

## HEMAK AIR SYSTEM (HAS)

- Central Vacuum System (VAS)
- Compressed Air System (CAS)
- HVAC System
- Energy Saving System (ENTA)
- Energy Recovery System (ENGE)
- Central Cleaning System





Central Vacuum System (VAS)

### HEMAK AIR SYSTEM (HAS)

Vacuum air, compressed air, air conditioning and central cleaning systems are required in socks & seamless knitting factories.

HAS is a system with world class features developed by Hemak to meet these needs of socks & seamless knitting factories.

#### Major advantages of the Hemak Air System:

- Compacting waste without stopping the machines with compactor filter.
- Antistatic air flow with steel piping system.
- Minimum energy consumption with aerodynamic steel reducers, branches, elbows and pipes
- The only system that can be applied to any desired area.
- Heating and air conditioning the factory in winter by washing the factory exhaust air without requiring additional energy. (Free Cooling)
- Problem-free and long-lasting compressor rooms where the water and dirt in the compressor air are kept as soon as it leaves the compressor with separator collectors.
- With automatic vacuum control, the system can work at the desired vacuum value and saves energy.
- Maximum comfort with automatic humidity and temperature control.



Compressed Air System (CAS)



Heating, Ventilating And Air Conditioning System (HVAC)



Clean And Tidy Fan&Filter Rooms Where Wastage Made Into Briquettes Take Up Little Space.



Furniture Looking Devices Add Prestige To Your Factory.

## 1. CENTRAL VACUUM SYSTEM (VAS)

It is the most advanced sock & seamless vacuum system in the world, where both waste and vacuum can be adjusted to desired values separately, and has non-stop operation feature as a result of compactor filter application with steel pipes, bends and adapters.

In HEMAK systems, fresh air is washed, cleaned and conditioned to the corridors. Both workers and machines work in a comfortable air and with high efficiency.

Socks & seamless knitting takes place in clean and humid air. The socks and underwears are draped and are equal in length. Production quality increases.

The Central Vacuum System can be made in two different ways. These;

### a. Single Pipe Central Vacuum System

The sock & seamless knitting vacuum and waste vacuum are made from a single suction pipe.

Energy consumption is much lower than the system using a separate fan for each machine.

Breakdown and maintenance is minimal.

Machines are not stopped for waste cleaning.

### b. Double Pipe Central Vacuum System

It is the ideal system for nose uppers and socks turning machines. Energy consumption is minimum.

In this system, the sock & seamless knitting vacuum is connected to a separate fan and filter system, the waste vacuum and the spinning vacuum to a separate fan and filter system.

Since there is no wastage in the socks & seamless knitting vacuum, the vacuum filter always remains clean. Thus, as the vacuum will remain constant during knitting, it is ensured that the product lengths remain equal in all knitted products.

Waste vacuum intensity is high. Needle breakage are minimized.

**CENTRAL VACUUM SYSTEM ELEMENTS****Vacuum Fan**

It has high efficiency, quiet operation and a solid structure that does not collect dust. They are special fans developed for use in socks & seamless knitting systems.

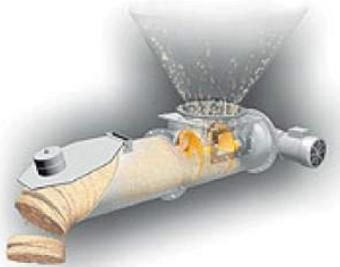
**Ejector and Sound Insulated Fan Cabinet**

It silences the sounds coming from the engine and body with its high density flame retardant acoustic sponge. In addition, there is a Hemak Ejector System that prevents the motor and cabin from overheating.

**Compactor Filter**

A first in the socks & seamless world.

It is a unique system developed by Hemak. Non-stop operation, waste discharging without stopping the machines, constant vacuum, quality production and energy saving thanks to non-clogging filters. It throws the fiber as briquettes. Wastage does not take up much space and dusting is prevented.

**Bag Type Filter**

Bag type filter system developed for socks & seamless factories is designed to provide maximum energy saving. It is modular.

**Silencer**

It minimizes the sound with its high density flame retardant acoustic sponge. PVC collector connection prevents vibration.

**Galvanized Pipeline**

It is the only system that can be applied to any desired area. It is unrivaled in the world with its steel spiro-safe pipe, steel reduction and steel branches. It is designed in accordance with industrial ventilation standards.

**PVC Collector**

Since the collectors, where the sock & seamless knitting and waste suction vacuum are collected, have a much smoother and smoother surface than standard suction hoses, they provide great energy savings with maximum suction and give your factory an aesthetic appearance.



As The Compressors Run Cool With The Ventilation Of The Compressor Room, Their Life Is Extended And Their Efficiency Increases. Energy Saving Is Provided.

## 2.COMPRESSED AIR SYSTEM (CAS)

The design, manufacture and assembly of this system requires advanced engineering. Correct design and installation ensures trouble-free operation and great energy savings.

A simple mistake in the valve, filter, dryer and piping causes large operating losses and additional investment.

Therefore, these systems must be made by expert engineering companies.

Compressed Air System consists of three parts. These;

### a. Compressor Room

It consists of compressors, collectors, dryers, filters, air tanks and distribution collectors.

It is the place where the compressed air produced by the compressors is processed and prepared according to the needs of the business and stored and distributed according to use.

### b. Compressor Room Ventilation

Air entering the compressor room; It is taken from the north facing, preferably shady, cool and dust-free environment.

The average temperature of the compressor room is kept between 18-25°C. Otherwise, compressor efficiency will decrease. When the compressor inlet air is kept constant at 25 C, the compressor efficiency increases by 10%.

### c. Ring System

With the one-piece pipe and rivet system developed by Hemak, the pipe doesn't rust and burr. Machine parts do not clog or deteriorate.

Air is taken from the pipe center. There is no water in the machines. Air velocities in the pipe are kept low. High energy saving is provided.



Uninterrupted And Dry Air Intake Guarantee With "Monolithic Piping System" Developed By Hemak



Tidy, Long-Lasting And Low-Maintenance Compressor Rooms With Separator Collectors



Hot Dip Galvanized And Certified Air Tanks; They Are Rust-Free, Guaranteed Dry Air Tanks.

## COMPRESSED AIR SYSTEM ELEMENTS

### Compressors

Compressors with high efficiency, low speed of the same air, hot water, direct coupled, high efficiency motor, high efficiency oil cooling and inverter controlled compressors are preferred.

### Seperator Collectors

Seperator collectors are a unique system developed by our company that makes a difference for the compressed air system, increases the order, life and efficiency of the compressor rooms.

Most of the water, dirt and dust in the compressor air are trapped here. Filters, tanks, dryers and valves do not rust, do not clog and do not require maintenance for a long time. Significant energy savings are achieved.

### Dryers

Dryers increase the performance of compressed air systems.

Eco-Dryer types, which are activated when needed and switched off when not needed, are preferred.

### Filters

Filters are used in sizes and features suitable for the quality of the air used by the enterprises.

Quality and clean air increases the efficiency of the compressed air system and extends its life. It ensures that the devices operate at maximum efficiency. It prevents clogging of valves, pipes and fittings. Filters therefore not only reduce service and maintenance costs, but also prevent additional investment and expense.

### Air Tanks

These are devices where uninterrupted, dry and clean air is stored and delivered to the system. Air tanks used in Hemak compressed air system; safe, long-lasting, certified, guaranteed clean and dry air is stored.



Maximum Comfort Is Achieved By Consuming Minimum Energy With Evaporative Air Conditioners With An All Stainless Body.

### 3. HEATING, VENTILATING AND AIR CONDITIONING SYSTEM (HVAC)

With the HVAC System, fresh air sucked from inside the factory in winter and outside the factory in summer is washed, humidified and cooled and blown into the hall where the workers and machine suction is located.

Worker and machine efficiency, production quality and comfort increase.

A humid, cool and dust-free environment is required for the quality of yarn and weaving, worker productivity and health in textile mills.

Therefore, textile air conditioning is a must in large spinning and textile factories.



Perfect Comfort And Spaciousness Are Provided With The Indoor Air Conditioning Developed By Hemak.

#### The main advantages of the HVAC System:

- Cooling and humidification in summer, heating and humidification in winter. Perfect environment and full comfort without spending extra energy.
- 100% fresh, cool and humid air in summer; unique application providing fresh, warm and humid air in winter.
- Minimum thread breakage, minimum dusting and minimum breakdown.
- Maximum efficiency and quality.
- Economic.



Hemak Ship Type Duct Fans With Duct Look, Decorative, Silent And Maintenance-Free And Self-Vented Air Conditioning Ducts.

## HVAC SYSTEM ELEMENTS

### Air conditioners

The body is completely made of stainless steel; Cooling pads are original Munters® brand, homogeneous water distribution, high efficient and long life.

### Supply and Exhaust Fans

They are special motor ship type fans with a special body with self-silencer and a high efficiency propeller made of polyamide material. It is unrivaled with its high efficiency, trouble-free operation and maintenance-free structure.

### Supply and Exhaust Ducts

It is made of self-vented, spiro-safe galvanized pipe, optionally, it is electrostatic powder coated in the desired color. Homogeneous air distribution is provided with hundreds of nozzles opened directly on the pipe developed by our company. It does not require maintenance with its dirt-repellent structure.



Galvanized Or Electrostatic Powder Coated Air Conditioning Ducts Add Value To Your Factory With Their Aesthetic Appearance.

### Automation

It automatically adjusts the temperature and humidity of the factory indoor air to the desired values with the electrical panel consisting of PLC, touch control panel, temperature&humidity sensor and inverter.



Energy Saving Up To 50% With Inverter Automatic Control And Energy Saving System

#### 4. ENERGY SAVING SYSTEM (ENTA)

Energy saving is prioritized in the Hemak Air System (HAS).

Energy savings between 10% and 50% are achieved with high efficient motors, fans, inverters, piping and pipe transition joints that will provide maximum energy savings.

#### Main advantages of Inverter Automatic Vacuum Control and Energy Saving System:

- When the number of working machines in the circuit is reduced, the same rate of electricity consumed.
- When the load of the machines decreases, additional savings by reducing the fan speed.
- Standard production by keeping the flow and pressure constant.
- Optimum pressure adjustment prevents thread piling, needle breakage and blade dull.
- Energy saving with the possibility of working separately compared to thick products and separately compared to thin products.

With Inverter Control;

- Providing full safety by protecting the motors in electrical fluctuations, preventing motor failure.
- Since the malfunctions in the electrical panels are not in the inverter, there is no loss of work and additional costs.
- Minimum energy loss with soft-start; maximum motor and bearing life.
- Maximum fan life with maximum electrical protection.



Equipped With Products Of World Famous Brands, Hemak Automation Panel Provides 100% Protection For Your Motors, Does Not Cause Any Malfunction And Does Not Require Maintenance.



EN-GE Application, Where Factory Heating Is Provided In Winter With The Factory Waste Heat With The Recycling Flap.

## 5. ENERGY RECOVERY SYSTEM (ENGE)

In HEMAK systems, the hot vacuum air sucked from the inside is washed and conditioned in air conditioners in winter, mixed with fresh air and supplied inside again. No additional heating costs are required to heat the knitting halls in winter.

100% fresh air taken from outside in the summer is washed and humidified in evaporative air conditioners. Thus, a perfect comfort and healthy environment is provided in the knitting halls. Worker, machine and production efficiency increases.

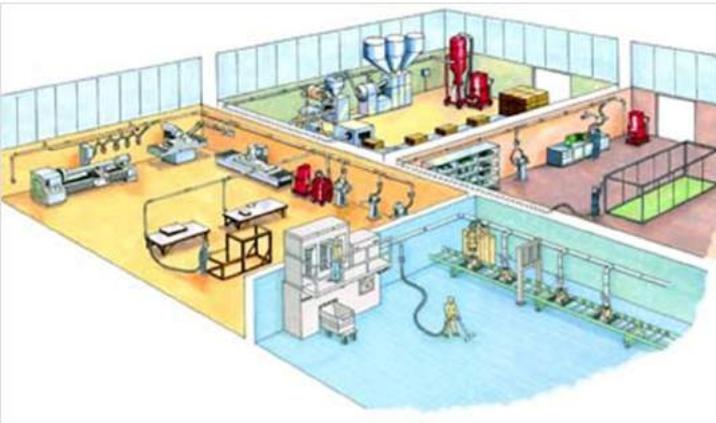
Factory heating, water heating, etc. by recovering 94% of the energy that compressors waste used in places.

## 6. CENTRAL CLEANING SYSTEM

Significant investments are made in modern buildings for such systems.

Utilizing the existing vacuum line in the Hemak Central Cleaning System, maximum cleaning is provided at minimum cost.

With a high vacuum central sweeping system, cleaning of the machine, floor cleaning, cleaning of the dust settled on the pipes and busbars is done, and cleaning with the very expensive compressor air is prevented. In addition, dust flying into the air in the cleaning with compressed air settles on busbars, trays and dead points.



With The Vacuum Central Cleaning System Developed By Hemak, Energy Savings And Absolute Cleaning Are Provided.



## REFERENCES




HEMAK

HEMAK AIR SYSTEM (HAS)

ISTANBUL / TURKEY

<b>ESKİŞEHİR ÇORAP</b>	<b>ERN</b> SOCKS EREN ÇORAP SAN. VE DİŞ TİC. LTD. ŞTİ.	<b>EROĞLU ÇORAP</b>	<b>EDİTEKS</b> DİŞ TİCARET A.Ş.
<b>EKOL LTD. ŞTİ. TÜRKMENİSTAN</b>	<b>ECO-SOFT TEKSTİL ÖZBEKİSTAN</b>	<i>Enigma BB</i> MISIR	
<b>GELAL</b> SOCKS INDUSTRY	<b>GIBOR ALFA</b> SOCKS MANUFACTURER	<b>GÖNÜLTAŞ ÇORAP</b>	<b>Gulecyuz Socks</b> Take a Big Step
<b>GÜLEÇLER</b>	<b>GIZA</b> Giza Spinning & Weaving MISIR	<b>HOBBY</b> SOCKS	<b>HITECH</b> TEKSTİL SAN. VE TİC. LTD. ŞTİ.
<i>haksan</i> tekstil	<b>INSPIRATION SOCKS KAZAKİSTAN</b>	<b>İLBAŞ</b> Çorap	<b>İTKİB</b> TEKSTİL, TİYATRİ VE GİYİMİN ENKAVİMİ ANKARA
<b>Jiber</b> <sup>®</sup>	<b>KÇ KARDEŞLER SOCKS</b>	<b>KATQAL TEKSTİL ÖZBEKİSTAN</b>	<i>Kardelen</i>
<b>kyass</b>	<b>LIBERTY</b> TEXTILE & SEAMLESSWEAR	<b>Lava</b>	<b>LATEKS SOCKS</b>
<b>MAYDIN</b>	<b>memTEKS</b> <sup>®</sup>	<b>meray</b> socks	<b>MILANO</b> <sup>®</sup>
<b>MISS FIT</b>	<b>MURAT</b> socks Industries Inc.	<b>MODA VERA</b> ÖRME TEKSTİL SAN. LTD. ŞTİ.	<b>MEDINVEST SİRBİSTAN</b>
<b>NACI</b> SOCKS SAN. VE TİC. LTD. ŞTİ.	<b>FDG</b> DİŞ TİCARET A.Ş.	<b>NBB</b> Lingerie	<b>NAZİK</b> İÇ GİYİM & KORSE



HEMAK

HEMAK AIR SYSTEM (HAS)

ISTANBUL / TURKEY

 <p>OZANTEKS</p>	 <p>OKYANUS ÇORAP "Ayağınızdaki Güzellik"</p>	<p>ORSHAH TEKSTİL ÖZBEKİSTAN</p>	 <p>ÖZTAŞ<sup>®</sup> ÇORAP</p>
 <p>ÖRMA TEKSTİL</p>	<p>ÖZGÜN METAL TEKSTİL</p>	 <p>PAKKENS<sup>®</sup></p>	 <p>PAKTAS // P</p>
 <p>Penti</p>	<p>PEKUNYA TEKSTİL</p>	 <p>Pier Lone Socks ÖZBEKİTEKSTİL</p>	 <p>PRO ÇORAP</p>
 <p>K·a·m·â·L You desire and we shape it into reality PAKİSTAN</p>	 <p>Rapsodi<sup>®</sup></p>	 <p>Roshan<sup>®</sup> SEAMLESS WOMENWEAR</p>	 <p>S sior<sup>®</sup> çorapları</p>
 <p>sml   seamless</p>	<p>SİMART TEKSTİL</p>	 <p>SOCKS FACTORY</p>	<p>SHAH TEKSTİL ÖZBEKİSTAN</p>
 <p>Şerif Çorap "1957 den beri"</p>	 <p>ŞİMŞEK ÇORAP</p>	 <p>Tekstüre ÇORAP SANAYİ VE TİCARET A.Ş.</p>	 <p>Tutku BÖCKE KNIT TEXTILE LTD. CO.</p>
 <p>TUTER</p>	 <p>TEMPO<sup>®</sup></p>	 <p>teksan</p>	 <p>TUTER FORT PAKİSTAN</p>
 <p>tekser</p>	 <p>ULTRA SOCKS</p>	 <p>UZTEX EAG ÖZBEKİSTAN</p>	 <p>VARİTEKS<sup>®</sup> ORTOPEDİ SANAYİ A.Ş.</p>
 <p>Vela Socks &amp; Seamlesswear</p>	 <p>Vip Socks</p>	 <p>VİZYON ÇORAP DOĞADAN AYAĞINIZA İRAN</p>	 <p>YAYLA SOCKS</p>
 <p>Yıldırım Çorap</p>	 <p>YÜKSEL ÇORAP</p>	 <p>YOSUN<sup>®</sup> socks</p>	 <p>ZARİF ÇORAP TEKSTİL</p>



### CERTIFICATES



QUALITY MANAGEMENT SYSTEM CERTIFICATE



CE CERTIFICATE



TRADEMARK REGISTRATION CERTIFICATE



TURKISH LLOYD CERTIFICATE



GERMANISCHER LLOYD CERTIFICATE



ABS CERTIFICATE



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