



ETREME INNOVATION

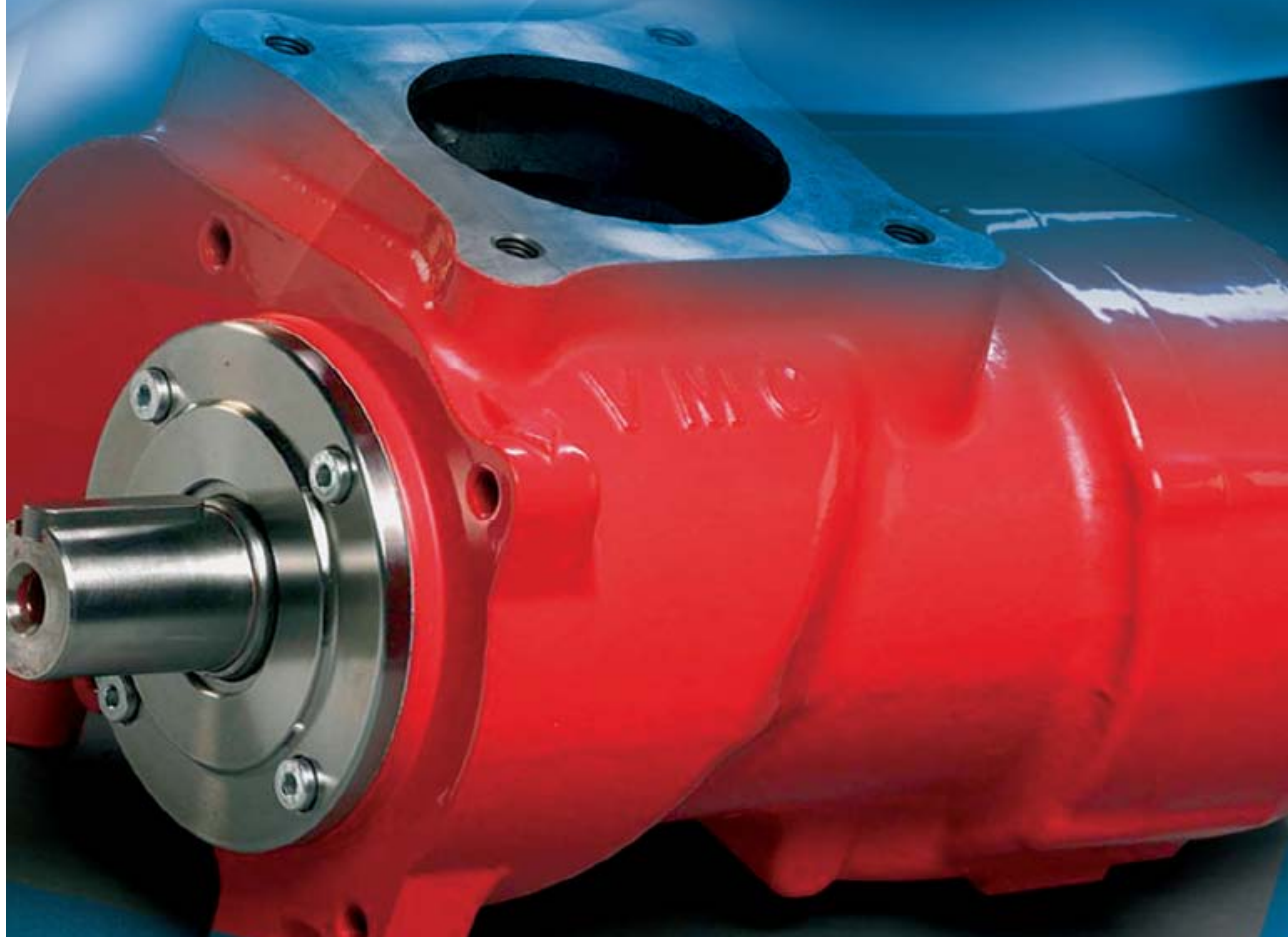


New products Training

4 April 2007

V - Serie

Oil Inject screw System



RB - Serie

Intake Regulators

NEW "RB" Intake Regulators

Models



RB60

RB80

RB90

RB115

RB140

RB200



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NEW "RB" Intake Regulator



Cross-reference

POWER (kW)	NEW	OLD
18,5	RB60	R40
22	RB60	R40
30	RB60	R40
37	RB60	R90
45	RB80	R90
55	RB80	R90
75	RB80	RH100
90	RB90	RH180
110	RB115	RH250
132	RB115	RH250
160	RB115	RH250
180	RB140	RH350
220	RB140	RH350
250	RB200	RH600
315	RB200	RH600
350	RB200	RH600



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NEW "RB" Intake Regulator

Version



- *NR* > *No Return (check valve)*
- *E* > *On/off*
- *P* > *Proportional (Stationary)*
- *PM* > *Proportional (mobile)*

NEW "RB" Intake Regulator

Injection Air



The new RB series has been designed without the INJECTION SYSTEM "I" as well the OLD "R" & "RH" models.

To reduce the noise during idling phase the RB has a big INLET holes which can be adjust by a screw as well described forward.

By open/close the above screw the customer decide how much air get into the air-ends.



NEW "RB" Intake Regulator

Sells Argument



SIMPLY

Only one solenoid valve & one control block for all the type. Fast changing by On/Off to Proportional system. Air injection adjustment for all needs. Only one Servo cylinder for all the type.

HIGH RELIABILITY

Few components. Only one piston inside the control block made by stainless steel. No rubber membrane inside the servo cylinder. Galvanized cover system to avoid rust inside the control block during pistons movements.

HIGH DURABILITY

Few moving components. Soft impacts against the parts which means less stress, forces and stenght. Few gaskets and O-rings to increase the lifetime.

MAINTENANCE

Thanks to few parts and less o-rings inside we suggest a Preventive maintenance time not over than 8000hour under standard working condition. (DIN ISO 8573-1, class 5.6.5)

PERFORMANCE

Vertical position of the batterfly throttle when complete open. Airflow studied by a Flowdynamic software. Laminar air flow inside. Large outlet hole and Naca profile. All that mean low pressure drop.

SAVING

The same control block for all the type. Long preventive maintenance. Few spare parts kit and the same for all the types.



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RB60 RB80

- Normally Close
- Butterfly controlling
- Type:
NR - E - P - PM
- one solenoid valve
- Voltage: 24, 110, 230
AC - DC
- Working pressure:
up to 16Bar
- Weight: 2,2- 3Kg
- Housing in Aluminium
- Sealings in Viton
- NO servo cylinder



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RB60

Technical Details

- 22-37Kw
- Normally Close
- Dn 60mm
- De 70mm
- check valve for oil safety
- three flange dimension:

A	Ø 110 -135 (4 Holes 12.5mm)
B	Ø 129 -150 (4 Holes 12.5mm)
C	Ø 150 (4 Holes 16mm)



ETREME INNOVATION



RB80

Technical Details

- 45-75Kw
- Normally Close
- Dn 80mm
- De 100mm
- check valve for oil safety
- three flange dimension:

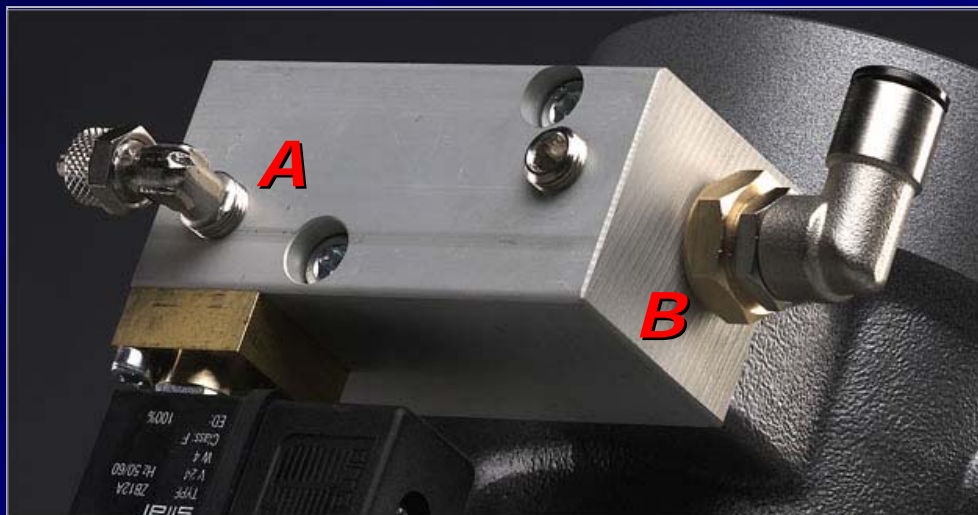
A

Ø 160 -180
(4 Holes 17mm)



RB60-RB80

On/Off System



Connection to the separator Tank

A. $\varnothing 6 \times 4$

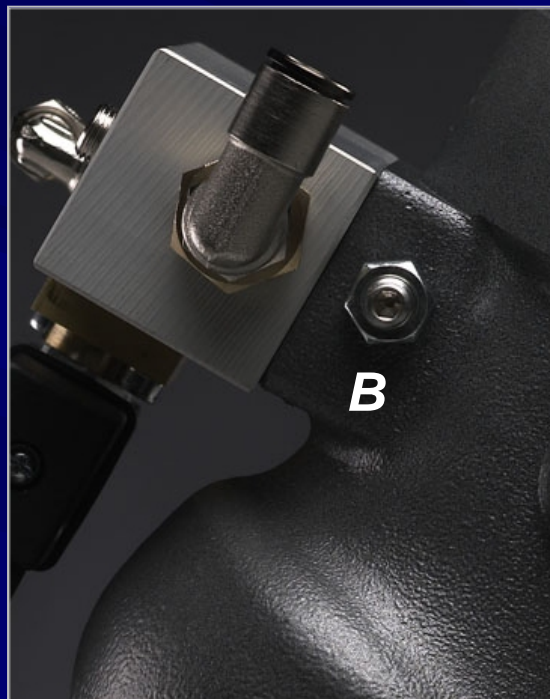
B. $\varnothing 10 \times 8$

 **ATTENTION**

*Please use the T junction to the separator tank
And not on the control block*

RB60-RB80

On/Off Adjustment



Adjustment of the OUTLET air quantity

During the idling conditions it is possible to adjust the venting time and consequently the minimum pressure, through the adjusting screw (B).

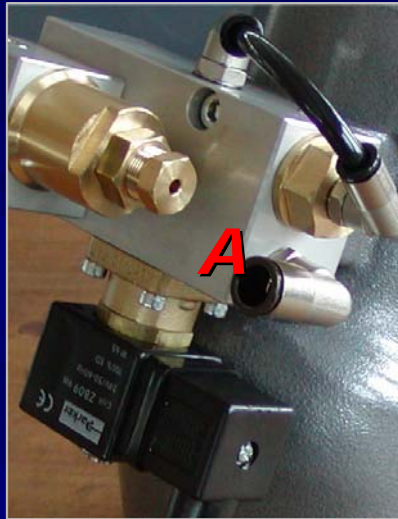
ADJUST. SCREW	OPERATION		MINIMUM PRESSURE		VENTING TIME	
	B	Unscrew	↺	Decrease	↓	Decrease
Screw		↻	Increase	↑	Increase	↑

ATTENTION

The two functions (venting time and minimum pressure) are correlated. The variation of one influences the other. (see the below scheme)

RB60-RB80

P System



Connection to the separator Tank

A. Ø 10x8

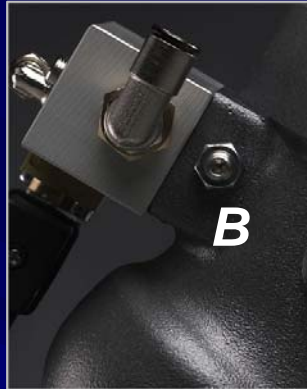


ATTENTION

*Please use the T junction to the separator tank
And not on the control block*

RB60-RB80

Proportional Adjustment



Venting time Adjustment

During the idling conditions it is possible to adjust the venting time through the adjusting screw (B). The adjustment of the venting time it isn't influential on working pressure of intake valve

Working pressure adjustment

Adjust the stop nut (F2) and the pressure control screw (F). Found the right pressure, you be care to screw ∪ the stop nut (f2) to fix the right pressure . For more information read the operating instructions.



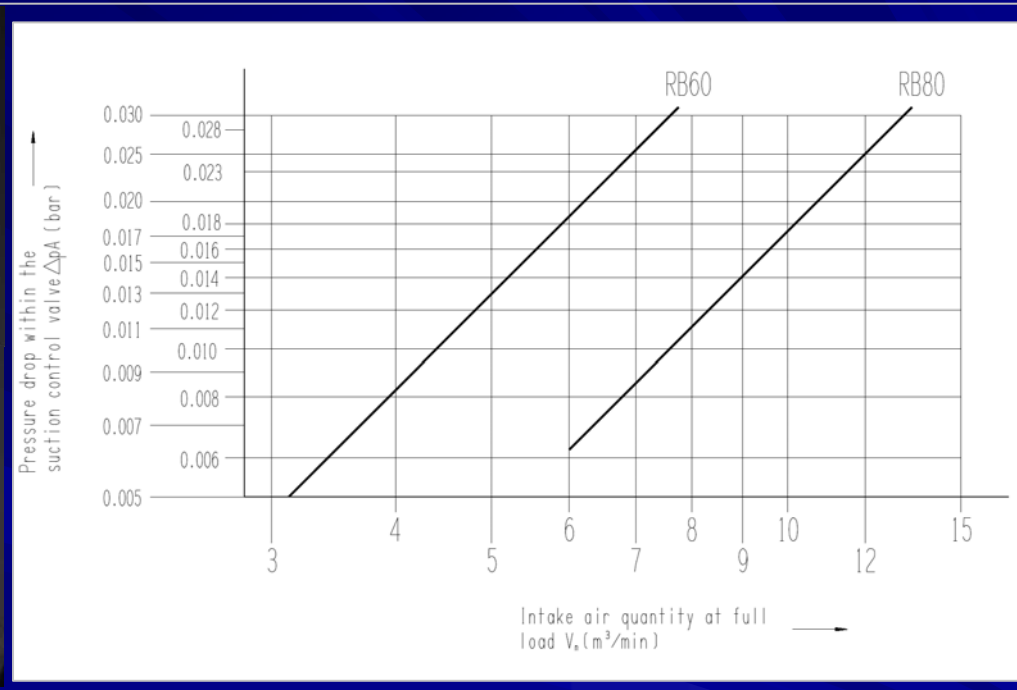
ADJUSTING SCREW	OPERATION	MINIMUM PRESSURE		VENTING TIME		WORKING PRESSURE	
B	Unscrew	∪	Decrease	↓	Decrease	↓	
	Screw	∩	Increase	↑	Increase	↑	
F	Screw	∪				Increase	↑
	Unscrew	∩				Decrease	↓

ATTENTION

The two functions (venting time and minimum pressure) are correlated. The variation of one influences the other. (see the below scheme)

RB60-RB80

Performance



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RB60-RB80

Maintenance

- the same Control block
- Preventive maintenance: 8000 hours calculated under STANDARD running condition
- warranty period: 12 months + 3 in case of long freightime
- fast replacment by "E" to "P" system
- Few components. One code

	Model	
Version	RB60	RB80
E	620.0160	620.0360
P	620.2160	620.2360
PM	670.0160	670.0360

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RB90 –RB115 – RB140 – RB200

- Normally Close
- Butterfly controls
- Type: NR - E – P - PM
- one solenoid valve
- Voltage: 24, 110, 230 AC - DC
- Working pressure: up to 16Bar
- Housing in Aluminium
- Sealings in Viton



ETREME INNOVATION



RB90 –RB115 – RB140 – RB200

SERVO CYLINDER

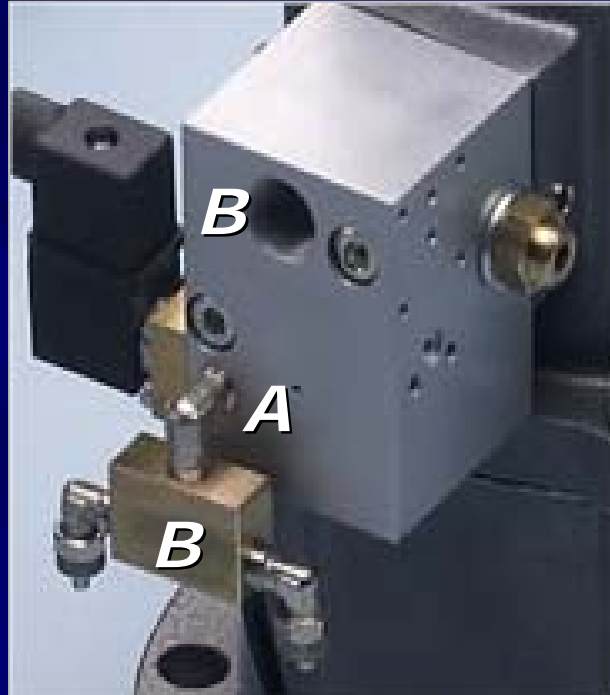
By several years VMC is manufacturing SERVO Cylinders for MOBILE COMPRESSORS application. We used our yearly experience to design the same technology for the NEW RB series.

- **Galvanized coating** system inside for less wearing parts of piston sealing;
- **NO Rubber membrane** inside but a standard "DE" sealing which guarantee a long life and realibility;
- PTFE + Carbon Seal to ensure the piston alignment during the up-down moving.



RB90 – 115 – 140 – 200

*E - Type
Connection*



Connection to the separator Tank

A. Ø 6x4

B. Ø 6x4

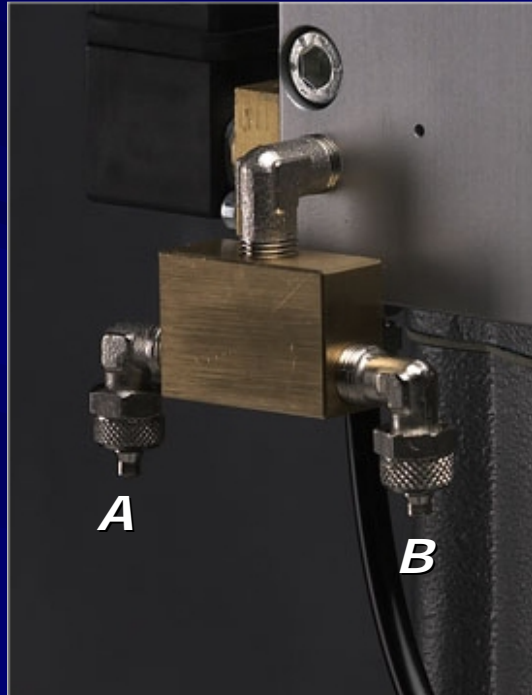
C. Optional (see forward)

 **ATTENTION**

*The two functions (venting time and minimum pressure) are correlated.
The variation of one influences the other. (see the below scheme)*

RB90 – 115 – 140 - 200

OPTIONAL



SELECTING VALVE

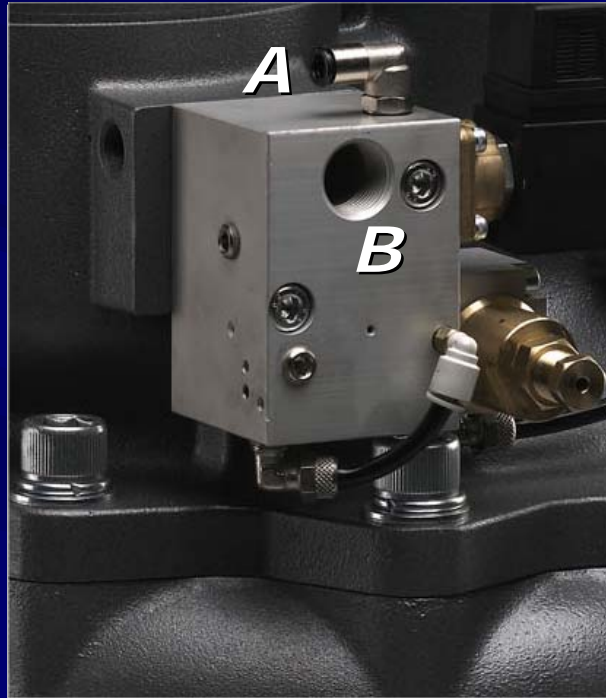
For using the Intake valve in according to DIN ISO 8576-1 class 5.6.5 is recommended to get air from the LINE. This allow better performance and long life time of the inner parts and sealings.

Connections:

- A. to rhe separator tank
- B. to the line. After the Water trap.

RB90 – 115 – 140 – 200

*P - Type
Connection*



Connection to the separator Tank

A. Ø 6x4

B. Ø 12x10

 **ATTENTION**

*The two functions (venting time and minimum pressure) are correlated.
The variation of one influences the other. (see the below scheme)*



ETREME INNOVATION

RB90 –RB115 – RB140 – RB200

Adjustment of the **INLET** air quantity (ON/OFF)

During the idling conditions it is possible to adjust the air capacity inject in air-end, through the adjusting screw (J)



Adjustment of the **OUTLET** air quantity (ON/OFF)

During the idling conditions it is possible to adjust the venting time, through the adjusting screw (B)

ADJUS. SCREW	OPERATION		MINIMUM PRESSURE		VENTING TIME	
J	Unscrew	↺	Increase	↑	Increase	↑
	Screw	↻	Decrease	↓	Decrease	↓
B	Unscrew	↺	Decrease	↓	Decrease	↓
	Screw	↻	Increase	↑	Increase	↑

⚠ ATTENTION:

The two functions (venting time and minimum pressure) are correlated. The variation of one influences the other. (see the below scheme)



RB90

Technical data



- 90Kw
- Normally Close
- Dn 90mm
- De 100mm
- check valve for oil safety
- three flange dimension:

A	Ø 160 -180 (4 Holes D=17mm)
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RB115

Technical data



- 110 - 160Kw
- Normally Close
- Dn 115mm
- De 150mm
- check valve for oil safety
- three flange dimension:

A	Ø 225 (8 Holes D=17mm)
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RB140

Technical data



- 180 - 220Kw
- Normally Close
- Dn 140mm
- De 150mm
- check valve for oil safety
- three flange dimension:

A	Ø 295 (12 Holes D= 21mm)
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RB200

Technical data

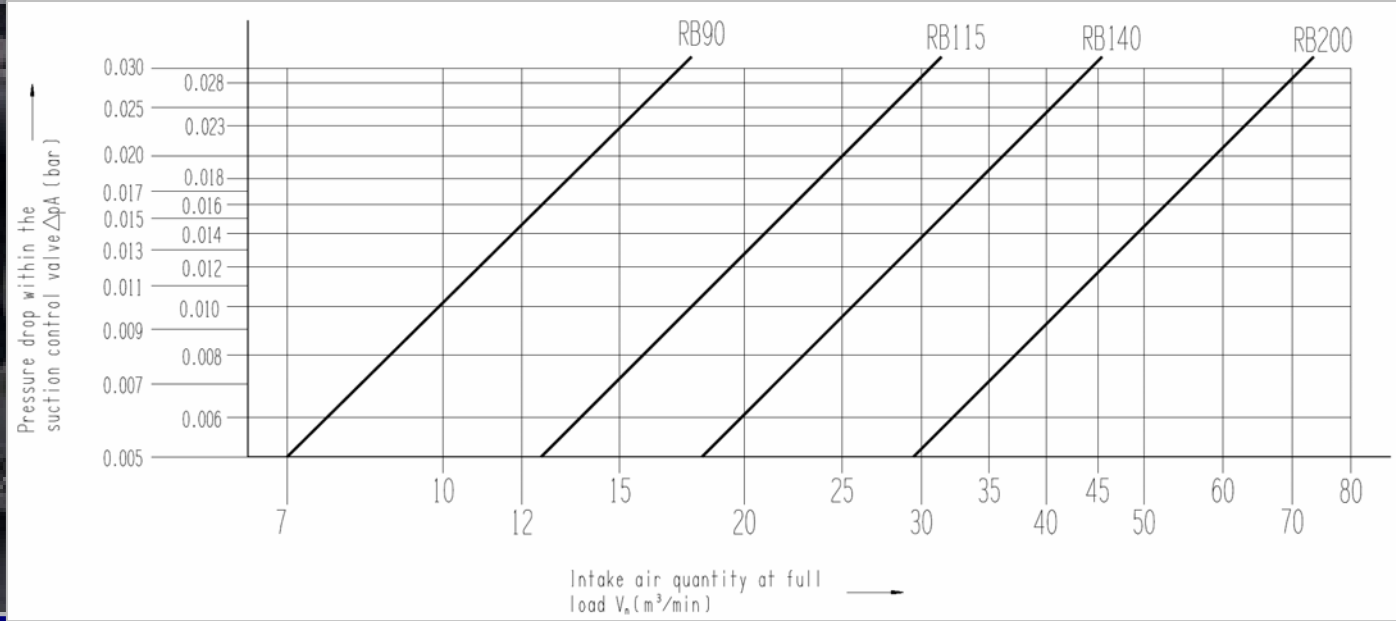


- 250 - 350Kw
- Normally Close
- Dn 2 x 140mm
- Dn 2 x 150mm
- check valve for oil safety
- three flange dimension:

A	Ø 410 (12 Holes D= 25mm)
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RB - 90-115-140-200

Performance



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RB - 90-115-140-200

Maintenance



- the same Control block for aqll the types
- Preventive maintenance: 8000 hours calculated under STANDARD running condition
- warranty period: 12 months + 3 in case of long freightime
- fast replacment by "E" to "P" system
- Few components. One code

VERSION	MODEL			
	RB90	RB115	RB140	RB200
E	620.0560			
P	620.2560			
PM	670.0560			



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Oil Inject Screw "V" Series

models

Model	Kw
V60	2,2 to 7,5
V90	11 to 22
V110	30 to 37
V150	45 to 75

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V - 60 - 90 - 110 - 150

Highlights



Profile

Planned to offer maximum performance, efficiency and duration. It guarantees high airflow with a minimum energy consumption. Rotors are first roughed and then grinded. Least tolerances, high precision and best performances are therefore guaranteed, even in extreme conditions.

Bearings

Radial and thrust bearings are created to be lasting. Only first quality bearings are used.

Frontal sealings

No oil loss thanks to excellent materials and suitable dimension. Accessibility for a simple and fast replacement.

Applications

For belt and direct connection. Gear box available only for V60.

Assembly

Body parts are joined with O-rings, so the maintenance is easy, fast and reliable. No glues used to join parts

Rotor adjustment

Threaded rings are used to adjust rotors during the assembly phases. In this way, maintenance phases are very fast, reliable and repeatable.



ETREME INNOVATION



V - 60 - 90 - 110 - 150

Technical data



Rotor

Type: N CITY 4-5 (City London University)

Lobes: 4/5

L/d 1,55

Drive: male

Bearings

Model	Q.ty	Brand	Type
V60	6	SKF	4 roller+ 2 thrust oblique ball bearing
V90	6		3 roller+ 1 needle roller + 2 thrust oblique ball bearing
V110	7		3 roller+ 1 needle roller + 3 thrust oblique ball bearing
V150	7		3 roller + 1 needle roller + 3 thrust oblique ball bearing

ATTENTION:

- TAMROTOR has the same bearings configuration than VMC
- TMC is using needle rolling bearing (INA) and ball bearing
- V90 has the same bearing of the GHH-OS70 but its smaller than the OS70
It mean the V90 has been dimensioned much better. For this reason we offer up to 22Kw

V 60

LC44



LC44 Bearings

The small size of GHH air-end are using less bearings than V60. This is important to compare the competitors.

Model	Q.ty	Type
LC44	4	2 ball bearing + 2 thrust oblique ball bearing

O-RINGS

V60 use the O-ring to assembly the components instead of LC44 and OS70 which are connected by glue. For that reason the customer have to know the difference During the maintenance by the V60.

THREADED RINGS

OS44 & OS70 have no threaded rings, on rear side, as well all the VMC models. This is a big problem to adjust the rotors tolerances during assembling or maintenance operations. GHH is using an easily interference system which could be changed tolerance during standard running because of TEMPERATURE, VIBRATION or WEARED components.



ETREME INNOVATION



V - 60 - 90 - 110 - 150

Technical data



Front seal made by Simrit (Freunderberg) - GERMANY

Model	Type
V60	VITON (double lip)
V90	PTFE + Carbon
V110	PTFE + Carbon
V150	PTFE + Carbon

 **ATTENTION:**

- GHH offer three sealing lips and a special return path. This system, even though it seems much better, doesn't offer high performance because they are going to wear in the same time. In fact they are connected to the same shaft. It means that there is no difference with the VMC system
- TAMROTOR and TMC are using the PTFE system

V - 60 - 90 - 110 - 150

Technical data



Lubricant

We suggest to use high quality lubricants either mineral or synthetic

Model	Type
V60	Mineral or Synthetic OIL
V90	
V110	
V150	

VMC recommends using hydraulic oils with additives for the oxidation reducing, foaming formation, emulsion. It must have a low pour point and high flash point. Besides the mineral oils often used, synthetic lubricant can also be employed. The recommendations of the following table are valid depending on the injection temperatures:

Injection temperature °C	Up to 50	Up to 60	Up to 70
ISO viscosity class	VG 32	VG 46	VG 68
Viscosity at 40°C mm ² /s	28.8-35.2	41.4-50.6	61.2-74.8



ATTENTION:

- OS44 use self-lubricating bearing that mean could be incompatible, in a long time, with compressors lubricants. This is a limitation of OS44.

V - 60 - 90 - 110 - 150

Technical data



Maintenance

VMC hold in stock all the spare parts and main components to meet all the demand and requirements. We tested several samples under extraordinarily conditions to understand the wearing condition of the main parts. Working time can be modified in function of work environment and number of cycles.

Model	Bearings
V60	10000
V90	20000
V110	20000
V150	20000

Warranty period: 24months



ATTENTION:

OS44 & OS70 have no threaded rings, on rear side, as well all the VMC models. This is a big problem to adjust the rotors tolerances during assembling or maintenance operations. GHH is using an easily interference system which could be changed tolerance during standard running because of TEMPERATURE, VIBRATION or WEARED components.



ETREME INNOVATION



V - 60 - 90 - 110 - 150

Technical data



Strict Tests for Winning products

VMC strictly tests every single oil inject screws and attaches its tests to each part number. VMC guarantees a practical, functional and lasting product.

- test stands for each models, planned to detect all the functional parameters;
- dedicated software for the analysis of the data detected during the testing
- instruments which detect noise during all the functioning conditions
- test report for each products

Noise

It depends by the RPM & Pressure which the Screw Air-end is running. We can assurance an excellent noise level by using the best components and high precision assembly operation.



**ISO 3744
(CAGI Pneurop PN&NTC2.3)**



ETREME INNOVATION



V 60 Compressed Air for public means of transport



The compressors assembled in means of transport such as trains, buses and undergrounds need compact, efficient, clean and silent system. VMC offers the Pack Smart, joined to the V60 oil inject screw. An incredible solution to guarantee an abundant compressed air supplying and a perfect functioning of:

- BRAKES
- AUTOMATIC DOORS
- SUSPENSIONS AND CAMBER
- WINDSCREEN WIPERS
- DRIVER SEAT

The Pack Smart integrated system and V60 oil inject screw are created in the VMC R&d division. It satisfies all the Mass transit authorities requisites regarding:

- CLEANING
- SILENCE
- RELIABILITY
- ENERGY CONSERVATION
- SAFETY

The Pack Smart integrated system and V60 oil inject screw can Be easily integrated to the existing machine and the VMC engineers are always available to help you during the integration Phases.



ETREME INNOVATION



Integrated Air-end “V-VTDM”

Models



V90/VTDM



V110/VTDM



V150/VTDM

V90/VTDM

Technical details

Size		V90/VTDM
Air Rate Flow	m ³ /1'	see diagram of V90
Working Pressure	Bar	see diagram of V90
Oil Rate Flow	Lt/1'	max 40
Oil Inlet/Outlet	Inch	3/4 Gas
Air outlet (From Air-end)	Inch	1"1/2 Gas
Air Inlet (From Tank)	Inch	1"1/4 Gas
Air outlet (From MPV)	Inch	1"1/4 Gas
Oil nipples Size		3/4 16 UNF
		3/4 Gas
		1-12 UNF
Air nipples Size		M 24x1,5
		M 32x1,5
		M 39x1,5
Thermostat Temp. Setting	°C	Three thermostat available: 55-70; 71-85 or 83-95
Materials		Unit's housing made in Aluminium alloy anodized. Internal parts in Brass, stainless steel and Viton sealings.



ETREME INNOVATION



Integrated Air-end “V90/VTDM”

Connections



1. Nipple for Air separator filter
2. Nipple for Oil filter
3. Minimum Pressure Valve
4. Thermostatic valve
5. In/Out connection to the cooler
6. Air Outlet after the MPV
7. Air/Oil inlet from the separator tank
8. Intake valve air control signal (manometer)
9. Oil from the separator tank
10. Oil recovery viewer connection (OPTIONAL)
11. Air-Oil OUTLET to the separator tank

V110/VTDM

Technical details

Size		V110/VTDM
Air Rate Flow	m ³ /1'	see diagram of V110
Working Pressure	Bar	see diagram of V110
Oil Rate Flow	Lt/1'	max 80
Oil Inlet/Outlet	Inch	3/4 Gas
Air outlet (From Air-end)	Inch	1"1/2 Gas
Air Inlet (From Tank)	Inch	1"1/4 Gas
Air outlet (From MPV)	Inch	1"1/4 Gas
Oil nipples Size		1-12 UNF
Air nipples Size		M 32x1,5
		M 39x1,5
Thermostat Temp. Setting	°C	Three thermostat available: 55-70; 71-85 or 83-95
Materials		Unit's housing made in Aluminium alloy anodized. Internal parts in Brass, stainless steel and Viton sealings.



ETREME INNOVATION



Integrated Air-end “V110/VTDM”

Connections



1. Nipple for Air separator filter
2. Nipple for Oil filter
3. Minimum Pressure Valve
4. Thermostatic valve
5. In/Out connection to the cooler
6. Air Outlet after the MPV
7. Air/Oil inlet from the separator tank
8. Intake valve air control signal
9. Oil from the separator tank
10. Oil recovery viewer connection (OPTIONAL)
11. Air-Oil OUTLET to the separator tank

V150/VTDM

Technical details

Size	V150/VTDM	
Air Rate Flow	m ³ /1'	see diagram of V150
Working Pressure	Bar	see diagram of V150
Oil Rate Flow	Lt/1'	max 110
Oil Inlet/Outlet	Inch	1"1/4 GAS
Air outlet (From Air-end)	Inch	Ø 70
Air Inlet (From Tank)	Inch	2" Gas
Air outlet (From MPV)	Inch	1"1/2 Gas
Oil nipples Size		1"1/2 16UN
		1"1/4 GAS
Air nipples Size		2 x M32x1,5
		2 x M39x1,5
Thermostat Temp. Setting	°C	Three thermostat available: 55-70; 71-85 or 83-95
Materials		Unit's housing made in Aluminium alloy anodized. Internal parts in Brass, stainless steel and Viton sealings.



ETREME INNOVATION



Integrated Air-end “V150/VTDM”

Connections



1. Nipple for Air separator filter
2. Nipple for Oil filter
3. Minimum Pressure Valve
4. Thermostatic valve
5. In/Out connection to the cooler
6. Air Outlet after the MPV
7. Air/Oil inlet from the separator tank
8. Intake valve air control signal
9. Oil from the separator tank
10. Oil recovery viewer connection (OPTIONAL)
11. Air-Oil OUTLET to the separator tank

Integrated Air-end “V-VTDM”

Highlights



- **Compact design for small compressors**
all the main components assembled, tested & ready to install. Less connections, less operations and short assembly time.
- **High performance**
short and less piping means less pressure drop and cost savings.
- **High accessibility during maintenance phases**
all the components (Minim pressure valve-Thermostatic valve – filters) are located in the right position for fast and easy replacing.
- **Logistics**
integrated air-ends offer an only one referent, management, supplying, transport and assistance phases
- **Strict test**
all the valves are strictly tested before joined together



The integrated Air-end “V-VTDM” can be connect to the separator tank, either vertical or horizontal position, which don't need the flange above but should be close as a standard tank.



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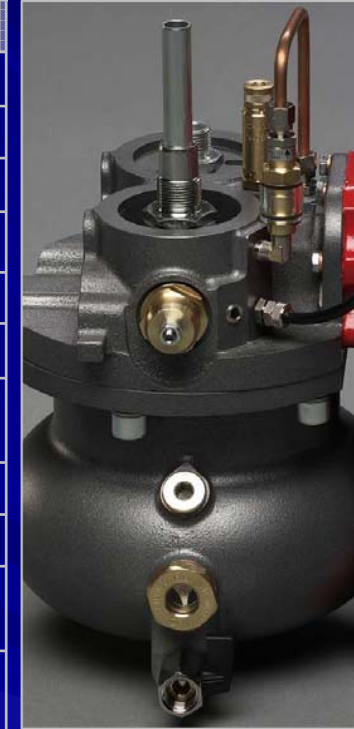


Pack Smart



Technical details

Size		Pack Smart/D	Pack Smart/B	Pack Smart/G
Power	Kw	from 2,2 to 3	from 4 to 7,5	from 4 to 7,5
Drive		Direct	Belt	Gear
Air Rate Flow	m ³ /1'	see diagram of V60		
Working Press	Bar	see diagram of V60		
Oil Rate Flow	Lt/1'	12.5 max	15 max	15 max
Oil Inlet/Outlet	Inch	3/8" Gas	3/8" Gas	3/8" Gas
Air outlet (From MPV)	Inch	1/2" Gas	1/2" Gas	1/2" Gas
Oil nipples Size		3/4" 16 UN	3/4" 16 UN	3/4" 16 UN
Air nipples Size		M22 x 1.5	M22 x 1.5	M22 x 1.5
Thermostat Temp. Setting	°C	Three thermostat available: 55-70; 71-85 or 83-95		
Materials		Housing in Aluminium alloy anodized. Internal parts in Brass and Viton sealings.		



ETREME INNOVATION



Pack Smart



Highlights

Reduced vibrations & Silent operations

High efficiency screw. Patented shape for superior performance

Superior reliability

Top quality internal components to improve reliability in the long run

Energy savings

Lower energy consumption compared with a comparable piston compressor. Less loss in capacity of the machine system

Industrial technology

The system can operate 24 hours a day. Stop with intermittent air for the lower voltages.

Versatility

Designed to be installed and used

Compact design

All components assembled in a short area to allow SMALL machine up to 7,5Kw



ETREME INNOVATION





SCREW

top quality components and ultra modern process technology ensures maximum quality, reliability and performance in the long run.

INTAKE ADJUSTMENT

Available by request in the ON/OFF version or non-return version.

MINIMUM PRESSURE VALVE

Internal components in stainless steel, viton seals, incorporated check-valve Adjustment of the opening pressure

THERMOSTATIC VALVE

Simple and reliable with total filtration. Different temperature range thermostats are available

OIL RECOVERY VIEWER

complete with calibrated nozzle, transparent surface for immediate control of correct operations and check-valve

SAFETY VALVE

CE certified, available for various operating pressures

SEPARATOR TANK

tested for operating pressures of up to 15 bars with certification enclosed. Complete with filling plug, drainage tap and oil level window



ETREME INNOVATION





The reasons behind the choice

- Constant research activity to anticipate the solutions for the future
- Avant-garde technology
- Flexible solutions
- Excellent service
- Maximum safety and strict testing and controls
- Constant and careful assistance
- Capillary presence worldwide