



Oil and gas lubricating system

油气润滑系统

油气润滑系统概述

Oil and Gas Lubrication System Overview

油气润滑系统主要由电动润滑泵、油气混合物、气动处理元件和控制元件等组成。油气润滑系统工作时由润滑泵提供的精准计量的润滑油，在高速气流的推动下在管道内壁形成一种典型的气液两相流体，可以为高速主轴、链条等运动部件提供高效润滑冷却。

The oil and gas lubrication system is mainly composed of an electric lubrication pump; an oil and gas mixer; a pneumatic processing component and a control component. The oil and gas lubrication system is a typical gas-liquid two-phase fluid. Suitable for high speed spindles or other oil and gas lubrication.

EVA型(Type)



喷雾式润滑系统 Spraying lubricating system

■ 喷雾式润滑系统 Spraying lubricating system

订货编制说明 Order description

EVA- □ □ - □ □ □ - □ □



万向曲管类型
Types of universal bent pipe

2 塑胶 Plastic

标准管长
Standard pipe length

240 240mm

其它长度可订制
Other lengths to be customized

液体输入管径
Liquid input pipe diameter

4 Φ 4
6 Φ 6

气体输入管径 Gas input caliber

4 Φ 4
6 Φ 6
8 Φ 8

气体输入接口接头类型
Gas input port joint type

T 气动直接头
Pneumatic straight joint
S 铜快速直接头
Copper quick straight joint

液体输入接口接头类型
liquid Input port joint type

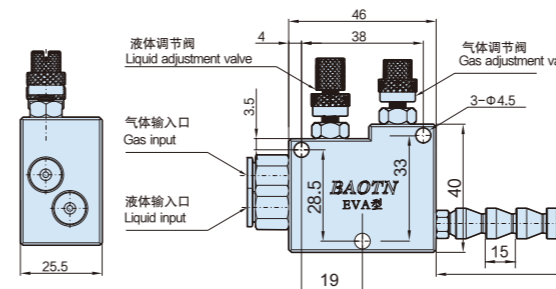
T 气动直接头
Pneumatic straight joint
S 铜快速直接头
Copper quick straight joint

雾化类型 Atomizing types

B 微量雾化, 有限位调针
Micro Atomizing, no Limit transfer needle

产品外形尺寸图

Product dimension figure



EVA 耗油量测试结果 Testing results of EVA oil consumption

液体品类 Liquid variety	流量范围 Flow range (cc/min)	气体压力 Gas pressure (0.4MPa)
水, 酒精 Water, alcohol	0-30	
10号高速主轴油 No.10 high-speed main shaft oil	0-25	

性能与特点:

此产品应用真空自呼吸的原理, 使液体经由喷嘴和空气混合雾化, 喷射至加工件、刀具或轴承等润滑点。冷却效果佳, 并提供润滑; 除屑; 清洁等功能, 以提升生产效率及加工品质, 减少机械刀具之损耗。

- 在加工过程中冷却, 润滑, 吹除铁屑可一次完成。
- 可提高加工速度, 节省加工时间及费用并减少刀具磨损。
- 有助于加工品质的确保及刀具最佳使用效果。
- 加工合金或超硬材质, 亦可达到平滑, 高精度之表面。
- 增加密合方式, 可避免内部泄露, 延长使用寿命。
- 可针对不同的固定方式, 选择不同配件搭配使用。

注意事项:

- 需使用清洁之液体。
- 请勿使用腐蚀性之液体。
- 气压源气压范围0.4-0.6MPa。(雾化效果与气量, 气压有关联)
- 适用液体黏度: 0-32cSt.

使用场合:

- 车床, 钻床, 铣床, 磨床, 攻牙机, 刀具研磨机, CNC机床, 冲床, 锯床, 木工机械, 送料机等。

Performance and characteristics:

The product shall be operated with the principle of vacuum self-suction, and the liquid is atomized via the nozzle and air until spraying onto working pieces, tools or bearings and other lubricating points. The cooling effects are excellent, and lubrication is provided; as well as scrap removal, cleaning and other functions are used to increase production efficiency and improve processing quality and reduce losses of machinery tools.

- Cool down in processing, lubricate, and remove iron scrap in one time.
- Increase processing rate, save processing time and costs, and reduce wear of knife tools.
- Beneficial for assuring processing quality and application effects of knife tools.
- Processing alloy or super-hard materials achieves smooth and high-precision surface.
- Pressurization is enhanced to avoid internal leakage and prolong service life.
- Different fixing modes are used to match different parts.

Attentions:

- Clean liquid shall be used.
- Corrosive liquid cannot be used.
- Scope of gas pressure of the gas pressure source 0.4-0.6MPa (atomization effects related to air volume and air pressure)
- Applicable liquid viscosity: 0-32 cSt.

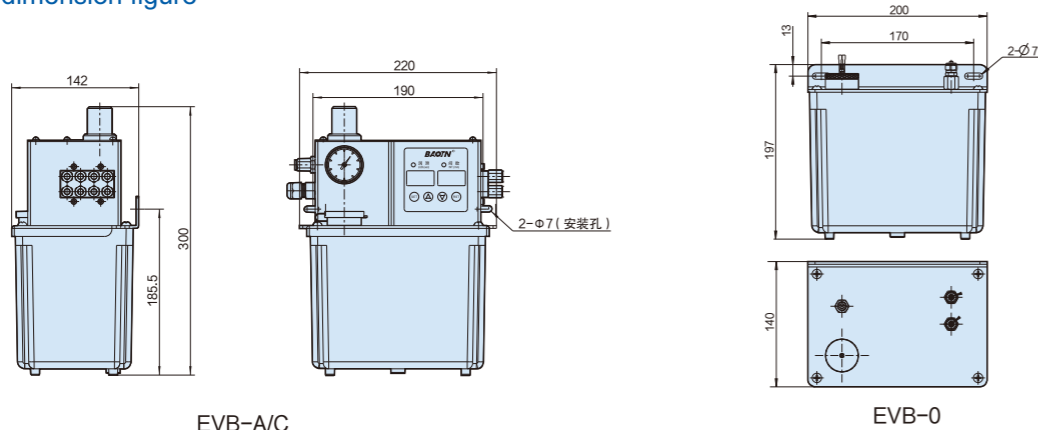
Situations for application:

- Lathe, drill, mill, grinder, tapping machine, knife tool grinding machine, CNC lathe, punch, sawing machine, woodworker machinery and feeding machine etc.

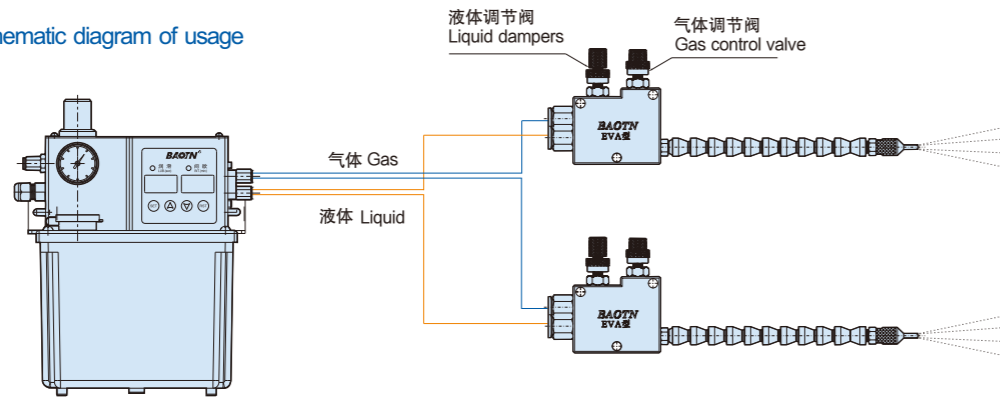
EVB 型(Type)

微量喷雾冷却润滑泵 Micro cooling and lubrication pumps

产品外形尺寸图
Product dimension figure



使用示意图 Schematic diagram of usage



BEH 型(Type)

气动稀油润滑泵 Pneumatic thin oil lubrication pump

订货编制说明 Order description

BEH-□□-□□



系统模式
system mode

1	抵抗式 resistance
2	容积式 Volumetric

出油口直径
Outlet diameter

4	φ 4
6	φ 6

回油装置
Oil return device

W	不带回油装置 Without oil return device
H	设有回油装置 Equipped with oil return device

油箱容积
Fuel tank capacity

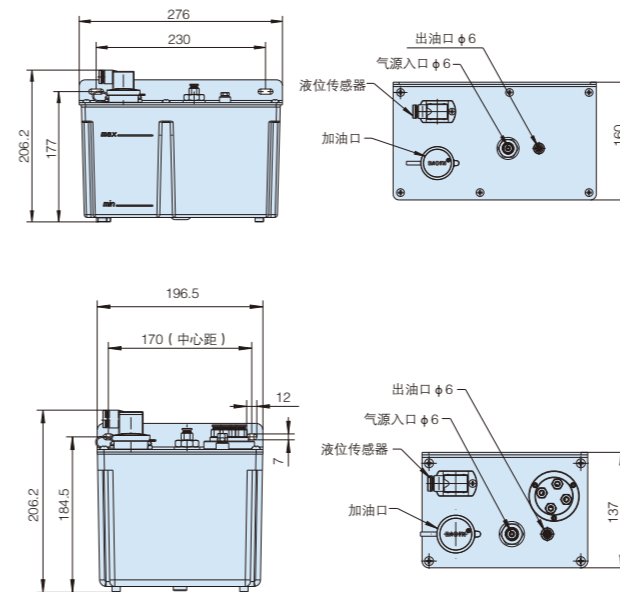
3	3L
4	4L

BEH 型(Type)

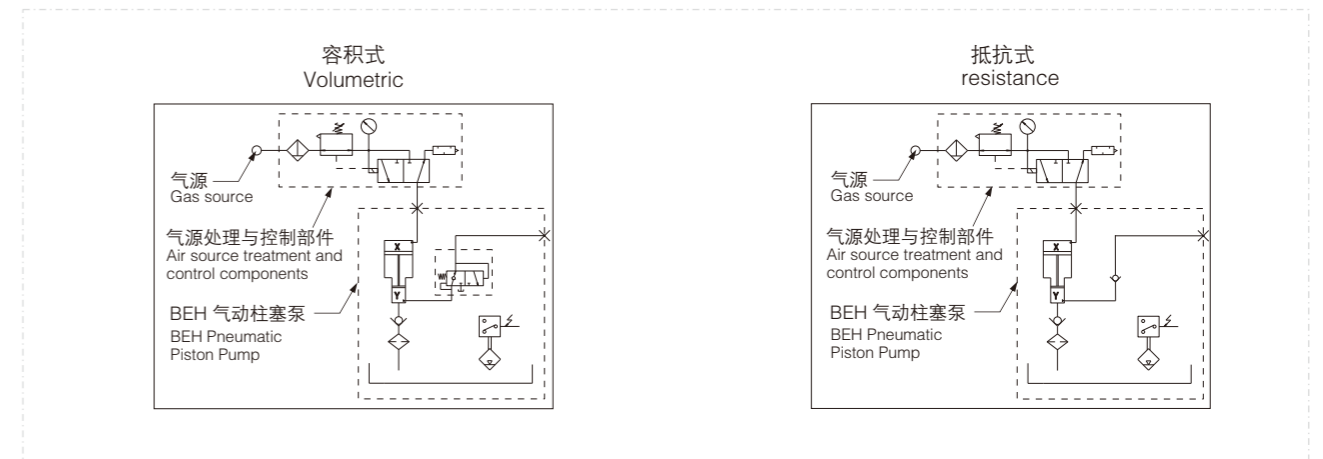
气动稀油润滑泵 Pneumatic thin oil lubrication pump



产品外形尺寸图
Product dimension figure



工作原理图
Working principle diagram



性能与特点

- 采用压缩空气为动力。
- 由主机PLC或油泵控制器控制电磁阀工作，确定润滑系统供油周期。电磁阀带电控制气动泵工作，电磁阀通电时间≥5秒。电磁阀断电气动泵卸压，电磁阀断电时间≥20秒。
- 系统末端设置压力开关，可监测润滑系统主油管路断流与失压。
- 设有低液位发讯器，可将低液位信号输出。
- 设有自动卸压装置，润滑泵停止运行，系统自动卸压。
- 使用油品粘度:10-1000cSt。
注意:1.请使用指定清洁润滑油;2.输入在规定压力范围内的压缩空气。

Performance and characteristics

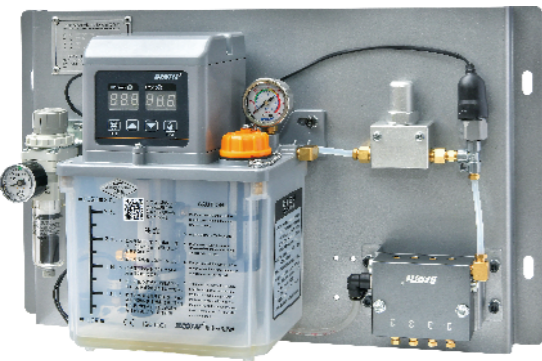
- Powered by compressed air.
- The solenoid valve is controlled by the host PLC or the oil pump controller to determine the oil supply cycle of the lubrication system. The solenoid valve is electrified to control the pneumatic pump, and the electrification time of the solenoid valve is ≥ 5 seconds. The solenoid valve is de-energized and the pneumatic pump is depressurized, and the solenoid valve is de-energized for ≥ 20 seconds.
- A pressure switch is set at the end of the system to monitor the interruption and pressure loss of the main oil pipeline of the lubrication system.
- Equipped with low liquid level transmitter, which can output low liquid level signal.
- Equipped with an automatic pressure relief device, the lubrication pump stops running, and the system automatically relieves pressure.
- Use oil viscosity: 10-1000cSt.
Note: 1. Please use the specified clean lubricating oil; 2. Input compressed air within the specified pressure range.

规格型号及技术参数 Specifications, models and technical parameters

型号 Models	项目 Item	增压比 boost ratio	公称排量ml/cy Nominal displacement	输入气压MPa input air pressure	回油 oil return	油箱容积 L Fuel tank capacity	低液位发讯器 Low level transmitter
BEH-□26-3W	1.6	2.6	≥0.4	无 NO	3	下通最大通 电电流 1.5A The maximum power-on current is 1.5A under power-on	
BEH-□26-4W					4		
BEH-□26-3H					3	有 YES	
BEH-□26-4H					4		

ETC 型(Type)

油气润滑冷却系统 Oil and gas lubrication cooling system



订货编制说明 Order description

ETC - [] - [] - []		各出口给油量 Oil supply per oil outlet
控制器类型 Control types		
A	数显 Digital display	
C	PLC	
0	无控制器 Without controller	
输入电压 Input voltages		
1	单相 110V Single phase 110V	
2	单相 220V Single phase 220V	
9	DC24V	
		油气出口数 Oil and gas Number
1	1 个 Each	
2	2 个 Each	
3	3 个 Each	
4	4 个 Each	
5	5 个 Each	

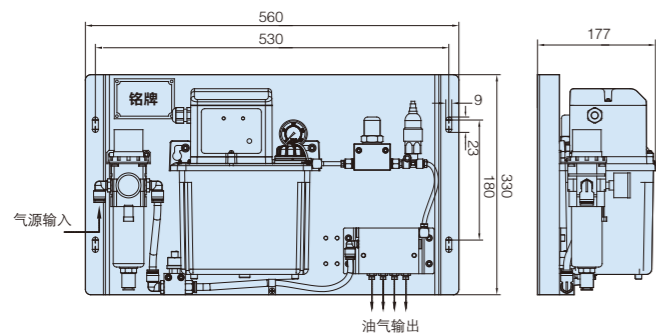
性能与特点

- 微量、连续供油，能够建立稳定的油膜；
- 系统带数显，显示工作状态；
- 设有低油位报警开关，实现低液位报警；
- 系统设有气压压力开关和油压压力开关，可分别监控油气润滑装置中气压过低和油压不足状况；
- 多种出口数可以选择，可以根据润滑点需求，选择不同的系统；
- 可根据实际需要设置系统的间隔时间及供油的频率。

Performance and characteristics

- Micro and continuous oil supply can establish a stable oil film;
- The system has a digital display to show the working status;
- Equipped with low oil level alarm switch to realize low liquid level alarm;
- The system is equipped with an air pressure switch and an oil pressure switch, which can monitor the air pressure and oil pressure in the oil-air lubrication device respectively;
- A variety of outlets can be selected, and different systems can be selected according to the requirements of the lubrication point;
- The interval time and fuel supply frequency of the system can be set according to actual needs.

产品外形尺寸图 Product dimension figure



规格型号及技术参数 Specifications, models and technical parameters

型号 Models	项目 Item	油气出口数(个) Number of oil and gas exports(MPa)	每口吐油量 Spit volume (cc/cy)	气源压力 Air source pressure (MPa)	使用介质粘度 Use medium viscosity (cSt)
ETC		2-5	0.01-0.05	0.4-0.8	32-100

螺旋尼龙管 Spiral nylon tube

订货编制说明 Order description

TNG - XXXX - N		圈数 Number of turns
N	表示螺旋尼龙管的螺旋圈数 Indicates the number of coils in a spiral nylon tube	
长度 length		
XXXX	表示螺旋尼龙管的长度(单位: mm) Represents the length of the spiral nylon tube (in mm)	
材质 material quality		
TNG	表示油气用螺旋尼龙管 φ4×φ2, 管材质为: NP-PA1 Indicating spiral nylon pipes for oil and gas φ4×φ2. Pipe material: NP-PA1	



TNG-1000-6
规格: φ4×φ2 总长度 10 米, 螺旋管距离一端 0.6 米, 螺旋圈数(6 圈), 螺旋直径 24MM。
Specifications: φ4×φ2. The total length is 10 meters, and the distance between the spiral tube and one end is 0.6 meters. The number of spiral coils is 6, and the spiral diameter is 24MM.

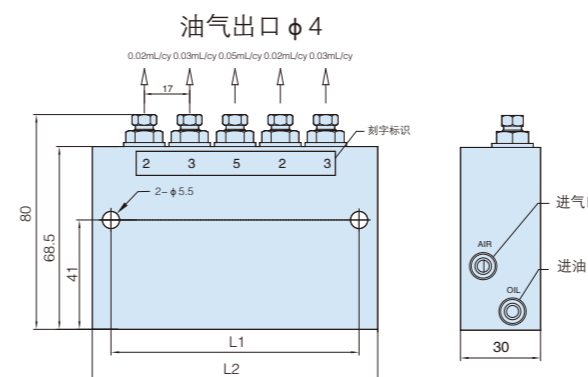
EFA 型(Type)

油气混合器 Oil and gas mixer



订货编制说明 Order description

EFA - [] - []		出油口油量值 Oil volume at oil outlet
1	0.01 毫升 / 次 0.01ml/time	
2	0.02 毫升 / 次 0.02ml/time	
3	0.03 毫升 / 次 0.03 ml/time	
5	0.05 毫升 / 次 0.05 ml/time	
		出油口数 Quantity of oil outlets
01	表示出油口数为 1 位 Indicates that the number of oil outlets is 1	
02	表示出油口数为 2 位 Indicates that the number of oil outlets is 2	
03	表示出油口数为 3 位 Indicates that the number of oil outlets is 3	
04	表示出油口数为 4 位 Indicates that the number of oil outlets is 4	
05	表示出油口数为 5 位 Indicates that the number of oil outlets is 5	
06	表示出油口数为 6 位 Indicates that the number of oil outlets is 6	



油量表示方法

(注: 当所有出油口油量一样只用一个油量表示)

例1: EFA-05-2表示EFA型5口分配器, 第1、2、3、4、5出油口油量全部为0.02毫升/次。

例2: EFA-05-53235表示EFA型5口分配器, 第1、2、3、4、5出油口油量分别为0.05、0.03、0.02、0.03、0.05毫升/次。

Oil quantity indication method

(Note: When the oil volume of all oil outlets is the same, only one oil volume is used to indicate)

Example 1: EFA-05-2 means EFA type 5-port distributor, the oil volume of the 1st, 2nd, 3rd, 4th and 5th oil outlets is all 0.02ml/time.

Example 2: EFA-05-53235 means EFA type 5-port distributor, the oil volume of the 1st, 2nd, 3rd, 4th and 5th oil outlet is 0.05, 0.03, 0.02, 0.03, 0.05 ml/time respectively.

注意事项:

- 根据实际需要控制油气混合器的工作次数;
- 请正确连接管路, 确保管路没有泄露;
- 管路连接后请先使油气混合器连续工作数次, 至出油口管路有油排出;
- 刻字标识“3”表示该出油口出油量为0.03ml/cy, 刻字标识“2”表示该出油口出油量为0.02ml/cy。

Precautions:

- Control the working times of the oil and gas mixer according to actual needs;
- Please connect the pipeline correctly to ensure that the pipeline does not leak;
- After the pipeline is connected, please make the oil-gas mixer work continuously for several times until the oil is discharged from the oil outlet pipeline;
- The lettering mark "3" indicates that the oil output of the oil outlet is 0.03ml/cy, The lettering mark "2" indicates that the oil output of the oil outlet is 0.02ml/cy.

油路、气路输入要求

Oil and gas input requirements

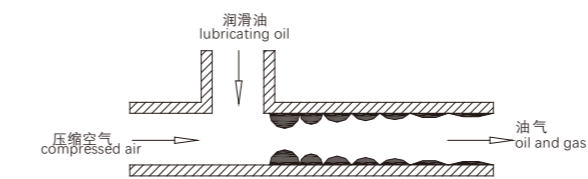
输入部分 input section	适用压力 Applicable pressure	输入介质过滤精度 Input media filter precision
油路 oil road	1.5-2.0MPa	5 μm
气路 Gas line	0.5-0.7MPa	5 μm

油气润滑基本原理

Basic principles of oil-air lubrication

润滑油经过分配器定量排出, 在压缩空气的作用下, 粘附在管壁四周形成不均匀油膜, 并缓慢向前移动, 在行将到达管道出口时, 油膜变得越来越薄且均匀, 最后以极其精细的连续油滴喷射到润滑点。(如下示意图)

The lubricating oil is quantitatively discharged through the distributor. Under the action of compressed air, it adheres to the pipe wall to form an uneven oil film and moves forward slowly. When it is about to reach the pipe outlet, the oil film becomes thinner and more uniform. It is sprayed onto the lubrication point in extremely fine continuous oil droplets. (as shown in the diagram below)



规格型号及技术参数 Specifications, models and technical parameters

规格型号 Specifications	L1	L2	进气口螺纹 Air intake thread	进油口螺纹 Oil inlet pipe thread	出油口径 Outlet diameter	吐油量(cc/cy) Discharge volume (cc/cy)
EFA-01	25	39	M10*1.0	M10*1.0	φ4	0.01/0.02/0.03/0.05
EFA-02	42	56				
EFA-03	59	73				
EFA-04	76	90				
EFA-05	93	107				
EFA-06	110	124				