

PACKAGE SPECIFICATION DATA

CUSTOMER INFORMATION			
CUSTOMER	CITY OF JEFFERSON, GA		
P.O. NO.	501		
S.O. NO.	38198		
DRAWING NO.	38198-1A		
QUANTITY	3		
JOB REF.	CITY OF JEFFERSON, GA		
BLOWER PACKAGE SPECIFICATION			
MODEL NO.	HPP-MD5514-DD50HP-5-5		
PACKAGE TYPE	PRESSURE		
SOUND ENCLOSURE	YES		
INLET CONNECTION	5" FILTER SILENCER		
DISCHARGE CONNECTION	5" ANSI FLANGE		
ESTIMATED WEIGHT (LBS. EACH)	3,500		
BLOWER	MD KINNEY 5500 PD PLUS SERIES		
MOTOR	50HP MOTOR, 3/60/230-460V, 1800 RPM, TEFC		
DRIVE TYPE	DIRECT DRIVE		
GAS TYPE	AIR		
OPERATING CONDITIONS	MINIMUM	DESIGN	
STANDARD VOLUMETRIC FLOW	322	645	SCFM
INLET VOLUMETRIC FLOW	275	755.3	ICFM
Δ PRESSURE/VACUUM	9.5	9.5	PSIG
PRESSURE/VACUUM @ RELIEF	11.0	11.0	PSIG
INLET TEMPERATURE	102	102	°F
ELEVATION	820	820	FTASL
BLOWER SPEED	1357	2342	RPM
POWER	26.4	45.5	BHP
POWER @ RELIEF	30.2	52.1	BHP
MOTOR SPEED	1357	2342	RPM
ESTIMATED DISCHARGE TEMPERATURE	298	246.2	°F
VFD - FREQUENCY SETTING	45.6	78.7	HZ



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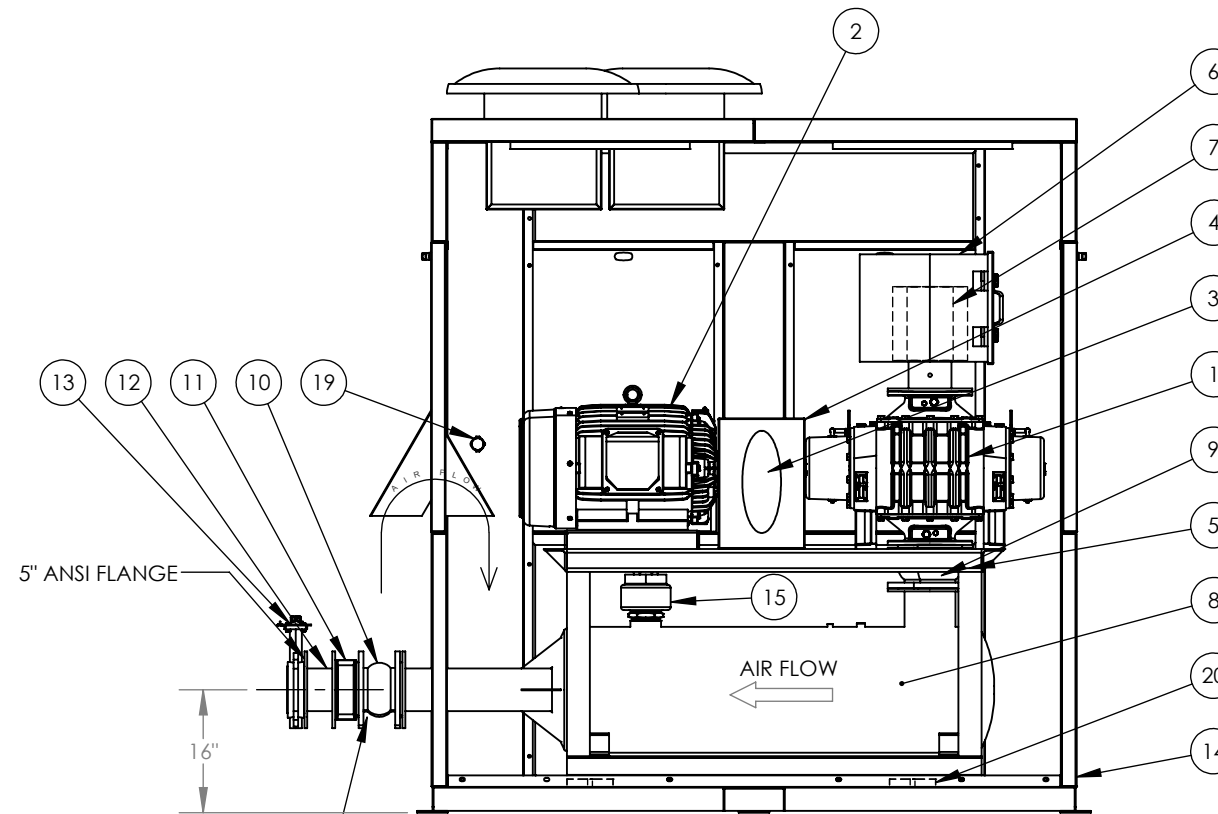
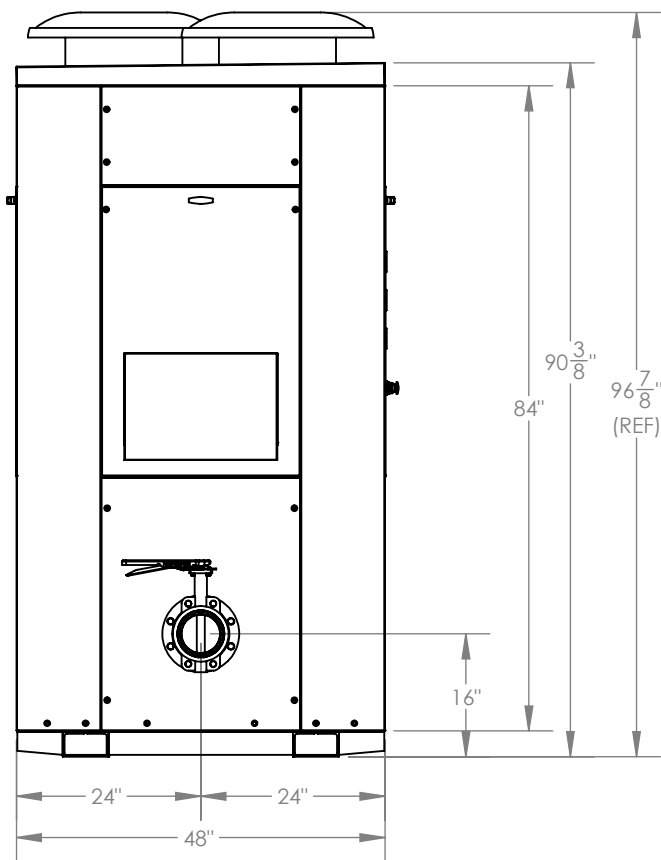
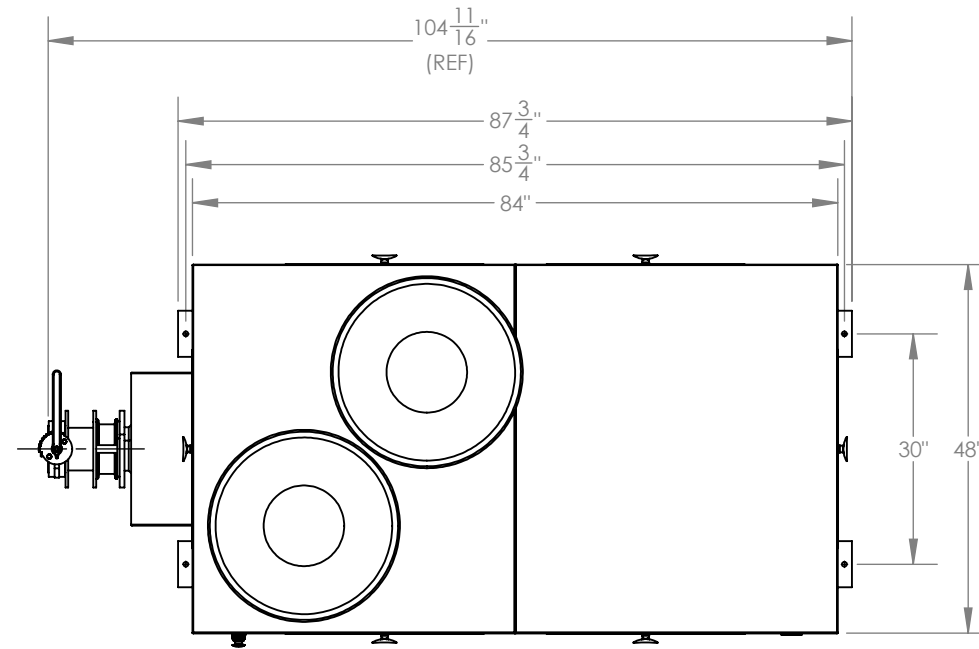
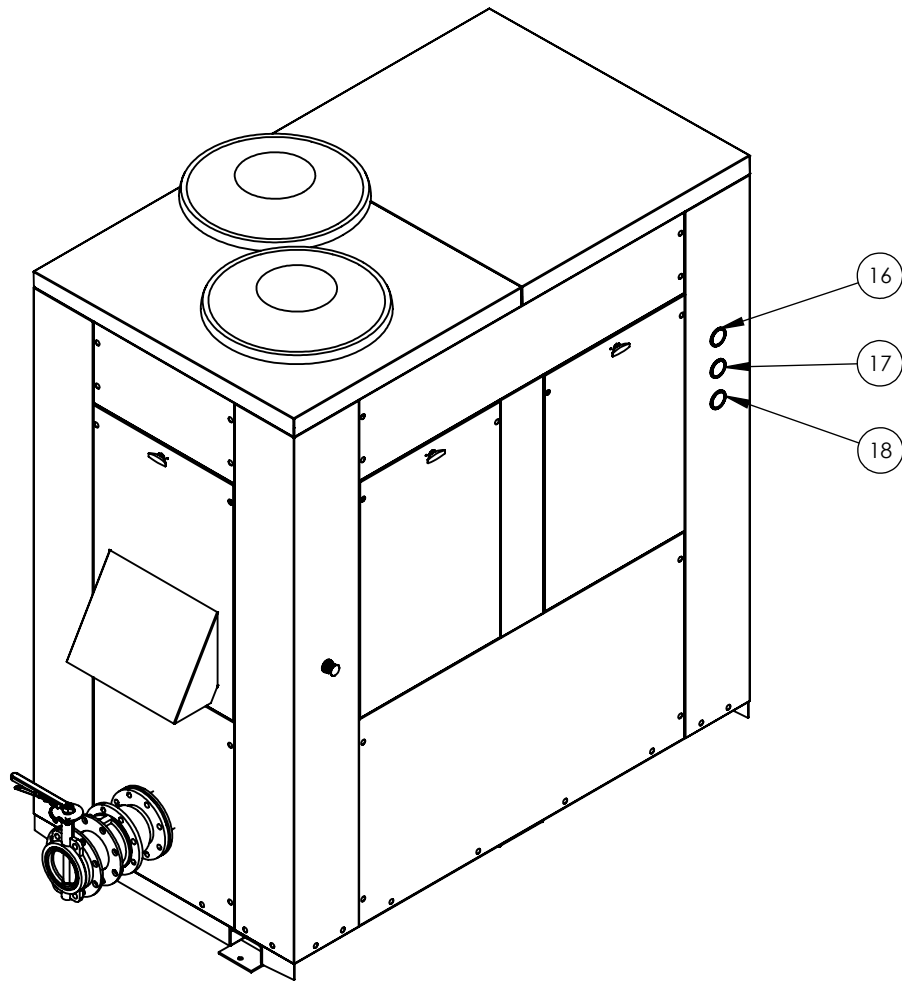
FOR APPROVAL

FABRICATION WILL NOT PROCEED UNTIL PRINTS ARE APPROVED

- APPROVED - PROCEED
- APPROVED AS NOTED - PROCEED
- NOT APPROVED - RESUBMIT

BY: _____

DATE: _____



DISCHARGE PLUMBING MUST BE FIELD SUPPORTED

SHIPPED LOOSE	ITEM NO.	PARTNO	DESCRIPTION	QTY.
	1	BPT550S	MD 5514 PD PLUS, LH, BI LOBE	1
	2	MTR050	MOTOR - 50 HP TEFC, 1800 RPM, 3/60/230-460V, 120V MOTOR HEATER, THERMOSTAT	1
	3	CPLG030	E 30 DIRECT DRIVE COUPLING	1
	4	DD	DIRECT DRIVE GUARD	1
	5	BAS54X32X30	ELEVATED COMMON BASE	1
	6	FTA205-6F	5" FILTER SILENCER	1
	7	FTC007	FILTER ELEMENT	1
	8	SIL005	5" DISCHARGE SILENCER	1
	9	FLX006-HT	6" FLANGED EXPANSION JOINT-HIGH TEMP.	1
*	10	FLX005-HT	5" EXPANSION JOINT - HIGH TEMP.	1
*	11	VAL035	5" CHECK VALVE -WAFER	1
*	12	5F TO 5F	DISCHARGE PLUMBING	1
*	13	VAL048-HT	5" BUTTERFLY VALVE, HIGH TEMPERATURE	1
	14	PC78X48X73	SOUND ENCLOSURE	1
	15	VAL003-P	3" PRESSURE RELIEF VALVE - SPRING	1
	16	GAG001	FILTER RESTRICTION GAUGE Ø2.5" OD, 0-20 IN WC, PANEL MOUNT	1
	17	GAG006	PRESSURE GAUGE Ø2.5" OD, 0-15 PSIG, PANEL MOUNT	1
	18	GAG010	TEMPERATURE GAUGE Ø2.5" OD, 100-350F, PANEL MOUNT	1
	19			1
*	20	VIB003	VIBRATION PAD 6" X 3" X 1"	4
	21		SOUND ENCLOSURE LIGHT KIT	2
	22	OIL008	BLOWER OIL	A/R
	23	PNT001	HARDY BLUE ENAMEL	A/R
	24	PNT012	HARDY GRAY PRIMER	A/R
	25	PNT016	SAFETY YELLOW PAINT	A/R

NOTES:

- ITEMS MARKED * ARE SHIPPED LOOSE FOR FIELD MOUNTING
- ALL PIPING ATTACHED TO THIS ASSEMBLY MUST BE INDEPENDENTLY SUPPORTED AND PROPERLY ISOLATED. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE BLOWER PACKAGE.
- ANCHOR BOLTS & HARDWARE FOR CONNECTING SHIP LOOSE ITEMS IS TO BE SUPPLIED BY INSTALLING CONTRACTOR
- OIL SUPPLIED WITH THE BLOWER IS FOR STORAGE PROTECTION AND START-UP SERVICE ONLY AND SHOULD BE REPLACED WITH AN APPROVED SYNTHETIC OIL. PLEASE REFER TO THE PACKAGE IOM FOR FURTHER DETAIL.
- FOR A BLOWER PACKAGE IN STORAGE, STORE INDOORS AND ROTATE THE SHAFT FOUR REVOLUTIONS EVERY TWO WEEKS.
- PANEL CONSTRUCTION IS CARBON STEEL LINED WITH 2" SOUND FOAM BOLTED CONSTRUCTION
- ENCLOSURE FINISH IS TO BE POWDER COATED AZURE BLUE
- THERMOSTAT AND CONDUIT BOX LOCATED INSIDE ENCLOSURE. CUSTOMER TO SUPPLY 120 VOLTS A/C.

QUANTITY 3
EST. WEIGHT (LBS. EA.) 3500

MINIMUM PERFORMANCE		DESIGN PERFORMANCE	
VOLUME	275 SCFM	VOLUME	645 SCFM
PRESSURE	9.54 PSIG	PRESSURE	9.54 PSIG
PRESSURE RELIEF	11 PSIG	PRESSURE RELIEF	11 PSIG
BLOWER SPEED	1357 RPM	BLOWER SPEED	2342 RPM
POWER	26.36 BHP	POWER	45.5 BHP
POWER @ RELIEF	30.17 BHP	POWER @ RELIEF	52.05 BHP
MOTOR SPEED	45.6 HZ	MOTOR SPEED	78.72 HZ
INLET TEMP.	102 °F	INLET TEMP.	102 °F
EST. DISH. TEMP	298 °F	EST. DISH. TEMP	246.2 °F
ELEVATION	820 FTASL	ELEVATION	820 FTASL



**HPP-MD5511-50HP-5-5
PRESSURE BLOWER PACKAGE**

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	ADDED COMPONENTS: MOTOR THERMOSTAT, MOTOR HEATER, AND EMERGENCY STOP BUTTON.	8/23/2022	BE

CUSTOMER	CITY OF JEFFERSON, GA	NAME		DATE	5/24/2022	DWG. NO.:	38198-1A
P.O. NO.	501	CHKD	BE				
S.O. NO.	38198	MFG APR					
TAG	CITY OF JEFFERSON, GA	SCALE	1:25	SHEET	1 of 8	REVISION	

FOR APPROVAL

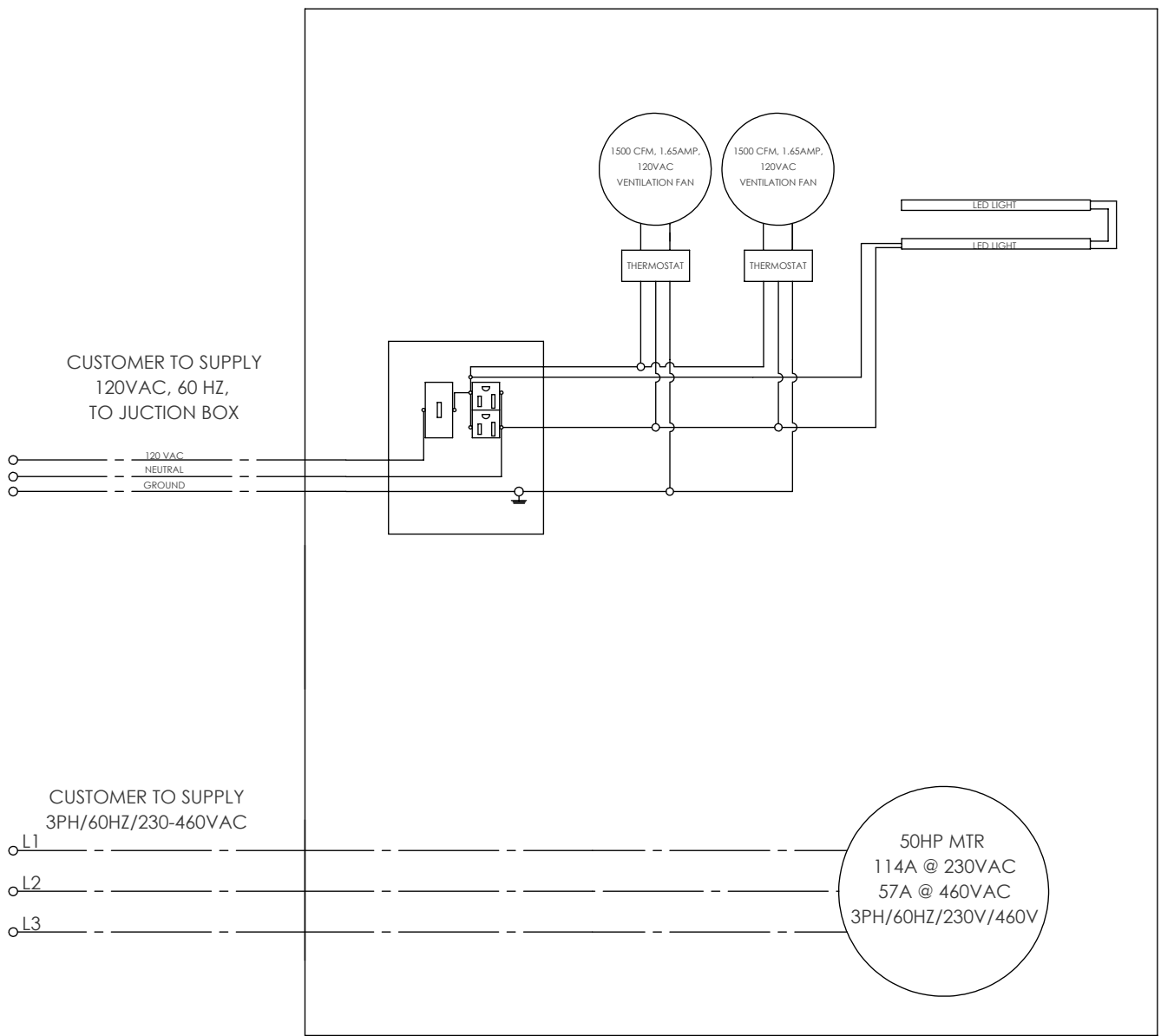
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UNTIL PRINTS ARE APPROVED**

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BY: _____

DATE: _____

ENCLOSED BLOWER PACKAGE



QUANTITY
MATERIAL



SWITCH & OUTLET W/2 FAN

CUSTOMER		NAME	DATE	DWG. NO.:
P.O.	DRAWN	CHKD	5/24/2022	38198-1
S.O.	MFG APR			
TAG				
SCALE 1:25		SHEET 2 of 3		REVISION

----- WIRED BY OTHERS

TECO Westinghouse

ISSUED 8/29/2014	PERFORMANCE DATA 3-PHASE INDUCTION MOTOR	ENCLOSURE TEFC
TYPE AEHH8P		CATALOG# NP0504

NAMEPLATE INFORMATION

OUTPUT		POLE	FRAME SIZE	VOLTAGE	HZ	RATED AMBIENT	INS. CLASS	NEMA DESIGN	TIME RATING	SERVICE FACTOR
HP	KW									
50	37.3	4	326T	230/460	60	40°C	F	B	CONT.	1.15

VARIABLE FREQUENCY DRIVE SERVICE

VARIABLE TORQUE				OHMS/PHASE EQUIVALENT WYE CIRCUIT (AT RATED OPERATING TEMPERATURE 25°C)				
HZ	HP	RPM	TORQUE (lb-ft)	R1	R2	X1	X2	X _m
3~60	0.0063~50	90~1800	0.368~148.3	0.0632	0.1436	0.3803	0.8707	18.415

CONSTANT TORQUE				CONSTANT HORSEPOWER			
HZ	HP	RPM	TORQUE (lb-ft)	HZ	HP	RPM	TORQUE (lb-ft)
6~60	5~50	180~1800	148.3	60~90	50	1800~2700	148.3~98.87

TYPICAL PERFORMANCE

FULL LOAD RPM	EFFICIENCY				POWER FACTOR			SOUND PRESSURE LEVEL @ 3 FT Db(A)
	FULL LOAD		3/4 LOAD %	1/2 LOAD %	FULL LOAD %	3/4 LOAD %	1/2 LOAD %	
	MIN.%	NOM.%						
1770	93.6	94.5	95	95	87	86	80.5	76

CURRENTS									NEMA KVA CODE LETTER	SAFE STALL TIME IN SECONDS	
NO LOAD			FULL LOAD			LOCKED ROTOR				COLD	HOT
AT 208 VOLT	AT 230 VOLT	AT 460 VOLT	AT 208 VOLT	AT 230 VOLT	AT 460 VOLT	AT 208 VOLT	AT 230 VOLT	AT 460 VOLT			
23.20	26.20	13.1	125.84	113.80	56.90	656.6	726.0	363	G	17	12

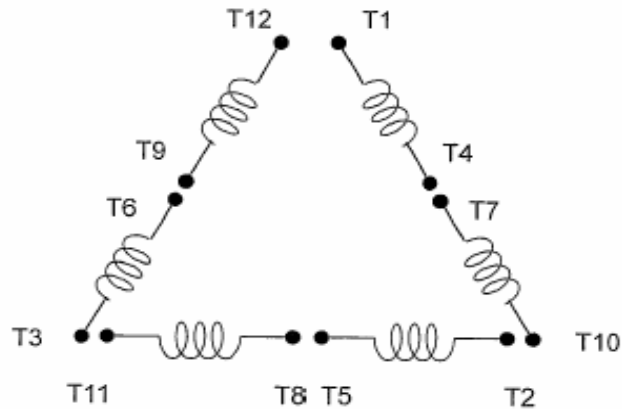
TORQUE				INERTIA			ACCEL TIME (DOL)		ALLOWABLE STARTS PER HOUR	
FULL LOAD (lb-ft)	LOCKED ROTOR %FLT	PULL UP %FLT	BREAK DOWN %FLT	ROTOR WR ² (lb-ft ²)	NEMA LOAD WK ² (lb-ft ²)	MAX ALLOWABLE WK ² (lb-ft ²)	NEMA LOAD WK ² Sec	MAX ALLOWABLE WK ² Sec	COLD	HOT
148.30	210	170	220	10.123	232	427	4.77	8.61	2	1

APPROVED:	M. PRATER	DRAWING NO.	31057NP0504	REVISION:	1
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DATE:
December 6, 2010

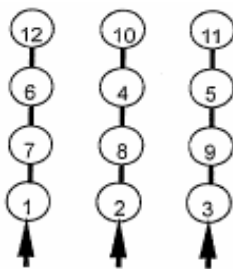
CONNECTION DIAGRAM

CATALOG NO.:
NP0504

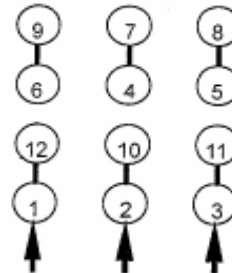


SCHEMATIC - Δ / Y CONNECTION

ACROSS THE LINE CONNECTION



LINE
230 VOLT CONNECTION



LINE
460 VOLT CONNECTION

***CONTACT TWMC IF YOU HAVE ANY QUESTIONS
REGARDING THE MOTOR CONNECTION.**

PH: 1-800-873-8326



INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR THREE PHASE INDUCTION MOTORS

Frames 143T - 449TZ



5100 North IH 35 Round Rock, Texas 78681

RECEIVING

1. Check nameplate data.
2. Check whether any damage has occurred during transportation.
3. After removal of shaft clamp, turn shaft by hand to check that it turns freely.
4. If motor is to be reshipped (alone or installed to another piece of equipment) the shaft must again be clamped to prevent axial movement.

Note: Remove the bearing clamp before turning the shaft on 284T-449TZ frame motors.

WARNING

THE FOLLOWING SAFETY PRECAUTIONS MUST BE OBSERVED:

1. Electric rotating machinery and high voltage can cause serious or fatal injury if improperly installed, operated or maintained. Responsible personnel should be familiarized with NEMA MG-1; Safety Standards for Construction and Guide Selection. Installation and Use of Electric Motors and Generators; National Electric Code and all local safety requirements.
2. When servicing, all power sources to the motor and to the accessory devices should be de-energized and disconnected and all rotating parts should be at standstill.
3. Lifting means, when supplied, are intended for lifting the motor only. When two lifting devices are supplied with the motor a dual chain must be used.
4. Suitable protection must be used when working near machinery with high noise levels.
5. Safeguard or protective devices must not be by-passed or rendered inoperative.
6. The frame of this machine must be grounded in accordance with the National Electric Code and applicable local codes.
7. A suitable enclosure should be provided to prevent access to the motor by other than authorized personnel. Extra caution should be observed around motors that are automatically or have automatic re-setting relays as they may restart unexpectedly.
8. Shaft key must be fully captive or removed before motor is started.
9. Provide proper safeguards for personnel against possible failure of motor-mounted brake, particularly on applications involving overhauling loads.
10. Explosion proof motors are constructed to comply with the label service procedure manual, repair of these motors must be made by TECO-Westinghouse Motor Company or U/L listed service center in order to maintain U/L listing.

LOCATION

1. Drip-proof motors are intended for use where atmosphere is relatively clean, dry, well ventilated and non-corrosive.
2. Totally enclosed motors may be installed where dirt, moisture, or dust are present and in outdoor locations.
3. Explosion-proof motors are built for use in hazardous locations as indicated by Underwriters' label on the motor.
4. Chemical duty enclosed motors are designed for installation in high corrosion or excessive moisture locations.

Note: in all cases, no surrounding structure should obstruct normal flow or ventilating air through or over the motor.

MOUNTING

1. Mount motor securely on a firm, flat base. All ball bearing normal thrust motors up to and including 256T frame size may be side-wall or ceiling mounted; all others check nearest TECO-Westinghouse office for mounting recommendations.
2. Align motor accurately, using a flexible coupling if possible. For drive recommendations, consult with drive or equipment manufacturer, or TECO-Westinghouse.
3. Mounting bolts must be carefully tightened to prevent changes in alignment and possible damage to the equipment. The recommended tightening torque's for medium carbon steel bolts, identified by three radial lines at 120 degrees on the head, are:

Bolt Size	Recommended Torque (Ft-lb.)	
	Minimum	Maximum
2/8	25	37
1/2	60	90
5/8	120	180
3/4	210	320

4. V-belts Sheave Pitch Diameters should not be less than those shown in Table 1 (NEMA recommended values)
5. Tighten belts only enough to prevent slippage. Belt speed should not exceed 5000 ft. per min.

TABLE 1. V-Belt Sheave Pitch Diameters (MG1-14.42)

Frame Number					V-Belt Sheave			
					Conventional A, B, C, D AND E		Narrow 3V, 5V, AND 8V	
	Horsepower at				Minimum Pitch Diameter Inches	*Maximum Width Inches	Minimum Outside Diameter Inches	**Maximum Width Inches
	Synchronous Speed, RPM							
3600	1800	1200	900					
143T	1.5	1	.75	.5	2.2	4.25	2.2	2.25
145T	2-3	1.5-2	1	.75	2.4	4.25	2.4	2.25
182T	3	3	1.5	1	2.4	5.25	2.4	2.75
182T	5	...	...	...	2.6	5.25	2.4	2.75
184T	...	...	2	1.5	2.4	5.25	2.4	2.75
184T	5	...	...	...	2.6	5.25	2.4	2.75
184T	7.5	5	...	...	3.0	5.25	3.0	2.75
213T	7.5-10	7.5	3	2	3.0	6.5	3.0	3.375
215T	10	...	5	3	3.0	6.5	3.0	3.375
215T	15	10	...	...	3.8	6.5	3.8	3.375
254T	15	...	7.5	5	3.8	7.75	3.8	4
254T	20	15	...	...	4.4	7.75	4.4	4
256T	20-25	...	10	7.5	4.4	7.75	4.4	4
256T	...	20	...	...	4.6	7.75	4.4	4
284T	...	...	15	10	4.6	9	4.4	4.625
284T	...	25	...	...	5.0	9	4.4	4.625
286T	...	30	20	15	5.4	9	5.2	4.625

TABLE 1. V-Belt Sheave Pitch Diameters (MG1-14.42)

Frame Number					V-Belt Sheave			
					Conventional A, B, C, D AND E		Narrow 3V, 5V, AND 8V	
	Horsepower at				Minimum Pitch Diameter Inches	*Maximum Width Inches	Minimum Outside Diameter Inches	**Maximum Width Inches
	Synchronous Speed, RPM							
3600	1800	1200	900					
324T	...	40	25	20	6.0	10.25	6.0	5.25
326T	...	50	30	25	6.8	10.25	6.8	5.25
364T	40	30	6.8	11.5	6.8	5
364T	...	60	...	...	7.4	11.5	7.4	5.785
365T	50	40	8.2	11.5	8.2	5.785
365T	...	75	...	...	9.0	11.5	8.6	5.785
404T	60	...	9.0	14.25	8.0	7.25
404T	50	9.0	14.25	8.4	7.25
404T	...	100	...	...	10.0	14.25	8.6	7.25
405T	75	60	10.0	14.25	10.0	7.25
405T	...	100	...	...	10.0	14.25	8.6	7.25
405T	...	125	...	...	11.5	14.25	10.5	7.25
444T	100	...	11.0	16.75	10.0	8.5
444T	75	10.5	16.75	9.5	8.5
444T	...	125	...	...	11.0	16.75	9.5	8.5
444T	...	150	...	...	...	16.75	10.5	8.5
445T	125	...	12.5	16.75	12.0	8.5
445T	100	12.5	16.75	12.0	8.5
445T	...	150	...	...	...	16.75	10.5	8.5

*Max. Sheave width = $2(N-W) - .25$

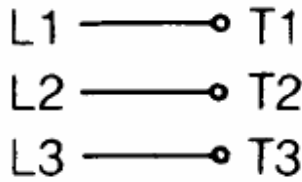
**Max Sheave width = $N-W$

***Sheave ratios greater than 5:1 and center-to-center distance less than the diameter of the large sheave should be referred to TECO-Westinghouse.

POWER SUPPLY & CONNECTIONS

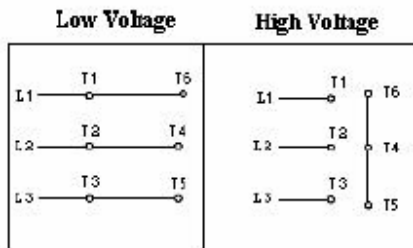
1. Wiring of motor and control, overload protection and grounding should be in accordance with National Electrical Code and all local safety requirements.
2. Nameplate voltage and frequency should agree with power supply. Motor will operate satisfactorily on line voltage within $\pm 10\%$ of nameplate voltage; or frequency with $\pm 5\%$ and with a combined variation not to exceed $\pm 10\%$. 230-volt motors can be used on 208-volt network systems, but with slightly modified performance characteristics as shown on the nameplate.
3. Dual voltage and single voltage motors can be connected for the desired voltage by following connection diagram shown on the nameplate or inside of the conduit box.
4. All Explosion Proof motors have Temperature Limiting Devices in the motor enclosure to prevent excessive external surface temperature of the motor in accordance with U/L standards. Terminals of thermal protectors (P1 & P2) should be connected to the motor control equipment, according to the connection diagram inside of the conduit box.
5. Standard connection diagram for three phase, not thermally protected, dual rotation motors are shown in diagrams A through E. **(Note: To change rotation, Interchange any two line leads)**

A. 3 Lead, Single Voltage

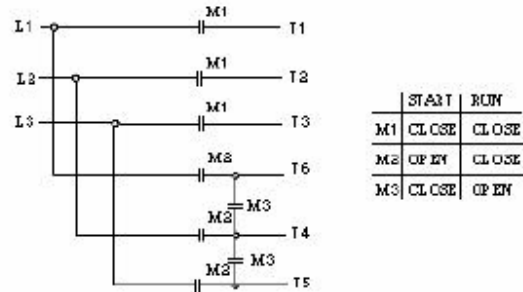


B. 6 Lead, Dual Voltage & Voltage Ratio 1 to 3

B-1 Across the Line Start & Run

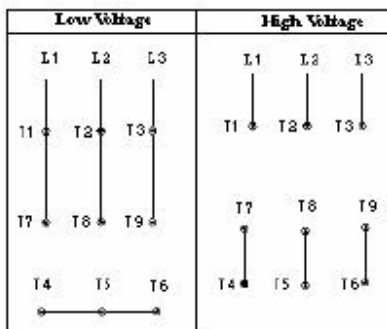


B-2 Wye Start & Delta Run
(Low Voltage only)

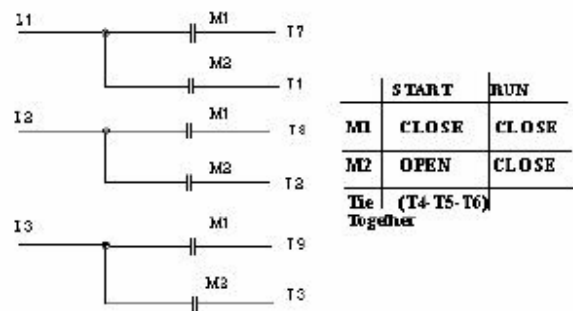


C. 9 Leads; Dual Voltage & Voltage Ratio 1 to 2, Wye Connected

C-1 Across the Line Start & Run

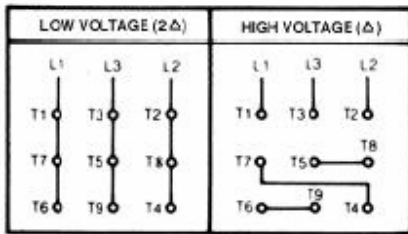


C-2 Part Winding Start
(Low Voltage only)

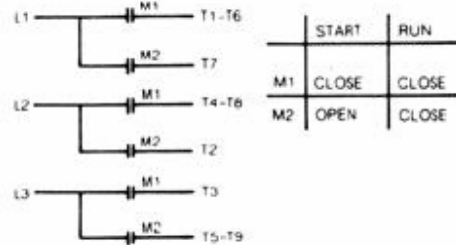


D. 9 Leads; Dual Voltage & Voltage Ration 1 to 2, Delta Connected

D-1 Across the Line Start & Run

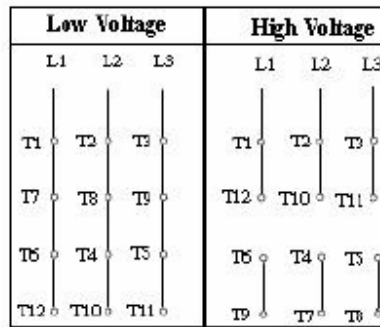


D-2 Part Winding Start (Low Voltage only)

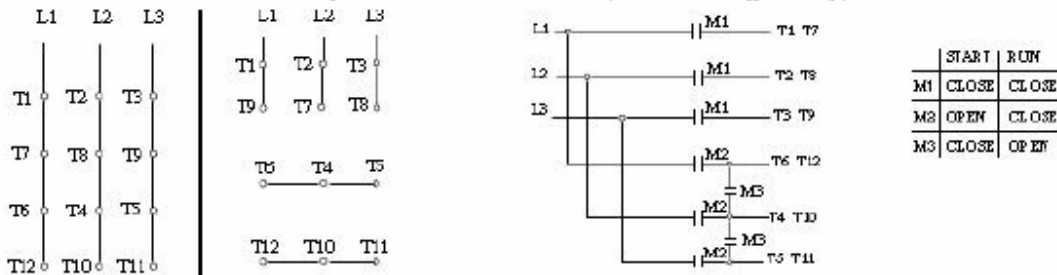


E. 12 Leads, Dual Voltage

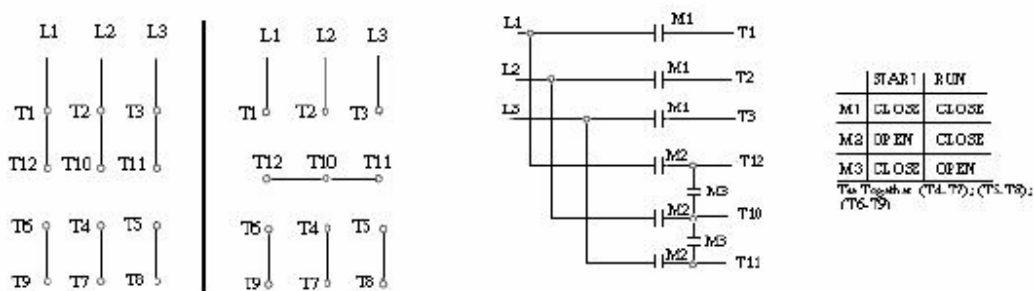
E-1 Across the Line Start & Run



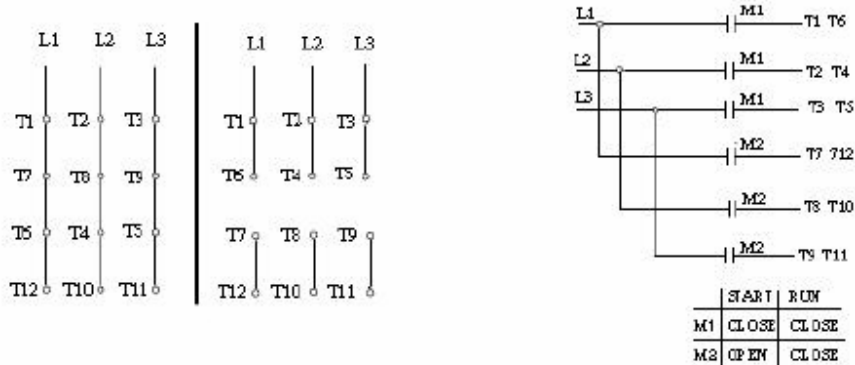
E-2-1 Wye Start & Delta Run (Low Voltage only)



E-2-2 Wye Start & Delta Run (High Voltage only)



E-3 Part Winding Start (Low Voltage only)



*Important: For Part Winding Start, M2 contactor should be closed within two (2) seconds after M1 contactor is closed.
Only 4 pole and above (e.g., 6P, 8P...) motors are satisfactory for Part Winding Start at low voltage.

START UP

1. Disconnect load and start motor. Check direction of rotation. If rotation must be changed, ALLOW THE MOTOR TO STOP COMPLETELY. Interchange any two leads of a three-phase motor.
2. Connect load. The motor should start quickly and run smoothly. If no, shut power off at once. Recheck the assembly including all connections before restarting.
3. If excessive vibration is noted, check for loose mounting bolts too flexible motor support structure or transmitted vibration from adjacent machinery. Periodic vibration checks should be made; foundations often settle.
4. Operate under load for short period of time and check operating current against nameplate.

TESTING

If the motor has been in storage for an extensive period or has been subjected to adverse moisture conditions, it is best to check the insulation resistance of the stator winding with a megometer. Depending on the length and conditions of storage it may be necessary to regrease or change rusted bearings.

If the resistance is lower than one megohm the windings should be dried in one of the following two ways:

1. Bake in oven at temperatures not exceeding 194°F until insulation resistance becomes constant.
2. With rotor locked, apply low voltage and gradually increase the current through windings until temperature measured with a thermometer reaches 194°F. Do not exceed this temperature.

MAINTENANCE

INSPECTION

Inspect motor at regular intervals. Keep motor clean and ventilation openings clear.

LUBRICATION

1. Frame 143T-256T: Double shielded and pre-lubricated ball-bearing motors without grease fittings and don't need re-lubrication, except on MAX-E1[®] and MAX-E2[®] products which have re-greasable features.
2. Frames 280TS, 320-449TZ(TS): Motors having grease fittings and grease discharge devices at brackets. Motors are shipped with grease for initial running. It is necessary to re-lubricate anti-friction bearing motors periodically, depending on size and type of service. See Table 2 to provide maximum bearing life. Excessive or too frequent lubrication may damage the motor.

TABLE 2

Horsepower	Standard Conditions	Severe Conditions	Extreme Conditions
1 Thru 30 Hp, 1800 rpm and below	7 years	3 years	180 days
40 Thru 75 Hp, 1800 rpm and below	210 days	70 days	30 days
100 Thru 150 Hp, 1800 rpm and below	90 days	30 days	15 days
1 Thru 20 Hp, 3600 rpm	5 years	2 years	90 days
25 Thru 75 Hp, 3600 rpm	180 days	60 days	30 days
100 Thru 150 Hp, 3600 rpm	90 days	30 days	15 days

Note:

- A. Standard conditions: 8 hours operation per day, normal or light loading, clear and 40°C ambient conditions.
 - B. Severe conditions: 24-hour operation per day or light shock loading, vibration or in dirty or dusty conditions.
 - C. Extreme conditions: With heavy shock loading or vibration or dusty conditions.
 - D. For double shielded bearings, above data (lubrication frequency) means that the bearing must be replaced.
3. Be sure fittings are clean and free from dirt. Using a low-pressure grease gun, pump in the recommended grease until new grease appears at grease discharge hole.
 4. Use the POLYUREA grease unless special grease is specified on the nameplate.
 5. If re-lubrication is to be performed with the motor running, stay clear of rotating parts. After re-greasing, allow the motor to run for ten to thirty minutes.

RENEWAL PARTS

1. Use only genuine TECO-Westinghouse renewal parts or as recommended by TECO-Westinghouse Motor Company.
2. When you order renewal parts please specify complete information to TECO-Westinghouse office/agent such as type, frame no., poles, horsepower, voltage, series no., quantity, etc.

**FOR FURTHER INFORMATION PLEASE CONTACT
TECO-WESTINGHOUSE MOTOR COMPANY**

Round Rock, TX

800-873-8326

Couplings Dodge® Raptor

Elastomeric coupling innovation

Natural rubber WingLock™ element

- Finite-Element optimized flexible design, featuring WingLock technology
- Higher bond strength, improved fatigue resistance, and documented longer life
- Industry leading misalignment capabilities
- Torque range up to 38,438 Nm

Easier installation & reduced maintenance

- Slotted clamp ring holes offer 187% more hardware clearance
- Split element for easy replacement
- Drop-in interchange without any modifications or additional materials
- Maintenance free element



Longer driven equipment life

- Rigorously tested to 10x DIN 741 coupling standards
- Significantly lower torsional and bending stiffness
- Up to 16.7x increase in connected L_{10} bearing life
- ISO class 10.9 hardware offers a 40% increase in proof strength

Flexible mounting options

- Close-coupled and spacer designs for a wide range of shaft gaps
- Interchangeable hubs for reduced inventory
- Finished bore hubs with setscrew locking for easy installation
- Taper-Lock bushed hubs for clean, compact installation
- Bores up to 229 mm

Engineered for longer life and improved reliability

The Dodge Raptor features patented WingLock technology, a finite-element optimized winged elastomeric design that provides longer driven equipment life and improved reliability. WingLock technology increases surface area in the most critical regions of the element, resulting in higher bond strength, improved fatigue resistance, and longer life versus competitive urethane designs. A non-lubricated natural rubber element results in lower stiffness, improved vibration damping, and industry leading misalignment capabilities.

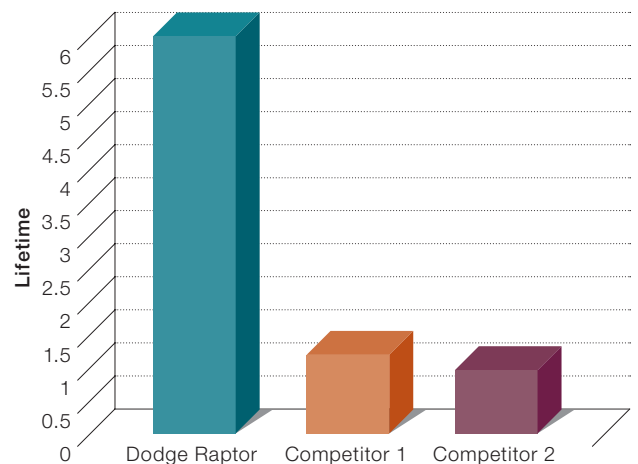
Superior natural rubber element

The Raptor features a flexible natural rubber element that offers a number of performance benefits versus competitive urethane designs.

- Static conductive for grounding redundancy, allows current to safely pass through the element, preventing the possibility of arcing during operation
- Exceptional resistance to hydrolysis, for improved performance in humid conditions
- Superior thermal conductivity and ability to dissipate heat

Documented performance

Comparative benchmark testing confirms the performance improvement associated with Raptor's WingLock element design. Even under worst-case misalignment and torque conditions, test results show that the Raptor lasts up to six times longer than the closest competitor.



Results based on accelerated life testing at 1.5x catalogued torque, while subject to 4° angular misalignment and 4.8 mm parallel misalignment.

Longer driven equipment life

Leveraging over 50 years of expertise, the Raptor features a natural rubber element that is significantly more flexible than urethane designs.

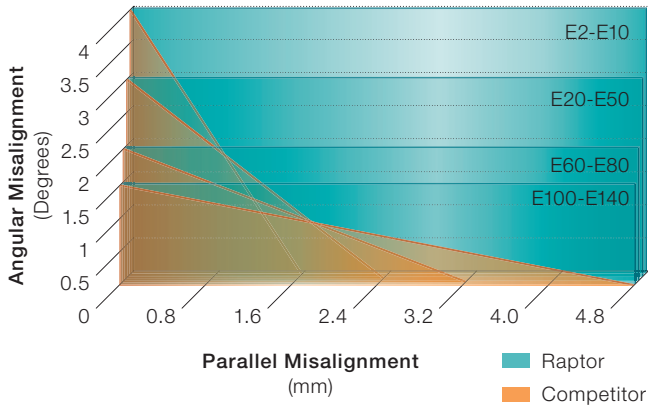
- Approximately 50% lower torsional and bending stiffness
- Longer life for all types of equipment – including motors, pumps, compressors, and gearboxes
- Reduced connected equipment bearing loads yield up to a 16.7x increase in L_{10} bearing life
- Better shock damping and less vibration

Easier installation and reduced maintenance

The Dodge Raptor has everything needed for easier installation and reduced maintenance costs:

- Split element for easy replacement without moving and re-aligning connected equipment
- Slotted clamp ring holes offer 187% extra mounting clearance versus competitor's designs
- 50% lower torsional stiffness makes the element significantly easier to manipulate by hand during installation
- Maintenance free non-lubricated natural rubber element for trouble-free operation

Industry leading misalignment capabilities



Easy as 1-2-3

Installing Dodge Raptor couplings is quick and easy. The Raptor's horizontally split element doesn't require locking shafts during installation, meaning a faster installation that requires fewer tools and eliminates shaft damage. Simply fasten the shaft hubs, install the element, and tighten the hardware.



Third-party ATEX certified

When it comes to applications in hazardous environments, there's no reason for customers to assume any risk by using a product which is self-certified. That's why Raptor couplings are third-party ATEX certified for worry-free use in hazardous environments. All required product markings and documentation are included with each coupling at no additional charge.



For more information:

new.abb.com/mechanical-power-transmission



The Raptor is backed by over 50 years of natural rubber expertise and offers an industry leading 5-year warranty, even when used with competitors components.

PD Plus®

Model 5500 Heavy Duty

Bi-directional Rotation

Series Options:

Horizontal Air Service

Vertical Air Service

Horizontal Flow, Single Envelope Gas Service

Vertical Flow, Single Envelope Gas Service

Horizontal Flow, Double Envelope Gas Service

Vertical Flow, Double Envelope Gas Service

Model 5500 PD PLUS heavy duty industrial blowers are designed for high performance applications, up to 18 PSI pressure or 17" Hg dry vacuum (24" Hg water injected).

Vertical & Horizontal Air Flow

This series has wide application in pneumatic conveying, wastewater treatment, and the general process industry where high pressure, high volume air is required. Seal areas are vented to atmosphere to relieve process pressure against the internal lip seals, and to provide oil-free air.

Vertical & Horizontal Single Envelope Gas Service

This series is utilized in such applications as closed loop pneumatic conveying, process gas handling, or elevated pressure applications up to 100 PSIG discharge. Vent openings are tapped and plugged to prevent gas leakage. These fittings can also accept an inert gas purge for positive containment of the process gas.

Vertical & Horizontal Double Envelope Gas Service

This series is built to laboratory standards where virtually complete sealing is required. In addition to the features shown on the above series, the drive shaft is mechanically sealed and the oil sumps are plugged to provide an even higher degree of leakage protection.

Optional Cooling Coils

All vertical flow 5500 PD PLUS models are available with cooling coils to provide cooling of lubricating oil with less than 0.5 GPM cooling water for high performance applications.

Special Materials

Stainless Steel*

Carbon Steel **

Ductile Iron

*5507, 5514 & 5516 only **5507 only

Special Coatings

Bi-Protec® (Nickel/Armoly®)



Model Size	Max. Press. PSI	Max. Vac. (in. Hg)	Nom. Min. RPM at Max. Disch. Pressure	Nom. Max. RPM at Max. Disch. Pressure	Displ. CFR
5507	18	17	2150	3600	.235
5511	17	17	1800	3600	.345
5514	13	15	1250	3600	.440
5518	10	15	1150	3600	.565

Material Specifications:

Housing: Cast iron

End Plates: Cast iron

End Covers: Gear end - Cast iron
Free end - Cast iron

Rotors: Ductile iron

Shafts: Ductile iron cast integrally with rotor

Bearings: Gear (drive) end - Double row ball
Free (back) end - Cylindrical roller
Drive shaft - Spherical roller

Drive Shaft: SAE 4140 forged alloy steel

Gears: Alloy steel, helical cut

Seals: Standard - Lip and labyrinth type on rotor shafts; lip seal on the drive shaft; less than 25 PSIG
Single Envelope Gas Service - Mechanical and labyrinth type on rotor shafts; lip seal on the drive shaft; less than 25 PSIG
Double Envelope Gas Service - Same as Single Envelope series plus mechanical sealing on the drive shaft; greater than 25 PSIG

Lubrication: Oil splash system, both ends

* Blowers operating with a discharge pressure above 25 PSIG requires hydrostatic testing and special high pressure seal leakage testing.

Performance Tables

In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data are approximate. Request a quotation for your specific application.

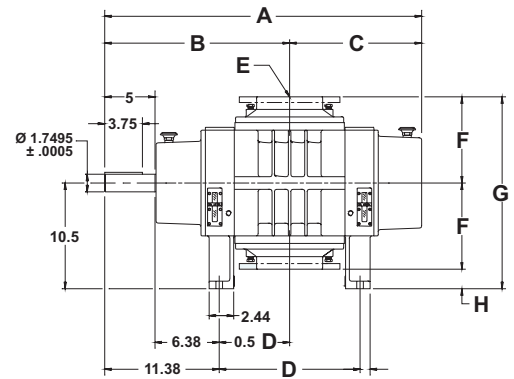
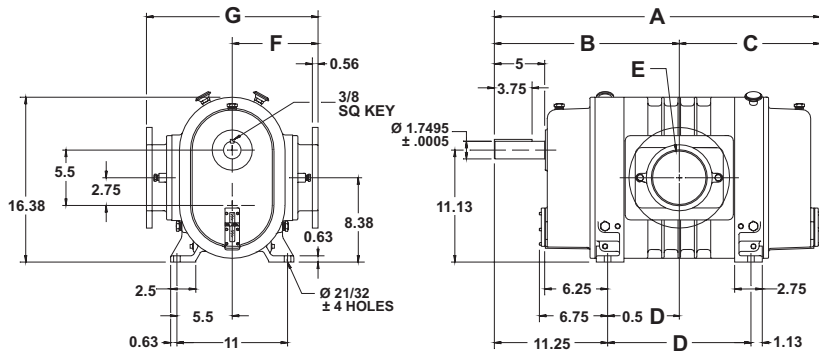
Pressure (14.70 PSIA and 70° F Inlet)

BLOWER MODEL	SPEED (RPM)	5 PSIG		8 PSIG		10 PSIG		12 PSIG		13 PSIG		15 PSIG		17 PSIG		18 PSIG		Max. Vacuum		
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	" Hg	CFM	BHP
5507	1150	155	7.2	124	11	107	13	91	15									13	97	8.8
	1750	296	11	265	16	248	20	232	24	225	25	211	29					15	213	15
	3600	730	22	700	34	683	41	667	48	660	52	646	59	633	67	627	70	17	619	35
5511	1150	239	9.9	197	15	173	19	152	22									13	159	12
	1750	446	15	404	23	380	28	359	34	349	36	330	41					15	332	21
	3600	1084	31	1042	47	1018	58	997	69	987	74	968	85	950	96			17	931	49
5514	1150	309	12	257	19	228	23	234	28									13	210	15
	1750	573	19	521	29	492	36	465	42	453	46							15	432	27
	3600	1387	39	1335	59	1306	73	1279	87	1267	94							15	1246	55
5518	1150	410	15	346	24	310	30											13	289	
	1750	749	24	685	36	649	45											15	576	38
	3600	1794	48	1730	75	1695	93											15	1621	69

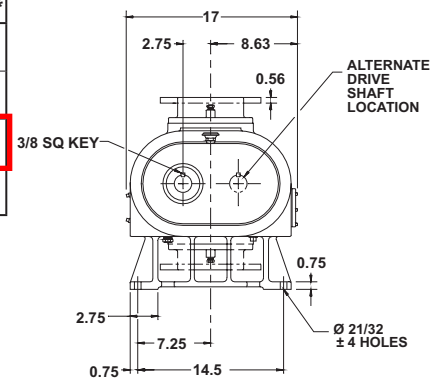
Dimensions

Horizontal Flow

Vertical Flow



MODEL	SERIES	A	B	C	D	E	F	G	Net Wgt. (lbs.)*
5507	17/57	28.94	16.63	12.31	10.5	4" NPT	8.5	17	440
	46/81	28.31		11.69	10.75			19	
5511	17/57	32.44	18.38	14.06	14	5" NPT	8.5	17	510
	46/81	31.81		13.44	14.25			19	
5514	17/57	35.44	19.88	15.56	17	6" FLG	10	20	580
	46/81	34.81		14.81	17.25			20.5	
5518	17/57	39.44	21.88	17.56	21	8" FLG	10	20	690
	46/81	38.81		16.94	21.25			20.5	



Values are approximate and should not be used for construction.

Certain dimensions for double envelope gas -service differ slightly from those shown above.

Certified prints are available through your local M-D Pneumatics Sales Professional.

*Approximate shipping weight.

CONTACT US

For more information, contact your Regional Sales Manager or call us at:

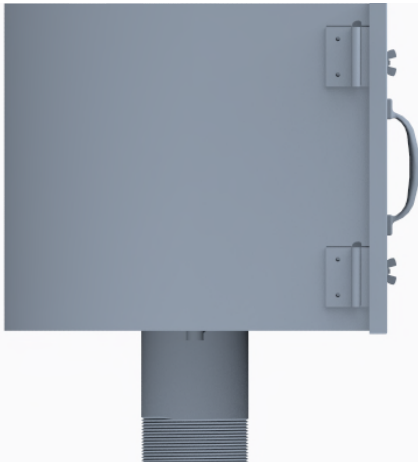
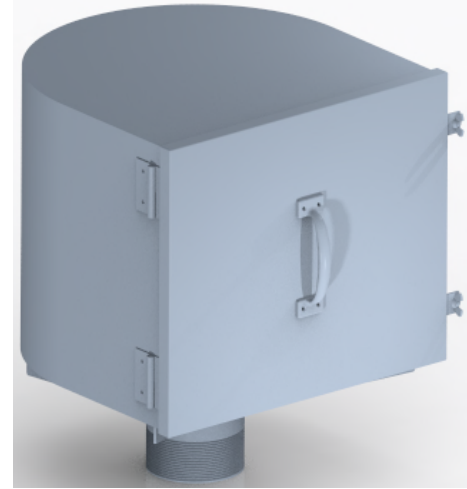
1-800-825-6937

Your Local Sales Professional:

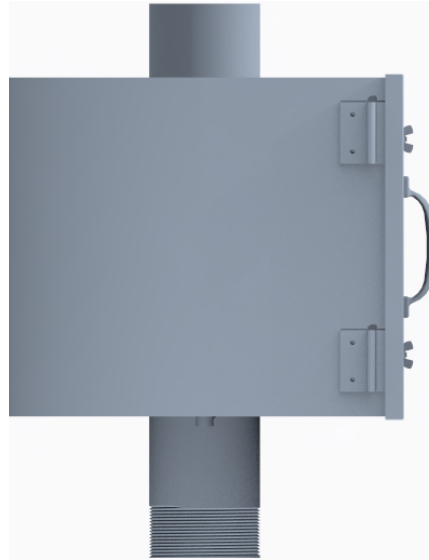
LATERAL ACCESS FILTER SILENCER

FEATURES/SPECIFICATIONS

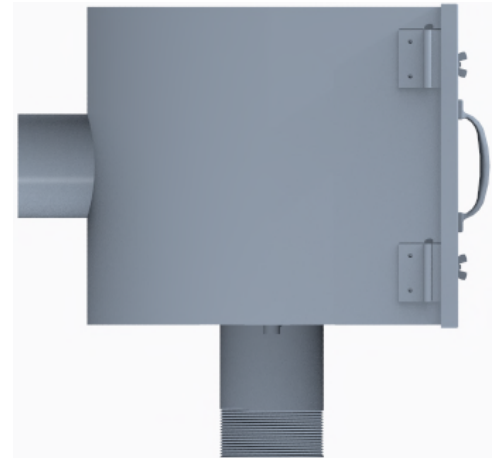
- REDUCES AND DEADENS SOUND WITH MINIMAL PRESSURE DROP
- 99% REMOVAL EFFICIENCY ON 2 MICRON PARTICLE SIZE
- DURABLE CARBON STEEL CONSTRUCTION WITH LIFT OFF HINGED DOOR
- COMPACT HOUSING DESIGN REDUCES OVERALL HEIGHT REQUIREMENT
- LATERAL ACCESS TO FILTER ELEMENT FOR EASY MAINTENANCE
- INDUSTRY STANDARD FILTER ELEMENT MEDIA OPTIONS: PAPER, FELT & MESH
- 1/8" NPT PRESSURE PORTS FOR MONITORING
- THREE AVAILABLE INLET CONFIGURATIONS
 - STANDARD
 - INLINE
 - SIDE INLET INLINE



STANDARD



INLINE

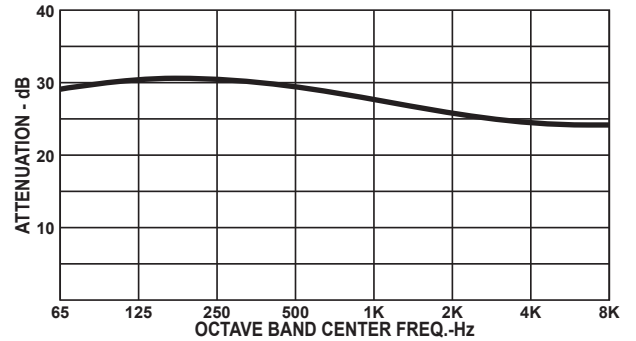
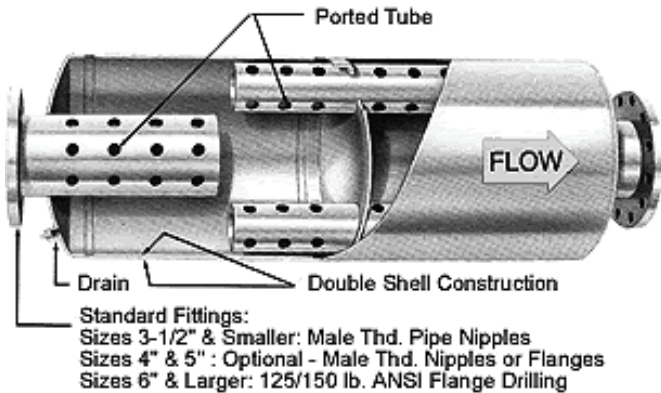


SIDE INLET INLINE

PIPE SIZE	FILTER SILENCER	INLINE FILTER	SIDE INLET FILTER	FILTER ELEMENT	FILTER ELEMENT SIZE (ID x OD x H)	AIR FLOW (SCFM)
2	FTA202	FTA302	FTA402	FTC017	3-5/8 x 5-3/4 x 4-3/4	135
2.5	FTA2025	FTA3025	FTA4025	FTC017	3-5/8 x 5-3/4 x 4-3/4	195
3	FTA203	FTA303	FTA403	FTC008	3-5/8 x 5-3/4 x 9-1/2	300
4	FTA204	FTA304	FTA404	FTC019	4-3/4 x 7-7/8 x 9-5/8	520
5-F	FTA205	FTA305	FTA405	FTC007	6 x 9-3/4 x 9-5/8	800
6-F	FTA206	FTA306	FTA406	FTC010	8 x 11-3/4 x 9-5/8	1100
8-F	FTA208	FTA308	FTA408	FTC012	9 x 14-5/8 x 14-1/2	1800
10-F	FTA210	FTA310	FTA410	FTC029	14 x 19-5/8 x 14-1/2	3300
12-F	FTA212	FTA312	FTA412	FTC014	14 x 19-5/8 x 21-1/2	4700



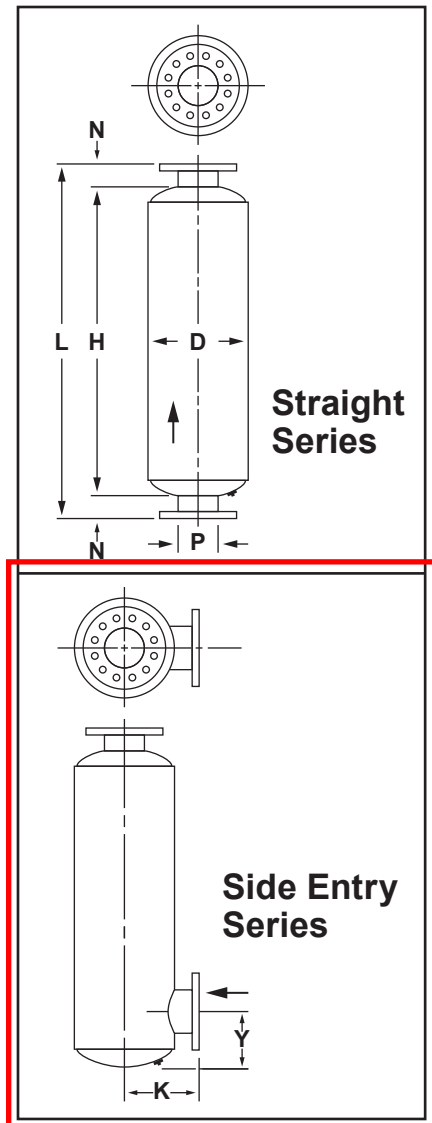
CHAMBER SILENCER



The Chamber Discharge Silencer is a heavy-duty, all welded unit constructed of carbon steel sheet and plate. It provides pulse control and silencing adequate for most sub-critical PLV applications. Sizes 4" and larger are equipped with flanged connections drilled to 125/150 lb. ANSI specifications. Smaller sizes are standard with male threaded pipe nipples. Exterior surfaces receive a shop coat of rust inhibitive primer and may be finish painted in the field if desired. The Straight Series is the basic end inlet/end outlet configuration. A low side inlet version is designated the Side Entry Series. The two types are fundamentally alike and the performance is identical. Mounting brackets and other options are available.

P (SIZE)	D	L	N	H	K	SIDE ENTRY		WGT.
						MIN.	MAX.	
1	4½	21	2	17	—	—	—	10
1½	6½	24	2	20	—	—	—	15
2	8	33	3	27	7	FIXED AT 6		20
2½	10	34	3	28	8	FIXED AT 7		30
3	10	46	3	40	8	FIXED AT 7		40
3½	12	52	3	46	9	FIXED AT 8		55
4	14	53	3	47	10	6	22	70
5	16	65	3	59	11	6½	29	120
6	18	72	3	66	12	8	32	160
8	22	97	3½	90	14½	9	48	370
10	26	122	3½	115	16½	11	63½	550
12	30	135	3½	128	18½	12½	69	800
14	36	161	3½	154	21½	14½	81	1250
16	42	181	3½	174	24½	16½	92½	1600
18	48	188	3½	181	27½	18½	98	2300
20	48	202	4½	193	28½	19½	103	2500
22	54	204	4½	195	31½	21½	103	2950
24	54	239	4½	230	31½	22½	126	3450
26	60	259	4½	250	34½	25	132	4400
28	66	279	4½	270	37½	27	144	6150
30	72	304	4½	295	40½	29	161	7250

Dimensions in inches, weight in lbs. NOTE: Dimensions and weights are nominal and may vary slightly with production models. Request certified drawings of specific models for exact dimensions.



Antioch, IL | 800.658.0198 | www.HardyProAir.com

METRASPHERE — STANDARD

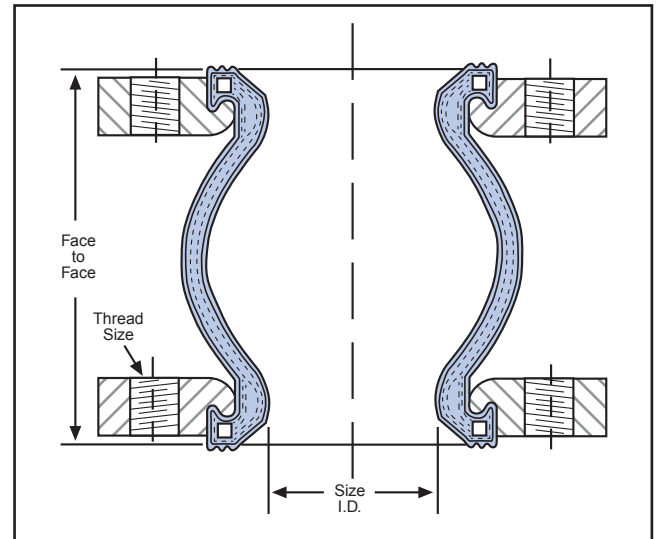
FEATURES

The Metrasphere is the most widely applied expansion joint/flexible connector in the industry today and is available with an EPDM, Viton or Nitrile body.

It provides the greatest pressure, temperature and movement, at a very reasonable cost. The Metrasphere's resiliency also helps control pulsation shocks and noise transmission.

The spherical shape allows pressure to exert itself uniformly in all directions, thus reducing the force exerted on pipe lines and equipment. Bias-ply tire cord provides strength, a high safety factor, and low force to move. Precision molding provides a dense, uniform carcass.

Solid plate steel flanges grip the sealing area and provide a fluid tight connection. All flanges are tapped or drilled to mate with 150# or 300# companion flanges. The tapped bolt holes and rotatable flanges make installation easy. The arch is self-cleaning, thus eliminating the need for filled arch when solids are present in the stream.



JOINT SIZE I.D. (in.)	FACE-TO-FACE (in.)	PRESSURE VACUUM		TEMPERATURE (°F)		MOVEMENT CAPABILITY						THREAD SIZE (in.)	GROSS WT. (lbs.)	
		(PSI)	(In. Hg)	MIN	MAX	COMPRESSION (in.)		ELONGATION (in.)		LATERAL (in.)				ANGULAR (Degrees)
	STYLE R					STYLE O	STYLE R	STYLE O	STYLE R	STYLE O	STYLE R			
1	-	225	16	-20	230	1/4	-	3/32	-	1/4	-	15	1/2 - 12NC	5
1 1/4	-	225	16	-20	230	1/4	-	3/32	-	1/4	-	15	1/2 - 12NC	6
1 1/2	-	225	16	-20	230	1/4	-	3/32	-	1/4	-	15	1/2 - 12NC	7
2	6	225	16	-20	230	3/8	1/2	1/4	3/8	3/8	1/2	15	5/8 - 11NC	8
2 1/2	6	225	16	-20	230	1/2	1/2	1/4	3/8	3/8	1/2	15	5/8 - 11NC	13
3	6	225	16	-20	230	1/2	1/2	1/4	3/8	3/8	1/2	15	5/8 - 11NC	14
4	6	225	16	-20	230	3/4	5/8	3/8	3/8	1/2	1/2	15	5/8 - 11NC	18
5	6	225	16	-20	230	3/4	5/8	3/8	3/8	1/2	1/2	15	3/4 - 10NC	23
6	6	225	16	-20	230	3/4	5/8	3/8	3/8	1/2	1/2	15	3/4 - 10NC	28
8	6	225	16	-20	230	1	5/8	1/2	3/8	7/8	1/2	15	3/4 - 10NC	40
10	8	225	16	-20	230	1	3/4	1/2	1/2	7/8	3/4	15	7/8 - 9NC	68
12	8	225	16	-20	230	1	3/4	1/2	1/2	7/8	3/4	15	7/8 - 9NC	94
14	-	125	16	-20	230	-	1	-	5/8	-	7/8	15	1 1/8-HOLE	105
16	-	125	16	-20	230	-	1	-	5/8	-	7/8	15	1 1/8-HOLE	120
18	-	125	16	-20	230	-	1	-	5/8	-	7/8	15	1 1/4-HOLE	125
20	-	125	16	-20	230	-	1	-	5/8	-	7/8	15	1 1/4-HOLE	145



PRESSURE RELIEF VALVES-SPRING TYPE

Model 215V is non-code vacuum relief. PED certified for non-hazardous gas.

Model 337 is ASME Section VIII Air/Gas "UV" National Board Certified Safety Valve. PED certified for non-hazardous gas.



Model 215V

Model Descriptions

Model 337: has "lift-pin" lift device for easy manual testing

Model 215V: seal cap for vacuum service

All adjustments are factory sealed to help prevent tampering or disassembly

Option

- Stainless Steel (SS) trim (nozzle and disc) (variation 03)

Features

- Large nozzle design provides high capacity
- Flat bronze valve seats are lapped for optimum performance
- Worn ring offers easy adjustability for precise opening with minimum preopen or simmer
- Pivot between disc and spring corrects misalignment and compensates for spring side thrust
- Each valve is tested and inspected for pressure setting and leakage



Model 337

Technical Data

Vacuum Limits

Model 215V:
2" Hg to 29" Hg (67.7 to 982 mbarg)
-20° to 406°F (-29° to 208°C)

Code: 

Pressure and Temperature Limits

Model 337:
1 to 60 psig (0.07 to 4.1 barg)
-20° to 406°F (-29° to 208°C)

Code:  

Note:

1. ASME Valves made from cast iron; A126 may not be used for lethal or flammable service.

Applications

- Protection of low to medium pressure high volume blowers, compressors and pneumatic conveying systems
- Bulk hauling trailers/equipment
- Light gauge tanks
- Protection of high volume vacuum pumps and conveying systems

PRESSURE RELIEF VALVES-SPRING TYPE

Parts and Materials

Models 215V and 337			
No.	Part Name	215V	337
1	Nozzle ¹	Bronze, SB62 or Brass B283-C48500	Bronze, SB62 or Brass B283-C48500
2	Set Screw	Steel A108-1018 Brass Plated	Steel A108-1018 Brass Plated
3	Regulator Ring	Bronze B584 Alloy 84400	Bronze B584-C84400
4	Disc ¹	Bronze B584 Alloy 84400	Bronze B584-C84400
5	Spring Step	Steel A-109 Coated ³	Steel A-109 Coated ³
6	Spring	SS, A313 TY 302	SS A313-302
7	Body	Cast Iron A-126, CL A or B	Iron A-126, CL A or B
8	Compression Screw	Bronze, B-584 Alloy 84400	Bronze, B584-C84400
9	Stem ²	N/A	Brass B16
10	Lift Pin ²	N/A	Steel, Zinc Plated
11	Regulator Ring Set Screw	N/A	Brass B16
12	NPT Drainplug	Steel A108-1018	N/A

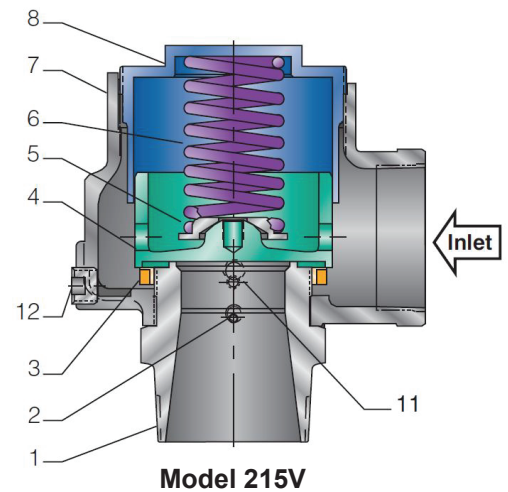
Specifications						
Size Inlet and Outlet	Dimensions, in [mm]					
	A	B	C 215V	C 337	lb [kg]	
2" [50.8mm]	3¼ [82.5]	3 [76.2]	6½ [165.1]	7 [177.8]	8 [3.6]	
2½" [63.5mm]	3¾ [95.2]	3½ [88.9]	7⅞ [194.6]	8 [203.2]	12 [5.4]	
3" [76.2mm]	4¼ [107.9]	4 [101.6]	8½ [215.9]	9 [228.6]	10 [9.07]	

Dimensions are for reference only.

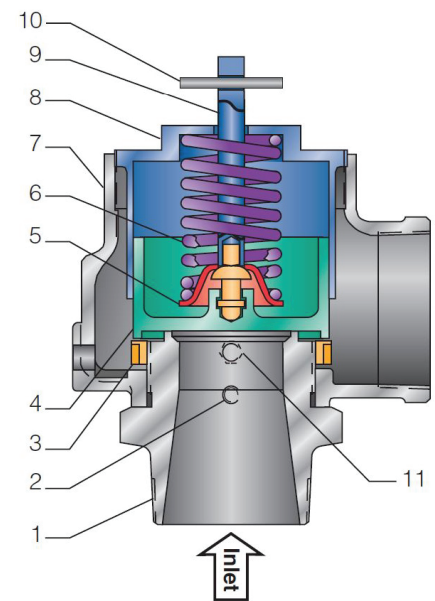
Capacities

Model 337, Non-code ¹ and ASME Section VII Air (SCFM)				Model 215V, Non-code Vacuum Air (SCFM)			
Set Pressure (psig)	Valve Inlet & Outlet Size			Relief Set (in, HG)	Valve Inlet & Outlet Size		
	2"	2½"	3"		2"	2½"	3"
	Orifice Area, in ²				Orifice Area, in ²		
1	1.915	2.79	4.04	2	1.915	2.79	4.04
5	531	805	1166	5	229	347	503
10	741	1124	1628	10	338	512	742
15	948	1436	2081	15	415	630	912
20	1092	1656	2399	20	426	646	936
25	1237	1875	2718	25	426	646	936
30	1382	2095	3036	29	426	646	936
35	1542	2337	3386				
40	1701	2578	3736				
45	1860	2820	4086				
50	2020	3061	4436				
55	2179	3303	4786				
60	2338	3544	5136				

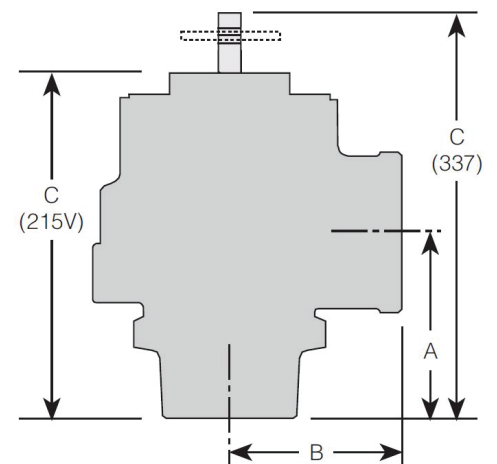
NOTE: 1. No code stamp or "NB" on nameplate below 15 psig set.



Model 215V

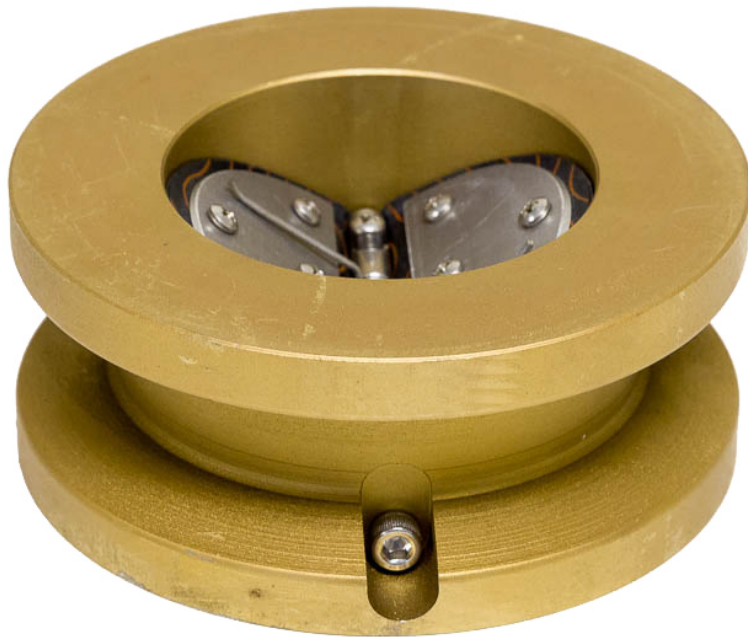


Model 337



Antioch, IL | 800.658.0198 | www.HardyProAir.com

WAFER STYLE CHECK VALVES



We make high-performance check valves that will double your Cv.¹ If you are looking for the lowest possible pressure loss then our resilient hinged double disc valves are what you need.

Durable

Our unique, air-foil designed wing support conditions the flow profile, resulting in a more laminar, less turbulent flow, thus extending the life of the valve. Our valves consistently out-perform all other products on the market today.

Low Maintenance

A protective coating secures our valves against normal atmospheric corrosion and enhances appearance, making priming and painting unnecessary.

Reliable

Each of our valves is individually inspected and tested to ensure performance. Most manufacturers will check only random valves. We test every single one.

Highest Quality

Our designs specify the finest materials engineered specifically for each application. We manufacture all our valves with forged wing supports for superior strength against linear loads, and all wing pins and fasteners are made of 316 stainless steel.

Every component is manufactured entirely by U.S. Valve. We control the quality, we control delivery and we keep our prices down.

In Stock

We stock a vast inventory of valves, so most sizes and materials can ship the same day.

Standard Wafer Models and Materials*

Model	Body	Discs	Wing Support	M.O.P.#
09-0-0	Aluminum ASTM B26 319 or 355 (Solid Body)	Aluminum ASTM B209 6061T6	Forged Aluminum 6061	50 PSI
09-1-0	Carbon Steel ASTM A216Gr.WBC (Solid Body)	Aluminum ASTM B209 6061T6	Forged Aluminum 6061	150 PSI
09-1-4	Carbon Steel ASTM A216Gr.WBC (Solid Body)	Stainless Steel ASTM A240 316	Forged Stainless Steel 316	150 PSI
09-2-0	Cast Iron ASTM 126 Gr.B	Aluminum ASTM B209 6061T6	Forged Aluminum 6061	125 PSI
09-2-3	Cast Iron ASTM 126 Gr.B	Brass ASTM B36 C260	Forged Brass ASTM B124 C377	125 PSI
09-2-4	Cast Iron ASTM 126 Gr.B	Stainless Steel ASTM A240 316	Forged Stainless Steel 316	125 PSI
09-3-3	Brass ASTM B62 Alloy C836 (Solid Body)	Brass ASTM B36 C260	Forged Brass ASTM B124 C377	150 PSI
09-4-4	Stainless Steel Gr. 316 (Solid Body)	Stainless Steel ASTM A240 316	Forged Stainless Steel 316	150 PSI

*All fasteners and spring pins are 316 stainless steel. BUNA-N is standard seal in all valves. Optional seal materials: EPDM, SILICONE, VITON. 316 stainless steel springs are optional for all models. Consult factory for any other special material requirements.

#Max Operating Pressure at 60°F.

¹ The Cv of our high-performance check valves is almost twice that of conventional, metallic-hinge, double door check valves for sizes 2" through 4" and approximately 25% more for sizes 16" through 24".

ELASTOMER SEAL		
Code	Material	Temp. Range
B	Buna N	-60°F to 225°F
E	EPDM	-40°F to 300°F
V	Viton	-20°F to 450°F
S	Silicon	-100°F to 500°F
T	Teflon	-20°F to 450°F



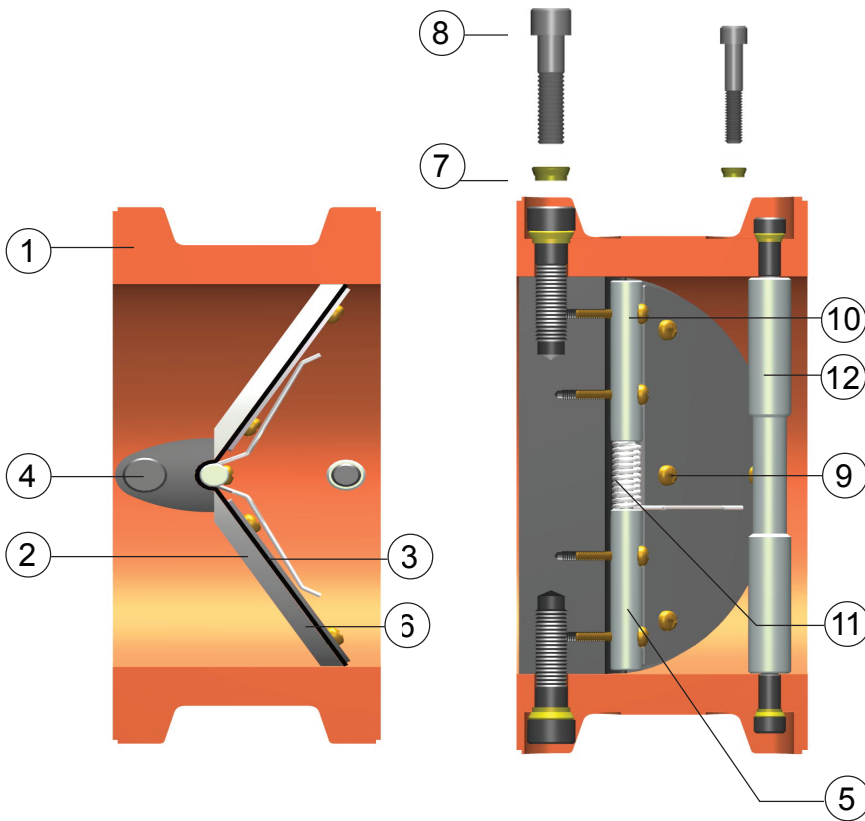
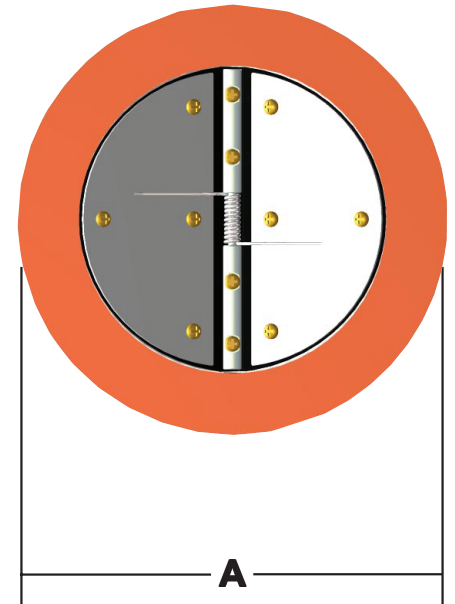
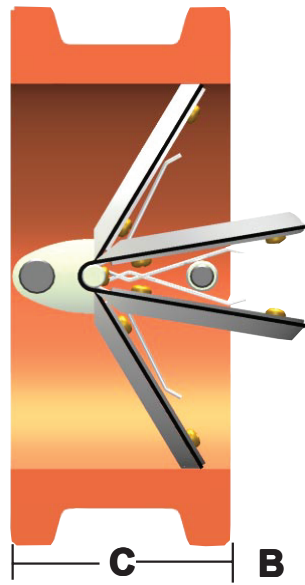
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WAFER STYLE CHECK VALVES

Dimensional Data: (inches)

Valve size	A	B	C*
1½	3.3	0.3	1.4
2	4.1	0.5	1.6
2½	4.7	0.6	1.6
3	5.3	0.7	2.3
4	6.7	0.9	2.4
5	7.7	1.1	2.9
6	8.7	1.5	3.4
8	11.0	2.3	4.4
10	13.3	2.5	5.4
12	16.1	3.0	6.4
14	17.7	3.3	7.4
16	20.2	3.8	8.4
18	21.6	4.3	9.4
20	23.7	4.8	10.4
24	28.2	5.8	12.4

Consult factory for larger sizes. *All "C" dimensions ±.060"



Parts and Description:

Item	Description
①	Body
②	Disc
③	Disc Backup
④	Wing Support
⑤	Wing Pin
⑥	Seal
⑦	Sealing Washer
⑧	Wing Support Screw
⑨	Disc Assembly Screw
⑩	Wing Assembly Screw
⑪	Spring (Optional)
⑫	Limiter (5" valves & larger)

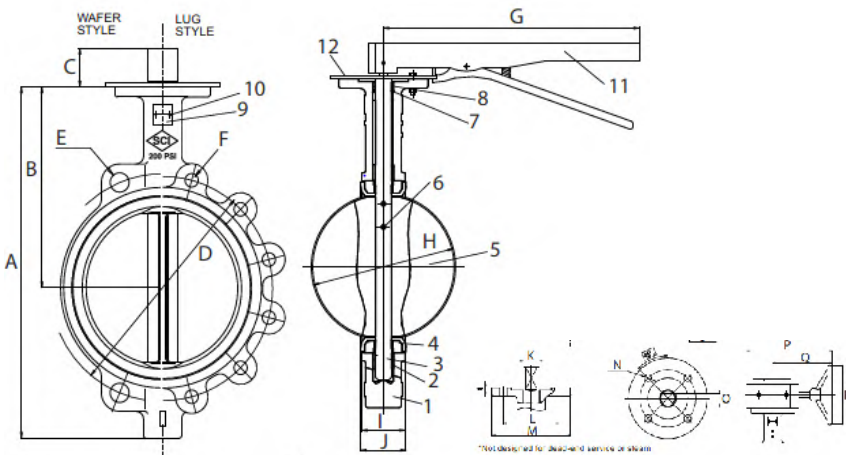
BUTTERFLY VALVES



- Wafer Body - Cast Iron
- Lug Body - Ductile Iron
- 200 psi 2"-12" / 150 psi 14"-16"
- Buna-N Seat up to 180°F/82°C
- EPDM Seat up to 220°F/104°C
- Stainless steel stem
- Disc: ductile iron-nickel plated, aluminum bronze or stainless steel
- Phenolic backed cartridge seat
- 24", 36", 48", 60" & 72" extensions
- Fusion bonded epoxy coating
- MSS SP-67/API 609
- ISO 9001:2008 factory
- Installs between ANSI Class 125/150 flanges
- Top flange: ISO 5211
- Not designed for dead-end or steam service

Size IN	Torque				Wafer Weight		Lug Weight	
	75 psi IN / LB	100 psi IN / LB	150 psi IN / LB	200 psi IN / LB	Lever LB	Gear LB	Lever LB	Gear LB
2	135	140	160	170	6.6	18.7	11.5	22.7
2-1/2	145	150	170	190	8.2	20.3	12.3	23.6
3	225	230	240	260	9.0	21.2	12.8	24.0
4	370	390	410	450	11.9	24.0	22.0	33.3
5	570	600	650	690	17.2	28.7	28.7	39.9
6	890	940	1,040	1,100	19.0	30.4	31.1	42.3
8	1,600	1,700	1,900	2,100	32.0	47.8	48.1	61.7
10	2,560	2,760	3,160	3,500	48.5	60.6	70.1	83.8
12	3,800	4,100	4,750	5,400	80.5	112.0	113.0	147.7
14	4,800	5,150	6,000	-	-	134.0	-	199.0
16	6,250	7,000	8,300	-	-	181.0	-	265.0

No.	Part	Material
1	Wafer Body	Cast Iron ASTM A126
1	Lug Body	Ductile Iron ASTM A536
2	Bushing	PTFE
3	Stem	ASTM A582 SS416; ASTM A276 SS316 w/ SS316 Disc
4	Liner	Buna-N or EPDM
5	Disc	Aluminium Bronze ASTM C954; Ductile Iron Nickel Plated ASTM A536; SS316 / CF8M ASTM A276
6	Taper Pin	SS316 ASTM A276
7	O-ring	Buna-N or EPDM
8	Bushing	PTFE
9	Plate Rivet	Aluminium
10	Name Plate	Aluminium
11	Handle	Malleable Iron



Size IN	A IN	B IN	C IN	D IN	E IN	F	G IN	H IN	I IN	J IN	K IN	L IN	M IN	N IN	O IN	P IN	Q IN	R IN	Cap Screw
2	9.5	6.3	1.3	4.75	0.75	4 x 5/8"-11 UNC	10.5	2.1	1.7	1.8	0.50	1.97	2.6	0.28	0.40	7.9	5.8	5.9	1.25
2-1/2	10.4	6.9	1.3	5.50	0.75	4 x 5/8"-11 UNC	10.5	2.5	1.8	1.9	0.50	1.97	2.6	0.28	0.40	7.9	5.8	5.9	1.50
3	10.9	7.1	1.3	6.00	0.75	4 x 5/8"-11 UNC	10.5	3.1	1.8	1.9	0.50	1.97	2.6	0.28	0.40	7.9	5.8	5.9	1.50
4	12.4	7.9	1.3	7.50	0.75	8 x 5/8"-11UNC	10.5	4.1	2.1	2.2	0.62	2.76	3.5	0.39	0.47	7.9	5.8	5.9	1.75
5	13.4	8.4	1.3	8.50	0.88	8 x 3/4"-10UNC	10.5	4.9	2.1	2.3	0.74	2.76	3.5	0.39	0.55	7.9	5.8	5.9	1.75
6	14.4	8.9	1.3	9.50	0.88	8 x 3/4"-10UNC	10.5	6.1	2.2	2.3	0.74	2.76	3.5	0.39	0.55	7.9	5.8	5.9	2.00
8	17.1	10.2	1.6	11.75	0.88	8 x 3/4"-10UNC	14.1	8.0	2.4	2.5	0.87	4.02	4.9	0.47	0.66	12.4	9.4	11.8	2.25
10	19.5	11.5	1.6	14.25	1.00	12 x 7/8"- 9UNC	14.1	9.9	2.6	2.8	1.12	4.02	4.9	0.47	0.86	12.4	9.4	11.8	2.25
12	22.8	13.3	1.6	17.00	1.00	12 x 7/8"- 9UNC	14.1	11.9	3.0	3.2	1.24	4.02	4.9	0.47	0.94	12.2	8.9	11.8	2.50
14	25.0	14.5	1.8	18.75	1.12	12 x 1"- 8UNC	n/a	13.1	3.0	3.1	1.24	4.02	4.9	0.47	0.94	12.2	8.9	11.8	2.50
16	27.9	15.7	2.0	21.25	1.12	12 x 1"- 8UNC	n/a	15.3	3.4	3.5	1.31	5.51	6.9	0.71	1.10	15.7	10.6	11.8	2.50



TEMPERATURE GAUGES



FEATURES/BENEFITS

- *Reliable and accurate temperature sensor*
- *Heavy-Duty Process Grade Design*
- *Standard External Reset for Calibration*
- *Silicone Fillable for Vibration*
- *Requires no Electricity or Wiring*
- *Available in Panel Mount and Direct Mount Configuration*

SPECIFICATIONS

Accuracy	$\pm 1\%$ Full Scale (ASME B40.30)
Dial Size	3" (Standard), 4" or 5" - Direct Mount 2-1/2" (Standard), 3-1/2" or 4-1/2" - Panel Mount
Dial Material	Black marks on satin matte aluminum finish, Hi-Visibility, or White dial
Temperature Range	50° to 500° F (Direct Mount), 100° to 300° F (Panel Mount)
Stem Length	4" (Direct Mount), 2-5/8" (Panel Mount)
Stem Diameter	1/2"
Head, Bezel, Stems Mounting Bushing,	300 Series SS, 316SS (Optional)
Operating Conditions	Head temperature should not exceed 200 F (150 F if silicone filled). Stem should not be exposed to continuous temperatures exceeding 50% over range or 800 F (550 F if silicone filled).
Environmental Protection	IP67, NEMA 6 Rated (Hermetically sealed per ASME B40.3)
Lens	Glass (Standard), Acrylic, Polycarbonate, Laminated Safety Glass or Tempered Glass
Immersion	Minimum 2" in liquid, and 4" in gas for most ranges. Certain ranges require up to 4" in liquids & 5" in gas.
Mounting Connection	1/2" NPT (Standard), 1/4" NPT

PART NO.

GAG010	Panel Mount
GAG012	Direct Mount

PRESSURE/VACUUM GAUGES



APPLICATIONS

HPA pressure/vacuum gauge is an economical choice where ambient corrosion and vibration are of concern. Its stainless-steel case and ring offer excellent corrosion resistance, and is filled for vibration or pulsation applications. Suitable for all fluids compatible with copper alloys.

FEATURES/BENEFITS

- Stainless Steel Case
- Copper Alloy Wetted Parts
- Glycerin Filled
- Convenient Panel Mounting Adapters
- Panel Mount

SPECIFICATIONS

Case	304 Stainless Steel
Ring	304 Stainless Steel Crimped (Bayonet Avail.)
Lens	Plastic (Glass for Bayonet Case)
Dial	White Aluminum, Black Figures on White Background
Dial Diameter	2.5" (Standard), 3.5" and 4"
Wetted Parts	Copper Alloy w/ Restrictor Screw
Temperature Limit	0 to 250 °F
Accuracy	1.0% Full Scale
Pressure Range	0-15 PSI
Vacuum Range	30 to 0 inHg.

PART NO.

GAG006	Pressure
GAG009	Vacuum

AIR FILTER INDICATOR



HOW IT WORKS

The graduated indicator monitors the differential across an air filter. The position indicator progressively fills the window as air filter restriction increases, locking at the highest restriction. The air filter should be changed when the position indicator reaches the red zone and reset whenever a new air filter is installed. The indicator is equipped with a resettable push button.

SPECIFICATIONS

Range	0 to 20 in. H ₂ O
Operating Temperature	-40 to 250 °F (-40 to 121°C)
Standard Calibration	8–35" water vacuum (2-8.7 kPa) at the Red Zone
Accuracy	±10% at Red Zone
Material	Polycarbonate Housing

PART NO.

GAG001	Panel Mount
GAG002	Direct Mount



22mm XW E-Stops

Key features:

- The depth behind the panel is only 48.7 mm for 1 to 4 contacts (with terminal cover) for illuminated and non-illuminated units.
- IDEC's original "Safe break action" ensures that the NC contacts open when the contact block is detached from the operator.
- 1 to 4NC main contacts and 1 or 2NO monitor contacts
- Push-to-lock, Pull or Turn-to-reset operator
- Safety lock mechanism (IEC60947-5-5, 6.2)
- Degree of protection IP65 (IEC60529)
- Fingersafe (IP20) terminals
- Two button sizes: $\varnothing 40$ and $\varnothing 60$ mm
- Push-ON illumination type available (40mm mushroom head)
- Direct opening action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- RoHS compliant (EU directive 2002/95/EC).
- UL c-UL listed. EN compliant
- UL NISD category emergency stop device (File #E305148)



UL File #E68961



CCC No. 2005010305150897



Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL508, CSA C22.2 No. 14
Operating Temperature	Non-illuminated: -25 to +60°C (no freezing), Illuminated: -25 to +55°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-45 to +80°C
Operating Force	Push-to-lock: 32N Pull-to-reset: 21N Turn-to-reset: 0.27N·m
Minimum Force Required for Direct Opening Action	80N
Min Operator Stroke Required for Direct Opening Action	4mm
Maximum Operator Stroke	4.5mm
Contact Resistance	50mΩ maximum (initial value)
Contact Material	Gold plated silver
Insulation Resistance	100MΩ minimum (500V DC megger)
Impulse Withstand Voltage	2.5kV
Pollution Degree	3
Operation Frequency	900 operations/hour
Shock Resistance	Operating extremes: 150m/s ² (15G), Damage limits: 1000m/s ² (100G)
Vibration Resistance	Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ²
Mechanical Life	250,000 operations minimum
Electrical Life	100,000 operations minimum, (250,000 operations minimum @ 24V AC/DC, 100mA)
Degree of Protection	Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed)
Terminal Style	M3.0 screw terminal
Recommended Tightening Torque for Locking Ring	2.0N·m
Wire Size	16 AWG max
Weight	$\varnothing 40$ mm: 72g $\varnothing 60$ mm: 81g

Part Numbers

Overview




X Series E-Stops

Door Interlock Switches

Enabling Switches

Barriers

AS-Interface Safety at Work

Illumination	Operator Type	Monitor Contact	Main Contact	Part Number	
Non-Illuminated 	40mm Mushroom	1NO	1NC	XW1E-BV411M-R	
		-	2NC	XW1E-BV402M-R	
		2NO	2NC	XW1E-BV422M-R	
		1NO	3NC	XW1E-BV413M-R	
		-	4NC	XW1E-BV404M-R	
		60mm Mushroom	1NO	1NC	XW1E-BV511M-R
			-	2NC	XW1E-BV502M-R
			2NO	2NC	XW1E-BV522M-R
			1NO	3NC	XW1E-BV513M-R
			-	4NC	XW1E-BV504M-R
Illuminated ¹ 	40mm Mushroom LED with built-in 24V AC/DC LED	1NO	1NC	XW1E-LV411Q4M-R	
		-	2NC	XW1E-LV402Q4M-R	
		2NO	2NC	XW1E-LV422Q4M-R	
		1NO	3NC	XW1E-LV413Q4M-R	
		-	4NC	XW1E-LV404Q4M-R	
	40mm Mushroom Push-ON LED ²	1NO	2NC	XW1E-TV412Q4M-R	



1. The light is independent of the position of the switch, except for push-on LED type.
2. The light only operates when the switch is pressed (as it is internally wired).

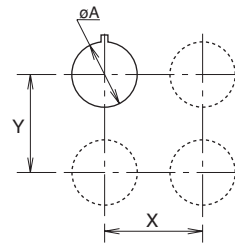
Contact Ratings

Rated Insulation Voltage (Ui)		250V				
Current (Ith)		5A				
Rated Operating Voltage (Ue)		30V	125V	250V		
Rated Operating Current	Main Contacts (NC)	AC 50/60Hz	Resistive Load (AC-12)	–	5A	3A
			Inductive Load (AC-15)	–	3A	1.5A
	DC	Resistive Load (DC-12)	2A	0.4A	0.2A	
		Inductive Load (DC-13)	1A	0.22A	0.1A	
Rated Operating Current	Monitor Contacts (NO)	AC 50/60Hz	Resistive Load (AC-12)	–	1.2A	0.6A
			Inductive Load (AC-14)	–	0.6A	0.3A
	DC	Resistive Load (DC-12)	2A	0.4A	0.2A	
		Inductive Load (DC-13)	1A	0.22A	0.1A	



Minimum applicable load: 5V AC/DC, 1mA (reference value).
The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

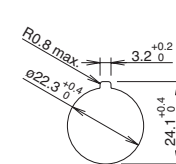
Mounting Hole Layout



Measurements

Size	øA	X & Y
40mm	22.3 ^{+0.4}	70mm min

Panel Cutout



Part Numbers Key

XW1E - L V 4 11 Q4M - R

Illumination

- B: Non-Illuminated
- L: Illuminated LED
- T: Illuminated Push-ON LED

Mushroom Size

- 4: ø40mm
- 5: ø60mm (non-illuminated only)

Contact Configuration

- 11: 1NO - 1NC
- 02: 2NC
- 13: 1NO - 3NC
- 04: 4NC
- 22: 2NO-2NC
- 12: 1NO-2NC (Push-ON LED only)

Voltage Code

- Blank: Non-illuminated
- Q4: Illuminated 24V AC/DC

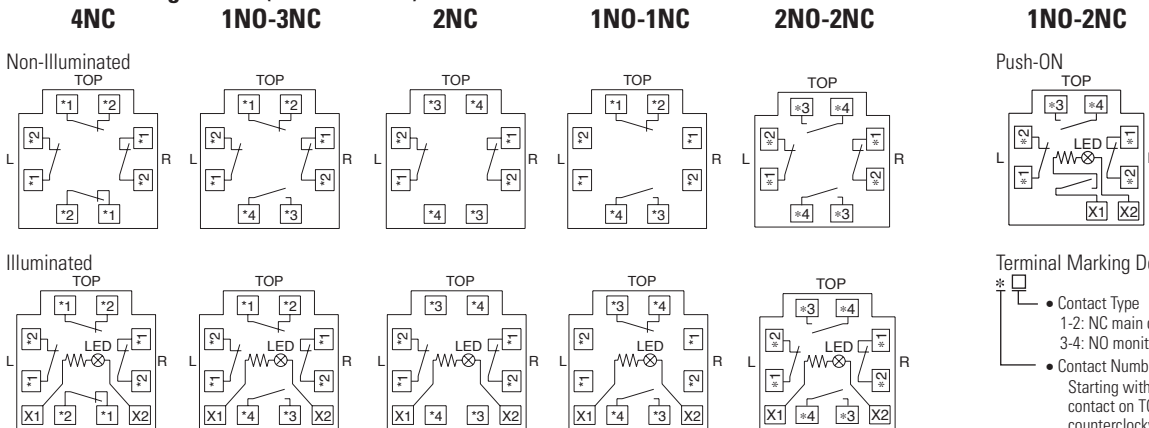
Illuminated Unit LED Ratings

Operating Voltage	Current
24V AC/DC ±10%	15mA

Depth Behind the Panel

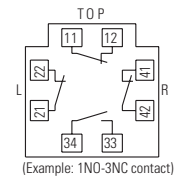
Depth (mm)	Description
48.7	1 - 4 contacts, both illuminated and non-illuminated

Terminal Arrangements (Bottom View)



Terminal Marking Description

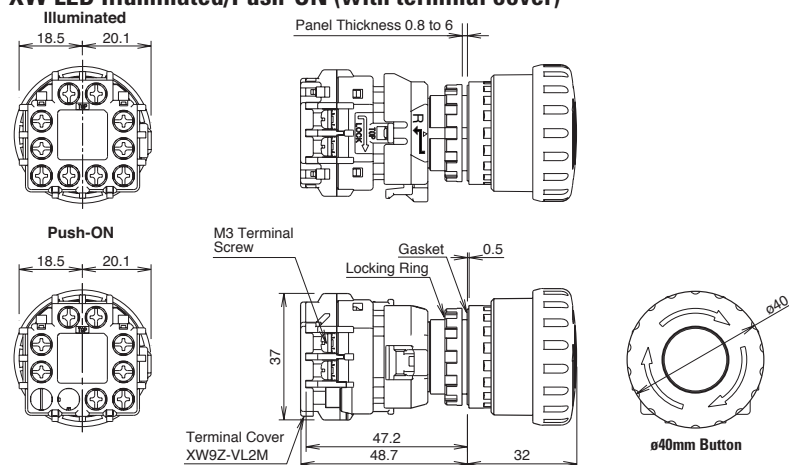
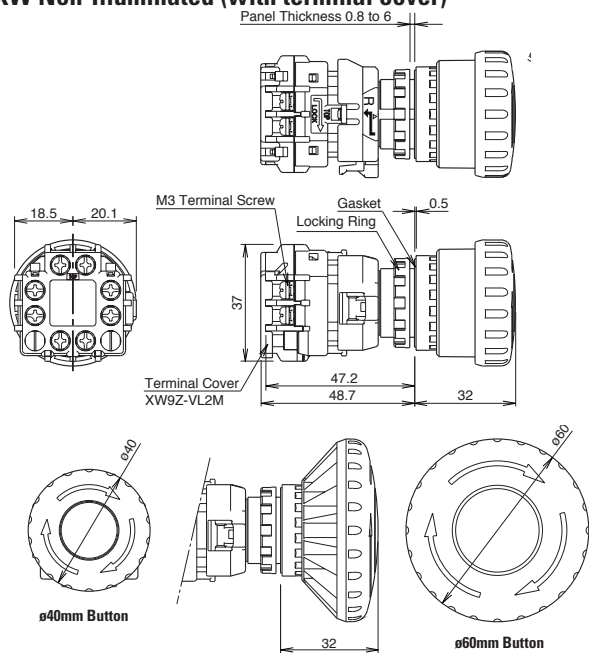
- Contact Type
 - 1-2: NC main contact
 - 3-4: NO monitor contact
- Contact Number (1-4)
 - Starting with the contact on TOP in a counterclockwise direction.
 - Note:
 - 1: contact on the TOP
 - 2: contact on the Left
 - 3: contact on the Bottom
 - 4: contact on the Right



Dimensions (mm)

XW Non-Illuminated (with terminal cover)

XW LED Illuminated/Push-ON (with terminal cover)



Accessories: Terminal Covers

Model	Description	Part Numbers
	Terminal Cover for contact block	XW9Z-VL2M
	IP20 Fingersafe Cover	XW9Z-VL2MF

Accessories: Shrouds

	Part Numbers	E-Stop Types	Applicable Standards
	HW9Z-KG1	40mm Mushroom Head	SEMI S2-0703, 12.5.1 Compliant
	HW9Z-KG2	40mm, and 60mm Mushroom Head	SEMI S2-0703, 12.5.1 & SEMATECH Compliant
	HW9Z-KG3	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV)
	HW9Z-KG4	40mm Mushroom Head	SEMI S2 Compliant (Approved by TUV) & SEMATECH

Accessories: Nameplates

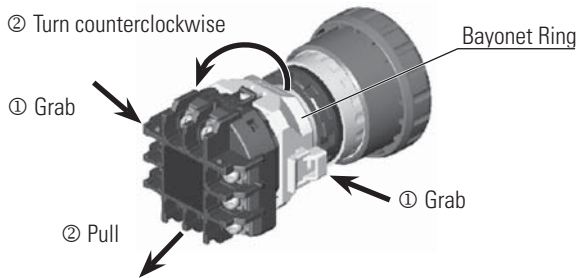
	Size and Style	Part Number	Inner Ø	Outer Ø
	22mm Blank ø60mm	HWAV-0	22mm	60mm
	22mm "Emergency Stop" ø60mm	HWAV-27	22mm	60mm
	22mm "Emergency Stop" ø80mm	HWAV5-0	22mm	80mm
	22mm blank ø80mm	HWAV5-27	22mm	80mm

Use 60mm nameplates for 40mm mushroom buttons and 80mm nameplates for 60mm mushroom buttons.

Operating Instructions

Removing the Contact Block

First unlock the operator button. Grab the bayonet ring ① and pull back the bayonet ring until the latch pin clicks ②, then turn the contact block counterclockwise and pull out ③.

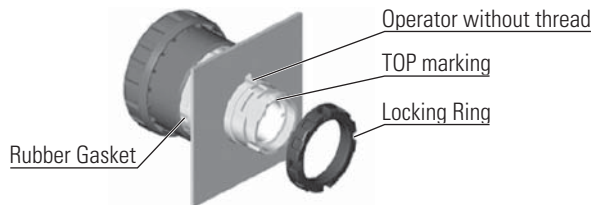


Notes for removing the contact block

1. When the contact block is removed, the monitor contact (NO contact) is closed.
2. While removing the contact block, do not exert excessive force, otherwise the switch may be damaged.
3. An LED lamp is built into the contact block for illuminated pushbuttons. When removing the contact block, pull the contact block straight to prevent damage to the LED lamp. If excessive force is exerted, the LED lamp may be damaged and fail to light.

Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side without thread on the operator with TOP marking upward, and tighten the locking ring using ring wrench MW9Z-T1 to a torque of 2.0 N·m maximum.

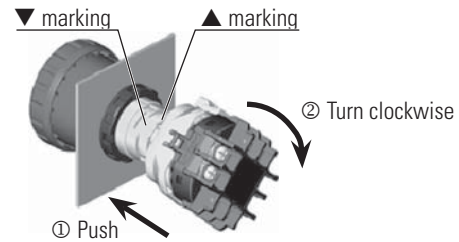


Notes for Panel Mounting

To prevent the XW emergency stop switch from rotating when resetting from the latched position, use of an anti-rotation ring (HW9Z-RL) or a nameplate is recommended.

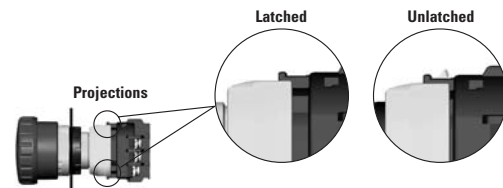
Installing the Contact Block

First unlock the operator button. Align the small t marking on the edge of the operator with the small s marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.



Notes for installing the contact block

Make sure that the bayonet ring is in the locked position. Check that the two projections on the bayonet ring are securely in place.



Wiring

The applicable wire size is 16 AWG maximum.

Operating Instructions, continued

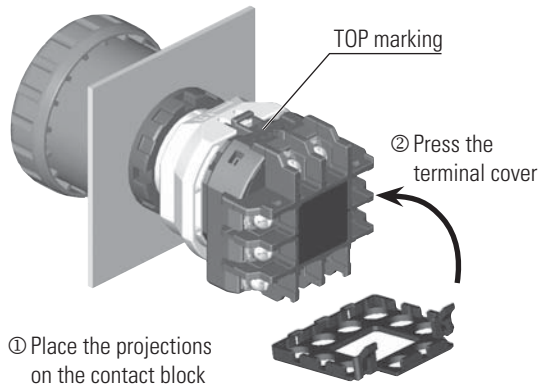
Screw Terminal

1. Wire thickness: AWG18 to 16
2. Tighten the M3 terminal screw to a tightening torque of 0.6 to 1.0 N·m.

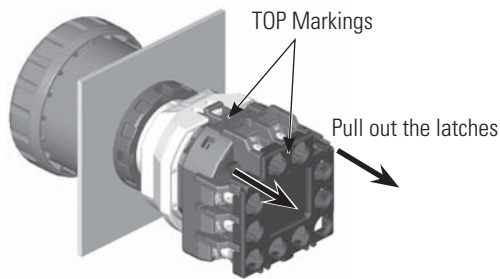
Installing and Removing Terminal Covers

XW9Z-VL2M

To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block. Place the two projections on the bottom side of the contact block into the slots in the terminal cover. Press the terminal cover toward the contact block.

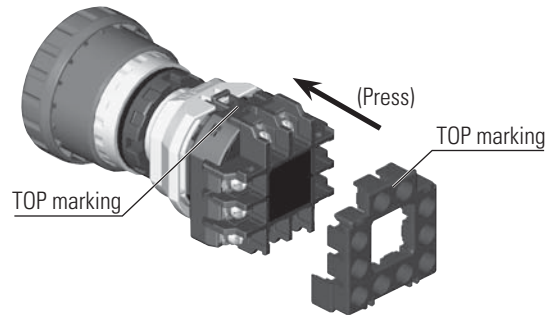


To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.



IP20 Protection Terminal Cover
XW9Z-VL2MF

To install the IP20 protection cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



1. Once installed, the XW9Z-VL2MF cannot be removed.
2. The XW9Z-VL2MF cannot be installed after wiring.
3. With the XW9Z-VL2MF installed, crimping terminals cannot be used.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 protection cannot be achieved when installed loosely, and electric shocks may occur.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.

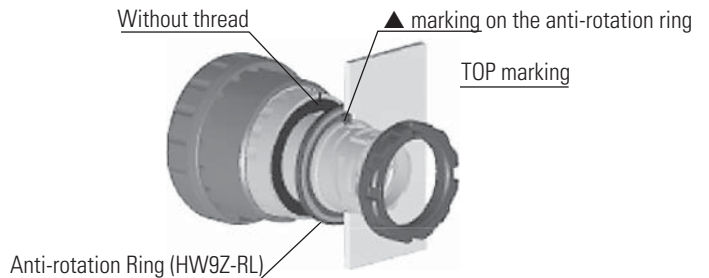
When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

LED lamp is built into the contact block and cannot be replaced.

Installing the Anti-rotation Ring
HW9Z-RL

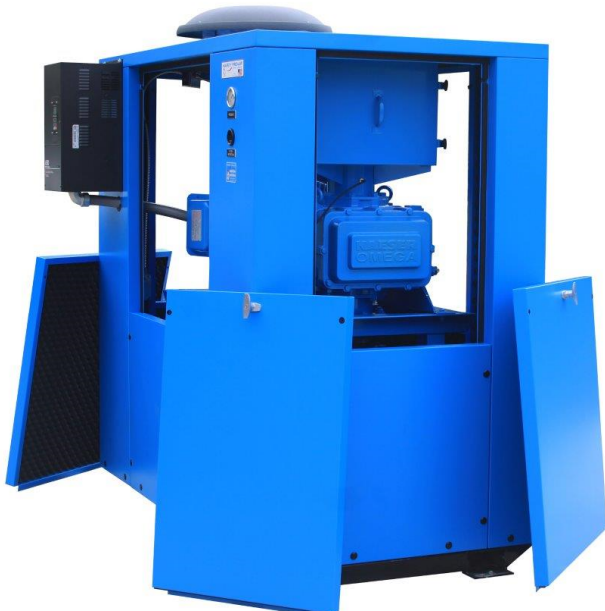
Align the side without thread on the operator with TOP marking, the small s marking on the anti-rotation ring, and the recess on the mounting panel.



SOUND ENCLOSURE

APPLICATION

HPA PRO-CLOSURES are sound attenuating enclosures designed to meet the most demanding needs of industry, taking into account environment, economics, and processes. The enclosures are available as engineered solution or as retro-fits for optimization of space.



FEATURES/BENEFITS

- Durable Powder Coated Carbon Steel Panel Design
- Panel Design also available in Galvannealed, Aluminum or Stainless Steel
- Easy Access for Maintenance
- Up to 18 dBA Free Field Noise Attenuation
- Acoustically Insulated Steel Sound Panels
- Locking Lift-Off Removable Doors on All Sides
- Walking In Doors Available for Larger Enclosures
- Convenient Quick Access Inlet Filter Silencer
- Vented Pressure Relief Valve
- Integral Gauge Panel
- Power Ventilation of Enclosure
- 2" Thick Mylar Coated Interior Sound Insulating Material, UL94 HF-1 Flammability
- Common Base w/ Integral Fork Slots
- Temperature Control Based on Heat Load Calculations
- Fork Slots



HARDY PRO-AIR
SYSTEMS & SERVICE

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VENTILATION FAN

SPECIFICATIONS

Airflow: 1500 CFM

Amperage: 1.65 A

Color Family: Granite

Horsepower: 1/9 hp

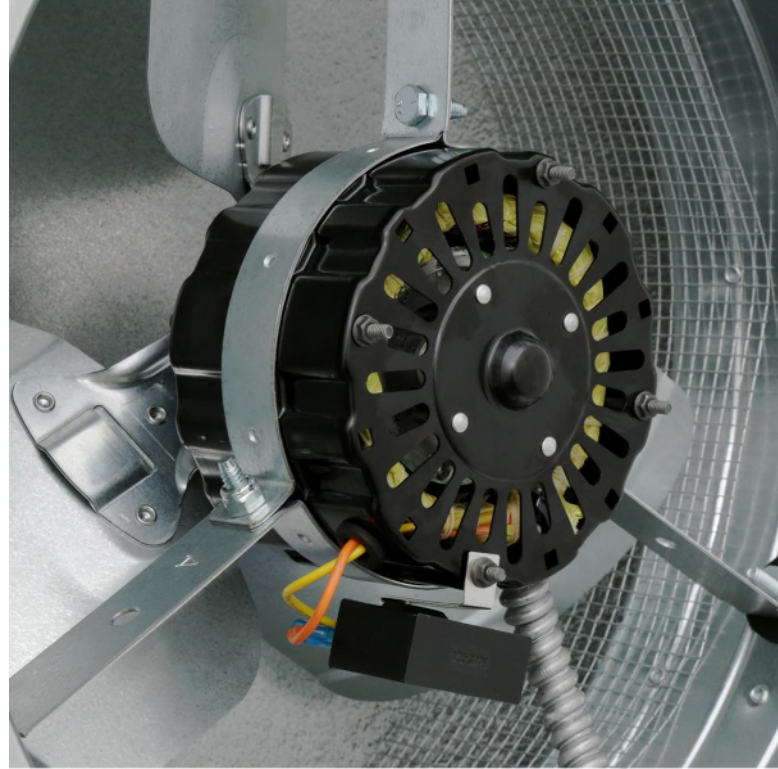
Material: Galvanized Steel

Mounting Position: Roof Mount

Weight: 17 lb.

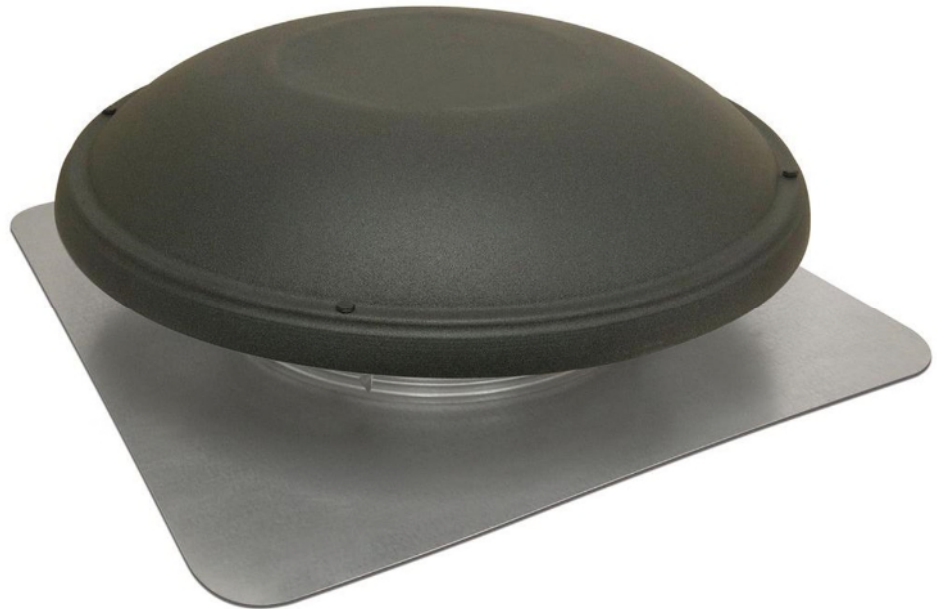
Voltage: 120 V

Wattage: 127 W

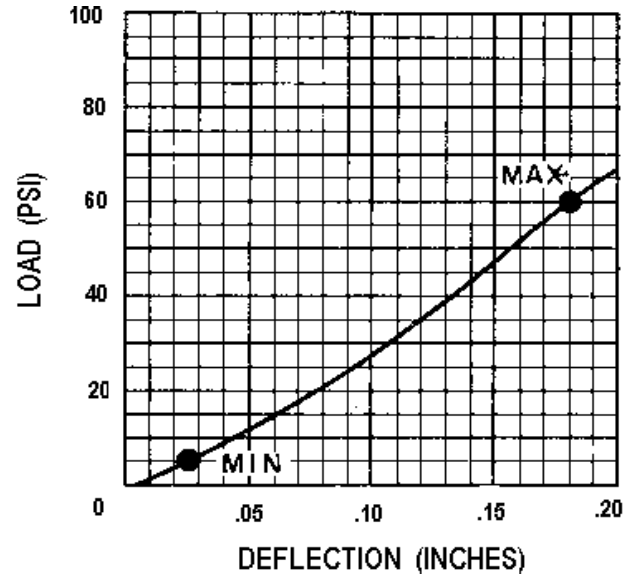
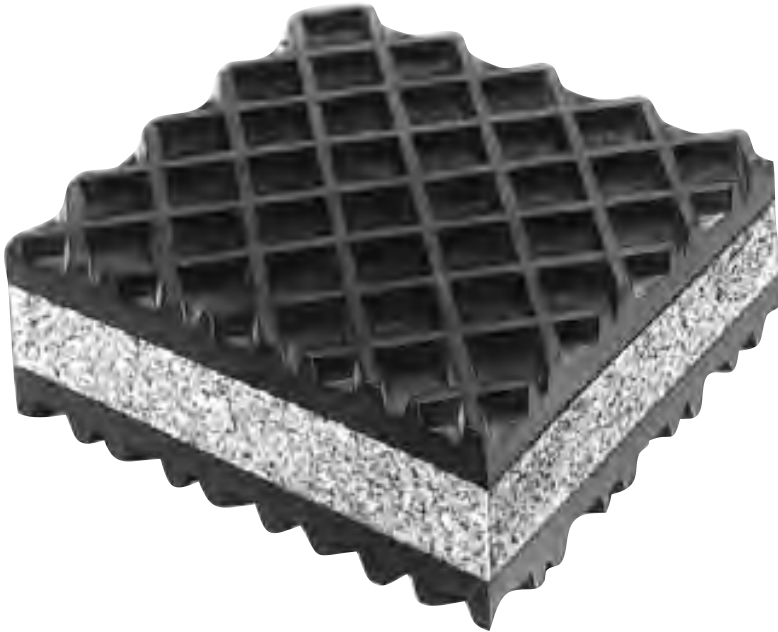


FEATURES

- Energy Efficient
- Heavy-Duty Built-In Internal Screen Protection
- Adjustable Thermostat
- UL Listed



VIBRATION PADS



APPLICATION

- * Wherever bolting is to be avoided and minor, non-critical vibration conditions exist. (pumps, motors, airconditioning units, generators etc.)
- * Recommended for acoustic problem applications.

NOTES

- * Material: Special Rubber + Low-Density Cork + Special Rubber
- * Maximum loading: 60 lbs/sq.in.
- * Working range: 15 to 55 lbs/sq.in.

FEATURES

- * Alternate High-Low Rib construction.
- * Excellent sound attenuation capability.
- * No bolting required.
- * Simple field installation.



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PAINT SPECIFICATION

SI no.	Equipment Name	Process	Specification	Standard/color code	Minimum DFT
1	Blower	Primer Coat	Pre-finished at Blower Factory		
		Surface Preparation	Hand clean equipment surfaces to be free of dirt, grease, oil, rust, water, mill scale, soap residue and wax.		
		Intermediate Coat		Carbit 3E11 – Gray See attached data	2.0 mils
		Finish Coat		Sherwin Williams SHER -KEM F75WC8 Hardy Blue – Safety Blue See attached data	2.0 mils
2	Frame, silencer & final blower package assembly	Surface Preparation	Hand clean equipment surfaces to be free of dirt, grease, oil, rust, water, mill scale, soap residue and wax.		
		Primer Coat		Carbit 3E11 – Gray See attached data	2.0 mils
		Intermediate Coat		N/A	
		Finish Coat		Sherwin Williams SHER -KEM F75WC8 Hardy Blue – Safety Blue See attached data	2.0 mils
3	Motor for Blower Package	Primer Coat	Pre-finished at Motor Factory		
		Surface Preparation	Hand clean equipment surfaces to be free of dirt, grease, oil, rust, water, mill scale, soap residue and wax.		
		Intermediate Coat		Carbit 3E11 – Gray See attached data	2.0 mils
		Finish Coat		Sherwin Williams SHER -KEM F75WC8 Hardy Blue – Safety Blue See attached data	2.0 mils



PAINT SPECIFICATION



CARBIT PRODUCT DATA

3E11 GRAY QUICK DRY R.I.
METAL PRIMER

CARBIT PAINT CO. • 927 W. Blackhawk St. • Chicago, IL 60622-2519 • (312)-280-2300 • FAX 312-280-7326 • www.carbit.com

DESCRIPTION	Alkyd phenolic rust inhibiting primer.
USE	3E11 is intended for use on structural steel and fabricated metal. It can be used under a wide range of topcoats including epoxies, urethanes, lacquers, alkyds, vinyls, and chlorinated rubber products. Fast drying, suitable for topcoating the same day. Also can be used as a barrier coat between conventional coatings and other specialized finishes. 3E11 contains a nontoxic rust inhibitor for corrosion protection.
APPLICATION	3E11 is supplied full bodied and may be reduced for spray application. Stir thoroughly before and during use. Apply at temperatures when the air, product, and surface temperatures are above 50° F (10°C) and at least 5° F (3°C) above the dew point. AIRLESS SPRAY: Binks 41-9550 Super Bee, 30:1 pump or equivalent. GUN: Binks Airless 1. TIP SIZE: .018", 1900 psi. atomizing pressure. FLUID HOSE: 1/4". FILTER: #30 mesh, foot valve; .0012 inline. CONVENTIONAL SPRAY: Binks equipment or equivalent pressure tank. Gun: Binks Model 2001. FLUID PRESSURE: 10-12 psi. ATOMIZING PRESSURE: 40-45 psi. AIR CAP: 63PB. FLUID NOZZLE: 63A OR 63B (.040"-.046"). AIR HOSE: 5/16". FLUID HOSE: 3/8".
THINNING	AIRLESS SPRAY: Apply as received or reduce 10:1 with Carbit T-9 Xylol or T23 Toluol. CONVENTIONAL SPRAY: Reduce 5:1 with Carbit T-9 Xylol. BRUSH: Use as received.
PREPARATION	The surface to be painted must be free of dirt, grease, oil, rust, water, mill scale, soap residue, and wax. Commercial blast clean in accordance with Steel Structures Painting Council SSPC-SP-6 for weather exposed steel. For interior or protected areas, SSPC-SP-3 power tool cleaning is a minimum acceptable standard.
DRYING TIME	Normal 77° F (25°C), 50% R.H. TO TOUCH: 5 min. TO HANDLE: 10 min. HARD: 15-25 min. RECOAT: 1-8 hours or after 24 hours. Drying time will be extended by high humidity, cold temperatures, and increased film thickness.
CLEAN UP	Clean equipment with Carbit T-9 Xylol. Carbit T-23 Toluol can also be used.
LIMITATIONS	This coating is not recommended for immersion service. Recoating times should be extended for topcoats containing strong solvents. Contact Carbit Paint sales department for recommendations.
SPECIFICATIONS	3E11 meets and exceeds Federal Specification TT-P-664C, modified for pigmentation and rust-inhibiting.
SHELF LIFE	6 months inside storage, normal temperature.
SAFETY	WARNING! FLAMMABLE, CONTAINS PETROLEUM DISTILLATE. Keep away from heat, sparks, and open flame. Use only with adequate ventilation. Avoid prolonged breathing of vapor or spray mist. Avoid prolonged or repeated contact with skin. Keep container closed when not in use. FIRST AID: In case of skin contact, flush with plenty of water; for eyes, flush with plenty of water for 15 minutes and get medical attention. If affected by inhalation of vapor, remove the fresh air. If swallowed, CALL A PHYSICIAN IMMEDIATELY. DO NOT induce vomiting. FOR INDUSTRIAL USE ONLY. Use only with adequate ventilation. KEEP OUT OF REACH OF CHILDREN. Observe all precautionary information on product label.
TOXICITY	Free of lead and heavy metals.

TYPICAL PROPERTIES

PRODUCT NO/COLOR	3E11/Lt. Gray	FLASH POINT	50°F, Seta
GLOSS	10° Maximum (85° head)	PACKAGING	55 gal, 5 gal, 1 gal
SOLIDS BY WEIGHT	62.3%	THEORETICAL COVERAGE	640 sq ft/gal at 1.0 mil dry (2.5 mils wet)
SOLIDS BY VOLUME	39.9%	RECOMMENDED COVERAGE (CALCULATED)	320 sq ft/gal at 2.0 mils dry (5.0 mils wet)
VISCOSITY AS RECEIVED	67-77 Krebs Units		
VOC	4.09 lbs./gal		
WT/GAL	10.4 lbs.		

*When computing working coverage, allow for application losses, irregular surfaces, etc.



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PAINT SPECIFICATION



**SHERWIN
WILLIAMS.**

Product Finishes

CC-B32

SHER-KEM®

High Gloss Metal Finishing Enamel®

Raven Black..... F75BC14
Ultra Deep Base..... F75CC2
International Red..... F75RC7
Equipment Yellow..... F75YC19

Extra White Base..... F75WC7
Implement Orange..... F75EC9
Enviro Green..... F75GC19
Semi-Gloss Black..... F75BC17

Deep Base..... F75WC8
Equipment Blue..... F75LC14
Implement Yellow..... F75YC18
Low Gloss Ultra Deep Base..... F75TC1

DESCRIPTION	CHARACTERISTICS	SPECIFICATIONS
<p>SHER-KEM® High Gloss Metal Finishing Enamel is a direct-to-metal coating designed to give a factory applied finish and provide the brilliant color and performance required by the large agricultural and construction equipment and trailer manufacturers. It can also be used in the general metal finishing market when a premium, long lasting finish is needed.</p> <p>Advantages:</p> <ul style="list-style-type: none"> • 8 Package colors provide quick hiding and color clarity needed to achieve OEM finishes • Excellent, long lasting color and gloss retention, adding value to the life of finished products • Superior distinctness of image reflecting deep color clarity and mirror-like finish • Full range of more than 60 pre-formulated custom colors available for fast in-store color matching • One coat direct-to-metal protection • Excellent chemical resistance including engine coolant, oil, diesel fuel and unleaded gasoline • Easy to apply by simply reducing with a variety of readily available industrial solvents • Ideal for coating large components due to longer open time allowing for rewetting • For improved hardness, better overnight hardness use V66V1020 Hardener at an 8:1 ratio. Eliminates recoat window • Covers quickly due to increased volume solids • Easy to apply with many types of spray equipment 	<p>Gloss: Semi-Gloss Black 45-55 units @ 60° Low Gloss Clear 15-20 units @ 60° All Others 90+ units at 60° 80+ units at 20°</p> <p>Volume Solids: 36-39 ± 2% may vary by color</p> <p>Viscosity: 20-60 seconds #5 Zahn Cup</p> <p>Recommended film thickness: Mils Wet 3.0 - 4.0 Mils Dry 1.0 - 1.2</p> <p>Spreading Rate (no application loss) 480-625 sq. ft./gal @ 1.0-1.2 mils dft</p> <p>Drying (1.0-1.2 mils dft, 77°F, 50% RH): To Touch: 20-40 minutes Tack Free: 2-3 hours To Handle 6-8 hours Through Dry Time 19-21 hours To Recoat apply second coat before 2 hours or after 21 hours</p> <p>Force Dry: 20-30 minutes at 140-180°F</p> <p>Critical recoat period may fluctuate depending on drying conditions and film thickness. Test a small area first.</p> <p>Catalyzed Product Dry Time: To Touch 30-40 minutes Tack Free 2-4 hours To Handle 6-8 hours Through Dry Time 6-11 hours Potlife: 2 hours maximum at room temperature</p> <p>Flash Point: 80°F, PMCC</p> <p>Package Life: Enamel 12 months, unopened V66V1020 23 months, unopened</p> <p>Air Quality Data: • Photochemically reactive • Volatile Organic Compounds (VOC) theoretical as packaged, maximum, less exempt solvents: 4.20 lb/gal, 504 g/L</p> <p>An Environmental Data Sheet is available from your local Sherwin-Williams facility or at www.paintdocs.com.</p>	<p>General: Substrate should be free of grease, oil, dirt, fingerprints, drawing compounds, any contamination, and surface passivation treatments to ensure optimum adhesion and coating performance properties. Consult Metal Preparation Brochure CC-T1 for additional details.</p> <p>Aluminum: If untreated, prime with RoHS Compliant Wash Primer, P60G10 or Industrial Wash Primer, P60G2, or Kem Aqua® Wash Primer, E61G522. Over "pre-treated" aluminum, check adhesion before use as the proprietary pre-treatment may change from supplier to supplier which may have an effect on the final adhesion.</p> <p>Steel or Iron: Remove rust, mill scale, and oxidation products. For best results, treat the surface with a proprietary surface chemical treatment of zinc or iron phosphate to improve corrosion protection. Recommended for all direct to metal applications.</p> <p>For improved corrosion protection, priming is recommended. Prime with Kem® 400 Primer for best hold-out or Kem-Flash® Primers.</p> <p>Testing: Due to the wide variety of substrates, surface preparation methods, and application methods and environments, the customer should test the complete system for adhesion, compatibility and performance prior to full-scale application.</p>

CC-B32

03/15

continued on back



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