

Product Sheet XRD 34

Compact Materials Research Stages for the D8 Diffractometer Family

The D8 Diffractometer family can be equipped with a wide variety of sample stages and sample holders (see also spec sheet XRD 18). Whether the sample is inorganic or organic, available in small or large quantities, bulk or powder ... this large portfolio of sample stages and sample holders guarantees that any type of sample can be mounted and measured with the optimal instrument configuration.

Two new compact sample stages have been developed to strengthen the analytical capabilities towards thin film and bulk applications: the **compact UMC stage** and the **compact cradle^{plus}**.

These sample stages can be mounted to any vertical D8 diffractometer. The bayonet fixture allows for fast and alignment-free switching between different sample stages. Thanks to the seamless integration in DIFFRAC.SUITE any motorized axis is software-controlled and can be used for positioning and scanning.

The **compact UMC stage** enables a motorized and software-controlled translation along extended X, Y and Z directions. Although the stage has been designed for the flexible handling of bulky samples, by default any standard powder sample holder can be mounted as well. The large support plane has threads for fixing additional sample holders, resulting in an unrivalled flexibility.

A vacuum chuck or Zeta/Xi double tilt stage, if required with a knife edge collimator, can be mounted directly to the


stage for thin film analysis by means of Grazing Incidence Diffraction (GID) or X-Ray Reflectometry (XRR). A capillary spinner can also be mounted directly to the XYZ platform for transmission measurements on low-absorption materials.

The **compact cradle** is a 3-axis cradle offering motorized Chi- and Phi-rotations, as well as a manual Z translation. The large Chi-range and unlimited Phi-range enable straightforward texture measurements, whereas residual stress measurements can be made in both omega- and psi-mode (iso-inclination and side-inclination respectively). A clamp holder is optionally available for mounting irregular bulk samples. Obviously, any powder sample can be mounted to the cradle with the standard sample holder as well.

The **compact cradle^{plus}** offers a motorized Z and vacuum connection in addition to the motorized Chi- and Phi-rotations. The motorized Z enables fully automatic sample alignment. The vacuum connection facilitates handling of thin film samples with optional accessories, such as a vacuum nozzle for extremely small thin film samples, or a manual XY stage for holding larger wafers.

All sample stages can be combined with an optional double laser assembly for microdiffraction applications and sample mapping requiring highly accurate sample positioning.



Sample stage	Compact UMC stage	Compact cradle	Compact cradle ^{plus}
			
X-range	25 mm (mot.)	12 mm (manuel, optional)	12 mm (manuel, optional)
Y-range	70 mm (mot.)	12 mm (manuel, optional)	12 mm (manuel, optional)
Z-range	52 mm (mot.)	2 mm (manuel)	2 mm (mot.)
Chi-range	-	From -5° to 95° (mot.)	From -5° to 95° (mot.)
Phi-range	-	Unlimited (mot.)	Unlimited (mot.)
Load capacity	2 kg	250 g	250 g
Max. sample dimensions	Ø 150 mm, height 52 mm	Ø 70 mm, height 25 mm	Ø 70 mm, height 25 mm
Vacuum Connections	-	-	yes

Order Numbers

- A24D298 Compact UMC stage ¹⁾
- A24D285 Compact cradle ²⁾
- A24D385 Compact cradle^{plus} ¹⁾

Optional accessories for **all stages**:

- Double laser assembly (A100D43)
- Dial mount indicator (A100B99)

Optional accessories for the **compact UMC stage**:

- 3" or 5" vacuum chuck (C79298A3181-D5 and -D6 respectively)
- 6" laminar chuck (A100B136)
- Zeta/Xi tilt stage without (A24D225) and with (A24D226) KEC
- Capillary stage (A100B38)
- Goniometer head (A100B128)

Optional accessories for the **compact cradle**:

- Manual XY stage (A19B48)

Optional accessories for the **compact cradle^{plus}**:

- Manual XY stage with vacuum connection (A19B53)
- Knife Edge Collimator for the manual XY stage (A24B296)
- Sample holder for small thin film samples (A19B56)
- Clamp holder for irregular samples (A19B57)
- Anti scatter screen (A24B295)

¹⁾ 3 free ports; ²⁾ 2 free ports of the 4-axis motor driver board required

A19B53



A19B56



A19B57



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