

DEKLARACJA WŁAŚCIWOŚCI UŻYTKOWYCH
(DECLARATION OF PERFORMANCE)
Nr (No.) **NDWU/1/TUBUS 2 D50P/2021**

1. Niepowtarzalny kod identyfikacyjny typu wyrobu: (Unique identification code of the product-type) TUBUS 2																								
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:) <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:33%; text-align:center;">Zasadnicze charakterystyki Essential characteristics</th> <th style="width:33%; text-align:center;">Właściwości użytkowe Performance</th> <th style="width:33%; text-align:center;">Zharmonizowana specyfikacja techniczna Harmonised technical specification</th> </tr> </thead> <tbody> <tr> <td>Reakcja na ogień (Reaction to fire)</td> <td align="center">A1</td> <td rowspan="10" style="vertical-align: middle; text-align: center;">PN-EN 442-1:2015 EN 442-1:2014</td> </tr> <tr> <td>Uwalnianie substancji niebezpiecznych (Release of dangerous substances)</td> <td align="center">Nie ma (None)</td> </tr> <tr> <td>Szczelność pod działaniem ciśnienia (Pressure tightness)</td> <td>Brak przecieku przy ciśnieniu 1,3 krotnie większym od maksymalnego ciśnienia [kPa] (No leakage at 1,3 x maximum operating pressure [kPa])</td> </tr> <tr> <td>Temperatura powierzchni (Surface temperature)</td> <td align="center">Maksymalnie 95 °C (Maximum 95 °C)</td> </tr> <tr> <td>Odporność na działanie ciśnienia (Resistance to pressure)</td> <td>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])</td> </tr> <tr> <td>Nominalna moc cieplna (Φ 50 , Φ 30) (Rated thermal output) (Φ 50 , Φ 30)</td> <td align="center">Patrz Tabela nr.1 (See Table No.1)</td> </tr> <tr> <td>Moc cieplna w różnych warunkach eksploatacyjnych (charakterystyka) (Thermal output in different operating conditions (characteristic curve))</td> <td align="center">Patrz Tabela nr.1 (See Table No.1)</td> </tr> <tr> <td>Odporność na korozję (Resistance against corrosion)</td> <td align="center">Brak korozji po 100 h w wilgoci (No corrosion after 100 h humidity)</td> </tr> <tr> <td>Odporność na słabe uderzenia (Resistance against minor impact)</td> <td align="center">Klasa 0 (Class 0)</td> </tr> </tbody> </table>			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)
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																						
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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)																							

gh.

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)				
TUB2-020/02D50P	25	13	1,2611	50	0,1772	$\phi =$	0,1772	x	ΔT	1,2611
TUB2-020/03D50P	37	19	1,2611	50	0,2657	$\phi =$	0,2657	x	ΔT	1,2611
TUB2-020/04D50P	49	26	1,2611	50	0,3543	$\phi =$	0,3543	x	ΔT	1,2611
TUB2-020/05D50P	62	32	1,2611	50	0,4429	$\phi =$	0,4429	x	ΔT	1,2611
TUB2-020/06D50P	74	39	1,2611	50	0,5315	$\phi =$	0,5315	x	ΔT	1,2611
TUB2-020/07D50P	86	45	1,2611	50	0,6201	$\phi =$	0,6201	x	ΔT	1,2611
TUB2-020/08D50P	98	52	1,2611	50	0,7086	$\phi =$	0,7086	x	ΔT	1,2611
TUB2-020/09D50P	111	58	1,2611	50	0,7972	$\phi =$	0,7972	x	ΔT	1,2611
TUB2-020/10D50P	123	65	1,2611	50	0,8858	$\phi =$	0,8858	x	ΔT	1,2611
TUB2-020/11D50P	135	71	1,2611	50	0,9744	$\phi =$	0,9744	x	ΔT	1,2611
TUB2-020/12D50P	148	78	1,2611	50	1,0630	$\phi =$	1,0630	x	ΔT	1,2611
TUB2-020/13D50P	160	84	1,2611	50	1,1515	$\phi =$	1,1515	x	ΔT	1,2611
TUB2-020/14D50P	172	90	1,2611	50	1,2401	$\phi =$	1,2401	x	ΔT	1,2611
TUB2-020/15D50P	185	97	1,2611	50	1,3287	$\phi =$	1,3287	x	ΔT	1,2611
TUB2-020/16D50P	197	103	1,2611	50	1,4173	$\phi =$	1,4173	x	ΔT	1,2611
TUB2-020/17D50P	209	110	1,2611	50	1,5059	$\phi =$	1,5059	x	ΔT	1,2611
TUB2-020/18D50P	221	116	1,2611	50	1,5944	$\phi =$	1,5944	x	ΔT	1,2611
TUB2-020/19D50P	234	123	1,2611	50	1,6830	$\phi =$	1,6830	x	ΔT	1,2611
TUB2-020/20D50P	246	129	1,2611	50	1,7716	$\phi =$	1,7716	x	ΔT	1,2611
TUB2-020/21D50P	258	136	1,2611	50	1,8602	$\phi =$	1,8602	x	ΔT	1,2611
TUB2-020/22D50P	271	142	1,2611	50	1,9488	$\phi =$	1,9488	x	ΔT	1,2611
TUB2-020/23D50P	283	149	1,2611	50	2,0373	$\phi =$	2,0373	x	ΔT	1,2611
TUB2-020/24D50P	295	155	1,2611	50	2,1259	$\phi =$	2,1259	x	ΔT	1,2611
TUB2-020/25D50P	308	161	1,2611	50	2,2145	$\phi =$	2,2145	x	ΔT	1,2611
TUB2-020/26D50P	320	168	1,2611	50	2,3031	$\phi =$	2,3031	x	ΔT	1,2611
TUB2-020/27D50P	332	174	1,2611	50	2,3917	$\phi =$	2,3917	x	ΔT	1,2611
TUB2-020/28D50P	344	181	1,2611	50	2,4802	$\phi =$	2,4802	x	ΔT	1,2611
TUB2-020/29D50P	357	187	1,2611	50	2,5688	$\phi =$	2,5688	x	ΔT	1,2611
TUB2-020/30D50P	369	194	1,2611	50	2,6574	$\phi =$	2,6574	x	ΔT	1,2611
TUB2-020/31D50P	381	200	1,2611	50	2,7460	$\phi =$	2,7460	x	ΔT	1,2611
TUB2-020/32D50P	394	207	1,2611	50	2,8345	$\phi =$	2,8345	x	ΔT	1,2611
TUB2-020/33D50P	406	213	1,2611	50	2,9231	$\phi =$	2,9231	x	ΔT	1,2611
TUB2-020/34D50P	418	220	1,2611	50	3,0117	$\phi =$	3,0117	x	ΔT	1,2611
TUB2-020/35D50P	431	226	1,2611	50	3,1003	$\phi =$	3,1003	x	ΔT	1,2611
TUB2-020/36D50P	443	233	1,2611	50	3,1889	$\phi =$	3,1889	x	ΔT	1,2611
TUB2-020/37D50P	455	239	1,2611	50	3,2774	$\phi =$	3,2774	x	ΔT	1,2611

TUB2-020/38D50P	467	245	1,2611	50	3,3660	$\phi =$	3,3660	x	ΔT	1,2611
TUB2-020/39D50P	480	252	1,2611	50	3,4546	$\phi =$	3,4546	x	ΔT	1,2611
TUB2-020/40D50P	492	258	1,2611	50	3,5432	$\phi =$	3,5432	x	ΔT	1,2611
TUB2-020/41D50P	504	265	1,2611	50	3,6318	$\phi =$	3,6318	x	ΔT	1,2611
TUB2-020/42D50P	517	271	1,2611	50	3,7203	$\phi =$	3,7203	x	ΔT	1,2611
TUB2-020/43D50P	529	278	1,2611	50	3,8089	$\phi =$	3,8089	x	ΔT	1,2611
TUB2-020/44D50P	541	284	1,2611	50	3,8975	$\phi =$	3,8975	x	ΔT	1,2611
TUB2-020/45D50P	554	291	1,2611	50	3,9861	$\phi =$	3,9861	x	ΔT	1,2611
TUB2-030/02D50P	40	21	1,2613	50	0,2864	$\phi =$	0,2864	x	ΔT	1,2613
TUB2-030/03D50P	60	31	1,2613	50	0,4296	$\phi =$	0,4296	x	ΔT	1,2613
TUB2-030/04D50P	80	42	1,2613	50	0,5728	$\phi =$	0,5728	x	ΔT	1,2613
TUB2-030/05D50P	100	52	1,2613	50	0,7160	$\phi =$	0,7160	x	ΔT	1,2613
TUB2-030/06D50P	119	63	1,2613	50	0,8592	$\phi =$	0,8592	x	ΔT	1,2613
TUB2-030/07D50P	139	73	1,2613	50	1,0024	$\phi =$	1,0024	x	ΔT	1,2613
TUB2-030/08D50P	159	84	1,2613	50	1,1456	$\phi =$	1,1456	x	ΔT	1,2613
TUB2-030/09D50P	179	94	1,2613	50	1,2888	$\phi =$	1,2888	x	ΔT	1,2613
TUB2-030/10D50P	199	104	1,2613	50	1,4320	$\phi =$	1,4320	x	ΔT	1,2613
TUB2-030/11D50P	219	115	1,2613	50	1,5752	$\phi =$	1,5752	x	ΔT	1,2613
TUB2-030/12D50P	239	125	1,2613	50	1,7184	$\phi =$	1,7184	x	ΔT	1,2613
TUB2-030/13D50P	259	136	1,2613	50	1,8616	$\phi =$	1,8616	x	ΔT	1,2613
TUB2-030/14D50P	279	146	1,2613	50	2,0048	$\phi =$	2,0048	x	ΔT	1,2613
TUB2-030/15D50P	299	157	1,2613	50	2,1480	$\phi =$	2,1480	x	ΔT	1,2613
TUB2-030/16D50P	318	167	1,2613	50	2,2912	$\phi =$	2,2912	x	ΔT	1,2613
TUB2-030/17D50P	338	178	1,2613	50	2,4344	$\phi =$	2,4344	x	ΔT	1,2613
TUB2-030/18D50P	358	188	1,2613	50	2,5776	$\phi =$	2,5776	x	ΔT	1,2613
TUB2-030/19D50P	378	199	1,2613	50	2,7208	$\phi =$	2,7208	x	ΔT	1,2613
TUB2-030/20D50P	398	209	1,2613	50	2,8640	$\phi =$	2,8640	x	ΔT	1,2613
TUB2-030/21D50P	418	219	1,2613	50	3,0072	$\phi =$	3,0072	x	ΔT	1,2613
TUB2-030/22D50P	438	230	1,2613	50	3,1504	$\phi =$	3,1504	x	ΔT	1,2613
TUB2-030/23D50P	458	240	1,2613	50	3,2936	$\phi =$	3,2936	x	ΔT	1,2613
TUB2-030/24D50P	478	251	1,2613	50	3,4368	$\phi =$	3,4368	x	ΔT	1,2613
TUB2-030/25D50P	498	261	1,2613	50	3,5800	$\phi =$	3,5800	x	ΔT	1,2613
TUB2-030/26D50P	517	272	1,2613	50	3,7232	$\phi =$	3,7232	x	ΔT	1,2613
TUB2-030/27D50P	537	282	1,2613	50	3,8664	$\phi =$	3,8664	x	ΔT	1,2613
TUB2-030/28D50P	557	293	1,2613	50	4,0096	$\phi =$	4,0096	x	ΔT	1,2613
TUB2-030/29D50P	577	303	1,2613	50	4,1528	$\phi =$	4,1528	x	ΔT	1,2613
TUB2-030/30D50P	597	313	1,2613	50	4,2960	$\phi =$	4,2960	x	ΔT	1,2613
TUB2-030/31D50P	617	324	1,2613	50	4,4392	$\phi =$	4,4392	x	ΔT	1,2613
TUB2-030/32D50P	637	334	1,2613	50	4,5824	$\phi =$	4,5824	x	ΔT	1,2613
TUB2-030/33D50P	657	345	1,2613	50	4,7256	$\phi =$	4,7256	x	ΔT	1,2613
TUB2-030/34D50P	677	355	1,2613	50	4,8688	$\phi =$	4,8688	x	ΔT	1,2613
TUB2-030/35D50P	697	366	1,2613	50	5,0120	$\phi =$	5,0120	x	ΔT	1,2613
TUB2-030/36D50P	716	376	1,2613	50	5,1552	$\phi =$	5,1552	x	ΔT	1,2613
TUB2-030/37D50P	736	387	1,2613	50	5,2984	$\phi =$	5,2984	x	ΔT	1,2613
TUB2-030/38D50P	756	397	1,2613	50	5,4416	$\phi =$	5,4416	x	ΔT	1,2613
TUB2-030/39D50P	776	407	1,2613	50	5,5848	$\phi =$	5,5848	x	ΔT	1,2613
TUB2-030/40D50P	796	418	1,2613	50	5,7280	$\phi =$	5,7280	x	ΔT	1,2613

TUB2-030/41D50P	816	428	1,2613	50	5,8712	$\phi =$	5,8712	x	ΔT	1,2613
TUB2-030/42D50P	836	439	1,2613	50	6,0144	$\phi =$	6,0144	x	ΔT	1,2613
TUB2-030/43D50P	856	449	1,2613	50	6,1576	$\phi =$	6,1576	x	ΔT	1,2613
TUB2-030/44D50P	876	460	1,2613	50	6,3008	$\phi =$	6,3008	x	ΔT	1,2613
TUB2-030/45D50P	896	470	1,2613	50	6,4440	$\phi =$	6,4440	x	ΔT	1,2613
TUB2-040/02D50P	56	29	1,2616	50	0,3996	$\phi =$	0,3996	x	ΔT	1,2616
TUB2-040/03D50P	83	44	1,2616	50	0,5994	$\phi =$	0,5994	x	ΔT	1,2616
TUB2-040/04D50P	111	58	1,2616	50	0,7993	$\phi =$	0,7993	x	ΔT	1,2616
TUB2-040/05D50P	139	73	1,2616	50	0,9991	$\phi =$	0,9991	x	ΔT	1,2616
TUB2-040/06D50P	167	88	1,2616	50	1,1989	$\phi =$	1,1989	x	ΔT	1,2616
TUB2-040/07D50P	195	102	1,2616	50	1,3987	$\phi =$	1,3987	x	ΔT	1,2616
TUB2-040/08D50P	222	117	1,2616	50	1,5985	$\phi =$	1,5985	x	ΔT	1,2616
TUB2-040/09D50P	250	131	1,2616	50	1,7983	$\phi =$	1,7983	x	ΔT	1,2616
TUB2-040/10D50P	278	146	1,2616	50	1,9981	$\phi =$	1,9981	x	ΔT	1,2616
TUB2-040/11D50P	306	161	1,2616	50	2,1979	$\phi =$	2,1979	x	ΔT	1,2616
TUB2-040/12D50P	334	175	1,2616	50	2,3978	$\phi =$	2,3978	x	ΔT	1,2616
TUB2-040/13D50P	361	190	1,2616	50	2,5976	$\phi =$	2,5976	x	ΔT	1,2616
TUB2-040/14D50P	389	204	1,2616	50	2,7974	$\phi =$	2,7974	x	ΔT	1,2616
TUB2-040/15D50P	417	219	1,2616	50	2,9972	$\phi =$	2,9972	x	ΔT	1,2616
TUB2-040/16D50P	445	233	1,2616	50	3,1970	$\phi =$	3,1970	x	ΔT	1,2616
TUB2-040/17D50P	473	248	1,2616	50	3,3968	$\phi =$	3,3968	x	ΔT	1,2616
TUB2-040/18D50P	500	263	1,2616	50	3,5966	$\phi =$	3,5966	x	ΔT	1,2616
TUB2-040/19D50P	528	277	1,2616	50	3,7965	$\phi =$	3,7965	x	ΔT	1,2616
TUB2-040/20D50P	556	292	1,2616	50	3,9963	$\phi =$	3,9963	x	ΔT	1,2616
TUB2-040/21D50P	584	306	1,2616	50	4,1961	$\phi =$	4,1961	x	ΔT	1,2616
TUB2-040/22D50P	612	321	1,2616	50	4,3959	$\phi =$	4,3959	x	ΔT	1,2616
TUB2-040/23D50P	639	336	1,2616	50	4,5957	$\phi =$	4,5957	x	ΔT	1,2616
TUB2-040/24D50P	667	350	1,2616	50	4,7955	$\phi =$	4,7955	x	ΔT	1,2616
TUB2-040/25D50P	695	365	1,2616	50	4,9953	$\phi =$	4,9953	x	ΔT	1,2616
TUB2-040/26D50P	723	379	1,2616	50	5,1951	$\phi =$	5,1951	x	ΔT	1,2616
TUB2-040/27D50P	751	394	1,2616	50	5,3950	$\phi =$	5,3950	x	ΔT	1,2616
TUB2-040/28D50P	778	409	1,2616	50	5,5948	$\phi =$	5,5948	x	ΔT	1,2616
TUB2-040/29D50P	806	423	1,2616	50	5,7946	$\phi =$	5,7946	x	ΔT	1,2616
TUB2-040/30D50P	834	438	1,2616	50	5,9944	$\phi =$	5,9944	x	ΔT	1,2616
TUB2-040/31D50P	862	452	1,2616	50	6,1942	$\phi =$	6,1942	x	ΔT	1,2616
TUB2-040/32D50P	890	467	1,2616	50	6,3940	$\phi =$	6,3940	x	ΔT	1,2616
TUB2-040/33D50P	917	482	1,2616	50	6,5938	$\phi =$	6,5938	x	ΔT	1,2616
TUB2-040/34D50P	945	496	1,2616	50	6,7936	$\phi =$	6,7936	x	ΔT	1,2616
TUB2-040/35D50P	973	511	1,2616	50	6,9935	$\phi =$	6,9935	x	ΔT	1,2616
TUB2-040/36D50P	1001	525	1,2616	50	7,1933	$\phi =$	7,1933	x	ΔT	1,2616
TUB2-040/37D50P	1029	540	1,2616	50	7,3931	$\phi =$	7,3931	x	ΔT	1,2616
TUB2-040/38D50P	1056	555	1,2616	50	7,5929	$\phi =$	7,5929	x	ΔT	1,2616
TUB2-040/39D50P	1084	569	1,2616	50	7,7927	$\phi =$	7,7927	x	ΔT	1,2616
TUB2-040/40D50P	1112	584	1,2616	50	7,9925	$\phi =$	7,9925	x	ΔT	1,2616
TUB2-040/41D50P	1140	598	1,2616	50	8,1923	$\phi =$	8,1923	x	ΔT	1,2616
TUB2-040/42D50P	1168	613	1,2616	50	8,3922	$\phi =$	8,3922	x	ΔT	1,2616
TUB2-040/43D50P	1195	628	1,2616	50	8,5920	$\phi =$	8,5920	x	ΔT	1,2616

TUB2-040/44D50P	1223	642	1,2616	50	8,7918	$\phi =$	8,7918	x	ΔT	1,2616
TUB2-040/45D50P	1251	657	1,2616	50	8,9916	$\phi =$	8,9916	x	ΔT	1,2616
TUB2-050/02D50P	72	38	1,2620	50	0,5153	$\phi =$	0,5153	x	ΔT	1,2620
TUB2-050/03D50P	108	57	1,2620	50	0,7729	$\phi =$	0,7729	x	ΔT	1,2620
TUB2-050/04D50P	144	75	1,2620	50	1,0305	$\phi =$	1,0305	x	ΔT	1,2620
TUB2-050/05D50P	180	94	1,2620	50	1,2881	$\phi =$	1,2881	x	ΔT	1,2620
TUB2-050/06D50P	215	113	1,2620	50	1,5458	$\phi =$	1,5458	x	ΔT	1,2620
TUB2-050/07D50P	251	132	1,2620	50	1,8034	$\phi =$	1,8034	x	ΔT	1,2620
TUB2-050/08D50P	287	151	1,2620	50	2,0610	$\phi =$	2,0610	x	ΔT	1,2620
TUB2-050/09D50P	323	170	1,2620	50	2,3187	$\phi =$	2,3187	x	ΔT	1,2620
TUB2-050/10D50P	359	188	1,2620	50	2,5763	$\phi =$	2,5763	x	ΔT	1,2620
TUB2-050/11D50P	395	207	1,2620	50	2,8339	$\phi =$	2,8339	x	ΔT	1,2620
TUB2-050/12D50P	431	226	1,2620	50	3,0915	$\phi =$	3,0915	x	ΔT	1,2620
TUB2-050/13D50P	467	245	1,2620	50	3,3492	$\phi =$	3,3492	x	ΔT	1,2620
TUB2-050/14D50P	503	264	1,2620	50	3,6068	$\phi =$	3,6068	x	ΔT	1,2620
TUB2-050/15D50P	539	283	1,2620	50	3,8644	$\phi =$	3,8644	x	ΔT	1,2620
TUB2-050/16D50P	574	301	1,2620	50	4,1221	$\phi =$	4,1221	x	ΔT	1,2620
TUB2-050/17D50P	610	320	1,2620	50	4,3797	$\phi =$	4,3797	x	ΔT	1,2620
TUB2-050/18D50P	646	339	1,2620	50	4,6373	$\phi =$	4,6373	x	ΔT	1,2620
TUB2-050/19D50P	682	358	1,2620	50	4,8949	$\phi =$	4,8949	x	ΔT	1,2620
TUB2-050/20D50P	718	377	1,2620	50	5,1526	$\phi =$	5,1526	x	ΔT	1,2620
TUB2-050/21D50P	754	396	1,2620	50	5,4102	$\phi =$	5,4102	x	ΔT	1,2620
TUB2-050/22D50P	790	415	1,2620	50	5,6678	$\phi =$	5,6678	x	ΔT	1,2620
TUB2-050/23D50P	826	433	1,2620	50	5,9255	$\phi =$	5,9255	x	ΔT	1,2620
TUB2-050/24D50P	862	452	1,2620	50	6,1831	$\phi =$	6,1831	x	ΔT	1,2620
TUB2-050/25D50P	898	471	1,2620	50	6,4407	$\phi =$	6,4407	x	ΔT	1,2620
TUB2-050/26D50P	933	490	1,2620	50	6,6983	$\phi =$	6,6983	x	ΔT	1,2620
TUB2-050/27D50P	969	509	1,2620	50	6,9560	$\phi =$	6,9560	x	ΔT	1,2620
TUB2-050/28D50P	1005	528	1,2620	50	7,2136	$\phi =$	7,2136	x	ΔT	1,2620
TUB2-050/29D50P	1041	546	1,2620	50	7,4712	$\phi =$	7,4712	x	ΔT	1,2620
TUB2-050/30D50P	1077	565	1,2620	50	7,7289	$\phi =$	7,7289	x	ΔT	1,2620
TUB2-050/31D50P	1113	584	1,2620	50	7,9865	$\phi =$	7,9865	x	ΔT	1,2620
TUB2-050/32D50P	1149	603	1,2620	50	8,2441	$\phi =$	8,2441	x	ΔT	1,2620
TUB2-050/33D50P	1185	622	1,2620	50	8,5017	$\phi =$	8,5017	x	ΔT	1,2620
TUB2-050/34D50P	1221	641	1,2620	50	8,7594	$\phi =$	8,7594	x	ΔT	1,2620
TUB2-050/35D50P	1257	659	1,2620	50	9,0170	$\phi =$	9,0170	x	ΔT	1,2620
TUB2-050/36D50P	1292	678	1,2620	50	9,2746	$\phi =$	9,2746	x	ΔT	1,2620
TUB2-050/37D50P	1328	697	1,2620	50	9,5323	$\phi =$	9,5323	x	ΔT	1,2620
TUB2-050/38D50P	1364	716	1,2620	50	9,7899	$\phi =$	9,7899	x	ΔT	1,2620
TUB2-050/39D50P	1400	735	1,2620	50	10,0475	$\phi =$	10,0475	x	ΔT	1,2620
TUB2-050/40D50P	1436	754	1,2620	50	10,3051	$\phi =$	10,3051	x	ΔT	1,2620
TUB2-050/41D50P	1472	773	1,2620	50	10,5628	$\phi =$	10,5628	x	ΔT	1,2620
TUB2-050/42D50P	1508	791	1,2620	50	10,8204	$\phi =$	10,8204	x	ΔT	1,2620
TUB2-050/43D50P	1544	810	1,2620	50	11,0780	$\phi =$	11,0780	x	ΔT	1,2620
TUB2-050/44D50P	1580	829	1,2620	50	11,3357	$\phi =$	11,3357	x	ΔT	1,2620
TUB2-050/45D50P	1616	848	1,2620	50	11,5933	$\phi =$	11,5933	x	ΔT	1,2620
TUB2-070/02D50P	105	55	1,2631	50	0,7474	$\phi =$	0,7474	x	ΔT	1,2631

TUB2-070/03D50P	157	82	1,2631	50	1,1211	$\phi =$	1,1211	x	ΔT	1,2631
TUB2-070/04D50P	209	110	1,2631	50	1,4948	$\phi =$	1,4948	x	ΔT	1,2631
TUB2-070/05D50P	262	137	1,2631	50	1,8685	$\phi =$	1,8685	x	ΔT	1,2631
TUB2-070/06D50P	314	165	1,2631	50	2,2422	$\phi =$	2,2422	x	ΔT	1,2631
TUB2-070/07D50P	366	192	1,2631	50	2,6160	$\phi =$	2,6160	x	ΔT	1,2631
TUB2-070/08D50P	418	219	1,2631	50	2,9897	$\phi =$	2,9897	x	ΔT	1,2631
TUB2-070/09D50P	471	247	1,2631	50	3,3634	$\phi =$	3,3634	x	ΔT	1,2631
TUB2-070/10D50P	523	274	1,2631	50	3,7371	$\phi =$	3,7371	x	ΔT	1,2631
TUB2-070/11D50P	575	302	1,2631	50	4,1108	$\phi =$	4,1108	x	ΔT	1,2631
TUB2-070/12D50P	628	329	1,2631	50	4,4845	$\phi =$	4,4845	x	ΔT	1,2631
TUB2-070/13D50P	680	357	1,2631	50	4,8582	$\phi =$	4,8582	x	ΔT	1,2631
TUB2-070/14D50P	732	384	1,2631	50	5,2319	$\phi =$	5,2319	x	ΔT	1,2631
TUB2-070/15D50P	785	412	1,2631	50	5,6056	$\phi =$	5,6056	x	ΔT	1,2631
TUB2-070/16D50P	837	439	1,2631	50	5,9793	$\phi =$	5,9793	x	ΔT	1,2631
TUB2-070/17D50P	889	466	1,2631	50	6,3530	$\phi =$	6,3530	x	ΔT	1,2631
TUB2-070/18D50P	941	494	1,2631	50	6,7267	$\phi =$	6,7267	x	ΔT	1,2631
TUB2-070/19D50P	994	521	1,2631	50	7,1005	$\phi =$	7,1005	x	ΔT	1,2631
TUB2-070/20D50P	1046	549	1,2631	50	7,4742	$\phi =$	7,4742	x	ΔT	1,2631
TUB2-070/21D50P	1098	576	1,2631	50	7,8479	$\phi =$	7,8479	x	ΔT	1,2631
TUB2-070/22D50P	1151	604	1,2631	50	8,2216	$\phi =$	8,2216	x	ΔT	1,2631
TUB2-070/23D50P	1203	631	1,2631	50	8,5953	$\phi =$	8,5953	x	ΔT	1,2631
TUB2-070/24D50P	1255	658	1,2631	50	8,9690	$\phi =$	8,9690	x	ΔT	1,2631
TUB2-070/25D50P	1308	686	1,2631	50	9,3427	$\phi =$	9,3427	x	ΔT	1,2631
TUB2-070/26D50P	1360	713	1,2631	50	9,7164	$\phi =$	9,7164	x	ΔT	1,2631
TUB2-070/27D50P	1412	741	1,2631	50	10,0901	$\phi =$	10,0901	x	ΔT	1,2631
TUB2-070/28D50P	1464	768	1,2631	50	10,4638	$\phi =$	10,4638	x	ΔT	1,2631
TUB2-070/29D50P	1517	796	1,2631	50	10,8375	$\phi =$	10,8375	x	ΔT	1,2631
TUB2-070/30D50P	1569	823	1,2631	50	11,2112	$\phi =$	11,2112	x	ΔT	1,2631
TUB2-070/31D50P	1621	850	1,2631	50	11,5850	$\phi =$	11,5850	x	ΔT	1,2631
TUB2-070/32D50P	1674	878	1,2631	50	11,9587	$\phi =$	11,9587	x	ΔT	1,2631
TUB2-070/33D50P	1726	905	1,2631	50	12,3324	$\phi =$	12,3324	x	ΔT	1,2631
TUB2-070/34D50P	1778	933	1,2631	50	12,7061	$\phi =$	12,7061	x	ΔT	1,2631
TUB2-070/35D50P	1831	960	1,2631	50	13,0798	$\phi =$	13,0798	x	ΔT	1,2631
TUB2-070/36D50P	1883	988	1,2631	50	13,4535	$\phi =$	13,4535	x	ΔT	1,2631
TUB2-070/37D50P	1935	1015	1,2631	50	13,8272	$\phi =$	13,8272	x	ΔT	1,2631
TUB2-070/38D50P	1987	1042	1,2631	50	14,2009	$\phi =$	14,2009	x	ΔT	1,2631
TUB2-070/39D50P	2040	1070	1,2631	50	14,5746	$\phi =$	14,5746	x	ΔT	1,2631
TUB2-070/40D50P	2092	1097	1,2631	50	14,9483	$\phi =$	14,9483	x	ΔT	1,2631
TUB2-070/41D50P	2144	1125	1,2631	50	15,3220	$\phi =$	15,3220	x	ΔT	1,2631
TUB2-070/42D50P	2197	1152	1,2631	50	15,6957	$\phi =$	15,6957	x	ΔT	1,2631
TUB2-070/43D50P	2249	1180	1,2631	50	16,0695	$\phi =$	16,0695	x	ΔT	1,2631
TUB2-070/44D50P	2301	1207	1,2631	50	16,4432	$\phi =$	16,4432	x	ΔT	1,2631
TUB2-070/45D50P	2354	1235	1,2631	50	16,8169	$\phi =$	16,8169	x	ΔT	1,2631
TUB2-080/02D50P	121	63	1,2638	50	0,8622	$\phi =$	0,8622	x	ΔT	1,2638
TUB2-080/03D50P	182	95	1,2638	50	1,2934	$\phi =$	1,2934	x	ΔT	1,2638
TUB2-080/04D50P	242	127	1,2638	50	1,7245	$\phi =$	1,7245	x	ΔT	1,2638
TUB2-080/05D50P	303	159	1,2638	50	2,1556	$\phi =$	2,1556	x	ΔT	1,2638

TUB2-080/06D50P	363	190	1,2638	50	2,5867	$\phi =$	2,5867	x	ΔT	1,2638
TUB2-080/07D50P	424	222	1,2638	50	3,0178	$\phi =$	3,0178	x	ΔT	1,2638
TUB2-080/08D50P	484	254	1,2638	50	3,4490	$\phi =$	3,4490	x	ΔT	1,2638
TUB2-080/09D50P	545	286	1,2638	50	3,8801	$\phi =$	3,8801	x	ΔT	1,2638
TUB2-080/10D50P	605	317	1,2638	50	4,3112	$\phi =$	4,3112	x	ΔT	1,2638
TUB2-080/11D50P	666	349	1,2638	50	4,7423	$\phi =$	4,7423	x	ΔT	1,2638
TUB2-080/12D50P	726	381	1,2638	50	5,1734	$\phi =$	5,1734	x	ΔT	1,2638
TUB2-080/13D50P	787	412	1,2638	50	5,6045	$\phi =$	5,6045	x	ΔT	1,2638
TUB2-080/14D50P	847	444	1,2638	50	6,0357	$\phi =$	6,0357	x	ΔT	1,2638
TUB2-080/15D50P	908	476	1,2638	50	6,4668	$\phi =$	6,4668	x	ΔT	1,2638
TUB2-080/16D50P	968	508	1,2638	50	6,8979	$\phi =$	6,8979	x	ΔT	1,2638
TUB2-080/17D50P	1029	539	1,2638	50	7,3290	$\phi =$	7,3290	x	ΔT	1,2638
TUB2-080/18D50P	1089	571	1,2638	50	7,7601	$\phi =$	7,7601	x	ΔT	1,2638
TUB2-080/19D50P	1150	603	1,2638	50	8,1913	$\phi =$	8,1913	x	ΔT	1,2638
TUB2-080/20D50P	1210	634	1,2638	50	8,6224	$\phi =$	8,6224	x	ΔT	1,2638
TUB2-080/21D50P	1271	666	1,2638	50	9,0535	$\phi =$	9,0535	x	ΔT	1,2638
TUB2-080/22D50P	1331	698	1,2638	50	9,4846	$\phi =$	9,4846	x	ΔT	1,2638
TUB2-080/23D50P	1392	730	1,2638	50	9,9157	$\phi =$	9,9157	x	ΔT	1,2638
TUB2-080/24D50P	1452	761	1,2638	50	10,3469	$\phi =$	10,3469	x	ΔT	1,2638
TUB2-080/25D50P	1513	793	1,2638	50	10,7780	$\phi =$	10,7780	x	ΔT	1,2638
TUB2-080/26D50P	1573	825	1,2638	50	11,2091	$\phi =$	11,2091	x	ΔT	1,2638
TUB2-080/27D50P	1634	857	1,2638	50	11,6402	$\phi =$	11,6402	x	ΔT	1,2638
TUB2-080/28D50P	1694	888	1,2638	50	12,0713	$\phi =$	12,0713	x	ΔT	1,2638
TUB2-080/29D50P	1755	920	1,2638	50	12,5024	$\phi =$	12,5024	x	ΔT	1,2638
TUB2-080/30D50P	1815	952	1,2638	50	12,9336	$\phi =$	12,9336	x	ΔT	1,2638
TUB2-080/31D50P	1876	983	1,2638	50	13,3647	$\phi =$	13,3647	x	ΔT	1,2638
TUB2-080/32D50P	1936	1015	1,2638	50	13,7958	$\phi =$	13,7958	x	ΔT	1,2638
TUB2-080/33D50P	1997	1047	1,2638	50	14,2269	$\phi =$	14,2269	x	ΔT	1,2638
TUB2-080/34D50P	2057	1079	1,2638	50	14,6580	$\phi =$	14,6580	x	ΔT	1,2638
TUB2-080/35D50P	2118	1110	1,2638	50	15,0892	$\phi =$	15,0892	x	ΔT	1,2638
TUB2-080/36D50P	2178	1142	1,2638	50	15,5203	$\phi =$	15,5203	x	ΔT	1,2638
TUB2-080/37D50P	2239	1174	1,2638	50	15,9514	$\phi =$	15,9514	x	ΔT	1,2638
TUB2-080/38D50P	2299	1205	1,2638	50	16,3825	$\phi =$	16,3825	x	ΔT	1,2638
TUB2-080/39D50P	2360	1237	1,2638	50	16,8136	$\phi =$	16,8136	x	ΔT	1,2638
TUB2-080/40D50P	2420	1269	1,2638	50	17,2448	$\phi =$	17,2448	x	ΔT	1,2638
TUB2-080/41D50P	2481	1301	1,2638	50	17,6759	$\phi =$	17,6759	x	ΔT	1,2638
TUB2-080/42D50P	2541	1332	1,2638	50	18,1070	$\phi =$	18,1070	x	ΔT	1,2638
TUB2-080/43D50P	2602	1364	1,2638	50	18,5381	$\phi =$	18,5381	x	ΔT	1,2638
TUB2-080/44D50P	2662	1396	1,2638	50	18,9692	$\phi =$	18,9692	x	ΔT	1,2638
TUB2-080/45D50P	2723	1428	1,2638	50	19,4004	$\phi =$	19,4004	x	ΔT	1,2638
TUB2-090/02D50P	137	72	1,2645	50	0,9764	$\phi =$	0,9764	x	ΔT	1,2645
TUB2-090/03D50P	206	108	1,2645	50	1,4646	$\phi =$	1,4646	x	ΔT	1,2645
TUB2-090/04D50P	275	144	1,2645	50	1,9529	$\phi =$	1,9529	x	ΔT	1,2645
TUB2-090/05D50P	344	180	1,2645	50	2,4411	$\phi =$	2,4411	x	ΔT	1,2645
TUB2-090/06D50P	412	216	1,2645	50	2,9293	$\phi =$	2,9293	x	ΔT	1,2645
TUB2-090/07D50P	481	252	1,2645	50	3,4175	$\phi =$	3,4175	x	ΔT	1,2645
TUB2-090/08D50P	550	288	1,2645	50	3,9057	$\phi =$	3,9057	x	ΔT	1,2645

TUB2-090/09D50P	618	324	1,2645	50	4,3939	$\phi =$	4,3939	x	ΔT	1,2645
TUB2-090/10D50P	687	360	1,2645	50	4,8821	$\phi =$	4,8821	x	ΔT	1,2645
TUB2-090/11D50P	756	396	1,2645	50	5,3703	$\phi =$	5,3703	x	ΔT	1,2645
TUB2-090/12D50P	824	432	1,2645	50	5,8586	$\phi =$	5,8586	x	ΔT	1,2645
TUB2-090/13D50P	893	468	1,2645	50	6,3468	$\phi =$	6,3468	x	ΔT	1,2645
TUB2-090/14D50P	962	504	1,2645	50	6,8350	$\phi =$	6,8350	x	ΔT	1,2645
TUB2-090/15D50P	1031	540	1,2645	50	7,3232	$\phi =$	7,3232	x	ΔT	1,2645
TUB2-090/16D50P	1099	576	1,2645	50	7,8114	$\phi =$	7,8114	x	ΔT	1,2645
TUB2-090/17D50P	1168	612	1,2645	50	8,2996	$\phi =$	8,2996	x	ΔT	1,2645
TUB2-090/18D50P	1237	648	1,2645	50	8,7878	$\phi =$	8,7878	x	ΔT	1,2645
TUB2-090/19D50P	1305	684	1,2645	50	9,2760	$\phi =$	9,2760	x	ΔT	1,2645
TUB2-090/20D50P	1374	720	1,2645	50	9,7643	$\phi =$	9,7643	x	ΔT	1,2645
TUB2-090/21D50P	1443	756	1,2645	50	10,2525	$\phi =$	10,2525	x	ΔT	1,2645
TUB2-090/22D50P	1511	792	1,2645	50	10,7407	$\phi =$	10,7407	x	ΔT	1,2645
TUB2-090/23D50P	1580	828	1,2645	50	11,2289	$\phi =$	11,2289	x	ΔT	1,2645
TUB2-090/24D50P	1649	864	1,2645	50	11,7171	$\phi =$	11,7171	x	ΔT	1,2645
TUB2-090/25D50P	1718	900	1,2645	50	12,2053	$\phi =$	12,2053	x	ΔT	1,2645
TUB2-090/26D50P	1786	936	1,2645	50	12,6935	$\phi =$	12,6935	x	ΔT	1,2645
TUB2-090/27D50P	1855	972	1,2645	50	13,1817	$\phi =$	13,1817	x	ΔT	1,2645
TUB2-090/28D50P	1924	1008	1,2645	50	13,6700	$\phi =$	13,6700	x	ΔT	1,2645
TUB2-090/29D50P	1992	1044	1,2645	50	14,1582	$\phi =$	14,1582	x	ΔT	1,2645
TUB2-090/30D50P	2061	1080	1,2645	50	14,6464	$\phi =$	14,6464	x	ΔT	1,2645
TUB2-090/31D50P	2130	1116	1,2645	50	15,1346	$\phi =$	15,1346	x	ΔT	1,2645
TUB2-090/32D50P	2198	1152	1,2645	50	15,6228	$\phi =$	15,6228	x	ΔT	1,2645
TUB2-090/33D50P	2267	1188	1,2645	50	16,1110	$\phi =$	16,1110	x	ΔT	1,2645
TUB2-090/34D50P	2336	1224	1,2645	50	16,5992	$\phi =$	16,5992	x	ΔT	1,2645
TUB2-090/35D50P	2405	1260	1,2645	50	17,0874	$\phi =$	17,0874	x	ΔT	1,2645
TUB2-090/36D50P	2473	1296	1,2645	50	17,5757	$\phi =$	17,5757	x	ΔT	1,2645
TUB2-090/37D50P	2542	1332	1,2645	50	18,0639	$\phi =$	18,0639	x	ΔT	1,2645
TUB2-090/38D50P	2611	1368	1,2645	50	18,5521	$\phi =$	18,5521	x	ΔT	1,2645
TUB2-090/39D50P	2679	1404	1,2645	50	19,0403	$\phi =$	19,0403	x	ΔT	1,2645
TUB2-090/40D50P	2748	1440	1,2645	50	19,5285	$\phi =$	19,5285	x	ΔT	1,2645
TUB2-090/41D50P	2817	1476	1,2645	50	20,0167	$\phi =$	20,0167	x	ΔT	1,2645
TUB2-090/42D50P	2885	1512	1,2645	50	20,5049	$\phi =$	20,5049	x	ΔT	1,2645
TUB2-090/43D50P	2954	1548	1,2645	50	20,9932	$\phi =$	20,9932	x	ΔT	1,2645
TUB2-090/44D50P	3023	1584	1,2645	50	21,4814	$\phi =$	21,4814	x	ΔT	1,2645
TUB2-090/45D50P	3092	1620	1,2645	50	21,9696	$\phi =$	21,9696	x	ΔT	1,2645
TUB2-100/02D50P	153	80	1,2653	50	1,0867	$\phi =$	1,0867	x	ΔT	1,2653
TUB2-100/03D50P	230	121	1,2653	50	1,6301	$\phi =$	1,6301	x	ΔT	1,2653
TUB2-100/04D50P	307	161	1,2653	50	2,1734	$\phi =$	2,1734	x	ΔT	1,2653
TUB2-100/05D50P	384	201	1,2653	50	2,7168	$\phi =$	2,7168	x	ΔT	1,2653
TUB2-100/06D50P	460	241	1,2653	50	3,2602	$\phi =$	3,2602	x	ΔT	1,2653
TUB2-100/07D50P	537	281	1,2653	50	3,8035	$\phi =$	3,8035	x	ΔT	1,2653
TUB2-100/08D50P	614	321	1,2653	50	4,3469	$\phi =$	4,3469	x	ΔT	1,2653
TUB2-100/09D50P	690	362	1,2653	50	4,8903	$\phi =$	4,8903	x	ΔT	1,2653
TUB2-100/10D50P	767	402	1,2653	50	5,4336	$\phi =$	5,4336	x	ΔT	1,2653
TUB2-100/11D50P	844	442	1,2653	50	5,9770	$\phi =$	5,9770	x	ΔT	1,2653

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TUB2-100/12D50P	920	482	1,2653	50	6,5203	$\phi =$	6,5203	x	ΔT	1,2653
TUB2-100/13D50P	997	522	1,2653	50	7,0637	$\phi =$	7,0637	x	ΔT	1,2653
TUB2-100/14D50P	1074	563	1,2653	50	7,6071	$\phi =$	7,6071	x	ΔT	1,2653
TUB2-100/15D50P	1151	603	1,2653	50	8,1504	$\phi =$	8,1504	x	ΔT	1,2653
TUB2-100/16D50P	1227	643	1,2653	50	8,6938	$\phi =$	8,6938	x	ΔT	1,2653
TUB2-100/17D50P	1304	683	1,2653	50	9,2371	$\phi =$	9,2371	x	ΔT	1,2653
TUB2-100/18D50P	1381	723	1,2653	50	9,7805	$\phi =$	9,7805	x	ΔT	1,2653
TUB2-100/19D50P	1457	764	1,2653	50	10,3239	$\phi =$	10,3239	x	ΔT	1,2653
TUB2-100/20D50P	1534	804	1,2653	50	10,8672	$\phi =$	10,8672	x	ΔT	1,2653
TUB2-100/21D50P	1611	844	1,2653	50	11,4106	$\phi =$	11,4106	x	ΔT	1,2653
TUB2-100/22D50P	1687	884	1,2653	50	11,9539	$\phi =$	11,9539	x	ΔT	1,2653
TUB2-100/23D50P	1764	924	1,2653	50	12,4973	$\phi =$	12,4973	x	ΔT	1,2653
TUB2-100/24D50P	1841	964	1,2653	50	13,0407	$\phi =$	13,0407	x	ΔT	1,2653
TUB2-100/25D50P	1918	1005	1,2653	50	13,5840	$\phi =$	13,5840	x	ΔT	1,2653
TUB2-100/26D50P	1994	1045	1,2653	50	14,1274	$\phi =$	14,1274	x	ΔT	1,2653
TUB2-100/27D50P	2071	1085	1,2653	50	14,6708	$\phi =$	14,6708	x	ΔT	1,2653
TUB2-100/28D50P	2148	1125	1,2653	50	15,2141	$\phi =$	15,2141	x	ΔT	1,2653
TUB2-100/29D50P	2224	1165	1,2653	50	15,7575	$\phi =$	15,7575	x	ΔT	1,2653
TUB2-100/30D50P	2301	1206	1,2653	50	16,3008	$\phi =$	16,3008	x	ΔT	1,2653
TUB2-100/31D50P	2378	1246	1,2653	50	16,8442	$\phi =$	16,8442	x	ΔT	1,2653
TUB2-100/32D50P	2454	1286	1,2653	50	17,3876	$\phi =$	17,3876	x	ΔT	1,2653
TUB2-100/33D50P	2531	1326	1,2653	50	17,9309	$\phi =$	17,9309	x	ΔT	1,2653
TUB2-100/34D50P	2608	1366	1,2653	50	18,4743	$\phi =$	18,4743	x	ΔT	1,2653
TUB2-100/35D50P	2685	1407	1,2653	50	19,0176	$\phi =$	19,0176	x	ΔT	1,2653
TUB2-100/36D50P	2761	1447	1,2653	50	19,5610	$\phi =$	19,5610	x	ΔT	1,2653
TUB2-100/37D50P	2838	1487	1,2653	50	20,1044	$\phi =$	20,1044	x	ΔT	1,2653
TUB2-100/38D50P	2915	1527	1,2653	50	20,6477	$\phi =$	20,6477	x	ΔT	1,2653
TUB2-100/39D50P	2991	1567	1,2653	50	21,1911	$\phi =$	21,1911	x	ΔT	1,2653
TUB2-100/40D50P	3068	1607	1,2653	50	21,7344	$\phi =$	21,7344	x	ΔT	1,2653
TUB2-100/41D50P	3145	1648	1,2653	50	22,2778	$\phi =$	22,2778	x	ΔT	1,2653
TUB2-100/42D50P	3221	1688	1,2653	50	22,8212	$\phi =$	22,8212	x	ΔT	1,2653
TUB2-120/02D50P	185	97	1,2672	50	1,3009	$\phi =$	1,3009	x	ΔT	1,2672
TUB2-120/03D50P	278	145	1,2672	50	1,9513	$\phi =$	1,9513	x	ΔT	1,2672
TUB2-120/04D50P	370	194	1,2672	50	2,6018	$\phi =$	2,6018	x	ΔT	1,2672
TUB2-120/05D50P	463	242	1,2672	50	3,2522	$\phi =$	3,2522	x	ΔT	1,2672
TUB2-120/06D50P	555	291	1,2672	50	3,9026	$\phi =$	3,9026	x	ΔT	1,2672
TUB2-120/07D50P	648	339	1,2672	50	4,5531	$\phi =$	4,5531	x	ΔT	1,2672
TUB2-120/08D50P	740	387	1,2672	50	5,2035	$\phi =$	5,2035	x	ΔT	1,2672
TUB2-120/09D50P	833	436	1,2672	50	5,8540	$\phi =$	5,8540	x	ΔT	1,2672
TUB2-120/10D50P	925	484	1,2672	50	6,5044	$\phi =$	6,5044	x	ΔT	1,2672
TUB2-120/11D50P	1018	533	1,2672	50	7,1548	$\phi =$	7,1548	x	ΔT	1,2672
TUB2-120/12D50P	1110	581	1,2672	50	7,8053	$\phi =$	7,8053	x	ΔT	1,2672
TUB2-120/13D50P	1203	629	1,2672	50	8,4557	$\phi =$	8,4557	x	ΔT	1,2672
TUB2-120/14D50P	1295	678	1,2672	50	9,1062	$\phi =$	9,1062	x	ΔT	1,2672
TUB2-120/15D50P	1388	726	1,2672	50	9,7566	$\phi =$	9,7566	x	ΔT	1,2672
TUB2-120/16D50P	1480	775	1,2672	50	10,4070	$\phi =$	10,4070	x	ΔT	1,2672
TUB2-120/17D50P	1573	823	1,2672	50	11,0575	$\phi =$	11,0575	x	ΔT	1,2672

TUB2-120/18D50P	1665	872	1,2672	50	11,7079	$\phi =$	11,7079	x	ΔT	1,2672
TUB2-120/19D50P	1758	920	1,2672	50	12,3584	$\phi =$	12,3584	x	ΔT	1,2672
TUB2-120/20D50P	1850	968	1,2672	50	13,0088	$\phi =$	13,0088	x	ΔT	1,2672
TUB2-120/21D50P	1943	1017	1,2672	50	13,6592	$\phi =$	13,6592	x	ΔT	1,2672
TUB2-120/22D50P	2035	1065	1,2672	50	14,3097	$\phi =$	14,3097	x	ΔT	1,2672
TUB2-120/23D50P	2128	1114	1,2672	50	14,9601	$\phi =$	14,9601	x	ΔT	1,2672
TUB2-120/24D50P	2220	1162	1,2672	50	15,6105	$\phi =$	15,6105	x	ΔT	1,2672
TUB2-120/25D50P	2313	1210	1,2672	50	16,2610	$\phi =$	16,2610	x	ΔT	1,2672
TUB2-120/26D50P	2405	1259	1,2672	50	16,9114	$\phi =$	16,9114	x	ΔT	1,2672
TUB2-120/27D50P	2498	1307	1,2672	50	17,5619	$\phi =$	17,5619	x	ΔT	1,2672
TUB2-120/28D50P	2590	1356	1,2672	50	18,2123	$\phi =$	18,2123	x	ΔT	1,2672
TUB2-120/29D50P	2683	1404	1,2672	50	18,8627	$\phi =$	18,8627	x	ΔT	1,2672
TUB2-120/30D50P	2775	1453	1,2672	50	19,5132	$\phi =$	19,5132	x	ΔT	1,2672
TUB2-120/31D50P	2868	1501	1,2672	50	20,1636	$\phi =$	20,1636	x	ΔT	1,2672
TUB2-120/32D50P	2960	1549	1,2672	50	20,8141	$\phi =$	20,8141	x	ΔT	1,2672
TUB2-120/33D50P	3053	1598	1,2672	50	21,4645	$\phi =$	21,4645	x	ΔT	1,2672
TUB2-120/34D50P	3145	1646	1,2672	50	22,1149	$\phi =$	22,1149	x	ΔT	1,2672
TUB2-120/35D50P	3238	1695	1,2672	50	22,7654	$\phi =$	22,7654	x	ΔT	1,2672
TUB2-150/02D50P	230	120	1,2706	50	1,5987	$\phi =$	1,5987	x	ΔT	1,2706
TUB2-150/03D50P	346	181	1,2706	50	2,3981	$\phi =$	2,3981	x	ΔT	1,2706
TUB2-150/04D50P	461	241	1,2706	50	3,1974	$\phi =$	3,1974	x	ΔT	1,2706
TUB2-150/05D50P	576	301	1,2706	50	3,9968	$\phi =$	3,9968	x	ΔT	1,2706
TUB2-150/06D50P	691	361	1,2706	50	4,7961	$\phi =$	4,7961	x	ΔT	1,2706
TUB2-150/07D50P	806	421	1,2706	50	5,5955	$\phi =$	5,5955	x	ΔT	1,2706
TUB2-150/08D50P	922	482	1,2706	50	6,3949	$\phi =$	6,3949	x	ΔT	1,2706
TUB2-150/09D50P	1037	542	1,2706	50	7,1942	$\phi =$	7,1942	x	ΔT	1,2706
TUB2-150/10D50P	1152	602	1,2706	50	7,9936	$\phi =$	7,9936	x	ΔT	1,2706
TUB2-150/11D50P	1267	662	1,2706	50	8,7929	$\phi =$	8,7929	x	ΔT	1,2706
TUB2-150/12D50P	1382	722	1,2706	50	9,5923	$\phi =$	9,5923	x	ΔT	1,2706
TUB2-150/13D50P	1498	783	1,2706	50	10,3917	$\phi =$	10,3917	x	ΔT	1,2706
TUB2-150/14D50P	1613	843	1,2706	50	11,1910	$\phi =$	11,1910	x	ΔT	1,2706
TUB2-150/15D50P	1728	903	1,2706	50	11,9904	$\phi =$	11,9904	x	ΔT	1,2706
TUB2-150/16D50P	1843	963	1,2706	50	12,7897	$\phi =$	12,7897	x	ΔT	1,2706
TUB2-150/17D50P	1958	1023	1,2706	50	13,5891	$\phi =$	13,5891	x	ΔT	1,2706
TUB2-150/18D50P	2074	1084	1,2706	50	14,3884	$\phi =$	14,3884	x	ΔT	1,2706
TUB2-150/19D50P	2189	1144	1,2706	50	15,1878	$\phi =$	15,1878	x	ΔT	1,2706
TUB2-150/20D50P	2304	1204	1,2706	50	15,9872	$\phi =$	15,9872	x	ΔT	1,2706
TUB2-150/21D50P	2419	1264	1,2706	50	16,7865	$\phi =$	16,7865	x	ΔT	1,2706
TUB2-150/22D50P	2534	1324	1,2706	50	17,5859	$\phi =$	17,5859	x	ΔT	1,2706
TUB2-150/23D50P	2650	1385	1,2706	50	18,3852	$\phi =$	18,3852	x	ΔT	1,2706
TUB2-150/24D50P	2765	1445	1,2706	50	19,1846	$\phi =$	19,1846	x	ΔT	1,2706
TUB2-150/25D50P	2880	1505	1,2706	50	19,9839	$\phi =$	19,9839	x	ΔT	1,2706
TUB2-150/26D50P	2995	1565	1,2706	50	20,7833	$\phi =$	20,7833	x	ΔT	1,2706
TUB2-150/27D50P	3110	1625	1,2706	50	21,5827	$\phi =$	21,5827	x	ΔT	1,2706
TUB2-150/28D50P	3226	1686	1,2706	50	22,3820	$\phi =$	22,3820	x	ΔT	1,2706
TUB2-180/02D50P	273	142	1,2747	50	1,8642	$\phi =$	1,8642	x	ΔT	1,2747
TUB2-180/03D50P	410	214	1,2747	50	2,7963	$\phi =$	2,7963	x	ΔT	1,2747

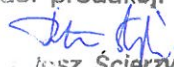
TUB2-180/04D50P	546	285	1,2747	50	3,7283	$\phi =$	3,7283	x	ΔT	1,2747
TUB2-180/05D50P	683	356	1,2747	50	4,6604	$\phi =$	4,6604	x	ΔT	1,2747
TUB2-180/06D50P	819	427	1,2747	50	5,5925	$\phi =$	5,5925	x	ΔT	1,2747
TUB2-180/07D50P	956	498	1,2747	50	6,5246	$\phi =$	6,5246	x	ΔT	1,2747
TUB2-180/08D50P	1092	569	1,2747	50	7,4567	$\phi =$	7,4567	x	ΔT	1,2747
TUB2-180/09D50P	1229	641	1,2747	50	8,3888	$\phi =$	8,3888	x	ΔT	1,2747
TUB2-180/10D50P	1365	712	1,2747	50	9,3209	$\phi =$	9,3209	x	ΔT	1,2747
TUB2-180/11D50P	1502	783	1,2747	50	10,2529	$\phi =$	10,2529	x	ΔT	1,2747
TUB2-180/12D50P	1638	854	1,2747	50	11,1850	$\phi =$	11,1850	x	ΔT	1,2747
TUB2-180/13D50P	1775	925	1,2747	50	12,1171	$\phi =$	12,1171	x	ΔT	1,2747
TUB2-180/14D50P	1911	996	1,2747	50	13,0492	$\phi =$	13,0492	x	ΔT	1,2747
TUB2-180/15D50P	2048	1068	1,2747	50	13,9813	$\phi =$	13,9813	x	ΔT	1,2747
TUB2-180/16D50P	2184	1139	1,2747	50	14,9134	$\phi =$	14,9134	x	ΔT	1,2747
TUB2-180/17D50P	2321	1210	1,2747	50	15,8454	$\phi =$	15,8454	x	ΔT	1,2747
TUB2-180/18D50P	2457	1281	1,2747	50	16,7775	$\phi =$	16,7775	x	ΔT	1,2747
TUB2-180/19D50P	2594	1352	1,2747	50	17,7096	$\phi =$	17,7096	x	ΔT	1,2747
TUB2-180/20D50P	2730	1424	1,2747	50	18,6417	$\phi =$	18,6417	x	ΔT	1,2747
TUB2-180/21D50P	2867	1495	1,2747	50	19,5738	$\phi =$	19,5738	x	ΔT	1,2747
TUB2-180/22D50P	3003	1566	1,2747	50	20,5059	$\phi =$	20,5059	x	ΔT	1,2747
TUB2-180/23D50P	3140	1637	1,2747	50	21,4380	$\phi =$	21,4380	x	ΔT	1,2747
TUB2-200/02D50P	300	156	1,2778	50	2,0211	$\phi =$	2,0211	x	ΔT	1,2778
TUB2-200/03D50P	449	234	1,2778	50	3,0317	$\phi =$	3,0317	x	ΔT	1,2778
TUB2-200/04D50P	599	312	1,2778	50	4,0423	$\phi =$	4,0423	x	ΔT	1,2778
TUB2-200/05D50P	749	390	1,2778	50	5,0529	$\phi =$	5,0529	x	ΔT	1,2778
TUB2-200/06D50P	899	468	1,2778	50	6,0634	$\phi =$	6,0634	x	ΔT	1,2778
TUB2-200/07D50P	1049	546	1,2778	50	7,0740	$\phi =$	7,0740	x	ΔT	1,2778
TUB2-200/08D50P	1198	624	1,2778	50	8,0846	$\phi =$	8,0846	x	ΔT	1,2778
TUB2-200/09D50P	1348	702	1,2778	50	9,0952	$\phi =$	9,0952	x	ΔT	1,2778
TUB2-200/10D50P	1498	780	1,2778	50	10,1057	$\phi =$	10,1057	x	ΔT	1,2778
TUB2-200/11D50P	1648	858	1,2778	50	11,1163	$\phi =$	11,1163	x	ΔT	1,2778
TUB2-200/12D50P	1798	936	1,2778	50	12,1269	$\phi =$	12,1269	x	ΔT	1,2778
TUB2-200/13D50P	1947	1014	1,2778	50	13,1375	$\phi =$	13,1375	x	ΔT	1,2778
TUB2-200/14D50P	2097	1092	1,2778	50	14,1480	$\phi =$	14,1480	x	ΔT	1,2778
TUB2-200/15D50P	2247	1170	1,2778	50	15,1586	$\phi =$	15,1586	x	ΔT	1,2778
TUB2-200/16D50P	2397	1248	1,2778	50	16,1692	$\phi =$	16,1692	x	ΔT	1,2778
TUB2-200/17D50P	2547	1326	1,2778	50	17,1798	$\phi =$	17,1798	x	ΔT	1,2778
TUB2-200/18D50P	2696	1404	1,2778	50	18,1903	$\phi =$	18,1903	x	ΔT	1,2778
TUB2-200/19D50P	2846	1482	1,2778	50	19,2009	$\phi =$	19,2009	x	ΔT	1,2778
TUB2-200/20D50P	2996	1560	1,2778	50	20,2115	$\phi =$	20,2115	x	ΔT	1,2778
TUB2-200/21D50P	3146	1638	1,2778	50	21,2220	$\phi =$	21,2220	x	ΔT	1,2778

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.

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PREZESA
ds. produkcji

Bartosz Ścierzyński

(podpis)
(signature)