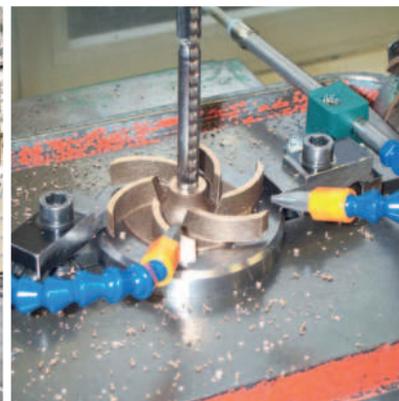


# SKF VectoLub

External minimal quantity lubrication systems



# SKF VectoLub minimal quantity lubrication system

The SKF minimal quantity lubrication (MQL) system offers a clean and inexpensive alternative solution for projecting oil in minimal quantities. It allows the projection of oil, with a viscosity of 10 to 400 mm<sup>2</sup>/s, in very small quantities, from 3 to 90 mm<sup>3</sup>/stroke.

## SKF VectoLub Technology

SKF VectoLub technology has already been proven for many years. It is based on a combination between very small doses of oil (3 to 90 mm<sup>3</sup>), powered by pneumatically actuated volumetric micro-pumps, and a flow of pressurised air called "carrier air".

The oil and the air are routed in parallel through a coaxial hose to a bifluid spray nozzle. The air, which becomes turbulent in the nozzle, breaks down the dose of oil at the nozzle outlet into very small microdroplets (200 to 600 µm), and transports them to the lubrication point to form a very homogeneous oil film without formation of oil mist.

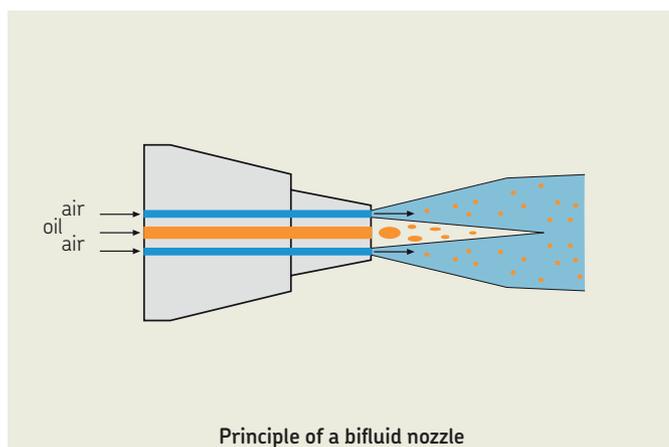
This technology helps to optimise lubrication efficiency, reduce oil consumption, and maintain the health and safety of workstations.

## Applications

- Application of lubricant during metal deformation operations: stamping, cutting, punching, stretching, bending, etc.
- Lubrication of conveyor belts and drive belts.
- Lubrication of cutting tools: sawing, drilling, tapping, milling, etc.
- Lubricant applied to components before assembly.
- Coating to protect parts and profiles.

## Benefits

- Applicator does not wear out, nor does it become polluted as the lubricant is applied without contact.
- Modular and customisable system.
- Saving on oil due to precise adjustment of the flow rate.
- Enhanced health and safety at the workstation, absence of mist and pollution of the ambient air.
- Easy to install. All external connections are made with quick connect fittings.



# One system, two product ranges

## VTEC Unit

Modular MQL unit that can have up to eight outlets

- **Modularity.** Its modular construction allows the VTEC unit to be perfectly adapted to the application
- **Scalability.** It is possible at any time to add, or even change different modules
- **Versatility.** A single VTEC unit can lubricate a variety of separate applications
- **Safety.** Each outlet can be controlled and monitored independently



## VE1B Unit

Compact MQL unit that can have up to four outlets

- **Savings.** A less expensive alternative to the VTEC system
- **Size.** Compact unit and small size for installing as close to the application as possible
- **Simplicity.** A single control setting for all micropumps
- **Kit.** The VE1B can be sold in kit form (unit, reservoir, hoses and nozzles)



### Technical comparison of VTEC and VE1B units

Description	VTEC	VE1B
Number of outlets	1 to 8	1 to 4
Construction	modular	compact
Number of circuits possible	3	1
For powering all types of nozzles	yes	yes
Coaxial outlets – quick connect fittings	yes	yes
Individual adjustment of carrier air flow rate	yes	yes
Reservoir (oil supplied by gravity)	external	integrated 0.3 l or external
Possible options/variants		
8 models of micropumps <sup>1)</sup>	yes	yes
Different models of micropumps on unit <sup>2)</sup>	yes	no
Air inlet pressure gauge	yes	no
Air outlet pressure gauge	yes	no
Air outlet pressure switch	yes	no
Solenoid valve instead of pneumatic frequency generator	yes	yes
Separate micropump air/carrier air control	yes	no
Special features, additional outlets or circuits	yes <sup>3)</sup>	no

1) Nozzles indicated in the instruction manual

2) Micropumps indicated in the instruction manual

3) According to the feasibility study by the SKF Service Centre

# Description of VectoLub components

## General air solenoid valve (VTEC)

- Air supply to unit control:
  - Control air for micropumps and
  - Carrier air
- Controls the air for all slave modules (not equipped with general air solenoid valve) downstream
- Solenoid valve only available for the VTEC range
- It is fitted to a special base, index I (→ **page 15**)

## Control air solenoid valve (VTEC/VE1B)

- Used alone:
  - Controls the micropump control air and thus the micropump beat frequency
- Used with a pneumatic frequency generator:
  - Controls the micropump control air
  - The micropump beat frequency is managed by the pneumatic frequency generator
- Solenoid valve available for the VTEC range
  - Used alone, base C (→ **page 14**)
  - Used with pneumatic frequency generator, base D (→ **page 15**)
  - Controls the air for all slave modules (not equipped with solenoid valve) downstream
- Solenoid valve available for the VE1B range

## Pneumatic frequency generator (VTEC/VE1B)

- Controls the micropump beat frequency
  - Setting by steps: 3 strokes/s; 1 stroke/s; 1 stroke/2 s; 1 stroke/3 s; 1 stroke/4 s; 1 stroke/7 s and 1 stroke/10 s
- Generator available for the VTEC range
  - Used alone, bases B (→ **page 14**)
  - Used with solenoid valve, bases D (→ **page 14 and 15**)
  - Controls the frequency for all slave modules (not equipped with generator) downstream
- Generator available for the VE1B range

## Air pressure switch (VTEC)

- Controls the minimum pneumatic pressure necessary for the correct operation of the unit
- Only available for the VTEC range
  - Used on base with general air solenoid valve (base I), the pressure switch is set at 5 bar and controls the general air pressure
  - Used on all the other bases, the pressure switch is set at 0.3 bar and controls the carrier air pressure

## Air pressure gauge (VTEC)

- Indicates the pneumatic pressure. A minimum pneumatic pressure is required for the correct operation of the system.

## Micropump (VTEC/VE1B)

The micropump is the main element of the SKF VectoLub system. It supplies oil to the lubrication points.

To select the micropump, three criteria should be taken into account:

- The flow rate
- The setting mode
- The material of the micropump

### The flow rate

Two flow rates are available:

- **low flow rates:** 3 to 30 mm<sup>3</sup>/stroke (adjustment by metering rings) or 10 to 30 mm<sup>3</sup>/stroke (adjustment by thumbwheel)
- **high flow rates:** 30 to 90 mm<sup>3</sup>/stroke (adjustment by rings or thumbwheel)

The flow rate is given in mm<sup>3</sup> per stroke; the final flow rate, necessary for the application, will depend on the beat frequency of the micropump.

### The setting mode

- **Adjustment thumbwheel:** for low flow rates, a full turn of the thumbwheel corresponds to a variation in flow rate of 5 mm<sup>3</sup>/stroke; for high flow rates 15 mm<sup>3</sup>/stroke. It is possible to block the flow at zero. The minimum flow rate is guaranteed with two turns of the thumbwheel for low flow rates and for high flow rates.
- **Metering rings:** six rings for the low flow rates (0/3/5/10/15/20) and four rings for the high flow rates (0/30/45/60). To obtain the maximum flow rate from each pump, simply do not fit the adjustment ring.

### The material of the micropump

Depending on environmental conditions, the material of the micropump may be important. The micropumps are available in either stainless steel (body) and brass (components) or only in stainless steel.

Micropump, adjustment by thumbwheel



Micropump, adjustment by ring



# VTEC Unit

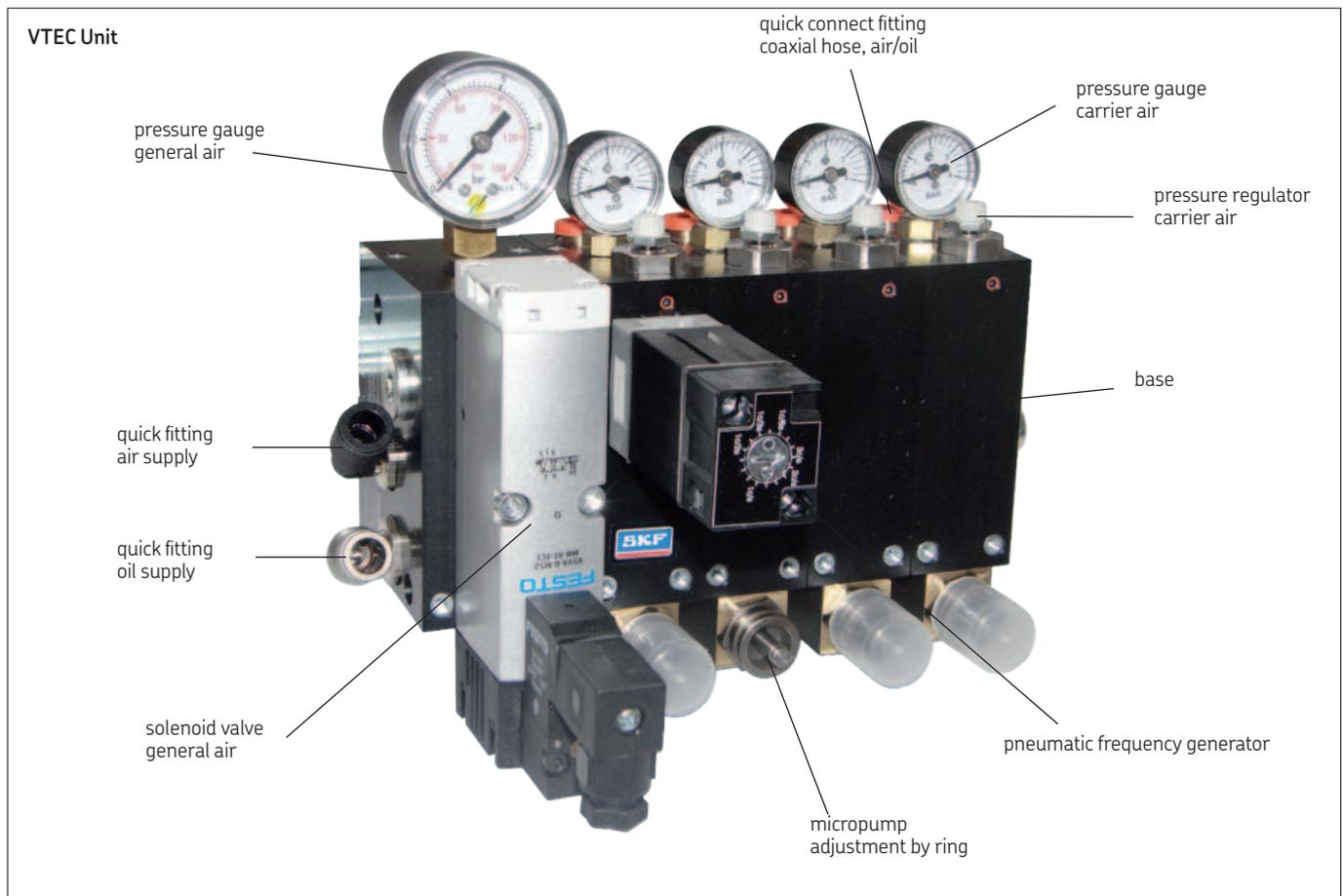
## Description

The VTEC unit is a modular unit. It is made up of one to eight different modules. Each module allows lubrication of a lubrication point using a micropump.

The VTEC unit can jointly or independently control and monitor the lubrication of several lubrication points. The user can therefore manage different independent lubrication circuits with a single unit.

The modular nature of the VTEC unit makes it possible to:

- Lubricate 1 to 8 lubrication points with a single unit
- Individually adjust the flow rate of a micropump corresponding to a lubrication point
- Adjust the lubrication frequency for a single lubrication point or multiple lubrication points together
- Adjust the carrier air flow independently for each lubrication point
- Visually (pressure gauge) or electrically (pressure switch) monitor the carrier air pressure individually for each lubrication point



# Operation

When the VTEC unit is activated, it is supplied with pressurised air (5 to 8 bar maximum) and oil (0.1 to 0.5 bar).

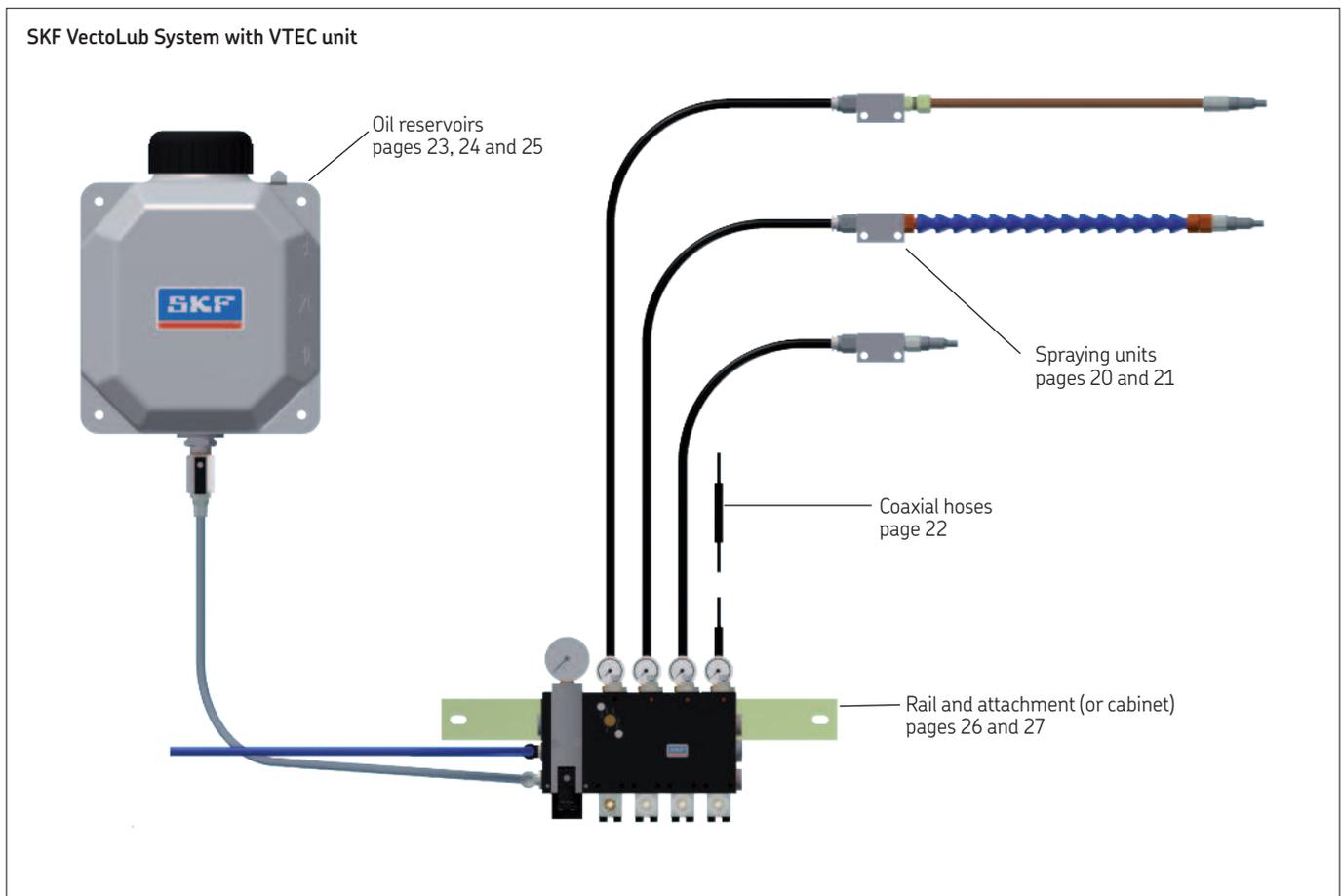
The oil circulates through the various bases and is conveyed to the pneumatically controlled volumetric micropumps. The beat frequency of each micropump (maximum 3 strokes/second) is adjusted independently, either by a pneumatic frequency generator or by a solenoid valve by means of a PLC. The flow rate of the micropump can be adjusted in two different ways, depending on the case: with metering rings or with an adjustment thumbwheel.

The oil delivered by the micropump is routed to the coaxial outlet of the base and passes through the capillary of the coaxial hose.

The pressurised air also circulates through the various bases, but it is distributed in each of them. Some of the air is used to control the pneumatic micropumps. The other part of the air - called carrier air here - is routed to the coaxial outlet of the base and passes through the outer tube of the coaxial hose. The carrier air pressure can be adjusted with the pressure regulator located on the top of each base. The carrier air pressure can also be monitored either with a pressure gauge or with a pressure switch.

The carrier air and oil are therefore supplied under pressure in parallel in the coaxial hose to the projection nozzle. The carrier air then becomes turbulent in the nozzle and breaks down the oil into

microdroplets, which it will then spray onto the lubrication point without generating any mist. The size of the microdroplets (200 to 600  $\mu\text{m}$ ) provides a homogeneous layer of oil without atomisation.



## VTEC unit technical data

### General

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Number of modules	1 to 8
Minimum air supply	800 NI/min (100 NI/min per outlet) previously filtered dry air (5 µm)
Air supply pressure	5 to 8 bar
Micropump flow rate	
Adjustment by rings (low flow rate)	3 to 30 mm <sup>3</sup> /stroke
Adjustment by rings (high flow rate)	30 to 90 mm <sup>3</sup> /stroke
Adjustment by thumbwheel (low flow rate)	10 to 30 mm <sup>3</sup> /stroke
Adjustment by thumbwheel (high flow rate)	30 to 90 mm <sup>3</sup> /stroke
Beat frequency	maximum 3 strokes/s
Lubricant	mineral, synthetic or biodegradable oils
Effective viscosity (at temperature of use)	10 to 400 mm <sup>2</sup> /s
Operating temperature	10 to 50 °C
Attachment rail	type EN

### General air solenoid valves (base I)

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Flow rate (at 6 bar)	950 NI/min
Power supply	
+428	230 V AC – 50/60 Hz – 2 VA (1.5 W)
+429	115 V AC – 50/60 Hz – 2 VA (1.5 W)
+924	24 V CC – 1.6 W
Protection	IP 65
Type of installation plan	ISO size G01
Service life	1.5 × 10 <sup>6</sup> switching cycles

### Pressure switch

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Cut-off power	100 VA
Protection	IP 65
Maximum voltage	42 V
Service life	1 × 10 <sup>6</sup> switching cycles

### Micropump control air solenoid valve

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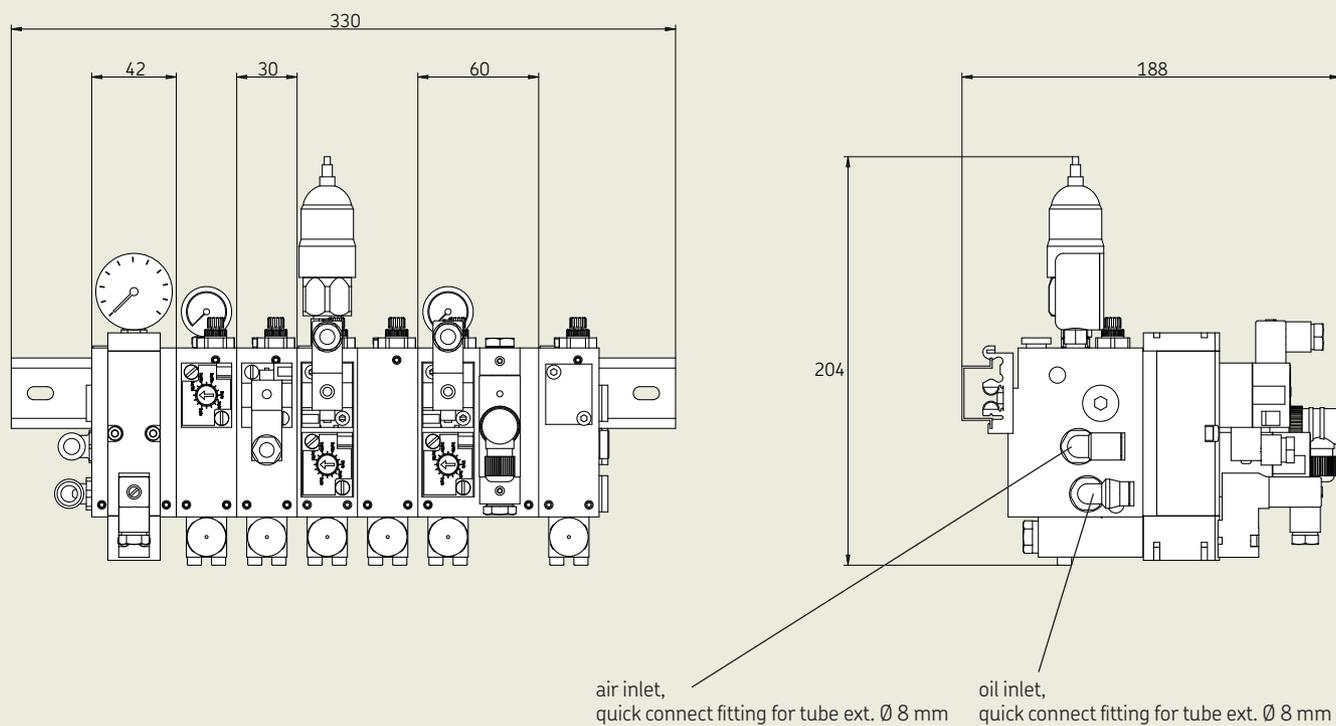
Flow rate (at 6 bar)	150 NI/min
Power supply	230 V AC – 50/60 Hz – 2.5 W (+428) 115 V AC – 50/60 Hz – 2.5 W (+429) 24 V CC – 1 W (+924)
Protection	IP 65
Type of installation plan	cell base
Service life	15 × 10 <sup>6</sup> switching cycles

### Pneumatic frequency generator

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Flow rate (at 6 bar)	150 NI/min
Service life	> 10 × 10 <sup>6</sup> switching cycles
Frequency	0.166 to 3 Hz

## VTEC unit size



### Operating manual

For more information about the operation or the technical data of the VTEC unit you can consult the corresponding commissioning manual, reference 951-130-440.

# Coding of a VTEC unit

A VTEC unit is a modular unit that may comprise up to eight modules. The coding of a VTEC unit is carried out in three stages.

## 1/ Definition of the modules

A lubrication module must be defined for each lubrication point. A module reference is made up of three letters, each corresponding to one of the module's components. To help you with your selection, you can refer to the table on the next page.

- First letter: selected base
- Second letter: selected micropump
- Third letter: air pressure control mode.

## 2/ Order of the modules

The order of the modules making up the VTEC unit must be defined, taking into account the desired number of circuits and control mode. The chosen functions (master or slave) are determined by the relative position of the module in relation to the entire VTEC unit, starting from the left (pneumatic and hydraulic supply side).

## 3/ Power supply

You must indicate the electrical voltage required for the VTEC unit using the corresponding voltage code:

- +924: 24 VDC
- +428: 230 VAC, 50/60 Hz
- +429: 115 VAC, 50/60 Hz



### Reminder

In the case of a VTEC unit with electrical air control by pressure switch, the supply voltage will be exclusively 24 VDC for the whole unit. The voltage code is therefore +924.

All VTEC units are always supplied with quick connect fittings for air and oil supply, and a tool for fitting the coaxial hoses.

### Ordering information, VTEC unit

#### Reference:

#### Selection of the module base

A, B, C, D, I, J  
see table on next page

#### Selection of the module micropump

A, B, C, D, E, F, G, H  
see table on next page

#### Selection of the control mode of the module carrier air

M, P, Z  
see table on next page

#### Selection of the unit operating voltage

+924 (24 V CC), +428 (230 V AC, 50/60 Hz), +429 (230 V AC, 50/60 Hz)

VTEC - - - - - +

## Coding of the modules

### First character\*

---

A	base only
B	base with frequency generator
C	base with solenoid valve
D	base with frequency generator + solenoid valve
I	base with general air solenoid valve
J	base only (controlled by base I)

### Second character\*\*

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A	micropump with ring adjustment, stainless steel and brass, maximum flow rate 30 mm <sup>3</sup> /stroke
B	micropump with thumbwheel adjustment, stainless steel and brass, maximum flow rate 30 mm <sup>3</sup> /stroke
C	micropump with ring adjustment, stainless steel, maximum flow rate 30 mm <sup>3</sup> /stroke
D	micropump with thumbwheel adjustment, stainless steel, maximum flow rate 30 mm <sup>3</sup> /stroke
E	micropump with ring adjustment, stainless steel and brass, maximum flow rate 90 mm <sup>3</sup> /stroke
F	micropump with thumbwheel adjustment, stainless steel and brass, maximum flow rate 90 mm <sup>3</sup> /stroke
G	micropump with ring adjustment, stainless steel, maximum flow rate 90 mm <sup>3</sup> /stroke
H	micropump with thumbwheel adjustment, stainless steel, maximum flow rate 90 mm <sup>3</sup> /stroke
Z	no micropump (only base with general air solenoid valve)

### Third character

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Z	no air control
M	air flow rate pressure gauge
P	air flow rate pressure switch

Example: **BBM** module with a base with pneumatic frequency generator (**B**), a low flow rate stainless steel and brass micropump (10 to 30 mm<sup>3</sup>/stroke) adjustable by thumbwheel (**B**) and a visual check of the carrier air by pressure gauge (**M**).

\*) See description of bases pages 14 and 15

\*\*\*) See description of micropumps page 5



## Coding rules

- The order of the reference modules corresponds to the order of assembly of the VTEC unit
- The maximum number of modules for a VTEC unit is 8.
- The micropump of a slave module, without pneumatic frequency generator or solenoid valve (base J and A) is controlled by the upstream module equipped with a frequency generator and/or a solenoid valve.
- The module with the general air solenoid valve is the only module without a micropump. It is systematically placed upstream of the module(s) with micropump.

# Examples of VTEC units

## VTEC Unit

- Unit for a single lubrication circuit with four lubrication points
- The unit is put into operation by means of the general air solenoid valve
- The operator controls the frequency of all micropumps with the pneumatic frequency generator
- The operator can monitor the unit air pressure, as well as the carrier air pressure for each module
- The flow rate of each micropump goes from 10 to 30 mm<sup>3</sup>/stroke, with continuous adjustment by thumbwheel
- Coding: **VTEC-IZM-BBM-ABM-ABM-ABM+ \_\_\_\_**
- VTEC unit with five modules
  - 1<sup>st</sup> module: general air solenoid valve, pneumatic pressure control with pressure gauge
  - 2<sup>nd</sup> module: pneumatic frequency generator, low flow rate micropump with flow rate adjustment by thumbwheel, control of carrier air pressure by pressure gauge
  - 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> modules: without frequency control, low flow rate micropump with flow rate adjustment by thumbwheel, control of carrier air pressure by pressure gauge
- The unit voltage code depends on the operating voltage of the general air solenoid valve



## VTEC Unit

- Unit for two lubrication circuits, the first with two lubrication points, the second with a single point
- The two circuits are put into operation by the general air solenoid valve
- The operator controls the frequency of the micropumps independently for each circuit with the control air solenoid valves (an activation of the solenoid valve corresponds to a beat of the micropump)
- The operator can monitor the carrier air pressure for each module
- The flow rate of each micropump goes from 3 to 30 mm<sup>3</sup>/stroke, with range adjustment by ring
- Coding: **VTEC-IZZ-CAM-AAM-CAM+ \_\_\_\_**
- VTEC unit with four modules
  - 1<sup>st</sup> module: general air solenoid valve, without pneumatic pressure control
  - 2<sup>nd</sup> module: solenoid valve, low flow rate micropump with flow rate adjustment by ring, carrier air pressure control by pressure gauge
  - 3<sup>rd</sup> module: without frequency control, low flow rate micropump with flow rate adjustment by ring, carrier air pressure control by pressure gauge
  - 4<sup>th</sup> module: solenoid valve, low flow rate micropump with flow rate adjustment by ring, carrier air pressure control by pressure gauge
- The unit voltage code depends on the operating voltage of the solenoid valves



### VTEC Unit

- Unit for a single lubrication circuit with four lubrication points
- The unit is put into operation by the opening of the pneumatic power supply on the client side. The user should place a pneumatic control device (valve or preferably solenoid valve) upstream of the unit, if not the flow rate of the carrier air is continuous.
- The operator controls the frequency of all micropumps with the pneumatic frequency generator
- The operator can monitor the carrier air pressure for each module
- The flow rate of each micropump goes from 10 to 30 mm<sup>3</sup>/stroke, with continuous adjustment by thumbwheel
  
- Coding: **VTEC-BBM-ABM-ABM-ABM**
- VTEC unit with four modules
  - 1<sup>st</sup> module: pneumatic frequency generator, low flow rate micropump with flow rate adjustment by thumbwheel, control of carrier air pressure by pressure gauge
  - 2<sup>nd</sup>, 3<sup>th</sup> and 4<sup>th</sup> modules: without frequency control, low flow rate micropump with flow rate adjustment by thumbwheel, control of carrier air pressure by pressure gauge
- There is no voltage code because there is no electrical component



### VTEC Unit

- Unit for two independent lubrication circuits, the first with three lubrication points, the second also with three points
- Start-up is independent for the two circuits by general air solenoid valves
- For the first circuit, the operator can manage a pause phase and a lubrication phase with the control air solenoid valve, and then manage the beat frequency of the micropumps during the lubrication phase with the pneumatic frequency generator.
- For the second circuit, the operator manages the beat frequency of the micropumps with the control air solenoid valve (an activation of the solenoid valve corresponds to a beat of the micropump)
- The operator monitors the general pneumatic pressure of the first circuit with a pressure switch (set at 5 bar), and of the second circuit with a pressure gauge
- The operator can monitor the carrier air pressure for each module
- The flow rate of each micropump goes from 10 to 30 mm<sup>3</sup>/stroke, with range adjustment by ring
  
- Coding: **VTEC-IZP-DAM-AAM-AAM-IZM-CAM-AAM-AAM+924**
- VTEC unit with eight modules
  - 1<sup>st</sup> module: general air solenoid valve, pneumatic pressure control with pressure switch
  - 2<sup>nd</sup> module: control air solenoid valve and pneumatic frequency generator, low flow rate micropump with flow rate adjustment by ring, control of carrier air pressure by pressure gauge
  - 3<sup>rd</sup> and 4<sup>th</sup> modules: without frequency control, low flow rate micropump with flow rate adjustment by ring, control of carrier air pressure by pressure gauge
  - 5<sup>th</sup> module: general air solenoid valve, pneumatic pressure control with pressure gauge
  - 6<sup>th</sup> module: control air solenoid valve, low flow rate micropump with flow rate adjustment by ring, carrier air pressure control by pressure gauge
  - 7<sup>rd</sup> and 8<sup>th</sup> modules: without frequency control, low flow rate micropump with flow rate adjustment by ring, control of carrier air pressure by pressure gauge
- The voltage code should be +924 (24 VDC) due to the presence of the pressure switch



## VTEC unit bases

### Base A

- Slave model

This base has no additional functionality. It is systematically a slave to the master base located upstream.



### Base B

- Pneumatic frequency generator

The generator adjusts the beat frequency of the micropump. For controlling the air supply, this base is a slave to the base located upstream which has a general air solenoid valve.



### Base C

- Air solenoid valve

The air solenoid valve controls the micropump. The beat frequency of the micropump is provided by the solenoid valve controlled by a PLC.



### Base D

- Air solenoid valve
- Pneumatic frequency generator

The air solenoid valve controls the micropump and the pneumatic frequency generator adjusts the beat frequency of the micropump.



### Base I

- General air solenoid valve

Special base. Unlike the others, it does not supply any lubrication point (no air regulator, no micropump). On the other hand, it has a general air solenoid valve.

The general air solenoid valve controls the air supply for the micropumps and also the carrier air. This base is systematically master of the bases located downstream.

This base is very important because it allows the VTEC unit to be able to lubricate different completely independent lubrication circuits.



### Base J

- Slave base

Must be controlled by a model I base (equipped with a general air solenoid valve) placed upstream.



# VE1B Unit

## Description

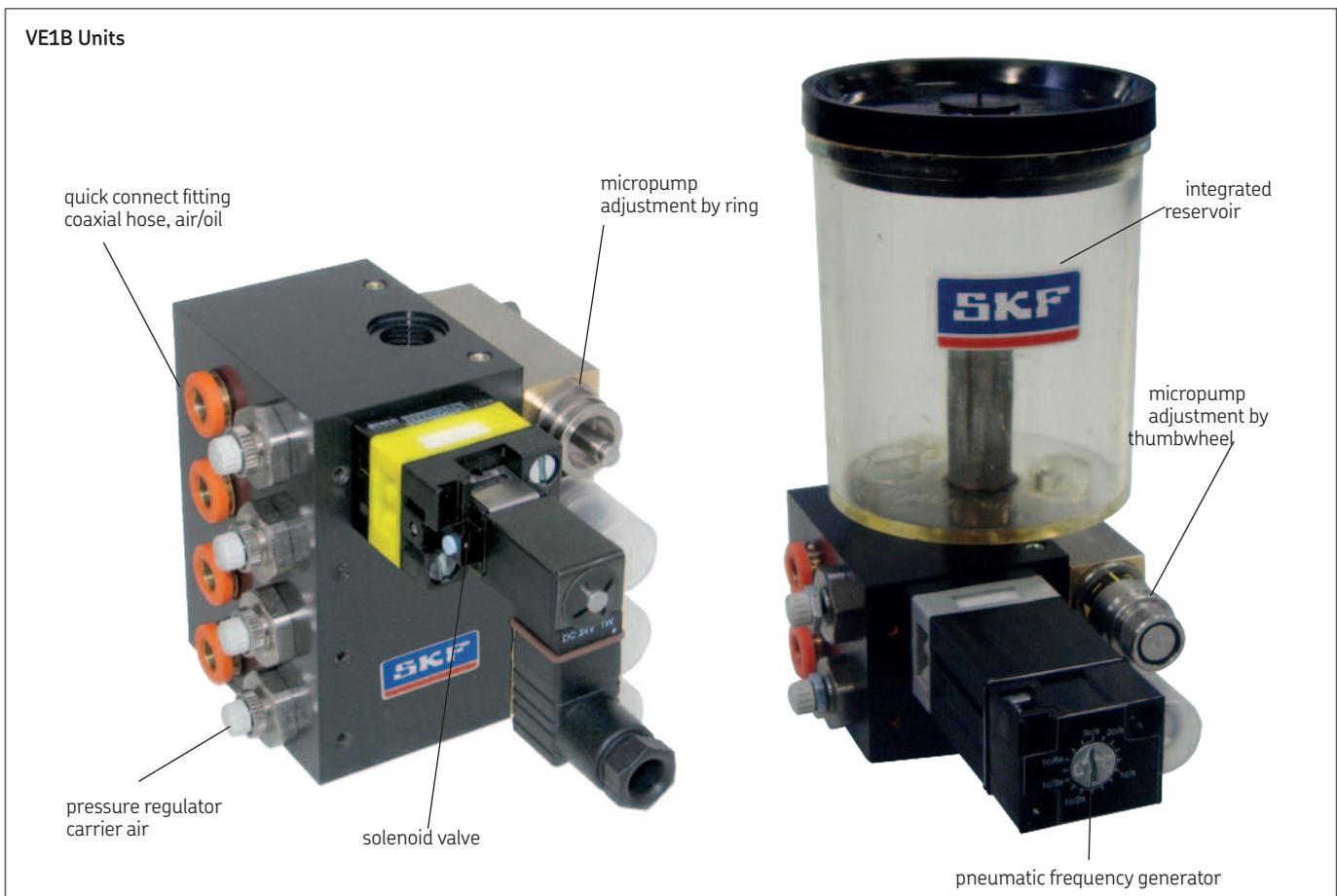
The VE1B unit is a compact unit. It is made up of a common base for one to four micropumps. Each micropump allows lubrication of a lubrication point.

The VE1B unit is assigned to a single lubrication circuit. Start-up and control of the beat frequency is common to all micropumps. However, the operator can independently adjust the flow rate of each micropump.

The size and the possibility of having an integrated reservoir allow the VE1B unit to be placed as close as possible to the lubrication points.

The VE1B unit is used to:

- Lubricate 1 to 4 lubrication points with a single unit
- Check the lubrication frequency for all lubrication points
- Independently adjust the carrier air flow for each lubrication point
- Individually adjust the flow rate of a micropump corresponding to a lubrication point



## Operation

When the VE1B unit is activated, it is supplied, on the one hand, with pressurised air (from 5 to 8 bar maximum) and, on the other hand, with oil (0.1 to 0.5 bar).

The oil is supplied either from the integrated reservoir, with a capacity of 0.3 L, or from the user's supply network. The oil circulates through the base and is conveyed to the pneumatically controlled volumetric micropumps. The beat frequency of all the micropumps (maximum 3 strokes/second) is adjusted, either by a pneumatic frequency generator, or by a solenoid valve by means of a PLC. The user adjusts the flow rate of each micropump with metering rings or an adjustment thumbwheel.

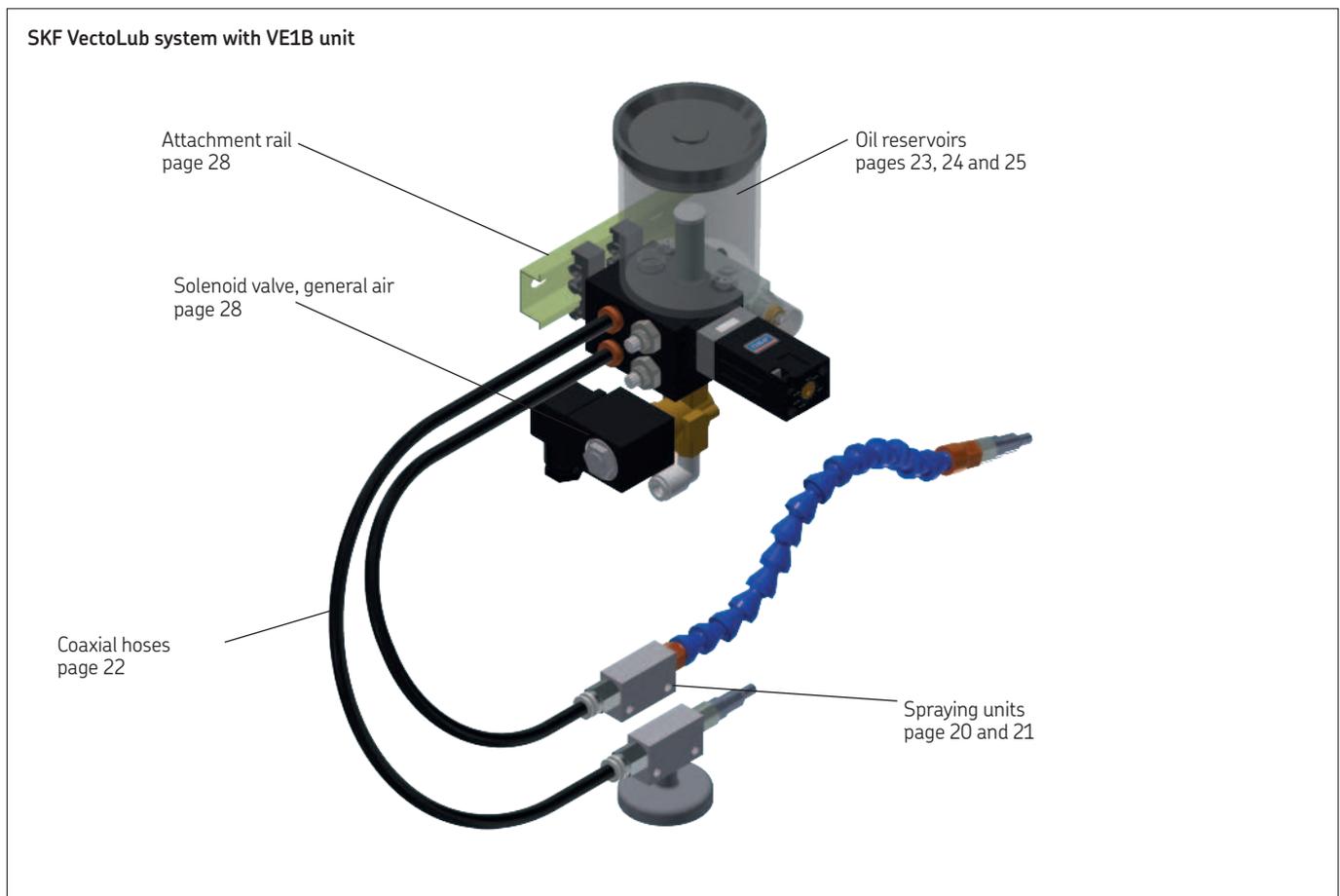
The oil delivered by the micropump is routed to the corresponding coaxial outlet and passes through the capillary of the coaxial hose.

Air is also supplied from the user's network. It can optionally be controlled by means of a solenoid valve (option).

The pressurised air circulates through the base and is directed, on the one hand, to each of the pneumatic micropumps and, on the other hand, to the coaxial outlets to constitute the carrier air. A regulator allows the carrier air pressure to be adjusted independently for each outlet. The carrier air and oil are therefore supplied under pressure in parallel in the coaxial hose to the projection nozzle. The carrier air then becomes turbulent in the nozzle and breaks down the oil

into microdroplets, which it will then spray onto the lubrication point without generating any mist.

With proper adjustment of the projected air, the size of the oil droplet is between 200 and 600  $\mu\text{m}$ . It is thus possible to obtain a homogeneous layer of oil on the contact surface.



## VE1B unit technical data

### General

Number of outlets	1 to 4
Minimum air supply	400 NI/min previously filtered dry air (5 µm)
Air supply pressure	5 to 8 bar
Air inlet connector	G 1/4 cylindrical
Oil inlet connector	G 1/4 cylindrical
Micro pump flow rate	
Adjustment by rings (low flow rate)	3 to 30 mm <sup>3</sup> /stroke
Adjustment by rings (high flow rate)	30 to 90 mm <sup>3</sup> /stroke
Adjustment by thumbwheel (low flow rate)	10 to 30 mm <sup>3</sup> /stroke
Adjustment by thumbwheel (high flow rate)	30 to 90 mm <sup>3</sup> /stroke
Beat frequency	maximum 3 strokes/s
Lubricant	mineral, synthetic or biodegradable oils
Effective viscosity (at temperature of use)	10 to 400 mm <sup>2</sup> /s
Operating temperature	10 to 50 °C
Maximum weight (with integrated reservoir, and all options)	1.5 kg

### Micro pump control air solenoid valve

Flow rate (at 6 bar)	150 NI/min
Power supply	230 V AC – 50/60 Hz – 2.5 W (+428) 115 V AC – 50/60 Hz – 2.5 W (+429) 24 V CC – 1 W (+924)
Protection	IP 65
Type of installation plan	cell base
Service life	1.5 × 10 <sup>7</sup> switching cycles

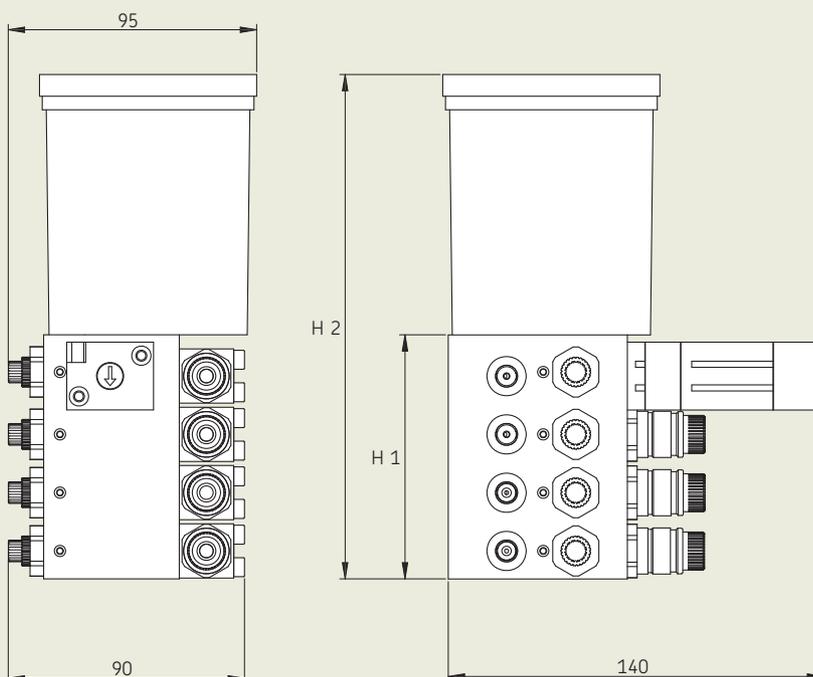
### Pneumatic frequency generator

Flow rate (at 6 bar)	150 NI/min
Service life	> 1 × 10 <sup>7</sup> switching cycles
Frequency	0.166 to 3 Hz

### Integrated reservoir

Capacity	0.3 litre
Oil level check	visual by transparency

## VE1B unit size



### VE1B unit

micropumps	H1	H2
1	26	122
2	45	141
3	90	186
4	90	186

## Ordering information, VE1 unit

### Reference

VE1B - - - - + - - - -

### Control type

O = without  
P = pneumatic frequency generator  
E = solenoid valve

### Pumps

A = adjustment by rings, low rate (3 to 30 mm<sup>3</sup>/stroke), stainless steel and brass  
B = adjustment by thumbwheel, low flow rate (10 to 30 mm<sup>3</sup>/stroke), stainless steel and brass  
C = adjustment by rings, low flow rate (3 to 30 mm<sup>3</sup>/stroke), stainless steel  
D = adjustment by thumbwheel, low flow rate (10 to 30 mm<sup>3</sup>/stroke), stainless steel  
E = adjustment by rings, high flow rate (30 to 90 mm<sup>3</sup>/stroke), stainless steel and brass  
F = adjustment by thumbwheel, high flow rate (30 to 90 mm<sup>3</sup>/stroke), stainless steel and brass  
G = adjustment by rings, high flow rate (30 to 90 mm<sup>3</sup>/stroke), stainless steel  
H = adjustment by thumbwheel, high flow rate (30 to 90 mm<sup>3</sup>/stroke), stainless steel

### Number of micropumps

1, 2, 3 or 4

### Reservoir

00 = without  
10 = with integrated reservoir, 0.3 L

### Voltage code\*

428 = 230 VAC, 50/60 Hz  
429 = 115 VAC, 50/60 Hz  
924 = 24 VDC

### Order examples

4-outlet VE1B unit, controlled by a pneumatic frequency generator, with reservoir, low flow rate stainless steel and brass micropumps with adjustment by thumbwheel, Reference: **VE1B-PB4-10**

\*) Specify the voltage code only when using a solenoid valve

### Operating manual

For more information about the operation or the technical data of the VE1B unit you can consult the corresponding commissioning manual, reference 951-130-441.

# Accessories

## Spraying units

- The spraying unit comprises:
  - the nozzle
  - the attachment unit
  - the bi-fluid inlet connector
- The spraying unit may be:
  - direct
  - a flexible copper tube
  - an articulated plastic tube
- Four forms of jets available:
  - round, fine round, wide round and circular
- Special projection unit model for lubrication of saw bands
- Tube connection with quick connector



### References for ordering, projection unit

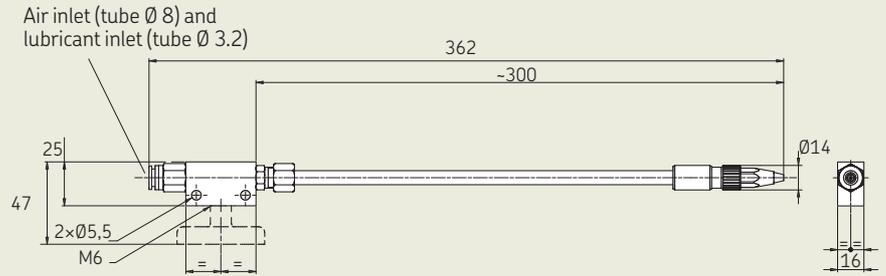
Reference	Jet form	Jet data	Direct nozzle	Nozzle and articulated tube	Nozzle and flexible copper tube
AC-4755-C2 AC-4531-C2 AC-4529-C2	fine round jet	Ø 10 mm angle: approx. 10° distance <sup>1)</sup> = 50 mm	•	•	•
AC-3539-C2 AC-3252-C2 AC-3184-C2	round jet	Ø 20 mm angle: approx. 20° distance <sup>1)</sup> = 50 mm	•	•	•
AC-4255-C2 AC-4256-C2 AC-3485-C2	wide jet	120 × 40 mm angle: approx. 20°/60° distance <sup>2)</sup> = 100 mm	•	•	•
AC-3790-C2	circular jet	Max. Ø 150 mm variable height e.g.: Ø 80 × H 14 mm ISO VG 68 oil at 20 °C			•
AC-3885-C2 <sup>3)</sup>	multiple jet (saw)	adaptable to sawing height	•		

<sup>1)</sup> Test conditions: carrier air pressure 0.3 bar, LUB 200 oil, viscosity 90 mm<sup>2</sup>/s at 18 °C, micropump operation: 5 mm<sup>3</sup>/stroke – 3 strokes/s

<sup>2)</sup> Test conditions: carrier air pressure 0.3 bar, oil viscosity 114 mm<sup>2</sup>/s at 18 °C, micropump operation: 5 mm<sup>3</sup>/stroke – 3 strokes/s

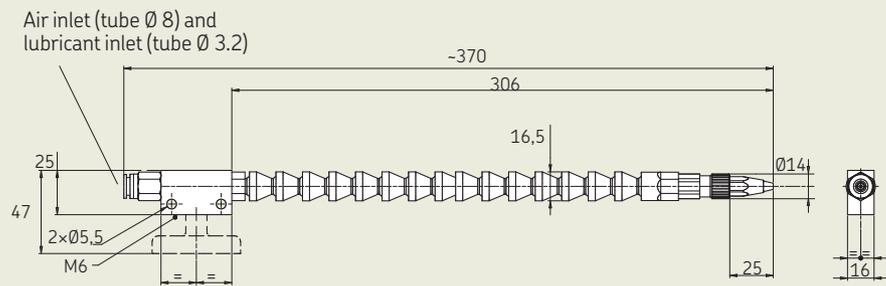
<sup>3)</sup> A multiple jet nozzle requires the supply of air and oil to two micropumps.

Projection unit with flexible copper tube



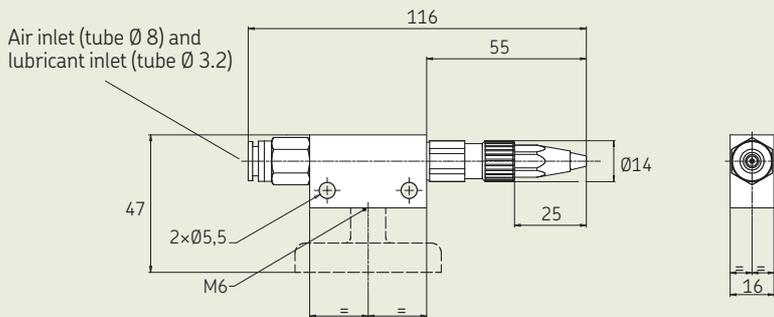
Nozzle AC-4529-C2

Projection unit with articulated plastic tube

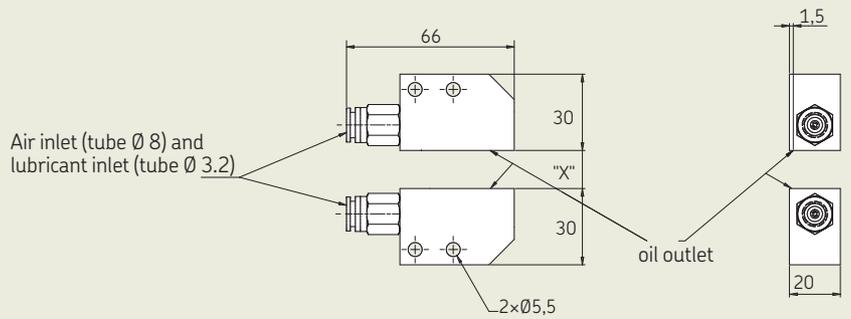


Nozzle AC-4531-C2

Direct projection unit



Nozzle AC-4755-C2



Nozzle AC-3885-C2

## Connection hoses

The connections between the SKF VectoLub unit and the projection units are made using coaxial hoses. The outer tube ensures the flow of the carrier air and the inner capillary that of the oil to be sprayed.

The connection is made by means of coaxial quick connect fittings.

A specific tool\* allows their disconnection.

\* Tool delivered with every SKF VectoLub assembly.

### Flexible hose

- Ext. tube polyurethane, section  $\varnothing 8 \times 1.25$
- Int. tube polyamide, section  $\varnothing 3.2 \times 0.5$
- Bend radius: 60 mm
- Operating temperature: 10 to 60 °C

Flexible hose



### Reinforced hose

- Ext. tube reinforced braided rubber, section  $\varnothing 13 \times 2.75$ , with end piece for  $\varnothing 8$  quick connect fitting
- Int. tube polyamide, section  $\varnothing 3.2 \times 0.5$
- Bend radius: 90 mm
- Operating temperature: 10 to 60 °C

Reinforced hose



### References for ordering

Reference: F12-C2-

**Hose type**  
T (flexible)  
F (reinforced)

**Hose length [mm]**  
1000, 1500, 2000,  
2500, 3000, 3500,  
4000, 4500, 5000

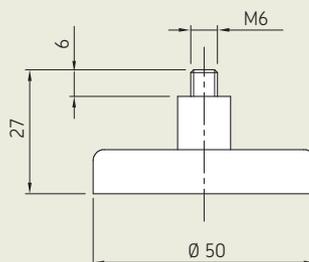
Example of reference: F12-C2-T2500, flexible hose 2 500 mm in length

## Attachment bracket

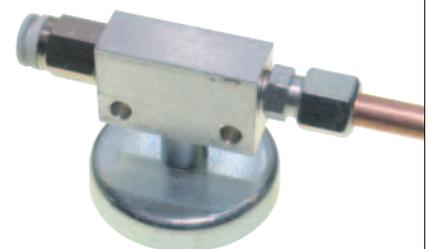
Magnetic base for attaching the projection units.

Reference ..... AC-3247

Magnetic bracket



Magnetic bracket



## Oil reservoirs

Oil reservoirs for SKF VectoLub systems with a capacity of 1 / 3.5 / 6 or 10 litres.

- Materials: polyethylene (PE), polyamide (PA) or aluminium; attachment bracket in bichromate zinc-plated steel.
- Visual check of the oil level.
- Level switch with float for checking for lack of oil (option).
- Filter screen on the outlet port.
- Isolation valve to isolate the tank in the event of an intervention on the SKF VectoLub unit.
- Supply line to the SKF VectoLub unit, polyamide type  $\varnothing 8 \times 1$ , length 3 m, outlet port fitted with a quick connect fitting, complete connection kit supplied with each reservoir.

### References for ordering

Reference	Useful capacity	Material	Contact level	Outlet filter	Operating temperature	Max. weight approx.
	l			$\mu\text{m}$	$^{\circ}\text{C}$	kg
MOD-030	1	PA (polyamide)	–	55	-10 to +60	0.67
MOD-030-NC	1	PA (polyamide)	•	55	-10 to +60	0.67
MOD-031	3.5	PE (polyethylene)	–	200	-10 to +60	0.14
MOD-031-NC	3.5	PE (polyethylene)	•	200	-10 to +60	0.14
MOD-032	6	PA6 (polyamide)	–	200	-10 to +60	0.35
MOD-032-NC	6	PA6 (polyamide)	•	200	-10 to +60	0.35
MOD-033	10	aluminium	–	200	-10 to +60	6.55
MOD-033-NC	10	aluminium	•	200	-10 to +60	6.55

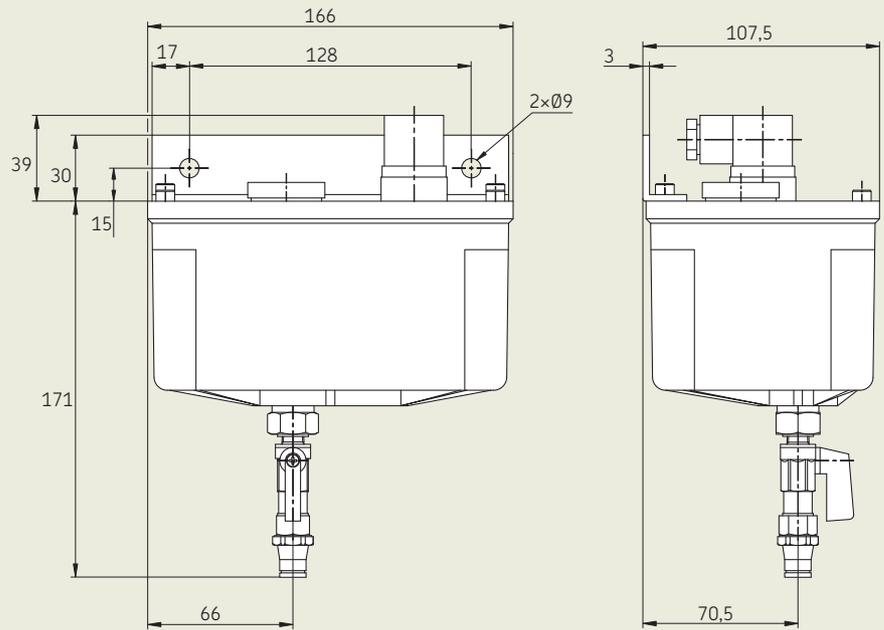
Reservoir MOD-030-NC



**Level monitoring**

- Minimum oil level check
- NO on opening due to lack of oil
- Maximum voltage: 250 V – 50/60 Hz
- Cut-off power: 10 VA
- Max. current: 0.25 A
- Protection: IP 65 with fitting connected

MOD-030-NC



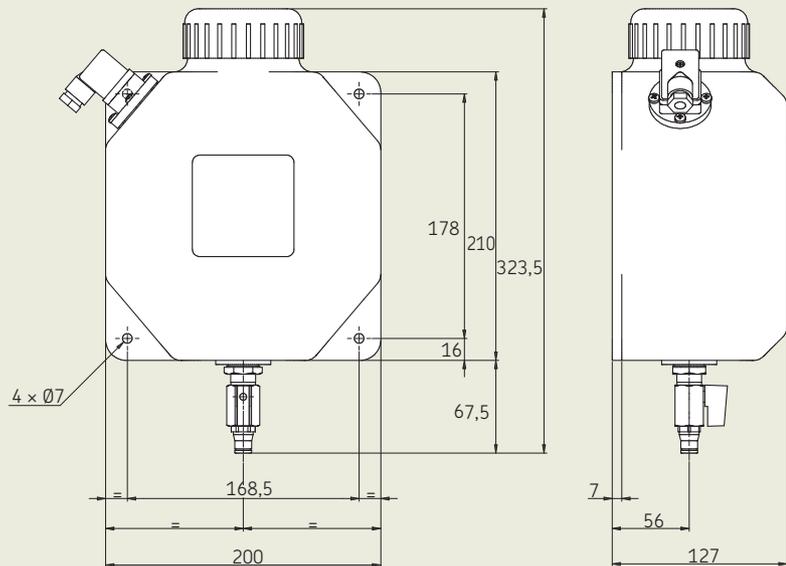
Reservoir MOD-031-NC



**Level monitoring**

- Minimum oil level check
- NO on opening due to lack of oil
- Maximum voltage: 250 V – 50/60 Hz
- Cut-off power: 10 VA
- Max. current: 0.5 A
- Protection: IP 65 with fitting connected

MOD-031-NC



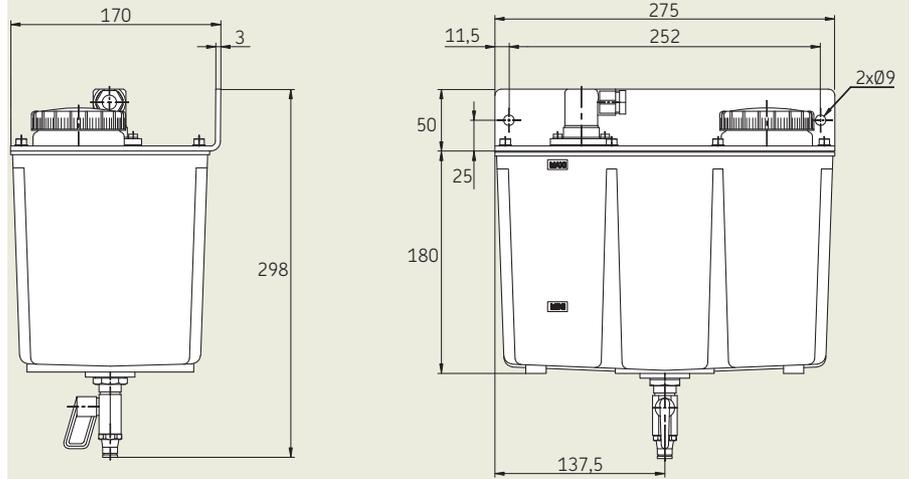
Reservoir MOD-032-NC



**Level monitoring**

- Minimum oil level check
- NO on opening due to lack of oil
- Maximum voltage: 250 V – 50/60 Hz
- Cut-off power: 10 VA
- Max. current: 0.7 A
- Protection: IP 65 with fitting connected

MOD-032-NC



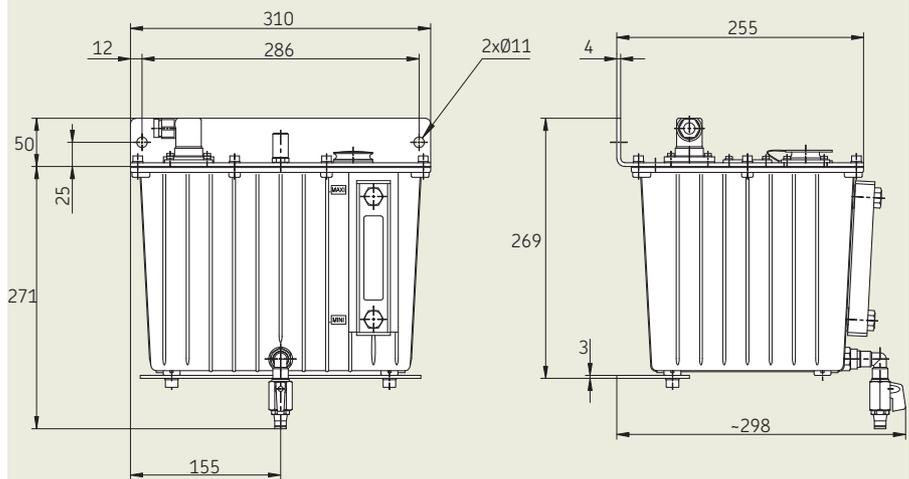
Reservoir MOD-033-NC



**Level monitoring**

- Minimum oil level check
- NO on opening due to lack of oil
- Maximum voltage: 250 V – 50/60 Hz
- Cut-off power: 10 VA
- Max. current: 0.8 A
- Protection: IP 65 with fitting connected

MOD-033-NC

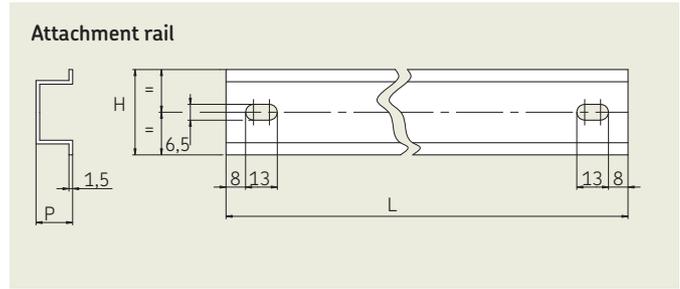


# Accessories for VTEC unit

## Attachment rail

The VTEC unit can be mounted directly in your control cabinet or on the frame of your machine, in an area protected from chip projections, by means of an attachment rail (clips supplied with the modules).

- Capacity of 2 to 8 modules.
- All the rails are in treated steel and EN standardised.



### Attachment rail references

Reference	Max number of module units	Dimensions L x H x D [mm]
SY.9663.105	2	105 x 35 x 15
SY.9663.180	4	180 x 35 x 15
SY.9663.330	8	330 x 35 x 15

# Accessories for VE1B unit

## General air solenoid valve

Placed upstream of the VE1B unit, the solenoid valve provides the pneumatic supply (carrier air and control air) to the assembly.

Reference . . . . . **MOD-1016+ \_\_\_\_ \***

\* The reference of the solenoid valve must be completed with the voltage code key.

### Technical data

Flow rate (at 7 bar)	430 N.l./min
Power supply	230 V AC – 50/60 Hz – 2.5 W (+428) demand power 26 VA, holding power 14 VA 115 V AC – 50/60 Hz – 2.5 W (+429) demand power 26 VA, holding power 14 VA 24 V CC – 1 W (+924)
Protection	IP 65
Service life	1.5 x 10 <sup>6</sup> switching cycles
Dimensions	82.5 x 94 x 30 mm
Weight	approx. 0.2 kg

## Rail and clips

Permanent mounting of VE1B unit, weight approx. 0.3 kg

Reference . . . . . **MOD-1011**

## Magnetic base

Mobile mounting of VE1B unit weight approx. 0.3 kg

Reference . . . . . **AC-3228-M1**

## Connectors

Quick connect fitting for oil supply (VE1B without reservoir), G 1/4 connector for 8 Ø tube

Reference . . . . . **RC.802**

Quick connect fitting for air supply, G 1/4 connector for 8 Ø tube

Reference . . . . . **RC.803.N**





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