

# High Pressure Homogenizer Catalogue



(Alfa Tech Korea Co.,Ltd.)

High pressure Homogenizer.

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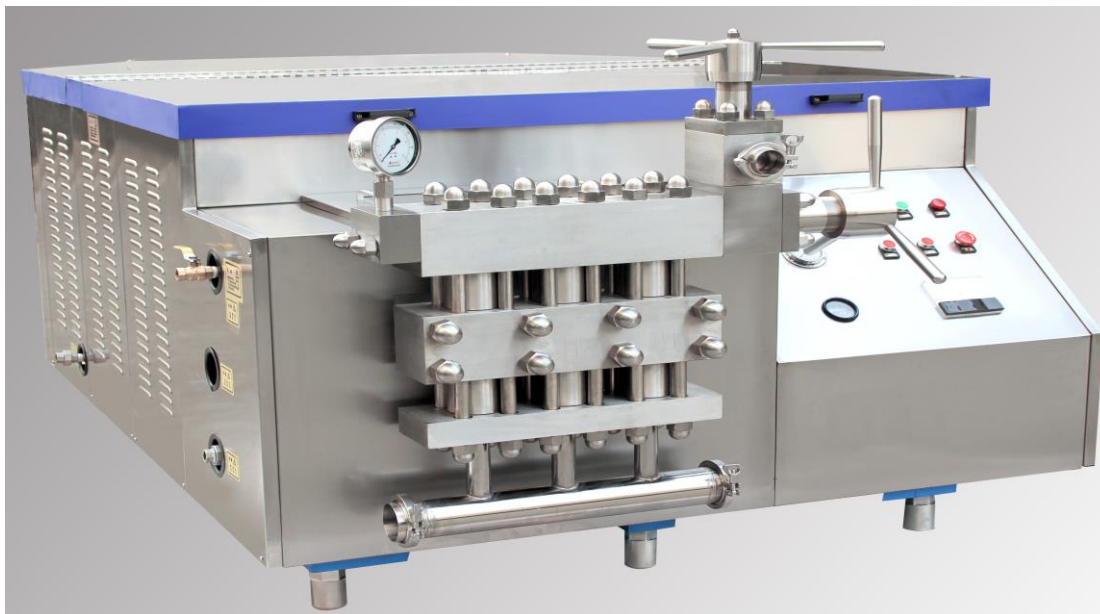
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## 1. Brief Introduction:

Alfa Tech Korea Co., Ltd. is a limited liability company, integrated research and development with production and sales and specialized in manufacturing kinds of equipment for comminuting, dispersing and homogenizing materials. Our company is one of specialized HP homogenizer manufacturers in Korea, which possesses rich engineering power and advanced production test and measurement equipment.

We are continuously introducing, consulting and absorbing the advanced technologies from the same occupation of foreign countries; in the meantime our designers use their design and practice experience of many years to replenish defects and shortcomings of previously produced equipment, combine with application of state-of-art technology and greatly enhance the features of High Pressure Homogenizers



The homogenizers developed and manufactured by Alfa Tech Korea Co.,Ltd. feature in good shape, smooth starting and running, less consumables and wearing parts, saving energy and simplified maintenance. The overall design and workmanship level approaches approximately the international benchmark and the products have been well received and praised by the clients at home and abroad.

Our company takes the slogan “First class products, first class quality and first class service” as the purpose, creates best excellent products in the domestic markets and makes our due contribution for promotion of modern development of Korean machinery industry and making the machining and processing equipment keeping pace with and surpassing advanced world levels.

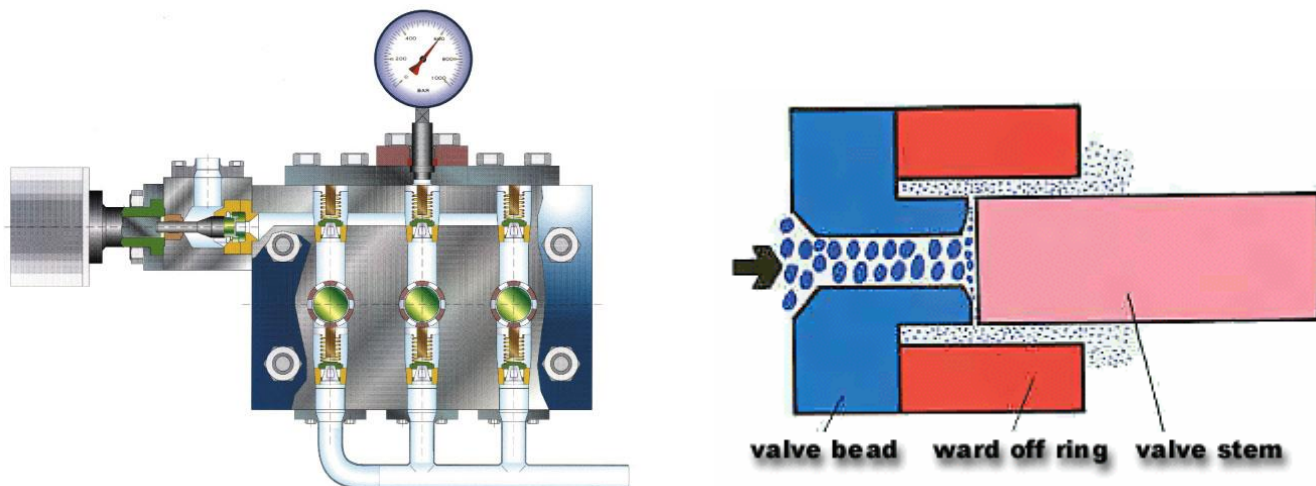
## 2. Description:

High pressure homogenizer is a kind of universal equipment, using in producing ultramicro-sized liquid and mixed liquid emulsion, or ultramicro-sized liquid and solid dispersion, in which the HP reciprocal pump is taken as the power transmission, making mixed crushing for kinds of aqueous materials or solid particles with liquid as the carrier through the main component of homogenizer – homogenizing valve.

This equipment gets a widespread application to many fields, such as foodstuff, beverage, pharmaceuticals, chemicals, bioengineering, Cosmetics etc. its emulsification and dispersion effects is greatly superior to colloid mill, three-roll mill and etc.

### 3. Working Principle:

The premixed material passes through pressurization of HP reciprocal pump and enters the homogenizing valve assembly under the high pressure state. When the material passes through the small gap between the spool and seat of the valve (the gap size is 0.04 - 0.1 mm), it receives squeeze, elongation and shear, and gets the extreme high flow rate (200 – 300 m/s) at the same time. Due to the rapid raise of material flow rate and accompanying sudden release of pressure power, the strong cavitations and turbulence effects are formed in a very short time and a very small space, thus making the original emulsion or suspension with coarser particles become untramiconized, uniform and stable liquid – liquid emulsion or liquid –solid dispersion.



### 4. Applications:

The unique principle of HP homogenizer operation can provide simple and fruitful ways for innovation of numerous process flows and development and uses of kinds of new products. The main functions of homogenization are as follows: raising the uniformity and stability of products, decreasing reaction time and saving a large quantity of catalysts or additives, changing thickness of products and improving taste and color of products, etc.,

#### The typical application fields are as follows:

##### Food and beverage industry:

Milk, soya-bean milk, peanut milk, concentrated milk, cream, mixed cheese, kinds of pulp type natural beverage, ice cream, health care nutritive liquid (e.g. pollen liquid), food additive, condiments, etc.



### **Chemical Industry:**

Painting & coating, emulsifier, fuel oil, heavy oil, antiseptics, pesticide, sensitive emulsion, rubber latex, thickener, bentonite, perfume compound, silicon material, carbon black, magnesium oxide, titanium dioxide, etc.



### **Cosmetic Industry:**

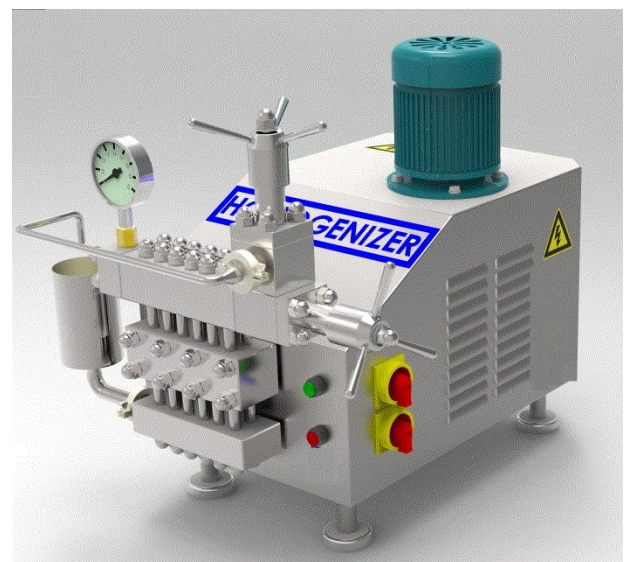
Detergent , amendment, shampoo, moisturizing milk, perfume, etc.

### **Pharmaceutical Industry:**

Antibiotic, antacid, liquid preparation, venous emulsion, etc.

### **Bio engineering Technology:**

Clasmatosis, extracts of protein, application of enzymatic engineering, etc.



## 5. Hygiene Standard:

As an equipment supplier of food processing industry, we always put hygiene in the first place in our quality standard.

All the positions contacted the processing material are accordance with food level hygienic requirements and no dead spaces are assured on cleaning.

The selected material are acid, alkali and corrosion resistant (i.e. the CIP cleaning requirements of acid and alkali concentrations 2 ~ 3%, temperature 80 - 90 °C can be satisfied).



## 6. Full-scale Technical Supporting System:

After delivery, each homogenizer is qualified to take part in Shin Chang's technical training.

Each homogenizer is provided with a guidance manual in order to guarantee the correct installation and successful production.

The preventive maintenance plan shall be provided for making the maintenance carry out according to the present schedule and the clients understand the necessary jobs in advance, thus the accidental faults and their accompanying risk of stopping production can be greatly reduced.

If the client needs the complicate maintenance, our maintenance engineers will give assistance at any time.



## 7. Selection of Personality Requirements:

Aseptic homogenizer technology

Integrated homogenizing & spraying machine

Automatic control flow homogenizer

## 8. Applications in Other Industry:

This equipment can be used as the high pressure atomizer pump which power source is same as HP homogenizer, provided you change the homogenizing and regulating part to a relief valve and connect it with the HP chamber of the pump body by a high pressure hose, the homogenizer will become a HP atomizer pump or a delivery pump.

Main applications:

- Atomizer pump in spray-drying equipment;
- Long distance handling material;
- HP hydraulic cleaning;

Sustained development and improvement of products is Shin Chang's consistent business thought.

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## 9. High Performance Homogenizer with Complete Series:

Below Models are different capacities and depending on application



1. HMC Model



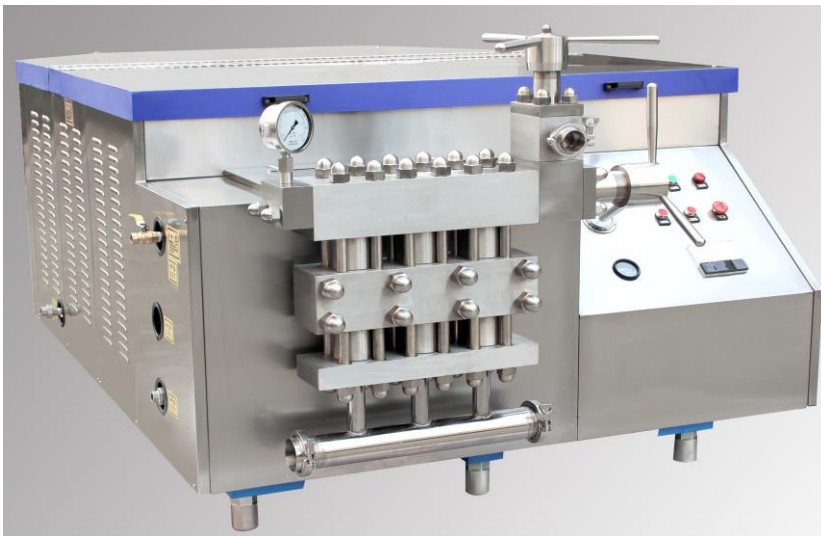
2. HMF Model



2. HG-3 Model



4. HG-2 Model



5. HLF Model



6. HS-3 Model



Full Auto system

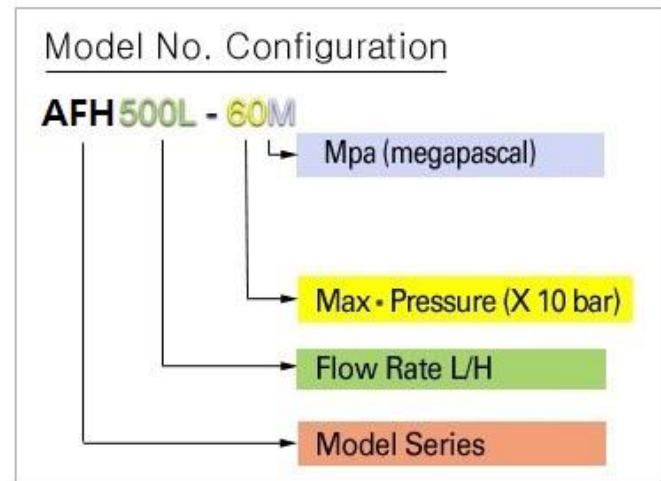


Pilot machine 50-300L/Hr

Selection Chart (용량별 조건표)

Pres. Flow	Pressure (Bar)							Power (Kw)	
	No.of V/V	1000	700	600	400	300	250		
F L O W - R A T E L/H	1	50		100			Pilot	2.2	JZG
	3	50	80	100	150	200	300	2.2	JS
	3	100	150	200	300	400	500	4	HS
	3	140	230	250	400	500	700	5.5	HS
	3	180	250	300	500	800	1000	7.5	HS
	3	250	400	500	800	1000	1500	11	HS
	3	400	600	800	1000	1500	2000	15	HG
	3	500	800	1000	1500	2000	2500	22	HG
	3	800	1200	1500	2000	3000	3000	30	HM
	3	1000	1500	1700	2500	3500	4000	37	HM
	3	1500	1800	2000	3000	4500	5000	45	HM
	3	1600	2500	3000	4000	5000/6000	6000/7000	55	HL
	3	2000	3000	4000	5000	7000	8000/9000	75	HL
	4	2500	4000	5000	6000/7000	9000	10000	90	HX4
	5	3000	5000	6000	8000	11000	12000/14000	110	HX5
	5		6000	7000	10000	13000	15000/17000	132	HX5
	6			8000	12000	16000	20000	160	HX6
	6			10000	15000	20000	25000	200	HX6

#### 모델 판별법

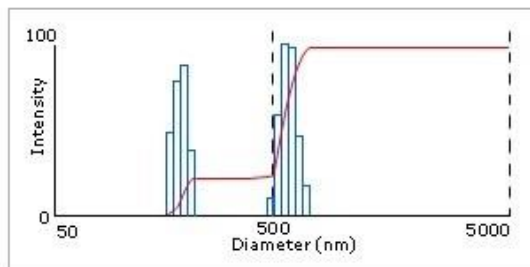


지금 시장을 석권 하고 있는 덴마크제품, 스웨덴제품, 미국제품, 일본 제품.. 기타 어떤 제품도 운전 중에 압력계의 바늘이 맥동(Hunting) 하는 현상을 볼 수 있습니다.

이것은 Plunger Pump의 왕복 운동에 따라 유체의 압력도 맥동 하는 것을 보여 주는 것 이며 균질 결과도 맥동 할 것 입니다. 당사 균질기는 이러한 맥동 현상이 나타나지 않고 항상 균일한 압력을 유지하는 것을 압력계의 바늘을 눈으로 보며 직접 확인 할 수 있습니다. 이것은 순간 압력을 평형 시키는 당사균질기만의 노하우로서 제품의 균질 기능이 더욱 우수할 것은 자명한 일입니다.

아래 그림은 외국제품과 비교하여 당사 제품의 우수성을 입증 하는 분석 결과 입니다.

(그림 1. 외국제-입자사이즈 0.5~0.9 미크론, 그림 2 당사제품-입자분포 0.3~0.4 마이크로)



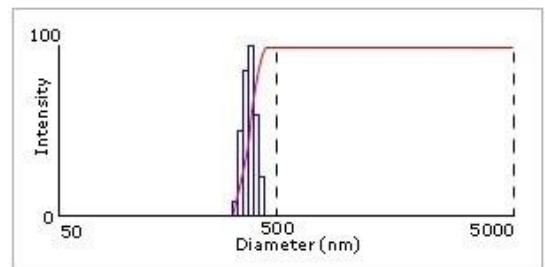
Multimodal Size Distribution

그림1. 타사균질기로 균질후 입자분석결과

25~900nm의 불규칙한 균질입자.

0.17~0.23, 0.46~0.71 미크론(μ)

입자 분포 대역 넓고 들쭉날쭉함.



Multimodal Size Distribution

그림2. 당사 균질기로 균질후 입자분포

300~400nm의 일정한 균질입자로 균질효과가 우수하다.

0.32~0.43미크론 (μ)

입자 분포 대역 좁고 균일함.