



Product Data Sheet
AV-10

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Product Data Sheet

AV-10 HPP Equipment



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Note! *US customary units are presented in brackets*

HPP Equipment

The AV-10 can optionally be equipped with a high pressure pump using 2 intensifiers instead of the standard 4, hereafter named AV-10R.

Pressure vessel

Pressure vessel volume (closed and empty vessel):	0.10 m ³ (26.4 gal)
Design pressure:	660 MPa (95,700 psi)
Maximum operating pressure:	600 MPa (87,000 psi)
Design temperature min/max:	0 / 50 °C (32 / 122 °F)
Usable internal diameter:	306 mm (12.0 in)
Usable internal length:	1,420 mm (55.9 in)
Pressure Vessel total weight, approximately:	17,500 kg (19.3 short ton)
Standard available load basket lengths:	1,410 mm (55.5 in)





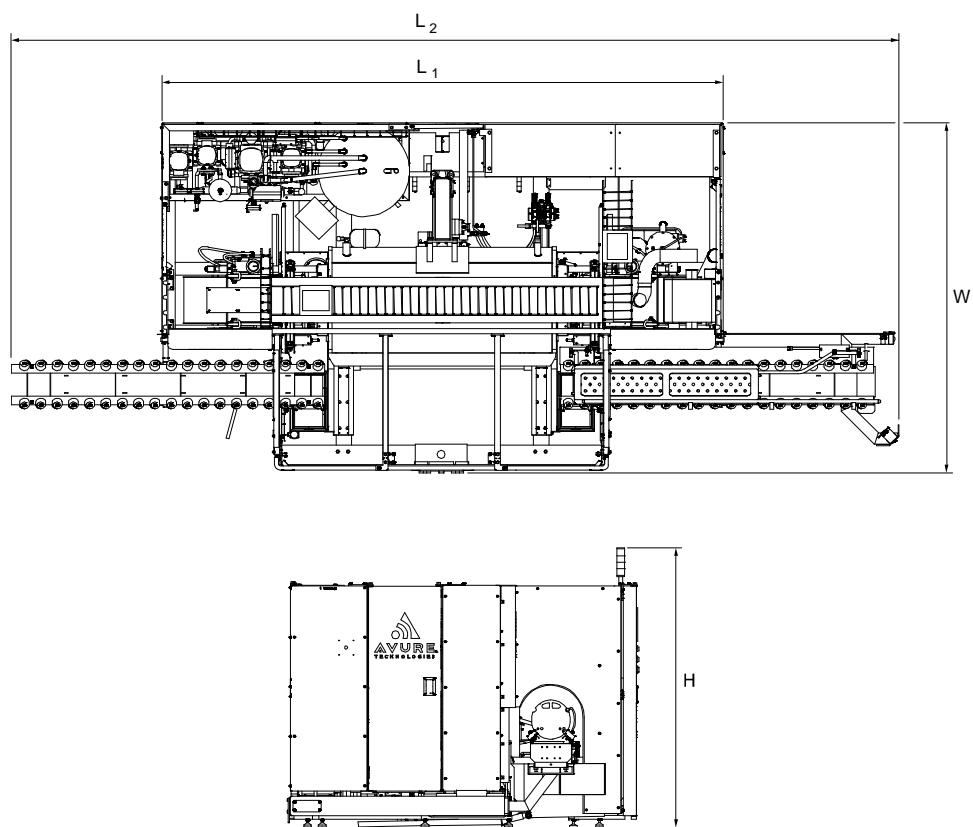
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Footprint, pressure vessel

Length, L ₁ :	4.3	m
	(14.1	ft)
Length, L ₂ :	6.8	m
	(22.3	ft)
Width, W:	2.7	m
	(8.9	ft)
Height, H:	2.2	m
	(7.2	ft)



Pressure vessel layout, AV-10





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Control and electrical system

Programmable controller (PLC):	Allen Bradley Control Logix
Data bus:	Ethernet
HMI Panel PC:	Allen Bradley Solid state computer 1200P (touch screen)
HMI Operating system:	Windows XP
IP classification, minimum:	IP54

High pressure system

One hydraulic powered intensifier pump (30XQ-6000) is used to build up the pressure:

Hydraulic system pressure:	19.1 MPa (2,800 psi)
Maximum intensifier pressure:	600 MPa (87,000 psi)
Hydraulic auxiliary system pressure (provided by 30XQ):	11.0 MPa (1,600 psi)
Recommended process water temperature:	4-29 °C (39-84 °F)
Weight of one hydraulic power unit (including oil):	3,265 kg (7,200 lbs)

Vessel pressure is measured by two high pressure transducers:

High Pressure transducer range:	0 – 700 MPa (0-101,500 psi)
High Pressure transducer accuracy (FSO):	± 0.5 %





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Pressure media system

Filtration grade of media filter:	10	μm (nom)
Total volume of media tank:	0.4 (105.6	m ³ gal)

Material handling system

Total conveyor length:	6.8 (22.3	m ft)
Load Basket nominal center height:	0.82 (2.7	m ft)

Cycle time

Presumptions used when calculating the cycle time:

- The workload has equal compressibility as water.
- 5°C water temperature.
- 65% fill efficiency (of basket volume).
- Product density 1.0kg/dm³ (62.4lb/ft³)

Cycles with 60Hz operation:

Machine model	AV-10	AV-10R
Cycles per hour with 3 min hold time	10	7.8
Cycles per hour with 2 min hold time	12	9.0
Cycles per hour with 1 min hold time	15	10.6

Cycles with 50Hz operation:

Machine model	AV-10	AV-10R
Cycles per hour with 3 min hold time	9.7	7.3
Cycles per hour with 2 min hold time	11.6	8.3
Cycles per hour with 1 min hold time	14.4	9.7





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Energy consumption

Energy consumption per cycle:

Machine model	AV-10	AV-10R
60 Hz operation, 3 min hold, kWh	4.7	4.4
50 Hz operation, 3 min hold, kWh	4.5	4.3

Sound level

The machine has a noise level below 85 dB(A) equivalent at the operator's station provided that high pressure pumps are located in a separate room.

Site utilities

Electric power

Electrical power supply varies with voltage and frequency for different machine models as below.

Supply voltage, 3-phase, 4-wire, 480Y/277 V, 60Hz:

Machine model	AV-10	AV-10R
Peak power consumption, real, kW	165	85
Peak power consumption, apparent, kVA	190	100
Operating current, real, A	230	120

Supply voltage; 3-phase, 4-wire, 400Y/230 V, 50Hz:

Machine model	AV-10	AV-10R
Peak power consumption, real, kW	140	75
Peak power consumption, apparent, kVA	160	90
Operating current, real, A	235	125





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Cooling, high pressure pump

The following requirements for external circuit cooling media applies to the high pressure pumps. Cooling water consumption depends on the selected cycle parameters plus temperature of the cooling water.

Min/Max pressure, external circuit:	0.3-0.6 (43-87	MPa psi)
Maximum inlet temperature, external circuit:	25 (77	°C °F)
Peak consumption (at 16 °C): (at 61 °F):	38 (10	l/min gal/min)
Removed heat load (maximum):	30 (102,000	kW BTU/hr)

Cooling, process water

The following requirements for external circuit cooling media apply to achieve temperatures down to 4°C (39 °F).

Cooling media mix (Water/Propylene Glycol):	70/30	%
Inlet temperature:	1 (34	°C °F)
Flow rate:	90 (24	l/min gal/min)
Removed heat load:	15 (51,000	kW BTU/hr)

Compressed air

Oil free dry air with a capacity of 100 l/min (3.5 cu ft/min) (free volume at atmospheric pressure) according to ISO 8573-1 Class 3.

Pressure, Water Module and Press system:	0.6 (87	MPa psi)
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Pressure media

Process refill water:

Potable Water
according to Avure
specification K04139

Temperature*:

4-29 °C
(39-84 °F)

Minimum flow rate:

50 l/min
at 0.5 MPa
(13.2 gal/min
at 72.5 psi)

***Note!** *Using temperatures in the higher range will affect high pressure pump intensifier seal life length negatively.*

Clean In Place

Information about washing temperatures and dosage is found in the operator's and maintenance manual.

Cleaning agents used must be approved per below.

Approved agents:

- ✓ Ecolab P3-topactive 200
- ✓ Ecolab Quorum + Copper
- ✓ Ecolab P3-mip® SP
- ✓ Ecolab AC103
- ✓ Ecolab P3-Oxysan ZS
- ✓ Ecolab Vortexx



STRONGER TOGETHER





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Hydraulic oil

Oil must be approved food grade and ISO VG 46 per below.

Hydraulic oil:

400	1
(106	gal)

Approved brands:

- ✓ Chevron FM ISO 46
- ✓ Texaco Cygnus 46
- ✓ Shell FM 46
- ✓ Cenex Food Grade 46

Note! *Different brands must not be mixed*

Environment

Ambient temperature:

4-29	°C
(39-84	°F)

Humidity:

0-80	%Rh
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