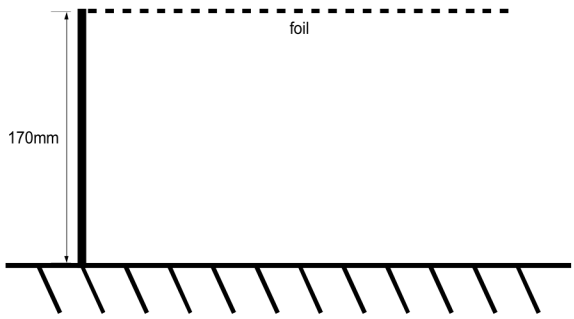
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

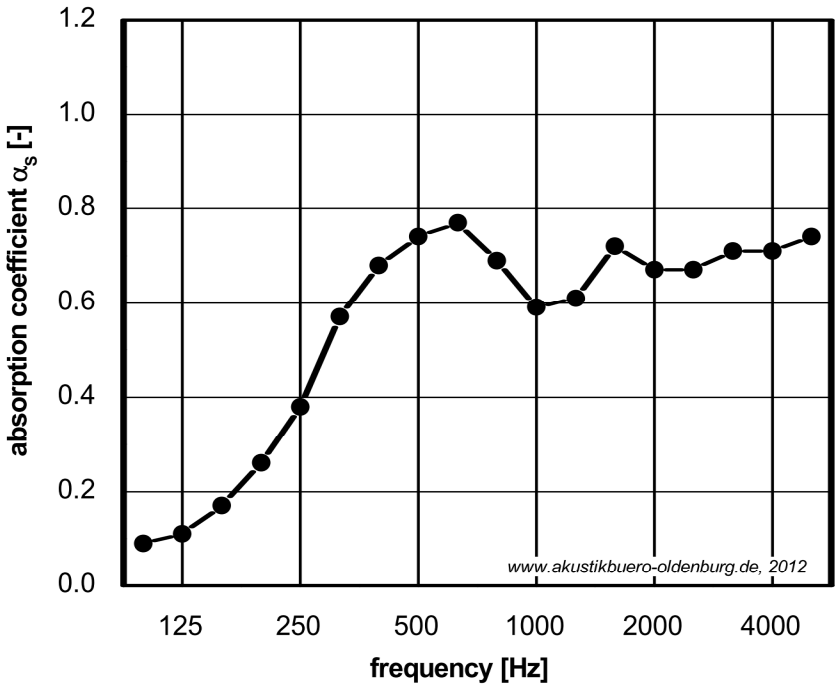
Assembly:

- BARRISOL® A15 Nanoperf
- 170 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.11
160	0.17
200	0.26
250	0.38
315	0.57
400	0.68
500	0.74
630	0.77
800	0.69
1000	0.59
1250	0.61
1600	0.72
2000	0.67
2500	0.67
3150	0.71
4000	0.71
5000	0.74



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.40
500	0.75
1000	0.65
2000	0.70
4000	0.70

NRC = 0.60

SAA = 0.61

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M16 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

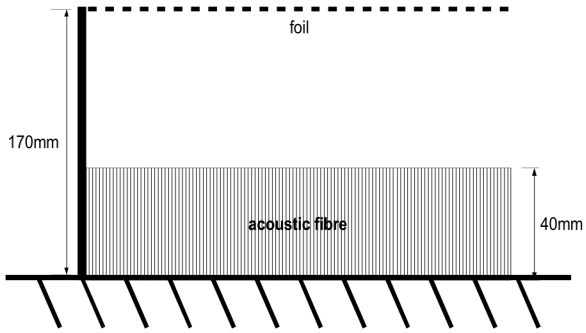
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

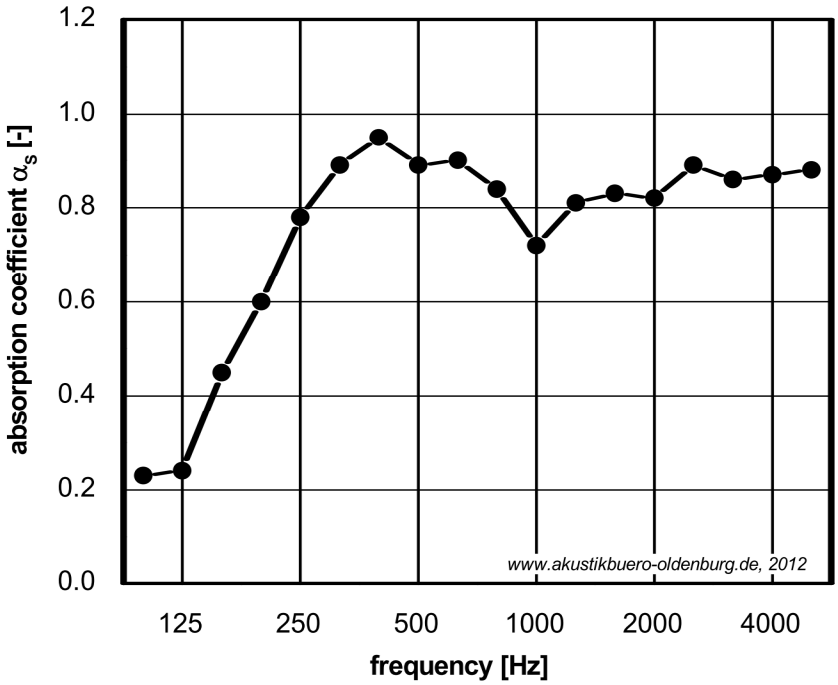
Assembly:

- BARRISOL® A15 Nanoperf
- 170 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.24
160	0.45
200	0.60
250	0.78
315	0.89
400	0.95
500	0.89
630	0.90
800	0.84
1000	0.72
1250	0.81
1600	0.83
2000	0.82
2500	0.89
3150	0.86
4000	0.87
5000	0.88



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.75
500	0.90
1000	0.80
2000	0.85
4000	0.85

NRC = 0.80

SAA = 0.83

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M13 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

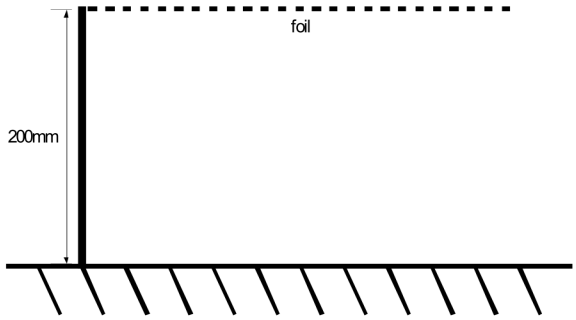
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

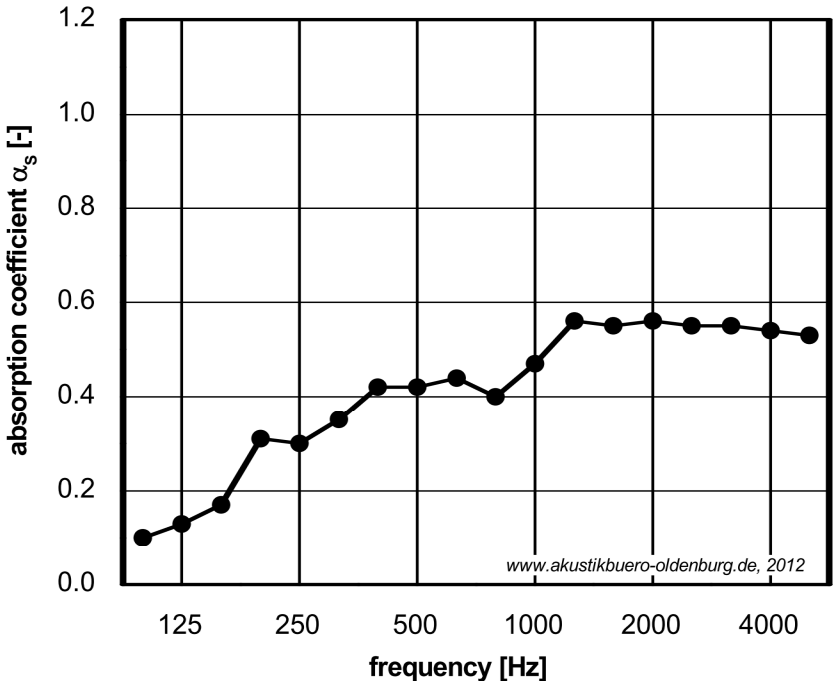
Assembly:

- BARRISOL® A15 Nanoperf
- 200 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.13
160	0.17
200	0.31
250	0.30
315	0.35
400	0.42
500	0.42
630	0.44
800	0.40
1000	0.47
1250	0.56
1600	0.55
2000	0.56
2500	0.55
3150	0.55
4000	0.54
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.30
500	0.45
1000	0.50
2000	0.55
4000	0.55

NRC = 0.45

SAA = 0.44

α_w = 0.50

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M19 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

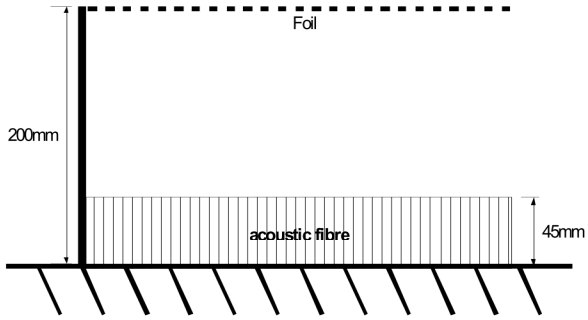
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

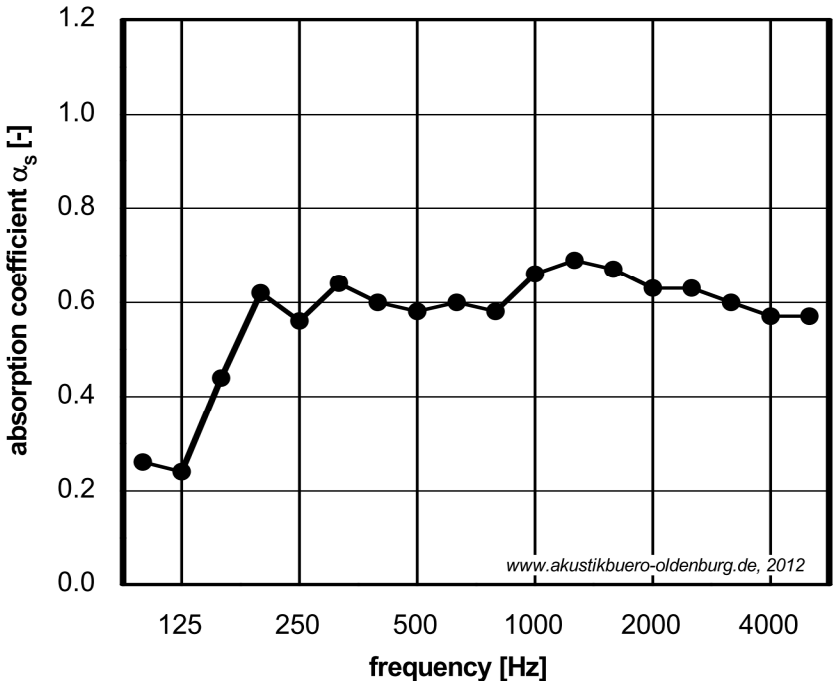
Assembly:

- BARRISOL® A15 Nanoperf
- 200 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.26
125	0.24
160	0.44
200	0.62
250	0.56
315	0.64
400	0.60
500	0.58
630	0.60
800	0.58
1000	0.66
1250	0.69
1600	0.67
2000	0.63
2500	0.63
3150	0.60
4000	0.57
5000	0.57



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.60
500	0.60
1000	0.65
2000	0.65
4000	0.60

NRC = 0.60

SAA = 0.62

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

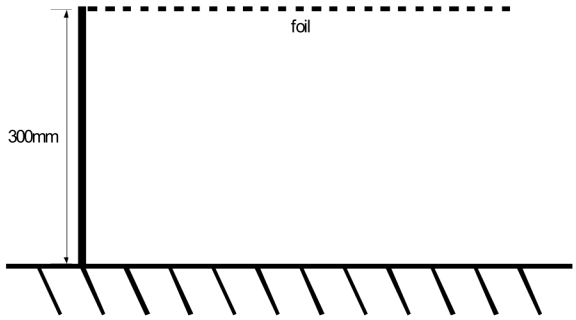
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

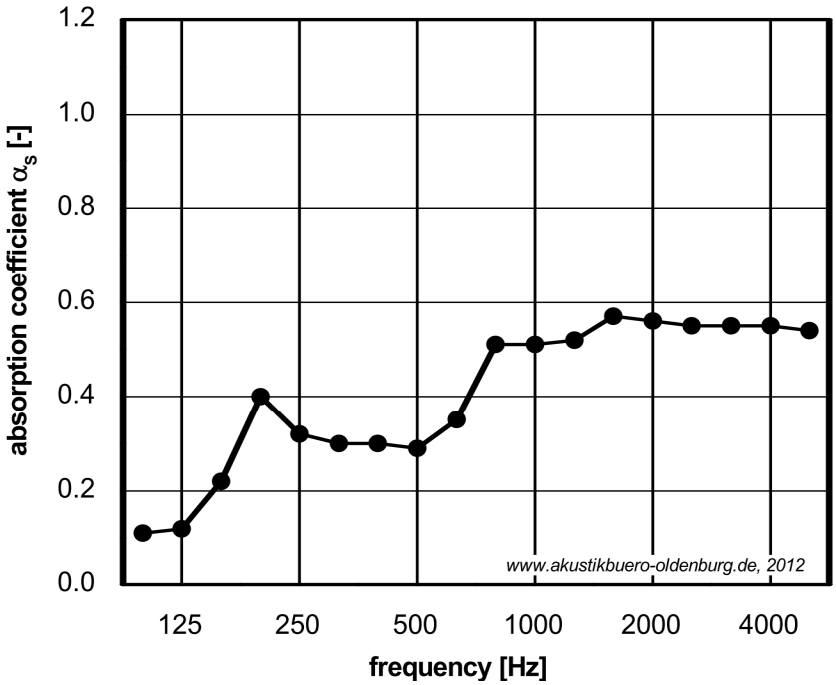
Assembly:

- BARRISOL® A15 Nanoperf
- 300 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.12
160	0.22
200	0.40
250	0.32
315	0.30
400	0.30
500	0.29
630	0.35
800	0.51
1000	0.51
1250	0.52
1600	0.57
2000	0.56
2500	0.55
3150	0.55
4000	0.55
5000	0.54



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.35
500	0.30
1000	0.50
2000	0.55
4000	0.55

NRC = 0.40

SAA = 0.43

α_w = 0.40 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M18 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

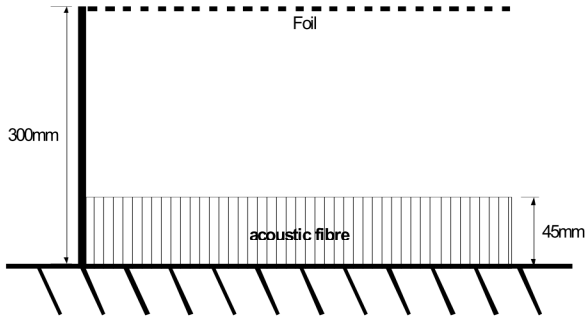
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

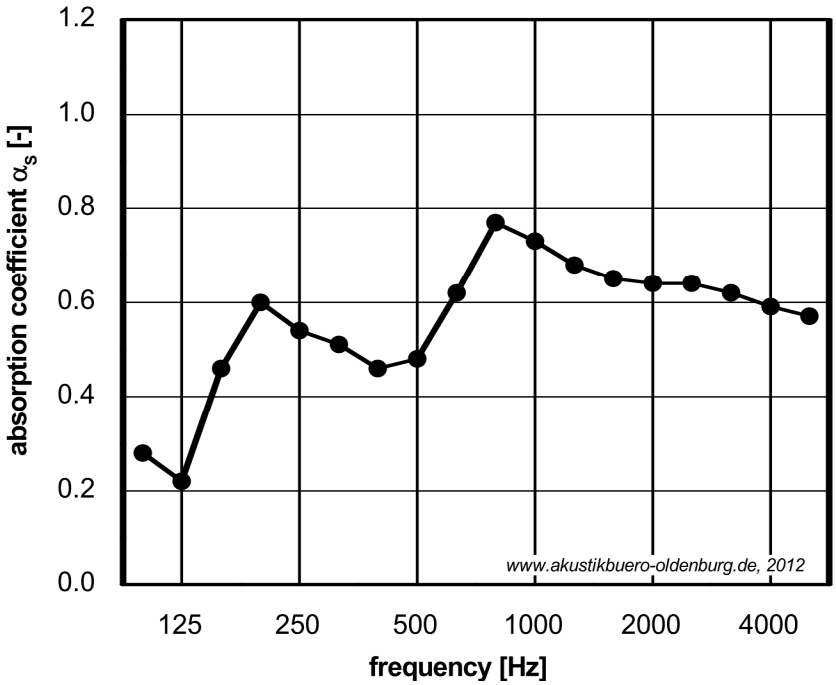
Assembly:

- BARRISOL® A15 Nanoperf
- 300 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.28
125	0.22
160	0.46
200	0.60
250	0.54
315	0.51
400	0.46
500	0.48
630	0.62
800	0.77
1000	0.73
1250	0.68
1600	0.65
2000	0.64
2500	0.64
3150	0.62
4000	0.59
5000	0.57



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.55
500	0.50
1000	0.75
2000	0.65
4000	0.60

NRC = 0.60

SAA = 0.61

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M15 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

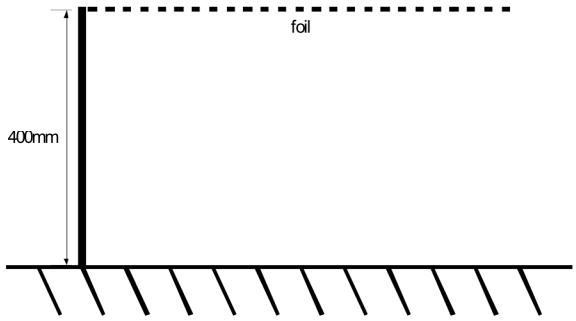
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

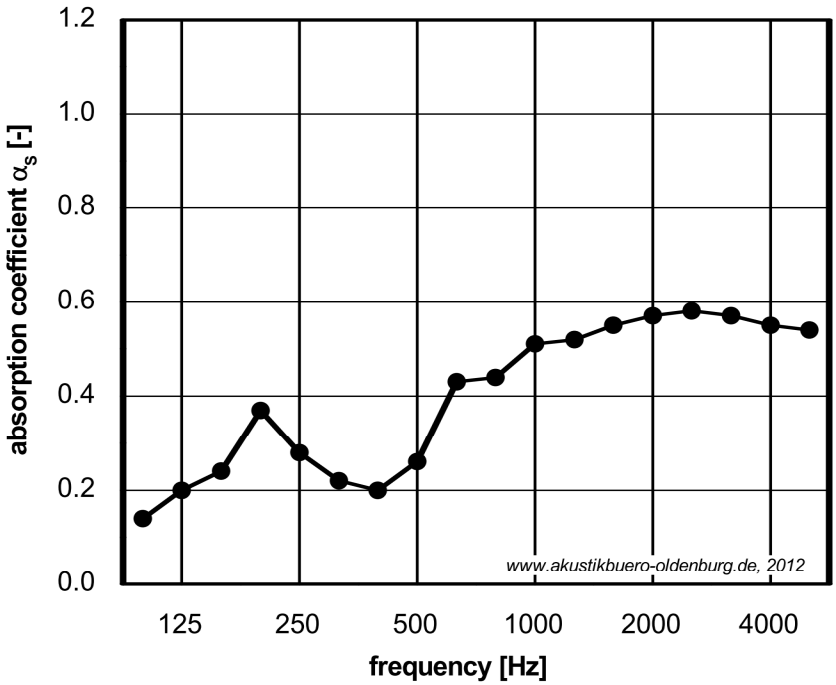
Assembly:

- BARRISOL® A15 Nanoperf
- 400 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.20
160	0.24
200	0.37
250	0.28
315	0.22
400	0.20
500	0.26
630	0.43
800	0.44
1000	0.51
1250	0.52
1600	0.55
2000	0.57
2500	0.58
3150	0.57
4000	0.55
5000	0.54



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.30
500	0.30
1000	0.50
2000	0.55
4000	0.55

NRC = 0.40

SAA = 0.41

α_w = 0.40 (H)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M17 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

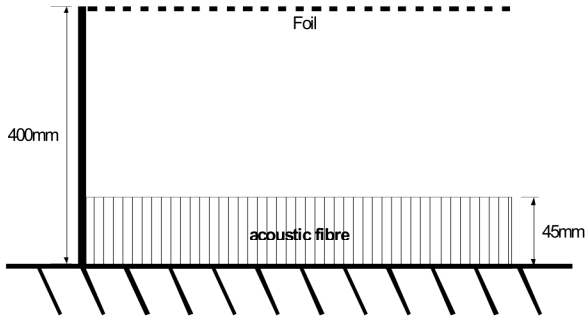
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

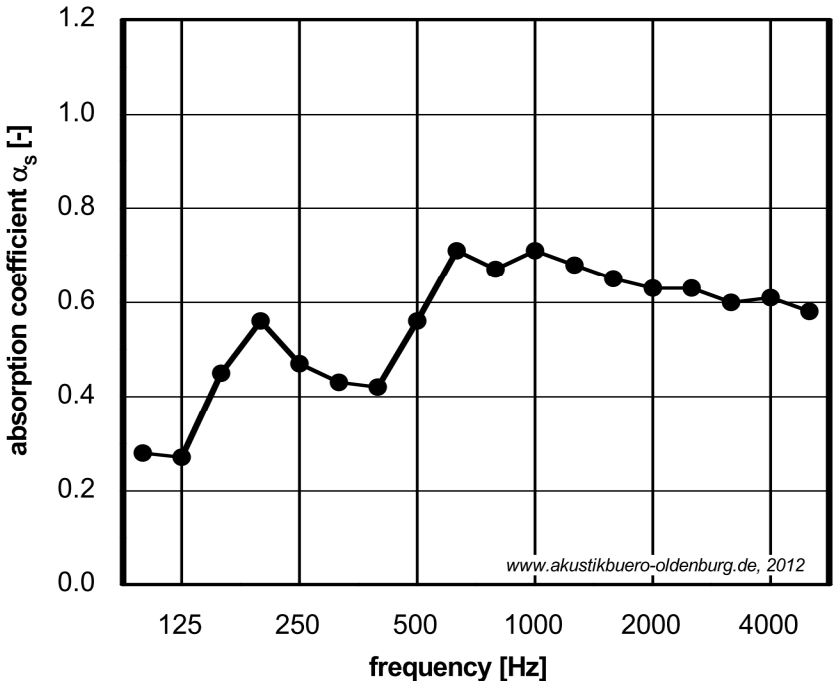
Assembly:

- BARRISOL® A15 Nanoperf
- 400 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.28
125	0.27
160	0.45
200	0.56
250	0.47
315	0.43
400	0.42
500	0.56
630	0.71
800	0.67
1000	0.71
1250	0.68
1600	0.65
2000	0.63
2500	0.63
3150	0.60
4000	0.61
5000	0.58



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.50
500	0.55
1000	0.70
2000	0.65
4000	0.60

NRC = 0.60

SAA = 0.59

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M16 - Report No. 2012/0233

Oldenburg, December 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

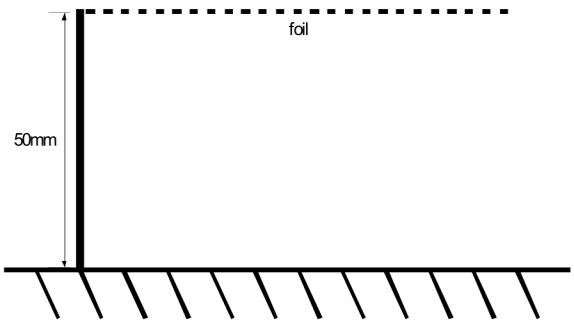
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

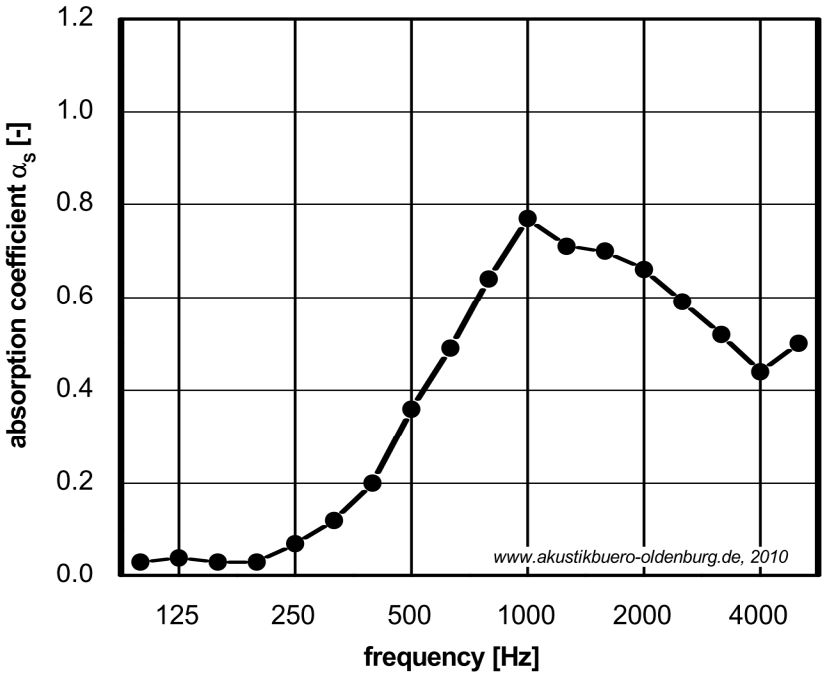
Assembly:

- BARRISOL® A20 Acoperf
- 50 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.03
125	0.04
160	0.03
200	0.03
250	0.07
315	0.12
400	0.20
500	0.36
630	0.49
800	0.64
1000	0.77
1250	0.71
1600	0.70
2000	0.66
2500	0.59
3150	0.52
4000	0.44
5000	0.50



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.05
500	0.35
1000	0.70
2000	0.65
4000	0.50

NRC = 0.45

SAA = 0.45

α_w = 0.35 (MH)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M03-050_A20

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

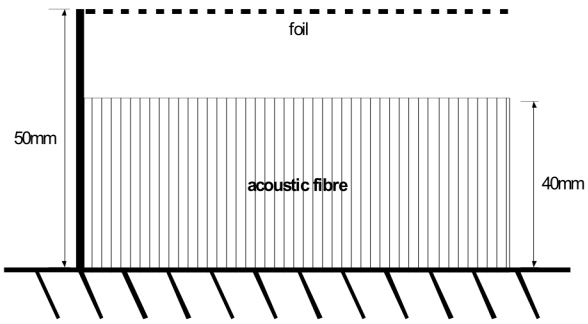
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

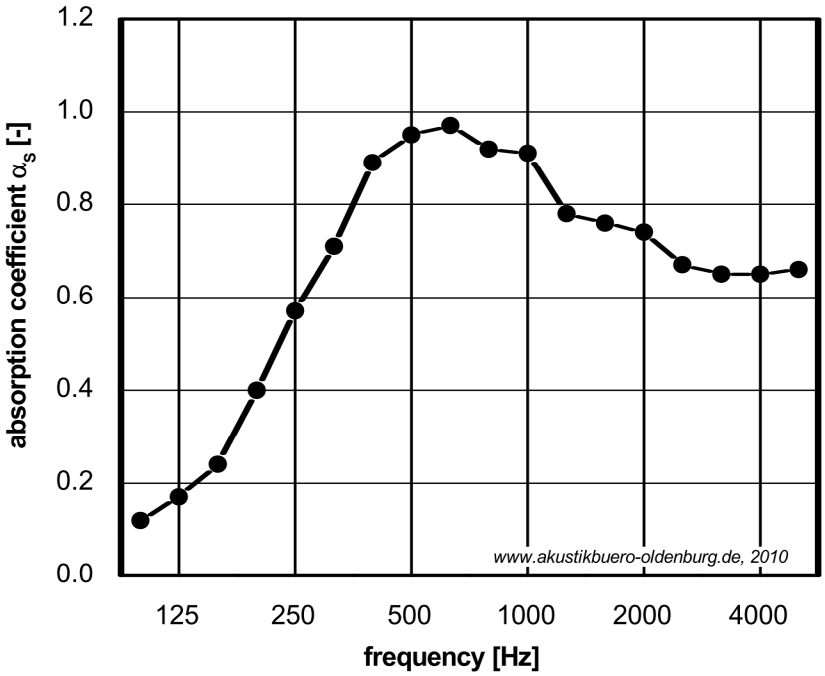
Assembly:

- BARRISOL® A20 Acoperf
- 50 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.17
160	0.24
200	0.40
250	0.57
315	0.71
400	0.89
500	0.95
630	0.97
800	0.92
1000	0.91
1250	0.78
1600	0.76
2000	0.74
2500	0.67
3150	0.65
4000	0.65
5000	0.66



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.55
500	0.95
1000	0.85
2000	0.70
4000	0.65

NRC = 0.80

SAA = 0.77

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M10-050_A20_40FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

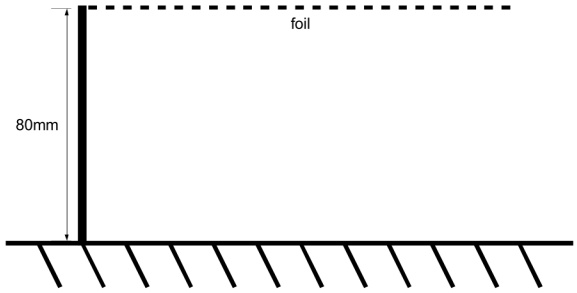
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

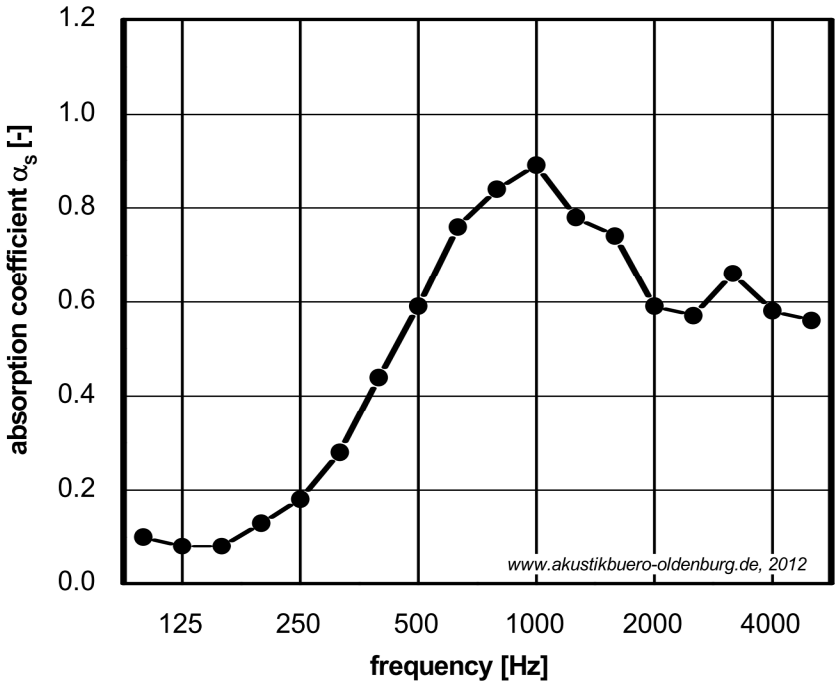
Assembly:

- BARRISOL® A20 Acoperf
- 80 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.08
160	0.08
200	0.13
250	0.18
315	0.28
400	0.44
500	0.59
630	0.76
800	0.84
1000	0.89
1250	0.78
1600	0.74
2000	0.59
2500	0.57
3150	0.66
4000	0.58
5000	0.56



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.60
1000	0.85
2000	0.65
4000	0.60

NRC = 0.55

SAA = 0.57

α_w = 0.50

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M02 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

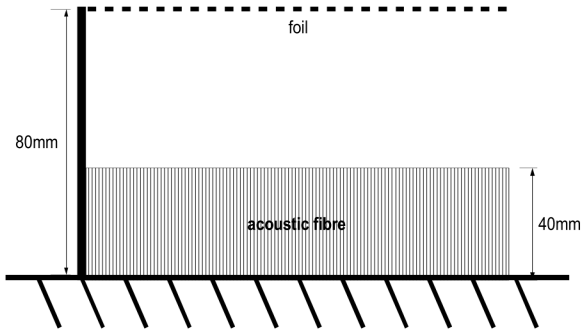
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

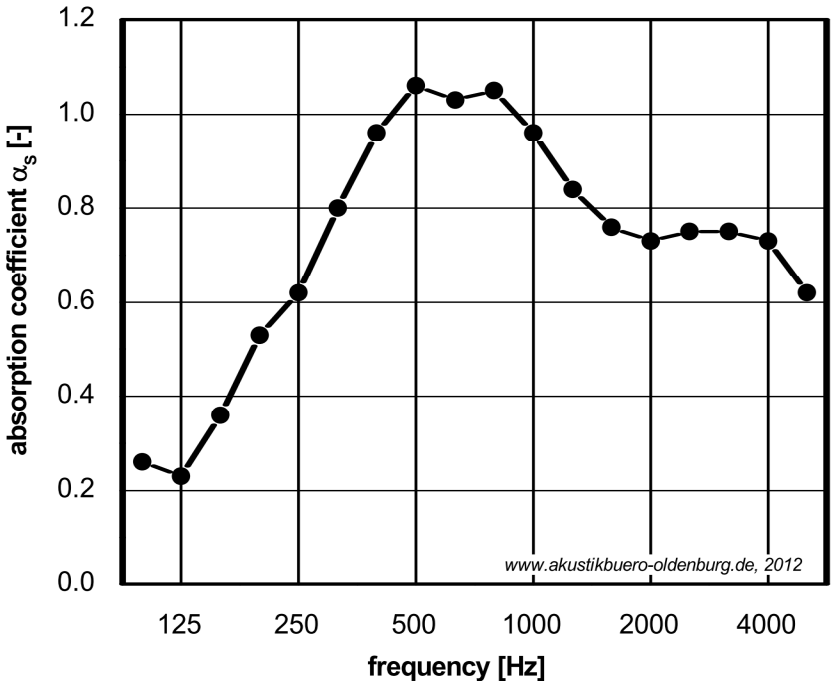
Assembly:

- BARRISOL® A20 Acoperf
- 80 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.26
125	0.23
160	0.36
200	0.53
250	0.62
315	0.80
400	0.96
500	1.06
630	1.03
800	1.05
1000	0.96
1250	0.84
1600	0.76
2000	0.73
2500	0.75
3150	0.75
4000	0.73
5000	0.62



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.65
500	1.00
1000	0.95
2000	0.75
4000	0.70

NRC = 0.85

SAA = 0.84

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M03 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

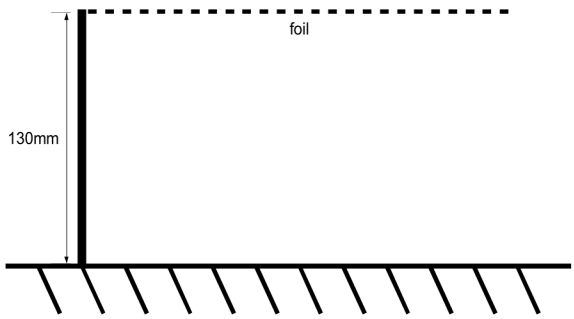
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

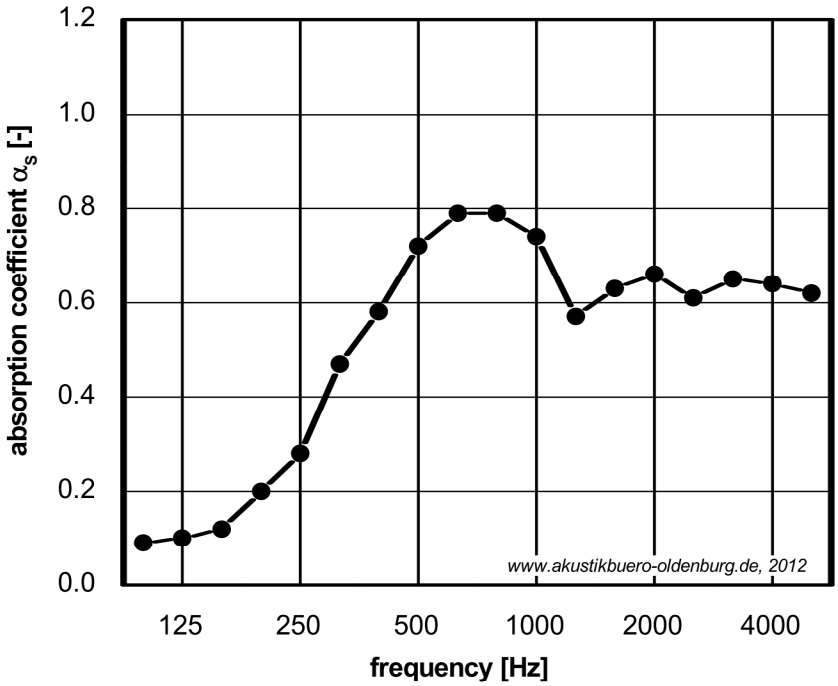
Assembly:

- BARRISOL® A20 Acoperf
- 130 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.10
160	0.12
200	0.20
250	0.28
315	0.47
400	0.58
500	0.72
630	0.79
800	0.79
1000	0.74
1250	0.57
1600	0.63
2000	0.66
2500	0.61
3150	0.65
4000	0.64
5000	0.62



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.30
500	0.70
1000	0.70
2000	0.65
4000	0.65

NRC = 0.60

SAA = 0.59

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	45 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M10 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

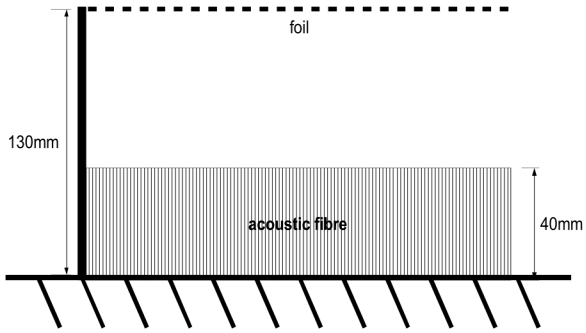
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

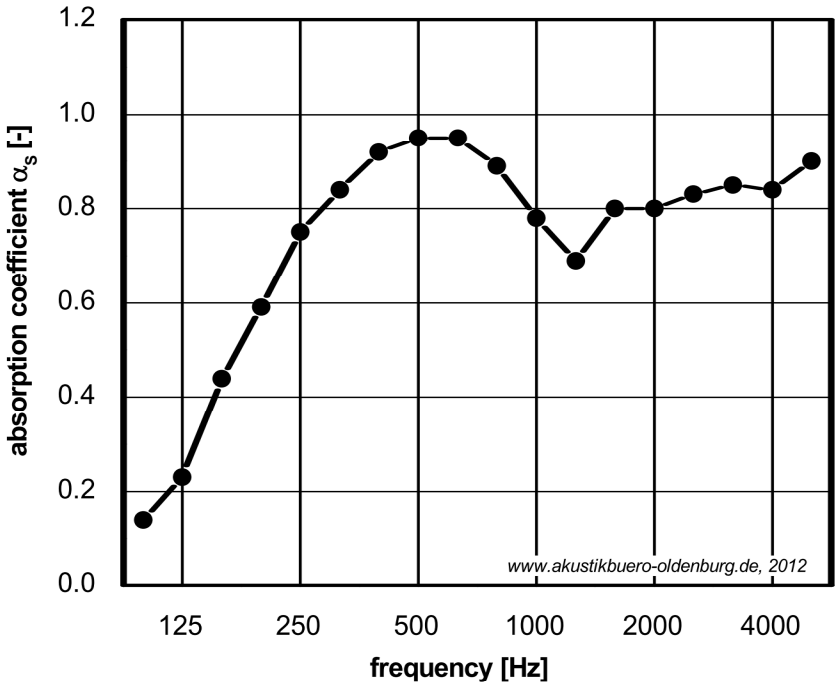
Assembly:

- BARRISOL® A20 Acoperf
- 130 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.23
160	0.44
200	0.59
250	0.75
315	0.84
400	0.92
500	0.95
630	0.95
800	0.89
1000	0.78
1250	0.69
1600	0.80
2000	0.80
2500	0.83
3150	0.85
4000	0.84
5000	0.90



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.75
500	0.95
1000	0.80
2000	0.80
4000	0.85

NRC = 0.80

SAA = 0.81

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M11 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

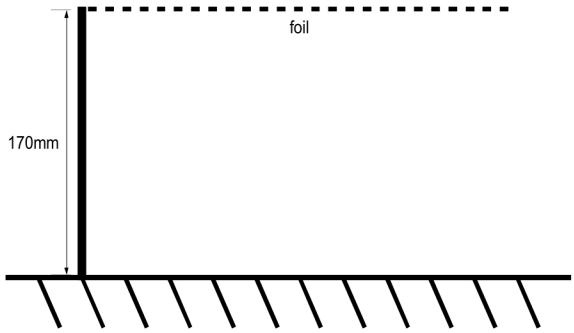
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

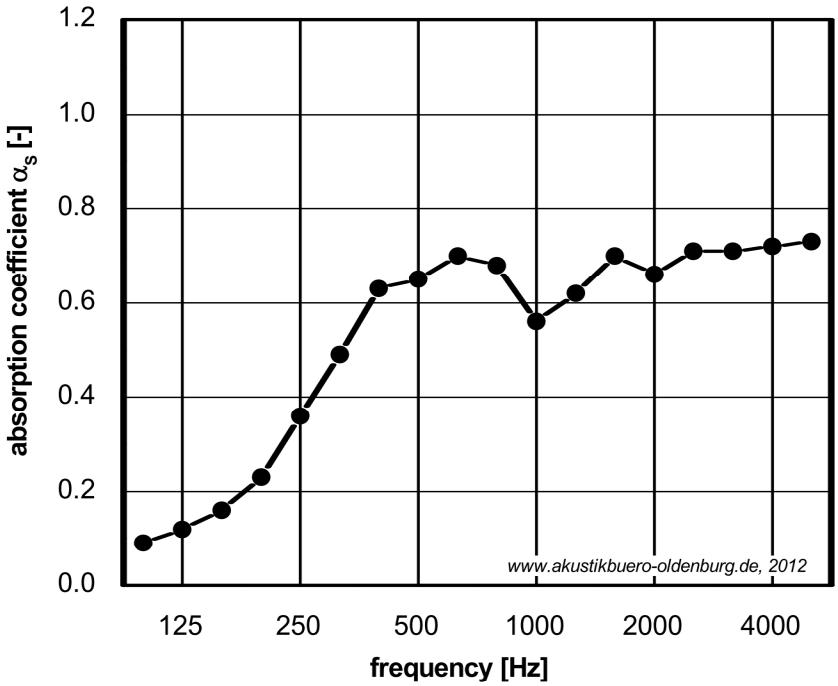
Assembly:

- BARRISOL® A20 Acoperf
- 170 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.12
160	0.16
200	0.23
250	0.36
315	0.49
400	0.63
500	0.65
630	0.70
800	0.68
1000	0.56
1250	0.62
1600	0.70
2000	0.66
2500	0.71
3150	0.71
4000	0.72
5000	0.73



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.35
500	0.65
1000	0.60
2000	0.70
4000	0.70

NRC = 0.55

SAA = 0.58

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M15 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

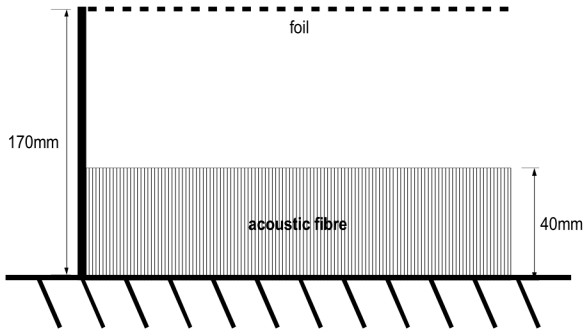
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

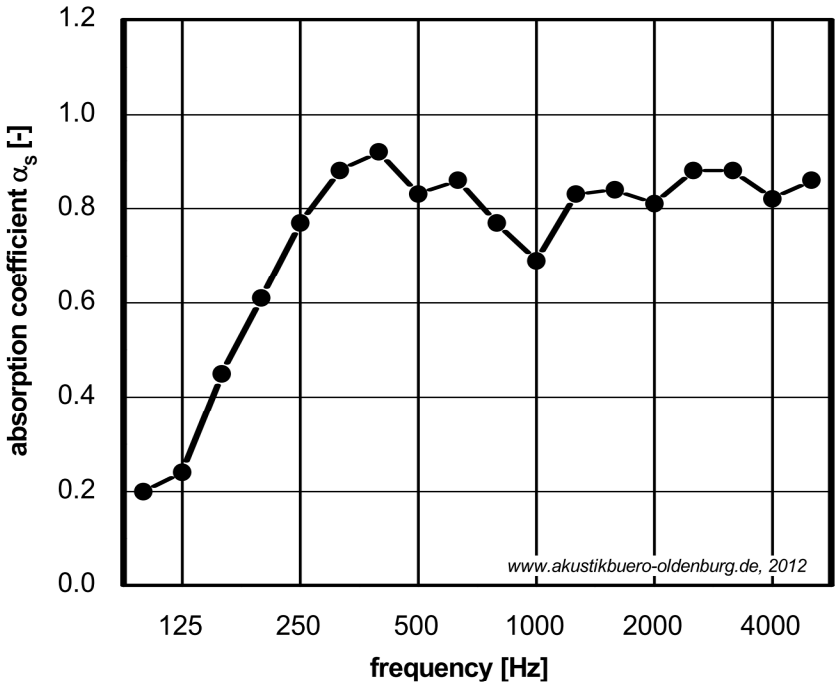
Assembly:

- BARRISOL® A20 Acoperf
- 170 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.20
125	0.24
160	0.45
200	0.61
250	0.77
315	0.88
400	0.92
500	0.83
630	0.86
800	0.77
1000	0.69
1250	0.83
1600	0.84
2000	0.81
2500	0.88
3150	0.88
4000	0.82
5000	0.86



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.75
500	0.85
1000	0.75
2000	0.85
4000	0.85

NRC = 0.75

SAA = 0.81

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M14 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

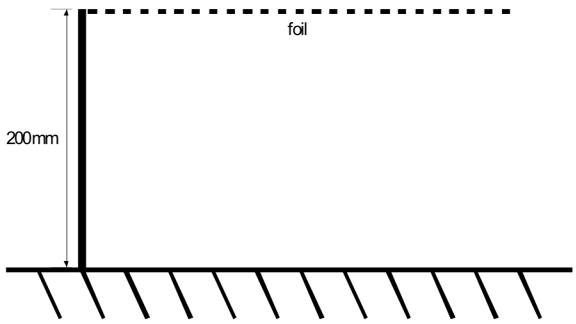
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

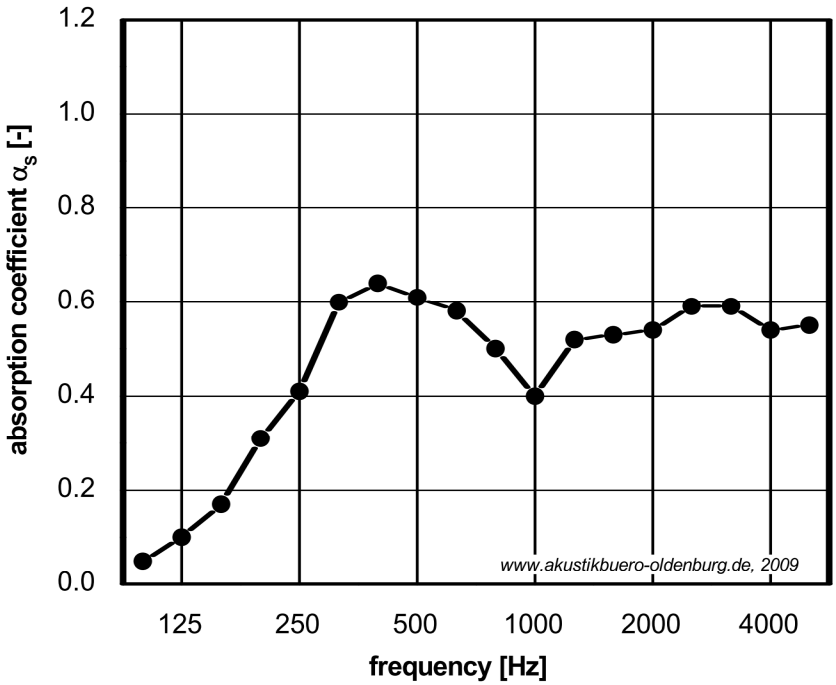
Assembly:

- BARRISOL® A20 Acoperf
- 200 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.05
125	0.10
160	0.17
200	0.31
250	0.41
315	0.60
400	0.64
500	0.61
630	0.58
800	0.50
1000	0.40
1250	0.52
1600	0.53
2000	0.54
2500	0.59
3150	0.59
4000	0.54
5000	0.55



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.45
500	0.60
1000	0.45
2000	0.55
4000	0.55

NRC = 0.50

SAA = 0.52

α_w = 0.55

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p12-A20_200_Ol200808BL20

Oldenburg, May 15th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

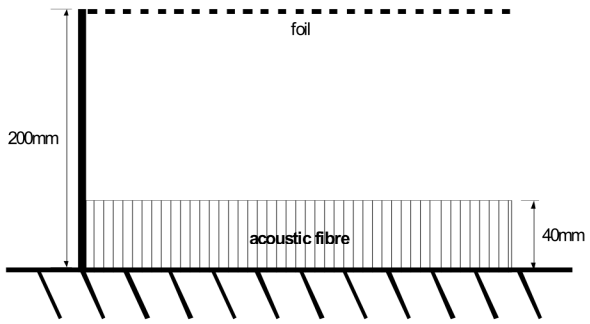
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

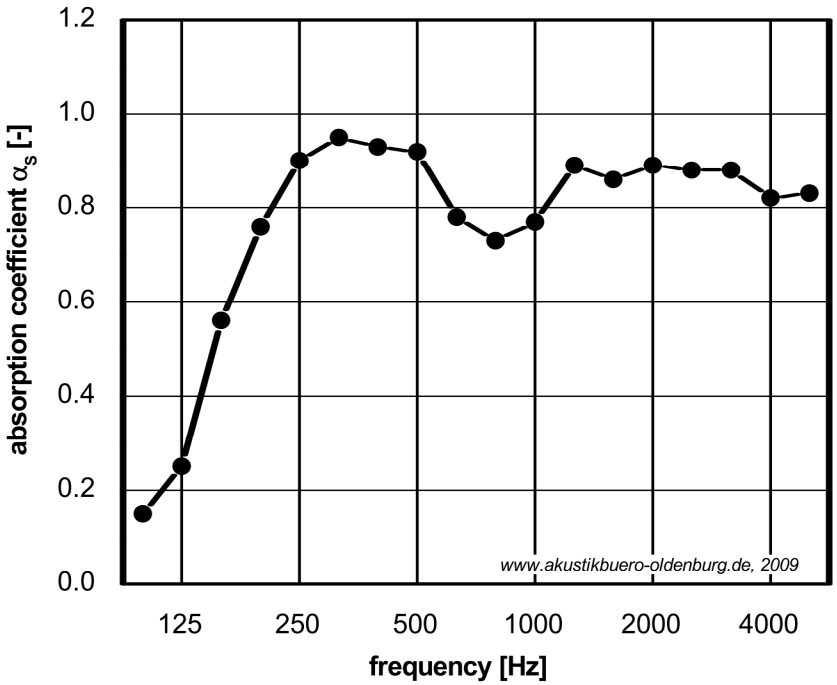
Assembly:

- BARRISOL® A20 Acoperf
- 200 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.15
125	0.25
160	0.56
200	0.76
250	0.90
315	0.95
400	0.93
500	0.92
630	0.78
800	0.73
1000	0.77
1250	0.89
1600	0.86
2000	0.89
2500	0.88
3150	0.88
4000	0.82
5000	0.83



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.85
500	0.90
1000	0.80
2000	0.90
4000	0.85

NRC = 0.85

SAA = 0.86

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p13-A20_200mw40_Ol200808BL15

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

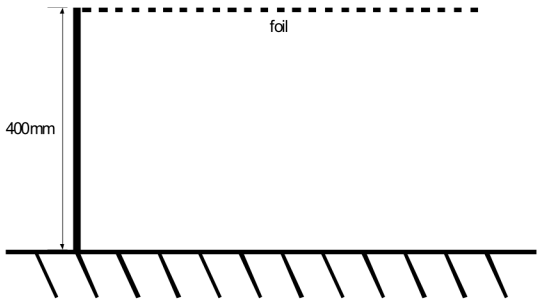
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

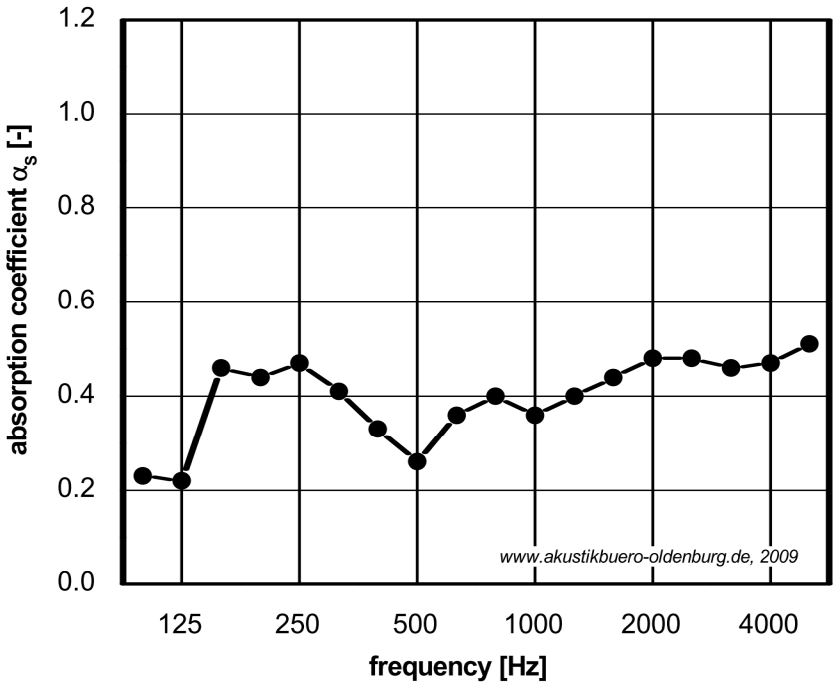
Assembly:

- BARRISOL® A20 Acoperf
- 400 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.22
160	0.46
200	0.44
250	0.47
315	0.41
400	0.33
500	0.26
630	0.36
800	0.40
1000	0.36
1250	0.40
1600	0.44
2000	0.48
2500	0.48
3150	0.46
4000	0.47
5000	0.51



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.45
500	0.30
1000	0.40
2000	0.45
4000	0.50

NRC = 0.40

SAA = 0.40

α_w = 0.40 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p13-A20_400_Ol200707Mess23

Oldenburg, April 20th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

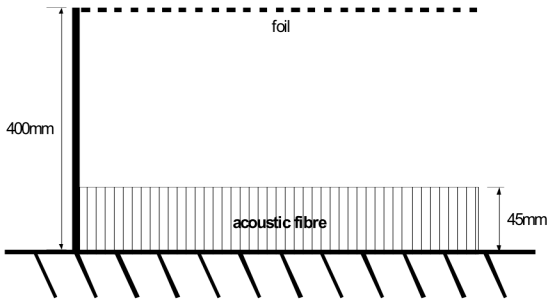
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

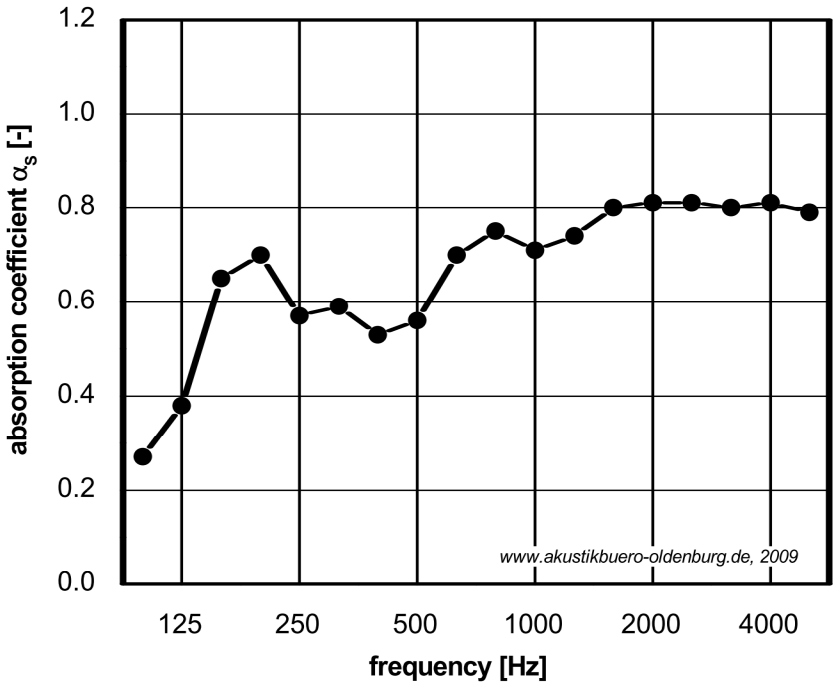
Assembly:

- BARRISOL® A20 Acoperf
- 400 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.27
125	0.38
160	0.65
200	0.70
250	0.57
315	0.59
400	0.53
500	0.56
630	0.70
800	0.75
1000	0.71
1250	0.74
1600	0.80
2000	0.81
2500	0.81
3150	0.80
4000	0.81
5000	0.79



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.45
250	0.60
500	0.60
1000	0.75
2000	0.80
4000	0.80

NRC = 0.65

SAA = 0.69

α_w = 0.70

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p14-A20_400mw45_Ol200707Mess22

Oldenburg, April 20th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

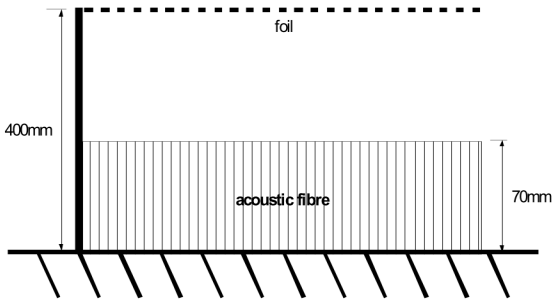
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

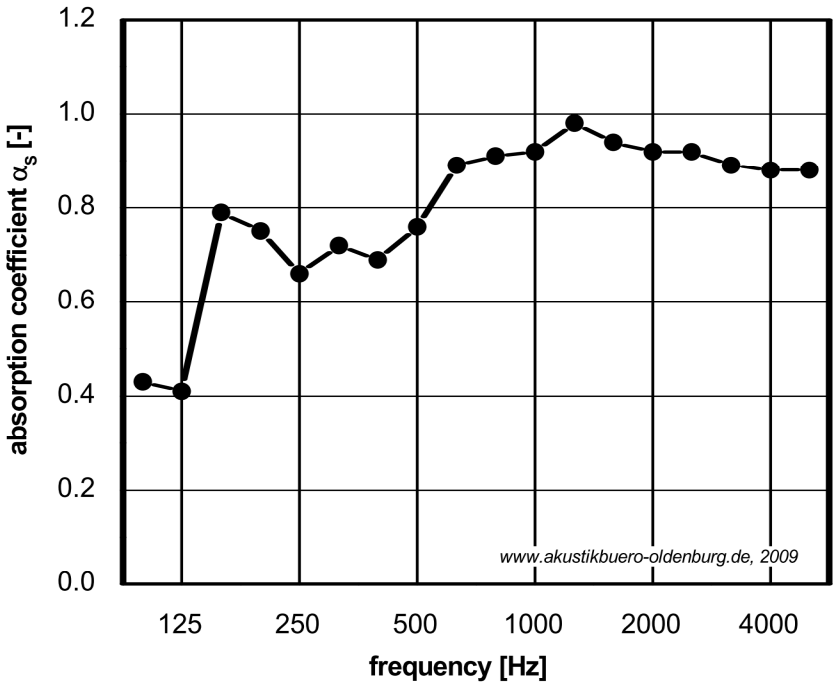
Assembly:

- BARRISOL® A20 Acoperf
- 400 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.43
125	0.41
160	0.79
200	0.75
250	0.66
315	0.72
400	0.69
500	0.76
630	0.89
800	0.91
1000	0.92
1250	0.98
1600	0.94
2000	0.92
2500	0.92
3150	0.89
4000	0.88
5000	0.88



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.55
250	0.70
500	0.80
1000	0.95
2000	0.95
4000	0.90

NRC = 0.80

SAA = 0.84

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p15-A20_400mw70_Ol200707Mess24

Oldenburg, April 20th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

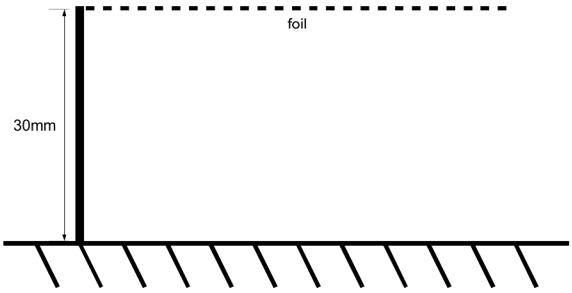
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

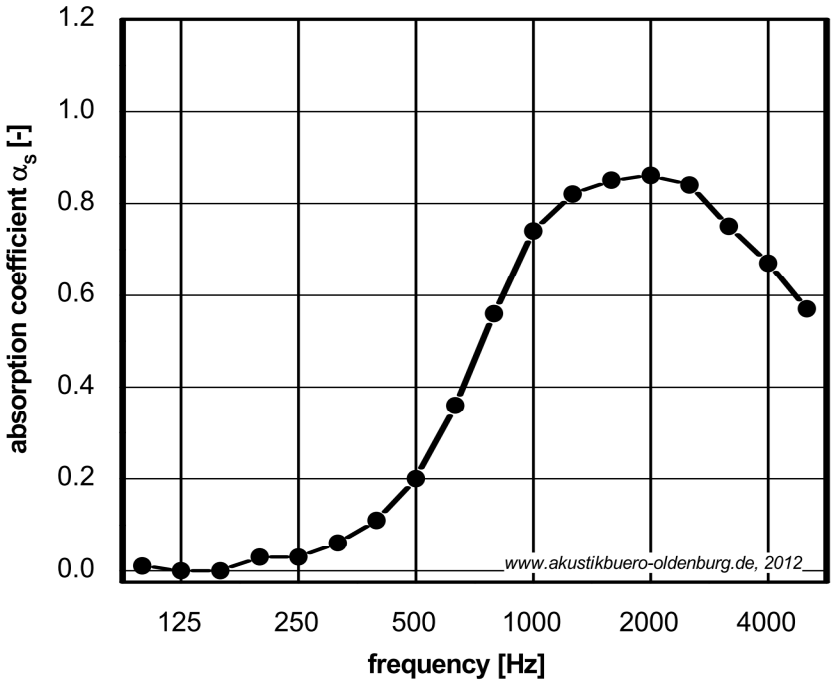
Assembly:

- BARRISOL® A30 Microacoustic
- 30 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.01
125	0.00
160	0.00
200	0.03
250	0.03
315	0.06
400	0.11
500	0.20
630	0.36
800	0.56
1000	0.74
1250	0.82
1600	0.85
2000	0.86
2500	0.84
3150	0.75
4000	0.67
5000	0.57



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.05
500	0.25
1000	0.70
2000	0.85
4000	0.65

NRC = 0.45

SAA = 0.46

α_w = 0.30

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M22 - Report No. 2012/0069

Oldenburg, August 2nd, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

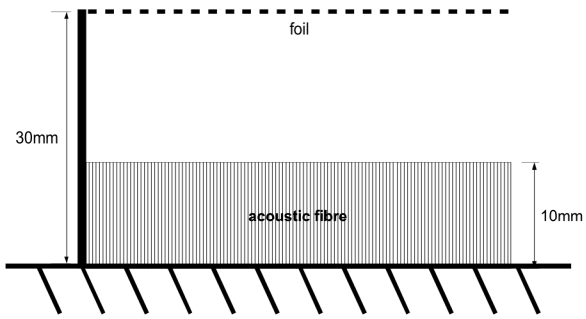
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

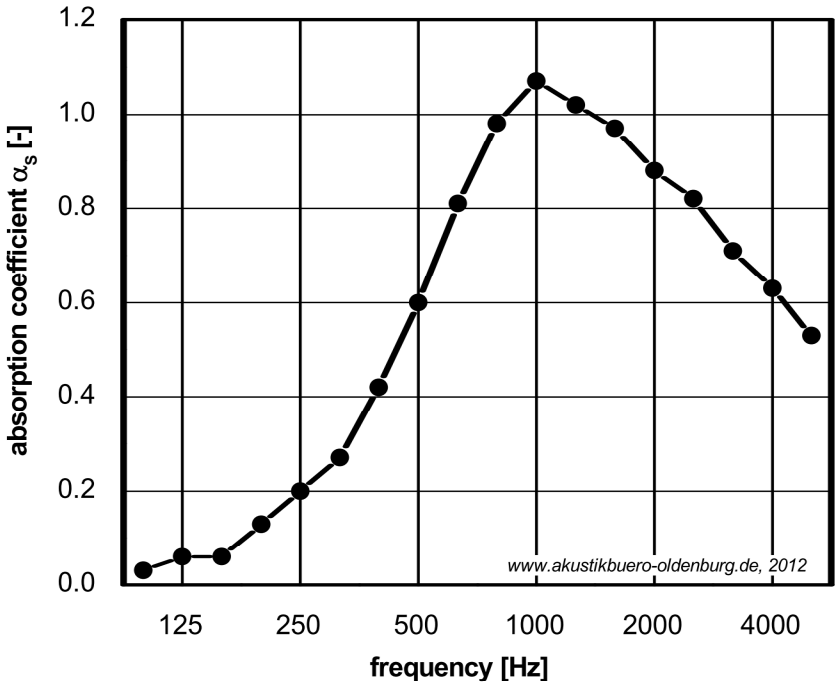
Assembly:

- BARRISOL® A30 Microacoustic
- 30 mm distance to the floor
- 10 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.03
125	0.06
160	0.06
200	0.13
250	0.20
315	0.27
400	0.42
500	0.60
630	0.81
800	0.98
1000	1.07
1250	1.02
1600	0.97
2000	0.88
2500	0.82
3150	0.71
4000	0.63
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.20
500	0.60
1000	1.00
2000	0.90
4000	0.60

NRC = 0.70

SAA = 0.68

α_w = 0.50

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.02.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	12°C
Humidity:	55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

Oldenburg, August 2nd, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

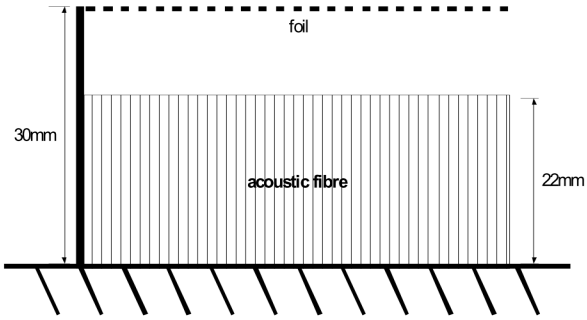
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

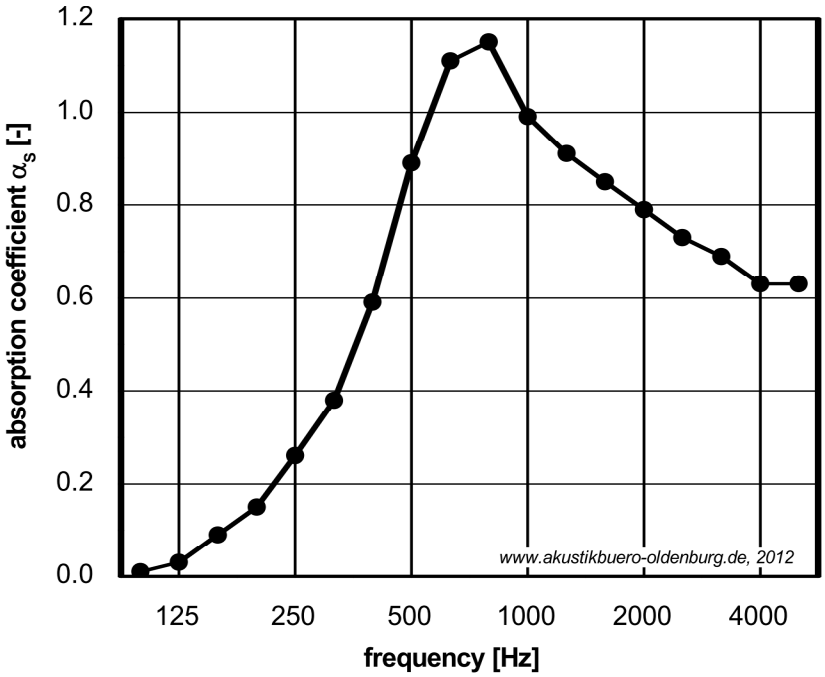
Assembly:

- BARRISOL® A30 Microacoustic
- 30 mm distance
- 22 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.01
125	0.03
160	0.09
200	0.15
250	0.26
315	0.38
400	0.59
500	0.89
630	1.11
800	1.15
1000	0.99
1250	0.91
1600	0.85
2000	0.79
2500	0.73
3150	0.69
4000	0.63
5000	0.63



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.25
500	0.85
1000	1.00
2000	0.80
4000	0.65

NRC = 0.75

SAA = 0.73

α_w = 0.55 (MH)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M48 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

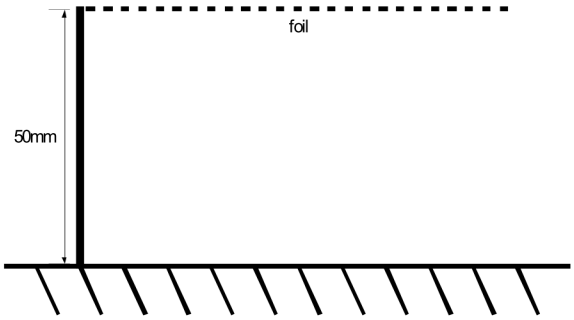
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

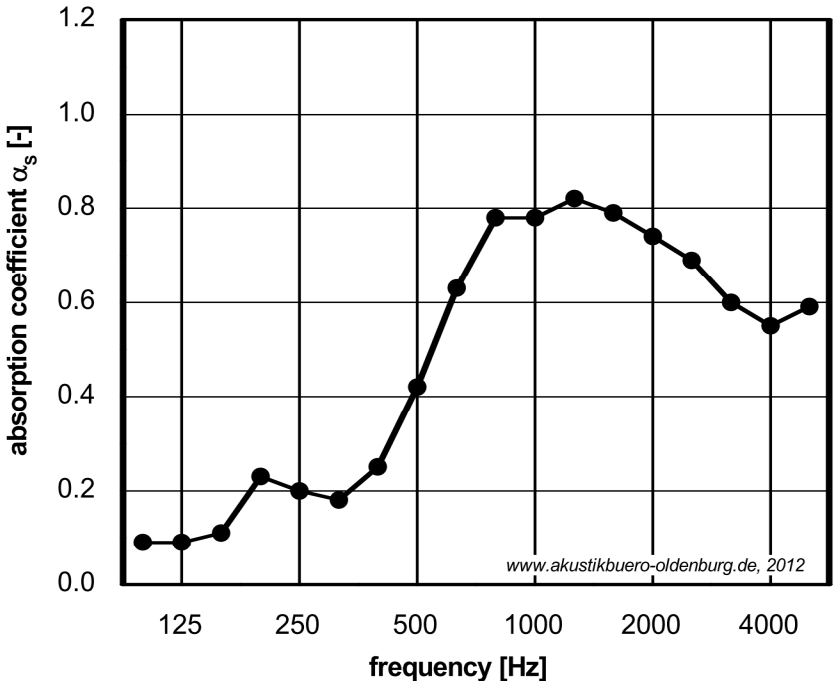
Assembly:

- BARRISOL® A30 Microacoustic
- 50 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.09
160	0.11
200	0.23
250	0.20
315	0.18
400	0.25
500	0.42
630	0.63
800	0.78
1000	0.78
1250	0.82
1600	0.79
2000	0.74
2500	0.69
3150	0.60
4000	0.55
5000	0.59



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.45
1000	0.80
2000	0.75
4000	0.60

NRC = 0.55

SAA = 0.54

α_w = 0.45 (MH)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M22 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

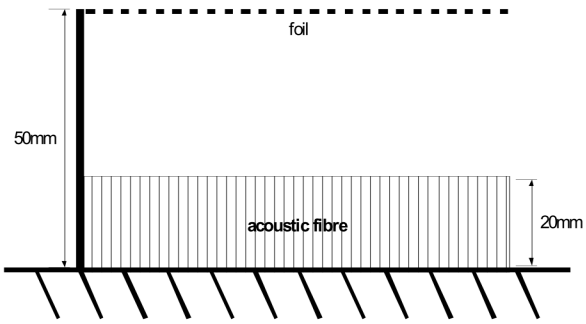
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

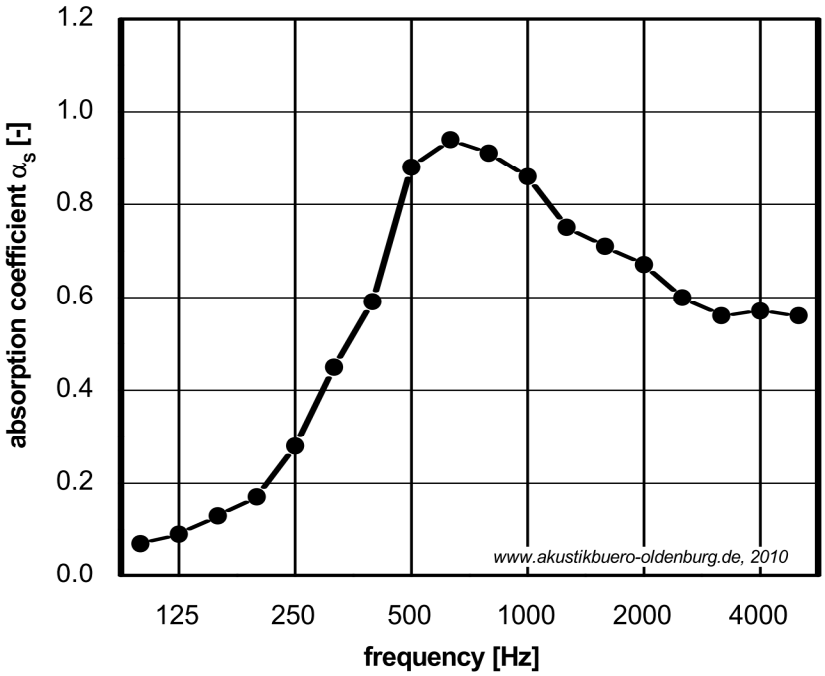
Assembly:

- BARRISOL® A30 Microacoustic
- 50 mm distance to the floor
- 20 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.07
125	0.09
160	0.13
200	0.17
250	0.28
315	0.45
400	0.59
500	0.88
630	0.94
800	0.91
1000	0.86
1250	0.75
1600	0.71
2000	0.67
2500	0.60
3150	0.56
4000	0.57
5000	0.56



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.30
500	0.80
1000	0.85
2000	0.65
4000	0.55

NRC = 0.65

SAA = 0.65

α_w = 0.60 (M)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M13-050_A30_20RT

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

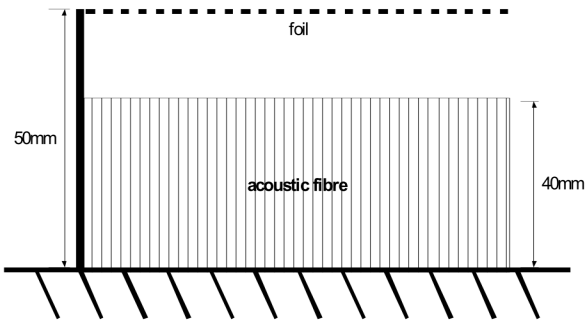
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

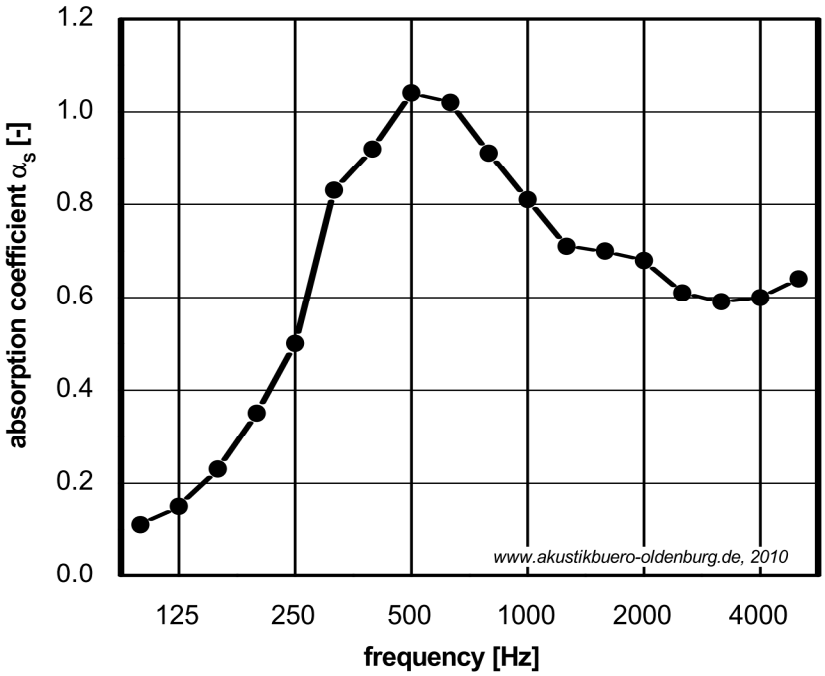
Assembly:

- BARRISOL® A30 Microacoustic
- 50 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.15
160	0.23
200	0.35
250	0.50
315	0.83
400	0.92
500	1.04
630	1.02
800	0.91
1000	0.81
1250	0.71
1600	0.70
2000	0.68
2500	0.61
3150	0.59
4000	0.60
5000	0.64



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.55
500	1.00
1000	0.80
2000	0.65
4000	0.60

NRC = 0.75

SAA = 0.76

α_w = 0.70 (M)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M09-050_A30_40FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

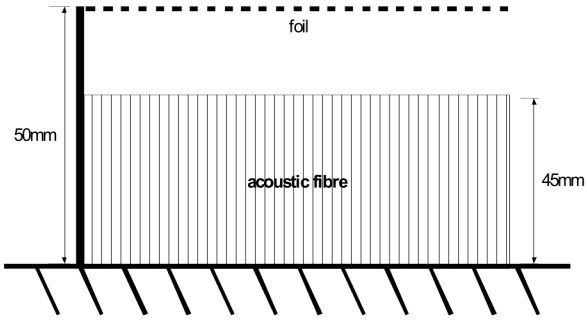
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

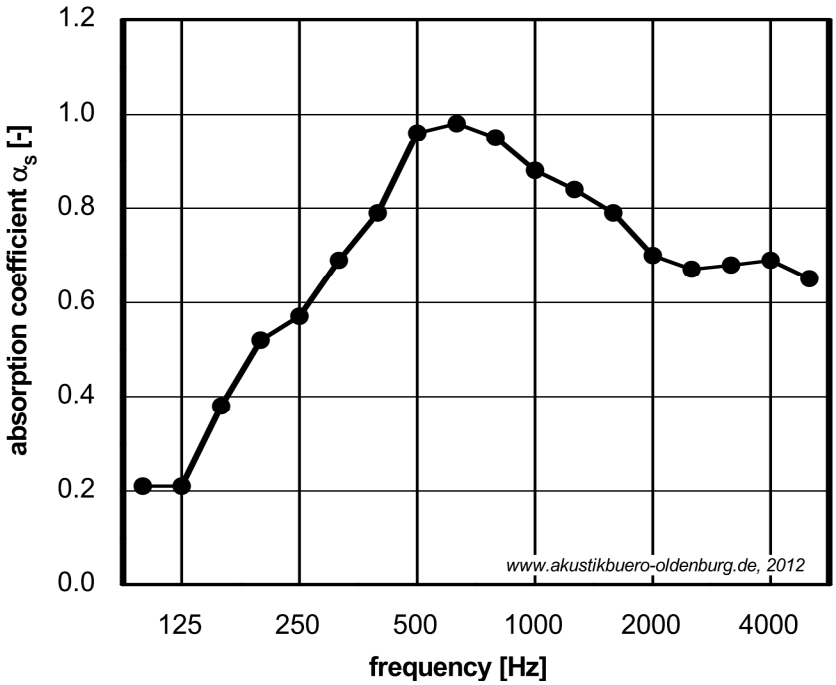
Assembly:

- BARRISOL® A30 Microacoustic
- 50 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.21
125	0.21
160	0.38
200	0.52
250	0.57
315	0.69
400	0.79
500	0.96
630	0.98
800	0.95
1000	0.88
1250	0.84
1600	0.79
2000	0.70
2500	0.67
3150	0.68
4000	0.69
5000	0.65



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.60
500	0.90
1000	0.90
2000	0.70
4000	0.65

NRC = 0.80

SAA = 0.78

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M27 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

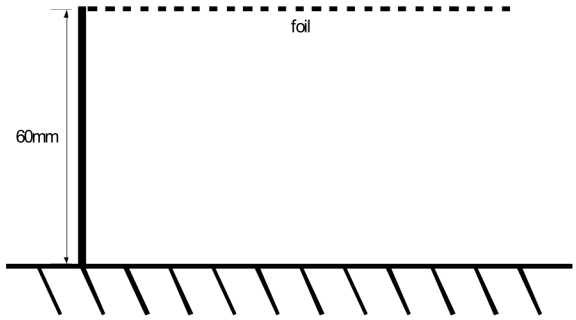
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

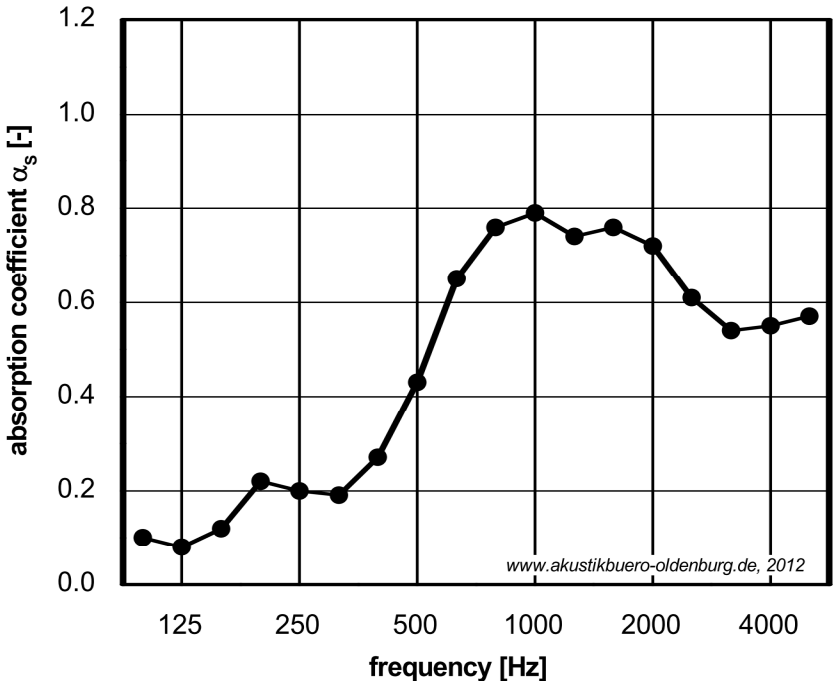
Assembly:

- BARRISOL® A30 Microacoustic
- 60 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.08
160	0.12
200	0.22
250	0.20
315	0.19
400	0.27
500	0.43
630	0.65
800	0.76
1000	0.79
1250	0.74
1600	0.76
2000	0.72
2500	0.61
3150	0.54
4000	0.55
5000	0.57



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.20
500	0.45
1000	0.75
2000	0.70
4000	0.55

NRC = 0.55

SAA = 0.53

α_w = 0.45 (MH)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M23 - Report No. 2012/0233

Oldenburg, November 16th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

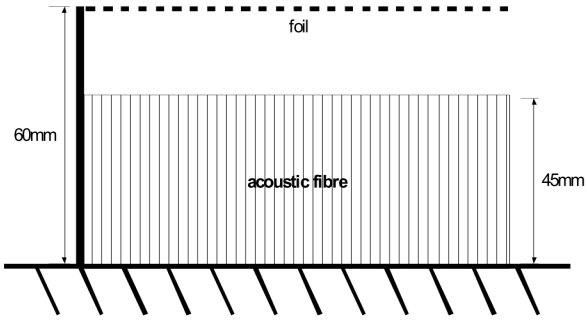
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

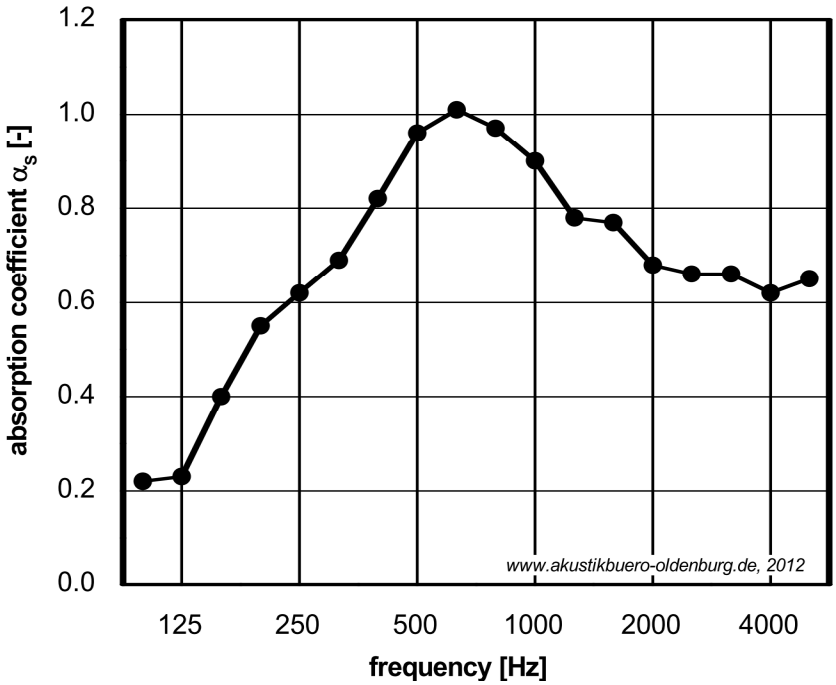
Assembly:

- BARRISOL® A30 Microacoustic
- 60 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.22
125	0.23
160	0.40
200	0.55
250	0.62
315	0.69
400	0.82
500	0.96
630	1.01
800	0.97
1000	0.90
1250	0.78
1600	0.77
2000	0.68
2500	0.66
3150	0.66
4000	0.62
5000	0.65



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.60
500	0.95
1000	0.90
2000	0.70
4000	0.65

NRC = 0.80

SAA = 0.78

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M26 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

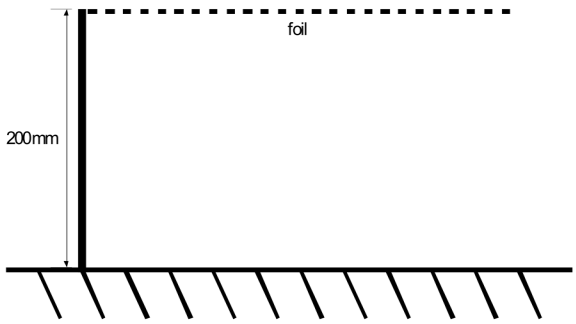
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

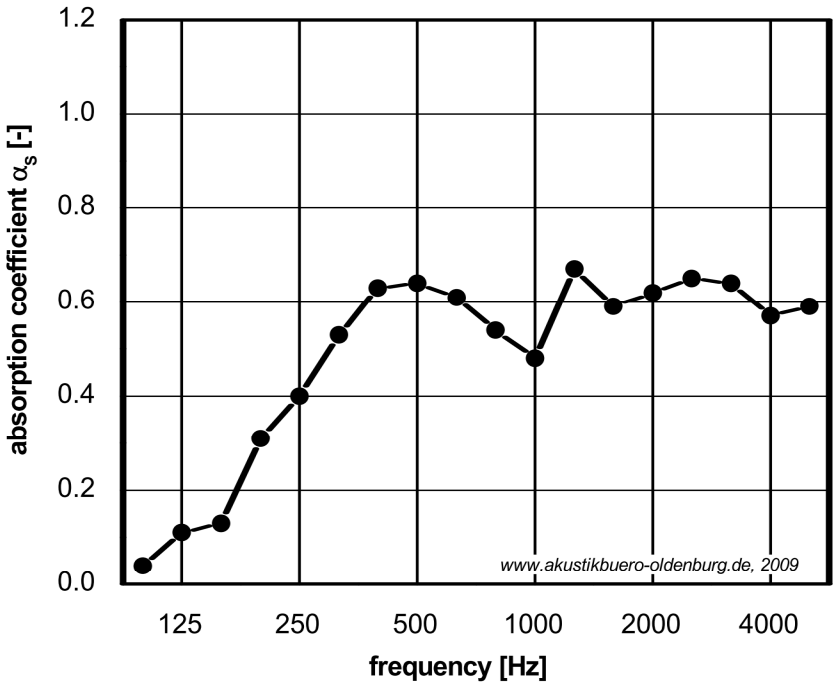
Assembly:

- BARRISOL® A30 Microacoustic
- 200 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.04
125	0.11
160	0.13
200	0.31
250	0.40
315	0.53
400	0.63
500	0.64
630	0.61
800	0.54
1000	0.48
1250	0.67
1600	0.59
2000	0.62
2500	0.65
3150	0.64
4000	0.57
5000	0.59



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.40
500	0.65
1000	0.55
2000	0.60
4000	0.60

NRC = 0.55

SAA = 0.56

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p17-A30_200_Ol200808BL19

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

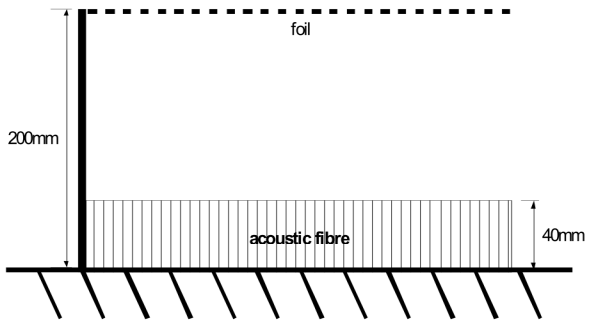
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

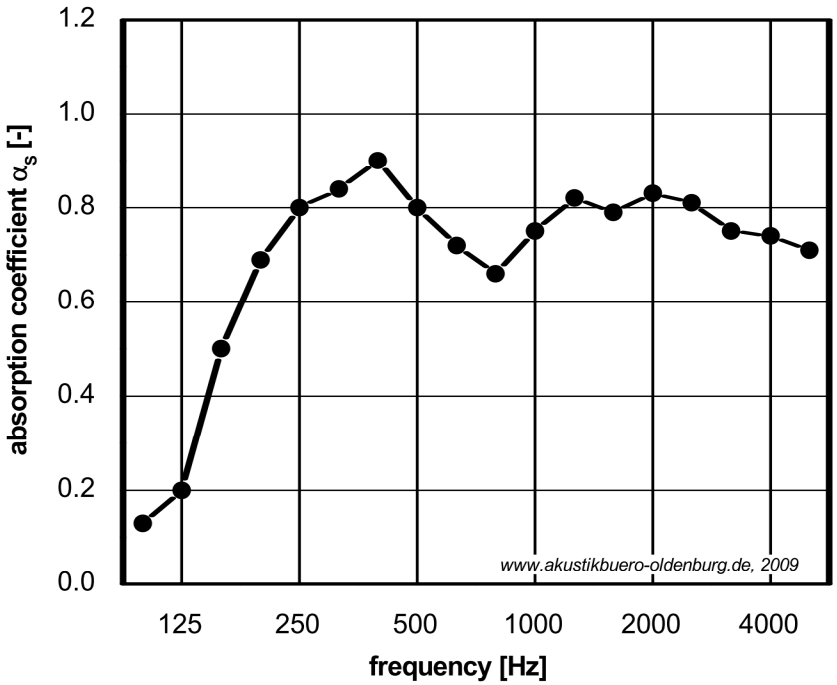
Assembly:

- BARRISOL® A30 Microacoustic
- 200 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.13
125	0.20
160	0.50
200	0.69
250	0.80
315	0.84
400	0.90
500	0.80
630	0.72
800	0.66
1000	0.75
1250	0.82
1600	0.79
2000	0.83
2500	0.81
3150	0.75
4000	0.74
5000	0.71



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.80
500	0.80
1000	0.75
2000	0.80
4000	0.75

NRC = 0.80

SAA = 0.78

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p18-A30_200mw40_Ol200808BL16

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

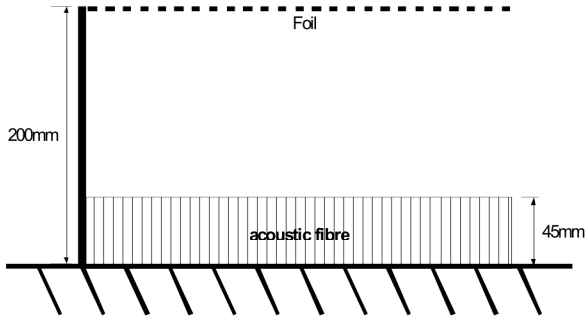
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

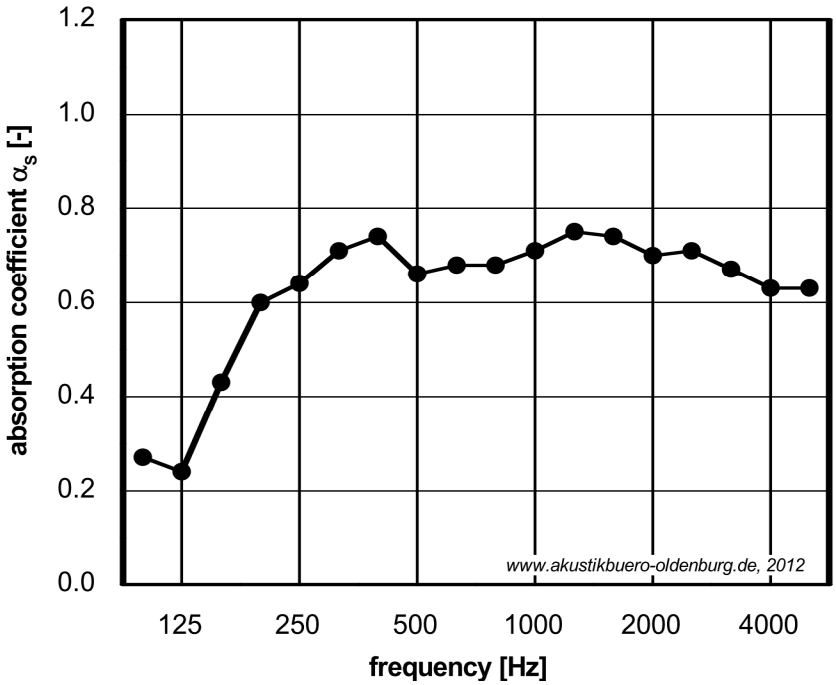
Assembly:

- BARRISOL® A30 Microacoustic
- 200 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.27
125	0.24
160	0.43
200	0.60
250	0.64
315	0.71
400	0.74
500	0.66
630	0.68
800	0.68
1000	0.71
1250	0.75
1600	0.74
2000	0.70
2500	0.71
3150	0.67
4000	0.63
5000	0.63



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.65
500	0.70
1000	0.70
2000	0.70
4000	0.65

NRC = 0.70

SAA = 0.69

α_w = 0.70

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M25 - Report No. 2012/0233

Oldenburg, December 11th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

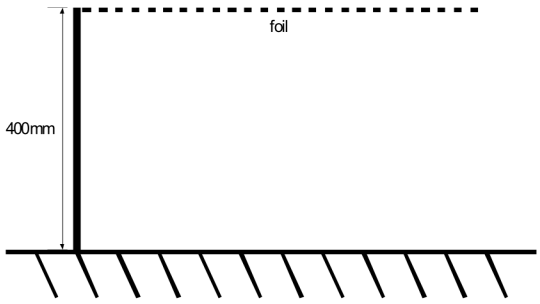
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

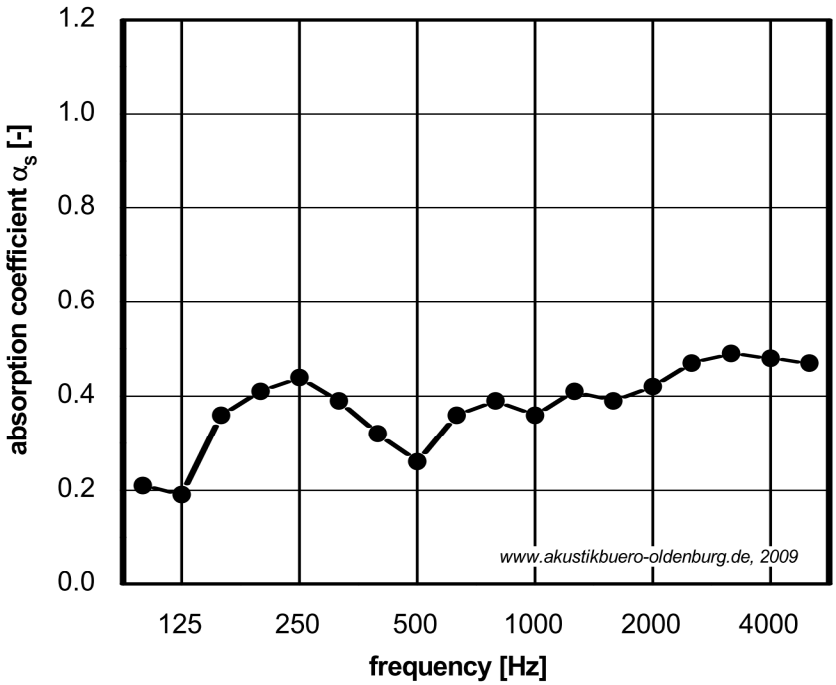
Assembly:

- BARRISOL® A30 Microacoustic
- 400 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.21
125	0.19
160	0.36
200	0.41
250	0.44
315	0.39
400	0.32
500	0.26
630	0.36
800	0.39
1000	0.36
1250	0.41
1600	0.39
2000	0.42
2500	0.47
3150	0.49
4000	0.48
5000	0.47



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.40
500	0.30
1000	0.40
2000	0.45
4000	0.50

NRC = 0.35

SAA = 0.39

α_w = 0.40

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p16-A30_400_Ol200707Mess33

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

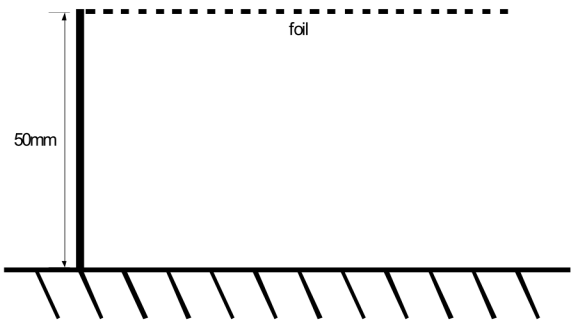
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

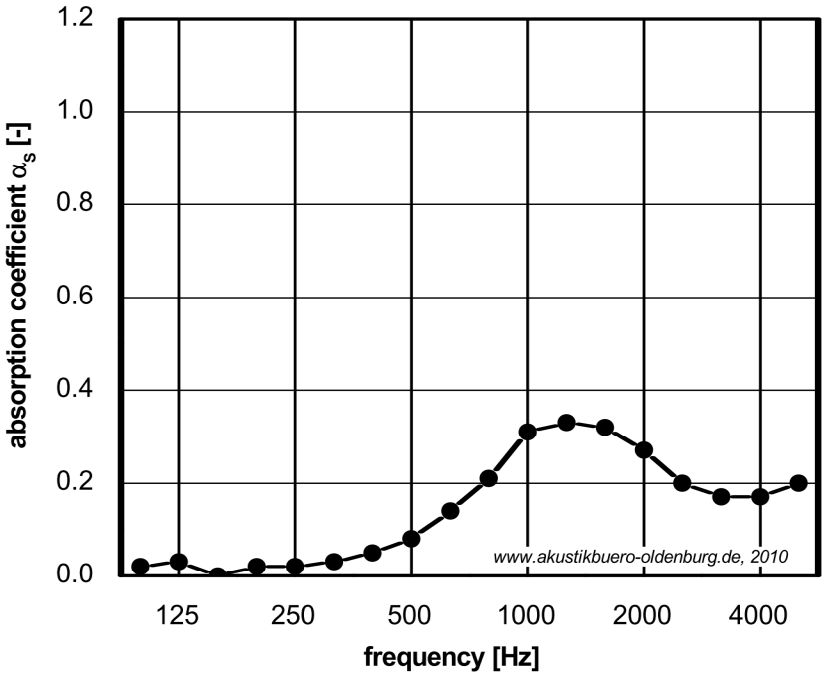
Assembly:

- BARRISOL® A40 Miniperf
- 50 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.03
160	0.00
200	0.02
250	0.02
315	0.03
400	0.05
500	0.08
630	0.14
800	0.21
1000	0.31
1250	0.33
1600	0.32
2000	0.27
2500	0.20
3150	0.17
4000	0.17
5000	0.20



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.00
500	0.10
1000	0.30
2000	0.25
4000	0.20

NRC = 0.15

SAA = 0.17

α_w = 0.20

Sound Absorption Class E

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M07-050_A40

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

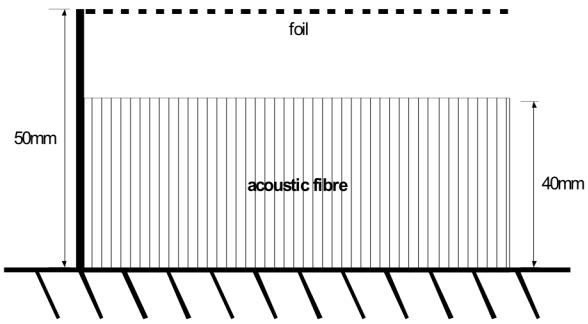
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

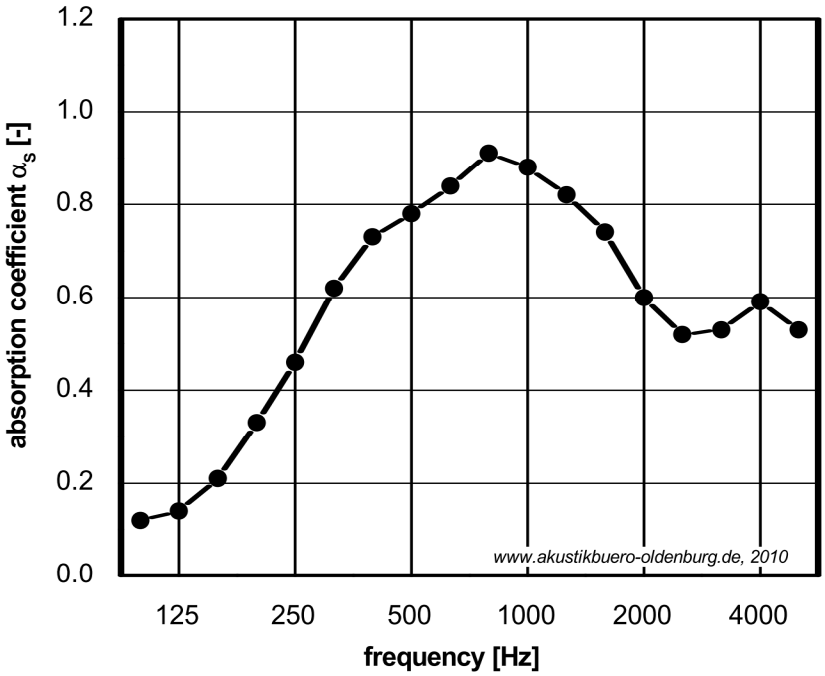
Assembly:

- BARRISOL® A40 Miniperf
- 50 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.14
160	0.21
200	0.33
250	0.46
315	0.62
400	0.73
500	0.78
630	0.84
800	0.91
1000	0.88
1250	0.82
1600	0.74
2000	0.60
2500	0.52
3150	0.53
4000	0.59
5000	0.53



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.80
1000	0.85
2000	0.60
4000	0.55

NRC = 0.70

SAA = 0.69

α_w = 0.65

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	20.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	56 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M08-050_A40_40FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

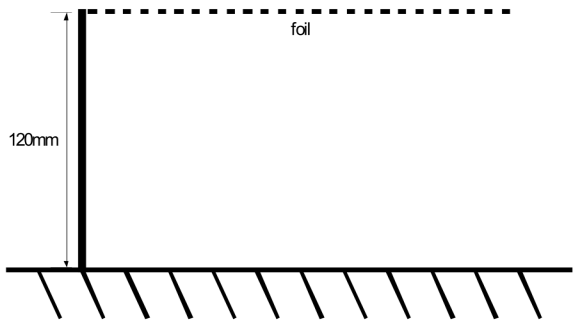
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

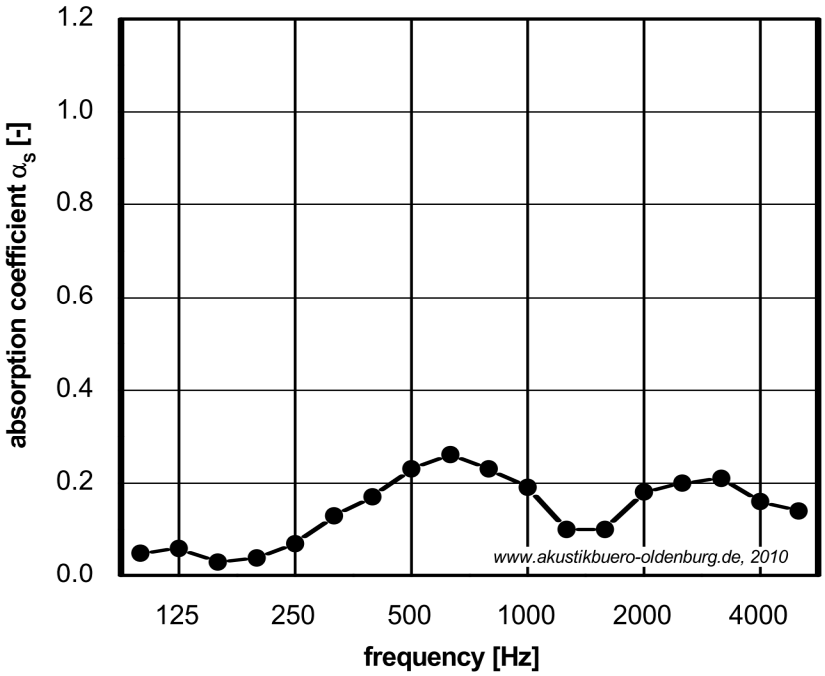
Assembly:

- BARRISOL® A40 Miniperf
- 120 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.05
125	0.06
160	0.03
200	0.04
250	0.07
315	0.13
400	0.17
500	0.23
630	0.26
800	0.23
1000	0.19
1250	0.10
1600	0.10
2000	0.18
2500	0.20
3150	0.21
4000	0.16
5000	0.14



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.10
500	0.20
1000	0.15
2000	0.15
4000	0.15

NRC = 0.15

SAA = 0.16

α_w = 0.20

Sound Absorption Class E

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M19-120_A40

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

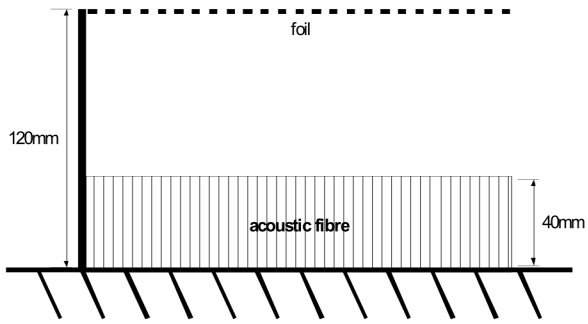
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

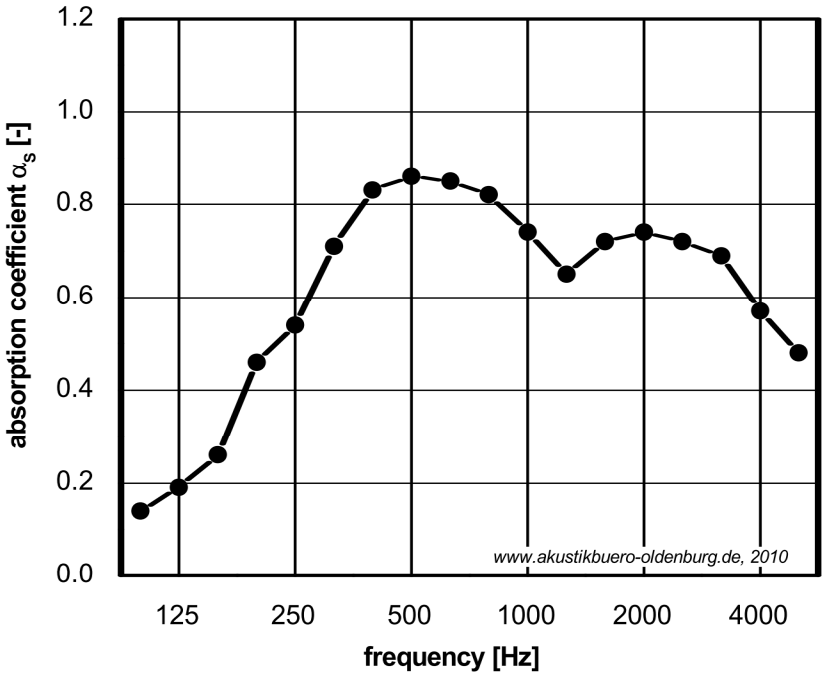
Assembly:

- BARRISOL® A40 Miniperf
- 120 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.19
160	0.26
200	0.46
250	0.54
315	0.71
400	0.83
500	0.86
630	0.85
800	0.82
1000	0.74
1250	0.65
1600	0.72
2000	0.74
2500	0.72
3150	0.69
4000	0.57
5000	0.48



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.55
500	0.85
1000	0.75
2000	0.75
4000	0.60

NRC = 0.70

SAA = 0.72

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M18-120_A40_40FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

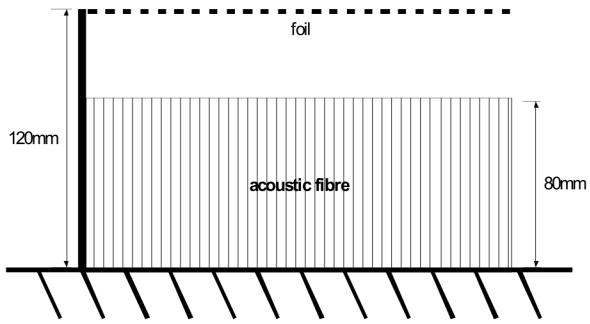
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

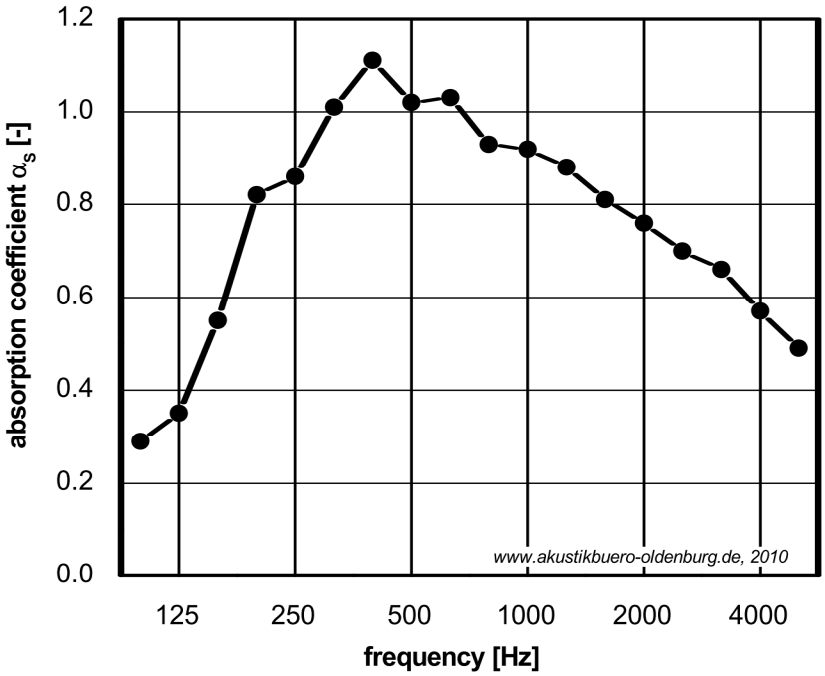
Assembly:

- BARRISOL® A40 Miniperf
- 120 mm distance to the floor
- 80 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.29
125	0.35
160	0.55
200	0.82
250	0.86
315	1.01
400	1.11
500	1.02
630	1.03
800	0.93
1000	0.92
1250	0.88
1600	0.81
2000	0.76
2500	0.70
3150	0.66
4000	0.57
5000	0.49



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.40
250	0.90
500	1.00
1000	0.90
2000	0.75
4000	0.55

NRC = 0.90

SAA = 0.90

α_w = 0.75 (LM)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M17-120_A40_80FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

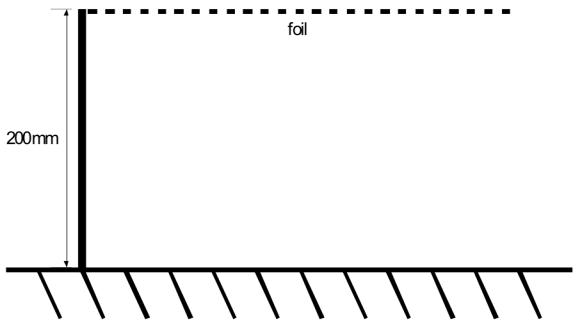
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

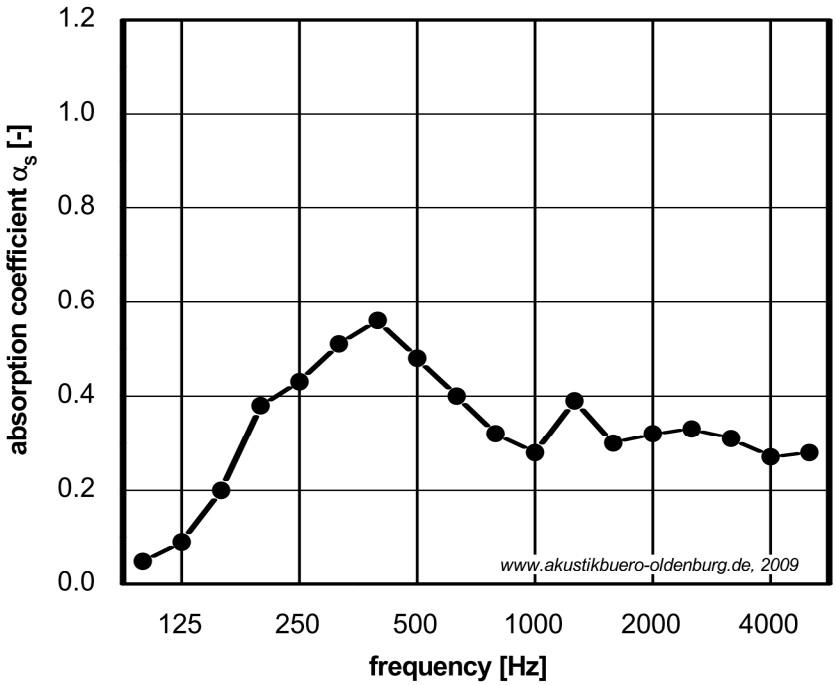
Assembly:

- BARRISOL® A40 Miniperf
- 200 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.05
125	0.09
160	0.20
200	0.38
250	0.43
315	0.51
400	0.56
500	0.48
630	0.40
800	0.32
1000	0.28
1250	0.39
1600	0.30
2000	0.32
2500	0.33
3150	0.31
4000	0.27
5000	0.28



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.45
500	0.50
1000	0.35
2000	0.30
4000	0.30

NRC = 0.40

SAA = 0.39

α_w = 0.35 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p22-A40_200_Ol200808BL18

Oldenburg, May 15th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

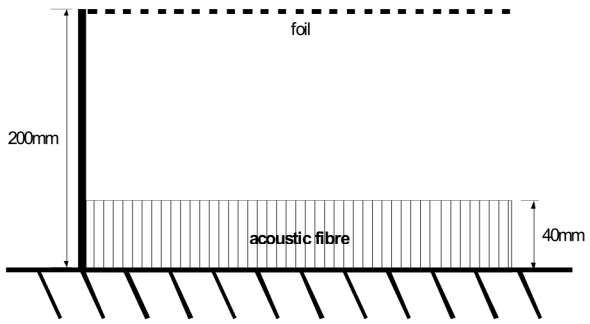
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

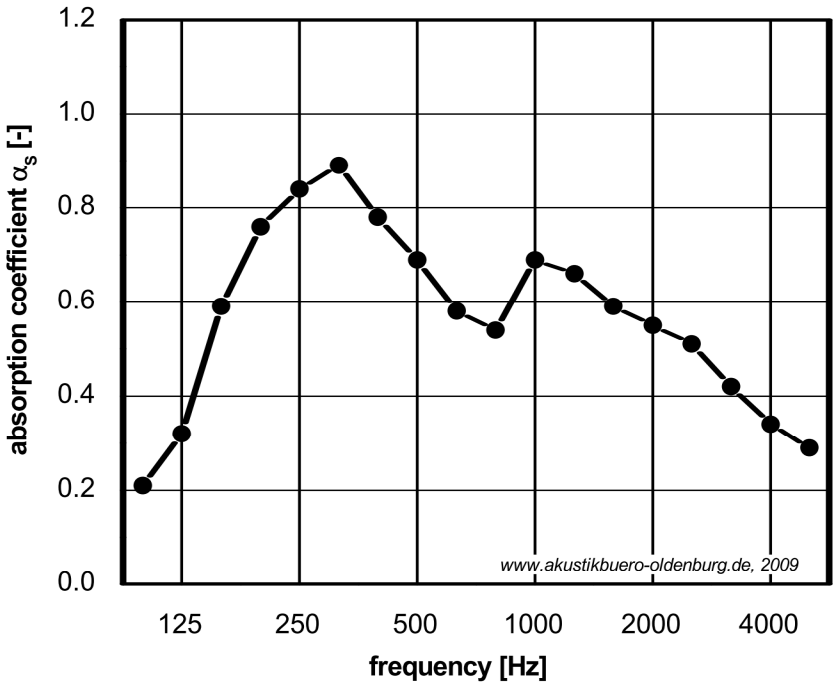
Assembly:

- BARRISOL® A40 Miniperf
- 200 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.21
125	0.32
160	0.59
200	0.76
250	0.84
315	0.89
400	0.78
500	0.69
630	0.58
800	0.54
1000	0.69
1250	0.66
1600	0.59
2000	0.55
2500	0.51
3150	0.42
4000	0.34
5000	0.29



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.80
500	0.70
1000	0.65
2000	0.55
4000	0.35

NRC = 0.70

SAA = 0.67

α_w = 0.55 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p23-A40_200mw40_Ol200808BL17

Oldenburg, May 15th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

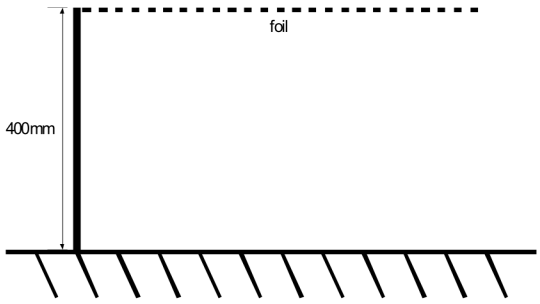
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

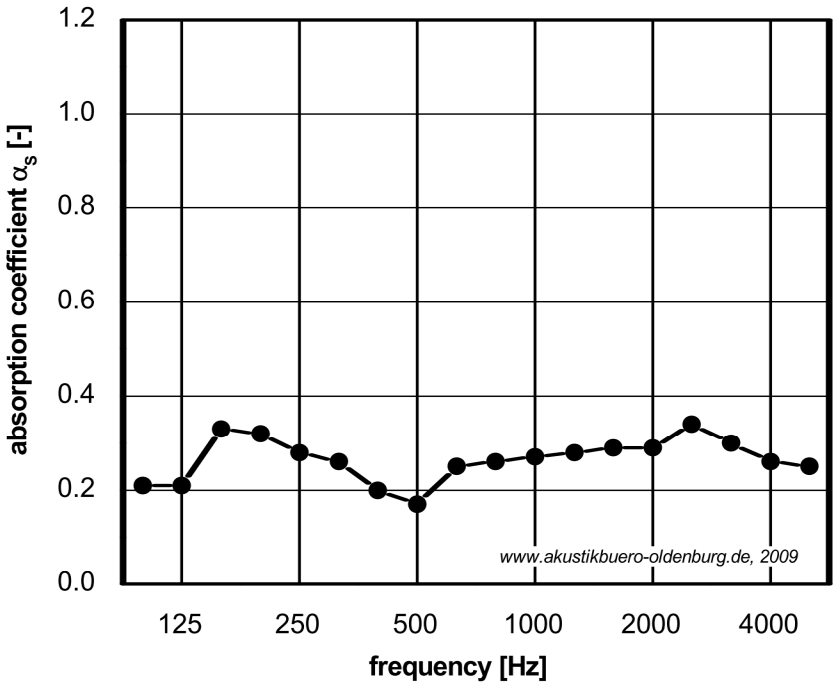
Assembly:

- BARRISOL® A40 Miniperf
- 400 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.21
125	0.21
160	0.33
200	0.32
250	0.28
315	0.26
400	0.20
500	0.17
630	0.25
800	0.26
1000	0.27
1250	0.28
1600	0.29
2000	0.29
2500	0.34
3150	0.30
4000	0.26
5000	0.25



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.30
500	0.20
1000	0.25
2000	0.30
4000	0.25

NRC = 0.25

SAA = 0.27

α_w = 0.25 (L)

Sound Absorption Class E

Rev. chamber:	ITAP GmbH
Date:	19.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p18-A40_400_Ol200707Mess32

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

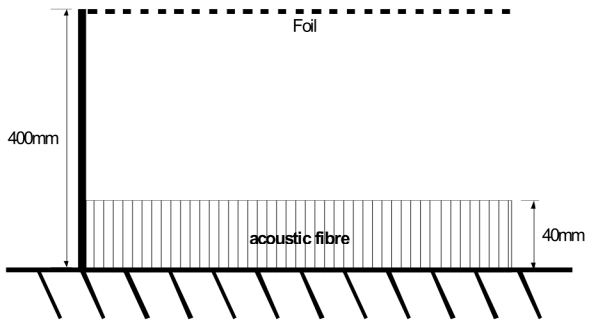
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

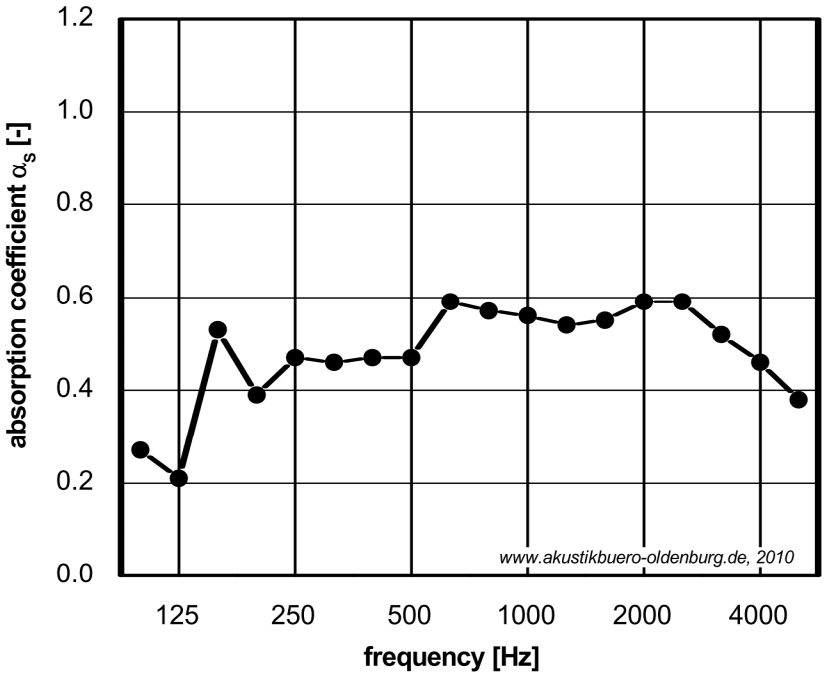
Assembly:

- BARRISOL® A40 Miniperf
- 400 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.27
125	0.21
160	0.53
200	0.39
250	0.47
315	0.46
400	0.47
500	0.47
630	0.59
800	0.57
1000	0.56
1250	0.54
1600	0.55
2000	0.59
2500	0.59
3150	0.52
4000	0.46
5000	0.38



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.45
500	0.50
1000	0.55
2000	0.60
4000	0.45

NRC = 0.50

SAA = 0.52

α_w = 0.55

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	22.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	63 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M53-400_A40_40FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Akustikbüro Oldenburg Dr. Christian Nocke

Test reports

for

BARRISOL® stretched ceilings

Part 3

Acoustic Extras

Version 2013

Address: Katharinenstr. 10, D-26121 Oldenburg fone +49 (0) 441 / 957993 0, fax +49 (0) 441 / 957993 21
e-mail : info@akustikbuero.info, web: www.akustikbuero.info

Table 1 : List of tested Set-Ups (Sails).

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
1	BO200408 BL21	BARRISOL® A30, single layered element (2000 mm x 1500 mm) free-standing	0.40	0.39	0.40	D
2	BO200408 BL25	BARRISOL® double layered element (2000 x 1500 x 70 mm^3), free-standing: A30, 70 mm distance, A30	0.60	0.60	0.50	D
3	BO200408 BL24	BARRISOL® double layered element (2000 x 1500 x 70 mm^3), free-standing: A30, 70 mm acoustic fibre, A30	1.00	1.00	1.00	A

Table 1B : List of tested Set-Ups (Non-Acoustic perforations).

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
4	BO200403 BL24	BARRISOL® P10, 100 mm, no fibre	0.10	0.10	0.15	E
5	OL200808 BL05	BARRISOL® P10, 100 mm, 40 mm acoustic fibre	0.70	0.70	0.75	C
6	BO200402 BL23	BARRISOL® P10, 100 mm, 45 mm acoustic fibre	0.70	0.69	0.75	C
7	BO200402 BL29	BARRISOL® P10, 100 mm, 70 mm acoustic fibre	0.80	0.83	0.85	B
8	BO200402 BL36	BARRISOL® P20, 100 mm, no fibre	0.05	0.07	0.10	-
9	OL200808 BL26	BARRISOL® P20, 100 mm, 40 mm acoustic fibre	0.75	0.73	0.80	B
10	BO200402 BL35	BARRISOL® P20, 100 mm, 45 mm acoustic fibre	0.70	0.71	0.75	C
11	BO200402 BL30	BARRISOL® P20, 100 mm, 70 mm acoustic fibre	0.80	0.82	0.90	A
12	OL200808 BL27	BARRISOL® P30, 100 mm, 40 mm acoustic fibre	0.70	0.72	0.75	C
13	OL200808 BL28	BARRISOL® P40, 100 mm, 40 mm acoustic fibre	0.75	0.72	0.70	C
14	OL200808 BL29	BARRISOL® P50, 100 mm, 40 mm acoustic fibre	0.70	0.72	0.75	C
15	BO200402 BL15	BARRISOL® P60, 100 mm, no fibre	0.05	0.04	0.05	-
16	OL200808 BL30	BARRISOL® P60, 100 mm, 40 mm acoustic fibre	0.75	0.73	0.75	C
17	BO200402 BL18	BARRISOL® P60, 100 mm, 45 mm acoustic fibre	0.70	0.72	0.75	C
18	BO200402 BL11	BARRISOL® P60, 100 mm, 70 mm acoustic fibre	0.80	0.82	0.90	A
19	BO200402 BL04	BARRISOL® P70, 100 mm, no fibre	0.05	0.06	0.10	-
20	OL200808 BL33	BARRISOL® P70, 100 mm, 40 mm acoustic fibre	0.70	0.69	0.75	C
21	BO200402 BL03	BARRISOL® P70, 100 mm, 45 mm acoustic fibre	0.65	0.67	0.70	C
22	BO200402 BL09	BARRISOL® P70, 100 mm, 70 mm acoustic fibre	0.80	0.78	0.75	C
23	OL200808 BL31	BARRISOL® P80, 100 mm, 40 mm acoustic fibre	0.75	0.72	0.75	C
24	BO200402 BL06	BARRISOL® P90, 100 mm, no fibre	0.05	0.03	0.05	-
25	OL200808 BL32	BARRISOL® P90, 100 mm, 40 mm acoustic fibre	0.70	0.73	0.75	C
26	BO200402 BL01	BARRISOL® P90, 100 mm, 45 mm acoustic fibre	0.70	0.70	0.70	C
27	BO200402 BL07	BARRISOL® P90, 100 mm, 70 mm acoustic fibre	0.80	0.82	0.90	A

Table 1C : List of tested Set-Ups (Light & Acoustics).

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
28	20120233 M32	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A15, 120 mm distance, no fibre	0.35	0.38	0.30	D
29	20120233 M29	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A15, 75 mm distance, 45 mm acoustic fibre	0.50	0.52	0.30	D
30	20120233 M40	BARRISOL® two layers, 400 mm: unperforated white, 80 mm distance, A15, 320 mm distance, no fibre	0.30	0.30	0.30	D
31	20120233 M41	BARRISOL® two layers, 400 mm: A15, 80 mm distance, unperforated white, 320 mm distance, no fibre	0.40	0.41	0.35	D
32	20100148 M32	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A20, no fibre	0.50	0.46	0.30	D
33	20100148 M33	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A20, 80 mm acoustic fibre	0.65	0.64	0.30	D
34	OL200707 M27	BARRISOL® two layers, 400 mm: unperforated white, 80 mm distance, A20, no fibre	0.30	0.29	0.30	D
35	OL200707 M26	BARRISOL® two layers, 400 mm: unperforated white, 80 mm distance, A20, 45 mm acoustic fibre	0.45	0.44	0.35	D
36	OL200707 M25	BARRISOL® two layers, 400 mm: unperforated white, 80 mm distance, A20, 70 mm acoustic fibre	0.50	0.51	0.35	D
37	20100148 M36	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A30, no fibre	0.45	0.45	0.30	D
38	20100148 M35	BARRISOL® two layers, 200 mm: unperforated white, 80 mm distance, A30, 80 mm acoustic fibre	0.65	0.65	0.30	D
39	20120233 M34	BARRISOL® two layers, 100 mm: A15, 30 mm distance, A15, 70 mm distance, no fibre	0.55	0.56	0.60	C
40	20120233 M33	BARRISOL® two layers, 100 mm : A15, 30 mm distance, A15, 25 mm distance, 45 mm acoustic fibre	0.70	0.72	0.65	C
41	20120233 M31	BARRISOL® two layers, 200 mm: A15, 80 mm distance, A15, 120 mm distance, no fibre	0.55	0.55	0.55	D
42	20120233 M30	BARRISOL® two layers, 200 mm: A15, 80 mm distance, A15, 75 mm distance, 45 mm acoustic fibre	0.65	0.67	0.65	C
43	20100148 M50	BARRISOL® three layers, 400mm: A30, 30 mm distance, A30, 50 mm distance, A30, no fibre	0.70	0.71	0.70	C

Table 1D : List of tested Set-Ups (Furniture).

Page	Internal Reference	Short Description	NRC	SAA	α_w	Absorber-class
44	20120069 M23	BARRISOL® the Chair by Vallon, three chairs standing on the floor, without absorber.	-	-	A_{eq}	-
45	20120069 M24	BARRISOL® the Chair by Vallon, three chairs standing on the floor, with absorber.	-	-	A_{eq}	-
46	20120069 M25	BARRISOL® Plus Lamp, five lamps on the floor, completely opened (180° internal angle)	-	-	A_{eq}	-
47	20120069 M26	BARRISOL® Plus Lamp, five lamps on the floor, half opened (165° internal angle)	-	-	A_{eq}	-
48	20120069 M27	BARRISOL® Plus Lamp, five lamps on the floor, closed (135° internal angle)	-	-	A_{eq}	-

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

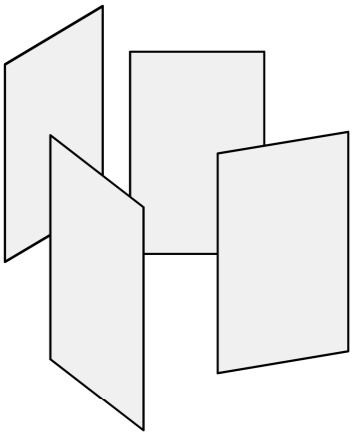
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® Type A30 Microacoustic

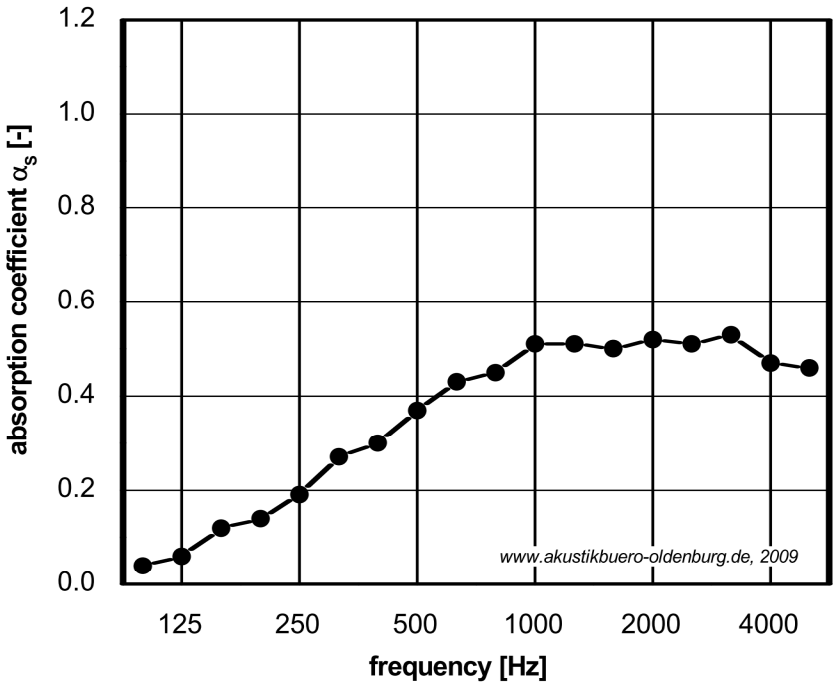
Assembly:

Four elements, each 2 m x 1.5 m, free-standing inside the reverberation chamber



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.04
125	0.06
160	0.12
200	0.14
250	0.19
315	0.27
400	0.30
500	0.37
630	0.43
800	0.45
1000	0.51
1250	0.51
1600	0.50
2000	0.52
2500	0.51
3150	0.53
4000	0.47
5000	0.46



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.05
250	0.20
500	0.35
1000	0.50
2000	0.50
4000	0.50

NRC = 0.40

SAA = 0.39

α_w = 0.40

Sound Absorption Class D

Rev. chamber:	FH Bochum
Date:	02.08.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	21°C
Humidity:	75 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p01-A30frei_Bo200408BL21

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

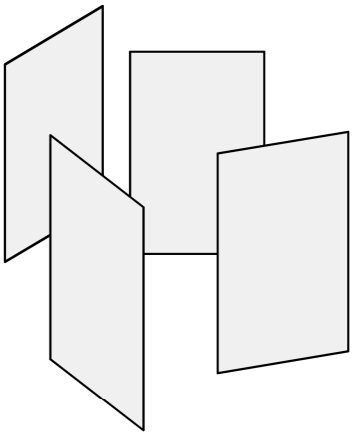
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® Type A30 Microacoustic

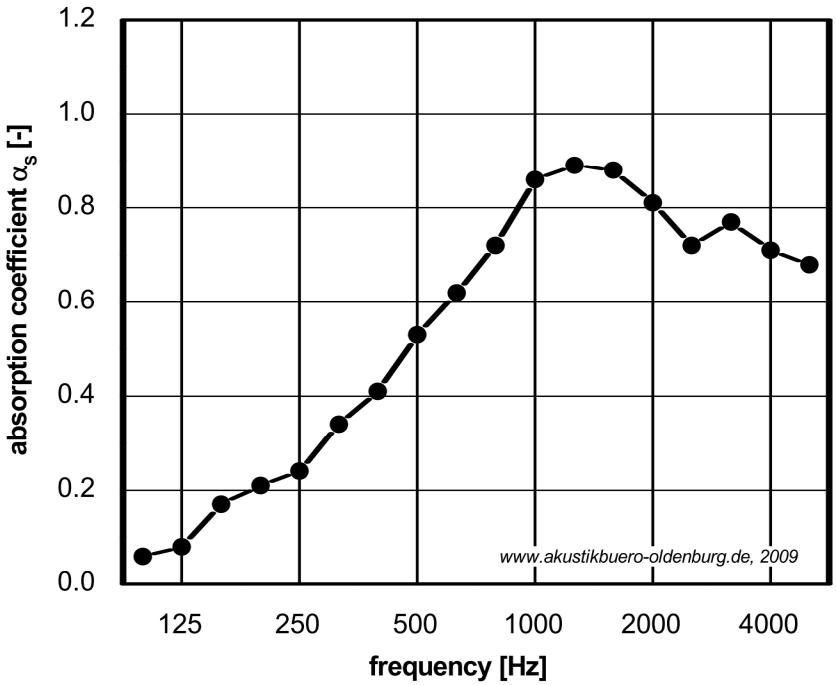
Assembly:

- Four elements, each 2 m x 1.5 m, free-standing inside the reverberation chamber
- Double layered
- 70 mm distance



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.06
125	0.08
160	0.17
200	0.21
250	0.24
315	0.34
400	0.41
500	0.53
630	0.62
800	0.72
1000	0.86
1250	0.89
1600	0.88
2000	0.81
2500	0.72
3150	0.77
4000	0.71
5000	0.68



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.25
500	0.50
1000	0.80
2000	0.80
4000	0.70

NRC = 0.60

SAA = 0.60

α_w = 0.50 (MH)

Sound Absorption Class D

Rev. chamber:	FH Bochum
Date:	02.08.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	21°C
Humidity:	75 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p02-A30double_Bo200408BL25

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

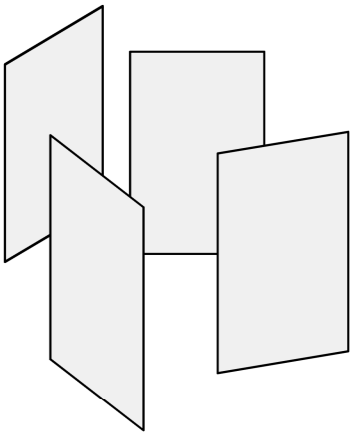
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® Type A30 Microacoustic

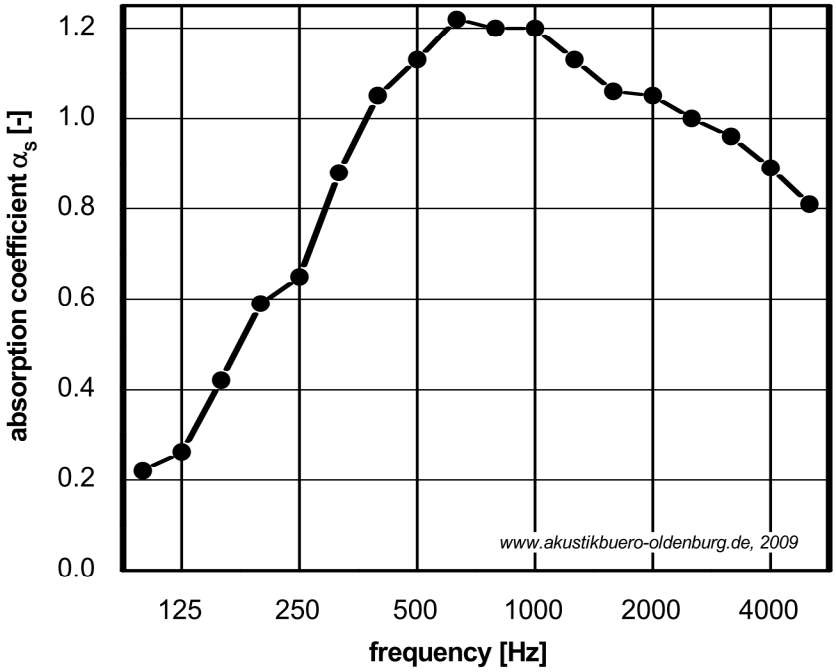
Assembly:

- Four elements, each 2 m x 1.5 m, free-standing inside the reverberation chamber
- Double layered
- 70 mm distance
- Gap filled with acoustic fibre



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.22
125	0.26
160	0.42
200	0.59
250	0.65
315	0.88
400	1.05
500	1.13
630	1.22
800	1.20
1000	1.20
1250	1.13
1600	1.06
2000	1.05
2500	1.00
3150	0.96
4000	0.89
5000	0.81



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.70
500	1.00
1000	1.00
2000	1.00
4000	0.90

NRC = 1.00

SAA = 1.00

α_w = 1.00

Sound Absorption Class A

Rev. chamber:	FH Bochum
Date:	02.08.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	21°C
Humidity:	75 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p03-A30dblmw_Bo200408BL24

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

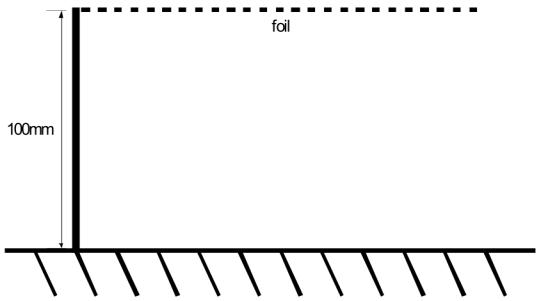
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

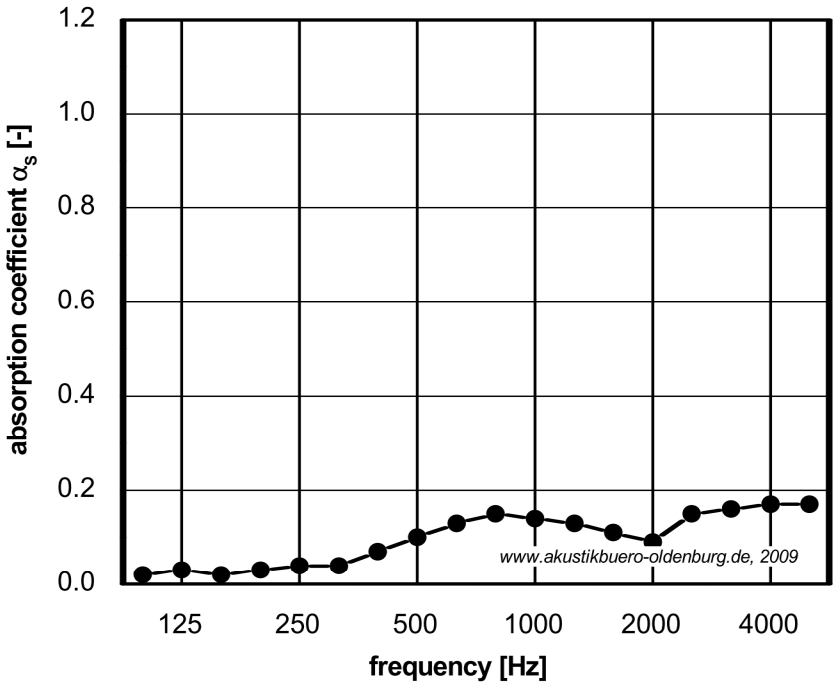
Assembly:

- BARRISOL® P10 Mediperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.03
160	0.02
200	0.03
250	0.04
315	0.04
400	0.07
500	0.10
630	0.13
800	0.15
1000	0.14
1250	0.13
1600	0.11
2000	0.09
2500	0.15
3150	0.16
4000	0.17
5000	0.17



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.05
500	0.10
1000	0.15
2000	0.10
4000	0.15

NRC = 0.10

SAA = 0.10

α_w = 0.15

Sound Absorption Class E

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p19-P10_100_Bo200403BL24

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

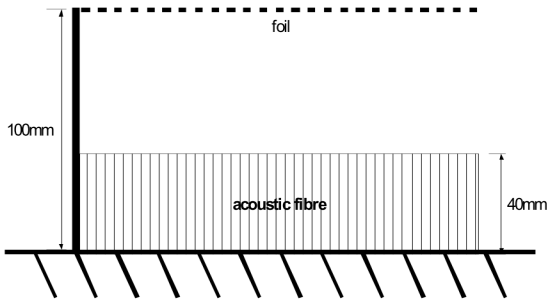
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

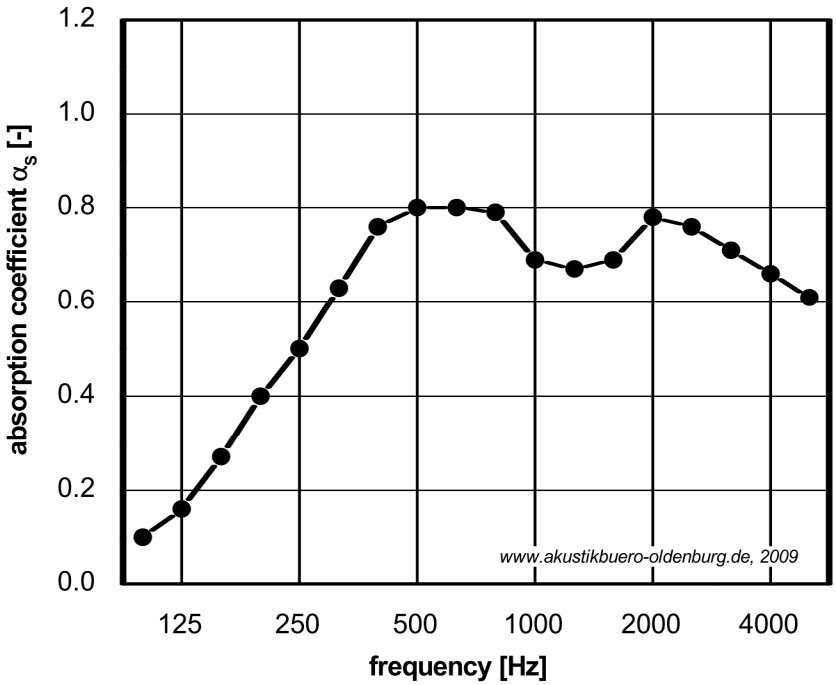
Assembly:

- BARRISOL® P10 Mediperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.16
160	0.27
200	0.40
250	0.51
315	0.63
400	0.77
500	0.81
630	0.80
800	0.80
1000	0.70
1250	0.68
1600	0.70
2000	0.79
2500	0.77
3150	0.71
4000	0.66
5000	0.61



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.80
1000	0.75
2000	0.75
4000	0.65

NRC = 0.70

SAA = 0.70

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p20-P10_100mw40ED_Ol200808BL05

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

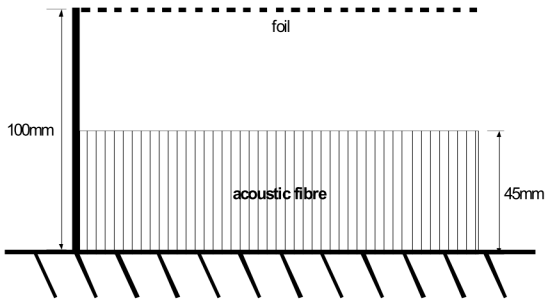
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

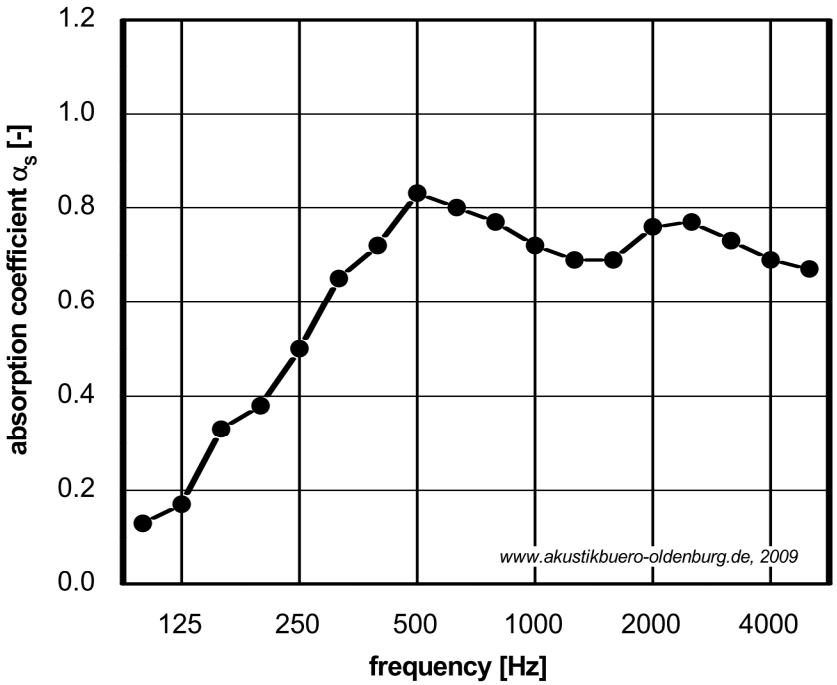
Assembly:

- BARRISOL® P10 Mediperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.13
125	0.17
160	0.33
200	0.38
250	0.50
315	0.65
400	0.72
500	0.83
630	0.80
800	0.77
1000	0.72
1250	0.69
1600	0.69
2000	0.76
2500	0.77
3150	0.73
4000	0.69
5000	0.67



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.80
1000	0.75
2000	0.75
4000	0.70

NRC = 0.70

SAA = 0.69

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p21-P10_100mw45_Bo200402BL23

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys.
Dr. Christian Nocke
Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

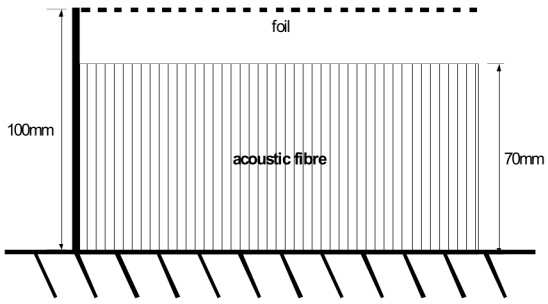
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

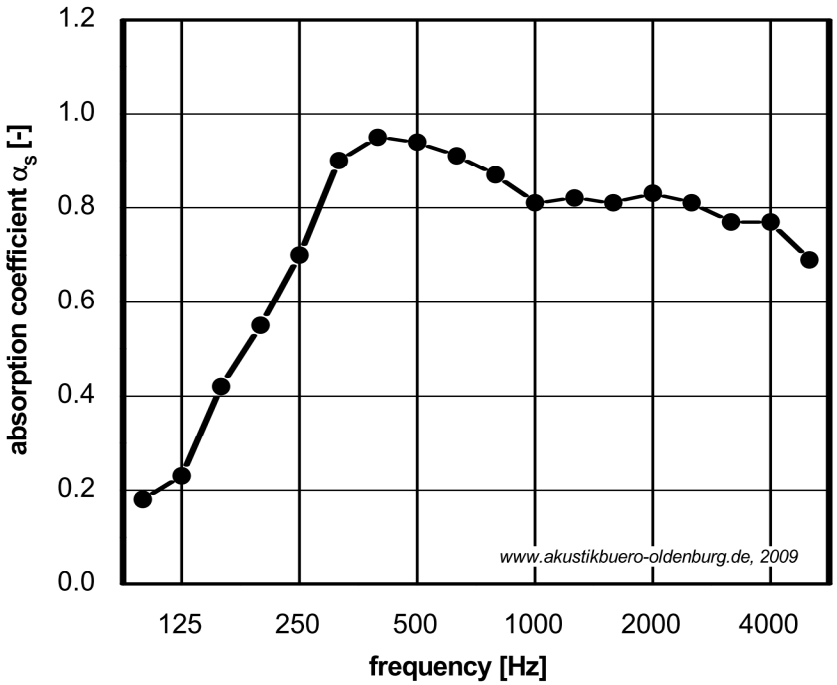
Assembly:

- BARRISOL® P10 Mediperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.18
125	0.23
160	0.42
200	0.55
250	0.70
315	0.90
400	0.95
500	0.94
630	0.91
800	0.87
1000	0.81
1250	0.82
1600	0.81
2000	0.83
2500	0.81
3150	0.77
4000	0.77
5000	0.69



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.70
500	0.95
1000	0.85
2000	0.80
4000	0.75

NRC = 0.80

SAA = 0.83

α_w = 0.85

Sound Absorption Class B

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p22-P10_100mw70_Bo200402BL29

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

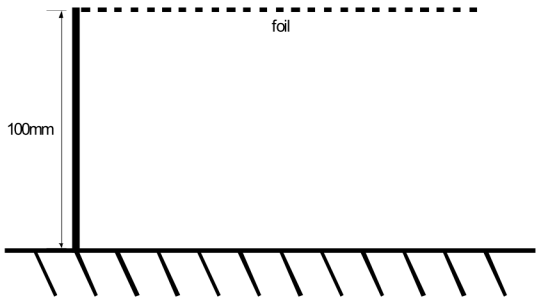
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

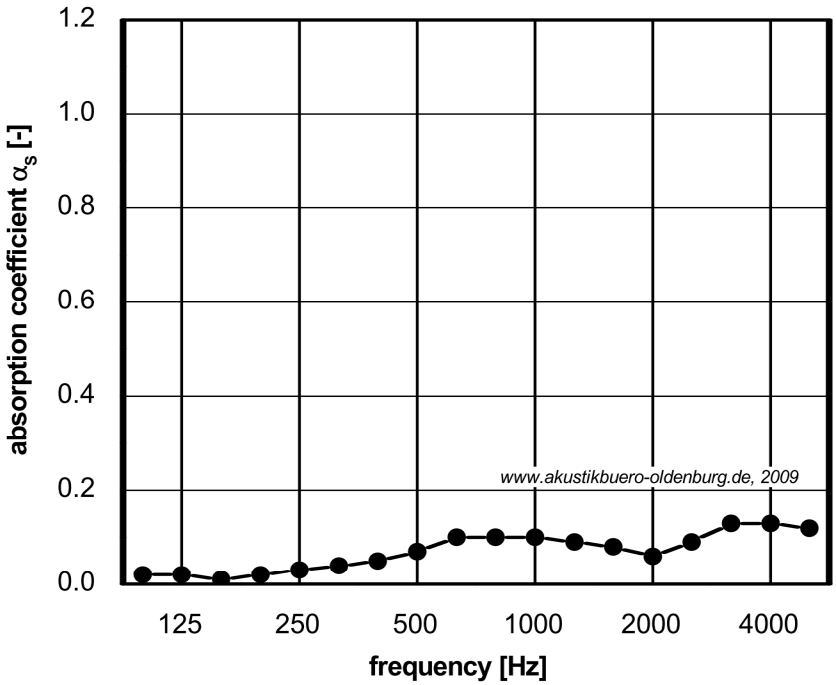
Assembly:

- BARRISOL® P20 Mezzoperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.02
160	0.01
200	0.02
250	0.03
315	0.04
400	0.05
500	0.07
630	0.10
800	0.10
1000	0.10
1250	0.09
1600	0.08
2000	0.06
2500	0.09
3150	0.13
4000	0.13
5000	0.12



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.05
500	0.05
1000	0.10
2000	0.10
4000	0.15

NRC = 0.05

SAA = 0.07

α_w = 0.10

Not classified

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p23-P20_100_Bo200402BL36

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

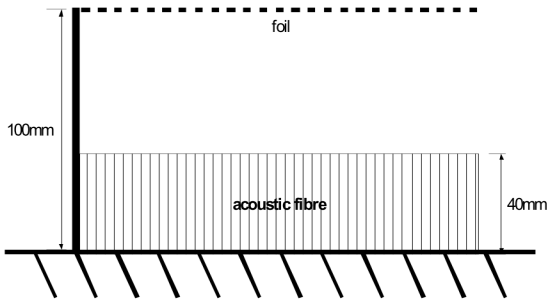
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

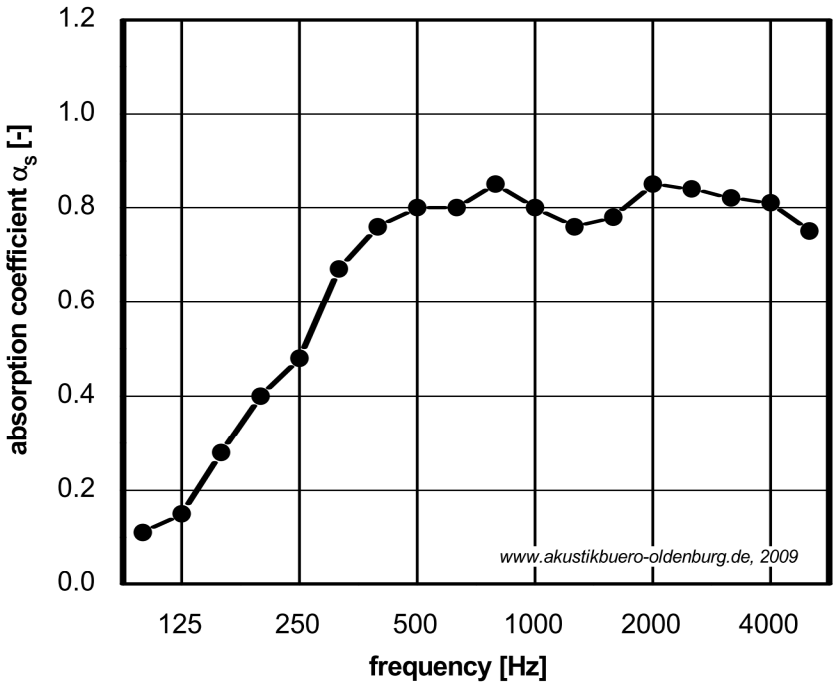
Assembly:

- BARRISOL® P20 Mezzoperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.15
160	0.28
200	0.40
250	0.48
315	0.67
400	0.76
500	0.80
630	0.80
800	0.85
1000	0.80
1250	0.76
1600	0.78
2000	0.85
2500	0.84
3150	0.82
4000	0.81
5000	0.75



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.80
1000	0.80
2000	0.80
4000	0.80

NRC = 0.75

SAA = 0.73

α_w = 0.80

Sound Absorption Class B

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p24-P20_100mw40ED_Ol200808BL26

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

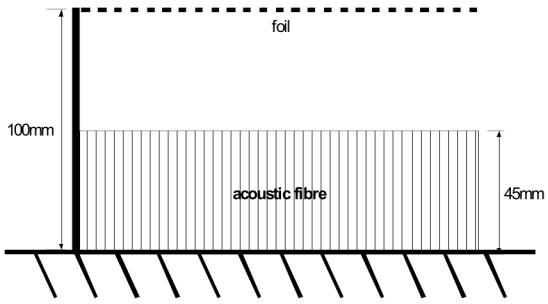
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

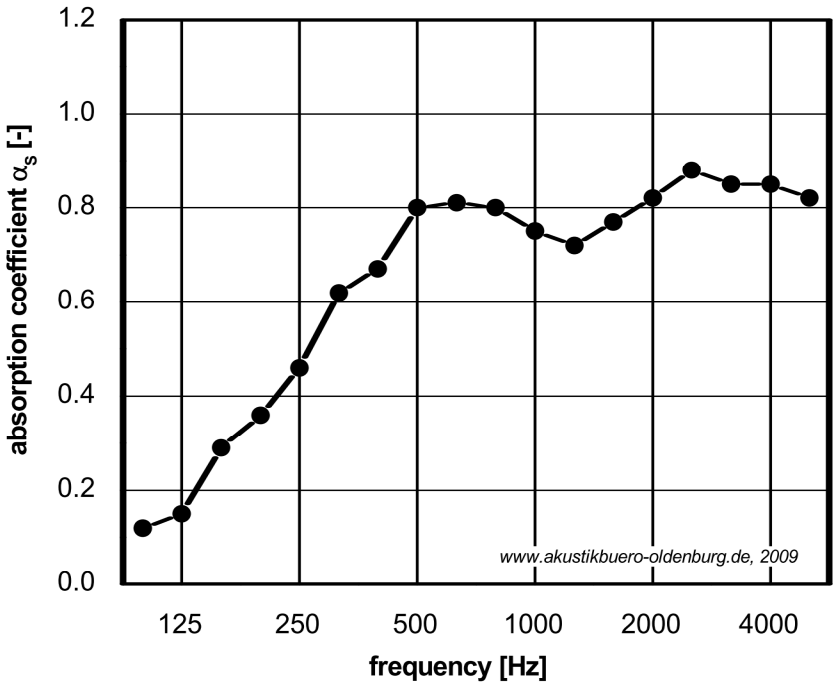
Assembly:

- BARRISOL® P20 Mezzoperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.15
160	0.29
200	0.36
250	0.46
315	0.62
400	0.67
500	0.80
630	0.81
800	0.80
1000	0.75
1250	0.72
1600	0.77
2000	0.82
2500	0.88
3150	0.85
4000	0.85
5000	0.82



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.75
1000	0.75
2000	0.80
4000	0.85

NRC = 0.70

SAA = 0.71

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p25-P20_100mw45_Bo200402BL35

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

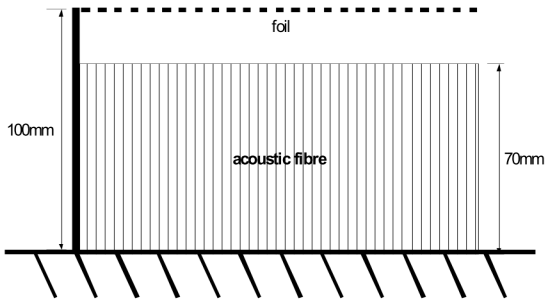
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

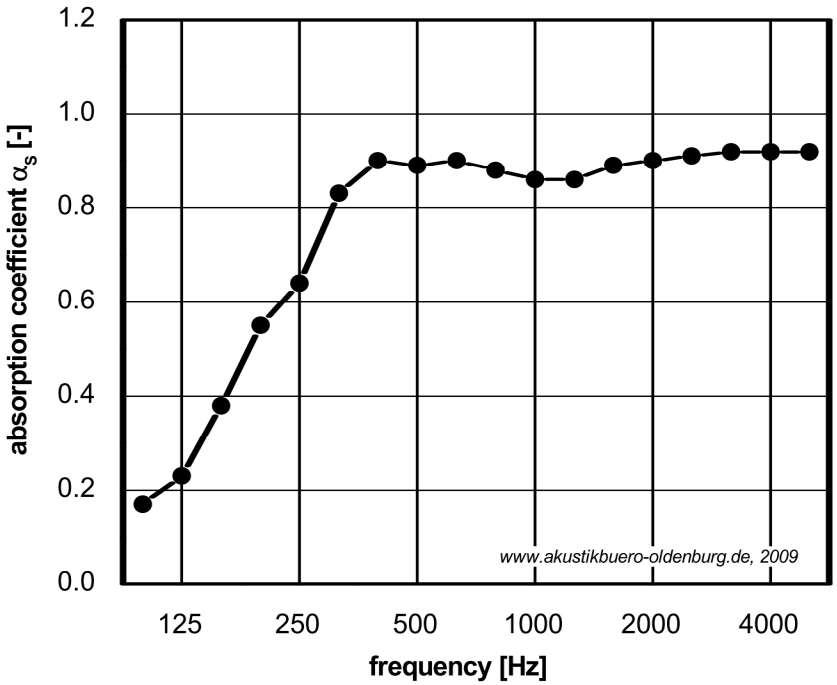
Assembly:

- BARRISOL® P20 Mezzoperf
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.17
125	0.23
160	0.38
200	0.55
250	0.64
315	0.83
400	0.90
500	0.89
630	0.90
800	0.88
1000	0.86
1250	0.86
1600	0.89
2000	0.90
2500	0.91
3150	0.92
4000	0.92
5000	0.92



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.65
500	0.90
1000	0.85
2000	0.90
4000	0.90

NRC = 0.80

SAA = 0.82

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p26-P20_100mw70_Bo200402BL30

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

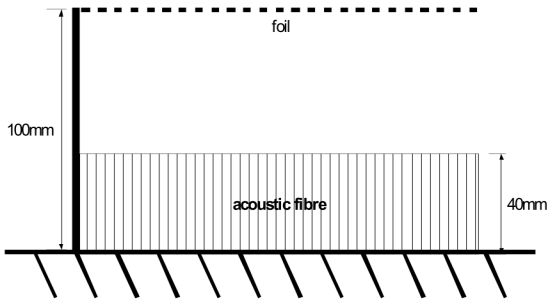
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

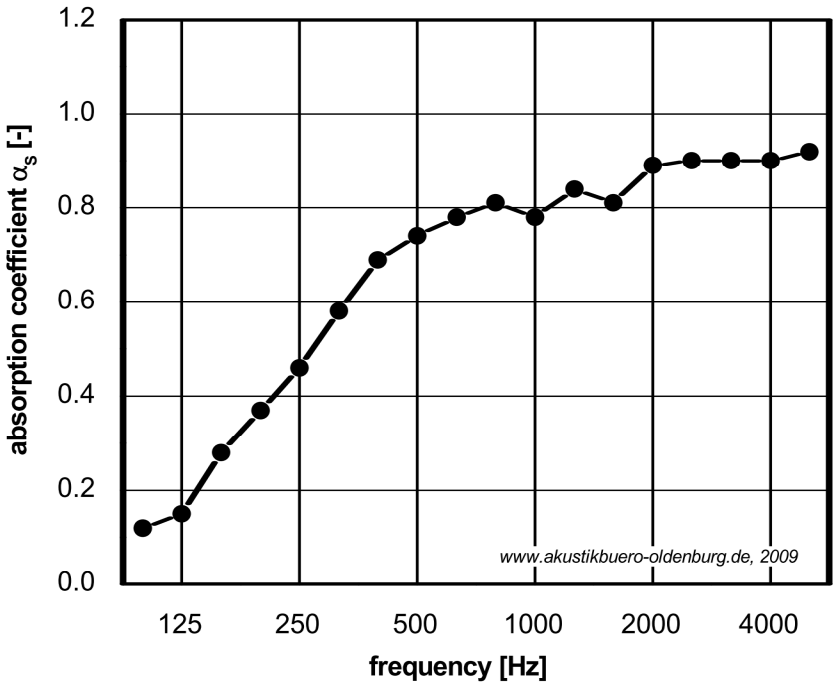
Assembly:

- BARRISOL® P30 Lunaperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.15
160	0.28
200	0.37
250	0.46
315	0.58
400	0.69
500	0.74
630	0.78
800	0.81
1000	0.78
1250	0.84
1600	0.81
2000	0.89
2500	0.90
3150	0.90
4000	0.90
5000	0.92



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.45
500	0.75
1000	0.80
2000	0.85
4000	0.90

NRC = 0.70

SAA = 0.72

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p27-P30_100mw40_OI200808BL27

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

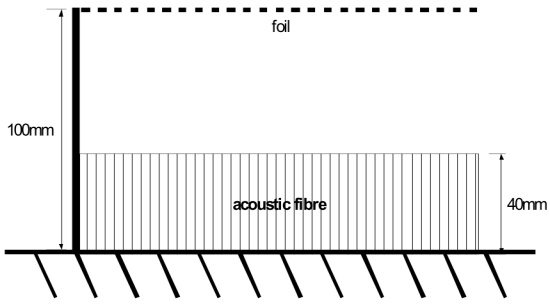
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

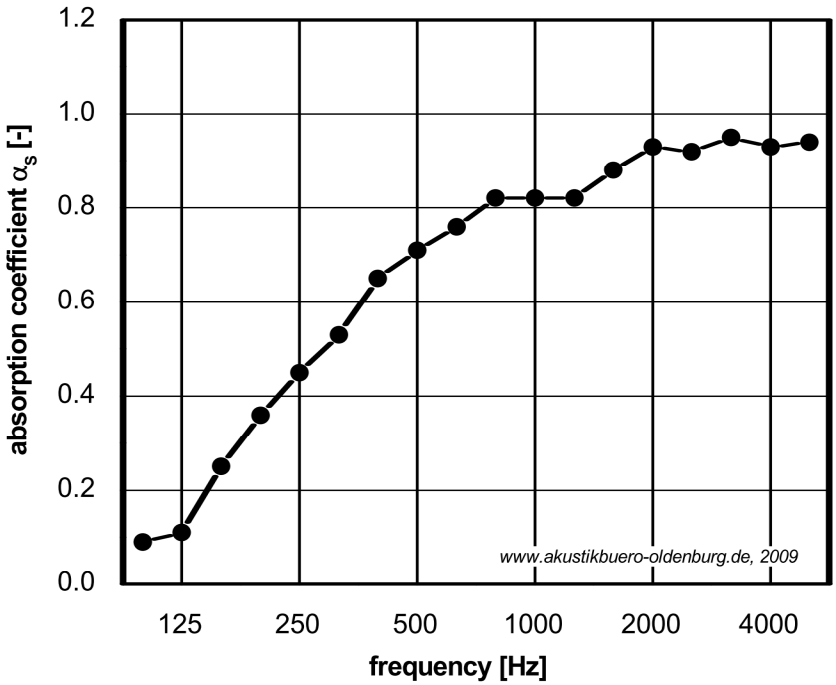
Assembly:

- BARRISOL® P40 Terraperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.11
160	0.25
200	0.36
250	0.45
315	0.53
400	0.65
500	0.71
630	0.76
800	0.82
1000	0.82
1250	0.82
1600	0.88
2000	0.93
2500	0.92
3150	0.95
4000	0.93
5000	0.94



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.70
1000	0.80
2000	0.90
4000	0.95

NRC = 0.75

SAA = 0.72

α_w = 0.70 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p28-P40_100mw40_OI200808BL28

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

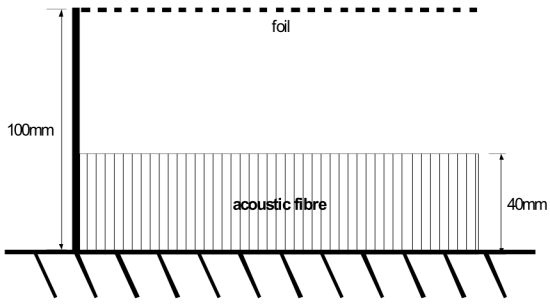
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

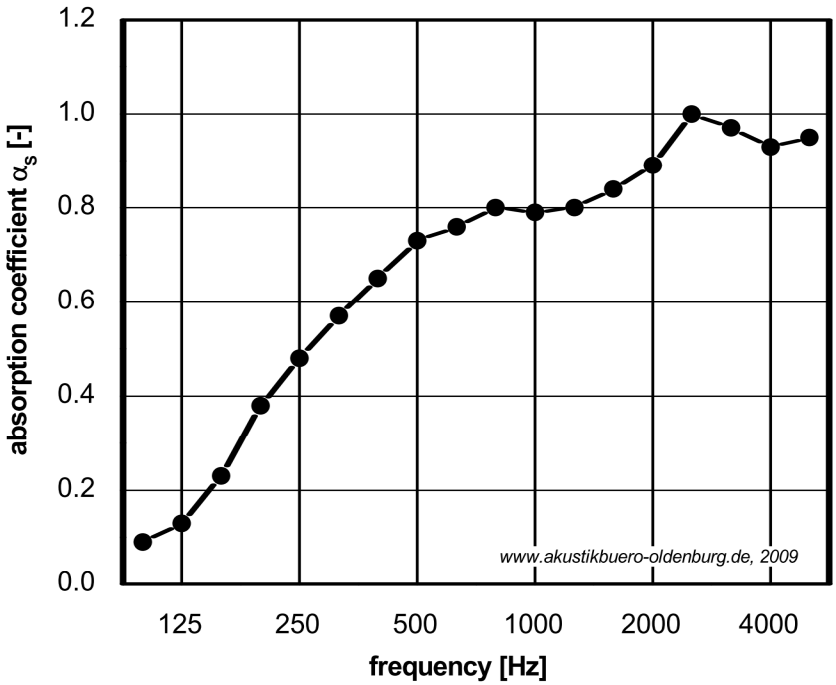
Assembly:

- BARRISOL® P50 Solaperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.13
160	0.23
200	0.38
250	0.48
315	0.57
400	0.65
500	0.73
630	0.76
800	0.80
1000	0.79
1250	0.80
1600	0.84
2000	0.89
2500	1.00
3150	0.97
4000	0.93
5000	0.95



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.50
500	0.70
1000	0.80
2000	0.90
4000	0.95

NRC = 0.70

SAA = 0.72

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p29-P50_100_mw40ED_Ol200808BL29

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

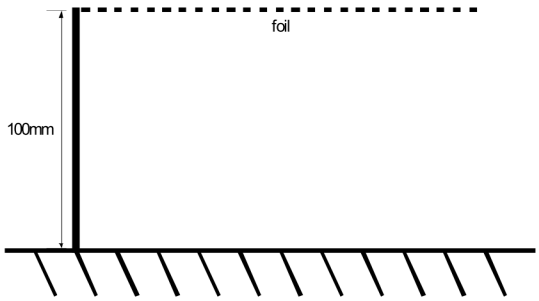
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

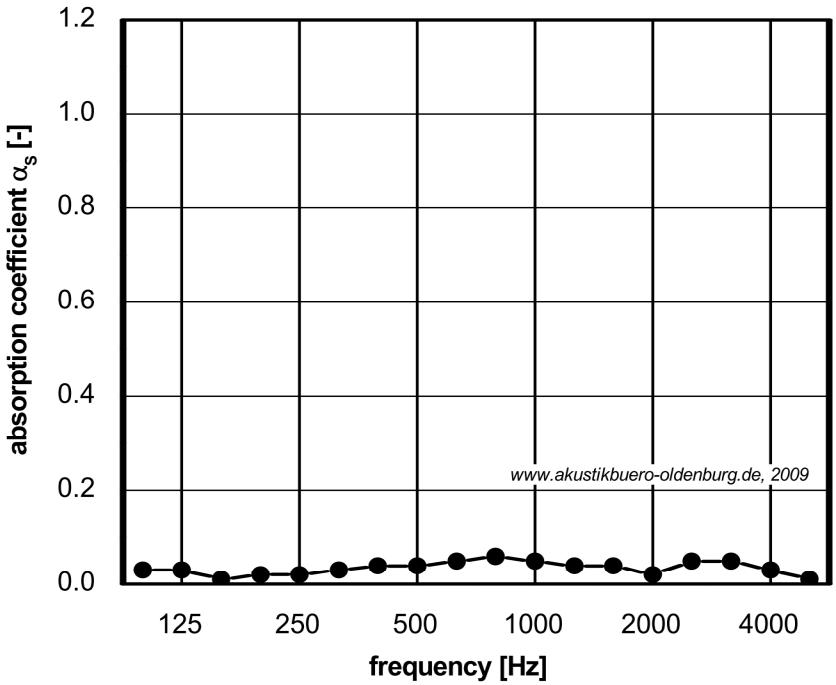
Assembly:

- BARRISOL® P60 Maxiperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.03
125	0.03
160	0.01
200	0.02
250	0.02
315	0.03
400	0.04
500	0.04
630	0.05
800	0.06
1000	0.05
1250	0.04
1600	0.04
2000	0.02
2500	0.05
3150	0.05
4000	0.03
5000	0.01



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.00
500	0.05
1000	0.05
2000	0.05
4000	0.05

NRC = 0.05

SAA = 0.04

α_w = 0.05

Not classified

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	38 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p30-P60_100_Bo200402BL15

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

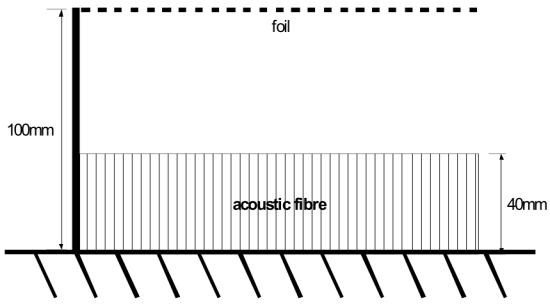
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

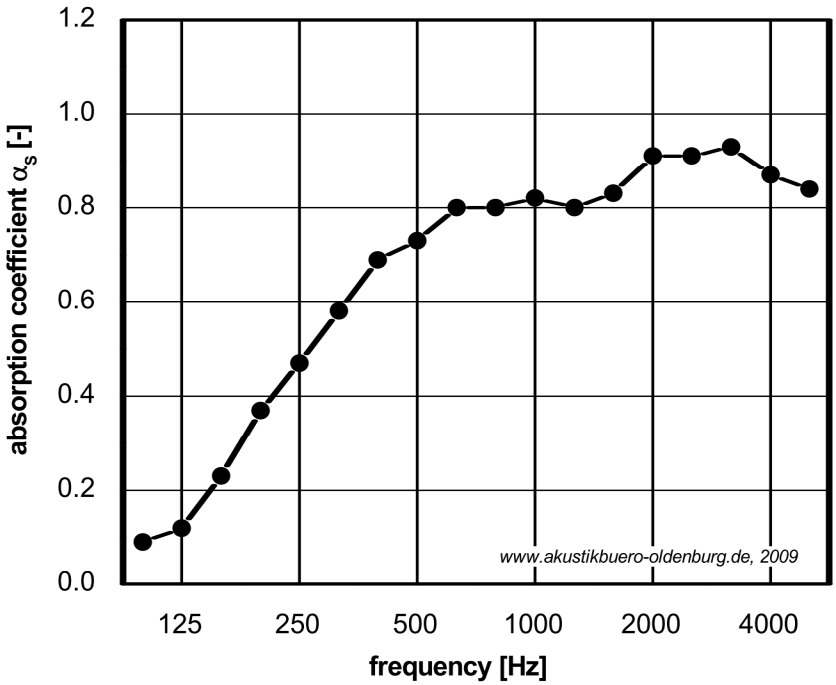
Assembly:

- BARRISOL® P60 Maxiperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.12
160	0.23
200	0.37
250	0.47
315	0.58
400	0.69
500	0.73
630	0.80
800	0.80
1000	0.82
1250	0.80
1600	0.83
2000	0.91
2500	0.91
3150	0.93
4000	0.87
5000	0.84



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.75
1000	0.80
2000	0.90
4000	0.90

NRC = 0.75

SAA = 0.73

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p31-P60_100mw40ED_Ol200808BL30

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

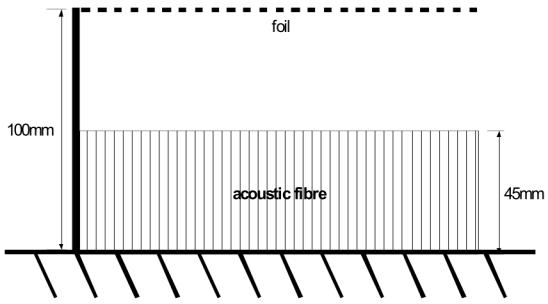
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

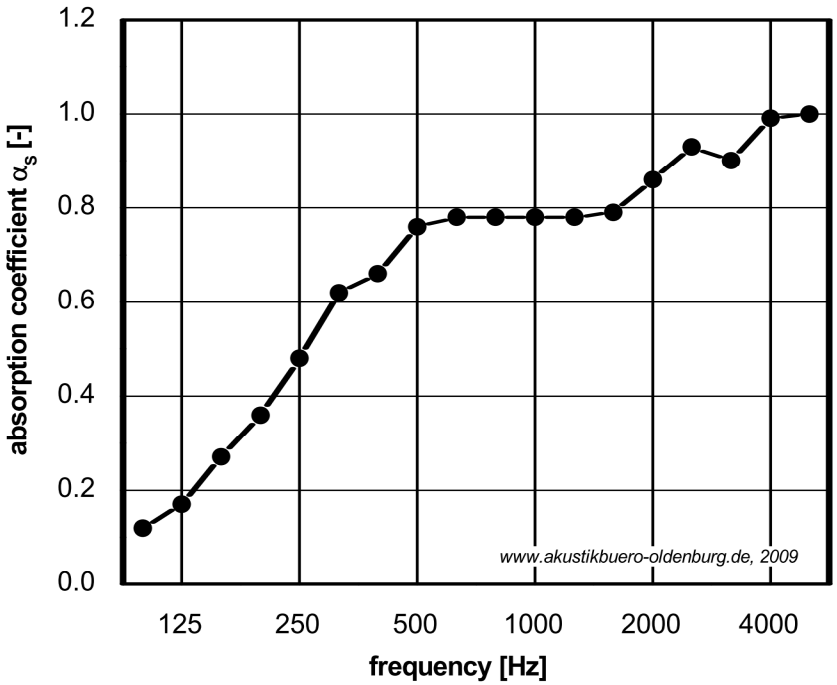
Assembly:

- BARRISOL® P60 Maxiperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.17
160	0.27
200	0.36
250	0.48
315	0.62
400	0.66
500	0.76
630	0.78
800	0.78
1000	0.78
1250	0.78
1600	0.79
2000	0.86
2500	0.93
3150	0.90
4000	0.99
5000	1.00



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.75
1000	0.80
2000	0.85
4000	0.95

NRC = 0.70

SAA = 0.72

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	36 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p32-P60_100mw45_Bo200402BL18

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

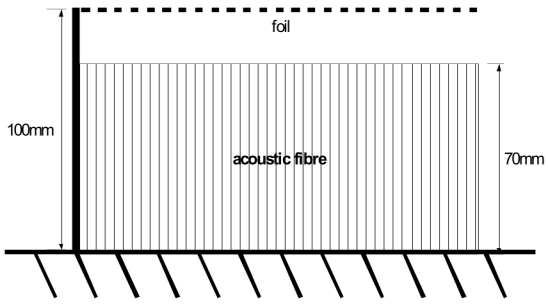
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

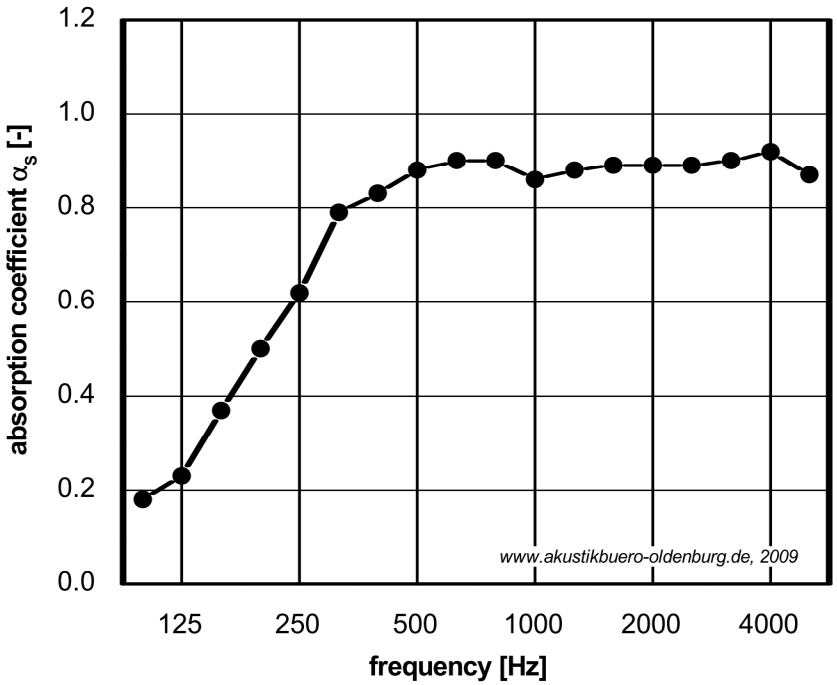
Assembly:

- BARRISOL® P60 Maxiperf
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.18
125	0.23
160	0.37
200	0.50
250	0.62
315	0.79
400	0.83
500	0.88
630	0.90
800	0.90
1000	0.86
1250	0.88
1600	0.89
2000	0.89
2500	0.89
3150	0.90
4000	0.92
5000	0.87



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.65
500	0.85
1000	0.90
2000	0.90
4000	0.90

NRC = 0.80

SAA = 0.82

α_w = 0.90

Sound Absorption Class A

Rev. chamber:	FH Bochum
Date:	10.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p33-P60_100mw70_Bo200402BL11

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

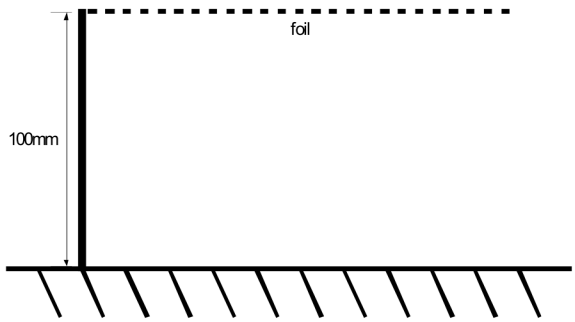
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

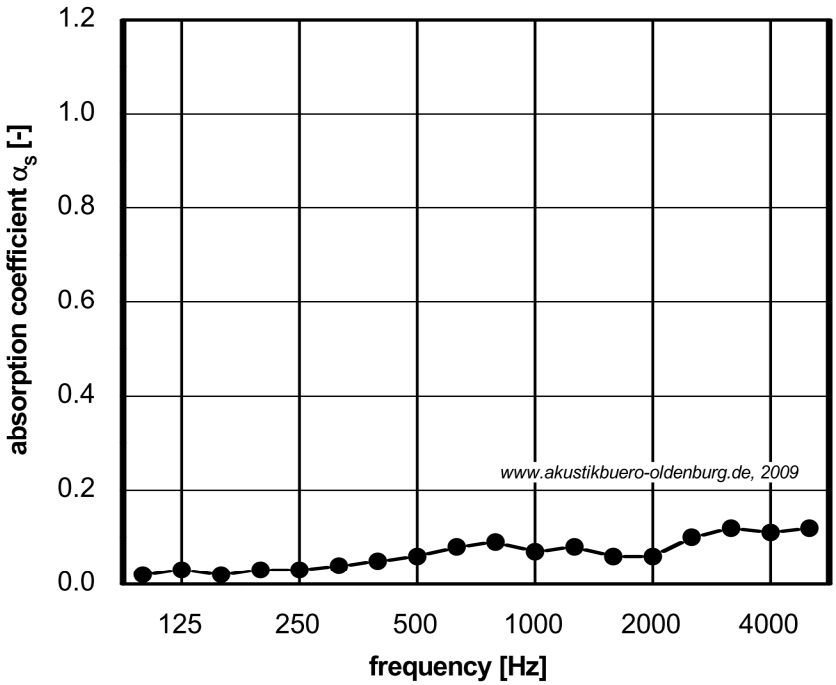
Assembly:

- BARRISOL® P70 Megaperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.03
160	0.02
200	0.03
250	0.03
315	0.04
400	0.05
500	0.06
630	0.08
800	0.09
1000	0.07
1250	0.08
1600	0.06
2000	0.06
2500	0.10
3150	0.12
4000	0.11
5000	0.12



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.05
500	0.05
1000	0.10
2000	0.05
4000	0.10

NRC = 0.05

SAA = 0.06

α_w = 0.10

Not classified

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p34-P70_100_Bo200402BL04

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

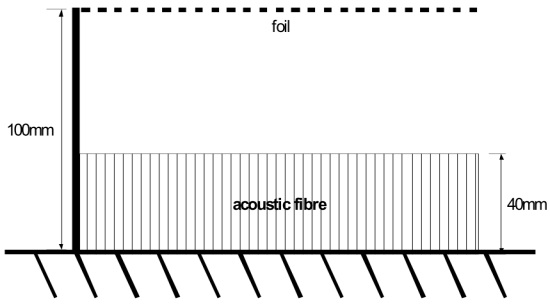
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

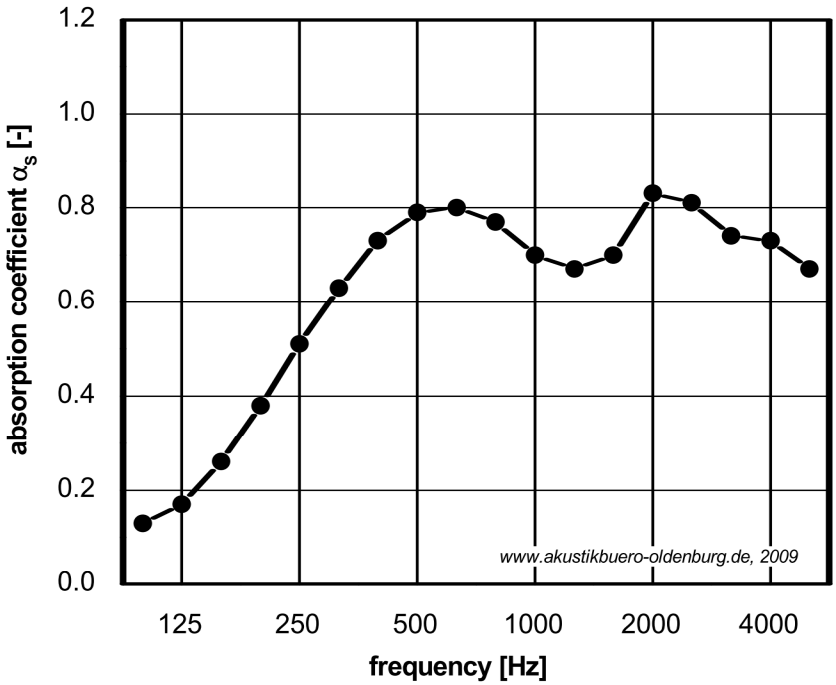
Assembly:

- BARRISOL® P70 Megaperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.13
125	0.17
160	0.26
200	0.38
250	0.51
315	0.63
400	0.73
500	0.79
630	0.80
800	0.77
1000	0.70
1250	0.67
1600	0.70
2000	0.83
2500	0.81
3150	0.74
4000	0.73
5000	0.67



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.75
1000	0.70
2000	0.80
4000	0.70

NRC = 0.70

SAA = 0.69

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p35-P70_100mw40ED_Ol200808BL33

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

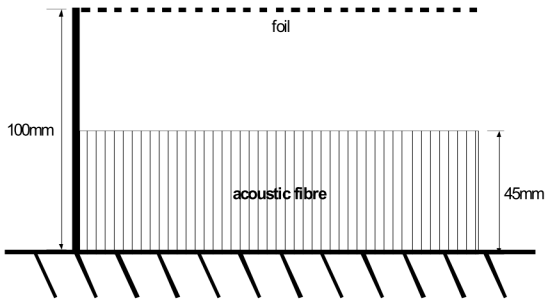
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

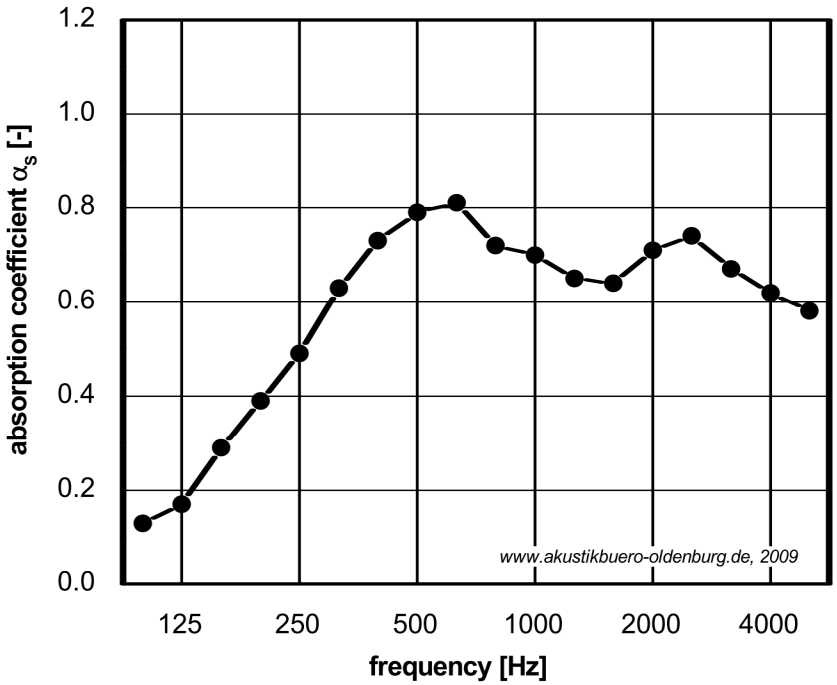
Assembly:

- BARRISOL® P70 Megaperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.13
125	0.17
160	0.29
200	0.39
250	0.49
315	0.63
400	0.73
500	0.79
630	0.81
800	0.72
1000	0.70
1250	0.65
1600	0.64
2000	0.71
2500	0.74
3150	0.67
4000	0.62
5000	0.58



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.80
1000	0.70
2000	0.70
4000	0.60

NRC = 0.65

SAA = 0.67

α_w = 0.70

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p36-P70_100mw45_Bo200402BL03

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

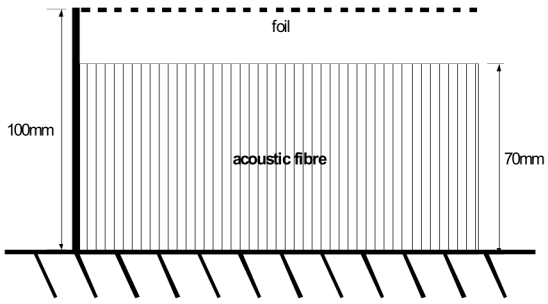
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

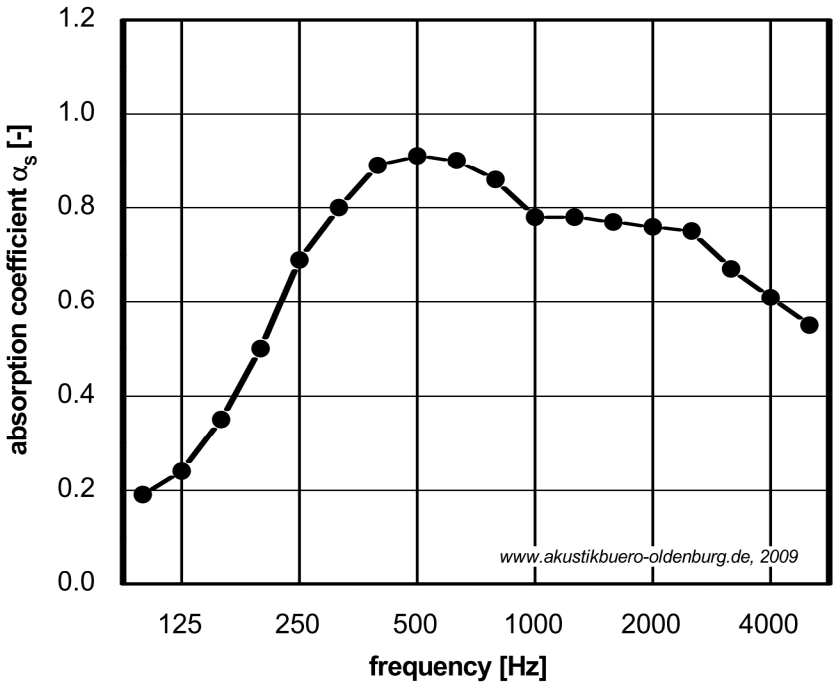
Assembly:

- BARRISOL® P70 Megaperf
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.19
125	0.24
160	0.35
200	0.50
250	0.69
315	0.80
400	0.89
500	0.91
630	0.90
800	0.86
1000	0.78
1250	0.78
1600	0.77
2000	0.76
2500	0.75
3150	0.67
4000	0.61
5000	0.55



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.65
500	0.90
1000	0.80
2000	0.75
4000	0.60

NRC = 0.80

SAA = 0.78

α_w = 0.75

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p37-P70_100mw70_Bo200402BL09

Oldenburg, April 23th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

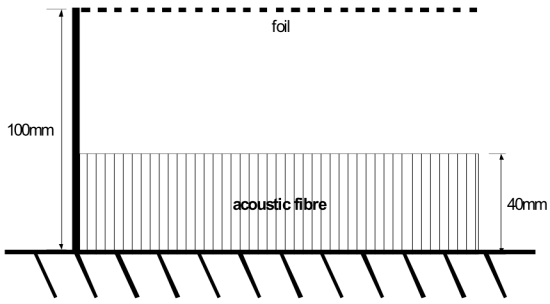
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

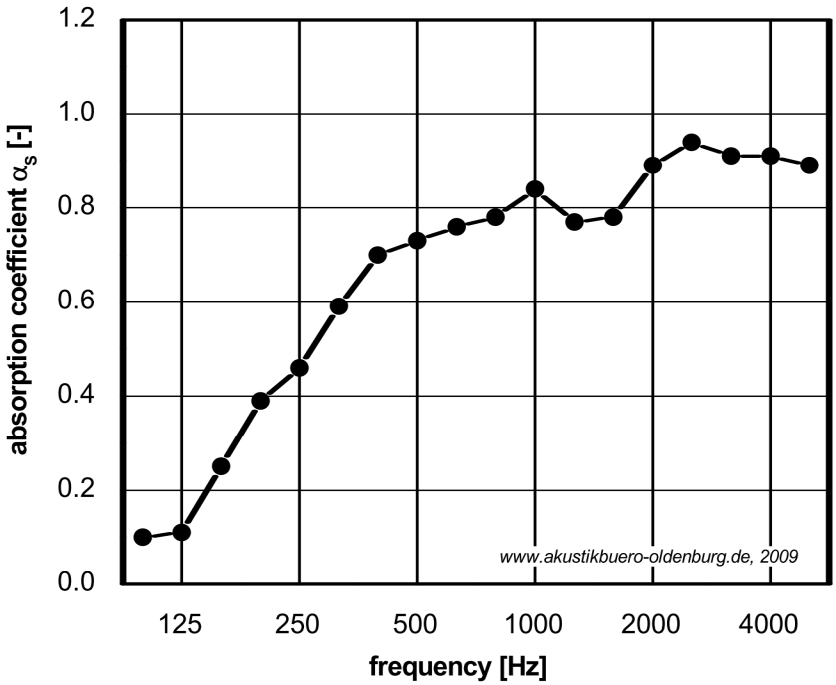
Assembly:

- BARRISOL® P80 Omégaperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.11
160	0.25
200	0.39
250	0.46
315	0.59
400	0.70
500	0.73
630	0.76
800	0.78
1000	0.84
1250	0.77
1600	0.78
2000	0.89
2500	0.94
3150	0.91
4000	0.91
5000	0.89



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.50
500	0.75
1000	0.80
2000	0.85
4000	0.90

NRC = 0.75

SAA = 0.72

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p38-P80_100mw40ED_Ol200808BL31

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

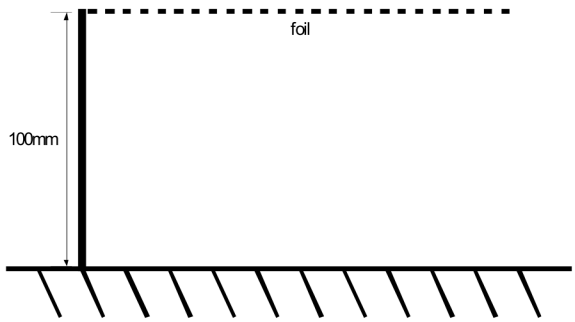
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

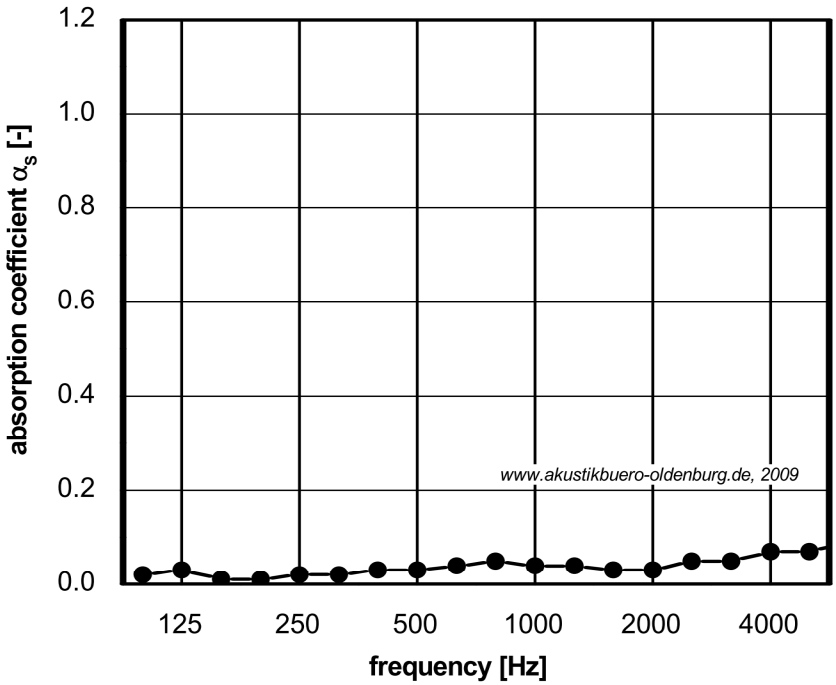
Assembly:

- BARRISOL® P90 Gigaperf
- 100 mm distance to the floor
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.02
125	0.03
160	0.01
200	0.01
250	0.02
315	0.02
400	0.03
500	0.03
630	0.04
800	0.05
1000	0.04
1250	0.04
1600	0.03
2000	0.03
2500	0.05
3150	0.05
4000	0.07
5000	0.07



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.00
250	0.00
500	0.05
1000	0.05
2000	0.05
4000	0.05

NRC = 0.05

SAA = 0.03

α_w = 0.05

Not classified

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p39-P90_100_Bo200402BL06

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

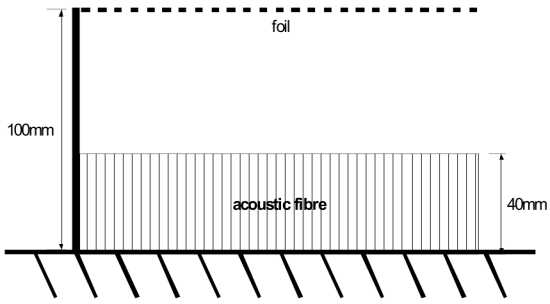
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

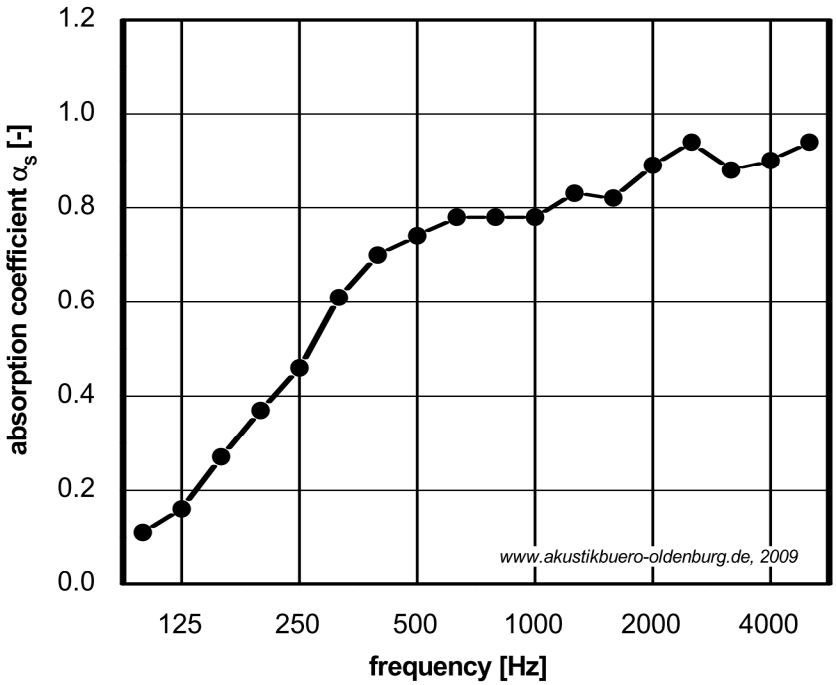
Assembly:

- BARRISOL® P90 Gigaperf
- 100 mm distance to the floor
- 40 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.11
125	0.16
160	0.27
200	0.37
250	0.46
315	0.61
400	0.70
500	0.74
630	0.78
800	0.78
1000	0.78
1250	0.83
1600	0.82
2000	0.89
2500	0.94
3150	0.88
4000	0.90
5000	0.94



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.50
500	0.75
1000	0.80
2000	0.90
4000	0.90

NRC = 0.70

SAA = 0.73

α_w = 0.75 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.08.2008
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	19°C
Humidity:	80 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p40-P90_100mw40ED_Ol200808BL32

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

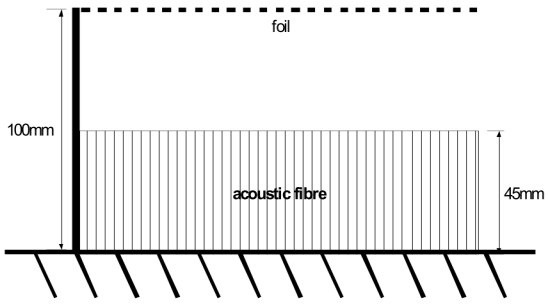
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

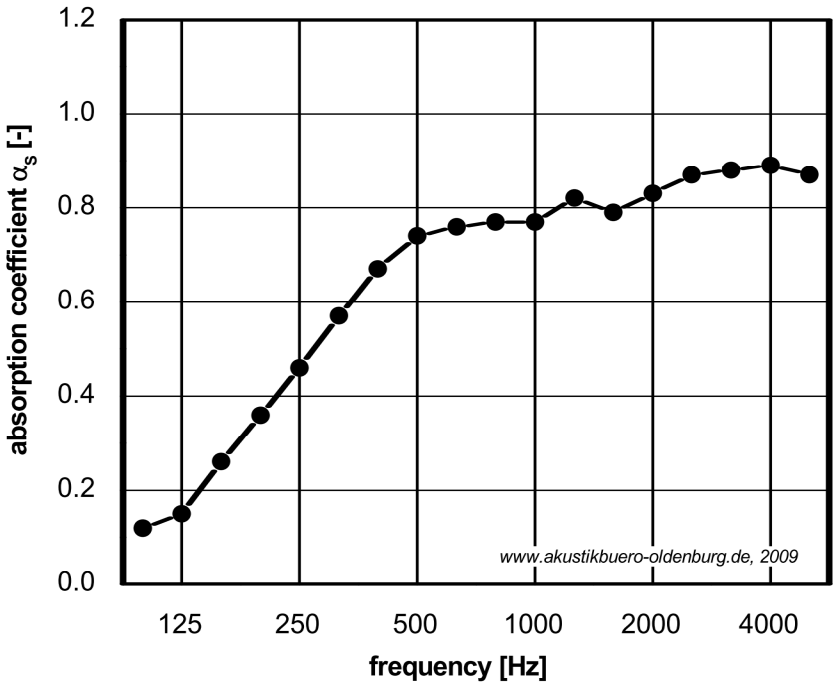
Assembly:

- BARRISOL® P90 Gigaperf
- 100 mm distance to the floor
- 45 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.15
160	0.26
200	0.36
250	0.46
315	0.57
400	0.67
500	0.74
630	0.76
800	0.77
1000	0.77
1250	0.82
1600	0.79
2000	0.83
2500	0.87
3150	0.88
4000	0.89
5000	0.87



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.45
500	0.70
1000	0.80
2000	0.85
4000	0.90

NRC = 0.70

SAA = 0.70

α_w = 0.70 (H)

Sound Absorption Class C

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	35 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p41-P90_100mw45_Bo200402BL01

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

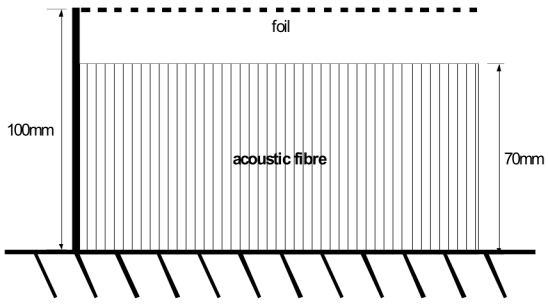
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling

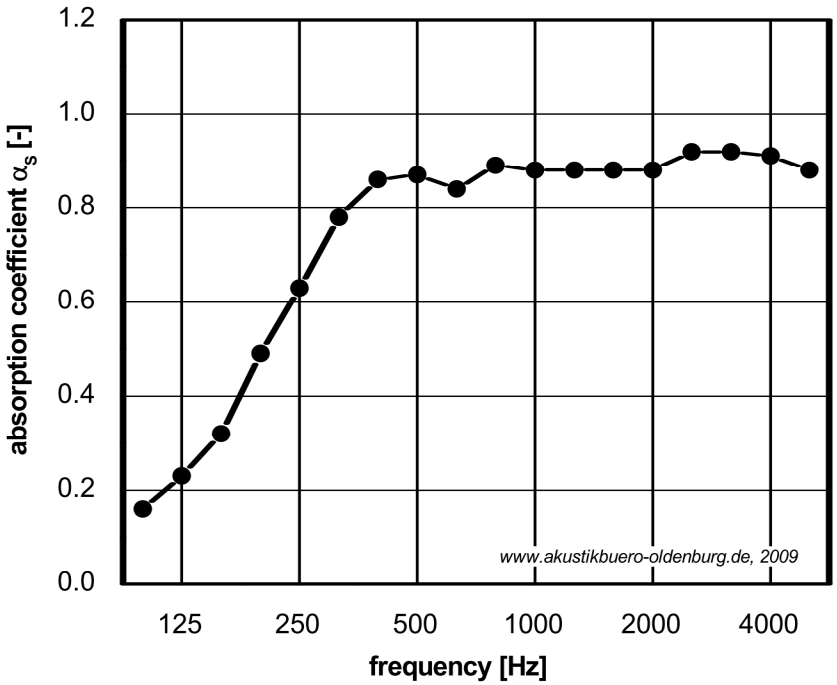
Assembly:

- BARRISOL® P90 Gigaperf
- 100 mm distance to the floor
- 70 mm acoustic fibre
- Sides tightly closed



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.16
125	0.23
160	0.32
200	0.49
250	0.63
315	0.78
400	0.86
500	0.87
630	0.84
800	0.89
1000	0.88
1250	0.88
1600	0.88
2000	0.88
2500	0.92
3150	0.92
4000	0.91
5000	0.88



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.65
500	0.85
1000	0.90
2000	0.90
4000	0.90

NRC = 0.80

SAA = 0.82

α_w = 0.90 (H)

Sound Absorption Class A

Rev. chamber:	FH Bochum
Date:	09.02.2004
Volume:	203 m^3
Specimen size:	12 m^2
Temperature:	20°C
Humidity:	37 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p42-P90_100mw70_Bo200402BL07

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

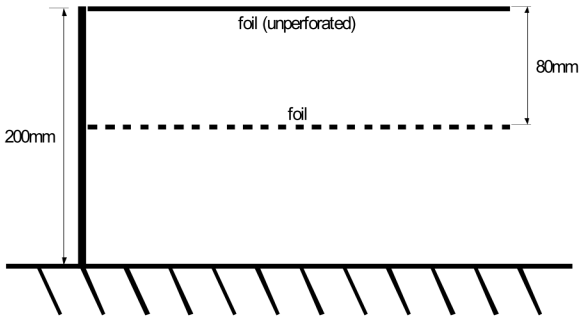
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

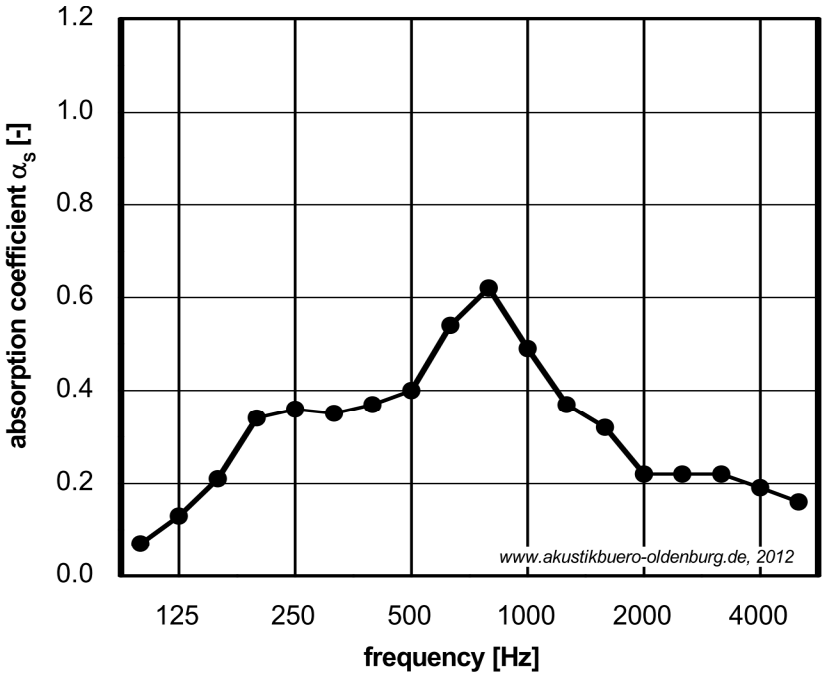
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A15 Nanoperf
- 120 mm distance to the floor
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.07
125	0.13
160	0.21
200	0.34
250	0.36
315	0.35
400	0.37
500	0.40
630	0.54
800	0.62
1000	0.49
1250	0.37
1600	0.32
2000	0.22
2500	0.22
3150	0.22
4000	0.19
5000	0.16



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.35
500	0.45
1000	0.50
2000	0.25
4000	0.20

NRC = 0.35

SAA = 0.38

α_w = 0.30 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M32 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

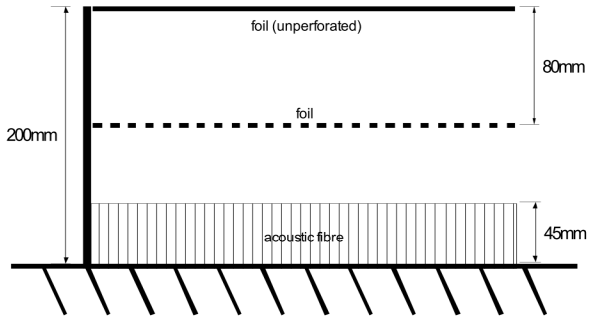
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

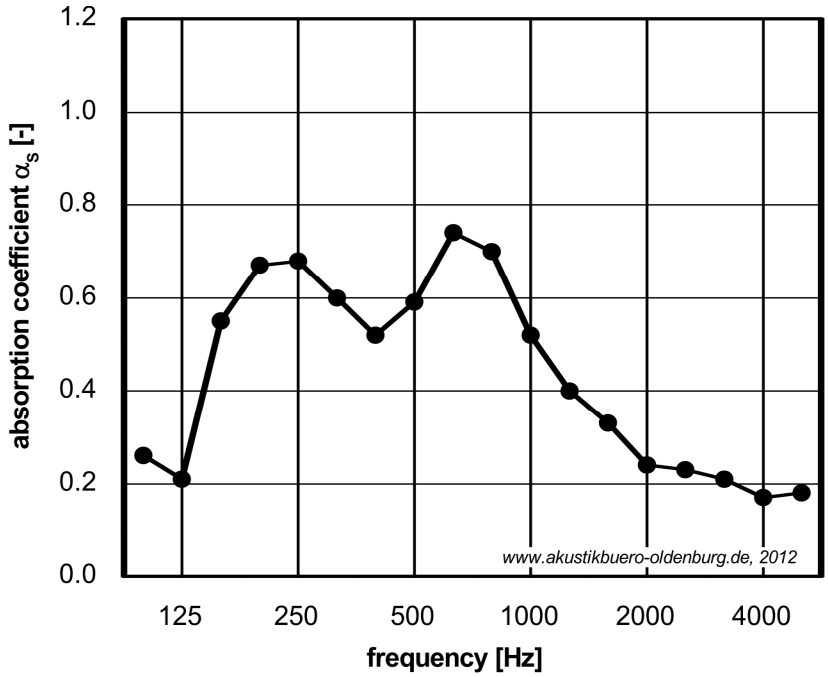
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A15 Nanoperf
- 75 mm distance
- 45 mm acoustic fibre
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.26
125	0.21
160	0.55
200	0.67
250	0.68
315	0.60
400	0.52
500	0.59
630	0.74
800	0.70
1000	0.52
1250	0.40
1600	0.33
2000	0.24
2500	0.23
3150	0.21
4000	0.17
5000	0.18



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.65
500	0.60
1000	0.55
2000	0.25
4000	0.20

NRC = 0.50

SAA = 0.52

α_w = 0.30 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M29 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

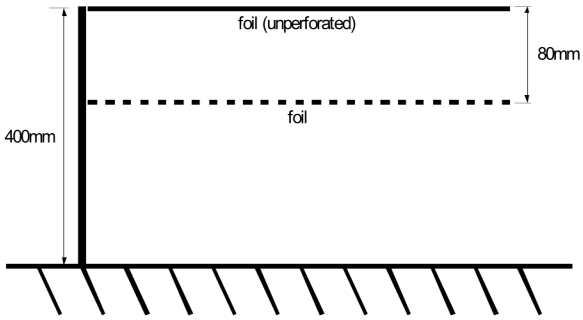
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

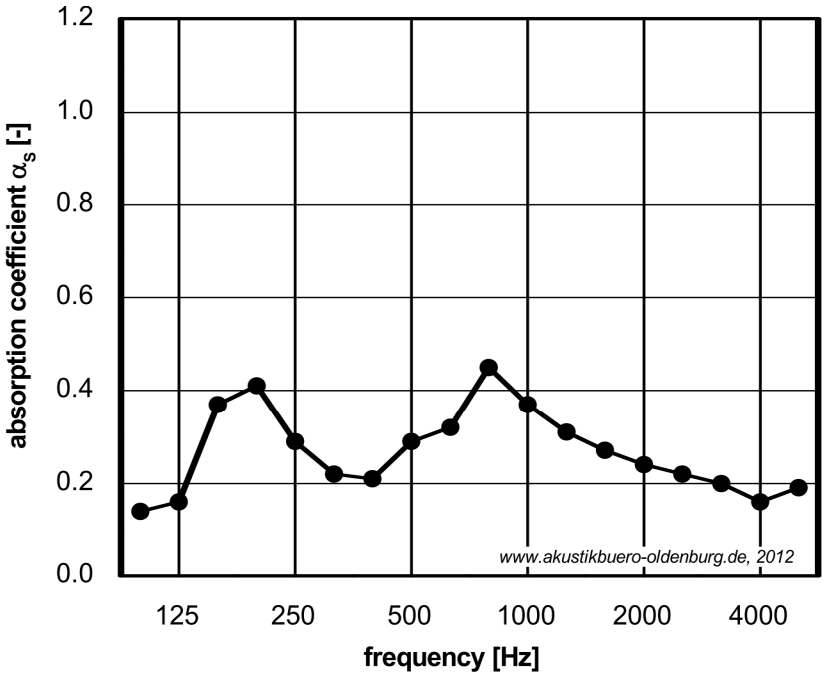


Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A15 Nanoperf
- 320 mm distance to the floor
- Sides tightly closed, overall depth: 400 mm

Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.14
125	0.16
160	0.37
200	0.41
250	0.29
315	0.22
400	0.21
500	0.29
630	0.32
800	0.45
1000	0.37
1250	0.31
1600	0.27
2000	0.24
2500	0.22
3150	0.20
4000	0.16
5000	0.19



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.20
250	0.30
500	0.25
1000	0.40
2000	0.25
4000	0.20

NRC = 0.30

SAA = 0.30

α_w = 0.30

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M40 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

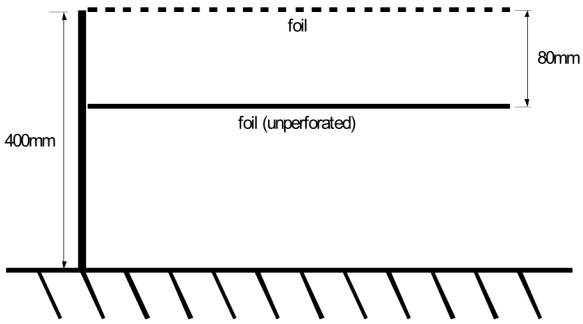
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

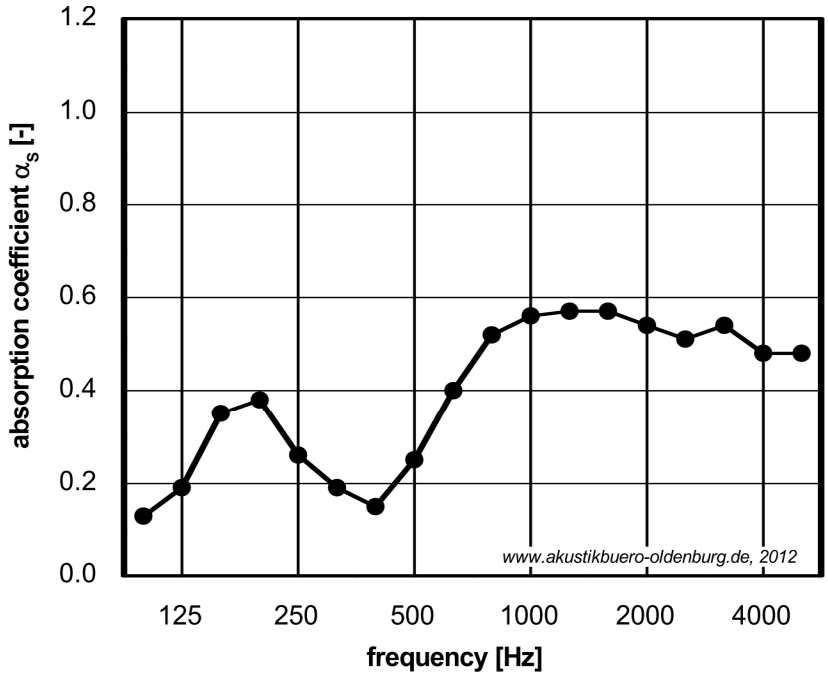
Assembly:

- BARRISOL® A15 Nanoperf
- 80 mm distance
- BARRISOL® unperforated white
- 320 mm distance to the floor
- Sides tightly closed, overall depth: 400 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.13
125	0.19
160	0.35
200	0.38
250	0.26
315	0.19
400	0.15
500	0.25
630	0.40
800	0.52
1000	0.56
1250	0.57
1600	0.57
2000	0.54
2500	0.51
3150	0.54
4000	0.48
5000	0.48



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.25
250	0.30
500	0.25
1000	0.55
2000	0.55
4000	0.50

NRC = 0.40

SAA = 0.41

α_w = 0.35 (H)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M41 - Report No. 2012/0233

Oldenburg, November 19th, 2012
Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

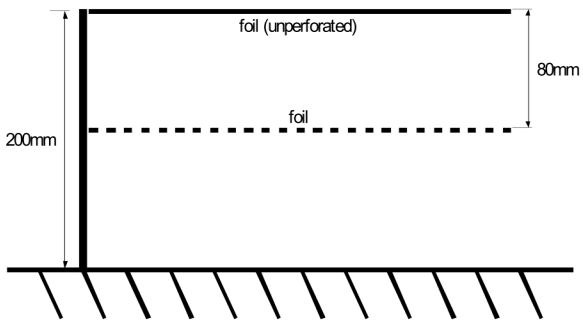
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

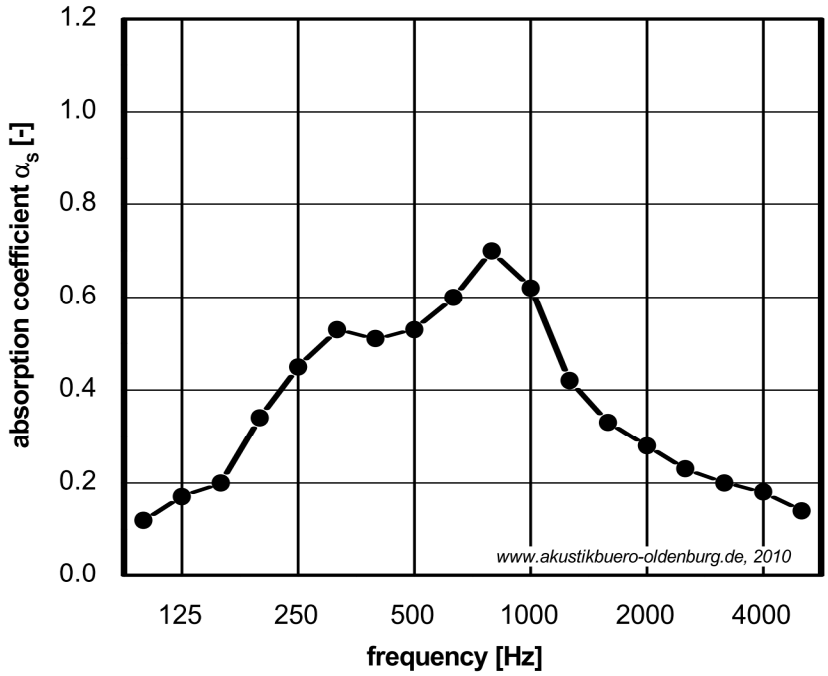
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® Type A20 Acoperf
- 120 mm distance to the floor
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.17
160	0.20
200	0.34
250	0.45
315	0.53
400	0.51
500	0.53
630	0.60
800	0.70
1000	0.62
1250	0.42
1600	0.33
2000	0.28
2500	0.23
3150	0.20
4000	0.18
5000	0.14



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.55
1000	0.60
2000	0.30
4000	0.15

NRC = 0.50

SAA = 0.46

α_w = 0.30 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M32-200_twolayer_unperf_A20

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

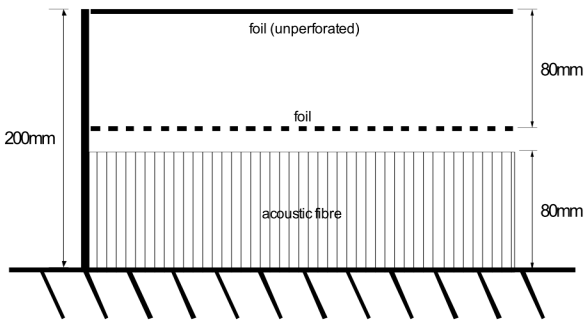
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

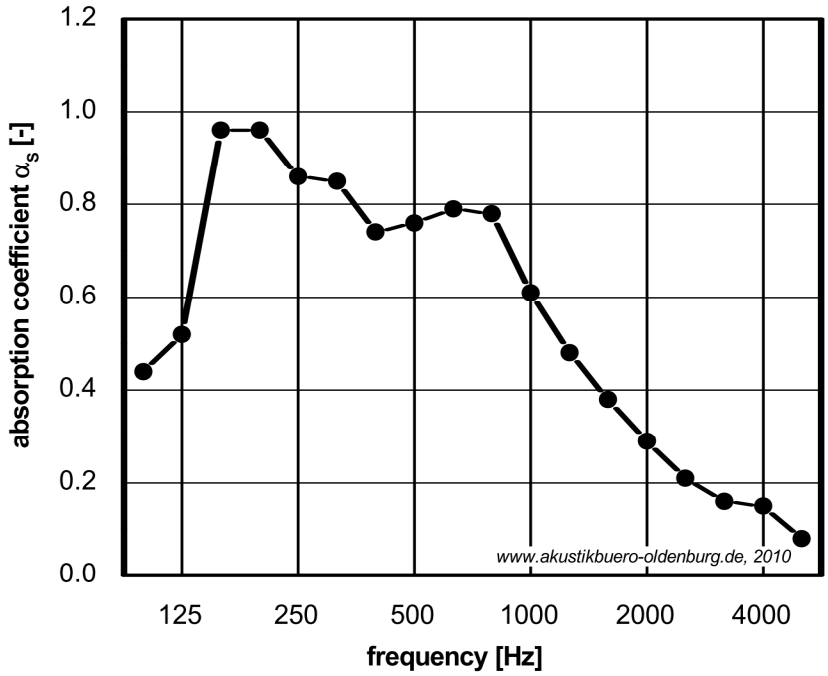
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A20 Acoperf
- 40 mm distance
- 80 mm acoustic fibre
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.44
125	0.52
160	0.96
200	0.96
250	0.86
315	0.85
400	0.74
500	0.76
630	0.79
800	0.78
1000	0.61
1250	0.48
1600	0.38
2000	0.29
2500	0.21
3150	0.16
4000	0.15
5000	0.08



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.65
250	0.90
500	0.75
1000	0.60
2000	0.30
4000	0.15

NRC = 0.65

SAA = 0.64

α_w = 0.30 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M33-200_twolayer_unperf_A20_40air_80FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

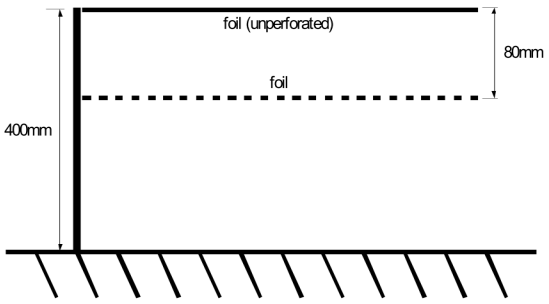
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

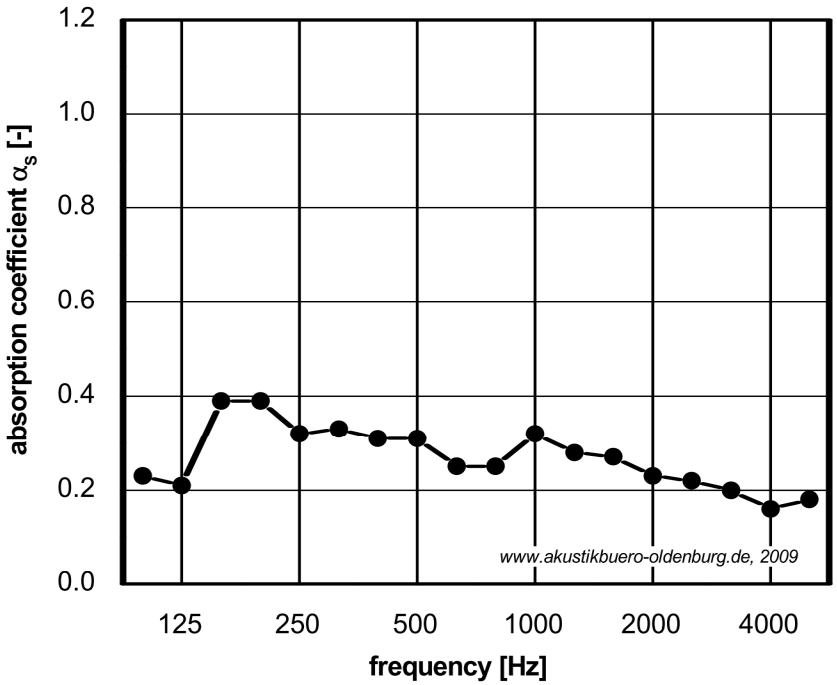
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A20 Acoperf
- Sides tightly closed, overall depth: 400 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.23
125	0.21
160	0.39
200	0.39
250	0.32
315	0.33
400	0.31
500	0.31
630	0.25
800	0.25
1000	0.32
1250	0.28
1600	0.27
2000	0.23
2500	0.22
3150	0.20
4000	0.16
5000	0.18



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.30
250	0.35
500	0.30
1000	0.30
2000	0.25
4000	0.20

NRC = 0.30

SAA = 0.29

α_w = 0.30 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	18.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p43-DL_400unp80A20_Ol200707Mess27

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

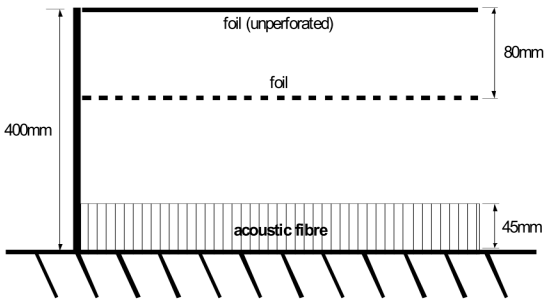
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

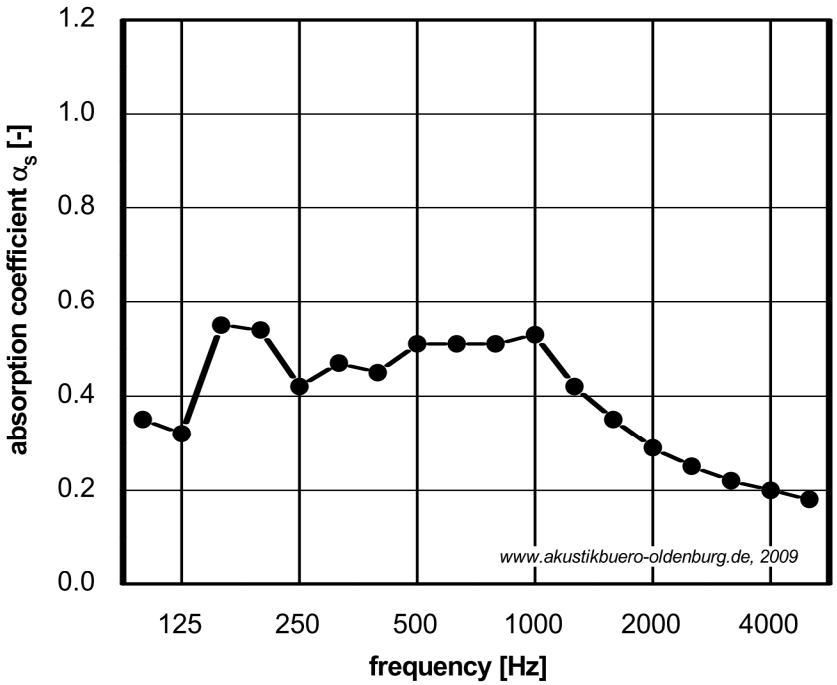
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A20 Acoperf
- 45 mm acoustic fibre
- Sides tightly closed, overall depth: 400 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.35
125	0.32
160	0.55
200	0.54
250	0.42
315	0.47
400	0.45
500	0.51
630	0.51
800	0.51
1000	0.53
1250	0.42
1600	0.35
2000	0.29
2500	0.25
3150	0.22
4000	0.20
5000	0.18



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.40
250	0.50
500	0.50
1000	0.50
2000	0.30
4000	0.20

NRC = 0.45

SAA = 0.44

α_w = 0.35 (L)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	18.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p44-DL400unp80A20mw45OI200707Mess26

Oldenburg, April 24th, 2009
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

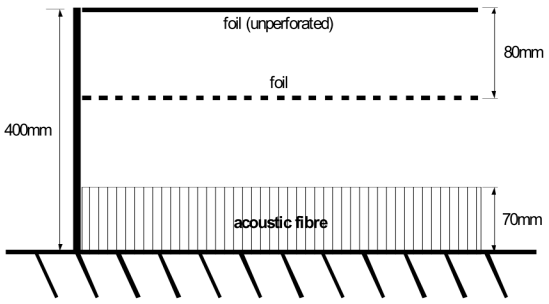
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

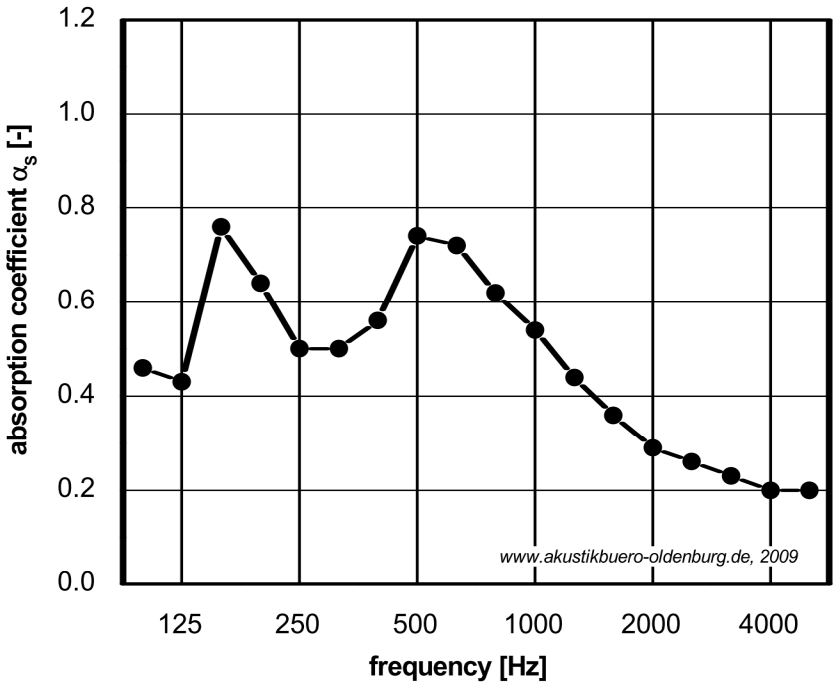
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A20 Acoperf
- 70 mm acoustic fibre
- Sides tightly closed, overall depth: 400 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.46
125	0.43
160	0.76
200	0.64
250	0.50
315	0.50
400	0.56
500	0.74
630	0.72
800	0.62
1000	0.54
1250	0.44
1600	0.36
2000	0.29
2500	0.26
3150	0.23
4000	0.20
5000	0.20



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.55
250	0.55
500	0.65
1000	0.55
2000	0.30
4000	0.20

NRC = 0.50

SAA = 0.51

α_w = 0.35 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	18.07.2007
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	22°C
Humidity:	71 %

Akustikbüro Oldenburg

Dr. Christian Nocke

p45-DL400unp80A20mw70Ol200707Mess25

Oldenburg, April 24th, 2009

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

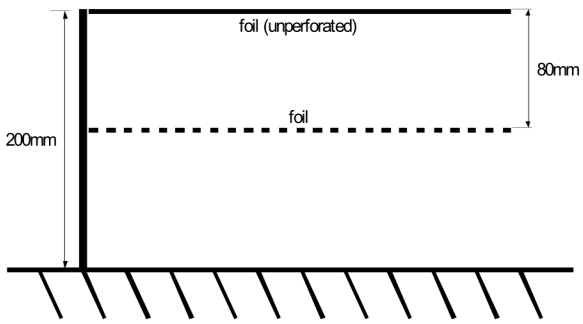
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

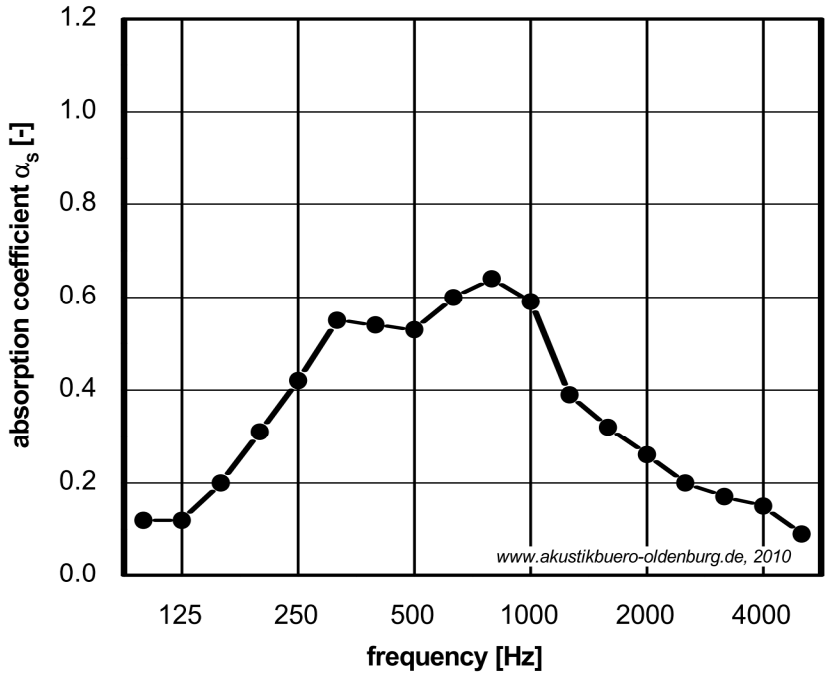
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A30 Microacoustic
- 120 mm distance to the floor
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.12
125	0.12
160	0.20
200	0.31
250	0.42
315	0.55
400	0.54
500	0.53
630	0.60
800	0.64
1000	0.59
1250	0.39
1600	0.32
2000	0.26
2500	0.20
3150	0.17
4000	0.15
5000	0.09



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.55
1000	0.55
2000	0.25
4000	0.15

NRC = 0.45

SAA = 0.45

α_w = 0.30 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M36-200_twolayer_unperf_A30

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

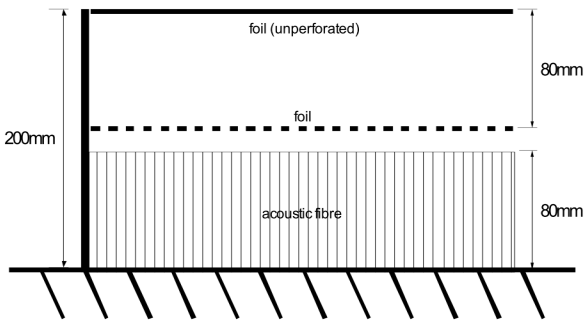
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

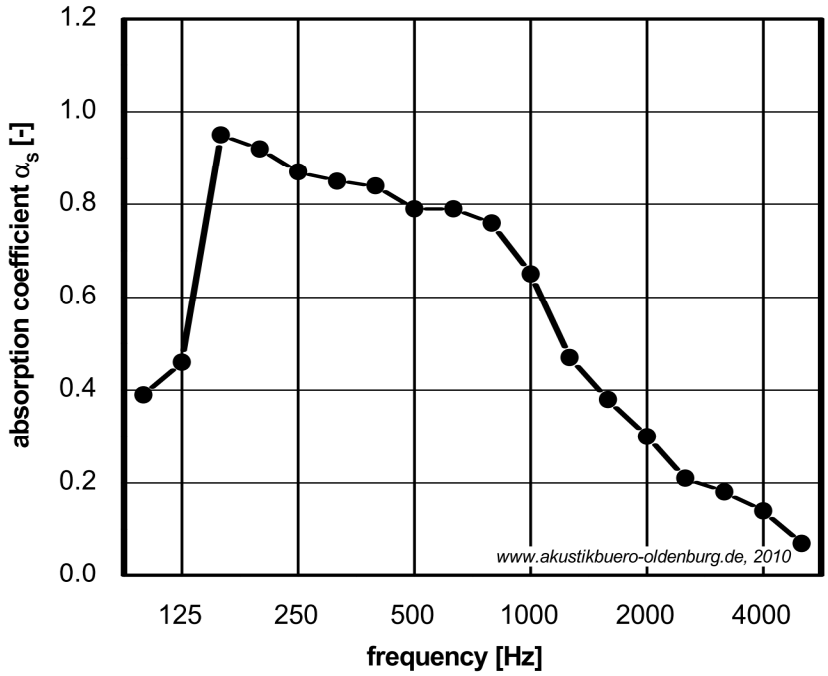
Assembly:

- BARRISOL® unperforated white
- 80 mm distance
- BARRISOL® A30 Microacoustic
- 40 mm distance
- 80 mm acoustic fibre
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.39
125	0.46
160	0.95
200	0.92
250	0.87
315	0.85
400	0.84
500	0.79
630	0.79
800	0.76
1000	0.65
1250	0.47
1600	0.38
2000	0.30
2500	0.21
3150	0.18
4000	0.14
5000	0.07



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.60
250	0.90
500	0.80
1000	0.65
2000	0.30
4000	0.15

NRC = 0.65

SAA = 0.65

α_w = 0.30 (LM)

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M35-200_twolayer_unperf_A30_40air_80FF

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

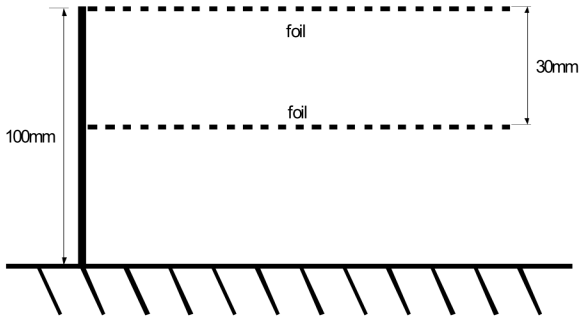
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

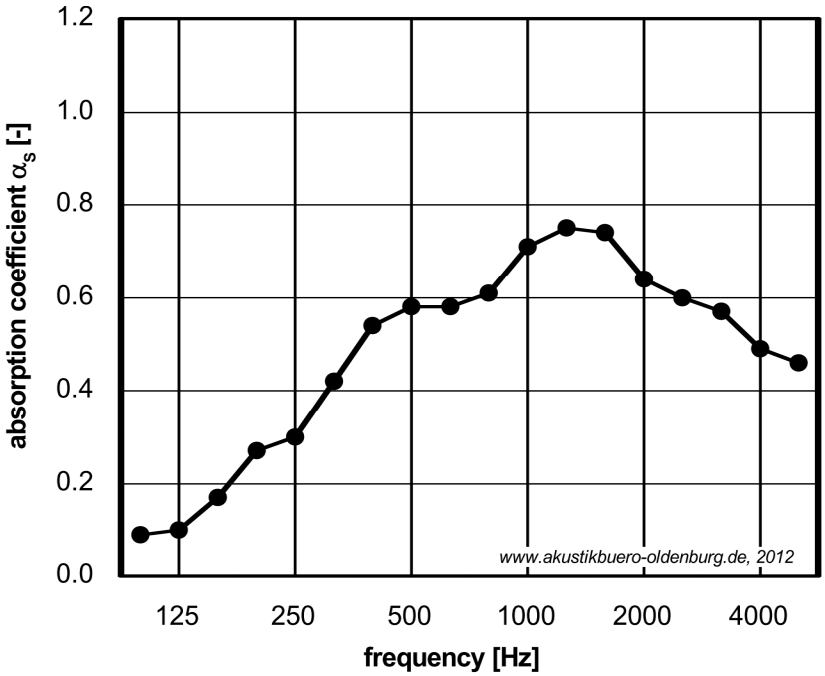
Assembly:

- BARRISOL® A15 Nanoperf
- 30 mm distance
- BARRISOL® A15 Nanoperf
- 70 mm distance to the floor
- Sides tightly closed, overall depth: 100 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.09
125	0.10
160	0.17
200	0.27
250	0.30
315	0.42
400	0.54
500	0.58
630	0.58
800	0.61
1000	0.71
1250	0.75
1600	0.74
2000	0.64
2500	0.60
3150	0.57
4000	0.49
5000	0.46



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.10
250	0.35
500	0.55
1000	0.70
2000	0.65
4000	0.50

NRC = 0.55

SAA = 0.56

α_w = 0.60

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M34 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

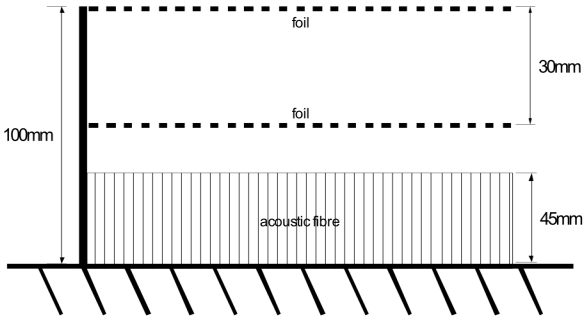
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

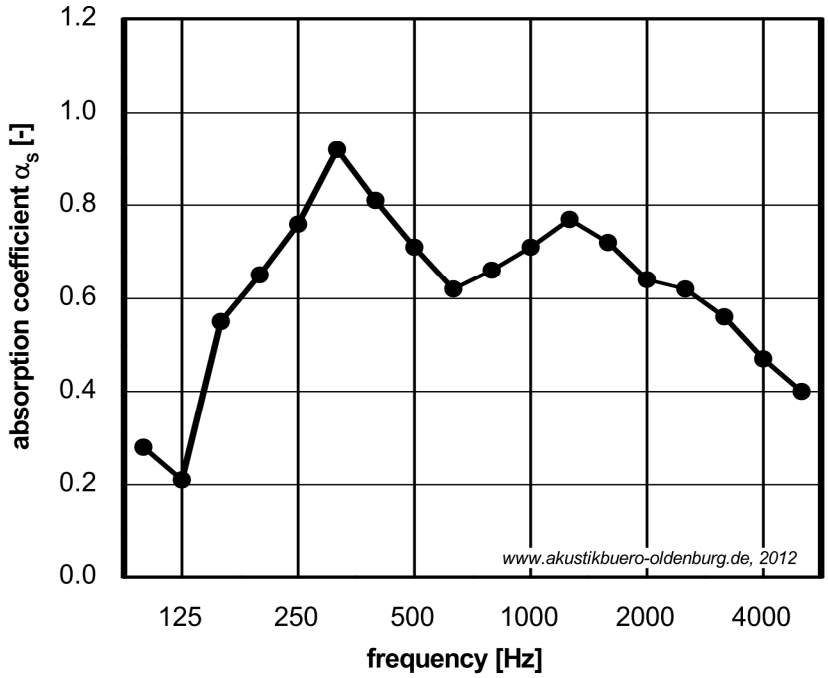
Assembly:

- BARRISOL® A15 Nanoperf
- 30 mm distance
- BARRISOL® A15 Nanoperf
- 25 mm distance
- 45 mm acoustic fibre
- Sides tightly closed, overall depth: 100 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.28
125	0.21
160	0.55
200	0.65
250	0.76
315	0.92
400	0.81
500	0.71
630	0.62
800	0.66
1000	0.71
1250	0.77
1600	0.72
2000	0.64
2500	0.62
3150	0.56
4000	0.47
5000	0.40



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.80
500	0.70
1000	0.70
2000	0.65
4000	0.50

NRC = 0.70

SAA = 0.72

α_w = 0.65 (L)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	25.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	16°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M33 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

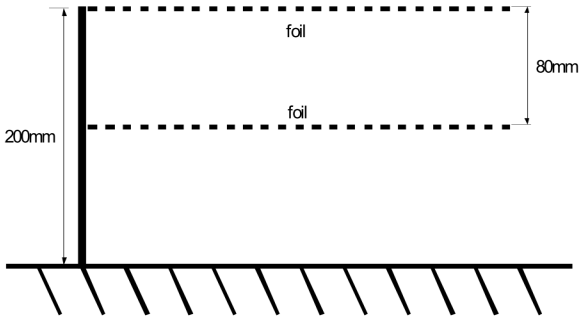
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

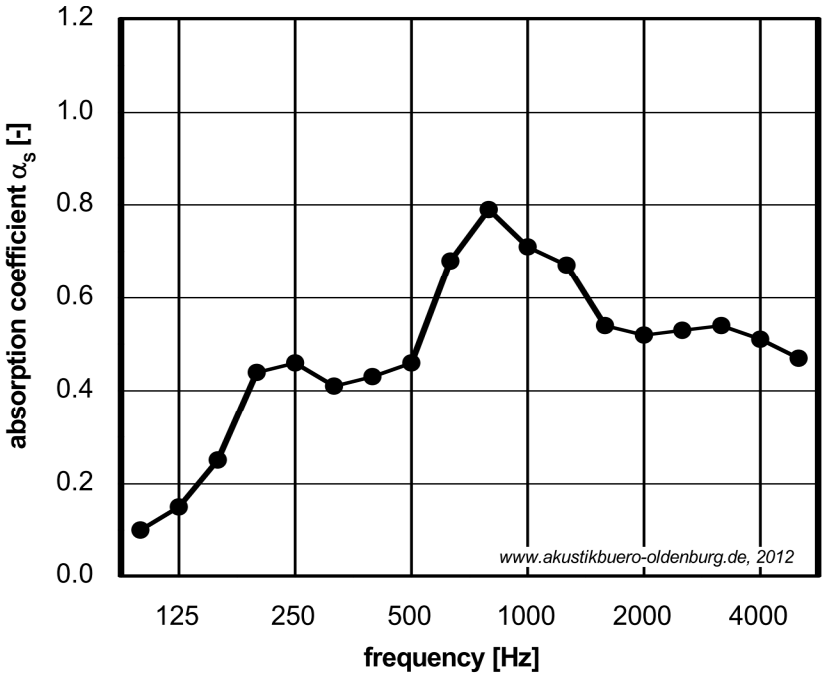
Assembly:

- BARRISOL® A15 Nanoperf
- 80 mm distance
- BARRISOL® A15 Nanoperf
- 120 mm distance to the floor
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.10
125	0.15
160	0.25
200	0.44
250	0.46
315	0.41
400	0.43
500	0.46
630	0.68
800	0.79
1000	0.71
1250	0.67
1600	0.54
2000	0.52
2500	0.53
3150	0.54
4000	0.51
5000	0.47



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.15
250	0.45
500	0.50
1000	0.70
2000	0.55
4000	0.50

NRC = 0.55

SAA = 0.55

α_w = 0.55

Sound Absorption Class D

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M31 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

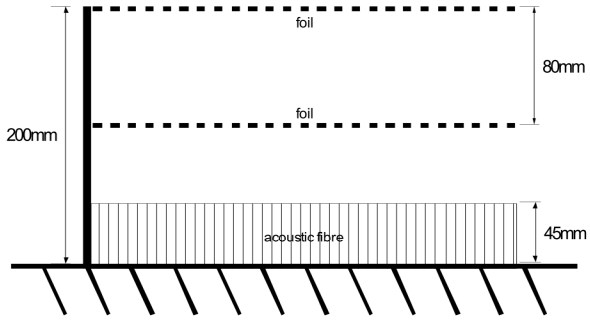
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, two layers

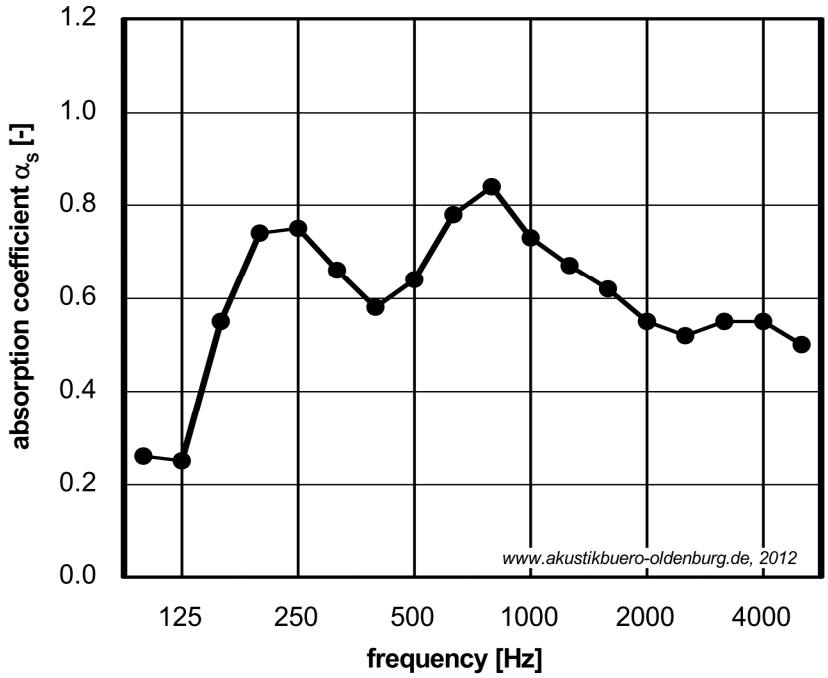
Assembly:

- BARRISOL® A15 Nanoperf
- 80 mm distance
- BARRISOL® A15 Nanoperf
- 75 mm distance
- 45 mm acoustic fibre
- Sides tightly closed, overall depth: 200 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.26
125	0.25
160	0.55
200	0.74
250	0.75
315	0.66
400	0.58
500	0.64
630	0.78
800	0.84
1000	0.73
1250	0.67
1600	0.62
2000	0.55
2500	0.52
3150	0.55
4000	0.55
5000	0.50



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.70
500	0.65
1000	0.75
2000	0.55
4000	0.55

NRC = 0.65

SAA = 0.67

α_w = 0.65 (L)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	24.10.2012
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	17°C
Humidity:	70 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M30 - Report No. 2012/0233

Oldenburg, November 19th, 2012

Signature:

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Sound absorption coefficient according to ISO 354, DIN EN ISO 11654, ASTM C 423

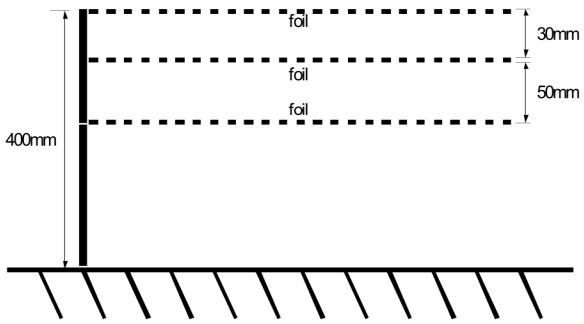
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® ceiling, three layers

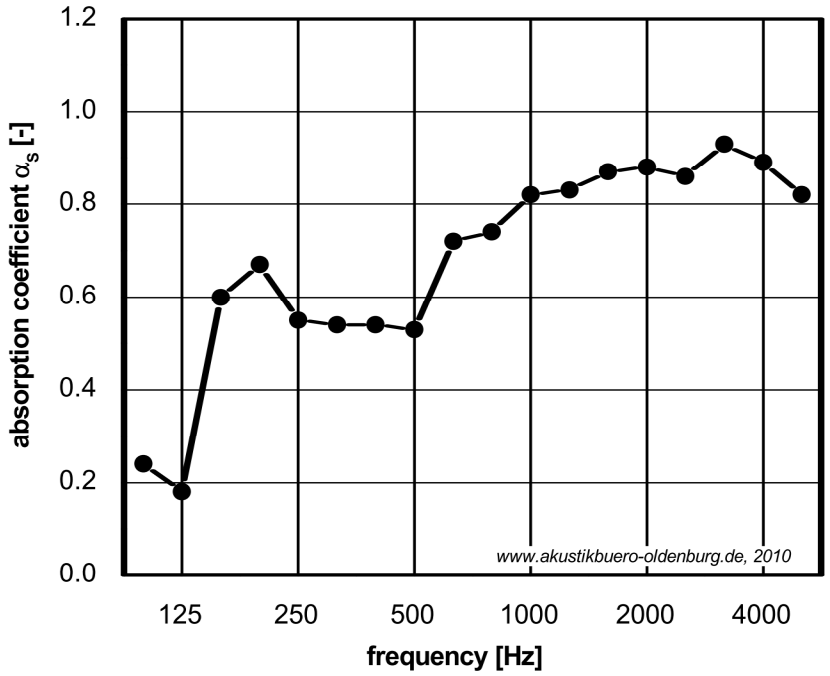
Assembly:

- BARRISOL® A30 Microacoustic, 30 mm distance
- BARRISOL® A30 Microacoustic, 50 mm distance
- BARRISOL® A30 Microacoustic
- 320 mm distance to the floor
- Sides tightly closed, overall depth: 400 mm



Sound absorption coefficient α_S according to DIN EN ISO 354

Frequency [Hz]	α_s [-]
100	0.24
125	0.18
160	0.60
200	0.67
250	0.55
315	0.54
400	0.54
500	0.53
630	0.72
800	0.74
1000	0.82
1250	0.83
1600	0.87
2000	0.88
2500	0.86
3150	0.93
4000	0.89
5000	0.82



Practical Sound absorption coefficient α_p according to DIN EN ISO 11654

Frequency [Hz]	α_p [-]
125	0.35
250	0.60
500	0.60
1000	0.80
2000	0.85
4000	0.90

NRC = 0.70

SAA = 0.71

α_w = 0.70 (H)

Sound Absorption Class C

Rev. chamber:	ITAP GmbH
Date:	21.07.2010
Volume:	200 m^3
Specimen size:	12 m^2
Temperature:	23°C
Humidity:	60 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M50-400_threelayer_A30_A30_A30

Oldenburg, August 18th, 2010

Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik

Dipl.-Phys. Dr. Christian Nocke Oldenburg

Equivalent sound absorption area according to DIN EN ISO 354

On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

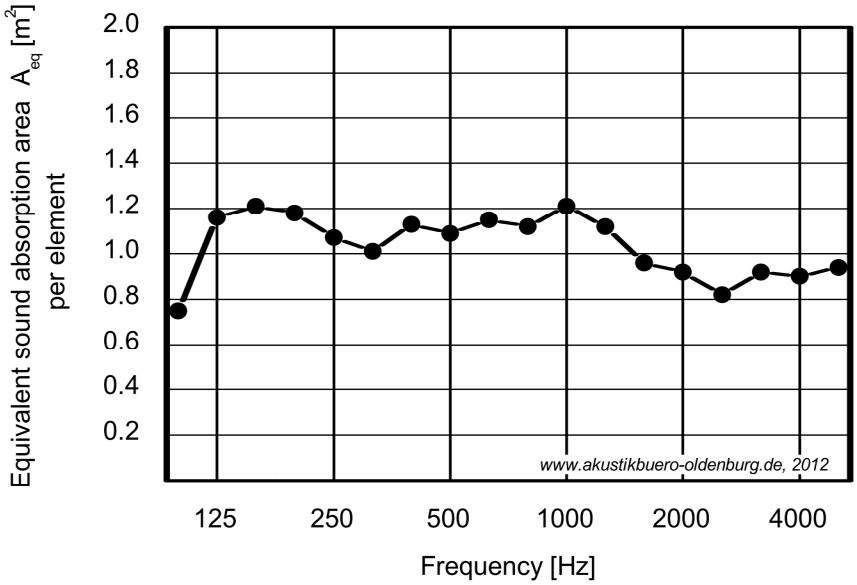
BARRISOL® the Chair by Vallon

Setup:

- Three chairs standing on the floor
- Without absorber.

Equivalent sound absorption area per element

Frequecy [Hz]	A_{eq} [m²]
100	0.75
125	1.16
160	1.21
200	1.18
250	1.07
315	1.01
400	1.13
500	1.09
630	1.15
800	1.12
1000	1.21
1250	1.12
1600	0.96
2000	0.92
2500	0.82
3150	0.92
4000	0.90
5000	0.94



Rev. chamber: ITAP GmbH
Date: 21.02.2012
Volume: 200 m³
Number of Specimen: 3
Temperature: 12°C
Humidity: 55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M23 - Report No. 2012/0069

Oldenburg, August 2nd, 2012
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Equivalent sound absorption area according to DIN EN ISO 354

On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

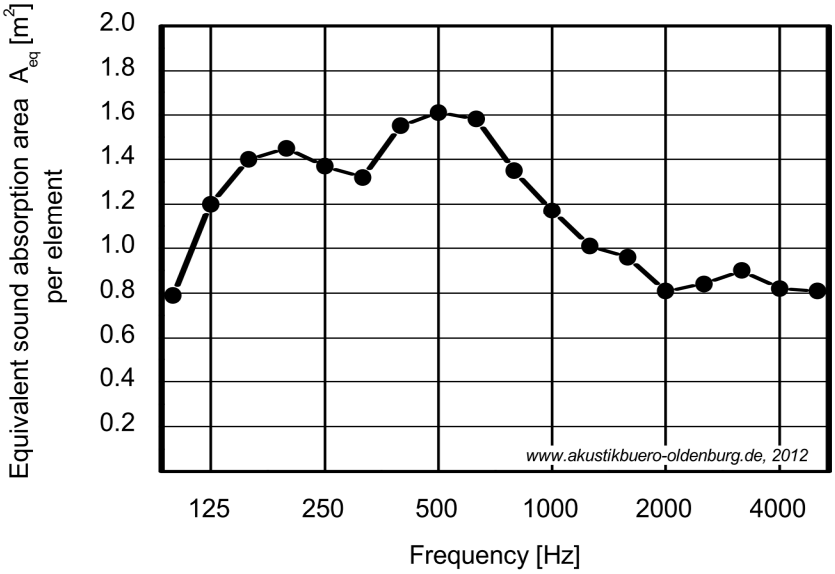
BARRISOL® the Chair by Vallon

Setup:

- Three chairs standing on the floor
- With acoustic fibre.

Equivalent sound absorption area per element

Frequecy [Hz]	A_{eq} [m²]
100	0.79
125	1.20
160	1.40
200	1.45
250	1.37
315	1.32
400	1.55
500	1.61
630	1.58
800	1.35
1000	1.17
1250	1.01
1600	0.96
2000	0.81
2500	0.84
3150	0.90
4000	0.82
5000	0.81



Rev. chamber: ITAP GmbH
Date: 21.02.2012
Volume: 200 m³
Number of Specimen: 3
Temperature: 12°C
Humidity: 55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M24 - Report No. 2012/0069

Oldenburg, August 2nd, 2012
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Equivalent sound absorption area according to DIN EN ISO 354

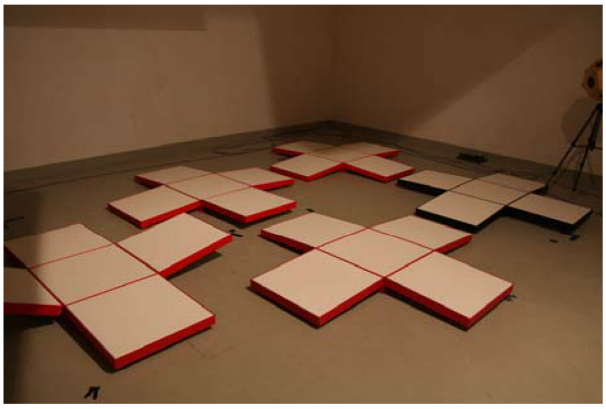
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® Plus Lamp

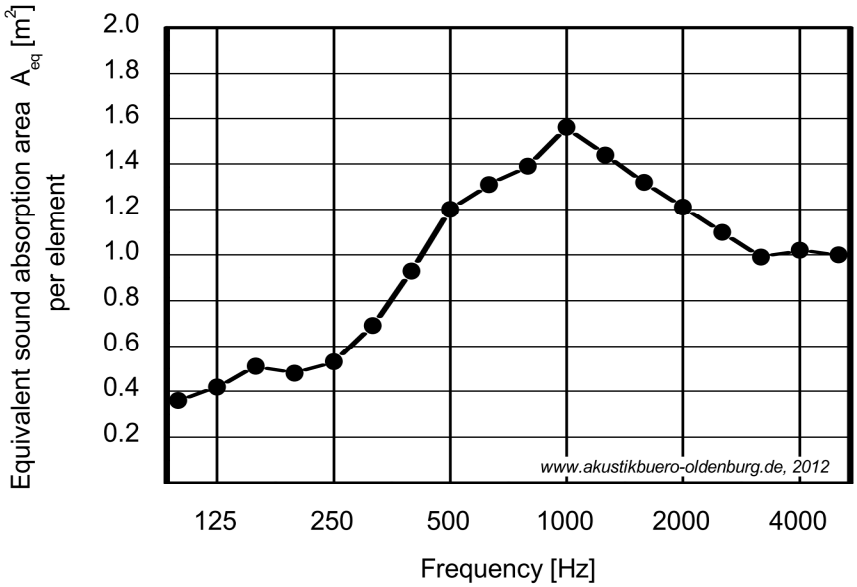
Setup:

- Five lamps
- On the floor
- Fully opened (180° internal angle)



Equivalent sound absorption area per element

Frequecy [Hz]	A_{eq} [m²]
100	0.36
125	0.42
160	0.51
200	0.48
250	0.53
315	0.69
400	0.93
500	1.20
630	1.31
800	1.39
1000	1.56
1250	1.44
1600	1.32
2000	1.21
2500	1.10
3150	0.99
4000	1.02
5000	1.00



Rev. chamber: ITAP GmbH
Date: 21.02.2012
Volume: 200 m³
Number of Specimen: 5
Temperature: 12°C
Humidity: 55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M25 - Report No. 2012/0069

Oldenburg, August 2nd, 2012
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Equivalent sound absorption area according to DIN EN ISO 354

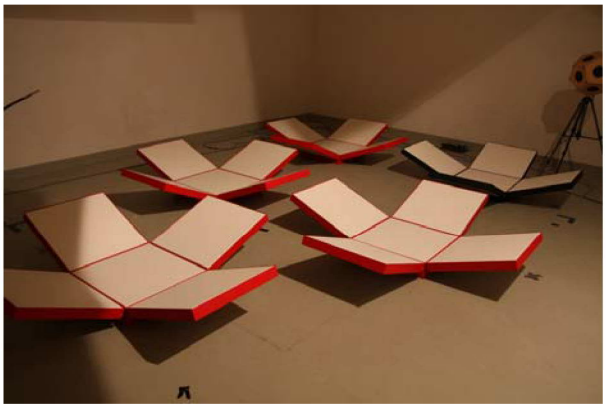
On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

BARRISOL® Plus Lamp

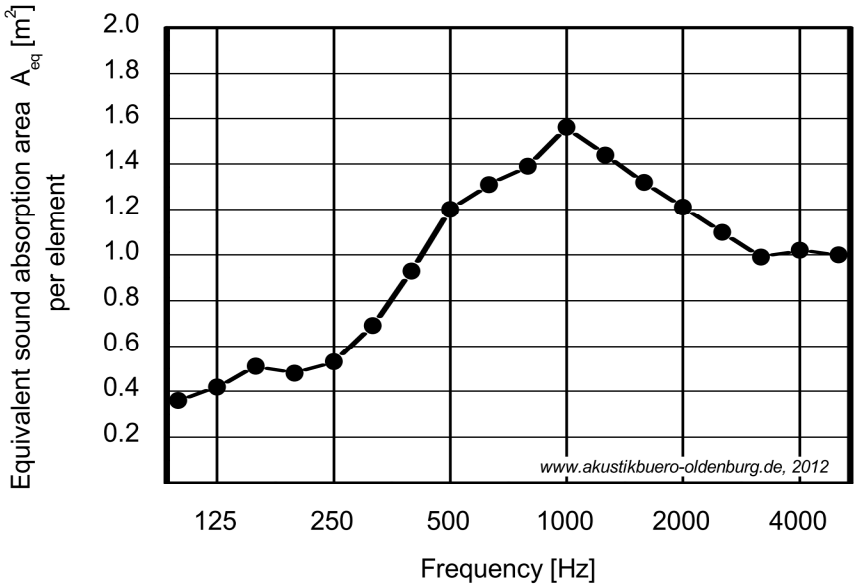
Setup:

- Five lamps
- On the floor
- Half opened (165° internal angle)



Equivalent sound absorption area per element

Frequecy [Hz]	A_{eq} [m²]
100	0.37
125	0.41
160	0.61
200	0.57
250	0.60
315	0.68
400	0.82
500	0.97
630	1.25
800	1.63
1000	1.61
1250	1.51
1600	1.45
2000	1.25
2500	1.22
3150	1.10
4000	1.09
5000	1.16



Rev. chamber: ITAP GmbH
Date: 21.02.2012
Volume: 200 m³
Number of Specimen: 5
Temperature: 12°C
Humidity: 55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M26 - Report No. 2012/0069

Oldenburg, August 2nd, 2012
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg

Equivalent sound absorption area according to DIN EN ISO 354

On behalf of: Normalu S.A., Rue du Sipes, 68680 Kembs

Object:

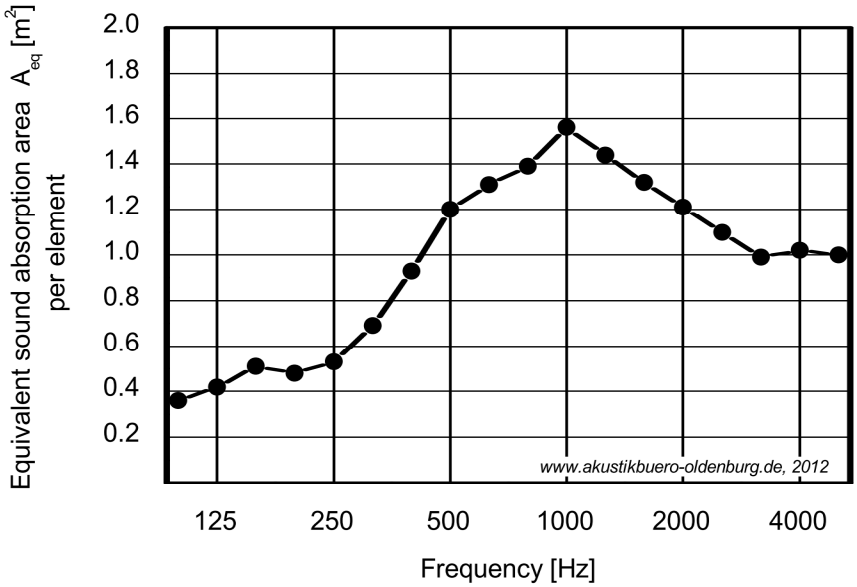
BARRISOL® Plus Lamp

Setup:

- Five lamps
- On the floor
- Fully closed (135° internal angle)

Equivalent sound absorption area per element

Frequecy [Hz]	A_{eq} [m²]
100	0.37
125	0.46
160	0.61
200	0.58
250	0.57
315	0.64
400	0.79
500	0.94
630	1.29
800	1.49
1000	1.58
1250	1.48
1600	1.39
2000	1.33
2500	1.23
3150	1.15
4000	1.21
5000	1.20



Rev. chamber: ITAP GmbH
Date: 21.02.2012
Volume: 200 m³
Number of Specimen: 5
Temperature: 12°C
Humidity: 55 %

Akustikbüro Oldenburg

Dr. Christian Nocke

M27 - Report No. 2012/0069

Oldenburg, August 2nd, 2012
Signature:

Von der Oldenburgischen Industrie- und Handelskammer öffentlich bestellter und vereidigter Sachverständiger für Lärmimmission, Bau- und Raumakustik
Dipl.-Phys. Dr. Christian Nocke Oldenburg