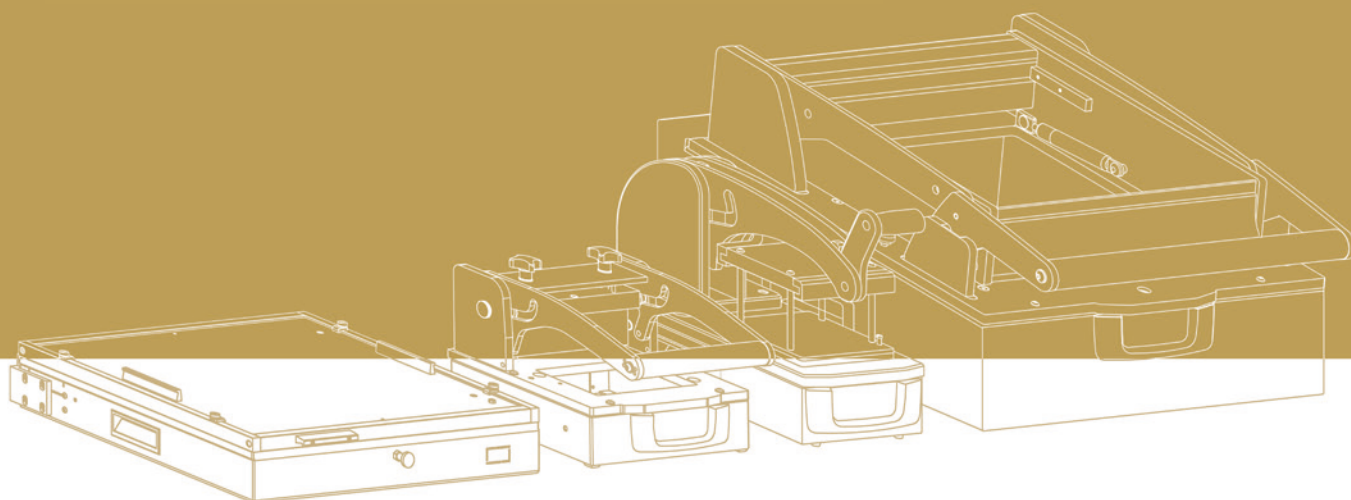


Test Fixtures Spare Part Kits and Drive Units



Worldwide in contact



Your reliable partner worldwide

INGUN is represented worldwide by agencies and 11 of their own subsidiaries. Many of their current agencies have worked together with the test equipment specialist since the company was founded.

Your local contact partner

Only those who understand their customers can offer the best products and services. The INGUN group can be reached via one of their many subsidiaries and agencies worldwide – one of which is guaranteed to be near you.

Find your contact person now:
www.ingun.com/contact



Spare part kits (ETK) and drive units (ATE)

Comprehensive spare part kits

We assure the high performance and quality of our products based on our years of experience in test fixture design, innovative development and our own high quality standards. This includes thinking outside the box and offering sophisticated solutions, such as the optimum spare part kits for your needs.

Spare parts are required for preventative maintenance, or as soon as a component of a complex product wears out as a result of normal operation in the course of its working life. This wear can result in the function of the product being limited or ceasing altogether.

By using high quality spare parts which fit precisely, you can save time when replacing worn parts by having all individual components of an assembly available from one source. By using INGUN spare parts, you can ensure the consistent, long-term quality of your test fixture for easy, reliable contacting.

Features

- Quick, reliable, easy maintenance
- Ordering and storage of individual components not necessary
- Individual components fit together perfectly
- Components can be exchanged by operators themselves on site
- Spare parts are available as a kit, including drawings for safe installation
- Highest standard of quality

Note:

INGUN customisation documents in the form of drawings are available for the installation of replacement kits. In these drawings, assembly instructions and customisation recommendations for proper installation and any necessary working steps are described.

Spare part kits (ETK) and drive units (ATE)

Manual test fixtures MA xxxx	5
RF exchangeable kits ATS MAxx/HF	15
KEYSIGHT inline interchangeable kits WS KEYSIGHT/i3070-5i	19
Drive units and drive mechanisms ATE / ATM MAxxxx ATE / ATM MAxxx	23
Plate matrix	29
Overview of abbreviations	30
Table of contents	31

Search and find products even faster. **PRODUCT FINDER 2.0**

Intuitive filtering makes searching significantly more effective.

Find the **ideal product** with just a few clicks.

Faster search thanks to an optimised algorithm.

Find the catalogue in our new product finder 2.0 today.



Spare part kits (ETK) for manual test fixture series MA xxxx

Comprehensive spare part kits

Various spare part kits are available for the **manual test fixture MA xxxx series**. Worn components are replaced by spare parts in order to restore the function of the manual test fixture to ensure continued reliable contacting.

<p>Gas pressure springs (GDF)</p> 	<p>Gas pressure spring mounting unit (GDH)</p> 	<p>Latches (KLI)</p> 
<p>Side couplers (KOP)</p> 	<p>Rear bearing blocks (LBH)</p> 	<p>Front bearing blocks (LBV)</p> 
<p>Clamping lever drive unit (SHA)</p> 	<p>Locking slide (VRS)</p> 	

Gas pressure springs (GDF)

ETK-GDF-150N-MAxxxx	6
ETK-GDF-200N-MAxxxx	6
ETK-GDF-300N-MAxxxx	6
ETK-GDF-400N-MAxxxx	6
ETK-GDF-500N-MAxxxx	6
ETK-GDF-700N-MAxxxx	6

Gas pressure spring mounting unit (GDH)

ETK-GDH-MAxxxx	7
ETK-GSR-MAxxxx	7

Latches (KLI)

ETK-KLI-MA2xxx	8
ETK-KLI-MA3xxx	8

Side couplers (KOP)

ETK-KOP-MA2x09	9
ETK-KOP-MA2x11/12	9
ETK-KOP-MA2x13/14	9
ETK-KOP-MA3x11/12	9
ETK-KOP-MA3x13/14	9
ETK-KOR-MAxxxx	9
ETK-ZSR-MAxxxx	9

Rear bearing blocks (LBH)

ETK-LBH-MA2x09/11/12	10
ETK-LBH-MA2x13/14	10
ETK-LBH-MA3xxx	10

Front bearing blocks (LBV)

ETK-LBV-MA2xxx	11
ETK-LBV-MA3xxx	11

Clamping lever drive unit (SHA)

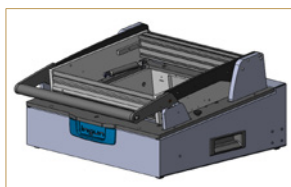
ETK-SHA-MAxxxx	12
----------------	----

Locking slide (VRS)

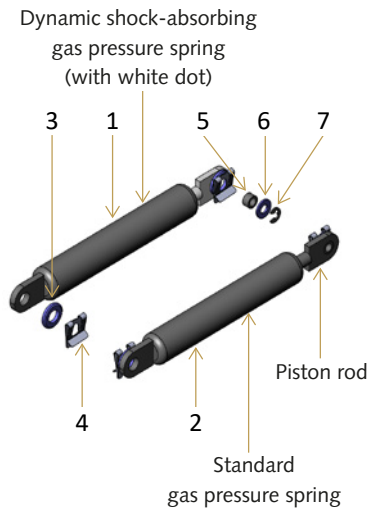
ETK-VRS-MAxxxx	13
----------------	----

Note:

Manual test fixtures xxxx can be found from page 29 onwards in our test fixtures catalogue.



ETK-GDF-xxxN-MAxxxx



Delivery includes:

- 1: 1x GDF-185-60-xxxN-A6-A6-D
- 2: 1x GDF-185-60-xxxN-A6-A6
- 3: 4x D6.4 washer with chamfer
- 4: 4x Locking clip
- 5: 2x 6,1/4,1/3,5 mm bush
- 6: 2x D4.3 washer with chamfer
- 7: 2x D3 retaining washer

Delivery state:

- Not assembled
- Gas pressure spring: plunger extended

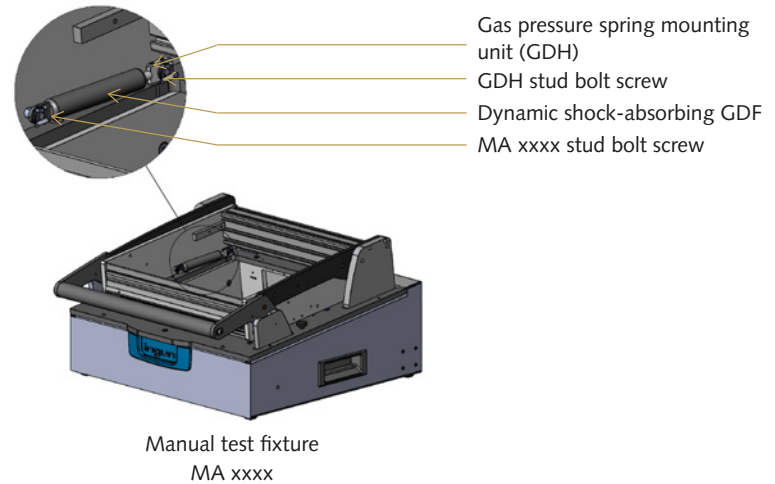
Usage

Gas pressure springs (GDF) are used to counterbalance weight and as opening and holding support for the drive unit in the test fixture.

Features

- Quick, easy, custom-fit installation
- Various spring forces available
- Typical life span approx. 50, 000 load cycles

Installation example



Installation instructions:

Items 5, 6 and 7 are only to be used if a 4 mm stud bolt screw is mounted on the gas pressure spring mounting unit (GDH) (previous version).

The dynamic shock-absorbing gas pressure spring is generally installed on the left side of the MA xxxx basic unit.

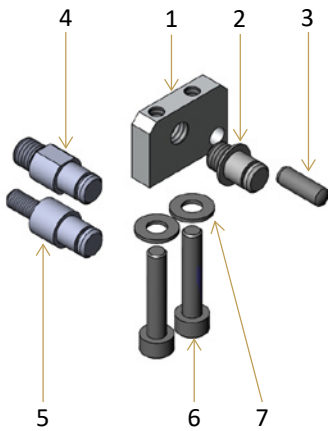
Storage advice / durability:

Our gas pressure springs should be stored with the piston rod facing down so that the sealing will be moistened from within. It does not make a difference whether or not the gas pressure springs are extended (not under load) or retracted (under load). An annual pressure loss of approx. 5% is within the specified tolerance.

Ordering information

Spare part kits: Gas pressure springs (GDF) compatible with MA xxxx series						
Part number	Description	Technical specifications				
		Gas pressure springs	Stroke	Force	Length	Version
41150	ETK-GDF-150N-MAxxxx (150 N for MA 2x09)	GDF-185-60-100N-A6-A6-D	60 mm	100 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-50N-A6-A6	60 mm	50 N	185 mm	-
39200	ETK-GDF-200N-MAxxxx (200 N for MA xx11)	GDF-185-60-100N-A6-A6-D	60 mm	100 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-100N-A6-A6	60 mm	100 N	185 mm	-
39300	ETK-GDF-300N-MAxxxx (300 N for MA xx12)	GDF-185-60-200N-A6-A6-D	60 mm	200 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-100N-A6-A6	60 mm	100 N	185 mm	-
39400	ETK-GDF-400N-MAxxxx (400 N for MA xx13)	GDF-185-60-200N-A6-A6-D	60 mm	200 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-200N-A6-A6	60 mm	200 N	185 mm	-
39500	ETK-GDF-500N-MAxxxx (500 N for MA xx14)	GDF-185-60-200N-A6-A6-D	60 mm	200 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-300N-A6-A6	60 mm	300 N	185 mm	-
100648	ETK-GDF-700N-MAxxxx (700 N)	GDF-185-60-300N-A6-A6-D	60 mm	300 N	185 mm	Dynamic shock-absorbing
		GDF-185-60-400N-A6-A6	60 mm	400 N	185 mm	-

ETK-GDH-MAxxxx



Delivery includes:

- 1: 1x Gas pressure spring mounting unit
- 2: 1x M6x12.5 stud bolt screw
- 3: 1x D4m6x12 cylindrical pin
- 4: 1x M6 Ø6 stud bolt screw
- 5: 1x M4 Ø6 stud bolt screw
- 6: 2x M4x20 T20 cylindrical screws
- 7: 2x D4.3 washer with chamfer

Delivery state:
Not assembled

Usage

Gas pressure spring mounting units (GDH) are used to mount gas pressure springs in order to ensure opening and holding support for the drive unit in MA xxxx test fixtures.

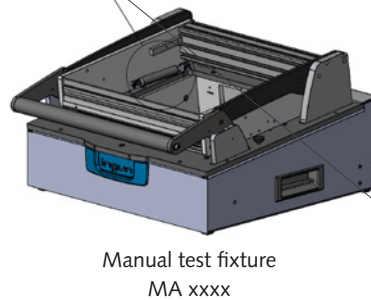
Features

- Quick, easy, custom-fit installation
- Gas pressure spring mounting unit and components can be mounted on the left or right side of the drive unit of the test fixture

Installation example



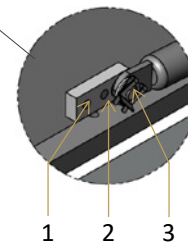
- Gas pressure spring mounting unit (GDH)
- Stud bolt screw GDH
- Dynamic shock-absorbing GDF
- Stud bolt screw MA xxxx



Manual test fixture
MA xxxx

ETK-GSR-MAxxxx

Gas pressure spring stud bolt repair set (GSR)



- 1: Lenshead screw
- 2: Gas pressure spring mounting block
- 3: Stud bolt screw

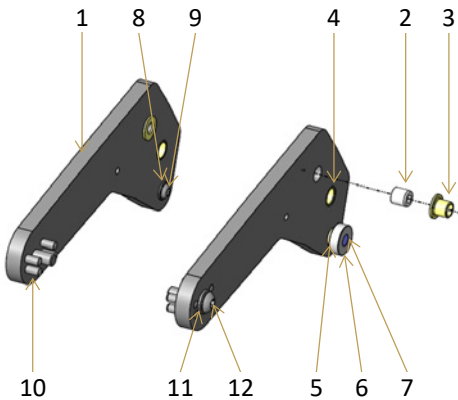
Installation instructions:

Item 5 in the spare part kits gas pressure spring mounting unit is only to be used if there is a Ø 4 mm thread in the side wall of the MA xxxx basic unit (previous version).

Ordering information

Spare part kits: Gas pressure spring mounting unit (GDH) compatible with MA xxxx series						
Part number	Description	Technical specifications				
		Stud bolt screws	Thread	Free length	Bolt-Ø	Version
54791	ETK-GDH-MAxxxx	Stud bolt screw M6x12,5	M6	7.5 mm	6.25 mm	-
		Stud bolt screw M6 Ø6	M6	14.0 mm	6.25 mm	SW 7
		Stud bolt screw M4 Ø6	M4	14.1 mm	6.25 mm	-
Spare part kits: Gas pressure spring stud bolt repair set (GSR) compatible with MA xxxx series						
Part number	Description	Application	Delivery includes		Delivery state	
53835	ETK-GSR-MAxxxx	Repair broken stud bolt screws in MA xxxx fixtures	1: 2x M5x16 T25 lenshead screw 2: 1x GDF mounting block 3: 1x M6x12.5 stud bolt screw		Not assembled	

ETK-KLI-MAxxxx



Delivery includes:

- 1: 2x MA xxxx latch
- 2: 2x 4x8 drill bush
- 3: 2x JFM-0608-08 slide bearing
- 4: 2x D10xd8x8 slide bearing
- 5: 2x D9xd6.1x2.5 spacer ring
- 6: 2x d6/15 – b5 miniature bearing
- 7: 2x D6m6x16 M4 cylindrical pin
- 8: 2x D4.3 washer with chamfer
- 9: 2x M4x6 T20 lenshead screw
- 10: 8x D4m6x16 cylindrical pin
- 11: 2x D6.4 washer with chamfer
- 12: 2x M6x20 T30 lenshead screw

Delivery state:

Not assembled

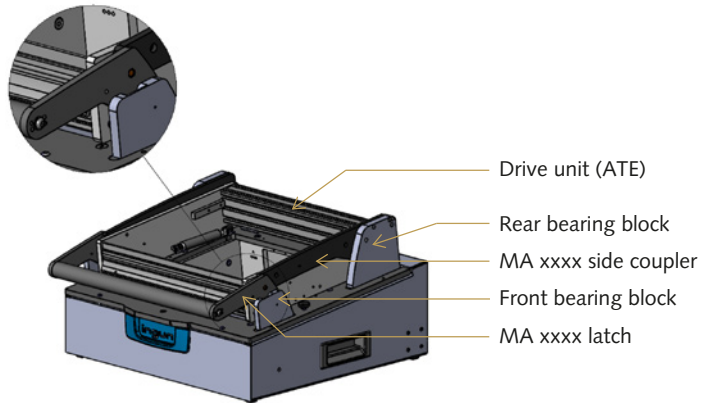
Usage

Latches (KLI) serve as a connecting element from the side coupler to the front handle in order to ensure reliable opening and closing of the test fixture when the front handle is manually operated, preferably by gripping the centre of the handle.

Features

- Quick, easy, custom-fit installation
- Robust, low-wear, light design made of black anodised aluminium

Installation example



Manual test fixture
MA xxxx

Installation instructions:

Item 2 is only to be used if there is $\varnothing 4$ mm cylindrical pin in the side coupler (previous version). Item 3 is only to be used if there is $\varnothing 6$ mm cylindrical pin in the side coupler (previous version).

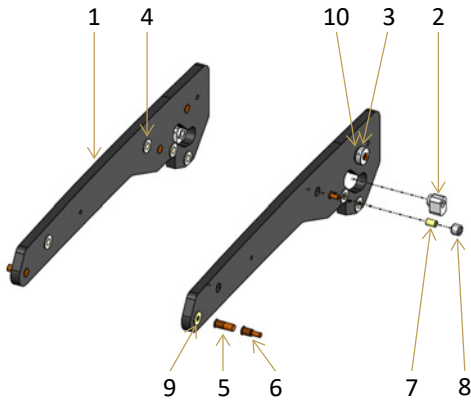
Note:

Did you know we have an extended latch?
When using the longer latch, the clamping force is two thirds of the clamping force of the standard latch. The extended latch can be found on page 73 of the test fixtures catalogue.

Ordering information

Spare part kits: Latches (KLI)		
Part number	Description	Compatible with
42263	ETK-KLI-MA2xxx	MA 2xxx
53503	ETK-KLI-MA3xxx	MA 3xxx

ETK-KOP-MAxxxx



Delivery includes:

- 1: 2x MA xxxx side coupler
- 2: 2x MA xxxx sliding block
- 3: 2x d6/15 – b5 miniature bearing
- 4: 12x JFM-0608-04 slide bearing
- 5: 4x 6x16 cylindrical pin with chamfer
- 6: 4x 6/4x16 cylindrical pin with chamfer
- 7: 2x J d4/5.5x8 bush
- 8: 2x Bearing sleeve MA xxxx
- 9: 2x D12x4.3 b1 flat washer
- 10: 2x D6.4 washer with chamfer

Delivery state:

Not assembled

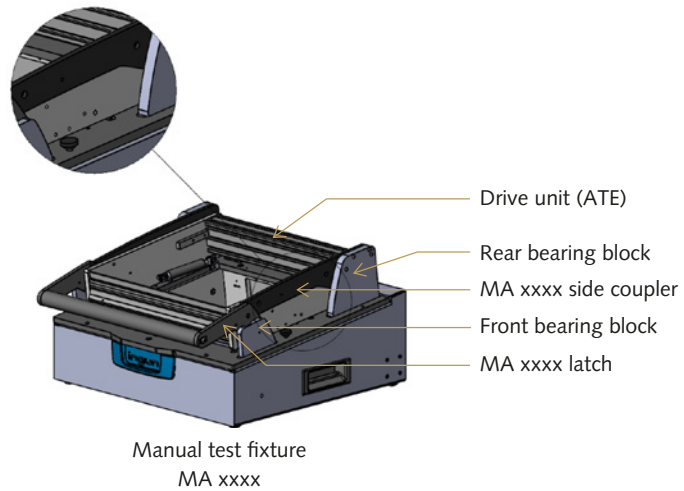
Usage

Side couplers (KOP) are the connection element between the rear bearing block and the front latch. They ensure the drive unit (ATE) can be reliably opened and closed and guarantee parallel stroke movement.

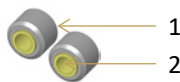
Features

- Quick, easy, custom-fit installation
- Robust, low-wear, light design made of black anodised aluminium

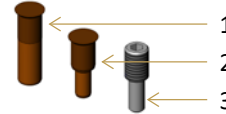
Installation example



ETK-KOR-MAxxxx



ETK-ZSR-MAxxxx



Installation instructions:

Item 6 in the side coupler spare parts kit is only to be used if there is \varnothing 4 mm borehole in the latch (previous version). Item 5 is only to be used if there is 6 mm borehole in the latch (previous version).

Ordering information

Spare part kits: Side couplers (KOP)		
Part number	Description	Compatible with
57710	ETK-KOP-MA2x09	MA 2x09
49045	ETK-KOP-MA2x11/12	MA 2x11, MA 2x12
46221	ETK-KOP-MA2x13/14	MA 2x13, MA 2x14
53110	ETK-KOP-MA3x11/12	MA 3x11, MA 3x12
50138	ETK-KOP-MA3x13/14	MA 3x13, MA 3x14

Spare part kits: Bearing sleeve (KOR) compatible with MA xxxx series			
Part number	Description	Delivery includes	Delivery state
53720	ETK-KOR-MAxxxx	1: 2x Bearing sleeve MA xxxx 2: 2x J d4/5,5x8 bush	Not assembled

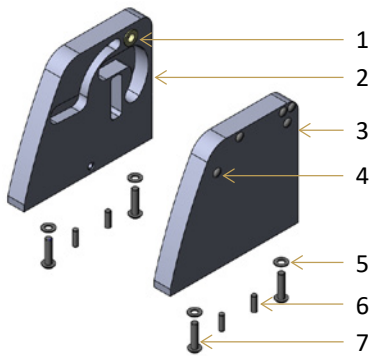
Spare part kits: Cylindrical pin repair set (ZSR) compatible with MA xxxx series				
Part number	Description	Application	Delivery includes	Delivery state
54824	ETK-ZSR-MAxxxx	Repair broken cylindrical pins	1: 1x 6x16 cylindrical pin with chamfer 2: 1x 6/4x16 cylindrical pin with chamfer 3: 1x M6/4x17 cylindrical pin	Not assembled

Rear bearing blocks

Spare part kits (ETK)

Product group: ETK
Series: Rear bearing blocks (LBH)
Compatible with: MA xxxx series

ETK-LBH-MAxxxx



Delivery includes:

- 1: 2x JFM 0608-04 friction bearing
- 2: 1x Rear left bearing block HL
- 3: 1x Rear right bearing block HR
- 4: 10x or 8x M4 hole cover, white
- 5: 4x D5.3 washer with chamfer
- 6: 4x D4m6x14 cylindrical pin
- 7: 4x M5x20 T25 lenshead screw

Delivery state:

Not assembled

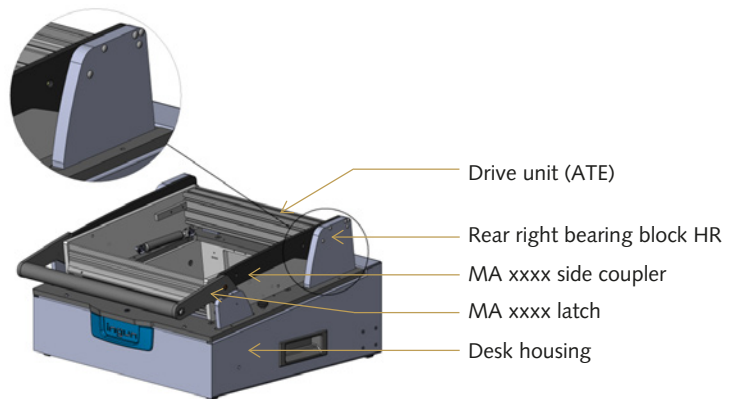
Usage

The opening and closing process with parallel contacting stroke is stimulated by the control cam in the rear bearing block. If this block is worn, the drive unit can no longer be operated reliably. The rear bearing block has to be replaced.

Features

- Quick, easy, custom-fit installation
- Robust, low-wear design
- Bearing blocks made of rigid anodised aluminium for MA 21xx series or hardened tool steel for MA 32xx series

Installation example

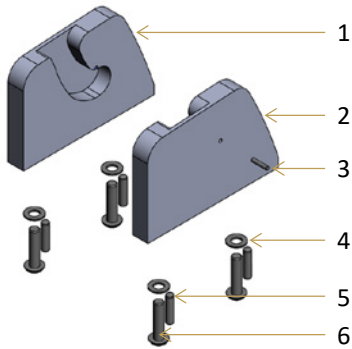


Manual test fixture
MA xxxx

Ordering information

Spare part kits: Rear bearing blocks (LBH)		
Part number	Description	Compatible with
54767	ETK-LBH-MA2x09/11/12	MA 2x09, MA 2x11, MA 2x12
54768	ETK-LBH-MA2x13/14	MA 2x13, MA 2x14
54769	ETK-LBH-MA3xxx	MA 32xx

ETK-LBV-MAxxxx



Delivery includes:

- 1: 1x Front left bearing block VL
- 2: 1x Front right bearing block VR
- 3: 2x D2m6x10 cylindrical pin (for MA 2xxx)
- 4: 4x D5.3 washer with chamfer
- 5: 4x D4m6x14 cylindrical pin D4m6x14
- 6: 4x M5x20 T25 lenshead screw

Delivery state:

Not assembled

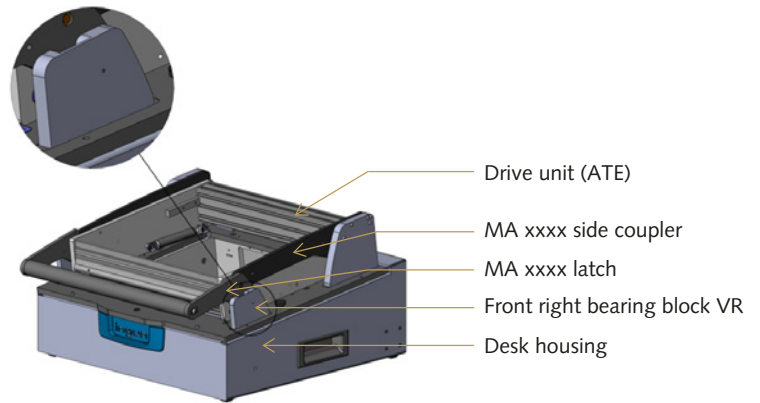
Usage

The closed position of the test fixture is essentially held by the control cam in the front bearing block. If this cam is worn, the test fixture will not remain closed when in the contacted state. The front bearing block has to be replaced.

Features

- Quick, easy, custom-fit installation
- Robust, low-wear design
- Bearing blocks made of rigid anodised aluminium for MA 21xx series or hardened tool steel for MA 32xx series

Installation example



Manual test fixture
MA xxxx

Ordering information

Spare part kits: Front bearing blocks (LBV)		
Part number	Description	Compatible with
41190	ETK-LBV-MA2xxx	MA 2xxx
54753	ETK-LBV-MA3xxx	MA 3xxx

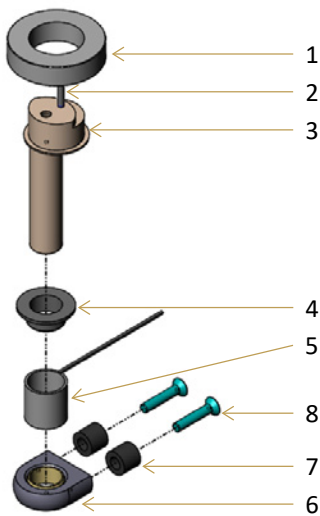
Clamping lever drive unit

Spare part kits (ETK)

Product group: ETK
Series: Clamping lever drive unit (SHA)
Compatible with: MA xxxx series

ingun®

ETK-SHA-MAxxxx



Delivery includes:

- 1: 1x d17/30 - b7 miniature bearing
- 2: 1x D2m6x16 cylindrical pin
- 3: 1x Eccentric shaft
- 4: 1x QFM 1012-06 friction bearing
- 5: 1x Torsion spring
- 6: 1x Mini pedestal bearing
- 7: 2x 4,2x07 spacer sleeve
- 8: 2x M3x16 T10 countersunk screw

Delivery state:

Not assembled

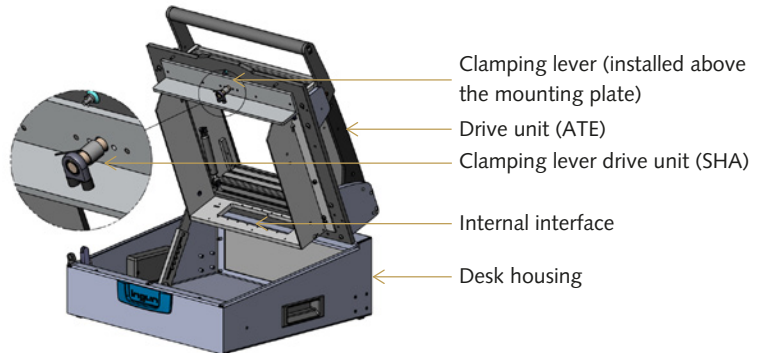
Usage

The clamping lever drive unit (SHA) acts as a mount for the clamping lever. When the clamping lever is actuated, the lower part of the exchangeable kit, i.e., the probe plate unit (KTE), is reliably pushed backwards in the opening in the drive unit and precisely fixed against the internal interface.

Features

- Quick, easy, custom-fit installation
- Robust, low-wear, light, pressure-resistant design
- Eccentric shaft made of corrosion-resistant brass

Installation example

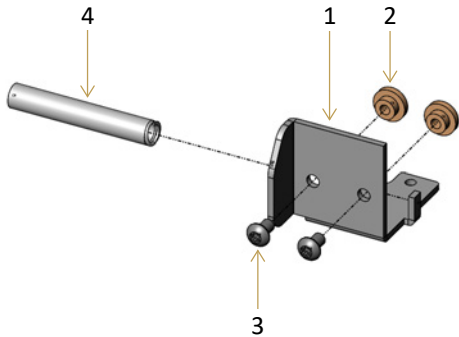


Manual test fixture
MA xxxx
(Desk housing open)

Ordering information

Spare part kits: Clamping lever drive unit (SHA)		
Part number	Description	Compatible with
54823	ETK-SHA-MAxxxx	MA xxxx

ETK-VRS-MAxxxx



- Delivery includes:**
- 1: 1x Sliding bracket
 - 2: 2x Sliding washer
 - 3: 2x M3x5 T10 lenshead screw
 - 4: 1x Pressure spring FED-05,8-36,0-21N-22,5

Delivery state:
 Not assembled

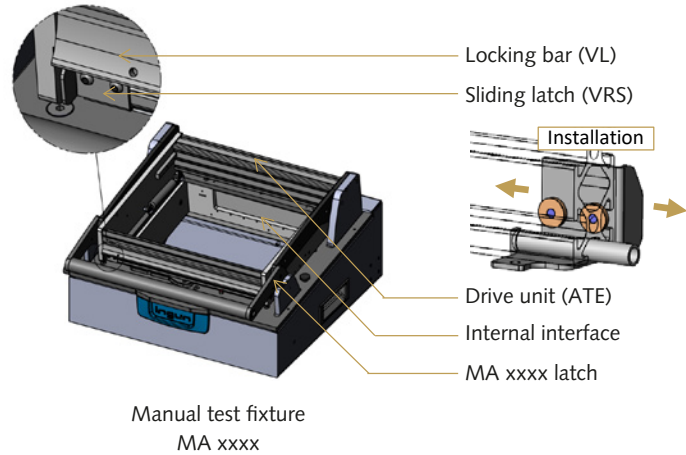
Usage

The locking slide (VRS) is used to secure the locking bar, which securely mounts and locks the pressure frame plate (NHP) in the exchangeable kit and secures it against unintended actuation.

Features

- Quick, easy, custom-fit installation
- Robust, low-wear, smooth-running design
- Sliding bracket for VRS made of corrosion-resistant stainless steel

Installation example



Ordering information

Spare part kits: Locking slide (VRS)		
Part number	Description	Compatible with
54825	ETK-VRS-MAxxxx	MA xxxx

The new

TEST FIXTURE CATALOGUE.

SIMPLIFY YOUR FIXTURE ASSEMBLY –
with the help of the test fixture catalogue 14.1.

Completely revised and now featuring over 1000 products.



Spare part kits (ETK) for radio frequency exchangeable kits ATSMAXx/HF

Comprehensive spare part kits

We offer various spare part kits for **radio frequency exchangeable kits ATSMAXx/HF**. Spare parts replace worn components in order to restore the function of radio frequency exchangeable kits and ensure continued reliable contacting.



RF seals (HGD)

ETK-HGD-ATSMAX11/HF	16
ETK-HGD-ATSMAX12/HF	16
ETK-HGD-ATSMAX13/HF	16

RF seals (KFE)

ETK-KFE-ATSMAX11/HF	17
ETK-KFE-ATSMAX12/HF	17
ETK-KFE-ATSMAX13/HF	17

Interface plates (SSP)

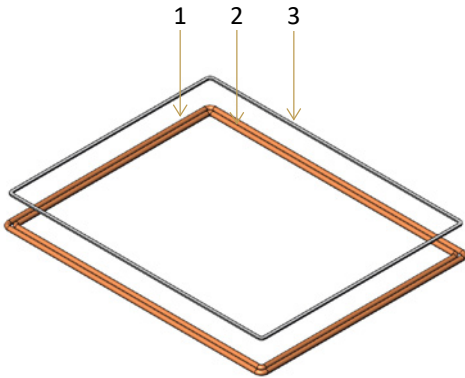
SSP ATSMAX11/HF	18
SSP ATSMAX12/HF	18
SSP ATSMAX13/HF	18

Note:

Radio frequency exchangeable kits ATSMAXx/HF can be found from page 58 onwards in our test fixtures catalogue.



ETK-HGD-ATSMAXX/HF



Delivery includes:

- 1: 1x Outer wire mesh seal for probe plate unit (KTE) ATS MAxx/HF
- 2: 1x Inner wire mesh seal for probe plate unit (KTE) ATS MAxx/HF
- 3: 1x Soft-shield seal 4850 for pressure frame (NDH) ATS MAxx/HF

Delivery state:

- Not assembled
- Soft-shield seal 4850:
In four individual strands

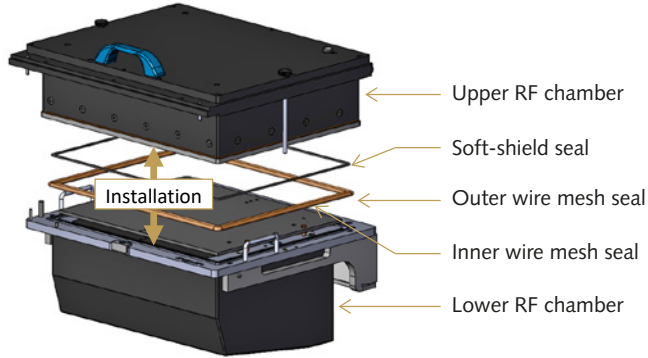
Usage

RF seals are used to reliably shield radio frequency kits against interfering signals across their entire frequency range.

Features

- Quick, easy, custom-fit installation
- Wire mesh seals offer a high level of shielding and elasticity with constant point-to-point contact when used under extremely low compression force

Installation example



Radio frequency exchangeable kit
ATS MAxx/(S-x)/HF

Installation instructions:

The RF seals are placed in designated grooves. The grooves have to be cleaned before the seals are inserted. The wire mesh seals should not be compressed or stretched. Gloves should be worn when replacing the RF seals.

Lifespan:

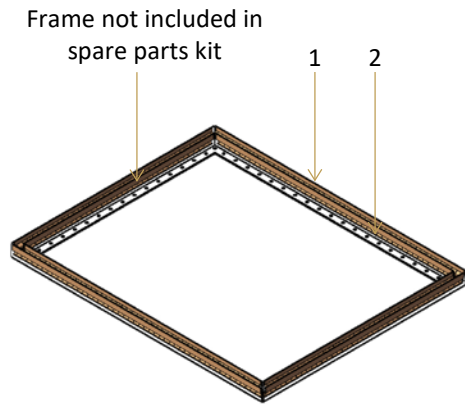
The wire mesh seals (HGD) have a typical service life of approximately 100,000 load cycles (laboratory conditions). No wear which could restrict the mechanical function of the wire mesh seals (HGD) was found in the endurance test.

Ordering information

Spare part kits: RF wire mesh seal (HGD)					
Part number	Description	Compatible with	Technical specifications		
			RF seals	Material	Length
101783	ETK-HGD-ATSMAXX/HF	ATS MA11/(S-5)/HF - Part 54011, 54111, (44411-1, 44412-1)*	Outer wire mesh seal	BeCu	app. 830 mm
			Inner wire mesh seal	BeCu	app. 770 mm
			Soft-shield seal 4850	RF felt with silver wire	
101784	ETK-HGD-ATSMAXX/HF	ATS MA12/(S-7)/HF - Part 54012, 54112, (44413-1, 44414-1)*	Outer wire mesh seal	BeCu	app. 1100 mm
			Inner wire mesh seal	BeCu	app. 1060 mm
			Soft-shield seal 4850	RF felt with silver wire	
101787	ETK-HGD-ATSMAXX/HF	ATS MA13/(S-10)/HF - Part 54013, 54113, (44415-1, 44416-1)*	Outer wire mesh seal	BeCu	app. 1570 mm
			Inner wire mesh seal	BeCu	app. 1530 mm
			Soft-shield seal 4850	RF felt with silver wire	

*: Parts in bracket have been discontinued and replaced. They can no longer be ordered, "-1" = Index of the article

ETK-KFE-ATSMAXxxx/HF



Delivery includes:

- 1: 4x Outer contact spring for probe plate unit (KTE) ATS MAxxxx/HF
- 2: 4x Inner contact spring for probe plate unit (KTE) ATS MAxxxx/HF

Delivery state:

Not assembled

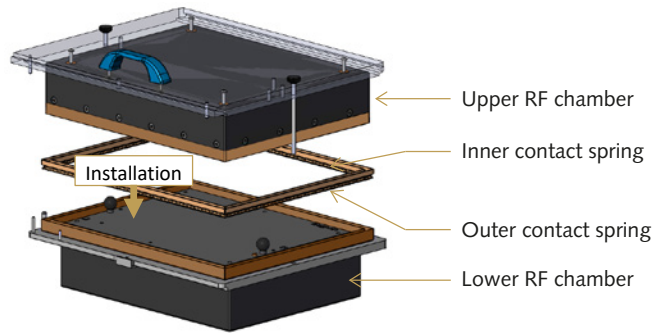
Usage

RF seals are used to reliably shield radio frequency kits against interfering signals across their entire frequency range.

Features

- Quick, easy, custom-fit installation
- Contact springs offer a high level of shielding and are characterised by excellent spring properties and material strength

Installation example



Radio frequency exchangeable kit
 ATS MAxxxx/(S-x)/HF

Spare part kits
 ATS MAxxx/HF

Installation instructions:

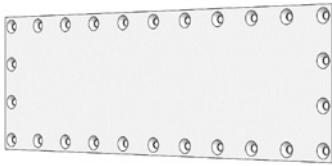
The RF seals are placed in designated grooves. The grooves have to be cleaned before the seals are inserted. The contact springs should not be compressed or stretched. Gloves should be worn when replacing the RF seals.

Ordering information

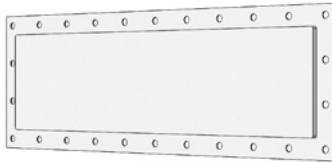
Spare part kits: HF contact spring seals (KFE)					
Part number	Description	Compatible with	Technical specifications		
			RF seals	Material	Length
41766	ETK-KFE-ATSMAXx11/HF	ATS MAxx11/(S-5)/HF Art. (44411-0, 44412-0, 41374, 41375, 33391, 34475)*	Outer contact spring	BeCu	app. 249.0 mm / 171.3 mm
			Inner contact spring	BeCu	app. 236.5 mm / 155.5 mm
41765	ETK-KFE-ATSMAXx12/HF	ATS MAxx12/(S-7)/HF Art. (44413-0, 44414-0, 41376, 41377, 33383, 36365)*	Outer contact spring	BeCu	app. 312.3 mm / 249.0 mm
			Inner contact spring	BeCu	app. 296.7 mm / 236.5 mm
42410	ETK-KFE-ATSMAXx13/HF	ATS MAxx13/(S-10)/HF Art. (44415-0, 44416-0, 42372)*	Outer contact spring	BeCu	app. 452.7 mm / 306.5 mm
			Inner contact spring	BeCu	app. 319,0 mm / 234,0 mm

*: Parts in bracket have been discontinued and replaced. They can no longer be ordered, "-0" = Index of the article

SSP ATSMAXx/HF



SSP ATSMAXx/HF
(Front view)



SSP ATSMAXx/HF
(Rear view)

Delivery:

- 1: Includes Am3 countersinks
- 2: Does **not** include RF seals & fixing material

Delivery state:

Not assembled

Compatible RF seals:

Soft-shield seals 4850



Wire mesh seals (HGD)



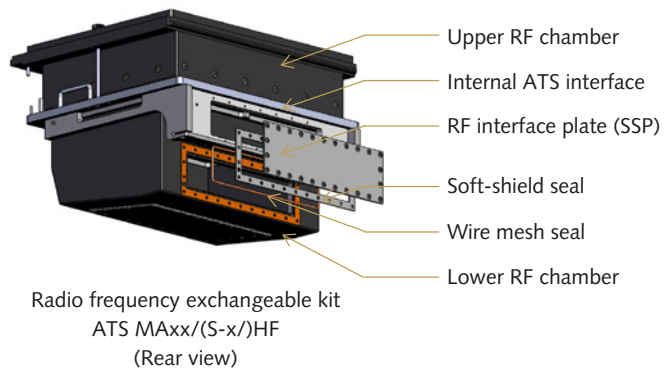
Usage

The RF interface plates are used to mount various RF interfaces. Using RF interfaces, signals are transmitted from the RF PCB to the test system and into the shielded area.

Features

- Quick, easy, custom-fit installation
- Interface plates made of easy-to-machine aluminium
- Soft-shield seal made of RF felt with interwoven silver wire
- Wire mesh seal made of highly elastic beryllium copper

Installation example



Note:

Did you know we have a comprehensive range of electromagnetic compliant (EMC) RF interfaces? EMC RF interfaces to transmit RF, low voltage, Bus, HSD, USB, and LAN signals can be found from page 61 onwards in our test fixture catalogue.

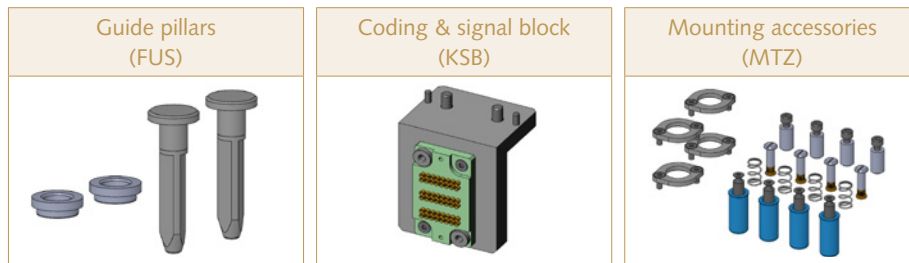
Ordering information

Interface plates (SSP)		
Part number	Description	Compatible with
32880	SSP ATSMAX11/HF (70 x 136 x 5 mm)	ATS MAX11/HF, ATS MAX11/S-5/HF
32900	SSP ATSMAX12/HF (70 x 220 x 5 mm)	ATS MAX12/HF, ATS MAX12/S-7/HF
32915	SSP ATSMAX13/HF (70 x 325 x 5 mm)	ATS MAX13/HF, ATS MAX13/S-10/HF
RF soft-shield seals 4850		
Part number	Description	Compatible with
32883	Soft-shield seal (70 x 136 x 1.5 mm)	SSP ATSMAX11/HF
32902	Soft-shield seal (70 x 220 x 1.5 mm)	SSP ATSMAX12/HF
32918	Soft-shield seal (70 x 325 x 1.5 mm)	SSP ATSMAX13/HF
RF wire mesh seals (HGD)		
Part number	Description	Compatible with
32887	Wire mesh seal, 330 mm	SSP ATSMAX11/HF
32905	Wire mesh seal, 500 mm	SSP ATSMAX12/HF
53670	Wire mesh seal, 710 mm	SSP ATSMAX13/HF

Spare part kits (ETK) for KEYSIGHT inline interchangeable kit WS KEYSIGHT/i3070-5i

Comprehensive spare part kits

We offer various spare part kits for the **KEYSIGHT inline interchangeable WS KEYSIGHT/i3070-5i**. Spare parts replace worn components in order to restore the function of the inline interchangeable kit and ensure continued reliable contacting.



Guide pillars (FUS)

ETK-FUS-WS-KS-i3070-5i 20

Coding & signal block (KSB)

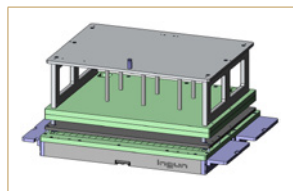
ASS-KSB-WSO-KS-i3070-5i 21

Assembly accessories (MTZ)

ETK-MTZ-WS-KS-i3070-5i 22

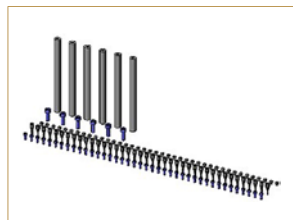
Note:

The KEYSIGHT inline interchangeable WS KEYSIGHT/i3070-5i can be found on page 145 of our test fixture catalogue.



Note:

Did you know we have a starter kit SK-M-20-WS for the KEYSIGHT inline exchangeable kit WS KEYSIGHT/i3070-5i? It contains various customisation-specific components and can be found on page 154 of our test fixture catalogue.



Guide pillars

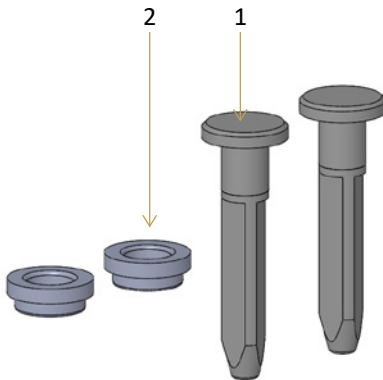
Spare part kits (ETK)

Product group: ETK
Series: Guide pillars (FUS)

Compatible with: WS Keysight/i3070-5i

ingun®

ETK-FUS-WS-KS-i3070-5i



Delivery includes:

1: 2x D11.9 3-edged guide pillar

2: 2x d12.0x8/4 guide bush with collar

Delivery state:

Not assembled

Usage

Guide pillars with custom-fit guiding bushes are used for precise, low-friction contacting movement, specifically in order to minimise the impact of side torsion force on the stroke movement.

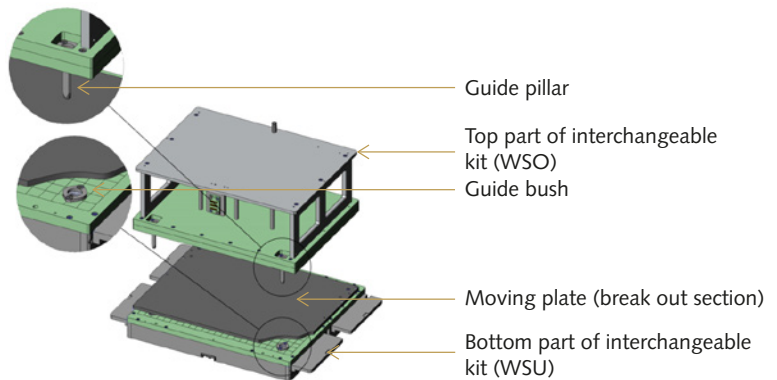
Features

- Quick, easy, custom-fit installation
- Guide pillars made of hardened stainless steel
- Guide bushes made of hardened steel

Technical specifications

- Guiding precision: ± 0.05 mm

Installation example

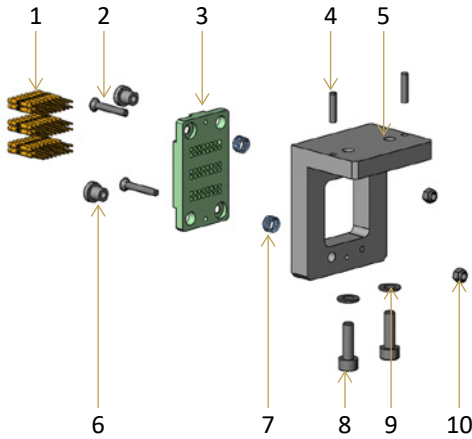


Inline interchangeable kit
WS KEYSIGHT/i3070-5i
(Rear view)

Ordering information

Spare part kits: Guide pillars (FUS)		
Part number	Description	Compatible with
103307	ETK-FUS-WS-KS-i3070-5i	WS KEYSIGHT/i3070-5i

ASS-KSB-WSO-KS-i3070-5i



Delivery includes:

- 1: 48x Contact terminal KT-254 W3 E02
- 2: 2x M3x20 T10 countersunk screw
- 3: 1x Coding & signal block plate
- 4: 2x D3m6x14 cylindrical pin
- 5: 1x Interface plate
- 6: 2x 3.1x8 guide bush with collar
- 7: 2x Pressure spring FED-06,9-11,5-14N-04,0
- 8: 2x M5x16 T25 cylindrical screws
- 9: 2x D5.3 washer with chamfer
- 10: 2x M3 self-securing hexagonal nut

Delivery state:

Partly assembled
 (Fixing material enclosed separately)

Usage

The coding & signal block acts an electrically conductive connection from the upper part of the interchangeable kit (WSO) to the inline test system in order to reliably transmit signals specific to the interchangeable kit between the unit under test and the test system.

Features

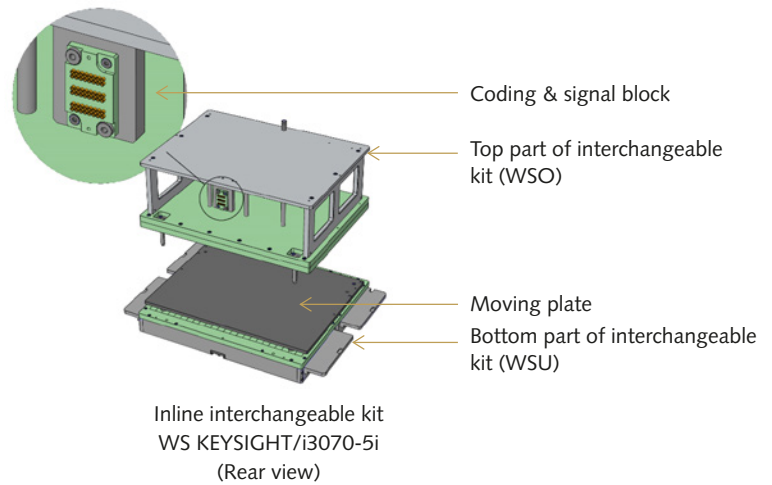
- Quick, easy, custom-fit installation
- Interface blocks made of bend-resistant FR4
- Contact terminals made of corrosion-resistant gold-plated brass

Technical specifications

Contact terminal (KT)

- Connection: Wire-wrap
- Borehole: Ø 1 mm
- R_i typical: < 5 mΩ

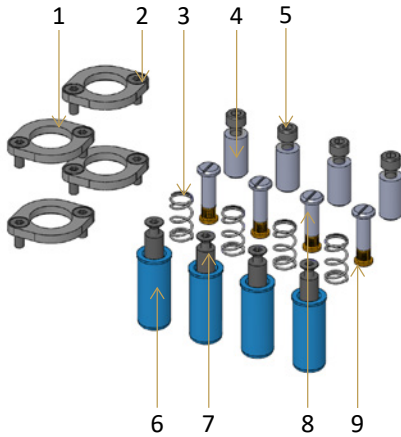
Installation example



Ordering information

Text fixture interface: Coding & signal block (KSB)		
Part number	Description	Compatible with
48149	ASS-KSB-WSO-KS-i3070-5i	WS KEYSIGHT/i3070-5i

ETK-MTZ-WS-KS-i3070-5i



Delivery includes:

- 1: 4x Retaining washer
- 2: 12x M4x12 T20 countersunk screw
- 3: 4x Pressure spring FED-10,0-19,7-36N-05,8
- 4: 4x D10x20 spacer sleeve
- 5: 4x M5x16 T25 cylindrical screws
- 6: 4x Guide bush FUB-08-14-35-POM-BL-B
- 7: 4x Guide pin FUS-08-30-ST-M4
- 8: 4x M4x17 slotted collar screw
- 9: 4x Threaded bushing GB-M04-07.5mm-O

Delivery state:

Not assembled

Usage

The assembly accessories kit includes components particularly susceptible to wear and which have an influence on contacting accuracy. Worn components need to be replaced to ensure continued reliable contacting.

Features

- Quick, easy, custom-fit installation
- Guide pins made of rigid steel
- Guide bushes made of POM with outstanding anti-frictional properties

Technical specifications

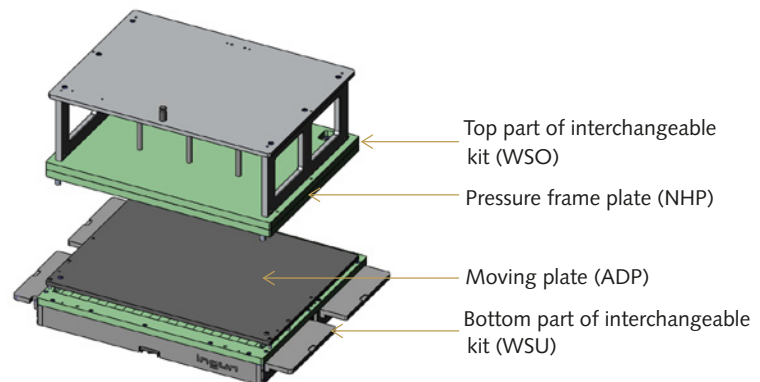
Guide pin (FUS) | Guide bush (FUB)

- Guiding precision: ± 0.075 mm

Pressure spring (FED)

- Spring force: 36 N

Installation example



Inline interchangeable kit
WS KEYSIGHT/i3070-5i

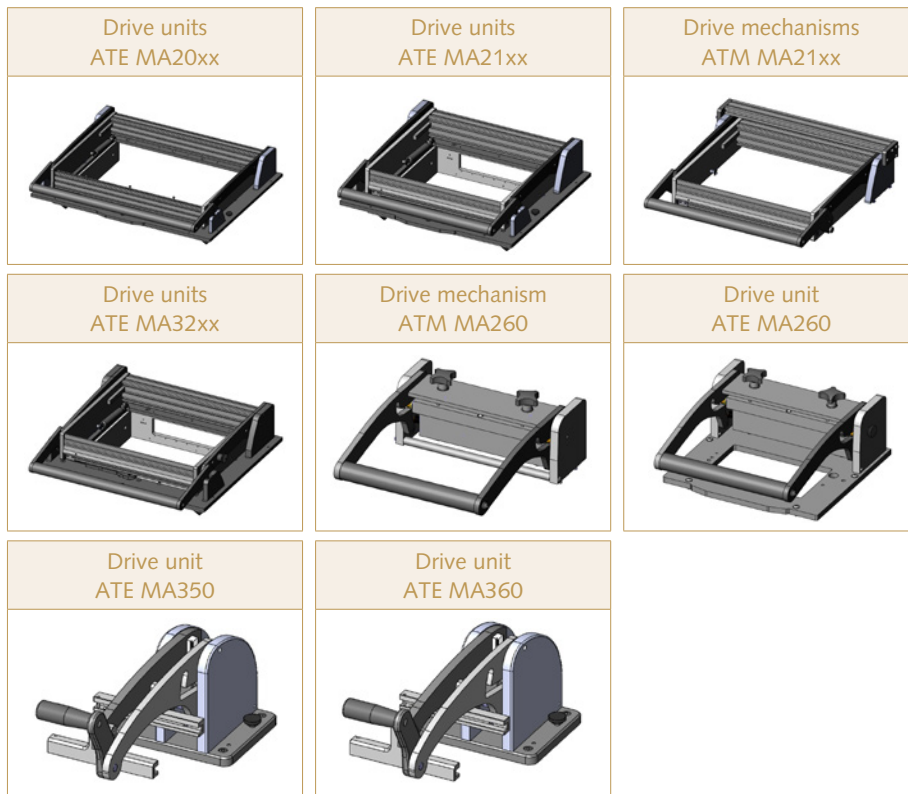
Ordering information

Spare part kits: Assembly accessories (MTZ)		
Part number	Description	Compatible with
105120	ETK-MTZ-WS-KS-i3070-5i	WS KEYSIGHT/i3070-5i

Drive units (ATE) und drive mechanisms (ATM) for manual test fixtures MA xxxx and MA xxx

Comprehensive functional units

We offer high-quality, durable drive units for the **manual test fixture MA xxxx and MA xxx**. The parallel contacting stroke is performed using drive units, which are the opening/closing mechanism, in order to ensure precise, reliable contacting. Drive units are manually operated.



Drive units

ATE MA20xx	24
ATE MA2009	24
ATE MA2011	24
ATE MA2012	24
ATE MA2013	24
ATE MA2013T	24
ATE MA2014	24

Drive units

ATE MA21xx	25
ATE MA2109	25
ATE MA2111	25
ATE MA2112	25
ATE MA2113	25
ATE MA2113T	25
ATE MA2114	25

Drive mechanisms

ATM MA21xx	26
ATM MA2109	26
ATM MA2111	26
ATM MA2112	26
ATM MA2113	26
ATM MA2114	26

Drive units

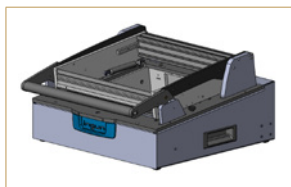
ATE MA32xx	27
ATE MA3211	27
ATE MA3212	27
ATE MA3213	27
ATE MA3213T	27
ATE MA3214	27

Drive units / Drive mechanisms ATE / ATM MAxxx

ATM MA260	28
ATE MA260	28
ATE MA350	28
ATE MA360	28

Note:

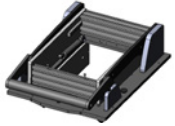
The manual test fixture MA xxxx series can be found from page 29 onwards in our test fixture catalogue. The manual test fixture MA xxx series can be found from page 23 onwards in our test fixture catalogue.



ATE MA20xx



ATE MA2009



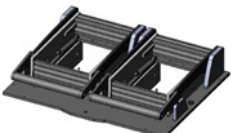
ATE MA2011



ATE MA2012



ATE MA2013



ATE MA2013T



ATE MA2014

Delivery includes:

- Mounting plate
- Bearing blocks
- Gas pressure springs
- Gas pressure spring mounting unit
- Support bracket
- Internal interface not included

Delivery state:

Assembled

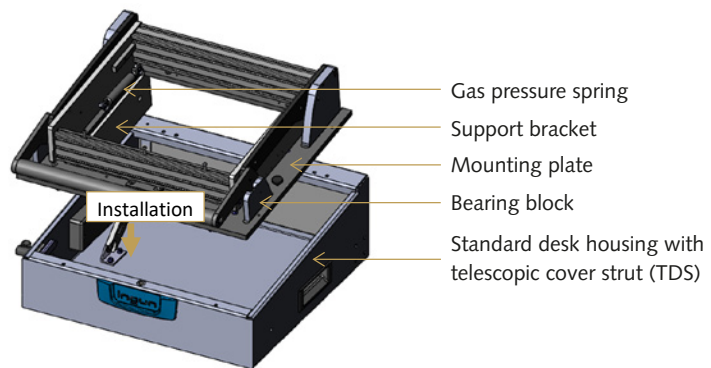
Features

- Quick, easy, custom-fit installation
- Energy-saving, shock-absorbing opening mechanism
- Compatible with standard and high desk housing

Technical specifications

- Max. contact force: 2.000 N
- Parallel stroke: 15 mm
- Opening angle: approx. 75 °
- Clamping force: approx. 120 N (at full load)
- Load cycles: 500,000 (laboratory conditions)
- Mounting plate: Surface resistance $R_o = 10^5 - 10^{10} \Omega$

Installation example

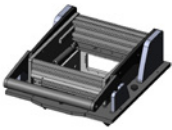


Drive unit ATE MA20xx
on standard desk housing
PGH MAxx/TDS

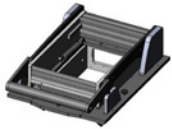
Ordering information

Drive units: ATE MA20xx			
Part number	Description	Gas pressure springs force [N]	Compatible with desk housing
105126	ATE MA2009	150 (100 left, 50 right)	PGH MA09/TDS
48372	ATE MA2011	200 (100 left, 100 right)	PGH MA11/TDS, PGH MA11/TDS/HG
48522	ATE MA2012	300 (100 left, 200 right)	PGH MA12/TDS, PGH MA12/TDS/HG
48370	ATE MA2013	400 (200 left, 200 right)	PGH MA13/TDS, PGH MA13/TDS/HG
100965	ATE MA2013T	2x 200 (100 left, 100 right)	PGH MA13/TDS, PGH MA13/TDS/HG
100685	ATE MA2014	500 (200 left, 300 right)	PGH MA14/TDS, PGH MA14/TDS/HG

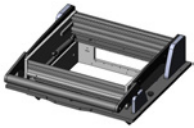
ATE MA21xx



ATE MA2109



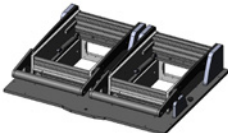
ATE MA2111



ATE MA2112



ATE MA2113



ATE MA2113T



ATE MA2114

Delivery includes:

- Mounting plate
- Bearing blocks
- Gas pressure springs
- Gas pressure spring mounting unit
- Support bracket
- Internal interface (not loaded)

Delivery state:

Assembled

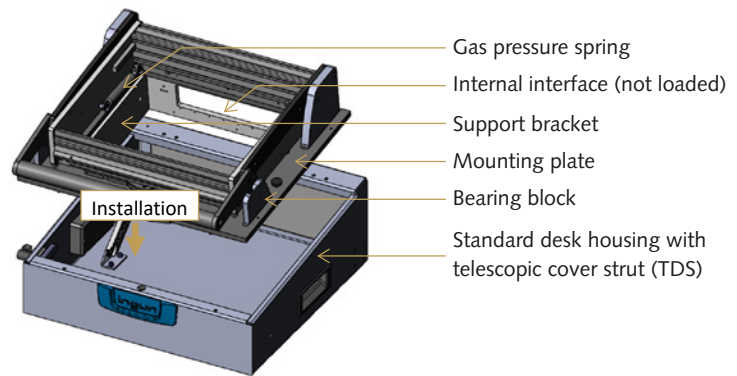
Features

- Quick, easy, custom-fit installation
- Energy saving, shock-absorbing opening mechanism
- Modularly configurable internal interface
- Compatible with standard and high desk housing

Technical specifications

- Max. contact force: 2.000 N
- Parallel stroke: 15 mm
- Opening angle: approx. 75 °
- Clamping force: approx. 120 N (at full load)
- Load cycles: 500,000 (laboratory conditions)
- Mounting plate: Surface resistance $R_o = 10^9 - 10^{10} \Omega$

Installation example



Drive unit ATE MA21xx
on standard desk housing
PGH MAxx/TDS

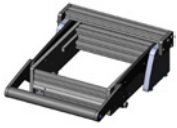
Note:

Did you know we have a comprehensive range of interface blocks (SB) for loading internal interfaces? Signal, high current, radio frequency, fibre optic, pneumatic, mixed, HSD, and special blocks are available in various different versions. The interface blocks can be found from page 155 onwards in our test fixture catalogue.

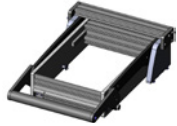
Ordering information

Drive units: ATE MA21xx				
Part number	Description	Gas pressure spring force [N]	Internal interface (not loaded)	Compatible with desk housing
39900	ATE MA2109	150 (100 left, 50 right)	For max. 5 SBs	PGH MA09/TDS
36170	ATE MA2111	200 (100 left, 100 right)	For max. 5 SBs	PGH MA11/TDS, PGH MA11/TDS/HG
35650	ATE MA2112	300 (100 left, 200 right)	For max. 7 SBs	PGH MA12/TDS, PGH MA12/TDS/HG
37790	ATE MA2113	400 (200 left, 200 right)	For max. 10 SBs	PGH MA13/TDS, PGH MA13/TDS/HG
40900	ATE MA2113T	2x 200 (100 left, 100 right)	For max. 2x 5 SBs	PGH MA13/TDS, PGH MA13/TDS/HG
38440	ATE MA2114	500 (200 left, 300 right)	For max. 10 SBs	PGH MA14/TDS, PGH MA14/TDS/HG

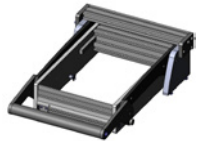
ATM MA21xx



ATM MA2109



ATM MA2111



ATM MA2112



ATM MA2113



ATM MA2114

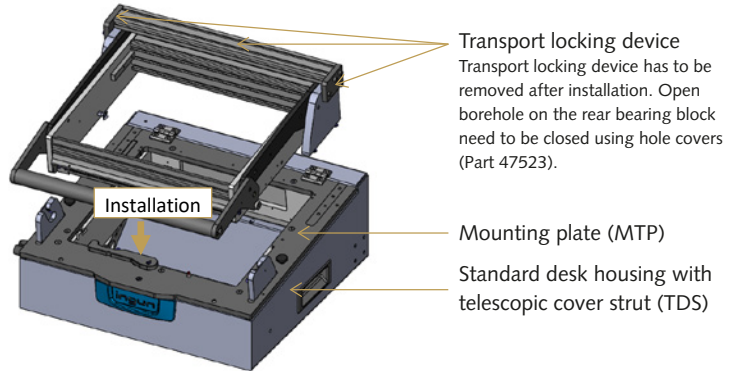
Features

- Quick, easy, custom-fit installation
- Compatible with mounting plate MTP MA2xxx

Technical specifications

- Max. contact force: 2.000 N
- Parallel stroke: 15 mm
- Opening angle: approx. 75 °
- Clamping force: approx. 120 N (at full load)
- Load cycles: 500,000 (laboratory conditions)

Installation example



Transport locking device
Transport locking device has to be removed after installation. Open borehole on the rear bearing block need to be closed using hole covers (Part 47523).

Mounting plate (MTP)
Standard desk housing with telescopic cover strut (TDS)

Drive unit ATM MA21xx
on mounting plate MTP MA2xxx
and standard desk housing
PGH MAxx/TDS

Delivery does not include:

- Mounting plate
- Front bearing blocks
- Gas pressure spring
- Gas pressure spring mounting unit
- Support bracket
- Internal interface

Delivery state:

Assembled

Note:

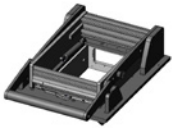
Suitable gas pressure springs can be found as spare part kits on page 6, or as individual parts on page 204 of our test fixture catalogue. We recommend the following gas pressure spring combinations:

Compatible with	Gas pressure spring force [N]
ATM MA2109	150 (100 left, 50 right)
ATM MA2111	200 (100 left, 100 right)
ATM MA2112	300 (100 left, 200 right)
ATM MA2113	400 (200 left, 200 right)
ATM MA2114	500 (200 left, 300 right)

Ordering information

Drive mechanisms: ATM MA21xx		
Part number	Description	Compatible with mounting plate
54828	ATM MA2109	MTP MA2x09
54829	ATM MA2111	MTP MA2x11
49690	ATM MA2112	MTP MA2x12
54830	ATM MA2113	MTP MA2x13
54831	ATM MA2114	MTP MA2x14

ATE MA32xx



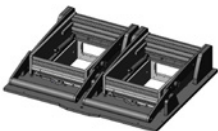
ATE MA3211



ATE MA3212



ATE MA3213



ATE MA3213T



ATE MA3214

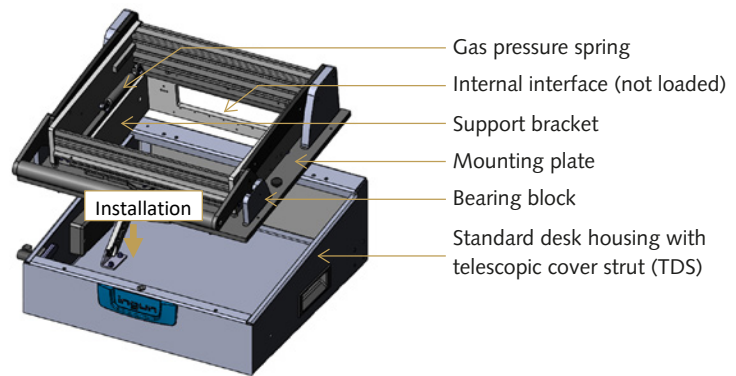
Features

- Quick, easy, custom-fit installation
- Energy saving, shock-absorbing opening mechanism
- Modularly configurable internal interface
- Compatible with standard and high desk housing

Technical specifications

- Max. contact force: 2.000 N
- Parallel stroke: 22 mm
- Opening angle: approx. 75 °
- Clamping force: approx. 70 N (at full load)
- Load cycles: 2,000,000 (laboratory conditions)
- Mounting plate: Surface resistance $R_o = 10^5 - 10^{10} \Omega$

Installation example



Drive unit ATE MA32xx
on standard desk housing
PGH MAxx/TDS

Delivery includes:

- Mounting plate
- Bearing blocks
- Gas pressure spring
- Gas pressure spring mounting unit
- Support bracket
- Internal interface (not loaded)

Delivery state:

Assembled

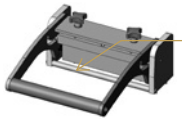
Note:

Did you know we have a comprehensive range of interface blocks (SB) for loading internal interfaces? Signal, high current, radio frequency, fibre optic, pneumatic, mixed, HSD, and special blocks are available in various different versions. The interface blocks can be found from page 155 onwards in our test fixture catalogue.

Ordering information

Drive units: ATE MA32xx				
Part number	Description	Gas pressure spring force [N]	Internal interface (not loaded)	Compatible with desk housing
43860	ATE MA3211	200 (100 left, 100 right)	Foe max. 5 SBs	PGH MA11/TDS, PGH MA11/TDS/HG
43530	ATE MA3212	300 (100 left, 200 right)	For max. 7 SBs	PGH MA12/TDS, PGH MA12/TDS/HG
43570	ATE MA3213	400 (200 left, 200 right)	For max. 10 SBs	PGH MA13/TDS, PGH MA13/TDS/HG
43870	ATE MA3213T	2x 200 (100 left, 100 right)	For max. 2x 5 SBs	PGH MA13/TDS, PGH MA13/TDS/HG
43880	ATE MA3214	500 (200 left, 300 right)	For max. 10 SBs	PGH MA14/TDS, PGH MA14/TDS/HG

ATE / ATM MAxxx

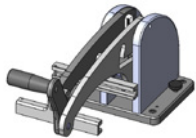


Transport locking device has to be removed after installation

ATE MA260

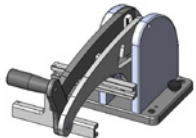


ATE MA260



Includes gas pressure spring with 100 N to secure the open pressure frame unit

ATE MA350



Includes gas pressure spring with 100 N to secure the open pressure frame unit

ATE MA360

Delivery:

ATE MA260, ATE MA350, ATE MA360:

- Does **not** include mounting plate, base plate

ATE MA260:

- Includes mounting plate

Delivery state:

Assembled

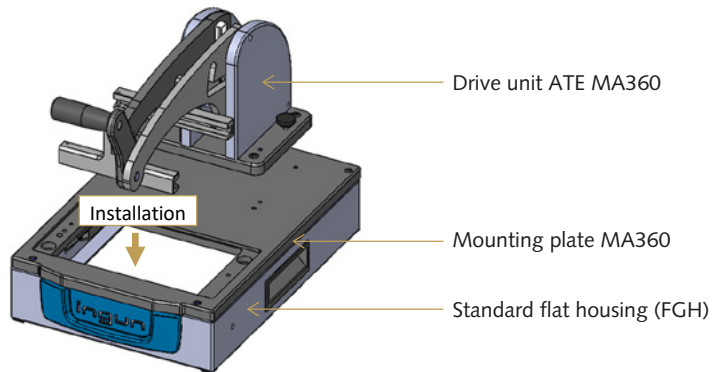
Features

- Quick, easy, custom-fit installation
- Compatible with mounting plate, base plate or flat housing

Technical specifications

- Max. contact force: 300 N
- Load cycles: 300,000 (laboratory conditions)
- ATM MA260, ATE MA260
 - Parallel stroke: 15 mm
 - Opening angle: approx. 50 °
 - Clamping force: approx. 60 N (at full load)
- ATE MA350
 - Parallel stroke: 20 mm
 - Opening angle: approx. 65 °
 - Clamping force: approx. 30 N (at full load)
- ATE MA360
 - Parallel stroke: 20 mm
 - Opening angle: approx. 65 °
 - Clamping force: approx. 30 N (at full load)

Installation example

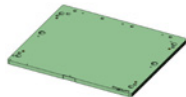
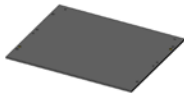



Drive unit ATE MA360 on MA360 mounting plate and standard flat housing FGH MA360

Ordering information

Drive units / Drive mechanisms ATE / ATM MAxxx		
Part number	Description	Compatible with
44120	ATE MA260	Mounting plate MTP MA260
45910	ATE MA260	Flat housing FGH MA260
41570	ATE MA350	Base plate MA350
45668	ATE MA360	Base plate MA360

Plate matrix

Compatible with	Part number	Part number Probe plate (KTP)	Part number Moving plate (ADP)	Part number Pressure frame plate (NHP)
				
Exchangeable kits ATS MAxxx		KTP ATSMAXxx	ADP ATSMAXxx	NHP ATSMAXxx
ATS MA160	28385-KIT	28377	30807	49908
ATS MA160/ESD	30800-KIT	101905		39347
ATS MA260	41220-KIT	28377		
ATS MA260/ESD	41225-KIT	101905		
ATS MA350	46480-KIT	41866	41867	41864
ATS MA350/ESD	46490-KIT	42057		
ATS MA360	45669-KIT	28377	30807	45634
ATS MA360/ESD	46200-KIT	101905		
Exchangeable kits ATS MAxx(/S-x)		KTP ATSMAXx	ADP ATSMAXx	NHP ATSMAXx
ATS MA09	45994-KIT	46007	45988	45993
ATS MA09/S-5	45990-KIT	45987		
ATS MA09/ESD	46245-KIT	46243		
ATS MA09/S-5/ESD	46233-KIT	46234		
ATS MA11	45900-KIT	46008	45884	45889
ATS MA11/S-5	45898-KIT	45897		
ATS MA11/ESD	46248-KIT	46246		
ATS MA11/S-5/ESD	46026-KIT	45706		
ATS MA12	45904-KIT	46009	45709	45715
ATS MA12/S-7	45903-KIT	45901		
ATS MA12/ESD	46250-KIT	46249		
ATS MA12/S-7/ESD	46236-KIT	46049		
ATS MA13	45980-KIT	46010	45875	45880
ATS MA13/S-10	45908-KIT	45907		
ATS MA13/ESD	46254-KIT	46252		
ATS MA13/S-10/ESD	46239-KIT	46237		
ATS MA14	45985-KIT	46011	45865	45871
ATS MA14/S-10	45983-KIT	45981		
ATS MA14/ESD	46257-KIT	46255		
ATS MA14/S-10/ESD	46242-KIT	46241		
Exchangeable kits ATS MAxx(/S-x)/HF		KTP ATSMAXx/HF	ADP ATSMAXx/HF	NHP ATSMAXx/HF
ATS MA11/HF	54011	51363	51362	44399
ATS MA11/S-5/HF	54111			
ATS MA12/HF	54012	32895	51356	44190
ATS MA12/S-7/HF	54112			
ATS MA13/HF	54013	53677	53678	44207
ATS MA13/S-10/HF	54113			

Items with the ending -KIT are not delivered assembled. This enables immediate DUT-specific processing.

Overview of abbreviations

Abbreviation	Name
ADP	Moving plate
ASS	Test fixture interface
ATE	Drive unit
ATM	Drive mechanism
ATS	Exchangeable kit
ETK	Spare part kit
FUS	Guide pillars, guide pin
GDF	Gas pressure spring
GDH	Gas pressure spring mounting unit
GSR	Gas pressure spring stud bolt repair set
HF	Radio frequency
HG	High housing
HGD	Wire mesh seal
i3070-5i	Description of an inline test system from Keysight
KFE	Contact spring
KLI	Latch
KOP	Side coupler
KOR	Bearing sleeve
KS	Keysight
KSB	Coding & signal block
KTP	Probe plate
LBH	Rear bearing block
LBV	Front bearing block
MA	Manual test fixture
MTP	Mounting plate
MTZ	Assembly accessories
N	Newton
NHP	Pressure frame plate
PGH	Desk housing
SB	Interface block
SHA	Clamping lever drive unit
SSP	Interface plate
T	Tandem
TDS	Telescopic cover strut
VRS	Locking slide
WS	Interchangeable kit
WSO	Top part of interchangeable kit
WSU	Bottom part of interchangeable kit
ZSR	Cylindrical pin repair set

Table of contents

Name	Description	Page	Name	Description	Page
Assembly accessories	ETK-MTZ-WS-KS-i3070-5i	22	Guide pillars	ETK-FUS-WS-KS-i3070-5i	20
Bearing sleeve	ETK-KOR-MAxxxx	9	Gas pressure spring	ETK-GDF-150N-MAxxxx	6
Clamping lever drive unit	ETK-SHA-MAxxxx	12	Gas pressure spring	ETK-GDF-200N-MAxxxx	6
Coding & signal block	ASS-KSB-WSO-KS-i3070-5i	21	Gas pressure spring	ETK-GDF-300N-MAxxxx	6
Contact spring	ETK-KFE-ATSMAxx11/HF	17	Gas pressure spring	ETK-GDF-400N-MAxxxx	6
Contact spring	ETK-KFE-ATSMAxx12/HF	17	Gas pressure spring	ETK-GDF-500N-MAxxxx	6
Contact spring	ETK-KFE-ATSMAxx13/HF	17	Gas pressure spring	ETK-GDF-700N-MAxxxx	6
Cylindrical pin repair set	ETK-ZSR-MAxxxx	9	Gas pressure spring mounting unit	ETK-GDH-MAxxxx	7
Drive mechanism	ATM MA2109	26	Gas pressure spring stud bolt	ETK-GSR-MAxxxx	7
Drive mechanism	ATM MA2111	26	Interface plate	SSP ATSMA11/HF	18
Drive mechanism	ATM MA2112	26	Interface plate	SSP ATSMA12/HF	18
Drive mechanism	ATM MA2113	26	Interface plate	SSP ATSMA13/HF	18
Drive mechanism	ATM MA2114	26	Latch	ETK-KLI-MA2xxx	8
Drive mechanism	ATM MA260	28	Latch	ETK-KLI-MA3xxx	8
Drive unit	ATE MA2009	24	Locking slide	ETK-VRS-MAxxxx	13
Drive unit	ATE MA2011	24	Moving plates	ADP ATSMA	29
Drive unit	ATE MA2012	24	Pressure frame plates	NHP ATSMA	29
Drive unit	ATE MA2013	24	Probe plates	KTP ATSMA	29
Drive unit	ATE MA2013T	24	Rear bearing block	ETK-LBH-MA2x09/11/12	10
Drive unit	ATE MA2014	24	Rear bearing block	ETK-LBH-MA2x13/14	10
Drive unit	ATE MA2109	25	Rear bearing block	ETK-LBH-MA2x13/14	10
Drive unit	ATE MA2111	25	Side coupler	ETK-KOP-MA2x09	9
Drive unit	ATE MA2112	25	Side coupler	ETK-KOP-MA2x11/12	9
Drive unit	ATE MA2113	25	Side coupler	ETK-KOP-MA2x13/14	9
Drive unit	ATE MA2113T	25	Side coupler	ETK-KOP-MA3x11/12	9
Drive unit	ATE MA2114	25	Side coupler	ETK-KOP-MA3x13/14	9
Drive unit	ATE MA260	28	Soft-shield seal	SSD-136 für SSP/HF	18
Drive unit	ATE MA3211	27	Soft-shield seal	SSD-220 für SSP/HF	18
Drive unit	ATE MA3212	27	Soft-shield seal	SSD-325 für SSP/HF	18
Drive unit	ATE MA3213	27	Wire mesh seal	ETK-HGD-ATSMA11/HF	16
Drive unit	ATE MA3213T	27	Wire mesh seal	ETK-HGD-ATSMA12/HF	16
Drive unit	ATE MA3214	27	Wire mesh seal	ETK-HGD-ATSMA13/HF	16
Drive unit	ATE MA350	28	Wire mesh seal	HGD-330 für SSP/HF	18
Drive unit	ATE MA360	28	Wire mesh seal	HGD-500 für SSP/HF	18
Front bearing block	ETK-LBV-MA2xxx	11	Wire mesh seal	HGD-710 für SSP/HF	18
Front bearing block	ETK-LBV-MA3xxx	11			

Please visit us online at:

www.ingun.com

Company head office

INGUN Germany

Subsidiaries

INGUN Benelux
 INGUN China
 INGUN India
 INGUN Mexico
 INGUN Spain
 INGUN Switzerland
 INGUN South Korea
 INGUN Southeast Asia
 INGUN Turkey
 INGUN UK
 INGUN USA

Europe

Austria
 Benelux
 Bosnia and Herzegovina
 Croatia
 Czech Republic
 Denmark
 Estonia
 Finland
 France
 Germany
 Hungary
 Italy
 Norway
 Poland
 Portugal
 Romania
 Serbia
 Slovakia
 Slovenia
 Spain
 Sweden
 Switzerland
 Turkey
 United Kingdom

Asia

China
 Hong Kong
 India
 Israel
 Japan
 Malaysia
 South Korea
 Taiwan
 Thailand
 Vietnam

Africa

South Africa
 Tunisia

Australia

Australia
 New Zealand

America

Argentina
 Brazil
 Canada
 Mexico
 USA

For the full addresses
 of our international
 offices please visit us
 at www.ingun.com

ingun[®]

INGUN Prüfmittelbau GmbH

Max-Stromeyer-Straße 162
 78467 Konstanz
 Germany

Phone +49 7531 8105-0

Customer hotline +49 7531 8105-888

Fax +49 7531 8105-65

info@ingun.com

www.ingun.com