LSK AND LVK CHEMICAL ANCHOR SYSTEMS

For expansion pressure free fixing in masonry.

Function: The system consists of a threaded stud, sieve, and injection mortar. The connection between the fixing and the base material is created by bond with the base material (for solid masonry) or a combination of bond and mechanical interlock with cavities in the masonry (for hollow masonry).

Benefits:

- Fixing produces no expansion pressure
- Reduced permissible edge distances and spacings
- Mixing nozzle ensures proper mixing of A and B components
- Reliable mechanical interlock in hollow masonry
- Completely seals drilled hole

Injection Mortar LSK 300 PSF
Internal bag cartridge system

Injection Mortar LVK 300 PSH and PSF
Coaxial cartridge

Injection Mortar LVK 345 PSH and PSF
Side-by-side cartridge

Injection Mortar LVK 380 PSH and PSF
Coaxial cartridge

LSK AND LVK

CONSTRUCTION:

Threaded Stud LMAS

Injection Mortar LVK

Injection Mortar LSK for Silicone Tools

Applicator Guns (see pg. 58)

MATERIAL:

- LMAS: Grade 5.8 carbon steel, zinc plated and blue passivated
- LVK + LSK cartridges: Filled with polyester resin, mineral aggregates and hardener

BASE MATERIAL:

- DIN 1053 Masonry
- Natural stone
- Concrete

APPROVAL:

Deutsches Institut für Bautechnik (DIBt) Z-21.3-1773

LOAD RANGE:

F_{perm} = 0.3 - 1.7 [kN] in all directions

TEMPERATURE RANGE:

Maximum long-term service temperature = +50°C; Maximum short-term service temperature = +80 °C

RANGE SUPPLIED:

LMAS threaded stud: M8 – M12, carbon steel, zinc plated and blue passivated

APPLICATIONS:

- Brackets
- Cable trays
- Steel construction
- Railings

BENEFITS:

- Causes no expansion pressure
- Reduced edge distances and spacings
- Reliable mechanical interlock in hollow masonry
- Completely seals drilled hole

PRODUCT DESCRIPTION:

- The LSK and LVK Injection Anchor Systems is an expansion pressure free fixing system that consists of injection mortar, a sieve and threaded stud with a hex nut and washer.
- The system is approved for use in masonry meeting DIN 1053 and is also suitable for use in concrete and natural stone.
- The load carrying capacity of the system results from bond and mechanical interlock of the injection mortar with the base material.
- The bond strength between the cured chemical and the drilled hole is dependent on the thorough cleaning of the drilled hole. Follow the installation instructions carefully

STORAGE OF LVK + LSK:

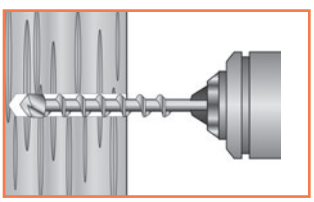
Dry, dark, at a temperature between +5°C and +25°C

SHELF LIFE:

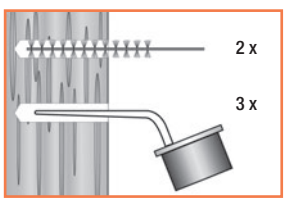
12 months after manufacture when stored according to the above recommendations

INSTALLATION:

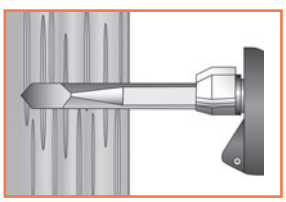
Pre-fix installation shown



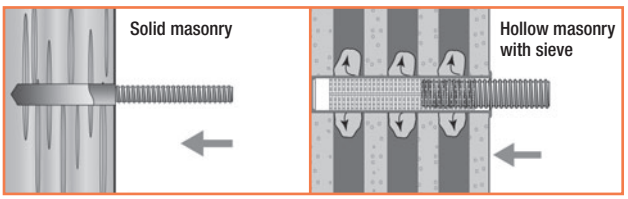
Drill hole



Thoroughly clean (brushing + blowing)



Inject mortar



Fixing into masonry

LSK AND LVK

Injection Mortar LVK/LSK

LVK/LSK - Cartridges: Filled up with polyester resin, hardener and mineral aggregates

300 ml Cartridge

345 ml Side-by-side cartridge

380 ml Coaxial cartridge

Type	Order Code	Content	Weight	Box Quantity
		[ml]	[kg/12 pcs]	[pcs]
LSK 300 PSF styrene free with internal bag	LSK300PSF	300	7.00	12
LVK 300 PSF styrene free	LVK300PSF	300	7.00	12
LVK 300 PSH with styrene	LVK300PSH	300	7.00	12
LVK 345 PSF styrene free	LVK345PSF	345	8.50	12
LVK 345 PSH with styrene	LVK345PSH	345	8.50	12
LVK 380 PSF styrene free	LVK380PSF	380	10.0	12
LVK 380 PSH with styrene	LVK380PSH	380	10.0	12

* Each cartridge includes 1 mixing nozzle.

Mixing Nozzle

Type	Order Code	Weight
		[kg/100 pcs]
Mixing Nozzle	MD	1

Threaded Stud LMAS

Threaded stud with hex nut and washer
Material: Grade 5.8 steel, zinc plated and blue passivated
Approval: Z-21.3-1773

Type	Order Code	Thread Size	Max. Fixture Thickness	Eff. Embedment Depth	Total Length	Weight	Box Quantity
			t_{fix}	h_{ef}	L		
		[mm]	[mm]	[mm]	[mm]	[kg/100 pcs]	[pcs]
LMAS M8x100	LMAS08080010	M8	10	80	100	3.6	10
LMAS M10x110	LMAS10090010	M10	10	90	110	7.0	10
LMAS M12x110*	LMAS12090015	M12	10	80	110	10.0	10

Custom lengths and stainless steel available on request.

*Not included in approval.

Plastic Sieve SH

Nylon sieve

Type	Order Code	Compatible LMAS	Ø Sieve	Sieve Length	Ø x Depth of Drilled Hole	Weight	Box Quantity
					d_0 x h_1		
		[mm]	[mm]	[mm]	[mm]	[kg/100 pcs]	[pcs]
SH 15/85	SH15085	LMAS M8x100	15	85	16 x 90	0.4	12
SH 15/100	SH15100	LMAS M8x100 LMAS M10x110	15	100	16 x 105	0.6	12
SH 20/85*	SH20085	LMAS M12x110	20	85	20 x 90	0.8	12

*Not included in approval.

Metal Sieve SHM

Steel sieve (cut to length required)

Type	Order Code	Compatible LMAS	Ø Sieve	Sieve Length	Ø x Depth of Drilled Hole	Weight	Box Quantity
					d_0		
		[mm]	[mm]	[mm]	[mm]	[kg/100 pcs]	[pc]
SHM 16/1000*	SHM161000	LMAS M10 + M12	16	1000	16	7.6	1

*Not included in approval.

Internally Threaded Sleeve IGH

Steel internally threaded sleeve

Type	Order Code	Compatible LMAS	Ø Sieve	Sieve Length	Ø x Depth of Drilled Hole d_0 x h_1	Weight	Box Quantity
		[mm]	[mm]	[mm]	[mm]	[kg/100 pcs]	[pcs]
IGH M8x80*	IGH08080	LMAS M8	12	80	14 x 90	3.5	12
IGH M10x80*	IGH10080	LMAS M10	14	80	16 x 90	4.8	12
IGH M12x80*	IGH12080	LMAS M12	16	80	18 x 90	5.6	12

*Not included in approval.

Curing Schedule

Temperature	°C	≥ +5	≥ +20	≥ +30	≥ +40
Working time	min	≥ 20	≥ 6	≥ 4	≥ 2
Cure time	min	≥ 120	≥ 45	≥ 25	≥ 15

Base material temperature shall not fall below +5 °C during the cure time.

Load Capacity in Masonry

Permissible loads F_{perm} for single anchors for tension, shear and oblique loads in any direction

Sieve		Drilled Hole		Threaded Stud		Permissible Loads[2]							
Type	Setting Depth	d_0	h_1	Size	Eff. Embedment Depth h_{ef}	MZ 12	KS 12	Hlz 4	Hlz 6	Hlz 12	KSL 4	KSL 6	KSL 12
	[mm]	[mm]	[mm]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]
SH 15/85	85	16	90	M8	80	1.7	–	0.3 (0.6)	0.4 (0.8)	0.8 (1.0)	–	–	–
SH 15/100	100	16	105	M8	80	–	1.7	–	–	–	0.4 (0.6)	0.6 (0.8)	0.8 (1.4)
				M10	90	1.7	1.7	0.3 (0.6)	0.4 (0.8)	0.8 (1.0)	0.4 (0.6)	0.6 (0.8)	0.8 (1.4)
SH 20/85[1]	85	20	90	M12[1]	80	1.7	1.7	0.3 (0.6)	0.4 (0.8)	0.8 (1.0)	0.4 (0.6)	0.6 (0.8)	0.8 (1.4)

1) Not included in approval.

2) MZ = DIN 1053 solid masonry. KS = DIN 1053 solid limestone masonry. Hlz = DIN 1053 hollow masonry. KSL = DIN 1053 limestone hollow masonry. The number following the masonry type indicates the compressive strength in N/mm². For anchoring in Hlz, the load capacity in parentheses may be used if the hole is drilled in rotation-only mode. For anchoring in KSL, the load capacity in parentheses may be used if the hole is drilled in rotation-only mode and the installer verifies that the face shell is at least 30 mm thick.

Edge distances, Spacings and Member Dimensions

Sieve	Threaded Stud	Anchor Group[3]		Single Anchor				Ø Fixture Hole d_f	Max. Install. Torque T_{inst}
Type	Type	Spacing a	Min. Spacing a_{min}	Min. Spacing a_z	Edge Distance a_r	Edge Distance a_r[5]	Min. Member Thickness h		
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[Nm]
SH 15/85	LMAS M8 x 100	≥100	50	250	≥200 (≥ 250)[4]	≥50 (≥ 60)[4]	110	≤ 9	2
SH 15/100	LMAS M8 x 100 LMAS M10 x 110							≤12	
SH 20/85[1]	LMAS M12 x 110							≤14	

3) The spacing "a" can be reduced for anchor groups if the permitted loads are reduced as specified in approval Z-21.3-1773.

4) Dimensions shown in parentheses are only valid for MZ and KS.

5) Special edge distance: Only valid for masonry that is in compression or restrained against overturning.

Member Dimensions

Permissible Loads for Anchor Groups with Reduced Spacings: $a_{min} \le a_{red} < a$	
Two anchor group:	$F_{red} = \kappa_a \bullet F_{perm}$ $\kappa_a = ½ (1 + a_{red}/a) \le 1.0$
Four anchor group:	$F_{red} = \kappa_{a1} \bullet \kappa_{a2} \bullet F_{perm}$ $\kappa_{a1,2} = ½ (1 + a_{red1,2}/a) \le 1.0$

F_{perm} = Permissible load per anchor;
F_{red} = Reduced load per anchor;
a = Spacing; a_{red} = Reduced spacing