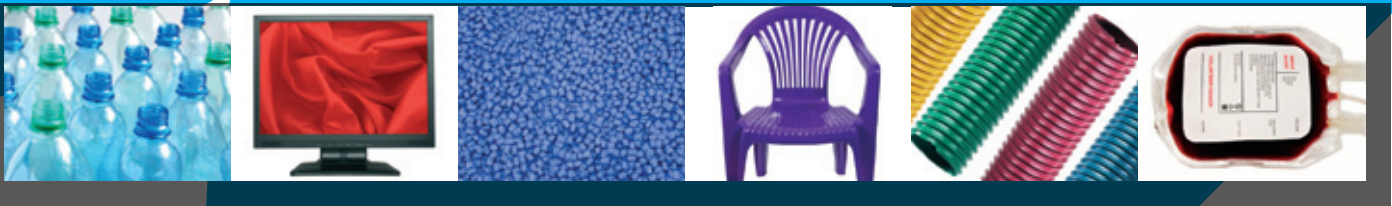




# ECOCOOL SYSTEM



## THE BEST COOLING SOLUTIONS FOR THE PLASTIC INDUSTRY



With more than 17 years experience in Plastic Process Cooling Systems, KURUMAN has developed the most **efficient, reliable** and **flexible** cooling systems in the industry today.

Your solution is guaranteed to achieve the highest standards of efficiency due to our exclusive engineering approach employing a **deep analysis of the process** to be cooled and the **local temperature conditions**. In this way you are assured of a system that is a tailor-made cooling solution, **modular and easily expandable**.

*Process Cooling*



**KURUMAN**  
Endüstriyel Soğutma Sistemleri LTD. ŞTİ.

# Process Cooling

## ECOCOOL® SYSTEM – SINGLE CIRCUIT WITH MACHINE-SIDE KTCU/CHILLER UNITS

### ● ECOCOOL

#### EDK - Closed-Circuit Adiabatic Fluid Cooler

- Power consumption:  
**0.014 kWh/kW / 0.05 kWh/Ton**
- Clean Water, Low Maintenance, Modular and Expandable.
- Simple & Inexpensive Installation with one set of non-insulated pipes.

### ● KTS

#### RCM - Single Zone RCD - Double Zone High Performance Process Chiller

- LWT: **0°C to 90°C / 32°F to 195°F**
- Precision: **± 0.1°C / ± 0.2°F**
- Max. Mold Water  $\Delta T$ : **1.5°C / 2°F**

### ● EXTRO LINE

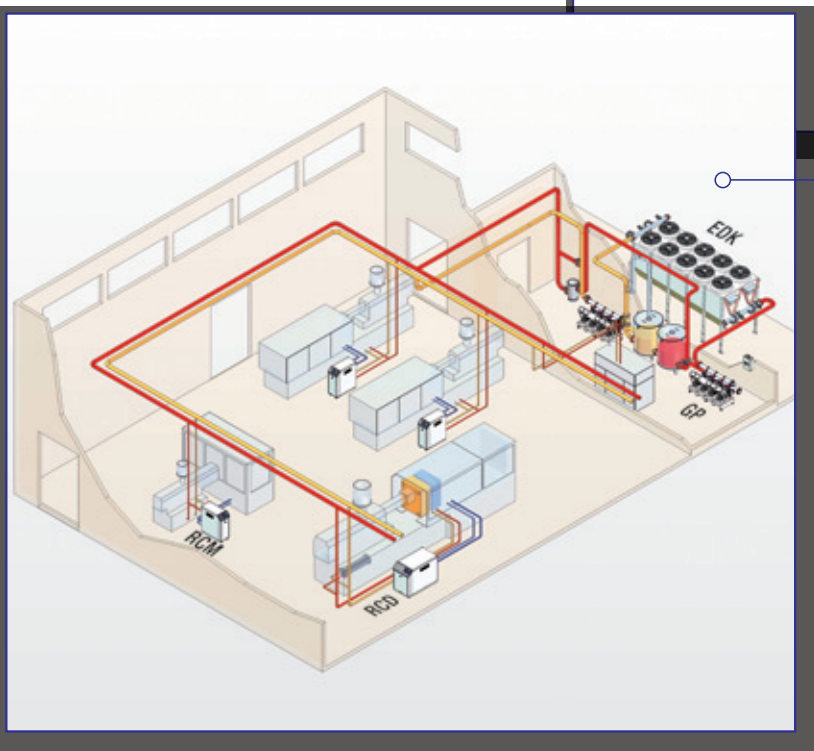
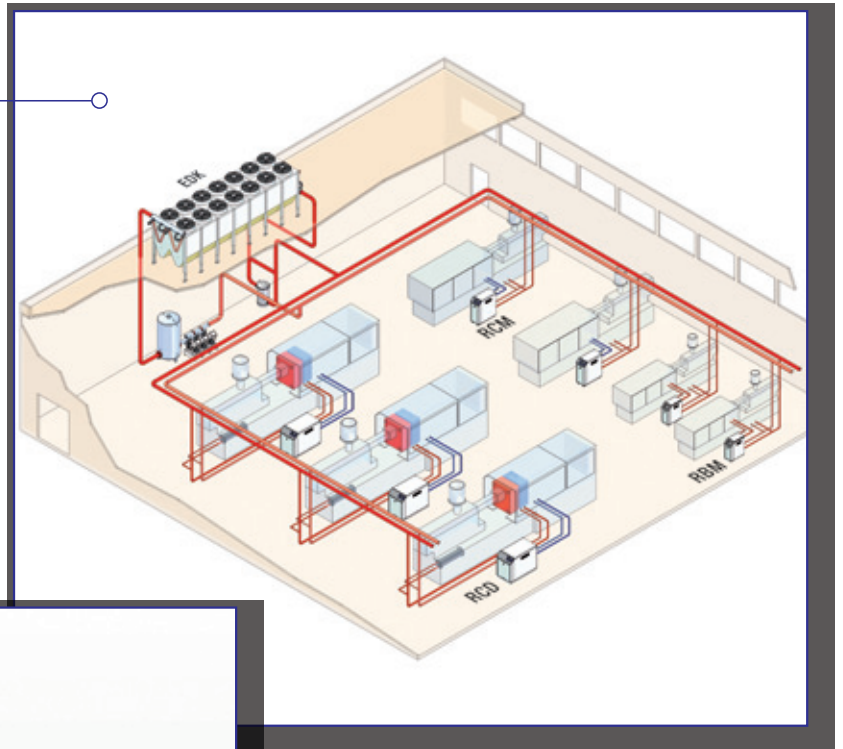
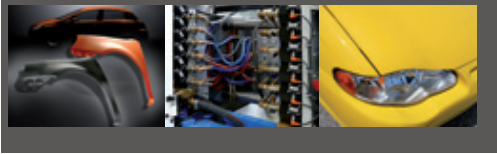
#### RBM - Single Zone RBD - Double Zone High Performance Temperature Control Unit - TCU

- LWT: **up to 90°C / 195°F**
- Precision: **± 0.1°C / ± 0.2°F**
- Max. Mold  $\Delta T$ : **1.5°C / 2°F**

### Plastic Injection Moulding

EcoCool System – with glycol

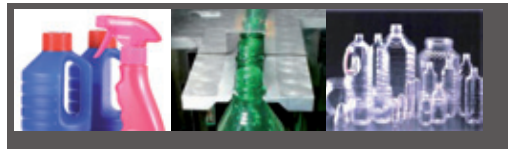
(typical layout)



### Plastic Injection and Blow Moulding

EcoCOOL System ( self-draining )  
version - no glycol

(typical layout)



**KURUMAN**  
Endüstriyel Soğutma Sistemleri LTD. ŞTİ.

# Process Cooling

## ECOCOOL® SYSTEM – SINGLE CIRCUIT WITH MACHINE-SIDE TCU/CHILLER UNITS



**KURUMAN**  
Endüstriyel Soğutma Sistemleri LTD. ŞTİ.

### ECOCool SYSTEM:

- **Low Operating Costs**
- **Individual process control** of water temperature and flow.
- Search and Storage of **optimum cooling parameters** for each mould.
- **Serial interface** for communication with process machine.
- High energy savings with the **free cooling valve**, available in each unit.
- **No maintenance problems** related to water quality.
- Automatic **Mould Preheat**.
- **Automatic Loading and Draining** of moulds.

### Extrusion Plants

No need for gravitational return channels. No need for concrete tanks and/or underground pools. Specific control of temperature for each extrusion line.

### EXTR0-RCX

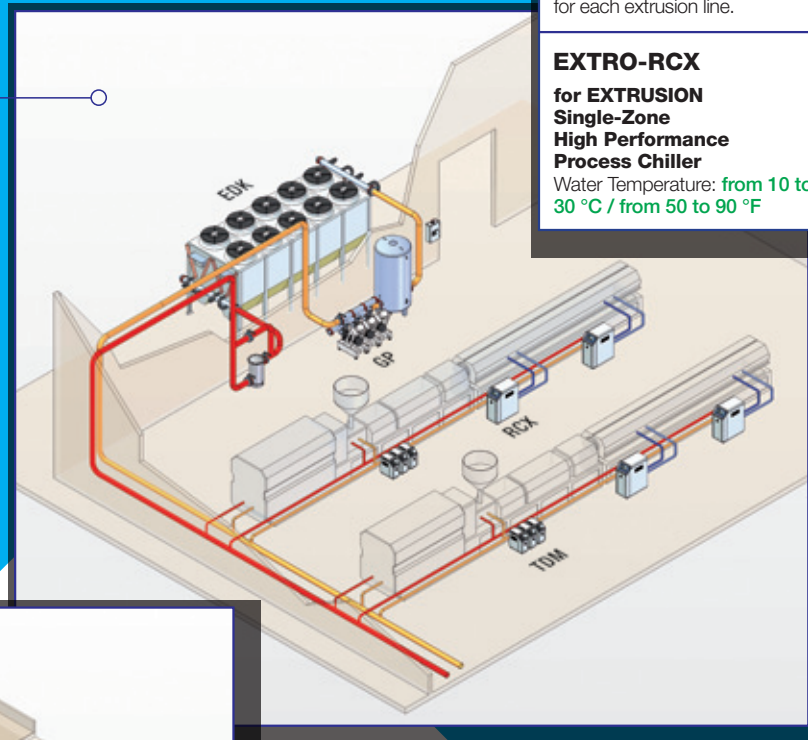
for **EXTRUSION Single-Zone High Performance Process Chiller**

Water Temperature: **from 10 to 30 °C / from 50 to 90 °F**

### Plastic Extrusion

EcoCool System – EDK and EXTR0- RCX

(typical layout)



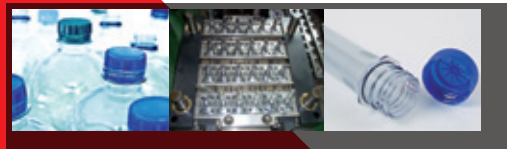
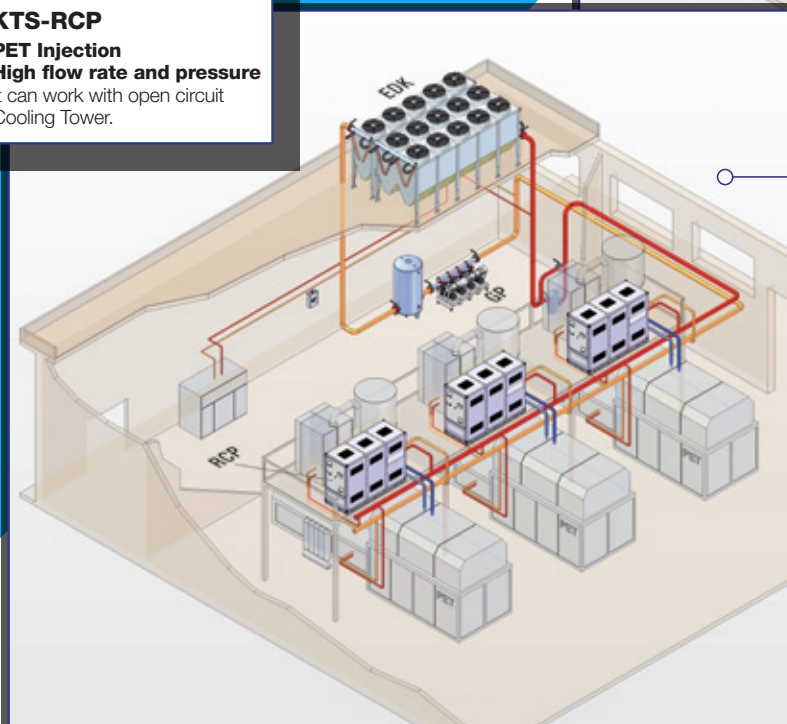
### KTS-RCP

**PET Injection High flow rate and pressure**  
It can work with open circuit Cooling Tower.

### PET preforms Injection

EcoCool System – EDK and KTS RCP

(typical layout)



# KURUMAN COMPACT TWO-ZONE THERMOSTABILIZER

KTS

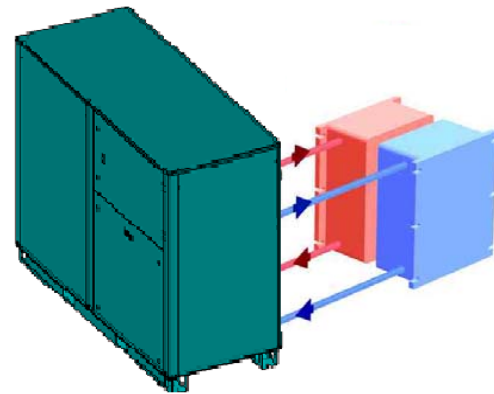
## PROFILE

The **KURUMAN®KTS** units are two zone compact water cooled chillers which are used in various industrial sectors thanks to their wide range of operating temperatures.

The **KTS** is controlled by a microprocessor and fitted with a particular proportional control regulation device (patented by **KURUMAN**) which allows **the set temperature to be kept perfectly precise and constant**.

The **KTS** series encloses the potential of two **KURUMAN®** single zone **KTS** series machines in a single unit. It offers the possibility of operating at constant temperatures, flows and pressures which are different between the zones in a completely independent way. This version is capable of automatically dividing the cooling capacity according to the thermal load of each zone.

- Main applications:
  - Plastic injection molding, blow-moulding, thermoforming
  - other processes where heat regulation is required with operating temperatures of minimum -5°C (40°F) and maximum + 90°C (195°F).
- The **KURUMAN®KTS** is conceived for the control of process water of single user, as an alternative to traditional centralized cooling systems for multiple users. Compared to centralized systems allows:
  - increase in productivity
  - constant and independent flow rate, pressure and temperature to the processes
  - energy savings
  - less scraps
  - retaining and repeating optimal operating conditions.
  - cooling with energy saving
- The use of three separate pumps, two dedicated to the respective process and one for internal circulation **guarantees the maximum flow rate to the processes** and optimises the cooling circuit operation and reliability.
- An integrated **automatic free-cooling** system allows high energy savings to be achieved in the periods when it is possible to exploit the environment temperature for the cooling.
- **Electronic controller** with microprocessor with easy-to-use immediate interface, fitted with self diagnosis for complete management of the machine.
- Possibility of **seeking and storing the optimal cooling conditions** for each individual process and of communicating with the production machine.
- The **KTS®** series uses **ecological gas**, in respect of the European directives for environmental protection.
- The choice of components, the assembly procedures and the strict final testing of 100% of the production, guarantee continual operating cycles with excellent reliability even in the most difficult conditions.
- Range available in 10 models with cooling capacities from **7 to 90 kW** and with heating capacity from **12 to 48 kW**.



**Scroll  
compressor**

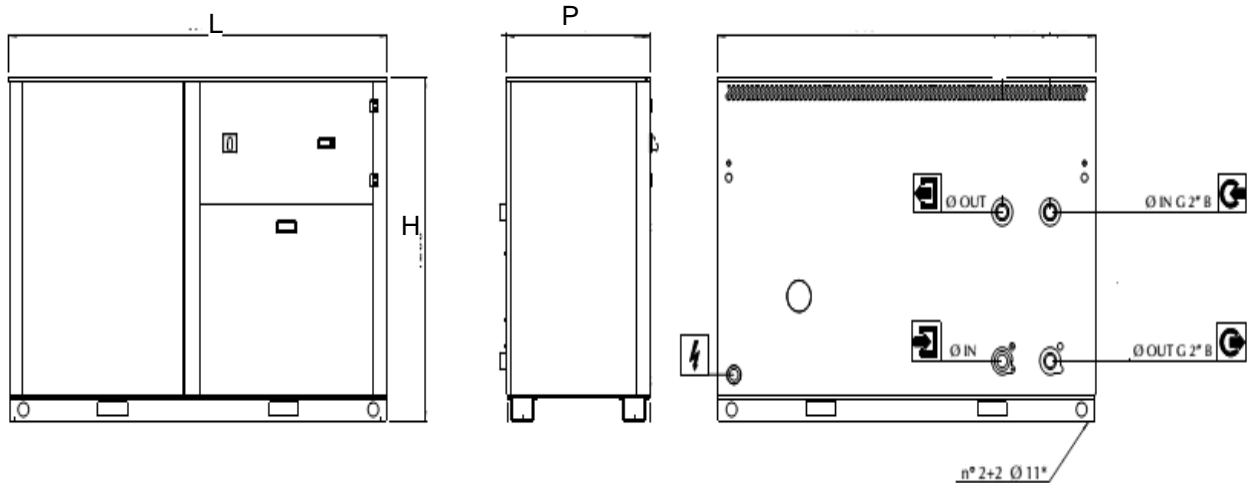
# KURUMAN COMPACT TWO-ZONE THERMOSTABILIZER

**KTS**

## TECHNICAL DATA

KURUMAN KTS SERIES			KTS-2 - Double Zone									
Model		40/12	60/12	80/12	100/24	130/24	180/24	220/48	300/48	350/48	450/48	
Cooling Capacity (*)	kW	7,3	10,5	16,1	20,4	26,7	34,2	41,9	55,8	69,8	89,1	
Heating Capacity	kW	6 + 6			12 + 12			24 + 24				
Compressor	HP	3	4	6	7,5	10	13,5	15	20	25	30	
Evaporator Pump	kW	0,37			0,55			0,9		1,5		
Process Pumps Standard (**)	Power	kW	0,75	1,50		1,8			4,0		7,5	
	Flow Rate	m3/hr	3,1	4,5	6,9	8,8	11,5	14,7	18,0	24,0	30,0	38,3
	Pressure	bar	2,7	3,1	2,9	3,5	3,2	2,8	3,7	3,5	3,8	3,6
	Max Flow	m3/hr	6,6	15,0		15,0			42,0		72,0	
	Max Pressure	bar	3,0	3,1		3,8			3,9		3,9	
	Min Pressure	bar	1,9	2,3		2,8			2,5		2,6	
Process Pumps High Pressure Optional (**)	Power	kW	1,5		2,2	2,2	3,0		5,5	7,5		11
	Flow Rate	m3/hr	3,1	4,5	6,9	8,8	11,5	12,6	18,0	24,0	30,0	38,3
	Pressure	bar	5,0	4,8	4,8	4,6	5,1	4,9	4,4	5,4	5,1	5,5
	Max Flow	m3/hr	9,0		12,6	12,6	12,6		50,0	50,0		86,0
	Max Pressure	bar	5,1		5,2	5,2	6,2		4,5	5,7		5,7
	Min Pressure	bar	3,6		3,9	3,9	4,9		2,7	3,8		3,9
Total Max Load Values	With Standard Pumps	kW	13,9	15,4	15,8	28,2	28,2	29,9	56,9	56,9	66,6	72,3
		A	23	26	26	46	46	51	89	90	112	121
	With High Pressure Pumps	kW	15,4	15,4	17,2	29,0	30,6	32,2	59,9	63,9	66,6	79,3
		A	26	26	30	48	49	54	93	102	111	134
Sound Level @ 10 mt.	dB (A)	40			40			45				
Process Connections	In.	1"			1" 1/2			3"				
Cooling Connections	In.	1"			1"			2"				
Width x Depth - P x L	cm	45 x 91			54 x 121			95 x 185				
Height - H	cm	111			142			147				
Net weight	Kg	245	255	265	360	370	450	625	695	795	915	

[\*] Capacity with process water temperature = 10°C, DeltaT = 2°C, cooling water temperature = 35°C, 2 bar  
 [\*\*] Unit with two process pumps - Data for each pump. - **Supply : 400 Volt ± 15% - 50Hz**



# KURUMAN COMPACT TWO-ZONE THERMOSTABILIZER

KTS

## TECHNICAL FEATURES

### • REFRIGERATION EQUIPMENT

- high efficiency and low noise hermetic compressors
- stainless steel S&T evaporator and condenser
- continual condensing pressure control by means of a pressure valve.

### • WATER DISTRIBUTION EQUIPMENT

- designed to provide constant pressure and flow both to the process and to the evaporator
- **Two stainless steel process pumps** with special mechanical seal and high performance tropicalized motor sized to provide high flow rate and pressure
- separate stainless steel chiller electric pump on the evaporator side
- low surface load incoloy heating elements
- temperature control system with a proportional modulating valve
- automatic loading system
- rustproof and insulated pipes and connecting parts
- stainless steel insulated tank



mod. KTS 180/24

### • ELECTRICAL AND CONTROL EQUIPMENT

- in line with the European Standard EN 60204/1 in IP 55, with door/lock main door blocking switch
- microprocessor controller
- proportional-integral regulation logic for controlling the temperature with an error lower than  $\pm 1^{\circ}\text{C}$
- permanent digital reading of the water pressure and temperature to the process
- complete visualization on the back-lit alpha numeric display of the messages, in the selected language, with precise instructions of the procedures, of the troubles and the possible solutions
- completely automatic loading and emptying procedures of the mold circuit
- possibility of installing the most important interface systems for communication with the production machines and with centralised supervision system
- audible alarm system fitted as standard
- ready for installation of optical alarms, even remote.

### • FRAME

- Made of steel and painted with epoxy powder
- Removable panels
- Fitted on rotating wheels.

<b>Ordering code</b> Example: KTS-2-180/24	<b>KTS-2</b> --- Series	<b>180</b> --- Model	/	<b>24</b> --- Heating power
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# KURUMAN COMPACT TWO-ZONE THERMOSTABILIZER

KTS

## ACCESSORIES AND AUXILIARY EQUIPMENT

- **Draining kit (KSD):**  
Device designed to allow automatic draining of the mold/process.
- **Serial interface (KSL):**  
Various serial interface protocols are available to communicate with the production machines and with centralised supervision.
- **Visual alarm (KAV):**  
Apart from the audible alarm fitted as standard, a visual alarm is also available on request.
- **Tower kit (KTD-KTE):**  
It is used to avoid problems of scale or contamination in the KTS-2's condenser when the cooling water comes from an open circuit system (cooling tower or well).
  - KTD direct type
  - KTE separated circuits, with tank
- **Separated circuits (KSC):**  
On request, for special applications a special unit with separation between process and cooling circuits can be supplied.



Tower kit

## INSTALLATION DIAGRAM

