TEMPERATURE CONTROLLERS

SENTRA Series Water Unit

NEW IMPROVED COOLING VALVE

SK-2475 with HE instrument

SK-1035 with LE instrument

ADVANTAGE Sentra temperature controllers are designed for industrial applications where precise temperature control of circulating water is required.

The **SENTRA** includes stainless steel cabinetry, an **improved AVT**™ modulating cooling valve, high efficiency pump casing, flange mounted heater, and **choice of microprocessor instrument.**

CUSTOM DESIGNS.. if a standard model does not meet your needs, then **ADVANTAGE** can design a unit that will.

PROCESS TEMPERATURES:
- up to 250°F

AVAILABLE PUMP HP:
- 1/2 to 7.5

AVAILABLE HEATER KW:
- 6 to 34

AVAILABLE COOLING VALVES:
- 3/8" to 3/4"

STANDARD DIMENSIONS:
- 27" x 11" x 16" (HxWxD)
- 44" x 16" x 24" (HxWxD)

FLOW RATE DISPLAY
CAPACITY USEAGE DISPLAY

HE instrument

LE instrument

FEATURES - AT A GLANCE:
- Choice of microprocessor instrument
- 'Lift off' stainless steel enclosure panels
- NEW modulating cooling valve design
- To and from process pressure gauges
- Low watt density flanged incoloy heater
- High capacity pumps
- Small footprint - compact physical size
- Outstanding warranty

ADVANTAGE®
MAKING WATER WORK™

Information on all ADVANTAGE water system products is available on our website at: www.AdvantageEngineering.com

WARRANTY... the best in the industry! Includes a **2 YEAR** 'Casters Up' warranty covering the entire unit, along with an additional **2 YEAR** warranty covering the microprocessor instrument, heater, and AVT™ cooling valve. That's **4 YEARS** of warranty support for the most critical components. Plus, **ADVANTAGE** supports the Sentra with a **LIFETIME** pump seal warranty. Refer to Document ADV-207 for complete details.

INSTRUMENTATION... choice of microprocessor instrument offers precise temperature control, dual temperature display, machine status and diagnostic information presented in an easy to understand interface (not pictured from this angle).

SENSOR PROBES... placed in the fluid steam for accurate temperature sensing. The **HIGH TEMPERATURE SAFETY** is an integral part of the To Process sensor and protects against overheating.

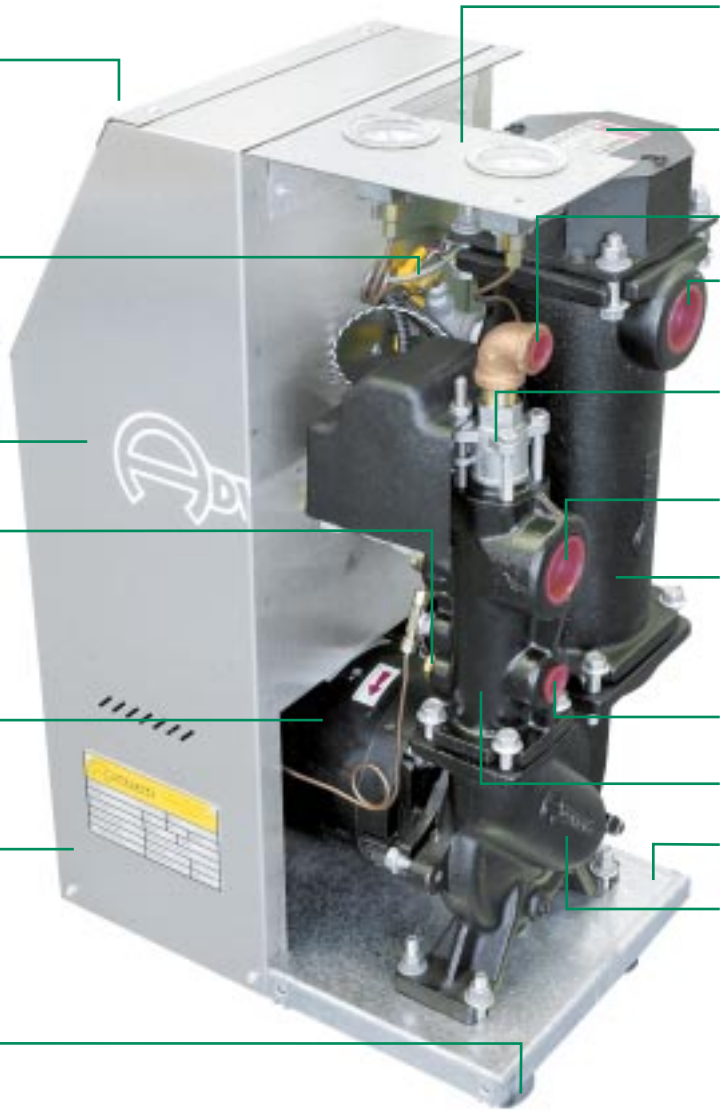
ELECTRICAL CABINET... hinged door opens to allow full access to electrical components.

FLOW METER... optional accessory with HE instruments monitors process flow. Flow is read on the instrument display. Knowing the process flow is critical for fine tuning heat transfer efficiency.

MOTOR... horizontal orientation assures that water and debris will not foul motor windings and extends pump seal service life.

STAINLESS STEEL CABINET... durable and sturdy construction, easy to clean and vented to dissipate excess process heat. **STAINLESS STEEL COVER PANEL** is secured with thumb screws for no-tool access (panel removed for picture).

CASTERS... four swivel casters allow easy unit mobility.



PRESSURE GAUGES... indicates 'to process' and 'from process' pressure. The operator can determine ΔP, pump direction and other operating characteristics from these gauges.

HEATER... flange mounted for easy service.

COOLING WATER DRAIN CONNECTION

TO PROCESS... all unit connection ports are machined into reinforced bosses to provide strength and rigid connections.

AVT™ COOLING VALVE... new design provides precise control and easy maintenance.

FROM PROCESS CONNECTION

HEATING CYLINDER... cylinder castings are custom designed to eliminate leak-prone pipe fittings found on competitive models. Each cylinder is flange mounted to the pump casing.

COOLING WATER SUPPLY CONNECTION

COOLING CYLINDER

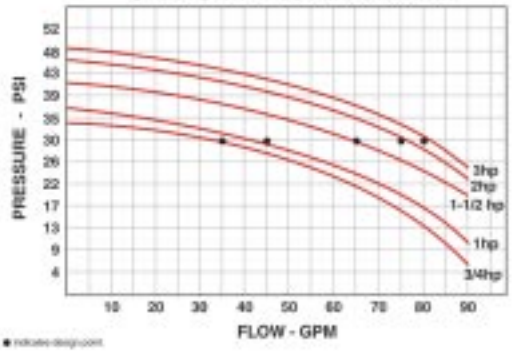
GALVANIZED STEEL BASE... provides a rigid, long lasting support structure.

PUMP CASING... with built-in seal flush for extended service life.

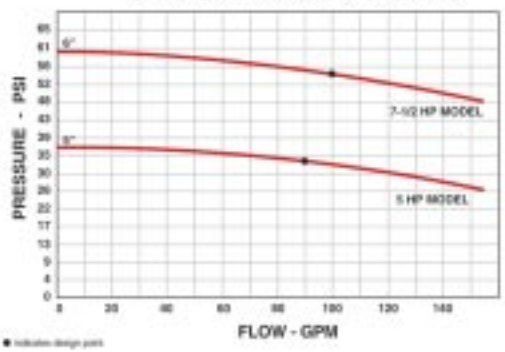
POWER CORD... 10' factory installed power cord helps ease unit installation (not shown in picture).

CUSTOM PUMP CASING... generates greater flow with less horsepower for increased performance. Pumps use a cast bronze impeller and ceramic seal. Pumps are offered from 1/2 to 7-1/2 HP. Cast iron construction is standard with optional bronze castings for nonferrous units (shown in photo).

SK PUMP AS5 PERFORMANCE



SK PUMP AE7 PERFORMANCE



TRANSFORMER... eliminates need for multiple electrical hook-ups by taking incoming high voltage and reducing it to the level required by the microprocessor and other control devices..

MOTOR STARTER / OVERLOAD RELAY... selected for reliability as a heavy duty starter contactor, tested for over 10,000 cycles. The overload relay protects the motor from excess amperage.

HEATER CONTACTOR... a mercury contactor is used to energize the heater and is more reliable and lasts longer than mechanical contactors.

PRESSURE SWITCH... provided to prevent operating with inadequate water supply pressure. Operating with less than the required water supply pressure can cause premature heater and pump seal failure.

The **ADVANTAGE SENTRA 'SK'** instruments provide precise control of process fluid temperature. Custom microprocessor architecture and circuit design assures reliability and integrity. Intuitive operator interface promotes ease of use.

SENTRA 'LE' MICROPROCESSOR INSTRUMENT... the standard instrument displays process and setpoint temperatures, plus machine status and alarm conditions. An SPI communications port is standard.

SENTRA 'HE' MICROPROCESSOR INSTRUMENT... popular upgrade displays process and setpoint temperature, process flow, and unit capacity. An SPI communications port is standard. Ethernet connectivity is optional.

HEATER... with an incoloy sheath that offers long service by preventing corrosion and pitting from high temperature use.

IMPROVED AVT™ COOLING VALVE... eliminates water hammer associated with many competitive models. The **AVT™** valve consists of a high temperature stainless steel modulating ball valve that meters the precise amount of cooling water into the system for straight line temperature control. The new **AVT™** valve features an improved motor/valve coupling for more precise operation and includes a serviceable "O-ring" shaft seal.

FLOW METER... optional accessory included in the HE instrument that displays process flow. Flow meters are made of high quality elastomer to operate under high temperature and a wide range of flows.

PROBES... solid state temperature sensors are embedded in a threaded bulbwell. All probes are terminated with quick-disconnect plugs to ease service and maintenance.

SPECIFICATIONS

SENTRA SPECIFICATIONS	SK-	620	635	645	665	675	680	1020	1035	1045	1065	1075	1080	1090	10100	1620	1635	1645	1665
HEATER[1]	KW	6	6	6	6	6	10	**10**	10	10	10	10	10	10	16	16	16	16	
PROCESS PUMP	HP	1/2	3/4	1	1 1/2	2	3	1/2	**3/4**	1	1 1/2	2	3	5	7 1/2	1/2	3/4	1	1 1/2
	GPM	20	35	45	62	75	80	20	**35**	45	62	75	80	90	100	20	35	45	62
	PSI	30	30	30	30	30	30	30	**30**	30	30	30	30	34	54	30	30	30	30
FULL LOAD AMPERAGE	230 volt	17.0	17.8	18.6	20.2	21.8	24.6	27.0	**27.8**	28.6	30.2	31.8	34.6	40.3	47.1	42.0	42.8	43.6	45.2
@3ø/60hz[2]	460 volt	8.5	8.9	9.3	10.1	10.9	12.3	13.5	**13.9**	14.3	15.1	15.9	17.3	20.2	23.5	21.0	21.4	21.8	22.6
DIMENSIONS (inches)	Height	27	27	27	27	27	27	27	**27**	27	27	27	27	44	44	27	27	27	27
	Width	11	11	11	11	11	11	11	**11**	11	11	11	11	16	16	11	11	11	11
	Depth	16	16	16	16	16	16	16	**16**	16	16	16	16	24	24	16	16	16	16
CONNECTIONS (inches)	T/F[3]	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	**1 1/4**	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4
	S/D[4]	1/2	1/2	1/2	1/2	1/2	1/2	1/2	**1/2**	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
WEIGHT (pounds)	Shipping[5]	195	200	205	205	210	220	198	**200**	208	208	213	223	275	290	200	205	210	210

SENTRA SPECIFICATIONS	SK-	1675	1680	1690	16100	2435	2445	2465	2475	2480	2490	24100	3435	3445	3465	3475	3480	3490	34100
HEATER[1]	KW	16	16	16	16	24	24	24	24	24	24	24	34	34	34	34	34	34	34
PROCESS PUMP	HP	2	3	5	7 1/2	3/4	1	1 1/2	2	3	5	7 1/2	3/4	1	1 1/2	2	3	5	7 1/2
	GPM	75	80	90	100	35	45	65	75	80	90	100	35	45	65	75	80	90	100
	PSI	30	30	34	54	30	30	30	30	30	34	54	30	30	30	30	30	34	54
FULL LOAD AMPERAGE	230 volt	46.8	49.6	55.4	62.2	63.1	63.9	65.5	67.1	69.9	75.5	82.3	88.2	89.0	90.6	92.2	95.0	100.6	107.4
@3ø/60hz[2]	460 volt	23.4	24.8	27.7	31.1	31.6	32.0	32.8	33.6	35.0	37.8	41.2	44.1	44.5	45.3	46.1	47.5	50.3	53.7
DIMENSIONS (inches)	Height	27	27	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
	Width	11	11	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
	Depth	16	16	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
CONNECTIONS (inches)	T/F[3]	1 1/4	1 1/4	1 1/2	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2
	S/D[4]	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
WEIGHT (pounds)	Shipping[5]	220	225	285	300	270	275	280	285	290	295	310	280	285	290	295	300	305	320

Notes: 1. Derate heater output by 25% for 208/3/60 operation. **2.** Consult factory for 50hz operations. **3.** T - to process; F - from process. **4.** S - water supply; D - drain. **5.** Approximate unit shipping weight.

STANDARD FEATURES

TANK CONSTRUCTION:
- Twin tanks - separate heating and cooling tanks
- Cast iron material
- Mild steel on models with 5 and 7.5 hp pumps and 24 and 34 kw heaters
- Machined process connections
- Flange mounted to pump casing
- Replaceable

PUMP:
- Cast iron casing -custom design for increased flow
- Bronze pump impeller
- Pump seal flush
- Stainless steel pump motor shaft

COOLING VALVE:
- AVT modulating valve
- 0 - 100% aperture range
- Microprocessor controlled
- Integral to the cooling tank
- Field serviceable

HEATER:
- Flanged bolt-in mount
- Incoloy sheath
- Mercury heater contactor

CABINETRY:
- Stainless steel
- Hinged electrical cabinet door
- Lift-off mechanical cover
- Portable, on casters

SAFETY DEVICES:
- Water supply pressure switch
- Motor overloads
- Pressure relief valve
- High temperature limit
- Fused control circuit

PRESSURE GAUGES:
- To process
- From process

WARRANTIES:
- Lifetime pump seal
- 4 year controller
- 4 year cooling valve
- 4 year heater
- 2 year mechanical

ELECTRICAL:
- Process pump motor starter
- Fused transformer
- 10' power cord installed on models up to 24 kw
- 110 volt alarm output

INSTRUMENTATION:
'LE' INSTRUMENT:
- Continuous *to process* and *setpoint* temperature display
- Temperature display in Fahrenheit or Celsius
- Status indicators for *power on*, *pump on*, *heat on*, *cool on*, *safety condition* and *alarm*
- RS-485 SPI communications via a DB-9 receptacle

'HE' INSTRUMENT:
- Digital flow indication (gpm/lpm)
- Capacity indication (% or actual)
- Out-of-spec alarms for temperature and flow
- Ok-fault status display for *probe*, *water pressure*, *high temp*, *pump overload*, *cooling valve* and *phase (pump rotation)*
- Continuous *to process* temperature display
- Continuous *setpoint* temperature display
- Selectable from process temperature display
- Temperature display in Fahrenheit or Celsius
- Setup display for *temperature*, *flow*, *network* and *machine*
- RS-485 SPI communications via a DB-9 receptacle

OPTIONS

INSTRUMENTATION:
- HE remote display - 20' cable
- SPI communications cable - 20'

COOLING VALVE:
- 1/2" AVT
- 3/4" AVT

MOLD PURGE:
- 1 1/4"
- 1 1/2"

TANK CONSTRUCTION:
- Non ferrous tanks
- Bronze pumps
- Bronze piping
- Total non ferrous units
- Closed circuit designs

SYSTEM ALARMS:
- Audible alarm
- Visual/audible alarm beacon

UNIT:
- Dual zone dolly
  - with water manifold
  - with electrical junction box
- Stacking stand
  - with water manifold
  - with electrical junction box

ELECTRICAL:
- Nema 12 construction

CABINETRY:
- Rear panel covers

THE SENTRA WARRANTY...

Your temperature controller is supported by a full factory warranty. Backed by the **ADVANTAGE** nationwide service network. Service is only a phone call away. Refer to bulletin ADV-205 for complete warranty details.

ADVANTAGE® MAKING WATER WORK™

ADVANTAGE PRODUCTS: TEMPERATURE CONTROLLERS • PORTABLE CHILLERS • CENTRAL CHILLERS • PUMP TANK STATIONS • TOWER SYSTEMS • FILTERS

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