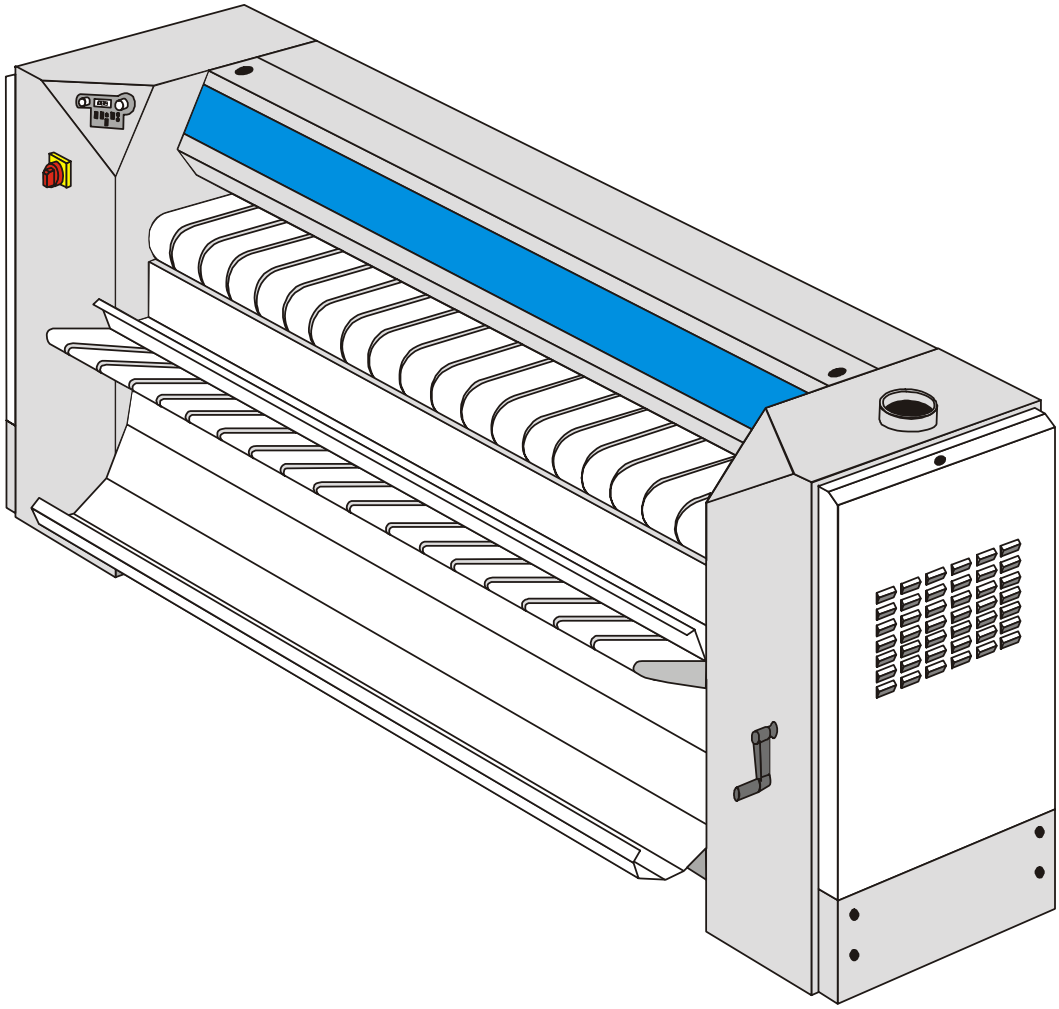
INSTRUCTION HANDBOOK

FLATWORK IRONERS / FOLDER

IC3 5019-5021-5025-5028-5032

IC3 5019-5021-5025-5028-5032 LF

IC3 5019-5021-5025-5028-5032 R



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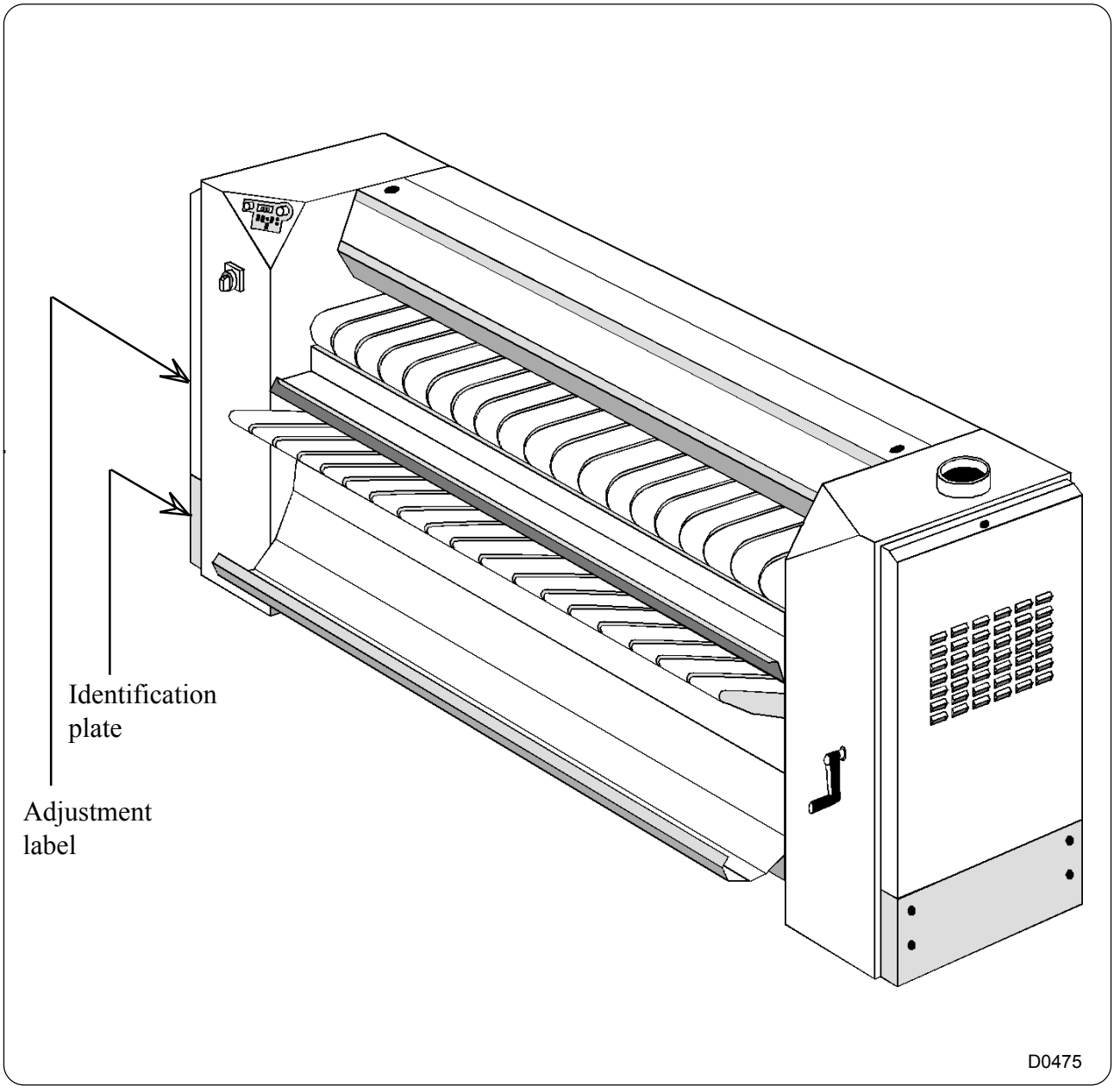
Page/Chapter

The machines described in this handbook have an ironing capacity of 190, 210, 250, 280 or 320 cm (75", 83", 98", 110" or 126") wide depending on the type. They are available with steam, electric, gas or thermal fluid heating.

A version of the machine with a fully automatic folding system enables one or two persons to dry, iron and fold sheets longitudinally.
Another version with a mechanical system allows the washing to come out at the back of the machine.

The ironing speed is adjustable as a function of the density (weight/m²) and humidity of the washing.

The temperature of the ironing cylinder can also be adjusted by a thermostat (except for steam heating; in this case, the temperature depends on the steam pressure).



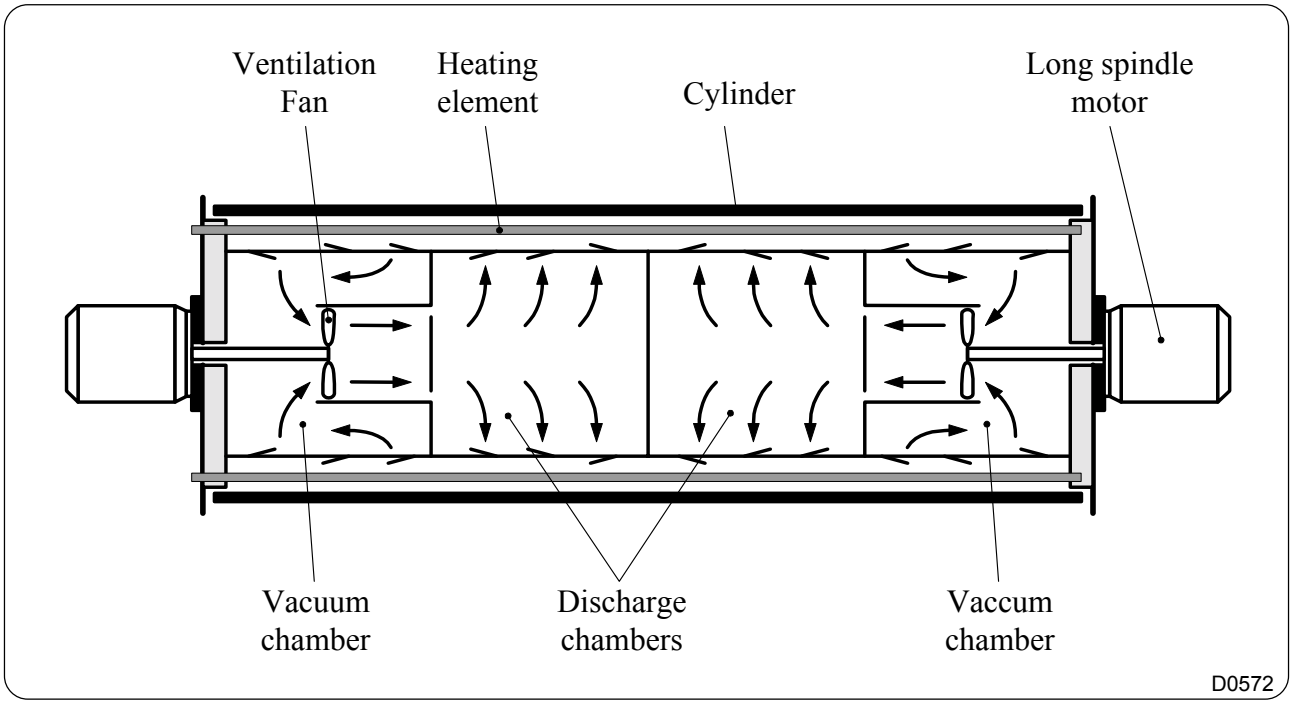
The heated cylinder drying and ironing machines are available with the temperature control system of the heated cylinder with air circulation.

This unit is an excellent means of improving ironing performance for customers ironing mainly on an alternating basis. It prevents suddenly heating cut-outs caused by partial use of the whole length of the machine (Patent No. 9608471).

The heat units most often used in one place in the cylinder are redistributed to an area in which demand is high ; in the present case, from the ends to the middle of the cylinder (see diagram below).

Thus both temperature build-up in the sides of the cylinder and a temperature drop in the middle of the cylinder are reduced.

However, the unit is not designed for customers using the whole length of the machine.



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Precautions for use

- ☞ The machine should not be used by children.
- ☞ This ironer must be used exclusively for textiles appropriate for machine ironing, whic have been previously and exclusively washed in water and pre-dried.
- ☞ Blankets should not be ironed.
- ☞ Be careful with synthetic linen and also with printed linen. They can melt and stick on the cylinder.
- ☞ Do not iron articles that contain plastic, foam, sponge rubber or similarly textured rubber-like materials.
- ☞ Do not iron linens coated with solvent, paint, wax, grease or any easily inflammable products.

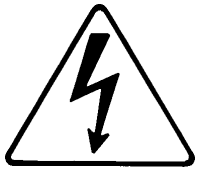
Environmental information

Concerned by providing the end user with useful and necessary environmental information, we wish to precise :

- ☞ Data about energetic consumptions, wastes (atmospheric and liquid) and sound level are indicated in the paragraph **"Technical characteristics"**.
- ☞ This machine is fully dismantable.
- ☞ This machine is free from any asbestos.

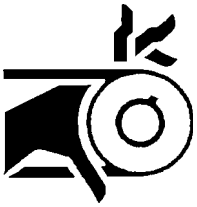
For additional information, do not hesitate to consult with our environmental department.

Explanation of graphic symbols



A flash of lightning with an arrow at its end displayed inside an equilateral triangle, warns the user about the presence of uninsulated "dangerous current" sufficient in intensity to cause electrocution.

An exclamation mark inside an equilateral triangle offers the user important advice about usage, servicing and hazardous conditions.



This symbol warns the user that there are mechanisms inside the machine which can be dangerous. The protective housing must be in place during use.

This symbol warns the user of the presence of high temperatures which could cause severe burns. Some surfaces can reach close to 200 °C (392 °F).

Please read the instruction handbook before starting to use the machine.

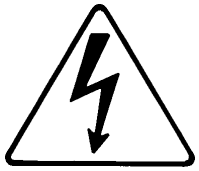
Users must have learnt how the machine operates.

The identification plate is situated on the left side.

This machine should be installed in conformance to the health and safety regulations, and only used in a sufficiently aerated area. Check the instructions before installing or using the machine.

SAFETY

The mechanical and electrical installation of the machine should only be done by qualified personnel.

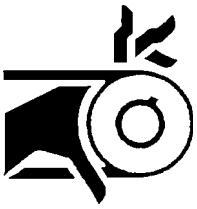


CAUTION

Do not use the machine unless it is plugged into a correctly earthed power socket complying with standards in force.

SAFETY

Never iron if the mobile safety protector (hand protection bar) is not operating.



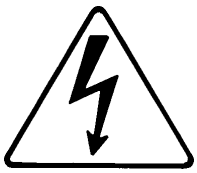
CAUTION

For your personal safety, never use the machine without the protective housings.

CAUTION

The temperature of the ironing cylinder after use can reach 200 °C (392 °F) and can cause serious burns if you touch it. Allow the machine to cool down before doing any repair or servicing work.

CAUTION



Disconnect the machine electrical power supply before doing any repair or servicing work.

All repair and servicing work must be undertaken by a competent person.

Disconnect all energy sources and let the ironing cylinder cool down before doing any work on the machine.

In order to avoid any danger of fire or explosion, never use inflammable products to clean the machine.

If you smell gas, turn off the gas supply, open the windows, do not touch any switches and inform the maintenance service.

Evacuation of vapour from a dryer ironer with gas heating must never be connected to the evacuation used for a gas heating machine and a dry cleaning machine or other machine of the same type.

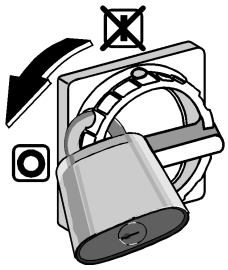
Locking and tagging procedure

A red insert at the beginning of this instruction handbook schematically shows the locking and tagging procedure described below. If you wish, you can detach this insert and display it close to the machine to remind maintenance personnel of the safety instructions.

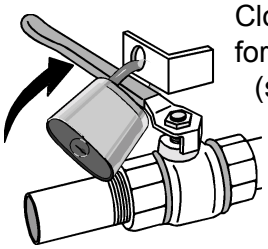
1

Always respect items 2, 3 and 4 carefully before doing any repair or maintenance work on the machine.

2

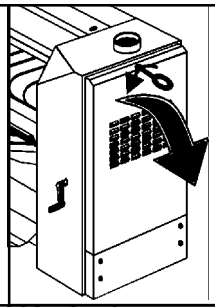


Put the main switch to Off and lock the handle with a padlock in one of the three holes provided for this purpose.



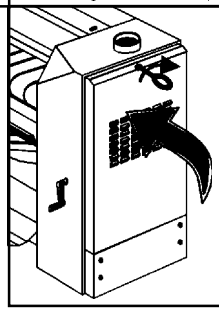
Close the stop valves for the other supplies (steam,gas, thermal fluid, compressed air) to stop and lock their handle with a padlock.

3



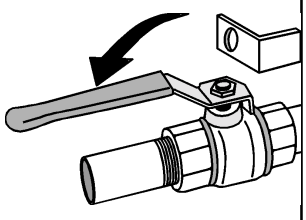
Open the fixed protectors (casings, doors) with the key provided or a special tool.

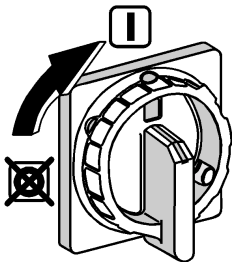
Do the maintenance.



Close and carefully lock the fixed protectors.

4





Unlock the stop valves and the main switch.

WARNING

It is obligatory that all these operations are undertaken by handling specialists.

1/ Lifting with a fork-lift truck

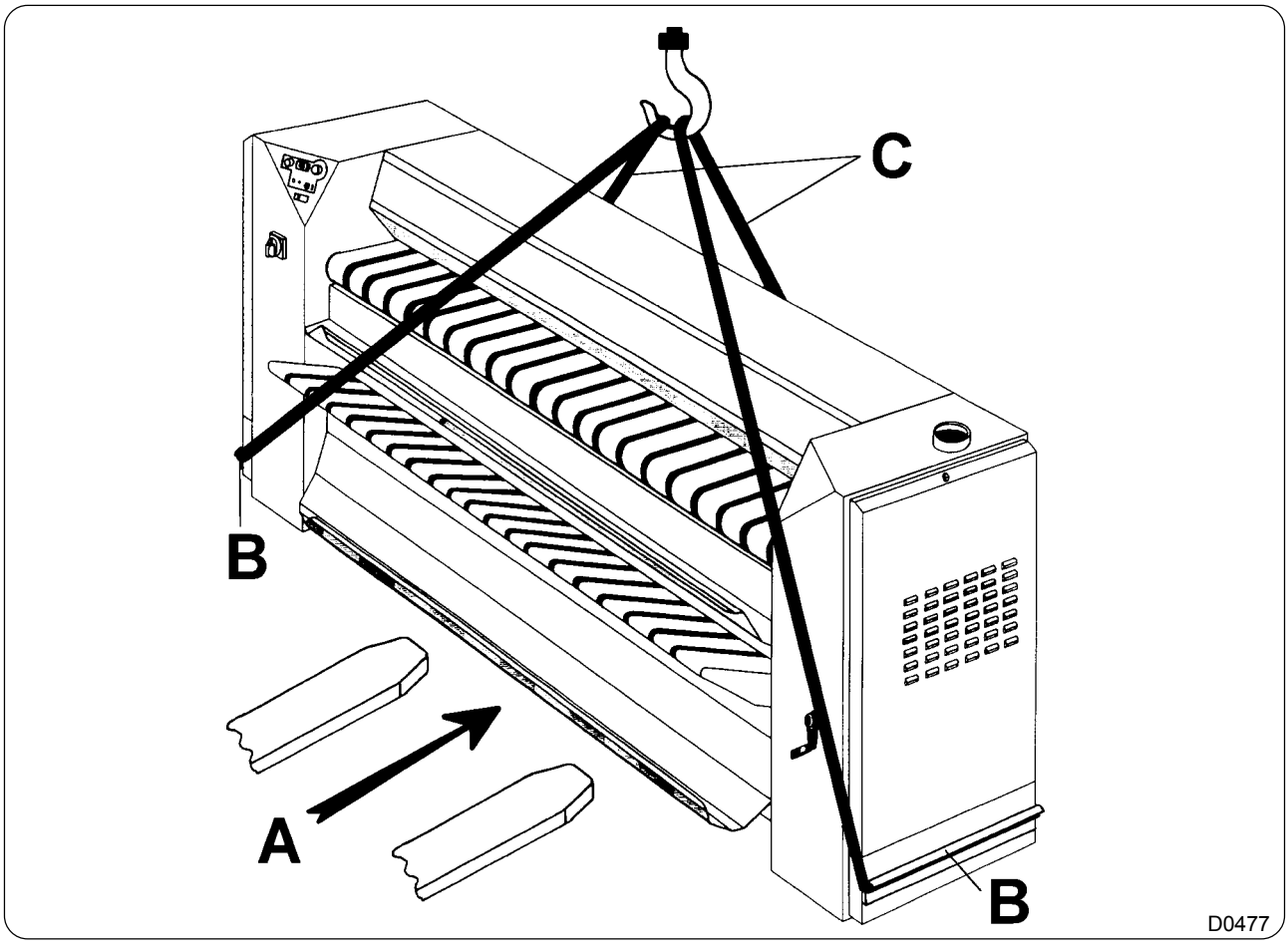
Always lift at the centre of the machine at (A).

2/ Moving along the ground

The machine frame includes a girder, so that the machine can be moved along the ground using rollers, grinding tracks or a trolley.

The two handling angles (B) can be used to lift the machine using hydraulic jacks or poles, so that rollers can be slipped under the girder.

These two handling angles are also designed to lift the machine with handling straps (C).



Ironer

Packing

Packing dimensions	Size A	Size B	Size C (machine+pallet)	Size C (crate)
Ironer 1.9 m (75")	2720 (107")	1020 (40")	1460 (58")	1560 (62")
Ironer 2.1 m (83")	2930 (115")	1020 (40")	1460 (58")	1560 (62")
Ironer 2.5 m (98")	3350 (132")	1020 (40")	1460 (58")	1560 (62")
Ironer 2.8 m (110")	3550 (140")	1020 (40")	1460 (58")	1560 (62")
Ironer 3.2 m (126")	3980 (157")	1020 (40")	1460 (58")	1560 (62")

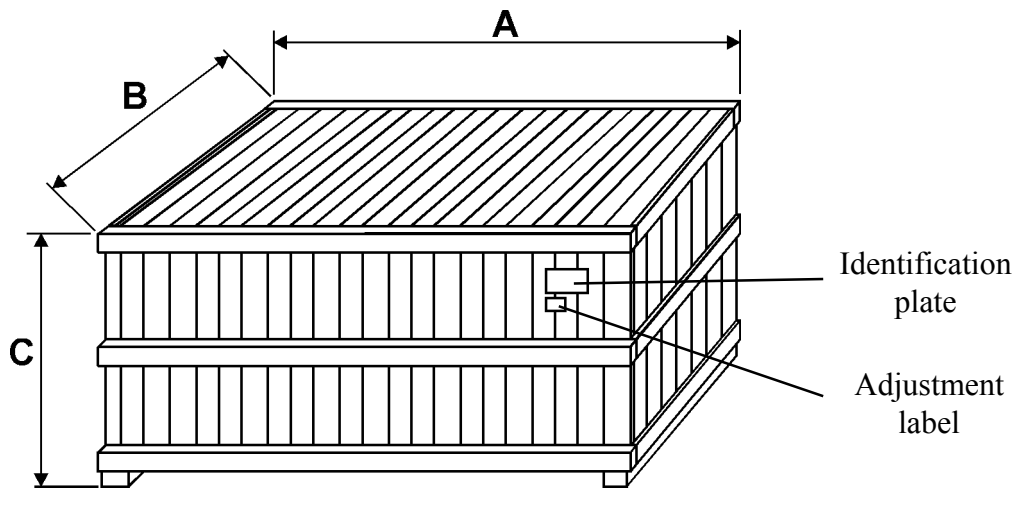
Weight

Weight in kg (machine + pallet)

	Gas	Electric	Steam/L.C.
Ironer 1.9 m (75")	635 (1400 lb)	635 (1400 lb)	xxx
Ironer 2.1 m (83")	685 (1510 lb)	685 (1510 lb)	xxx
Ironer 2.5 m (98")	755 (1665 lb)	755 (1665 lb)	xxx
Ironer 2.8 m (110")	xxx	xxx	xxx
Ironer 3.2 m (126")	895 (1974 lb)	895 (1974 lb)	xxx

Weight in kg (machine + crate)

	Gas	Electric	Steam/L.C.
Ironer 1.9 m (75")	820 (1808 lb)	820 (1808 lb)	xxx
Ironer 2.1 m (83")	xxx	xxx	xxx
Ironer 2.5 m (98")	950 (2095 lb)	950 (2095 lb)	xxx
Ironer 2.8 m (110")	1000 (2205 lb)	1000 (2205 lb)	xxx
Ironer 3.2 m (126")	1100 (2426 lb)	1100 (2426 lb)	xxx



Ironer folder

Packing

Packing dimensions	Size A	Size B	Size C (machine+pallet)	Size C (crate)
Ironer 1.9 m (75")	2720 (107")	1140 (45")	1460 (58")	1560 (62")
Ironer 2.1 m (83")	2930 (115")	1140 (45")	1460 (58")	1560 (62")
Ironer 2.5 m (98")	3350 (132")	1140 (45")	1460 (58")	1560 (62")
Ironer 2.8 m (110")	xxx	1140 (45")	1460 (58")	1560 (62")
Ironer 3.2 m (126")	3980 (157")	1140 (45")	1460 (58")	1560 (62")

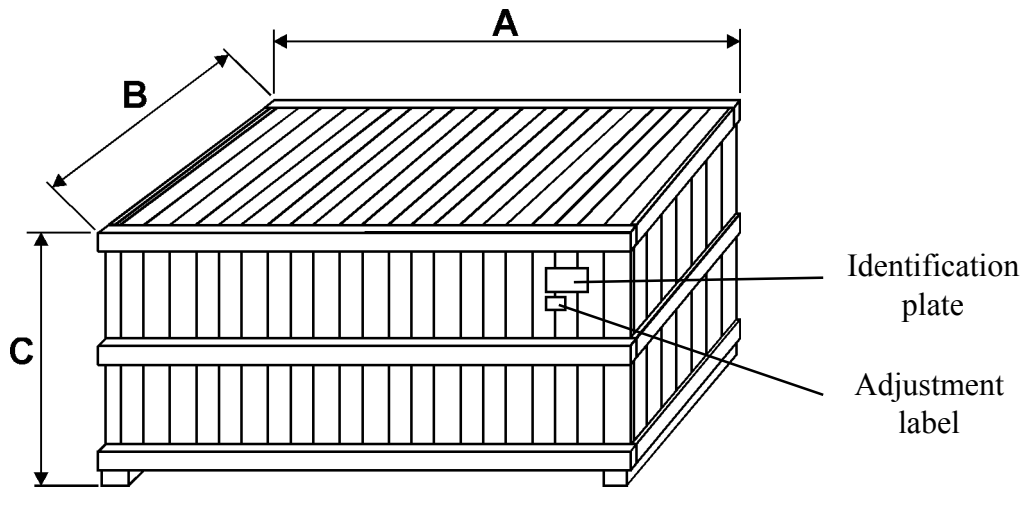
Weight

Weight in kg (machine + pallet)

	Gas	Electric	Steam/L.C.
Ironer 1.9 m (75")	755 (1665 lb)	755 (1665 lb)	xxx
Ironer 2.1 m (83")	xxx	xxx	xxx
Ironer 2.5 m (98")	885 (1952 lb")	885 (1952 lb")	xxx
Ironer 2.8 m (110")	xxx	xxx	xxx
Ironer 3.2 m (126")	1030 (2272 lb")	1030 (2272 lb")	xxx

Weight in kg (machine + crate)

	Gas	Electric	Steam/L.C
Ironer 1.9 m (75")	925 (2040 lb)	925 (2040 lb)	xxx
Ironer 2.1 m (83")	xxx	xxx	xxx
Ironer 2.5 m (98")	1100 (2426 lb)	1100 (2426 lb)	xxx
Ironer 2.8 m (110")	xxx	xxx	xxx
Ironer 3.2 m (126")	1300 (2867 lb)	1300 (2867 lb)	xxx



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ironer with rear outlet

Packing

Packing dimensions	Size A	Size B	Size C (machine+pallet)	Size C (crate)
Ironer 1.9 m (75")	2720 (107")	xxx	1460 (58")	1560 (62")
Ironer 2.1 m (83")	2930 (115")	xxx	1460 (58")	1560 (62")
Ironer 2.5 m (98")	3350 (132")	xxx	1460 (58")	1560 (62")
Ironer 2.8 m (110")	xxx	xxx	1460 (58")	1560 (62")
Ironer 3.2 m (126")	3980 (157")	xxx	1460 (58")	1560 (62")

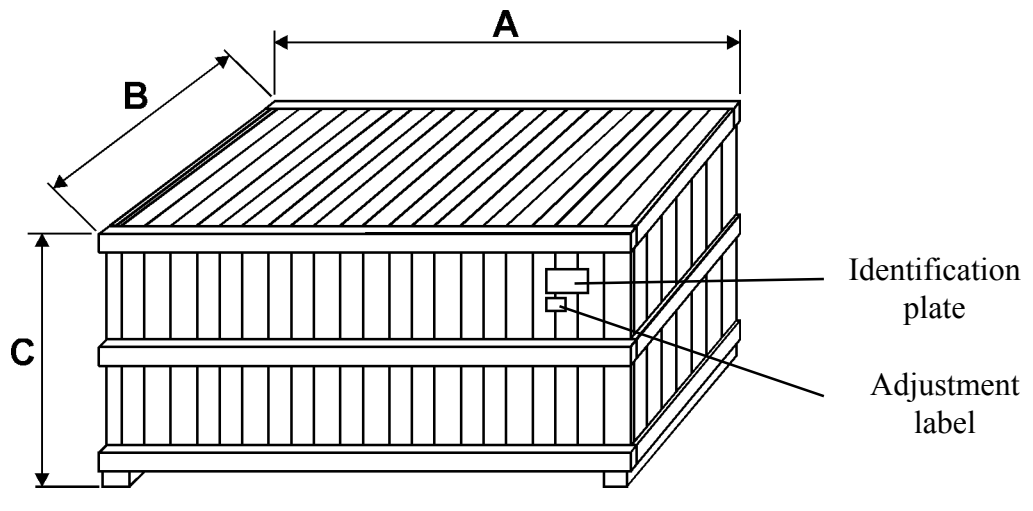
Weight

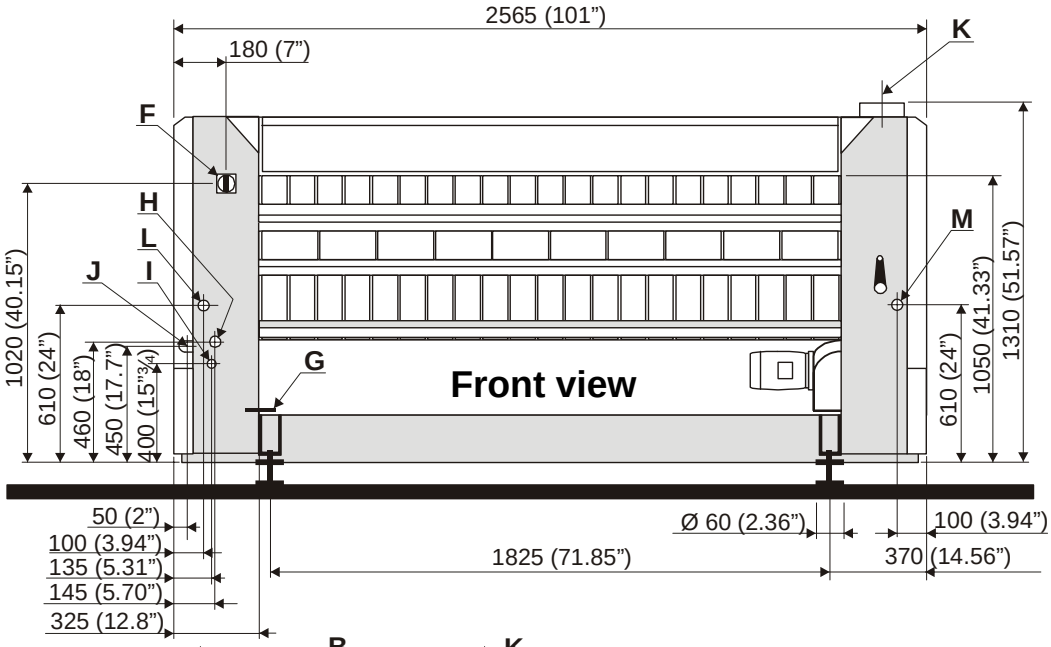
Weight in kg (machine + pallet)

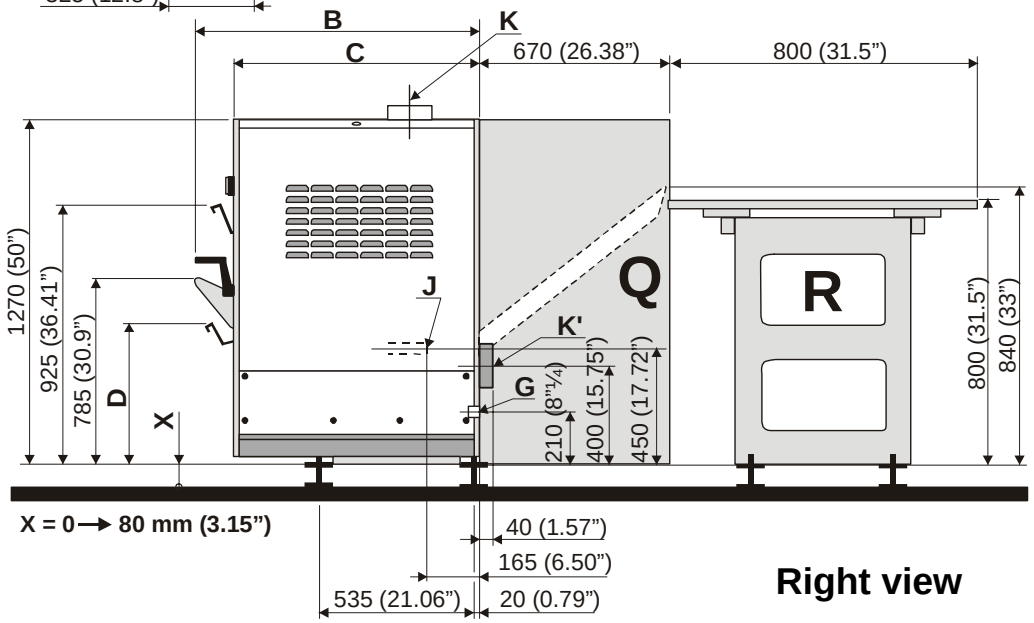
	Gas	Electric	Steam/L.C.
Ironer 1.9 m (75")	xxx	xxx	xxx
Ironer 2.1 m (83")	xxx	xxx	xxx
Ironer 2.5 m (98")	xxx	xxx	xxx
Ironer 2.8 m (110")	xxx	xxx	xxx
Ironer 3.2 m (126")	xxx	xxx	xxx

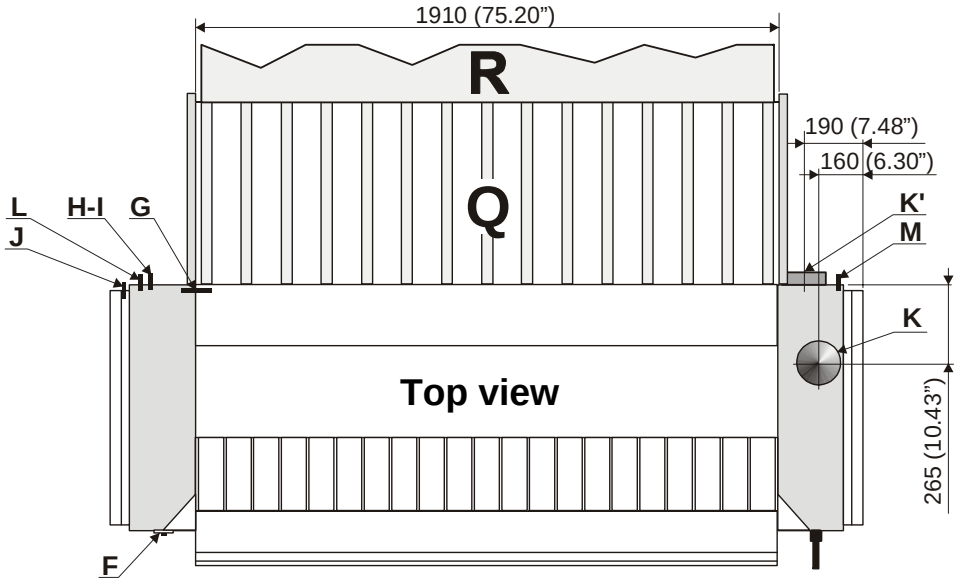
Weight in kg (machine + crate)

	Gas	Electric	Steam/L.C.
Ironer 1.9 m (75")	xxx	xxx	xxx
Ironer 2.1 m (83")	xxx	xxx	xxx
Ironer 2.5 m (98")	xxx	xxx	xxx
Ironer 2.8 m (110")	xxx	xxx	xxx
Ironer 3.2 m (12")	xxx	xxx	xxx




2565 (101")
180 (7")
K
F
H
L
J
I
M
G
Front view
1020 (40.15")
610 (24")
460 (18")
450 (17.7")
400 (15"¾)
1050 (41.33")
1310 (51.57")
50 (2")
100 (3.94")
135 (5.31")
145 (5.70")
325 (12.8")
Ø 60 (2.36")
100 (3.94")
1825 (71.85")
370 (14.56")


B
K
C
670 (26.38")
800 (31.5")
Q
R
J
K'
G
X
1270 (50")
925 (36.41")
785 (30.9")
D
210 (8"¼)
400 (15.75")
450 (17.72")
800 (31.5")
840 (33")
X = 0 → 80 mm (3.15")
40 (1.57")
165 (6.50")
535 (21.06")
20 (0.79")
Right view


1910 (75.20")
R
Q
190 (7.48")
160 (6.30")
L
J
H-I
G
K'
M
K
Top view
265 (10.43")
F

07100052

Technical characteristics

Diagram no. 07100052

Ironer 1.9 m (75")
Ironer folder 1.9 m (75")
Ironer with rear outlet 1.9 m (75")

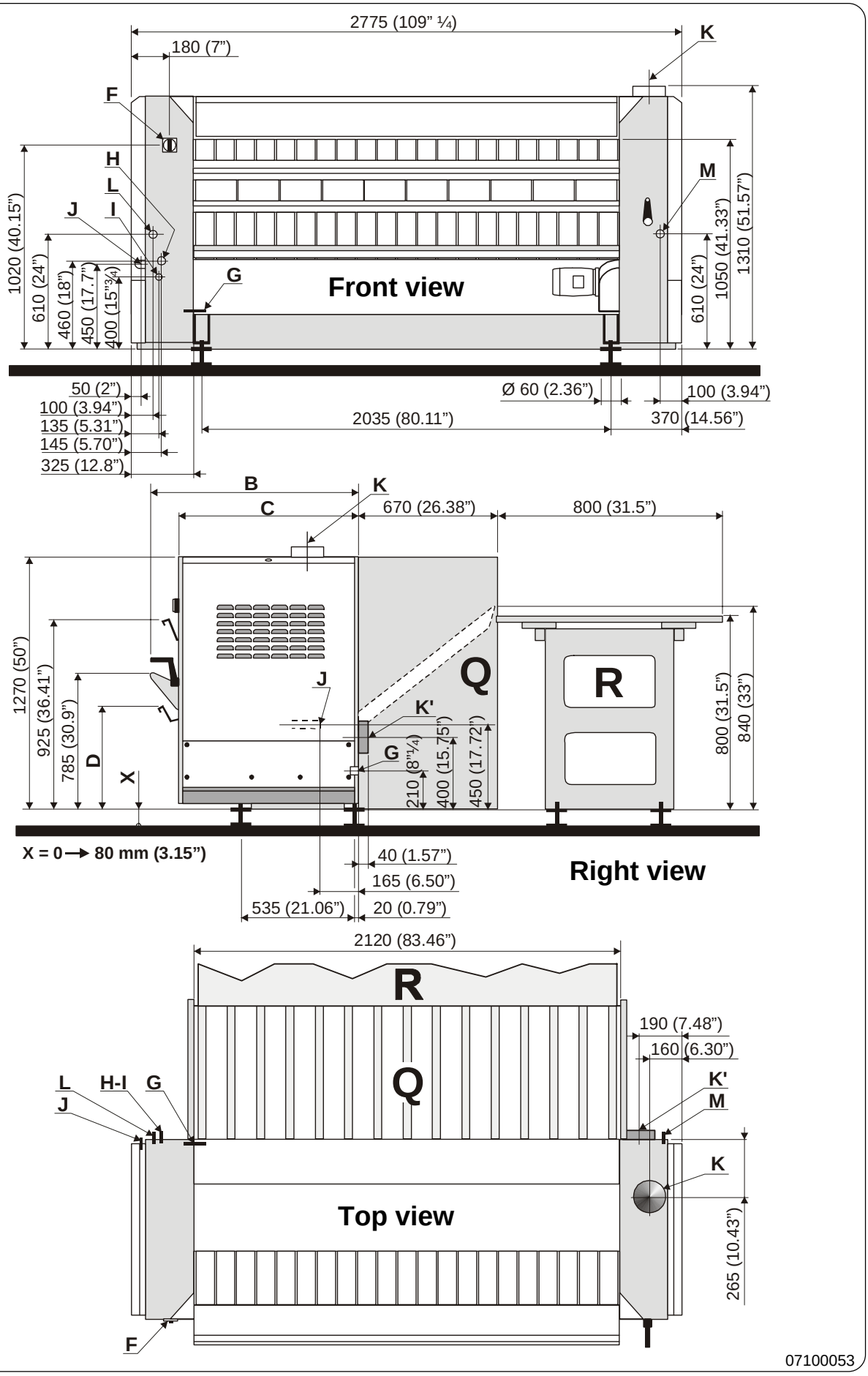
Heating		**Gas**	**Electric**	**Steam**	**Liquid Cool.**
Characteristics	Ø cylinder	----------457 mm (18")----------			
	Effective working width	----------1910 mm (75")----------			
	Heating surface	----------2.10 m² (3255 sq. in)----------			
Minimum speed (folder and no folder)		----------1.65 m/min(65"/min)----------			
Maximum speed (no folder)		----------5.6 m/min(22"/min)----------			
Maximum speed (folder)		----------5.6 m/min(22"/min)----------			
(B) Overall width (no folder)		----------950 mm (37" ½)----------			
(B) Overall width (folder)		----------1055 mm (41" ½)----------			
(C) Machine width (no folder)		----------845 mm (33" ¼)----------			
(C) Machine width folder)		----------950 mm (37" ½)----------			
(D) Height reception vat (no folder)		----------630 mm (24" ¾)----------			
(D) Height reception vat (folder)		----------525 mm (20" 2/3)----------			
Net weight	(machine, no folder)	----------565 kg (1245 lb)----------			
	(machine, folder)	1477 lb	1477 lb	xxx lb	xxx lb
Floor area	(machine no folder)	----------2.20 m² (3410 sq. in)----------			
	(machine folder)	----------2.40 m² (3720 sq. in)----------			
(F) Main switch to connect main cable					
(G) Inlet for main cable					
Installed electrical power		1 kW	30.7 kW	1 kW	1 kW
Installed heating power		39 kW	29.7 kW	-	-
Max. electrical consumption		0.8 kWh	30.7 kWh	0.8 kWh	0.8 kWh
Heat loss		3 %	3 %	3 %	3 %
Capacity max. water evaporation		34 l/h	32 l/h	- l/h	- l/h

With 50 % residual moisture content and 100 % cylinder utilization (according to ISO 9398-1 standard).

(H) Steam inlet		ND 20 (3/4" BSP)
	- Maximum supply pressure	0.145 psi
	- Maximum steam consumption	l/h at 0.130 psi
	- Steam instantaneous flow rate	l/h
	- Inner volume steam cylinder	10.59 cu ft
(I) Condensate return		ND 10 (3/8" BSP)
(J) Gas inlet	ND 20 (3/4" BSP)	
(K) Drain of vapour or burnt gas	----------Ø 160 mm (6 " 1/3)----------	
(K') " " " (rear outlet)	----------Ø 160 mm (6 " 1/3)----------	
Exhaust air max. with no pressure (at 59°F)	----------580 m³/h (20482 cu ft/h)---------	
" " " (rear outlet) (at 59°F)	----------830 m³/h (29311 cu ft/h)---------	
Total pressure with no flow	----------880 Pa (0.128 psi)----------	
Admissible head loss on evacuation	----------200 Pa (0.029 psi)----------	
(L) Liquid coolant inlet		ND 25
(M) Liquid coolant return		ND 25
	- Maximum supply pressure	400 kPa (58 psi)
	- Installed calorific power	Btu
	- Average calorific consumption	Btu/h
	- Inner volume liquid coolant cylinder	xx l

(Q) Ironer with rear outlet

(R) Reception table rear outlet - Length : 1890 mm (74" ½)


2775 (109" ¼)
180 (7")
K
F
H
L
J
I
M
1020 (40.15")
610 (24")
460 (18")
450 (17.7")
400 (15"¾)
G
Front view
610 (24")
1050 (41.33")
1310 (51.57")
50 (2")
100 (3.94")
135 (5.31")
145 (5.70")
325 (12.8")
Ø 60 (2.36")
100 (3.94")
2035 (80.11")
370 (14.56")
B
C
K
670 (26.38")
800 (31.5")
1270 (50")
925 (36.41")
785 (30.9")
D
X
J
Q
R
K'
G
210 (8"¼)
400 (15.75")
450 (17.72")
800 (31.5")
840 (33")
X = 0 → 80 mm (3.15")
40 (1.57")
165 (6.50")
535 (21.06")
20 (0.79")
Right view
2120 (83.46")
R
Q
190 (7.48")
160 (6.30")
L
J
H-I
G
K'
M
K
Top view
265 (10.43")
F
07100053

Technical characteristics

Diagram no. 07100053

Ironer 2.1 m (83")
Ironer folder 2.1 m (83")
Ironer with rear outlet 2.1 m (83")

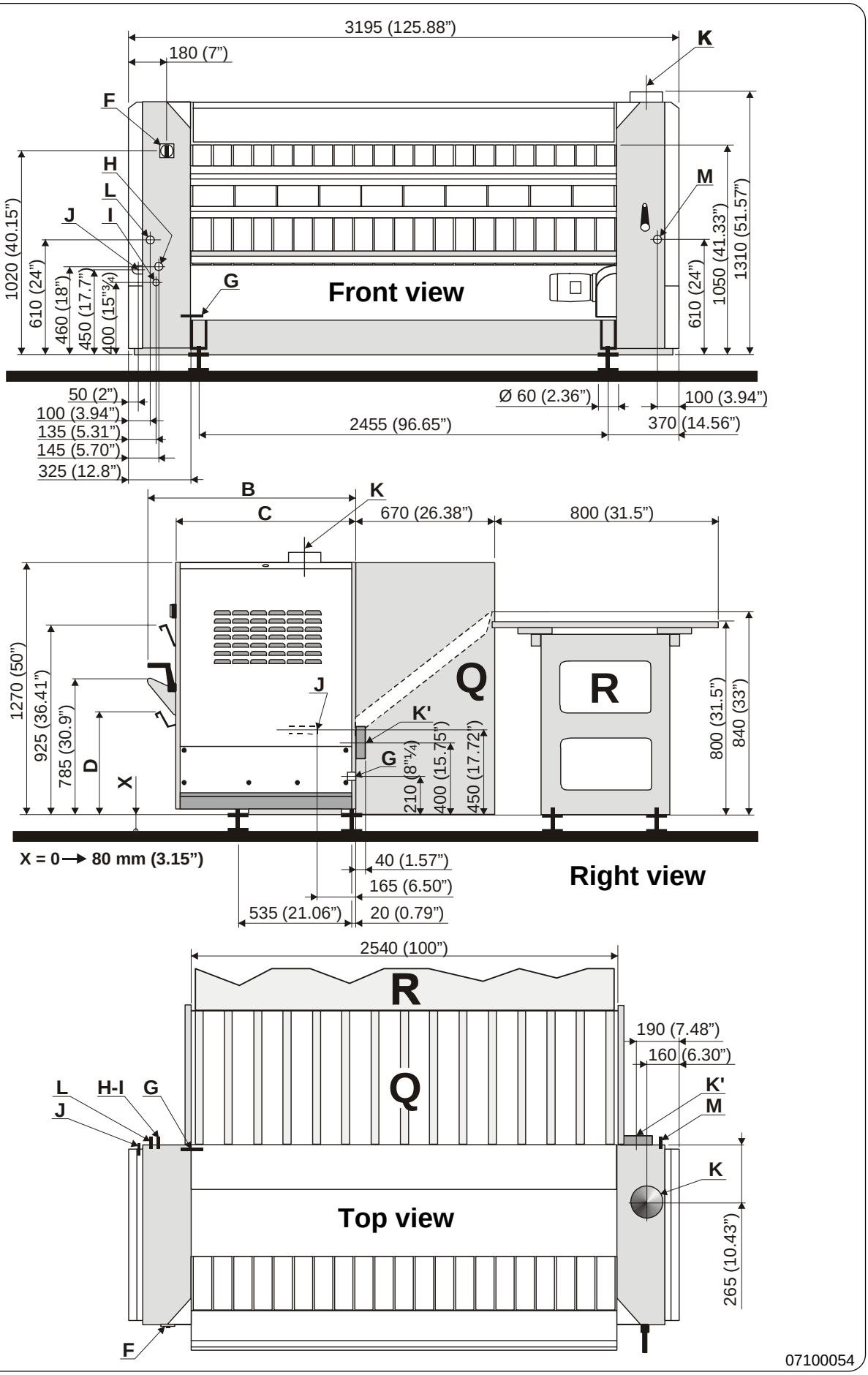
Heating		Gas	Electric	Steam	Liquid Cool.
Characteristics	Ø cylinder	----------457 mm (18")----------			
	Effective working width	----------2120 mm (83" ½)----------			
	Heating surface	----------2.30 m² (3565 sq. in)----------			
Minimum speed (folder and no folder)		----------1.65 m/min(65"/min)----------			
Maximum speed (no folder)		----------5.6 m/min(22"/min)----------			
Maximum speed (folder)		----------5.6 m/min(22"/min)----------			
(B) Overall width (no folder)		----------950 mm (37" ½)----------			
(B) Overall width (folder)		----------1055 mm (41" ½)----------			
(C) Machine width (no folder)		----------845 mm (33" ¼)----------			
(C) Machine width (folder)		----------950 mm (37" ½)----------			
(D) Height reception vat (no folder)		----------630 mm (24" ¾)----------			
(D) Height reception vat (folder)		----------525 mm (20" 2/3)----------			
Net weight	(machine, no folder)	1356 lb	1367 lb	xxx lb	xxx lb
	(machine, folder)	xxx lb	xxx lb	xxx lb	xxx lb
Floor area	machine (no folder)	----------2.40 m² (3720 sq. in)----------			
	machine (folder)	----------2.60 m² (4030 sq. in)----------			
(F) Main switch to connect main cable					
(G) Inlet for main cable					
Installed electrical power		1 kW	33.85 kW	1 kW	1 kW
Installed heating power		44 kW	32.85 kW	-	-
Max. electrical consumption		0.8 kWh	33.85 kWh	0.8 kWh	0.8 kWh
Heat loss		3 %	3 %	3 %	3 %
Capacity max. water evaporation		- l/h	- l/h	- l/h	- l/h

With 50 % residual moisture content and 100 % cylinder utilization (according to ISO 9398-1 standard).

(H) Steam inlet		ND 20 (3/4" BSP)
	- Maximum supply pressure	0.145 psi
	- Maximum steam consumption	l/h at 0.130 psi
	- Steam instantaneous flow rate	l/h
	- Inner volume steam cylinder	11.83 cu ft
(I) Condensate return		ND 10 (3/8" BSP)
(J) Gas inlet	DN 20 (3/4" BSP)	
(K) Drain of vapour or burnt gas	----------Ø 160 mm (6 " 1/3)----------	
(K') " " " (rear outlet)	----------Ø 160 mm (6 " 1/3)----------	
Exhaust air max. with no pressure (at 59°F)	----------590 m³/h (20835 cu ft/h)---------	
" " " (rear outlet) (at 59°F)	----------830 m³/h (29311 cu ft/h)---------	
Total pressure with no flow	----------880 Pa (0.128 psi)----------	
Admissible head loss on evacuation	----------200 Pa (0.029 psi)----------	
(L) Liquid coolant inlet		ND 25
(M) Liquid coolant return		ND 25
	- Maximum supply pressure	400 kPa (58 psi)
	- Installed calorific power	Btu
	- Average calorific consumption	Btu/h
	- Inner volume liquid coolant cylinder	xx l

(Q) Ironer with rear outlet

(R) Reception table rear outlet - Length : 2100 mm (82" ½)


3195 (125.88")
180 (7")
K
F
H
L
J
I
M
G
Front view
1020 (40.15")
610 (24")
460 (18")
450 (17.7")
400 (15"¾)
1050 (41.33")
1310 (51.57")
50 (2")
100 (3.94")
135 (5.31")
145 (5.70")
325 (12.8")
Ø 60 (2.36")
100 (3.94")
2455 (96.65")
370 (14.56")
B
C
K
670 (26.38")
800 (31.5")
Q
R
J
K'
G
D
X
1270 (50")
925 (36.41")
785 (30.9")
210 (8"¼)
400 (15.75")
450 (17.72")
800 (31.5")
840 (33")
X = 0 → 80 mm (3.15")
40 (1.57")
165 (6.50")
535 (21.06")
20 (0.79")
Right view
2540 (100")
R
Q
190 (7.48")
160 (6.30")
L
J
H-I
G
K'
M
K
Top view
265 (10.43")
F
07100054

Technical characteristics

Diagram no. 07100054

Ironer 2.5 m (98")
Ironer folder 2.5 m (98")
Ironer with rear outlet 2.5 m (98")

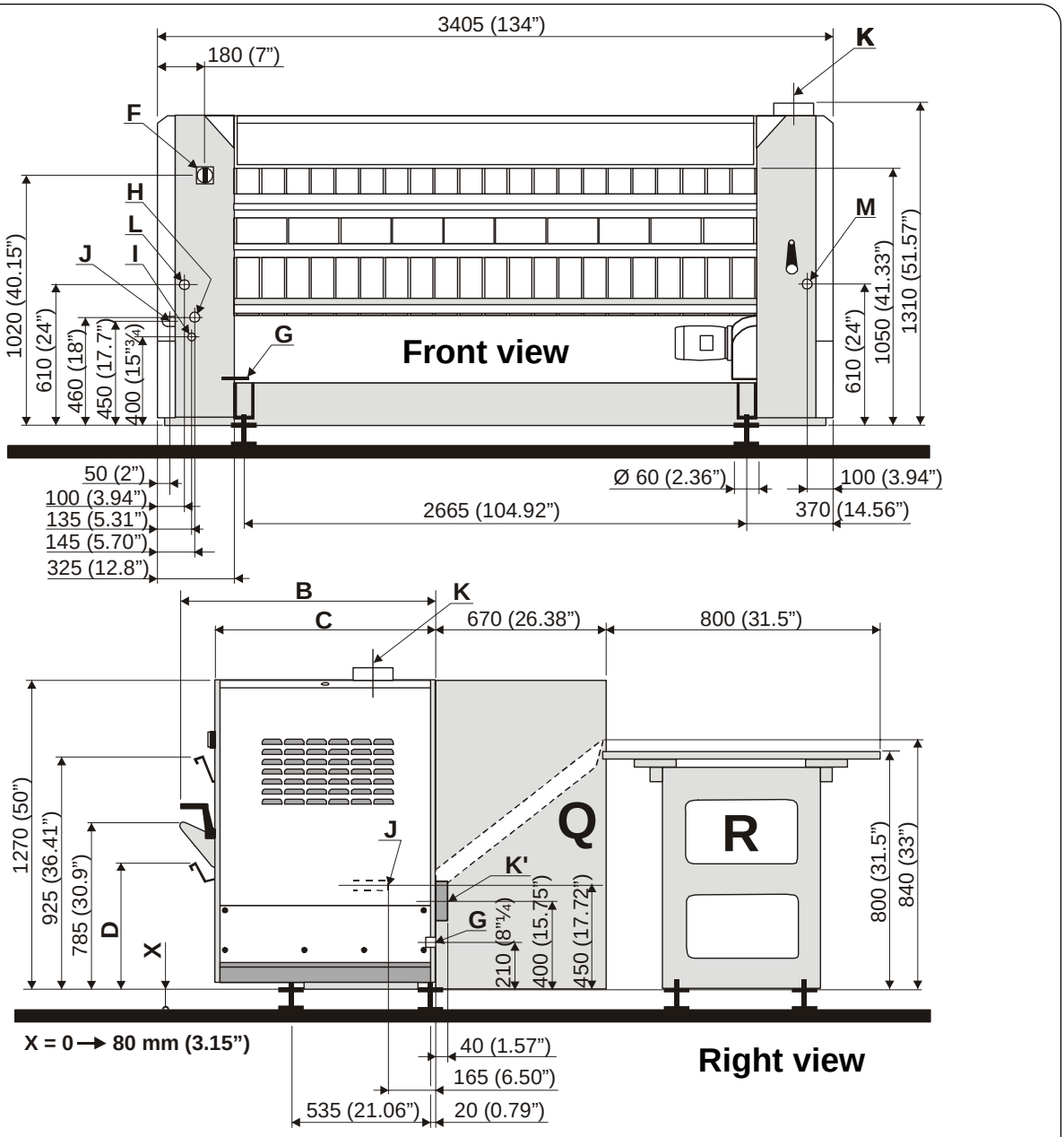
Heating		Gas	Electric	Steam	Liquid Cool.
Characteristics	Ø cylinder	----------457 mm (18")----------			
	Effective working width	----------2540 mm (100")----------			
	Heating surface	----------2.70 m² (4185 sq. in)----------			
Minimum speed (folder and no folder)		----------1.65 m/min(65"/min)----------			
Maximum speed (no folder)		----------5.6 m/min(22"/min)----------			
Maximum speed (folder)		----------5.6 m/min(22"/min)----------			
(B) Overall width (no folder)		----------950 mm (37" ½)----------			
(B) Overall width (folder)		----------1055 mm (41" ½)----------			
(C) Machine width (no folder)		----------845 mm (33" ¼)----------			
(C) Machine width (folder)		----------950 mm (37" ½)----------			
(D) Height reception vat (no folder)		----------630 mm (24" ¾)----------			
(D) Height reception vat (folder)		----------525 mm (20" 2/3)----------			
Net weight	(machine, no folder)	1511 lb	1511 lb	xxx lb	xxx lb
	(machine, folder)	1797 lb	1797 lb	xxx lb	xxx lb
Floor area	machine (no folder)	----------2.70 m² (4185 sq. in)----------			
	machine (folder)	----------3 m² (4650 sq. in)----------			
(F) Main switch to connect main cable					
(G) Inlet for main cable					
Installed electrical power		1 kW	40.15 kW	1 kW	1 kW
Installed heating power		52 kW	39.15 kW	-	-
Max. electrical consumption		0.8 kWh	40.15 kWh	0.8 kWh	0.8 kWh
Heat loss		3 %	3 %	3 %	3 %
Capacity max. water evaporation		46 l/h	- l/h	- l/h	- l/h

With 50 % residual moisture content and 100 % cylinder utilization (according to ISO 9398-1 standard).

(H) Steam inlet		ND 20 (3/4" BSP)
	- Maximum supply pressure	0.145 psi
	- Maximum steam consumption	l/h at 0.130 psi
	- Steam instantaneous flow rate	kg/h
	- Inner volume steam cylinder	14.05 cu ft
(I) Condensate return		ND 10 (3/8" BSP)
(J) Gas inlet	ND 20 (3/4" BSP)	
(K) Drain of vapour or burnt gas	----------Ø 160 mm (6 " 1/3)----------	
(K') " " " (rear outlet)	----------Ø 160 mm (6 " 1/3)----------	
Exhaust air max. with no pressure (at 59°F)	----------610 m³/h (21542 cu ft/h)---------	
" " " (rear outlet) (at 59°F)	----------830 m³/h (29311 cu ft/h)---------	
Total pressure with no flow	----------880 Pa (0.128 psi)----------	
Admissible head loss on evacuation	----------200 Pa (0.029 psi)----------	
(L) Liquid coolant inlet		ND 25
(M) Liquid coolant return		ND 25
	- Maximum supply pressure	400 kPa (58 psi)
	- Installed calorific power	Btu
	- Average calorific consumption	Btu/h
	- Inner volume liquid coolant cylinder	xx l

(Q) Ironer with rear outlet

(R) Reception table rear outlet - Length : 2520 mm (99" ¼)


3405 (134")
180 (7")
K
F
H
L
J
I
M
1020 (40.15")
610 (24")
460 (18")
450 (17.7")
400 (15"¾)
G
Front view
610 (24")
1050 (41.33")
1310 (51.57")
50 (2")
100 (3.94")
135 (5.31")
145 (5.70")
325 (12.8")
2665 (104.92")
Ø 60 (2.36")
100 (3.94")
370 (14.56")
B
C
K
670 (26.38")
800 (31.5")
1270 (50")
925 (36.41")
785 (30.9")
D
X
J
Q
R
K'
G
210 (8"¼)
400 (15.75")
450 (17.72")
800 (31.5")
840 (33")
X = 0 → 80 mm (3.15")
40 (1.57")
165 (6.50")
535 (21.06")
20 (0.79")
Right view
2750 (108.27")
R
Q
190 (7.48")
160 (6.30")
L
J
H-I
G
K'
M
K
Top view
265 (10.43")
F

07100055

Technical characteristics

Diagram no. 07100055

Ironer 2.8 m (110")
Ironer folder 2.8 m (110")
Ironer with rear outlet 2.8 m (110")

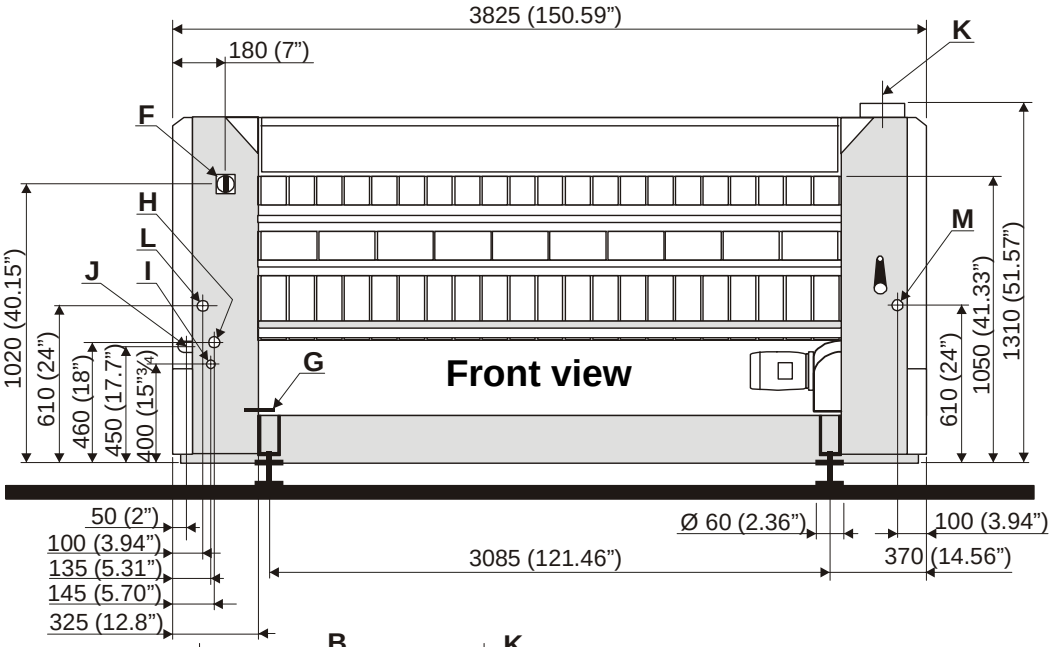
		Gas	Electric	Steam	Liquid Cool.
Heating					
Characteristics	Ø cylinder	----------457 mm (18")----------			
	Effective working width	----------2750 mm (108" ¼)----------			
	Heating surface	----------3 m² (4650 sq. in)----------			
Minimum speed (folder and no folder)		----------1.65 m/min(65"/min)----------			
Maximum speed (no folder)		----------5.6 m/min(22"/min)----------			
Maximum speed (folder)		----------5.6 m/min(22"/min)----------			
(B) Overall width (no folder)		----------950 mm (37" ½)----------			
(B) Overall width (folder)		----------1055 mm (41" ½)----------			
(C) Machine width (no folder)		----------845 mm (33" ¼)----------			
(C) Machine width (folder)		----------950 mm (37" ½)----------			
(D) Height reception vat (no folder)		----------630 mm (24" ¾)----------			
(D) Height reception vat (folder)		----------525 mm (20" 2/3)----------			
Net weight	(machine, no folder)	xxx lb	xxx lb	xxx lb	xxx lb
	(machine, folder)	xxx lb	xxx lb	xxx lb	xxx lb
Floor area	machine (no folder)	----------2.90 m² (4495 sq. in)----------			
	machine (folder)	----------3.25 m² (5037 sq. in)----------			
(F) Main switch to connect main cable					
(G) Inlet for main cable					
Installed electrical power		1 kW	43.3 kW	1 kW	1 kW
Installed heating power		56 kW	42.3 kW	-	-
Max. electrical consumption		0.8 kWh	43.3 kWh	0.8 kWh	0.8 kWh
Heat loss		3 %	3 %	3 %	3 %
Capacity max. water evaporation		- l/h	- l/h	- l/h	- l/h

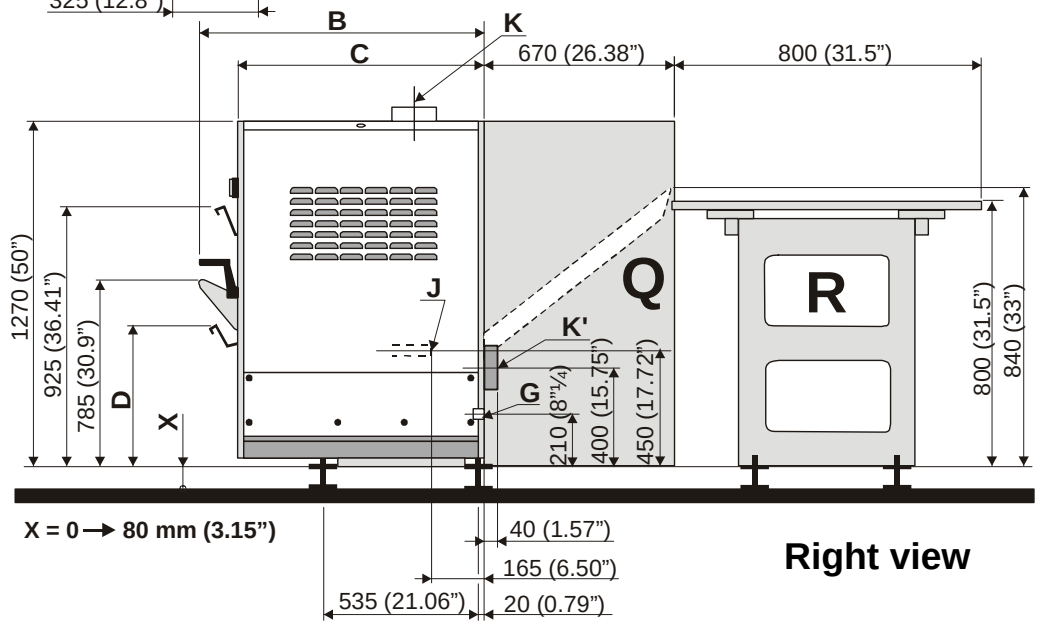
With 50 % residual moisture content and 100 % cylinder utilization (according to ISO 9398-1 standard).

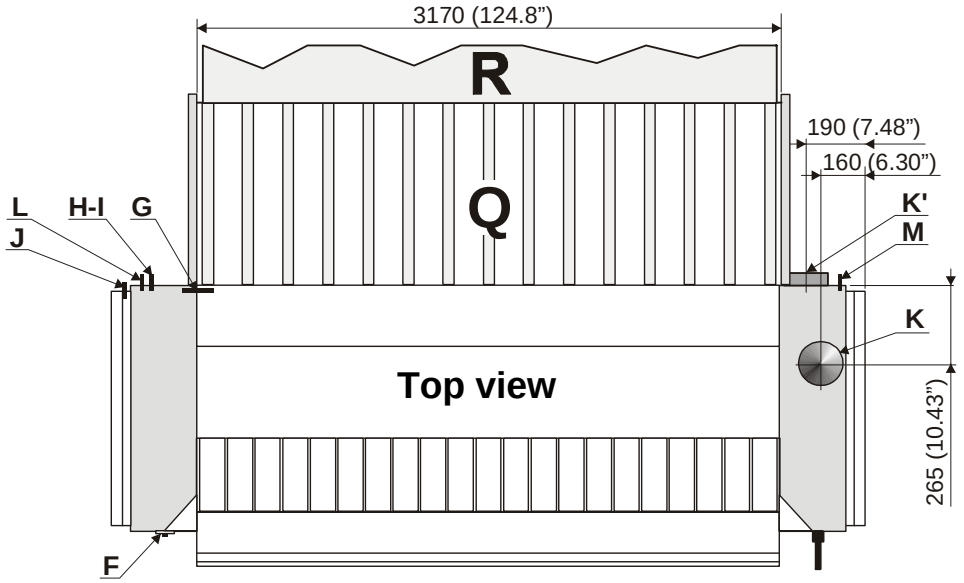
(H) Steam inlet		ND 20 (3/4" BSP)
	- Maximum supply pressure	0.145 psi
	- Maximum steam consumption	l/h at 0.130 psi
	- Steam instantaneous flow rate	kg/h
	- Inner volume steam cylinder	15.21 cu ft
(I) Condensate return		ND 10 (3/8" BSP)
(J) Gas inlet	ND 20 (3/4" BSP)	
((K) Drain of vapour or burnt gas	----------Ø 160 mm (6 " 1/3)----------	
(K') " " " (rear outlet)	----------Ø 160 mm (6 " 1/3)----------	
Exhaust air max. with no pressure ((at 59°F)	----------580 m³/h (22600 cu ft/h)---------	
" " " (rear outlet) (at 59°F)	----------830 m³/h (23911 cu ft/h)---------	
Total pressure with no flow	----------880 Pa (0.128 psi)----------	
Admissible head loss on evacuation	----------200 Pa (0.029 psi)----------	
(L) Liquid coolant inlet		ND 25
(M) Liquid coolant return		ND 25
	- Maximum supply pressure	400 kPa (58 psi)
	- Installed calorific power	Btu
	- Average calorific consumption	Btu/h
	- Inner volume liquid coolant cylinder	xx l

(Q) Ironer with rear outlet

(R) Reception table rear outlet - Length : 2730 mm (107" ½)


3825 (150.59")
180 (7")
K
F
H
L
J
I
M
G
Front view
1020 (40.15")
610 (24")
460 (18")
450 (17.7")
400 (15"3/4)
1050 (41.33")
1310 (51.57")
50 (2")
100 (3.94")
135 (5.31")
145 (5.70")
325 (12.8")
Ø 60 (2.36")
100 (3.94")
3085 (121.46")
370 (14.56")


B
K
C
670 (26.38")
800 (31.5")
Q
R
J
K'
G
D
X
1270 (50")
925 (36.41")
785 (30.9")
210 (8"1/4)
400 (15.75")
450 (17.72")
800 (31.5")
840 (33")
X = 0 → 80 mm (3.15")
40 (1.57")
165 (6.50")
535 (21.06")
20 (0.79")
Right view


3170 (124.8")
R
Q
190 (7.48")
160 (6.30")
L
H-I
G
J
K'
M
K
Top view
265 (10.43")
F

07100056

Technical characteristics

Diagram no. 07100056

Ironer 3.2 m (126")
Ironer folder 3.2 m (126")
Ironer with rear outlet 3.2 m (126")

Heating		Gas	Electric	Steam	Liquid Cool.
Characteristics	Ø cylinder	----------457 mm (18")----------			
	Effective working width	----------3170 mm (124" ¾)----------			
	Heating surface	----------3.4 m² (5270 sq. in)----------			
Minimum speed (folder and no folder)		----------1.65 m/min(65"/min)----------			
Maximum speed (no folder)		----------5.6 m/min(22"/min)----------			
Maximum speed (folder)		----------5.6 m/min(22"/min)----------			
(B) Overall width (no folder)		----------950 mm (37" ½)----------			
(B) Overall width (folder)		----------1055 mm (41" ½)----------			
(C) Machine width (no folder)		----------845 mm (33" ¼)----------			
(C) Machine width (folder)		----------950 mm (37" ½)----------			
(D) Height reception vat (no folder)		----------630 mm (24" ¾)----------			
(D) Height reception vat (folder)		----------525 mm (20" 2/3)----------			
Net weight	(machine, no folder)	1765 lb	1765 lb	1731 lb	1731 lb
	(machine, folder)	2062 lb	2062 lb	xxx lb	xxx lb
Floor area	machine (no folder)	----------3.20 m² (4960 sq. in)----------			
	machine (folder)	----------3.60 m² (5580 sq. in)----------			
(F) Main switch to connect main cable					
(G) Inlet for main cable					
Installed electrical power		1 kW	49.6 kW	1 kW	1 kW
Installed heating power		65 kW	48.6 kW	-	-
Max. electrical consumption		0.8 kWh	49.6 kWh	0.8 kWh	0.8 kWh
Heat loss		3 %	3 %	3 %	3 %
Capacity max. water evaporation		59 l/h	51 l/h	93 l/h	- l/h

With 50 % residual moisture content and 100 % cylinder utilization (according to ISO 9398-1 standard).

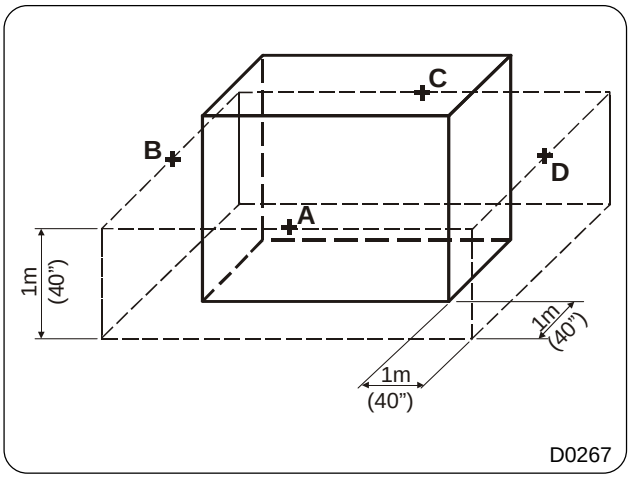
(H) Steam inlet		ND 20 (3/4" BSP)
	- Maximum supply pressure	0.145 psi
	- Maximum steam consumption	141 l/h at 0.130 psi
	- Steam instantaneous flow rate	kg/h
	- Inner volume steam cylinder	17.54 cu ft
(I) Condensate return		ND 10 (3/8" BSP)
(J) Gas inlet	ND 20 (3/4" BSP)	
(K) Drain of vapour or burnt gas	----------Ø 160 mm (6 " 1/3)----------	
(K') " " " (rear outlet)	----------Ø 160 mm (6 " 1/3)----------	
Exhaust air max. with no pressure (at 59°F)	----------650 m³/h (22954 cu ft/h)---------	
" " " (rear outlet) (at 59°F)	----------880 m³/h (29311 cu ft/h)---------	
Total pressure with no flow	----------880 Pa (0.128 psi)----------	
Admissible head loss on evacuation	----------200 Pa (0.029 psi)----------	
(L) Liquid coolant inlet		ND 25
(M) Liquid coolant return		ND 25
	- Maximum supply pressure	400 kPa (58 psi)
	- Installed calorific power	Btu
	- Average calorific consumption	Btu/h
	- Inner volume liquid coolant cylinder	xx l

(Q) Ironer with rear outlet

(R) Reception table rear outlet - Length : 3150 mm (124")

Sound level

Airborne noise emitted by the machine (values established from measurements made on the machine at points A, B, C, D.)



Weighted sound pressure level (A) in dB (A).

	A	B	C	D
Ironer	61	59	61	64
Ironer with folding	61	59	61	64
Ironer with rear outlet	66.5	64.5	68.5	70

Label of energetic performances (gas heating only)

The global output *hg* of the gas heated ironer is determinated according to a standardised method and shall not be lower than 50 %.

This output minimal level is indicated on the machine's marking by the symbol ★.

Beyond the output minimal level hereabove specified, a label of energetic performance is given to the machine according to its global output *hg* and according to the hereunder chart.

Symbolisation of the label	Value of the output *hg*
★ ★	50 % <= *hg* < 65 %
★ ★ ★	65 % <= *hg* < 80 %
★ ★ ★ ★	*hg* >= 80 %

The indication of the energetic performance of this ironer is of ★★★.

You should have found an instruction handbook and keys to open the machine casings, and a maintenance poster to display in your laundry, inside your machine.

Depending on its destination, the dryer ironer is delivered bare or may be placed on a transport pallet and/or packed with plastic film.
In some cases, it may be delivered in maritime packing (wood crate).

Please refer to the handling chapter in this instruction handbook for a description of handling operations.

Unpacking

Release the machine from its pallet by cutting the plastic film and remove the pallet, removing the transport clamps with an appropriate spanner.

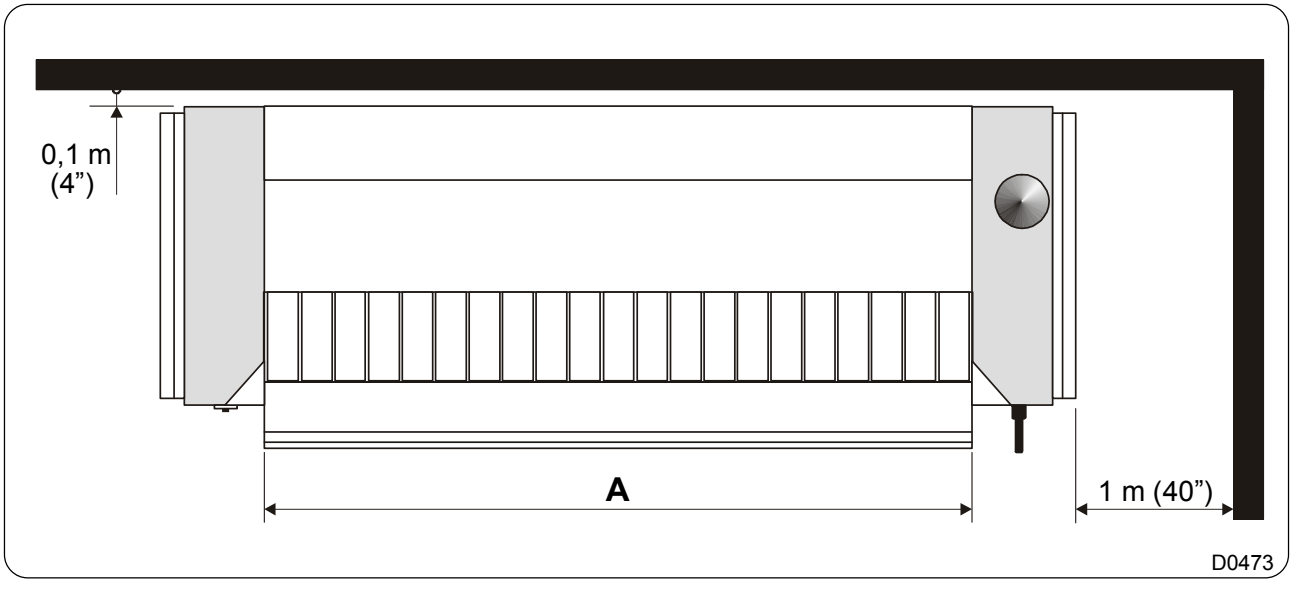
Check that no damage has been caused during transport.

Installation

The installation must be done by competent technicians in accordance with local codes and regulations. When there are not local codes and regulations, the installation **must be comply** with european standards applicable.
The machine must be installed on a horizontal and firm floor, capable of supporting its weight. If there is a carpet, it is recommended that it should be removed from the part of the floor on which the machine is to be supported.
Ironers are provided with four leveling screws to facilitate leveling (one on each corner of the sole plate). To avoid damaging the floor surface, place 10 cm square metal shims, or shims made of another appropriate material, under the ironer stands.

Place the dryer so that it is easy for the user and the service technician to do their work.
☞ Leave at least 0.1 m (4") between the machine and the wall behind it.
☞ Leave at least 1 m (40") **(according to the recommendation in standard EN 60204)** between the machine, a wall or any other machine at the sides.

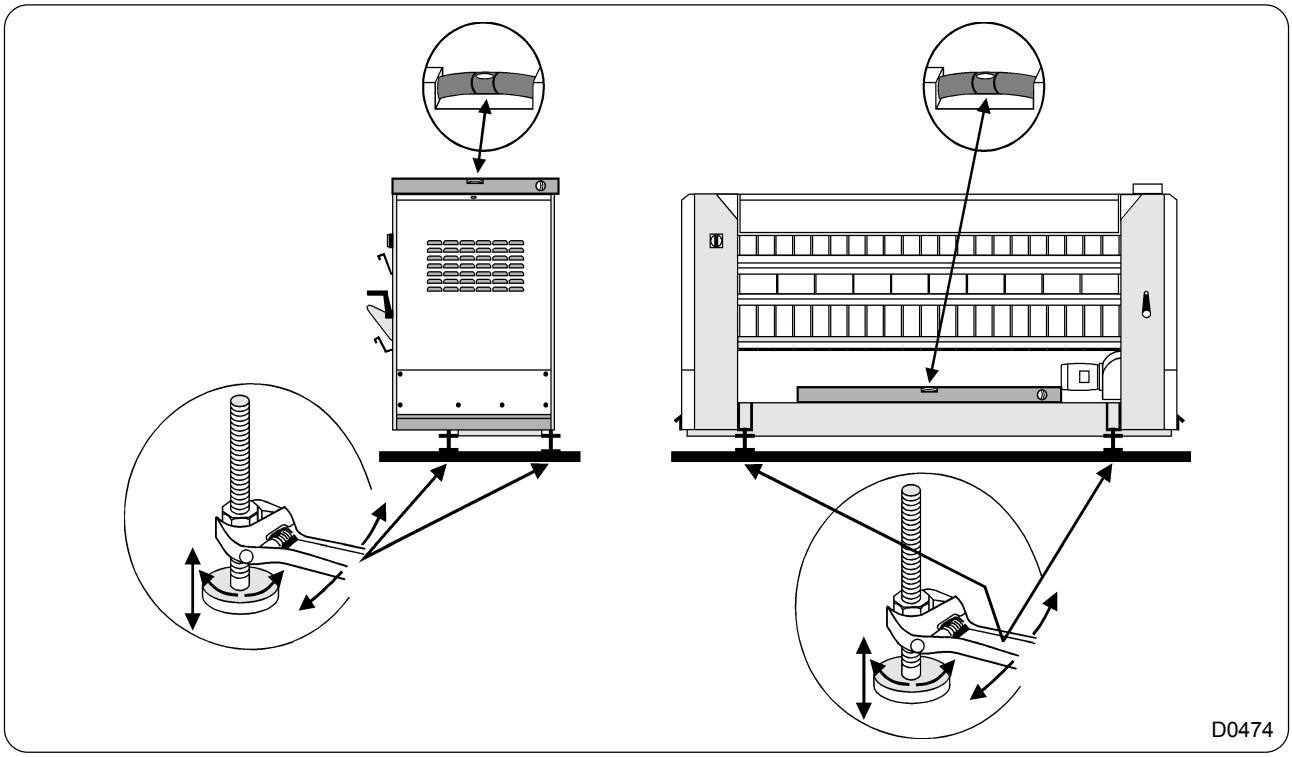
However, note that if you can, it is recommended that you should leave sufficient space for maintenance of the heating box to avoid having to move the dryer (minimum length A on the left side).



Mechanical installation

Adjust the nuts with a spanner and adjust the dryer ironer so that it is horizontal and that its four stands are perfectly vertical.
Check with a spirit level placed on the sole plate for the longitudinal direction and the machine top cover for the transverse direction (see sketch).
The maximum stand height adjustment is 80 mm (3").

Tighten the lock nuts after adjustment.



CAUTION

It is specially advised not to install the machine on a synthetic floor covering. The frictional electricity may hinder the good working of the machine.
Earthing is compulsory.
Te warranty might be cancelled if these instructions are not complied with.

Working place lighting

The lighting should be designed so as to avoid eye strain for the operator; it should be uniform without any glare, and should be sufficient to detect any hazards.

The average lighting value on the feeding table recommended by the clothing industry for inspecting linen is **500** lux.

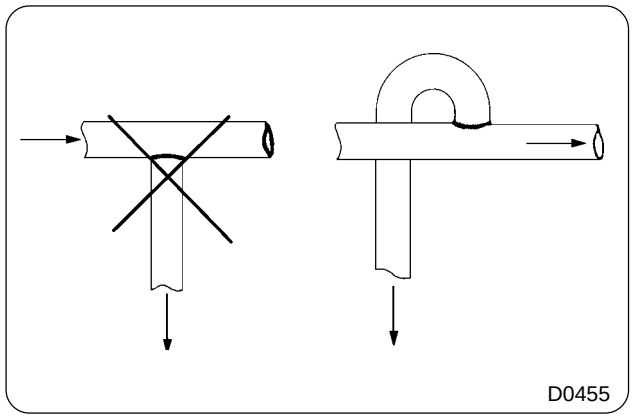
Whenever possible, the working place should be illuminated by daylight.

Steam and condensate connections

There is always a risk that a certain amount of water will be carried in steam.

Water is carried in the lower parts of the supply tubes, and steam in the upper parts.

Make a swan neck branch-T on the main tube to prevent this water damaging the machine heating system. This will ensure that only steam is retrieved without any condensed water.



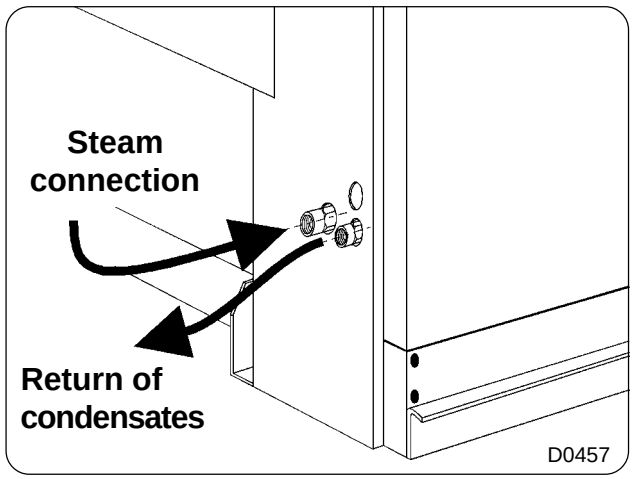
Steam connection DN 20 (3/4" BSP)

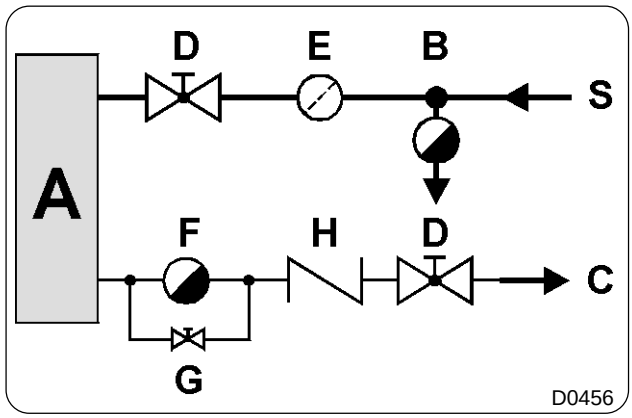
The customer must install a line purge, a manually closing valve with handwheel lockable in off position (do not use a 1/4 turn valve) and a filter on the supply side of the ironer.

Maximum supply pressure **1000 kPa (145 psi) max.**

Condensate connection DN 10 (3/8" BSP)

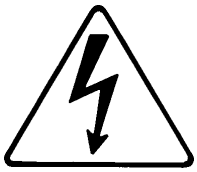
The customer must install a purge valve with float closed with an incondensibles drainage device and a steam trap (example : Sarco ref. FT10C - G 3/4" PN 25 or Gestra ref : UNA15 h - G 3/4" PN 25), a by-pass, a non-return valve and a manual closing valve lockable in off position.





A Ironer
B Line trap
C Return of condensates
D Manual stop valve
E Filter
F Steam trap
G By-pass (needle valve)
H Non-return valve
S Steam inlet

Ironer electricity power supply



CAUTION

Prior to use, the ironer should be plugged into a correctly earthed power socket complying with the standards in force.

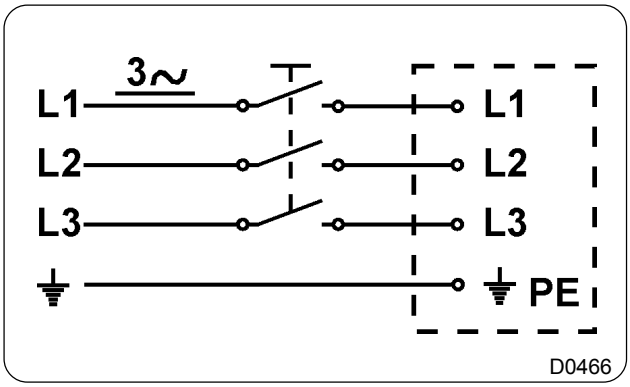
SAFETY

The electrical installation of the machine must be undertaken by qualified personnel.

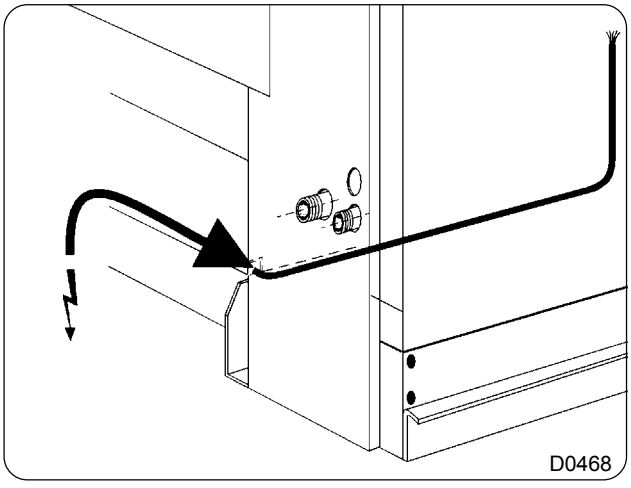
CAUTION

Ensure that the electrical voltage is correct and that the power of your supply is sufficient, before connecting the machine.

For each machine, install a fixed multipole circuit breaker (or fuses protector) in the laundry main cabinet.



Pass the machine power supply cable through the orifice (see sketch).

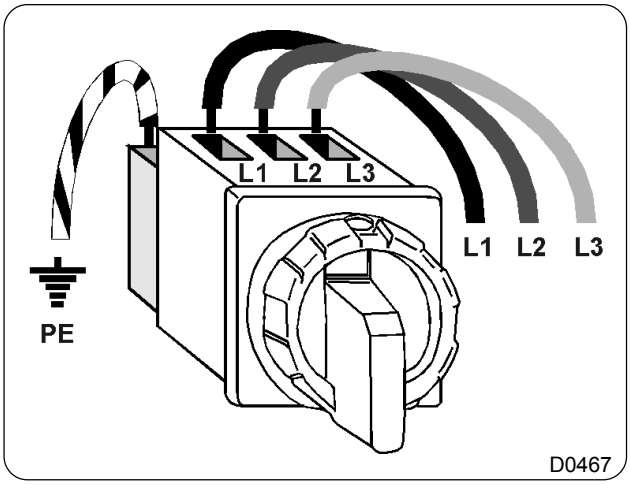


Connect the power supply cable on the machine main switch.

Check the order of phases on the switch terminals (see marks L1, L2, L3 and PE on the switch).

(Check operation, see chapter No.10).

NOTE : you must respect the fan rotation direction.

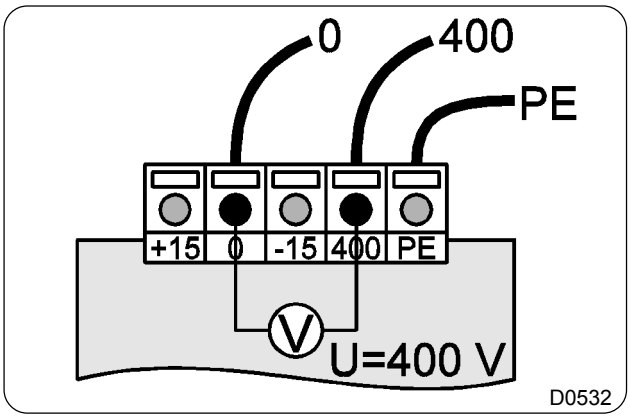


Connection diagrams for the control circuit power supply transformer (T1) as a function of the various customer power supply voltages.

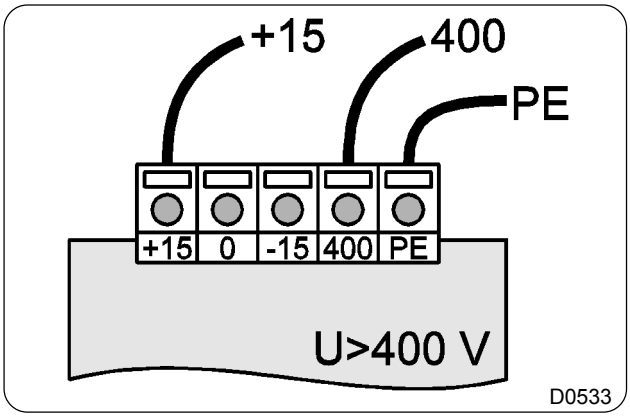
400 volt power supply.

Measure the power supply voltage at the transformer primary with a voltmeter between the transformer 0 and 400 volt terminals.

- If the voltage is equal to 400 volts, do not touch the transformer connection which must be as shown in the adjacent figure.

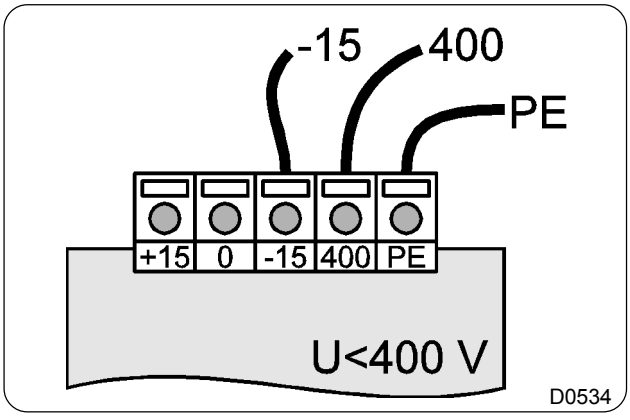


- If the voltage is > 400 volts (for example: 420 or 430 volts), connect the wires to the transformer as shown in the adjacent figure.



Note : we recommend that you should adopt this solution even if the voltage is normally equal to 400 volts but may be subjected to temporary variations, so that you do not apply an overvoltage to the electrical equipment in your machine.

- If the voltage is significantly < 400 volts (for example: 370 or 380 volts), connect the wires to the transformer as shown in the adjacent figure.



The feeder cable sections mentioned in our literature are given **only as a guide.**

To obtain a value perfectly suited to your own application and which takes account of the different correction factors in respect of your plant, refer to the tables below.

Table 1 (in accordance with EN Standard 60204-1-1992)

Values given for :
- Cable with copper conductors
- Cable with PVC insulation (for other insulants see Table 3)
- Ambient temperature 40°C (104°F) max. (for others see Table 2)
- Three-phase cable under load without including starting currents
- BT / C/ E cable layout.

Cable Section (mm^2)	Maximum Admissible Current (amperes) Seated in Cable Duct or Cable Trough	Wall Fixing	Cable Tray
	B2	C	E
3 x 1.5	12.2	15.2	16.1
3 x 2.5	16.5	21	22
3 x 4	23	28	30
3 x 6	29	36	37
3 x 10	40	50	52
3 x 16	53	66	70
3 x 25	67	84	88
3 x 35	83	104	114
3 x 50	-	123	123
3 x 70	-	155	155

Table 2

(Correction factors for different ambient temperatures)

Ambient Temperature	Correction Factor
30°C (86°F)	1.15
35°C (95°F)	1.08
40°C (104°F)	1.00
45°C (113°F)	0.91
50°C (122°F)	0.82
55°C (131°F)	0.71
60°C (140°F)	0.58

Table 3

(correction factor for different cable insulating materials)

Insulating material	Max. Working Temperature range	Correction Factor
PVC	70°C (158°F)	1.00
Natural or Synthetic Rubber	60°C (140°F)	0.92
Silicone Rubber	120°C (248°F)	1.60

Tableau 4

(B2, C and E correction factors for cable grouping)

Number of Cables	B2 Seated in Cable Duct	C Wall Fixing or Cable Trough	E Cable Tray
1	1.00	1.00	1.00
2	0.80	0.85	0.87
4	0.65	0.75	0.78
6	0.57	0.72	0.75
9	0.50	0.70	0.73

The total current included for using Table 1 should be the maximum rated current for the machine divided by the product of the different correction factors. Other correction factors may also be applied ; consult the cable manufacturers.

Calculation : Example

- The machine has a rated current of 60 A.
- The ambient temperature is 45°C (113°F) ; Table 2 gives a correction factor of 0.91.
- Rubber cable insulant : Table 3 gives a correction factor of 0.92.
- The cable is fixed directly to the wall (Column C), with 2 cables side by side. Table 4 gives a correction factor of 0.85.

$$\text{Total current : } \frac{60\ \text{A}}{0.91 \times 0.92 \times 0.85} = 84\ \text{A}$$

Taking Column C in Table 1 (wall fixing), we obtain a minimum cable section of : **3 x 25 mm².**

Machine type	Supply Voltage	Installed Power	Heating	Rated intensity	Main Switch	Connection cable section	Fuse
1.9 m	380/415 V 3+T ~ 50/60 Hz	1 kW	Gas/Steam/L.C	5 A	3 x 16 A	4 x 2.5 mm²	3 x 16 A
1.9 m	380/415 V 3+T ~ 50/60 Hz	30.7 kW	Electric	45 A	3 x 63 A	4 x 10 mm²	3 x 63 A
2.1 m	380/415 V 3+T ~ 50/60 Hz	1 kW	Gas/Steam/L.C	5 A	3 x 16 A	4 x 2.5 mm²	3 x 16 A
2.1 m	380/415 V 3+T ~ 50/60 Hz	33.85 kW	Electric	45 A	3 x 63 A	4 x 10 mm²	3 x 63 A
2.5 m	380/415 V 3+T ~ 50/60 Hz	1 kW	Gas/Steam/L.C	5 A	3 x 16 A	4 x 2.5 mm²	3 x 16 A
2.5 m	380/415 V 3+T ~ 50/60 Hz	40.15 kW	Electric	58 A	3 x 80 A	4 x 16 mm²	3 x 80 A
2.8 m	380/415 V 3+T ~ 50/60 Hz	1 kW	Gas/Steam/L.C	5 A	3 x 16 A	4 x 2.5 mm²	3 x 16 A
2.8 m	380/415 V 3+T ~ 50/60 Hz	43.3 kW	Electric	63 A	3 x 80 A	4 x 16 mm²	3 x 80 A
3.2 m	380/415 V 3+T ~ 50/60 Hz	1 kW	Gas/Steam/L.C	5 A	3 x 16 A	4 x 2.5 mm²	3 x 16 A
3.2 m	380/415 V 3+T ~ 50/60 Hz	49.6 kW	Electric	72 A	3 x 100 A	4 x 25 mm²	3 x 100 A

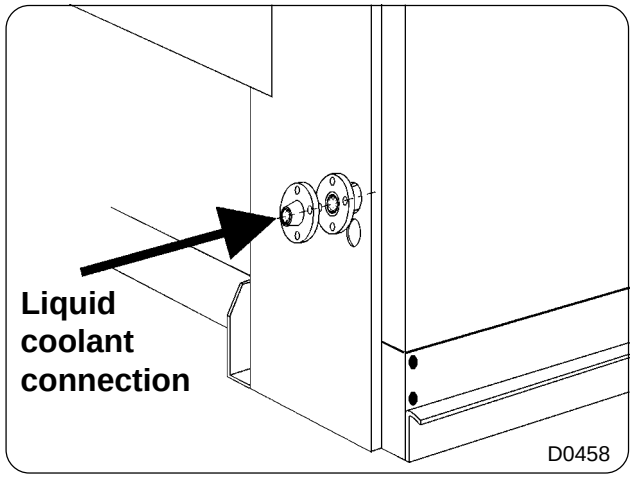
Thermal fluid connection

Thermal fluid inlet Flange ND 20 (3/4" BSP) (left side of machine)

The customer must install a manual stop valve lockable in off position on the supply side of the machine.

Weld your supply tube to the mating flange delivered with the machine.

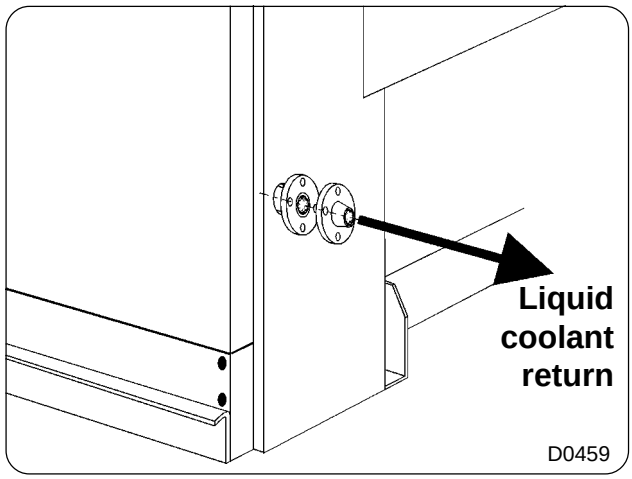
Working pressure 250 kPa (36 psi). Maximum allowable pressure 400 kPa (58 psi).



Thermal fluid return Flange ND 20 (3/4" BSP) (right side of machine)

The customer must also install a manual stop valve lockable in off position on the return side of the machine in order to isolate the machine from the supply circuit in case of disassembly.

Weld your return tube on the mating flange delivered with the machine.



Gas connection

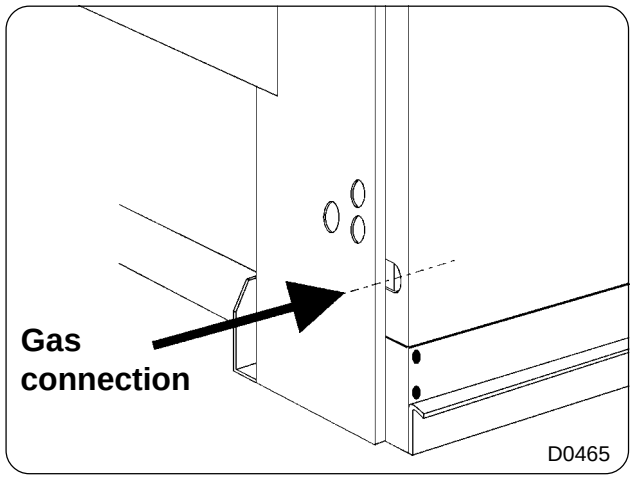
The installation, connection and gas arrival adjustments for the machine must be done by qualified personnel only.

Gas supply DN 20 (3/4" BSP)

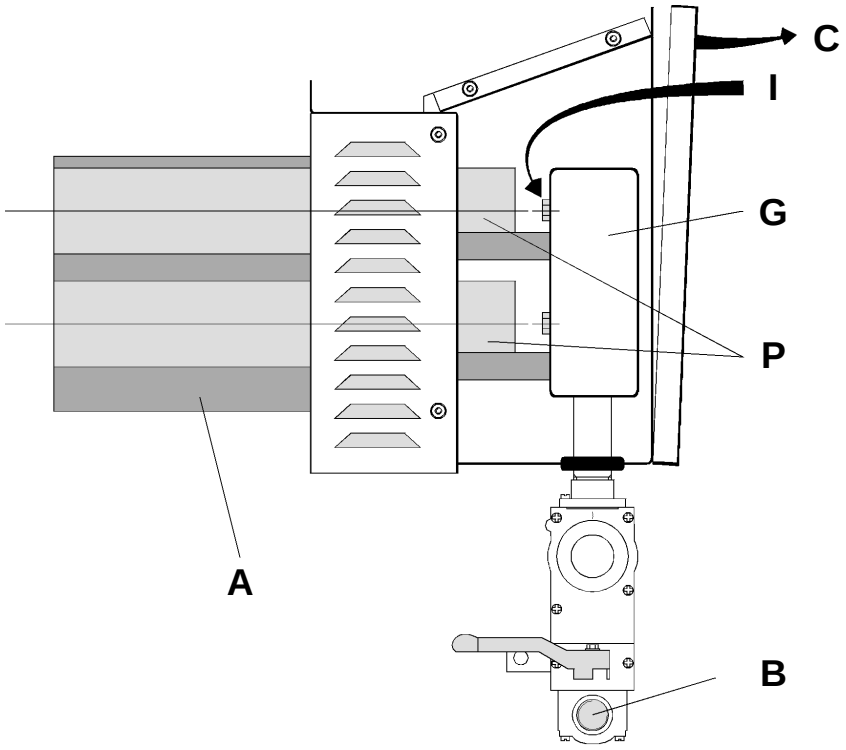
The customer must install a filter and a manual stop valve on the supply side of the machine if natural gas is used.

For butane or propane, the customer must install a filter, a manual closing valve and a pressure reducer.

Connect the installation at the back of the machine.



A : Gas burner
B : Gas inlet
C : Air filter
I : Injectors
G : Service tank
P : Venturis



The machine is adjusted at the plant to be suitable for the kind of gas specified on the order. If you have to supply your machine with gas in a family different from the gas for which your machine was adjusted, proceed as follows :

Check that the diameter of the injectors is adequate for the kind of gas of your installation (see table of injectors). The machine is delivered with extra injectors in a plastic envelope.

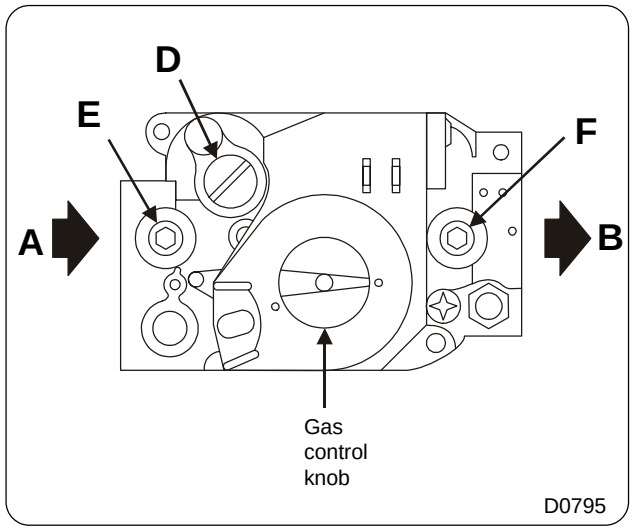
Testing pressures

According to the EN 437 standard, the values of the testing pressures mentioned in our various documents are values for static pressures taken at the gas inlet connection of the machine ; the heating of the machine being on.

Changing to a gas in the same family (type H or L)

- Adjust the gas outlet pressure (see correspondence in the tables).

Changing to a gas in a different family (from type H or L to butane or propane)



- Change the 3 injectors with joints (see correspondence in the tables).
- Remove regulator cap screw and pressure regulator adjusting screw.
- Remove the existing spring.
- Insert the replacement spring.
- Screw until the pressure regulator adjustment and block.

Changing to a gas in a different family (from butane or propane to type H or L)

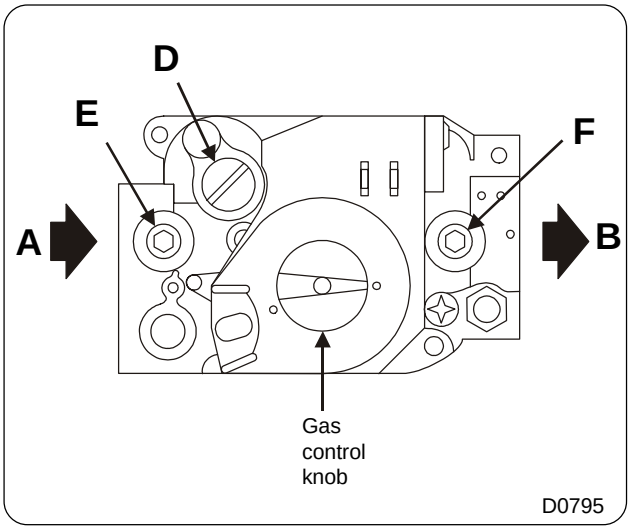
- Change the 3 injectors with joints (see correspondence on the tables).
- Remove regulator cap screw and pressure regulator adjusting screw.
- Remove the existing spring.
- Insert the replacement spring (conversion kit 393691).
- Adjust the outlet gas pressure (pressure regulator adjustment).

IMPORTANT

Adjustments should be made by qualified personnel only.

Adjustment and checking of the outlet pressure

The gas outlet pressure of the solenoid valve is adjusted at the factory. If you have to make another adjustment, proced as follows.



A Inlet

B Outlet

D Outlet pressure regulator adjustment screw plug

E Inlet pressure tapping

F Outlet pressure tapping

1/ Close the gas inlet and remove the binding screw from the pressure tapping (F) and connect the manometer tube.

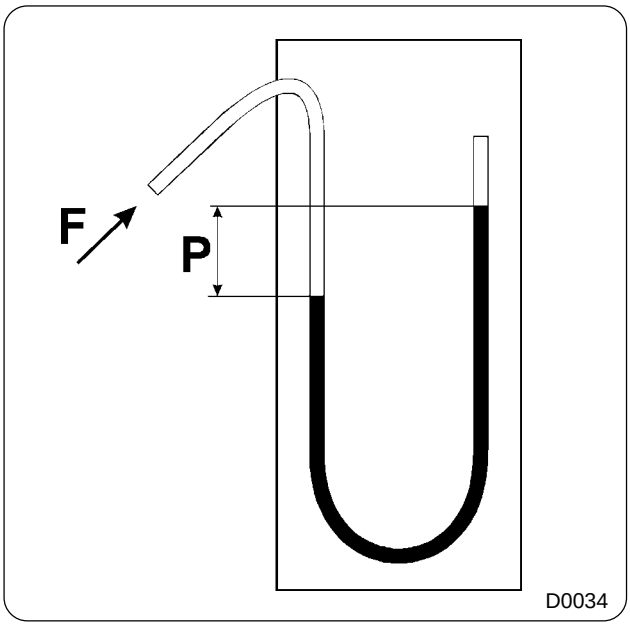
2/ The electricity supply must be energized otherwise gas will not be supplied to the burner.

3/ Open and check the gas inlet main burner using the manometer on the pressure tapping (F).

4/ Remove pressure regulator cap (D).

5/ Using a screwdriver, slowly turn the adjustment screw until the required pressure (P) is indicated on manometer (see tables on the following pages).

Turn the adjustment screw clockwise to increase and counter-clockwise to decrease gas pressure.



6/ Reset the pressure regulator cap, close off the gas inlet, remove the manometer tube and put the binding screw back in (F).

Legend of symbols used

I: machine working with only one gas family
II: machine working with two gas families
1: 1st family : caol gas or town gas (for information : not used here)
2: 2nd family : natural gas
3 : 3th family : liquefied petroleum gas (LPG)
H : natural gas with high calorific value (type G20)
L : natural gas with low calorific value (type G25)
E : natural gas with high and low calorific value (type G20)
LL : natural gas with low calorific value (type G25)
Esi : natural gas with high and low calorific value with adjustment (type G20)
B : butane gas (type G30)
P : propane gas (type G31)
B/P : butane and propane gas (type G30 and G31)
3+ : butane/propane gas with couple of pressure 30/37 (type G30 and G31)

AT : Austria
BE : Belgium
CH : Switzerland
DE : Germany
ES : Spain
FR : France
GB : Great Britain
GR : Greece
IE : Ireland
IT : Italy
FI : Finland
LU : Luxemburg
NL : Netherlands
NO : Norway
PT : Portugal
SE : Sweden

Qn (Hi) : nominal heat emission express in relation to the net calorific value
Mn : nominal mass (for butane/propane gas)
Vn : nominal volume (for naturel gas)

MOD	Type
N°	Class
Serial N°	IP
	η
V Hz	Qn (Hi)=
Maxi kW A	

G30 : Mn = kg/h	G20 : Vn = m³/h
G31 : Mn = kg/h	G25 : Vn = m³/h

	AT	BE	BE	CH	CH	DE
Cat.	II2H3B/P	I2E(R)B	I3+	II2H3+	II2H3P	II2E3B/P
P(mbar)	20 50	20/25	28-30/37	20 28-30/37	20 50	20 50
	DE	DK	ES	ES	FI	
Cat.	I3P	II2H3B/P	II2H3+	II2H3P	II2H3B/P	
P(mbar)	50	20 30	20 28-30/37	20 50	20 30	
	FR	FR	GB	GR	IE	IT
Cat.	II2Esi3+	II2Esi3P	II2H3+	II2H3+	II2H3+	II2H3+
P(mbar)	20/25 28-30/37	20/25 50	20 28-30/37	20 28-30/37	20 28-30/37	20 28-30/37
	LU	NL	NL	NO	PT	SE
Cat.	II2E3B/P	II2L3P	II2L3B/P	I3B/P	II2H3+	II2H3B/P
P(mbar)	20 50	25 30-50	25 28-30-50	30	20 28-30/37	20 30

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TABLE OF CORRESPONDENCES - Ironer 1.9 m (75")

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø of injectors in mm	Pressure at injectors in mm H_2O	Heat emission Qn in Btu (Hi)	Consumption Mn in kg/h	Consumption Vn in m³/h
2H	**G 20**	15 to 30	34.02 MJ/m³	3.30	97	133000	-	4.13
-	-	-	-	-	-	-	-	-
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
3 P	**G31**	27	46.34 MJ/kg	2.00	-	133000	3.03	-

* For Belgium, no work is allowed between G20 and G25.

TABLE OF CORRESPONDENCES - Ironer 2.1 m (83")

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø of injectors in mm	Pressure at injectors in mm H_2O	Heat emission Qn in Btu (Hi)	Consumption Mn in kg/h	Consumption Vn in m³/h
2H	**G 20**	15 to 30	34.02 MJ/m³	3.40	102	150000	-	4.65
-	-	-	-	-	-	-	-	-
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
3 P	**G31**	27	46.34 MJ/kg	-	-	150000	-	-

* For Belgium, no work is allowed between G20 and G25.

Note : G20 (H) = natural gas, Lacq type (15 to 30 mbar)
G25 (L) = natural gas, Groningue type (20 or 25 mbar)
G30 = butane gas (28/30, 50 mbar)
G31 = propane gas (27 mbar)

20 mbar = 0.29 psi
25 mbar = 0.36 psi
28 mbar = 0.41 psi
30 mbar = 0.43 psi
50 mbar = 0.72 psi

TABLE OF CORRESPONDENCES - Ironer 2.5 m (98")

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø of injectors in mm	Pressure at injectors in mm H_2O	Heat emission Qn in Btu (Hi)	Consumption Mn in kg/h	Consumption Vn in m³/h
2H	**G 20**	15 to 30	34.02 MJ/m³	3.70	100	177000	-	5.50
-	-	-	-	-	-	-	-	-
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
3 P	**G31**	27	46.34 MJ/kg	2.25	-	177000	4.04	-

* For Belgium, no work is allowed between G20 and G25.

TABLE OF CORRESPONDENCES - Ironer 2.8 m (110")

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø of injectors in mm	Pressure at injectors in mm H_2O	Heat emission Qn in Btu (Hi)	Consumption Mn in kg/h	Consumption Vn in m³/h
2H -	**G 20**	15 to 30	34.02 MJ/m³	3.80	105	191000	-	5.92
-	-	-	-	-	-	-	-	-
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
3 P	**G31**	27	46.34 MJ/kg	2.40	-	191000	4.35	-

* For Belgium, no work is allowed between G20 and G25.

Note : G20 (H) = natural gas, Lacq type (15 to 30 mbar)
G25 (L) = natural gas, Groningue type (20 or 25 mbar)
G30 = butane gas (28/30, 50 mbar)
G31 = propane gas (27 mbar)

20 mbar = 0.29 psi
25 mbar = 0.36 psi
28 mmar = 0.41 psi
30 mbar = 0.43 psi
50 mbar = 0.72 psi

TABLE OF CORRESPONDENCES - Ironer 3.2 m (126")

Category index	Type of gas	Working supply pressure in mbar	Hi	Ø of injectors in mm	Pressure at injectors in mm H_2O	Heat emission Qn in Btu (Hi)	Consumption Mn in kg/h	Consumption Vn in m^3/h
2H	**G 20**	15 to 30	34.02 MJ/m^3	4.00	114	222000	-	6.87
-	-	-	-	-	-	-	-	-
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
-	- -	- -	- -	- -	- -	- -	- -	- -
3 P	**G31**	27	46.34 MJ/kg	2.50	-	222000	5.05	-

* For Belgium, no work is allowed between G20 and G25.

Note : G20 (H) = natural gas, Lacq type (15 to 30 mbar)
G25 (L) = natural gas, Groningue type (20 or 25 mbar)
G30 = butane gas (28/30, 50 mbar)
G31 = propane gas (27 mbar)

20 mbar = 0.29 psi
25 mbar = 0.36 psi
28 mbar = 0.41 psi
30 mbar = 0.43 psi
50 mbar = 0.72 psi

IMPORTANT

Tightness test after installation

The gas leak test is performed as follows:

1/ Paint pipe joints, pilot gas tubing connections and inspect outlets with rich soap and water solution; do not use an aggressive soap.

2/ Put the machine into service. Bubbles indicate a gas leak.

3/ Eliminate this leak.

Check-out

Before leaving, put the appliance into operation and allow to run a complete cycle. Watch to ensure that all burner system components function correctly.

Connection of the dryer evacuation system

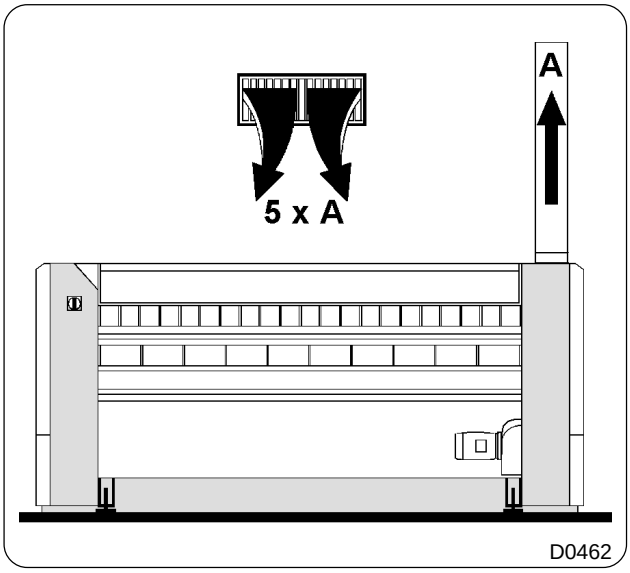
Fresh air inlet

To allow the dryer ironer to work at its best, it is important that the laundry air inlet passes through an opening from the outside.
The fresh air arrival must be equivalent to the volume of evacuated air.
In order to prevent drafts in the room, the best solution is to place the air inlet behind the machine.

In the case of a machine with gas heating, it is essential that the rooms should be ventilated.

The free section of the air inlet must be 5 times greater than the section of the evacuation pipe.

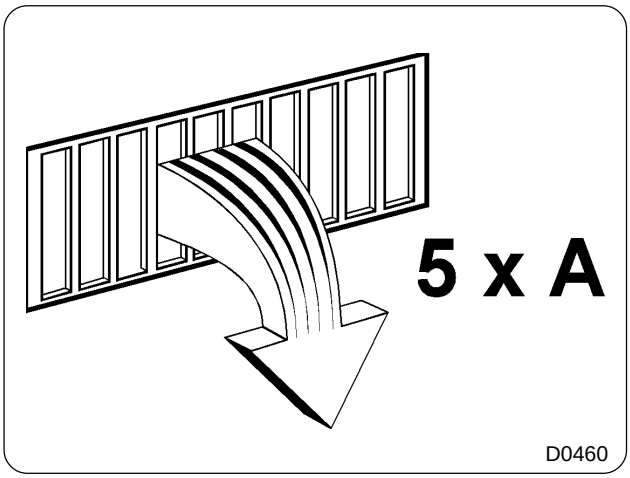
Do not forget to allow for the fact that grills often occupy half the total area of the free air opening.



Evacuation duct

It is recommended that a separate smooth-walled evacuation duct should be connected to each dryer, providing the least possible resistance to air.

Check that the shaft flow is at least twice the capacity of the ironer exhaust fan.



To prevent any risk of burnings, the vapours' evacuation duct of the flatwork ironers with rear delivery of the linen has to be temperature insulated (to be done by the customer).

It is essential that the diameter of the evacuation pipe should be selected as a function of each installation so that the pressure loss never exceed 200 Pa (0.029 psi) (value measured at ambient temperature).

These conditions are **ABSOLUTELY ESSENTIAL** for correct working of the ironer.

Electric, steam or thermal fluid heating specifications.

Fan maximum flow rate with no pressure : 880 Pa (0.127 psi).

Average temperature of exhaust at the machine outlet :

- electric heating: 65 °C (150 °F)
- steam heating or liquid coolant heating: 65 °C (150 °F)

Gas heating specifications.

Evacuation of vapour from a dryer ironer with gas heating must never be connected to the evacuation used for a gas heating machine and a dry cleaning machine or other machine of the same type.

Fan maximum flow rate with no pressure : 880 Pa (0.127 psi).

Average temperature of exhaust at the machine outlet for gas heating : 100 °C (212 °F)

For gas heating, the required combustion fresh air supply should be not less than 2 m³/h (1.17 cfm) per kW :

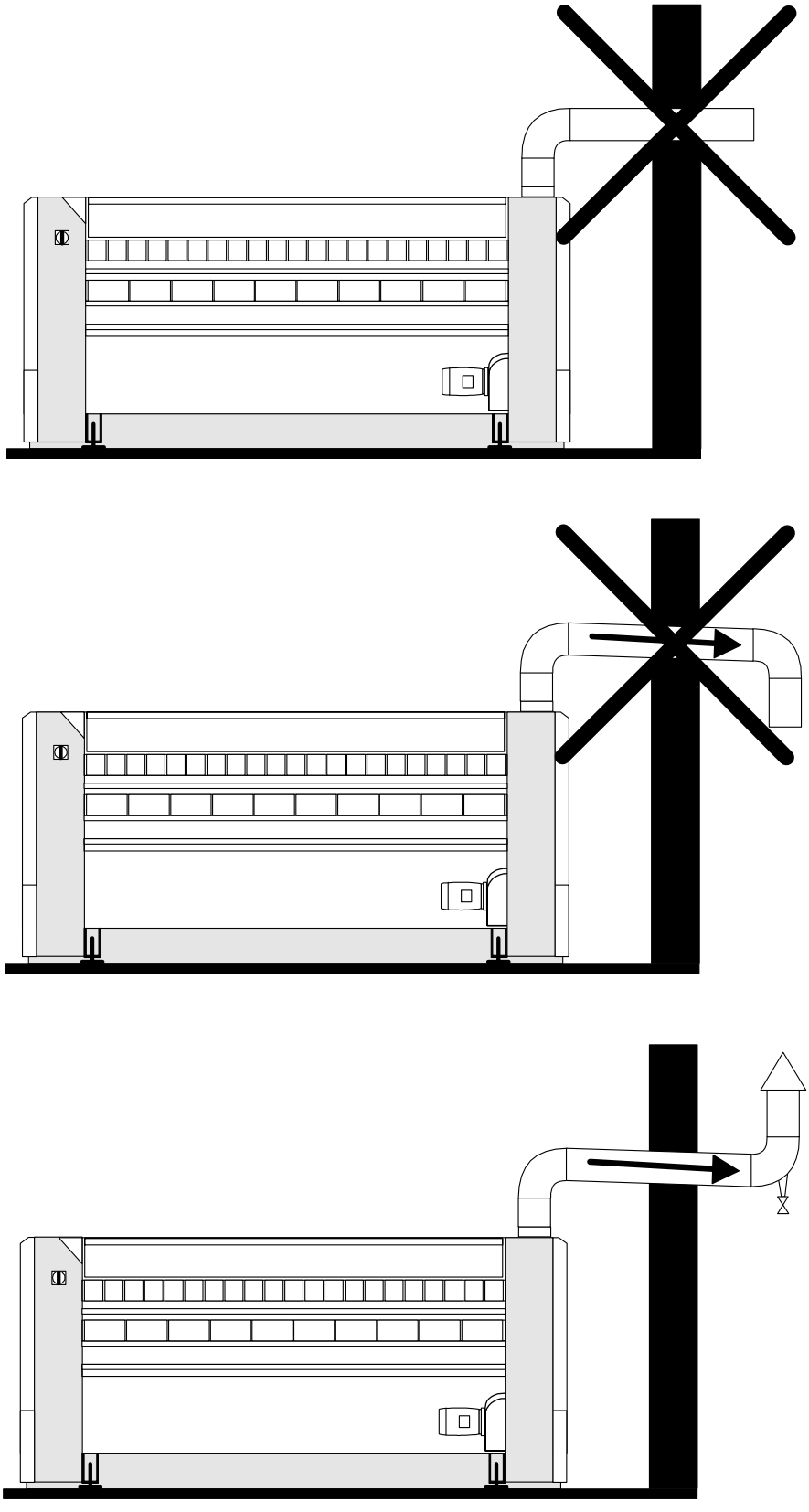
- either 78 m³/h (46 cfm) for a 1.90 m (75") machine
- or 88 m³/h (52 cfm) for a 2.10 m (83") machine
- or 104 m³/h (61 cfm) for a 2.50 m (98") machine
- or 112 m³/h (66 cfm) for a 2.80 m (110") machine
- or 130 m³/h (77 cfm) for a 3.20 m (126") machine

NOTE : if the flow is insufficient due to an excessive pressure loss, a safety pressure switch will automatically switch the heating off.

Values of the adjustment of safety pressure switch :

- either 15 mmH_2O for a 1.90 m (75") machine
- or 13 mmH_2O for a 2.10 m (83") machine
- or 9 mmH_2O for a 2.50 m (98") machine
- or 6 mmH_2O for a 2.80 m (110") machine
- or 5 mmH_2O for a 3.20 m (126") machine

The duct must lead to the outside and must be fitted with protection against the weather and foreign bodies.



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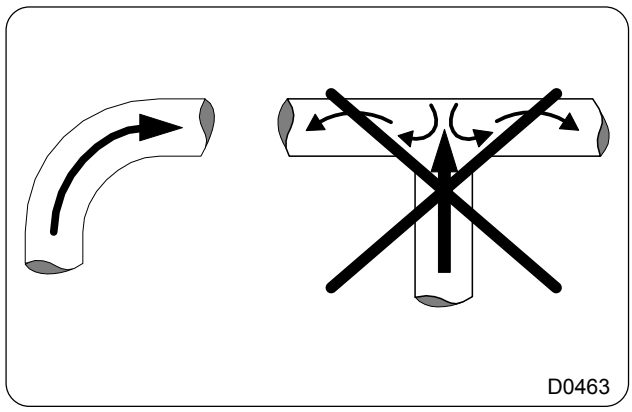
Evacuation system if several dryers are connected to a common evacuation duct (except for the gas haeting machines).

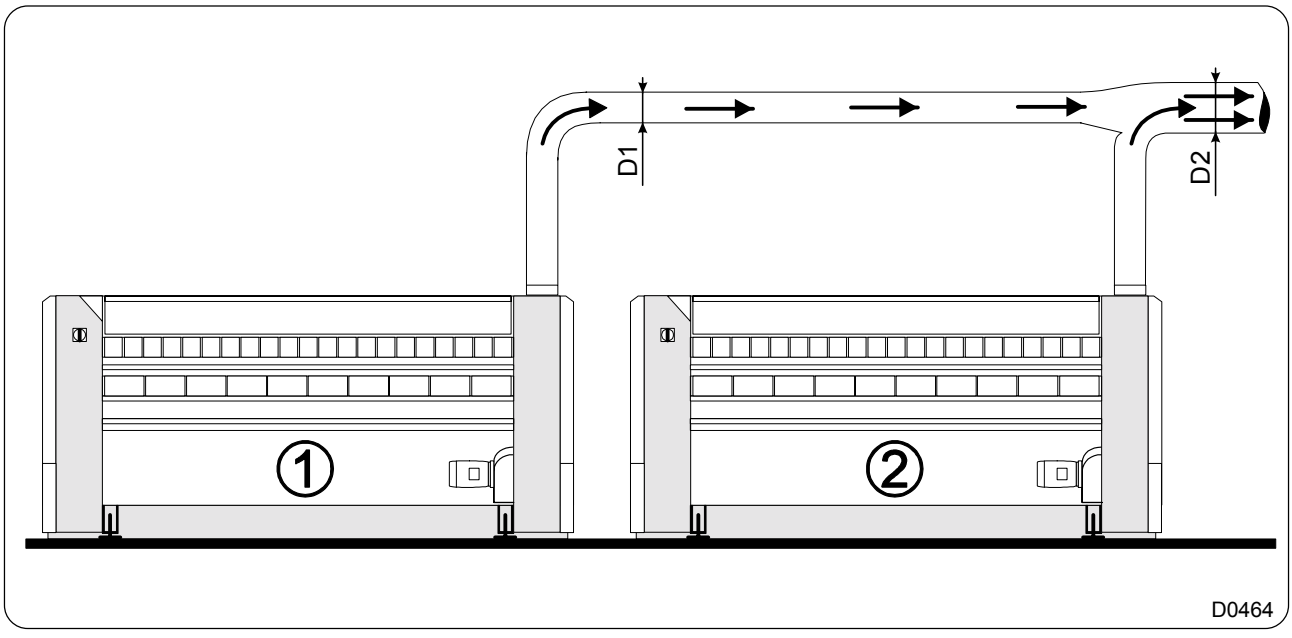
If several dryer ironers are installed with a common evacuation duct, the cross-section of the evacuation duct must increase as a function of the number of installed machines so that each of them operates at the same value of air resistance.

Use elbows (and not Tees) to allow the air to pass forwards.

The simplified figure below shows the principle on which the evacuation duct shape is designed.



Number of ironers	**1**	**2**	**3**	**4**
Outlet diameter (D) of the exhaust pipe in (mm)	160 (6")	225 (9")	315 (12")	450 (18")
Ventilation aperture required section	2 dm² (30 sq in)	4 dm² (62 sq in)	8 dm² (120 sq in)	16 dm² (248 sq in)



The indicated evacuation diameter is the dryer outlet diameter.

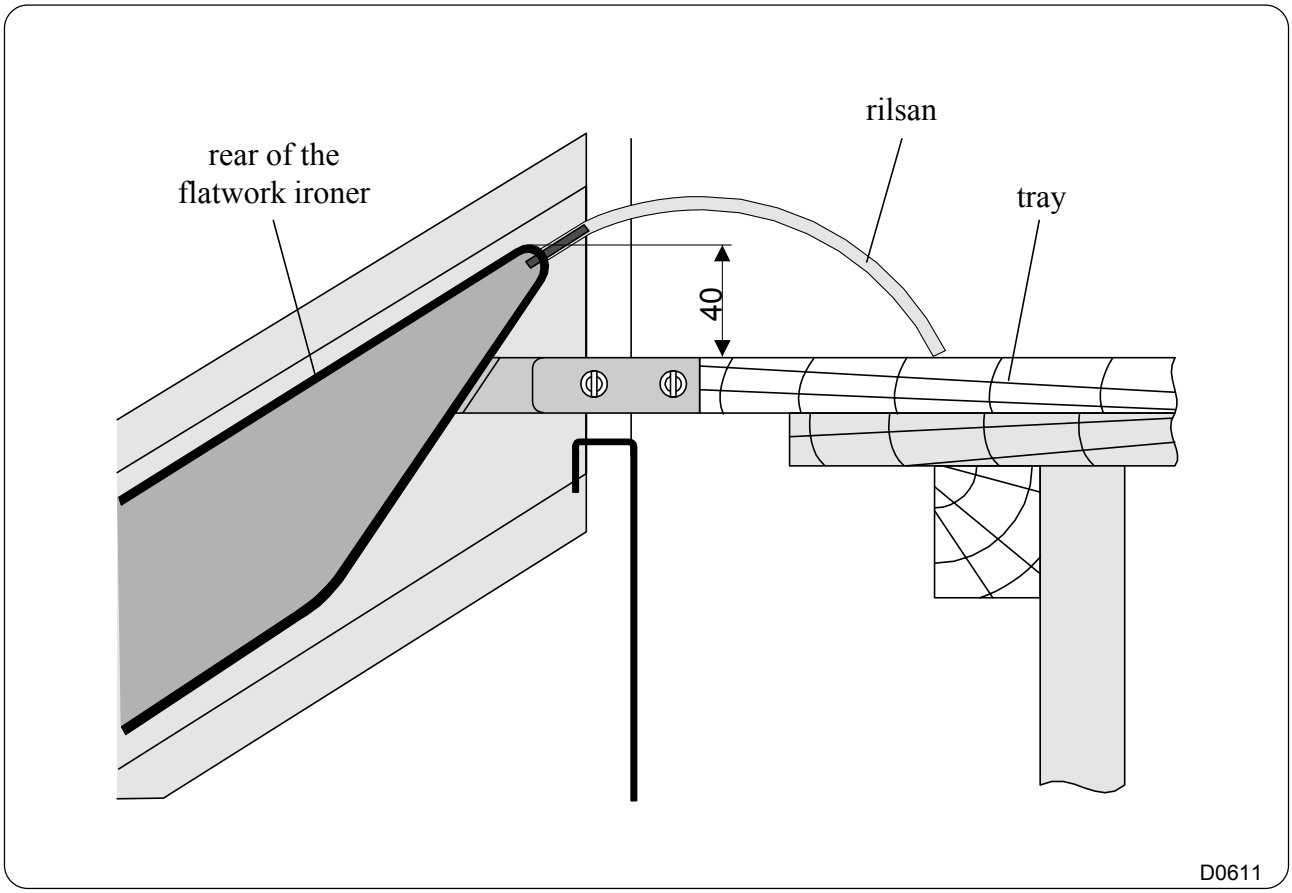
Cross-sections of ducts between dryers and the outside of the building must be designed taking account of the flow and the allowable pressure loss on each machine and the routing of ducts (elbows and lengths).

Please call us if you are in any doubt about the layout of your exhaust device if you are modifying an existing installation.

Installation of the receiving tray at the rear of the flatwork ironer

Assemble the rilsan tubes (supplied in the plastic bag) on the pins of the ends of the rear exit.

Adjust and position the table until it rests against the rear delivery and adjust the feet to reach the required dimension (see hereunder drawing)



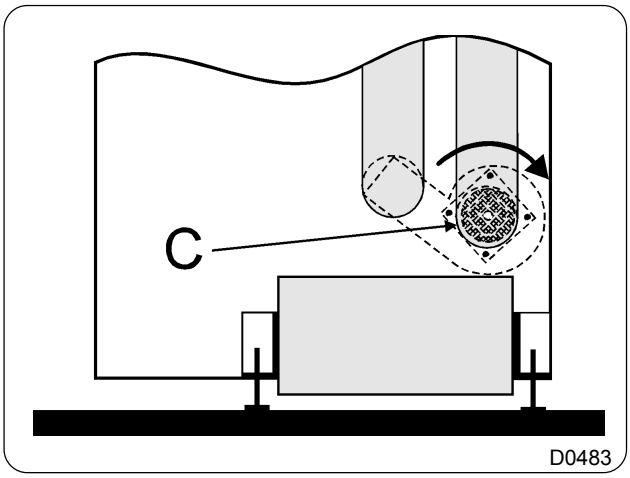
Operating inspection

The operating inspection must be done by an approved technician.

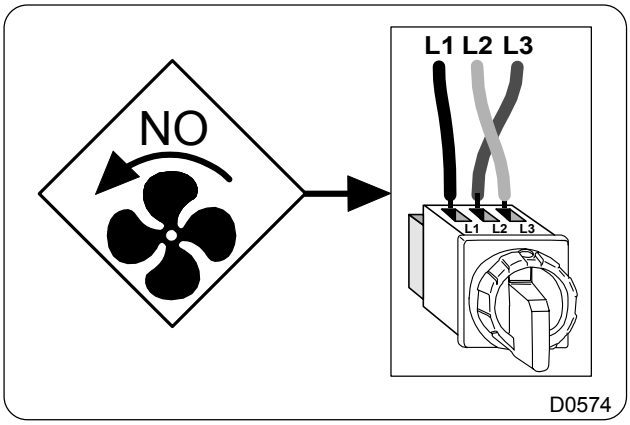
WARNING
Always make sure that the fan is rotating in the right direction. The fan must rotate in the direction shown on the arrow glued inside the right compartment (see illustration).

Ironer without longitudinal folding

Start by installing the collar **"C"**, and then remove the hose so that you can see the direction of rotation of the fan.



If it is rotating in the wrong direction, invert two of the three phases on the power supply isolating switch to reverse the direction of rotation of the fan.



Check again the direction of rotation of the fan then replace the hose and its collar.

Ironer with longitudinal folding

WARNING

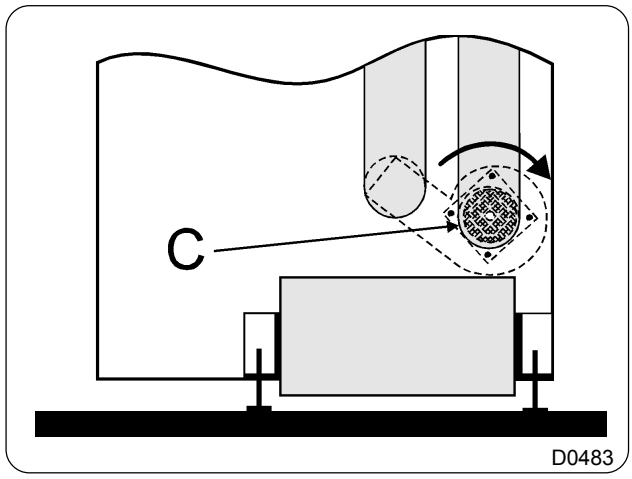
The control geared unit for longitudinal folding has a keyed transmission shaft and it is important that the direction of rotation is correct, otherwise there is a danger that certain mechanical parts might suffer damage.

The verification of direction of rotation of the fan allows to eliminate this risk.

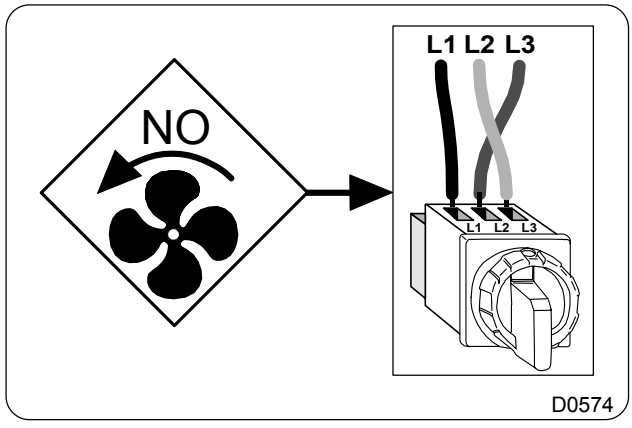
WARNING

So as to avoid any operator errors, the 3 wires feeding the back-geared motor are deliberately disconnected from the contactor. They should only be reconnected after carrying out the checks described on the following pages.

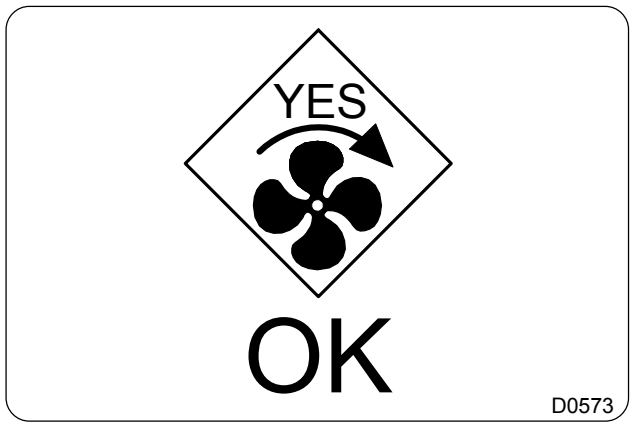
Start by installing the collar **"C"**, and then remove the hose so that you can see the direction of rotation of the fan.



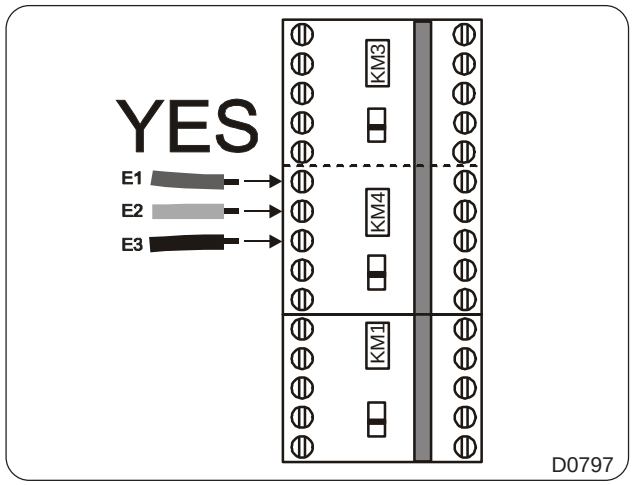
If it is rotating in the wrong direction, invert two of the three phases on the power supply isolating switch to reverse the direction of rotation of the fan.



Check again the direction of rotation of the fan then replace the hose and its collar.



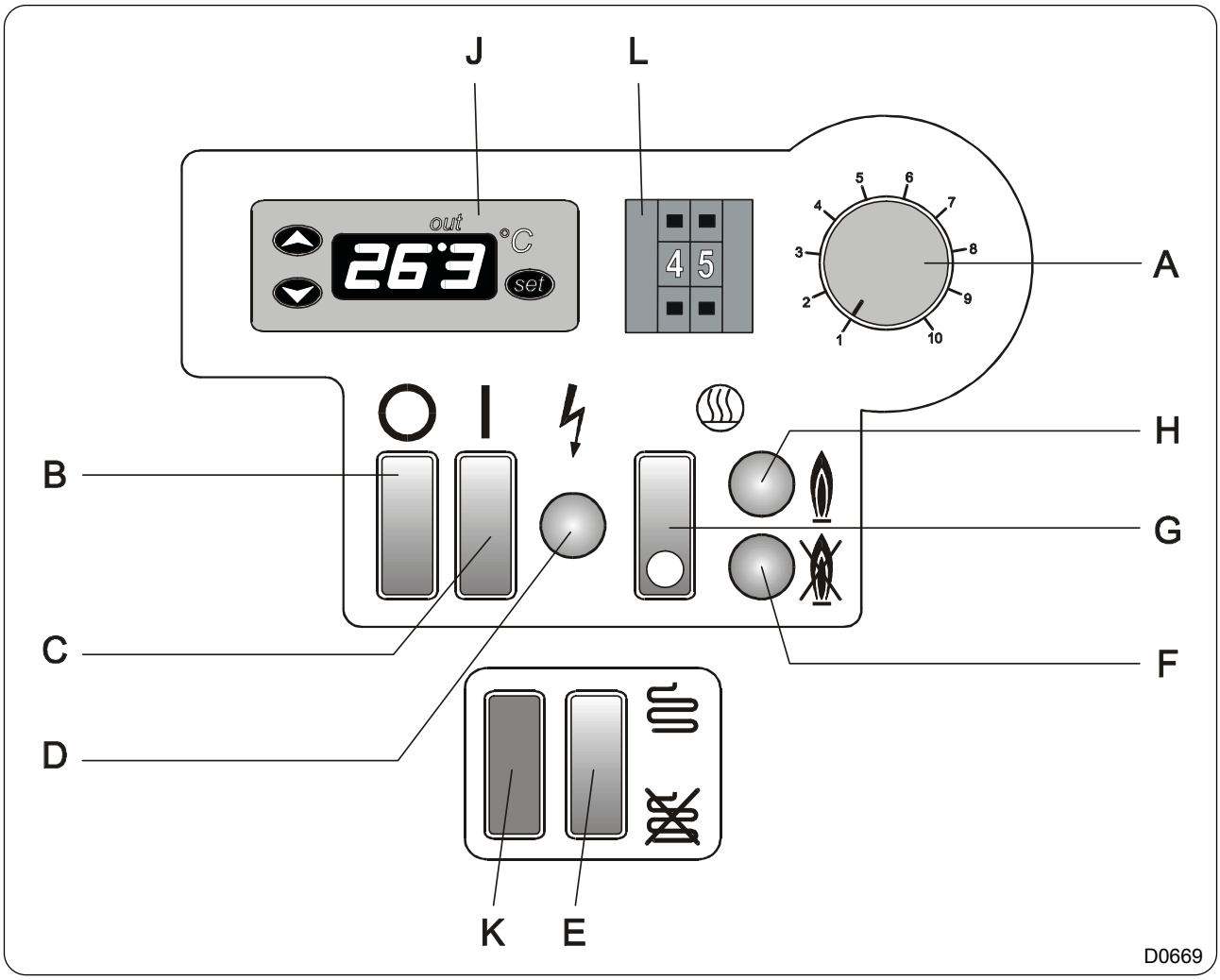
You can now reconnect the 3 wires of the back-geared motor control on the contactor KM4.



Allow the machine to run with the heating on for 5 minutes, and check on the temperature display to ensure that the heating is working correctly.

If the tests carried out on the various points mentioned above are satisfactory, the dryer ironer is ready for use.

Control panel



A Potentiometer, ironing speed adjustment

B Stop switch

C Start switch

D Main Power On indicator

E With folding/without folding selector switch
(machine with folding function only)

F Gas burner fault indicator *(machine with gas heating only)*

G Switch with heating On indicator (Gas and electric heatings)

H Heating regulation On indicator (Gas and electric heatings)

J Electronic thermostat for ironing temperature in Celsius degrees (°C) *

K Manual sheet ejection switch – Press on to eject the sheet (option)

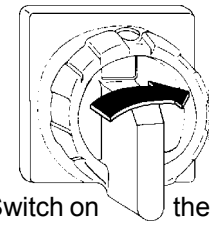
L Measuring wheel to select the sheet folding length (option) **

* To set the working temperature, see the end of this chapter (Gas and electric heatings only).

** To set the folding length selection, see the end of this chapter.

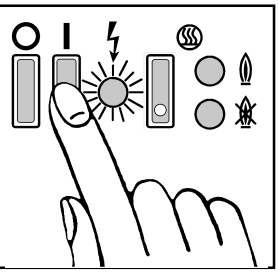
Simplified instructions for using the dryer ironer

1



Switch on the main switch.

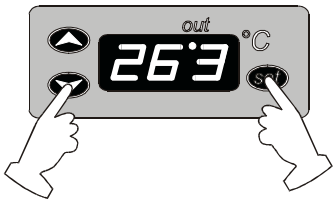
Start:
Press on the start switch for 1 second, the Power On indicator lights up.



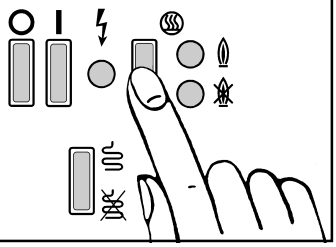
2

Temperature selection :

Adjust the electronic thermostat to the required temperature.

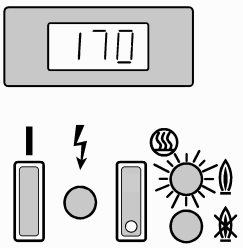


Start heating:
Press on the heating On switch.
The indicator lights up.

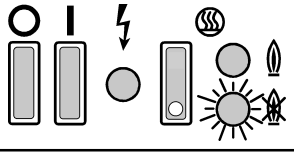


3

Heating duration:
The indicator remains on during the heating period.
The ironing temperature in °C is displayed on the dial.

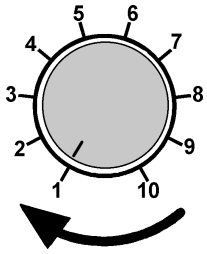


Ignition fault on gas heating machine:
The indicator remains on if a fault occurs when the gas burner ignites.

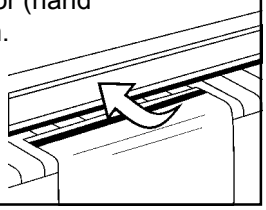


4

Ironing speed:
Turn the knob to adjust the ironing speed.

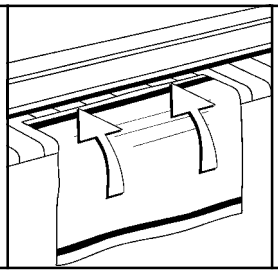


Safety: The machine must stop when the mobile safety protector (hand safety) is switched on.
Check operation of this protection every day.

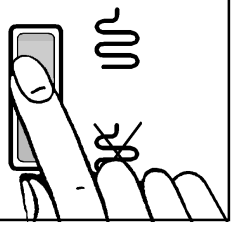


5

Ironing:
Place the washing to be ironed on the feeding table.

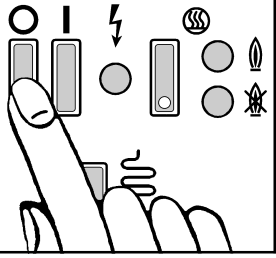


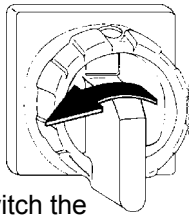
Folding:
Tilt the reception tray upwards and then press on the switch to change to folding mode.



6

Switching off the machine:
- Switch the heating off and continue ironing until the temperature reaches 120 °C (248 °F).
- Do not use the folding function during the cooling phase.
- Press the machine stop switch.





Switch the main switch off.

SAFETY

Make sure that the protection casings are in position before use.

Complementary instructions for operation.

Check daily that the hand safety bar is working correctly, the machine must stop when you press it. All that should remain on is the power On indicator. Restart startup operations to resume ironing.

Ironing Temperature Display

The control enclosure includes an electronic thermostat panel which shows in real time the temperature of the ironing cylinder.

A temperature 20 °C (68 °F) above the set temperature (electric heating) or above the temperature selected by the thermostat (gas heating) is normal. It does not mean a malfunction of the machine's measuring instruments but is simply due to a heating lag.

Table of ironing speeds

The ironing speeds are chosen regarding to the gsm substance of the fabric and its residual moisture rate.

Legend of ISO standard symbols used in tables

 Textile

 Electric heating

 % of water retention rate

 Gas heating

 Ironing speed

 Steam heating

These values are usable only for the ironing of simple thiskness linen.

Examples of ironing speeds, machine without folding, with gas heating.

- ☞ For sheets of 180 g/m² with a water retention rate of 50 % ; set the potentiometer button on 5 ; ironing speed will be 3.3 m/min (130 in/min).
- ☞ For sheets of 140 g/m² with a water retention rate of 27 % ; set the potentiometer button on 10 ; ironing speed will be 5.6 m/min (220 in/min).

Modification of the ironing speed :

Speed ironing parameters from the convertor are limited in our plant to 5.6 m/min (220 in/ min) maximum (Pr 22 = 24).

Should you wish to increase that maximum speed, (12 m/min (47 in/min) for flatwork ironer and with rear delivery, 8 m/min (32 in/min) for ironer with built- in lengthfolding device), there is no more need than to change Pr 22 or Pr 38 parameter from the convertor (relate to the convertor's manual).

Ironer		**Ironer folder**		**Ironer with rear outlet**	
FR-U120 S	FR-S520 S	FR-U120 S	FR-S520 S	FR-U120 S	FR-S520 S
Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 2.4 Pr 21 = 8 **Pr 22 = 24 to 50** Pr 73 = 0 Pr 78 = 0 Pr 79 = 2	Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 2.4 C2 = 8 **Pr 38 = 24 to 50** Pr 72 = 15 Pr 79 = 2 -	Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 2.4 Pr 21 = 8 **Pr 22 = 24 to 35** Pr 73 = 0 Pr 78 = 0 Pr 79 = 2	Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 2.4 C2 = 8 **Pr 38 = 24 to 35** Pr 72 = 15 Pr 79 = 2 -	Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 4 Pr 21 = 8 **Pr 22 = 24 to 50** Pr 73 = 0 Pr 78 = 0 Pr 79 = 2	Pr 0 = 6 Pr 7 = 1 Pr 8 = 1 Pr 9 = 4 C2 = 8 **Pr 38 = 24 to 50** Pr 72 = 15 Pr 79 = 2 -

Nota : the modification in the convertor parameters cancel values from above chart.

74032128

	= 27		= 50		= 27		= 50		= 27		= 50	
= 0	N°	m/min	N°	m/min	N°	m/min	N°	m/min	N°	m/min	N°	m/min
140 g/m²	10	5.6	6	3.9	10	5.6	7.5	4.5	10	5.6	10	5.6
160 g/m²	10	5.6	5	3.3	10	5.6	6	3.9	10	5.6	10	5.6
180 g/m²	8.5	5	4	3	10	5.6	5	3.3	10	5.6	9	5.3
200 g/m²	7.5	4.4	3	2.5	9	5.1	4	3	10	5.6	8	4.6
220 g/m²	6	3.8	2	2.1	7.5	4.4	3	2.5	10	5.6	6.5	4
250 g/m²	4.5	3.1	1	1.8	5.5	3.6	2	2.1	10	5.6	5	3.3

Continuous feeding

Start the ironing as soon as the temperature gets to 150 °C (300 °F) and reduce the ironing speed regarding to the fabric's water retention and following the instructions seen above.

The usual ironing temperature is from 150 °C to 170 °C (300 °F to 338 °F). You just have to set the electronic thermostat on the required temperature.

Adjust the ironing speed regarding to the cylinder's temperature increase till you get a stabilization of this latter.

Casual feeding

Start the ironing as soon as the temperature gets to 150 °C (300 °F) and reduce the ironing speed regarding to the fabric's water retention and following the instructions seen above.

Increase the ironing speed regarding to the increase of the cylinder's temperature till you get to the stabilization of this latter.

Complementary instructions for starting up a machine with gas heating.

For safety reasons (purge of the combustion chamber), the ignition of the gas rampe is delayed of 30 seconds after the switching on of the gas heating.

A yellow indicator on the control panel operates for about 6 seconds to show that the gas burner is igniting. If this indicator remains on for longer than this, there may be an ignition fault, an opening fault in the gas solenoid valve or a lack of gas.

Switch the machine off and call your local repairman if this occurs regularly.

About 10 minutes is necessary to warm up.

Note: do not forget to open the stop valve on the gas supply line before starting to use the machine, and then close it again after use.

Complementary instructions for starting up a machine with electrical heating.

The typical ironing temperature is 150 to 170 °C (300 °F to 338 °F). You just have to set the electronic thermostat to the required temperature.

About 15 minutes is necessary to warm up.

Complementary instructions for starting up a machine with steam heating.

Note : do not forget to open the by-pass or the condensate return valve for about a minute to purge the pipes so that the cylinders can warm up more quickly; do this before starting to switch on the machine. Close it afterwards.

Slowly open the steam inlet valve and check the temperature on the control display panel.

Note that the temperature is directly related to the steam pressure (see table bellow).

The typical ironing temperature is 164 to 179 °C (327 °F to 354 °F).

On the contrary of a gas or electric heated machine, for a steam heated machine, you just have to adjust the ironing speed regardingthe linen and its water retention.

Correspondence between steam presure / temperature									
Manometric pressure in bars	1	2	3	4	5	6	7	8	9
Temperature in °C	119	133	143	151	158	164	169	174	179
Temperature in °F	246	271	289	304	316	327	336	345	354

Complementary instructions for using a machine with automatic folding

Even if your ironer is equipped with the folding function, a **"folding/without folding"** switch on the control panel will enable you to use your ironer without the automatic folding function. In this case, tilt the reception tray upwards to allow folded clothes to exit, and then switch the control panel switch to **"folding"**.

If the tray is in the horizontal position (therefore for reception of unfolded washing), an electrical device prevents you from using the ironer in folding mode, even if the control panel switch is set to folding.

When you want to return to automatic folding mode, set the switch on the control panel to the **"folding"** function and then lower the reception tray. Washing will then exit directly onto the reception table.

NOTE : for easy handling of the reception tray, it is recommended that it should be controlled manually about its center (between the two arrows marked on the front of the tray).

Folding characteristics (machine with folding function only)

☞ Dimension of sheets compatible with folding:

Min. length : 90 cm (35")

Max. length : 350 cm (138")

☞ Fold dimensions :

Min. length: 25 cm (10")

Max. length : 45 cm (18")

☞ Number of folds :

4 folds min.

10 to 12 folds max.

☞ Minimum feeding separation distance between two sheets : 10 cm (4")

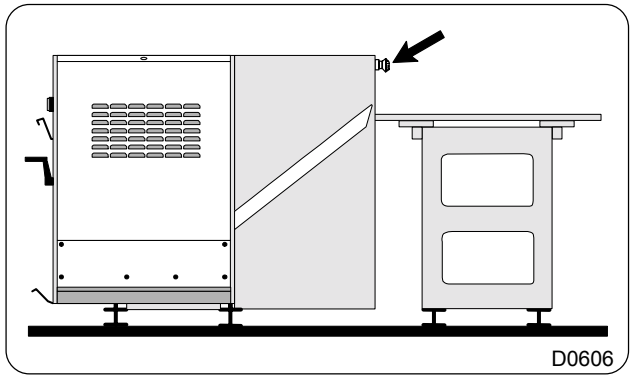
Dimension of the first fold before the complete sheet measurement (advance folding) : 25 cm (10")

Dimension of the second fold before the complete sheet measurement (advance folding) : 35 cm (14")

☞ When a sheet is too long, folding starts before the complete sheet measurement, this is advance folding. The machine then automatically adjusts the folds as a function of the measurement made.

Additional instructions for using an ironer with rear delivery

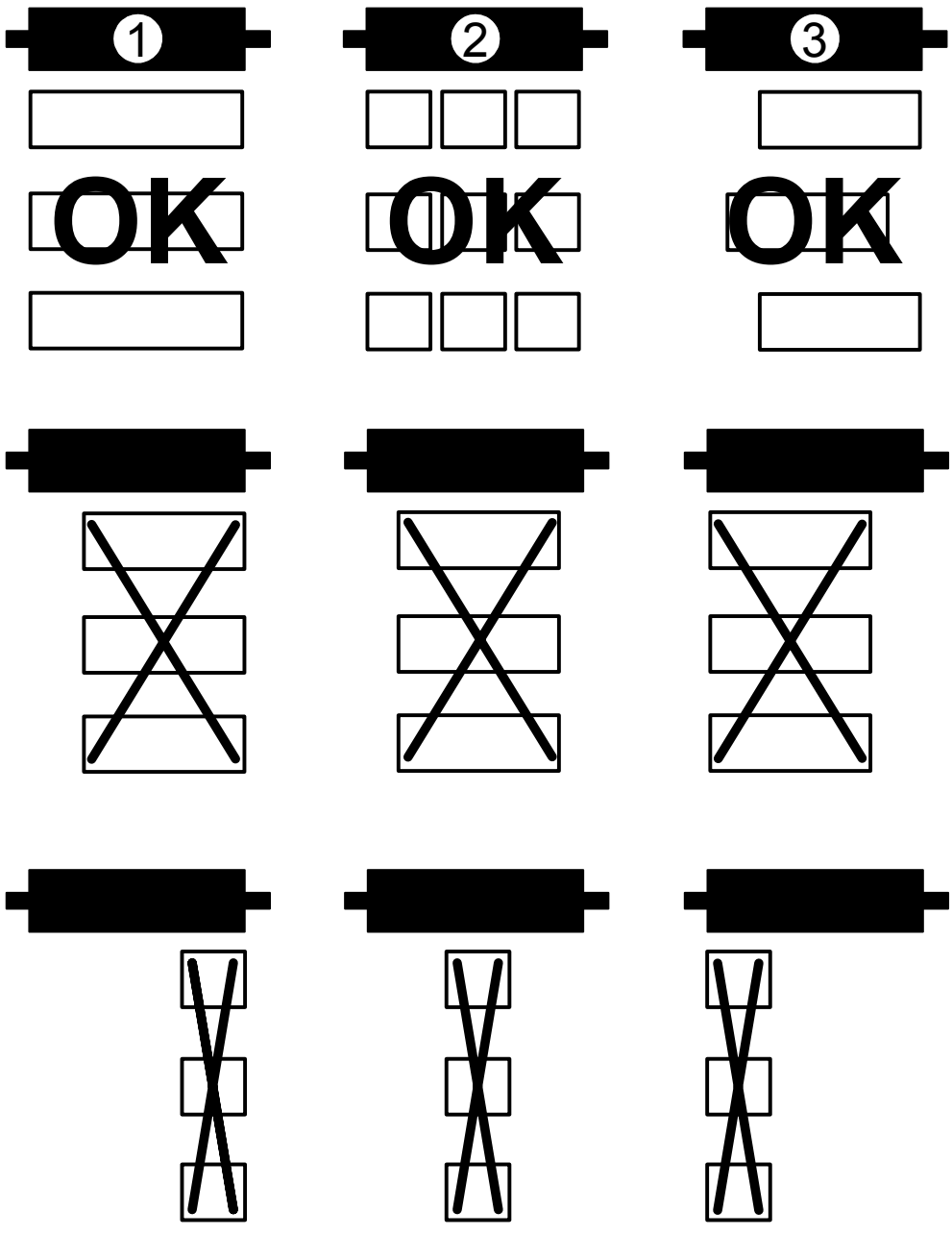
Two emergency push buttons are located at the rear of the machine in order to ensure the safety of the employees.
To underline that a sudden stop of the ironing cylinder with temperature above 120 °C (248 °F) can damage the ironing belts.
After an action on the emergency push button, re-starting the ironer is only possible after pushing the ON key and then the heating ON key.



Complementary instructions for using a dryer ironer (except on machine with steam heating).

When ironing small sheets or small washing, pass abreast the washing of the heating cylinder to provide correct regulation of the cylinder temperature.

As a general rule, the whole of the cylinder should be used ❶. Either iron the linen from the front ❷ or iron alternately ❸, which makes maximum use of the heat units available over the surface of the cylinder. It also overcomes difficulties arising from random control values caused by partial use of the cylinder.



Precautions for use.

Please respect the following usage recommendations to get the best out of your ironer:

- ☞ Start ironing when the cylinder temperature reaches about 150 °C (300 °F).
- ☞ Check that the washing can be ironed and check the temperature at which it is to be ironed.
- ☞ The washing should be correctly rinsed so that it does not turn yellow and does not make the cylinder dirty.
- ☞ We recommend as far as possible, that you should feed pieces of flat washing (towels, sheets, etc.) by their hem, with the seam facing top, to obtain maximum ironing quality.
- ☞ There may be a risk of yellowing if the washing has to be passed twice to make it dry, or if the speed is too slow.
- ☞ If the washing is not dry after a second ironing, it may be because:
  - The spinning speed of your washer spinner is less than 300 G, in this case allow for a short predrying (5-10 min.) in a dryer.
  - The washing is too thick.
  - The ironing speed is too high.
  - The ironing temperature is to low.
- ☞ Carefully engage the washing to be ironed, because it is impossible to disengage a badly engaged washing.
- ☞ Allow 10 cm (4") between washing to be ironed when using a machine with an automatic folding system.
- ☞ Make sure that the width of the washing does not exceed the useful width of the machine.
- ☞ Do not iron washing folded in four, because it will be too thick to achieve the drying/ ironing/folding quality that you are entitled to expect from your machine.
- ☞ If possible, use the entire ironing width of the dryer ironer, otherwise alternate ironing at the left and right of the cylinder.
- ☞ If the washing is moist when it comes out of the dryer ironer, reduce the ironing speed (adjust the potentiometer on the control panel) until the ironing quality is satisfactory.
- ☞ If the washing is starched, there is a risk of starch being deposited on the cylinder, due to washing getting stuck on the cylinder.
- ☞ You can place your dry and ironed washing on the intake hood to terminate drying hems.
- ☞ Check the quality of the washing water (TH/TAC).
- ☞ Check the washing and rinsing cycles (see "phenolphthalein" operating incidents).
- ☞ Check incrustation of the washing (ash content).
- ☞ The washing must not be spun excessively otherwise the machine will not work correctly (minimum retention rate 30 %).

The productivity and quality of ironing / folding depend on the washing quality; make sure that all these conditions are satisfied.

Practices to avoid

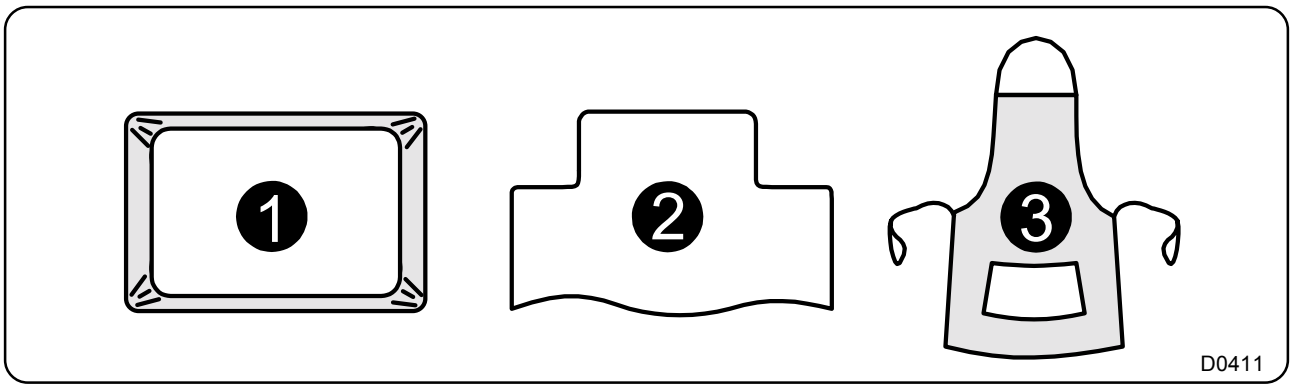
- Draw-sheets or any other double-layer sheet or sheet pulled into the machine side by side.
- Fitted-sheet ❶ : might cause folding problems, measurements altered.
- Comforter cases with flap ❷.
- Linen < or = 80 g/m² : gravitational pull difficult at lengthwise folding.
- Linen > or = 200 g/m².
- Linen 0.90 m (36") (ironer with longitudinal folding).

Practices not advised

- Sheets folded double.
- Folding of tableclothes (of poor quality).
- Sizes not fitting the cylinder working lenght, and partial use of the cylinder cause problems of heating regulation because heating resistors and gas burners cannot be modulated ; except with gas heating, electric heating with rotating heat and steam heating.
- Worn polycotton sheets (cotton worn away) : uneven finish look when folded, high static electricity.
- Large cotton or flax-made sheets > 200 g/m².
- Linen other than flatwork (butcher's apron ❸ : watch that the cords do not slide between the feeding strips).

Cautions

- Prepare the large sheets before feeding : ironing and longitudinal folding defects.
- Avoid the torn, worn or holed sheets, that may hook and alter the measurements and the longitudinal folding.
- Comply with the mini-maxi sizes of sheets.
- Avoid when running, too low or badadjusted temperatures as consequence of :
  - a too high ironing speed with high moisture content in sheets : bad sliding on metallic sparts.
  - a partial use of the ironing lenght of the cylinder : creating overheating (be carreful especially, to the risk for the polycotton sheets to loose their shape, generally stabilised at 200 °C (392 °F)).



Stopping the machine.

Please respect the following instructions when switching off the heating, to ensure that your machine and its components last for a long time.

☞ Close the steam inlet valve or the gas inlet valve.

☞ Stop heating and continue to feed in washing until the cylinder temperature drops to about 120 °C (248 °F).

Note : do not use the folding function during the cooling phase.

☞ When the temperature reaches 120 °C (248 °F), switch the main switch to the "OFF" position.

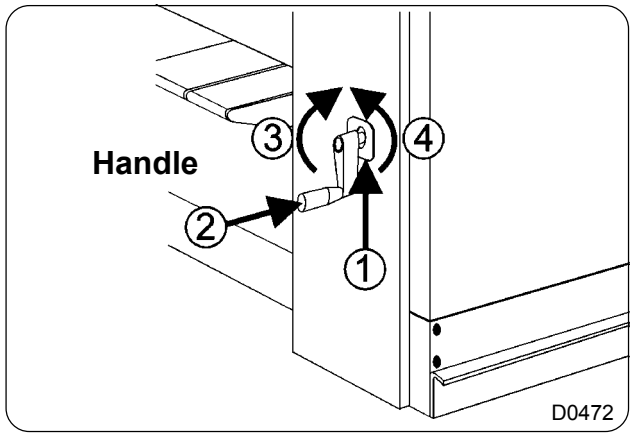
You can switch the machine off at any time by pressing on the machine stop switch; but note that if the ironing cylinder is too hot (above 120 °C (248 °F)), it can damage the bands.

Using the handle

The dryer ironer is fitted with a handle.

This is very useful to take out the washing if there is a power failure while you are ironing; or you can use it to feed a piece of wet washing to protect the ironing bands when the ironing temperature is too high.

Lift ① the safety plate then push ② and turn the handle in the clockwise direction ③ (machine with folding option) and in the anti-clockwise direction ④ (machine without folding) to rotate the cylinder and take out the washing.

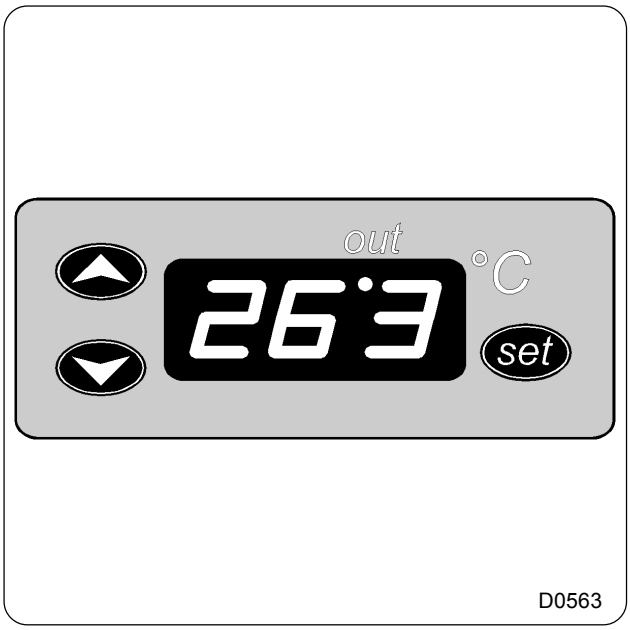


Working temperature

Note : When the ironer is stopped, the thermometre indicates the room temperature read by the sensor and the upper red point **"out"** is alight.

To display the present programed working temperature, press and hold the **(set)** key : the red point **"out"** blinks.

When the machine is running and that the cylinder's temperature, is hotter or equal to the programed working temperature, the red point **"out"** goes off.



Setting up the working temperature

- Press and hold the **(set)** key, the red point **"out"** blinks, then change the working temperature by pressing the arrows ⮝ ou ⮟. After changing the temperature, release the key **(set)**.

Adjustment of the sheet folding length

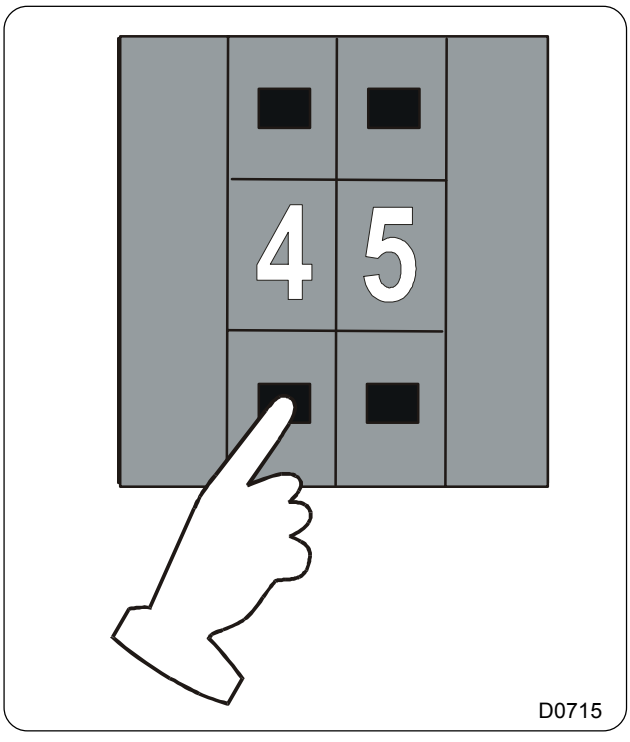
Before feeding the sheet, display the required fold length, by means of the measuring wheel of the control panel

Minimum folds value : 15 cm (6")

Maximum folds value : 45 cm (1"¾)

Note : If folding values inferior to 15 are selected (ex : 08), the machine will automatically make 15 centimetres folds

If folding values higher to 45 are selected, the machine will automatically make 45 centimetres folds.



Safety devices

☞ **Feed safety device**

The space between the feed safety flap and the drive bands is too small for you to enter your fingers. The machine stops automatically as soon as the flap is pushed in.

☞ **Protection of motors**

Motors are protected against overheating either by

- thermal capsules
- motor circuit breakers
- the electronic variator.

☞ **Restarting the machine**

You will not be able to restart the machine after it has stopped (power failure, emergency stop, action on the feed safety device), until you have pressed on the main start button, and then the heating and folding buttons.

☞ **Gas heating**

The gas burner is ignited and the flame is controlled by an electronic box that provides integral safety, for example if the flue draft is poor or if the gas supply is cut off.

An indicator on the control panel shows that the system has been put in a safe condition.

A pressure switch connected to the gas supply switches the machine off if the gas pressure drops.

Another pressure switch connected to the combustion products exhaust stops the machine if the flue draft is poor.

☞ **Accessibility**

All casings can be disassembled using a special tool.

☞ **Heating safety device**

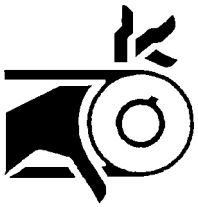
A safety thermostat always limits the ironing cylinder temperature, except for a machine with steam heating.

☞ **Power supply failure**

If there is a mains power supply failure, use the handle to remove any washing engaged in the machine. If the temperature is too high, use the handle to feed some wet washing and protect the ironing bands.

WARNING

The temperature of the ironing cylinder after use can approach 200 °C (392 °F) and cause serious burns if you touch it. Allow it to cool before doing any repair or maintenance work.



WARNING

The presence of dangerous mechanims inside the machine can cause serious injuries. Respect all safety instructions before doing any work on the machine. Replace protective casings after doing any work.

The washing remains stuck to the cylinder

- ☞ Check rinsing with a 1 % phenolphthalein solution diluted in alcohol. If this colorless liquid turns to pink on the washing as it comes out of the washing machine, your washing is not properly rinsed, and it still contains detergents.
- ☞ Check detergent, starch doses, etc. if the washing is insufficiently rinsed.
- ☞ Increase the number of rinsings if necessary or reduce product doses.
- ☞ Check that ironer separating ribbons are intact (option with the folding system only).
- ☞ Add separating ribbons if there is any static electricity (see "Maintenance" section).
- ☞ Check the cylinder temperature.
- ☞ The washing is not sufficiently spun.

The folding system works without stopping

- ☞ Check that the photoelectric cell is opposite its reflector.
- ☞ Check that the cells are clean and clean them if necessary.

The washing is not dry as it leaves the dryer

- ☞ Check the ironing speed.
- ☞ Check the drying quality of your washing machine. The residual moisture content of the washing should be about 50 %.
- ☞ Check operation of the heating.
- ☞ Check operation and cleanliness of the vacuum intake system.
- ☞ Check the condition of ironing bands (fibers containing scale).
- ☞ Check the pressure of the ironing roller on the ironing cylinder.

The folding system is defective

- ☞ Check that the photoelectric cell and its reflector are clean.
- ☞ Check the folding arm limit switch.
- ☞ Check that the washing is perfectly dry after ironing. If not, vapour released from damp washing can disturb operation of the detection cell.

Static electricity makes the folding difficult to achieve (machine with longitudinal folding)

- ☞ Synthetic textiles are used increasingly in laundry. The low rate of relative moisture on output from drying allows high ironing speeds, which leads to production of harmful static electricity when the linen is ironed in the machine.

  Use of softening and anti-static products attenuates this phenomenon.

  So, static electricity might cause important difficulties at folding, especially when ironing polyester/cotton. It si adviced to add a rincing anti-static liquid at the end of washing cycle in order to reduce the formation of static elecricity when ironing.

Static electricity

- ☞ Any friction generates static electricity. Remember the plastic ruler people rub over their pullover to attract little bits of paper. With the same causes producing the same effects, the linen being subjected to friction in the course of ironing, the rubbing of the linen against the cylinder generates static electricity. If too much static electricity builds up, friction has to be reduced, which can be done by removing the driving chain of the press-cylinder to reduce the generation of static electricity.

Coloring of the washing

- ☞ The brown coloring is due to detergent residues, and will disappear at the next washing.
- ☞ Colouring caused by the temperature being too high is permanent. Reduce the ironing temperature.

The heating does not work, or works badly

- ☞ Check the temperature preselection.
- ☞ Check thermostats.
- ☞ Check the thermostat regulation system sensor.

a) Gas heating

- ☞ Check the gas inlet.
- ☞ Clean pressure reducer filters.
- ☞ Check electronic ignition.
- ☞ Check the position of the ignition electrodes and flame control.
- ☞ Check operation of the gas solenoid valve.

If the flame is yellow

- ☞ Check that the vapour intake fan is working and is turning in the right direction.
- ☞ Check that air inlets are not blocked.
- ☞ Check the combustion products exhaust flue.
- ☞ Check injector calibration.
- ☞ Clean machine air inlet filters.

b) Electrical heating

- ☞ Check heating contacts KM6, KM7 and KM8.
- ☞ Check circuit breakers.
- ☞ Check heating resistances.
- ☞ Check resistance connections.
- ☞ Check phases.

c) Steam heating

- ☞ Check the steam inlet and the boiler pressure.
- ☞ Check the steam quality.
- ☞ Check the non-return valve and the steam purge.

The feed bands are not turning

- ☞ This type of incident is normal when it only affects a few bands.
  When washing will not engage any more, adjust the tension of all the bands by changing the setting of the feed table bearings.
  Do not overtighten the bands.
  The band must stop turning when you press on it with your finger. It must start again when you remove your finger.

The machine temperature drops

- ☞ Check the sensor in the thermostat regulation system.
- ☞ Check the thermostat by measuring the cylinder temperature with a thermometer.
- ☞ Check that the regulation shoe is in contact with the cylinder.

The machine stops suddenly

- ☞ Check the electric power supply.
- ☞ Check the hand safety flap switches S5 and S6.
- ☞ Check the movement and ventilation fans.
- ☞ Check circuit breakers.

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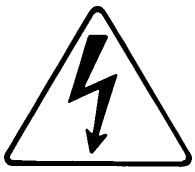
Preventive maintenance

CAUTION

The machine can operate without its protective casings when it is powered on. Lock the mains power supply switch with a padlock before removing protective casings.



CAUTION

Switch off the machine electrical power supply and fluid supplies before doing any maintenance or repair work and make sure that the cylinder is cold.

Daily (at the beginning of each working day)

1. Check that the machine stops when you press the mobile safety protector (hand safety device) and check that the emergency stop button stops the machine.

Weekly

2. Clean motor ventilation grills.
3. Clean separators and the thermostat support.

Monthly

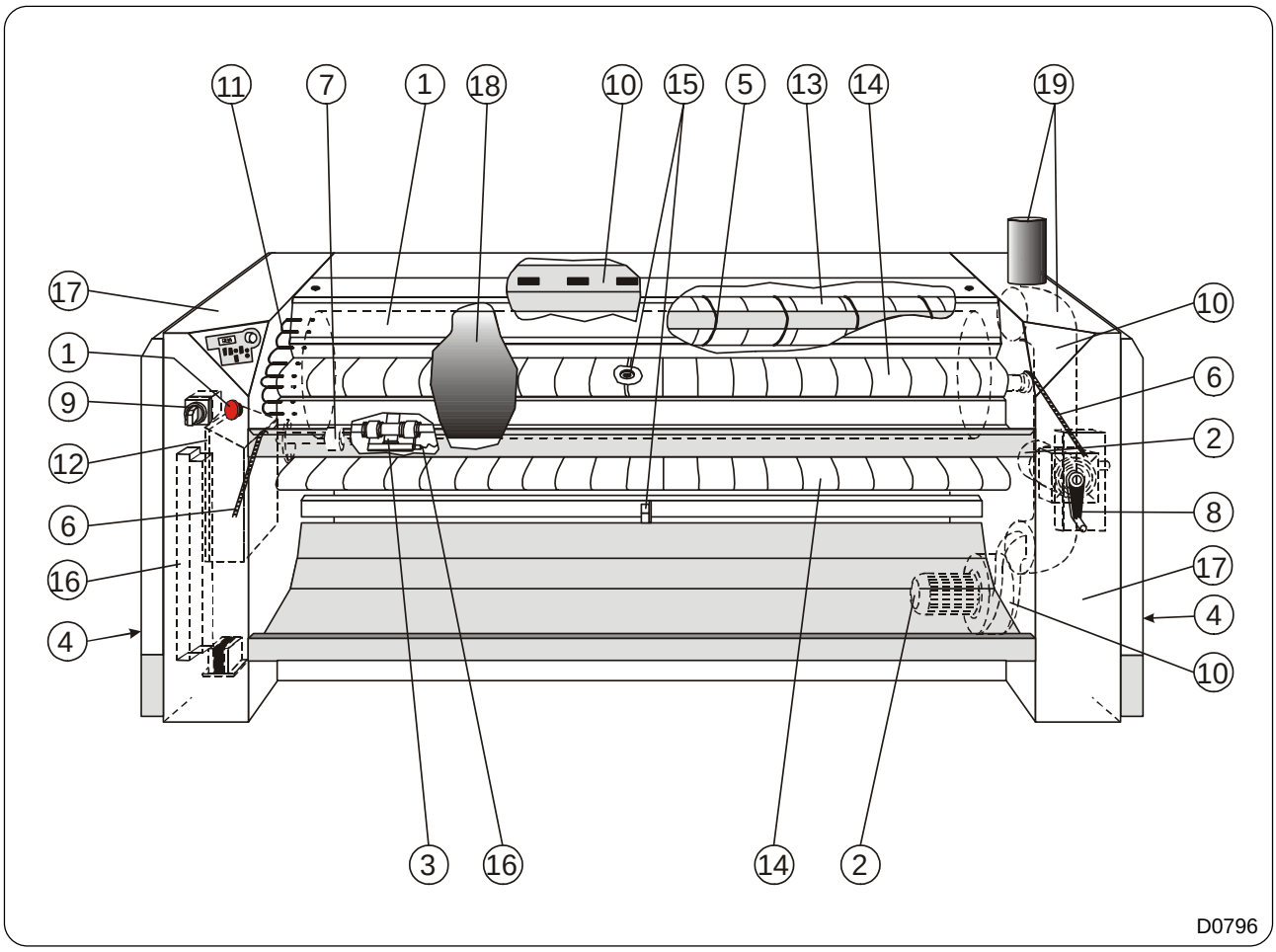
4. Remove dust from outside the machine.
5. Check the condition of the separating ribbons on the press roller, and replace them if necessary.

Every six months

6. Grease chains (and bearings in steam heating)
   (see lubrification table on the following pages).
7. Clean and check cylinder support rollers (except on machine with steam heating).
8. Check operation of the handle.
9. Inspect tightness of electrical connections on the power supply terminal block and electrical earthing connections.
10. Clean the entire intake system.
11. Inspect heating elements, cables and electrical connections (on electrical heating only).
12. Clean gas filters (on gas heating only).
13. Check the condition of ironing bands and their staples.
14. Check the feed bands and their drive (and ejection bands on models with the folding function).
15. Clean the detection cell and its reflector (on models with the folding function only).
16. Check operation of the thermostat.
17. Remove dust from inside the machine.

Every year

18. Check if the cylinder is dirty and clean it if necessary.
19. Inspect and clean external pipes.



WARNING

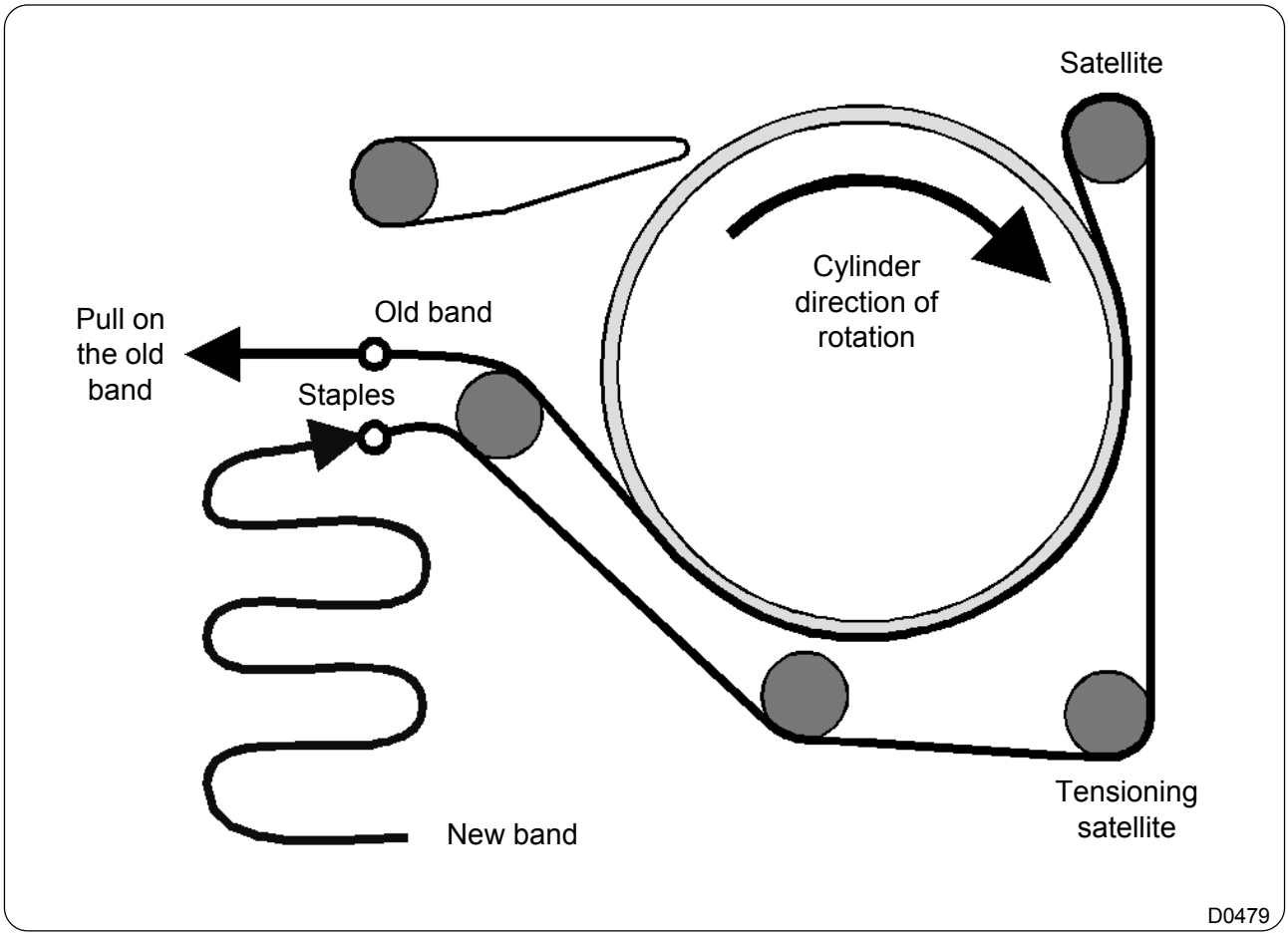
Carry out these instructions at regular intervals, depending on the frequency of use, to keep your machine in optimum working condition.

CAUTION

The tension of the ironing bands was adjusted in the factory with the machine hot.
Never retension the bands.
Their tension must be as low as possible (just enough to drive them) since excessive tension will cause fast wear of these bands.
Remember these comments if you need to make an adjustment or a replacement.

Replacing ironing bands

- ☞ Remove the feed tray to obtain easy access to the ironing bands.
- ☞ Remove staples from the two ends of the bands to be replaced and staple the end of the old band with the end of the new band.
- ☞ Rotate the cylinder using the handle.
- ☞ Unstaple the ends of the old and the new band, and staple the two ends of the new band together.
- ☞ Do the same for the other bands.
- ☞ Replace the feed tray.



Motors

- ☞ The fan motor is life lubricated.
- ☞ The movement reduction gear is life lubricated.

Bearings

- ☞ Bearings are life lubricated, except for the two steam cylinder bearings which need greasing with a grease resistant to high temperatures.

Regulation

- ☞ Make sure that the shoes on the thermostat regulation system and superheating safety regulation system are always clean and in contact with the cylinder.

Gas heating

- ☞ Check that the gas burner is working properly every year.
- ☞ Periodically check and clean the fluff filter

Cylinder

- ☞ The cylinder must be maintained very carefully so that ironing is easy and good quality.
- ☞ Detergent or scale deposits must be removed as soon as they reduce ironing quality (jamming, creases on the washing, etc.).
- ☞ The use of a **VERY FINE** emery cloth **ONLY** is recommended (grain 180 or Scotch Brite 3M BFB-AM).

ALWAYS WORK IN THE DIRECTION IN WHICH THE WASHING SLIDES.

t0130gb

LUBRICATION TABLE

	USES	Rolling bearings Bearings	Rolling bearings Bearings high temperature	Assembly paste (fretting corrosion)	Bare gears Chains shafts Thread Slides	Flange joints Union pipes Steam circuits	Reducers with wheels and screws	Reducers with gears	Circuits and pneumatic devices
	TYPES OF LUBRICANTS AND STANDARDIZATION	Lithium soap grease	Lithium soap grease	Lithium soap paste +	Lithium soap grease	Graphite grease mini	Extreme high	Extreme high	Inhibited oil
			+ silicone oil	mineral oil + mineral	with MO SE additive	60% graphite special	pressure oil	pressure oil	SAE5
				solid greases		leakproof			
		Grade ISO NLGI 2	Grade ISO NLGI 3	Grade ISO NLGI 1	Grade ISO NLGI 2	Grade ISO NLGI 2	Grade ISO VG 150	Grade ISO VG 220	Grade ISO VG 22
	TEMPERATURE LIMIT RANGE	- 20°C + 140°C	- 40°C + 200°C	- 20°C + 150°C	- 20°C + 135°C	- 30°C + 700°C	0°C + 100°C	0°C + 120°C	- 10°C + 65°C
	RECOMMENDED	ALVANIA R2	NTN SH 44 M	ALTEMP Q.NB.50	MI-SETRAL 43N	GRACO AF 309	REDUCTELF SP150	REDUCTELF SP220	LUBRA K ATL SAE5W
	CODE PRODUCT	96011008	-	96011014	96011000	96011004	96010001	96010004	96010030
CORRESPONDENCE	ANTAR	ROLEXA 2			EPOXA MO 2		EPONA Z 150	EPONA Z 220	MISOLA AH
	BP	LS EP2					ENERGOL CRXP 150	ENERGOL CRXP 220	SHF 22
	CASTROL	SPEEROL EP 2					ALPHA SP 150	ALPHA SP 220	
	ELF	EP2			STATERMA MO 10		REDUCTELF SP 150	REDUCTELF SP 220	SPINEF 22
	ESSO	BEACON EP2			MULTI PURPOSE GREASE MOLY		SPARTAN EP 150	SPARTAN EP 220	SPINESSO 22
	FINA	MARSON EP2					GIRAN SR 150	GIRAN SP 220	
	GBSA					BELLEVILLE N			
	GRAFOIL					GRACO AF 309			
	KLUBER	CENTOPLEX 2	UNISILKON L50Z	ALTEMP Q.NB.50	UNIMOLY GL 82	WOLFRACOAT C	LAMORA 150	LAMORA 220	CRUCOLAN 22
	MOBIL	MOBILUX					MOBILGEAR 629	MOBILGEAR 630	DTE 24
	KERNITE	LUBRA K LC			LUBRA K MP		TOP BLENB ISO 80W90	TOP BLEND ISO 220	LUBRA K ATL SAE 5W
	SETRAL				MI-SETRAL 43N				
	SHELL	ALVANIA R2			RETINA AM		OMALA 150	OMALA 220	TELLUS 22
	TOTAL	MULTISS EP2					CARTER EP 150	CARTER EP 220	EQUIVIS 22
	MOLYKOTE		MOLYCOTE 44	PATE DX					
	OPAL	GEVAIR SP			SUPER MOS 2		GEAROPAL GM 65 ISO 150	GEAROPAL GM75 ISO 220	HYDROPAL HO 110 HM ++22
	ITECMA	GRL-ULTRA	VULCAIN		GMO	LHT-C	DURAGEAR 80 W 140		AEROSYN

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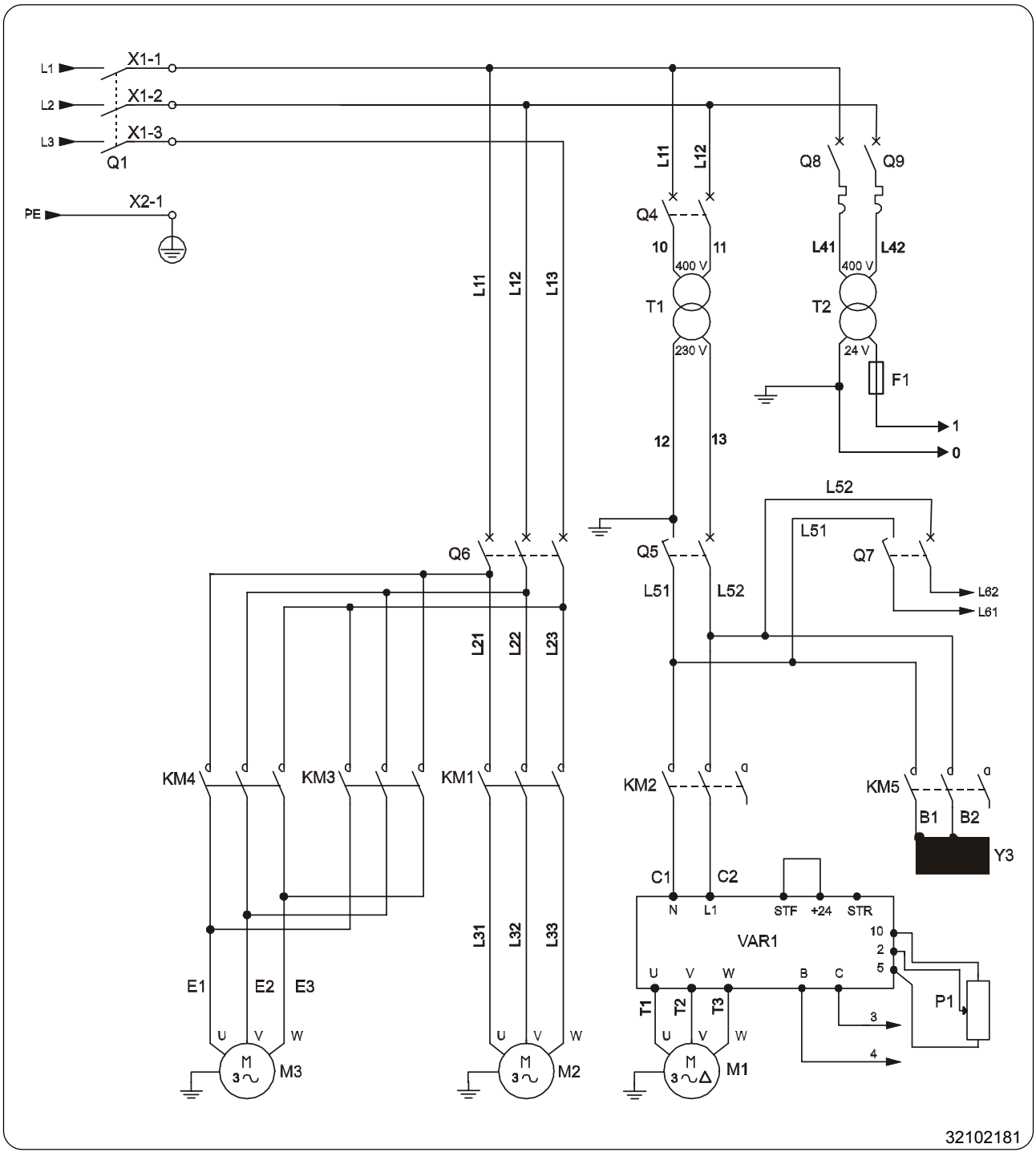
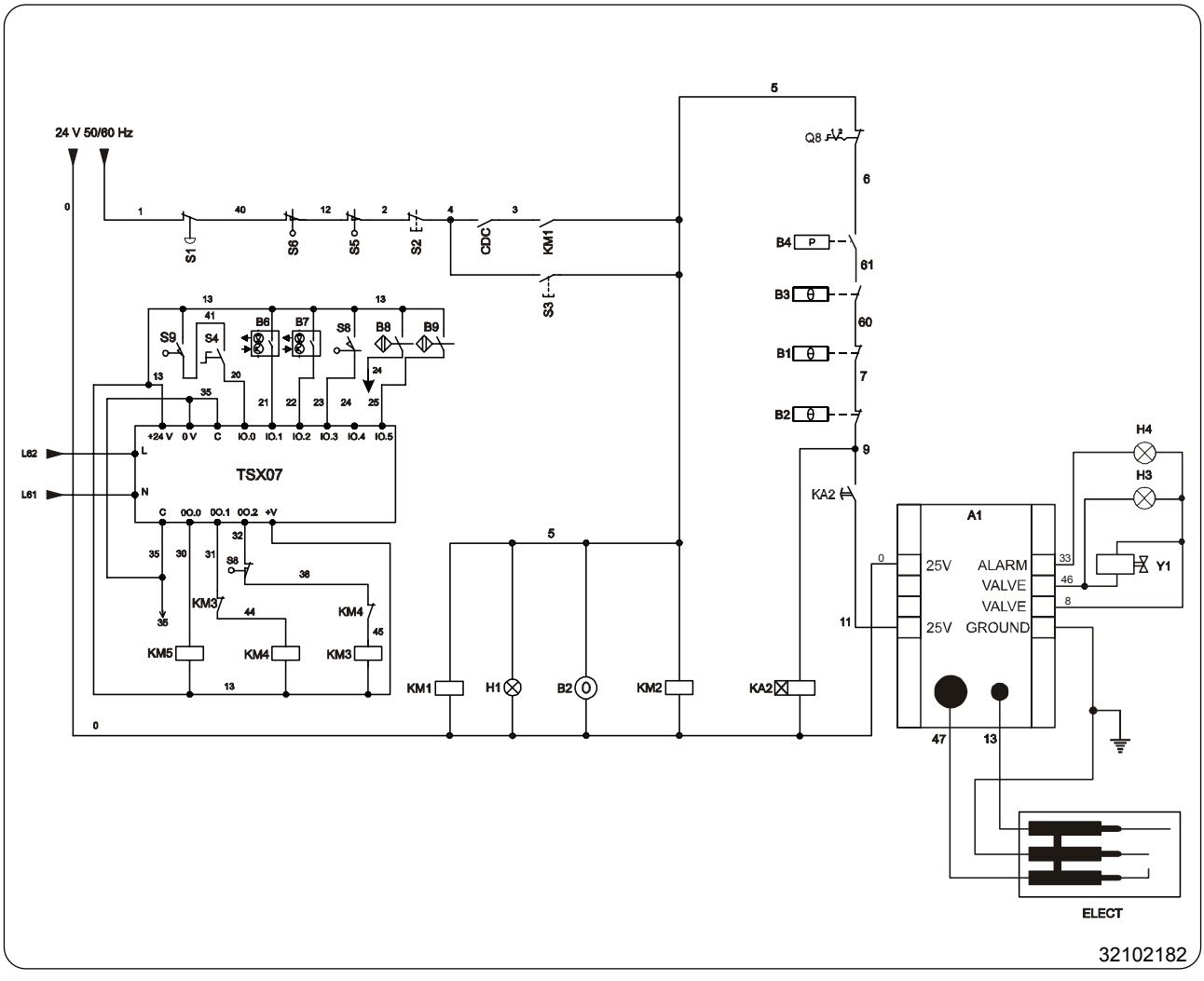

L1
L2
L3
X1-1
X1-2
X1-3
Q1
PE
X2-1
L11
L12
L13
Q4
10
11
400 V
T1
230 V
12
13
Q8
Q9
L41
L42
400 V
T2
24 V
F1
1
0
L52
L51
Q7
L62
L61
Q5
L51
L52
Q6
L21
L22
L23
KM4
KM3
KM1
KM2
KM5
B1
B2
Y3
C1
C2
N
L1
STF
+24
STR
VAR1
10
2
5
3
4
P1
U
V
W
B
C
T1
T2
T3
L31
L32
L33
E1
E2
E3
M
3~
M3
M2
M1
3~Δ
32102181

POWER CIRCUIT
Steam and gas heating with folding
no. 32102181

F1	Fuse of control circuit
KM1	Fan contactor
KM2	Motion contactor
KM3	Rear half turn contactor - lifting of ejection roller
KM4	Sheet evacuation contactor
KM5	Clutch contactor
M1	Motion motor 230 V Tri
M2	Fan motor
M3	Sheet evacuation motor
P1	Potentiometer of frequency converter
Q1	Main switch
Q4	Primary breaker
Q5	Breaker of motion/clutch
Q6	Motion and evacuation breaker
Q7	Breaker of TSX07
Q8	Primary breaker
Q9	Primary breaker
T1	Isolating transformer 400 / 230 V
T2	Transformer of control circuit
VAR1	Frequency converter
Y3	Clutch

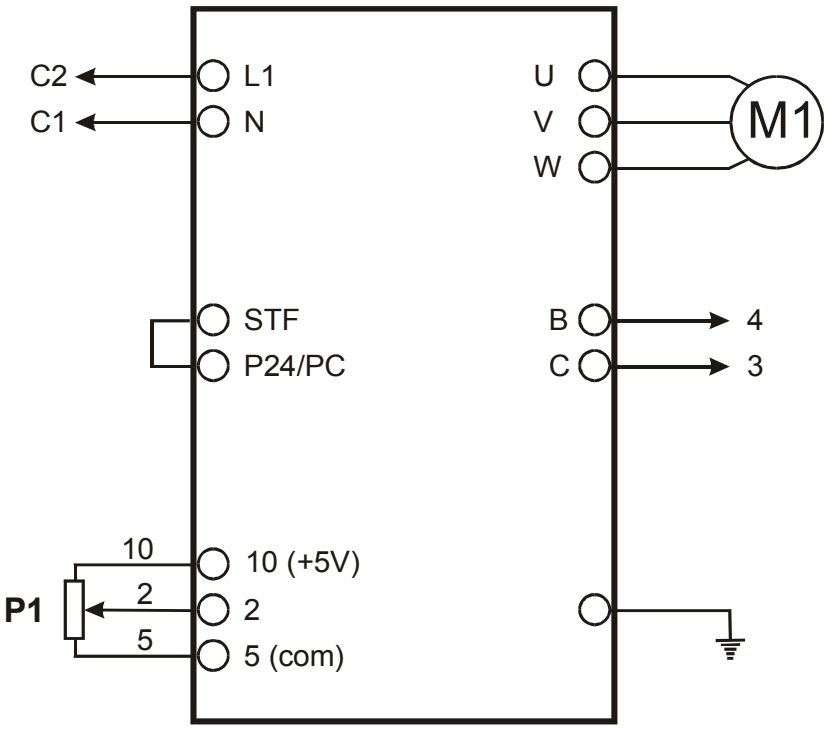

24 V 50/60 Hz
0
1
40
12
2
4
3
S1
S6
S5
S2
CDC
KM1
S3
5
Q8
6
B4
P
61
B3
60
B1
7
B2
9
KA2
13
41
S9
S4
B6
B7
S8
B8
B9
20
24
35
21
22
23
24
25
+24 V
0 V
C
IO.0
IO.1
IO.2
IO.3
IO.4
IO.5
L
N
L62
L61
TSX07
C
OO.0
OO.1
OO.2
+V
32
31
30
S6
36
KM3
44
KM4
45
KM5
KM4
KM3
KM1
H1
B2
KM2
KA2
A1
25V
ALARM
VALVE
VALVE
25V
GROUND
33
46
8
11
47
13
H4
H3
Y1
ELECT

32102182

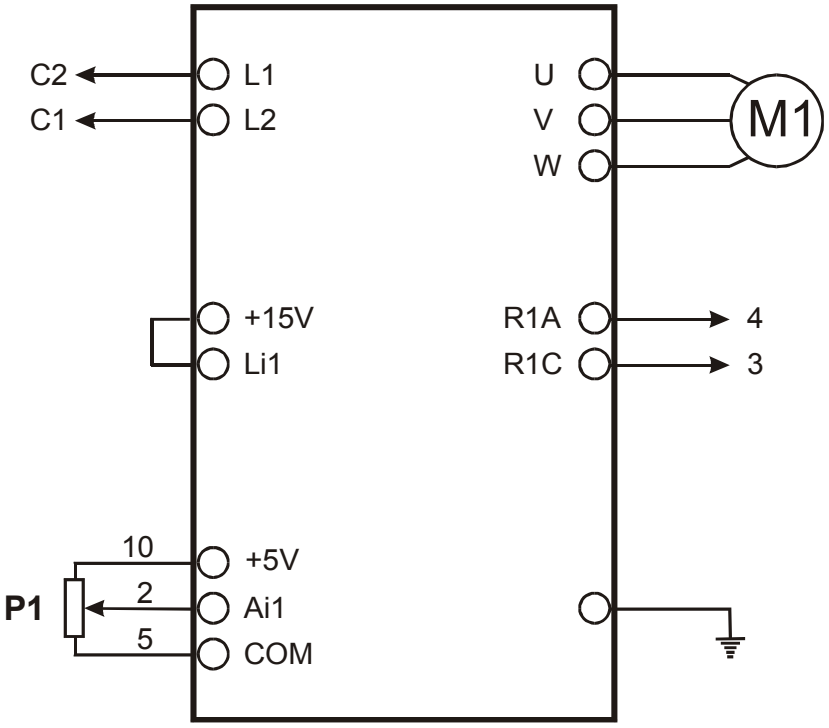
CONTROL CIRCUIT
gas heating with folding
No. 32102182

A1	Ignitor
B1	Safety thermostat 0-190 °C (374°F) (left side)
B2	Electronic thermoregulator
B3	Safety thermostat 0-190 °C (374°F) (right side) (only 2.50 m, 2.80 m and 3.20 m machines)
B4	Combustion products pressure switch **(do not change the adjustments)**
B6	Sheet at feeding
B7	Longitudinal folding
B8	Sheet measurement
B9	Front arm position sheet
CDC	Frequency converter failure safety contact
ELECT	Ignitor and checking electrode
H1	Indicator lamp "power ON"
H3	Indicator lamp "adjustment heating"
H4	Indicator lamp "safety heating"
KA2	Ignitor time-delay relais
KM1	Fan contactor
KM2	Motion contactor
KM3	Rear half turn contactor - lifting of ejection roller
KM4	Sheet evacuation contactor
KM5	Clutch contactor
Q8	Heating switch
S1	Emergency stop button
S2	"OFF" swich
S3	"ON" swich
S4	With or without folding switch
S5-S6	Switch of position safety-hand shutter
S8	Limit stop switch of ejection roller
S9	Switch of reception vat
TSX07	Programmable logic controller
Y1	Gas solenoid valve

MITSUBISHI CONVERTERS
FRU - 120S & FRS - 520S



TELEMECANIQUECONVERTER
ALTIVAR 08

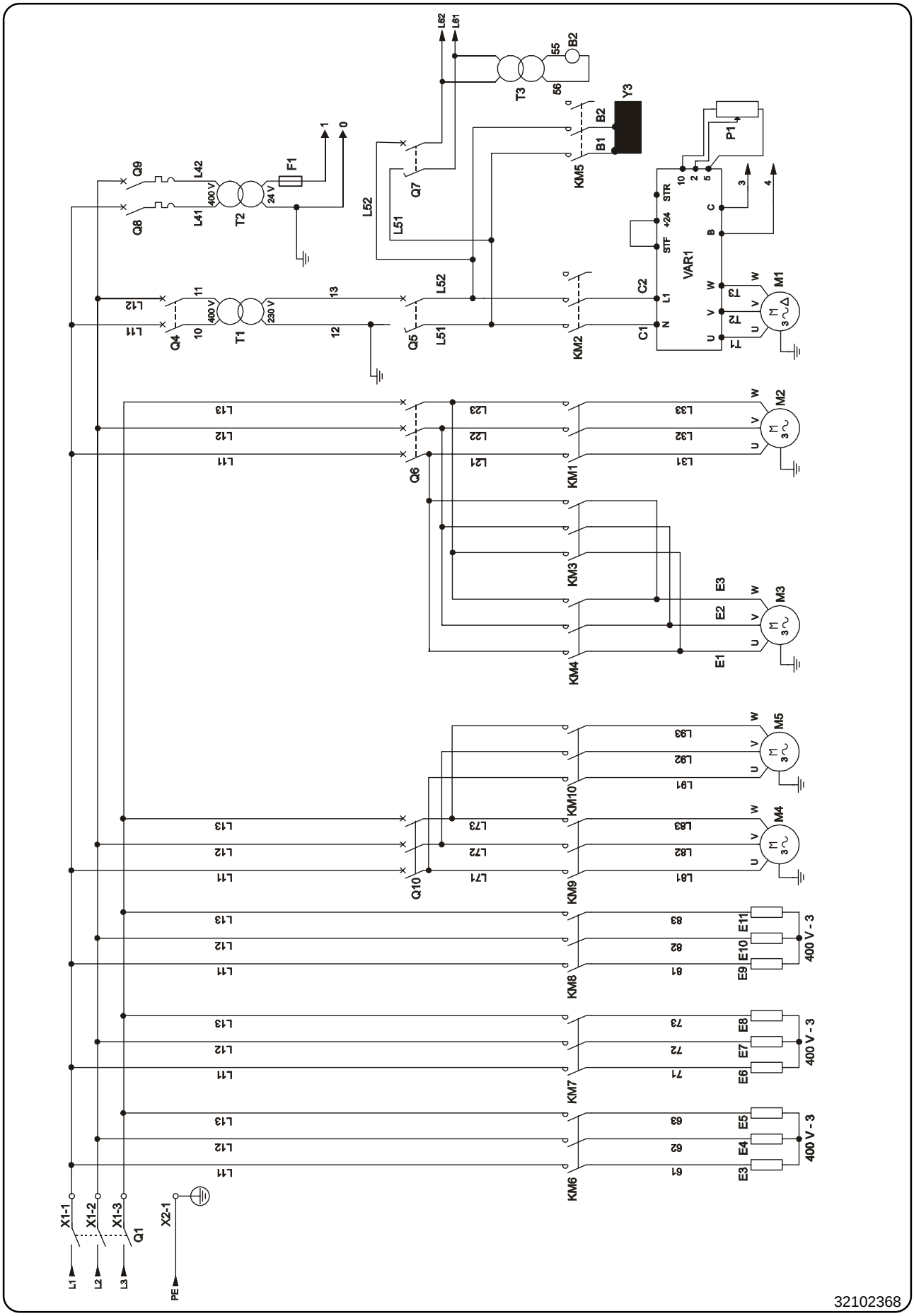


32007728

WIRING DIAGRAM OF THE FREQUENCY CONVERTER

no. 32007728

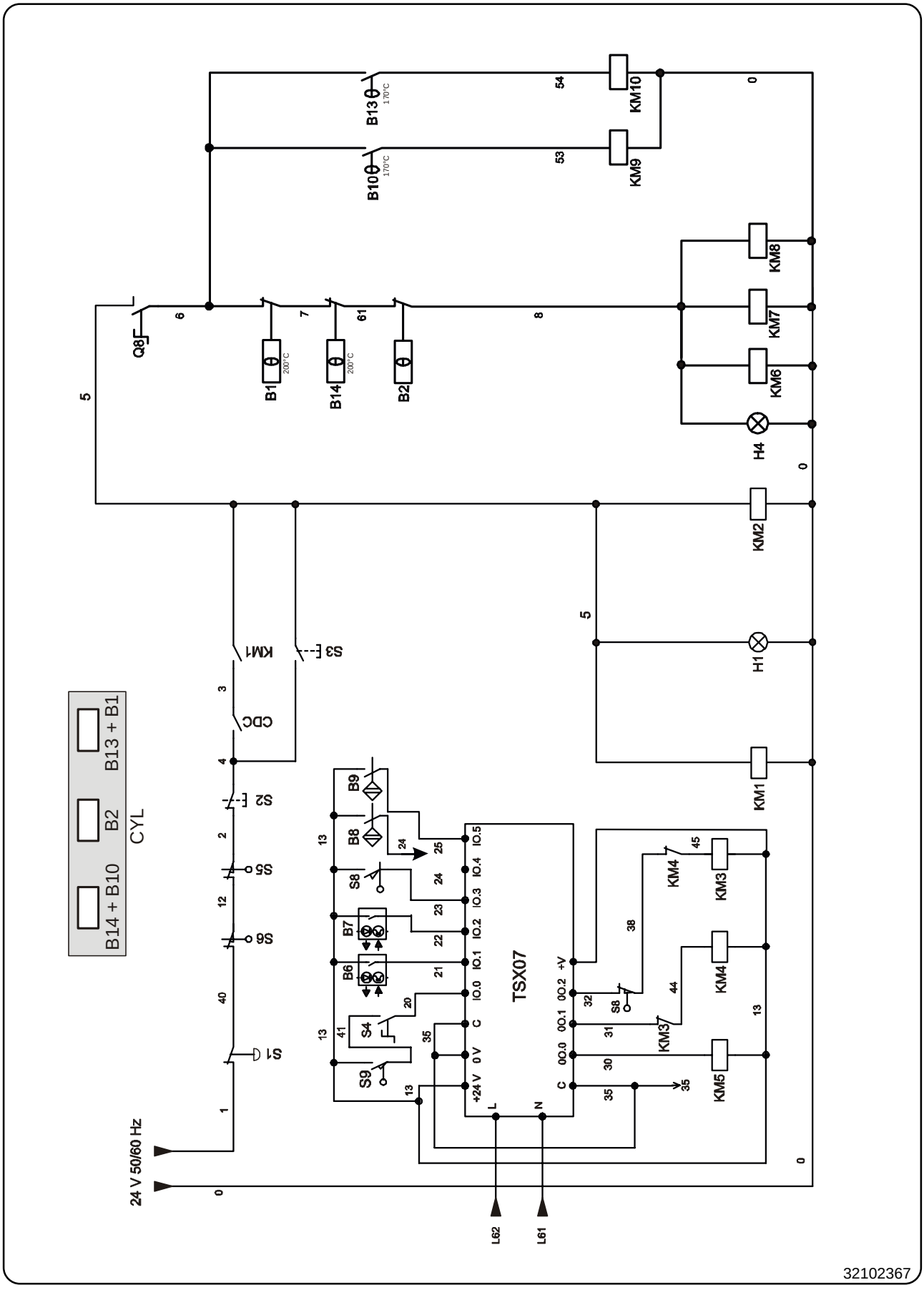
M1	Motion motor
P1	Potentiometer


L62
L61
55
B2
56
T3
Y3
B2
B1
KM5
P1
10
2
5
3
4
STR
+24
STF
VAR1
C
B
Q9
Q8
L42
L41
400 V
24 V
T2
F1
1
0
L52
L51
Q7
W
V
U
M1
T3
T2
T1
L12
L11
11
10
400 V
230 V
T1
13
12
Q4
Q5
L52
L51
KM2
C2
C1
L1
N
L13
L12
L11
Q6
L23
L22
L21
KM1
L33
L32
L31
M2
KM3
E3
E2
E1
M3
KM4
L93
L92
L91
M5
KM10
L83
L82
L81
M4
Q10
L73
L72
L71
KM9
KM8
E11
E10
E9
400 V - 3
KM7
E8
E7
E6
KM6
E5
E4
E3
X1-1
X1-2
X1-3
Q1
X2-1
L1
L2
L3
PE
32102368

POWER CIRCUIT
electric heating with folding
heated cylinder with air circulation

no. 32102368

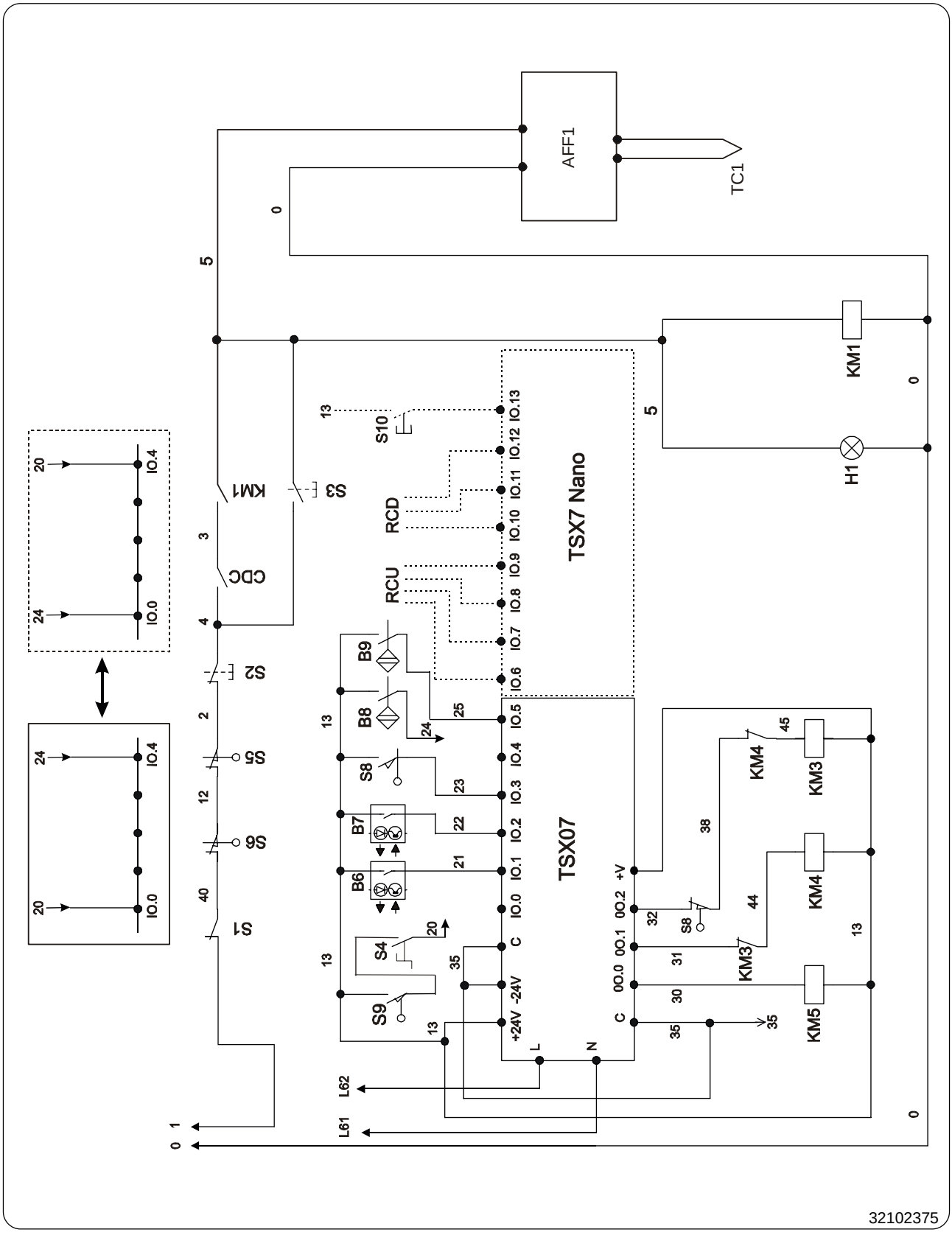
B2	Electronic thermoregulator
E3 to E5	Heating resistor, set 1
E6 to E8	Heating resistor, set 2
E9 to E11	Heating resistor, set 3
F1	Fuse of control circuit
KM1	Fan contactor
KM2	Motion contactor
KM3	Rear half turn contactor - lifting of ejection roller
KM4	Sheet evacuation contactor
KM5	Clutch contactor
KM6	Heating resistor contactor, set 1
KM7	Heating resistor contactor, set 2
KM8	Heating resistor contactor, set 3
KM9	Left fan contactor
KM10	Right fan contactor
M1	Motion motor 230 V Tri
M2	Fan motor
M3	Sheet evacuation motor
M4	Left fan motor
M5	Right fan motor
P1	Potentiometer of frequency converter
Q1	Main switch
Q4	Primary breaker
Q5	Breaker of motion/clutch
Q6	Motion and evacuation breaker
Q7	Breaker of control circuit
Q8	Primary breaker
Q9	Primary breaker
Q10	Fans breaker
T1	Isolating transformer 400 / 230 V
T2	Transformer of control circuit
T3	Transformer 12 V
VAR1	Frequency converter
Y3	Clutch


B13 170°C
B10 170°C
KM10
KM9
KM8
KM7
KM6
KM5
KM4
KM3
KM2
KM1
Q8
B1 200°C
B14 200°C
B2
H4
H1
S3
S2
S5
S6
S1
S4
S8
S9
B9
B8
B7
B6
TSX07
CYL
B14 + B10
B2
B13 + B1
24 V 50/60 Hz
L62
L61
32102367

CONTROL CIRCUIT
electric heating with folding
heated cylinder with air circulation

no. 32102367

B1	Safety thermostat 0-190 °C (374°F) (left side)
B6	Sheet at feeding
B7	Longitudinal folding
B8	Sheet measurement
B9	Front arm position sheet
B10	Left side adjustment thermostat
B13	Right side adjustment thermostat
B14	Left side safety thermostat
CDC	Frequency converter failure safety contact
CYL	Position of temperature probes on the cylinder
H1	Indicator lamp "power ON"
H4	Indicator lamp "adjustment heating"
KM1	Fan contactor
KM2	Motion contactor
KM3	Rear half turn contactor - lifting of ejection roller
KM4	Sheet evacuation contactor
KM5	Clutch contactor
KM6	Heating resistor contactor, set 1
KM7	Heating resistor contactor, set 2
KM8	Heating resistor contactor, set 3
KM9	Left fan contactor
KM10	Right fan contactor
Q8	Heating switch
S1	Emergency stop button
S2	"OFF" swich
S3	"ON" swich
S4	With or without folding switch
S5-S6	Switch of position safety-hand shutter
S8	Limit stop switch of ejection roller
S9	Switch of reception vat
TSX07	Programmable logic controller


AFF1
TC1
KM1
H1
TSX7 Nano
TSX07
S10
RCD
RCU
B9
B8
S8
B7
B6
S4
S9
S3
S2
S5
S6
S1
CDC
KM4
KM3
KM5
L62
L61
32102375

CONTROL CIRCUIT
steam heating with folding
no. 32102375

⋮ ⋮	Option for counting wheel extension
AFF1	Electronic indicator temperature in degrees (°C)
B6	Sheet at feeding
B7	Longitudinal folding
B8	Sheet measurement
B9	Front arm position sheet
CDC	Frequency converter failure safety contact
H1	Indicator lamp "power ON"
KM1	Fan contactor
KM3	Rear half turn contactor - lifting of ejection roller
KM4	Sheet evacuation contactor
KM5	Clutch contactor
RCU	Counting wheel of the unities of lenght
RCD	Counting wheel of the tens
S1	Stop emergency switch
S2	"OFF" swich
S3	"ON" swich
S4	With or without folding switch
S5-S6	Switch of position safety-hand shutter
S8	Limit stop switch of ejection roller
S9	Switch of reception vat
S10	Ejection sheets in manual
TC1	Thermoelectric couple probe, temperature measuring
TSX07	Programmable logic controller

Conversion of measurement units

The following is a list of correspondences of the main frequently used units, to avoid the need to use measurement unit conversion tables.

bar : 1 bar = 100 000 Pa
1 bar = 1.019 7 kg/cm²
1 bar = 750.06 mm Hg
1 bar = 10 197 mm H_2O
1 bar = 14.504 psi

Bitish Thermal Unit : 1 Btu = 1 055.06 J
1 Btu = 0.252 1 kcal

calorie : 1 cal = 4.185 5 J
1 cal = 10^{-6} th
1 kcal = 3.967 Btu
1 cal/h = 0.001 163 W
1 kcal/h = 1.163 W

continental horse-power : 1 ch = 0.735 5 kW
1 ch = 0.987 HP

cubic foot : 1 cu ft = 28.316 8 dm³
1 cu ft = 1 728 cu in

cubic inch : 1 cu in = 16.387 1 dm³

foot : 1 ft = 304.8 mm
1 ft = 12 in

gallon (U.K.) : 1 gal = 4.545 96 dm³ or l
1 gal = 277.41 cu in

gallon (U.S.A.) : 1 gal = 3.785 33 dm³ or l
1 gal = 231 cu in

horsepower : 1 HP = 0.745 7 kW
1 JHP = 1.013 9 ch

inch : 1 in = 25.4 mm

joule : 1 J = 0.000 277 8 Wh
1 J = 0.238 92 cal

kilogramme : 1 kg = 2.205 62 lb

kilogram per square centimeter :
1 kg/cm² = 98 066.5 Pa
1 kg/cm² = 0.980 665 bars
1 kg/cm² = 10 000 mm H_2O
1 kg/cm² = 735.557 6 mm Hg

livre : 1 lb = 453.592 37 g

meter : 1 m = 1.093 61 yd
1 m = 3.280 83 ft
1 m = 39.37 in

cubic meter : 1 m³ = 1 000 dm³
1 m³ = 35.314 7 cu ft
1 dm³ = 61.024 cu in
1 dm³ = 0.035 3 cu ft

pascal : 1 Pa = 1 N/m²
1 Pa = 0.007 500 6 mm Hg
1 Pa = 0.101 97 mm H_2O
1 Pa = 0.010 197 g/cm²
1 Pa = 0.000 145 psi
1 MPa = 10 bar

psi : 1 psi = 0.068 947 6 bar

thermie : 1 th = 1 000 kcal
1 th = 10^6 cal
1 th = 4.185 5 x 10^6 J
1 th = 1.162 6 kWh
1 th = 3 967 Btu

watt : 1 W = 1 J/s
1 W = 0.860 11 kcal/h

watt-hour : 1 Wh = 3600 J
1 kWh = 860 kcal

yard : 1 yd = 0.914 4 m
1 yd = 3 ft
1 yd = 36 in

temperature degrees :
0° K = -273.16 °C
0° C = 273.16 °K
t° C = 5/9 (t° F-32)
t° F = 1.8 t° C + 32

Washing symbols

To overcome language barriers, the following are symbols used internationally to give you guidance and recommendations when washing different textiles.

Washing Symbol	Max. washing temperature in °C	Cycle	Load	Spin
	95	normal	1/1	normal
	95	normal	1/2	short
	60	normal	1/1	normal
	60	normal	1/2	short
	40	normal	1/1	normal
	40	normal	1/2	short
	30	mild	1/2	short
	Do not wash in machine.	Wash by hand.		Do not spin
	Do not wash in water.			

Ironing The number of dots indicates the maximum recommended temperature.

 Max. 200 °C.
 Max. 150 °C.
 Max. 110 °C.
 Do not iron.

Dry cleaning The circle symbolizes dry cleaning.

 Articles to be dry cleaned with any solvent.
 Articles to be dry cleaned.
 Articles to be dry cleaned.
 Do not dry clean.

Bleaching The triangle symbolizes bleaching.

 Bleacheable (chlorine or oxygen).
 Do not bleach.

Drying The square symbolizes drying.

 Can be put in a tumble dryer.
 Do not put in a tumble dryer.

Wool  If clothing is marked IWS or Superwash, it can be washed in the machine.

Use only the mild cycle at temperature not exceeding 40°.