

HYDRAULIC LOCKING UNIT (HLU)

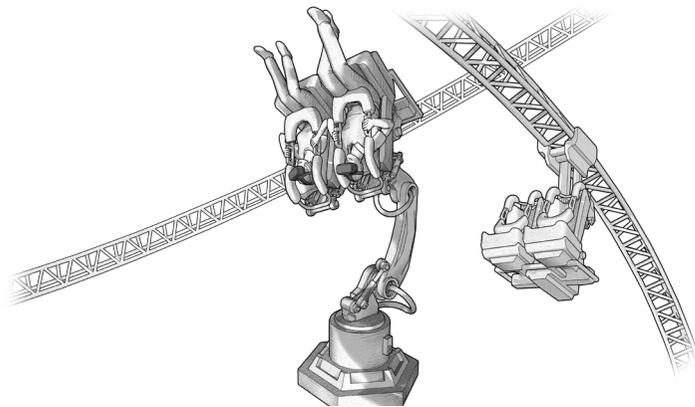


FOR SAFETY WITHOUT COMPROMISE



UNRESTRICTED RIDING PLEASURE THANKS TO HIGHEST SAFETY

Operators come up with imaginative names and creative designs for amusement rides to attract passengers. In VR rides, 4D cinemas, and simulators, the motion experience is combined with a virtual experience. Often hidden into the seat design, passenger restraint systems consistently provide safety for passengers. Heart of the system is a locking unit. HAWE offers hydraulic locking units (HLU) in types LE25, LE32, and LE-X, developed specifically for amusement rides and flying constructions.



TESTED STANDARDS AND QUALITY PROMISE

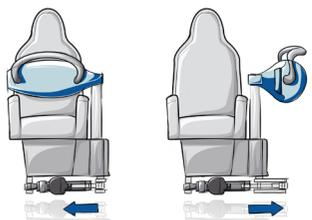
The highest safety and quality standards in production, assembly, and development at HAWE Micro Fluid ensure the locking units have been certified by TÜV-Süd and carry a component certificate according to DIN EN 13814 / ISO 17842-01 (also applicable: ASTM F 2974-20 / F 2291-20). With documented pretested design and calculation, the certificate makes it much easier for manufacturers' rides to be accepted and approved. The company is also ISO 9001 certified.



- + High passenger comfort
- + Noise and stepless restraint bar adjustment
- + Manual emergency operation
- + Easy installation
- + Low maintenance
- + Replacement systems available within a few days
- + Facilitated acceptance process (TÜV certificate)
- + Comfort lock: restraint bar can be used as an entry and exit aid (model-dependent)

MORE DESIGN FREEDOM FOR YOU THANKS TO HAWE

Depending on the occurring forces, different seat and restraint bar designs (usually belly, shoulder, or lap bars) are developed for rides.



Belly bar



Shoulder bar



Lap bar

For each of these seat designs, you will find the perfect hydraulic locking unit in the HAWE Micro Fluid product range. Thanks to broad applicability and maximum safety, you can concentrate on your core competencies.

PORTFOLIO RANGE

The tried-and-tested hydraulic components follow a modular system that guarantees tailor-made solutions and fast project planning. The core is the hydraulic locking unit (HLU), specially developed by HAWE, for amusement rides and flying constructions.



<https://www.youtube.com/watch?v=Nue4QGT4cIQ>



ADDITIONALLY FOR HLU LE-X (E):

- + Unparalleled safety with integrated sensor technology
- + Electronic maintenance mode
- + Electronic test mode before / after rides
- + Condition Monitoring

MODEL SERIES

The current portfolio includes various model series. With the LE 25, you get a small and lightweight system. With a piston diameter of 32 mm, the LE 32 generates large forces. The latest generation in integrated design, the LE-X, is available in two versions - mechanical (M) and electronic (E). With integrated sensor technology and matched accessories, the electronic version is perfectly prepared for condition monitoring.

	Model series/Size ¹	Installation length ⁴ (LO)	Cylinder stroke ¹	Blocking directions	Corrosion protection class	Load cases	Service life
	HLU-LE 25	355 - 418 mm	80, 110, 140 mm	<ul style="list-style-type: none"> - Type A: against extension - Type E: against retraction - Type RL: against retraction incl. standard comfort locking² - Type RD (E): against retraction with redundancy valve - Type G: against retraction with pressure relief valve (belt tensioner) 	C2	Static / fatigue / panic load: On request from the sales department	Up to 7 years
	HLU-LE 32	458 - 503,5 mm	150 mm	<ul style="list-style-type: none"> - Type A: against extension - Type K: against extension incl. deluxe comfort lock³ 	C2		
	HLU-LE X	331 - 501 mm	80 - 250 mm	<ul style="list-style-type: none"> - Type EX: against extension - Type RE: against retraction - Type DL: against retraction and extension incl. deluxe comfort lock³ 	Up to C4		Improved service life of up to 2 million cycles (according to specifications in assembly instructions)

¹ Related to the basic variants. Adaptations and applications are considered separately.

² Passengers can use the restraint system as a grab handle when getting on and off the vehicle.

³ Type K and DL only: additionally, during operation, the restraint system is prevented from closing too tightly. Both functions increase passenger comfort.

⁴ With piston rod retracted; LO can be reduced by up to 4 mm for size LE-X, if required.

EVOLX - CONDITION MONITORING SET FOR MORE SAFETY IN HYDRAULIC RESTRAINT SYSTEMS

With this set, you can analyze the operating status of your HLU LE-X (E) locking unit without having to dismantle it or remove the vehicle panel. The data read out enables you to determine the optimum maintenance time, or to establish a regular basis for when to carry out function checks. High data security was a priority during development.



Datalogger

for reading out operating data at the push of a button

- With memory for multiple trains
- Proven standard interfaces (USB-C, M8)
- Power supply directly via the locking unit / roller coaster

Dashboard

for location-independent access to data

- Diverse usage/characteristic data on the locking unit
- Estimation of a possible risk of failure
- Direct support by manufacturer via help button

Y-adapter

for extension of the communication interface of the locking unit

- Complement to eVolex data logger
- Standard interfaces facilitate flexible connection of own cables
- Panels do not have to be removed

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