

Semiconductor, MEMS / NEMS Laboratory

Facility Services

Overview

February 2014



PLUS FOUR FACILITY SERVICES

Complementary to our equipment supply and related services in the field of semiconductor, MEMS / NEMS production and R&D, we provide a variety of peripheral equipment.

To ensure sufficient and repeatable quality of semiconductor devices, as well as micro- or nanostructures, stable process conditions are essential. Therefore the process of these devices is carried out in special *cleanrooms*, with controlled environment condition, such as particle density, pressure, ventilation, temperature and humidity of the air. It is mainly the used filter-system in the cleanroom, which determines the level of cleanliness, the *cleanroom class*.

The following table shows the definition of cleanroom classes according to ISO 14644.

Cleanroom Classes ISO 14644-1						
(particles / m³)						
<i>class</i>	$\geq 0.1 \mu m$	$\geq 0.2 \mu m$	$\geq 0.3 \mu m$	$\geq 0.5 \mu m$	$\geq 1.0 \mu m$	$\geq 5.0 \mu m$
<i>ISO 1</i>	10	2				
<i>ISO 2</i>	100	24	10	4		
<i>ISO 3</i>	1,000	237	102	35	8	
<i>ISO 4</i>	10,000	2,370	1,020	352	83	
<i>ISO 5</i>	100,000	23,700	10,200	3,520	832	29
<i>ISO 6</i>	1,000,000	237,000	102,000	35,200	8,320	293
<i>ISO 7</i>				352,000	83,200	2,930
<i>ISO 8</i>				3,520,000	832,000	29,300
<i>ISO 9</i>				35,200,000	8,320,000	293,000

Besides ISO 14644 other classification standards are common.

DIN EN ISO 14644	US Federal Standard 209b	Cleanroom areas	
ISO Class 3	Class 100	Yellow room	Lithography
ISO Class 4	Class 1,000	White room	Deposition, Methology
ISO Class 5	Class 10,000	Grey room	Peripheral equipment

The following list contains cleanroom suited equipment, configured for several purposes of R&D and/or production. With respect to the huge available equipment variety, only a selection of our offered portfolio can be shown.

You are looking for something not included in the list? Please contact us. We will be more than happy to find the most adequate solution for you.

Nitrogen generator (34.180)

Item	Qty	Specification
1	1	Nitrogen generators NG 30 for the production of nitrogen directly on site in quality suitable for Lithography, Mask-Aligner, Etcher, Sputter, PECVD, Bonder, Oven, etc. complete with: Integrated adsorption dryer Optional:
2	1	Installation at site

Compressor package suitable for Lithography equipment (34.182)

Item	Qty	Specification
1	1	Oil Free Compressor
2	1	Refrigerated air dryer
3	1	Air filtration

Particle Counter for clean room / lithography (34.183)

Item	Qty	Specification
1	1	Particle Counter with probe Selectable particle sizes. Up to 16 channels Data collection: Including Software
	3	Pipe for particle measuring device
	1	Filter for particle measuring device
	1	Holder for particle measuring device

Chemical storage cabinet for solvents or acids (34.185)

Item	Qty	Specification
1	2	Safety storage cabinet for chemicals 6 pull-out drawers with exhaust air connection
2	1	Safety storage cabinet for solvents 6 pull-out drawers with exhaust air connection optionally:
3		VENTILATION SYSTEM (OPTION)
4		PP, PE, sump liners

Basic toolkit for clean room equipment (34.189)

Item	Qty	Specification
101	1	Complete toolkit set for cleanroom repair / servicing packed in trolley

Yellow foil small package (34.189)

Item	Qty	Specification
7	2	Yellow foil Lithography grade, sheets

Yellow foil big package (34.189)

Item	Qty	Specification
8	1	Yellow foil Lithography grade, roll

Pure Water System Package - underbench system (34.220 S)

Item	Qty	Specification
1	1	Water cleaning system to deliver pure water right up to the application, whether it's feeding a washer or dispense gun.

Pure Water System (estimated) consumables for 1 year (34.220 S)

Item	Qty	Specification
2	1	Estimated yearly consumables (Prefilter, UV-lamp, exchange cartridges, De-ionizing cartridge, ultramicrocoalfilter, ventilation filters, disinfection tablett packages) depending on the source water and effective consumption

Pure Water System with tank (34.220 - B120)

Item	Qty	Specification
3	1	Water cleaning system to deliver pure water. Fixed installation in the clean room environment - 120 L/H including 1000 L tank

Pure Water System with tank (34.220 - B260)

Item	Qty	Specification
4	1	Water cleaning system to deliver pure water. Fixed installation in the clean room environment - 260 L/H including 1000 L tank

Pure Water System (estimated) consumables for 1 year (34.220)

Item	Qty	Specification
5	1	Estimated yearly consumables (Prefilter, UV-lamp, exchange cartridges, De-ionizing cartridge, ultramicrocoalfilter, ventilation filters, disinfection tablett packages) depending on the source water and effective consumption

Temperature Monitoring System complete with control PC (34.235)

Item Qty Specification

1	1	Temperatur and humidity measurement system including 2 sets of humidity and 2 sets of temperature probes. Including monitoring software installed on Dell Notebook PC
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Alternatively: Temperature Monitoring Data Logging (34.235)

Item Qty Specification

2	2	USB Datalogger, Measuring Range: -40 to +85°C / 0,1% to 99,9% rH Accuracy: +/- 0,6°C / +/-3%RH 32000 memory values, measurement cycle 1s - 6h
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PLUS FOUR DISCLAIMER OF WARRANTY

All information given in this brochure have been added to the best of our knowledge. However, we cannot issue any guarantee concerning the accuracy of the information.

We assume no liability for any hazard for staff, equipment, the processed devices or any environmental damages which might stem from the information given in this brochure. In order to minimize any risk to man or equipment, it is in the responsibility of every person working in the laboratory or production environment to inform herself / himself about the processes to be performed in the appropriate (technical) literature.