

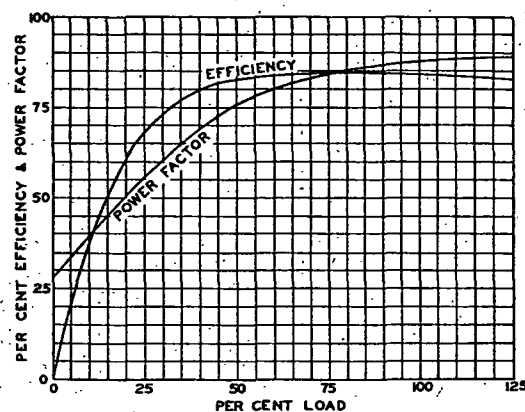


FIG. 6. VARIATION OF EFFICIENCY AND POWER FACTOR WITH LOAD FOR A TYPICAL 5 HP, 4 POLE 60 CYCLE, CLASS B, SQUIRREL-CAGE MOTOR

in each winding. Motors can be provided in constant torque, varying torque or constant horsepower ratings. The constant horsepower type of motor is considerably larger than the constant torque motor due to the fact that the same horsepower must be developed at either reduced speed or high speed.

In selecting two-speed motors for fan, pump, blower, or compressor applications, it is usually found that two winding motors are more expensive than the single winding type. The control cost for two-speed, two winding motors, however, is more economical, and therefore the combined price of both motor and control for the two winding motor is only slightly higher. Because of the improved performance of the two

TYPE OF SQUIRREL CAGE MOTOR	100 STARTING TORQUE 200 % OF FULL LOAD TORQUE	200 STARTING TORQUE 400 % OF FULL LOAD TORQUE	400 STARTING TORQUE 800 % OF FULL LOAD TORQUE	800 STARTING TORQUE 1600 % OF FULL LOAD TORQUE	1600 STARTING TORQUE 3200 % OF FULL LOAD TORQUE	3200 STARTING TORQUE 6400 % OF FULL LOAD TORQUE	6400 STARTING TORQUE 12800 % OF FULL LOAD TORQUE	12800 STARTING TORQUE 25600 % OF FULL LOAD TORQUE	25600 STARTING TORQUE 51200 % OF FULL LOAD TORQUE	51200 STARTING TORQUE 102400 % OF FULL LOAD TORQUE	102400 STARTING TORQUE 204800 % OF FULL LOAD TORQUE	204800 STARTING TORQUE 409600 % OF FULL LOAD TORQUE	409600 STARTING TORQUE 819200 % OF FULL LOAD TORQUE	819200 STARTING TORQUE 1638400 % OF FULL LOAD TORQUE	1638400 STARTING TORQUE 3276800 % OF FULL LOAD TORQUE	3276800 STARTING TORQUE 6553600 % OF FULL LOAD TORQUE	6553600 STARTING TORQUE 13107200 % OF FULL LOAD TORQUE	13107200 STARTING TORQUE 26214400 % OF FULL LOAD TORQUE	26214400 STARTING TORQUE 52428800 % OF FULL LOAD TORQUE	52428800 STARTING TORQUE 104857600 % OF FULL LOAD TORQUE	104857600 STARTING TORQUE 209715200 % OF FULL LOAD TORQUE	209715200 STARTING TORQUE 419430400 % OF FULL LOAD TORQUE	419430400 STARTING TORQUE 838860800 % OF FULL LOAD TORQUE	838860800 STARTING TORQUE 1677721600 % OF FULL LOAD TORQUE	1677721600 STARTING TORQUE 3355443200 % OF FULL LOAD TORQUE	3355443200 STARTING TORQUE 6710886400 % OF FULL LOAD TORQUE	6710886400 STARTING TORQUE 13421772800 % OF FULL LOAD TORQUE	13421772800 STARTING TORQUE 26843545600 % OF FULL LOAD TORQUE	26843545600 STARTING TORQUE 53687091200 % OF FULL LOAD TORQUE	53687091200 STARTING TORQUE 107374182400 % OF FULL LOAD TORQUE	107374182400 STARTING TORQUE 214748364800 % OF FULL LOAD TORQUE	214748364800 STARTING TORQUE 429496729600 % OF FULL LOAD TORQUE	429496729600 STARTING TORQUE 858993459200 % OF FULL LOAD TORQUE	858993459200 STARTING TORQUE 1717986918400 % OF FULL LOAD TORQUE	1717986918400 STARTING TORQUE 3435973836800 % OF FULL LOAD TORQUE	3435973836800 STARTING TORQUE 6871947673600 % OF FULL LOAD TORQUE	6871947673600 STARTING TORQUE 13743895347200 % OF FULL LOAD TORQUE	13743895347200 STARTING TORQUE 27487790694400 % OF FULL LOAD TORQUE	27487790694400 STARTING TORQUE 54975581388800 % OF FULL LOAD TORQUE	54975581388800 STARTING TORQUE 109951162777600 % OF FULL LOAD TORQUE	109951162777600 STARTING TORQUE 219902325555200 % OF FULL LOAD TORQUE	219902325555200 STARTING TORQUE 439804651110400 % OF FULL LOAD TORQUE	439804651110400 STARTING TORQUE 879609302220800 % OF FULL LOAD TORQUE	879609302220800 STARTING TORQUE 1759218604441600 % OF FULL LOAD TORQUE	1759218604441600 STARTING TORQUE 3518437208883200 % OF FULL LOAD TORQUE	3518437208883200 STARTING TORQUE 7036874417766400 % OF FULL LOAD TORQUE	7036874417766400 STARTING TORQUE 14073748835532800 % OF FULL LOAD TORQUE	14073748835532800 STARTING TORQUE 28147497671065600 % OF FULL LOAD TORQUE	28147497671065600 STARTING TORQUE 56294995342131200 % OF FULL LOAD TORQUE	56294995342131200 STARTING TORQUE 112589990684262400 % OF FULL LOAD TORQUE	112589990684262400 STARTING TORQUE 225179981368524800 % OF FULL LOAD TORQUE	225179981368524800 STARTING TORQUE 450359962737049600 % OF FULL LOAD TORQUE	450359962737049600 STARTING TORQUE 900719925474099200 % OF FULL LOAD TORQUE	900719925474099200 STARTING TORQUE 1801439850948198400 % OF FULL LOAD TORQUE	1801439850948198400 STARTING TORQUE 3602879701896396800 % OF FULL LOAD TORQUE	3602879701896396800 STARTING TORQUE 7205759403792793600 % OF FULL LOAD TORQUE	7205759403792793600 STARTING TORQUE 14411518807585587200 % OF FULL LOAD TORQUE	14411518807585587200 STARTING TORQUE 28823037615171174400 % OF FULL LOAD TORQUE	28823037615171174400 STARTING TORQUE 57646075230342348800 % OF FULL LOAD TORQUE	57646075230342348800 STARTING TORQUE 115292150460684697600 % OF FULL LOAD TORQUE	115292150460684697600 STARTING TORQUE 230584300921369395200 % OF FULL LOAD TORQUE	230584300921369395200 STARTING TORQUE 461168601842738790400 % OF FULL LOAD TORQUE	461168601842738790400 STARTING TORQUE 922337203685477580800 % OF FULL LOAD TORQUE	922337203685477580800 STARTING TORQUE 1844674407370955161600 % OF FULL LOAD TORQUE	1844674407370955161600 STARTING TORQUE 3689348814741910323200 % OF FULL LOAD TORQUE	3689348814741910323200 STARTING TORQUE 7378697629483820646400 % OF FULL LOAD TORQUE	7378697629483820646400 STARTING TORQUE 14757395258967641292800 % OF FULL LOAD TORQUE	14757395258967641292800 STARTING TORQUE 29514790517935282585600 % OF FULL LOAD TORQUE	29514790517935282585600 STARTING TORQUE 59029581035870565171200 % OF FULL LOAD TORQUE	59029581035870565171200 STARTING TORQUE 118059162071741130342400 % OF FULL LOAD TORQUE	118059162071741130342400 STARTING TORQUE 236118324143482260684800 % OF FULL LOAD TORQUE	236118324143482260684800 STARTING TORQUE 472236648286964521369600 % OF FULL LOAD TORQUE	472236648286964521369600 STARTING TORQUE 944473296573929042739200 % OF FULL LOAD TORQUE	944473296573929042739200 STARTING TORQUE 1888946593147858085478400 % OF FULL LOAD TORQUE	1888946593147858085478400 STARTING TORQUE 3777893186295716170956800 % OF FULL LOAD TORQUE	3777893186295716170956800 STARTING TORQUE 7555786372591432341913600 % OF FULL LOAD TORQUE	7555786372591432341913600 STARTING TORQUE 15111572745182864683827200 % OF FULL LOAD TORQUE	15111572745182864683827200 STARTING TORQUE 30223145490365729367654400 % OF FULL LOAD TORQUE	30223145490365729367654400 STARTING TORQUE 60446290980731458735308800 % OF FULL LOAD TORQUE	60446290980731458735308800 STARTING TORQUE 120892581961462917470617600 % OF FULL LOAD TORQUE	120892581961462917470617600 STARTING TORQUE 241785163922925834941235200 % OF FULL LOAD TORQUE	241785163922925834941235200 STARTING TORQUE 483570327845851669882470400 % OF FULL LOAD TORQUE	483570327845851669882470400 STARTING TORQUE 967140655691703339764940800 % OF FULL LOAD TORQUE	967140655691703339764940800 STARTING TORQUE 1934281311383406679529881600 % OF FULL LOAD TORQUE	1934281311383406679529881600 STARTING TORQUE 3868562622766813359059763200 % OF FULL LOAD TORQUE	3868562622766813359059763200 STARTING TORQUE 7737125245533626718119526400 % OF FULL LOAD TORQUE	7737125245533626718119526400 STARTING TORQUE 15474250491067253436239052800 % OF FULL LOAD TORQUE	15474250491067253436239052800 STARTING TORQUE 30948500982134506872478105600 % OF FULL LOAD TORQUE	30948500982134506872478105600 STARTING TORQUE 61897001964269013744956211200 % OF FULL LOAD TORQUE	61897001964269013744956211200 STARTING TORQUE 123794003928538027489912422400 % OF FULL LOAD TORQUE	123794003928538027489912422400 STARTING TORQUE 247588007857076054979824844800 % OF FULL LOAD TORQUE	247588007857076054979824844800 STARTING TORQUE 495176015714152109959649689600 % OF FULL LOAD TORQUE	495176015714152109959649689600 STARTING TORQUE 990352031428304219919299379200 % OF FULL LOAD TORQUE	990352031428304219919299379200 STARTING TORQUE 1980704062856608439838598758400 % OF FULL LOAD TORQUE	1980704062856608439838598758400 STARTING TORQUE 3961408125713216879677197516800 % OF FULL LOAD TORQUE	3961408125713216879677197516800 STARTING TORQUE 7922816251426433759354395033600 % OF FULL LOAD TORQUE	7922816251426433759354395033600 STARTING TORQUE 15845632502852867518708790067200 % OF FULL LOAD TORQUE	15845632502852867518708790067200 STARTING TORQUE 31691265005705735037417580134400 % OF FULL LOAD TORQUE	31691265005705735037417580134400 STARTING TORQUE 63382530011411470074835160268800 % OF FULL LOAD TORQUE	63382530011411470074835160268800 STARTING TORQUE 126765060022822940149670320537600 % OF FULL LOAD TORQUE	126765060022822940149670320537600 STARTING TORQUE 253530120045645880299340641075200 % OF FULL LOAD TORQUE	253530120045645880299340641075200 STARTING TORQUE 507060240091291760598681282150400 % OF FULL LOAD TORQUE	507060240091291760598681282150400 STARTING TORQUE 1014120480182583521197362564300800 % OF FULL LOAD TORQUE	1014120480182583521197362564300800 STARTING TORQUE 2028240960365167042394725128601600 % OF FULL LOAD TORQUE	2028240960365167042394725128601600 STARTING TORQUE 4056481920730334084789450257203200 % OF FULL LOAD TORQUE	4056481920730334084789450257203200 STARTING TORQUE 8112963841460668169578900514406400 % OF FULL LOAD TORQUE	8112963841460668169578900514406400 STARTING TORQUE 16225927682921336339157801028812800 % OF FULL LOAD TORQUE	16225927682921336339157801028812800 STARTING TORQUE 32451855365842672678315602057625600 % OF FULL LOAD TORQUE	32451855365842672678315602057625600 STARTING TORQUE 64903710731685345356631204115251200 % OF FULL LOAD TORQUE	64903710731685345356631204115251200 STARTING TORQUE 129807421463370690713262408230502400 % OF FULL LOAD TORQUE	129807421463370690713262408230502400 STARTING TORQUE 259614842926741381426524816461004800 % OF FULL LOAD TORQUE	259614842926741381426524816461004800 STARTING TORQUE 519229685853482762853049632922009600 % OF FULL LOAD TORQUE	519229685853482762853049632922009600 STARTING TORQUE 1038459371706965525706099265844019200 % OF FULL LOAD TORQUE	1038459371706965525706099265844019200 STARTING TORQUE 2076918743413931051412198531688038400 % OF FULL LOAD TORQUE	2076918743413931051412198531688038400 STARTING TORQUE 4153837486827862102824397063376076800 % OF FULL LOAD TORQUE	4153837486827862102824397063376076800 STARTING TORQUE 8307674973655724205648794126752153600 % OF FULL LOAD TORQUE	8307674973655724205648794126752153600 STARTING TORQUE 16615349947311448411297588253504307200 % OF FULL LOAD TORQUE	16615349947311448411297588253504307200 STARTING TORQUE 33230699894622896822595176507008614400 % OF FULL LOAD TORQUE	33230699894622896822595176507008614400 STARTING TORQUE 66461399789245793645190353014017228800 % OF FULL LOAD TORQUE	66461399789245793645190353014017228800 STARTING TORQUE 132922799578491587290380706028034457600 % OF FULL LOAD TORQUE	132922799578491587290380706028034457600 STARTING TORQUE 265845599156983174580761412056068915200 % OF FULL LOAD TORQUE	265845599156983174580761412056068915200 STARTING TORQUE 531691198313966349161522824112137830400 % OF FULL LOAD TORQUE	531691198313966349161522824112137830400 STARTING TORQUE 1063382396627932698323045648224275660800 % OF FULL LOAD TORQUE	1063382396627932698323045648224275660800 STARTING TORQUE 2126764793255865396646091296448551321600 % OF FULL LOAD TORQUE	2126764793255865396646091296448551321600 STARTING TORQUE 4253529586511730793292182592897102643200 % OF FULL LOAD TORQUE	4253529586511730793292182592897102643200 STARTING TORQUE 8507059173023461586584365185794205286400 % OF FULL LOAD TORQUE	8507059173023461586584365185794205286400 STARTING TORQUE 17014118346046923173168730371588410572800 % OF FULL LOAD TORQUE	17014118346046923173168730371588410572800 STARTING TORQUE 34028236692093846346337460743176821145600 % OF FULL LOAD TORQUE	34028236692093846346337460743176821145600 STARTING TORQUE 68056473384187692692674921486353642291200 % OF FULL LOAD TORQUE	68056473384187692692674921486353642291200 STARTING TORQUE 136112946768375385385349842972707284582400 % OF FULL LOAD TORQUE	136112946768375385385349842972707284582400 STARTING TORQUE 272225893536750770770699685945414569164800 % OF FULL LOAD TORQUE	272225893536750770770699685945414569164800 STARTING TORQUE 544451787073501541541399371890829138329600 % OF FULL LOAD TORQUE	544451787073501541541399371890829138329600 STARTING TORQUE 1088903574147003083082798743781658276659200 % OF FULL LOAD TORQUE	1088903574147003083082798743781658276659200 STARTING TORQUE 2177807148294006166165597487563316553318400 % OF FULL LOAD TORQUE	2177807148294006166165597487563316553318400 STARTING TORQUE 4355614296588012332331194975126633106636800 % OF FULL LOAD TORQUE	4355614296588012332331194975126633106636800 STARTING TORQUE 8711228593176024664662389950253266213273600 % OF FULL LOAD TORQUE	8711228593176024664662389950253266213273600 STARTING TORQUE 17422457186352049329324779900506532426547200 % OF FULL LOAD TORQUE	17422457186352049329324779900506532426547200 STARTING TORQUE 34844914372704098658649559801013064853094400 % OF FULL LOAD TORQUE	34844914372704098658649559801013064853094400 STARTING TORQUE 69689828745408197317299119602026129706188800 % OF FULL LOAD TORQUE	69689828745408197317299119602026129706188800 STARTING TORQUE 139379657490816394634598239204052259412377600 % OF FULL LOAD TORQUE	139379657490816394634598239204052259412377600 STARTING TORQUE 278759314981632789269196478408104518824755200 % OF FULL LOAD TORQUE	278759314981632789269196478408104518824755200 STARTING TORQUE 557518629963265578538392956816209037649510400 % OF FULL LOAD TORQUE	557518629963265578538392956816209037649510400 STARTING TORQUE 1115037259926531157076785913632418075299020800 % OF FULL LOAD TORQUE	1115037259926531157076785913632418075299020800 STARTING TORQUE 2230074519853062314153571827264836150598041600 % OF FULL LOAD TORQUE	2230074519853062314153571827264836150598041600 STARTING TORQUE 4460149039706124628307143654529672301196083200 % OF FULL LOAD TORQUE	4460149039706124628307143654529672301196083200 STARTING TORQUE 8920298079412249256614287309059344602392166400 % OF FULL LOAD TORQUE	8920298079412249256614287309059344602392166400 STARTING TORQUE 17840596158824498513228574618118689204784332800 % OF FULL LOAD TORQUE	17840596158824498513228574618118689204784332800 STARTING TORQUE 35681192317648997026457149236237378409568665600 % OF FULL LOAD TORQUE	35681192317648997026457149236237378409568665600 STARTING TORQUE 71362384635297994052914298472474756819137331200 % OF FULL LOAD TORQUE	71362384635297994052914298472474756819137331200 STARTING TORQUE 142724769270595988105828596944949513638274662400 % OF FULL LOAD TORQUE	142724769270595988105828596944949513638274662400 STARTING TORQUE 285449538541191976211657193889899027276549324800 % OF FULL LOAD TORQUE	285449538541191976211657193889899027276549324800 STARTING TORQUE 570899077082383952423314387779798054553098649600 % OF FULL LOAD TORQUE	570899077082383952423314387779798054553098649600 STARTING TORQUE 1141798154164767904846628775559596109106197299200 % OF FULL LOAD TORQUE	1141798154164767904846628775559596109106197299200 STARTING TORQUE 2283596308329535809693257551119192218212394598400 % OF FULL LOAD TORQUE	2283596308329535809693257551119192218212394598400 STARTING TORQUE 4567192616659071619386515102238384436424789196800 % OF FULL LOAD TORQUE	4567192616659071619386515102238384436424789196800 STARTING TORQUE 9134385233318143238773030204476768872849578393600 % OF FULL LOAD TORQUE	9134385233318143238773030204476768872849578393600 STARTING TORQUE 18268770466636286477546060408953537745699156787200 % OF FULL LOAD TORQUE	18268770466636286477546060408953537745699156787200 STARTING TORQUE 36537540933272572955092120817907075491398313574400 % OF FULL LOAD TORQUE	36537540933272572955092120817907075491398313574400 STARTING TORQUE 73075081866545145910184241635814150982796627148800 % OF FULL LOAD TORQUE	73075081866545145910184241635814150982796627148800 STARTING TORQUE 146150163733090291820368483271628301965593254297600 % OF FULL LOAD TORQUE	146150163733090291820368483271628301965593254297600 STARTING TORQUE 292300327466180583640736966543256603931186508595200 % OF FULL LOAD TORQUE	292300327466180583640736966543256603931186508595200 STARTING TORQUE 584600654932361167281473933086513207862373017190400 % OF FULL LOAD TORQUE	584600654932361167281473933086513207862373017190400 STARTING TORQUE 1169201309864722334562947866173026415724746034380800 % OF FULL LOAD TORQUE	1169201309864722334562947866173026415724746034380800 STARTING TORQUE 2338402619729444669125895732346052831449492068761600 % OF FULL LOAD TORQUE	2338402619729444669125895732346052831449492068761600 STARTING TORQUE
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