

HYDROTWIN & OILTWIN



Compact packages for high vacuum applications
Vacuum level up to 29.86" HgV (1.5 Torr)
Capacities up to 2100 ACFM (3500 m³/h)

Engineered vacuum packages

“Hydrotwin” and “Oiltwin” are the new series of compact high vacuum packages that guarantee a working vacuum level up to 29.86” HgV (1.5 Torr abs.) and capacities to 2100 ACFM (3500 m3/h).

The Package

The project has been developed with the close cooperation of Bora Blowers who are specialists in the manufacturing of boosters for pressure and vacuum applications. Bora has introduced sophisticated electronics for the controlling of the booster, which avoids the risk of seizure, in the event that conditions exceed allowable working parameters.

Travaini Pumps USA, together with Bora Blowers, customized the electronics to couple the liquid ring vacuum pump and the booster to guarantee maximum performance, with the ultimate safety.

The innovation

The combination of LRVP/Booster is not a novelty. The actual innovation is as a result of how the two machines are controlled. In the past, pressure switches, bypasses or hydrokinetic couplings have been used. These devices impose a precise operating limit, but restrict the efficiency of the system.

With the innovation of the DVD2 controller, optimized to the working of the liquid ring vacuum pump, the operating points of the booster and liquid ring vacuum pump are variable and can be set-up to operate, from atmospheric pressure up to the maximum vacuum.

Features - Advantages - Benefits

Here is how the “Hydrotwin” and “Oiltwin” packages can benefit your application:

1. Minimize the absorbed power. In comparison with the traditional systems, savings can add up to 30 – 40%.
2. Set and maintain the desired vacuum level, by optimizing the quality and minimizing scrap, in those processes where maintaining the vacuum level stability is very important for the final result.
3. Give total protection, from seizure of the booster, due to overheating caused by operating outside the allowed limits. Just utilizing standard temperature sensors located in the discharge casing is not enough. Any elevated temperature, in a roots booster, will cause thermal expansion and lead to immediate failure. As a result, control of temperature is performed, by controlling compression rates. The DVD2 electronic control works on the cause of the elevated temperature versus the effect, which can be too late to protect the booster.

4. Get a “Plug N’ Play” product which is ready-to-use. All the necessary settings can already be adjusted at our factory. Yet, other adjustments do not require any qualified technician. It takes only a few minutes to change the main parameters keeping the operating costs relatively low.

Applications

“Hydrotwin” and “Oiltwin” systems find applications in many fields, such as:

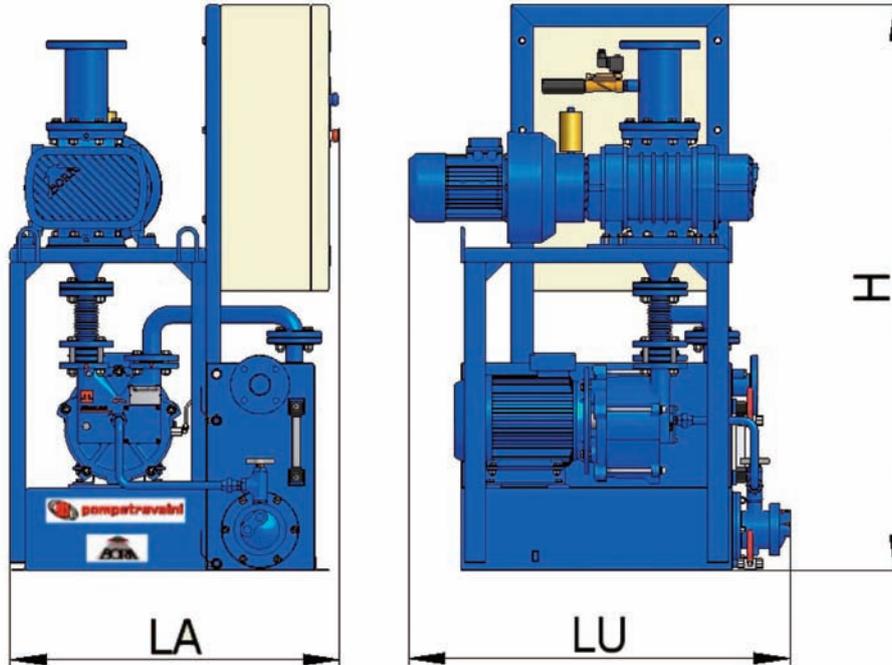
- Pasta production (water evaporation to reduce the amount of moisture in the dough).
- Pharmaceutical (filtration and crystallization process monitoring).
- Chemical (solvent extraction, gas evacuation from tanks).
- Plastics (degassing).
- Food industry (vacuum coolers for fruit and vegetables).
- Leather treatment (vacuum drying).
- Centralized vacuum systems (hospitals, industry).

These new “Hydrotwin” and “Oiltwin” series allows Pompetravaini to extend its range of maximum vacuum from 33 mbar (28.95” HgV) to 2 mbar absolute (29.86” HgV), raising its performance level in the vacuum pumping industry. These two vacuum machines, surely “different twins”, match each other perfectly thanks to the “Plug N’ Play” electronics. To begin using the “Hydrotwin” or “Oiltwin” systems, all that is needed is the vacuum level required for your process. Then you can utilize two more detailed planning levels that regulate the reaction time of the system. The first level enables programming of simple pre-selected levels (careful, constant, fast operation, high vacuum, autoclave). The second level is tailor made for the “electronic guru” who is free to adjust every single parameter.

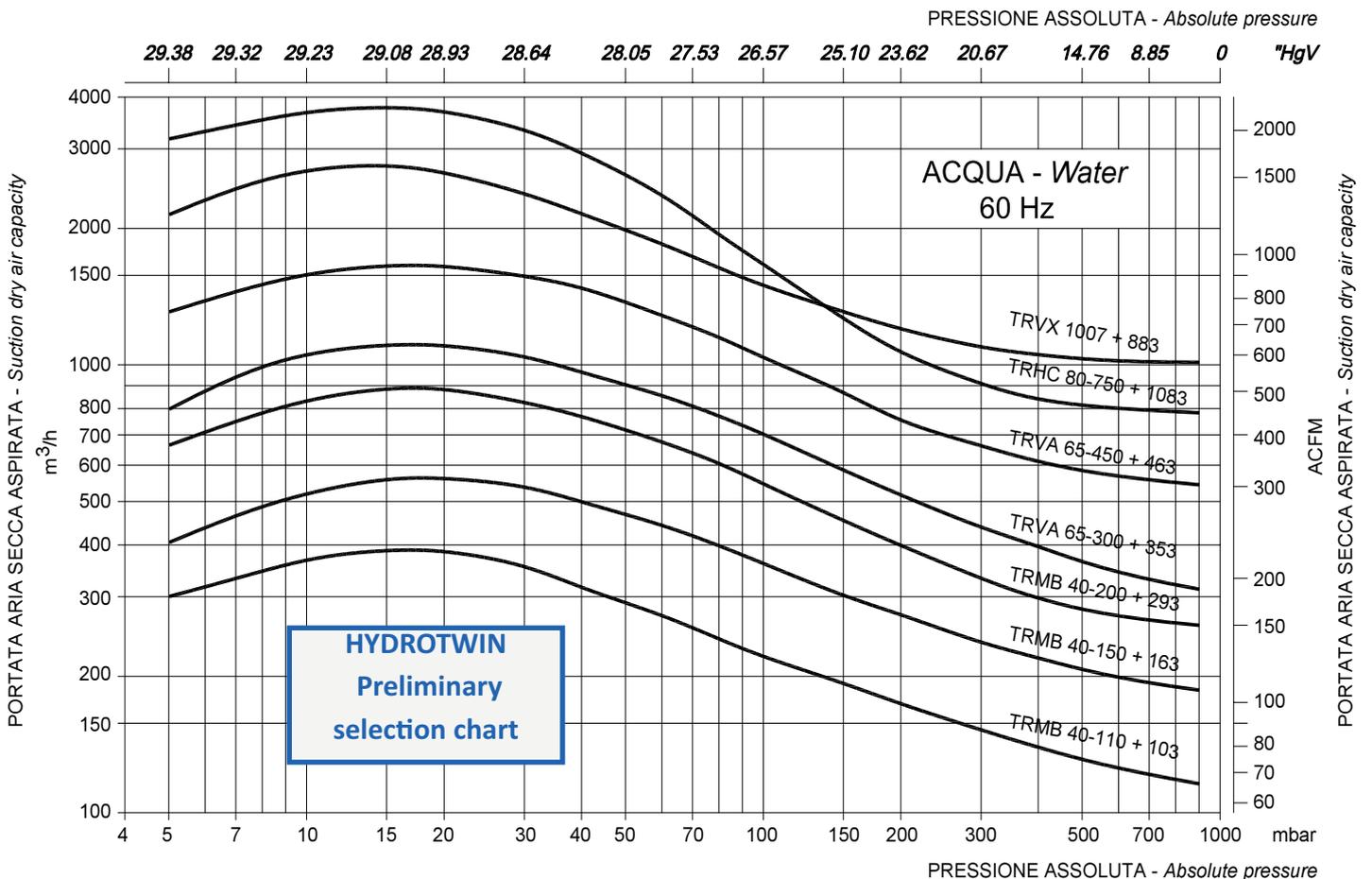
Current limitations

- Boosters are ONLY available in cast iron, eventually with special internal coatings material to withstand corrosive gases.
- Boosters CANNOT handle solids or liquids, otherwise they may seize.
- The final vacuum will depend on the water temperature within the liquid ring pump (Hydrotwin). It is possible to have a system using oil instead of water for service liquid (Oiltwin), in such case it is possible to achieve a stable vacuum level up to 29.86” HgV (1.5 Torr absolute). Oil, with a working temperature varying from 140 to 175°F (60 to 80°C), can be easily air-cooled through a simple radiator (air-oil heat exchanger) instead of a shell and tube heat exchanger (water heat exchanger).

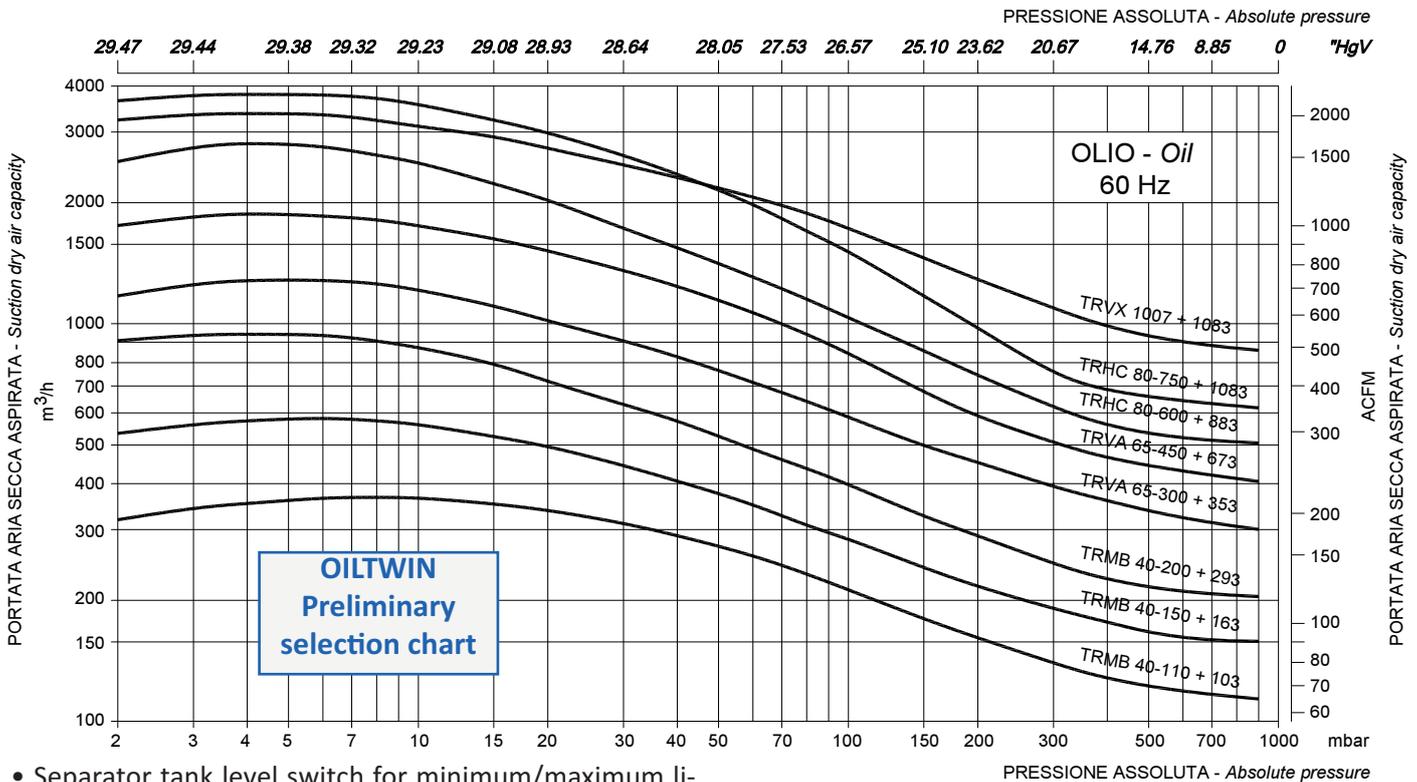
Configurations currently available (approximate dimensions)



N°	ROOTS	L.R.V.P.	NOMINAL FLOW (at 29.48 "HgV - 15 mbar)		INSTALLED POWER (HP)		OVERALL DIMENSIONS (inches)		
			ACFM	m3/h	ROOTS	L.R.V.P.	LA	LU	H
1	103	TRMB 40-110	229	390	3	5	35.8	37.0	62.2
2	163	TRMB 40-150	329	560	5	7.5	35.8	37.0	62.2
3	293	TRMB 40-200	523	890	5	10	35.8	40.6	62.2
4	353	TRVA 65-300	647	1100	7.5	15	41.3	52.8	66.1
5	463	TRVA 65-450	941	1600	10	20	41.3	59.1	66.1
6	883	TRVX 1007	1648	2800	15	40	47.2	64.2	81.1
7	1083	TRHC 80-750	2236	3800	15	50	47.2	64.2	81.1



N°	ROOTS	L.R.V.P.	NOMINAL FLOW (at 29.77 "HgV - 5 mbar)		INSTALLED POWER (HP)		OVERALL DIMENSIONS (inches)		
			ACFM	m3/h	ROOTS	L.R.V.P.	LA	LU	H
1	103	TRMB 40-110	211	360	3	5	35.8	44.0	62.2
2	163	TRMB 40-150	347	590	5	7.5	35.8	44.0	62.2
3	293	TRMB 40-200	559	950	5	10	35.8	44.0	62.2
4	353	TRVA 65-300	765	1300	7.5	15	41.3	70.1	66.1
5	463	TRVA 65-450	1000	1700	10	20	41.3	74.8	66.1
6	883	TRVX 1007	1648	2800	15	40	47.2	78.7	81.1
7	1083	TRHC 80-600	2001	3400	15	40	47.2	82.7	81.1
8	1083	TRHC 80-750	2236	3800	15	50	47.2	86.6	81.1



- Separator tank level switch for minimum/maximum liquid level.
- Output control for inlet isolating valve to be fitted above the purging air solenoid valve.

- Frequency converter to control the roots e-motor (RF).
- Logic unit DVD2 acquiring the pressure transducers data and controlling the roots frequency converter (DVD2).

HYDROTWIN/OILTWIN standard components

The "Hydrotwin" vacuum package consists of following basic components (from suction to discharge):

- Inlet pressure transducer (PTi).
- BORA roots (BR).
- Outlet pressure transducer (PTo).
- Expansion joint.
- Non-return valve.
- TRAVAINI PUMPS USA LRVP (VP).
- Gas/water separator tank.
- Liquid/liquid heat exchanger (Radiator for OILTWIN).
- Separator tank level indicator (LI).
- Temperature gauge for service liquid.
- Separator tank draining/refilling connections.
- LRVP e-motor (MP).
- Roots e-motor (MB).

Optional components

- Solenoid valve for purging air in roots pump inlet (FV) with filter and silencer.

