

DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH
(DECLARATION OF PERFORMANCE)
Nr (No.) **NDWU/1/TUBUS 4 D50L/2021**

1. Niepowtarzalny kod identyfikacyjny typu wyrobu:
(Unique identification code of the product-type:)
TUBUS 4

2. Zamierzone zastosowanie lub zastosowania: W instalacjach grzewczych w budynkach
(Intended use/es: In heating systems in buildings)

3. Producent:
(Manufacturer:)
INSTAL-PROJEKT Gawłowscy, Ścierzyńscy Spółka jawna, Nowa Wieś k/ Włocławka, ul. Jana Pawła II 12A, 87-853 Kruszyn, Polska.
(INSTAL-PROJEKT Gawłowscy, Ścierzyńscy Spółka jawna, 87-853 Kruszyn, Nowa Wieś near Włocławek, Jana Pawła II 12A str., Poland.)

4. System(-y) oceny i weryfikacji stałości właściwości użytkowych:
(System/s of AVCP:)
System 3

5. Norma zharmonizowana:
(Harmonised standard:)
PN-EN 442-1:2015
EN 442-1:2014

6. Jednostka lub jednostki notyfikowane:
(Notified body/ies:)
Notyfikowana jednostka badawcza Instytut Energetyki - Oddział Techniki Grzewczej i Sanitarnej ul. Wilcza 8, PL- 26-610 Radom . Nr akredytacji: AB 143, Nr notyfikacji: 1452, wykonała wstępne badanie typu i wydała sprawozdanie z badań.
(Notified accredited body Instytut Energetyki - Oddział Techniki Grzewczej i Sanitarnej ul. Wilcza 8, PL- 26-610 Radom. Accreditation no. AB 143, Notification no. 1452, performed initial type testing and issued test reports)

7. Deklarowane właściwości użytkowe:
(Declared performance/s:)

Zasadnicze charakterystyki Essential characteristics	Właściwości użytkowe Performance	Zharmonizowana specyfikacja techniczna Harmonised technical specification
Reakcja na ogień (Reaction to fire)	A1	PN-EN 442-1:2015 EN 442-1:2014
Uwalnianie substancji niebezpiecznych (Release of dangerous substances)	Nie ma (None)	
Szczelność pod działaniem ciśnienia (Pressure tightness)	Brak przecieku przy ciśnieniu 1,3 krotnie większym od maksymalnego ciśnienia [kPa] (No leakage at 1,3 x maximum operating pressure [kPa])	
Temperatura powierzchni (Surface temperature)	Maksymalnie 95 °C (Maximum 95 °C)	
Odporność na działanie ciśnienia (Resistance to pressure)	Brak pęknięć przy ciśnieniu 1,69 krotnie większym od maksymalnego dopuszczalnego ciśnienia roboczego [kPa]. (No breakage at 1,69 x maximum operating pressure [kPa]) Maksymalne dopuszczalne ciśnienie robocze: 1000 [kPa] (Maximum operating pressure 1000 [kPa])	
Nominalna moc cieplna (Φ 50 , Φ 30) (Rated thermal output) (Φ 50 , Φ 30)	Patrz Tabela nr.1 (See Table No.1)	
Moc cieplna w różnych warunkach eksploatacyjnych (charakterystyka) (Thermal output in different operating conditions (characteristic curve))	Patrz Tabela nr.1 (See Table No.1)	
Odporność na korozję (Resistance against corrosion)	Brak korozji po 100 h w wilgoci (No corrosion after 100 h humidity)	
Odporność na słabe uderzenia (Resistance against minor impact)	Klasa 0 (Class 0)	

8. Właściwości użytkowe określonego powyżej wyrobu są zgodne z zestawem deklarowanych właściwości użytkowych. Niniejsza deklaracja właściwości użytkowych wydana zostaje zgodnie z rozporządzeniem (UE) nr 305/2011 na wyłączną odpowiedzialność producenta określonego powyżej.
(The performance of the product identified above is in conformity with the set of declared performance's. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.)

Tabela nr 1

(Table no. 1)

Model grzejnika	Normalna moc cieplna [W] (75/65/20°C) ϕ_{50}	Moc cieplna [W] (55/45/20°C) ϕ_{30}	Wykładnik n	ΔT	K_M	Moc cieplna w różnych warunkach eksploatacji				
Radiator model	Rated thermal output (75/65/20°C) ϕ_{50}	Rated thermal output (55/45/20°C) ϕ_{30}	Index exponent n	ΔT	K_M	Thermal output in different operating conditions (characteristic curve)				
TUB4-030/02D50L	91	47	1,2720	50	0,6252	$\phi =$	0,6252	x	ΔT	1,2720
TUB4-030/03D50L	136	71	1,2720	50	0,9378	$\phi =$	0,9378	x	ΔT	1,2720
TUB4-030/04D50L	181	95	1,2720	50	1,2505	$\phi =$	1,2505	x	ΔT	1,2720
TUB4-030/05D50L	227	118	1,2720	50	1,5631	$\phi =$	1,5631	x	ΔT	1,2720
TUB4-030/06D50L	272	142	1,2720	50	1,8757	$\phi =$	1,8757	x	ΔT	1,2720
TUB4-030/07D50L	317	166	1,2720	50	2,1883	$\phi =$	2,1883	x	ΔT	1,2720
TUB4-030/08D50L	362	189	1,2720	50	2,5009	$\phi =$	2,5009	x	ΔT	1,2720
TUB4-030/09D50L	408	213	1,2720	50	2,8135	$\phi =$	2,8135	x	ΔT	1,2720
TUB4-030/10D50L	453	237	1,2720	50	3,1261	$\phi =$	3,1261	x	ΔT	1,2720
TUB4-030/11D50L	498	260	1,2720	50	3,4388	$\phi =$	3,4388	x	ΔT	1,2720
TUB4-030/12D50L	544	284	1,2720	50	3,7514	$\phi =$	3,7514	x	ΔT	1,2720
TUB4-030/13D50L	589	308	1,2720	50	4,0640	$\phi =$	4,0640	x	ΔT	1,2720
TUB4-030/14D50L	634	331	1,2720	50	4,3766	$\phi =$	4,3766	x	ΔT	1,2720
TUB4-030/15D50L	680	355	1,2720	50	4,6892	$\phi =$	4,6892	x	ΔT	1,2720
TUB4-030/16D50L	725	378	1,2720	50	5,0018	$\phi =$	5,0018	x	ΔT	1,2720
TUB4-030/17D50L	770	402	1,2720	50	5,3144	$\phi =$	5,3144	x	ΔT	1,2720
TUB4-030/18D50L	815	426	1,2720	50	5,6271	$\phi =$	5,6271	x	ΔT	1,2720
TUB4-030/19D50L	861	449	1,2720	50	5,9397	$\phi =$	5,9397	x	ΔT	1,2720
TUB4-030/20D50L	906	473	1,2720	50	6,2523	$\phi =$	6,2523	x	ΔT	1,2720
TUB4-030/21D50L	951	497	1,2720	50	6,5649	$\phi =$	6,5649	x	ΔT	1,2720
TUB4-030/22D50L	997	520	1,2720	50	6,8775	$\phi =$	6,8775	x	ΔT	1,2720
TUB4-030/23D50L	1042	544	1,2720	50	7,1901	$\phi =$	7,1901	x	ΔT	1,2720
TUB4-030/24D50L	1087	568	1,2720	50	7,5027	$\phi =$	7,5027	x	ΔT	1,2720
TUB4-030/25D50L	1133	591	1,2720	50	7,8153	$\phi =$	7,8153	x	ΔT	1,2720
TUB4-030/26D50L	1178	615	1,2720	50	8,1280	$\phi =$	8,1280	x	ΔT	1,2720
TUB4-030/27D50L	1223	639	1,2720	50	8,4406	$\phi =$	8,4406	x	ΔT	1,2720
TUB4-030/28D50L	1268	662	1,2720	50	8,7532	$\phi =$	8,7532	x	ΔT	1,2720
TUB4-030/29D50L	1314	686	1,2720	50	9,0658	$\phi =$	9,0658	x	ΔT	1,2720
TUB4-030/30D50L	1359	710	1,2720	50	9,3784	$\phi =$	9,3784	x	ΔT	1,2720
TUB4-030/31D50L	1404	733	1,2720	50	9,6910	$\phi =$	9,6910	x	ΔT	1,2720
TUB4-030/32D50L	1450	757	1,2720	50	10,0036	$\phi =$	10,0036	x	ΔT	1,2720
TUB4-030/33D50L	1495	781	1,2720	50	10,3163	$\phi =$	10,3163	x	ΔT	1,2720
TUB4-030/34D50L	1540	804	1,2720	50	10,6289	$\phi =$	10,6289	x	ΔT	1,2720
TUB4-030/35D50L	1586	828	1,2720	50	10,9415	$\phi =$	10,9415	x	ΔT	1,2720
TUB4-030/36D50L	1631	852	1,2720	50	11,2541	$\phi =$	11,2541	x	ΔT	1,2720
TUB4-030/37D50L	1676	875	1,2720	50	11,5667	$\phi =$	11,5667	x	ΔT	1,2720

TUB4-030/38D50L	1721	899	1,2720	50	11,8793	$\phi =$	11,8793	x	ΔT	1,2720
TUB4-030/39D50L	1767	923	1,2720	50	12,1919	$\phi =$	12,1919	x	ΔT	1,2720
TUB4-030/40D50L	1812	946	1,2720	50	12,5046	$\phi =$	12,5046	x	ΔT	1,2720
TUB4-030/41D50L	1857	970	1,2720	50	12,8172	$\phi =$	12,8172	x	ΔT	1,2720
TUB4-030/42D50L	1903	993	1,2720	50	13,1298	$\phi =$	13,1298	x	ΔT	1,2720
TUB4-030/43D50L	1948	1017	1,2720	50	13,4424	$\phi =$	13,4424	x	ΔT	1,2720
TUB4-030/44D50L	1993	1041	1,2720	50	13,7550	$\phi =$	13,7550	x	ΔT	1,2720
TUB4-030/45D50L	2039	1064	1,2720	50	14,0676	$\phi =$	14,0676	x	ΔT	1,2720
TUB4-040/02D50L	127	66	1,2779	50	0,8578	$\phi =$	0,8578	x	ΔT	1,2779
TUB4-040/03D50L	191	99	1,2779	50	1,2867	$\phi =$	1,2867	x	ΔT	1,2779
TUB4-040/04D50L	254	132	1,2779	50	1,7155	$\phi =$	1,7155	x	ΔT	1,2779
TUB4-040/05D50L	318	166	1,2779	50	2,1444	$\phi =$	2,1444	x	ΔT	1,2779
TUB4-040/06D50L	382	199	1,2779	50	2,5733	$\phi =$	2,5733	x	ΔT	1,2779
TUB4-040/07D50L	445	232	1,2779	50	3,0022	$\phi =$	3,0022	x	ΔT	1,2779
TUB4-040/08D50L	509	265	1,2779	50	3,4311	$\phi =$	3,4311	x	ΔT	1,2779
TUB4-040/09D50L	572	298	1,2779	50	3,8600	$\phi =$	3,8600	x	ΔT	1,2779
TUB4-040/10D50L	636	331	1,2779	50	4,2889	$\phi =$	4,2889	x	ΔT	1,2779
TUB4-040/11D50L	700	364	1,2779	50	4,7178	$\phi =$	4,7178	x	ΔT	1,2779
TUB4-040/12D50L	763	397	1,2779	50	5,1466	$\phi =$	5,1466	x	ΔT	1,2779
TUB4-040/13D50L	827	430	1,2779	50	5,5755	$\phi =$	5,5755	x	ΔT	1,2779
TUB4-040/14D50L	890	464	1,2779	50	6,0044	$\phi =$	6,0044	x	ΔT	1,2779
TUB4-040/15D50L	954	497	1,2779	50	6,4333	$\phi =$	6,4333	x	ΔT	1,2779
TUB4-040/16D50L	1018	530	1,2779	50	6,8622	$\phi =$	6,8622	x	ΔT	1,2779
TUB4-040/17D50L	1081	563	1,2779	50	7,2911	$\phi =$	7,2911	x	ΔT	1,2779
TUB4-040/18D50L	1145	596	1,2779	50	7,7200	$\phi =$	7,7200	x	ΔT	1,2779
TUB4-040/19D50L	1208	629	1,2779	50	8,1489	$\phi =$	8,1489	x	ΔT	1,2779
TUB4-040/20D50L	1272	662	1,2779	50	8,5777	$\phi =$	8,5777	x	ΔT	1,2779
TUB4-040/21D50L	1336	695	1,2779	50	9,0066	$\phi =$	9,0066	x	ΔT	1,2779
TUB4-040/22D50L	1399	728	1,2779	50	9,4355	$\phi =$	9,4355	x	ΔT	1,2779
TUB4-040/23D50L	1463	762	1,2779	50	9,8644	$\phi =$	9,8644	x	ΔT	1,2779
TUB4-040/24D50L	1526	795	1,2779	50	10,2933	$\phi =$	10,2933	x	ΔT	1,2779
TUB4-040/25D50L	1590	828	1,2779	50	10,7222	$\phi =$	10,7222	x	ΔT	1,2779
TUB4-040/26D50L	1654	861	1,2779	50	11,1511	$\phi =$	11,1511	x	ΔT	1,2779
TUB4-040/27D50L	1717	894	1,2779	50	11,5800	$\phi =$	11,5800	x	ΔT	1,2779
TUB4-040/28D50L	1781	927	1,2779	50	12,0088	$\phi =$	12,0088	x	ΔT	1,2779
TUB4-040/29D50L	1844	960	1,2779	50	12,4377	$\phi =$	12,4377	x	ΔT	1,2779
TUB4-040/30D50L	1908	993	1,2779	50	12,8666	$\phi =$	12,8666	x	ΔT	1,2779
TUB4-040/31D50L	1972	1026	1,2779	50	13,2955	$\phi =$	13,2955	x	ΔT	1,2779
TUB4-040/32D50L	2035	1060	1,2779	50	13,7244	$\phi =$	13,7244	x	ΔT	1,2779
TUB4-040/33D50L	2099	1093	1,2779	50	14,1533	$\phi =$	14,1533	x	ΔT	1,2779
TUB4-040/34D50L	2162	1126	1,2779	50	14,5822	$\phi =$	14,5822	x	ΔT	1,2779
TUB4-040/35D50L	2226	1159	1,2779	50	15,0111	$\phi =$	15,0111	x	ΔT	1,2779
TUB4-040/36D50L	2290	1192	1,2779	50	15,4399	$\phi =$	15,4399	x	ΔT	1,2779
TUB4-040/37D50L	2353	1225	1,2779	50	15,8688	$\phi =$	15,8688	x	ΔT	1,2779
TUB4-040/38D50L	2417	1258	1,2779	50	16,2977	$\phi =$	16,2977	x	ΔT	1,2779
TUB4-040/39D50L	2480	1291	1,2779	50	16,7266	$\phi =$	16,7266	x	ΔT	1,2779

TUB4-040/40D50L	2544	1324	1,2779	50	17,1555	$\phi =$	17,1555	x	ΔT	1,2779
TUB4-040/41D50L	2608	1358	1,2779	50	17,5844	$\phi =$	17,5844	x	ΔT	1,2779
TUB4-040/42D50L	2671	1391	1,2779	50	18,0133	$\phi =$	18,0133	x	ΔT	1,2779
TUB4-040/43D50L	2735	1424	1,2779	50	18,4422	$\phi =$	18,4422	x	ΔT	1,2779
TUB4-040/44D50L	2798	1457	1,2779	50	18,8710	$\phi =$	18,8710	x	ΔT	1,2779
TUB4-040/45D50L	2862	1490	1,2779	50	19,2999	$\phi =$	19,2999	x	ΔT	1,2779
TUB4-050/02D50L	161	84	1,2824	50	1,0681	$\phi =$	1,0681	x	ΔT	1,2824
TUB4-050/03D50L	242	126	1,2824	50	1,6021	$\phi =$	1,6021	x	ΔT	1,2824
TUB4-050/04D50L	322	167	1,2824	50	2,1362	$\phi =$	2,1362	x	ΔT	1,2824
TUB4-050/05D50L	403	209	1,2824	50	2,6702	$\phi =$	2,6702	x	ΔT	1,2824
TUB4-050/06D50L	484	251	1,2824	50	3,2043	$\phi =$	3,2043	x	ΔT	1,2824
TUB4-050/07D50L	564	293	1,2824	50	3,7383	$\phi =$	3,7383	x	ΔT	1,2824
TUB4-050/08D50L	645	335	1,2824	50	4,2723	$\phi =$	4,2723	x	ΔT	1,2824
TUB4-050/09D50L	725	377	1,2824	50	4,8064	$\phi =$	4,8064	x	ΔT	1,2824
TUB4-050/10D50L	806	419	1,2824	50	5,3404	$\phi =$	5,3404	x	ΔT	1,2824
TUB4-050/11D50L	887	460	1,2824	50	5,8745	$\phi =$	5,8745	x	ΔT	1,2824
TUB4-050/12D50L	967	502	1,2824	50	6,4085	$\phi =$	6,4085	x	ΔT	1,2824
TUB4-050/13D50L	1048	544	1,2824	50	6,9426	$\phi =$	6,9426	x	ΔT	1,2824
TUB4-050/14D50L	1128	586	1,2824	50	7,4766	$\phi =$	7,4766	x	ΔT	1,2824
TUB4-050/15D50L	1209	628	1,2824	50	8,0106	$\phi =$	8,0106	x	ΔT	1,2824
TUB4-050/16D50L	1290	670	1,2824	50	8,5447	$\phi =$	8,5447	x	ΔT	1,2824
TUB4-050/17D50L	1370	712	1,2824	50	9,0787	$\phi =$	9,0787	x	ΔT	1,2824
TUB4-050/18D50L	1451	754	1,2824	50	9,6128	$\phi =$	9,6128	x	ΔT	1,2824
TUB4-050/19D50L	1531	795	1,2824	50	10,1468	$\phi =$	10,1468	x	ΔT	1,2824
TUB4-050/20D50L	1612	837	1,2824	50	10,6809	$\phi =$	10,6809	x	ΔT	1,2824
TUB4-050/21D50L	1693	879	1,2824	50	11,2149	$\phi =$	11,2149	x	ΔT	1,2824
TUB4-050/22D50L	1773	921	1,2824	50	11,7489	$\phi =$	11,7489	x	ΔT	1,2824
TUB4-050/23D50L	1854	963	1,2824	50	12,2830	$\phi =$	12,2830	x	ΔT	1,2824
TUB4-050/24D50L	1934	1005	1,2824	50	12,8170	$\phi =$	12,8170	x	ΔT	1,2824
TUB4-050/25D50L	2015	1047	1,2824	50	13,3511	$\phi =$	13,3511	x	ΔT	1,2824
TUB4-050/26D50L	2096	1088	1,2824	50	13,8851	$\phi =$	13,8851	x	ΔT	1,2824
TUB4-050/27D50L	2176	1130	1,2824	50	14,4192	$\phi =$	14,4192	x	ΔT	1,2824
TUB4-050/28D50L	2257	1172	1,2824	50	14,9532	$\phi =$	14,9532	x	ΔT	1,2824
TUB4-050/29D50L	2337	1214	1,2824	50	15,4872	$\phi =$	15,4872	x	ΔT	1,2824
TUB4-050/30D50L	2418	1256	1,2824	50	16,0213	$\phi =$	16,0213	x	ΔT	1,2824
TUB4-050/31D50L	2499	1298	1,2824	50	16,5553	$\phi =$	16,5553	x	ΔT	1,2824
TUB4-050/32D50L	2579	1340	1,2824	50	17,0894	$\phi =$	17,0894	x	ΔT	1,2824
TUB4-050/33D50L	2660	1381	1,2824	50	17,6234	$\phi =$	17,6234	x	ΔT	1,2824
TUB4-050/34D50L	2740	1423	1,2824	50	18,1574	$\phi =$	18,1574	x	ΔT	1,2824
TUB4-050/35D50L	2821	1465	1,2824	50	18,6915	$\phi =$	18,6915	x	ΔT	1,2824
TUB4-050/36D50L	2902	1507	1,2824	50	19,2255	$\phi =$	19,2255	x	ΔT	1,2824
TUB4-050/37D50L	2982	1549	1,2824	50	19,7596	$\phi =$	19,7596	x	ΔT	1,2824
TUB4-050/38D50L	3063	1591	1,2824	50	20,2936	$\phi =$	20,2936	x	ΔT	1,2824
TUB4-050/39D50L	3143	1633	1,2824	50	20,8277	$\phi =$	20,8277	x	ΔT	1,2824
TUB4-050/40D50L	3224	1675	1,2824	50	21,3617	$\phi =$	21,3617	x	ΔT	1,2824
TUB4-050/41D50L	3305	1716	1,2824	50	21,8957	$\phi =$	21,8957	x	ΔT	1,2824

TUB4-050/42D50L	3385	1758	1,2824	50	22,4298	$\phi =$	22,4298	x	ΔT	1,2824
TUB4-050/43D50L	3466	1800	1,2824	50	22,9638	$\phi =$	22,9638	x	ΔT	1,2824
TUB4-050/44D50L	3546	1842	1,2824	50	23,4979	$\phi =$	23,4979	x	ΔT	1,2824
TUB4-050/45D50L	3627	1884	1,2824	50	24,0319	$\phi =$	24,0319	x	ΔT	1,2824
TUB4-070/02D50L	218	113	1,2893	50	1,4047	$\phi =$	1,4047	x	ΔT	1,2893
TUB4-070/03D50L	327	169	1,2893	50	2,1070	$\phi =$	2,1070	x	ΔT	1,2893
TUB4-070/04D50L	436	225	1,2893	50	2,8093	$\phi =$	2,8093	x	ΔT	1,2893
TUB4-070/05D50L	545	282	1,2893	50	3,5117	$\phi =$	3,5117	x	ΔT	1,2893
TUB4-070/06D50L	653	338	1,2893	50	4,2140	$\phi =$	4,2140	x	ΔT	1,2893
TUB4-070/07D50L	762	395	1,2893	50	4,9164	$\phi =$	4,9164	x	ΔT	1,2893
TUB4-070/08D50L	871	451	1,2893	50	5,6187	$\phi =$	5,6187	x	ΔT	1,2893
TUB4-070/09D50L	980	507	1,2893	50	6,3210	$\phi =$	6,3210	x	ΔT	1,2893
TUB4-070/10D50L	1089	564	1,2893	50	7,0234	$\phi =$	7,0234	x	ΔT	1,2893
TUB4-070/11D50L	1198	620	1,2893	50	7,7257	$\phi =$	7,7257	x	ΔT	1,2893
TUB4-070/12D50L	1307	676	1,2893	50	8,4280	$\phi =$	8,4280	x	ΔT	1,2893
TUB4-070/13D50L	1416	733	1,2893	50	9,1304	$\phi =$	9,1304	x	ΔT	1,2893
TUB4-070/14D50L	1525	789	1,2893	50	9,8327	$\phi =$	9,8327	x	ΔT	1,2893
TUB4-070/15D50L	1634	845	1,2893	50	10,5351	$\phi =$	10,5351	x	ΔT	1,2893
TUB4-070/16D50L	1742	902	1,2893	50	11,2374	$\phi =$	11,2374	x	ΔT	1,2893
TUB4-070/17D50L	1851	958	1,2893	50	11,9397	$\phi =$	11,9397	x	ΔT	1,2893
TUB4-070/18D50L	1960	1015	1,2893	50	12,6421	$\phi =$	12,6421	x	ΔT	1,2893
TUB4-070/19D50L	2069	1071	1,2893	50	13,3444	$\phi =$	13,3444	x	ΔT	1,2893
TUB4-070/20D50L	2178	1127	1,2893	50	14,0467	$\phi =$	14,0467	x	ΔT	1,2893
TUB4-070/21D50L	2287	1184	1,2893	50	14,7491	$\phi =$	14,7491	x	ΔT	1,2893
TUB4-070/22D50L	2396	1240	1,2893	50	15,4514	$\phi =$	15,4514	x	ΔT	1,2893
TUB4-070/23D50L	2505	1296	1,2893	50	16,1538	$\phi =$	16,1538	x	ΔT	1,2893
TUB4-070/24D50L	2614	1353	1,2893	50	16,8561	$\phi =$	16,8561	x	ΔT	1,2893
TUB4-070/25D50L	2723	1409	1,2893	50	17,5584	$\phi =$	17,5584	x	ΔT	1,2893
TUB4-070/26D50L	2831	1465	1,2893	50	18,2608	$\phi =$	18,2608	x	ΔT	1,2893
TUB4-070/27D50L	2940	1522	1,2893	50	18,9631	$\phi =$	18,9631	x	ΔT	1,2893
TUB4-070/28D50L	3049	1578	1,2893	50	19,6654	$\phi =$	19,6654	x	ΔT	1,2893
TUB4-070/29D50L	3158	1635	1,2893	50	20,3678	$\phi =$	20,3678	x	ΔT	1,2893
TUB4-070/30D50L	3267	1691	1,2893	50	21,0701	$\phi =$	21,0701	x	ΔT	1,2893
TUB4-070/31D50L	3376	1747	1,2893	50	21,7725	$\phi =$	21,7725	x	ΔT	1,2893
TUB4-070/32D50L	3485	1804	1,2893	50	22,4748	$\phi =$	22,4748	x	ΔT	1,2893
TUB4-070/33D50L	3594	1860	1,2893	50	23,1771	$\phi =$	23,1771	x	ΔT	1,2893
TUB4-070/34D50L	3703	1916	1,2893	50	23,8795	$\phi =$	23,8795	x	ΔT	1,2893
TUB4-070/35D50L	3812	1973	1,2893	50	24,5818	$\phi =$	24,5818	x	ΔT	1,2893
TUB4-070/36D50L	3920	2029	1,2893	50	25,2841	$\phi =$	25,2841	x	ΔT	1,2893
TUB4-070/37D50L	4029	2085	1,2893	50	25,9865	$\phi =$	25,9865	x	ΔT	1,2893
TUB4-070/38D50L	4138	2142	1,2893	50	26,6888	$\phi =$	26,6888	x	ΔT	1,2893
TUB4-070/39D50L	4247	2198	1,2893	50	27,3912	$\phi =$	27,3912	x	ΔT	1,2893
TUB4-070/40D50L	4356	2255	1,2893	50	28,0935	$\phi =$	28,0935	x	ΔT	1,2893
TUB4-070/41D50L	4465	2311	1,2893	50	28,7958	$\phi =$	28,7958	x	ΔT	1,2893
TUB4-070/42D50L	4574	2367	1,2893	50	29,4982	$\phi =$	29,4982	x	ΔT	1,2893
TUB4-080/02D50L	240	124	1,2920	50	1,5303	$\phi =$	1,5303	x	ΔT	1,2920

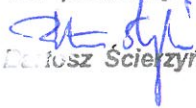
TUB4-080/03D50L	360	186	1,2920	50	2,2955	$\phi =$	2,2955	x	ΔT	1,2920
TUB4-080/04D50L	480	248	1,2920	50	3,0606	$\phi =$	3,0606	x	ΔT	1,2920
TUB4-080/05D50L	600	310	1,2920	50	3,8258	$\phi =$	3,8258	x	ΔT	1,2920
TUB4-080/06D50L	719	372	1,2920	50	4,5909	$\phi =$	4,5909	x	ΔT	1,2920
TUB4-080/07D50L	839	434	1,2920	50	5,3561	$\phi =$	5,3561	x	ΔT	1,2920
TUB4-080/08D50L	959	496	1,2920	50	6,1212	$\phi =$	6,1212	x	ΔT	1,2920
TUB4-080/09D50L	1079	558	1,2920	50	6,8864	$\phi =$	6,8864	x	ΔT	1,2920
TUB4-080/10D50L	1199	620	1,2920	50	7,6516	$\phi =$	7,6516	x	ΔT	1,2920
TUB4-080/11D50L	1319	682	1,2920	50	8,4167	$\phi =$	8,4167	x	ΔT	1,2920
TUB4-080/12D50L	1439	744	1,2920	50	9,1819	$\phi =$	9,1819	x	ΔT	1,2920
TUB4-080/13D50L	1559	806	1,2920	50	9,9470	$\phi =$	9,9470	x	ΔT	1,2920
TUB4-080/14D50L	1679	868	1,2920	50	10,7122	$\phi =$	10,7122	x	ΔT	1,2920
TUB4-080/15D50L	1799	930	1,2920	50	11,4773	$\phi =$	11,4773	x	ΔT	1,2920
TUB4-080/16D50L	1918	992	1,2920	50	12,2425	$\phi =$	12,2425	x	ΔT	1,2920
TUB4-080/17D50L	2038	1054	1,2920	50	13,0077	$\phi =$	13,0077	x	ΔT	1,2920
TUB4-080/18D50L	2158	1115	1,2920	50	13,7728	$\phi =$	13,7728	x	ΔT	1,2920
TUB4-080/19D50L	2278	1177	1,2920	50	14,5380	$\phi =$	14,5380	x	ΔT	1,2920
TUB4-080/20D50L	2398	1239	1,2920	50	15,3031	$\phi =$	15,3031	x	ΔT	1,2920
TUB4-080/21D50L	2518	1301	1,2920	50	16,0683	$\phi =$	16,0683	x	ΔT	1,2920
TUB4-080/22D50L	2638	1363	1,2920	50	16,8334	$\phi =$	16,8334	x	ΔT	1,2920
TUB4-080/23D50L	2758	1425	1,2920	50	17,5986	$\phi =$	17,5986	x	ΔT	1,2920
TUB4-080/24D50L	2878	1487	1,2920	50	18,3637	$\phi =$	18,3637	x	ΔT	1,2920
TUB4-080/25D50L	2998	1549	1,2920	50	19,1289	$\phi =$	19,1289	x	ΔT	1,2920
TUB4-080/26D50L	3117	1611	1,2920	50	19,8941	$\phi =$	19,8941	x	ΔT	1,2920
TUB4-080/27D50L	3237	1673	1,2920	50	20,6592	$\phi =$	20,6592	x	ΔT	1,2920
TUB4-080/28D50L	3357	1735	1,2920	50	21,4244	$\phi =$	21,4244	x	ΔT	1,2920
TUB4-080/29D50L	3477	1797	1,2920	50	22,1895	$\phi =$	22,1895	x	ΔT	1,2920
TUB4-080/30D50L	3597	1859	1,2920	50	22,9547	$\phi =$	22,9547	x	ΔT	1,2920
TUB4-080/31D50L	3717	1921	1,2920	50	23,7198	$\phi =$	23,7198	x	ΔT	1,2920
TUB4-080/32D50L	3837	1983	1,2920	50	24,4850	$\phi =$	24,4850	x	ΔT	1,2920
TUB4-080/33D50L	3957	2045	1,2920	50	25,2501	$\phi =$	25,2501	x	ΔT	1,2920
TUB4-080/34D50L	4077	2107	1,2920	50	26,0153	$\phi =$	26,0153	x	ΔT	1,2920
TUB4-080/35D50L	4197	2169	1,2920	50	26,7805	$\phi =$	26,7805	x	ΔT	1,2920
TUB4-080/36D50L	4316	2231	1,2920	50	27,5456	$\phi =$	27,5456	x	ΔT	1,2920
TUB4-080/37D50L	4436	2293	1,2920	50	28,3108	$\phi =$	28,3108	x	ΔT	1,2920
TUB4-090/02D50L	257	133	1,2944	50	1,6273	$\phi =$	1,6273	x	ΔT	1,2944
TUB4-090/03D50L	386	199	1,2944	50	2,4409	$\phi =$	2,4409	x	ΔT	1,2944
TUB4-090/04D50L	515	266	1,2944	50	3,2546	$\phi =$	3,2546	x	ΔT	1,2944
TUB4-090/05D50L	644	332	1,2944	50	4,0682	$\phi =$	4,0682	x	ΔT	1,2944
TUB4-090/06D50L	772	399	1,2944	50	4,8818	$\phi =$	4,8818	x	ΔT	1,2944
TUB4-090/07D50L	901	465	1,2944	50	5,6955	$\phi =$	5,6955	x	ΔT	1,2944
TUB4-090/08D50L	1030	532	1,2944	50	6,5091	$\phi =$	6,5091	x	ΔT	1,2944
TUB4-090/09D50L	1158	598	1,2944	50	7,3228	$\phi =$	7,3228	x	ΔT	1,2944
TUB4-090/10D50L	1287	664	1,2944	50	8,1364	$\phi =$	8,1364	x	ΔT	1,2944
TUB4-090/11D50L	1416	731	1,2944	50	8,9500	$\phi =$	8,9500	x	ΔT	1,2944
TUB4-090/12D50L	1544	797	1,2944	50	9,7637	$\phi =$	9,7637	x	ΔT	1,2944

TUB4-090/13D50L	1673	864	1,2944	50	10,5773	$\phi =$	10,5773	x	ΔT	1,2944
TUB4-090/14D50L	1802	930	1,2944	50	11,3909	$\phi =$	11,3909	x	ΔT	1,2944
TUB4-090/15D50L	1931	997	1,2944	50	12,2046	$\phi =$	12,2046	x	ΔT	1,2944
TUB4-090/16D50L	2059	1063	1,2944	50	13,0182	$\phi =$	13,0182	x	ΔT	1,2944
TUB4-090/17D50L	2188	1129	1,2944	50	13,8319	$\phi =$	13,8319	x	ΔT	1,2944
TUB4-090/18D50L	2317	1196	1,2944	50	14,6455	$\phi =$	14,6455	x	ΔT	1,2944
TUB4-090/19D50L	2445	1262	1,2944	50	15,4591	$\phi =$	15,4591	x	ΔT	1,2944
TUB4-090/20D50L	2574	1329	1,2944	50	16,2728	$\phi =$	16,2728	x	ΔT	1,2944
TUB4-090/21D50L	2703	1395	1,2944	50	17,0864	$\phi =$	17,0864	x	ΔT	1,2944
TUB4-090/22D50L	2831	1462	1,2944	50	17,9001	$\phi =$	17,9001	x	ΔT	1,2944
TUB4-090/23D50L	2960	1528	1,2944	50	18,7137	$\phi =$	18,7137	x	ΔT	1,2944
TUB4-090/24D50L	3089	1595	1,2944	50	19,5273	$\phi =$	19,5273	x	ΔT	1,2944
TUB4-090/25D50L	3218	1661	1,2944	50	20,3410	$\phi =$	20,3410	x	ΔT	1,2944
TUB4-090/26D50L	3346	1727	1,2944	50	21,1546	$\phi =$	21,1546	x	ΔT	1,2944
TUB4-090/27D50L	3475	1794	1,2944	50	21,9683	$\phi =$	21,9683	x	ΔT	1,2944
TUB4-090/28D50L	3604	1860	1,2944	50	22,7819	$\phi =$	22,7819	x	ΔT	1,2944
TUB4-090/29D50L	3732	1927	1,2944	50	23,5955	$\phi =$	23,5955	x	ΔT	1,2944
TUB4-090/30D50L	3861	1993	1,2944	50	24,4092	$\phi =$	24,4092	x	ΔT	1,2944
TUB4-090/31D50L	3990	2060	1,2944	50	25,2228	$\phi =$	25,2228	x	ΔT	1,2944
TUB4-090/32D50L	4118	2126	1,2944	50	26,0364	$\phi =$	26,0364	x	ΔT	1,2944
TUB4-090/33D50L	4247	2192	1,2944	50	26,8501	$\phi =$	26,8501	x	ΔT	1,2944
TUB4-100/02D50L	271	140	1,2966	50	1,6986	$\phi =$	1,6986	x	ΔT	1,2966
TUB4-100/03D50L	407	210	1,2966	50	2,5479	$\phi =$	2,5479	x	ΔT	1,2966
TUB4-100/04D50L	542	279	1,2966	50	3,3972	$\phi =$	3,3972	x	ΔT	1,2966
TUB4-100/05D50L	678	349	1,2966	50	4,2464	$\phi =$	4,2464	x	ΔT	1,2966
TUB4-100/06D50L	813	419	1,2966	50	5,0957	$\phi =$	5,0957	x	ΔT	1,2966
TUB4-100/07D50L	949	489	1,2966	50	5,9450	$\phi =$	5,9450	x	ΔT	1,2966
TUB4-100/08D50L	1084	559	1,2966	50	6,7943	$\phi =$	6,7943	x	ΔT	1,2966
TUB4-100/09D50L	1220	629	1,2966	50	7,6436	$\phi =$	7,6436	x	ΔT	1,2966
TUB4-100/10D50L	1355	699	1,2966	50	8,4929	$\phi =$	8,4929	x	ΔT	1,2966
TUB4-100/11D50L	1491	769	1,2966	50	9,3422	$\phi =$	9,3422	x	ΔT	1,2966
TUB4-100/12D50L	1626	838	1,2966	50	10,1915	$\phi =$	10,1915	x	ΔT	1,2966
TUB4-100/13D50L	1762	908	1,2966	50	11,0407	$\phi =$	11,0407	x	ΔT	1,2966
TUB4-100/14D50L	1897	978	1,2966	50	11,8900	$\phi =$	11,8900	x	ΔT	1,2966
TUB4-100/15D50L	2033	1048	1,2966	50	12,7393	$\phi =$	12,7393	x	ΔT	1,2966
TUB4-100/16D50L	2168	1118	1,2966	50	13,5886	$\phi =$	13,5886	x	ΔT	1,2966
TUB4-100/17D50L	2304	1188	1,2966	50	14,4379	$\phi =$	14,4379	x	ΔT	1,2966
TUB4-100/18D50L	2439	1258	1,2966	50	15,2872	$\phi =$	15,2872	x	ΔT	1,2966
TUB4-100/19D50L	2575	1328	1,2966	50	16,1365	$\phi =$	16,1365	x	ΔT	1,2966
TUB4-100/20D50L	2710	1397	1,2966	50	16,9858	$\phi =$	16,9858	x	ΔT	1,2966
TUB4-100/21D50L	2846	1467	1,2966	50	17,8350	$\phi =$	17,8350	x	ΔT	1,2966
TUB4-100/22D50L	2981	1537	1,2966	50	18,6843	$\phi =$	18,6843	x	ΔT	1,2966
TUB4-100/23D50L	3117	1607	1,2966	50	19,5336	$\phi =$	19,5336	x	ΔT	1,2966
TUB4-100/24D50L	3252	1677	1,2966	50	20,3829	$\phi =$	20,3829	x	ΔT	1,2966
TUB4-100/25D50L	3388	1747	1,2966	50	21,2322	$\phi =$	21,2322	x	ΔT	1,2966
TUB4-100/26D50L	3523	1817	1,2966	50	22,0815	$\phi =$	22,0815	x	ΔT	1,2966

TUB4-100/27D50L	3659	1886	1,2966	50	22,9308	$\phi =$	22,9308	x	ΔT	1,2966
TUB4-100/28D50L	3794	1956	1,2966	50	23,7801	$\phi =$	23,7801	x	ΔT	1,2966
TUB4-100/29D50L	3930	2026	1,2966	50	24,6293	$\phi =$	24,6293	x	ΔT	1,2966
TUB4-100/30D50L	4065	2096	1,2966	50	25,4786	$\phi =$	25,4786	x	ΔT	1,2966

W imieniu producenta podpisał:
(Signed for and on behalf of the manufacturer by:)

Z-ca Prezesa ds. Produkcji
Bartosz Ścierzyński
Nowa Wieś 19.05.2021 r.

Z-ca PREZESA
ds. produkcji

Bartosz Ścierzyński

.....
(podpis)
(signature)

INSTAL-PROJEKT
Gawłowski, Ścierzyński Sp.J.
ul. Jana Pawła II 12A
Nowa Wieś k/Włocławka, 87-853 KRUSZYŃ
NIP 888-10-04-722 BDO 000008268
tel. 54 235 59 05, fax 54 235 45 43