Catalogs:
1505, 1507, 1510, 1522, 1537, 1538, 1540, 1550, 1555, 1560, 1572, 1577, 1585, 1587, 1597, 1905, 1910, 1985, RM87, RM88, RM89, RM89S

Spirit 1500
Delivery Units
Specifications
1.00 GENERAL
(Delivery Systems)

1.01 The Spirit 1500 Series Dental Units shall have combinations of quality and innovative design with the simplicity of air and water controlled operation, smooth asepsis designs, and easy maintenance. The stylish designs shall have practical functionality by offering the features that are needed to facilitate an efficient and productive operatory. These dental units shall also have components used to carry, position, and control the devices used in the practice of dentistry.

1.02 Spirit 1500 Delivery Units shall easily mount to a dental chair, cabinet, wall or cart and be capable of accepting an assistant’s instrumentation.

1.03 Air, water, vacuum and power for the delivery unit shall be supplied from the junction box. The J-box shall be located on the floor or in a cabinet sub-base. It shall be equipped with air/water regulators, filters and shut-off valves.

1.04 The delivery unit shall have a wet/dry foot control. Chip air blower shall come as an option.

1.05 The delivery unit shall operate on low voltage (24VAC and 36VDC). Transformers shall be located within the J-box. A pre-wired 8-conductor cable shall provide necessary power to the delivery head accessories.

1.06 The 1500 series shall come standard with a self-contained water systems with a city water or bottled water selector. A touchpad for chair operation shall be optional.

1.07 The over-the-patient (OTP) delivery units shall be mounted to a PMU (1505, 1507, 1510, 1905, 1910) or to an ellipse pole (1585, 1587, 1597, 1985). The side delivery units shall mount to a cabinet (1555) or wall (1560). The rear delivery units (1522, 1537, 1572, 1577) shall be mounted to rear cabinets. The 1522 and 1537 shall be mounted to OS cabinets and the 1572 and 1577 shall be mounted to RD cabinets or similar. The 1538 is an assistant’s instrumentation for an OS cabinet or similar. The 1540 and 1550 delivery units shall be mounted into a cart with 2” caster wheels. The 1507, 1537, 1557 1587 and 1597 units shall be traditional hygiene delivery units.

1.08 The 1905, 1910 and 1985 dental units shall have Euro tubing style. All other units shall have traditional tubing style.

1.09 The 1500 units shall have the capability to integrate an optional flat-screen monitor, keyboard tray, scaler, curing light and the Vista Clean™ clean water system that is a continuous sanitation system when the dental unit is in operation.

1.10 All Spirit 1500 series catalogs shall be classified as Class I (US), Class II (Canada), II(a) (EU) products and conform to the applicable requirements of IEC/EN/UL/60601-1 and CSA C22.2 no. 601.1.

1.11 The delivery system is designed to be compatible with air-driven handpieces that conform to ISO13294 and electric handpieces that will conform to ISO11498. The air-driven handpiece tubing shall be available in 4-hole Midwest connection. The electric handpiece tubing shall have an E-type coupler.

2.00 GENERAL
(Assistant’s Instrumentation-PMU)

2.01 The Assistant’s Instrumentation will consist of one saliva ejector (SE), one high volume evacuator (HVE) and a quick-clean with the option to change to an autoclavable syringe. It will feature an instrument hanger and smooth, removable HVE and SE ejector tubing and solids collector.

2.02 Air, water and vacuum for the assistant’s instruments shall be available to install into the chair, cabinet, and PMU (pole mounted unit).

2.03 The PMU-mounted unit will interface with the Over-The-Patient Delivery System. Air and water tubing for the assistant’s instrumentation will channel through a post-mount unit (PMU) which will be connected inside the junction box.

2.04 The instrument hanger will accept two autoclavable HVEs, an autoclavable SE and a quick-clean syringe.

2.05 The PMU shall have optional cuspidor. The cuspidor shall include a one-piece porcelain coated bowl. It shall have pneumatically timed bowl rinse and manual cup fill. Bowl rinse flow control shall be manually adjusted. The Cuspidor shall employ removable cup fill and bowl wash spouts for ease of cleaning and disinfecting. The bowl rinse spout shall provide an air gap between it and the bowl surface as an anti-retraction measure in keeping with the corporate regulatory approval process.

2.06 The cuspidor mounting arm shall be integrated in the bowl design and shall be pivot-mounted for horizontal rotation. Should the cuspidor be lowered onto a stool or other object, a break-away joint shall allow the cuspidor to pivot up, preventing damage to the equipment. The PMU shall permit the addition of an aseptic vacuum system mounted on a folding extension arm and additional options.

2.07 The PMU shall interface with the Over-The-Patient Delivery System. Electrical wiring and air/water tubing for the control head shall channel through the PMU which shall be connected to a junction box by an umbilical.

3.00 GENERAL
(Assistant’s Instrumentation RM87, RM88, RM89, RM89S)

3.01 The assistant’s instrumentation will consist of one saliva ejector (SE), one high volume evacuator (HVE) and a quick clean syringe with the option to change to an autoclavable syringe. It will feature an instrument hanger and smooth, removable HVE and SE ejector tubing. The assistant’s instrumentation shall be mounted on an ellipse, rear mount pole.

3.02 The vacuum system will be available to install to the Spirit 1500 OTP, Pelton & Crane Cabinetry, and cart mounted units.

3.03 The ellipse post-mount will interface with the Over-The-Patient Delivery System. Air and water tubing for the assistant’s instrumentation will channel through an ellipse post which will be connected inside the junction box.

3.04 The instrument hanger will accept two autoclavable HVEs, an autoclavable SE and a quick-clean syringe.
3.05 The Rear Mount (RM) shall have an optional cuspidor. The cuspidor shall include a one-piece porcelain coated bowl. It shall have pneumatically timed bowl rinse and manual cup fill. Bowl rinse flow control shall be manually adjusted. The Cuspidor shall employ removable cup fill and bowl wash spouts for ease of cleaning and disinfecting. The bowl rinse spout shall provide an air gap between it and the bowl surface as an anti-retraction measure in keeping with the corporate regulatory approval process.

3.06 The cuspidor mounting arm shall be integrated in the bowl design and shall be pivot-mounted for horizontal rotation. Should the cuspidor be lowered onto a stool or other object, a break-away joint shall allow the cuspidor to pivot up, preventing damage to the equipment. The ellipse post mount shall accompany the cuspidor to provide air and water hook ups. It shall permit the addition of an aseptic vacuum system mounted on a folding extension arm and additional options. An optional touchpad shall be mounted to the rear mount (RM).

3.07 The ellipse post-mount shall interface with the Over-The Patient Delivery System. Electrical wiring and air/water tubing for the control head shall channel through the post which shall be connected to an internal umbilical that shall connect into a junction box.

4.00 OPERATIONS (Delivery Head)

4.01 The control head shall utilize a pneumatic valve system to activate and deactivate drive air, chip air and coolant water/air. It shall be activated with the master ON/OFF switch located at the side of the control head and shall provide a means of disabling all handpieces and turning off the water supply coming from the utility area. Flow controls for air and water are located on the underside of the delivery head.

The Control Head shall have automatic activation of a selected handpiece and shall be controlled by a pilot air valve located in the handpiece holder. The entire control head may be draped in clear plastic during a procedure. In the Euro delivery units (1905, 1910, 1985), the pilot valve is located in the whip arm assembly.

4.02 Cooling Water Control system shall use individual non-retracting water coolant controls to ensure the unit meets current CDC requirements related to water retraction.

4.03 Spray air shall be controlled with one valve as needed of spray for handpieces is the same.

4.04 The system shall be configured to three handpiece positions which supply drive air, chip air and coolant water/air for all handpiece positions; with or without syringe, and fiber-optic. An optional fourth position shall be available.

4.05 The control head shall come standard with a quick clean syringe or the option to upgrade to an autoclavable syringe. The syringe tip shall be autoclavable or disposable.

4.06 These dental units shall be available for configuring the system to mount on cabinetry, carts, ellipse mounts, and post mounts over-the-patient.

4.07 Tubings shall be attached to metal barb fittings and shall be secured with plastic sleeves to prevent leakage.

4.08 The handpiece tubing shall come standard with smooth, straight, asepsis tubing. Tubings are compatible for air and water transport. Each handpiece tubing shall have individual, non-retracting water flow controls.

4.09 Utilities to support the doctor’s control head shall be provided in a junction box or cabinetry depending on the control head’s configuration. They shall include air filter, regulator, pressure gauges and automatic shut-off.

4.09a Water and air connections at the junction box shall be ½” O.D. copper tubing with 1/2” NPT male fitting. Stub up shall be 1” max. on air and water lines protruding from the finished floor surface. Air pressure shall be set at 80 psi and water pressure shall be set at 40 psi.

4.09b Drain connection shall be 5/8” O.D. copper tubing, type L (.045 wall thickness). Stub up shall be 1” max. on drain line protruding from the finished floor surface. Elbow connection shall be soldered in place.

4.09c Vacuum connection shall be 5/8” O.D. copper tubing, type L (.045 wall thickness). Stub up shall be 1” max. on drain line protruding from the finished floor surface. Elbow connection shall be soldered in place. Vacuum activation shall be accomplished with a low voltage wire close to incoming vacuum line.

4.10 Foot control shall provide optional chip air or drive air and coolant water/air and shall be capable of shutting the coolant water/air on and off.

4.11 Delivery Arm shall be 2” diameter post that supports the control head. A counter-balance spring and pneumatic braking system shall provide a minimum of 28 1/4” of vertical travel at the control head. The arm shall feature a utility channel which shall conceal all tubings and wires required for the operation of the unit.

4.12 Flex Arm: The OTP units shall be equipped with flex arm for positioning the delivery head. Brake shall be pneumatically-controlled air lock/release button. This button will be located conveniently on the delivery head handle end. The button shall be interchangeable from left to right hand positions.

4.13 The doctor’s and hygienist’s delivery heads shall be equipped with handpiece tubing for air-driven handpieces. The drive air may be set to 35 psi, but the operator can adjust to match handpiece requirement.

4.14 Articulating Tray shall have outside dimensions of 14” wide X 10 1/4” long. The inside dimensions shall be 12 1/2” wide X 8 ½” long. An 1/2” deep shall be available to mount on the control head for over-the-patient and side delivery applications. It shall accommodate a Ritter size “B” tray and shall be autoclavable. The swivel shall rotate 360° for optimum positioning. Extension from the pivot point shall be 11”. The tray shall have an anti-skid mat.

4.15 Optional Fiber optic control shall be available to accommodate up to four handpiece positions. The smooth, straight fiber-optic handpiece tubing with quick disconnect and swivel shall provide lighting for each handpiece. European-style fiber-optic
tubing shall also be available as an option. The handpiece control system shall provide through variable potentiometers, the means to select the optimal control voltage for the lamp, based on the manufacturer of the handpiece.

4.16 Optional Curing Light shall activate when handpiece is lifted from its holder. In the 1905, 1910 and 1985 units, the curing light shall be activated when the HP is pulled forward. It shall convert electrical power into a visible blue flux without generating large quantity of heat associated with Halogen lamps. Electronic Beam Light Emitter Diode (LED) provides optimal blue light used to excite the camphorquinone photo-initiator which has an absorption peak at 468nm. This stimulates the production of free radicals from the tertiary amine, resulting in the polymerization and hardening of the polymer composite.

4.17 Optional Scaler: The piezoelectric or magneto ultrasonic scaler shall be designed for integration with 1500 delivery system. The handpiece is mounted on the instrument-holder of the control-head. Power level adjustment knob is located on the control-head. The handpiece is activated with the foot control once the handpiece is removed from the holder. The piezo scaler comes with scaling tips and wrenches for inserting and removing the tips. The dental light shall be activated using the button with the light symbol (the toggle switch on the LF light head must be in the “on” position for this function to operate).

4.18 Optional Touch pad shall allow the user to control the dental chair’s incline, recline, up and down movements. The touchpad will have four programmable positions allowing the user to program the chair into the desired positions. The touch-pad shall have manual arrow buttons that also allows the user to adjust the chair to the desired position. It shall be attached to the head cover.

4.19 Purge Switch is a toggle switch located on the underside of the control head. This switch shall activate a purging function in which water is flushed through the selected handpiece tubing. Only selected handpieces shall be purged.

4.20 Handpiece Oil Collector is located underside of control head. It shall collect the excess oil coming from the handpieces. The gauze is placed inside the canister to absorb the excess oil.

4.21 Self-contained Water Bottle: The 1500 delivery units shall be equipped with a 750 ml sized bottle to provide a self-contained water option. Bottle-City water selector shall be provided.

5.00 OPERATIONS (Assistant’s Instrumentation - PMU)

5.01 Telescoping Arm Instrument Holder shall be able to swivel along-side of the chair to accommodate Doctor’s or Assistant’s preferences.

5.02 Cuspidor mounted Instrument Holder shall swivel with the cuspidor and to each side of the cuspidor for set-up preferences.

5.03 The HVE, SE, and optional syringe can hang in any of the four positions in the instrument holder.

5.04 The HVE will accept disposable and non-disposable tips with tip insertion end having outside diameter of 7/16”.

5.05 The SE valve will accept disposable and non-disposable tips with an outside diameter of 1/4”.

5.06 The debris cup cover shall seal to the top of the cup to maintain vacuum to the HVE and SE valves.

5.07 Debris Cup shall accept a disposable / cleanable strainer.

5.08 Spirit 1500 Cuspidor shall use a pneumatic control system for bowl rinse and cup fill. The bowl shall consist of a cup fill pad and an outer perimeter dam to contain all fluids. All horizontal surfaces shall slope into the bowl to permit ease of cleaning of the entire bowl top. The cuspidor bowl shall contain the momentary button for the cup fill and bowl rinse.

5.09 Post Mount Unit (PMU) Cuspidor shall be mounted into the top of the PMU. The control valves for the water outlet and water outlet flow control valves mounted to bracket in the PMU.

5.10 Bowl Rinse/Cup Fill Activation Button shall have a smooth contoured button that activates the automatic bowl rinse cycle or cup fill.

5.11 Timed Bowl Rinse shall be controlled by the pneumatics control located at the top of the cuspidor. The activation switch shall turn bowl rinse water on. The rinse time period shall be factory set from 25-35 seconds. The time adjustment valve shall be located in under the cuspidor.

5.12 Cup Filler: This function is activated by pressing the activation button until the pilot valve is activated. Release the activation button to de-activate the cup fill.

5.13 Water Outlet: The water outlet is provided to run any accessories needed by the user. Use the supplied 1/4” male connector and attach to the outlet.

5.14 Water Outlet Flow Control: This is a valve that adjusts the water flow of the outlet.

5.15 Touch Pad: The electronic touch pad allows the user to adjust the chair’s manual positioning using the directional arrows shown. The user can also program and access the chair’s automatic positions using the buttons labeled 0 and 1 and the unmarked LEARN button. The light can also be activated using the button with the light symbol (the toggle switch on the LF light head must be in the “on” position for this function to operate).

6.00 OPERATIONS (Assistant’s Instrumentation - RM87, RM88, RM89, RM89S)

6.01 The Rear Mount shall be able to swivel along-side of the chair to accommodate Doctor’s or Assistant’s preferences.

6.02 Cuspidor mounted Instrument Holder shall swivel with the cuspidor and to each side of the cuspidor for set-up preferences.

6.03 The HVE will accept disposable and non-disposable tips with tip insertion end having outside diameter of 7/16”.

6.04 The SE valve will accept disposable and non-disposable tips with an outside diameter of 1/4”.
6.05 The debris cup cover shall seal to the top of the cup to maintain vacuum to the HVE and SE valves.

6.06 Debris Cup shall accept a disposable or cleanable strainer.

6.07 The 1500 Cuspidor shall use a pneumatic control system for bowl rinse and cup fill. The bowl shall consist of a cup fill pad and an outer perimeter dam to contain all fluids. All horizontal surfaces shall slope into the bowl to permit ease of cleaning of the entire bowl top. The cuspidor bowl shall contain the momentary button for the cup fill and bowl rinse.

6.08 Ellipse Rear Cuspidor shall be easy to move as it is swiveled to the preferred left or right side of the dental chair. The control valves for the water outlet and water outlet flow control valves shall be located underneath cuspidor.

6.09 Bowl Rinse/Cup Fill Activation Button shall have a smooth contoured button that activates the automatic bowl rinse cycle or cup fill. When pulling the spout forward, the cup fill shall activate the water flow, pushing the spout back shall deactivate the water flow.

6.10 Timed Bowl Rinse shall be controlled by a push-button near the rinse spout. The activation switch shall turn bowl rinse water on. The rinse time period shall be factory set for 25-35 seconds. A time adjustment valve is located under the cuspidor.

6.11 Cup Filler: This function is activated by pressing the activation button until the pilot valve is activated. Release the activation button to de-activate the cup fill.

6.12 Water Outlets: The water outlet shall be provided to run any accessories needed by the user. The supplied 1/4” male quick disconnector and attach to the outlet. The outlet shall have a flow control valve.

6.13 Air Outlet: An air outlet with a 3/8” size quick-connect shall be available for accessories use.

6.14 Touch Pad: The electronic touch pad allows the user to adjust the chair’s manual positioning using the directional arrows shown. The user can also program and access the chair’s automatic positions using the buttons labeled 0 and 1 and the unmarked LEARN button. The light can also be activated using the button with the light symbol (the toggle switch on the LF light head must be in the “on” position for this function to operate). Touch pad shall be optional for all rear mounts.

6.15 RM87 shall be equipped with assistant’s instrumentation. RM88, RM89 and RM89S shall have a cuspidor. RM89 and RM89S shall also have assistant’s instrumentation. In addition, RM89S shall be equipped with micro-switch to turn the vacuum pump on and off.

7.00 CONSTRUCTION (Delivery)

7.01 Control Head base and cover shall be made of aluminum. The cover shall be attached to the base with stainless steel hinge or similar device.

7.02 Handpiece Holder will be made of ABS blended material and a metal frame. The holder bar will be made of 1/2” diameter aluminum rod.

7.03 Control Head Front Arm shall be made of steel tube. The base and the optional tray shall be bolted onto it.

7.04 Air and Water Control manifolds and fittings inside the delivery head shall be constructed of nickel-plated brass to prevent corrosion.

7.05 Flex Arm Housing shall be constructed of extruded aluminum. Surface shall be powder-coated to prevent corrosion. The arm shall mount into a 2.0” diameter post attached to a steel mounting bracket (1585, 1587, 1597, 1985) or into a PMU (1505, 1507, 1510, 1905, 1910).

7.06 Junction Box will be made of ABS plastic cover with powder coated metal base.

7.07 Air/Water Tubings will be made of Polyurethane or Polyethylene.

7.08 Tray Mount Option arm will be made of aluminum casting that attaches the control head front arm. The tray holder will be made of 1/8” aluminum that will be powder coated finish in light gray. The tray will be made of stainless steel sheet. An anti-skid mat will be provided.

7.09 Foot Control will be made of durable chrome-plated cover and a metal base with 7” polyurethane 3-hole/4-hole tubing.

7.10 PMU Chassis shall be of aluminum plate attached to aluminum block assembly. The covers shall be made of injection-molded plastic.

7.11 The Pneumatic Control Block shall have three or four positions. It shall be constructed of plated brass.

7.12 The 1507, 1577, 1587 and 1597 are hygiene units and shall have the vacuum cannister inside the delivery head. The cannister, strainer and cap are of plastic materials.

7.13 All fasteners shall be made of stainless steel or plated steel.

7.14 All units shall be equipped with 750ml water bottles made of blow-molded plastic. The thread meets beverage standard and bottle is tested to 120 psi.

7.15 Carts (1540, 1550) shall come with 2.0” caster wheels. The delivery unit shall sit on a U-frame constructed of chrome-plated steel tube.

7.16 The side deliveries and rear deliveries (1555, 1522, 1537, 1572, 1577) are mounted to cabinets. The 1560 delivery shall be mounted to a wall.

8.00 CONSTRUCTION (Assistant’s Instrumentation - PMU)

8.01 The instrument hanger will accept two autoclavable HVEs, an autoclavable SE and an quick-clean syringe.

8.02 The debris cup will contain molded fittings which will mate to connections on the HVE and SE for removal of the hose.

8.03 Tubings will be a smooth, polyurethane aseptic with a 1/2” inside diameter. The smooth SE tubing will be supplied with a
quick-disconnect fitting on the debris cup for ease of removal for cleaning.

8.04 HVE Valve will be constructed of aluminum with an anodized finish and will have an independent on/off and flow restrictor shut-off lever on the valve body. The HVE will accept disposable and non-disposable tips with tip insertion end having outside diameter of 7/16”.

8.05 Saliva Ejector Valve will be constructed of aluminum with an anodized finish with an independent on/off shut off lever located on the valve body. The SE valve will accept disposable and non-disposable tips with an outside diameter of 1/4”.

8.06 Utilities and Umbilical will be contained inside the junction box or inside of the cabinetry.

8.07 Drain and vacuum tubing shall be made of PVC.

8.08 Telescoping arm shall be constructed of 1/2” chrome polished steel rod, 1/8” aluminum extrusion tube with white Delrin holder. The holder shall have four positions.

8.09 The 1500 Cuspidor bowl shall be made of ceramic with porcelain glaze.

8.10 The PMU shall support the cuspidor, unit pole, system light and/or monitor.

9.06 Utilities and Umbilical will be contained inside the junction box or inside the sub-base of a cabinet.

9.07 Drain and vacuum tubing shall be made of reinforced PVC. Air and water lines shall be made of Polyurethane or Polyethylene material.

9.08 The RM88, RM89 and RM89S post shall be constructed of 2 1/4” diameter tubular steel to support the cuspidor.

9.09 The ellipse pole shall be mounted to a steel plate articulating arm. The link shall be connected to a steel structure bracket which shall be mounted to the rear end of the chair. Links shall have roller bearings sandwiched between mounting bracket and post to provide rotation of the RM around the chair. When no cuspidor is configured, the post and the links shall be constructed of 1 1/2” diameter tubular steel.

9.10 The pole, link and bracket shall come with powder coated finishes.

9.00 CONSTRUCTION

(Assistant’s Instrumentation - RM87, RM88, RM89, RM89S)

9.01 The instrument hanger will accept two autoclavable HVEs, an autoclavable SE and a quick-clean syringe.

9.02 The debris cup will contain molded fittings which will mate to connections on the HVE and SE for removal of the hose.

9.03 Tubings will be a smooth, polyurethane aseptic with a 1/2” inside diameter. The smooth SE tubing will be supplied with a quick-disconnect fitting on the debris cup for ease of removal for cleaning.

9.04 HVE Valve will be constructed of aluminum with an anodized finish and will have an independent on/off and flow restrictor shut-off lever on the valve body. The HVE will accept disposable and non-disposable tips with tip insertion end having outside diameter of 7/16”.

9.05 SE Valve will be constructed of aluminum with an anodized finish with an independent on/off shut off lever located on the valve body. The SE valve will accept disposable and non-disposable tips with an outside diameter of 1/4”.

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