

1. System description

The *Inceptum*TM system consists of an instrument and 2 types of disposable cartridges. Application specific cartridges contain up to 2 columns and all buffer solutions to perform purification of proteins using specific chromatography.

The application specific cartridges include cartridges for:

- Affinity purification of antibodies using protein G binding, following buffer exchange into neutral buffer, e.g. PBS.
- Ni-NTA affinity purification of His-tagged proteins.
- Buffer exchange cartridges to replace buffer using desalting columns. The standard buffer is PBS, but can be customized for each order.
- Affinity purification of GST-tagged proteins.
- Affinity purification of MBP-tagged proteins.
- Ion-exchange cartridge that contains IEX column and buffers for NaCl gradient elution.
- Custom cartridges with customer requested configuration of up to 2 columns and up to 3 buffer solutions.

The open cartridges provide all external connections to attach up to 2 columns and up to 3 buffer solutions (+ sample inlet). The size of the columns and volume of buffer solutions is limited only by the application. The *Inceptum*TM provides disposable, easy to change, fluid drive and measurement system for customer-defined purification.

InceptumTM Purification System

2. Specifications (preliminary).

Instrument

Flow rate	0 – 40 mL/min
Max Pressure	15 psi
Number of independent pumps	2
Wetted materials	No fluid contact with disposable cartridge
Optical density range (@275 nm)	0 – 3,000 m.a.u. (0-3 OD ₂₇₅ @ 1 cm optical pathlength)
OD stability	< 0.5% CV after 15 min warmup
Conductivity measurement range	0 - 500 mS
External operation	Controlled through GUI software from a laptop/PC and USB-C serial connection
External instrument control	Can control external fraction collector using standard interface (connect TTL line to external ground to advance fraction, start/stop remote control). Programmable interface with 3 command lines

Operational parameters

Power consumption	60W max
Input power	90-240V AC, 50/60 Hz
Max internal voltage	12V
Fusing	No external fusing

Environmental

Operating temp	2-40°C
Storage temp	2-40°C
Operating humidity	Up to 90%RH, non-condensing
Dimensions	10.5 x 10 x 11 in (w x d x h)

InceptumTM Purification System

Application Cartridge

Separation media	Function specific, up to 2 columns, up to 20 mL each.
Buffer capacity	Up to 3 buffer solutions, up to 500 mL total volume
External fluid connections	Sample inject port, sample collect tube, external fraction collector outlet. Sample collect tube or external fraction collector outlet selected by manual valve prior to cartridge use).
Wetted materials	Silicone, polyethylene, tygon, polycarbonate, quartz, gold.

Open Cartridge

Separation media	Customer provided, up to 2 columns, unlimited volume (external placement).
Buffer capacity	Unlimited, connection provided (luer-lock or slim-line sterile connector)
Wetted materials	Silicone, polyethylene, tygon, polycarbonate, quartz, gold.