# Filter Technology
# CIP nozzle type 4B

## General description

The CIP nozzle type 4B is specially developed to wash the bags of our filters while in place.
The nozzles are mounted in the tube sheet flush with the product side, see fig. 2.
Typically 4 nozzles are required for each filter bag.
The nozzle tolerates "ball-shaped" dirt particles up to 2 mm diameter.
It is, however, likely to trap fibrous impurities and therefore a mesh filter must be installed inline, preferably as close to the filter top as possible.

## Pressure controlled nozzle performance

In order to give excellent washing performance, especially in the joint between the tube sheet and the filter bag, the nozzle is spraying in continuously varied angles, controlled by the water pressure.
All parts of the tube sheet as well as the upper filter bag will be hit directly by the cleaning liquid for fast and efficient cleaning.
Appropriate data for the continuously repeated pressure cycle are shown in fig. 4.

## Air purge

When the CIP nozzle is not used for washing, it must be continuously purged with clean dry air to keep dust particles out.
The purge air temperature should be adapted to avoid local cold concentrations and consequential development of moisture.
See fig. 1 for purge air data.

## Data

Spring force ..... 23N (S=6 mm)
Liquid quantities ..... See fig. 3

**Purge air**

Recommended air amount ..... >60 dm³/min, see fig. 1

**Materials**

Housing, calibrator, nozzle head,
and rotation disk ..... Stainless steel 316L
Nut ..... Stainless steel A4
Spring ..... Stainless steel AISI 316

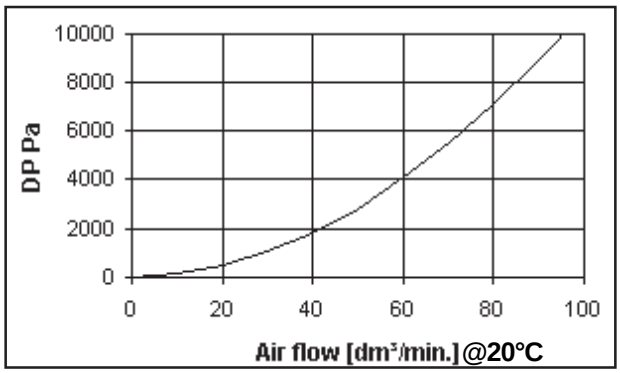


*Fig. 1. Purge air consumption per CIP nozzle*

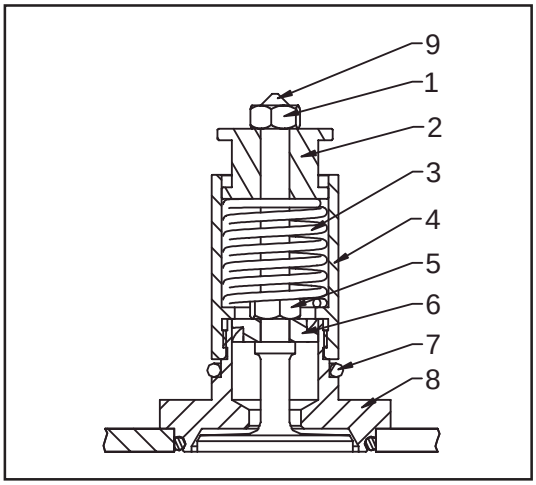


*Fig. 2: CIP nozzle type 4B mounted in the tube sheet. 1/5: Nut; 2: Calibrator; 3: Spring; 4/8: Nozzle housing; 6: Rotation disk; 7: O-ring; 9: Nozzle head*

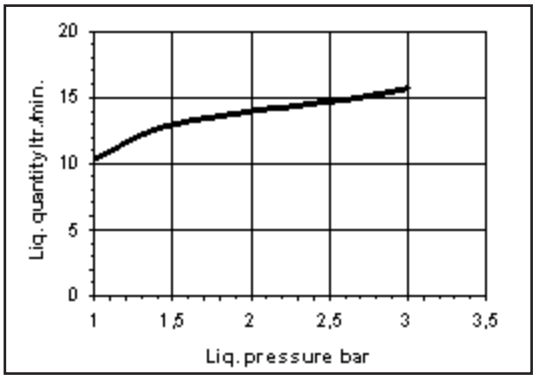


*Fig. 3: Graphic illustration of water consumption for one nozzle.*
*t=20°C; S=6 mm; Rot. disc 2.5*2 mm.*

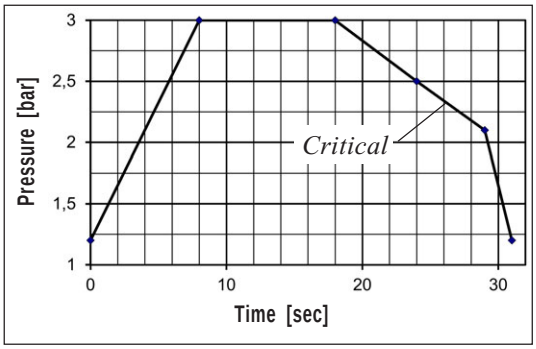


*Fig. 4.: The reccommended pressure cycle to be repeated continuously.*
*The horizontal segment can be more, but must be at least 3 bar.*
*The pressure referred is in the filters tube sheet altitude.*
*Fine-tuning especially in the part labelled "critical" may be required for optimal results.*
*t=20°C; S=6 mm; Rot. disc 2.5*2 mm.*


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