

TABLICE ZWISÓW I NAPRĘŻEŃ

SAX - W

wzdłużnie uszczelniane napowietrzne przewody
elektroenergetyczne do systemu PAS
ze stopu aluminium w osłonie izolacyjnej

Przewody

SAX-W 50, 70 i 120 mm²

20kV i 30 kV

Strefy klimatyczne obciążenia sadyą

SI , SIa, SII, SIIa

Poznań, październik 2010 r.

OPRACOWANIE, WYDAWNICTWO I ROZPOWSZECHNIANIE TABLIC

ENERGOLINIA® Sp. z o.o.

ul. Kramarska 26
61-765 Poznań
tel./fax. 61 852 46 63, 61 852 00 03, 61 853 03 21
e-mail: biuro@energolinia.poznan.pl

PRODUCENT PRZEWODÓW SAX – W

PRYSMIAN – FINLANDIA

DYSTRYBUTORZY

SAE Sp. z o.o.

02-697 Warszawa, ul. Narbutta 83 lok. U1
tel. 22 853 86 01, fax. 22 853 86 02
e-mail: j.nowakowski@sae.com.pl
www.sae.com.pl

TRANZEX Sp. z o.o.

44-100 Gliwice ul. Daszyńskiego 56
tel. 32 231 26 17, fax 32 331 36 06
e-mail: jerzy.malitoski@tranzex.pl
www.tranzex.pl

SPIS ZAWARTOŚCI

1. Przedmiot i przeznaczenie opracowania.
2. Zakres opracowania.
3. Podstawa opracowania.
4. Zestawienie tablic zwisów i naprężeń.

1. Przedmiot i przeznaczenie opracowania

Przedmiotem opracowania są tablice zwisów i naprężeń wzdłużnie uszczelnianych napowietrznych przewodów ze stopu aluminium (AlMgSi) w osłonie izolacyjnej z polietylenu usieciowanego, typu SAX-W.

Tablice przeznaczone są do projektowania napowietrznych linii elektroenergetycznych o napięciu 20kV i 30 kV w strefach klimatycznych obciążenia sadią SI, SIa, SII, SIIa.

Tablice mogą być także wykorzystywane przy montażu nowych przewodów pod warunkiem uwzględnienia przepięcia przewodów, które należy wykonać przyjmując zwis mniejszy od określonego w tablicy zwisów dla danego pręśla temperatury przewodu odpowiadający zwisowi dla temperatury o 15 °C niższej od temperatury montowanego przewodu.

2. Zakres opracowania

Tablice zwisów i naprężeń zawarte w niniejszym opracowaniu są obliczone dla przewodów typu SAX-W przy uwzględnieniu warunków stref klimatycznych obciążenia sadią SI, SIa, SII, SIIa wg PN-E-05100-1:1998.

W opracowaniu uwzględniono ww. przewody o przekrojach: 50 mm², 70 mm² i 120 mm², dla których przyjęto naprężenia podstawowe: 60 MPa, 70 MPa, 75 MPa i 80 MPa .

Założono stopniowanie rozpiętości pręseł co 10 m. Zwisy i naprężenia dla rozpiętości pośrednich należy określić przez interpolację.

Temperatury obliczeniowe przewodu uwzględniono dla szczególnych warunków określonych w normie PN-E-05100-1:1998 i przyjęto następujące wartości: -25°C, -15°C, -5°C, 0°C, +10°C, +20°C, +30°C, +40°C.

3. Podstawa opracowania

Podstawę opracowania tablic stanowią:

- PN-E-05100-1:1998 Elektroenergetyczne linie napowietrzne. Projektowanie i budowa.
- Dane techniczne przewodów wg kart katalogowych producenta.

4. Zestawienie tablic zwisów i naprężeń

Lp.	Typ przewodu	Naprężenie podstawowe [MPa]	Strefa klimatyczna obciążenia sadią	Nr strony tablic zwisów i naprężeń
1	SAX-W 50 mm ² 20 kV	60	SI, Sla	1
2		70		2
3		75		3
4		80		4
5	SAX-W 70 mm ² 20 kV	60		5
6		70		6
7		75		7
8		80		8
9	SAX-W 120 mm ² 20 kV	60		9
10		70		10
11		75		11
12		80		12
13	SAX-W 50 mm ² 30 kV	60		13
14		70		14
15		75		15
16		80		16
17	SAX-W 70 mm ² 30 kV	60		17
18		70		18
19		75		19
20		80		20
21	SAX-W 120 mm ² 30 kV	60		21
22		70		22
23		75		23
24		80		24
25	SAX-W 50 mm ² 20 kV	60	SII, SIIa	25
26		70		26
27		75		27
28		80		28
29	SAX-W 70 mm ² 20 kV	60		29
30		70		30
31		75		31
32		80		32
33	SAX-W 120 mm ² 20 kV	60		33
34		70		34
35		75		35
36		80		36
37	SAX-W 50 mm ² 30 kV	60		37
38		70		38
39		75		39
40		80		40
41	SAX-W 70 mm ² 30 kV	60		41
42		70		42
43		75		43
44		80		44
45	SAX-W 120 mm ² 30 kV	60		45
46		70		46
47		75		47
48		80		48



ENERGOLINIA®
W POZNANIU

SAE

TRANZEX
TRANZEX S.A. ul. Włocławek 10 60-100 Włocławek

SAX-W

EN - 506

Tablice zwisów i naprężeń
przewodów

SAX-W 50, 70 i 120 mm²
20 i 30 kV

Strefy klimatyczne obciążenia sadyą

SI, SIa

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Napreżenie podstawowe		Strona	
	SI SIa							60.0 [MPa]		1	
WIKROL	Typ przewodu							Naciąg podstawowy			
	SAX-W 50mm2 20kV							3.02 [kN]			
q= 50.3 [mm ²]	d= 12.7 [mm]	ap= 39.8 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa				
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.11	0.14	0.05	0.08
20.0	0.03	0.04	0.06	0.07	0.09	0.12	0.18	0.25	0.30	0.18	0.25
30.0	0.07	0.09	0.13	0.15	0.18	0.22	0.31	0.40	0.47	0.35	0.46
40.0	0.13	0.17	0.22	0.26	0.30	0.35	0.46	0.56	0.66	0.54	0.71
50.0	0.26	0.35	0.45	0.51	0.57	0.64	0.76	0.87	0.97	0.85	1.06
60.0	0.52	0.66	0.80	0.87	0.94	1.00	1.13	1.24	1.35	1.22	1.46
70.0	0.93	1.09	1.23	1.31	1.37	1.44	1.57	1.69	1.80	1.67	1.93
80.0	1.44	1.60	1.74	1.81	1.88	1.95	2.08	2.20	2.31	2.18	2.47
90.0	2.03	2.18	2.32	2.39	2.46	2.53	2.65	2.78	2.90	2.76	3.06
100.0	2.68	2.83	2.97	3.04	3.11	3.17	3.30	3.42	3.55	3.40	3.73
110.0	3.41	3.55	3.69	3.75	3.82	3.89	4.02	4.14	4.26	4.12	4.46
120.0	4.19	4.33	4.47	4.54	4.61	4.67	4.80	4.93	5.05	4.90	5.25
130.0	5.05	5.19	5.33	5.39	5.46	5.52	5.65	5.78	5.90	5.76	6.11
140.0	5.97	6.11	6.25	6.31	6.38	6.45	6.57	6.70	6.83	6.68	7.05
150.0	6.97	7.10	7.24	7.31	7.37	7.44	7.57	7.69	7.82	7.67	8.05
160.0	8.03	8.17	8.30	8.37	8.43	8.50	8.63	8.75	8.88	8.73	9.11
170.0	9.16	9.30	9.43	9.50	9.56	9.63	9.76	9.88	10.01	9.86	10.25
180.0	10.36	10.50	10.63	10.69	10.76	10.83	10.96	11.08	11.21	11.06	11.46
190.0	11.63	11.76	11.90	11.96	12.03	12.10	12.23	12.35	12.48	12.33	12.73
200.0	12.97	13.10	13.24	13.30	13.37	13.43	13.57	13.69	13.82	13.68	14.08
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	46.28	32.67	25.98	19.53	13.67	6.60	4.33	3.39	37.14	43.29
20.0	60.00	46.49	33.36	27.16	21.50	16.75	10.74	7.94	6.46	45.10	57.20
30.0	60.00	46.82	34.37	28.72	23.75	19.65	14.14	11.09	9.28	52.91	69.72
40.0	59.80	47.05	35.37	30.26	25.84	22.19	17.04	13.89	11.86	60.09	80.99
50.0	46.00	35.33	26.99	23.81	21.24	19.17	16.12	14.05	12.55	60.14	85.25
60.0	33.47	26.69	22.00	20.25	18.78	17.55	15.61	14.15	13.01	60.20	88.72
70.0	25.66	22.02	19.40	18.36	17.45	16.65	15.31	14.23	13.34	60.27	91.55
80.0	21.68	19.59	17.97	17.28	16.66	16.10	15.12	14.29	13.58	60.36	93.87
90.0	19.55	18.21	17.10	16.61	16.16	15.74	15.00	14.34	13.76	60.45	95.81
100.0	18.28	17.35	16.54	16.17	15.83	15.51	14.92	14.39	13.91	60.56	97.44
110.0	17.48	16.78	16.16	15.88	15.61	15.35	14.87	14.43	14.03	60.67	98.83
120.0	16.93	16.39	15.90	15.67	15.45	15.24	14.84	14.47	14.13	60.80	100.04
130.0	16.54	16.11	15.71	15.52	15.34	15.16	14.83	14.52	14.22	60.94	101.11
140.0	16.26	15.91	15.58	15.42	15.26	15.11	14.83	14.56	14.31	61.09	102.06
150.0	16.06	15.76	15.48	15.34	15.21	15.09	14.84	14.61	14.38	61.25	102.94
160.0	15.91	15.65	15.41	15.30	15.18	15.07	14.86	14.65	14.46	61.42	103.74
170.0	15.79	15.58	15.37	15.27	15.17	15.07	14.88	14.70	14.53	61.61	104.49
180.0	15.71	15.52	15.34	15.25	15.16	15.08	14.91	14.75	14.60	61.80	105.21
190.0	15.66	15.49	15.33	15.25	15.17	15.10	14.95	14.80	14.66	62.01	105.89
200.0	15.62	15.47	15.33	15.26	15.19	15.12	14.99	14.86	14.73	62.23	106.56

ENERGOLINIA w Poznaniu	Strefa obciazenia sadzia								Naprezenie podstawowe		Strona
	SI SIa								70.0 [MPa]		2
WIKROL	Typ przewodu								Naciag podstawowy		
	SAX-W 50mm2 20kV								3.52 [kN]		
	q= 50.3 [mm ²]	d= 12.7 [mm]	ap= 46.4 [m]	$\alpha=0.0000230$ 1/°K				$\beta=0.0000167$ 1/MPa			
Rozp. a [m]	Temperatura [°C]										
	-25	-15	-5	0	5	10	20	30	40	sn -5	sk -5
	T A B L I C A Z W I S O W [m]										
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.09	0.12	0.04	0.07
20.0	0.03	0.03	0.05	0.05	0.06	0.08	0.13	0.20	0.26	0.16	0.23
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.24	0.33	0.42	0.31	0.43
40.0	0.11	0.14	0.18	0.20	0.24	0.28	0.38	0.48	0.59	0.50	0.67
50.0	0.18	0.23	0.29	0.33	0.38	0.44	0.56	0.68	0.80	0.73	0.95
60.0	0.33	0.41	0.52	0.59	0.66	0.73	0.87	1.00	1.13	1.05	1.32
70.0	0.57	0.71	0.86	0.94	1.02	1.09	1.24	1.38	1.51	1.43	1.73
80.0	0.94	1.11	1.28	1.36	1.44	1.52	1.67	1.81	1.95	1.87	2.20
90.0	1.42	1.60	1.77	1.86	1.94	2.01	2.17	2.31	2.45	2.36	2.73
100.0	1.98	2.16	2.33	2.41	2.49	2.57	2.72	2.86	3.00	2.92	3.31
110.0	2.60	2.77	2.94	3.02	3.10	3.18	3.33	3.48	3.62	3.53	3.94
120.0	3.28	3.45	3.61	3.69	3.77	3.85	4.00	4.15	4.29	4.20	4.63
130.0	4.01	4.18	4.34	4.42	4.50	4.58	4.73	4.88	5.02	4.93	5.38
140.0	4.80	4.97	5.13	5.21	5.29	5.37	5.52	5.67	5.81	5.72	6.18
150.0	5.66	5.82	5.98	6.06	6.14	6.21	6.37	6.51	6.66	6.57	7.04
160.0	6.57	6.73	6.89	6.97	7.04	7.12	7.27	7.42	7.57	7.48	7.96
170.0	7.54	7.70	7.85	7.93	8.01	8.09	8.24	8.39	8.53	8.44	8.94
180.0	8.56	8.72	8.88	8.96	9.04	9.11	9.26	9.41	9.56	9.47	9.97
190.0	9.65	9.81	9.97	10.04	10.12	10.20	10.35	10.50	10.65	10.56	11.07
200.0	10.80	10.95	11.11	11.19	11.27	11.34	11.49	11.64	11.79	11.70	12.22
	T A B L I C A N A P R E Z E N przy słupie [MPa]										
10.0	70.00	56.25	42.55	35.74	29.00	22.42	11.02	5.72	4.01	45.54	50.43
20.0	70.00	56.37	42.93	36.36	30.01	24.06	14.69	9.78	7.46	51.97	62.93
30.0	70.00	56.58	43.52	37.29	31.40	26.07	17.92	13.19	10.54	58.97	74.87
40.0	70.00	56.85	44.28	38.41	32.98	28.17	20.80	16.19	13.36	65.82	85.96
50.0	65.92	53.29	41.64	36.42	31.78	27.79	21.77	17.84	15.23	70.12	94.34
60.0	53.61	42.60	33.48	29.80	26.70	24.13	20.25	17.56	15.62	70.17	98.42
70.0	41.88	33.79	27.81	25.50	23.55	21.91	19.32	17.39	15.89	70.23	101.88
80.0	33.14	28.09	24.39	22.93	21.66	20.56	18.72	17.27	16.09	70.30	104.82
90.0	27.83	24.73	22.35	21.36	20.48	19.69	18.33	17.20	16.25	70.39	107.33
100.0	24.73	22.70	21.06	20.35	19.70	19.11	18.06	17.15	16.37	70.48	109.49
110.0	22.83	21.40	20.20	19.66	19.16	18.70	17.87	17.13	16.47	70.58	111.36
120.0	21.58	20.52	19.60	19.18	18.78	18.41	17.73	17.12	16.56	70.69	112.99
130.0	20.72	19.90	19.17	18.83	18.51	18.20	17.63	17.11	16.64	70.80	114.43
140.0	20.10	19.44	18.85	18.57	18.30	18.05	17.56	17.12	16.71	70.93	115.72
150.0	19.64	19.11	18.61	18.37	18.15	17.93	17.52	17.13	16.77	71.07	116.87
160.0	19.30	18.85	18.43	18.23	18.03	17.85	17.49	17.15	16.83	71.22	117.92
170.0	19.04	18.65	18.29	18.12	17.95	17.79	17.47	17.18	16.89	71.38	118.88
180.0	18.83	18.50	18.19	18.04	17.89	17.74	17.47	17.20	16.95	71.54	119.78
190.0	18.67	18.38	18.11	17.98	17.85	17.72	17.47	17.24	17.01	71.72	120.61
200.0	18.55	18.30	18.05	17.93	17.82	17.71	17.49	17.27	17.07	71.91	121.41

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SI SIa						75.0 [MPa]			3	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 50mm ² 20kV						3.77 [kN]				
	q= 50.3 [mm ²]	d= 12.7 [mm]	ap= 49.8 [m]	α=0.0000230 1/°K			β=0.0000167 1/MPa				
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
	T A B L I C A Z W I S O W [m]										
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.04	0.07
20.0	0.03	0.03	0.04	0.05	0.06	0.07	0.11	0.17	0.24	0.15	0.22
30.0	0.06	0.07	0.09	0.10	0.12	0.15	0.21	0.30	0.39	0.29	0.42
40.0	0.10	0.13	0.16	0.18	0.21	0.25	0.34	0.44	0.55	0.47	0.65
50.0	0.16	0.20	0.25	0.28	0.32	0.37	0.48	0.60	0.72	0.68	0.91
60.0	0.28	0.34	0.43	0.49	0.55	0.61	0.75	0.89	1.03	0.98	1.26
70.0	0.46	0.57	0.71	0.79	0.86	0.94	1.09	1.24	1.38	1.33	1.65
80.0	0.75	0.91	1.08	1.17	1.25	1.34	1.50	1.65	1.79	1.74	2.10
90.0	1.17	1.35	1.53	1.62	1.71	1.79	1.95	2.11	2.25	2.20	2.60
100.0	1.67	1.86	2.05	2.13	2.22	2.30	2.47	2.62	2.77	2.72	3.14
110.0	2.24	2.43	2.62	2.70	2.79	2.87	3.04	3.19	3.35	3.29	3.74
120.0	2.88	3.06	3.24	3.33	3.42	3.50	3.66	3.82	3.97	3.92	4.39
130.0	3.56	3.75	3.92	4.01	4.10	4.18	4.34	4.50	4.65	4.60	5.09
140.0	4.31	4.49	4.66	4.75	4.83	4.91	5.08	5.24	5.39	5.34	5.84
150.0	5.10	5.28	5.45	5.54	5.62	5.71	5.87	6.03	6.18	6.13	6.65
160.0	5.95	6.13	6.30	6.38	6.47	6.55	6.71	6.87	7.03	6.98	7.51
170.0	6.86	7.03	7.20	7.29	7.37	7.45	7.61	7.77	7.93	7.88	8.43
180.0	7.81	7.99	8.16	8.24	8.33	8.41	8.57	8.73	8.89	8.84	9.39
190.0	8.83	9.00	9.17	9.25	9.34	9.42	9.58	9.74	9.90	9.85	10.42
200.0	9.90	10.07	10.24	10.32	10.40	10.49	10.65	10.81	10.97	10.92	11.49
	T A B L I C A N A P R E Ż E N przy słupie [MPa]										
10.0	75.00	61.24	47.51	40.68	33.89	27.18	14.66	6.96	4.46	50.01	54.32
20.0	75.00	61.34	47.81	41.15	34.62	28.36	17.60	11.15	8.14	55.72	66.05
30.0	75.00	61.50	48.27	41.86	35.70	29.94	20.50	14.61	11.36	62.28	77.64
40.0	75.00	61.72	48.88	42.77	36.99	31.71	23.19	17.65	14.27	68.85	88.54
50.0	74.80	61.80	49.41	43.62	38.23	33.37	25.59	20.32	16.89	75.11	98.69
60.0	63.52	51.50	40.78	36.14	32.07	28.61	23.31	19.69	17.16	75.16	102.98
70.0	51.76	41.72	33.67	30.45	27.72	25.42	21.86	19.28	17.36	75.22	106.70
80.0	41.36	34.18	28.85	26.75	24.95	23.41	20.92	19.01	17.50	75.28	109.91
90.0	33.92	29.29	25.83	24.43	23.20	22.12	20.30	18.83	17.62	75.36	112.69
100.0	29.26	26.27	23.92	22.94	22.05	21.25	19.86	18.70	17.71	75.44	115.10
110.0	26.39	24.34	22.66	21.93	21.26	20.65	19.55	18.61	17.78	75.54	117.21
120.0	24.54	23.05	21.79	21.23	20.70	20.22	19.33	18.55	17.85	75.64	119.06
130.0	23.28	22.15	21.17	20.72	20.30	19.90	19.17	18.51	17.91	75.75	120.70
140.0	22.39	21.50	20.70	20.34	19.99	19.66	19.04	18.48	17.97	75.87	122.16
150.0	21.73	21.01	20.36	20.05	19.76	19.48	18.96	18.47	18.02	76.00	123.47
160.0	21.24	20.64	20.09	19.83	19.58	19.35	18.89	18.47	18.07	76.14	124.66
170.0	20.86	20.36	19.89	19.67	19.45	19.24	18.85	18.47	18.12	76.28	125.76
180.0	20.56	20.13	19.73	19.53	19.35	19.17	18.82	18.49	18.17	76.44	126.76
190.0	20.33	19.96	19.60	19.43	19.27	19.11	18.80	18.50	18.22	76.61	127.70
200.0	20.15	19.82	19.51	19.36	19.21	19.07	18.79	18.53	18.27	76.78	128.58

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona		
	SI SIa						80.0 [MPa]			4		
	Typ przewodu						Naciąg podstawowy					
WIKROL	SAX-W 50mm2 20kV						4.02 [kN]					
	q= 50.3 [mm ²]	d= 12.7 [mm]	ap= 53.1 [m]	$\alpha=0.0000230$ 1/°K			$\beta=0.0000167$ 1/MPa					
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.05	0.10	0.04	0.06	
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.09	0.15	0.22	0.14	0.21	
30.0	0.05	0.07	0.08	0.09	0.11	0.13	0.19	0.27	0.36	0.28	0.40	
40.0	0.10	0.12	0.15	0.16	0.19	0.22	0.30	0.40	0.51	0.45	0.63	
50.0	0.15	0.18	0.22	0.25	0.29	0.33	0.43	0.55	0.68	0.65	0.89	
60.0	0.24	0.29	0.36	0.41	0.46	0.52	0.65	0.79	0.93	0.92	1.21	
70.0	0.39	0.47	0.59	0.66	0.73	0.81	0.96	1.11	1.26	1.25	1.58	
80.0	0.62	0.75	0.91	0.99	1.08	1.16	1.33	1.49	1.64	1.63	2.01	
90.0	0.95	1.13	1.31	1.41	1.50	1.59	1.76	1.92	2.08	2.07	2.48	
100.0	1.39	1.59	1.79	1.88	1.97	2.06	2.24	2.40	2.56	2.55	3.00	
110.0	1.92	2.12	2.32	2.41	2.51	2.60	2.77	2.94	3.10	3.09	3.57	
120.0	2.51	2.71	2.90	3.00	3.09	3.18	3.36	3.52	3.69	3.67	4.18	
130.0	3.15	3.35	3.54	3.64	3.73	3.82	3.99	4.16	4.32	4.31	4.84	
140.0	3.85	4.04	4.23	4.33	4.42	4.51	4.68	4.85	5.01	5.00	5.55	
150.0	4.59	4.79	4.97	5.07	5.16	5.25	5.42	5.59	5.76	5.75	6.31	
160.0	5.39	5.58	5.77	5.86	5.95	6.04	6.21	6.38	6.55	6.54	7.12	
170.0	6.24	6.43	6.61	6.70	6.79	6.88	7.06	7.23	7.39	7.38	7.98	
180.0	7.14	7.33	7.51	7.60	7.69	7.78	7.95	8.12	8.29	8.28	8.89	
190.0	8.09	8.28	8.46	8.55	8.64	8.72	8.90	9.07	9.24	9.23	9.86	
200.0	9.09	9.28	9.46	9.55	9.64	9.72	9.90	10.07	10.24	10.23	10.87	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	80.00	66.23	52.49	45.64	38.82	32.04	18.95	8.91	5.08	54.58	58.39	
20.0	80.00	66.31	52.72	46.00	39.37	32.90	21.12	12.97	8.99	59.66	69.33	
30.0	80.00	66.44	53.09	46.56	40.21	34.13	23.58	16.39	12.35	65.75	80.53	
40.0	80.00	66.63	53.58	47.29	41.25	35.59	26.00	19.40	15.34	72.04	91.22	
50.0	80.01	66.85	54.17	48.14	42.42	37.14	28.32	22.13	18.07	78.22	101.34	
60.0	72.85	60.25	48.51	43.15	38.26	33.92	27.01	22.22	18.94	80.15	107.41	
70.0	61.70	50.36	40.55	36.40	32.78	29.70	24.89	21.48	19.00	80.20	111.34	
80.0	50.72	41.56	34.34	31.44	28.96	26.85	23.49	20.98	19.06	80.27	114.79	
90.0	41.53	35.02	30.12	28.15	26.45	24.97	22.54	20.63	19.10	80.34	117.81	
100.0	35.03	30.69	27.37	26.00	24.79	23.71	21.88	20.39	19.14	80.42	120.46	
110.0	30.83	27.89	25.55	24.56	23.66	22.84	21.41	20.21	19.18	80.50	122.80	
120.0	28.11	26.03	24.30	23.55	22.85	22.21	21.07	20.08	19.21	80.60	124.86	
130.0	26.29	24.74	23.41	22.82	22.27	21.75	20.82	19.99	19.24	80.70	126.70	
140.0	25.01	23.81	22.76	22.28	21.83	21.41	20.62	19.92	19.28	80.82	128.35	
150.0	24.08	23.13	22.27	21.88	21.50	21.14	20.48	19.87	19.31	80.94	129.83	
160.0	23.39	22.61	21.89	21.56	21.24	20.94	20.37	19.84	19.35	81.07	131.18	
170.0	22.86	22.20	21.60	21.32	21.04	20.78	20.28	19.82	19.39	81.20	132.41	
180.0	22.45	21.89	21.37	21.13	20.89	20.66	20.22	19.81	19.43	81.35	133.54	
190.0	22.12	21.64	21.19	20.97	20.77	20.56	20.18	19.81	19.47	81.51	134.58	
200.0	21.86	21.44	21.04	20.86	20.67	20.49	20.15	19.82	19.51	81.67	135.56	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia				Napreżenie podstawowe				Strona		
	SI SIa				60.0 [MPa]				5		
WIKROL	Typ przewodu				Naciąg podstawowy						
	SAX-W 70mm ² 20kV				4.43 [kN]						
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 52.1 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa			
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.07	0.11	0.14	0.04	0.07
20.0	0.03	0.04	0.05	0.07	0.08	0.11	0.18	0.24	0.30	0.15	0.21
30.0	0.07	0.09	0.12	0.14	0.17	0.21	0.30	0.39	0.47	0.30	0.40
40.0	0.12	0.15	0.20	0.24	0.28	0.33	0.44	0.55	0.65	0.47	0.62
50.0	0.19	0.24	0.31	0.36	0.41	0.47	0.60	0.72	0.84	0.67	0.87
60.0	0.31	0.39	0.51	0.58	0.65	0.72	0.86	1.00	1.12	0.95	1.18
70.0	0.52	0.65	0.81	0.89	0.97	1.05	1.20	1.34	1.48	1.29	1.56
80.0	0.84	1.01	1.18	1.27	1.35	1.43	1.59	1.74	1.88	1.68	1.98
90.0	1.25	1.44	1.62	1.71	1.79	1.88	2.04	2.19	2.33	2.13	2.46
100.0	1.74	1.94	2.12	2.21	2.29	2.38	2.54	2.69	2.84	2.63	2.98
110.0	2.30	2.49	2.67	2.76	2.84	2.93	3.09	3.24	3.39	3.19	3.55
120.0	2.91	3.09	3.27	3.36	3.45	3.53	3.69	3.85	4.00	3.79	4.17
130.0	3.57	3.76	3.93	4.02	4.11	4.19	4.35	4.51	4.66	4.45	4.85
140.0	4.29	4.47	4.65	4.73	4.82	4.90	5.06	5.22	5.38	5.16	5.57
150.0	5.05	5.23	5.41	5.50	5.58	5.66	5.83	5.99	6.15	5.93	6.35
160.0	5.87	6.05	6.23	6.31	6.40	6.48	6.65	6.81	6.97	6.75	7.18
170.0	6.75	6.93	7.10	7.19	7.27	7.35	7.52	7.68	7.84	7.62	8.06
180.0	7.68	7.85	8.03	8.11	8.20	8.28	8.44	8.61	8.77	8.55	8.99
190.0	8.66	8.83	9.00	9.09	9.17	9.26	9.42	9.59	9.75	9.53	9.98
200.0	9.69	9.86	10.04	10.12	10.21	10.29	10.46	10.62	10.78	10.56	11.02
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	46.27	32.63	25.92	19.40	13.44	6.21	4.02	3.13	35.49	39.74
20.0	60.00	46.45	33.22	26.94	21.15	16.25	10.13	7.39	5.99	41.38	50.47
30.0	60.00	46.73	34.10	28.33	23.20	18.97	13.36	10.36	8.62	47.53	60.50
40.0	60.00	47.10	35.15	29.86	25.26	21.47	16.18	13.04	11.07	53.41	69.71
50.0	60.01	47.54	36.29	31.43	27.23	23.75	18.71	15.49	13.35	58.96	78.26
60.0	52.09	40.93	31.73	28.05	24.99	22.48	18.75	16.20	14.38	60.12	82.55
70.0	42.28	33.61	27.19	24.74	22.70	21.00	18.35	16.40	14.92	60.16	85.35
80.0	34.35	28.49	24.28	22.64	21.24	20.04	18.08	16.55	15.34	60.21	87.73
90.0	29.04	25.26	22.44	21.29	20.29	19.40	17.89	16.67	15.65	60.27	89.77
100.0	25.76	23.22	21.23	20.40	19.64	18.96	17.77	16.76	15.91	60.33	91.51
110.0	23.68	21.89	20.41	19.77	19.18	18.64	17.68	16.84	16.11	60.40	93.02
120.0	22.31	20.97	19.83	19.33	18.85	18.41	17.61	16.91	16.28	60.48	94.33
130.0	21.35	20.31	19.41	19.00	18.61	18.24	17.57	16.97	16.42	60.56	95.49
140.0	20.66	19.83	19.09	18.75	18.43	18.12	17.55	17.02	16.55	60.65	96.51
150.0	20.15	19.47	18.85	18.56	18.29	18.03	17.53	17.08	16.65	60.75	97.42
160.0	19.76	19.19	18.67	18.42	18.19	17.96	17.53	17.12	16.75	60.85	98.25
170.0	19.46	18.98	18.53	18.31	18.11	17.91	17.53	17.17	16.84	60.96	99.00
180.0	19.23	18.81	18.42	18.23	18.05	17.87	17.54	17.22	16.92	61.08	99.69
190.0	19.04	18.68	18.33	18.17	18.01	17.85	17.55	17.27	17.00	61.20	100.34
200.0	18.90	18.57	18.27	18.12	17.98	17.84	17.57	17.31	17.07	61.33	100.95

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SI SIa						70.0 [MPa]			6	
	Typ przewodu						Naciąg podstawowy				
WIKROL	SAX-W 70mm ² 20kV						5.17 [kN]				
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 60.8 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.08	0.12	0.04	0.06
20.0	0.03	0.03	0.04	0.05	0.06	0.08	0.13	0.20	0.26	0.13	0.19
30.0	0.06	0.07	0.09	0.11	0.13	0.16	0.23	0.33	0.41	0.26	0.37
40.0	0.10	0.13	0.16	0.19	0.22	0.26	0.36	0.47	0.58	0.43	0.58
50.0	0.16	0.20	0.25	0.29	0.33	0.38	0.50	0.63	0.75	0.61	0.81
60.0	0.23	0.28	0.35	0.40	0.45	0.52	0.65	0.80	0.94	0.82	1.07
70.0	0.35	0.44	0.55	0.62	0.69	0.77	0.93	1.08	1.23	1.11	1.40
80.0	0.54	0.67	0.82	0.91	0.99	1.08	1.25	1.42	1.58	1.44	1.78
90.0	0.81	0.98	1.17	1.26	1.36	1.45	1.63	1.80	1.97	1.83	2.20
100.0	1.17	1.37	1.57	1.67	1.77	1.87	2.06	2.23	2.40	2.26	2.66
110.0	1.61	1.83	2.04	2.14	2.24	2.34	2.53	2.71	2.88	2.73	3.16
120.0	2.12	2.34	2.55	2.65	2.75	2.85	3.04	3.22	3.40	3.25	3.71
130.0	2.68	2.90	3.11	3.22	3.32	3.41	3.60	3.79	3.97	3.81	4.30
140.0	3.29	3.51	3.72	3.82	3.92	4.02	4.21	4.40	4.58	4.42	4.93
150.0	3.95	4.17	4.37	4.48	4.58	4.68	4.87	5.05	5.23	5.08	5.60
160.0	4.65	4.87	5.07	5.18	5.28	5.37	5.57	5.75	5.94	5.78	6.32
170.0	5.40	5.61	5.82	5.92	6.02	6.12	6.31	6.50	6.68	6.53	7.08
180.0	6.20	6.41	6.61	6.71	6.81	6.91	7.10	7.29	7.48	7.32	7.88
190.0	7.04	7.24	7.45	7.55	7.65	7.75	7.94	8.13	8.32	8.16	8.73
200.0	7.92	8.13	8.33	8.43	8.53	8.63	8.82	9.01	9.20	9.04	9.63
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	56.24	42.53	35.71	28.95	22.32	10.70	5.35	3.71	44.37	47.53
20.0	70.00	56.35	42.85	36.24	29.81	23.75	14.13	9.18	6.93	48.84	56.73
30.0	70.00	56.52	43.36	37.04	31.04	25.57	17.17	12.40	9.82	54.10	66.05
40.0	70.00	56.75	44.02	38.03	32.46	27.49	19.90	15.25	12.47	59.45	74.90
50.0	70.01	57.04	44.78	39.13	33.96	29.40	22.37	17.83	14.92	64.68	83.25
60.0	70.01	57.37	45.62	40.29	35.47	31.24	24.65	20.20	17.21	69.71	91.14
70.0	61.93	50.27	40.06	35.70	31.92	28.70	23.74	20.30	17.84	70.14	94.71
80.0	52.99	42.99	34.94	31.68	28.91	26.57	22.90	20.23	18.23	70.18	97.56
90.0	44.83	37.05	31.15	28.81	26.80	25.08	22.31	20.19	18.53	70.23	100.06
100.0	38.34	32.73	28.51	26.81	25.33	24.04	21.88	20.16	18.77	70.28	102.27
110.0	33.71	29.74	26.68	25.42	24.29	23.28	21.56	20.15	18.96	70.34	104.22
120.0	30.55	27.68	25.39	24.41	23.53	22.73	21.33	20.14	19.12	70.41	105.94
130.0	28.36	26.22	24.45	23.68	22.97	22.31	21.15	20.14	19.25	70.48	107.48
140.0	26.82	25.16	23.75	23.12	22.54	22.00	21.01	20.14	19.37	70.56	108.85
150.0	25.69	24.37	23.22	22.70	22.21	21.75	20.91	20.15	19.47	70.64	110.09
160.0	24.84	23.76	22.81	22.37	21.95	21.56	20.83	20.17	19.56	70.73	111.20
170.0	24.19	23.29	22.48	22.11	21.75	21.41	20.77	20.18	19.65	70.82	112.22
180.0	23.68	22.92	22.22	21.90	21.59	21.29	20.72	20.20	19.72	70.92	113.14
190.0	23.28	22.62	22.02	21.73	21.46	21.19	20.69	20.23	19.79	71.03	114.00
200.0	22.95	22.38	21.85	21.60	21.35	21.12	20.67	20.25	19.86	71.14	114.79

ENERGOLINIA w Poznaniu	Strefa obciazenia sadzia						Naprezenie podstawowe			Strona	
	SI SIa						75.0 [MPa]			7	
	Typ przewodu						Naciag podstawowy				
WIKROL	SAX-W 70mm2 20kV						5.54 [kN]				
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 65.1 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.03	0.05
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.10	0.17	0.24	0.12	0.18
30.0	0.05	0.07	0.08	0.10	0.11	0.14	0.20	0.29	0.38	0.25	0.35
40.0	0.10	0.12	0.15	0.17	0.20	0.23	0.32	0.43	0.54	0.40	0.56
50.0	0.15	0.18	0.23	0.26	0.30	0.34	0.45	0.58	0.71	0.58	0.79
60.0	0.21	0.26	0.32	0.36	0.41	0.47	0.60	0.74	0.89	0.78	1.04
70.0	0.31	0.37	0.46	0.52	0.58	0.65	0.81	0.97	1.12	1.03	1.34
80.0	0.46	0.56	0.69	0.76	0.85	0.93	1.11	1.28	1.45	1.35	1.70
90.0	0.67	0.81	0.98	1.08	1.17	1.27	1.45	1.64	1.81	1.71	2.10
100.0	0.96	1.15	1.35	1.45	1.55	1.65	1.85	2.03	2.21	2.11	2.54
110.0	1.34	1.55	1.77	1.87	1.98	2.08	2.28	2.47	2.66	2.55	3.01
120.0	1.78	2.01	2.24	2.35	2.46	2.56	2.76	2.96	3.14	3.03	3.53
130.0	2.30	2.53	2.76	2.87	2.98	3.08	3.29	3.48	3.67	3.56	4.08
140.0	2.86	3.10	3.32	3.43	3.54	3.65	3.85	4.05	4.24	4.13	4.67
150.0	3.47	3.71	3.93	4.04	4.15	4.26	4.46	4.66	4.85	4.74	5.31
160.0	4.13	4.36	4.59	4.69	4.80	4.91	5.11	5.31	5.51	5.40	5.98
170.0	4.83	5.06	5.28	5.39	5.50	5.60	5.81	6.01	6.21	6.09	6.69
180.0	5.57	5.80	6.02	6.13	6.23	6.34	6.55	6.75	6.95	6.83	7.45
190.0	6.35	6.58	6.80	6.91	7.01	7.12	7.33	7.53	7.73	7.61	8.25
200.0	7.18	7.40	7.62	7.73	7.84	7.94	8.15	8.35	8.55	8.44	9.08
T A B L I C A N A P R E Z E N przy slupie [MPa]											
10.0	75.00	61.23	47.50	40.66	33.85	27.12	14.44	6.57	4.14	49.01	51.73
20.0	75.00	61.32	47.75	41.05	34.48	28.13	17.11	10.53	7.58	52.89	60.15
30.0	75.00	61.46	48.15	41.67	35.42	29.53	19.81	13.81	10.61	57.69	69.06
40.0	75.00	61.64	48.67	42.46	36.56	31.13	22.34	16.70	13.35	62.74	77.68
50.0	75.01	61.88	49.29	43.36	37.82	32.78	24.70	19.31	15.88	67.76	85.88
60.0	75.01	62.15	49.99	44.35	39.13	34.44	26.90	21.70	18.23	72.65	93.69
70.0	71.07	58.72	47.38	42.28	37.67	33.62	27.20	22.71	19.57	75.13	99.16
80.0	62.60	51.36	41.64	37.50	33.89	30.79	25.93	22.45	19.89	75.17	102.18
90.0	54.20	44.62	36.89	33.75	31.03	28.71	25.01	22.26	20.15	75.22	104.88
100.0	46.68	39.13	33.32	30.98	28.96	27.20	24.34	22.11	20.35	75.27	107.29
110.0	40.65	35.03	30.75	29.00	27.46	26.11	23.83	22.01	20.52	75.32	109.43
120.0	36.21	32.10	28.90	27.56	26.37	25.30	23.46	21.94	20.66	75.38	111.35
130.0	33.06	30.00	27.55	26.50	25.55	24.68	23.17	21.88	20.77	75.45	113.07
140.0	30.81	28.48	26.55	25.70	24.93	24.22	22.94	21.84	20.87	75.52	114.62
150.0	29.17	27.34	25.79	25.09	24.45	23.85	22.77	21.81	20.96	75.60	116.02
160.0	27.95	26.48	25.20	24.62	24.07	23.56	22.63	21.79	21.04	75.68	117.29
170.0	27.02	25.81	24.73	24.24	23.78	23.34	22.52	21.78	21.11	75.77	118.45
180.0	26.30	25.28	24.36	23.94	23.54	23.15	22.44	21.78	21.18	75.86	119.51
190.0	25.72	24.85	24.06	23.69	23.34	23.00	22.37	21.79	21.24	75.96	120.48
200.0	25.26	24.51	23.82	23.50	23.19	22.89	22.32	21.79	21.30	76.07	121.39

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe		Strona		
	SI SIa						80.0 [MPa]		8		
MIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 70mm ² 20kV						5.91 [kN]				
	q= 73.9 [mm ²]	d= 14.3 [mm]	ap= 69.4 [m]	$\alpha=0.0000230$ 1/°K		$\beta=0.0000167$ 1/MPa					
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.09	0.03	0.05
20.0	0.02	0.03	0.03	0.04	0.05	0.05	0.09	0.14	0.21	0.11	0.17
30.0	0.05	0.06	0.08	0.09	0.10	0.12	0.18	0.26	0.35	0.23	0.34
40.0	0.09	0.11	0.13	0.15	0.18	0.20	0.28	0.39	0.50	0.38	0.54
50.0	0.14	0.17	0.21	0.23	0.27	0.31	0.41	0.53	0.66	0.56	0.76
60.0	0.20	0.24	0.30	0.33	0.37	0.42	0.55	0.69	0.83	0.75	1.01
70.0	0.28	0.33	0.40	0.45	0.50	0.56	0.70	0.86	1.02	0.97	1.28
80.0	0.40	0.48	0.59	0.65	0.72	0.80	0.97	1.15	1.32	1.26	1.63
90.0	0.57	0.69	0.84	0.92	1.01	1.10	1.29	1.48	1.66	1.60	2.01
100.0	0.80	0.96	1.15	1.25	1.35	1.45	1.65	1.85	2.04	1.97	2.43
110.0	1.11	1.31	1.53	1.63	1.74	1.85	2.06	2.26	2.45	2.39	2.88
120.0	1.50	1.73	1.96	2.07	2.18	2.29	2.51	2.71	2.91	2.84	3.37
130.0	1.95	2.20	2.44	2.55	2.67	2.78	3.00	3.20	3.40	3.34	3.89
140.0	2.47	2.72	2.96	3.08	3.19	3.31	3.53	3.74	3.94	3.87	4.45
150.0	3.04	3.29	3.53	3.65	3.76	3.88	4.10	4.31	4.51	4.44	5.05
160.0	3.65	3.90	4.14	4.26	4.37	4.48	4.71	4.92	5.12	5.06	5.69
170.0	4.30	4.55	4.79	4.91	5.02	5.13	5.36	5.57	5.78	5.71	6.36
180.0	4.99	5.24	5.48	5.60	5.71	5.82	6.05	6.26	6.47	6.40	7.07
190.0	5.73	5.97	6.21	6.33	6.44	6.56	6.78	6.99	7.20	7.13	7.83
200.0	6.50	6.75	6.98	7.10	7.21	7.33	7.55	7.76	7.98	7.91	8.61
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	66.22	52.48	45.62	38.79	32.00	18.81	8.54	4.73	53.74	56.08
20.0	80.00	66.29	52.67	45.92	39.26	32.73	20.74	12.37	8.40	57.10	63.75
30.0	80.00	66.41	52.99	46.41	39.98	33.81	22.98	15.60	11.57	61.47	72.22
40.0	80.00	66.56	53.41	47.04	40.89	35.10	25.23	18.46	14.40	66.20	80.58
50.0	80.01	66.75	53.92	47.78	41.94	36.50	27.40	21.05	16.99	70.99	88.62
60.0	80.01	66.98	54.50	48.61	43.06	37.96	29.47	23.44	19.39	75.73	96.32
70.0	79.64	66.87	54.80	49.18	43.93	39.15	31.24	25.52	21.54	80.12	103.51
80.0	71.82	59.79	48.86	43.98	39.59	35.71	29.48	24.99	21.76	80.16	106.67
90.0	63.69	52.81	43.47	39.49	36.00	32.97	28.15	24.59	21.94	80.20	109.53
100.0	55.80	46.53	39.02	35.93	33.24	30.91	27.15	24.30	22.08	80.25	112.11
110.0	48.79	41.38	35.60	33.24	31.18	29.37	26.40	24.07	22.20	80.30	114.44
120.0	43.10	37.44	33.05	31.24	29.64	28.23	25.83	23.89	22.30	80.36	116.54
130.0	38.80	34.53	31.17	29.76	28.50	27.36	25.39	23.76	22.39	80.42	118.44
140.0	35.64	32.39	29.77	28.64	27.62	26.69	25.05	23.66	22.46	80.49	120.16
150.0	33.32	30.80	28.70	27.79	26.94	26.17	24.78	23.58	22.53	80.56	121.72
160.0	31.60	29.58	27.88	27.12	26.41	25.75	24.56	23.52	22.59	80.64	123.14
170.0	30.29	28.65	27.23	26.59	25.99	25.42	24.39	23.47	22.64	80.72	124.44
180.0	29.27	27.91	26.71	26.16	25.64	25.15	24.25	23.44	22.70	80.81	125.63
190.0	28.47	27.32	26.29	25.82	25.37	24.94	24.14	23.41	22.75	80.90	126.74
200.0	27.83	26.84	25.95	25.53	25.14	24.76	24.05	23.40	22.79	81.00	127.76

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona		
	SI SIa						60.0 [MPa]			9		
	Typ przewodu						Naciąg podstawowy					
	SAX-W 120mm ² 20kV						7.72 [kN]					
WIKROL	q=128.7 [mm ²]		d= 17.6 [mm]		ap= 73.8 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa			
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.07	0.11	0.14	0.03	0.05	
20.0	0.03	0.03	0.05	0.06	0.08	0.10	0.17	0.24	0.30	0.12	0.17	
30.0	0.06	0.08	0.11	0.13	0.16	0.20	0.29	0.38	0.46	0.24	0.33	
40.0	0.11	0.14	0.19	0.22	0.26	0.32	0.43	0.54	0.64	0.39	0.52	
50.0	0.17	0.21	0.28	0.33	0.39	0.45	0.58	0.71	0.83	0.56	0.73	
60.0	0.24	0.31	0.40	0.45	0.52	0.59	0.74	0.89	1.02	0.75	0.96	
70.0	0.33	0.41	0.52	0.59	0.67	0.75	0.92	1.08	1.23	0.96	1.21	
80.0	0.46	0.58	0.72	0.80	0.89	0.98	1.16	1.34	1.50	1.22	1.51	
90.0	0.66	0.82	1.00	1.10	1.19	1.29	1.48	1.67	1.84	1.54	1.86	
100.0	0.93	1.12	1.33	1.44	1.54	1.64	1.84	2.03	2.21	1.90	2.26	
110.0	1.26	1.49	1.71	1.82	1.93	2.04	2.24	2.44	2.62	2.30	2.68	
120.0	1.66	1.90	2.14	2.25	2.36	2.47	2.68	2.88	3.07	2.74	3.14	
130.0	2.12	2.37	2.60	2.72	2.83	2.94	3.15	3.36	3.55	3.22	3.64	
140.0	2.62	2.87	3.11	3.23	3.34	3.45	3.67	3.87	4.07	3.73	4.17	
150.0	3.17	3.42	3.66	3.78	3.89	4.00	4.22	4.43	4.63	4.29	4.74	
160.0	3.76	4.01	4.25	4.37	4.48	4.59	4.81	5.02	5.23	4.88	5.35	
170.0	4.39	4.64	4.88	4.99	5.11	5.22	5.44	5.65	5.86	5.51	5.99	
180.0	5.05	5.30	5.54	5.66	5.77	5.89	6.11	6.32	6.53	6.18	6.68	
190.0	5.76	6.01	6.25	6.36	6.48	6.59	6.81	7.03	7.24	6.88	7.39	
200.0	6.51	6.75	6.99	7.11	7.22	7.33	7.56	7.77	7.99	7.63	8.15	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	60.00	46.26	32.59	25.85	19.27	13.18	5.77	3.66	2.84	34.14	36.56	
20.0	60.00	46.40	33.09	26.71	20.77	15.71	9.44	6.78	5.45	37.93	43.86	
30.0	60.00	46.64	33.83	27.90	22.60	18.21	12.48	9.53	7.88	42.28	51.17	
40.0	60.00	46.95	34.73	29.26	24.48	20.53	15.13	12.04	10.14	46.63	58.07	
50.0	60.01	47.32	35.74	30.68	26.30	22.68	17.52	14.34	12.27	50.83	64.55	
60.0	60.01	47.74	36.78	32.08	28.04	24.66	19.70	16.47	14.28	54.85	70.65	
70.0	60.01	48.18	37.84	33.45	29.68	26.50	21.71	18.46	16.17	58.67	76.42	
80.0	55.94	45.06	35.97	32.25	29.08	26.41	22.32	19.42	17.30	60.11	79.89	
90.0	49.44	40.15	32.86	29.97	27.51	25.43	22.15	19.73	17.89	60.14	81.85	
100.0	43.58	36.11	30.48	28.25	26.33	24.69	22.03	19.98	18.37	60.17	83.59	
110.0	38.77	33.01	28.70	26.96	25.45	24.13	21.93	20.19	18.77	60.21	85.13	
120.0	35.09	30.71	27.37	26.00	24.78	23.70	21.86	20.36	19.11	60.25	86.50	
130.0	32.36	29.01	26.37	25.26	24.27	23.37	21.81	20.50	19.39	60.29	87.73	
140.0	30.35	27.73	25.61	24.70	23.87	23.11	21.77	20.63	19.64	60.34	88.83	
150.0	28.85	26.76	25.02	24.26	23.55	22.90	21.74	20.73	19.84	60.39	89.81	
160.0	27.71	26.00	24.55	23.90	23.30	22.74	21.72	20.83	20.03	60.45	90.70	
170.0	26.83	25.41	24.18	23.62	23.10	22.61	21.71	20.91	20.19	60.50	91.51	
180.0	26.14	24.94	23.88	23.39	22.94	22.50	21.71	20.99	20.33	60.56	92.25	
190.0	25.58	24.55	23.63	23.21	22.80	22.42	21.71	21.06	20.46	60.63	92.92	
200.0	25.13	24.24	23.43	23.05	22.70	22.35	21.71	21.12	20.57	60.70	93.54	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia		SI		SIa		Napreżenie podstawowe		70.0 [MPa]		Strona	10
	Typ przewodu		SAX-W		120mm ²		Naciąg podstawowy		9.01 [kN]			
	WIKROL		q=128.7 [mm ²]		d= 17.6 [mm]		ap= 86.1 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa	
Rozp.	Temperatura [°C]										sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.08	0.12	0.03	0.04	
20.0	0.02	0.03	0.04	0.04	0.05	0.07	0.12	0.19	0.26	0.10	0.15	
30.0	0.05	0.06	0.08	0.10	0.12	0.15	0.22	0.32	0.40	0.21	0.29	
40.0	0.09	0.11	0.15	0.17	0.20	0.24	0.34	0.46	0.57	0.34	0.47	
50.0	0.14	0.18	0.23	0.26	0.30	0.36	0.48	0.61	0.74	0.50	0.67	
60.0	0.21	0.25	0.32	0.37	0.42	0.48	0.62	0.77	0.92	0.68	0.89	
70.0	0.28	0.35	0.43	0.49	0.55	0.62	0.78	0.95	1.11	0.87	1.13	
80.0	0.37	0.45	0.56	0.62	0.70	0.78	0.95	1.13	1.31	1.08	1.38	
90.0	0.48	0.58	0.72	0.80	0.88	0.97	1.17	1.36	1.55	1.32	1.67	
100.0	0.65	0.79	0.96	1.05	1.16	1.26	1.47	1.68	1.87	1.63	2.02	
110.0	0.87	1.05	1.25	1.36	1.47	1.58	1.81	2.02	2.23	1.97	2.40	
120.0	1.14	1.36	1.59	1.71	1.82	1.94	2.18	2.40	2.61	2.35	2.81	
130.0	1.48	1.72	1.97	2.09	2.22	2.34	2.58	2.81	3.03	2.76	3.25	
140.0	1.86	2.13	2.39	2.52	2.65	2.77	3.02	3.25	3.47	3.20	3.72	
150.0	2.30	2.58	2.85	2.98	3.11	3.24	3.49	3.72	3.95	3.67	4.22	
160.0	2.79	3.07	3.35	3.48	3.61	3.74	3.99	4.23	4.46	4.18	4.75	
170.0	3.31	3.60	3.88	4.01	4.14	4.27	4.53	4.77	5.01	4.72	5.31	
180.0	3.87	4.16	4.44	4.58	4.71	4.84	5.10	5.34	5.58	5.29	5.90	
190.0	4.47	4.76	5.04	5.18	5.31	5.44	5.70	5.95	6.19	5.90	6.52	
200.0	5.11	5.40	5.68	5.81	5.95	6.08	6.34	6.59	6.83	6.53	7.18	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	70.00	56.23	42.51	35.67	28.89	22.22	10.35	4.93	3.38	43.46	45.13	
20.0	70.00	56.32	42.77	36.11	29.61	23.43	13.50	8.50	6.34	46.13	50.91	
30.0	70.00	56.46	43.20	36.78	30.66	25.03	16.33	11.52	9.02	49.58	57.37	
40.0	70.00	56.66	43.75	37.63	31.90	26.75	18.88	14.19	11.48	53.32	63.79	
50.0	70.00	56.90	44.40	38.59	33.23	28.49	21.21	16.62	13.76	57.11	69.97	
60.0	70.01	57.17	45.13	39.62	34.60	30.18	23.36	18.86	15.91	60.84	75.89	
70.0	70.01	57.48	45.90	40.68	35.96	31.82	25.36	20.94	17.92	64.48	81.55	
80.0	70.01	57.81	46.70	41.74	37.29	33.39	27.22	22.89	19.83	68.00	86.98	
90.0	67.80	56.13	45.75	41.21	37.19	33.67	28.10	24.08	21.17	70.12	91.05	
100.0	61.95	51.29	42.24	38.42	35.08	32.20	27.60	24.21	21.66	70.15	93.09	
110.0	56.23	46.86	39.24	36.10	33.37	31.01	27.20	24.31	22.07	70.18	94.95	
120.0	50.97	43.04	36.80	34.24	32.01	30.07	26.88	24.40	22.42	70.21	96.64	
130.0	46.42	39.91	34.84	32.76	30.93	29.32	26.63	24.47	22.72	70.25	98.18	
140.0	42.66	37.40	33.30	31.59	30.08	28.72	26.42	24.54	22.98	70.29	99.58	
150.0	39.66	35.43	32.08	30.66	29.39	28.24	26.25	24.60	23.20	70.34	100.86	
160.0	37.31	33.88	31.11	29.92	28.84	27.85	26.12	24.65	23.39	70.38	102.03	
170.0	35.46	32.65	30.32	29.31	28.38	27.53	26.01	24.70	23.56	70.43	103.11	
180.0	34.00	31.66	29.69	28.82	28.01	27.26	25.92	24.75	23.71	70.48	104.09	
190.0	32.83	30.86	29.17	28.41	27.70	27.04	25.85	24.79	23.84	70.54	105.00	
200.0	31.89	30.20	28.73	28.07	27.45	26.86	25.79	24.83	23.97	70.60	105.84	

ENERGOLINIA w Poznaniu	Strefa obciążenia sędzia						Napężenie podstawowe			Strona	
	SI SIa						75.0 [MPa]			11	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 20kV						9.65 [kN]				
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 92.2 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.07	0.11	0.02	0.04
20.0	0.02	0.03	0.03	0.04	0.05	0.06	0.10	0.16	0.23	0.09	0.14
30.0	0.05	0.06	0.08	0.09	0.10	0.13	0.19	0.28	0.37	0.19	0.28
40.0	0.09	0.11	0.13	0.15	0.18	0.21	0.30	0.41	0.53	0.32	0.45
50.0	0.13	0.16	0.21	0.24	0.27	0.32	0.43	0.56	0.69	0.47	0.64
60.0	0.19	0.24	0.29	0.33	0.38	0.44	0.57	0.72	0.86	0.64	0.86
70.0	0.26	0.32	0.40	0.44	0.50	0.57	0.72	0.88	1.05	0.83	1.09
80.0	0.35	0.41	0.51	0.57	0.64	0.71	0.88	1.06	1.24	1.03	1.34
90.0	0.44	0.52	0.64	0.70	0.78	0.87	1.05	1.25	1.44	1.25	1.61
100.0	0.57	0.68	0.83	0.91	1.00	1.10	1.31	1.52	1.73	1.52	1.93
110.0	0.75	0.90	1.08	1.18	1.28	1.39	1.62	1.84	2.05	1.84	2.29
120.0	0.97	1.16	1.37	1.48	1.60	1.72	1.96	2.19	2.41	2.19	2.68
130.0	1.25	1.47	1.71	1.83	1.96	2.08	2.33	2.57	2.80	2.57	3.09
140.0	1.58	1.83	2.09	2.22	2.35	2.48	2.74	2.98	3.22	2.99	3.54
150.0	1.96	2.23	2.51	2.64	2.78	2.91	3.17	3.42	3.66	3.43	4.01
160.0	2.39	2.68	2.96	3.10	3.24	3.38	3.64	3.90	4.14	3.90	4.51
170.0	2.86	3.16	3.45	3.60	3.74	3.87	4.14	4.40	4.65	4.40	5.04
180.0	3.38	3.68	3.98	4.12	4.26	4.40	4.67	4.93	5.18	4.94	5.59
190.0	3.93	4.24	4.53	4.68	4.82	4.96	5.23	5.50	5.75	5.50	6.18
200.0	4.51	4.82	5.12	5.27	5.41	5.55	5.83	6.09	6.35	6.10	6.80
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	75.00	61.23	47.48	40.63	33.81	27.05	14.21	6.13	3.78	48.26	49.65
20.0	75.00	61.30	47.69	40.96	34.33	27.90	16.58	9.84	6.95	50.50	54.75
30.0	75.00	61.41	48.02	41.47	35.12	29.10	19.04	12.92	9.77	53.55	60.76
40.0	75.00	61.57	48.45	42.14	36.10	30.50	21.39	15.63	12.33	56.97	66.88
50.0	75.00	61.76	48.98	42.92	37.20	31.98	23.58	18.08	14.69	60.52	72.88
60.0	75.01	61.99	49.58	43.77	38.37	33.48	25.65	20.35	16.89	64.08	78.67
70.0	75.01	62.24	50.23	44.68	39.56	34.97	27.58	22.45	18.96	67.59	84.25
80.0	75.01	62.52	50.92	45.61	40.76	36.42	29.41	24.42	20.91	71.02	89.62
90.0	75.01	62.82	51.62	46.56	41.95	37.83	31.14	26.27	22.76	74.35	94.80
100.0	70.82	59.26	48.95	44.41	40.34	36.76	30.96	26.69	23.53	75.14	97.61
110.0	65.27	54.65	45.55	41.65	38.21	35.21	30.34	26.69	23.92	75.17	99.59
120.0	59.86	50.40	42.58	39.31	36.44	33.93	29.84	26.70	24.26	75.20	101.41
130.0	54.82	46.66	40.10	37.38	34.99	32.90	29.43	26.71	24.54	75.24	103.08
140.0	50.37	43.50	38.07	35.81	33.82	32.05	29.09	26.72	24.78	75.27	104.62
150.0	46.59	40.91	36.42	34.54	32.87	31.37	28.82	26.73	25.00	75.31	106.04
160.0	43.49	38.82	35.09	33.51	32.09	30.81	28.59	26.74	25.18	75.36	107.34
170.0	40.99	37.13	34.01	32.67	31.45	30.35	28.40	26.76	25.35	75.40	108.54
180.0	38.97	35.77	33.13	31.98	30.93	29.96	28.25	26.77	25.49	75.45	109.65
190.0	37.35	34.66	32.40	31.41	30.49	29.64	28.12	26.79	25.62	75.50	110.68
200.0	36.04	33.75	31.80	30.93	30.12	29.37	28.01	26.81	25.74	75.56	111.63

ENERGOLINIA w Poznaniu	Strefa obciążenia sadya						Napreżenie podstawowe			Strona	
	SI SIa						80.0 [MPa]			12	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 20kV						10.30 [kN]				
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 98.4 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.09	0.02	0.03
20.0	0.02	0.02	0.03	0.04	0.04	0.05	0.08	0.14	0.21	0.08	0.13
30.0	0.05	0.05	0.07	0.08	0.09	0.11	0.16	0.25	0.34	0.18	0.26
40.0	0.08	0.10	0.12	0.14	0.16	0.19	0.27	0.37	0.49	0.30	0.43
50.0	0.13	0.15	0.19	0.21	0.24	0.28	0.38	0.51	0.64	0.45	0.62
60.0	0.18	0.22	0.27	0.30	0.34	0.39	0.52	0.66	0.81	0.61	0.83
70.0	0.25	0.30	0.36	0.41	0.46	0.52	0.66	0.82	0.99	0.79	1.06
80.0	0.32	0.39	0.47	0.52	0.58	0.65	0.81	0.99	1.17	0.99	1.30
90.0	0.41	0.49	0.59	0.65	0.72	0.80	0.98	1.17	1.37	1.20	1.56
100.0	0.51	0.60	0.72	0.80	0.88	0.97	1.17	1.38	1.58	1.43	1.85
110.0	0.66	0.78	0.94	1.03	1.12	1.23	1.45	1.67	1.89	1.73	2.19
120.0	0.85	1.00	1.19	1.30	1.41	1.52	1.76	2.00	2.23	2.06	2.56
130.0	1.08	1.27	1.49	1.61	1.73	1.86	2.11	2.35	2.59	2.41	2.96
140.0	1.35	1.58	1.83	1.96	2.09	2.22	2.48	2.74	2.98	2.80	3.38
150.0	1.68	1.93	2.20	2.34	2.48	2.62	2.89	3.15	3.40	3.21	3.83
160.0	2.05	2.33	2.62	2.76	2.91	3.05	3.32	3.59	3.85	3.66	4.30
170.0	2.47	2.77	3.07	3.22	3.37	3.51	3.79	4.06	4.32	4.13	4.80
180.0	2.94	3.25	3.56	3.71	3.86	4.00	4.29	4.56	4.83	4.63	5.33
190.0	3.44	3.76	4.07	4.23	4.38	4.52	4.81	5.09	5.36	5.16	5.89
200.0	3.98	4.30	4.62	4.77	4.93	5.08	5.37	5.65	5.92	5.72	6.47
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	66.22	52.46	45.60	38.76	31.95	18.67	8.12	4.33	53.11	54.28
20.0	80.00	66.28	52.62	45.85	39.14	32.56	20.33	11.69	7.74	55.01	58.78
30.0	80.00	66.37	52.89	46.25	39.75	33.47	22.32	14.71	10.69	57.69	64.32
40.0	80.00	66.50	53.24	46.78	40.52	34.59	24.37	17.40	13.34	60.80	70.14
50.0	80.00	66.66	53.67	47.41	41.42	35.82	26.37	19.83	15.77	64.11	75.92
60.0	80.01	66.85	54.16	48.12	42.40	37.12	28.29	22.08	18.03	67.48	81.57
70.0	80.01	67.06	54.70	48.89	43.44	38.43	30.12	24.18	20.14	70.85	87.04
80.0	80.01	67.30	55.29	49.70	44.49	39.75	31.87	26.15	22.13	74.17	92.35
90.0	80.01	67.55	55.90	50.53	45.56	41.04	33.55	28.00	24.02	77.42	97.47
100.0	79.25	67.10	55.88	50.77	46.06	41.82	34.76	29.48	25.60	80.13	102.03
110.0	74.03	62.56	52.28	47.71	43.59	39.92	33.89	29.35	25.95	80.16	104.10
120.0	68.76	58.15	48.95	44.98	41.43	38.30	33.16	29.25	26.24	80.19	106.03
130.0	63.60	54.04	46.02	42.61	39.60	36.94	32.56	29.16	26.50	80.22	107.82
140.0	58.76	50.36	43.50	40.62	38.07	35.81	32.05	29.09	26.72	80.26	109.48
150.0	54.40	47.19	41.39	38.96	36.80	34.88	31.64	29.04	26.91	80.29	111.02
160.0	50.62	44.53	39.65	37.59	35.75	34.11	31.29	28.99	27.08	80.33	112.44
170.0	47.43	42.32	38.21	36.46	34.89	33.46	31.00	28.95	27.23	80.38	113.76
180.0	44.78	40.50	37.02	35.52	34.17	32.93	30.76	28.93	27.36	80.42	114.99
190.0	42.62	39.01	36.04	34.75	33.56	32.48	30.55	28.91	27.48	80.47	116.13
200.0	40.84	37.78	35.22	34.09	33.06	32.10	30.38	28.89	27.59	80.52	117.19

ENERGOLINIA w Poznaniu	Strefa obciazenia sadzia		SI		SIa		Naprezenie podstawowe		60.0 [MPa]		Strona	13
	Typ przewodu		SAX-W 50mm2 30kV		Naciag podstawowy		3.02 [kN]					
WIKROL	q= 50.3 [mm ²]	d= 15.0 [mm]	ap= 35.2 [m]	$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa						
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.02	0.02	0.03	0.05	0.09	0.12	0.15	0.06	0.09	
20.0	0.04	0.05	0.07	0.09	0.11	0.14	0.20	0.26	0.32	0.20	0.27	
30.0	0.09	0.12	0.16	0.19	0.22	0.26	0.35	0.43	0.50	0.37	0.49	
40.0	0.19	0.24	0.32	0.36	0.41	0.46	0.56	0.66	0.74	0.62	0.78	
50.0	0.41	0.51	0.63	0.69	0.74	0.80	0.91	1.01	1.10	0.97	1.16	
60.0	0.79	0.92	1.04	1.11	1.16	1.22	1.33	1.43	1.53	1.39	1.61	
70.0	1.29	1.42	1.55	1.61	1.66	1.72	1.83	1.94	2.04	1.89	2.13	
80.0	1.87	2.00	2.13	2.19	2.24	2.30	2.41	2.52	2.62	2.48	2.73	
90.0	2.54	2.66	2.78	2.84	2.90	2.96	3.07	3.18	3.28	3.13	3.40	
100.0	3.28	3.40	3.52	3.58	3.64	3.69	3.81	3.92	4.02	3.87	4.15	
110.0	4.09	4.22	4.33	4.39	4.45	4.51	4.62	4.73	4.84	4.69	4.98	
120.0	4.99	5.11	5.23	5.29	5.34	5.40	5.51	5.62	5.73	5.58	5.88	
130.0	5.96	6.08	6.20	6.26	6.31	6.37	6.48	6.60	6.70	6.55	6.86	
140.0	7.01	7.13	7.25	7.31	7.36	7.42	7.53	7.65	7.76	7.60	7.91	
150.0	8.14	8.26	8.38	8.43	8.49	8.55	8.66	8.77	8.89	8.73	9.05	
160.0	9.35	9.47	9.58	9.64	9.70	9.76	9.87	9.98	10.10	9.94	10.26	
170.0	10.64	10.76	10.87	10.93	10.99	11.05	11.16	11.27	11.38	11.23	11.55	
180.0	12.00	12.12	12.24	12.30	12.36	12.41	12.53	12.64	12.75	12.60	12.93	
190.0	13.45	13.57	13.69	13.74	13.80	13.86	13.98	14.09	14.20	14.05	14.38	
200.0	14.98	15.10	15.21	15.27	15.33	15.39	15.50	15.62	15.73	15.58	15.91	
T A B L I C A N A P R E Z E N przy slupie [MPa]												
10.0	60.00	45.73	31.66	24.85	18.47	13.08	7.16	5.05	4.06	37.44	44.62	
20.0	60.00	46.08	32.83	26.79	21.50	17.27	11.95	9.25	7.70	46.88	60.31	
30.0	60.00	46.62	34.39	29.07	24.54	20.89	15.87	12.90	11.02	55.73	74.12	
40.0	52.60	40.63	30.73	26.82	23.63	21.05	17.34	14.87	13.15	60.11	83.15	
50.0	37.61	29.76	24.25	22.19	20.49	19.06	16.83	15.18	13.90	60.18	87.29	
60.0	27.94	23.95	21.06	19.91	18.90	18.02	16.55	15.37	14.40	60.26	90.55	
70.0	23.29	21.12	19.41	18.68	18.03	17.43	16.39	15.51	14.75	60.35	93.14	
80.0	20.94	19.60	18.47	17.97	17.51	17.08	16.30	15.62	15.01	60.46	95.23	
90.0	19.61	18.69	17.89	17.52	17.18	16.85	16.25	15.71	15.22	60.58	96.94	
100.0	18.79	18.11	17.51	17.23	16.96	16.70	16.22	15.78	15.38	60.72	98.38	
110.0	18.24	17.73	17.25	17.03	16.82	16.61	16.22	15.85	15.51	60.87	99.62	
120.0	17.87	17.46	17.08	16.90	16.72	16.55	16.23	15.92	15.63	61.03	100.70	
130.0	17.61	17.28	16.96	16.81	16.67	16.52	16.25	15.99	15.74	61.21	101.66	
140.0	17.43	17.15	16.89	16.76	16.64	16.51	16.28	16.05	15.84	61.41	102.54	
150.0	17.30	17.07	16.84	16.73	16.62	16.52	16.32	16.12	15.93	61.62	103.36	
160.0	17.21	17.01	16.82	16.72	16.63	16.54	16.36	16.19	16.02	61.84	104.14	
170.0	17.16	16.98	16.81	16.73	16.65	16.57	16.41	16.26	16.11	62.08	104.88	
180.0	17.13	16.97	16.82	16.75	16.68	16.61	16.47	16.33	16.20	62.34	105.60	
190.0	17.11	16.98	16.85	16.78	16.72	16.66	16.53	16.41	16.29	62.60	106.31	
200.0	17.12	17.00	16.88	16.82	16.77	16.71	16.60	16.49	16.38	62.89	107.01	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SI SIa						70.0 [MPa]			14	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 50mm2 30kV						3.52 [kN]				
q= 50.3 [mm ²]	d= 15.0 [mm]	ap= 41.1 [m]	α=0.0000230 1/°K			β=0.0000160 1/MPa					
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.06	0.10	0.13	0.05	0.08
20.0	0.03	0.04	0.06	0.07	0.08	0.10	0.16	0.22	0.28	0.17	0.24
30.0	0.08	0.10	0.13	0.15	0.17	0.21	0.29	0.37	0.45	0.34	0.46
40.0	0.14	0.17	0.22	0.25	0.29	0.33	0.43	0.53	0.63	0.54	0.71
50.0	0.26	0.33	0.42	0.47	0.53	0.59	0.71	0.82	0.92	0.83	1.04
60.0	0.49	0.61	0.74	0.81	0.87	0.94	1.06	1.18	1.29	1.19	1.44
70.0	0.86	1.01	1.15	1.23	1.29	1.36	1.49	1.61	1.73	1.62	1.90
80.0	1.34	1.50	1.65	1.72	1.79	1.85	1.99	2.11	2.23	2.12	2.43
90.0	1.91	2.06	2.21	2.28	2.35	2.42	2.55	2.67	2.79	2.69	3.01
100.0	2.54	2.69	2.84	2.91	2.98	3.05	3.18	3.30	3.43	3.32	3.66
110.0	3.25	3.39	3.54	3.61	3.67	3.74	3.87	4.00	4.13	4.01	4.38
120.0	4.01	4.16	4.30	4.37	4.44	4.50	4.64	4.77	4.89	4.78	5.15
130.0	4.85	4.99	5.13	5.20	5.27	5.33	5.47	5.60	5.72	5.61	6.00
140.0	5.75	5.89	6.03	6.10	6.17	6.23	6.36	6.49	6.62	6.51	6.91
150.0	6.72	6.86	6.99	7.06	7.13	7.20	7.33	7.46	7.59	7.47	7.88
160.0	7.75	7.89	8.03	8.10	8.16	8.23	8.36	8.49	8.62	8.51	8.92
170.0	8.85	8.99	9.13	9.20	9.26	9.33	9.46	9.59	9.72	9.61	10.03
180.0	10.02	10.16	10.30	10.36	10.43	10.50	10.63	10.76	10.89	10.78	11.21
190.0	11.26	11.40	11.53	11.60	11.67	11.73	11.87	12.00	12.13	12.02	12.45
200.0	12.56	12.70	12.84	12.90	12.97	13.04	13.17	13.30	13.44	13.32	13.76
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.67	41.44	34.41	27.51	20.92	10.62	6.31	4.68	45.43	51.34
20.0	70.00	55.89	42.10	35.48	29.22	23.58	15.32	10.97	8.71	53.34	65.75
30.0	70.00	56.23	43.08	36.96	31.36	26.46	19.22	14.90	12.30	61.49	79.10
40.0	70.01	56.67	44.26	38.64	33.59	29.23	22.63	18.35	15.56	69.24	91.32
50.0	57.78	46.05	36.19	32.15	28.74	25.90	21.62	18.66	16.54	70.15	96.87
60.0	44.38	35.95	29.67	27.23	25.18	23.44	20.68	18.62	17.03	70.22	100.85
70.0	34.66	29.63	25.92	24.43	23.14	22.01	20.11	18.60	17.37	70.30	104.14
80.0	29.07	26.09	23.77	22.80	21.92	21.13	19.75	18.60	17.62	70.39	106.88
90.0	25.95	24.04	22.47	21.78	21.15	20.56	19.52	18.61	17.82	70.50	109.17
100.0	24.09	22.76	21.62	21.11	20.63	20.18	19.36	18.63	17.97	70.61	111.12
110.0	22.89	21.92	21.05	20.65	20.27	19.92	19.25	18.65	18.10	70.74	112.79
120.0	22.08	21.33	20.65	20.33	20.02	19.73	19.19	18.68	18.22	70.89	114.25
130.0	21.51	20.91	20.36	20.10	19.85	19.60	19.14	18.72	18.32	71.04	115.53
140.0	21.10	20.61	20.15	19.93	19.72	19.51	19.12	18.76	18.41	71.21	116.68
150.0	20.79	20.38	20.00	19.81	19.63	19.45	19.12	18.80	18.50	71.39	117.72
160.0	20.57	20.22	19.89	19.73	19.57	19.42	19.13	18.85	18.58	71.58	118.68
170.0	20.40	20.10	19.81	19.67	19.53	19.40	19.14	18.90	18.66	71.78	119.58
180.0	20.27	20.01	19.76	19.64	19.52	19.40	19.17	18.95	18.74	72.00	120.42
190.0	20.18	19.95	19.73	19.62	19.51	19.41	19.21	19.01	18.82	72.23	121.23
200.0	20.11	19.91	19.71	19.62	19.52	19.43	19.25	19.07	18.90	72.47	122.01

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Napreżenie podstawowe		Strona		
	SI SIa							75.0 [MPa]		15		
	Typ przewodu							Naciąg podstawowy				
WIKROL	SAX-W 50mm2 30kV							3.77 [kN]				
	q= 50.3 [mm ²]	d= 15.0 [mm]	ap= 44.0 [m]	α=0.0000230 1/°K			β=0.0000160 1/MPa					
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.02	0.02	0.02	0.05	0.08	0.12	0.05	0.07	
20.0	0.03	0.04	0.05	0.06	0.07	0.09	0.14	0.20	0.26	0.16	0.23	
30.0	0.07	0.09	0.12	0.13	0.16	0.18	0.26	0.34	0.42	0.32	0.44	
40.0	0.13	0.16	0.20	0.23	0.26	0.30	0.39	0.50	0.59	0.51	0.69	
50.0	0.23	0.28	0.35	0.40	0.45	0.50	0.62	0.73	0.84	0.77	0.99	
60.0	0.41	0.50	0.62	0.68	0.75	0.82	0.95	1.07	1.19	1.11	1.38	
70.0	0.70	0.84	0.99	1.06	1.13	1.20	1.34	1.47	1.59	1.52	1.81	
80.0	1.12	1.28	1.44	1.52	1.59	1.66	1.80	1.93	2.06	1.98	2.31	
90.0	1.64	1.80	1.96	2.04	2.11	2.18	2.32	2.46	2.59	2.51	2.86	
100.0	2.23	2.39	2.55	2.62	2.70	2.77	2.91	3.05	3.18	3.09	3.47	
110.0	2.88	3.04	3.20	3.27	3.35	3.42	3.56	3.70	3.83	3.75	4.14	
120.0	3.60	3.76	3.91	3.98	4.06	4.13	4.27	4.41	4.54	4.46	4.87	
130.0	4.38	4.53	4.69	4.76	4.83	4.90	5.05	5.18	5.32	5.23	5.66	
140.0	5.22	5.37	5.52	5.60	5.67	5.74	5.88	6.02	6.16	6.07	6.51	
150.0	6.12	6.27	6.42	6.50	6.57	6.64	6.78	6.92	7.06	6.97	7.43	
160.0	7.09	7.24	7.39	7.46	7.53	7.60	7.75	7.89	8.02	7.94	8.40	
170.0	8.11	8.26	8.41	8.49	8.56	8.63	8.77	8.91	9.05	8.96	9.43	
180.0	9.20	9.35	9.50	9.57	9.65	9.72	9.86	10.00	10.14	10.05	10.53	
190.0	10.36	10.51	10.65	10.73	10.80	10.87	11.01	11.15	11.29	11.21	11.69	
200.0	11.57	11.72	11.87	11.94	12.01	12.09	12.23	12.37	12.51	12.42	12.92	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	75.00	60.66	46.38	39.30	32.30	25.47	13.53	7.32	5.11	49.73	55.02	
20.0	75.00	60.83	46.89	40.11	33.58	27.47	17.71	12.17	9.37	56.88	68.71	
30.0	75.00	61.11	47.67	41.29	35.31	29.88	21.42	16.19	13.10	64.61	81.75	
40.0	75.01	61.47	48.64	42.70	37.22	32.35	24.73	19.70	16.46	72.14	93.83	
50.0	67.43	54.79	43.44	38.50	34.14	30.42	24.70	20.80	18.08	75.14	101.40	
60.0	54.14	43.78	35.48	32.16	29.33	26.95	23.24	20.54	18.51	75.21	105.67	
70.0	42.60	35.54	30.28	28.19	26.40	24.85	22.33	20.37	18.81	75.28	109.26	
80.0	34.82	30.47	27.18	25.82	24.62	23.56	21.75	20.27	19.04	75.37	112.30	
90.0	30.22	27.48	25.28	24.34	23.49	22.72	21.36	20.20	19.21	75.46	114.87	
100.0	27.48	25.62	24.06	23.38	22.74	22.15	21.09	20.17	19.35	75.57	117.08	
110.0	25.74	24.40	23.24	22.71	22.22	21.76	20.91	20.15	19.46	75.69	118.98	
120.0	24.58	23.57	22.66	22.25	21.85	21.48	20.78	20.15	19.57	75.83	120.64	
130.0	23.77	22.97	22.24	21.91	21.58	21.27	20.69	20.15	19.66	75.97	122.11	
140.0	23.18	22.53	21.94	21.66	21.38	21.12	20.63	20.17	19.74	76.13	123.42	
150.0	22.74	22.21	21.71	21.47	21.24	21.02	20.59	20.19	19.82	76.29	124.60	
160.0	22.41	21.96	21.54	21.33	21.14	20.94	20.58	20.23	19.89	76.47	125.68	
170.0	22.16	21.78	21.41	21.23	21.06	20.89	20.57	20.26	19.97	76.66	126.68	
180.0	21.97	21.64	21.32	21.16	21.01	20.86	20.58	20.30	20.04	76.86	127.61	
190.0	21.82	21.53	21.25	21.11	20.98	20.85	20.60	20.35	20.12	77.08	128.49	
200.0	21.71	21.46	21.21	21.09	20.97	20.85	20.62	20.40	20.19	77.30	129.33	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Napreżenie podstawowe		Strona	
	SI SIa							80.0 [MPa]		16	
	Typ przewodu							Naciąg podstawowy			
WIKROL	SAX-W 50mm ² 30kV							4.02 [kN]			
q= 50.3 [mm ²]		d= 15.0 [mm]		ap= 47.0 [m]		$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa			
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.11	0.04	0.07
20.0	0.03	0.04	0.05	0.05	0.06	0.08	0.12	0.18	0.24	0.15	0.22
30.0	0.07	0.08	0.10	0.12	0.14	0.16	0.23	0.31	0.39	0.31	0.43
40.0	0.12	0.15	0.18	0.21	0.24	0.27	0.36	0.46	0.56	0.49	0.67
50.0	0.20	0.24	0.30	0.34	0.38	0.43	0.54	0.65	0.77	0.72	0.95
60.0	0.34	0.42	0.52	0.58	0.64	0.71	0.84	0.97	1.09	1.04	1.32
70.0	0.58	0.70	0.84	0.91	0.99	1.06	1.20	1.34	1.47	1.42	1.74
80.0	0.93	1.09	1.25	1.33	1.41	1.48	1.63	1.77	1.91	1.86	2.21
90.0	1.39	1.57	1.73	1.81	1.89	1.97	2.12	2.26	2.40	2.35	2.73
100.0	1.94	2.11	2.28	2.36	2.44	2.52	2.67	2.81	2.95	2.90	3.31
110.0	2.55	2.72	2.89	2.97	3.05	3.13	3.28	3.42	3.56	3.51	3.94
120.0	3.22	3.39	3.56	3.64	3.71	3.79	3.94	4.09	4.23	4.18	4.63
130.0	3.95	4.12	4.28	4.36	4.44	4.52	4.67	4.82	4.96	4.91	5.37
140.0	4.74	4.90	5.07	5.15	5.22	5.30	5.45	5.60	5.75	5.69	6.17
150.0	5.58	5.75	5.91	5.99	6.07	6.14	6.30	6.44	6.59	6.54	7.03
160.0	6.49	6.65	6.81	6.89	6.97	7.05	7.20	7.35	7.49	7.44	7.95
170.0	7.45	7.61	7.77	7.85	7.93	8.01	8.16	8.31	8.45	8.40	8.92
180.0	8.47	8.64	8.79	8.87	8.95	9.03	9.18	9.33	9.48	9.42	9.95
190.0	9.55	9.71	9.87	9.95	10.03	10.10	10.26	10.41	10.56	10.50	11.04
200.0	10.69	10.85	11.01	11.09	11.17	11.24	11.40	11.55	11.69	11.64	12.19
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.65	51.34	44.23	37.17	30.21	17.23	8.79	5.67	54.17	58.90
20.0	80.00	65.79	51.74	44.85	38.13	31.70	20.66	13.70	10.16	60.60	71.82
30.0	80.00	66.01	52.37	45.80	39.52	33.67	24.03	17.74	14.03	67.90	84.51
40.0	80.01	66.31	53.17	46.96	41.13	35.81	27.16	21.27	17.48	75.16	96.42
50.0	76.49	63.31	51.00	45.38	40.23	35.66	28.37	23.30	19.83	80.13	105.81
60.0	63.92	52.24	42.21	37.97	34.29	31.14	26.23	22.72	20.15	80.19	110.31
70.0	51.67	42.63	35.56	32.73	30.30	28.21	24.86	22.34	20.38	80.26	114.18
80.0	41.93	35.86	31.26	29.40	27.78	26.35	23.98	22.09	20.55	80.34	117.49
90.0	35.52	31.62	28.58	27.31	26.17	25.15	23.38	21.92	20.68	80.44	120.33
100.0	31.57	28.97	26.85	25.94	25.10	24.33	22.97	21.80	20.79	80.54	122.79
110.0	29.08	27.25	25.69	25.00	24.36	23.76	22.68	21.73	20.88	80.65	124.93
120.0	27.44	26.07	24.88	24.34	23.83	23.35	22.47	21.68	20.96	80.77	126.80
130.0	26.29	25.24	24.29	23.86	23.44	23.05	22.32	21.65	21.04	80.91	128.46
140.0	25.47	24.63	23.86	23.50	23.16	22.83	22.21	21.64	21.11	81.06	129.94
150.0	24.86	24.17	23.53	23.23	22.94	22.66	22.13	21.64	21.18	81.21	131.27
160.0	24.40	23.82	23.28	23.03	22.78	22.54	22.08	21.65	21.24	81.38	132.48
170.0	24.05	23.56	23.09	22.87	22.66	22.45	22.05	21.67	21.31	81.56	133.59
180.0	23.78	23.35	22.95	22.76	22.57	22.38	22.03	21.69	21.37	81.75	134.62
190.0	23.56	23.19	22.84	22.67	22.50	22.34	22.03	21.73	21.44	81.95	135.59
200.0	23.40	23.07	22.76	22.61	22.46	22.31	22.03	21.76	21.50	82.16	136.51

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia								Naprezenie podstawowe		Strona	
	SI				SIa				60.0 [MPa]		17	
	Typ przewodu								Naciąg podstawowy			
WIKROL	SAX-W 70mm ² 30kV								4.43 [kN]			
q= 73.9 [mm ²]		d= 16.6 [mm]		ap= 46.7 [m]		$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa				
Rozp.	Temperatura [°C]										sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.02	0.02	0.03	0.04	0.08	0.12	0.15	0.05	0.07	
20.0	0.04	0.05	0.07	0.08	0.10	0.13	0.20	0.26	0.31	0.17	0.23	
30.0	0.08	0.10	0.14	0.17	0.20	0.24	0.33	0.41	0.49	0.32	0.43	
40.0	0.14	0.18	0.24	0.28	0.33	0.38	0.48	0.59	0.68	0.51	0.65	
50.0	0.24	0.30	0.39	0.44	0.50	0.56	0.69	0.80	0.91	0.74	0.93	
60.0	0.42	0.54	0.67	0.74	0.81	0.88	1.01	1.13	1.25	1.06	1.28	
70.0	0.73	0.88	1.03	1.11	1.18	1.25	1.39	1.52	1.64	1.44	1.70	
80.0	1.14	1.30	1.46	1.54	1.62	1.69	1.83	1.96	2.09	1.89	2.16	
90.0	1.63	1.80	1.96	2.04	2.11	2.19	2.33	2.47	2.60	2.39	2.68	
100.0	2.19	2.36	2.52	2.60	2.67	2.75	2.89	3.03	3.16	2.95	3.26	
110.0	2.82	2.98	3.14	3.22	3.29	3.37	3.51	3.65	3.79	3.57	3.90	
120.0	3.50	3.66	3.82	3.89	3.97	4.04	4.19	4.33	4.47	4.25	4.59	
130.0	4.24	4.40	4.56	4.63	4.71	4.78	4.93	5.07	5.21	4.99	5.34	
140.0	5.04	5.20	5.36	5.43	5.51	5.58	5.73	5.87	6.01	5.79	6.15	
150.0	5.90	6.06	6.21	6.29	6.36	6.44	6.59	6.73	6.87	6.65	7.02	
160.0	6.82	6.98	7.13	7.21	7.28	7.36	7.50	7.65	7.79	7.57	7.94	
170.0	7.80	7.95	8.11	8.18	8.26	8.33	8.48	8.63	8.77	8.54	8.93	
180.0	8.84	8.99	9.15	9.22	9.30	9.37	9.52	9.66	9.81	9.58	9.97	
190.0	9.94	10.09	10.24	10.32	10.40	10.47	10.62	10.76	10.91	10.68	11.07	
200.0	11.10	11.25	11.40	11.48	11.55	11.63	11.78	11.92	12.07	11.84	12.24	
T A B L I C A N A P R E Z E N przy słupie [MPa]												
10.0	60.00	45.70	31.55	24.66	18.13	12.51	6.45	4.46	3.56	35.28	40.33	
20.0	60.00	45.97	32.48	26.23	20.70	16.25	10.82	8.22	6.80	42.35	52.54	
30.0	60.00	46.40	33.76	28.18	23.39	19.55	14.43	11.54	9.78	49.36	63.62	
40.0	60.01	46.94	35.20	30.19	25.94	22.47	17.58	14.53	12.53	55.92	73.68	
50.0	56.33	44.24	34.01	29.85	26.37	23.53	19.35	16.55	14.59	60.10	81.22	
60.0	45.05	35.65	28.62	25.94	23.72	21.87	19.01	16.93	15.37	60.15	84.46	
70.0	35.86	29.70	25.28	23.57	22.10	20.84	18.79	17.20	15.93	60.20	87.16	
80.0	29.93	26.12	23.27	22.12	21.09	20.19	18.65	17.40	16.36	60.27	89.40	
90.0	26.43	23.97	22.01	21.19	20.44	19.75	18.56	17.55	16.69	60.34	91.29	
100.0	24.31	22.60	21.18	20.56	19.99	19.46	18.50	17.67	16.94	60.42	92.88	
110.0	22.95	21.69	20.61	20.13	19.67	19.25	18.47	17.78	17.16	60.51	94.25	
120.0	22.02	21.06	20.21	19.82	19.45	19.10	18.45	17.86	17.33	60.60	95.43	
130.0	21.37	20.60	19.91	19.59	19.29	18.99	18.45	17.94	17.48	60.71	96.46	
140.0	20.89	20.27	19.69	19.42	19.17	18.92	18.45	18.02	17.61	60.82	97.38	
150.0	20.53	20.01	19.53	19.30	19.08	18.87	18.46	18.08	17.73	60.94	98.21	
160.0	20.26	19.82	19.41	19.21	19.02	18.84	18.48	18.15	17.83	61.07	98.96	
170.0	20.06	19.68	19.32	19.15	18.98	18.82	18.51	18.21	17.93	61.21	99.66	
180.0	19.90	19.57	19.26	19.11	18.96	18.81	18.54	18.27	18.02	61.36	100.31	
190.0	19.78	19.49	19.21	19.08	18.95	18.82	18.57	18.34	18.11	61.51	100.92	
200.0	19.69	19.43	19.18	19.07	18.95	18.83	18.61	18.40	18.19	61.68	101.50	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia								Napreżenie podstawowe		Strona	
	SI SIa								70.0 [MPa]		18	
	Typ przewodu								Naciąg podstawowy			
	SAX-W 70mm2 30kV								5.17 [kN]			
WIKROL	q= 73.9 [mm ²]	d= 16.6 [mm]	ap= 54.5 [m]	α=0.0000230 1/°K				β=0.0000160 1/MPa				
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
	T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.09	0.13	0.04	0.06	
20.0	0.03	0.04	0.05	0.06	0.07	0.09	0.15	0.22	0.28	0.14	0.21	
30.0	0.07	0.09	0.11	0.13	0.16	0.19	0.27	0.36	0.44	0.29	0.39	
40.0	0.12	0.15	0.19	0.22	0.26	0.31	0.41	0.51	0.61	0.46	0.61	
50.0	0.19	0.23	0.30	0.34	0.39	0.44	0.56	0.68	0.80	0.66	0.86	
60.0	0.30	0.37	0.46	0.52	0.58	0.65	0.79	0.92	1.05	0.91	1.16	
70.0	0.48	0.59	0.73	0.80	0.88	0.95	1.11	1.25	1.39	1.24	1.52	
80.0	0.75	0.90	1.07	1.15	1.24	1.32	1.48	1.63	1.77	1.62	1.94	
90.0	1.12	1.30	1.48	1.57	1.66	1.74	1.91	2.06	2.21	2.05	2.39	
100.0	1.57	1.77	1.95	2.04	2.13	2.22	2.38	2.54	2.69	2.53	2.90	
110.0	2.10	2.29	2.48	2.57	2.66	2.74	2.91	3.07	3.23	3.06	3.46	
120.0	2.68	2.87	3.06	3.15	3.24	3.32	3.49	3.66	3.81	3.64	4.06	
130.0	3.31	3.50	3.69	3.78	3.87	3.95	4.12	4.29	4.45	4.27	4.71	
140.0	4.00	4.19	4.37	4.46	4.55	4.64	4.81	4.97	5.13	4.96	5.41	
150.0	4.73	4.92	5.11	5.19	5.28	5.37	5.54	5.71	5.87	5.69	6.16	
160.0	5.52	5.71	5.89	5.98	6.07	6.16	6.33	6.49	6.66	6.48	6.95	
170.0	6.36	6.55	6.73	6.82	6.90	6.99	7.16	7.33	7.50	7.32	7.80	
180.0	7.25	7.43	7.61	7.70	7.79	7.88	8.05	8.22	8.38	8.21	8.70	
190.0	8.19	8.37	8.55	8.64	8.73	8.82	8.99	9.16	9.33	9.15	9.65	
200.0	9.18	9.36	9.54	9.63	9.72	9.81	9.98	10.15	10.32	10.14	10.65	
	T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.66	41.39	34.32	27.35	20.64	9.93	5.63	4.12	43.83	47.72	
20.0	70.00	55.82	41.90	35.15	28.72	22.85	14.20	9.86	7.72	49.39	58.46	
30.0	70.00	56.09	42.67	36.36	30.51	25.36	17.78	13.45	10.96	55.58	68.94	
40.0	70.01	56.43	43.63	37.76	32.44	27.82	20.93	16.62	13.92	61.69	78.71	
50.0	70.01	56.85	44.70	39.26	34.38	30.17	23.74	19.49	16.65	67.54	87.85	
60.0	64.59	52.32	41.55	36.96	32.96	29.56	24.37	20.77	18.22	70.13	93.78	
70.0	54.48	44.15	35.87	32.54	29.71	27.32	23.58	20.85	18.80	70.18	96.99	
80.0	45.40	37.65	31.81	29.50	27.51	25.80	23.04	20.91	19.23	70.23	99.77	
90.0	38.49	33.13	29.10	27.47	26.03	24.77	22.66	20.96	19.57	70.29	102.17	
100.0	33.82	30.15	27.29	26.09	25.02	24.05	22.39	21.01	19.84	70.36	104.25	
110.0	30.75	28.15	26.04	25.13	24.30	23.54	22.20	21.05	20.06	70.43	106.06	
120.0	28.69	26.77	25.15	24.44	23.78	23.16	22.06	21.09	20.24	70.52	107.65	
130.0	27.26	25.78	24.50	23.93	23.39	22.88	21.95	21.13	20.39	70.60	109.05	
140.0	26.23	25.06	24.02	23.54	23.09	22.67	21.88	21.17	20.52	70.70	110.30	
150.0	25.47	24.51	23.65	23.25	22.87	22.51	21.83	21.21	20.64	70.81	111.41	
160.0	24.89	24.09	23.36	23.02	22.69	22.38	21.79	21.25	20.74	70.92	112.42	
170.0	24.44	23.76	23.14	22.84	22.56	22.29	21.77	21.29	20.84	71.04	113.34	
180.0	24.08	23.50	22.96	22.71	22.46	22.22	21.76	21.33	20.93	71.16	114.19	
190.0	23.80	23.30	22.83	22.60	22.38	22.17	21.76	21.38	21.01	71.29	114.97	
200.0	23.58	23.14	22.72	22.52	22.32	22.13	21.77	21.42	21.09	71.43	115.71	

ENERGOLINIA w Poznaniu	Strefa obciążenia sady								Napężenie podstawowe		Strona
	SI				SIa				75.0 [MPa]		19
WIKROL	Typ przewodu								Naciąg podstawowy		
	SAX-W 70mm2 30kV								5.54 [kN]		
	q= 73.9 [mm ²]	d= 16.6 [mm]	ap= 58.4 [m]	α=0.0000230 1/°K				β=0.0000160 1/MPa			
Rozp. a [m]	Temperatura [°C]										
	-25	-15	-5	0	5	10	20	30	40	sn -5	sk -5
	T A B L I C A Z W I S O W [m]										
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.08	0.12	0.04	0.06
20.0	0.03	0.03	0.05	0.05	0.06	0.08	0.13	0.19	0.26	0.13	0.19
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.24	0.33	0.41	0.27	0.38
40.0	0.11	0.14	0.18	0.20	0.23	0.27	0.37	0.47	0.58	0.44	0.59
50.0	0.18	0.22	0.27	0.31	0.35	0.40	0.51	0.64	0.76	0.63	0.83
60.0	0.26	0.32	0.39	0.44	0.49	0.56	0.69	0.83	0.96	0.85	1.10
70.0	0.41	0.50	0.61	0.68	0.75	0.83	0.98	1.13	1.28	1.16	1.45
80.0	0.62	0.76	0.91	0.99	1.08	1.16	1.33	1.49	1.64	1.51	1.84
90.0	0.93	1.10	1.28	1.37	1.46	1.55	1.72	1.89	2.04	1.91	2.28
100.0	1.32	1.51	1.71	1.80	1.90	1.99	2.17	2.33	2.49	2.36	2.76
110.0	1.79	2.00	2.19	2.29	2.39	2.48	2.66	2.83	2.99	2.86	3.28
120.0	2.32	2.53	2.73	2.83	2.92	3.02	3.20	3.37	3.54	3.40	3.85
130.0	2.91	3.12	3.32	3.42	3.51	3.60	3.79	3.96	4.13	3.99	4.46
140.0	3.55	3.76	3.95	4.05	4.15	4.24	4.42	4.60	4.77	4.63	5.12
150.0	4.24	4.44	4.64	4.74	4.83	4.92	5.11	5.29	5.46	5.31	5.82
160.0	4.97	5.17	5.37	5.47	5.56	5.66	5.84	6.02	6.19	6.05	6.57
170.0	5.75	5.95	6.15	6.25	6.34	6.44	6.62	6.80	6.97	6.83	7.36
180.0	6.58	6.78	6.98	7.07	7.17	7.26	7.45	7.63	7.80	7.66	8.20
190.0	7.46	7.66	7.85	7.95	8.04	8.14	8.32	8.50	8.68	8.53	9.09
200.0	8.39	8.58	8.78	8.87	8.97	9.06	9.25	9.43	9.61	9.46	10.03
	T A B L I C A N A P R E Ż E N przy słupie [MPa]										
10.0	75.00	60.64	46.34	39.23	32.19	25.28	12.96	6.60	4.52	48.36	51.74
20.0	75.00	60.78	46.73	39.86	33.19	26.89	16.68	11.03	8.33	53.25	61.71
30.0	75.00	60.99	47.34	40.80	34.60	28.93	20.04	14.71	11.71	58.99	71.80
40.0	75.00	61.27	48.12	41.95	36.22	31.08	23.07	17.94	14.77	64.81	81.38
50.0	75.01	61.62	49.02	43.23	37.92	33.21	25.82	20.86	17.58	70.49	90.41
60.0	73.59	60.67	48.79	43.45	38.64	34.41	27.74	23.11	19.89	75.12	98.21
70.0	64.05	52.42	42.45	38.23	34.57	31.43	26.53	23.01	20.43	75.16	101.63
80.0	54.64	45.02	37.36	34.26	31.60	29.31	25.67	22.93	20.83	75.21	104.62
90.0	46.48	39.23	33.69	31.46	29.52	27.84	25.06	22.89	21.15	75.27	107.24
100.0	40.29	35.12	31.15	29.51	28.07	26.79	24.62	22.86	21.40	75.33	109.55
110.0	35.97	32.29	29.37	28.14	27.04	26.04	24.30	22.84	21.60	75.40	111.57
120.0	33.02	30.32	28.11	27.16	26.28	25.48	24.06	22.84	21.77	75.48	113.36
130.0	30.96	28.92	27.19	26.43	25.72	25.06	23.88	22.84	21.92	75.56	114.95
140.0	29.49	27.89	26.50	25.88	25.29	24.74	23.74	22.85	22.04	75.65	116.37
150.0	28.40	27.11	25.98	25.46	24.96	24.50	23.64	22.86	22.15	75.75	117.65
160.0	27.58	26.52	25.57	25.13	24.71	24.31	23.56	22.88	22.25	75.86	118.80
170.0	26.95	26.06	25.25	24.87	24.50	24.16	23.50	22.90	22.34	75.97	119.85
180.0	26.45	25.69	24.99	24.66	24.35	24.04	23.46	22.93	22.42	76.08	120.82
190.0	26.05	25.40	24.79	24.50	24.22	23.95	23.44	22.96	22.50	76.21	121.71
200.0	25.73	25.16	24.62	24.37	24.12	23.88	23.42	22.99	22.58	76.34	122.53

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SI SIa						80.0 [MPa]			20	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 70mm ² 30kV						5.91 [kN]				
q= 73.9 [mm ²]		d= 16.6 [mm]		ap= 62.3 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.03	0.05
20.0	0.03	0.03	0.04	0.05	0.06	0.07	0.11	0.17	0.23	0.12	0.18
30.0	0.06	0.07	0.09	0.11	0.12	0.15	0.21	0.29	0.38	0.25	0.36
40.0	0.11	0.13	0.16	0.18	0.21	0.24	0.33	0.44	0.54	0.42	0.57
50.0	0.17	0.20	0.25	0.28	0.32	0.36	0.47	0.59	0.71	0.60	0.81
60.0	0.24	0.29	0.35	0.39	0.44	0.50	0.62	0.76	0.90	0.81	1.07
70.0	0.36	0.43	0.53	0.58	0.65	0.72	0.87	1.02	1.17	1.08	1.39
80.0	0.53	0.64	0.78	0.85	0.94	1.02	1.19	1.35	1.51	1.42	1.77
90.0	0.78	0.93	1.10	1.19	1.28	1.37	1.55	1.73	1.89	1.79	2.18
100.0	1.11	1.30	1.49	1.59	1.68	1.78	1.97	2.14	2.31	2.21	2.63
110.0	1.52	1.73	1.94	2.04	2.14	2.24	2.43	2.61	2.78	2.68	3.13
120.0	2.00	2.22	2.43	2.54	2.64	2.74	2.93	3.11	3.29	3.19	3.67
130.0	2.55	2.77	2.98	3.09	3.19	3.29	3.48	3.67	3.85	3.74	4.25
140.0	3.14	3.36	3.58	3.68	3.78	3.88	4.08	4.26	4.45	4.34	4.87
150.0	3.78	4.00	4.22	4.32	4.42	4.52	4.72	4.91	5.09	4.98	5.53
160.0	4.47	4.69	4.90	5.00	5.11	5.21	5.40	5.59	5.78	5.67	6.24
170.0	5.20	5.42	5.63	5.73	5.84	5.94	6.13	6.32	6.51	6.40	6.98
180.0	5.98	6.20	6.41	6.51	6.61	6.71	6.91	7.10	7.29	7.18	7.78
190.0	6.80	7.02	7.23	7.33	7.43	7.53	7.73	7.92	8.11	8.00	8.61
200.0	7.67	7.88	8.09	8.19	8.29	8.39	8.59	8.79	8.97	8.86	9.49
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.63	51.31	44.18	37.08	30.07	16.83	8.05	5.03	52.99	55.94
20.0	80.00	65.74	51.62	44.66	37.84	31.26	19.77	12.54	9.08	57.28	65.13
30.0	80.00	65.91	52.10	45.40	38.95	32.88	22.76	16.25	12.59	62.57	74.81
40.0	80.00	66.15	52.74	46.34	40.28	34.70	25.58	19.50	15.74	68.09	84.17
50.0	80.01	66.43	53.49	47.41	41.74	36.58	28.21	22.44	18.63	73.57	93.06
60.0	80.01	66.76	54.31	48.56	43.24	38.45	30.65	25.12	21.30	78.89	101.50
70.0	73.23	60.77	49.53	44.56	40.10	36.18	29.94	25.46	22.23	80.15	106.13
80.0	64.06	53.04	43.71	39.79	36.36	33.40	28.68	25.20	22.58	80.20	109.30
90.0	55.35	46.30	39.09	36.15	33.59	31.37	27.77	25.01	22.85	80.25	112.13
100.0	47.95	41.04	35.70	33.51	31.59	29.91	27.10	24.87	23.06	80.31	114.63
110.0	42.29	37.22	33.26	31.62	30.15	28.84	26.61	24.77	23.24	80.38	116.86
120.0	38.22	34.49	31.51	30.24	29.09	28.05	26.23	24.70	23.39	80.45	118.85
130.0	35.35	32.54	30.23	29.23	28.30	27.46	25.95	24.65	23.51	80.53	120.62
140.0	33.28	31.11	29.27	28.46	27.70	27.00	25.73	24.61	23.62	80.61	122.21
150.0	31.76	30.03	28.54	27.87	27.23	26.64	25.56	24.59	23.72	80.70	123.65
160.0	30.62	29.21	27.97	27.40	26.87	26.36	25.42	24.58	23.81	80.80	124.95
170.0	29.74	28.57	27.52	27.04	26.58	26.14	25.32	24.57	23.89	80.91	126.14
180.0	29.05	28.06	27.16	26.75	26.35	25.96	25.24	24.58	23.96	81.02	127.23
190.0	28.50	27.65	26.88	26.51	26.16	25.82	25.18	24.59	24.03	81.13	128.23
200.0	28.06	27.32	26.64	26.32	26.01	25.71	25.14	24.60	24.10	81.25	129.16

ENERGOLINIA w Poznaniu	Strefa obciążenia sadyza						Napreżenie podstawowe			Strona	
	SI SIa						60.0 [MPa]			21	
	Typ przewodu						Naciąg podstawowy				
WIKROL	SAX-W 120mm ² 30kV						7.72 [kN]				
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 67.2 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.03	0.04	0.08	0.12	0.15	0.04	0.06
20.0	0.03	0.04	0.06	0.07	0.09	0.12	0.19	0.25	0.31	0.13	0.18
30.0	0.07	0.09	0.13	0.15	0.19	0.23	0.32	0.41	0.48	0.26	0.35
40.0	0.12	0.16	0.22	0.26	0.30	0.35	0.46	0.57	0.67	0.42	0.54
50.0	0.19	0.25	0.33	0.38	0.43	0.50	0.62	0.75	0.86	0.60	0.76
60.0	0.28	0.35	0.45	0.51	0.58	0.65	0.80	0.94	1.07	0.80	1.00
70.0	0.39	0.49	0.62	0.69	0.77	0.85	1.01	1.16	1.31	1.03	1.27
80.0	0.59	0.73	0.89	0.98	1.07	1.15	1.33	1.49	1.64	1.35	1.62
90.0	0.86	1.03	1.22	1.32	1.41	1.50	1.68	1.85	2.01	1.71	2.01
100.0	1.20	1.40	1.60	1.70	1.80	1.90	2.08	2.26	2.42	2.11	2.43
110.0	1.61	1.82	2.04	2.14	2.24	2.34	2.52	2.70	2.87	2.55	2.90
120.0	2.08	2.30	2.51	2.62	2.72	2.82	3.01	3.19	3.37	3.03	3.40
130.0	2.59	2.82	3.03	3.14	3.24	3.34	3.53	3.72	3.90	3.56	3.94
140.0	3.16	3.38	3.60	3.70	3.81	3.91	4.10	4.29	4.47	4.13	4.53
150.0	3.77	3.99	4.21	4.31	4.42	4.52	4.71	4.91	5.09	4.74	5.15
160.0	4.42	4.65	4.86	4.97	5.07	5.17	5.37	5.56	5.75	5.40	5.82
170.0	5.12	5.34	5.56	5.66	5.76	5.87	6.07	6.26	6.45	6.09	6.53
180.0	5.86	6.08	6.29	6.40	6.50	6.60	6.80	7.00	7.19	6.83	7.28
190.0	6.64	6.86	7.07	7.18	7.28	7.38	7.59	7.78	7.97	7.61	8.07
200.0	7.46	7.68	7.90	8.00	8.10	8.21	8.41	8.61	8.80	8.44	8.90
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	45.68	31.48	24.52	17.87	12.04	5.84	3.96	3.15	33.49	36.43
20.0	60.00	45.89	32.21	25.80	20.04	15.38	9.85	7.36	6.04	38.14	44.86
30.0	60.00	46.23	33.26	27.45	22.43	18.40	13.19	10.38	8.73	43.17	52.99
40.0	60.00	46.66	34.49	29.22	24.73	21.10	16.11	13.12	11.23	48.07	60.53
50.0	60.01	47.17	35.79	30.98	26.89	23.54	18.72	15.64	13.57	52.71	67.54
60.0	60.01	47.73	37.10	32.67	28.90	25.76	21.10	17.96	15.77	57.09	74.10
70.0	57.95	46.49	36.93	33.02	29.70	26.92	22.67	19.68	17.51	60.10	79.26
80.0	50.65	41.02	33.53	30.56	28.05	25.93	22.59	20.13	18.26	60.14	81.43
90.0	44.16	36.63	30.99	28.76	26.85	25.21	22.54	20.49	18.87	60.17	83.33
100.0	38.99	33.37	29.16	27.46	25.98	24.68	22.51	20.78	19.36	60.21	84.98
110.0	35.19	31.03	27.83	26.51	25.33	24.28	22.49	21.01	19.77	60.26	86.44
120.0	32.47	29.34	26.86	25.80	24.85	23.98	22.47	21.20	20.11	60.31	87.72
130.0	30.52	28.10	26.13	25.27	24.48	23.76	22.47	21.36	20.39	60.36	88.84
140.0	29.09	27.18	25.57	24.85	24.19	23.58	22.47	21.50	20.64	60.42	89.85
150.0	28.03	26.47	25.13	24.53	23.97	23.44	22.48	21.62	20.85	60.48	90.74
160.0	27.21	25.92	24.79	24.28	23.79	23.33	22.49	21.73	21.03	60.55	91.55
170.0	26.57	25.49	24.52	24.08	23.65	23.25	22.50	21.82	21.20	60.62	92.28
180.0	26.07	25.14	24.30	23.91	23.54	23.19	22.52	21.91	21.34	60.69	92.95
190.0	25.67	24.86	24.13	23.78	23.46	23.14	22.54	21.99	21.48	60.77	93.56
200.0	25.34	24.63	23.99	23.68	23.39	23.10	22.57	22.06	21.60	60.85	94.12

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia				Napreżenie podstawowe		Strona
	SI SIa				70.0 [MPa]		22
WIKROL	Typ przewodu				Naciąg podstawowy		
	SAX-W 120mm2 30kV				9.01 [kN]		
	q=128.7 [mm ²]	d= 19.8 [mm]	ap= 78.4 [m]	$\alpha=0.0000230$ 1/°K	$\beta=0.0000160$ 1/MPa		

Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5

T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.05	0.09	0.13	0.03	0.05
20.0	0.03	0.03	0.04	0.05	0.07	0.08	0.14	0.21	0.27	0.11	0.16
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.25	0.34	0.43	0.23	0.31
40.0	0.11	0.13	0.17	0.20	0.24	0.28	0.38	0.49	0.60	0.37	0.50
50.0	0.17	0.21	0.26	0.30	0.35	0.41	0.53	0.66	0.78	0.54	0.71
60.0	0.24	0.29	0.37	0.42	0.48	0.55	0.69	0.83	0.97	0.72	0.94
70.0	0.33	0.40	0.50	0.56	0.63	0.70	0.86	1.02	1.17	0.93	1.18
80.0	0.43	0.53	0.65	0.72	0.80	0.88	1.05	1.23	1.40	1.15	1.46
90.0	0.61	0.73	0.89	0.98	1.07	1.17	1.36	1.54	1.72	1.46	1.80
100.0	0.83	1.00	1.19	1.29	1.39	1.49	1.69	1.89	2.07	1.80	2.18
110.0	1.12	1.32	1.53	1.64	1.75	1.86	2.07	2.27	2.46	2.18	2.59
120.0	1.47	1.70	1.93	2.04	2.15	2.26	2.48	2.69	2.88	2.60	3.03
130.0	1.88	2.12	2.36	2.48	2.60	2.71	2.93	3.14	3.34	3.05	3.51
140.0	2.34	2.59	2.84	2.96	3.08	3.19	3.41	3.63	3.84	3.54	4.02
150.0	2.85	3.11	3.35	3.48	3.59	3.71	3.94	4.15	4.36	4.06	4.56
160.0	3.40	3.66	3.91	4.03	4.15	4.27	4.50	4.72	4.93	4.62	5.14
170.0	3.99	4.25	4.50	4.62	4.74	4.86	5.09	5.31	5.53	5.22	5.75
180.0	4.62	4.88	5.13	5.25	5.37	5.49	5.72	5.95	6.16	5.85	6.40
190.0	5.29	5.54	5.80	5.92	6.04	6.16	6.39	6.62	6.84	6.52	7.08
200.0	5.99	6.25	6.50	6.62	6.74	6.86	7.10	7.32	7.54	7.23	7.80

T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.64	41.35	34.25	27.24	20.43	9.34	5.05	3.66	42.60	44.67
20.0	70.00	55.77	41.75	34.91	28.34	22.27	13.25	8.91	6.89	45.96	51.55
30.0	70.00	55.98	42.37	35.89	29.83	24.44	16.55	12.21	9.82	50.10	58.90
40.0	70.00	56.26	43.15	37.07	31.50	26.64	19.45	15.13	12.52	54.43	66.02
50.0	70.01	56.59	44.05	38.35	33.22	28.77	22.08	17.79	15.03	58.71	72.79
60.0	70.01	56.97	45.01	39.67	34.91	30.79	24.47	20.24	17.37	62.87	79.23
70.0	70.01	57.39	46.01	41.00	36.55	32.69	26.69	22.51	19.57	66.87	85.35
80.0	69.00	56.90	46.22	41.59	37.50	33.95	28.36	24.35	21.44	70.12	90.65
90.0	62.45	51.58	42.46	38.65	35.34	32.49	27.95	24.61	22.09	70.15	92.89
100.0	56.14	46.82	39.35	36.29	33.64	31.35	27.64	24.82	22.62	70.18	94.90
110.0	50.50	42.84	36.88	34.44	32.32	30.46	27.40	24.99	23.06	70.22	96.70
120.0	45.79	39.70	34.97	33.02	31.30	29.77	27.21	25.13	23.43	70.26	98.33
130.0	42.06	37.26	33.49	31.91	30.50	29.23	27.06	25.26	23.75	70.31	99.79
140.0	39.19	35.39	32.35	31.05	29.87	28.80	26.94	25.36	24.02	70.36	101.11
150.0	37.00	33.95	31.45	30.36	29.37	28.46	26.85	25.46	24.25	70.41	102.30
160.0	35.30	32.82	30.74	29.82	28.97	28.18	26.77	25.54	24.46	70.47	103.39
170.0	33.99	31.93	30.17	29.38	28.65	27.96	26.72	25.62	24.64	70.53	104.37
180.0	32.94	31.21	29.70	29.02	28.38	27.78	26.67	25.69	24.80	70.59	105.28
190.0	32.11	30.63	29.32	28.72	28.16	27.63	26.64	25.75	24.94	70.66	106.11
200.0	31.43	30.15	29.01	28.48	27.98	27.51	26.62	25.81	25.07	70.73	106.87

ENERGOLINIA w Poznaniu	Strefa obciazenia sadzia								Naprezenie podstawowe		Strona
	SI SIa								75.0 [MPa]		23
WIKROL	Typ przewodu								Naciag podstawowy		
	SAX-W 120mm2 30kV								9.65 [kN]		
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 84.0 [m]		α=0.0000230 1/°K		β=0.0000160 1/MPa			
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.08	0.12	0.03	0.04
20.0	0.02	0.03	0.04	0.05	0.06	0.07	0.12	0.19	0.25	0.10	0.15
30.0	0.06	0.07	0.09	0.10	0.12	0.15	0.22	0.31	0.40	0.21	0.30
40.0	0.10	0.12	0.16	0.18	0.21	0.25	0.35	0.46	0.56	0.35	0.48
50.0	0.16	0.19	0.24	0.27	0.32	0.37	0.48	0.61	0.73	0.51	0.68
60.0	0.22	0.27	0.34	0.39	0.44	0.50	0.63	0.78	0.92	0.69	0.91
70.0	0.30	0.37	0.46	0.51	0.57	0.64	0.80	0.96	1.11	0.89	1.15
80.0	0.40	0.48	0.59	0.65	0.72	0.80	0.97	1.15	1.32	1.10	1.41
90.0	0.53	0.64	0.77	0.85	0.94	1.03	1.21	1.40	1.59	1.36	1.71
100.0	0.72	0.86	1.03	1.12	1.22	1.32	1.53	1.73	1.92	1.68	2.07
110.0	0.95	1.13	1.33	1.44	1.55	1.66	1.87	2.08	2.28	2.04	2.46
120.0	1.25	1.46	1.69	1.80	1.92	2.03	2.25	2.47	2.68	2.43	2.88
130.0	1.60	1.84	2.08	2.20	2.32	2.44	2.67	2.89	3.10	2.85	3.33
140.0	2.01	2.26	2.52	2.64	2.77	2.89	3.12	3.35	3.57	3.30	3.81
150.0	2.47	2.73	2.99	3.12	3.25	3.37	3.61	3.84	4.06	3.79	4.33
160.0	2.97	3.24	3.51	3.64	3.76	3.89	4.13	4.36	4.59	4.31	4.87
170.0	3.51	3.79	4.06	4.19	4.31	4.44	4.68	4.92	5.15	4.87	5.45
180.0	4.09	4.37	4.64	4.77	4.90	5.03	5.27	5.51	5.74	5.46	6.06
190.0	4.71	4.99	5.26	5.39	5.52	5.65	5.89	6.13	6.37	6.09	6.70
200.0	5.37	5.65	5.91	6.05	6.17	6.30	6.55	6.79	7.03	6.74	7.38
T A B L I C A N A P R E Z E N przy słupie [MPa]											
10.0	75.00	60.63	46.31	39.18	32.11	25.14	12.51	5.98	4.02	47.33	49.07
20.0	75.00	60.74	46.62	39.68	32.90	26.45	15.81	10.04	7.45	50.18	55.22
30.0	75.00	60.90	47.10	40.43	34.06	28.17	18.87	13.44	10.52	53.89	62.12
40.0	75.00	61.13	47.73	41.38	35.42	30.04	21.64	16.43	13.32	57.90	68.98
50.0	75.01	61.40	48.47	42.45	36.89	31.93	24.19	19.13	15.91	61.97	75.60
60.0	75.01	61.72	49.28	43.59	38.39	33.79	26.54	21.62	18.32	65.97	81.93
70.0	75.01	62.07	50.14	44.76	39.88	35.57	28.72	23.92	20.57	69.87	87.98
80.0	75.01	62.45	51.03	45.93	41.33	37.28	30.76	26.07	22.70	73.64	93.78
90.0	71.34	59.49	49.03	44.48	40.42	36.88	31.18	26.99	23.89	75.14	97.44
100.0	65.16	54.46	45.44	41.63	38.28	35.36	30.66	27.12	24.41	75.17	99.58
110.0	59.23	49.94	42.41	39.28	36.54	34.15	30.24	27.22	24.85	75.21	101.53
120.0	53.88	46.11	39.95	37.40	35.16	33.19	29.91	27.31	25.22	75.25	103.31
130.0	49.33	42.99	37.99	35.91	34.06	32.42	29.64	27.39	25.54	75.29	104.92
140.0	45.63	40.50	36.44	34.73	33.19	31.81	29.43	27.46	25.81	75.33	106.39
150.0	42.69	38.55	35.21	33.78	32.49	31.31	29.26	27.53	26.04	75.38	107.72
160.0	40.38	37.00	34.23	33.02	31.92	30.91	29.12	27.58	26.25	75.44	108.94
170.0	38.56	35.77	33.44	32.41	31.46	30.58	29.01	27.64	26.43	75.49	110.06
180.0	37.11	34.78	32.79	31.91	31.08	30.31	28.91	27.69	26.59	75.55	111.09
190.0	35.96	33.98	32.26	31.49	30.77	30.08	28.84	27.73	26.74	75.61	112.03
200.0	35.01	33.32	31.82	31.14	30.50	29.90	28.78	27.78	26.87	75.68	112.91

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SI SIa						80.0 [MPa]			24	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm2 30kV						10.30 [kN]				
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 89.6 [m]		α=0.000230 1/°K			β=0.0000160 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.06	0.10	0.02	0.04
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.10	0.16	0.23	0.09	0.14
30.0	0.05	0.06	0.08	0.09	0.11	0.13	0.19	0.28	0.37	0.20	0.28
40.0	0.09	0.11	0.14	0.16	0.19	0.22	0.31	0.42	0.52	0.33	0.46
50.0	0.15	0.18	0.22	0.25	0.29	0.33	0.44	0.56	0.69	0.48	0.66
60.0	0.21	0.25	0.31	0.35	0.40	0.45	0.58	0.73	0.87	0.66	0.88
70.0	0.29	0.34	0.42	0.47	0.53	0.59	0.74	0.90	1.06	0.85	1.11
80.0	0.37	0.45	0.54	0.60	0.67	0.74	0.91	1.08	1.25	1.06	1.37
90.0	0.47	0.56	0.68	0.75	0.82	0.91	1.09	1.28	1.47	1.28	1.64
100.0	0.63	0.75	0.90	0.98	1.08	1.17	1.37	1.58	1.78	1.58	1.98
110.0	0.83	0.98	1.17	1.27	1.37	1.48	1.69	1.91	2.12	1.91	2.35
120.0	1.08	1.26	1.48	1.59	1.70	1.82	2.05	2.27	2.49	2.27	2.75
130.0	1.38	1.60	1.83	1.96	2.08	2.20	2.44	2.67	2.89	2.67	3.18
140.0	1.73	1.98	2.23	2.36	2.49	2.61	2.86	3.09	3.32	3.10	3.64
150.0	2.14	2.40	2.67	2.80	2.93	3.06	3.31	3.55	3.78	3.55	4.12
160.0	2.59	2.87	3.14	3.28	3.41	3.54	3.80	4.04	4.28	4.04	4.64
170.0	3.09	3.37	3.65	3.79	3.92	4.06	4.31	4.56	4.80	4.57	5.19
180.0	3.62	3.91	4.20	4.33	4.47	4.60	4.86	5.12	5.36	5.12	5.76
190.0	4.20	4.49	4.77	4.91	5.05	5.18	5.45	5.70	5.95	5.70	6.37
200.0	4.80	5.10	5.39	5.53	5.66	5.80	6.06	6.32	6.57	6.32	7.01
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.63	51.28	44.14	37.02	29.97	16.52	7.42	4.49	52.13	53.60
20.0	80.00	65.71	51.52	44.52	37.62	30.92	19.03	11.55	8.16	54.56	59.08
30.0	80.00	65.84	51.91	45.11	38.51	32.26	21.69	14.97	11.36	57.86	65.52
40.0	80.00	66.03	52.42	45.87	39.62	33.81	24.24	17.98	14.26	61.56	72.09
50.0	80.01	66.26	53.02	46.75	40.85	35.45	26.64	20.70	16.92	65.39	78.52
60.0	80.01	66.52	53.71	47.72	42.15	37.10	28.90	23.20	19.38	69.22	84.73
70.0	80.01	66.82	54.44	48.74	43.48	38.74	31.02	25.52	21.69	73.00	90.71
80.0	80.01	67.14	55.22	49.78	44.80	40.33	33.01	27.68	23.87	76.68	96.45
90.0	79.81	67.29	55.84	50.68	45.96	41.74	34.80	29.65	25.87	80.13	101.88
100.0	73.96	62.29	51.98	47.47	43.43	39.86	34.03	29.66	26.36	80.16	104.14
110.0	68.09	57.51	48.52	44.69	41.29	38.30	33.41	29.67	26.78	80.19	106.21
120.0	62.48	53.19	45.55	42.35	39.51	37.02	32.90	29.68	27.13	80.23	108.12
130.0	57.38	49.46	43.09	40.43	38.07	35.98	32.48	29.69	27.43	80.27	109.86
140.0	52.96	46.36	41.09	38.87	36.90	35.14	32.14	29.71	27.69	80.31	111.47
150.0	49.27	43.83	39.46	37.61	35.95	34.45	31.87	29.72	27.92	80.36	112.94
160.0	46.27	41.79	38.15	36.59	35.18	33.89	31.64	29.74	28.12	80.41	114.29
170.0	43.85	40.14	37.09	35.76	34.54	33.43	31.45	29.76	28.29	80.46	115.53
180.0	41.91	38.81	36.21	35.07	34.02	33.04	31.30	29.78	28.45	80.52	116.68
190.0	40.34	37.72	35.50	34.50	33.58	32.72	31.17	29.80	28.59	80.58	117.74
200.0	39.07	36.83	34.90	34.03	33.21	32.45	31.06	29.82	28.72	80.64	118.73



Tablice zwisów i naprężeń
przewodów

SAX-W 50, 70 i 120 mm²
20 i 30 kV

Strefy klimatyczne obciążenia sadzią

SII, SIIa

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napężenie podstawowe			Strona	
	SII SIIa						60.0 [MPa]			25	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 50mm2 20kV						3.02 [kN]				
q= 50.3 [mm ²]		d= 12.7 [mm]		ap= 28.5 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.11	0.14	0.07	0.10
20.0	0.03	0.04	0.06	0.07	0.09	0.12	0.18	0.25	0.30	0.22	0.30
30.0	0.08	0.10	0.14	0.17	0.20	0.24	0.33	0.41	0.49	0.42	0.56
40.0	0.22	0.30	0.40	0.45	0.50	0.56	0.65	0.74	0.82	0.75	0.92
50.0	0.58	0.70	0.82	0.87	0.92	0.98	1.07	1.16	1.25	1.17	1.38
60.0	1.11	1.23	1.34	1.39	1.44	1.49	1.59	1.68	1.77	1.69	1.92
70.0	1.73	1.85	1.95	2.00	2.05	2.10	2.20	2.29	2.38	2.30	2.55
80.0	2.45	2.56	2.66	2.71	2.76	2.81	2.90	2.99	3.08	3.00	3.27
90.0	3.26	3.36	3.46	3.51	3.56	3.61	3.70	3.79	3.88	3.80	4.08
100.0	4.15	4.26	4.36	4.40	4.45	4.50	4.60	4.69	4.78	4.70	4.99
110.0	5.15	5.25	5.35	5.40	5.44	5.49	5.59	5.68	5.77	5.69	5.98
120.0	6.23	6.33	6.43	6.48	6.53	6.58	6.67	6.76	6.86	6.78	7.08
130.0	7.42	7.52	7.61	7.66	7.71	7.76	7.85	7.95	8.04	7.96	8.27
140.0	8.70	8.79	8.89	8.94	8.99	9.04	9.13	9.22	9.32	9.24	9.55
150.0	10.07	10.17	10.27	10.31	10.36	10.41	10.50	10.60	10.69	10.61	10.93
160.0	11.54	11.64	11.74	11.79	11.83	11.88	11.98	12.07	12.17	12.09	12.41
170.0	13.11	13.21	13.31	13.36	13.40	13.45	13.55	13.64	13.74	13.66	13.98
180.0	14.78	14.88	14.98	15.02	15.07	15.12	15.22	15.31	15.41	15.33	15.66
190.0	16.55	16.64	16.74	16.79	16.84	16.89	16.98	17.08	17.17	17.10	17.43
200.0	18.41	18.51	18.61	18.66	18.71	18.75	18.85	18.95	19.04	18.96	19.30
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	46.28	32.67	25.98	19.53	13.67	6.60	4.33	3.39	40.16	49.54
20.0	60.00	46.49	33.36	27.16	21.50	16.75	10.74	7.94	6.46	51.28	68.32
30.0	57.09	44.01	31.83	26.45	21.84	18.16	13.32	10.62	8.98	60.09	83.42
40.0	36.16	26.43	19.67	17.32	15.50	14.06	11.98	10.55	9.51	60.17	89.35
50.0	21.18	17.45	14.97	14.02	13.22	12.53	11.41	10.53	9.82	60.26	93.84
60.0	15.89	14.36	13.18	12.68	12.23	11.83	11.12	10.53	10.01	60.38	97.28
70.0	13.85	13.02	12.33	12.01	11.73	11.46	10.97	10.54	10.15	60.52	99.97
80.0	12.85	12.32	11.85	11.64	11.43	11.24	10.88	10.55	10.26	60.68	102.12
90.0	12.27	11.90	11.57	11.41	11.26	11.11	10.83	10.58	10.34	60.86	103.89
100.0	11.92	11.64	11.39	11.27	11.15	11.03	10.81	10.61	10.41	61.06	105.39
110.0	11.69	11.48	11.27	11.18	11.08	10.99	10.81	10.64	10.48	61.28	106.70
120.0	11.54	11.37	11.20	11.12	11.05	10.97	10.82	10.68	10.55	61.52	107.88
130.0	11.44	11.30	11.17	11.10	11.03	10.97	10.85	10.73	10.61	61.79	108.96
140.0	11.38	11.26	11.15	11.09	11.04	10.98	10.88	10.78	10.68	62.08	109.97
150.0	11.35	11.25	11.15	11.10	11.05	11.01	10.92	10.83	10.74	62.39	110.94
160.0	11.33	11.25	11.16	11.12	11.08	11.04	10.96	10.88	10.81	62.72	111.89
170.0	11.34	11.26	11.19	11.15	11.12	11.08	11.01	10.94	10.88	63.07	112.82
180.0	11.36	11.29	11.23	11.19	11.16	11.13	11.07	11.01	10.95	63.45	113.76
190.0	11.39	11.33	11.27	11.24	11.21	11.19	11.13	11.08	11.02	63.85	114.70
200.0	11.42	11.37	11.32	11.30	11.27	11.25	11.20	11.15	11.10	64.27	115.65

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						70.0 [MPa]			26	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 50mm2 20kV						3.52 [kN]				
q= 50.3 [mm ²]		d= 12.7 [mm]		ap= 33.2 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.09	0.12	0.06	0.09
20.0	0.03	0.03	0.05	0.05	0.06	0.08	0.13	0.20	0.26	0.20	0.28
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.24	0.33	0.42	0.38	0.52
40.0	0.13	0.17	0.23	0.27	0.31	0.36	0.47	0.58	0.67	0.64	0.84
50.0	0.31	0.41	0.52	0.59	0.65	0.71	0.83	0.93	1.03	1.00	1.24
60.0	0.68	0.82	0.96	1.03	1.09	1.15	1.27	1.37	1.48	1.45	1.72
70.0	1.22	1.36	1.49	1.55	1.61	1.67	1.79	1.90	2.00	1.97	2.27
80.0	1.84	1.97	2.10	2.16	2.22	2.28	2.39	2.50	2.60	2.57	2.90
90.0	2.54	2.66	2.79	2.85	2.90	2.96	3.07	3.18	3.29	3.26	3.60
100.0	3.31	3.43	3.55	3.61	3.67	3.73	3.84	3.95	4.05	4.03	4.38
110.0	4.16	4.28	4.40	4.46	4.52	4.57	4.69	4.80	4.90	4.87	5.25
120.0	5.10	5.22	5.33	5.39	5.45	5.50	5.61	5.72	5.83	5.80	6.19
130.0	6.11	6.23	6.34	6.40	6.46	6.51	6.62	6.73	6.84	6.81	7.21
140.0	7.20	7.32	7.44	7.49	7.55	7.61	7.72	7.83	7.93	7.91	8.31
150.0	8.38	8.50	8.61	8.67	8.72	8.78	8.89	9.00	9.11	9.08	9.49
160.0	9.64	9.75	9.87	9.92	9.98	10.04	10.15	10.26	10.37	10.34	10.76
170.0	10.98	11.09	11.21	11.26	11.32	11.38	11.49	11.60	11.71	11.68	12.10
180.0	12.40	12.52	12.63	12.69	12.74	12.80	12.91	13.02	13.13	13.10	13.54
190.0	13.91	14.02	14.14	14.19	14.25	14.31	14.42	14.53	14.64	14.61	15.05
200.0	15.50	15.61	15.73	15.78	15.84	15.90	16.01	16.12	16.23	16.20	16.65
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	56.25	42.55	35.74	29.00	22.42	11.02	5.72	4.01	47.86	55.88
20.0	70.00	56.37	42.93	36.36	30.01	24.06	14.69	9.78	7.46	57.46	73.49
30.0	70.00	56.58	43.52	37.29	31.40	26.07	17.92	13.19	10.54	67.09	89.48
40.0	58.18	45.53	34.05	29.10	24.86	21.41	16.56	13.59	11.66	70.14	98.72
50.0	39.36	30.00	23.25	20.78	18.80	17.19	14.79	13.09	11.84	70.23	104.12
60.0	25.69	21.31	18.31	17.15	16.16	15.31	13.92	12.83	11.95	70.33	108.46
70.0	19.69	17.66	16.11	15.46	14.88	14.35	13.44	12.68	12.03	70.44	111.96
80.0	17.06	15.92	14.97	14.55	14.16	13.80	13.16	12.60	12.10	70.58	114.84
90.0	15.69	14.95	14.30	14.00	13.73	13.46	12.98	12.55	12.15	70.73	117.22
100.0	14.88	14.35	13.88	13.65	13.44	13.24	12.87	12.52	12.20	70.91	119.24
110.0	14.35	13.96	13.59	13.42	13.26	13.10	12.80	12.52	12.25	71.10	120.98
120.0	14.00	13.69	13.40	13.27	13.13	13.00	12.76	12.52	12.30	71.30	122.51
130.0	13.76	13.51	13.27	13.16	13.05	12.94	12.74	12.54	12.35	71.53	123.88
140.0	13.59	13.38	13.18	13.09	13.00	12.91	12.73	12.56	12.40	71.78	125.12
150.0	13.47	13.29	13.13	13.05	12.97	12.89	12.74	12.59	12.45	72.04	126.28
160.0	13.38	13.24	13.09	13.02	12.96	12.89	12.76	12.63	12.51	72.33	127.37
170.0	13.33	13.20	13.08	13.02	12.96	12.90	12.78	12.67	12.56	72.63	128.41
180.0	13.30	13.19	13.08	13.02	12.97	12.92	12.82	12.72	12.62	72.95	129.41
190.0	13.28	13.18	13.09	13.04	12.99	12.95	12.86	12.77	12.68	73.29	130.40
200.0	13.28	13.20	13.11	13.07	13.03	12.99	12.91	12.83	12.75	73.64	131.37

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia		Napreżenie podstawowe		Strona						
	SII SIIa		75.0 [MPa]		27						
WIKROL	Typ przewodu		Naciąg podstawowy								
	SAX-W 50mm2 20kV		3.77 [kN]								
q= 50.3 [mm ²]		d= 12.7 [mm]	ap= 35.6 [m]	$\alpha=0.0000230$ 1/°K	$\beta=0.0000167$ 1/MPa						
Rozp. a [m]	Temperatura [°C]								sn	sk	
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.05	0.09
20.0	0.03	0.03	0.04	0.05	0.06	0.07	0.11	0.17	0.24	0.19	0.27
30.0	0.06	0.07	0.09	0.10	0.12	0.15	0.21	0.30	0.39	0.36	0.50
40.0	0.11	0.14	0.18	0.21	0.25	0.29	0.39	0.50	0.60	0.60	0.80
50.0	0.24	0.31	0.41	0.47	0.53	0.59	0.71	0.83	0.94	0.94	1.19
60.0	0.52	0.65	0.79	0.86	0.93	1.00	1.12	1.24	1.35	1.35	1.64
70.0	0.98	1.14	1.28	1.35	1.42	1.48	1.61	1.73	1.84	1.84	2.16
80.0	1.56	1.71	1.85	1.92	1.98	2.05	2.17	2.29	2.40	2.40	2.75
90.0	2.22	2.36	2.49	2.56	2.62	2.69	2.81	2.93	3.04	3.04	3.42
100.0	2.94	3.08	3.21	3.28	3.34	3.40	3.52	3.64	3.75	3.76	4.15
110.0	3.74	3.88	4.01	4.07	4.13	4.19	4.31	4.43	4.54	4.55	4.96
120.0	4.62	4.75	4.87	4.94	5.00	5.06	5.18	5.30	5.41	5.41	5.84
130.0	5.56	5.69	5.82	5.88	5.94	6.00	6.12	6.24	6.35	6.36	6.79
140.0	6.58	6.71	6.84	6.90	6.96	7.02	7.14	7.26	7.37	7.37	7.82
150.0	7.68	7.81	7.93	7.99	8.05	8.11	8.23	8.35	8.47	8.47	8.93
160.0	8.86	8.98	9.10	9.16	9.22	9.28	9.40	9.52	9.64	9.64	10.11
170.0	10.11	10.23	10.35	10.41	10.47	10.53	10.65	10.77	10.89	10.89	11.37
180.0	11.43	11.56	11.68	11.74	11.80	11.86	11.98	12.10	12.21	12.22	12.70
190.0	12.84	12.96	13.08	13.14	13.20	13.26	13.38	13.50	13.62	13.62	14.11
200.0	14.32	14.44	14.56	14.62	14.68	14.74	14.86	14.98	15.10	15.11	15.60
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	75.00	61.24	47.51	40.68	33.89	27.18	14.66	6.96	4.46	52.02	59.35
20.0	75.00	61.34	47.81	41.15	34.62	28.36	17.60	11.15	8.14	60.84	76.28
30.0	75.00	61.50	48.27	41.86	35.70	29.94	20.50	14.61	11.36	70.07	91.99
40.0	68.01	54.92	42.48	36.73	31.47	26.87	19.95	15.67	13.03	75.13	103.14
50.0	50.28	38.98	29.71	26.05	23.05	20.63	17.09	14.72	13.04	75.21	108.91
60.0	33.83	26.94	22.17	20.39	18.90	17.66	15.69	14.21	13.06	75.30	113.63
70.0	24.31	21.06	18.69	17.74	16.90	16.17	14.92	13.92	13.08	75.41	117.52
80.0	20.03	18.31	16.94	16.35	15.82	15.33	14.47	13.74	13.10	75.54	120.74
90.0	17.90	16.84	15.94	15.54	15.17	14.82	14.18	13.63	13.13	75.68	123.45
100.0	16.69	15.96	15.32	15.03	14.75	14.48	14.00	13.56	13.15	75.84	125.75
110.0	15.92	15.39	14.91	14.68	14.47	14.26	13.87	13.52	13.19	76.02	127.73
120.0	15.42	15.00	14.63	14.45	14.27	14.11	13.79	13.50	13.22	76.22	129.46
130.0	15.06	14.73	14.43	14.28	14.14	14.00	13.74	13.49	13.26	76.43	131.01
140.0	14.81	14.54	14.29	14.17	14.05	13.93	13.71	13.50	13.30	76.66	132.40
150.0	14.63	14.40	14.19	14.09	13.98	13.89	13.70	13.51	13.34	76.91	133.68
160.0	14.49	14.30	14.12	14.03	13.95	13.86	13.70	13.54	13.38	77.17	134.87
170.0	14.40	14.24	14.08	14.00	13.93	13.85	13.71	13.57	13.43	77.45	136.00
180.0	14.33	14.19	14.05	13.99	13.92	13.86	13.73	13.60	13.48	77.75	137.07
190.0	14.29	14.17	14.05	13.99	13.93	13.87	13.76	13.65	13.54	78.06	138.11
200.0	14.27	14.16	14.05	14.00	13.94	13.89	13.79	13.69	13.60	78.40	139.12

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Napreżenie podstawowe		Strona	
	SII SIIa							80.0 [MPa]		28	
WIKROL	Typ przewodu							Naciąg podstawowy			
	SAX-W 50mm ² 20kV							4.02 [kN]			
q= 50.3 [mm ²]		d= 12.7 [mm]		ap= 37.9 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa			
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.05	0.10	0.05	0.08
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.09	0.15	0.22	0.17	0.26
30.0	0.05	0.07	0.08	0.09	0.11	0.13	0.19	0.27	0.36	0.35	0.49
40.0	0.10	0.12	0.15	0.17	0.20	0.23	0.32	0.43	0.53	0.56	0.77
50.0	0.20	0.25	0.33	0.37	0.43	0.49	0.61	0.73	0.85	0.88	1.14
60.0	0.40	0.51	0.64	0.71	0.78	0.85	0.99	1.11	1.23	1.27	1.57
70.0	0.78	0.93	1.09	1.16	1.24	1.31	1.44	1.57	1.69	1.72	2.07
80.0	1.30	1.47	1.62	1.69	1.76	1.83	1.97	2.09	2.22	2.25	2.63
90.0	1.92	2.08	2.22	2.30	2.37	2.43	2.57	2.69	2.81	2.85	3.25
100.0	2.60	2.75	2.90	2.97	3.04	3.10	3.23	3.36	3.48	3.52	3.95
110.0	3.36	3.50	3.64	3.71	3.78	3.84	3.97	4.10	4.22	4.26	4.71
120.0	4.18	4.32	4.46	4.52	4.59	4.66	4.78	4.91	5.03	5.07	5.54
130.0	5.07	5.21	5.34	5.41	5.47	5.54	5.67	5.79	5.92	5.96	6.44
140.0	6.03	6.16	6.30	6.36	6.43	6.49	6.62	6.75	6.87	6.91	7.41
150.0	7.05	7.19	7.32	7.39	7.45	7.52	7.65	7.77	7.90	7.94	8.44
160.0	8.15	8.29	8.42	8.49	8.55	8.62	8.74	8.87	8.99	9.04	9.55
170.0	9.33	9.46	9.59	9.66	9.72	9.78	9.91	10.04	10.16	10.21	10.73
180.0	10.57	10.70	10.83	10.90	10.96	11.03	11.15	11.28	11.40	11.45	11.98
190.0	11.88	12.01	12.15	12.21	12.28	12.34	12.47	12.59	12.72	12.76	13.31
200.0	13.27	13.40	13.53	13.60	13.66	13.73	13.85	13.98	14.11	14.15	14.70
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	66.23	52.49	45.64	38.82	32.04	18.95	8.91	5.08	56.34	63.00
20.0	80.00	66.31	52.72	46.00	39.37	32.90	21.12	12.97	8.99	64.40	79.20
30.0	80.00	66.44	53.09	46.56	40.21	34.13	23.58	16.39	12.35	73.20	94.60
40.0	77.07	63.75	50.81	44.62	38.73	33.27	24.30	18.34	14.69	80.13	107.45
50.0	60.87	48.54	37.49	32.71	28.58	25.12	20.02	16.69	14.44	80.20	113.51
60.0	43.78	34.41	27.36	24.67	22.46	20.62	17.82	15.81	14.30	80.28	118.58
70.0	30.75	25.64	22.01	20.60	19.39	18.35	16.64	15.30	14.23	80.39	122.82
80.0	23.97	21.34	19.34	18.50	17.76	17.09	15.95	14.99	14.18	80.51	126.38
90.0	20.65	19.12	17.85	17.31	16.80	16.34	15.51	14.79	14.16	80.64	129.40
100.0	18.83	17.82	16.95	16.56	16.19	15.85	15.22	14.66	14.15	80.79	131.98
110.0	17.72	17.00	16.36	16.06	15.78	15.52	15.02	14.57	14.16	80.96	134.21
120.0	16.99	16.45	15.95	15.72	15.50	15.29	14.89	14.52	14.17	81.14	136.17
130.0	16.49	16.06	15.67	15.48	15.30	15.12	14.79	14.48	14.19	81.34	137.91
140.0	16.13	15.78	15.46	15.30	15.15	15.01	14.73	14.47	14.22	81.55	139.47
150.0	15.87	15.58	15.31	15.18	15.05	14.93	14.69	14.46	14.25	81.79	140.89
160.0	15.67	15.43	15.20	15.09	14.98	14.87	14.67	14.47	14.28	82.03	142.20
170.0	15.53	15.32	15.12	15.03	14.93	14.84	14.66	14.49	14.32	82.30	143.42
180.0	15.42	15.24	15.07	14.99	14.91	14.82	14.67	14.51	14.37	82.57	144.58
190.0	15.35	15.19	15.04	14.96	14.89	14.82	14.68	14.54	14.41	82.87	145.69
200.0	15.30	15.16	15.02	14.96	14.89	14.83	14.70	14.58	14.46	83.18	146.76

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia								Napreżenie podstawowe		Strona	
	SII SIIa								60.0 [MPa]		29	
WIKROL	Typ przewodu								Naciąg podstawowy			
	SAX-W 70mm ² 20kV								4.43 [kN]			
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 37.6 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa				
Rozp.	Temperatura [°C]										sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.07	0.11	0.14	0.06	0.09	
20.0	0.03	0.04	0.05	0.07	0.08	0.11	0.18	0.24	0.30	0.19	0.26	
30.0	0.07	0.09	0.12	0.14	0.17	0.21	0.30	0.39	0.47	0.36	0.48	
40.0	0.13	0.16	0.22	0.26	0.31	0.36	0.47	0.58	0.67	0.57	0.74	
50.0	0.27	0.36	0.47	0.54	0.60	0.67	0.79	0.90	1.00	0.89	1.10	
60.0	0.56	0.71	0.85	0.92	0.99	1.05	1.18	1.29	1.40	1.29	1.53	
70.0	1.02	1.17	1.31	1.38	1.45	1.52	1.64	1.76	1.87	1.75	2.02	
80.0	1.56	1.71	1.85	1.92	1.99	2.05	2.17	2.29	2.41	2.29	2.58	
90.0	2.18	2.33	2.46	2.53	2.59	2.66	2.78	2.90	3.02	2.89	3.21	
100.0	2.87	3.01	3.14	3.21	3.27	3.34	3.46	3.58	3.70	3.57	3.90	
110.0	3.63	3.76	3.90	3.96	4.03	4.09	4.21	4.33	4.45	4.33	4.67	
120.0	4.46	4.59	4.72	4.79	4.85	4.91	5.04	5.16	5.27	5.15	5.50	
130.0	5.36	5.49	5.62	5.68	5.75	5.81	5.93	6.05	6.17	6.05	6.41	
140.0	6.33	6.46	6.59	6.65	6.72	6.78	6.90	7.02	7.14	7.02	7.39	
150.0	7.37	7.50	7.63	7.69	7.76	7.82	7.94	8.06	8.18	8.06	8.44	
160.0	8.49	8.62	8.75	8.81	8.87	8.93	9.06	9.18	9.30	9.18	9.56	
170.0	9.68	9.81	9.93	10.00	10.06	10.12	10.25	10.37	10.49	10.36	10.75	
180.0	10.94	11.07	11.19	11.26	11.32	11.38	11.51	11.63	11.75	11.63	12.02	
190.0	12.27	12.40	12.53	12.59	12.65	12.72	12.84	12.96	13.09	12.96	13.36	
200.0	13.68	13.81	13.94	14.00	14.06	14.13	14.25	14.37	14.50	14.37	14.77	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	60.00	46.27	32.63	25.92	19.40	13.44	6.21	4.02	3.13	37.54	44.32	
20.0	60.00	46.45	33.22	26.94	21.15	16.25	10.13	7.39	5.99	45.97	59.10	
30.0	60.00	46.73	34.10	28.33	23.20	18.97	13.36	10.36	8.62	54.18	72.32	
40.0	56.65	43.92	32.37	27.41	23.22	19.84	15.22	12.45	10.68	60.10	82.79	
50.0	41.43	31.21	23.60	20.82	18.61	16.84	14.27	12.50	11.22	60.15	87.22	
60.0	28.57	22.82	18.98	17.55	16.36	15.35	13.75	12.54	11.58	60.22	90.80	
70.0	21.64	18.81	16.75	15.92	15.19	14.55	13.46	12.57	11.83	60.30	93.69	
80.0	18.41	16.82	15.55	15.01	14.51	14.06	13.27	12.60	12.02	60.39	96.07	
90.0	16.72	15.70	14.83	14.45	14.09	13.76	13.16	12.63	12.16	60.50	98.03	
100.0	15.73	15.01	14.38	14.09	13.82	13.56	13.09	12.66	12.27	60.61	99.69	
110.0	15.09	14.55	14.07	13.84	13.63	13.42	13.04	12.69	12.37	60.74	101.10	
120.0	14.66	14.24	13.85	13.67	13.50	13.33	13.02	12.72	12.45	60.88	102.33	
130.0	14.35	14.02	13.70	13.56	13.41	13.27	13.01	12.76	12.52	61.04	103.42	
140.0	14.14	13.86	13.60	13.47	13.35	13.23	13.01	12.79	12.59	61.20	104.40	
150.0	13.98	13.75	13.53	13.42	13.32	13.21	13.02	12.83	12.65	61.38	105.30	
160.0	13.86	13.67	13.48	13.38	13.29	13.21	13.04	12.87	12.72	61.57	106.13	
170.0	13.78	13.61	13.45	13.37	13.29	13.21	13.06	12.92	12.78	61.78	106.92	
180.0	13.72	13.57	13.43	13.36	13.29	13.22	13.09	12.96	12.84	61.99	107.67	
190.0	13.69	13.56	13.43	13.37	13.30	13.24	13.13	13.01	12.90	62.22	108.39	
200.0	13.67	13.55	13.44	13.38	13.33	13.27	13.17	13.06	12.96	62.46	109.10	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia								Napężenie podstawowe		Strona	
	SII SIIa								70.0 [MPa]		30	
WIKROL	Typ przewodu								Naciąg podstawowy			
	SAX-W 70mm2 20kV								5.17 [kN]			
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 43.9 [m]		$\alpha=0.0000230$ 1/°K		$\beta=0.0000167$ 1/MPa				
Rozp.	Temperatura [°C]									sn	sk	
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.08	0.12	0.05	0.07	
20.0	0.03	0.03	0.04	0.05	0.06	0.08	0.13	0.20	0.26	0.16	0.24	
30.0	0.06	0.07	0.09	0.11	0.13	0.16	0.23	0.33	0.41	0.32	0.45	
40.0	0.10	0.13	0.16	0.19	0.22	0.26	0.36	0.47	0.58	0.51	0.69	
50.0	0.18	0.23	0.29	0.34	0.39	0.45	0.58	0.70	0.82	0.76	1.00	
60.0	0.33	0.42	0.55	0.62	0.69	0.76	0.90	1.04	1.16	1.10	1.38	
70.0	0.60	0.75	0.91	0.99	1.07	1.15	1.29	1.43	1.56	1.50	1.81	
80.0	1.02	1.20	1.37	1.45	1.53	1.60	1.75	1.89	2.02	1.96	2.31	
90.0	1.54	1.72	1.89	1.97	2.05	2.12	2.27	2.41	2.54	2.48	2.85	
100.0	2.13	2.31	2.47	2.55	2.63	2.70	2.85	2.99	3.13	3.06	3.46	
110.0	2.79	2.96	3.12	3.20	3.27	3.35	3.49	3.63	3.77	3.71	4.12	
120.0	3.50	3.67	3.83	3.90	3.98	4.05	4.20	4.34	4.48	4.41	4.85	
130.0	4.28	4.44	4.59	4.67	4.75	4.82	4.96	5.11	5.24	5.18	5.63	
140.0	5.11	5.27	5.42	5.50	5.57	5.65	5.79	5.94	6.07	6.01	6.47	
150.0	6.01	6.16	6.32	6.39	6.47	6.54	6.68	6.83	6.97	6.90	7.38	
160.0	6.96	7.12	7.27	7.34	7.42	7.49	7.64	7.78	7.92	7.86	8.34	
170.0	7.98	8.14	8.29	8.36	8.43	8.51	8.65	8.80	8.94	8.87	9.37	
180.0	9.06	9.21	9.36	9.44	9.51	9.59	9.73	9.87	10.01	9.95	10.46	
190.0	10.20	10.36	10.51	10.58	10.65	10.73	10.87	11.01	11.16	11.09	11.61	
200.0	11.41	11.56	11.71	11.78	11.86	11.93	12.07	12.22	12.36	12.30	12.82	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	70.00	56.24	42.53	35.71	28.95	22.32	10.70	5.35	3.71	45.84	51.30	
20.0	70.00	56.35	42.85	36.24	29.81	23.75	14.13	9.18	6.93	52.72	64.70	
30.0	70.00	56.52	43.36	37.04	31.04	25.57	17.17	12.40	9.82	60.13	77.37	
40.0	70.00	56.75	44.02	38.03	32.46	27.49	19.90	15.25	12.47	67.34	89.10	
50.0	62.31	49.70	38.17	33.10	28.65	24.92	19.45	15.97	13.68	70.13	96.44	
60.0	48.69	38.02	29.51	26.20	23.47	21.23	17.91	15.61	13.94	70.19	100.68	
70.0	36.33	29.15	24.06	22.13	20.52	19.16	17.01	15.39	14.13	70.26	104.26	
80.0	28.10	24.00	21.04	19.86	18.84	17.94	16.44	15.25	14.27	70.34	107.28	
90.0	23.58	21.17	19.30	18.52	17.81	17.18	16.08	15.16	14.37	70.42	109.86	
100.0	21.07	19.51	18.22	17.66	17.15	16.68	15.83	15.10	14.46	70.52	112.06	
110.0	19.55	18.45	17.51	17.09	16.70	16.33	15.66	15.06	14.53	70.64	113.96	
120.0	18.56	17.74	17.02	16.69	16.38	16.08	15.54	15.04	14.59	70.76	115.63	
130.0	17.87	17.24	16.67	16.40	16.15	15.91	15.45	15.04	14.65	70.89	117.09	
140.0	17.39	16.88	16.41	16.19	15.98	15.78	15.39	15.04	14.71	71.03	118.40	
150.0	17.03	16.61	16.22	16.03	15.86	15.68	15.35	15.05	14.76	71.18	119.57	
160.0	16.76	16.40	16.07	15.92	15.76	15.62	15.33	15.06	14.81	71.35	120.65	
170.0	16.55	16.25	15.97	15.83	15.70	15.57	15.32	15.08	14.86	71.52	121.64	
180.0	16.39	16.13	15.89	15.77	15.65	15.54	15.32	15.11	14.91	71.70	122.56	
190.0	16.27	16.05	15.83	15.72	15.62	15.52	15.33	15.14	14.96	71.90	123.43	
200.0	16.18	15.98	15.79	15.70	15.61	15.52	15.34	15.17	15.01	72.11	124.26	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						75.0 [MPa]			31	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 70mm ² 20kV						5.54 [kN]				
q= 73.9 [mm ²]		d= 14.3 [mm]		ap= 47.0 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.04	0.07
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.10	0.17	0.24	0.15	0.23
30.0	0.05	0.07	0.08	0.10	0.11	0.14	0.20	0.29	0.38	0.30	0.43
40.0	0.10	0.12	0.15	0.17	0.20	0.23	0.32	0.43	0.54	0.49	0.67
50.0	0.16	0.19	0.24	0.28	0.32	0.37	0.49	0.61	0.74	0.71	0.95
60.0	0.27	0.34	0.44	0.50	0.57	0.64	0.78	0.92	1.05	1.03	1.32
70.0	0.48	0.60	0.75	0.83	0.91	0.99	1.14	1.29	1.43	1.40	1.73
80.0	0.81	0.98	1.15	1.24	1.32	1.41	1.56	1.71	1.85	1.83	2.20
90.0	1.26	1.45	1.63	1.72	1.81	1.89	2.05	2.20	2.34	2.31	2.72
100.0	1.81	2.00	2.18	2.26	2.35	2.43	2.59	2.74	2.88	2.86	3.29
110.0	2.42	2.60	2.78	2.87	2.95	3.03	3.19	3.34	3.49	3.46	3.91
120.0	3.09	3.27	3.44	3.52	3.61	3.69	3.84	4.00	4.14	4.12	4.59
130.0	3.81	3.99	4.16	4.24	4.32	4.40	4.56	4.71	4.86	4.83	5.33
140.0	4.59	4.77	4.93	5.02	5.10	5.18	5.33	5.49	5.63	5.61	6.12
150.0	5.43	5.60	5.77	5.85	5.93	6.01	6.16	6.32	6.47	6.44	6.97
160.0	6.32	6.49	6.66	6.74	6.82	6.90	7.05	7.20	7.35	7.33	7.87
170.0	7.27	7.44	7.60	7.68	7.76	7.84	8.00	8.15	8.30	8.28	8.83
180.0	8.28	8.45	8.61	8.69	8.77	8.85	9.00	9.16	9.31	9.28	9.85
190.0	9.35	9.51	9.67	9.75	9.83	9.91	10.07	10.22	10.37	10.35	10.92
200.0	10.47	10.63	10.80	10.87	10.95	11.03	11.19	11.34	11.49	11.47	12.05
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	75.00	61.23	47.50	40.66	33.85	27.12	14.44	6.57	4.14	50.26	55.11
20.0	75.00	61.32	47.75	41.05	34.48	28.13	17.11	10.53	7.58	56.42	67.75
30.0	75.00	61.46	48.15	41.67	35.42	29.53	19.81	13.81	10.61	63.38	80.08
40.0	75.00	61.64	48.67	42.46	36.56	31.13	22.34	16.70	13.35	70.32	91.63
50.0	71.63	58.60	46.23	40.48	35.17	30.45	23.09	18.28	15.22	75.12	100.82
60.0	59.06	47.15	36.73	32.33	28.56	25.41	20.71	17.55	15.36	75.18	105.31
70.0	46.21	36.72	29.44	26.61	24.26	22.30	19.28	17.09	15.46	75.24	109.17
80.0	35.58	29.38	24.92	23.19	21.71	20.44	18.39	16.80	15.53	75.31	112.49
90.0	28.76	25.04	22.28	21.15	20.16	19.29	17.80	16.60	15.59	75.40	115.34
100.0	24.83	22.50	20.66	19.88	19.17	18.53	17.41	16.46	15.65	75.49	117.81
110.0	22.50	20.92	19.61	19.03	18.50	18.01	17.13	16.37	15.69	75.59	119.96
120.0	21.02	19.87	18.89	18.45	18.03	17.64	16.93	16.30	15.74	75.71	121.85
130.0	20.01	19.14	18.38	18.02	17.69	17.37	16.79	16.26	15.78	75.83	123.52
140.0	19.31	18.62	18.00	17.71	17.44	17.17	16.68	16.23	15.82	75.96	125.01
150.0	18.79	18.23	17.72	17.48	17.25	17.03	16.61	16.22	15.86	76.10	126.35
160.0	18.40	17.93	17.50	17.30	17.10	16.91	16.55	16.21	15.90	76.26	127.57
170.0	18.10	17.71	17.34	17.17	17.00	16.83	16.52	16.22	15.94	76.42	128.68
180.0	17.87	17.53	17.21	17.06	16.91	16.77	16.49	16.23	15.98	76.59	129.72
190.0	17.69	17.40	17.12	16.98	16.85	16.73	16.48	16.25	16.02	76.77	130.68
200.0	17.55	17.29	17.05	16.93	16.81	16.70	16.48	16.27	16.07	76.96	131.59

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia		Napreżenie podstawowe		Strona						
	SII SIIa		80.0 [MPa]		32						
	Typ przewodu		Naciąg podstawowy								
WIKROL	SAX-W 70mm ² 20kV		5.91 [kN]								
q= 73.9 [mm ²]		d= 14.3 [mm]	ap= 50.2 [m]	α=0.0000230 1/°K	β=0.0000167 1/MPa						
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.09	0.04	0.06
20.0	0.02	0.03	0.03	0.04	0.05	0.05	0.09	0.14	0.21	0.14	0.22
30.0	0.05	0.06	0.08	0.09	0.10	0.12	0.18	0.26	0.35	0.29	0.42
40.0	0.09	0.11	0.13	0.15	0.18	0.20	0.28	0.39	0.50	0.47	0.65
50.0	0.14	0.17	0.21	0.23	0.27	0.31	0.41	0.53	0.66	0.67	0.92
60.0	0.23	0.29	0.36	0.41	0.47	0.53	0.67	0.81	0.95	0.96	1.26
70.0	0.39	0.48	0.61	0.68	0.76	0.84	1.00	1.15	1.30	1.31	1.66
80.0	0.64	0.79	0.96	1.05	1.14	1.22	1.39	1.55	1.70	1.71	2.10
90.0	1.02	1.21	1.40	1.49	1.58	1.67	1.84	2.00	2.16	2.17	2.60
100.0	1.51	1.71	1.90	2.00	2.09	2.18	2.35	2.51	2.66	2.68	3.14
110.0	2.08	2.28	2.47	2.56	2.65	2.74	2.91	3.07	3.23	3.24	3.73
120.0	2.70	2.90	3.09	3.18	3.27	3.35	3.52	3.69	3.84	3.86	4.37
130.0	3.38	3.57	3.76	3.85	3.94	4.02	4.19	4.36	4.51	4.53	5.07
140.0	4.12	4.30	4.49	4.58	4.66	4.75	4.92	5.08	5.24	5.26	5.81
150.0	4.90	5.09	5.27	5.36	5.44	5.53	5.69	5.86	6.02	6.04	6.61
160.0	5.74	5.92	6.10	6.19	6.27	6.36	6.53	6.69	6.85	6.87	7.46
170.0	6.63	6.81	6.99	7.08	7.16	7.25	7.41	7.58	7.74	7.76	8.36
180.0	7.58	7.76	7.93	8.02	8.10	8.19	8.36	8.52	8.68	8.70	9.32
190.0	8.58	8.75	8.93	9.01	9.10	9.18	9.35	9.51	9.68	9.70	10.33
200.0	9.63	9.81	9.98	10.07	10.15	10.23	10.40	10.57	10.73	10.75	11.39
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	66.22	52.48	45.62	38.79	32.00	18.81	8.54	4.73	54.80	59.10
20.0	80.00	66.29	52.67	45.92	39.26	32.73	20.74	12.37	8.40	60.29	70.96
30.0	80.00	66.41	52.99	46.41	39.98	33.81	22.98	15.60	11.57	66.80	82.91
40.0	80.00	66.56	53.41	47.04	40.89	35.10	25.23	18.46	14.40	73.45	94.26
50.0	80.01	66.75	53.92	47.78	41.94	36.50	27.40	21.05	16.99	79.97	104.97
60.0	68.86	56.28	44.64	39.39	34.67	30.55	24.18	19.89	16.99	80.17	109.79
70.0	56.49	45.40	36.07	32.24	28.97	26.22	22.03	19.08	16.95	80.22	113.89
80.0	44.71	36.26	29.88	27.39	25.28	23.49	20.67	18.56	16.93	80.29	117.47
90.0	35.57	30.05	26.00	24.39	23.00	21.78	19.78	18.20	16.92	80.37	120.58
100.0	29.72	26.25	23.60	22.51	21.54	20.67	19.18	17.95	16.92	80.46	123.31
110.0	26.19	23.90	22.06	21.28	20.56	19.91	18.76	17.78	16.93	80.56	125.70
120.0	23.98	22.37	21.02	20.43	19.88	19.37	18.45	17.65	16.94	80.66	127.81
130.0	22.52	21.32	20.29	19.82	19.39	18.98	18.23	17.56	16.96	80.78	129.69
140.0	21.50	20.57	19.75	19.38	19.02	18.68	18.06	17.49	16.97	80.90	131.36
150.0	20.76	20.02	19.35	19.04	18.75	18.46	17.93	17.45	17.00	81.03	132.88
160.0	20.21	19.60	19.05	18.78	18.53	18.29	17.84	17.42	17.02	81.18	134.25
170.0	19.79	19.28	18.81	18.59	18.37	18.16	17.77	17.40	17.05	81.33	135.50
180.0	19.46	19.03	18.62	18.43	18.24	18.06	17.72	17.39	17.08	81.49	136.66
190.0	19.21	18.83	18.48	18.31	18.15	17.99	17.68	17.39	17.11	81.66	137.73
200.0	19.00	18.68	18.37	18.22	18.07	17.93	17.66	17.40	17.15	81.84	138.74

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia								Napreżenie podstawowe		Strona	
	SII SIIa								60.0 [MPa]		33	
	Typ przewodu								Naciąg podstawowy			
WIKROL	SAX-W 120mm ² 20kV								7.72 [kN]			
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 54.2 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa				
Rozp.	Temperatura [°C]										sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5	
T A B L I C A Z W I S O W [m]												
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.07	0.11	0.14	0.04	0.07	
20.0	0.03	0.03	0.05	0.06	0.08	0.10	0.17	0.24	0.30	0.15	0.21	
30.0	0.06	0.08	0.11	0.13	0.16	0.20	0.29	0.38	0.46	0.29	0.40	
40.0	0.11	0.14	0.19	0.22	0.26	0.32	0.43	0.54	0.64	0.46	0.61	
50.0	0.17	0.21	0.28	0.33	0.39	0.45	0.58	0.71	0.83	0.65	0.85	
60.0	0.27	0.34	0.45	0.51	0.58	0.66	0.81	0.95	1.08	0.91	1.15	
70.0	0.45	0.57	0.72	0.80	0.89	0.97	1.13	1.28	1.42	1.23	1.51	
80.0	0.72	0.89	1.07	1.16	1.25	1.34	1.50	1.66	1.80	1.61	1.92	
90.0	1.10	1.30	1.49	1.58	1.67	1.76	1.93	2.09	2.24	2.04	2.38	
100.0	1.57	1.77	1.96	2.06	2.15	2.24	2.41	2.57	2.72	2.52	2.88	
110.0	2.10	2.30	2.49	2.58	2.67	2.76	2.93	3.10	3.25	3.05	3.43	
120.0	2.68	2.88	3.07	3.16	3.25	3.34	3.51	3.68	3.83	3.63	4.03	
130.0	3.32	3.51	3.70	3.79	3.88	3.97	4.14	4.31	4.47	4.26	4.67	
140.0	4.00	4.19	4.38	4.47	4.56	4.65	4.82	4.99	5.15	4.94	5.37	
150.0	4.74	4.93	5.11	5.20	5.29	5.38	5.55	5.72	5.88	5.67	6.11	
160.0	5.52	5.71	5.90	5.99	6.07	6.16	6.34	6.50	6.67	6.45	6.91	
170.0	6.36	6.55	6.73	6.82	6.91	7.00	7.17	7.34	7.50	7.29	7.75	
180.0	7.24	7.43	7.61	7.70	7.79	7.88	8.05	8.22	8.39	8.17	8.64	
190.0	8.18	8.37	8.55	8.64	8.73	8.81	8.99	9.16	9.33	9.11	9.59	
200.0	9.17	9.35	9.54	9.62	9.71	9.80	9.97	10.15	10.31	10.10	10.58	
T A B L I C A N A P R E Ż E N przy słupie [MPa]												
10.0	60.00	46.26	32.59	25.85	19.27	13.18	5.77	3.66	2.84	35.27	39.39	
20.0	60.00	46.40	33.09	26.71	20.77	15.71	9.44	6.78	5.45	40.86	49.80	
30.0	60.00	46.64	33.83	27.90	22.60	18.21	12.48	9.53	7.88	46.78	59.58	
40.0	60.00	46.95	34.73	29.26	24.48	20.53	15.13	12.04	10.14	52.48	68.60	
50.0	60.01	47.32	35.74	30.68	26.30	22.68	17.52	14.34	12.27	57.88	76.98	
60.0	54.41	42.63	32.55	28.43	24.99	22.18	18.09	15.39	13.52	60.11	82.24	
70.0	44.57	34.88	27.51	24.71	22.40	20.50	17.61	15.56	14.04	60.15	85.11	
80.0	35.95	29.06	24.17	22.30	20.74	19.41	17.29	15.69	14.44	60.19	87.57	
90.0	29.78	25.29	22.05	20.77	19.66	18.68	17.07	15.79	14.74	60.25	89.68	
100.0	25.88	22.92	20.68	19.75	18.93	18.19	16.92	15.87	14.99	60.30	91.50	
110.0	23.44	21.39	19.75	19.05	18.41	17.83	16.81	15.94	15.18	60.37	93.08	
120.0	21.85	20.35	19.10	18.55	18.04	17.57	16.73	16.00	15.35	60.44	94.46	
130.0	20.76	19.61	18.63	18.18	17.77	17.38	16.68	16.05	15.48	60.51	95.67	
140.0	19.98	19.07	18.27	17.91	17.56	17.24	16.64	16.09	15.60	60.60	96.74	
150.0	19.41	18.67	18.01	17.70	17.41	17.13	16.61	16.14	15.70	60.68	97.70	
160.0	18.97	18.36	17.80	17.54	17.29	17.05	16.60	16.18	15.79	60.78	98.57	
170.0	18.64	18.12	17.64	17.41	17.20	16.99	16.59	16.22	15.88	60.88	99.36	
180.0	18.38	17.93	17.51	17.32	17.13	16.94	16.59	16.26	15.95	60.99	100.08	
190.0	18.17	17.78	17.42	17.24	17.07	16.91	16.60	16.30	16.02	61.10	100.75	
200.0	18.00	17.66	17.34	17.19	17.04	16.89	16.61	16.34	16.09	61.22	101.38	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						70.0 [MPa]			34	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 20kV						9.01 [kN]				
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 63.2 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa			
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.08	0.12	0.03	0.06
20.0	0.02	0.03	0.04	0.04	0.05	0.07	0.12	0.19	0.26	0.12	0.19
30.0	0.05	0.06	0.08	0.10	0.12	0.15	0.22	0.32	0.40	0.25	0.36
40.0	0.09	0.11	0.15	0.17	0.20	0.24	0.34	0.46	0.57	0.41	0.57
50.0	0.14	0.18	0.23	0.26	0.30	0.36	0.48	0.61	0.74	0.59	0.80
60.0	0.21	0.25	0.32	0.37	0.42	0.48	0.62	0.77	0.92	0.79	1.05
70.0	0.31	0.38	0.48	0.54	0.62	0.69	0.86	1.02	1.18	1.06	1.36
80.0	0.47	0.58	0.73	0.81	0.90	0.99	1.17	1.34	1.51	1.38	1.73
90.0	0.70	0.86	1.04	1.14	1.24	1.34	1.53	1.71	1.88	1.75	2.13
100.0	1.02	1.22	1.43	1.53	1.64	1.74	1.93	2.12	2.29	2.16	2.58
110.0	1.42	1.65	1.87	1.98	2.08	2.18	2.38	2.57	2.75	2.61	3.06
120.0	1.90	2.13	2.36	2.47	2.57	2.68	2.88	3.07	3.25	3.11	3.58
130.0	2.43	2.67	2.89	3.00	3.11	3.21	3.41	3.61	3.79	3.65	4.15
140.0	3.02	3.25	3.47	3.58	3.69	3.79	3.99	4.19	4.38	4.23	4.75
150.0	3.65	3.88	4.10	4.21	4.31	4.42	4.62	4.81	5.00	4.86	5.40
160.0	4.32	4.55	4.77	4.88	4.98	5.09	5.29	5.48	5.67	5.53	6.09
170.0	5.04	5.26	5.48	5.59	5.69	5.80	6.00	6.20	6.39	6.24	6.82
180.0	5.80	6.02	6.24	6.35	6.45	6.55	6.76	6.95	7.15	7.00	7.59
190.0	6.60	6.82	7.04	7.15	7.25	7.35	7.56	7.76	7.95	7.80	8.40
200.0	7.45	7.67	7.88	7.99	8.09	8.20	8.40	8.60	8.79	8.65	9.26
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	56.23	42.51	35.67	28.89	22.22	10.35	4.93	3.38	44.22	47.26
20.0	70.00	56.32	42.77	36.11	29.61	23.43	13.50	8.50	6.34	48.42	56.11
30.0	70.00	56.46	43.20	36.78	30.66	25.03	16.33	11.52	9.02	53.44	65.17
40.0	70.00	56.66	43.75	37.63	31.90	26.75	18.88	14.19	11.48	58.59	73.81
50.0	70.00	56.90	44.40	38.59	33.23	28.49	21.21	16.62	13.76	63.64	81.97
60.0	70.01	57.17	45.13	39.62	34.60	30.18	23.36	18.86	15.91	68.53	89.71
70.0	64.33	52.16	41.21	36.44	32.23	28.64	23.17	19.45	16.88	70.13	94.33
80.0	55.54	44.71	35.70	32.02	28.88	26.25	22.20	19.34	17.24	70.17	97.22
90.0	47.08	38.24	31.44	28.76	26.48	24.56	21.51	19.25	17.52	70.21	99.79
100.0	39.90	33.30	28.41	26.47	24.80	23.37	21.02	19.19	17.74	70.26	102.07
110.0	34.52	29.82	26.30	24.87	23.62	22.51	20.65	19.15	17.92	70.32	104.08
120.0	30.78	27.42	24.82	23.73	22.76	21.89	20.38	19.13	18.07	70.38	105.88
130.0	28.21	25.74	23.75	22.90	22.13	21.42	20.17	19.11	18.19	70.44	107.48
140.0	26.41	24.53	22.96	22.28	21.65	21.06	20.01	19.10	18.30	70.51	108.92
150.0	25.11	23.63	22.37	21.80	21.28	20.78	19.89	19.10	18.39	70.59	110.21
160.0	24.14	22.95	21.91	21.43	20.99	20.57	19.80	19.10	18.48	70.67	111.38
170.0	23.41	22.42	21.54	21.14	20.76	20.39	19.72	19.11	18.55	70.75	112.45
180.0	22.83	22.00	21.25	20.91	20.57	20.26	19.67	19.12	18.62	70.85	113.42
190.0	22.38	21.67	21.02	20.72	20.43	20.15	19.62	19.14	18.68	70.94	114.32
200.0	22.02	21.40	20.83	20.57	20.31	20.06	19.59	19.15	18.74	71.04	115.15

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Naprezenie podstawowe		Strona	
	SII SIIa							75.0 [MPa]		35	
	Typ przewodu							Naciąg podstawowy			
WIKROL	SAX-W 120mm ² 20kV							9.65 [kN]			
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 67.8 [m]		α=0.0000230 1/°K		β=0.0000167 1/MPa			
Rozp.	Temperatura [°C]										
a [m]	-25	-15	-5	0	5	10	20	30	40	sn -5	sk -5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.07	0.11	0.03	0.05
20.0	0.02	0.03	0.03	0.04	0.05	0.06	0.10	0.16	0.23	0.11	0.18
30.0	0.05	0.06	0.08	0.09	0.10	0.13	0.19	0.28	0.37	0.24	0.35
40.0	0.09	0.11	0.13	0.15	0.18	0.21	0.30	0.41	0.53	0.39	0.55
50.0	0.13	0.16	0.21	0.24	0.27	0.32	0.43	0.56	0.69	0.57	0.77
60.0	0.19	0.24	0.29	0.33	0.38	0.44	0.57	0.72	0.86	0.76	1.02
70.0	0.27	0.33	0.41	0.46	0.52	0.59	0.74	0.91	1.07	0.99	1.30
80.0	0.40	0.49	0.61	0.68	0.76	0.84	1.02	1.20	1.38	1.29	1.65
90.0	0.58	0.71	0.87	0.96	1.06	1.16	1.35	1.54	1.72	1.63	2.03
100.0	0.83	1.00	1.21	1.31	1.42	1.52	1.73	1.92	2.11	2.01	2.46
110.0	1.16	1.38	1.60	1.71	1.82	1.93	2.14	2.34	2.53	2.44	2.91
120.0	1.57	1.81	2.05	2.16	2.28	2.39	2.60	2.80	3.00	2.90	3.41
130.0	2.06	2.30	2.54	2.66	2.77	2.89	3.10	3.31	3.50	3.40	3.94
140.0	2.59	2.84	3.08	3.20	3.31	3.43	3.64	3.85	4.05	3.95	4.51
150.0	3.18	3.43	3.67	3.78	3.90	4.01	4.22	4.43	4.63	4.53	5.12
160.0	3.80	4.05	4.29	4.41	4.52	4.63	4.85	5.06	5.26	5.16	5.77
170.0	4.47	4.72	4.95	5.07	5.18	5.29	5.51	5.72	5.93	5.82	6.45
180.0	5.18	5.42	5.66	5.77	5.89	6.00	6.22	6.43	6.63	6.53	7.18
190.0	5.93	6.17	6.41	6.52	6.63	6.74	6.96	7.17	7.38	7.28	7.94
200.0	6.72	6.96	7.19	7.31	7.42	7.53	7.75	7.96	8.17	8.07	8.75
T A B L I C A N A P R E Z E N przy słupie [MPa]											
10.0	75.00	61.23	47.48	40.63	33.81	27.05	14.21	6.13	3.78	48.89	51.49
20.0	75.00	61.30	47.69	40.96	34.33	27.90	16.58	9.84	6.95	52.52	59.57
30.0	75.00	61.41	48.02	41.47	35.12	29.10	19.04	12.92	9.77	57.08	68.21
40.0	75.00	61.57	48.45	42.14	36.10	30.50	21.39	15.63	12.33	61.92	76.60
50.0	75.00	61.76	48.98	42.92	37.20	31.98	23.58	18.08	14.69	66.76	84.62
60.0	75.01	61.99	49.58	43.77	38.37	33.48	25.65	20.35	16.89	71.50	92.27
70.0	73.31	60.62	48.74	43.29	38.31	33.86	26.79	21.91	18.59	75.12	98.72
80.0	65.18	53.33	42.80	38.23	34.21	30.74	25.35	21.57	18.88	75.16	101.78
90.0	56.82	46.34	37.65	34.08	31.00	28.39	24.29	21.32	19.11	75.20	104.53
100.0	48.93	40.32	33.62	30.94	28.64	26.67	23.52	21.14	19.29	75.24	107.00
110.0	42.22	35.64	30.66	28.66	26.93	25.43	22.94	21.00	19.43	75.29	109.21
120.0	37.08	32.23	28.53	27.02	25.69	24.51	22.51	20.89	19.56	75.35	111.19
130.0	33.36	29.78	26.99	25.81	24.76	23.82	22.18	20.81	19.66	75.41	112.98
140.0	30.71	28.02	25.85	24.91	24.06	23.29	21.92	20.76	19.75	75.48	114.60
150.0	28.80	26.72	24.99	24.23	23.52	22.88	21.72	20.71	19.83	75.55	116.06
160.0	27.40	25.74	24.32	23.69	23.10	22.55	21.56	20.68	19.90	75.62	117.38
170.0	26.33	24.98	23.80	23.27	22.77	22.30	21.43	20.66	19.96	75.70	118.60
180.0	25.51	24.38	23.39	22.93	22.50	22.09	21.33	20.65	20.02	75.79	119.71
190.0	24.86	23.91	23.05	22.66	22.28	21.92	21.25	20.64	20.08	75.88	120.73
200.0	24.34	23.52	22.78	22.43	22.10	21.78	21.19	20.64	20.13	75.97	121.67

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						80.0 [MPa]			36	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 20kV						10.30 [kN]				
q=128.7 [mm ²]		d= 17.6 [mm]		ap= 72.3 [m]		α=0.0000230 1/°K			β=0.0000167 1/MPa		
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05	0.09	0.03	0.05
20.0	0.02	0.02	0.03	0.04	0.04	0.05	0.08	0.14	0.21	0.11	0.17
30.0	0.05	0.05	0.07	0.08	0.09	0.11	0.16	0.25	0.34	0.22	0.33
40.0	0.08	0.10	0.12	0.14	0.16	0.19	0.27	0.37	0.49	0.37	0.53
50.0	0.13	0.15	0.19	0.21	0.24	0.28	0.38	0.51	0.64	0.54	0.75
60.0	0.18	0.22	0.27	0.30	0.34	0.39	0.52	0.66	0.81	0.73	0.99
70.0	0.25	0.30	0.36	0.41	0.46	0.52	0.66	0.82	0.99	0.94	1.26
80.0	0.35	0.42	0.52	0.58	0.64	0.72	0.89	1.07	1.25	1.21	1.58
90.0	0.49	0.60	0.73	0.82	0.90	1.00	1.19	1.39	1.57	1.53	1.95
100.0	0.69	0.84	1.02	1.12	1.22	1.33	1.54	1.74	1.93	1.89	2.35
110.0	0.96	1.15	1.37	1.48	1.59	1.70	1.92	2.13	2.33	2.28	2.79
120.0	1.30	1.53	1.77	1.89	2.01	2.12	2.35	2.56	2.77	2.72	3.26
130.0	1.72	1.97	2.22	2.35	2.47	2.59	2.81	3.03	3.24	3.19	3.76
140.0	2.21	2.47	2.72	2.85	2.97	3.09	3.32	3.54	3.75	3.70	4.31
150.0	2.74	3.01	3.27	3.39	3.51	3.63	3.86	4.09	4.30	4.25	4.88
160.0	3.33	3.59	3.85	3.97	4.10	4.22	4.45	4.67	4.89	4.84	5.49
170.0	3.95	4.22	4.47	4.60	4.72	4.84	5.07	5.29	5.51	5.46	6.14
180.0	4.62	4.88	5.13	5.26	5.38	5.50	5.73	5.95	6.17	6.12	6.82
190.0	5.32	5.58	5.83	5.95	6.08	6.19	6.43	6.65	6.87	6.82	7.54
200.0	6.06	6.32	6.57	6.69	6.81	6.93	7.16	7.39	7.61	7.56	8.30
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	66.22	52.46	45.60	38.76	31.95	18.67	8.12	4.33	53.64	55.87
20.0	80.00	66.28	52.62	45.85	39.14	32.56	20.33	11.69	7.74	56.77	63.21
30.0	80.00	66.37	52.89	46.25	39.75	33.47	22.32	14.71	10.69	60.90	71.40
40.0	80.00	66.50	53.24	46.78	40.52	34.59	24.37	17.40	13.34	65.42	79.53
50.0	80.00	66.66	53.67	47.41	41.42	35.82	26.37	19.83	15.77	70.03	87.38
60.0	80.01	66.85	54.16	48.12	42.40	37.12	28.29	22.08	18.03	74.60	94.91
70.0	80.01	67.06	54.70	48.89	43.44	38.43	30.12	24.18	20.14	79.09	102.14
80.0	74.28	61.83	50.29	45.03	40.23	35.96	29.07	24.18	20.75	80.15	106.21
90.0	66.40	54.85	44.65	40.23	36.32	32.93	27.56	23.70	20.88	80.18	109.11
100.0	58.47	48.26	39.79	36.27	33.22	30.60	26.42	23.33	20.99	80.23	111.74
110.0	51.05	42.59	35.92	33.22	30.88	28.85	25.57	23.05	21.09	80.28	114.13
120.0	44.72	38.09	33.00	30.93	29.13	27.54	24.92	22.84	21.16	80.33	116.29
130.0	39.74	34.72	30.84	29.23	27.82	26.55	24.42	22.67	21.23	80.39	118.25
140.0	36.03	32.22	29.22	27.96	26.82	25.80	24.02	22.54	21.29	80.45	120.03
150.0	33.30	30.37	28.00	26.98	26.06	25.21	23.72	22.44	21.34	80.51	121.66
160.0	31.28	28.98	27.07	26.23	25.46	24.74	23.47	22.36	21.39	80.58	123.14
170.0	29.76	27.91	26.33	25.63	24.98	24.37	23.27	22.30	21.44	80.66	124.50
180.0	28.59	27.07	25.75	25.15	24.60	24.07	23.11	22.25	21.48	80.74	125.75
190.0	27.68	26.40	25.28	24.77	24.28	23.83	22.98	22.21	21.52	80.82	126.90
200.0	26.95	25.87	24.90	24.45	24.03	23.62	22.87	22.19	21.56	80.91	127.97

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia				Napreżenie podstawowe				Strona		
	SII SIIa				60.0 [MPa]				37		
Typ przewodu				Naciąg podstawowy							
SAX-W 50mm2 30kV				3.02 [kN]							
WIKROL		q= 50.3 [mm ²]		d= 15.0 [mm]		ap= 25.3 [m]		$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa	
Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.02	0.02	0.03	0.05	0.09	0.12	0.15	0.08	0.11
20.0	0.04	0.05	0.07	0.09	0.11	0.14	0.20	0.26	0.32	0.24	0.32
30.0	0.11	0.15	0.21	0.25	0.29	0.33	0.41	0.48	0.55	0.48	0.60
40.0	0.35	0.45	0.55	0.60	0.65	0.69	0.78	0.86	0.93	0.85	1.01
50.0	0.83	0.93	1.03	1.08	1.12	1.17	1.25	1.33	1.41	1.32	1.51
60.0	1.42	1.52	1.62	1.66	1.71	1.75	1.83	1.91	1.99	1.90	2.11
70.0	2.12	2.22	2.31	2.35	2.39	2.44	2.52	2.60	2.68	2.59	2.81
80.0	2.92	3.01	3.10	3.15	3.19	3.23	3.32	3.40	3.48	3.39	3.62
90.0	3.83	3.92	4.01	4.05	4.09	4.13	4.22	4.30	4.38	4.29	4.53
100.0	4.84	4.93	5.02	5.06	5.10	5.14	5.23	5.31	5.39	5.30	5.55
110.0	5.96	6.05	6.13	6.18	6.22	6.26	6.35	6.43	6.51	6.42	6.67
120.0	7.19	7.27	7.36	7.40	7.44	7.49	7.57	7.65	7.74	7.65	7.91
130.0	8.52	8.61	8.69	8.74	8.78	8.82	8.91	8.99	9.07	8.98	9.25
140.0	9.97	10.05	10.14	10.18	10.22	10.27	10.35	10.43	10.52	10.43	10.70
150.0	11.52	11.61	11.69	11.74	11.78	11.82	11.91	11.99	12.07	11.98	12.26
160.0	13.18	13.27	13.36	13.40	13.44	13.49	13.57	13.66	13.74	13.65	13.93
170.0	14.96	15.05	15.13	15.18	15.22	15.26	15.35	15.43	15.52	15.43	15.71
180.0	16.85	16.94	17.02	17.07	17.11	17.15	17.24	17.32	17.41	17.32	17.60
190.0	18.85	18.94	19.03	19.07	19.11	19.16	19.24	19.33	19.41	19.32	19.61
200.0	20.97	21.05	21.14	21.18	21.23	21.27	21.36	21.44	21.53	21.44	21.73
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	45.73	31.66	24.85	18.47	13.08	7.16	5.05	4.06	41.02	51.64
20.0	60.00	46.08	32.83	26.79	21.50	17.27	11.95	9.25	7.70	53.78	72.47
30.0	49.26	36.71	26.27	22.25	19.10	16.68	13.39	11.34	9.96	60.12	85.76
40.0	27.53	21.51	17.63	16.23	15.07	14.11	12.59	11.45	10.56	60.21	91.53
50.0	18.43	16.37	14.82	14.18	13.62	13.11	12.24	11.52	10.91	60.34	95.73
60.0	15.48	14.49	13.66	13.29	12.95	12.64	12.07	11.57	11.13	60.48	98.87
70.0	14.19	13.59	13.07	12.83	12.60	12.39	11.99	11.62	11.29	60.66	101.28
80.0	13.50	13.11	12.74	12.57	12.40	12.25	11.95	11.67	11.41	60.86	103.22
90.0	13.10	12.82	12.55	12.42	12.29	12.17	11.94	11.72	11.52	61.09	104.82
100.0	12.86	12.64	12.43	12.33	12.23	12.14	11.95	11.78	11.61	61.34	106.20
110.0	12.71	12.53	12.37	12.29	12.21	12.13	11.98	11.83	11.70	61.63	107.43
120.0	12.62	12.47	12.34	12.27	12.21	12.14	12.02	11.90	11.78	61.94	108.57
130.0	12.57	12.45	12.34	12.28	12.23	12.17	12.07	11.96	11.87	62.28	109.64
140.0	12.55	12.45	12.35	12.31	12.26	12.21	12.12	12.04	11.95	62.64	110.69
150.0	12.55	12.47	12.39	12.35	12.31	12.27	12.19	12.11	12.04	63.04	111.71
160.0	12.58	12.51	12.43	12.40	12.36	12.33	12.26	12.20	12.13	63.46	112.74
170.0	12.62	12.55	12.49	12.46	12.43	12.40	12.34	12.28	12.23	63.91	113.77
180.0	12.67	12.62	12.56	12.53	12.51	12.48	12.43	12.38	12.33	64.39	114.83
190.0	12.74	12.69	12.64	12.62	12.59	12.57	12.52	12.48	12.43	64.90	115.91
200.0	12.81	12.77	12.73	12.70	12.68	12.66	12.62	12.58	12.54	65.44	117.02

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia							Napreżenie podstawowe		Strona	
	SII SIIa							70.0 [MPa]		38	
WIKROL	Typ przewodu							Naciąg podstawowy			
	SAX-W 50mm ² 30kV							3.52 [kN]			
q= 50.3 [mm ²]		d= 15.0 [mm]		ap= 29.6 [m]		$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa			
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.06	0.10	0.13	0.07	0.10
20.0	0.03	0.04	0.06	0.07	0.08	0.10	0.16	0.22	0.28	0.21	0.30
30.0	0.08	0.10	0.13	0.15	0.18	0.21	0.29	0.37	0.45	0.41	0.55
40.0	0.20	0.26	0.35	0.40	0.45	0.50	0.60	0.69	0.77	0.72	0.91
50.0	0.50	0.62	0.74	0.79	0.85	0.90	1.00	1.09	1.18	1.13	1.35
60.0	1.00	1.12	1.24	1.29	1.34	1.40	1.50	1.59	1.68	1.63	1.88
70.0	1.60	1.72	1.83	1.88	1.93	1.99	2.08	2.18	2.27	2.22	2.49
80.0	2.29	2.40	2.51	2.56	2.62	2.67	2.77	2.86	2.95	2.90	3.19
90.0	3.07	3.18	3.29	3.34	3.39	3.44	3.54	3.63	3.73	3.68	3.98
100.0	3.94	4.05	4.15	4.20	4.25	4.30	4.40	4.50	4.59	4.54	4.85
110.0	4.90	5.01	5.11	5.16	5.21	5.26	5.36	5.45	5.55	5.50	5.82
120.0	5.95	6.05	6.16	6.21	6.26	6.31	6.40	6.50	6.60	6.54	6.88
130.0	7.09	7.20	7.30	7.35	7.40	7.45	7.54	7.64	7.74	7.69	8.03
140.0	8.33	8.43	8.53	8.58	8.63	8.68	8.78	8.87	8.97	8.92	9.27
150.0	9.65	9.76	9.86	9.91	9.96	10.01	10.10	10.20	10.30	10.25	10.60
160.0	11.08	11.18	11.28	11.33	11.38	11.43	11.53	11.62	11.72	11.67	12.03
170.0	12.59	12.69	12.79	12.84	12.89	12.94	13.04	13.14	13.24	13.19	13.55
180.0	14.20	14.30	14.40	14.45	14.50	14.55	14.65	14.75	14.85	14.80	15.17
190.0	15.90	16.00	16.11	16.16	16.21	16.26	16.36	16.45	16.55	16.50	16.88
200.0	17.70	17.80	17.91	17.96	18.01	18.06	18.16	18.26	18.35	18.31	18.68
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.67	41.44	34.41	27.51	20.92	10.62	6.31	4.68	48.28	57.62
20.0	70.00	55.89	42.10	35.48	29.22	23.58	15.32	10.97	8.71	59.62	77.44
30.0	69.23	55.48	42.38	36.31	30.77	25.97	18.92	14.72	12.19	70.10	94.68
40.0	48.40	37.01	28.02	24.60	21.83	19.62	16.40	14.23	12.68	70.18	101.45
50.0	30.32	24.64	20.75	19.28	18.05	16.99	15.30	13.99	12.96	70.29	106.69
60.0	22.04	19.64	17.82	17.07	16.39	15.79	14.74	13.88	13.14	70.41	110.77
70.0	18.74	17.48	16.43	15.97	15.54	15.15	14.44	13.82	13.27	70.56	114.00
80.0	17.14	16.35	15.66	15.35	15.06	14.78	14.26	13.79	13.37	70.74	116.61
90.0	16.24	15.70	15.20	14.98	14.76	14.55	14.15	13.79	13.46	70.93	118.77
100.0	15.68	15.28	14.91	14.74	14.57	14.41	14.10	13.81	13.53	71.15	120.60
110.0	15.32	15.01	14.72	14.59	14.45	14.32	14.07	13.83	13.61	71.39	122.19
120.0	15.08	14.84	14.60	14.49	14.38	14.27	14.06	13.87	13.68	71.66	123.60
130.0	14.92	14.72	14.53	14.43	14.34	14.25	14.08	13.91	13.75	71.95	124.89
140.0	14.81	14.65	14.48	14.40	14.33	14.25	14.10	13.96	13.82	72.26	126.09
150.0	14.75	14.60	14.47	14.40	14.33	14.27	14.14	14.02	13.90	72.60	127.23
160.0	14.71	14.59	14.47	14.41	14.36	14.30	14.19	14.08	13.97	72.96	128.33
170.0	14.70	14.59	14.49	14.44	14.39	14.34	14.24	14.15	14.05	73.34	129.40
180.0	14.71	14.62	14.52	14.48	14.44	14.39	14.31	14.22	14.14	73.75	130.47
190.0	14.73	14.65	14.57	14.53	14.49	14.45	14.38	14.30	14.23	74.18	131.53
200.0	14.77	14.70	14.63	14.59	14.56	14.52	14.45	14.39	14.32	74.64	132.60

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia		Naprezenie podstawowe		Strona						
	SII SIIa		75.0 [MPa]		39						
WIKROL	Typ przewodu		Naciąg podstawowy								
	SAX-W 50mm ² 30kV		3.77 [kN]								
q= 50.3 [mm ²]	d= 15.0 [mm]	ap= 31.7 [m]	α=0.0000230 1/°K	β=0.0000160 1/MPa							
Rozp. a [m]	Temperatura [°C]								sn	sk	
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.02	0.05	0.08	0.12	0.06	0.09
20.0	0.03	0.04	0.05	0.06	0.07	0.09	0.14	0.20	0.26	0.20	0.29
30.0	0.07	0.09	0.12	0.13	0.16	0.18	0.26	0.34	0.42	0.39	0.53
40.0	0.17	0.21	0.28	0.32	0.36	0.41	0.51	0.61	0.70	0.68	0.87
50.0	0.39	0.49	0.61	0.66	0.72	0.78	0.89	0.99	1.08	1.06	1.29
60.0	0.81	0.94	1.07	1.13	1.18	1.24	1.35	1.45	1.55	1.52	1.79
70.0	1.37	1.50	1.62	1.68	1.74	1.79	1.90	2.00	2.10	2.07	2.37
80.0	2.02	2.14	2.26	2.32	2.37	2.43	2.53	2.64	2.74	2.71	3.02
90.0	2.75	2.87	2.98	3.04	3.09	3.15	3.25	3.36	3.46	3.43	3.76
100.0	3.56	3.68	3.79	3.84	3.90	3.95	4.06	4.16	4.26	4.24	4.58
110.0	4.46	4.57	4.68	4.74	4.79	4.84	4.95	5.05	5.15	5.13	5.49
120.0	5.44	5.55	5.66	5.71	5.77	5.82	5.93	6.03	6.13	6.11	6.48
130.0	6.50	6.61	6.72	6.78	6.83	6.88	6.99	7.09	7.20	7.17	7.55
140.0	7.65	7.76	7.87	7.93	7.98	8.03	8.14	8.24	8.35	8.32	8.71
150.0	8.89	9.00	9.11	9.16	9.22	9.27	9.38	9.48	9.58	9.56	9.95
160.0	10.22	10.32	10.43	10.49	10.54	10.59	10.70	10.80	10.91	10.88	11.29
170.0	11.63	11.74	11.84	11.90	11.95	12.00	12.11	12.21	12.32	12.30	12.70
180.0	13.13	13.23	13.34	13.40	13.45	13.50	13.61	13.71	13.82	13.80	14.21
190.0	14.71	14.82	14.93	14.98	15.04	15.09	15.20	15.30	15.41	15.38	15.81
200.0	16.39	16.50	16.61	16.66	16.71	16.77	16.87	16.98	17.08	17.06	17.49
T A B L I C A N A P R E Z E N przy słupie [MPa]											
10.0	75.00	60.66	46.38	39.30	32.30	25.47	13.53	7.32	5.11	52.25	60.90
20.0	75.00	60.83	46.89	40.11	33.58	27.47	17.71	12.17	9.37	62.81	80.10
30.0	75.00	61.11	47.67	41.29	35.31	29.88	21.42	16.19	13.10	73.37	97.49
40.0	59.05	46.42	35.36	30.73	26.83	23.63	19.00	15.99	13.94	75.17	106.09
50.0	39.43	31.10	25.17	22.95	21.12	19.59	17.21	15.46	14.12	75.27	111.76
60.0	27.14	23.37	20.63	19.54	18.58	17.74	16.33	15.19	14.25	75.39	116.28
70.0	21.89	20.02	18.53	17.89	17.30	16.77	15.83	15.03	14.34	75.53	119.92
80.0	19.45	18.34	17.40	16.97	16.58	16.21	15.54	14.94	14.41	75.69	122.88
90.0	18.12	17.38	16.72	16.42	16.14	15.86	15.36	14.90	14.48	75.87	125.34
100.0	17.32	16.78	16.30	16.07	15.85	15.64	15.25	14.88	14.54	76.07	127.43
110.0	16.80	16.39	16.01	15.84	15.66	15.50	15.18	14.88	14.60	76.30	129.23
120.0	16.45	16.13	15.82	15.68	15.54	15.40	15.14	14.89	14.66	76.55	130.82
130.0	16.20	15.94	15.70	15.58	15.46	15.35	15.13	14.92	14.72	76.82	132.25
140.0	16.04	15.82	15.62	15.52	15.42	15.32	15.13	14.96	14.78	77.11	133.56
150.0	15.92	15.74	15.57	15.48	15.40	15.31	15.15	15.00	14.85	77.42	134.79
160.0	15.85	15.69	15.54	15.47	15.40	15.33	15.19	15.05	14.92	77.76	135.96
170.0	15.80	15.67	15.54	15.47	15.41	15.35	15.23	15.11	14.99	78.12	137.09
180.0	15.78	15.67	15.55	15.50	15.44	15.39	15.28	15.17	15.07	78.50	138.19
190.0	15.78	15.68	15.58	15.53	15.48	15.43	15.34	15.24	15.15	78.90	139.28
200.0	15.80	15.71	15.62	15.57	15.53	15.49	15.40	15.32	15.23	79.33	140.36

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						80.0 [MPa]			40	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 50mm2 30kV						4.02 [kN]				
q= 50.3 [mm ²]		d= 15.0 [mm]		ap= 33.8 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.07	0.11	0.06	0.09
20.0	0.03	0.04	0.05	0.05	0.06	0.08	0.12	0.18	0.24	0.19	0.28
30.0	0.07	0.08	0.10	0.12	0.14	0.16	0.23	0.31	0.39	0.37	0.52
40.0	0.14	0.17	0.22	0.26	0.30	0.34	0.44	0.54	0.63	0.63	0.83
50.0	0.31	0.39	0.49	0.55	0.61	0.67	0.78	0.89	0.99	0.99	1.23
60.0	0.65	0.78	0.91	0.97	1.04	1.10	1.21	1.32	1.43	1.43	1.71
70.0	1.15	1.29	1.42	1.49	1.55	1.61	1.73	1.84	1.94	1.94	2.26
80.0	1.76	1.90	2.02	2.09	2.15	2.21	2.32	2.43	2.54	2.54	2.88
90.0	2.45	2.58	2.70	2.76	2.82	2.88	3.00	3.11	3.21	3.21	3.58
100.0	3.21	3.34	3.46	3.52	3.58	3.64	3.75	3.86	3.97	3.97	4.35
110.0	4.05	4.18	4.30	4.36	4.41	4.47	4.58	4.70	4.80	4.81	5.20
120.0	4.97	5.09	5.21	5.27	5.33	5.39	5.50	5.61	5.72	5.72	6.13
130.0	5.97	6.09	6.21	6.27	6.33	6.38	6.50	6.61	6.72	6.72	7.14
140.0	7.05	7.17	7.29	7.34	7.40	7.46	7.57	7.68	7.79	7.80	8.23
150.0	8.21	8.33	8.45	8.50	8.56	8.62	8.73	8.84	8.95	8.95	9.40
160.0	9.45	9.57	9.68	9.74	9.80	9.86	9.97	10.08	10.19	10.19	10.64
170.0	10.77	10.89	11.01	11.06	11.12	11.18	11.29	11.40	11.51	11.52	11.97
180.0	12.18	12.29	12.41	12.47	12.52	12.58	12.69	12.80	12.92	12.92	13.38
190.0	13.66	13.78	13.89	13.95	14.01	14.06	14.18	14.29	14.40	14.41	14.88
200.0	15.23	15.35	15.46	15.52	15.57	15.63	15.75	15.86	15.97	15.98	16.45
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.65	51.34	44.23	37.17	30.21	17.23	8.79	5.67	56.39	64.36
20.0	80.00	65.79	51.74	44.85	38.13	31.70	20.66	13.70	10.16	66.17	82.88
30.0	80.00	66.01	52.37	45.80	39.52	33.67	24.03	17.74	14.03	76.34	100.00
40.0	69.05	55.76	43.44	37.89	32.94	28.67	22.26	18.12	15.40	80.16	110.57
50.0	49.72	39.17	30.91	27.70	25.04	22.85	19.52	17.16	15.43	80.25	116.63
60.0	34.02	28.28	24.19	22.60	21.23	20.06	18.14	16.65	15.45	80.36	121.55
70.0	25.97	23.18	21.03	20.14	19.34	18.62	17.39	16.35	15.48	80.49	125.56
80.0	22.26	20.68	19.38	18.81	18.29	17.80	16.93	16.17	15.51	80.64	128.88
90.0	20.31	19.30	18.42	18.02	17.65	17.29	16.65	16.07	15.54	80.81	131.65
100.0	19.16	18.45	17.81	17.51	17.23	16.96	16.46	16.00	15.58	81.01	134.00
110.0	18.42	17.89	17.40	17.17	16.95	16.74	16.34	15.97	15.62	81.22	136.03
120.0	17.92	17.51	17.13	16.94	16.77	16.59	16.27	15.96	15.67	81.45	137.82
130.0	17.58	17.25	16.93	16.78	16.64	16.50	16.22	15.96	15.71	81.70	139.42
140.0	17.33	17.06	16.80	16.68	16.55	16.43	16.20	15.98	15.77	81.98	140.87
150.0	17.16	16.93	16.71	16.61	16.50	16.40	16.20	16.01	15.82	82.27	142.21
160.0	17.04	16.84	16.66	16.56	16.47	16.39	16.21	16.05	15.88	82.58	143.47
170.0	16.96	16.79	16.62	16.54	16.47	16.39	16.24	16.09	15.95	82.92	144.67
180.0	16.90	16.76	16.61	16.54	16.47	16.41	16.27	16.14	16.02	83.28	145.82
190.0	16.88	16.75	16.62	16.56	16.50	16.44	16.32	16.20	16.09	83.65	146.95
200.0	16.87	16.75	16.64	16.59	16.53	16.48	16.37	16.27	16.17	84.05	148.05

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						60.0 [MPa]			41	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 70mm2 30kV						4.43 [kN]				
q= 73.9 [mm ²]		d= 16.6 [mm]		ap= 33.9 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.02	0.02	0.03	0.04	0.08	0.12	0.15	0.06	0.09
20.0	0.04	0.05	0.07	0.08	0.10	0.13	0.20	0.26	0.31	0.20	0.27
30.0	0.08	0.10	0.14	0.17	0.20	0.24	0.33	0.41	0.49	0.38	0.50
40.0	0.17	0.23	0.31	0.36	0.41	0.46	0.56	0.66	0.75	0.64	0.80
50.0	0.40	0.51	0.63	0.69	0.75	0.81	0.92	1.02	1.11	0.99	1.19
60.0	0.80	0.94	1.07	1.13	1.19	1.24	1.35	1.46	1.55	1.43	1.66
70.0	1.33	1.46	1.58	1.64	1.70	1.76	1.87	1.98	2.08	1.95	2.20
80.0	1.93	2.06	2.18	2.24	2.30	2.36	2.47	2.57	2.68	2.55	2.81
90.0	2.62	2.74	2.86	2.92	2.98	3.03	3.14	3.25	3.35	3.22	3.50
100.0	3.38	3.50	3.62	3.68	3.73	3.79	3.90	4.01	4.11	3.98	4.27
110.0	4.22	4.34	4.46	4.52	4.57	4.63	4.74	4.85	4.95	4.82	5.12
120.0	5.14	5.26	5.38	5.43	5.49	5.55	5.66	5.77	5.87	5.74	6.05
130.0	6.15	6.26	6.38	6.43	6.49	6.55	6.66	6.77	6.87	6.74	7.06
140.0	7.23	7.34	7.46	7.51	7.57	7.63	7.74	7.85	7.95	7.82	8.14
150.0	8.39	8.51	8.62	8.68	8.73	8.79	8.90	9.01	9.12	8.98	9.31
160.0	9.63	9.75	9.86	9.92	9.98	10.03	10.14	10.25	10.36	10.23	10.56
170.0	10.96	11.07	11.19	11.25	11.30	11.36	11.47	11.58	11.69	11.56	11.89
180.0	12.37	12.48	12.60	12.65	12.71	12.77	12.88	12.99	13.10	12.96	13.31
190.0	13.86	13.97	14.09	14.14	14.20	14.26	14.37	14.48	14.59	14.46	14.80
200.0	15.43	15.55	15.66	15.72	15.77	15.83	15.94	16.05	16.16	16.03	16.38
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	45.70	31.55	24.66	18.13	12.51	6.45	4.46	3.56	37.75	45.56
20.0	60.00	45.97	32.48	26.23	20.70	16.25	10.82	8.22	6.80	47.53	62.01
30.0	60.00	46.40	33.76	28.18	23.39	19.55	14.43	11.54	9.78	56.70	76.47
40.0	49.73	37.61	27.71	23.90	20.85	18.45	15.09	12.91	11.40	60.12	84.94
50.0	33.50	26.01	20.98	19.16	17.66	16.42	14.49	13.07	11.98	60.19	89.29
60.0	23.87	20.42	17.97	17.00	16.15	15.41	14.18	13.19	12.37	60.27	92.69
70.0	19.68	17.90	16.49	15.89	15.35	14.86	14.00	13.27	12.64	60.37	95.39
80.0	17.67	16.58	15.67	15.26	14.88	14.53	13.89	13.33	12.83	60.49	97.57
90.0	16.55	15.82	15.17	14.87	14.59	14.32	13.83	13.39	12.98	60.62	99.36
100.0	15.87	15.33	14.84	14.61	14.40	14.19	13.80	13.44	13.11	60.76	100.86
110.0	15.42	15.01	14.63	14.45	14.27	14.10	13.79	13.49	13.21	60.92	102.15
120.0	15.11	14.79	14.48	14.33	14.19	14.05	13.79	13.54	13.31	61.10	103.28
130.0	14.90	14.63	14.38	14.26	14.14	14.03	13.81	13.59	13.39	61.29	104.30
140.0	14.75	14.53	14.32	14.22	14.12	14.02	13.83	13.65	13.47	61.49	105.22
150.0	14.65	14.46	14.28	14.19	14.11	14.02	13.86	13.70	13.55	61.71	106.09
160.0	14.58	14.42	14.26	14.19	14.11	14.04	13.90	13.76	13.63	61.95	106.90
170.0	14.54	14.40	14.26	14.20	14.13	14.07	13.94	13.82	13.70	62.20	107.69
180.0	14.52	14.40	14.28	14.22	14.16	14.10	13.99	13.88	13.78	62.47	108.46
190.0	14.51	14.40	14.30	14.25	14.20	14.15	14.05	13.95	13.86	62.76	109.21
200.0	14.52	14.43	14.33	14.29	14.24	14.20	14.11	14.02	13.93	63.06	109.97

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia				Napreżenie podstawowe		Strona
	SII SIIa				70.0 [MPa]		42
WIKROL	Typ przewodu				Naciąg podstawowy		
	SAX-W 70mm ² 30kV				5.17 [kN]		
q= 73.9 [mm ²]	d= 16.6 [mm]	ap= 39.5 [m]	α=0.0000230 1/°K		β=0.0000160 1/MPa		

Rozp.	Temperatura [°C]									sn	sk
a [m]	-25	-15	-5	0	5	10	20	30	40	-5	-5

T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.02	0.03	0.05	0.09	0.13	0.05	0.08
20.0	0.03	0.04	0.05	0.06	0.07	0.09	0.15	0.22	0.28	0.18	0.25
30.0	0.07	0.09	0.11	0.13	0.16	0.19	0.27	0.36	0.44	0.34	0.47
40.0	0.12	0.15	0.20	0.23	0.27	0.31	0.41	0.52	0.62	0.55	0.72
50.0	0.24	0.31	0.41	0.46	0.52	0.58	0.70	0.82	0.93	0.85	1.08
60.0	0.48	0.60	0.74	0.81	0.88	0.95	1.07	1.19	1.31	1.23	1.49
70.0	0.87	1.02	1.17	1.25	1.32	1.38	1.51	1.64	1.75	1.67	1.96
80.0	1.38	1.54	1.68	1.76	1.83	1.89	2.02	2.15	2.27	2.18	2.50
90.0	1.97	2.12	2.27	2.34	2.41	2.47	2.60	2.73	2.85	2.76	3.10
100.0	2.63	2.77	2.92	2.99	3.05	3.12	3.25	3.38	3.50	3.41	3.77
110.0	3.35	3.49	3.63	3.70	3.77	3.84	3.97	4.09	4.22	4.13	4.51
120.0	4.14	4.28	4.42	4.49	4.56	4.62	4.75	4.88	5.00	4.92	5.31
130.0	5.00	5.14	5.28	5.35	5.41	5.48	5.61	5.73	5.86	5.77	6.17
140.0	5.93	6.07	6.20	6.27	6.34	6.40	6.53	6.66	6.78	6.70	7.11
150.0	6.92	7.06	7.20	7.26	7.33	7.40	7.52	7.65	7.78	7.69	8.11
160.0	7.99	8.13	8.26	8.33	8.39	8.46	8.59	8.72	8.84	8.76	9.18
170.0	9.12	9.26	9.39	9.46	9.52	9.59	9.72	9.85	9.98	9.89	10.32
180.0	10.33	10.46	10.60	10.66	10.73	10.79	10.92	11.05	11.18	11.09	11.53
190.0	11.60	11.73	11.87	11.93	12.00	12.07	12.20	12.32	12.45	12.37	12.81
200.0	12.94	13.08	13.21	13.28	13.34	13.41	13.54	13.67	13.80	13.71	14.16

T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.66	41.39	34.32	27.35	20.64	9.93	5.63	4.12	45.67	52.16
20.0	70.00	55.82	41.90	35.15	28.72	22.85	14.20	9.86	7.72	53.91	67.36
30.0	70.00	56.09	42.67	36.36	30.51	25.36	17.78	13.45	10.96	62.37	81.36
40.0	69.42	55.87	43.12	37.29	32.02	27.47	20.70	16.48	13.83	70.10	93.90
50.0	54.43	42.56	32.69	28.74	25.46	22.79	18.86	16.22	14.35	70.16	98.96
60.0	39.87	31.69	25.84	23.63	21.79	20.26	17.85	16.06	14.69	70.23	103.14
70.0	29.91	25.43	22.21	20.94	19.83	18.86	17.26	15.98	14.93	70.32	106.58
80.0	24.69	22.19	20.25	19.43	18.70	18.04	16.89	15.93	15.11	70.42	109.44
90.0	21.95	20.38	19.08	18.52	18.00	17.51	16.65	15.90	15.24	70.53	111.83
100.0	20.35	19.27	18.35	17.93	17.54	17.17	16.49	15.89	15.35	70.65	113.86
110.0	19.34	18.55	17.85	17.53	17.22	16.93	16.39	15.90	15.45	70.79	115.61
120.0	18.66	18.06	17.50	17.25	17.00	16.76	16.32	15.91	15.53	70.94	117.13
130.0	18.19	17.70	17.26	17.05	16.84	16.65	16.28	15.93	15.60	71.10	118.47
140.0	17.84	17.45	17.08	16.90	16.73	16.57	16.25	15.95	15.67	71.28	119.67
150.0	17.59	17.26	16.95	16.80	16.66	16.52	16.24	15.99	15.74	71.47	120.76
160.0	17.41	17.13	16.86	16.73	16.61	16.48	16.25	16.02	15.81	71.67	121.77
170.0	17.27	17.03	16.80	16.69	16.58	16.47	16.26	16.06	15.87	71.89	122.71
180.0	17.17	16.96	16.76	16.66	16.56	16.47	16.29	16.11	15.94	72.12	123.61
190.0	17.09	16.91	16.73	16.65	16.56	16.48	16.32	16.16	16.00	72.36	124.46
200.0	17.05	16.88	16.73	16.65	16.57	16.50	16.35	16.21	16.07	72.62	125.28

ENERGOLINIA w Poznaniu	Strefa obciążenia sędzia				Napężenie podstawowe		Strona
	SII SIIa				75.0 [MPa]		43
WIKROL	Typ przewodu				Naciąg podstawowy		
	SAX-W 70mm ² 30kV				5.54 [kN]		
q= 73.9 [mm ²]	d= 16.6 [mm]	ap= 42.4 [m]	$\alpha=0.0000230$ 1/°K		$\beta=0.0000160$ 1/MPa		

Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.04	0.08	0.12	0.05	0.08
20.0	0.03	0.03	0.05	0.05	0.06	0.08	0.13	0.19	0.26	0.17	0.24
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.24	0.33	0.41	0.33	0.46
40.0	0.11	0.14	0.18	0.20	0.23	0.27	0.37	0.47	0.58	0.52	0.70
50.0	0.21	0.26	0.33	0.38	0.43	0.49	0.61	0.73	0.84	0.80	1.03
60.0	0.38	0.48	0.61	0.68	0.74	0.81	0.95	1.08	1.20	1.15	1.42
70.0	0.69	0.84	0.99	1.07	1.15	1.22	1.36	1.49	1.61	1.56	1.87
80.0	1.14	1.31	1.47	1.54	1.62	1.69	1.83	1.96	2.09	2.04	2.38
90.0	1.68	1.85	2.01	2.08	2.16	2.23	2.37	2.51	2.63	2.58	2.95
100.0	2.29	2.46	2.61	2.69	2.76	2.83	2.97	3.11	3.24	3.18	3.58
110.0	2.97	3.13	3.28	3.36	3.43	3.50	3.64	3.78	3.91	3.85	4.27
120.0	3.71	3.87	4.02	4.09	4.16	4.24	4.38	4.51	4.64	4.59	5.02
130.0	4.52	4.67	4.82	4.89	4.96	5.03	5.17	5.31	5.44	5.39	5.83
140.0	5.38	5.53	5.68	5.75	5.82	5.90	6.03	6.17	6.30	6.25	6.70
150.0	6.31	6.46	6.61	6.68	6.75	6.82	6.96	7.10	7.23	7.18	7.64
160.0	7.31	7.45	7.60	7.67	7.74	7.81	7.95	8.09	8.22	8.17	8.64
170.0	8.36	8.51	8.66	8.73	8.80	8.87	9.01	9.14	9.28	9.22	9.71
180.0	9.49	9.63	9.78	9.85	9.92	9.99	10.13	10.27	10.40	10.35	10.84
190.0	10.67	10.82	10.96	11.03	11.10	11.18	11.31	11.45	11.59	11.53	12.04
200.0	11.93	12.07	12.21	12.29	12.36	12.43	12.57	12.70	12.84	12.79	13.30

	T A B L I C A N A P R E Ż E N przy słupie [MPa]										
10.0	75.00	60.64	46.34	39.23	32.19	25.28	12.96	6.60	4.52	49.93	55.78
20.0	75.00	60.78	46.73	39.86	33.19	26.89	16.68	11.03	8.33	57.41	70.26
30.0	75.00	60.99	47.34	40.80	34.60	28.93	20.04	14.71	11.71	65.46	83.96
40.0	75.00	61.27	48.12	41.95	36.22	31.08	23.07	17.94	14.77	73.28	96.63
50.0	64.52	51.70	40.19	35.20	30.87	27.22	21.78	18.19	15.75	75.15	103.52
60.0	49.96	39.59	31.49	28.33	25.70	23.51	20.17	17.79	16.02	75.22	108.00
70.0	37.61	30.97	26.20	24.34	22.77	21.41	19.23	17.54	16.21	75.30	111.77
80.0	29.88	26.08	23.25	22.09	21.07	20.17	18.64	17.39	16.35	75.39	114.95
90.0	25.65	23.35	21.52	20.74	20.03	19.39	18.25	17.29	16.46	75.49	117.64
100.0	23.24	21.72	20.44	19.88	19.35	18.87	17.99	17.22	16.54	75.61	119.94
110.0	21.75	20.67	19.72	19.29	18.89	18.51	17.81	17.19	16.62	75.74	121.93
120.0	20.77	19.95	19.22	18.88	18.56	18.25	17.69	17.17	16.69	75.88	123.66
130.0	20.09	19.44	18.86	18.59	18.32	18.07	17.60	17.16	16.75	76.03	125.19
140.0	19.60	19.08	18.60	18.37	18.15	17.94	17.54	17.17	16.81	76.19	126.56
150.0	19.23	18.80	18.40	18.21	18.03	17.85	17.50	17.18	16.87	76.37	127.79
160.0	18.96	18.60	18.26	18.09	17.94	17.78	17.48	17.20	16.93	76.56	128.92
170.0	18.76	18.45	18.15	18.01	17.87	17.74	17.48	17.23	16.99	76.76	129.97
180.0	18.60	18.33	18.08	17.95	17.83	17.71	17.48	17.26	17.05	76.97	130.95
190.0	18.48	18.25	18.02	17.91	17.81	17.70	17.50	17.30	17.11	77.20	131.88
200.0	18.39	18.19	17.99	17.89	17.80	17.70	17.52	17.34	17.17	77.44	132.76

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						80.0 [MPa]			44	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 70mm ² 30kV						5.91 [kN]				
q= 73.9 [mm ²]		d= 16.6 [mm]		ap= 45.2 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.07	0.11	0.04	0.07
20.0	0.03	0.03	0.04	0.05	0.06	0.07	0.11	0.17	0.23	0.16	0.23
30.0	0.06	0.07	0.09	0.11	0.12	0.15	0.21	0.29	0.38	0.31	0.44
40.0	0.11	0.13	0.16	0.18	0.21	0.24	0.33	0.44	0.54	0.50	0.69
50.0	0.18	0.22	0.28	0.31	0.36	0.41	0.52	0.65	0.77	0.75	0.99
60.0	0.32	0.40	0.50	0.56	0.63	0.69	0.83	0.97	1.09	1.07	1.36
70.0	0.56	0.69	0.83	0.91	0.99	1.06	1.21	1.35	1.48	1.46	1.79
80.0	0.93	1.10	1.26	1.35	1.43	1.50	1.65	1.80	1.93	1.91	2.27
90.0	1.42	1.60	1.77	1.85	1.93	2.01	2.16	2.30	2.44	2.42	2.81
100.0	1.99	2.17	2.33	2.42	2.50	2.57	2.72	2.87	3.01	2.98	3.41
110.0	2.62	2.80	2.96	3.04	3.12	3.20	3.35	3.49	3.63	3.61	4.06
120.0	3.32	3.49	3.65	3.73	3.81	3.89	4.04	4.18	4.32	4.30	4.77
130.0	4.07	4.24	4.40	4.48	4.56	4.63	4.78	4.93	5.07	5.05	5.53
140.0	4.89	5.05	5.21	5.29	5.36	5.44	5.59	5.74	5.88	5.86	6.36
150.0	5.76	5.92	6.08	6.16	6.23	6.31	6.46	6.60	6.75	6.72	7.24
160.0	6.69	6.85	7.01	7.08	7.16	7.24	7.38	7.53	7.68	7.65	8.18
170.0	7.68	7.84	8.00	8.07	8.15	8.22	8.37	8.52	8.66	8.64	9.18
180.0	8.73	8.89	9.05	9.12	9.20	9.27	9.42	9.57	9.72	9.69	10.24
190.0	9.85	10.00	10.16	10.23	10.31	10.39	10.53	10.68	10.83	10.81	11.36
200.0	11.02	11.18	11.33	11.41	11.48	11.56	11.71	11.85	12.00	11.98	12.54
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.63	51.31	44.18	37.08	30.07	16.83	8.05	5.03	54.35	59.59
20.0	80.00	65.74	51.62	44.66	37.84	31.26	19.77	12.54	9.08	61.10	73.31
30.0	80.00	65.91	52.10	45.40	38.95	32.88	22.76	16.25	12.59	68.70	86.67
40.0	80.00	66.15	52.74	46.34	40.28	34.70	25.58	19.50	15.74	76.26	99.17
50.0	73.95	60.60	48.09	42.36	37.14	32.54	25.36	20.55	17.37	80.14	107.93
60.0	60.19	48.36	38.29	34.11	30.53	27.53	22.96	19.79	17.51	80.20	112.68
70.0	46.81	37.93	31.21	28.58	26.36	24.49	21.52	19.31	17.61	80.28	116.74
80.0	36.61	31.04	26.94	25.31	23.89	22.66	20.62	19.00	17.68	80.36	120.21
90.0	30.38	27.02	24.42	23.34	22.38	21.51	20.03	18.79	17.75	80.46	123.19
100.0	26.79	24.62	22.86	22.09	21.40	20.76	19.62	18.65	17.80	80.57	125.75
110.0	24.61	23.10	21.83	21.26	20.73	20.23	19.34	18.55	17.85	80.69	127.98
120.0	23.19	22.08	21.11	20.67	20.26	19.86	19.14	18.49	17.90	80.82	129.94
130.0	22.23	21.37	20.60	20.25	19.91	19.59	19.00	18.45	17.95	80.96	131.67
140.0	21.53	20.85	20.23	19.94	19.66	19.39	18.89	18.42	17.99	81.12	133.21
150.0	21.02	20.47	19.95	19.71	19.47	19.25	18.82	18.41	18.04	81.28	134.60
160.0	20.64	20.17	19.74	19.53	19.33	19.14	18.77	18.42	18.08	81.46	135.87
170.0	20.35	19.95	19.58	19.40	19.23	19.06	18.73	18.43	18.13	81.65	137.04
180.0	20.12	19.78	19.46	19.30	19.15	19.00	18.72	18.44	18.18	81.85	138.12
190.0	19.95	19.65	19.37	19.23	19.10	18.97	18.71	18.47	18.24	82.06	139.14
200.0	19.81	19.55	19.30	19.18	19.06	18.94	18.72	18.50	18.29	82.29	140.10

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						60.0 [MPa]			45	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm2 30kV						7.72 [kN]				
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 49.5 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.02	0.03	0.04	0.08	0.12	0.15	0.05	0.07
20.0	0.03	0.04	0.06	0.07	0.09	0.12	0.19	0.25	0.31	0.16	0.22
30.0	0.07	0.09	0.13	0.15	0.19	0.23	0.32	0.41	0.48	0.31	0.41
40.0	0.12	0.16	0.22	0.26	0.30	0.35	0.46	0.57	0.67	0.49	0.64
50.0	0.20	0.25	0.33	0.38	0.44	0.50	0.63	0.75	0.87	0.69	0.89
60.0	0.35	0.45	0.57	0.64	0.72	0.79	0.93	1.06	1.18	1.00	1.23
70.0	0.60	0.74	0.90	0.98	1.06	1.14	1.29	1.42	1.55	1.36	1.62
80.0	0.96	1.13	1.31	1.39	1.47	1.55	1.70	1.84	1.97	1.77	2.06
90.0	1.41	1.60	1.77	1.86	1.94	2.02	2.17	2.31	2.45	2.24	2.55
100.0	1.94	2.12	2.30	2.38	2.46	2.54	2.69	2.84	2.98	2.77	3.10
110.0	2.52	2.70	2.88	2.96	3.04	3.12	3.27	3.42	3.57	3.35	3.70
120.0	3.17	3.34	3.51	3.60	3.68	3.76	3.91	4.06	4.21	3.99	4.35
130.0	3.86	4.04	4.21	4.29	4.37	4.45	4.60	4.76	4.90	4.68	5.06
140.0	4.62	4.79	4.95	5.04	5.12	5.20	5.35	5.50	5.65	5.43	5.82
150.0	5.42	5.59	5.76	5.84	5.92	6.00	6.16	6.31	6.46	6.24	6.63
160.0	6.29	6.46	6.62	6.70	6.78	6.86	7.02	7.17	7.32	7.10	7.50
170.0	7.20	7.37	7.54	7.62	7.70	7.78	7.94	8.09	8.24	8.02	8.43
180.0	8.18	8.35	8.51	8.59	8.67	8.75	8.91	9.06	9.22	8.99	9.41
190.0	9.21	9.38	9.54	9.62	9.70	9.78	9.94	10.09	10.25	10.02	10.44
200.0	10.30	10.46	10.63	10.71	10.79	10.87	11.02	11.18	11.33	11.11	11.54
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	60.00	45.68	31.48	24.52	17.87	12.04	5.84	3.96	3.15	34.89	39.72
20.0	60.00	45.89	32.21	25.80	20.04	15.38	9.85	7.36	6.04	41.50	51.41
30.0	60.00	46.23	33.26	27.45	22.43	18.40	13.19	10.38	8.73	48.17	62.11
40.0	60.00	46.66	34.49	29.22	24.73	21.10	16.11	13.12	11.23	54.46	71.87
50.0	59.51	46.71	35.41	30.64	26.61	23.32	18.58	15.54	13.50	60.09	80.66
60.0	48.50	37.73	29.35	26.14	23.50	21.35	18.13	15.89	14.25	60.13	83.99
70.0	38.44	30.79	25.36	23.30	21.58	20.13	17.84	16.13	14.80	60.18	86.79
80.0	31.21	26.39	22.93	21.56	20.38	19.36	17.66	16.31	15.21	60.24	89.15
90.0	26.79	23.74	21.42	20.46	19.60	18.84	17.53	16.45	15.53	60.30	91.14
100.0	24.15	22.09	20.43	19.72	19.08	18.49	17.45	16.56	15.79	60.37	92.84
110.0	22.48	21.00	19.76	19.21	18.71	18.24	17.39	16.65	15.99	60.44	94.29
120.0	21.36	20.25	19.28	18.85	18.44	18.06	17.35	16.73	16.16	60.53	95.56
130.0	20.58	19.71	18.94	18.58	18.24	17.92	17.33	16.79	16.30	60.62	96.66
140.0	20.02	19.31	18.68	18.38	18.10	17.83	17.32	16.86	16.43	60.72	97.65
150.0	19.60	19.02	18.48	18.23	17.99	17.76	17.32	16.92	16.54	60.83	98.52
160.0	19.28	18.79	18.33	18.12	17.91	17.71	17.33	16.97	16.64	60.94	99.32
170.0	19.03	18.62	18.22	18.04	17.85	17.68	17.34	17.03	16.73	61.06	100.05
180.0	18.84	18.48	18.14	17.97	17.81	17.66	17.36	17.08	16.81	61.19	100.72
190.0	18.69	18.38	18.08	17.93	17.79	17.65	17.39	17.13	16.89	61.33	101.35
200.0	18.58	18.30	18.03	17.90	17.78	17.65	17.41	17.18	16.96	61.47	101.95

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona		
	SII SIIa						70.0 [MPa]			46		
WIKROL	Typ przewodu						Naciąg podstawowy					
	SAX-W 120mm ² 30kV						9.01 [kN]					
	q=128.7 [mm ²]	d= 19.8 [mm]	ap= 57.7 [m]	α=0.0000230 1/°K			β=0.0000160 1/MPa					
Rozp. a [m]	Temperatura [°C]										sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5	
	T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.02	0.02	0.05	0.09	0.13	0.04	0.06	
20.0	0.03	0.03	0.04	0.05	0.07	0.08	0.14	0.21	0.27	0.14	0.20	
30.0	0.06	0.08	0.10	0.12	0.14	0.17	0.25	0.34	0.43	0.27	0.38	
40.0	0.11	0.13	0.17	0.20	0.24	0.28	0.38	0.49	0.60	0.44	0.59	
50.0	0.17	0.21	0.26	0.30	0.35	0.41	0.53	0.66	0.78	0.63	0.83	
60.0	0.25	0.31	0.39	0.44	0.50	0.57	0.71	0.85	0.99	0.85	1.11	
70.0	0.39	0.49	0.62	0.69	0.77	0.85	1.01	1.16	1.31	1.16	1.46	
80.0	0.61	0.76	0.92	1.01	1.10	1.19	1.36	1.52	1.67	1.52	1.85	
90.0	0.93	1.11	1.30	1.40	1.49	1.58	1.75	1.92	2.08	1.92	2.28	
100.0	1.34	1.54	1.74	1.84	1.93	2.02	2.20	2.37	2.53	2.37	2.76	
110.0	1.82	2.03	2.23	2.33	2.43	2.52	2.70	2.87	3.03	2.87	3.29	
120.0	2.36	2.57	2.77	2.87	2.97	3.06	3.24	3.42	3.58	3.42	3.86	
130.0	2.96	3.17	3.37	3.46	3.56	3.65	3.83	4.01	4.18	4.01	4.47	
140.0	3.60	3.81	4.01	4.10	4.20	4.29	4.47	4.65	4.82	4.65	5.13	
150.0	4.29	4.50	4.70	4.79	4.89	4.98	5.16	5.34	5.51	5.34	5.83	
160.0	5.03	5.24	5.43	5.53	5.62	5.72	5.90	6.08	6.25	6.08	6.59	
170.0	5.82	6.02	6.22	6.31	6.41	6.50	6.68	6.86	7.04	6.86	7.38	
180.0	6.66	6.85	7.05	7.14	7.24	7.33	7.52	7.70	7.87	7.70	8.23	
190.0	7.54	7.74	7.93	8.03	8.12	8.21	8.40	8.58	8.75	8.58	9.12	
200.0	8.47	8.67	8.86	8.95	9.05	9.14	9.33	9.51	9.68	9.51	10.06	
	T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	70.00	55.64	41.35	34.25	27.24	20.43	9.34	5.05	3.66	43.56	47.23	
20.0	70.00	55.77	41.75	34.91	28.34	22.27	13.25	8.91	6.89	48.68	57.42	
30.0	70.00	55.98	42.37	35.89	29.83	24.44	16.55	12.21	9.82	54.50	67.48	
40.0	70.00	56.26	43.15	37.07	31.50	26.64	19.45	15.13	12.52	60.30	76.92	
50.0	70.01	56.59	44.05	38.35	33.22	28.77	22.08	17.79	15.03	65.91	85.78	
60.0	67.94	55.03	43.30	38.13	33.56	29.64	23.70	19.72	17.01	70.11	93.11	
70.0	58.20	46.71	37.10	33.17	29.82	27.02	22.74	19.73	17.55	70.15	96.39	
80.0	48.71	39.46	32.37	29.58	27.22	25.22	22.08	19.75	17.96	70.20	99.25	
90.0	40.76	34.05	29.10	27.14	25.46	24.00	21.62	19.76	18.28	70.25	101.75	
100.0	34.99	30.38	26.90	25.49	24.25	23.15	21.29	19.78	18.54	70.31	103.93	
110.0	31.14	27.92	25.40	24.34	23.39	22.53	21.05	19.80	18.74	70.38	105.84	
120.0	28.57	26.24	24.34	23.52	22.77	22.09	20.87	19.82	18.91	70.45	107.52	
130.0	26.82	25.06	23.58	22.92	22.32	21.75	20.74	19.85	19.06	70.53	109.01	
140.0	25.57	24.19	23.01	22.47	21.97	21.50	20.64	19.87	19.18	70.62	110.34	
150.0	24.65	23.55	22.57	22.12	21.70	21.30	20.56	19.90	19.29	70.71	111.53	
160.0	23.96	23.05	22.23	21.85	21.49	21.15	20.51	19.92	19.38	70.81	112.61	
170.0	23.43	22.66	21.97	21.64	21.33	21.03	20.47	19.95	19.47	70.91	113.59	
180.0	23.01	22.36	21.76	21.48	21.20	20.94	20.45	19.98	19.55	71.02	114.48	
190.0	22.68	22.12	21.59	21.34	21.10	20.87	20.43	20.02	19.63	71.14	115.31	
200.0	22.41	21.92	21.46	21.24	21.03	20.82	20.43	20.05	19.70	71.26	116.08	

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						75.0 [MPa]			47	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 30kV						9.65 [kN]				
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 61.9 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.08	0.12	0.03	0.06
20.0	0.02	0.03	0.04	0.05	0.06	0.07	0.12	0.19	0.25	0.13	0.19
30.0	0.06	0.07	0.09	0.10	0.12	0.15	0.22	0.31	0.40	0.26	0.37
40.0	0.10	0.12	0.16	0.18	0.21	0.25	0.35	0.46	0.56	0.42	0.57
50.0	0.16	0.19	0.24	0.27	0.32	0.37	0.48	0.61	0.73	0.60	0.81
60.0	0.22	0.27	0.34	0.39	0.44	0.50	0.63	0.78	0.92	0.81	1.07
70.0	0.34	0.41	0.52	0.58	0.65	0.73	0.89	1.05	1.20	1.08	1.39
80.0	0.51	0.63	0.78	0.86	0.94	1.03	1.21	1.38	1.54	1.42	1.76
90.0	0.76	0.92	1.11	1.20	1.30	1.39	1.57	1.75	1.92	1.79	2.18
100.0	1.10	1.30	1.50	1.60	1.70	1.80	1.99	2.17	2.34	2.21	2.63
110.0	1.52	1.74	1.95	2.06	2.16	2.26	2.45	2.63	2.81	2.68	3.13
120.0	2.01	2.24	2.46	2.56	2.66	2.76	2.96	3.14	3.32	3.19	3.66
130.0	2.56	2.79	3.01	3.11	3.21	3.31	3.51	3.70	3.88	3.74	4.24
140.0	3.16	3.39	3.60	3.71	3.81	3.91	4.11	4.29	4.48	4.34	4.86
150.0	3.81	4.03	4.24	4.35	4.45	4.55	4.75	4.94	5.12	4.98	5.52
160.0	4.50	4.72	4.93	5.03	5.14	5.24	5.43	5.62	5.81	5.67	6.23
170.0	5.23	5.45	5.66	5.77	5.87	5.97	6.16	6.36	6.54	6.41	6.98
180.0	6.01	6.23	6.44	6.54	6.64	6.74	6.94	7.13	7.32	7.18	7.77
190.0	6.84	7.05	7.26	7.36	7.46	7.56	7.76	7.95	8.14	8.00	8.60
200.0	7.70	7.92	8.13	8.23	8.33	8.43	8.63	8.82	9.01	8.87	9.48
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	75.00	60.63	46.31	39.18	32.11	25.14	12.51	5.98	4.02	48.13	51.30
20.0	75.00	60.74	46.62	39.68	32.90	26.45	15.81	10.04	7.45	52.60	60.72
30.0	75.00	60.90	47.10	40.43	34.06	28.17	18.87	13.44	10.52	57.96	70.38
40.0	75.00	61.13	47.73	41.38	35.42	30.04	21.64	16.43	13.32	63.48	79.62
50.0	75.01	61.40	48.47	42.45	36.89	31.93	24.19	19.13	15.91	68.89	88.35
60.0	75.01	61.72	49.28	43.59	38.39	33.79	26.54	21.62	18.32	74.13	96.62
70.0	67.73	55.28	44.19	39.37	35.13	31.48	25.84	21.92	19.15	75.14	100.93
80.0	58.44	47.53	38.53	34.84	31.68	29.00	24.81	21.78	19.52	75.19	103.99
90.0	49.70	40.96	34.21	31.52	29.21	27.24	24.07	21.67	19.81	75.24	106.70
100.0	42.48	36.01	31.13	29.18	27.48	25.99	23.54	21.60	20.04	75.29	109.10
110.0	37.15	32.53	28.99	27.53	26.24	25.10	23.15	21.55	20.23	75.36	111.22
120.0	33.45	30.11	27.47	26.36	25.35	24.44	22.85	21.52	20.39	75.42	113.10
130.0	30.88	28.40	26.37	25.49	24.68	23.94	22.63	21.50	20.52	75.50	114.79
140.0	29.07	27.16	25.55	24.84	24.18	23.57	22.46	21.49	20.63	75.58	116.29
150.0	27.75	26.24	24.93	24.34	23.79	23.27	22.33	21.49	20.73	75.66	117.65
160.0	26.76	25.53	24.45	23.95	23.48	23.04	22.23	21.49	20.82	75.75	118.88
170.0	26.01	24.98	24.07	23.65	23.24	22.86	22.15	21.50	20.90	75.85	120.00
180.0	25.41	24.55	23.77	23.40	23.05	22.72	22.09	21.51	20.97	75.95	121.02
190.0	24.94	24.20	23.52	23.20	22.90	22.60	22.05	21.53	21.04	76.06	121.96
200.0	24.57	23.92	23.33	23.05	22.77	22.51	22.01	21.55	21.11	76.18	122.83

ENERGOLINIA w Poznaniu	Strefa obciążenia sadzia						Napreżenie podstawowe			Strona	
	SII SIIa						80.0 [MPa]			48	
WIKROL	Typ przewodu						Naciąg podstawowy				
	SAX-W 120mm ² 30kV						10.30 [kN]				
q=128.7 [mm ²]		d= 19.8 [mm]		ap= 66.0 [m]		α=0.0000230 1/°K			β=0.0000160 1/MPa		
Rozp. a [m]	Temperatura [°C]									sn	sk
	-25	-15	-5	0	5	10	20	30	40	-5	-5
T A B L I C A Z W I S O W [m]											
10.0	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.06	0.10	0.03	0.05
20.0	0.02	0.03	0.04	0.04	0.05	0.06	0.10	0.16	0.23	0.12	0.18
30.0	0.05	0.06	0.08	0.09	0.11	0.13	0.19	0.28	0.37	0.24	0.35
40.0	0.09	0.11	0.14	0.16	0.19	0.22	0.31	0.42	0.52	0.40	0.55
50.0	0.15	0.18	0.22	0.25	0.29	0.33	0.44	0.56	0.69	0.58	0.79
60.0	0.21	0.25	0.31	0.35	0.40	0.45	0.58	0.73	0.87	0.78	1.04
70.0	0.30	0.36	0.44	0.50	0.56	0.63	0.78	0.94	1.09	1.02	1.33
80.0	0.44	0.53	0.66	0.73	0.81	0.89	1.07	1.24	1.41	1.33	1.69
90.0	0.64	0.78	0.94	1.03	1.12	1.22	1.41	1.59	1.77	1.68	2.08
100.0	0.91	1.09	1.29	1.39	1.50	1.60	1.79	1.98	2.16	2.08	2.51
110.0	1.27	1.48	1.70	1.81	1.92	2.02	2.22	2.42	2.60	2.51	2.99
120.0	1.71	1.94	2.16	2.28	2.38	2.49	2.70	2.89	3.08	2.99	3.49
130.0	2.21	2.45	2.68	2.79	2.90	3.00	3.21	3.41	3.60	3.51	4.04
140.0	2.76	3.00	3.23	3.34	3.45	3.56	3.77	3.97	4.16	4.07	4.63
150.0	3.36	3.60	3.83	3.94	4.05	4.16	4.37	4.57	4.77	4.67	5.25
160.0	4.01	4.25	4.47	4.59	4.70	4.80	5.01	5.22	5.41	5.32	5.92
170.0	4.70	4.93	5.16	5.27	5.38	5.49	5.70	5.90	6.10	6.00	6.62
180.0	5.43	5.66	5.89	6.00	6.11	6.21	6.42	6.63	6.83	6.73	7.37
190.0	6.20	6.43	6.66	6.77	6.88	6.98	7.19	7.40	7.60	7.50	8.16
200.0	7.01	7.24	7.47	7.58	7.69	7.79	8.00	8.21	8.41	8.31	8.98
T A B L I C A N A P R E Ż E N przy słupie [MPa]											
10.0	80.00	65.63	51.28	44.14	37.02	29.97	16.52	7.42	4.49	52.80	55.55
20.0	80.00	65.71	51.52	44.52	37.62	30.92	19.03	11.55	8.16	56.70	64.19
30.0	80.00	65.84	51.91	45.11	38.51	32.26	21.69	14.97	11.36	61.61	73.44
40.0	80.00	66.03	52.42	45.87	39.62	33.81	24.24	17.98	14.26	66.82	82.43
50.0	80.01	66.26	53.02	46.75	40.85	35.45	26.64	20.70	16.92	72.02	91.01
60.0	80.01	66.52	53.71	47.72	42.15	37.10	28.90	23.20	19.38	77.11	99.19
70.0	76.71	63.68	51.59	46.09	41.07	36.62	29.47	24.44	20.94	80.13	105.34
80.0	67.98	55.97	45.43	40.89	36.89	33.43	27.98	24.08	21.24	80.18	108.57
90.0	59.18	48.77	40.22	36.70	33.65	31.04	26.89	23.81	21.48	80.22	111.47
100.0	51.10	42.72	36.19	33.56	31.28	29.30	26.09	23.61	21.66	80.28	114.06
110.0	44.44	38.11	33.26	31.28	29.55	28.03	25.49	23.47	21.82	80.33	116.37
120.0	39.43	34.76	31.14	29.63	28.29	27.09	25.04	23.35	21.95	80.40	118.45
130.0	35.83	32.36	29.59	28.41	27.35	26.38	24.70	23.27	22.05	80.47	120.32
140.0	33.25	30.61	28.44	27.50	26.64	25.84	24.43	23.21	22.15	80.54	122.00
150.0	31.38	29.31	27.57	26.80	26.08	25.42	24.22	23.16	22.23	80.62	123.52
160.0	29.99	28.33	26.90	26.25	25.65	25.08	24.05	23.13	22.31	80.71	124.90
170.0	28.93	27.56	26.37	25.82	25.31	24.82	23.92	23.11	22.38	80.80	126.17
180.0	28.10	26.96	25.94	25.47	25.03	24.61	23.82	23.10	22.44	80.89	127.32
190.0	27.45	26.48	25.60	25.20	24.81	24.43	23.74	23.09	22.50	81.00	128.39
200.0	26.92	26.09	25.33	24.97	24.62	24.29	23.67	23.10	22.56	81.10	129.37