

- Model-dependent -

# DTD no. 12-9800

Model(s): T 9800, T 9820





1

**Descriptive Technical Documentation** 

## Contents

## **General Information**

- A Warning and Safety Instructions
- **B** Modification History
- C Technical Data
- D Layout of Electrical Components

## **Function Groups**

010	Hou 1 4 4.1 4.2 4.3	sing, Front panel Technical Data Service Lid – Remove Front panel – Remove Side panel – Remove	<b>010-2</b> <b>010-3</b> 010-3 010-4 010-5
020	Doo 1 2 2.1 4 4.1 4.2 4.3 4.4	r, Lock Technical Data Function Door lock (A2). Service. Door – Remove Door hinge – Remove Door hinge – Install Door lock (A2) – Remove.	<b>020-1</b> <b>020-2</b> <b>020-3</b> 020-3 020-3 020-3 020-4 020-4
030	Drur 1 2 2.1 2.2 2.3 2.4 2.5 2.6 2.7 3 3.1	<ul> <li>m, rear bearing, sensor, heater bank</li> <li>Technical Data</li> <li>Function</li> <li>No-load detection</li> <li>Residual moisture measurement</li> <li>Heater control</li> <li>Temperature limiter with manual reset (1F1, 2F1, 3F1)</li> <li>NTC temperature sensor drying air (1R30)</li> <li>NTC temperature sensor heating/drying (2R30)</li> <li>Drum light (H3/6) (Interior drum light)</li> <li>Fault Repair</li> <li>Temperature limiter with manual reset (F1) has tripped</li> </ul>	<b>030-2</b> <b>030-4</b> 030-4 030-5 030-5 030-5 030-5 030-6 <b>030-7</b> 030-7

## Míele

#### Descriptive Technical Documentation DTD no. 12-9800

Service Heater bank – Replace Rear bearing – Replace	<b>030-9</b> 030-9 030-10
Ing (Gas)Technical DataFunctionGas unit.Gas solenoid valve (Y57).Gas ignition.Safety timeTemperature sensor heating/drying (2R30)Temperature limiter (1F1, 2F1)ServiceGas burner – Check.Gas solenoid valve – Remove.Gas solenoid valve – Install.Gas burner – Remove.Gas burner – Install	<b>031-2</b> <b>031-3</b> 031-3 031-3 031-5 031-5 031-5 031-6 <b>031-7</b> 031-7 031-9 031-11 031-13 031-14
r, Fan Technical Data	040-2
uct, Front bearing Technical Data	050-2
ia panel, Control/Power electronic         Technical Data         Function         Dryer function after a power interruption         Programming function         Reset         Programming function drying outcome (residual moisture)         Cottons/Hot         Programming function drying outcome (residual moisture)         Permanent press         Memory         Programming function – Additional cooldown phase.         Programming function – Prompt to clean air ducts         Acoustical acknowledgment         Conductivity setting         Stand-by         Residual moisture sensing         Overriding time control.         Insufficient air detection         Operating hours meter         ED Anti-Crease/End lights up solid.         LED Clean air paths lights up solid.	<b>090-2</b> <b>090-3</b> 090-3 090-3 090-3 090-3 090-3 090-3 090-3 090-3 090-3 090-4 090-4 090-4 090-4 090-4 090-4 090-5 090-5 <b>090-6</b> 090-6 090-7
	Service. Heater bank – Replace Rear bearing – Replace. ing (Gas) Technical Data Function Gas unit. Gas solenoid valve (Y57). Gas jointion. Safety time Temperature sensor heating/drying (2R30). Temperature limiter (1F1, 2F1). Service. Gas burner – Check. Gas solenoid valve – Remove. Gas solenoid valve – Install. Gas burner – Remove. Gas burner – Install. r, Fan Technical Data ia panel, Control/Power electronic Technical Data ia panel, Control/Power electronic Technical Data Programming function drying outcome (residual moisture) Programming function drying outcome (residual moisture) Permanent press Memory. Programming function – Additional cooldown phase. Programming function – Prompt to clean air ducts Acoustical acknowledgment. Conductivity setting Stand-by Residual moisture sensing Overriding time control. Insufficient air detection. Operating hours meter. Fault Repair LED Anti-Crease/End lights up solid. LED Clean air paths lights up solid.

2

DTD no. 12-9800

100

υ	υ	C	u		e	I.	I	a	u	U

3

3.4	LED Rotary iron flashes	090-8
3.5	LED Hand iron flashes.	090-9
3.6	All program LEDs flash	090-10
3.7	F 0 No fault	090-10
3.8	F 1 Short circuit in NTC temperature sensor heating/drying (2R30)	090-11
3.9	(2R30)	090-11
3.10	F 3 NTC temperature sensor drving air (1R30) – Short circuit	090-13
3.11	F 4 NTC temperature sensor drying air (1R30) – Open circuit .	090-13
3.12	F 50 Motor stalls and heater is on for 3 seconds	090-14
3.13	F 55 Overriding time limit exceeded, approx. 180 min	090-14
3.14	F 66 Air leakage	090-16
-		
4	Service	090-17
<b>4</b> 4.1	Service	<b>090-17</b> 090-17
<b>4</b> 4.1 4.2	Service Programming mode summary Demonstration mode – Activate / Deactivate	<b>090-17</b> 090-17 090-19
<b>4</b> 4.1 4.2 4.3	Service Programming mode summary Demonstration mode – Activate / Deactivate Service mode summary	<b>090-17</b> 090-17 090-19 090-20
<b>4</b> 4.1 4.2 4.3 4.4 4.5	Service Programming mode summary Demonstration mode – Activate / Deactivate Service mode summary Program selection module (EW) - Service view Program selection module (EW) and fascia support panel –	<b>090-17</b> 090-17 090-19 090-20 090-22
<b>4</b> 4.1 4.2 4.3 4.4 4.5	Service Programming mode summary. Demonstration mode – Activate / Deactivate . Service mode summary. Program selection module (EW) - Service view. Program selection module (EW) and fascia support panel – Remove.	<b>090-17</b> 090-17 090-19 090-20 090-22 090-22
4 4.1 4.2 4.3 4.4 4.5 Elect	Service Programming mode summary Demonstration mode – Activate / Deactivate Service mode summary Program selection module (EW) - Service view. Program selection module (EW) and fascia support panel – Remove. rical system	<b>090-17</b> 090-17 090-19 090-20 090-22 090-22
4 4.1 4.2 4.3 4.4 4.5 Elect 1	Service Programming mode summary. Demonstration mode – Activate / Deactivate. Service mode summary. Program selection module (EW) - Service view. Program selection module (EW) and fascia support panel – Remove. rical system Technical Data	<b>090-17</b> 090-17 090-19 090-20 090-22 090-22 <b>100-2</b>
4 4.1 4.2 4.3 4.4 4.5 Elect 1	Service Programming mode summary. Demonstration mode – Activate / Deactivate . Service mode summary. Program selection module (EW) - Service view. Program selection module (EW) and fascia support panel – Remove. rical system Technical Data	090-17 090-17 090-20 090-22 090-22 100-2
4 4.1 4.2 4.3 4.4 4.5 Elect 1 4	Service Programming mode summary. Demonstration mode – Activate / Deactivate. Service mode summary. Program selection module (EW) - Service view. Program selection module (EW) and fascia support panel – Remove. rical system Technical Data Service.	090-17 090-17 090-19 090-20 090-22 090-22 100-22



## A Warning and Safety Instructions

### 1 General

All repairs should be performed by a trained technician in strict accordance with national, state and local codes. Any repairs or maintenance performed by unqualified personnel could be dangerous.

When servicing, modifying, testing or maintaining appliances, all applicable laws, regulations and accident prevention guidelines must be observed.

Before starting any service work, disconnect the dryer from its power source. Even with the appliance switched off, voltage may exist on some components.

#### Danger!

Danger of high voltages when working on small components.

In a 1–board control, as in this Control/Program/Power module (EPWL 3xx), there is no structural galvanic potential disconnection to the power supply.

Therefore be careful when working on small components, these may be carrying voltage if the dryer is not disconnected completely from its power supply.

As a matter of standard practice, do a visual as well as an operational check.

#### Danger!

Wear protective gloves and use edge shields (M. no. 05057680) to prevent cuts by sharp-edged components.



### 2 Gas dryers

Service work may only be performed by a technician trained in gas technology, and in keeping with all relevant safety standards.

Prior to the start of service work, check all gas lines and components to make sure they are sealed.

If there is a gas odor (odorized gas), shut the gas tap. Avoid sparks or any fire source, air the rooms.

#### Warning!

Before starting any service or repair work, it is essential to disconnect the dryer from its gas supply.

#### A-2

#### DTD no. 12-9800

### 3 Touch current measurement

#### Note

A touch current measurement has to be carried out on all accessible conductive parts that are not connected to ground.

#### Warning!

Touch current measurement should only be carried out after the ground connection of the unit under test has been checked and found to be satisfactory!

Dangerous voltages may exist on defective appliances as well as on accessible conductive parts that are not connected to ground!

#### Note

Do a touch current measurement on the following accessible conductive parts:

• none.



**B-1** 

#### **Descriptive Technical Documentation**

#### DTD no. 12-9800

## **B** Modification History

When? Who?

What?

TT.MM.20XX Olaf Meyer zu Drewer Revised Version 1

Start of production beginning of 2007.



## C Technical Data

Heating mode	Electric	Gas			
Dimensions	Height x Width x Depth: 39" x 27" x 30" (990 mm x 685 mn 763 mm)				
Shipping dimensions	Height x Width x Depth: 42" x 30" x 32" (1070 mm x 750 mm x 817 mm)				
Shipping weight	Approx. 165 lbs.				
Required	2NAC 240 V (208V)	1NAC 120 V			
voltage	2NAC 220 V (MEX)	1NAC 127 V (MEX)			
Frequency	60 Hz				
Fuses	2 x 30 A	1 x 12 A			
Connected load	5.8 kW (USA/CDN)	0.3 kW			
(electric)	4.9 kW (MEX)				
Natural gas - Output	_	40.1 MJ/m <sup>3</sup>			
Natural gas - Pressure (Net)	_	Supply pressure 17.4 mbar			
Exhaust pipe (vented dryers only)	Connecting pipe nominal diameter DN 100				
Washer/Dryer stack	_				
Under counter	-				
Washer/Dryer stand	Optional				
Liquid propane conversion	- optional				
PC interface	x				
WLAN interface (IEEE802.11), miele@home	WLAN ready, accessory				

Table 1: Technical Data – General





DTD no. 12-9800

D-1

## D Layout of Electrical Components

Optical PC interface



#### Layout 1

1 (PC LED) Optical PC interface



#### T 9800



### Layout 2

1 (Z1)	Interference suppression capacitor
2 (X3/1)	Terminal strip
3 (F2)	Fuse
4 (1K1/1)	Heater relay
5 (2K1/1)	Heater relay
6 (3K1/1)	Heater relay
7 (B3/1)	Residual moisture sensor
8 (1N1)	Electronic unit – Program/Power module (EPWL)
9 (H3/6)	Drum light
10 (R1, R2, F	33)
Heater bank	
11 (A2)	Door lock
12 (B3/1)	Residual moisture sensor – Drum rib
13 (WLAN)	Wireless Local Aera Network (optional)
14 (C5)	Capacitor - Motor (M5)
15 (M5)	Motor - Drying air and drum drive
16 (1R30)	NTC Temperature sensor – Drying air
17 (3F1)	Temperature limiter with manual reset
18 (2F1)	Temperature limiter with manual reset
19 (2R30)	Temperatur sensor – Heating/Drying
20 (1F1)	Temperature limiter with manual reset

#### D-2



#### DTD no. 12-9800

D-3

T 9820



#### Layout 3

1 (Z1)	Interference suppression capacitor			
2 (X3/1)	Terminal strip			
3 (F2)	Fuse			
4, 5 (1K1/1, 2K1/1)				
Heater relay				
6 (B3/1)	Residual moisture sensor			
7 (1N1)	Electronic unit – Program/Power module (EPWL)			
8 (H3/6)	Drum light			
9 (A2)	Door lock			
10 (B3/1)	Residual moisture sensor – Drum rib			
11 (WLAN)	Wireless Local Area Network (optional)			
12 (C5)	Capacitor - Motor (M5)			
13 (M5)	Motor - Drying air and drum drive			
14 (1R30)	NTC temperature sensor – Drying air			
15 (Y57/1)	Gas solenoid valve			
16 (Y57/2)	Gas solenoid valve			
17 (E1/1)	Ignitor electrode			
18 (2F1)	Temperature limiter flame flashback with manual reset			
19 (B1/16)	Flame sensor (radiant output sensor)			
20 (1F1)	Temperature limiter with manual reset			
21 (2R30)	Temperature sensor – Heating			





DTD no. 12-9800

010-1

#### 010 Housing, Front panel





### 1 Technical Data

Design	Upright unit, frame construction, side
	walls embossed for reinforcement

Table 1: Technical data – Housing, Front panel

#### 010-2



010-3

### 4 Service

#### 4.1 Lid – Remove



#### Fig. 1

- $\checkmark$  Remove the screw caps on the side edges.
- ✓ Loosen the raised head screws a maximum of 5 turns.

#### Note

Do not unscrew the raised head screws completely.

- Press in on the raised head screws.
- Lift the lid at the front and slide it toward the rear, thereby releasing it from its retainers. Take the lid off.



#### 4.2 Front panel – Remove

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- Remove the fascia support plate, refer to Program selection module (EW) and fascia support panel Remove, 090 4.5.
- ✓ Take the door off, refer to Door Remove, 020 4.1.

#### Note

Remove the door so it doesn't get damaged as the front panel is being removed.



#### Fig. 2

✓ Release the front panel attachment.

#### 010-4

## Míele

#### Descriptive Technical Documentation 010-5

#### DTD no. 12-9800

#### 4.3 Side panel – Remove

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- ✓ Remove the front panel, refer to Front panel Remove, 010 4.2.



#### Fig. 3

- ✓ Remove the side panel retaining screws.
- Take the side panel off.





#### 020 Door, Lock

#### **Technical Data** 1





Door	Porthole door, Door hinge is on the left and cannot be reversed
Lock	Manual pull-open lock
	Door lock contact switch (A2), Drum door open = contact open

Table 1: Technical data - Door, Lock



#### 020-2

### 2 Function

### 2.1 Door lock (A2)

Pull the door open.

An open door is registered by a microswitch in the door lock.

Microswitch in door lock (A2): Drum door open = > Contact open.



#### DTD no. 12-9800

020-3

#### **Service** 4

#### 4.1 **Door – Remove**





#### Door hinge – Remove 4.2

- ✓ Remove the door, refer to Door Remove, 020 4.1.
- ✓ Take the front panel off, refer to Front panel Remove, 010 4.2.
- Jetach the hinge attachment from the front panel, take the washer and the hinge off.



#### 020-4

### 4.3 Door hinge – Install

 $\checkmark$  Position the door seal such that the welded seam of the seal is at the hinge.

### 4.4 Door lock (A2) – Remove





#### DTD no. 12-9800

- Remove the front panel, refer to Front panel Remove, 010 4.2.
- $\checkmark$  Take the door lock (A2) off and pull the connecting plug off.



020-6

## Míele

Descriptive Technical Documentation 030-1

#### DTD no. 12-9800

## 030 Drum, rear bearing, sensor, heater bank





## 1 Technical Data

Maximum load	17.6 lbs (8 kg)
Drum volume	48 gal (180 Liter)
Drum speed	48 RPM
Reversing rhythm	300 / 30 seconds (clockwise / counterclockwise)

 Table 1: Technical data – Drum

Heating mode	Electrical, Gas, refer to 031 Table 1
Heating mode	Duct heater bank (R1, R2, R3); 3 filament
Heater output	5.2 kW (1.90 kW, 1.70 kW, 1.60 kW)
Temperature sensor	Temperature sensor heating/drying (2R30)
Temperature limiter	3 * 3/4" Temperature limiter (F1) with manual reset, 16 A

Table 2: Technical data - Heater bank, electrical

Temperature °F (°C)	Resistance (kΩ)
32 (0)	340
41 (5)	261
50 (10)	203
59 (15)	159
68 (20)	126
77 (25)	100
86 (30)	80.2
95 (35)	64.8
104 (40)	52.7
113 (45)	43.1
122 (50)	35.5
131 (55)	29.4
140 (60)	24.5
149 (65)	20.5
158 (70)	17.3
167 (75)	14.6
176 (80)	12.5
185 (85)	10.6
194 (90)	9.13
199 (93)	8.34
203 (95)	7.86
212 (100)	6.80
230 (110)	5.14
248 (120)	3.95
266 (130)	3.07
284 (140)	2.41
302 (150)	1.92
320 (160)	1.55
338 (170)	1.26
356 (180)	1.03

#### 030-2

## Míele

#### **Descriptive Technical Documentation**

#### DTD no. 12-9800

030-3

Temperature °F (°C)	Resistance (kΩ)
374 (190)	0.852
392 (200)	0.710

Table 3: NTC temperature sensor (2R30) heating/drying - Resistance values

Temperature ° F (°C)	Resistance (kΩ)
32 (0)	38.0
41 (5)	29.7
50 (10)	23.4
59 (15)	18.6
68 (20)	14.9
77 (25)	12.0
86 (30)	9.73
95 (35)	7.96
104 (40)	6.55
113 (45)	5.42
122 (50)	4.52
131 (55)	3.78
140 (60)	3.19
149 (65)	2.70
158 (70)	2.29
167 (75)	1.96
176 (80)	1.68
185 (85)	1.45
194 (90)	1.25
199 (93)	1.15
203 (95)	1.09
212 (100)	1.06
230 (110)	0.73
248 (120)	0.569
266 (130)	0.449
284 (140)	0.358
302 (150)	0.289

Table 4: NTC temperature sensor (1R30) drying air - Resistance values



#### 030-4

### 2 Function

#### 2.1 No-load detection

Only in residual moisture programs.

Sensing of no-load and very dry laundry.

The electrical resistance of the load is detected via the residual moisture sensor (B3/1).

If the electrical resistance is very high, it means the laundry is dry, or there is no load in the drum.

The drying cycle is stopped within 30 seconds of start.

The display shows the message: Check load.

#### 2.2 Residual moisture measurement

#### **Resistance measurement:**

The residual moisture is calculated based on the electrical resistance of the damp laundry.

The electrical resistance of the damp laundry is measured by a sensor, between a drum rib and the drum casing.

#### Note

In 1-rib sensing only one rib is used for measuring.

The value of the electrical resistance depends on the type of laundry, the degree of moisture, the laundry load (weight) and the drum rotating angle (centrifugal force, rib contact).

#### 2.3 Heater control

#### Safety function:

If the NTC temperature sensor drying air (1R30) is defective, the heater is not switched on.

The heater is switched off as soon as the heater relay is activated for more than 5 seconds without the motor relay being activated.

Heater reactivation is delayed by 10 s, the auxiliary heater is switched off before, during and after a reversing pause.

#### Temperature limiter with manual reset (1F1, 2F1, 3F1) 2.4

T 9800

Three closed 3/4 inch temperature limiters, with manual reset via pushbutton, are on the heater bank.

#### 2.5 NTC temperature sensor drying air (1R30)

If the temperature sensor drying air NTC detects temperatures lower than 5°F (-15°C) or higher than 320°F (160 °C), the NTC must be considered defective.

#### 2.6 NTC temperature sensor heating/drying (2R30)

An open circuit in the NTC temperature sensor heating/drying (2R30) can only be detected at temperatures higher than 57 °F (14 °C). Since lower temperatures can exist during operating, sensor readings will only be evaluated after the heater has been running for at least 1 minute.

#### Note

If the heater is defective, Fault F 4 (drying/heating temperature sensor, 2R30) is issued.

If the NTC temperature sensor heating/drying has a short circuit, corresponding to 482 °F, the heater is switched off immediately.



#### 030-6

### 2.7 Drum light (H3/6) (Interior drum light)

Time controlled: 1 second after the door is opened.

Switch off delay: 5 minutes.

When the door is closed, the light is always switched off.


#### 3 **Fault Repair**

#### Temperature limiter with manual reset (F1) has tripped 3.1

## Symptom

The temperature limiter has tripped repeatedly.

## Cause

Clogged door lint filter.

## Remedy

- Clean the door lint filter.

## Cause

Clogged air duct vents.

## Remedy

 $\checkmark$  Clean the air duct openings.

## Cause

Clogged air vents/exhaust vents.

## Remedy

- Clean the air vents/exhaust vents.

## Cause

Drum is sluggish.

## Remedy

- ✓ Check the front bearing seals (front and back needle felting) for correct position.
- Check the bearing of the front support roller, and adjust it.

## Cause

Intermediate V-belt power transmission is faulty.

## Remedy

- Check the intermediate V-belt for dirt deposits, wear and tear, and tension.



## 030-8

## Cause

Drum V-belt is faulty.

## Remedy

Check the drum V-belt for dirt deposits, wear and tear, and tension (tension spring of intermediate drive).

# Míele

# Descriptive Technical Documentation 030-9

## 4 Service

## 4.1 Heater bank – Replace

Т 9800

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- ✓ Remove the front panel, refer to Front panel Remove, 010 4.2.
- ✓ Remove the right side panel, refer to Side panel Remove, 010 4.3.



## Fig. 1

- ✓ Remove the service panel door at the dryer back.
- Take the wire out of the heater bank wiring harness (rear of appliance housing).
- Jisconnect the plugs.

# Míele

## Descriptive Technical Documentation DTD no. 12-9800

## 4.2 Rear bearing – Replace

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- ✓ Remove the front panel, refer to Front panel Remove, 010 4.2.
- ✓ Remove the right side panel, refer to Side panel Remove, 010 4.3.
- ✓ Take the V-belt off the intermediate drive.
- In electrically run dryers: Detach the heater bank attachment and take the heater bank off, refer to Heater bank Replace, 030 4.1.



Fig. 2: Bearing housing attachment

✓ Unscrew the bearing housing attachment.



DTD no. 12-9800





- ${\ensuremath{\scriptstyle{\mathcal F}}}$  Take the top plate off.
- $\checkmark$  Unlock the drum bearing at the back and take it off.





DTD no. 12-9800

ocumentation 031-1

# 031 Heating (Gas)

T 9820





## 031-2

## 1 Technical Data

Heating mode	Gas, for electric refer to 030 Table 2	
Gas burner	Gas burner, pipe configuration, 5.7 kW. Model: Venturi	
Natural gas version - output	5.4 kW ANSI Gas A, 40.1 MJ/m <sup>3</sup>	
Temperature sensor	Temperature sensor heating/drying (2R30)	
Temperature limiter	Two 3/4" bi-metal temperature limiters (1F1, 2F1) with manual reset, 16 A, 120°C/100 °C ± 5 K	
Safety time, refer to 031 2.1.3 Safety time	≤ 90 seconds	

Table 1: Technical data – Heating (Gas)

#### 2 **Function**

#### 2.1 Gas unit

#### 2.1.1 Gas solenoid valve (Y57)

In gas dryers the gas solenoid valve (Y57) is activated via the heater relays (1K1/ 1) and (2K1/1).

Gas solenoid valve (Y57) consists of gas solenoid valves (Y57/1) and (Y57/2).

Gas solenoid valve (Y57/1) in turn consists of a maintaining coil (Y57/1) and a booster coil (Y57/1).

Gas solenoid valve (Y57) only opens when both the solenoid valves (Y57/1) and (Y57/2) are opened.

Gas solenoid valve (Y57/1) in turn only opens when the maintaining coil (Y57/1) and the booster coil (Y57/1) carry voltage.

Once gas solenoid valve (Y57/1) is open, it remains in this state, as long as the maintaining coil (Y57/1) carries voltage.



#### 2.1.2 Gas ignition

## Fig. 1

- 1 Temperature sensor heating (1R30, 2R30) in heating duct
- 2 Gas solenoid valve (Y57)
- 3 Gas solenoid valve (Y57/2)
- Gas solenoid valve (Y57/1) 4
- Maintaining coil gas solenoid valve (Y57/1) 5
- Booster coil gas solenoid valve (Y57/1) 6
- 7 Ignitor (E1/1)



8 Temperature limiter (1F1, 2F1)
9 Flame sensor (radiance sensor B1/16)



## Fig. 2

At the start of the drying process, the flame sensor (B1/16) is in a cool state and closed.

Gas solenoid valve (Y57/2) is not carrying voltage and is therefore closed.

At the demand for heating, both heater relays 1K1/1 and 2K1/1 close.

Maintaining coil and booster coil of gas solenoid valve (Y57/1) carry voltage – gas solenoid valve (Y57/1) opens, ignitor electrode (E1/1) receives voltage and slowly starts to glow.

Since not both gas solenoid values (Y57/2) and (Y57/1) switched in sequence are open, gas does not yet flow.



## Fig. 3

Once the heat radiance on flame sensor (B1/16) is strong enough, the thermostat opens.

Now the ignitor electrode (E1/1) no longer carries voltage. However now the gas solenoid valve (Y57/2) receives voltage via the low ohmic ignitor electrode (E1/1) and the gas solenoid valve (Y57/2) opens.

# Míele

## Descriptive Technical Documentation

## DTD no. 12-9800

031-5

Since gas solenoid valve (Y57/1) is still open via the maintaining coil, gas now flows into the burner and ignites at the glowing ignitor electrode (E1/1).



## Fig. 4

The flame is on.

The flame keeps the flame sensor (B1/16) at temperature, and open.



## Fig. 5

If the flame goes out, the sluggishness of the flame sensor (B1/16), has the effect that the gas continues to flow for a while until gas solenoid valve (Y57/2) closes and stops the gas flow.

Safety time, refer to 031 2.1.3 Safety time.

If the burner overheats, the thermostat/temperature limiter (1F1, 2F1) interrupts the voltage circuit of gas solenoid valve Y57, gas solenoid valve (Y57/1 und Y57/2) shuts off.

## 2.1.3 Safety time

The safety time is the time span between the point when the flame goes out and the gas supply shuts off.



## 2.1.4 Temperature sensor heating/drying (2R30)

Temperature sensor heating/drying (2R30) at the reflective plate, under the back service panel, NTC characteristic curve, refer to 030 Table 3.

### 2.1.5 Temperature limiter (1F1, 2F1)

Two 3/4" bi-metal temperature limiters (1F1, 2F1) with manual reset at the burner.

The bi-metal temperature limiter (1F1) at the burner exit serves to detect any overheating of the burner due to insufficient air or air leakage.

The bi-metal temperature limiter (2F1) at the burner entrance serves to detect any flame flashback.

## DTD no. 12-9800

## 4 Service

## 4.1 Gas burner – Check

## Danger!

Danger of burning.

The ignitor electrode (E1/1) begins to glow.

Gas ignites at the ignitor electrode (E1/1).

## Note

There is a measuring port for jet pressure at the gas valve, no measuring port for the gas tapping pressure.

r Test the gas resting pressure, target value: 17.4 mbar

## Note

Gas resting pressure: Pressure of gas that is stationary, without tapping the gas.

Check the gas tapping pressure, target value: 8.2 mbar.

## Note

Gas tapping pressure: Gas flow pressure at the connection of the dryer, with the burner running.

This pressure can only be measured with functional burner, while operating.

Check the temperature limiter (1F1, 2F1) for continuity.

## Warning!

If the front temperature limiter (2F1) has tripped it has to be assumed that the burner and the connecting cables have sustained thermal damage by a flashback.

In this case, replace the burner, complete with connecting cables.

At the same time, check the general area of the burner for heat damage.

## Warning!

If the rear temperature limiter (1F1) has tripped, check the exhaust air duct and the fan for heat damage.

- $\checkmark$  Check the function of the exhaust air duct and the fan.
- f Check the flame sensor (B1/16) for continuity, at room temperature.

## Danger!

Danger of high voltage when working on the appliance while it's opened. Components carry voltage.

- $\checkmark$  Start the drying program.
- $\checkmark$  Check if the heater relays (1K1/1) and (2K1/1) close.
- Check if the maintaining coil and the booster coil of the gas solenoid valve (Y57/1) receive voltage, and if the gas solenoid valve opens audibly.

## Note

No gas flow, since gas solenoid valve (Y57/2) is closed.





- Check that no gas flows out, measure gas tapping pressure, refer to 031 Fig.
  6.
- $\sim$  Check if the ignitor electrode (E1/1) carries voltage and starts glowing.
- $\checkmark$  With the ignitor electrode (E1/1) glowing, check if flame sensor (B1/16) opens.
- Check if now the gas solenoid valve (Y57/2) receives voltage via the low ohmic ignitor electrode (E1/1) and the gas solenoid valve (Y57/2) opens. Jet pressure, refer to 031 Fig. 6.

## DTD no. 12-9800

- Check if gas solenoid valve (Y57/1) continues to be open via the maintaining coil of the gas solenoid valve.
- Check if, with the flame gone out, the gas solenoid valve (Y57/2) closes flame sensor (B1/16) within the safety time and shuts off the gas stream. Safety time, refer to 031 2.1.3 Safety time.

## 4.2 Gas solenoid valve – Remove

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- ✓ Remove the front panel, refer to Front panel Remove, 010 4.2.
- ✓ Remove the left side panel, refer to Side panel Remove, 010 4.3.





✓ Pull the plugs off the gas regulation valve.





## Fig. 8

- Release the connecting line from the gas regulation valve. Tools: Two 17 mm open-end wrenches. With one wrench, loosen the nut on the gas line, and with the other, maintain counter pressure on the valve.
- Remove the retaining bracket of the gas regulation valve. Tools: 7 mm Allen wrench and Phillips screwdriver.
- ✓ Take the gas regulation valve off the burner.

## 4.3 Gas solenoid valve – Install

## Warning!

Clean soiled components with spray cleaner, MICROTEC Profi-Clean, M. no. 05321000.

- Insert the gas regulation valve into the burner.
- Fasten the bracket of the gas regulation valve. Tools: 7 mm Allen wrench and Phillips screwdriver.



## Fig. 9

Tools: Two 17 mm wrenches. Attach the gas connecting line to the gas regulation valve. Fasten the connecting nut and turn all the way to its stop.







For the permanent assembly, give the connecting nut another 1/4 turn with a 17 mm open-end wrench (19 Nm ± 1 Nm), maintain counter pressure on the double nipple with a second 17 mm open-end wrench.



## Fig. 11

- Connect the 2 plugs and the ground lead to the gas regulation valve.
- ≁ Attach the right side panel.
- Attach the front panel.
- ≁ Attach the fascia panel.
- Attach the dryer lid.

# Míele

## **Descriptive Technical Documentation**

## DTD no. 12-9800

031-13

## Warning!

Perform an electrical safety check.

Perform a gas safety check.

With the system under normal gas pressure, check the gas connections for tight seal using a spray such as Leak Test.

Check the dryer for correct function.

## 4.4 Gas burner – Remove

- ✓ Remove the dryer lid, refer to Lid Remove, 010 4.1.
- ✓ Remove the front panel, refer to Front panel Remove, 010 4.2.
- ✓ Remove the left side panel, refer to Side panel Remove, 010 4.3.
- Remove the gas solenoid valve, refer to Gas solenoid valve Remove, 031 4.2.







031-14

Loosen the burner retaining screw and take the burner off.

## 4.5 Gas burner – Install



## Fig. 13

- Secure the burner with a screw.
- ✓ Fit the gas solenoid valve, refer to Gas solenoid valve Install, 031 4.3.
- ✓ Attach the left side panel, refer to Side panel Remove, 010 4.3.
- $\checkmark$  Attach the front panel, refer to Front panel Remove, 010 4.2.
- ✓ Attach the fascial panel.
- ✓ Fit the dryer lid, refer to Lid Remove, 010 4.1.

# Míele

## **Descriptive Technical Documentation**

## Warning!

Carry out an electrical safety check.

Carry out a gas safety check.

With the system under normal gas pressure, check the gas connections for tight seal using a spray such as Leak Test.

Check the function of the dryer.





040-1

## DTD no. 12-9800

## 040 Motor, Fan





## 040-2

## 1 Technical Data

	Vented Dryer	Gas Dryer	
Motor, Fan	Motor drying air and drum drive (M5), Rating approx. 400 W		
Drying air fan, volume flow, free flowing	Approx. 471 cubic yards / h (360 m <sup>3</sup> / h). (20 m pipe, d = 4" (100 mm), straight run without additional structures		

Table 1: Technical data – Motor, Fan



DTD no. 12-9800

# 050-1

#### Air duct, Front bearing 050





## 050-2

## 1 Technical Data

Filter	Flat filter
Temperature sensor drying air	NTC (1R30)
Drum light (H3/ 6)	E 14 Bayonet closure, activation via relay on the Program/ Power module (EPWL). USA: 120 V, 15 W

Table 1: Technical data - Air duct, Front bearing

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## DTD no. 12-9800

090-1

#### Fascia panel, Control/Power electronic 090





## 1 Technical Data

Heating mode	Electrical	Gas	
Control/Power electronic	USA/CDN/MEX: Program/ Power module (1N1): EPWL 341 (Single board electronic)	USA/CDN/MEX: Program/ Power module (1N1): EPWL 345 (Single board electronic)	
	Can be updated via optical PC interface installed standard		
Drying technology	Reversing cycle times 300 / 30 seconds (clockwise / counterclockwise)	Up to Rotary iron, no reversing. Starting with Rotary iron, reversing cycle times 600 / 30 seconds (clockwise / counterclockwise)	
	Residual moisture sensing: Target values, residual moisture sensor (B3/1), 1-rib sampling		
	Insufficient air detection via temperature sensor heating/drying (2R30) and temperature sensor drying air (1R30)		

Table 1: Technical data – Fascia panel, Electrical system



## 2 Function

## 2.1 Dryer function after a power interruption

The dryer continues automatically at the point the program was interrupted.

## 2.2 Programming function

## 2.2.1 Reset

Reset all programming options to factory setting.

The reset takes effect immediately, it's not possible to restore the previous settings!

Operating hours are not reset.

Not possible with service department electronics.

## 2.2.2 Programming function drying outcome (residual moisture) Cottons/Hot

Drying can be set more damp or more dry, to suit customer preference.

# 2.2.3 Programming function drying outcome (residual moisture) Permanent press

Drying can be set more damp or more dry, to suit customer preference.

Permanent press	more damp	standard	more dry
Normal dry	4 %	2 %	0 %

**Table 2:** Residual moisture Permanent press

## 2.2.4 Memory

When the memory function is activated, the extra features selected at the start of a program are saved. When the same program is selected again, these extra features are automatically called up.

## 2.2.5 **Programming function – Additional cooldown phase**

Applies only to residual moisture programs.

An extended cooldown time reduces the temperature of the laundry at program end. The result is that the laundry feels less damp.

The cooldown time extension has no effect on timed drying programs.



### 090-4

## 2.2.6 Programming function – Prompt to clean air ducts

Operators can adjust the prompt to clean air ducts to their needs.

Insufficient air sensor, refer to 090 2.5 Insufficient air detection.

## 2.2.7 Acoustical acknowledgment

Set the acoustical tone to sound when a touchpad is pressed.

## 2.2.8 Conductivity setting

The conductivity of the damp textiles is evaluated and forms the basis of residual moisture sensing.

Residual moisture sensing, refer to 090 2.3 Residual moisture sensing.

Soft water does not conduct as well as hard water. The effect of soft water on residual moisture sensing can be compensated with this programming function in areas of soft water.

### 2.2.9 Stand-by

With stand-by activated, the control lights and the drum light (H3/6) are dimmed after 5 minutes, to save energy.

## 2.3 Residual moisture sensing

The electronic detects the conductivity  $[\mu S]$  of the textiles via the residual moisture sensor (B3/1).

The residual moisture of the laundry is based on the measured conductivity value.

## 2.4 Overriding time control

A fixed maximum time of approx. 180 minutes is imposed on all residual moisture drying programs at program start. After this time has elapsed, any drying program is stopped and the cooldown phase for faults is carried out. There is no anticrease action, and no fault code is indicated. The fault is saved and can be called up in the service mode.

## 2.5 Insufficient air detection

The temperature sensor heating/drying (2R30) monitors the temperature increase in the heater bank.

If the air paths are clogged during heating, the temperature in the heater bank rises rapidly.

This is detected and the fault message "insufficient air" is displayed.

If the temperature at the temperature sensor heating/drying (2R30) exceeds 356  $^{\circ}$ F (180  $^{\circ}$ C), fault code F 66 "leaking air" is issued.

## 2.6 Operating hours meter

The time is counted from program start to the end of cool down, without the time for delay start and anti-crease action.



## 3 Fault Repair

## 3.1 LED Anti-Crease/End lights up solid

## Symptom

This fault occurs in the normal operating mode, only in residual moisture programs.

Program stop, cooling air phase, intermittent buzzer tone.

Opening and then closing the door deletes this fault message.

## Cause

The drum is empty, or loaded with a few laundry items only. The laundry is too dry.

The residual moisture sensor (B3/1) voltage circuit is high-ohmic, the residual moisture sensor has no-load detection, this is not a technical fault.

No-load detection, refer to 030 2.1 No-load detection.

## Remedy

✓ Correct the load, or switch to a timed program.

## Cause

Defective residual moisture sensor (B3/1).

## Check the residual moisture sensor (B3/1)

Check the residual moisture sensor (B3/1) for low-ohmic (continuity) status, refer to Service mode summary, 090 4.3.

## DTD no. 12-9800

#### LED Clean air paths lights up solid 3.2

## Symptom

Normal program run.

Fault indication at the end of the cooling air cycle.

Insufficient air detection, refer to 090 2.5 Insufficient air detection.

Opening and closing the door deletes this fault code indication.

## Cause

Air paths are clogged.

## Remedy

## Note

Clean the lint filter, refer to operating instructions.

- Clean the lint filter in the door casing and in the fill ring.XXX
- $\checkmark$  Clean the air paths in the dryer.

## Cause

The fault message "Clean air paths" is issued prematurely.

## Remedy

Adjust the fault message indication "Clean air paths", refer to operating instructions, or Programming mode summary, 090 4.1.



## 3.3 LED Clean air paths flashes rapidly

## Symptom

The fault occurs in the operating mode: Program stop, cooling air phase, buzzer sounds intermittently for 2 minutes.

Fault code F 66 in the fault memory: Leaking air fault.

## Cause

Air paths are clogged.

Insufficient air measurement, refer to 090 2.5 Insufficient air detection.

## Remedy

- ✓ Clean air paths.
- ✓ Delete fault memory, refer to Service mode summary, 090 4.3.

## 3.4 LED Rotary iron flashes

## Symptom

The fault occurs in the operating mode: Program stop, cooling air phase, buzzer sounds intermittently for 2 minutes.

Fault code F 1 or F 2 in the fault memory: NTC temperature sensor heater bank short circuit or open circuit.

## Cause

NTC temperature sensor heater bank short circuit or open circuit.

## Remedy

- Check the lines and plugs of temperature sensor heating/drying (2R30) for short circuit and open circuit.
- Temperature sensor heating/drying (2R30) characteristic curve, refer to 030 Table 3.
- ✓ Delete fault memory, refer to Service mode summary, 090 4.3.

## 3.5 LED Hand iron flashes

## Symptom

The fault occurs in the operating mode: Program stop, cooling air phase, buzzer sounds intermittently for 2 minutes.

Fault code F 3 or F 4 in the fault memory: NTC temperature sensor drying air (1R30) short circuit or open circuit.

## Cause

Temperature sensor heating/drying (2R30) open circuit (< 68 °F), evaluation only after the heater has been run for at least 1 minute.

## Remedy

- Check the lines and plugs of temperature sensor heating/drying (2R30) for short circuit and open circuit.
- Temperature sensor heating/drying (2R30) characteristic curve, refer to 030 Table 3.

## Cause

Heater bank is not heating. Unheated, the sensor is below the measuring threshold of 68  $^\circ\text{F.}$ 

## Remedy

✓ Electric: Check the heater element (R1) for short circuit and open circuit.

## Cause

Electric: Defective heater relay (K1/1).

## Remedy

 $\checkmark$  Check the heater relay (K1/1).

## Cause

**Electric:** Temperature limiter with manual reset (F1) has tripped.

## Remedy

- ✓ Reset the temperature limiter (F1).
- Find the cause for the temperature limiter tripping, and rectify it.

# Míele

## Descriptive Technical Documentation DTD no. 12-9800

## 090-10

## Cause

Gas: Gas burner is not heating.

## Remedy

✓ Check the burner, refer to Gas burner – Check, 031 4.1.

## 3.6 All program LEDs flash

## Symptom

No program start, no access to the programming or service mode.

## Cause

Demo mode is activated.

## Remedy

Deactivate the demo mode, refer to Demonstration mode – Activate / Deactivate, 090 4.2.

## 3.7 F 0 No fault

## Cause

No fault is saved in the fault memory of the power module (ELP).

## Remedy

≁ None.
# 3.8 F 1 Short circuit in NTC temperature sensor heating/drying (2R30)

#### Symptom

Program stop, cooling air phase, buzzer intermittent tone.

Only the timed program "cold air" still works.

The LED Rotary iron flashes.

The LED Clean air paths flashes.

Opening and closing the door deletes this fault code indication.

#### Cause

Short circuit in temperature sensor heating/drying (2R30) (> 480 °F).

#### Remedy

- Check the lines and plugs of the temperature sensor heating/drying (2R30) for short circuit and open circuit.
- For temperature sensor heating/drying characteristic curve, refer to 030 Table 3.

# 3.9 F 2 Open circuit in NTC temperature sensor heating/drying (2R30)

### Symptom

Program stop, cooling air phase, intermittent buzzer tone.

Only the timed program "cold air" still works.

The LED Rotary iron flashes.

The LED Clean air paths flashes.

Opening and closing the door deletes this fault code indication.

#### Cause

Open circuit of temperature sensor heating/drying (2R30) (< 68  $^{\circ}$ F), evaluation only after the heater has been run for at least 1 minute.

### Remedy

- Check the lines and plugs of the temperature sensor heating/drying (2R30) for short circuit and open circuit.
- For NTC temperature sensor heating/drying characteristic curve, refer to 030 Table 3.



#### Cause

Heater bank is not heating. Without heat, the sensor is below the measuring threshold of 68  $\,^{\circ}\text{F}.$ 

#### Remedy

✓ Electric: Check the heater bank (R1) for short circuit and open circuit.

#### Cause

```
Electric: Heater relay (K1/1).
```

#### Remedy

✓ Check the heater relay (K1/1).

#### Cause

Electric: Temperature limiter with manual reset (F1) has tripped.

### Remedy

- ✓ Reset the temperature limiter (F1).
- Find the cause for the temperature limiter tripping, and rectify it.

### Cause

Gas: Gas burner not heating.

### Remedy

✓ Check the gas burner, refer to Gas burner – Check, 031 4.1.

### 090-12



#### DTD no. 12-9800

# 3.10 F 3 NTC temperature sensor drying air (1R30) – Short circuit

#### Symptom

Program stop, cooling air phase, intermittent buzzer tone.

Only the timed program "cold air" still works.

The LED Hand iron flashes.

The LED Clean air paths flashes.

Opening and closing the door deletes this fault code indication.

#### Cause

Short circuit (> 320 °F) in temperature sensor heating/drying (1R30).

#### Remedy

- Check the lines and plugs of temperature sensor drying air (1R30) for short circuit and open circuit.
- For temperature sensor drying air (1R30) characteristic curve, refer to 030 Table 4.

# 3.11 F 4 NTC temperature sensor drying air (1R30) – Open circuit

#### Symptom

Program stop, cooling air phase, intermittent buzzer tone.

Only the timed program "cold air" still works.

The LED Hand iron flashes.

The LED Clean air paths flashes.

Opening and closing the door deletes this fault code indication.

#### Cause

Open circuit (< - 60 °F) in temperature sensor drying air (1R30) ./ XXXTemperaturfühler-Prozessluft (1R30), Unterbrechung (< - 15 °C).

#### Remedy

- Check the lines and plugs of temperature sensor drying air (1R30) for short circuit and open circuit.
- For temperature sensor drying air (1R30) characteristic curve, refer to 030 Table 4.



# 3.12 F 50 Motor stalls and heater is on for 3 seconds

#### Symptom

The motor for drying air/cooling air and drum drive (M5) stalls.

The fault occurs in the operating mode: Program stop, cooling air phase, intermittent buzzer tone.

Opening and closing the door deletes this fault code indication.

#### Cause

This is an internal fault of the Control/Program/Power module (1N1, EPWL).

#### Remedy

- Check the drying air, cooling air and drum drive motor (M5).
- Replace the Control/Program/Power module (1N1, EPWL, Single Board Control)

# 3.13 **F** 55 Overriding time limit exceeded, approx. 180 min

#### Symptom

Only in residual moisture programs.

This fault occurs in the normal operating mode: Program stop, cooling air phase, intermittent buzzer tone for 2 minutes.

The LED Anti Crease/End lights up solid.

The Fault/Vent LED lights up solid.

Opening and closing the door deletes this fault code indication.

The safety time has been exceeded, refer to 090 2.4 Overriding time control.

#### Cause

Laundry too wet, or dryer overloaded.

#### Remedy

Spin the laundry more thoroughly in the washer, or reduce the laundry load.

#### Cause

Laundry is electrically conductive (low ohmic), due to a metal zipper for example.

#### 090-14



#### DTD no. 12-9800

#### Remedy

✓ Run a timed warm air program.

#### Cause

Air path clogged.

#### Remedy

- Check the air paths and clean them.

#### Cause

Heater bank is not heating.

#### Remedy

✓ Check the heater element (R1) for short circuit and open circuit.

#### Cause

Heater relay (K1/1).

#### Remedy

✓ Check the heater relay (K1/1).

#### Cause

Temperature limiter (SOD, F2).

### Remedy

- Check the temperature limiter (SOD, F2) for open circuit.

#### Cause

Defective residual moisture sensor (B3/1).

### Residual moisture sensor (B3/1)-Check the sampler:

Check the residual moisture sensor (B3/1) voltage circuit for high ohmic (isolation) status, refer to Service mode summary, 090 4.3.



# 3.14 F 66 Air leakage

#### Symptom

This fault occurs in the normal operating mode: Program stop, cooling air phase, intermittent buzzer tone for 2 minutes.

#### Cause

Air paths clogged.

Insufficient air measurement, refer to 090 2.5 Insufficient air detection.

#### Remedy

 $\checkmark$  Clean the air paths.

#### 090-16



# 4 Service

# 4.1 **Programming mode summary**

#### **Initial requirements**

- ✓ The dryer is set up and installed correctly.
- $\checkmark$  End the current program as well as the demo mode.
- ✓ Open the door.

#### Accessing

#### Note

Access has to be completed within 10 s.

- ✓ Press the Start/Stop pad and hold it.
- Close the door.
- ✓ As soon as the Start LED flashes, release the Start pad.
- Immediately press Start 5 x and at the 5th time, hold it until the Start/Stop LED flashes rapidly (5Hz).

#### Acknowledgement indicator

Start/Stop LED flashes rapidly (5 Hz).

If access is not successful, the control automatically reverts to the normal programming mode.

#### Options

Select the programming function: Press the Buzzer pad.

The buzzer pad shows the programming function via a flashing rhythm.

#### Select the option: Press the Start/Stop pad.

The Drying LED shows the **Option** selected via a flashing rhythm.

#### Warning!

For the dryer to function properly, specific options for the country it is operating in have to be selected.

The service department software has to be adapted.

# Míele

#### Descriptive Technical Documentation DTD no. 12-9800

090-1	18
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Programming function		Option		
Buzzer LED	long	short	Drying LED	short
		1	adapted options	0
Reset, refer to 090 2.2.1 Reset	-		delivery condition	1
	-	2	more damp	1
Drying outcome (residual moisture) Cottons/Hot refer to			standard	2
			more dry	3
Drving outcome (residual	-	3	more damp	1
moisture) Permanent press, refer			standard	2
to			more dry	3
	-	6	off, memory function not activated	0
<b>Memory</b> , refer to 090 2.2.4 Memory			on, memory function activated	1
<b>Cooling phase</b> , refer to 090 2.2.5 Programming function – Additional cooldown phase	-	7	off	1
			5 min	2
			10 min	3
	1	-	off	0
Insufficient air alert, refer to 090			more sensitive	1
Prompt to clean air ducts			standard	2
			less sensitive	3
Acoustical acknowledgment of	1	1	off	0
touch pad activation, refer to 090 2.2.7 Acoustical acknowledgment			on	1
Characteristic curve setting, refer	1	2	normal	0
to 090 2.2.8 Conductivity setting			low [< 150 μS]	1
Stand-by, refer to 090 2.2.9 Stand-	4	3	off	0
by	1		on	1

 Table 3: Programming mode summary

#### Save and quit

#### Note

Programming options selected are saved in the Program/Power module (EPWL).

 $\checkmark$  Open the door.

#### DTD no. 12-9800

### 4.2 Demonstration mode – Activate / Deactivate

#### **Initial requirements**

- ✓ End any current program.
- ✓ Close the door./XXX

#### Accessing

#### Note

Access has to be completed within 10 s.

- ✓ Press the Start/Stop pad and hold it.
- Close the door.
- As soon as the Start/Stop LED lights up steadily, after about 4 s, release the Start/Stop pad.
- Immediately press the Start pad again and hold until the Start/Stop LED goes out, about 3 s.

#### Acknowledgement indicator

The demo program starts running.

If access is not successful, the control automatically reverts to the normal programming mode.

#### Options

A demo program cycle lasts about 40 s, then there is a short pause / stand-by, and the demo program starts again.

Operating simulation / Interactive demo mode: In interactive demo mode, the appliance can be operated, without a program being started.

#### Save and quit

 $\checkmark$  To deactivate the demo mode, repeat the access.



#### 090-20

#### 4.3 Service mode summary

#### **Initial requirements**

- ✓ The dryer is set up and installed correctly.
- $\checkmark$  End the current program as well as the demo mode.
- ✓ Open the door.

#### Accessing

#### Note

Access has to be completed within 10 s.

- Press the Start/Stop pad and hold it.
- switch the dryer on.
- As soon as the Start/Stop LED flashes, release the Start/Stop pad.
- Immediately press Start/Stop 3x and at the 3rd time hold it until the Start/ Stop LED flashes slowly (1 Hz).

#### Acknowledgement indicator

The Start/Stop LED flashes slowly (1 Hz).

If access is not successful, the control automatically reverts to the normal programming mode.

#### Options

- ✓ To select a service function: Press the Buzzer pad.
- ✓ To start a service function: Press the Start/Stop pad.

#### Note

The component test switches off automatically 30 minutes after the last component is activated.

Service fund	tion	Option		
Buzzer LED	short	Drying LED	long	shor



#### DTD no. 12-9800

# 090-21

Service function		Option		
Buzzer LED	short	Drying LED	long	shor
Software status	-	Program index XY	Х	Y
Fault memory To read <sup>1)</sup> and delete, 1 refer to <sup>2)</sup>		F 0, No fault, all ok.	-	-
		F 1, F 1, Heater bank NTC short circuit, refer to F 1 Short circuit in NTC temperature sensor heating/drying (2R30), 090 3.8	-	1
		F 2, Heater bank NTC open circuit, refer to F 2 Open circuit in NTC temperature sensor heating/ drying (2R30) , 090 3.9	-	2
		F 3, Drying air NTC short circuit, refer to F 3 NTC temperature sensor drying air (1R30) – Short circuit, 090 3.10	-	3
	1	F 4 Drying air NTC open circuit, refer to F 4 NTC temperature sensor drying air (1R30) – Open circuit, 090 3.11	-	4
		F 50, Motor stalls and heater is on for 3 s, refer to F 50 Motor stalls and heater is on for 3 seconds, 090 3.12	5	-
		F 55, Safety time exceeded, refer to F 55 Overriding time limit exceeded, approx. 180 min, 090 3.13	5	5
		F 66, Air leakage fault, refer to F 66 Air leakage, 090 3.14	6	6
		All components inactive		-
		Drive motor/Fan motor (M5) on in a rhythm of 10 pause / 10 s right / 2 s pause.	) s left / 2 s	1
Component test <sup>3)</sup> 2		Heater relay (1K1/1) / Heater (R1) on and Drive motor/Fan motor (M5) on in a rhythm of 10 s left / 2 s pause / 10 s right / 2 s pause.		2
	2	Check the residual moisture sensor (B3/1) for low ohmic status (continuity). Requirement: Electrical connection between drum and sensor rib. <sup>4)</sup>		4
	_	Check the residual moisture sensor (B3/1) for high ohmic status (isolation). Requirement: No electrical connection between drum and sensor rib.		5
	Steady buzzer tone	6		
	LED displays flash (0.5 Hz)		7	
	Heater relay (2K1/1) on and Drive motor/Fan motor (M5) on		8	
		Heater relays (1K1/1, 2K1/1, 3K1/1) on, Heater (R1, R2, R3) on and Drive motor/Fan motor (M5) on		9
		All sensors inactive Door lock (A2): Door closed => Switch closed => buzzer on.=> . Door open => Switch open = buzzer off.		-
Sensor test 5)	3			1
<b>Operating hours,</b> 090 2.6 Operating hours meter	4	Program/Power module (EPWL) operating hours:       x000 h         Long flashing signal for the number of 1000s,       short flashing signal for the number of 100s. (12         times long + 6 times short = 12000 h + 600 h =       12600 h.		y00 h

Table 4: Service mode summary

<sup>1)</sup> Show saved faults in ascending order: Press the Start/Stop pad.
 <sup>2)</sup> Delete fault memory: Press the Start/Stop pad for more than 4 seconds (deletes all saved faultst).

<sup>3)</sup> Select and activate components: Press the Start/Stop pad, after 1 s the component is automatically activated. Pressing Start/Stop again switches the current component off and starts the next one. If component testing is stopped and later called up again, the program resumes with the last component that was activated. The component test switches off automatically 30 minutes after the last component is activated.

<sup>4)</sup> In 1–rib sensing, only one rib is used for the reading.

<sup>5)</sup> Select sensor and start the test: Press the Start/Stop pad.



#### 090-22

#### Quit (without saving)

Note

Delete the fault memory before ending.

✓ Open the door.

# 4.4 Program selection module (EW) - Service view



Fig. 1

# 4.5 Program selection module (EW) and fascia support panel – Remove



### Fig. 2

- ✓ Take the fascia panel off.
- Remove the screws of the program selection module (EW), press in on the retaining tabs, and take the electronic module off.

#### DTD no. 12-9800

- ✓ Take the dryer lid off, refer to Lid Remove, 010 4.1.
- $\checkmark$  Remove the screws of the fascia support panel.
- $\checkmark$  Lift the fascia support panel out and remove it.





DTD no. 12-9800

100-1

#### 100 **Electrical system**





### 100-2

# 1 Technical Data

Heating mode	Electric	Gas
	Dryer fuses (F2); 7 A T, 6.3 mm x 32 mm	_
Electrical system	Heater relays (1K1/1, 2K1/1, 3K1/1), Single anchor relays, Rating 11 A, Coil: 12 V DC, 200 Ω	Heater relays (1K1/1, 2K1/1)

Table 1: Technical data – Electrical system

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# **Descriptive Technical Documentation**

#### DTD no. 12-9800

100-3

# 4 Service

# 4.1 Fuses – Replace

T 9800





