



COOLING TECHNOLOGY INSTITUTE

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Jacir

Zenit Line - CTI Certified Cooling Towers
CTI Certification Validation Number C46G-22R00
Eurovent Diploma No. 22.05.013
June 1, 2022 (Revision 0)

ZTO-x-1-E10-D6-01829-PA-By

ZTO-x-2-E10-D6-03629-PA-By

ZTO-x-3-E10-D6-05429-PA-By

ZTO-x-4-E10-D6-07229-PA-By

ZTO-x-5-E10-D6-09029-PA-By

ZTO-x-6-E10-D6-10829-PA-By

ZTO-x-7-E10-D6-12629-PA-By

Significance of Material Designator “x” defined In Footnote 1, below
Significance of Basin Designator “y” defined in Footnote 2, below

FOOTNOTES:

1. A letter is added just after the prefix ZTO to indicate the material of casing construction*:
G: Galvanized steel (Magnelis)
X: Stainless steel (x-Steel, AISI 304, 316)
*Hydraulic connections are selected according the chosen casing material.
2. A letter is added just after the suffix B to indicate the basin selection:
BS: without basin
BA: with standard basin
BR: with receiver basin
3. Example Model Number:
ZTO-X-4-E10-D6-07229-PA-BA
ZTO - Product designation prefix;
X - Casing material designation (see note 1, above)
4 - Fan quantity
E10-D6 - Fan code
07229 - Model number and size code
PA - Fill code
BA - Basin option (see note 2, above)



JACIR

Cooling for life

ZENIT



Open cooling tower ZTO



- *Highest energy efficiency*
- *Mechanical reliability*
- *Hygienic standards compliance*
- *Maintenance & hygiene*



ecopower

Commercial Documentation



Open cooling tower: ZENIT

Innovative cooling tower compliant with latest European hygiene standard and **EUROVENT-CTI thermal performance certified**.

Casing structure

All the galvanized steel cooling tower panels casing have been twice or 4 times folded over the 4 sides, also proposed in **X-STEEL** stainless steel as an option (**corrosion resistance higher than 316L**).

The water tightness between the panels is ensured by a special designed high covering seal and stainless-steel rivets (uniform and high-capacity locking), located on external side of the casing. Panels' assembly is made without any bolting or welding for the parts in contact with water: **unique strength and waterproof JACIR design**.

Basin

The basin has been thought to consider the needs and inertia of the installation. In order to reduce bacteria growth, panel's assembly has been realised without any bolts or screws for the parts in contact with water.

The **sloped and flat basin** is equipped with a drain and a **POWER FLOW** access, both located under the lower level of the basin, enabling a **quick and complete drain** of all sludge or other accumulated parts during cleaning maintenance. Large inspection hatches are integrated into the upper and lower casings for **access to all the tower's internals**.

Fixed to their stainless-steel support, the louvers provide direct access to the basin and protect against water splash and direct sunlight inside the basin.



Water distribution

The water distribution is made of PP pipes through **highly efficient water distributors**.

These nozzles are made of polypropylene and distribute water under low pressure (8kPA) uniformly over the whole exchange surface. This low **pressure reduces drifts** (0.8m WC) and bacteriological contamination risk. Indeed, low pressure creates heavier droplets, so less drifts out of the cooling tower.

Finally, the water flow section is generously dimensioned, thus avoiding clogging of the disperser, even in the case of many suspended solids.



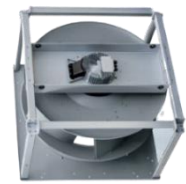
Exchange surface: EFFI-PACK

Consisting of thermoformed and welded polypropylene sheets, the exchange surface is **impact resistant** and offers a **maximum exchange surface** with a large free surface area. Resistant up to 75°C as standard, its excellent thermal efficiency promotes energy saving.



EC Technology motor fan set

Extremely **quiet and compact** fan jet engine equipped with EC motor directly integrated to the wheel. The jet engine single-sided suction bell is permanently controlled by electronic commutation: its efficiency is well above the IE5 efficiency class, without the use of rare earth magnets.



The new wheel has made a significant contribution to the **efficiency increase**. A high-strength, glass-fibre reinforced composite has been used for **enhanced corrosion protection**, and the complex shape of the five spatially profiled 3D blades has been optimised for strength.

The variation of the power electronics integrated in the EC motors is compatible with 380 à 480 V-IP 55.

Technology in **compliance with eco conception** (UE) 327/2011 concerning Directive 2009/125/CE application (ErP) for minimum efficiency after 202x.

Options

- ∞ X-TEEL stainless steel structure casing
- ∞ Antifreeze heater with thermostat
- ∞ Automatic inductive blow down
- ∞ Support irons
- ∞ EFFI-SILENT noise abatement for cooling towers basins
- ∞ Electrical control panel
- ∞ ladders and walkways
- ∞ Assembly on site by our experienced technicians

49-point operating performance table for JACIR ZENIT Line

Condition Reference #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Wet Bulb °C	10	10	10	10	10	13	13	13	13	13	16	16	16	16	16	18	18	18	18	18	21	21	21	21	21
Range °C	6	6	6	8	8	6	6	6	8	8	6	6	6	8	8	6	6	6	8	8	6	6	6	8	8
Approach °C	4	6	7	4	7	4	6	7	4	7	4	6	7	4	7	4	6	7	4	7	4	6	7	4	7
Inlet Water Temperature °C	20	22	23	22	25	23	25	26	25	28	26	28	29	28	31	28	30	31	30	33	31	33	34	33	36
Outlet Water Temperature °C	14	16	17	14	17	17	19	20	17	20	20	22	23	20	23	22	24	25	22	25	25	27	28	25	28
Model	Water flow rates (l/s) for indicated conditions																								
ZTO-x-1-E10-D6-01829-PA-BA	17.9	23.8	26.7	15.5	22.6	19.8	26.3	29.6	17.1	25.1	22.1	29.3	33.0	19.1	28.0	23.7	31.5	35.5	20.5	30.1	26.5	35.3	39.7	23.0	33.8
ZTO-x-2-E10-D6-03629-PA-BA	35.8	47.6	53.4	31.0	45.2	39.6	52.6	59.2	34.2	50.2	44.2	58.6	66.0	38.2	56.0	47.4	63.0	71.0	41.0	60.2	53.0	70.6	79.5	46.0	67.6
ZTO-x-3-E10-D6-05429-PA-BA	53.8	71.5	80.2	46.6	67.9	59.5	79.0	88.9	51.4	75.4	66.4	88.0	99.1	57.4	84.1	71.2	94.6	106.7	61.6	90.4	79.6	106.1	119.3	69.1	101.6
ZTO-x-4-E10-D6-07229-PA-BA	72.0	95.7	107.4	62.4	90.9	79.7	105.8	119.1	68.8	101.0	88.9	117.9	132.8	76.8	112.6	95.3	126.7	142.8	82.5	121.1	106.6	142.0	159.7	92.5	136.0
ZTO-x-5-E10-D6-09029-PA-BA	90.0	119.7	134.3	77.9	113.7	99.6	132.3	148.9	86.0	126.2	111.1	147.3	166.0	96.1	140.8	119.2	158.4	178.5	103.1	151.4	133.3	177.5	199.6	115.7	170.0
ZTO-x-6-E10-D6-10829-PA-BA	108.3	144.0	161.6	93.8	136.8	119.8	159.2	179.1	103.5	151.9	133.7	177.3	199.7	115.6	169.4	143.4	190.6	214.8	124.1	182.2	160.4	213.6	240.3	139.2	204.5
ZTO-x-7-E10-D6-12629-PA-BA	126.3	168.0	188.4	109.4	159.5	139.7	185.6	208.9	120.7	177.1	156.0	206.8	232.9	134.8	197.6	167.3	222.3	250.5	144.7	212.4	187.0	249.1	280.2	162.3	238.5
Condition Reference #	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	
Wet Bulb °C	24	24	24	24	24	27	27	27	27	27	29	29	29	29	29	32.2	32.2	32.2	32.2	32.2	21	25.56	27	28	
Range °C	6	6	6	8	8	6	6	6	8	8	6	6	6	8	8	6	6	6	8	8	5	5.56	5	5	
Approach °C	4	6	7	4	7	4	6	7	4	7	4	6	7	4	7	4	6	7	4	7	6	3.89	5	4	
Inlet Water Temperature °C	34	36	37	36	39	37	39	40	39	42	39	41	42	41	44	42.2	44.2	45.2	44.2	47.2	32	35.00	37	37	
Outlet Water Temperature °C	28	30	31	28	31	31	33	34	31	34	33	35	36	33	36	36.2	38.2	39.2	36.2	39.2	27	29.44	32	32	
Model	Water flow rates (l/s) for indicated conditions																								
ZTO-x-1-E10-D6-01829-PA-BA	29.8	39.6	44.6	25.8	37.9	33.5	44.5	50.1	29.0	42.6	36.2	48.1	NC	31.4	46.1	41.2	NC	NC	35.7	NC	39.3	32.5	43.2	38.4	
ZTO-x-2-E10-D6-03629-PA-BA	59.6	79.3	89.3	51.6	75.9	67.0	89.1	100.3	58.0	85.3	72.4	96.3	NC	62.8	92.3	82.5	NC	NC	71.4	NC	78.7	65.2	86.5	76.9	
ZTO-x-3-E10-D6-05429-PA-BA	89.5	119.0	134.0	77.5	113.9	100.7	133.7	150.5	87.1	128.0	108.8	144.5	NC	94.3	138.5	123.8	NC	NC	107.3	NC	118.1	97.9	129.8	115.4	
ZTO-x-4-E10-D6-07229-PA-BA	119.9	159.3	179.4	103.8	152.5	134.8	179.0	201.6	116.7	171.4	145.6	193.5	NC	126.3	185.5	165.8	NC	NC	143.6	NC	158.1	131.1	173.8	154.5	
ZTO-x-5-E10-D6-09029-PA-BA	149.9	199.1	224.3	129.7	190.6	168.5	223.8	251.9	145.8	214.2	182.0	241.9	NC	157.9	231.8	207.2	NC	NC	179.5	NC	197.6	163.9	217.2	193.1	
ZTO-x-6-E10-D6-10829-PA-BA	180.3	239.6	269.9	156.1	229.4	202.7	269.3	303.2	175.5	257.8	219.1	291.1	NC	190.0	279.0	249.3	NC	NC	216.0	NC	237.8	197.2	261.4	232.4	
ZTO-x-7-E10-D6-12629-PA-BA	210.3	279.5	314.8	182.1	267.5	236.4	314.1	353.6	204.7	300.6	255.5	339.5	NC	221.6	325.3	290.8	NC	NC	252.0	NC	277.4	230.0	304.9	271.0	