| **Dagangan:** | **Kod Tarif (Perintah Duti Kastam 2007) :** |
|---|---|
| 16. Air Operated Double Diaphragm Pump<br>Trade Name : Air Double Diaphragm Pump<br>Model : A-16(3/8") | 8413.50.000 |

**Keterangan :**

Dagangan adalah *Air Operated Diaphragm pump*, A-16 (3/8") bersaiz Saiz 70.4 cm x 40.5 cm x 59.5 cm, Badan diperbuat dari Aluminium alloy. A*ir Operated Diapgragm pump* ini dijalankan secara *pneumatic* menggunakan *air compressor. Air Operated Diaphragm Pump ini digunakan untuk mengepam cecair yang pekat seperti minyak dan cecair toxic.* Terdapat 2 *diaphragm* yang saling bertentangan , 4 buah valve , liquid inlet & outlet dan air inlet untuk menolak *diaphragms* saling berganti saperti rajah dibawah *menurut (Air Operated Diaphragm Pump - Wikipedia)*. *Air Operated Diaphragm pump* ini mempunyai spesifikasi seperti berikut:

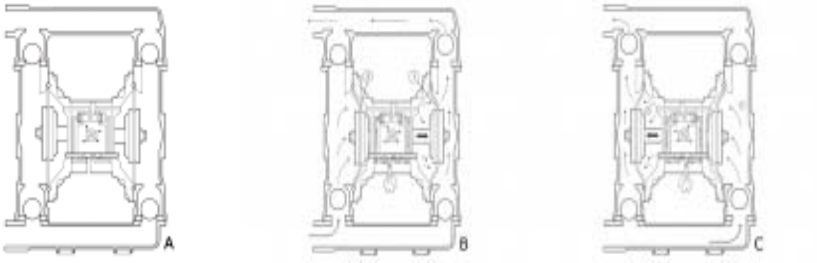
*Liquid inpuit method : Atmosphere pressure or additional ptressure*
*Max flow rate : 36 L/min*
*Air pressure range : 1 - 7 kgf/cm$^2$*

***Working principle air double diaphragm pump***

*The air diaphragm pump is an air-operated, positive displacement, self priming pump. The drawings show the flow pattern through the pump upon its initial stroke. It is assumed the pump has not been primed prior to its initial stroke.*

*A. The air valve directs pressurized air to the back side of diaphragm 1. The diaphragm acts as a separation membrane between the compressed air and the liquid. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm 2 is now on its air exhaust stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. The movement of Diaphragm 2 toward the center block of the pump creates a vacuum within chamber 2. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet ball valves off its seat. Liquid is free to move past the inlet ball valves and fill the liquid chamber.*

*B. When the pressurized diaphragm, diaphragm 1 reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm 2. The pressurized air forces diaphragm 2 away from the center block while pulling diaphragm 1 to the centre block. Diaphragm 2 forces the inlet ball valves onto its seat due to the hydraulic forces developed. These same hydraulic forces lift the discharge ball valves off its seat, while the opposite discharge ball valves is forced onto its seat, forcing fluid to flow through the pump discharge. The movement of diaphragm 1 to the center block of the pump creates a vacuum within the liquid chamber 1. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet ball valves is forced off its seat allowing the fluid being transferred to fill the liquid chamber.*



*C. Upon completion of the stroke, the air valve again redirects air to the back side of diaphragm 1, and starts diaphragm 2 on its air exhaust stroke.*

*Diaphragms are pressure-balanced to ensure longer life. High-pressure, high efficiency operation is achieved by the pump's unique design. Suction and discharge valves can be either ball valve or cylindrical valve.*

**Ketetapan:**

Mesyuarat Panel Penetapan Penjenisan ( kes biasa ) Bil.**22 /2010** memutuskan barangan ini sesuai diperjeniskan mengikut **GIR 1** di bawah kod tarif **8413.50 000** sebagai ***reciprocating positive displacement pump*** berdasarkan alasan seperti berikut :-

i. Keterangan dari *working principle* ( rujuk wikipedia) mengesahkan pump ini untuk mengepam cecair. *Diapragm* dikecut/kembang oleh tekanan udara yang disalurkan dari *Compressor.* Hasil dari kembang/kecut *diapragm* menghasilkan tekanan kepada cecair yang akan disalurkan.

ii. Digunakan untuk mengepam cecair pekat seperti minyak bukan udara oleh itu *heading* 8414 tidak sesuai. Ia diliputi dibawah *heading* 8413

***HEADING 84.14 - AIR OR VACUUM PUMPS**, AIR OR OTHER GAS COMPRESSORS AND FANS; VENTILATING OR RECYCLING HOODS INCORPORATING A FAN, WHETHER OR NOT FITTED WITH FILTERS.*

***HEADING 84.13 - PUMPS FOR LIQUIDS**, WHETHER OR NOT FITTED WITH A MEASURING DEVICE; LIQUID ELEVATORS (+*

*iii. Air Operated Diaphragm pump* ini adalah sejenis p*ositive displacement pump* dan bukan *centrifugal or rotary type.* Ini dijelaskan melalui laman web (*Air Operated Diaphragm pump* - Wikipedia )

*iv. Diapragm pump* mendapat liputan jelas HS EN2007 mukasurat XVI-8413-2 dimana ia dikatogerikan sebagai *Reciprocating positive displacement pump*

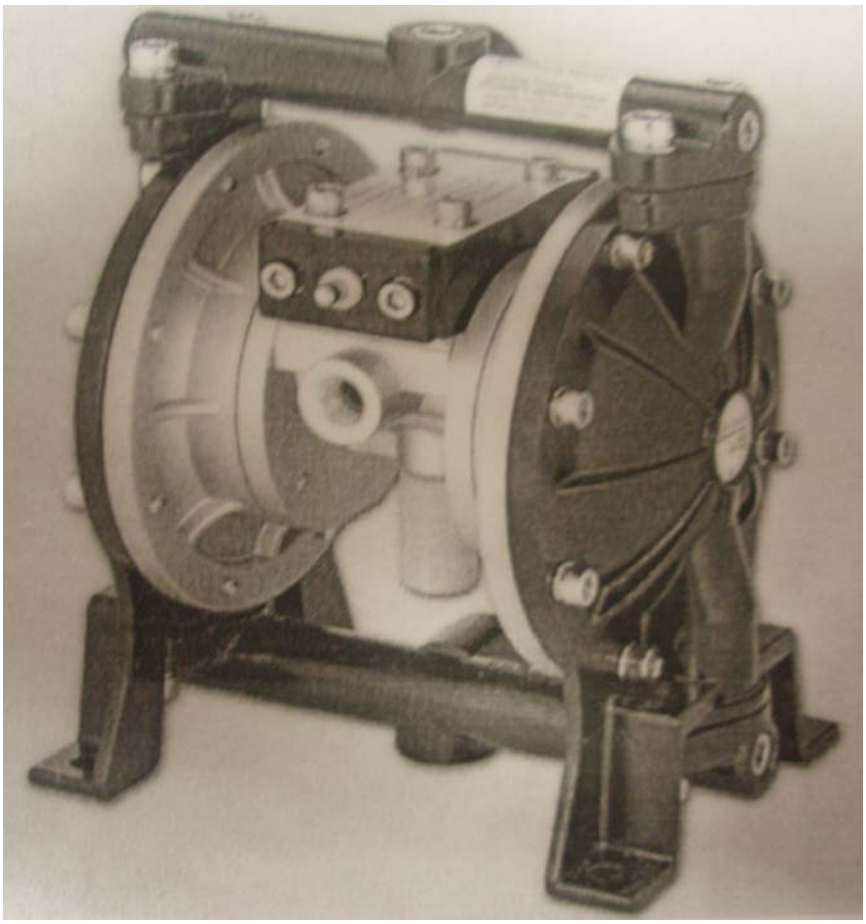
***(A) RECIPROCATING POSITIVE DISPLACEMENT PUMPS***

*These use the linear suction or forcing action of a piston or plunger driven within a cylinder, the inlet and outlet being regulated by valves. " Single-acting " pumps utilise the thrust or suction of one end of the piston only; " double-acting " types pump at both ends of the piston thus using both the forward and reverse strokes. In simple " lift " pumps the liquid is merely raised by suction and discharged against atmospheric pressure. In " force " pumps, the compression stroke is used, in addition to the suction stroke, to force the liquid to heights or against pressure.....*

*This category includes :*

*(1) **Diaphragm pumps**. These incorporate a vibrating membrane of metal, leather, etc. (actuated either directly or through a fluid transmission) by which the liquid is raised*

**Gambar :**



Air Operated Double Diaphragm Pump
Trade Name : Air Double Diaphragm Pump
Model : A-16(3/8")