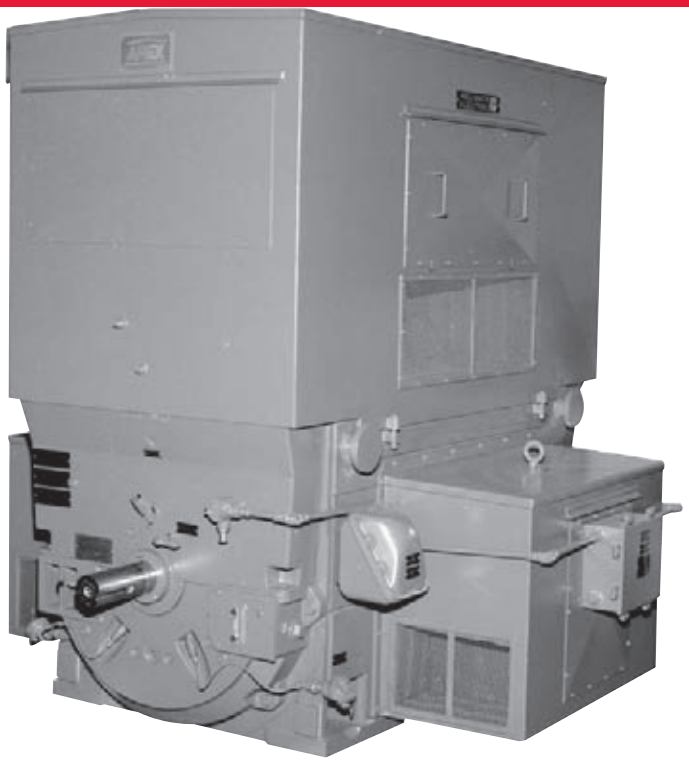
DATA SHEET

9000 SERIES

LARGE AC MOTORS

Reliance 9000 Series Large AC Motors

The 9000 Series product line is a highly engineered, thoroughly tested and field proven collection of designs based on a fabricated steel frame platform that include the 9500 frame and the 9600 frame. These machines use a high quality stator and rotor construction, with added features to provide extended life under difficult operating conditions, especially for critical service high speed 2 pole applications.



The rectangular frame construction of the 9000 Series, made of heavy gauge steel plate, includes the following life extending design characteristics:

- Multiple bulkheads to assure structural rigidity, minimum deflection, and low sensitivity to base or foundation construction variances.
- Multiple, wide, axial stringers for tight stator core location to provide even transfer of torque to the frame and maintain uniform tolerances between stationary and rotating components.
- Triangular torque tubes in all four corners over the length of the frame to assure frame rigidity.
- Machined rabbet fits for end bracket location, eliminating the need for shims or dowels in alignment of bracket/bearing housings to the frame, assuring accurate alignment and re-assembly even after years of rugged use.
- Horizontally Split Cast Iron end bracket with integral bearing housing for split sleeve bearings.

Perhaps the most critical component in the overall performance of motors in the 9000 Series class is the rotor assembly. As standard, high speed 2-pole rotors include:

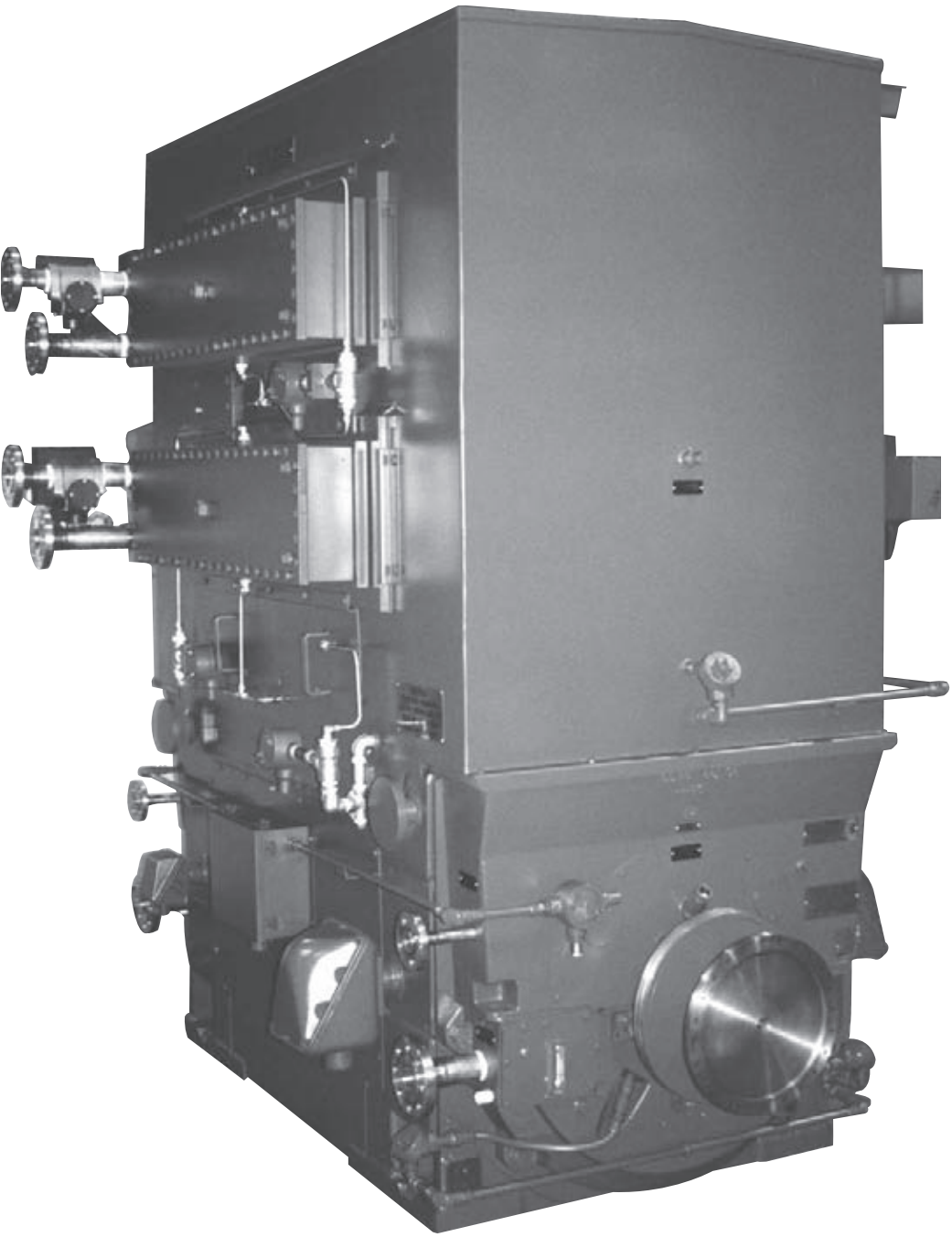
- Fabricated construction with copper alloy rotor bars and forged copper short-circuit end-rings that are sliver brazed together in a butt-joint design. The end-rings employ stainless steel shrink rings on their OD to resist centrifugal displacement stresses and maximize rotor life.
- High permeability, low loss, silicon steel laminations with high temperature C5 core-plate.
- Solid core construction without axial or radial air ducts. This feature helps to maximize magnetic symmetry and minimize vibration by preventing the collection of oil, dust and dirt in air ducts that can cause unbalance.
- Dynamic balance better than API-541 standards
- Axial cooling fans that minimize noise and maximize efficiency
- Time and service proven rotor cage construction that is secured to the rotor core center in several places. This allows rotor bars to be fitted to the core with a closely controlled tolerance, allowing for uniform thermal expansion from the center of the core to either end. This prevents thermal expansion jacking stress that are inherent in designs using rotor bar swaging or distortion techniques that can lead to rotor instability.

The 9000 Series is available in

- ✔ Aggregate/Cement
- Food
- ✔ Mining
- ✔ Forest/Paper
- ✔ Petro/Chem
- Unit/Baggage Handling
- ✔ HVAC/Industrial Air Handling
- ✔ Environmental/Fluid Power
- Automotive
- ✔ Metals

several enclosures and rating/voltage combinations with insulation systems as follows:

- ODP, WP-I, WP-II, TEAAC & TEWAC enclosures
- 2300 through 6600 volts
- 1000 through 5000 HP dependant on enclosure type.
- Matched Stators and Rotors to reduce current densities for longer life and better efficiency.
- A renowned Class F/H form wound stator winding insulation system that is backed by IEEE-429 laboratory motorette testing and over 20 years of unequaled field service, that can routinely pass water immersion testing, and survive the harshest environments (Enduraseal).
- This insulation system uses multiple layers of the highest quality Nomex/ mica ground wall material plus necessary turn insulation based on voltage and specifications. The entire stator is processed through VPI and then cured while being rotated horizontally in an oven. The completed stator assembly can receive and will pass a water immersion test if specified (Enduraseal).
- Stator cores have insulated steel bracer rings used to supply additional rigidity for coil head bracing. The coil heads are lashed to these rings to help the standard coil head bracing system woven into the coil head to provide long life expectancy over thousands of full voltage starts.
- API-541 test requirements

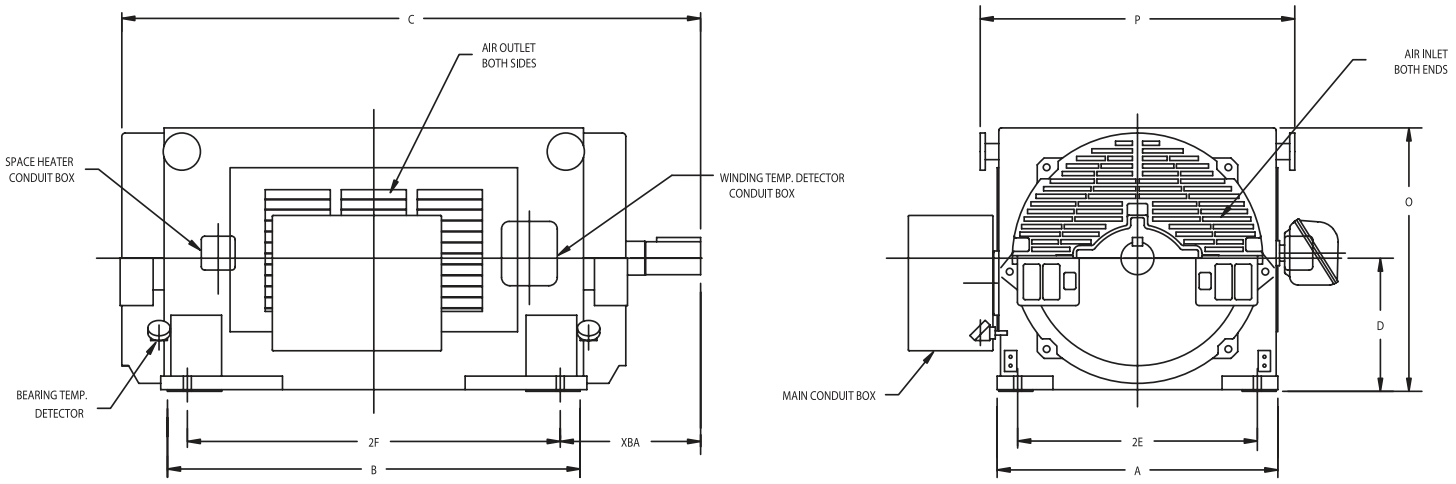


Reliance verifies that quality is built into the motors our customers specify, with testing of electrical components and finished motors that exceed both minimum industry standards and customer requirements. Motors in the 9000 Series typically receive and pass some of the industrial world's most rigorous testing regimens, including:

- SPC and Six-Sigma manufacturing controls
- Three winding surge tests prior to VPI processing
- Routine (commercial) tests on a massive rigid, isolated seismic base, including a three-phase locked rotor test
- Complete dynamometer testing (when specified) to verify temperature rise and "real" efficiency (Method B)
- Exhaustive vibration testing both on and off dynamometer.

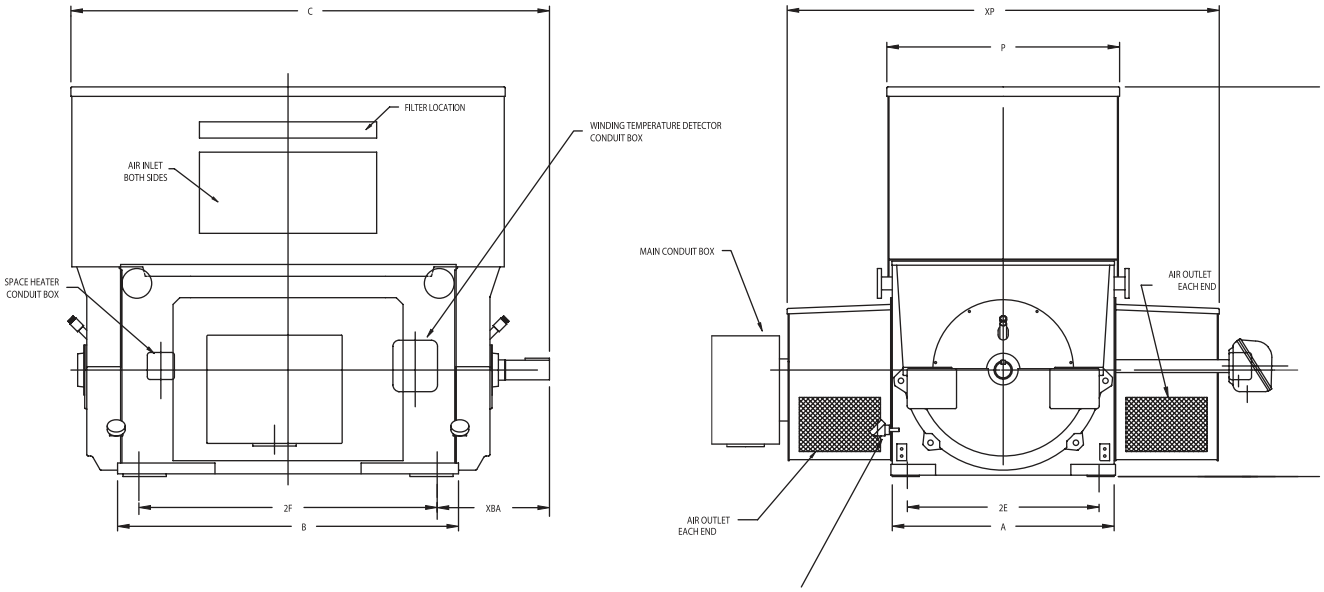
The pumps,compressors and other applications driven by 9000 Series motors are often in the most critical service applications employed by our customers. The unique combination of first class design and manufacturing coupled with detailed testing and decades of proven reliability and performance have positioned the 9000 Series as best of class and favored by the most discriminating users. This is truly one product line whose reputation has been earned - repeatedly.

Typical 9000 Series ODP enclosures - sleeve bearing construction



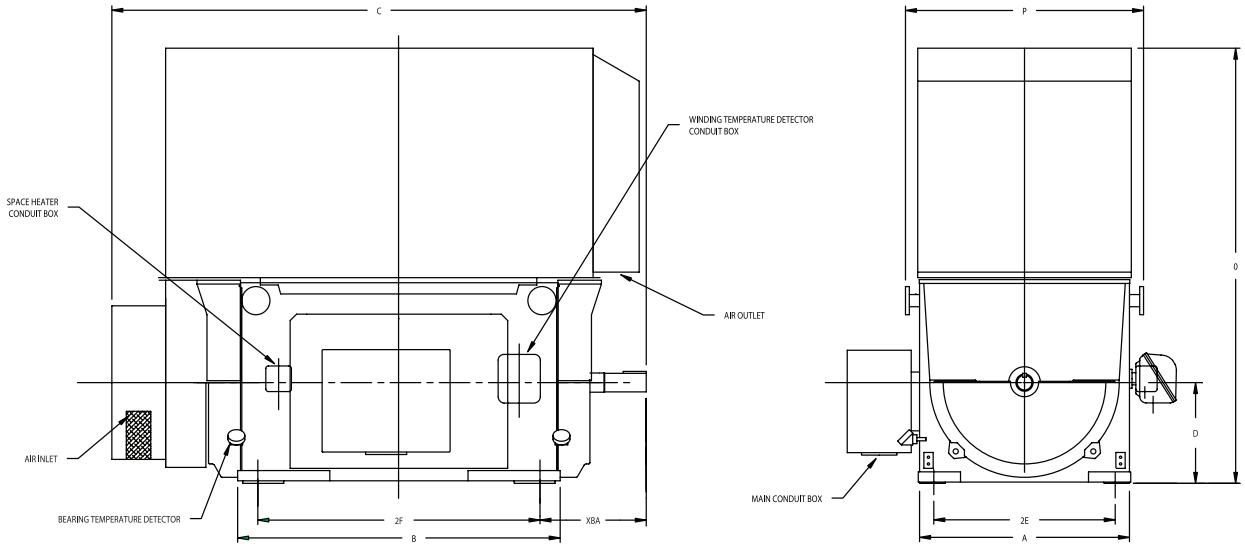
Frame	A	C	B	2E	2F	D	XBA	O	P	XP	Approx. wt. - lbs.
S9500	41.5	81.25	55.00	35.44	49.21	19.68	20.75	38.94	46.50	80.00	10,500
L9500	41.5	87.16	61.00	35.44	55.12	19.68	20.75	38.94	46.50	80.00	12,000
S9600	57	118.12	89.00	46.44	74.80	23.62	24.75	47.50	61.75	97.00	20,300
L9600	57	131.50	102.38	46.44	88.19	23.62	24.75	47.50	61.75	97.00	26,200

Typical 9000 Series WP-II enclosures - sleeve bearing construction



Frame	A	C	B	2E	2F	D	XBA	O	P	XP	Approx. wt. - lbs.
S9500	41.5	81.25	55.00	35.44	49.21	19.68	20.75	72.00	46.50	80.00	12,500
L9500	41.5	87.16	61.00	35.44	55.12	19.68	20.75	72.00	46.50	80.00	14,000
S9600	57	118.12	89.00	46.44	74.80	23.62	24.75	84.00	61.75	97.00	22,500
L9600	57	131.50	102.38	46.44	88.19	23.62	24.75	84.00	61.75	97.00	28,600

Typical 9000 Series TEACC enclosures - sleeve bearing construction



Frame	A	C - low noise	B	2E	2F	D	XBA	O	P	XP	Approx. wt. - lbs.
S9500	41.5	106.25	55.00	35.44	49.21	19.68	20.75	86.00	47.00	n/a	12,500
L9500	41.5	112.25	61.00	35.44	55.12	19.68	20.75	86.00	47.00	n/a	14,000

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