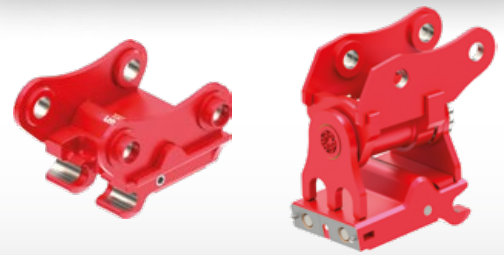


# Quickcoupler for hydraulic excavator



 12 - 40 t



# Quickcoupler for excavators from 12 to 40 t



One system concept - two components.

An idea born over 25 years ago has since become standard equipment in over 140,000 excavators.

With the quickcoupler on excavators and the adapter on the attachments, Lehnhoff has created a universal interface which allows the use of all attachments on different excavator makes.

p.06

Lehmatic MS (mechanical)



p.06

Lehmatic HS (hydraulic)



p.10

Variolock VL (fully hydraulic)



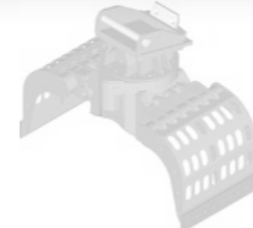
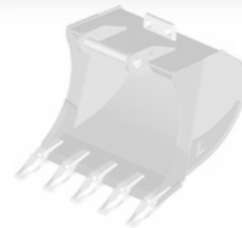
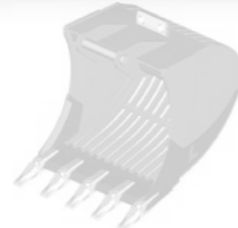
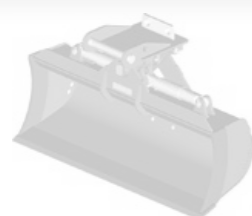
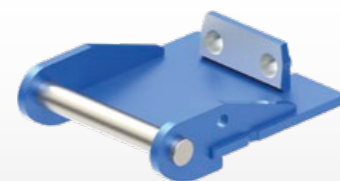
p.14

Power tilt, Rotator, Tiltrotator



p.08

Adapter



p.16

LSC



Lehmatic Safety Control LSC, optional for all hydraulic Lehnhoff quickcoupler systems

## Hydraulic excavators as a multifunctional device

Lehnhoff quickcoupler systems significantly extend the usage range of excavators. Hydraulic excavators are transformed into multifunctional equipment carriers for all buckets, grapples or demolition tools which are available for its class. The quick tool change of all attachments including the hydraulics allows a new, optimised way of working on construction sites. Lehnhoff quickcoupler systems are available for all excavator makes.



Since 2010, all Lehnhoff quickcoupler systems are Euro Test-certified by BG Bau.

## Adapter for a stable partnership

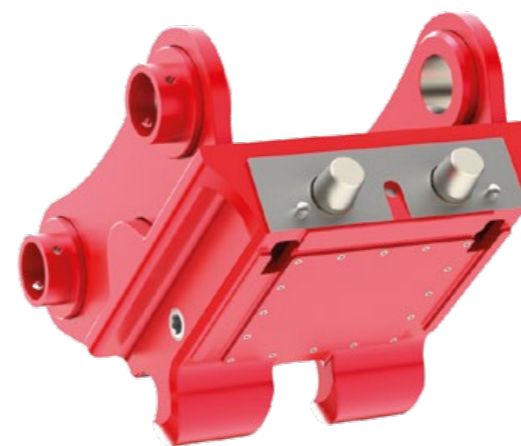
It's the counterpart to the quickcoupler with excavator-specific mounting: the adapter. All Lehnhoff attachments for hydraulic excavators are equipped with the suitable adapter as standard. In addition, the Lehnhoff adapter is available for all attachments on the market – advantages which make the universal Lehmatic adapter system a cost-efficient and future-proof investment.

## Lehmatic quickcoupler systems for solid connections

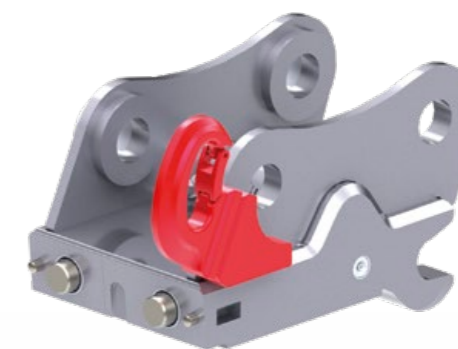
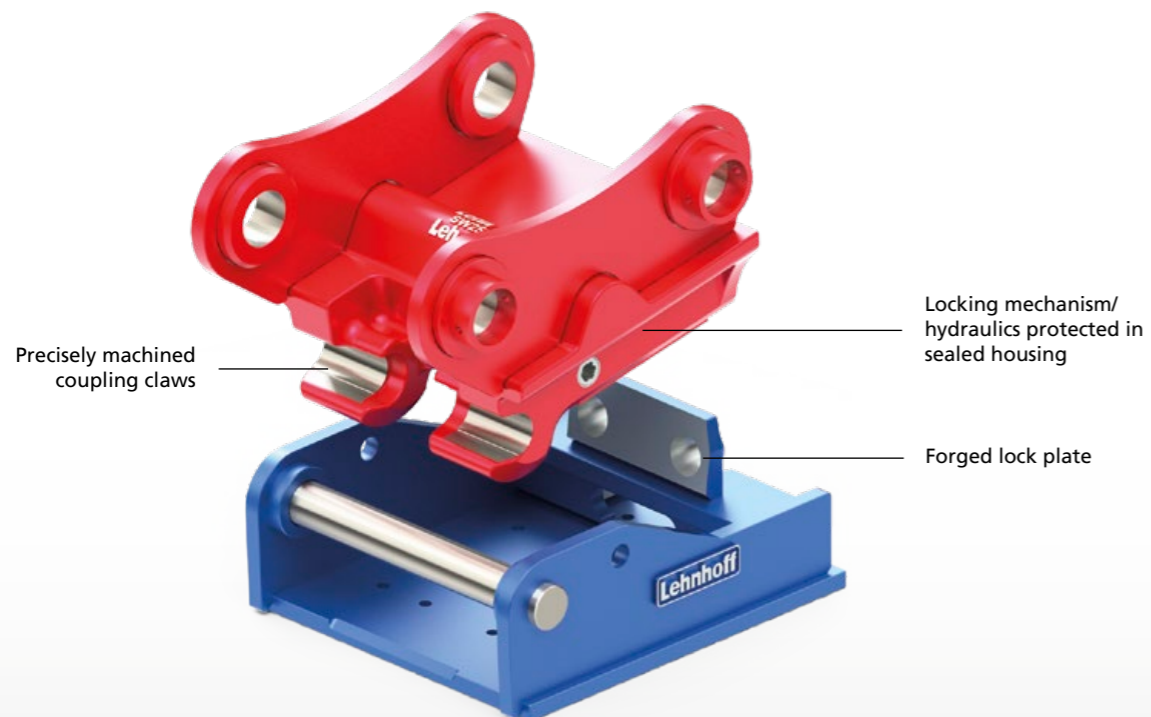


Solid connection:  
Lehmatic quickcoupler and adapter

- Long service life thanks to robust cast steel housing, all contact surfaces precisely CNC-processed
- Reliable and durable: automatic adjustment for backlash-free connection between quickcoupler and adapter
- Minimum loss of tensile strength through low build height
- Long service life and low maintenance thanks to sealed locking mechanism
- Available for all excavator makes and all suspensions

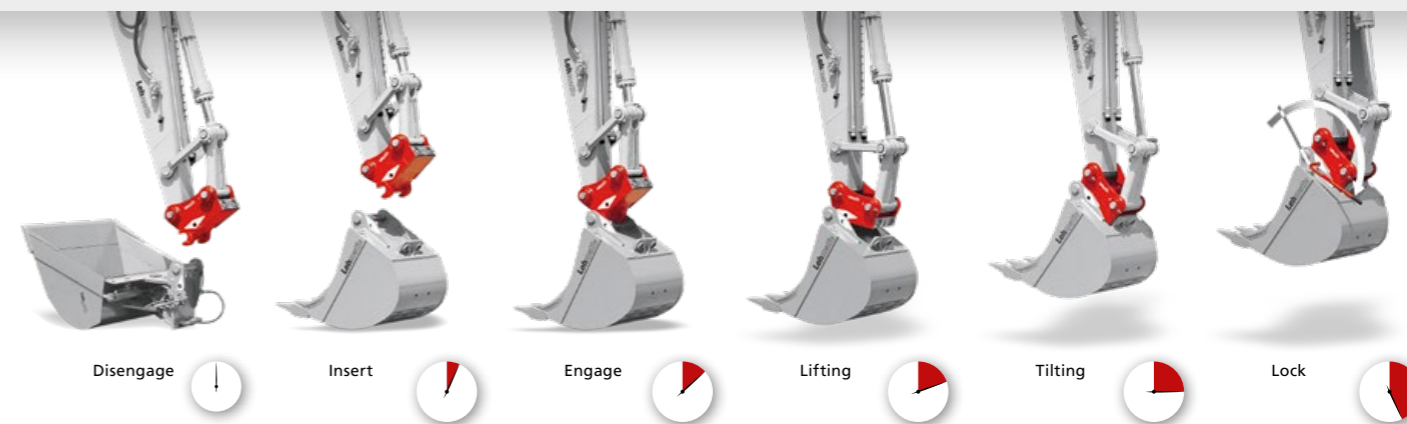


Long service life and high functional safety through selected materials and precise mechanical processing



All Lehmatic quickcouplers are optionally available with load hooks (8-10 t perm. load capacity)

With the Lehmatic quickcoupler systems, the excavator driver can refit their hydraulic excavator by themselves in less than 1 minute, from one attachment to another, with hydraulic actuation, even directly from the driver's cab.





e. g. MS 25



Unlocked - locking pins retracted



Socket wrench rotated by 120°, quickcoupler safely locked over deadpoint

## MS mechanical quickcoupler

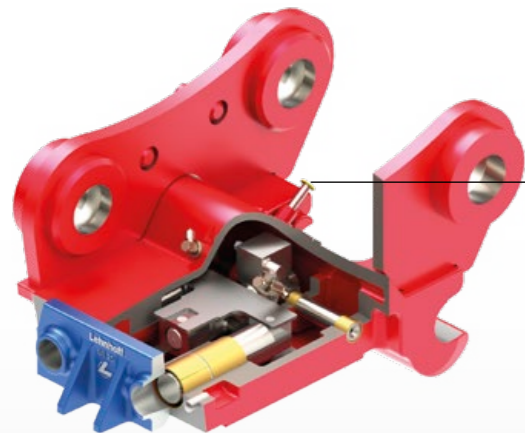
- Easy, quick and safe locking via manual socket wrench
- Long service life of the quickcoupler system through automatic adjustment in adapter
- High functional safety by locking via the deadpoint
- Long service life and low maintenance due to sealed locking mechanism
- Optionally with load hook

### MS mechanical quickcoupler

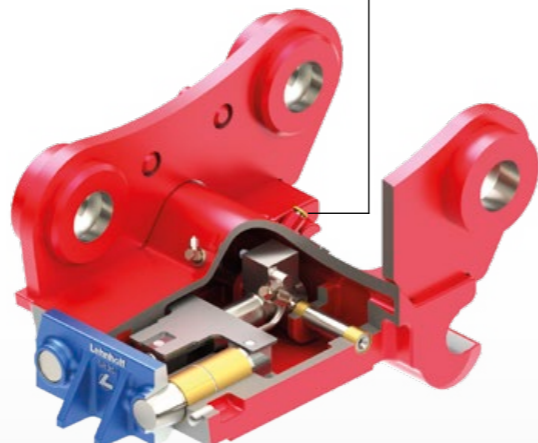
	MS 10	MS 21	MS 25
Excavator class (t)	10 - 19 t	18 - 28 t	26 - 40 t
Length (mm)	520	545	545
Width (mm)	395	495	495
Weight (kg)	170	270	320
Lehmatic adapter	SW 10	SW 21/25	SW 21/25
for coupling shaft (mm)	70	80	80



e. g. HS 21



Unlocked - locking bolts retracted



Safely locked – hydraulic cylinder with integrated safety valve and constant pressurisation

Optical locking indicator, indicator pin retracted

Optical locking indicator, visible from driver's cab, indicator pin extended

## HS hydraulic quickcoupler

- Convenient, quick and safe locking from driver's cab at the touch of a button
- Long service life of the quickcoupler system by automatic adjustment in adapter
- Always secure holding position of the lock through constant pressurisation and integrated safety valve on hydraulic cylinder
- High functional safety due to sealed locking mechanism/hydraulics
- Optional Lehmatic Safety Control (LSC) safety assistant system

### HS hydraulic quickcoupler

	HS 10	HS 21	HS 25
Excavator class (t)	10 - 19 t	18 - 28 t	26 - 40 t
Length (mm)	520	545	545
Width (mm)	395	495	600
Weight (kg)	170	270	310
Lehmatic adapter	SW 10	SW 21/25	SW 21/25
for coupling shaft (mm)	70	80	80

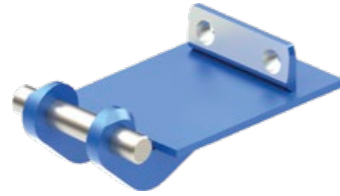


Lockable push button for actuation, protected against accidental unlocking. Locking control via indicator pin on quickcoupler

## Lehmatic adapter for all attachments



Adapter plate for backhoe bucket and bucket conversion



Adapter plate with internal suspension for narrow bucket up to 400 mm wide



Weld adapter for welding onto attachments



Screw adapter for demolition tools, such as hammers, etc.



Screw adapter for special hole patterns/hose laying



Grapple adapter to accommodate all sorts of grapples



Special adapter, e.g. for load hooks

## This ensures that attachments of all makes fit

No matter which make of attachment you want to connect to your excavator: the Lehmatic adapter brings them together. Lehnhoff offers a suitable Lehmatic adapter for all current tools and attachments.

- Front: coupling shaft for the coupling claws of the quickcoupler
- Rear: highly precise forged lock plate with the two characteristic holes
- Guaranteed secure connection

Lehmatic adapter for all attachments

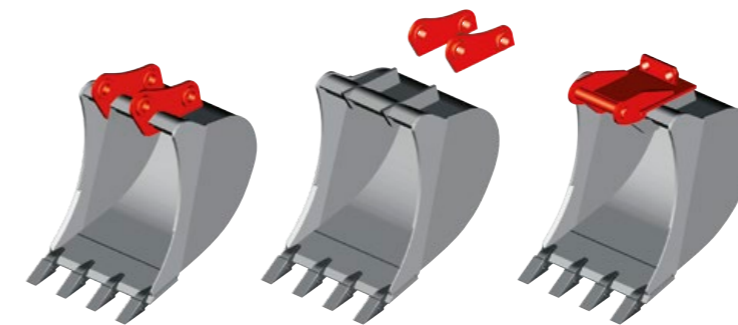
	SW 10	SW 21/25
Excavator class	10 - 19 t	18 - 40 t
suitable for all Lehmatic quickcouplers	MS 10	MS 21/25
	HS 10	HS 21/25
	VL 100	VL 210/250

## Adapter plate for existing backhoe bucket

Even existing backhoe buckets can be easily modified. To do this, the old suspension is simply removed and replaced by the Lehmatic adapter plate. If you do not wish to attach it yourself, the Lehnhoff factory service team is available to assist you with retrofitting the attachments. The adapter plates are mounted quickly, routinely, and reliably.

## Further services of the Lehnhoff factory service team

- Repair and complete overhaul of Lehmatic quickcouplers
- Repair of all sorts of buckets and attachments
- Repair of two- and multi-shell grapples
- Flame-cut parts and laser cutting

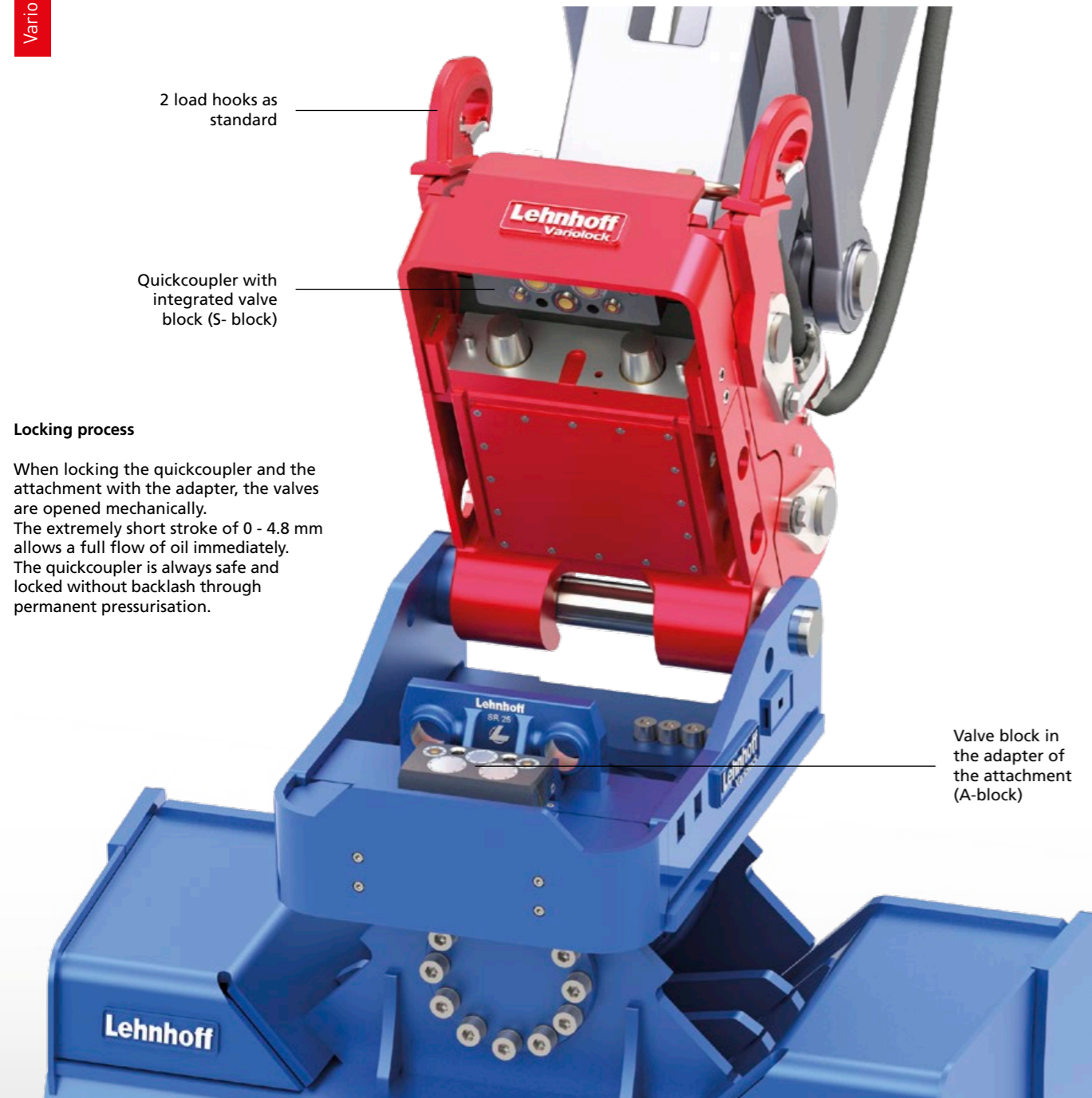


Quick and easy: modification of existing backhoe buckets to Lehmatic adapter



The backhoe bucket is ready for operation after conversion.

## Variolock VL 100 - 250 - the fully hydraulic quickcoupler for hydraulic excavators



2 load hooks as standard

Quickcoupler with integrated valve block (S-block)

### Locking process

When locking the quickcoupler and the attachment with the adapter, the valves are opened mechanically. The extremely short stroke of 0 - 4.8 mm allows a full flow of oil immediately. The quickcoupler is always safe and locked without backlash through permanent pressurisation.

Valve block in the adapter of the attachment (A-block)

## Each attachment safely in use, in just seconds

The fully hydraulic Variolock energy circuit coupling system makes changing all attachments easy, safe and quick. The driver can comfortably change all tools including the hydraulic connection at the press of a button from the cab, without having to leave the cab and without having to depend on other personnel.

## Very economical thanks to time and cost savings

- More effective working: tool change makes sense also with short work cycles
- More safety and convenience for the driver
- Cost reduction due to preservation of machine and attachments
- Prevention of hose ruptures
- Less contamination of the hydraulic system, environmentally friendly



## S-block: valve block in quickcoupler

- Flexibly stored on the underside of the quickcoupler
- With five short stroke valves
- Including leakage oil lines
- Integrate hydraulic tension supports ensure a solid hydraulic connection between S-block and A-block



## A-block: valve block in the attachment

- Mounted in the attachment adapter
- Short stroke valves are flush with the block surface and thus easy to maintain
- Valves optimally adjusted to the respective tool:
  - Two valves: e.g. tilt bucket, hammer
  - Three valves: e.g. drum cutter, rigid compactor
  - Four valves: e.g. rotatable grapple
  - Five valves: e.g. rotatable compactor

## Five short stroke valves enable all functions of all tools, including the leakage oil line



Tilt bucket: 2 valves

Sorting grab: 4 valves

Hammer: 2 valves

Drum cutters: 3 valves

Rotatable attachment compactor: 5 valves

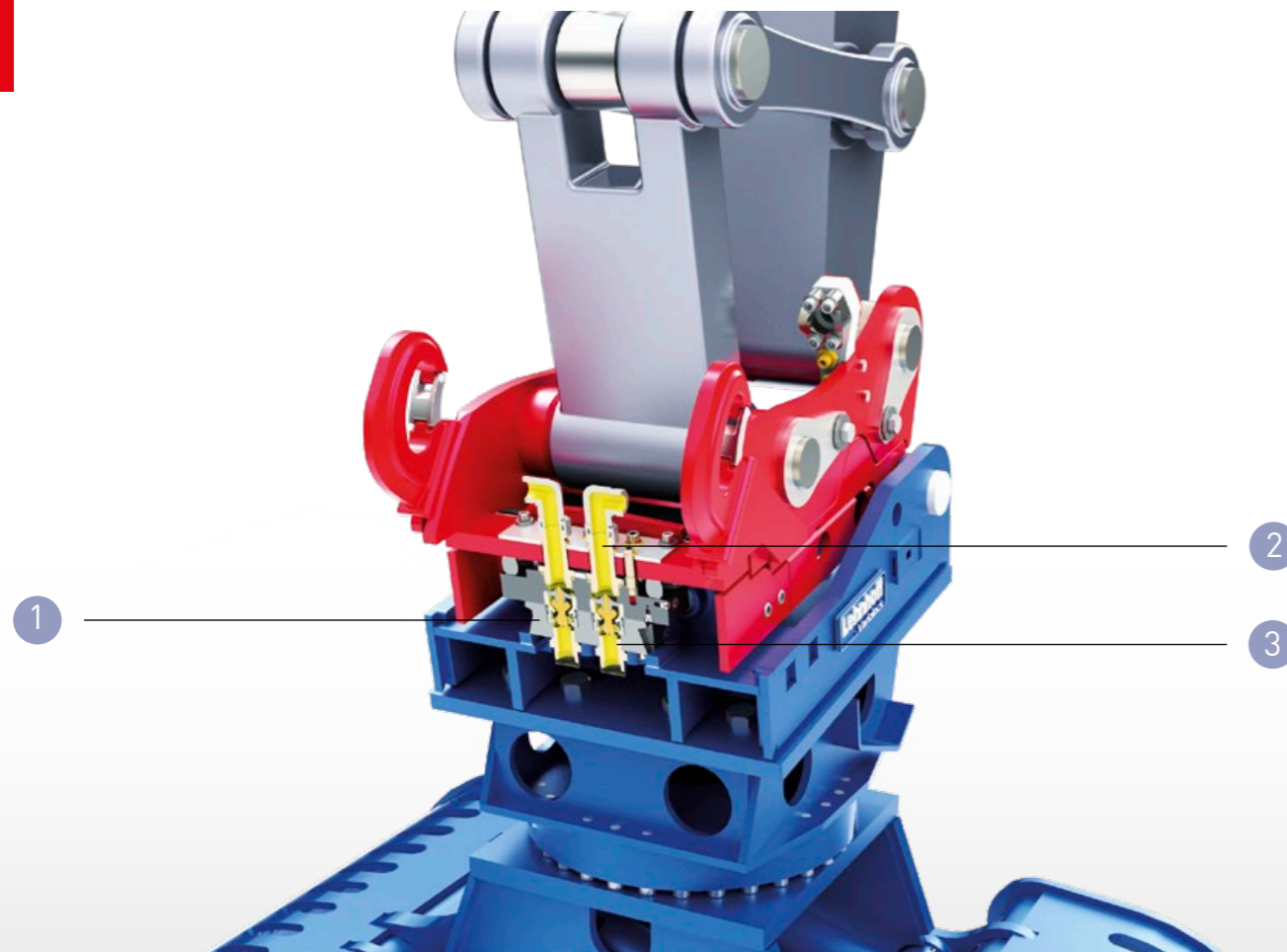
Recycler: 3 valves

Trench roller: 5 valves

Suspended grapple: 4 valves

Backhoe bucket: only valve protection

## Variolock VL 100 - 250, technical highlights



## Innovative technology for the highest productivity

- Compatible with all Lehmatic attachments, such as backhoe buckets, ripper teeth, etc.
- Functionally-safely integrated into Lehnhoff quickcoupler system
- Precise hydraulic connection through patented valve tensioning technology
- Minimum pressure loss and low heating from large oil flow
- Robust, easy to clean and service

Variolock

	VL 100-2	VL 210-2	VL 250-2
Excavator class (t)	10 - 19 t	18 - 28 t	26 - 40 t
Length (mm)	520	545	545
Width (mm)	395	495	600
Weight (kg)	220	350	550
compatible with adapter	SW 10	SW 21/25	SW 21/25
Load hook load capacity (t)	2 x 8	2 x 10	2 x 18

Optimised installation: hoses already installed up to SAE block flange

Optimum fit: delivery includes standardised bolts

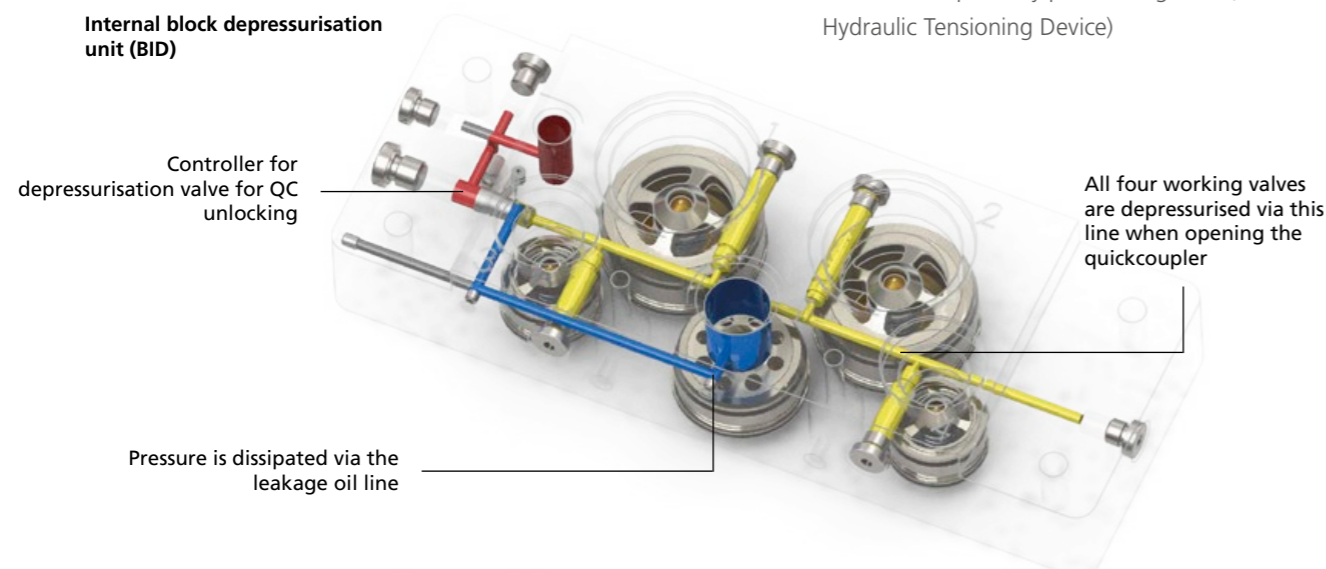


New valve block protection with form-fitting connection

### 1 Internal block depressurisation unit

- The work line and the grapple rotary line are depressurised for the unlocking process
- Increased service life of the valves
- Integrated into valve block, thus making costly and time-intensive installation on excavator unnecessary
- The installation effort thus corresponds to that of a conventional hydraulic quickcoupler

Internal block depressurisation unit (BID)

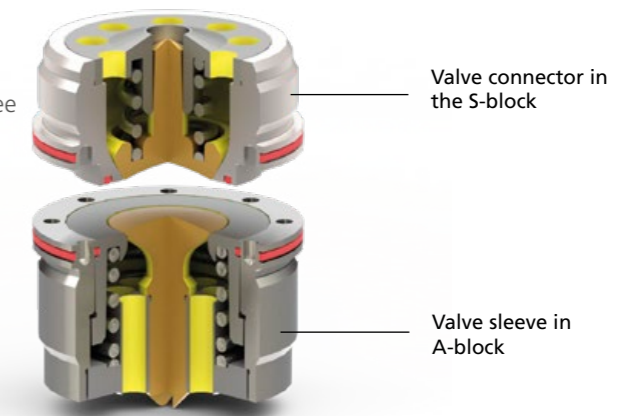


### 2 Secure locking/bracing (HTD)

- The short stroke valves are mechanically opened for the locking process
- Extremely short stroke of 0 to 4.8 mm immediately enables a full flow of oil
- Safe, backlash-free locking at all times through permanent pressurisation
- Hydraulic tensioning support ensures that the valve blocks are kept firmly pressed together (HTD - Hydraulic Tensioning Device)

### 3 Patented short stroke valves

- Connect attachments to working hydraulics safely and leak-free
- Optimally designed for excavator and attachments with maximum oil flow
  - ▶ Minimum dynamic pressure
  - ▶ Low heating
  - ▶ Less fuel consumption
  - ▶ Higher efficiency
- Easy to clean and service



Valves closed



Valves open - maximum flow

Lehnhoff short stroke valves

			VL 100	VL 210	VL 250
Excavator class (t)			10 - 19 t	18 - 28 t	28 - 40 t
Des.	Size	Flow (l/min)	Number of valves	Number of valves	Number of valves
KV1	> DN12 $\Delta \frac{1}{2}$ "	110	3	2	2
KV3	> DN20 $\Delta \frac{3}{4}$ "	240	2	1	1
KV4	> DN25 $\Delta 1$ "	550	-	2	2

Quickcoupler with Lehnhoff-Tilt motor



### Lehnhoff-Tilt: quickcoupler with tilt motor

Combines all benefits of a quickcoupler with a tilt motor. Works flexibly with all sorts of buckets and can also accommodate narrow buckets, in particular. The Lehnhoff tilt quickcoupler is the ideal solution for, e.g.:

- Pipe-lining construction
- Targeted material filling

Proven classic with protected hose guide for the quickcoupler hydraulics, maintenance-free with high retention forces, optionally with load hook.

Quickcoupler with PowerTilt motor



Large swivel angle, high retention forces, low-maintenance

Rotary feedthrough for two hydraulic lines. Simplest installation, compact design, protected hydraulic line, as it is no longer installed above the rotary axis

2 lines, here used for SW opening and closing

### Advantages:

- Huge working range: up to 2 x 87° swivel range on both sides (174°)
- Including rotary feedthrough for hydraulics (only PowerTilt NG)
- Tilt motor sealed and protected against damage
- High retention forces and robust design for toughest applications
- Can be combined with all Lehnhoff quickcouplers

Lehnhoff Tilt quickcoupler

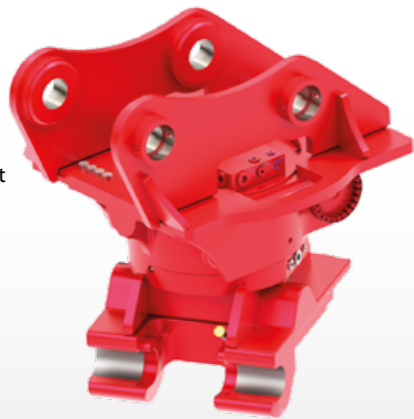
	LTS 23.0	LTS 23.0
Excavator class (t)	10 - 19 t	19 - 23 t
Lehmatic quickcoupler or Variolock	MS/HS 10 VL 100	MS/HS 21 VL 210
Swivel angle	2x87°	2x87°
Weight MS/HS (kg)	520-540	620-640
Weight VL (kg)	570-590	630-650

PowerTilt quickcoupler

	PTS 180	PTS 240	PTS 300
Excavator class (t)	10 - 18 t	18 - 24 t	32 - 40 t
Lehmatic quickcoupler or Variolock	MS/HS 10 VL 100	MS/HS 21 VL 210	MS/HS 25 VL 250
Swivel angle	2x60°	2x60°	2x60°
Weight MS/HS (kg)	390-410	570-590	750-800
Weight VL (kg)	450-470	580-600	770-820



Rotator with direct suspension on excavator side



### Lehmatic Rotator

Extends the action radius of the attachments by 360° through continuous left/right rotation. By simply rotating by 180°, a backhoe bucket quickly becomes a shovel bucket, for example.

- More flexibility thanks to more working positions
- Low build height of the rotary drive, therefore more breakout force
- Optional oil feed-through
- Optionally with direct suspension of quickcoupler suspension on excavator side

Lehmatic Rotator

	RB 180	RB 250	RB 330
Excavator class (t)	10 - 18 t	17 - 25 t	24 - 33 t
Lehmatic quickcoupler or Variolock	MS/HS 10 VL 100	MS/HS 10/21 VL 210	MS/HS 21/25 VL 250
Weight approx. (kg)	410	540	750
Operating pressure (bar)	175	175	175

\* related to Lehmatic SW

Tiltrotator with QC suspension (sandwich) on excavator side



### Lehmatic Tiltrotator

Compact Tiltrotator with grab rotating motor for quick and precise spatial positioning and therefore larger action radius and movement of the attachments.

- 360° endlessly rotatable, can be swivelled 55° to both sides
- Precise working through proportional control system
- Ideal for digging out very narrow pits
- With direct suspension or quickcoupler suspension

Lehmatic Tiltrotator

	TR 180	TR 250	TR 330
Excavator class (t)	10 - 18 t	17 - 25 t	24 - 33 t
Lehmatic quickcoupler or Variolock	MS/HS 10 VL 100	MS/HS 10/21 VL 210	MS/HS 21/925 VL 210/250
Weight approx. (kg)	590	690/790	940/990
Battery pressure (bar)	210	210	210

\* related to Lehmatic SW



## LSC Safety Assistance System

Full control at all times over all operating states of the quickcoupler from the driver's cab. Faulty locking and wear limits of the quickcoupler are immediately detected and displayed. The driver can react immediately.

- Permanent monitoring of the operating condition via integrated sensors
- Illuminated optical display and acoustic signals
- Control of the operating states via operating and display unit in driver's cab
- Safe two-finger operation of the unlocking function
- Optional for all new hydraulic Lehmatic and Variolock quickcoupler systems



Surpasses the safety requirements of SUVA from Jan. 2016

Corresponds to  
 - Machinery Directive 2006/42/EC  
 - Safety Product Standard EN 474-1 Appendix B  
 - ISO/DIS 1303/2015 edition



Quickcoupler unlocked, not yet fully in adapter

Quickcoupler correctly and completely in adapter, locking bolts still retracted

Quickcoupler correctly locked

Quickcoupler incorrectly locked



Detailed info in video:  
[www.goo.gl/SUdaGJ](http://www.goo.gl/SUdaGJ)

[www.lehnhoff.com](http://www.lehnhoff.com)



Lehnhoff Hartstahl GmbH

Rungsstrasse 10-15 76534 Baden-Baden, Germany  
 PO Box 11 01 65. 76487 Baden-Baden, Germany

Tel. +49 (0) 72 23 / 966 - 0  
 Fax +49 (0) 72 23 / 966 - 149  
[info@lehnhoff.de](mailto:info@lehnhoff.de)