



VACUUM FIXTURES

Testing with vacuum technology is a demanding process. In complex test environments there is often a lack of space, while the component groups are often extensive and have a large number of testing points. And because probe numbers are also high, a wide range of technical obstacles needs to be overcome. So how can reliable results be achieved in spite of this? Top-class vacuum fixtures from ATX are the answer.

A match for any task – peak long-term performance.

One decisive benefit of working closely together with ATX is that we have a precise knowledge of your specifications for inspecting and testing under vacuum conditions. Our technical specialists have the experience and skills to recommend a solution which is ideal for your purposes and then to implement the technical functions you require. For this reason we have designed our vacuum fixtures in a way which makes them extremely resilient, robust and compact, enabling you to make your testing operations even faster, more efficient and more economical. As our devices are adapted seamlessly to all standard test systems we provide you with even more flexibility. And as we offer you a range of technical concepts ATX will always have what you are looking for – either as a standard device or as a tailor-made solution.

The following versions are available:

Single chamber and multi-chamber fixtures – tried-and-tested basic system and flexible extension for top contacting performance.

Two-stage fixtures – real two-stage testing capability, securely separated tests.

Multi-sided fixtures – for complex inspection routines in vertical, horizontal and all possible lateral directions.

Fine-pitch fixtures – top performance down to the smallest pad diameters and spacings.

Vacuum exchange systems – in a range of standard designs for greater productivity.

TESTING USING VACUUM TECHNOLOGY

A high-tech concept in a nutshell



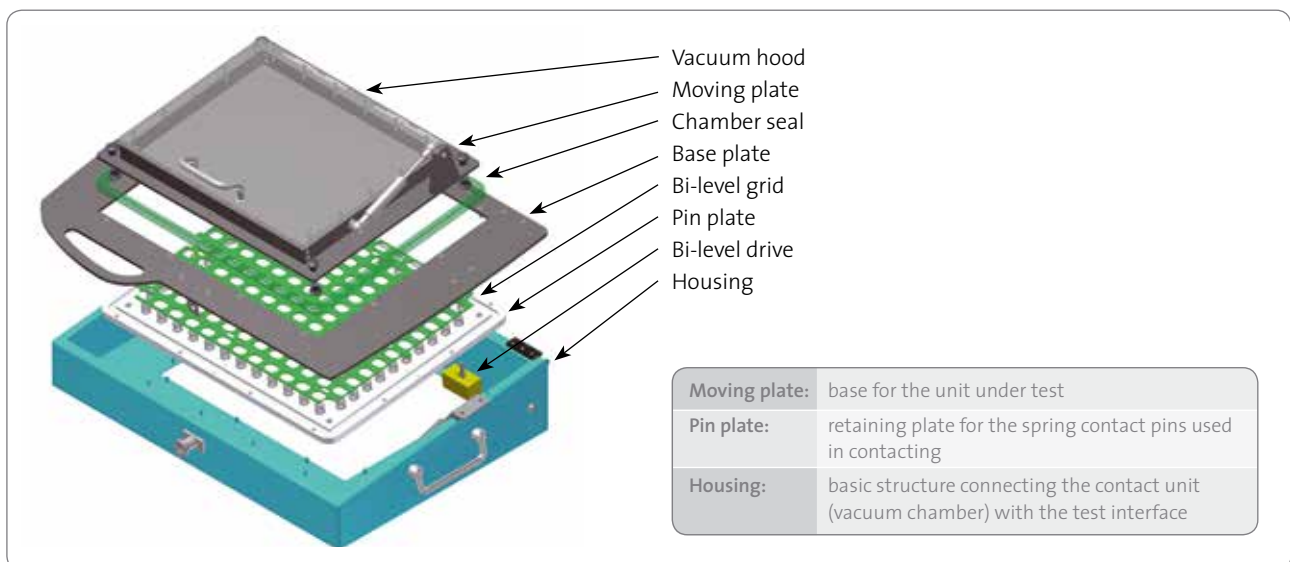
Testing with maximised application of pressure

When it comes to precise in-circuit tests and functional tests of assembled circuit boards, vacuum technology enables optimum results to be achieved. What basically differentiates it from other test systems is the technical application of the vacuum.

After the assembled circuit board has been placed on the moving plate the sealed test chamber is closed. With the aid of a vacuum pump enormous negative pressure can now be generated inside the chamber. The vacuum triggers a flux of force which presses the unit under test in the direction of the spring probe pins. These pins are used to test the quality and functionality of the PCB which is pressed down on them, with the focus on both its exact positioning on the pins and fast contacting operations. Both functions are implemented optimally during vacuum testing.

In one decisive point testing in vacuum fixtures is superior to other testing technologies. With the vacuum it is possible to exert considerably more force, in particular on small areas, than is possible with mechanical or pneumatic systems. This increased pressure on the adapter is required in particular in the case of testing processes which are implemented with a high or very high number of test pins. As a result, vacuum fixtures enable in-depth testing of component groups in highly complex operations with 1,500 to 4,000 test pins. The strength of the pins themselves is also greater, enabling intensive and concentrated testing.

This illustration presents the main components and functions of a vacuum fixture.



SINGLE & MULTI-CHAMBER FIXTURES

Flexibility integrated into the basic concept

HIGHLIGHTS

- Robust & durable
- Outstanding contacting quality
- Tried-and-tested technology
- Testing of more products
- More efficient testing



For seamless adaptation to your requirements

The single chamber vacuum fixture represents our efficient and robust basic model. The multi-chamber vacuum fixture is the extended version and is ideal for handling more demanding testing requirements. We have already designed models with up to four chambers. All the further developments which we present to you on the following pages are based on these two basic models.

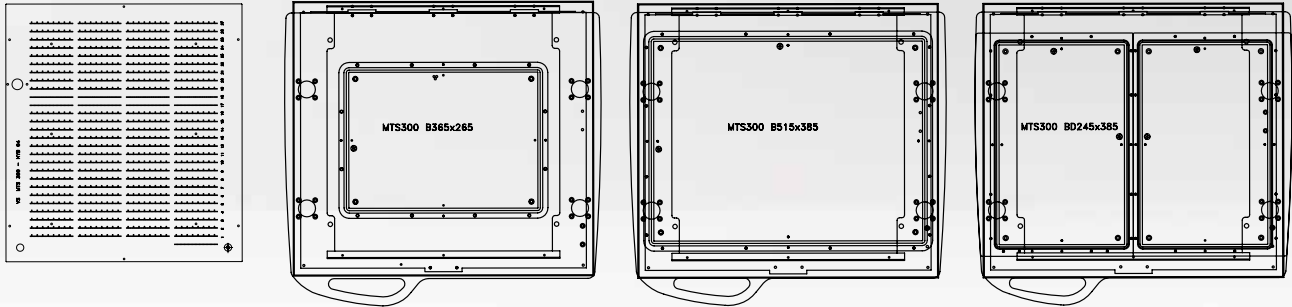
Every vacuum fixture model which is selected by one of our customers is subject to in-depth quality testing before delivery. The comprehensive functional testing to which each new device is subjected also includes an extensive wiring test, which ensures that wiring defects are virtually impossible. Even at this basic level you have no difficulty in implementing complex testing requirements – thanks to this robust technological

concept with its high level of flexibility. Testing by means of vacuum fixtures offers you the possibility of testing more products in the various chambers. The result is high volumes and more testing processes within a single device and the smallest space.

As soon as you acquire the basic model we provide you with every possible opportunity for taking your future requirements into account. Simply let us know the number of chambers and chamber sizes you wish to apply in your future testing operations. We will be happy to advise you and to adapt the vacuum cassette exactly to the size of the relevant printed circuit board, in order to enable not just low equipment weight but also a fast suction effect. Special designs and special sizes are possible at all times.

INTERFACES & CHAMBER SIZES

Your requirements are our benchmarks



You order it – we deliver it

Flexibility is a vital consideration, even before you decide on the purchase of your new vacuum fixture. We can provide you with units in all stages of development and for all standard test systems, ranging from Acculogic/Scorpion, Aeroflex and Agilent/HP via Digitaltest, Reinhardt, Rhode & Schwarz and Spea to Teradyne/Genrad, TRI, Dr. Eschke and many more. On request we can also cater for non-standard systems.

All you need to do is outline your requirements and your new vacuum fixture will be delivered to you fully fitted with probes, fully wired and tested or, if required, only drilled and fitted with probes or simply only drilled.

We also supply high quality basic kits in various sizes, on request modified and with the accessories as specified by the customer. Accessories which can be supplied range from push fingers, vacuum hoods and mechanical pressure units to board markers, plug-contact modules, sensor and probe material, setting tools and a range of further tooling.

At a glance: the main interfaces and chamber sizes

Interface	Chamber size (mm)			
Genrad				
8x	150 x 200	320 x 240	365 x 265	515 x 385
Pylon 10/14fach	260 x 190	320 x 240	365 x 265	490 x 385
Ziff	260 x 190	320 x 240	365 x 265	560 x 365
Teradyne				
LH	150 x 200	320 x 240	365 x 265	515 x 385
Z1800	150 x 200	320 x 240	365 x 265	515 x 385
TS 88xx	260 x 190	320 x 240	365 x 265	415 x 320
1280/2560	260 x 190	320 x 240	365 x 265	515 x 320
TS 8855	615 x 430			
RuS				
TSAP	240 x 320		415 x 320	515 x 385
TSU				

Interface	Chamber size (mm)			
Digitaltest				
S745	150 x 200	320 x 240	365 x 265	515 x 410
S855	150 x 200	320 x 240	365 x 265	515 x 410
MTS-100	260 x 190			515 x 320
MTS-200	260 x 190	365 x 265		415 x 320
MTS-210	260 x 190	365 x 265		415 x 320
MTS-300	245 x 385	365 x 265	415 x 320	540 x 422
MTS-888				610 x 430
Marconi				
MD51xx	200 x 150	320 x 240	415 x 320	495 x 425
MD42xx	320 x 240	395 x 335	415 x 320	460 x 480
HP 3070				
small				430 x 375
large				740 x 430

TWO-STAGE FIXTURES

Different tests efficiently combined

HIGHLIGHTS

- Combining tests as required
- Real two-stage technology
- Real bi-level
- Both sides expandable
- Lots of options

Optionally with bi-level and double-sided capability

ATX's high-capacity, extremely durable two-stage fixtures open up new possibilities for you. Because we provide you with real two-stage technology you can conveniently implement in-circuit testing and functional testing in one and the same unit. Real two-stage technology means that you can work with securely separated test processes for all possible testing combinations. We achieve this fundamental separation of test spheres by anchoring the pin separation directly within the board.

With this version of your vacuum fixture you have the option of real bi-level testing of your products using the one-sided or double-sided option. The real bi-level operations are based on the perfect separation of the bi-level grids in order to reliably exclude potential electrical measuring errors and undesired interference.

As a further functional option you can apply the two-stage fixture in one-sided operation, or implemented on both sides in electrical and pneumatic operation. In addition you can carry out programming tests such as flash tests, or as an alternative manual flash programming.

As you can see, for the application of your ATX two-stage fixture all you need to do is define the testing strategy you are planning for the future. You can specify individually and with full flexibility how you wish to test your printed circuit boards. Fixture solutions by ATX adapt to your requirements, saving you valuable working time and enabling the achievement of significantly greater testing depth.

MULTI-SIDED FIXTURES

For testing on all sides



HIGHLIGHTS

- Complex contacting
- 30-mm linear movement
- 90° angle of opening
- Pin guidance on both sides
- Bi-level capable

Four-square customer benefits

Do you wish to process your units under test from all angles? The multi-sided version of our vacuum fixture provides you with all the necessary possibilities for expanding the depth and reliability of your testing to whatever number of sides are involved. This opens up a comprehensive range of options for contacting test points horizontally, vertically, from above, from below, from in front, from behind, on the side or in cube form. Thanks to optimised pin guidance which creates a high level of accuracy you receive precise results in every position, even in highly complex testing.

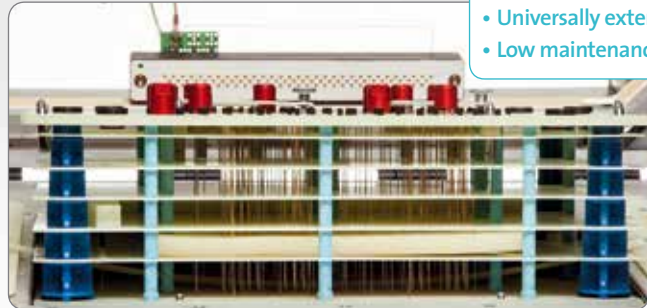
Even large component groups can be covered without any difficulty, thanks to the ingenious design of the hood. Its linear motion of up to 30 mm means that it can also be positioned above complex units under test, while the 90° angle of opening ensures convenient handling.

Whether you select the standard solution for the hood or prefer a hood design which is specially produced to your test requirements, we will support you with the perfect solution. For example, we can deliver your device with variable gas spring positioning to fix the hood in place for tilted test systems – on request with a floating pin-guide plate with quadruple guidance.

In order to align the potential testing equipment closely with your requirements, you can, in addition to the adaptation of the pins, integrate a wide range of additional functions, from push-button operation to potentiometer check, from LED evaluation to probe test or special coding queries for functional tests – in fact everything which you need for reliable all-round testing.

FINE-PITCH FIXTURES

For test point diameters and grids at the micro level



HIGHLIGHTS

- For a pad radius of up to 0.2 mm
- For pad spacings of up to 0.6 mm
- High accuracy levels
- Universally extendable
- Low maintenance

Extremely refined and reliably reproducible

In delicate testing operations the technology which is applied has to be perfect to the very last detail. And because we at ATX have our own fine-pitch software we can create high-performance solutions for you.

If your products require it we can design a fine-pitch fixture which is wired using wire-wrap technology for the smallest test point diameter of 0.4 mm and minimal pad spacings of 0.6 mm. Pins can even be added later while double sided, one-sided or bi-level contacting can be flexibly included.

On the basis of this technology you as the customer can benefit in terms of your product development, because you have much more scope for designing the component groups which you will then later be testing with the ATX fine-pitch technology.

And by the way, our fine pitch technology has further benefits for your company, because we have optimised the durability, product life and contacting accuracy of the rigid pins. As a result you can rely on high accuracy levels, even across more than 100,000 test cycles (depending on the quality of the component group, power supply and the effects of external influences).

The reproducibility of your testing processes is guaranteed, as is the security of your investment, minimal maintenance costs and decisive savings if you often test in grids of below 0.6 mm. In addition, you will benefit from both reduced re-design costs and new flexibility in the configuration of your testing operations. In addition to the adaptation of the pins, a wide range of additional functions, from push-button operation to potentiometer check, from LED evaluation to probe test or special coding queries for functional tests can be integrated.

Your options are especially flexible if you obtain your fine-pitch fixture from us together with an exchangeable cassette system, as you will see on the following page.

EXCHANGEABLE CASSETTES

For a rapid succession of tests

HIGHLIGHTS

- For a range of different units under test
- For all standard testing systems
- Inexpensive and convenient
- Space-saving
- Two-stage capable



Ideal for minimising your testing costs

We can offer you high-capacity vacuum exchangeable cassette systems for various versions of our vacuum fixtures. This is an ideal solution if you test a range of different products one after the other. It is also perfect for small batches of products and mini-series. Our innovative concept saves you valuable re-tooling time because cassettes can be replaced quickly, simply and without tools.

However, there are even more benefits:

- The exchangeable cassettes are easy to replace and take up little storage space because they are small and light.
- Their robust interface with spring contacts makes them very resistant to strain.
- Their standardised supplementary electronics and pneumatics can be integrated into the basic unit.
- Thanks to two-stage capability, optional dual chamber design and possible pneumatic, RF or High Current transfer contacts they can be seamlessly adapted to your application.
- And because they match all standard test systems and even individually designed functional testing equipment, for you as the customer they represent a highly flexible solution.

Exchangeable cassettes with moving plate

Order No.	Exchangeable cassette	Moving plate	Designation
100404	WK2		Basic unit for up to 840 transfers
100408	WK4		Basic unit for up to 1300 transfers
100402	WK1	365 x 260 mm	Exchangeable cassette for up to 840 transfers
100406	WK3	475 x 330 mm	Exchangeable cassette for up to 1300 transfers
100433	WK4A		Basic unit for WK3 lengthwise
100434	WK4B		Basic unit for WK3 crosswise

INTERFACE CONVERTERS

The best way to integrate the new and the established



Enabling continued use of tried-and-tested equipment

If you operate one or more established test fixtures which have been running smoothly for years and giving you performance you don't wish to do without, this is no problem at all. ATX offers a perfectly configured interface converter which will efficiently enable you to upgrade your productive and useful existing equipment to a new technical platform.

We have the in-depth expert know-how to develop suitable interface converters for every situation, and accordingly our specialists have already configured a wide range of different solutions.

The examples in this overview will indicate the range we can offer in this area. The below list shows from which test system we convert to another test system.

- GR228x to fixture GR227x
- GR228x to fixture Schlumberger 700
- GR228x to fixture GR60/Digitaltest
- HP307x to fixture HP306x
- MTS300 to fixture R+S TSI/TSA
- MTS300 to fixture GR228x
- MTS300 to fixture GR227x
- MTS300 to fixture Marconi 80R/MD530
- MTS300 to fixture MTS200/210
- Spectrum to fixture GR227x
- MTS-Sprint/Schlumberger to fixture R+S TSI/TSA
- MTS300 to fixture HP307x in "Wireless"
- MTS300 to fixture MTS100
- MTS300 to fixture SPEA
- Spectrum to fixture GR227x
- and many more

INDIVIDUAL SOLUTIONS

Imagine your ideal solution



You set the targets – we make them possible!

Let's sit down and plan your ideal solution together! Our consultancy services can provide you with the inspiration to create technological and product-related excellence. If you work in a team with our fixture specialists there are no limits to your visions, and as a customer and partner to ATX you will quickly find that when it comes to designing and producing fixtures, we make things happen!

If you wish we can work hand in hand with you from the product development stage onwards. In the process we can advise you on the ideal subsequent testing environment and provide valuable ideas for conception and optimisation. If you wish we can design and implement your entire inspection and testing infrastructure, exploiting all the technical possibilities and without restriction to specific forms of housing or other standards.

In the course of the years we have developed many special solutions. These include vacuum fixtures with individual functional tools to counteract the distortion of printed circuit boards, part-automated solutions, CPU sockets and integrated applications for visual inspection processes.

As the text of this brochure will have indicated, at ATX you will find skilled and passionate technical experts who enjoy nothing better than designing the tailor-made solutions of the future today.

TOP-QUALITY ACCESSORIES

Everything fits ... down to the last vital detail



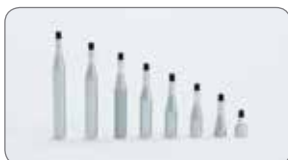
Tooling pins
Gradations in 0.1 mm
Diameter from 2.00 mm
to 5.00 mm
Order No. FS-x,x



Spacer
Order No. 439001



Insertion device
Board pre-centring,
adjustable via eccentric
mounting hole
Order No. 335001



Pushfinger length 45mm
Standard pushfinger ME series,
1.6 mm thickness, use of UUT
supports 439001
Order No. 109220



**Counter-pressure spring
for vacuum fixtures**
Standard spring 15 mm
Order No. 109202



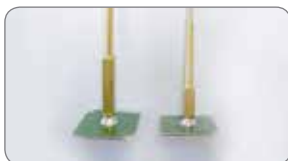
Reed switch NO
Order No. 496003
Reed switch UM
Order No. 496004



Rod magnet d = 6 mm, h = 24 mm
Order No. 499005
Rod magnet d = 7.6 mm, h = 27 mm
Order No. 499013



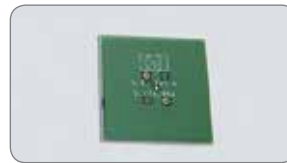
ATX sensor D4
Hexagon brass bolt
sensor 29 mm with coax
Order No. 103412



ATX sensor D8
Square brass bolt
sensor 42 mm with coax
Order No. 103419



Cycle counter
Order No. 499024



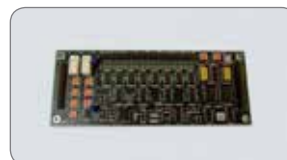
Sensor plate/HP & Teradyne
Sensor plate 2.5 Inch
Order No. 103404
Sensor plate 1.2 Inch
Order No. 103402



**Sensor electronic for HP
and Teradyne**
Order No. 103204



**Sensor electronic for C-test/
HP mounted**
Order No. 103208



OFM board for GR
Order No. 103100



Opens-check buffer
OCh02 for Digitaltest
Order No. 103306



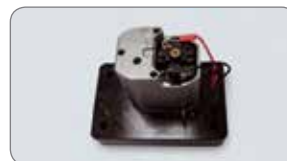
Mux board for HP (Agilent)
Order No. 103200



Mux board for HP with C-test
Order No. 103202



**Mux board Teradyne-
Spectrum FX**
Order No. 103300



Bi-level motor electrical
Bi-level motor 6V
Order No. 109604
Bi-level motor 12V
Order No. 109613



ATX Western plug
(4-, 6-, 8- or 10-pole)
contact finger 10-pole
Order No. 109603

Your contact partner



Your direct line to us? Simply get in touch!

Since 1997, the year our company was founded, ATX has become a technological leader in the industry thanks to constant innovation and continuous development. And in addition to outstanding technical expertise we offer you the appealing benefits of an owner-managed, efficient medium-sized company with more than 100 employees.

In addition to cutting-edge products, a prominent feature of the ATX portfolio also includes expert consulting, the ongoing adaptation of existing fixture technologies, and reliable service operations.

For us the priority is orienting ourselves towards the needs of our customers. It's no coincidence that a large number of domestic and international electronics companies with a diverse spectrum of specialisations have placed their trust in us for many years now. For many of them we have been the preferred supplier for years now, and thousands of installed systems in trouble-free daily operation demonstrate our success.

If you wish to find out more about us or get in touch with the appropriate contact person, you will find all the details on our website – including the direct line to your personal sales specialist: http://www.atx-hardware.de/index.php?de_ansprechpartner

We're committed to finding the optimum technical solution for you. Why not put us to the test!



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