

ZARGES–
Access. Packaging.
transportation.
Special
construction.

For more than 80 years, the brand name ZARGES has been synonymous with premium quality and consistent innovation strength. As an innovation leader, we are constantly improving our range and creating solutions and products that are consistently tailored to your needs. Because good ideas always come from closely working together with you: our customers.

Our top priority is to always provide you, as a professional, with the right solution for every challenge. For your safety and efficiency.

To find more information visit our website
www.zarges.com/defence



ZARGES

» Solutions for the military,
police and disaster relief services



ZARGES – the highest quality standards for special tasks.

Uncompromising quality combined with continuous innovation – for more than 80 years this is what ZARGES has stood for. Decades of market leadership in the areas of access, packaging and transportation, and special construction enable us to offer products which set market benchmarks for security, protection and ergonomics.

ZARGES containers are ideal for packing electronic equipment, first aid material and other sensitive goods for the military, police and disaster relief services. The containers are extremely lightweight yet stable, corrosion-proof, non-magnetic and easily adaptable to a wide range of applications.

Every single ZARGES box is the result of decades of experience in the design and production of re-usable containers for packaging, storage and transport applications.

We are continuously optimising our products and services and extending our service provision with one major aim: to have a professional and customised logistic solution ready for you for any task and any situation.

Use the new ZARGES special solutions catalogue to find out about our high quality product portfolio, unique systems and a multitude of innovations.

If have any queries, require specific solutions or further information, our service team will be happy to help you:

Tel.: +49 881 687-131
E-mail: special.systems@zarges.de
www.zarges.com

ZARGES quality undergoes continuous inspection and verification – certified by renowned testing institutes.



Solutions for the military, police and disaster relief services

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Airtight special container for transporting and storing missiles.



BY container: special container for first aid material



Secure protection for electronics



K 473 heavy-duty case and K 470 universal case for air-transportable drinking water treatment units



K 470 weapons containers – protection against unauthorised access



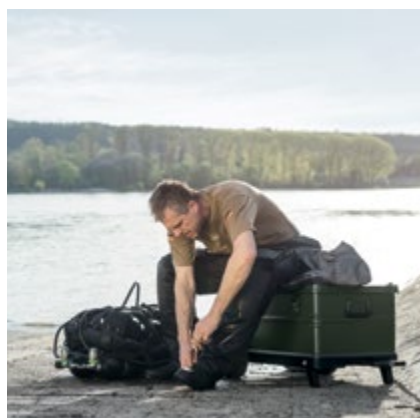
Hood-type containers for large medical equipment



Wide-version assault ladder



Height-adjustable work platforms with contour adjustment to enable optimal maintenance work



K 424 XC Mobile Box – mobility over any surface



Mitraset® for transporting electronic equipment





Mitraset® 19" rackmount cases

Mitraset® 19" rackmount cases are the number one choice for transporting highly sensitive electronic equipment. Whether for military, aerospace or industrial applications, Mitraset® 19" rackmount cases provide protection against moisture, shocks, impacts, vibrations and electromagnetic interference.

With its Mitraset® RRF (Removable Rack Frame) and Mitraset® Racklite products, ZARGES has genuine innovations to make handling even faster and simpler. Discover the multitude of applications and solutions provided by the Mitraset® 19" rackmount cases.

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Mitraset® 19" rackmount cases – for transporting electronic equipment

Mitraset® 19" rackmount cases are made of aluminium and are designed to hold electronic equipment in a 19" grid in accordance with DIN EN 60297-3-100 and EIA-310-E.

Protection features

- Against mechanical loads such as shock, impact and vibrations.
- Protection against electromagnetic interference such as radio waves, lightning and general environmental influences such as heat, moisture and dust.

The electronic equipment requiring protection is placed and fastened in place inside elastically suspended anti-vibration frames for optimal protection.

Mitraset® rackmount cases are primarily for use in:

- Military applications, telecommunications and the electronics industry.
- Transport infrastructure such as rail security and traffic management systems.
- Anywhere where sensitive electronic equipment requires mobile use or outdoor installation.



1 Lid. 2 Rubber seal. 3 Outer case. 4 Anti-vibration frame. 5 Skirt seal. 6 Lid. 7 Toggle lock.
8. Float-mounted lock. 9 Rail. 10 Guide rail. 11 Pressure compensation (3 variations).
12 Carrying handle. 13 Damper. 14 Shock mounts. 15 Earth strap.

The new Mitraset® 19" rackmount case range

ZARGES has extended its Mitraset® range for the different needs involved in transporting electronic equipment. The Mitraset® Classic rackmount case has been complemented with the new Mitraset® Racklite and Mitraset® Racklite Basic.



Mitraset® 19" rackmount cases

Mitraset® Classic



- For loads up to **100 kg**.
- Higher loads to be checked on a case-by-case basis.
- 3 to 22 rack units, nominal depth 219 to 990 mm.
- Design according to VG 95 446 and 95 447.
- Comply to the highest military specifications.
- Individual design of damper elements according to customer specifications.
- Customised versions possible.

Mitraset® Racklite



NEW

- For loads up to **60 kg**.
- 3 to 12 rack units, nominal depths 350 to 762 mm.
- Commercially available rubber shock mounts with standardised (non-configurable) performance.

Mitraset® Racklite Basic



NEW

- For loads up to **60 kg**.
- 3 to 12 units, depths 350 to 762 mm.
- Commercially available rubber shock mounts with standardised (non-configurable) performance.
- As for Mitraset® Racklite but without corner elements.

Mitraset® Classic – lid, handles, stacking features



- Stacking features as recesses on top.
- Standard cases with reinforced ribs.
- Recesses on side walls for drop handles.
- Recess also suitable for accommodating protective pressure compensation valve and humidity indicator.
- Screw-down lids can also be supplied.
- With ergonomically designed ZARGES Comfort handles.

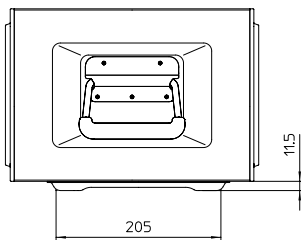


Mitraset® Classic also with hazardous goods approval.

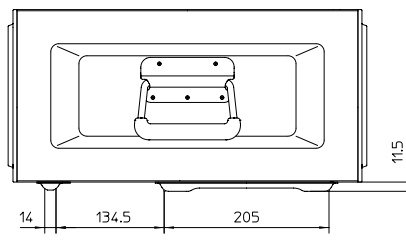


Side views

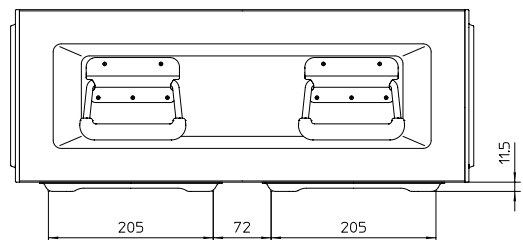
Layout of handles, stacking feet and recesses for different nominal depths.



▲ Nominal depth 219 mm

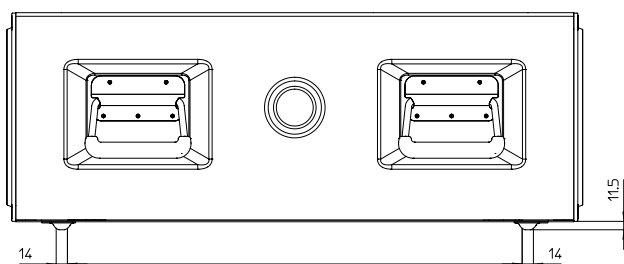


▲ Nominal depth 350 mm



▲ Nominal depth 480 mm

Cases with nominal depths 219 mm, 350 mm and 480 mm can be stacked together.



▲ All other depths

Depending on the respective depth



Mitraset® Classic – vibration damping

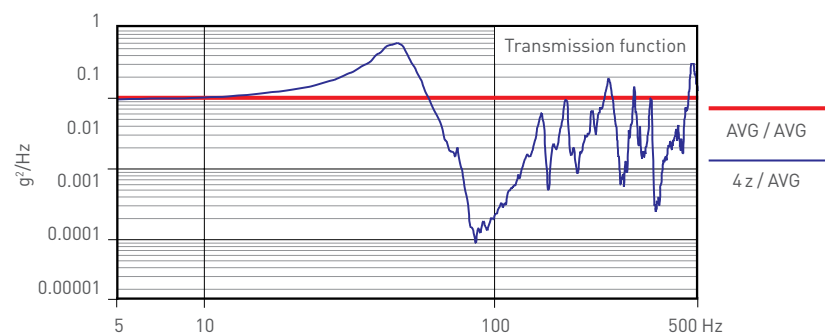
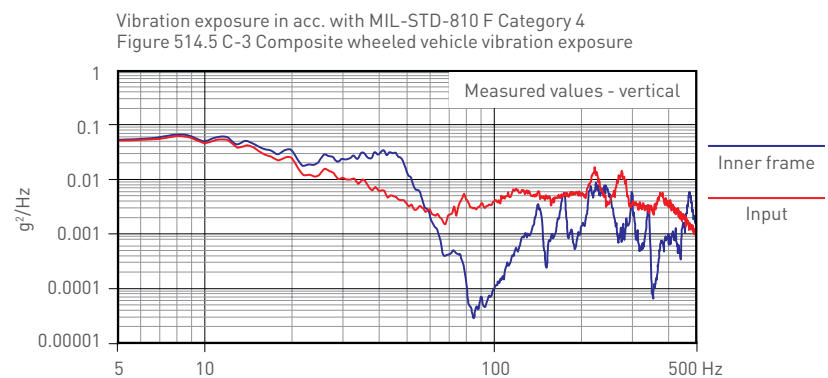
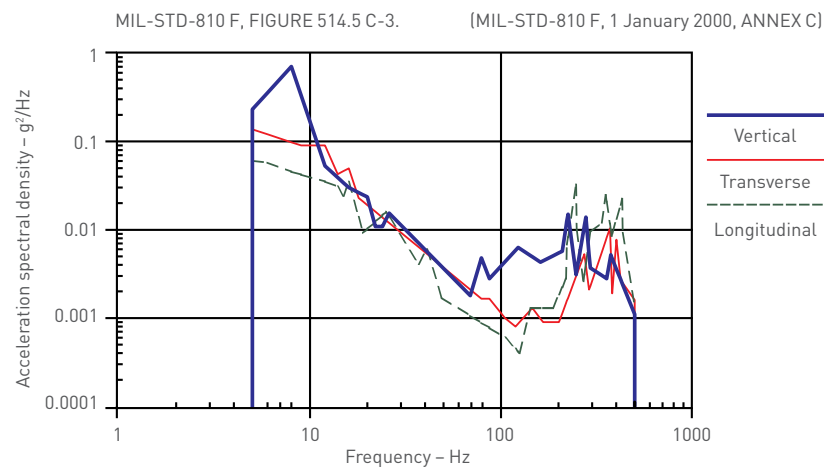
Unwanted mechanical vibrations often occur during transport and other situations. These may have a negative effect on the functioning of electronic components and thus represent an increased safety risk.

Mitraset® rackmount cases offer a solution to vibration problems in military, aerospace as well as in industry applications. They are tested to MIL-STD-810.

For special requirements, a modified Mitraset® rackmount case has been developed and undergone successful testing in accordance with the strict MIL-STD-810 F specifications.

The following diagrams show the test specifications according to FIGURE 514.5C-3.: Composite wheeled vehicle vibration exposure.

ZARGES also develop customised solutions according to your specifications.



Mitraset® Classic – tests and certificates



Mitraset® 19" rackmount cases have proven themselves in a multitude of tests and military deployments. For the Mitraset® Classic, ZARGES has obtained approval according to the new VG 95 447 German military standard. VG 95 447 sets down tests from the AECTP 400 NATO standard. The withdrawn VG 95 446 set down tests from the US MIL-STD-810 standard.

These are important standards for military tests:

Shock test	Test 516.3 in accordance with MIL-STD-810D-17 D-5. The shock test with recording of the damping values is to be carried out in six main directions, each with 3 half-sine shocks at an acceleration $a = 40\text{ g}$ and a pulse time $t = 7\text{ ms}$.
Strength of carrying handles	The test specimen is suspended in the normal position and loaded in such a way that there is a force of 375 N acting on each carrying handle. The test sample is then suspended by each handle separately and a load of 750 N applied. Duration of test: 5 minutes according to VG 95 446.
High temperature test	Test 501.2 in accordance with MIL-STD-810 D-3, method I A2. 24 hours, 71 °C.
Low temperature test	Test 502.2 in accordance with MIL-STD-810 D-4, method I C2. 24 hours, -51 °C.
Temperature change test	Test 503.2 in accordance with MIL-STD-810 D-5. Method I to III, 3 × 4 h each time at 71 °C and - 50 °C. Damp heat test. Test 507.2 in accordance with MIL-STD-810 D-8, method III.
Vibration load	1. Test 514.3 in accordance with MIL-STD-810 D-15, figures 514.3-7, 514.3-8 and 514.3-9, depending on the vibration axis, each 10 min. per axis. 2. Determination of resonance during random vibration according to paragraph 1. 3. Random vibration according to figure 514.3-36 in the three main axes, each one hour per axis. Paragraphs 1 to 3 to be carried out completely in one axis.
Salt spray test	According to MIL-STD 810 F method 509.4, 96 hours duration
Mildew formation	Resistance to mildew according to MIL-STD 810 F method 508.5, 28 days duration
Leak tightness	Test according to MIL-STD 810 G method 506.5 Rain – Procedure I – Rain and Blowing Rain. Wind speed 28 m/s, at least 90 minutes per side. Leak tightness according to IP 65 and DIN EN 60529. Dust and water-jet protection.
Electromagnetic shielding	Shielding efficiency test in accordance with MIL-STD-285.
Testing according to specification of hazardous goods directive	Approval for the transport of hazardous goods, packaging group II in accordance with ADR / RID / IATA-DGR and IMBG Code See page 49 for further details.

Mitraset® Classic RRF (Removable Rack Frame)

On the new Mitraset® Classic RRF (Removable Rack Frame), the 19" anti-vibration frame can be removed quickly and easily without the use of tools, even with 19" devices already installed.

When the anti-vibration frame has been removed, work on installed devices and cabling can then be performed quickly and easily due to the equipment being accessible from all sides. Rackmount cases with removable anti-vibration frames are used for prototypes and cases in which components need frequent removal and replacement.

A special surface coating ensures easy sliding of the anti-vibration frame. The rackmount case is equipped with a bonding (earthing) system as standard. The compact design means that the entire nominal height of the Mitraset® Classic RRF is available as installation space.

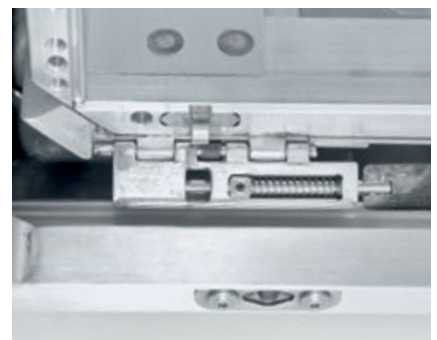
Unlike similar products on the market, no rack unit space in ZARGES Mitraset® rackmount case gets wasted through a locking system, and the outside dimensions remain unchanged. Mitraset® RRF have successfully undergone shock and vibration testing to MIL-STD 810 F, method 514.5.



The Mitraset® RRF with removable anti-vibration frames facilitates integration by allowing unlimited access to the 19" slide-in modules.

Cables and plugs are easy to install. After completing installation, the entire anti-vibration frame is slid into the outer case and locked in place. Within just a few seconds, the rackmount case is ready for dispatch.

The Mitraset® RRF is available only in the Mitraset® Classic version.



Mitraset® Classic

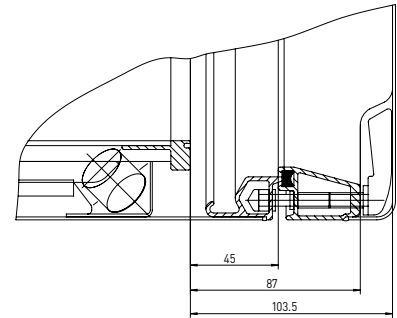
Rackmount case

Order No.	Inner height	Nominal depth approx. mm	Outside dimensions without lid H × W × D, approx. mm	Weight without lid approx. kg	Weight with 2 standard lids approx. kg
45702	3 rack units	219	214.5 × 534 × 303	6.6	10.4
45704		350	214.5 × 534 × 434	8.6	12.4
45706		480	214.5 × 534 × 564	10.7	14.5
45803		610	214.5 × 534 × 694	13.5	17.3
45863		762	214.5 × 534 × 856	16.2	20.0
45708	4 rack units	219	259.0 × 534 × 303	7.0	11.2
45710		350	259.0 × 534 × 434	9.0	13.2
45712		480	259.0 × 534 × 564	11.1	15.3
45804		610	259.0 × 534 × 694	14.1	18.3
45864		762	259.0 × 534 × 856	16.8	21.0
45714	5 rack units	219	303.5 × 534 × 303	7.3	11.9
45716		350	303.5 × 534 × 434	9.3	13.9
45718		480	303.5 × 534 × 564	11.4	16.0
45805		610	303.5 × 534 × 694	14.7	19.3
45865		762	303.5 × 534 × 856	17.4	22.0
45720	6 rack units	219	348.0 × 534 × 303	7.5	12.5
45722		350	348.0 × 534 × 434	9.6	14.6
45724		480	348.0 × 534 × 564	11.9	16.9
45806		610	348.0 × 534 × 694	15.2	20.2
45866		762	348.0 × 534 × 856	17.9	22.9
45726	7 rack units	219	392.5 × 534 × 303	7.8	13.2
45728		350	392.5 × 534 × 434	10.0	15.4
45730		480	392.5 × 534 × 564	12.2	17.6
45807		610	392.5 × 534 × 694	15.9	21.3
45867		762	392.5 × 534 × 856	18.6	24.0
45732	8 rack units	219	437.0 × 534 × 303	8.2	13.8
45734		350	437.0 × 534 × 434	10.3	15.9
45736		480	437.0 × 534 × 564	12.6	18.2
45808		610	437.0 × 534 × 694	16.6	22.2
45868		762	437.0 × 534 × 856	19.3	24.9
45738	9 rack units	219	481.5 × 534 × 303	8.4	14.4
45740		350	481.5 × 534 × 434	10.7	16.7
45742		480	481.5 × 534 × 564	13.0	19.0
45809		610	481.5 × 534 × 694	17.1	23.1
45869		762	481.5 × 534 × 856	19.8	25.8
45744	10 rack units	219	526.0 × 534 × 303	8.6	15.0
45746		350	526.0 × 534 × 434	11.0	17.4
45748		480	526.0 × 534 × 564	13.3	19.7
45810		610	526.0 × 534 × 694	17.5	23.9
45870		762	526.0 × 534 × 856	20.2	26.6
45750	11 rack units	219	570.5 × 534 × 303	8.8	15.4
45752		350	570.5 × 534 × 434	11.3	17.9
45754		480	570.5 × 534 × 564	13.7	20.3
45811		610	570.5 × 534 × 694	18.1	24.7
45871		762	570.5 × 534 × 856	20.8	27.4
45756	12 rack units	219	615.0 × 534 × 303	9.0	16.0
45758		350	615.0 × 534 × 434	11.6	18.6
45760		480	615.0 × 534 × 564	14.1	21.1
45812		610	615.0 × 534 × 694	18.6	25.6
45872		762	615.0 × 534 × 856	21.3	28.3
45814	14 rack units	610	704.0 × 534 × 694	19.9	27.5
45874		762	704.0 × 534 × 856	22.0	29.6
45816	16 rack units	610	793.0 × 534 × 694	21.1	29.3
45876		762	793.0 × 534 × 856	23.8	32.0

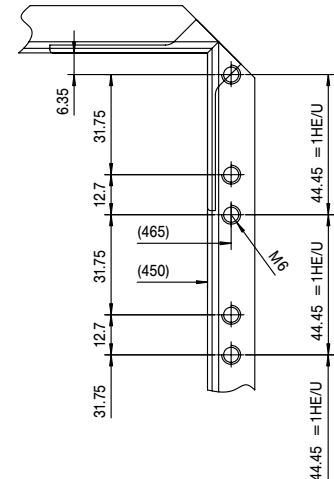
Important note: Frame clearance = outside dimension minus 44 mm, weight figures without lid and without paint finish

- Other sizes are available on request.
- Height of case with stacking foot = outside dimension (nominal dimension) + 11.5 mm.
- Lid depth = 63 mm, depth of special lid to be agreed upon.

Mitraset® Classic



Dimensions of space available



Dimensions of the anti-vibration frame

Inner frame

- Slide-in width 450 mm.
- Slide-in module height, 1 rack unit = 44.5 mm.
- Slide-in module depths (nominal depths)
219/350/480/610 mm or special depth.

Lid

Lid	Outside dimensions H × W × D, approx. mm	Weight per lid approx. kg
3 rack units	214.5 × 534 × 63	1.9
4 rack units	259.0 × 534 × 63	2.1
5 rack units	303.5 × 534 × 63	2.3
6 rack units	348.0 × 534 × 63	2.5
7 rack units	392.5 × 534 × 63	2.7
8 rack units	437.0 × 534 × 63	2.8
9 rack units	481.5 × 534 × 63	3.0
10 rack units	526.0 × 534 × 63	3.2
11 rack units	570.5 × 534 × 63	3.3
12 rack units	615.0 × 534 × 63	3.5
14 rack units	704.0 × 534 × 63	3.8
16 rack units	793.0 × 534 × 63	4.1

Important note: Lid clearance = outside dimension minus 54 mm



Mitraset® Racklite

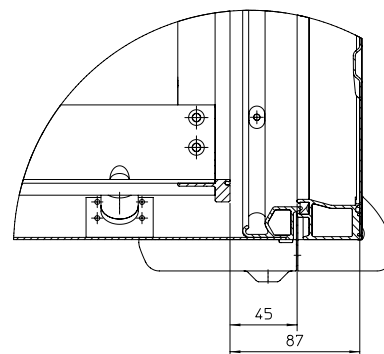


The Mitraset® Racklite is the lightweight rackmount case series with 19" anti-vibration frames for low to medium installation weights. Equipped with commercially available rubber shock mounts with non-configurable performance.

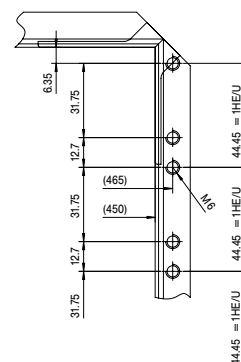
- Simple layout of commercially available dampers enables weight-optimised cases for installation weights of up to 60 kg.
- For the 6 rack units 610 mm size, a weight reduction of 15% is achieved over the Mitraset® Classic.
- Fast and secure lid locking using Comfort fasteners with catch-spring anti-opening features which have proven themselves a million times over.
- The new corner elements made from TPE thermoplastic elastomer provide improved paint protection, stacking and drop tests according to MIL-STD 810 Method 516.6, Procedure IV.
- Equipped with ZARGES Comfort handles for ergonomic handling and loads of up to 50 kg.
- Protection class IP 65 in accordance with DIN EN 60 60529 and IEC 34-5/529 through seam-welded housing and lid with peripheral seal.
- Shielding efficiency according to MIL-STD-285
- Vibration-damping properties of the cases are set down by the manufacturer.
- Suitable for industrial and non-specified applications of up to 60 kg.
- Mitraset® Racklite was tested according to MIL-STD-810G, Figure 514.6C-1, Common carrier (US highway truck vibration exposure).



Mitraset® Racklite



Dimensions of space available



Dimensions of the anti-vibration frame



Mitraset® Racklite

Rackmount case

Order No.	Rack unit height	Nominal depth approx. mm	Outside dimensions without lid H × W × D, approx. mm			Weight without lid approx. kg	Weight with 2 standard lids approx. kg
			Ext. height approx. mm	Ext. width approx. mm	Ext. depth approx. mm		
45893	3 rack units	350	271.5	591	468	9.1	13.5
45903		480	271.5	591	598	10.5	14.9
45913		610	271.5	591	728	11.8	16.2
45923		762	271.5	591	880	13.3	17.7
45894	4 rack units	350	316.0	591	468	9.7	14.5
45904		480	316.0	591	598	11.2	16.0
45914		610	316.0	591	728	12.5	17.3
45924		762	316.0	591	880	14.0	18.8
45895	5 rack units	350	360.5	591	468	10.1	15.3
45905		480	360.5	591	598	11.6	16.8
45915		610	360.5	591	728	12.9	18.1
45925		762	360.5	591	880	14.5	19.7
45896	6 rack units	350	405.0	591	468	10.4	15.8
45906		480	405.0	591	598	11.9	17.3
45916		610	405.0	591	728	13.3	18.7
45926		762	405.0	591	880	15.9	21.3
45897	7 rack units	350	449.5	591	468	10.7	16.5
45907		480	449.5	591	598	12.3	18.1
45917		610	449.5	591	728	13.7	19.5
45927		762	449.5	591	880	15.4	21.2
45898	8 rack units	350	494.0	591	468	11.0	17.2
45908		480	494.0	591	598	12.7	18.9
45918		610	494.0	591	728	14.2	20.4
45928		762	494.0	591	880	15.9	22.1
45899	9 rack units	350	538.5	591	468	11.4	18.0
45909		480	538.5	591	598	13.1	19.7
45919		610	538.5	591	728	14.6	21.2
45929		762	538.5	591	880	16.4	23.0
45900	10 rack units	350	583.0	591	468	11.7	18.5
45910		480	583.0	591	598	13.4	20.2
45920		610	583.0	591	728	15.0	21.8
45930		762	583.0	591	880	16.8	23.6
45901	11 rack units	350	627.5	591	468	12.0	19.2
45911		480	627.5	591	598	13.8	21.0
45921		610	627.0	591	728	15.4	22.6
45931		762	627.5	591	880	17.3	24.5
45902	12 rack units	350	672.0	591	468	12.4	20.0
45912		480	672.0	591	598	13.8	21.4
45922		610	672.0	591	728	15.8	23.4
45932		762	672.0	591	880	17.8	25.4

Important note: Frame clearance = external dimension minus 44 mm Width clearance: Outside width minus 101 mm. Height clearance: Outside width minus 101 mm. Weights exclude lid and paint. Case dimensions include corner elements.

Lid

Order No.	Lid rack unit height	Outside dimensions H × W × D approx. mm			Weight per lid approx. kg
		Ext. height approx. mm	Ext. width approx. mm	Ext. depth approx. mm	
45933	3 rack units	271.5	591	55	2.2
45934	4 rack units	316.0	591	55	2.4
45935	5 rack units	360.5	591	55	2.6
45936	6 rack units	405.0	591	55	2.7
45937	7 rack units	449.5	591	55	2.9
45938	8 rack units	494.0	591	55	3.1
45939	9 rack units	538.5	591	55	3.3
45940	10 rack units	583.0	591	55	3.4
45941	11 rack units	627.5	591	55	3.6
45942	12 rack units	672.0	591	55	3.8

Mitraset® Racklite Basic



The Mitraset® Racklite Basic is the lightweight rackmount case series with 19" anti-vibration frames for low to medium installation weights. In contrast to the Mitraset® Racklite, this version has no corner elements.

- Significantly more compact dimensions.
- Mitraset® Racklite Basic can be stacked with the Mitraset® Classic range.
- Protection class IP 65 in accordance with DIN EN 60 60529 and IEC 34-5/529, seam-welded case and lid with peripheral seal.
- Further weight savings in contrast to the Mitraset® Classic and Mitraset® Racklite.
- Special depths possible for lids.
- Comfort sprung drop handles for ideal ergonomic properties.
- Same shielding attributes as Mitraset® Classic and Mitraset® Racklite.



Mitraset® Racklite Basic dimensions:

In contrast to the Mitraset® Racklite, this version has no rubber elements and therefore reduces dimensions as follows:

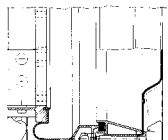
- Height by 45.5 mm.
- Width by 23.0 mm.
- Depth including lid by 43.0 mm.

Weight including lid reduced by 2.2 kg.



Accessories

Flexible skirt seal



If IP 65 is required in operation mode with an open lid, flexible skirt seals must be used in accordance with the table.

RF-tight version is available as special equipment.

For Mitraset® type	Standard version order no.	RF-tight version order no.
3 rack units	37053	37083
4 rack units	37054	37084
5 rack units	3 055	37085
6 rack units	37056	37086
7 rack units	37057	37087
8 rack units	37058	37088
9 rack units	37059	37089
10 rack units	37060	37090
11 rack units	37061	37091
12 rack units	37062	37092
14 rack units	37064	37094
16 rack units	345093	37093

Pressure relief



Permanent pressure compensation through membrane.

Order No.

60891

Humidity control



Humidity indicator according to TL 6685-0008 (VG 95 617).

Order No.

316887

Desiccant on request.

Eye hooks



Rivet nuts and lifting eyes (M8) for crane transport. Load of up to 300 kg.

Order No.

339956

Pressure relief



Automatic pressure compensation valve according to GV 95 618. Pressure compensation takes place automatically when reaching a specific pressure difference. This protects the case at all times from damage due to pressure differences. Pushing a button activates pressure compensation, e.g. to open the case.

Order No.

316886

Lock installation



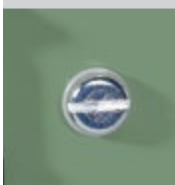
Pressure-cylinder lock.
2 locks diagonal to 2 toggle locks with 2 keys.

Order No.

342110

For Mitraset® Classic only.

Pressure compensation



Manual, screw must be opened when transporting the case by air. Airtight only when screw is closed.

Order No.

346457

Floor mounting



Achieved by means of additional mounting elements (M8 threaded inserts) in the stacking feet

Order No.

On request

For Mitraset® Classic and Mitraset® Racklite Basic.

Pressure compensation



Extra large pressure compensation valve. Pushing a button activates pressure compensation, e.g. to open the case.

Order No.

320060

Cable coil




Depending on rack unit: Set comprising 2 to 4 retention brackets with Velcro tapes.

Order No.

On request

Assembly in inside of lid :

Accessories

Guide rails		Order No.
	Available for all nominal depths. Two fixing options are available. - Adjustable and fixed with screws. - Riveted according to customer specifications.	On request
Drawer		Order No.
	Cover possible. With telescopic rails. Suitable for accommodating drawers, shelves, etc. Available in different heights and nominal depths.	On request
Dessicant compartment		Order No.
	1 rack unit, nominal depth of 219 mm for mounting in the anti-vibration frame. Version also available for lid-mounting (not illustrated). Desiccant on request.	353017
Bag		Order No.
	Outside dimensions, small bag: approx. 185 × 135 × 50 mm	322768
	Outside dimensions, large bag: approx. 430 × 252 × 50 mm, possible from 7 rack units.	340934
Louvred panel		Order No.
	Dimensions approx. 230 x 120 mm, 5 louvres Effective ventilation cross-section 6,600 mm². Other dimensions available on request.	334699
Keyboard support		Order No.
	Foam insert in the lid, secured by Velcro tape, possible from 6 rack units.	On request
Stand for supporting rackmount cases		Order No.
	Variable height adjustment, with 4 feet. With the feet removed, the stand can be stacked with portable rackmount cases, complete with captive fixing elements, for all sizes.	On request
Mitraset® with outer case connections		Order No.
	To securely combine stackable Mitraset® rackmount cases. For Mitraset® Classic and Mitraset® Racklite Basic.	369441

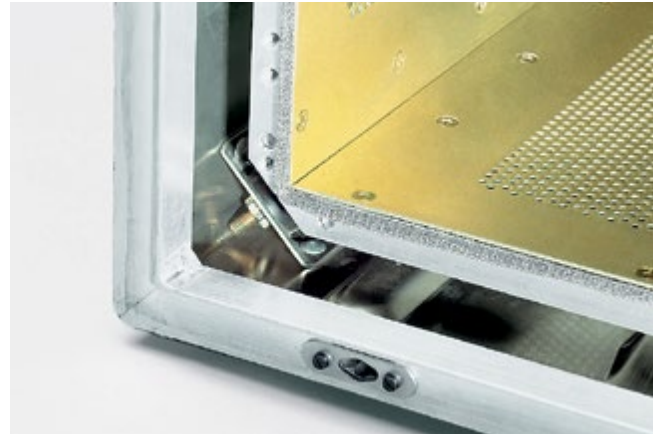
The accessories shown here are compatible with the entire Mitraset® product family.



RF screening



Honeycomb filter in the lid



The housing is equipped with a chrome perforated steel plate and an RFI gasket on the anti-vibration frame

Mitraset® 19" rackmount cases made of aluminium have significantly improved RF screening properties compared with plastic cases. When required, these properties can be further improved through special measures.

On cases with closed lids:

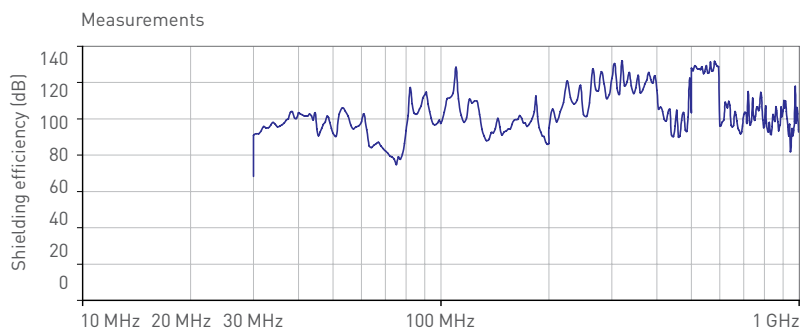
- By using a special lid seal.
- Opening through RF honeycomb filter, IP 54 shielding. Installed primarily in the lid.

On cases with open lids:

- By fitting aluminium infill panels on 4 sides of the standard inner frame. Optionally perforated for better air circulation. In addition, the front and back of the frames are fitted with an RFI gasket.
- By fitting a flexible skirt seal made from conductive material between the outer case and the anti-vibration frame.

For shielded rackmount cases, we recommend chromed version outer cases, lids and anti-vibration frames. ZARGES also offers a chromium VI-free coating.

Example of shielding efficiency according to MIL-STD-285:



Measured on a 9 rack unit, 350 mm nominal depth case with shielded inner frame



Wire rope shock absorbers

For particularly high loads or to absorb vibration, the 19" frame featured on this variant is suspended on wire rope shock absorbers at an angle of 45°. The external dimensions have been increased correspondingly due to the increased size of the frame. This special version is available only for Mitraset® Classic.



Mitraset® wire rope shock absorbers



Special solutions



Mitraset® Classic with a special lid, louvred plate and angled recess to a connector panel



Mitraset® Classic with specially reinforced edges



Lid with recessed plug panel



Mitraset® Racklite Lid with plug panel and protective flap for transportation. Side opening for ventilator



Mitraset® Classic in special 1/2 19" dimensions with screw-on plug panel and skirt seal



Special version Mitraset® Classic with locking hinged lids and camouflage paint finish

Applications, mobility and special solutions

ZARGES provides you with the rackmount cases and solutions for a range of uses, e.g. in planes, in vehicles or for special deployments. These range from transport systems and rackmount cases with dampers through to dust and water protected as well as reinforced products for extreme conditions.

The Mitraset® 19" rackmount cases offer a multitude of customised special solutions in addition to a large range of standard accessories. A small selection can be found here.





Testing equipment for hydraulic systems on military aircraft



Anti-IED electronic system in a Mitraset® Classic rackmount case with special reinforcement and lid, operated within the vehicle



Customised front panel with skirt field for protection class IP 65 also with removed lid



Mitraset® Classic with special lid, openings and chrome anti-vibration frame



4-caster mobility system for transporting weights of up to 100 kg



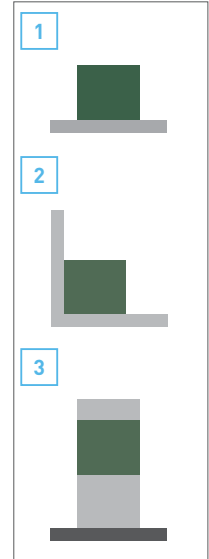
Practical 2-caster mobility system for transporting weights of up to 35 kg

Heat management

Mitraset® 19" rackmount cases offer the appropriate solution according to the application, the type of electronic equipment operated, ambient temperatures and the resulting air-conditioning requirements.

Heat dissipation in watts under various operating conditions

Inner height	Nominal depth approx. mm	1	Single case, free-standing watt	2	Rear wall, attached watt	3	Case in the middle of the stack watt
3 rack units	219		72		59		46
	350		86		73		53
	480		100		87		59
	610		114		101		65
4 rack units	219		82		66		56
	350		97		81		63
	480		112		97		71
	610		128		112		79
5 rack units	219		91		73		65
	350		108		90		74
	480		124		106		83
	610		141		123		92
6 rack units	219		101		80		75
	350		119		98		85
	480		137		116		95
	610		155		134		106
7 rack units	219		110		87		85
	350		130		106		96
	480		149		125		108
	610		168		145		119
8 rack units	219		120		94		94
	350		141		114		107
	480		161		135		120
	610		182		155		133
9 rack units	219		130		101		104
	350		151		123		118
	480		173		144		132
	610		195		166		146
10 rack units	219		139		108		113
	350		162		131		129
	480		185		154		144
	610		209		177		160
11 rack units	219		149		115		123
	350		173		139		140
	480		198		164		156
	610		222		188		173
12 rack units	219		158		122		133
	350		184		147		151
	480		210		173		169
	610		236		199		187
14 rack units	610		263		220		214
16 rack units	610		290		242		241



Details

The guide figures calculated in the table may be influenced by various factors, e. g.:

- Paint type and colour.
- Internal air circulation.
- Location and position of the rackmount case.
- Influence due to adjacent rackmount cases.
- Weather and climatic conditions.

The guide figures in the table have been calculated for $\Delta T 20\text{ }^{\circ}\text{C}$, figures in watts.

(All values apply to closed rackmount cases.)

Mitraset® 19" rackmount cases – customised solutions with air-conditioning

19" rackmount case applications increasingly require air-conditioning. ZARGES is therefore able to provide adaptable special rackmount cases for air-conditioning. Cutouts for plugs, ventilation plates and the ZARGES heat exchanger lid complete the offer.

Heat exchanger lid

The ZARGES heat exchanger lid ensures protection class IP 65 by means of 2 separate air circuits. Robust fans ensure that air is constantly circulated. Heat transfer between the two circuits takes place in a specially designed heat exchanger in the interior of the lid.

Heat dissipation depends on temperature conditions and on the location and position of the rackmount case. These solutions can be built by ZARGES according to customer specifications.

Customer examples of compressor-based air-conditioning systems

Air-conditioning units are combined with Mitraset® only according to requirements. Transport takes place in in-house vibration-tested transport containers with customised foam inserts.



Decentralised server segments in Mitraset® Classic housings with air-conditioning



Adaptation of an air-conditioning unit

© Photos: ESG Elektroniksystem- und Logistik-GmbH

Customer examples of peltier-based air-conditioning systems



The heating/cooling unit can be accommodated in the lid or in the anti-vibration frame.





Special containers

Special tasks require special solutions: Decades of experience in the design and production of high-quality packaging solutions go into ZARGES special containers. ZARGES special containers are designed for special requirements and deployment purposes such as heavy-duty cases for heavy machinery and engines, bulk containers for missiles and components, or as packaging for electronic equipment, first aid material and other sensitive goods. They cope with the most difficult of transport and environmental conditions.

K475 transport and storage container	30–31
Shelf container	32
Y-containers	33
Hood-type containers	34
RetouЯ® collapsible cases	35
K473 heavy-duty cases	36
Bulk containers	37
Special constructions	38–39

K 475 transport and storage containers



Transport and storage containers in the K475 series are reusable packaging solutions made to the highest standards. They are designed as water-vapour-proof protective packaging for sensitive equipment. The containers are available in standard sizes, tested to VG 95 613 or in special sizes based on individual requirements.

K 475 special containers are available with special foam fittings, holders and other accessories on request.



Stacking corner



Lid seal



Base stacking corner



RFI gasket



Top rim extrusion



Humidity indicator /
pressure compensation
valve



Details

- Water-vapour-proof, stackable special reusable packaging made of corrosion-resistant aluminium according to TL 8115-0047.
- Seal-welded container, tightness IP 67.
- Stackable, with sturdy stacking corners on base and lid.
- Removable lid with all-round seal.
- ZARGES Comfort fasteners with extra catch-spring anti-opening feature.
- Ergonomic heavy-duty sprung drop handles.
- Pressure compensation valve and humidity indicator.
- RFI screening available.

K 475 transport and storage containers

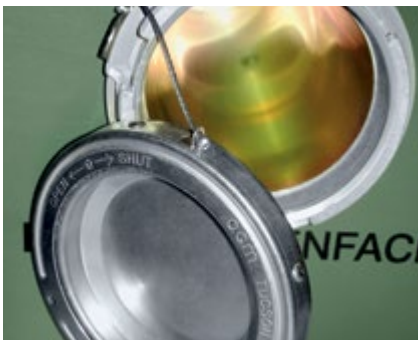


Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H approx. mm	Volume approx. l	Weight approx. kg
45133	360 × 360 × 265	400 × 400 × 300	34	5.5
45135	460 × 460 × 365	500 × 500 × 400	77	8.0
45138	560 × 360 × 365	600 × 400 × 400	74	7.8
45141	760 × 360 × 265	800 × 400 × 300	73	9.1
45145	760 × 560 × 460	800 × 600 × 500	196	16.8

All sizes also available with approval for the transportation of hazardous goods.



Accessories



Document compartment

- Manometer
- VA coupling for filling with inert gas
- Foam linings
- Foam inserts according to individual requirements
- RFI gasket
- Dessicant compartment
- Dessicant cartridges
- Decompression opening
- Pallet substructure
- Document compartment



K 475 in special design with VA coupling



VA top-up and emptying valve for filling with inert gas



Secure, individual compartments with retaining devices

Module containers – protection and mobility for medical products



ZARGES shelf containers are transport and storage containers for first-aid equipment, tools, spares etc. used in military applications, emergency aid and ambulance and rescue services. They are designed to accommodate closed ISO standard modules/modular baskets. This means that you only need to order what you require, and empty containers can be easily replaced with full ones in the warehouse or at the scene of the emergency.

Details

- High-strength, corrosion-resistant aluminium alloy.
- Extruded framework with welded-on metal plates, impermeable to splashes. IP 65 protection class
- Float-mounted locks.
- Separate lid, connection by means of 4 toggle locks.
- Stackable using stacking knobs and recesses.
- 2 recessed drop handles per end face.
- Peripheral seal to the front.
- Interior with 6 pairs of support rails for maximum 6 modular inserts.
- Outside dimensions (L×W×H, approx. mm) 685×465×775 incl. lid.
- Standard design: Order No. 45 190 (without accessories)



Standard version

Accessories

- Closed modules/modular baskets to ISO standard (600 × 400 mm, height 50, 100, 200 mm).
- Made from polycarbonate (transparent) or ABS (light blue).
- Lengthwise and crosswise partitions.
- Modules for small items.

Special accessories for TL 6545-0055 (see illustration)

- 2 containers usable as a desk.
- Desktop sections are stored in the lids for transport.
- Therefore recommended for deployment as mobile first-aid station.



Special version: module containers usable as desk.



Further products and solutions are available in the ZARGES Medical Catalogue and online www.zarges-medical.de

Y-containers – the range used by the German armed forces



The transport and storage containers in this series have been designed specifically for military applications. Any container size can be stacked together. The entire series is also available as approved hazardous goods packaging.



No.	Order No.	Type	Inside dimensions L × W × H approx. mm	Outside dimensions L × W × H approx. mm	Volume approx. l	Weight approx. kg
1	45050	B5 Y	570 × 380 × 220	615 × 420 × 270	47	6.4
2	45052	B10 Y	570 × 380 × 466	615 × 420 × 516	100	7.6
3	45055	B20.2 Y	794 × 572 × 220	835 × 615 × 270	99	11.4
4	45053	B20 Y	794 × 572 × 466	835 × 615 × 516	211	13.8
5	45054	B20.1 Y	794 × 572 × 717	835 × 615 × 761	325	17.0
6	45058	B40.2 Y	1,175 × 793 × 220	1,215 × 833 × 270	205	18.0
7	45056	B40 Y	1,175 × 793 × 465	1,215 × 833 × 516	433	22.0
8	45057	B40.1 Y	1,175 × 793 × 717	1,215 × 833 × 761	668	25.7
Not illustrated	335597	B10.2 Y	380 × 265 × 466	420 × 305 × 516	46	5.4

Important note: All containers are registered with a supply no. Clearance dimension approx. 30 mm less than inside dimension (length and width). Special sizes on request. All containers supplied unpainted and without labelling as standard.

Details

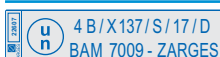
- The transport and storage containers BY and DY can be stacked together.
- Continuously welded shell joints.
- Sturdy aluminium cast stacking corners on lid and base.
- Stacking feet on base with attachment bores inside and outside.
- Silicone sealing on the inside of the base makes the container waterproof up to the lower edge of the drop handle.
- Sturdy base, edge and lid profile.
- Hinged lid with peripheral seal.
- Loose lid for B40.1 Y, B40.2 Y and B40 Y.
- Snap fasteners with anti-spring-open feature.
- Protection class IP 54 in accordance with DIN EN 60 529: 1992

Special equipment

- Also available as UN-approved hazardous goods packaging.
- Red Cross labels available for 4 sides and lid in accordance with TL 6545-0055.
- Lettering in accordance with TL 6545-0055.
- For exterior painting, see Page 51.
- Variable dividers.
- Case inserts.
- Base plates.
- Non-magnetic version available on request.



All sizes also available with approval for the transportation of hazardous goods.



Hood-type containers – making light work of handling heavy equipment



Hood-type transport and storage containers are special containers designed for the packaging of heavy equipment. Depending on their design and construction, hood-type containers can be stacked together with standard versions of the Y-type containers.

Details

- Base panel with flat mounting support for equipment.
- Hood cover with stacking corners.
- Drop handles on the ends.
- Hood cover and base panel connected by special adjustable toggle-type fasteners.
- Base panel can be fitted with an aluminium or timber pallet to support heavy equipment.
- Can be stacked together with BY containers.
- Fitted instruments can be operated with hood cover removed.
- Special dimensions are available on request.
- We also develop bespoke solutions tailored to your specific requirements. Please send us your request!



Stackable with BY containers



Moisture-proof special design, IP 67



ZARGES pallet cabinets are used when hood-type containers are too low. Equipment can be rolled from the container via a ramp. Pallet cabinets are custom-made according to your specifications. Please contact us for further details.

RetouЯ® collapsible cases for general cargo



All sizes also available with approval for the transportation of hazardous goods.



Collapsible reusable packaging made from aluminium alloy for space-saving returns as well as storage

- Can be collapsed quickly and easily by one person.
- Simple handling due to interlocking profiles with a connecting locking device on the floor pan and side parts.
- Side protection profiles.
- High degree of stability due to three sets of profiles in the outside walls.
- Folding ratio 1:3
- Lid securely fastened to rear wall by swing-type hinge.
- End-walls and lid with additional, externally mounted stiffening profiles.
- Self-locking fasteners, suitable for lead seals and/or locking with a shackle lock.
- Stacking corners.
- Suitable for use on roller conveyors.
- 15 mm free space when collapsed (e.g. for interior fittings).

Order No.	Inside dimensions L × W × H approx. mm	Outside dimensions L × W × H approx. mm	Size when folded H, approx. mm	Volume approx. l	Weight approx. kg
45070	730 × 530 × 570	800 × 600 × 600	145	221	21.0
45073	1,130 × 730 × 740	1,200 × 800 × 900	287	610	62.0

Note: Aluminium pallet and aluminium side protection profiles are optional extras. Order No. 45 073 Supplied with wood pallet and wood side protection profiles. Dimensions and weight incl. flat wooden pallet. Special sizes on request.

Special features of collapsible containers

Order No.	Details
45070 + 45073	Long front wall folds down, loading also possible from the front
45073	Flat wooden pallet as standard equipment

For the transport and storage of liquid and paste-like materials, ZARGES offers you a solution in the form of the collapsible container RetouЯ® Inliner. Please contact us for further details.



K 473 heavy-duty cases – robust for high payloads

The K473 range is particularly suitable for high payloads, e.g. heavy machinery, engines or equipment. It thus extends the comprehensive K 470 range by adding an even sturdier alternative and protects heavy equipment even under the toughest transport and environmental conditions. The use of aluminium means an optimum combination of low weight and a high degree of protection.

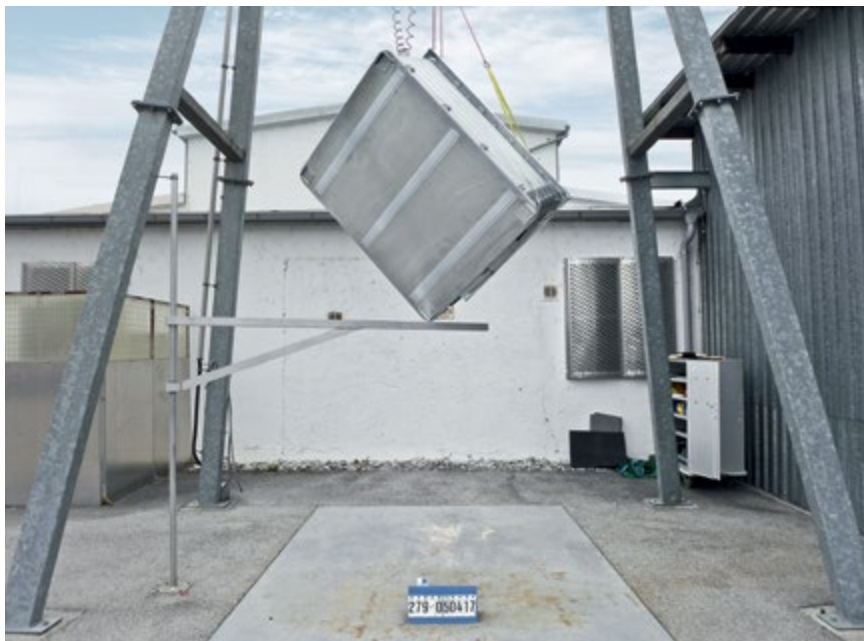
- Robust design, particularly suitable for high payloads.
- Removable lid with seal.
- Sturdy, generously dimensioned edge and base profile sections, high-strength positive jointing ensures permanent bonding between jacket and base metal.
- Beading all round and corner beads for additional dimensional stability.
- ZARGES Comfort handles for ergonomic handling and loads of up to 50 kg.



Internal packaging for lithium batteries with vermiculite cushioning and flame-retardant foam



All sizes also available with approval for the transportation of hazardous goods.



K 473 as hazardous goods packaging for lithium batteries in a drop test from a height of 1.80 m and gross weight of 500 kg

Optional equipment

- Stacking corners: cases with and without a pallet substructure can be stacked.
- Aluminium pallet substructure.
- Hinged lid, two straps and foamed peripheral lid seal (ingress protection IP 54).
- Pressure compensation valve and humidity indicator.
- Removable fixed and swivel castors.
- Paint finish in all standard variants possible.
- Also with approval for the transport of hazardous goods for payloads up to 500 kg, including for lithium batteries.

Bulk containers for missiles and components



Bulk containers for military equipment



Cable shockmount



KEPD 350 missile prior to delivery



Safety feature Rupture disc: Provides protection in the event of a sudden ambient pressure drop.

Bulk containers and special containers for a wide variety of applications, e. g. for transporting and storing missiles, rockets, drones and much more.

Designed and manufactured from high-strength aluminium alloy sheet metal and profiles. Innovative details such as shock absorbers, mounts and handling aids for problem-free, ergonomic and safe handling. When required, tested and approved as hazardous goods packaging in accordance with UN requirements, i. e. can be transported on public roads.

We develop individual solutions according to your specifications. Please contact us for further details!

Special solutions for containers and logistics



Special containers made from aluminium are individual customer-specific solutions designed and manufactured in close cooperation with the client to meet the requirements of the application in question.

From the specially designed K 473 through to highly sophisticated special containers: no matter how exacting your requirements, ZARGES special containers rise to the challenge – with creative design and state-of-the-art production techniques. Areas of application include the storage and transport of large equipment, components and other parts for air and space travel and industrial products on land, by sea and air.

Services and quality

- Pressure-sealed constructions.
- Waterproof designs.
- Cargo protected against shocks and vibrations.
- Stackable containers.
- Recesses for fork lifts, lifting lugs.
- Paint and labelling to customer specifications.
- Customised options for built-in items, from one-off to bulk materials.
- Environmental requirements to customer specifications.



Special container with paint finish



Gastight container for transporting satellite components in a nitrogen atmosphere.

Special construction for radar and navigation



Photo: Airbus, ASR antenna system

Services and quality

- High-precision constructions with close-tolerance reflector surfaces and mountings for add-on and built-in electronic items.
- Shock- and vibration-tested.
- Pressure-sealed construction.
- Removable radome.
- Metal-oxide-free paint.

A wide diversity of highly accurate antenna systems are necessary to ensure the safety of air transport. These need to function reliably under all conditions. ZARGES delivers all necessary mechanical components according to customer specifications.

Electronic navigation systems on civil and military ships, aircraft and ground stations must be capable of doing their job even under extreme conditions. ZARGES supplies the corresponding components, e.g. radar antennas, antenna cases and reflection geometry – true to size and able to withstand the most severe weather and environmental conditions.

Special constructions for radio links and satellite antennae

In the design and manufacture of antenna for radio and satellite link systems, accuracy of measurement represents a crucial factor. We are able to draw on decades of experience in this sector based on a multitude of completed projects. Application areas include radio, television and telecommunications in fixed and mobile networks (including UMTS). We also develop bespoke solutions tailored to your specific requirements. Please send us your request!

Services and quality

- Dimensions Ø 0.6–4.0 m.
- Painted using a special aluminium alloy.
- Compressed, stretch-formed or moulded reflector surfaces.
- Precision ± 2 mm.
- rms value ≤ 0.8 mm.
- Wind loads up to max. 200 km/h.



DLR Corner Reflector





Innovative boxes for universal applications

ZARGES boxes and cases meet the highest demands on quality, maximum functionality and design. The K 470 universal container thus offers an optimum solution for safe transportation, economical storage and perfect packaging of the most diverse range of goods, as well as for the widest diversity of uses and the reliable protection of your goods against external influences. As an authorised test and inspection agency, ZARGES also offers optimal container solutions for the packaging and transport of hazardous goods thereby complying to the stringent statutory safety regulations.

.....	
K 424 XC Mobile Box	42-43
K 470 universal container	44-48
Hazardous goods containers	49
K470 Plus hood-type container	50
Paint finish and labelling	51
K 470 IP 65 and IP 67	52-53
K 410 Alu Case	54
K 411 ZARGES Case	55
Tests and certifications	56-57

K 424 XC Mobile Box

Many sizes also available with approval for the transportation of hazardous goods.

4 B / X 50 / S / 17 / D
BAM 14989 - ZARGES



Integrated special castors Ø 50 mm



Stackable even with mounted castor set (Order No. 41818), also stackable with the K 470 series and Eurobox

Stability in combination with flexibility: the lightweight and indestructible transport solution for any surface and with many accessories:

- Sturdy, mobile aluminium case with a long-lasting service life.
- Optimum mobility through integrated 50 mm castors and pull-out handle (Order Nos. 41810 to 41814) or second sprung drop handle on the end face (Order No. 41815).
- Extremely smooth-running due to special castors, Ø 50 mm, made from polyurethane and polyamide.
- Stackability guaranteed through stacking corners made from impact-resistant plastic and integrated stacking elements in the support frame. Can also be stacked with containers in the ZARGES K 470 and Eurobox series.
- High load-bearing capacity of up to 50 kg despite the low dead weight.
- Equipped as standard with removable base foam insert made from abrasion-resistant PE foam.
- ZARGES Comfort fasteners with extremely long service life, fitted with plug locks.
- A wide range of adjustable interior fittings ensure versatility.
- 125 mm optional castor set or 220 mm off-road wheel set available for use across difficult terrain.

No.	Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Volume, approx. l	Weight, approx. kg	Pull handle	With approval for the transportation of hazardous goods, max. permissible gross weight, kg	Max. total weight, approx. kg
1	41810	516 × 350 × 159	550 × 400 × 233	28	6.3	3-part	25.0	25.0
2	41811	550 × 350 × 310	600 × 400 × 385	60	7.3	3-part	25.0	25.0
3	41812	750 × 350 × 380	800 × 400 × 455	99	9.0	2-part	35.0	35.0
4	41813	750 × 450 × 310	800 × 500 × 385	105	9.5	2-part	35.0	35.0
5	41814	750 × 635 × 410	800 × 685 × 485	195	12.0	2-part	35.0	35.0
6	41815	910 × 350 × 380	960 × 400 × 455	120	9.5	2 sprung drop handle	50.0	50.0
7	41809	400 × 330 × 380	450 × 410 × 455	50	6.7	3-part	(No approval)	25.0

K 424 XC Mobile Box – mobility and interior fittings



Castor set 125 mm

- Set of wheels with solid rubber tyres and plastic rims, non-marking.
- Increases ground clearance to 50 mm.
- With high-quality ball bearings and plug-in axles.
- Can be retrofitted to any K 424 XC without tools and at the touch of a button.
- Can be retrofitted at any time; includes storage bag made from hard-wearing nylon fabric.

Order No.	Castor Ø, approx. mm	Suitable for boxes
41818	125	all K 424 XC



Off-road wheel set 220 mm

- All-terrain wheels for unlimited mobility on all surfaces.
- Increases ground clearance to 65 mm.
- Support legs mean the product is horizontal when positioned on the ground.

Order No.	Castor Ø, approx. mm	Suitable for boxes
41819	220	41811, 41812, 41815
41832	220	41813
41833	220	41814



Inside bag with crosswise divider

- Robust, water-repellent inside bag made from polyester.
- Flexible organisation system with crosswise dividers

Order No.	Designation	Dimensions L × W × H, approx. mm	No. of crosswise dividers
41822	Inside bag for 41810	516 × 350 × 159	4
41823	Inside bag for 41811	550 × 350 × 310	4
41824	Inside bag for 41812	750 × 350 × 380	6
41826	Inside bag for 41813	750 × 450 × 310	6
41827	Inside bag for 41814	750 × 635 × 410	6
41828	Inside bag for 41815	910 × 350 × 380	6



Lid bag

- Attractive lid bags you can fit yourself, made from black nylon fabric.
- Ideal for laptops, tablets, cables, small parts or documents.
- Protects parts and keeps order inside the case.
- The bag is easily detachable.

Order No.	Designation	Dimensions L × W × H, approx. mm	Fits cases with inside dimensions, L × W from mm
41820	Lid bag, large	420 × 260 × 40	550 × 350
41821	Lid bag, small	260 × 150 × 40	310 × 250



Foam lining

- Universal protection for sensitive objects.
- Durable, abrasion-resistant lining made from PE foam.
- Base and wall sections made from Plastazote LD 45 (specific gravity 45 kg/m³, thickness 11 mm).
- Including base foam.
- Lid foam made from PU nubbly foam.
- Self-adhesive design.

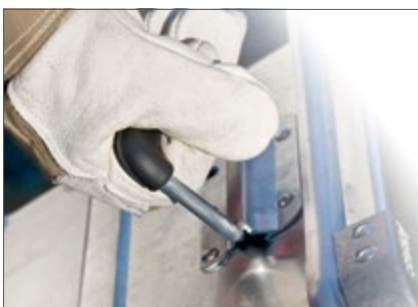
Order No.	Inside dimensions L × W × H, approx. mm	Suitable for boxes
43889	516 × 350 × 159	516 × 350 × 159
43864	550 × 350 × 310	550 × 350 × 310
43891	750 × 350 × 380	750 × 350 × 380
43892	750 × 450 × 310	750 × 450 × 310
43893	750 × 635 × 410	750 × 635 × 410
43890	910 × 350 × 380	910 × 350 × 380

K 470 Universal Container



The K 470 series includes high-quality aluminium containers in 25 standard sizes and capacities from 13 to 829 l. Customised special products are available on request.

- Lid with stainless steel hinge strip, two belt straps and foamed seal all round.
- Cast aluminium stacking corners.
- High level of stability due to 3 fully-welded aluminium profile frames as well as peripheral and corner beading.
- Profile-section joints fully welded.
- Ergonomic heavy-duty sprung drop handles.
- Ergonomically designed and durable Comfort fasteners for at least 20,000 operating cycles.
- Snap fasteners versatile, secure and lockable.



Ergonomically shaped, extra-wide Comfort handles



Perfect handling, even when wearing gloves



All sizes available also with approval for the transportation of hazardous goods.

K 470 Universal Container

All sizes also available with approval for the transportation of hazardous goods.

4 B / X102 / S / 17 / D
BAM 8311 ZARGES



No.	Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Volume, approx. l	Weight, approx. kg	With approval for the transportation of hazardous goods, max. permissible gross weight, kg	Fitted foam lining
1	40835	350 × 250 × 150	400 × 300 × 180	13	2.6	26.0	43860
2	40677	350 × 250 × 310	400 × 300 × 340	27	3.1	58.0	43861
3	40810	550 × 350 × 150	600 × 400 × 180	29	4.2	65.0	43862
4	40568	550 × 350 × 220	600 × 400 × 250	42	4.8	65.0	43863
5	40678	550 × 350 × 310	600 × 400 × 340	60	5.0	70.0	43864
6	40564	550 × 350 × 380	600 × 400 × 410	73	5.3	75.0	43865
7	40849	550 × 550 × 220	600 × 600 × 250	67	5.6	65.0	43866
8	40859	550 × 550 × 380	600 × 600 × 410	115	6.6	75.0	43867
9	40836	550 × 550 × 580	600 × 600 × 610	175	7.8	94.0	43868
10	40837	600 × 430 × 450	650 × 480 × 480	116	6.5	70.0	43869
11	40839	600 × 560 × 440	650 × 610 × 470	148	7.4	83.0	43871
12	40841	690 × 460 × 380	740 × 510 × 410	121	6.9	71.0	43873
13	40842	690 × 640 × 340	740 × 690 × 370	150	8.0	84.0	43874
14	40843	690 × 640 × 430	740 × 690 × 460	190	8.6	100.0	43875
15	40565	750 × 550 × 380	800 × 600 × 410	157	10.0	102.0	43877
16	40566	750 × 550 × 580	800 × 600 × 610	239	12.0	126.0	43878
17	40844	780 × 480 × 520	830 × 530 × 550	195	11.1	103.0	43879
18	40845	900 × 480 × 400	950 × 530 × 430	173	11.0	93.0	43880
19	40846	900 × 640 × 450	950 × 690 × 480	259	13.4	115.0	43881
20	40567	950 × 450 × 380	1,000 × 500 × 410	162	10.9	65.0	43882
21	40847	1,150 × 350 × 150	1,200 × 400 × 180	60	7.5	50.0	43887
22	40580	1,150 × 750 × 480	1,200 × 800 × 510	414	20.0	183.0	43884
23	40848	1,350 × 400 × 220	1,400 × 450 × 250	119	9.5	65.0	43888
24	40875	1,550 × 550 × 465	1,600 × 600 × 495	396	25.0	150.0	43885
25	40876	1,650 × 750 × 670	1,700 × 800 × 700	829	30.0	200.0	43886

K 470 interior fittings



Lid bag

- Attractive lid bags you can fit yourself, made from black synthetic fabric.
- Ideal for laptops, tablet, cables, small parts or documents.
- Protects parts and keeps order inside the case.
- The bag can be removed at any time.

Order No.	Designation	Dimensions L × W × H, approx. mm	Fits inside dimensions from L × W, approx. mm
41820	Lid bag, large	420 × 260 × 40	550 × 350
41821	Lid bag, small	260 × 150 × 40	310 × 250



Attaché insert

- A practical folder for documents and working utensils. Made of hard-wearing fabric and can be installed by the customer.
- Simple assembly, self-adhesive design.

Order No.	Dimensions L × W × H, approx. mm	Fits inside dimensions from L × W, approx. mm
40626	430 × 290 × 20	550 × 350



Tool bag, self-adhesive

- Removable, convenient tool bag made from robust fabric.
- Easy installation without drilling using an adapter part.
- Also fits cases with protection rating IP 65 and IP 67.

Order No.	Dimensions L × W × H, approx. mm	Fits inside dimensions from L × W, approx. mm
40630	430 × 260 × 60	550 × 350



Adjustable aluminium divider set

- Consisting of a divider panel with 2 notched bars.
- For even better organisation; plastic notched bars in self-adhesive design.
- Position of the aluminium divider panel can be changed without the use of tools.

Order No.	Dimensions W × H, approx. mm	Fits
40864	346 × 215	40568
40865	346 × 305	40678, 40564
40866	446 × 345	40567



Inside bag with crosswise divider

- Robust, water-repellent inside bag made from polyester.
- Fully sealable with all-round zip fastener.
- Lateral reinforcement/bracing for easy loading and unloading.
- Removable, with sturdy carrying handles.
- Equipped with crosswise dividers with Velcro fasteners allowing them to be positioned as desired.

Order No.	Dimensions L × W × H, approx. mm	No. of crosswise dividers	Fits
41823	550 × 350 × 310	4	40678
41829	550 × 350 × 380	4	40564
41830	750 × 550 × 380	6	40565
41831	750 × 550 × 580	6	40566

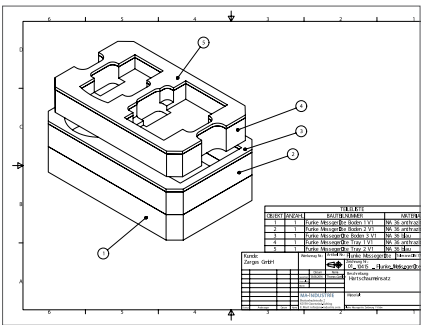
K 470 custom foam inserts – total protection that fits like a glove

We manufacture tailor-made foam inserts in a large range of materials to provide perfect protection and functionality geared specifically to the goods you are transporting. You supply photos, drawings, 3D data or original parts – and our designers develop the perfect inserts for your specific application.

You have a choice of various colours. Antistatic, dissipative or flame-retardant designs available.

A further special characteristic of these first-class foam materials is that the protective effect of the finished packaging can be calculated in advance corresponding to military usage specifications.

Based on weight, surface, drop height and sensitivity (G-value), we can develop packaging with optimally adapted padding thickness for you. The result: lowest possible raw material requirements with maximum protection.



Individual design



Use of 3D data facilitates the design project



Foam inserts that fit perfectly



Tailor-made coloured inserts with labelling



Removable inserts for quick access to all levels



Delivery without content

Pick 'n Pluck foam

- Pre-cut flexible-foam inserts made from open-cell PU foam.
- The fast and simple solution for single items or small batches.
- Shape can be modified without tools.
- Set includes two sheet thicknesses, lid insert nubby foam 30 mm, base foam 10 mm.
- Nubby foam in the lid is self-adhesive.

Order No.	Inside dimensions L × W × H, approx. mm	Fits
40735	550 × 350 × 220	40810, 40568
43854	550 × 350 × 380	40678, 40564
40736	750 × 550 × 220	40849
43856	750 × 550 × 380	40565

K 470 mobility and accessories



Lifting strap made from synthetic fibres

- Can bear loads of up to 200 kg per case.
- Low weight.
- Non-rattling.
- 1 set = 4 pieces required per case.
- UN approval for the transportation of hazardous goods possible.

Order No. 40745



Lifting sling made from stainless steel wire

- Easy to clean and decontaminate.
- High resistance to UV rays and chemicals.
- 1 set = 4 pieces required per case.
- UN approval for the transportation of hazardous goods possible.

Order No. 40746



Clip-on castors

- Mobility for all models from inside dimensions 550 x 350 mm.
- Can be fitted without the use of tools.
- Made of solid rubber, Ø 100 mm, swivel castors fitted with wheel brakes.
- load capacity of up to 100 kg for 4 castors.

Order No. 40741

2 fixed castors

Order No. 40742

2 swivel castors



W 150 dolly trolley

- Aluminium chassis, low version.
- Chassis: 2 swivel and 2 fixed castors, Ø 125 mm, 40 mm wide, easy running, rubber wheels, "non-marking", roller bearings, thread guards.
- Load capacity 150 kg.



Pallet substructure

- If required, the cases can be fitted with a pallet substructure.
- Pallets made from wood, plastic or aluminium.



Anchoring cable

- This prevents the locked K 470 being carried away.
- The extra strong stainless steel cable can be released only when the lid is open.
- Length 1.20 m. One cable end equipped with a loop.

Order No.	Fits outside dimensions L x W, approx. mm
40607	600 x 400 and 580 x 380
40608	800 x 600 and 760 x 580



Customised version possible.
Details on request.

Order No.	Assembly
375891	Through ZARGES
41838	Self-mounting

Comfort fasteners



With integrated catch-spring anti-opening feature



For shackle locks of up to 6 mm shackle thickness



Reinforced closing clasps for shackle locks of up to 8 mm

Order No.	Designation	Fits
40832	Lock set	Unique key and lock set. Fits all cases equipped with locks
40833	Lock set	Complete series of identical locks and keys. Fits all cases equipped with locks
40834	Catch-spring anti-opening feature	All K 470 cases
46789	TSA shackle lock	All K 470 cases
46989	Shackle lock	All K 470 cases

ZARGES hazardous goods containers meet a wide range of requirements

Strict safety regulations are laid down by law for the packaging and transport of hazardous goods. Hazardous goods may only be transported in packaging that meets these criteria

and is approved by the relevant authorities. ZARGES has many decades of experience with UN-approved containers made from aluminium.

CUSTOMER + ZARGES

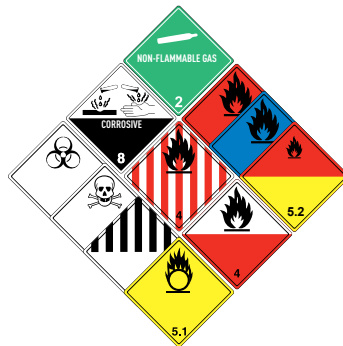
Consultation and packaging conception (internal and external packaging)

SOLUTION AVAILABLE?

YES

» Solution as part of existing approvals

» Large selection of existing UN approvals



NO

» Development of a special solution

» Design, construction and testing by ZARGES

» Application for approval



In its capacity as a test and inspection agency, ZARGES is authorised and able to test hazardous goods packaging and to apply for type approvals.



BAM certificate of approval

The ZARGES product range

The wide range of standard products generally offers a variety of solutions which meet the most exacting requirements. In addition to the K 470 series, the following are also approved for the transportation of hazardous goods: K 475, BY containers, K 410 Alu Case, K 473, collapsible containers and special containers.



Mitraset® Classic, also available with approval for transportation of hazardous goods



Moisture-proof K 475



K 470 with bag with slide-type seal



Containers for rockets

K 470 Plus hood-type container



Top section lifts off easily



After lifting off the top section, the equipment can be operated in the bottom section.

With the K 470 Plus, ZARGES is following an innovative packaging concept: a two-part transportation system comprising an upper and a lower section. This allows you to combine elements of different heights, creating a whole new range of possibilities.

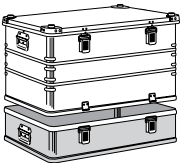
These containers were designed for the transportation and storage of heavy equipment. The K 470 Plus is particularly suitable for use with equipment which is operated in the case, e.g. flash units, printers, measuring equipment etc.

- The equipment does not have to be lifted out of the case.
- Access to contents also possible via lid.
- If the equipment requires lifting from the case, the transportation system reduces the lifting distance required because the top section can be removed.

The K 470 Plus can be supplemented with many articles from the K 470 accessories range.

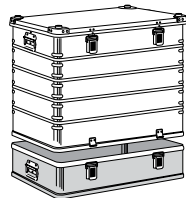
K 470 Plus outside dimensions: 600 x 400 mm

Description	Order No.	Inside dimensions L x W x H, approx. mm	Outside dimensions L x W x H, approx. mm	Volume, approx. l	Weight, approx. kg
Bottom section	40500	550 x 350 x 150	600 x 400 x 180	29	2.6
Top section	40501	550 x 350 x 220	600 x 400 x 250	42	4.0
Total height with bottom section 150 mm: 370 mm					
Top section	40502	550 x 350 x 380	600 x 400 x 410	73	4.7
Total height with bottom section 150 mm: 530 mm					



K 470 Plus outside dimensions: 800 x 600 mm

Description	Order No.	Inside dimensions L x W x H, approx. mm	Outside dimensions L x W x H, approx. mm	Volume, approx. l	Weight, approx. kg
Bottom section	40503	750 x 550 x 150	800 x 600 x 180	62	4.8
Bottom section	40504	750 x 550 x 220	800 x 600 x 250	91	5.5
Top section	40505	750 x 550 x 380	800 x 600 x 410	157	8.6
Total height 530 and 600 mm respectively					
Top section	40506	750 x 550 x 580	800 x 600 x 610	240	10.5
Total height 730 and 800 mm respectively					



Paint finish and labelling

Paint finish

All paints in according with RAL register are available with standard paint system:

- Painting according to TLA-0003 RAL 6031 F9 or RAL 6031 HR, as per ZARGES works standard.
- Painting to TLA-0033 RAL 6031 F9 or RAL 6031 HR, standard.
- Labelling according to different military standards: Def Stan, MIL-STD etc.



Labelling

ZARGES offers individual labelling options:

- Screen printing, single- or multi-coloured
- Self-adhesive film, non-removable version available on request
- Adhesive letters
- Mounting of type plates



Adhesive label for delivery notes

Fixed position for shipping labels. Self-adhesive design. Easy to clean.

Order No.	Dimensions L x W, approx. mm
343904	280 x 280



Identification

- Embossed plate for attaching to containers with embossing in DIN font, capital letters, 20mm font height, single and multiple lines.
- Embossing in DIN font, capitals, 20mm font height, in single and multiple lines.
- Label frames in various sizes in accordance with DIN or special sizes



ZARGES K 470 IP 65 and IP 67 – protecting equipment from water and dust.

Do you require the highest standards in protecting and transporting your equipment? Do you need equipment that can cope with dust, water and pressure differences? This is the no-compromise solution.

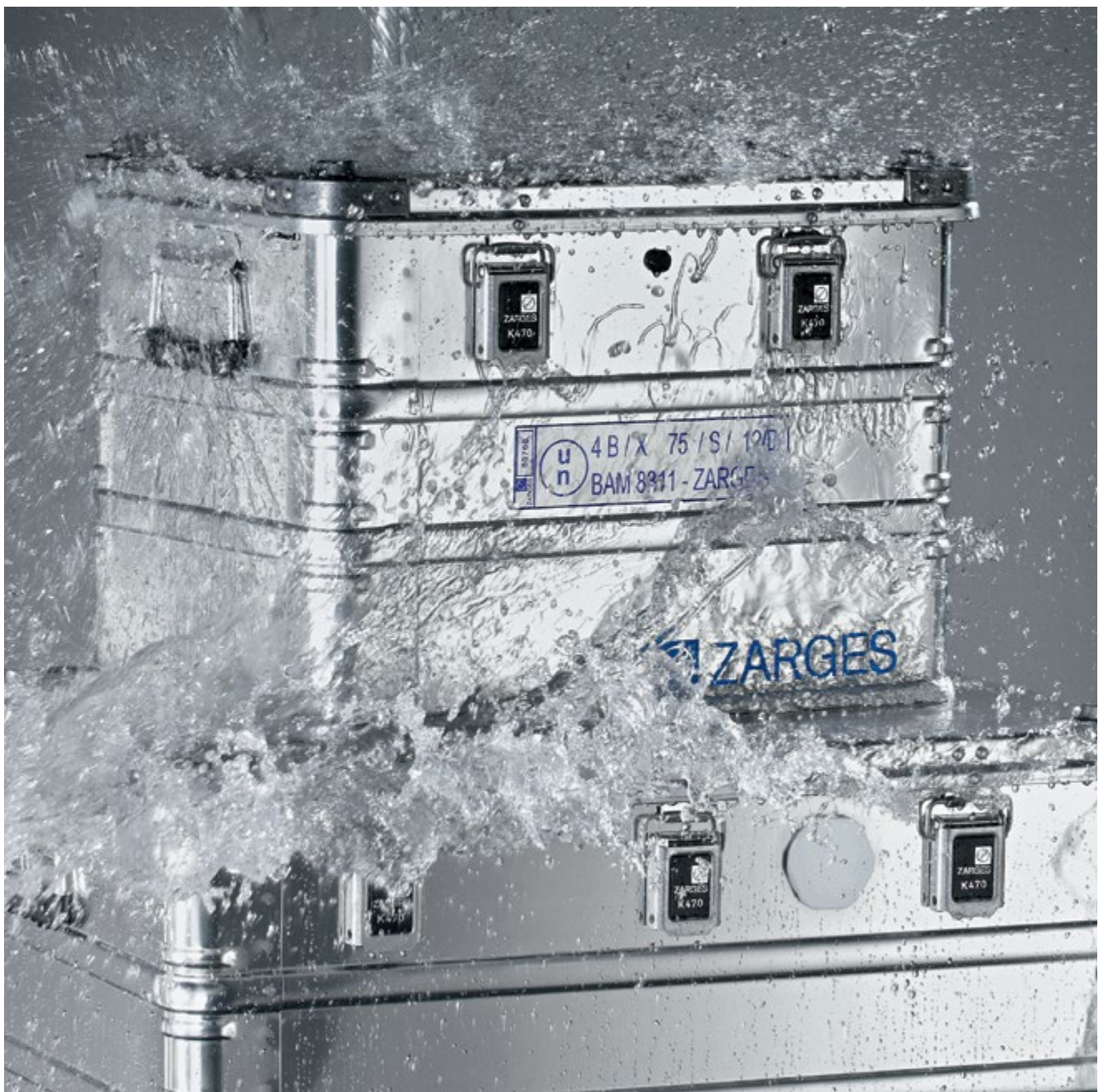
ZARGES K 470 IP 65 – now dust and water-jet proof – in accordance with DIN 60529.

- Large selection of standard sizes available.
- 3 standard sizes available from stock.
- Also available with approval for the transportation of hazardous goods.
- Protection class tested and certified by TÜV SÜD.

ZARGES K 470 - IP 67 – protection against immersion and dust.

High-quality special container, protected against occasional immersion according to protection rating IP 67.

- Patented ZARGES locking system.
- Extra large pressure relief valve.
- Leak-tightness certified by TÜV SÜD.



K 470 IP 65 and IP 67



ZARGES has further optimised its extremely successful and legendary K 470 universal container:

- K 470 cases are equipped with reliable protection against dust and splashes as standard. The new models with protection rating IP 65 or IP 67 offer increased protection against moisture, water jets and dust or even occasional immersion.
- To ensure that the lid opens reliably even after changes in air pressure, the K 470 IP 65 and IP 67 are equipped with an automatic pressure compensation valve. A Gore™ membrane ensures continuous compensation of differences in pressure and is impervious to dust, salts, water and other liquids. And as the valve is automatic, handling errors can be ruled out.
- The K 470 IP 65 and K 470 IP 67 has been subjected to rigorous testing and certification by TÜV SÜD.
- With just a few exceptions, the optional seal according to protection class IP 65 is available for all K 470 models. In addition, you can get the new equipment with extra UN approval for the transport of hazardous goods.
- The K 470 IP 67 catalogue range covers four sizes with customised versions available on request.



Water-jet protected to standard IP 65



Protection class IP 67 from the patented ZARGES locking system

ZARGES K 470 IP 65

Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Volume, approx. l	Weight, approx. kg
366206	550 × 350 × 380	600 × 400 × 410	70	5.3
366217	750 × 550 × 380	800 × 600 × 410	157	10.0
366218	750 × 550 × 580	800 × 600 × 610	239	12.0

ZARGES K 470 IP 67

Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Volume, approx. l	Weight, approx. kg
380366	550 × 350 × 380	600 × 400 × 410	70	5.3
379083	750 × 550 × 380	800 × 600 × 410	157	10.0
380378	750 × 550 × 580	800 × 600 × 610	239	12.0
379725	900 × 640 × 450	950 × 690 × 480	259	13.4

Order No.	Additional charge IP 65 version for K 470
926002	40835, 40677, 40810, 40568, 40678, 40564, 40849, 40859, 40836, 40837, 40839, 40841, 40842, 40843, 40565
926003	40566, 40580, 40844, 40845, 40846, 40567, 40847

K 410 Alu Case



The robust, seal-welded ZARGES Alu Cases are ideal for transporting and packaging under tough conditions. They are ideal for securely packaging sensitive goods. The anodised aluminium construction also makes them ideal as a housing for equipment and the installation of electronics.

The cases are stable, lockable, dust and splash proof, equipped with ergonomic carrying handles, and impress with their functionality, long service life and timeless design.

- Aluminium case, anodised, for varied applications.
- Corrosion-resistant.
- Smooth surfaces.
- Corner reinforcements with case corner pieces.
- Comfortable carrying handle.
- Tension locks with protection against bursting open.
- Hinged lid with all-round seal, therefore dust and splash proof.
- Clearance dimension approx. 20 mm less than inside dimension (length and width).



Alu Case in special design



Peripheral seal

All sizes also available with approval for the transportation of hazardous goods.



No.	Order No.	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Contents approx. l	Weight, approx. kg
1	40765	360 × 300 × 140	370 × 330 × 145	15	1.8
2	40763	470 × 350 × 120	480 × 380 × 125	20	2.2
3	40764	530 × 330 × 140	540 × 360 × 145	25	2.5
4	40766	470 × 350 × 170	480 × 380 × 175	28	2.7

Important note: Clearance dimension approx. 20 mm less than inside dimension (length and width). Special sizes on request.

K 411 ZARGES Case



The legendary quality of ZARGES containers is now also available for cases! The ZARGES K 411 case combines an elegant design with robustness and an extremely long service life – perfect for protecting important items.

- An elegant and attractive look, the exclusive ZARGES style.
- Scratch-resistant surfaces made of high-quality anodised aluminium and an innovative plastic shell mean the case looks as good as new even after years of use.
- Durable and offering years of service due to a sturdy design and practical weight.
- Elements of thermoplastic elastomer protect sensitive surfaces from scratching.
- Easy to operate locks with combination locks and integrated catch-spring retention (anti-opening feature).
- Peripheral seal to protect against dust and splashes.

No.	Order No.empty	Order No.with lining	Inside dimensions L × W × H, approx. mm	Outside dimensions L × W × H, approx. mm	Volume, approx. l	Weight, approx. kg
1	41713	41718	360 x 300 x 50 + 90	375 x 345 x 160	15.1	2.2
2	41714	41719	420 x 320 x 50 + 80	435 x 365 x 150	17.5	2.5
3	41715	41720	470 x 350 x 50 + 80	485 x 405 x 150	21.4	2.8
4	41716	41721	530 x 330 x 50 + 90	545 x 385 x 160	24.5	3.0
5	41717	41722	650 x 455 x 70 + 120	665 x 510 x 210	56.2	4.7



Case with lining – for the professional image

With attractive, black interior fittings as standard and a practical lid insert for small items, documents and business cards.

Order Nos. 41718-41722.



The instrument case

Whether for instrumentation, medical equipment or many other special types of use: high-quality technical devices are optimally protected in the ZARGES Case, for tailor-made transportation.

See page 47 for further information.

Tests and certifications

ZARGES products have been successfully used by many armed forces, continuously undergo and pass the most rigorous testing by independent test institutes, which is, at

the same time, complemented by ongoing testing at ZARGES own modern test facilities.

Test

Test description

Imperviousness to environmental factors

IP65 – dust and splash proof according to DIN EN 60529:2014-09	Water jet Test duration, 3 mins/side without underside, v/min 12.5 l/min	
MIL-STD 810 G method 506.5 Rain – Procedure I – Rain and Blowing Rain.	Wind speed 18 m/s. Rain intensity 100 mm/h. Duration of test at least 30 minutes per side	
MIL-STD-810 G – method 510.5 Sand and Dust – Procedure I – Blowing dust	Wind speed 8.9 m/s Dust density: 10.6 ± 7 g/m³ Particle size ≤ 149 µm ≤ Duration of test 2 × 6 h	
IP67 – dust and immersion proof according to DIN EN 60529:2014-09	Immersion approx. 1 m Duration of test 30 min	

Wear/corrosion resistance

MIL-STD-810 G – method 509.5 Salt Fog Test	Duration of test 96 hours Temperature 35 °C	
Resistance to mildew as per MIL-STD 810 F method 508.4 – Fungus	Duration of test 28 days.	

Temperature resistance

Test at high temperature, method 501.2 according to MIL-STD-810 D-3, procedure I A2.	Duration of test 24 hours Temperature 71 °C.	
Test at low temperature, method 502.2 according to MIL-STD-810 D-4, procedure I C2.	Duration of test 24 hours Temperature -51 °C.	

Approval for the transportation of hazardous goods

ZARGES has decades of experience in hazardous goods packaging and holds many valid approvals.	Packaging group I, drop height 1.80 m. Stacking pressure test. Packaging group II, drop height 1.20 m. Stacking pressure test. Class 6.2, drop height 9.0 m, dart drop test, stacking pressure test	
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Mechanical strength

Strength of drop handles up to 750 N (approx. 75 kg)	According to VG 95 447:	
IATA ATA Spec 300, Category I (100 rounds)	Drop test: gross weight 23 kg, drop height 76 and 92 cm, number: 280 drop tests Leak tight: 100 l/h Vibration test: Duration of test 2 hours	
TÜV certificate lifting equipment	Tested according to DIN EN 1492-1:2000 (item 61892 A), DIN EN 1677-1:2000 (item 356050 C), PPP 53297:2007 (item 357967 B)	

Vibration damping

Vibration damping	See page 11 for Mitraset® individual one-off examples	
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RF screening

	See page 22 for Mitraset® individual one-off examples	
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NATO supply numbers

	ZARGES has been an established supplier for decades to many armed forces and has many supply numbers.	
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Environmental protection

Reach	ZARGES continuously controls adherence to European Directive (EC) No. 1907/2006	
RoHS	Not applicable to containers and access equipment.	



Testing institute

Available for series

IABG, TÜV SÜD, ZARGES	Mitraset® Classic, Mitraset® Racklite, Mitraset® Racklite Basic, K 470 IP 65; K 473 as well as other special series according to customer specifications
IABG	Mitraset® Classic, K 475, K 470 IP 65
IABG	K 470 IP 65
TÜV SÜD, ZARGES	K 470 IP 67, K 475
IABG	Mitraset® Classic, Mitraset® Racklite, Mitraset® Racklite Basic, K 470 IP 475; K 473 as well as other series according to customer specifications
IABG	Mitraset® Classic, Mitraset® Racklite, Mitraset® Racklite Basic, K 470 IP 475; K 473 as well as other series according to customer specifications
ZARGES	Mitraset® Classic
ZARGES	Mitraset® Classic
BAM, ZARGES	K470, K 475, K 473, K 410 Alu Case as well as other special series according to customer specifications
BAM, ZARGES	Mitraset®, collapsible container RetouA® as well as other special containers according to customer specifications
BAM, ZARGES	K 470, K 475
BAAIN Bw	This handle is used also by K 470, K 475, K 473 and diverse special containers.
Dayton T. Brown	K 470 (40564)
TÜV SÜD	K 470
Serco; Siemens; diverse one-off measurement reports	Mitraset®
Serco; Siemens; diverse one-off measurement reports	Mitraset®, K 475
Supply numbers are issued by the responsible authorities of any NATO member.	Mitraset®, K 475, K 470, BY containers, diverse special containers
ZARGES	compliant





Access equipment

Access equipment from ZARGES – e.g. assault ladders, specialist ladders, boarding aids, conventional ladders and work platforms – are quick to deploy, lightweight, compact and ideal for the widest range of tasks.

ZARGES access equipment unites all the benefits of aluminium. They are economical, safe and ecologically sound.

Maintenance and work platforms	60–61
Single ladders	62
Push-up ladders	63
Suspension ladders	64
Step ladders	65
F-16 cockpit ladder	65
Information and service	66

ZARGES maintenance platforms for military equipment

- Easy maintenance of machinery, ground vehicles, helicopters and planes.
- Individual solutions tailored to your specific requirements.
- Innovative solutions based on years of experience and a wealth of know-how.

Maintenance platforms for ground vehicles

Vehicles that are subject to tough all-terrain conditions require constant maintenance. To carry out such maintenance with as much comfort and effectiveness as possible, the German armed forces, for example, use maintenance platforms from ZARGES. These constructions enable access to otherwise difficult to reach components, and provide the highest standards of safety when carrying out the work.



Contour-adapted maintenance platform around a PUMA tank



Mobile maintenance platform for the Renault SHEPARD

Maintenance platforms for helicopters

Helicopters have sensitive technology and therefore require special attention during servicing and repair work. Such complex tasks are best carried out using ZARGES maintenance platforms. These meet the special demands for height adjustability, extension systems and special all-terrain versions.



Electric height adjusters and mobile maintenance platform for the H145 police helicopter



Both of these height-adjustable, contour adaptable work platforms enable optimal maintenance work on a BLACK HAWK

Docking systems for aircraft

ZARGES is the partner for maintenance and docking systems in the servicing of civil and military aircraft. Size here does not matter. Whether the work to be carried out on the nose, wing, engine, tail or all of these simultaneously, ZARGES designs work platforms and docking systems to your requirements.



Mobile propeller dock for servicing and maintenance work on a LOCKHEED C-130 HERCULES



Innovative product ideas

Height adjustable and dismountable maintenance platforms in special containers have been designed for maintenance work in the field. Helicopters are then always ready for action even when maintenance hangars are unavailable. The maintenance platform can be adjusted to any terrain using height adjusters and dismantled for storing and transport in special containers.



Other special solutions

ZARGES also provides you with any type of special solution for access and transportation. Details on request.

We provide you with competent solutions, e.g.:

- Maintenance and work platforms.
- Any type of dock system (nose, wing, tail, engine, cockpit).
- Maintenance and access steps (e.g. Tornado and Eurofighter).
- Refuelling equipment.


 Contact special solutions
 +49 351 404 -650
special.solutions@zarges.de



Single ladders, 350 mm wide

- Extremely low noise due to special rung-stile joints.
- Non-reflective, matt black powder coating.
- Rubber end caps for low-noise positioning.
- Pivot foot with integrated ground spike for high stability on any surface.
- Load capacity per rung 150 kg.
- Total permissible load 300 kg.



Rubber end cap



Rung-stile joint



Pivot foot with integrated ground spike

Order No.	Ladder length, m	Outside width, mm	Stile height, mm	Number of rungs	Weight, kg
46500760	3.05	350	73	10	7.5
46500376	3.65	350	73	12	10.5



Single ladders, 800 mm wide

- Extremely low noise due to special rung-stile joint.
- Non-reflective, matt black powder coating.
- Rubber end caps for low-noise positioning.
- Pivot foot with integrated ground spike for high stability on any surface.
- Possible for two persons to climb simultaneously.
- Load capacity at rung midpoint 150 kg.
- Equal distribution across rung 2 × 110 kg = 220 kg.
- Total permissible load 300 kg.



Rubber end cap



Rung-stile joint

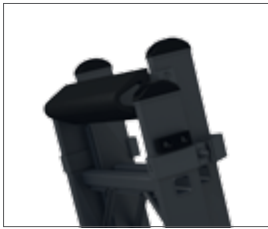


Pivot foot with integrated ground spike

Order No.	Ladder length, m	Outside width, mm	Stile height, mm	Number of rungs	Weight, kg
46500375	2.80	800	73	9	14.9
46500374	3.10	800	73	10	15.8

Push-up ladders, 2-part, 420 mm wide

- Extremely low noise due to special rung-stile joints.
- Non-reflective, matt black powder coating.
- Rubber end caps for low-noise positioning.
- Pivot foot with integrated ground spike for high stability on any surface.
- Load capacity per rung 150 kg.
- Total permissible load 300 kg.



Rubber end cap



Guide fittings



Pivot foot with integrated ground spike



Order No.	Ladder length, extended, m	Ladder length, retracted m	Outside width, mm	Stile height, mm	Number of rungs	Weight, kg
46500373	6.14	3.60	420	73	2×12	19.5

Push-up ladders, 2-part, 870 mm wide

- Extremely low noise due to special rung-stile joint.
- Non-reflective, matt black powder coating.
- Rubber end caps for low-noise positioning.
- Pivot foot with integrated ground spike for high stability on any surface.
- Possible for two persons to climb simultaneously.
- Load capacity at rung midpoint 150 kg.
- Equally distribution across rung 2 × 110 kg = 220 kg.
- Total permissible load 300 kg.



Order No.	Ladder length, extended, m	Ladder length, retracted m	Outside width, mm	Stile height, mm	Number of rungs	Weight, kg
46500761	3.50	2.10	870	98	2×7	22.4
46500372	5.04	3.07	870	98	2×10	28.2
46500191	5.53	3.27	870	114	2×11	32.9
46500371	6.16	3.63	870	114	2×12	37.0
46500762	7.20	4.00	870	114	2×14	38.7



Suspension ladders (modular extending ladder)

- Fast and simple connection of individual modules by inserting and securing.
- Extremely low noise due to special rung-stile join.
- Non-reflective, matt black powder coated modules.
- Support made of aluminium with plastic coating.
- Fittings on ladder upper ends for fixing to on-site hooks.
- Black, 2-component plastic caps on ladder lower end as well as offset connecting lugs for an on-site flexible ladder.

Technical details

- Outside stile width approx. 380 mm, incl. caps approx. 430 mm.
- Inside width approx. 330 mm.
- Rung spacing approx. 280 mm.
- Rung load max. 150 kg, total load max. 250 kg.

Complete set

Order No.	Overall length max. m	Ladder length max. approx. m	Stile height, mm	Number of rungs	Weight, kg
46500387	7.37	7.31	85	26	33.5

Comprising 1 × base module, 4 × mid modules, 1 × support and 1 × top module

Single parts

Order No.	Designation	Ladder length m	Stile height, mm	Number of rungs	Weight, kg
46500388	Base module	1.15	85	4	4.4
46500389	Mid module	1.40	85	5	5.7
46500390	Support	–	–	–	2.7
46500391	Top module	0.56	85	2	3.6

Loops, hooks and flexible ladder available on request



Base module



Support



Mid module



Top module

Stepladder, double-sided access

- Step areas of treads are 80 mm deep.
- Screwed stile-rung joints.
- Shin-protecting padding on front tread edges.
- Non-reflective, matt black powder coating.
- High-strength Perlon straps to prevent splaying.
- Load capacity per rung 150 kg.
- Total permissible load 300 kg.



Strong hinges



Padding on front tread edges



Slip-resistant end caps



Order No.	Ladder length, m	Vert. Ladder height, m	Stile height, mm	Number of treads	Weight, kg
46500378	1.93	1.76	42	2×8	11.7

F-16 Cockpit ladder, foldable and mobile

- Simple and safe access to cockpit.
- Compact foldable design for easy transport and storage.
- 160-mm castors make it easy to move.
- Large platform for secure entry.
- Cockpit cleanliness – includes shoe brush.
- Padding on the railings.
- Construction made entirely of aluminium for lightness.

**Other cockpit ladders available on request
(e.g. Eurofighter Typhoon).**



Foldable construction.



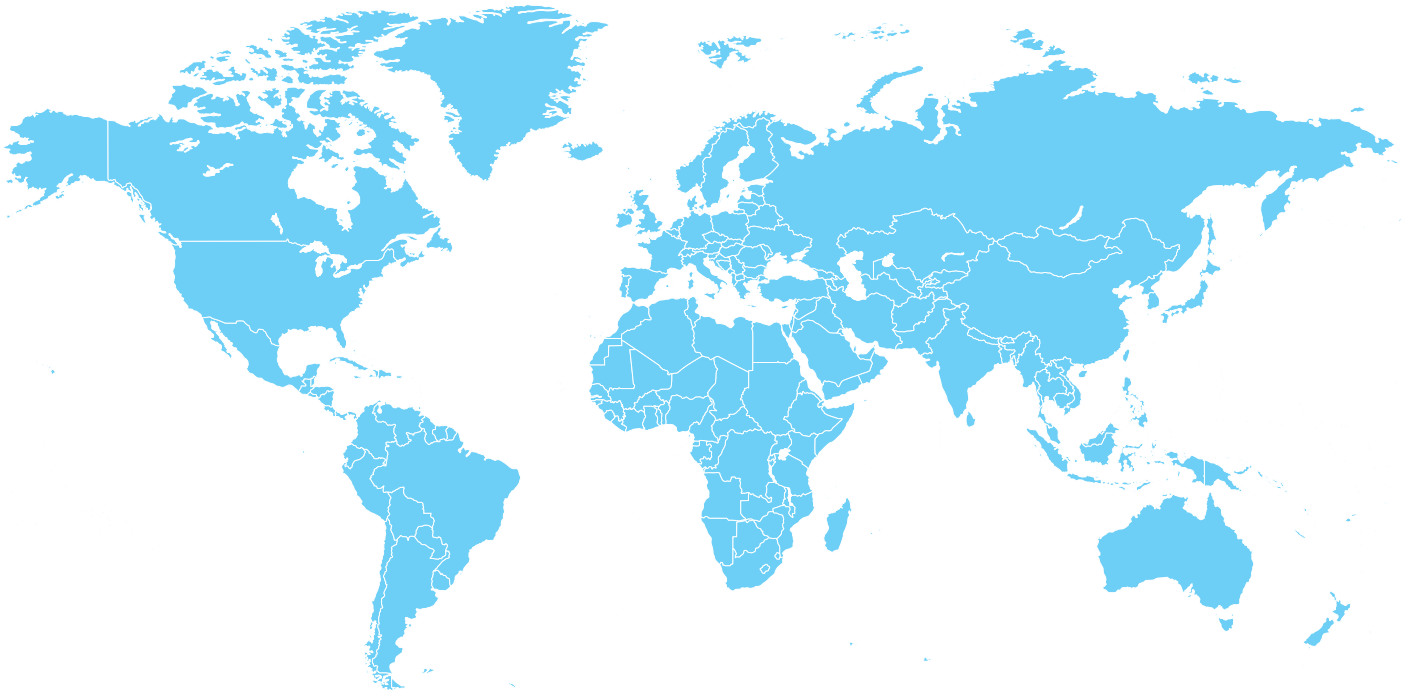
Shoe brush



Chassis



Order No.	Ladder length m	Platform height m	Chassis width m	Width without chassis m	Number of treads incl. platform	Weight, kg
46500256	2.68	1.88	1.28	0.68	8	33



ZARGES subsidiaries

Austria

ZARGES GmbH · Hallergasse 37 · 1110 Wien
+43 1 749 15 53 0 · office@zarges.at · www.zarges.at

Czech Republic

ZARGES CZ, s.r.o. · Hnevkovského 87 · 61700 Brno
+420 5 432 34 72 7 · obchod@zarges.cz · www.zarges.cz

Denmark

ZARGES Danmark · Roholmsvej 15 · 2620 Albertslund
+45 43 64 02 00 · stiger@zarges.dk · www.zarges.dk

France

ZARGAL S.A.R.L · ZA Activeum – 4 rue Georges Guynemer ·
67129 Molsheim Cedex
+33 3 88 50 82 07 · zargal@zargal.fr · www.zargal.fr

Germany

ZARGES GmbH · Zargesstraße 7 · 82362 Weilheim
+49 881 687 131 · special.systems@zarges.de ·
www.zarges.de

Great Britain

ZARGES U. K. Ltd. · Holdom Avenue – Saxon Park Industrial
Estate Bletchley 8 · MK1 1QU Milton Keynes · +44 1908 64 11 18 ·
sales@zargesuk.co.uk · www.zargesuk.co.uk

Hungary

ZARGES Kft · Jókai u. 26 · 1066 Budapest
+36 1 332 1190 · info@zarges.hu · www.zarges.hu

Netherlands, Belgium, Luxemburg

ZARGES B.V. · Knippersven 7 · 5056 DE Tilburg
+31 135231130 · info@zarges.nl · www.zarges.nl

Poland

ZARGES Polska Sp. z o.o. · ul. Gen. W. Andersa 10 a ·
41200 Sosnowiec
+48 32 292 53 70 · zarges@zarges.com.pl · www.zarges.com.pl

Sweden

ZARGES AB · Oestra Bangatan 14 · 19560 Arlandastad
+46 8 59122000 · stegar@zarges.se · www.zarges.se

Switzerland, Liechtenstein

ZARGES GmbH · Oberdorf 1 · 8222 Beringen
+41 52 682 0600 · schweiz@zarges.ch · www.zarges.ch

USA, Canada

ZARGES Inc. · Center Park Drive 1440 · 28217 Charlotte, NC
+1 704 357 6285 · info@zargescases.com · www.zargescases.com

**For information about other local ZARGES partners
in many countries all over the world please contact:**

 international-sales@zarges.de
www.zarges.com/defence