



autoVimation

building machine vision



Assembly of Chameleon L for Basler TOF camera

This brochure is for customers only!

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Protect your Vision System!

autoVimation's aim is to provide simple to use products to make it possible to **use machine vision cameras in any environment**. Maintenance trips can be expensive, so protecting the sensitive camera equipment from damage or just manipulation is equally important.

Build your Vision System!

The second motivation for autoVimation's products was to allow simpler installation of camera systems in a manufacturing environment - "**plug and play**" **also for mechanics**. Once the camera is mounted in an enclosure, it can be easily adjusted and robustly installed on the machine, using our mounting kits and brackets as well as our range of matching dovetail profiles. This can avoid expensive, time-consuming manufacturing of dedicated mounting frames and brackets.

Limited warranty

The original autoVimation product is covered by a limited warranty of 24 months for defect free delivery according to EU regulations.

autoVimation's warranty refers to the constant quality of the products falling in line with the specifications according to the general terms of delivery and payment. autoVimation presuppose correct handling and treatment of the function and condition, particularly observance of the product specifications and assembly- and operating manuals. Limitations of use published, such as temperatures, are based on measurements made under the testing conditions and can therefore only serve as an indication for an actual application.

Working conditions and varying application conditions outside the sphere of influence of autoVimation shall preclude any warranty claims. autoVimation would recommend verifying whether the product is suitable for the purpose of application intended. The way the products are applied, used and processed is not a matter autoVimation is able to control, and for this reason lies solely in the customers area of responsibility. Should there nevertheless be a case for liability, it shall be restricted to the value of the product supplied by autoVimation and used by the customer for all and any damage incurred.

The suitability of the product for the user's application which regard to load capacity (long term application), conforming with temperature limits of 3rd party equipment used, the chemical durability or ageing of sealing materials, as well as the correct mechanical or electrical installation must be checked and ensured by the customer under the particular practical conditions concerned. If, within the warranty period, the product is determined to be defective (at the date of original purchase) due to improper materials or workmanship, autoVimation GmbH or their service partners will, without charge for labour or parts, repair or (at the discretion of autoVimation GmbH) replace the product or its defective parts. The following cases are not covered by the above warranty:

- Consumable parts and parts subject to wear and tear
- Minor faults or deviations in the quality of a product which do not affect the product's value or fitness for its intended purpose
- Faults resulting from improper use (e.g. operating errors, mechanical damage, incorrect operating voltage)
- Any modification of autoVimation products effected by the customer or a third party, unless autoVimation has given its prior written consent to the nature and extent of the modification
- Faults due to force majeure
- Faults of which the purchaser was already aware at the time of purchase

All warranty claims become void if the product is tampered with by unauthorized persons or repair shops. Further, this warranty is voided by removal or alteration of identification labels, serial numbers or safety labels on the product or its parts. Warranty claims can be enforced in any country throughout the world in which the statutory rights of the country concerned are not in conflict with the warranty regulations. No other warranty claims or claims over and above the rights stated in these terms and conditions will be accepted. Consumers may be entitled to statutory rights in their own countries which are not restricted by these warranty terms and conditions, as the warranty is governed by the laws of the country in which the autoVimation product was purchased by the consumer. The provisions of the UN Convention on the International Sale of Goods do not apply to this service.

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What we advise both orally and in writing with regard to technical application is based on our experience and to the best of our belief; this should, however, be understood as a pointer without obligation.

Feedback welcome! Please send us an email to sales@autovimation.com, if you find any errors or find a subject requires more explanation!
Subject to change without prior notice!

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1 Important general notes

- Please follow carefully these assembly guidelines when assembling autoVimation's enclosures, as the IP protection rating stated may otherwise not be reached!
- Inappropriate handling of the enclosure or any parts thereof may lead to a leaky enclosure and may cause damage to the enclosed camera. autoVimation can take no liability for damages caused by improper handling.
- autoVimation's enclosures have been designed for a typical machine vision application where the camera set-up is done once in order to build an application. Frequent disassembly of the enclosure requires all seals and gaskets to be renewed. Please order replacement seals or O-rings from autoVimation when disassembling the enclosure.
- autoVimation uses the best possible sealing materials for typical applications. However every application is different - please check if our sealing material is durable under the use intended. A material duration overview is provided in the appendix. If in doubt please ask us for assistance - we usually have different sealing materials in stock or are able to source alternative materials if required.
- Do not assemble the enclosure if any parts are damaged – this counts especially for the seals and sealing flanges of the enclosure! In doubt – please contact autoVimation for advice.
- Tighten the lids as far as possible and don't use excessive force in case it is not possible to screw the lid completely down to the housing.

Separate assembly instructions are available for more complex systems (Water Cooling, Turtle enclosures with Peltier Cooling, controlled Heating Plate, etc.).



The light bulb highlights useful hints and advice.



The warning sign marks critical aspects that should be followed at all times.

2 General Features Chameleon L for Basler TOF camera

Degree of Protection	IP66 and IP67, if assembled properly
Material	Cast aluminium
Material screws	Stainless steel, AISI 304
Material enclosure seal	Polyurethane foam. See the appendix for chemical resistance!
Surface	Powder coating
Colour:	Light grey, RAL 7001, special colours at request
Camera mount uses dovetails on camera	Very robust and adjustable
Heat dissipation	Good heat dissipation thanks to heat conductive tape between camera and enclosure. Keep camera within permitted temperature range according to manufacturer!
Cable gland:	Large cable glands allow direct feed through of camera cables (standard RJ45, HRS 12 pole), without disconnecting the connectors and bending the cables. See general assembly document for detailed instructions!
Temperature range enclosure:	-40°C to +100°C (temperature range for camera is usually much less!)
UV resistant	Yes, can be used outdoors, then pressure equalising valve recommended.

Highlights of this Chameleon enclosure for Basler's FOV camera:

- 9 individual windows prevent any problems with reflection of LED light into the camera lens – tested by BASLER, so no shading of LED lights or lens FOV.
- Protruding lens tube ensures good contact of the camera with the outer housing and avoids back-reflections. Manufacturers glare shield not required!
- Camera mounted to enclosure lid allowing precise positioning lining up with enclosure windows.
- Optional dovetail adapter profiles allow robust mounting and adjustment with autoVimation's mounting kits.

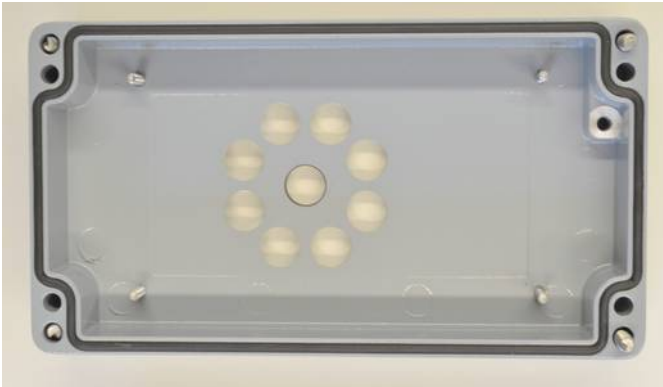
3 Check content of packaging



Components of the Chameleon L for the Basler TOF camera image shows optional accessories

Art. No.:	Part description	Note
20.105.190 20.105.192	Chameleon L TOF, IP66, 90x120x220 (l x w x h), for Basler Time-Of-Flight-Camera	
20.105.191 20.105.193	Chameleon L TOF, IP66, 90x120x220 (l x w x h), for Basler TOF-Camera, including dovetail adapter-profiles.	Includes Chameleon L TOF 20.105.190 and Dovetail adapter profiles 20.105.996
20.105.996	Dovetail adapter profiles for Chameleon L TOF	

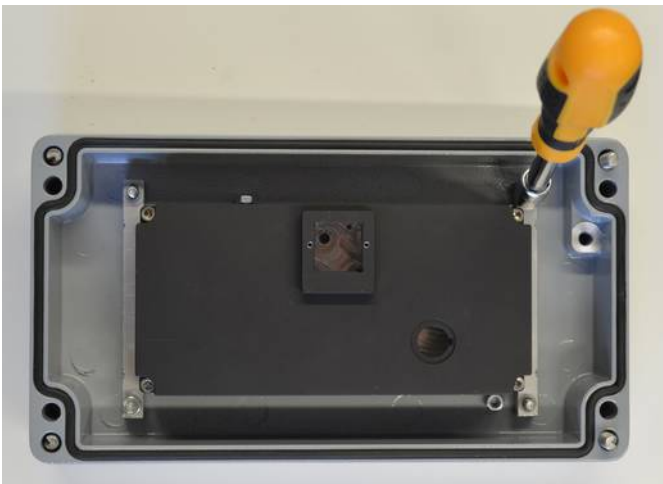
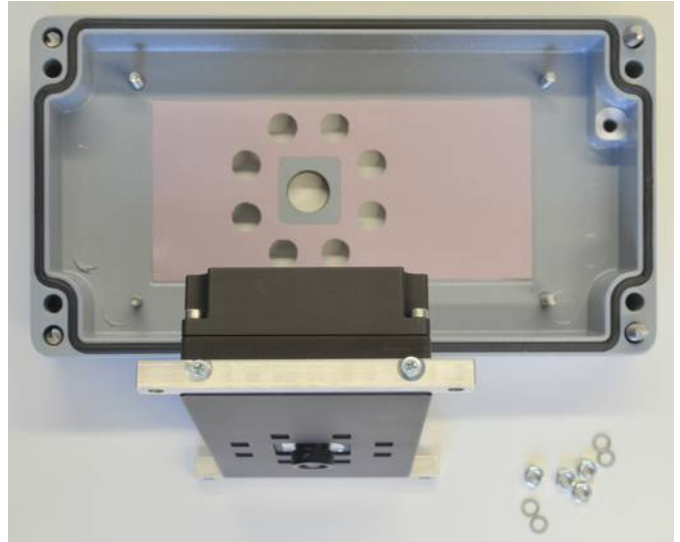
4 Chameleon L for Basler TOF camera enclosure assembly



1. Enclosure Lid with windows and mounting bolts.

Place red heat conductive tape centred to windows on the lid (Alternatively onto the camera top).

2. Mount holder rails to the camera with the M3x12 CSK screws provided, as shown in the next image.



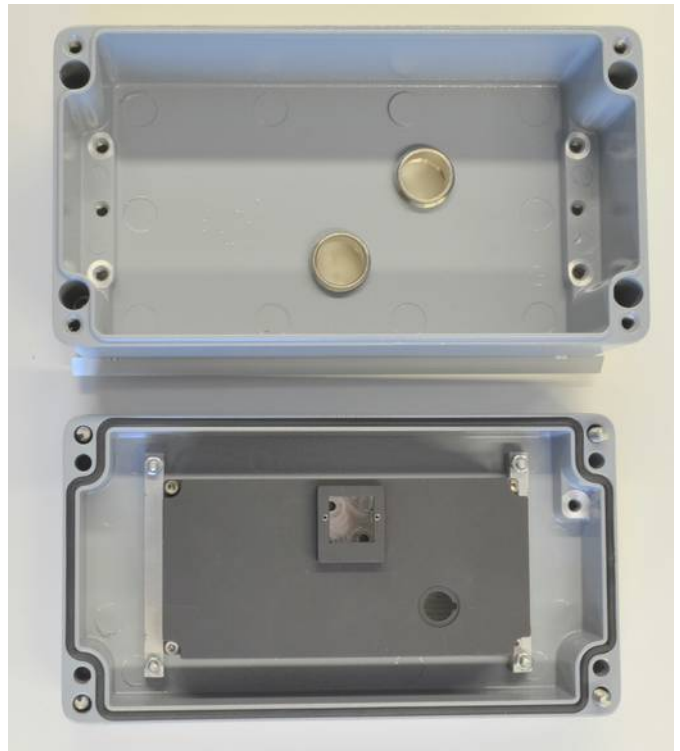
3. Remove Basler's original "reflection shield" around the lens.



4. Place camera carefully onto the, beware not to damage the lens. Keep the heat tape in position.

5. Secure the camera using the 4 M4 nuts and lock washers provided.

Right hand side image shows enclosure lid with camera and bottom with cable glands – both from the inside.





5. Ensure that the heat tape is correctly aligned with the windows / LEDs or the LEDs might be covered by the heat conductive tape!



6. Mount the dove tail rails to the bottom of the enclosure, if ordered (mount the cable gland extensions first!)



This image shows the correct orientation of the groove in the dovetail corner, matching the "feet" under the enclosure.



Feed the M6x30 screws provided with the lock washer through the larger bore inside the enclosure bottom. Re



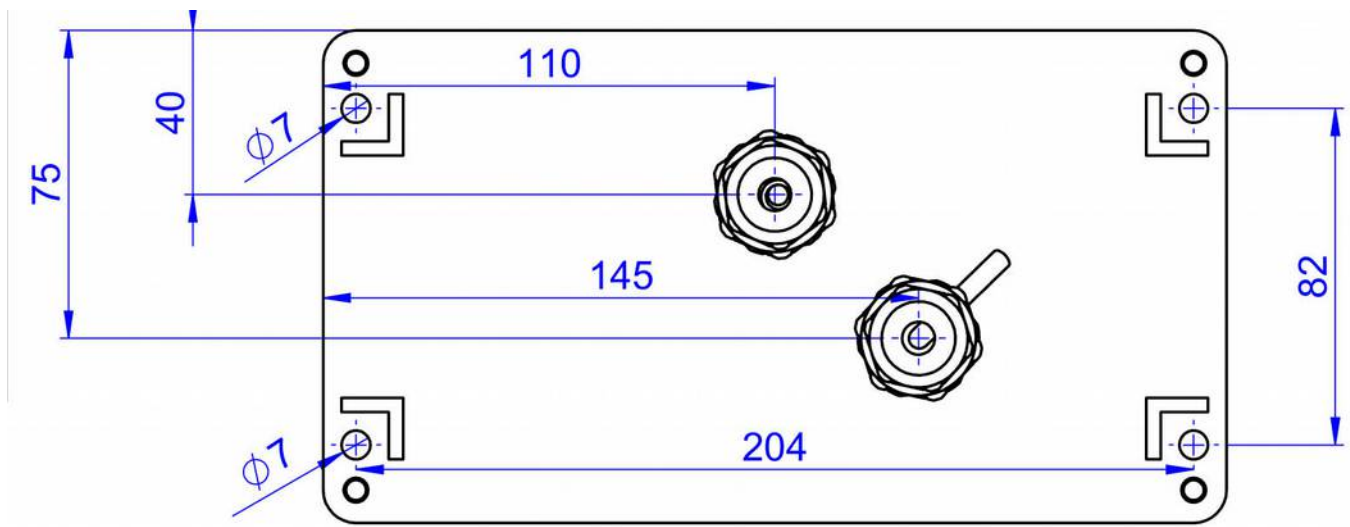
Rear View enclosure with cable glands and dovetail adapter profiles mounted.



Chameleon L for Basler TOF with closed cable glands and mounting kit 15 (optional) allows flexible positioning of the camera.

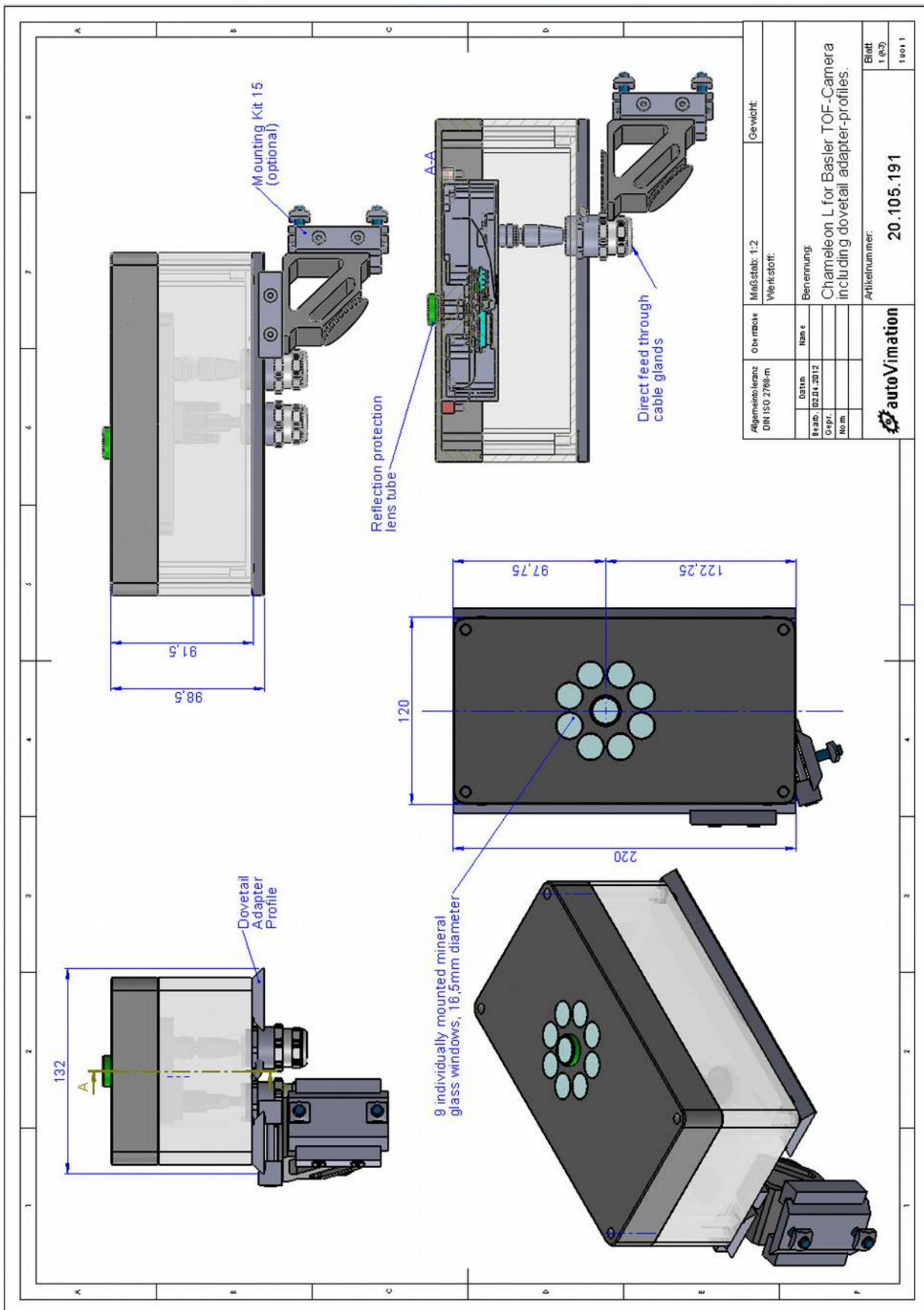


7. Feed cables through the cable glands as show. Connect the connectors to the camera, close the enclosure and insert the yellow seal insert from the side onto the cable, opening the slit in the seal insert.



Mounting the enclosure without the optional dovetail adapter profiles can be done directly through the 7mm holes with 82x204mm hole spacing as shown above.

5 Mechanical Drawing



6 Sealing material durability

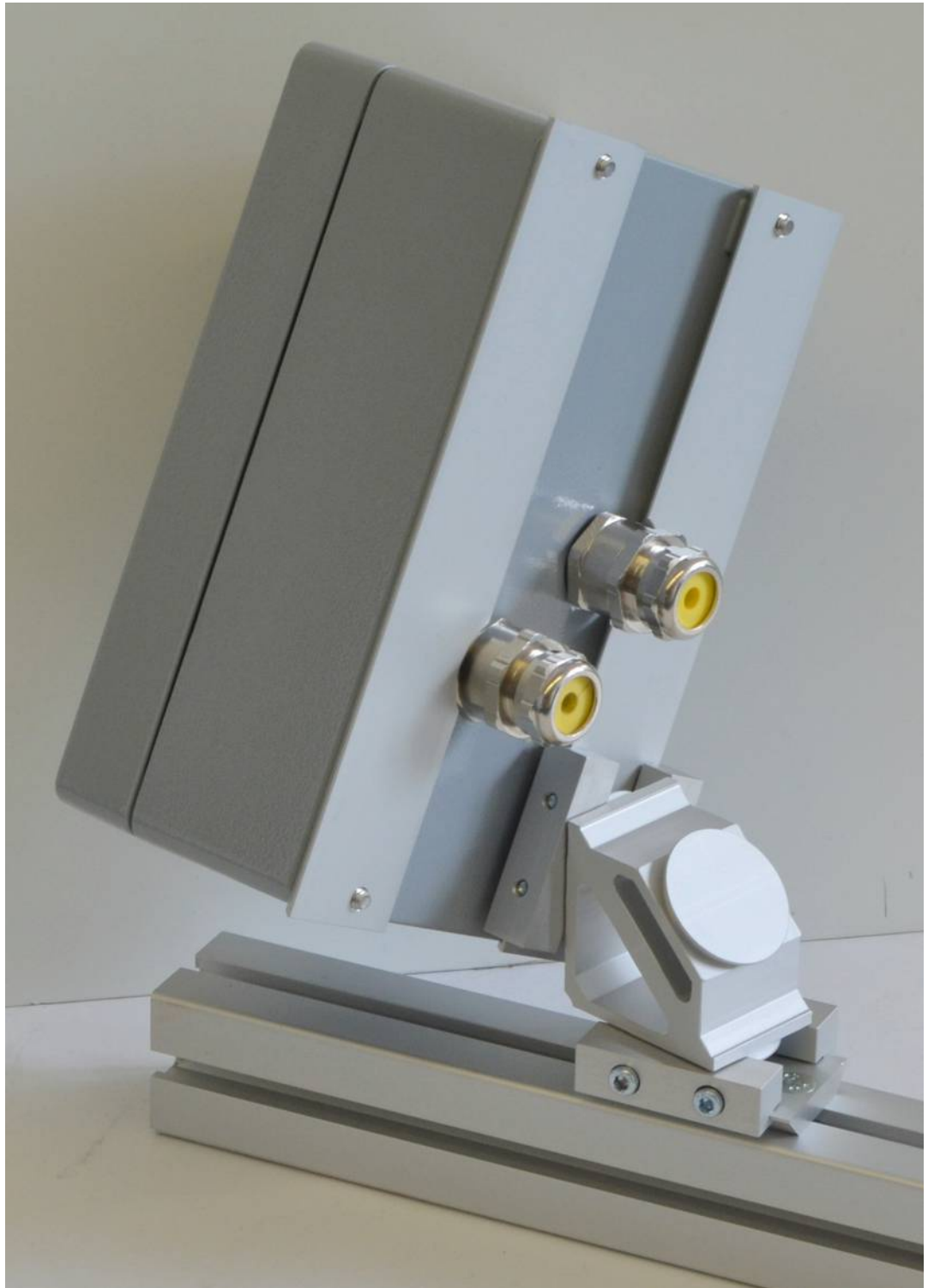
Chemical durability of autoVimation's sealing materials

1= very good chemical resistance, 2 = good resistance, 3-4 limited resistance, 5-6 not resistant

This table has been compiled from several sources, the classification may therefore vary and is a general guideline only!

For critical applications please request sealing material samples from autoVimation for testing!

	NBR 872 70Sh A	VMQ (Silicone)	FKM (Viton)	EPDM	TPE	TPEV	PU-foam (Poron)
temperature (min., max)	-35 ;+100	-40; +200	-20; +200 (230)	-40; +120 (150)	-40; +130	-40; +135 (150)	-40, +90°C
ageing		1	1	1	1	1	1
ozone	4	1	1	1	1	1	1
gas permeability	1	5	1				
suitable for food appl.		1					
water	3	3	2	1	1	1	1
hot water (100°C)	up to 90°C 2	4	3	1			
sea water	2	3	2	2	1	1	1
steam	5	5	5 -only special mixes durable	1			
chlorine	5	4	3	3			
chlorine (gaseous, 20°C)	5	5	3	3	3	3	
hydrocarbons:	2	4	2	5	2	2	
mineral oil	1	3	2	5	2	2	1
petrol	3	5	2	5	3	3	1
diesel	1	3	2	3			1
alcohol			5			2	
ethanol (20°C)	1	1	5 -only special mixes durable	1	1	1	
ketone			5	2			
acetone (100%, 20°C)	5	5	5		3	3	5
ammonia, diluted (10%, 20 °C)	2	3	5		3	3	n.s
servo steering fluids					5		
break fluids based on Glycol-ether	5	3	5	1	5		n.s
cyclohexane							
Acids:				2			
acetic acid 30%	4	4	4	3			n.s
acetic acid 50%	5	5	5	3			n.s
acetic acid (100%, 20°C)	5	5	5	5	2	2	n.s
silicic acid, diluted, 60 °C	2	4	2	2			
phosphoric acid, diluted (20°C)	5	up to 85% 2			bis 85% 2	bis 85% 2	
nitric acid, concentrated.	5	5	5	5			5
nitric acid, diluted (50%, 20 °C)	3	bis 10% 3	3	3	up to 30% 2	up to 30% 2	5
hydrochloric acid (20 °C)	5	5	2	2			5
Hydrochloric acid, diluted (30%, 20°C)	3	up to 10% 3	2	2	up to 10% 1	up to 10% 1	5
sulfuric acid, concentrated 50°C	5	5	5	2			n.s
sulfuric acid, diluted (20°C)	5	up to 10% 1	2	2	up to 98% 1	up to 98% 1	n.s
citric acid (up to 10%, 40°C)	up to 20°C 2	5	5 -only special mixes durable	1	2	2	
Bases:				2			
caustic soda, diluted, (10%, 20°C)	3	up to 30% 2	5	2	up to 50% 2	up to 50% 2	n.s
bleaching lye (20 °C)	5	3					
potassium hydroxide, diluted (50%, 20°C)	3	5	5	2	up to 10% 2	up to 10% 2	
soap solution, 20°C	1	4	1	1	1	1	3
suds	up to 90°C 1						3



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