



DIL-TENTER KUMAŞ KURUTMA ve EN FİKSE MAKİNESİ

DIL-TENTER FABRIC DRYING and
HEAT SETTING MACHINE

DMS/22



DİLMENLER MAKİNE SANAYİ

Dilmenler, Türkiye, İstanbul'da 1982 yılında kurulan DMS Dilmenler Makine Tekstil San. Tic. A.Ş. 30.000 m² kapalı üretim sahasında 250 kişilik kalifiye ekibi ile Tekstil Boyama ve Terbiye Makineleri alanında üretim yapmaktadır.

Dilmenler has been established in 1982 and continues to manufacture Textile Dyeing and Finishing Machinery with a closed area of 30.000 m² and a qualified staff of 250 people.

SERTİFİKALARIMIZ

ISO 9001: 2008 Kalite Yönetim Sistemi,
EN ISO 3834-2 Metalik malzemelerin ergitme
kaynağı için kalite şartları,
97/23/EC Basıncılı Ekipmanlar Direktifi.

CERTIFICATIONS

ISO 9001: Quality Management System,
EN ISO 3834-2 Quality Conditions for
welding metallic equipments.
97/23/EC Pressure Equipment Directive.





DIL-TENTER Kumaş Kurutma ve En Fikse Makinesi

Fonksiyonel ve ergonomik tasarımı sayesinde teknolojinin geldiği en son noktada yüksek sistem ısı verimli 62,8 - 85% proses uygular.

Proses:

Kurudan veya Yaştan Fikse, Boya sonrası Kurutma, kurudan apreleme, yaştan apreleme, kaplama sonrası kurutma proseslerine hizmet eder.

Çalışma Eni:

1600-2000 mm Dokuma
2000-2400 mm Örgü Kumaş
3000-3400 mm Ev Tekstili Dokuma Kumaş
3400-4000 mm Dokusuz Yüzey ve Halı

Kabin Sayısı: min. 4 - max.12 kabinli

Isıtma Sistemi: Gaz, Kızgınyaz, Buhar

Üretim Hızı : 5-120 m/min

DIL-TENTER Fabric Drying and Heat Setting Machine

Is economically and ergonomically designed with latest technological achievements and it is with up to 62,8 - 85 % of calorific efficiency.

Process:

Heat setting from wet or dry fabric, drying after dyeing, impregnating from dry fabric, impregnating from wet fabric, drying after coating or lamination.

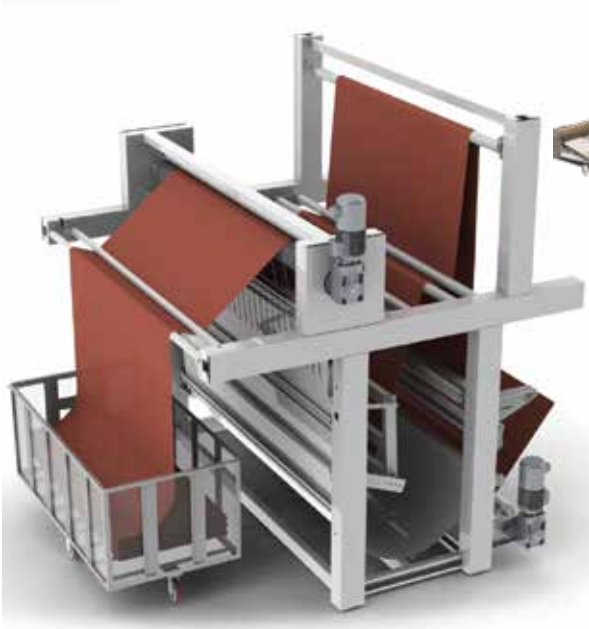
Working width:

1600-2000 mm woven fabric,
2000-2400 mm for knitted fabric,
3000-3400 mm for home textile woven fabric,
3400-4000 mm nonwoven and carpet.

No of Chamber: min 4 - max 12 chamber

Heating system: Natural gas, thermic oil, steam

Production speed: 5-120 m/min



Giriş bölümü

Dokuma kumaşlar için;

- › mekanik fren,
- › hız ayarlı baskılı çekici,
- › balerinli J-box,
- › pnömatik frenli yüksek girişli silindir,
- › çiftli motorize pozisyon ayarlı açıcı silindir grubu,
- › salıncaklı tip ortalayıcı ve full bant sensörü fulara yönlendirme silindiri.

Örgü kumaşlar için;

- › mekanik fren,
- › çiftli motorize pozisyon ayarlı açıcı silindir grubu,
- › hız ayarlı çitallı ortalayıcı grubu
- › full bant sensörü ve yönlendirme silindirleri

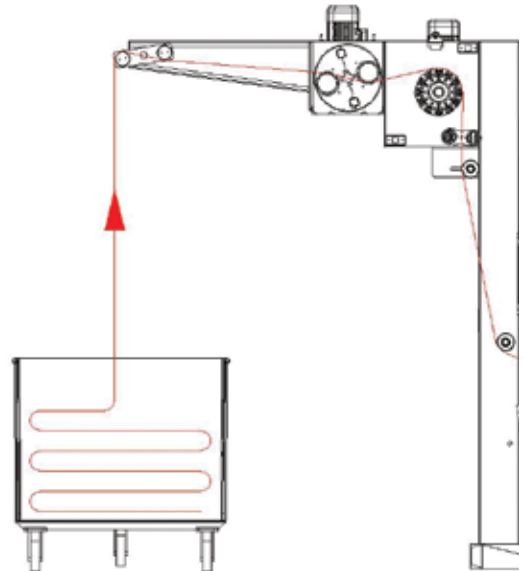
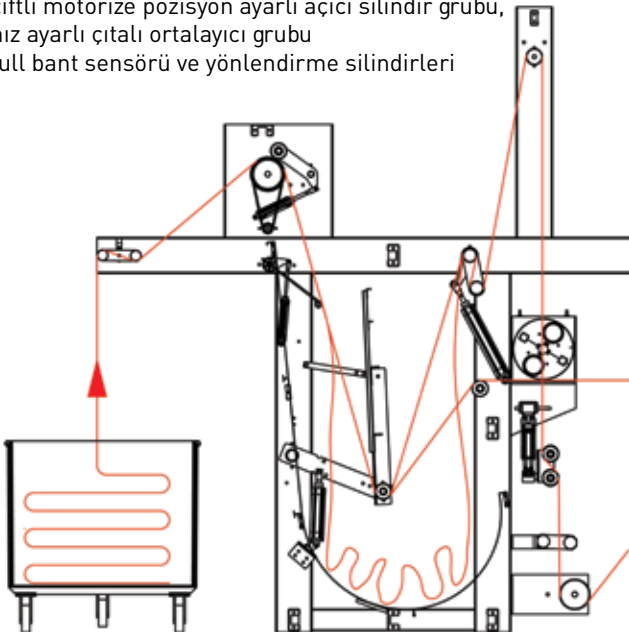
Entry section

For woven fabric,

- › mechanical brake,
- › speed adjusted pulling cylinder,
- › jbox and dancer roller,
- › High inlet with pneumatic brake,
- › Double opener with position adjustment
- › Dancer roller with full width sensor and directing roller

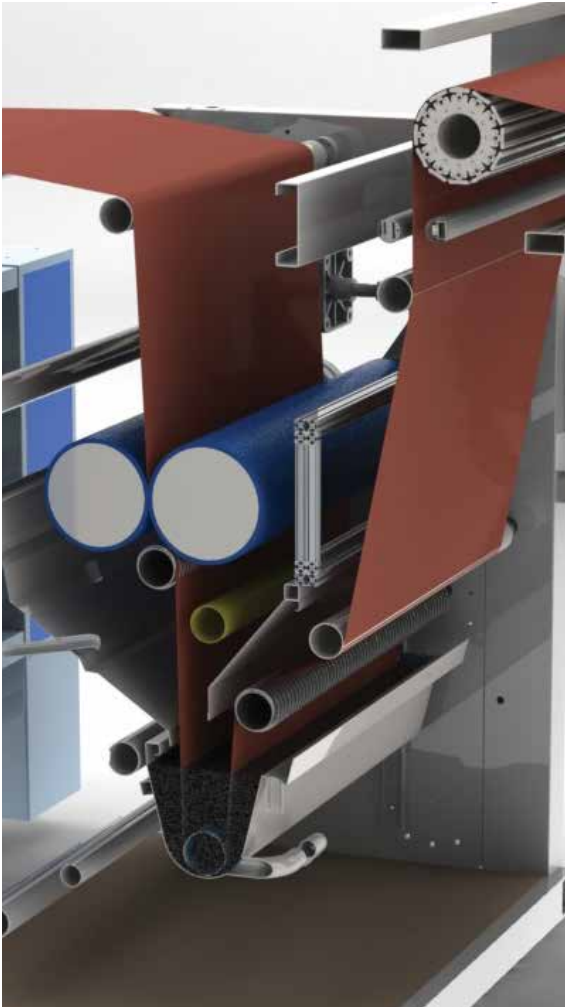
For knitted fabric,

- › mechanical brake,
- › Double opener with position adjustment,
- › Segmented Guide roller with speed adjustment,
- › Full width sensor and directing rollers



Çekicili J-Box ve Salıncaklı Tip Ortalayıcı (Dokuma Kumaş)

Çitallı Tip Ortalayıcı (Örgü Kumaş)



Sıkma Fuları

2 adet sıkma silindiri ve 80 litre sıvı kapasiteli, seviye kontrollü tank fular bölümüne monte edilmiştir. Sıvı tankı tamamen paslanmaz sacdan imal edilmiştir.

Sıkma ünitesi 2 adet 300 mm çaplı özel tip silindirlere oluşur. Silindirlerden birisi fular yan aynalarına kuvvetli yataklarla monte edilmiştir. Diğer silindir ise pnömatik piston vasıtasıyla hareket edebilir durumdadır. Bu ünite silindirlerin her noktasında üniform bir basınç (50 N/mm)

elde edilebilecek şekilde dizayn edilmiştir.

Kumaş tensiyon kontrol silindiri, kumaşın diğer fular veya makinenin diğer kısımları ile senkronize olarak çalışabilmesi için fuların çıkış kısmına monte edilmiştir.

Gerekli tüm pnömatik devre elemanları ve boruları yüklemeye dahildir.

Örme ve dokuma kumaş için açıcı silindirler sisteme dahildir. 2. fular uygulamasında sıkma basıncı 35 N/mm'dir.

Squeezing foulard

Squeezing foulard is manufactured from complete stainless steel with 2 squeezing rollers and a liquid bowl with 80 lt of capacity and level control system.

Squeezing unit consists of 2 polyurethane roller with 300 mm diameter. One of the roller is fixed on the main frame of foulard and the other one is movable by means of pneumatic pistons horizontally.

System designed in such a way that the nominal pressure is obtained throughout the width of the roller (50 N/mm)

Fabric tension control roller is mounted on the exit side of the foulard in order to synchronized the foulard with the rest of the machine. Squeezing pressure is 35 N/mm in 2nd foulard applications.



Makine giriş besleme sistemi

- › Operatör platformu ile beraber kumaş giriş ünitesi
- › Avansları ayrı ayrı ayarlanabilen her biri kendi hız kontrol cihazına sahip alt ve üst besleme silindirleri
- › Ana zincir üzerine +60%'a varan besleme imkanı
- › Paslanmaz malzemeden imal edilmiş, 2 adet açıcı silindir grubu ve manuel ayarlı atkı düzeltme sistemi.
- › Dokunmatik ekranlı Setex 848 TCE Kontrol Bilgisayarı ile makinenin tüm fonksiyonları kontrol edilir. Kumanda paneli açılabilir olarak sağ ve sola çevrilebilir.
- › 6 m. uzunluğunda zincir giriş sistemi



IR Kenar Kurutma / IR Edge Drying



Kenar İğneleme Besleme Sistemi / Edge pinning and feeding system

İğne giriş sistemi

- › Sağ ve sol hız avansları ayrı ayrı ayarlanabilen kenar iğneleme sistemi
- › Teflon sağ ve sol kumaş açıcıları ve iğne giriş sistemi
- › Kumaş iğneleme fırçaları (2 adet sağ, 2 adet sol)
- › Kumaş Kenar Takip sensörleri
- › Zincir Kol en ayar sitemi
- › Kumaş enine göre ayarlanabilen V veya H tipi buharlama ünitesi

Kenar Kolalama Sistemi

- › Alttan kolalama sistemi.(Standart)
- › Üstten kolalama sistemi.(Opsiyonel)

IR kenar kurutma sistemi

- › Kenar kola sürülen kumaş kenarlarını kurutarak pro-ses hızının muhafaza edilmesini sağlar.



Machine Entry Fabric feeding system

- › Fabric Entry Unit with Operator platform
- › Top and bottom overfeeding rollers with separate speed and overfeeding control.
- › Overfeeding up to 60%
- › Manually controlled weft straightening unit with two individual opener roller.
- › Control cabinet equipped with Setex 848TCE touch screen controller.
- › Chain Entry section with 6 meters of chain

Fabric pinning entry

- › Fabric edge pinning system with separate right/left speed adjustment
- › Fabric decurler before pinning in the entry
- › Fabric edge sensor
- › Fabric pinning wheels (2 nos at each side)
- › Chain width control system
- › V or H type steaming device adjusted according to the width of the fabric.

Edge Gluing System

- › Bottom Gluing System (standard)
- › Top Gluing System (optional)

IR Edge Drying system

- › Edge of the fabric is dried after glue application in order to keep the process speed constant.



Kurutma & Fikse Isı Kabinleri

- Çiftli hava sirkülasyonlu MULTI-AIR sistemli, manuel filitreli.
- Ana sirkülasyon fanları alt üfleme ve üst üfleme ayrı ayrı olmak üzere, performansları %50-100 arasında ayarlanabilir.
- Isı yalıtımı 150mm kalınlığında kaya yönü ile sağlamıştır.
- Hava sirkülasyon fanları her biri 7,5 kW/4p gücünde motorlara direkt akuple olarak bağlı 2 adet / kabin kullanılmıştır.
- Prizmatik düzeli MULTI-AIR sistemi ile hava akışı alt ve üst akış olarak bölünür ve kumaşın üzerinde daima homojen hava sirkülasyonu yapılması sağlanır.
- Makine durduğunda otomatik olarak kapanan pnömatik tahrikli by-pass klapeleleri ile hava üfleme kesilir.
- Servo sürücü kontrollü, dik veya yatık tip, zincir tahrik sistemi
- Epoxy tip, buhar ve neme dayanıklı elektrostatik boya sistemi.

Zincir Sistemi

- Dik zincir ; örgü modeli
- Yatık zincir sistemi; örgü, dokuma ve denim üç ayrı model
- Raylar özel çelikten imal edilmiş olup bakım gerektirmezler.
- Pnömatik olarak zincir tansiyon kontrolü
- Isıtma sistemi doğalgazlı, kızgın yağlı veya buharlı olabilir
- Egzost vantilatörü; 40-100% performans ayarlanabilir
- Zincir en ayar sistemi açma gerilimi 1000 kgf/lineer metre kumaş (14 oz Denim kumaşa uygundur.)
- Kurutma kabinlerinde, her biri 0.55 kW gücünde, 3 metre eksen aralığında zincir en ayar sistemi mevcuttur.
- Zincir çıkış kısmı için yine 0.55 kW gücünde 1 adet zincir en ayar sistemi.

Termofikse Sistemi

Kabin içine monte edilen termofikse sensörleri kumaşın yüzey sıcaklığını ölçerek istenilen fikse zamanının gerçekleştirilmesi için üretim hızının otomatik ayarlanmasını sağlar. Ayrıca manuelde karar verilen sabit üretim hızında kumaş yüzey sıcaklık dağılımının gözlenmesine imkan tanır. Sistemin faydası proses kalitesini artırma ve üretim artışıdır.

Egzost havası nem ölçümü ve kontrol sistemi

Egzost nem kontrol sistemi, kurutma temiz hava gereksinimini % 50 oranında azaltmaktadır. Bir sensör vasıtasıyla egzost havası mutlak nemi (kg H₂O/kg kuru hava) ölçülür. Manuel veya otomatik olarak kullanılabilir. Otomatik modta set edilen nem değerini gerçekleştirmek adına egzost fanı performansı inverter ile ayarlanır. Manuel modta fan performansı karar verilen değerde çalışır iken mutlak nem değeri gözlemlenir. Bu metodla kurutma pro-sesi en ekonomik şekilde çalıştırılarak %30'lara varan enerji tasarrufu sağlar.

Kurutma esnasındaki ısı tüketimi:

Buharlaşan her kg su için yaklaşık 3612 kJ (860 kcal)

Kenar kesme sistemi

Makineden çıkan kenar kolalı kumaşın kenarlarını kesmek için kullanılır. Maksimum 120 m/min. üretim hızına kadar kesme imkanı. Kenar takip sensörlü bıçak hareketi sayesinde minimum mesafede kesme imkanı sağlar.

Drying and Heat Setting Chambers

- Double air circulation MULTI-AIR system with manual filters
- Main blowers of 7,5 kw each with top and bottom air circulation, separately controlled via inverter.
- Isolation thickness of 150 mm with rock wool application.
- Air circulation is divided for top and bottom with prismatic nozzle system called MULTI-AIR in order to homogenous the air coming from top and bottom as required.
- Pneumatically controlled by-pass flaps in order to protect the fabric in case of any stoppage
- Vertical or horizontal chain system with servo drive controlled.
- Electrostatic epoxy paint resistant to steam and humidity

Chain system

- Vertical chain for knitted fabric
- Horizontal chain for woven, denim and home textile materials
- Chain rail produced with special steel for no maintenance long life
- Pneumatic chain tension control
- Heating system of Natural Gas, Thermic oil and Steam
- Exhaust fan, adjustable thorough exhaust humidity sensor
- Chain width adjustment system with max opening tension of 1000 kgf/lineer meter fabric (suitable for 14 oz denim fabric)
- Width adjustment system in each chamber (every 3 meters)

Thermo Setting system

Surface temperature of the fabric is measured by means of heat setting sensors placed inside the heating chambers in order to adjust the speed of the fabric to achieve the best results of thermo setting of fabric. System also enable to monitor the changes of surface temperatures at the desired speed. Thermo setting system increases the process quality and production with required results.

Exhaust Air Humidity Measurement and control system

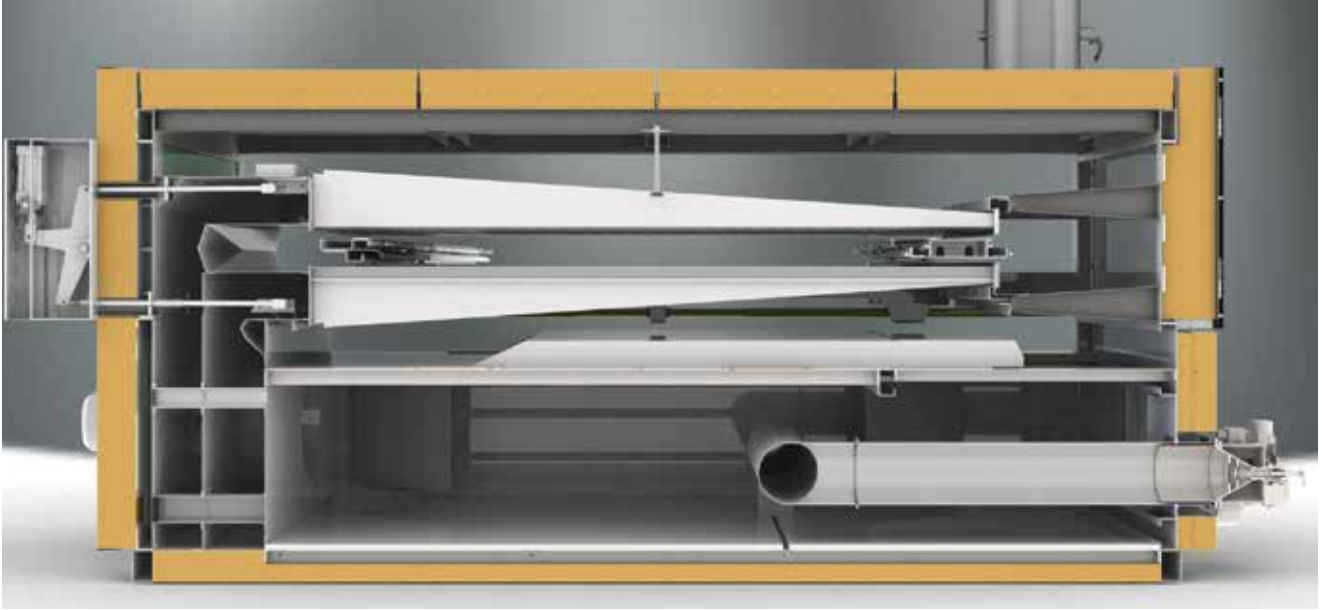
System reduces the requirement of fresh air by 50 %. Absolute humidity of the circulated air is measured by a sensor (as kg H₂O/kg dry air). In automatic mode, exhausts fan speed is adjusted via inverter to catch the pre setted humidity values. In manual mode, the changes in absolute humidity would be monitored while the exhaust fan runs with fixed speed. Up to 30% energy would be saved in drying process with the system.

Heat consumption in drying

3612 kJ (860 kcal) per kg of water evaporated

Edge Cutting system

System is used to slit the edge of the fabric after gluing process with max speed of 120 m/min. Minimum wastage is guaranteed by means of cutting disc movement with edge sensor.



Horizontal Chain Type A



Horizontal Chain Type B



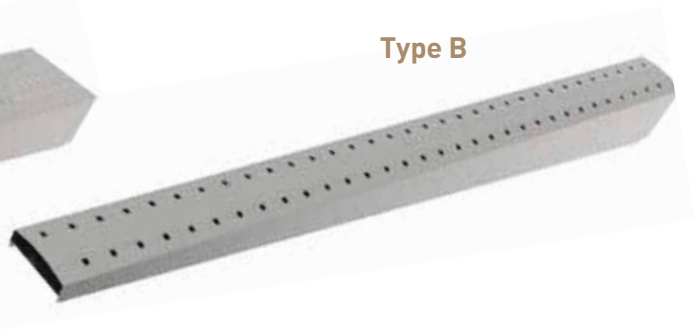
Vertical Chain

Düze Tasarımları / Nozzle Design

Type A



Type B



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Hava By-Pass klape tahrik Sistemi



En ayar tahrik sistemi ve mutlak enkoderi



Uçları açılabilen hava kanalları ile kolay ve hızlı düze temizliği

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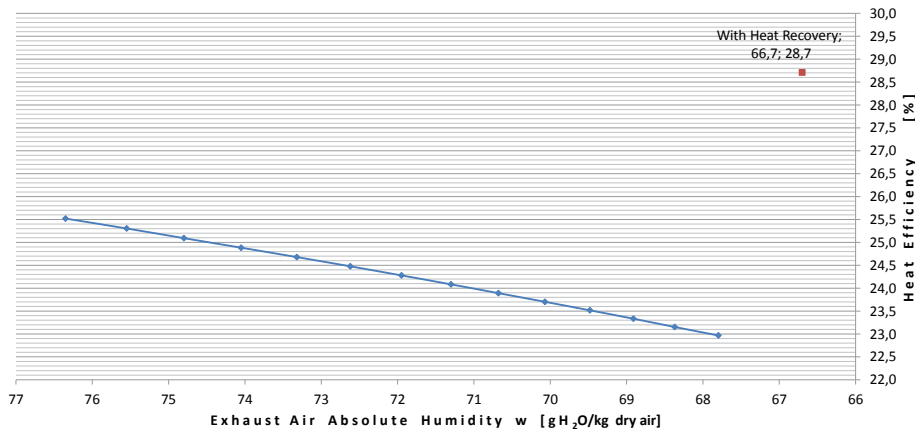
DMS 22



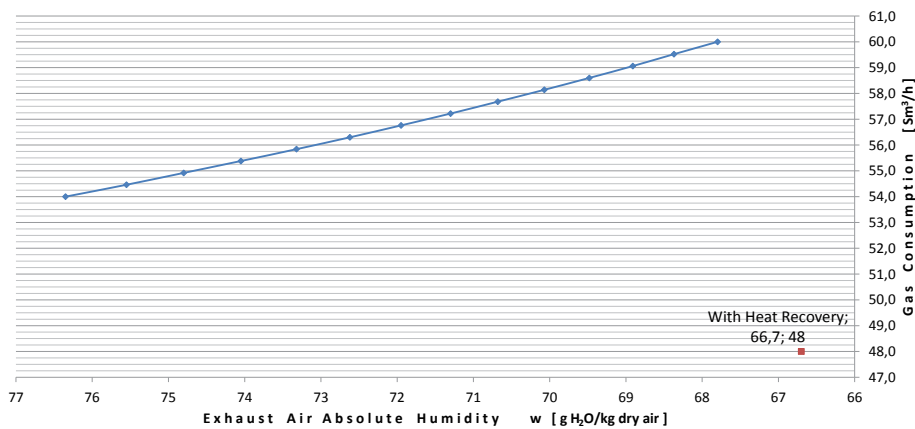
Manuel kapak, Manuel Elek, Doğal Gazlı Isıtma Sistemli Kabin

ÖRGÜ KUMAŞ KURUTMA PROSESİ
DRYING PROCESS FOR KNITED FABRIC

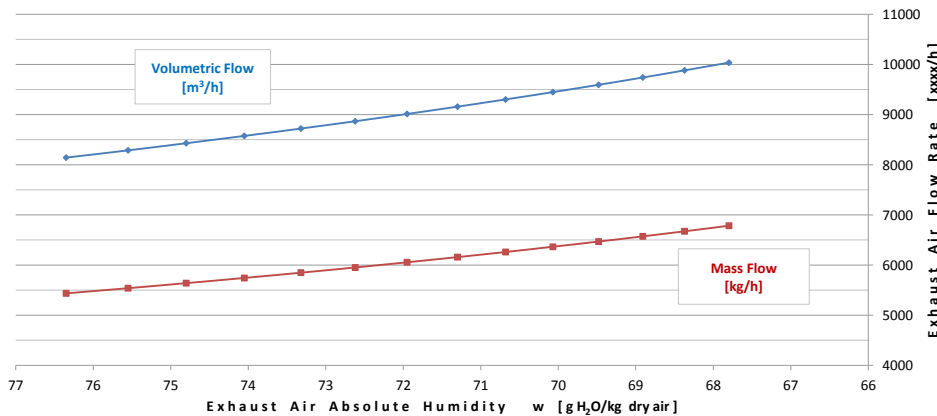
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



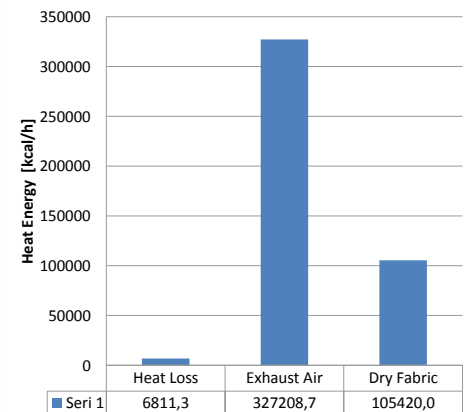
Z = altitude	meter	140
Number of Chamber	10	
Machine Type	Stenter	
Fabric Type	Knitted 24/1 Single Jersey	
Chamber Temperature	°C	190
Weight of Fabric	g/m2	264
Width of Fabric	cm	196
Squeezing Effect(Last Foulard)	%	39
Weight Variation	%	9
Dry Fabric Outlet Humidity	%w	0
Production Speed	m/min	25
Production Capacity	kg fabric/h	600
Water Evaporation per Hour	kg H ₂ O/h	234,0
Contact Time	sec.	72,0
Wet Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	190
Heat on the Wet Fabric	kcal/h	-16560
Heat on the Dry Fabric	kcal/h	121980

Without Heat Recovery	kcal/h	549300
Recovered Heat	kcal/h	-109860
Heat Recovery	%	-20,00

With Heat Recovery		
Heat Efficiency	μ%	28,7
Gas Consumption Coefficient	Sm ³ /kg fabric	0,0800
	Sm ³ /kg H ₂ O	0,2051

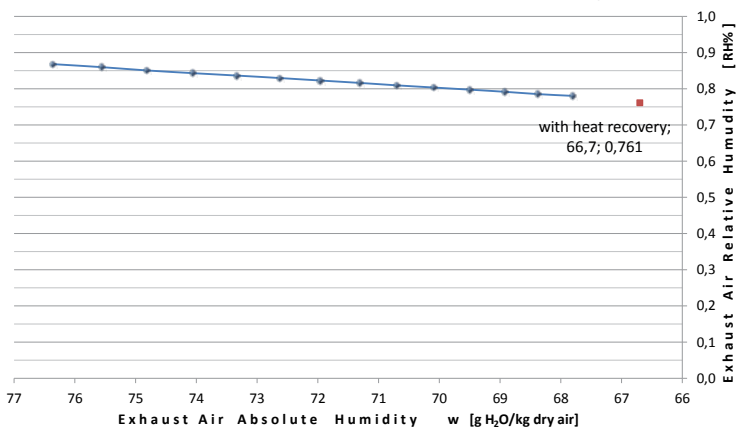
		Gas Consumption		Sm ³ /h	48
		Gas Calorific Value		kcal/Sm ³ gas	9155
		Heat Consumption		kcal/h	439440
		Heat Consumption Coefficient		kcal/kg H ₂ O	1878
Fresh Air for Burners		Combustion Air		m ³ /h	498
		Dry bulb Temperature		°C	35
		Relative Humidity		%RH	90
		Combustion Air m ₁ fresh air		kg/h	532
		Heat q ₁ fresh air		kcal/h	-15354
		Machine Body Heat Losses		kcal/h	6811
		Absolute Humidity w		g H ₂ O/kg dry air	66,7
		Exhaust Air m ₂ exhaust air		kg/h	7007
Pre-Heated Fresh Air		Fresh Air m ₂ fresh air		kg/h	6475
		Heat q ₂ fresh air		kcal/h	-296693
		Dry Bulb Temperature		°C	101,52
		Relative Humidity		%RH	4,73
Exhaust Air		Volumetric Fresh Air Need		m ³ /h	7362
		Heat q ₃ exhaust air		kcal/h	639256
		Dry Bulb Temperature		°C	190,45
		Relative Humidity		%RH	0,761
		Volumetric Flow Rate for Fresh Air		m ³ /h	10360
MASS BALANCE					0,0
ENERGIE BALANCE					0,0

Heat Consumption
With Heat Recovery

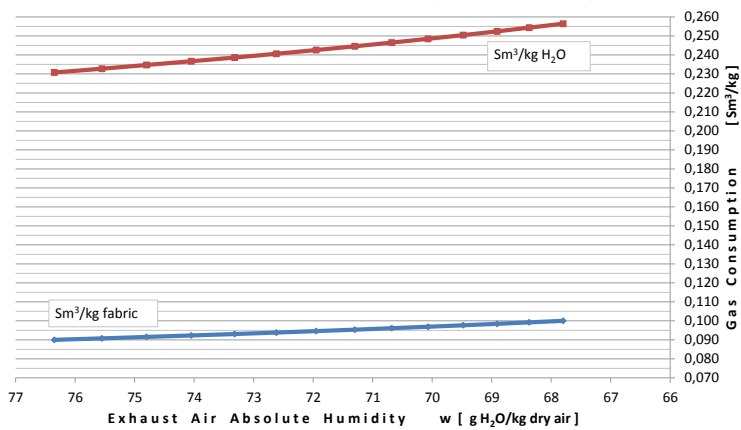


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

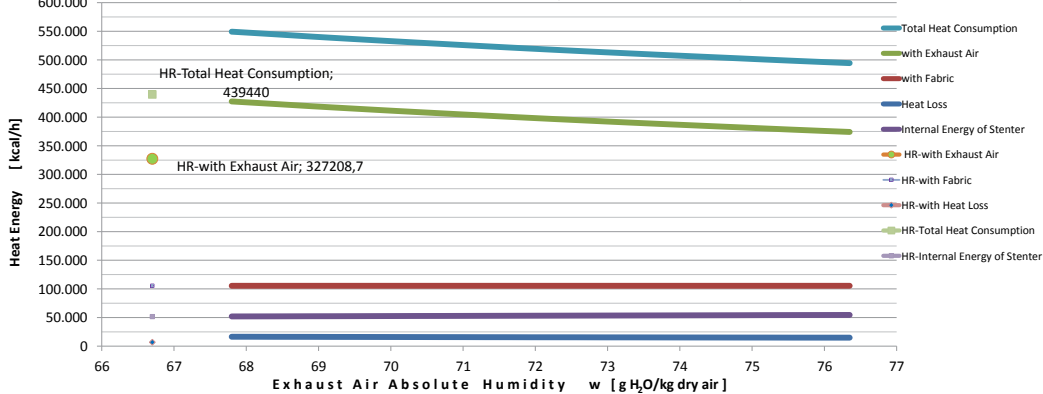


Exhaust Air Absolute Humidity-Gas Consumption

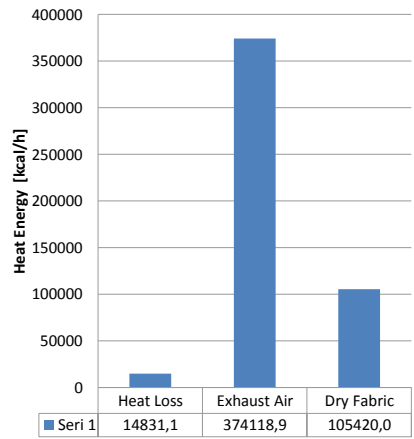


Without Heat Recovery																
25,5	25,3	25,1	24,9	24,7	24,5	24,3	24,1	23,9	23,7	23,5	23,3	23,2	23,0	μ %	Heat Efficiency	
0,0900	0,0908	0,0915	0,0923	0,0931	0,0938	0,0946	0,0954	0,0961	0,0969	0,0977	0,0984	0,0992	0,1000	Sm³/kg fabric	Gas Consumption Coefficient	
0,2308	0,2327	0,2347	0,2367	0,2386	0,2406	0,2426	0,2445	0,2465	0,2485	0,2504	0,2524	0,2544	0,2564	Sm³/kg H ₂ O		
54	54,46	54,92	55,38	55,84	56,3	56,76	57,22	57,68	58,14	58,6	59,06	59,52	60	Sm³/h	Gas Consumption	
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm³ gas	Gas Calorific Value	
494370	498581	502793	507004	511215	515427	519638	523849	528060	532272	536483	540694	544906	549300	kcal/h	Heat Consumption	
2113	2131	2149	2167	2185	2203	2221	2239	2257	2275	2293	2311	2329	2347	kcal/kg H ₂ O	Heat Consumption Coefficient	
560	565	569	574	579	584	588	593	598	603	607	612	617	622	m³/h	Combustion Air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
599	604	609	614	619	624	629	634	639	645	650	655	660	665	kg/h	Combustion Air m ₁ fresh air	
-17273	-17421	-17568	-17715	-17862	-18009	-18156	-18303	-18451	-18598	-18745	-18892	-19039	-19193	kcal/h	Heat Q ₁ fresh air	
14831	14957	15084	15210	15336	15463	15589	15715	15842	15968	16094	16221	16347	16479	kcal/h	Heat Losses	
76,35	75,55	74,8	74,05	73,32	72,62	71,95	71,3	70,68	70,07	69,48	68,91	68,37	67,798	g H ₂ O/kg dry air	w Absolute Humidity	
5436	5539	5639	5743	5848	5952	6055	6159	6261	6365	6469	6572	6673	6784	kg/h	m ₂ Exhaust Air	
4838	4935	5030	5129	5229	5328	5426	5524	5622	5720	5819	5917	6014	6119	kg/h	m ₂ Fresh Air	
-139586	-142409	-145151	-147999	-150875	-153732	-156563	-159405	-162206	-165056	-167904	-170745	-173518	-176558	kcal/h	Heat Q ₂ Fresh air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
4524	4615	4704	4796	4890	4982	5074	5166	5257	5349	5441	5534	5623	5722	m³/h	Volumetric Flow Rate for Fresh Air	
530978	538034	545008	552088	559196	566285	573348	580422	587455	594537	601618	608691	615696	623152	kcal/h	Heat Q _{consumed air}	
190,00	190,01	190,09	190,08	190,04	190,02	190,03	190,02	190,05	190,03	190,02	190,02	190,06	190,00	deg C	Dry Bulb Temperature	
0,868	0,860	0,850	0,843	0,836	0,830	0,823	0,816	0,809	0,803	0,797	0,792	0,785	0,780	%RH	Relative Humidity	
8142	8287	8430	8575	8722	8868	9013	9158	9303	9448	9594	9739	9883	10037	m³/h	Volumetric Flow Rate for Fresh Air	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE		
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	ENERGY BALANCE		

Exhaust Air "Absolute Humidity - Heat Consumption"

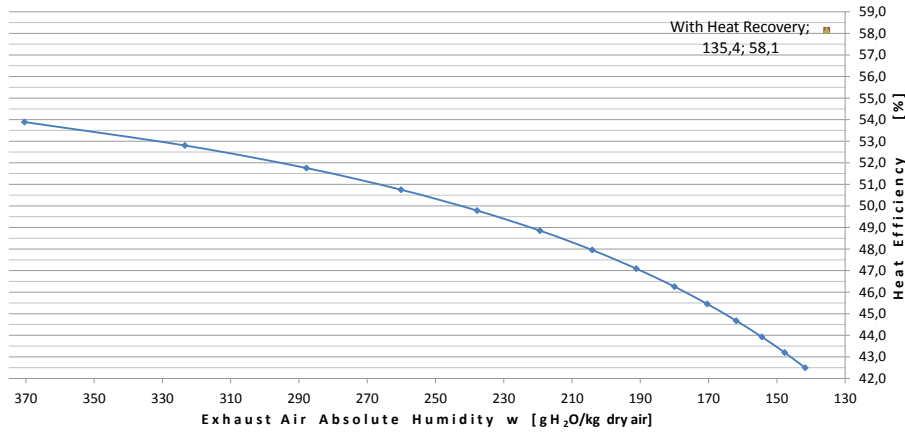


Heat Consumption Without Heat Recovery

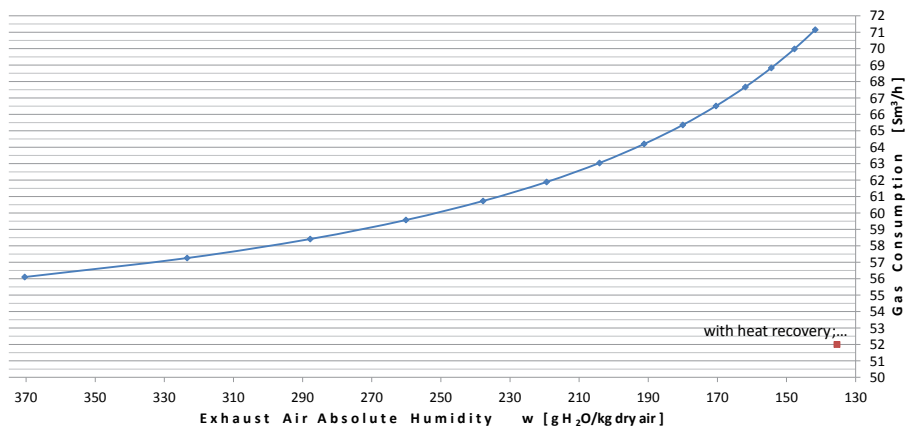


ÖRGÜ KUMAŞ KURUTMA PROSESİ
DRYING PROCESS FOR KNITED FABRIC

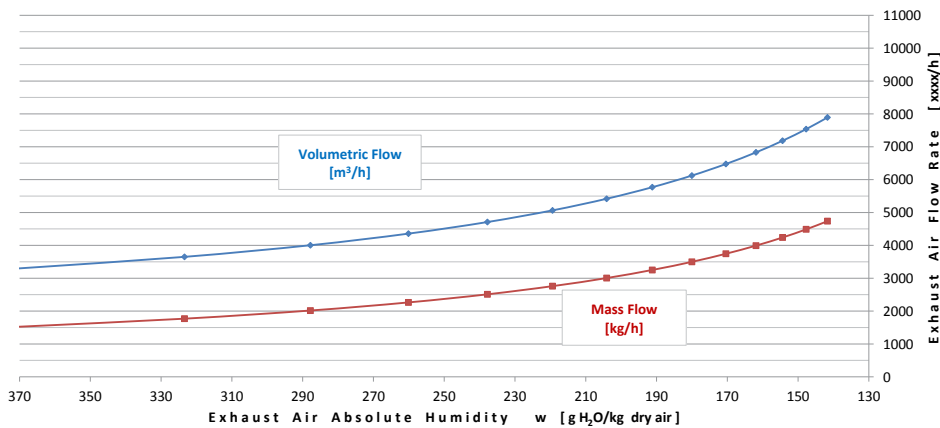
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



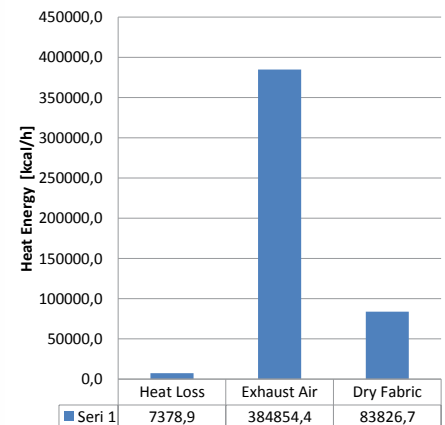
Z = altitude	meter	140
Number of Chamber	10	
Machine Type	Stenter	
Fabric Type	Knitted 28/10E Vis. Full Lyc.Sprm.	
Chamber Temperature	°C	198
Weight of Fabric	g/m2	237
Width of Fabric	cm	181
Squeezing Effect(Last Foulard)	%	93
Weight Variation	%	47
Dry Fabric Outlet Humidity	%w	0
Production Speed	m/min	19
Production Capacity	kg fabric/h	552
Water Evaporation per Hour	kg H ₂ O/h	513,4
Contact Time	sec.	94,7
Wet Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	198
Heat on the Wet Fabric	kcal/h	-33120
Heat on the Dry Fabric	kcal/h	116947

Without Heat Recovery	kcal/h	651378
Recovered Heat	kcal/h	-175318
Heat Recovery	%	-26,91

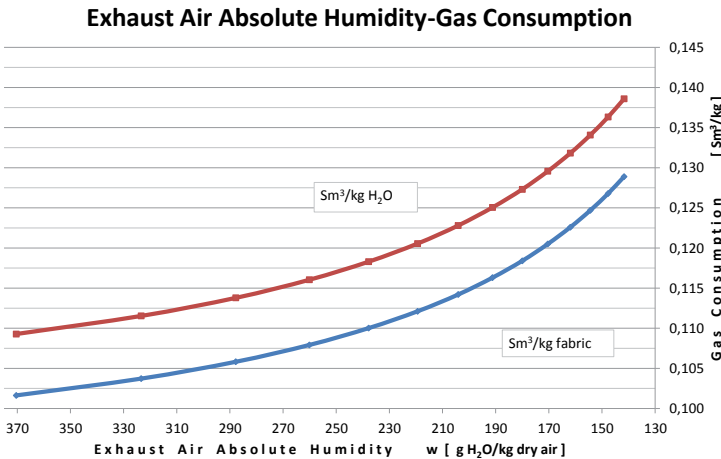
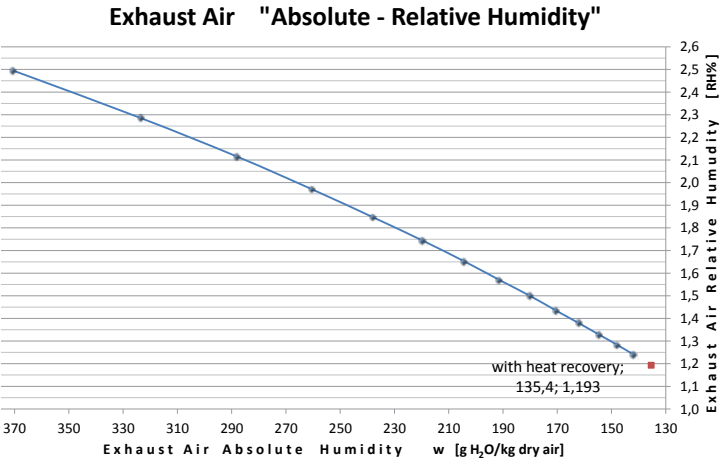
With Heat Recovery		
Heat Efficiency	μ %	58,1
Gas Consumption Coefficient	Sm³/kg fabric	0,0942
	Sm³/kg H ₂ O	0,1013

Gas Consumption		Sm ³ /h	52
Gas Calorific Value		kcal/Sm ³ gas	9155
Heat Consumption		kcal/h	476060
Heat Consumption Coefficient		kcal/kg H ₂ O	927
Fresh Air for Burners	Combustion Air	m ³ /h	539
	Dry Bulb Temperature	°C	35
	Relative Humidity	%RH	90
	Combustion Air m ₁ fresh air	kg/h	576
	Heat q ₁ fresh air	kcal/h	-16634
Machine Body Heat Losses		kcal/h	7379
Absolute Humidity w		g H ₂ O/kg dry air	135,4
Pre-Heated Fresh Air	Exhaust Air m _{2(exhaust air)}	kg/h	5028
	Fresh Air m _{2(fresh air)}	kg/h	4452
	Heat q _{2(fresh air)}	kcal/h	-303773
	Dry Bulb Temperature	°C	189,41
	Relative Humidity	%RH	0,41
Exhaust Air	Volumetric Fresh Air Need	m ³ /h	6249
	Heat q _{2(exhaust air)}	kcal/h	705261
	Dry Bulb Temperature	°C	198,05
	Relative Humidity	%RH	1,193
	Volumetric Flow Rate for Fresh Air	m ³ /h	8310
MASS BALANCE			0,0
ENERGIE BALANCE			0,0

Heat Consumption
With Heat Recovery

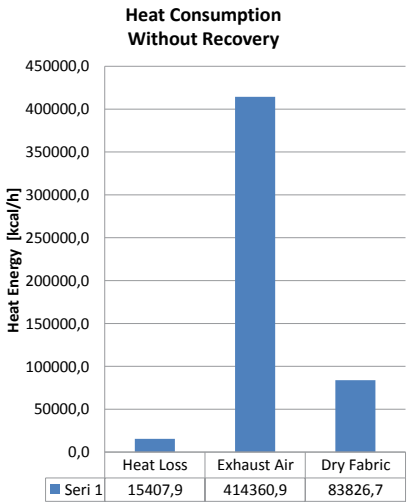
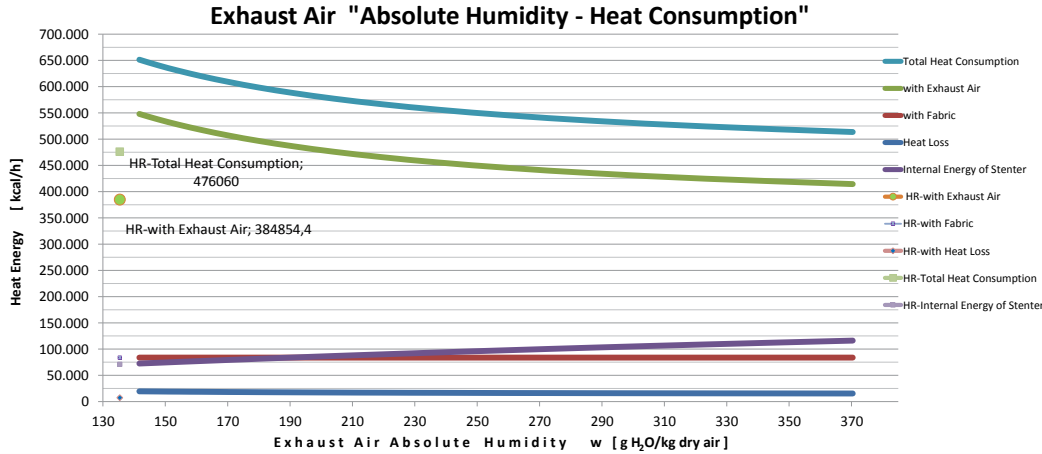


DGHS Direct Gas Heated Stenter



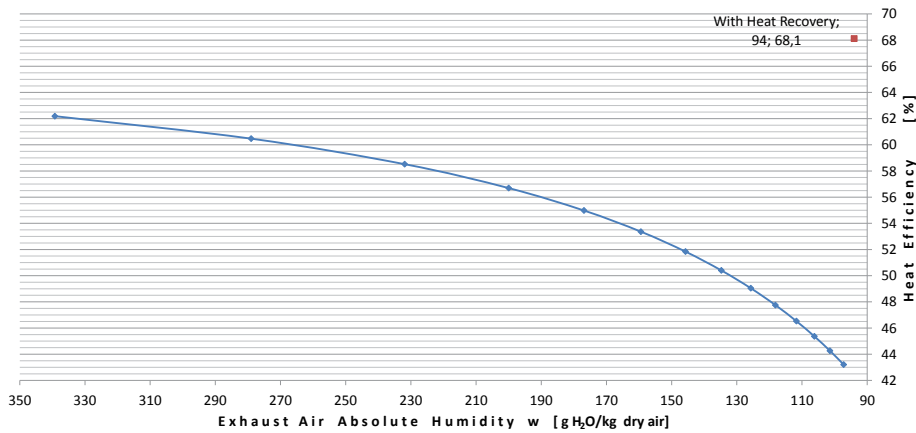
Without Heat Recovery														μ %	Heat Efficiency
53,9	52,8	51,8	50,8	49,8	48,9	48,0	47,1	46,3	45,5	44,7	43,9	43,2	42,5	Sm³/kg fabric	Gas Consumption Coefficient
0,1016	0,1037	0,1058	0,1079	0,1100	0,1121	0,1142	0,1163	0,1184	0,1205	0,1226	0,1247	0,1268	0,1289	Sm³/kg H2O	
0,1093	0,1115	0,1138	0,1160	0,1183	0,1205	0,1228	0,1251	0,1273	0,1296	0,1318	0,1341	0,1363	0,1386		

56,1	57,257	58,414	59,571	60,728	61,885	63,042	64,199	65,356	66,513	67,67	68,827	69,984	71,15	Sm³/h	Gas Consumption
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm³ gas	Gas Calorific Value
513596	524188	534780	545373	555965	566557	577150	587742	598334	608927	619519	630111	640704	651378	kcal/h	Heat Consumption
1000	1021	1042	1062	1083	1104	1124	1145	1166	1186	1207	1227	1248	1269	kcal/kg H2O	Heat Consumption Coefficient
582	594	606	618	630	642	654	666	678	690	702	714	726	738	m³/h	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
622	635	648	660	673	686	699	712	725	737	750	763	776	789	kg/h	Combustion Air m1 fresh air
-17945	-18315	-18685	-19055	-19426	-19796	-20166	-20536	-20906	-21276	-21646	-22016	-22386	-22759	kcal/h	Heat q1 fresh air
15408	15726	16043	16361	16679	16997	17314	17632	17950	18268	18586	18903	19221	19541	kcal/h	Heat Losses
370,4	323,4	287,8	260,1	237,8	219,4	204,1	191,2	180	170,4	161,9	154,4	147,7	141,68	g H2O/kg dry air	w Absolute Humidity
1523	1770	2017	2264	2510	2759	3006	3251	3500	3745	3992	4239	4488	4737	kg/h	m1 Exhaust Air
901	1135	1370	1603	1837	2073	2307	2540	2775	3007	3242	3476	3712	3948	kg/h	m2 Fresh air
-25997	-32746	-39519	-46258	-53010	-59802	-66562	-73278	-80070	-86771	-93543	-100307	-107101	-113921	kcal/h	Heat q2 Fresh air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
843	1061	1281	1499	1718	1938	2157	2375	2595	2812	3032	3251	3471	3692	m3/h	Volumetric Flow Rate for Fresh Air
458303	475697	493114	510498	527895	545331	562736	580097	597534	614879	632296	649705	667143	684691	kcal/h	Heat Exhaust air
198,00	198,03	198,00	198,04	198,05	198,00	198,00	198,06	198,02	198,09	198,08	198,07	198,03	198,02	deg C	Dry Bulb Temperature
2,495	2,285	2,114	1,969	1,846	1,743	1,651	1,569	1,499	1,434	1,378	1,327	1,282	1,239	%RH	Relative Humidity
3298	3651	4004	4357	4710	5064	5418	5769	6124	6475	6829	7182	7537	7893	m3/h	Volumetric Flow Rate for Fresh Air
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	ENERGY BALANCE	

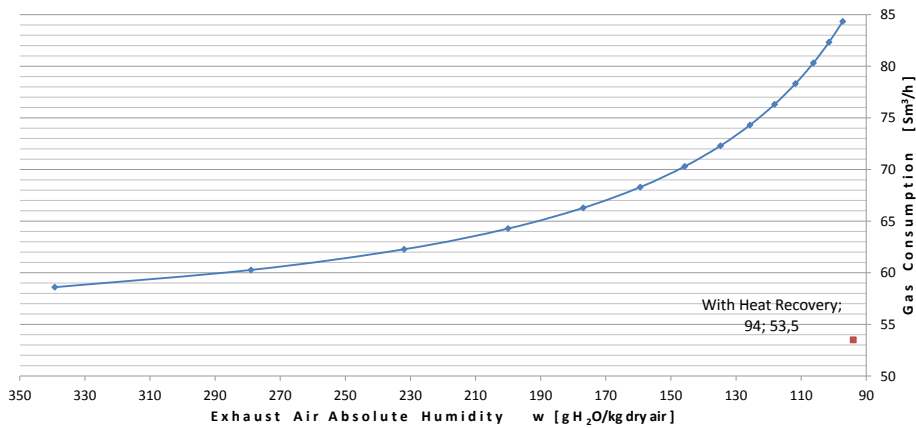


ÖRGÜ KUMAŞ KURUTMA VE TERMOFİKSE PROSESİ
DRYING AND HEATSETTING PROCESS FOR KNITTED FABRIC

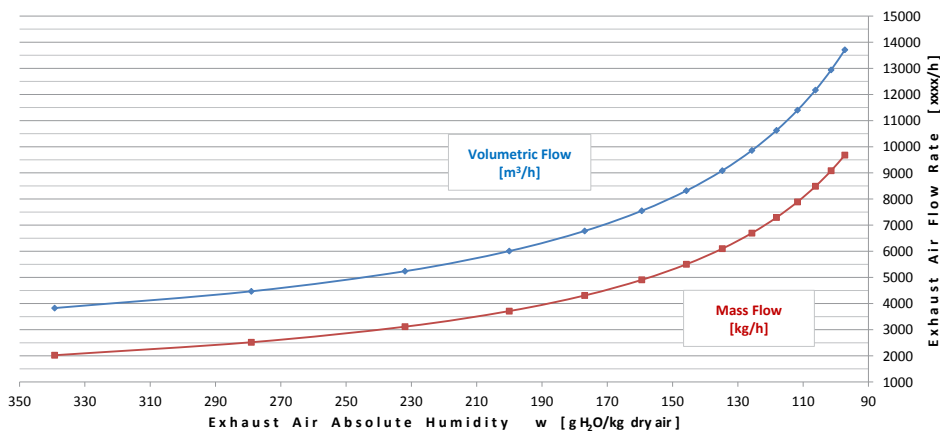
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



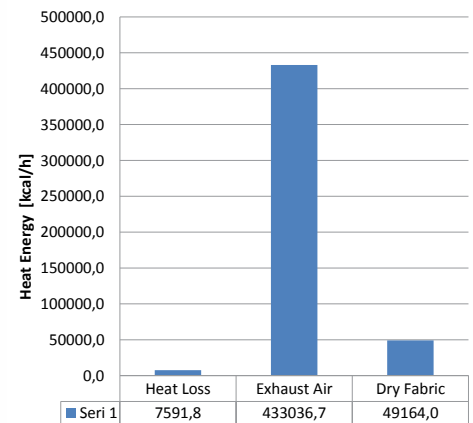
Z = altitude	meter	140
Number of Chamber	10	
Machine Type	Stenter	
Fabric Type	Knitted 28/1 OE Vis.Lyc.suprem	
Chamber Temperature	°C	152
Weight of Fabric	g/m2	250
Width of Fabric	cm	162
Squeezing Effect(Last Foulard)	%	91
Weight Variation	%	10
Dry Fabric Outlet Humidity	%w	7
Production Speed	m/min	28
Production Capacity	kg fabric/h	680
Water Evaporation per Hour	kg H ₂ O/h	618,8
Contact Time	sec.	64,3
Wet Fabric Inlet Temp	°C	60
Dry Fabric Outlet Temp	°C	115
Heat on the Wet Fabric	kcal/h	-39984
Heat on the Dry Fabric	kcal/h	89148

Without Heat Recovery	kcal/h	772133
Recovered Heat	kcal/h	-282340
Heat Recovery	%	-36,57

With Heat Recovery		
Heat Efficiency	μ %	68,1
Gas Consumption Coefficient	Sm³/kg fabric	0,0787
	Sm³/kg H ₂ O	0,0865

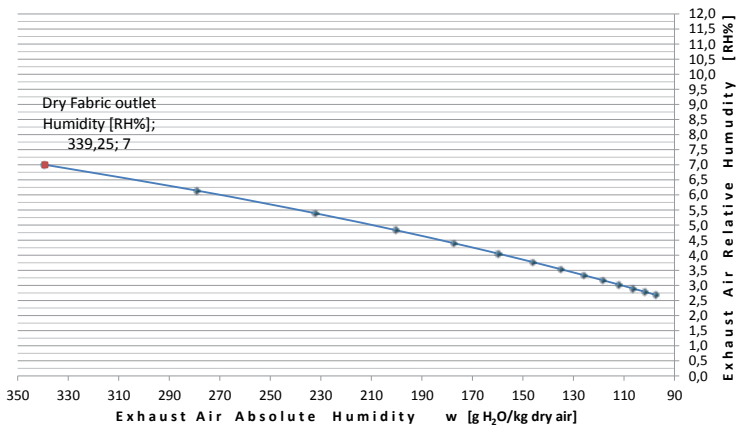
		Gas Consumption	Sm ³ /h	53,5
		Gas Calorific Value	kcal/Sm ³ gas	9155
		Heat Consumption	kcal/h	489793
		Heat Consumption Coefficient	kcal/kg H ₂ O	792
Fresh Air for Burners		Combustion Air	m ³ /h	555
		Dry Bulb Temperature	°C	35
		Relative Humidity	%RH	90
		Combustion Air m ₁ fresh air	kg/h	593
		Heat q ₁ fresh air	kcal/h	-17113
		Machine Body Heat Losses	kcal/h	7592
		Absolute Humidity w	g H ₂ O/kg dry air	94
Pre-Heated Fresh Air		Exhaust Air m ₂ exhaust air	kg/h	10195
		Fresh Air m ₂ fresh air	kg/h	9602
		Heat q ₂ fresh air	kcal/h	-559407
		Dry Bulb Temperature	°C	150,28
		Relative Humidity	%RH	1,06
Exhaust Air		Volumetric Fresh Air Need	m ³ /h	12339
		Heat q ₂ exhaust air	kcal/h	1009557
		Dry Bulb Temperature	°C	152,10
		Relative Humidity	%RH	2,598
		Volumetric Flow Rate for Fresh Air	m ³ /h	14375
MASS BALANCE				0,0
ENERGIE BALANCE				0,0

Heat Consumption
With Heat Recovery

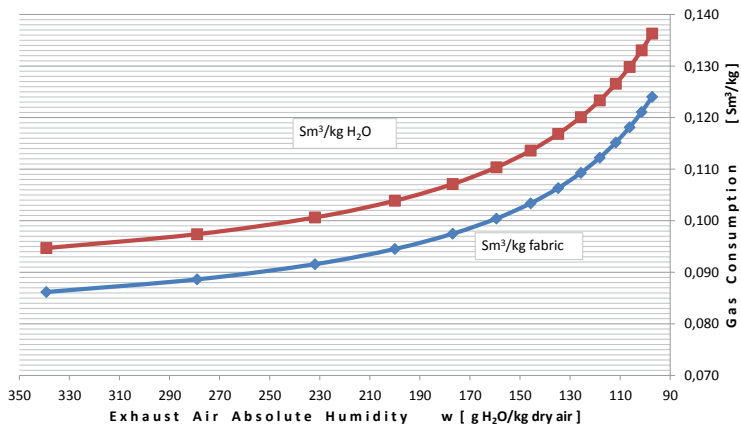


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

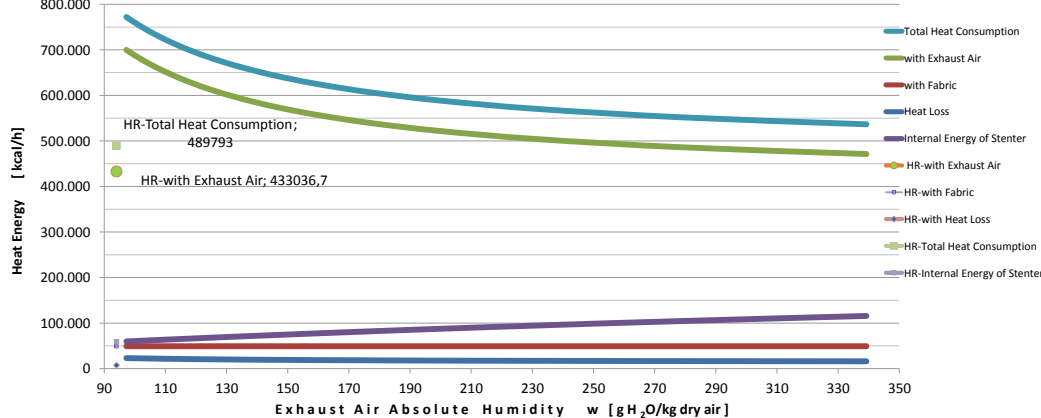


Exhaust Air Absolute Humidity-Gas Consumption

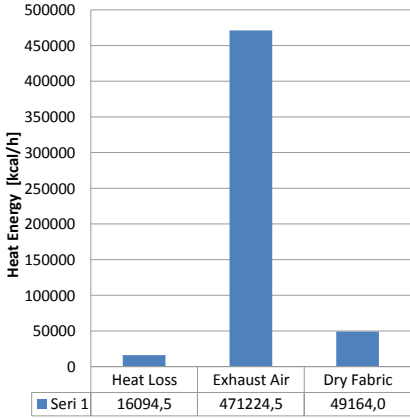


Without Heat Recovery															μ %	Heat Efficiency
62,2	60,5	58,5	56,7	55,0	53,4	51,8	50,4	49,0	47,8	46,5	45,4	44,3	43,2		Sm³/kg fabric	Gas Consumption Coefficient
0,0862	0,0886	0,0916	0,0945	0,0975	0,1004	0,1034	0,1063	0,1093	0,1122	0,1152	0,1181	0,1211	0,1240		Sm³/kg H₂O	
0,0947	0,0974	0,1006	0,1039	0,1071	0,1104	0,1136	0,1168	0,1201	0,1233	0,1266	0,1298	0,1331	0,1363			
58,6	60,266	62,2723	64,2784	66,28455	68,2907	70,29685	72,303	74,30915	76,3153	78,32145	80,3276	82,33375	84,34	Sm³/h	Gas Consumption	
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm³ gas	Gas Calorific Value	
536483	551735	570103	588469	606835	625201	643568	661934	680300	698667	717033	735399	753765	772133	kcal/h	Heat Consumption	
867	892	921	951	981	1010	1040	1070	1099	1129	1159	1188	1218	1248	kcal/kg H₂O	Heat Consumption Coefficient	
607	625	646	666	687	708	729	750	770	791	812	833	854	874	m³/h	Combustion Air	Fresh Air for Burners
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
650	668	690	713	735	757	779	802	824	846	868	891	913	935	kg/h	Combustion Air m₁ fresh air	
-18745	-19278	-19920	-20561	-21203	-21845	-22486	-23128	-23770	-24412	-25053	-25695	-26337	-26979	kcal/h	Heat. Q₁ fresh air	Fresh Air
16094	16552	17103	17654	18205	18756	19307	19858	20409	20960	21511	22062	22613	23164	kcal/h	Heat Losses	
339,25	279,01	231,93	200	176,91	159,43	145,75	134,75	125,7	118,14	111,725	106,21	101,42	97,22	g H₂O/kg dry air	w Absolute Humidity	
2023	2518	3115	3712	4309	4906	5503	6100	6697	7294	7891	8488	9085	9682	kg/h	m₃ Exhaust air	
1373	1850	2425	3000	3574	4149	4724	5298	5874	6448	7023	7597	8172	8747	kg/h	m₂ Fresh air	Exhaust Air
-39616	-53391	-69974	-86551	-103132	-119723	-136304	-152880	-169479	-186058	-202634	-219216	-235797	-252381	kcal/h	Heat. Q₂ fresh air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
1284	1730	2268	2805	3342	3880	4417	4955	5492	6030	6567	7104	7642	8179	m³/h	Volumetric Flow Rate for Fresh Air	Exhaust Air
529585	558688	593730	628763	663801	698849	733887	768920	803976	839012	874045	909084	944122	979164	kcal/h	Heat. Q₃ Exhaust air	
152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	152,01	deg C	Dry Bulb Temperature	
7,000	6,143	5,388	4,826	4,392	4,047	3,766	3,532	3,335	3,166	3,020	2,893	2,781	2,681	%RH	Relative Humidity	
3828	4468	5238	6008	6778	7548	8319	9089	9859	10629	11399	12169	12940	13710	m³/h	Volumetric Flow Rate for Fresh Air	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	ENERGY BALANCE	

Exhaust Air "Absolute Humidity - Heat Consumption"

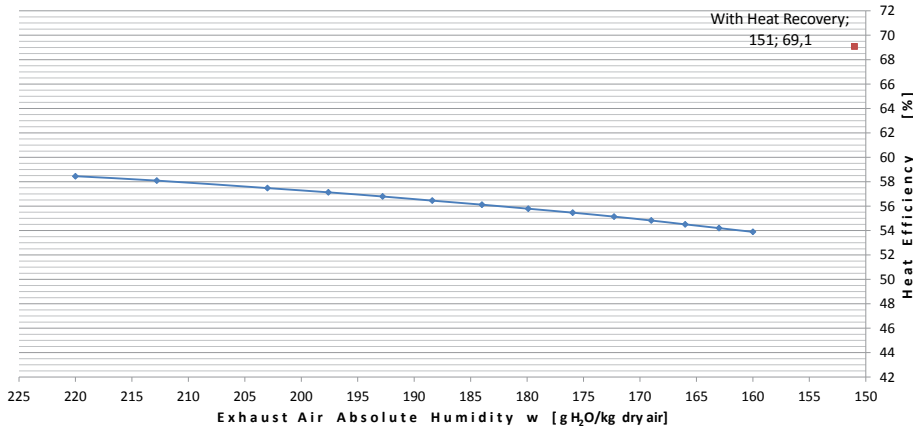


Heat Consumption Without Heat Recovery

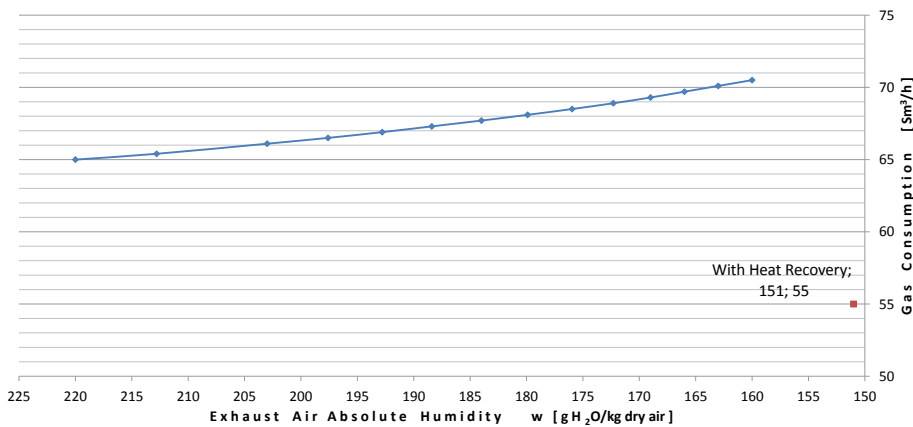


ÖRGÜ KUMAŞ KURUTMA VE TERMOFİKSE PROSESİ
DRYING AND HEATSETTING PROCESS FOR KNITTED FABRIC

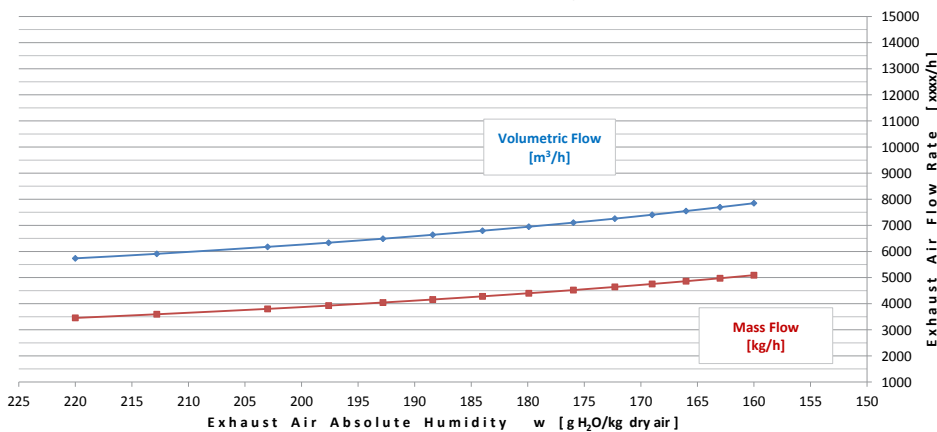
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



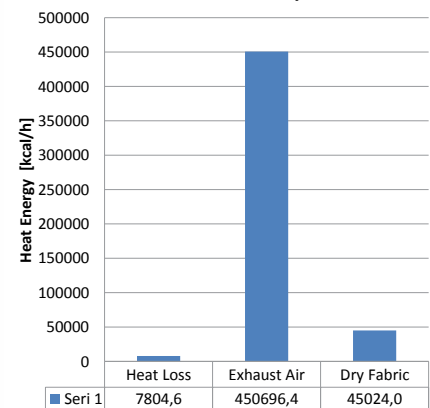
Z = altitude	meter	140
Number of Chamber	10	
Machine Type	Stenter	
Fabric Type	Knitted 20/1 Single Jersey	
Chamber Temperature	°C	152
Weight of Fabric	g/m2	210
Width of Fabric	cm	183
Squeezing Effect(Last Foulard)	%	96
Weight Variation	%	5
Dry Fabric Outlet Humidity	%w	5
Production Speed	m/min	27
Production Capacity	kg fabric/h	672
Water Evaporation per Hour	kg H ₂ O/h	645,1
Contact Time	sec.	66,7
Wet Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	115
Heat on the Wet Fabric	kcal/h	-41530
Heat on the Dry Fabric	kcal/h	86554

Without Heat Recovery	kcal/h	645428
Recovered Heat	kcal/h	-141903
Heat Recovery	%	-21,99

With Heat Recovery		
Heat Efficiency	μ%	69,1
Gas Consumption Coefficient	Sm³/kg fabric	0,0818
	Sm³/kg H ₂ O	0,0853

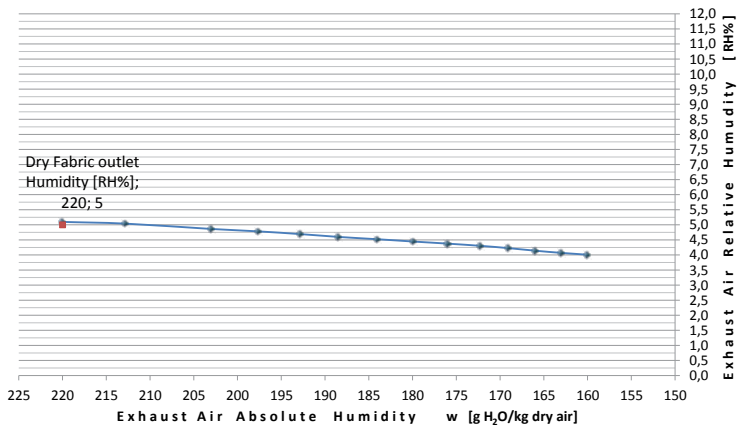
		Gas Consumption	Sm ³ /h	55
		Gas Calorific Value	kcal/Sm ³ gas	9155
		Heat Consumption	kcal/h	503525
		Heat Consumption Coefficient	kcal/kg H ₂ O	781
Fresh Air for Burning		Combustion Air	m ³ /h	570
		Dry Bulb Temperature	°C	35
		Relative Humidity	%RH	90
		Combustion Air m ₁ fresh air	kg/h	610
		Heat q ₁ fresh air	kcal/h	-17593
		Machine Body Heat Losses	kcal/h	7805
		Absolute Humidity w	g H ₂ O/kg dry air	151
		Exhaust Air m _{exhaust} air	kg/h	5481
Pre-Heated Fresh Air		Fresh Air m ₂ fresh air	kg/h	4872
		Heat q ₂ fresh air	kcal/h	-282469
		Dry Bulb Temperature	°C	149,21
		Relative Humidity	%RH	1,09
		Volumetric Fresh Air Need	m ³ /h	6244
Exhaust Air		Heat q _{exhaust} Air	kcal/h	750759
		Dry Bulb Temperature	°C	152,41
		Relative Humidity	%RH	3,833
		Volumetric Flow Rate for Fresh Air	m ³ /h	8350
MASS BALANCE				0,0
ENERGIE BALANCE				0,0

Heat Consumption
with Heat Recovery

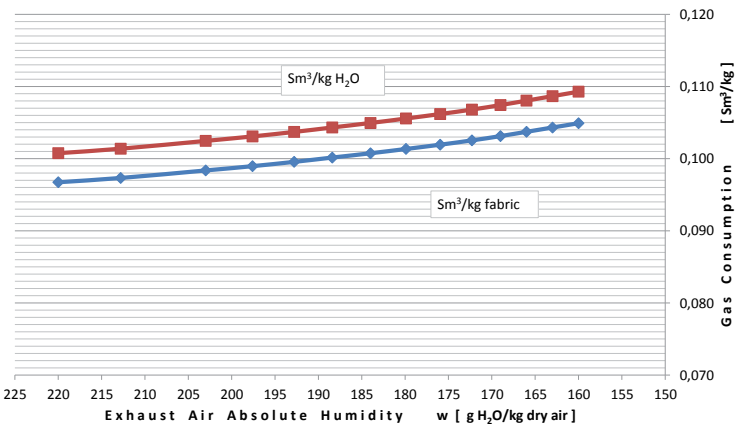


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

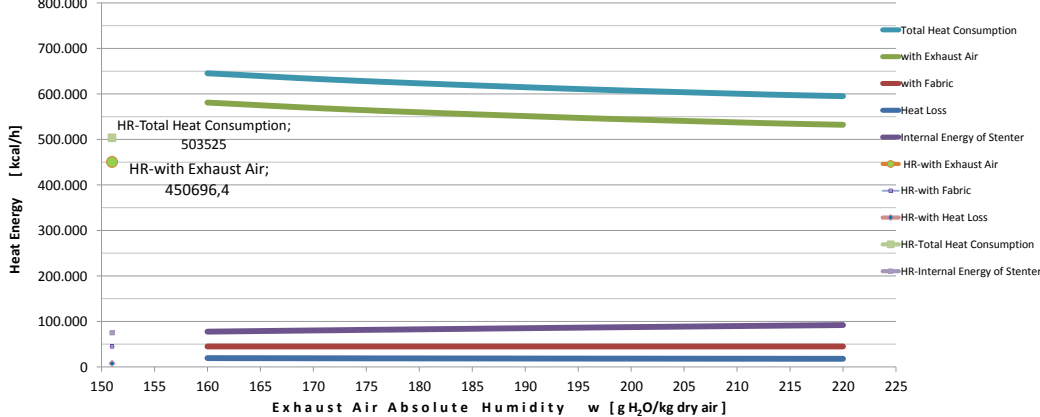


Exhaust Air Absolute Humidity-Gas Consumption

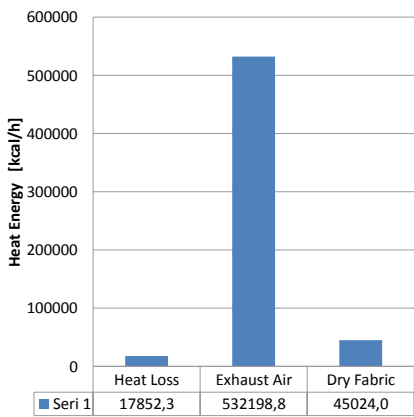


Without Heat Recovery																
58,4	58,1	57,5	57,1	56,8	56,5	56,1	55,8	55,5	55,1	54,8	54,5	54,2	53,9	μ %	Heat Efficiency	
0,0967	0,0973	0,0984	0,0990	0,0996	0,1001	0,1007	0,1013	0,1019	0,1025	0,1031	0,1037	0,1043	0,1049	Sm ³ /kg Fabric	Gas Consumption Coefficient	
0,1008	0,1014	0,1025	0,1031	0,1037	0,1043	0,1049	0,1056	0,1062	0,1068	0,1074	0,1080	0,1087	0,1093	Sm ³ /kg H ₂ O		
65	65,4	66,1	66,5	66,9	67,3	67,7	68,1	68,5	68,9	69,3	69,7	70,1	70,5	Sm ³ /h	Gas Consumption	
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm ³ gas	Gas Calorific Value	
595075	598737	605145	608807	612469	616132	619794	623456	627118	630780	634442	638104	641766	645428	kcal/h	Heat Consumption	
922	928	938	944	949	955	961	966	972	978	983	989	995	1000	kcal/kg H ₂ O	Heat Consumption Coefficient	
674	678	685	689	694	698	702	706	710	714	718	723	727	731	m ³ /h	Fresh Air for Burner	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C		Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH		Relative Humidity
721	725	733	737	742	746	751	755	759	764	768	773	777	782	kg/h		Combustion Air m ₁ fresh air
-20792	-20920	-21144	-21272	-21400	-21528	-21656	-21784	-21912	-22040	-22168	-22295	-22423	-22551	kcal/h		Heat q ₁ fresh air
17852	17962	18154	18264	18374	18484	18594	18704	18814	18923	19033	19143	19253	19363	kcal/h	Heat Losses	
220	212,8	203	197,6	192,8	188,4	184	179,9	175,96	172,3	169	166	163	160	g H ₂ O/kg dry air	w	Absolute Humidity
3455	3594	3802	3927	4045	4160	4281	4401	4522	4641	4754	4862	4974	5092	kg/h	m ₁ Exhaust Air	Exhaust Air
2735	2869	3069	3189	3303	3413	3530	3646	3763	3878	3986	4089	4197	4310	kg/h	m ₂ Fresh air	
-78914	-82785	-88550	-92028	-95310	-98493	-101869	-105196	-108575	-111883	-115012	-117986	-121103	-124373	kcal/h	Heat q ₂ Fresh air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
2557	2683	2870	2982	3089	3192	3301	3409	3519	3626	3727	3824	3925	4031	m ³ /h	Volumetric flow rate for Fresh Air	
631905	639456	651662	658819	665781	672644	679701	686708	693767	700755	707564	714218	721015	727965	kcal/h	Heat q ₃ Exhaust air	
152,65	152,14	152,15	152,01	152,03	152,12	152,07	152,05	152,00	152,00	152,12	152,34	152,47	152,48	deg C	Dry Bulb Temperature	
5,096	5,039	4,863	4,782	4,691	4,598	4,521	4,445	4,375	4,304	4,226	4,142	4,069	4,008	%RH	Relative Humidity	
5737	5909	6177	6336	6489	6639	6794	6949	7105	7258	7406	7549	7696	7849	m ³ /h	Volumetric Flow Rate for Fresh Air	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	ENERGY BALANCE	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0			

Exhaust Air "Absolute Humidity - Heat Consumption"

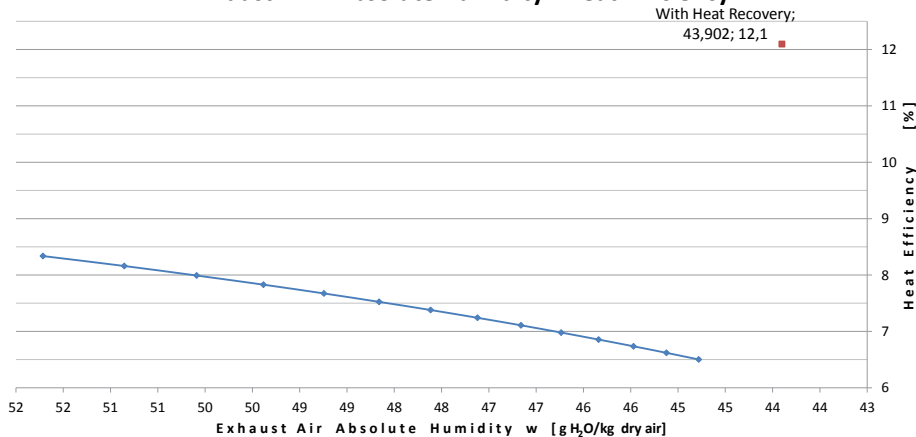


Heat Consumption without Heat Recovery

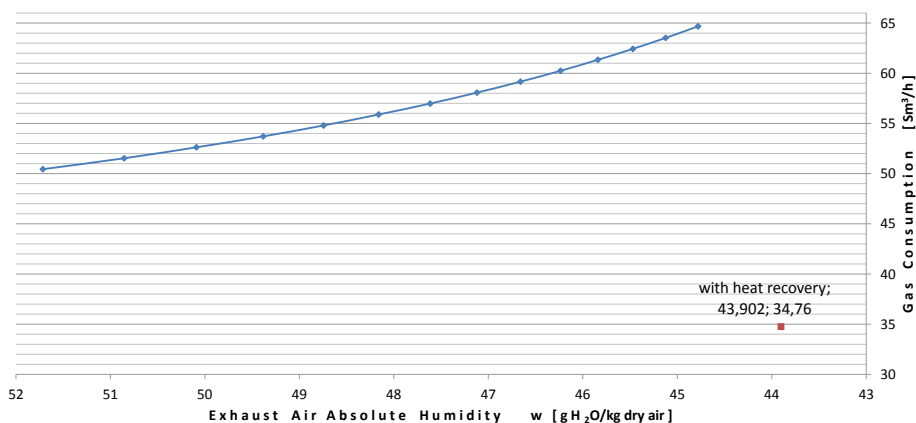


DOKUMA KUMAŞ KURUTMA PROSESİ
DRYING PROCESS FOR WOVEN FABRIC

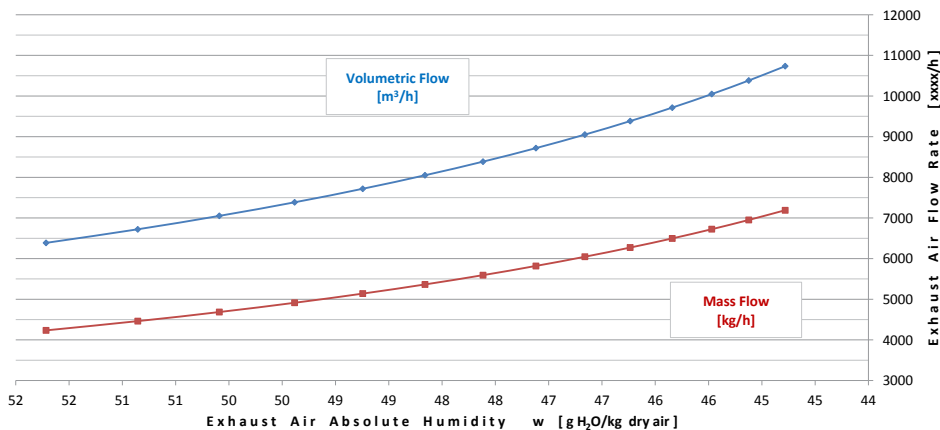
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



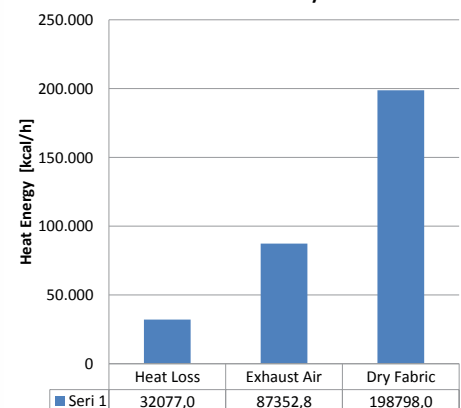
Z = altitude	meter	500
Number of Chamber	8	
Machine Type	Stenter	
Fabric Type	Woven 40/60 Cotton/Polyester	
Chamber Temperature	°C	190
Weight of Fabric	g/m2	200
Width of Fabric	cm	180
Squeezing Effect(Last Foulard)	%	7
Weight Variation	%	0
Dry Fabric Outlet Humidity	%w	0
Production Speed	m/min	47,2
Production Capacity	kg fabric/h	1020
Water Evaporation per Hour	kg H ₂ O/h	71,4
Contact Time	sec.	30,5
Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	190
Heat on the Wet Fabric	kcal/h	-8568
Heat on the Dry Fabric	kcal/h	207366

Without Heat Recovery	kcal/h	592054
Recovered Heat	kcal/h	-273826
Heat Recovery	%	-46,25

With Heat Recovery		
Heat Efficiency	μ %	12,1
Gas Consumption Coefficient	Sm ³ /kg fabric	0,0341
	Sm ³ /kg H ₂ O	0,4868

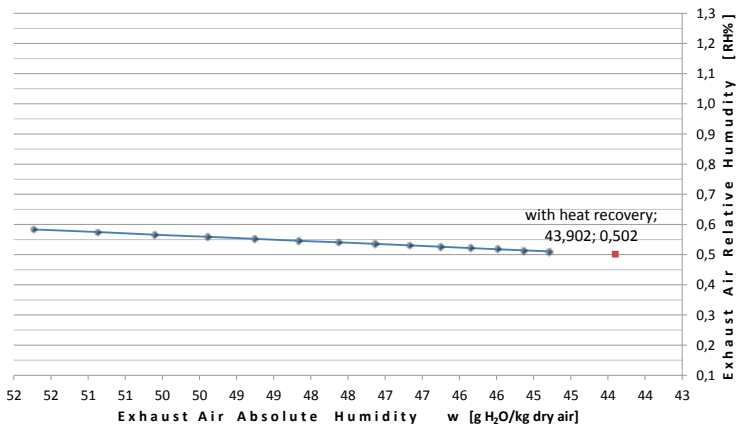
Gas Consumption			Sm ³ /h	34,76	
Gas Calorific Value			kcal/Sm ³ gas	9155	
Heat Consumption			kcal/h	318228	
Heat Consumption Coefficient			kcal/kg H ₂ O	4457	
Fresh Air for Burners	Combustion Air		m ³ /h	360	
	Dry Bulb Temperature		°C	35	
	Relative Humidity		%RH	90	
	Combustion Air m ₁	fresh air	kg/h	368	
	Heat q ₁	fresh air	kcal/h	-10975	
Machine Body Heat Losses			kcal/h	32077	
Absolute Humidity w			g H ₂ O/kg dry air	43,902	
Exhaust Air m ₂			exhaust air	kg/h	7888
Pre-Heated Fresh Air	Fresh Air m ₂		fresh air	kg/h	7520
	Heat q ₂		fresh air	kcal/h	-497941
	Dry Bulb Temperature		°C	177	
	Relative Humidity		%RH	0,54	
	Volumetric Fresh Air Need		m ³ /h	10759	
Exhaust Air	Heat q ₃		exhaust air	kcal/h	596268
	Dry Bulb Temperature		°C	190	
	Relative Humidity		%RH	0,502	
	Volumetric Flow Rate for Fresh Air		m ³ /h	11760	
MASS BALANCE				0,0	
ENERGIE BALANCE				0,0	

Heat Consumption
With Heat Recovery

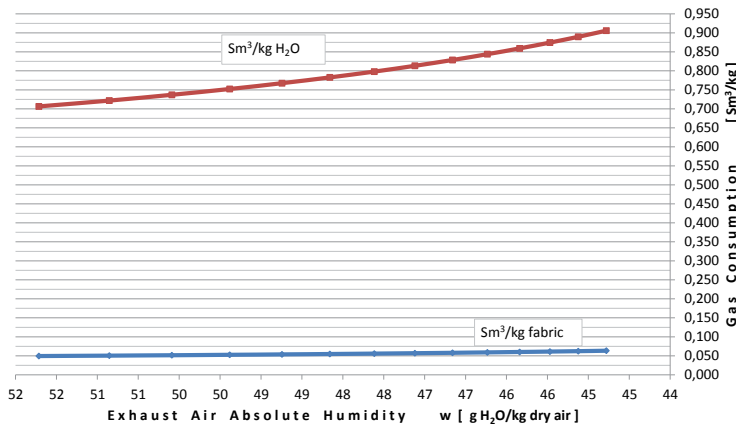


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

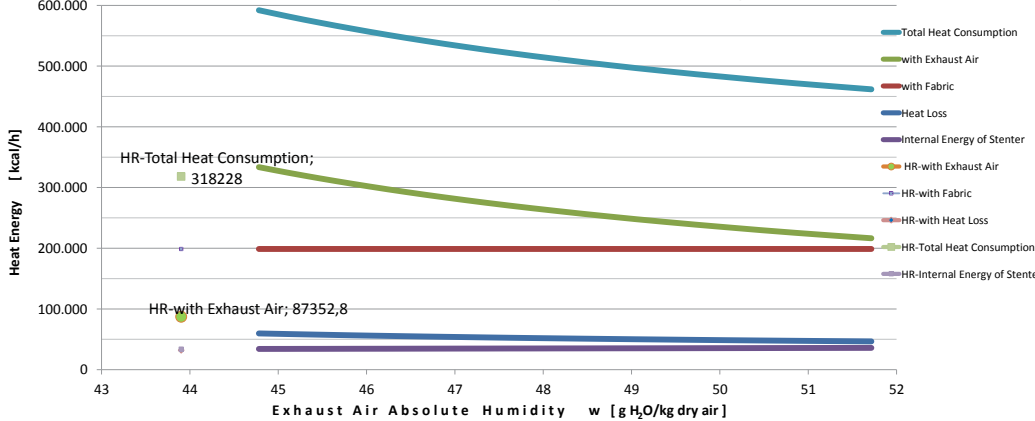


Exhaust Air Absolute Humidity-Gas Consumption

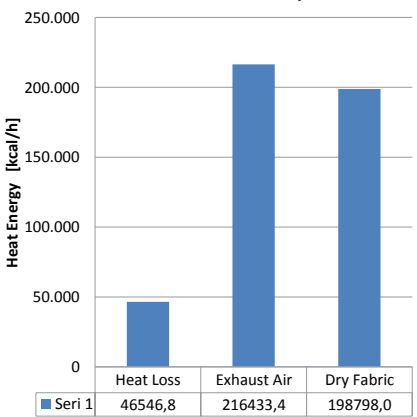


Without Heat Recovery																
8,3	8,2	8,0	7,8	7,7	7,5	7,4	7,2	7,1	7,0	6,9	6,7	6,6	6,5	μ %	Heat Efficiency	
0,0495	0,0505	0,0516	0,0527	0,0537	0,0548	0,0559	0,0569	0,0580	0,0591	0,0601	0,0612	0,0623	0,0634	Sm ³ /kg Fabric	Gas Consumption Coefficient	
0,7064	0,7217	0,7370	0,7522	0,7675	0,7828	0,7980	0,8133	0,8286	0,8438	0,8591	0,8744	0,8896	0,9057	Sm ³ /kg H ₂ O		
50,44	51,53	52,62	53,71	54,8	55,89	56,98	58,07	59,16	60,25	61,34	62,43	63,52	64,67	Sm ³ /h	Gas Consumption	
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm ³ gas	Gas Calorific Value	
461778	471757	481736	491715	501694	511673	521652	531631	541610	551589	561568	571547	581526	592054	kcal/h	Heat Consumption	
6467	6607	6747	6887	7027	7166	7306	7446	7586	7725	7865	8005	8145	8292	kcal/kg H ₂ O	Heat Consumption Coefficient	
523	534	545	557	568	579	591	602	613	625	636	647	658	670	m ³ /h	Fresh Air for Burners	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C		Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH		Relative Humidity
534	546	557	569	581	592	604	615	627	638	650	661	673	685	kg/h		Combustion Air m ₁ fresh air
-15926	-16270	-16614	-16958	-17302	-17647	-17991	-18335	-18679	-19023	-19367	-19712	-20056	-20419	kcal/h		Heat Q ₁ fresh air
46547	47553	48559	49564	50570	51576	52582	53588	54594	55600	56605	57611	58617	59678	kcal/h	Heat Losses	
51,715	50,855	50,09	49,383	48,744	48,16	47,616	47,12	46,66	46,235	45,84	45,47	45,123	44,781	g H ₂ O/kg dry air	w	Absolute Humidity
4234	4461	4685	4913	5139	5365	5593	5819	6046	6272	6497	6724	6951	7190	kg/h	m _{Exhaust} Air	Exhaust Air
3699	3915	4128	4344	4559	4773	4990	5204	5419	5633	5847	6062	6278	6505	kg/h	m ₂ Fresh air	Fresh Air
-110250	-116686	-123016	-129465	-135856	-142232	-148701	-155095	-161507	-167889	-174264	-180666	-187091	-193862	kcal/h	Heat Q ₂ Fresh air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
3620	3831	4039	4251	4461	4670	4882	5092	5303	5512	5722	5932	6143	6365	m ³ /h	Volumetric Flow Rate for Fresh Air	
342609	358363	374010	389776	405484	421177	436964	452675	468404	484104	499795	515515	531257	547858	kcal/h	Heat Q _{Exhaust} air	Exhaust Air
190	190	190	190	190	190	190	190	190	190	190	190	190	190	deg C	Dry Bulb Temperature	
0,583	0,575	0,566	0,559	0,552	0,546	0,541	0,535	0,531	0,526	0,522	0,518	0,514	0,511	%RH	Relative Humidity	
6387	6721	7052	7386	7719	8051	8386	8718	9052	9384	9716	10049	10383	10734	m ³ /h	Volumetric Flow Rate for Fresh Air	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	ENERGY BALANCE	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	ENERGY BALANCE		

Exhaust Air "Absolute Humidity - Heat Consumption"

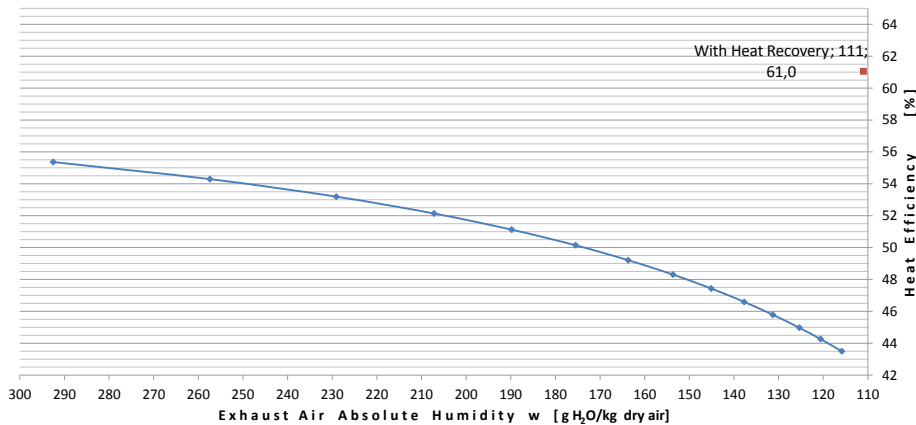


Heat Consumption without Heat Recovery

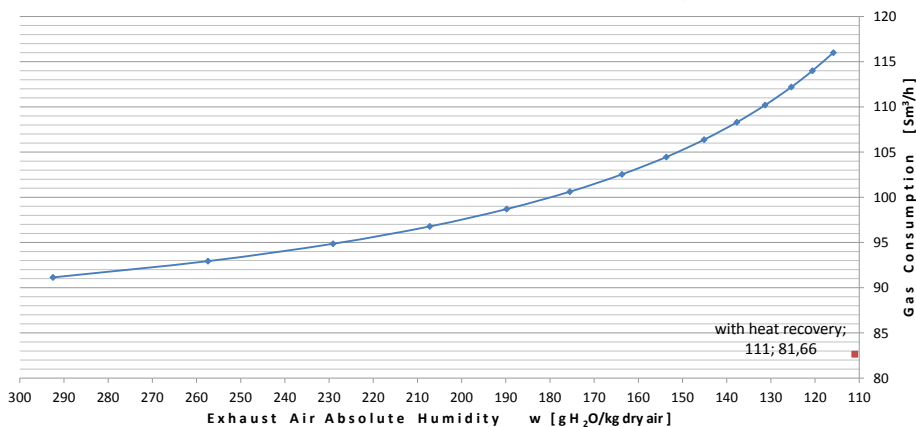


DOKUMA KUMAŞ KURUTMA VE TERMOFİKSE PROSESİ
DRYING AND HEATSETTING PROCESS FOR WOVEN FABRIC

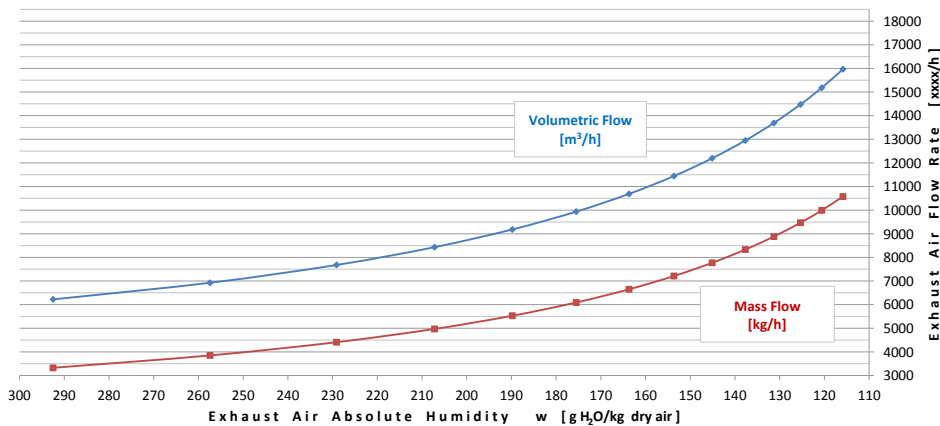
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



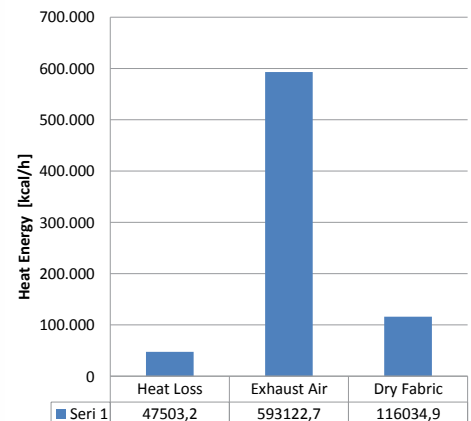
Z = altitude	meter	500
Number of Chamber	8	
Machine Type	Stenter	
Fabric Type	Woven 40/60 Cotton/Polyester	
Chamber Temperature	°C	150
Weight of Fabric	g/m2	200
Width of Fabric	cm	180
Squeezing Effect(Last Foulard)	%	70
Weight Variation	%	0
Dry Fabric Outlet Humidity	%w	4
Production Speed	m/min	60,1
Production Capacity	kg fabric/h	1298
Water Evaporation per Hour	kg H ₂ O/h	856,8
Contact Time	sec.	24,0
Wet Fabric Inlet Temp	°C	60
Dry Fabric Outlet Temp	°C	120
Heat on the Wet Fabric	kcal/h	-56859
Heat on the Dry Fabric	kcal/h	172894

Without Heat Recovery	kcal/h	1061980
Recovered Heat	kcal/h	-305319
Heat Recovery	%	-28,75

With Heat Recovery		
Heat Efficiency	μ %	61,0
Gas Consumption Coefficient	Sm³/kg fabric	0,0637
	Sm³/kg H ₂ O	0,0965

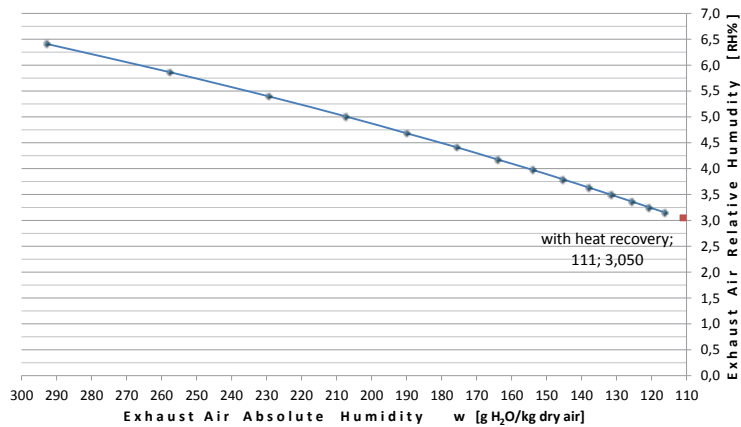
		Gas Consumption	Sm ³ /h	82,65
		Gas Calorific Value	kcal/Sm ³ gas	9155
		Heat Consumption	kcal/h	756661
		Heat Consumption Coefficient	kcal/kg H ₂ O	883
Fresh Air for Burners		Combustion Air	m ³ /h	857
		Dry Bulb Temperature	°C	35
		Relative Humidity	%RH	90
		Combustion Air m ₁ fresh air	kg/h	876
		Heat q ₁ fresh air	kcal/h	-26096
		Machine Body Heat Losses	kcal/h	47503
		Absolute Humidity w	g H ₂ O/kg dry air	111
Pre-Heated Fresh Air		Exhaust Air m _{exhaust air}	kg/h	11251
		Fresh Air m ₂ fresh air	kg/h	10376
		Heat q ₂ fresh air	kcal/h	-614540
		Dry Bulb Temperature	°C	150
		Relative Humidity	%RH	1,06
		Volumetric Fresh Air Need	m ³ /h	13944
Exhaust Air		Heat q _{Exhaust Air}	kcal/h	1233758
		Dry Bulb Temperature	°C	150
		Relative Humidity	%RH	3,050
		Volumetric Flow Rate for Fresh Air	m ³ /h	16864
MASS BALANCE			0,0	
ENERGIE BALANCE			0,0	

Heat Consumption
With Heat Recovery

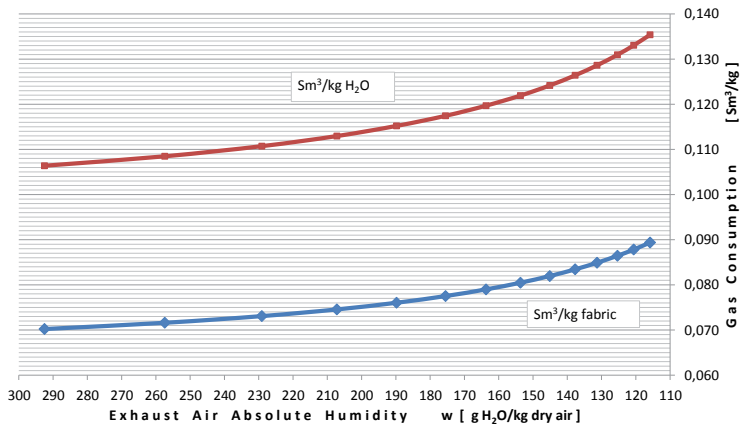


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

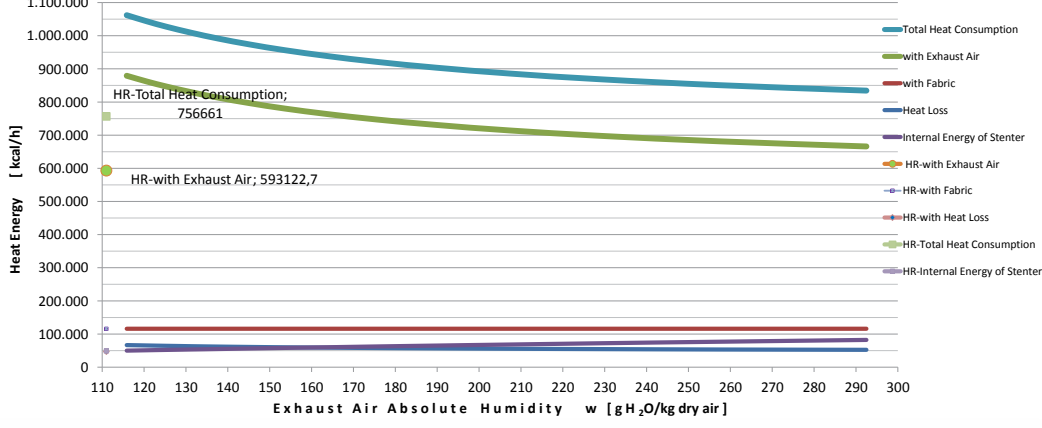


Exhaust Air Absolute Humidity-Gas Consumption

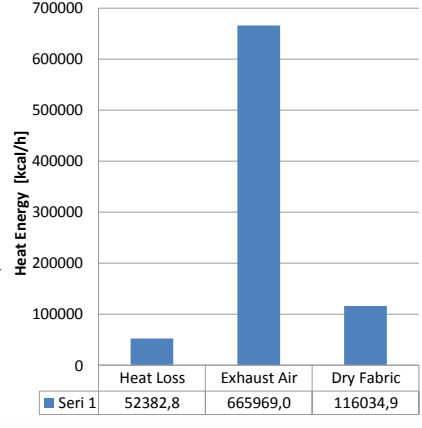


Without Heat Recovery															
55,4	54,3	53,2	52,1	51,1	50,1	49,2	48,3	47,4	46,6	45,8	45,0	44,3	43,5	μ %	Heat Efficiency
0,0702	0,0716	0,0731	0,0746	0,0760	0,0775	0,0790	0,0805	0,0820	0,0834	0,0849	0,0864	0,0878	0,0894	Sm³/kg fabric	Gas Consumption Coefficient
0,1064	0,1085	0,1107	0,1130	0,1152	0,1174	0,1197	0,1219	0,1242	0,1264	0,1286	0,1310	0,1331	0,1354	Sm³/kg H₂O	
91,14	92,94	94,86	96,78	98,70	100,62	102,54	104,46	106,38	108,30	110,20	112,20	114,00	116,00	Sm³/h	Gas Consumption
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm³ gas	Gas Caloric Value
834387	850866	868443	886021	903599	921176	938754	956331	973909	991487	1008881	1027191	1043670	1061980	kcal/h	Heat Consumption
974	993	1014	1034	1055	1075	1096	1116	1137	1157	1178	1199	1218	1239	kcal/kg H₂O	Heat Consumption Coefficient
945	963	983	1003	1023	1043	1063	1083	1103	1123	1142	1163	1182	1203	m³/h	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
966	985	1005	1025	1046	1066	1086	1107	1127	1147	1168	1189	1208	1229	kg/h	Combustion Air m₁ fresh air
-28776	-29345	-29951	-30557	-31163	-31770	-32376	-32982	-33588	-34194	-34794	-35426	-35994	-36626	kcal/h	Heat. Q₁ fresh air
52383	53417	54521	55624	56728	57831	58935	60038	61142	62246	63338	64487	65522	66671	kcal/h	Heat Losses
292,5	257,4	229,1	207,2	189,8	175,5	163,7	153,65	145,1	137,7	131,3	125,35	120,6	115,85	g H₂O/kg dry air	w Absolute Humidity
3325	3850	4411	4971	5529	6092	6650	7212	7771	8330	8883	9467	9992	10578	kg/h	mₑₓₕₐᵤₛₜₐᵢᵣ Exhaust Air
2360	2865	3406	3946	4484	5026	5563	6105	6644	7183	7716	8279	8784	9349	kg/h	m₂ fresh air
-70328	-85390	-101499	-117596	-133627	-149775	-165794	-181953	-198015	-214073	-229947	-246721	-261782	-278613	kcal/h	Heat. Q₂ fresh air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
2309	2804	3333	3861	4387	4918	5444	5974	6501	7029	7550	8101	8595	9148	m³/h	Volumetric Flow Rate for Fresh Air
765073	796148	829338	862515	895626	928854	961954	995193	1028335	1061473	1094250	1128816	1159889	1194512	kcal/h	Heat. Qₑₓₕₐᵤₛₜₐᵢᵣ
150	150	150	150	150	150	150	150	150	150	150	150	150	150	deg C	Dry Bulb Temperature
6,406	5,860	5,392	5,006	4,680	4,409	4,171	3,969	3,789	3,630	3,489	3,358	3,251	3,146	%RH	Relative Humidity
6222	6927	7680	8433	9184	9938	10689	11444	12196	12947	13691	14475	15180	15967	m³/h	Volumetric Flow Rate for Fresh Air
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	ENERGY BALANCE	

Exhaust Air "Absolute Humidity - Heat Consumption"

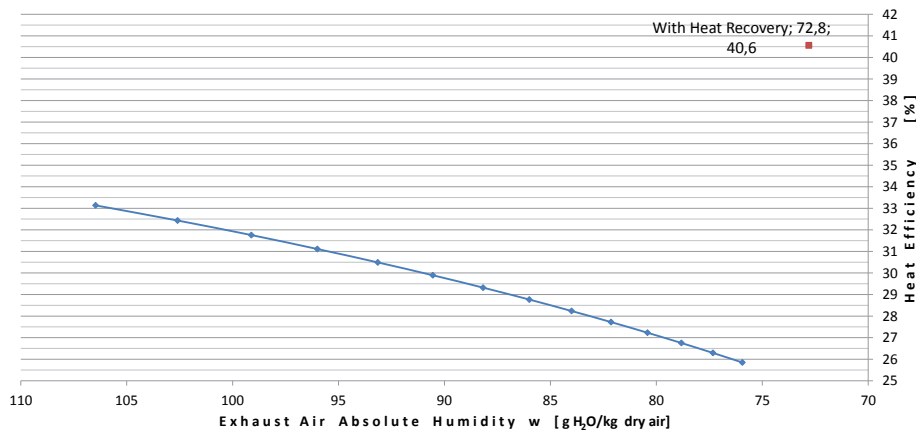


Heat Consumption Without Heat Recovery

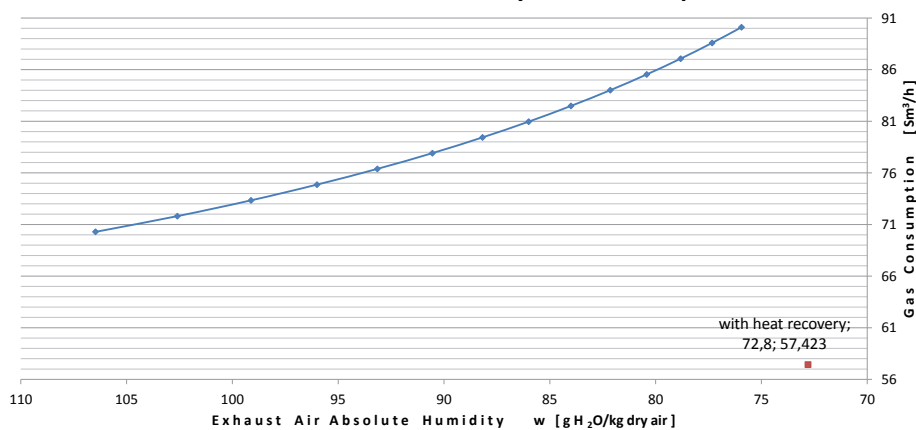


DOKUMA KUMAŞ KURUTMA VE TERMOFİKSE PROSESİ
DRYING AND HEATSETTING PROCESS FOR WOVEN FABRIC

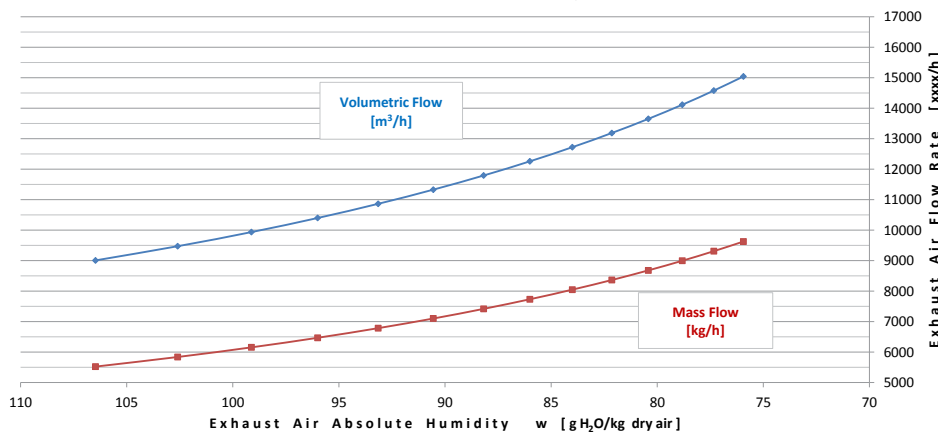
Exhaust Air " Absolute Humidity - Heat Efficiency"



Exhaust Air "Absolute Humidity- Gas Consumption"



Exhaust Air "Absolute Humidity - Flow Rate"



Z = altitude	meter	500
Number of Chamber	8	
Machine Type	Stenter	
Fabric Type	Woven 40/60 Cotton/Polyester	
Chamber Temperature	°C	190
Weight of Fabric	g/m2	200
Width of Fabric	cm	180
Squeezing Effect(Last Foulard)	%	70
Weight Variation	%	0
Dry Fabric Outlet Humidity	%w	0
Production Speed	m/min	26,2
Production Capacity	kg fabric/h	565
Water Evaporation per Hour	kg H ₂ O/h	395,5
Contact Time	sec.	55,0
Wet Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	190
Heat on the Wet Fabric	kcal/h	-26103
Heat on the Dry Fabric	kcal/h	114865

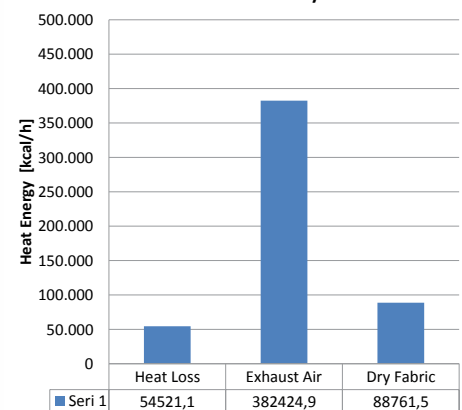
Without Heat Recovery	kcal/h	824957
Recovered Heat	kcal/h	-299249
Heat Recovery	%	-36,27

With Heat Recovery		
Heat Efficiency	μ %	40,6
Gas Consumption Coefficient	Sm³/kg fabric	0,1016
	Sm³/kg H ₂ O	0,1452

fresh air for burners	Gas Consumption	Sm³/h	57,423
	Gas Calorific Value	kcal/Sm³ gas	9155
	Heat Consumption	kcal/h	525708
	Heat Consumption Coefficient	kcal/kg H ₂ O	1329
	Combustion Air	m³/h	595
	Dry Bulb Temperature	°C	35
	Relative Humidity	%RH	90
	Combustion Air m_1 fresh air	kg/h	608
	Heat Q_1 fresh air	kcal/h	-18131
	Machine Body Heat Losses	kcal/h	54521
pre-heated fresh air	Absolute Humidity w	g H ₂ O/kg dry air	72,8
	Exhaust Air $m_{\text{exhaust air}}$	kg/h	10422
	Fresh Air m_2 fresh air	kg/h	9813
	Heat Q_2 fresh air	kcal/h	-591711
	Dry Bulb Temperature	°C	154
	Relative Humidity	%RH	0,95
	Volumetric Fresh Air Need	m³/h	13318
	Heat $Q_{\text{exhaust air}}$	kcal/h	992267
	Dry Bulb Temperature	°C	190
	Relative Humidity	%RH	0,800
Exhaust air	Heat $Q_{\text{exhaust air}}$	kcal/h	992267
	Volumetric flow rate for Fresh Air	m³/h	16207

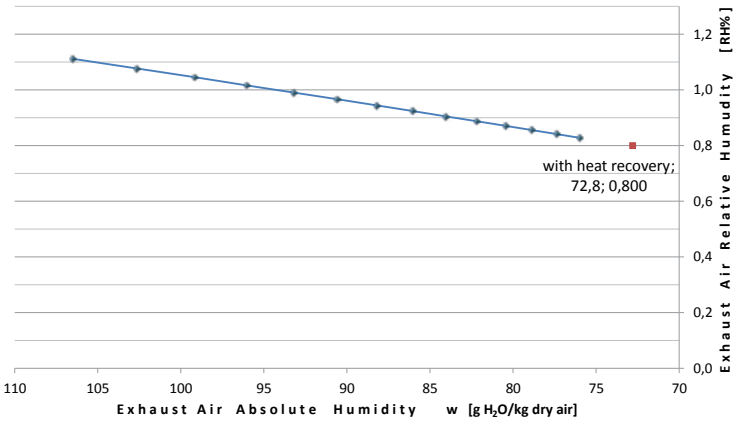
MASS BALANCE	0,0
ENERGIE BALANCE	0,0

Heat Consumption
With Heat Recovery

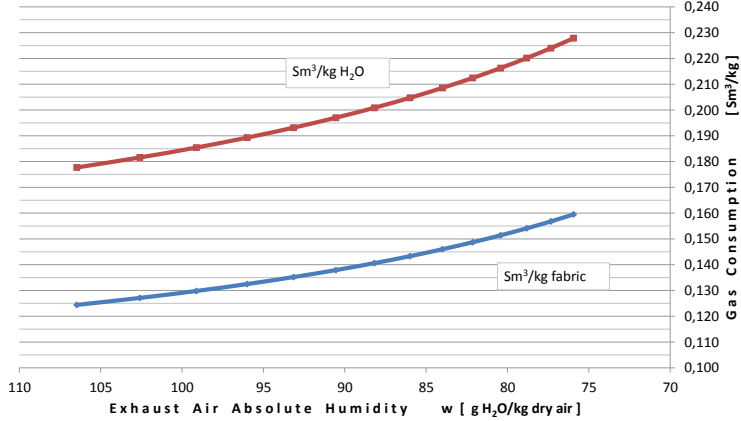


DGHS Direct Gas Heated Stenter

Exhaust Air "Absolute - Relative Humidity"

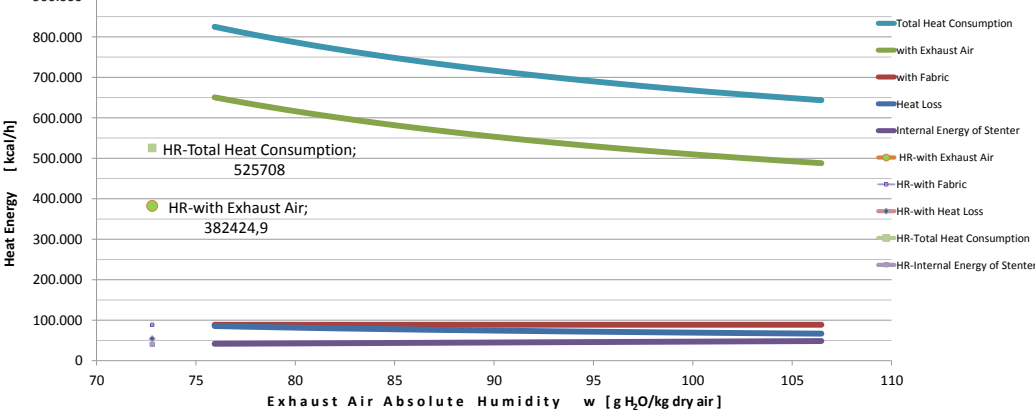


Exhaust Air Absolute Humidity-Gas Consumption

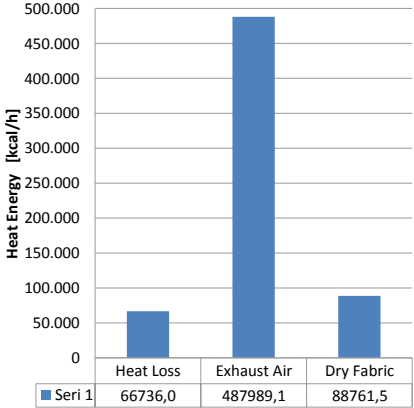


Without Heat Recovery																
33,1	32,4	31,8	31,1	30,5	29,9	29,3	28,8	28,2	27,7	27,2	26,8	26,3	25,8	μ %	Heat Efficiency	
0,1244	0,1271	0,1298	0,1325	0,1352	0,1379	0,1406	0,1433	0,1460	0,1487	0,1514	0,1541	0,1568	0,1595	Sm³/kg fabric	Gas Consumption Coefficient	
0,1777	0,1816	0,1854	0,1893	0,1931	0,1970	0,2009	0,2047	0,2086	0,2124	0,2163	0,2201	0,2240	0,2278	Sm³/kg H₂O		
70,288	71,813	73,338	74,863	76,388	77,913	79,438	80,963	82,488	84,013	85,538	87,063	88,588	90,11	Sm³/h	Gas Consumption	
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/Sm³ gas	Gas Calorific Value	
643487	657448	671409	685371	699332	713294	727255	741216	755178	769139	783100	797062	811023	824957	kcal/h	Heat Consumption	
1627	1662	1698	1733	1768	1804	1839	1874	1909	1945	1980	2015	2051	2086	kcal/kg H₂O	Heat Consumption Coefficient	
729	744	760	776	792	808	824	839	855	871	887	903	918	934	m³/h	Fresh Air for Burner	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C		Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH		Relative Humidity
745	761	777	793	809	825	842	858	874	890	906	922	939	955	kg/h		Combustion Air m₁ fresh air
-22193	-22674	-23156	-23637	-24119	-24600	-25082	-25563	-26045	-26526	-27008	-27489	-27971	-28451	kcal/h		Heat q₁ fresh air
66736	68184	69632	71080	72528	73976	75424	76872	78319	79767	81215	82663	84111	85556	kcal/h	Heat Losses	
106,47	102,6	99,12	96	93,15	90,55	88,18	86	84	82,14	80,42	78,82	77,33	75,94	g H₂O/kg dry air	w	Absolute Humidity
5522	5838	6154	6468	6784	7101	7416	7732	8047	8363	8679	8995	9310	9625	kg/h	m_exhaust air	Exhaust Air
4778	5077	5377	5675	5975	6275	6575	6875	7173	7473	7773	8073	8372	8671	kg/h	m₂ fresh air	
-142383	-151302	-160241	-169117	-178058	-187014	-195937	-204875	-213771	-222722	-231648	-240579	-249500	-258406	kcal/h	Heat q₂ fresh air	
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature	
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity	
4675	4968	5261	5553	5846	6140	6433	6727	7019	7313	7606	7899	8192	8484	m³/h	Volumetric Flow Rate for Fresh Air	
652564	674479	696412	718283	740220	762170	784088	806022	827912	849858	871779	893705	915621	937496	kcal/h	Heat q_exhaust air	
190,01	190,02	190,01	190,05	190,03	190,01	190,02	190,01	190,03	190,01	190,01	190,01	190,01	190,01	deg C	Dry Bulb Temperature	
1,111	1,076	1,045	1,016	0,990	0,966	0,944	0,924	0,904	0,887	0,870	0,855	0,841	0,827	%RH	Relative Humidity	
9007	9471	9936	10399	10863	11329	11793	12258	12721	13186	13650	14115	14579	15042	m³/h	Volumetric Flow Rate for Fresh Air	
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE ENERGY BALANCE		
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0			

Exhaust Air "Absolute Humidity - Heat Consumption"

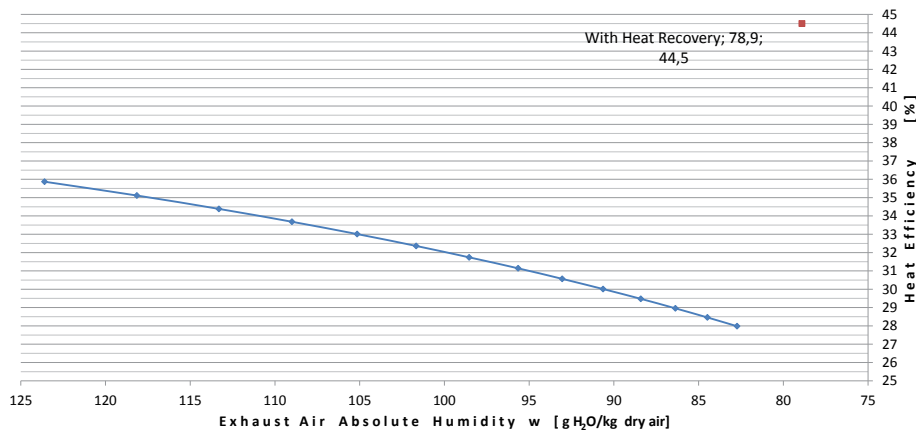


Heat Consumption without Heat Recovery



DOKUMA KUMAŞ TERMOFİKSE PROSESİ
HEATSETTING PROCESS FOR WOVEN FABRIC

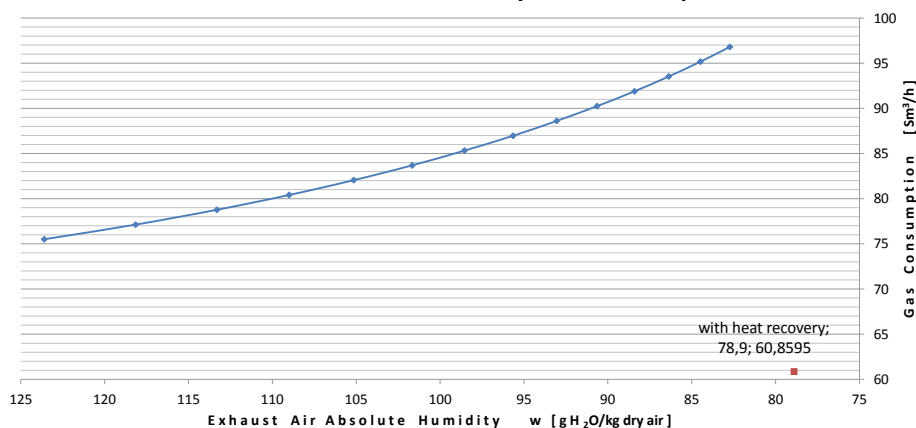
Exhaust Air " Absolute Humidity - Heat Efficiency"



Z = altitude	meter	500
Number of Chamber	8	
Machine Type	Stenter	
Fabric Type	Woven 40/60 Cotton/Polyester	
Chamber Temperature	°C	190
Weight of Fabric	g/m2	200
Width of Fabric	cm	180
Squeezing Effect(Last Foulard)	%	70
Weight Variation	%	0
Dry Fabric Outlet Humidity	%w	0
Production Speed	m/min	30,4
Production Capacity	kg fabric/h	657
Water Evaporation per Hour	kg H ₂ O/h	459,9
Contact Time	sec.	47,4
Wet Fabric Inlet Temperature	°C	60
Dry Fabric Outlet Temperature	°C	190
Heat on the Wet Fabric	kcal/h	-30353
Heat on the Dry Fabric	kcal/h	133568

Without Heat Recovery	kcal/h	886204
Recovered Heat	kcal/h	-329035
Heat Recovery	%	-37,13

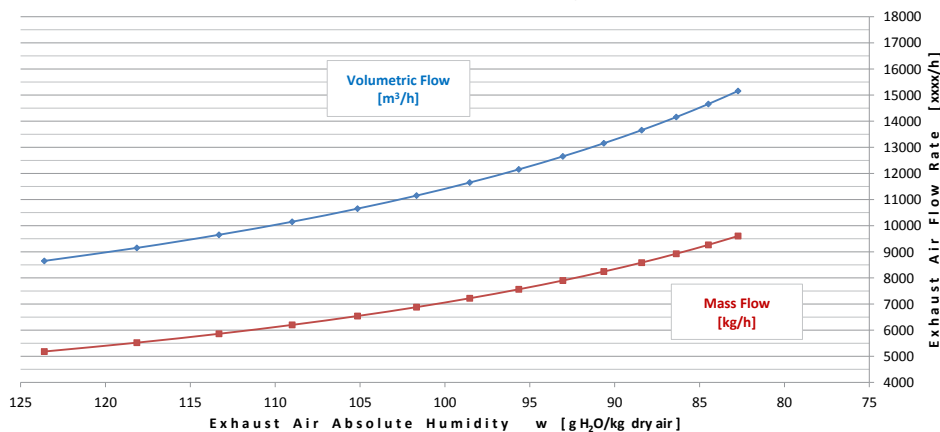
Exhaust Air "Absolute Humidity- Gas Consumption"



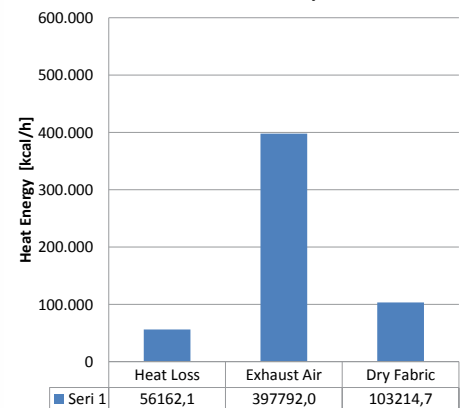
With Heat Recovery		
Heat Efficiency	μ %	44,5
Gas Consumption Coefficient	Sm³/kg fabric	0,0926
	Sm³/kg H ₂ O	0,1323

Fresh Air for Burners	Gas Consumption	Sm³/h	60,8595
	Gas Calorific Value	kcal/Sm³ gas	9155
	Heat Consumption	kcal/h	557169
	Heat Consumption Coefficient	kcal/kg H ₂ O	1211
	Combustion Air	m³/h	631
	Dry Bulb Temperature	°C	35
	Relative Humidity	%RH	90
	Combustion Air m ₁ fresh air	kg/h	645
	Heat q ₁ fresh air	kcal/h	-19216
	Machine Body Heat Losses	kcal/h	56162
Pre-heated Fresh Air	Absolute Humidity w	g H ₂ O/kg dry air	78,9
	Exhaust Air m ₂ exhaust air	kg/h	10441
	Fresh Air m ₂ fresh air	kg/h	9796
	Heat q ₂ fresh air	kcal/h	-620971
	Dry Bulb Temperature	°C	166
Exhaust Air	Relative Humidity	%RH	0,70
	Volumetric Fresh Air Need	m³/h	13671
	Heat q _{exhaust air}	kcal/h	1037979
	Dry Bulb Temperature	°C	190,0
	Relative Humidity	%RH	0,855
Volumetric Flow Rate for Fresh Air		m³/h	16386
MASS BALANCE		0,0	
ENERGIE BALANCE		0,0	

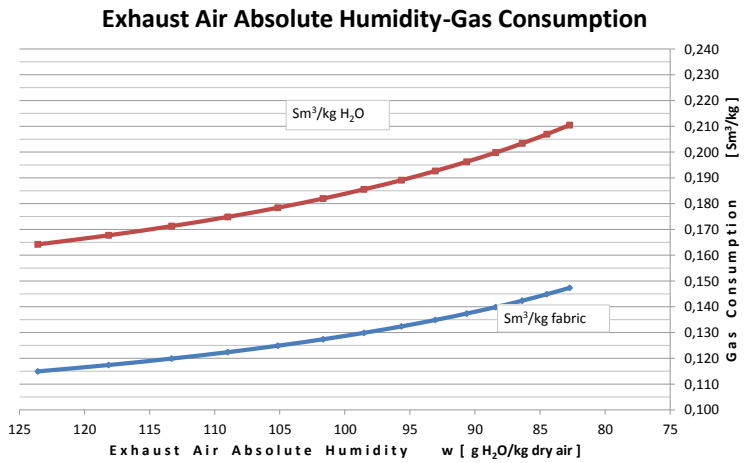
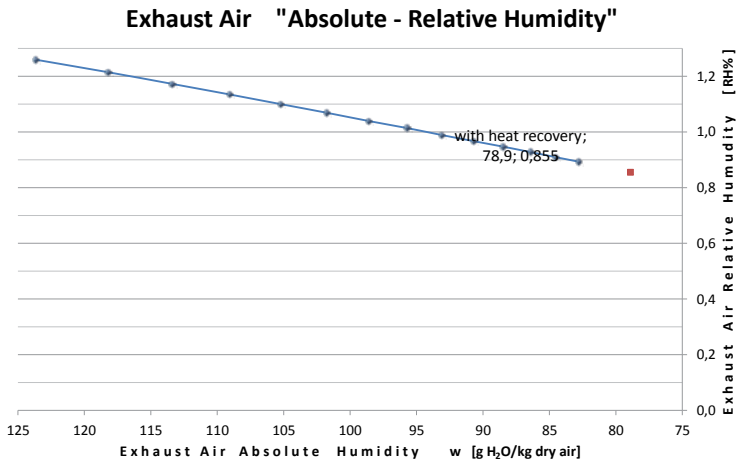
Exhaust Air "Absolute Humidity - Flow Rate"



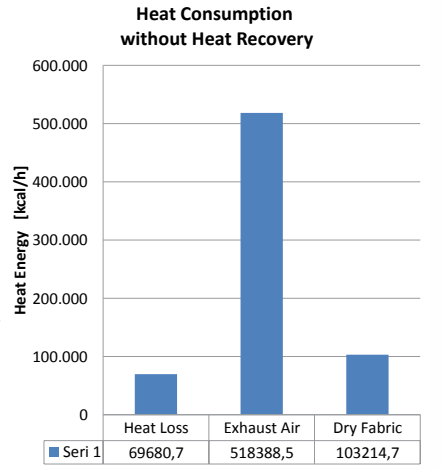
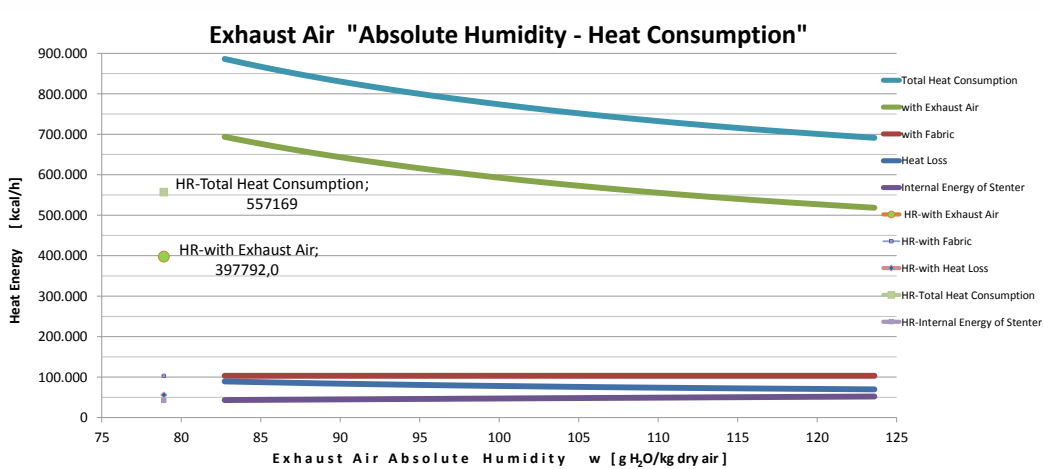
Heat Consumption
With Heat Recovery

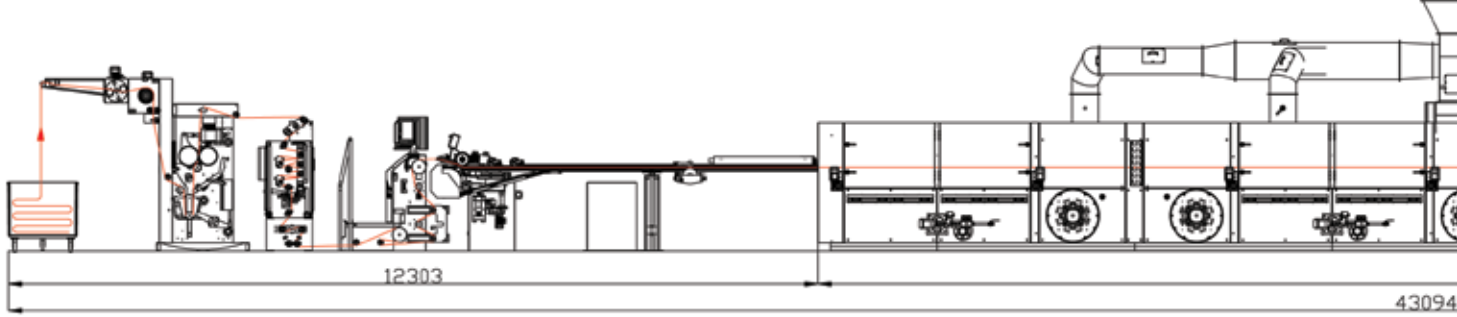


DGHS Direct Gas Heated Stenter

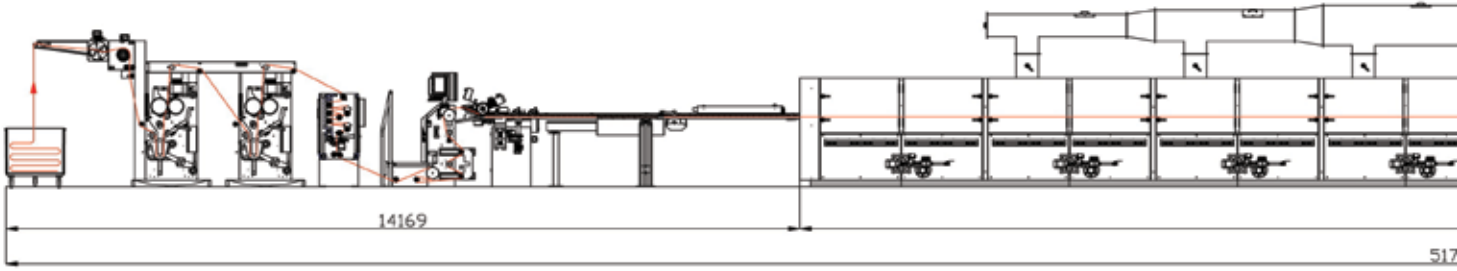


Without Heat Recovery															
35,9	35,1	34,4	33,7	33,0	32,4	31,7	31,1	30,6	30,0	29,5	29,0	28,5	28,0	μ %	Heat Efficiency
0,1149	0,1174	0,1199	0,1224	0,1249	0,1274	0,1299	0,1324	0,1349	0,1374	0,1399	0,1424	0,1449	0,1473	Sm³/kg fabric	Gas Consumption Coefficient
0,1642	0,1677	0,1713	0,1748	0,1784	0,1820	0,1855	0,1891	0,1927	0,1962	0,1998	0,2034	0,2069	0,2105	Sm³/kg H2O	
75,5089	77,13	78,77	80,41	82,05	83,69	85,33	86,97	88,61	90,25	91,89	93,53	95,17	96,8	Sm³/h	Gas Consumption
9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	9155	kcal/sm³ gas	Gas Calorific Value
691284	706125	721139	736154	751168	766182	781196	796210	811225	826239	841253	856267	871281	886204	kcal/h	Heat Consumption
1503	1535	1568	1601	1633	1666	1699	1731	1764	1797	1829	1862	1895	1927	kcal/kg H2O	Heat Consumption Coefficient
783	800	817	834	851	868	885	902	919	936	953	970	987	1003	m³/h	Combustion Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
800	817	835	852	869	887	904	921	939	956	974	991	1008	1026	kg/h	Combustion Air m1 fresh air
-23841	-24353	-24871	-25388	-25906	-26424	-26942	-27460	-27978	-28495	-29013	-29531	-30049	-30563	kcal/h	Heat q1 fresh air
69681	71177	72690	74204	75717	77230	78744	80257	81771	83284	84797	86311	87824	89328	kcal/h	Heat Losses
123,6	118,15	113,31	109	105,15	101,67	98,54	95,65	93,05	90,64	88,41	86,37	84,48	82,73	g H2O/kg dry air	w Absolute Humidity
5182	5521	5862	6202	6542	6883	7221	7564	7902	8244	8587	8927	9267	9605	kg/h	m1 Exhaust Air
4382	4704	5027	5350	5673	5996	6317	6643	6963	7287	7613	7936	8258	8580	kg/h	m2 Fresh Air
-130594	-140187	-149819	-159455	-169060	-178697	-188259	-197971	-207524	-217179	-226890	-236506	-246119	-255698	kcal/h	Heat q2 Fresh Air
35	35	35	35	35	35	35	35	35	35	35	35	35	35	deg C	Dry Bulb Temperature
90	90	90	90	90	90	90	90	90	90	90	90	90	90	%RH	Relative Humidity
4288	4603	4919	5235	5551	5867	6181	6500	6814	7131	7450	7765	8081	8395	m³/h	Volumetric Flow Rate for Fresh Air
672824	696273	719924	743579	767203	790858	814439	838169	861741	885415	909144	932778	956410	979923	kcal/h	Heat Exhaust Air
190,06	190,00	190,00	190,00	190,02	190,01	190,06	190,01	190,06	190,04	190,00	190,01	190,02	190,01	deg C	Dry Bulb Temperature
1,259	1,214	1,172	1,134	1,099	1,068	1,039	1,013	0,988	0,966	0,946	0,927	0,909	0,892	%RH	Relative Humidity
8652	9149	9650	10151	10651	11152	11651	12155	12653	13155	13658	14158	14659	15157	m³/h	Volumetric Flow Rate for Fresh Air
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	MASS BALANCE	ENERGY BALANCE
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	

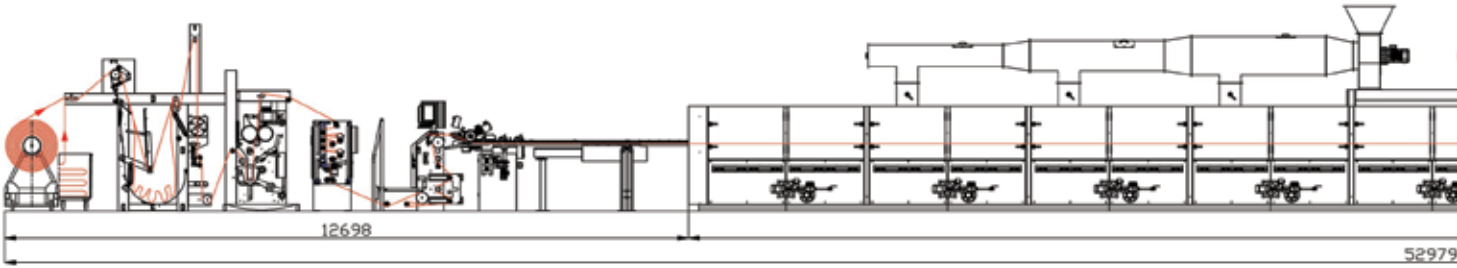




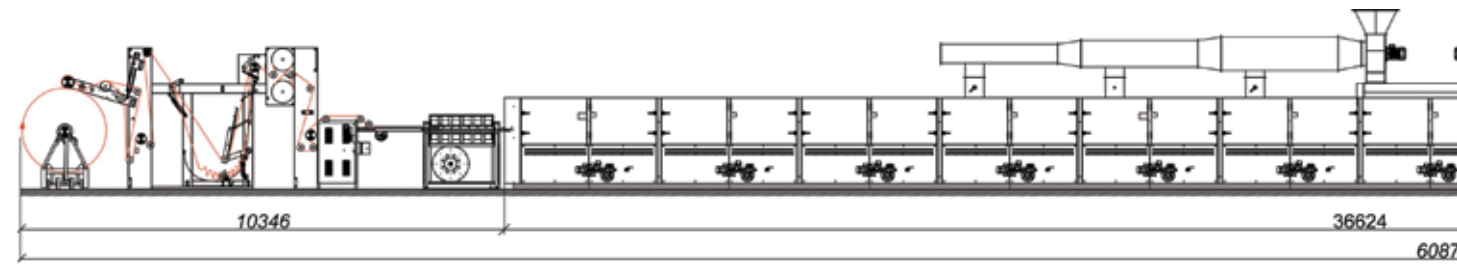
Örgü Hattı; Çapraz Hava Sirkülasyonlu, Dik veya Yatık tip zincir sistemi
Knitted Line; Counter Type Air Circulation System, Vertical or Horizontal Chain System



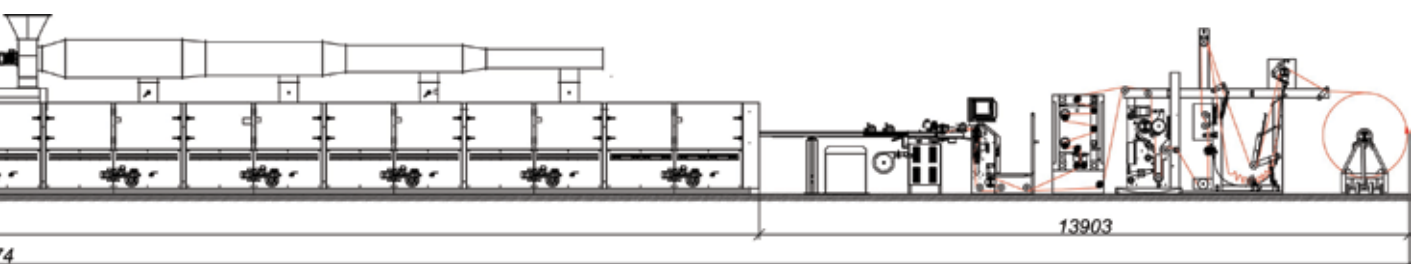
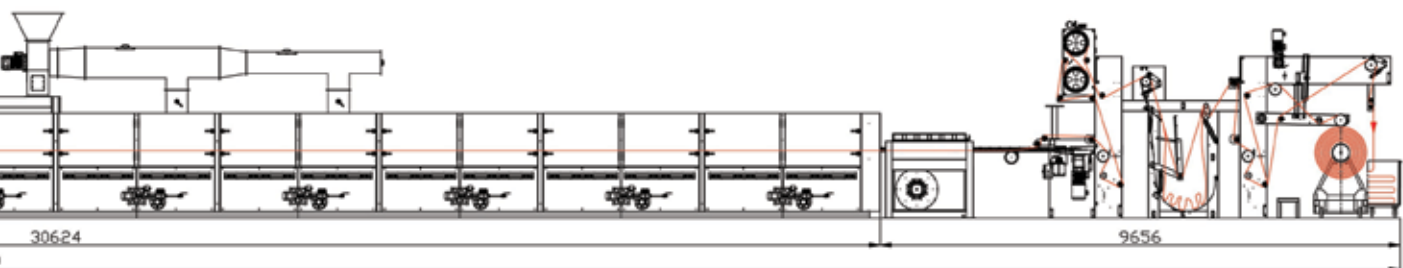
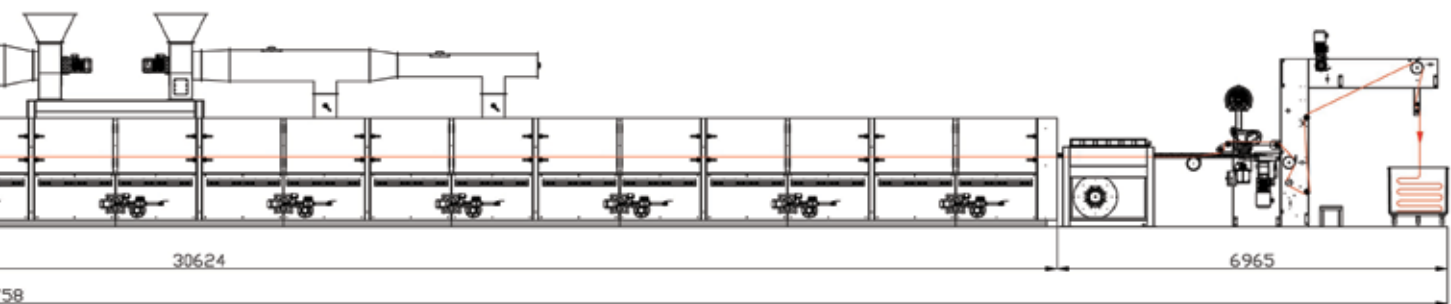
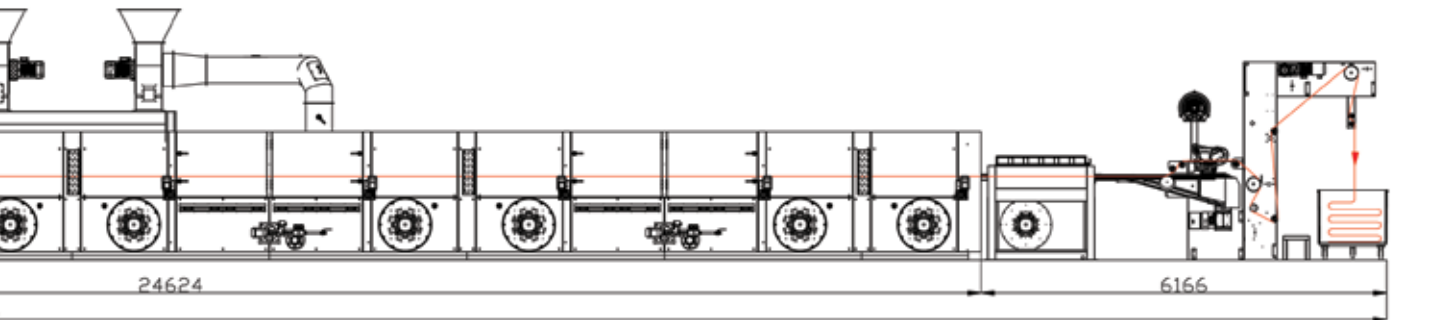
Örgü Hattı; Tek Taraftan Hava Sirkülasyonlu , Dik veya Yatık tip zincir sistemi
Knitted Line; One Sided Air Circulation, Vertical or Horizontal Chain System



Dokuma Hattı; Tek taraflı sirkülasyon veya Çapraz akım sirkülasyonlu üretilir, Yatık tip ray ve zincir sistemi
Woven Line; One Sided or Counter Type Air Circulation, Horizontal Chain System



Denim Hattı; Tek taraflı sirkülasyon veya Çapraz akım sirkülasyonlu üretilir, Yatık tip ray ve zincir sistemi
Denim Line; One Sided or Counter Type Air Circulation, Horizontal Chain System





Makine çıkış sistemi

- › 3,5 m uzunluğunda zincir çıkış sistemi.
- › Kumaş çıkış çekici silindiri.
- › Anti statik elektrik giderici ünite.
- › Temaslı tip kumaş çıkış nem ölçme sistemi (opsiyonel).

Hava soğutma sistemi

- › 2,4 m uzunluğunda, 1x11 kW fanlı havalı tip çıkış kumaş soğutma ünitesi.
- › Dokuma kumaşlar için kullanılan yüzey temaslı silindri tip soğutma.

Sallama (pastallama) sistemi

- › Arabaya veya sıpaya pastallama sistemi

Üstten baskılı Dog Sarma Sistemi

Göbekten tahrikli dog sarma sistemi (ops)

Exit System

- › Exit system with 3,5 m chain length
- › Fabric exit pulling roller
- › Antistatic electricity removal device
- › Fabric humidity measurement device (optional)

Air Cooling System

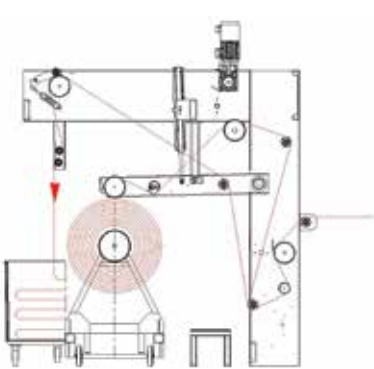
- › 2,4 m length, 1x7,5 kw blower fan, exit air cooling device
- › Water cooling tower for woven and denim fabric

Plaiting System

Plaiting on a trolley or A frame

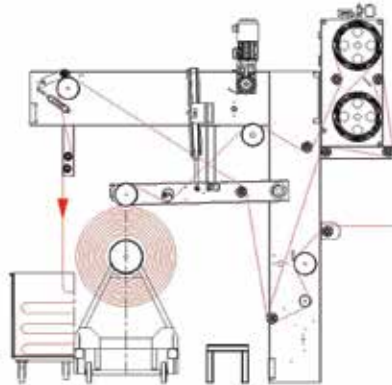
Big Batch Winding System with Peripheral Drive and Plaiting System

Big Batch Winding System with Central Drive (optional)



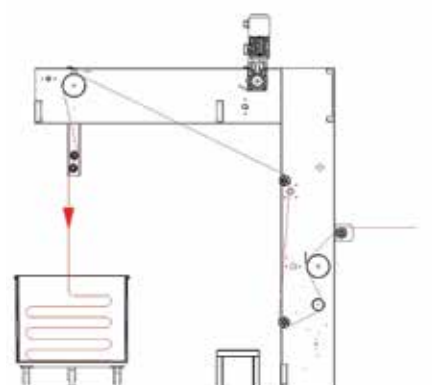
Üstten baskılı dok sarma ve sallama sistemi

Big Batch Winding System with Peripheral Drive and Plaiting System



Su soğutma silindirleri

Water Cooling Cylinders



Çıkış sallama sistemi

Plaiting System



Kız Kulesi / İstanbul

AMERİKA	YUNANİSTAN	BANGLADEŞ
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PERU	MISIR	RUSYA
ŞİLİ	SURİYE	
İNGİLTERE	IRAK	
PORTEKİZ	İRAN	
FAS	YEMEN	
MORİTANYA	TÜRKMENİSTAN	
TUNUS	AFGANİSTAN	
TANZANYA	PAKİSTAN	
GÜNEY AFRİKA	ÖZBEKİSTAN	
ALMANYA	HİNDİSTAN	



İHTİYAÇLARINIZI BİLİYORUZ SİZİN İÇİN ÜRETİYORUZ

DMS DİLMENLER MAKİNE VE TEKSTİL SAN. TİC. A.Ş.

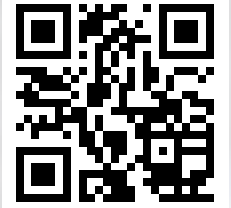
Merkez / Head Quarter

Çobançeşme Mh. Mithatpaşa Cd. Çalışlar Sk. No:5 Kat:5 34196

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