



## TRANSFER PUMP

N2V



*WE KEEP THINGS MOVING*



## INTRODUCTION

### Dear customer:

Congratulations! You have just made a wise decision to purchase high-quality DP machine set.

DP N2V is a new kind of transfer pump. By combining perfect and advanced design with excellent techniques, DP has made this type of mortar machine set featuring reliable performance, strong adaptability, and durability. This machine set along with accessories of high compatibility and durability will provide outstanding work performance and greatly improve productivity. Being easy to carry and maintain, DP machine set is one kind of dry powder mortar machine sets which are the most favorite machine sets in Europe.

Please keep this manual properly. This machine provides you with vital information about the machine's functions. Read the manual thoroughly before you operate this machine set. DP will not liable for accidents and malfunctions that are caused by incorrect operation. Proper operation and maintenance will make the DPN2V a dependable aid.

DP persists in the strategy of sustainable development. Therefore, we reserve the right to improve the products described in this manual without any notice in advance.

No part of this manual can be reproduced, transmitted, distributed and stored without the written consent of DP or its designated dealer and service providers.

This manual has copyright. All rights reserved



## Introduction

### First inspection after delivery

If necessary, you can make an appointment with designated dealers to arrange this service. At the end of first operation of this machine, please check if the operation and adjustment of the machine is normal. Factory setting can be reasonably changed according to actual demand.

The suggested time for testing the machine at first time is two hours at least. At the end of first operation, technicians should inspect the following items and settings:

1. Pump core pressure
2. Control box



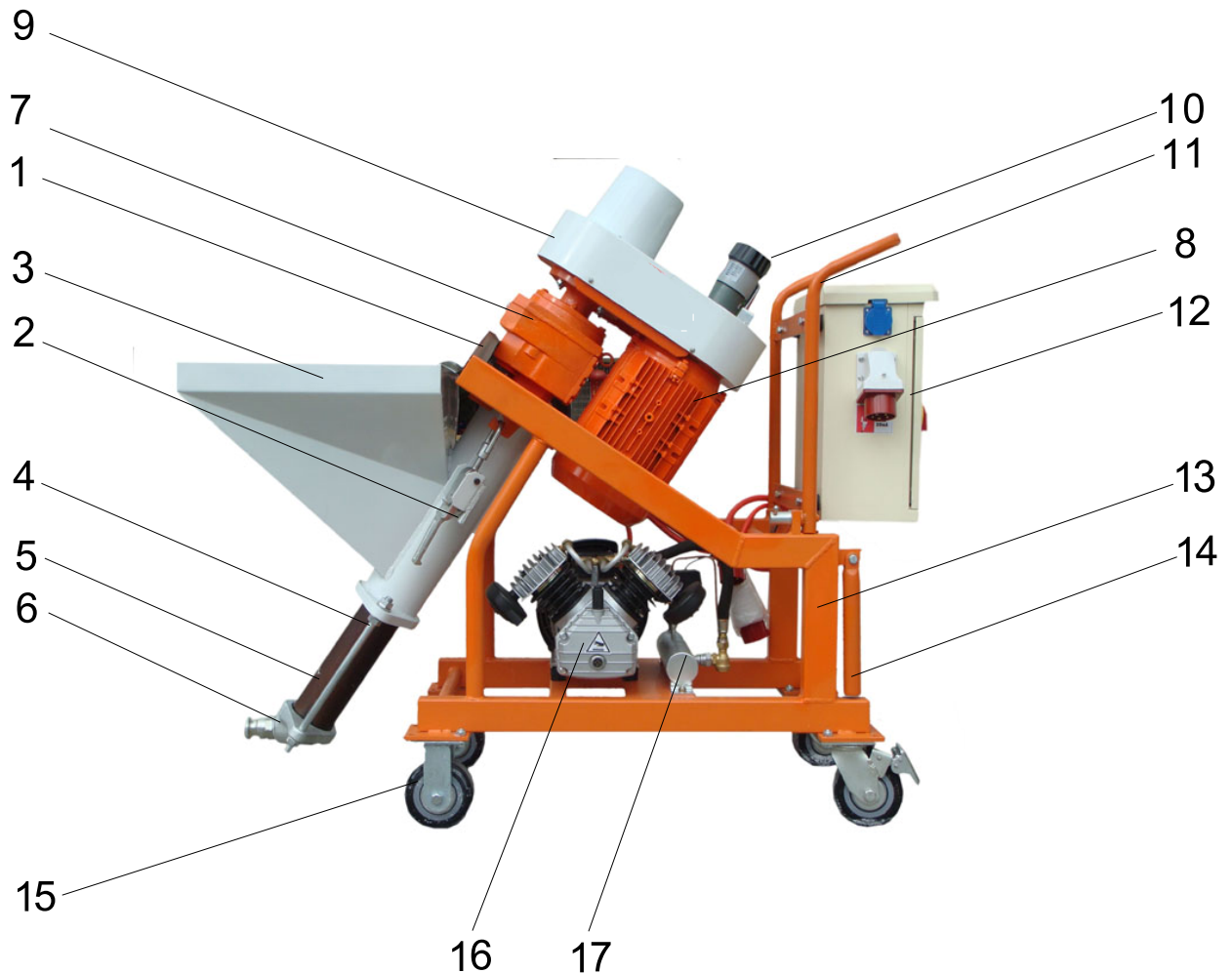
#### **NOTE!**

**WARRANTY CARD MUST BE FILLED AND RETURNED TO DP.  
NO WARRANTY WITHOUT WARRANTY CARD!**

## Contents

Introduction.....	1
Contents.....	3
Over view.....	4
Over view of Electric Box.....	5
Inner view of Electric Box.....	8
Description of Functions.....	9
Basic Safety Instructions.....	10
Pump Core.....	12
Settings and Installment.....	14
Hose Blocks & Power Failure.....	15
clean / transport / maintenance .....	16
Trouble shooting.....	17
Operation guidance.....	18
Circuit diagram .....	19
Accessories .....	20

## Overview



- 1. antifouling sheet
- 2. hopper pull
- 3. hopper
- 4. twister locking screws
- 5. twister
- 6. outlet flange
- 7. reducer
- 8. motor
- 9. timing belt component

- 10. speed regulating handwheel
- 11. bracket
- 12. electric box
- 13. stander
- 14. transit handle
- 15. wheel
- 16. pump
- 17. air pump valve

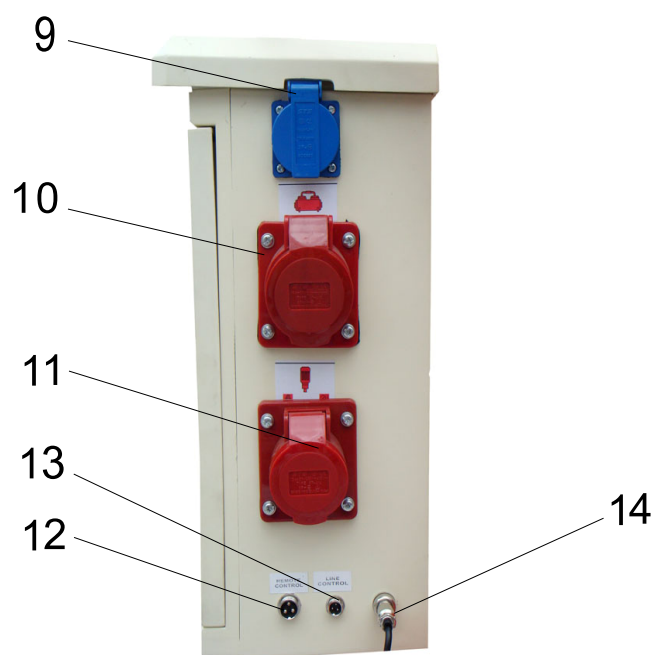
## Overview of Electric Box



- 1. master switch of rotation direction
- 2. hand/autom, motor selector
- 3. wire/air control
- 4. hand/autom, air pump selector

- 5. indicator of pressure protection
- 6. indicator of motor rotation/ wiring error
- 7. indicator of material circulation
- 8. electric box lock

## Overview of Electricity Box



9.220V socket

10. air pump socket

11. motor socket

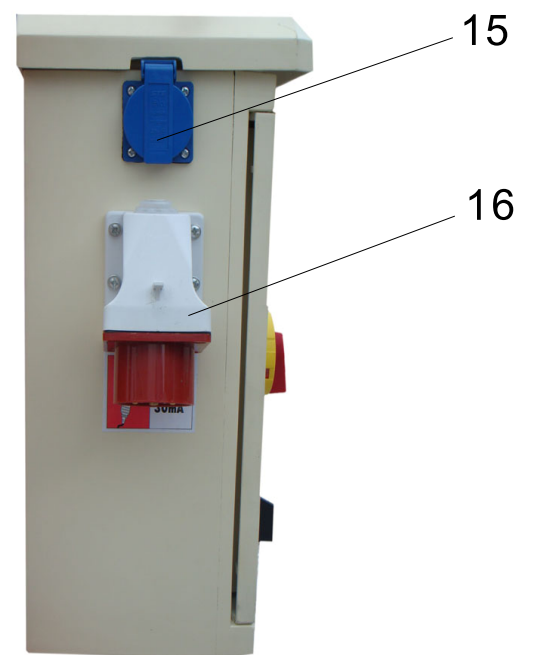
12. pressure sensor socket

13. wire control socket

14. air pump pressure control

15. 220V socket

16. power interface



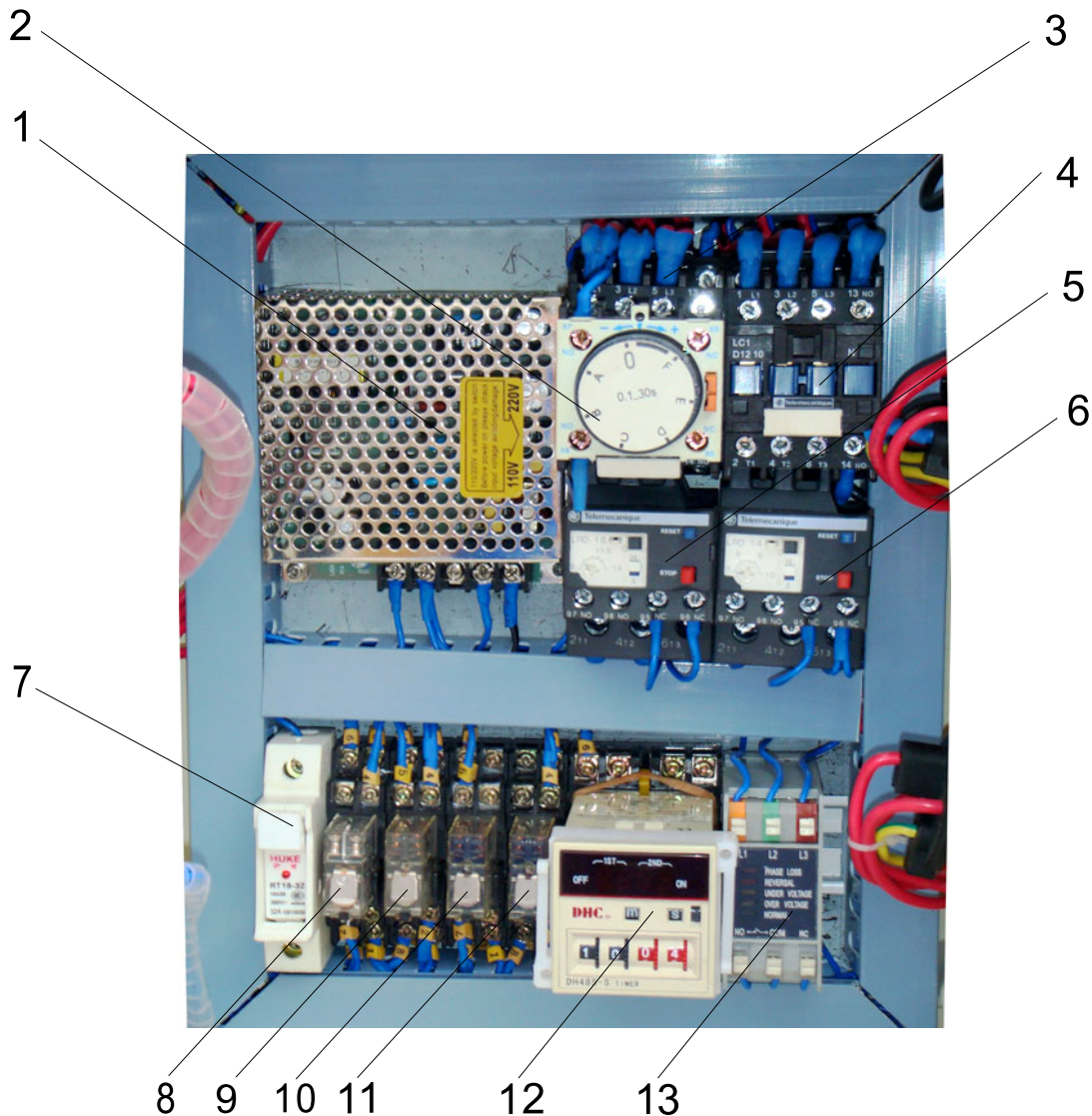
speed regulating handle



## Regulate speed

- 1.Regulate speed when motor running,do not move it when motor stop
- 2.clockwise, speed from fast to slow
- 3.counter-clockwise, speed from slow to fast
- 4.speed adjustable range from 67r/min to 280r/min

## Inner view of the electricity Box



- |                             |                     |
|-----------------------------|---------------------|
| 1. 24 V power               | 8. 220V relay       |
| 2. air delayer              | 9. 24V relay        |
| 3. motor contactor          | 10. 24V relay       |
| 4. air pump contactor       | 11. 24V relay       |
| 5. motor heat protection    | 12. time set relay  |
| 6. air pump heat protection | 13. phase protactor |
| 7. 5A fuse                  |                     |

## Description of functions



DPN2V is a small-size dry-mixed mortar transfer pump, which is suitable for materials less than 3 mm, such as mortar that can be pumped, putty, paint, coating material and things alike. DPN2V can be your ideal multifunctional plastering machine if it is equipped with DP small-size air compressor, spray gun or relative accessories.

DP N2V is composed of many independent components. The volume and handy design facilitate the transportation of the machine.

Please assure the following correct connection when operating the machine:

1. Power supply socket of the machine—Power supply waterproof plug.
2. Control Box—Air compressor
3. Air pipe—spray gun
4. Material outlet—Pressure gauge
5. Pressure gauge—high pressure transfer pipe
6. transfer pipe — spray gun

## Basic safety instructions



The following terms and symbols are used in this manual to highlight important information.

**NOTE!**

Information for running the machine efficiently



**WARNING!**

Precautionary information for the prevention of accidents



**WARNING!**

The machine should only be operated in perfect working conditions. Comply with all safety instructions in this manual! Rectify all defects and faults immediately, proper machine operation includes full compliance with all operating instructions, carrying out specified inspections, and complying with maintenance instructions.



## Basic safety instructions

Following information is the guidance of vital operation and security issues. Please read it thoroughly and carefully. Only correct operation can yield reliable and satisfactory result.

1. Follow all safety instructions on the machine. Ensure that all instructions are legible.
2. Inspect the machine once every shift for visible damages and defects. Stop operating the machine immediately if you notice any abnormal situation. Notify the people in charge of the inspection and repair immediately and you can use this machine only after it is repaired.
3. Do not make any changes to the machine that can jeopardize its safety. Always consult the machine dealer first. Do not tamper with the machine by equipping it with extra "safety devices".
4. All spare parts should conform to our technical specifications. Only use spare parts manufactured by DP.
5. Only trained personnel should operate the machine. Clearly designate all lines of responsibility for operation, equipping, maintenance and repairs.
6. Technicians undergoing training in the operation of the machine should be supervised by experienced personnel.
7. Only qualified personnel should work on the machine's electrical system. The machine should be reliably grounded.
8. Observe all instructions for switching the machine on and off. Watch display lamps for signals.
9. When the machine is completely switched off for maintenance and repair work, ensure that it cannot switch back on accidentally. Do this by switching off the main switch removing the key or by attaching a warning sign to the main switch.
10. Before cleaning the machine with a water jet, seal all openings as water should not enter electrical parts or caddy, Cover electric motors and control boxes thoroughly. After cleaning remove all seals and covers.
11. Use only specific fuses with prescribed amps.
12. Close the cover of control electric box when operating the machine.
13. Close and disconnect the machine from power supply before you move it, even if you are only moving it a short distance. Reconnect the machine to the mains properly before starting up again.
14. Set up the machine on stable ground. Secure it from rolling away or moving during operation.
15. Lay out all conveying hoses safely. Do not rest them sharp edges.
16. Depressurize all conveying systems before dismantling conveying hoses.
17. Only qualified operator can unclog the hoses. While unclogging hoses stand away from the machine to avoid injury through high pressure discharges of mortar. Always wear safety goggles. No other person should be close to the machine when unclogging measures are under way.
18. Use the following accessories if necessary: safety goggles, construction site boots, safety clothing, gloves, inhalation mask, skin safety cream.
19. Have the machine inspected at least once a year by a qualified person. The machine should also be inspected otherwise as required.

## Pump core (Twister)

DP N2V pump core

DP N2V is equipped with a set of EW D6-3.

Note!

Pump core is made up of rotor and stator which will are wear and tear parts.

Please inspect them regularly and change them if necessary.

Pressure

The operating pressure of a set of normal DP D6-3 pump core should be higher than 15-20bar. When the machine is turned off, the back pressure should be 6-8bar.

Inspect the machine

- put amount of water into the material hopper.
- connect DP high pressure motor hose with N2V motor outlet
- connect pressure gauge with the end of motor hose, then install spray gun .

- start the machine until water runs out from the spray gun

- you can see from the pressure gauge that the conveying pressure is increasing until it becomes stable. Then turn off the machine

- If you find that the pressure stabilizes below 15-20bar and stop to increase, you should change the D6-3 pump core.

- At the same time please check the back pressure.

When you change the pump core, please give attention to the following items:

- offload the material outlet frame before you change the pump core

- new pump core need time to enter into working status

- If the pump core can not reach or pass the operating pressure or back pressure, it means that the pump core needs to be replaced.

## Pump Core

### Notice:



1. D6-3 pump core can reach operating pressure of 30bar.
2. The maximum pumping distance depends on the viscosity of the mortar. Coarse grained heavy mortar does not flow easily whereas fluid mortars, filling compounds and floor screed flow easily.
3. Please choose high pressure hose of relatively large diameter if the operating pressure is larger than 30bar, such as DP 35mm diameter high pressure hose.
4. To avoid machine breakdowns and excessive wear and tear of the pump core, conveying and mixing part of the machine, please use original DP parts, such as:



DP rotor/ DP stator/ DP conveying shafts/DP high pressure motor hose

All these components are compatible with each other and form a single construction unit. If you do not adhere to these recommendations, you stand to forfeit your warranty rights. The quality of the mortar you are producing will also suffer.

5. Do not use non-original motor hose whose operating pressure may be lower than 30 bar or higher than 40 bar, which may cause vital accident when the machine is conveying the motor.

## Setting up the machine



**NOTE:**

If a short break is necessary while working, turn the master switch of rotation direction to counter-clockwise and let the machine and motor pump run oppositely many times, 3 to 5 seconds every time, avoid long time reversing until pressure dies away.

**WARNING!**

Make sure enough material in the hopper for pumping while working, stop it while the material is lacked, or the motor pump will be permanently harmed.



**WARNING!**

Do not remove the material hopper's safety cover while working. The pump and hoses are needed to flush with water before pumping or spraying, then remove the water, lubricate its inside wall with small amount of lime water. Different materials have different requirement, PLS follow all instructions of mortar manufacturer.

**Transient rest!**

The rest/stop time of the machine depends on the feature of the material, the weather, etc. If the machine rests/stops too long (over fifteen or twenty minutes), PLS flush it with water to prevent clogging. Or set up the periodic work time, which depends on the material feature, weather, etc.

The mortar state may be changed a little when you operate the machine after the transient rest, do not worry, it will be ok while working for a while.

## Hose Blocks & Power Failure



### NOTE!

In accordance with safety regulations, all personal that clean hose blocks should wear safety goggles. Take proper precautions to stand far away from the machine to avoid injury through discharged mortar.

### HOSE BLOCK!

- turn the master switch of rotation direction to the other side ,and let the machine and mortar pump run oppositely for 3 to 5 seconds,avoid long time reversing until pressure dies away.
- cover outlet of pump tube with foil.
- loosen nuts on pressure flange slightly so that residual pressure can escape.
- remove hose connection.
- clean the hose.

You can use the following method to clean the mortar in the hose!

- put a water pipe into the hose, and water the mortar out.
- if the mortar is so dry that it can't be cleaned completely, you can try to push it out with a metal stick. PLS take care, do not destroy the inner wall, even a small damage, may cause an accident, if the inner wall is destroyed , pls change the hose.

Measures for power failure!

- clean mortar hoses immediately while the power is failure during working time, if you not do that ,the mortar will have chance to block in the hose for ever. Do this at the water outlet valve, open the water valve to press out the mortar, release tie rods, remove pump. Press the rotor out of the stator and clean it thoroughly, clean pressure flange, and assemble the pump fully.



### WARNING!

Before dismantling any part of the hose, make sure the pump and hoses are depressurized, transfer the main reversing switch to other side, and let the machine and mortar pump run oppositely until pressure dies away.



## **Procedures at the end of work and clean / transport / maintenance**

- depressurize the hoses by operating the machine in opposite direction.
- make sure hoses are completely depressurized.
- turn off the machine and plug out the power supply wire.
- dismantle and clean the hoses (including the mortar pressure gauge), make sure the inner wall is cleaned up by water.
- clean the spraying gun with running water.

### **NOTE!**

You should clean the machine with the help of water, watesoaked sponge and brush to keep the machine long life.

Do not clean it with high pressure water or vapor, which will permeate into bearings, electric box, socket or other parts.

- clean the material hopper with water.
- open the material hopper and remove all dirty water.
- clean the mortar pump with water.
- clean the material outlet with water.

### **Maintenance!**

PLS check the air pump, retard box's oil periodly, you can see how much the oil left from display window, 1/2 high at least is suggested. Fill oil if it is necessary. You can use 32# oil.

### **Transport!**

Fix the machine to the goods hold while transporting.

## Basic Safety Instructions

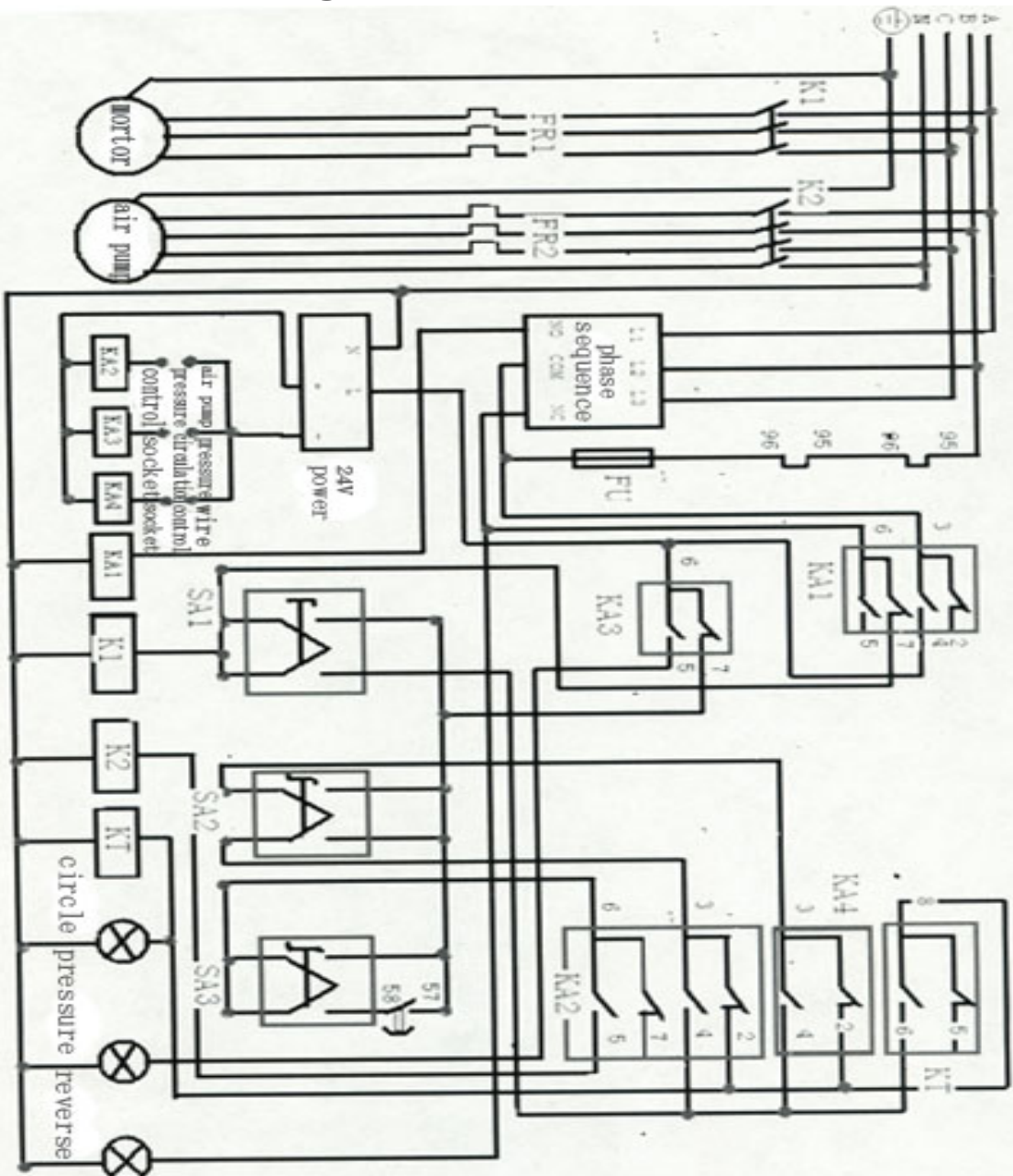
How to solve troubles occurred in DP N2V?

FAILURE	CAUSE	SOLUTION
Machine can not start!	<ul style="list-style-type: none"> <li>-Power supply OK?</li> <li>-Has the power supply wire been connected to electricity box?</li> <li>-Has the power supply switch been turned on ?</li> <li>-Is connecting point of the power supply good?</li> <li>-Does fuse need to be changed?</li> <li>-Is pump core blocked?</li> <li>-Operating the air/wire control switch while the machine is working?</li> <li>-Wrong adjustment of wind pressure induction?</li> <li>-Has the air control switch been turned on or has it been blocked?</li> <li>-Is the outlet of spay gun blocked?</li> </ul>	<p>Operate the pump core in opposite direction or change pump core.</p> <p>Turn on the switch/clean the switch</p> <p>Clean the nozzle of spray gun</p>
Sudden stop while operating!	<ul style="list-style-type: none"> <li>-Is motor overloaded because the material in the pump is too dry or too coarse?</li> <li>-Is motor overloaded because the conveying pressure is too large or the conveying distance is too long?</li> </ul>	<p>Add more clean water while mixing the material, clean the machine and try again.</p> <p>Use motor hose of relatively large diameter or use shorter hose.</p>

## N2V Operation Guidance

1. This power cord is 5\*6 m<sup>2</sup>, three phases, 380V(L1, L2, L3), zero line(N) and grounding line (⊕) interface socket.
2. Connect the power supply, turn the master switch of rotation direction to clockwise. If the indicator off, wire connect right. And wiring error indicator on when wire error, this moment, you have to change the order of L1, L2, L3 till it connect right.
3. Test machine: turn the master switch of rotation direction to clockwise, and motor selector at “ hand ”, air pump selector at “ hand ”, then the machine start. Stop the machine, when test over.
4. Wire control: connect the wire control, turn the master switch of rotation direction to clockwise, and motor selector at “ autom ”, air/wire control switch at “ wire ” use the wire control start or stop the machine, the yellow indicator off when machine is working, machine stop, the yellow indicator on. Machine at material circulation mode (time able to be set). Machine stop, keep all switches off.
5. Air control, turn the master switch of rotation direction to clockwise, and motor selector at “ autom ”, air/wire control switch at “ air ”, start or stop the machine through controlling the switch on the spray gun. The yellow indicator off when machine is working, machine stop, the yellow indicator on. Machine at material circulation mode (time able to be set). Machine stop, keep all switches off.
6. If the conveying pipe and spray gun get blocked when the machine is working, you should stop the machine to release the rest pressure in the pipe. First turn the master switch of rotation direction to counter-clockwise (red indicator on), then turn motor selector to “ hand ”, just 3 to 5 seconds. Avoid reversing it long time. After release the pressure, off all the switches. Finally download the pipe and spray gun, clean it.

## N2V Circuit Diagram



Note:

K1: 1210 Contactor

K2 : 2310 Contactor

FR1: 9-13A overpower protection

FR2: 6-10A overpower protection

phase sequence: TVR2000-1

FU: 5A

KA1: power relay (220V)

KA2: air pressure relay (24V)

KA3: pressure relay (24V)

KA4: wire control relay (24V)

KT: time relay

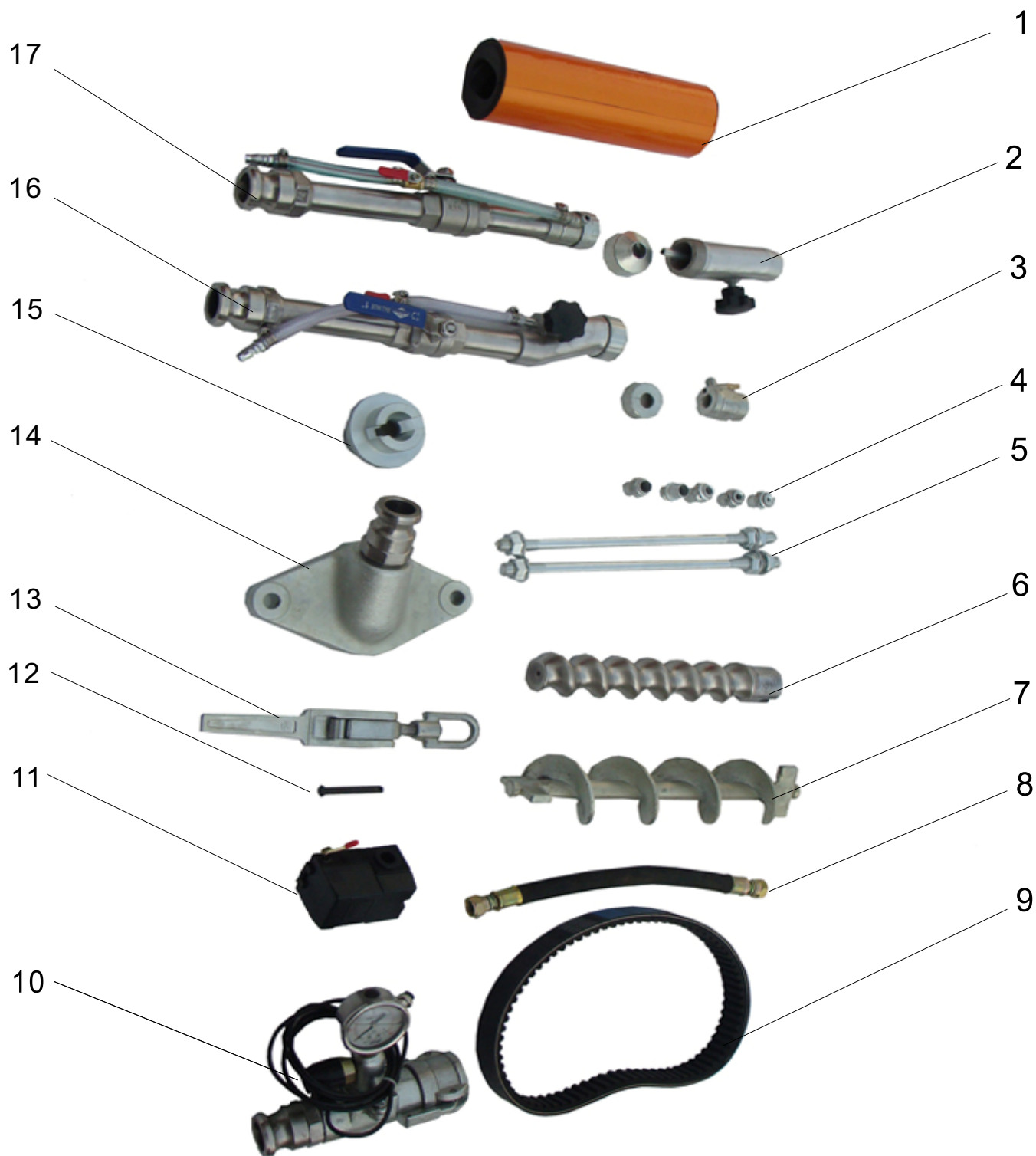
SA1: motor selector

SA2: wire/air control selector

SA3: air pump selector  
95, 96: overpower protection normally closed contact

57, 58: air delay contactor

## Accessories



## Product Assembly Diagram

Serial No.	Quantity	Code	Description
1	1	20 05 01	Stator
2	1	20 00 01	Head of low pressure gun
3	1	20 00 02	Head of high pressure gun
4	5	20 00 03	Nozzle
5	2	20 05 02	Long pole screw
6	1	20 05 03	Rotor
7	1	20 03 01	stirrer
8	1	20 16 01	air pump pipe
9	1	20 09 01	speed cotrolled belt
10	1	20 01 01	pressure sensor
11	1	20 16 02	air pump pressure switch
12	2	20 02 01	bolt
13	2	20 02 02	hopper pull
14	1	20 06 01	outlet flange
15	1	20 04 01	joint cover
16	1	20 07 01	low pressure gun
17	1	20 08 01	high pressure gun