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***Content Based
Chemical Engineering***

ENGINEERING DESIGN CALCULATION - DENNIS KIRK

MOTOR POWER CALCULATION

HARRIET LTS GAS PLANT

Version 1.000

The following calculates 3 phase electric motor power output given the current draw for each phase.

Power = $\sqrt{3}$ * V * I * power factor * motor effcy

DRIVE	VOLTAGE	CURRENT			AVERAGE CURRENT	FULL LOAD CURRENT	POWER FACTOR	MOTOR EFFICIENCY	POWER OUTPUT		RATED POWER		DESIGN POWER	
		Phase 1	Phase 2	Phase 3					kW	HP	kW	HP	kW	HP
AC-19.101 A	415	5.5	5.6	5.6	5.57	6.6	0.73	0.861	2.515	3.37	2.982	4.00	2.20	2.95
AC-19.101 B	415	5	5	5.1	5.03	6.6	0.73	0.861	2.274	3.05	2.982	4.00	2.20	2.95
AC-19.101 C	415	5	5	5.1	5.03	6.6	0.73	0.861	2.274	3.05	2.982	4.00	2.20	2.95
AC-19.102 A	415	3.7	3.8	3.9	3.80	5.2	0.745	0.814	1.656	2.22	2.267	3.04	1.60	2.14
AC-19.102 B	415	3.8	3.7	3.8	3.77	5.2	0.745	0.814	1.642	2.20	2.267	3.04	1.60	2.14
AC-19.102 C	415	4.2	4.2	4.3	4.23	5.2	0.745	0.814	1.845	2.47	2.267	3.04	1.60	2.14
AC-19.103 A	415	2.1	2	2.2	2.10	3	0.701	0.752	0.796	1.07	1.137	1.52	0.60	0.80
AC-19.103 B	415	2.2	2	2.1	2.10	3	0.701	0.752	0.796	1.07	1.137	1.52	0.60	0.80
AC-19.103 C	415	2.2	2.1	2.2	2.17	3	0.701	0.752	0.821	1.10	1.137	1.52	0.60	0.80
AC-19.104 A	415	3.5	3.4	3.6	3.50	5.2	0.745	0.814	1.526	2.05	2.267	3.04	1.20	1.61
AC-19.104 B	415	3.6	3.4	3.6	3.53	5.2	0.745	0.814	1.540	2.06	2.267	3.04	1.20	1.61
AC-19.104 C	415	4.2	4.1	4.1	4.13	5.2	0.745	0.814	1.802	2.42	2.267	3.04	1.20	1.61
AC-19.104 D	415	4.2	4	4.2	4.13	5.2	0.745	0.814	1.802	2.42	2.267	3.04	1.20	1.61
AC-19.202 A	415	4	4	4	4.00	5.2	0.745	0.814	1.744	2.34	2.267	3.04	1.60	2.14
AC-19.202 B	415	4.2	4	4.2	4.13	5.2	0.745	0.814	1.802	2.42	2.267	3.04	1.60	2.14
AC-19.202 C	415	4.1	4	4.1	4.07	5.2	0.745	0.814	1.773	2.38	2.267	3.04	1.60	2.14
AC-19.203 A	415	2.1	2.1	2.2	2.13	3	0.701	0.752	0.808	1.08	1.137	1.52	0.60	0.80
AC-19.203 B	415	2.2	2	2.2	2.13	3	0.701	0.752	0.808	1.08	1.137	1.52	0.60	0.80
AC-19.203 C	415	2.2	2.1	2.2	2.17	3	0.701	0.752	0.821	1.10	1.137	1.52	0.60	0.80
AC-19.301 A	415	10.8	10.7	11.4	10.97	20.9	0.84	0.897	5.940	7.96	11.319	15.17	5.50	7.37
AC-19.301 B	415	10.3	10.1	10.7	10.37	20.9	0.84	0.897	5.615	7.53	11.319	15.17	5.50	7.37
AC-19.302 A	415	11.4	10.8	10.8	11.00	20.9	0.84	0.897	5.958	7.99	11.319	15.17	5.50	7.37
AC-19.302 B	415	11	10.7	10.7	10.80	20.9	0.84	0.897	5.849	7.84	11.319	15.17	5.50	7.37