

# Proton Products

## PH Series Wire Preheater

### Performance Tables

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#### Table of Contents

<b>MAXIMUM LINE SPEED SCALING.....</b>	<b>2</b>
<b>PH160 SERIES .....</b>	<b>3</b>
<i>PH160-10-200 .....</i>	<i>3</i>
<i>PH160-12-400 .....</i>	<i>5</i>
<i>PH160-12-480 .....</i>	<i>7</i>
<i>PH160-12-400-HS (High Speed).....</i>	<i>9</i>
<i>PH160-20-400-HS (High Speed).....</i>	<i>11</i>
<b>PH300 SERIES .....</b>	<b>13</b>
<i>PH300-10-200 .....</i>	<i>13</i>
<i>PH300-12-400 .....</i>	<i>15</i>
<i>PH300-20-400 .....</i>	<i>17</i>
<i>PH300-24-480 .....</i>	<i>19</i>
<i>PH300-20-400-HT (High Temperature) .....</i>	<i>21</i>
<i>PH300-25-400 .....</i>	<i>22</i>
<i>PH300-25-400-HT (High Temperature) .....</i>	<i>23</i>
<i>PH300-31-480 .....</i>	<i>24</i>
<i>PH300-20-400-RC (Rolling Contact) .....</i>	<i>26</i>
<i>PH300-20-400-TW (Twin Wire) .....</i>	<i>27</i>
<b>PH450 SERIES .....</b>	<b>28</b>
<i>PH450-20-400 .....</i>	<i>28</i>
<i>PH450-25-400 (180mm high core).....</i>	<i>30</i>
<i>PH450-25-400 (210mm high core).....</i>	<i>31</i>
<b>PH600 SERIES .....</b>	<b>33</b>
<i>PH600-34-400 .....</i>	<i>33</i>

## MAXIMUM LINE SPEED SCALING

For materials other than copper, the maximum line speeds may be scaled as follows:

Material	Operating regime	Multiply the maximum line speed by
Aluminium	Loop voltage limited operation	0.71
	Power limited operation	1.42
Copper-clad steel	Loop voltage limited operation	(% conductivity of the wire) / 100
	Power limited operation	1

The operating regime may be determined from the charts as follows:

Maximum line speed	Operating regime
Shaded	Loop voltage limited operation
Unshaded	Power limited operation

# PH160 SERIES

## PH160-10-200

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			160		mm
			6.3		inch
Wire material			Copper*		-
Solid wire diameter				1.70	mm
				0.067	inch
				14	AWG
Stranded wire	area			3	mm <sup>2</sup>
				12	AWG
	diameter			1.95	mm
				0.077	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		180	200	220	VAC
3-phase power supply frequency		47		65	Hz
Power output			10		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum (by lower pulley type)		Maximum (inlet temperature = 10°C)			
			Standard Tufnol	Long-life alumina	100°C	120°C	150°C	200°C
Solid and stranded	0.30	0.07	460	657	1717	1355	1010	685
	0.40	0.13	259	370	1717	1355	1010	685
	0.50	0.20	166	237	1717	1355	1010	685
	0.60	0.28	115	164	1717	1355	1010	685
	0.70	0.38	85	121	1717	1355	1010	685
	0.80	0.50	65	92	1717	1355	1010	685
	0.90	0.64	51	73	1717	1355	1010	685
	1.00	0.79	41	59	1717	1355	1010	685
	1.10	0.95	34	49	1484	1214	954	685
	1.20	1.13	29	41	1247	1020	801	591
	1.30	1.33	25	35	1062	869	683	503
	1.40	1.54	21	30	916	749	589	434
	1.50	1.77	18	26	798	653	513	378
	1.60	2.01	16	23	701	574	451	332
	1.70	2.27	14	20	621	508	399	294
Stranded only	1.80	2.54	13	18	554	453	356	262
	1.90	2.84	11	16	497	407	320	236
	2.00	3.14	10	15	449	367	289	213

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum (by lower pulley type)		Maximum (inlet temperature = 50°F)			
			Standard Tufnol	Long-life alumina	212°F	248°F	302°F	392°F
Solid and stranded	28	0.013	1319	1882	5633	4446	3314	2247
	27	0.014	1046	1492	5633	4446	3314	2247
	26	0.016	829	1183	5633	4446	3314	2247
	25	0.018	658	938	5633	4446	3314	2247
	24	0.020	521	744	5633	4446	3314	2247
	23	0.023	414	590	5633	4446	3314	2247
	22	0.025	328	468	5633	4446	3314	2247
	21	0.028	260	371	5633	4446	3314	2247
	20	0.032	206	294	5633	4446	3314	2247
	19	0.036	164	233	5633	4446	3314	2247
	18	0.040	130	185	5621	4446	3314	2247
	17	0.045	103	147	4457	3647	2865	2111
	16	0.051	82	116	3535	2892	2272	1674
	15	0.057	65	92	2803	2294	1802	1328
14	0.064	51	73	2223	1819	1429	1053	
Stranded only	13	0.072	41	58	1763	1442	1133	835
	12	0.081	32	46	1398	1144	899	662

## PH160-12-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			160		mm
			6.3		inch
Wire material			Copper*		-
Solid wire diameter				1.70	mm
				0.067	inch
				14	AWG
Stranded wire	area			3	mm <sup>2</sup>
				12	AWG
	diameter			1.95	mm
				0.077	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			12		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum (by lower pulley type)		Maximum (inlet temperature = 10°C)			
			Standard Tufnol	Long-life alumina	100°C	120°C	150°C	200°C
Solid and stranded	0.30	0.07	460	657	1761	1389	1035	703
	0.40	0.13	259	370	1761	1389	1035	703
	0.50	0.20	166	237	1761	1389	1035	703
	0.60	0.28	115	164	1761	1389	1035	703
	0.70	0.38	85	121	1761	1389	1035	703
	0.80	0.50	65	92	1761	1389	1035	703
	0.90	0.64	51	73	1761	1389	1035	703
	1.00	0.79	41	59	1761	1389	1035	703
	1.10	0.95	34	49	1761	1389	1035	703
	1.20	1.13	29	41	1496	1224	962	703
	1.30	1.33	25	35	1275	1043	820	604
	1.40	1.54	21	30	1099	899	707	521
	1.50	1.77	18	26	958	783	616	454
	1.60	2.01	16	23	842	689	541	399
Stranded only	1.70	2.27	14	20	745	610	479	353
	1.80	2.54	13	18	665	544	427	315
	1.90	2.84	11	16	597	488	384	283
	2.00	3.14	10	15	539	441	346	255

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum (by lower pulley type)		Maximum (inlet temperature = 50°F)			
			Standard Tufnol	Long-life alumina	212°F	248°F	302°F	392°C
Solid and stranded	28	0.013	1319	1882	5778	4557	3396	2306
	27	0.014	1046	1492	5778	4557	3396	2306
	26	0.016	829	1183	5778	4557	3396	2306
	25	0.018	658	938	5778	4557	3396	2306
	24	0.020	521	744	5778	4557	3396	2306
	23	0.023	414	590	5778	4557	3396	2306
	22	0.025	328	468	5778	4557	3396	2306
	21	0.028	260	371	5778	4557	3396	2306
	20	0.032	206	294	5778	4557	3396	2306
	19	0.036	164	233	5778	4557	3396	2306
	18	0.040	130	185	5778	4557	3396	2306
	17	0.045	103	147	5349	4376	3396	2306
	16	0.051	82	116	4242	3471	2727	2009
	15	0.057	65	92	3364	2752	2163	1593
14	0.064	51	73	2668	2183	1715	1264	
Stranded only	13	0.072	41	58	2116	1731	1360	1002
	12	0.081	32	46	1678	1373	1079	795

**PH160-12-480**

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			160		mm
			6.3		inch
Wire material			Copper*		-
Solid wire diameter				1.70	mm
				0.067	inch
				14	AWG
Stranded wire	area			3	mm <sup>2</sup>
				12	AWG
	diameter			1.95	mm
				0.077	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		432	480	510	VAC
3-phase power supply frequency		47		65	Hz
Power output			12		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on “Maximum line speed scaling”.

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum (by lower pulley type)		Maximum (inlet temperature = 10°C)			
			Standard Tufnol	Long-life alumina	100°C	120°C	150°C	200°C
Solid and stranded	0.30	0.07	460	657	1761	1389	1035	703
	0.40	0.13	259	370	1761	1389	1035	703
	0.50	0.20	166	237	1761	1389	1035	703
	0.60	0.28	115	164	1761	1389	1035	703
	0.70	0.38	85	121	1761	1389	1035	703
	0.80	0.50	65	92	1761	1389	1035	703
	0.90	0.64	51	73	1761	1389	1035	703
	1.00	0.79	41	59	1761	1389	1035	703
	1.10	0.95	34	49	1761	1389	1035	703
	1.20	1.13	29	41	1761	1389	1035	703
	1.30	1.33	25	35	1530	1252	983	703
	1.40	1.54	21	30	1319	1079	848	625
	1.50	1.77	18	26	1149	940	739	544
	1.60	2.01	16	23	1010	826	649	478
1.70	2.27	14	20	895	732	575	424	
Stranded only	1.80	2.54	13	18	798	653	513	378
	1.90	2.84	11	16	716	586	460	339
	2.00	3.14	10	15	646	529	415	306

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum (by lower pulley type)		Maximum (inlet temperature = 50°F)			
			Standard Tufnol	Long-life alumina	212°F	248°F	302°F	392°C
Solid and stranded	28	0.013	1319	1882	5778	4557	3396	2306
	27	0.014	1046	1492	5778	4557	3396	2306
	26	0.016	829	1183	5778	4557	3396	2306
	25	0.018	658	938	5778	4557	3396	2306
	24	0.020	521	744	5778	4557	3396	2306
	23	0.023	414	590	5778	4557	3396	2306
	22	0.025	328	468	5778	4557	3396	2306
	21	0.028	260	371	5778	4557	3396	2306
	20	0.032	206	294	5778	4557	3396	2306
	19	0.036	164	233	5778	4557	3396	2306
	18	0.040	130	185	5778	4557	3396	2306
	17	0.045	103	147	5778	4557	3396	2306
	16	0.051	82	116	5090	4165	3272	2306
	15	0.057	65	92	4037	3303	2595	1912
14	0.064	51	73	3201	2619	2058	1516	
Stranded only	13	0.072	41	58	2539	2077	1632	1203
	12	0.081	32	46	2013	1647	1294	954

## PH160-12-400-HS (High Speed)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			160		mm
			6.3		inch
Wire material			Copper*		-
Solid wire diameter				1.70	mm
				0.067	inch
				14	AWG
Stranded wire	area			3	mm <sup>2</sup>
				12	AWG
	diameter			1.95	mm
				0.077	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			12		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum (by lower pulley type)		Maximum (inlet temperature = 10°C)			
			Standard Tufnol	Long-life alumina	100°C	120°C	150°C	200°C
0.40	0.13	259	370	3121	2461	1835	1245	
0.50	0.20	166	237	3121	2461	1835	1245	
0.60	0.28	115	164	3121	2461	1835	1245	
0.70	0.38	85	121	3121	2461	1835	1245	
0.80	0.50	65	92	3121	2461	1835	1245	
0.90	0.64	51	73	2660	2176	1710	1245	
1.00	0.79	41	59	2154	1763	1385	1020	
1.10	0.95	34	49	1780	1457	1145	843	
1.20	1.13	29	41	1496	1224	962	709	
1.30	1.33	25	35	1275	1043	820	604	
1.40	1.54	21	30	1099	899	707	521	
1.50	1.77	18	26	958	783	616	454	
1.60	2.01	16	23	842	689	541	399	

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum (by lower pulley type)		Maximum (inlet temperature = 50°F)			
			Standard Tufnol	Long-life alumina	212°F	248°F	302°F	392°C
Solid and stranded	28	0.013	1319	1882	10240	8074	6020	4085
	27	0.014	1046	1492	10240	8074	6020	4085
	26	0.016	829	1183	10240	8074	6020	4085
	25	0.018	658	938	10240	8074	6020	4085
	24	0.020	521	744	10240	8074	6020	4085
	23	0.023	414	590	10240	8074	6020	4085
	22	0.025	328	468	10240	8074	6020	4085
	21	0.028	260	371	10240	8074	6020	4085
	20	0.032	206	294	10240	8074	6020	4085
	19	0.036	164	233	8505	6959	5468	4029
	18	0.040	130	185	6745	5519	4336	3195
	17	0.045	103	147	5349	4376	3439	2534
	16	0.051	82	116	4242	3471	2727	2009
	15	0.057	65	92	3364	2752	2163	1593
14	0.064	51	73	2668	2183	1715	1264	

## PH160-20-400-HS (High Speed)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			160		mm
			6.3		inch
Wire material			Copper*		-
Solid wire diameter				1.70	mm
				0.067	inch
				14	AWG
Stranded wire	area			3	mm <sup>2</sup>
				12	AWG
	diameter			1.95	mm
				0.077	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum (by lower pulley type)		Maximum (inlet temperature = 10°C)			
			Standard Tufnol	Long-life alumina	100°C	120°C	150°C	200°C
Solid and stranded	0.30	0.07	460	657	3121	2461	1835	1245
	0.40	0.13	259	370	3121	2461	1835	1245
	0.50	0.20	166	237	3121	2461	1835	1245
	0.60	0.28	115	164	3121	2461	1835	1245
	0.70	0.38	85	121	3121	2461	1835	1245
	0.80	0.50	65	92	3121	2461	1835	1245
	0.90	0.64	51	73	3121	2461	1835	1245
	1.00	0.79	41	59	3121	2461	1835	1245
	1.10	0.95	34	49	2967	2428	1835	1245
	1.20	1.13	29	41	2493	2040	1603	1181
	1.30	1.33	25	35	2125	1738	1366	1006
	1.40	1.54	21	30	1832	1499	1178	868
	1.50	1.77	18	26	1596	1306	1026	756
1.60	2.01	16	23	1403	1148	902	664	

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum (by lower pulley type)		Maximum (inlet temperature = 50°F)			
			Standard Tufnol	Long-life alumina	212°F	248°F	302°F	392°C
Solid and stranded	28	0.013	1319	1882	10240	8074	6020	4085
	27	0.014	1046	1492	10240	8074	6020	4085
	26	0.016	829	1183	10240	8074	6020	4085
	25	0.018	658	938	10240	8074	6020	4085
	24	0.020	521	744	10240	8074	6020	4085
	23	0.023	414	590	10240	8074	6020	4085
	22	0.025	328	468	10240	8074	6020	4085
	21	0.028	260	371	10240	8074	6020	4085
	20	0.032	206	294	10240	8074	6020	4085
	19	0.036	164	233	10240	8074	6020	4085
	18	0.040	130	185	10240	8074	6020	4085
	17	0.045	103	147	8915	7294	5731	4085
	16	0.051	82	116	7070	5784	4545	3349
	15	0.057	65	92	5607	4587	3604	2656
14	0.064	51	73	4446	3638	2858	2106	

# PH300 SERIES

## PH300-10-200

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
Stranded wire		area		9	AWG
		diameter		8	mm <sup>2</sup>
Wire temperature				8	AWG
				3.2	mm
Wire line height				0.13	inch
				200	°C
3-phase power supply voltage (rms line-to-line)				392	°F
		980	1000	1020	mm
3-phase power supply frequency		38.58	39.37	40.16	inch
		180	200	220	VAC
Power output		47	10	65	Hz
					kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.50	0.20	898	1113			
	0.60	0.28	623	1113	878		
	0.70	0.38	458	1113	878	654	
	0.80	0.50	351	1113	878	654	444
	0.90	0.64	277	1113	878	654	444
	1.00	0.79	224	1113	878	654	444
	1.10	0.95	185	1113	878	654	444
	1.20	1.13	156	1113	878	654	444
	1.30	1.33	133	1062	869	654	444
	1.40	1.54	115	916	749	589	434
	1.50	1.77	100	798	653	513	378
	1.60	2.01	88	701	574	451	332
	1.70	2.27	78	621	508	399	294
	1.80	2.54	69	554	453	356	262
	1.90	2.84	62	497	407	320	236
	2.00	3.14	56	449	367	289	213
	2.10	3.46	51	407	333	262	193
	2.20	3.80	46	371	303	238	176
	2.30	4.15	42	339	278	218	161
	2.40	4.52	39	312	255	200	148
2.50	4.91	36	287	235	185	136	

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	24	0.020	2825	3652			
	23	0.023	2240	3652	2881		
	22	0.025	1777	3652	2881	2146	
	21	0.028	1409	3652	2881	2146	1457
	20	0.032	1117	3652	2881	2146	1457
	19	0.036	886	3652	2881	2146	1457
	18	0.040	703	3652	2881	2146	1457
	17	0.045	557	3652	2881	2146	1457
	16	0.051	442	3535	2881	2146	1457
	15	0.057	350	2803	2294	1802	1328
	14	0.064	278	2223	1819	1429	1053
	13	0.072	220	1763	1442	1133	835
	12	0.081	175	1398	1144	899	662
	11	0.091	139	1109	907	713	525
	10	0.102	110	879	719	565	417

## PH300-12-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			12		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.50	0.20	898	1281	1010		
	0.60	0.28	623	1281	1010	753	
	0.70	0.38	458	1281	1010	753	511
	0.80	0.50	351	1281	1010	753	511
	0.90	0.64	277	1281	1010	753	511
	1.00	0.79	224	1281	1010	753	511
	1.10	0.95	185	1281	1010	753	511
	1.20	1.13	156	1281	1010	753	511
	1.30	1.33	133	1275	1010	753	511
	1.40	1.54	115	1099	899	707	511
	1.50	1.77	100	958	783	616	454
	1.60	2.01	88	842	689	541	399
	1.70	2.27	78	745	610	479	353
	1.80	2.54	69	665	544	427	315
	1.90	2.84	62	597	488	384	283
	2.00	3.14	56	539	441	346	255
	2.10	3.46	51	489	400	314	231
	2.20	3.80	46	445	364	286	211
	2.30	4.15	42	407	333	262	193
	2.40	4.52	39	374	306	240	177
2.50	4.91	36	345	282	222	163	

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	24	0.020	2825	4203	3314		
	23	0.023	2240	4203	3314	2470	
	22	0.025	1777	4203	3314	2470	
	21	0.028	1409	4203	3314	2470	1677
	20	0.032	1117	4203	3314	2470	1677
	19	0.036	886	4203	3314	2470	1677
	18	0.040	703	4203	3314	2470	1677
	17	0.045	557	4203	3314	2470	1677
	16	0.051	442	4203	3314	2470	1677
	15	0.057	350	3364	2752	2163	1593
	14	0.064	278	2668	2183	1715	1264
	13	0.072	220	2116	1731	1360	1002
	12	0.081	175	1678	1373	1079	795
	11	0.091	139	1331	1089	855	630
	10	0.102	110	1055	863	678	500

## PH300-20-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.60	0.28	623	1581	1247	929	631
	0.80	0.50	351	1581	1247	929	631
	1.00	0.79	224	1581	1247	929	631
	1.20	1.13	156	1581	1247	929	631
	1.40	1.54	115	1581	1247	929	631
	1.60	2.01	88	1403	1148	902	631
	1.80	2.54	69	1108	907	712	525
	2.00	3.14	56	898	734	577	425
	2.20	3.80	46	742	607	477	351
	2.40	4.52	39	623	510	401	295
	2.60	5.31	33	531	435	341	252
	2.80	6.16	29	458	375	294	217
3.00	7.07	25	399	326	256	189	
Stranded only	3.20	8.04	22	351	287	225	166

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	22	0.025	1777	5187	4091	3048	2070
	21	0.028	1409	5187	4091	3048	2070
	20	0.032	1117	5187	4091	3048	2070
	19	0.036	886	5187	4091	3048	2070
	18	0.040	703	5187	4091	3048	2070
	17	0.045	557	5187	4091	3048	2070
	16	0.051	442	5187	4091	3048	2070
	15	0.057	350	5187	4091	3048	2070
	14	0.064	278	4446	3638	2858	2070
	13	0.072	220	3526	2885	2267	1670
	12	0.081	175	2796	2288	1798	1325
	11	0.091	139	2218	1814	1426	1050
	10	0.102	110	1759	1439	1131	833
9	0.114	87	1395	1141	897	661	
Stranded only	8	0.128	69	1106	905	711	524

**PH300-24-480**

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		432	480	510	VAC
3-phase power supply frequency		47		65	Hz
Power output			24		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on “Maximum line speed scaling”.

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.60	0.28	623	1844	1454	1084	736
	0.80	0.50	351	1844	1454	1084	736
	1.00	0.79	224	1844	1454	1084	736
	1.20	1.13	156	1844	1454	1084	736
	1.40	1.54	115	1844	1454	1084	736
	1.60	2.01	88	1683	1377	1082	736
	1.80	2.54	69	1330	1088	855	630
	2.00	3.14	56	1077	881	692	510
	2.20	3.80	46	890	728	572	422
	2.40	4.52	39	748	612	481	354
	2.60	5.31	33	637	522	410	302
	2.80	6.16	29	550	450	353	260
3.00	7.07	25	479	392	308	227	
Stranded only	3.20	8.04	22	421	344	270	199

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	22	0.025	1777	6050	4770	3556	2415
	21	0.028	1409	6050	4770	3556	2415
	20	0.032	1117	6050	4770	3556	2415
	19	0.036	886	6050	4770	3556	2415
	18	0.040	703	6050	4770	3556	2415
	17	0.045	557	6050	4770	3556	2415
	16	0.051	442	6050	4770	3556	2415
	15	0.057	350	6050	4770	3556	2415
	14	0.064	278	5335	4365	3430	2415
	13	0.072	220	4231	3462	2720	2004
	12	0.081	175	3356	2745	2157	1589
	11	0.091	139	2661	2177	1711	1260
	10	0.102	110	2110	1727	1357	1000
9	0.114	87	1674	1369	1076	793	
Stranded only	8	0.128	69	1327	1086	853	629

## PH300-20-400-HT (High Temperature)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				300	°C
				572	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				100°C	120°C	150°C	200°C	300°C
Solid and stranded	0.60	0.28	623	3557	2805	2091	1420	804
	0.80	0.50	351	3557	2805	2091	1420	804
	1.00	0.79	224	3557	2805	2091	1420	804
	1.20	1.13	156	2493	2040	1603	1181	774
	1.40	1.54	115	1832	1499	1178	868	569
	1.60	2.01	88	1403	1148	902	664	435
	1.80	2.54	69	1108	907	712	525	344
	2.00	3.14	56	898	734	577	425	279

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				212°F	248°F	302°F	392°F	572°F
Solid and stranded	22	0.025	1777	11670	9203	6860	4659	2638
	21	0.028	1409	11670	9203	6860	4659	2638
	20	0.032	1117	11670	9203	6860	4659	2638
	19	0.036	886	11670	9203	6860	4659	2638
	18	0.040	703	11241	9198	6860	4659	2638
	17	0.045	557	8915	7294	5731	4223	2638
	16	0.051	442	7070	5784	4545	3349	2194
	15	0.057	350	5607	4587	3604	2656	1740
	14	0.064	278	4446	3638	2858	2106	1380
	13	0.072	220	3526	2885	2267	1670	1094
	12	0.081	175	2796	2288	1798	1325	868

## PH300-25-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			25		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.60	0.28	623	1991	1570	1171	795
	0.80	0.50	351	1991	1570	1171	795
	1.00	0.79	224	1991	1570	1171	795
	1.20	1.13	156	1991	1570	1171	795
	1.40	1.54	115	1991	1570	1171	795
	1.60	2.01	88	1823	1492	1171	795
	1.80	2.54	69	1441	1179	926	682
	2.00	3.14	56	1167	955	750	553
	2.20	3.80	46	964	789	620	457
	2.40	4.52	39	810	663	521	384
	2.60	5.31	33	691	565	444	327
	2.80	6.16	29	595	487	383	282
3.00	7.07	25	519	424	333	246	

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	22	0.025	1777	6532	5151	3842	2608
	21	0.028	1409	6532	5151	3842	2608
	20	0.032	1117	6532	5151	3842	2608
	19	0.036	886	6532	5151	3842	2608
	18	0.040	703	6532	5151	3842	2608
	17	0.045	557	6532	5151	3842	2608
	16	0.051	442	6532	5151	3842	2608
	15	0.057	350	6532	5151	3842	2608
	14	0.064	278	5780	4729	3716	2608
	13	0.072	220	4584	3750	2947	2171
	12	0.081	175	3635	2974	2337	1722
	11	0.091	139	2883	2359	1853	1366
	10	0.102	110	2286	1871	1470	1083
	9	0.114	87	1813	1483	1166	859

## PH300-25-400-HT (High Temperature)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				300	°C
				572	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			25		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				100°C	120°C	150°C	200°C	300°C
Solid and stranded	0.60	0.28	623	4509	3556	2651	1800	1019
	0.80	0.50	351	4509	3556	2651	1800	1019
	1.00	0.79	224	4509	3556	2651	1800	1019
	1.20	1.13	156	3242	2652	2084	1535	1006
	1.40	1.54	115	2382	1949	1531	1128	739
	1.60	2.01	88	1823	1492	1172	864	566
	1.80	2.54	69	1441	1179	926	682	447
	2.00	3.14	56	1167	955	750	553	362

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				212°F	248°F	302°F	392°F	572°F
Solid and stranded	22	0.025	1777	14793	11667	8698	5906	3343
	21	0.028	1409	14793	11667	8698	5906	3343
	20	0.032	1117	14793	11667	8698	5906	3343
	19	0.036	886	14793	11667	8698	5906	3343
	18	0.040	703	14614	11667	8698	5906	3343
	17	0.045	557	11589	9482	7450	5490	3343
	16	0.051	442	9191	7520	5908	4354	2852
	15	0.057	350	7289	5963	4686	3452	2262
	14	0.064	278	5780	4729	3716	2738	1794
	13	0.072	220	4584	3750	2947	2171	1423
	12	0.081	175	3635	2974	2337	1722	1128

## PH300-31-480

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter				3.00	mm
				0.12	inch
				9	AWG
Stranded wire	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		432	480	510	VAC
3-phase power supply frequency		47		65	Hz
Power output			31		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.50	0.20	898	2928	2310	1723	1171
	0.60	0.28	623	2928	2310	1723	1171
	0.70	0.38	458	2928	2310	1723	1171
	0.80	0.50	351	2928	2310	1723	1171
	0.90	0.64	277	2928	2310	1723	1171
	1.00	0.79	224	2928	2310	1723	1171
	1.10	0.95	185	2928	2310	1723	1171
	1.20	1.13	156	2928	2310	1723	1171
	1.30	1.33	133	2928	2310	1723	1171
	1.40	1.54	115	2928	2310	1723	1171
	1.50	1.77	100	2696	2206	1723	1171
	1.60	2.01	88	2369	1939	1523	1122
	1.80	2.54	69	1872	1532	1204	887
	2.00	3.14	56	1516	1241	975	718
	2.40	4.52	39	1053	862	677	499
2.80	6.16	29	774	633	497	366	
Stranded only	3.20	8.04	22	592	485	381	281
	3.25	8.30	21	574	470	369	272

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	24	0.020	2825	9606	7579	5653	3842
	23	0.023	2240	9606	7579	5653	3842
	22	0.025	1777	9606	7579	5653	3842
	21	0.028	1409	9606	7579	5653	3842
	20	0.032	1117	9606	7579	5653	3842
	19	0.036	886	9606	7579	5653	3842
	18	0.040	703	9606	7579	5653	3842
	17	0.045	557	9606	7579	5653	3842
	16	0.051	442	9606	7579	5653	3842
	15	0.057	350	9471	7579	5653	3842
	14	0.064	278	7511	6146	4829	3558
	13	0.072	220	5957	4874	3829	2822
	12	0.081	175	4724	3865	3037	2238
	11	0.091	139	3746	3065	2408	1775
	10	0.102	110	2971	2431	1910	1407
	9	0.114	87	2356	1928	1515	1116
8	0.128	69	1868	1529	1201	885	

## PH300-20-400-RC (Rolling Contact)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			200		mm
			7.87		inch
Wire material			Copper*		-
Solid wire diameter				2.00	mm
				0.0787	inch
				12	AWG
Stranded wire	area			4.9	mm <sup>2</sup>
				11	AWG
	diameter			2.5	mm
				0.0984	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)				
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.60	0.28	917	4382	3456	2576	1749
	0.70	0.38	674	4382	3456	2576	1749
	0.80	0.50	516	4382	3456	2576	1749
	0.90	0.64	408	4382	3456	2576	1749
	1.00	0.79	330	3591	2938	2308	1701
	1.10	0.95	273	2967	2428	1908	1406
	1.20	1.13	229	2493	2040	1603	1181
	1.30	1.33	195	2125	1738	1366	1006
	1.40	1.54	168	1832	1499	1178	868
	1.50	1.77	147	1596	1306	1026	756
	1.60	2.01	129	1403	1148	902	664
	1.70	2.27	114	1242	1017	799	589
	1.80	2.54	102	1108	907	712	525
	1.90	2.84	91	995	814	639	471
2.00	3.14	83	898	734	577	425	

Copper wire			Line speed / (ft / min)				
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	22	0.025	2614	14377	11339	8451	5738
	21	0.028	2073	14377	11339	8451	5738
	20	0.032	1644	14377	11339	8451	5738
	19	0.036	1303	14175	11339	8451	5738
	18	0.040	315	11241	9198	7227	5325
	17	0.045	250	8915	7294	5731	4223
	16	0.051	198	7070	5784	4545	3349
	15	0.057	157	5607	4587	3604	2656
	14	0.064	125	4446	3638	2858	2106
	13	0.072	99	3526	2885	2267	1670
12	0.081	78	2796	2288	1798	1325	

## PH300-20-400-TW (Twin Wire)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			300		mm
			11.8		inch
Wire material			Copper*		-
Solid wire diameter (for one wire in the pair)				3.00	mm
				0.12	inch
				9	AWG
Stranded wire (for one wire in the pair)	area			8	mm <sup>2</sup>
				8	AWG
	diameter			3.2	mm
				0.13	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper twin wire			Line speed / (m / min)				
Type	Single wire diameter / mm	Twin wire area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)			
				100°C	120°C	150°C	200°C
Solid and stranded	0.60	0.57	623	1442	1138	848	
	0.80	1.01	351	1442	1138	848	576
	1.00	1.57	224	1442	1138	848	576
	1.20	2.26	156	1247	1020	801	576
	1.40	3.08	115	916	749	589	434
	1.60	4.02	88	701	574	451	332
	1.80	5.09	69	554	453	356	262
	2.00	6.28	56	449	367	289	213
	2.20	7.60	46	371	303	238	176
2.40	9.05	39	312	255	200	148	

Copper twin wire			Line speed / (ft / min)				
Type	Single wire AWG	Single wire diameter / inch	Minimum	Maximum (inlet temperature = 50°F)			
				212°F	248°F	302°F	392°F
Solid and stranded	22	0.025	1777	4731	3734	2782	1890
	21	0.028	1409	4731	3734	2782	1890
	20	0.032	1117	4731	3734	2782	1890
	19	0.036	886	4731	3734	2782	1890
	18	0.040	703	4731	3734	2782	1890
	17	0.045	557	4457	3647	2782	1890
	16	0.051	442	3535	2892	2272	1674
	15	0.057	350	2803	2294	1802	1328
	14	0.064	278	2223	1819	1429	1053
	13	0.072	220	1763	1442	1133	835
	12	0.081	175	1398	1144	899	662
	11	0.091	139	1109	907	713	525
	10	0.102	110	879	719	565	417

# PH450 SERIES

## PH450-20-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			450		mm
			17.7		inch
Wire material			Copper*		-
Solid wire diameter				4.50	mm
				0.177	inch
				6	AWG
Stranded wire	area			22.9	mm <sup>2</sup>
				4	AWG
	diameter			5.40	mm
				0.213	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			20		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				80°C	100°C	120°C	150°C	180°C
Solid and stranded	0.80	0.50	701	1168	874			
	1.00	0.79	448	1168	874	689	514	
	1.20	1.13	311	1168	874	689	514	403
	1.40	1.54	229	1168	874	689	514	403
	1.60	2.01	175	1168	874	689	514	403
	1.80	2.54	138	1168	874	689	514	403
	2.00	3.14	112	1154	874	689	514	403
	2.20	3.80	93	954	742	607	477	393
	2.26	4.00	88	906	705	577	453	373
	2.40	4.52	78	801	623	510	401	330
	2.60	5.31	66	683	531	435	341	281
	2.76	6.00	59	604	470	385	302	249
	2.80	6.16	57	589	458	375	294	242
	3.00	7.07	50	513	399	326	256	211
	3.20	8.04	44	451	351	287	225	186
	3.40	9.08	39	399	311	254	200	164
	3.60	10.18	35	356	277	227	178	147
	3.80	11.34	31	320	249	203	160	132
4.00	12.57	28	289	224	184	144	119	
4.20	13.85	25	262	204	167	131	108	
4.40	15.21	23	238	185	152	119	98	
Stranded only	4.60	16.62	21	218	170	139	109	90
	4.80	18.10	19	200	156	128	100	83
	5.00	19.63	18	185	144	118	92	76
	5.20	21.24	17	171	133	109	85	70
	5.40	22.90	15	158	123	101	79	65

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				176°F	212°F	248°F	302°F	356°F
Solid and stranded	20	0.032	2232	3832	2867	2260		
	19	0.036	1770	3832	2867	2260		
	18	0.040	1404	3832	2867	2260	1686	
	17	0.045	1113	3832	2867	2260	1686	1322
	16	0.051	883	3832	2867	2260	1686	1322
	15	0.057	700	3832	2867	2260	1686	1322
	14	0.064	555	3832	2867	2260	1686	1322
	13	0.072	440	3832	2867	2260	1686	1322
	12	0.081	349	3595	2796	2260	1686	1322
	11	0.091	277	2851	2218	1814	1426	1174
	10	0.102	220	2261	1759	1439	1131	931
	9	0.114	174	1793	1395	1141	897	738
	8	0.128	138	1422	1106	905	711	586
	7	0.144	110	1128	877	718	564	464
6	0.162	87	894	696	569	447	368	
Stranded only	5	0.182	69	709	552	451	355	292
	4	0.204	55	562	437	358	281	232

## PH450-25-400 (180mm high core)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			450		mm
			17.7		inch
Wire material			Copper*		-
Solid wire diameter				4.50	mm
				0.177	inch
				6	AWG
Stranded wire	area			22.9	mm <sup>2</sup>
				4	AWG
	diameter			5.40	mm
				0.213	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			25		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				80°C	100°C	120°C	150°C	180°C
Solid and stranded	0.80	0.50	701	2185	1641	1298	971	764
	0.90	0.64	554	2185	1641	1298	971	764
	1.00	0.79	448	2185	1641	1298	971	764
	1.13	1.00	352	2185	1641	1298	971	764
	1.38	1.50	235	2185	1641	1298	971	764
	1.78	2.50	141	1813	1410	1154	907	747
	2.26	4.00	88	1133	881	721	566	466
	2.76	6.00	59	755	587	481	378	311
	3.19	8.00	44	566	441	360	283	233
	3.57	10.00	35	453	353	288	227	187
	3.91	12.00	29	378	294	240	189	156

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				176°F	212°F	248°F	302°F	356°F
Solid and stranded	20	0.032	2232	7169	5384	4259	3186	2507
	19	0.036	1770	7169	5384	4259	3186	2507
	18	0.040	1404	7169	5384	4259	3186	2507
	17	0.045	1113	7169	5384	4259	3186	2507
	16	0.051	883	7169	5384	4259	3186	2507
	15	0.057	700	7169	5384	4259	3186	2507
	14	0.064	555	7146	5384	4259	3186	2507
	13	0.072	440	5667	4408	3606	2833	2333
	12	0.081	349	4494	3495	2860	2247	1850
	11	0.091	277	3564	2772	2268	1782	1467
	10	0.102	220	2826	2198	1799	1413	1164
	9	0.114	174	2241	1743	1426	1121	923
	8	0.128	138	1777	1382	1131	889	732
	7	0.144	110	1410	1096	897	705	580
6	0.162	87	1118	869	711	559	460	

## PH450-25-400 (210mm high core)

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			450		mm
			17.7		inch
Wire material			Copper*		-
Solid wire diameter				4.50	mm
				0.177	inch
				6	AWG
Stranded wire	area			22.9	mm <sup>2</sup>
				4	AWG
	diameter			5.40	mm
				0.213	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			25		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				80°C	100°C	120°C	150°C	180°C
Solid and stranded	0.80	0.50	701	1168	874			
	1.00	0.79	448	1168	874	689	514	
	1.20	1.13	311	1168	874	689	514	403
	1.40	1.54	229	1168	874	689	514	403
	1.60	2.01	175	1168	874	689	514	403
	1.80	2.54	138	1168	874	689	514	403
	2.00	3.14	112	1168	874	689	514	403
	2.26	4.00	88	1168	874	689	514	403
	2.40	4.52	78	1042	810	663	514	403
	2.60	5.31	66	888	691	565	444	366
	2.76	6.00	59	786	611	500	393	323
	2.80	6.16	57	765	595	487	383	315
	3.00	7.07	50	667	519	424	333	275
	3.20	8.04	44	586	456	373	293	241
	3.40	9.08	39	519	404	330	260	214
	3.60	10.18	35	463	360	295	232	191
	3.80	11.34	31	416	323	264	208	171
	4.00	12.57	28	375	292	239	188	154
4.20	13.85	25	340	265	217	170	140	
4.40	15.21	23	310	241	197	155	128	
Stranded only	4.60	16.62	21	284	221	180	142	117
	4.80	18.10	19	260	203	166	130	107
	5.00	19.63	18	240	187	153	120	99
	5.20	21.24	17	222	173	141	111	91
	5.40	22.90	15	206	160	131	103	85
	5.60	24.63	14	191	149	122	96	79

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				176°F	212°F	248°F	302°F	356°F
Solid and stranded	20	0.032	2232	3832	2867	2260		
	19	0.036	1770	3832	2867	2260		
	18	0.040	1404	3832	2867	2260	1686	
	17	0.045	1113	3832	2867	2260	1686	1322
	16	0.051	883	3832	2867	2260	1686	1322
	15	0.057	700	3832	2867	2260	1686	1322
	14	0.064	555	3832	2867	2260	1686	1322
	13	0.072	440	3832	2867	2260	1686	1322
	12	0.081	349	3832	2867	2260	1686	1322
	11	0.091	277	3706	2867	2260	1686	1322
	10	0.102	220	2939	2286	1871	1470	1210
	9	0.114	174	2331	1813	1483	1166	960
	8	0.128	138	1849	1438	1176	924	761
	7	0.144	110	1466	1140	933	733	604
6	0.162	87	1163	904	740	581	479	
Stranded only	5	0.182	69	922	717	587	461	380
	4	0.204	55	731	569	465	366	301

# PH600 SERIES

## PH600-34-400

Specification		Minimum	Typical	Maximum	Units
Pulley diameter			600		mm
			23.6		inch
Wire material			Copper*		-
Solid wire diameter				6.00	mm
				0.236	inch
				3	AWG
Stranded wire	area			36.0	mm <sup>2</sup>
				2	AWG
	diameter			6.77	mm
				0.267	inch
Wire temperature				200	°C
				392	°F
Wire line height		980	1000	1020	mm
		38.58	39.37	40.16	inch
3-phase power supply voltage (rms line-to-line)		360	400	440	VAC
3-phase power supply frequency		47		65	Hz
Power output			34		kW

\*Can also pre-heat copper-clad and aluminium wire; see section on "Maximum line speed scaling".

Copper wire			Line speed / (m / min)					
Type	Diameter / mm	Area / (mm) <sup>2</sup>	Minimum	Maximum (inlet temperature = 10°C)				
				80°C	100°C	120°C	150°C	180°C
Solid and stranded	2.40	4.52	127	1151	865	684	512	403
	2.52	5.00	115	1151	865	684	512	403
	2.76	6.00	95	1027	799	654	512	403
	3.19	8.00	72	770	599	490	385	317
	3.57	10.00	57	616	479	392	308	254
	3.91	12.00	48	514	399	327	257	211
	4.22	14.00	41	440	342	280	220	181
	4.51	16.00	36	385	300	245	193	159
	5.05	20.00	29	308	240	196	154	127
	5.53	24.00	24	257	200	163	128	106
Stranded only	5.97	28.00	20	220	171	140	110	91
	6.38	32.00	18	193	150	123	96	79
Stranded only	6.77	36.00	16	171	133	109	86	71

Copper wire			Line speed / (ft / min)					
Type	AWG	Diameter / inch	Minimum	Maximum (inlet temperature = 50°F)				
				176°F	212°F	248°F	302°F	356°F
Solid and stranded	11	0.091	450	3776	2838	2244	1680	1322
	10	0.102	357	3776	2838	2244	1680	1322
	9	0.114	283	3048	2371	1940	1524	1255
	8	0.128	225	2417	1880	1538	1209	995
	7	0.144	178	1917	1491	1220	959	789
	6	0.162	141	1520	1182	967	760	626
	5	0.182	112	1206	938	767	603	496
	4	0.204	89	956	744	608	478	394
Stranded only	3	0.229	70	758	590	483	379	312
	2	0.258	56	601	468	383	301	248