

Zweifrequenz - Laserinterferometer

ZLM 700 / 800 / 900

Dual – Frequency Laser Interferometer



Komponenten und Zubehör
Components and Accessories



Optics
by
Carl Zeiss

Sämtliche Inhalte wurden sorgfältig geprüft. Dessen ungeachtet kann keine Garantie für Richtigkeit, Vollständigkeit und Aktualität der Angaben übernommen werden.

All contents have been studied carefully. Regardless of this, no guarantee for correctness completeness and actuality of information can be given.

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A. Allgemeine Informationen und Systemparameter

A. General information and system parameters

Zweifrequenz-Laserinterferometer-Messsysteme

Vielen Dank, dass Sie sich für Laserinterferometersysteme zum Messen und Kalibrieren der JENAer Meßtechnik GmbH interessieren.

Die Zweifrequenz – Laserinterferometer – Messsysteme (ZLM) bieten Ihnen eine Vielzahl von Anwendungen, die von einachsiger Distanzmessung bis zur simultanen Messung von 4 Achsen reichen.

Translatorische Messungen: X-Achse, Y-Achse, Z- Achse

Rotatorische Messungen: Rollwinkel (ϕ), Gierwinkel (ψ), Nickwinkel (θ)

Als einachsiges Messsystem ist das ZLM 700 und dessen Komponenten die beste Wahl für Ihren Anwendungsfall.

Messaufgaben in mehreren Achsen werden durch den Einsatz des ZLM 800 gelöst.

Bei extrem kleinen Aufbauten mit wenig Freiraum sollten fasergekoppelte Lasermesssysteme (ZLM 900) genutzt werden.

Sollten Sie noch keine Erfahrungen mit Laserinterferometern haben, finden Sie im Kapitel N verschiedene Aufbaubeispiele.

Gern unterstützen wir Sie mit maßgeschneiderten Lösungen für Ihre spezielle Messaufgabe.

Wenn Sie Fragen zu unseren Messsystemen haben, zögern Sie nicht und kontaktieren Sie uns!

Dual-frequency Laser Interferometer Measurement systems

Thank you that you are interested in Laser interferometer systems for measuring and calibration of JENAer Meßtechnik GmbH.

The Dual-frequency Laser Interferometer Measurement Systems (ZLM) offer a variety of applications, ranging from single-axis distance measurement to the simultaneous measurement up to 4 axes.

Translatory measurements: x-axis, Y- axis, Z- axis

Rotatory measurements: roll angle (φ), yaw angle (ψ), pitch angle (θ)

The ZLM 700 and its components is the best choice for you if you need a single-axis measurement system.

Measuring tasks in multiple axes are solved by using of the ZLM 800.

Fiber-coupled laser measurement systems (ZLM 900) should be used in application with little free space.

If you have no experience with laser interferometers, chapter N shows different configuration examples.

We are glad to support you with customized solutions for your specific measuring task.

If you have any questions about our measurement systems, do not hesitate to contact us!

Generelle Fragen, ab wann der Einsatz einer AUK (Automatischen Umweltkompensation) sinnvoll ist?

Haben sie Messbedingungen:

- wo **keine** Zustandsänderungen von Druck Temperatur und Luftfeuchte vorhanden sind
- führen sie Kurzzeitmessungen
- Messungen außerhalb des Subnanobereiches
- Messungen unter Vakuumbedingungen
- oder der haben Sie Idealbedingungen ($T = 20^{\circ}\text{C}$, $P_a = 101,325 \text{ kPa} = 1013$, Luftfeucht 50%).

Dann ist der Einsatz einer AUK nicht zwingend benötigt.

Andernfalls sollte der Einsatz einer AUK empfohlen werden.

Einflussfaktoren von Temperatur, Luftdruck und Luftfeuchte auf das Messergebnis:

Temperatur: ca. 10^{-6} (d.h.: $\Delta T = 1\text{K} \rightarrow$

Luftdruck: ca. 10^{-7}

Luftfeuchtigkeit: ca. 10^{-8}

General questions, at what point does it make sense to use an AUK (Automatic Environmental Compensation)?

Do you have measuring conditions

- where no state changes of pressure temperature and humidity are present
- do they perform short time measurements
- Measurements outside the subnano range
- measurements under vacuum conditions
- or you have ideal conditions ($T = 20^{\circ}\text{C}$, $P_a = 101,325 \text{ kPa} = 1013$, humidity 50%).

Then the use of an AUK is not absolutely necessary.

Otherwise, the use of an AUK should be recommended.

Factors of influence of temperature, air pressure and humidity on the measurement result:

Temperature: approx. 10^{-6} (i.e.: $T = 1\text{K} \rightarrow$

Air pressure: approx. 10^{-7}

Air humidity: approx. 10^{-}

Leistungsparameter - ZLM 700 / ZLM 800 / ZLM 900 mit Auswerteeinheit AE (Standard)

Performance data - ZLM 700 / ZLM 800 / ZLM 900 with evaluation unit AE (standard)

Mittlere Wellenlänge He-Ne-Laser in Vakuum <i>Mean He-Ne laser wave-length in vacuum</i>	632,8 nm 632.8 nm
Stabilität der Wellenlänge <i>Wavelength stability</i>	2·10 ⁻⁹ für 1 Stunde / 2·10 ⁻⁸ für Lebensdauer 2·10 ⁻⁹ per 1 hour / 2·10 ⁻⁸ per lifetime
Strahldurchmesser <i>Beam diameter</i>	6 mm (optional 3,2 mm) 0.236 in (optionally 0.126 in)
Maximale Leistung des austretenden Strahles <i>Max. beam output</i>	1 mW (Laserklasse 2) 1 mW (laser class 2)
Zahl der Messachsen pro Laser <i>Number of measuring axis per laser</i>	1, optional bis 4 1, optionally up to 4
Messbereich Distanzmessung <i>Range of distance measurement</i>	bis 40 m, optional bis 120 m to 130 ft, optionally up to 390 ft
Auflösung Distanz- und Positionsmessung <i>Resolution distance and position measurement</i>	0,1 nm (Tripelreflektorinterferometer) 0,05 nm (Planspiegelinterferometer) 0.1 nm (cube corner interferometer), 0.05 nm (plane mirror interferometer)
Genauigkeit Distanz- und Positionsmessung (20°± 0,5°C) mit AUK (20°± 0,5°C) in Vakuum <i>Accuracy distance and position measurement (20°± 0,5°C) with AUK</i> <i>(20°± 0,5°C) in Vacuum</i>	± 0,4 ppm (µ/m) ± 0,08 ppm (µ/m) ± 0.4 ppm (µ/m) ± 0.08 ppm (µ/m)
Messbereich Winkelmessung	± 15° bis 20 m Länge

<i>Range of angle measurement</i>	$\pm 15^\circ$ up to 65 ft length
Auflösung Winkelmessung <i>Resolution angle measurement</i>	0,00062 μ rad ($12 \cdot 10^{-5}$ arc sec) 0.00062 μ rad ($12 \cdot 10^{-5}$ arc sec)
Genauigkeit Winkelmessung <i>Accuracy angle measurement</i>	$\pm 0,1$ ppm ± 0.1 ppm
Winkelmessung Genauigkeit (schrittweises Verfahren) <i>Accuracy angle measurement (stepwise method)</i>	$\pm 0,05$ arcsec pro Meter des Fahrweges bei linear bewegter Optik ± 0.05 arcsec per meter of distances traveled by linearly moving optic
Messbereich Ebenheitsmessung <i>Range of flatness measurement</i>	bis 20 m Länge to 65 ft length
Auflösung Ebenheitsmessung <i>Resolution of flatness measurement</i>	0,00062 μ rad ($12 \cdot 10^{-5}$ arc sec) 0.00062 μ rad ($12 \cdot 10^{-5}$ arc sec)
Genauigkeit Ebenheitsmessung <i>Accuracy flatness measurement</i>	$\pm 0,2\%$ vom Messwert $\pm 0,05$ μ rad pro Meter Verschiebeweg $\pm 0.2\%$ of measured value ± 0.05 μ rad per meter of displacement path
Messbereich Geradheitsmessung <i>Range of straightness measurement</i>	± 5 mm auf 2m Länge bzw. 10m Länge 30m Länge (optional) mit Winkelinterferometer ± 0.078 in for 6.5 ft length or 32.5 ft length 97.5 ft length (optionally) with angle interferometer
Auflösung Geradheitsmessung <i>Resolution straightness measurement</i>	29 nm auf 2 m 145nm auf 10 m 29 nm for 6.5 ft 145nm for 32.5 ft
Genauigkeit Geradheitsmessung bis 2 m	$\pm 0,5\%$ vom Messwert

	bis 10 m	$\pm 2,5\%$	vom Messwert
<i>Accuracy straightness measurement</i>	<i>to 2 m</i>	$\pm 0.5\%$	<i>of measured value</i>
	<i>to 10 m</i>	$\pm 2.5\%$	<i>of measured value</i>

Messbereich Rechtwinkelmessung	$\pm 5\text{mm}$ auf 2m Länge bzw. 10m Länge
<i>Range of squareness measurement</i>	$\pm 0.078\text{ in}$ for 6.5 ft length or 32.5 ft length

Auflösung Rechtwinkelmessung bis 2 m	29 nm auf 2 m
bis 10 m	145 nm auf 10 m
<i>Resolution squareness measurement to 2 m</i>	<i>29 nm for 6.5 ft</i>
<i>to 10 m</i>	<i>145 nm for 32.5 ft</i>

Genauigkeit Rechtwinkelmessung bis 2 m	$\pm 0,5\%$	vom Messwert	$\pm 0,5\text{ arc sec}$ ***
bis 10 m	$\pm 2,5\%$	vom Messwert	$\pm 0,5\text{ arc sec}$ ***
<i>Accuracy squareness measurement to 2 m</i>	$\pm 0.5\%$	<i>to measured value</i>	$\pm 0.5\text{ arc sec}$ ***
<i>to 10 m</i>	$\pm 2.5\%$	<i>to measured value</i>	$\pm 0.5\text{ arc sec}$ ***

*** Toleranz Rechtwinkelnormal

*** Tolerance squareness normal

Maximale Verfahrensgeschwindigkeit	3 m/s, translatorisch 320 rad/s rotatorisch
<i>Maximum movement speed</i>	<i>3m/s</i> <i>320 rad/s angular velocity</i>

Genauigkeit Geschwindigkeitsmessung	$\pm 0,5\text{ ppm}$ vom Messwert
<i>Accuracy velocity measurement</i>	$\pm 0.5\text{ ppm}$ of measured value

Maximale Beschleunigung	keine Begrenzung
<i>Maximum acceleration</i>	<i>no limit</i>

Nichtlinearität	$\pm 1,25\text{ nm}$ (Tripelreflektorinterferometer) $\pm 0,62\text{ nm}$ (Planspiegelinterferometer)
<i>Non linearity</i>	$\pm 1.25\text{ nm}$ (cube corner interferometer) $\pm 0.62\text{ nm}$ (plane mirror interferometer)

Schnittstellen	Quadratursignale
	32 Bit (Echtzeit)
	$\Delta t \approx 20 \text{ ns}$
<i>Interfaces</i>	<i>quadrature signals</i>
	<i>32 Bit (real time)</i>
	<i>$\Delta t \approx 20 \text{ ns}$</i>

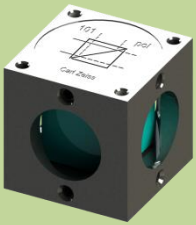
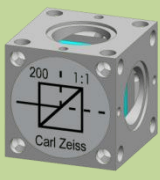
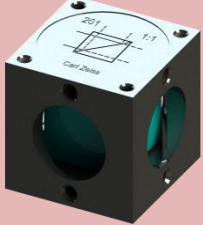
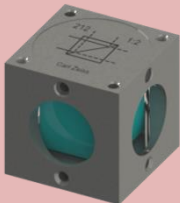
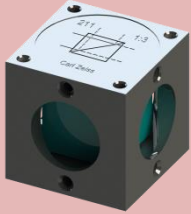
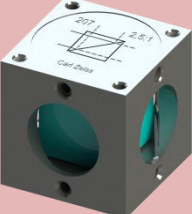
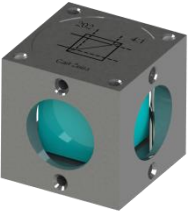
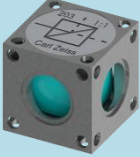
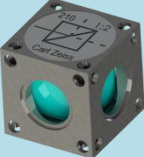
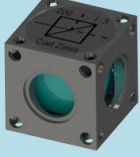
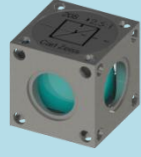
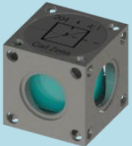
Einsatzbedingungen	Temperaturbereich: 15°C ... 30°C
	Luftfeuchte: < 90% nicht kondensierend
<i>Operating conditions</i>	<i>Temperature range: 59°F ... 86°F</i>
	<i>Air humidity: < 90% non condensing</i>

Lagerbedingungen	Temperaturbereich: 10°C ... 40°C
	Luftfeuchte < 95% nicht kondensierend
<i>Storing conditions</i>	<i>Temperature range: 50°F ... 104°F</i>
	<i>Air humidity < 95% non condensing</i>

B. Produktpalette
B. Product overview

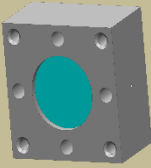
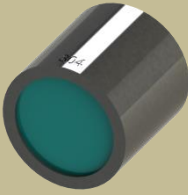
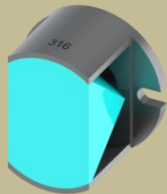
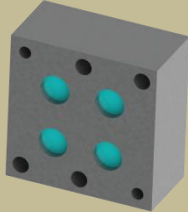
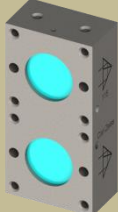
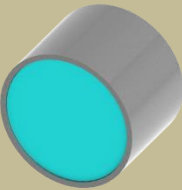
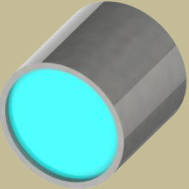
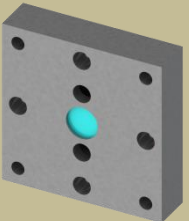
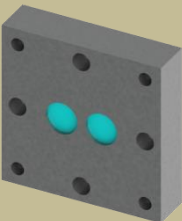
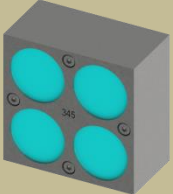
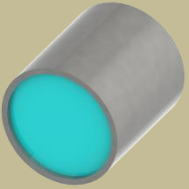
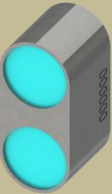
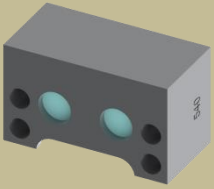
Strahlteiler - Polarisationssteiler / Intensitätsteiler

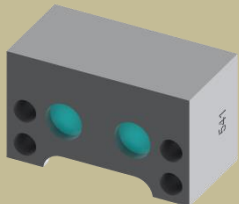
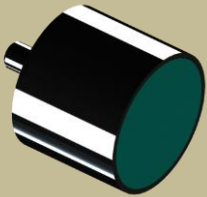
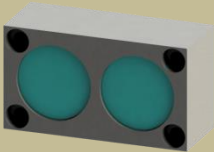
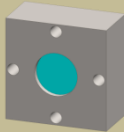
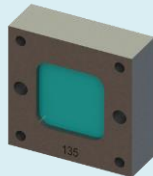
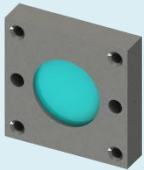
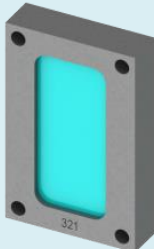
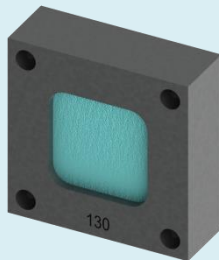
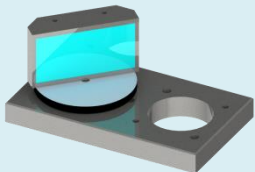
Beam splitters - Polarizing beam splitter / Beam splitters

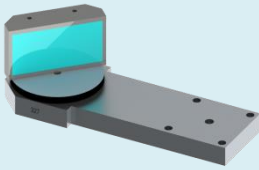
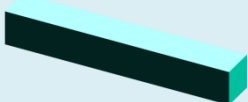
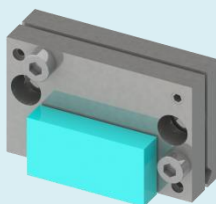
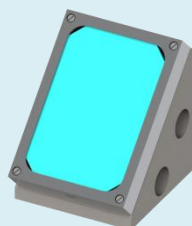
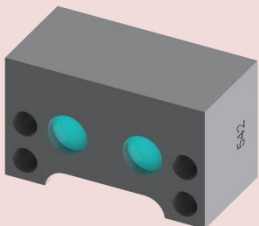
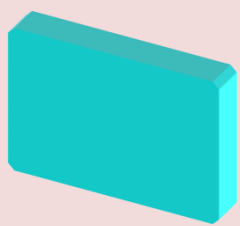
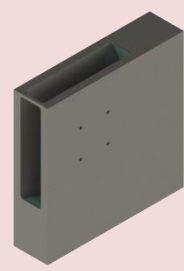
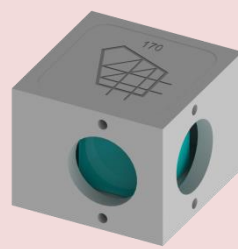
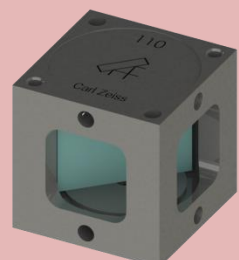
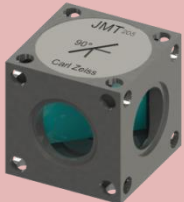
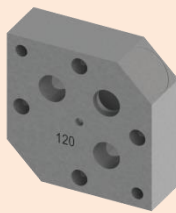
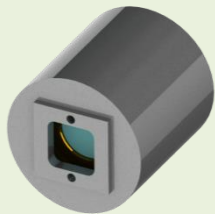
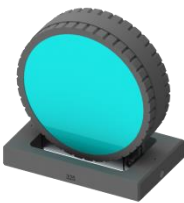
			
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Name: Description:	Polarisationsstrahlteiler 101 Polarizing beam splitter 101	Polarisationsstrahlteiler 200 Polarizing beam splitter 200	Intensitätsteiler A 201 Beam splitter A 201
			
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Intensitätsteiler B 203 Beam splitter B 203	Intensitätsteiler B 210 Beam splitter B 210	Intensitätsteiler B 209 Beam splitter B 209	Intensitätsteiler B 208 Beam splitter B 208
			
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Intensitätsteiler B 204 Beam splitter B 204			

Reflektoren – Spiegel / Tripelspiegel / Umlenker / Aufweitsysteme

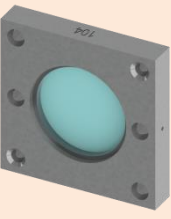
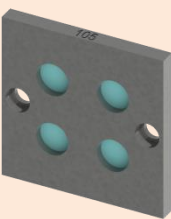
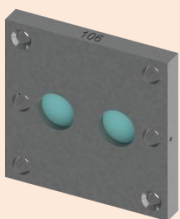
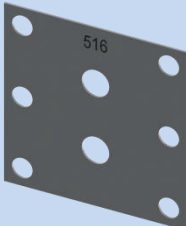
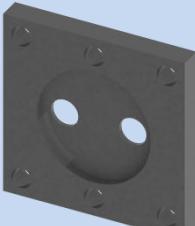
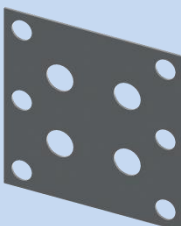
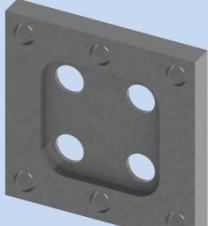
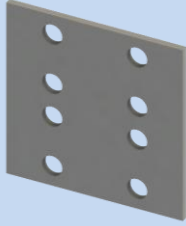
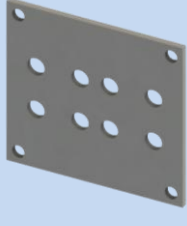
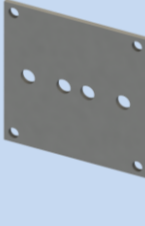
Reflectors – Plane mirrors / Triple mirrors / Beam benders / Beam expansion systems

			
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Name: <i>Description:</i>	Tripelreflektor 102 <i>Cube corner reflector 102</i>	Tripelreflektor 304 <i>Triple reflector 304</i>	Tripelreflektor klein 316 <i>Triple reflector small 316</i>
			
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Doppeltripelreflektor 160 <i>Double triple reflector 160</i>	Tripelreflektor 116 <i>Cube corner reflector 116</i>	Doppelreflektor 115 <i>Double reflector 115</i>	Tripelreflektor 351 <i>Triple reflector 351</i>
			
269302 – 4003 . 424	269302 – 4018 . 324	269302 – 4018 . 424	269302 – 4007 . 300
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Tripelreflektor 9mm <i>Triple reflector 9mm</i>	Reflektor HR - 1 354 <i>Reflector HR - 1 354</i>	Reflektor HR - 2 355 <i>Reflector HR - 2 355</i>	Tripelreflektor 9mm <i>Triple reflector 9mm</i>
			
269302 – 4034 . 524	269302 – 5003 . 524	269302 – 5003 . 624	269302 – 3809 . 724
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3 Achs - Reflektor 345 <i>Three axis reflector 345</i>	Tripelreflektor 9mm <i>Triple reflector 9mm</i>	Doppelreflektor 9mm <i>Double reflector 9mm</i>	Referenztripelspiegel 541 <i>Reference cube corner reflector 541</i>

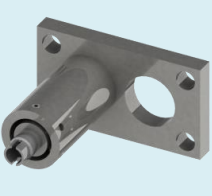
			
269302 – 3809 . 624	269302 – 1108 . 824	269302 – 4014 . 024	269302 – 4066 . 024
D-6	D-6	D-6	D-7
Referenztripelspiegel 540 Reference cube corner reflector 540	Tripelreflektor 24mm Triple reflector 24mm	Tripelreflektor 40mm Triple reflector 40mm	3 Achs - Reflektor 375 3 axis triple reflector 375
			
269302 – 5003 . 224	269302 – 5010 . 125	269302 – 4016 . 624	269302 – 4018 . 824
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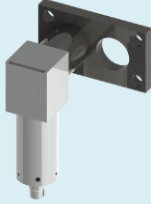
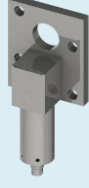
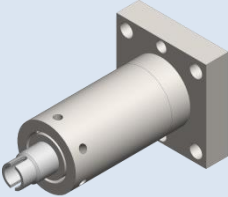
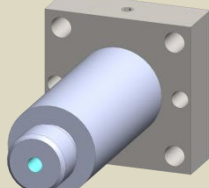
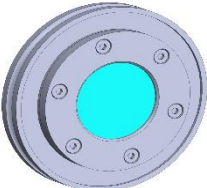
			
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Wave plates / pinholes

			
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269302 – 5011 . 310	269302 – 5011 . 210	269302 – 5011 . 410	269302 – 5011 . 510
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Vorsatzblende für 345 <i>Pinhole for 345</i>	Vorsatzblende für 347/ 348 <i>Pinhole for 347/ 348</i>	Vorsatzblende für 370 <i>Pinhole for 370</i>	Vorsatzblende für 390 <i>Pinhole for 390</i>

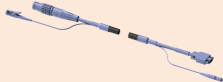
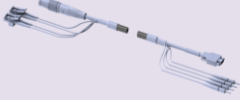
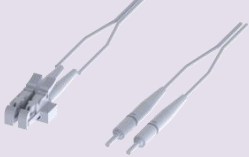
Faserkoppler - Ein- und Auskoppeloptiken*Fiber optics couplings - Input and Output*

			
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LWL – Adapter 220 <i>LWL – Adapter 220</i>	Fenster 44 - Vakuumdurchführung <i>Window 44 - Vacuum Feedthrough</i>	Vakuum - Durchführung für 2 Faser <i>Vacuum - Feedthrough for 2x Fiber</i>	

Kabel

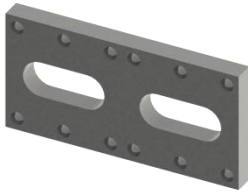
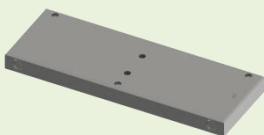
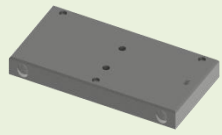
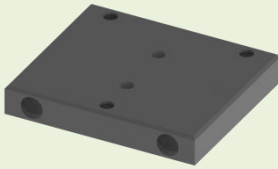
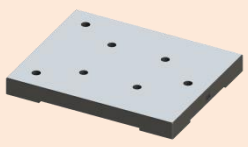
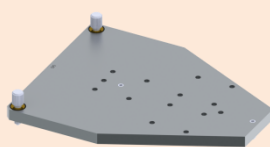
Cables

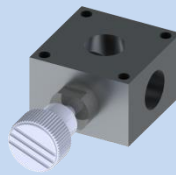
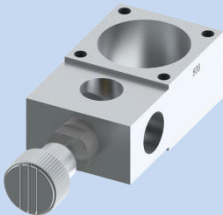
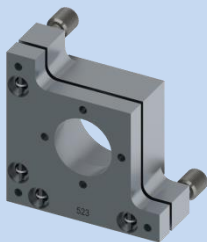
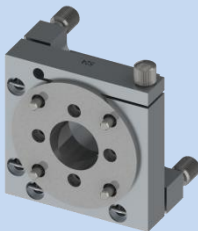
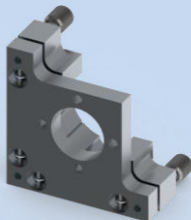
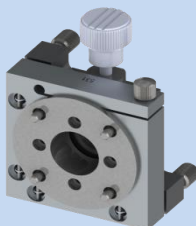
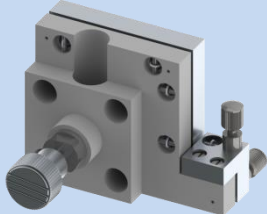
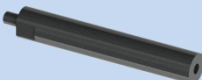
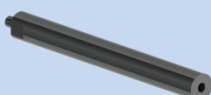
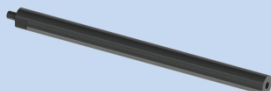
			
Artikelbestellnr.: <i>Order No.:</i>	000000 – 0146 . 250	000000 – 0228 . 205	000000 – 0228 . 289
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Name: <i>Description:</i>	Geräteanschlusskabel DIN Standard <i>Power cable - DIN standard</i>	Geräteanschlusskabel GB Version <i>Power cable - British Version</i>	Geräteanschlusskabel Japan/ USA Version <i>Power cable – Japan/ USA standard</i>
			
000000 – 5001 . 394	000000 – 0212 . 678	269302 – 5040 . 424	269302 – 5040 . 524
G-3	G-4	G-4	G-4
Geräteanschlusskabel Australien/ China <i>Power cable – Australia/ China</i>	Gradienten - Lichtwellenleiter <i>Gradient index fiber cable</i>	A-Q-B Kabel (15 pol) <i>AUK connecting cable (15 pol)</i>	A-Q-B Kabel (9 pol) <i>A-Q-B cable (9 pol)</i>
			
	269302 – 4040 . 824		269302 – 4080 . 824
	G-5		G-6
	Messkopfkabel , komplett <i>Measurement head cable, complete</i>		Messkopfkabel (Einbauvariante) <i>Measurement head cable (Built- in system)</i>
			
269302 – 5062 . 126	269302 – 5040 . 124	269302 – 4043 . 724	269302 - 4004 . 726
G-6	G-6	G-7	G-7
Messkopfkabel , komplett (ZLM 800) <i>Measurement head cable, (ZLM 800)</i>	Messkopfkabel <i>Measurement head cable</i>	Doppellichtwellenleiter <i>Double fiber cable</i>	Trigger Kabel 2020 <i>Trigger Cable 2020</i>

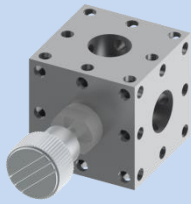
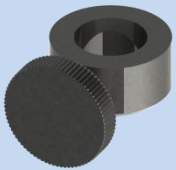
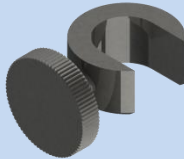
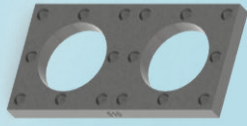
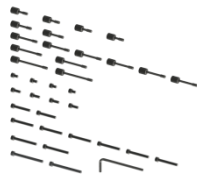
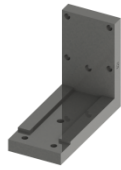
			
269302 – 5091 . 824	269302 – 5091 . 724		
G-7	G-8		
Messkopfkabel (ZLM 900) standard <i>Measurement head cable (ZLM 900) standard</i>	Messkopfkabel (ZLM 900) mit Referenz <i>Measurement head cable (ZLM 900) with reference</i>		
			
269302 – 5100 . 024	269302 – 5040 . 926	269302 – 5093 . 224	
G-9	G-9	G-10	
AqB - Kabel (Spindler & Hoyer) <i>AqB - cable (Spindler & Hoyer)</i>	Quadrantenkabel (für Referenzposition) <i>Quad cable (for reference position)</i>	<i>Referenzsynchronkabel SMB</i> <i>Reference synchron cable SMB</i>	

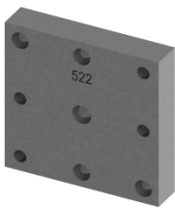
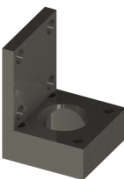
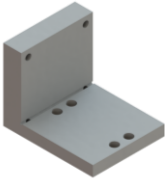
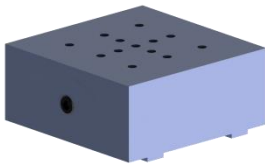
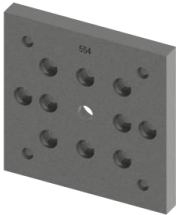
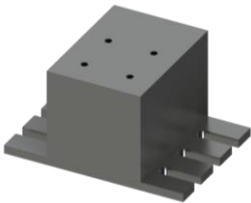
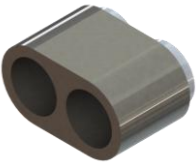
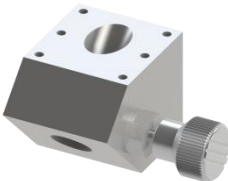
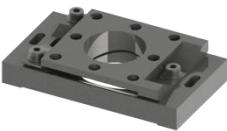
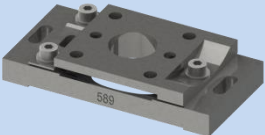
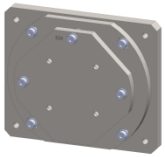
Montageelemente – Justier- und Koppелеlemente

Mounting elements – Adjustment and coupling elements

			
Artikelbestellnr.: <i>Order No.:</i>	269302 – 4017 . 910	269302 – 4011 . 625	269302 – 4011 . 725
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Name: <i>Description:</i>	Koppelplatte 511 <i>Coupling plate 511</i>	Fußabstandsplatte 150 <i>Base distance plate 150</i>	Fußabstandsplatte 100 <i>Base distance plate 100</i>
			
269302 – 4011 . 825	269302 – 4014 . 410	269302 – 4014 . 510	269302 – 4012 . 425
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Fußabstandsplatte 50 <i>Base distance plate 50</i>	Basisplatte 504 <i>Mounting plate 504</i>	Klemmhalter 510 <i>Coupling plate 510</i>	Justierplatte 549 <i>Adjustable plate 549</i>

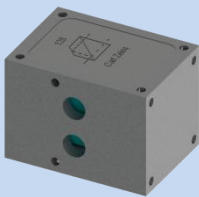
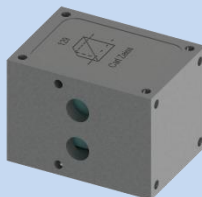
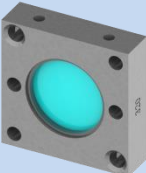
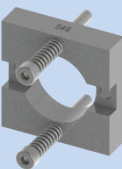
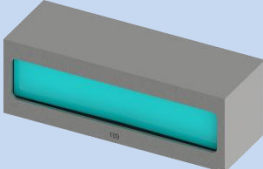
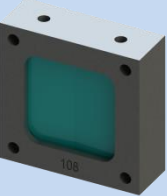
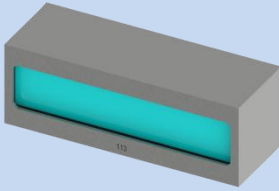
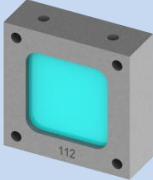
			
269302 – 4010 . 325	269302 – 4010 . 125	269302 – 4010 . 225	269302 – 4010 . 825
H-3	H-3	H-4	H-4
Klemmhalter 507 Clamp mounting 507	Klemmhalter 508 Clamp mounting 508	Klemmhalter 509 Clamp mounting 509	Kipphalter 523 Tiltable holder 523
			
269302 – 4010 . 925	269302 – 4010 . 826	269302 – 4040 . 725	269302 – 4040 . 625
H-4	H-5	H-5	H-5
Kipphalter 524 Tiltable holder 524	Kipphalter 525 Tiltable holder 525	Kipphalter 531 Tiltable holder 531	Kipphalter 532 Tiltable holder 532
			
269302 – 4004 . 625	269302 – 4010 . 525	269302 – 5011 . 610	
H-6	H-6	H-6	
Kipphalter 533 Tiltable holder 533	Klemmhalter 514 Clamp mounting 514	Abstandsblock 40 Distance block 40	
			
260297 – 9900 . 228	260297 – 9900 . 128	260297 – 9900 . 328	260298 – 3000 . 128
H-7	H-7	H-8	H-8
Säule 90 Rod 90	Säule 140 Rod 140	Säule 200 Rod 200	Magnetfuß 506 Magnetic base 506

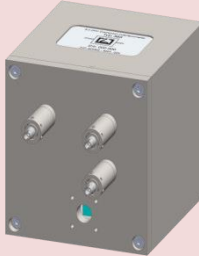
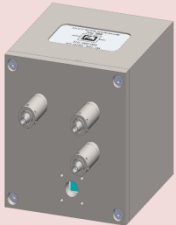
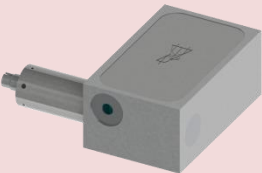
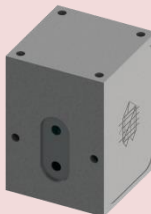
			
269302 – 4010 . 625	260297 – 9900 . 428	260297 – 9900 . 528	269302 – 4012 . 325
H-8	H-9	H-9	H-9
Klemmwürfel 503 Clamping cube 503	Stellring, geschlossen Collar, closed	Stellring, offen Collar, open	Saugfuß Vacuum base
			
269302 – 5111 . 110	269302 – 4011 . 025	269302 – 4011 . 125	269302 – 4011 . 225
H-10	H-10	H-10	H-11
Koppelplatte 509 Coupling plate 509	Schraube 14 Screw 14	Schraube 20 Screw 20	Schraube 29 Screw 29
			
269302 – 4011 . 325	269302 – 4011 . 425	269302 – 4005 . 624	269302 – 4010 . 425
H-11	H-11	H-12	H-13
Schraube 36 Screw 36	Schraube 45 Screw 45	Schraubensatz komplett Set of screws, complete	Haltewinkel 521 Angle bracket 521

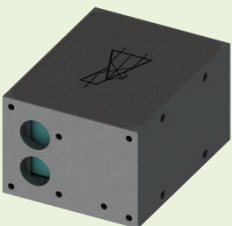
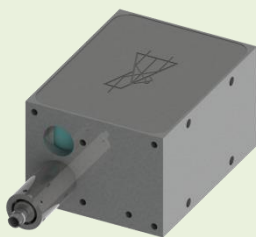
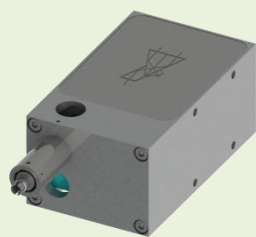
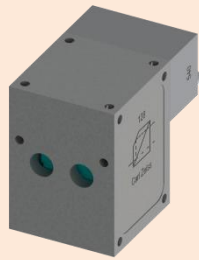
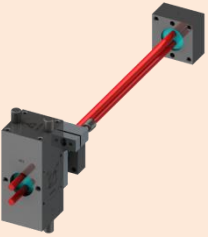
			
269302 – 4018 . 110	269302 -5101 . 210	269302 - 4013 . 225	269302 – 5105 . 110
H-13	H-14	H-14	H-14
Säulenanschluss 522 Adapter plate 522	Winkeladapter (für Kompakt – Planspiegelinterferometer 390) Angle adapter (for Compact plane mirror interferometer 390)	Winkeladapter Angle adapter	Winkeladapter für 115 Angle adapter for 115
			
269302 – 4012 . 825	260297 - 9901 . 328	260297 - 9901 . 228	269302 – 4042 . 910
H-15	H-15	H-15	H-16
Schwingungsgedämpfte Säule mit Montageklemme Vibration damping column with mounting clamp	Verstellbare Grundplatte Adjustable mounting plate	Flacher Magnetfuß Flat magnetic plate	Adapterplatte 554 Adapter plate 554
			
269302 – 5013 . 110	269302 – 5003 . 525	269302 – 4010 . 725	269302 – 4009 . 025
H-16	H-16	H-17	H-17
Distanzblock für 347 und 348 Distance block for 347 and 348	Doppeladapter für Reflektor 9 mm (Winkelmessung) Double adapter for reflector 9mm (angle measurement)	45° Klemmhalter 546 45° Clamp mounting 546	Justieraufnahme 588 (für optische Komponenten □ 40) Adjustable mount 588 (for optical components □ 40)
			
269302 – 4009 . 125	269302 – 4009 . 225	269302 – 4000 . 310	269302 – 4014 . 226
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Justieraufnahme 589 (für optische Komponenten □ 28) Adjustable mount 589 (for optical components □ 28)	Justieraufnahme 590 (für optische Komponenten □ 20) Adjustable mount 590 (for optical components □ 20)	Aufnahme für 304 (an ULM) Mounting for 304 (to ULM)	Justieraufnahme 534 Adjustable mount 534

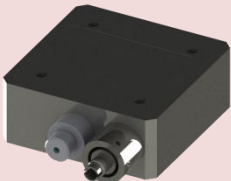
Interferometer – Interferometer, Kompaktinterferometer , Bausätze und
Lichtschlauchinterferometer

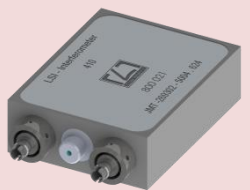
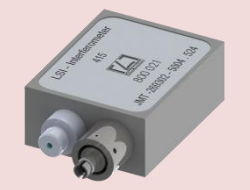
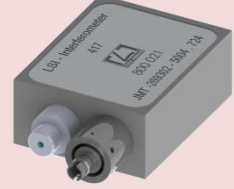
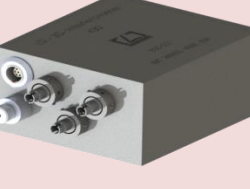
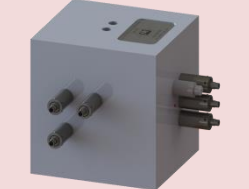
Interferometer – Interferometers, Compact interferometers, Assembly sets and Fiber optics interferometers

			
Artikelbestellnr.: <i>Order No.:</i>	269302 – 4012 . 824	269302 – 4013 . 024	269302 – 4013 . 324
Seite / Page:	I-1	I-1	I-1
Name: <i>Description:</i>	Geradheitsinterferometer 128 <i>Straightness interferometer 128</i>	Geradheitsinterferometer 129 <i>Straightness interferometer 129</i>	Parallelinterferometer 301 <i>Parallelinterferometer 301</i>
			
269302 – 4015 . 324	269302 – 4006 . 424	269302 – 4006 . 425	
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Winkelinterferometer 114 <i>Angle interferometer 114</i>	Vibrationsvorsatzlinse 320 <i>Vibrometer ancillary lens 320</i>	Vibrometereinstellplatte 548 <i>Vibrometer adjusting plate 548</i>	
			
269302 – 4010 . 924	269302 – 4017 . 124	269302 – 4011 . 324	
I-3	I-3	I-3	
Winkelreflektor 2 m 109 <i>Angle reflector 2 m 109</i>	Doppelkeil 2 m 108 <i>Double wedge 2 m 108</i>	Winkelreflektor 10 m 113 <i>Angle reflector 10 m 113</i>	
			
269302 – 4017 . 224			
I-4			
Doppelkeil 10 m 112 <i>Double wedge 10 m 112</i>			

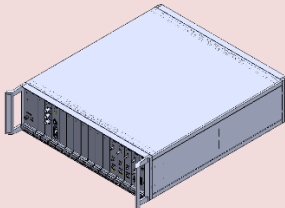
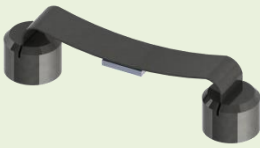
			
269302 – 5010 . 524	269302 – 5010 . 526	269302 – 5010 . 624	269302 – 5010 . 626
I-4	I-5	I-6	I-7
Kompaktinterferometer 347 (mit rücklaufenden Lichtstrahlen zum Lasermesskopf) <i>Compact interferometer 347</i> <i>(Laser beams are inject directly</i> <i>into the laser head)</i>	Kompaktinterferometer 347 (mit separaten Lichtwellenleiteranschlüssen) <i>Compact interferometer 347</i> <i>(with separate fiber optic</i> <i>connectors)</i>	3 - Achs - Kompakt - Planspiegel - Interferometer 348 <i>3 Axes Compact plane mirror</i> <i>interferometer 348</i>	3 - Achs - Kompakt - Planspiegel - Interferometer 348 (mit Faserkopplungen) <i>3 Axes Compact plane mirror</i> <i>interferometer 348 (with fiber</i> <i>optics couplings)</i>
			
269302 - 5093 . 124	269302 - 5093 . 424	269302 - 5093 . 024	269302 - 5093 . 324
I-8	I-9	I-10	I-11
2D - Achs - Kompakt – IF386 <i>2D Axes Compact IF386</i>	2D - Achs -Planspiegel – IF387 <i>2D Axes Plane mirror IF387</i>	3D - Achs - Kompakt – IF385 <i>3D Axes Compact IF385</i>	3D - Achs -Planspiegel – IF388 <i>3D Axes Plane mirror IF388</i>
			
269302 – 4002 . 324	269302 – 4019 . 024	269302 – 4005 . 524	
I-12	I-13	I-13	
Parallel – Planspiegel- interferometer 352 <i>Parallel plane mirror</i> <i>interferometer 352</i>	Parallel – Planspiegel- interferometer 356 <i>Parallel plane mirror</i> <i>interferometer 356</i>	Parallel-Planspiegel- Interferometer 358 <i>Parallel plane mirror interferometer</i> <i>358</i>	

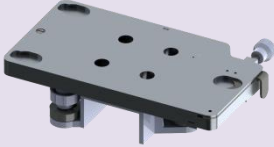
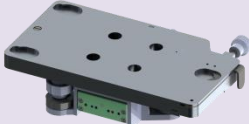
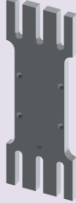
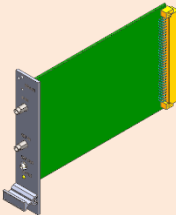
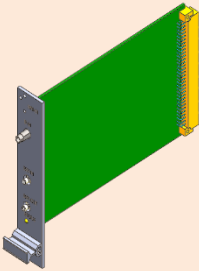
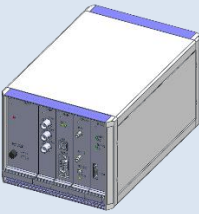
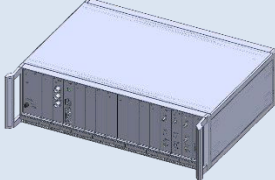
			
269302 – 4066 . 124	269302 – 4066 . 224	269302 – 4009 . 624	269302 – 4004 . 524
I-14	I-15	I-16	I-17
3-Achs-Kompakt-Planspiegel-Interferometer 360 <i>3 Axes compact plane mirror interferometer 360</i>	2-Achs-Kompakt-Planspiegel-Interferometer 362 <i>2 Axes compact plane mirror interferometer 362</i>	Planspiegelinterferometer 368 <i>Plane mirror interferometer 368</i>	2-Achs-Kompakt-Planspiegel-Interferometer 370 <i>2 Axes Compact plane mirror interferometer 370</i>
			
269302 – 5010 . 124	269302 - 4009 . 024	269302 - 4009 . 524	269302 - 4018 . 924
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Kompakt – Planspiegel Interferometer 390 <i>Compact plane mirror interferometer 390</i>	Parallelinterferometer 608 <i>Parallel interferometer 608</i>	Parallelinterferometer 608 (mit LWL – Einkopplung) <i>Parallel interferometer 608 (with fiber optics coupling)</i>	Parallelinterferometer 608 (mit LWL - Einkopplung und variablen Strahlengang) <i>Parallel interferometer 608 (with fiber optics coupling and variable beam control)</i>
			
269302 - 4012 . 925	269302 – 4061 . 426	269302 – 5007 . 024	
I-21	I-21	I-22	
Bausatz - (Geradheitsinterferometer 128 + Referenzplanspiegel 540) <i>Assembly set (Straightness interferometer 128 + Reference cube corner reflector 540)</i>	Bausatz Planspiegelinterferometer <i>Assembly set for plane mirror interferometer</i>	LSI 4-fach-Planspiegel-Interferometer 420 (geradeaus) <i>LSI 4-fold Plane mirror interferometer 420 (straight)</i>	

			
269302 – 5007 . 224	269302 – 5007 . 324	269302 – 5007 . 524	269302 – 5007 . 724
I-22	I-23	I-23	I-24
LSI 4-fach-Planspiegel-Interferometer 421 (90°, rechts) <i>LSI 4-fold Plane mirror interferometer 421 (90°, right)</i>	LSI 4-fach-Planspiegel-Interferometer 422 (90°, links) <i>LSI 4-fold Plane mirror interferometer 422 (90°, left)</i>	LSI 8-fach-Planspiegel-Interferometer 423 (geradeaus) <i>LSI 8-fold Plane mirror interferometer 423 (straight)</i>	LSI 8-fach-Planspiegel-Interferometer 424 (90°, rechts) <i>LSI 8-fold Plane mirror-interferometer 424 (90°, right)</i>
			
269302 – 5007 . 824	269302 – 5012 . 024	269302 – 5005 . 424	269302 – 5003 . 724
I-24	I-25	I-25	I-26
LSI 8-fach-Planspiegel-Interferometer 425 (90°, links) <i>LSI 8-fold Plane mirror-interferometer 424 (90°, left)</i>	LSI Einstahlinterferometer 400 <i>LSI Single beam interferometer 400</i>	LSI Winkel-Interferometer 401 <i>LSI Angle interferometer 401</i>	LSI Winkel-Interferometer 402 (stellbar) <i>LSI Angle interferometer 402 (adjustable)</i>
			
269302 – 5005 . 224	269302 – 5004 . 824	269302 – 5005 . 324	269302 – 5004 . 924
I-26	I-27	I-27	I-28
LSI Winkel-Interferometer 403 mit Justiersensor <i>LSI Angle interferometer 403 sensor for adjusting</i>	LSI Winkel-Interferometer 404 mit Justiersensor, stellbar <i>LSI Angle interferometer 404 sensor for adjusting, adjustable</i>	LSI Winkel-Interferometer 405 mit Justiersensor und Libelle <i>LSI Angle interferometer 405 with sensor for adjusting and bubble level</i>	LSI Winkel-Interferometer 406 mit Justiersensor und Libelle, stellbar <i>LSI Angle interferometer 406 with sensor for adjusting and bubble level, adjustable</i>

			
269302 – 4003 . 224	269302 – 4006 . 624	269302 – 5004 . 624	269302 – 5004 . 124
I-28	I-29	I-29	I-30
LSI Winkel-Interferometer 407 mit interner Referenz und Justiersensor <i>LSI Angle interferometer 407 with internal reference and sensor for adjusting</i>	LSI Winkel-Interferometer 408 mit interner Referenz und Justiersensor, stellbar <i>LSI Angle interferometer 408 with internal reference and sensor for adjusting, adjustable</i>	LSI - Planspiegel-Interferometer 410 (mit interner Referenz) <i>LSI Plane mirror interferometer 410 (with internal reference)</i>	LSI - Winkelinterferometer 411 (mit interner Referenz) <i>LSI Angle interferometer 411 (with internal reference)</i>
			
269302 – 5004 . 424	269302 – 5004 . 224	269302 – 5004 . 524	269302 – 5004 . 024
I-30	I-31	I-31	I-32
LSI - Planspiegel-Interferometer 412 (mit interner Referenz) <i>LSI Plane mirror interferometer 412 (with internal reference)</i>	LSI - Winkel-Interferometer 414 (mit interner Referenz) <i>LSI Angle interferometer 414 (with internal reference)</i>	LSI - Planspiegel-Interferometer 415 <i>LSI Plane mirror interferometer 415</i>	LSI - Planspiegel-Interferometer 416 <i>LSI Plane mirror interferometer 416</i>
			
269302 – 5004 . 724	269302 – 5004 . 324	269302 – 4006 . 524	269302 – 5060 . 024
I-32	I-33	I-34	I-35
LSI - Planspiegel-Interferometer 417 <i>LSI Plane mirror interferometer 417</i>	LSI- Winkel- Interferometer 418 <i>LSI Angle interferometer 418</i>	LSI 3D Interferometer 430 <i>LSI 3D Interferometer 430</i>	6D - UHF Parallel Planspiegel Interferometer <i>6D - UHF Parallel Mirror Interferometer</i>

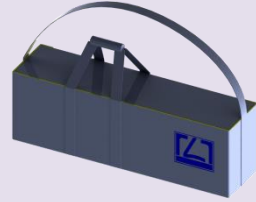
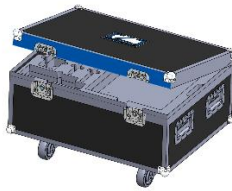
Lasermessköpfe – (Auswerteeinheiten, Anbausätze und Zubehör)*Laser measurement heads (evaluation units, adapters and accessories)*

			
Artikelbestellnr.: <i>Order No.:</i>	269302 – 5061 . 026	269302 -5062 . 026	269302 – 5063 . 026
Seite /	J-1	J-1	J-2
Name: <i>Description:</i>	Lasermesskopf ZLM 700 <i>Laser measuring head</i> ZLM 700	Lasermesskopf ZLM 800 <i>Laser measuring head</i> ZLM 800	Lasermesskopf ZLM 800 (Einbausystem) <i>Laser measuring head ZLM</i> 800 (built-in system)
			
269302 – 5095 . 026			
J-3			
Kompakteinheit ZLM 900 LSI <i>Compact unit ZLM 900 LSI</i>			
			
269300 – 3904 . 824	269300 – 3900 . 524	269302 - 5017 . 024	269302 – 4004 . 526
J-4	J-4	J-5	J-6
Oberflächen- Temperaturfühler 2 <i>Surface temperature sensor 2</i>	Magnethalter 2 <i>Magnetic holder 2</i>	Automatische Umweltkompensation AUK <i>AUK environmental sensor</i>	Triggerbox 2020 <i>Trigger box 2020</i>

			
269302 - 4040 . 025	269302 – 4040 . 125	269302 – 4040 . 225	269302 – 4041 . 310
J-6	J-7	J-7	J-8
Justiertisch 528 (ohne Quertrieb) <i>Adjustable table 528 (without cross slide)</i>	Justieraufnahme für Laserkopf 528 <i>Adjustable table for laser head 528</i>	Justieraufnahme für Laserkopf 530 <i>Adjustable mount for laser head 530</i>	Montageplatte 529 <i>Mounting plate 529</i>
			
269302 - 5014 . 910	269302 – 4041 . 225		
J-8	J-9		
Montagetubus für Optikmodule <i>Mounting tube for optic modules</i>	Stativ <i>Tripod</i>		
			
269302 – 5092 . 024	269302 – 5092 . 124		
J-10	J-10		
Master Hoch Frequenz Messkarte (Master) <i>High frequency measuring card (master)</i>	Master Hoch Frequenz Messkarte (Slave) <i>High frequency measuring card (slave)</i>		
			
269302 – 5093 . 026	269302 – 5093 . 126		
J-11	J-11		
Grundbox mit Powermodul einachsig Basic box with power module single-axis	Grundbox mit Powermodul mehr achsig <i>Basic box with power module multi- axis</i>		

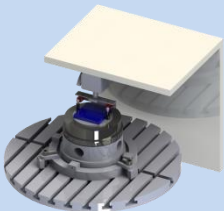
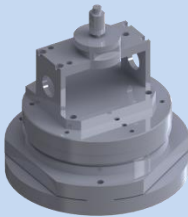
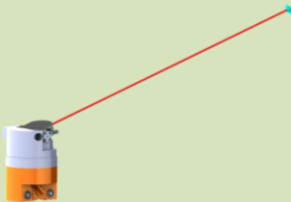
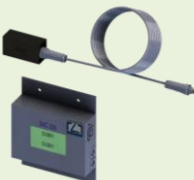
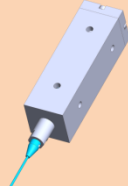
Aufbewahrungsbehälter

Storage boxes

			
Artikelbestellnr.: <i>Order No.:</i>	269302 – 4003 . 626	000000 – 4003 . 726	269302 – 4010 . 126
Seite / <i>Page:</i>	K-1	K-1	K-2
Name: <i>Description:</i>	Transportkoffer Fluggepäck <i>Transport box- flight luggage</i>	Aufbewahrungstasche für Stativ und Justiertisch <i>Transport bag for tripod and adjustment table</i>	Aufbewahrungsbehälter für Optikmodule <i>Box for optic modules</i>
			
	000000 – 5001 . 370	269302 – 4004 . 026	
	K-3	K-4	
	Transportbox für ZLM 800/ PCI / 1-12 - hybrid <i>Transport box for ZLM 800/ PCI / 1-12 - hybrid</i>	Transport Fluggepäck 2025 (mit Rollen) <i>Transport baggage 2025 (with wheels)</i>	

Zusatzgeräte

Additional equipment

			
Artikelbestellnr.: <i>Order No.:</i>	269302 – 6000 . 320	269302 – 6000 . 920	
Seite / <i>Page:</i>	L-1	L-1	
Name: <i>Description:</i>	Rotarod 880/36000 <i>Rotarod 880/36000</i>	Bausatz für Vollwinkelmessung für ZLM <i>Assembly set for full angle measurement for ZLM</i>	
			
269305 – 5500 . 024	269305 – 3500 . 026	269302 – 5100 . 326	
L-2	L-3	L-4	
ZLP 200 (selbst kalibrierendes Differentialinterferometer) <i>ZLP 200 (self calibrating differential interferometer)</i>	ZIC05-Inklinometer <i>ZIC05 - Inclinator</i>	Einstrahltaster 206 <i>Single beam probe 206</i>	

Software

Software

	Sprachunterstützung: Deutsch	Language support: English	
Artikelbestellnr.: <i>Order No.:</i>	269302 - 4026 . 624	269302 - 4026 . 724	Dynamische Messsoftware Dynamic measurement software
Seite / Page:	M-1	M-1	
Name: <i>Description:</i>	Wegmessung <i>Distance measurement</i>	Wegmessung <i>Distance measurement</i>	
	269302 - 4026 . 824	269302 - 4026 . 924	
	M-1	M-1	
	Winkelmessung <i>Angle measurement</i>	Winkelmessung <i>Angle measurement</i>	
	269302 - 4027 . 224	269302 - 4027 . 324	
	M-2	M-2	
	Dynamische Messsoftware für Mehrachssysteme <i>Dynamic measurement software for multi axis systems</i>	Dynamische Messsoftware für Mehrachssysteme <i>Dynamic measurement software for multi axis systems</i>	

Artikelbestellnr.: <i>Order No.:</i>	269302 - 4026 . 024	269302 - 4026 . 124	Kalibriersoftware Calibration software
Seite / Page:	M-2	M-2	
Name: <i>Description:</i>	Positionsmessung <i>Position measurement</i>	Positionsmessung <i>Position measurement</i>	
	269302 - 4027 . 024	269302 - 4027 . 124	
	M-3	M-3	
	Winkel- und Geradheitsmessung <i>Angle and straightness measurement</i>	Winkel- und Geradheitsmessung <i>Angle and straightness measurement</i>	
	269302 - 4027 . 424	269302 - 4027 . 524	
	M-3	M-3	
	Ebenheitsmessung <i>Flatness measurement</i>	Ebenheitsmessung <i>Flatness measurement</i>	
	269302 - 4028 . 224	269302 - 4028 . 324	
	M-3	M-3	
	Kalibriersoftware für Mehrachssysteme <i>Calibration software for multi axis systems</i>	Kalibriersoftware für Mehrachssysteme <i>Calibration software for multi axis systems</i>	

	Sprachunterstützung: Deutsch	Language support: English	
Artikelbestellnr.: <i>Order No.:</i>	269302 - 4026 . 224	269302 - 4026 . 324	Kalibriesoftware für Maschinenkompensation <i>Calibration software for machine error compensation</i>
Seite / Page:	M-4	M-4	
Name: <i>Description:</i>	System Sinumerik <i>System Sinumerik</i>	System Sinumerik <i>System Sinumerik</i>	
	269302 - 4027 . 824	269302 - 4027 . 924	
	M-4	M-4	
	System FANUC <i>System FANUC</i>	System FANUC <i>System FANUC</i>	
	269302 - 4028 . 624	269302 - 4028 . 724	
	M-4	M-4	
	System Heidenhain <i>System Heidenhain</i>	System Heidenhain <i>System Heidenhain</i>	
	269302 - 4028 . 024	269302 - 4028 . 124	
	M-5	M-5	
	System Beckhoff <i>System Beckhoff</i>	System Beckhoff <i>System Beckhoff</i>	

	Umwelt- und Materialkompensationssoftware <i>Material and environment compensation software</i>
Artikelbestellnr.: <i>Order No.:</i>	269302 - 4028 . 824
Seite / Page:	M-5
Name: <i>Description:</i>	ZLM Temp Kompensation <i>ZLM Temp compensation</i>

C. Strahlteiler – Polarisationsteiler / Intensitätsteiler

C. Beam splitters - Polarizing beam splitter / Beam splitters

Strahlteiler – Polarisationsteiler

Beam splitter – Polarizing beam splitter

Polarisationsteiler 101 <i>Polarizing beam splitter 101</i>		
Masse [g] / Weight:		239
Bestell-Nr. / Order No.: 269300 – 4010 . 124		
T in % (Transmission)	$T_P \geq 96,7\%$ $T_S \leq 0,5\%$	
R in % (Reflexion)	$R_P \leq 1\%$ $R_S \geq 97\%$	

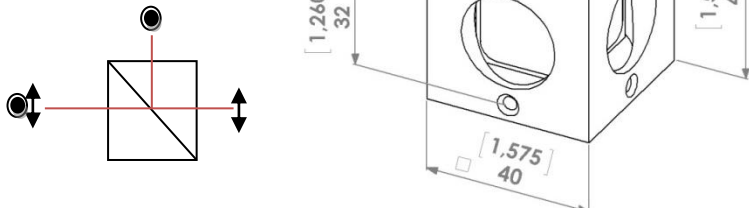
Technical drawing of the Polarizing beam splitter 101. The drawing includes a 3D perspective view and a 2D top-down view. The 3D view shows a cube-shaped component with dimensions: top width 1,260, top depth 32, front width 1,575, front depth 40, and side width 1,575. A top view shows a square with a diagonal line and a circle with a dot in the center. A side view shows a square with a diagonal line and a circle with a dot in the center. A small detail shows a hole with dimensions 0,177 and 4,5 - M4. The component is labeled with M4 and 101.

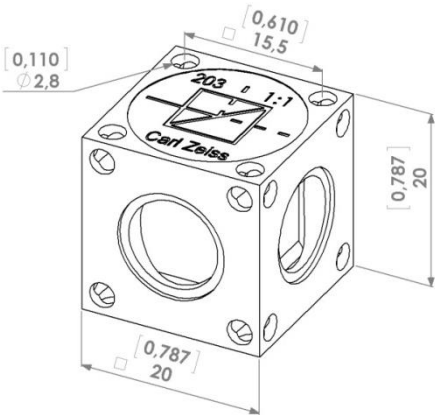
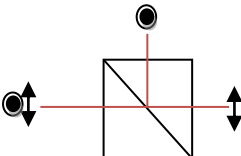
Polarisationsteiler 200 <i>Polarizing beam splitter 200</i>		
Masse [g] / Weight:		64
Bestell-Nr. / Order No.: 269300 – 4016 . 524		
T in % (Transmission)	$T_P \geq 96,7\%$ $T_S \leq 0,5\%$	
R in % (Reflexion)	$R_P \leq 1\%$ $R_S \geq 97\%$	

The technical drawing illustrates the Polarizing beam splitter 200. It features a 3D perspective view of a cube-shaped component with dimensions: top width [0,669] 17, top depth [0,610] 15,5, and side width [0,787] 20. A top view shows a square with a diagonal line and a circle with a dot in the center. A side view shows a square with a diagonal line and a circle with a dot in the center. A small detail shows a hole with dimensions [0,110] and Ø 2,8. The component is labeled with M2, 200, 1:1, and Carl Zeiss.

Strahlteiler – Intensitätsteiler

Beam splitters– Intensity beam splitters

Intensitätsteiler A <i>Beam splitter A</i>				
für Doppelstrahl <i>for double beam</i>				
Masse [g] / <i>Weight :</i>	239			
Teilungsverhältnis: <i>Splitting ratio:</i>	Artikel Nr.: <i>Article No.:</i>	R in % (Reflexion Reflection)	T in % (Transmission Transmission)	Bestell-Nr. : <i>Order No.:</i>
mit dielektrischer - polarisationsneutraler Beschichtung <i>with dielectric polarization – neutral coating</i>				
A 1 : 1	201	$R_{\parallel} \leq 50 \pm 1\%$ / $R_{\perp} \geq 50 \pm 1\%$	$T_{\parallel} \geq 50 \pm 1\%$ / $T_{\perp} \leq 50 \pm 1\%$	269302 – 4011 . 424
A 1 : 2	212	$R_{\parallel} \leq 33 \pm 2\%$ / $R_{\perp} \geq 33 \pm 2\%$	$T_{\parallel} \geq 67 \pm 2\%$ / $T_{\perp} \leq 67 \pm 2\%$	269302 – 4017 . 824
A 1 : 3	211	$R_{\parallel} \leq 25 \pm 4\%$ / $R_{\perp} \geq 25 \pm 4\%$	$T_{\parallel} \geq 75 \pm 2\%$ / $T_{\perp} \leq 75 \pm 2\%$	269302 – 4017 . 624
mit Metallbeschichtung <i>with metal coating</i>				
A 2,5 : 1	207	$R_{\parallel} \leq 68 \pm 4\%$ / $R_{\perp} \geq 68 \pm 4\%$	$T_{\parallel} \geq 22 \pm 4\%$ / $T_{\perp} \leq 22 \pm 4\%$	269302 – 4011 . 724
A 4 : 1	202	$R_{\parallel} \leq 76 \pm 4\%$ / $R_{\perp} \geq 76 \pm 4\%$	$T_{\parallel} \geq 14 \pm 4\%$ / $T_{\perp} \leq 14 \pm 4\%$	269302 – 4011 . 824

Intensitätsteiler B <i>Beam splitter B</i>		 		
für Einzelstrahl <i>for single beam</i>				
Masse [g] / Weight :	23			
Teilungsverhältnis: <i>Splitting ratio:</i>	Artikel Nr.: <i>Article No.:</i>	R in % (Reflexion <i>Reflection)</i>	T in % (Transmission <i>Transmission)</i>	Bestell-Nr. : <i>Order No.:</i>
mit dielektrischer - polarisationsneutraler Beschichtung <i>with dielectric polarization – neutral coating</i>				
B 1 : 1	203	$R_{\parallel} \leq 50 \pm 1\%$ / $R_{\perp} \geq 50 \pm 1\%$	$T_{\parallel} \geq 50 \pm 1\%$ / $T_{\perp} \leq 50 \pm 1\%$	269302 – 4012 . 124
B 1 : 2	210	$R_{\parallel} \leq 33 \pm 3\%$ / $R_{\perp} \geq 33 \pm 3\%$	$T_{\parallel} \geq 67 \pm 3\%$ / $T_{\perp} \leq 67 \pm 3\%$	269302 – 4017 . 924
B 1 : 3	209	$R_{\parallel} \leq 25 \pm 2\%$ / $R_{\perp} \geq 25 \pm 2\%$	$T_{\parallel} \geq 75 \pm 2\%$ / $T_{\perp} \leq 75 \pm 2\%$	269302 – 4017 . 724
mit Metallbeschichtung <i>with metal coating</i>				
B 2,5 : 1	208	$R_{\parallel} \leq 68 \pm 4\%$ / $R_{\perp} \geq 68 \pm 4\%$	$T_{\parallel} \geq 22 \pm 4\%$ / $T_{\perp} \leq 22 \pm 2\%$	269302 – 4012 . 324
B 4 : 1	204	$R_{\parallel} \leq 76 \pm 4\%$ / $R_{\perp} \geq 76 \pm 4\%$	$T_{\parallel} \geq 14 \pm 4\%$ / $T_{\perp} \leq 14 \pm 4\%$	269302 – 4012 . 224

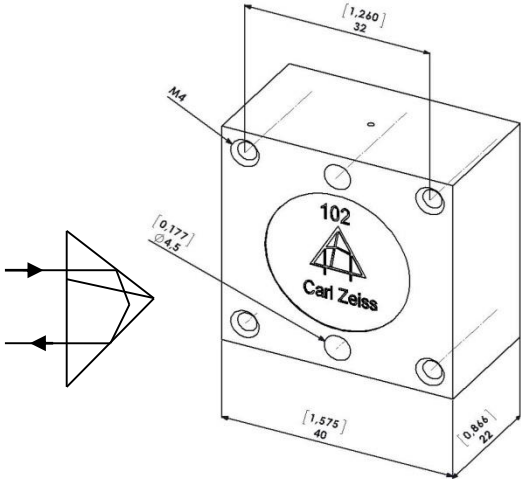
D. Reflektoren – Spiegel / Tripelspiegel / Umlenker / Aufweitsysteme

D. Reflectors – Plane mirrors / Triple mirrors / Beam benders / Beam expansion systems

Tripelspiegel

Triple mirrors

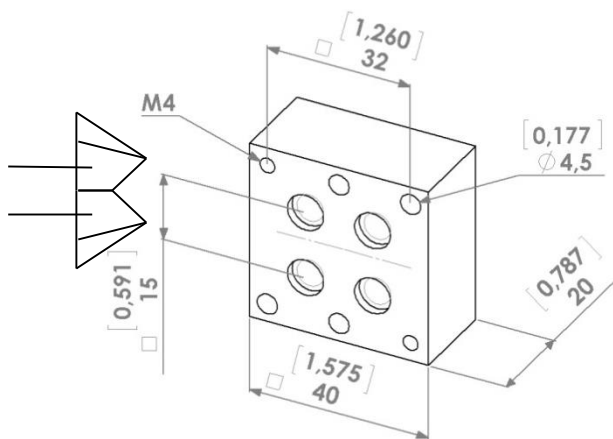
Tripelreflektor 102 <i>Cube corner reflector 102</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	198	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4010 . 224		



Tripelreflektor 304 <i>Triple reflector 304</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	70,8	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4059 . 124		

Tripelreflektor klein 316 <i>Triple reflector small 316</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	11,8	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4016 . 024		

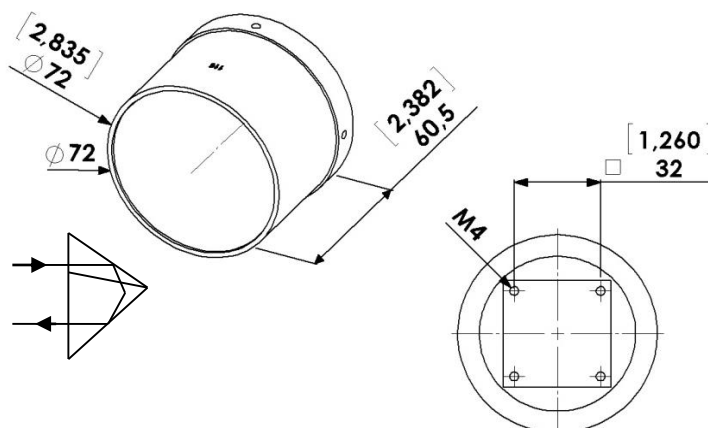
Doppelreflektor 160 <i>Double triple reflector 160</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	152,3	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4014 . 624		



Technical drawing of the Doppelreflektor 160, showing dimensions and features:

- Length: 1,260 (32)
- Width: 1,575 (40)
- Height: 0,787 (20)
- Front face height: 0,591 (15)
- Top face height: 0,177 (4,5)
- Top face screws: M4

Tripelreflektor 116 <i>Cube corner reflector 116</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	797	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4011 . 624		



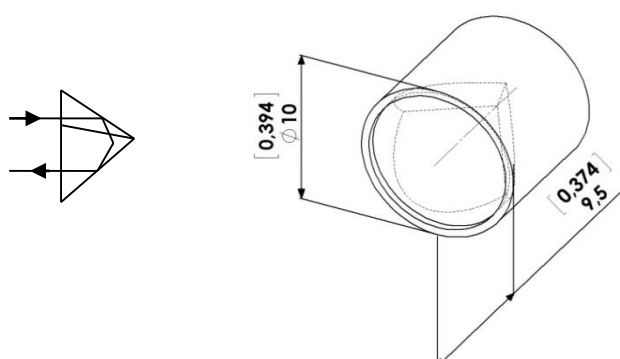
Technical drawing of the Tripelreflektor 116 (Cube corner reflector 116). The drawing includes a perspective view, a side view, and a top view.

- Perspective View:** Shows the cylindrical shape with a diameter of $\varnothing 72$ and a height of $2,835$ (60.5). The top surface is marked with "M4".
- Side View:** Shows the cylindrical shape with a diameter of $\varnothing 72$ and a height of $2,835$ (60.5).
- Top View:** Shows the square base with a side length of $1,260$ (32). The base is marked with "M4" and shows four mounting holes.

Doppelreflektor 115 <i>Double reflector 115</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	389	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4015 . 424		

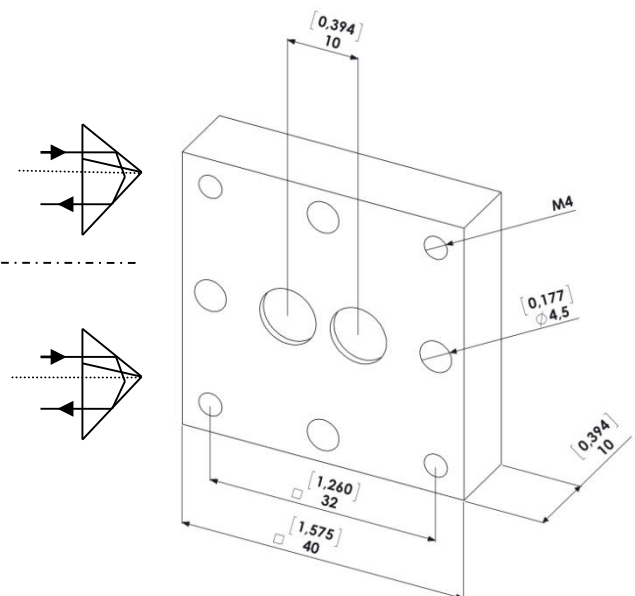
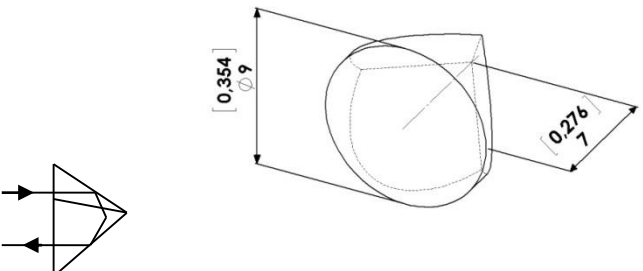
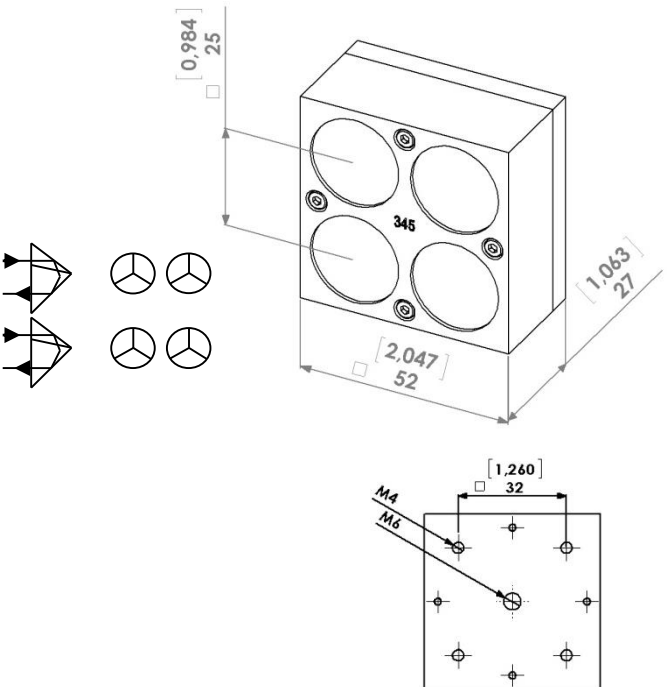
Tripelreflektor 351 <i>Triple reflector 351</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	420	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4003 . 024		

Tripelreflektor 9 mm <i>Triple reflector 9mm</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	2,7	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4003 . 424		

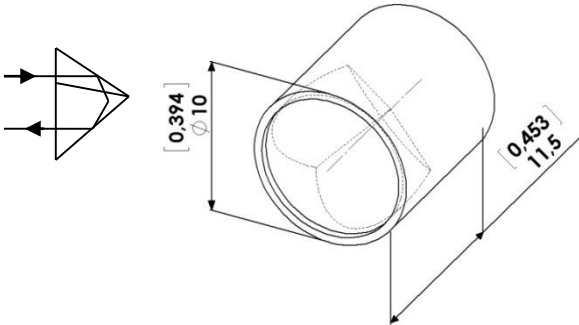


Reflektor HR – 1 354 <i>Reflector HR – 1 354</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	91,4	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4018 . 324		
für 3mm Strahldurchmesser <i>for 3mm beam diameter</i>		

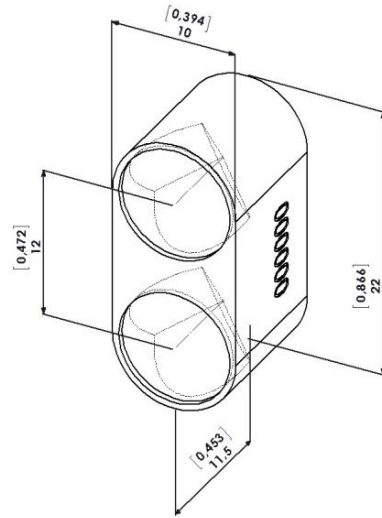
Technical drawing of the Reflektor HR – 1 354. The drawing shows a 3D perspective view of the reflector, which is a rectangular block with a central circular feature and four smaller circular features on each of the two main faces. Dimensions are given in brackets: top width 1.260, top depth 32, front face width 1.575, front face depth 40, central feature diameter 0.177, and a small hole diameter 4.5. A side view shows a conical beam with a diameter of 0.591 and a height of 15. A small square symbol is present in the top right corner of the front face.

Reflektor HR – 2 355 <i>Reflector HR – 2 355</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 94,3 Bestell-Nr. / Order No.: 269302 – 4018 . 424 für 3mm Strahldurchmesser <i>for 3mm beam diameter</i>	
Tripelreflektor 9 mm (ohne Gehäuse) <i>Triple reflector 9mm (without socket)</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 0,6 Bestell-Nr. / Order No.: 269302 – 4007 . 300	
3 Achs – Reflektor 345 <i>Three axes reflector 345</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 331,9 Bestell-Nr. / Order No.: 269302 – 4034 . 524	

Tripelreflektor 9 mm (mit Haftmagnet) <i>Triple reflector 9mm (with magnetic clamp)</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / Weight :	3,7	
Bestell-Nr. / Order No.: 269302 – 5003 . 524		



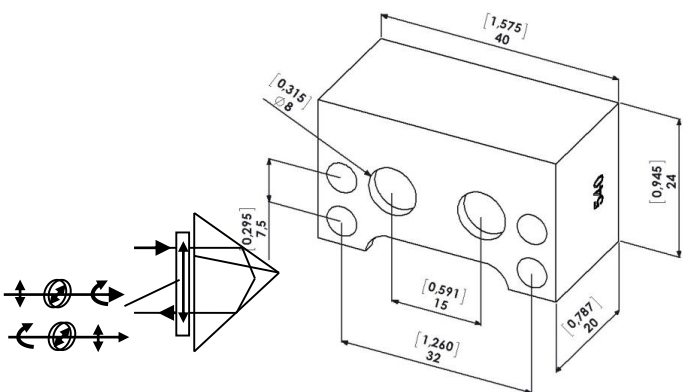
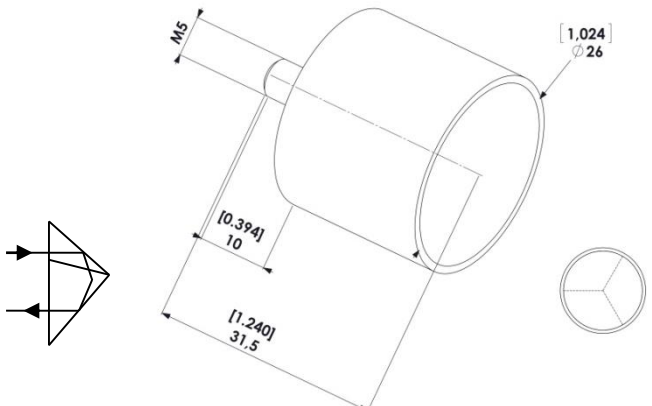
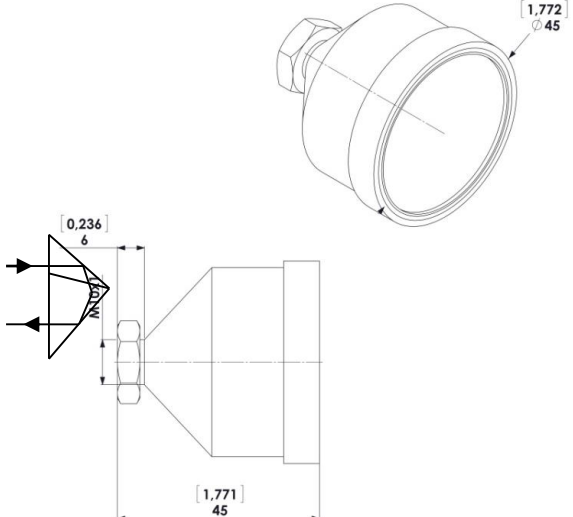
Doppelreflektor 9 mm (mit Haftmagnet) <i>Double reflector 9 mm (with magnetic clamp)</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	11	
Bestell-Nr. / <i>Order No.:</i>	269302 – 5003 . 624	

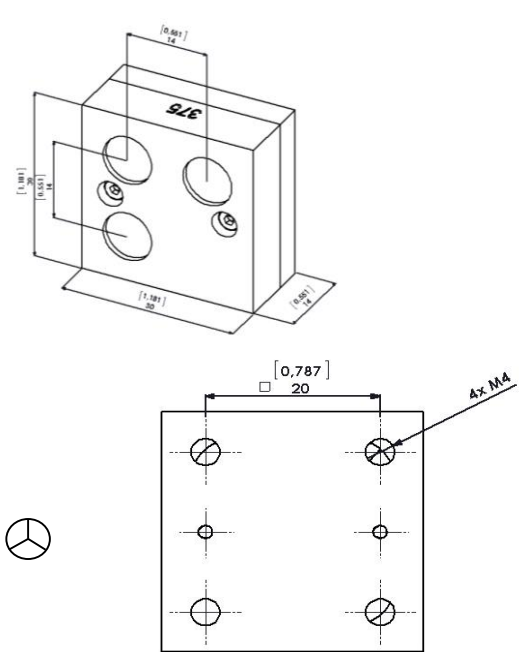
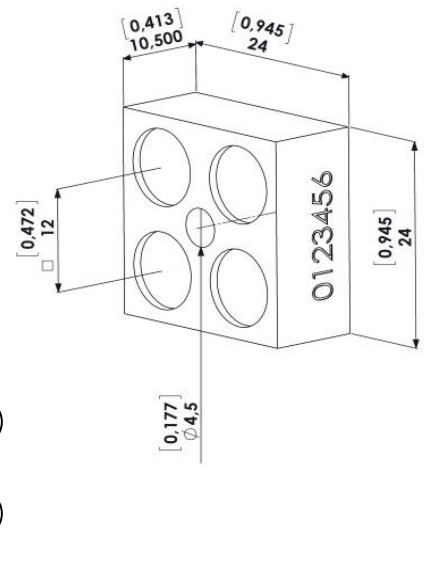
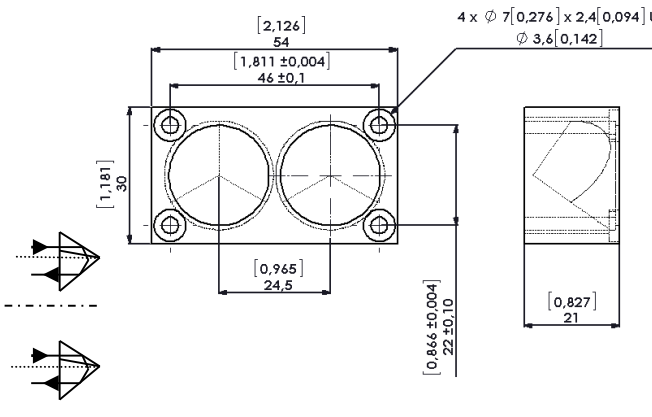


Technical drawing of a double reflector. The drawing shows a cross-section and a 3D perspective view. Dimensions are indicated in millimeters:

- Top width: $[0,394]$ 10
- Left height: $[0,472]$ 12
- Bottom width: $[0,453]$ 11,5
- Right height: $[0,866]$ 22

Referenztripelspiegel 541 <i>Reference cube corner reflector 541</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / Weight :	28,9	
Bestell-Nr. / Order No.: 269302 – 3809 . 724		

Referenztripelspiegel 540 <i>Reference cube corner reflector 540</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 31,3 Bestell-Nr. / Order No.: 269302 – 3809 . 624	
Tripelreflektor 24 mm <i>Triple reflector 24mm</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 35 Bestell-Nr. / Order No.: 269302 – 1108 . 824	
Tripelreflektor 40 mm <i>Triple reflector 40mm</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 70 Bestell-Nr. / Order No.: 269302 – 4014 . 024	

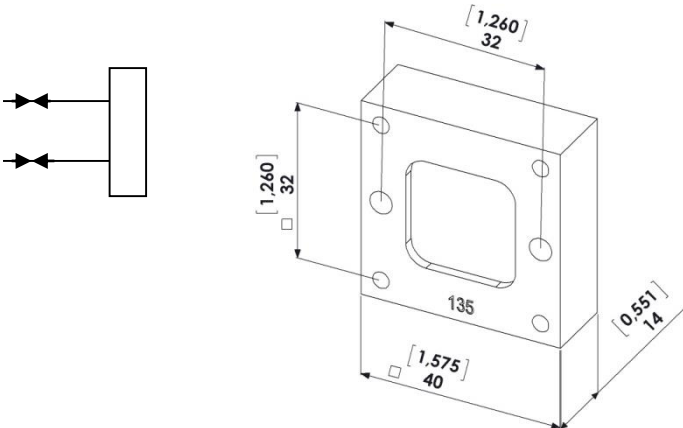
3 Achs - Reflektor 375 <i>Three axes reflector 375</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 67,6 Bestell-Nr. / Order No.: 269302 – 4066 . 024	
3 Achs - Reflektor 431 <i>Three axes reflector 431</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 34 Bestell-Nr. / Order No.: 269302 – 5003. 224	
2 Achs - Reflektor 392 <i>2 Axes reflector 392</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 92\%$ Masse [g] / Weight : 34 Bestell-Nr. / Order No.: 269302 – 5010. 125	

Tripelreflektor 216 <i>Cube corner reflector 216</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥92%	
Masse [g] / <i>Weight :</i>	102	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4016 . 624		

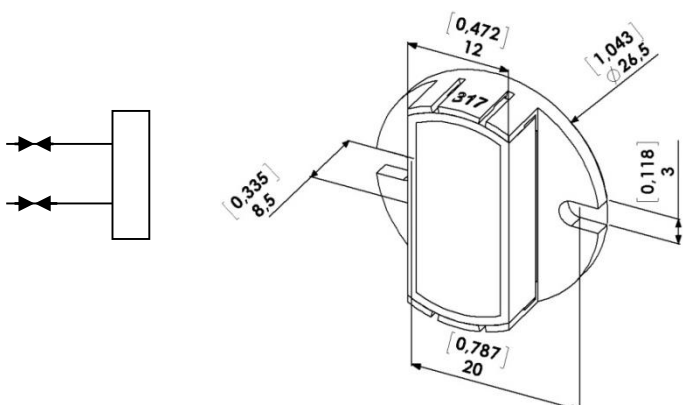
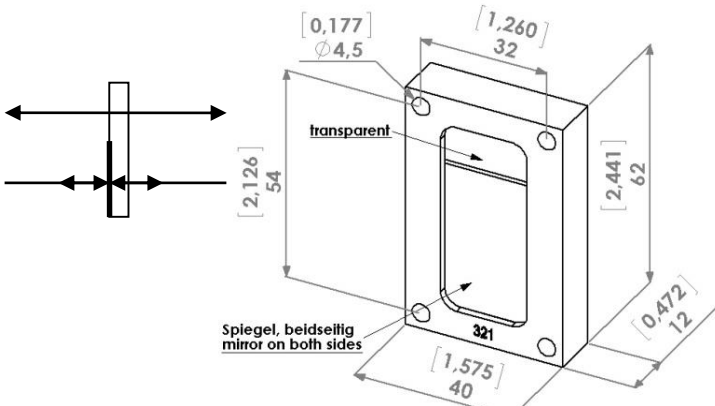
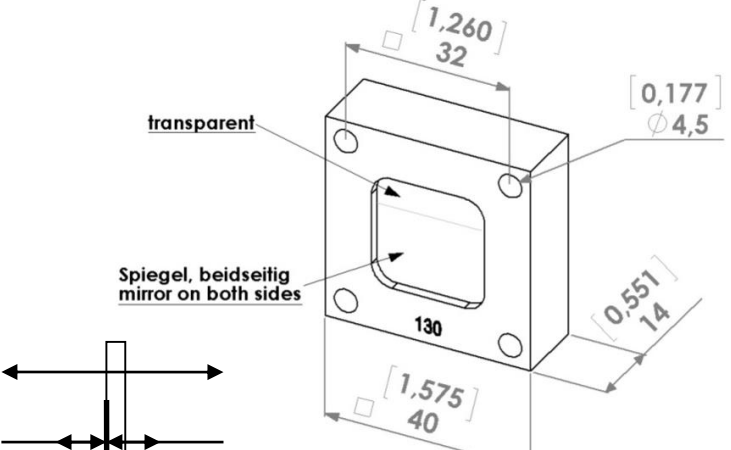
Planspiegel & Umlenker

Plane mirrors & Beam benders

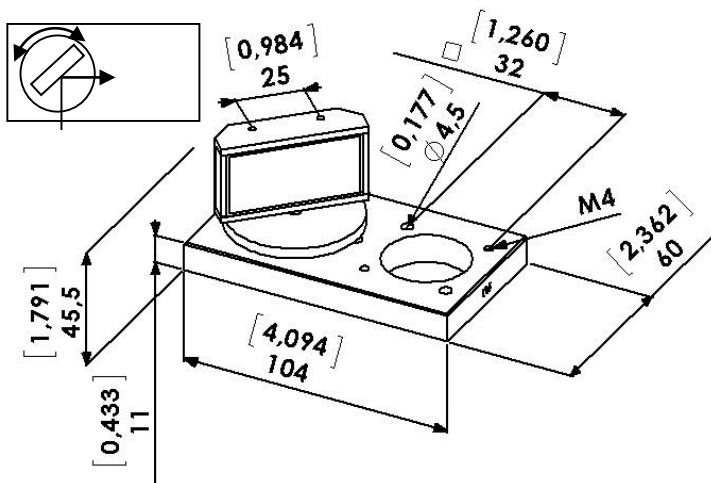
Planspiegelreflektor 135 <i>Plane mirror reflector 135</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥99%	
Masse [g] / Weight :	103	
Bestell-Nr. / Order No.: 269302 – 4018 . 824		

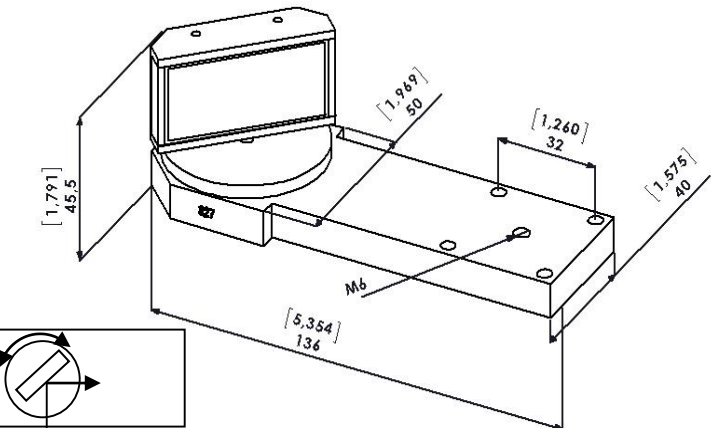


Planspiegelreflektor 103 <i>Plane mirror reflector 103</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥99%	
Masse [g] / Weight :	86	
Bestell-Nr. / Order No.: 269302 – 4010 . 324		

Planspiegelspiegel klein 317 <i>Plane mirror reflector small 317</i> Reflexionsleistung: <i>Reflected Efficiency:</i> R≥99% Masse [g] / Weight : 7,6 Bestell-Nr. / Order No.: 269302 – 4016 . 124	
Spiegelgruppe 321 <i>Mirror group 321</i> Reflexionsleistung: <i>Reflected Efficiency:</i> R≥99% Masse [g] / Weight : 128,4 Bestell-Nr. / Order No.: 269302 – 4013 . 824	
Spiegelgruppe 130 <i>Mirror group 130</i> Reflexionsleistung: <i>Reflected Efficiency:</i> R≥99% Masse [g] / Weight : 101,9 Bestell-Nr. / Order No.: 269302 – 4022 . 124	

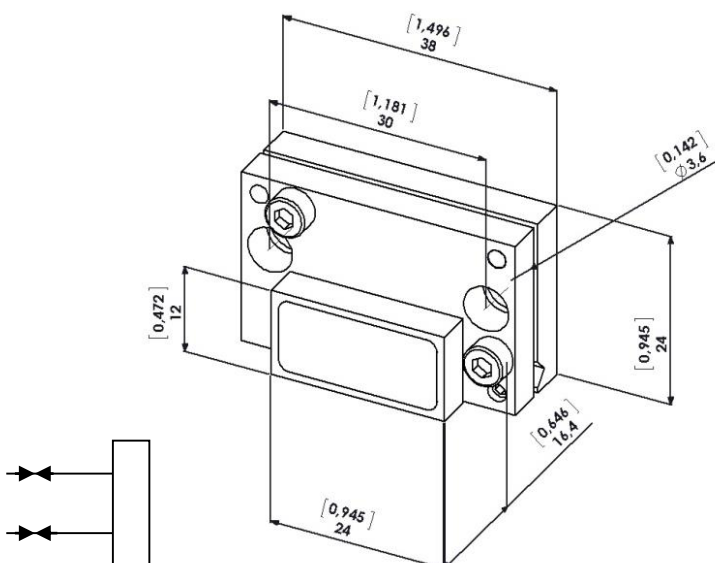
Fußplatte mit Drehspeigel 118 Base plate with turning mirror118		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	643	
Bestell-Nr. / Order No.: 269302 – 4015 . 524		



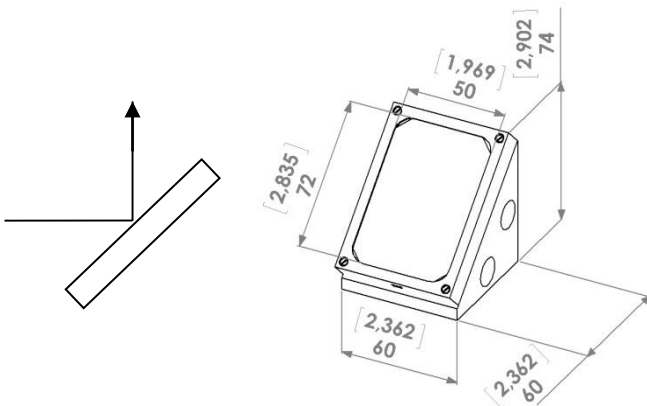
Drehspiegel 327 Turning mirror 327		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	358,2	
Bestell-Nr. / Order No.: 269302 – 4013 . 724		
		

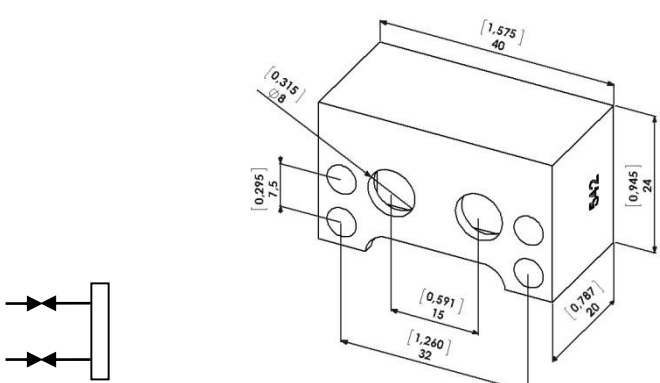
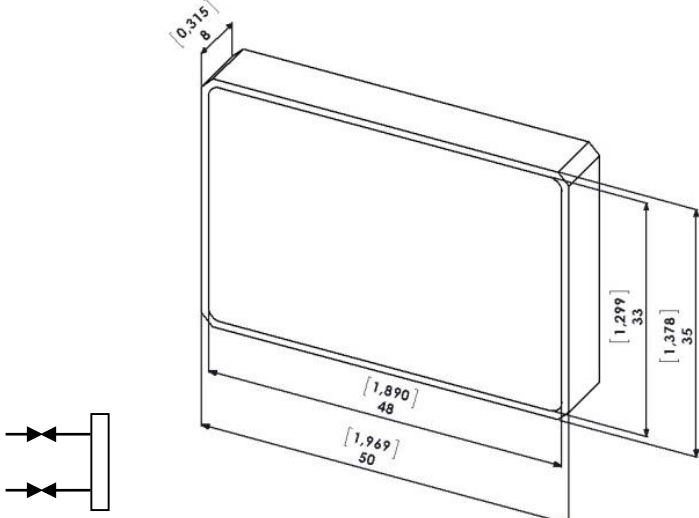
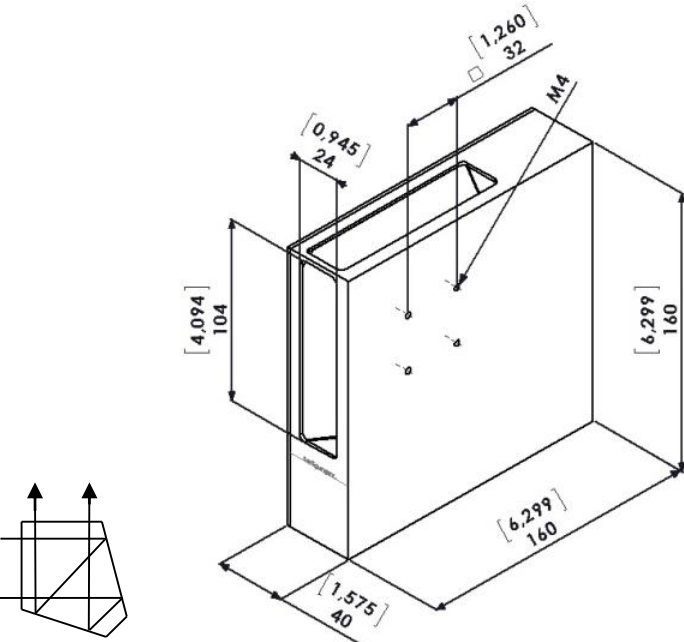
Planspiegelreflektor <i>Plane mirror reflector</i>		
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥99%	
Masse [g] / <i>Weight :</i>	-	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4017 . 300 – (Länge [mm]) 269302 – 4017 . 300 – (length [mm])		
Alle optischen Gläser all optical glasses z.B.: /e.g.: Cerodur		
Länge „L“ bis ca. 800 mm möglich <i>Length „L“ up to 800 mm possible</i>		

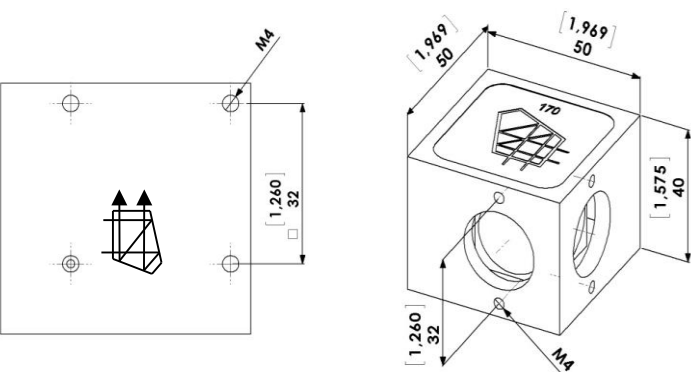
Länge „L“ bis ca. 800 mm möglich
 Length „L“ up to 800 mm possible

Referenzspiegel 536 (justierbar mit Halterung) Reference mirror 536 (adjustable, with holder)		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	70,7	
Bestell-Nr. / Order No.: 269302 – 4002 . 224		
		

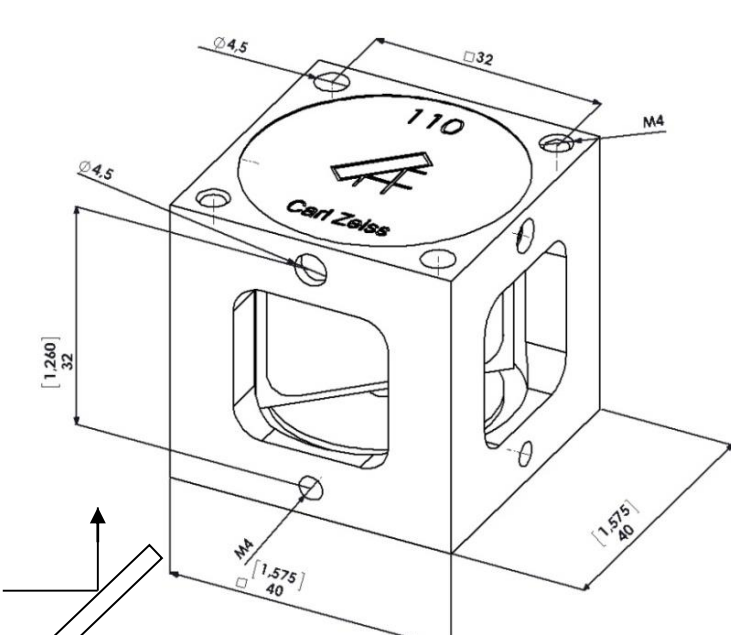
90° Umlenker 346 90 ° Beam bender 346		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	1004,6	
Bestell-Nr. / Order No.: 269302 – 4034 . 624		

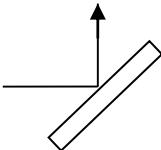


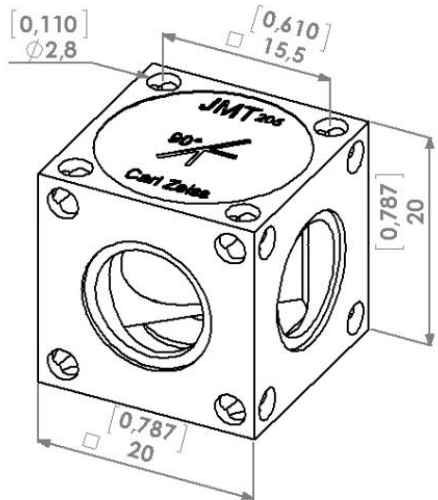
Referenzspiegel 542 <i>Reference mirror reflector 542</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 99\%$ Masse [g] / Weight : 24,7 Bestell-Nr. / Order No.: 269302 – 3809 . 824	
Planspiegel <i>Plane mirror</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 99\%$ Masse [g] / Weight : 35,1 Bestell-Nr. / Order No.: 269302 – 4014 . 400	
Pentagonalprisma 111 <i>Pentaprism 111</i> Reflexionsleistung: <i>Reflected Efficiency:</i> $R \geq 98\%$ Ablenkung reflektierter Strahl: <i>Reflected beam deviation</i> $Ar \leq 1''$ Masse [g] / Weight : 2560 Bestell-Nr. / Order No.: 269302 – 4011 . 124	

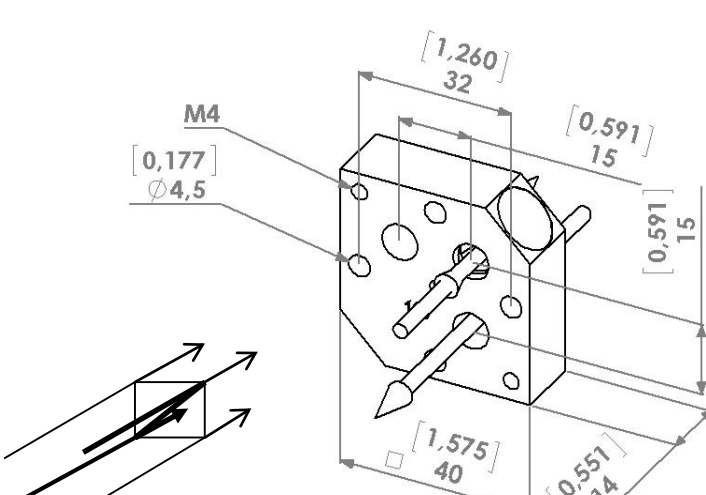
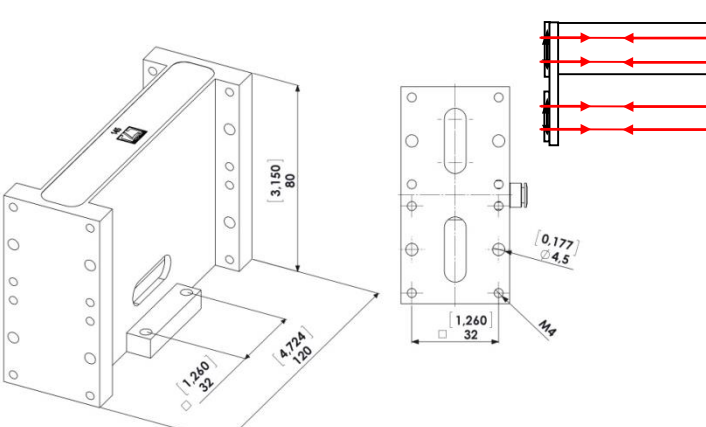
Pentagonalprisma 170 <i>Pentaprism 170</i>			
Reflexionsleistung: <i>Reflected Efficiency:</i>	R≥98%		
Masse [g] / <i>Weight :</i>	412		
Bestell-Nr. / <i>Order No.:</i>			
269302 – 4068 . 024			

90° Umlenker 110 90 ° Beam bender 110		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	222	
Bestell-Nr. / Order No.: 269302 – 4011 . 024		



90° Umlenker 205 90 ° Beam bender 205		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	21,3	
Bestell-Nr. / Order No.: 269302 – 4012 . 424		
		

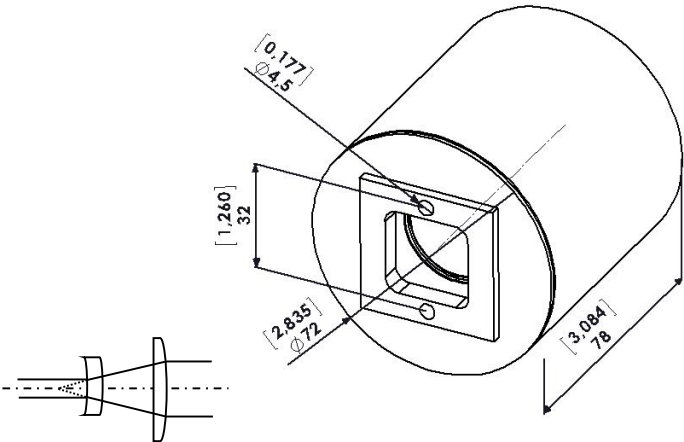


Wendevorsatz 120 Beam offset prism 120		
Reflexionsleistung: Reflected Efficiency:	R≥98%	
Masse [g] / Weight :	121	
Bestell-Nr. / Order No.: 269302 – 4008 . 424		
		
Refraktometermodul 145 Refractometer module 145		
Reflexionsleistung: Reflected Efficiency:	R≥99%	
Masse [g] / Weight :	904	
Bestell-Nr. / Order No.: 269302 – 5100 . 224		
		

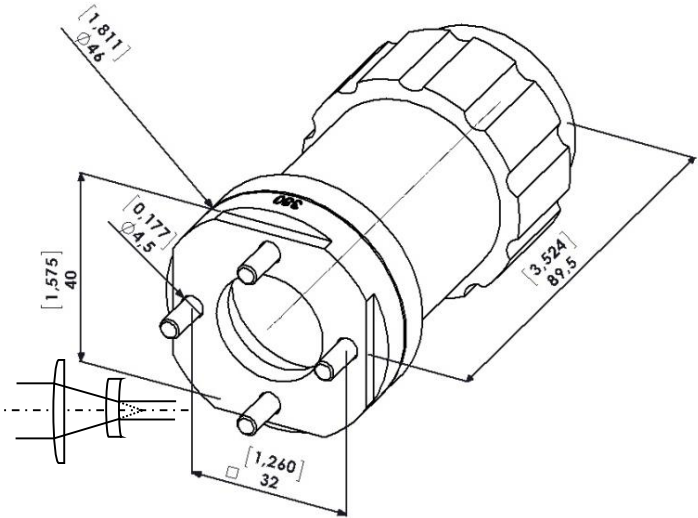
Aufweitsysteme - Ablenker

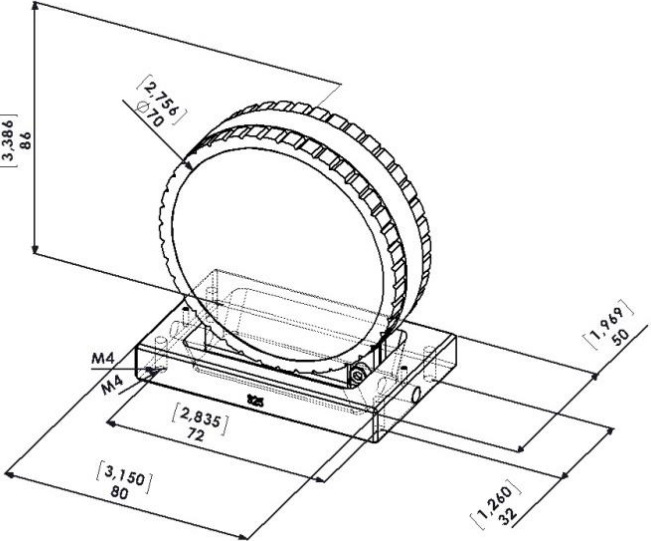
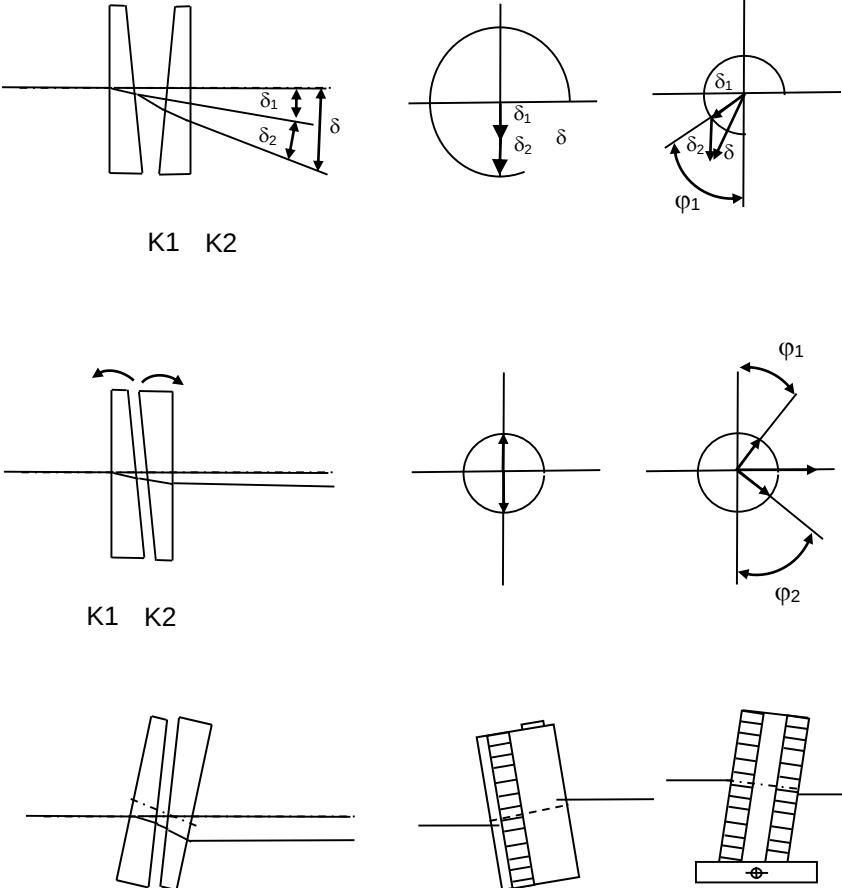
Beam expansion systems / Beam deflectors

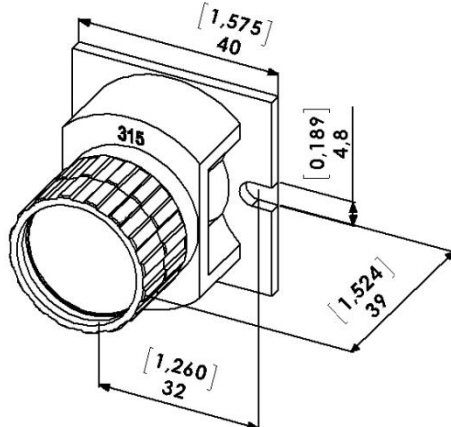
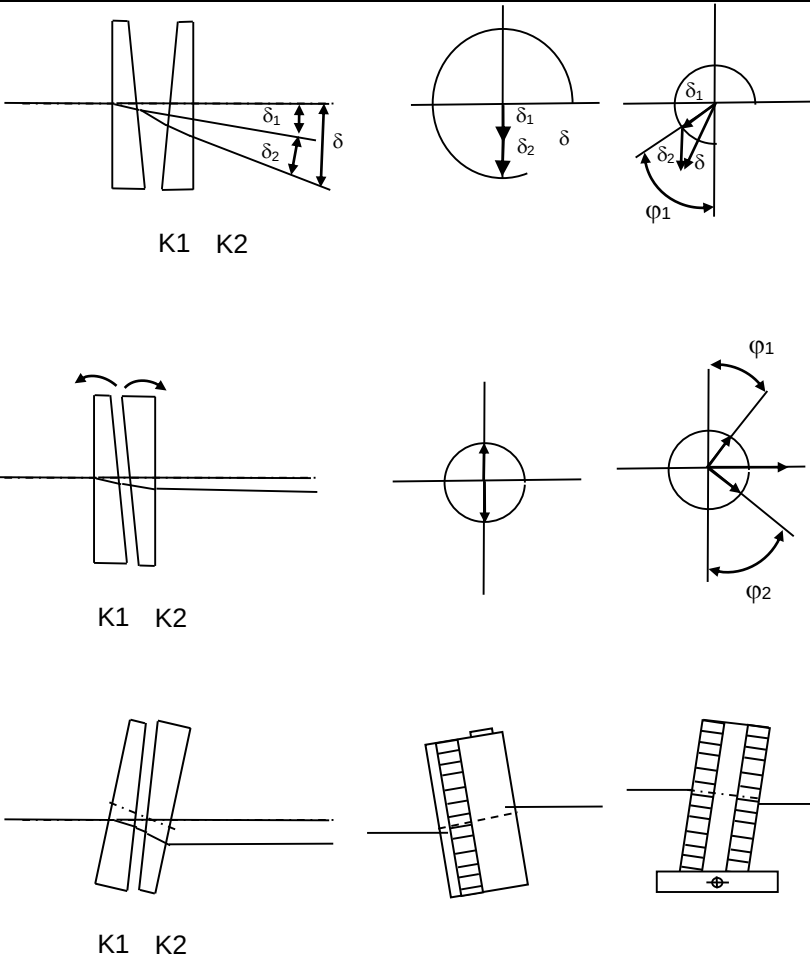
Aufweitsystem 350 <i>Expansive system 350</i>		
Aufweitungsverhältnis (633nm): <i>Expansion rate (633nm):</i>		3 : 1
Masse [g] /	Weight :	818,6
Bestell-Nr. / Order No.: 269302 – 4005 . 924		



Reduziersystem 1/3 380 <i>Reduction system 1/3 380</i>		
Aufweitungsverhältnis (633nm): <i>Expansion rate (633nm):</i>	1 : 3	
Masse [g] / <i>Weight :</i>	268,6	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4006 . 024		



Drehkeilpaar 325 <i>Rotating wedge pair 325</i>		
<table border="1" data-bbox="151 414 550 470"> <tr> <td>Masse [g]: <i>Weight :</i></td><td>200</td></tr> </table> Bestell-Nr. / <i>Order No.:</i> 269302 – 5905 . 026		Masse [g]: <i>Weight :</i>
Masse [g]: <i>Weight :</i>	200	
	 K1 K2 K1 K2 K1 K2	

Drehkeil 315 <i>Rotating wedge pair 315</i>		
Masse [g]: <i>Weight :</i>	54,1	
Bestell-Nr. / <i>Order No.:</i> 269302 – 5906 . 025		
		

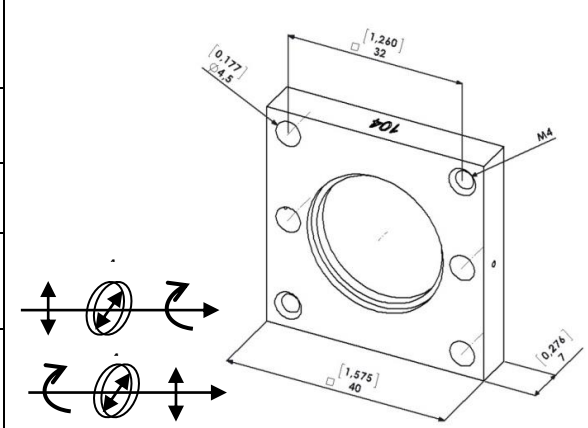
E. Wellenplatten & Blenden

E. Wave plates & Pinholes

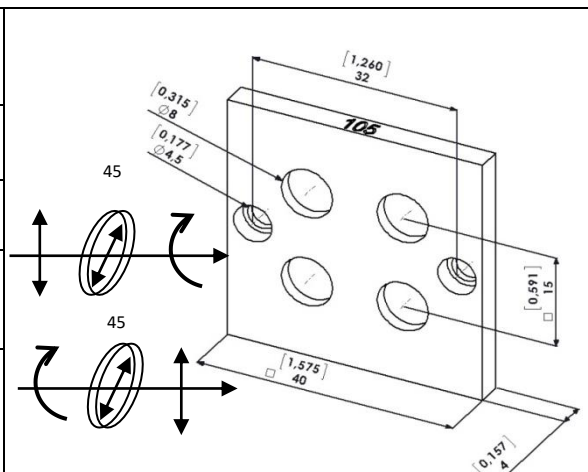
Wellenplatten

Wave plates

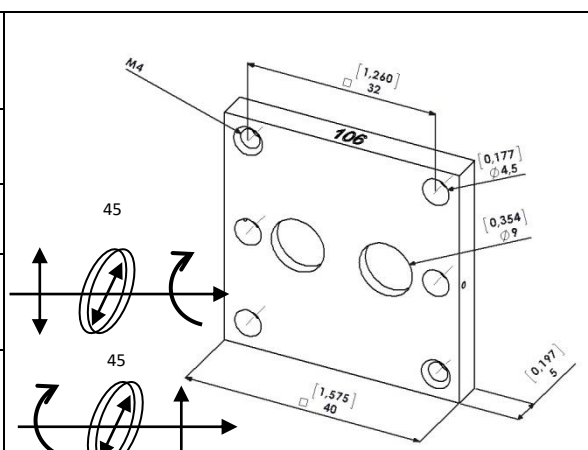
Lambda/4 - Platte 104 <i>Quarter wave plate 104</i>		
Apertur: <i>Aperture:</i>	Ø22mm	
Masse [g] / <i>Weight :</i>	60	
Bestell-Nr. / <i>Order No.:</i> 269300 – 4010 . 424		
Polarisationsrichtung 45° gedreht zur optischen Achse <i>Polarisation direction 45 ° rotated to the optical axis</i>		



Lambda/4 - Platte 105 <i>Quarter wave plate 105</i>		
Apertur: <i>Aperture:</i>	Ø8mm	
Masse [g] / <i>Weight :</i>	36	
Bestell-Nr. / <i>Order No.:</i> 269300 – 4012 . 924		
Polarisationsrichtung 45° gedreht zur optischen Achse <i>Polarisation direction 45 ° rotated to the optical axis</i>		

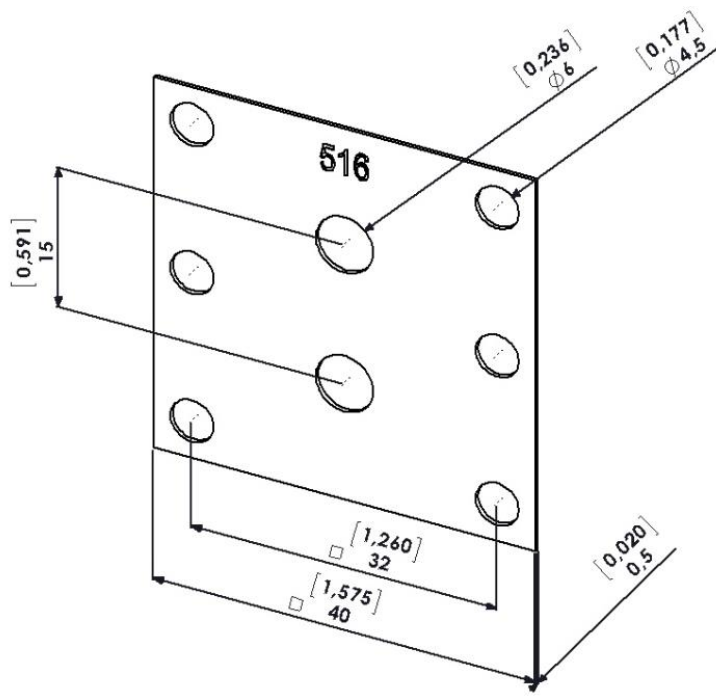


Lambda/4 - Platte 106 <i>Quarter wave plate 106</i>		
Apertur: <i>Aperture:</i>	Ø9mm	
Masse [g] / <i>Weight :</i>	49	
Bestell-Nr. / <i>Order No.:</i> 269300 – 5009 . 024		
Polarisationsrichtung 45° gedreht zur optischen Achse <i>Polarisation direction 45 ° rotated to the optical axis</i>		



Blenden
Pinholes

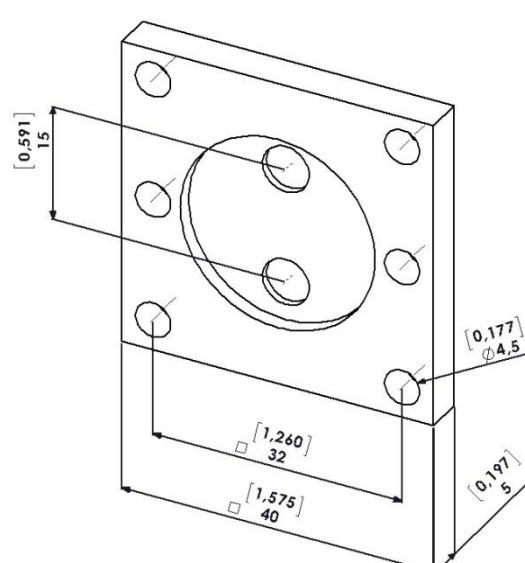
Blende 516 <i>Pinhole 516</i>		
Apertur: <i>Aperture:</i>	Ø6mm	
Masse [g] / <i>Weight :</i>	2	
Bestell-Nr. / <i>Order No.:</i> 269300 – 4014 . 210		



Technical drawing of a rectangular plate (Blende 516) showing dimensions and pinhole specifications:

- Plate thickness: $[0,591]$ 1,5
- Pinhole diameter: $[0,236]$ Ø 6
- Pinhole pitch: $[0,177]$ Ø 4,5
- Pinhole diameter (small): $[0,020]$ 0,5
- Grid dimensions: $[1,260]$ 32 and $[1,575]$ 40

Blende 517 <i>Pinhole 517</i>		
Apertur: <i>Aperture:</i>		Ø6mm
Masse [g] / <i>Weight :</i>		42,9
Bestell-Nr. / <i>Order No.:</i> 269300 – 4018 . 210		



Technical drawing of the Blende 517 (Pinhole 517) component. The drawing shows a rectangular plate with 8 pinholes arranged in a 3x3 grid (center missing). The dimensions are as follows:

- Thickness: [0,591] 1,5
- Pinhole diameter: [0,177] Ø 4,5
- Pinhole pitch: [0,197] 5
- Grid dimensions: [1,260] 32 and [1,575] 40

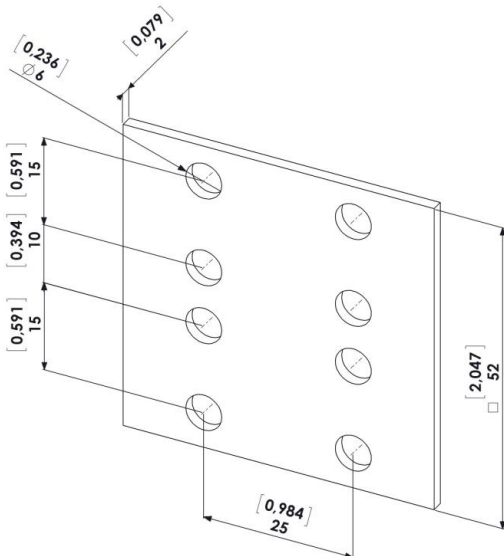
Blende 519 <i>Pinhole 519</i>		
Apertur: <i>Aperture:</i>		Ø6mm
Masse [g] / <i>Weight :</i>		1,9
Bestell-Nr. / <i>Order No.:</i> 269300 – 4014 . 310		

Blende 520 <i>Pinhole 520</i>		
Apertur: <i>Aperture:</i>		Ø6mm
Masse [g] / <i>Weight :</i>		39
Bestell-Nr. / <i>Order No.:</i> 269300 – 4018 . 310		

Technical drawing of a rectangular plate with a central rectangular cutout and eight circular pinholes. Dimensions are provided in millimeters with tolerances in brackets.

- Overall width: 40 mm (tolerance 1,575)
- Overall height: 15 mm (tolerance 0,591)
- Central cutout width: 32 mm (tolerance 1,260)
- Central cutout height: 5 mm (tolerance 0,197)
- Four pinholes with diameter 6 mm (tolerance 0,236)
- Four pinholes with diameter 4,5 mm (tolerance 0,177)

Vorsatzblende für 345 <i>Pinhole for 345</i>		
Apertur: <i>Aperture:</i>	Ø6mm	
Masse [g] / <i>Weight :</i>	5,1	
Bestell-Nr. / <i>Order No.:</i> 269300 – 5011 . 310		



Vorsatzblende für 347/ 348 <i>Pinhole for 347/ 348</i>		
Apertur: <i>Aperture:</i>	Ø6mm	
Masse [g] / <i>Weight :</i>	12	
Bestell-Nr. / <i>Order No.:</i> 269300 – 5011 . 210		

Vorsatzblende für 370 <i>Pinhole for 370</i>		
Apertur: <i>Aperture:</i>	Ø6mm	
Masse [g] / <i>Weight :</i>	6	
Bestell-Nr. / <i>Order No.:</i> 269300 – 5011 . 410		

Technical drawing of a rectangular pinhole plate. The plate has overall dimensions of 2,362 (60) in width and 2,205 (56) in height. The drawing shows a grid of pinholes with the following specifications:

- Top-left pinhole: Ø 4,3, diameter 0,169.
- Top-right pinhole: Ø 4,3, diameter 0,169.
- Middle-left pinhole: Ø 6, diameter 0,236.
- Middle-right pinhole: Ø 6, diameter 0,236.

Spacing dimensions (in mm):

- Horizontal spacing between top-left and top-right: 0,079 (2).
- Horizontal spacing between top-left and middle-left: 0,591 (15).
- Horizontal spacing between top-left and middle-right: 0,394 (10).
- Horizontal spacing between middle-left and middle-right: 0,591 (15).
- Horizontal spacing between middle-right and top-right: 0,591 (15).
- Vertical spacing between middle-left and bottom-left: 0,591 (15).
- Vertical spacing between middle-right and bottom-right: 0,591 (15).
- Vertical spacing between middle-left and bottom-left: 0,394 (10).
- Vertical spacing between middle-right and bottom-right: 0,394 (10).

Vorsatzblende für 390 <i>Pinhole for 390</i>		
Apertur: <i>Aperture:</i>	Ø6mm	
Masse [g] / <i>Weight :</i>	7	
Bestell-Nr. / <i>Order No.:</i> 269300 – 5011 . 510		

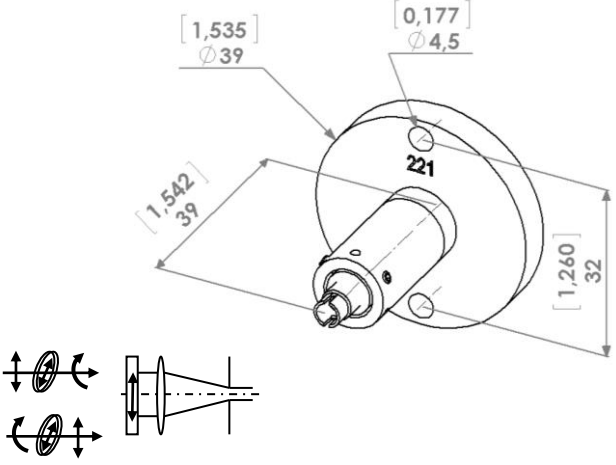
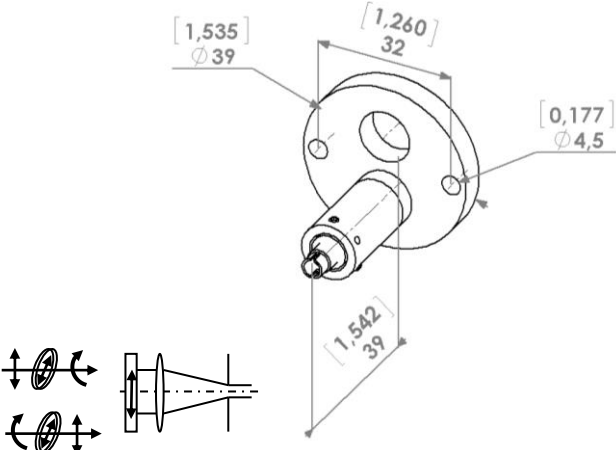
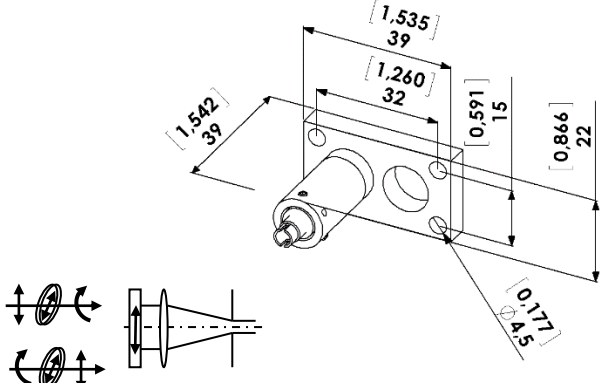
Technical drawing of a rectangular pinhole plate. The plate has overall dimensions of 2,362 (60) by 2,205 (56). The drawing shows the plate with four pinholes arranged in a 2x2 grid. The pinholes are labeled with their diameters and positions:

- Top-left pinhole: Ø 4,3, position [0,169 / 4,3]
- Top-right pinhole: Ø 4,3, position [0,169 / 4,3]
- Bottom-left pinhole: Ø 6, position [0,236 / 6]
- Bottom-right pinhole: Ø 6, position [0,236 / 6]

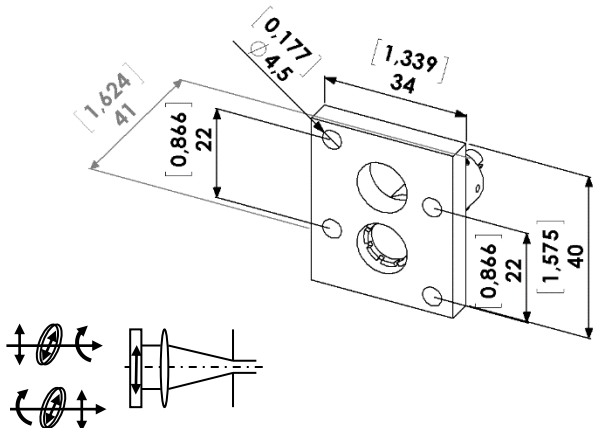
Dimensions for the pinholes and their positions are provided in brackets:

- Top-left pinhole: [0,591 / 15]
- Top-right pinhole: [0,394 / 10]
- Bottom-left pinhole: [0,079 / 2]
- Bottom-right pinhole: [0,591 / 15]

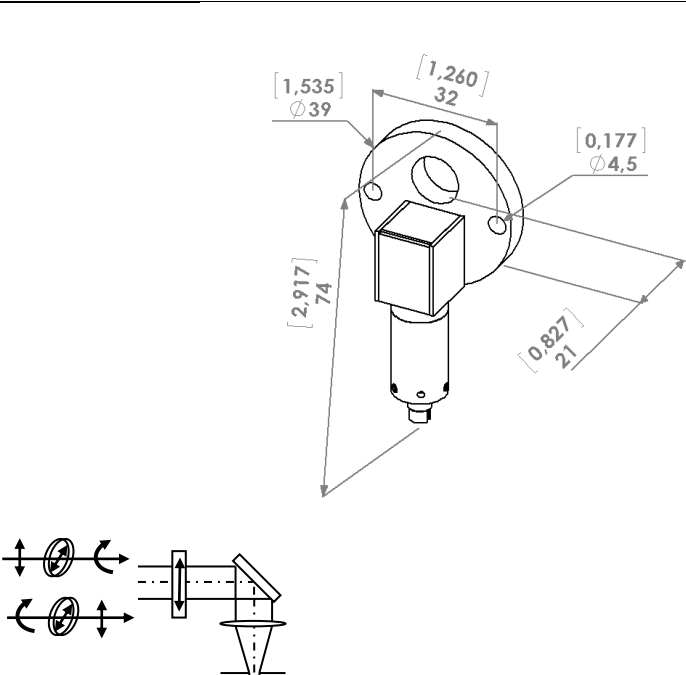
F. Faserkoppler - Ein- und Auskoppeloptiken
F. Fiber optics couplings - Input and Output

LWL Anschluss 221 <i>Fiber optics coupling 221</i>	
Masse [g]:/ Weight: 73	
Bestell-Nr. / Order No.: 269302 – 4015 . 624	
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>	
LWL Anschluss 222 <i>Fiber optics coupling 222</i>	
Masse [g]:/ Weight: 67	
Bestell-Nr. / Order No.: 269302 – 4015 . 724	
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>	
LWL Anschluss 223 <i>Fiber optics coupling 223</i>	
Masse [g]:/ Weight: 50	
Bestell-Nr. / Order No.: 269302 – 4015 . 824	
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>	

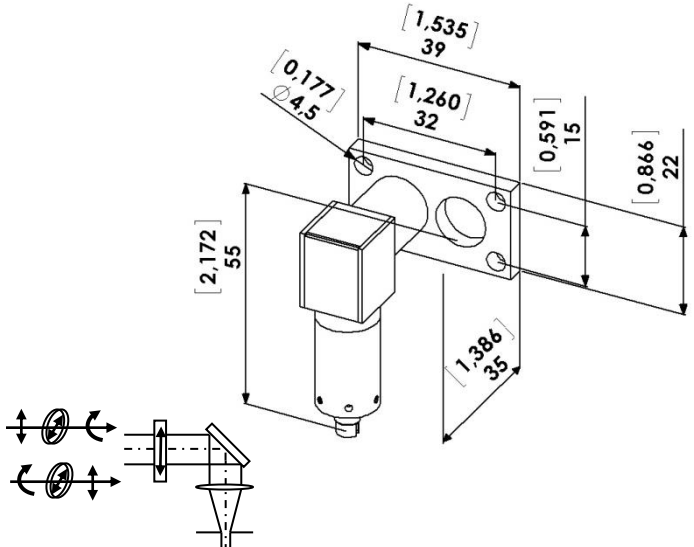
LWL - Anschluss für Parallelinterferometer 224 <i>Fiber optics coupling for Parallel interferometer 224</i>		
Masse [g]:/ Weight:		73
Bestell-Nr. / Order No.: 269302 – 4015 . 924		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



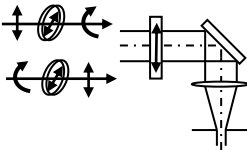
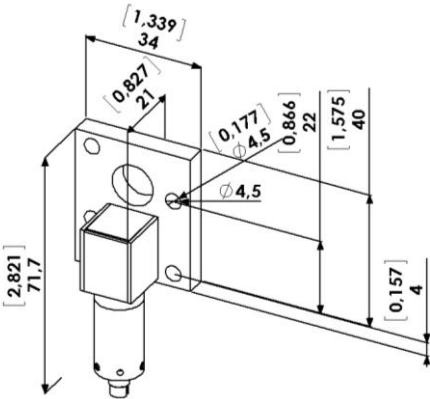
LWL - Anschluss 222 abgewinkelt <i>Fiber optics coupling 222 bent</i>		
Masse [g]:/ Weight:		74,4
Bestell-Nr. / Order No.: 269302 – 4020 . 624		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



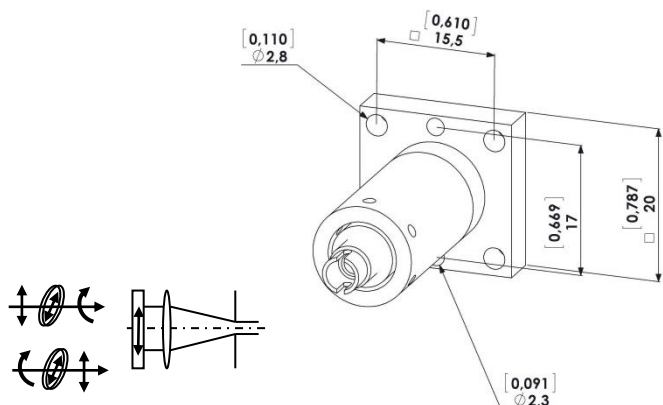
LWL - Anschluss 223 abgewinkelt <i>Fiber optics coupling 223 bent</i>		
Masse [g]:/	Weight:	75,3
Bestell-Nr. / Order No.: 269302 – 4020 . 924		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



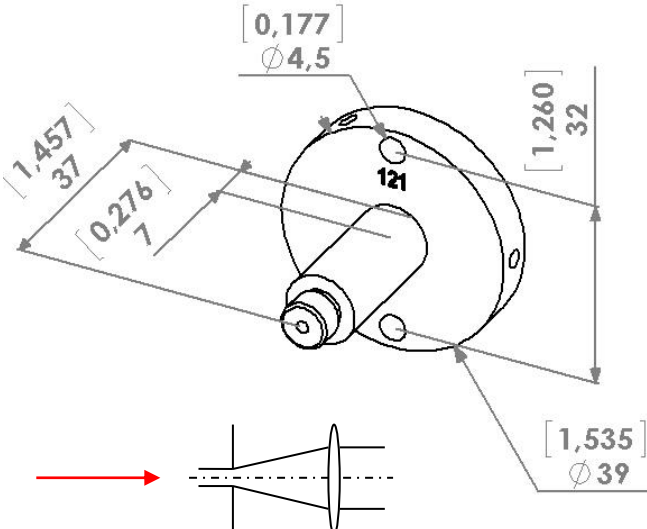
LWL - Anschluss für Parallelinterferometer 224 abgewinkelt <i>Fiber optics coupling for Parallel interferometer 224 bent</i>		
Masse [g]:/ Weight:	92,2	
Bestell-Nr. / Order No.: 269302 – 4021 . 124		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



LWL Anschluss 215 <i>Fiber optics coupling 215</i>		
Masse [g]:/ Weight:		34
Bestell-Nr. / Order No.: 269302 – 4016 . 324		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



LWL - Auskopplung 121 <i>Fiber optics coupling 121</i>		
Masse [g]:/ Weight:		58
Bestell-Nr. / Order No.: 269302 – 5010 . 024		
Steckersystem (Versorgung) FC-APC Stecker (8° Schliff) Connector (supply): FC-APC connection (8°-polish)		

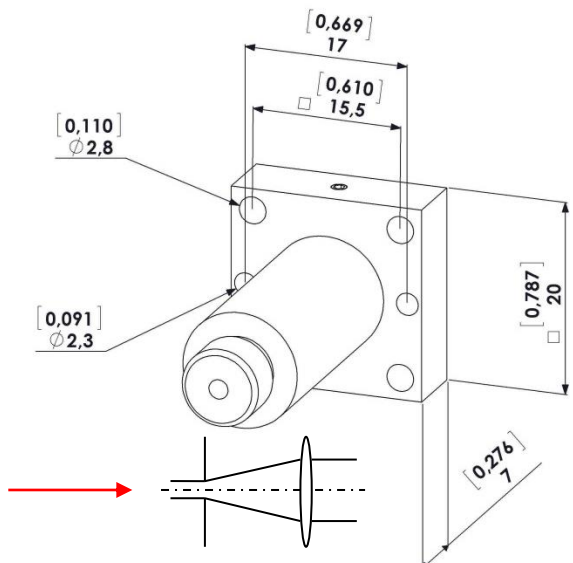


Technical drawing of the LWL - Auskopplung 121 fiber optics coupling. The drawing shows a side view of the cylindrical component with various dimensions:

- Top flange diameter: $[0,177]$ $\varnothing 4,5$
- Main body diameter: $[1,457]$ 37
- Main body hole diameter: $[0,276]$ 7
- Bottom flange diameter: $[1,260]$ 32
- Bottom flange hole diameter: $[1,535]$ $\varnothing 39$

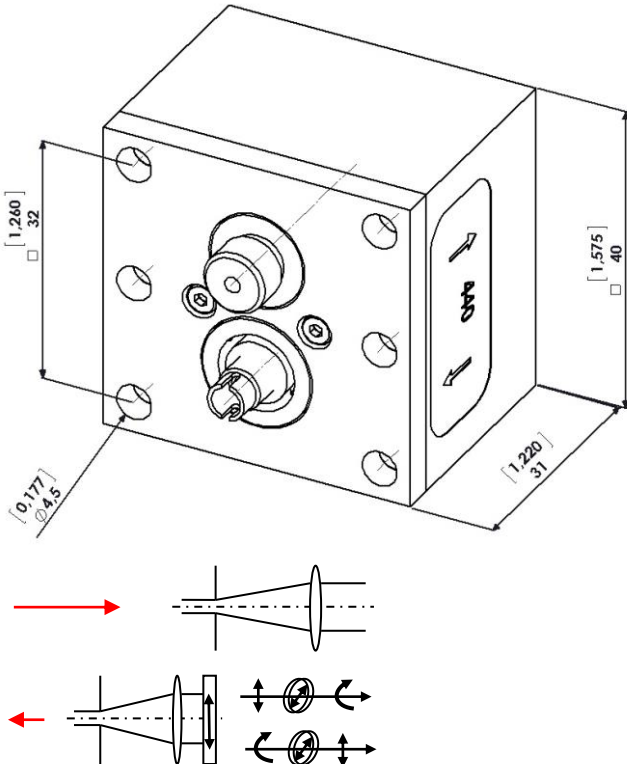
A small diagram to the left shows the fiber input/output configuration with a red arrow indicating the input direction.

LWL - Auskopplung 218 <i>Fiber optics coupling 218</i>		
Masse [g]:/ Weight:		42
Bestell-Nr. / Order No.: 269302 – 4016 . 424		
Steckersystem (Versorgung) FC-APC Stecker (8° Schliff) Connector (supply): FC-APC connection (8°-polish)		

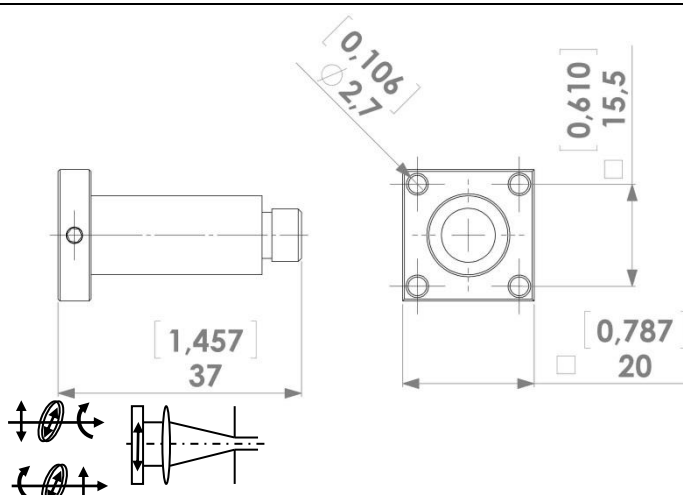


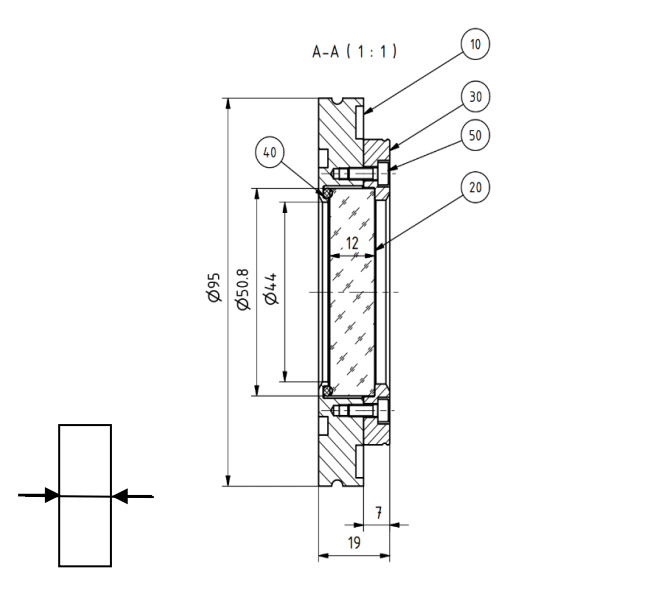
Technical drawing of the LWL - Auskopplung 218 fiber optics coupling. The drawing shows a cylindrical component with a flange. Dimensions are given in brackets: [0,669] 17 (total length), [0,610] 15,5 (flange length), [0,110] Ø 2,8 (flange hole), [0,091] Ø 2,3 (main body hole), [0,787] 20 (height), and [0,216] 7 (base width). A red arrow points to the input/output ports.

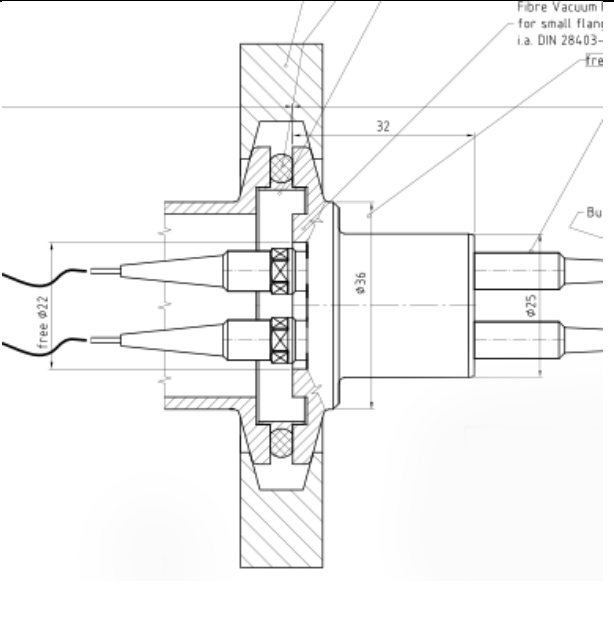
Adapter LSI 440 <i>Adapter LSI 440</i>		
Masse [g]:/ Weight:		293,2
Bestell-Nr. / Order No.: 269302 – 5010 . 224		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish)</i> <i>D-4108.66</i>		
Steckersystem (Versorgung) FC-APC Stecker (8° Schliff) <i>Connector (supply):</i> <i>FC-APC connection (8°-polish)</i>		



LWL Adapter 220 <i>LWL Adapter 220</i>		
Masse [g]:/ <i>Weight:</i>	95	
Bestell-Nr. / <i>Order No.:</i> 269302 – 5093 . 524		
Steckersystem: DIN LSA Stecker (8° Schliff) D-4108.66 <i>Connector:</i> <i>DIN LSA connector (8°-polish) D-4108.66</i>		



Fenster 44 - Vakuumdurchführung <i>Window 44 - Vacuum Feedthrough</i>		
Masse [g]:/	Weight:	-
Bestell-Nr. / Order No.: 000000 – 5001 . 592		
		

Vakuum - Durchführung für 2 Faser <i>Vacuum - Feedthrough for 2x Fiber</i>	
Masse [g]:/ Weight: -	
Bestell-Nr. / Order No.: 000000 – 5001 . 593	
Steckersystem: VIS/NIR-50-NA022-DIN-APC/DIN-APC-20/50 Kabellänge 0,7 m <i>Connector:</i> <i>VIS/NIR-50-NA022-DIN-APC/DIN-APC-20/50</i> <i>Cable length 0.7 m</i>	

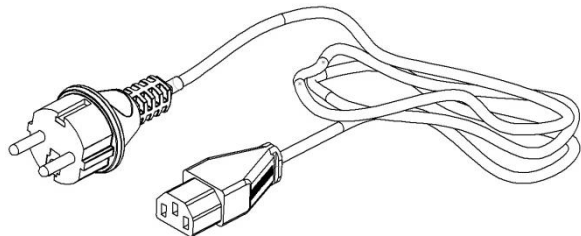
G. Kabel - Lichtwellenleiter*G. Cables – Optic fiber cables***Kurzübersicht Kabel***Short overview cables*

	Bestell-Nr. / Order No.:	Stecker / socket	ZLM700	ZLM800	ZLM900 LSI
Trigger Kabel 2020 <i>Trigger cable 2020</i> <i>Länge / length: 5m</i>	269302-4004.726	X2	x	x	x
A-Q-B Kabel (15 pol) <i>A-Q-B cable (15pol)</i> <i>Länge / length: 5m</i>	269302-5040.424	X2	x	x	x
A-Q-B Kabel (9 pol) <i>A-Q-B cable (9 pol)</i> <i>Länge / length: 5m</i>	269302-5040.524	X2	x	x	x
A-Q-B Kabel (Spindler & Hoyer) <i>A-Q-B cable (Spindler & Hoyer)</i> <i>Länge / length: 5m</i>	269302-5100.024	X2	x	x	x
Messkopfkabel <i>Measurement head cable, complete</i> <i>Länge / length: 5m</i>	269302-4040.824	X4	x	x	-
Messkopfkabel <i>Measurement head cable</i> <i>Länge / length: 5m</i>	269302-5040.124	X4	x	x	-
Messkopfkabel <i>Measurement head cable, complete</i> <i>(Fiber cables are integrated)</i> <i>Länge / length: 20m</i>	269302-5040.824	X4	x	x	-
Messkopfkabel (Einbauvariante) <i>Measurement head cable (built- in system)</i> <i>Länge / length: 5m</i>	269302-4080.824	X4	x	x	-
Messkopfkabel (ZLM 800) <i>Measurement head cable (ZLM 800)</i> <i>Länge / length: 5m</i>	269302-5062.126	X4	x	x	-
Messkopfkabel (ZLM 900) standard <i>Measurement head cable (ZLM 900)</i> <i>standard</i>	269302-5091.824	X4			
Messkopfkabel (ZLM 900) mit Referenz <i>Measurement head cable (ZLM 900) with</i> <i>reference</i>	269302-5091.724	X4			

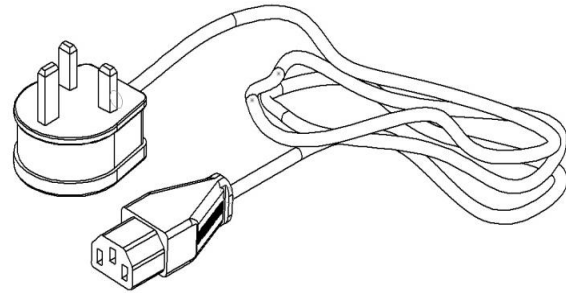
	Bestell-Nr. / Order No.:	Stecker / socket	ZLM700	ZLM800	ZLM900 LSI
Quadrantenkabel (für Referenzposition) <i>Quad cable (for reference position)</i> <i>Länge / length: 5m</i>	296302-5040.926	X4	x	x	x
Referenzsynchronkabel SMB <i>Reference synchron cable SMB</i> <i>Länge / length: 95m,,</i>	269302-5093.224				

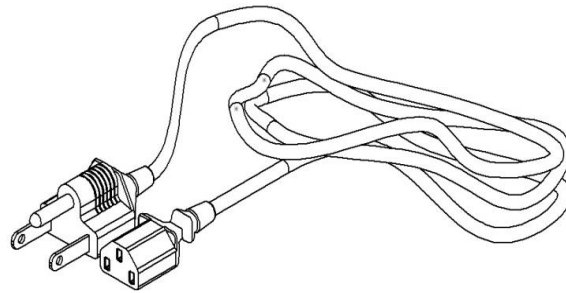
Kabel & Lichtwellenleiter*Cables & Optic fibers*

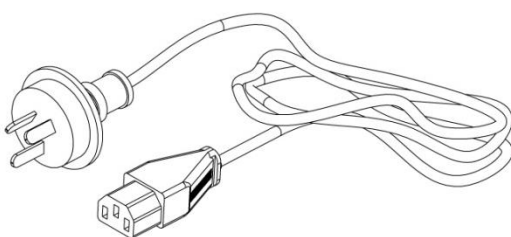
Geräteanschlusskabel DIN Standard <i>Power cable - DIN standard</i>		
Masse [g] /	<i>Weight :</i>	-
Bestell-Nr. / <i>Order No.:</i> 000000 – 0146 . 250		



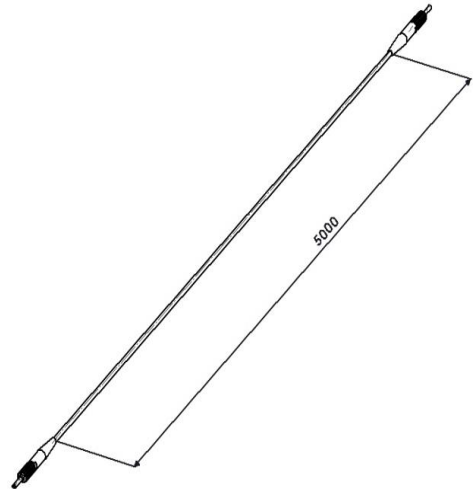
Geräteanschlusskabel GB Version <i>Power cable – British version</i>		
Masse [g] /	<i>Weight :</i>	-
Bestell-Nr. / <i>Order No.:</i> 000000 – 0228 . 205		



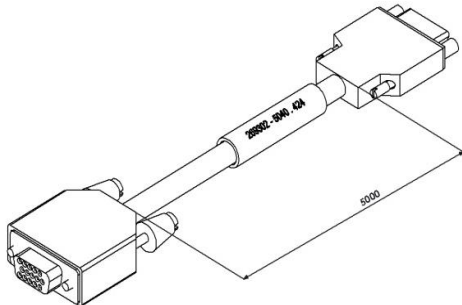
Geräteanschlusskabel Japan /USA Version <i>Power cable – Japan / USA version</i>			
Masse [g] /	<i>Weight :</i>	-	
Bestell-Nr. / <i>Order No.:</i> 000000 – 0228 . 289			

Geräteanschlusskabel Australien/ China <i>Power cable – Australia / China version</i>			
Masse [g] /	<i>Weight :</i>	-	
Bestell-Nr. / <i>Order No.:</i> 000000 – 5001 . 394			

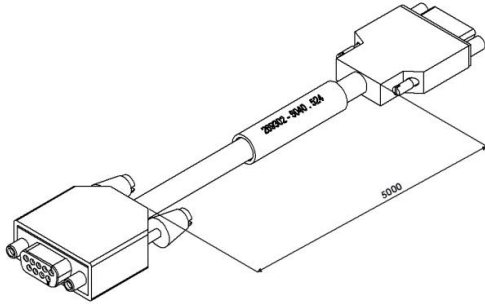
Gradienten - Lichtwellenleiter <i>Gradient index fiber cable</i>	
Länge : <i>Length:</i>	3 m (Standard) / nach Kundenanforderungen according to customer requirements
Masse [g] / Weight :	-
Bestell-Nr. / Order No.: 000000 – 0212 . 678	
Steckersystem: <i>Connector:</i> pe Patchkabel 2xD-4108.66/K - 50/125/900/3000-5m	

A technical diagram of a fiber optic cable. The cable is shown at an angle, with its two ends terminated in connectors. A dimension line with arrows at both ends is drawn parallel to the cable, indicating a length of 5000. The number '5000' is written vertically along the dimension line.

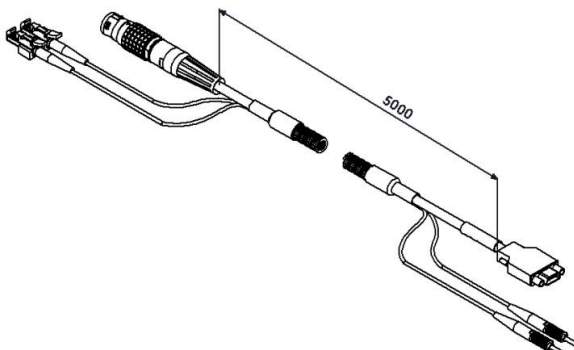
A-Q-B Kabel (15 pol) <i>A-Q-B connecting cable (15 pol)</i>	
Länge : <i>Length:</i>	5 m (Standard) / nach Kundenanforderungen according to customer requirements
Masse [g] / Weight :	323
Bestell-Nr. / Order No.: 269302 – 5040 . 424	
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1- D - SUB - Buchse 15 pol HIGH DENSITY	



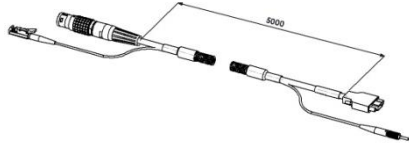
A-Q-B Kabel (9 pol) <i>A-Q-B connecting cable(9pol)</i>	
Länge : <i>Length:</i>	5 m (Standard) / nach Kundenanforderungen according to customer requirements
Masse [g] / Weight :	323
Bestell-Nr. / Order No.: 269302 – 5040 . 524	
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1- D - SUB - Buchse 9 pol	



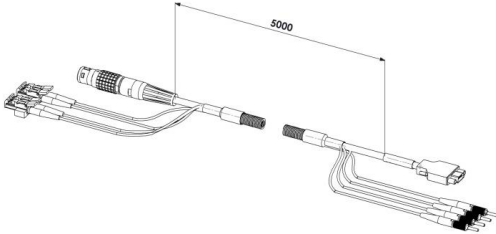
Messkopfkabel , komplett <i>Measurement head cable, complete (Fiber cables are integrated)</i>	
Länge : <i>Length:</i>	3 m (Standard)/ oder Kundenanforderung or customer requirements
Masse [g] / Weight :	-
Bestell-Nr. / Order No.: 269302 – 4040 . 824	
Steckersystem: <i>Connector:</i> FGG.3B.312.CLA D62ZN MDSM-15SC-Z11-VS1	

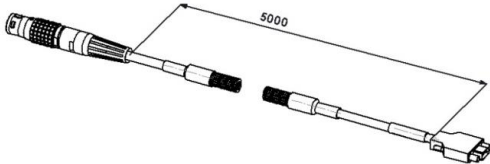


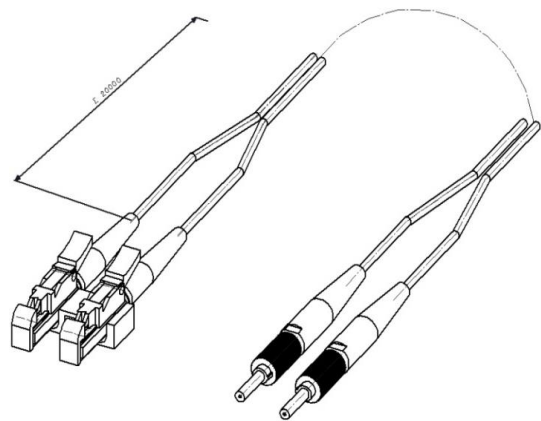
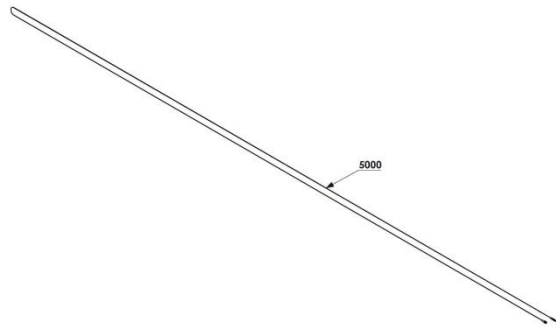
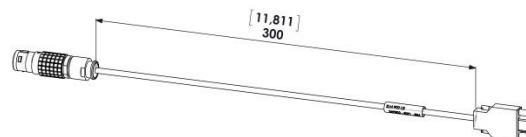
Messkopfkabel (Einbauvariante) <i>Measurement head cable, (built-in system)</i>	
Länge : <i>Length:</i>	3 m (Standard)/ oder Kundenanforderung or customer requirements
Masse [g] / Weight :	-
Bestell-Nr. / Order No.: 269302 – 4080 . 824	
Steckersystem: <i>Connector:</i> FGG.3B.312.CLA D62ZN MDSM-15SC-Z11-VS1	



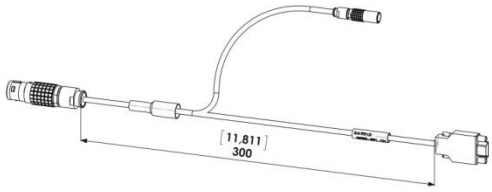
Messkopfkabel, komplett (ZLM 800) <i>Measurement head cable, complete (ZLM 800)</i>	
Länge : <i>Length:</i>	3 m oder Kundenanforderung or customer requirements
Masse [g] / Weight :	-
Bestell-Nr. / Order No.: 269302 – 5062 . 126	
Steckersystem: <i>Connector:</i> FGG.3B.312.CLA D62ZN MDSM-15SC-Z11-VS1	

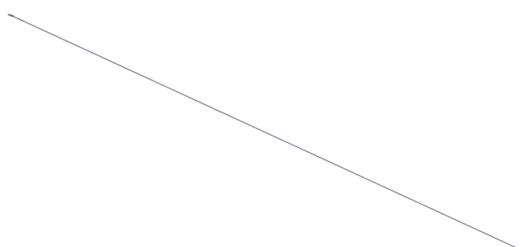


Messkopfkabel <i>Measurement head cable</i>		
Länge : <i>Length:</i>	3 m (Standard)/ oder Kundenanforderung or customer requirements	
Masse [g] / Weight :	-	
Bestell-Nr. / Order No.: 269302 – 5040 . 124		
Steckersystem: <i>Connector:</i> FGG.3B.312.CLA D62ZN MDSM-15SC-Z11-VS1		

Doppellichtwellenleiter <i>Double fiber cable</i>		
Länge x [m]: <i>Length x [m]:</i>	3 m (standard)/ oder Kundenanforderung or customer requirements	
Masse [g] / Weight :	-	
Bestell-Nr. / Order No.: 269302 – 4043 . 724 /x		
Steckersystem: <i>Connector:</i> E-2148.6 SM 8° Compact Zirkonia/Neusilber-Einsatz (Pilzferule) 8° D -4106.66 SM 0° Zirkonia/neusilber-Einsatz (Pilz)Stirnfläche konvex Simplex- Kabel 1x50/125/900/1600-20,0m		
Trigger Kabel 2020 Trigger cable 2020		
Länge : <i>Length:</i>	5 m	
Masse [g] / Weight :	180	
Bestell-Nr. / Order No.: 269302 – 4004 . 726		
Steckersystem: <i>Connector:</i> BNC FGG.0B.302.CLA		
Messkopfkabel (ZLM 900) Standard <i>Measurement head cable (ZLM 900) standard</i>		
Länge : <i>Length:</i>	300 mm	
Masse [g] / Weight :	230	
Bestell-Nr. / Order No.: 269302 – 5091 . 824		
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1 FGG.3B.316.CLAD92Z		

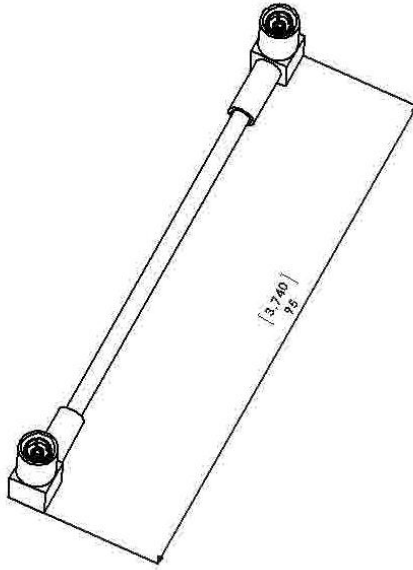
Messkopfkabel (ZLM 900) mit Referenz <i>Measurement head cable (ZLM 900) with reference</i>	
Länge : <i>Length:</i>	300 mm
Masse [g] / Weight :	230
Bestell-Nr. / Order No.: 269302 – 5091 . 724	
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1 FGG.3B.316.CLAD92Z	



A-Q-B-Kabel (Spindler & Hoyer) <i>A-Q-B cable (Spindler & Hoyer)</i>		
Länge : <i>Length:</i>	5 m (Standard)/ oder Kundenanforderung or customer requirements	
Masse [g] / Weight :	323	
Bestell-Nr. / Order No.: 269302 – 5100 . 024		
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1- D - SUB - Buchse 15 pol		

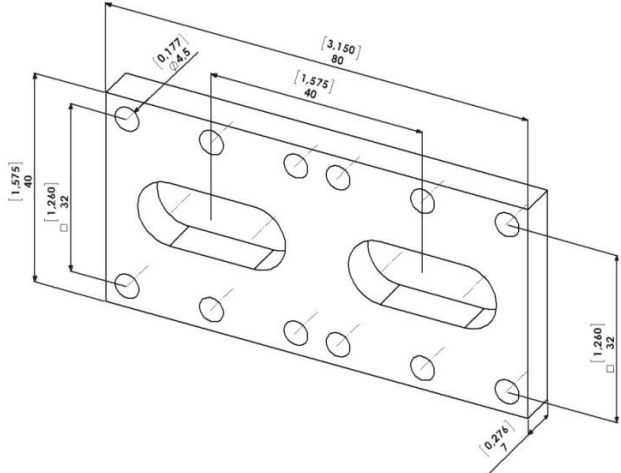
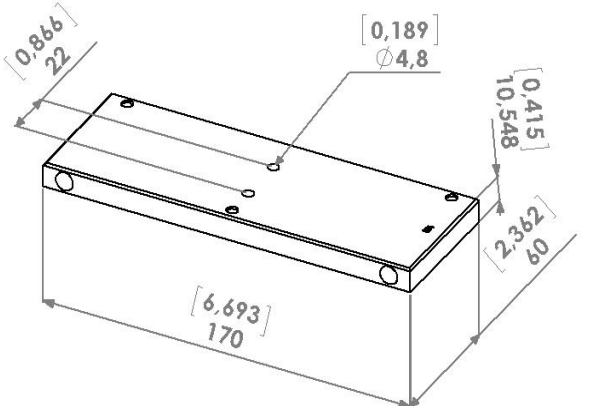
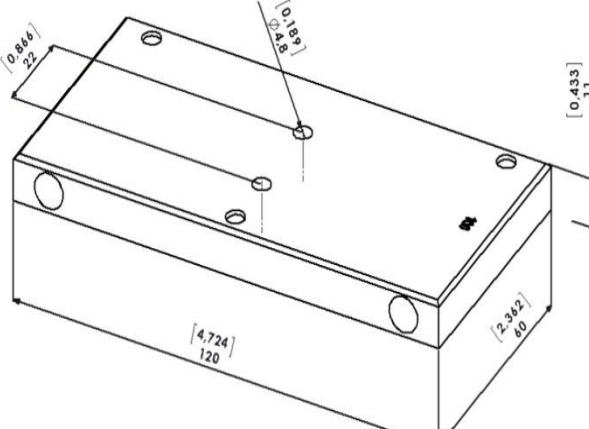
Quadrantenkabel (für Referenzposition) <i>Quad cable (for reference position)</i>		
Länge : <i>Length:</i>	5 m (Standard)/ oder Kundenanforderung <i>or customer requirements</i>	
Masse [g] / Weight :	268	
Bestell-Nr. / Order No.: 269302 – 5040 . 924		
Steckersystem: <i>Connector:</i> MDSM - 25 SC - Z11 - VS 1- 1 FGG.OG.307 .CLA.D56		

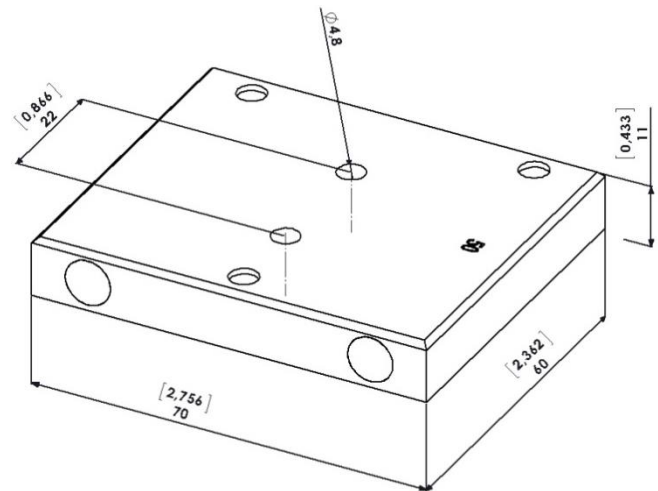
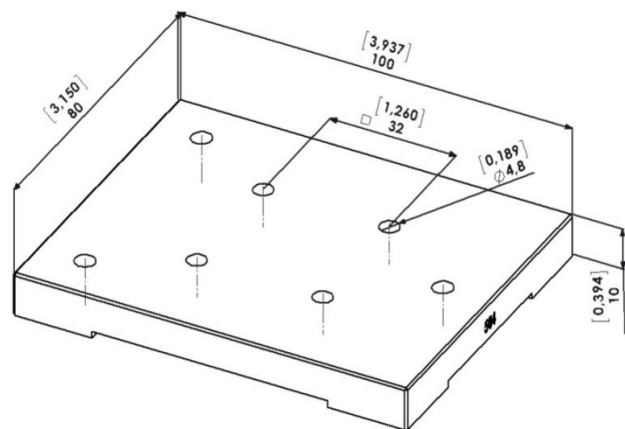
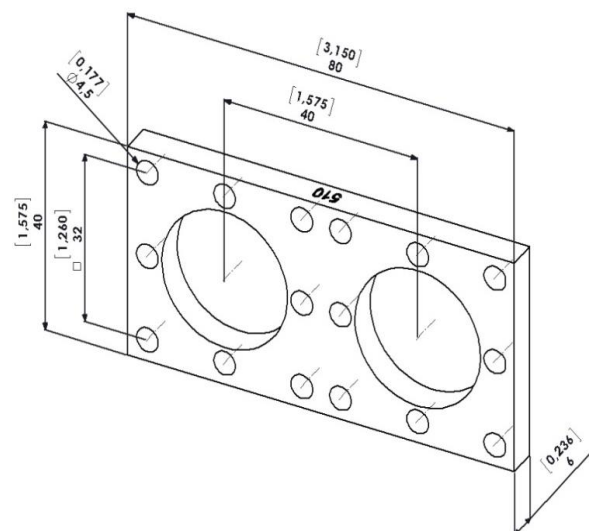
Referenzsynchronkabel SMB <i>Reference synchron cable SMB</i>	
Länge : <i>Length:</i>	95mm
Masse [g] / Weight :	8
Bestell-Nr. / Order No.: 269302 – 5093 . 224	
Steckersystem: <i>Connector:</i> SMB abgewinkelt SMB rectangular	



H. Montageelemente – Justier- und Koppellemente

H. Mounting elements – adjustment and coupling elements

Koppelplatte 511 Coupling plate 511		
Masse [g] / Weight : 131		
Bestell-Nr. / Order No.: 269302 – 4017 . 910		
Fußabstandsplatte 150 Base distance plate 150		
Masse [g] / Weight : 827		
Bestell-Nr. / Order No.: 269302 – 4011 . 625		
Fußabstandsplatte für Doppelreflektor 115 Base distance plates for double triple reflector 115		
Fußabstandsplatte 100 Base distance plate 100		
Masse [g] / Weight : 582		
Bestell-Nr. / Order No.: 269302 – 4011 . 725		

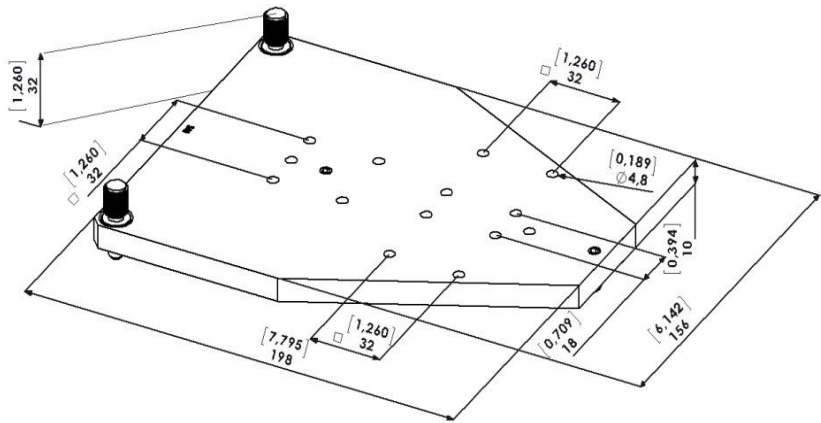
Fußabstandsplatte 50*Base distance plate 50***Masse [g] / Weight :** 336**Bestell-Nr. / Order No.:**
269302 – 4011 . 825**Basisplatte 504***Mounting plate 504***Masse [g] / Weight :** 536,4**Bestell-Nr. / Order No.:**
269302 – 4014 . 410**Koppelplatte 510***Coupling plate 510***Masse [g] / Weight :** 88,2**Bestell-Nr. / Order No.:**
269302 – 4014 . 510

Justierplatte 549

Adjustable plate 549

Masse [g] / Weight :	671
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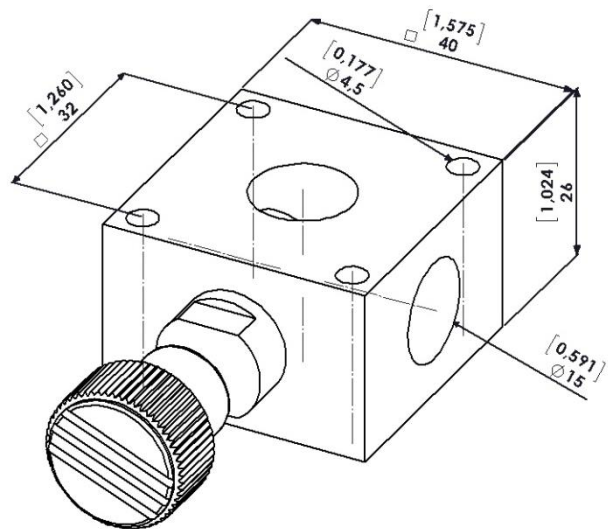
Bestell-Nr. / Order No.:	
269302 – 4012 . 425	

**Klemmhalter 507**

Clamp mounting 507

Masse [g] / Weight :	100,4
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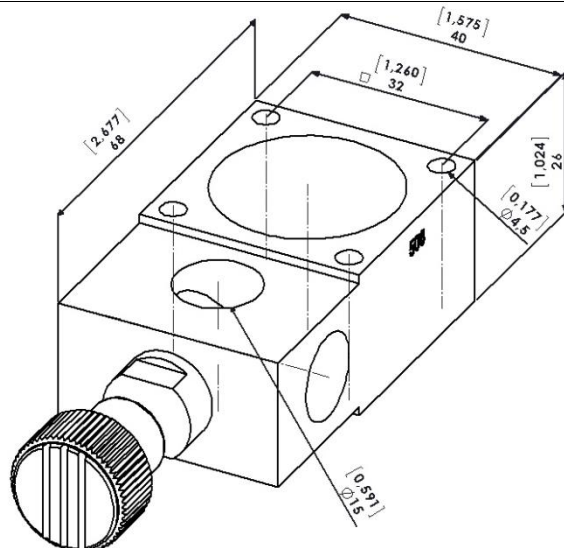
Bestell-Nr. / Order No.:	
269302 – 4010 . 325	

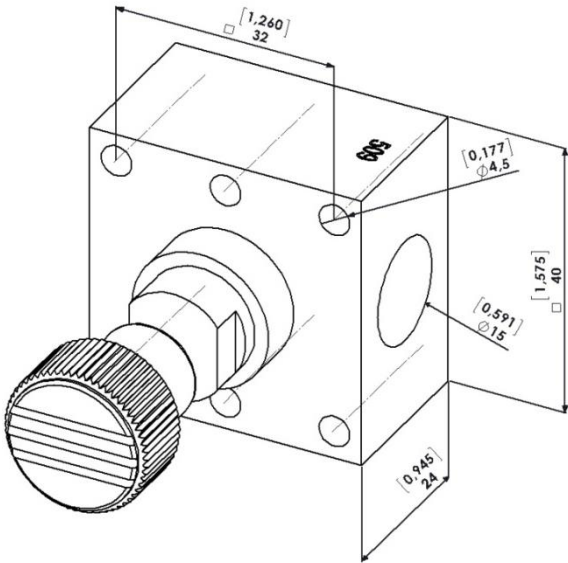
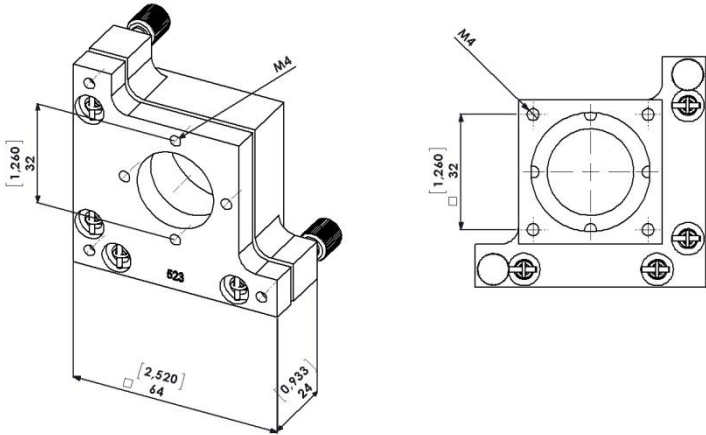
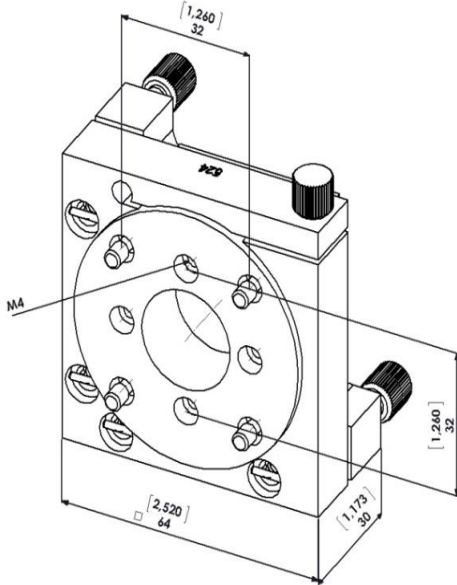
**Klemmhalter 508**

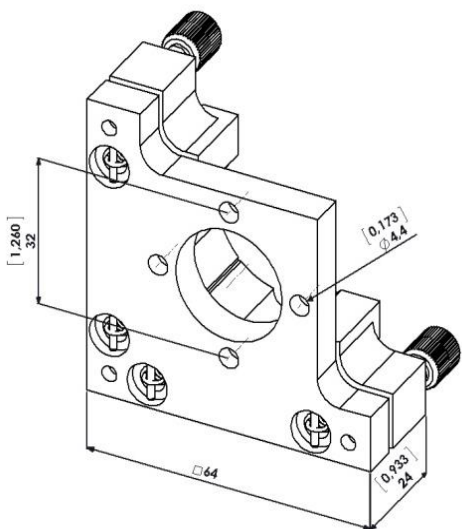
Clamp mounting 508

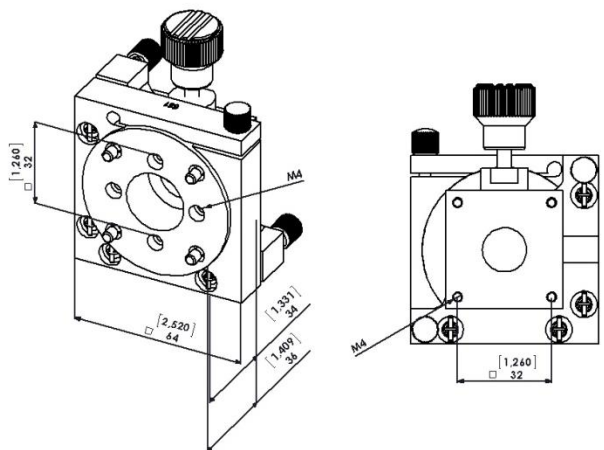
Masse [g] / Weight :	115,7
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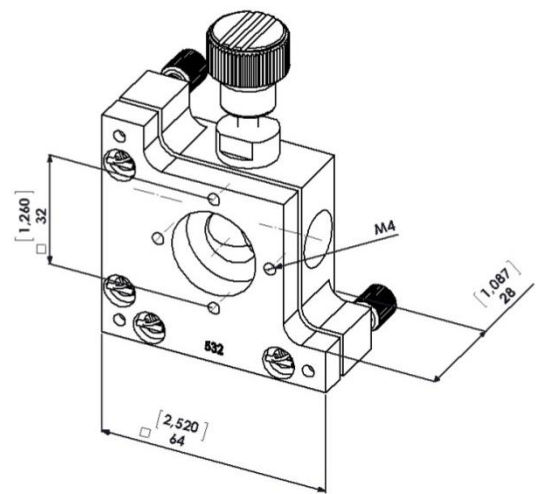
Bestell-Nr. / Order No.:	
269302 – 4010 . 125	

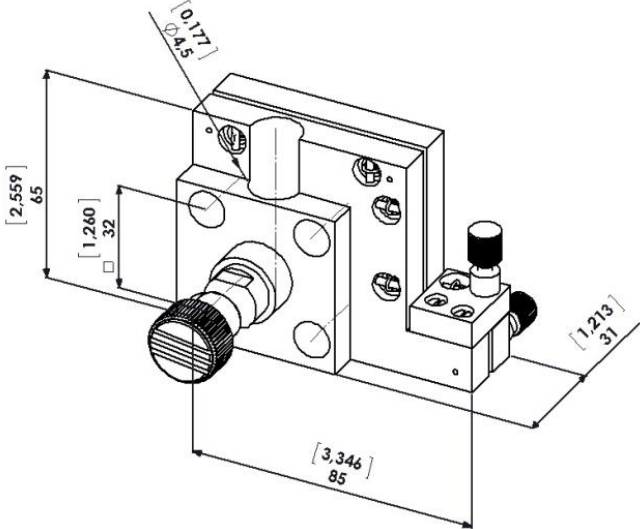
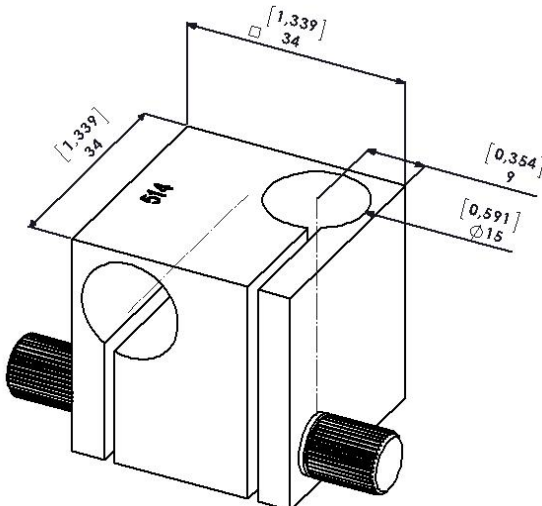
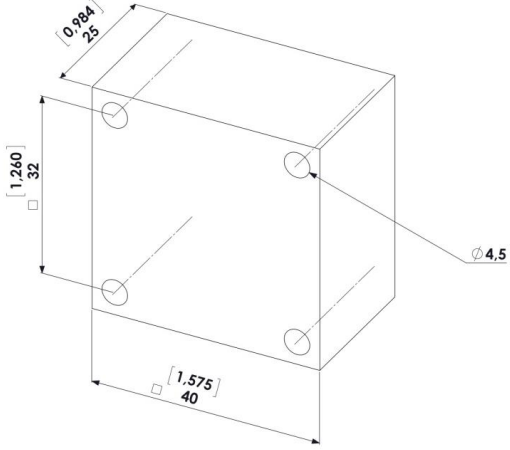


Klemmhalter 509 <i>Clamp mounting 509</i> Masse [g] / Weight : 102,5 Bestell-Nr. / Order No.: 269302 – 4010 . 225	
Kipphalter 523 <i>Tiltable holder 523</i> Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i> 2 Masse [g] / Weight : 153,6 Bestell-Nr. / Order No.: 269302 – 4010 . 825	
Kipphalter 524 <i>Tiltable holder 524</i> Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i> 3 Masse [g] / Weight : 338,8 Bestell-Nr. / Order No.: 269302 – 4010 . 925	

Kipphalter 525 <i>Tilttable holder 525</i>		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	2	
Masse [g] / Weight :	136,5	
Bestell-Nr. / Order No.: 269302 – 4010 . 826		

Kipphalter 531 <i>Tilttable holder 531</i>		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	3	
Masse [g] / Weight :	432,5	
Bestell-Nr. / Order No.: 269302 – 4040 . 725		

Kipphalter 532 <i>Tilttable holder 532</i>		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	2	
Masse [g] / Weight :	191	
Bestell-Nr. / Order No.: 269302 – 4040 . 625		

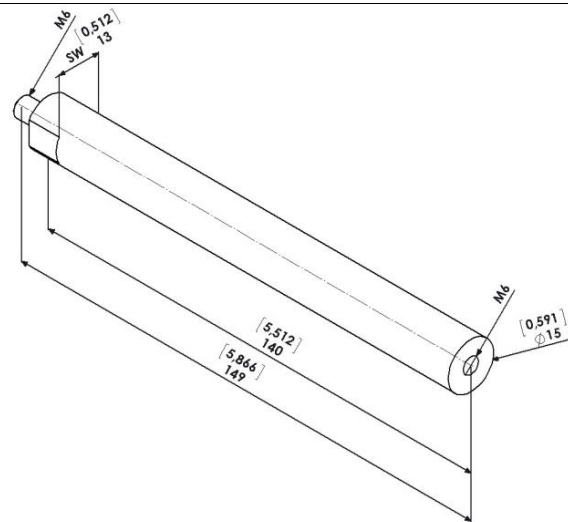
Kipphalter 533 <i>Tilttable holder 533</i> <table border="1" data-bbox="165 331 754 465"> <tr> <td>Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i></td> <td>2</td> </tr> <tr> <td>Masse [g] / Weight :</td> <td>219,3</td> </tr> </table> Bestell-Nr. / Order No.: 269302 – 4004 . 625	Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	2	Masse [g] / Weight :	219,3	
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	2				
Masse [g] / Weight :	219,3				
Klemmhalter 514 <i>Clamp mounting 514</i> <table border="1" data-bbox="165 936 754 1070"> <tr> <td>Masse [g] / Weight :</td> <td>79,8</td> </tr> </table> Bestell-Nr. / Order No.: 269302 – 4010 . 525	Masse [g] / Weight :	79,8			
Masse [g] / Weight :	79,8				
Abstandsblock 40 <i>Distance block 40</i> <table border="1" data-bbox="165 1529 754 1664"> <tr> <td>Masse [g] / Weight :</td> <td>299</td> </tr> </table> Bestell-Nr. / Order No.: 269302 – 5011 . 610	Masse [g] / Weight :	299			
Masse [g] / Weight :	299				

Säule 90

Rod 90

Masse [g] / Weight :	122,8
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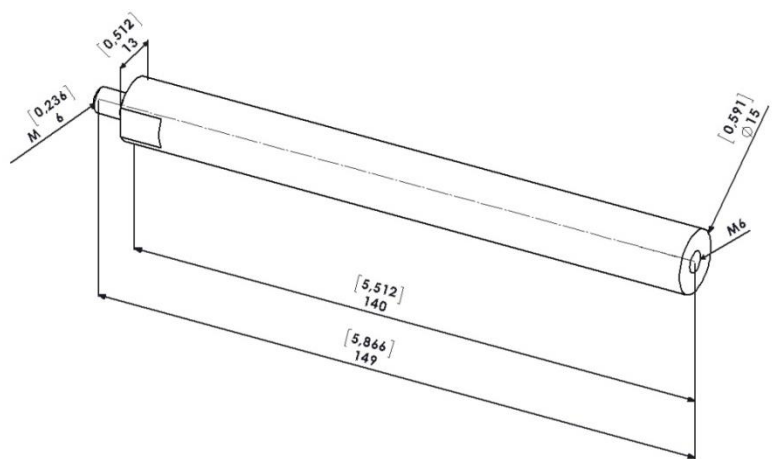
Bestell-Nr. / Order No.:	260297 – 9900 . 228
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**Säule 140**

Rod 140

Masse [g] / Weight :	191,7
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Bestell-Nr. / Order No.:	260297 – 9900 . 128
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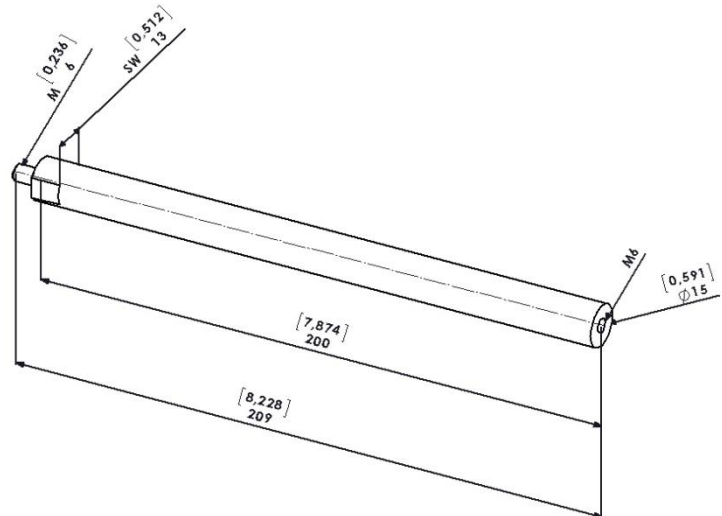


Säule 200

Rod 200

Masse [g] / Weight :	274,4
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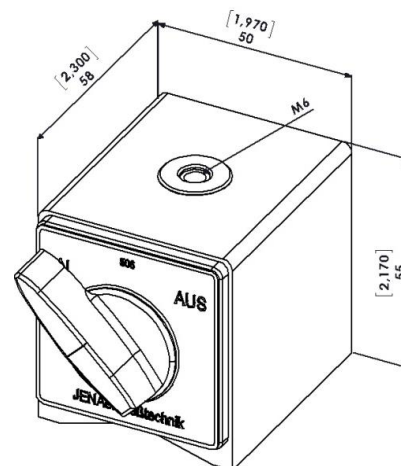
Bestell-Nr. / Order No.:	260297 – 9900 . 328
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**Magnetfuß 506**

Magnetic base 506

Masse [g] / Weight :	1.200
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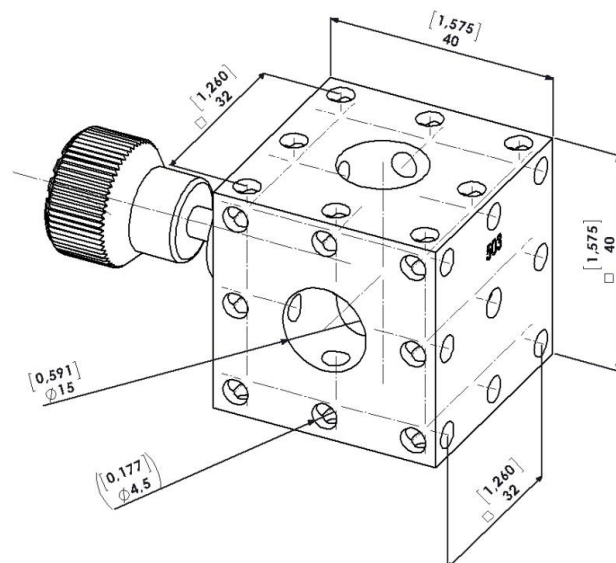
Bestell-Nr. / Order No.:	260298 – 3000 . 128
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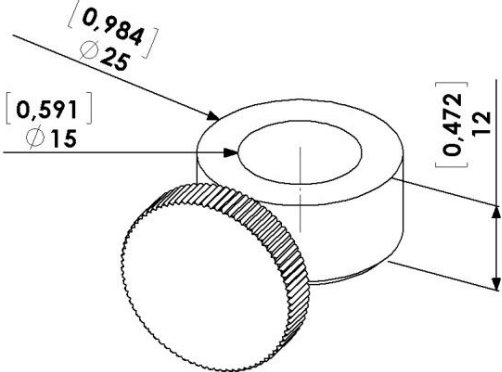
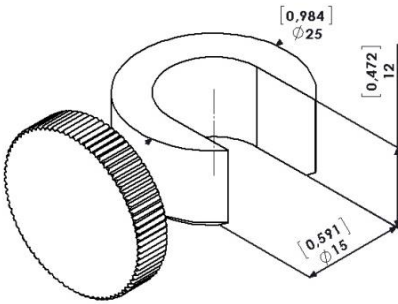
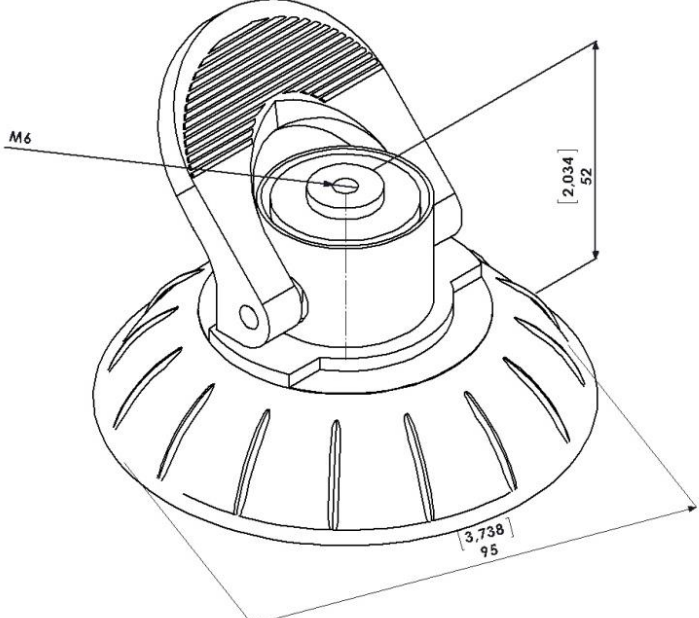
**Klemmwürfel 503**

Clamping cube 503

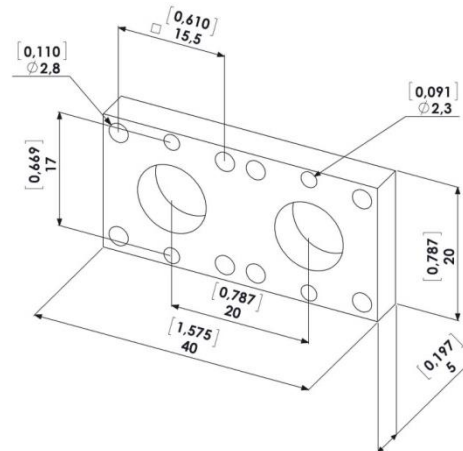
Masse [g] / Weight :	140
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Bestell-Nr. / Order No.:	269302 – 4010 . 625
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Stelling, geschlossen <i>Collar, closed</i>	
Masse [g] / Weight : 47 Bestell-Nr. / Order No.: 260297 – 9900 . 428	
Saugfuß <i>Vacuum base</i>	

Koppelplatte 509 <i>Coupling plate 509</i>		
Masse [g] / Weight :	24	
Bestell-Nr. / Order No.:	269302 – 5111 . 110	



Technical drawing of the coupling plate 509, showing dimensions in millimeters (mm) and inches (in):

- Overall length: 15,5 mm (0,610 in)
- Overall width: 20 mm (0,787 in)
- Overall height: 5 mm (0,197 in)
- Distance between mounting holes: 40 mm (1,575 in)
- Distance between mounting holes (center-to-center): 20 mm (0,787 in)
- Distance between mounting holes (edge-to-edge): 17 mm (0,669 in)
- Mounting hole diameter: 2,8 mm (0,110 in)
- Mounting hole diameter (smaller): 2,3 mm (0,091 in)

Schraube 14 Screw 14		
Masse [g] / Weight :	6,2	
Bestell-Nr. / Order No.:	269302 – 4011 . 025	

Schraube 20 <i>Screw 20</i>		
Masse [g] /	Weight :	6,5
Bestell-Nr. / Order No.: 269302 – 4011 . 125		

Technical drawing of a screw with a gear-like head. The drawing shows the following dimensions:

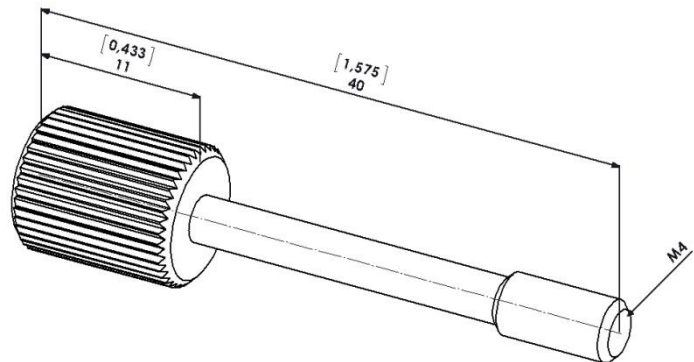
- Head diameter: 0,433 (11)
- Total length: 1,220 (31)
- Thread: M4

Schraube 29

Screw 29

Masse [g] /	Weight :	7
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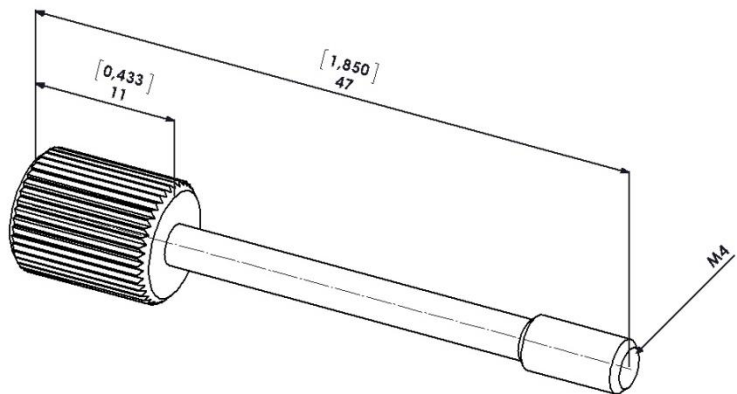
Bestell-Nr. /	Order No.:
269302 – 4011 . 225	

**Schraube 36**

Screw 36

Masse [g] /	Weight :	7,4
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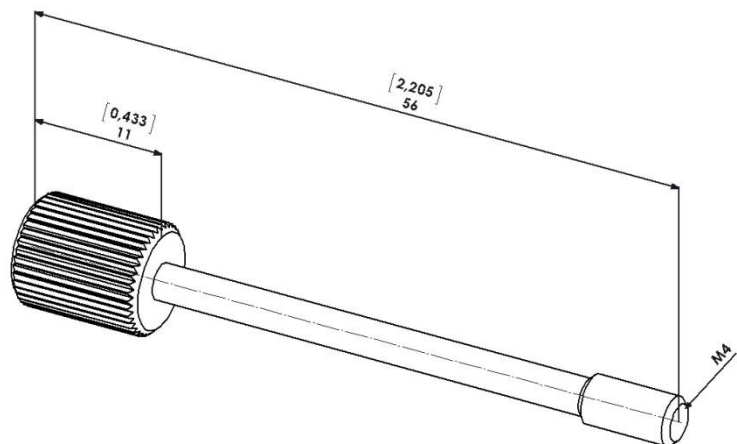
Bestell-Nr. /	Order No.:
269302 – 4011 . 325	

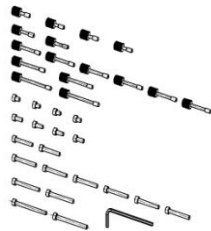
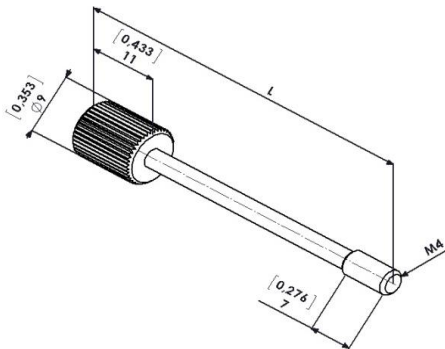
**Schraube 45**

Screw 45

Masse [g] /	Weight :	7,9
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Bestell-Nr. /	Order No.:
269302 – 4011 . 425	

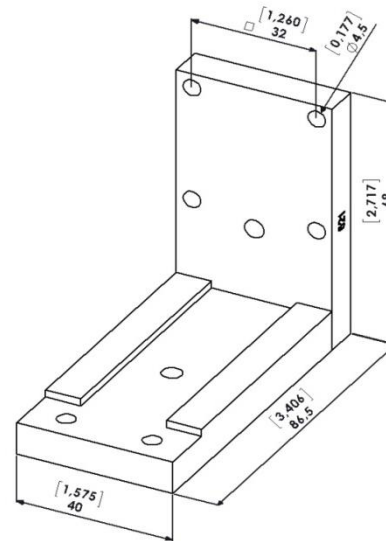


Schraubensatz komplett Set of screws, complete																										
Masse[g]: / Weight [g]:	124																									
Bestell-Nr. / Order No.: 269302 – 4005 . 624																										
		<table><tr><th>Nummer Number</th><th>Länge [mm]: Length [inch]</th><th>Anzahl: Quantity:</th><th>Einzelbestellnummer: Order no.:</th></tr><tr><td>14</td><td>25 0.984</td><td>4</td><td>269302 – 4011 . 025</td></tr><tr><td>20</td><td>31 1.220</td><td>2</td><td>269302 – 4011 . 125</td></tr><tr><td>29</td><td>40 1.575</td><td>6</td><td>269302 – 4011 . 225</td></tr><tr><td>36</td><td>47 1.850</td><td>2</td><td>269302 – 4011 . 325</td></tr><tr><td>45</td><td>56 2.205</td><td>2</td><td>269302 – 4011 . 425</td></tr></table>	Nummer Number	Länge [mm]: Length [inch]	Anzahl: Quantity:	Einzelbestellnummer: Order no.:	14	25 0.984	4	269302 – 4011 . 025	20	31 1.220	2	269302 – 4011 . 125	29	40 1.575	6	269302 – 4011 . 225	36	47 1.850	2	269302 – 4011 . 325	45	56 2.205	2	269302 – 4011 . 425
Nummer Number	Länge [mm]: Length [inch]	Anzahl: Quantity:	Einzelbestellnummer: Order no.:																							
14	25 0.984	4	269302 – 4011 . 025																							
20	31 1.220	2	269302 – 4011 . 125																							
29	40 1.575	6	269302 – 4011 . 225																							
36	47 1.850	2	269302 – 4011 . 325																							
45	56 2.205	2	269302 – 4011 . 425																							
		Zylinderschrauben M4 (DIN 912) Socket head screws M4 (DIN 912)																								
		<table><tr><th>Länge [mm]: Length [inch]:</th><th>Anzahl: Quantity:</th></tr><tr><td>6 0.236</td><td>4</td></tr><tr><td>10 0.394</td><td>4</td></tr><tr><td>25 0.984</td><td>2</td></tr><tr><td>30 1.181</td><td>6</td></tr><tr><td>35 1.378</td><td>2</td></tr><tr><td>45 1.811</td><td>2</td></tr></table>	Länge [mm]: Length [inch]:	Anzahl: Quantity:	6 0.236	4	10 0.394	4	25 0.984	2	30 1.181	6	35 1.378	2	45 1.811	2										
Länge [mm]: Length [inch]:	Anzahl: Quantity:																									
6 0.236	4																									
10 0.394	4																									
25 0.984	2																									
30 1.181	6																									
35 1.378	2																									
45 1.811	2																									
		1 x Sechskant-Schraubendreher DIN-911 - ISO-2936 1 x Allen key, DIN-911 - ISO-2936																								

Haltewinkel 521
Angle bracket 521

Masse [g] / Weight : 414,4

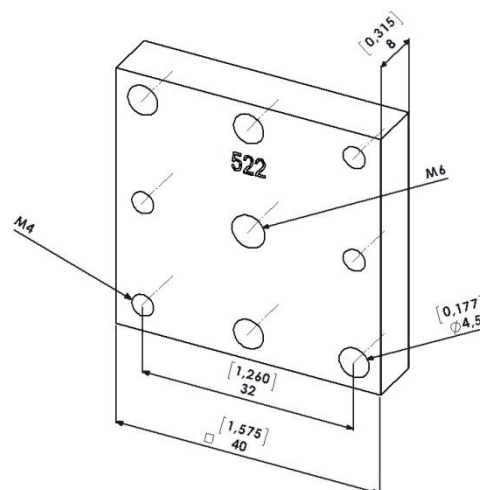
Bestell-Nr. / Order No.:
 269302 – 4010 . 425



Säulenanschluss 522
Adapter plate 522

Masse [g] / Weight : 92,5

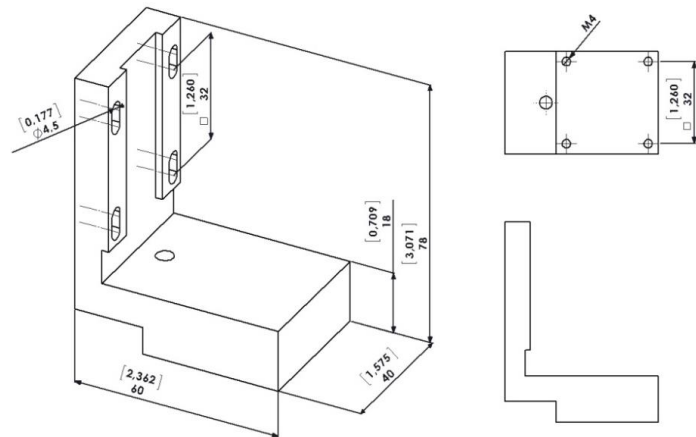
Bestell-Nr. / Order No.:
 269302 – 4018 . 110



**Winkeladapter (für Kompakt –
 Planspiegelinterferometer 390)**
*Angle adapter (for Compact plane
 mirror interferometer 390)*

Masse [g] / Weight : 435,8

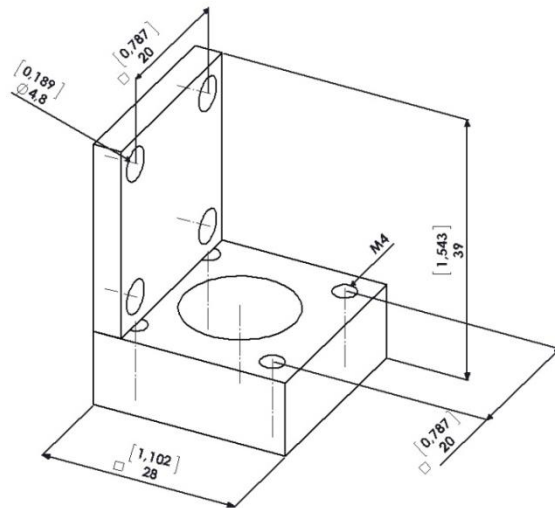
Bestell-Nr. / Order No.:
 269302 – 5101 . 210



Winkeladapter
Angle adapter

Masse [g] / Weight : 69,4

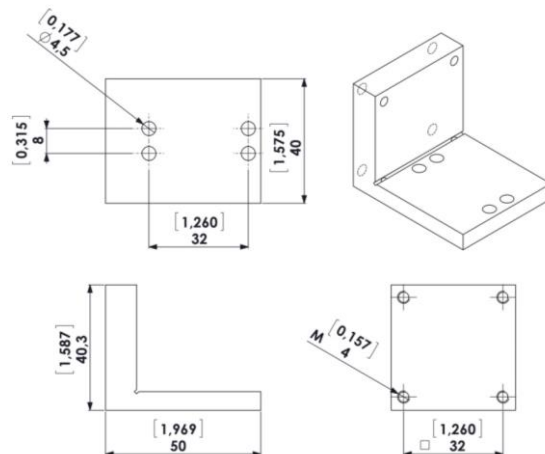
Bestell-Nr. / Order No.:
 269302 – 4013 . 225



Winkeladapter für 115
Angle adapter for 115

Masse [g] / Weight : 25,5

Bestell-Nr. / Order No.:
 269302 – 5105 . 110

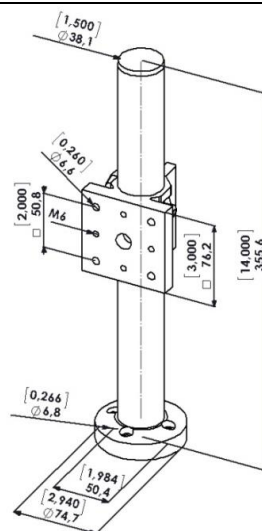


Schwingungsgedämpfte Säule mit Montageklemme

Vibration damping column with mounting clamp

Masse [g] / Weight : 737

Bestell-Nr. / Order No.:
269302 – 4012 . 825



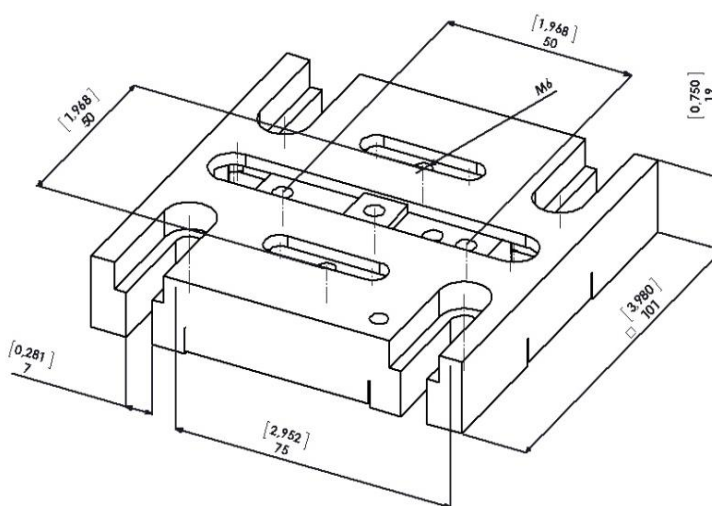
Verstellbare Grundplatte

Adjustable mounting plate

Anzahl Freiheitsgrade:
No. of degrees of freedom 1

Masse [g] / Weight : -

Bestell-Nr. / Order No.:
260297 – 9901 . 328

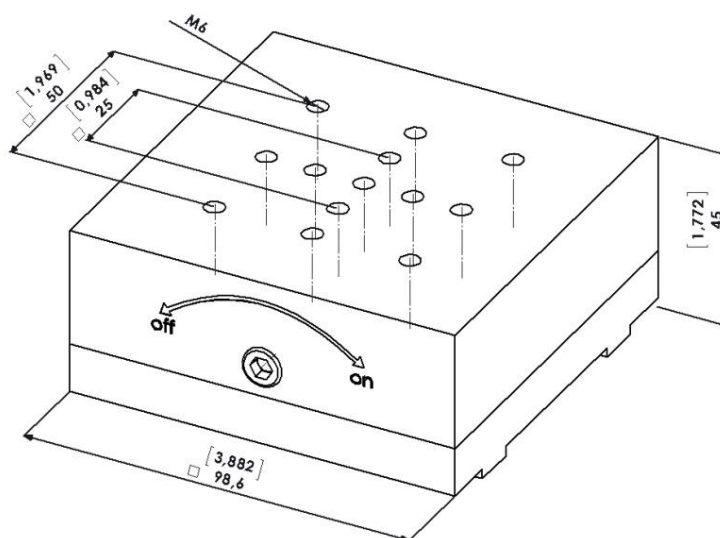


Flacher Magnetfuß

Flat magnetic plate

Masse [g] / Weight : -

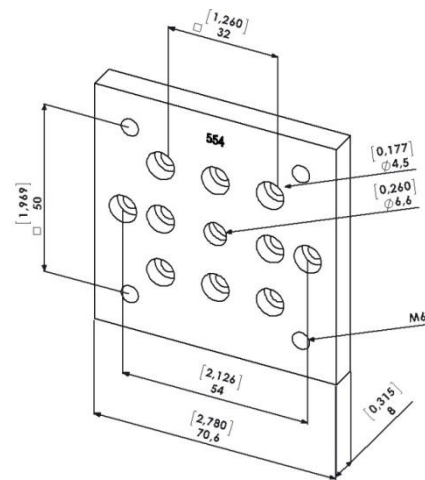
Bestell-Nr. / Order No.:
260297 – 9901 . 228



Adapterplatte 554

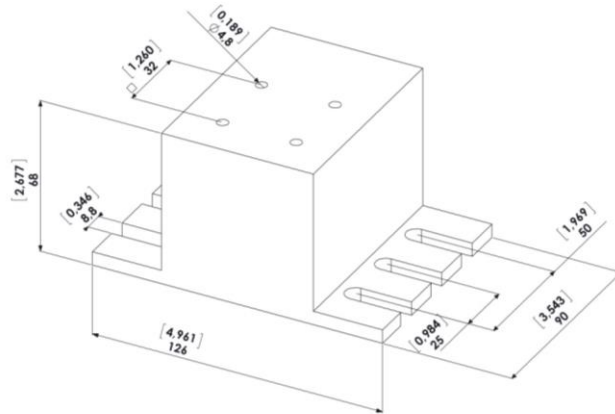
Adapter plate 554

Masse [g] / Weight : 279,6

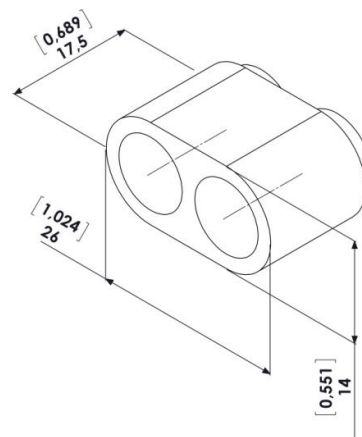
Bestell-Nr. / Order No.:
269302 – 4042 . 910**Distanzblock für 347 und 348**

Distance block for 347 and 348

Masse [g] / Weight : 1124

Bestell-Nr. / Order No.:
269302 – 5013 . 110**Doppeladapter für Reflektor 9 mm
(Winkelmessung)**348 Double adapter for reflector 9mm
(angle measurement)

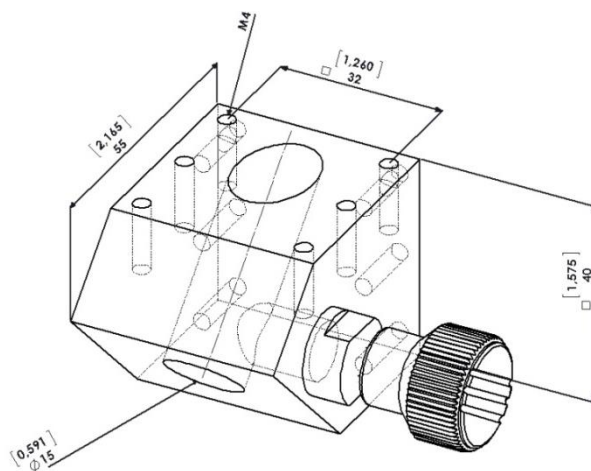
Masse [g] / Weight : 26,2

Bestell-Nr. / Order No.:
269302 – 5003 . 525

45° Klemmhalter 546

45° Clamp mounting 546

Masse [g] / Weight : 197,6

Bestell-Nr. / Order No.:
269302 – 4010 . 725**Justieraufnahme 588**

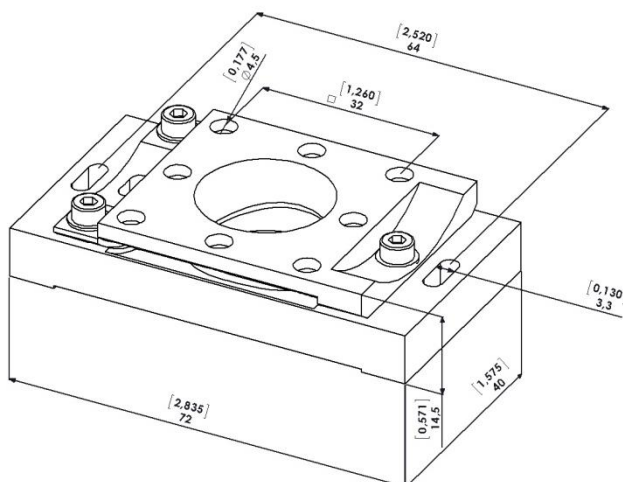
(für optische Komponenten □ 40)

Adjustable mount 588

(for optical components □ 40)

Anzahl Freiheitsgrade:
No. of degrees of freedom: 2

Masse [g] / Weight : 188,7

Bestell-Nr. / Order No.:
269302 – 4009 . 025**Justieraufnahme 589**

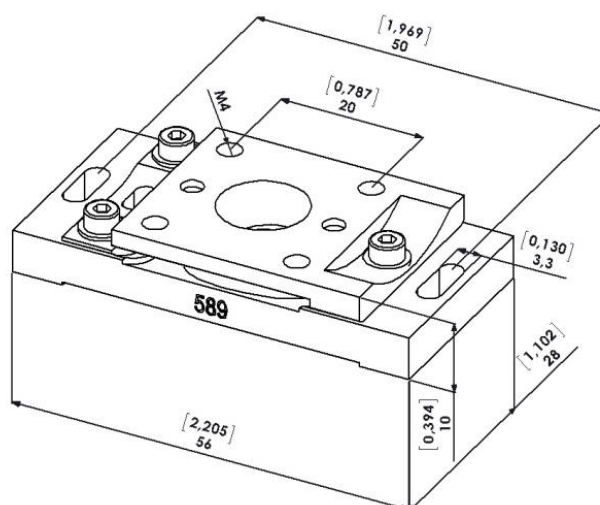
(für optische Komponenten □ 28)

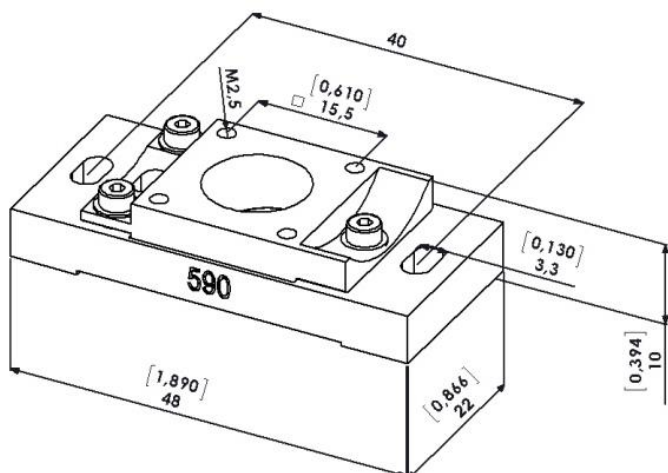
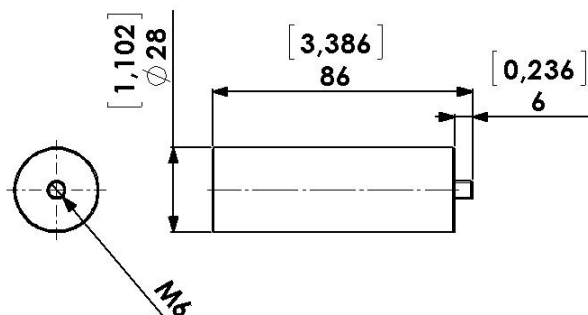
Adjustable mount 589

(for optical components □ 28)

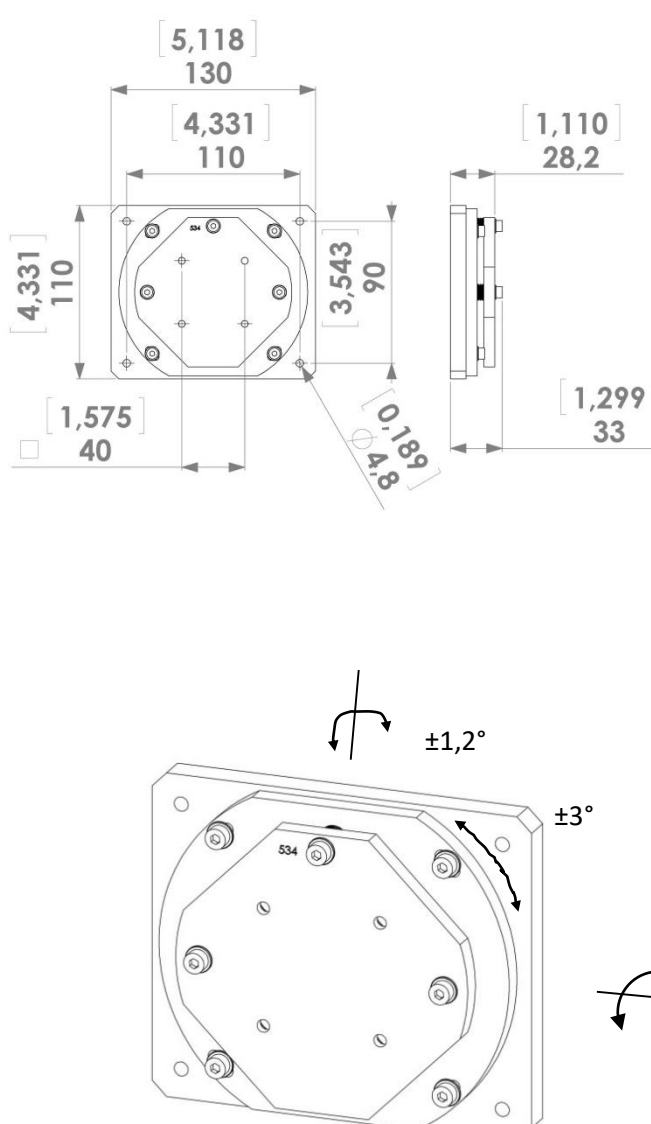
Anzahl Freiheitsgrade:
No. of degrees of freedom: 2

Masse [g] / Weight : 70,1

Bestell-Nr. / Order No.:
269302 – 4009 . 125

Justieraufnahme 590 (für optische Komponenten □ 20) <i>Adjustable mount 590</i> <i>(for optical components □ 20)</i>		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	2	
Masse [g] / Weight :	49,8	
Bestell-Nr. / Order No.: 269302 – 4009 . 225		
		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>	-	
Masse [g] / Weight :	380	
Bestell-Nr. / Order No.: 269302 – 4000 . 310		

Justieraufnahme 534 <i>Adjustable mount 534</i>		
Anzahl Freiheitsgrade: <i>No. of degrees of freedom:</i>		3
Masse [g] / <i>Weight :</i>	2030	
Bestell-Nr. / <i>Order No.:</i> 269302 – 4014 . 226		



Technical drawing of the adjustable mount 534, showing dimensions and degrees of freedom.

Top View Dimensions:

- Outer square: 5,118 mm
- Inner square: 4,331 mm
- Hole spacing: 110 mm
- Hole diameter: 3,543 mm
- Central hole: 0,189 mm
- Base width: 1,575 mm
- Base thickness: 40 mm

Side View Dimensions:

- Height: 28,2 mm
- Base width: 1,299 mm
- Base thickness: 33 mm

Adjustability (Degrees of Freedom):

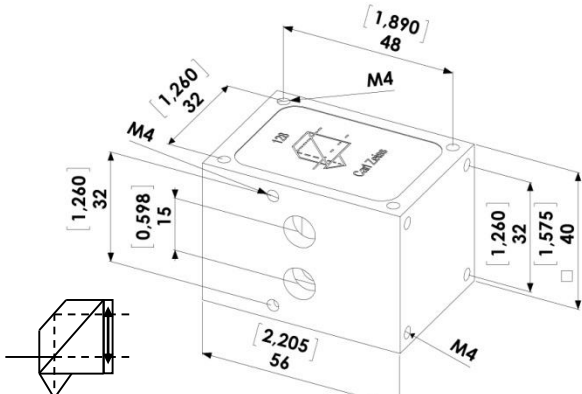
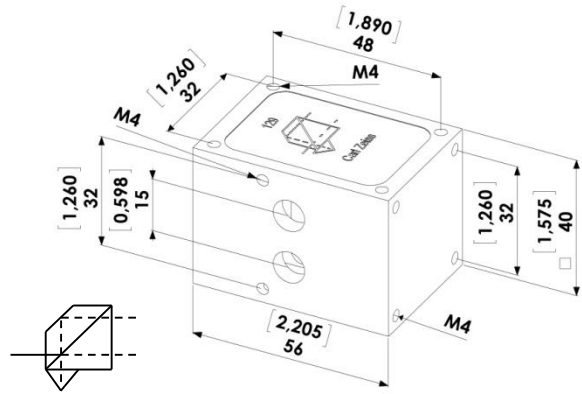
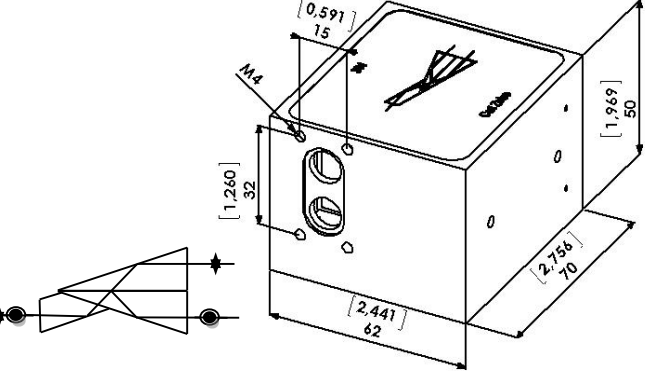
- Rotation around vertical axis: $\pm 1,2^\circ$
- Rotation around horizontal axis: $\pm 3^\circ$
- Rotation around diagonal axis: $\pm 0,7^\circ$

I. Interferometers – Interferometers, Compact interferometers, Assembly sets and Fiber optics interferometers

Interferometer (Standard)

Interferometers (standard)

I. Interferometer – Interferometer, Kompaktinterferometer. Bausätze und Lichtschlauchinterferometer

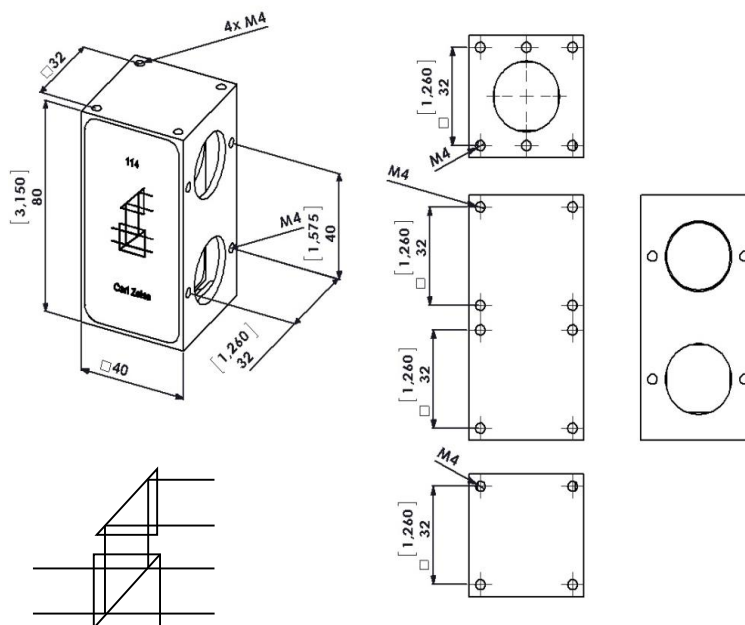
Geradheitsinterferometer 128 <i>Straightness Interferometer 128</i> <table border="1"> <tr> <td>Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i></td> <td>6</td> </tr> <tr> <td>Masse [g] / Weight :</td> <td>383,8</td> </tr> <tr> <td colspan="2">Bestell-Nr. / Order No.: 269302 – 4012 . 824</td> </tr> </table>	Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6	Masse [g] / Weight :	383,8	Bestell-Nr. / Order No.: 269302 – 4012 . 824						
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6										
Masse [g] / Weight :	383,8										
Bestell-Nr. / Order No.: 269302 – 4012 . 824											
Geradheitsinterferometer 129 <i>Straightness Interferometer 129</i> <table border="1"> <tr> <td>Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i></td> <td>6</td> </tr> <tr> <td>Masse [g] / Weight :</td> <td>378,5</td> </tr> <tr> <td colspan="2">Bestell-Nr. / Order No.: 269302 – 4013 . 024</td> </tr> </table>	Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6	Masse [g] / Weight :	378,5	Bestell-Nr. / Order No.: 269302 – 4013 . 024						
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6										
Masse [g] / Weight :	378,5										
Bestell-Nr. / Order No.: 269302 – 4013 . 024											
Parallelinterferometer 301 <i>Parallel interferometer 301</i> <table border="1"> <tr> <td>unmagnetisierbar / hochvakuumverträglich /</td> <td>non-magnetisable fit for high vacuum</td> </tr> <tr> <td>Masse [g] / Weight :</td> <td>971,3</td> </tr> <tr> <td colspan="2">Bestell-Nr. / Order No.: 269302 – 4013 . 324</td> </tr> <tr> <td>Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i></td> <td>6 mm *(A) 3 mm **(B)</td> </tr> <tr> <td colspan="2">Erweiterungsmodule: <i>Extension modules:</i></td> </tr> </table>	unmagnetisierbar / hochvakuumverträglich /	non-magnetisable fit for high vacuum	Masse [g] / Weight :	971,3	Bestell-Nr. / Order No.: 269302 – 4013 . 324		Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6 mm *(A) 3 mm **(B)	Erweiterungsmodule: <i>Extension modules:</i>		
unmagnetisierbar / hochvakuumverträglich /	non-magnetisable fit for high vacuum										
Masse [g] / Weight :	971,3										
Bestell-Nr. / Order No.: 269302 – 4013 . 324											
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6 mm *(A) 3 mm **(B)										
Erweiterungsmodule: <i>Extension modules:</i>											

Winkelinterferometer 114
Angle interferometer 114
Max. Strahldurchmesser:

6

Max. beam diameter [mm]:
Masse [g] / Weight :

406

Bestell-Nr. / Order No.:
269302 – 4015 . 324

Vibrationsvorsatzlinse 320
Vibrometer ancillary lens 320
Brennweite [mm]:

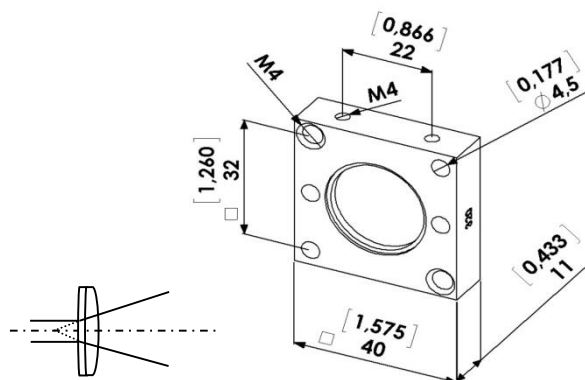
200

Focal distance:
Masse [g] / Weight :

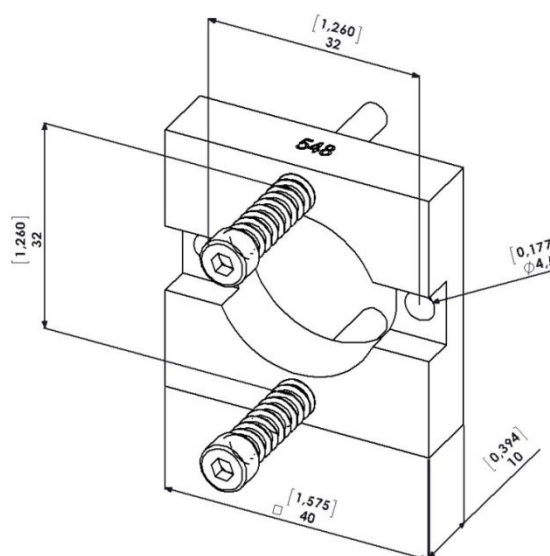
92,6

Bestell-Nr. / Order No.:
269302 – 4006 . 424
Max. Strahldurchmesser:

18

Max. beam diameter [mm]:

Vibrometereinstellplatte 548
Vibrometer adjusting plate 548
Masse [g] / Weight :

80,4

Bestell-Nr. / Order No.:
269302 – 4006 . 425


Winkelreflektor 2m 109

Angle reflector 2m 109

Max. Strahldurchmesser:

6

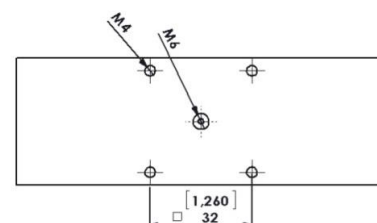
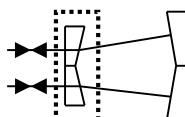
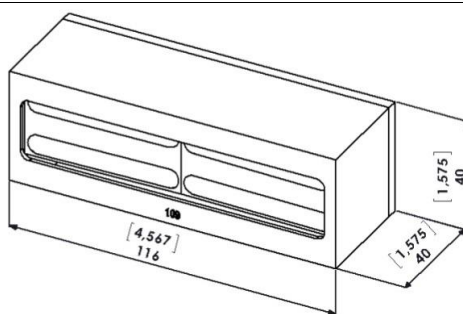
Max. beam diameter [mm]:

Masse [g] / Weight :

681

Bestell-Nr. / Order No.:**269302 – 4010 . 924**

Nur in Verbindung mit
Doppelkeil 2m 108 nutzbar.
Only useable with
Double wedge 2m 108.

**Doppelkeil 2m 108**

Double wedge 2m 108

Max. Strahldurchmesser:

6

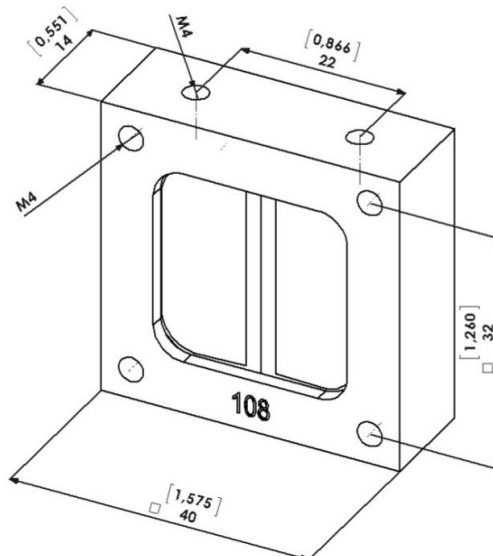
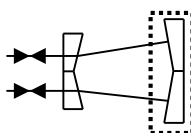
Max. beam diameter [mm]:

Masse [g] / Weight :

104

Bestell-Nr. / Order No.:**269302 – 4017 . 124**

Nur in Verbindung mit
Winkelreflektor 2m 109 nutzbar
Only useable with
Angle reflector 2m 109

**Winkelreflektor 10m 113**

Angle reflector 10m 113

Max. Strahldurchmesser:

6

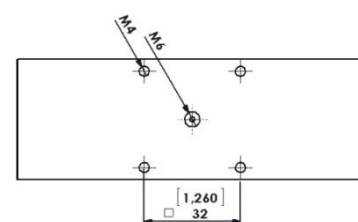
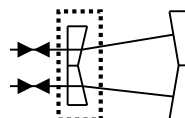
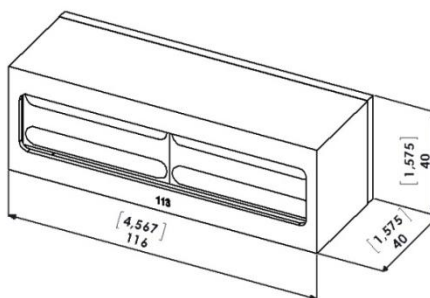
Max. beam diameter [mm]:

Masse [g] / Weight :

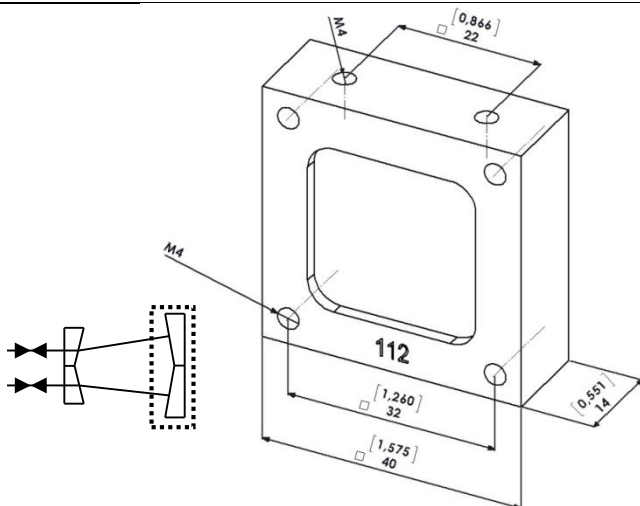
684

Bestell-Nr. / Order No.:**269302 – 4011 . 324**

Nur in Verbindung mit
Doppelkeil 10m 112 nutzbar
Only useable with
Double wedge 10m 112



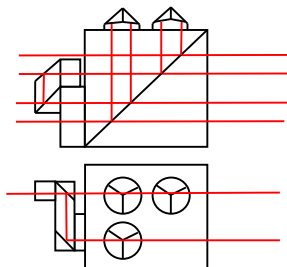
Doppelkeil 10m 112 <i>Double wedge 10m 112</i>	
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>	6
Masse [g] / Weight :	104
Bestell-Nr. / Order No.: 269302 – 4017 . 224	
Nur in Verbindung mit Winkelreflektor 10m 113 nutzbar <i>Only useable with Angle reflector 10m 113</i>	



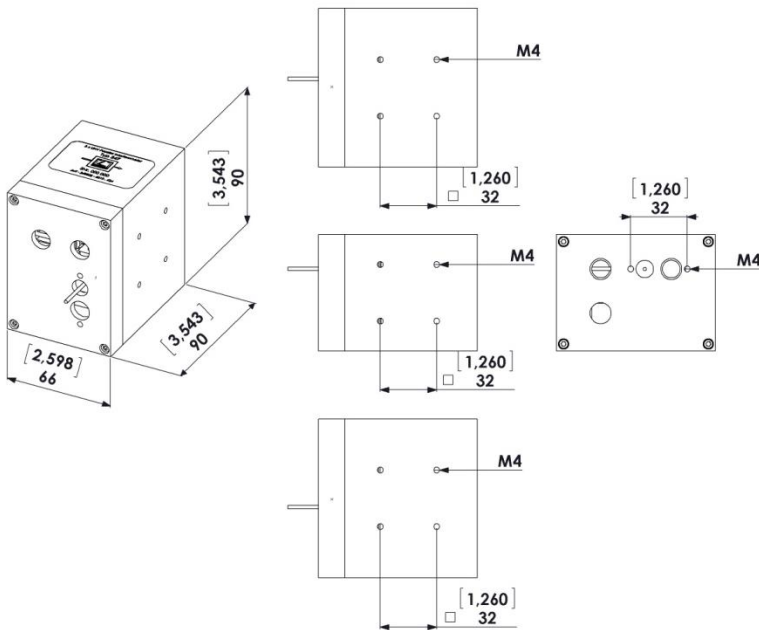
Kompaktinterferometer

Compact interferometers

3 - Achs - Kompaktinterferometer 347 (für Tripelspiegel) 3 - Axes compact interferometer 347 (for triple reflectors)	
Messart: Measurement type:	Position, Gier- & Nickwinkel Position, Yaw & Pitch angle
Max. Strahldurchmesser: Max. beam diameter [mm]:	6
Masse [g] / Weight :	1529
Bestell-Nr. / Order No.: 269302 - 5010 . 524	



für Retroreflektoren
for triple reflectors



3 - Achs - Kompaktinterferometer 347 (für Tripelspiegel)
 3 Axes compact interferometer 347 (for triple reflectors)

Messart: Position, Gier- & Nickwinkel

Measurement type: Position, Yaw & Pitch angle

Max. Strahldurchmesser:

Max. beam diameter [mm]:

6

Masse [g] / Weight :

1665

Bestell-Nr. / Order No.:

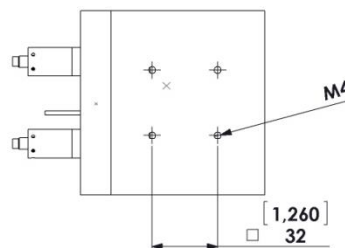
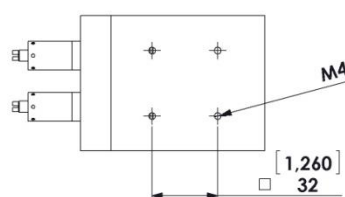
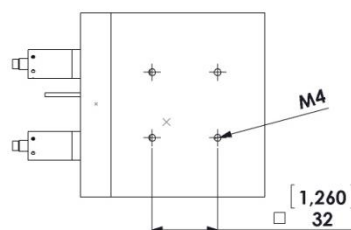
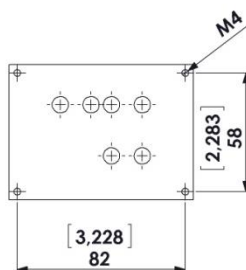
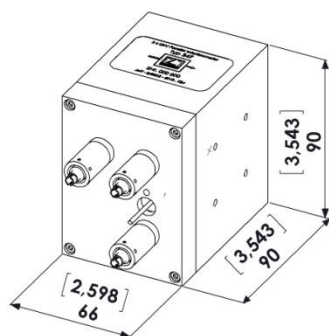
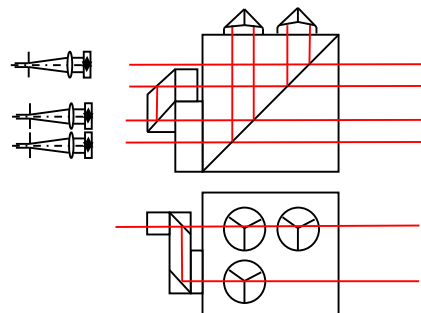
269302 - 5010 . 526

mit drei Anschlüssen für Lichtwellenleiter

with three couplings for fiber optics cables

für Retroreflektoren

for retro reflectors



3 - Achs - Kompakt - Planspiegelinterferometer 348

3 Axes compact plane mirror interferometer 348

Messart: **Position, Gier- & Nickwinkel**
Measurement type: Position, Yaw & Pitch angle
Max. Strahldurchmesser:

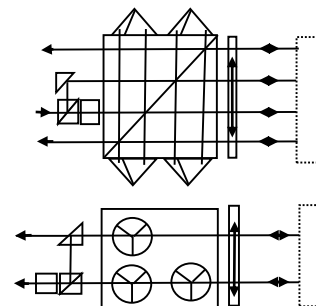
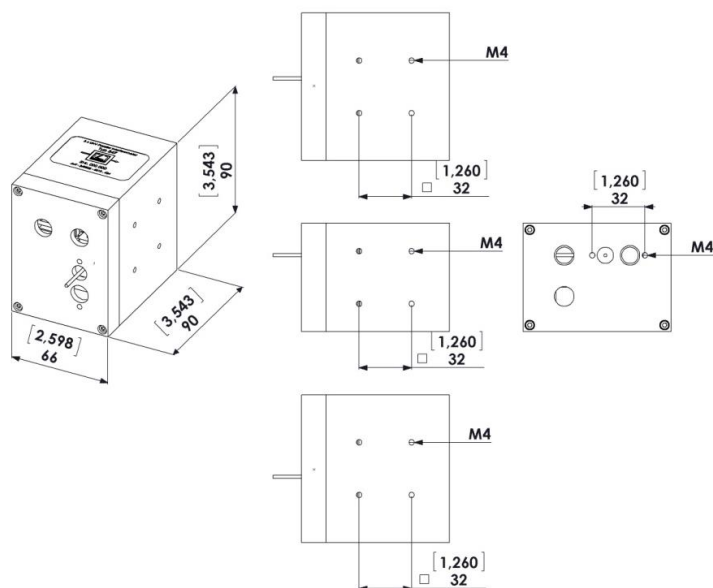
6

Max. beam diameter [mm]:
Masse [g] / Weight :

1596

Bestell-Nr. / Order No.:

269302 - 5010 . 624



3 - Achs - Kompakt - Planspiegel - Interferometer 348 (mit Faserauskopplung)

3 Axes compact plane mirror interferometer 348 (with fiber coupling)

Messart: Position, Gier- & Nickwinkel
Measurement type: Position, Yaw & Pitch angle

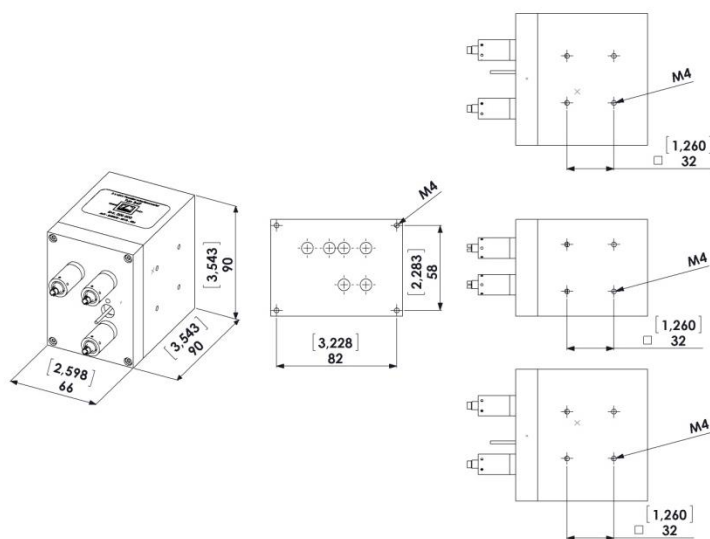
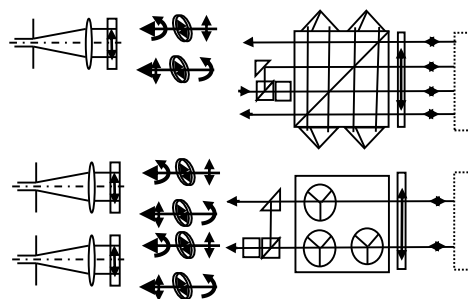
Max. Strahldurchmesser: 6
Max. beam diameter [mm]:

Masse [g] / Weight : 1696

Bestell-Nr. / Order No.:
 269302 - 5010 . 626

mit drei Anschlüssen für Lichtwellenleiter

with three couplings for fiber optics cables



2D - Achs - Kompakt – IF386

2D Axes Compact IF386

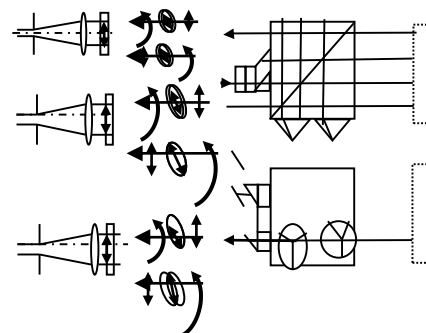
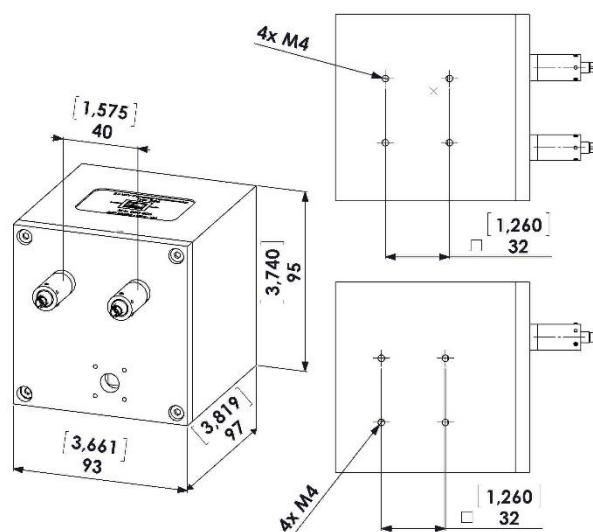
Messart: Position, Nickwinkel

Measurement type: Position, Yaw angle
Max. Strahldurchmesser: 6

Max. beam diameter [mm]:
Masse [g] / Weight : 3541

Bestell-Nr. / Order No.:

269302 - 5093 . 124

Mit zwei Anschlüssen für Lichtwellenleiter
with two couplings for fiber optics cables


2D - Planspiegel – IF387

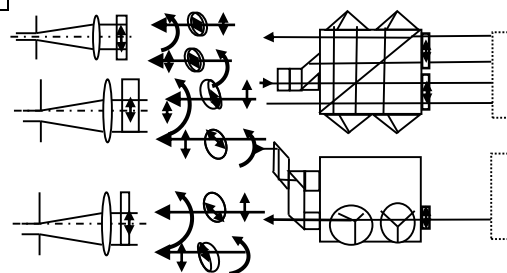
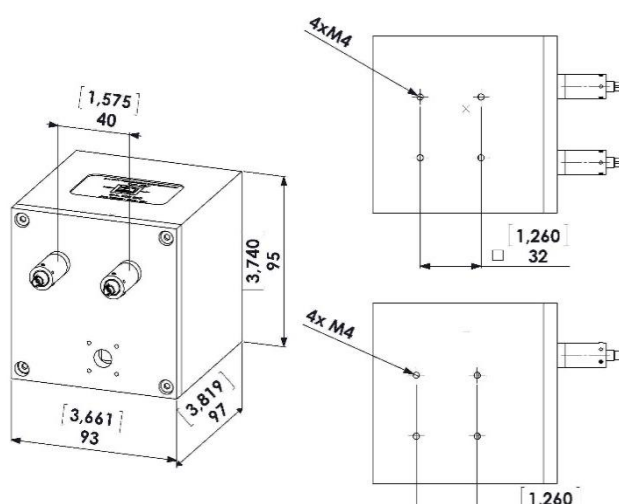
2D Plane mirror IF387

Messart: **Position, Nickwinkel**
Measurement type: Position, Yaw angle
Max. Strahldurchmesser: 6

Max. beam diameter [mm]:
Masse [g] / Weight : 3544

Bestell-Nr. / Order No.:

269302 - 5093 . 424

Mit zwei Anschlüssen für Lichtwellenleiter
with two couplings for fiber optics cables


3D - Kompakt – IF385

3D compact IF385

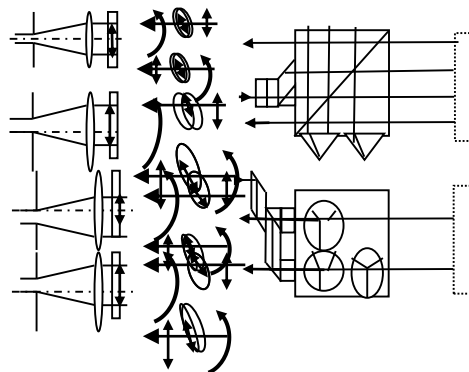
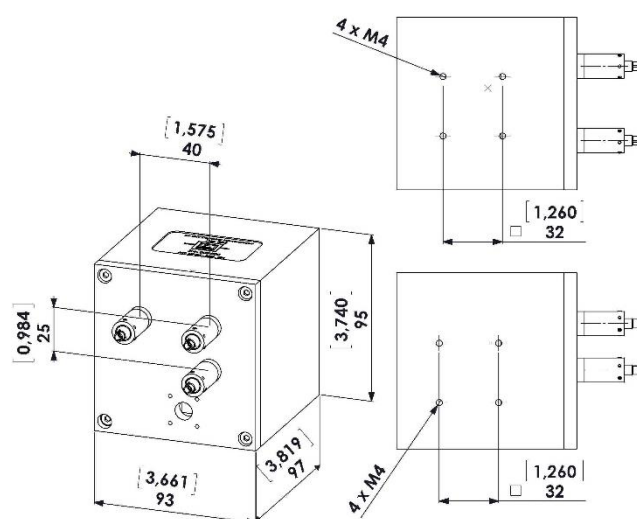
Messart: Position, Nick- & Gierwinkel

Measurement type: Position, pitch- & yaw angle
Max. Strahldurchmesser: 6

Max. beam diameter [mm]:
Masse [g] / Weight : 3573

Bestell-Nr. / Order No.:

269302 - 5093 . 024

Mit drei Anschlüssen für Lichtwellenleiter
with three couplings for fiber optics cables


3D - Planspiegel – IF388

3D Pane mirror IF388

Messart: **Position, Nick- & Gierwinkel**

Measurement type: Position, pitch-& yaw angle

Max. Strahldurchmesser: 6
Max. beam diameter [mm]:

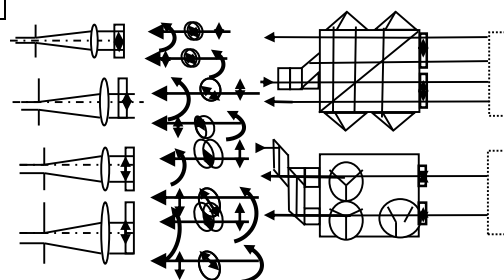
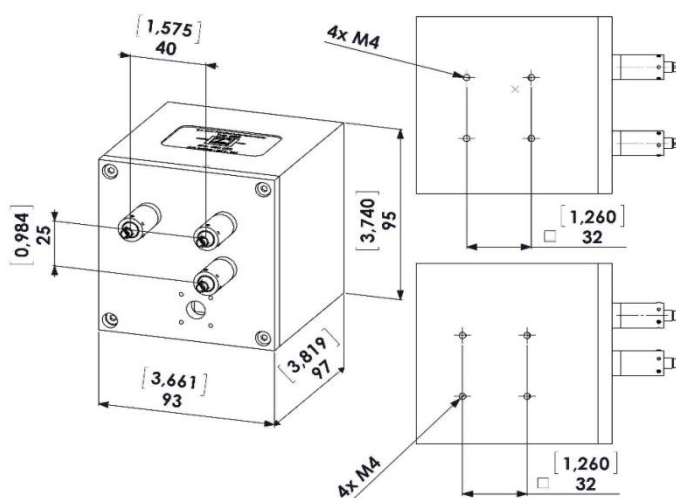
Masse [g] / Weight : 3577

Bestell-Nr. / Order No.:

269302 - 5093 . 324

Mit drei Anschlüssen für Lichtwellenleiter

with three couplings for fiber optics cables



Parallel - Planspiegelinterferometer 352

Parallel plane mirror interferometer 352

Messart: **Position, Gier- oder**
Measurement type: **Nickwinkel**
Position, Yaw or Pitch angle

Masse [g] / Weight : 228,6

Bestell-Nr. / Order No.:

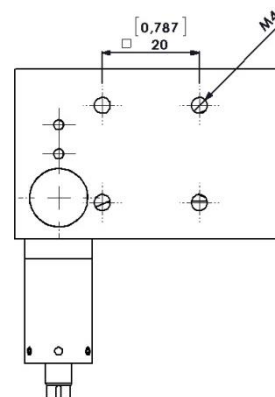
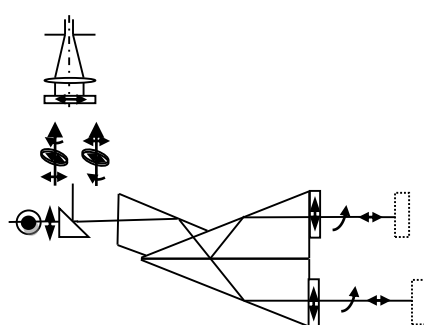
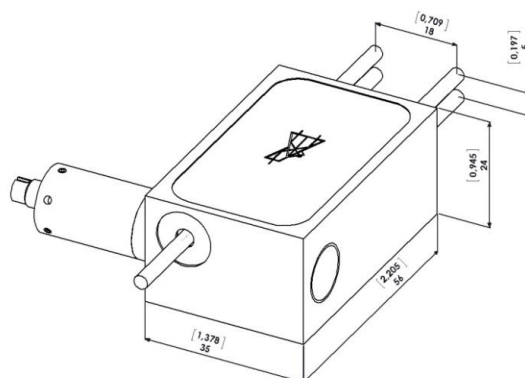
269302 - 4002 . 324

für 3 mm Strahldurchmesser;

mit Anschluss für Lichtwellenleiter

for 3mm beam diameter;

with one coupling for fiber optic cables



Parallel Planspiegelinterferometer 356

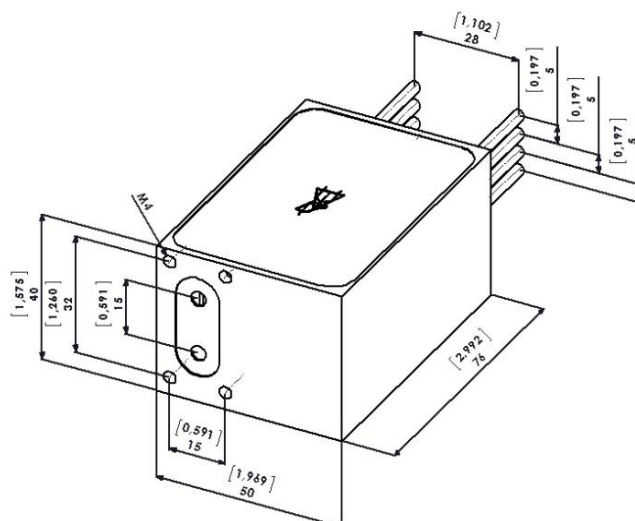
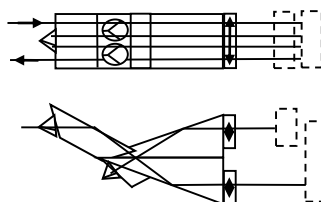
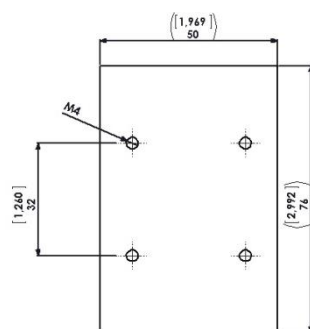
Parallel plane mirror interferometer 356

Messart: Position & Gierwinkel
Measurement type: Position & Yaw angle

Max. Strahldurchmesser: 3
Max. beam diameter [mm]:

Masse [g] / Weight : 477,2

Bestell-Nr. / Order No.:
 269302 - 4019 . 024



Parallel-Planspiegelinterferometer 358

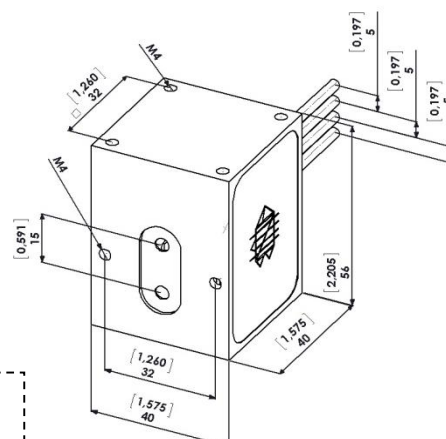
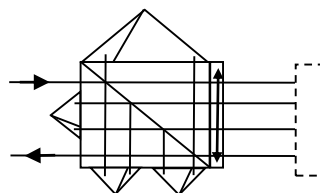
Parallel plane mirror interferometer 358

Messart: Position & Gierwinkel
Measurement type: Position & Yaw angle

Max. Strahldurchmesser: 3
Max. beam diameter [mm]:

Masse [g] / Weight : 310,1

Bestell-Nr. / Order No.:
 269302 - 4005 . 524



3 - Achs-Kompakt-Planspiegelinterferometer 360

3 - Axes compact plane mirror interferometer 360

Messart: Position, Nick- und Gierwinkel

Measurement type: Position, Yaw- and Pitch angle

Masse [g] / Weight : 800

Bestell-Nr. / Order No.:

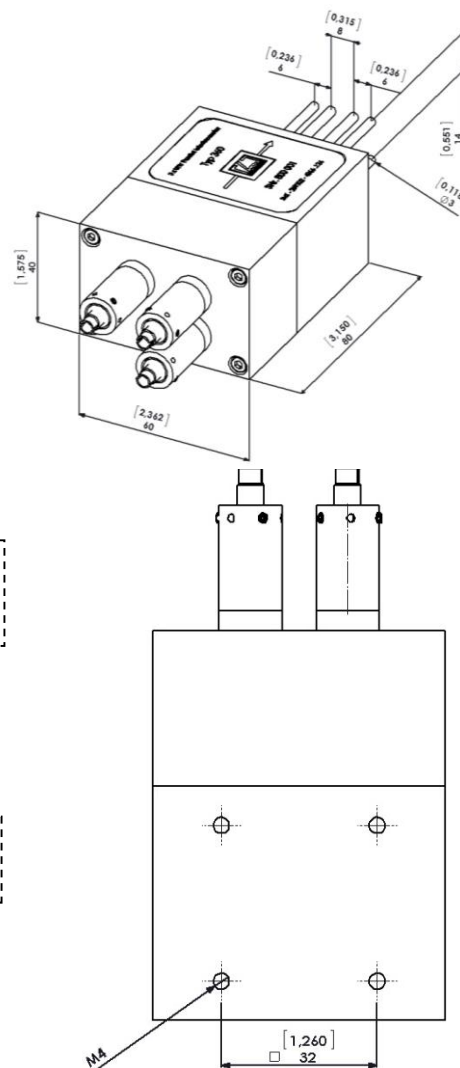
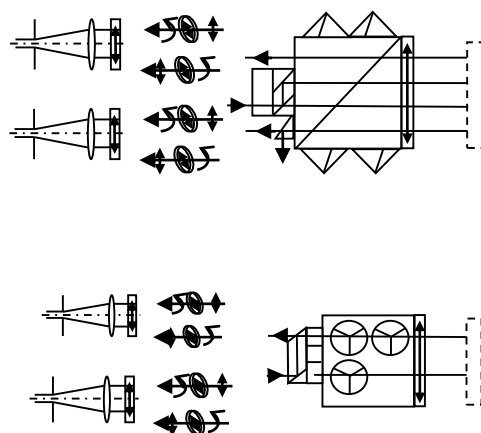
269302 - 4066 . 124

mit drei Anschlüssen für Lichtwellenleiter

(für 3 mm Strahldurchmesser)

with three couplings for fiber optic cables

(for 3mm beam diameter)



2 - Achs- Kompakt- Planspiegelinterferometer 362
 2 - Axes compact plane mirror interferometer 362

Messart: Position & Gierwinkel

Measurement type: Position & Yaw angle

Masse [g] / Weight : 580

Bestell-Nr. / Order No.:

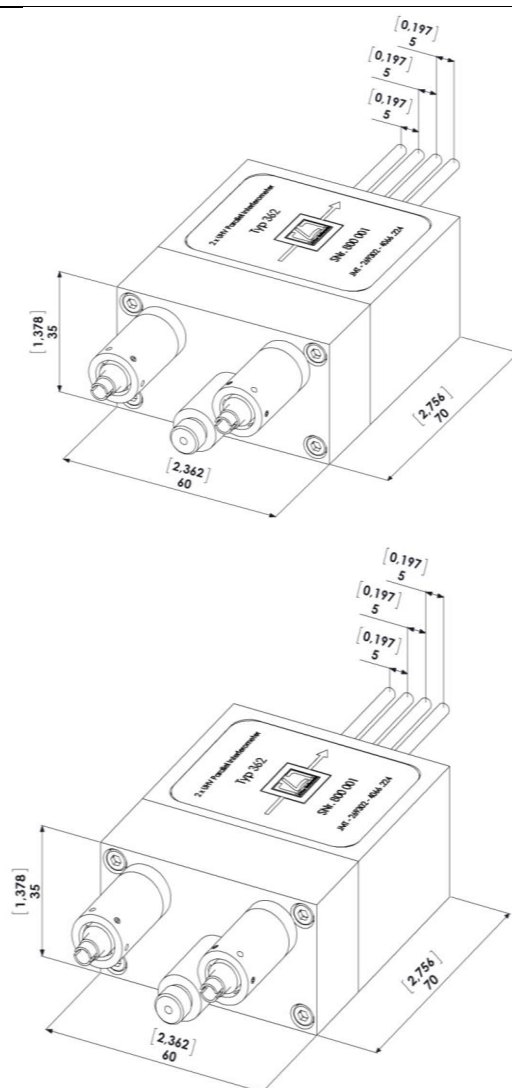
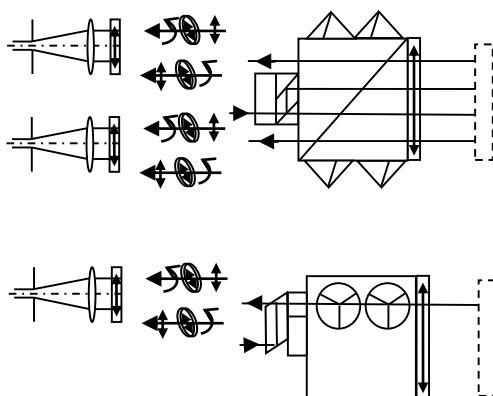
269302 - 4066 . 224

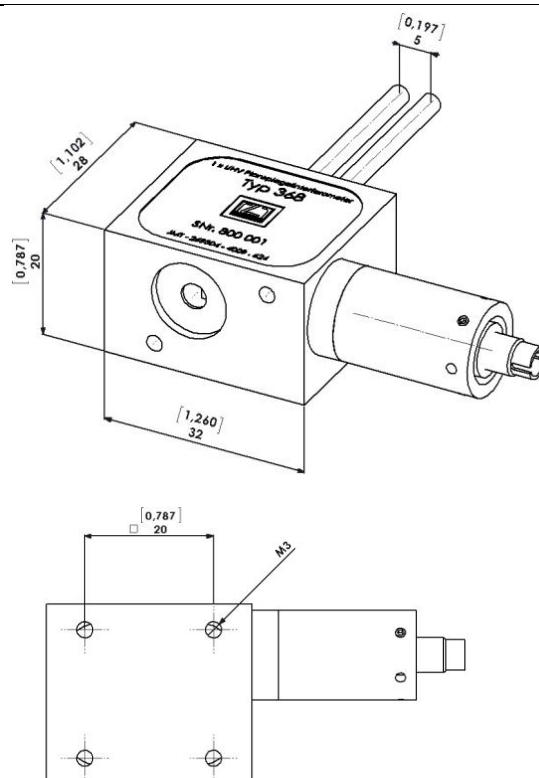
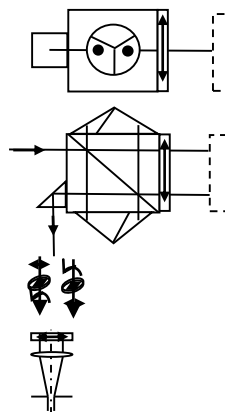
mit zwei Anschlüssen für Lichtwellenleiter

(für 3 mm Strahldurchmesser)

with two couplings for fiber optic cables

(for 3mm beam diameter)



Planspiegelinterferometer 368
Plane mirror interferometer 368
Messart: Position
Measurement type: Position
Max. Strahldurchmesser:
3
Max. beam diameter [mm]:
Masse [g] / Weight :
101,6
Bestell-Nr. / Order No.:
269302 - 4009 . 624
mit Anschluss für Lichtwellenleiter
with coupling for fiber optic cable


2- Achs- Kompakt- Planspiegelinterferometer 370

2 Axes compact plane mirror interferometer 370

Messart: Position & Gierwinkel

Measurement type: Position & Yaw angle

Max. Strahldurchmesser: 6

Max. beam diameter [mm]:

6

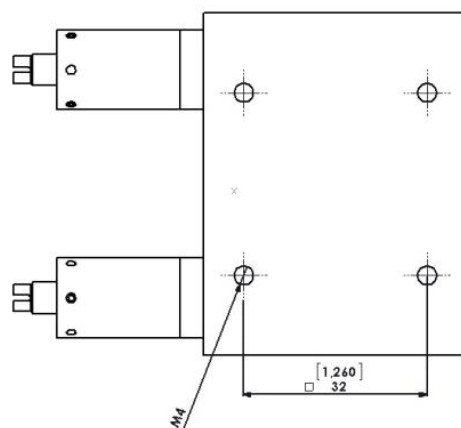
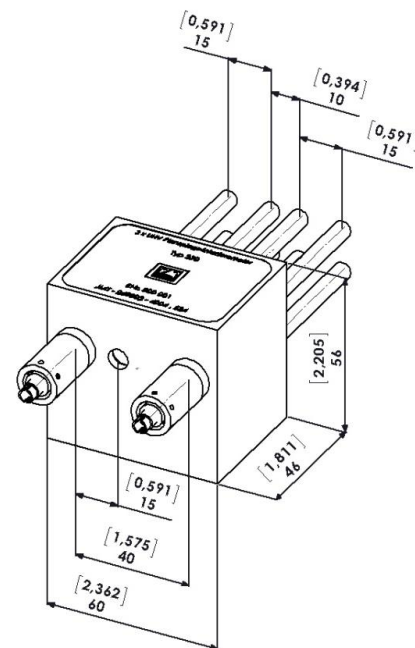
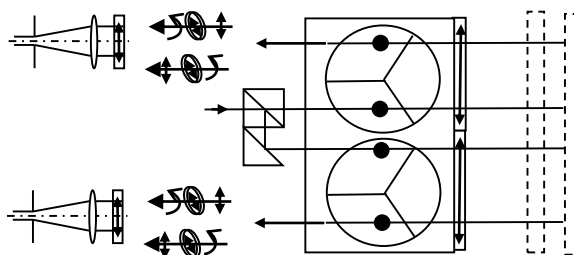
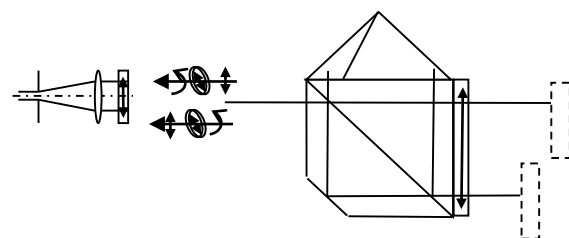
Masse [g] / Weight : 693,1

Bestell-Nr. / Order No.:

269302 - 4004 . 524

mit Anschluss für Lichtwellenleiter

with coupling for fiber optic cables



Kompakt – Planspiegelinterferometer 390

Compact plane mirror interferometer 390

Messart: Position & Gierwinkel

Measurement type: Position & Yaw angle

Max. Strahldurchmesser: 6

Max. beam diameter [mm]:

6

Masse [g] / Weight :

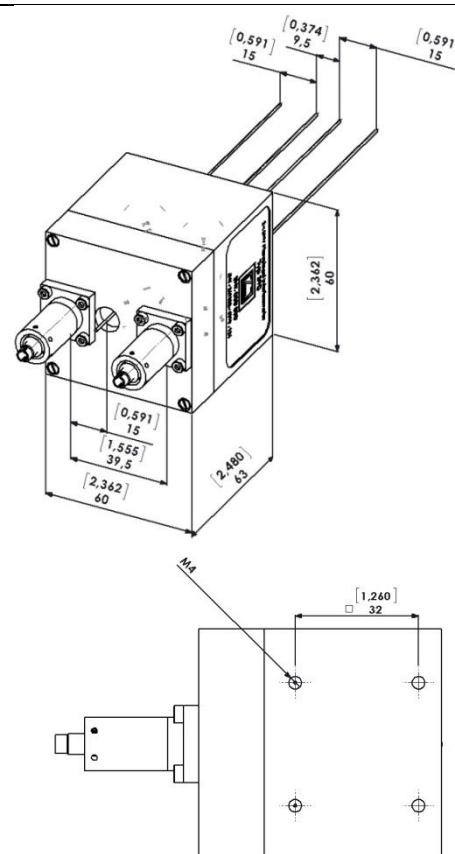
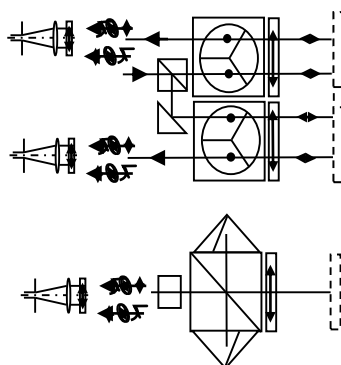
713,3

Bestell-Nr. / Order No.:

269302 - 5010 . 124

mit Anschluss für Lichtwellenleiter

with coupling for fiber optic cables



Parallelinterferometer 608

Parallel interferometer 608

Messart: Position, Gierwinkel

Measurement type: Position, Yaw angle

Max. Strahldurchmesser: 6

Max. beam diameter [mm]:

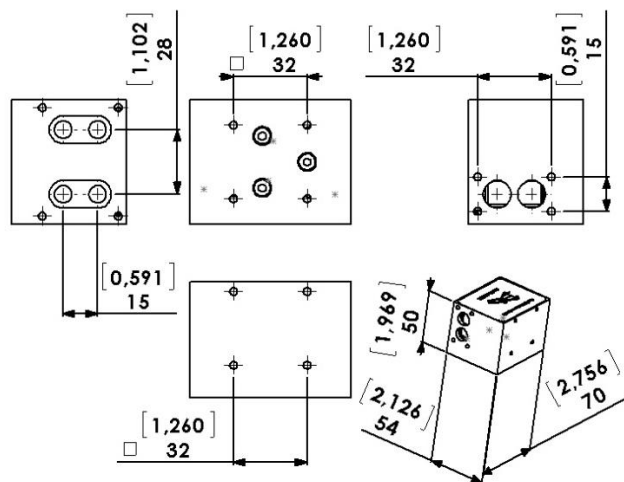
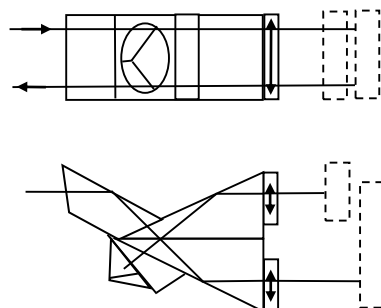
6

Masse [g] / Weight :

810

Bestell-Nr. / Order No.:

269302 - 4009 . 024



Parallelinterferometer 608 (mit LWL Einkoppelung)

Parallel interferometer 608 (with fiber optics coupling)

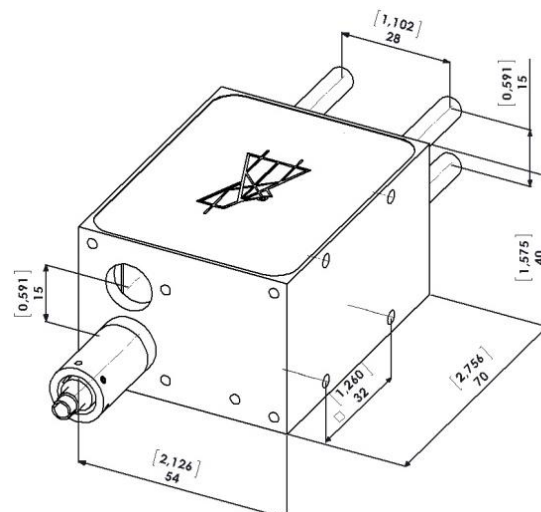
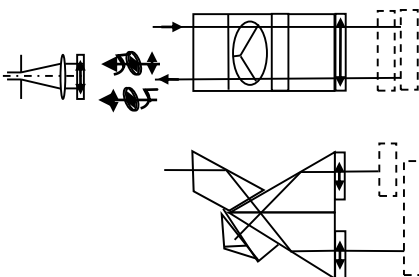
Messart: Position, Gierwinkel
Measurement type: Position, Yaw angle

Max. Strahldurchmesser: 6
Max. beam diameter [mm]:

Masse [g] / Weight : 810

Bestell-Nr. / Order No.:
269302 - 4009 . 524

mit LWL-Einkopplung
with fiber optics coupling


Parallelinterferometer 608 (mit LWL-Einkopplung und variablen Strahlengang)

Parallel interferometer 608 (with fiber optics coupling and variable beam control)

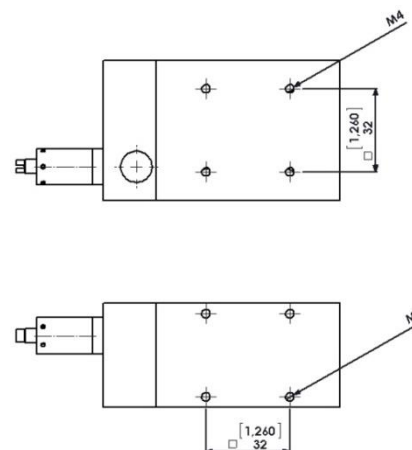
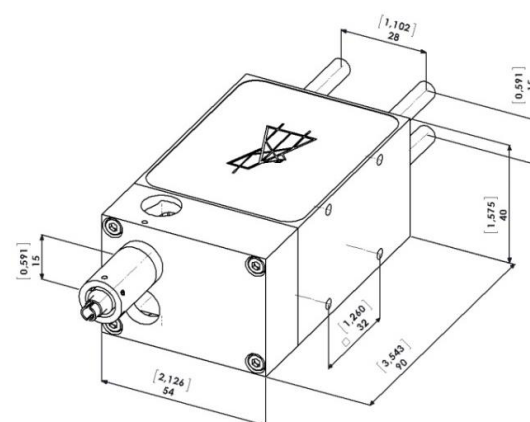
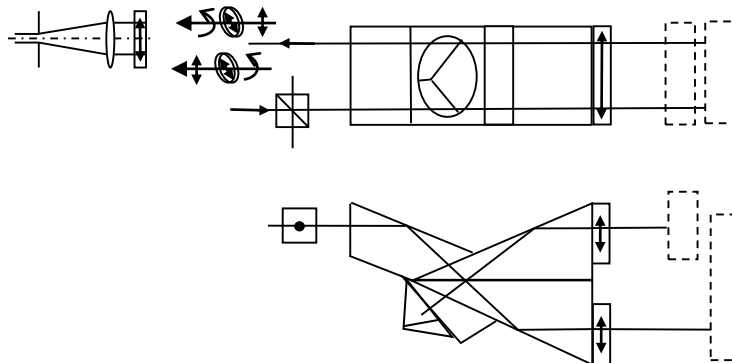
Messart: Position, Gierwinkel
Measurement type: Position, Yaw angle

Max. Strahldurchmesser: 6
Max. beam diameter [mm]:

Masse [g] / Weight : 764,5

Bestell-Nr. / Order No.:
269302 - 4018 . 924 Vn / x : y

mit LWL – Einkopplung
with fiber optics coupling



Dieses Interferometer ist für Mehrachssysteme konzipiert.

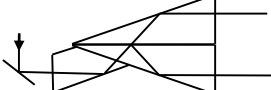
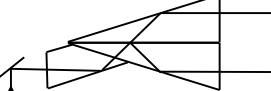
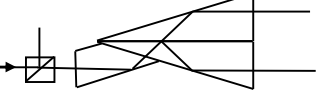
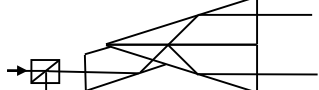
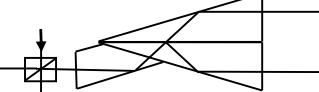
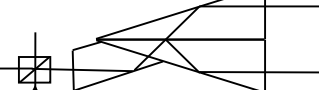
Es bietet verschiedene Möglichkeiten der Laserstrahlführung

Als Intensitätsteiler V3 ... V6 können Strahlungsverhältnisse 1:1, 2:1, 3:1, 1:2 und 1:3 verwendet werden.

This interferometer is designed for multi- axes systems.

It offers several possibilities of laser beam control.

Here are to use beam splitter V3... V6 with the division ratios of 1:1, 2:1, 3:1, 1:2 und 1:3

V1	90° Umlenker links <i>90° beam bender left</i>	
V2	90° Umlenker rechts <i>90° beam bender right</i>	
V3	Intensitätsteiler - geradeaus -links <i>Beam splitter – straight on - left</i>	
V4	Intensitätsteiler - geradeaus -rechts <i>Beam splitter – straight on - right</i>	
V4	Intensitätsteiler - links -rechts <i>Beam splitter – left - right</i>	
V6	Intensitätsteiler - rechts -links <i>Beam splitter – left - left</i>	
Beispiel für Bestellangaben: 269302 – 4018 . 924 V3 / 1:1 <i>Example of order information: 269302 – 4018 . 924 V3 / 1:1</i>		

Bausätze - Interferometer

Assembly sets - Interferometers

Bausatz - (Geradheitsinterferometer 128 + Referenzplanspiegel 540) <i>Assembly set (Straightness Interferometer 128 + Reference cube corner reflector 540)</i>			
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>		6	
Masse [g] / Weight :		414.9	
Bestell-Nr. / Order No.: 269302 - 4012 . 925			

POS-NR.	BENENNUNG Order no.	BESCHREIBUNG	Description	MENGE Quantity
1	269302 - 4012 . 824	Geradheitsinterferometer 128	Straightness interferometer 128	1
2	269302 - 3809 . 624	Referenztripelspiegel 540	Cube corner reflector 540	1
3	000000 - 0004 . 496	ISO 1207 - M4 x 25 --- 25N	screw ISO 1207 - M4 x 25 --- 25N	2

Bausatz Planspiegelinterferometer <i>Assembly set for Plane mirror interferometer</i>			
Max. Strahldurchmesser: <i>Max. beam diameter [mm]:</i>		6	
Masse [g] / Weight :		1123,5	
Bestell-Nr. / Order No.: 269302 - 4061 . 426			

X → 40 m
 Y → 4,5 mm (Tripelreflektor 102)
 (Cube corner reflector 102)
 Y → 15 mm (Tripelreflektor 351)
 (Cube corner reflector 351)

POS-NR.	BENENNUNG Order no.	BESCHREIBUNG	Description	MENGE Quantity
1	269302 - 4010 . 124	Polarisationsteiler 101	Polarizing beam splitter101	1
2	269302 - 4010 . 224	Tripelreflektor 102	Cube corner reflector 102	3
3	269302 - 4010 . 826	Kipphalter 525	Tilttable holder 525	1
4	269302 - 4022 . 124	Spiegelgruppe 130	Mirror group 130	1
5	000000 - 5001 . 118	ISO 1207 - M4 x 8 --- 8N	Screw ISO 1207 - M4 x 8 --- 8N	4
6	269302 - 4011 . 225	Rändelschraube 29	Screw 29	4
7	269302 - 4010 . 424	Lambda / 4 - Platte 104	Quarter wave plate 104	1

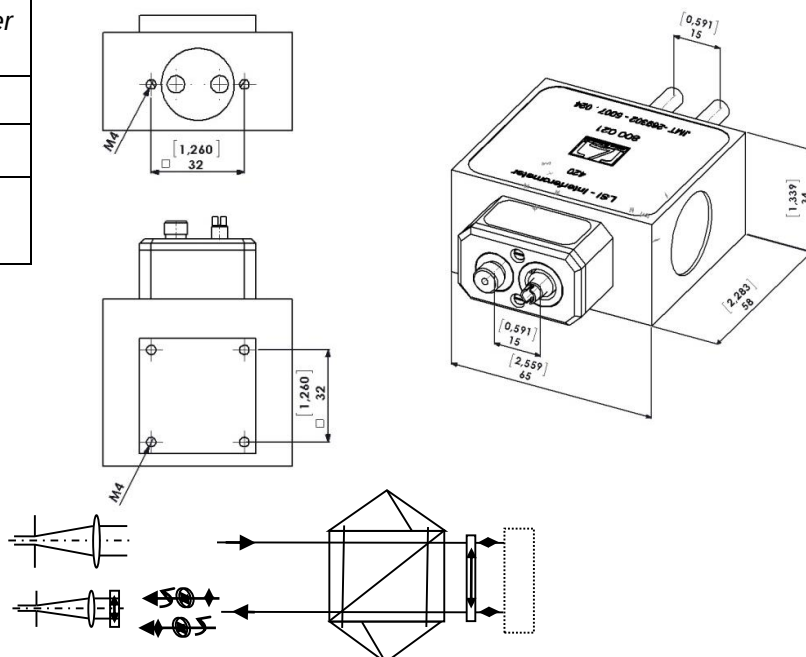
Lichtschlauchinterferometer

Fiber optics interferometers

**LSI 4-fach-Planspiegel-
Interferometer 420 (geradeaus)**
*LSI 4-fold Plane mirror interferometer
 420 (straight)*

Masse [g] / Weight : 162,6

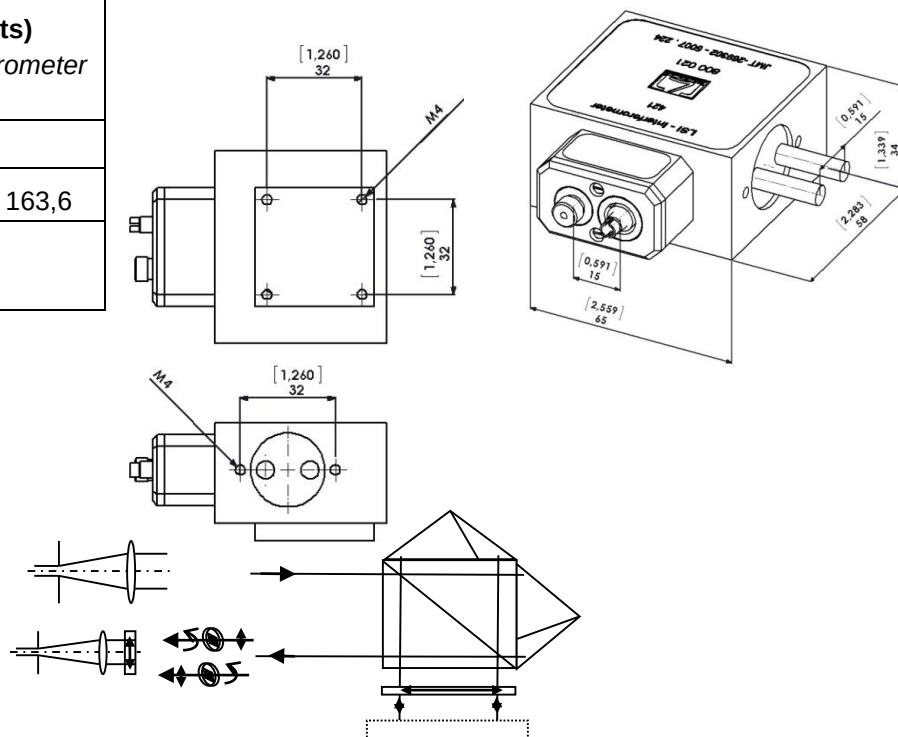
Bestell-Nr. / Order No.:
 269302 – 5007 . 024



**LSI 4-fach-Planspiegel-
Interferometer 421 (90°,rechts)**
*LSI 4-fold Plane mirror interferometer
 421 (90°,right)*

Masse [g] / Weight : 163,6

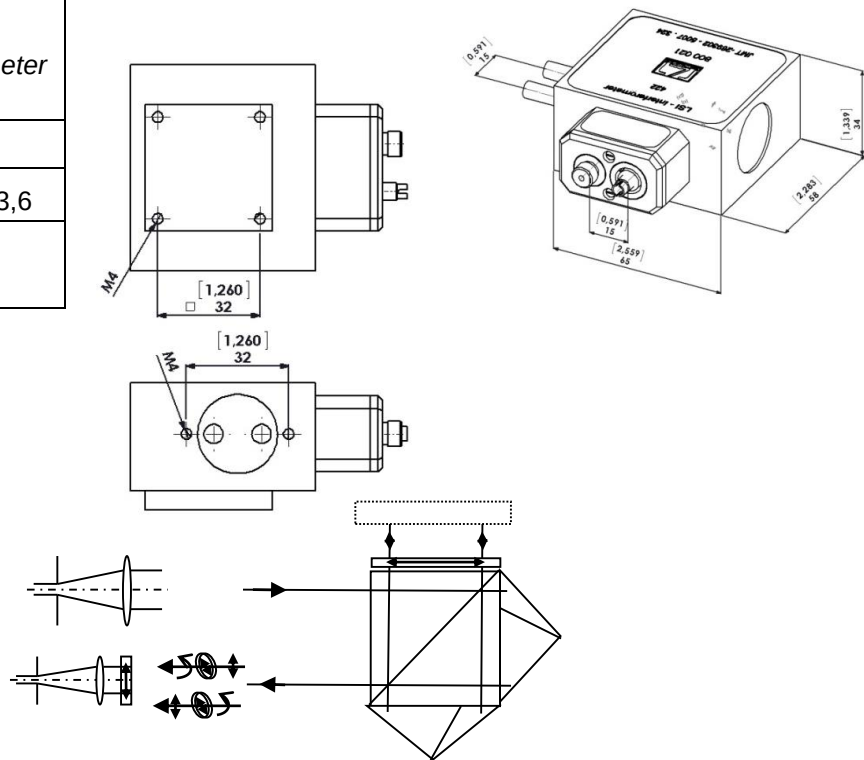
Bestell-Nr. / Order No.:
 269302 – 5007 . 224



**LSI 4-fach-Planspiegel-
Interferometer 422 (90°, links)**
*LSI 4-fold Plane mirror interferometer
 422 (90°, left)*

Masse [g] / Weight : 163,6

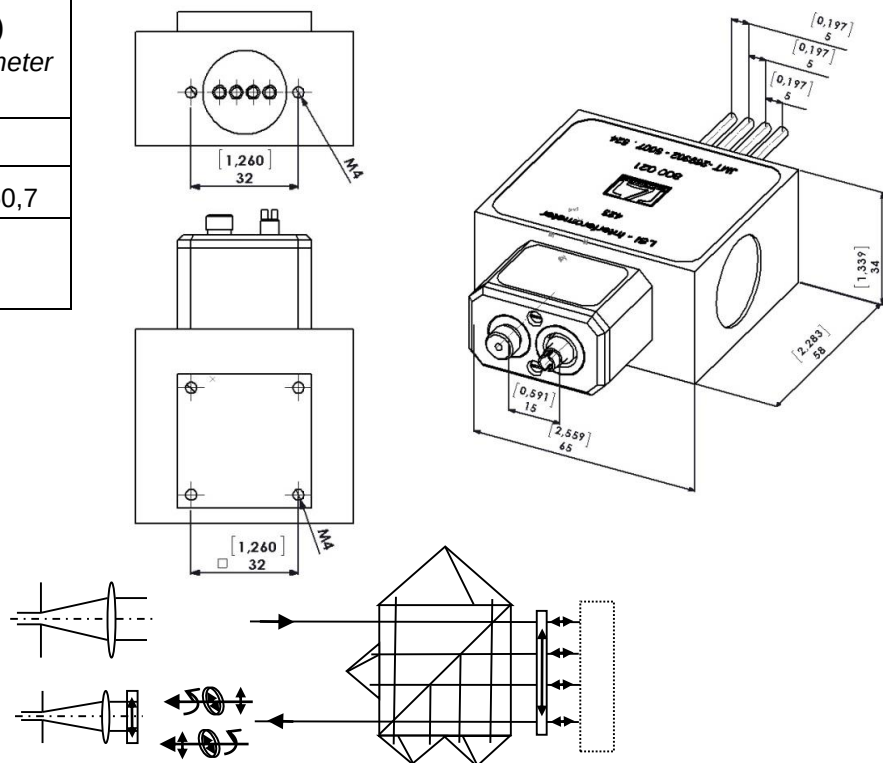
Bestell-Nr. / Order No.:
 269302 – 5007 . 324



**LSI 8-fach-Planspiegel-
Interferometer 423 (geradeaus)**
*LSI 8-fold Plane mirror interferometer
 423 (straight)*

Masse [g] / Weight : 160,7

Bestell-Nr. / Order No.:
 269302 – 5007 . 524

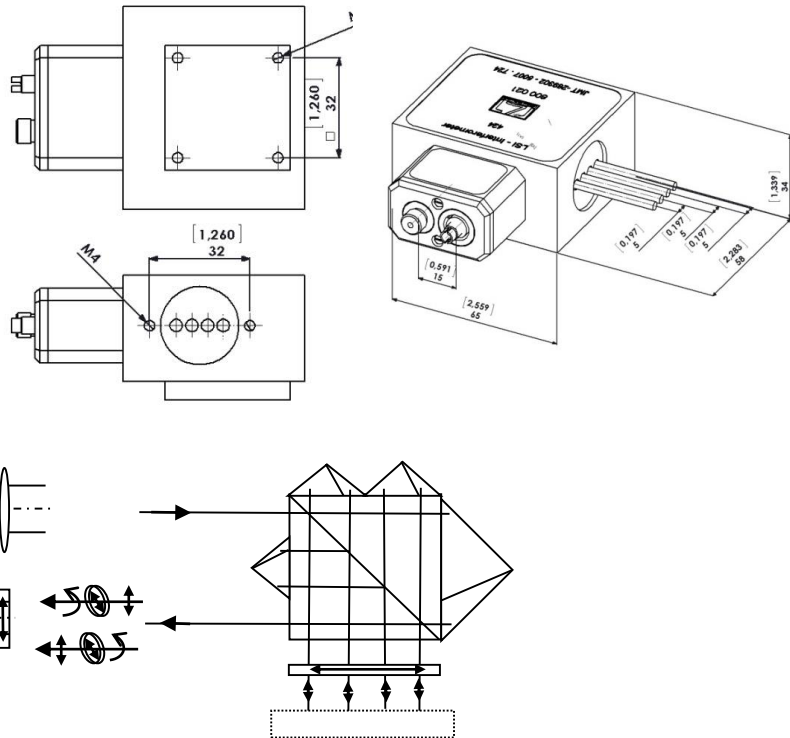


**LSI 8-fach-Planspiegel-
Interferometer 424 (90°, rechts)**

LSI 8-fold Plane mirror interferometer
424 (90°, right)

Masse [g] / <i>Weight :</i>	161,3
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Bestell-Nr. / Order No.:
269302 – 5007 . 724

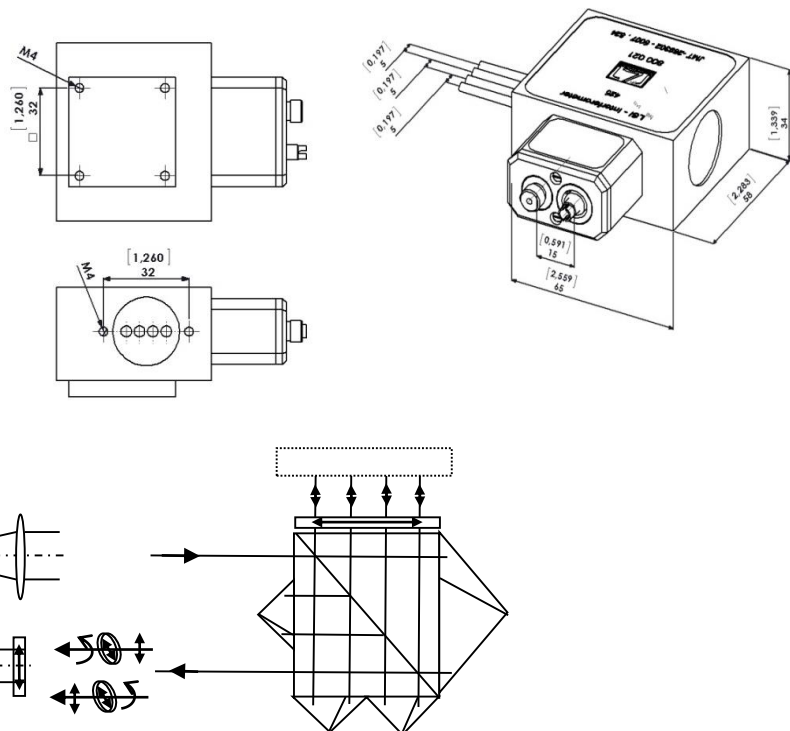


**LSI 8-fach-Planspiegel-
Interferometer 425 (90°, links)**

LSI 8-fold Plane mirror interferometer
425 (90°, left)

Masse [g] /	<i>Weight :</i>	161,3
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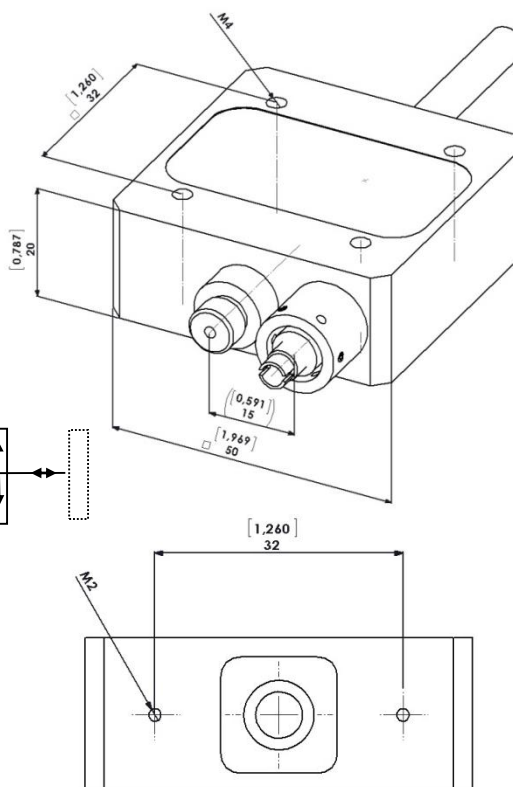
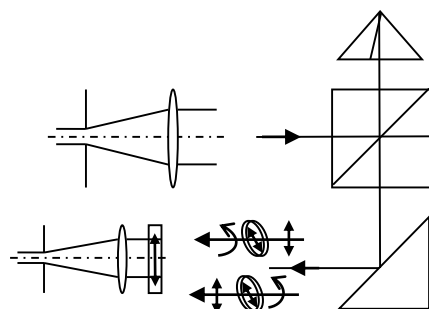
Bestell-Nr. / Order No.:
269302 – 5007 . 824



LSI Einstrahlinterferometer 400
LSI Single beam interferometer 400

Masse [g] / Weight : 264

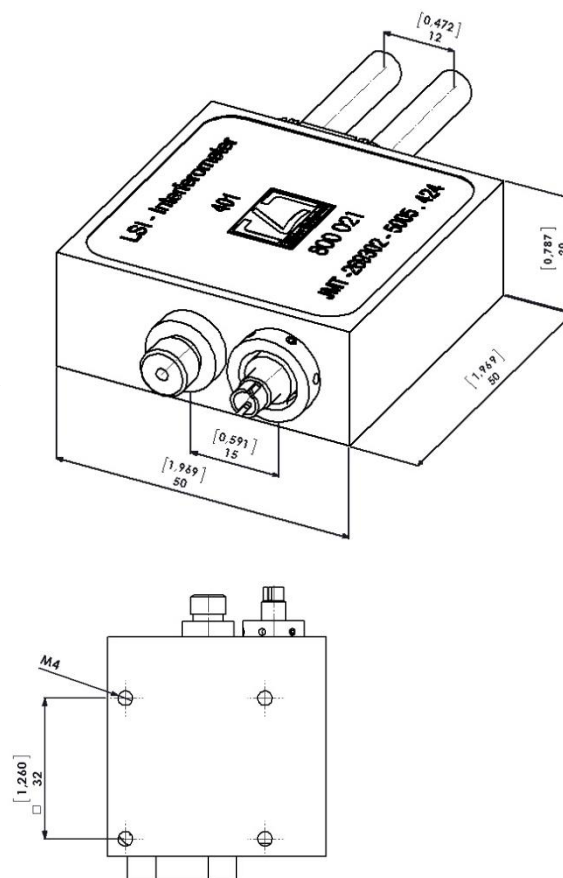
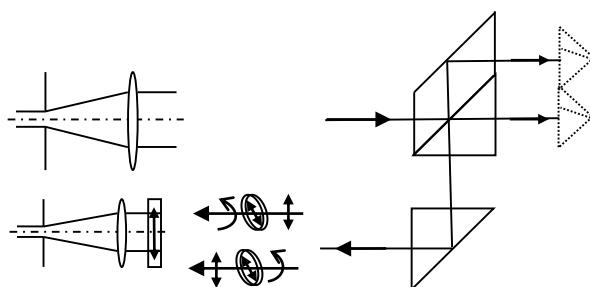
Bestell-Nr. / Order No.:
 269302 - 5012 . 024



LSI Winkel-Interferometer 401
LSI Angle interferometer 401

Masse [g] / Weight : 72,9

Bestell-Nr. / Order No.:
 269302 - 5005 . 424

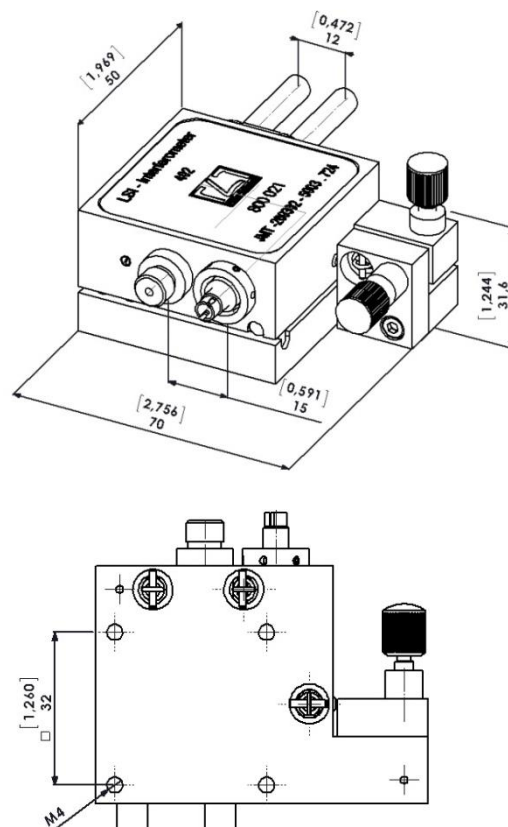
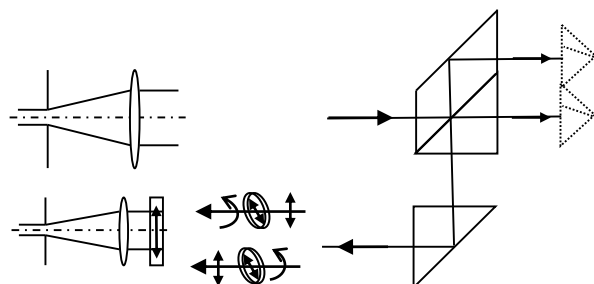


LSI Winkel-Interferometer 402 (stellbar)
LSI Angle interferometer 402 (adjustable)

Masse [g] / Weight : 176,7

Bestell-Nr. / Order No.:

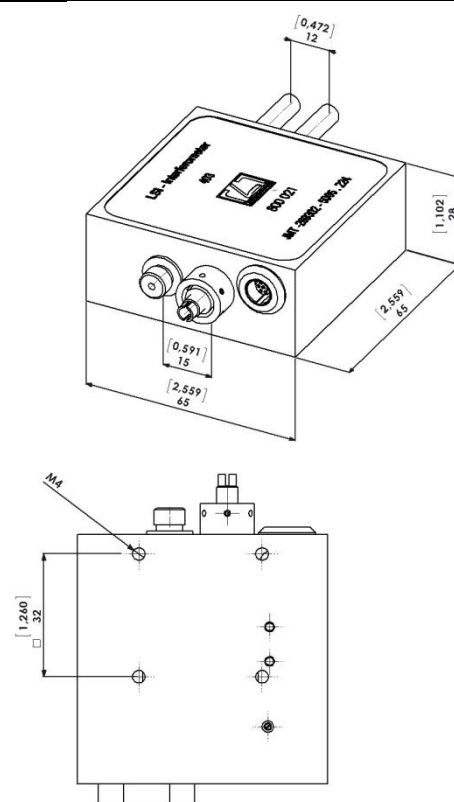
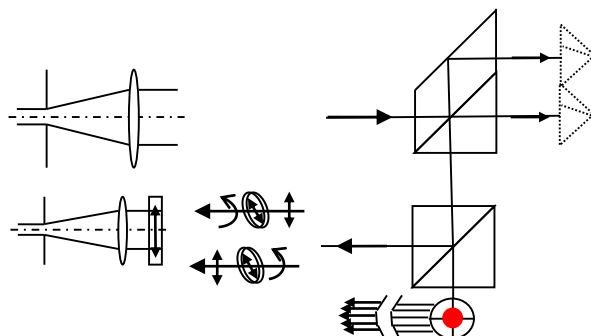
269302 - 5003 . 724


LSI Winkel-Interferometer 403 mit Justiersensor
LSI Angle interferometer 403 sensor for adjusting

Masse [g] / Weight : 123

Bestell-Nr. / Order No.:

269302 - 5005 . 224

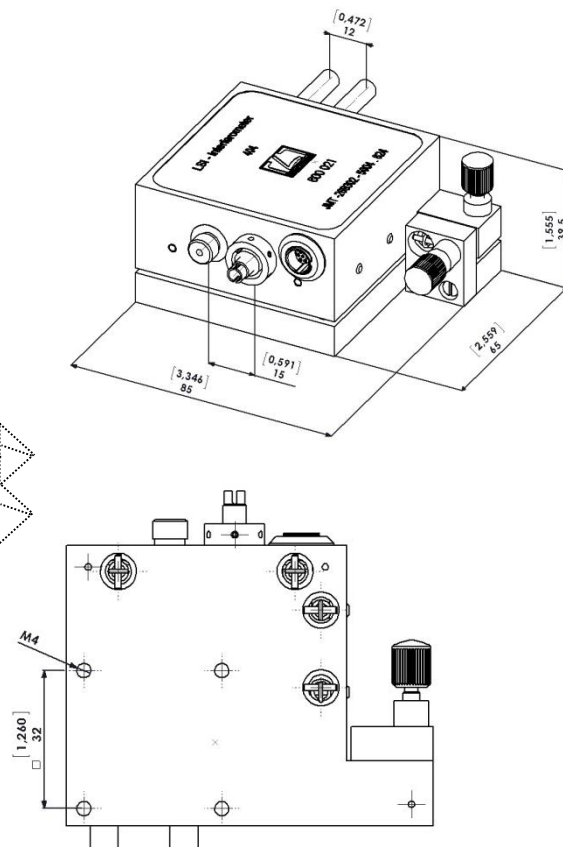
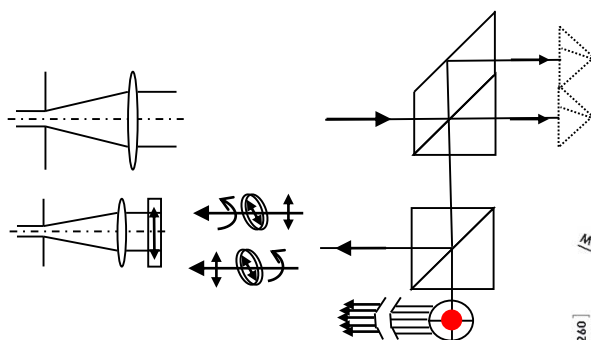


**LSI Winkel-Interferometer 404 mit
Justiersensor, stellbar**

*LSI Angle interferometer 404 sensor for
adjusting, adjustable*

Masse [g] / Weight : 202

Bestell-Nr. / Order No.:
269302 - 5004 . 824

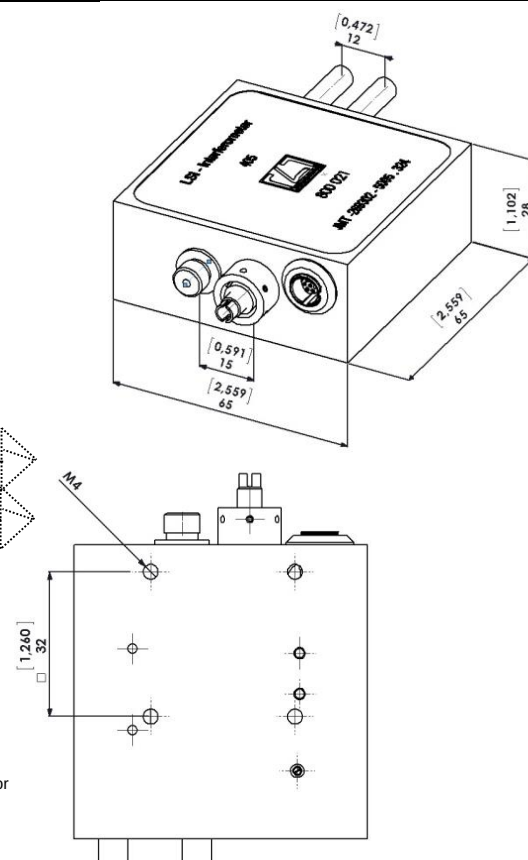
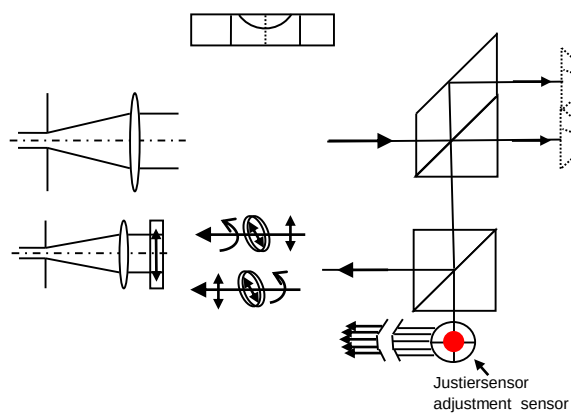


**LSI Winkel-Interferometer 405 mit
Justiersensor und Libelle**

*LSI Angle interferometer 405 with sensor for
adjusting and bubble level*

Masse [g] / Weight : 140,6

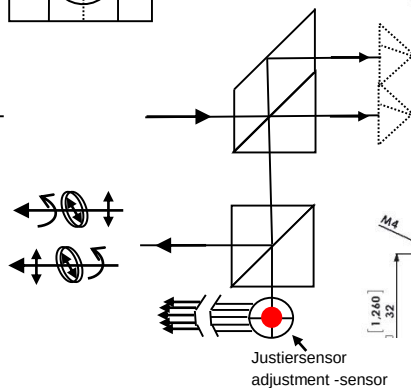
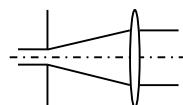
Bestell-Nr. / Order No.:
269302 - 5005 . 324



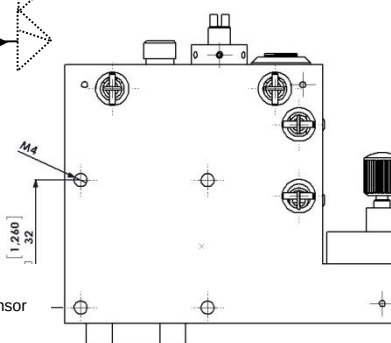
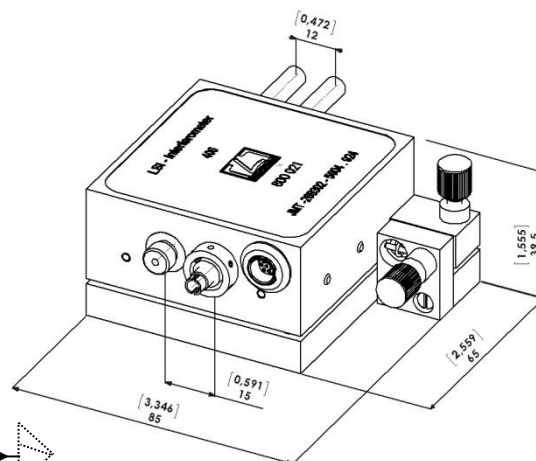
**LSI Winkel-Interferometer 406 mit
Justiersensor und Libelle, stellbar**
*LSI Angle interferometer 406 with sensor for
adjusting and bubble level, adjustable*

Masse [g] / Weight : 302,4

Bestell-Nr. / Order No.:
 269302 - 5004 . 924



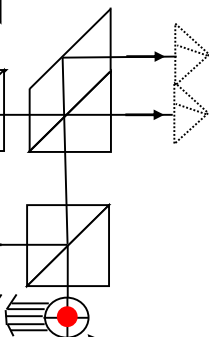
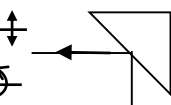
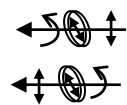
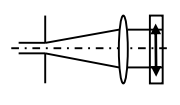
Justiersensor
adjustment -sensor



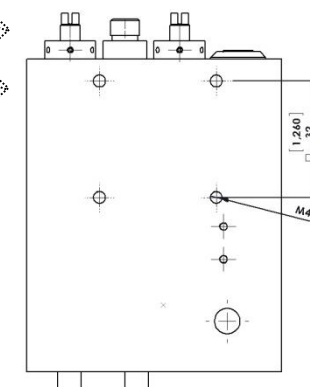
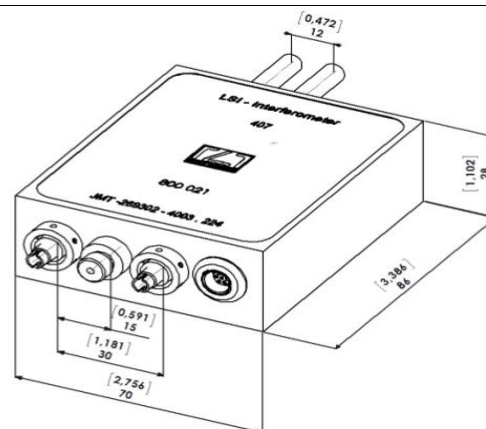
**LSI Winkel-Interferometer 407 mit interner
Referenz und Justiersensor**
*LSI Angle interferometer 407 with internal
reference and sensor for adjusting*

Masse [g] / Weight : 295,9

Bestell-Nr. / Order No.:
 269302 - 4003 . 224



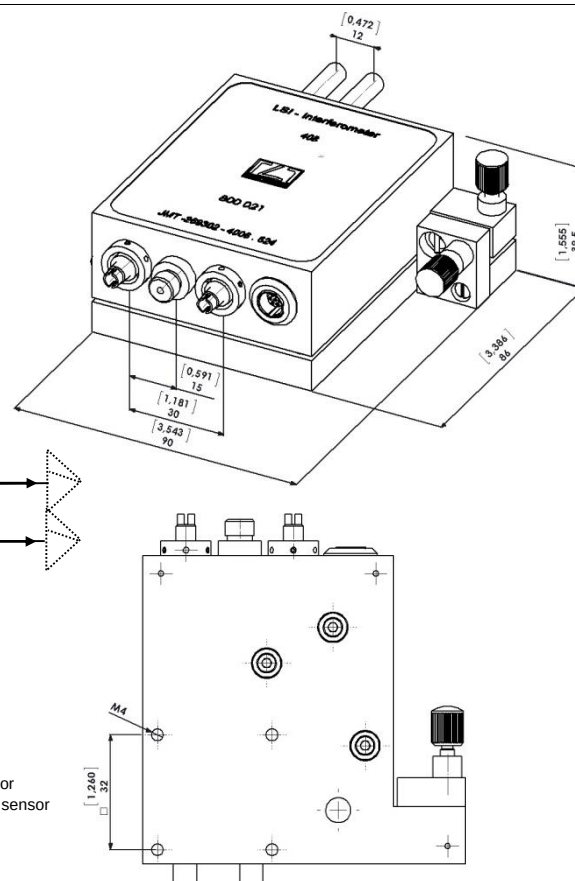
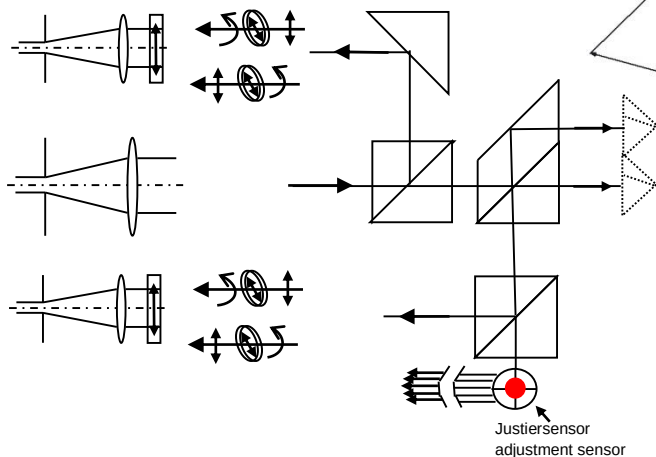
Justiersensor
adjustment sensor



LSI Winkel-Interferometer 408 mit interner Referenz und Justiersensor, stellbar
LSI Angle interferometer 408 with internal reference and sensor for adjusting, adjustable

Masse [g] / Weight : 497,1

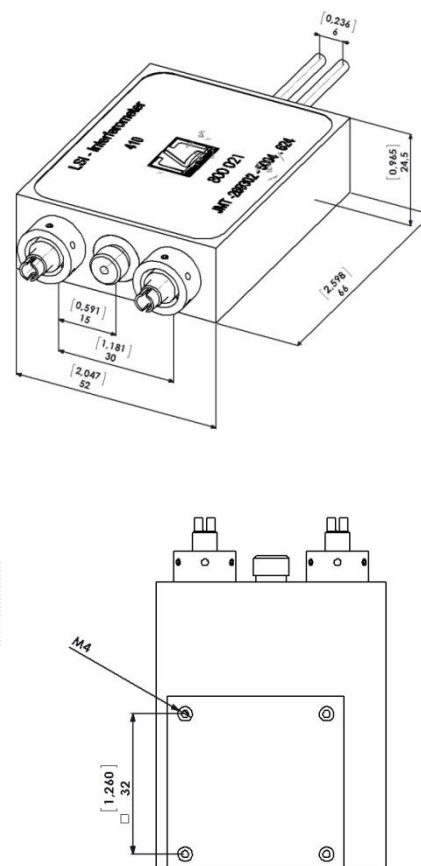
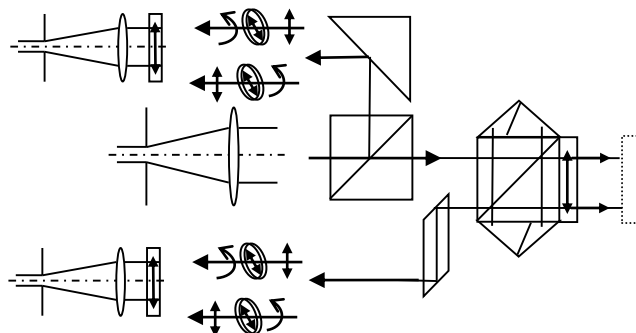
Bestell-Nr. / Order No.:
 269302 - 4006 . 624



LSI – Planspiegelinterferometer 410 (mit interner Referenz)
LSI plane mirror interferometer 410 (with internal reference)

Masse [g] / Weight : 107,8

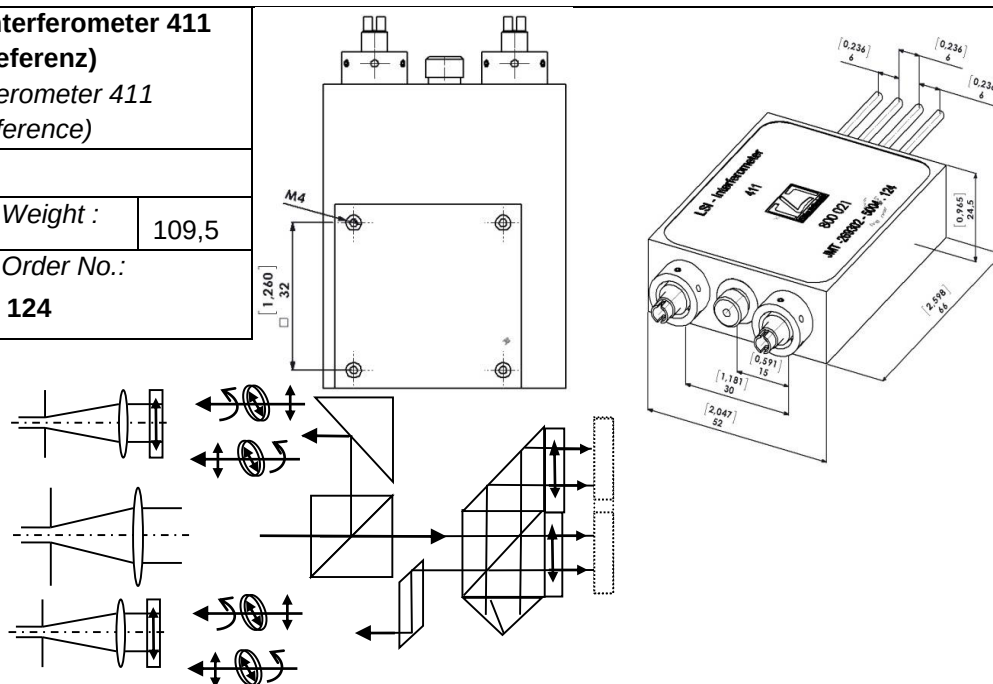
Bestell-Nr. / Order No.:
 269302 - 5004 . 624



LSI – Winkel-Interferometer 411
(mit interner Referenz)
LSI Angle interferometer 411
(with internal reference)

Masse [g] / Weight : 109,5

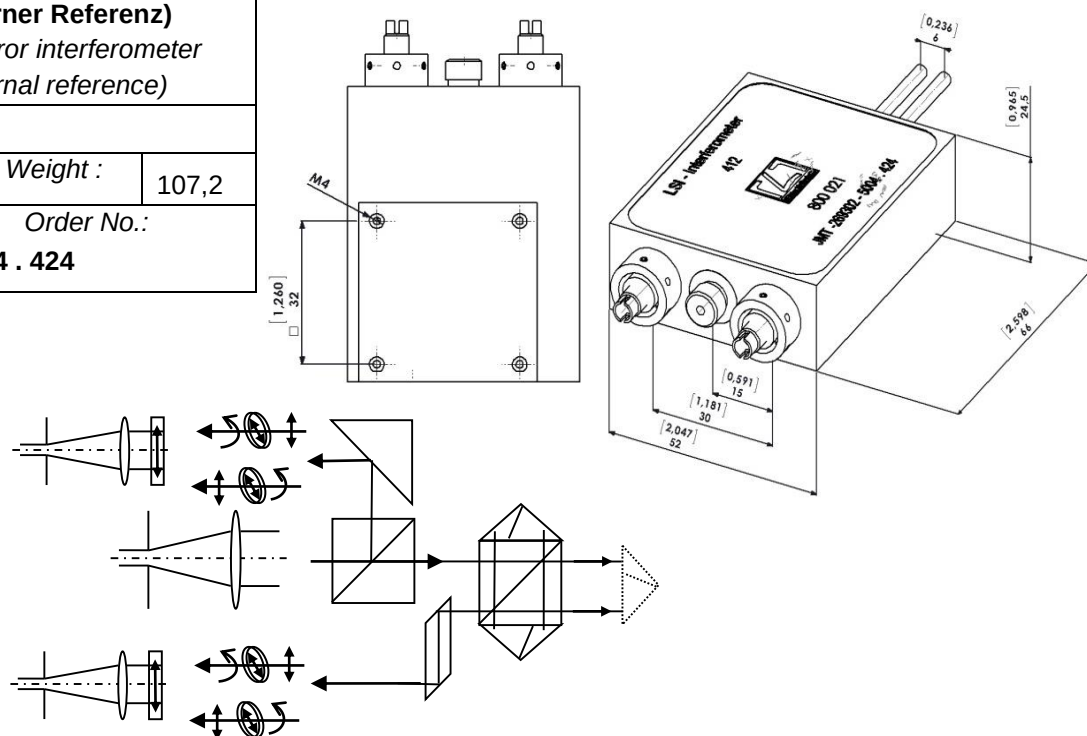
Bestell-Nr. / Order No.:
269302 - 5004 . 124



LSI - Planspiegelinterferometer
412 (mit interner Referenz)
LSI Plane mirror interferometer
412 (with internal reference)

Masse [g] / Weight : 107,2

Bestell-Nr. / Order No.:
269302 - 5004 . 424

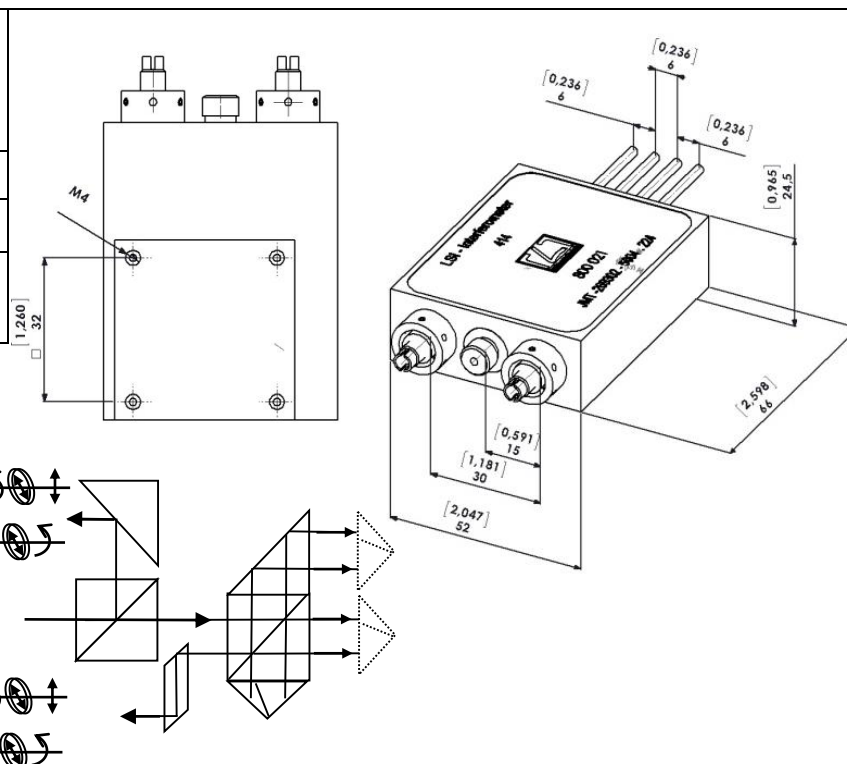


LSI – Winkel-Interferometer 414
(mit interner Referenz)

LSI Angle interferometer 414 (with internal reference)

Masse [g] / <i>Weight :</i>	108,3
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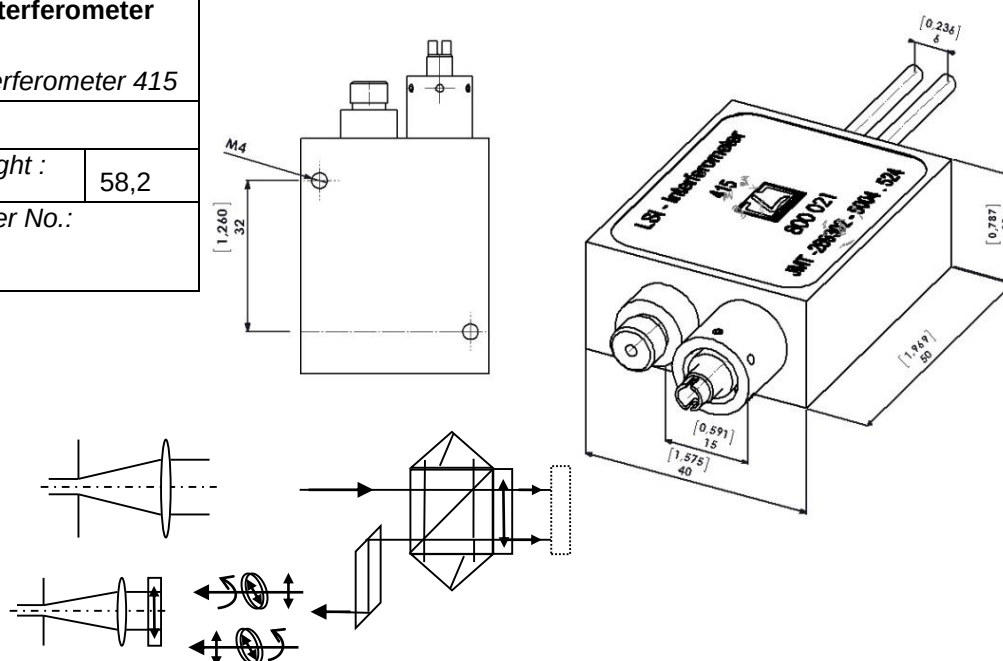
Bestell-Nr. / Order No.:
269302 - 5004 . 224

LSI - Planspiegelinterferometer
415

LSI Plane mirror interferometer 415

Masse [g] /	Weight :	58,2
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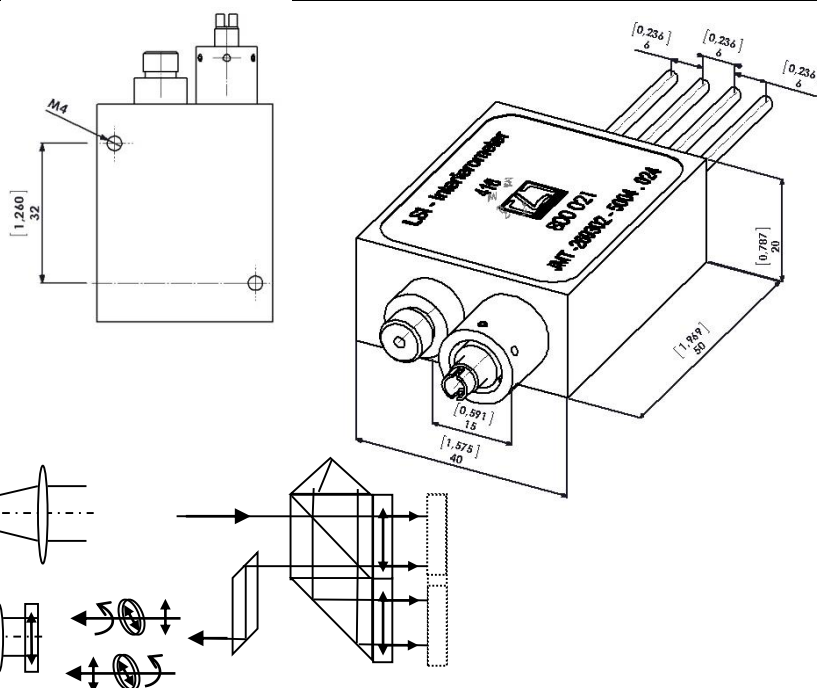
Bestell-Nr. / Order No.:
269302 - 5004 . 524



LSI –
Planspiegelinterferometer 416
LSI Plane mirror interferometer
 416

Masse [g] / Weight : 59,9

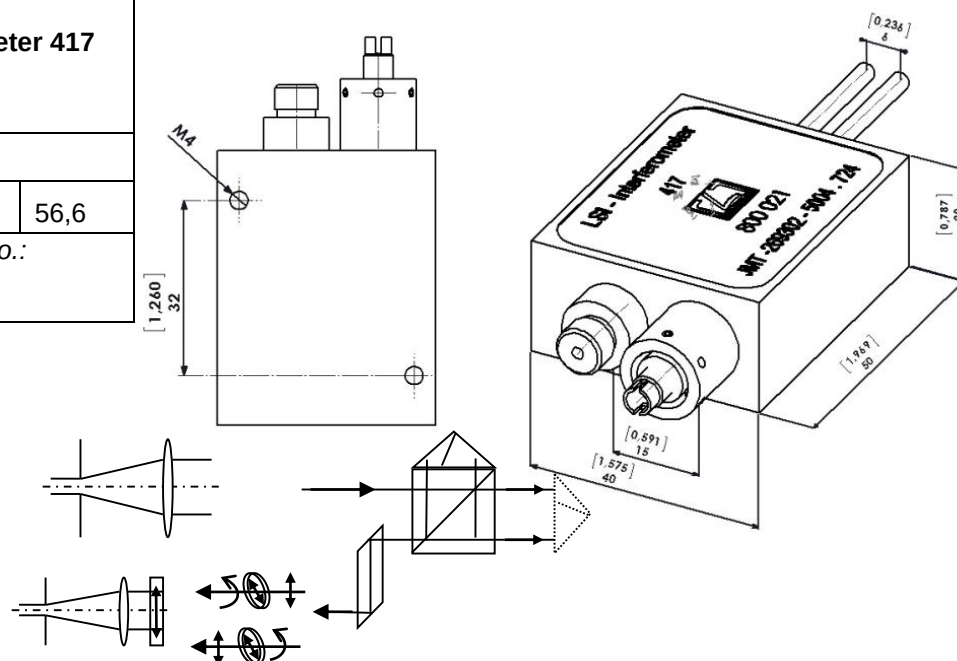
Bestell-Nr. / Order No.:
 269302 - 5004 . 024



LSI –
Planspiegelinterferometer 417
LSI Plane mirror
interferometer 417

Masse [g] / Weight : 56,6

Bestell-Nr. / Order No.:
 269302 - 5004 . 724

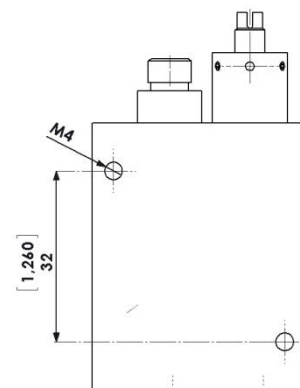
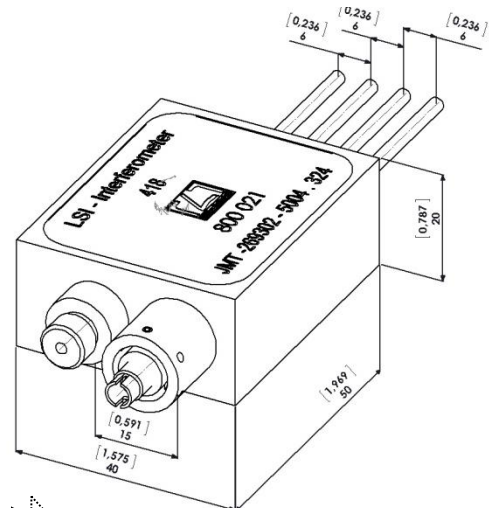
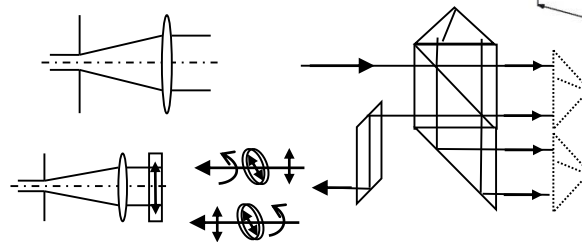


LSI- Winkel-Interferometer 418
LSI Angle interferometer 418

Masse [g] / Weight :	58,6
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Bestell-Nr. / Order No.:	
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269302 - 5004 . 324



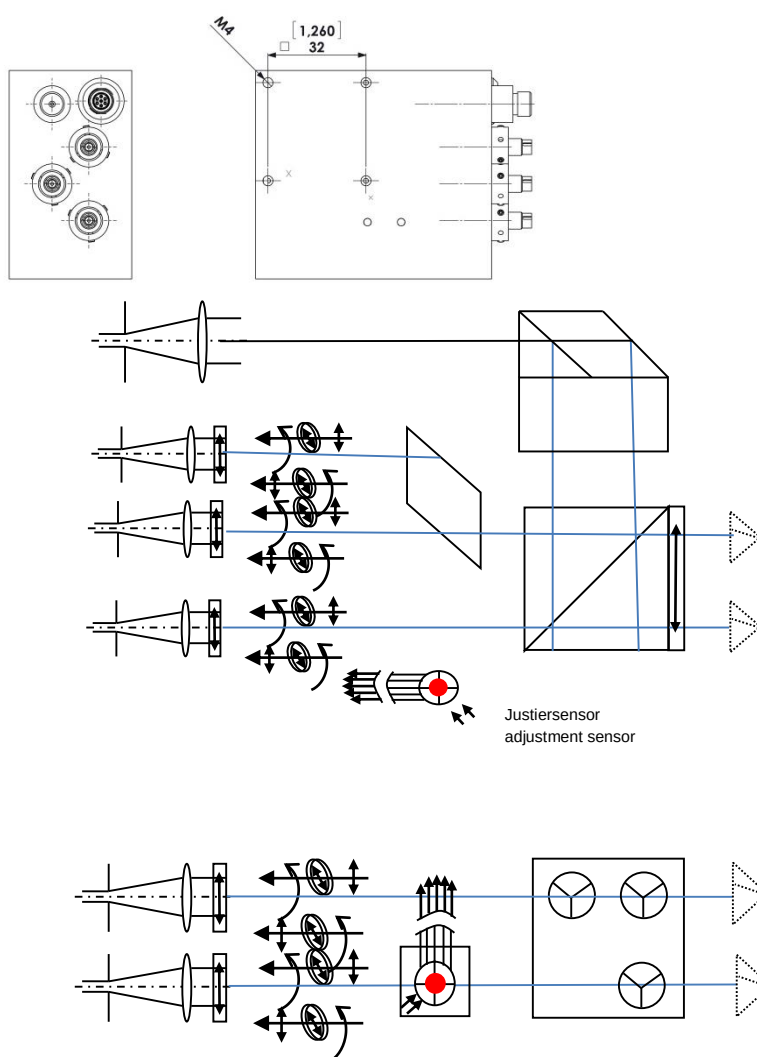
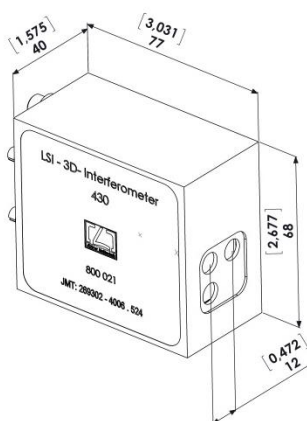
LSI-3D-Interferometer 430

LSI 3D Interferometer 430

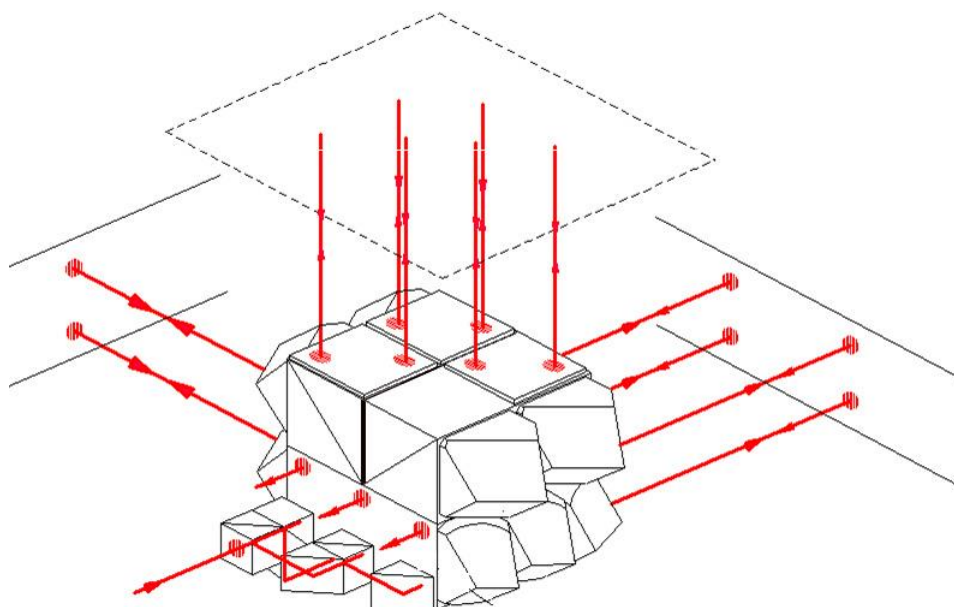
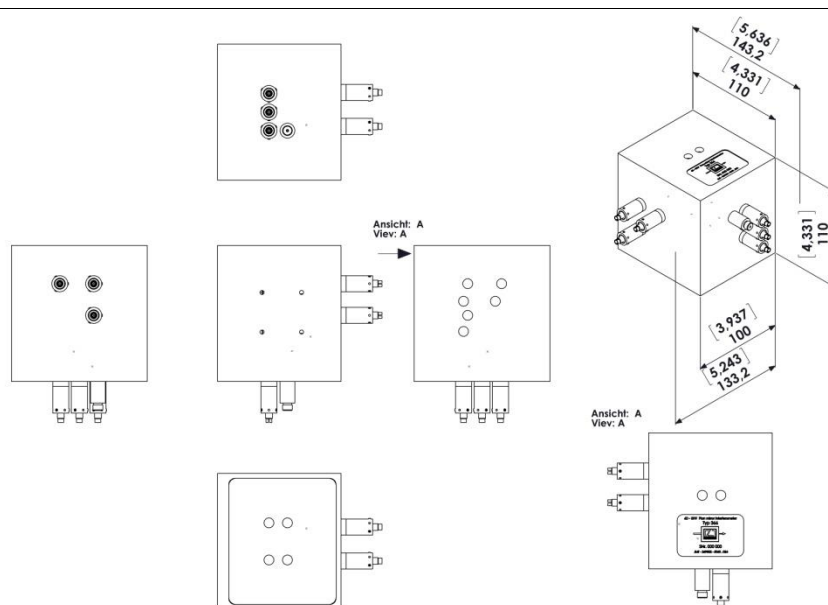
Masse [g] / Weight : 924

Bestell-Nr. / Order No.:

269302 - 4006 . 524



6D - UHF Parallel Planspiegel Interferometer 366 6D - UHF Parallel Mirror Interferometer 366		
Masse [g] /	Weight :	3350
Bestell- Nr. /	Order No.:	
269302 - 5060 . 024		



Übersicht Interferometer

Bestellnummer:	Bezeichnung	Kurzbezeichnung	Masse [g]:	Kompaktinterferometer	Lichtschlauchinterferometer	Messachse(n) mit Faserankopplung	max Strahldurchmesser [mm]	Befestigungsabstand [mm]	Anzahl der Messachsen	Planspiegelmessung	Trippelspiegelmessung	Messung Nick- oder Gierwinkel	Messung Nick- und Gierwinkel	Position	Parallelität
269302 - 4017 . 124	Doppelkeil 2m 108	108	103,73	-	-		6	32	1	-	-	x	-	x	-
269302 - 4010 . 924	Winkelreflektor 2m 109	109	680,99	-	-		6	32	1	-	-	x	-	x	-
269302 - 4017 . 224	Doppelkeil 10m 112	112	104,18	-	-		6	32	1	-	-	x	-	x	-
269302 - 4011 . 324	Winkelreflektor 10m 113	113	684,1	-	-	-	6	32	1	-	-	x	-	x	-
269302 - 4015 . 324	Winkelinterferometer 114	114	406,0	-	-	-	6	32	1	x	x	x	-	x	-
269302 - 4012 . 824	Geradheitsinterferometer 128	128	383,8	-	-	-	6	32	1	x	x	x	-	x	-
269302 - 4013 . 024	Geradheitsinterferometer 129	129	379,5	-	-	-	6	32	1	-	x	x	-	x	-
269302 - 4013 . 324	Parallelinterferometer 301	301	971,3	-	-	-	6 / 3	32	1	x	-	x	-	x	x
269302 - 4006 . 424	Vibrationsvorsatzlinse 320	320	92,4	-	-	-	18	32	-	-	-	-	-	-	-
269302 - 5010 . 524	Kompaktinterferometer 347	347	1529,0	x	-	-	6	32	3	-	x	x	x	x	
269302 - 5010 . 526	Kompaktinterferometer 347 - Faserkopplung	347	1665,0	x	-	x	6	32	3	-	x	x	x	x	

Bestellnummer:	Bezeichnung	Kurzbezeichnung	Masse [g]:	Kompaktinterferometer	Lichtschlauchinterferometer	Messachse(n) mit Faserankopplung	max Strahldurchmesser [mm]	Befestigungsabstand [mm]	Anzahl der Messachsen	Planspiegelmessung	Trippelspiegelmessung	Messung Nick- oder Gierwinkel	Messung Nick- und Gierwinkel	Position	Parallelität
269302 - 5010 . 624	3-Achs-Kompakt-Planspiegelinterferometer 348	348	1596	x	-	x	6	32	3	x	-	x	x	x	
269302 - 5010 . 626	3-Achs-Kompakt-Planspiegelinterferometer 348 - Faserkopplung	348	1696	x	-	-	6	32	3	x	-	x	x	x	
269302 - 4002 . 324	Parallel-Planspiegelinterferometer 352	352	228,6	x		x	6	20	1	x	-	x	-	x	x
269302 - 5093 . 124	2D Achs Kompakt IF 386	386	3541	X	-	x	6	32	2		X	X	-	x	
269302 - 5093 . 424	2D Planspiegel IF 387	387	3544	X	-	X	6	32	2	X		X	-	x	
269302 - 5093 . 024	3D Achs Kompakt IF 385	385	3573	X	-	X	6	32	3		x	X	X	x	
269302 - 5093 . 324	3D Planspiegel IF 388	388	3577	x	-	X	6	32	3	x		x	X	x	
269302 - 4019 . 024	Parallel-Planspiegelinterferometer 356	356	477,2	x	-	x	3	32	1	X	-	x	-	x	x
269302 - 4005 . 524	Parallel-Planspiegelinterferometer 358	358	310,1	x	-	-	3	32	1	x	-	-	-	x	-
269302 - 4066 . 124	3-Achs-Kompakt-Planspiegelinterferometer 360	360	604	x	-	x	3	32	3	x	-	x	x	x	-
269302 - 4066 . 224	2-Achs-Kompakt-Planspiegelinterferometer 362	362	580	x	-	x	3	32	2	x	-	x	-	x	x
269302 - 5060 . 024	6D - UHF Parallel Planspiegel Interferometer 366	366	3350	x	x	x	-	32	6	x	-	x	x	x	x
269302 - 4009 . 624	Planspiegelinterferometer 368	368	101,6	x	-	x	3	20	1	x	-	-	-	x	-
269302 - 4004 . 524	2-Achs-Kompakt-Planspiegelinterferometer 370	370	693,1	x	-	x	6	32	2	x	-	x	-	x	-
269302 - 5010 . 124	Kompakt-Planspiegelinterferometer 390	390	713,3	x	-	x	6	32	2	x	-	x	-	x	-
269302 - 5012 . 024	LSI - Einstrahlinterferometer 400	400	264.01	x	x	x	-	32	1	x	x	-	-	x	-
269302 - 5005 . 424	LSI - Winkelinterferometer 401	401	72,9	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5003 . 724	LSI - Winkelinterferometer 402, stellbar	402	176,7	x	x	x	-	32	1	-	x	x	-	x	-

Bestellnummer:	Bezeichnung	Kurzbezeichnung	Masse [g]:	Kompaktinterferometer	Lichtschlauchinterferometer	Messachse(n) mit Faserankopplung	max Strahldurchmesser [mm]	Befestigungsabstand [mm]	Anzahl der Messachsen	Planspiegelmessung	Trippelspiegelmessung	Messung Nick- oder Gierwinkel	Messung Nick- und Gierwinkel	Position	Parallelität
269302 - 5005 . 224	LSI - Winkelinterferometer 403, mit Justiersensor	403	123,0	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 824	LSI - Winkelinterferometer 404, mit Justiersensor, stellbar	404	202,0	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5005 . 324	LSI - Winkelinterferometer 405, mit Justiersensor und Libelle	405	140,6	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 924	LSI - Winkelinterferometer 406, mit Justiersensor und Libelle, stellbar	406	302,4	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 4003 . 224	LSI Winkelinterferometer 407 mit interner Referenz und Justiersensor	407	295,9	x	x	x	-	32	1+R	-	x	x	-	x	-
269302 - 4006 . 624	LSI Winkel-Interferometer 408 mit interner Referenz und Justiersensor, stellbar	408	497,1	x	x	x	-	32	1+R	-	x	x	-	x	-
269302 - 5004 . 624	LSI- Planspiegelinterferometer 410 (mit interner Referenz)	410	107,8	x	x	x	-	32	1+R	x	-	x	-	x	
269302 - 5004 . 124	LSI- Winkelinterferometer 411 (mit interner Referenz)	411	109,5	x	x	x	-	32	1+R	x	-	x	-	x	
269302 - 5004 . 424	LSI- Planspiegelinterferometer 412 (mit interner Referenz)	412	107,2	x	x	x	-	32	1+R	-	x	x	-	x	
269302 - 5004 . 224	LSI- Winkelinterferometer 414 (mit interner Referenz)	414	108,3	x	x	x	-	32	1+R	-	x	x	-	x	
269302 - 5004 . 524	LSI-Planspiegelinterferometer 415	415	58,2	x	x	x	-	32	1	x	-	x	-	x	
269302 - 5004 . 024	LSI-Planspiegelinterferometer 416	416	59,9	x	x	x	-	32	1	x	-	x	-	x	
269302 - 5004 . 724	LSI-Planspiegelinterferometer 417	417	56,6	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 324	LSI-Winkelinterferometer 418	418	58,6	x	x	x	-	32	1	-	x		-	x	
269302 - 5007 . 024	LSI 4-fach-Planspiegelinterferometer 420 (geradeaus)	420	162,6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 224	LSI 4-fach-Planspiegelinterferometer 421 (90°, rechts)	421	163,6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 324	LSI 4-fach-Planspiegelinterferometer 422 (90°, links)	422	163,6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 524	LSI 8-fach-Planspiegelinterferometer 423 (geradeaus)	423	160,7	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 724	LSI 8-fach-Planspiegelinterferometer 424 (90°, rechts)	424	161,2	x	x	x	-	32	1	x	-	-	-	x	-

Bestellnummer:	Bezeichnung	Kurzbezeichnung	Masse [g]:	Kompaktinterferometer	Lichtschlauchinterferometer	Messachse(n) mit	max Strahldurchmesser [mm]	Befestigungsabstand [mm]	Anzahl der Messachsen	Planspiegelmessung	Tripelspiegelmessung	Messung Nick- oder Gierwinkel	Messung Nick- und Gierwinkel	Position	Parallelität
269302 - 5007 . 824	LSI 8-fach-Planspiegelinterferometer 425 (90°, links)	425	161,2	x	x	x	-	32	1	x	-	-	-	x	-
269302 – 4006 . 526	LSI- 3D Interferometer 430	430	924	x	x			32	3+R	-	x	x	x	x	
269302 - 4012 . 925	Bausatz (Geradheitsinterferometer 128 + Referenzspiegel 128 + Referenzspiegel) - 545	545	414,9	-	-	-	-	32	1	x	x	-	-	x	-
269302 - 4006 . 425	Vibrometereinstellplatte 548	548	80,4	-	-	-	-	32	-	-	-	-	-	-	-
269302 - 4009 . 024	Parallelinterferometer 608	608	580,4	x	-	-	6	32	1	x	-	x	-	x	x
269302 - 4009 . 524	Parallelinterferometer 608 mit LWL - Einkopplung	608	605,9	x	-	x	6	32	1	x	-	x	-	x	x
269302 - 4018 . 924	Parallelinterferometer 608 mit LWL - Einkopplung und variablen Strahlgang	608	764,5	x	-	x	6	32	1	x	-	x	-	x	x
269302 - 4061 . 426	Bausatz Planspiegelinterferometer		1183,26	-	-	-	6	32	1	-	x	-	-	x	-
269302 - 4002 . 026	Parallelinterferometer für Planspiegelreflektor mit LWL Anschluss (komplett)		1547,0	-	-	x	6	32	1	x	-	x	-	x	x
269302 - 5060 . 024	6D - UHF Parallel Planspiegel Interferometer 366	366	3350	x		x	x	-	32	6	x	-	x	x	x

Short overview - interferometers

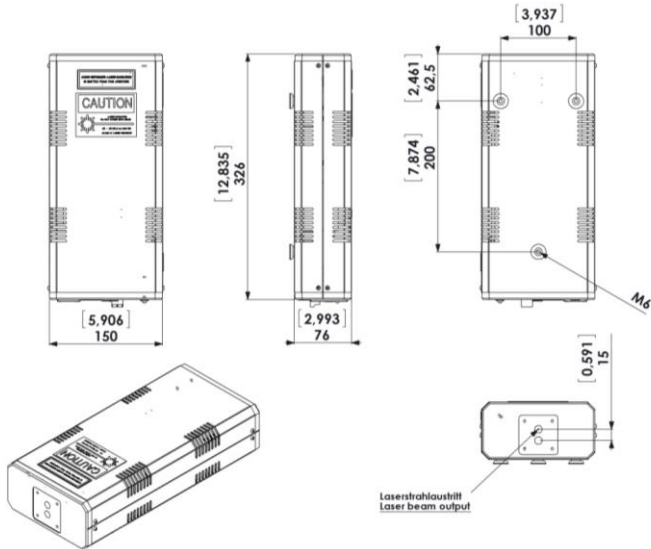
Order No.:	Description :	Short No.:	Weight[g]:	Compact interferometer	Fiber optics interferometer	Measuring axis with fiber coupling	max. beam diameter [mm]	Fixation distance [mm]	No. of measurement axis	Plane mirror measurement	Triple reflector measurement	Measurement pitch or yaw angle	Measurement pitch and yaw angle	Position	Parallelism
269302 - 4017 . 124	Double wedge 2m 108	108	103.73	-	-		6	32	1	-	-	x	-	x	-
269302 - 4010 . 924	Angle reflector 2m 109	109	680.99	-	-		6	32	1	-	-	x	-	x	-
269302 - 4017 . 224	Double wedge 10m 112	112	104.18	-	-		6	32	1	-	-	x	-	x	-
269302 - 4011 . 324	Angle reflector 10m 113	113	684.1	-	-	-	6	32	1	-	-	x	-	x	-
269302 - 4015 . 324	Angle interferometer 114	114	406.0	-	-	-	6	32	1	x	x	x	-	x	-
269302 - 4012 . 824	Straightness interferometer 128	128	383.8	-	-	-	6	32	1	x	x	x	-	x	-
269302 - 4013 . 024	Straightness interferometer 129	129	379.5	-	-	-	6	32	1	-	x	x	-	x	-
269302 - 4013 . 324	Parallel interferometer 301	301	971.3	-	-	-	6 / 3	32	1	x	-	x	-	x	x
269302 - 4006 . 424	Vibrometer ancillary lens 320	320	92.4	-	-	-	18	32	-	-	-	-	-	-	-
269302 - 5010 . 524	Compact interferometer 347	347	1529.0	x	-	-	6	32	3	-	x	x	x	x	
269302 - 5010 . 526	Compact interferometer 347 – fiber coupling	344	1665.0	x	-	x	6	32	3	-	x	x	x	x	

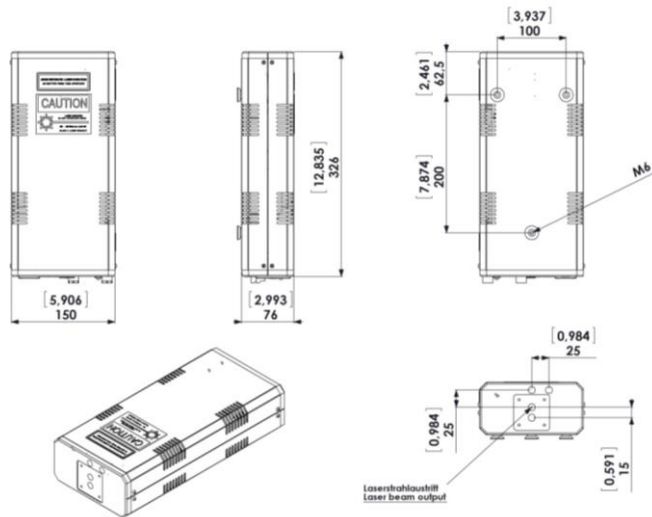
Order No.:	Description:	Short No.:	Weight[g]:	Compact interferometer	Fiber optics interferometer	Measuring axis with fiber coupling	max. beam diameter [mm]	Fixation distance [mm]	No. of measurement axis	Plane mirror measurement	Triple reflector measurement	Measurement pitch or yaw angle	Measurement pitch and yaw angle	Position	Parallelism
269302 - 5010 . 624	3 Axes Compact plane mirror interferometer 348	348	1596	x	-	x	6	32	3	x	-	x	x	x	
269302 - 5010 . 626	3 Axes Compact plane mirror interferometer 348 – fiber coupling	348	1696	x	-	-	6	32	3	x	-	x	x	x	
269302 - 5093 . 124	2D Compact IF 386	386	3541	X	-	x	6	32	2		X	X	-	x	
269302 - 5093 . 424	2D Plane mirror IF 387	387	3544	X	-	X	6	32	2	X		X	-	x	
269302 - 5093 . 024	3D Compact IF 385	385	3573	X	-	X	6	32	3		x	X	X	x	
269302 - 5093 . 324	3D Plane mirror IF 388	388	3577	x	-	X	6	32	3	x		x	X	x	
269302 - 4002 . 324	Parallel plane mirror interferometer 352	352	228.6	x		x	6	20	1	x	-	x	-	x	x
269302 - 4019 . 024	Parallel plane mirror interferometer 356	356	477.2	x	-	x	3	32	1	x	-	x	-	x	x
269302 - 4005 . 524	Parallel plane mirror interferometer 358	358	310.1	x	-	-	3	32	1	x	-	-	-	x	-
269302 - 4066 . 124	3 Axes Compact plane mirror interferometer 360	360	604	x	-	x	3	32	3	x	-	x	x	x	-
269302 - 4066 . 224	2 Axes Compact plane mirror interferometer 362	362	580	x	-	x	3	32	2	x	-	x	-	x	x
269302 - 5060 . 024	6D - UHF Parallel Mirror Interferometer 366	366	3350	x	x	x	-	32	6	x	-	x	x	x	x
269302 - 4009 . 624	Plane mirror interferometer 368	368	101.6	x	-	x	3	20	1	x	-	-	-	x	-
269302 - 4004 . 524	2 Axes Compact plane mirror interferometer 370	370	693.1	x	-	x	6	32	2	x	-	x	-	x	-
269302 - 5010 . 124	Compact plane mirror interferometer 390	390	713.3	x	-	x	6	32	2	x	-	x	-	x	-
269302 - 5012 . 024	LSI Single beam interferometer 400	400	264.01	x	x	x	-	32	1	x	x	-	-	x	-
269302 - 5005 . 424	LSI Angle interferometer 401	401	72.9	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5003 . 724	LSI Angle interferometer 402. adjustable	402	176.7	x	x	x	-	32	1	-	x	x	-	x	-

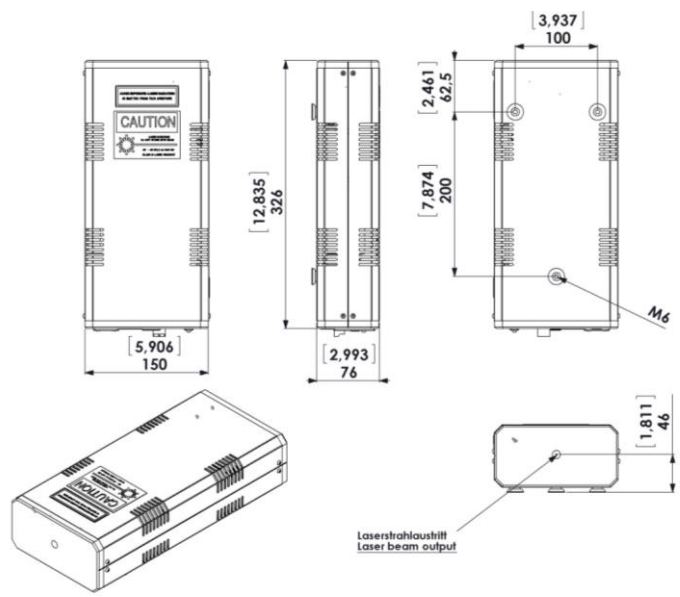
Order No.:	Description	Short No.:	Weight[g]:	Compact interferometer	Fiber optics interferometer	Measuring axis with fiber coupling	max. beam diameter [mm]	Fixation distance [mm]	No. of measurement axis	Plane mirror measurement	Triple reflector measurement	Measurement pitch or yaw angle	Measurement pitch and yaw angle	Position	Parallelism
269302 - 5005 . 224	LSI Angle interferometer 403 sensor for adjusting	403	123.0	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 824	LSI Angle interferometer 404 sensor for adjusting, adjustable	404	202.0	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5005 . 324	LSI Angle interferometer 405 with sensor for adjusting and bubble level	405	140.6	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 924	LSI Angle interferometer 406 with sensor for adjusting and bubble level, adjustable	406	302.4	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 4003 . 224	LSI Angler interferometer 407 with internal reference and sensor for adjusting	407	295.9	x	x	x	-	32	1+R	-	x	x	-	x	-
269302 - 4006 . 624	LSI Angle interferometer 408 with internal reference and sensor for adjusting, adjustable	408	497.1	x	x	x	-	32	1+R	-	x	x	-	x	-
269302 - 5004 . 624	LSI plane-mirror-interferometer 410 (with internal reference)	410	107.8	x	x	x	-	32	1+R	x	-	x	-	x	
269302 - 5004 . 124	LSI Angle interferometer 411 (with internal reference)	411	109.5	x	x	x	-	32	1+R	x	-	x	-	x	
269302 - 5004 . 424	LSI Plane-mirror-interferometer 412 (with internal reference)	412	107.2	x	x	x	-	32	1+R	-	x	x	-	x	
269302 - 5004 . 224	LSI Angle interferometer 414 (with internal reference)	414	108.3	x	x	x	-	32	1+R	-	x	x	-	x	
269302 - 5004 . 524	LSI Plane mirror interferometer 415	415	58.2	x	x	x	-	32	1	x	-	x	-	x	
269302 - 5004 . 024	LSI Plane mirror interferometer 416	416	59.9	x	x	x	-	32	1	x	-	x	-	x	
269302 - 5004 . 724	LSI Plane mirror interferometer 417	417	56.6	x	x	x	-	32	1	-	x	x	-	x	-
269302 - 5004 . 324	LSI Angle interferometer 418	418	58.6	x	x	x	-	32	1	-	x		-	x	
269302 - 5007 . 024	LSI 4-fold plane mirror interferometer 420 (straight)	420	162.6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 224	LSI 4-fold plane mirror interferometer 421 (90°.right)	421	163.6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 324	LSI 4-fold plane mirror interferometer 422 (90°.left)	422	163.6	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 524	LSI 8-fold plane mirror interferometer 423 (straight)	423	160.7	x	x	x	-	32	1	x	-	-	-	x	-

Order No.:	Description	Short No.:	Weight[g]:	Compact interferometer	Fiber optics interferometer	Measuring axis with fiber coupling	max. beam diameter [mm]	Fixation distance [mm]	No. of measurement axes	Plane mirror measurement	Triple reflector measurement	Measurement pitch or yaw angle	Measurement pitch and yaw angle	Position	Parallelism
269302 - 5007 . 724	LSI 8-fold plane mirror interferometer 424 (90°.right)	424	161.2	x	x	x	-	32	1	x	-	-	-	x	-
269302 - 5007 . 824	LSI 8-fold plane mirror interferometer 425 (90°.left)	425	161.2	x	x	x	-	32	1	x	-	-	-	x	-
269302 – 4006 . 526	LSI- 3D Interferometer 430	430	924	x	x			32	3+R	-	x	x	x	x	
269302 - 4012 . 925	Assembly set (Straightness Interferometer 128 + Reference cube corner reflector 540)	545	414.9	-	-	-	-	32	1	x	x	-	-	x	-
269302 - 4006 . 425	Vibrometer adjusting plate 548	548	80.4	-	-	-	-	32	-	-	-	-	-	-	-
269302 - 4009 . 024	Parallel interferometer 608	608	580.4	x	-	-	6	32	1	x	-	x	-	x	x
269302 - 4009 . 524	Parallel interferometer 608 with fiber optics coupling	608	605.9	x	-	x	6	32	1	x	-	x	-	x	x
269302 - 4018 . 924	Parallel interferometer 608 with fiber optics coupling and variable beam control	608	764.5	x	-	x	6	32	1	x	-	x	-	x	x
269302 - 4061 . 426	Assembly set for plane mirror interferometer		1183.26	-	-	-	6	32	1	-	x	-	-	x	-
269302 - 4002 . 026	Parallel interferometer for plane mirror reflector with wire coupling (complete)		1547.0	-	-	x	6	32	1	x	-	x	-	x	x
269302 - 5060 . 024	6D - UHF Parallel Mirror Interferometer 366	366	3350	x		x	x	-	32	6	x	-	x	x	x

J. Lasermessköpfe, Auswerteeinheiten, und Zubehör*J. Laser measurement heads, evaluation units, adapters and accessories***Lasermessköpfe***Laser measurement heads*

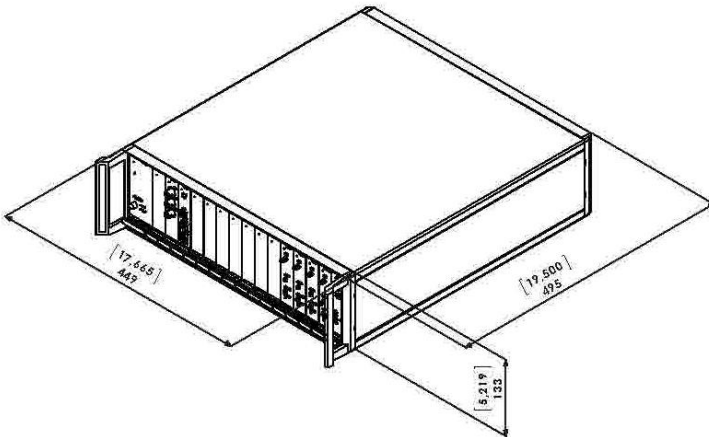
Lasermesskopf ZLM 700 <i>Laser measuring head ZLM 700</i>			
Zahl der Messachsen pro Laser: <i>No. of measuring axes per laser:</i>	1		
Masse [g] / Weight :	3961		
Bestell-Nr. / Order No.: 269302 – 5061 . 026 / Ø			
Strahldurchmesser: <i>Beam diameter:</i>	• 6 mm (0.236 “) • 3,2 mm (0.126“)		
Netz: <i>Power supply:</i>	• 95 ... 265V • 43 - 63 Hz		
Beispiel für Bestellangaben: 269302 – 5061 . 026 / 6 mm <i>Example of order information: 269302 – 5061 . 026 / 6 mm</i>			

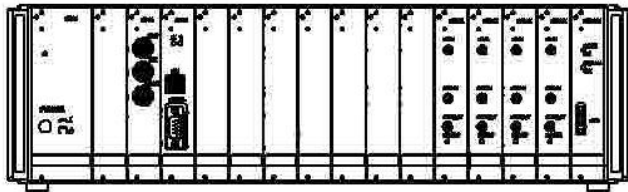
Lasermesskopf ZLM 800 <i>Laser measuring head ZLM 800</i>			
Zahl der Messachsen pro Laser: <i>No. of measuring axes per laser:</i>	3		
Masse [g] / Weight :	4156		
Bestell-Nr. / Order No.: 269302 – 5062 . 026 / Ø			
Strahldurchmesser: <i>Beam diameter:</i>	• 6 mm (0.236 “) • 3,2 mm (0.126 “)		
Netz: <i>Power supply:</i>	• 95 ... 265V • 43 - 63 Hz		
Beispiel für Bestellangaben: 269302 – 5062 . 026 / 6mm <i>Example of order information: 269302 – 5062 . 026 / 6 mm</i>			

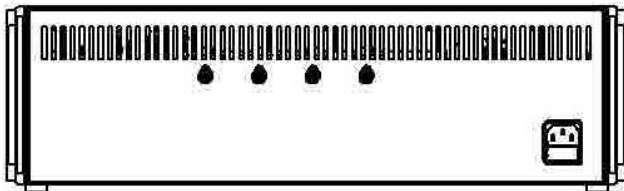
Lasermesskopf ZLM 800 (Einbausystem) <i>Laser measuring head ZLM 800</i> <i>(built-in system)</i>		
Zahl der Messachsen pro Laser: <i>No. of measuring axes per laser:</i>	-	
Masse [g] / Weight :	4023	
Bestell-Nr. / Order No.: 269302 – 5063 . 026 / Ø		
Strahldurchmesser: <i>Beam diameter:</i>	• 6 mm (0.236 “) • 3,2 mm (0.126“)	
Netz: <i>Power supply:</i>	• 95 ... 265V • 43 - 63 Hz	
Beispiel für Bestellangaben: 269302 – 5063 . 026 / 6mm <i>Example of order information: 269302 – 5063 . 026 / 6 mm</i>		

Kompakteinheit ZLM 900 LSI*Compact unit ZLM 900 LSI*

Kompakteinheit ZLM 900 LSI <i>Compact unit ZLM 900 LSI</i>		
Zahl der Messachsen pro Laser: <i>No. of measuring axes per laser:</i>	1-4	
Masse [g] / Weight :		
Bestell-Nr. / Order No.: 269302 – 5095 . 026		
Lichtleitfaserausgang: <i>Fiber optics output:</i>	FC APC Stecker FC APC connector	
Netz: <i>Power supply:</i>	100 ... 240V (50/ 60 Hz)	



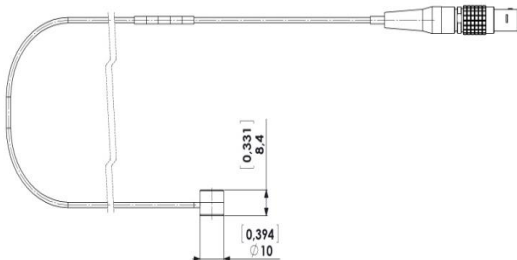




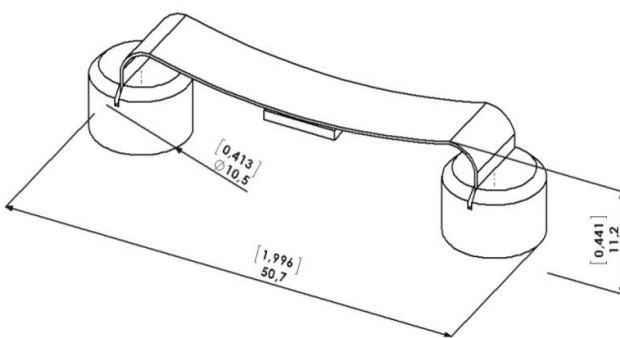
Zubehör – AUK Umweltkompensation

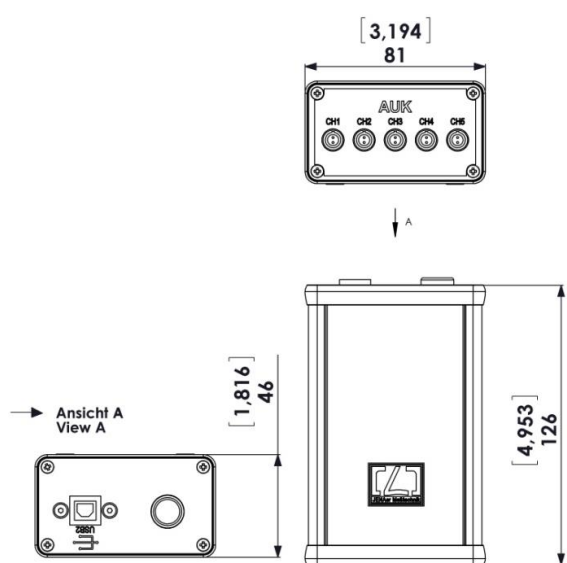
Accessories - AUK environmental sensor

Oberflächen - Temperaturfühler 2 <i>Surface temperature sensor 2</i>	
Einsatztemperaturbereich [°C]: <i>Temperature range [F]:</i>	0 – 60°C 32 -140°F
Masse [g] / Weight :	24
Bestell-Nr. / Order No.: 269300 – 3904 . 824	
Kabellänge [m]: <i>Cable length:</i>	5
Messunsicherheit: <i>Measurement accuracy:</i>	50 mK

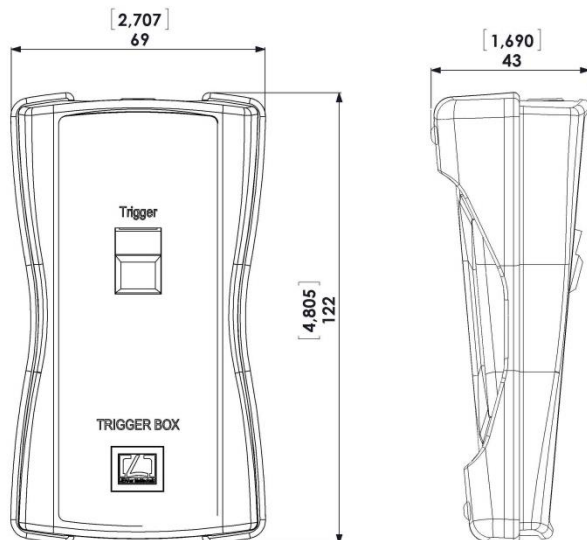


Magnethalter 2 <i>Magnetic holder 2</i>		
Masse [g] /	Weight :	9,5
Bestell-Nr. / Order No.: 269300 – 3900 . 524		



Automatische Umweltkompensation AUK <i>AUK environmental sensor</i>			
Masse [g] /	Weight :	279	
Bestell-Nr. / Order No.: 269302 - 5017 . 024			
Zur Kompensation von Temperatur, Luftdruck und Luftfeuchte <i>for compensation of temperature, pressure and humidity</i>			
Lufttemperatur Messbereich: <i>Air temperature range:</i>			10°C ... 45 °C
Messgenauigkeit: <i>Air temperature accuracy:</i>			< 0,1 K
Max. Anzahl Temperatursensoren <i>Max. no. temperature sensor</i>			5
Luftdruck Messbereich: <i>Air pressure range:</i>			500 – 1100 hPa
Luftdruck Messgenauigkeit: <i>Air pressure accuracy:</i>			< 1,5 hPa
Rel. Luftfeuchte Messbereich: <i>Rel. Air humidity range:</i>			0 ... 100%
Rel. Luftfeuchte Messgenauigkeit: <i>Rel. Air humidity accuracy:</i>			1,5%
Oberflächentemperatur - Messbereich: <i>Surface temperature range:</i>			0°C ... 40°C 32°F ... 104°F
Oberflächentemperatur Messgenauigkeit: <i>Surface temperature accuracy:</i>			5mK

Trigger Box 2020 Trigger box 2020		
Masse [g] /	Weight :	88
Bestell-Nr. / Order No.: 269302 – 4004 . 526		



Technical drawing of the Trigger Box 2020, showing front and side views with dimensions in millimeters.

Front View Dimensions:

- Width: 2,707 mm (69 mm)
- Height: 4,805 mm (122 mm)

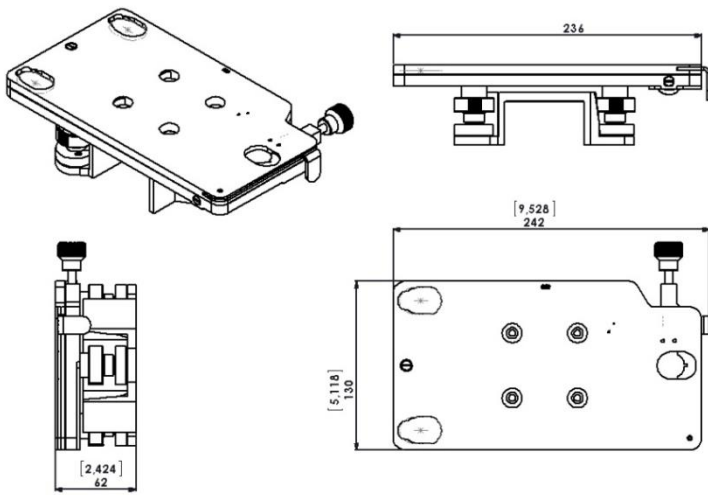
Side View Dimensions:

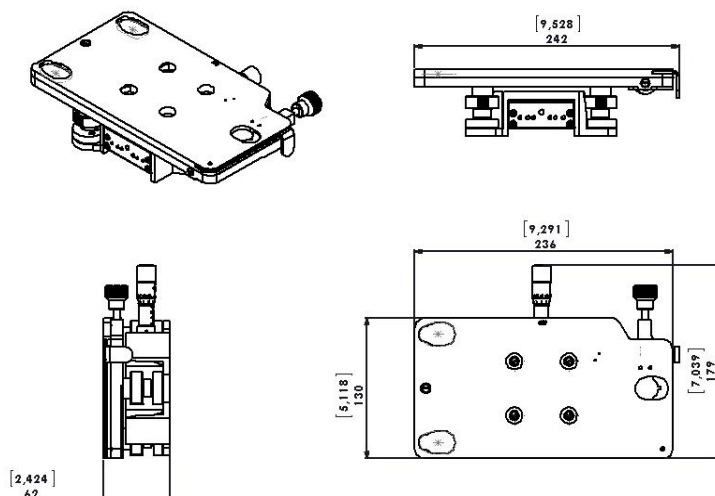
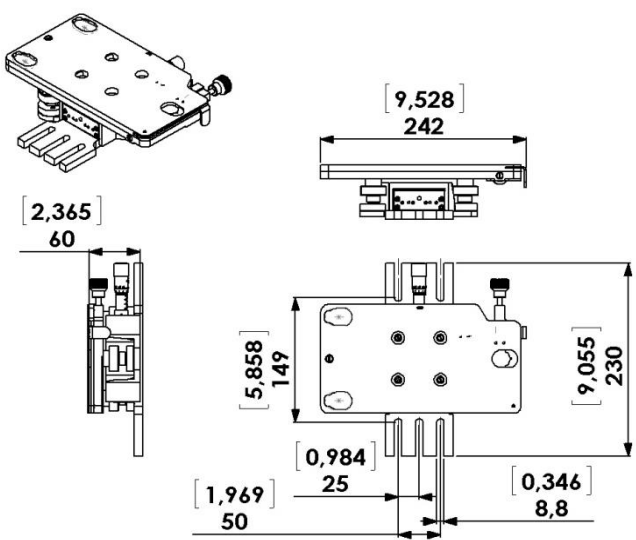
- Width: 1,690 mm (43 mm)

The front view shows a rectangular box with a "Trigger" label and a small square icon. The side view shows the profile of the box.

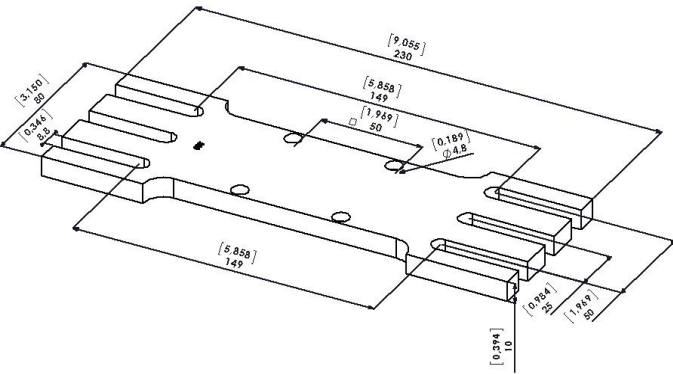
Anbauelemente - Lasermessköpfe*Extension units - Laser measurement heads*

Justiertisch 528 (ohne Quertrieb) <i>Adjustable table 528 (without cross slide)</i>		
Anzahl Freiheitsgrade: <i>Degrees of freedom:</i>		4
Masse [g] / <i>Weight :</i>		1131,5
Bestell-Nr. / <i>Order No.:</i> 269302 - 4040 . 025		



Justieraufnahme für Laserkopf 528 <i>Adjustable mount for laser head 528</i>			
Anzahl Freiheitsgrade: <i>Degrees of freedom:</i>	5		
Masse [g] / Weight :	1431,5		
Bestell-Nr. / Order No.: 269302 - 4040 . 125			
Justieraufnahme für Laserkopf 530 <i>Adjustable mount for laser head 530</i>			
Anzahl Freiheitsgrade: <i>Degrees of freedom:</i>	5		
Masse [g] / Weight :	1794		
Bestell-Nr. / Order No.: 269302 - 4040 . 225			

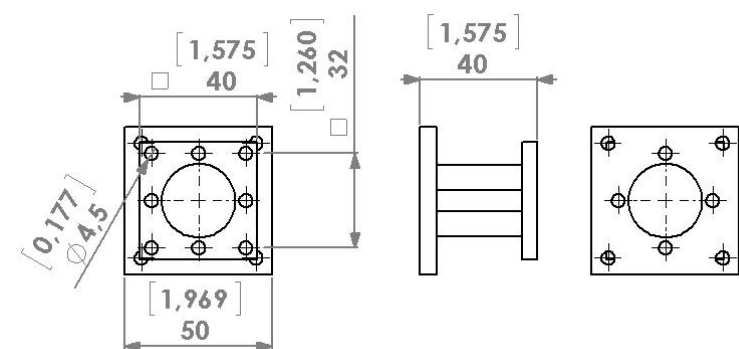
Montageplatte 529 <i>Mounting plate 529</i>		
Masse [g] /	Weight :	362,6
Bestell-Nr. /	Order No.:	
269302 - 4041 . 310		

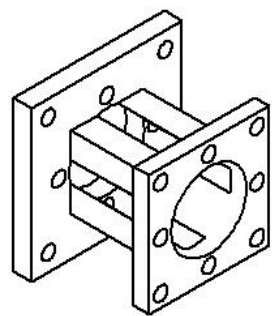


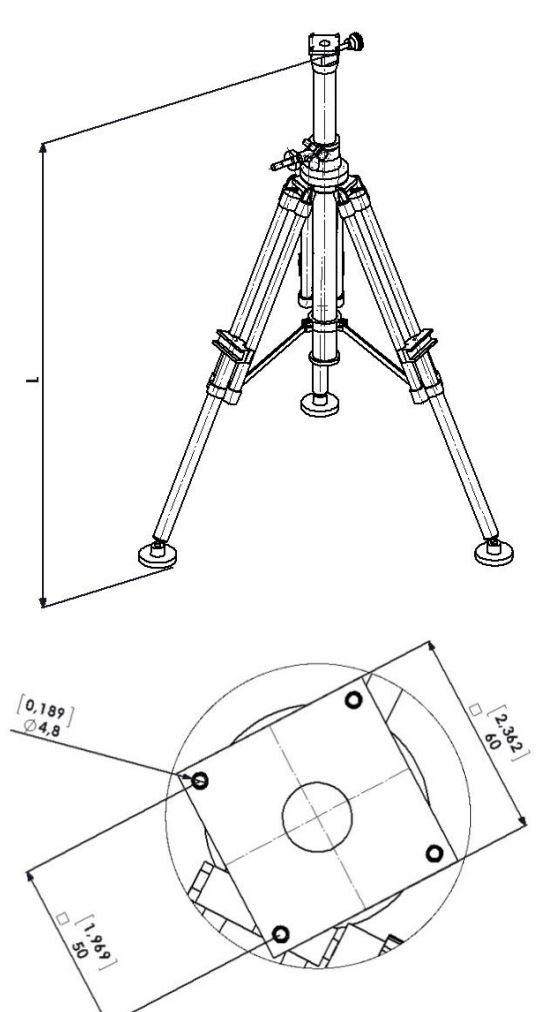
Isometric drawing of the mounting plate 529, showing dimensions in millimeters (mm) in brackets and inches in parentheses.

- Overall length: [9.055] 230
- Overall width: [5.858] 149
- Distance between mounting holes: [1.969] 50
- Distance between mounting holes (center-to-center): [0.189] 4.8
- Distance between mounting holes (edge-to-edge): [0.344] 8.8
- Distance between mounting holes (edge-to-center): [0.344] 8.8
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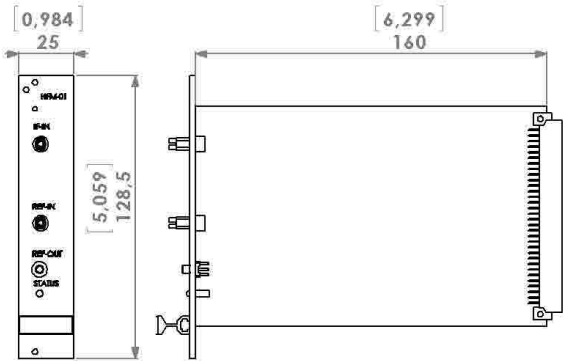
Montagetubus für Optikmodule <i>Mounting tube for optic modules</i>		
Masse [g] /	Weight :	19,32
Bestell-Nr. /	Order No.:	
269302 - 5014 . 910		

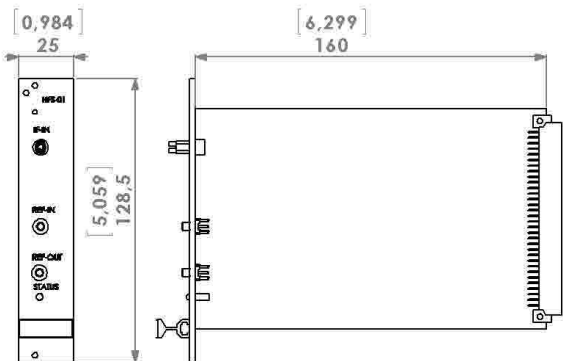


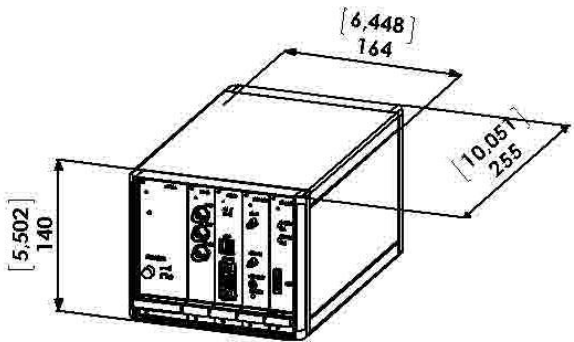


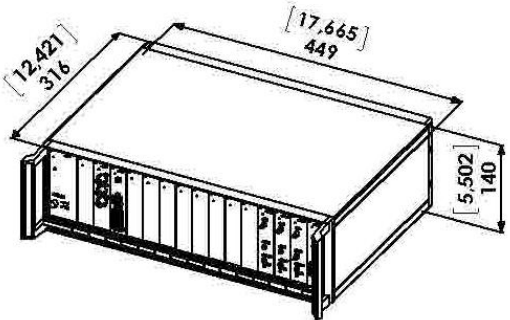
Stativ <i>Tripod</i>	
Masse [g] / Weight : 3827	
Bestell-Nr. / Order No.:	
269302 - 4041 . 225	
Aufbauhöhe (min): 665mm Aufbauhöhe (max): 1325mm <i>Assembly height (min): 26.18"</i> <i>Assembly height (max): 55.16"</i>	

Auswerteeinheiten und Auswertesystem*Evaluation units and evaluation systems*

Hoch Frequenz Messkarte (Master) <i>High frequency measuring card (master)</i>		
Masse [g] /	Weight :	
Bestell-Nr. /	Order No.:	
269302 - 5092 . 024		
- Erweiterte Spezifikationen: <i>Ext. specifications:</i>	<i>Signalaufbereitung</i> <i>Signal processing</i>	
Schnittstellen: <i>Interfaces:</i>		Europacard

Hoch Frequenz Messkarte (Slave) <i>High frequency measuring card (slave)</i>		
Masse [g] /	Weight :	
Bestell-Nr. /	Order No.:	
269302 - 5092 . 124		
- Erweiterte Spezifikationen: <i>Ext. specifications:</i>	<i>Signalaufbereitung</i> <i>Signal processing</i>	
Schnittstellen: <i>Interfaces:</i>		Europacard

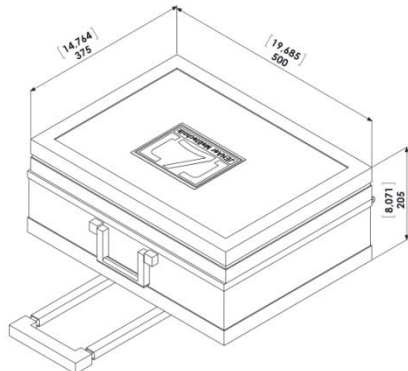
Grundbox mit Powermodul (RE10+ET10/ET21+IFM-01+IFS-01) – einachsig <i>Basic box with power module (RE10+ET10/ET21+IFM-01+IFS-01) - multi-axis</i>			
Anzahl der Auswerteeinheiten: <i>No. of Evaluation units:</i>		1...4	
Masse [g] / Weight:		4000	
Bestell-Nr. / Order No.: 269302 – 5093 . 026			

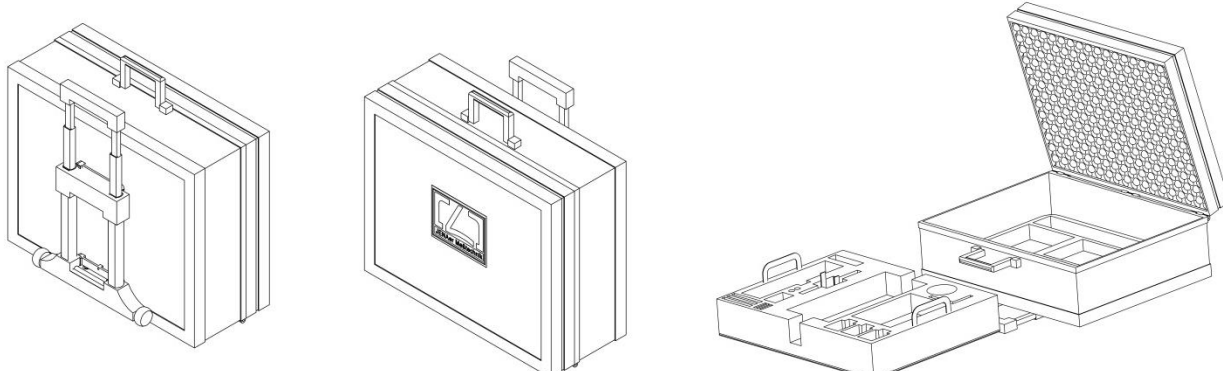
Grundbox mit Powermodul (RE10+ET10/ET21+IFM-01+IFS-01) – mehrachsig <i>Basic box with power module (RE10+ET10/ET21+IFM-01+IFS-01) - single-axis</i>			
Anzahl der Auswerteeinheiten: <i>No. of Evaluation units:</i>		1...4	
Masse [g] / Weight:		5000	
Bestell-Nr. / Order No.: 269302 – 5093 . 126			

K. Aufbewahrungsbehälter

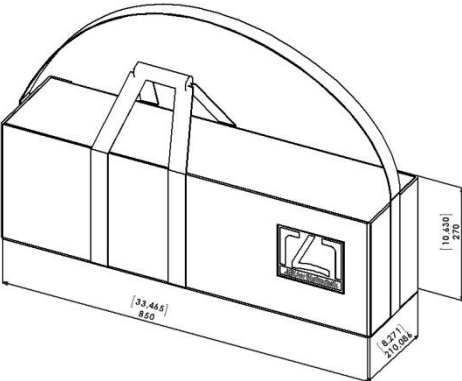
K. Storage boxes

Transportbehälter - Fluggepäck (mit abnehmbaren Rollensystem) <i>Transport box - flight luggage (with removable rollers system)</i>		
Abmessung [mm]:	500 x 375 x 205	
<i>Dimension [inch]:</i>	19.685 x 14.764 x 8.071	
Masse [g] / Weight :		-
Bestell-Nr. / Order No.: 269302 - 4003 . 626		





Aufbewahrungstasche für Stativ und Justiertisch <i>Transport bag for tripod and adjustment table</i>		
Abmessung [mm]: <i>Dimension [inch]:</i>	1100 x 250 x 210 43.309 x 9.843 x 8.268	
Masse [g] / <i>Weight :</i>	1286	
Bestell-Nr. / <i>Order No.:</i> 000000 – 4003 . 726		

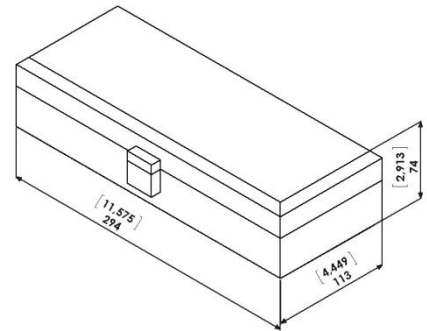
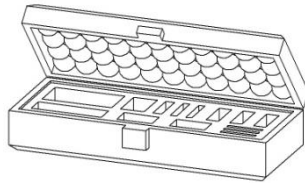


Aufbewahrungsbehälter für Optikmodule*Box for optic modules*

Abmessung [mm]:	285 x 103 x 66
<i>Dimension [inch]:</i>	11.221 x 4.055 x 2.598

Masse [g] /	Weight :	
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Bestell-Nr. /	Order No.:
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269302 - 4010 . 126

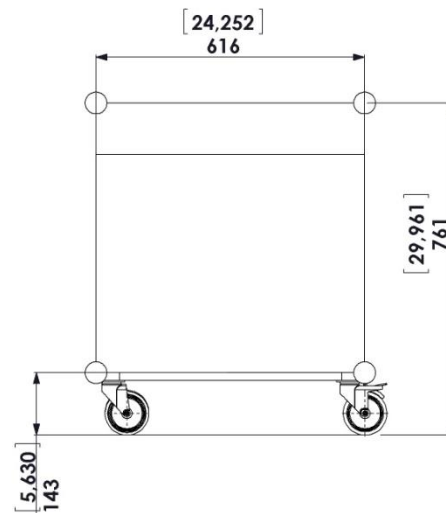
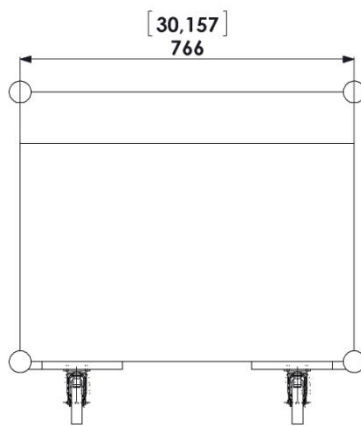
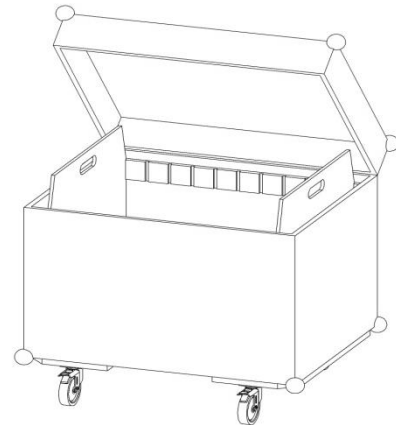
Transportbox für ZLM 800/ PCI / 1-12 - hybrid*Transport box for ZLM 800/ PCI / 1-12 - hybrid*

Abmessung [mm]:	766 x 616 x 761
<i>Dimension [inch]:</i>	30.157 x 24.252 x 29.961

Masse [kg] /	<i>Weight :</i>	ca. 32
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Bestell-Nr. /	<i>Order No.:</i>
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000000 – 5001 . 370



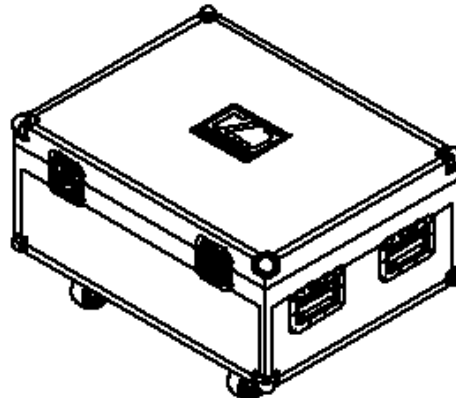
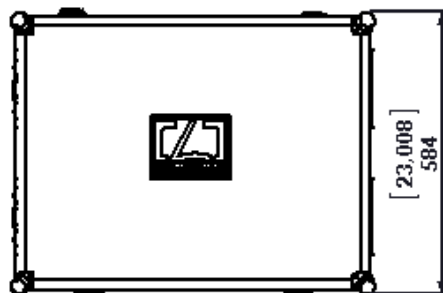
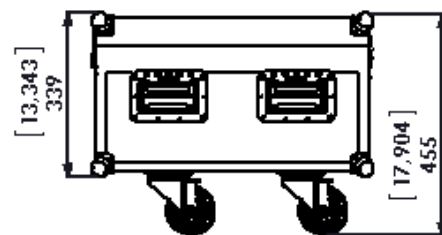
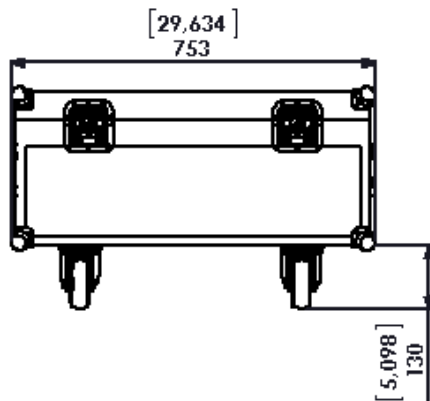
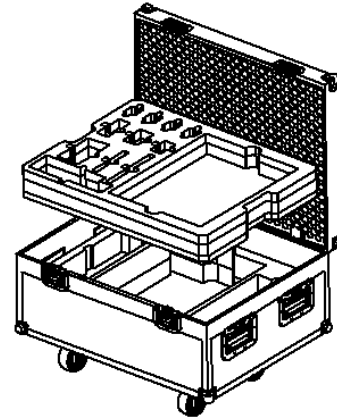
Transport Fluggepäck 2025 (mit Rollen)*Transport baggage 2025 (with wheels)*

Abmessung [mm]:	753 x 584 x 455
<i>Dimension [inch]:</i>	29.624 x 23.008 x 17.904

Masse [kg] /	<i>Weight :</i>	ca. 16kg
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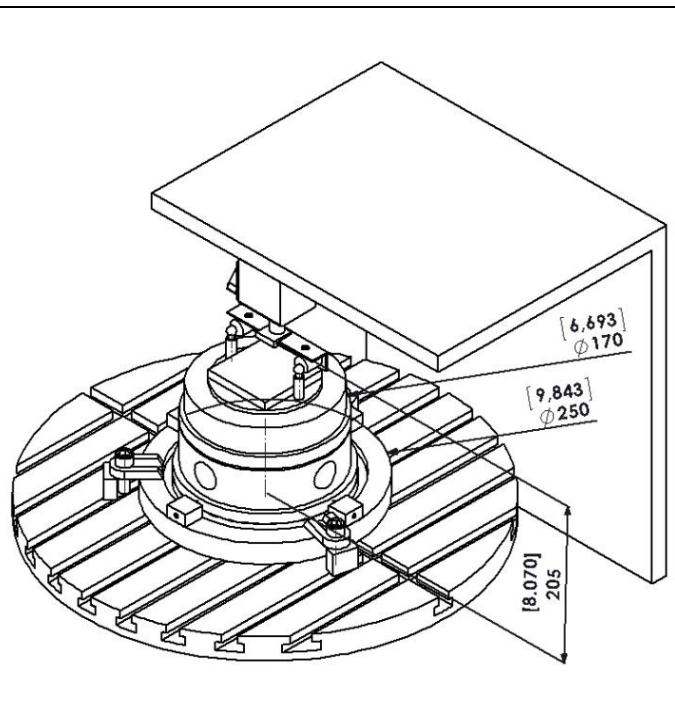
Bestell-Nr. /	<i>Order No.:</i>
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269302 – 4004 . 026

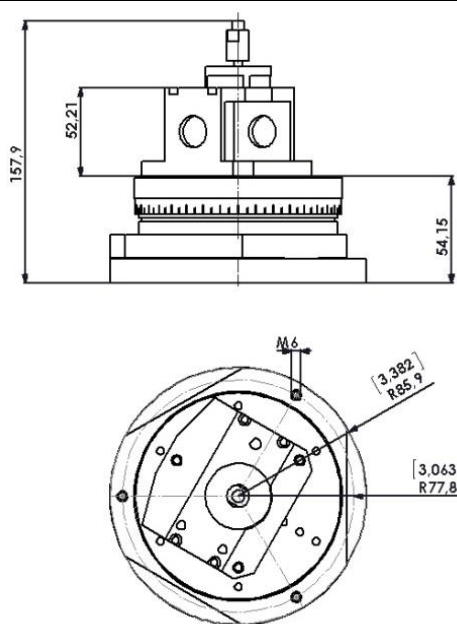


L. Zusatzgeräte*L. Extra equipment***ZLM - Spezialzusatzgeräte***ZLM – special extra devices*

Rotarod 880/36000 <i>Rotarod 880/36000</i>		
Abmessung [mm]: <i>Dimension [inch]:</i>	$\varnothing 250 \times 205$ $\varnothing 9.843 \times 8.070$	
Masse [g] / <i>Weight :</i>		13000
Bestell-Nr. / <i>Order No.:</i> 269302 – 6000 . 320		

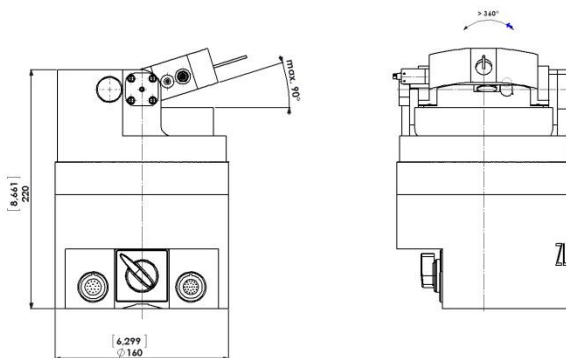


Bausatz für Vollwinkelmessung <i>Assembly set for full angle measurement</i>		
Abmessung [mm]: <i>Dimension [inch]:</i>	$\varnothing 171,8 \times 157,9$ $\varnothing 6.76 \times 6.21$	
Masse [g] / <i>Weight :</i>		
Bestell-Nr. / <i>Order No.:</i> 269302 – 6000 . 920		

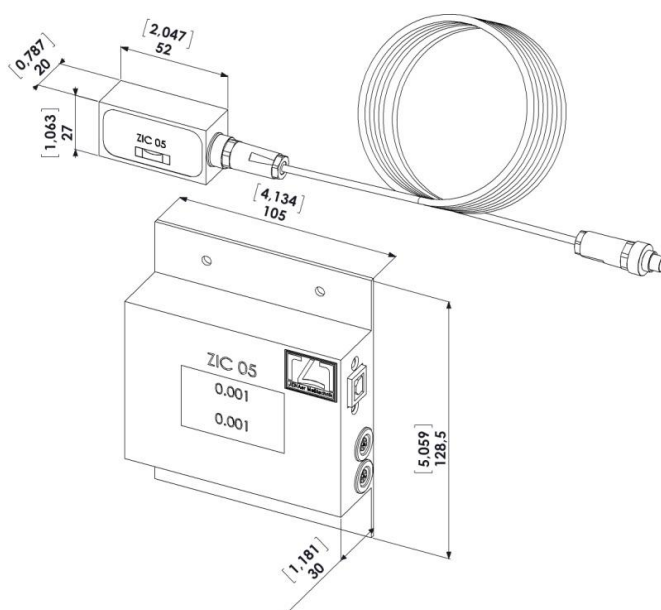


ZLP 200 (selbstkalibrierendes Differentialinterferometer)*ZLP 200 (self calibrating differential interferometer)*

Abmessung [mm]: <i>Dimension [inch]:</i>	$\varnothing 160 \times 220$ $\varnothing 6.299 \times 8.661$
Masse [g] / Weight :	
Bestell-Nr. / Order No.: 269305 – 5500 . 024	
Erweiterte Spezifikationen: <i>Ext. specifications:</i>	Echtzeitsystem <i>Real-time system</i>
Winkelschrittauflösung (Azimut): <i>Angular step resolution (Azimuth):</i>	1,2°
Winkelschrittauflösung (Elevation): <i>Angular step resolution (elevation):</i>	12°
Rotationsmessabstand: <i>Rotation measurement distance:</i>	3 m
Messgenauigkeit: <i>Accuracy :</i>	100 nm



ZIC 05 Inklinometer <i>ZIC 05 Inclinometer</i>			
Abmessung [mm]: <i>Dimension [inch]:</i>	$\varnothing 160 \times 220$ $\varnothing 6.299 \times 8.661$		
Masse [g] / Weight :			
Bestell-Nr. / Order No.: 269305 – 3500 . 026			
Erweiterte Spezifikationen: <i>Ext. specifications:</i>			
Messrate: <i>Measurement rate:</i>	3 Hz		
Messbereich: <i>Measurement range:</i>	$\pm 10^{\circ}$	$\pm 3^{\circ}$	$\pm 1^{\circ}$
Messauflösung: <i>Resolution:</i>	0,0003° <i>0.0003°</i>	0,0001° <i>0.0001°</i>	0,00005° <i>0.00005°</i>
Messgenauigkeit: <i>Accuracy :</i>	0,003° <i>0.003°</i>	0,001° <i>0.001°</i>	0,0005° <i>0.0005°</i>
Lieferumfang: <i>Delivery items:</i>	Artikelnummer: <i>Order No.</i>	BESCHREIBUNG <i>Name</i>	MENGE <i>Quantity</i>
	269305 - 3500 . 024	ZIC 05 Sensor für 345 <i>ZIC 05 sensor for 345</i>	1
	269305 - 3501 . 024	ZIC 05 Verbindungskabel <i>ZIC 05 connecting cable</i>	1
	269305 - 3500 . 025	ZIC 05 Auswerteeinheit <i>ZIC 05 Evaluation unit</i>	1



Einstrahltaster 206*Single beam probe 206***Abmessung [mm]:**

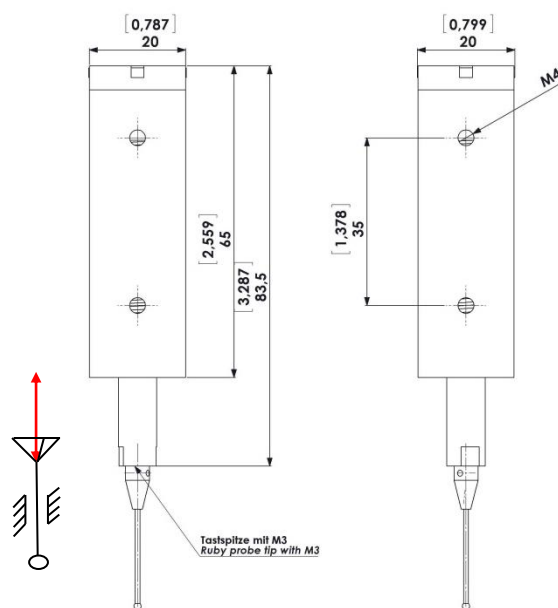
20 x 20 x 83,5

Dimension [inch]:

0.799 x 0.799 x 3.287

Masse [g] / Weight :

160

Bestell-Nr. / Order No.:**269302 – 5100 . 326**

M. Software
M. Software
Dynamische Software (ZLM - ESIX Module)
Dynamic measurement software (ZLM - ESIX modules)

Wegmessung <i>Distance measuring</i>			
Bestell-Nr.: 269302 – 4026 . 624		Order No.: 269302- 4026 . 724	
Dynamische Messsoftware für Einachssysteme		<i>Dynamic measurement software for one axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
- Weg / Zeit - Geschwindigkeit - Beschleunigung - Fourieranalyse		- Distance / time - Velocity - Acceleration - Fourier analysis	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- Timer - extern - Leertaste	<i>Trigger:</i>	- timer - external - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Winkelmessung <i>Angle measurement</i>			
Bestell-Nr.: 269302 – 4026 . 824		Order No.: 269302- 4026 . 924	
Dynamische Messsoftware für Einachssysteme		<i>Dynamic measurement software for one axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
- Winkel / Zeit - Winkelgeschwindigkeit - Winkelbeschleunigung - Fourieranalyse		- Angle / time - Angular velocity - Angular acceleration - Fourier analysis	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- Timer - extern - Leertaste	<i>Trigger:</i>	- timer - external - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Dynamische Messsoftware für Mehrachssystememessung <i>Dynamic measurement for multi axis systems</i>			
Bestell-Nr.: 269302 – 4027 . 224		Order No.: 269302- 4027 . 324	
Dynam. Messsoftware für Multiachssysteme		<i>Dynamic measurement software for multi axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
- Weg / Zeit - Geschwindigkeit - Beschleunigung - Winkel / Zeit - Winkelgeschwindigkeit - Winkelbeschleunigung - Geradheit - Gier- und Nickwinkel - Fourieranalyse - Statistik		- Distance / time - Velocity - Acceleration - Angle / time - Angular velocity - Angular acceleration - Straightness - Yaw- and pitch angle - Fourier analysis - Statistic	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- Timer - extern - Leertaste	<i>Trigger:</i>	- timer - external - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Kalibriersoftware (ZLM - ESOX Module)
Calibration software (ZLM - ESOX modules)

Positionsmessung <i>Position measurement</i>			
Bestell-Nr.: 269302 – 4027 . 024		Order No.: 269302- 4027 . 124	
Dynamische Messsoftware für Einachssysteme		<i>Dynamic measurement software for one axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
Verfahrensrichtlinien: - ISO 230 - VDI 3441 - VDI 2617 - NMTBA (Linear, Pendelschritt, Quasipilger u. Unidirektional)		Procedure direction: - ISO 230 - VDI 3441 - VDI 2617 - NMTBA (linear, pendular step, quasi-pilger & unidirectional)	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- Timer - extern - Leertaste	<i>Trigger:</i>	- timer - external - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Winkel- und Geradheitsmessung <i>Angle and straightness measurement</i>			
Bestell-Nr.: 269302 – 4026 . 024		Order No.: 269302- 4026 . 124	
Dynamische Messsoftware für Einachssysteme		<i>Dynamic measurement software for one axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
- Winkel - Geradheit		- Angle - Straightness	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- extern - Leertaste	<i>Trigger:</i>	- external - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Ebenheitsmessung <i>Flatness measurement</i>			
Bestell-Nr.: 269302 – 4027 . 424		Order No.: 269302- 4027 . 524	
Dynamische Messsoftware für Einachssysteme		<i>Dynamic measurement software for one axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
Verfahrensrichtlinien: - Cross Jack - Union Jack		Procedure direction: - Cross Jack - Union jack	
Datenexport:	ASCII	<i>Data export:</i>	ASCII
Startauslösung:	- extern - Leertaste	<i>Trigger:</i>	- extern - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Kalibriersoftware für Mehrachssysteme <i>Calibration software for multi axis systems</i>			
Bestell-Nr. : 269302 – 4028 . 224		Order No.: 269302- 4028 . 324	
Dynamische Messsoftware für Mehrachssysteme		<i>Dynamic measurement software for multi axis systems</i>	
Sprachunterstützung: Deutsch		<i>Language support: English</i>	
- Weg - Winkel - Geradheit - Gier und Nickwinkel (Linear, Pendelschritt, Quasipilger u. Unidirektional)		- Distance - Angle - Straightness - Yaw and pitch angle (linear, pendular step, quasi-pilger & unidirectional)	
Datenexport:	ASC II	<i>Data export:</i>	ASCII
Startauslösung:	- extern - Leertaste	<i>Trigger:</i>	- extern - space
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>			

Kalibriersoftware für Maschinenfehlerkompensation (ZLM - ESOX Module)
Calibration software for machine error compensation (ZLM - ESOX modules)

System Sinumerik <i>System Sinumerik</i>	
Bestell-Nr.: 269302 – 4026 . 224	Order No.: 269302- 4026 . 324
Sprachunterstützung: Deutsch	<i>Language support: English</i>
Steuerungen	<i>Controller:</i>
- Siemens 800 series - Siemens 840D	
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>	

System FANUC <i>System FANUC</i>	
Bestell-Nr.: 269302 – 4027 . 824	Order No.: 269302- 4027 . 924
Sprachunterstützung: Deutsch	<i>Language support: English</i>
Steuerungen	<i>Controller:</i>
- Fanuc 0, 00 - Fanuc 10, 11, 12, 100, 110, 120 - Fanuc 15 - Fanuc 16, 18, 21, 160, 180, 210 - Fanuc 30, 31, 32, 300, 310, 320	
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>	

System Heidenhain <i>System Heidenhain</i>	
Bestell-Nr.: 269302 – 4028 . 624	Order No.: 269302- 4028 . 724
Sprachunterstützung: Deutsch	<i>Language support: English</i>
Steuerungen:	<i>Controller:</i>
- Heidenhain TNC 426, 430, iTNC 530 - Heidenhain ND 221B, 231B, 281B - Heidenhain ND 720, 760	
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>	

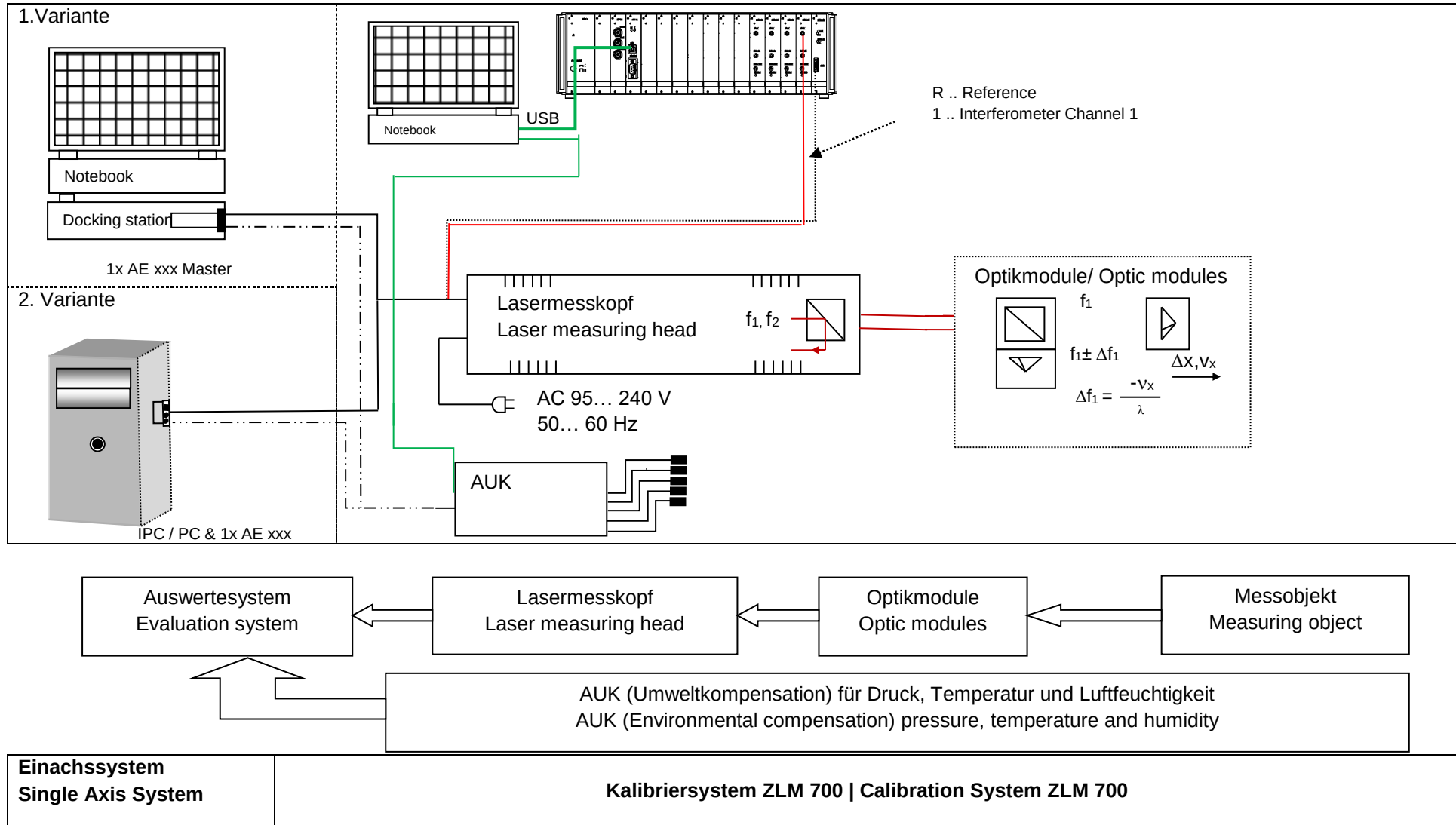
System Beckhoff <i>System Beckhoff</i>	
Bestell-Nr.: 269302 – 4028 . 024	Order No.: 269302- 4028 . 124
Sprachunterstützung: Deutsch	<i>Language support: English</i>
Steuerungen:	<i>Controller:</i>
- Beckhoff TwinCAT CNC	
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>	

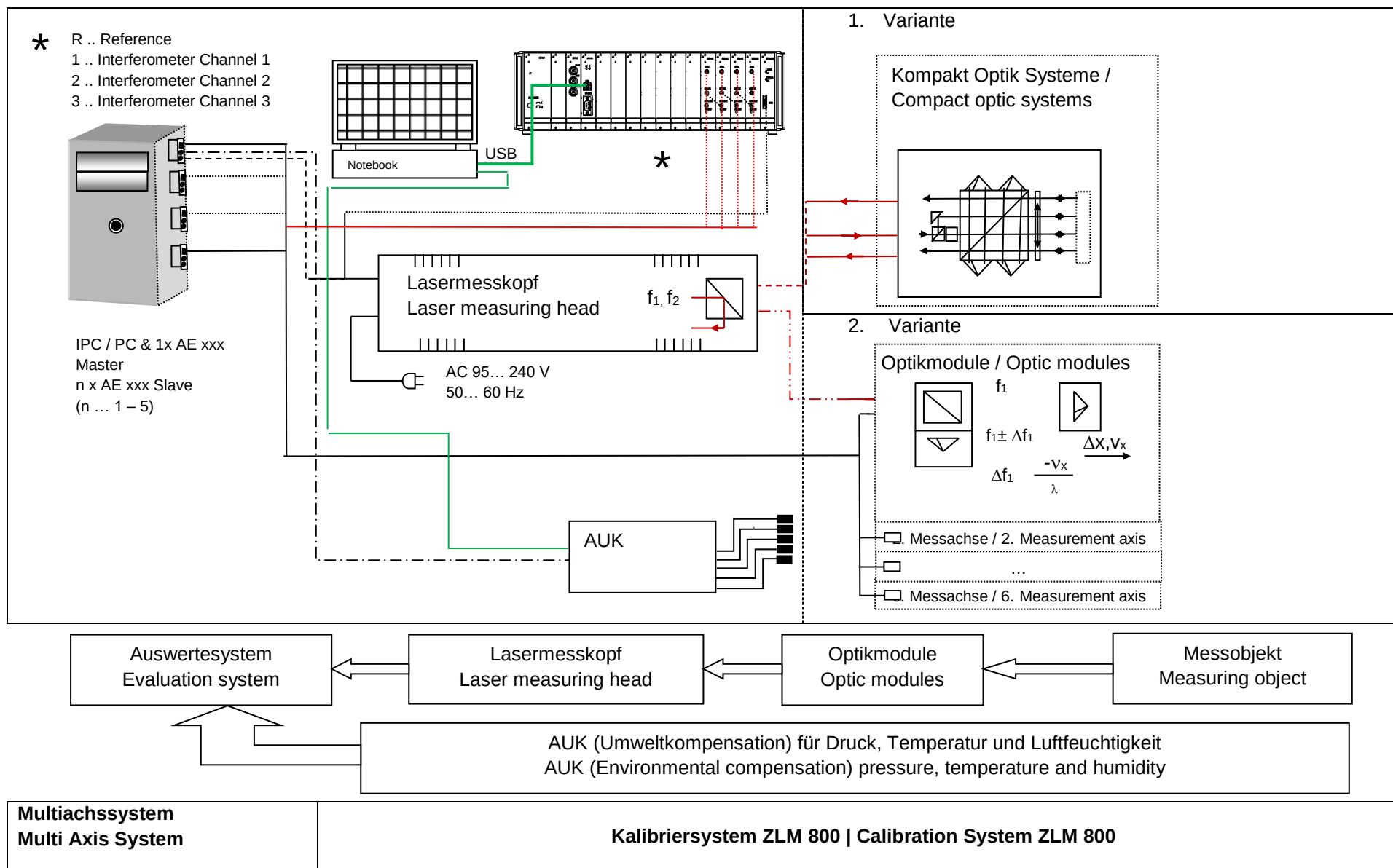
Umwelt- und Materialkompensationssoftware
Environment and material compensation software

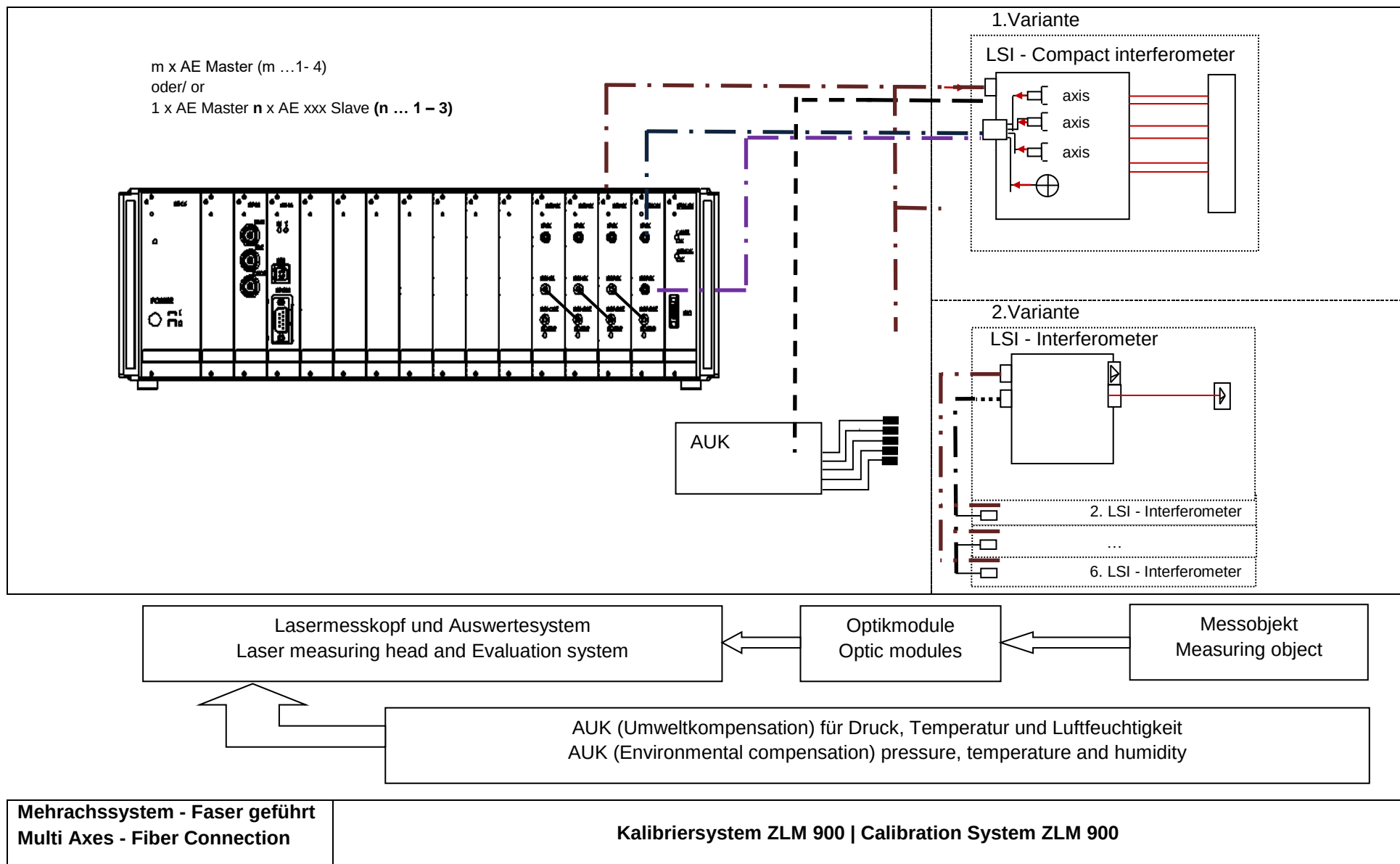
ZLM Temp Kompensation <i>ZLM Temp compensation</i>		
Bestell-Nr.: 269302 – 4028 . 824		<i>Order No.:</i> 269302- 4028 . 924
Sprachunterstützung: Deutsch		<i>Language support: English</i>
Benötigte Zusatzeinheiten: Required units:		<i>AUK</i> <i>TEMP 14</i>
Maximale Anzahl Temperatursensoren (für Umweltkompensation ZLM) : <i>Max. number of temperature sensors (environment compensation of ZLM):</i>		5 16* * ... TEMP14
für Windows 7, 8, 10 (32bit, 64bit) <i>for Windows 7, 8, 10 (32bit, 64bit)</i>		

N. Übersicht (Grundaufbau und Beispiele)

N. Overview (basic setup and examples)







Toleranzarten

Tolerance types

Art Type	Gruppe Group	Geometrische Eigenschaft Geometric property	Symbol
Lagetoleranzen Position tolerances	Richtungstoleranzen Directional tolerances	Parallelität Parallelism	
		Rechtwinkligkeit Rectangularity	
		Winkligkeit Angularity	
	Ortstoleranzen Location tolerances	Position	
		Koaxialität Coaxiality Konzentrizität Concentricity	
		Symmetrie Symmetry	
	Laftoleranzen Running tolerances	Rundlauf Round trip	
		Gesamtrundlauf Total round trip	
Formtoleranzen Shape tolerances	Flachform- toleranzen Flat forming tolerances	Geradheit Straightness	
		Ebenheit Flatness	
	Rundlauffoleranzen Concentricity tolerances	Rundheit Roundness	
		Zylindrizität Roundness	
Profiltoleranzen Profile tolerances	Profiltoleranzen Profile tolerances	Profiltoleranz der Linie Profile tolerance of the line	
		Profiltoleranz der Ebene Profile tolerance of the plane	

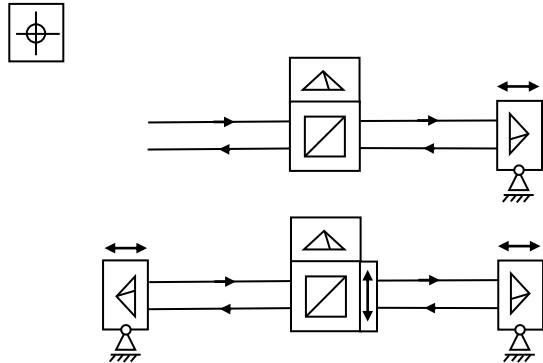
Systemvarianten - Basismodule

System variants – basis modules

	Tripelreflektor Cube corner reflector
	Polarisationsstrahlteiler Polarizing beam splitter
	Planspiegel Plane mirror
	$\lambda/4$ Platte Quarter wave plate
	90° Umlenker 90° Beam bender

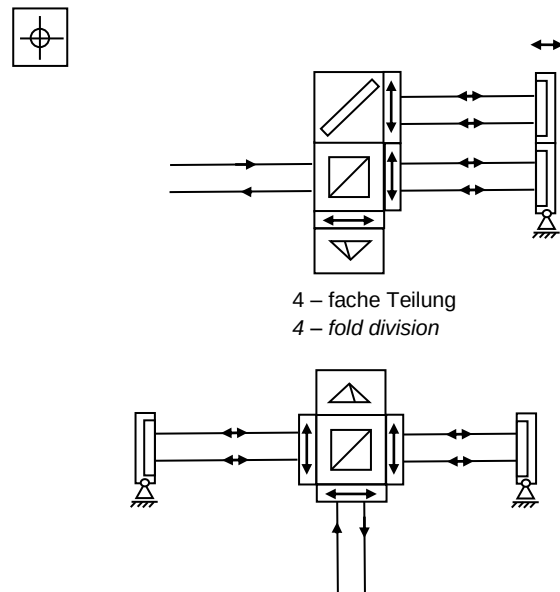
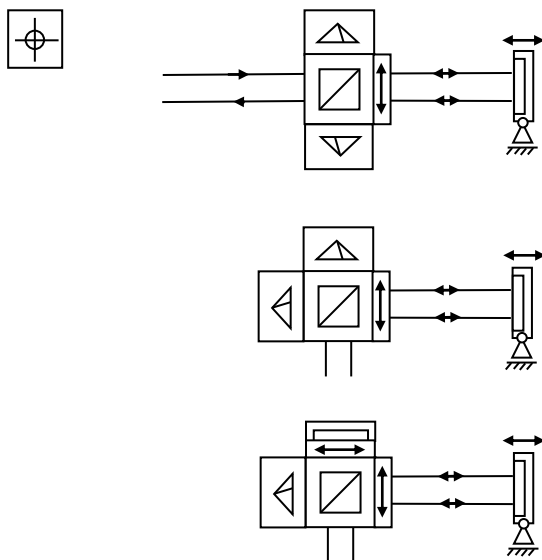
Streckenmessung mit Tripelreflektor

Distance measurement with Cube corner reflector



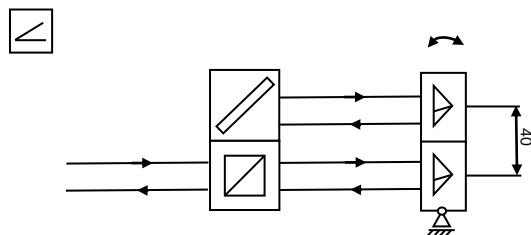
Streckenmessung mit Planspiegelreflektor

Distance measurement with Plane mirror reflector



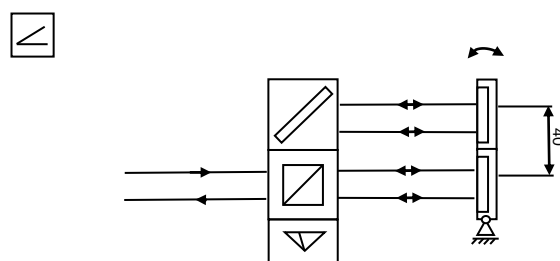
Winkelmessung mit Tripelreflektoren

Angle measurement with Cube corner reflectors

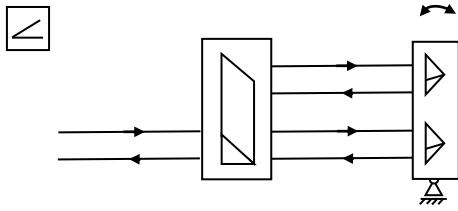


Winkelmessung mit Planspiegelreflektoren

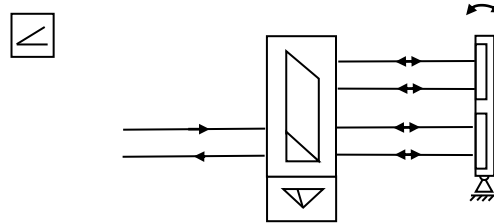
Angle measurement with Plane mirror reflectors



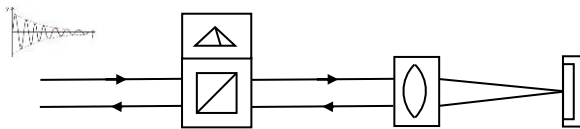
Winkelmessung mit Doppelreflektor
Angle measurement with Double cube corner reflectors



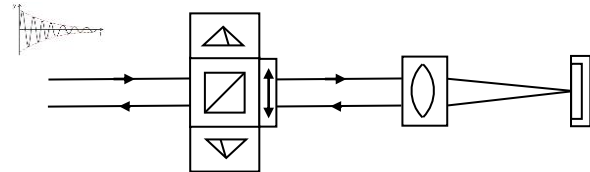
Winkelmessung mit Planspiegelreflektor
Angle measurement with Plane mirror reflector



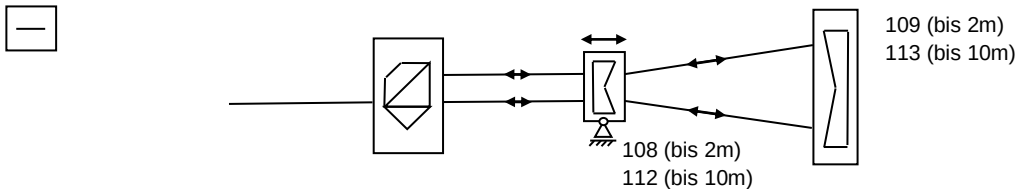
Schwingungsmessung (2,5nm Auflösung)
Vibration measurement (2.5nm resolution)



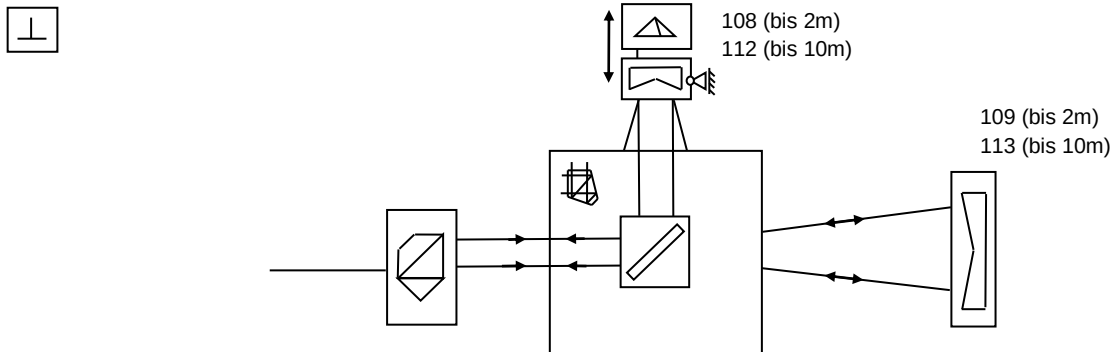
Schwingungsmessung (1,25nm Auflösung)
Vibration measurement (1.25nm resolution)



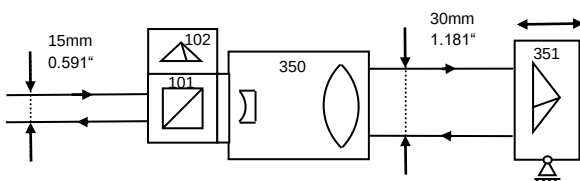
Geradheitsmessung
Straightness measurement



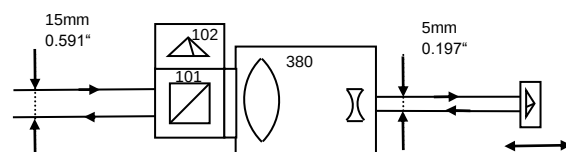
Rechtwinkelmessung
Squareness measurement

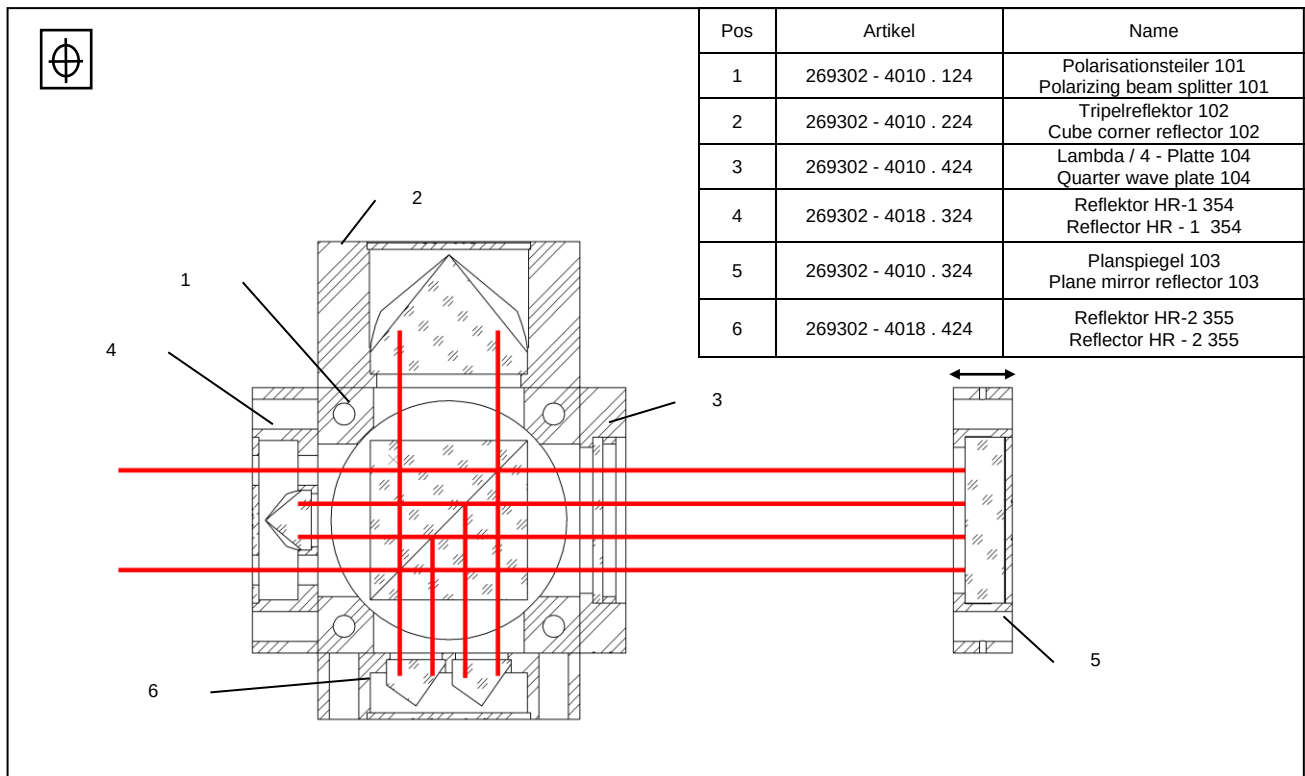


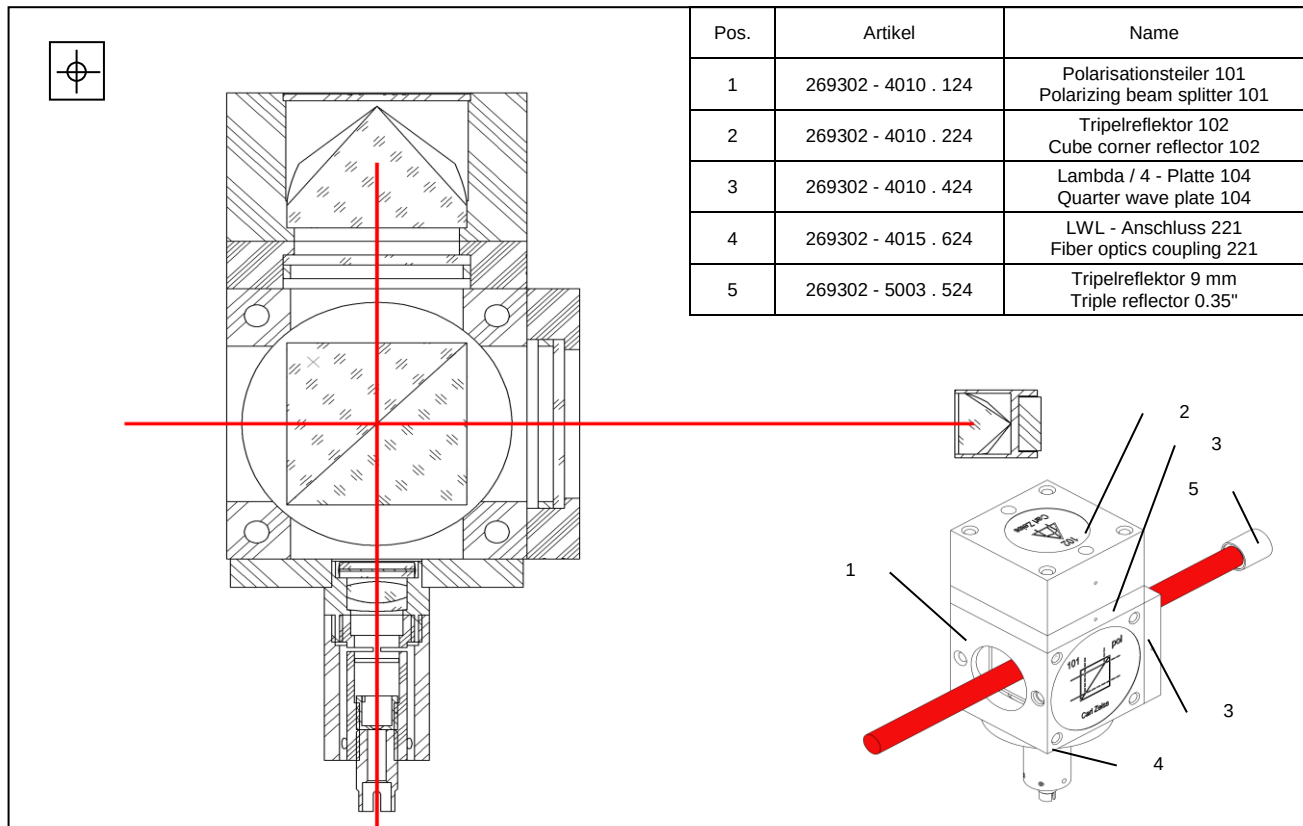
Vergrößerung des Strahldurchmessers und
-abstandes für Streckenmessung bis 120m
Widening the beam diameter and beam distance
for distance measurements up to 390 ft



Reduzierung des Strahlabstandes für geringe
Reflexionsfläche (Streckenmessung bis 12m)
Reducing the beam spacing for the smallest reflection
surface (distance measurement up to 39ft)

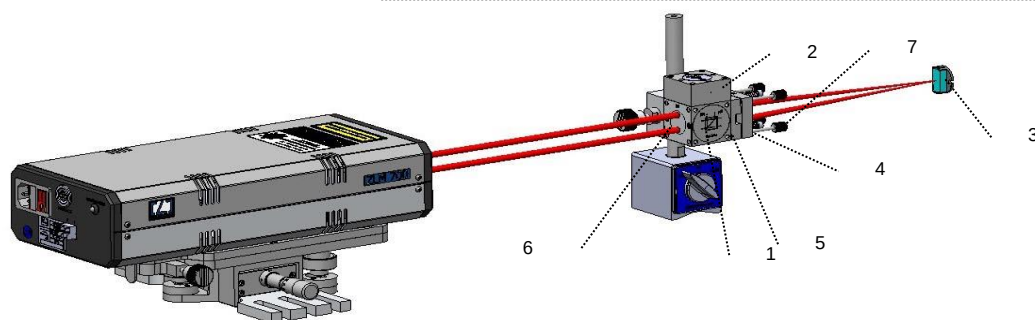


Hochauflösendes Interferometer mit 8-facher Strahlführung (Auflösung 0,15nm)*High resolution interferometer with 8-fold beam path (resolution 0.15nm)*

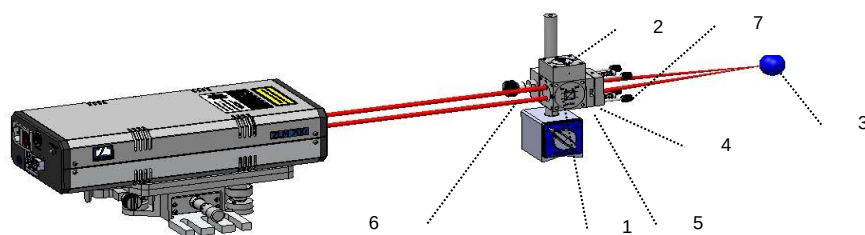
Einstrahl- Messung mit LWL – Auskopplung*Single beam measurement with fiber output coupling*

Schwingungsmessung gegen Spiegel (2,5nm)*Vibration measurement against mirror (2.5nm)*

Pos.	Artikel	Name
1	269302-4010.124	Polarisationsteiler 101 Polarisation splitter 101
2	269302-4010.224	Tripelreflektor 102 Triple reflector 102
3	269302-4016.124	Planspiegelreflektor klein 317 Plane mirror reflector small 317
4	269302-4006.424	Vibrometervorsatzlinse Vibrometer lens
5	269302-4006.425	Vibrometereinstellplatte mit Druckschrauben Vibrometer adjustment plate with pressure screws
6	269302-4014.210	Blende 516 Aperture 516
7	269302-4011.325	Schraube 36 Screw 36

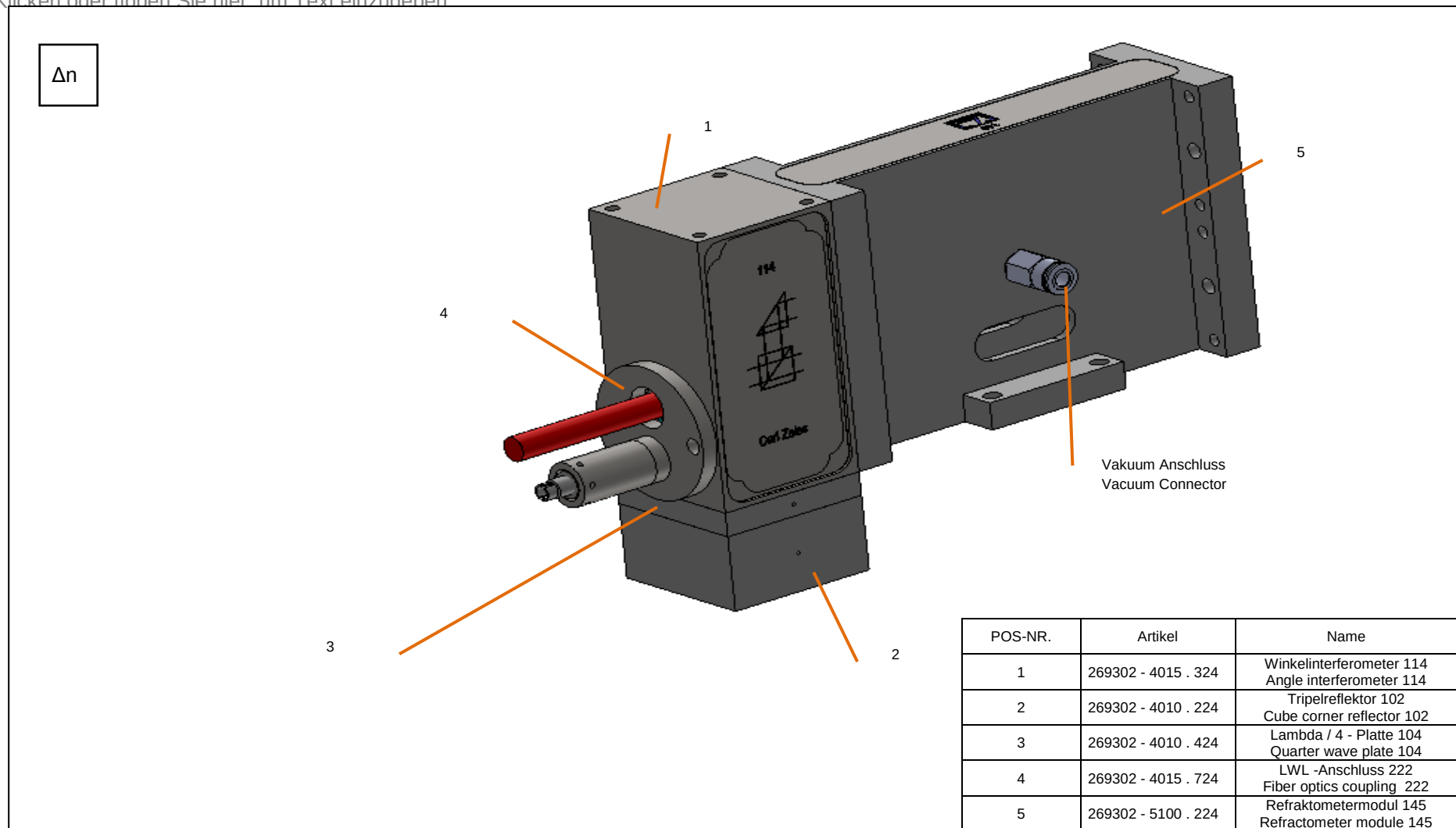
**Schwingungsmessung gegen Kugel oder hoch reflektiven Oberflächen (2,5nm)***Vibration measurement against sphere or highly reflective*

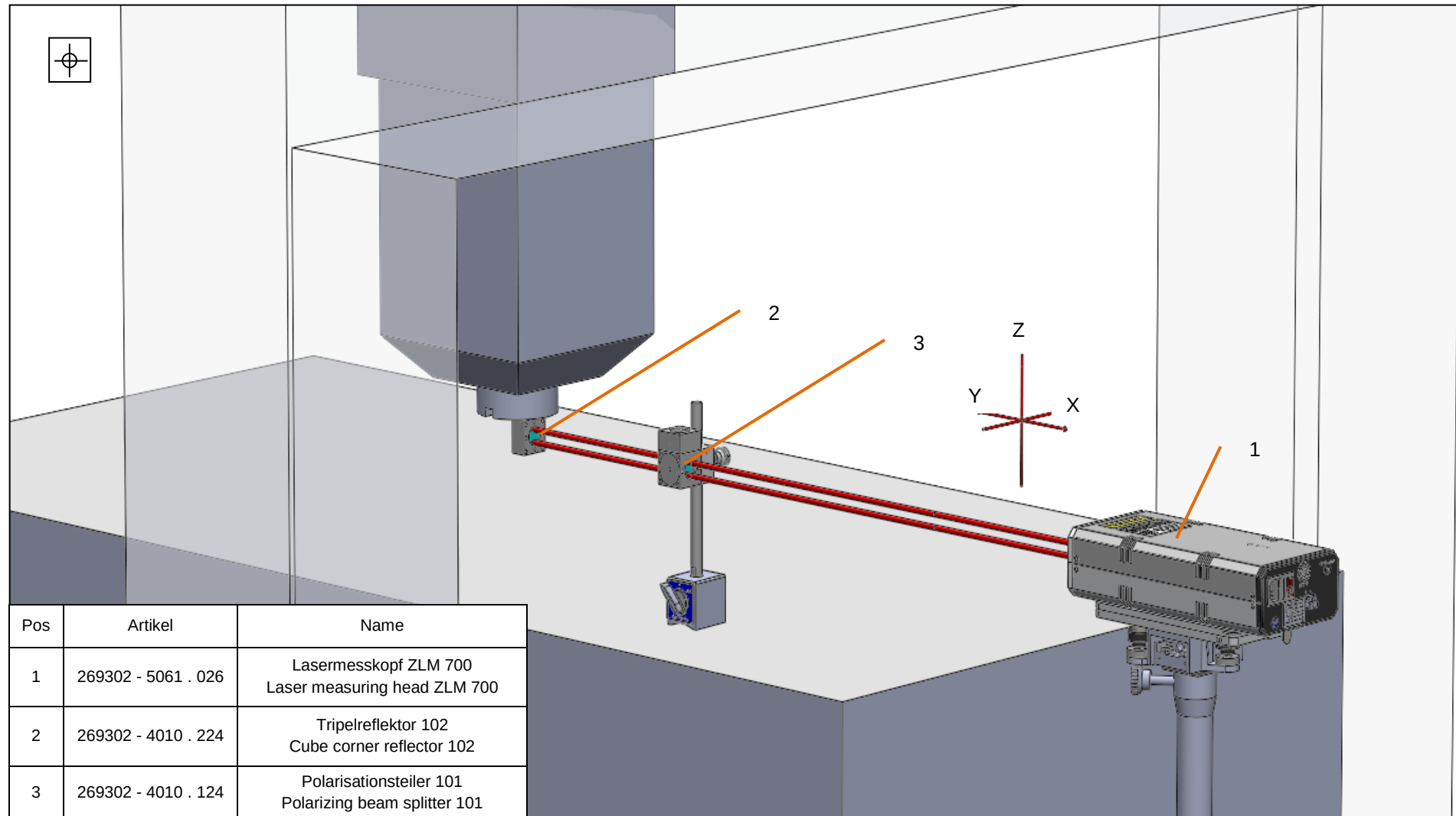
Pos.	Artikel	Name
1	269302-4010.124	Polarisationsteiler 101 Polarisation splitter 101
2	269302-4010.224	Tripelreflektor 102 Triple reflector 102
3	-	Kugel, Ball or high reflective surface
4	269302-4006.424	Vibrometervorsatzlinse Vibrometer lens
5	269302-4006.425	Vibrometereinstellplatte mit Druckschrauben Vibrometer adjustment plate with pressure screws
6	269302-4014.210	Blende 516 Aperture 516
7	269302-4011.325	Schraube 36 Screw 36



Bausatz zur optischen Wellenlängenkompensation / Brechzahlbestimmung*Assembly for optical wavelength compensation / Refraction index identification*

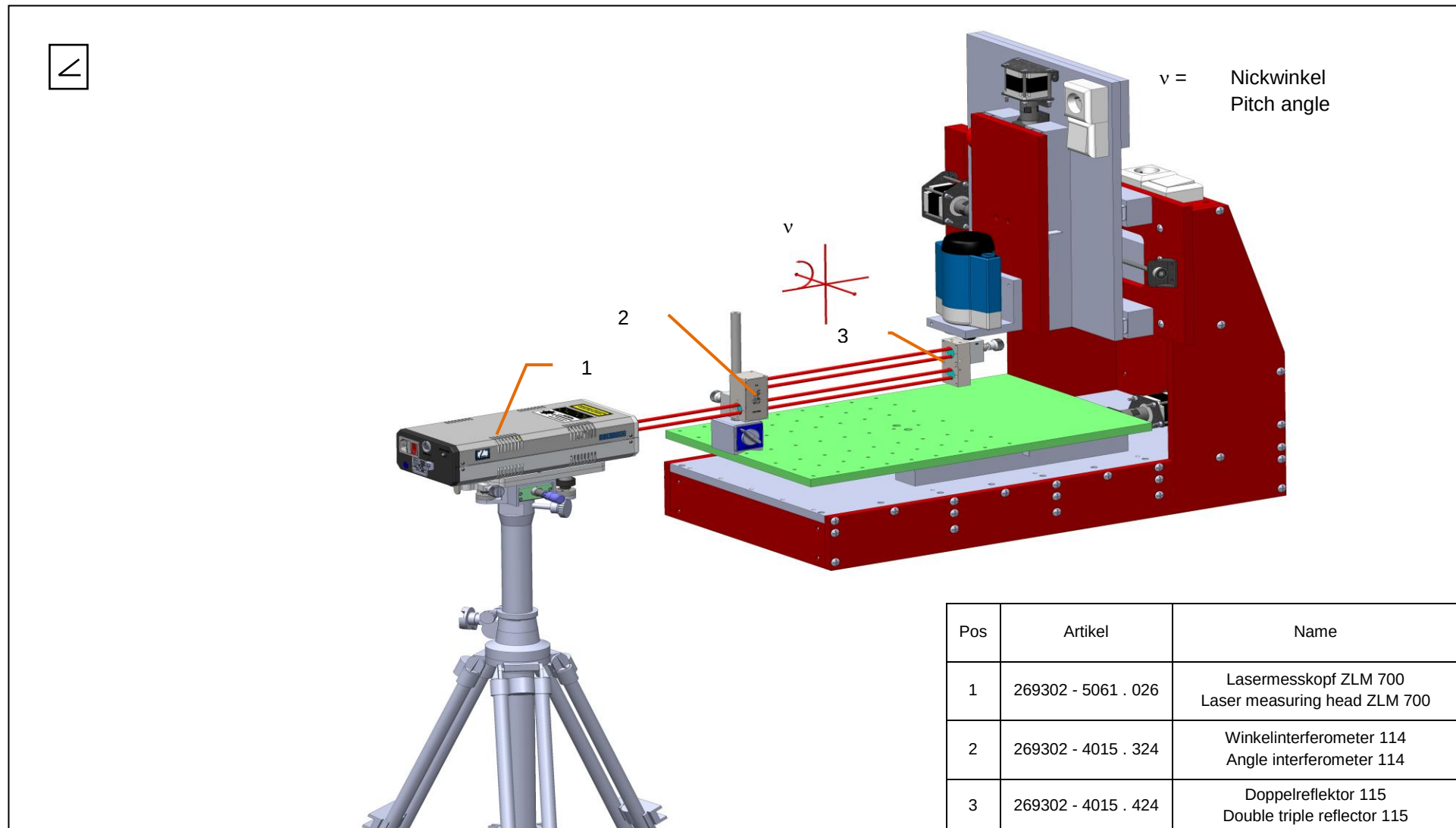
Klicken oder tippen Sie hier, um Text einzugehen



Beispiel – Positionsmessung - ZLM 700*Example – Position measurement - ZLM 700*

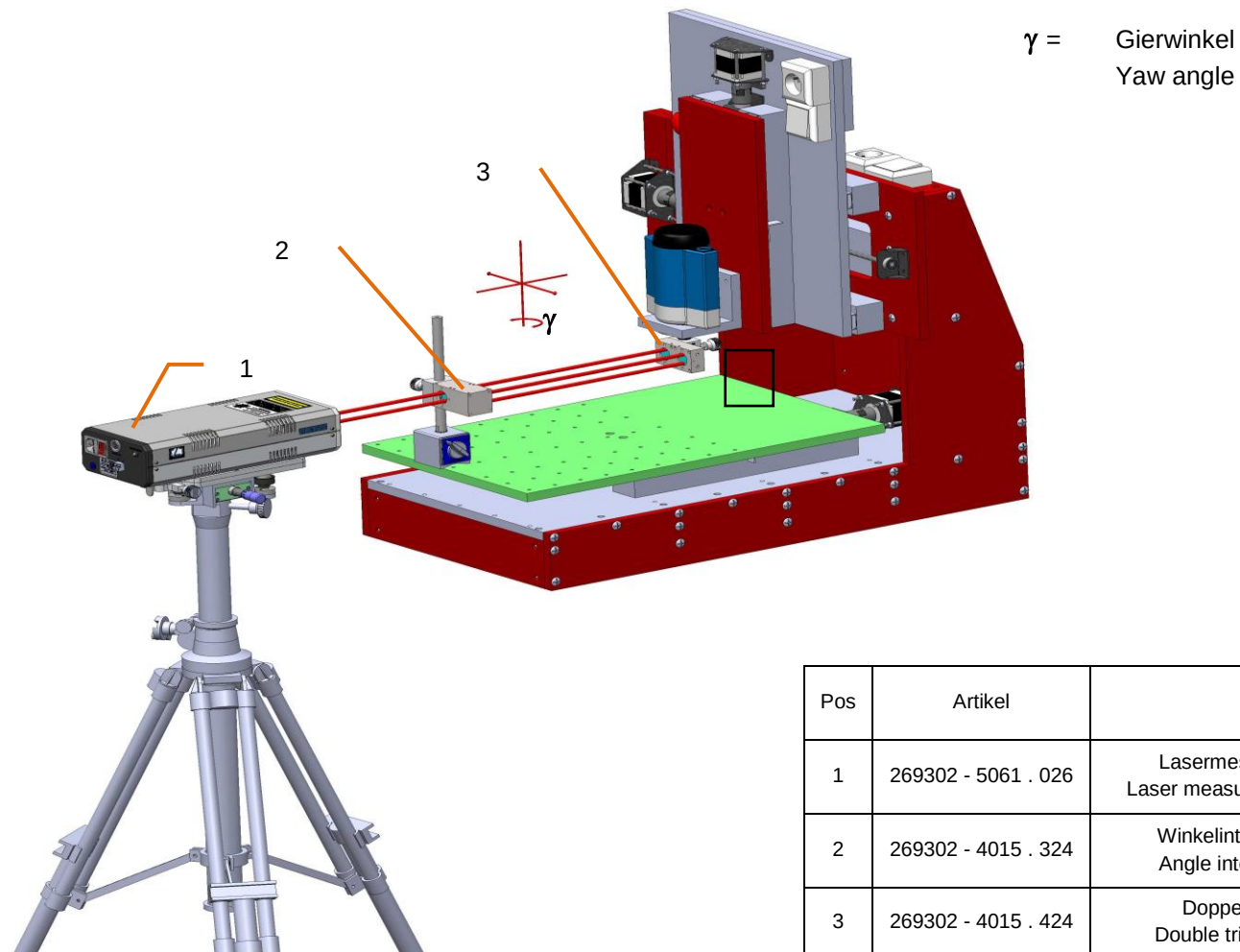
Winkelmessung – Bestimmung des Nickwinkels – ZLM 700

Pitch angle measurement – ZLM 700



Winkelmessung – Bestimmung des Gierwinkels – ZLM 700

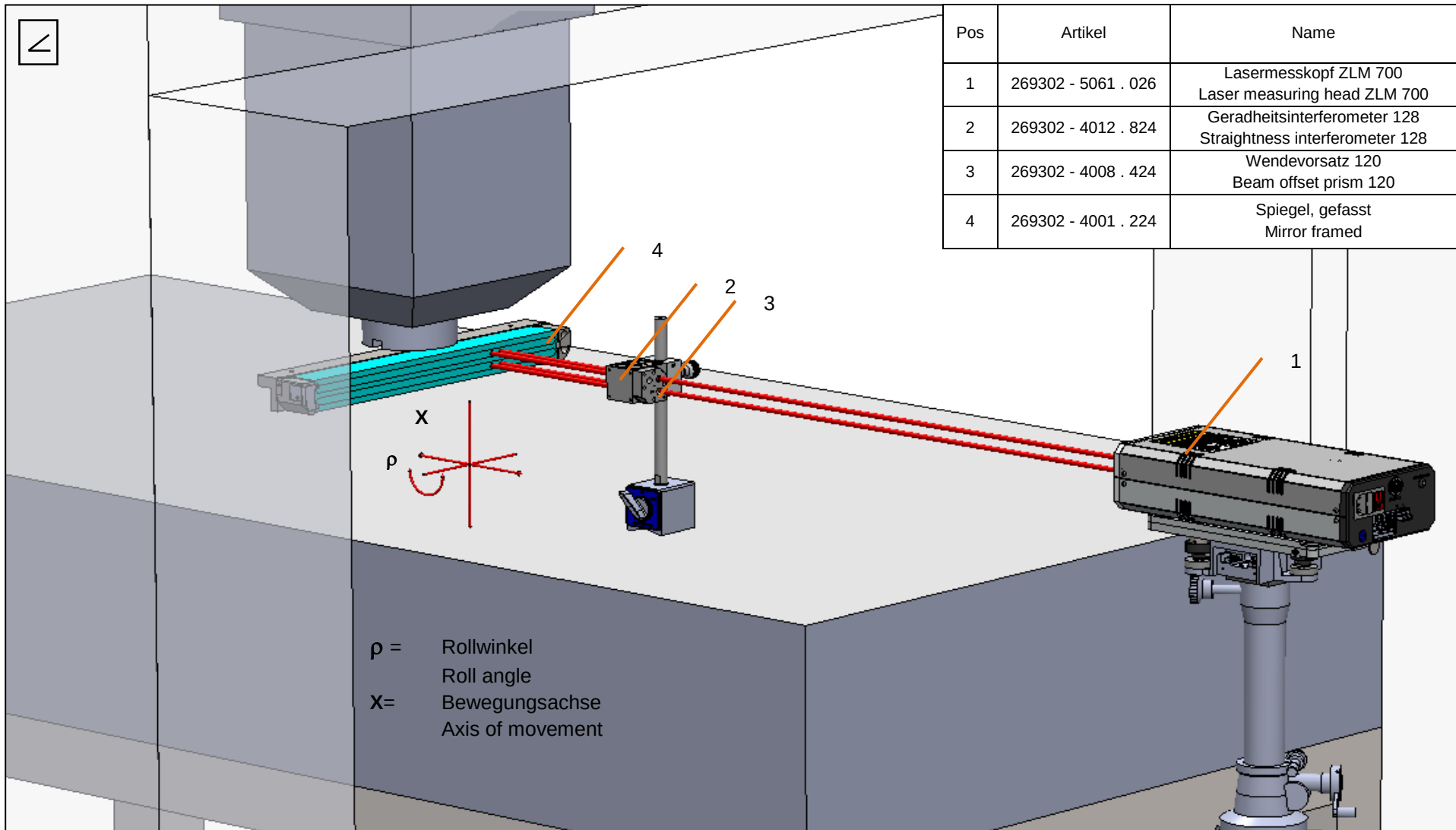
Yaw angle measurement – ZLM 700

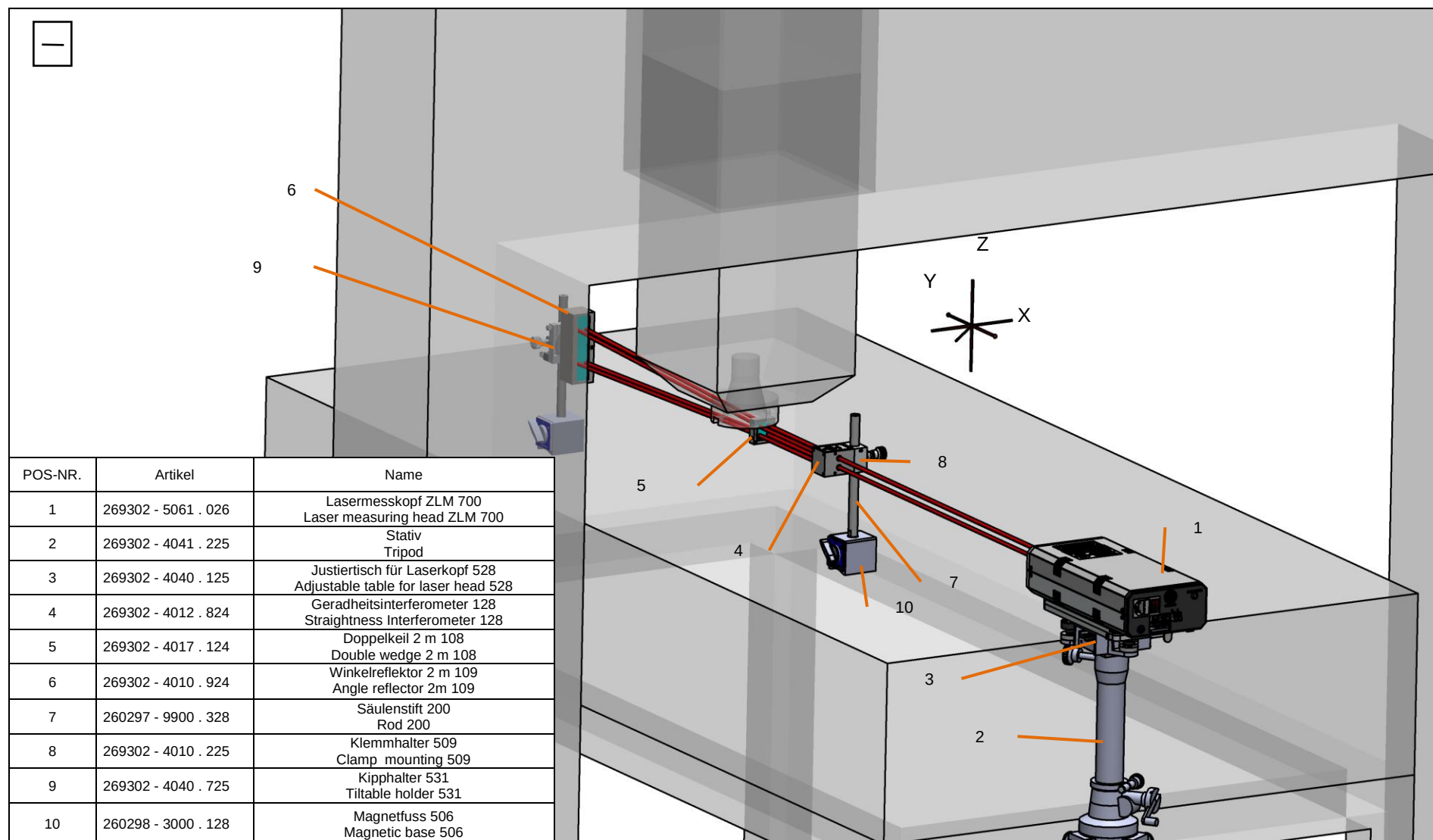


Pos	Artikel	Name
1	269302 - 5061 . 026	Lasermesskopf ZLM 700 Laser measuring head ZLM 700
2	269302 - 4015 . 324	Winkelinterferometer 114 Angle interferometer 114
3	269302 - 4015 . 424	Doppelreflektor 115 Double triple reflector 115

Winkelmessung – Bestimmung des Rollwinkels – ZLM 700

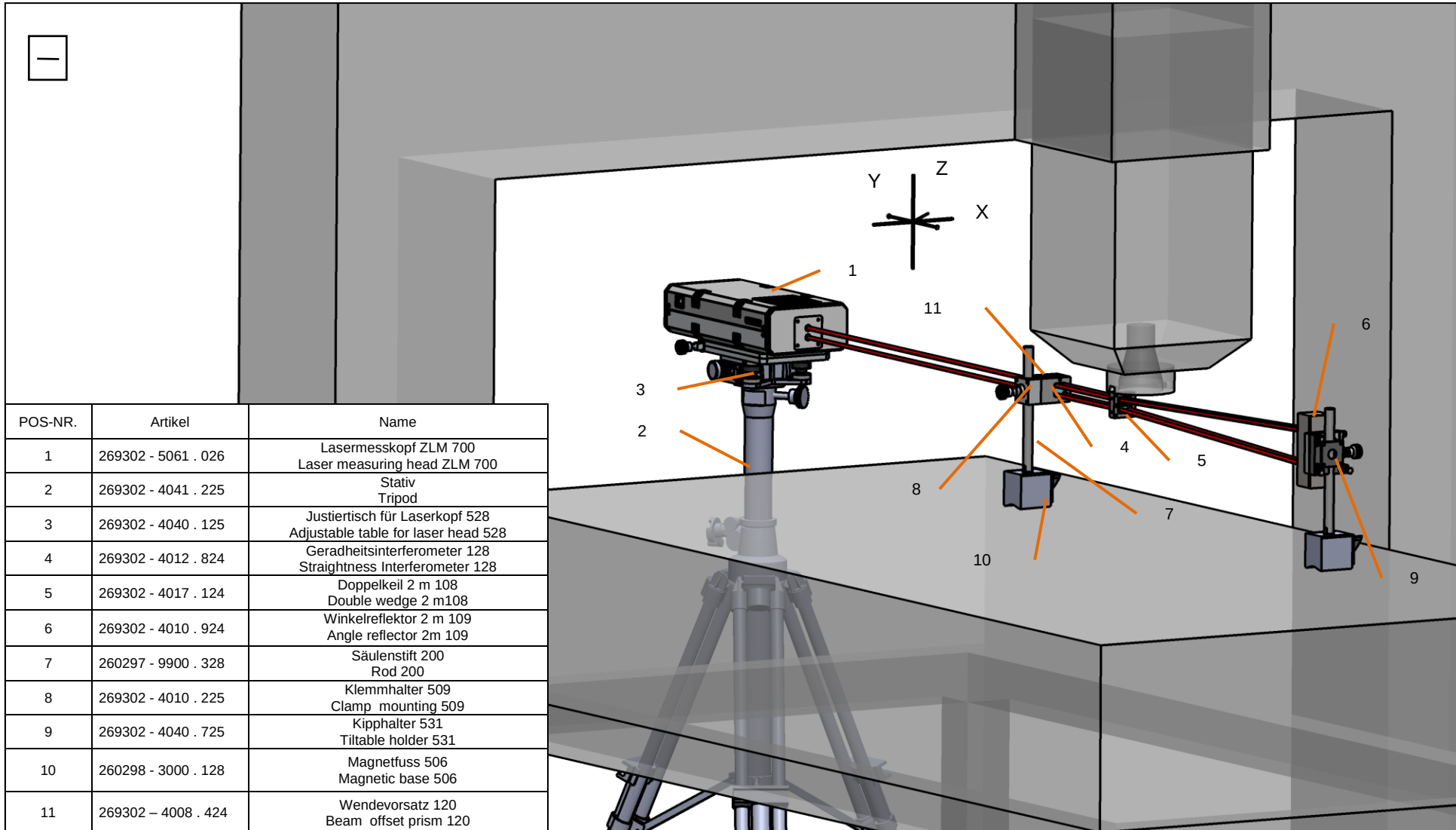
Roll angle measurement – ZLM 700



Geradheitsabweichung – vertikaler Aufbau – ZLM 700*Straightness measurement – vertical assembly – ZLM 700*

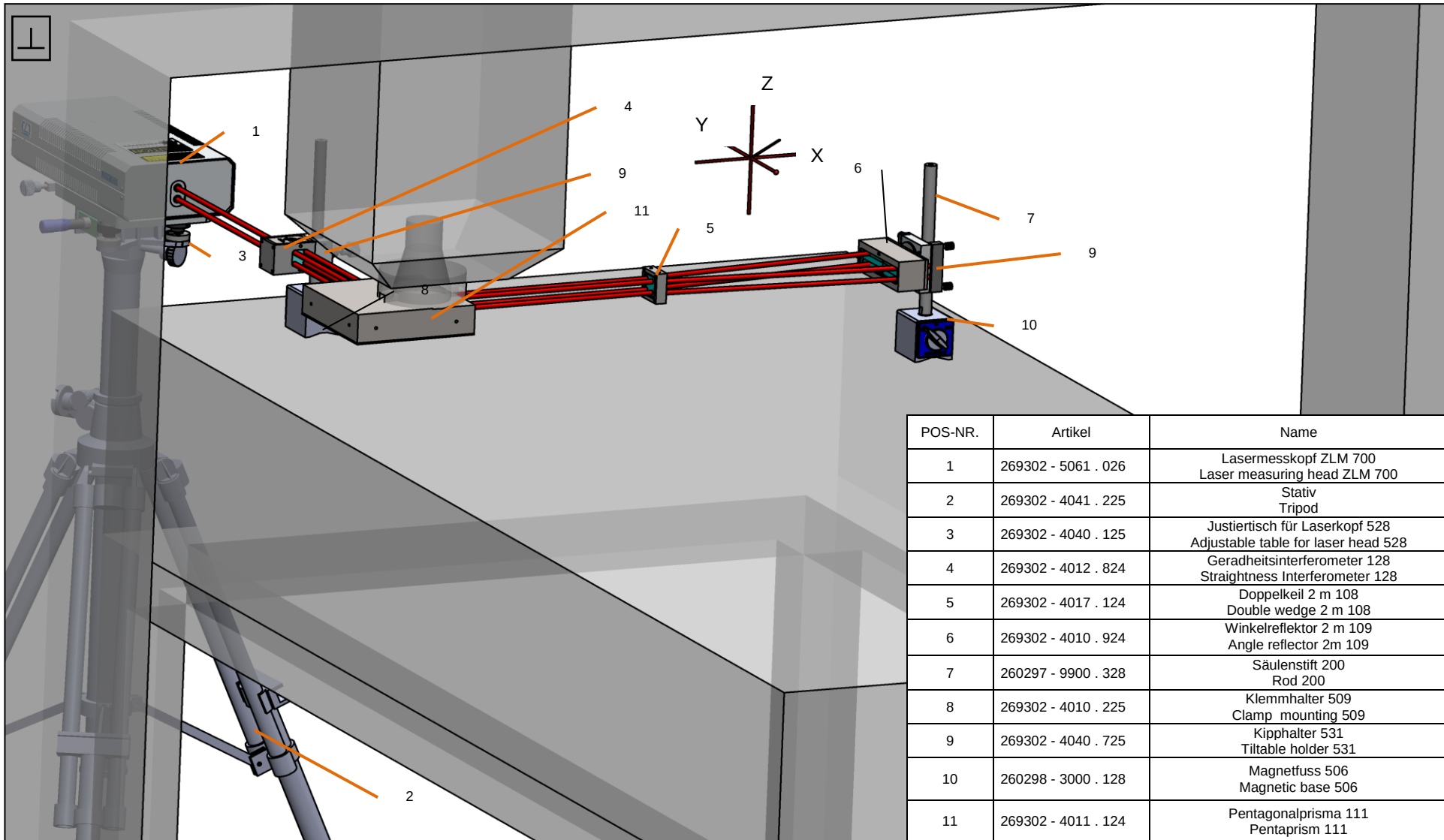
Geradheitsabweichung – horizontaler Aufbau – ZLM 700

Straightness measurement – horizontal assembly – ZLM 700



Rechtwinkligkeitsmessung – horizontaler Aufbau – ZLM 700

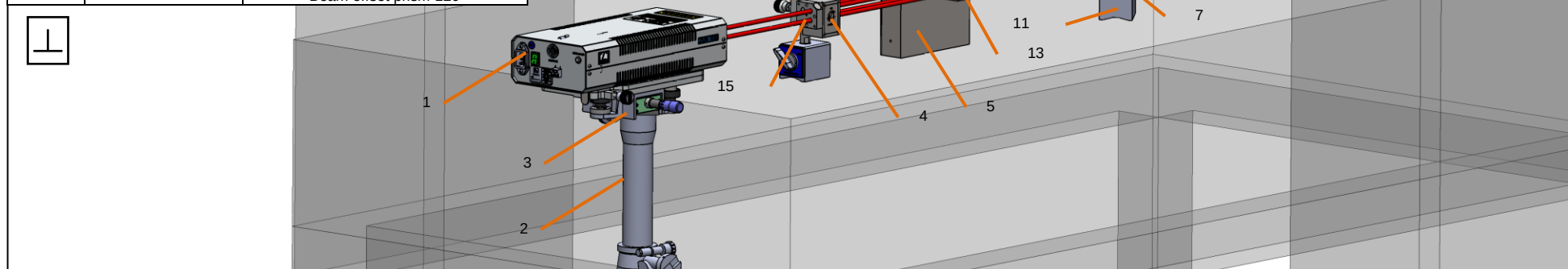
Squareness measurement – horizontal assembly – ZLM 700

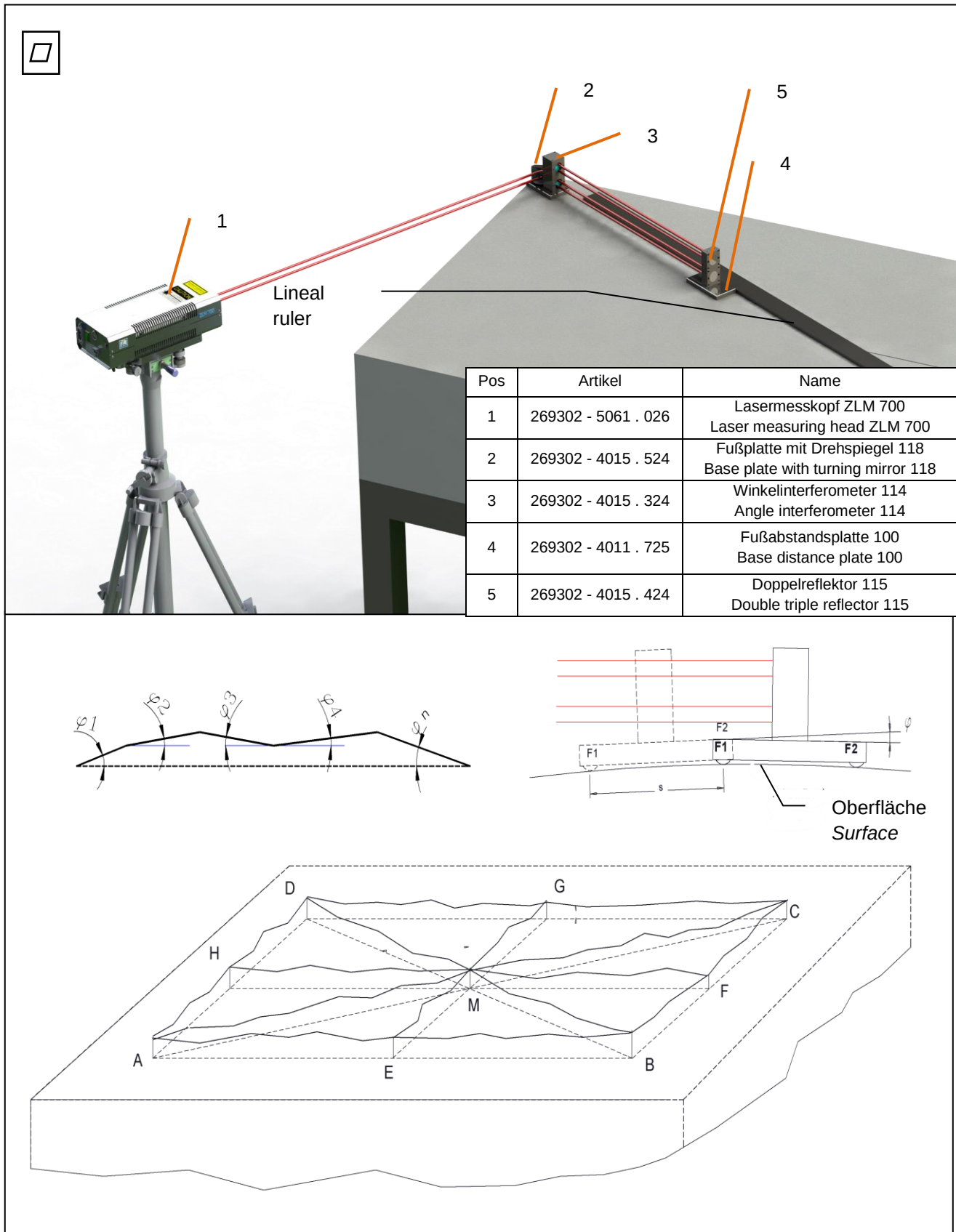


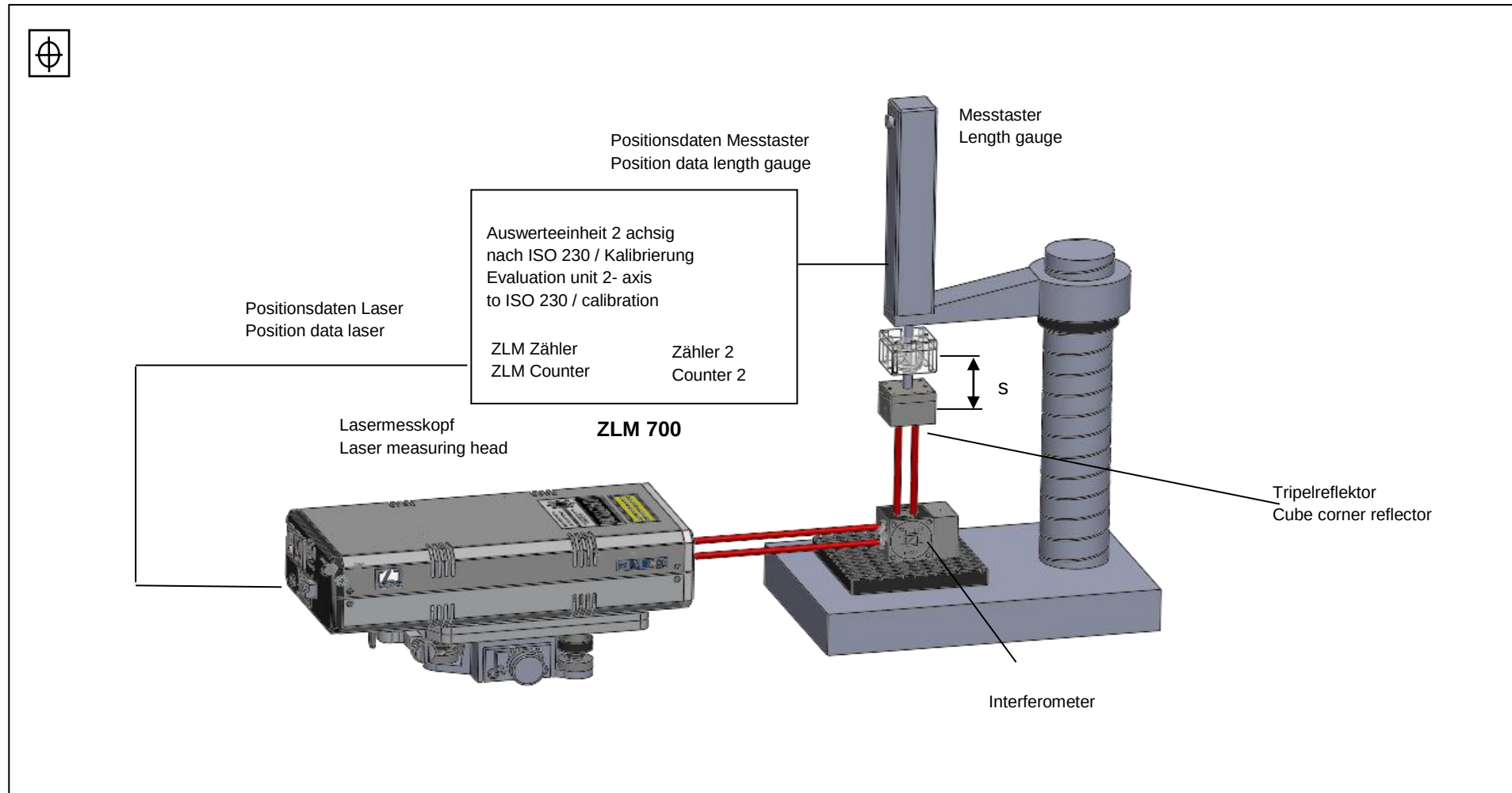
Rechtwinkligkeitsmessung – vertikaler Aufbau – ZLM 700

Squareness measurement – vertical assembly– ZLM 700

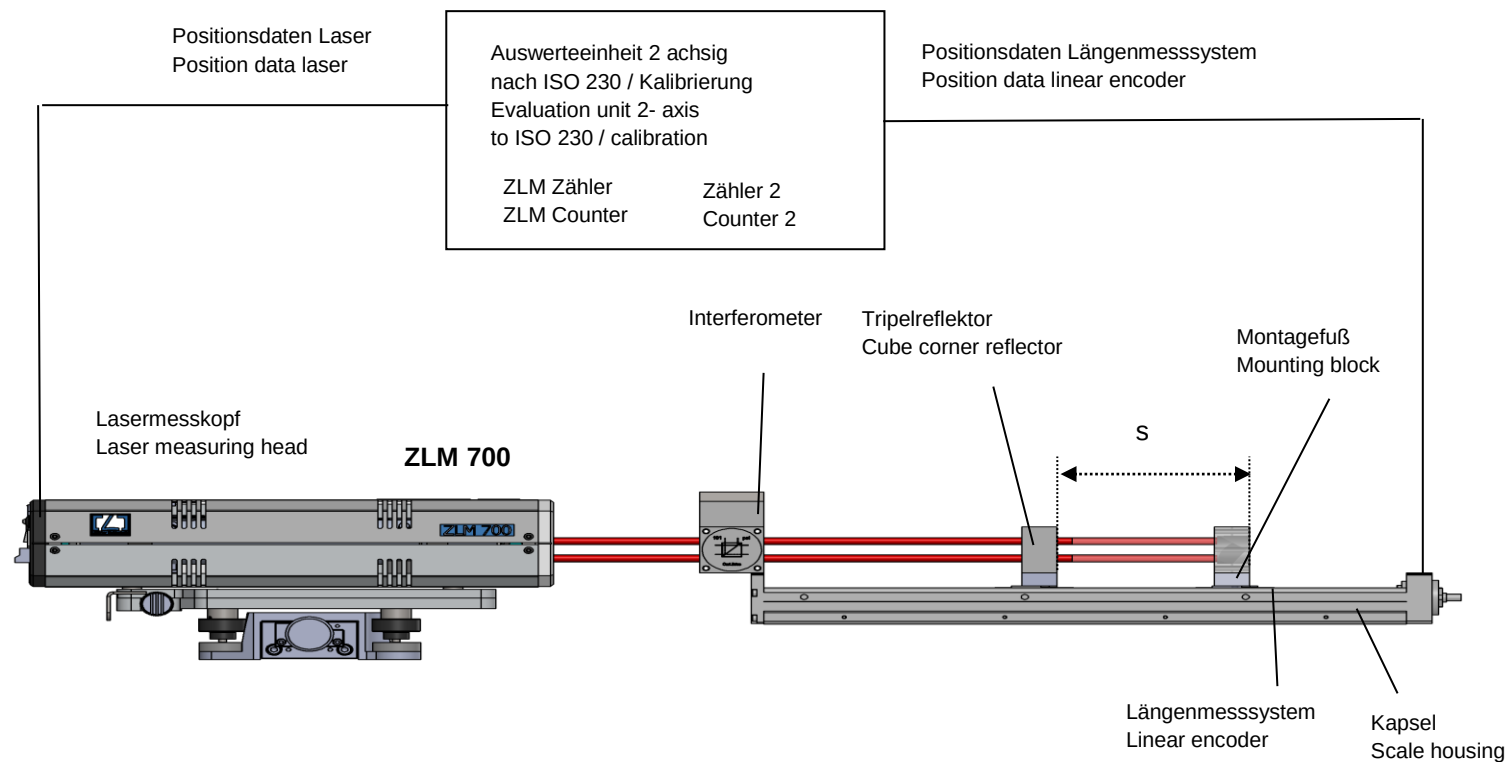
POS-NR.	Artikel	Name
1	269302 - 5061 . 026	Laser measuring head ZLM 700 Lasermesskopf ZLM 700
2	269302 - 4041 . 225	Stativ Tripod
3	269302 - 4040 . 125	Justiertisch für Laserkopf 528 Adjustable table for laser head 528
4	269302 - 4012 . 824	Geradheitsinterferometer 128 Straightness Interferometer 128
5	269302 - 4011 . 124	Pentagonalprisma 111 Pentaprism 111
6	269302 - 4017 . 124	Doppelkeil 2 m 108 Double wedge 2m 108
7	269302 - 4010 . 924	Winkelreflektor 2 m 109 Angle reflector 2m 109
8	260297 - 9900 . 328	Säulenstift 200 Rod 200
9	269302 - 4010 . 225	Klemmhalter 509 Clamp mounting 509
10	269302 - 4040 . 725	Kipphalter 531 Tilttable holder 531
11	260298 - 3000 . 128	Magnetfuss 506 Magnetic base 506
12	269302 - 4011 . 624	Tripelreflektor 116 Cube corner reflector 116
13	269302 - 4011 . 024	90° - Umlenker 110 90 ° Beam bender 110
14	269302 - 4010 . 425	Haltwinkel 521 Angle bracket 521
15	269302 - 4008 . 424	Wendevorsatz 120 Beam offset prism 120



Ebenheitsmessung – ZLM 700
 Flatness measurement -ZLM 700


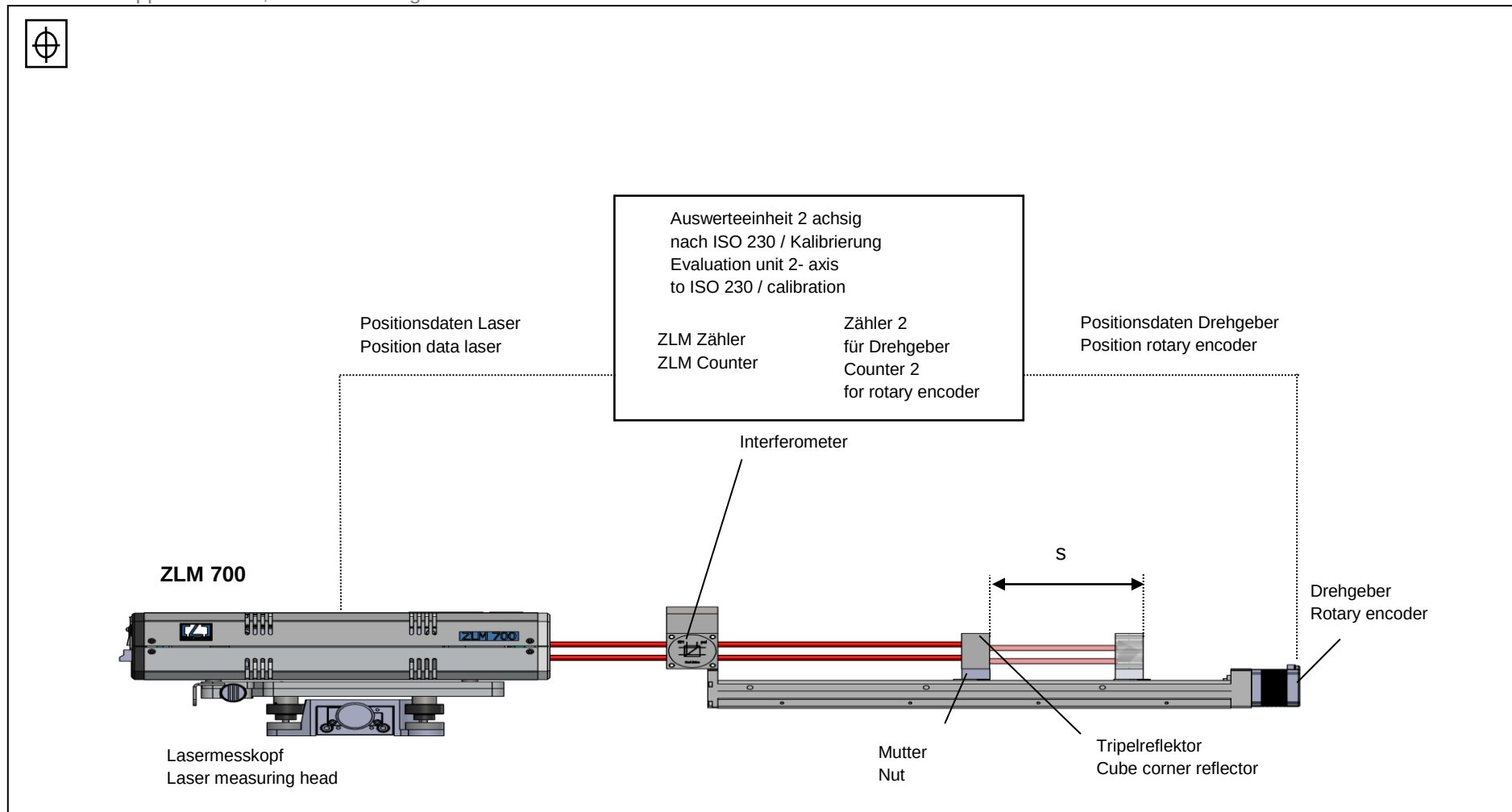


Synchrone dynamische Kalibrierung mit dem ZLM 700 1-achsig und einer Erweiterungsauswerteeinheit
Synchronic dynamic calibration of length with ZLM 700 1-axis and one extension evaluation unit



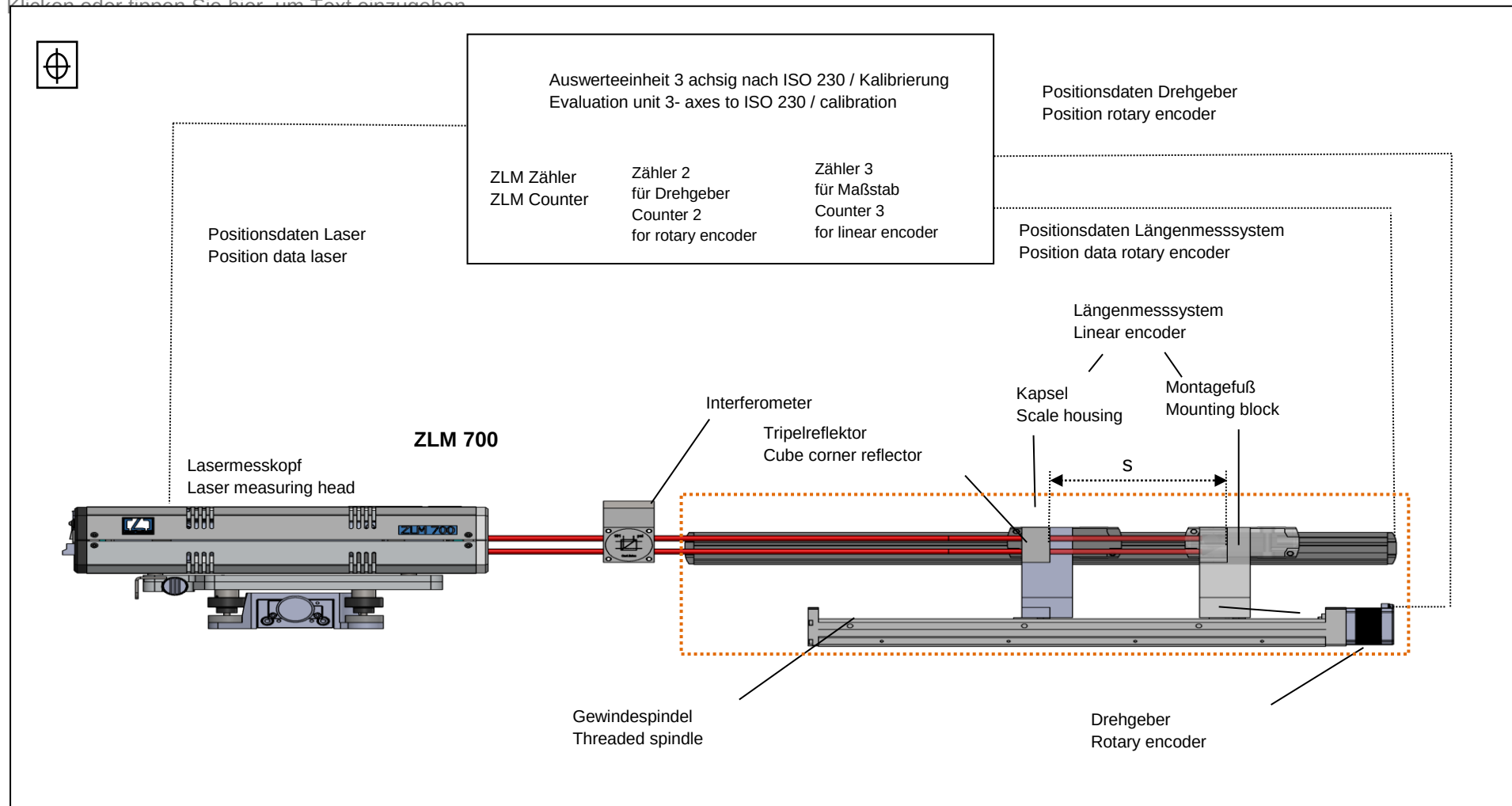
Synchrone dynamische Kalibrierung eines Längenmesssystems mit dem ZLM 700 1-achsig und einer Erweiterungsauswerteeinheit
Synchronic dynamic calibration of linear encoder with ZLM 700 1-axis and one extension evaluation unit

Klicken oder tippen Sie hier, um Text einzugeben.



Synchrone dynamische Kalibrierung eines Drehgebers zur Spindelsteigung mit dem ZLM 700 Komparator Zähler und einer Erweiterungsauswerteeinheit
Synchronic dynamic calibration of rotary encoder for screw pitch with ZLM 700 – comparator counter and one extension evaluation unit

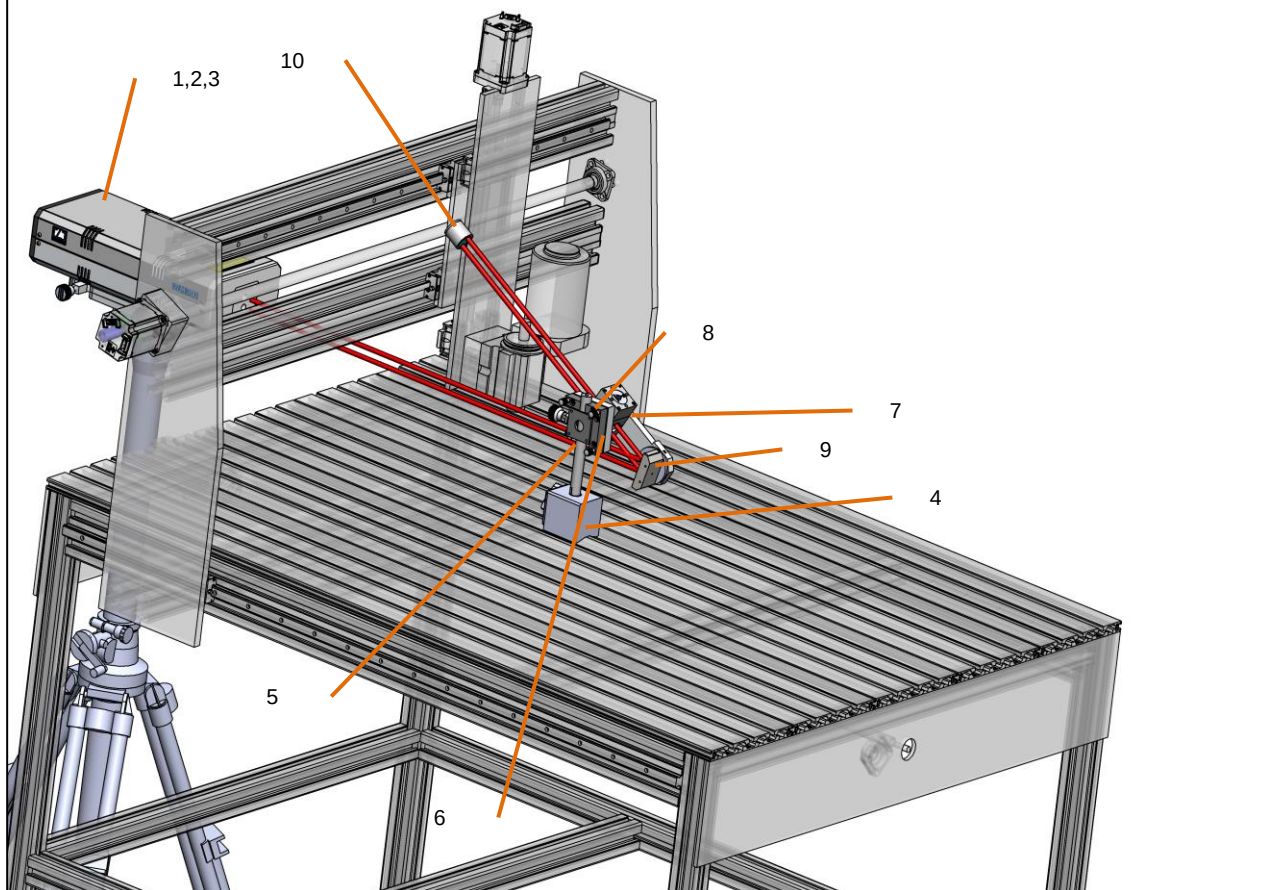
Klicken oder tippen Sie hier, um Text einzugeben



Synchrone dynamische Kalibrierung eines Längenmesssystems sowie Drehgebers zur Spindelsteigung mit dem ZLM 700 und 2 x Erweiterungsauswerteeinheiten
Synchronic dynamic calibration of linear encoder and linear encoder with ZLM 700 and 2x extension evaluation units

Diagonalmessung

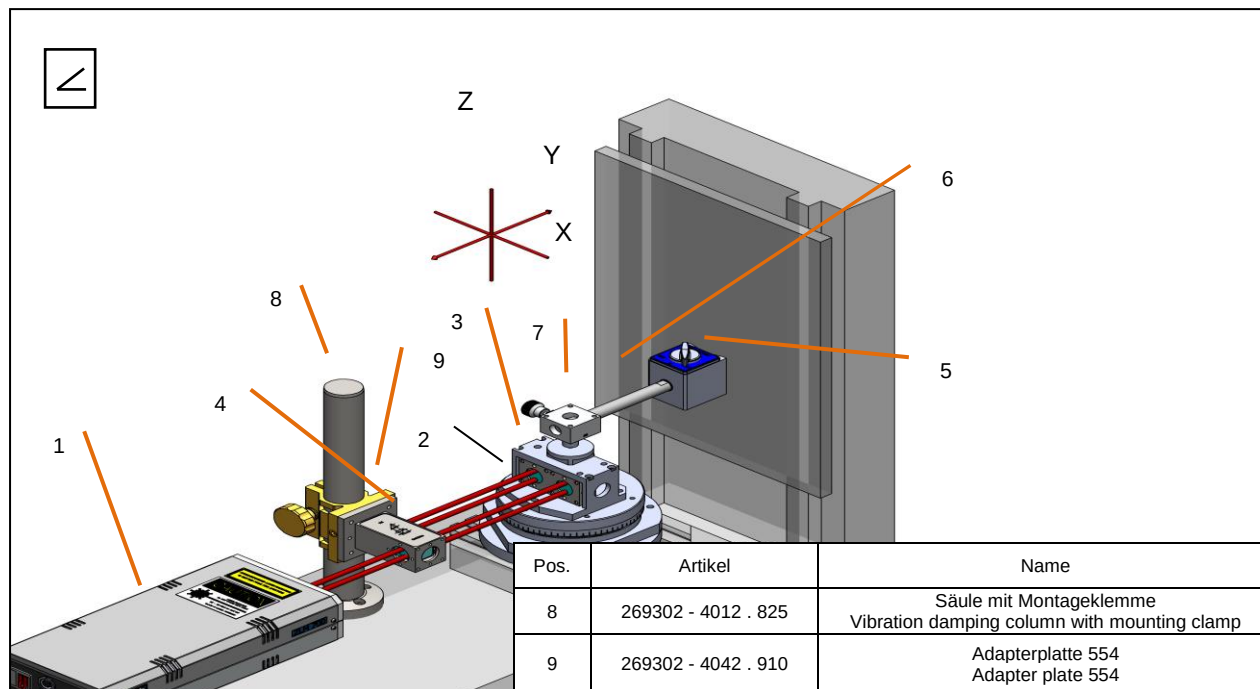
Diagonal measurement



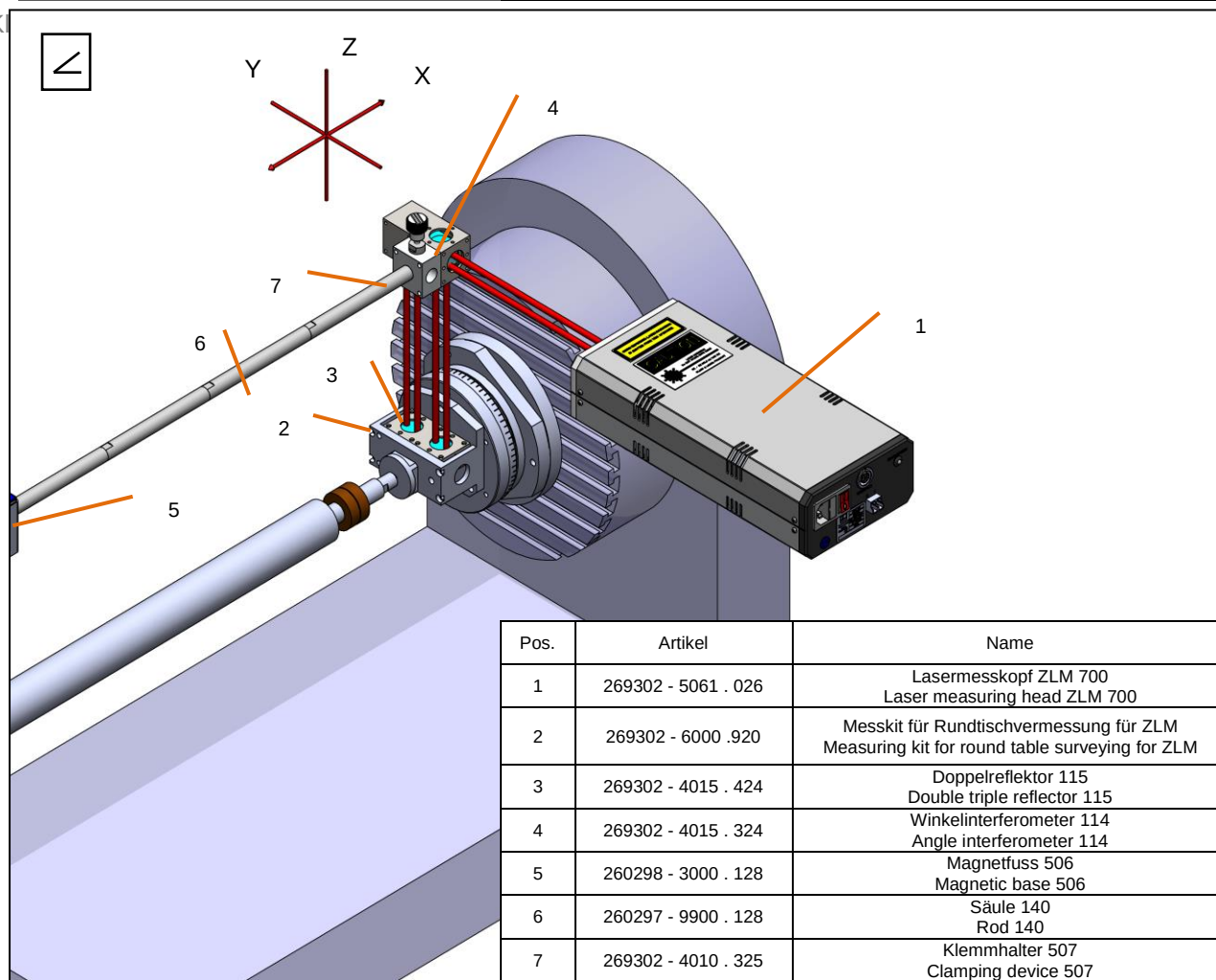
POS.	Artikel	Name
1	269302 - 4041 . 225	Stativ Tripod
2	269302 - 4040 . 125	Justiertisch Adjustable table 528
3	269302 - 5061 . 026	Lasermesskopf ZLM 700 Laser measuring head ZLM 700
4	260298 - 3000 . 128	Magnetfuss 506 Magnetic base 506
5	260297 - 9900 . 128	Säulenstift 140 Rod 140
6	269302 - 4040 . 725	Kipphalter 531 Tilttable holder 531
7	269302 - 4010 . 124	Polarisationsteiler 101 Polarizing beam splitter 101
8	269302 - 4010 . 224	Tripelreflektor 102 Cube corner reflector 102
9	269302 - 4013 . 724	Drehspiegel 327 Turning mirror 327
10	269302 - 4059 . 124	Tripelreflektor 304 Triple reflector 304

Vollwinkelmessung

Full angle measurement

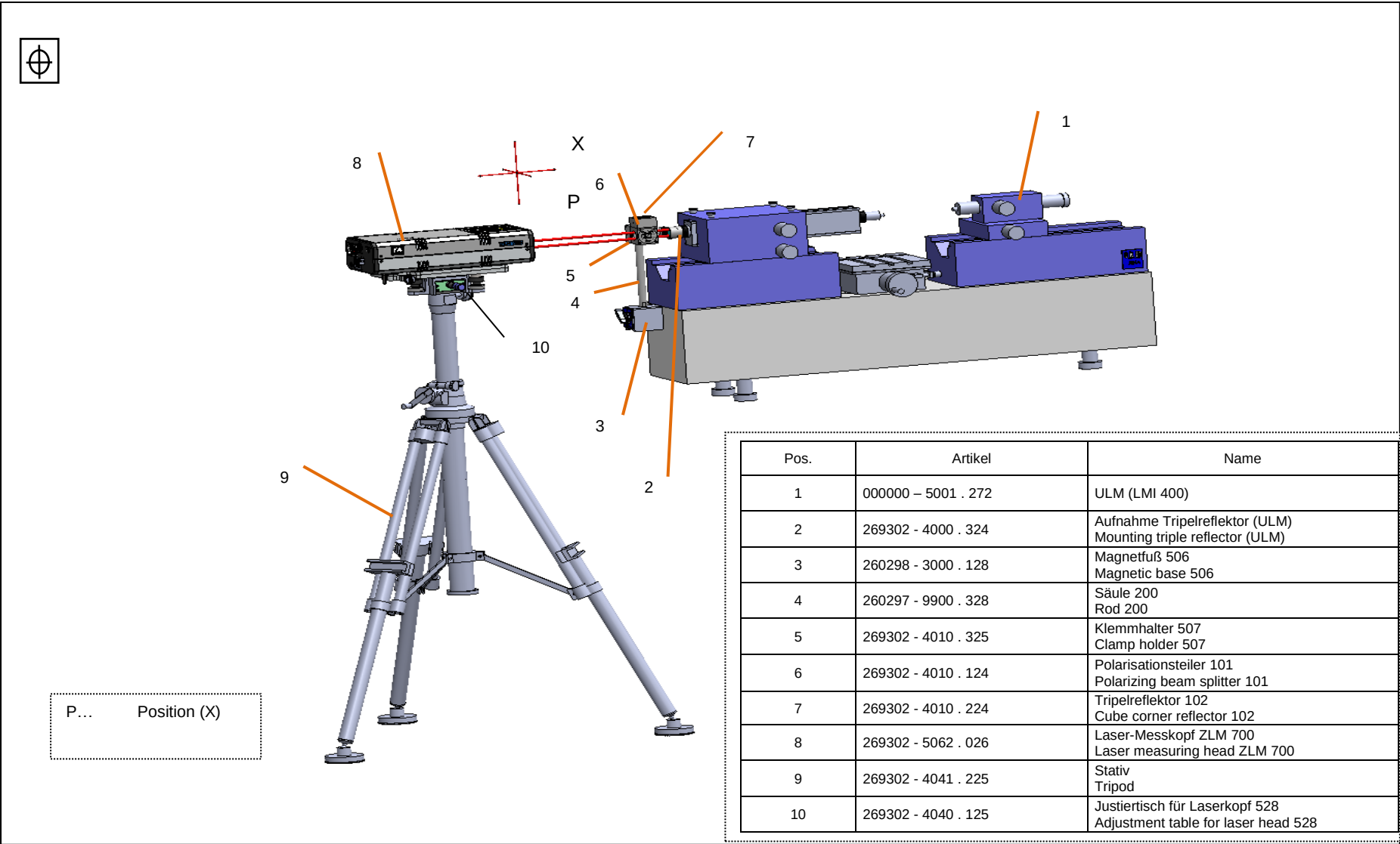


Kl



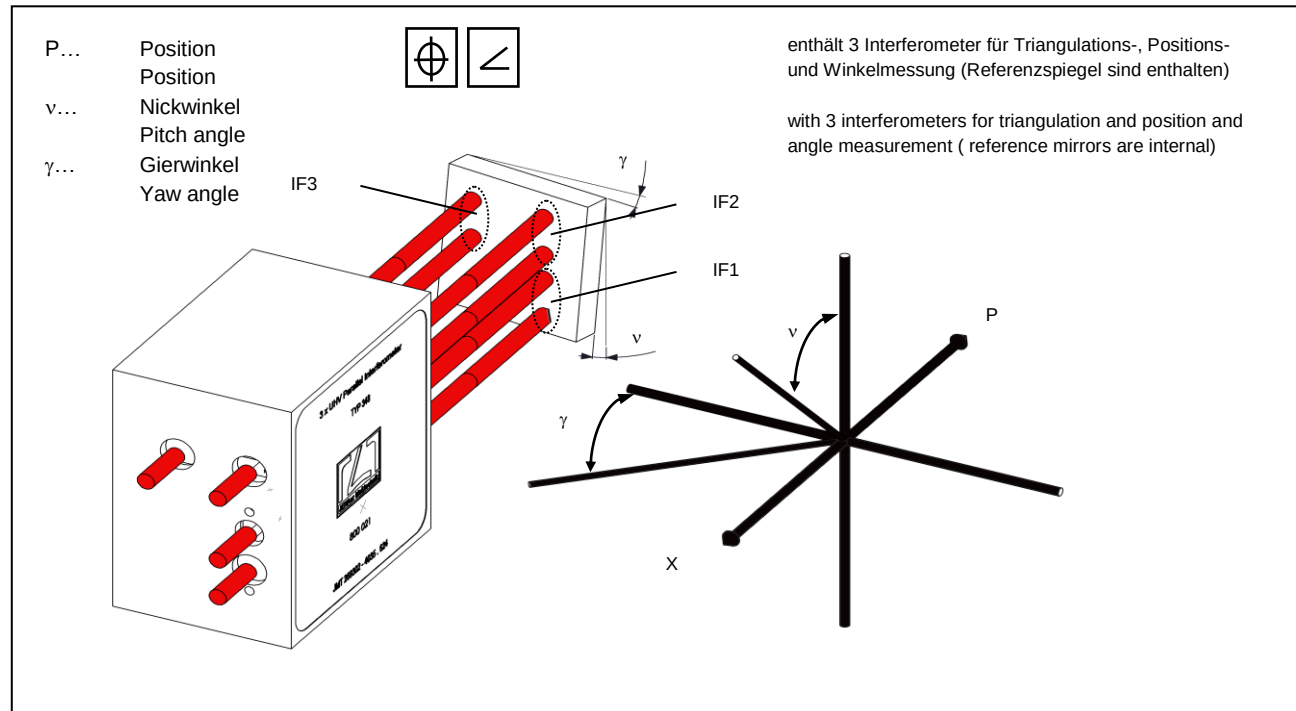
Messung am Universal Längen Messgerät (ULM)

Measurement on the universal length measuring device (ULM)t



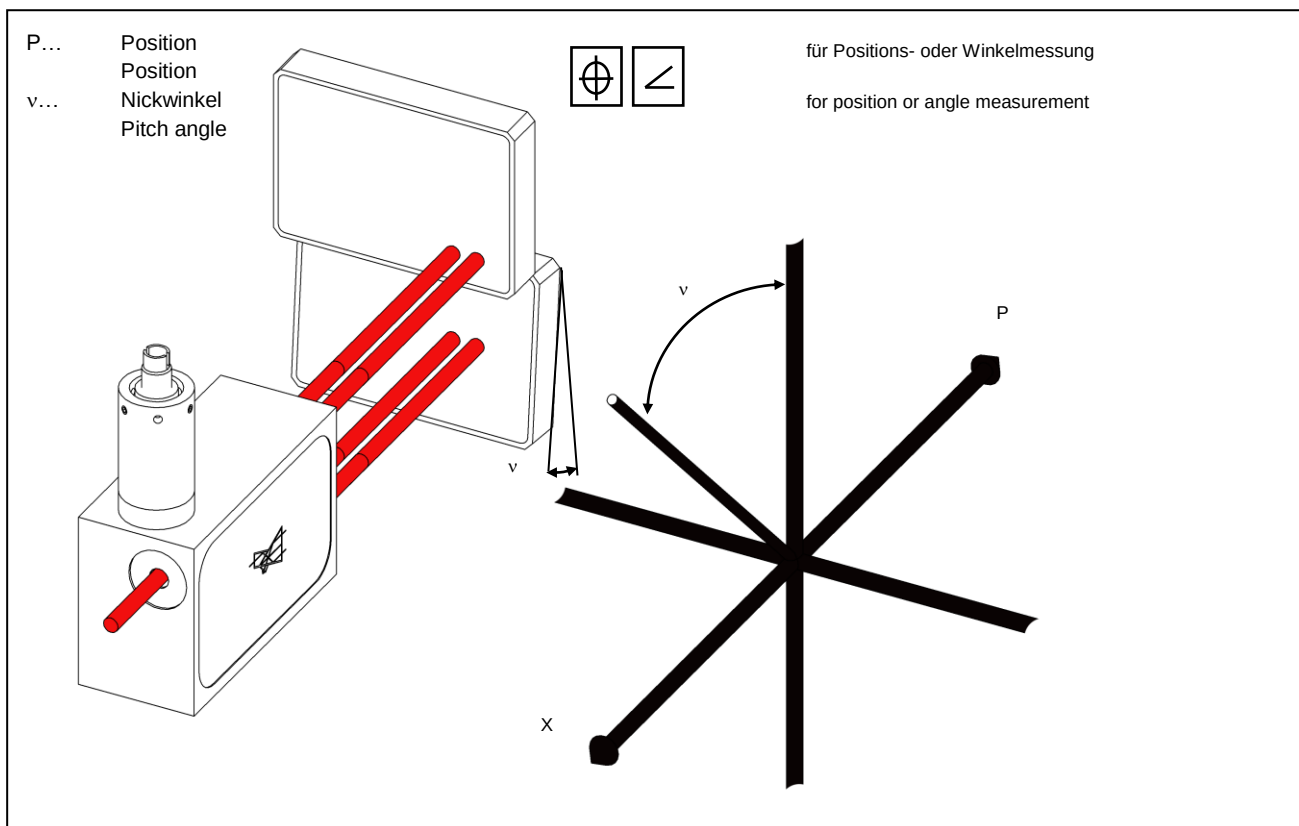
Kompakt- Planspiegel- Interferometer 348 und Spiegel

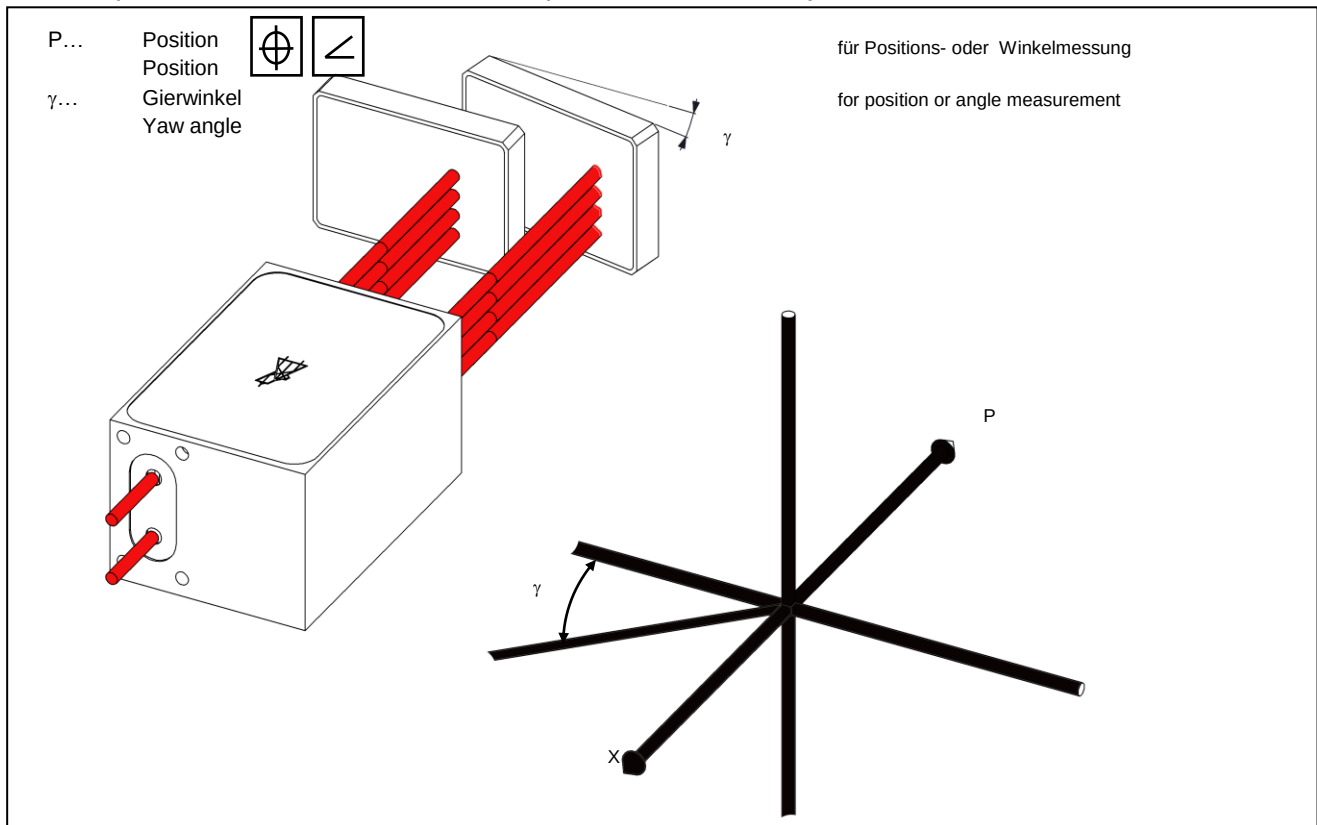
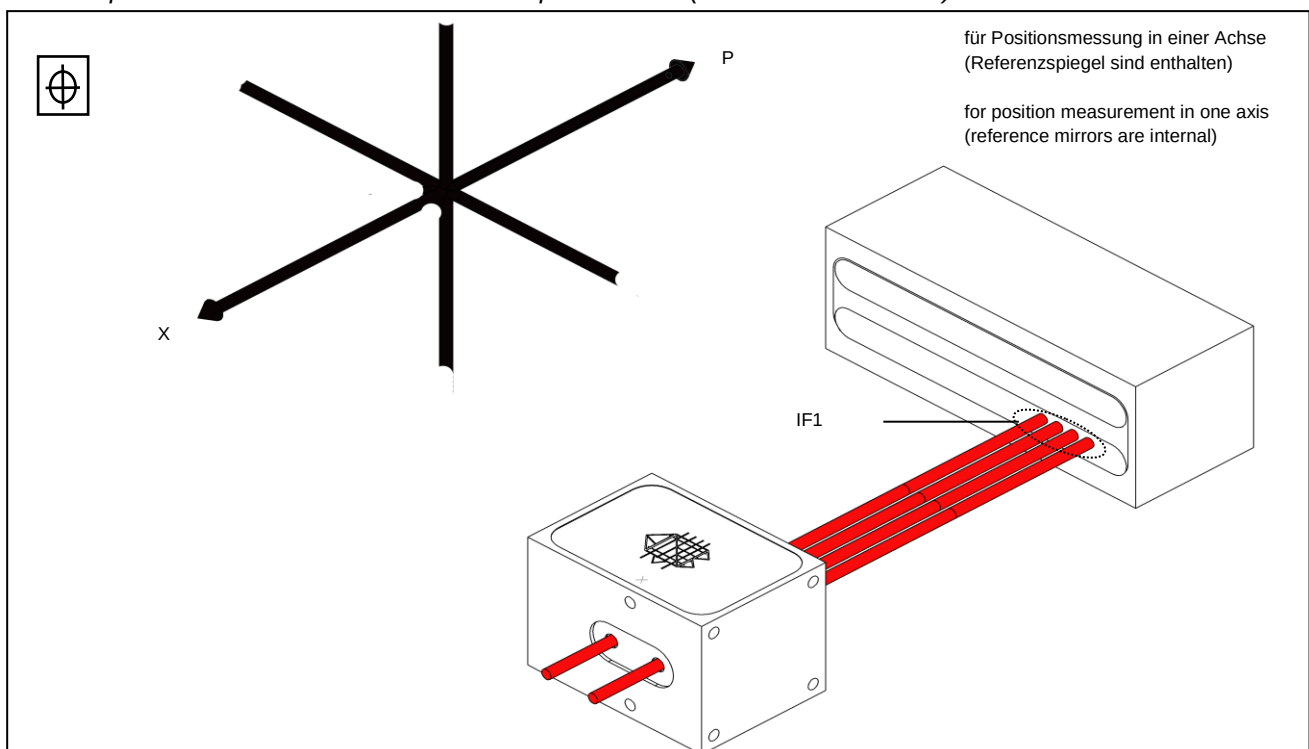
Compact plane mirror interferometer 348 and plane mirror

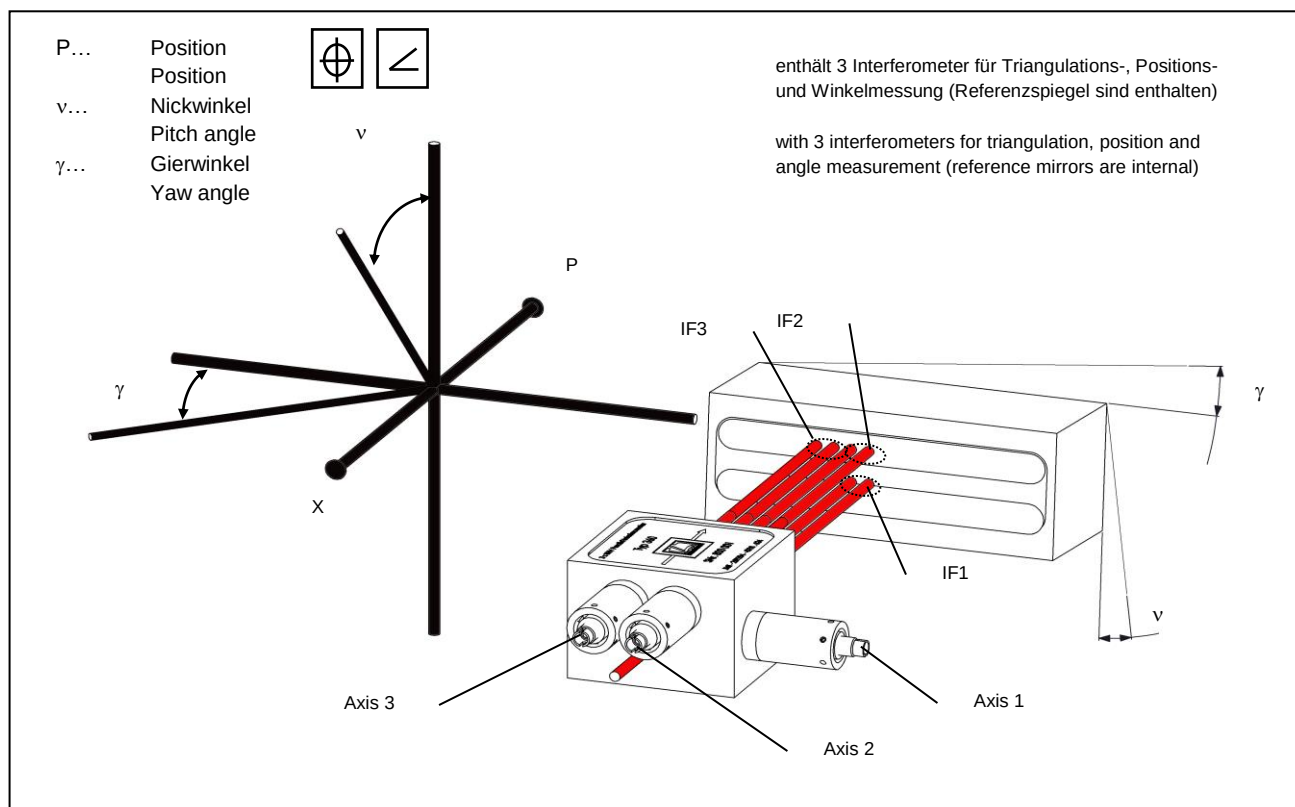
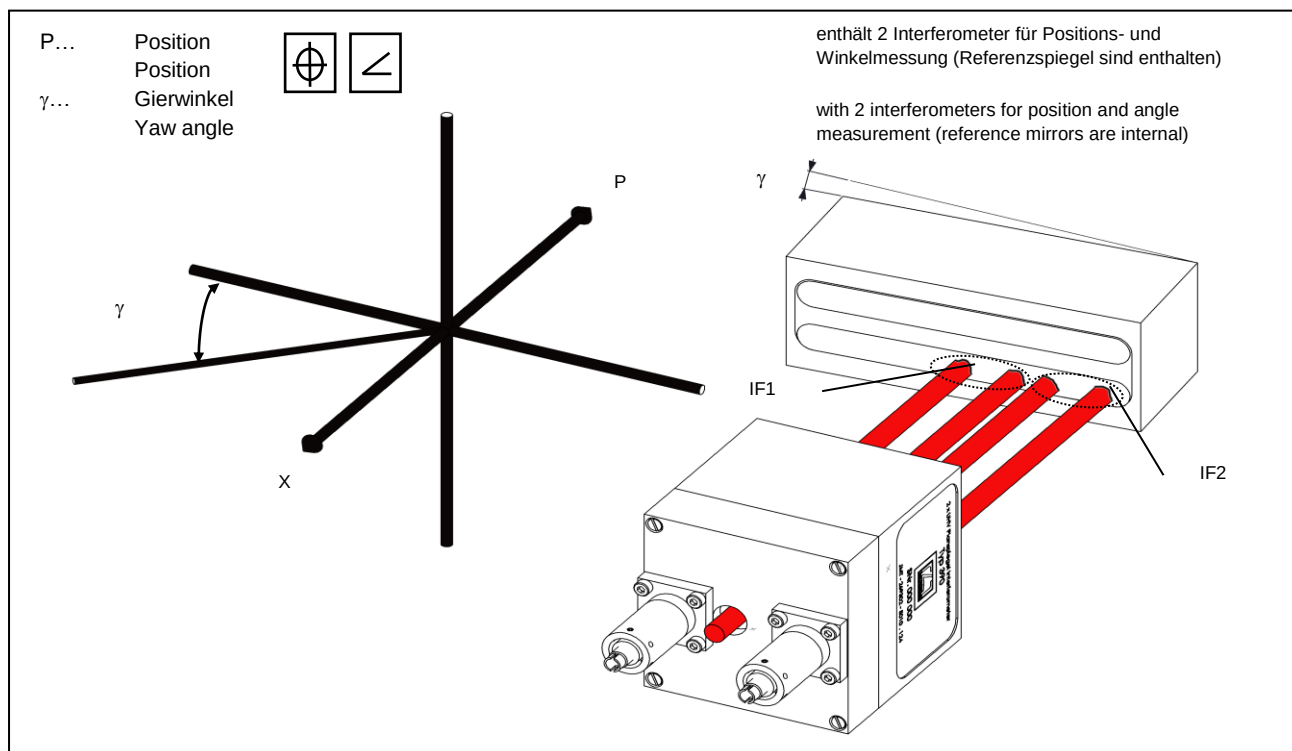


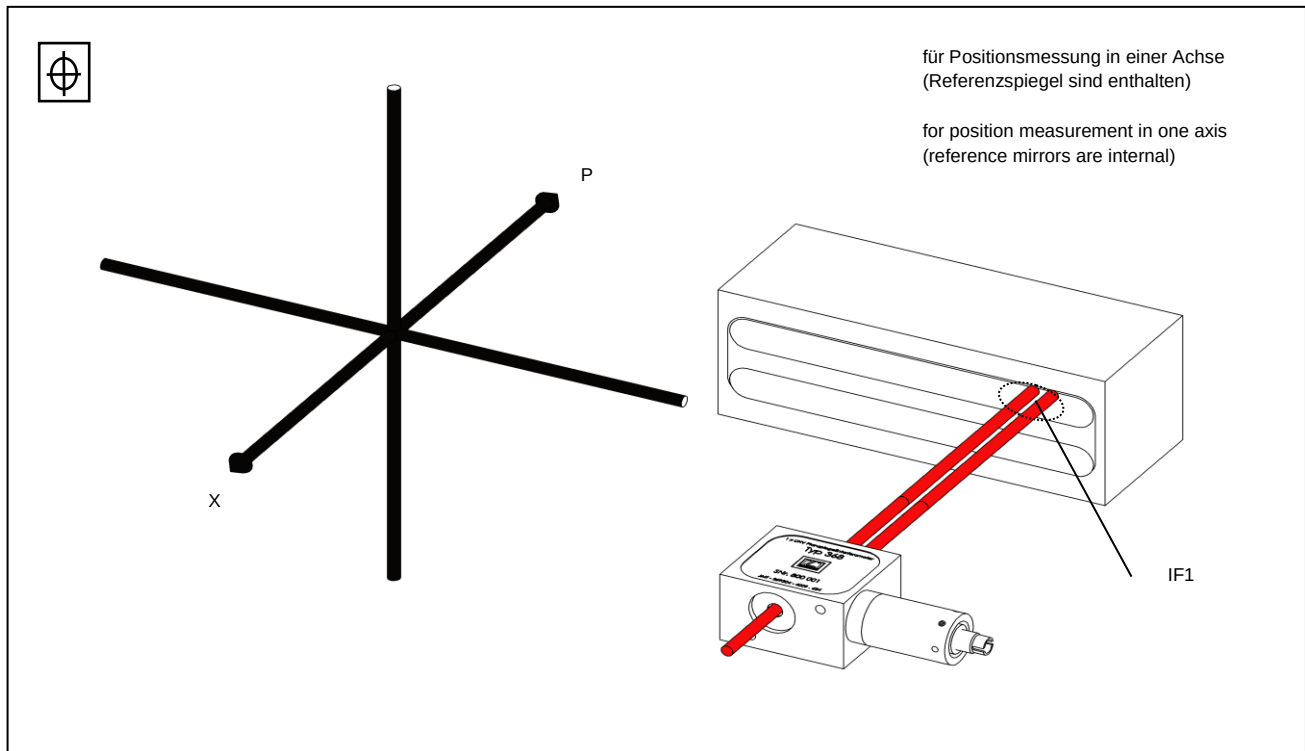
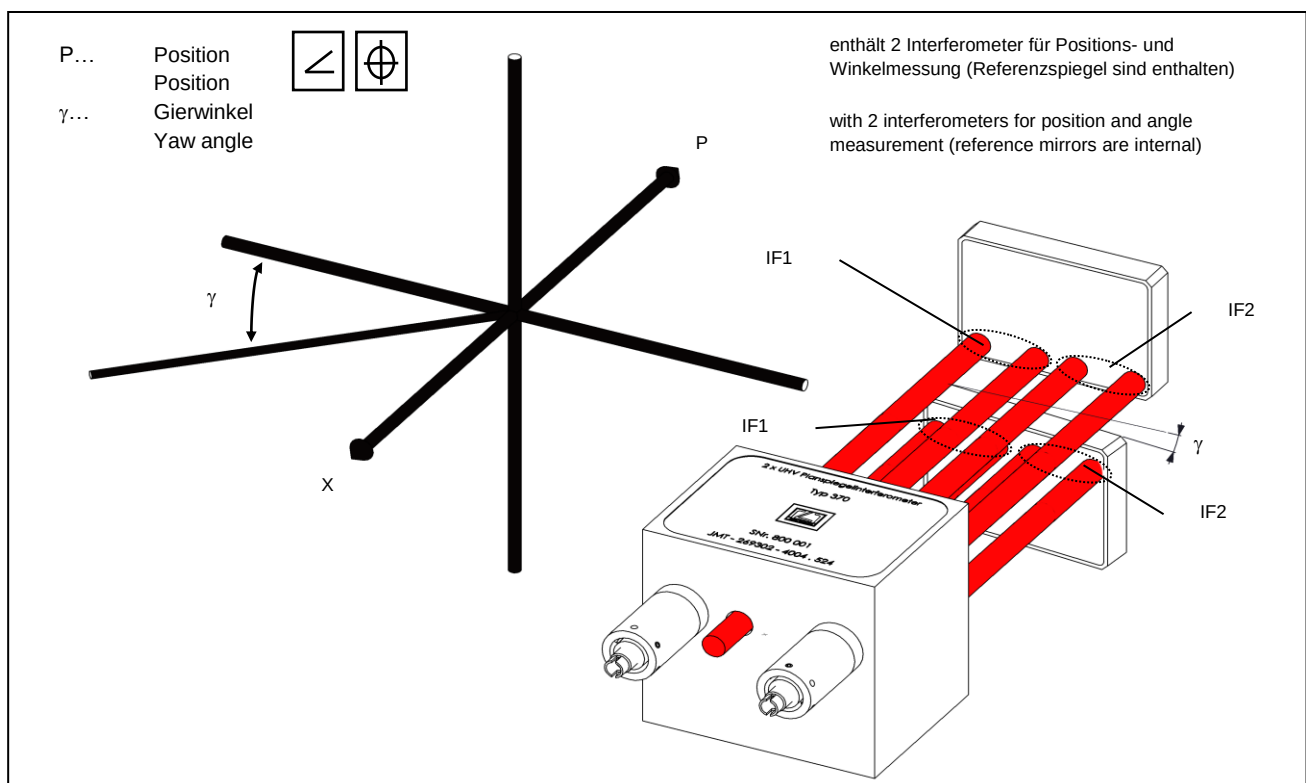
Parallel- Planspiegel– Interferometer 352 mit Spiegelanordnung

Parallel plane mirror interferometer 352 with mirrors assembly



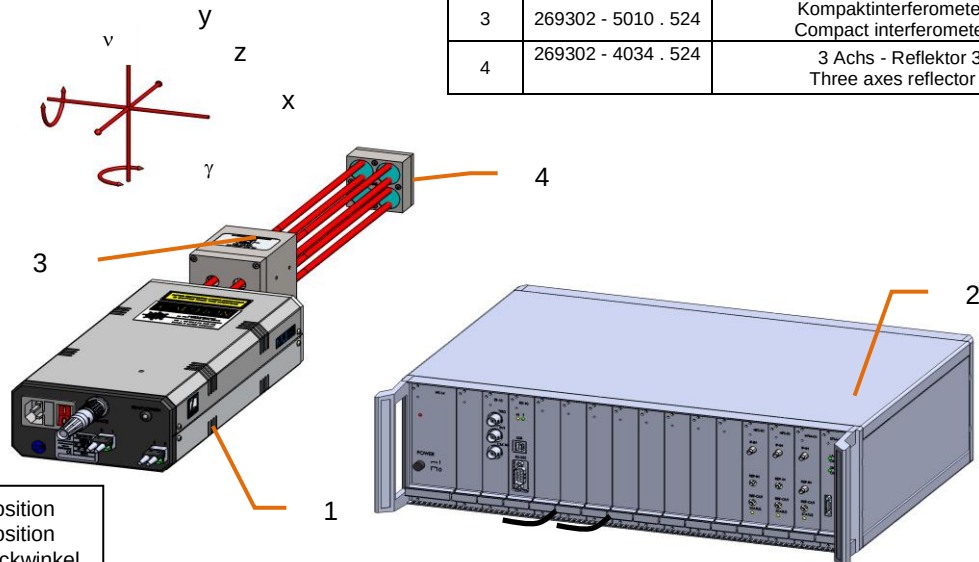
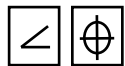
Parallel- Planspiegelinterferometer 356 mit Spiegelanordnung*Parallel plane mirror interferometer 356 with plane mirrors assembly***Parallel- Planspiegelinterferometer 358 mit Spiegel (Strahldurchmesser 3mm)***Parallel plane mirror interferometer 358 with plane mirror (beam diameter 3mm)*

Kompakt Planspiegelinterferometer 360 mit Spiegel (Strahldurchmesser 3 mm)*Compact plane mirror interferometer 360 with plane mirror (beam diameter 3 mm)***Kompakt Planspiegelinterferometer 390 mit Spiegel***Compact plane mirror interferometer 390 with plane mirror*

Planspiegelinterferometer 368 mit Spiegel (Strahldurchmesser 3mm)*Plane mirror interferometer 368 with plane mirror (beam diameter 3mm)***Kompakt Planspiegelinterferometer 370 mit Spiegelanordnung***Compact plane mirror interferometer with plane mirror assembly*

Drei – Achs - Kalibriersystem

Three axes calibration system

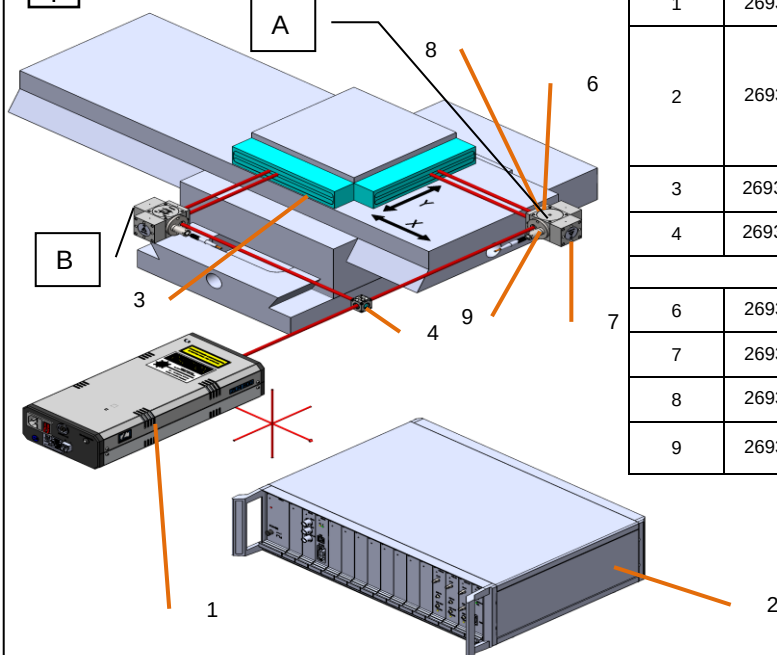


P... Position
Position
v... Nickwinkel
Pitch
angle
γ... Gierwinkel
Yaw angle

Pos.	Artikel	Name
1	269302 - 5062 . 026	Lasermesskopf ZLM 800 Laser measuring head ZLM 800
2	269302 - 5093 . 126	Grundbox mit Powermodul - mehrachsig Basic box with power module - multi-axes
3	269302 - 5010 . 524	Kompaktinterferometer 347 Compact interferometer 347
4	269302 - 4034 . 524	3 Achs - Reflektor 345 Three axes reflector 345

Zwei-Achs-System

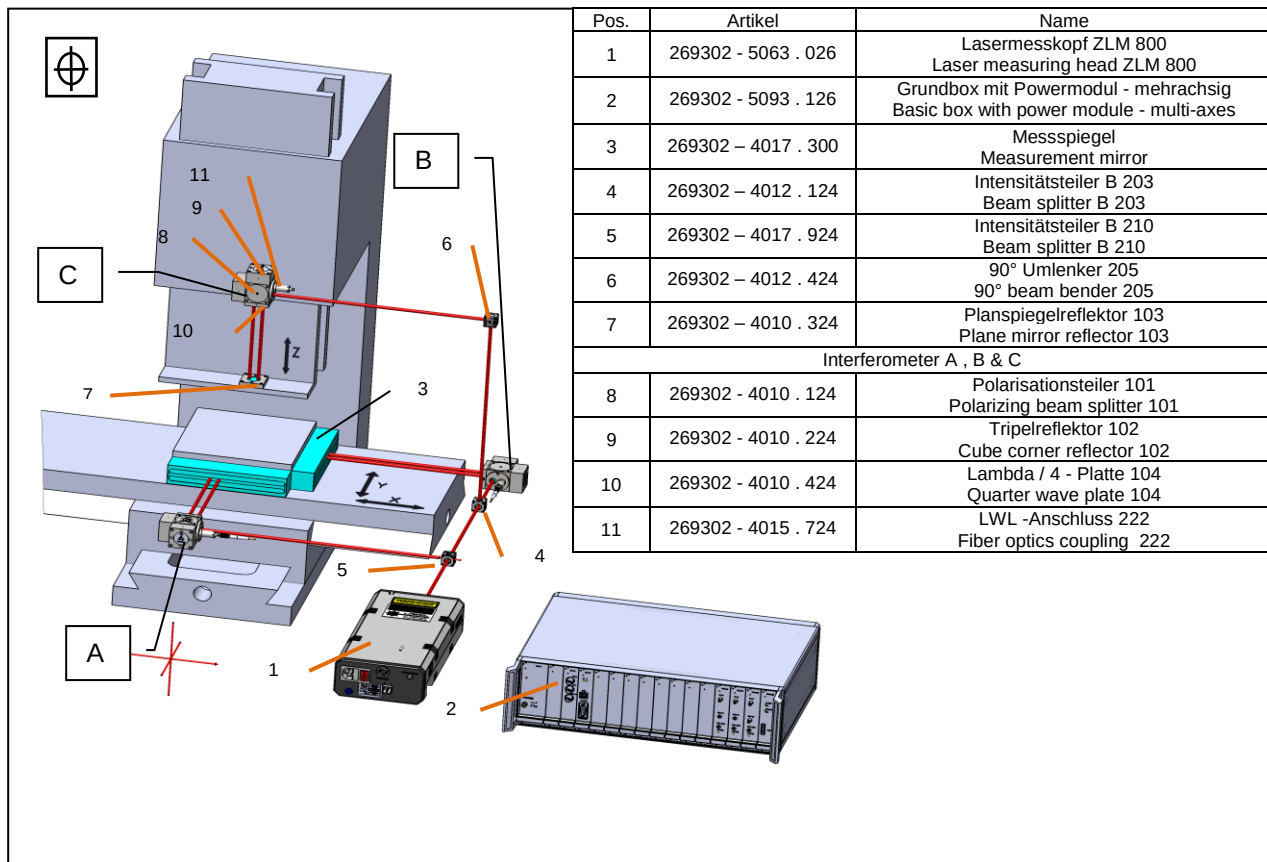
Two axes system



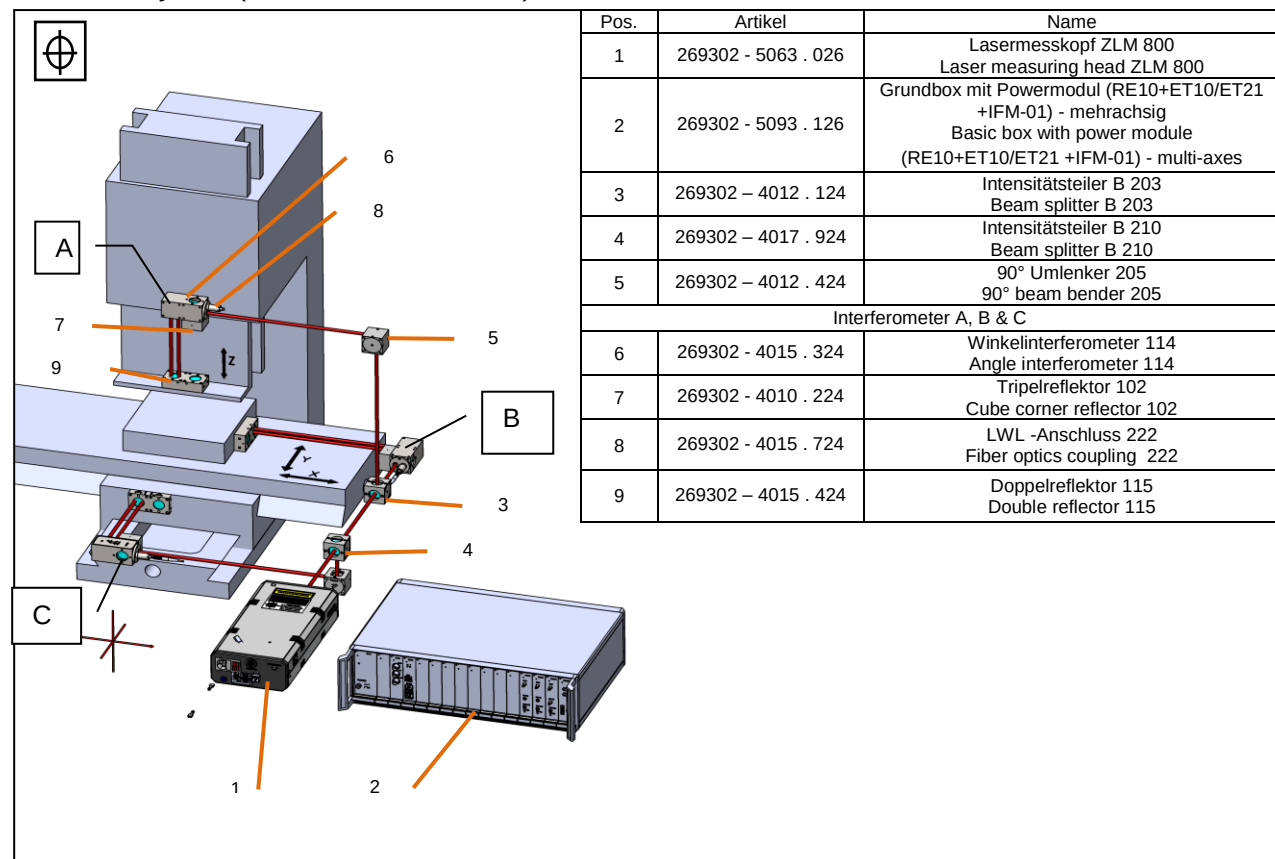
Pos.	Artikel	Name
1	269302 - 5063 . 026	Lasermesskopf ZLM 800 Laser measuring head ZLM 800
2	269302 - 5092 . 126	Grundbox mit Powermodul (RE10+ET10/ET21 +IFM-01) - mehrachsig Basic box with power module (RE10+ET10/ET21 +IFM-01) - multi-axes
3	269302 - 4017 . 300	Messspiegel Measurement mirror
4	269302 - 4012 . 124	Intensitätsteiler B 203 Beam splitter B 203
Interferometer A und B		
6	269302 - 4010 . 124	Polarisationsteiler 101 Polarizing beam splitter 101
7	269302 - 4010 . 224	Tripelreflektor 102 Cube corner reflector 102
8	269302 - 4010 . 424	Lambda / 4 - Platte 104 Quarter wave plate 104
9	269302 - 4015 . 724	LWL -Anschluss 222 Fiber optics coupling 222

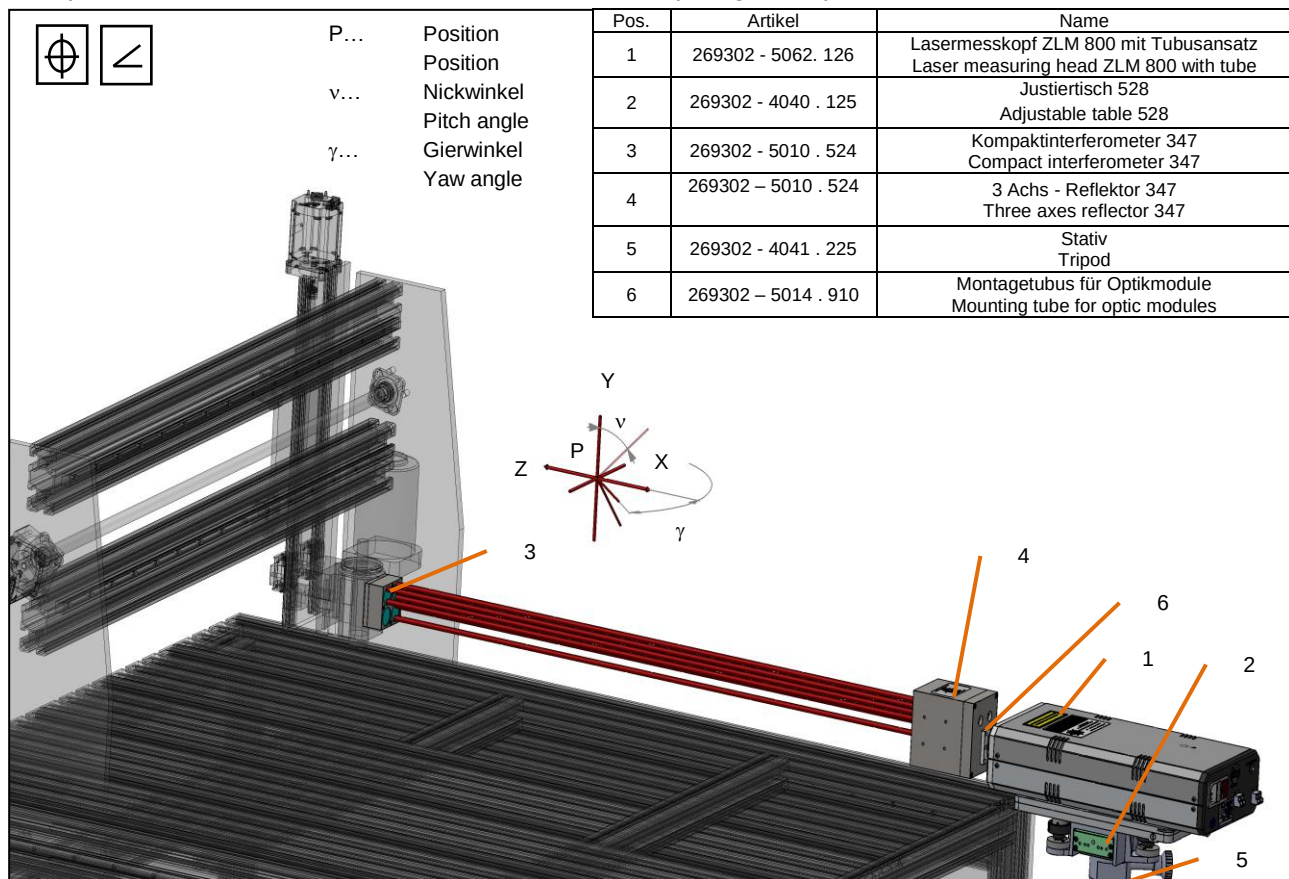
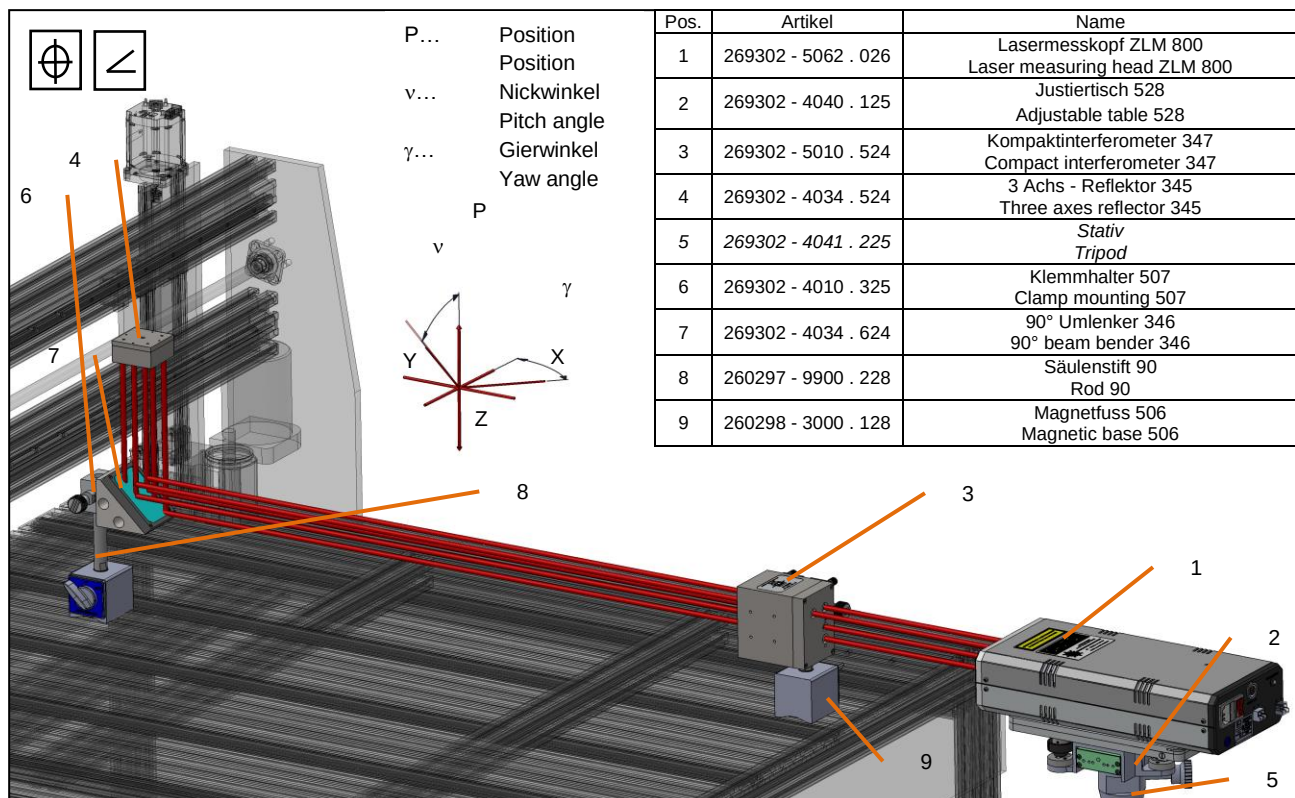
Drei – Achs - System (Variante A in 2 Ebenen)

Three axes system (variant A in two levels)

**Drei – Achs - System (Variante B in 3 Ebenen)**

Three axes system (variant B in three levels)



Kompaktinterferometer 347 für 3 - Achs – Messung (Triangulation)*Compact interferometer 347 for 3 -axes - measurement (triangulation)***Kompaktinterferometer 347 für 3 - Achs – Messung mit Umlenkspiegel (Triangulation)***Compact interferometer 347 for 3 - axes – measurement with mirror (triangulation)*

Kompaktinterferometer 347 für 3 - Achs – Messung mit Tripelspiegel und Inklinometer

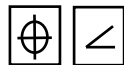
Compact interferometer 347 for 3 - axes – measurement with triple mirror and inclinometer

Messung für:

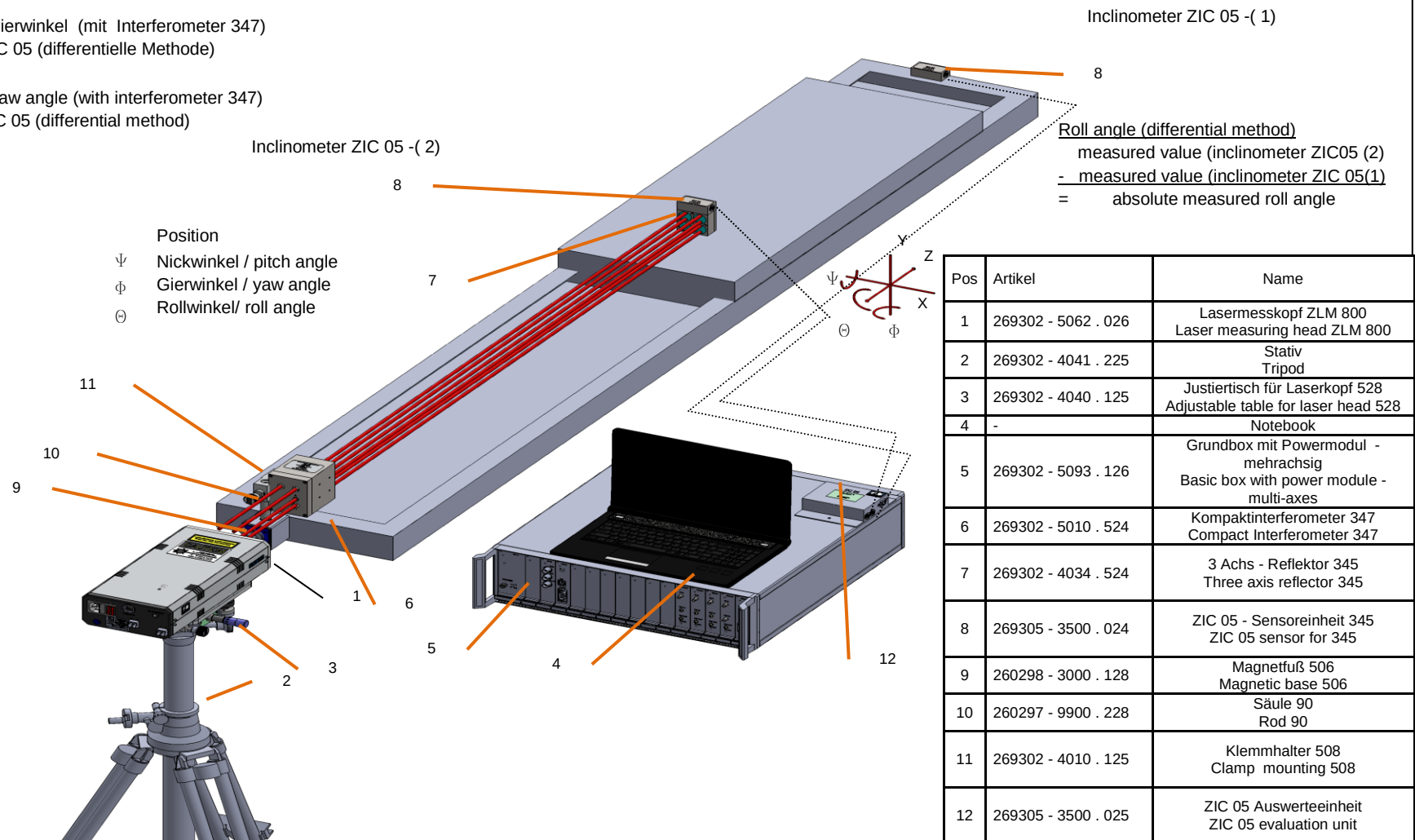
- Position, Nick & Gierwinkel (mit Interferometer 347)
- Roll Winkel mit ZIC 05 (differentielle Methode)

Measurement for:

- Position, pitch & yaw angle (with interferometer 347)
- Roll angle with ZIC 05 (differential method)



Position
 Ψ Nickwinkel / pitch angle
 Φ Gierwinkel / yaw angle
 Θ Rollwinkel / roll angle



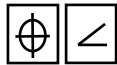
Kompaktinterferometer 366 für 6 - Achs – Messung mit Planspiegelinterferometer*Compact interferometer 366 for 6 - axes – measurement with plane mirror*

Messung für:

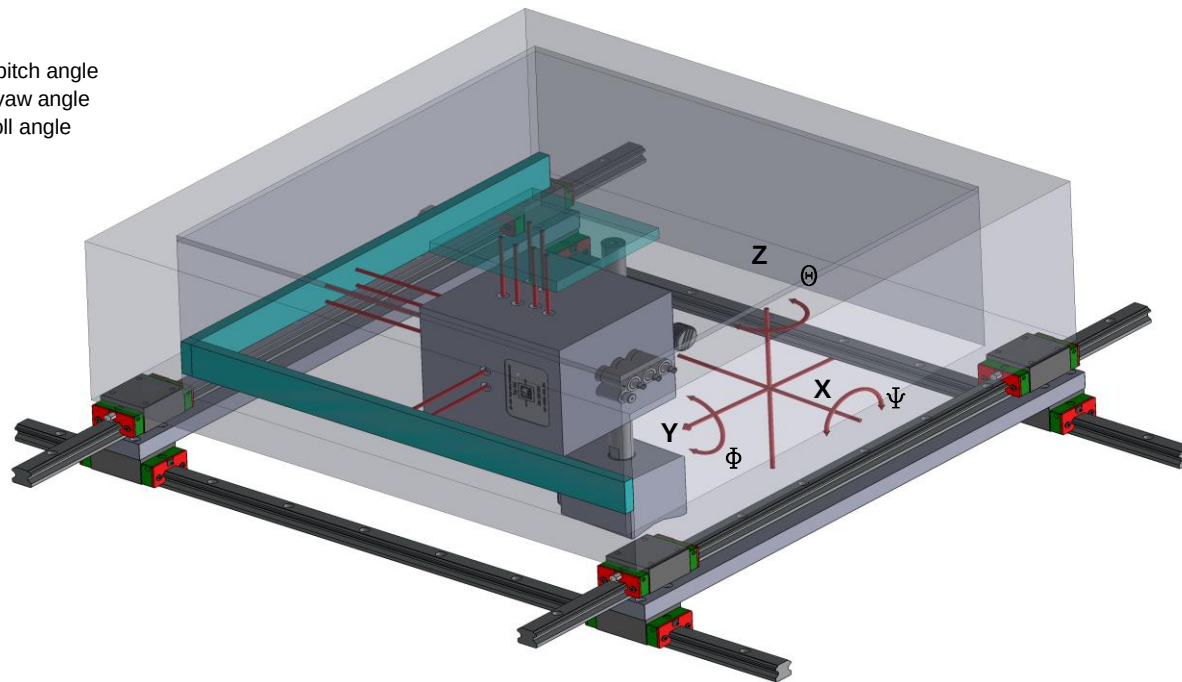
- simultane Messung von Position, Nick.- Gier.- und Rollwinkel (mit Interferometer 366)

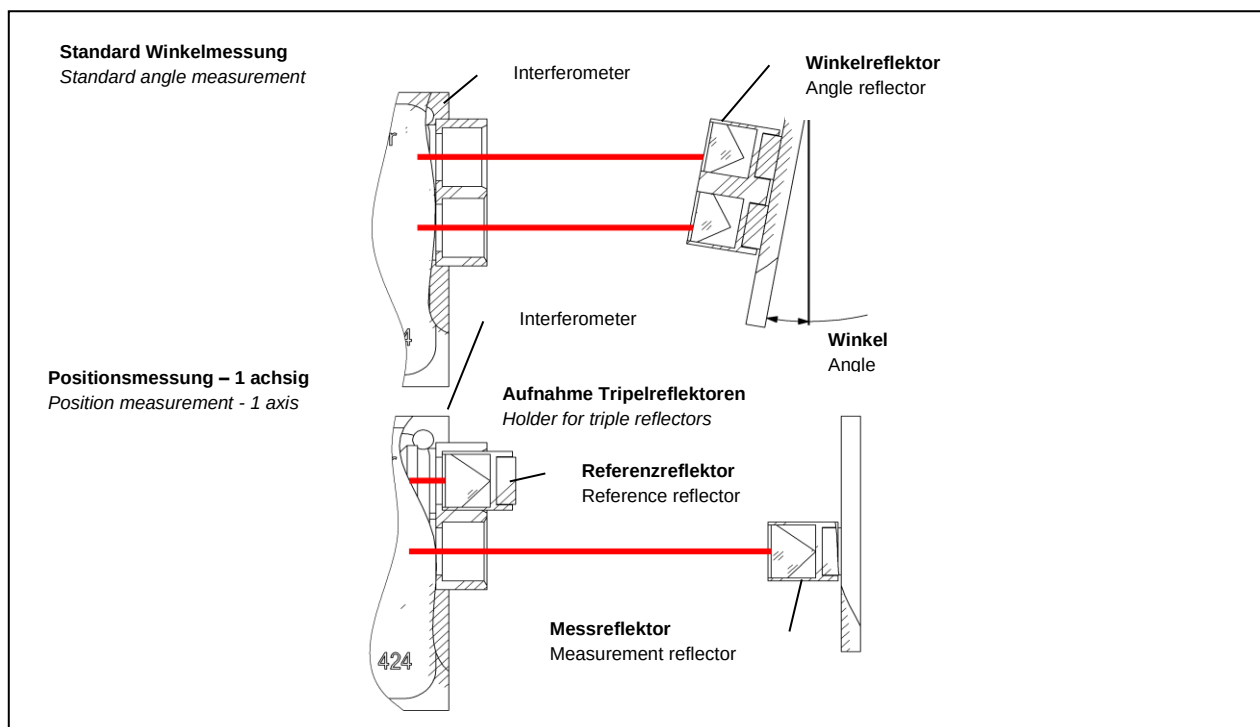
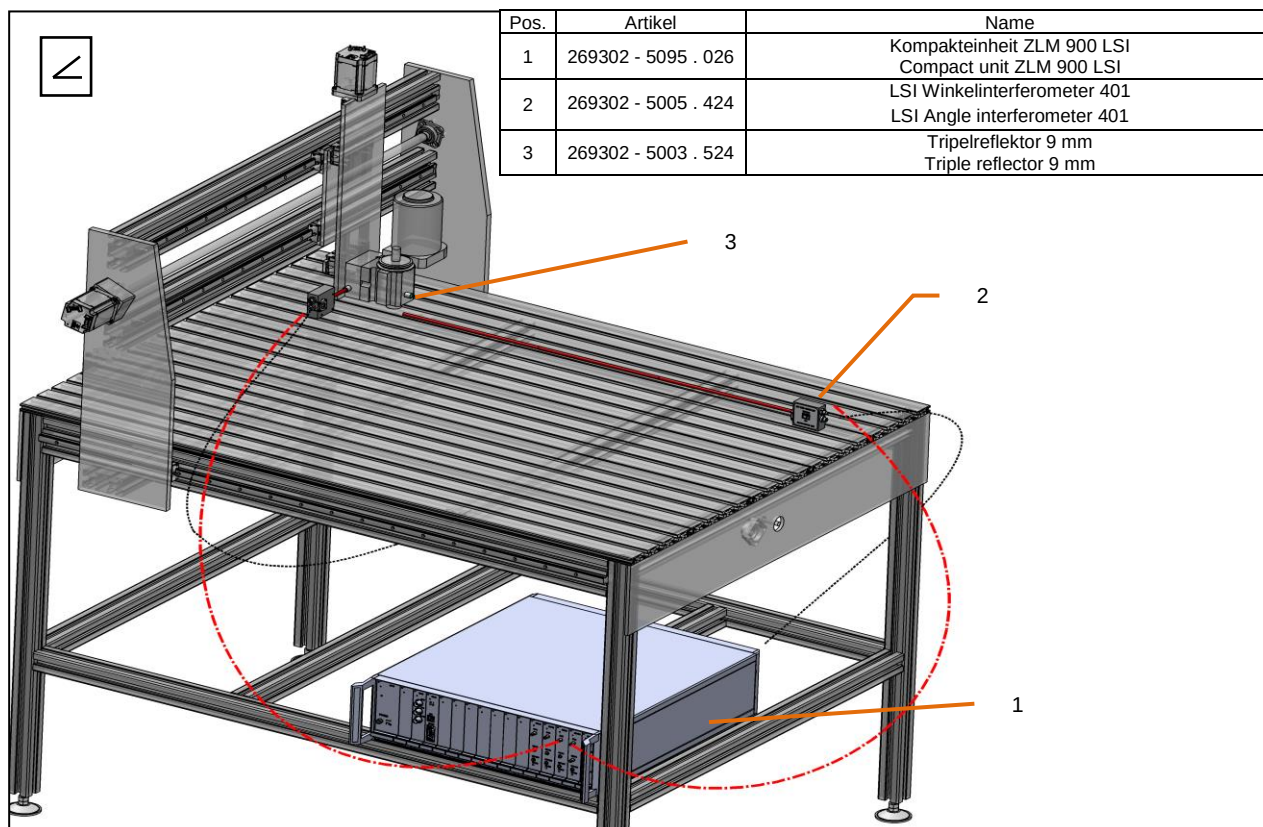
Measurement for:

- simultaneous measurement of position, pitch, yaw & roll angle (with interferometer 366)



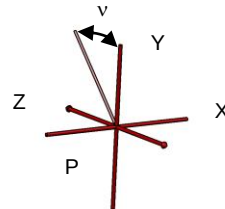
Position

 Ψ Nickwinkel / pitch angle Φ Gierwinkel / yaw angle Θ Rollwinkel / roll angle

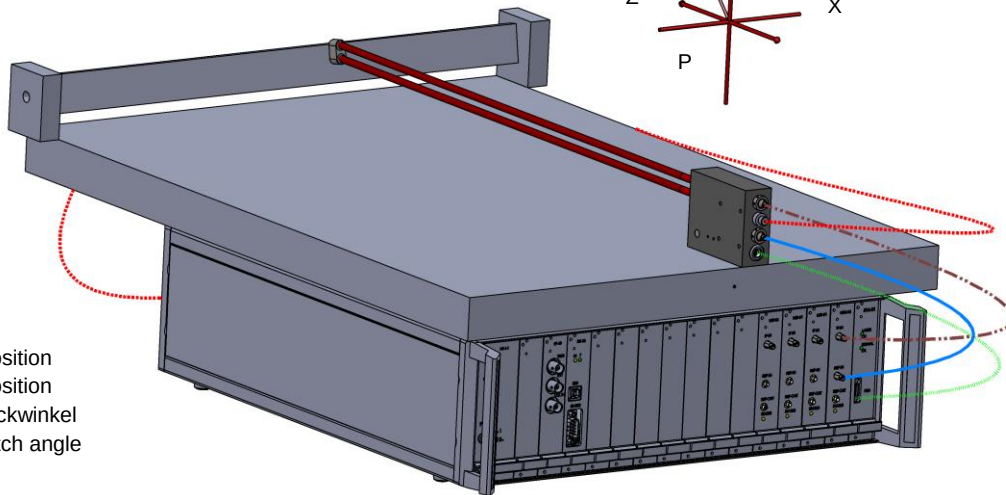
Reflektorenschema – Einstrahlwinkelinterferometer zur 1- Achspositionsmessung
Schematic of reflectors- Single Angle Interferometer for 1 axis position measurement

Kompakteinheit ZLM 900 LSI mit integrierter Auswerteeinheit mit 2 x LSI Winkelinterferometer 401
Compact unit ZLM 900 LSI with integrated Evaluation unit with 2 x LSI Angle interferometer 401


Kompakteinheit ZLM 900 LSI mit integrierter Auswerteeinheit mit LSI Winkelinterferometer 407
Compact unit ZLM 900 LSI with integrated Evaluation unit with LSI Angle interferometer 407

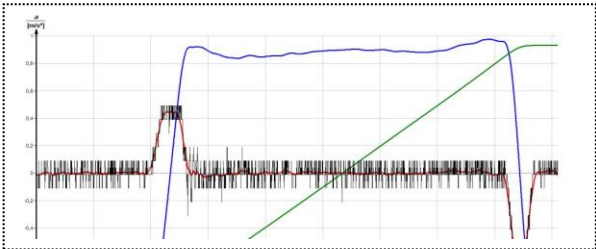
Pos.	Artikel	Name
1	269302 - 5095 . 026	Kompakteinheit ZLM 900 LSI Compact unit ZLM 900 LSI
2	269302 - 4003 . 224	LSI Winkelinterferometer 407 LSI Angle interferometer 407
3	269302 - 5003 . 624	Doppelreflektor 9mm Double reflector 9mm



P... Position
Position
v... Nickwinkel
Pitch angle



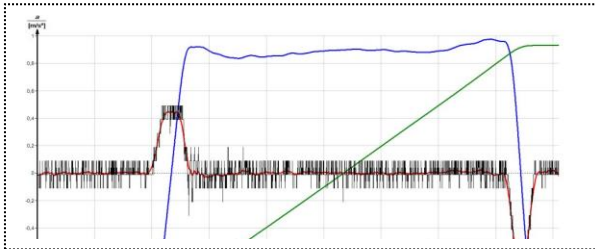
Kompakteinheit ZLM 900 LSI mit Einstrahltaster 206 für simultane Kippwinkelmessung
Compact unit ZLM 900 LSI with single beam probe 206 for simulated tilt angle measurement



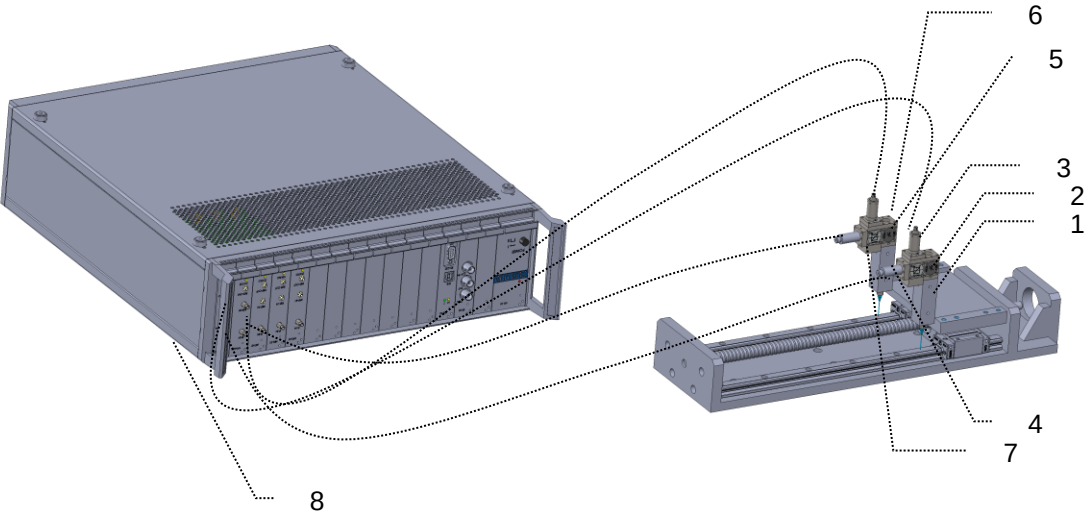
P₁



P₂



POS.	Artikel	Name
1	269302 - 5100 . 324	Einstrahltaster 206 Single beam probe 206
2	269302 - 4012 . 424	90° Umlenker 205 für Einzelstrahl 90° Beam bender 205
3	269302 - 4016 . 324	LWL Anschluss 215 Fiber optics coupling 215
4	269302 - 4016 . 424	LWL Auskoppelung 218 Fiber optics coupling 218
5	269302 - 4016 . 524	Polarisationsteiler 200 Polarizing beam splitter 200
6	269302 - 5111 . 110	Klemmhalter 509 Coupling plate 509
7	269302 - 4016 . 624	Tripelreflektor 216 Cube corner reflector 102
8	269302 - 5095 . 026	Kompakteinheit ZLM 900 LSI Compact unit ZLM 900 LSI



P_{1,2...} Position
Position



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