

TAL 044

Low Voltage Alternator - 4 pole

Three-phase 70 to 200 kVA - 50 Hz / 88 to 250 kVA - 60 Hz
Dedicated single-phase 57 to 82 kVA - 50 Hz / 80 to 125 kVA - 60 Hz
Electrical and mechanical data

LEROY-SOMER[™]

Nidec
All for dreams

TAL 044 - Three-phase & Single-phase

The best of performance

Nidec Leroy-Somer TAL 044 alternator has been designed to offer you the best power generation performances. With its meticulous design and optimized architecture, the TAL 044 strikes the perfect balance between compactness, reliability, performance and longevity. Whatever your application, the TAL 044 will meet your needs and will adapt to all situations.

Standards

Nidec Leroy-Somer TAL 044 alternator meets all key international standards and regulations, including IEC 60034, NEMA MG 1.32-33, ISO 8528-3, CSA C22.2 n° 100-14 and UL 1446 (UL 1004 on request). Also compliant with IEC 61000-6-2, IEC 61000-6-3, IEC 61000-6-4, VDE 0875G, VDE 0875N and EN 55011, group 1 class A for European zone. Nidec Leroy-Somer TAL 044 alternator can be integrated in EC marked generator set, and bears EC and CMIM markings. It is designed, manufactured and marketed in an ISO 9001 and ISO 14001 quality assurance environment.

Electrical characteristics and performances

- Class H insulation
- Shunt excitation
- Low voltage winding:
 - Three-phase 50 Hz: 220V - 240V and 380V - 415V (440V)
 - 60 Hz: 208V - 240V and 380V - 480V
 - Single-phase 50 Hz: 230V
 - 60 Hz: 240V
- 4-terminal plates in 6-wire version
- Optimized performance

Excitation and regulation system

| | Excitation system | | | | Regulation options | | |
|---------------------|-------------------|----------|----------------|--------------|--------------------|------------------------------|--|
| | AVR | SHUNT | AREP+ (option) | PMG (option) | UL _{C/US} | Remote voltage potentiometer | C.T. Current transformer for paralleling |
| Three-phase 6-wire | R120 | Standard | | | | | |
| | R150 | Option | | | | √ | |
| | R180 | | Standard | Standard | | √ | √ |
| | D350 | Option | Option | Option | √ | √ | √* |
| Three-phase 12-wire | R120 | Standard | | | | | |
| | R250 | Option | | | √ | √ | |
| | R180 | | Standard | Standard | | √ | √ |
| | D350 | Option | Option | Option | √ | √ | √* |
| Single-phase | R121 | Standard | | | | √ | |
| | R251 | Option | | | √ | √ | |

*: only with AREP+ or PMG

Protection system and options

- Degree of protection: IP 23
- Complete winding protection for non-harsh environment with relative humidity ≤ 95%
- Options:
 - Three-phase 12-wire with 8-terminal plates
 - AREP+ or PMG excitation
 - UL_{C/US}
 - Customized painting (unpainted machine as standard)
 - Space heater
 - Flying leads
 - Droop kit for alternator paralleling
 - Dedicated single-phase
 - Stator sensors
 - Winding 8 optimized for three-phase 380V / 416V - 60Hz
 - Reinforced winding protection for harsh environments and relative humidity greater than 95% (system 2 - 4): for TAL 044 K apply a derating coefficient of 0.97

Mechanical construction

- Compact and rugged assembly to withstand engine vibrations
- Steel frame
- Aluminum flanges and shields
- Single-bearing design compatible with most diesel engines
- Greased for life bearings
- Direction of rotation: clockwise and counterclockwise without derating

Terminal box design

- Easy access to AVR and terminals
- Possibility of current transformer for parallel operation



TAL 044 - Three-phase 70 to 200 kVA - 50 Hz / 88 to 250 kVA - 60 Hz

General characteristics

| | | | | |
|--|---|--|-------|-------------|
| Insulation class | H | Excitation system 6-wire | SHUNT | AREP+ / PMG |
| Winding pitch | 2/3 (wind.6S - 6-wire / wind.6 - 12-wire) | AVR type | R120 | R180 |
| Number of wires | 6 (12 option) | Excitation system 12-wire (option) | SHUNT | AREP+ / PMG |
| Protection | IP 23 | AVR type | R120 | R180 |
| Altitude | ≤ 1000 m | Voltage regulation (**) | ± 1 % | ± 0.5 % |
| Overspeed | 2250 R.P.M. | Total Harmonic Distortion THD (***) in no-load | < 2 % | |
| Air flow 50 Hz | 0.29 m³/s | Total Harmonic Distortion THD (***) in linear load | < 5 % | |
| Air flow 60 Hz | 0.34 m³/s | Waveform: NEMA = TIF (***) | < 50 | |
| AREP+/PMG Short-circuit current = 2.7 I _n : 5 seconds (*) | | Waveform: I.E.C. = FHT (***) | < 2 % | |

(*) D350: 10 seconds (**) Steady state (***) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings 50 Hz - 1500 R.P.M.

| kVA / kW - P.F. = 0.8 | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|-----|--------------------|-------------|------|-------|-------|--------------------|-------------|-------|-------|------|------------------|-------------|-------|------|------------------|-------------|-------------|------|------|-----|
| Duty / T° C | | Continuous / 40 °C | | | | | Continuous / 40 °C | | | | | Stand-by / 40 °C | | | | Stand-by / 27 °C | | | | | |
| Class / T° K | | H / 125° K | | | | | F / 105° K | | | | | H / 150° K | | | | H / 163° K | | | | | |
| Phase | | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | | | | |
| Y | | 380V | 400V | 415V | 440V | | 380V | 400V | 415V | 440V | | 380V | 400V | 415V | 440V | | 380V | 400V | 415V | 440V | |
| Δ | | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | | 220V | 230V | 240V | 230V | |
| YY (*) | | 200V | | | | | 200V | | | | | 200V | | | | | 200V | | | | |
| ΔΔ (*) | | 230V | | | | | 230V | | | | | 230V | | | | | 230V | | | | |
| TAL 044 A | kVA | 70 | 70 | 70 | 63 | 42 | 64 | 64 | 64 | 57 | 38 | 74 | 74 | 74 | 67 | 45 | 77 | 77 | 77 | 69 | 46 |
| | kW | 56 | 56 | 56 | 50 | 33.5 | 51 | 51 | 51 | 46 | 30.5 | 59 | 59 | 59 | 54 | 36 | 62 | 62 | 62 | 55 | 37 |
| TAL 044 B | kVA | 80 | 80 | 80 | 72 | 48 | 73 | 73 | 73 | 66 | 44 | 85 | 85 | 85 | 76 | 51 | 88 | 88 | 88 | 79 | 53 |
| | kW | 64 | 64 | 64 | 58 | 38.5 | 58 | 58 | 58 | 53 | 35 | 68 | 68 | 68 | 61 | 41 | 70 | 70 | 70 | 63 | 42 |
| TAL 044 C | kVA | 90 | 90 | 90 | 81 | 54 | 82 | 82 | 82 | 74 | 49 | 95 | 95 | 95 | 86 | 57 | 100 | 100 | 100 | 89 | 59 |
| | kW | 72 | 72 | 72 | 65 | 43 | 66 | 66 | 66 | 59 | 39 | 76 | 76 | 76 | 69 | 46 | 80 | 80 | 80 | 71 | 47 |
| TAL 044 D | kVA | 100 | 100 | 100 | 90 | 60 | 91 | 91 | 91 | 82 | 55 | 106 | 106 | 106 | 95 | 64 | 110 | 110 | 110 | 99 | 66 |
| | kW | 80 | 80 | 80 | 72 | 48 | 73 | 73 | 73 | 66 | 44 | 85 | 85 | 85 | 76 | 51 | 88 | 88 | 88 | 79 | 53 |
| TAL 044 E | kVA | 125 | 125 | 125 | 113 | 67 | 114 | 114 | 114 | 103 | 61 | 133 | 133 | 133 | 120 | 71 | 138 | 138 | 138 | 124 | 74 |
| | kW | 100 | 100 | 100 | 90 | 54 | 91 | 91 | 91 | 82 | 49 | 106 | 106 | 106 | 96 | 57 | 110 | 110 | 110 | 99 | 59 |
| TAL 044 H | kVA | 135 | 135 | 135 | 122 | 73 | 123 | 123 | 123 | 111 | 66 | 143 | 143 | 143 | 129 | 77 | 150 | 150 | 150 | 134 | 80 |
| | kW | 108 | 108 | 108 | 98 | 58 | 98 | 98 | 98 | 89 | 53 | 114 | 114 | 114 | 103 | 62 | 120 | 120 | 120 | 107 | 64 |
| TAL 044 J | kVA | 150 | 150 | 150 | 135 | 80 | 137 | 137 | 137 | 123 | 73 | 159 | 159 | 159 | 143 | 85 | 165 | 165 | 165 | 149 | 88 |
| | kW | 120 | 120 | 120 | 108 | 64 | 110 | 110 | 110 | 98 | 58 | 127 | 127 | 127 | 114 | 68 | 132 | 132 | 132 | 119 | 70 |
| TAL 044 K | kVA | 165 | 165 | 165 | 138 | 88 | 150 | 150 | 150 | 126 | 80 | 175 | 175 | 175 | 150 | 93 | 182 | 182 | 182 | 157 | 97 |
| | kW | 132 | 132 | 132 | 110 | 70 | 120 | 120 | 120 | 101 | 64 | 140 | 140 | 140 | 120 | 74 | 146 | 146 | 146 | 126 | 78 |
| TAL 044 L | kVA | 180 | 180 | 180 | 171 | 90 | 164 | 164 | 164 | 156 | 82 | 191 | 191 | 191 | 181 | 95 | 200 | 200 | 200 | 188 | 99 |
| | kW | 144 | 144 | 144 | 137 | 72 | 131 | 131 | 131 | 125 | 66 | 153 | 153 | 153 | 145 | 76 | 160 | 160 | 160 | 150 | 79 |
| TAL 044 M | kVA | 192 | 200 | 200 | 192 | 100 | 175 | 182 | 182 | 175 | 91 | 204 | 212 | 212 | 204 | 106 | 211 | 220 | 220 | 211 | 110 |
| | kW | 154 | 160 | 160 | 154 | 80 | 140 | 146 | 146 | 140 | 73 | 163 | 170 | 170 | 163 | 85 | 169 | 176 | 176 | 169 | 88 |

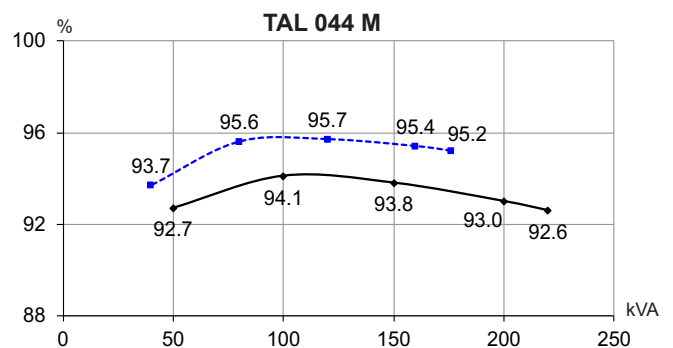
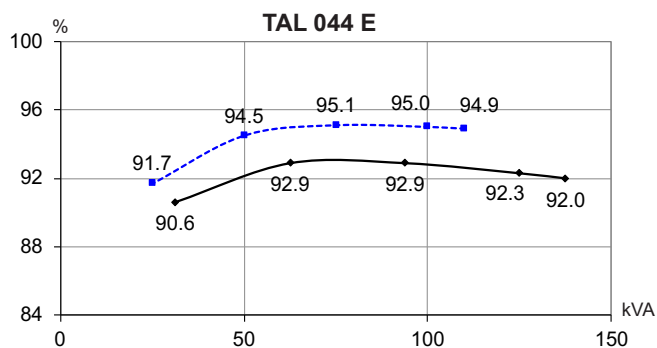
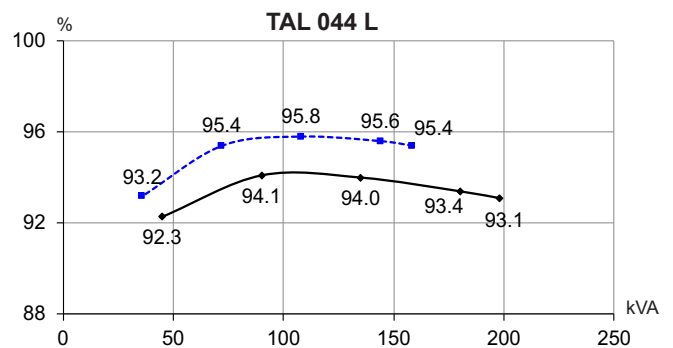
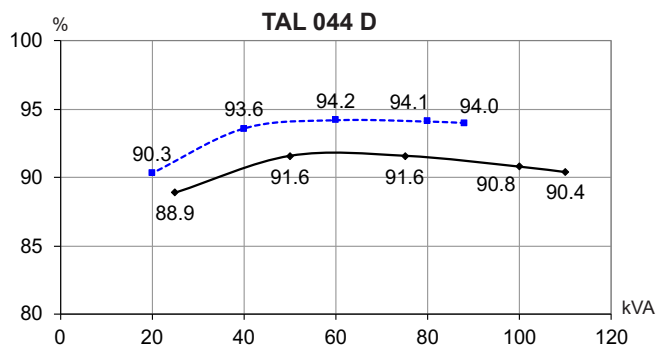
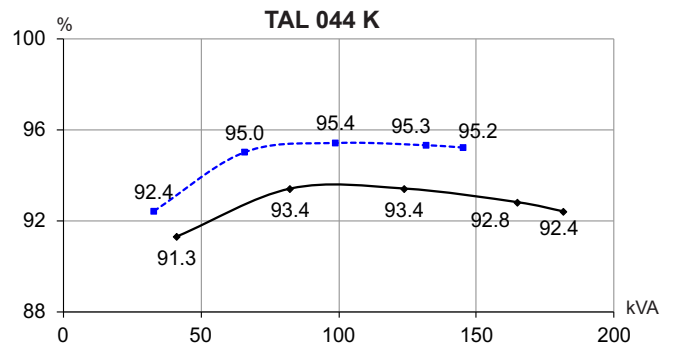
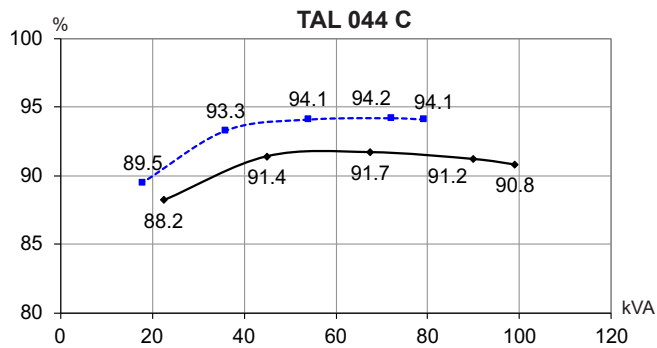
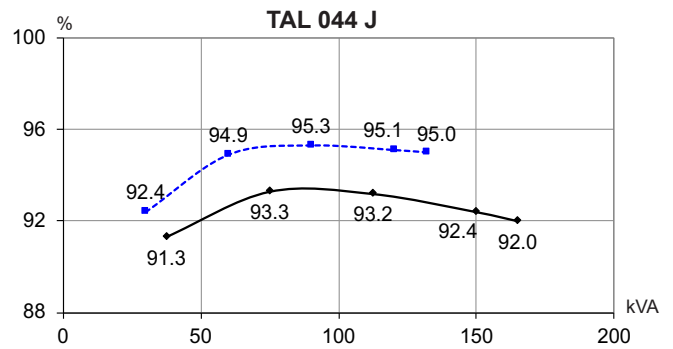
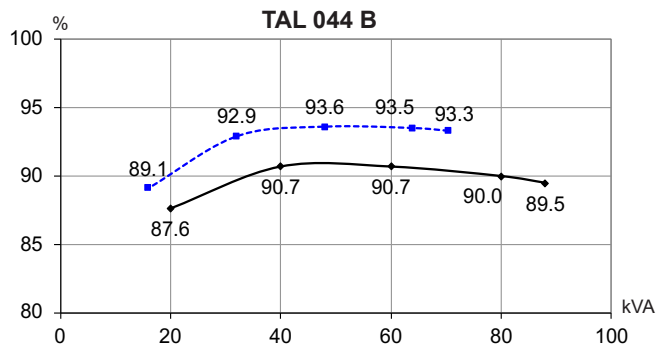
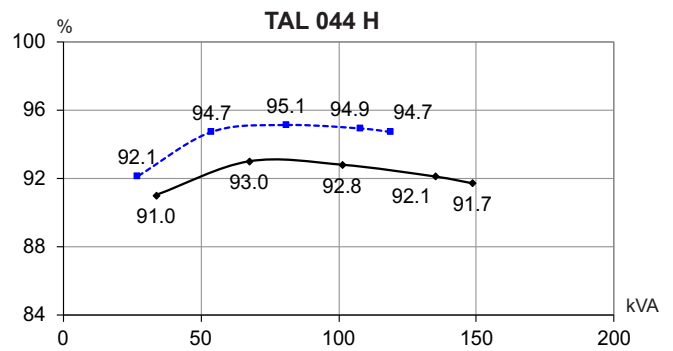
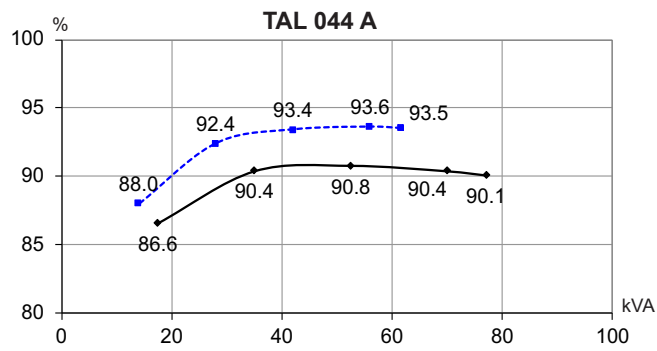
(*) 12-wire option

Ratings 60 Hz - 1800 R.P.M.

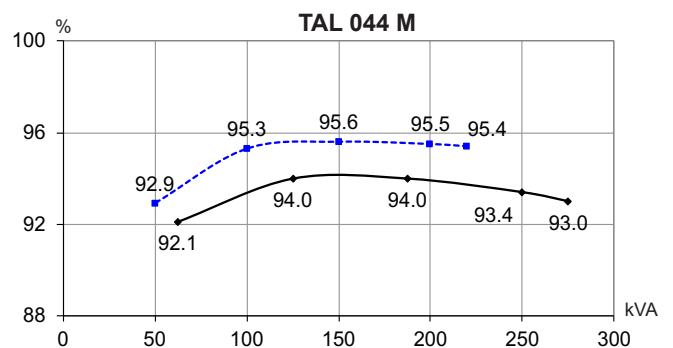
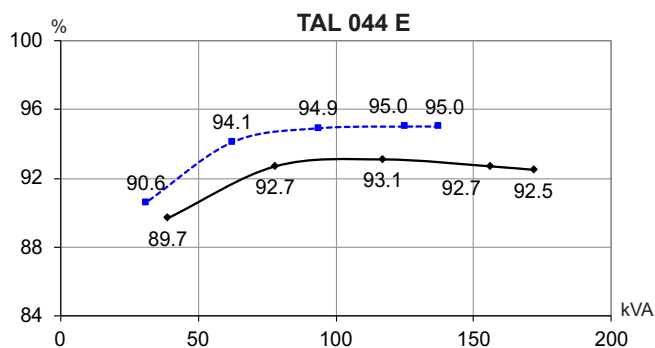
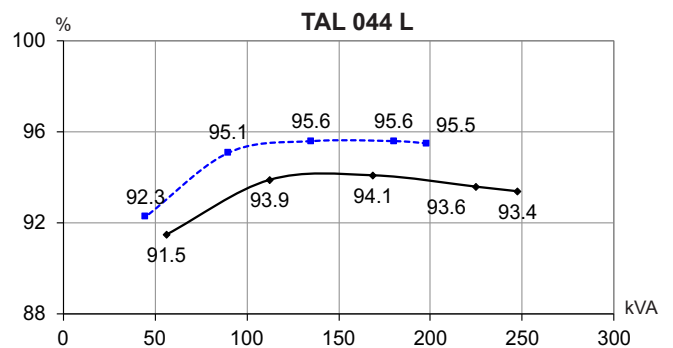
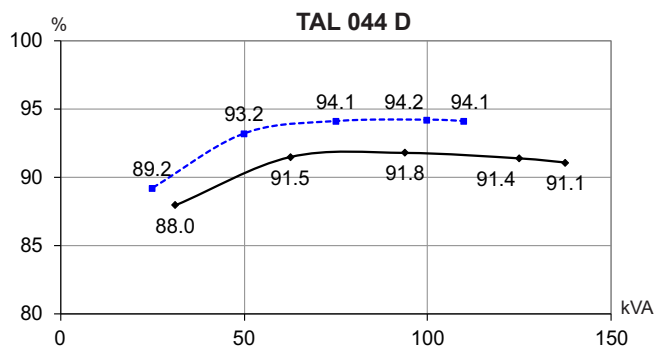
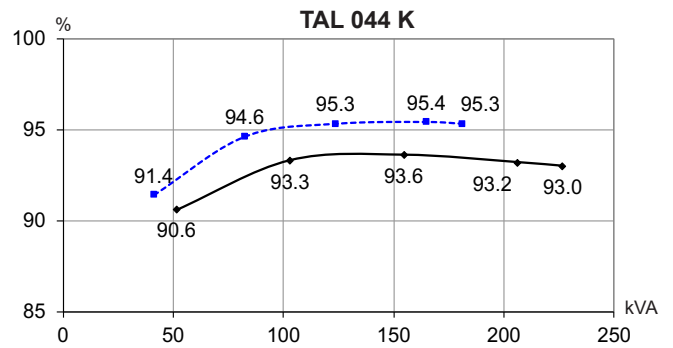
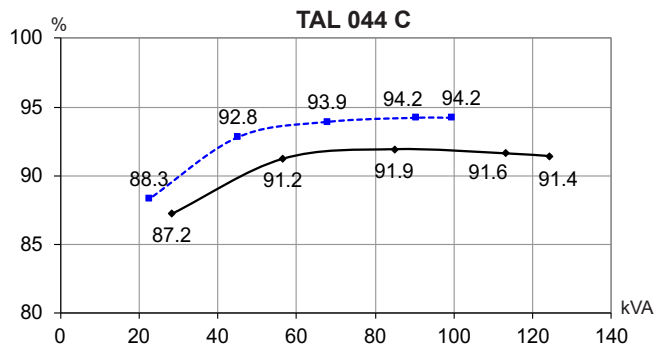
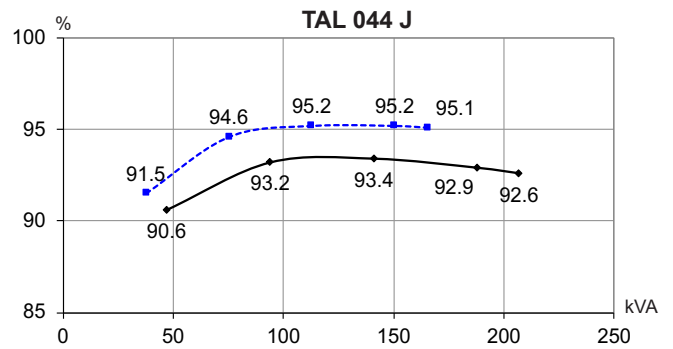
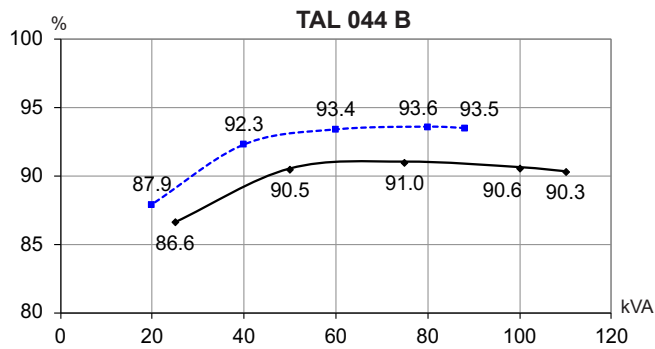
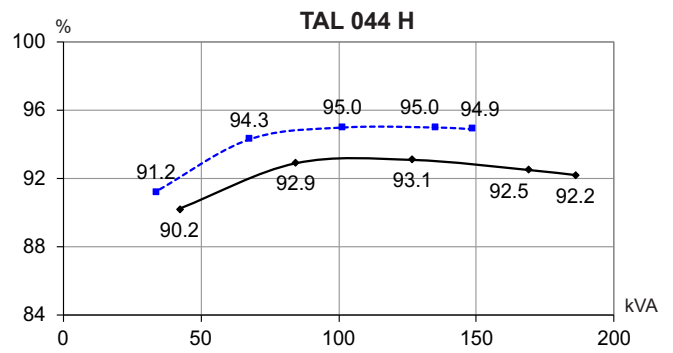
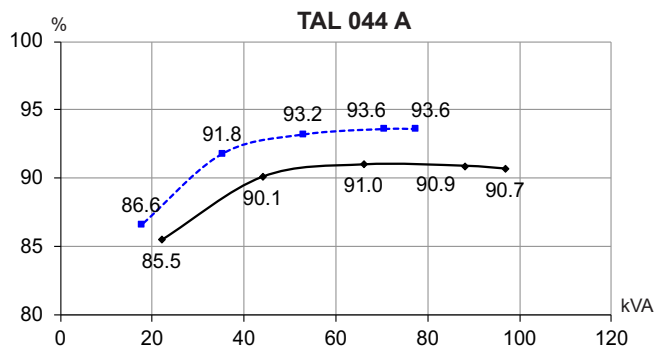
| kVA / kW - P.F. = 0.8 | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|-----|--------------------|------|------|-------------|-------|--------------------|------|-------|-------------|------|------------------|-------|-------|-------------|------------------|-------|------|------|-------------|-----|
| Duty / T° C | | Continuous / 40 °C | | | | | Continuous / 40 °C | | | | | Stand-by / 40 °C | | | | Stand-by / 27 °C | | | | | |
| Class / T° K | | H / 125° K | | | | | F / 105° K | | | | | H / 150° K | | | | H / 163° K | | | | | |
| Phase | | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | 3 ph. | | | 1 ph. | | | | |
| Y | | 380V | 416V | 440V | 480V | | 380V | 416V | 440V | 480V | | 380V | 416V | 440V | 480V | | 380V | 416V | 440V | 480V | |
| Δ | | 220V | 240V | | 240V | | 220V | 240V | | 240V | | 220V | 240V | | 240V | | 220V | 240V | | 240V | |
| YY (*) | | 208V | | | | 240V | 208V | | | | 240V | 208V | | | | 240V | | | | | |
| ΔΔ (*) | | 240V | | | | | 240V | | | | | 240V | | | | | | | | | |
| TAL 044 A | kVA | 69 | 76 | 80 | 88 | 46 | 63 | 69 | 73 | 80 | 42 | 73 | 81 | 85 | 93 | 49 | 76 | 84 | 88 | 97 | 51 |
| | kW | 55 | 61 | 64 | 70 | 37 | 50 | 55 | 58 | 64 | 33.5 | 58 | 65 | 68 | 74 | 39 | 61 | 67 | 70 | 78 | 41 |
| TAL 044 B | kVA | 79 | 87 | 92 | 100 | 52 | 72 | 79 | 84 | 91 | 47 | 84 | 92 | 98 | 106 | 55 | 87 | 96 | 101 | 110 | 57 |
| | kW | 63 | 70 | 74 | 80 | 42 | 58 | 63 | 67 | 73 | 37.5 | 67 | 74 | 78 | 85 | 44 | 70 | 77 | 81 | 88 | 46 |
| TAL 044 C | kVA | 89 | 98 | 103 | 113 | 59 | 81 | 89 | 94 | 103 | 54 | 94 | 104 | 109 | 120 | 63 | 98 | 108 | 113 | 124 | 65 |
| | kW | 71 | 78 | 82 | 90 | 47 | 65 | 71 | 75 | 82 | 43 | 75 | 83 | 87 | 96 | 50 | 78 | 86 | 90 | 99 | 52 |
| TAL 044 D | kVA | 99 | 108 | 115 | 125 | 65 | 90 | 98 | 105 | 114 | 59 | 105 | 114 | 122 | 133 | 69 | 109 | 119 | 127 | 138 | 72 |
| | kW | 79 | 86 | 92 | 100 | 52 | 72 | 78 | 84 | 91 | 47 | 84 | 91 | 98 | 106 | 55 | 87 | 95 | 102 | 110 | 58 |
| TAL 044 E | kVA | 124 | 135 | 143 | 156 | 76 | 113 | 123 | 130 | 142 | 69 | 131 | 143 | 152 | 165 | 81 | 136 | 149 | 157 | 172 | 84 |
| | kW | 99 | 108 | 114 | 125 | 61 | 90 | 98 | 104 | 114 | 55 | 105 | 114 | 122 | 132 | 65 | 109 | 119 | 126 | 138 | 67 |
| TAL 044 H | kVA | 134 | 146 | 155 | 169 | 81 | 122 | 133 | 141 | 154 | 74 | 142 | 155 | 164 | 179 | 86 | 147 | 161 | 171 | 186 | 89 |
| | kW | 107 | 117 | 124 | 135 | 65 | 98 | 106 | 113 | 123 | 59 | 114 | 124 | 131 | 143 | 69 | 118 | 129 | 137 | 149 | 71 |
| TAL 044 J | kVA | 148 | 163 | 172 | 188 | 95 | 135 | 148 | 157 | 171 | 86 | 157 | 173 | 182 | 199 | 101 | 163 | 179 | 189 | 207 | 105 |
| | kW | 118 | 130 | 138 | 150 | 76 | 108 | 118 | 126 | 137 | 69 | 126 | 138 | 146 | 159 | 81 | 130 | 143 | 151 | 166 | 84 |
| TAL 044 K | kVA | 165 | 179 | 189 | 206 | 105 | 150 | 163 | 172 | 187 | 96 | 175 | 190 | 200 | 218 | 111 | 182 | 197 | 208 | 227 | 116 |
| | kW | 132 | 143 | 151 | 165 | 84 | 120 | 130 | 138 | 150 | 77 | 140 | 152 | 160 | 174 | 89 | 146 | 158 | 166 | 182 | 93 |
| TAL 044 L | kVA | 180 | 195 | 210 | 225 | 113 | 164 | 177 | 191 | 205 | 102 | 191 | 207 | 223 | 239 | 119 | 200 | 215 | 231 | 250 | 124 |
| | kW | 144 | 156 | 168 | 180 | 90 | 131 | 142 | 153 | 164 | 82 | 153 | 166 | 178 | 191 | 95 | 160 | 172 | 185 | 200 | 99 |
| TAL 044 M | kVA | 200 | 215 | 230 | 250 | 125 | 182 | 196 | 209 | 228 | 114 | 212 | 228 | 244 | 265 | 133 | 220 | 237 | 253 | 275 | 136 |
| | kW | 160 | 172 | 184 | 200 | 100 | 146 | 157 | 167 | 182 | 91 | 170 | 182 | 195 | 212 | 106 | 176 | 190 | 202 | 220 | 109 |

(*) 12-wire option

Efficiencies 400 V - 50 Hz (— P.F.: 0.8) (--- P.F.: 1)



Efficiencies 480 V - 60 Hz (— P.F.: 0.8) (--- P.F.: 1)



Reactances (%). Time constants (ms) - Class H / 400 V

| | A | B | C | D | E | H | J | K | L | M |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Kcc Short-circuit ratio | 0.57 | 0.5 | 0.53 | 0.48 | 0.43 | 0.4 | 0.4 | 0.42 | 0.37 | 0.33 |
| Xd Direct-axis synchronous reactance unsaturated | 294 | 336 | 307 | 341 | 334 | 361 | 359 | 343 | 343 | 381 |
| Xq Quadrature-axis synchronous reactance unsaturated | 150 | 171 | 156 | 174 | 170 | 184 | 183 | 175 | 175 | 194 |
| T'do No-load transient time constant | 2475 | 2475 | 2308 | 2308 | 2154 | 2154 | 2112 | 2077 | 2025 | 2025 |
| X'd Direct-axis transient reactance saturated | 11.9 | 13.6 | 13.3 | 14.7 | 15.5 | 16.7 | 17 | 16.5 | 16.9 | 18.8 |
| T'd Short-circuit transient time constant | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| X''d Direct-axis subtransient reactance saturated | 7.1 | 8.1 | 7.9 | 8.8 | 9.3 | 10 | 10.2 | 9.9 | 10.1 | 11.3 |
| T''d Subtransient time constant | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X''q Quadrature-axis subtransient reactance saturated | 16.1 | 18.3 | 17 | 18.9 | 18.9 | 20.4 | 20.4 | 19.5 | 19.7 | 21.9 |
| Xo Zero sequence reactance | 0.49 | 0.56 | 0.55 | 0.61 | 0.64 | 0.69 | 0.7 | 0.68 | 0.7 | 0.78 |
| X2 Negative sequence reactance saturated | 11.62 | 13.28 | 12.53 | 13.92 | 14.12 | 15.25 | 15.31 | 14.74 | 14.96 | 16.62 |
| Ta Armature time constant | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |

Other class H / 400 V data

| | | | | | | | | | | |
|--|------|------|------|------|------|------|------|-------|-------|-------|
| io (A) No-load excitation current SHUNT | 0.84 | 0.84 | 0.80 | 0.80 | 0.67 | 0.67 | 0.66 | 0.68 | 0.64 | 0.64 |
| io (A) No-load excitation current AREP+ | 1.08 | 1.08 | 1.03 | 1.03 | 0.87 | 0.87 | 0.85 | 0.88 | 0.82 | 0.82 |
| ic (A) On-load excitation current SHUNT | 2.60 | 2.95 | 2.75 | 3.08 | 2.57 | 2.78 | 2.79 | 2.82 | 2.69 | 3.01 |
| ic (A) On-load excitation current AREP+ | 3.35 | 3.80 | 3.54 | 3.96 | 3.31 | 3.59 | 3.60 | 3.63 | 3.46 | 3.88 |
| uc (V) On-load excitation voltage SHUNT | 28.9 | 32.5 | 30.1 | 33.2 | 31.9 | 34.3 | 34.1 | 34.1 | 20.1 | 22.2 |
| uc (V) On-load excitation voltage AREP+ | 23.2 | 26.1 | 24.1 | 26.7 | 25.6 | 27.5 | 27.4 | 27.4 | 15.8 | 17.5 |
| ms Response time ($\Delta U = 20\%$ transient) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| kVA Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) SHUNT* | 124 | 124 | 143 | 143 | 204 | 205 | 225 | 254 | 318 | 318 |
| kVA Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) AREP+* | 203 | 203 | 233 | 233 | 333 | 334 | 366 | 413 | 542 | 543 |
| % Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG} | 17.2 | 18.8 | 18.5 | 19.9 | 18.2 | 19.1 | 19.3 | 18.9 | 17.3 | 18.6 |
| % Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 _{LAG} | 12.5 | 13.6 | 13.4 | 14.4 | 13.2 | 13.8 | 13.9 | 13.7 | 12.2 | 13 |
| W No-load losses | 1980 | 1980 | 2175 | 2175 | 2322 | 2322 | 2478 | 2785 | 2665 | 2665 |
| W Heat dissipation | 5903 | 7091 | 6931 | 8053 | 8255 | 9254 | 9769 | 10184 | 10134 | 11898 |

* P.F. = 0.6

Reactances (%). Time constants (ms) - Class H / 480 V

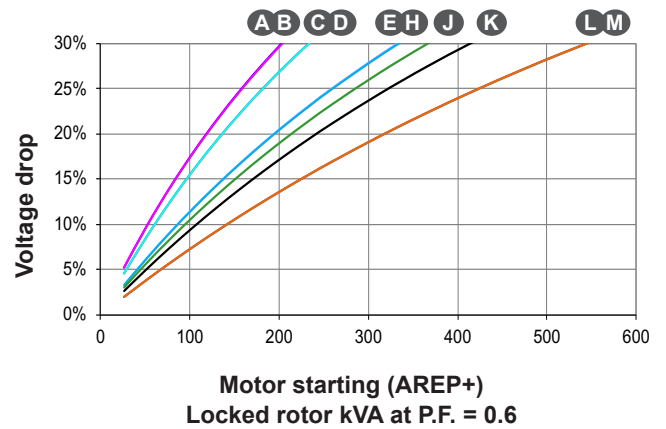
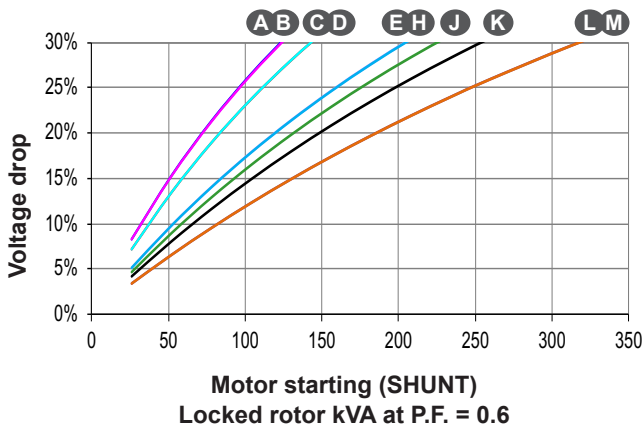
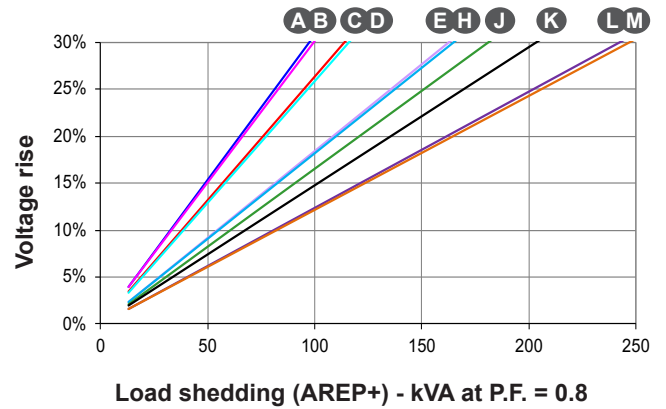
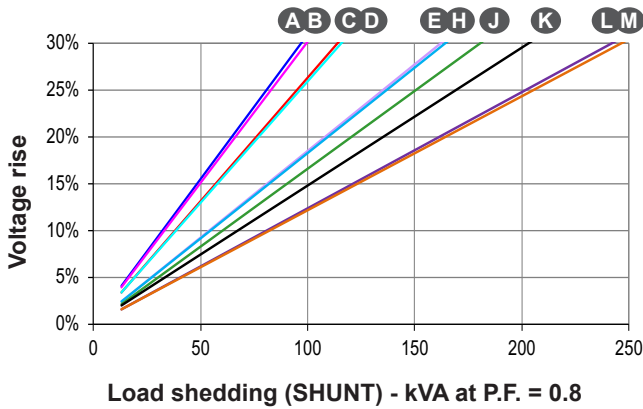
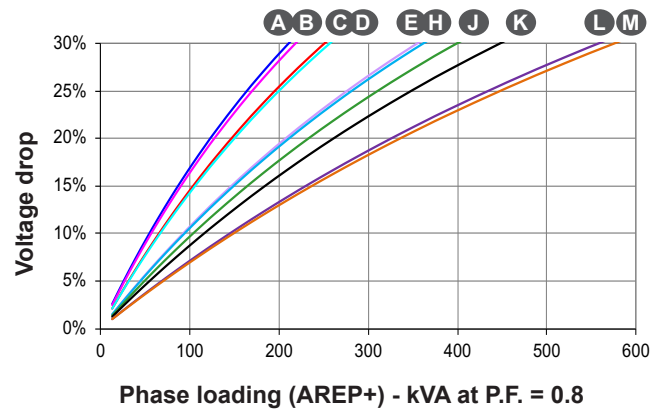
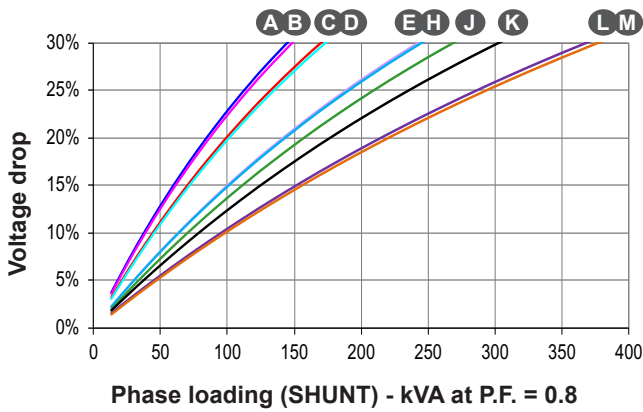
| | A | B | C | D | E | H | J | K | L | M |
|--|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Kcc Short-circuit ratio | 0.55 | 0.48 | 0.5 | 0.46 | 0.41 | 0.38 | 0.38 | 0.41 | 0.36 | 0.32 |
| Xd Direct-axis synchronous reactance unsaturated | 308 | 350 | 321 | 355 | 348 | 377 | 375 | 356 | 358 | 397 |
| Xq Quadrature-axis synchronous reactance unsaturated | 157 | 178 | 164 | 181 | 177 | 192 | 191 | 182 | 182 | 202 |
| T'do No-load transient time constant | 2475 | 2475 | 2308 | 2308 | 2154 | 2154 | 2112 | 2077 | 2025 | 2025 |
| X'd Direct-axis transient reactance saturated | 12.4 | 14.1 | 13.9 | 15.4 | 16.1 | 17.5 | 17.7 | 17.1 | 17.6 | 19.6 |
| T'd Short-circuit transient time constant | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| X''d Direct-axis subtransient reactance saturated | 7.4 | 8.5 | 8.3 | 9.2 | 9.7 | 10.5 | 10.6 | 10.3 | 10.6 | 11.7 |
| T''d Subtransient time constant | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| X''q Quadrature-axis subtransient reactance saturated | 16.8 | 19.1 | 17.8 | 19.7 | 19.6 | 21.3 | 21.3 | 20.3 | 20.5 | 22.8 |
| Xo Zero sequence reactance | 0.51 | 0.59 | 0.58 | 0.64 | 0.67 | 0.72 | 0.74 | 0.71 | 0.73 | 0.81 |
| X2 Negative sequence reactance saturated | 12.17 | 13.83 | 13.1 | 14.49 | 14.69 | 15.91 | 15.99 | 15.34 | 15.59 | 17.32 |
| Ta Armature time constant | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |

Other class H / 480 V data

| | | | | | | | | | | |
|--|------|------|------|------|------|-------|-------|-------|-------|-------|
| io (A) No-load excitation current SHUNT | 0.84 | 0.84 | 0.79 | 0.79 | 0.67 | 0.67 | 0.66 | 0.68 | 0.63 | 0.63 |
| io (A) No-load excitation current AREP+ | 1.08 | 1.08 | 1.02 | 1.02 | 0.87 | 0.87 | 0.85 | 0.87 | 0.82 | 0.82 |
| ic (A) On-load excitation current SHUNT | 2.60 | 2.91 | 2.72 | 3.01 | 2.58 | 2.79 | 2.79 | 2.79 | 2.69 | 3.00 |
| ic (A) On-load excitation current AREP+ | 3.34 | 3.76 | 3.51 | 3.88 | 3.32 | 3.59 | 3.60 | 3.59 | 3.47 | 3.87 |
| uc (V) On-load excitation voltage SHUNT | 29.3 | 32.6 | 30.3 | 33.3 | 32.4 | 34.8 | 34.7 | 34.4 | 20.4 | 22.6 |
| uc (V) On-load excitation voltage AREP+ | 23.5 | 26.2 | 24.4 | 26.7 | 26 | 28 | 27.8 | 27.6 | 16.1 | 17.8 |
| ms Response time ($\Delta U = 20\%$ transient) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| kVA Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) SHUNT* | 149 | 150 | 172 | 172 | 246 | 246 | 270 | 304 | 381 | 381 |
| kVA Start ($\Delta U = 20\%$ cont. or $\Delta U = 30\%$ trans.) AREP+* | 244 | 244 | 279 | 281 | 401 | 402 | 438 | 498 | 648 | 650 |
| % Transient ΔU (on-load 4/4) SHUNT - P.F.: 0.8 _{LAG} | 17.7 | 19.3 | 19.1 | 20.4 | 18.6 | 19.7 | 19.9 | 19.4 | 17.8 | 19.1 |
| % Transient ΔU (on-load 4/4) AREP+ - P.F.: 0.8 _{LAG} | 12.9 | 14 | 13.8 | 14.7 | 13.5 | 14.2 | 14.3 | 14 | 12.5 | 13.4 |
| W No-load losses | 2905 | 2905 | 3189 | 3189 | 3417 | 3417 | 3639 | 4070 | 3923 | 3923 |
| W Heat dissipation | 7042 | 8265 | 8222 | 9378 | 9683 | 10805 | 11438 | 11913 | 12145 | 14130 |

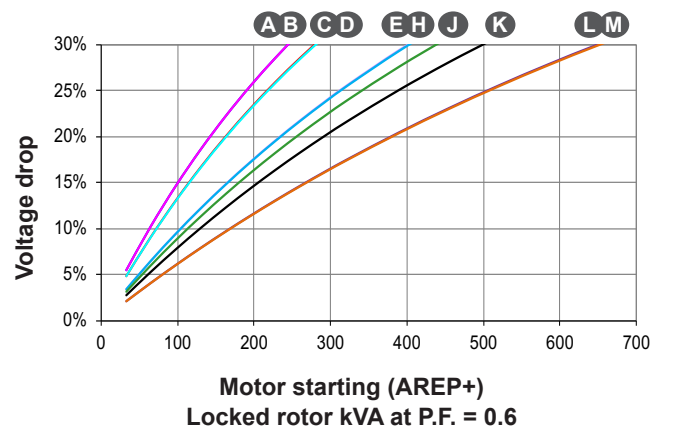
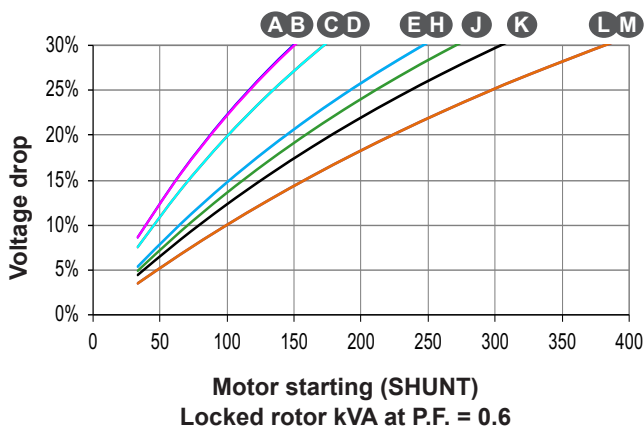
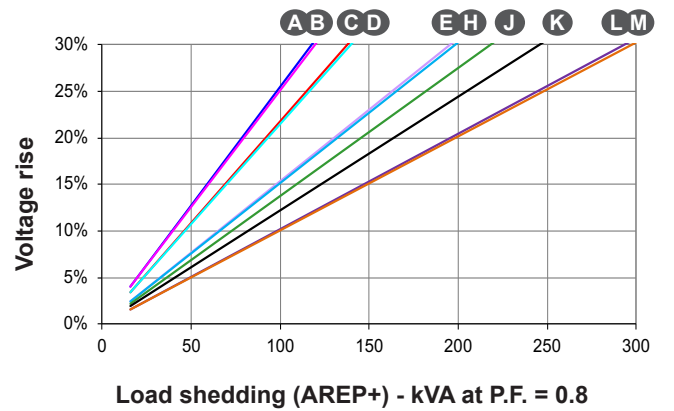
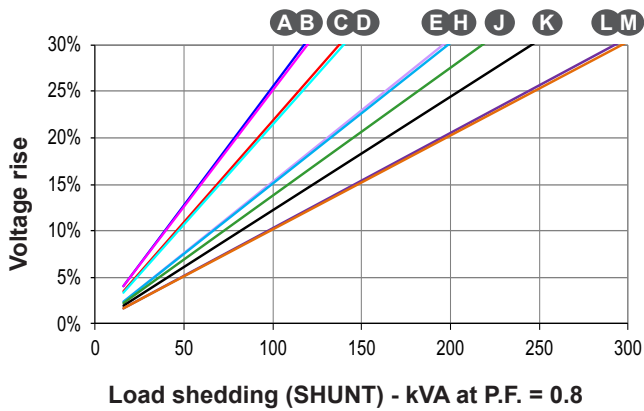
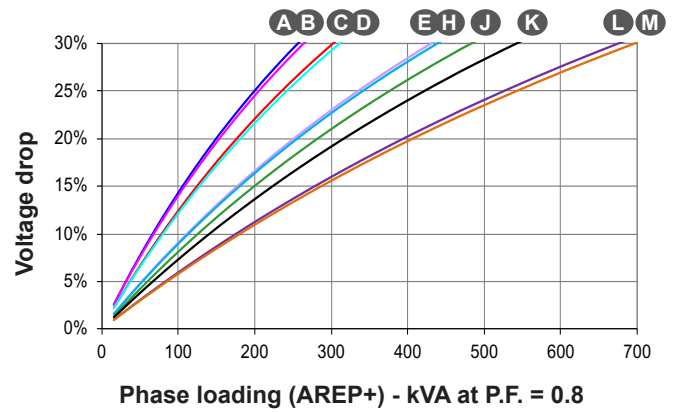
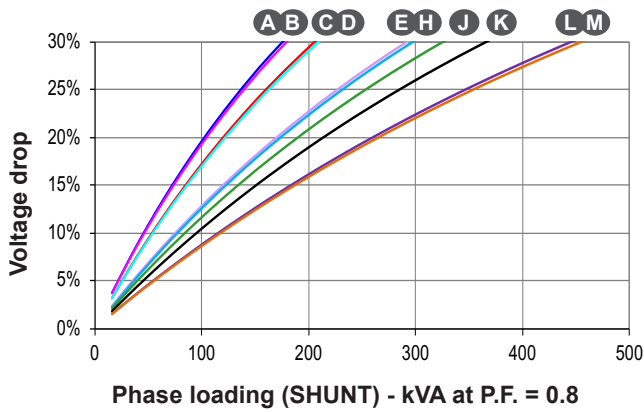
* P.F. = 0.6

Transient voltage variation 400V - 50 Hz



- For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- For voltages other than 400V (Y), 230V (Δ) at 50 Hz, then kVA must be multiplied by $(400/U)^2$ or $(230/U)^2$.
- Transient performance of the PMG option, consult us.

Transient voltage variation 480V - 60 Hz

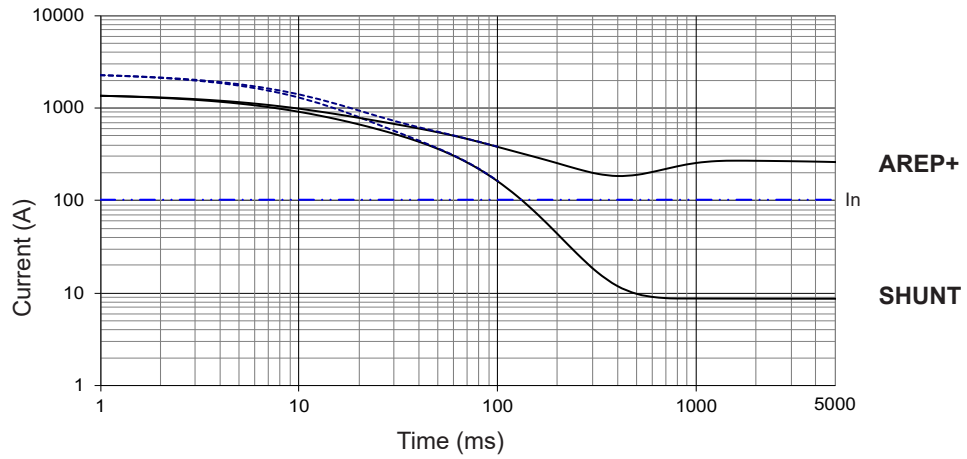


- For a starting P.F. other than 0.6, the starting kVA must be multiplied by $K = \text{Sine P.F.} / 0.8$
- For voltages other than 480V (Y), 277V (Δ), 240V (YY) at 60 Hz, then kVA must be multiplied by $(480/U)^2$ or $(277/U)^2$ or $(240/U)^2$.
- Transient performance of the PMG option, consult us.

3-phase short-circuit curves at no load and rated speed (star connection Y)

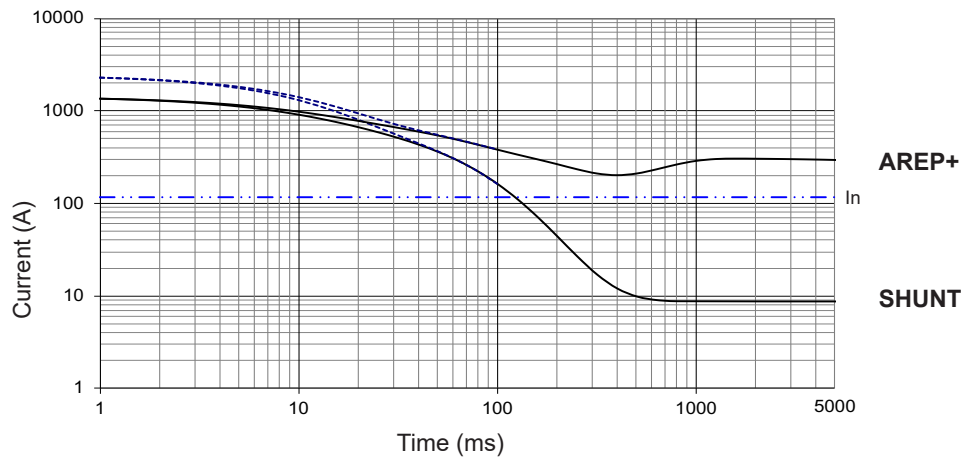
TAL 044 A

Symmetrical —
Asymmetrical - - -



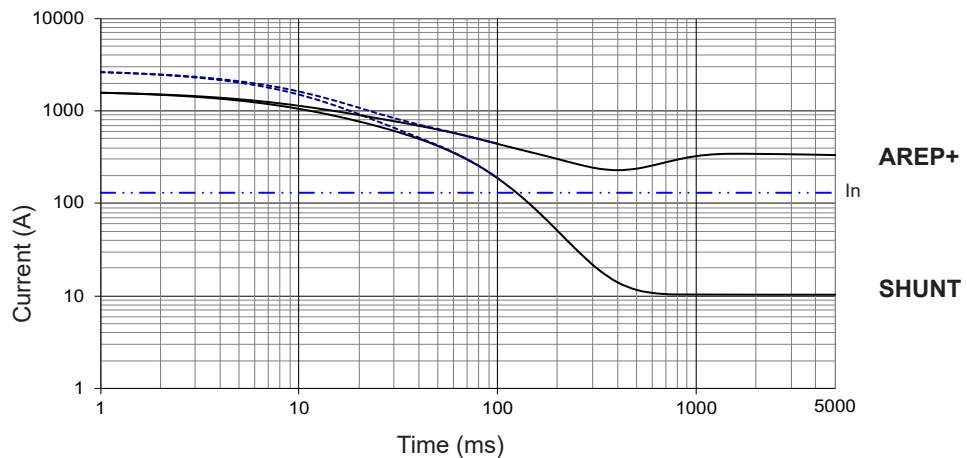
TAL 044 B

Symmetrical —
Asymmetrical - - -



TAL 044 C

Symmetrical —
Asymmetrical - - -



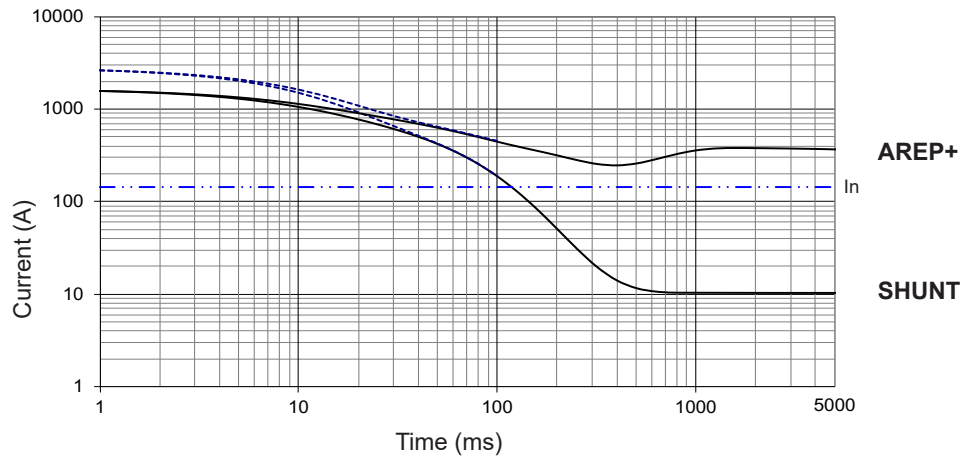
Influence due to connection

For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

3-phase short-circuit curves at no load and rated speed (star connection Y)

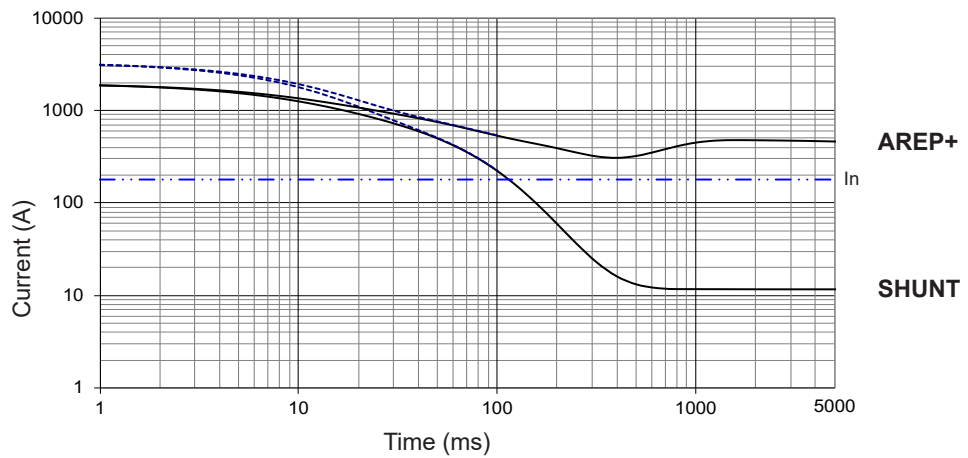
TAL 044 D

Symmetrical —
Asymmetrical - - -



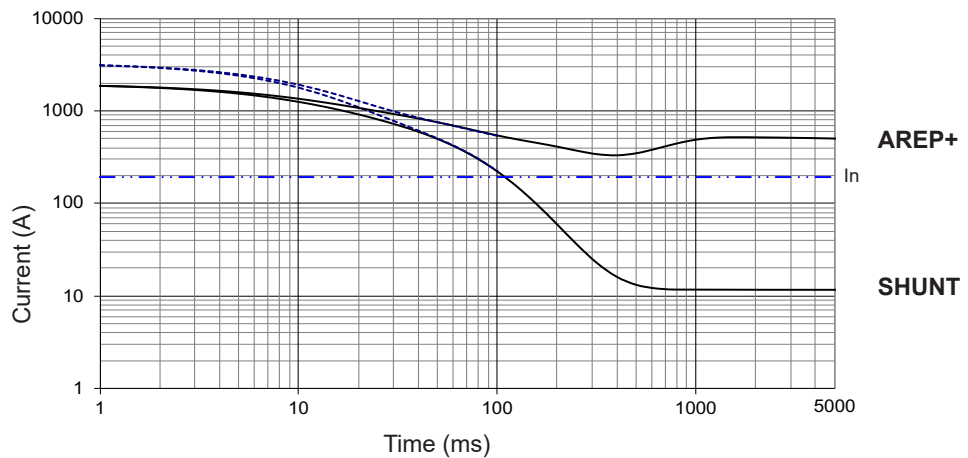
TAL 044 E

Symmetrical —
Asymmetrical - - -



TAL 044 H

Symmetrical —
Asymmetrical - - -



Influence due to short-circuit

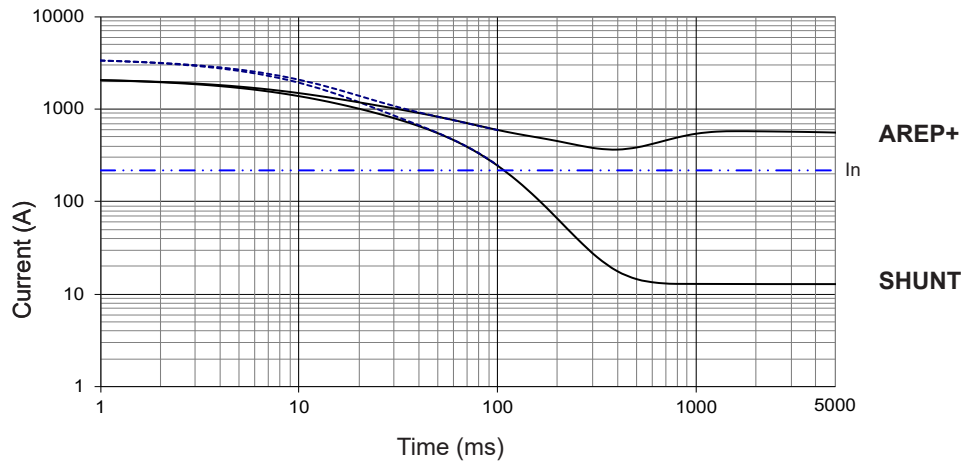
Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

| | 3 - phase | 2 - phase L / L | 1 - phase L / N |
|------------------------------|-----------|-----------------|-----------------|
| Instantaneous (max.) | 1 | 0.87 | 1.3 |
| Continuous | 1 | 1.5 | 2.2 |
| Maximum duration (AREP+/PMG) | | 1.5 | |

3-phase short-circuit curves at no load and rated speed (star connection Y)

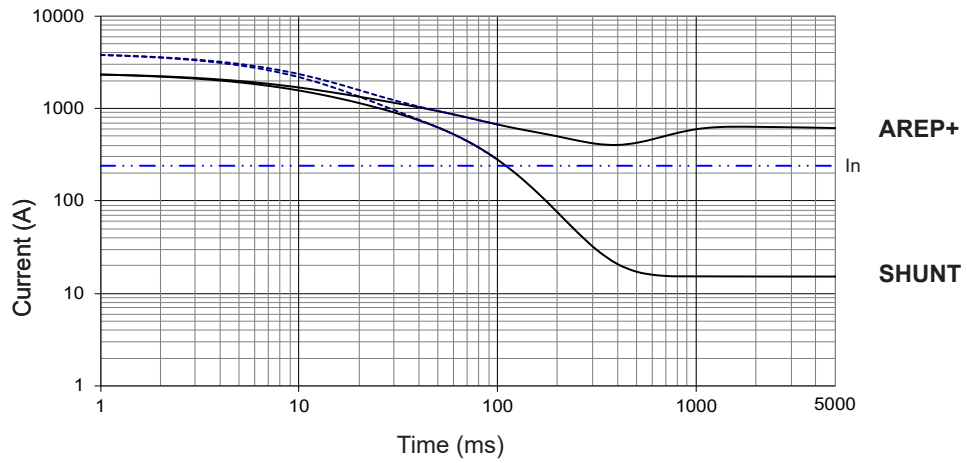
TAL 044 J

Symmetrical —
Asymmetrical - - -



TAL 044 K

Symmetrical —
Asymmetrical - - -



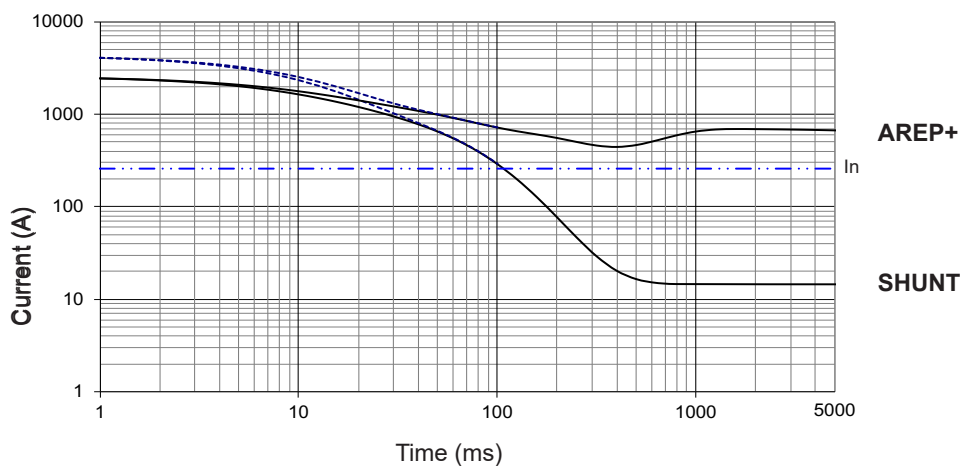
Influence due to connection

For (Δ) connection, use the following multiplication factor:
- Current value x 1.732.

3-phase short-circuit curves at no load and rated speed (star connection Y)

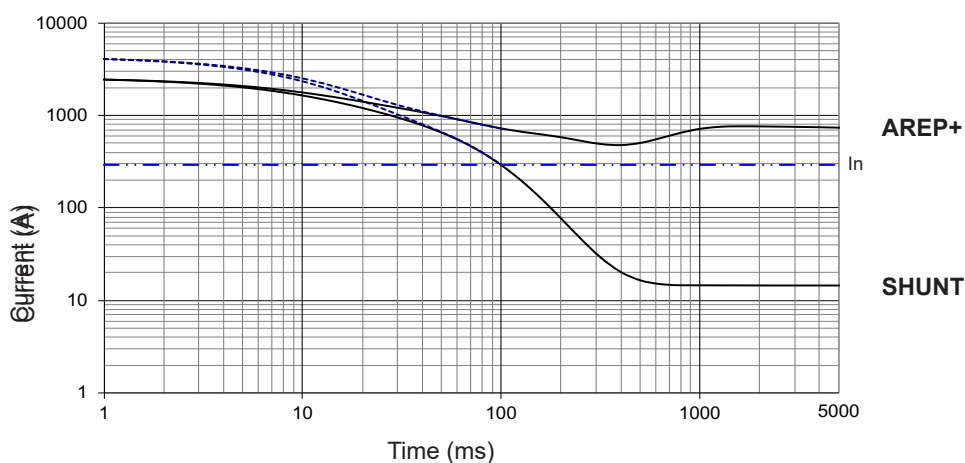
TAL 044 L

Symmetrical —
Asymmetrical - - -



TAL 044 M

Symmetrical —
Asymmetrical - - -



Influence due to short-circuit

Curves are based on a three-phase short-circuit.
For other types of short-circuit,
use the following multiplication factors.

| | 3 - phase | 2 - phase L / L | 1 - phase L / N |
|------------------------------|-----------|-----------------|-----------------|
| Instantaneous (max.) | 1 | 0.87 | 1.3 |
| Continuous | 1 | 1.5 | 2.2 |
| Maximum duration (AREP+/PMG) | | 1.5 | |


TAL 044 - Dedicated single-phase 57 to 82 kVA - 50 Hz / 80 to 125 kVA - 60 Hz

General characteristics

| | | | |
|------------------|---|---|---------|
| Insulation class | H | Excitation system | SHUNT |
| Winding pitch | 2/3 (wind. M 50 Hz, M1 60 Hz) | AVR type | R121 |
| Number of wires | 4 | Voltage regulation (*) | ± 1 % |
| Protection | IP 23 | Total Harmonic Distortion THD (**) in no-load | < 3.5 % |
| Altitude | ≤ 1000 m | Total Harmonic Distortion THD (**) in linear load | < 5 % |
| Overspeed | 2250 R.P.M. | Waveform: NEMA = TIF (**) | < 100 |
| Air flow | 0.25 m ³ /s (50 Hz) / 0.30 m ³ /s (60 Hz) | Waveform: I.E.C. = FHT (**) | < 2 % |


(*) Steady state (**) Total harmonic distortion between phases, no-load or on-load (non-distorting)

Ratings / Efficiencies 50 Hz - 1500 R.P.M. - Winding M

| kVA / kW - P.F. = 1(*) | | | | | | |
|--|--------------------|------------|------------|------------------|------------------|------|
| Duty / T° C | Continuous / 40 °C | | | Stand-by / 40 °C | Stand-by / 27 °C | |
| Class / T° K | H / 125° K | F / 105° K | H / 150° K | H / 163° K | | |
| Serie (SE)  | 230 V | η % | 230 V | 230 V | 230V | η % |
| TAL 044 C | 57 | 91 | 52 | 60 | 63 | 90.7 |
| TAL 044 D1 | 69 | 91.5 | 63 | 73 | 76 | 91.1 |
| TAL 044 E | - | - | - | - | - | - |
| TAL 044 J | 82 | 92.3 | 75 | 87 | 90 | 92 |
| TAL 044 K | - | - | - | - | - | - |

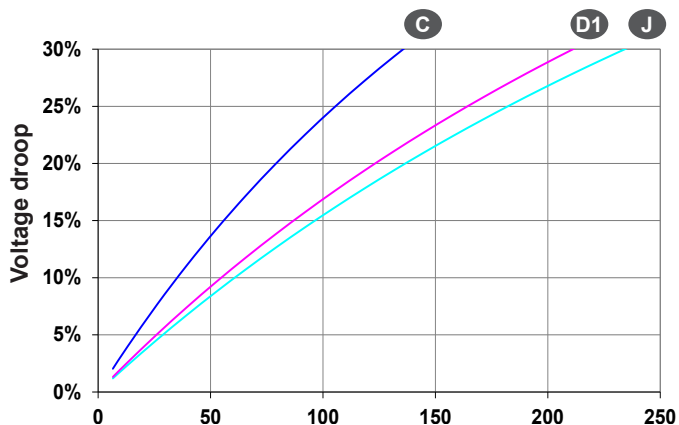
(*) For P.F. 0.8: derating 15%

Ratings / Efficiencies 60 Hz - 1800 R.P.M. - Winding M1

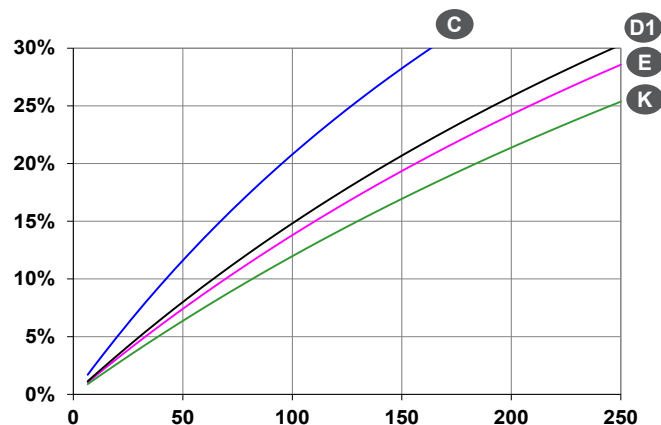
| kVA / kW - P.F. = 1(*) | | | | | | |
|--|--------------------|------------|------------|------------------|------------------|------|
| Duty / T° C | Continuous / 40 °C | | | Stand-by / 40 °C | Stand-by / 27 °C | |
| Class / T° K | H / 125° K | F / 105° K | H / 150° K | H / 163° K | | |
| Serie (SE)  | 240 V | η % | 240 V | 240 V | 240V | η % |
| TAL 044 C | 80 | 90 | 73 | 85 | 88 | 89.7 |
| TAL 044 D1 | 100 | 90 | 91 | 106 | 110 | 89.7 |
| TAL 044 E | 115 | 90.7 | 105 | 122 | 127 | 90.2 |
| TAL 044 J | - | - | - | - | - | - |
| TAL 044 K | 125 | 91.7 | 114 | 133 | 138 | 91.4 |

(*) For P.F. 0.8: derating 15%

Starting motor 230V - 50Hz



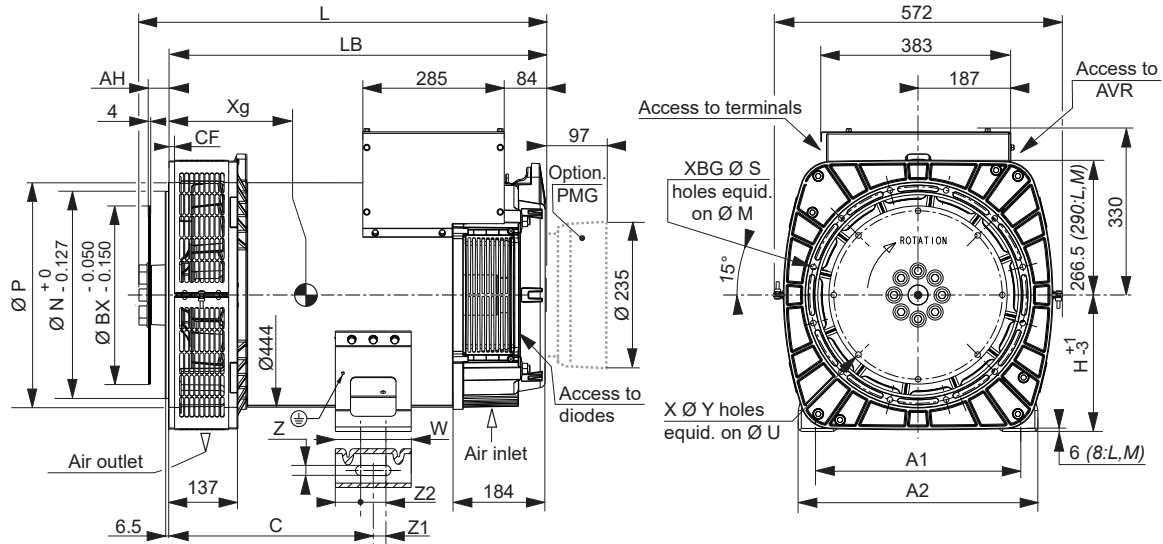
Starting motor 240V - 60Hz



Locked rotor kVA at PF : 0.9

TAL 044 - Three-phase & Single-phase

Single-bearing dimensions



| Dimensions (mm) and weight | | | | |
|----------------------------|----------|-----|-----|-------------|
| Type | L maxi * | LB | Xg | Weight (kg) |
| TAL 044 A | 758 | 677 | 293 | 247 |
| TAL 044 B | 758 | 677 | 293 | 247 |
| TAL 044 C | 758 | 677 | 313 | 280 |
| TAL 044 D | 758 | 677 | 313 | 280 |
| TAL 044 D1 | 758 | 677 | 313 | 280 |
| TAL 044 E | 828 | 747 | 353 | 353 |
| TAL 044 H | 828 | 747 | 353 | 353 |
| TAL 044 J | 828 | 747 | 365 | 383 |
| TAL 044 K | 868 | 787 | 383 | 418 |
| TAL 044 L | 953 | 872 | 416 | 539 |
| TAL 044 M | 953 | 872 | 416 | 539 |

* L maxi = LB + AH maxi + 19

| Flange (mm) | | | | | | |
|-------------|------------|--------|--------|----|-----|---------|
| S.A.E. | P | N | M | S | XBG | CF |
| 4 | 400 | 361.95 | 381 | 11 | 12 | 16 |
| 3 | 445 | 409.58 | 428.62 | 11 | 12 | 16 |
| 2 | 485 | 447.68 | 466.72 | 11 | 12 | 16 |
| 1 | 560.5/581* | 511.18 | 530.23 | 12 | 10 | 4.5/10* |

* Specific dimension TAL 044 L and M

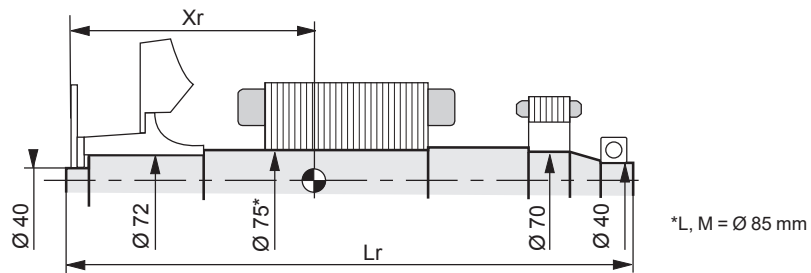
| Shaft height (mm) | | | | Coupling | | | | |
|-------------------|----------|-------|--------|------------|---|---|---|---|
| H | Standard | | Option | Flex plate | 1 | 2 | 3 | 4 |
| | 270 | 225* | 280** | | | | | |
| C | 405 | 332.5 | 429 | 14 | x | - | - | - |
| A1 | 406 | 356 | 457 | 11 1/2 | x | x | x | - |
| A2 | 474 | 430 | 541 | 8 | - | - | x | x |
| Z | 20 | 14.5 | 20 | | | | | |
| Z1 | 25 | 20 | 25 | | | | | |
| Z2 | 50 | 40 | 50 | | | | | |
| W | 150 | 120 | 150 | | | | | |

* Not available for L and M

** Available only for L and M

| Flex plate (mm) | | | | | | |
|-----------------|--------|--------|---|----|------|--|
| S.A.E. | BX | U | X | Y | AH | |
| 14 | 466.72 | 438.15 | 8 | 14 | 25.4 | |
| 11 1/2 | 352.42 | 333.38 | 8 | 11 | 39.6 | |
| 10 | 314.32 | 295.28 | 8 | 11 | 53.8 | |
| 8 | 263.52 | 244.48 | 6 | 11 | 62 | |

Torsional analysis data



| Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²) | | | | | | | | | | | | | | | | |
|--|----------|-----|-------|-------|-----------|-----|-------|-------|---------------|-----|-------|-------|-----------|-----|-------|-------|
| Flex plate | S.A.E. 8 | | | | S.A.E. 10 | | | | S.A.E. 11 1/2 | | | | S.A.E. 14 | | | |
| | Xr | Lr | M | J | Xr | Lr | M | J | Xr | Lr | M | J | Xr | Lr | M | J |
| TAL 044 A | 352.4 | 727 | 107.1 | 0.739 | 362.4 | 719 | 107.2 | 0.753 | 349.3 | 704 | 106.8 | 0.769 | 298.6 | 711 | 113.8 | 0.899 |
| TAL 044 B | 352.4 | 727 | 107.1 | 0.739 | 362.4 | 719 | 107.2 | 0.753 | 349.3 | 704 | 106.8 | 0.769 | 298.6 | 711 | 113.8 | 0.899 |
| TAL 044 C | 362.5 | 727 | 120.9 | 0.863 | 353.2 | 719 | 121.0 | 0.877 | 340.3 | 704 | 120.6 | 0.893 | 310.0 | 711 | 127.6 | 1.023 |
| TAL 044 D | 362.5 | 727 | 120.9 | 0.863 | 353.2 | 719 | 121.0 | 0.877 | 340.3 | 704 | 120.6 | 0.893 | 310.0 | 711 | 127.6 | 1.023 |
| TAL 044 D1 | 362.5 | 727 | 120.9 | 0.863 | 353.2 | 719 | 121.0 | 0.877 | 340.3 | 704 | 120.6 | 0.893 | 310.0 | 711 | 127.6 | 1.023 |
| TAL 044 E | 408.5 | 797 | 153.6 | 1.137 | 398.5 | 789 | 153.7 | 1.151 | 385.4 | 774 | 153.3 | 1.167 | 357.3 | 781 | 160.2 | 1.297 |
| TAL 044 H | 408.5 | 797 | 153.6 | 1.137 | 398.5 | 789 | 153.7 | 1.151 | 385.4 | 774 | 153.3 | 1.167 | 357.3 | 781 | 160.2 | 1.297 |
| TAL 044 J | 419.4 | 797 | 165.4 | 1.244 | 409.3 | 789 | 165.5 | 1.258 | 396.2 | 774 | 165.1 | 1.274 | 368.8 | 781 | 172.0 | 1.404 |
| TAL 044 K | 439.4 | 837 | 180.7 | 1.379 | 429.2 | 829 | 180.8 | 1.393 | 416.0 | 814 | 180.4 | 1.409 | 389.2 | 821 | 187.4 | 1.539 |
| TAL 044 L | 480.9 | 922 | 221.1 | 1.713 | 471.3 | 914 | 221.2 | 1.727 | 458.3 | 899 | 220.8 | 1.743 | 449.6 | 906 | 227.8 | 1.873 |
| TAL 044 M | 480.9 | 922 | 221.1 | 1.713 | 471.3 | 914 | 221.2 | 1.727 | 458.3 | 899 | 220.8 | 1.743 | 449.6 | 906 | 227.8 | 1.873 |

NOTE : Dimensions are for information only and may be subject to modifications. The torsional analysis of the transmission is imperative. All values are available upon request.

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