

ELECTRIC MOTORS, GEARMOTORS AND DRIVES

LEESON



ALL STAINLESS STEEL MOTORS



A REGAL-BELOIT Company



WASHGUARD® SST

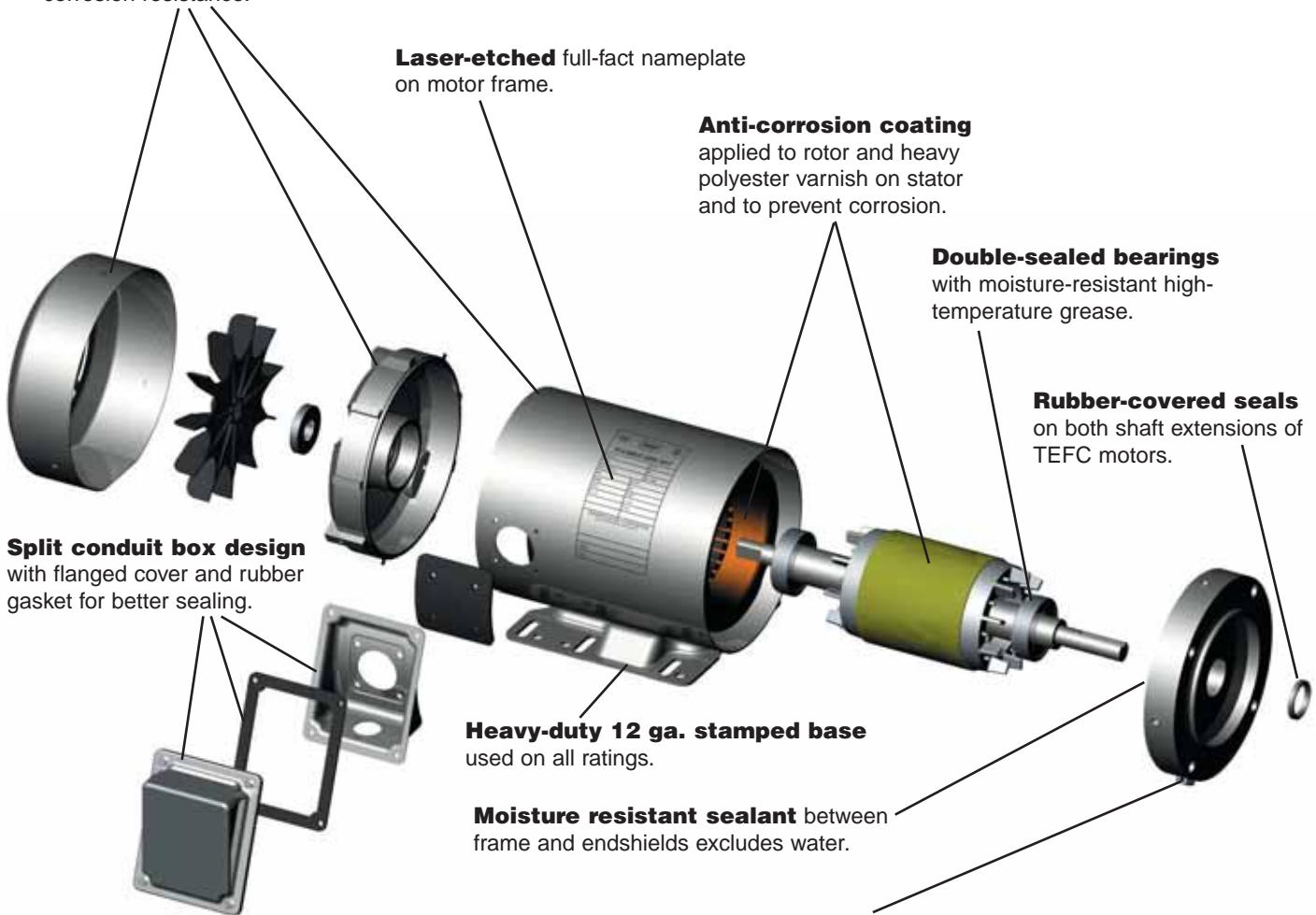
STAINLESS STEEL MOTORS

Product Features

LEESON's FHP Washguard® SST Stainless Steel motors are designed for long life in severe duty or washdown applications. Washguard® SST motors are **Stainless Steel Tough** to withstand the demanding environments found in the food processing, chemical processing and beverage industries.

- 1/3 thru 3 HP
- 1750 & 3450 RPM ratings available in TEFC and TENV enclosures
- 56C, 143TC & 145TC frame sizes available
- Rigid/C-Face and C-Face less base mountings available
- LEESON's IRIS (Inverter Rated Insulation System) included on all ratings
- Fully-gasketed conduit box and rubber-covered oil seals to exclude water
- All-stainless steel construction prevents corrosion in harsh washdown environments
- No paint or coatings of any type are used on the exterior of the motor
- Nameplate is laser-etched into the motor frame to eliminate nameplate rivet holes and bearing locking screws located inside the motor to reduce entry points for water
- Rugged industrial-duty construction

300-Series stainless steel exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.



Four condensate drains in each endshield (at three, six, nine and twelve o'clock) provide locations to purge condensate and water, which may enter the motor. **T-drains provided for effective drainage** without allowing water to splash inside the motor. T-drain for opposite shaft end is installed at six o'clock position (and can be relocated easily). T-drain for shaft end is shipped loose for customer installation at low point of motor.

WASHGUARD® ALL-STAINLESS MOTORS

PREMIUM STAINLESS STEEL DUCK



For maximum service in the most critically clean or corrosive environments, nothing beats LEESON's Premium WASHGUARD® All-Stainless Motors.

Specifically designed to meet the demanding sanitation requirements of the pharmaceutical and food processing industries, these motors are also ideal in severe chemical-processing applications involving nitric acid and caustic lye. In fact, WASHGUARD® All-Stainless Motors include IEEE 841 severe-duty features right out of the box!

Mechanical Protection Features

Exterior components are entirely of 300 series stainless steel, including frame, base, endshields, conduit box, box cover and hardware. Plus, the full-fact etched stainless steel nameplate is blind riveted to the conduit box eliminating rivet holes in the frame as a source of entry for moisture. Nothing on the motor's exterior is painted or coated in any way.

Endshields are o-ring sealed to the frame. Double-lip shaft seals, o-rings, and gaskets are made from chemically resistant Viton® material. Hydrophobic breathers in the opposite shaft endbell and conduit box equalize pressure without allowing moisture to enter the motor. Double-sealed bearings are pre-lubricated with moisture-resistant high-temperature grease.

Electrical Performance and Protection Features

WASHGUARD® efficiencies meet EPACT mandates for non-exempt motors when tested without shaft seals. For extra moisture resistance, windings are immersed and cured in polyester insulating compound. And LEESON's exclusive IRIS™ Inverter-Rated Insulation System provides extra protection and long life, especially in inverter-driven applications.

Standards and Approvals

UL component recognized, file number E57948, guide number PRGY2. Energy efficiency ratings are verified by an independent testing laboratory. CSA Energy Efficiency Verification Program, report number EEV 78720-1. Construction is CSA Certified for safety report number LR33543 and listed under BISSC authorization number 769.

CHEMICAL RESISTANCE RATING CHART

CHEMICAL	CONCENTRATION	ALL STAINLESS COMPONENTS
WATER:		
De-Ionized Boiling	100%	Excellent
Salt (Immersed)	30%	Excellent
Salt (Spray)	5%	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent
ACIDS:		
Hydrochloric	35%	Poor
Sulfuric	25%	Poor
Nitric	35%	Excellent
Picric	Saturated Solution	Excellent
BASE:		
Caustic	100%	Excellent
Caustic	12.5 pH	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent
SOLVENTS:		
	-	Excellent



THREE PHASE

ALL-STAINLESS • TENV/TEFC • C FACE WITH BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	Disc. Sym.	App. Wgt. (lbs.)	Voltage	FL. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	3450	56C	116165●	A	32	208-230/460	1.5	76.0	10.71
	1750	56C	115633●	A	32	208-230/460	1.6	78.5	11.21
	1140	56HC	116297●	A	35	208-230/460	2.3	77.0	11.21
3/4	3450	56C	116167●	A	37	208-230/460	2.4	77.0	11.21
	1750	56C	115634●	A	38	208-230/460	2.3	80.0	11.71
	1140	56HC	116298●	A	50	208-230/460	3.0	78.5	12.72
1	3450	56C	116169●	A	40	208-230/460	2.6	78.5	11.71
	1750	56C	115635●	A	39	208-230/460	3.0	81.5	12.21
	1750	143TC	121419●	B	50	208-230/460	3.0	81.5	12.28
1 1/2	3450	56HC	116299	B	41	208-230/460	4.0	77.0	13.13
	1750	143TC	G121524	B	45	208-230/460	4.0	82.5	13.69
	1750	56C	116450	B	46	208-230/460	4.4	84.0	13.63
2	3450	145TC	G121420	B	46	208-230/460	4.4	84.0	13.69
	1750	56HC	116300	B	51	208-230/460	5.4	80.0	14.13
	1750	145TC	G121526	B	49	208-230/460	5.0	84.0	13.69
3	3450	56C	116451	B	47	208-230/460	6.0	84.0	14.13
	1750	145TC	G121421	B	47	208-230/460	6.0	84.0	14.19
	1750	145TC	G121528	B	50	208-230/460	7.4	85.5	13.69
5	3450	182TC	G131900	B	70	208-230/460	8.2	87.5	14.87
	3450	184TC	G131901	B	80	208-230/460	12.0	87.5	14.87
	1750	184TC	G131902	B	80	208-230/460	13.0	87.5	15.37
7 1/2	3450	213TC	G140698	B	150	208-230/460	18.4	88.5	18.69
	1750	213TC	G140675	B	153	208-230/460	20.4	89.5	18.69
10	3450	215TC	G140699	B	165	208-230/460	24.0	89.5	18.69
	1750	215TC	G140676	B	170	208-230/460	26.0	89.5	18.69

ALL-STAINLESS • TENV/TEFC • C FACE LESS BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	Disc. Sym.	App. Wgt. (lbs.)	Voltage	FL. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	3450	56C	116316●	A	32	208-230/460	1.5	76.0	10.71
	1750	56C	116166●	A	35	208-230/460	1.6	78.5	11.21
3/4	3450	56C	116317●	A	37	208-230/460	2.4	77.0	11.21
	1750	56C	116168●	A	39	208-230/460	2.3	80.0	11.71
1	3450	56C	116318●	A	40	208-230/460	2.6	78.5	11.71
	1750	56C	116170●	A	45	208-230/460	3.0	81.5	12.21
	1750	143TC	121523●	B	46	208-230/460	3.0	81.5	12.28
1 1/2	3450	143TC	121560	B	41	208-230/460	4.0	82.5	12.69
	1750	56C	116448	B	46	208-230/460	4.4	84.0	13.63
2	1750	145TC	121525	B	46	208-230/460	4.4	84.0	13.69
	3450	145TC	121561	B	49	208-230/460	5.0	84.0	13.69
3	1750	56C	116449	B	47	208-230/460	6.0	84.0	14.13
	1750	145TC	121527	B	47	208-230/460	6.0	84.0	14.19
	3450	145TC	121562	B	50	208-230/460	7.4	85.5	13.69
5	1750	182TC	131923	B	79	208-230/460	8.2	87.5	14.87
	3450	184TC	131949	B	77	208-230/460	12.0	87.5	14.87
	1750	184TC	131924	B	79	208-230/460	13.0	87.5	15.37

● These motors are totally enclosed, non-ventilated—Others are fan cooled.

Numbers in green are EPACT motors.



PREMIUM STAINLESS STEEL MOTORS

Product Features

LEESON's Premium Stainless Steel motors are designed specifically to meet the demanding sanitation requirements of the food processing, beverage and pharmaceutical industries. These motors are also well suited for use in demanding chemical processing or clean-room applications.

- 1/2 thru 10 HP
- 1140, 1750 & 3450 RPM ratings available in TEFC and TENV enclosures
- 56C, 143TC, 145TC, 182TC, 184TC, 213TC & 215TC frame sizes available:
- Rigid/C-Face and C-Face less base mountings available
- LEESON's IRIS (Inverter Rated Insulation System) included on all ratings
- All seal components (O-rings, shaft seals and gaskets) are made from Viton® for superior chemical resistance
- Nothing on the exterior of the motor is painted or coated in any way
- All-stainless steel construction with Viton® sealing components withstands corrosive washdown solutions containing caustic lye, bleach, acids alkalines and concentrated surfactants
- The use of exterior fasteners is minimized to reduce the number of entry points for moisture. There are no nameplate rivet holes in the frame. The bearing lock screws are located inside the motor and the conduit box mounting screws have been eliminated.
- Easy to clean construction is BISSC Certified for bakery applications

300-Series stainless steel exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.

Laser-etched full-fact nameplate on motor frame.

Interior coatings applied to rotor and stator protect against moisture and corrosion.

Double-sealed bearings with moisture-resistant high-temperature grease.

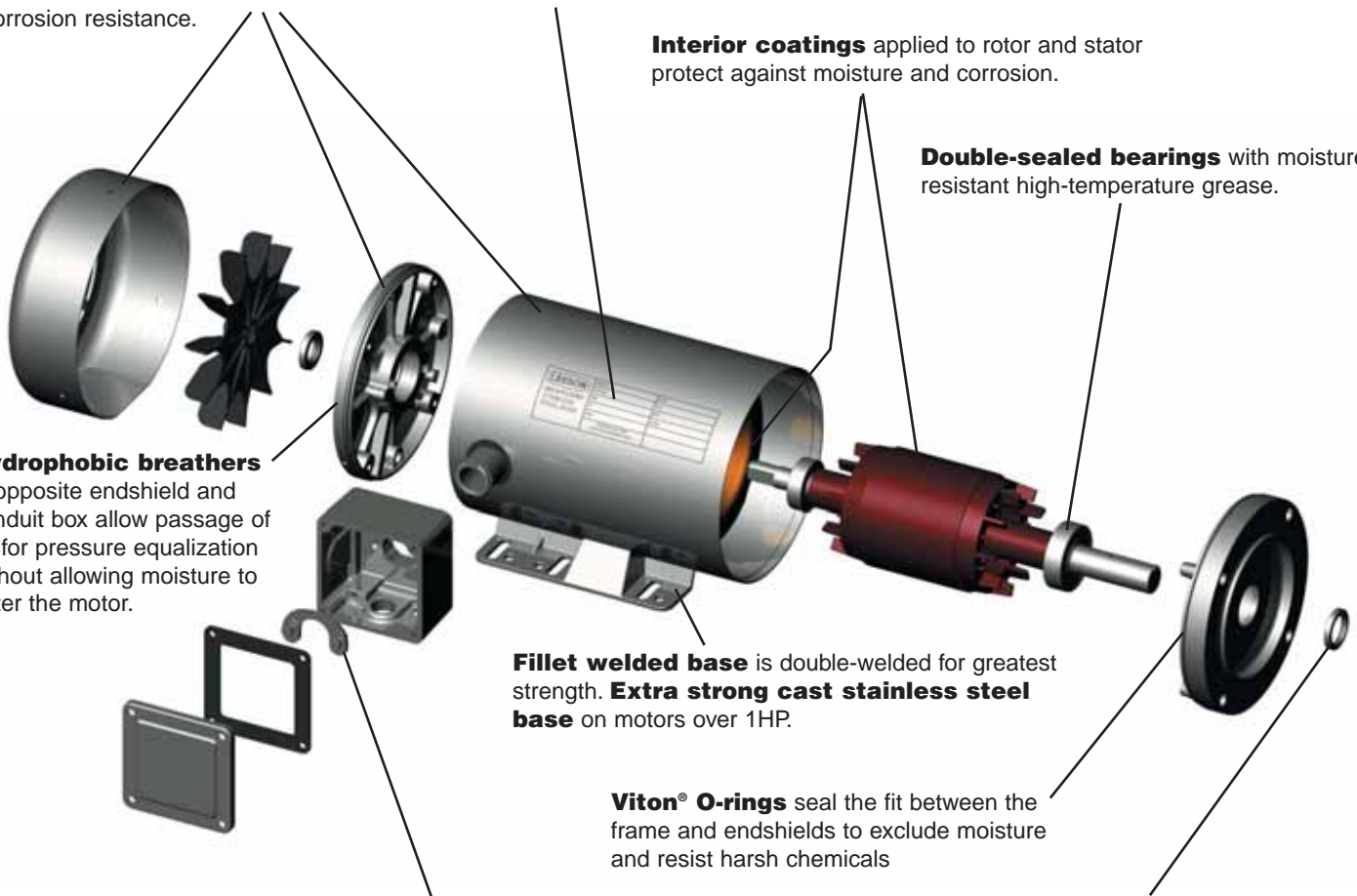
Hydrophobic breathers in opposite endshield and conduit box allow passage of air for pressure equalization without allowing moisture to enter the motor.

Fillet welded base is double-welded for greatest strength. **Extra strong cast stainless steel base** on motors over 1HP.

Viton® O-rings seal the fit between the frame and endshields to exclude moisture and resist harsh chemicals

Revolutionary conduit box mounting uses pressure clip to assure maximum sealing and allows easy repositioning for multiple conduit entry locations.

Viton® double-lip shaft seals on both ends of TEFC motors.



WASHGUARD® ALL-STAINLESS MOTORS



WASHGUARD® SST™

This new member of LEESON's family of tough ducks is designed for long life in demanding washdown applications. LEESON's new FHP Washguard® SST™

All-Stainless motors are Stainless Steel Tough!

Built with all stainless steel external components to prevent corrosion and well sealed against moisture and condensation to protect internal components, the Washguard® SST™ all-stainless motors are able to withstand the severe washdown environments found in the food processing, chemical processing, and beverage industries.

Mechanical Protection Features:

All exterior components – frame, base, endshields, fan guard, shaft, hardware, conduit box and cover – are made from 300 series stainless steel for maximum corrosion resistance. Nameplate data is permanently laser-etched into the motor frame – no Mylar nameplate that can wash off or riveted metal nameplate to trap dirt. No paint or any type of coating is used on the exterior of the motor.

Sealant is applied to endshield and frame fits before assembly to prevent water entry. Shaft seals on both ends of TEFC motors – shaft end only on TENV. Double-sealed bearings have high performance Exxon Polyrex EM grease. Conduit box is fully gasketed half-split design with flanged cover and body gasket with lead separator. Anti-corrosion coating on rotor prevents corrosion. Four quadrant drain locations on each endbell allow drainage of condensation in any mounting position. Stainless steel T-drains are provided to prevent liquids from splashing into the drain locations. Motors are shipped with a T-drain assembled in the six o'clock position on the opposite endshield. Another T-drain is shipped loose in the conduit box for installation at the lowest point of the shaft-end endshield. For a totally sealed motor, a spare pipe plug is included to replace the pre-installed T-drain.

Mechanical performance is further enhanced by over-sized bearings, heavy 12 gauge base, shaft-end bearing is locked internally to limit axial endplay, and specially designed shaft extension resists breakage at bearing journal.

Electrical Performance and Protection Features

FHP Washguard® SST™ full load efficiencies meet EPACT standards for non-exempt motors when tested without shaft seals. For extra moisture resistance, windings are immersed and cured in polyester insulating varnish. LEESON's exclusive IRIS™ Inverter-Rated Insulation System provides extra protection and long life, especially in inverter driven applications.

Standards and Approvals

UL component recognized, file number E57948, guide number PRGY2. Energy efficiency ratings are verified by an independent testing laboratory. CSA Energy Efficiency Verification Program, report number EEV 78720-1. Construction is CSA Certified for safety report number LR33543. Motor is CE marked for European acceptance.

THREE PHASE

ALL-STAINLESS • TENV/TEFC • C FACE WITH BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	Disc. Sym.	App. Wgt. (lbs.)	Voltage	FL. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3450	56C	191200•	A	29	208-230/460	1.0	74.0	9.40
	1750	56C	191201•	A	30	208-230/460	1.3	78.5	9.40
1/2	3450	56C	191203•	A	32	208-230/460	1.5	77.0	9.40
	1750	56C	191204•	A	33	208-230/460	1.6	81.5	9.40
3/4	3450	56C	191206•	A	33	208-230/460	2.0	78.5	9.40
	1750	56C	191207•	A	38	208-230/460	2.3	82.5	9.40
1	3450	56C	191209	A	41	208-230/460	2.6	80.0	13.40
	3450	143TC	G191210	B	42	208-230/460	2.6	80.0	13.87
	1750	56C	191291•□	A	49	208-230/460	3.0	81.0	13.50
	1750	56C	191211	A	47	208-230/460	3.0	82.5	13.40
1 1/2	3450	143TC	G191212	B	48	208-230/460	3.0	82.5	13.87
	3450	56C	191215	A	48	208-230/460	3.8	82.5	13.40
	3450	143TC	G191216	B	49	208-230/460	3.8	82.5	13.87
	1750	56C	191217	A	48	208-230/460	4.8	84.0	13.40
2	1750	145TC	G191218	B	49	208-230/460	4.8	84.0	13.87
	3450	56C	191221	A	49	208-230/460	5.0	84.0	13.40
	3450	145TC	G191222	B	50	208-230/460	5.0	84.0	13.87
	1750	56C	191223	A	52	208-230/460	5.8	84.0	13.40
3	1750	145TC	G191224	B	53	208-230/460	5.8	84.0	13.87
	3450	145TC	G191293□	B	62	208-230/460	7.4	85.5	13.87



ALL-STAINLESS • TENV/TEFC • C FACE LESS BASE

HP	RPM 60 Hz	NEMA Frame	Catalog Number	Disc. Sym.	App. Wgt. (lbs.)	Voltage	FL. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1750	56C	191202•	A	29	208-230/460	1.3	78.5	9.40
1/2	1750	56C	191205•	A	32	208-230/460	1.6	81.5	9.40
3/4	1750	56C	191208•	A	38	208-230/460	2.3	82.5	9.40
1	1750	56C	191290•□	A	48	208-230/460	3.0	81.0	13.50
	1750	56C	191213	A	46	208-230/460	3.0	82.5	13.40
	1750	143TC	191214	B	47	208-230/460	3.0	82.5	13.87
1 1/2	1750	56C	191219	A	47	208-230/460	4.8	84.0	13.40
	1750	145TC	191220	B	48	208-230/460	4.8	84.0	13.87
2	1750	56C	191225	A	51	208-230/460	5.8	84.0	13.40
	1750	145TC	191226	B	52	208-230/460	5.8	84.0	13.87

• These motors are totally enclosed, non-ventilated—Others are fan cooled.
□ Available June 2004

Numbers in green are EPACT motors.



CONFORMITE
EUROPEENE



WASHDOWN DUTY PRODUCTS

LEESON Electric offers a complete product family of washdown duty products to complement the Premium Stainless Steel Duck and FHP Washguard® SST™ All-Stainless motors.

 <p>Washguard® White Duck Epoxy Coated AC motors to 15 HP</p>	 <p>Speedmaster® NEMA 4/12 Micro Series inverters</p>	 <p>Gear+Motors™ combinations of Washguard® AC & DC motors with gearboxes</p>	 <p>Ironman® by Ohio Gear Washguard® Stainless Steel right angle gear reducers in 1.33" thru 3.25" center distances rated up to 7 HP input</p>
 <p>Ironman® by Ohio Gear Washguard® white epoxy right angle gear reducer in 1.33" thru 3.25" center distances rated up to 7 HP input</p>	 <p>Speedmaster® AC drives in NEMA 4X (stainless steel) enclosures to 20 HP</p>	 <p>Premium Stainless Steel Duck Motor – TEFC</p>	 <p>Speedmaster® SCR DC motor controls with NEMA 4X enclosures to 3 HP</p>
 <p>Washguard® Super Duck paint-free AC motors to 2 HP</p>	 <p>Speedmaster® AC drives in NEMA 12 enclosures to 60 HP</p>	 <p>Gear+Motors™ combinations of Washguard® AC and DC motors with gearboxes</p>	 <p>Gear+Motors™ combinations of Washguard® AC and DC motors with gearboxes</p>
 <p>Washguard® hollow output shaft reducers</p>	 <p>Gear+Motors™ combinations of Washguard® AC and DC motors with gearboxes</p>	 <p>Gear+Motors™ combinations of Washguard® AC and DC motors with gearboxes</p>	 <p>Washguard® White Duck epoxy coated PMDC motors to 1.5 HP</p>



LEESON ELECTRIC

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