## Description

Following the success of the immensely popular INV Series of Variable Speed Flexible Impeller Pump Systems, The All-In-One Series has been developed. Taking all the best features and functionality that the INV Series offers, the All-In-One takes it one step further to provide a complete system out of the box.

The All-In-One Series has been designed to facilitate the organisation, monitoring & scheduling of all, safe area, fluid transfer operations within cellars & distilleries, covering the following applications:

- Free Transfer
- Batch Filling
- Barrel Filling
- Pump-Over

Furthermore, through the use of the 7" Colour Touch Screen it is also possible to review current transfer data, schedule volumes to be transferred and also analyse previous operations. As a result, it is also possible for Operators to perform traceability and diagnostic reports, summarised as follows:

### Traceability

Save & Record data relating to all operations, according to operator & operating mode as well as the type of wine or batch number.

### Diagnostics

Immediate review of all inverter errors, dry run stoppages & / or via auxiliary accessories such as pressure or float switches etc….

Furthermore, for units fitted with the DN50 size Flow Meter, it is possible to download the flow meter IO-Link app to view current capacity & temperature on your smartphone.

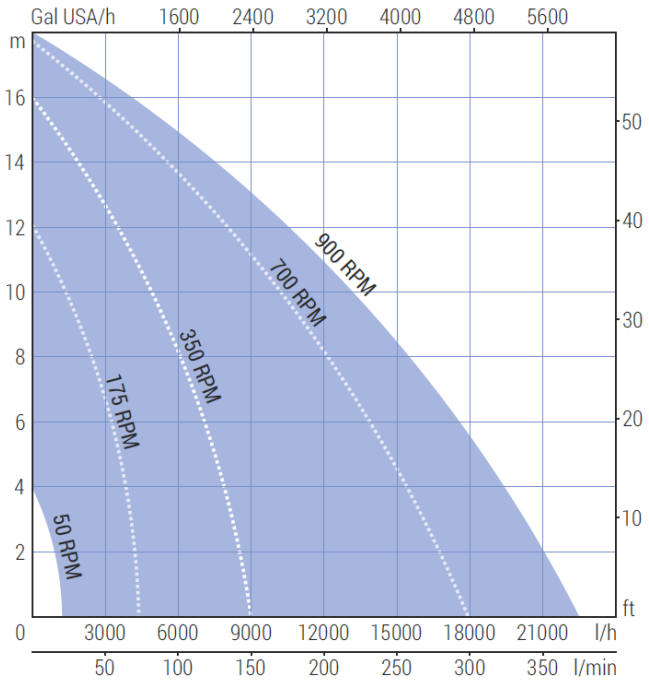
## Variable Speed Performance Table

| Pump Type | DN | Feeding Supply | | Power kW | Speed, rpm | | Head, m 0 | 4 | 8 | 12 | 16 | 18 | Capacity, l/hr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All-In-One MAJOR 5-120 | DN40 | MF | TF | 2.2 | Min | 25 | 650 | 0 | | | | | |
| | | | | | | 175 | 4320 | 3840 | 2800 | 0 | | | |
| | | | | | | 350 | 9000 | 7800 | 6000 | 3700 | 0 | | |
| | | | | | Max | 470 | 12000 | 10500 | 8700 | 5100 | 0 | | |
| All-In-One MAJOR 10-200 | DN50 | MF | TF | 2.2 | Min | 50 | 1230 | 0 | | | | | |
| | | | | | | 175 | 4320 | 3840 | 2800 | 0 | | | |
| | | | | | | 470 | 12000 | 10500 | 8700 | 5100 | 0 | | |
| | | | | | Max | 900 | 22500 | 19560 | 15000 | 11220 | 3000 | 0 | |
| All-In-One MAXI 20-300 | DN50 | TF | | 4.0 | Min | 25 | 2100 | 0 | 2800 | 1750 | 0 | | |
| | | | | | | 150 | 12000 | 10000 | 7500 | 0 | | | |
| | | | | | | 300 | 24600 | 22200 | 18900 | 12000 | 0 | | |
| | | | | | Max | 470 | 36000 | 34200 | 30000 | 24000 | 12000 | 0 | |
| All-In-One MAXI 20-400 | DN65 | TF | | 4.0 | Min | 50 | 3800 | 0 | | | | | |
| | | | | | | 150 | 12000 | 10000 | 7500 | 0 | | | |
| | | | | | | 300 | 24600 | 22200 | 18900 | 12000 | 0 | | |
| | | | | | Max | 600 | 43800 | 41400 | 36000 | 33000 | 30000 | 16000 | |

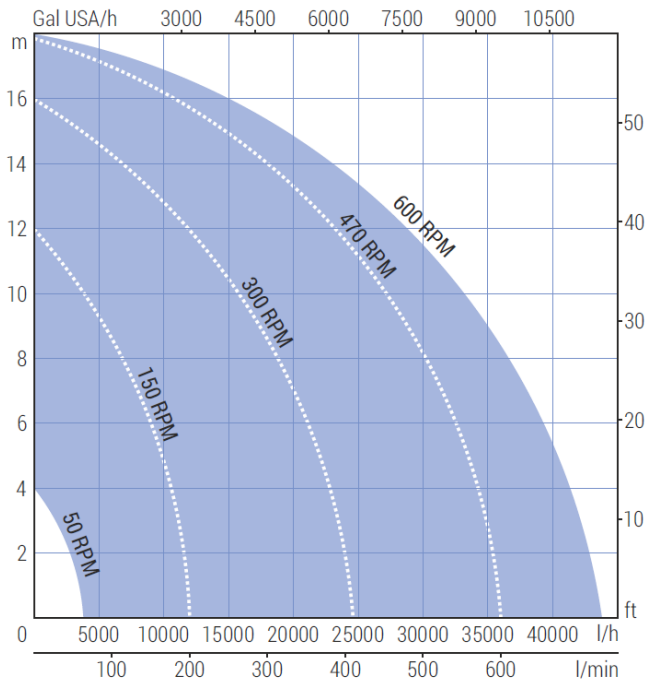
*NOTES: MF = Single Phase, TF = Three Phase*

## Variable Speed Performance Curves

### MAJOR




### MAXI

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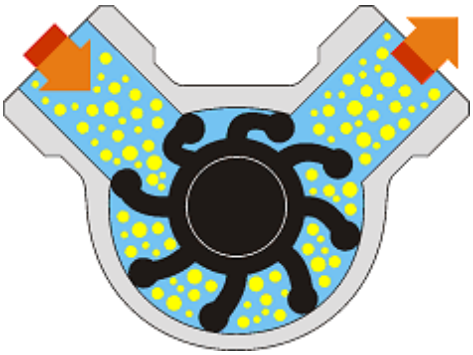
## Flexible Impeller Pump Operating Principe

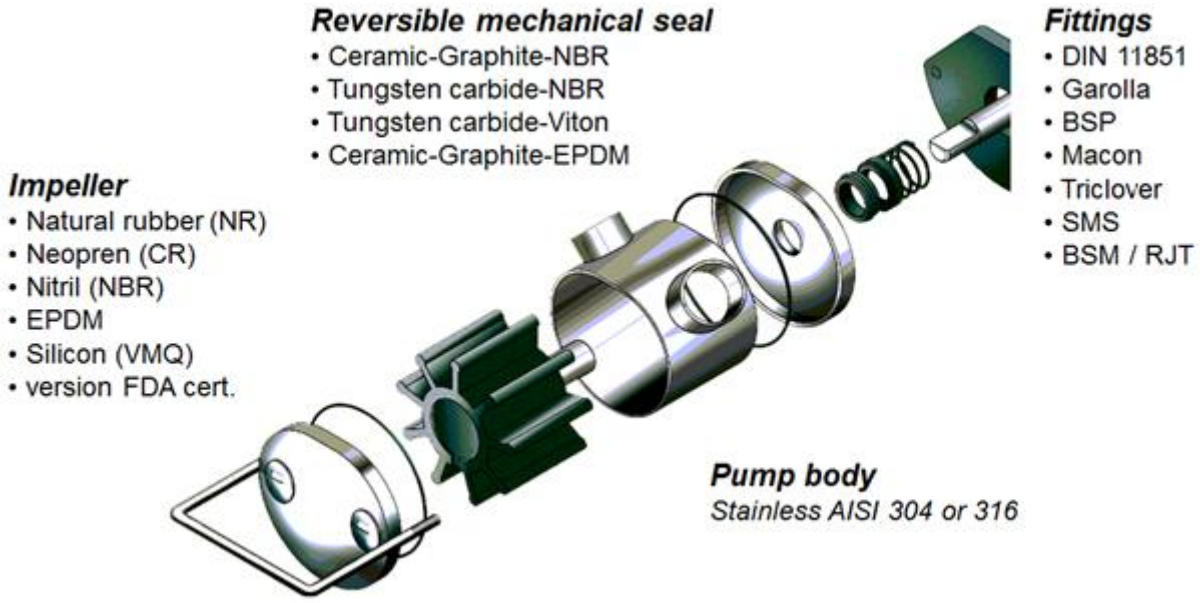
Self-Priming Flexible Impeller Pumps, also known as flexible vane pumps, are a form of positive displacement pump. They move fluid from the suction port to the discharge port by trapping an amount of fluid between its impeller vanes and then forcing it round towards the outlet.



The vanes of the impeller deform slightly when rotating inside the pump casing, moving the fluid from the inlet to the outlet at a steady, pulseless flow without pressure spikes. This principle combined with a gentle pumping action and a high self-priming capability, up to 6 m from dry, makes these units ideal for transfer, filling, dosing and filtration applications.

Their design enables them to handle thin and viscous (up to 50'000 cPs) fluids as well as solids in suspension (up to 25 mm). They are capable of discharges pressures up to 4 bar and flow rates up to 1200 l/min & maximum fluid temperatures up to 120ºC.

## Flexible Impeller Pump Construction



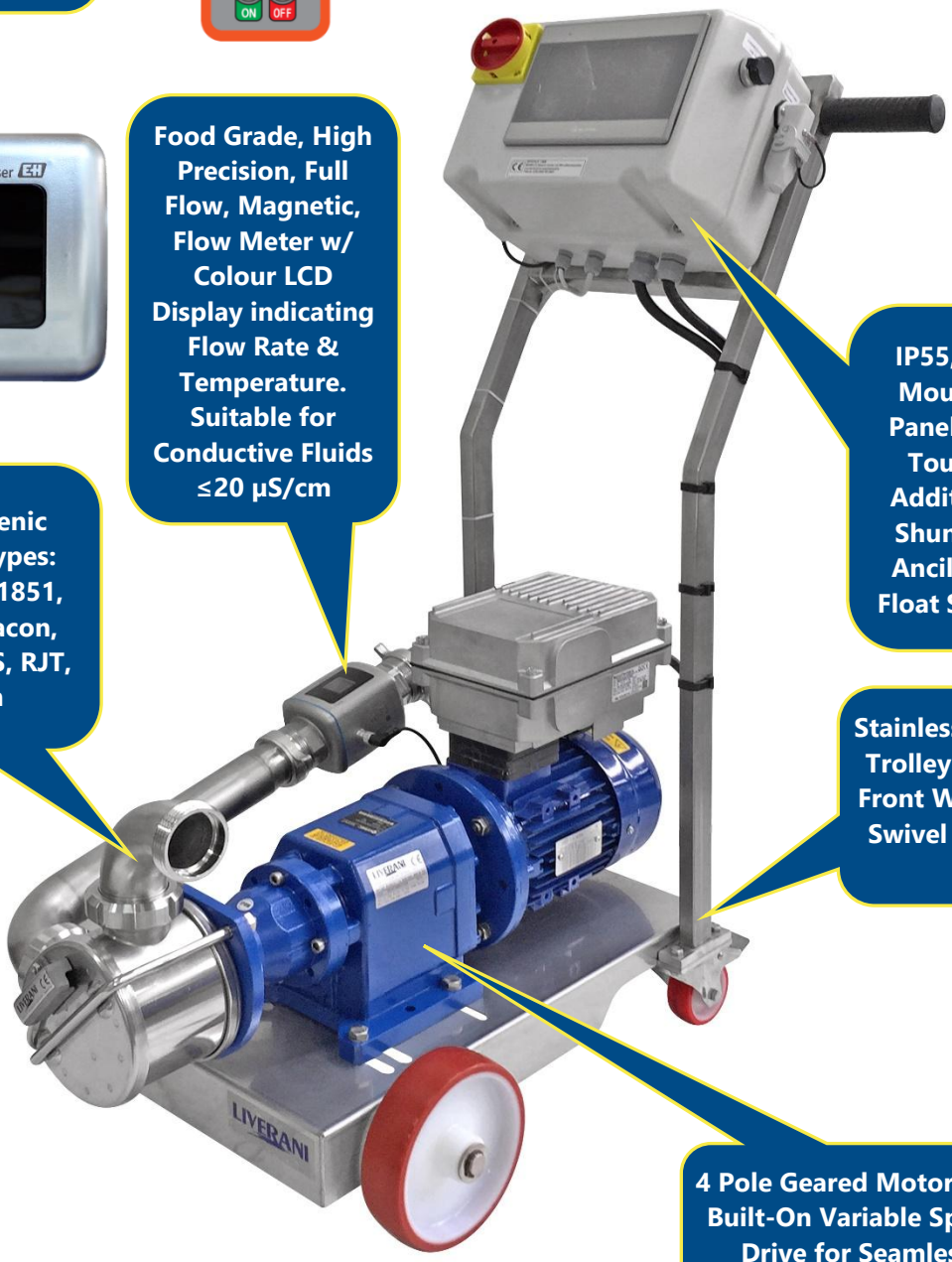

| NBR | CR | EPDM | NR | VMQ |
|---|---|---|---|---|
| Nitrile<br>*Nitrile* | Neoprene<br>*Neoprene rubber* | EPDM<br>*EPDM* | Gomma naturale<br>*Natural rubber* | Silicone<br>*Silicon* |

## ALL-IN-ONE Key Features

Handheld & Wireless Radio Controller providing Start / Stop, Speed & Flow Direction Control



Food Grade, High Precision, Full Flow, Magnetic, Flow Meter w/ Colour LCD Display indicating Flow Rate & Temperature. Suitable for Conductive Fluids ≤20 µS/cm




IP55, PVC, Trolley Mounted Control Panel w/ 7" Colour Touch Screen & Additional 24V NC Shunt for System Ancillaries (Filters, Float Switches etc...)

Various Hygienic Connection Types: Garolla, DIN 11851, BSP (M/F), Macon, Tri-Clamp, SMS, RJT, Freiderich

Stainless Steel AISI 304 Trolley w/ 2 Fixed PU Front Wheels & 2 Rear Swivel PU Wheels w/ Breaks

4 Pole Geared Motor with Built-On Variable Speed Drive for Seamless Capacity Control

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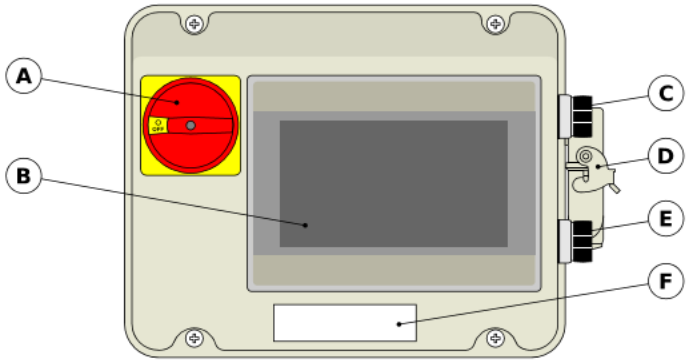
# Control Panel Overview

The control panel is the main control device of the machine. On the control panel there are the main power switch, the 7-inch touch color control panel, external USB 3.0 and RJ45 connection and an additional 24V NCsconnection for auxiliary device.




## Mains Isolation Switch

**A** The main power switch turns on/off the control panel, the pump and all connected devices.

## Touch Screen Panel

**B** The touch screen panel is the pump control centre. By the touch screen panel, it is possible to organize, monitor and schedule all pump work operations. Some options of the touch screen panel are replicated and available on the combined radio control.

## USB External Connection

**C** Through the USB external connection, it is possible to connect the control panel for data downloading, software updating and to activate the tethering function via smartphone.

## Additional 24V NC Connection

**D** The additional 24V NC connection allows to connect a compatible 24V device, for example a sensor or a control valve which are able to interrupt the circuit when activated. In case auxiliary devices are not used, make sure that the connection is closed by the special plug provided.

## RJ45 External Connection

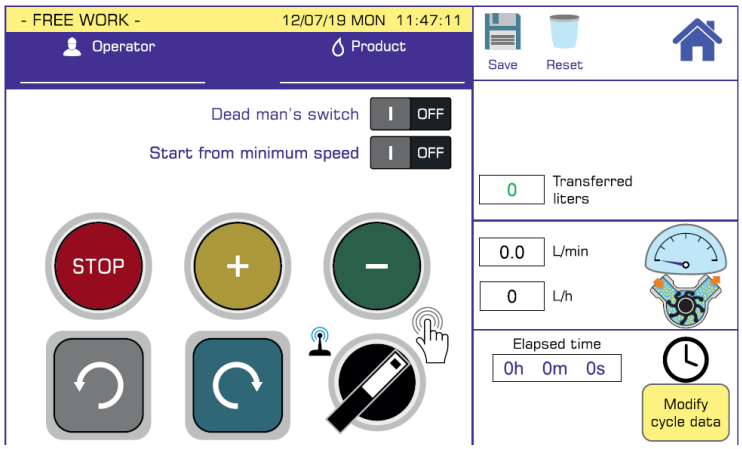
**E** Through the RJ45 external connection it is possible to connect the control panel to an Ethernet network for remote management with compatible applications.

## Identification Label

**F** The reference data of the control panel (type, description, etc.) are shown on the identification label.

# Operating Modes Overview

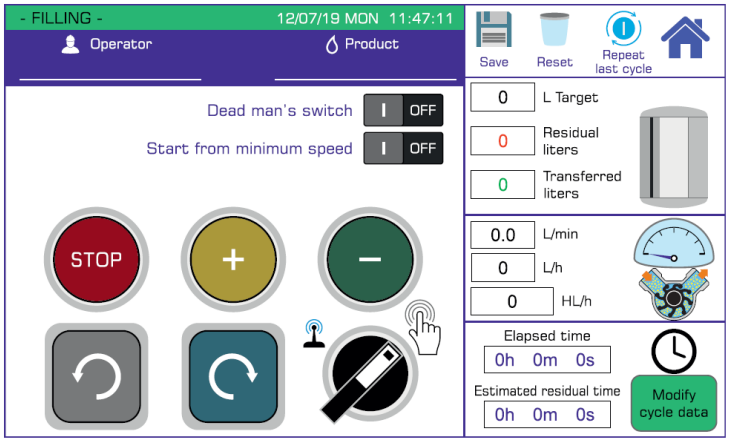
## Free Transfer




Simple Manual Transfer displaying:

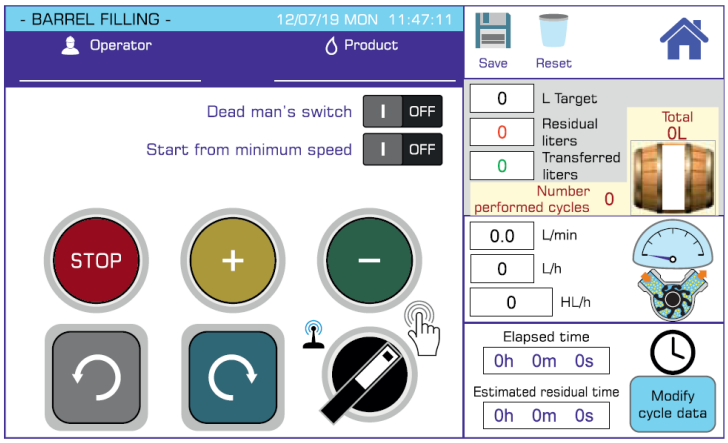
- Transferred Volume in Litres
- Flow Rate in l/min & l/hr
- Elapsed Time of operation

## Batch Filling



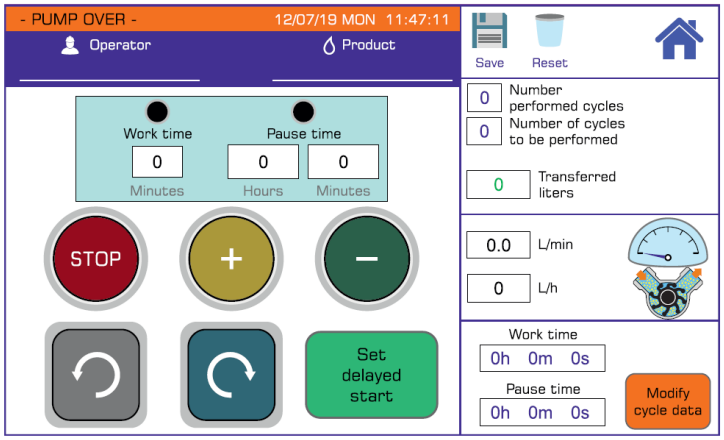

A predetermined batch quantity is entered, the pump is started at the desired speed of operation and, once the target has been reached and the programme completed, the pump is stopped automatically.

## Barrel Filling




Repeatable filling of barrels in series can be programmed & started at the touch of a button or via remote control.

## Pump-Over




Pump-Over can be achieved by the programming of automatic work/pause cycles as well as pipe emptying operation.

*Pump-Over is a key process in the production of wine and is characterised by the circulation of the wine from the bottom of the fermentation tank to the top. By splashing the wine over the top of the must, the grape skins are therefore submerged so that carbon dioxide is pushed to the surface and released.*

## Extra Useful Features

### Pipe Emptying / Draining Operation

Sets the rotation / Reverse Operation time of the pump, useful for automatic emptying of the pipes performed at the end of last cycle. If value is 0, the pump will not perform any inversion.

### Slow Down Function

Sets the value from which the pump slows down to the minimum speed until the end of lling. The value can be set from 0 (min) to 50 (max).

Example: set “Slowdown to” = 10 lt

Action -> when 10 lt left at the end of lling the pump slows down to the minimum speed.

Setting a slowdown value can be important especially if the pump works at high speeds rotation. In these situations the high thrust of the transfer does not stop immediately with the pump stop and the nal liter count can easily exceed the total target set for processing. It is advisable to set a minimum slowdown of about 10-15 liters for medium speeds and 25 liters or more for maximum speeds.

### Current & Historical Alarms Screens

In case an alarm, a fashing symbol will appear on the screen. Clicking on the symbol will open the ALARMS ON screen, this is also reachable from the main options screen. The "Historical alarms list" option displays the list of all recorded alarms. When selecting a date, the screen lists all the dates on which alarms were recorded. The list record the last 14 days, with a maximum of 100 alarms per day.

## Historical Cycles List

Shows the list of work cycles performed. In this list there are only the cycles saved through the "Save" function available in the work mode screens.

## Exernal USB Connection

All Alarms & Historical Cycles Lists can be Exported to USB by connecting a pendrive or an external USB disk to the available Port on the Panel. The format of data to be exported; .dtl or .csv. If the reading .dtl software is not available, it is recommended to export in .csv, compatible with most of the available office software.

## USB Mouse & Tethering Function

A mouse can be connected to the USB for interface management. The cursor (arrow) can be activated using the option in the settings menu.

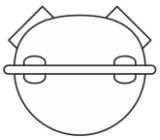
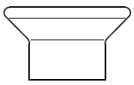
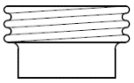
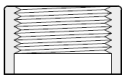
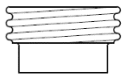
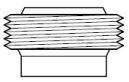
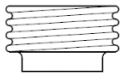
Tethering (only for Android Devices) is facilitated via the USB connection through use of a suitable USB Cable connected to a smartphone or external modem. Useful when an RJ45 connection is not available. Note: this function can only be used on request for remote assistance operations, it cannot be used for panel and pump management.

## Remote Radio Controller


The radio control connected with the control panel can be used to remotely control pump operation. The start/stop, inversion and speed variation buttons are replicated on the radio remote control. To switch on/off the remote control operation use the specific button available on work screen.

The remote control can be used at a maximum distance of about 100 m in open space.

## Connection Types & Sizes Available

| Connection Type | | MINOR  | MAJOR  |
|---|---|---|---|
| Garolla |  | DN 40 / 50 | DN 50 / 60 / 70 |
| DIN 11851 |  | DN 40 / 50 | DN 50 / 60 / 70 |
| BSP-M |  | 1¼" / 1½" | 2" |
| BSP-F |  | 1" / 1¼" | 1½" / 2" |
| Macon |  | DN 40 / 50 | DN 40 / 50 |
| Tri-Clamp |  | 1½" | 2" |
| SMS |  | DN 38 | DN 51 |
| RJT (BSM) |  | 1½" | 2" / 2½" |
| Friederich |  | DN 40 | DN 40 / DN 60 |

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