



Air Motor

**MRV009, MRV009-A, MRV015, MRV015-A,
MRV040, MRV040-A, MRV050, and MRV050-A
Series Reversible**

Operation and Maintenance Information

- EN** Operation and Maintenance Information
- ES** Operación y Mantenimiento de Información
- FR** L'utilisation et la Maintenance Informations
- DE** Informationen zu Betrieb und Wartung



Save These Instructions

Model Designation Breakout

MRV	XXX	A	-A
MRV Series Air Motors	Series	Shaft/Interface	New Series
MRV	009 015 040 050	A = Round Shaft with Square Key B = Round Shaft with Woodruff key #3 C = Round Shaft with Flat on Shaft BSD71 = Round Shaft (14mm) with Square Key* BSD80 = Round Shaft (19mm) with Square Key** BSD90 = Round Shaft (24mm) with Square Key***	
		* Available on MRV009, MRV009-A, MRV015, MRV015-A, MRV040, MRV040-A only	
		** Available on MRV040, MRV040-A only	
		*** Available on MRV050, MRV050-A only	

Installation / Lubrication

Ingersoll Rand series vanes are made of a special material that does not require lubrication. While we suggest lube for optimum service life, our vanes have been shown to last substantially longer than standard laminate versions. This makes **Ingersoll Rand** motors a good choice for food grade or clean room environments where oil is not permitted.

Installation

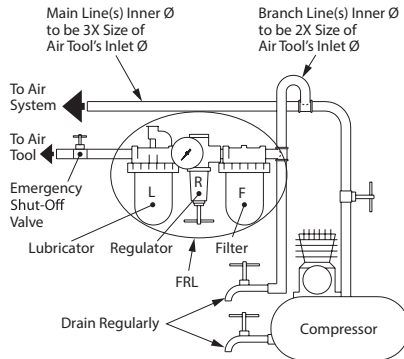
The use of 1/2" Filter, Regulator, Lubricator (FRL), in the air supply line is recommended. Attach the unit as close to the motor as practical. Refer to Air Motor Catalog ("Components, Equipments and Accessories" section) for the recommended **Ingersoll Rand** FRL that can provide optimal performance.



Ingersoll Rand# 10

Lubrication

Ingersoll Rand suggests using an air line lubricator with these motors. We recommend a 1/2" Filter-Regulator-Lubricator (FRL) for optimum motor performance and life.



(Dwg. TPD905-2_EN)

Servicing the Motor Operation

NOTICE

If the motor operates sluggishly, flush it with a clean, non-toxic, nonflammable commercial solvent in a well ventilated area.

To Flush the Motor:

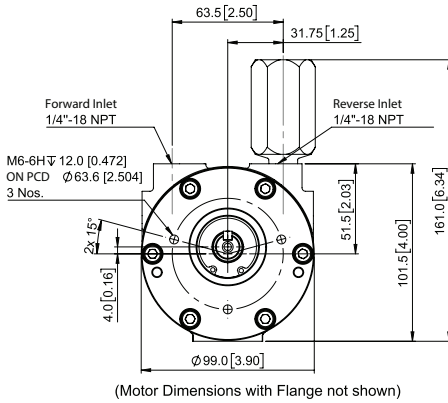
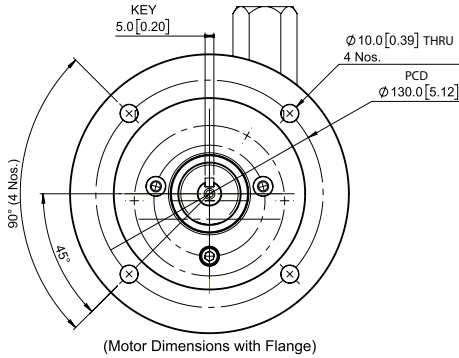
1. Disconnect the air line and muffler.
2. Pour 6 cc to 8 cc of solvent into each inlet.
3. Rotate the motor shaft by hand in both directions several times to ensure all internal parts of motor are thoroughly cleaned.
4. Apply air pressure to the inlet and slowly increase the air flow until there is no trace of the solvent in the exhaust.
5. After flushing, shut off the air supply and disconnect air supply line.
6. Pour 6 cc to 8 cc of a **Ingersoll Rand# 10** motor oil into the air inlet.
7. Reconnect the air supply line, slowly increase the air pressure to ensure all internal parts of motor will be covered with a film of oil.
8. If the motor is still low in power, return motor to your nearest service repair center.

Specifications

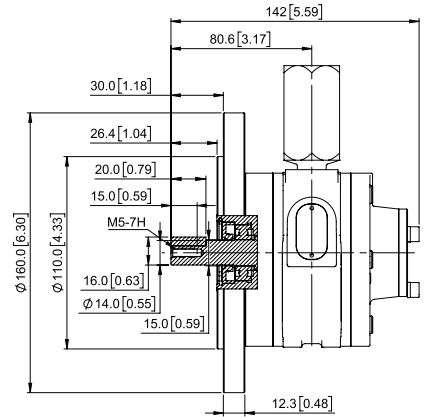
Series	Max. Power		Speed at Max. Power	Free Speed*	Starting Torque		Stall Torque		Air Consumption at Max. Power		Weight	
	hp	kW	rpm	rpm	ft.-lb.	Nm	ft.-lb.	Nm	scfm	m³/m	lb.	kg
MRV009	0.88	0.66	3,000	7,900	1.70	2.30	2.30	3.10	48	1.4	7.50	3.40
MRV009-A	0.90	0.67	4,000	8,000							6.77	3.07
MRV015	1.50	1.10	3,000	7,900	2.60	3.50	4.10	5.60	67	1.9	8.16	3.70
MRV015-A											11.22	5.09
MRV040	3.60	2.70			5.30	7.20	8.70	11.80	120	3.4	16.31	7.40
MRV040-A												
MRV050	4.80	3.60	2,500	7,000	10.00	13.60	14.00	19.00	152	4.3	22.49	10.20
MRV050-A											28.66	13.00

* ALL models must be operated with sufficient load to prevent speed from exceeding maximum allowable speed shown on performance curve.
Performance figures are at 90 psig (620 kPa) air pressure, with muffler installed.

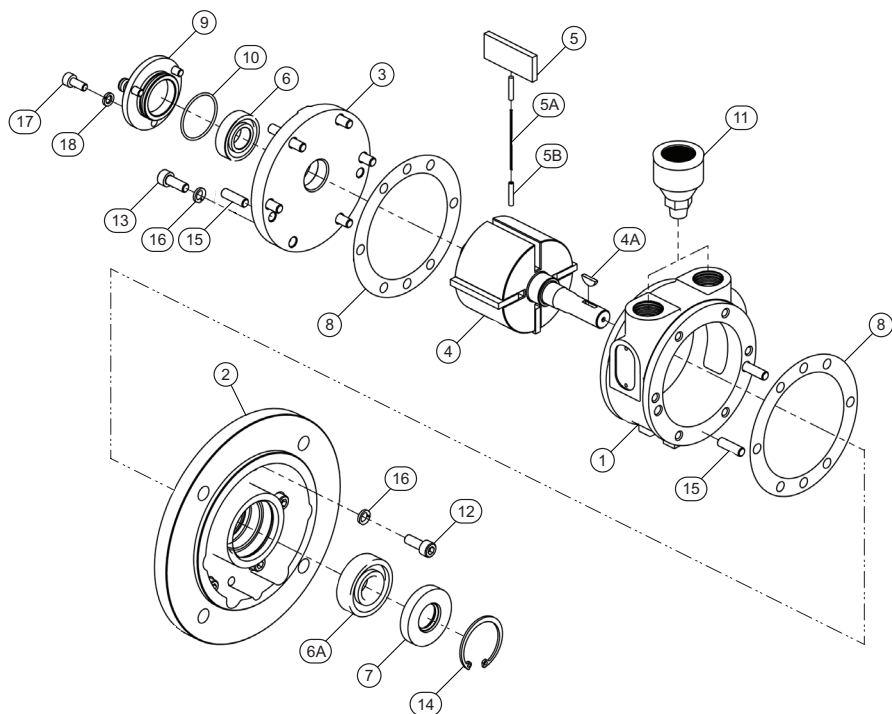
Model MRV015B5D71-A



(Dwg. 04614020-6)



MRV-A Series, Air Motor - Exploded View



(Dwg. 04614020-13)

MRV-A Series, Air Motor - Parts List

Item	Part Description	Part Number
1	Cylinder	**
2	Front End Plate	**
3	Rear End Plate	**
4	Rotor	**
4A	Drive Key	**
5	Vane (4 required)	See Service Kits
5A	Vane Spring (2 required)	**
5B	Vane Pin (4 required)	**
6	Rear Rotor Bearing	**
6A	Front Rotor Bearing	**
7	Rotor Shaft Seal	**
8	Gasket (2 required)	**
9	Rear End Cap	**
10	End Cap Gasket	**
11	Muffler Assembly	See Service Kits
12	Front End Plate Cap Screw (6 required)	**
13	Rear End Plate Cap Screw (6 required)	**
14	Internal Circlip	**
15	Solid Dowel Pin (4 required)	**
16	Washer (12 required)	**
17	Screw (3 required)	**
18	Washer (3 required)	**
*	Mounting Foot	See Service Kits
*	Mounting Flange	See Service Kits

* Indicates not illustrated.

** Parts not sold separately (only sold in complete Motor or Tune-Up Kit).

Equipment Options

Series	Furnished with Catalogue Models		Optional Accessories
	Mounting	Muffler	
MRV009A	2 Hole Face Mount	Supplied with Motor	MRV015A-AH634 Mounting Foot
	Flange with MRV009B5D71		
MRV009A-A	2 Hole Face Mount		MRV015A-AH634-A Mounting Foot
	Flange with MRV009B5D71-A		
MRV015A	2 Hole Face Mount		MRV015A-AH634 Mounting Foot
	Flange with MRV015B5D71		
MRV015A-A	2 Hole Face Mount		MRV015A-AH634-A Mounting Foot
	Flange with MRV015B5D71-A		
MRV040A	2 Hole Face Mount		MRV015A-AH634 Mounting Foot
	Flange with MRV040B5D71		
	Flange with MRV040B5D80		
MRV040A-A	2 Hole Face Mount		MRV015A-AH634-A Mounting Foot
	Flange with MRV040B5D71-A		
	Flange with MRV040B5D80-A		
MRV050A	2 Hole Face Mount		MRV050A-AH640 Mounting Foot
	Flange with MRV050B5D90		
MRV050A-A	2 Hole Face Mount		MRV050A-AH640-A Mounting Foot
	Flange with MRV050B5D90-A		

Service Kits

(includes illustrated parts 5, 6, 6A, 7, 8 and 10)

Model	Muffler Assembly	Mounting Foot	Vane Kit	Tune-up Kit
MRV009A	MRV015A-010-RP	MRV015A-AH634	SM2AMC-005	SM2AMAN-TK1
MRV009A-A	MRV015A-010-RP-A	-	SM2AMAN-005-A	SM2AMAN-TK1-A
MRV009B	MRV015A-010-RP	MRV015B-AH6353780	SM2AMC-005	SM2AMC-TK1
MRV009B-A	MRV015A-010-RP-A	-	SM2AMAN-005-A	SM2AMAN-TK1-A
MRV009B5D71	MRV015A-010-RP		SM2AMC-005	SM2AMC-TK1
MRV009B5D71-A	MRV015A-010-RP-A		SM2AMAN-005-A	SM2AMAN-TK1-A
MRV009C	MRV015A-010-RP	MRV015B-AH635	SM2AMC-005	SM2AMC-TK1
MRV009C-A	MRV015A-010-RP-A	-	SM2AMAN-005-A	SM2AMAN-TK1-A
MRV009F	MRV015A-010-RP	MRV015A-AH634	SM2AMC-005	SM2AMAN-TK1
MRV009F-A	MRV015A-010-RP-A	-	SM2AMAN-005-A	SM2AMAN-TK1-A
MRV015A	MRV015A-010-RP	MRV015A-AH634	SM4AMB-005	SM4AMAN-TK1
MRV015A-A	MRV015A-010-RP-A	-	SM4AMAN-005-A	SM4AMAN-TK1-A
MRV015B	MRV015A-010-RP	MRV015B-AH635	SM4AMB-005	SM4AMB-TK1
MRV015B-A	MRV015A-010-RP-A	-	SM4AMAN-005-A	SM4AMB-TK1-A
MRV015B5D71	MRV015A-010-RP		SM4AMB-005	SM4AMB-TK1
MRV015B5D71-A	MRV015A-010-RP-A		SM4AMAN-005-A	SM4AMB-TK1-A
MRV015FB	MRV015A-010-RP	MRV015FB-013	SM4AMB-005	SM4AMB-TK1
MRV015FB-A	MRV015A-010-RP-A	-	SM4AMAN-005-A	SM4AMB-TK1-A
MRV040A	MRV040A-010-RP	MRV015A-AH634	SM6AMA-005	SM6AMA-TK1
MRV040A-A	MRV040A-010-RP-A	-	SM6AMA-005-A	SM6AMA-TK1-A
MRV040B5D71	MRV040A-010-RP		SM6AMA-005	SM6AMA-TK1
MRV040B5D71-A	MRV040A-010-RP-A		SM6AMA-005-A	SM6AMA-TK1-A

MRV040B5D80	MRV040A-010-RP	-	SM6AMA-005	MRV040B5D80-TK1
MRV040B5D80-A	MRV040A-010-RP-A		SM6AMA-005-A	MRV040B5D80-TK1-A
MRV050A	MRV040A-010-RP	MRV050A-AH640	SM8AMA-005	SM8AMA-TK1
MRV050A-A	MRV040A-010-RP-A	-	SM8AMA-005-A	SM8AMA-TK1-A
MRV050B5D90	MRV040A-010-RP		SM8AMA-005	MRV050B5D90-TK1
MRV050B5D90-A	MRV040A-010-RP-A		SM8AMA-005-A	SM8AMA-TK1-A

Maintenance Section

NOTICE

If the motor operates sluggishly, flush it with a clean, non-toxic, nonflammable commercial solvent in a well ventilated area.

To Flush the Motor:

1. Disconnect the air line and muffler.
2. Pour 6 cc to 8 cc of solvent into each inlet.
3. Rotate the rotor shaft by hand in both directions several times to ensure all internal parts of motor are thoroughly cleaned.
4. Apply air pressure to the inlet and slowly increase the air flow until there is no trace of the solvent in the exhaust.
5. After flushing, shut off the air supply and disconnect air supply line.
6. Pour 6 cc to 8 cc of a high detergent **Ingersoll Rand# 10** motor oil into the air inlet.
7. Reconnect the air supply line, slowly increase the air pressure to ensure all internal parts of motor will be covered with a film of oil.
8. If the motor is still low in power, check for damaged vanes or foreign material in the vane slots in the rotor.

Vane Replacement

Note: Periodically, check the Vanes for wear. Always replace Vanes in sets, never replace an individual Vane.

Vanes life is dependant upon the speed of the motor, operating pressure, lubrication, and preventive maintenance. Periodically, you should check the Vanes for wear, and replace them if the width of the Vane is equal to or less than the replacement width shown below:

Model	Width of New Vane	Width of Replacement Vane
MRV009	3/4 inch (19.05 mm)	46.5/64 inch (18.45 mm)
MRV009-A	9.8/16 inch (15.45 mm)	9.3/16 inch (14.85 mm)
MRV015	3/4 inch (19.05 mm)	46.5/64 inch (18.45 mm)
MRV015-A	46.4/64 inch (18.41 mm)	45/64 inch (17.81 mm)
MRV040	13/16 inch (20.60 mm)	25/32 inch (19.80 mm)
MRV040-A	25/32 inch (19.80 mm)	24.2/32 inch (19.20 mm)
MRV050	29/32 inch (23.00 mm)	57/64 inch (22.60 mm)
MRV050-A	27.8/32 inch (22.00 mm)	27.2/32 inch (21.60 mm)

Always replace Vanes in sets. Never replace an individual Vane. Replace Vanes as follows:

1. Disconnect the air line at the Motor.
2. Unscrew and remove the Rear End Cap.
3. Unscrew and remove the Rear End Plate Cap Screws.
4. Using a puller, pull the Rear End Plate along with the Rear Rotor Bearing from the Motor.
5. Wipe each of the new Vanes to be installed with a thin film of light oil.
6. Orientate the Rotor with one open Vane slot facing down vertically in the Cylinder.
7. Insert Vane into slot with notch facing the center of the Rotor.
8. Rotate the Rotor 90 degrees and repeat the procedure.
9. Repeat the procedure with each Vane.

NOTICE

The use of other than genuine Ingersoll Rand replacement parts may result in decreased tool performance and increased maintenance, and may invalidate all warranties.



WARNING

- Always wear eye protection when operating or performing maintenance on this motor.
- Always turn OFF air supply and disconnect supply hose before installing, removing or adjusting any accessory on this motor, or before performing any maintenance on this motor.

Disassembly

General Instructions

1. Always disconnect the air line at the motor before attempting any disassembly.
2. Do not disassemble the motor any further than necessary to replace or repair damaged parts.
3. Do not withdraw the rotor from the cylinder unless it is absolutely necessary. Vanes can easily be replaced without withdrawing the rotor (refer to "Vane Replacement" section).
4. When grasping a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
5. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.

Note: After these motors were assembled at the factory, cylinder dowel alignment pins were pressed into the end plates and cylinder. During disassembly, these pins will usually remain with the cylinder. Do not remove them.