NETZSCH®

Operating & Maintenance Instructions
Stator Protector STP3

NEMO® Pump

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1 DISMANTLING AND ASSEMBLY OF SPECIAL UNITS

WARNING Make sure that the power has been disconnected from the Temperature Controller prior to servicing.

The Stator Protector, which is a device to protect the stator from dry running mainly consists of three parts; the Temperature Controller (processor) with LED display, the Temperature Sensor (PT-100 RTD), and the Thermal Well.

1. The Device functions as follows

In the stator of the pump there is a Temperature Sensor. This sensor continuously measures the stator temperature which ranges from 0°C to 255°C. If the stator temperature rises above the programmed or specified cut-off temperature (about normal pumping temperature), which is set on the controller, there will be an optical or acoustic signal indication on the controller display. The controller can also be set to switch the pump off immediately. If the pump is not constantly monitored, it is recommended that the controller be set to shut the pump off automatically.

2. Technical Data

- Microprocessor based
- Measuring input for PT-100 RTD Temperature Sensor. Material of Construction: Platinum
- LED display, three digits, 13mm height, red indicator
- Switching position indication for internal K1 relay
- Resistance-Temperature Curve:
  European Alpha Curve = 0.00385
  American Alpha Curve = 0.003916
- Supply voltage 110 or 220 VAC or according to specification 24VAC.
- Storage temperature (-20°C to 70°C)
- Operating temperature (0°C to 60°C)
- Relative humidity maximum 75% no dew
- Suitable for panel mounting. Device is rated IP-54
- Output: 1relay 250 VAC 7^{A}, 1 changeover contact
- Installation Dimensions: front panel 72mm x 72mm; 90mm deep including terminals
- Terminals for threads max. 2,5 mm^2.

*Controller should be no more than 75 feet from the temperature sensor.

3. Setting the Cut-Off Temperature

The cut-off temperature value of the controller in normal conditions is easy to adjust. When no key is pressed, the display shows the actual stator temperature.

- When the PGM button is pressed, the cut-off temperature is shown on the display.
- By keeping the PGM button pressed, the cut-off temperature can be raised or lowered to the desired setting by using the UP or DOWN key.
- Releasing the arrow UP or DOWN key loads the adjusted new value into the memory.
- Be careful. Always release the UP or DOWN key before releasing the PGM key to retain this value in memory even if there is a power failure.

1 DISMANTLING AND ASSEMBLY OF SPECIAL UNITS

4. Selecting the Cut-Off Temperature

- Adjust the cut-off temperature up to 150°C at the controller.
- Start the pump.
- When steady pumping is being obtained, a read out of the stator temperature will be displayed on the controller.
- If this temperature is accurate, taking into consideration the product and ambient temperatures, then the cut-off temperature can be set 5°C higher.

5. Switching Functions

With the temperature sensor connected and the operating voltage applied to the controller, the internal relay K1 is energized.

If the cut-off temperature is being exceeded or a short-circuit is occurring, the internal relay K1 drops out.

For terminals, see illustration on the following page.

In the event of sensor failure or short-circuit, the maximum temperature of 255°C flashes on the display.

6. Safety Precautions

For the installation of the Stator Protector, as well as for the separate mini transformer, the latest regulations which apply for electrical installations must be adhered to.
If a temperature sensor is operated within a hazardous area there must be a special enclosure installed between the Temperature Controller and the Temperature Sensor (RTD).

The switching of inductive loads (contacts) may result a false reading from the Controller, or in complete malfunction of the Unit. Here, we recommended the wiring of a Surge Suppressor.

7. Installation of Temperature Sensor and Controller

The stator (3005), as displayed in tables 1,2 and 3, is equipped with a Reducing Fitting (4580) and a Temperature Sensor (RTD), (4180).

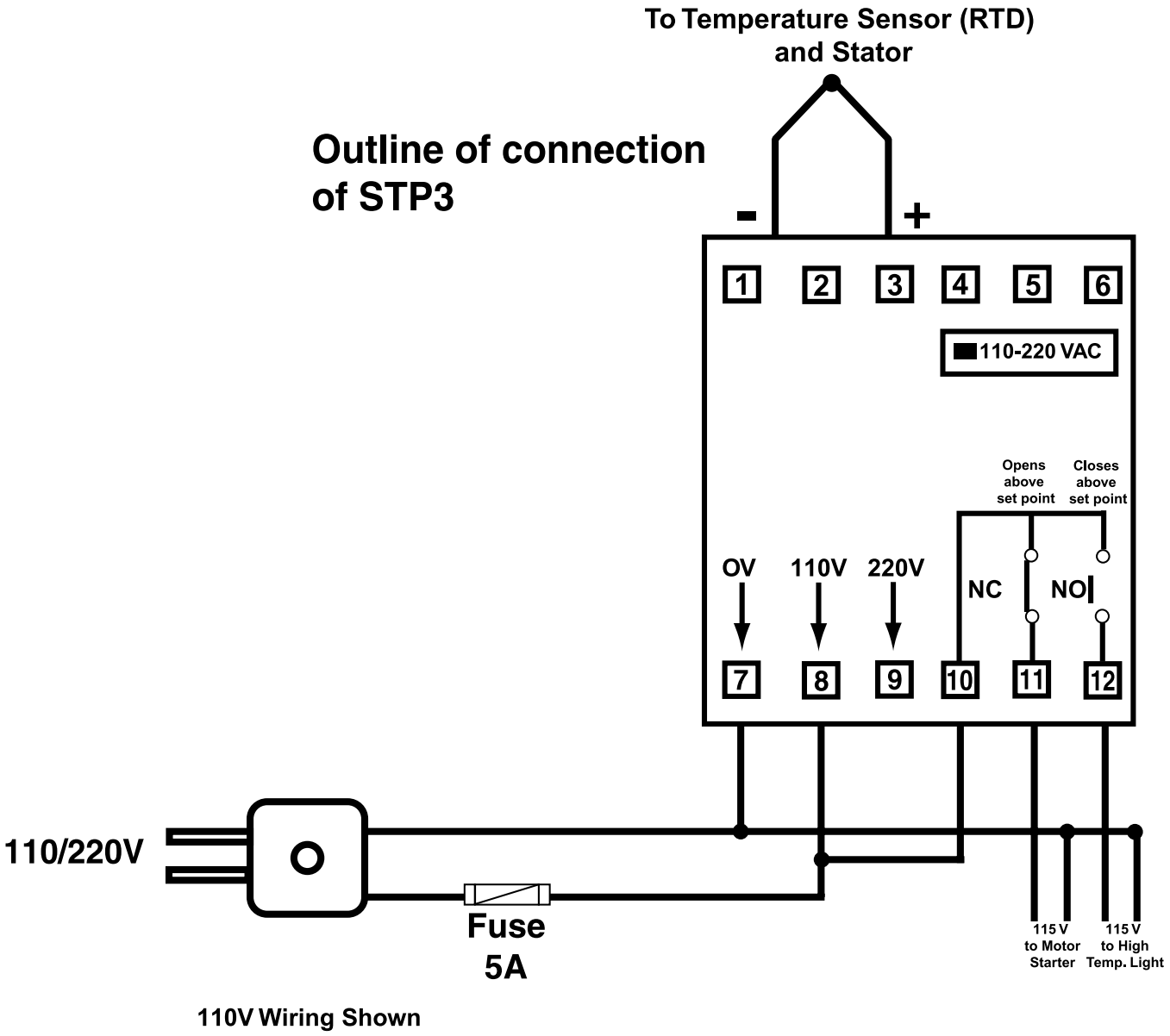
The stator is delivered with a built-in Thermal Well (4570). When installed on a NEMO Pump, this Thermal Well should be mounted on its inlet side.

***Controller should be no more than 75 feet from the temperature sensor (RTD).**

1 DISMANTLING AND ASSEMBLY OF SPECIAL UNITS

8. Terminal Connections

This illustration shows the electrical outline for the connection of a STP3 Stator Protector.



110V Wiring Shown

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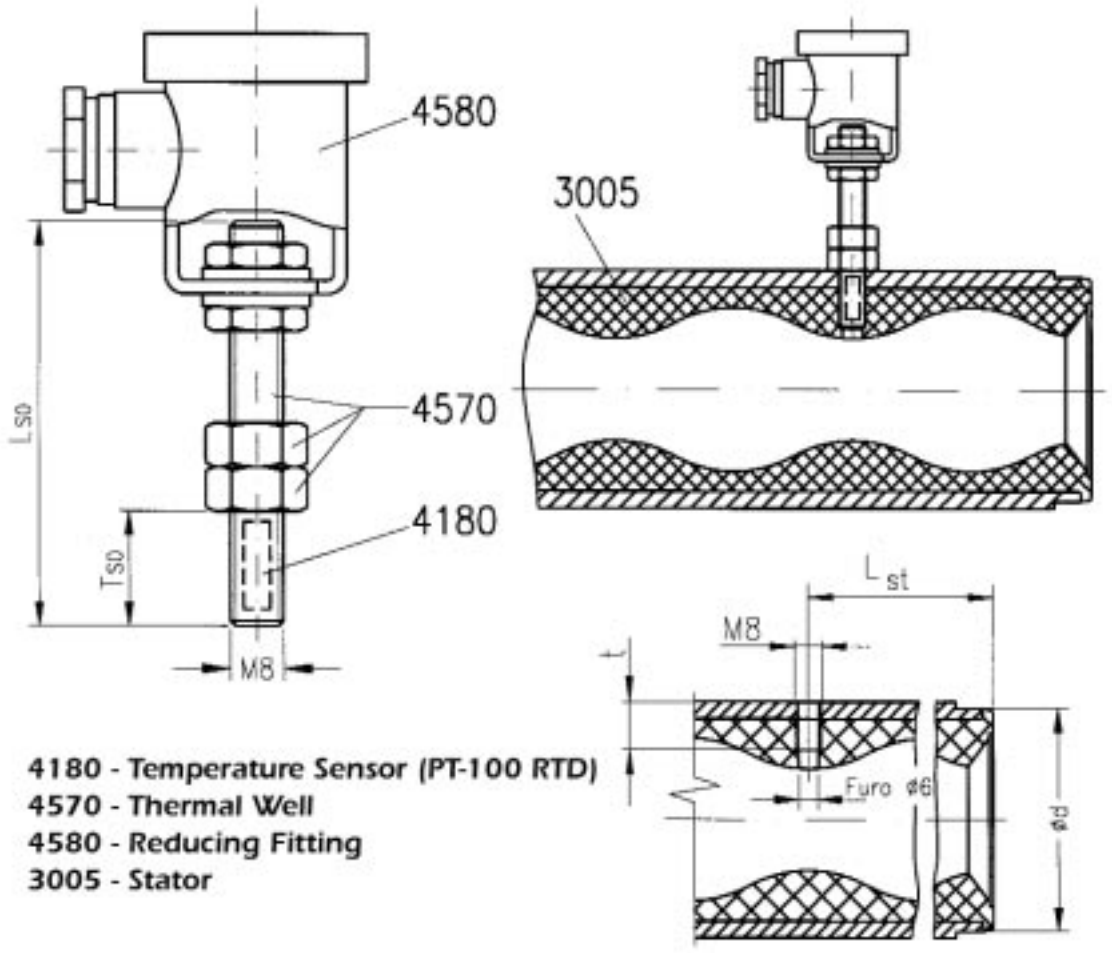
Stator Protector Model STP3
NEMO NM Pump Series

Table 1
S-Geometry



4180 - Temperature Sensor (PT-100 RTD)
4570 - Thermal Well
4580 - Reducing Fitting
3005 - Stator

Pump Model	SENSOR			STATOR		
	L_{S0}	T_{S0}	Distance of the Sensor from the Rotor	d	L_{st}	t
NM015–S	45	9	~6	37	24	9
NM021–S		12	~5.5	47	36	12
NM031–S		15	~7.5	66	47	15
NM038–S	65	23	~7.5	86	66	23
NM045–S		25	~7.5	101	77	25
NM053–S		30		118	92	30
NM063–S		36		141	107	36
NM076–S	85	40	~10	166	124	40
NM090–S		47		195	148	47
NM105–S		54	~11	225	181	54
NM125–S	105	66		265	215	66
NM148–S		80		315	257	80
						–

All dimensions in millimeters.

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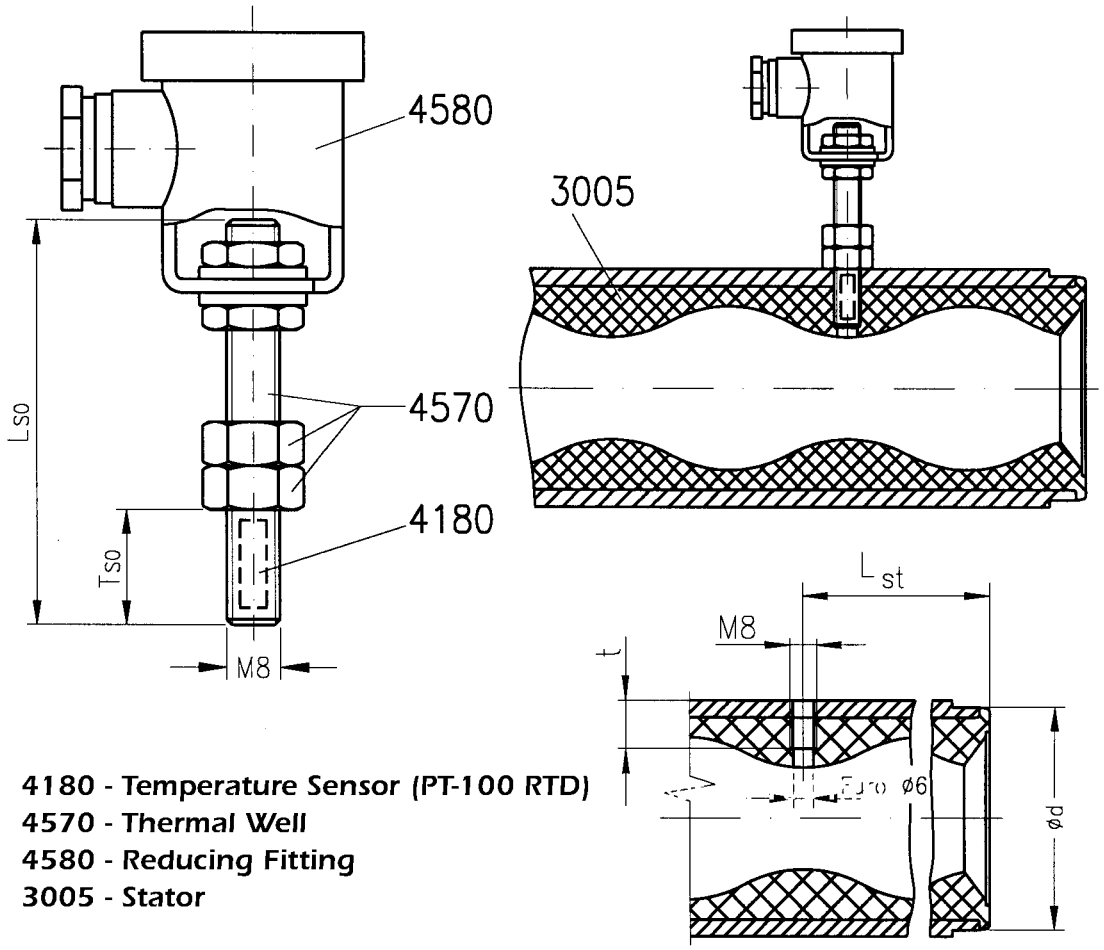
Stator Protector Model STP3
NEMO NM Pump Series

Table 2
L-Geometry



4180 - Temperature Sensor (PT-100 RTD)
4570 - Thermal Well
4580 - Reducing Fitting
3005 - Stator

Pump Model	SENSOR			STATOR		
	L_{so}	T_{so}	Distance of the Sensor from the Rotor	d	L_{st}	t
NM015–L	45	9	≈ 6	37	35	9
NM021–L		12	≈ 5.5	47	53	12
NM031–L		15	≈ 7.5	66	68	15
NM038–L	65	23	≈ 7.5	86	108	23
NM045–L		25	≈ 7.5	101	133	25
NM053–L		30		118	161	30
NM063–L		36		141	185	36
NM076–L	85	40	≈ 10	166	214	40
NM090–L		47		195	256	47
NM105–L		54	≈ 11	225	316	54
NM125–L	105	66		265	375	66
NM148–L		80		315	450	80

All dimensions in millimeters.

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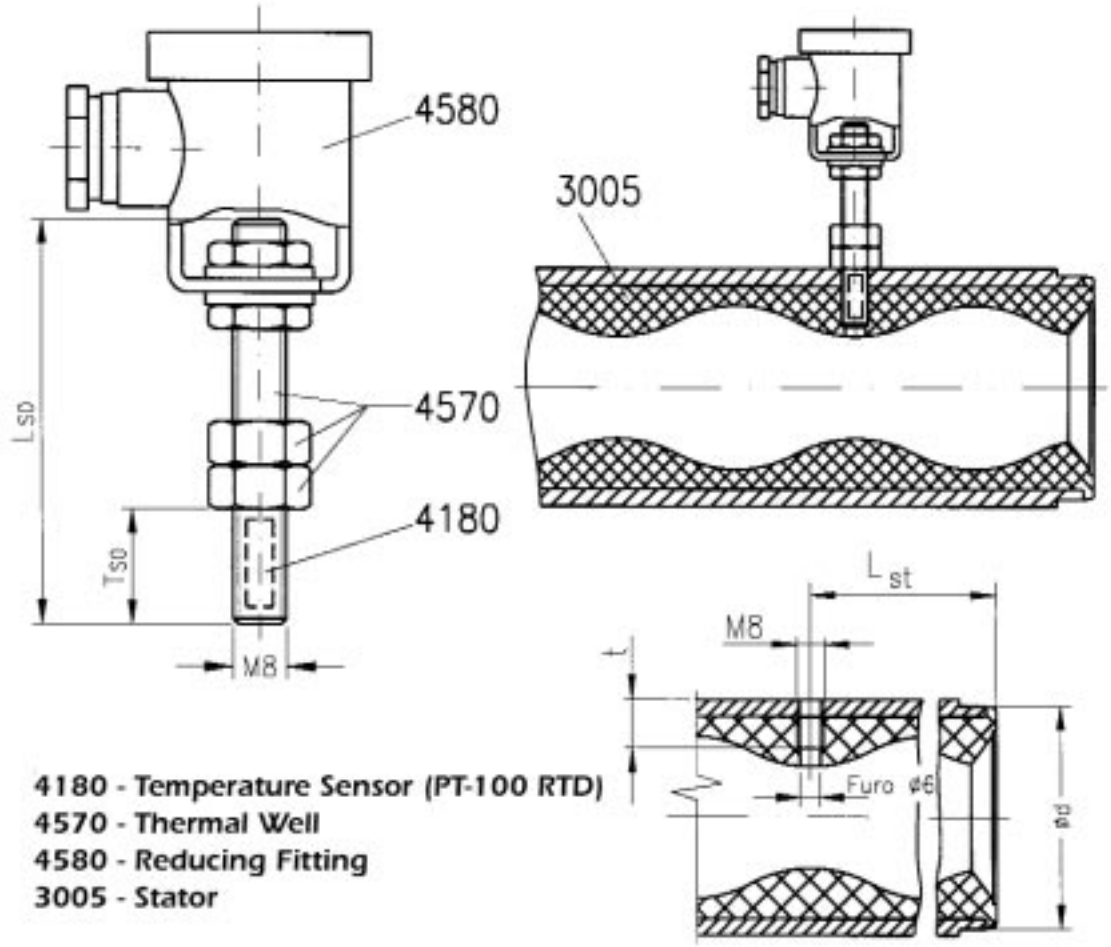
Stator Protector Model STP3
NEMO NE Pump Series

Table 3



4180 - Temperature Sensor (PT-100 RTD)
4570 - Thermal Well
4580 - Reducing Fitting
3005 - Stator

Pump Model	SENSOR			STATOR			
	L_{SO}	T_{SO}	Distance of the Sensor from the Rotor	d	d_1	L_{st}	t
N_15	55	9	~6	39	27	40	9
N_20		12	~5.5	49	36	50	12
N_29						100	12
N_30	60	16	~7.5	71	54	75	16
N_40	65	22	~8	94	72	100	22
N_50	75	30		118	90	120	30
N_60	80	35		138	108	150	35
N_69				138	108	250	35
N_80	85	40	~10	174	144	200	40
N_89				174	144	250	40
N_100	95	52	~11	218	180	250	52
N_120	110	68		260	216	300	68
N_150	120	80	~10	315	270	375	80
N_200	150	117.5				475	

All dimensions in millimeters.