B10TVSD-II & B10TDVSD-II Rotary Screw Air Compressor Units - - - Installation And Start-up Data

Contents: Page:

Please read this manual before installing or using your Air Compressor Unit. It contains valuable information that will help in the receiving, installation, use, and maintenance of the Unit.

Please keep this manual in a safe place for future reference.

For additional information, visit 'www.dvsystems.ca'

All of the information, policies, and procedures in this reference manual apply exclusively to DV Systems.

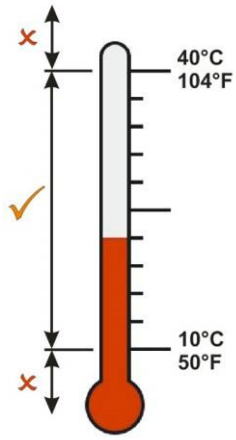
If you require assistance, please contact your local DV Systems Distributor or Authorized Service center. You may contact the manufacturer directly as follows:

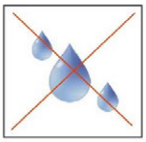
Phone:	(705) 728-5657 (Canada) (704) 799-0046 (USA)	Web:	www.dvcompressors.com
Fax:	(705) 728-4974 (Canada) (704) 799-0355 (USA)	Email:	sales@dvcompressors.com (Canada) orders@dvcompressors.com (USA)

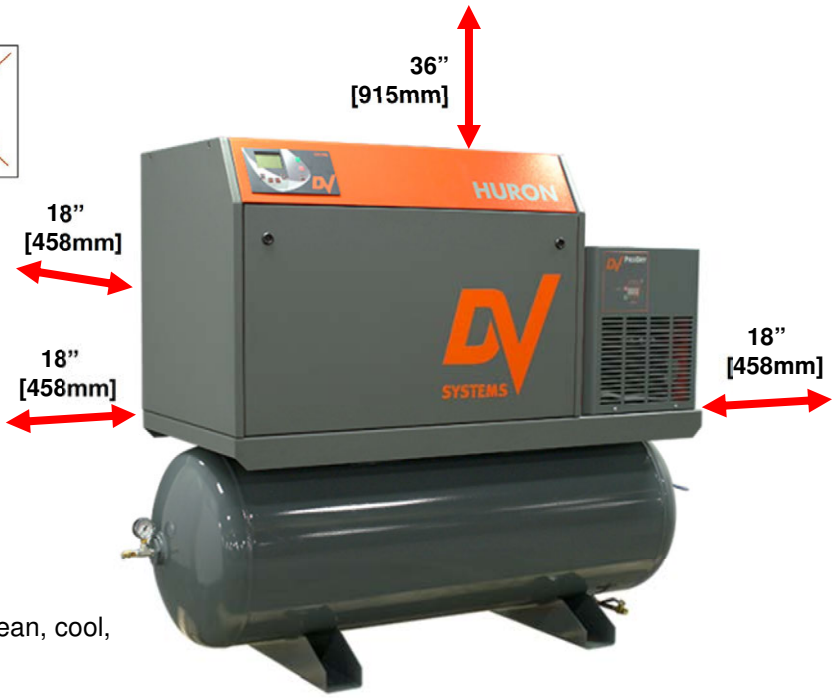
Quick Start

Mechanical Installation.

(Refer to Page 6)







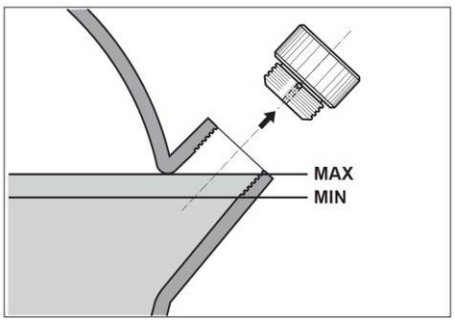
- The Unit should be located in a dry, clean, cool, dust free, and well ventilated area.
- Allow a minimum 18" (458mm) around and 36" (915mm) above Unit.
- The ambient temperature should be between 10°C and 40°C (50°F and 104°F).
- Ensure that the floor under the Unit is smooth, level and capable of bearing the weight of the Compressor.
- If installed in a compressor room, ensure that the room is adequately ventilated

⚠ CAUTION

Drain condensate (water) from oil tank.
If compressor work cycle experiences long pauses, condensate will gather in oil tank.
Drain condensate EVERY 50HRS OR WEEKLY.
(Refer to Page 8 for details)

Lubrication.

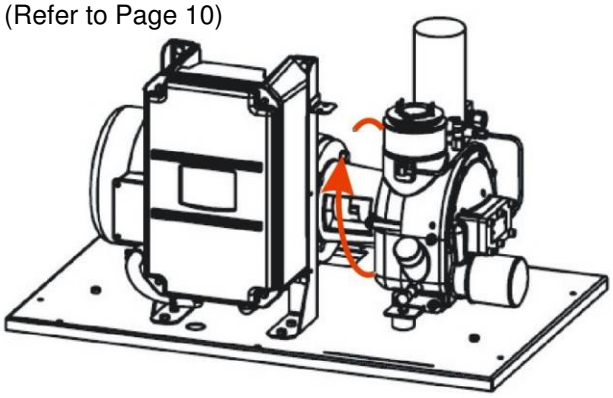
(Refer to Page 8)



- Ensure the oil level in the Air End is to the level as shown.

Rotation.

(Refer to Page 10)



- The correct rotation is as shown.
- The Unit is not equipped with an Anti-Rotation Switch. Check that the rotation is correct.

Quick Start (cont'd)

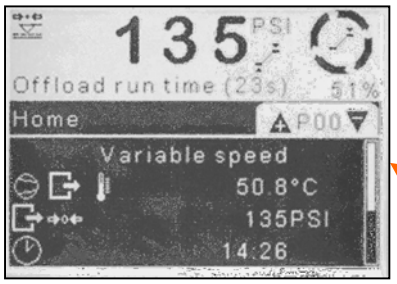
Unit Operation.

Shown below is the 'CSC300' Controller which regulates the operation of the Unit. It is used to start and stop the Unit, and it provides information as to system pressure, temperature, etc.

Starting the Unit: Press the 'Start' Button.
Stopping the Unit: Press the 'Stop' Button.

NOTE

Using the disconnect, or breaker to stop the Unit will not allow the Unit to go through an unloading sequence, and could result in damage to the Motor, Starter, or other electrical components. Damage caused in this manner is not covered by the manufacturers Warranty.



Start.
Starts the Unit.

Stop.
Causes the Unit to enter 'Idle' mode and then shut off.

Reset.
Allows the Unit to be re-started after an error has occurred.

Enter, Up, Down & Escape.
Used in the programming and changing of operating parameters of the Unit.

The Display above and at left indicates:

- The system pressure is 135 psi
- The Unit is unloading (not compressing air)
- The Unit is running at 51% of its full speed
- The remained Idling time is 23 seconds
- The temperature of the oil leaving the Air End is 50.8°C.

Safety Precautions

In order to operate the Compressor Unit safely and correctly, we have opted to use the following symbols to make you aware of important points. These points relate to user safety and preventing equipment problems. Please pay close attention to these sections.

WARNING

Important safety Information. A hazard that may cause serious injury or loss of life.

CAUTION

Important information that indicates how to prevent damage to equipment, or how to avoid a situation that may cause minor injury.

NOTE

Information that you should pay special attention to.

WARNING

The following hazards may occur during the normal use of the equipment. Please read the following chart.

Area:	Hazard:	Safeguards:
What to look for.	What may occur if precautions are not observed.	How to avoid the hazard.
	Tampering with the Unit while under full or partial pressure may cause an explosion.	Relieve all pressure from the Unit before attempting any repair or maintenance work.
	As the Unit starts and stops automatically, serious injury may result from working on the Compressor with the power still in the 'on' position.	Shut off all power to the Unit before attempting to repair or maintain the Compressor.
	As the Unit starts and stops automatically, do not come into contact with moving parts.	Shut off all power to the Unit before attempting to repair or maintain the Compressor.
	Air compressed by the Unit is not suitable for inhaling. It may contain vapours harmful to your health.	Never breath untreated compressed air produced by the Compressor.
	Compressor Air End, Motor, and Tubing become hot when running. Touching these areas may cause serious burns.	Never touch the Air End, Motor, or Tubing during or immediately after operation.
	As the electrical components on the Compressor are General Purpose, there is a potential for explosion, should vapours be present in the area.	Do not install in hazardous locations. The Compressor must be a minimum of 20 feet (6.1 meters) from any source of potentially explosive vapours.

Unpacking and Inspection

NOTE

Each DV Systems Air Compressor is carefully tested and inspected before shipment. Though every attempt is made to ensure the safe and complete shipment of our product, freight damage or misplacement of goods may occur.

Shipments of DV Systems products are the property of the Consignee when the products leave our facility. DV Systems Inc. is not responsible for any damages or shortages caused to the product after it has left our shipping dock.

It is the responsibility of the receiver of the goods, either the Distributor or Customer, to ensure that the product has been shipped in full, and has arrived in suitable condition. Damage to the product may not be visible at time of off-loading, but may only become apparent upon unpacking or start-up.

Some areas to initially check are as follows:

a) Check for damage to the crating and/or packaging.
b) Check the exterior of the Cabinet for damage, either cosmetic or mechanical.
c) If there is mechanical damage, open the Cabinet to determine whether there is any internal damage to the Unit.

Should there be damage to the product or shortages in shipment:

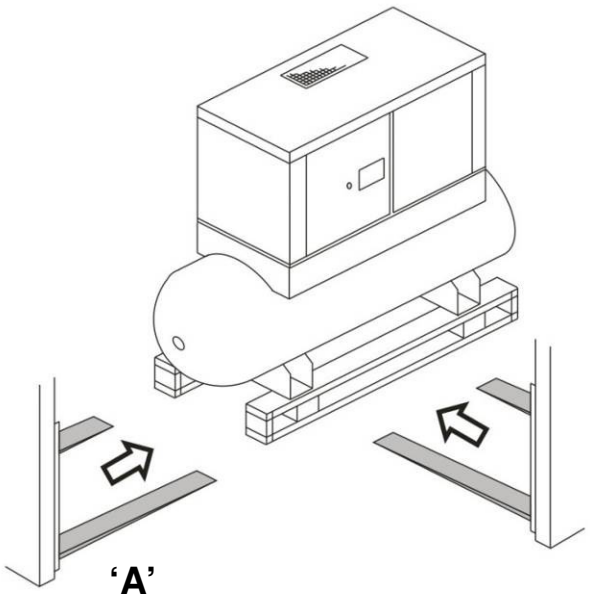
1) Stop any further unpacking or operation of the product.
2) Make note of the problem on the Freight Bill, should it concern a shortage or visible damage to the product.
3) Should the damage be noticed only after the product has been received, contact the transport company immediately to file a claim.
   Depending on the problem, it may be wise to photograph the damage. Also, it may be wise to discuss with the carrier representative the time allotted to give notice of loss or damage to the product; there may be guidelines which limit timeframes of same.
4) Do not attempt further unpacking or operation of the product. Also, do not discard any packing material used.
5) A Loss or Damage Claim must be submitted to the carrier and supported by the following documents:
   - Copy of Freight Bill of Lading
   - Copy of the Invoice and Estimate to repair, in case of damage
   - Damage Report
   - Copy of photos, if applicable

Installation – Mechanical

Moving of the Unit.

When moving the Air Compressor, the forklift or hand lift forks go under the Unit from the directions as indicated.

When lifting from position 'A', use extended forks.



Location of the Unit.

Items to consider when installing the Unit are as follows:

- The Unit should be located in a dry, clean, cool, dust free, and well ventilated area. If possible, the Compressor should be located in a separate room or area, away from the general operations of the shop.
- Allow approximately 18" (458mm) around and 3 feet (915mm) above the Unit for easy access to the various sides, this being for both the proper ventilation of the Unit and ease of servicing.
- Ensure that the floor under the Unit is smooth, level and capable of bearing the weight of the Compressor. The Compressor must sit squarely on the floor.
- If installed in a compressor room, ensure that the room is adequately ventilated. (One Horsepower produces approximately 2500 BTU/HR.) Refer to Page 7.
- The ambient temperature should be between 10°C and 40°C (50°F to104°F).
- If installing the Unit on a mezzanine, ensure that the structure can safely support the weight of the Unit. As well, the sound level of the Unit may increase due to the harmonics created by the structure; use Vibration Pads to lessen this.

Many common Compressor problems can be attributed to the location or installation of the Unit. Make sure the Unit is in a suitable location, and installed correctly. The Unit should be located in a dry, clean, cool, dust free, and well ventilated area. If possible, the Compressor should be located in a separate room or area, away from the general operations of the shop.

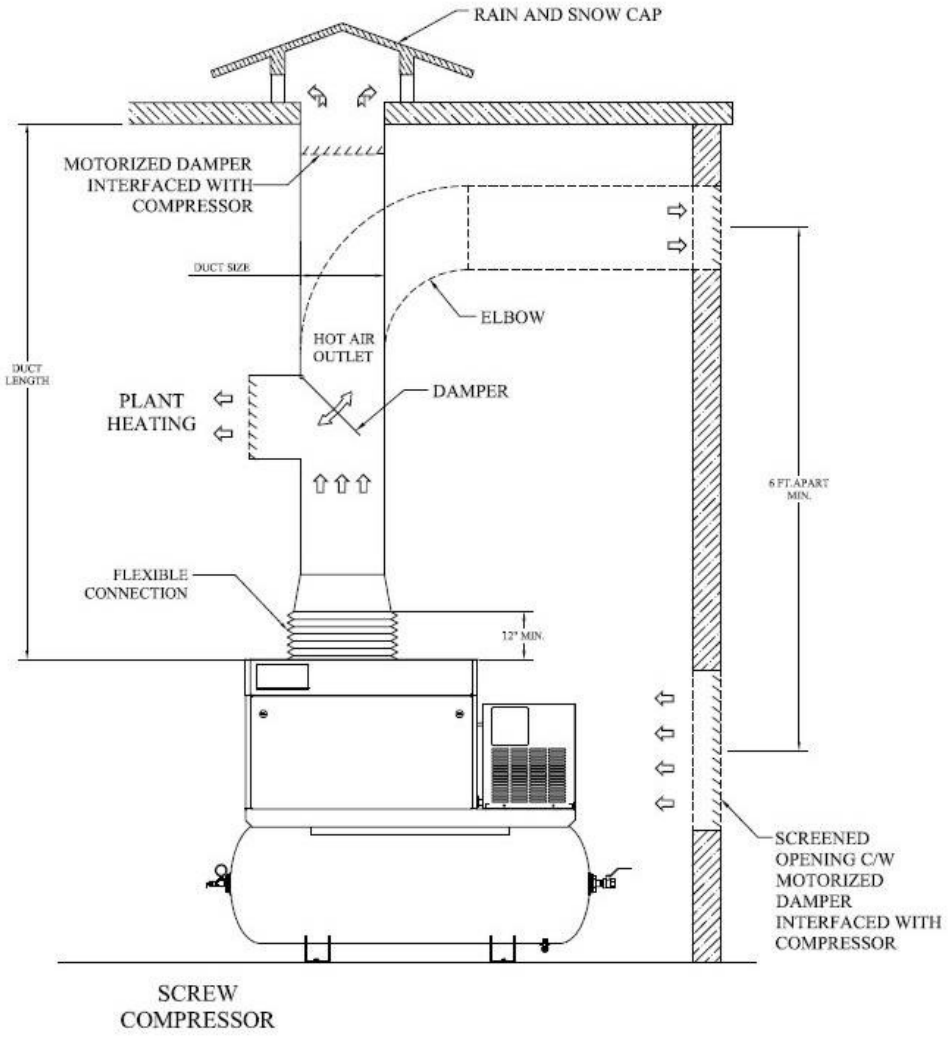
⚠ NOTE

The Compressor must not be operated in a confined area where the heat from the Unit cannot readily escape.

Installation – Mechanical (cont'd)

Shown below are items which assist in making a good installation. These are both intake and exhaust ductwork, helping the Unit to a) draw in clean outside air and b) exhaust the warmer air away from the Unit. The warmer air may be used, with the inclusion of a damper in the exhaust ducting, to warm the interior of the building during the colder months of the year.

Intake and Exhaust Ducting



MODEL	HP	HEAT LOAD (BTU/HOUR)	COOLING AIR (CFM)	RECOMMEND MIN. DUCT SIZE	MAX. DUCT LENGTH	AIR OUT OPENING AT COMPRESSOR
B10 c/w VSD	10	25,464	500	Ø 12" (CIRL.) 12" x 12" (RECT.)	10 Ft. (0 ELBOW) 8 Ft. (1 ELBOW) 6 Ft. (2 ELBOW)	13" x 18"

NOTE:

1. DUCTING SIZE BASED ON GALVANIZED STEEL DUCTS.
2. MAXIMUM PRESSURE DROP DUE TO DUCTING SYSTEM SHOULD BE WITHIN 0.1 IN. OF WATER.
3. ADDITIONAL VENTILATION SYSTEM NEEDED FOR PRESSURE DROP EXCEED ABOVE LIMIT.
4. OPERATION TEMPERATURE: MIN. 10°C (50°F) ~ MAX. 40°C (104°F).
5. ANY DEVIATION FROM ABOVE INSTALLATION, CONSULT DV SYSTEMS TECHNICAL SUPPORT.

Lubrication

Initial Start-up.

Each Compressor Unit built is extensively tested at the factory before shipment. The Unit is shipped with the original oil in it as used for testing purposes.

Check the Oil level and for any Oil leaks on a daily basis. This must be done when the Unit is off. Top up the Oil level on a monthly basis.

Use only DV Systems '**DEV-3000**' Synthetic Oil. As well, do not mix the 'DEV-3000' with any other lubricant.

Subsequent Oil Changes.

Drain the existing oil from the Unit. (Please be advised that the Unit cannot be drained fully of oil, as some oil may remain in various components ie Cooler, Tubing, etc.)

Fill the Oil Reservoir to the top of the Oil Fill Port as shown below. Do not under or overfill. See drawing below.

Use only DV Systems '**DEV-3000**' Synthetic Oil, available in both 1 US gallon (3.8 litre) jugs or 5 US gallon (5 x 3.8 litre) pails. Any remaining oil may be used for 'top-ups'.'

The '**MK-B57**' Maintenance Kit includes:
- (1) US Gallon (3.8 litre) Oil ('DEV-3000')
- (1) Oil Filter ('DSC-603')
- (1) Air/Oil Separator Filter ('DSC-002476')
- (2) Air Filters ('DSC-001569')

This Kit should be used in the regular servicing of your Unit.

CAUTION

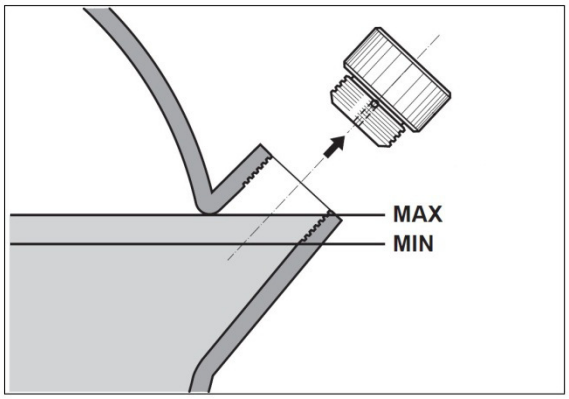
Do not attempt to operate the Unit without first checking whether there is oil in the Air End Reservoir. Add oil as required. Serious damage may result from use, however limited, without oil.

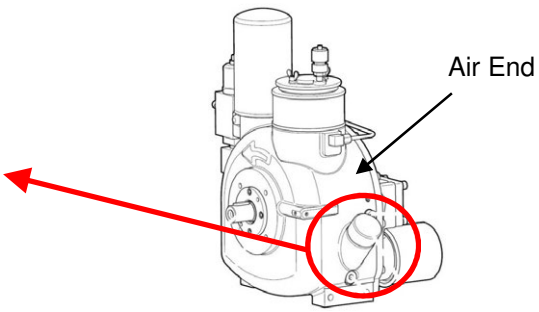
CAUTION

Use of improper oil may negatively affect Compressor performance or shorten Unit life. Resulting problems are not covered by the DV Systems Inc. Air Compressor Warranty.

CAUTION

Condensation (water) may form in the Air End if the compressor work cycle experiences long pauses. If this occurs, the condensate MUST be drained EVERY 50HRS OR WEEKLY:
- **Wait for compressor to cool for approx. 2HRS.**
- **Remove service panel**
- **Slowly remove/open the oil drain cap/valve on the air end & drain condensate**
- **When the first traces of oil appear, close the cap/valve**
- **Top up the Air End with new oil using only DV Systems 'DEV-3000' oil.**





Installation - Electrical

General Information.

It is your responsibility to ensure that the Compressor Unit is electrically connected in a safe and correct manner. **Any electrical work should be carried out by a competent Electrician, and be done in such a way that it meets all applicable Codes and Regulations.** Ensure that a Fused Disconnect (by others than DV Systems) is installed in the electrical supply before the Compressor Unit.	The sales drawing found at the back of this booklet indicates the amp rating for the Unit. This information is required in sizing a Disconnect, Fuses, and/or a suitable Breaker. As well, the enclosed electrical schematic indicates the correct wiring and fuse types and sizes. Electrical wiring and conduit from the building supply, through the Compressor Cabinet, and to the Switch in the Compressor Control Panel, must be rated for 110°C (230°F) or higher.

⚠ WARNING

- **Failure to correctly connect the Compressor to your building's electrical services may result in serious personal injury or damage to the equipment.**
- **Disconnect all power before servicing the drive. Wait a minimum of 5 minutes (after turning off the power to the Unit) until the Inverter capacitors have discharged.**
- **Install all covers and panels before applying power to the Unit.**
- **Many components of the drive, including circuit boards, operate at line voltage. Take necessary precautions.**
- **Before servicing the Unit, ensure the power source has been shut down and locked off.**
- **Read and understand the information contained in this manual before installing or operating the drive.**

Failure to observe any of the above precautions could result in severe personal injury or death, and/or damage to the Unit.

Wiring Practices.

When making power and control wiring connections, please observe the following precautions:

- Ensure that all wiring, fusing, etc is done in a manner that meets with the appropriate codes and regulations.
- Never connect input AC power to the Motor output terminals T1/U, T2/V, or T3/W.
- See the sales drawing electrical schematic contained in this booklet for Unit amp draw, as well as Unit fuse sizes and wire sizes. Please verify that they correspond with the appropriate Electrical Code.

Voltage Fluctuations.

Line voltage fluctuation at the power source can increase the Amp draw of the Unit resulting in excessive heat inside the Motor as well as causing damage to the Inverter. On 230 volt Units, voltage fluctuations should not exceed the limits of between 215 volts to 235 volts.

Installation – Electrical (cont'd)

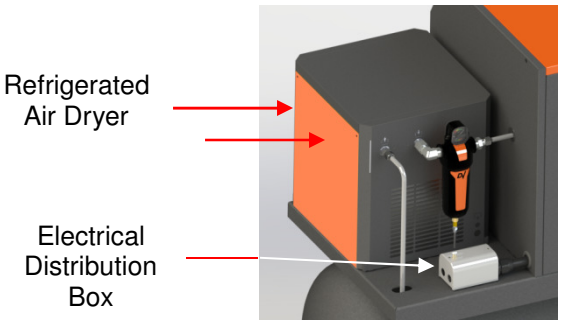
CAUTION

Do not attempt to operate the Unit without first checking whether there is sufficient oil in the Air End Reservoir. See Page 8. Serious damage may result from use, however limited, without oil.

Electrical Connection.

The Electrician is to bring power to the Unit at the Electrical Distribution Box as shown. The Box is located at the back of the Unit, and behind the Refrigerated Air Dryer.

For the correct wire size and fuse type and size, refer to the electrical schematic at the back of this booklet.



Motors.

Wiring must be done in a manner that the full Motor nameplate voltage +/- 5% is available at the Motor terminals during start-up. Contact your local Distributor or Service Centre if additional information is needed.

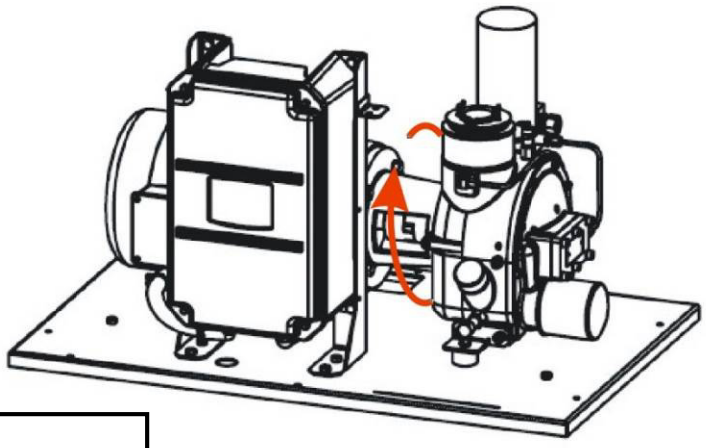
As well, the service required for the Compressor to operate the Unit effectively is 80 Amp minimum.

The Warranty that exists on the Electric Motor is that of the original manufacturer. In the event of a Motor failure, contact your DV Systems Distributor or Service Centre for the location of the nearest authorized Motor Service Centre.

Motor/Air End Rotation.

The correct rotation is as indicated by the arrow as shown at right, and as on the Air End inside the Cabinet Enclosure.

The Unit is not equipped with an Anti-Rotation Switch. If the Motor is replaced, check for correct Motor rotation before connecting to the Air End.



CAUTION **Irreparable damage will occur to the Air End if the rotation is incorrect.**

Start-up Procedures

CAUTION

Do not attempt to operate the Unit without first checking whether there is oil in the Air End Reservoir. Add oil as required. Serious damage may result from use, however limited, without oil.

Initial Start-up

1) Remove the Front Access Panel, and ensure that there is sufficient Oil in the Air End. Refer to the 'Lubrication' section (page 8) in this manual for proper type and level of Oil.

2) Do a visual inspection of the Unit, and ensure that all fasteners are sufficiently tightened. This must be done, as some fasteners may become loose in transit.

3) Place the Fused Disconnect or Breaker in the 'On' Position. Check that the Inverter is on.

4) During normal operation of the Unit, keep the Access Panels closed at all times. As well, do not place any obstructions against or on top of the Unit, thereby limiting the flow of cooling air.

CAUTION

Do not place any materials in close proximity to the Compressor. Placing materials against or close to the Unit will limit the cooling required, and could lead to premature failure.

5) Ensure the Ball Valve on the Unit is closed, press the 'Start' Button, and run the Unit up to maximum pressure. The Unit will run up to approx. 135 psi (9.3bar), at which point the Motor will slow down until it reaches 145 psi (10bar).

6) Once the Unit reaches 145 psi (10bar), it will idle for 2 minutes and shut off.

7) Open the Ball Valve slightly and allow the air to bleed from the Tank. Once the pressure reaches approx 135 psi (9.3bar), the Unit will start and begin to compress air after a 2 second delay.

8) Measure the amp draw when the Unit runs at maximum speed and approx 135 psi (9.3bar).

9) Close the Ball Valve, allow the Unit to reach maximum pressure, idle, and shut off. Once off, check the various fittings etc inside the Cabinet to ensure there are no internal leaks.

WARNING

Shut off all power to the Air Compressor Unit before attempting any repair or maintenance.

NOTE

Adjusting the settings of the Controller could adversely affect the performance of the Unit. Only those individuals with knowledge of the Unit should make any adjustments.

Preventative Maintenance Schedule

WARNING

When servicing the Air Compressor, shut off all power to the Unit, and drain it of air pressure.

NOTE

It is the responsibility of the compressor owner to ensure that a regular Maintenance Schedule is followed.

Noted on the following pages are general Maintenance guidelines based on average working conditions. Should the Unit be worked under extreme conditions, please contact your DV Systems Distributor for further input. As well, all maintenance/service work must be carried out by a qualified Technician.

If the operating temperature of the Unit is too low (less than 70°C (158°F)):

- condensation will build up in the system and mix with the oil, causing internal component problems in the Unit
- Change the ambient conditions to increase the operating temperature.

If the operating temperature of the Unit is too high (above 85°C (185°F)):

- the oil will oxidize and lose it's properties, this causing internal damage to components as well
- to combat this, the oil must be changed more often than noted below.

Note: For Compressor Units used in an environment where the ambient temperature is above 32°C (90°F), the components marked with a ' # ' (on the chart on the following page) must be changed more frequently, and not as noted below.

Regular Maintenance Items.

DV Systems offers a Maintenance Kit for your Unit, namely:

MK-B57 5, 7½ and 10 HP 'B Series' Units

Each Kit consists of the following items, these suitable for approximately 2000 hours of operation.

(1)	**DEV-3000-K1**	1 Gal. of Synthetic Oil
(1)	**DSC-603**	Oil Filter
(1)	**DSC-002476**	Air/Oil Separator Filter
(2)	**DSC-001569**	Air Filter

Internal Access for Maintenance.

The internal components of the Unit are accessible for servicing by means of removing the Front Panel.

The Back Panel is also removable if required.

Preventative Maintenance Schedule (cont'd)

Maintenance Item:	Daily	Maintenance Interval (in 000's of Hours)																			
		2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
Compressor Room																					
Temperature	Inspect	Ambient Temperature should be between 10°C and 40°C (50°F and 104°F)																			
Cleanliness	Inspect																				
Air Compressor Unit																					
Check Oil Level	Inspect																				
Replace Oil # (See Note b)	(1)				X				X				X				X				X
Replace Oil Filter #	(2)		X		X		X		X		X		X		X		X		X		X
Replace Air / Oil Separator #	(3)				X				X				X				X				X
Replace Air Intake Filter #	(4)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Replace Coupling Spider	(5)				X				X				X				X				X
Replace Tank Relief Valve	(6)						X						X						X		
Replace Solenoid	(7)				X				X				X				X				X
Rebuild Intake Valve	(8)				X				X				X				X				X
Rebuild Thermo Valve	(9)						X						X						X		
Rebuild Minimum Pressure Valve	(10)				X				X				X				X				X
Motor Bearing Lubrication		Refer to Motor Manufacturer's Recommendations on Page 11																			

Note: a) For Compressor Units a) used in an environment where the ambient temperature is above 32°C (90°F) or b) where the Unit temperature runs regularly above 80°C (175°F), the components marked with a '#' must be changed twice as often (example: in 4000 hours instead of 8000), and not as noted above.

b) The DV Systems Oil used in the Rotary Screw Units is rated as an 8000 hour Oil. A complete Oil change must be done every 8000 hours of Unit operation, or every 12 months, whichever occurs first. Please refer to the Warranty on Page 21 for further information.

c) If a component, during a regular inspection, has proven to be defective or unfit for regular operation, it must be repaired or replaced.

Parts and Repair Kits based on the above chart are as follows:

(1)	Oil:	DEV-3000-K1
(2)	Oil Filter	DSC-603
(3)	Air / Oil Separator:	DSC-002476
(4)	Air Intake Filter:	DSC-001569
(5)	Coupling Spider:	DSC-001618
(6)	Tank Safety Valve:	TIA-5165
(7)	Solenoid – 24 volt:	DSC-001676
(8)	Intake Valve Repair Kit:	DSC-001712
(8)	Thermo Valve Repair Kit:	DSC-002057 (for s/n '37190' and '37198' and greater)
(9)	Thermo Valve Repair Kit:	DSC-001711 (for Units of s/n '37197' and lower)
(10)	Minimum Pressure Valve Kit:	DSC-001713
	Shaft Seal Kit	DSC-002055

As noted previously, the '**MK-B57**' Maintenance Kit includes the following items:

(1)	**DEV-3000-K1**	1 Gal. of Synthetic Oil
(1)	**DSC-603**	Oil Filter
(1)	**DSC-002476**	Air/Oil Separator Filter
(2)	**DSC-001569**	Air Filter

Use only 'Genuine DV Systems' parts and kits for your DV Systems Screw Compressor, this to ensure that
a) it works at it's optimum performance level and
b) you maintain your DV Systems Compressor Warranty.

Common Compressor Faults

Common Faults.

Noted below are the most common Faults experienced.

'CSC300' Alarms.

There is an issue with the Unit, but it will still operate.

Code:	Description:	Most Common Items to Check:
A:0083	Motor phase imbalance	Check supply voltage, fuses and cable
A:0119	Delivery Pressure High	Solenoid not working, Intake Valve Orifice clogged, Transducer dirty or faulty, pressure changed incorrectly, alternate external pressure source
A:0129	Delivery Temperature High	Ambient temp high, Unit dirty, low oil level, no air flow through Unit, Temp Sensor defective
A:2816	Power Failure Occurred	Press 'Reset' Button and restart Unit
A:4819	Routine Service Due	Service Unit and reset Service Timer (Page 'P16' on Controller)
A:4809	Grease Service Due	Service motor and reset Grease Service Timer (Page 'P16' on Controller)

'CSC300' Shutdown Errors.

There is an issue with the Unit, and the Unit will not operate until the Fault has been addressed.

Code:	Description:	Most Common Items to Check:
E:0090	Phase sequence	Rotation of Motor wrong, sequence order of supply cable incorrect
E:0115	Delivery Pressure Sensor Fault	Transducer not making good electrical contact, or defective
E:0119	Delivery Pressure High	Solenoid Not working, Intake Valve Orifice clogged, Transducer dirty or faulty, pressure changed incorrectly, alternate external pressure source
E:0125	Delivery Temp Sensor Fault	Temperature Sensor not making good electrical contact, or defective
E:0129	Delivery Temperature High	Ambient temp high, Unit dirty, low oil level, no air flow through Unit, Temp Sensor defective
E:1887	Motor Overload	Motor drawing high amps, low voltage, higher pressure settings, low oil level
E:1902	Inverter Fault	Variable frequency drive tripped. **Check VFD screen for more info**

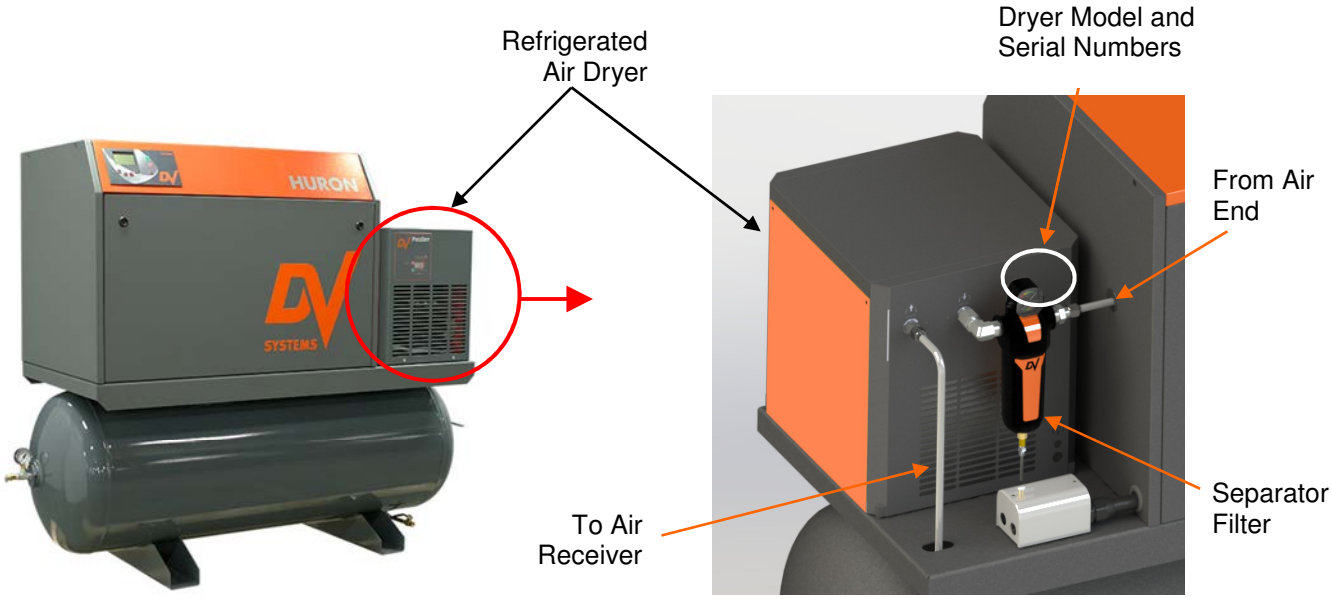
'VS20' Inverter Errors.

VS20 inverter will indicate any drive faults that occur on the inverter, as well as maintaining a fault history.

Code:	Description:	Most Common Items to Check:
F12	Vac Imbalance	Check supply voltage, fuses and cable
F18	Over Current	Motor drawing high amps, low voltage, high pressure settings, low oil level
F20	Motor TOL	Motor drawing high amps, low voltage, high pressure settings, low oil level
F22	Ref Loss	Communication wire loose

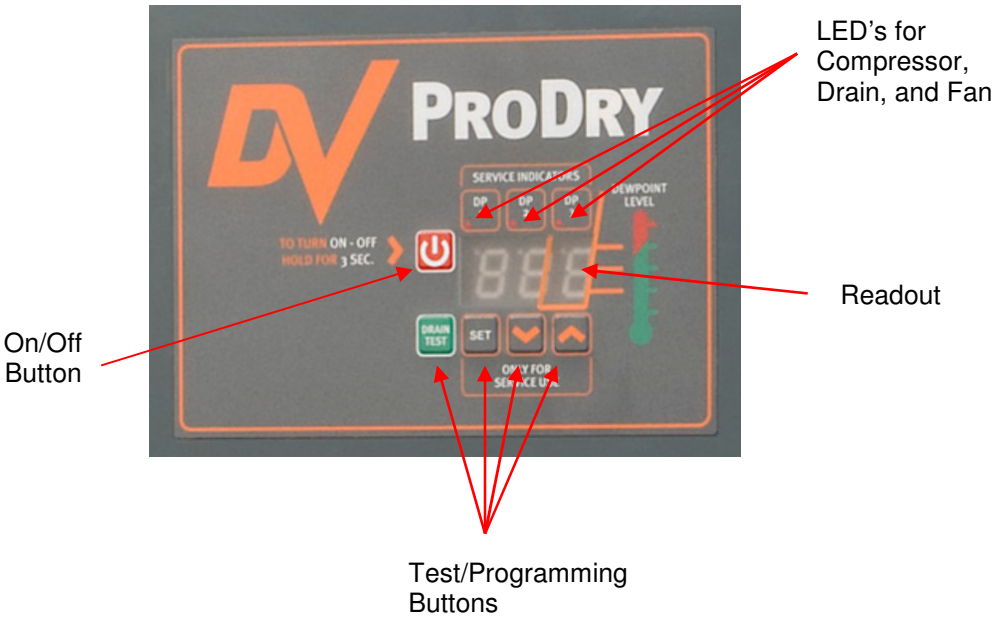
Separator Filter and Refrigerated Air Dryer

Your Unit may be equipped with a Separator Filter and an 'ASD30' Refrigerated Air Dryer Unit as indicated below. These items are located in the compressed air lines after the air is compressed but before it enters the Air Receiver. This allows for what is termed a 'dry' Tank.



More detailed information concerning the Dryer Unit is included in the Dryer manual. The information contained in this manual is a 'quick reference' only.

Dryer Controls.

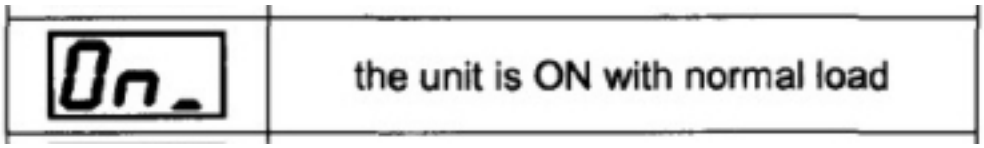


Separator Filter and Refrigerated Air Dryer (cont'd)

Typical Dryer Operation.

The Dryer will operate as follows:

- Pressing the 'On/Off' Button for 3 seconds will start the Unit
- There is a time delay of up to 2 minutes before the Refrigerant Compressor starts.
- The Condenser Fan will start approx. 30 seconds there-after.
- The Fan will not normally run at full speed, this indicated by a flashing LED
- The readout will initially show ambient temperature indicated by 3 horizontal bars on the readout
- Once the Fan and Compressor start, the dew point of the Unit will decrease to approx. 1°C, this indicated by 1 horizontal bar.
- Once at approx. 1°C, the Fan will stop, only to be called to run again once the temperature increases to approx. 5°C
- Pressing the 'On/Off' Button (when the Unit is operating) will run the Fan at full speed for several seconds, after which the Unit will stop. (The LED will be on continually while the Fan runs at full speed.)



- As well as showing the dew point, the readout may indicate several fault codes as suggested below.

Typical Fault Codes.

The readout will indicate a variety of 'fault codes', the most common being as follows:

Energy Saving Mode.
- The Dew Point has been running at below -1°C for over 6 minutes.
- The Unit will automatically restart operation at 6°C.

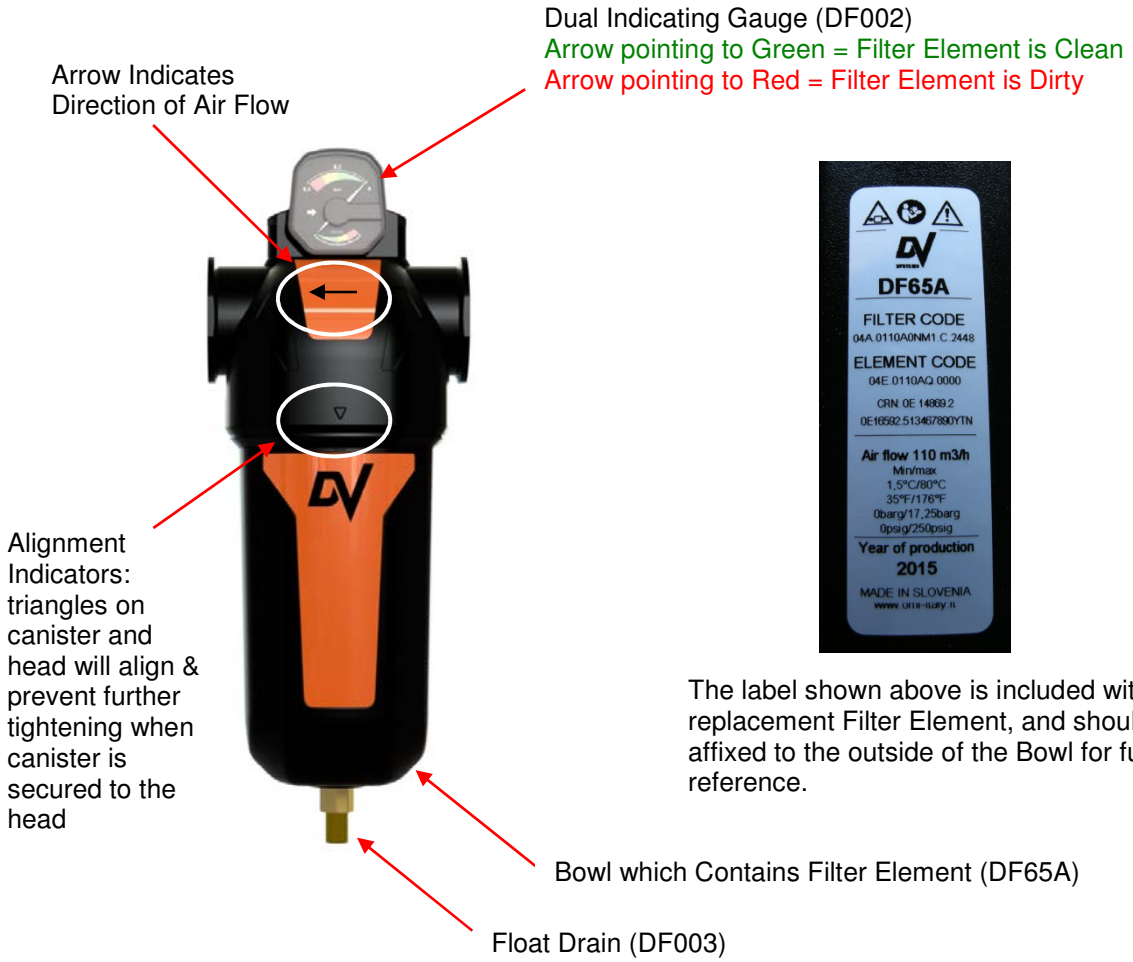
Temperature Probe Alarm.
- The Temperature Probe is not working properly. It may not be connected to the Board, or the Probe may be defective.
- Replace the Probe if necessary.

High Temperature Alarm.
- The Dew Point has been running at above 12.5°C for over 6 minutes. The Unit must be manually turned off and on.
- The fault could be caused by a dirty radiator, high ambient temperature, a faulty Fan, or a faulty refrigerant Compressor, to name a few.

Separator Filter and Refrigerated Air Dryer (cont'd)

Typical Separator Filter.

As previously noted, the Separator Filter is located between the Air End and the Refrigerated Dryer. It contains a 1 micron Separator Element which protects the Dryer Unit by removing liquids and solid particles 1 micron and larger.



The label shown above is included with a replacement Filter Element, and should be affixed to the outside of the Bowl for future reference.

Filter Element Replacement.

To replace a dirty Filter Element:

- Shut the Compressor Unit off.
- Bleed any compressed air from the system to ensure there is no pressure at the Filter.
- Unscrew the Bowl from the assembly, exposing the dirty Filter Element.
- Pull the Filter Element out of the Canister Head
- Clean any debris from the inside of the Bowl
- Remove the O-ring from the inside of the Canister Head
- Install the new O-ring making sure it is properly seated
- Place the new 1 micron Separator Filter Element into the Bowl (the filter is self-centring).
- Screw the Canister with the Element inside it to the Canister Head until the indicators line up.
- Gauge will return to green when Filter is once again under pressure.

Trouble Shooting Guide

WARNING

When servicing the Air Compressor, shut off all power to the Unit, and drain it of air pressure.

The 'Conditions', 'Causes', and 'Suggested Corrections' as indicated below and on the following page(s) are only a guideline for failures that we have found to be most common.

Though this information is provided in this booklet, it is assumed and expected that any personnel involved in the servicing of an Air Compressor Unit is knowledgeable with this type of equipment. Do not attempt to service a Compressor Unit unless you are familiar with it, as there are many issues that may come into play, the most important being personal safety and the welfare of the Unit.

Should you have any questions, or require servicing to your Unit, please contact your local DV Systems Distributor/Service Center.

Condition:	Cause:	Suggested Correction:
A. Unit won't start.	No power to the Unit.	Check that power at the disconnect or breaker is on.
	Loose and/or missing wires in the electrical circuit.	Check that all wiring connections are tight. With a wiring schematic, check that all wiring is present.
	Check the 'CSC300' Controller Screen which will indicate the following errors:	
	Motor Overload is tripped.	Reset Overload.
	Compressor over-heated and stopped.	Insufficient air flow to cool Unit. Ambient temperature too high. Heat Exchanger is dirty. Cooling Fan not operating. Faulty Temperature Switch. Oil level is low.
	Compressor stopped by over-pressure.	Solenoid Valve faulty. Intake Valve Orifice plugged and Valve not closing Seals on Intake Valve leaking. Intake Valve Spring broken. Pressure Transducer stopped Unit. Lower maximum pressure setting.
	Unit shut off because pressure is not below 135 psi.	Drop pressure below 135 psi.
	Automatic Idle Time stopped the Unit.	Drop the pressure below 135 psi.
	Power interruption.	Reset the Unit.

Trouble Shooting Guide (cont'd)

Condition:	Cause:	Suggested Correction:
B. No or Insufficient Air Flow.	Air Filter is dirty.	Replace the Air Filter.
	Oil Separator is blocked.	Replace the Oil Separator.
	Intake Valve is faulty.	Repair or replace the Intake Valve.
	Air leaks in the system.	Check the Unit and system for air leaks.
	Pressure limits are incorrectly set.	Adjust the pressure settings.
	Blowdown Solenoid Valve is open.	Check the wiring to the Solenoid and replace as necessary.
C. Unit is overheating.	Exhaust Fan is not working.	Check that there is power to the Fan.
	Ambient temperature is too high.	Check cooling air circulation.
	Blocked air circulation at the Unit.	Check the air circulation in and around the Unit.
	Heat Exchanger is dirty.	Clean the Heat Exchanger
	Oil level is too low.	Add oil as required.
	Using wrong type of compressor oil.	Change to the factory recommended oil.
	Thermo Valve is faulty.	Check and repair as necessary.
	Oil Filter is blocked.	Replace the Oil Filter.
	Temperature Sensor is faulty.	Check the wiring to the Temperature sensor. Replace the Sensor if necessary.
	Pressure is too high.	Lower the pressure setting.
	Cabinet door/panel is open/off.	Secure the door/panel to the Unit.
D. Compressor Starts Slowly.	Intake Valve Seal is closed.	Intake Valve is seized. Repair or replace.
	Ambient temperature is too low.	Stop and restart once ambient increases.
	Minimum Pressure Valve leaking back to Air End.	Repair or replace the Minimum Pressure Valve.
	Minimum Pressure Valve setting is too high.	Adjust Minimum Pressure Valve setting. To 65 psi.
	Using wrong type of oil.	Change to factory recommended oil.

Trouble Shooting Guide (cont'd)

Condition:	Cause:	Suggested Correction:
E. Intake Valve Leaks Oil When Unit Stops.	Intake Valve Seal leaks.	Repair using an Intake Valve Repair Kit.
	Intake Valve stuck in open position.	Repair or replace the Intake Valve.
	Blowdown Solenoid not functioning.	Replace the Solenoid.
F. Oil Consumption is Too High.	Oil level is too high.	Reduce the oil level to the proper level.
	Oil Return Line (Scavenge Line) is blocked.	Clean and/or replace the Scavenge Line Sight Glass.
	Oil Separator is saturated with oil.	Replace the Oil Separator.
	Wrong type of oil used.	Change to factory recommended oil.
	Unit is operating at too high a temperature.	See 'Section C'.
	Oil leak.	Repair oil leak.
	Unit load is light or excessive load/idle cycles.	Ensure Unit is set to operate at correct pressures, and there is a 10 psi differential. Also the Unit could be oversized for the tank capacity.
G. Compressor Surges.	Restriction in Heat Exchanger or Hoses.	Flush out or replace.
	Pressure Transducer setting is incorrect or malfunctioning.	Set pressure as per instructions or replace.
	Blockage at Unit outlet.	Check for obstructions in outlet piping.
	Dryer is freezing up, not allowing air to pass through.	Check that the Dryer parameters are correct. Increase dew point to 2.0 if required.
H. High Power Consumption.	Improper air pressure settings.	Reset the pressure as per factory defaults.
	Blowdown Solenoid is not functioning.	Inspect or replace as necessary.
	The voltage in the building is too low.	Contact an Electrician to verify.
	The Motor is failing.	Have Motor inspected.
I Fault Alarms.	High Temperature.	See 'Section C'.
	Low Temperature.	Ambient temperature is too low.
	Reference Loss.	Check the Pressure Transducer and the wiring to the Transducer.
	Single Phase Overload.	Check the voltage, amp draw, and wiring.
	High pressure.	Check the pressure settings and the Transducer.

Limited Warranty : B Series Screw Compressors

The manufacturer warrants the product manufactured by it and sold to the original purchaser, when properly installed, operated, applied, and maintained in accordance with procedures and recommendations outlined in the manufacturer's instruction manuals, to be free of defects in material and workmanship for a period of one (1) year from the date of installation, not to exceed eighteen (18) months from the date of manufacture, provided such defect is discovered and brought to the manufacturers attention within the aforesaid warranty period, conditional upon the following:

1) Genuine 'DEV-3000' Lubricant and Parts are used for the full warranty period.
2) The Unit is maintained in accordance with the manufacturer's instruction manual for the Unit, with the following minimum maintenance requirements:
   A) Complete Oil change every 8000 hours (not to exceed 12 months) from the date of initial start-up using 'DEV-3000' Lubricant. When operating in adverse conditions, Oil changes must be done more frequently.
   B) Oil Filter must be changed every 4000 hours (not to exceed 12 months) from the date of initial start-up using the appropriate DV Systems part. When operating in adverse conditions, Oil Filter changes must be done more frequently.
   C) Air Intake Filter must be changed every 2000 hours (not to exceed 6 months) from the initial date of start-up using the appropriate DV Systems part. When operating in adverse conditions, Air Intake Filter changes must be done more frequently.
   D) Air/Oil Separator Filter must be changed every 8000 hours (not to exceed 12 months) from the date of initial start-up using the appropriate DV Systems part. When operating in adverse conditions, Air/Oil Separator changes must be done more frequently.
   E) Appropriate and complete maintenance records must be kept by the End User. As well, the End User must retain copies of invoices indicating the timely purchase of the DV Systems Compressor Oil and maintenance/service parts. All records and invoices must be kept for the duration of the manufacturer's warranty period.
3) Disclaimer:
   A) The following items are considered normal wear items, and are warranted for a period of one (1) year from the date of installation, not to exceed eighteen (18) months from the date of manufacture; the Shaft Seal on the Air End Drive Shaft, the Intake Valve Assembly (and its components), and the Minimum Pressure Valve.
   B) All electrical components are warranted for a period of one (1) year from the date of installation, not to exceed eighteen (18) months from the date of manufacture.

An additional four (4) year extended Air End Warranty and a four (4) year extended Three Phase Baldor Motor Warranty are available on those Units that:

A) have been registered with the manufacturer within thirty (30) days from the date of purchase, this done by returning the 'DV Systems Rotary Screw Compressor Start-Up Sheet' and
B) have been maintained in accordance with the manufacturer's instruction manual as noted in '2' above.

The manufacturer will repair or replace any product or part determined to be defective by the manufacturer within the warranty period, provided such defect occurred in normal service and is not the result of misapplication, misuse, abuse, neglect, incorrect maintenance, accident, or normal wear. Normal maintenance items requiring routine replacement are not warranted. Please refer to the appropriate service bulletin to determine normal maintenance requirements.

The warranty covers parts and labour for the warranty period (excluding the Three Phase Baldor Motors. Labour is not covered in the (4) year extended Baldor Motor Warranty.) Either repair or replacement shall be at the sole option of the manufacturer. Any service performed on the product by anyone other than the manufacturer must first be authorized by the manufacturer. Unauthorized service voids the warranty and any resulting charge or subsequent claim will not be paid.

Products repaired or replaced under warranty shall be warranted for the unexpired portion of the warranty applying to the original product, based on the original date of invoice as outlined above.

There is no other expressed warranty. Implied warranties including those of merchantability and fitness for a particular purpose are limited to one (1) year from the date of invoice to the extent permitted by law and any and all implied warranties are excluded. This is the exclusive remedy. Liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law.

This warranty gives you specific rights, and you may also have other rights within your jurisdiction.

This warranty does not cover:

1) Merchandise that has become inoperative because of ordinary wear, misuse, neglect, accident, or improper and unauthorized repair or alteration.
2) Electric Motors manufactured and identified as the product of another company.
3) Compressor Units that have not been properly maintained in accordance with the recommended maintenance and lubrication change procedures and/or that have been subject to inordinate use through being inadequately sized or poorly installed.
4) Compressor Units using other than the recommended lubricant.
5) Costs occasioned by the removal, replacement, or repair of merchandise (other than by DV Systems) without previous authorization from DV Systems.
6) Expenses incurred in travel or lodging beyond a 100 kilometre (60 mile) distance from the nearest DV Systems Authorized Service Centre.
7) Expenses incurred in the return of equipment for inspection purposes to the manufacturers facility. All returns must be pre-authorized, returned 'Freight Prepaid', and accompanied by a 'Return Material Authorization (RMA) Number' (obtainable through DV Systems).
8) Products, parts, materials, components, or accessories manufactured by others or supplied in connection with the sale of the manufacturers products.
9) Repair and transportation costs of merchandise determined not to be defective under the terms and conditions of this warranty.
10) The cost of rental or loaner equipment while the customer's original equipment is being assessed, repaired, or replaced.
11) Consequential damages in the event of product failure.

All decisions by DV Systems Inc. with regard to this policy shall be final. DV Systems will not be responsible for any claimed defective materials returned other than in accordance with this statement of policy or without our prior authorization.

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