



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0653

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Johnson Controls Inc.

Manufacturer's Technical Representative: Jeff Ronald

Mailing Address: 100 JCI Way, York, PA 17406

Telephone: (717) 978-3326 Email: jeffrey.joseph.ronald@jci.com

Product Information

Product Name: Industrial Control Panels

Product Type: Variable Frequency Drives and Starters

Product Model Number: AYK580 Variable Frequency Drives

General Description: Wall mounted NEMA 1 and NEMA 3R variable frequency drives and bypass units for controlling Johnson Controls air handling units.

Mounting Description: Rigid and Spring Vibration Isolated, Wall Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Manwill Engineering LLC

Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102 Email: derek@manwillse.com

Title: President





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: MANWILL ENGINEERING LLC

Name: Derek Manwill

California License Number: S6266

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102

Email: derek@manwillse.com

Certification Method

GR-63-Core

ICC-ES AC156

IEEE 344

IEEE 693

NEBS 3

Other (Please Specify): _____

Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513

Telephone: (972) 247-9657

Email: jeremy@etldallas.com





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 4.50 (SDS=2.00, z/h=1), 1.88 (SDS=2.50, z/h=0)

SDS (Design spectral response acceleration at short period, g) = 2.00 (z/h=1), 2.50 (z/h=0)

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment 2

Overall dimensions and weight = See Attachments 1 & 2

OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date: 10/20/2020

Name: Mohammad Aliaari

Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = See Above

z/h = See Above

Condition of Approval (if applicable): _____



ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Packaged Drives						
AYK580-PF-02A1-4	11.7	8.3	20.8	23	NEMA 1, 2.1A, 460V	INTERP
AYK580-PF-03A0-4	11.7	8.3	20.8	23	NEMA 1, 3A, 460V	INTERP
AYK580-PF-03A5-4	11.7	8.3	20.8	23	NEMA 1, 3.5A, 460V	INTERP
AYK580-PF-04A6-2	11.7	8.3	20.8	23	NEMA 1, 4.6A, 208/230V	UUT 4a,4b
AYK580-PF-04A8-4	11.7	8.3	20.8	23	NEMA 1, 4.8A, 460V	INTERP
AYK580-PF-06A6-2	11.7	8.3	20.8	23	NEMA 1, 6.6A, 208/230V	INTERP
AYK580-PF-07A5-2	11.7	8.3	20.8	23	NEMA 1, 7.5A, 208/230V	INTERP
AYK580-PF-07A6-4	11.7	8.3	20.8	23	NEMA 1, 7.6A, 460V	INTERP
AYK580-PF-10A6-2	11.7	8.3	20.8	23	NEMA 1, 10.6A, 208/230V	INTERP
AYK580-PF-012A-4	11.7	8.3	20.8	23	NEMA 1, 12A, 460V	INTERP
AYK580-PF-017A-2	11.7	8.3	20.8	23	NEMA 1, 16.7A, 208/230V	INTERP
AYK580-PF-02A7-6	12.2	8.3	26.8	37	NEMA 1, 2.7A, 575V	INTERP
AYK580-PF-03A9-6	12.2	8.3	26.8	37	NEMA 1, 3.9A, 575V	INTERP
AYK580-PF-06A1-6	12.2	8.3	26.8	37	NEMA 1, 6.1A, 575V	INTERP
AYK580-PF-09A0-6	12.2	8.3	26.8	37	NEMA 1, 9A, 575V	INTERP
AYK580-PF-011A-6	12.2	8.3	26.8	37	NEMA 1, 11A, 575V	INTERP
AYK580-PF-014A-4	12.2	8.3	26.8	37	NEMA 1, 14A, 460V	INTERP
AYK580-PF-017A-6	12.2	8.3	26.8	37	NEMA 1, 17A, 575V	INTERP
AYK580-PF-023A-4	12.2	8.3	26.8	37	NEMA 1, 23A, 460V	INTERP
AYK580-PF-024A-2	12.2	8.3	26.8	37	NEMA 1, 24.2A, 208/230V	INTERP
AYK580-PF-031A-2	12.2	8.3	26.8	37	NEMA 1, 30.8A, 208/230V	INTERP
AYK580-PF-022A-6	12.0	9.0	32.5	56	NEMA 1, 22A, 575V	INTERP
AYK580-PF-027A-4	12.0	9.0	32.5	56	NEMA 1, 27A, 460V	INTERP
AYK580-PF-027A-6	12.0	9.0	32.5	56	NEMA 1, 27A, 575V	INTERP
AYK580-PF-034A-4	12.0	9.0	32.5	56	NEMA 1, 34A, 460V	INTERP
AYK580-PF-044A-4	12.0	9.0	32.5	56	NEMA 1, 44A, 460V	INTERP
AYK580-PF-046A-2	12.0	9.0	32.5	56	NEMA 1, 46.2A, 208/230V	INTERP
AYK580-PF-059A-2	12.0	9.0	32.5	56	NEMA 1, 59.4A, 208/230V	INTERP
AYK580-PF-02A1-4+B058	14.4	15.2	22.4	68	NEMA 3R, 2.1A, 460V	INTERP
AYK580-PF-03A0-4+B058	14.4	15.2	22.4	68	NEMA 3R, 3A, 460V	INTERP
AYK580-PF-03A5-4+B058	14.4	15.2	22.4	68	NEMA 3R, 3.5A, 460V	INTERP
AYK580-PF-04A6-2+B058	14.4	15.2	22.4	68	NEMA 3R, 4.6A, 208/230V	INTERP
AYK580-PF-04A8-4+B058	14.4	15.2	22.4	68	NEMA 3R, 4.8A, 460V	INTERP
AYK580-PF-06A6-2+B058	14.4	15.2	22.4	68	NEMA 3R, 6.6A, 208/230V	INTERP
AYK580-PF-07A5-2+B058	14.4	15.2	22.4	68	NEMA 3R, 7.5A, 208/230V	INTERP
AYK580-PF-07A6-4+B058	14.4	15.2	22.4	68	NEMA 3R, 7.6A, 460V	INTERP
AYK580-PF-10A6-2+B058	14.4	15.2	22.4	68	NEMA 3R, 10.6A, 208/230V	INTERP
AYK580-PF-012A-4+B058	14.4	15.2	22.4	68	NEMA 3R, 12A, 460V	INTERP
AYK580-PF-017A-2+B058	14.4	15.2	22.4	68	NEMA 3R, 16.7A, 208/230V	INTERP
AYK580-CF-02A1-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 2.1A, 460V	INTERP
AYK580-CF-03A0-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 3A, 460V	INTERP
AYK580-CF-03A5-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 3.5A, 460V	INTERP

NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Packaged Drives (continued)						
AYK580-CF-04A6-2	16.0	18.0	23.0	75	NEMA 1, Bypass, 4.6A, 208/230V	INTERP
AYK580-CF-04A8-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 4.8A, 460V	INTERP
AYK580-CF-06A6-2	16.0	18.0	23.0	75	NEMA 1, Bypass, 6.6A, 208/230V	INTERP
AYK580-CF-07A5-2	16.0	18.0	23.0	75	NEMA 1, Bypass, 7.5A, 208/230V	INTERP
AYK580-CF-07A6-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 7.6A, 460V	INTERP
AYK580-CF-10A6-2	16.0	18.0	23.0	75	NEMA 1, Bypass, 10.6A, 208/230V	INTERP
AYK580-CF-012A-4	16.0	18.0	23.0	75	NEMA 1, Bypass, 12A, 460V	INTERP
AYK580-CF-017A-2	16.0	18.0	23.0	75	NEMA 1, Bypass, 16.7A, 208/230V	INTERP
AYK580-CF-02A1-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 2.1A, 460V	UUT 3a,3b
AYK580-CF-03A0-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 3A, 460V	INTERP
AYK580-CF-03A5-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 3.5A, 460V	INTERP
AYK580-CF-04A6-2+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 4.6A, 208/230V	INTERP
AYK580-CF-04A8-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 4.8A, 460V	INTERP
AYK580-CF-06A6-2+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 6.6A, 208/230V	INTERP
AYK580-CF-07A5-2+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 7.5A, 208/230V	INTERP
AYK580-CF-07A6-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 7.6A, 460V	INTERP
AYK580-CF-10A6-2+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 10.6A, 208/230V	INTERP
AYK580-CF-012A-4+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 12A, 460V	INTERP
AYK580-CF-017A-2+B058	17.4	18.0	20.5	83	NEMA 3R, Bypass, 16.7A, 208/230V	INTERP
AYK580-PF-02A7-6+B058	14.4	15.2	28.4	85	NEMA 3R, 2.7A, 575V	INTERP
AYK580-PF-03A9-6+B058	14.4	15.2	28.4	85	NEMA 3R, 3.9A, 575V	INTERP
AYK580-PF-06A1-6+B058	14.4	15.2	28.4	85	NEMA 3R, 6.1A, 575V	INTERP
AYK580-PF-09A0-6+B058	14.4	15.2	28.4	85	NEMA 3R, 9A, 575V	INTERP
AYK580-PF-011A-6+B058	14.4	15.2	28.4	85	NEMA 3R, 11A, 575V	INTERP
AYK580-PF-014A-4+B058	14.4	15.2	28.4	85	NEMA 3R, 14A, 460V	INTERP
AYK580-PF-017A-6+B058	14.4	15.2	28.4	85	NEMA 3R, 17A, 575V	INTERP
AYK580-PF-023A-4+B058	14.4	15.2	28.4	85	NEMA 3R, 23A, 460V	INTERP
AYK580-PF-024A-2+B058	14.4	15.2	28.4	85	NEMA 3R, 24.2A, 208/230V	INTERP
AYK580-PF-031A-2+B058	14.4	15.2	28.4	85	NEMA 3R, 30.8A, 208/230V	INTERP
AYK580-CF-02A7-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 2.7A, 575V	INTERP
AYK580-CF-03A9-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 3.9A, 575V	INTERP
AYK580-CF-06A1-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 6.1A, 575V	INTERP
AYK580-CF-09A0-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 9A, 575V	INTERP
AYK580-CF-011A-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 11A, 575V	INTERP
AYK580-CF-014A-4	16.0	18.0	26.5	93	NEMA 1, Bypass, 14A, 460V	INTERP
AYK580-CF-017A-6	16.0	18.0	26.5	93	NEMA 1, Bypass, 17A, 575V	INTERP
AYK580-CF-023A-4	16.0	18.0	26.5	93	NEMA 1, Bypass, 23A, 460V	INTERP
AYK580-CF-024A-2	16.0	18.0	26.5	93	NEMA 1, Bypass, 24.2A, 208/230V	INTERP
AYK580-CF-031A-2	16.0	18.0	26.5	93	NEMA 1, Bypass, 30.8A, 208/230V	INTERP
AYK580-PF-022A-6+B058	14.4	18.3	31.9	113	NEMA 3R, 22A, 575V	INTERP
AYK580-PF-027A-4+B058	14.4	18.3	31.9	113	NEMA 3R, 27A, 460V	INTERP
AYK580-PF-027A-6+B058	14.4	18.3	31.9	113	NEMA 3R, 27A, 575V	INTERP

NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Packaged Drives (continued)						
AYK580-PF-034A-4+B058	14.4	18.3	31.9	113	NEMA 3R, 34A, 460V	INTERP
AYK580-PF-044A-4+B058	14.4	18.3	31.9	113	NEMA 3R, 44A, 460V	INTERP
AYK580-PF-046A-2+B058	14.4	18.3	31.9	113	NEMA 3R, 46.2A, 208/230V	INTERP
AYK580-PF-059A-2+B058	14.4	18.3	31.9	113	NEMA 3R, 59.4A, 208/230V	INTERP
AYK580-PF-032A-6	15.2	12.0	40.5	114	NEMA 1, 32A, 575V	INTERP
AYK580-PF-041A-6	15.2	12.0	40.5	114	NEMA 1, 41A, 575V	INTERP
AYK580-PF-052A-4	15.2	12.0	40.5	114	NEMA 1, 52A, 460V	INTERP
AYK580-PF-052A-6	15.2	12.0	40.5	114	NEMA 1, 52A, 575V	INTERP
AYK580-PF-062A-6	15.2	12.0	40.5	114	NEMA 1, 62A, 575V	INTERP
AYK580-PF-065A-4	15.2	12.0	40.5	114	NEMA 1, 65A, 460V	INTERP
AYK580-PF-075A-2	15.2	12.0	40.5	114	NEMA 1, 74.8A, 208/230V	INTERP
AYK580-PF-077A-4	15.2	12.0	40.5	114	NEMA 1, 77A, 460V	INTERP
AYK580-PF-088A-2	15.2	12.0	40.5	114	NEMA 1, 88A, 208/230V	INTERP
AYK580-PF-096A-4	15.2	12.0	40.5	114	NEMA 1, 96A, 460V	INTERP
AYK580-PF-114A-2	15.2	12.0	40.5	114	NEMA 1, 114A, 208/230V	INTERP
AYK580-CF-02A7-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 2.7A, 575V	INTERP
AYK580-CF-03A9-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 3.9A, 575V	INTERP
AYK580-CF-06A1-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 6.1A, 575V	INTERP
AYK580-CF-09A0-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 9A, 575V	INTERP
AYK580-CF-011A-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 11A, 575V	INTERP
AYK580-CF-014A-4+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 14A, 460V	INTERP
AYK580-CF-017A-6+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 17A, 575V	INTERP
AYK580-CF-023A-4+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 23A, 460V	INTERP
AYK580-CF-024A-2+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 24.2A, 208/230V	INTERP
AYK580-CF-031A-2+B058	17.4	20.2	28.5	116	NEMA 3R, Bypass, 30.8A, 208/230V	INTERP
AYK580-CF-022A-6	16.0	22.0	28.5	122	NEMA 1, Bypass, 22A, 575V	INTERP
AYK580-CF-027A-4	16.0	22.0	28.5	122	NEMA 1, Bypass, 27A, 460V	INTERP
AYK580-CF-027A-6	16.0	22.0	28.5	122	NEMA 1, Bypass, 27A, 575V	INTERP
AYK580-CF-034A-4	16.0	22.0	28.5	122	NEMA 1, Bypass, 34A, 460V	INTERP
AYK580-CF-044A-4	16.0	22.0	28.5	122	NEMA 1, Bypass, 44A, 460V	INTERP
AYK580-CF-046A-2	16.0	22.0	28.5	122	NEMA 1, Bypass, 46.2A, 208/230V	INTERP
AYK580-CF-059A-2	16.0	22.0	28.5	122	NEMA 1, Bypass, 59.4A, 208/230V	INTERP
AYK580-CF-022A-6+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 22A, 575V	INTERP
AYK580-CF-027A-4+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 27A, 460V	INTERP
AYK580-CF-027A-6+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 27A, 575V	INTERP
AYK580-CF-034A-4+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 34A, 460V	INTERP
AYK580-CF-044A-4+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 44A, 460V	INTERP
AYK580-CF-046A-2+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 46.2A, 208/230V	INTERP
AYK580-CF-059A-2+B058	17.4	22.3	30.0	145	NEMA 3R, Bypass, 59.4A, 208/230V	INTERP
AYK580-PF-124A-4	17.9	12.1	43.0	165	NEMA 1, 124A, 460V	INTERP
AYK580-PF-032A-6+B058	16.5	18.3	43.4	196	NEMA 3R, 32A, 575V	INTERP
AYK580-PF-041A-6+B058	16.5	18.3	43.4	196	NEMA 3R, 41A, 575V	INTERP

NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Packaged Drives (continued)						
AYK580-PF-052A-4+B058	16.5	18.3	43.4	196	NEMA 3R, 52A, 460V	INTERP
AYK580-PF-052A-6+B058	16.5	18.3	43.4	196	NEMA 3R, 52A, 575V	INTERP
AYK580-PF-062A-6+B058	16.5	18.3	43.4	196	NEMA 3R, 62A, 575V	INTERP
AYK580-PF-065A-4+B058	16.5	18.3	43.4	196	NEMA 3R, 65A, 460V	INTERP
AYK580-PF-075A-2+B058	16.5	18.3	43.4	196	NEMA 3R, 74.8A, 208/230V	INTERP
AYK580-PF-077A-4+B058	16.5	18.3	43.4	196	NEMA 3R, 77A, 460V	INTERP
AYK580-PF-088A-2+B058	16.5	18.3	43.4	196	NEMA 3R, 88A, 208/230V	INTERP
AYK580-PF-096A-4+B058	16.5	18.3	43.4	196	NEMA 3R, 96A, 460V	INTERP
AYK580-PF-114A-2+B058	16.5	18.3	43.4	196	NEMA 3R, 114A, 208/230V	INTERP
AYK580-PF-077A-6	18.1	16.0	48.0	222	NEMA 1, 77A, 575V	INTERP
AYK580-PF-099A-6	18.1	16.0	48.0	222	NEMA 1, 99A, 575V	INTERP
AYK580-PF-125A-6	18.1	16.0	48.0	222	NEMA 1, 125A, 575V	INTERP
AYK580-PF-143A-2	18.1	16.0	48.0	222	NEMA 1, 143A, 208/230V	INTERP
AYK580-PF-156A-4	18.1	16.0	48.0	222	NEMA 1, 156A, 460V	INTERP
AYK580-PF-169A-2	18.1	16.0	48.0	222	NEMA 1, 169A, 208/230V	INTERP
AYK580-PF-180A-4	18.1	16.0	48.0	222	NEMA 1, 180A, 460V	INTERP
AYK580-PF-211A-2	18.1	16.0	48.0	222	NEMA 1, 211A, 208/230V	INTERP
AYK580-CF-032A-6	18.0	31.0	40.0	247	NEMA 1, Bypass, 32A, 575V	INTERP
AYK580-CF-041A-6	18.0	31.0	40.0	247	NEMA 1, Bypass, 41A, 575V	INTERP
AYK580-CF-052A-4	18.0	31.0	40.0	247	NEMA 1, Bypass, 52A, 460V	INTERP
AYK580-CF-052A-6	18.0	31.0	40.0	247	NEMA 1, Bypass, 52A, 575V	INTERP
AYK580-CF-062A-6	18.0	31.0	40.0	247	NEMA 1, Bypass, 62A, 575V	INTERP
AYK580-CF-065A-4	18.0	31.0	40.0	247	NEMA 1, Bypass, 65A, 460V	INTERP
AYK580-CF-075A-2	18.0	31.0	40.0	247	NEMA 1, Bypass, 74.8A, 208/230V	INTERP
AYK580-CF-077A-4	18.0	31.0	40.0	247	NEMA 1, Bypass, 77A, 460V	INTERP
AYK580-CF-088A-2	18.0	31.0	40.0	247	NEMA 1, Bypass, 88A, 208/230V	INTERP
AYK580-CF-096A-4	18.0	31.0	40.0	247	NEMA 1, Bypass, 96A, 460V	INTERP
AYK580-CF-114A-2	18.0	31.0	40.0	247	NEMA 1, Bypass, 114A, 208/230V	INTERP
AYK580-CF-032A-6+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 32A, 575V	INTERP
AYK580-CF-041A-6+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 41A, 575V	INTERP
AYK580-CF-052A-4+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 52A, 460V	INTERP
AYK580-CF-052A-6+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 52A, 575V	INTERP
AYK580-CF-062A-6+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 62A, 575V	INTERP
AYK580-CF-065A-4+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 65A, 460V	INTERP
AYK580-CF-075A-2+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 74.8A, 208/230V	INTERP
AYK580-CF-077A-4+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 77A, 460V	INTERP
AYK580-CF-088A-2+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 88A, 208/230V	INTERP
AYK580-CF-096A-4+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 96A, 460V	INTERP
AYK580-CF-114A-2+B058	18.5	28.3	43.4	277	NEMA 3R, Bypass, 114A, 208/230V	INTERP
AYK580-PF-124A-4+B058	18.5	21.5	47.5	279	NEMA 3R, 124A, 460V	INTERP
AYK580-CF-124A-4	20.5	33.0	44.0	315	NEMA 1, Bypass, 124A, 460V	INTERP
AYK580-PF-077A-6+B058	21.5	21.5	54.6	345	NEMA 3R, 77A, 575V	INTERP
NOTES:	Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.					

ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1 (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Packaged Drives (continued)						
AYK580-PF-099A-6+B058	21.5	21.5	54.6	345	NEMA 3R, 99A, 575V	INTERP
AYK580-PF-125A-6+B058	21.5	21.5	54.6	345	NEMA 3R, 125A, 575V	INTERP
AYK580-PF-143A-2+B058	21.5	21.5	54.6	345	NEMA 3R, 143A, 208/230V	INTERP
AYK580-PF-156A-4+B058	21.5	21.5	54.6	345	NEMA 3R, 156A, 460V	INTERP
AYK580-PF-169A-2+B058	21.5	21.5	54.6	345	NEMA 3R, 169A, 208/230V	INTERP
AYK580-PF-180A-4+B058	21.5	21.5	54.6	345	NEMA 3R, 180A, 460V	INTERP
AYK580-PF-211A-2+B058	21.5	21.5	54.6	345	NEMA 3R, 211A, 208/230V	INTERP
AYK580-CF-124A-4+B058	22.4	32.3	44.0	349	NEMA 3R, Bypass, 124A, 460V	INTERP
AYK580-CF-077A-6	20.5	33.0	45.0	349	NEMA 1, Bypass, 77A, 575V	INTERP
AYK580-CF-099A-6	20.5	33.0	45.0	349	NEMA 1, Bypass, 99A, 575V	INTERP
AYK580-CF-125A-6	20.5	33.0	45.0	349	NEMA 1, Bypass, 125A, 575V	INTERP
AYK580-CF-143A-2	20.5	33.0	45.0	349	NEMA 1, Bypass, 143A, 208/230V	INTERP
AYK580-CF-156A-4	20.5	33.0	45.0	349	NEMA 1, Bypass, 156A, 460V	INTERP
AYK580-CF-169A-2	20.5	33.0	45.0	349	NEMA 1, Bypass, 169A, 208/230V	INTERP
AYK580-CF-180A-4	20.5	33.0	45.0	349	NEMA 1, Bypass, 180A, 460V	UUT 2a,2b
AYK580-CF-211A-2	20.5	33.0	45.0	349	NEMA 1, Bypass, 211A, 208/230V	INTERP
AYK580-CF-077A-6+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 77A, 575V	INTERP
AYK580-CF-099A-6+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 99A, 575V	INTERP
AYK580-CF-125A-6+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 125A, 575V	INTERP
AYK580-CF-143A-2+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 143A, 208/230V	INTERP
AYK580-CF-156A-4+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 156A, 460V	INTERP
AYK580-CF-169A-2+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 169A, 208/230V	INTERP
AYK580-CF-180A-4+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 180A, 460V	INTERP
AYK580-CF-211A-2+B058	22.3	32.5	51.0	417	NEMA 3R, Bypass, 211A, 208/230V	UUT 1a,1b
MOUNTING:	Rigid and isolated wall mounted.			SEISMIC LEVELS:	$S_{DS} = 2.0g$ for $z/h = 1$ $S_{DS} = 2.5g$ for $z/h = 0$	$I_p = 1.5$
NOTES:	<p>Product Construction: Carbon steel enclosure for Packaged Drive.</p> <p>Options/Subcomponents: NEMA 1 or NEMA 3R enclosure. Packaged Drive includes a Base Drive from Table 2 and subcomponents listed in Table 2 to create a complete Packaged Drive. The weight of the complete Packaged Drive must be less than or equal to the maximum weight listed in Table 1.</p>					

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Base Drives						
AYK580-01-02A1-4	8.8	4.9	14.7	10	R1 Frame, 2.1A, 460V	UUT 3a,3b
AYK580-01-03A0-4	8.8	4.9	14.7	10	R1 Frame, 3.0A, 460V	INTERP
AYK580-01-03A5-4	8.8	4.9	14.7	10	R1 Frame, 3.5A, 460V	INTERP
AYK580-01-04A6-2	8.8	4.9	14.7	10	R1 Frame, 4.6A, 208/230V	UUT 4a,4b
AYK580-01-04A8-4	8.8	4.9	14.7	10	R1 Frame, 4.8A, 460V	INTERP
AYK580-01-06A6-2	8.8	4.9	14.7	10	R1 Frame, 6.6A, 208/230V	INTERP
AYK580-01-07A5-2	8.8	4.9	14.7	10	R1 Frame, 7.5A, 208/230V	INTERP
AYK580-01-07A6-4	8.8	4.9	14.7	10	R1 Frame, 7.6A, 460V	INTERP
AYK580-01-10A6-2	8.8	4.9	14.7	10	R1 Frame, 10.6A, 208/230V	INTERP
AYK580-01-012A-4	8.8	4.9	14.7	10	R1 Frame, 12A, 460V	INTERP
AYK580-01-017A-2	8.8	4.9	14.7	10	R1 Frame, 17A, 208/230V	INTERP
AYK580-01-02A7-6	9.0	4.9	18.6	15	R2 Frame, 2.7A, 575V	INTERP
AYK580-01-03A9-6	9.0	4.9	18.6	15	R2 Frame, 3.9A, 575V	INTERP
AYK580-01-06A1-6	9.0	4.9	18.6	15	R2 Frame, 6.1A, 575V	INTERP
AYK580-01-09A0-6	9.0	4.9	18.6	15	R2 Frame, 9.0A, 575V	INTERP
AYK580-01-011A-6	9.0	4.9	18.6	15	R2 Frame, 11A, 575V	INTERP
AYK580-01-014A-4	9.0	4.9	18.6	15	R2 Frame, 14A, 460V	INTERP
AYK580-01-017A-6	9.0	4.9	18.6	15	R2 Frame, 17A, 575V	INTERP
AYK580-01-023A-4	9.0	4.9	18.6	15	R2 Frame, 23A, 460V	INTERP
AYK580-01-024A-2	9.0	4.9	18.6	15	R2 Frame, 24A, 208/230V	INTERP
AYK580-01-031A-2	9.0	4.9	18.6	15	R2 Frame, 31A, 208/230V	INTERP
AYK580-01-022A-6	9.0	8.0	19.3	26	R3 Frame, 22A, 575V	INTERP
AYK580-01-027A-4	9.0	8.0	19.3	26	R3 Frame, 27A, 460V	INTERP
AYK580-01-027A-6	9.0	8.0	19.3	26	R3 Frame, 27A, 575V	INTERP
AYK580-01-032A-6	9.0	8.0	19.3	26	R3 Frame, 32A, 575V	INTERP
AYK580-01-034A-4	9.0	8.0	19.3	26	R3 Frame, 34A, 460V	INTERP
AYK580-01-044A-4	9.0	8.0	19.3	26	R3 Frame, 44A, 460V	INTERP
AYK580-01-046A-2	9.0	8.0	19.3	26	R3 Frame, 46A, 208/230V	INTERP
AYK580-01-059A-2	9.0	8.0	19.3	26	R3 Frame, 59A, 208/230V	INTERP
AYK580-01-052A-4	10.1	8.0	25.0	42	R4 Frame, 52A, 460V	INTERP
AYK580-01-065A-4	10.1	8.0	25.0	42	R4 Frame, 65A, 460V	INTERP
AYK580-01-075A-2	10.1	8.0	25.0	42	R4 Frame, 75A, 208/230V	INTERP
AYK580-01-077A-4	10.1	8.0	25.0	42	R4 Frame, 77A, 460V	INTERP
AYK580-01-041A-6	11.6	8.0	28.8	62	R5 Frame, 41A, 575V	INTERP
AYK580-01-052A-6	11.6	8.0	28.8	62	R5 Frame, 52A, 575V	INTERP
AYK580-01-062A-6	11.6	8.0	28.8	62	R5 Frame, 62A, 575V	INTERP
AYK580-01-077A-6	11.6	8.0	28.8	62	R5 Frame, 77A, 575V	INTERP
AYK580-01-088A-2	11.6	8.0	28.8	62	R5 Frame, 88A, 208/230V	INTERP
AYK580-01-096A-4	11.6	8.0	28.8	62	R5 Frame, 96A, 460V	INTERP
AYK580-01-114A-2	11.6	8.0	28.8	62	R5 Frame, 114A, 208/230V	INTERP
AYK580-01-124A-4	14.5	9.9	28.6	94	R6 Frame, 124A, 460V	INTERP
AYK580-01-143A-2	14.5	9.9	28.6	94	R6 Frame, 143A, 208/230V	INTERP
NOTES:	Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.					

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Base Drives (continued)						
AYK580-01-099A-6	14.6	11.2	34.7	119	R7 Frame, 99A, 575V	INTERP
AYK580-01-125A-6	14.6	11.2	34.7	119	R7 Frame, 125A, 575V	INTERP
AYK580-01-156A-4	14.6	11.2	34.7	119	R7 Frame, 156A, 460V	INTERP
AYK580-01-169A-2	14.6	11.2	34.7	119	R7 Frame, 169A, 208/230V	INTERP
AYK580-01-180A-4	14.6	11.2	34.7	119	R7 Frame, 180A, 460V	UUT 2a,2b
AYK580-01-211A-2	14.6	11.2	34.7	119	R7 Frame, 211A, 208/230V	UUT 1a,1b
ABB - Disconnects						
OS30FACC12				1.4	30A	UUT 3a-4b
OS30FAJ12				1.5	30A	INTERP
OS60GJ03				3.0	60A	INTERP
OS60GJ12				3.0	60A	UUT 3a,3b
OS100GJ03				4.0	100A	INTERP
OS200J03				6.2	200A	INTERP
OS400J03				14.1	400A	UUT 1a-2b
ABB - Contactors						
AF09-30-10-13				<1	25A	UUT 3a,3b
AF12-30-10-13				<1	28A	INTERP
AF16-30-10-13				<1	30A	INTERP
AF26-30-00-13				<1	45A	INTERP
AF30-30-00-13				<1	50A	INTERP
AF38-30-00-13				<1	50A	INTERP
AF40-30-11-13				2.2	60A	INTERP
AF52-30-11-13				2.2	80A	INTERP
AF65-30-11-13				2.2	90A	INTERP
AF80-30-11-13				2.7	105A	INTERP
AF96-30-00-13				2.7	115A	INTERP
AF116-30-11-13				3.4	160A	INTERP
AF140-30-11-13				3.4	200A	UUT 2a,2b
AF190-30-11-13				5.3	250A	UUT 1a,1b
AF205-30-11-13				5.3	300A	UUT 2a,2b
AF265-30-11-13				8.6	350A	UUT 1a,1b
ABB - Overloads						
EF19-1.0				<1	1.0A	UUT 3a,3b
EF19-2.7				<1	2.7A	UUT 1a-3b
EF19-6.3				<1	6.3A	UUT 2a,2b
EF19-18.9				<1	18.9A	INTERP
EF45-30				<1	30A	INTERP
EF45-45				<1	45A	UUT 1a,1b
Hammond - Control Transformer						
PH150MBMH	4.0	5.4	3.8	7.6		UUT 2a,2b
ABB - Control Transformer and Thermostat						
3AUA0000048829				8.0	Present in UUTs 1a, 1b, 3a, & 3b	UUT 1,3
NOTES: Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.						

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER: JOHNSON CONTROLS						
PRODUCT FAMILY: AYK580 VARIABLE FREQUENCY DRIVES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Watlow - Cabinet Heater						
020100C1-F001F					Present in UUTs 1a, 1b, 3a, & 3b	UUT 1,3
Littelfuse - Fuses						
KLDR5				<1	5A	UUT 3a,3b
KLDR6				<1	6A	INTERP
KLDR7				<1	7A	INTERP
KLDR9				<1	9A	INTERP
KLDR10				<1	10A	INTERP
KLDR12				<1	12A	INTERP
KLDR15				<1	15A	INTERP
KLKR15				<1	15A	UUT 3a-4b
KLDR17.5				<1	17.5A	INTERP
KLDR20				<1	20A	INTERP
KLDR25				<1	25A	INTERP
KLDR30				<1	30A	INTERP
KLKR30				<1	30A	INTERP
JLS40				<1	40A	INTERP
JTD40				<1	40A	INTERP
JLS50				<1	50A	INTERP
JTD50				<1	50A	INTERP
JLS60				<1	60A	INTERP
JTD60				<1	60A	INTERP
JTD70				<1	70A	INTERP
JLS80				<1	80A	INTERP
JTD90				<1	90A	INTERP
JLS100				<1	100A	INTERP
JTD100				<1	100A	INTERP
JLS110				<1	110A	INTERP
JTD125				<1	125A	INTERP
JLS150				<1	150A	INTERP
JTD150				<1	150A	INTERP
JLS175				<1	175A	INTERP
JTD175				<1	175A	INTERP
JLS200				<1	200A	INTERP
JTD200				<1	200A	INTERP
JLS225				1.7	225A	INTERP
JLS250				1.7	250A	INTERP
JTD250				1.7	250A	INTERP
JLS300				1.7	300A	UUT 1a-2b
JTD300				1.7	300A	UUT 2a,2b
JTD350				1.7	350A	UUT 1a,1b
MOUNTING:	Mounted within unit.			SEISMIC LEVELS:	$S_{DS} = 2.0g$ for $z/h = 1$ $S_{DS} = 2.5g$ for $z/h = 0$ $I_p = 1.5$	
NOTES:	Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.					

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1a (Rigid)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-211A-2+B058				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
22.3	32.5	51.0	417	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (10) 3/8in Grade 5 bolts. Fixture was rigid floor mounted to table.				
CONSTRUCTION:		NEMA 3R carbon steel enclosure				
SUBCOMPONENTS:		ABB - Base Drive (AYK580-01-211A-2), ABB - Disconnect (OS400J03), ABB - Contactors (AF190-30-11-13, AF265-30-11-13), ABB - Overloads (EF19-2.7, EF45-45), ABB - Mechanical Interlock (VM205/265), ABB - Control Transformer and Thermostat (3AUA0000048829), Watlow - Cabinet Heater (020100C1-F001F), Littlefuse - Fuses (JLS300, JTD350), ABB - Disconnect Handle (OHB80J6)				



UUT 1b (Isolated)

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-211A-2+B058				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
22.3	32.5	51.0	417	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted to fixture using (10) 3/8in Grade 5 bolts. Fixture was isolated floor mounted to table using (4) Mason SSLFHC-1000 spring isolators.				
CONSTRUCTION:		NEMA 3R carbon steel enclosure				
SUBCOMPONENTS:		See UUT 1a above. There were no changes between UUT 1a and UUT 1b.				



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 2a (Rigid)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-180A-4				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
20.5	33.0	45.0	349	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (4) 3/8in Grade 5 bolts. Fixture was rigid floor mounted to table.				
CONSTRUCTION:		NEMA 1 carbon steel enclosure				
SUBCOMPONENTS:		ABB - Base Drive (AYK580-01-180A-4), ABB - Disconnect (OS400J03), ABB - Contactors (AF140-30-11-13, AF205-30-11-13), Hammond - Control Transformer (PH150MBMH), ABB - Overloads (EF19-2.7, EF19-6.3), ABB - Mechanical Interlock (VM140/190), Littelfuse - Fuses (JLS300, JTD300), ABB - Disconnect Handle (OHB80J6), Bussmann - Power Distribution Block (16204-3)				



UUT 2b (Isolated)

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-180A-4				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
20.5	33.0	45.0	349	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (4) 3/8in Grade 5 bolts. Fixture was isolated floor mounted to table using (4) Mason SSLFHC-1000 spring isolators.				
CONSTRUCTION:		NEMA 1 carbon steel enclosure				
SUBCOMPONENTS:		See UUT 2a above. There were no changes between UUT 2a and UUT 2b.				



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 3a (Rigid)

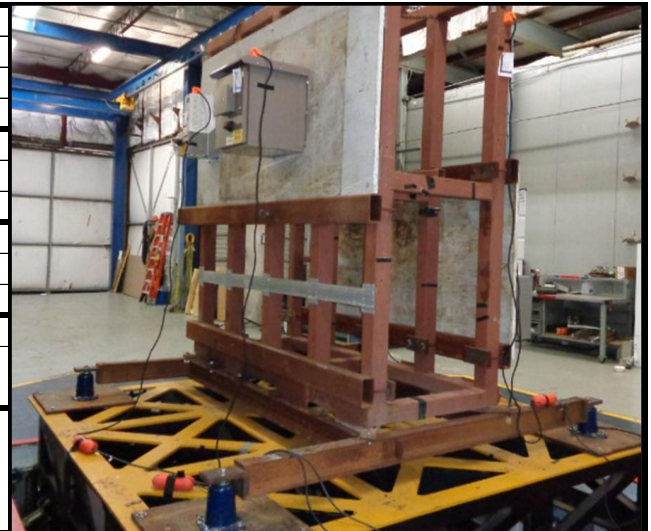
DOCUMENT NO.: 19081CR1.1

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-02A1-4+B058				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
17.4	18.0	20.5	83	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (6) 3/8in lag screws. Fixture was rigid floor mounted to table.				
CONSTRUCTION:		NEMA 3R carbon steel enclosure				
SUBCOMPONENTS:		ABB - Base Drive (AYK580-01-02A1-4), ABB - Disconnects (OS30FACC12, OS60GJ12), ABB - Contactor (AF09-30-10-13), ABB - Overloads (EF19-1.0, EF19-2.7), ABB - Mechanical Interlock (VM4), ABB - Control Transformer and Thermostat (3AUA0000048829), Watlow - Cabinet Heater (020100C1-F001F), Littelfuse - Fuses (KLDR5, KLKR15), ABB - Disconnect Handle (OHB65J6)				



UUT 3b (Isolated)

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-CF-02A1-4+B058				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
17.4	18.0	20.5	83	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (6) 3/8in lag screws. Fixture was isolated floor mounted to table using (4) Mason SSLFHC-1000 spring isolators.				
CONSTRUCTION:		NEMA 3R carbon steel enclosure				
SUBCOMPONENTS:		See UUT 3a above. There were no changes between UUT 3a and UUT 3b.				



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 4a (Rigid)

DOCUMENT NO.: 19081CR1.1

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-PF-04A6-2				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
11.7	8.3	20.8	23	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (4) 3/8in lag screws. Fixture was rigid floor mounted to table.				
CONSTRUCTION:		NEMA 1 carbon steel enclosure				
SUBCOMPONENTS:		ABB - Base Drive (AYK580-01-04A6-2), ABB - Disconnect (OS30FACC12), Littelfuse - Fuse (KLKR15), ABB - Disconnect Handle (OHB65J6)				



UUT 4b (Isolated)

MANUFACTURER:		JOHNSON CONTROLS				
MODEL NUMBER:		AYK580-PF-04A6-2				
UNIT FUNCTION:		VARIABLE FREQUENCY DRIVE				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
11.7	8.3	20.8	23	N/A	N/A	N/A
CODE & CRITERIA:		2019 CBC		ICC-ES AC156		
TEST LABORATORY:		ENVIRONMENTAL TESTING LABORATORY				
REPORT & DATE:		19081TR1.0		March 30, 2020		
S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
2.0	1	3.20	2.40	1.68	0.68	
2.5	0					
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Wall mounted using (4) 3/8in lag screws.. Fixture was isolated floor mounted to table using (4) Mason SSLFHC-1000 spring isolators.				
CONSTRUCTION:		NEMA 1 carbon steel enclosure				
SUBCOMPONENTS:		See UUT 4a above. There were no changes between UUT 4a and UUT 4b.				



ATTACHMENT 3: MODEL NOMENCLATURE

SPECIAL SEISMIC CERTIFICATION

AYK580 VARIABLE FREQUENCY DRIVES

DOCUMENT NO.: 19081CR1.1

DIGIT:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	-	-	-	-	-	-	-	-
SAMPLE:	A	Y	K	5	8	0	-	C	F	-	2	1	1	A	-	2	+	B	0	5	8	-	-	-	-	-	-	-	-
DIGIT	DIGIT DESCRIPTION													CODES		DEFINITIONS													
1-6	Product Family													AYK580															
8-9	Package Type													01		Base drive													
														PF		Packaged drive with fused disconnect													
														CF		Packaged drive with bypass and fused disconnect													
11-14	Nominal Output Rating													02A1		2.1A rating													
														03A0		3.0A rating													
																										
														180A		180A rating													
														211A		211A rating													
16	Motor Voltage													2		208/230V													
														4		460V													
														6		575V													
17-21	NEMA Rating													[blank]		NEMA 1													
														+B058		NEMA 3R													

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