



1 Wafer with VarioS<sup>®</sup> MEMS scanners.

2 VarioS<sup>®</sup> – MEMS scanners in DIL14 ceramics housing.

## VarioS<sup>®</sup> – Microscanner Demonstrators

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### Introduction

Fraunhofer IPMS has a long and successful track record of developing and fabricating highly miniaturized resonantly operated MEMS scanners. These so-called microscanners feature large deflection angles and low power consumption. 1D and 2D scanning devices are built from single crystalline silicon with a qualified, fully CMOS compatible bulk micromachining process. Fraunhofer IPMS microscanners are suitable for a broad range of applications, are very reliable, robust, and even withstand accelerations of more than 2500 g. With more than 150 fabricated designs Fraunhofer IPMS possesses extensive experience in fabricating microscanners.

Fraunhofer IPMS is dedicated to transferring knowledge from research and development to industrial and consumer applications. Typical entrance barriers for microscanner-based applications are high costs and long lead times to reach a demonstrator.

### VarioS<sup>®</sup> Microscanner Demonstrators

With the VarioS<sup>®</sup> microscanner construction kit Fraunhofer IPMS takes a significant step in making high-tech scanner technology easily accessible to product developers. The VarioS<sup>®</sup> microscanner construction kit allows customers to receive customized demonstrators within a few weeks time at low costs.

## Unit prices for microscanners not in stock

Nr of 1D chips	Modular Fabrication	Semi-customized Fabrication	Nr of 2D chips	Modular Fabrication	Semi-customized Fabrication
1	2,575 €	4,000 €	1	3,975 €	6,000 €
2	1,550 €	2,325 €	2	2,350 €	3,400 €
3	1,150 €	1,650 €	3	1,750 €	2,425 €
4	950 €	1,300 €	4	1,425 €	1,950 €
5	825 €	1,100 €	5	1,225 €	1,625 €
6 - 10	725 €	975 €	6 - 10	1,125 €	1,450 €
> 10	on request	on request	> 10	on request	on request

All prices without VAT.

### Configure and request a quotation online

Receiving a customized microscanner demonstrator is straightforward. At **www.micro-mirrors.com** demonstrators can be specified by using the Scanner-Configurator. Customers can choose from over 150 already fabricated designs or request fabrication of an individual design. Main device characteristics such as

- Microscanner type: 1D, 2D
- Mirror diameter: fix raster of [0.5, 1, 1.5, 2, 3] mm (modular fabrication) or variable (semi-customized fabrication) in the range of  $\leq 3$  mm (1D),  $\leq 2$  mm (2D)
- Mechanical deflection: up to  $\pm 30^\circ$
- Scan frequency: 0.1 - 50 kHz
- Dynamic mirror planarity

can be individually configured within the available design space. Subsequently a request for a quotation can be submitted online.

### Delivery within just a few weeks and at low costs

After placing an order 1D demonstrators are delivered in three to nine weeks. Lead time depends on whether the desired design can be

- delivered from stock (3 weeks),
- fabricated modularly (7 - 9 weeks) or
- semi-customized (9 - 11 weeks)

Due to a higher complexity in modelling and design 2D microscanners require an extra 2 weeks in lead time in respect to the 1D chips.

Microscanners in stock are offered for a **net price of 650 € per single demonstrator chip**. Prices for newly fabricated demonstrators are according to the above price table.

### Included in Delivery

VarioS® demonstrators are delivered bonded to a DIL-14 ceramics chip adapter. For protection the adapter is sealed with a glass cover with visible range broadband anti-reflective coating.