Fixturing systems

Clamping system for computed tomography

CT Scan

Separation of object and fixating system through X-ray transparent connections

dk FIXIERSYSTEME

CT scan of components: *Quick and simple fixating with X-ray transparent modules from dk*

The standard program SWA39 with more than 200 products is the basis for the CT fixating system from dk. In industrial computed tomography, these modules also form the most advanced modular system for clamping devices for the secure holding of all types of parts.

We realise the X-ray transparent connection to the test specimen with workpiece holders that have geometry and materials that create the prerequisite for a CT scan, and which simply and clearly separate the object to be examined from the fixating system.

Advantages of the dk system

CT compatible workpiece holder
Modules developed especially, in terms of geometry and materials for industrial computed tomography: coplete-ly or, especially in the transition from workpiece to holder, the fixation elements have a significantly lower degradation coefficient than the test specimen.
The part to be examined is thus clearly distinguishable in the scan. In addition, the geometrically precisely defined clamping elements form the basis for their later exclusion from the overall result if this should become necessary for special parts and processes.

Professional module system
Precisely coordinated modules are connected via standardised interfaces. Instead of an unstable, short-life and non-adjustable combination of force and form clamping knocked together from soft foams, the dk system en-ables the professional construction of precise, safe and reusable fixtures.

Quick, easy and secure construction
The logical separation into adjustment elements, clamping function units and workpiece holders make the system easy to understand and practical for everyone. Each employee can effor-tlessly assemble a stable clamping fixture in a short time, securely clamp the test piece, align it into position and inclination and readjust it if necessary.

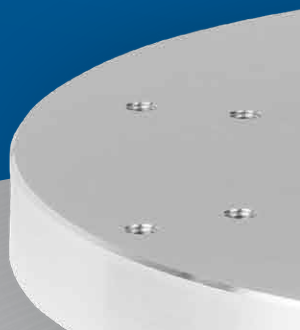
Repeat accuracy
When several workpieces are to be scanned in series, the clamping position remains identical. This can only ease the testing task.

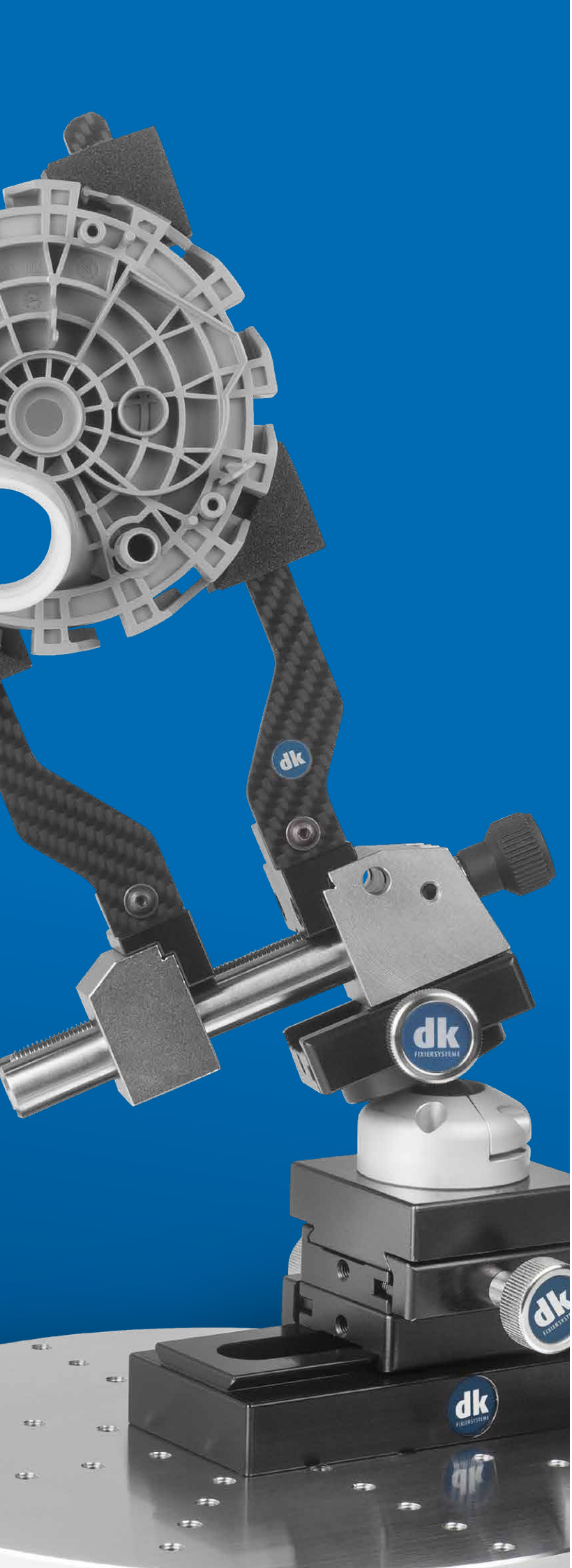
Reproducible setups
Fixtures can be completely dismantled and the elements used for other devices. Once constructed, a clamping configuration can be reproduced at any time. Many adjustable elements have scales to aid this.

Long service life
The basic, clamping and holding ele-ments are wear-resistant. They can therefore be repeatedly used over many years and so, save costs and resources.

FAST REASSEMBLY LIFELONG

The basic principle of all dk fixating systems. The compatibility of the dk programs makes the utility value perfect.





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XRAY1

Fixating system with holders for metallic workpieces

Functioning principle/possible combinations

Clamp intermediate element XRAY1 with an attenuation coefficient significantly lower than metal and so clearly distinguishable from the workpiece in the scan.

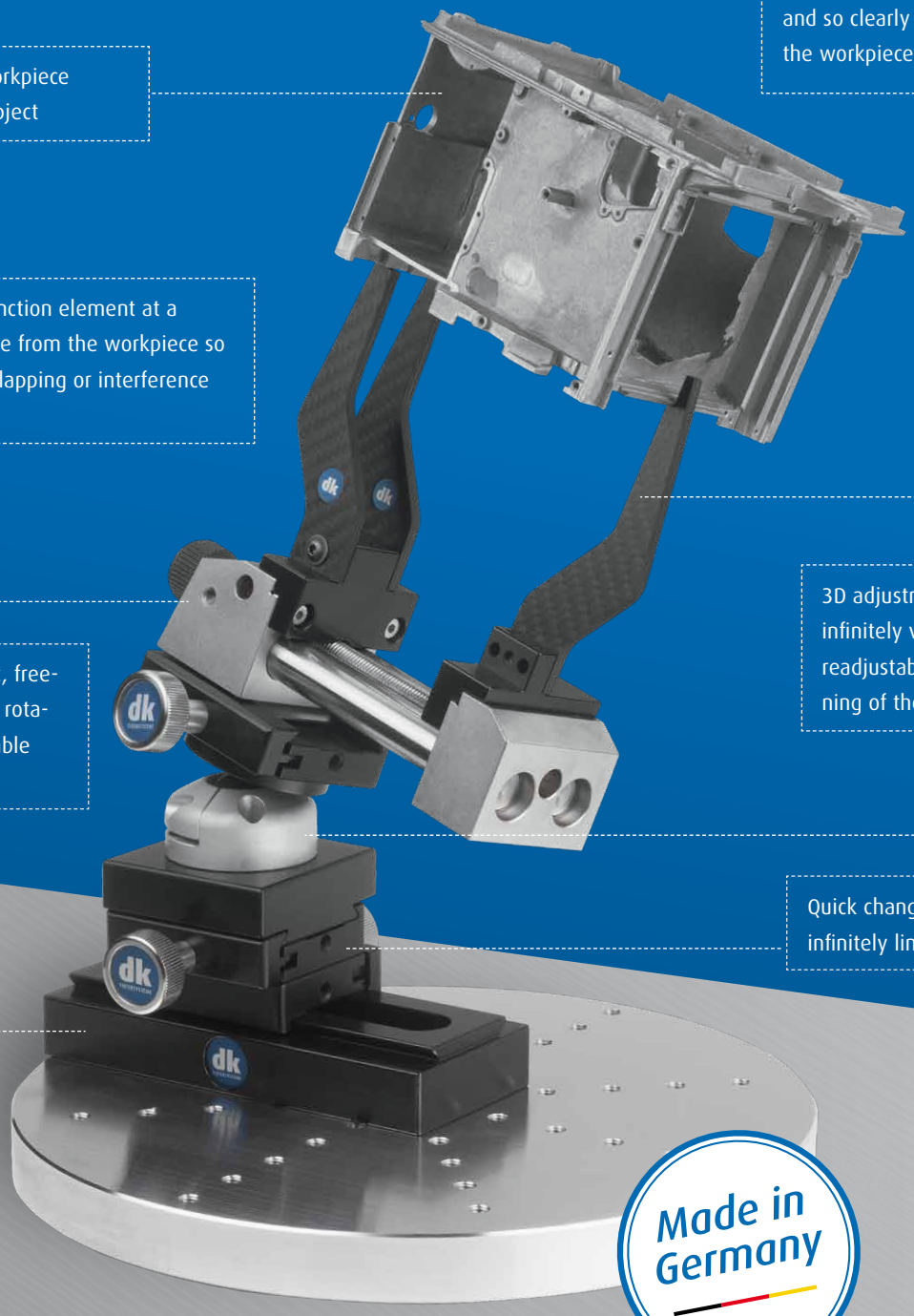
Metal workpiece or test object

Clamping function element at a clear distance from the workpiece so that no overlapping or interference occurs.

3D adjustment unit for infinitely variable and readjustable spatial positioning of the workpiece

Positioning unit, freely positionable, rotatable and movable via slot

Quick change slide adapter, infinitely linear adjustable



Made in Germany

Rail system for medium and large computed tomography machines

SWA39 basic rail with slot and SWA39 profile

For locating and basic positioning of the SWA39 quick-change module.
Mounting on CT machine base with screw M6, M8 or M10 (included) or with adaptor bolt for factory chuck of CT machines.

Order No.	BxTxH (mm)
440005	140 x 60 x 20
440000	250 x 60 x 20
440145	1

1 Accessories
Adaptor bolt for mounting at chuck:
Ø 49,5 x 30 mm with M8 female thread

SWA39 quick change slide adapter

Mounting of SWA39 constructions and their movement on the base rail.

Order No.	BxT (mm)
440010	60 x 110 x 25

SWA39 quick-action clamp with pivot head

Mounting of SWA39 constructions and their flexible 3D alignment.

Order No.	Description
270550	Rotatable 360° Swivel 30°

SWA39 quick-action clamp swivel table with optimised height

Infinite 0-90° tilt. Additional fixed 30° and 45° angles directly.
SWA39 interface below and on top.

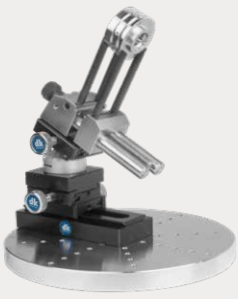
Order No.	Description
314055	SWA39 quick-action clamp swivel table with optimised height

SWA39 quick-action rotary and pivot unit clamp

Swivels +90° / -55° with worm drive. Infinite rotation through 360° with indexing every 90° (removable) 2° scale, lockable. For spatial alignment of constructions with precisely repeatable setup.

Order No.	Worm drive for...	Length (mm)	Width (mm)	Height (mm)	Fig.
314020	Pivot	85	80	97	1
314030	Rotate and pivot	85	80	116	

Application example



3D joint for smaller computed tomography machines

3D clamping joint Micro

For mounting an SWA39 adapter; Progressive clampin;
Minimum space requirement with maximum degree of freedom in the 3D space and absolute stability. Mounted directly on the baseplate using a satellite mount.

Order No.	Description
440130	Connection: lower M8, upper M5 Alternative use without adapter: lower M8, upper M8

Illustration is with satellite mount

Horizontal satellite mount for clamping joint

For mounting the clamping joint horizontally on the machine.

Order No.	Description
269700	Fastened to a plate using M6 or M8 screws Fastening joint to satellite mount with M8

SWA39 Quick-action clamp

For mounting SWA39 constructions.
For mounting on 3D clamping joint Micro.

Order No.	Description
273300	Fastening with M5

Swivel table with SWA39 Quick-action clamp

Continuously adjustable swivel table from 0 - 90°. With SWA39 Quick-action clamp for mounting SWA39 constructions; including pins for fixed mounting at 30° and 45°.

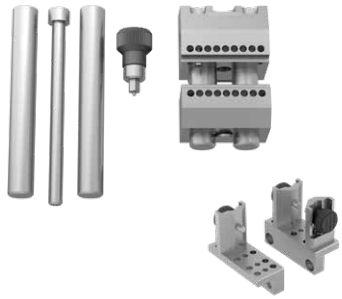
Order No.	Description
314055	Connection: lower M6, M8, M10 or with integrated SWA39 adapter upper SWA39 Quick-action clamp

Application example

XRAY Clamping function elements with SWA39 interface

50 mm precision vice for XRAY element

With special jaw plates for XRAY element. Round elements directly adaptable; flat elements adaptable via system adapter 440035; incl. extension set.



Order No.	Description
440030	Clamping width 35 or 75 mm (with extension)
440035	System adapter for flat clamp intermediate elements XRAY1 (set)

65 mm precision three-jaw chuck for XRAY elements

With special jaw plates for XRAY element. Round elements directly adaptable; flat elements adaptable via system adapter 440025.

Order No.	Description
440020	Effective clamping width dependant on clamp intermediate elements
440025	System adapter for flat clamp intermediate element XRAY1 (set)

100 mm precision three-jaw chuck for XRAY elements

With special jaw plates for XRAY element. Round elements directly adaptable; flat elements adaptable via system adapter 440025.

Order No.	Description
440015	Effective clamping width dependant on clamp intermediate elements
440025	System adapter for flat clamp intermediate element XRAY1 (set)

NADELFIX 2.5 XRAY

Needle cushion with lockable XRAY1 pins for fixed-variable self-moulding of free-form parts, complete with XRAY1 column and XRAY4 needle holder.

Order No.	Description
440125	Active surface ca. 38x38 mm; XRAY1 plunger with low attenuation coefficient

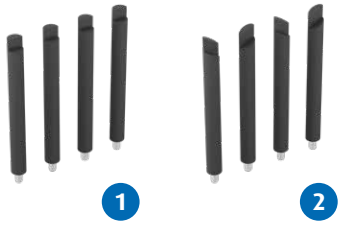
Application example

XRAY1 clamp intermediate element as CT suitable workpiece holder

Round clamp intermediate element XRAY1, 80 mm

Direct fastening on XRAY precision vice or XRAY chuck.

Order No.	Description	Fig.
440040	Set with 4 straight offset pin columns	1
440045	Set with 2 inclined offset pin columns as a prism pair.	2



Flat clamp intermediate element XRAY1 SP straight offset, 100 mm

Fastened using system adapter on XRAY vice or XRAY chuck.

Order No.	Description	Fig.
440055	Straight jaws with step, pointed seating ledges	1
440060	Straight jaws with step, pointed seating ledges clamping width extension 20 mm per jaw	2

Flat clamp intermediate element XRAY1 with 3 prisms, 100 mm

Fastened using system adapter on vice or chuck.

Order No.	Description
440050	Prism jaws with 3 prism sizes

Application example

Piko clamp XRAY4 with SWA39 interface

Piko clamp top face prism XRAY4 with SWA39

For clamping tiny metallic parts. With integrated vertical prism For smooth parts or small diameters.

Order No.	Description
440085	Spring-loaded small parts clamp, flat incl. prism

Piko clamp internal clamping XRAY4 with SWA39

For holding metallic workpieces on the ID.

Order No.	Description
440095	Spring-loaded small parts clamp with two offset diameters D5 and D11

Application example

XRAY1+XRS

Hybrid holder for scanning engineering plastic

Functioning principle/possible combinations

Engineering plastic workpiece or test object

XRS stable moulded foam clamp intermediate element mounted on the XRAY1 but with a attenuation coefficient similar to polystyrene foam. The workpiece therefore only comes into direct contact with a non-detectable material and consequently can be clearly distinguished in the scan

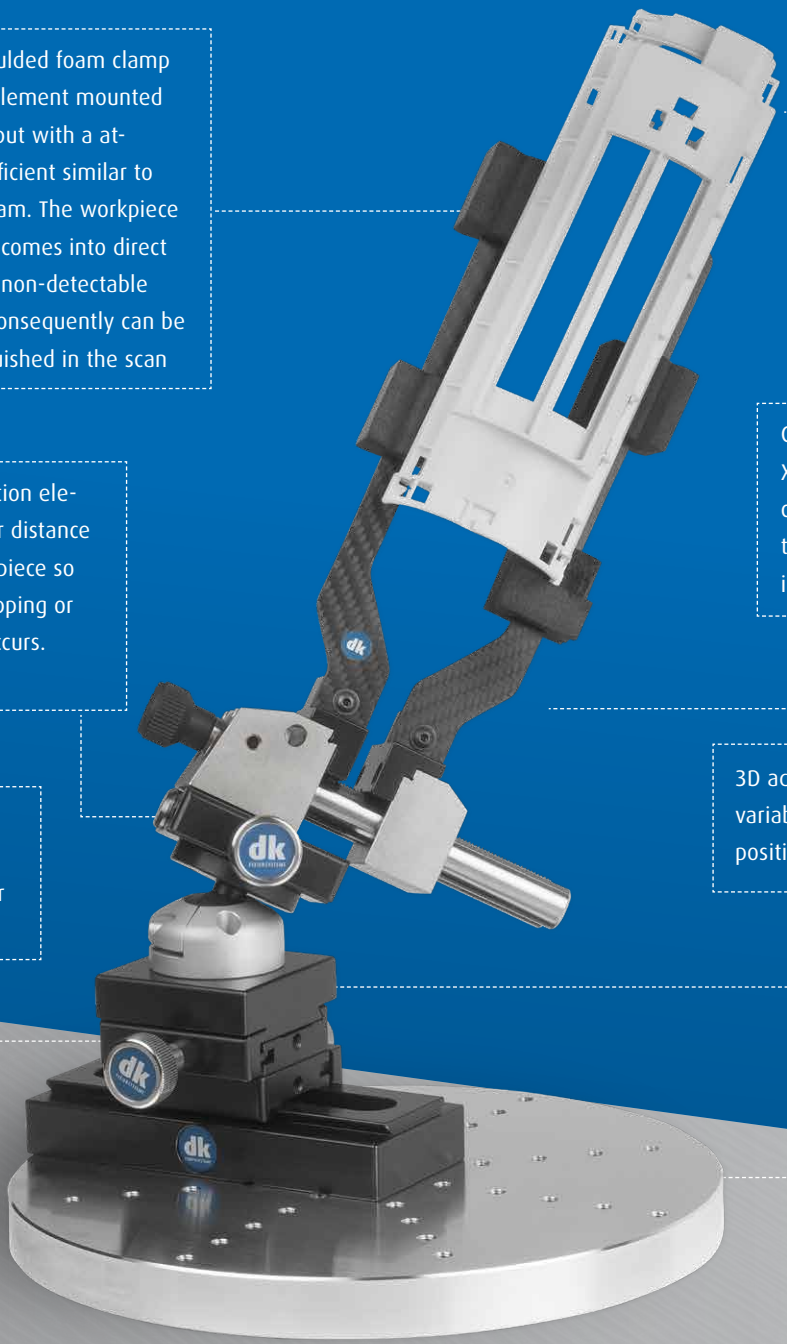
Clamp intermediate element XRAY1 with an attenuation coefficient significantly lower than metal, which causes no interferences.

Clamping function element at a clear distance from the workpiece so that no overlapping or interference occurs.

3D adjustment unit for infinitely variable and re-adjustable spatial positioning of the workpiece

Quick change slide adapter, infinitely linear adjustable

Positioning unit, freely positionable, rotatable and movable via slot



Clamp intermediate element XRAY1 and foam holder XRS

Flat clamp intermediate element straight XRAY1 for XRS, 100 mm

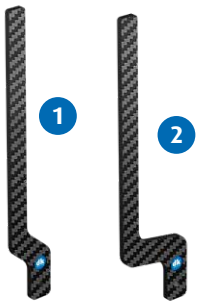
Fastened using system adapter on XRAY vice or XRAY chuck.

Order No.	Description	Fig.
440065	Form foam element XRS, push-on and infinitely adjustable	1
440070	Form foam element XRS, push-on and infinitely adjustable, clamping width extension 20 mm per jaw	2

Flat clamp intermediate element straight XRAY1 for XRS, 200 mm

Fastened using system adapter on XRAY vice or XRAY chuck.

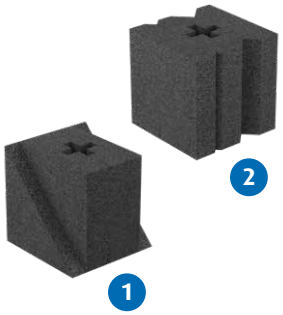
Order No.	Description	Fig.
440075	Form foam element XRS, push-on and infinitely adjustable, clamping width extension 20 mm per jaw	1
440080	Form foam element XRS, push-on and infinitely adjustable, clamping width extension 40 mm per jaw	2



XRS prism 303030 CT form foam with high strength by low attenuation coefficient

For a simple push-fit on the flat clamp intermediate element for XRS, self-locking, rotatable through 180° and inclinable: The workpiece has no direct contact to a material with similar attenuation coefficient and consequently is clearly distinguishable.

Order No.	Description	Fig.
440110	XRS form foam cube 30x30x30 mm with a large prism	1
440115	XRS form foam cube 30x30x30 mm with 4 samll prisms	2

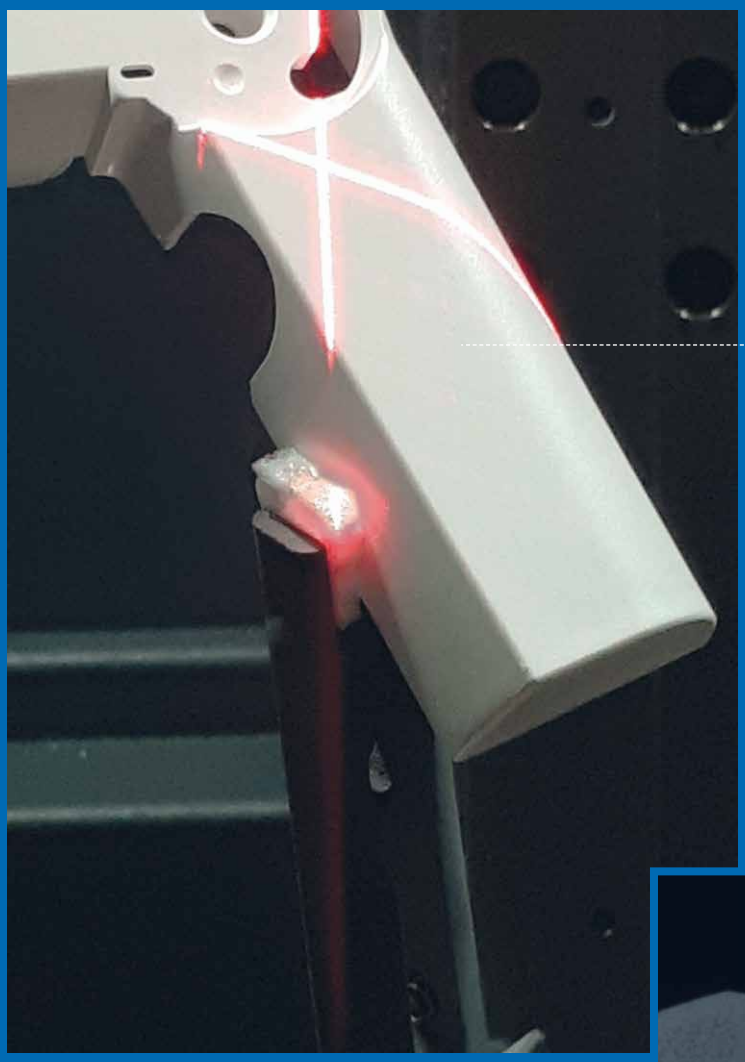


Application example

XRAY4+XRS

Hybrid small parts clamp for scanning engineering plastic

Functioning principle/possible combinations



Snapshot from the test series: XRS clamp intermediate element as stable moulded foam mounted on the Piko clamp from XRAY4. The largely neutral Piko clamp causes no interference. The special foam XRS has a attenuation coefficient similar to polystyrene...

...the workpiece therefore only comes into direct contact with a non-detectable material and is thereby clearly distinguishable in the scan: the test piece is virtually suspended in the air!

Piko clamp XRAY4 with XRS foam attachment and SWA39 interface

Piko clamp XRAY4 for XRS

For mounting 2 CT moulded foam elements with high strength by low attenuation coefficient. For clamping tiny plastic parts.

Order No.	Description
440090	Spring-loaded small parts clamp incl. CT moulded foam attachment, attachment with asymmetrical opening for setting 3 clamping widths, 0 - 2.5 mm, 2.5 - 5 mm and 5 - 7.5 mm. Customer-specific foam inserts can be glued on.

XRS system foam attachment

To push-fit onto the Piko clamp 440090. High strength by low attenuation coefficient. Adjustable for various workpiece thicknesses from 0 to 7.5 mm by rotating the asymmetrical opening by 180°.

Order No.	Description
440120	1 pair of XRS foam attachments with asymmetrical openings for setting 3 clamping widths, 0 - 2.5 mm, 2.5 - 5 mm and 5 - 7.5 mm.

Application example

XRAY4+XRS

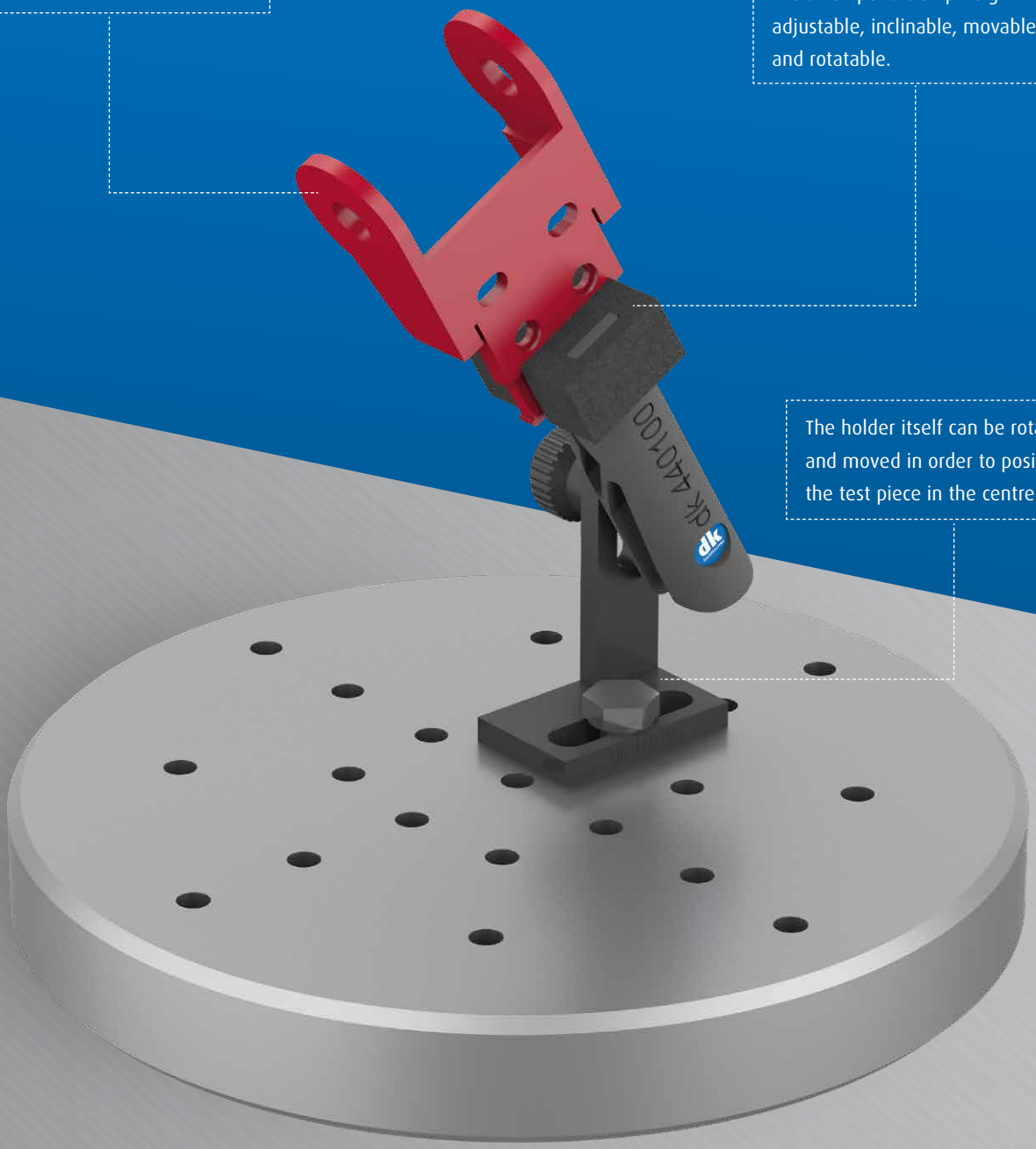
3D stand system with hybrid small-parts clamp

Functioning principle/possible combinations

Engineering plastic workpiece or test object

Piko clamp as hybrid element from XRAY4 with XRS foam attachment. The basic holder makes the small parts clamp height-adjustable, inclinable, movable and rotatable.

The holder itself can be rotated and moved in order to position the test piece in the centre.



Piko clamp XRAY4 with XRS foam attachment and 3D stand holder

3D stand holder for Piko clamp without SWA39

For height-adjustable and inclinable mounting of the Piko clamps without SWA39.
For mounting on a base plate, can be moved and rotated via the slot.

Order No.	Description
440105	3D stand holder with rotation and movement via horizontal slot as well as inclination and height-adjustable mounting for small parts holder via vertical slot.

Piko clamp XRAY4 for XRS without SWA39 for 3D stand holder

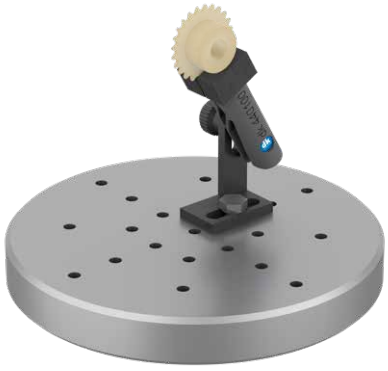
For mounting 2 CT moulded foam elements with high strength by low attenuation coefficient. For clamping tiny parts.

Order No.	Description
440100	Spring-loaded small parts clamp incl. CT moulded foam attachment, attachment with asymmetrical openings for setting 3 clamping widths, 0 - 2.5 mm, 2.5 - 5 mm and 5 - 7.5 mm. Customer-specific foan inserts can be glued on. For mounting on holder 440105, height-adjustable and inclinable.

XRS system foam attachment

To push-fit onto the Piko clamp 440100. High strength by low attenuation coefficient.
180° rotatable for various workpiece thicknesses form 0 to 7.5 mm.

Order No.	Description
440120	1 pair of XRS foam attachments with asymmetrical openings for setting 3 clamping widths, 0 - 2.5 mm, 2.5 - 5 mm and 5 - 7.5 mm.



The digital version of our catalogue is available here:
www.dk-fixiersysteme.de

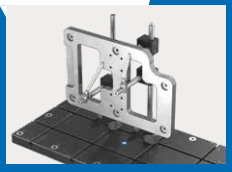
The whole world of fixating, clamping and positioning

The ca. 1,000 parts of the comprehensive standard modular system of the dk fixation systems for measurement technology offers the following advantages:

» Tried and tested modular system that has grown over decades
» Modularity across different programmes
» Solutions for every positioning task
» Economic efficiency through synergy effects of several sector solutions

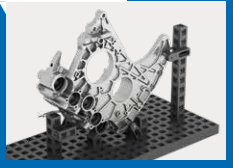
SWA39

SPANN**FIX** PRO



SPANN**FIX** ECO

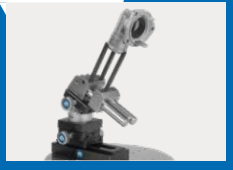
QUADER**FIX**



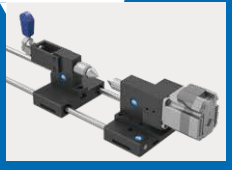
SCHIENEN**FIX**

MICRO**FIX**

SWA39CT



SPEZIAL**FIX**



ARTICULATED SYSTEMS

SWA39 **SURF**

FAST
REASSEMBLY
LIFELONG

The basic principle of all dk fixating systems!

Our modular fixtures can be effortlessly disassembled and precisely reassembled at any time. The compatibility of the fixturing systems make the utility value perfect.

dk FIXIERSYSTEME

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