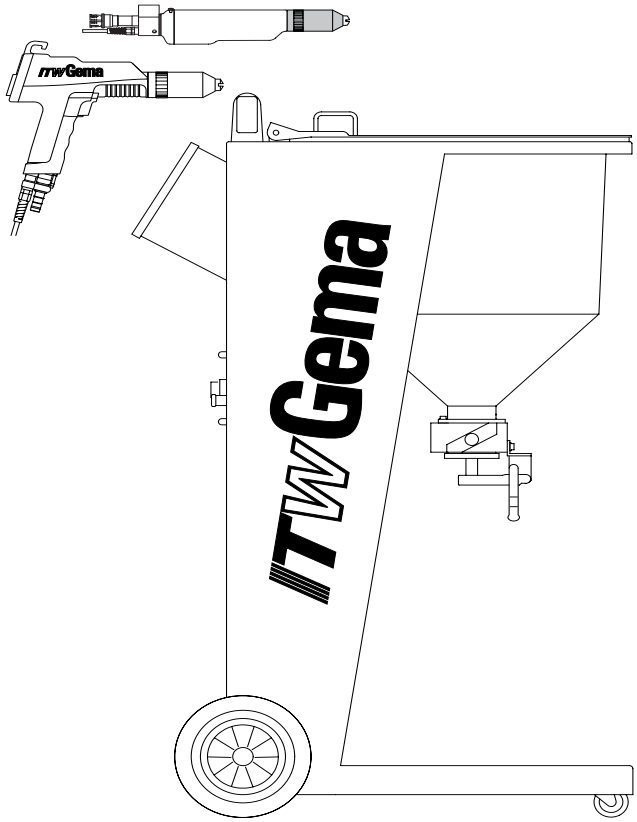
E

Operating Instructions and Spare parts list

EASY 1-S
Powder Coating Equipment
for Boron Nitride

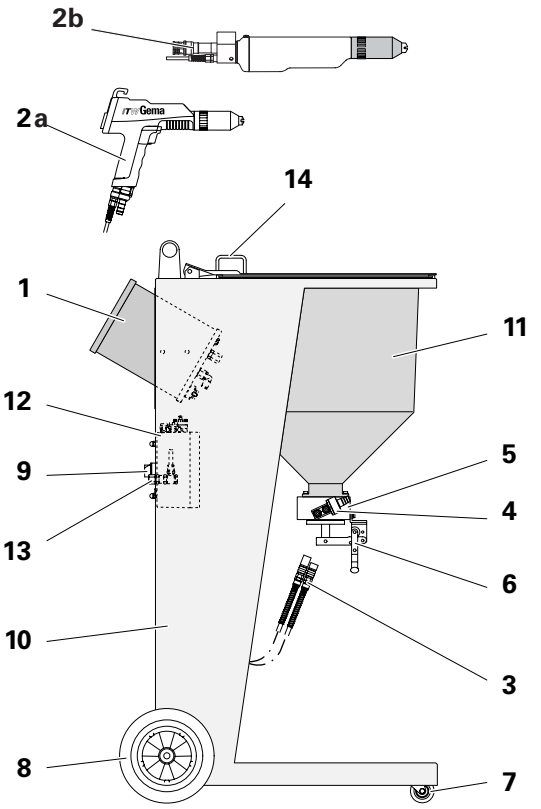


This equipment was developed for use with electrically non-conducting powders. The use of electrically conducting powders (like metallic or graphite powders) can cause a permanent decrease of functioning

Issued 01/03

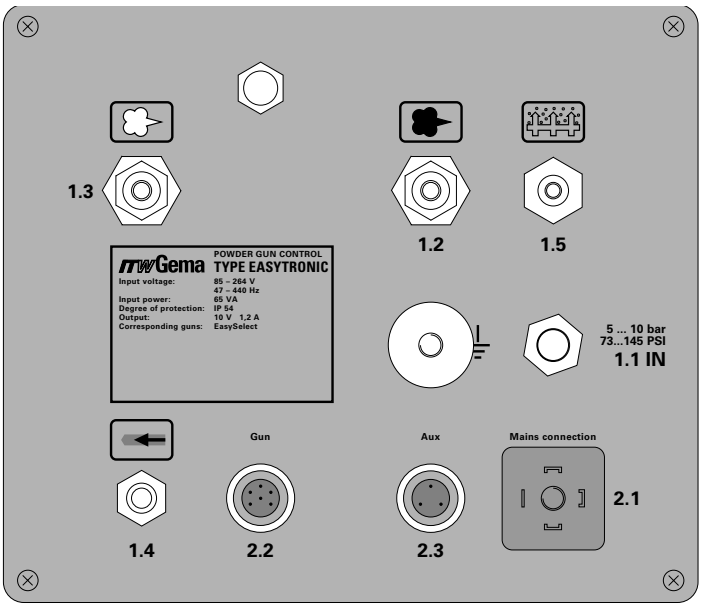
Issued 01/03

EASY 1-S Electrostatic Power Manual Equipment



1 EasyTronic control unit
2a EasySelect Manual powder gun
2b OptiGun 1-A Automatic powder gun
3 Pneumatic hose with quick-release connection
4 EasyFlow Injector
5 Distributor head
6 Discharge flap with clamp unit
7 Swivel wheel
8 Solid rubber wheel
9 Operating elements of the stirrer control
10 Mobile frame with hand rail
11 Powder hopper
12 Stirrer motor control unit
13 External air input unit
14 Gun/Hose holder

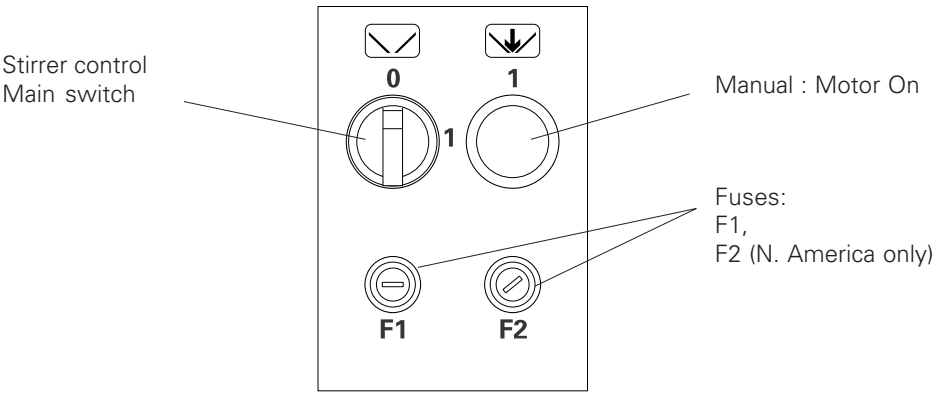
Connections on the rear of the EasyTronic Control unit



1.1 IN Compressed air input
1.2 Conveying air connection
1.3 Supplementary air connection
1.4 Rinsing air connection
1.5 Fluidizing air connection
2.1 Power supply (85–264 V)
2.2 Gun connection for the EasySelect Manual gun . PG 1 Manual gun **cannot** be connected!
Adapter connection (for OptiGun 1-A Automatic powder gun only).
2.3 Output for Vibrator (EASY 1-B only) and Stirrer control (EASY 1-S only)
⏚ Grounding connection

Issued 01/03

Operating elements : Stirrer control on the powder hopper support panel



Colour change

1. Empty and clean the powder hopper (see page 10)
2. Blow out the powder hose with compressed air

   Powder hoses are easily cleaned by taking a cube of foam packing material and blowing it through the hose with compressed air. Use our specially designed compressed air gun (**Order No. 346 055**).
   The foam cubes can be ordered in sheets of 100 pieces (**Order No. 241 717**).
3. Dismantle the powder gun and clean (see EasySelect Manual powder gun or OptiGun-A Automatic powder gun operating instructions).
4. Clean the injector (see EasyFlow Injector operating instructions).
5. Prepare the coating equipment for start-up with new powder (see "Filling the powder hopper" page 8).

Maintenance schedule

Regular and conscientious maintenance increases the operating life of the unit and ensures a longer constant coating quality!

a) Daily Maintenance:

1a Clean the injector, see EasyFlow Injector operating instructions

2a Clean the powder gun, see EasySelect Manual powder gun or OptiGun-A Automatic powder gun operating instructions.

3a Clean the powder hose, see Colour change, Point 2.

b) Weekly Maintenance:

1b Clean the powder hopper, injector, and gun. Do not refill the powder hopper until coating is to be resumed!

2b Check the grounding connections between the control unit, and the coating booth, the object hanger device and the chain conveyor.

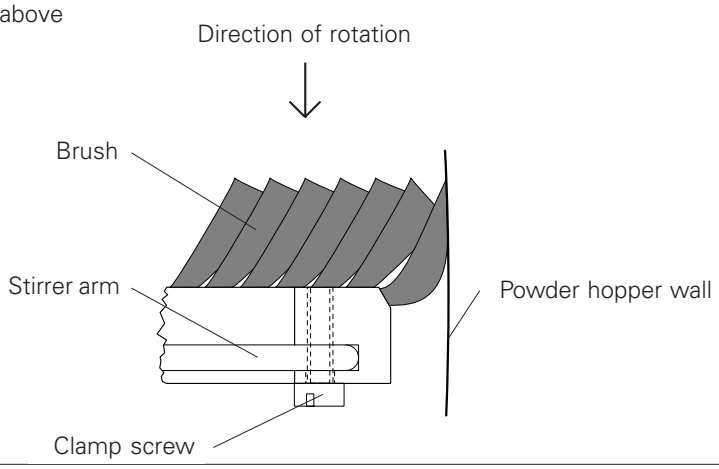
c) When the Powder coating equipment is not used for a number of days:

1c Disconnect the Mains plug

2c Clean the coating equipment, see Point 1b

3c Turn off the main compressed air supply

Stirrer arm Brush - viewed from above



Issued 01/03

Cleaning

Cleaning the Powder hopper

1. Switch on the main switch of the stirrer motor control unit
2. Place an empty container under the discharge flap. Open the discharge flap by pushing the lever towards the control module.
3. Press the Push button on the powder hopper support and continue to hold it down. The powder then empties into the container.
4. Switch off the control module, and the motor control unit.
5. Remove the injector, and the plug covering the second injector hole.
6. Clean the injector and the injector connection (see PI Injector Operating Instructions).

⚠ CAUTION

Danger of accidents!! Never put fingers or any other objects into the injector seat hole(s) at the bottom of the powder hopper when the stirrer is operating.

7. Remove the cover (take care not to damage the stirrer arm) and wipe with a clean, dry brush, and a clean cloth.
8. Carefully close the cover again (taking care of the stirrer arm). Fit the injector, the second injector plug, and hoses.

Cleaning the EasySelect Manual powder gun / OptiTronic-A Automatic powder gun

Frequent cleaning of the powder gun serves to ensure the quality of the coating.

⚠ CAUTION

Switch off the control unit before cleaning the powder gun.
The compressed air used for cleaning must be free from oil and water.

Daily:

1. Blow off the exterior of the powder gun, and wipe clean etc.

Weekly:

2. Remove the powder hose from the connection.
3. Remove the nozzle from the powder gun and clean.
4. Remove the powder gun from the connection and blow through with compressed air in the direction of flow.
5. Clean the powder gun tube with the spiral brush supplied.
6. Blow the powder gun through with compressed air again.
7. Clean the powder hose.
8. Assemble the powder gun and reconnect.

Issued 01/03

Troubleshooting guide

The diagnosis LEDs 1-7 illuminate green when switched on, and LED 8 remains unilluminated. It illuminates red when the gun trigger is pulled.

Fault	Cause	Remedies
LED 1-3 unilluminated	Mains supply unit defect	Replace Mains supply unit
LED 4 illuminates red	Main valve defect	Replace main valve
LED 5 illuminates red	- Gun not connected	Connect the gun
	- Gun plug, gun cable or gun cable connection defect	Replace corresponding part or send in for repair
	- Remote control on the gun defect	Exchange remote control (gun cover)
	- Jumper not set correctly	Set Jumper correctly (see Section "Adapter for external triggered powder gun"
LED 6 illuminates red	Solenoid valve for rinsing air of the flat jet nozzle defect	Replace solenoid valve spool
LED 7 illuminates red	Solenoid valve for rinsing air of the round jet nozzle defect	Replace solenoid valve spool
LED 8 unilluminated, in spite of the trigger being pulled and the LED 5 illuminates green.	Gun plug, gun cable or gun connection defect	Replace corresponding part or send in for repair
The gun LED remains unilluminated, in spite of the trigger being pulled, and the LED 8 illuminates red.	- Gun plug, gun cable or gun connection defect	Replace corresponding part or send in for repair
	- Remote control on the gun defect	Exchange remote control (gun cover)
Powder does not adhere to the object, in spite of the trigger being pulled, and the gun sprays powder, the gun LED, and LED 8 are illuminated.	- High-voltage and current deactivated.	Press the selection key (Application key)
	- High-voltage cascade defect.	Send the gun in for repair
	- The objects are poorly grounded.	Check grounding, see also "Safety rules"
The control lamp in the push button does not illuminate, in spite of the control unit being switched on.	No current: - Control unit is not connected to the Mains.	Connect the mains cable to the unit
	In the equipment: - Bulb burnt out.	Replace
	- Power pack defect	Replace

(continued)

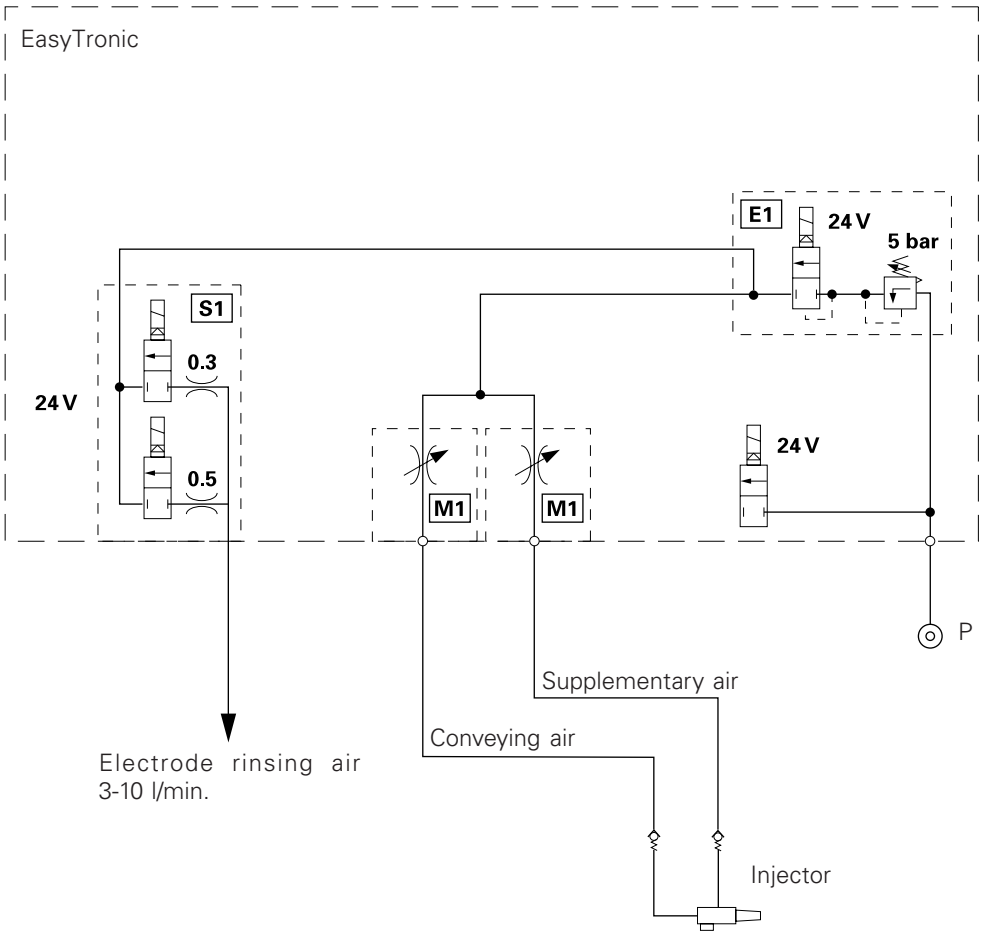
Issued 01/03

Troubleshooting guide (continued)

Faults	Causes	Remedies
The powder does not fluidize.	No compressed air present	Connect the equipment to the compressed air supply
	- Reducing valve closed	Open
	- Reducing valve defect	Replace
The gun does not spray pow-der in spite of the control unit being switched on and the trigger being pressed	No compressed air present	Connect the equipment to the compressed air supply
	- Injector, check valve or nozzle on the injector, powder hose or gun clogged	Clean corresponding part
	- Sleeve in the injector clogged	Replace
	- Sleeve not fitted	Fit sleeve
	- Fluidizing does not function	See above
	No conveying air: - Reducing valve defect	Replace
	- Solenoid valve defect	Replace
	- Electronic board defect	Send in for possible repair
Stirrer does not work	- Motor switch is not switched on	Switch on
	- Stirrer not connected to power supply	Check
	- Fuse defect	Replace
	- Control unit cable not plugged in	Plug in

Issued 01/03

EASY 1-S Pneumatic diagram



S1 = Rinsing air unit
M1 = Motor throttle
E1 = Input unit

Figure 5

Wiring Diagram

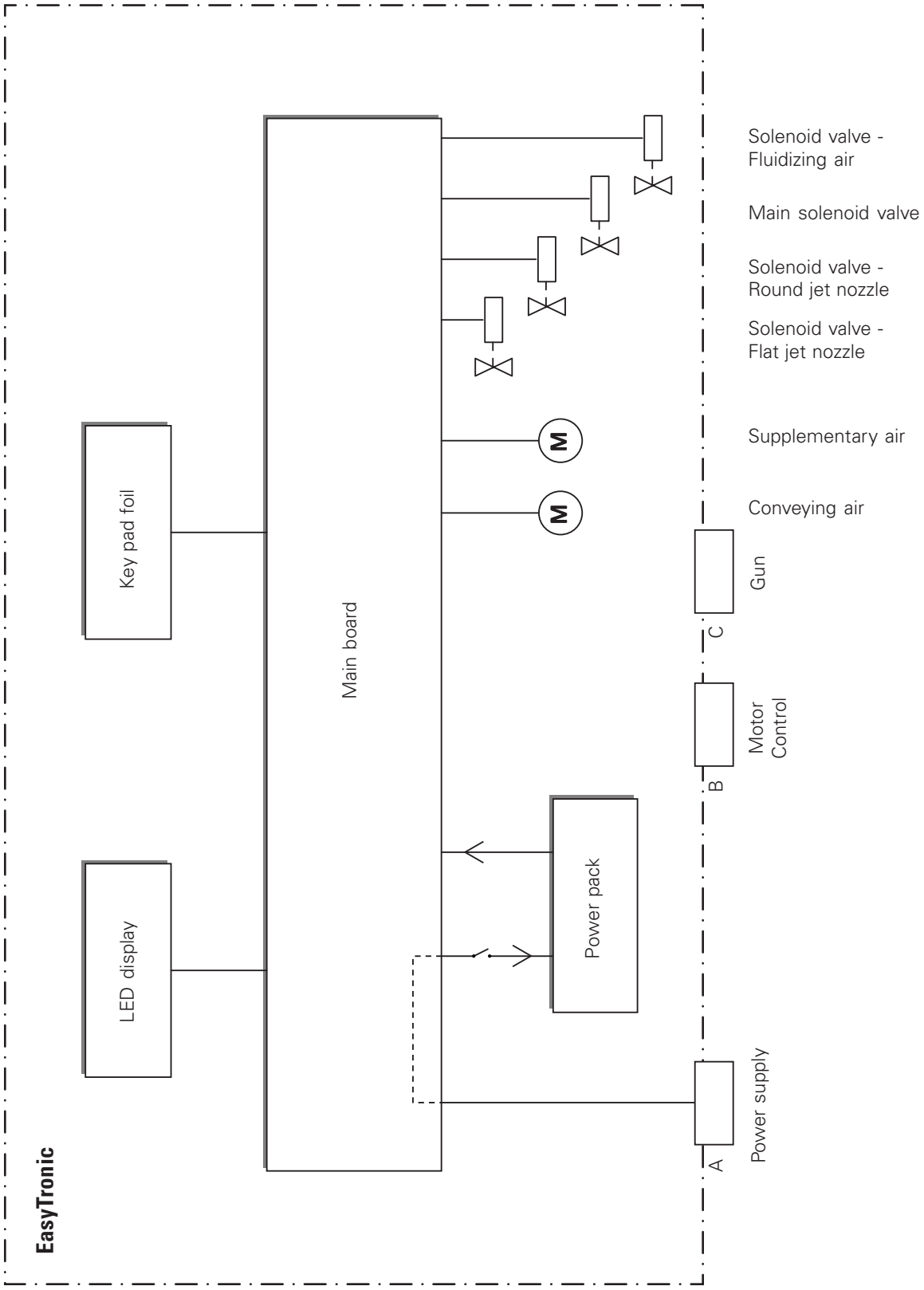


Figure 6

Wir ing diagram for the stirrer motor (CBS control board)

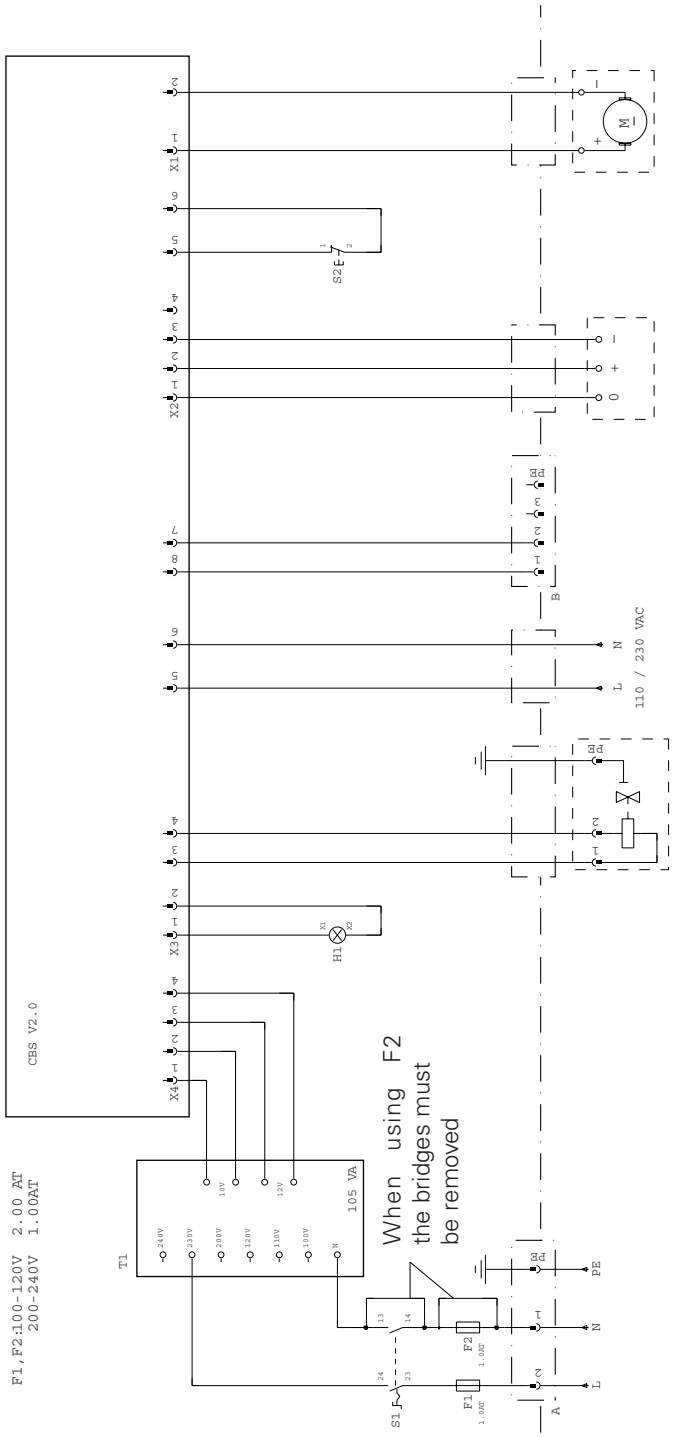


Figure 7

Issued 01/03

Notes:

Issued 01/03

Spare parts list

Ordering Spare parts

When ordering Spare parts for powder coating equipment, please indicate the following specifications:

1. Type and serial number of your powder coating equipment
2. Order number, quantity, and description of *each* spare part

Example:

1. **Type** *EASY 1-S for Boron Nitride,*
   Serial No.: *XXX XXX*

2. **Order No.:** *201 073, 5 pieces, Fine wire fuse*

When ordering cable and hose material the length required must be given.
The spare part numbers of yard/meter ware always begins with 1..... and are always marked with an ***** in the spare parts list.

Wear parts are always marked with a **#**.

All dimensions for plastic powder hoses are given as external diameter (o/d) and internal diameter (i/d):

e. g. ø 8 / 6 mm, 8 mm outside diameter / 6 mm inside diameter (i/d).

Issued 01/03

3	Cover plate	378 925
4	EasyTronic Control Unit - complete	375 900
5	Blind grommet	378 976
6	Gun/Hose holder	375 705
7	EasyFlow Injector - complete – see separate Spare parts list	
8a	EasySelect Manual powder gun – see separate Spare parts list	
8b	OptiGun-A Automatic powder gun – see separate Spare parts list	
8c	OptiGun Boron Nitride Adapter	392 375
9	Mains cable - 3 plug (Easy 2-S)	379 018
	Mains cable - 2 plug (Easy 1-S)	378 992
10	Quick-release connector - red for conveying air hose - ø 8/6 mm	261 645
11	Quick-release connector - black for supplementary air hose - ø 8/6 mm	261 637
13	Plastic hose (conveying air) red - ø 8/6 mm	103500*****
14	Plastic hose (supplementary air) - black - ø 8/6 mm	103756*****
17	Powder hopper - see page 20	
19	Discharge flap with clamping lever - see page 20	
29	Grounding cable - complete	301 140
40	Solid rubber wheels - ø 200 mm	260 592
41	Swivel wheel - ø 50 mm	260 606
44	Round profile - ø 30 x 400 mm - black	261 874
45	Grip	261 866
46	Cable protection sleeve - ø 14 mm	206 121
51	Compressed air connection - see page 24	
56	Elbow joint - 1/4"-ø 8 mm	254 029
70	Hex. Ribbed screw - M10 x 20 mm	260 584
71	Hex. Ribbed screw - M8 x 16 mm	261 793
72	Hex. Shake-proof - M8 x 12 mm	248 550
73	Hex. Screw - M8 x 20 mm	213 934
76	Hex. Ribbed screw - M5 x 12 mm	257 052
78	C/sk Screw - M4 x 8 mm	214 647
90	Shake-proof nut - M8 mm	244 449
91	Shake-proof nut - M6 mm	244 430
93	Hex. Nut - M4 mm	205 192
96	Stirrer control unit - see page 22	
97	Spring washer - M4 mm	205 680

***** Indicate length required
# Wear parts

EASY 1-S powder coating equipment

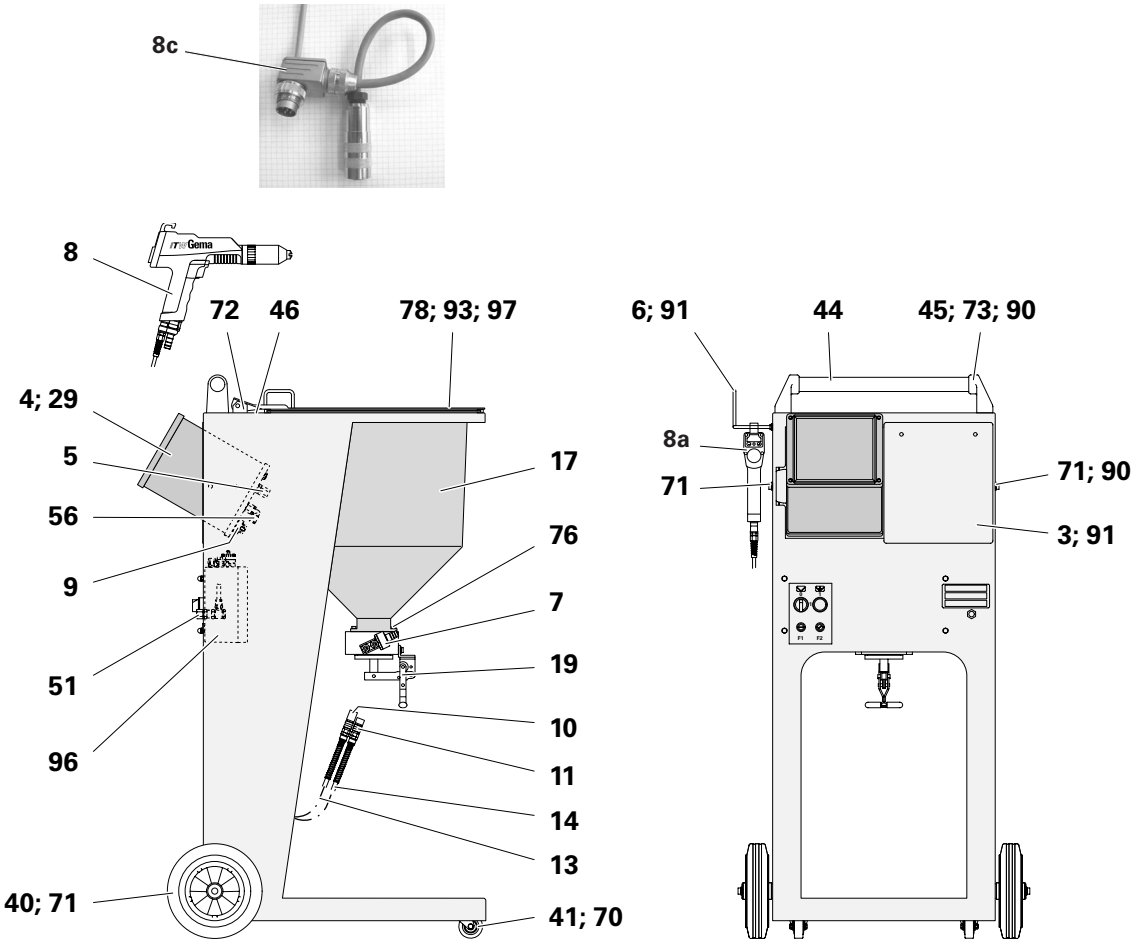


Figure 8

Issued 01/03

Stirrer / powder hopper

1	Stirrer	366 862
2	Feather key	206 075
3	Stirrer motor with gear (complete)	366 927
6	Universal joint - D12 mm	206 369
7	Stirrer control unit CS 01 - see page 24	
8	Gasket	304 042
9	Grub screw - M4 x 5 mm	214 728
10	Gasket for discharge flap (ø 75 x 3 mm)	303 240**#**
11	Discharge flap with clamp lever	303 194
12	Gasket for powder hopper	101 630*****
13	Main air input - see page 26	
17	Distributor head	379 395
18	O-ring - ø 67 x 2 mm	236 403
19	Shakeproof screw hex. M6x16 mm	261 823
21	Protective sleeve	206 350
23	Injector hole plug	380 296
24	O-ring (for Item **23**)	231 517
25	Lead-through - PG11 (long)	260 240
26	Contact strip - double	208 124
27	Hex. Screw - M6 x 30 mm	216 445
28	Cap nut - M6 mm	221 147
29	Seger ring - A-08	226 653
30	Injector holder	380 288
31	Brush	377 660
32	Guide ring	380 318**#**

***** Indicate length required

Issued 01/03

Stirrer / Powder hopper

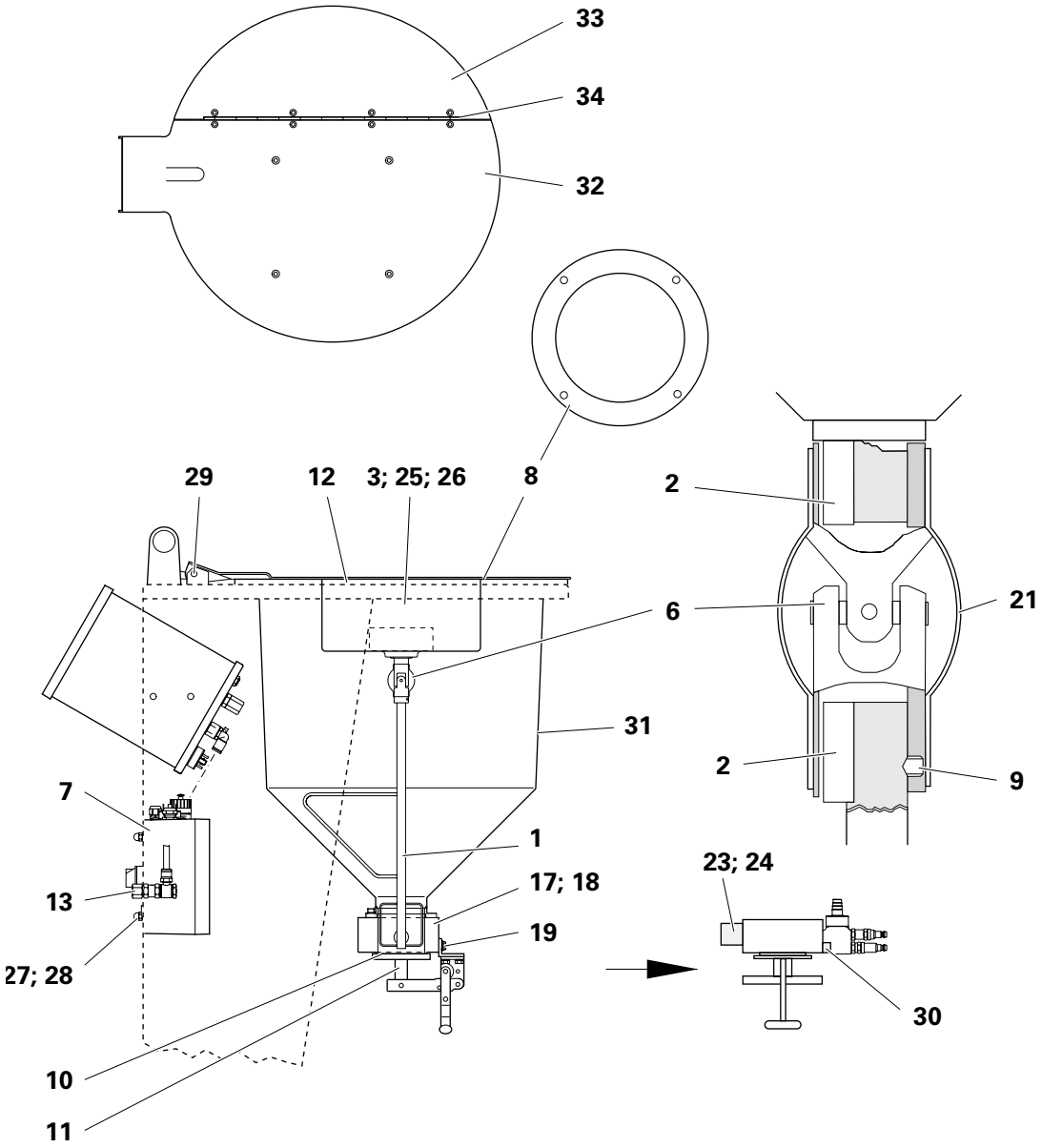


Figure 9

Issued 01/03

Stirrer motor control unit

	Stirrer control unit - CS 01 - compl.	379 000
1	Housing	380 253
2	Printed circuit board - CBS - V2.0	365 335
3	Transformer - 105 VA-P100-240 V	366 579
4	Plug with cable - EasyTronic / CS 01	378 984
5	Connecting cable - Motor / CS 01	367 249
6	Flexible wiring	366 617
10	Rotating switch	245 402
11	Fixing adapter	235 920
12	Contact element	235 938
13	Lamp element	235 946
14	Bulb - 12 V / 2 W	237 531**#**
15	Press button - green	203 483
16	Switch - lower part	203 599
17	Fuse holder - long	200 131
18	Fuse - F1 (1.0 AT for 200-240 V)	210 242**#**
18.1	Fuse - F2 (2.0 AT for 100-120 V)	221 872**#**
18.2	Fuse - F3 (8.0 AT for Motor)	255 459**#**
18.3	Fuse - F4 (0.25 AT for printed circuit board)	227 161**#**
19	Socket - 4 pin	206 490
20	Dust cap	206 458
21	Plug socket - 3 pin	200 409
22	Lead-through - PG9	222 330
24	Plug screw - PG7 MS	263 656
25	Mains cable - Easy 1-S (2 plugs)	378 992
27	Mains cable - Easy 2-S (3 plugs)	379 018

Wear parts
***** Indicate length required

Issued 01/03

Stirrer motor control unit

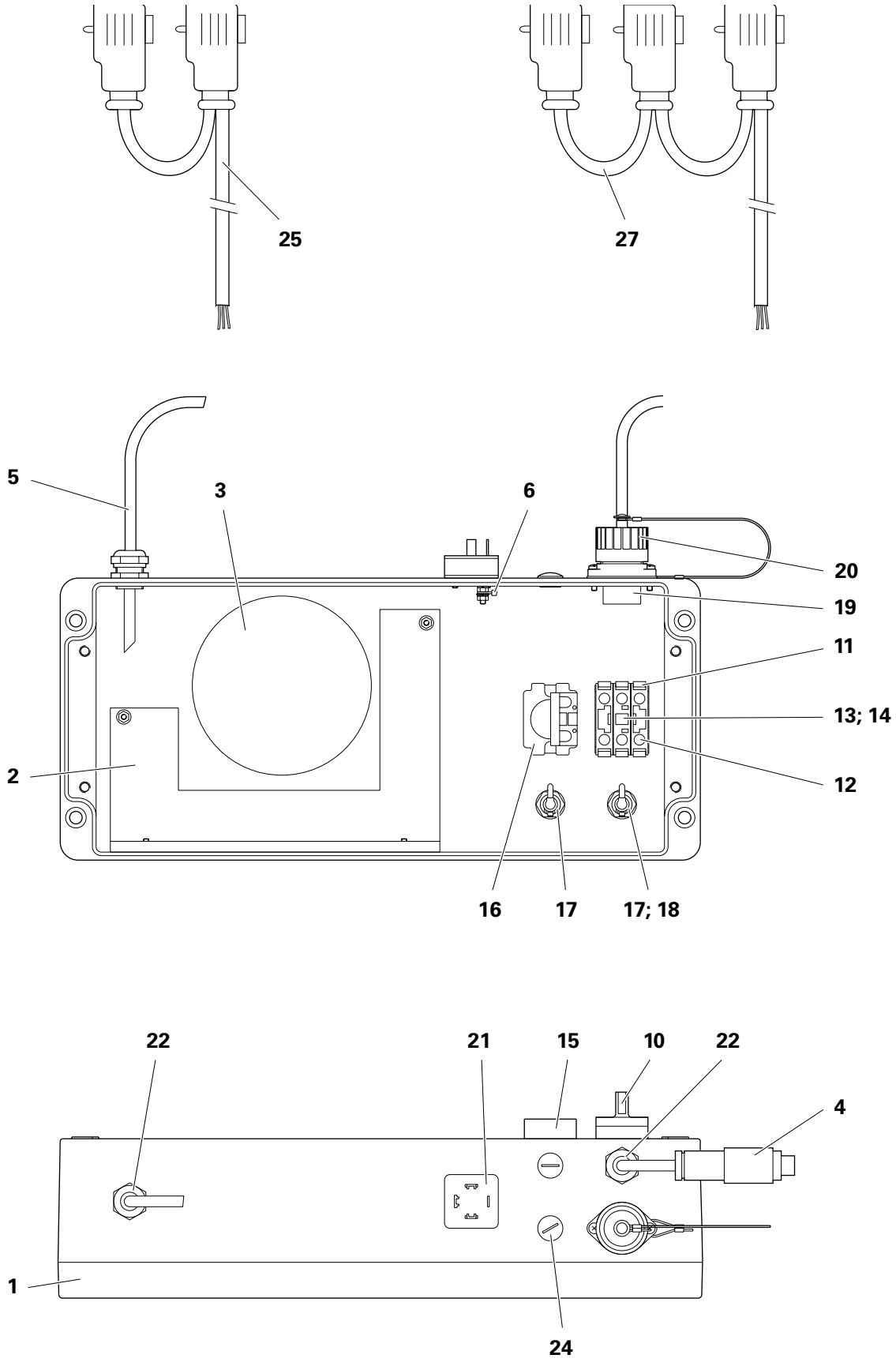


Figure 10

Issued 01/03

External air input unit

2	Adapter - 1/4"-1/4"	256 269
3	Compressed air connection - 1/4"-1/4"	256 277
4	Air connection adapter - 1/4" for Easy 1-S	237 221
4.1	Air connection adapter - 1/4" for Easy 2-S	227 838
5	Air connection ring - ø 8 mm-1/4"	231 886
6	Gasket - ø 13.4 x 18 x 1.8 mm	225 487
8	Plastic hose - ø 8 / 6 mm - black/antistatic	103 756*****
11	Adapter - 1/4"-1/4"	202 479

Wear part
***** Indicate length required

Issued 01/03

External air input unit

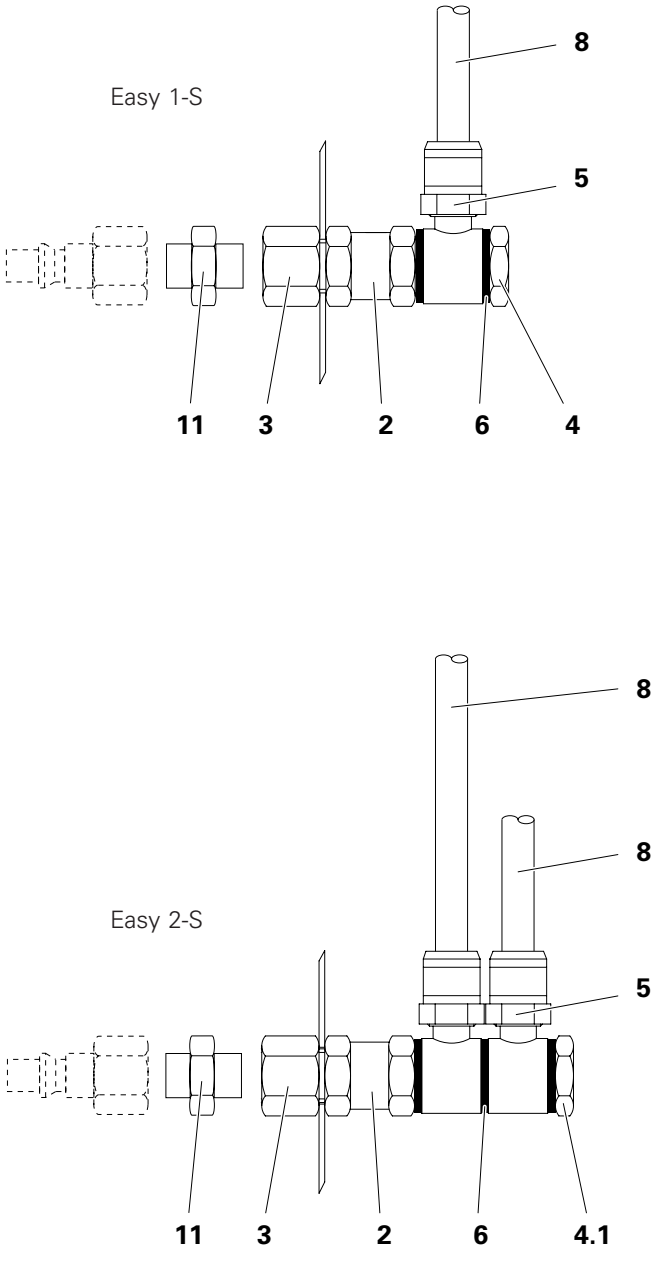


Figure 11

Issued 01/03

© Copyright 2000 ITW Gema AG.
All rights reserved.

This publication is protected by copyright. Unauthorized copying is prohibited by law. No part of this publication may be reproduced, photocopied, translated, stored on a retrieval system or transmitted in any form or by any means for any purpose, neither as a whole nor partially, without the express written consent of ITW Gema AG.

OptiTronic, OptiGun, EasyTronic, EasySelect, EasyFlow and SuperCorona are registered trademarks of ITW Gema AG.

OptiMatic, OptiMove, OptiMaster, OptiPlus, OptiMulti and Gematic are trademarks of ITW Gema AG.

All other product names are trademarks or registered trademarks of their respective holders.

Reference is made in this manual to different trademarks or registered trademarks. Such references do not mean that the manufacturers concerned approve of or are bound in any form by this manual. We have endeavoured to retain the preferred spelling of the trademarks, and registered trademarks of the copyright holders.

To the best of our knowledge and belief, the information contained in this publication was correct and valid on the date of issue. ITW Gema AG makes no representations or warranties with respect to the contents or use of this publication, and reserves the right to revise this publication and make changes to its content without prior notice.

Printed in Switzerland

ITWGema AG
Mövenstrasse 17
9015 St. Gallen
Switzerland

Tel.: +41-71-313 83 00
Fax.: +41-71 3213 83 83

E-Mail: info@itwgema.ch
Home page: www.itwgema.ch

Issued 01/03