



References:

UKRAINE

Tomashpil Sugar Mill, Gaisyn Sugar Plant

RUSSIA

Gryazi Sugar Plant, Nikiforovsky Sugar Plant, Olhovatsky Sugar Factory, Uspensk Sugar Plant

BELARUS

Skidel Sugar Factory

ALGERIA

Ouled Moussa



Techinservice™



EVAPORATORS

Techinservice designs and manufactures a series of standard film evaporators mod. TVP. The juice is evaporated by flowing in a thin film falling on the inner surface of the heating tubes from top to bottom with a far smaller temperature difference in comparison with natural circulation calandria evaporators with similar capacity and juice density. Thanks to a substantial reduction of the evaporation time, there is practically no increase in juice color and decomposition of sucrose in evaporators. The distinctive feature of these evaporators is their modular design, which means that you can ship them by sea or road to any destination worldwide with no restrictions in size. In addition, this principle has advantages when installing evaporators at operating plants.

Advantages of TVP Falling Film Evaporators Manufactured by Techinservice:

- increase in evaporation efficiency of evaporator bodies;
- substantial decrease in temperature depression;
- minimum increase in juice color and decomposition of sucrose;
- convenient transportation (thanks to the evaporator's modular design).



TVP 12-4870 Evaporator (Skidel Sugar Factory)

TVP Falling Film Evaporator Specification

Model	Heating surface area, m ²	Tube diameter, mm	Tube wall thickness, mm	Tube length, mm	Quantity of tubes, pcs.	Calandria diameter, mm	Calandria height, mm	Weight of collectors, kg	Weight of vessel without tubes, kg	Weight of vessel with tubes, kg
TVP 5-80	80	38	1,2	5000	138	720	5787	650	6437	7157
TVP 5-140	141	38	1,2	5000	244	920	5787	780	6567	7487
TVP 5-265	265	38	1,2	5000	458	1220	5787	1000	6787	8007
TVP 5-375	375	38	1,2	5000	648	1420	5787	1169	6956	8376
TVP 9-673	674	38	1,2	9000	648		9784	1169	10 953	10 953
TVP 9-1185	1184	38	1,2	9000	1138	1820	9790	2075	11 865	13 685
TVP 11-1440	1440	35	1,2	11 000	1233		9790	2075	11 865	11 865
TVP 12-1580	1579	38	1,2	12 000	1138		12 758	2075	14 833	14 833
TVP 14-1840	1842	38	1,2	14 000	1138	2220	14 820	2075	16 895	16 895
TVP 10-1940	1933	38	1,2	10 000	1672		10 838	2075	12 913	15 133
TVP 9-2265	2448	35	1,2	9000	2562	2620	9646	3009	12 655	15 275
TVP 9-2430	2427	35	1,5	9000	2562			3009	3009	3009
TVP 9-2500	2501	35	1,5	9000	2640			3009	3009	3009
TVP 12-3025	3042	33	1,5	12 000	2562	3224	12 646	3009	15 655	15 655
TVP 12-3250	3236	35	1,5	12 000	2562		3009	3009	3009	
TVP 9-3430	3434	33	1,5	9000	3856	9685	9685	5260	14 945	18 169
TVP 9-3650	3652	35	1,5	9000	3856			5260	5260	5260
TVP 12-4580	4579	33	1,5	12 000	3856	12 685	12 685	5260	17 945	17 945
TVP 12-4870	4579	33	1,5	12 000	3856			5260	5260	5260
TVP 12-5000	5014	35	1,5	12 000	3970			5260	5260	5260



Citric Acid Evaporator Station (Skidel Sugar Factory)



TVP 9-2430 and TVP 12-4870 Evaporators
(Gaisyn Sugar Plant)

The TVP evaporator consists of three main units cut into separate parts according to the transportation and installation requirements, namely:

- juice chamber (bottom) – two or four parts;
- calandria (heating chamber) – ready-fitted with control heating tubes or in blocks (depending on their diameter);
- distribution device – ready-assembled or in parts.



In order to achieve more cost-effective and efficient performance of the evaporator station of the sugar factory, all evaporators are automated by installing **Corason** automatic control system developed by **Techinservice**.



Main Operator's Room at Sugar Plant (Gaisyn Sugar Plant)



CORASON AUTOMATIC CONTROL SYSTEM FOR EVAPORATOR STATION



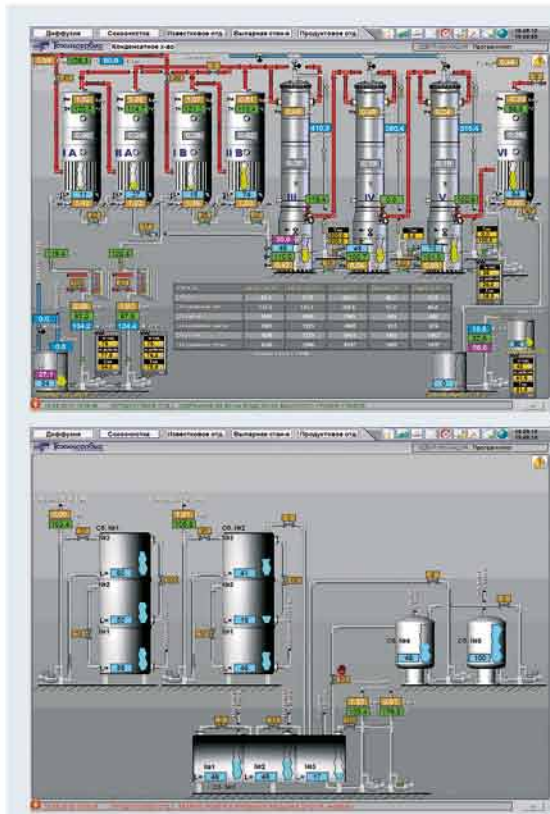
Fully automated and fault-free operation is guaranteed

Advantages & Features:

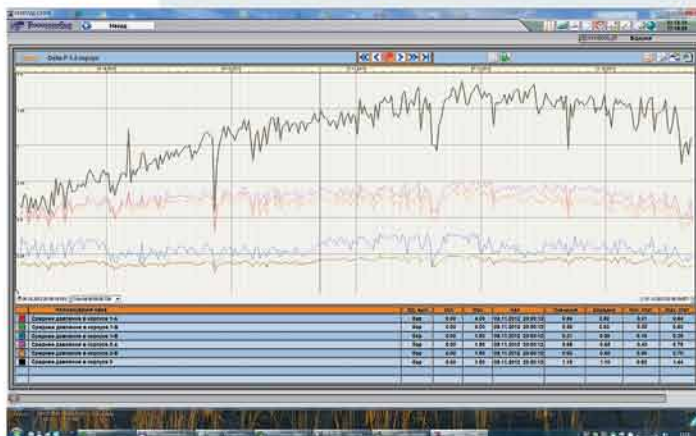
- Dynamic level adjustment system: installation of the so-called pressure gauges in evaporator bodies and automatic adjustment of levels for the analog controller based on these signals.

A fuzzy controller adjusts the level depending on the condition of the evaporator station, which allows taking into account dynamic changes in evaporator bodies, in particular, it allows avoiding formation of hard scale in tubes.

- Inverter or reversal control of pumps.
- Maintenance of pressure at the defined point of the evaporator station by using a mathematical model of the specific evaporator station.
- Maintenance of a preset value of DS.
- Pumps and actuators alarming; control of deviation of process parameters from preset limit values.
- Record of process parameters and data gathering and storage over a specified period of time.
- Remote control of system regulators by using the operator's panel or PC keyboard. Graphical mnemonic diagrams are the visual depiction of data about the technological process, equipment condition, operating modes and emergencies.



Evaporator Control System Mnemonic Diagrams



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