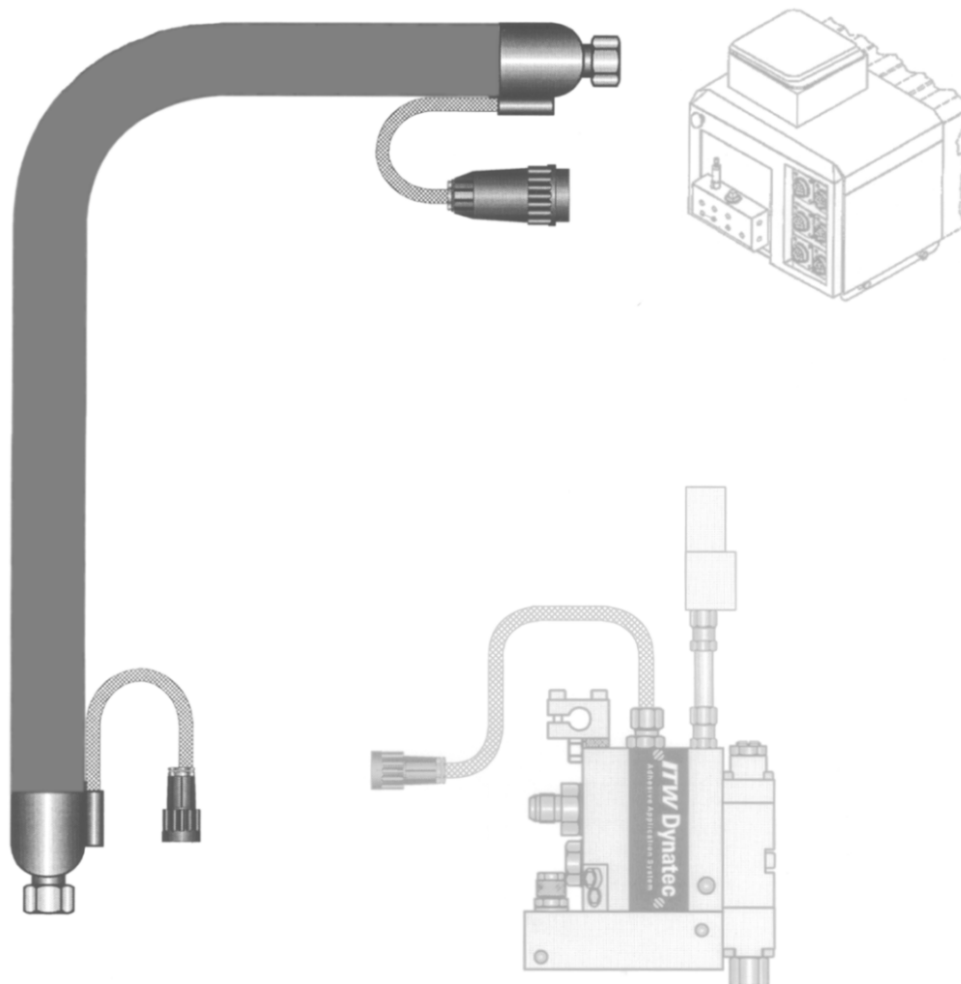




Adhesive Application Solutions | ISO 9001 certified

Dynaflex & Gemini Heated Hoses

Technical Documentation, No. 30-07, Rev.10.23
English - Original instructions



ITW Dynatec
An Illinois Tool Works Company
www.itwdynatec.com

Information about this manual



Read all instructions before operating this equipment!

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.



NOTICE:

Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

NOTICE:

Most common screws, nuts and washers called out in the manual are not for sale and they can be obtained locally at your hardware Store. Specialty fasteners are available by contacting ITW Dynatec's Customer Service.

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Declaration of Conformity

EC declaration of conformity

according to the Machinery Directive 2006/42/EC, Annex II 1. A



Original

The manufacturer bears the sole responsibility for issuing this declaration of conformity

ITW Dynatec

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US - 37203 Hendersonville

Person established in the Community authorised to compile the relevant technical documentation

Andreas Pahl

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Industriestrasse 28

DE - 40822 Mettmann

Description and identification of the machinery

Product / Article	DynaFlex
Type	heated hotmelt hose
Project number	DynaHoses_4-13-2023
Commercial name	DynaFlex
Model	all lengths, all diameters
Function	Convey melted adhesive from a reservoir/pump to an applicator head or metering station

It is expressly declared that the machinery fulfils all relevant provisions of the following EU Directives or Regulations:

2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1) Published in L 157/24 of 6/9/2006
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits Published in 2014/L 96/357 of 3/29/2014
2011/65/EU	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Published in 2011/L 174/88 of 7/1/2011

Reference to the harmonised standards used, as referred to in Article 7 (2):

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016, modified)

Hendersonville, 5/3/2023

Place, Date

Signature
Rushton Heidi
VP/GM

Signature
Wallner Michael
Operations Manager EMEA and Asia

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Chapter 1

Safety Instructions

1.1.General Considerations



- All operators and service personnel must read and understand this manual before operating or servicing equipment.
- All maintenance and service on this equipment must be performed by trained technicians.










Read and adhere to the manual!

1. Read and follow these instructions.
Failure to do this could result in severe personal injury or death.
2. Keep the binding rules for accident prevention valid for your country and the place of installation. Also keep the approved qualified technical rules for safety-conscious and professional work.
3. Additional safety instructions and/ or symbols are located throughout this manual.
They serve to warn maintenance personnel and operators about potentially hazardous situations.
4. Subject to technical modifications without notice!
5. To ensure proper operation of the equipment, use specified electrical supply sources.
6. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.
7. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.






1.2 Safety Symbols in this Manual

Mandatory signs



	General mandatory sign		Wear foot guard!
	Read and adhere to the documentation!		Wear protective gloves!
	Switch the unit voltage-free before working! Main switch OFF!		Wear protective clothing!
	Wear headgear, protective goggles and ear protection!		

Warning signs

NOTE: The dangers and risks exist if the corresponding instructions are not heeded and the precautionary measures are not taken!

	Caution, danger spot! This sign points to possible dangers for life and physical condition or to possible risks for machine and material or to possible risks for environment. The word “ DANGER ” in addition with this points to possible dangers of life The words “ WARNING ” and “ CAUTION ” in addition with this sign point to possible risks of injury. The word “ ADVICE ” in addition with this sign points to possible risks for machine, material or environment.		Danger, high voltage! This sign points to possible dangers for life and physical condition caused by electricity. Risk of injury, mortal danger!
			Caution, hot surface! This sign points to possible risks of burns. Risk of Burns!
			Caution, high pressure! This sign points to possible risks of injury caused by high pressure. Risk of injury!
			Caution, rotating rolls! This sign points to possible risks of injury caused by inrunning nip (at rolls). Risk of injury!

Prohibition signs

	Fire danger! Smoking prohibited!		Fire danger! Fire and open flames prohibited!
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1.3 Safe Installation and Operation



Read and adhere to the manual!

1. Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.
2. To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8" (20cm) or less, see table under Ch. 2.3 Minimum bend radius) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing. Hoses should be spaced apart from each other, not making direct contact.



Smoking, fire and open flames prohibited! Fire danger!

Make absolutely sure that there is no smoking and no fire being lit in the work area!

1.4 Explosion/ Fire Hazard

1. Never operate this unit in an explosive environment.
2. Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only.
3. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

1.5 Use of PUR (Polyurethane) Adhesives








CAUTION

Because of the nature of PUR adhesives to strongly bond in the presence of moisture, care must be taken to prevent them from curing inside ITW Dynatec equipment.

If PUR adhesive solidifies in an equipment, the equipment must be replaced. Always purge old PUR adhesive from the system per your adhesive manufacturer's instructions and time table.

ALLOWING PUR ADHESIVE TO CURE IN A UNIT OR ITS COMPONENTS VOIDS ITW DYNATEC'S WARRANTY.

1.6 Eye Protection & Protective Clothing



WARNING
Eye Protection & Protective Clothing Required

1. It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!
2. Wear a face shield conforming to ANSI Z87.1 or safety glasses with side shields which conform to ANSI Z87.1 or EN166.
3. Failure to wear a face shield or safety glasses could result in severe eye injury.

4. It is important to protect yourself from potential burns when working around hot melt adhesive equipment.
5. Wear heat-resistant protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.
6. Always wear steel-reinforced safety shoes.

1.7 Electrical



DANGER HIGH VOLTAGE

1. Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on.
2. A secure connection to a reliable earth ground is essential for safe operation.
3. An electrical disconnect switch with lockout capability must be provided in the line ahead of the equipment. Wiring used to supply electrical power should be installed by a qualified electrician.
4. Notify the maintenance personnel immediately, if cables are damaged. Provide for exchanging the defective components immediately.

1.8 Lockout/ Tagout



Switch the unit voltage-free before working! Main switch OFF!

1. Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/tagout guidelines.
2. Be familiar with all lockout sources on the equipment.
3. Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute after removing power before servicing electrical capacitors.

1.9 High Temperatures



WARNING HOT SURFACE

1. Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.
2. Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

1.10 High Pressure



WARNING HIGH PRESSURE PRESENT

1. To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (i.e. trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.
2. IMPORTANT NOTE: Even when a system's pressure gauge reads "0" psi, residual pressure and trapped air can remain within it causing hot adhesive and pressure to escape without warning when a filter cap or a hose or hydraulic connection is loosened or removed. For this reason, always wear eye protection and protective clothing.
3. Either of the two High Pressure symbols shown may be used on ITW Dynatec equipment.
4. Keep the given operating pressure.
5. Notify the maintenance personnel immediately, if hoses or components are damaged. Provide for exchanging the defective components immediately.

1.11 Servicing, maintenance

1. Only trained and qualified personnel are to operate and service this equipment.
2. Before any service work disconnect the external power supply and the pressure air supply!
3. Any defects in the equipment that impact safe operation have to be repaired immediately.
4. Check screws that have been loosened during the repair or maintenance, if they are tight again.
5. Adhere to the current safety data sheet of the manufacturer when using hazardous materials (cleaning agents, etc.)!

1.12 Secure transport

1. Examine the equipment immediately after receipt, if it has been delivered in perfect condition.
2. Let damages in transit certify by the carrier and announce them immediately to the ITW Dynatec.
3. The equipment has to cool down to room temperature before packaged and transported.

1.13 Treatment for Burns from Hot Melt Adhesives

Measures after being burned:

1. Burns caused by hot melt adhesive must be treated at a burn center. Provide the burn center's staff a copy of the adhesive's M.S.D.S. to expedite treatment.
2. Cool burnt parts immediately!
3. Do not remove adhesive forcibly from the skin!
4. Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard. Even when first solidified, they are still hot and can cause severe burns.
5. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.
6. Always have first-aid information and supplies available.
7. Call a physician and/or an emergency medical technician immediately. Let the burns medicate by a medic immediately.

1.14 Measures in case of fire


1. Please heed that hot melt equipment may cause heavy burns. Risk of burns!
2. Work very carefully with molten hot melt. Keep in mind, that already jelled hot melt can be very hot, too.
3. When working near a hot melt application system, always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body!

Measures in case of fire:


Wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothes that cover all vulnerable parts of the body.

Firefighting - burning hot melt:

Please keep attention to the safety data sheet given by the adhesive manufacturer.

	<h3>EXTINGUISH FIRE</h3> <p><i>Appropriate extinguishing agents:</i> Foam extinguisher, Dry powder, Spray, Carbon dioxide (CO₂), Dry sand.</p> <p><i>For safety reasons not appropriate extinguishing agents: None.</i></p> <p>Firefighting - burning electrical equipment: <i>Appropriate extinguishing agents:</i> Carbon dioxide (CO₂), Dry powder.</p>
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1.15 Keep attention to environmental protection standards

	<ol style="list-style-type: none">1. When working on or with the equipment, the legal obligations for waste avoidance and the duly recycling / disposals have to be fulfilled.2. Keep attention, that during installations, repairs or maintenance matters hazardous to water, like adhesive / adhesive scrap, lubricating grease or oil, hydraulic oil, coolant and cleaner containing solvent do not pollute the ground or get into the canalization!3. These matters have to be caught, kept, transported and disposed in appropriate reservoirs!4. Dispose these matters according to the international, national and regional regulations.
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Chapter 2

Description and Technical Specs

2.1 Applicable Safety Regulations

2.1.1 Intended Use

The Dynaflex and Gemini heated hoses may be used only to supply suitable materials, e.g. adhesives, from an Adhesive Supply Unit to an Applicator. When in doubt, seek permission from ITW Dynatec.



If the hose is not used in accordance with this regulation, a safe operation cannot be guaranteed.

The operator - and not ITW Dynatec - is liable for all personal injury or property damages resulting from unintended use!



Intended use includes, that you

- read this documentation,
- heed all given warnings and safety instructions.

Any other use is considered to be unintended.

2.1.2 Unintended Use, Examples

The hose may not be used under the following conditions:

- In defective condition.
- In a potentially explosive atmosphere.
- With unsuitable operating/processing materials.
- When the values stated under Specifications are not complied with.

The hose may not be used to process the following materials:

- Toxic, explosive and easily flammable materials.
- Erosive and corrosive materials.
- Food products.

2.1.3 Residual Risks

In the design of the hose, every measure was taken to protect personnel from potential danger. However, some residual risks cannot be avoided.

Personnel should be aware of the following:



- Risk of burns from hot material and hose.
- Risk of burns when attaching and removing heated hoses.
- Material fumes can be hazardous. Avoid inhalation. If necessary, exhaust material vapors and/or provide sufficient ventilation of the location of the system.

2.1.4 Technical changes

Any kind of technical changes having impact to the security or the operational liability of the system should only be done by written agreement of ITW Dynatec. Suchlike changes made without given a corresponding written agreement will lead to immediate exclusion of liability granted by ITW Dynatec for all direct and indirect subsequent damages.

2.1.5 Using foreign components

ITW Dynatec takes no responsibility for consequential damages caused by using foreign components or controllers that have not been provided or installed by ITW Dynatec.

ITW Dynatec does not guarantee that foreign components or controllers used by the operating company are compatible to the ITW Dynatec-system.

2.1.6 Setting-up operation

We recommend asking for an ITW Dynatec-service technician for the setting-up operation, to ensure a functioning system. Let yourself and the people working with or working on the system be introduced to the system on this occasion.

ITW Dynatec takes no responsibility for damages or faults caused by any untrained personal.

2.2 Description

2.2.1 Description Dynaflex and Gemini Hoses

Dynaflex and Gemini hoses are electrically-heated, flexible adhesive supply hoses, designed for the transfer of hot melt material, e.g. adhesives, from an Adhesive Supply Unit (ASU) to an Applicator.

Hoses are heated by resistance heaters, which are wrapped around the hose core and covered with a high-temperature insulation. Hose temperature is regulated by the ASU's controller. A sensor located in the hose provides temperature information to the controller.

The max. operating pressure of the hoses is 1000 psi (69 bar). These hoses provide through wiring for power, sensor and chassis ground in the applicator. All DynaControl hoses feature PT-100 RTD sensors.

Washdown hose models are available. They consist of a standard hose, made water resistant with the addition of a seamless flexible sleeving, sealed end cuffs and liquid-tight electrical conduit and fittings.

Difference of Gemini Hoses:

Gemini hoses are equipped with an extra heater and RTD sensor (circuit) and a switch assembly which allows switching the hose's operation between the two circuits. This provides a backup circuit (alternative circuit) to eliminate downtime and thereby allows an additional time to plan for eventual hose replacement. The operator can select the switch 1 or 2; refer to chapter 2.3 "Using the Gemini Manual Hose's Switch Assembly".

Gemini hoses are water-resistant, made so by their seamless flexible sleeving, sealed end cuffs and liquid-tight electrical conduit and fittings.



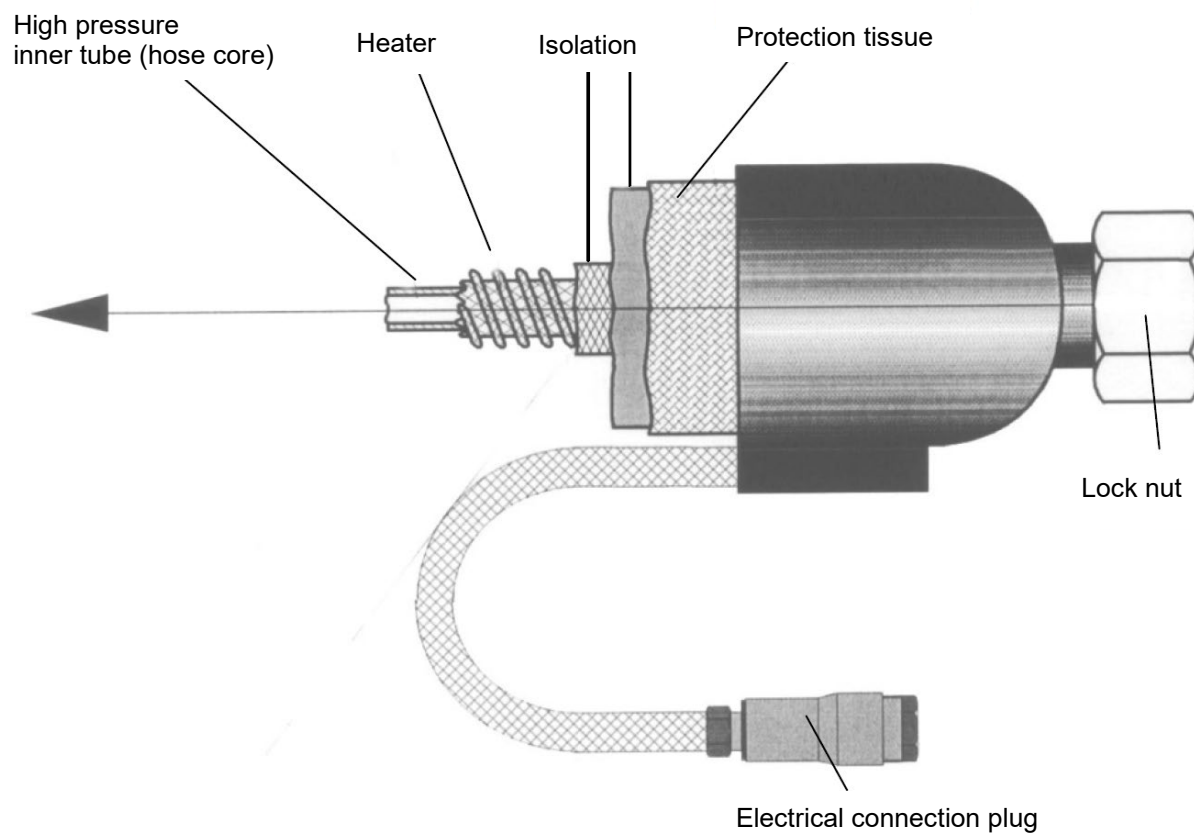


Illustration: Hose components

2.2.2 Specifications

Environmental:

Storage/ shipping temperature -40°C to 70°C (-40°F to 158°F)
Ambient service temperature -7°C to 50°C (20°F to 122°F)

Physical:

Sensor 100 Ohm Platinum RTD (coefficient: 0.00385 Ohm/ Ohm/°C)
Flex hose..... Smooth inner core of extruded TFE (nominal thickness 0.030)
with type 304 stainless steel wire braid reinforcement.

Electrical:

Wiring Uses 1000 VAC 500°F (260°C) nickel-plated copper
multi-strand, TFE insulated.

Performance

Max. operating temperature of standard hoses 400°F (204°C)
Max. operating temperature of High-Temp/ VHT hoses 450°F (232°C)
Bend radius see table under chapter Installation 2.3 /
Minimum bend radius
CE Conformity yes

Max. Operating Pressures and Min. Burst Pressures at 400°F (204°C):








Hose Core	Max. Operating Pressure	Min. Burst Pressure
06	2075 psi (143 bar)	8300 psi (572 bar)
08	1660 psi (114 bar)	6640 psi (458 bar)
12	996 psi (69 bar)	3984 psi (275 bar)
16	830 psi (57 bar)	3320 psi (229 bar)
24	344 psi (24 bar)	3000 psi (207 bar)
HP 06-16	3750 psi (259 bar)	10500 psi (724 bar)
HP 24	3000 psi (207 bar)	9000 psi (621 bar)


Max. Operating Pressures and Min. Burst Pressures at 450°F (232°C):


Hose Core	Max. Operating Pressure	Min. Burst Pressure
HT 06	3042 psi (210 bar)	12168 psi (834 bar)
HT 08	2808 psi (194 bar)	11232 psi (774 bar)
HT 12	2769 psi (191 bar)	11248 psi (776 bar)
HT 16	1716 psi (118 bar)	8736 psi (602 bar)

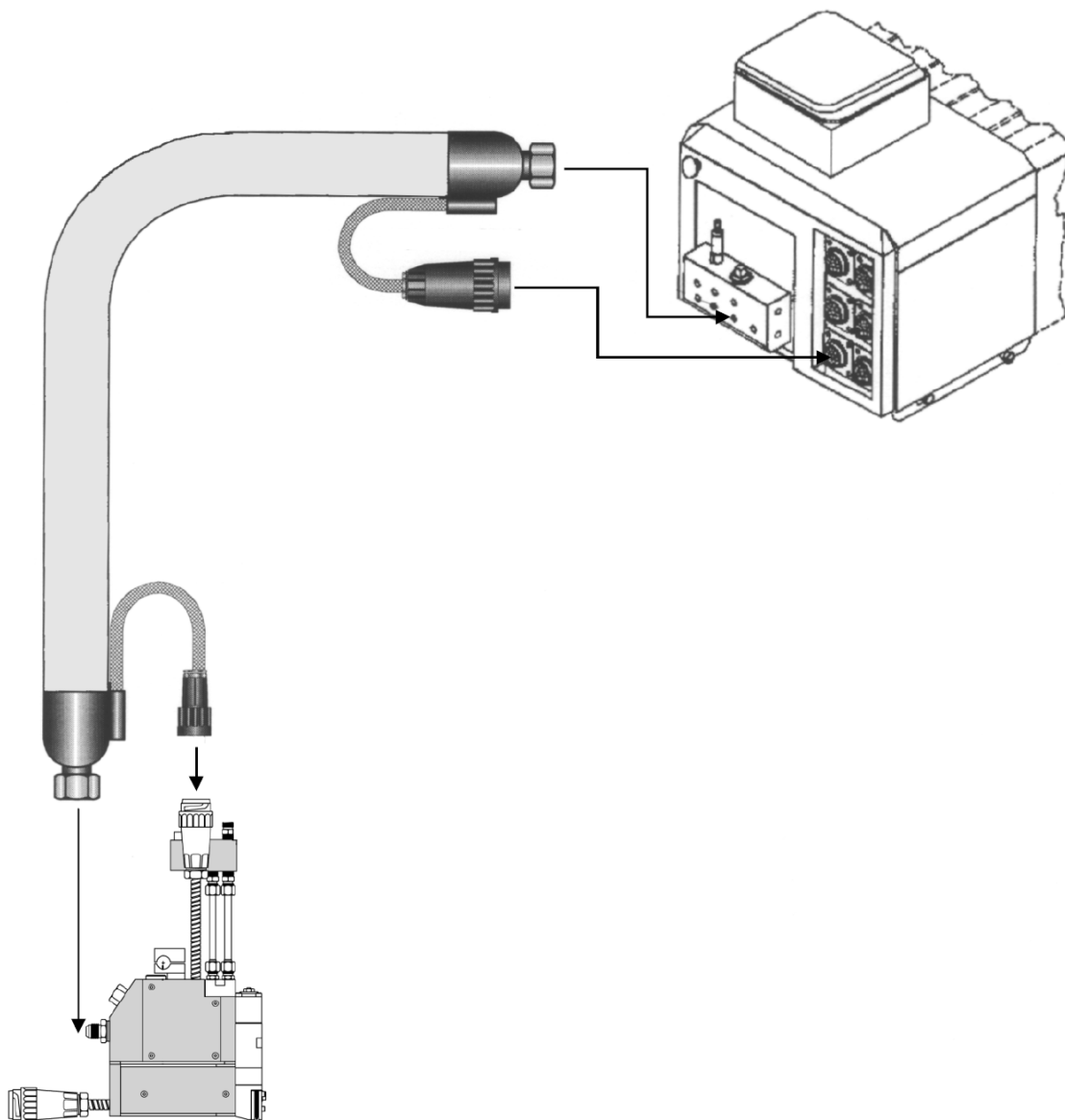
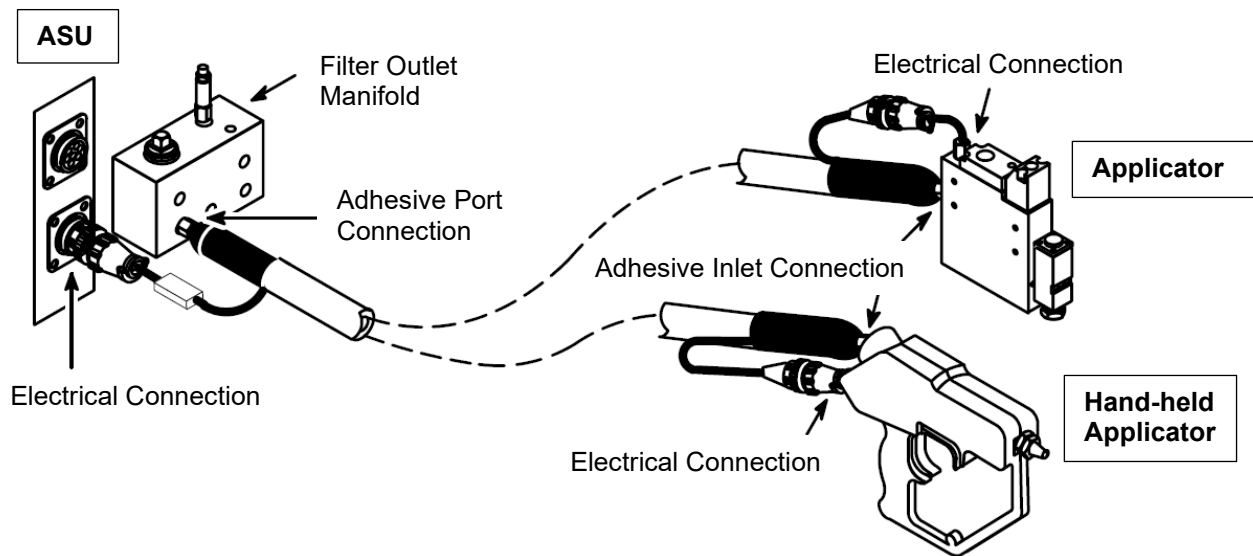
2.3 Installation Instructions

2.3.1 Typical Installation

 	<p>All work on or with this unit is only permitted for skilled personnel! Heed all safety instructions mentioned in chapter 1.</p>
 	<p>Always wear safety shoes, heat-resistant protective gloves, safety goggles and protective clothing when working on or with the unit. Risk of burns and risk of injury!</p>
 	<p>Risk of electric shocks! Risk of injury, Mortal danger!</p> <p>The hoses and ASU components are getting very hot during operation! Risk of burns!</p>
	<p>The adhesive is very hot and pressurized! Risk of burns and risk of injury! At working temperature, molten adhesive could cause heavy burns. Let spilled out adhesive cool down first, before removing it!</p>

	<p>DANGER HIGH VOLTAGE</p> <p>ITW Dynatec systems use electrical power that can be life threatening. Disconnect and lock out input power to the application system before connecting, disconnecting or troubleshooting any hose(s).</p>
--	---

	<p>CAUTION</p> <ul style="list-style-type: none"> • Before installing any hose to an ASU, make sure the ASU's power switch is OFF. • Connect hoses according to electrical schematics of the ASU. • Never connect or disconnect plug-and-socket connections under load! • When tightening hose swivel fittings, hold the hose and cuff to prevent the hose from rotating. • If the hose is cold and contains adhesive, it may be damaged if bent. To avoid this, turn on power to the hoses and wait until the ASU's readout indicates that they are at operating temperature before routing them around surrounding machinery. • Do not allow hose to be covered by machinery or by any type of solid conduit, pipe, tubing, etc. • Refer to Chapter Hose Installation and Handling Guidelines on next pages. • Route hoses heeding bend radius given in the table under Ch. 2.3 / Minimum bend radius on next pages. Do not hang hoses without proper support. • Maintain a minimum of 1/2" (13 mm) clearance between adjacent hoses. • Do not crimp, clamp, squeeze or tie hoses. • Do not bound and/or press hoses together and/or stacked one on the other. • Check all screw connections at the unit and retighten if necessary. • Lay the cables and heated hoses so that no risk or least possible risk of stumbling occurs. • Refer to the adhesive application unit's manual for hose installation location, instructions and an illustration specific to your ASU. • Dynaflex and Gemini hoses connect to the ASU with both an adhesive port connection on the filter outlet manifold and a 15-pin electrical connector. The opposite end of the hose connects to the applicator (head or handgun) with both an adhesive inlet connection and a 9-pin electrical connector. • Refer to the Hose Installation Diagram on next page as a general guide. • Observe the cautions above when connecting and routing adhesive hoses.
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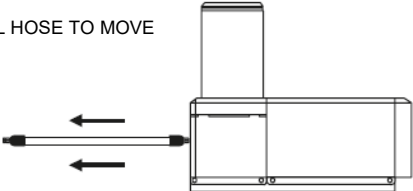
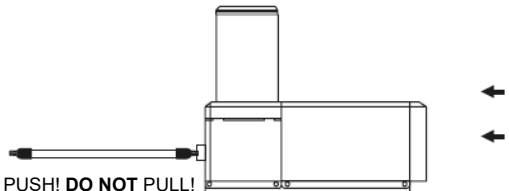
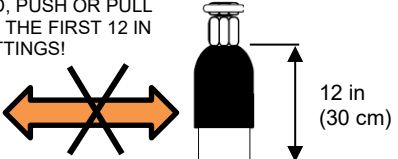
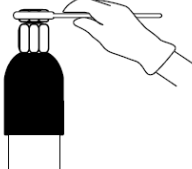



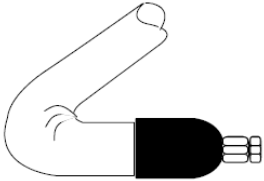
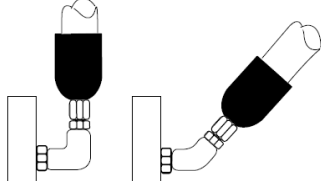
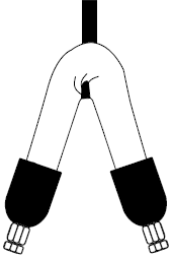
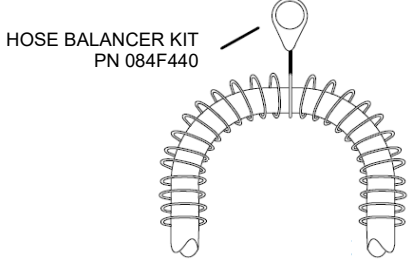


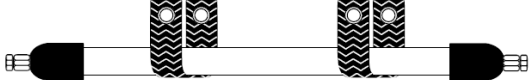
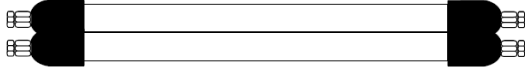

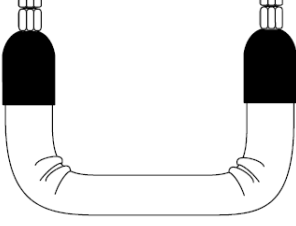
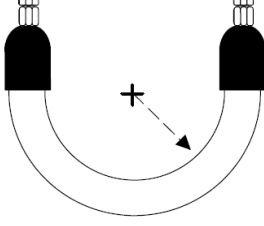
Hose Installation Diagram: ASU to Automatic or Hand Applicator

2.3.2 Hose Installation and Handling Guidelines**CAUTION**

- **DO NOT** attempt to turn the fitting on a hose with cold, non-melted adhesive inside; the hose core may be damaged.
- **DO NOT** allow hoses to come into contact with any liquids. If a hose becomes wet, it should be replaced immediately. (Washdown hoses are not subject to this requirement unless the waterproof sleeve is damaged.)
- **DO NOT** allow hoses to lay on cold surfaces as this may impede glue flow, cause a hose to operate above its temperature set point and reduce the efficiency and life of a hose.
- **DO NOT** allow hoses to be exposed to surfaces that may cause abrasive wear. If a hose shows abrasive wear, it may have internal damage that may result in erratic operation, injury and damage to equipment due to exposed electrical wires, burning or fire.
- **Failure to follow installation and handling guidelines WILL void the hose warranty, reduce the life of the hose and may result in injury and damage to equipment resulting from char, burning or fire.**

ATTENTION: Hose failure due to below listed “Wrong” practices will void hose warranty!

WRONG	CORRECT
<p>DO NOT PULL HOSE TO MOVE UNIT!</p> 	 <p>PUSH! DO NOT PULL!</p>
<p>DO NOT BEND, PUSH OR PULL HOSE WITHIN THE FIRST 12 IN (30 cm) OF FITTINGS!</p>  <p>12 in (30 cm)</p>	
<p>DO NOT USE ONLY ONE WRENCH TO ADJUST FITTINGS!</p> 	 <p>ALWAYS USE TWO WRENCHES TO ADJUST FITTINGS.</p>

WRONG	CORRECT
 <p>DO NOT BEND OR CRIMP HOSE BEYOND MINIMUM BEND RADIUS!</p>	 <p>USE 45° HOSE FITTING (PN N07831) OR 90° HOSE FITTING (PN N07830) TO BEND HOSE.</p>
 <p>DO NOT HANG HOSE WITHOUT SUPPORT!</p>	 <p>USE HOSE SUPPORT WITH HOSE BALANCER KIT TO HANG HOSE.</p>
 <p>DO NOT CLAMP, SQUEEZE OR TIE HOSES!</p> 	<p>USE HOSE SUPPORTS (5-pack is PN 113342)</p> 
<p>DO NOT SQUEEZE, PRESS OR TIE HOSES TOGETHER!</p> 	<p>ALLOW 1/2" (13 MM) MINIMUM SPACE BETWEEN HOSES.</p> 
 <p>DO NOT FLEX HOSES WHEN COLD!</p>	 <p>ALLOW HOSES TO HEAT UP BEFORE FLEXING!</p>

2.3.3 Minimum bend radius

The minimum bend radius should be as follow:

Hose	Hose Core	Minimum Bend Radius
#6	0.313 in / DN8	8 in / 20cm
#8	0.406 in / DN10	10 in / 25cm
#12	0.625 in / DN16	11 in / 28cm
#16	0.875 in / DN20	14 in / 36cm
#24	1.375 in / DN32	15 in / 38cm

2.3.4 Using the Gemini Manual Hose's Switch Assembly



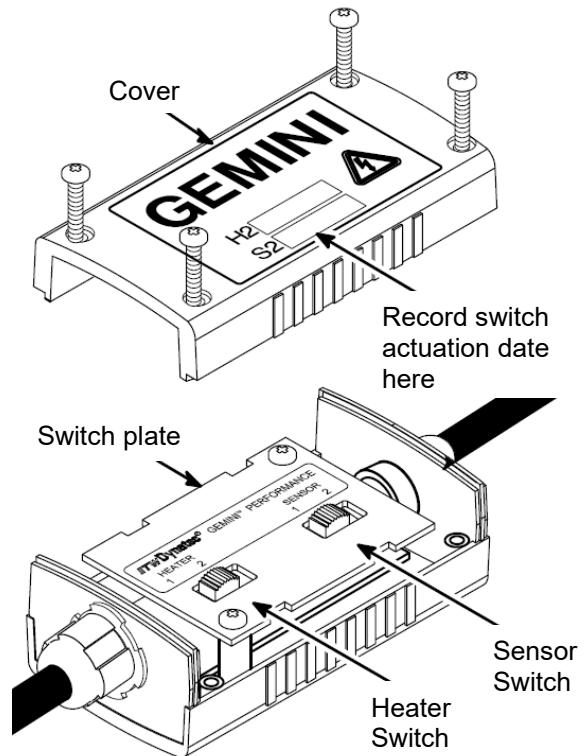
NOTE: Once it has been determined that either the heater or the RTD sensor is faulty in a Gemini Manual hose, use the appropriate switch within the Gemini switch box to toggle between the hose's two heaters or sensors.

Procedure to toggle:

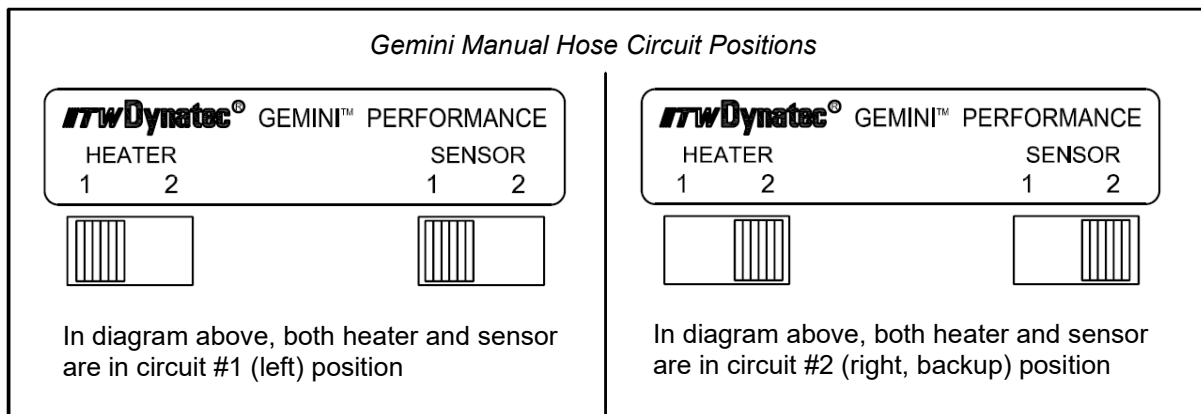
1. Loosen the four screws in the corners of the Gemini switch box. Remove switch box cover.
2. Locate the switch of the faulty component (heater or sensor).
3. Toggle the switch from circuit #1 position to circuit #2 position. See illustration below.

NOTE: Switches are always in position #1 when hose is shipped from ITW Dynatec's factory. Position #2 is the backup circuit.

4. Re-install switch box cover.
5. On the switch box cover label, record the date of circuit #2 actuation in the space provided for H2 or S2.



Gemini Manual Hose Switch Assembly



2.4 Disconnecting the Hose from ASU or Applicator



WARNING! HIGH PRESSURE! HOT ADHESIVE! RISK OF BURNS AND INJURY!

- Always wear heat-resistant protective gloves, safety goggles (or face shield) and protective clothing!
- Parts of the unit can be hot long after switching off. Molten adhesives at operating temperature could cause heavy burns.
- Do not touch the hot surfaces or parts without wearing heat-resistant protective gloves!
- **Never attempt to disconnect a hose from its adhesive port without first assuring that all system pressure has been relieved.**
- **When disconnecting a hose or hose cap, hot adhesive can escape from both the manifold and from the end of the hose under high pressure. Stand clear until all pressure is relieved.**

Effect following steps to disconnect a hose from ASU or Applicator:

1. Before disconnecting a hose, turn the ASU's pump/motor OFF.
2. Relieve the adhesive pressure in the system, by manually activating the solenoid valve of the applicator and letting the residual adhesive to flow out.
3. Disconnect the hose.

Chapter 3

Troubleshooting

3.1 Hose Troubleshooting Tip

Hose problems can be isolated by electrically connecting the hose to an alternate socket on the ASU. If the malfunction goes with the hose, the problem will usually be in the hose that was moved. If the malfunction does not move with the hose, the problem is probably in the ASU.

3.2 Troubleshooting Heaters and RTD Sensors in Dynaflex Hoses



DANGER HIGH VOLTAGE

Disconnect and lock out input power to the application system before proceeding with these instructions.

The Hoses and Adhesive Supply Unit use electrical power that can be life threatening and hot-melt adhesives that can cause serious burns.

All troubleshooting procedures must be performed by qualified, trained technicians. Please re-read all security advices given in Chapter 1 before performing any troubleshooting procedures.



WARNING! HIGH PRESSURE, HOT ADHESIVE!

Some of the procedures in the following Troubleshooting Guide require working near hot adhesive. Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

When disconnecting a hose or hose cap, hot adhesive can escape from both the manifold and from the end of the hose under high pressure. Stand clear until all pressure is relieved.

Face shields (preferred) or safety glasses (for minimum protection), heat-resistant protective gloves and long-sleeved clothing must be worn whenever working with or around adhesive application systems.

Troubleshooting Guide**Preliminary Checks**

Verify the following before proceeding:

- All pneumatic and electrical connections are correct.
- The ASU is supplied with power and the main power switch is ON.
- Adhesive is in the hopper and the ASU's pump is ON.
- The ASU and Applicator have sufficient air pressure.
- The temperature controller is in operation. The setpoints are correct for the application, ASU, Heated Hoses and Applicators. All components are heating properly.

Problem	Possible Cause	Solution
Hose does not reach operating temperature.	<ol style="list-style-type: none"> 1. Temperature adjustment on DynaControl is not correct. 2. Connector from hose to ASU is not plugged on correctly. 3. Heater in hose defect. 4. Temperature sensor defect. 5. Mechanical damage to the hose insulating. 6. Standby on DynaControl activated. 	<ol style="list-style-type: none"> 1. Check temperature adjustment and adjust if necessary. 2. Check connector. 3. Check heater. 4. Check temperature sensor. 5. Check hose and replace if necessary. 6. Activate operating temperature.
No adhesive flowing out of hose.	<ol style="list-style-type: none"> 1. Hose has kinks. 2. Adhesive pressure too low. 	<ol style="list-style-type: none"> 1. Check hose if kinked. 2. Check operating temperature and pressure adjustment.

Measuring Resistance

The ITW Dynatec's adhesive hoses are designed with built-in heater and sensor backups to aid the user in the event of a failure in these two components.

Follow the following procedure to determine if the failure of a hose is due to a faulty heater or RTD sensor.

Note, if the hose is a Gemini hose: Follow the procedure before switching between the two heaters and sensors in the Gemini switch assembly.

1. Make sure that incoming line power to the ASU and that the unit's Main Power Switch are turned OFF.
2. Disconnect hose from ASU or applicator following the instructions outlined in Ch. 2.4 "Disconnecting the Hose from ASU or Applicator".
3. Test resistance using the pins within the hose connector:

a. To determine RTD sensor failure (Resistance measurement at the temperature sensor):

- The temperature sensor in Dynacontrol hoses is a 100 Ohm platinum RTD. The temperature coefficient is 0.00385 Ohms/ Ohm/ °C.
- When temperature sensor resistance is being verified, refer to the Resistance Table on next pages.
- The resistance value (Ohms) of your temperature sensor depends on the temperature of the sensor at the time it is being tested. The resistance of a DCL PT 100 (Platinum) sensor should be 110 Ohms at 25°C (77°F).
- With an ohmmeter, contact pins 9 and 10 and measure resistance. A tolerance range of ± 5% is allowed.
- Refer to the ASU service manual for system wattage limitations.

b. To determine heating failure (Resistance measurement at the heating):

- With an ohmmeter, contact pins 11 and 12 and measure resistance. Heating circuit resistance is listed on the red hose warranty tag attached to the adhesive supply unit end of the power cord. A tolerance range of ± 10% is allowed.
- The resistance value (Ohms) of your heater cartridge may be calculated using the formula:

$$\frac{\text{Voltage}^2 (\text{Volts}^2)}{\text{Power (Watts)}} = \text{Resistance (Ohm)}$$

3.3 Circular plug, DCL

The connectors shown from the front:

Female
Applicator side

1	Trigger, impulse only for electrical head
2	Trigger, impulse only for electrical head
3	NC
4	NC
5	Head sensor PT100
6	Head sensor PT100
7	Head heater
8	Head heater
⏏	Ground / protective conductor

Male
Melter side

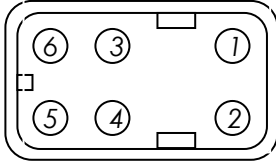
1	Trigger, impulse only for electrical head
2	Trigger, impulse only for electrical head
3	NC
4	NC
5	Head sensor PT100
6	Head sensor PT100
7	Head heater
8	Head heater
9	Hose sensor PT100
10	Hose sensor PT100
11	Hose heater
12	Hose heater
13	NC
14	NC
⏏	Ground / protective conductor

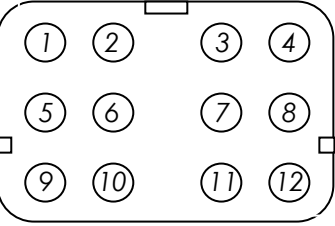
3.4 Resistance Table Temperature Sensor PT100 RTD IEC 751 / DIN EN 60751

Temp. °C	Resistance in Ω									
	0	1	2	3	4	5	6	7	8	9
20	107,79	108,18	108,57	108,96	109,35	109,73	110,12	110,51	110,90	111,28
30	111,67	112,06	112,45	112,83	113,22	113,61	113,99	114,38	114,77	115,15
40	115,54	115,93	116,31	116,70	117,08	117,47	117,85	118,24	118,62	119,01
50	119,40	119,78	120,16	120,55	120,93	121,32	121,70	122,09	122,47	122,86
60	123,24	123,62	124,01	124,39	124,77	125,16	125,54	125,92	126,31	126,69
70	127,07	127,45	127,84	128,22	128,60	128,98	129,37	129,75	130,13	130,51
80	130,89	131,27	131,66	132,04	132,42	132,80	133,18	133,56	133,94	134,32
90	134,70	135,08	135,46	135,84	136,22	136,60	136,98	137,36	137,74	138,12
100	138,50	138,88	139,26	139,64	140,02	140,39	140,77	141,15	141,53	141,91
110	142,29	142,66	143,04	143,42	143,80	144,17	144,55	144,93	145,31	145,68
120	146,06	146,44	146,81	147,19	147,57	147,94	148,32	148,70	149,07	149,45
130	149,82	150,20	150,57	150,95	151,33	151,70	152,08	152,45	152,83	153,20
140	153,58	153,95	154,32	154,70	155,07	155,45	155,82	156,19	156,57	156,94
150	157,31	157,69	158,06	158,43	158,81	159,18	159,55	159,93	160,30	160,67
160	161,04	161,42	161,79	162,16	162,53	162,90	163,27	163,65	164,02	164,39
170	164,76	165,13	165,50	165,87	166,24	166,61	166,98	167,35	167,72	168,09
180	168,46	168,83	169,20	169,57	169,94	170,31	170,68	171,05	171,42	171,79
190	172,16	172,53	172,90	173,26	173,63	174,00	174,37	174,74	175,10	175,47
200	175,84	176,21	176,57	176,94	177,31	177,68	178,04	178,41	178,78	179,14
210	179,51	179,88	180,24	180,61	180,97	181,34	181,71	182,07	182,44	182,80

3.5 Rectangular plug, NDSN

The connectors shown from the front:

Female <i>Applicator side</i>	
	1 Head heater
	2 Head heater
	3 Head sensor Ni 120
	4 Head sensor Ni 120
	5 NC
	6 Ground / protective conductor

Male <i>Melter side</i>	
	1 Head heater
	2 Head heater
	3 Head sensor Ni 120
	4 Hose heater
	5 NC
	6 Hose heater
	7 Ground / protective conductor
	8 Hose sensor Ni 120
	9 NC
	10 NC
	11 Hose sensor Ni 120
	12 Head sensor Ni 120

3.6 Resistance Table Temperature Sensor Ni120 RTD

Temp. °C	Resistance in Ω										
	0	1	2	3	4	5	6	7	8	9	10
0	120,0	120,7	121,4	122,1	122,9	123,6	124,3	125,0	125,7	126,4	127,2
10	127,2	127,9	128,6	129,4	130,1	130,8	131,6	132,3	133,0	133,8	134,5
20	134,5	135,3	136,0	136,8	137,5	138,3	139,0	139,8	140,5	141,3	142,1
30	142,1	142,8	143,6	144,4	145,1	145,9	146,7	147,5	148,2	149,0	149,8
40	149,8	150,6	151,4	152,2	153,0	153,8	154,5	155,3	156,1	156,9	157,8
50	157,8	158,6	159,4	160,2	161,0	161,8	162,6	163,4	164,3	165,1	165,9
60	165,9	166,7	167,6	168,4	169,2	170,1	170,9	171,7	172,6	173,4	174,3
70	174,3	175,1	176,0	176,8	177,7	178,5	179,4	180,3	181,1	182,0	182,9
80	182,9	183,7	184,6	185,5	186,3	187,2	188,1	189,0	189,9	190,8	191,6
90	191,6	192,5	193,4	194,3	195,2	196,1	197,0	197,9	198,8	199,7	200,6
100	200,6	201,6	202,5	203,4	204,3	205,2	206,1	207,1	208,0	208,9	209,9
110	209,9	210,8	211,7	212,7	213,6	214,5	215,5	216,4	217,4	218,3	219,3
120	219,3	220,3	221,2	222,2	223,1	224,1	225,1	226,0	227,0	228,0	229,0
130	229,0	229,9	230,9	231,9	232,9	233,9	234,9	235,9	236,8	237,8	238,8
140	238,8	239,8	240,8	241,9	242,9	243,9	244,9	245,9	246,9	247,9	249,0
150	249,0	250,0	251,0	252,0	253,1	254,1	255,1	256,2	257,2	258,3	259,3
160	259,3	260,3	261,4	262,5	263,5	264,6	265,6	266,7	267,8	268,8	269,9
170	269,9	271,0	272,1	273,1	274,2	275,3	276,4	277,5	278,6	279,7	280,8
180	280,8	281,9	283,0	284,1	285,2	286,3	287,4	288,6	289,7	290,8	292,0
190	292,0	293,1	294,2	295,4	296,5	297,7	298,8	300,0	301,1	302,3	303,5
200	303,5	304,6	305,8	307,0	308,2	309,3	310,5	311,7	312,9	314,1	315,3
210	315,3	316,5	317,7	318,9	320,2	321,4	322,6	323,8	325,1	326,3	327,5
220	327,5	328,8	330,0	331,3	332,5	333,8	335,1	336,3	337,6	338,9	340,1
230	340,1	341,4	342,7	344,0	345,3	346,6	347,9	349,2	350,5	351,8	353,1
240	353,1	354,5	355,8	357,1	358,5	359,8	361,1	362,5	363,8	365,2	366,5

Chapter 4

Available Options & Accessories

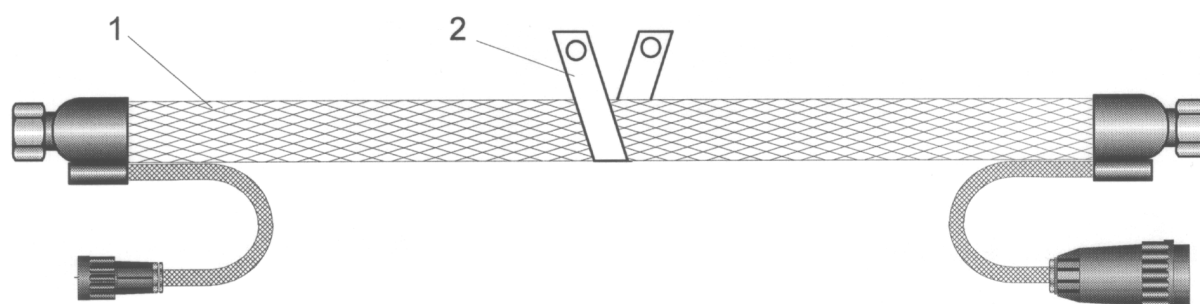
4.1 Dynaflex Hoses

4.1.1 Typical Dynaflex DynaControl Hoses

The following hose charts list part numbers (PN), length, resistance, voltage and wattage of the most commonly-used Dynaflex DynaControl (DCL) hoses.

Standard Hoses, #6 (ID 0.313" (7.95 mm) / DN8) for *Dynamini*, *Dynamelt S*, *D* & *M* Series DCL ASU

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 240 V (AC)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
102137	0.6	2	790 - 927	67 W	62 W
101083	1.2	4	466 - 544	114 W	105 W
101084	1.8	6	279 - 326	190 W	175 W
101085	2.4	8	236 - 275	225 W	207 W
101086	3.1	10	189 - 221	281 W	258 W
101087	3.7	12	155 - 181	342 W	315 W
101088	4.9	16	118 - 137	452 W	413 W
102138	6	20	95.6 - 112	555 W	509 W
101089	7.3	24	77.3 - 90.2	688 W	630 W



Item	PN	Description
1	Optional	Hose
2	113342	Hanger strap kit (it consists of five hanger straps)

Hoses, #6 (ID 0.313" (7.95 mm) / DN8) for Dynamini DCL ASU, 120V:

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 120 V (AC)
	Meters	Feet		
105951	0.6	2	219 - 256	61 W
102437	1.2	4	115 - 134	116 W
102438	1.8	6	76.1 - 88.8	137 W
102439	2.4	8	58.1 - 67.8	229 W
102440	3.1	10	47.3 - 55.2	281 W
102441	3.7	12	38.3 - 44.7	347 W
109483	4.9	16	29.8 - 34.8	446 W

Hoses, #6 (ID 0.313" (7.95 mm) / DN8) for Dynamelt S & D Series and Dynamini DCL ASU, 200V:

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 200 V (AC)
	Meters	Feet		
109895	0.6	2	539 - 629	69 W
109896	1.2	4	316 - 369	117 W
109897	1.8	6	213 - 249	173 W
109898	2.4	8	150 - 176	245 W
109899	3.1	10	129 - 151	286 W
109900	3.7	12	109 - 127	339 W
109901	4.9	16	76.2 - 88.9	485 W
109903	6	20	64.3 - 75.1	574 W
109904	7.3	24	54.3 - 63.4	680 W

Hoses, #8 (ID 0.406" (10.31 mm) / DN10) for DCL (Optional for Dynamelt M Series ASUs only):
Also requires a PN 103949 Fitting (8 JIC)

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 240 V (AC)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
103316	1.2	4	301 - 351	177 W	162 W
103317	1.8	6	206 - 241	258 W	236 W
103318	2.4	8	161 - 178	340 W	311 W
103319	3.1	10	126 - 147	422 W	386 W
103320	3.7	12	103 - 121	514 W	472 W
103321	5.5	18	67.9 - 79.3	783 W	715 W
103322	7.3	24	52.8 - 61.6	1007 W	928 W
106030	9.1	30	40.0 - 46.6	1330 W	1230 W
106031	11	36	33.2 - 38.8	1600 W	1469 W
106176	12	40	30.8 - 35.9	1727 W	1603 W

Hoses #12 (ID 0.625" (15.88mm) / DN16) for DCL (Optional for Dynamelt M Series ASUs only):
PN 110901 Fitting is available for high flow applications.

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 240 V (AC)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
105236	1.8	6	179 - 208	298 W	273 W
105237	2.4	8	169 - 187	324 W	297 W
105238	3.1	10	148 - 164	369 W	339 W
105239	3.7	12	119 - 132	459 W	720 W
106363	4.3	14	89.7 - 99.1	610 W	563 W
105240	5.5	18	66.8 - 73.9	819 W	756 W
105241	7.3	24	56.7 - 62.7	965 W	882 W

Hoses #6 (ID 0.313" (7.95 mm) / DN8) for DCL (Optional for Dynamelt M Series ASUs only):

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 200/ 240 V (AC) (for 1. / 2. Voltage)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
105187	9.1	30	56.2 - 65.6	659 / 946 W	867 W
106216	11	36	51.9 - 60.5	712 / 1025 W	945 W
105601	12	40	45.4 - 53.0	813 / 1171 W	1080 W

Spray (Swirl) Hoses #6 (ID 0.313" (7.95 mm) / DN8) for Standard Dynamini, Dynamelt S, D & M Series DCL ASUs, 200/240V

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 200/ 240 V (AC) (for 1. / 2. Voltage)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
102173	2.4	8	236 - 275	156 / 225 W	207 W
102174	3.1	10	189 - 221	195 / 281 W	258 W
102175	3.7	12	155 - 181	270 / 343 W	315 W
102176	4.9	16	118 - 137	314 / 452 W	413 W
102177	6	20	95.6 - 112	385 / 555 W	509 W
102178	7.3	24	77.3 - 90.2	478 / 688 W	630 W

Spray (Swirl) Hoses #6, (ID 0.313" (7.95 mm) / DN8) for Dynamini DCL ASUs, 100/120V

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 100/ 120 V (AC) (for 1. / 2. Voltage)
	Meters	Feet		
102442	2.4	8	58.1 - 67.8	159 / 229 W
102443	3.1	10	47.3 - 55.2	195 / 281 W
102444	3.7	12	38.3 - 44.7	241 / 347 W
112911	6	20	22.6 - 26.4	408 / 588 W

4.1.2 Abrasion Resistant DynaControl Hoses, #6 (ID 0.313" (7.95 mm) / DN8)

Length		PN for 120V Bead Applicator	PN for 120V Spray Applicator	PN for 200/240V Bead Applicator	PN for 200/240V Spray Applicator
Meters	Feet				
1.8	6	104633	n. a.	104561	n. a.
2.4	8	104634	104637	104562	104640
3.1	10	104635	104638	104563	104641
3.7	12	104636	104639	104564	104642
4.9	16	n. a.	n. a.	104565	104643
6	20	112912	112913	104566	104644
7.3	24	n. a.	n. a.	104567	104645

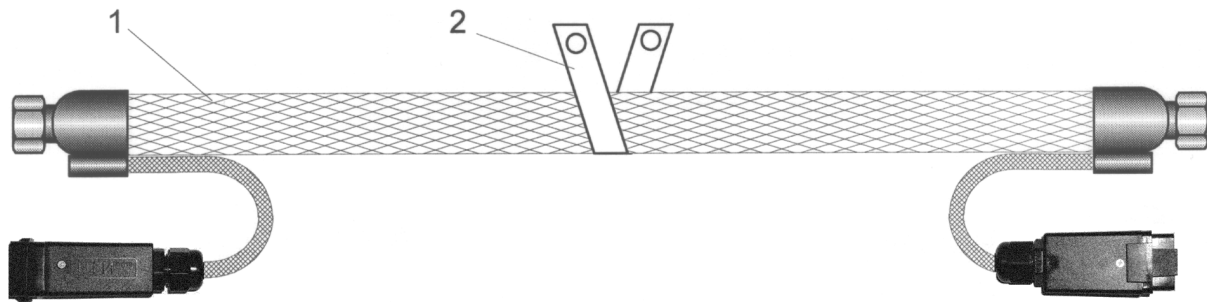
* n. a. = not available.

4.1.3 Washdown DCL Hoses, #6 (ID 0.313" (7.95 mm) / DN8)

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 200/ 240 V (AC) (for 1. / 2. Voltage)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
105089	0.6	2	790 - 921	47 / 67 W	62 W
105133	1.2	4	466 - 544	79 / 114 W	105 W
103710	1.8	6	279 - 326	132 / 190 W	175 W
103711	2.4	8	236 - 275	157 / 225 W	207 W
103712	3.1	10	189 - 221	195 / 281 W	258 W
103713	3.7	12	155 - 181	238 / 342 W	315 W
103714	4.9	16	118 - 137	314 / 452 W	413 W
103716	6	20	95.3 - 112	385 / 555 W	509 W
103717	7.3	24	77.1 - 90.2	478 / 688 W	630 W

4.1.4 Challenger Hoses (ID 0.313" (7.95 mm) / DN8), Sensor Ni 120

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 240 V (AC)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
100120 / 15321	1.2	4	466 – 544	114 W	105 W
100121 / 15322	1.8	6	279 – 326	190 W	175 W
100122 / 15323	2.4	8	236 – 275	225 W	207 W
100123	3.1	10	189 – 221	281 W	258 W
100124	3.7	12	155 – 181	343 W	315 W
100125	4.9	16	118 – 137	450 W	413 W
107842	6	20	95.6 – 112	554 W	509 W
100126	7.3	24	77.3 – 90.2	686 W	630 W
107843	9.2	30	56.2 – 65.5	944 W	867 W



Item	PN	Description
1	Optional	Hose
2	113342	Hanger strap kit (it consists of five hanger straps)

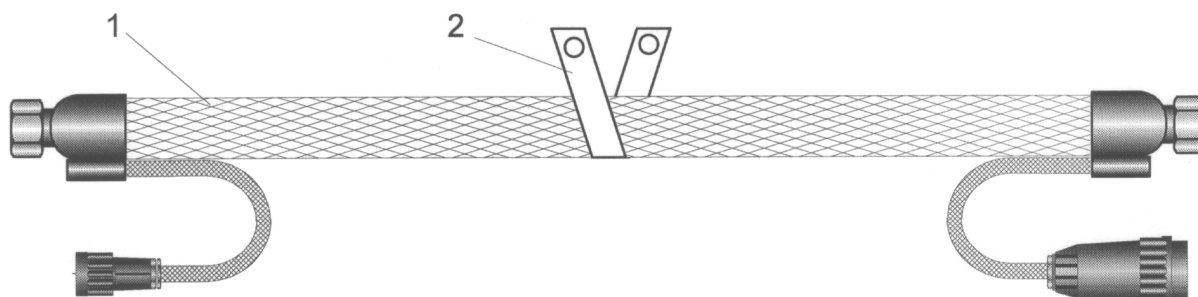
4.1.5 Spray (Swirl) Air Regulator Kit

An air control kit, consisting of a regulator and a choice of three solenoid valves (see chart below) is available for swirl applications. To order, specify both regulator and solenoid valve part numbers.

PN	Description	Voltage
084M008	Regulator	-
Select one of the following solenoid valves:		
030A014	Pneumatic solenoid valve, 3 way	120 V
030A013	Pneumatic solenoid valve, 3 way	240 V
030A016	Pneumatic solenoid valve, 3 way	24 V

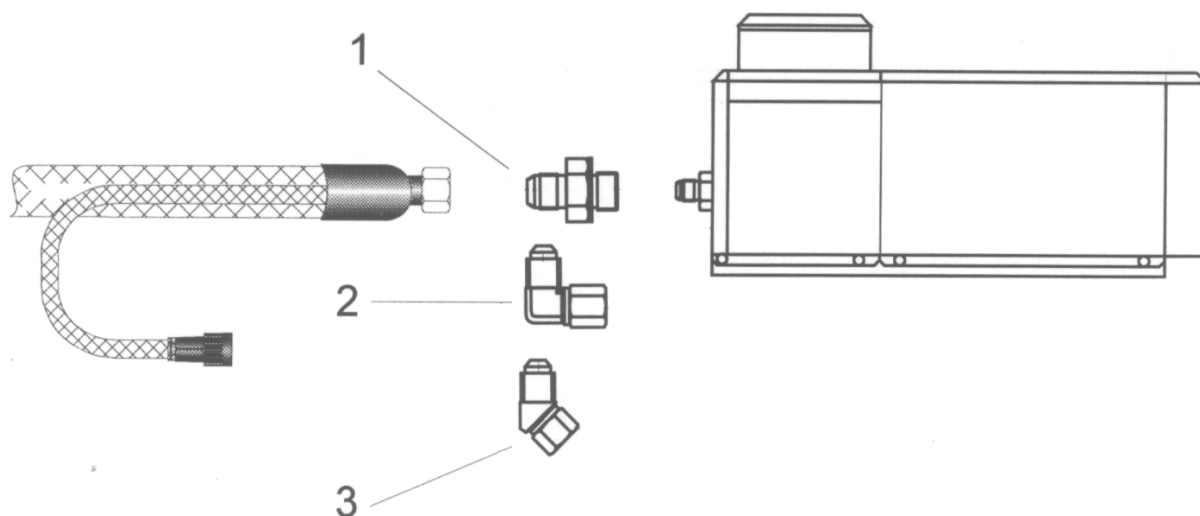
4.1.6 Hanger Strap Kit PN 113342

In applications where a hose is routed through or over a machine, straps may be used to suspend it to prevent the hose from laying on the ground or on machinery. Nylon hanger straps are recommended, set at an interval of every four feet (1.2 m). The strap kit consists of five hanger straps.



Item	PN	Description
1	Optional	Hose
2	113342	Hanger strap kit (it consists of five hanger straps)

4.1.7 Accessories



Item	PN	Description
1	101624 (07.00600.120)	Hose fitting adapter, straight G1/4 – 9/16-UNFG UNF
2	N07830	Swivel fitting 90°, DN8, 9/16G UNF
	07.08990.102	Swivel fitting 90°, DN8, adjustable, UNF9/16-18G-G1/45
	07.10990.101	Swivel fitting 90°, DN10, UNF3/4 -16G (2*)
	I07.11090.102	Swivel fitting 90°, DN16 (Dynatec), 1 1/16"-12UN JIC 37°
3	N07831	Swivel fitting 45°, DN8, 9/16G UNF
	07.08945.102	Swivel fitting 45°, DN8, adjustable, UNF9/16-18G-G1/4
	07.10945.101	Swivel fitting 45°, DN10, UNF3/4 -16G (2*)
	I07.11045.162	Swivel fitting 45°, DN16 1.1/16"-12 UN

4.2 Gemini Hoses

4.2.1 Typical Gemini DynaControl Hoses

The following hose charts list part numbers (PN), length, voltage, resistance and wattage of the most commonly-used Gemini DynaControl hoses.

NOTE: Part numbers are expressed as XXXXXX-GM (GM = “Gemini Manual” version).

Standard Hoses, #6 (ID 0.313” (7.95 mm) / DN8) Dynamini, Dynamelt S, D & M Series ASU, 240V:

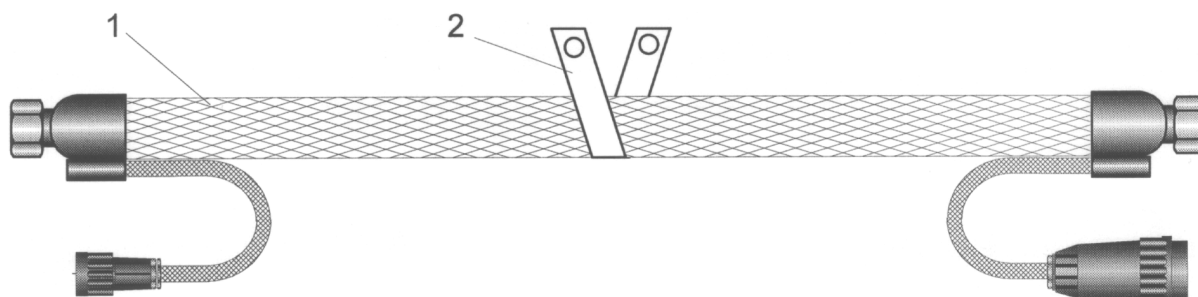
Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 240 V (AC)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
101083-GM	1.2	4	466 – 544	114 W	105 W
101084-GM	1.8	6	279 – 326	190 W	175 W
101085-GM	2.4	8	236 – 275	225 W	207 W
101086-GM	3.1	10	189 – 221	281 W	258 W
101087-GM	3.7	12	155 – 181	342 W	315 W
101088-GM	4.9	16	118 – 137	452 W	413 W
102138-GM	6	20	95.6 – 112	555 W	509 W
101089-GM	7.3	24	77.3 - 90.2	688 W	630 W

Hoses, #6 (ID 0.313” (7.95 mm) / DN8) (Optional for Dynamelt M Series ASUs only), 200/240V:

Hose PN	Length		Heater Wire Resistance Min./ Max. Ohms	Nominal Wattage at 200/ 240 V (AC) (for 1. / 2. Voltage)	Nominal Wattage at 230 V (AC)
	Meters	Feet			
105187-GM	9.1	30	56.2 - 65.6	659 / 946 W	867 W
106216-GM	11	36	51.9 - 60.5	712 / 1025 W	945 W
105601-GM	12	40	45.4 - 53.0	813 / 1171 W	1080 W

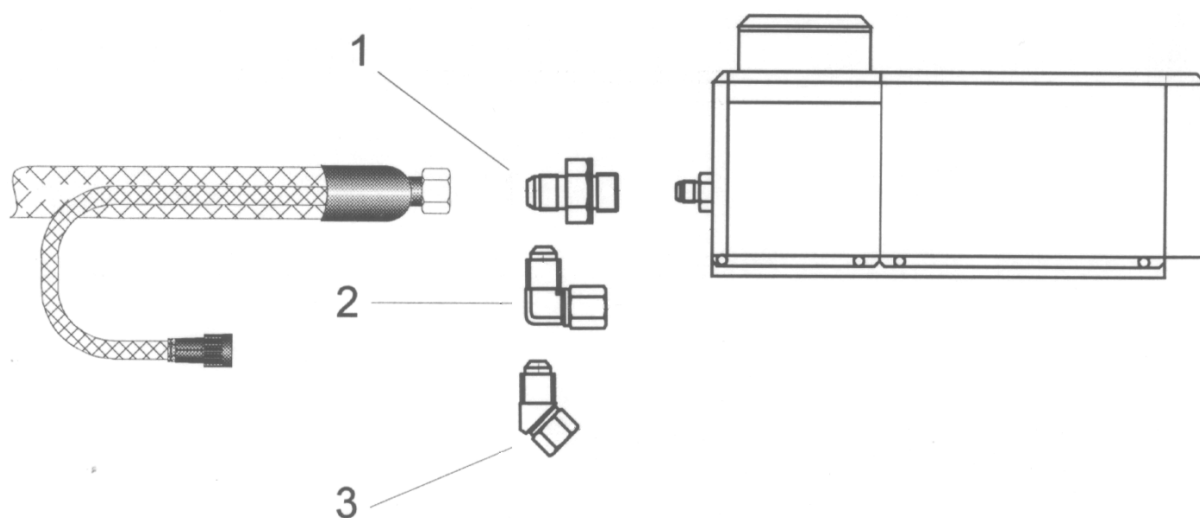
4.2.2 Hanger Strap Kit PN 113342

In applications where a hose is routed through or over a machine, straps may be used to suspend it to prevent the hose from laying on the ground or on machinery. Nylon hanger straps are recommended, set at an interval of every four feet (1.2 m). The strap kit consists of five hanger straps.



Item	PN	Description
1	Optional	Hose
2	113342	Hanger strap kit (it consists of five hanger straps)

4.2.3 Accessories

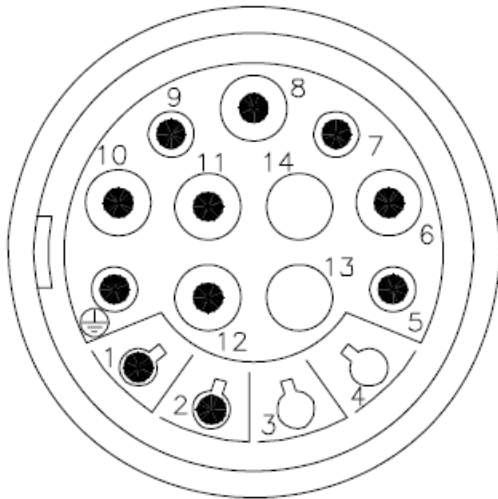


Item	PN	Description
1	101624 (07.00600.120)	Hose fitting adapter, straight G1/4 – 9/16-UNFG UNF
2	N07830	Swivel fitting 90°, DN8, 9/16G UNF
	07.08990.102	Swivel fitting 90°, DN8, adjustable, UNF9/16-18G-G1/45
	07.10990.101	Swivel fitting 90°, DN10, UNF3/4 -16G (2*)
	I07.11090.102	Swivel fitting 90°, DN16 (Dynatec), 1 1/16"-12UN JIC 37°
3	N07831	Swivel fitting 45°, DN8, 9/16G UNF
	07.08945.102	Swivel fitting 45°, DN8, adjustable, UNF9/16-18G-G1/4
	07.10945.101	Swivel fitting 45°, DN10, UNF3/4 -16G (2*)
	I07.11045.162	Swivel fitting 45°, DN16 1.1/16"-12 UN

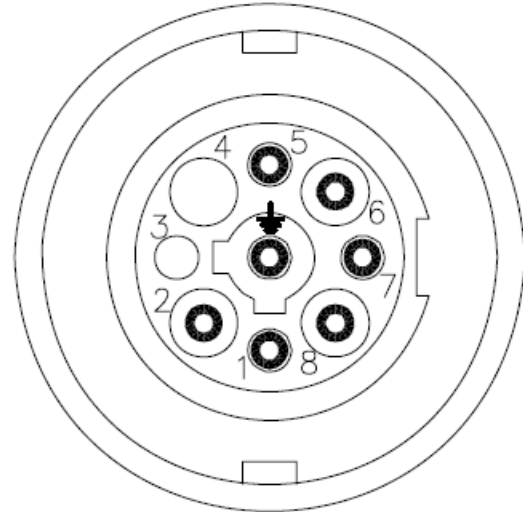
Chapter 5

Schematics, Connectors and Gemini Switch

5.1 Pin Connectors for Dynaflex and Gemini Hoses



15-pin connector
ASU end of hose



9-pin connector
Applicator end of hose

Illustration: Pin Connectors for Dynaflex and Gemini Manual Hoses

5.2 Gemini Manual Switch Assembly Terminals

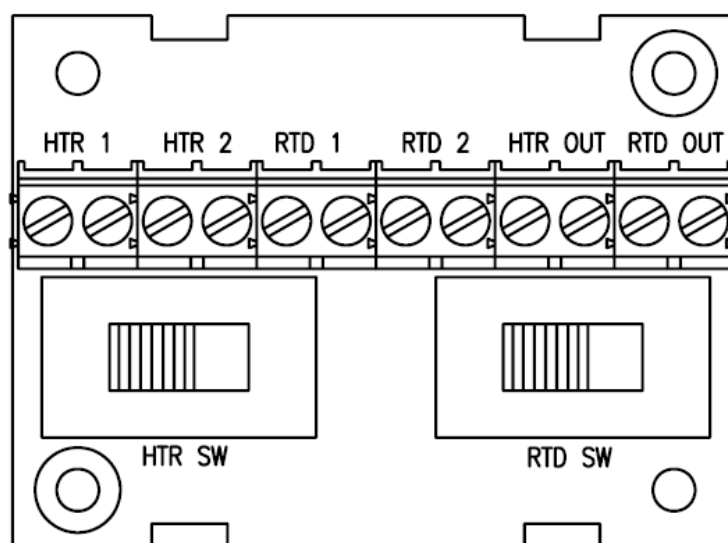
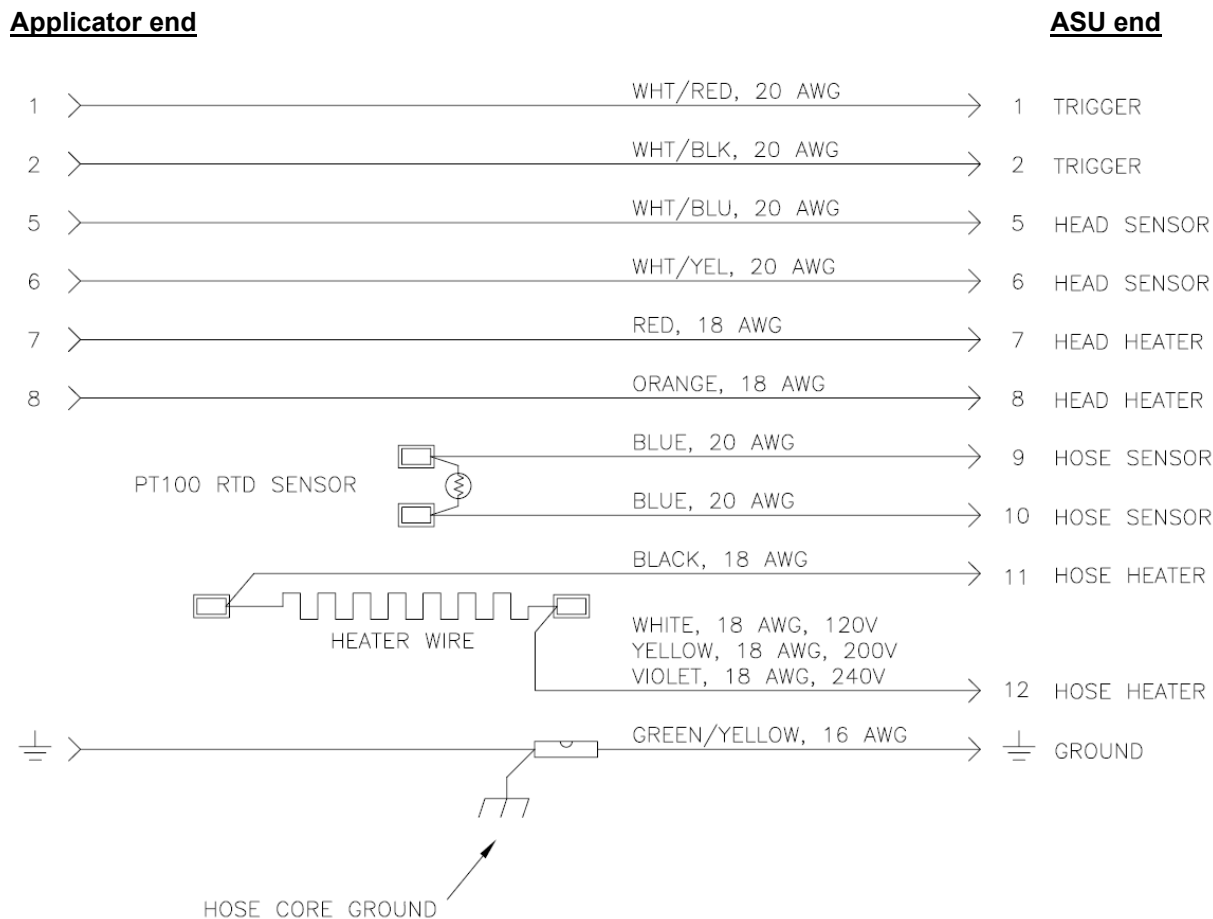


Illustration: Gemini Manual Switch Assembly Terminals

5.3 Schematics for Dynaflex Hoses

5.3.1 Schematic 101082-G: Dynaflex Hoses, DynaControl



NOTES:

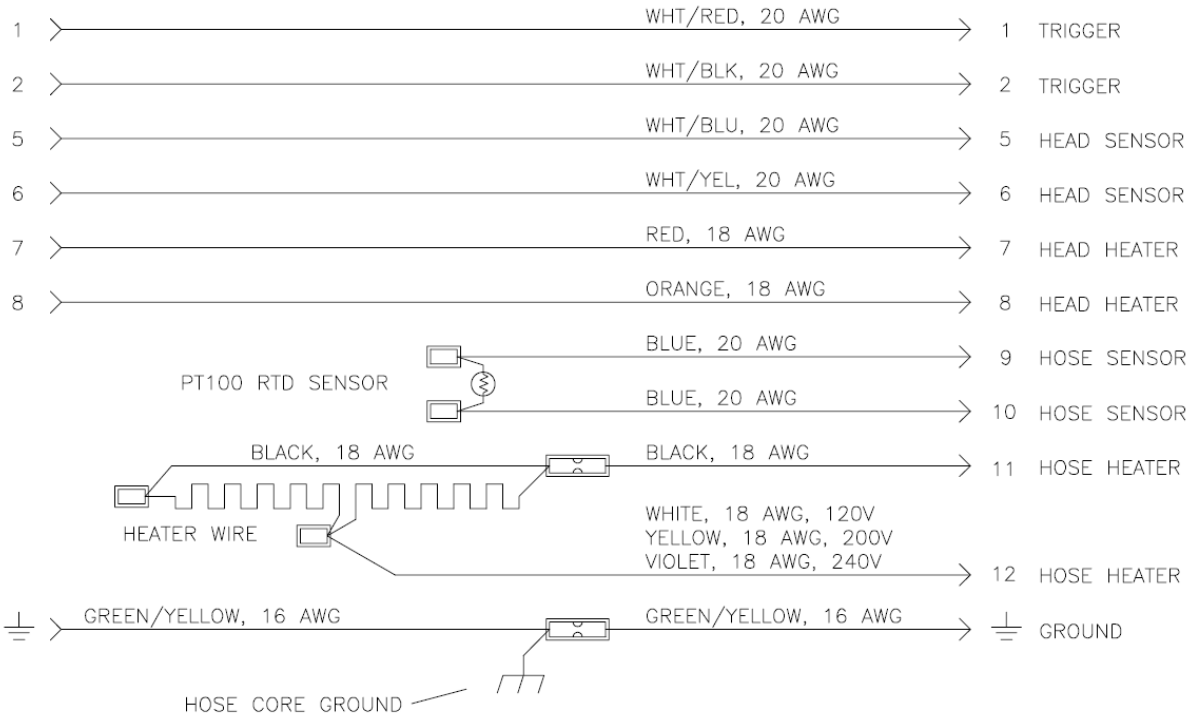
1. All wiring is routed through the hose.
2. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

5.3.2 Schematic 112633, Rev.A: Dynaflex Hoses, with a heater wire circuit divided in 2 separate segments, DynaControl

Used on longer hoses (over 45 feet / 13.7 m) and on the #8, 8 ft. (2.4 m) hose.

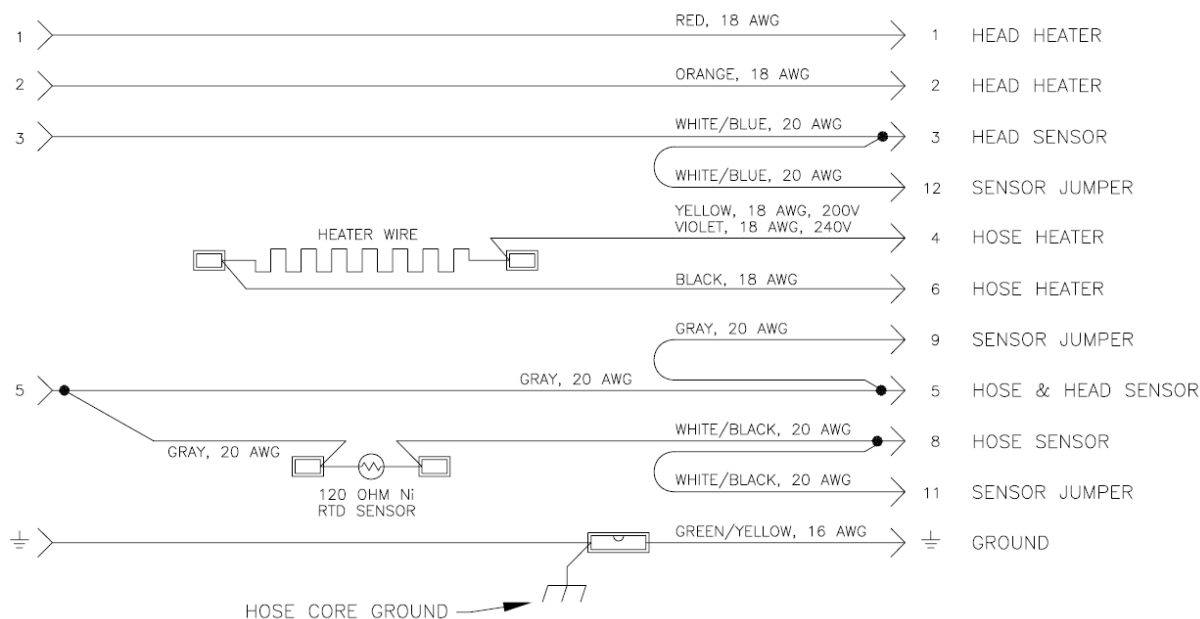
Applicator end

ASU end



NOTES:

1. All wiring is routed through the hose.
2. The heater wire circuit is divided into two separate segments, each segment wound over half the hose length and wired in parallel connection to the hose supply voltage.
3. Wire sizes shown are for no. 8 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

5.3.3 Schematic 100951, Rev. B: Dynaflex Hose, Upgrade NDSN**Applicator end****ASU end****NOTES:**

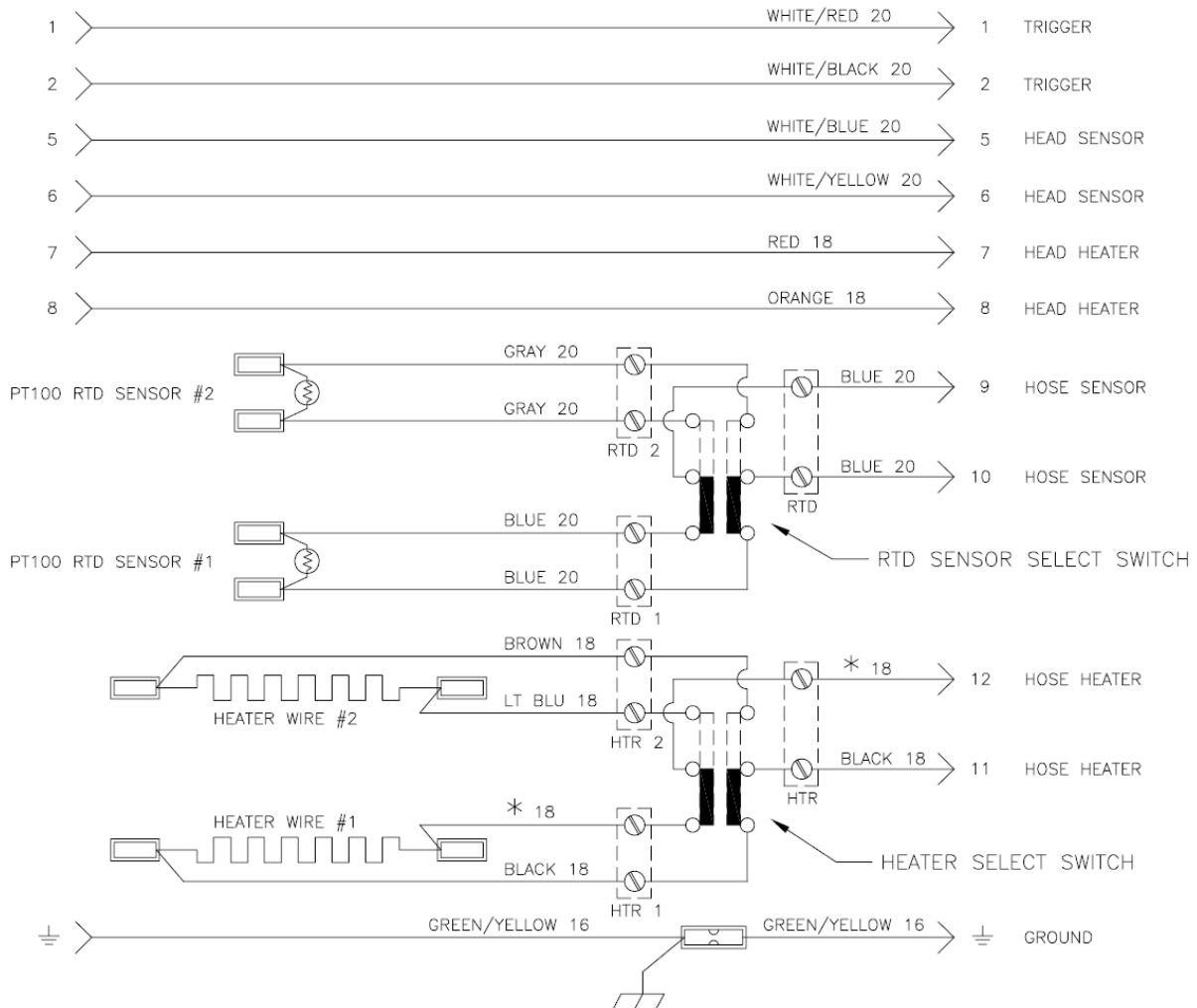
1. All wiring is routed through the hose.
2. Jumpers at ASU end pins 9, 11 and 12 are to be contained within the ASU end connector body.
3. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

5.4 Schematics for Gemini Hoses

5.4.1 Schematic 101082-GM: Gemini Manual Hose, DynaControl

Applicator end

ASU end



NOTES:

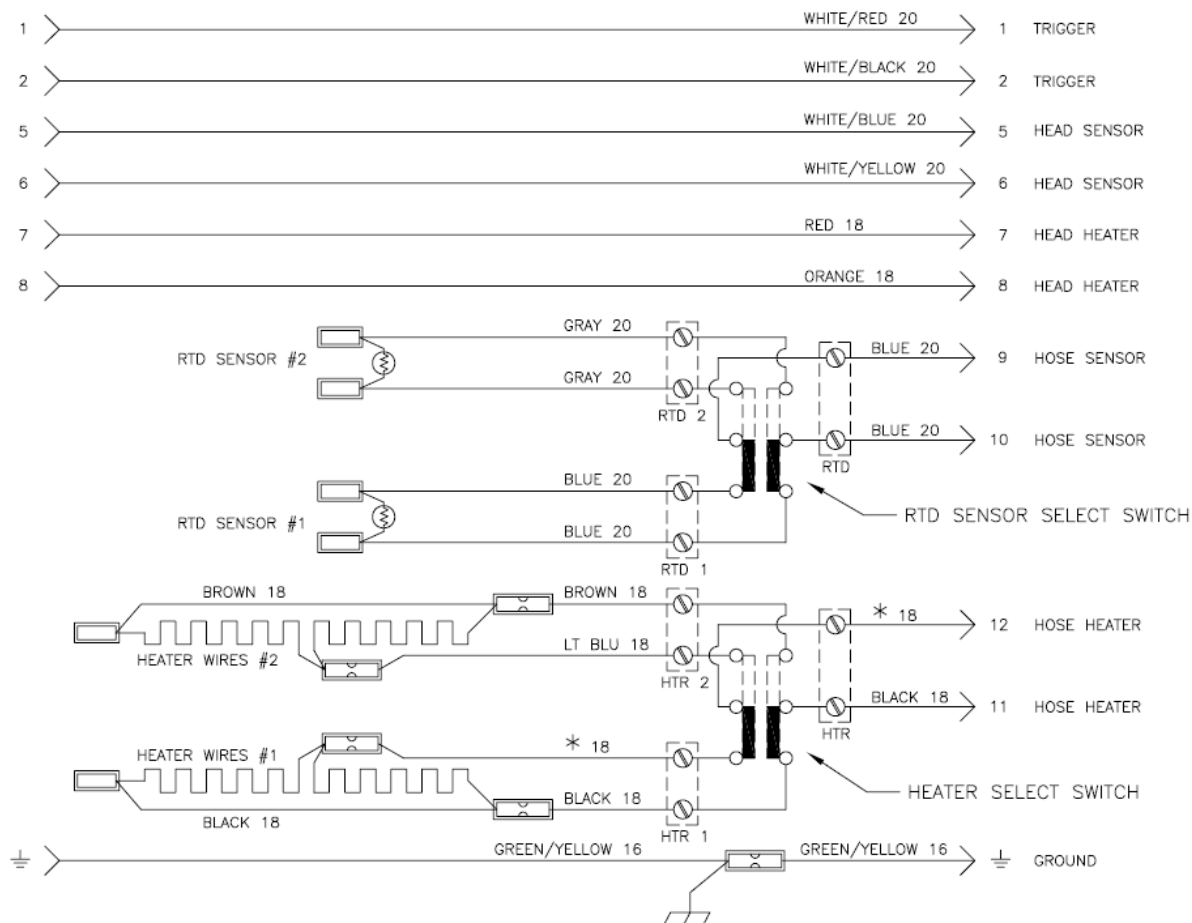
3. All wiring is routed through the hose.
4. Wire sizes shown are for no. 6 and no. 8 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

5.4.2 Schematic 112633-GM: Gemini Manual Hose, with a heater wire circuit divided in 2 separate segments, DynaControl

Used on longer hoses (over 45 feet / 13.7 m) and on the #8, 8 ft. (2.4 m) hose.

Applicator end

ASU end



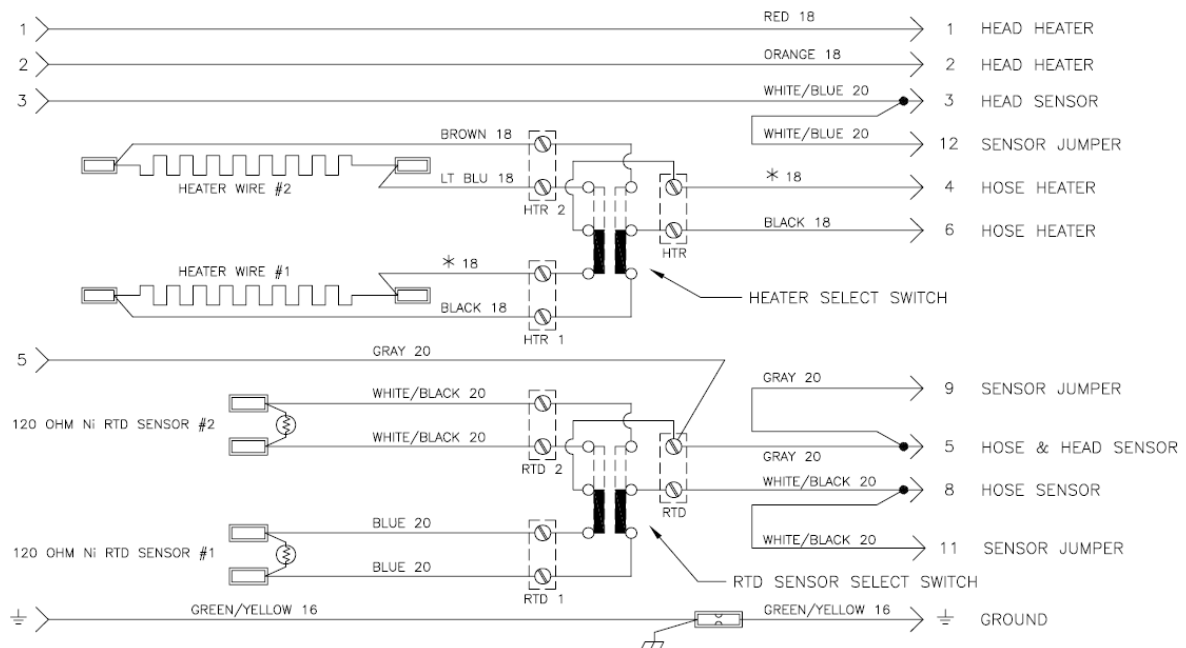
NOTES:

1. All wiring is routed through the hose.
2. Each heater wire circuit is divided into two separate segments, each segment wound over half the hose length and wired in parallel connection to the hose supply voltage.
3. Wire sizes shown are for no. 8 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

5.4.3 Schematic 100951-GM: Gemini Manual Hose, Upgrade NDSN

Applicator end

ASU end



NOTES:

1. All wiring is routed through the hose.
2. Wire sizes shown are for no. 6 hoses up to 24 ft (730 cm) in length. For larger diameter and longer hoses, heater lead wires are 16 AWG. Other wire sizes and colors may be changed in special hoses per customer request.

Revisions

Revision	Page / Chapter	Update description
4.18	20	Min. bend radius updated.
4.19	17	Max. operating temperature of standard hoses changed from 425°F to 400°F. Max. operating temperature of HT/VHT hoses specified to 450°F. Max. operating pressures and min. burst pressures charts added for 400°F and 450°F.
10.20	33	Challenger Hoses PN updated.
8.22	Ch.5	Schematics naming updated.
7.23	1	Manual language added.
		Declaration of Conformity updated.
10.23	Ch.4.1.7 & 4.2.3	Swivel fittings added.

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