LEO α

HOUSING I PROTECTION I MOBILITY

Highly mobile 19" portable housing
for electronic components

For the safe operation and transport of sensitive electronics in most extreme environmental conditions
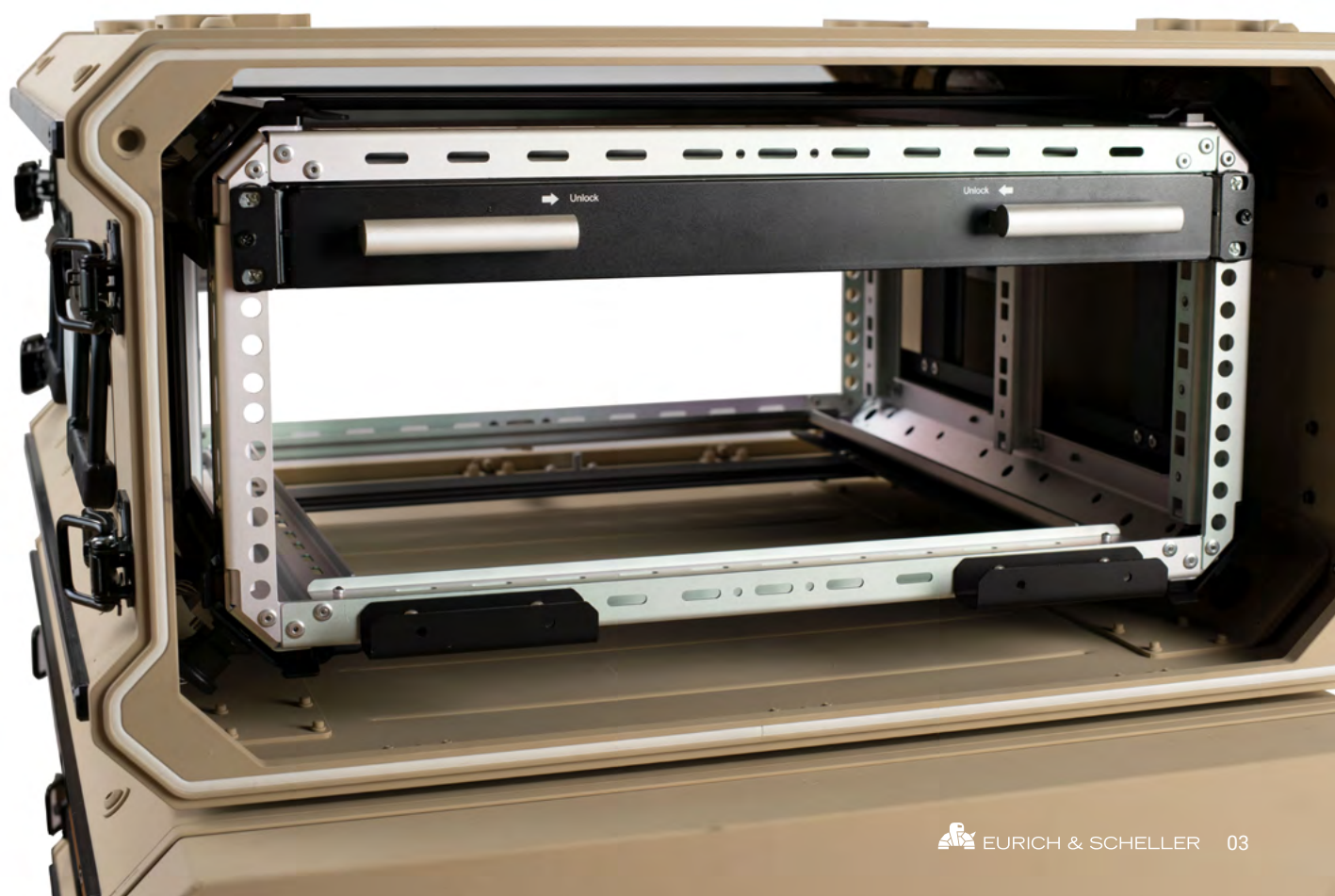
EURICH & SCHELLER

EURICH & SCHELLER

Eurich & Scheller GmbH develops and produces highly mobile aluminum housing for the safe operation and transport of sensitive electronics to be used in most extreme environmental conditions.

We combine functionality, ergonomics, and quality for a customer-specific housing solution designed for industrial and military use as well as its deployment for emergency services.

19" LEO-alpha
Technical data

LEO-α is a shock and vibration absorbing 19" functional housing for the save operation and transport of electronics. The compound of sheet metal and milling elements ensures the lightest and most solid encasement of its kind. Furthermore, it is waterproof, dust-tight, and EMC-proof and therefore predestined for deployment in the most extreme of environmental conditions.
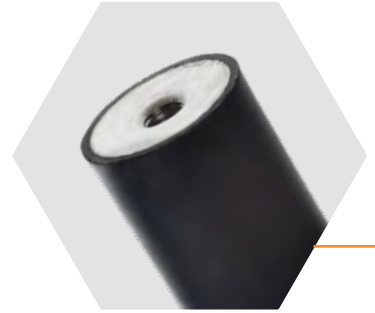
tool-free

slide rail rack

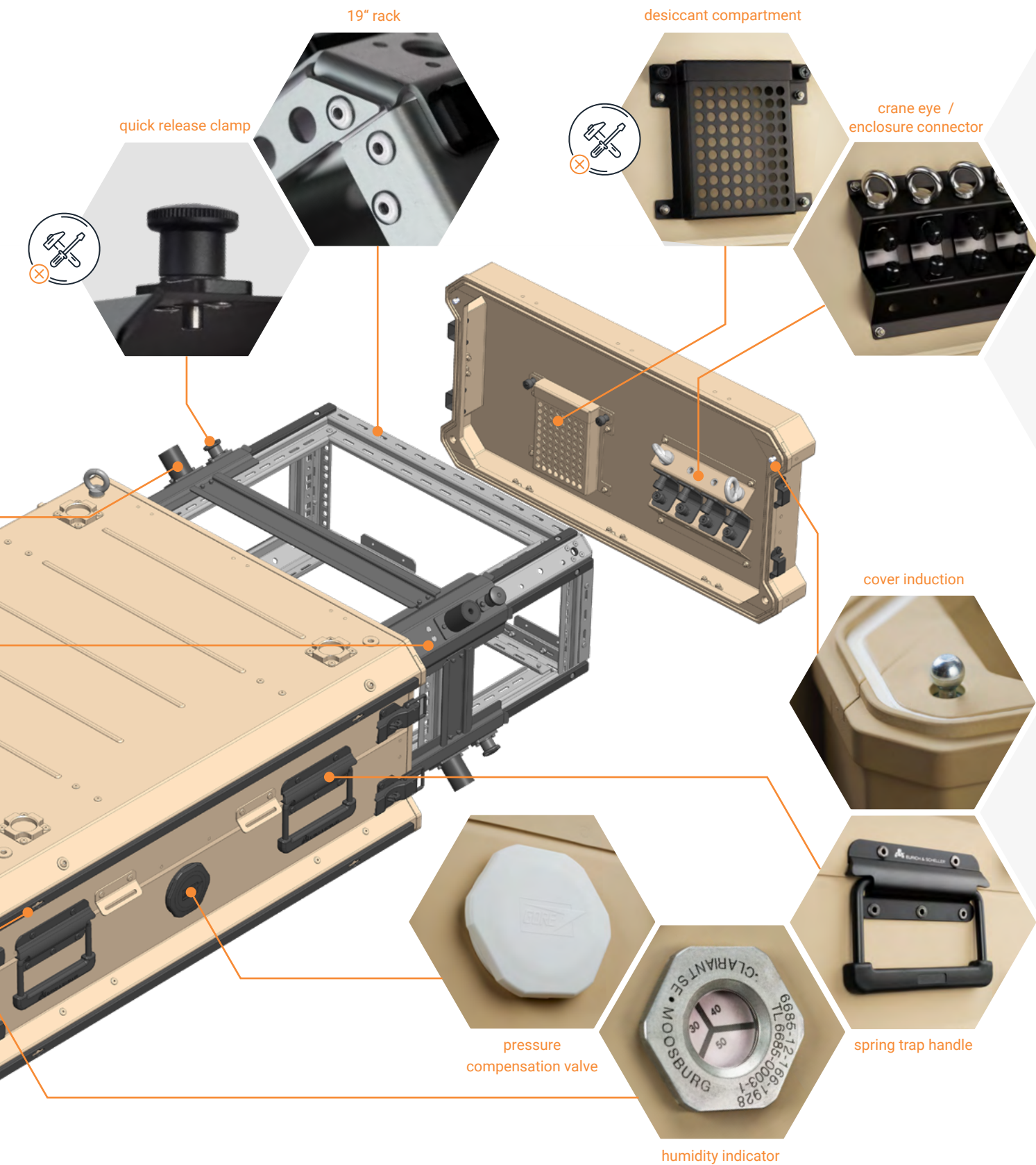elastomer buffer

grounding bolt

crane eye and stacking foot

cover tabs and ram protection

hinge
removable front panel

snap lock

19" rack

desiccant compartment

quick release clamp

crane eye / enclosure connector

cover induction

pressure compensation valve

humidity indicator

spring trap handle

BASIC EQUIPMENT	
end use	operation, transport, and storage of sensitive equipment
scope	telecommunications, electrical industry, military and police, traffic infrastructure, traffic control system
protection category	IP66 (IP6X > dust-tight; IPX6 > protection against heavy hose water/ jet water)
mechanical safety function	vibration, shock, fall
electrical safety function	electromagnetic interferences (EMV), lightening strike
height unit	3 to 16 U
nominal depth	350 / 480 / 610 / 740 / 870 mm

DEPLOYMENT

Possibilities of deployment are the field of traffic infrastructure respectively traffic control systems, general telecommunications, electrical industry, and much more.

- electrical industry
- telecommunications
- traffic control systems
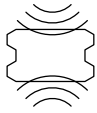- traffic infrastructure

Protection
in extremely rough environmental conditions

Sensitive electronics for mobile deployment afford a special enclosure. Here especially electromechanical components have to be protected against humidity, vibrations, shock, temperature, and electromagnetic interferences.
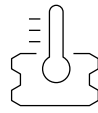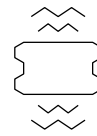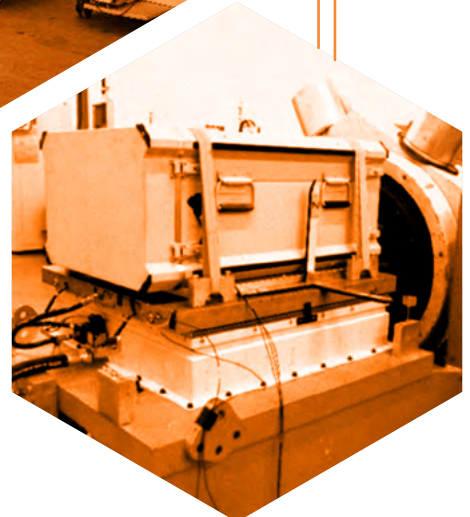
| 19 inch | EMV | IP 66 | temperature | fall | schock | vibration | MIL-STD 810 |
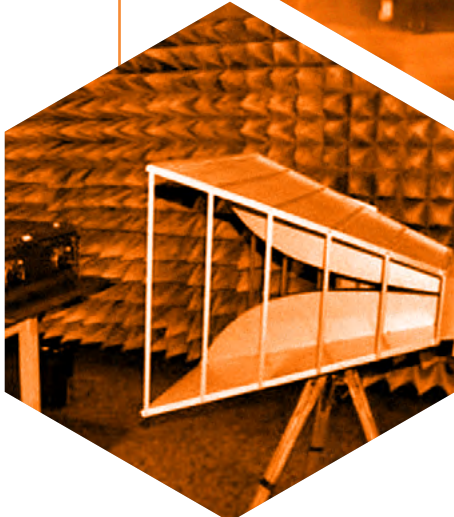
Kundennutzen
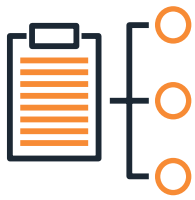
Features	Technical characteristics	Customer benefits
Strong aluminum construction as lightweight structure	aluminum alloy high-tensile and resistant to salt spray	high protection against corrosion (e.g. offshore operation), form stability in rough conditions
Composite of milling elements and flexural elements	frames' sealing concept, housing: up to 3 mm strong aluminum sheets, stabilizing function bays	high impermeability also in operations in rough weather conditions
Processing and manufacturing quality	continuously deburred elements, no sharp edges, high-quality lacquering, precise milled surfaces, few tolerances, high precision fit	low risk (no cutting at sharp edges) for system integration and integrated devices
High variability - customized solution	climate solutions (800 - 3.500 watt), special sizes, flange, fastening elements, etc.	system solutions for individual needs
High temperature resistance	operation, transport, and storage at minus 40 up to plus 70 degrees	maintenance of the housing protection function in extreme temperatures
UV-resistance	hidden labyrinth seals, special surface coating	longer service life of the encasement
Tested according to MIL-STD-810 and DIN EN 60529 (certificate upon request)	MIL-STD-810G, method 501.5; 502.5; 514.5; 514.7; 516.6; IP66	independent proof of diverse protective functions
High degree of protection - IP66	P66 (IP6X --> dust-tight; IPX6 --> protection against severe jet-water	protection in extreme weather conditions during transportation as well as operation
Broad range of standard housing / rack sizes *special sizes possible	rack depths: 350 mm, 480 mm, 610 mm, 740 mm, 870 mm; rack height: 3 HE - 16 HE; rack width: 19" or 1/2 19"	high system design flexibility
Surface coating	all RAL-shades, varnish (also F9), powder, passivation (SurTec650)	optimal surface protection in a rough environment
Integral grounding bolt	M6 bolt incl. flat-band grounding straps M6 (contact rack and case)	closed self-conductive system
Stackable	4 x stack fixation (foot- and plate reception)* *additional stack fixation for the stacking of divers case depths possible	safe footing during operation and transport; even with extreme imbalance or acceleration
Lateral quick release clamps	4 - 6 lockable and sealable quick release clamps per cover	high tightness with max. flexibility; lid removable also in stacked position
Lateral functional bays	along the entire case length a 26mm deep and 120 - 700 mm high inlet	protection for spring-loaded handles, quick release clamps, displays, and other individually addable functional components
Ergonomically designed spring drop handles with safety springs	depth: 70 mm breadth: 135 mm diameter: 15 mm	broad and deep handle for optimal and safe carrying (also with winter gloves)
Integrated ram protection	4 x 6 mm strong polyoxymethylene (POM) – stripes with integrated cover attachment	lateral ram protection for the safety of the enclosure walls and added components
High variability in load	use of elastomer or steel cable dampers with stable form factor	maximum flexibility with system design (balance point and weight of the inbuilt components)

Great shock absorption through extended vibration space	absorption extension up to 43 mm possible	optimal oscillation path – improved responsiveness in relation to vibration and delay
Optionally rubber or wire rope attenuators	identical receiving points for both types of attenuators via adaptor	flexibility with the configuration; stable encasement contour
Calibration of the attenuators in accordance with customer specifications with due regard to installation weight and location of the center of gravity	8 - 16 attenuators	optimal attenuator system for maximum reduction of impacting forces
Stable 19"-LEO-alpha-rack	2 mm ALMg3, specific bent profiles	low weight, high resilience
19"-rack (universal grid) equipable from both sides	in the front/at the rear – arrangement for the insertion of cage nuts M5 - M6	flexibility with the integration of 19"- technique
Removable 19" oscillating frame (optional)	removable rack, fastened with 4 locking bolts (tool-free)	fast system accessibility from all sides, comfortable integration of installations and electric wiring, enhanced availability
Integrated lid suspension* *starting with case depth 800 mm	2 x lateral ball-head suspensions at the case	safe „parking" of the lid during operation
Guided lid	2 x ball studs in the lid and 2 x position points in the housing frame	fast and comfortable lid positioning for case locking

EQUIPMENT

Front panel service	milling, passivating, pulverizing, lacquering, anodising, engraving, foiling, imprinting	prepared front panel for direct mounting; all from a single provider
Front panel remo-vable via hinges	2-4 lateral chipped hinges with 4 mm stainless steel pins with variable end stop (IP66/HF-tight)	comfortable mounting, wiring of the front panel
Various closure solutions at the front panel	1. M6 - fillister head screws losable/ captive 2. M6 - knurled screws, captive (tool-free) 3. quarter-turn quick fastener, captive (tool-free)	depending on the application one may choose the best closure concept
Integrated desiccant compartment	inbuilt mounting in lid for up to 8 desiccant units	safe respectively dry storage of inbuilt components
Sun protection sail	mounted sun protection sail for all encasement sizes (incl. clamping device)	protection from direct solar radiation and heat input
Enclosure connector	in the lid or pocket loaded mounting brackets, incl. knurled screws (captive, tool-free)	comfortable, safe connection of two or more stapled cases during operation, transport or storage
Crane eyes	in the lid or pocket loaded M8 - crane eyes	safe and comfortable maneuver of heavy systems
Complete isolation of case/lid	all over exact Armaflex lining (10 mm natural rubber)	reduction of heat and cold intrusion
Contact switch	position switch, IP67, 230V, 10A, 2 x make contact elements	access protection at lid or front panel
Conditioning (cooling, heating, dehumidifying)	air routing, ventilation, heat exchanger, peltier, air conditioner	operation of systems in divers environmental conditions
Lid pocket	custom-fit, robust textile fabric bag in the lid	additional storage space for equipment in the case
Aluminum transport pallet	Pallet, euro pallet size, with integrated lashing eyes and foot mounting point	simple and safe transport with industrial trucks

accessories 19" LEO-alpha

The LEO-alpha case is extendable depending on the application of diverse structures and accessories

1. Humidity indicator

In accordance with TL 6685 for the determination whether a critical humidity level is reached or exceeded in the interior of the encasement.
With relative humidity on the rise the color changes from blue to pink. With sinking relative humidity occurs the discoloration in the reverse order (FAZ 30, 40, 50 % r.F.).

Note: do not use without desiccant

2. Pressure compensation valve

For an automatic pressure compensation to avoid deforming that may lead to a failure of the components.

Typical air flow 16 l/min (dp = 12 mbar)

Gore / IP69 K polycarbonate

(option: HF-tight) honey comb nut

3. Crane eyes

M8-ring bolts for the use of rope chains or textile pendants (transportation by crane).
Load capacity up to 200 kg.

4 ring bolts are tightly loaded in a lid holder or loose in a pocket

4. Desiccant compartment

For the insertion of a defined amount of desiccant.
Available in the sizes 135 x 95 x 20 mm
and 250 x 135 x 40 mm for 1 - 8 units.
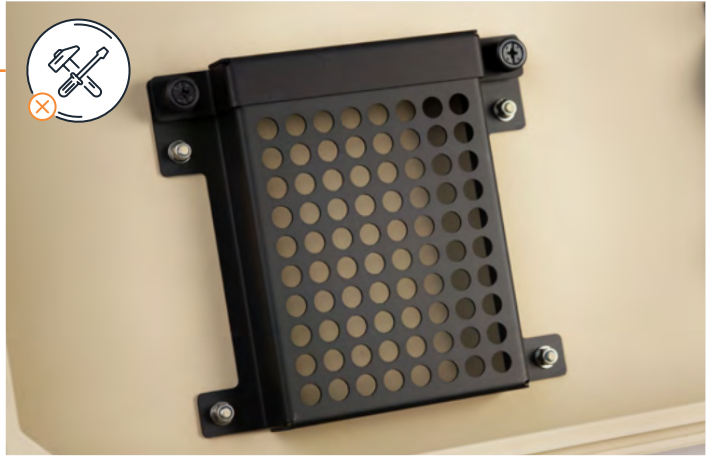
5. 19" oscillating frame

Device for the removal of the 19" oscillating frame.
Fastened with 4 snap locks (tool-free) for a comfortable
integration of installations / wiring in the rack and a fast
system access to all sides.

6. Case connectors

For the connection (tool-free) of stacked LEO-alpha cases.
4 connectors are tightly loaded in a lid holder or
loose in a pocket.

7. Wire rope shock absorbers

For the use of high load. Especially high vibration and
isolation properties within a large temperature scope.

Reference: default configuration = elastomer buffer

8. Contact switches

Fully integrated contact, e.g. position switch as access protection at the lid or front panel.

(IP67, 230V, 10A, 2 x make contacts)
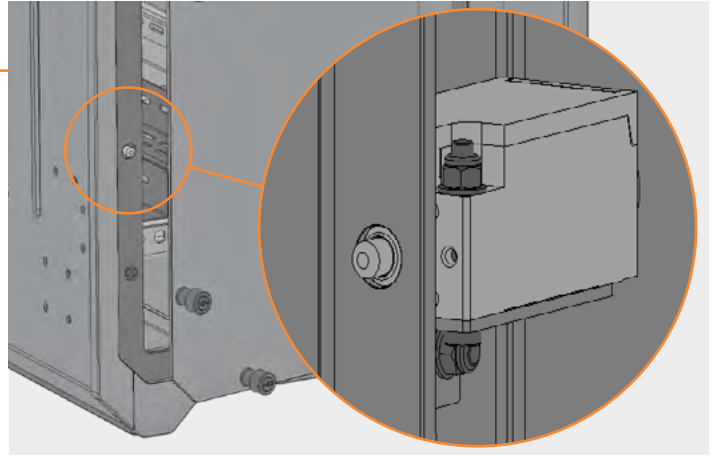
9. Sun sail

Ultra light sun sail, fast and installable without tools as protection against sun and heat for the avoidance of direct exposure to sunlight.

10. Air conditioning solution

Different compressor-climate solutions (800 - 3.500 Watt) for the operation of sensitive standard electronics in severest conditions.

11. Guide rails

For a safe hold of standard 19"-components for all nominal depths.

1,5 mm VA incl. three M4 x 8 screws

12. **Pocket**

Textile zip pocket for loading of cable, plugs, and other equipment. Pocket is tool-free replaceable in the lid or may also be removed again.

Example: black anodized at the front, passivated at the rear

13. **Front panel**

For a simple and comfortable opening one may unclose the front panel via undetachable hand screws (alternatively: standard screws) and hinges, swivel it open laterally and remove it.
The front panel may be manufactured customized respectively with appropriate openings and labeled.

(IP66/HF - tight)

Front panel service

milling	passivating	pulverize
lacquering	anodisation	engraving
foiling	imprinting	

Beispiel: Vorne passiviert, hinten passiviert

14. **Flange cover**

Flange in different sizes with a recessed customized front panel for the integration of switches, interfaces, displays etc.

The front panel will be manufactured customized respectively with corresponding openings and labeled.

(IP66/HF - tight)

Basic features

Housing concept

The housing concept of LEO-alpha consists basically of two aluminum half-shells and closing frames for sealing and receiving sealing caps or also a front panel.

The encasement is essentially defined by the height (U) and depth (A) of the mounted 19″ rack that oscillates, the span between rack and end of encasement (B and C) as well as the depth of both lids (D and E).

The standard configuration consists of spring drop handles, spring locks, elastomeric dampers, and a laterally integrated ram protection with integrated cover tabs.

Housing variant

Default configuration

The default configuration of 19″ LEO-alpha encasement is specified by the reference number or rather the part number. There are the following available versions:

Example: **LA.0335.0505.0505**
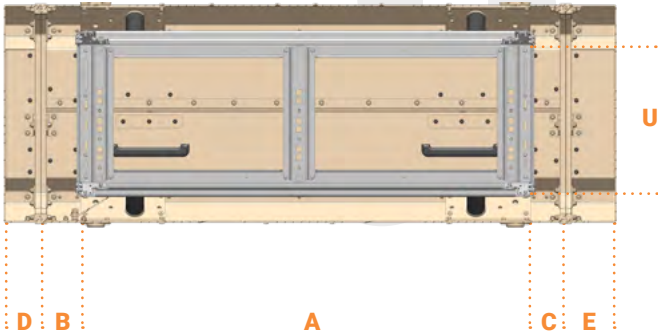
installation height	U	3 – 16 U
rack depth	A	350 / 480 / 610 / 740 / 870 mm
distance rack at the front	B	50 / 100 / 150 mm
distance rack at the rear	C	50 mm
lid depth at the front	D	50 / 100 / 150 mm
lid depth at the rear	E	50 mm

Numbering system

RACK		CASE		LID	
installation height in U	rack depth in mm	distance rack at the front in mm	distance rack at the rear in mm	lid depth at the front in mm	lid depth at the rear in mm
U	A	B	C	D	E
3	350	50	50	50	50

LA. = Leo Alpha

LA. 03 35. 05 05. 05 05
LA. 03 48. 05 05. 05 05
LA. 03 61. 05 05. 05 05
LA. 03 74. 05 05. 05 05

Standard Configurations

	ORDER NUMBER	RACK		EXTERIOR DIMENSIONS INCL. DECKEL - IN MM			ADD-ON PARTS	
		instal. height in U **U**	rack depth in mm **A**	height in mm	widht in mm	depth in mm	locks per pieces	handles per pieces
1	LA.0335.0505.0505	3	350	277	623	550	8	4
2	LA.0348.0505.0505	3	480	277	623	680	8	4
3	LA.0361.0505.0505	3	610	277	623	810	8	4
4	LA.0374.0505.0505	3	740	277	623	940	8	4
5	LA.0387.0505.0505	3	870	277	623	1070	8	4
6	LA.0435.0505.0505	4	350	321	623	550	8	4
7	LA.0448.0505.0505	4	480	321	623	680	8	4
8	LA.0461.0505.0505	4	610	321	623	810	8	4
9	LA.0474.0505.0505	4	740	321	623	940	8	4
10	LA.0487.0505.0505	4	870	321	623	1070	8	4
11	LA.0535.0505.0505	5	350	365	623	550	8	4
12	LA.0548.0505.0505	5	480	365	623	680	8	4
13	LA.0561.0505.0505	5	610	365	623	810	8	4
14	LA.0574.0505.0505	5	740	365	623	940	8	4
15	LA.0587.0505.0505	5	870	365	623	1070	8	4
16	LA.0635.0505.0505	6	350	410	623	550	8	4
17	LA.0648.0505.0505	6	480	410	623	680	8	4
18	LA.0661.0505.0505	6	610	410	623	810	8	4
19	LA.0674.0505.0505	6	740	410	623	940	8	4
20	LA.0687.0505.0505	6	870	410	623	1070	8	4
21	LA.0735.0505.0505	7	350	455	623	550	8	4
22	LA.0748.0505.0505	7	480	455	623	680	8	4
23	LA.0761.0505.0505	7	610	455	623	810	8	4
24	LA.0774.0505.0505	7	740	455	623	940	8	4
25	LA.0787.0505.0505	7	870	455	623	1070	8	4
26	LA.0835.0505.0505	8	350	499	623	550	12	4
27	LA.0848.0505.0505	8	480	499	623	680	12	4
28	LA.0861.0505.0505	8	610	499	623	810	12	4
29	LA.0874.0505.0505	8	740	499	623	940	12	4
30	LA.0887.0505.0505	8	870	499	623	1070	12	4
31	LA.0935.0505.0505	9	350	544	623	550	12	4
32	LA.0948.0505.0505	9	480	544	623	680	12	4
33	LA.0961.0505.0505	9	610	544	623	810	12	4
34	LA.0974.0505.0505	9	740	544	623	940	12	4
35	LA.0987.0505.0505	9	870	544	623	1070	12	4
36	LA.1035.0505.0505	10	350	588	623	550	12	4
37	LA.1048.0505.0505	10	480	588	623	680	12	4
38	LA.1061.0505.0505	10	610	588	623	810	12	4
39	LA.1074.0505.0505	10	740	588	623	940	12	4
40	LA.1087.0505.0505	10	870	588	623	1070	12	4
41	LA.1135.0505.0505	11	350	633	623	550	12	4
42	LA.1148.0505.0505	11	480	633	623	680	12	4
43	LA.1161.0505.0505	11	610	633	623	810	12	4
44	LA.1174.0505.0505	11	740	633	623	940	12	4
45	LA.1187.0505.0505	11	870	633	623	1070	12	4
46	LA.1235.0505.0505	12	350	677	623	550	12	8
47	LA.1248.0505.0505	12	480	677	623	680	12	8
48	LA.1261.0505.0505	12	610	677	623	810	12	8
49	LA.1274.0505.0505	12	740	677	623	940	12	8
50	LA.1287.0505.0505	12	870	677	623	1070	12	8
51	LA.1335.0505.0505	13	350	722	623	550	12	8
52	LA.1348.0505.0505	13	480	722	623	680	12	8
53	LA.1361.0505.0505	13	610	722	623	810	12	8
54	LA.1374.0505.0505	13	740	722	623	940	12	8
55	LA.1387.0505.0505	13	870	722	623	1070	12	8
56	LA.1435.0505.0505	14	350	766	623	550	12	8
57	LA.1448.0505.0505	14	480	766	623	680	12	8
58	LA.1461.0505.0505	14	610	766	623	810	12	8
59	LA.1474.0505.0505	14	740	766	623	940	12	8
60	LA.1487.0505.0505	14	870	766	623	1070	12	8
61	LA.1535.0505.0505	15	350	811	623	550	12	8
62	LA.1548.0505.0505	15	480	811	623	680	12	8
63	LA.1561.0505.0505	15	610	811	623	810	12	8
64	LA.1574.0505.0505	15	740	811	623	940	12	8
65	LA.1587.0505.0505	15	870	811	623	1070	12	8
66	LA.1635.0505.0505	16	350	855	623	550	locks	handles
67	LA.1648.0505.0505	16	480	855	623	680	16	8
68	LA.1661.0505.0505	16	610	855	623	810	16	8
69	LA.1674.0505.0505	16	740	855	623	940	16	8
70	LA.1687.0505.0505	16	870	855	623	1070	16	8

EURICH & SCHELLER

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2021

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