TEON
ENERGIA DALLA TERRA

Professional Range

WATER VERSION

TEON Professional range in **Water** (water-water) version consists of natural monobloc water-water heat generators for the production of heating and domestic hot water (DHW), with the option of reversibility for summer operation in cooling mode. The **T60**, **T115**, **T250**, **T350** models are single-stage, capable of delivering:

- High-temperature hot water (min 30°C - max 80°C);
- Chilled water at low temperature (min 5°C) - only in reversible models ('**RT**').

The compressors used are of the energy-efficient reciprocating type for the **T60**, **T115** and **T250** models (including reversible), while the **T350**/**RT350** models use a screw compressor. They are developed and optimised for applications with R600a refrigerant, minimising power consumption, vibration and noise.

The exchangers are AISI 316 stainless steel plates, braze-welded, with countercurrent heat exchange and AISI 304 stainless steel connections. They are characterised by high thermal efficiency with simultaneous high turbulence and reduced risk of scale and deposit formation.

Inside the supporting structure with perimeter panelling are the main components of the machines:

- Compressor(s)
- Laminating valve
- Evaporator(s)
- Capacitor(s)
- Economiser(s)
- Measuring and control components
- Tubing and various in-line components
- Machine edge

WATER® BLAZE TECHNOLOGY

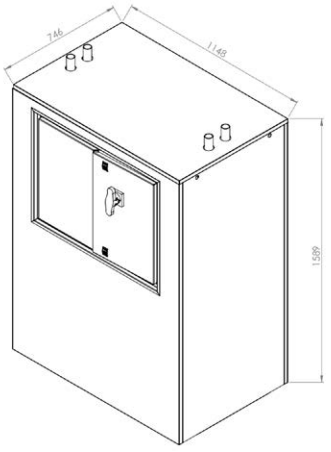
TEON's WATER BLAZE technology introduces into the traditional thermodynamic cycle of heat pumps a forced sub-cooling, thanks to which more thermal power is recovered from the natural source to be transferred to the heating system and overall efficiency is maximised. This is achieved by splitting the iso-enthalpic curve into two distinct transformations, one at constant pressure and one at constant temperature, which take place in a recuperator and a lamination valve, respectively.

PROFESSIONAL RANGE/ WATER VERSION

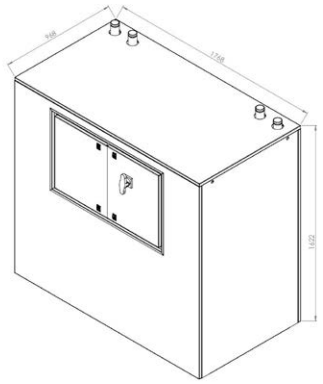
TECHNICAL FEATURES

PERFORMANCE	U.M.	T60			T115			T250			T350		
HEATING (T models)													
Thermal Power	[kW]	65	62	49,2	119,4	110,7	88,2	238,8	221,4	176,4	345,7	334,7	286,6
Electric Power	[kW]	10,3	14,6	16,3	18,4	25,7	28,8	36,7	51,4	57,6	56,4	79,6	106,2
COP	[-]	6,3	4,26	3,02	6,51	4,3	3,06	6,51	4,3	3,06	6,13	4,21	2,7
Inlet water temperature from source	[°C]	10	15	15	10	15	15	10	15	15	10	15	15
Outlet water temperature to source	[°C]	7	10	10	7	10	10	7	10	10	7	10	10
Inlet water temperature from plant	[°C]	30	50	70	30	50	70	30	50	70	30	50	70
Outlet water temperature to plant	[°C]	35	60	80	35	60	80	35	60	80	35	60	80
Water flow on the source side	[l/s]	4,35	2,26	1,57	8,05	4,06	2,84	16,09	8,12	5,68	23,04	12,19	8,62
Water flow on the plant side	[l/s]	3,1	1,48	1,17	5,7	2,64	2,11	11,41	5,29	4,21	16,52	8	6,85
Refrigerant charge (R600a)	[kg]		4			6,9			15			24	
COOLING (RT models)													
Refrigeration Power	[kW]		51,9			95,9			191,9			276,4	
Electric Power	[kW]		10,3			18,4			36,7			56,4	
EER	[-]		5,03			5,23			5,23			4,9	
Outlet water temperature to source	[°C]		20			20			20			20	
Inlet water temperature from source	[°C]		15			15			15			15	
Outlet water temperature to plant	[°C]		7			7			7			7	
Inlet water temperature from plant	[°C]		12			12			12			12	
Water flow on the source side	[l/s]		2,48			4,6			9,2			13,2	
Water flow on the plant side	[l/s]		2,97			5,5			10,9			15,9	
Refrigerant charge (R600a)	[kg]		5			9			15			24	

T60

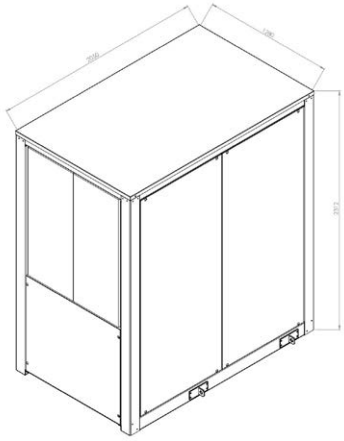


T115



T250

T350



NOTE: For **T60**, **T115**, **T250**, **T350** the following clearances apply: front and rear 500 mm, side left and right 600 mm and above 500 mm. For **T250**, **T350** the following clearances apply: front and rear 1000 mm, side left and right 800 mm and top 150 mm.

TECHNICAL DATA	U.M.	T60	T115	T250	T350
Max nominal electric current	[A]	32,9	66,1	132,2	180,8
Sound pressure level 1 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	61	64	67	74
Sound pressure level 5 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	47	50	53	60
Sound pressure level 10 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	41	44	47	54
Water circuit load loss on evaporator side	[kPa]	8	10	18	15
Water circuit load loss on condenser side	[kPa]	6,5	8	12	39
Power supply	[V/-/Hz]	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
Compressors type	[-]	Alternativo	Alternativo	Alternativo	Vite
Partialization (with partialization optional)	[-]	83 / 66	88 / 75	88 / 75 / 50 / 44 / 38	75 / 50 / 25
SIZES AND WEIGHTS	**U.M.**	**T60**	**T115**	**T250**	**T350**
Dimensions (L x P x H) (**)	[mm]	1.148 x 746 x 1.589	1.768 x 968 x 1.622	1.224 x 1.529 x 2.172	1.280 x 2.050 x 2.312
Empty weight	[kg]	640	990	1.761	2.653
Operating weight	[kg]	700	1.033	1.868	2.811
Diameter source side hydraulic connections (T)	[Victaulic]	G 1" 1/4"	DN50	DN80	DN100
Diameter plant side hydraulic connections (T)	[Victaulic]	G 1" 1/4"	DN50	DN65	DN100
SAFETY	**U.M.**	**T60**	**T115**	**T250**	**T350**
Maximum pressure of the refrigerant	[bar]	14	14	14	14
F-GAS license need for maintenance	[-]	No	No	No	No

(*) Data shown are from free-field measurements.
(**) The indicated height does not take into account the anti-vibration mounts, which would increase the total height by between 60 mm and 110 mm.

Professional Range

GROUND VERSION

TEON Professional range in **Ground** version, in closed loop operation, consists of natural monobloc water-to-water heat generators for the production of heating and domestic hot water (DHW), with the option of reversibility for summer operation in cooling mode. The **T60**, **T115**, **T250**, **T350** models are single-stage, capable of delivering

- High-temperature hot water (min 30°C - max 80°C);
- Chilled water at low temperature (min 5°C) - only in reversible models ('**RT**').

The compressors used are of the reciprocating or screw type, with high energy efficiency. They are developed and optimised for applications with R600a refrigerant, minimising power consumption, vibration and noise.

The exchangers are AISI 316 stainless steel plates, braze-welded, with countercurrent heat exchange and AISI 304 stainless steel connections. They are characterised by high thermal efficiency with simultaneous high turbulence and reduced risk of scale and deposit formation.

Inside the supporting structure with perimeter panelling are the main components of the machines:

- Compressor(s)
- Laminating valve
- Evaporator(s)
- Capacitor(s)
- Economiser(s)
- Measuring and control components
- Tubing and various in-line components
- Machine edge

WATER® BLAZE TECHNOLOGY

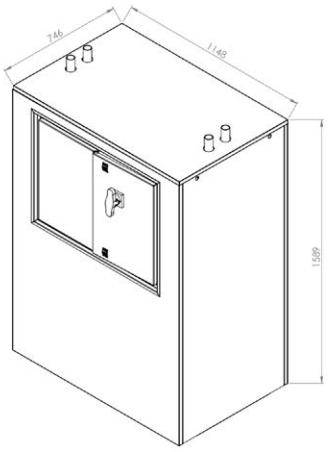
TEON's WATER BLAZE technology introduces into the traditional thermodynamic cycle of heat pumps a forced sub-cooling, thanks to which more thermal power is recovered from the natural source to be transferred to the heating system and overall efficiency is maximised. This is achieved by splitting the iso-enthalpic curve into two distinct transformations, one at constant pressure and one at constant temperature, which take place in a recuperator and a lamination valve, respectively..

***PROFESSIONAL** RANGE / **GROUND** VERSION*

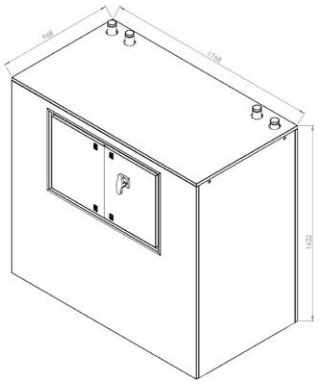
TECHNICAL FEATURES

PERFORMANCE	U.M.	T60			T115			T250			T350		
HEATING (T models)													
Thermal Power	[kW]	44,5	49,2	38,9	81,9	88,1	69,4	163,8	176,3	138,9	253,5	275,4	232
Electric Power	[kW]	9,3	13	14,1	16,2	23,1	25,2	32,5	46,1	50,3	56,6	77,5	103,6
COP	[-]	4,81	3,78	2,76	5,04	3,82	2,76	5,04	3,82	2,76	4,48	3,55	2,24
Inlet water temperature from source	[°C]	0	7	7	0	7	7	0	7	7	0	7	7
Outlet water temperature to source	[°C]	-3	4	4	-3 4 4	4	4	-3	4	4	-3	4	4
Inlet water temperature from plant	[°C]	30	50	70	30	50	70	30	50	70	30	50	70
Outlet water temperature to plant	[°C]	35	60	80	35	60	80	35	60	80	35	60	80
Water flow on the source side	[l/s]	2,81	2,88	1,98	5,23	5,18	3,53	10,46	10,37	7,05	15,68	15,76	10,23
Water flow on the plant side	[l/s]	2,13	1,18	0,93	3,91	2,11	1,66	7,83	4,21	3,32	12,11	6,58	5,54
Refrigerant charge (R600a)	[kg]		4			6,9			15			24	
COOLING (RT models)													
Refrigeration Power	[kW]		51,9			95,9			191,9			276,4	
Electric Power	[kW]		10,3			18,4			36,7			56,4	
EER	[-]		5,03			5,2			5,2			4,9	
Outlet water temperature to source	l/s		2,48			4,6			9,2			13,2	
Inlet water temperature from source	[l/s]		3			5,5			10,9			15,9	
Outlet water temperature to plant	[°C]		20			20			20			20	
Inlet water temperature from plant	[°C]		15			15			15			15	
Water flow on the source side	[°C]		7			7			7			7	
Water flow on the plant side	[°C]		12			12			12			12	
Refrigerant charge (R600a)	[kg]		5			9			15			24	

T60

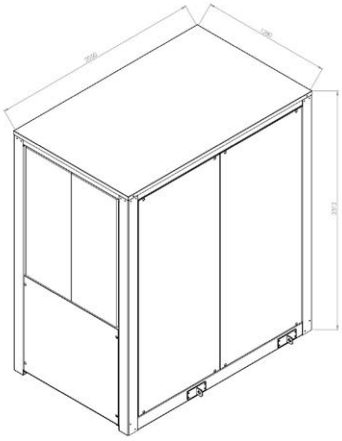


T115



T250

T350



NOTE: For **T60** and **T115** the following clearances apply: front and rear 500 mm, side left and right 600 mm and top 500 mm. For **T250**, **T350** the following clearances apply: front and rear 1000 mm, side left and right 800 mm and top 150 mm.

TECHNICAL DATA	U.M.	T60	T115	T250	T350
Max nominal electric current	[A]	32,9	66,1	132,2	180,8
Sound pressure level 1 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	61	64	67	74
Sound pressure level 5 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	47	50	53	60
Sound pressure level 10 m (*) (w.o. Acoustic Insulation optional)	[db(A)]	41	44	47	54
Water circuit load loss on evaporator side	[kPa]	8	10,5	17,6	15
Water circuit load loss on condenser side	[kPa]	6,5	8,2	12,3	39
Power supply	[V/-/Hz]	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
Refrigerant type	[-]	R600a	R600a	R600a	R600a
Compressors type	[-]	Alternativo	Alternativo	Alternativo	Vite
Partialization (with partialization optional)	[-]	83 / 66	88 / 75	88 / 75 / 50 / 44 / 38	75 / 50 / 25
SIZES AND WEIGHTS	**U.M.**	**T60**	**T115**	**T250**	**T350**
Dimensions (L x P x H) (**)	[mm]	1.148 x 746 x 1.589	1.768 x 968 x 1.622	1.224 x 1.529 x 2.172	1.280 x 2.050 x 2.312
Empty weight	[kg]	640	990	1761	2653
Operating weight	[kg]	700	1.045	1868	2811
Diameter source side hydraulic connections (T)	[Victaulic]	“G 1”” 1/4”	DN50	DN80	DN100
Diameter plant side hydraulic connections (T)	[Victaulic]	“G 1”” 1/4”	DN50	DN65	DN100
SAFETY	**U.M.**	**T60**	**T115**	**T250**	**T350**
Maximum pressure of the refrigerant	[bar]	14	14	14	14
F-GAS license need for maintenance	[-]	No	No	No	No

(*) Data shown are from free-field measurements.
(**) The indicated height does not take into account the anti-vibration mounts, which would increase the total height by between 60 mm and 110 mm.

Professional Range

AIR VERSION

TEON Professional range in **Air** (air-water) version consists of natural monobloc air-water heat generators for the production of heating and domestic hot water (DHW), with the option of reversibility for summer operation in cooling mode. The **T60**, **T115** and **T250** models are single-stage, capable of delivering:

- High-temperature hot water (min 30°C - max 80°C);
- Chilled water at low temperature (min 5°C) - only in reversible models ('**RT**').

The compressors used are of the energy-efficient reciprocating type. They are developed and optimised for applications with R600a refrigerant, minimising power consumption, vibration and noise.

The heat exchangers are AISI 316 stainless steel plates, brazed welded, with countercurrent heat exchange and AISI 304 stainless steel connections. They are characterised by high thermal efficiency with simultaneous high turbulence and reduced risk of scale and deposit formation.

Inside the supporting structure with perimeter panelling are the main machine components: compressor, laminating valve, evaporator, condenser, economiser, measuring and control components, piping and various in-line components, machine edge.

The outdoor unit is constructed with a pre-painted aluminium and galvanised iron frame painted with corrosion-resistant epoxy powder. The fans that compose it are three-phase powered axial fans, equipped with thermal protection, lubricated for life, statically and dynamically balanced with brushless EC / energy-saving.

WATER® BLAZE TECHNOLOGY

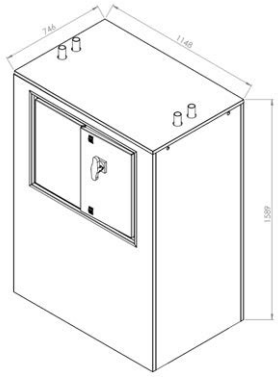
TEON's WATER BLAZE technology introduces into the traditional thermodynamic cycle of heat pumps a forced sub-cooling, thanks to which more thermal power is recovered from the natural source to be transferred to the heating system and overall efficiency is maximised. This is achieved by splitting the iso-enthalpic curve into two distinct transformations, one at constant pressure and one at constant temperature, which take place in a recuperator and a lamination valve, respectively.

PROFESSIONAL RANGE / AIR VERSION

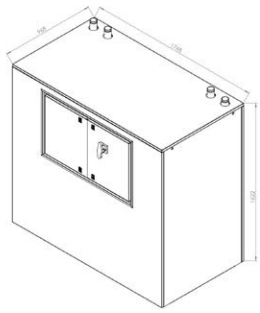
TECHNICAL FEATURES

PERFORMANCE	U.M.	T60			T115			T250		
HEATING (T Models)										
		A7/W35	A7/W50	A7/W80	A7/W35	A7/W50	A7/W80	A7/W35	A7/W50	A7/W80
Thermal Power	[kW]	46,2	40,9	28,6	85,2	73,6	50,7	170,5	147,2	101,4
Electric Power	[kW]	11,3	12,6	13,7	19	21,4	23,6	38	42,8	47,2
COP	[-]	4,07	3,24	2,09	4,48	3,44	2,15	4,48	3,44	2,15
Water flow on the plant side	[l/s]	2,21	1,96	0,68	4,07	3,52	1,21	8,15	7,03	2,42
Refrigerant charge (R600a)	[kg]		4			6,9			15	
COOLING (Rt Models)										
OPERATING CONDITIONS (UR 50%)			A35/W7			A35/W7			A35/W7	
Refrigeration Power	[kW]		56,3			104,9			209,9	
Electric Power	[kW]		10,7			18,4			36,9	
EER	[-]		5,27			5,69			5,69	
Water flow on the plant side	[l/s]		9,68			18,05			36,1	
Refrigerant charge (R600a)	[kg]		5			9			15	

T60



T115



T250

NOTE: For **T60** and **T115**, the following clearances apply: front and rear 500 mm, side left and right 600 mm and top 500 mm. For T250 the following clearances apply: front and rear 1000 mm, side left and right 800 mm and top 150 mm.

TECHNICAL DATA	U.M.	T60	T115	T250
PRINCIPAL UNIT				
Max nominal electric current	[A]	32,9	66,1	132,2
Sound pressure level 1 m (*) (w.o. Acoustic Insulation optional)	[dB(A)]	61	64	67
Sound pressure level 5 m (*) (w.o. Acoustic Insulation optional)	[dB(A)]	47	50	53
Sound pressure level 10 m (*) (w.o. Acoustic Insulation optional)	[dB(A)]	41	44	47
Water circuit load loss on condenser side	[kPa]	6,5	8,2	12,3
Power supply	[V/-/Hz]	400/3/50+N	400/3/50+N	400/3/50+N
Refrigerant type	[-]	R600a	R600a	R600a
Compressors type	[-]	Alternativo	Alternativo	Alternativo
Partialization (with partialization optional)	[-]	83 / 66	88 / 75	88 / 75 / 50 / 44 / 38
OUTDOOR UNIT				
Number of fans	[-]	3	4	2 x (4)
Water flow	[m3/s]	6,7	8	17
Max nominal electric current	[kW]	2,1	2,8	5,6
Sound pressure level 1 m (*)	[db(A)]	70	71	71
Sound pressure level 5 m (*)	[db(A)]	56	57	57
Sound pressure level 10 m (*)	[db(A)]	50	51	51
SIZES AND WEIGHTS	**U.M.**	**T60**	**T115**	**T250**
PRINCIPAL UNIT				
Dimensions (L x P x H) (**)	[mm]	1.148 x 746 x 1.589	1.768 x 968 x 1.622	1.224 x 1.529 x 2.172
Empty weight	[kg]	660	990	1761
Operating weight	[kg]	700	1033	1868
Diameter evaporator side hydraulic connections	[Victaulic]	G 1" 1/4"	DN50	DN80
Diameter condensator side hydraulic connections	[Victaulic]	G 1" 1/4"	DN50	DN65
OUTDOOR UNIT				
Dimensions (L x P x H) (**)	[mm]	2.930 x 870 x 992	3.830 x 870 x 992	N. 2 x (3.830 x 870 x 992)
Empty weight	[kg]	208	302	2 x 302
Operating weight	[kg]	237	353	2 x 723
Diameter hydraulic connections	[Victaulic]	G 2"	G 2"	G 2"
SAFETY	**U.M.**	**T60**	**T115**	**T250**
Maximum pressure of the refrigerant	[bar]	14	14	14
F-GAS license need for maintenance	[-]	NO	NO	NO

(*)Data shown are from free-field measurements.
(**) The indicated height does not take into account the anti-vibration mounts, which would increase the total height by between 60 mm and 110 mm.
N.B. Air-water heat pumps only operate if the outside air temperature is 5°C or higher.