Tabular heat exchanger CHM15

First cooling stage of green beer:

Concept of an exchanger -- WP4 - 50

Design Duty:

			Side 1	Side 2
Medium		:	**Pivo**	**Voda**
Input temperature	**°C**	:	**98**	**20**
Output temperature	**°C**	:	**26**	**60**
Flow	**kg/h**	:	**1501,2**	**3047,2**
Max. allowed pressure waste	**kPa**	:	**20**	**20**

Physical Properties of Fluid:

Reference Temperature	°C	:	67	41
Viscosity	cP	:	0,54	0,64
Viscosity Wall	cP	:	0,698	0,558
Density	kg/m³	:	977,5	990,4
Specific Heat Capacity	kJ/kg,°C	:	4,077	4,176
Thermal Conductivity	W/m,°C	:	0,633	0,632

Designed Plate Heat Exchanger:

Power	**kW**	:		**105**
Total heat transfer surface	**m2**	:		**1,68**
Log Mean Temperature Difference	°C	:		17,71
Overall H.T.C.	W/m2,°C	:		3751/3543
Calculated pressure waste	**kPa**	:	**2**	**18,4**
Number of canals		:	**24**	**25**
Connection Diameter	mm	:	32	32
Number of Heat Transfer Units	NTU	:	3,501	1,017
Total number of desks		:		**50**
Reserve of heat tranfer surface	**%**	:		**6**
Fouling Factor	m2,°C/kW	:		0,016

Second cooling stage of green beer

Concept of an exchanger – WP5 - 30

Design Duty:

			Side 1	Side 2
Medium		:	**Pivo**	**Voda**
Input temperature	**°C**	:	**26**	**2**
Output temperature	**°C**	:	**7**	**20**
Flow	**kg/h**	:	**1501,2**	**2304**
Max. allowed pressure waste	**kPa**	:	**20**	**20**

Physical Properties of Fluid:

Reference Temperature	°C	:	21,5	11
Viscosity	cP	:	1,31	1,27
Viscosity Wall	cP	:	1,538	1,137
Density	kg/m³	:	1009,6	999,7
Specific Heat Capacity	kJ/kg,°C	:	4,001	4,202
Thermal Conductivity	W/m,°C	:	0,579	0,589

Designed Plate Heat Exchanger:

Power	**kW**	:		**48**
Total heat tranfer surface	**m2**	:		**1,65**
Log Mean Temperature Difference	°C	:		9,46
Overall H.T.C.	W/m2,°C	:		3285/3097
Calculated pressure waste	**kPa**	:	**7,2**	**14,2**
Number of canals		:	**14**	**15**
Connection Diameter	mm	:	32	32
Number of Heat Transfer Units	NTU	:	3,066	1,903
Total number of desks		:		**30**
Reserve of heat tranfer surface	**%**	:		**6**
Fouling Factor	m2,°C/kW	:		0,019

Warranty: 36 months