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HORI Engineering Co., Ltd.

Hori Wing Compressor

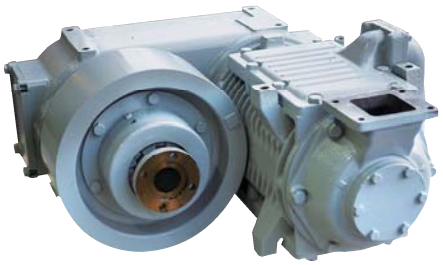
Company profile

Since its establishment in 1962, Hori Engineering Co., Ltd. has designed and manufactured compressors, blowers, and vacuum pumps with higher efficiency, lighter weight, and lower price on the basis of its unique technology, and has acquired a high share in the vehicle-loaded compressor and gas compressor markets.
With its characteristic engineering and technical capabilities, Hori Engineering Co., Ltd. will continue to challenge the future for providing greater achievements.

Name of company	**Hori Engineering Co., Ltd.**
President	**Akihiko Hori**
Established	**July 1962**
Capital	**JPY50,000,000**
Employees	**55**
Main customers	**Truck Manufacturers** **Ashok Leyland.** **Volvo Eicher Commercial Vehicles** **TATA Motors Ltd** **Mahindra and Mahindra** **Bulker Manufacturers** **Aditya Auto Engineering Pvt Ltd** **Meher Hermanns** **Satrac Engineering Pvt Ltd** **TPS Infrastructure Ltd** **End Customers** **Bulktainer Shipping Limited.** **Vedanta Ltd** **M.I.Cement Factory, Bangladesh.** **Basundhara Group, Bangladesh.**

Wing compressor

Introduction



The oil-free Wing Compressor was at first engineered and manufactured as a compressor which is compact and lightweight, and features low vibration and low noise to meet the demand for a compressor for use on bulk cement trucks.

Thereafter, Hori Engineering has continued to conduct R&D activities, and at present has a record of over 20,000 units having been delivered to various industries, where they are highly evaluated for their superb operation.

Features

1 Compact and Lightweight

The Wing Compressor operates on the rotor rocking mechanism, with the rotor as a moving element having low inertia, which allows operation at higher speeds, the characteristic swing type design providing an increased efficiency and a reduction in size. As compared to the conventional reciprocating type compressor, the Wing Compressor is approx. half in size and weight.

2 Thoroughly Clean Air

The Wing Compressor uses a self-lubricating seal bar (which is equivalent to the piston ring in the reciprocating type compressor) in the sliding portion, thus being of completely oil-free type. No oil drops from the crankcase can get in the cylinder, being prevented by the oil seals.

3 Quiet Running

Because the Wing Compressor is of horizontal axis rotor rocking type, the vibration in the vertical direction that is applied to the installation surface is extremely low, as compared to that produced by the piston reciprocating type, and thus the foundation working needed is simpler than is by the piston reciprocating type.

4 Reasonable Maintenance Cost

As compared to the provision for shaft sealing of the conventional reciprocating type compressor, that of the Wing Compressor is simple, because, in the Wing Compressor, the rotation shaft is sealed. Therefore, the maintenance cost can be suppressed to a relatively low level.

What is wing compressor

In the cylinder Ⓐ , a suction valve seat base Ⓑ is provided in right and left symmetrical places. The rotor Ⓒ makes a rocking (swing) motion between the right and left suction valve seat bases in the cylinder from the angular position (A) to the angular position (B) in Fig.①.

The right and left suction valve seat bases have a suction bore 'a" communicating to the atmosphere, respectively, the suction bore 'a" further communicating to the cylinder inside through the upper and lower holes "b", which are normally closed by the suction valves "c" in the cylinder. And, in the cylinder, the discharge holes "d" are provided above and under the suction valve seat base, the outlet port of the discharge hole "d" being normally closed by the discharge valve "e". The outside of the discharge holes "d ' is covered by the cover Ⓓ , being led to the discharge port.

With the rotor being turned in a counterclockwise direction from the angular position (A) in Fig. 1, the gas in the cylinder is compressed to thereby press the suction valve on the left side and force up the discharge valve, and thus is forced out to the discharge port. At the same time, the volume on the right side of the rotor is increased, the pressure being changed into a negative one, which causes the discharge valve on the right side to be sucked and closed. Concurrently, the suction valve "c" is forced up by the atmospheric pressure, the sucked air flowing into the cylinder. When the rotor is turned to the angular position (B) in Fig.①, the direction of rotation is inverted, the rotor being turned in a clockwise direction, thus the sucking action and the discharging one being interchanged.

Consequently, with the motion of the rotor, the suction and the discharge are performed simultaneously, and in one reciprocation of the rotor, i.e., one revolution of the crankshaft, the gas of a volume equal to "the area of the sector x the width of the rotor blade" is discharged four times, resulting in the gas of a volume near 100% of the total volume of the cylinder being discharged.

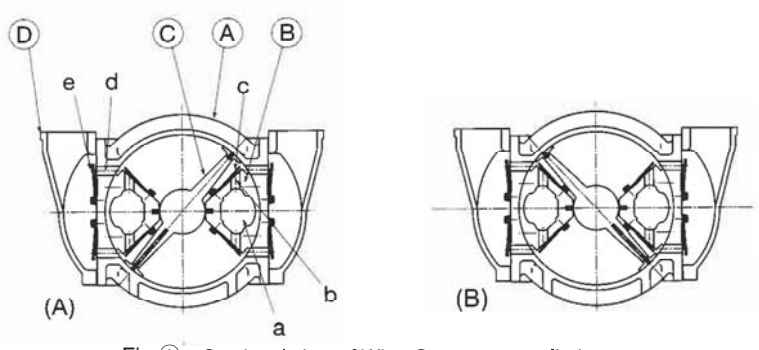


Fig.① Sectional view of Wing Compressor cylinder

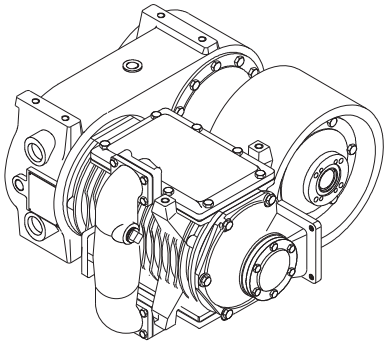
Wing compressor

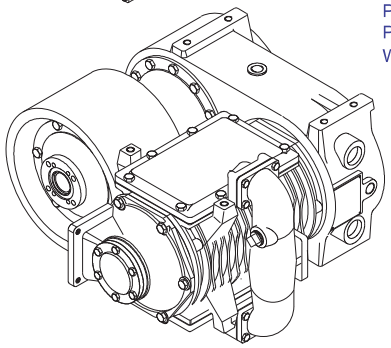
Under chassis type

Compressor driven by PTO

CE

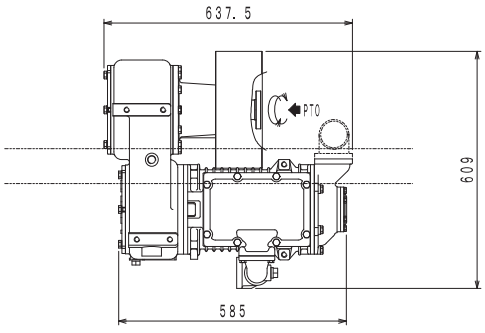
WING603Ku for right and left side PTO, upside-down installable

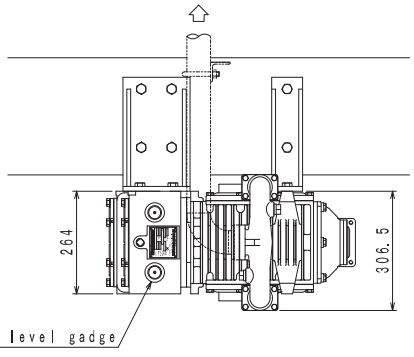


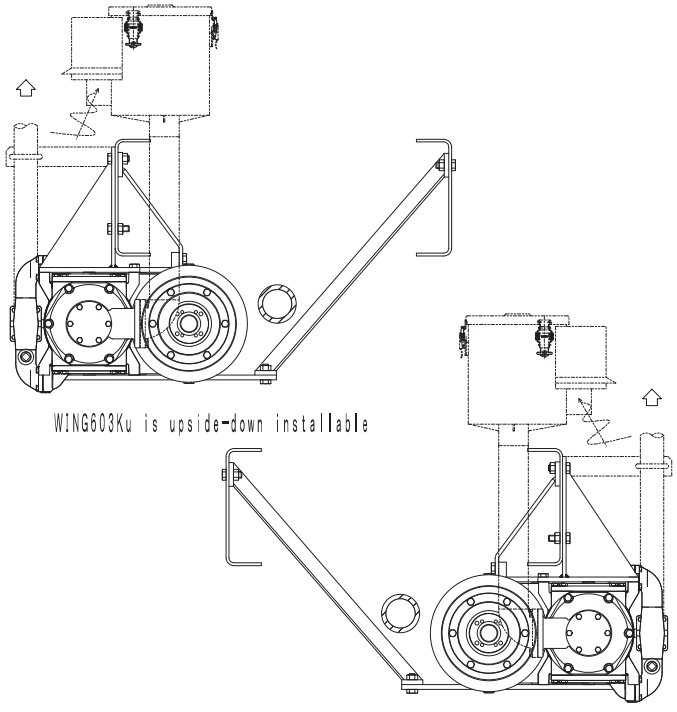


Displacement Volume : 551m3/h (at 1000min-1)
Flow Rate : 441m3/h (at 1000min-1)
Direction of Rotation : CW & CCW
Drive Method : Direct Drive from PTO
Power Input Flange : 35 x 60 or SAE1300
PTO Capacity : More than 300 Nm
Weight : 165 kg

WING603Ku





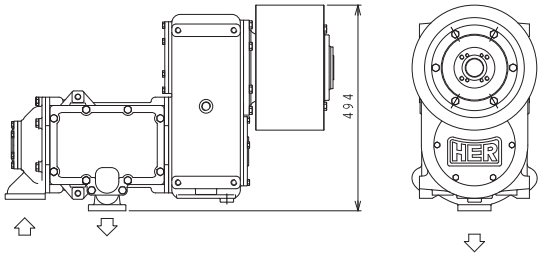


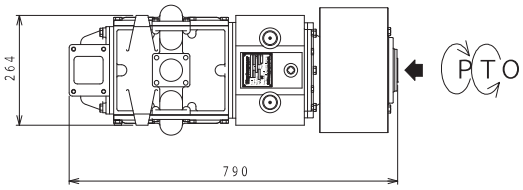
Wing compressor

Under chassis type

Compressor driven by PTO

WING502N for right and left side PTO, upside-down installable





WING502N

Wing compressor list for bulk tanker

Under Chassis

Model	Displacement vol. (m3/hr)	Actual flow (m3/hr)	Actual flow (m3/min)	HP(kW)	Max rpm	PTO capacity (Nm)	Weight (kg)
WING152	184	147	2.5	8.0	1000	300	72 90
WING502N	422	338	5.6	18.5	1000	300	154
WING800 WING800N	488	390	6.5	21.3	1000	300	180 163
WING603Ku WING603	551	441	7.4	24.1	1000	300	165 174
WING605	586	468	7.8	25.6	1000	400	184
WING607	661	529	8.8	28.9	1000	400	184
WING900	752	601	10.0	32.9	900	500	220

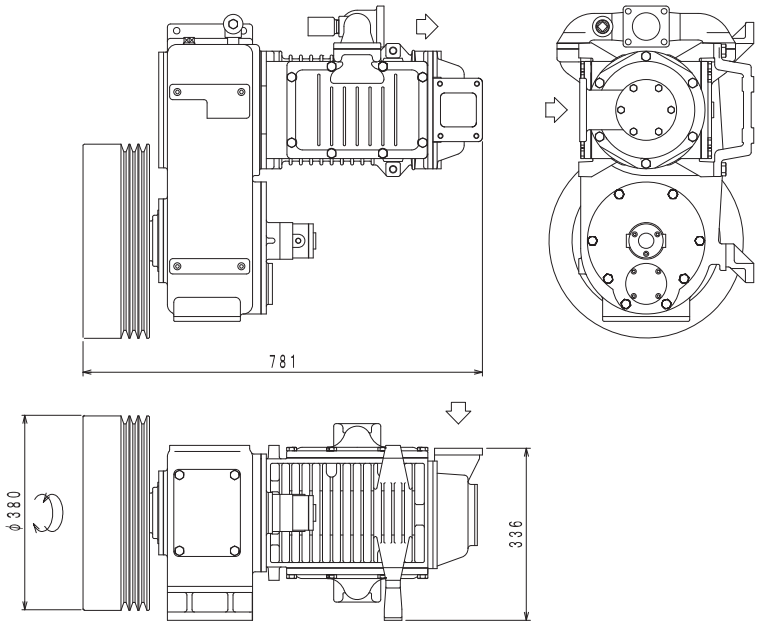
Wing compressor

On chassis type

V-belt drive

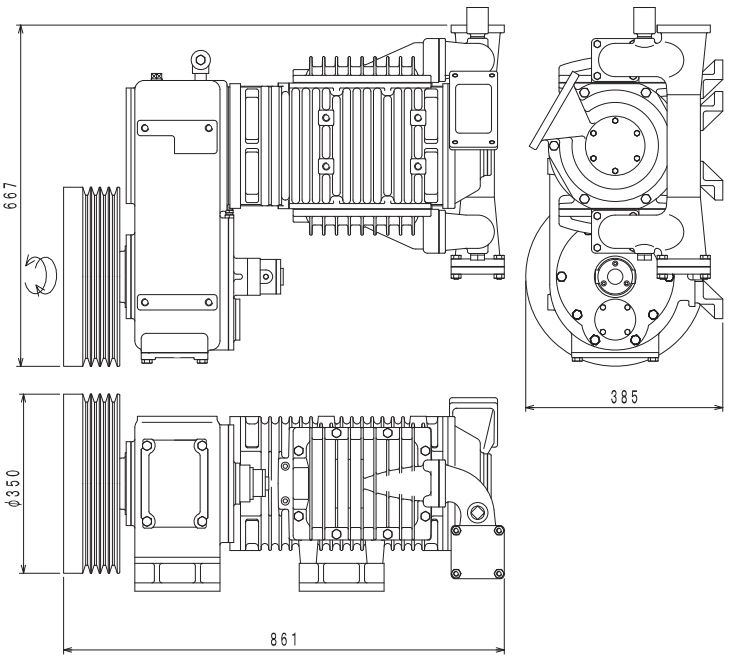
CE

WING604



WING604

WING900-BDLS



WING900-BDLS

Wing compressor

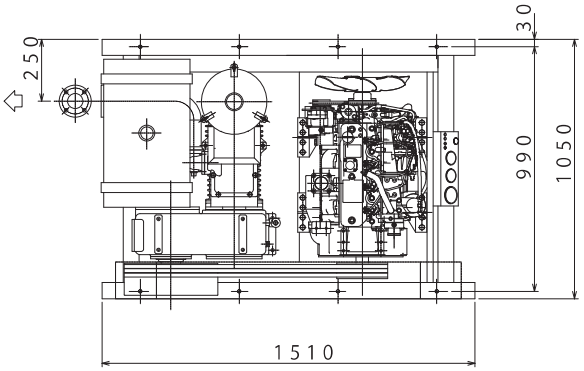
On chassis type

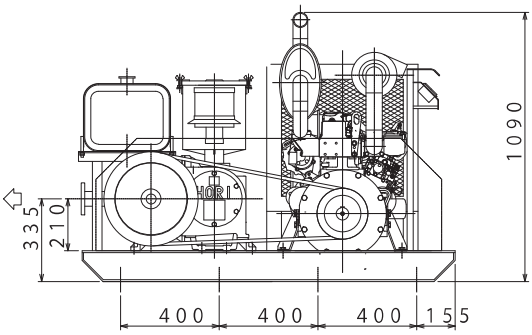
V-belt drive

WING604-ED

driven by diesel engine

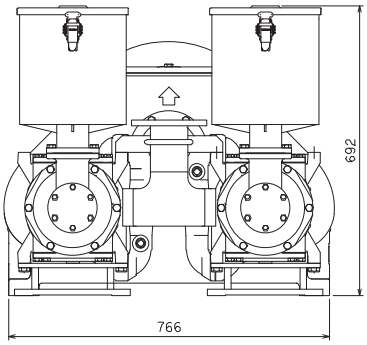
WING604-ED

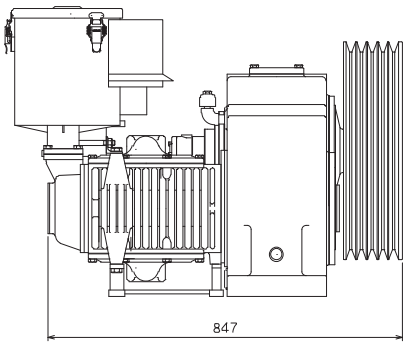




WING604CW

WING604CW





Wing compressor list for bulk tanker CE

On Chassis

Model	Displacement vol. (m3/hr)	Actual flow (m3/hr)	Actual flow (m3/min)	HP(kW)	Max rpm
WING604	551	441	7.4	24.1	1000
WING606	586	468	7.8	25.6	1000
WING608	661	529	8.8	28.9	1000
WING900	752	601	10.0	32.9	900
WING604CW	1102	882	14.7	48.2	1000
2238DW	1336	1069	17.8	58.4	800

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