

**BALDOR® • RELIANCE** 

**Product Information Packet**

**ZDVSM2334T**

**20HP, 1770RPM, 3PH, 60HZ, 256TC, 0960M, TEFC, F**

| Part Detail |        |             |            |             |        |               |            |
|-------------|--------|-------------|------------|-------------|--------|---------------|------------|
| Revision:   | F      | Status:     | PRD/A      | Change #:   |        | Proprietary:  | No         |
| Type:       | AC     | Elec. Spec: | 09WGT459   | CD Diagram: | CD0180 | Mfg Plant:    |            |
| Mech. Spec: | 09K343 | Layout:     | 09LYK343   | Poles:      | 04     | Created Date: | 11-27-2017 |
| Base:       | RG     | Eff. Date:  | 04-22-2020 | Leads:      | 9#10   |               |            |

| Specs                           |                         |                                |                       |
|---------------------------------|-------------------------|--------------------------------|-----------------------|
| Catalog Number:                 | ZDVSM2334T              | Insulation Class:              | F                     |
| Enclosure:                      | TEFC                    | Inverter Code:                 | Inverter Duty         |
| Frame:                          | 256TC                   | KVA Code:                      | J                     |
| Frame Material:                 | Iron                    | Lifting Lugs:                  | Standard Lifting Lugs |
| Output @ Frequency:             | 20.000 HP @ 60 HZ       | Locked Bearing Indicator:      | Locked Bearing        |
| Synchronous Speed @ Frequency:  | 1800 RPM @ 60 HZ        | Motor Lead Quantity/Wire Size: | 9 @ 10 AWG            |
| Voltage @ Frequency:            | 460.0 V @ 60 HZ         | Motor Lead Exit:               | Ko Box                |
|                                 | 230.0 V @ 60 HZ         | Motor Lead Termination:        | Flying Leads          |
| XP Class and Group:             | None                    | Motor Type:                    | 0960M                 |
| XP Division:                    | Not Applicable          | Mounting Arrangement:          | F1                    |
| Agency Approvals:               | CSA                     | Power Factor:                  | 83                    |
|                                 | UR                      | Product Family:                | General Purpose       |
| Auxillary Box:                  | No Auxillary Box        | Pulley End Bearing Type:       | Ball                  |
| Auxillary Box Lead Termination: | None                    | Pulley Face Code:              | C-Face                |
| Base Indicator:                 | Rigid                   | Pulley Shaft Indicator:        | Standard              |
| Bearing Grease Type:            | Polyrex EM (-20F +300F) | Rodent Screen:                 | None                  |
| Blower:                         | None                    | Shaft Extension Location:      | Pulley End            |
| Current @ Voltage:              | 24.000 A @ 460.0 V      | Shaft Ground Indicator:        | No Shaft Grounding    |

|                                       |                           |                                    |                            |
|---------------------------------------|---------------------------|------------------------------------|----------------------------|
|                                       | 48.000 A @ 230.0 V        | <b>Shaft Rotation:</b>             | Reversible                 |
|                                       | 52.000 A @ 208.0 V        | <b>Shaft Slinger Indicator:</b>    | Shaft Slinger              |
| <b>Design Code:</b>                   | A                         | <b>Speed Code:</b>                 | Single Speed               |
| <b>Drip Cover:</b>                    | No Drip Cover             | <b>Motor Standards:</b>            | NEMA                       |
| <b>Duty Rating:</b>                   | CONT                      | <b>Starting Method:</b>            | Direct on line             |
| <b>Electrically Isolated Bearing:</b> | Not Electrically Isolated | <b>Thermal Device - Bearing:</b>   | None                       |
| <b>Feedback Device:</b>               | ENCODER                   | <b>Thermal Device - Winding:</b>   | Normally Closed Thermostat |
| <b>Front Face Code:</b>               | Standard                  | <b>Vibration Sensor Indicator:</b> | No Vibration Sensor        |
| <b>Front Shaft Indicator:</b>         | None                      | <b>Winding Thermal 1:</b>          | None                       |
| <b>Heater Indicator:</b>              | No Heater                 | <b>Winding Thermal 2:</b>          | None                       |

| Nameplate NP3304L |                     |
|-------------------|---------------------|
| CAT NO            | ZDVSM2334T          |
| SPEC.             | 09K343T459Z1        |
| FRAME             | 256TC HP 20 TE      |
| VOLTS             | 230/460             |
| MAG CUR           | 20.8/10.4 FLA 48/24 |
| RPM               | 1770 RPM MAX 2700   |
| HZ                | 60 PH 3 CLASS F     |
| SER.F.            | 1.00 SL HZ 1        |
| NEMA-NOM-EFF      | 93 WK2 2.62         |
| RATING            | 40C AMB-CONT        |
| DE BRG            | 6309 ODE BRG 6208   |
| CC                | 010A SER.NO         |
|                   | 1.5:1 CHP PWM       |

| Parts List    |  |          |
|---------------|--|----------|
| Part Number   | Description                              | Quantity |
| SA348222      | SA 09K343T459Z1                          | 1.000 EA |
| RA336774      | RA 09K343T459Z1                          | 1.000 EA |
| 09FN3001D01SP | EXTERNAL FAN, PLASTIC                    | 1.000 EA |
| 09CB3000SP    | CONDUIT BOX CAST                         | 1.000 EA |
| 09GS1000SP    | GASKET-CONDUIT BOX, 1/16 THICK LEXIDE    | 1.000 EA |
| 10XN2520K12   | 1/4-20 X.75 GRD 5                        | 2.000 EA |
| HW1001A25     | LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I | 2.000 EA |
| WD1000B16     | T&B CX70TN OR L70P TERMINAL LUG          | 1.000 EA |
| 59XW2520G07   | .25-20X.44,HEX SER WSHR,TAPTITE 2,GREEN  | 1.000 EA |
| 09FE1100A14   | FREP ASSEMBLY, 09EP1100A14               | 1.000 EA |
| HW5100A08     | W3118-035 WVY WSHR (WB)                  | 1.000 EA |
| 10XN2520K28   | 1/4-20 X 1.75" HX HD SCRWGRADE 5, ZINC P | 2.000 EA |
| HW1001A25     | LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I | 2.000 EA |
| 10XN2520K36   | 1/4-20 X 2.25" HX HD SCRWGRADE 5, ZINC P | 4.000 EA |
| HW1001A25     | LOCKWASHER 1/4, ZINC PLT .493 OD, .255 I | 4.000 EA |
| 09EP1300A12   | ENDPLATE, MACH                           | 1.000 EA |
| HW1001A38     | LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I | 4.000 EA |
| HW4600B44     | V-RING SLINGER 1.500 X 1.810 X .28 VITON | 1.000 EA |
| HA3113A02     | THRUBOLT 3/8-16 X 16.750                 | 4.000 EA |
| HW1001A38     | LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I | 4.000 EA |
| XY3816A12     | 3/8-16 FINISHED NUT                      | 4.000 EA |
| 09FH1000A38   | FAN HSG, W/1.75 BORE & ENCODER CVR MTG   | 1.000 EA |
| HA2081A05     | SPACER TUBE, 309 FAN HSG, 2.00 LONG      | 4.000 EA |
| XY3816A12     | 3/8-16 FINISHED NUT                      | 4.000 EA |

| Parts List (continued) |  |          |
|------------------------|--|----------|
| Part Number            | Description                              | Quantity |
| HW1001A38              | LOCKWASHER 3/8, ZINC PLT .688 OD, .382 I | 4.000 EA |
| HA6881                 | BEI HS35 THRU SHAFT ENCODER PROTECTIVE C | 1.000 EA |
| 10XN1032K12            | 10-32 X .75 HD, GRADE 5                  | 2.000 EA |
| HW1001A10              | WASHER, #10 SPLT LK, ZN X                | 2.000 EA |
| HW1000A10              | #10 FLAT WASHER (SAE)                    | 2.000 EA |
| 09CB3500SP             | CONDUIT BOX LID, CAST                    | 1.000 EA |
| 09GS1001SP             | GASKET-CONDUIT BOX LID, 1/16 THICK LEXID | 1.000 EA |
| 51XW2520A12            | .25-20 X .75, TAPTITE II, HEX WSHR SLTD  | 2.000 EA |
| HW2501G25              | KEY, 3/8 SQ X 2.875                      | 1.000 EA |
| LB1115N                | LABEL,LIFTING DEVICE (ON ROLLS)          | 1.000 EA |
| HW4500A05              | 1669B ALEM/UNIV860 GR FTG X              | 1.000 EA |
| HW4500A17              | 317400 ALEMITE GREASE RELIEF             | 1.000 EA |
| HA4054                 | SHORT T-DRAIN FITTING, .125" N.P.T.      | 1.000 EA |
| HA4051A00              | PLASTIC CAP FOR GREASE FITTING           | 1.000 EA |
| MJ1000A02              | GREASE, MOBIL POLYREX EM - 124047        | 0.080 LB |
| HW4500A03              | GREASE FITTING, .125 NPT 1610(ALEMITE) 8 | 1.000 EA |
| HW4500A17              | 317400 ALEMITE GREASE RELIEF             | 1.000 EA |
| HA4054                 | SHORT T-DRAIN FITTING, .125" N.P.T.      | 1.000 EA |
| HA4051A00              | PLASTIC CAP FOR GREASE FITTING           | 1.000 EA |
| HW2500A25              | WOODRUFF KEY USA #1008 #BLOW CARBON STEE | 1.000 EA |
| 51XB1214A20            | 12-14X1.25 HXWSSLD SERTYB                | 1.000 EA |
| OE5001A80SP            | ENCDR KIT TENV W/OEHS35A10 W/BLIND SHAFT | 1.000 EA |
| MG1025N19              | WILKOFASST, 778.50, RELIANCE BLUE-GREEN  | 0.050 GA |
| 85XU0407S04            | 4X1/4 U DRIVE PIN STAINLESS              | 2.000 EA |

|          |   |          |
|----------|---|----------|
| LB1119N  | WARNING LABEL                           | 1.000 EA |
| LC0181   | CONNECTION LABEL                        | 1.000 EA |
| NP3304L  | ALUM VEC UL CSA CC (W/OUT DESIGN FIELD) | 1.000 EA |
| 40PA1005 | PACKAGING GROUP, 09 STD                 | 1.000 EA |
| MN416A01 | TAG-INSTAL-MAINT no wire (1200/bx) 3/19 | 1.000 EA |

|            |         |              |       |   |       |    |        |
|------------|---------|--------------|-------|---|-------|----|--------|
| NP VOLTS   | 230/460 | MAX SAFE RPM | 2700  | WYE CONN EQ CKT OHMS PER PHASE (BASE RATING, 20C) |       |    |        |
| NP AMPS    | 48/24   | Base Volt    | 460   | R1  | 0.167 | X1 | 0.876  |
| HP         | 20 HP   | NL AMPS      | 10.40 | R2  | 0.159 | X2 | 1.160  |
| BASE SPEED | 1772    | Slips(Hz)    | 0.94  |   |       | XM | 30.000 |
| PHASE/Hz   | 3/60    | Wk2 ( )      | 0.000 |   |       |    |        |

**Rated Full Load Data**



|            | RPM    | HP   | Torque | Volts | Freq-Hz | Amps |
|------------|--------|------|--------|-------|---------|------|
| Base Speed | 1771.9 | 20.0 | 59.3   | 460   | 60      | 24.0 |
| Max Speed  | 2657   | 20.0 | 39.5   | 460   | 90      | 23.1 |
| Min Speed  | 0      | 0.0  | 59.3   | 17.91 | 0.94    | 24.0 |

**Load Performance at Base Speed**

|           | RPM    | HP   | Torque | Volts | Freq-Hz | Amps |
|-----------|--------|------|--------|-------|---------|------|
| No Load   | 1798.9 | 0.0  | 0.0    | 460   | 60      | 10.4 |
| 1/4       | 1793.2 | 5.0  | 14.7   | 460   | 60      | 11.8 |
| 1/2       | 1786.4 | 10.0 | 29.4   | 460   | 60      | 15.0 |
| 3/4       | 1779.1 | 15.0 | 44.3   | 460   | 60      | 19.2 |
| Full Load | 1771.9 | 20.0 | 59.3   | 460   | 60      | 24.0 |
| O/L       | 1741   | 40.1 | 121.0  | 460   | 60      | 48.7 |

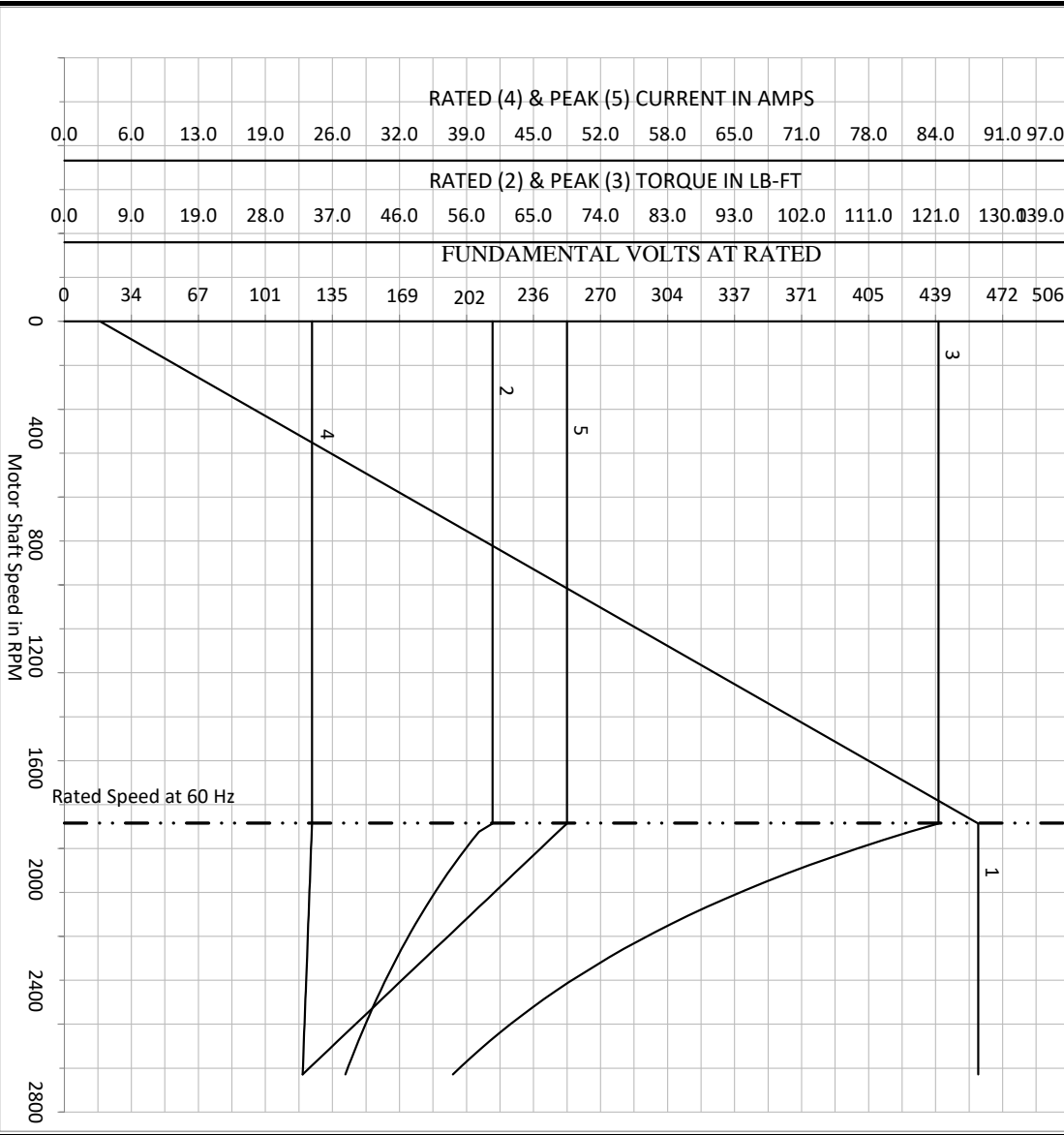
| Blower Data | Volts | Ph/Hz | FL Amps | LR Amps | Frame | CFM |
|-------------|-------|-------|---------|---------|-------|-----|
|             |       |       |         |         |       |     |

Remarks: Calculated Data  
Vector PWM Inverter Duty

|   |        |            |   |                                  |
|---|--------|------------|---|----------------------------------|
|  | DR BY  | USBRRANI   | <b>A-C MOTOR</b><br><b>PERFORMANCE</b><br><b>CURVES</b> | <b>09WGT459</b><br>Record: 67965 |
|   | CK BY  | USBRRANI   |   |                                  |
|  | APP BY | USBRRANI   |   |                                  |
| A MEMBER OF THE ABB GROUP   | DATE   | 11/27/2017 |   |                                  |

|            |            |              |       |   |       |    |        |
|------------|------------|--------------|-------|---|-------|----|--------|
| NP VOLTS   | 230/460    | MAX SAFE RPM | 2700  | WYE CONN EQ CKT OHMS PER PHASE (BASE RATING, 20C) |       |    |        |
| NP AMPS    | 48/24      | Base Volt    | 460   | R1  | 0.167 | X1 | 0.876  |
| HP         | 20 HP      | NL AMPS      | 10.40 | R2  | 0.159 | X2 | 1.160  |
| BASE SPEED | 1771.90002 | Slips(HZ)    | 0.94  | XM  |       |    | 30.000 |
| PHASE/HZ   | 3/60       | WK2 ()       | 0.000 |   |       |    |        |

Variable Speed AC Motor Curves  
Vector PWM Inverter Duty



Calculated Data  
Data Valid For Nameplate Speed Range only



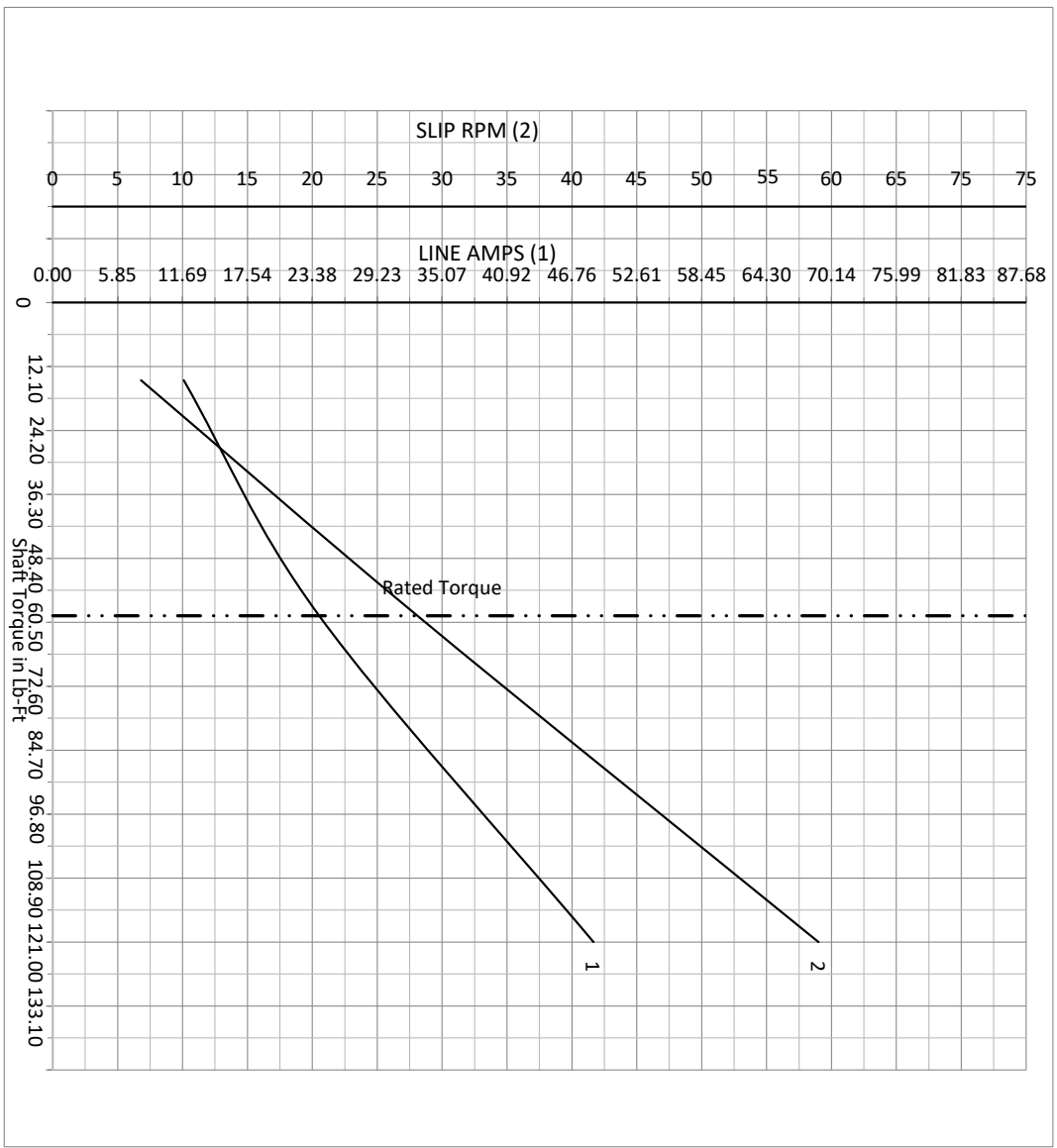
DR BY USBRRANI  
CK BY  
APP BY USBRRANI  
DATE 11/27/2017

A-C MOTOR  
PERFORMANCE  
CURVES

09WGT459  
Record: 67965

|            |             |              |       |   |       |    |        |
|------------|-------------|--------------|-------|---|-------|----|--------|
| NP VOLTS   | 230/460     | MAX SAFE RPM | 2700  | WYE CONN EQ CKT OHMS PER PHASE (BASE RATING, 20C) |       |    |        |
| NP AMPS    | 48/24       | Base Volt    | 460   | R1  | 0.167 | X1 | 0.876  |
| HP         | 20 HP       | NL AMPS      | 10.40 | R2  | 0.159 | X2 | 1.160  |
| BASE SPEED | 1771.900024 | Slips(HZ)    | 0.94  | XM  |       |    | 30.000 |
| PHASE/HZ   | 3/60        | WK2 ( )      | 0.000 |   |       |    |        |

Vector PWM Inverter Duty  
Variable Speed AC Motor Curves



Calculated Data

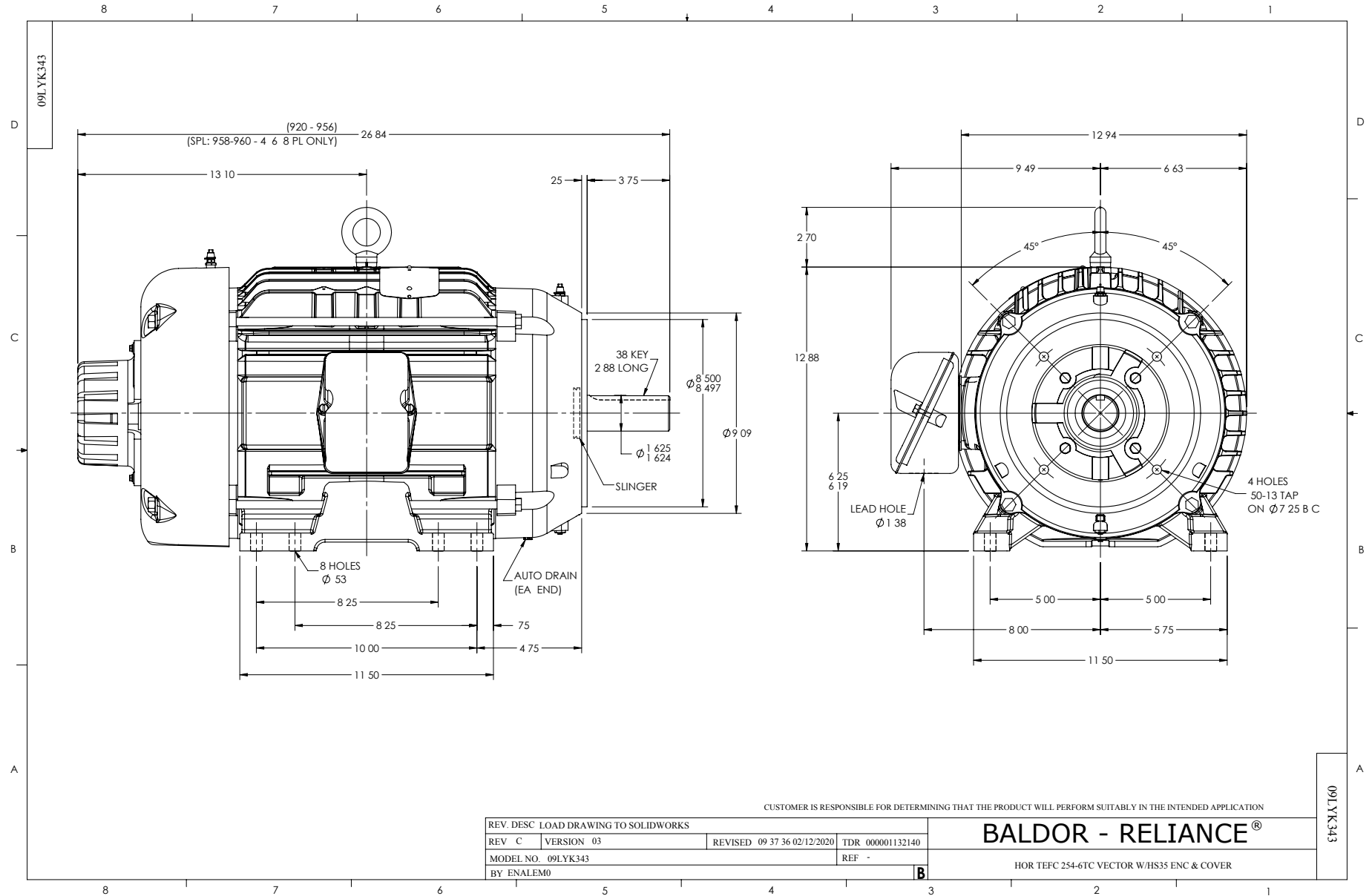
Data Valid For Nameplate Speed Range only

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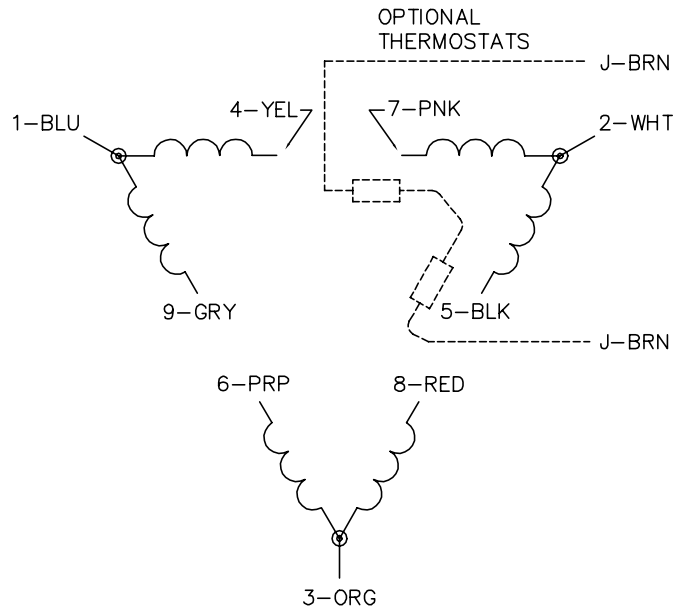
DR BY USBRRANI  
CK BY  
APP BY USBRRANI  
DATE: 11/27/2017

**A-C MOTOR PERFORMANCE CURVES** **09WGT459**

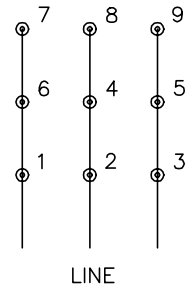
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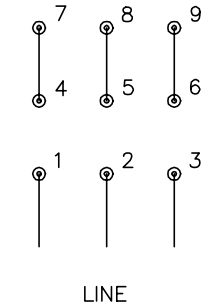
CD0180



LOW VOLTAGE  
(2D)



HIGH VOLTAGE  
(1D)



NOTES:

1. INTERCHANGE ANY TWO LINE LEADS TO REVERSE ROTATION.
2. OPTIONAL THERMOSTATS ARE PROVIDED WHEN SPECIFIED.
3. ACTUAL NUMBER OF INTERNAL PARALLEL CIRCUITS MAY BE A MULTIPLE OF THOSE SHOWN ABOVE.
4. LEAD COLORS ARE OPTIONAL. LEADS MUST ALWAYS BE NUMBERED AS SHOWN.

CD0180

|                                   |                              |                   |
|-----------------------------------|------------------------------|-------------------|
| REV. DESC: ADD CLASS CONN00000007 |                              |                   |
| REV. LTR: D                       | VERSION: 01                  | TDR: 000001099922 |
| FILE: \AAA\00005\148              | REVISED: 10:25:29 02/19/2019 | BY: ENBRIRO       |
| MTL: -                            | © □                          |                   |

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3PH, DV, 9 LEADS, DELTA CONNECTION

SH 1 of 1

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