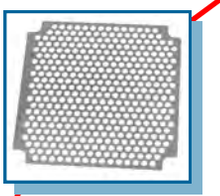
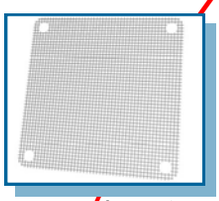
ELASTIC FASTENERS and ACCESSORIES

Lamella and safety rivets

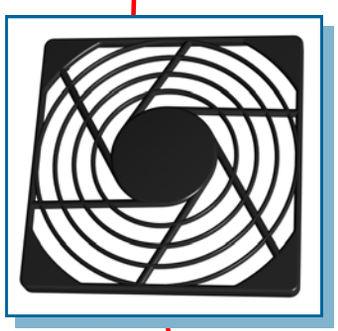


Fan guard EMI-shields



Insect screens

Coarse dust filter



Guard grills

Injection moulded parts

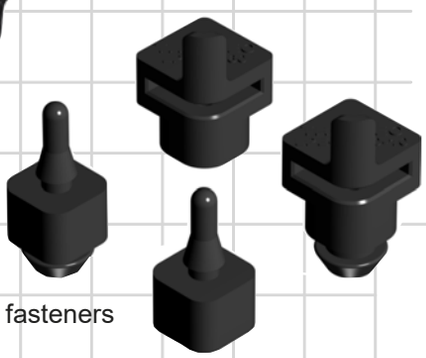
Laser cutting & engraving

Axial fan sleeves

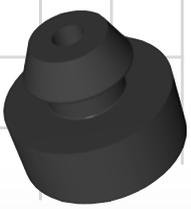
Radial blower fasteners

Hard disk sleeves

Speaker fasteners



PCB– fasteners



Universal fasteners

since 2003 there for our customers

Product Catalog

THOPTEC
ENTWICKLUNGS & VERTRIEBS GMBH

Introduction

THOPTEC
ENTWICKLUNGS &
VERTRIEBS GMBH

THOPTEC GmbH was founded in 2003 as a purely commercial enterprise. Over the years THOPTEC became a manufacturer, has specialized in the production of elastic fastenings, their accessories, customized injection moulded parts, laser cuttings and engravings. The resulting know-how means a major benefit and advantage for the customers.

Today the **THOPTEC Entwicklungs und Vertriebs GmbH** is not just a manufacturer, but also provide customers with support for special solutions where needed, beginning by product planning and design up to a final serial production.
We will find the best solutions for mounting electronic components in your equipment.

→ The **technical support**,
→ our **needs-based storage ,**
→ our **sustainability** (**REACH** & **RoHs** conform)
→ our **price stability**,
→ our **flexibility**,

are highly appreciated by our customers!

THOPTEC Entwicklungs und Vertriebs GmbH is certified to DIN EN ISO 9001:2008 since 14. September 2015.
2018 re - certified to DIN EN ISO 9001:2015
2021 re - certified to DIN EN ISO 9001:2015

THOPTEC Entwicklungs und Vertriebs GmbH

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info@thoptec.de
www.thoptec.de

Index

Axial fan fasteners / fan sleeves

With the patented elastic sleeves you can fasten axial fans quickly and safely without tools and screws on a mounting plate or housing wall. Made of elastic material the sleeves absorb vibrations, so that the noise level can be reduced up to 9 db
(see also the noise measurement report, page 3).
The sleeves are available in two different types and are applicable with all standardized axial fans from various manufacturers.

Type LM with plug-in pegs
(recommended for new developments)

Using type LM fan sleeves is the fastest way to mount and dismount axial fans.

In addition, suitable accessories are available like fan guard-EMI-shields, coarse dust filters, insect screens and guard grills. All in combination with the fan sleeve type LM can be mounted without tools fast and safely.

Type SLM with plug-in nipples
(recommended for subsequent installations)

Type SLM is perfect for the subsequent installations/ retrofittings of present devices as the plug-in nipples are compatible to the **existing hole** cut-outs. They can be pulled through the present standard drilled holes in the housing wall.

In addition, suitable accessories are available like fan guard-EMI-shields and insect screens.

Noise measurement report

concerning elastic fan sleeves

Date:	10.06.2003
Place:	Edel and Unedel Metall BG Sennfeld
Condition:	Sound cabin 31° C
Measuring equipment:	Brühl & Kjaer Type 2233
Level before measurement:	0 dB (A)
Instrument setting:	L_T
Frequency range (FSD):	70 - (90)
Processing:	Planning office HK, Prof. Urban Str. 9a, 83043 Bad Aibling
Operator:	Mr. Holger Korb
Technical Support:	Mr. Kaiser

Processing:	
Set-up 1:	Into a standard PC housing of metal, (460 x 420 x 190 l/h/b) fan model PAPST TYPE 8412 NG 12V; DC170 mA was attached directly in the housing with 4 screws. Power supply transformer with 12 volt level.
Measurement 1:	From a distance of 100 cm (**X**) and 150 cm (**Y**) with fixed measurement device
Set-up 2:	Into a standard PC housing of metal, (460 x 420 x 190 l/h/b) fan model PAPST TYPE 8412 NG 12V; DC170 mA was attached with the elastic sleeve by THOPTEC GmbH into four 6 mm large mounting holes. Power supply transformer with 12 volt level.
Measurement 2:	From a distance of 100 cm (**X**) and 150 cm (**Y**) with fixed measurement device.

Measurement results:	(X) 100 cm db (A)	(Y) 150 cm db (A)	Delta 100 cm db (A)	Delta 150 cm db (A)
Set-up/Measurement 1 attached directly with four screws	**58,70**	**50,60**		
Set-up/Measurement 2 attached with fan sleeve	**49,65**	**47,00**	**- 9,05**	**- 3,60**

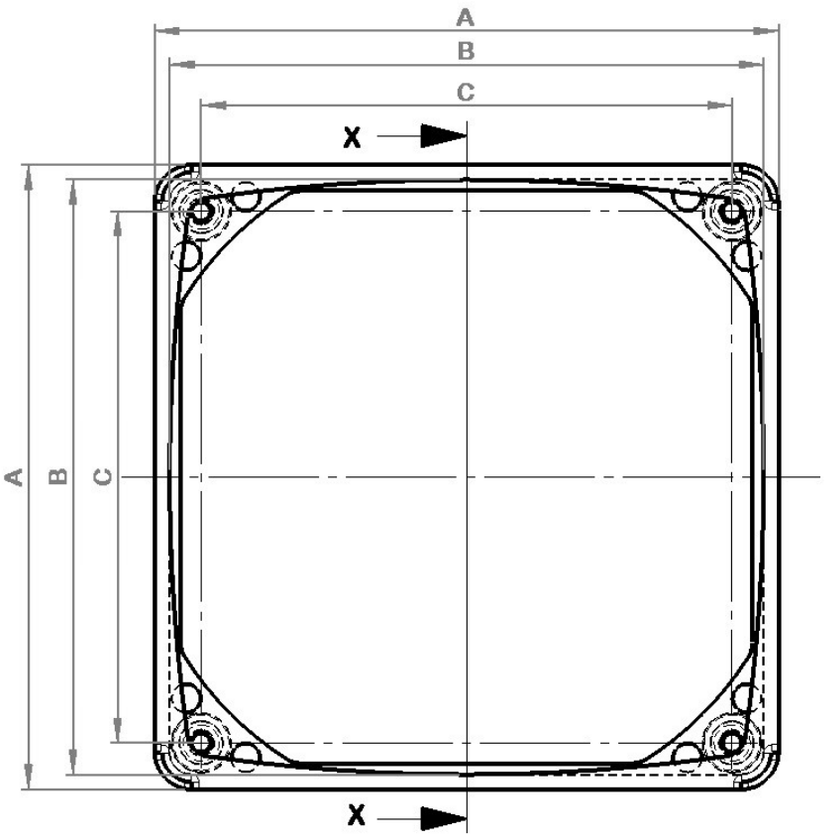
Comment: With the elastic fan sleeve from THOPTEC the noise level could be reduced up to 9,05 db (A). This equates a noise reduction of 15,42 percent and a perceived reduction of one-third to human ears.

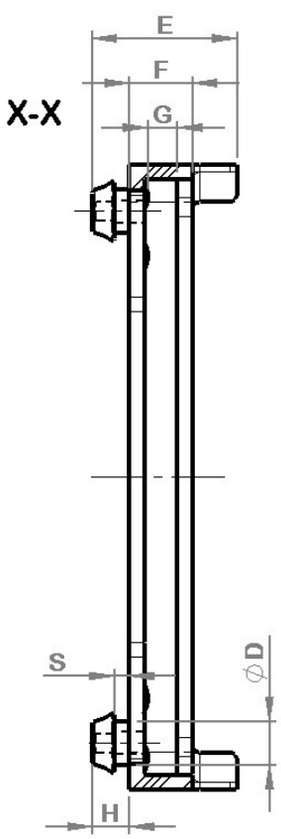
Explanation: The resonating cavity and the vibration behaviour of the material to which the fan is attached are the deciding factors in noise development. Different frequencies, high or low, determine the subjective noise perception. A fan which develops noise at a higher frequency is perceived to be quieter than a fan which develops noise at a lower frequency.

Signed: Holger Korb Bad Aibling June 12, 2003

Fan sleeves type LM

Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	ca. 65° Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG1907/2006 (REACH)

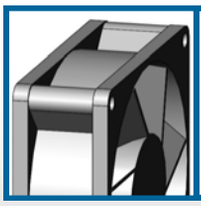




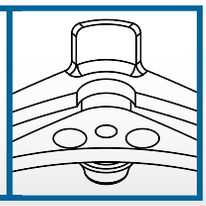
For the article definition you need the fan size (size B), the flange thickness (size G/ see picture left) and also the panel thickness.

Small fans do not have an extra flange (see picture right).
For this fans the flange means the height of the fan (size G).

With * marked fan types size G equals the fan height.



For **rip type** fans you need the sleeve version
with **„-F“** *(free edges)*
*i.e. LM-80-40-10-**F***



Article number:

LM	40	20	10 or 20	(F)
Article	Fan size B	fan flange thickness size G at 1/10 mm	panel thickness 10 = from 0,75 to 1,25 mm 20 = from 1,50 to 2,50 mm	free edges for rip type fans

Overview fan sleeves type LM

Article no.	A	B	C	D	E	F	G	H	S	Panel thickness
LM-25-100-10	27	25	24	3,5	20,25	12,25	10,0	2,0	1,0	0,75 to 1,25
LM-25-100-20	27	25	24	3,5	21,25	12,25	10,0	2,0	2,0	1,50 to 2,50
LM-30-100-10	33	30	28	4,0	22,25	13,25	10,0 *	3,0	1,0	0,75 to 1,25
LM-30-100-20	33	30	28	4,0	23,25	13,25	10,0 *	4,0	2,0	1,50 to 2,50
LM-40-20-10-F	43	40	38	4,5	14,75	5,25	2,0	3,5	1,0	0,75 to 1,25
LM-40-20-20-F	43	40	38	4,5	15,75	5,25	2,0	4,5	2,0	1,50 to 2,50
LM-40-40-10-F	43	40	38	4,5	16,75	7,25	4,0	3,5	1,0	0,75 to 1,25
LM-40-40-20-F	43	40	38	4,5	17,75	7,25	4,0	4,5	2,0	1,50 to 2,50
LM-40-100-10	43	40	38	4,5	22,75	13,25	10,0 *	3,5	1,0	0,75 to 1,25
LM-40-100-20	43	40	38	4,5	23,75	13,25	10,0 *	4,5	2,0	1,50 to 2,50
LM-40-150-10	43	40	38	4,5	27,75	18,25	15,0 *	3,5	1,0	0,75 to 1,25
LM-40-150-20	43	40	38	4,5	28,75	18,25	15,0 *	4,5	2,0	1,50 to 2,50
LM-40-200-10	43	40	38	4,5	32,75	23,25	20,0 *	3,5	1,0	0,75 to 1,25
LM-40-200-20	43	40	38	4,5	33,75	23,25	20,0 *	4,5	2,0	1,50 to 2,50
LM-50-25-10-F (B42)	53	50	48	4,5	15,25	5,75	2,5	3,5	1,0	0,75 to 1,25
LM-50-25-20-F (B42)	53	50	48	4,5	16,5	5,75	2,5	4,5	2,0	1,50 to 2,50
LM-50-100-10 (B40)	53	50	48	4,5	22,75	13,25	10,0 *	3,5	1,0	0,75 to 1,25
LM-50-100-20 (B40)	53	50	48	4,5	23,75	13,25	10,0 *	4,5	2,0	1,50 to 2,50
LM-50-150-10 (B40)	53	50	48	4,5	27,75	18,25	15,0 *	3,5	1,0	0,75 to 1,25
LM-50-150-20 (B40)	53	50	48	4,5	28,75	18,25	15,0 *	4,5	2,0	1,50 to 2,50
LM-50-200-10 (B40)	53	50	48	4,5	32,75	23,35	20,0 *	3,5	1,0	0,75 to 1,25
LM-50-200-20 (B40)	53	50	48	4,5	33,75	23,25	20,0 *	4,5	2,0	1,50 to 2,50
LM-60-30-10 (-F)	64	60	58	5,0	17,50	7,50	3,0	4,0	1,0	0,75 to 1,25
LM-60-30-20 (-F)	64	60	58	5,0	18,50	7,50	3,0	5,0	2,0	1,50 to 2,50
LM-60-40-10 (-F)	64	60	58	5,0	18,50	8,50	4,0	4,0	1,0	0,75 to 1,25
LM-60-40-20 (-F)	64	60	58	5,0	19,50	8,50	4,0	5,0	2,0	1,50 to 2,50
LM-80-30-10 (-F)	84	80	77	5,8	17,50	7,50	3,0	4,0	1,0	0,75 to 1,25
LM-80-30-20 (-F)	84	80	77	5,8	18,50	7,50	3,0	5,0	2,0	1,50 to 2,50
LM-80-40-10 (-F)	84	80	77	5,8	18,50	8,50	4,0	4,0	1,0	0,75 to 1,25
LM-80-40-20 (-F)	84	80	77	5,8	19,50	8,50	4,0	5,0	2,0	1,50 to 2,50
LM-80-50-10 (-F)	84	80	77	5,8	20,50	9,50	5,0	4,0	1,0	0,75 to 1,25
LM-80-50-20 (-F)	84	80	77	5,8	21,50	9,50	5,0	5,0	2,0	1,50 to 2,50
LM-92-40-10(-F)	97	92	89	6,0	19,50	9,50	4,0	4,0	1,0	0,75 to 1,25
LM-92-40-20 (-F)	97	92	89	6,0	20,50	9,50	4,0	5,0	2,0	1,50 to 2,50
LM-92-50-10 (-F)	97	92	89	6,0	21,50	10,50	5,0	4,0	1,0	0,75 to 1,25
LM-92-50-20 (-F)	97	92	89	6,0	22,50	10,50	5,0	5,0	2,0	1,50 to 2,50
LM-92-60-10 (-F)	97	92	89	6,0	23,50	11,50	6,0	4,0	1,0	0,75 to 1,25
LM-92-60-20 (-F)	97	92	89	6,0	24,50	11,50	6,0	5,0	2,0	1,50 to 2,50
LM-119-40-10 (-F)	125	119	116	8,0	22,00	9,50	4,0	4,5	1,0	0,75 to 1,25
LM-119-40-20 (-F)	125	119	116	8,0	23,00	9,50	4,0	5,5	2,0	1,50 to 2,50
LM-119-50-10 (-F)	125	119	116	8,0	24,00	10,50	5,0	4,5	1,0	0,75 to 1,25
LM-119-50-20 (-F)	125	119	116	8,0	25,00	10,50	5,0	5,5	2,0	1,50 to 2,50
LM-119-60-10 (-F)	125	119	116	8,0	26,00	11,50	6,0	4,5	1,0	0,75 to 1,25
LM-119-60-20 (-F)	125	119	116	8,0	27,00	11,50	6,0	5,5	2,0	1,50 to 2,50

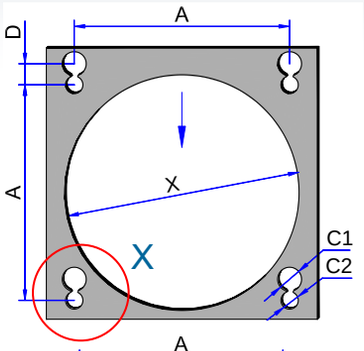
All dimensions in mm! *Other sleeves/dimensions on request!* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Legend:

Size A:	max. outside dimension	**Size D:**	diameter of the plug-in peg	**Size G:**	flange thickness or fan height
Size B:	fan size	**Size E:**	overall height of the fan sleeve	**Size H:**	height of the plug-in peg over the fan sleeve
Size C:	min. inside dimension	**Size F:**	height of the fan sleeve without plug-in peg	**Size S:**	clearance of the plug-in peg

8 Mounting styles and hole cut-outs for type LM

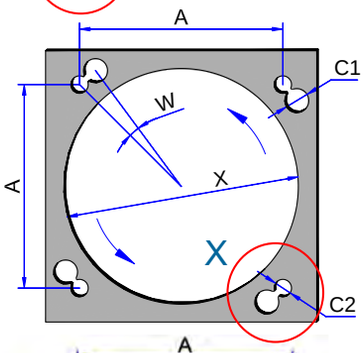
The fan sleeves for type LM can be fixed in 4 different ways, depending on the hole cut-outs and space circumstances. It has to be used just one hole cut-out possibility to mount the sleeve on a mounting plate or housing wall.



Plug-and-push/ pull mounting style/ hole cut-out no.1 (recommended)

First of all pull the sleeve over the flange of the fan. Then plug in the four pegs into the larger holes C1 of the mounting panel and push or pull them into the smaller holes C2.

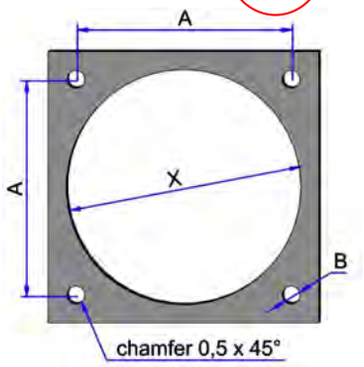
This hole cut-out is also a very popular one. However there must be enough space for installation for being able to push/ pull the fan including the fan sleeve in one direction. The backside needs not to be accessible.



Plug-and-turn mounting style/ hole cut-out no.2 (recommended)

First of all pull the sleeve over the flange of the fan. Then plug in the four pegs into the larger holes C1 of the mounting panel and turn them into the smaller holes C2.

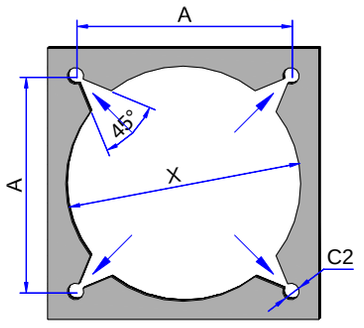
This hole cut-out is the most popular one. However there must be enough space for installation for being able to turn the fan including the fan sleeve. The backside needs not to be accessible.



Plug-in mounting style/ hole cut-out no.3 (conditionally recommended)

First of all pull the sleeve over the flange of the fan. Then plug-in the four pegs through the drilled holes B of the mounting panel and pull them out on the backside. Therefore the drilled holes need to be chamfered slightly from the installation side.

This hole cut-out is preferred if space circumstances are very tight. The **backside however needs to be accessible** for being able to pull out the pegs.



Plug-and-pull mounting style/ hole cut-out no.4 (conditionally recommended)

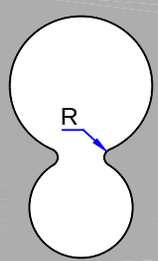
First of all plug in the four pegs through the 45° outbreaks in the mounting panel and then pull them lateral into the holes C2. Now put the fan into the sleeve and pull the corners over the flange of the fan.

This hole cut-out is preferred if there is enough space arround the fan for being able to pull the sleeve over the flange. The backside needs not to be accessible.

hole pattern dimensions	A	B	C1	C2	D	R	W
For LM-25...	20,0	3,8	3,5	4,5	3,50	0,2-0,5	14,5°
For LM-30...	24,0	4,5	5,5	4,0	5,00	0,5-1,0	16,5°
For LM-40...	32,0	5,0	6,5	4,5	5,75	0,5-1,0	14,5°
For LM-50...	40,0 / 42,0	5,0	6,5	4,5	5,75	0,5-1,0	11,0°
For LM-60...	50,0	5,5	7,5	5,0	6,50	0,5-1,0	10,5°
For LM-80...	71,5	6,5	8,0	6,0	7,00	0,5-1,0	8,0°
For LM-92...	82,5	6,5	8,5	6,0	7,25	0,5-1,0	7,0°
For LM-119...	105,0	8,5	11,0	8,0	9,50	1,0-2,0	7,0°

All dimensions in mm! *Downloads for CAD datas of hole cut-outs at: www.thoptec.com*

Detail X



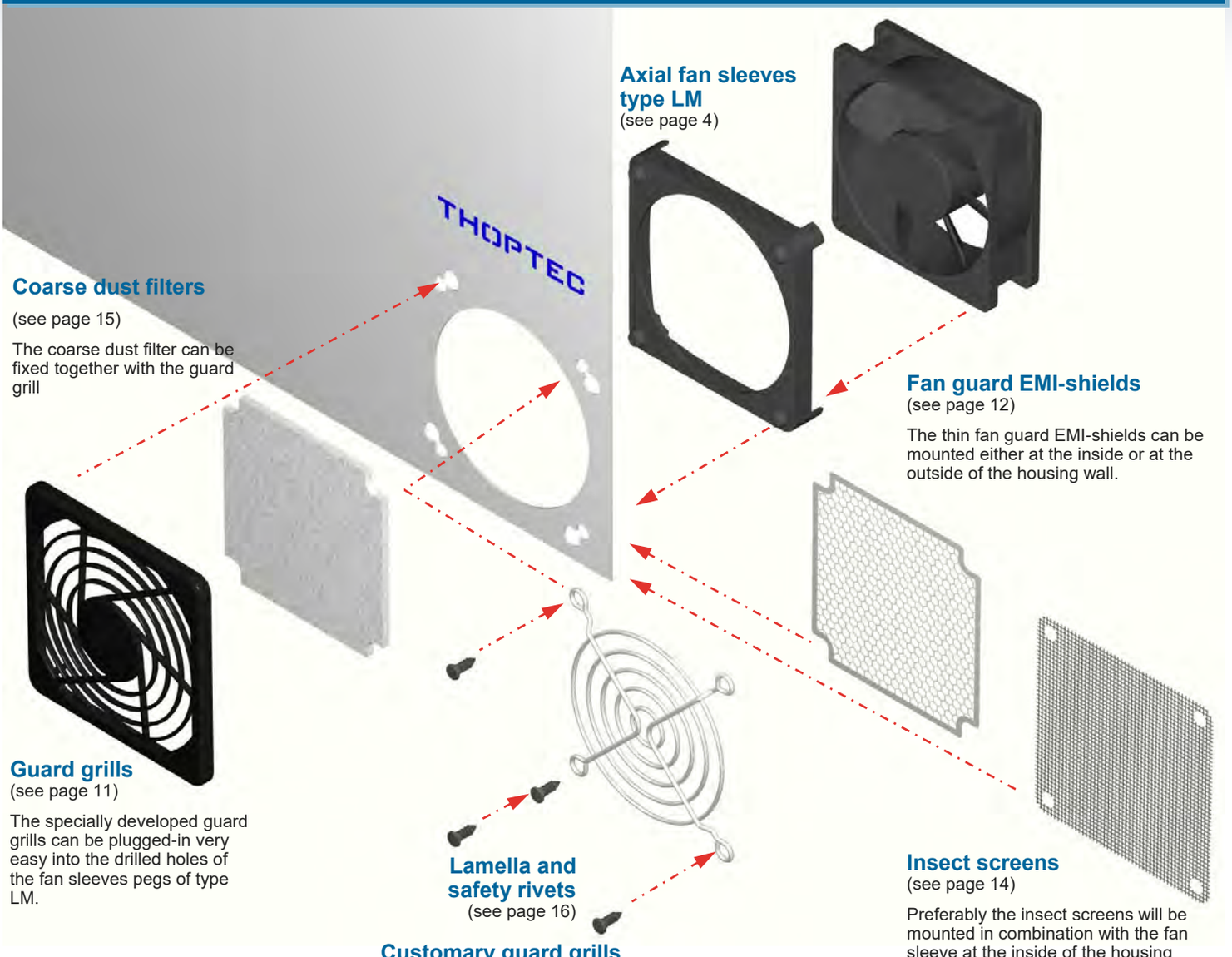
Please Note !!

By adjusting the size D/ W and the size of radius R the resistance of power to mount and dismount the fan including the fan sleeve can be altered.

Form/ dimensions of Ø **X** are depending on the manufacturers of fans

Accessories for fan sleeves type LM

In combination to the fan sleeves type LM various accessories are available, which also can be installed in a very quick and easy way, without screws and extra tools..



Axial fan sleeves type LM
(see page 4)

Coarse dust filters
(see page 15)

The coarse dust filter can be fixed together with the guard grill

Fan guard EMI-shields
(see page 12)

The thin fan guard EMI-shields can be mounted either at the inside or at the outside of the housing wall.

Guard grills
(see page 11)

The specially developed guard grills can be plugged-in very easy into the drilled holes of the fan sleeves pegs of type LM.

Lamella and safety rivets
(see page 16)

Customary guard grills
can be fixed with our specially developed lamella rivets while plugging into the drilled holes of the fan sleeves pegs.

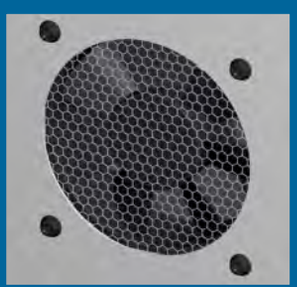
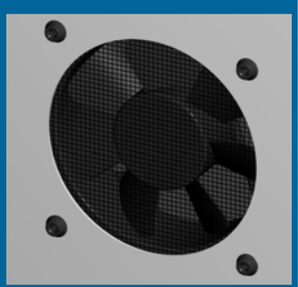
Insect screens
(see page 14)

Preferably the insect screens will be mounted in combination with the fan sleeve at the inside of the housing wall.

Mounting information

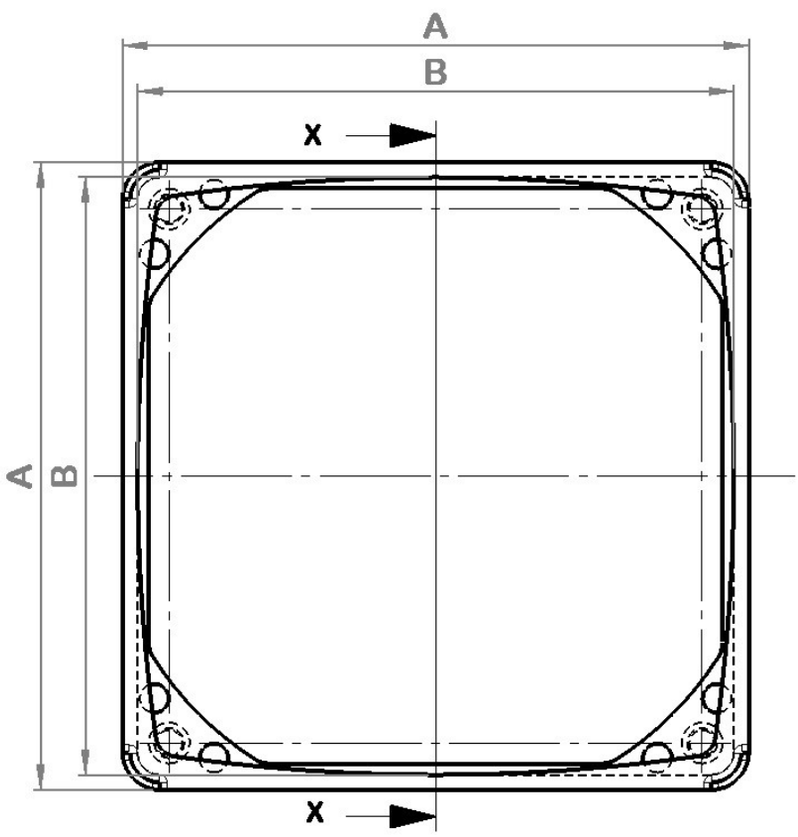
Into the drilled holes of the protruding pegs at the outside of the housing wall you can mount our specially developed accessories like guard grills, coarse dust filters, fan guard-EMI-shields and insect screens.

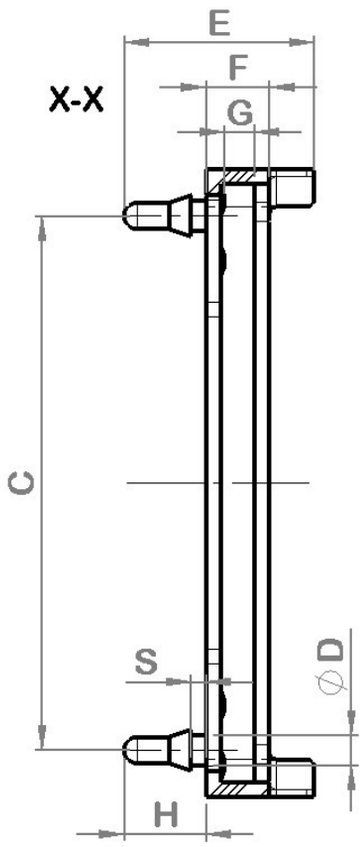
Also you can use customary guard grills, which can be fixed with either screws or our specially developed lamella rivets. Important to know: The protruding pegs ensure sufficient space for air circulation to avoid overheating and possible damage of the device.

Customary guard grill fixed with lamella rivets	Guard grill	Guard grill with coarse dust filter	Fan guard EMI-shield	Insect screen
				

Plug-in fan sleeves type SLM

Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	ca. 65° Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG1907/2006 (REACH)



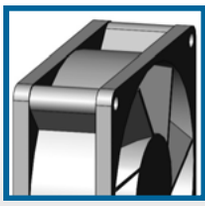


Attention: This fan sleeve is intended as a temporary solution if a housing change is not possible immediately. For series use with our accessories, we recommend the LM type with one of the hole patterns recommended on page 8.

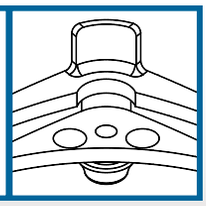
For the article definition you need the fan size (size B), the flange thickness (size G/ see picture left) and also the panel thickness.

Small fans do not have an extra flange (see picture right).
For these fans the flange means the height of the fan (size G).

With * marked fan-types size G equals the fan height.



For **rip type** fans you need the sleeve-types
with **„-F“** *(free edges)*
i.e. ***SLM-80-40-10-F***



Article number:

SLM	40	20	10 or 20	(F)
Article	fan size B	fan flange thickness size G at 1/10 mm	panel thickness 10 = from 0,75 to 1,75 mm 20 = from 2,00 to 3,50 mm	free edges for rip type fans

Overview fan sleeves type SLM

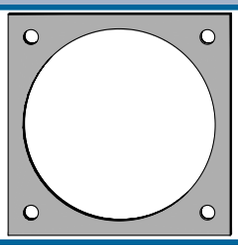
Article no.	A	B	C	D	E	F	G	H	S	panel thickness
SLM-25-100-10	27	25	24	2,6	24,00	12,25	10,0	6,0	0,75	0,75 to 1,75
SLM-25-100-20	27	25	24	2,6	25,00	12,25	10,0	6,0	1,75	2,00 to 3,50
SLM-30-100-10	33	30	28	2,6	27,00	13,25	10,0 *	7,0	0,75	0,75 to 1,75
SLM-30-100-20	33	30	28	2,6	28,00	13,25	10,0 *	7,0	1,75	2,00 to 3,50
SLM-40-20-10-F	43	40	38	4,0	20,00	5,25	2,0	8,0	0,75	0,75 to 1,75
SLM-40-20-20-F	43	40	38	4,0	21,00	5,25	2,0	8,0	1,75	2,00 to 3,50
SLM-40-40-10-F	43	40	38	4,0	22,00	7,25	4,0	8,0	0,75	0,75 to 1,75
SLM-40-40-20-F	43	40	38	4,0	23,00	7,25	4,0	8,0	1,75	2,00 to 3,50
SLM-40-100-10	43	40	38	4,0	28,00	13,25	10,0 *	8,0	0,75	0,75 to 1,75
SLM-40-100-20	43	40	38	4,0	29,00	13,25	10,0 *	8,0	1,75	2,00 to 3,50
SLM-40-150-10	43	40	38	4,0	33,00	18,25	15,0 *	8,0	0,75	0,75 to 1,75
SLM-40-150-20	43	40	38	4,0	34,00	18,25	15,0 *	8,0	1,75	2,00 to 3,50
SLM-40-200-10	43	40	38	4,0	38,00	23,25	20,0 *	8,0	0,75	0,75 to 1,75
SLM-40-200-20	43	40	38	4,0	39,00	23,25	20,0 *	8,0	1,75	2,00 to 3,50
SLM-50-25-10-F (B42)	53	50	48	4,0	20,50	5,75	2,5	8,0	0,75	0,75 to 1,75
SLM-50-25-20-F (B42)	53	50	48	4,0	21,50	5,75	2,5	8,0	1,75	2,00 to 3,50
SLM-50-100-10 (B40)	53	50	48	4,0	28,00	13,25	10,0 *	8,0	0,75	0,75 to 1,75
SLM-50-100-20 (B40)	53	50	48	4,0	29,00	13,25	10,0 *	8,0	1,75	2,00 to 3,50
SLM-50-150-10 (B40)	53	50	48	4,0	33,00	18,25	15,0 *	8,0	0,75	0,75 to 1,75
SLM-50-150-20 (B40)	53	50	48	4,0	34,00	18,25	15,0 *	8,0	1,75	2,00 to 3,50
SLM-50-200-10 (B40)	53	50	48	4,0	38,00	23,25	20,0 *	8,0	0,75	0,75 to 1,75
SLM-50-200-20 (B40)	53	50	48	4,0	39,00	23,25	20,0 *	8,0	1,75	2,00 to 3,50
SLM-60-30-10 (-F)	64	60	58	4,0	23,25	7,50	3,0	9,0	0,75	0,75 to 1,75
SLM-60-30-20 (-F)	64	60	58	4,0	24,25	7,50	3,0	9,0	1,75	2,00 to 3,50
SLM-60-40-10 (-F)	64	60	58	4,0	24,25	8,50	4,0	9,0	0,75	0,75 to 1,75
SLM-60-40-20 (-F)	64	60	58	4,0	25,25	8,50	4,0	9,0	1,75	2,00 to 3,50
SLM-80-30-10 (-F)	84	80	77	4,0	23,25	7,50	3,0	9,0	0,75	0,75 to 1,75
SLM-80-30-20 (-F)	84	80	77	4,0	24,25	7,50	3,0	9,0	1,75	2,00 to 3,50
SLM-80-40-10 (-F)	84	80	77	4,0	24,25	8,50	4,0	9,0	0,75	0,75 to 1,75
SLM-80-40-20 (-F)	84	80	77	4,0	25,25	8,50	4,0	9,0	1,75	2,00 to 3,50
SLM-80-50-10 (-F)	84	80	77	4,0	25,25	9,50	5,0	9,0	0,75	0,75 to 1,75
SLM-80-50-20 (-F)	84	80	77	4,0	26,25	9,50	5,0	9,0	1,75	2,00 to 3,50
SLM-92-40-10 (-F)	97	92	89	4,0	26,25	9,50	4,0	9,0	0,75	0,75 to 1,75
SLM-92-40-20 (-F)	97	92	89	4,0	27,25	9,50	4,0	9,0	1,75	2,00 to 3,50
SLM-92-50-10 (-F)	97	92	89	4,0	27,25	10,50	5,0	9,0	0,75	0,75 to 1,75
SLM-92-50-20 (-F)	97	92	89	4,0	28,25	10,50	5,0	9,0	1,75	2,00 to 3,50
SLM-92-60-10 (-F)	97	92	89	4,0	28,25	11,50	6,0	9,0	0,75	0,75 to 1,75
SLM-92-60-20 (-F)	97	92	89	4,0	29,25	11,50	6,0	9,0	1,75	2,00 to 3,50
SLM-119-40-10 (-F)	125	119	116	4,0	28,25	9,50	4,0	10,0	0,75	0,75 to 1,75
SLM-119-40-20 (-F)	125	119	116	4,0	29,25	9,50	4,0	10,0	1,75	2,00 to 3,50
SLM-119-50-10 (-F)	125	119	116	4,0	29,25	10,50	5,0	10,0	0,75	0,75 to 1,75
SLM-119-50-20 (-F)	125	119	116	4,0	30,25	10,50	5,0	10,0	1,75	2,00 to 3,50
SLM-119-60-10 (-F)	125	119	116	4,0	30,25	11,50	6,0	10,0	0,75	0,75 to 1,75
SLM-119-60-20 (-F)	125	119	116	4,0	31,25	11,50	6,0	10,0	1,75	2,00 to 3,50

All dimesions in mm! *Other sleeves/ dimensions on request!* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Legend:

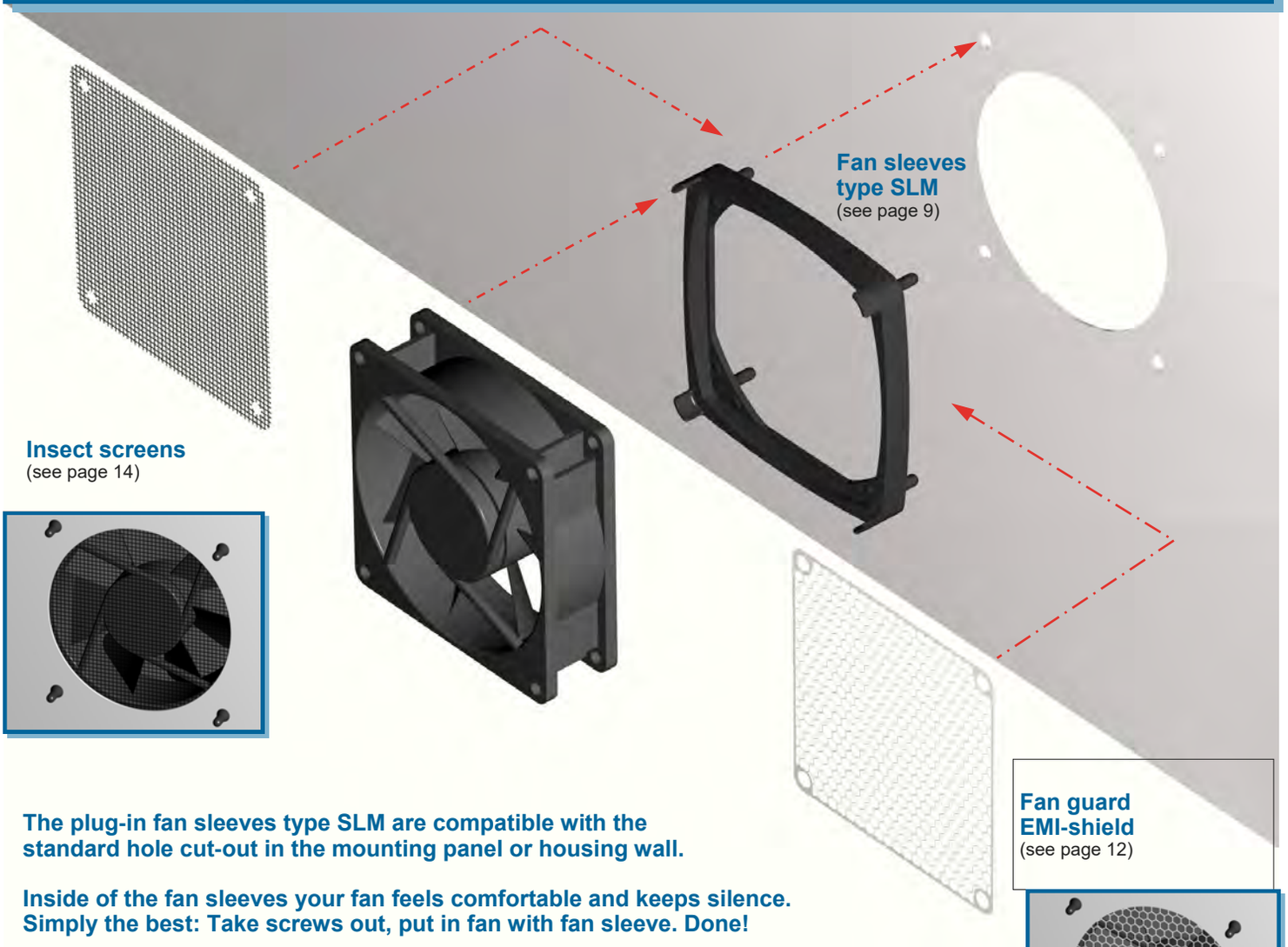
Size A:	max. outside dimension	**Size D:**	diameter of the nipples	**Size G:**	flange thickness or fan height
Size B:	fan size	**Size E**	overall height of the fan sleeve	**Size H:**	height of the nipples
Size C:	min. inside dimension	**Size F:**	height of the fan sleeve without nipples	**Size S:**	clearance of the nipples

12 Mounting styles, hole pattern and accessories for type SLM



Standard hole pattern / measurements for mounting panels and housing walls

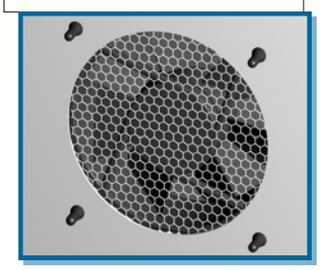
the plug-in fan sleeves of the SLM type are ideal for retrofitting of existing devices, since the plug-in nipples can be pulled through the existing standard holes in the housing wall and no changes to the hole cut-out are required. Optionally, a fan protection EMC sheet metal or an insect screen can be mounted together with the plug-in fan sleeve.



Fan sleeves type SLM
(see page 9)

Insect screens
(see page 14)

Fan guard EMI-shield
(see page 12)

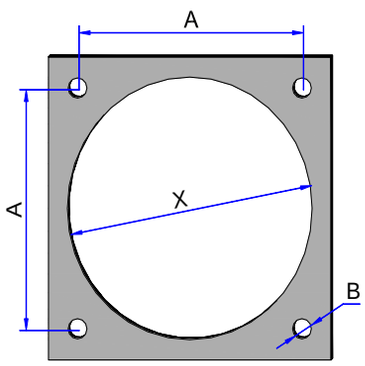


The plug-in fan sleeves type SLM are compatible with the standard hole cut-out in the mounting panel or housing wall.

Inside of the fan sleeves your fan feels comfortable and keeps silence. Simply the best: Take screws out, put in fan with fan sleeve. Done!

Mounting information
First of all pull the sleeve over the flange of the fan. Then plug in the four nipples through the drilled holes of the mounting panel and pull them without tools out on the backside.

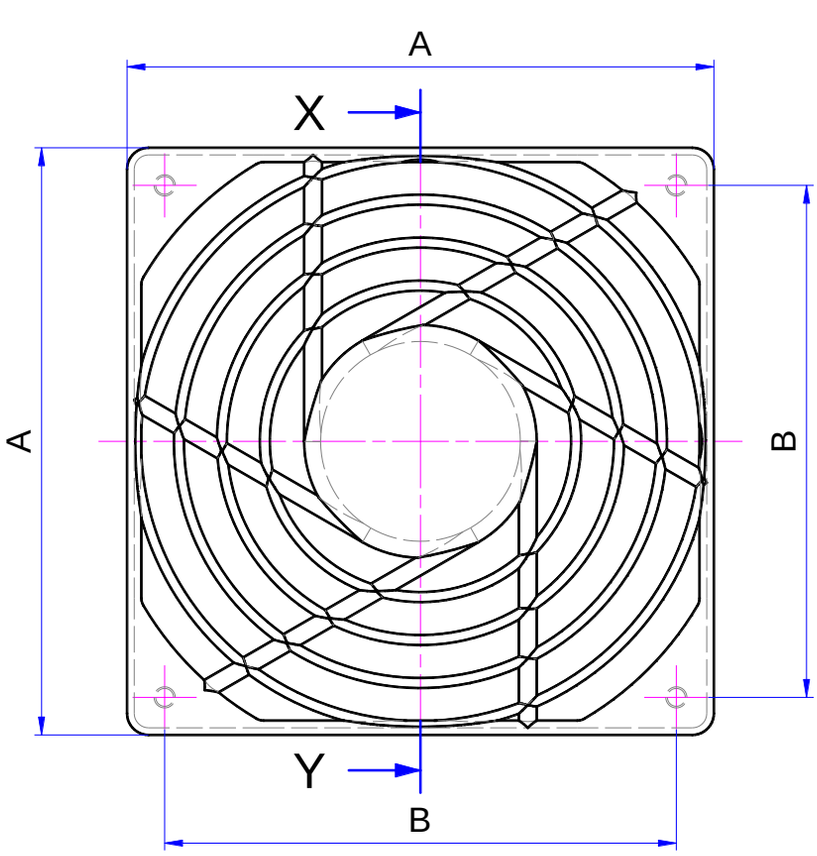
dimensions of the hole pattern

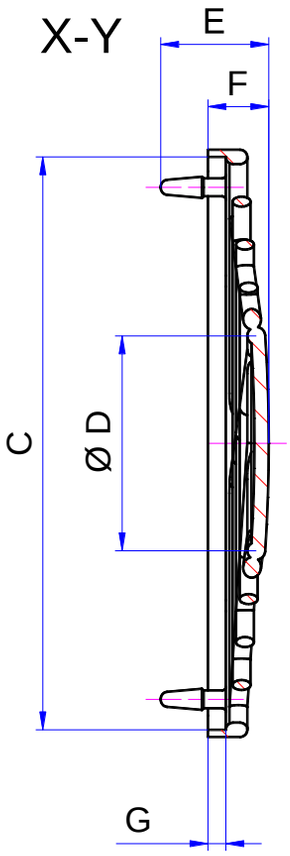


	A	B	X
for SLM-25...	20,0	2,8	Form/ dimensions of Ø **X** are depending on the manufacturers of fans
for SLM-30...	24,0	2,8	
for SLM-40...	32,0	4,3	
for SLM-50...	40,0 / 42,0	4,3	
for SLM-60...	50,0	4,3	
for SLM-80...	71,5	4,3	
for SLM-92...	82,5	4,3	
for SLM-119...	105,0	4,3	

All dimensions in mm!

Material: Plastic (PA6 / PA66)
Colour: black (other colours on request)
Fire resistance: UL94-V-2
Equals guideline: RoHS 2015/863/EU and EG 1907/2006 (REACH)
The guard grills can simply plugged into the pegs from the fan sleeves type LM.





Article number: SG — 40 — 01 — Bxx

dimension B for fan size 50

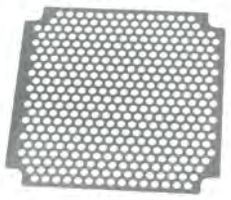
Article | fan size

type code 01 = dimension A as small as possible.
type code 02 = dimension A as big as possible, makes sure that hole-cut out 3 (plug and turn mounting) is completely covered by the guard grill.

Article no.	A	B	C	D	E	F	G
SG-25-01	27,0	20,0	25,0	10,0	12,1	7,0	2,0
SG-25-02	31,0	20,0	25,0	10,0	12,1	7,0	2,0
SG-30-01	32,0	24,0	30,0	14,0	12,1	7,0	2,0
SG-30-02	36,0	24,0	30,0	14,0	12,1	7,0	2,0
SG-40-01	42,0	32,0	40,0	18,0	12,6	7,5	2,5
SG-40-02	46,0	32,0	40,0	18,0	12,6	7,5	2,5
SG-50-01-B40	52,0	40,0	50,0	24,0	13,1	8,0	2,5
SG-50-01-B42	52,0	42,0	50,0	24,0	13,1	8,0	2,5
SG-50-02-B40	56,0	40,0	50,0	24,0	13,1	8,0	2,5
SG-50-02-B42	56,0	42,0	50,0	24,0	13,1	8,0	2,5
SG-60-01	62,0	50,0	60,0	27,0	15,1	8,5	2,5
SG-60-02	66,0	50,0	60,0	27,0	15,1	8,5	2,5
SG-80-01	82,0	71,5	80,0	30,0	15,1	8,5	2,5
SG-80-02	89,0	71,5	80,0	30,0	15,1	8,5	2,5
SG-92-01	94,0	82,5	92,0	30,0	15,1	8,5	2,5
SG-92-02	101,0	82,5	92,0	30,0	15,1	8,5	2,5
SG-119-01	121,0	105,0	119,0	42,0	16,6	9,0	3,0
SG-119-02	128,0	105,0	119,0	42,0	16,6	9,0	3,0

All dimensions in mm! *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Fan guard-EMI-shields

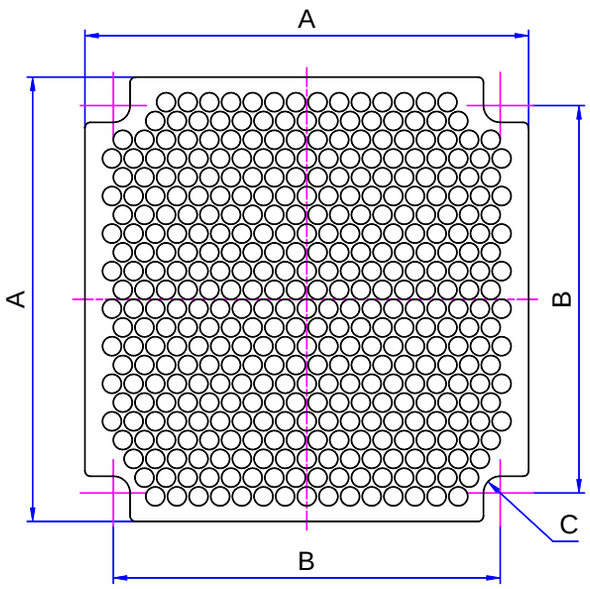


Material: stainless steel (spring V2A) material no. 1.4310/AISI 301
Material thickness: 0,2 mm
Equals guideline: RoHS 2015/863/EU and EG 1907/2006 (REACH)

The premium fan guard EMI-shields are manufactured in etching technique. The use of fan guard EMI-shields ensures the typically desireable condition that technical equipment does not disturb each other by unwanted electronic or electromagnetic effects. On a test an improvement regarding EMI-tightness could be determined overall the frequency range, in peaks up to approximately 50 %.

Additionally fan guard EMI-shields function as a touch protection and/ or prevent the absorption of filter materials while existing just one wide opening in the housing box. The fan guard EMI-shields can be mounted either at the inside or at the outside of the housing wall. The **inside installation** has the **advantage** that the fan sleeve squeezes directly the fan guard EMI-shields onto the bare inside wall or by using a plastic-case onto the metallic coated inside wall. The fan guard EMI-shields seal up the fan opening in techniques of electromagnetic compliance. The thin grill made from stainless steel takes care of **EMI-protection** and a **maximum of air circulation** at the same time.

Quite different by comparison with a use of a plastic or a customary guard grill or a perforation in the housing box, an **essential noise alteration** by the fan guard EMI-shield is almost **not existing** when the fan is working.

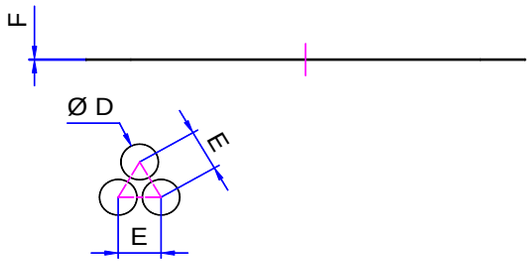


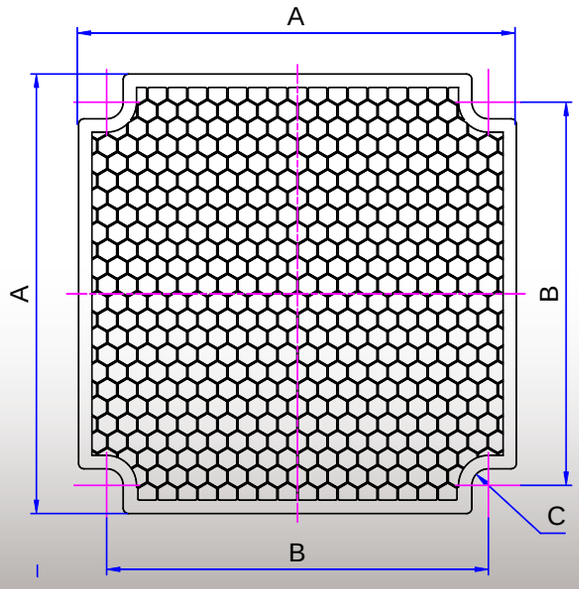
Type RE

round hole perforation in offset pattern

Free air flow rate approximately at **75 %**

Installation possible in combination with fan sleeve type LM!



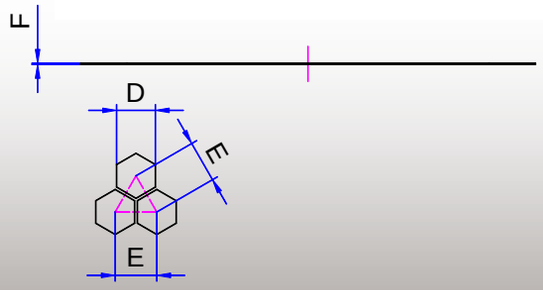


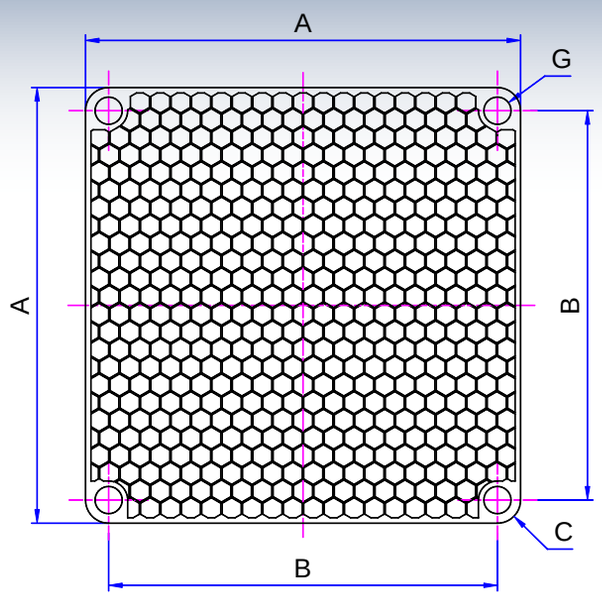
Type SE

hexagon perforation in offset pattern

Free air flow rate approximately at **85 %**

Installation possible in combination with fan sleeve type LM!



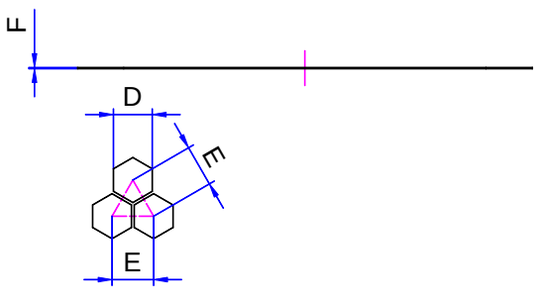


Type SH

hexagon perforation in offset pattern

Free air flow rate approximately at **85 %**

Installation possible in combination with fan sleeve type SLM, but also by using the four drills and fix it with customary screws or rivets. Dimension of A is a little smaller/ max. as big as the fan.



Because of the etching techniques special sizes, individual texts or logos are possible without having significant additional costs or efforts! ***We will give the necessary support if there are any questions in etchings techniques!***

Article number:

LEB	40	RE / SE / SH	25	Bxx
Article	fan size	type	hole diameter in 1/10 mm	dimension B for fan size 50

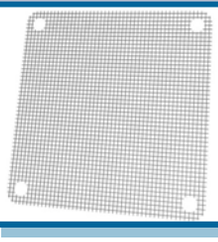
Article no.	A	B	C	D	E	F	G
LEB-25-RE-15	27,0	20,0	R 1,75	1,5	2,00	0,2	-
LEB-25-SE-15	27,0	20,0	R 1,75	1,5	1,75	0,2	-
LEB-25-SH-15	25,0	20,0	R 3,00	1,5	1,75	0,2	Ø 2,8
LEB-30-RE-20	32,0	24,0	R 2,10	2,0	2,50	0,2	-
LEB-30-SE-20	32,0	24,0	R 2,10	2,0	2,25	0,2	-
LEB-30-SH-20	30,0	24,0	R 3,00	2,0	2,25	0,2	Ø 3,5
LEB-40-RE-25	42,0	32,0	R 2,40	2,5	3,00	0,2	-
LEB-40-SE-25	42,0	32,0	R 2,40	2,5	2,75	0,2	-
LEB-40-SH-25	40,0	32,0	R 4,00	2,5	2,75	0,2	Ø 4,8
LEB-50-RE-30-B40	52,0	40,0	R 2,40	3,0	3,50	0,2	-
LEB-50-SE-30-B40	52,0	40,0	R 2,40	3,0	3,25	0,2	-
LEB-50-SH-30-B40	50,0	40,0	R 5,00	3,0	3,25	0,2	Ø 4,8
LEB-50-RE-30-B42	52,0	42,0	R 2,40	3,0	3,50	0,2	-
LEB-50-SE-30-B42	52,0	42,0	R 2,40	3,0	3,25	0,2	
LEB-50-SH-30-B42	50,0	42,0	R 5,00	3,0	3,25	0,2	Ø 4,8
LEB-60-RE-35	62,0	50,0	R 2,70	3,5	4,00	0,2	-
LEB-60-SE-35	62,0	50,0	R 2,70	3,5	3,75	0,2	-
LEB-60-SH-35	60,0	50,0	R 5,00	3,5	3,75	0,2	Ø 5,0
LEB-80-RE-35	82,0	71,5	R 3,20	3,5	4,00	0,2	-
LEB-80-SE-35	82,0	71,5	R 3,20	3,5	3,75	0,2	-
LEB-80-SH-35	80,0	71,5	R 4,25	3,5	3,75	0,2	Ø 5,0
LEB-92-RE-40	94,0	82,5	R 3,20	4,0	4,50	0,2	-
LEB-92-SE-40	94,0	82,5	R 3,20	4,0	4,25	0,2	-
LEB-92-SH-40	92,0	82,5	R 4,75	4,0	4,25	0,2	Ø 5,0
LEB-119-RE-50	121,0	105,0	R 4,20	5,0	5,50	0,2	-
LEB-119-SE-50	121,0	105,0	R 4,20	5,0	5,30	0,2	-
LEB-119-SH-50	119,0	105,0	R 7,00	5,0	5,30	0,2	Ø 5,5

All dimesions in mm! *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

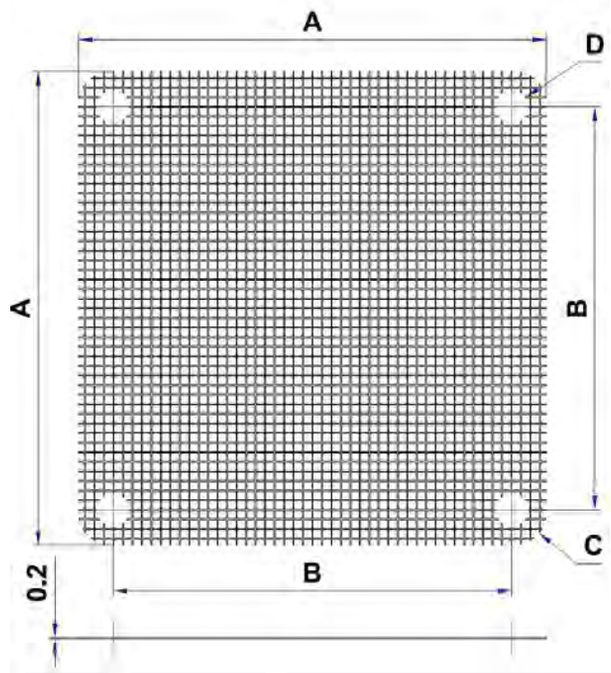
Legend:

Size A:	max. outside dimension	**Size C:**	radius EMI-shield drilled hole	**Size E:**	distance between holes on EMI-shield	**Size G:**	diameter EMI-shield drilled hole
Size B:	distance between plug-in pegs/ nipples	**Size D:**	diameter holes on EMI-shield	**Size F**	height/ thickness of material		

Insect sreens



Material: plastic tissue (PVC free), anthracite
Material thickness: approximately 0,2 mm
Equals guideline: RoHS 2015/863/EU and EG 1907/2006 (REACH)
The installation of insect screens is possible in combination with fan sleeve type LM or SLM, but can be fixed together with the fan by customary screws or rivets.



Article number:

ISG	40	SF / SN	Bxx
Article	fan size	Type codes: **SF** for fan sleeves type LM **SN** for plug-in fan sleeves type SLM	dimension B for fan size 50

Article no.	A	B	C	D
ISG-25-SF	27,0	20,0	R 3,5	3,5
ISG-25-SN	27,0	20,0	R 3,5	2,6
ISG-30-SF	33,0	24,0	R 3,5	4,0
ISG-30-SN	33,0	24,0	R 3,5	2,6
ISG-40-SF	43,0	32,0	R 4,0	4,5
ISG-40-SN	43,0	32,0	R 4,0	4,0
ISG-50-SF-B40 / B42	53,0	40,0 / 42,0	R 4,5	4,5
ISG-50-SN-B40 / B42	53,0	40,0 / 42,0	R 4,5	4,0
ISG-60-SF	64,0	50,0	R 7,0	5,0
ISG-60-SN	64,0	50,0	R 7,0	4,0
ISG-80-SF	84,0	71,5	R 6,0	6,0
ISG-80-SN	84,0	71,5	R 6,0	4,0
ISG-92-SF	97,0	82,5	R 6,5	6,0
ISG-92-SN	97,0	82,5	R 6,5	4,0
ISG-119-SF	125,0	105,0	R 7,5	8,0
ISG-119-SN	125,0	105,0	R 7,5	4,0

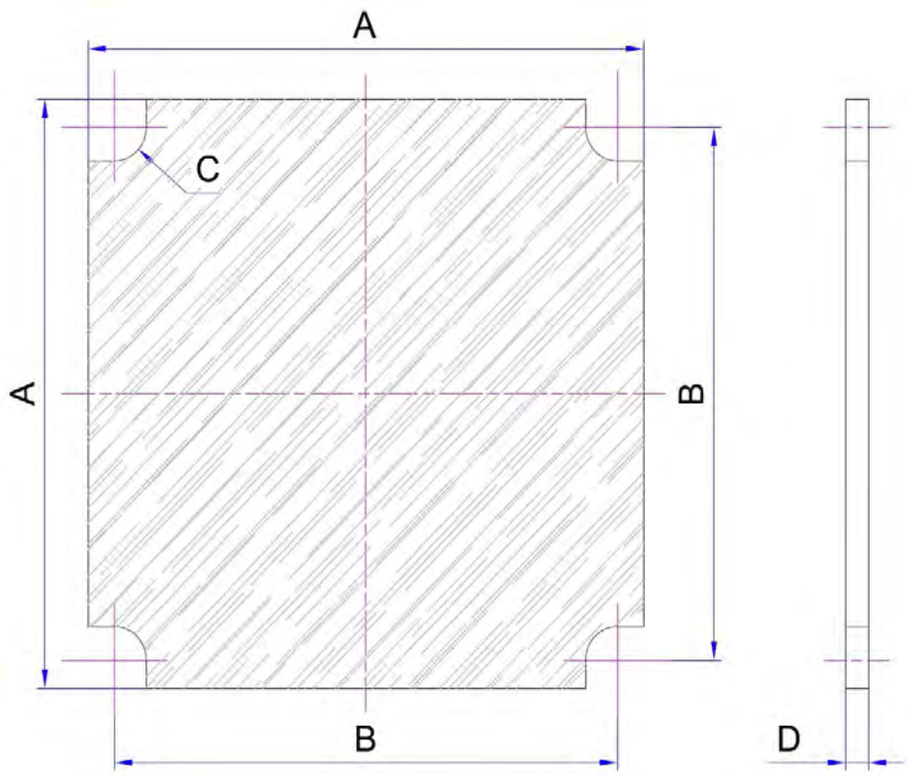
All dimensions in mm! *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Legend:

Size A:	max. outside dimension	**Size B:**	distance between plug-in pegs/ nipples	**Size C:**	radius insect screen drilled hole	**Size D:**	diameter insect screen drilled hole

Coarse dust filter

Material: Coarse dust filter FL100
Filter class: G2 DIN EN 779
Material thickness: approximately 5 mm
Fire resistance: self-extinguishing DIN 53438 F1
Equals guideline: RoHS 2015/863/EU and EG 1907/2006 (REACH)
The installation of the coarse dust filters is possible in combination with guard grills.



Article number:

GSF	40	01	Bxx
Article	fan size	type code	dimension B for fan size 50

Article no.	A	B	C	D
GSF-25-01	25,0	20,0	R 2,5	5,0
GSF-30-01	30,0	24,0	R 3,0	5,0
GSF-40-01	40,0	32,0	R 3,0	5,0
GSF-50-01-B40	50,0	40,0	R 3,0	5,0
GSF-50-01-B42	50,0	42,0	R 3,0	5,0
GSF-60-01	60,0	50,0	R 3,5	5,0
GSF-80-01	80,0	71,5	R 4,0	5,0
GSF-92-01	92,0	82,5	R 4,5	5,0
GSF-119-01	119,0	105,0	R 5,5	5,0

All dimensions in mm! *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Legend:

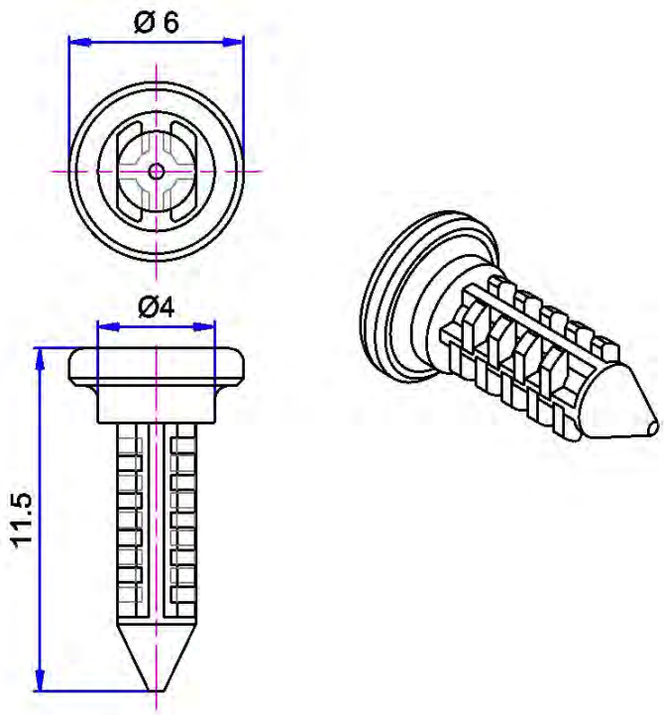
Size A:	max. outside dimension	**Size B:**	distance between plug-in pegs/ nipples	**Size C:**	radius coarse dust filter drilled hole	**Size D:**	height/ thickness of material

For Info!
With our CO2 Laser we are able to cut out variable contours from various materials/ filter materials, foam materials and seal materials etc. (see page 27).

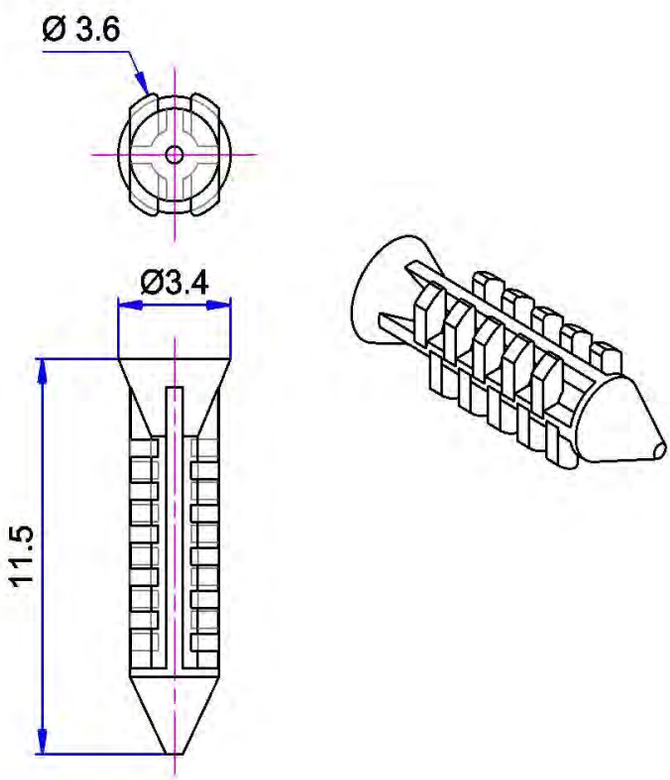
Lamella- and safety rivets

Material: Plastic (PA6)
Colour: black (other colours on request)
Fire resistance: UL94-V-0
Equals guideline: RoHS 2015/863/EU and EG 1907/2006 (REACH)

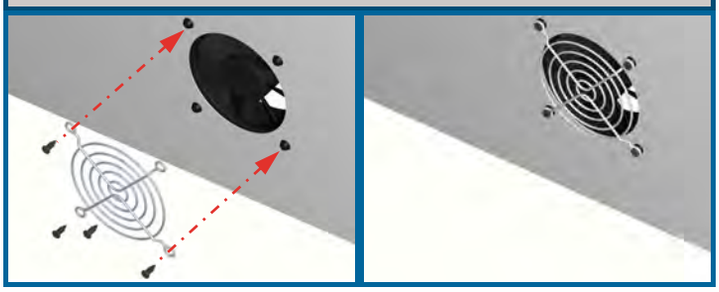
Lamella rivet

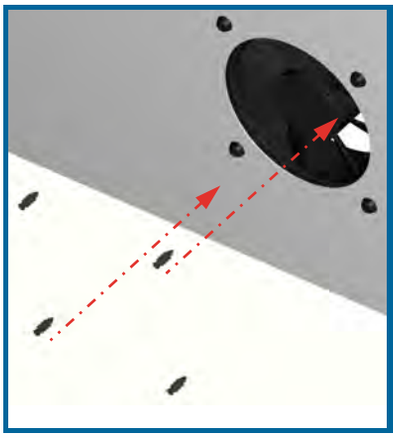


Safety rivet



With our specially developed lemella rivets customary guard grills can be fixed while plugging into the drilled holes of the fan sleeves pegs.
But only valid for type LM-40-xx to LM-92-xx.





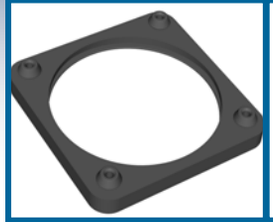
The specially developed safety rivets can be plugged into the drilled holes of the fan sleeve pegs.
But just valid for type LM-40-xx to LM-92-xx .
thus fixed fans will survive drop– and vibration tests under extraordinairy conditions.

Lamella rivets Article no.
LN-36-01

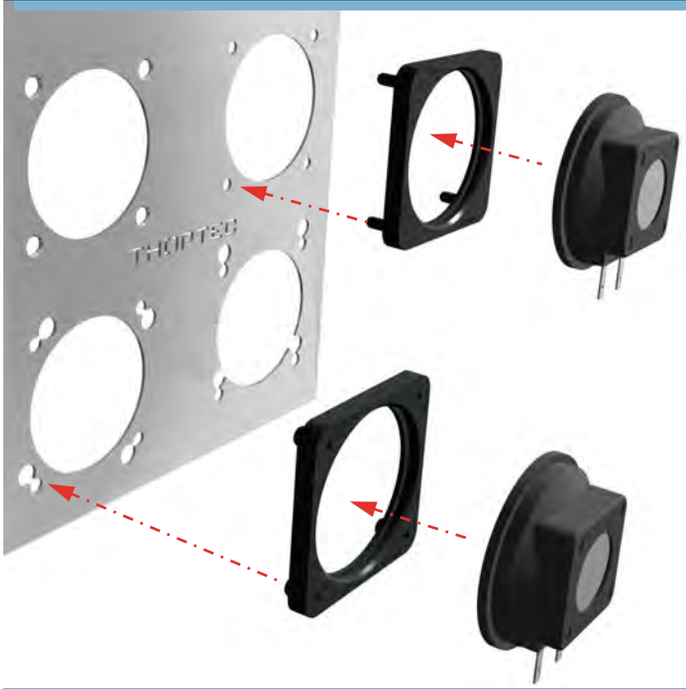
Safety rivets Article no.
SN-36-01

Attention! Only valid and available for fan sleeve types LM-40-xx to LM-92-xx!

CAD Data sheets on www.thoptec.de and on „TraceParts“.



Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	approximately 65° Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG 1907/2006 (REACH)



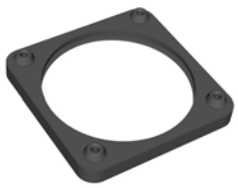
The speaker fastening elements are available in two different versions.

Type SN
with plug-in nipples to push/ pull through drilled holes.

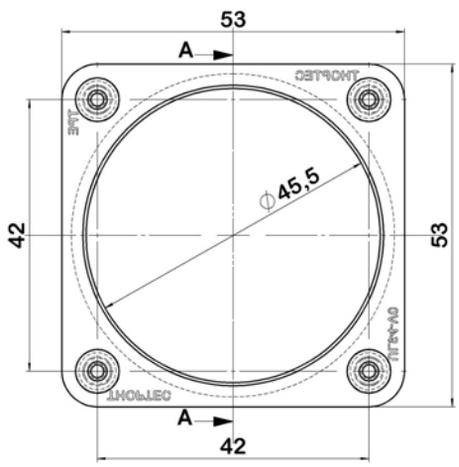
Same function as the fan sleeve type SLM, please look for more info on page 9-10.

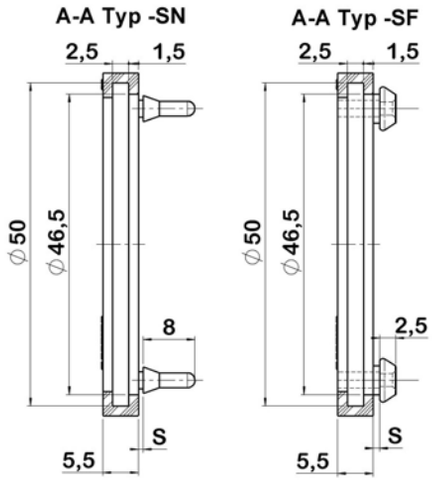
Type SF
with plug-in pegs for a very quick plug-in turn or plug-in push/ pull mounting style, including drilled holes to fix guard grills etc.

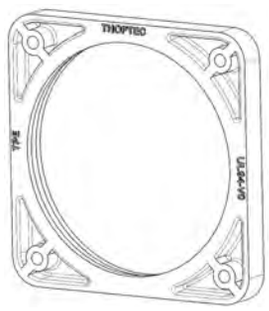
Same function as the fan sleeve type SLM,
please look for more infos on page 4-7.



All available accessories for the fan sleeves type LM-50-xx-xx-B42 will fit to the speaker fasteners according type SF.







Our new version with improved cushioning !

Date 06 2023

Article number: LSBE — 50 — SN / SF — 10 / 20

Article | speaker size | type code | depends on panel thickness

type SN with plug-in nipples
type SF with plug-in pegs

Article no.	S	Panel thickness
LSBE-50-SN-10	0,75	0,75 to 1,50
LSBE-50-SN-20	1,75	2,00 to 3,50
LSBE-50-SF-10	1,00	0,75 to 1,25
LSBE-50-SF-20	2,00	1,50 to 2,50

With the speaker fastening elements you are able to install small round speakers with a diameter of 50 mm such as the **Digisound FE5050** or the **VISATON K50WP**.

THE ADVANTAGES:

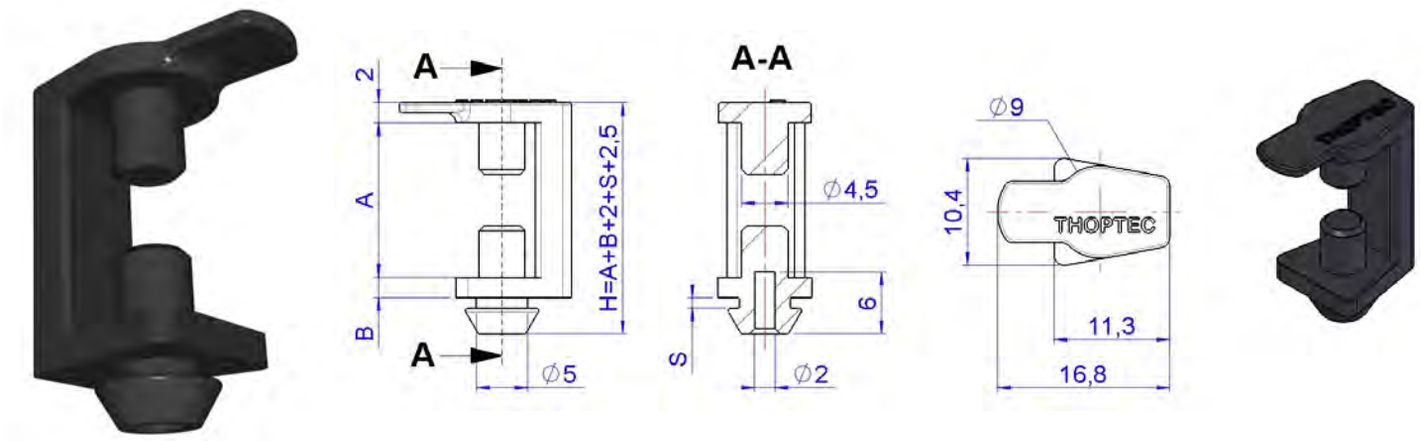
- Speakers can be fixed without tools, screwless, quick, simple and safe.
- Lower installation costs due to shorter installation times and not any longer needed screws.
- Prolongates lifetime of speakers while protecting against vibrations.

All dimensions in mm! *Other sizes on request!* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Radial blower fasteners

Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	approximately 65 °Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG 1907/2006 (REACH)

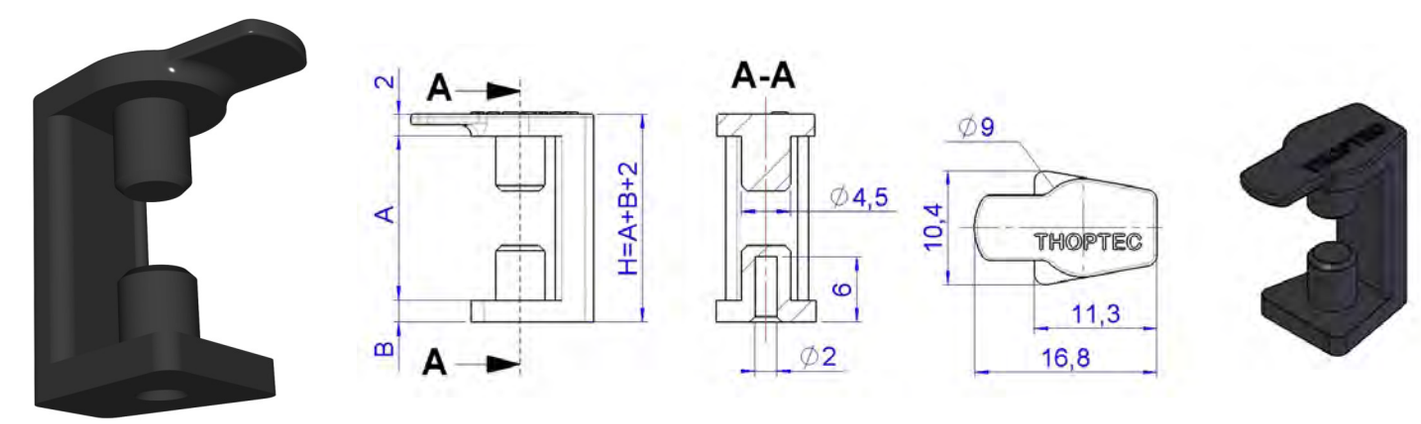
Type RLBS with plug-in peg



Article number:

RLBS	120	20	10 or 20
Article	height of radial blower dimension A in 1/10 mm i.e. 120 = 12 mm	gap between blower/ panel dimension B in 1/10 mm i.e. 20 = 2 mm	panel thickness: 10 = from 0,75 to 1,25 mm 20 = from 1,50 to 2,50 mm

Type RLBB with a drilled hole



Article number:

RLBB	120	20
Article	height of radial blower dimension A in 1/10 mm i.e. 120 = 12 mm	gap between blower/ panel dimension B in 1/10 mm i.e. 20 = 2 mm

Standard types / dimensions

Size A	12,0	15,0	20,0	22,0	25,0	27,0	30,0	33,0	40,0
Size B	2,0	3,0	4,0	5,0	6,0	8,0	10,0		

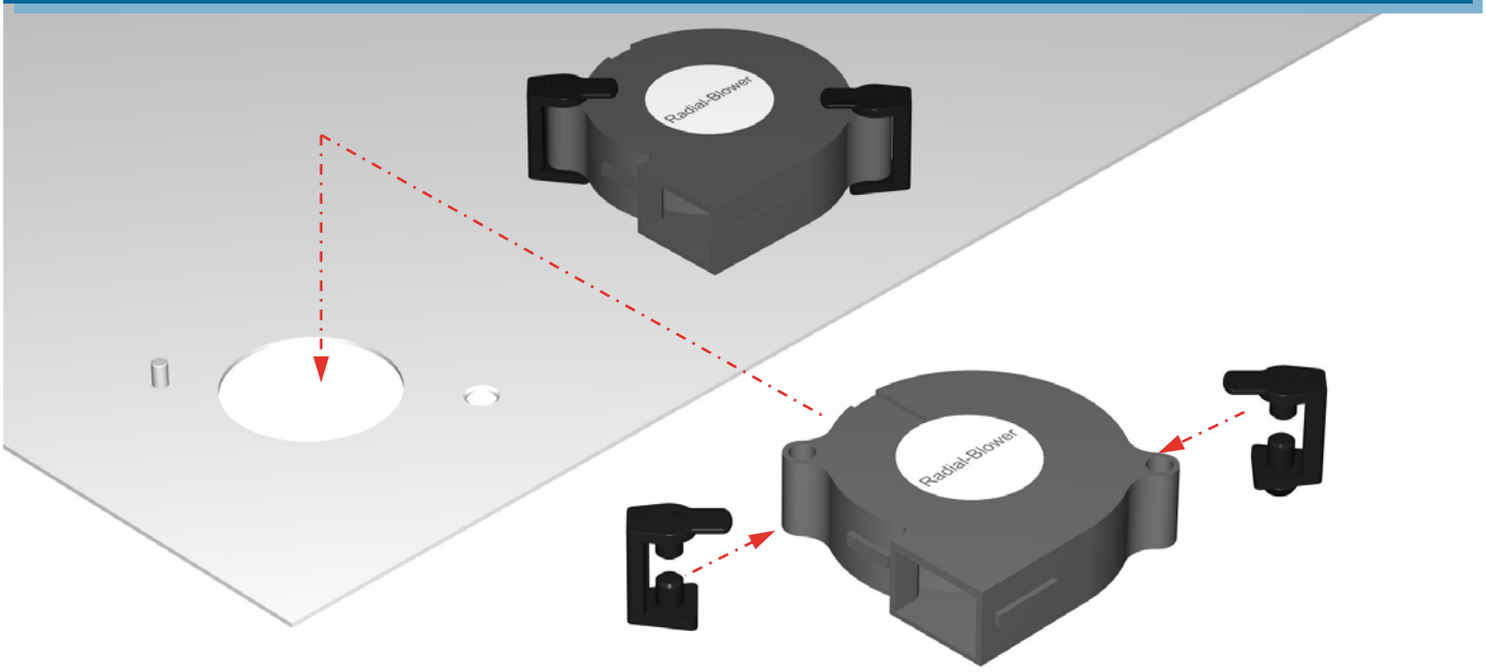
All dimensions in mm! *Other sizes on request!* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

Legend:

Size A:	height of radial blower in mm	**Size B:**	gap between radial blower and mounting panel

Mounting styles and accessories

There are available two different types of radial blower fasteners with various distance dimensions depending on design heights of established radial blowers. To fix the radial blowers you always need a pair of fastening elements. For being able to fix radial blowers with elastic fastening elements you must provide the mounting panel or housing wall either with drilled holes, 8-shaped hole cut-outs or forced in pins. For sealing the vacuum and pressure area, accessories like seal rings are available.



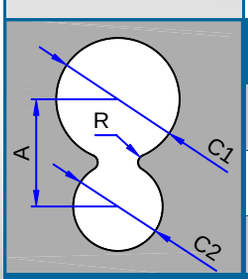
Radial blowers can be fixed screwless and without tools in a very easy, quick and safe way by using our radial blower fasteners.

Mounting styles

Type RLBB fasteners with a drilled hole need to be plugged onto a forced-in pin on the mounting panel with dimensions of 3,0 x 6,0mm, with or without threads.

Type RLBS fasteners with plug-in peg can be fixed easy by plugging into a slightly chamfered hole (diameter 5,5mm) in the mounting panel....

...or by plugging in the peg into a 8-shaped perforation, first into the larger hole of the mounting panel and then push or pull them into the smaller hole.



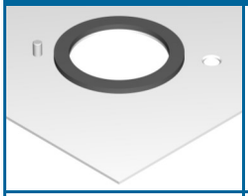
Dimensions of hole cut-outs

A	C1	C2	R
6,5	7,5	5,2	1,0

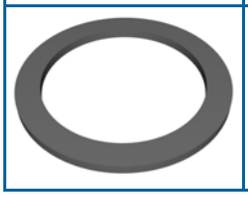
All dimensions in mm!

Attention!
By adjusting the size A and the size of radius R the resistance of power to mount and dismount the radial blower fasteners can be altered.

Accessories / seal rings



The single-sided self-bonding seal rings can be attached to the mounting plate or the radial blowers to seal the vacuum and pressure area.



The seal rings are available in various diameters, thicknesses of materials and different materials.

standard material: cellular rubber (EPDM 15) single-sided self-bonding.

Article number:

DR	ID	AD	20 or 30
Article	diameter inside in 1/10 mm	diameter outside in 1/10 mm	thickness of material in 1/10 mm

Order example

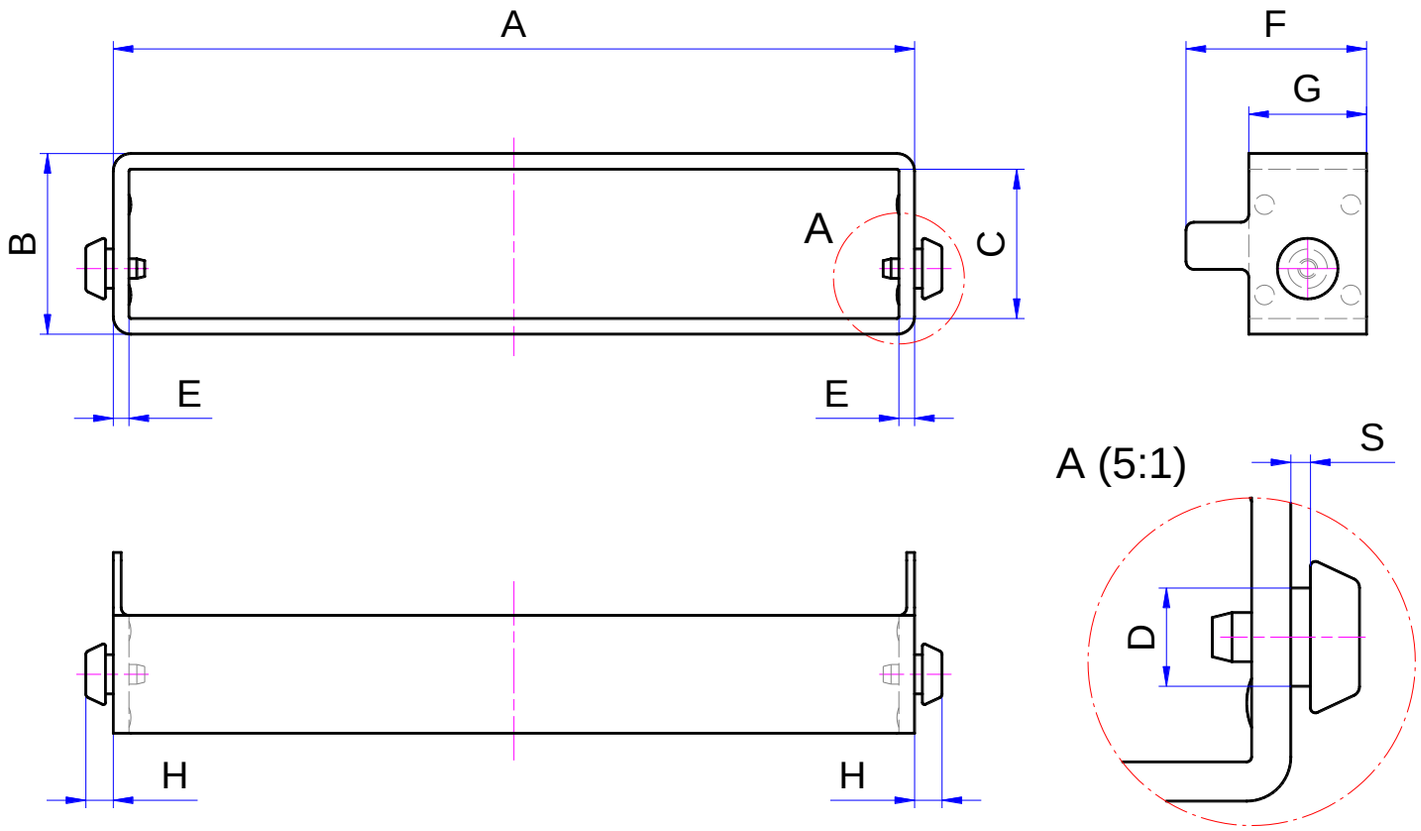
Seal ring with 34,0 mm diameter inside
44,0 mm diameter outside
2,0 mm material thickness

Article no. = DR-340-440-20

For Info!
With our CO2 Lasers we are able to cut out variable contours from various materials/ filter materials, seal materials etc. (see page 27).

Hard disk sleeves

Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	approximately 65 °Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG 1907/2006 (REACH)



Article number:

HDM	25	070	10 or 20
Article	hard disk size 25 = 2,5 inch 35 = 3,5 inch	hard disk height dimension C in 1/10 mm	panel thickness 10 = from 0,75 to 1,25 mm 20 = from 1,50 to 2,50 mm

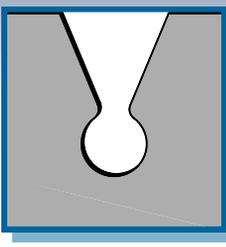
Hard disk sleeves HDM-25-070-10 and HDM-25-070-20
are specially developed for 7 mm high SSD devices!

Article no.	A	B	C	D	E	F	G	H	S	Panel thickness
HDM-25-070-10	73,4 *	10,0	7,0	5,0	1,5	16,0	10,0	3,5	1,0	0,75 to 1,25
HDM-25-070-20	73,4 *	10,0	7,0	5,0	1,5	16,0	10,0	4,5	2,0	1,5 to 2,5
HDM-25-095-10	73,4 *	12,5	9,5	5,0	1,5	16,0	10,0	3,5	1,0	0,75 to 1,25
HDM-25-095-20	73,4 *	12,5	9,5	5,0	1,5	16,0	10,0	4,5	2,0	1,5 to 2,5
HDM-35-254-10	106,1 *	29,4	25,4	6,0	2,0	23,0	15,0	3,5	1,0	0,75 to 1,25
HDM-35-254-20	106,1 *	29,4	25,4	6,0	2,0	23,0	15,0	4,5	2,0	1,5 to 2,5

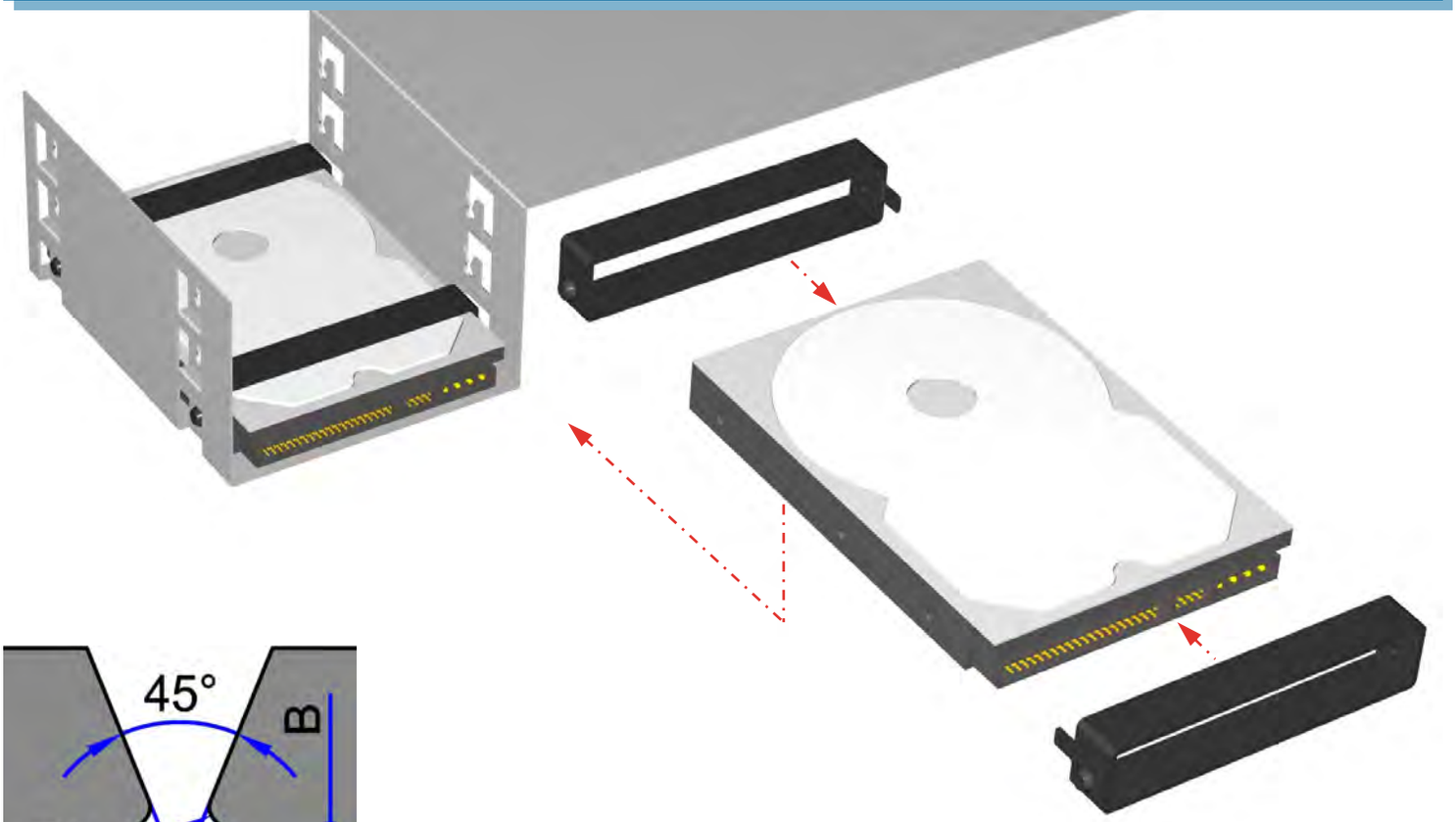
All dimensions in mm! *Other hard disk sleeves on request* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

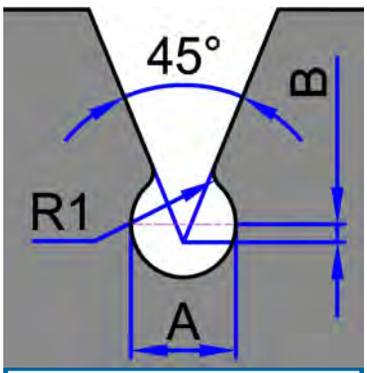
Legend: * **dimension A refers to size after the sleeve was pushed/ pulled over the hard disk!**

Size A:	width outside	**Size D:**	diameter of the plug-in peg	**SizeG:**	depth outside
Size B:	height outside	**Size E**	gap between hard disk/ panel	**Size H:**	height of the plug-in peg
Size C:	height inside	**Size F:**	depth overall	**Size S:**	clearance plug-in peg



Recommended cut out dimensions for housing boxes or mounting frames.
With the elastic hard disk sleeves you can fix hard disks without tools in a very quick and safe way. Therefore the housing boxes or mounting frames need to be manufactured/ adjusted accordingly (see recommended cut-out and mounting examples). To assemble the hard disks with housing boxes or mounting frames you always need a pair of hard disk sleeves.





Recommended cut-out for housing boxes and mounting frames.

	A	B
for HDM-25	5,2 $^{+0.2}$	0,5
for HDM-35	6,2 $^{+0.2}$	1,0

Mounting information:

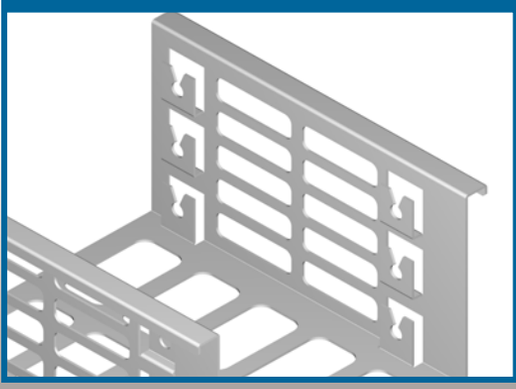
Both hard disk sleeves will be pushed/ pulled over the hard disk, until the inside pins of the sleeve will match to the drilled holes of the hard disk.

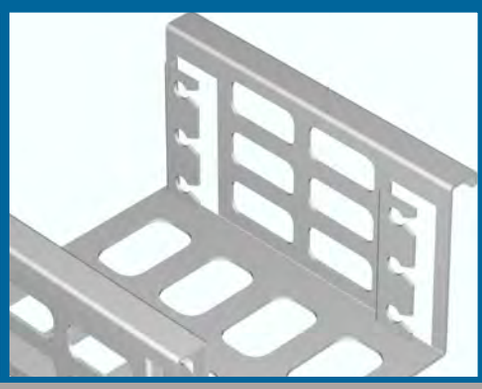
Please bear in mind that the pins are justified downwards.

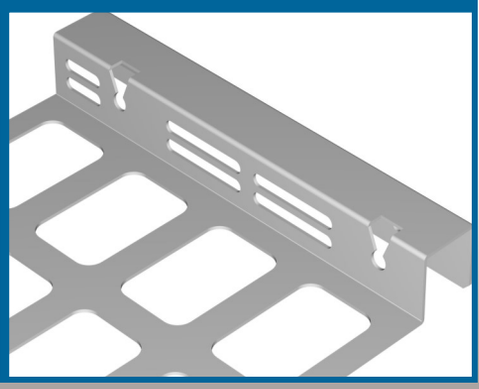
Then the plug-in pegs of the sleeves need to be pushed into the conical cut-outs, until they have been snapped in.

Attention!
By adjusting the size of radius R1 and the dimension of B the resistance of power to mount and dismount the hard disk sleeves can be altered.

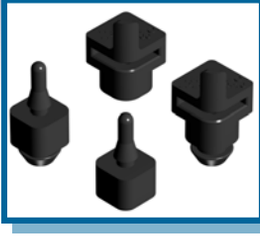
Examples for mounting frames





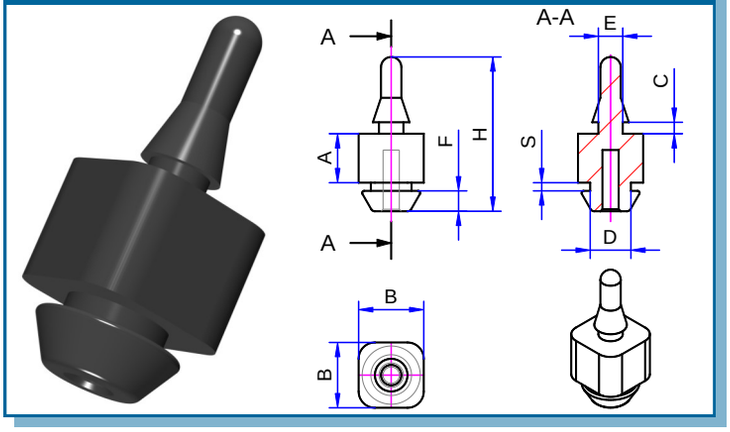


PCB-fasteners

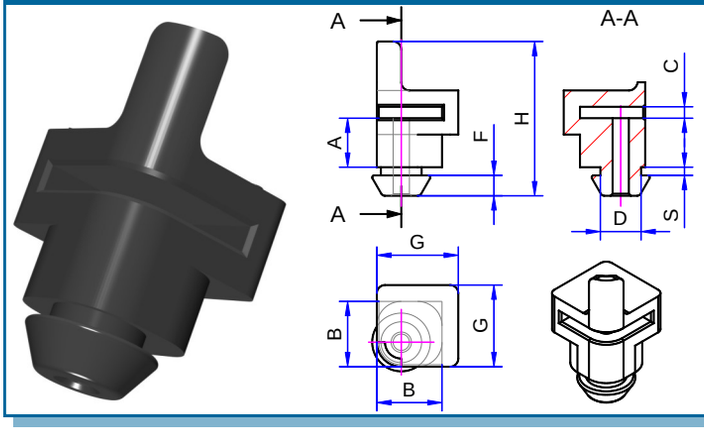


Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	approximately 65° Shore A
Temperature resistance:	from - 40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG 1907/2006 (REACH)

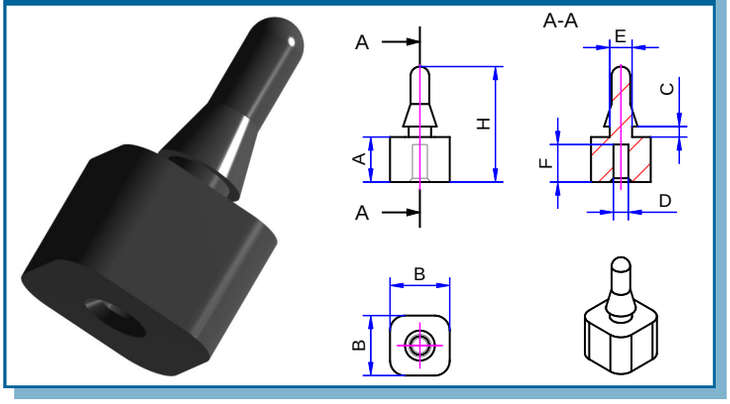
Plug-in element with plug-in peg/ Article no. SES-xx



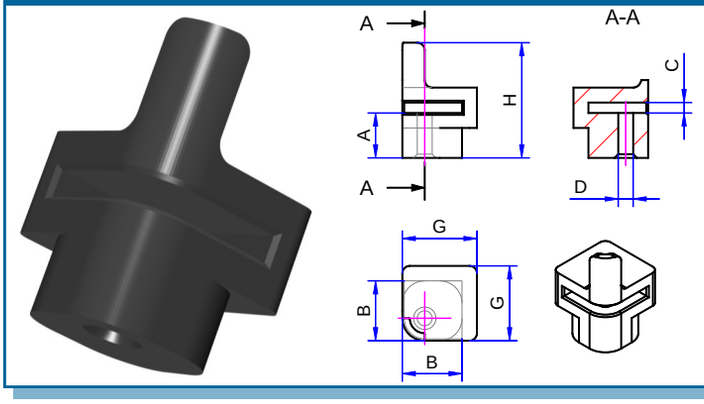
Corner element with plug-in peg/ Article no. EES-xx



Plug-in element with drilled hole/ Article no. SEB-xx



Corner element with drilled hole/ Article no. EEB-xx



Article number:

SES / EES SEB / EEB	16	60	30 oder 40	10 oder 20
Article	thickness of PCB in 1/10 mm	dimension A in 1/10 mm	dimension E in 1/10 mm 30 = for 3 - 3,5 mm drilled holes 40 = for 4 - 4,5 mm drilled holes in the printed circuit board	10 = for panel thickness from 0,75 to 1,25 mm 20 = for panel thickness from 1,50 to 2,50 mm

Article no.	A	B	C	D	E	F	H	S
SES-16-50-30-10	5,0	8,0	1,4	5,0	3,0	2,5	17,9	1,0
SES-16-60-30-10	6,0	8,0	1,4	5,0	3,0	2,5	18,9	1,0
SES-16-80-30-10	8,0	8,0	1,4	5,0	3,0	2,5	20,9	1,0
SES-16-100-30-10	10,0	8,0	1,4	5,0	3,0	2,5	22,9	1,0
SES-16-50-30-20	5,0	8,0	1,4	5,0	3,0	2,5	18,9	2,0
SES-16-60-30-20	6,0	8,0	1,4	5,0	3,0	2,5	19,9	2,0
SES-16-80-30-20	8,0	8,0	1,4	5,0	3,0	2,5	21,9	2,0
SES-16-100-30-20	10,0	8,0	1,4	5,0	3,0	2,5	23,9	2,0
SES-16-50-40-10	5,0	8,0	1,4	5,0	4,0	2,5	18,9	1,0
SES-16-60-40-10	6,0	8,0	1,4	5,0	4,0	2,5	19,9	1,0
SES-16-80-40-10	8,0	8,0	1,4	5,0	4,0	2,5	21,9	1,0
SES-16-100-40-10	10,0	8,0	1,4	5,0	4,0	2,5	23,9	1,0
SES-16-50-40-20	5,0	8,0	1,4	5,0	4,0	2,5	19,9	2,0
SES-16-60-40-20	6,0	8,0	1,4	5,0	4,0	2,5	20,9	2,0
SES-16-80-40-20	8,0	8,0	1,4	5,0	4,0	2,5	22,9	2,0
SES-16-100-40-20	10,0	8,0	1,4	5,0	4,0	2,5	24,9	2,0
SEB-16-60-30	6,0	8,0	1,4	2,0	3,0	5,0	15,4	-
SEB-16-80-30	8,0	8,0	1,4	2,0	3,0	5,0	17,4	-
SEB-16-100-30	10,0	8,0	1,4	2,0	3,0	5,0	19,4	-
SEB-16-60-40	6,0	8,0	1,4	2,0	4,0	5,0	16,4	-
SEB-16-80-40	8,0	8,0	1,4	2,0	4,0	5,0	18,4	-
SEB-16-100-40	10,0	8,0	1,4	2,0	4,0	5,0	20,4	-

Article no.	A	B	C	D	F	G	H	S
EES-16-50-10	5,0	8,0	1,4	5,0	2,5	10,0	17,9	1,0
EES-16-60-10	6,0	8,0	1,4	5,0	2,5	10,0	18,9	1,0
EES-16-80-10	8,0	8,0	1,4	5,0	2,5	10,0	20,9	1,0
EES-16-100-10	10,0	8,0	1,4	5,0	2,5	10,0	22,9	1,0
EES-16-50-20	5,0	8,0	1,4	5,0	2,5	10,0	18,9	2,0
EES-16-60-20	6,0	8,0	1,4	5,0	2,5	10,0	19,9	2,0
EES-16-80-20	8,0	8,0	1,4	5,0	2,5	10,0	21,9	2,0
EES-16-100-20	10,0	8,0	1,4	5,0	2,5	10,0	23,9	2,0
EEB-16-50	5,0	8,0	1,4	2,0	-	10,0	14,4	-
EEB-16-60	6,0	8,0	1,4	2,0	-	10,0	15,4	-
EEB-16-80	8,0	8,0	1,4	2,0	-	10,0	17,4	-
EEB-16-100	10,0	8,0	1,4	2,0	-	10,0	19,4	-

The needed tools for manufacturing the PCB fasteners are designed in modular construction.

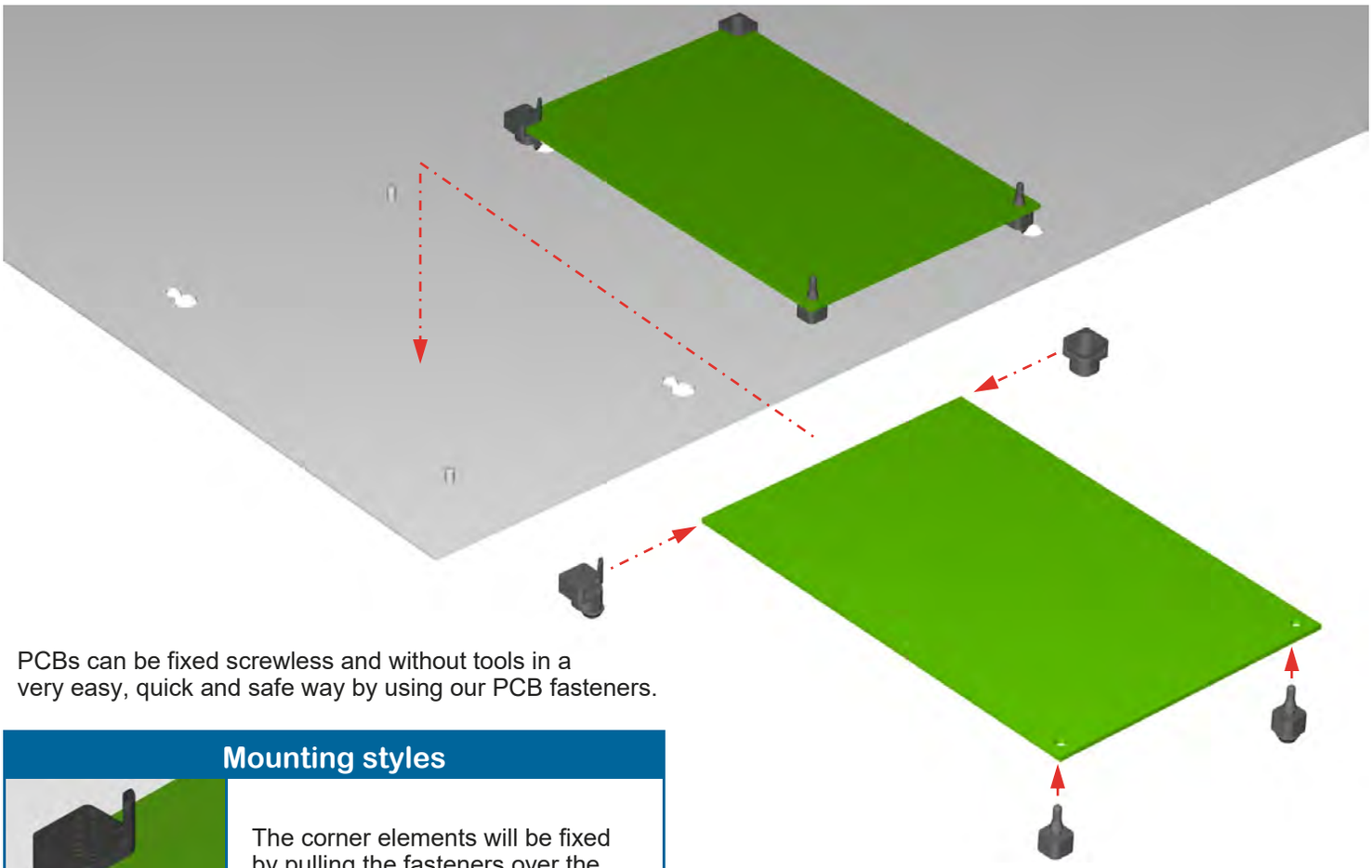
We are able to realize very easy various dimensions of distances according size A.

Please contact!

All dimensions in mm! CAD Data sheets on www.thoptec.de and on „TraceParts“.

For being able to fix PCBs with our elastic PCB fastening elements you must provide the mounting panel or housing wall either with drilled holes, 8-shaped hole cut-outs or forced in pins.

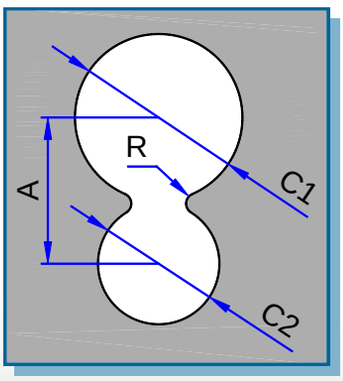
The mounting styles of the elements are depending on the type of PCB. The PCB fasteners can be fixed either by pulling the fasteners over the PCB edges or by drilled holes in the printed circuit board.



PCBs can be fixed screwless and without tools in a very easy, quick and safe way by using our PCB fasteners.

Mounting styles

	The corner elements will be fixed by pulling the fasteners over the PCB edges.
	The plug-in elements will be plugged into the drilled hole and pulled out on the backside of a printed circuit board.
	Types of SES and EES fasteners with plug-in pegs can be fixed easy by plugging into a slightly chamfered hole (diameter 5,5mm) in the mounting panel.
	...or by plugging-in the peg into a 8-shaped perforation, first into the larger hole of the mounting panel and then push or pull them into the smaller hole.
	Types of SEB and EEB fasteners with a drilled hole need to be plugged onto a forced-in pin on the mounting panel with dimensions of 3,0 x 6,0mm, with or without threads.



Attention!

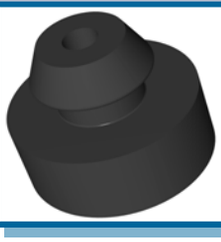
By adjusting the size of dimension A and radius R the resistance of power to mount and dismount the hard disk sleeves can be altered.

Dimensions of hole cut-outs

A	C1	C2	R
6,5	7,5	5,2	1,0

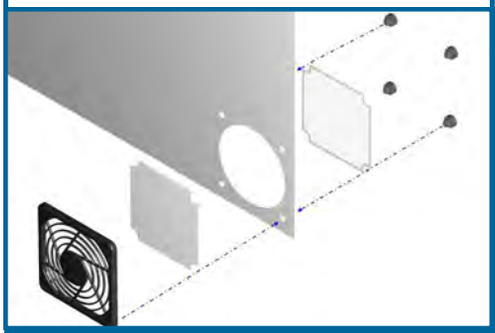
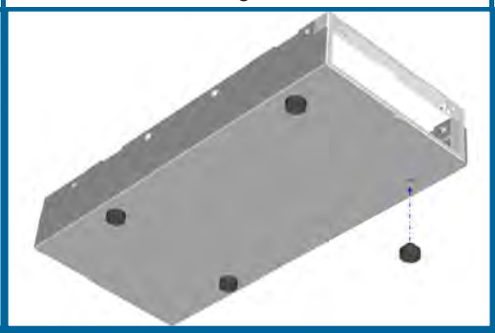
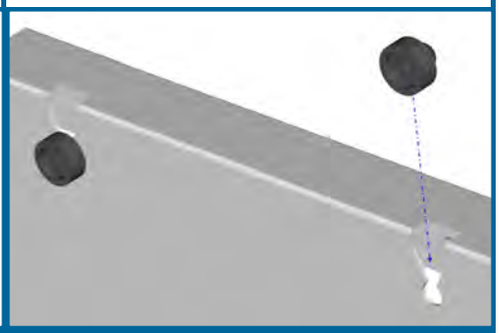
All dimensions in mm!

Universal mounting elements

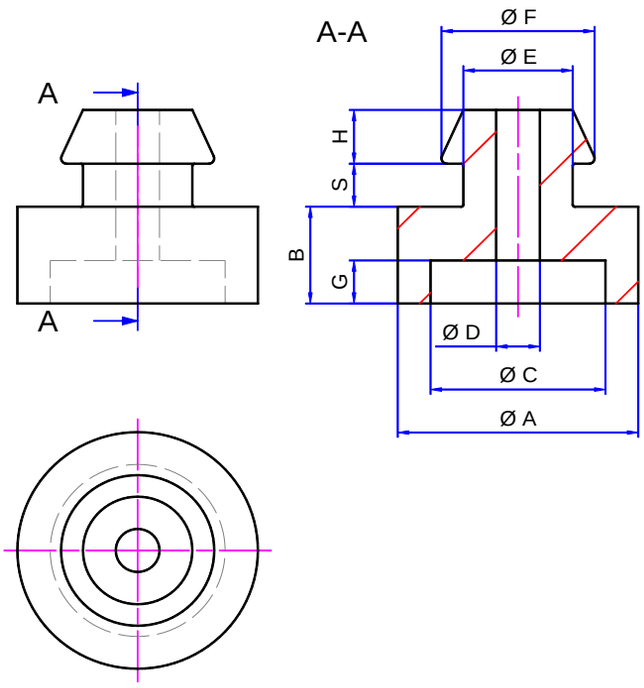


Material:	TPE (Thermoplastic elastomer)
Colour:	black
Hardness:	approximately 65 °Shore A
Temperature resistance:	from -40 to +100° C
Fire resistance:	UL94-V-0
Equals guideline:	RoHS 2015/863/EU and EG 1907/2006 (REACH)

Application examples

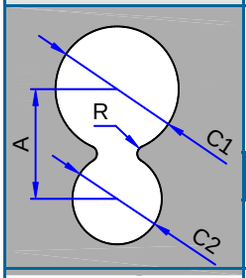
In combination with our universal mounting elements you can fix all available accessories for axial fan sleeves.	The universal mounting elements can be used for instance as pegs for housing boxes.	The universal mounting elements are also suitable as a stop buffer .
		

On request the universal mounting elements are also available in various dimensions.



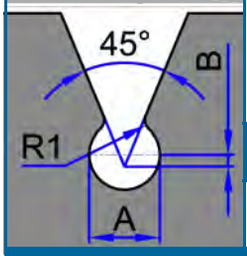
Mounting styles

Universal mounting elements can be fixed easy by plugging the peg into a slightly chamfered hole (diameter 5,2 mm) in the mounting panel....



...or by plugging the peg into a 8-shaped perforation, first into the larger hole of the mounting panel and then push or pull it into the smaller hole.

A	C1	C2	R
6,5	7,5	5,2	1,0



The plug-in peg of the universal mounting element can also be pushed into a conical cut-out, until it has been snapped in (see picture left).

A	B
5,2	0,5

All dimensions in mm!

Article number: UME — 110 — 45 — 10 or 20

Article	diameter size A in 1/10 mm	height dimension B in 1/10 mm	panel thickness: 10 = from 0,75 to 1,25 mm 20 = from 1,50 to 2,50 mm

Article no.	A	B	C	D	E	F	G	H	S	Panel thickness
UME-110-45-10	11,0	4,5	8,0	2,0	5,0	7,0	2,0	2,5	1,0	0,75 bis 1,25
UME-110-45-20	11,0	4,5	8,0	2,0	5,0	7,0	2,0	2,5	2,0	1,50 bis 2,50

All dimensions in mm! *Other sizes on request!* *CAD Data sheets on www.thoptec.de and on „TraceParts“.*

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85567 Grafing-Schammach

has introduced and uses
a quality management system in accordance with

DIN EN ISO 9001:2015

for the area of application

development, manufactoring and sales of customized injection moulded parts, and laser cutting.

The recertification has yielded documentary evidence that these requirements have been met.

This certificate is valid from: **14.09.2021** to **13.09.2024**

Certificate registration no.: **301362**

Oberlaindern, 13.09.2021

Certifying authority

Date of first certification: 10.09.2015

DAkkS Deutsche Akkreditierungsstelle

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According to your specific needs in terms of use, material properties, surface and colour we are in the position to produce high quality injection moulded parts.

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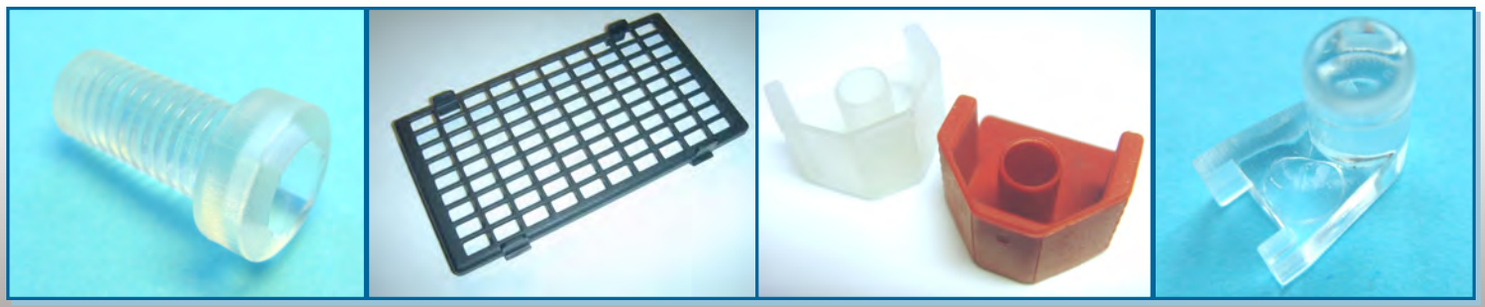
By using these machines the tool holder takes over the function of the master form. The tool size can be reduced and therefore tool expenses drop down essentially.

The machines are working with a considerable improved level of energy consumption and are equipped with a self contained cooling system that enables a resource-saving production.

Do not hesitate to call us or send us your CAD data sheets, drawings or samples. We submit an offer based on prices for tool costs and parts for various production batches.

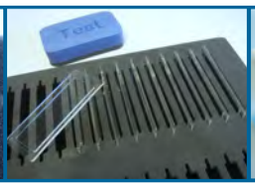
Examples for manufactured parts:

Lens holder with inside thread | Cover cap for DVI-interface | Ergo transmitter with holder | Choke holder

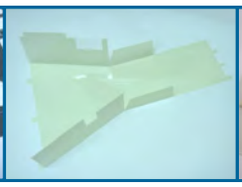
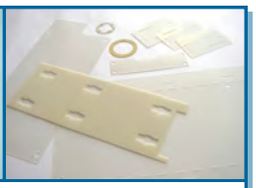


Special screw M10 x 22 | Clip on coarse dust filter holder | Dust protection cover | LED–illuminated push-button

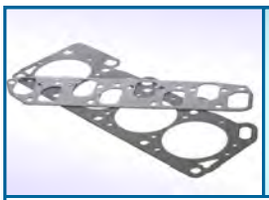
With our high-quality large size CO2 Laser we are able to cut out variable contours from various materials/ filter materials, foam materials and seal materials etc.


Foam materials such as for packaging etc. and filter materials can be cut out precisely without fraying.

Foils and films made such as made by Lexan ®, Hostaphan ®, Mylar ® etc. can be cut out and/ or perforated, then being bended on the perforation.



Seals made of various materials and also cellular rubber, even single-sided self-bonding can be cut out by a hair´s breadth.


By using different plastics such as PMMA (acrylic, Plexiglas ®), polycarbonate, polystyrene, polyoxymethylene, polyester, acrylonitrile butadiene styrene etc. plates, front panels or various other things can be cut out or engraved.


Also timber, wood-based material, cardboard packaging, paper, cartons, textiles, leather and various other materials can be cut out or engraved in a very detailed way.

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