

## References

- [1] W. Leonhard, "Control of Electrical Drives". Second edition, Springer Verlag, 1996
- [2] F. Corcoles, J. Pedra, M. Salichs, L. Sainz, " Analysis of the Induction Machine Parameters Identification", IEEE Transactions on Energy Conversion, Vol. 107 PP 183-190, June 2002.
- [3] A. Boglietti, P. Ferraris, M. Lazzari, F. Profumo, "Induction Motor Equivalent Circuit parameters Determination from Standard Tests Made with Inverter supply". Sixth international Conference on Electrical Machines and drives, Oxford. Conf. Publ. No. 376, PP 271-276, 1993
- [4] A. T. de Almeida, F. Ferrira, J. Busch, P. Angers, "Comparative Analysis of IEEE 112-B and IEC 34-2 Efficiency testing standards Using Stray load losses in low voltage Three-Phase cage Induction Motors", IEEE Transactions on Industry Applications, Vol. 38 No.2, pp. 608-634, March/Apr. 2002.
- [5] A. Boglietti, A. Cavagnino, M. Lazzari, M. Pastorelli; Induction Motor efficiency Measurements in accordance of IEEE 112-B, IEC 34-2 and JEC 37 International Standards", Electric Machines and Drives Conference 2003- IEMDC03, IEEE International, Volume 3, pp 1599-1605, June 2003.
- [6] A. Boglietti, A. Cavagnino, M. Lazzari, M. Pastorelli; International Standards for the Induction Motor Efficiency Evaluation; A Critical Analysis of the Stray- Load Loss Determination", IEEE Transactions on Industry Applications, Vol. 40 No.5, pp. 1294-1301, Sept.-Oct. 2004.
- [7] T. Kataoka, Y. Kandatsu, T. Akasaka, Measurement of Equivalent circuit Parameters of Inverter Fed Induction motor". IEEE Transactions on Magneti, Vol. Mag 23 No.5, pp. 3014-3016, Sept. 1987.
- [8] IEEE Std. 112-1996, " Standard Test Procedure for Polyphase Induction Motors and Generators". IEEE, September 1996.
- [9] Deqiang Zheng, Study on the life prediction of induction motors based on accelerated degradation testing method, "International conference on Reliability, Maintainability and safety (ICRMS), 2011, 9<sup>th</sup> International conference, PP 1101-1106
- [10] Naik, R. "Circuit model for shaft voltage prediction in induction motors fed by PWM-based AC drives", Industry Applications, IEEE Transactions on, Sept.-Oct. 2003, Volume 39, Issue 5, pp 1294-1299.

- [11] Shaotang Chen, Thomas A. Lipo, " Modeling of motor bearing current in PWM Inverter drives. IEEE Transactions on Industry Applications, Volume 32, No. 6, November/December1996, pp 1365-1370.
- [12] Jay M. Erdman, Russel J. Kerkman. "Effect of PWM Inverters on AC motor bearing currents and shaft voltages." IEEE Transactions on Industry Applications, Volume 32, No. 2, November/December1996, pp 250-259.
- [13] Sidney Bell, Timothy J. Cookson, " Experience with variable-frequency drives and motor bearing reliability." IEEE Transactions on Industry Applications, Volume 32, No. 5, November/December1996, pp 1438-1446.
- [14] Raymond ong and J.H. Dymond, " Shaft current in AC Induction machine- An online monitoring system and prediction rules." IEEE Transactions on Industry Applications, Volume 32, No. 4, November/December1996, pp 1189-1195.
- [15] Ettore J. Bartolucci, "Cable design for PWM variable speed AC drives." IEEE Transactions on Industry Applications, Volume 37, No. 2, March/April 2001, pp 415-422.
- [16] Raymond ong and J.H. Dymond, " Systematic Practical approach to the study of bearing damage in a large oil-ring lubricated Induction machine" IEEE Transactions on Industry Applications, Volume 36, No. 6, November/December2000, pp 1715-1724
- [17] Austin H. Bonnett, "Root cause AC motor failure-Analysis with focus on shaft failure." IEEE Transactions on Industry Applications, Volume 36, No. 5, Septmber/October 2000, pp 1435-1448.
- [18] Abdeldiebar, B. " Generalized predictive control: Application of the Induction Motor" Smart Manufacturing Application, 2008. ICSMA-2008, International Conference on, 9-11 April 2008, pp 526-529.
- [19] F.M.H. Khater and D.W. Novotny, An equivalent circuit model for phase back voltage control of AC machines, IEEE Transactions on Industry Applic., vol. 22, no. 5, Sept./Oct., pp. 835-841
- [20] T.A. Lipo, The analysis of induction motors with voltage control by symmetrically triggered thyristors, IEEE Trans. on Power Apparatus and Systems, vol. PAS-90, no. 2, March/April 1971, pp.515-525.
- [21] B. Mokrytzki, The controlled slip static inverter drive, IEEE Trans. On Industry and General Applications, vol. IGA-4, May/June 1968, pp. 312-317.

- [22] K. Koga, R. Ueda and T. Sonoda, Achievement of high performances for general purpose inverter drive induction motor system, in Conf. Rec. IEEE IAS Annual Meeting, 1989, pp. 415-425.
- [23] F. Blaabjerg and J.K. Pedersen, Ideal PWM-VSI inverter using only one current sensor in the DC-link, in Conf. Rec. IEE 5th Power Electronics and Variable-Speed Drives Conf., 1994, pp. 458-464.
- [24] S.I. Moon and A. Keyhani, Estimation of induction machine parameters from standstill time-domain data, IEEE Trans. on Industry Applic, vol. 30, no. 6, 1994, pp. 1609-1615
- [25] J. Stephan, M. Bodson and J. Chaisson, Real-time estimation of the parameters and fluxes of induction motors, IEEE Trans. on Industry Applic., vol. 30, no. 3, 1994, pp. 746-758.
- [26] J.A. Capolino, Identification of induction machine parameters, in Conf. Rec. of the Int. Aegean Conf. on Electric Machines and Power Electronics, vol. 2, 1995, pp. 627-637.
- [27] Y. Kishimoto, S. Asaba, K. Nakata and S. Kawatsu, Control device for induction motor, U.S. Patent 5,231,339, July 27, 1993.
- [28] A. Munoz-Garcia, T.A. Lipo and D.W. Novotny, A new induction motor open-loop speed control capable of low frequency operation, IEEE Trans. on Industry Applications, vol. 34, no. 5, July/August, pp. 813-821.
- [29] D. Leggate and R. Kerkman, Pulse based time compensator for PWM voltage inverters, in Conf. Record of IEEE IECON, 1995, pp. 474-481.
- [30] J.W. Choi, S.I. Yong and S.K. Sul, Inverter output voltage synthesis using novel dead time compensation, IEEE Trans. on Industrial Applic., vol. 31, no. 5, 1995, pp. 1001-1008.
- [31] Y. Murai, T. Watanabe and H. Iwasaki, Waveform distortion and correction circuit for PWM inverters with switching lag-times, IEEE Trans. On Industrial Applic., vol. 23, no. 5, 1987, pp. 881-886.
- [32] T. Sukegawa, K. Kamiyama, T. Matsui, and T. Okuyama, Fully digital, vector controlled PWM-VSI fed AC drives with an inverter dead-time compensation strategy, in Conf. Rec. IEEE IAS Annual Mtg., 1988, pp. 463-469.
- [33] J.W. Choi, S.I. Yong and S.K. Sul, Inverter output voltage synthesis using novel dead time compensation, in Conf. Rec. IEEE IAS Annual Mtg., 1994, pp. 100-106.

[34] L. Manz, The motor designer's viewpoint of an adjustable speed drives specification' IEEE Industry Applications Magazine, Jan/Feb. 1995. P.16

[35] A. von Jouanne, P. Enjeti, W. Gray, The effect of long motor leads on PWM inverter fed AC motor drive systems, IEEE Applied Power Electronics conference, March 1995

[36] NEMA MG1,31.40.4.2

[37] NEMA MG1,30.02.2.9

[38] s. Mecker, Considerations in Derating Induction Motors for Applications on Variable Frequency Drives," 1992 IEEE pulp and paper conference. P.191

[39] L. Manz, "Motor insulation system quality for IGBT Drives" 1997 January/February, pp51 to 55

[40] Persson, E., Transient Effects in Application of PWM Inverters to Induction Motors, IEEE Transaction on Industry Applications, Vol. 28, 1992, No. 5, pp. 1095-1101.

[41] Kawkabani, B., Simond, J.J., Kehtari, F., Voltage Peaks of Low Voltage Induction Motors due to PWM Inverter Supply, in EPE'95, pp. 1465- 1469, Sevilla, Spain, 1995.

[42] Takahashi, T., Tetmeyer, M., Tsai, H., Lowery, T., Motor Lead Length Issues for IGBT PWM Drives, in Proceedings of IEEE Annual Pulp and Paper Conference, pp. 21-27, 1995.

[43] Kerkman, R.J., Leggate, D., Skibinski, G., Interaction of Drive Modulation & Cable Parameters on AC Motor Transients, in Conference Record of IEEE Industry Applications Conference, 1996, pp. 143-152.

[44] Kerkman, R.J., Leggate, D., Schlegel, D., Skibinski, G., PWM Inverters and Their Influence on Motor Over-Voltage, in IEEE Annual Applied Power Electronics Conference and Exposition, 1997, pp. 103-113.

[45] von Jouanne, A., Enjeti, P. N., Design Considerations for an Inverter Output Filter to Mitigate Effects of Long Motor Leads in ASD Applications, IEEE Transactions on Industry Applications, Vol. 33, No. 5, September/October 1997, pp. 1138-1145.

[46] Dolezel, I., Kramlík, J., Valouch, V., Parasitic Currents in PWM Voltage Inverter-Fed Asynchronous Motor Drives, in EPE'99, Lausanne, Switzerland, 1999.

[47] Moreira, A. F., Lipo, T. A., Venkataramanan, G., Bernet, S., High Frequency Modeling for Cable and Induction Motor Over-voltage Studies in Long Cable Drives,

in Conference Record of IEEE Industry Applications Conference, 2001, Chicago, USA, pp. 1787-1794.

[48] Cacciato, M., Consoli, A., Finocchiaro, L., Testa, A., Modeling and HF Performance of Power Cables in Electrical Motor Drives, in EPE 2001, Graz, Austria, 2001.

[49] Zden K. Peroutka, Motor insulation breakdowns due to operation of frequency converters. IEEE Power tech conference. June 23rd to 26th 2003, pp 128-136 Bologna, Italy.

[50] Hoene, E., John, W., Reichl, H., Simulation of Conducted Electromagnetic Interference of Inverter-Fed Induction Motors, in EPE-99, Lausanne, Switzerland, 1999.

[51] Skibinski, G., Kerkman, R. J., Leggate, D., Pankau, J., Schlegel, D., Reflected Wave Modeling Techniques for PWM AC Motor Drives, in IEEE Annual Applied Power Electronics Conference and Exposition, 1998, Vol. 2, pp. 1021-1029.

[52] Dommel, H. W., Digital Computer Solution of Electromagnetic Transients in Single- and Multiphase Networks, IEEE Transactions on Power Apparatus and Systems, Vol. PAS-88, No. 4, April 1969, pp. 388-396.

[53] Peroutka, Z., Overvoltage Phenomena in Systems with Distributed Parameters, Graduation Paper, Faculty of Electrical Engineering, University of West Bohemia, Plzeň, Czech Republic, 2000. (in Czech)

[54] Benešová, Z., Mayer, D., Ulrych, B., Transient Phenomena in Three Phase Networks with Distributed Parameters, in Proceedings of SPETO'98 Conference, Gliwice, Poland, 1998, pp. 295-298.

[55] High voltage test techniques; part 1: General Definitions and test requirements, IEC 60-1, 1989.

[56] K.J. Cornick and T.R. Thomposon, " Steep-fronted switching voltage transients and their distribution in motor winding, Part 1 & 2 "Proc. Inst. Elect Eng. Vol. 29, Pt. B no.2 pp 45-63, Mar.1982

[57] J. Acosta and K.J. Cornick, "Field investigation in to the factors governing the severity of pre-striking transient. IEEE Trans. Energy conversion, vol EC-2, no. 4 , PP 638-645 Dec. 1988.

[58] E.P. Dick, B.K. Gupta, P.Pillai, A. Narang, and D.K. Shrma, "Practical calculation of switchingsurges at motor terminals IEEE Trans. Energy conversion, vol 3, no. 4, PP 864-872 Dec. 1988.

- [59] ] E.P. Dick, B.K. Gupta, A. Narang, and D.K. Shurma, "Measurement and analysis of surge distribution in motor stator windings" IEEE Trans. Energy conversion, vol 4, no. 1, PP 126-134 March. 1989.
- [60] J.L. Guardado and K J Cornick, A computer model for calculating steep fronted surge distribution in machine winding," IEEE Trans. Energy conversion, vol 4, no. 1, PP 95-101 March. 1989.
- [61] M.T. Wright, S.J. Yang and K. McLeary, " The influence of coil and surge parameters on transient inerrturn distribution in stator windings," Proc. Inst. Elect. Eng. , vol 130, pt. B no. 4, PP 257-264 July. 1983.
- [62] J.L. Guardado and K.J Cornick, "The effect of coil parameters on the distribution of steep fronted surges in machine windings," IEEE Trans. Energy conversion, vol 7, no. 3, PP 552-559 Sept. 1992.
- [63] IEEE guide for testing turn-to-turn insulation on form-wound stator coils for alternating current rotating machines: IEEE Standard 522-1992:
- [64] IEEE Trial-Use Recommended Practice for the Evaluation of the Impulse voltage Capability of the Insulation Systems for AC Electrical Machinery Employing Form wound Stator coils IEEE Standard 792-1987:
- [65] Motors and generators. NEMA MG1-1993. Draft International Standard 2 (co) 557.
- [66] Rotating Electrical machines, Part 15: Impulse Voltage withstand Levels of Rotating ac Machines with form-wound coils, IEC 34-15, 1990
- [67] Revision of IEC 34-15: 1990
- [68] H.A. Toliyat, G. Suresh, D.A. Rendussara, P.N. Enjeti, "Predicting the Transient Effects of PWM Voltage Waveform on the Stator Windings of Random Wound Induction Motors", IEEE APEC Conference Records, 1997, pp.135-141.
- [69] C.J. Melhorn, L. Tang, "Transient Effects of PWM Drives on Induction Motors", IEEE/ I&CPS Conference Records, May, 1995, pp.1-7
- [70] ATP Users' Manual, Section 23 on cable constants, BAP Publications.
- [71] R. Kerkman, D. Legatte, G. Skibinski, Interaction of the Drive Modulation and Cable Parameters on AC Motor Transient", IEEE IAS Conference Proceedings, 1996, PP143-152.
- [72] Suresh J. Patel, Associate Prof., Electrical Engineering Department, MSU, Vadodara. Use of Motors in Switchgear Applications. National Conference on "Power

Systems, Embedded Systems, Power Electronics, Communication, Control and Instrumentation", 9-11 January, 2012.

[73] S. Mecker, Considerations in Derating Induction Motors for Applications on Variable Frequency Drives," 1992 IEEE pulp and paper conference. P.191

[74] R. Nelson, G. Skibinski, "Solution to motor Insulation Failure" Power Transmission Design, August 1995, p.43

Dt. 11-12-2013

To whomsoever it may concern

This is to certify that Mr. Suresh J. Patel (who is Ph.D. Scholar at Electrical Engineering Dept., Faculty of Technology and Engineering, The Maharaja Sayajirao University of Baroda) have developed Induction motors with 2-Pole and 4-Pole construction for our Jewelry Polishing machine Model No. MD500 & MD1000V, in association with Suntrans Enterprise, Vadodara. We are very happy with the performance of the motors. We found that the usage of these motors reduced the maintenance & improved the overall efficiency.



Mitesh Patel

Technical Director