

Modules

Ceramic cross-flow filtration:


Ceramic cross-flow **elements** are tube shaped filters. One or multiple of these elements are assembled into a stainless-steel housing (**module**) and mounted into a filtration plant. Ceramic membranes are used in a growing range of applications due to their high reliability and high chemical resistance against concentrated caustics and acids.

Modules with assembled membranes are the main functional component of a filtration system. The process medium is pumped through the channels of the element in the module. The operating pressure results in the process stream being filtered by the active layer (**membrane**) into the **concentrate** and **permeate**.

Modules consist of a pressure vessel (housing) that contains the ceramic elements, plates (**sealing** and/or **face plate**) on both ends, sealing rings (**O-rings**) and, for some sizes, cone-shaped reductions to the connections.

Nomenclature of module specification:

| | | | | | | |
|---------------|----|-----|-------|-------|----|--------------------------------|
| M | 7- | 25x | 0500- | PN16- | TC | |
| | | | | | | Connection type |
| | | | | | | Nominal pressure |
| | | | | | | Membrane length |
| | | | | | | Membrane diameter |
| | | | | | | Number of membranes per module |
| Module | | | | | | |



Please contact us for further support.



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Modules





Available connections:

M1 are offered with reducers as standard. For all other modules reductions can be offered optionally. Inopor's standard modules are detailed below. Please contact our technical support for customized solutions. We have produced a wide range of customized modules, including those with ASME flanges or different connections on the permeate and feed side.

| Type | Description | According to |
|--------------------------------------|--------------------|--------------------|
| TC | Clamp ferrule | DIN 32676-B |
| FL | Flange | DIN 1092-1 type 11 |
| AV | Clamp ferrule | DIN 11864-3 Form A |
| Additional connections for M1-module | | |
| SV | Cutting ring screw | |
| IG | Inner thread | DIN EN 10226-1 |
| AG | Outer thread | DIN EN 10226-1 |



Standard modules

| Module for elements OD 25 mm | | Test or pilot scale | | | | Industrial scale | | | | | | | |
|--|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Ceramic Membrane | Membrane Area [m ² /Stk. @ 1.2 m length] | M1 | M3 | M5 | M8 | M12 | M21 | M37 | M55 | M65 | M85 | M111 | M145 |
|  | BA 0,158 m ² | 0,16 m ² | 0,48 m ² | 0,79 m ² | 1,26 m ² | 1,90 m ² | 3,32 m ² | 5,85 m ² | 8,69 m ² | 10,27 m ² | 13,43 m ² | 17,54 m ² | 22,91 m ² |
|  | CA 0,251 m ² | 0,25 m ² | 0,75 m ² | 1,26 m ² | 2,01 m ² | 3,01 m ² | 5,27 m ² | 9,29 m ² | 13,81 m ² | 16,32 m ² | 21,34 m ² | 27,86 m ² | 36,40 m ² |
|  | GA 0,378 m ² | 0,38 m ² | 1,13 m ² | 1,89 m ² | 3,02 m ² | 4,54 m ² | 7,94 m ² | 13,99 m ² | 20,79 m ² | 24,57 m ² | 32,13 m ² | 41,96 m ² | 54,81 m ² |
|  | EC 0,460 m ² | 0,46 m ² | 1,38 m ² | 2,30 m ² | 3,68 m ² | 5,52 m ² | 9,66 m ² | 17,02 m ² | 25,30 m ² | 29,90 m ² | 39,10 m ² | 51,06 m ² | 66,70 m ² |

| Module for elements OD 41 mm | | Test or pilot scale | | | | Industrial scale | | | | | | |
|--|---|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| Ceramic Membrane | Membrane Area [m ² /pcs. @ 1.2 m length] | M1 | M3 | M5 | M9 | M16 | M24 | M30 | M40 | M55 | M65 | |
|  | CC 0,429 m ² | 0,43 m ² | 1,29 m ² | 2,15 m ² | 3,86 m ² | 6,86 m ² | 10,30 m ² | 12,87 m ² | 17,16 m ² | 23,60 m ² | 27,89 m ² | |
|  | MD 0,588 m ² | 0,59 m ² | 1,76 m ² | 2,94 m ² | 5,29 m ² | 9,41 m ² | 14,11 m ² | 17,64 m ² | 23,52 m ² | 32,34 m ² | 38,22 m ² | |
|  | EE 0,868 m ² | 0,87 m ² | 2,60 m ² | 4,34 m ² | 7,81 m ² | 13,89 m ² | 20,83 m ² | 26,04 m ² | 34,72 m ² | 47,74 m ² | 56,42 m ² | |
|  | HA 1,313 m ² | 1,31 m ² | 3,94 m ² | 6,57 m ² | 11,82 m ² | 21,01 m ² | 31,51 m ² | 39,39 m ² | 52,52 m ² | 72,22 m ² | 85,35 m ² | |

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