

Table 7-5 1FK7034 CT

| Technical data | Code | Unit | -5AK71 |
|--|-----------------|----------------------------|--------|
| Configuration data | | | |
| Rated speed | n_N | RPM | 6000 |
| No. of poles | 2p | | 6 |
| Rated torque (100 K) | M_N (100 K) | Nm | 1.0 |
| Rated current (100 K) | I_N | A | 1.3 |
| Static torque (60 K) | M_0 (60 K) | Nm | 1.35 |
| Static torque (100 K) | M_0 (100 K) | Nm | 1.6 |
| Stall current (60 K) | I_0 (60 K) | A | 1.6 |
| Stall current (100 K) | I_0 (100 K) | A | 1.9 |
| Moment of inertia (with brake) | J_{MotBr} | 10^{-4} kgm ² | 0.98 |
| Moment of inertia (without brake) | J_{Mot} | 10^{-4} kgm ² | 0.9 |
| Optimum operating point | | | |
| Optimum speed | n_{opt} | RPM | 6000 |
| Optimum power | P_{opt} | kW | 0.63 |
| Limiting data | | | |
| Max. permissible speed (mech.) | $n_{max\ mech}$ | RPM | 10000 |
| Max. permissible speed (converter) | $n_{max\ Inv}$ | RPM | 10000 |
| Max. torque | M_{max} | Nm | 6.5 |
| Max. current | I_{max} | A | 8 |
| Physical constants | | | |
| Torque constant | k_T | Nm/A | 0.86 |
| Voltage constant | k_E | V/1000 RPM | 55 |
| Winding resistance at 20°C | R_{Str} | Ohm | 4.5 |
| Cyclic inductance | L_D | mH | 16.5 |
| Electrical time constant | T_{el} | ms | 3.7 |
| Mechanical time constant | T_{mech} | ms | 1.6 |
| Thermal time constant | T_{th} | min | 30 |
| Shaft torsional stiffness | C_t | Nm/rad | 5500 |
| Weight with brake | m_{MotBr} | kg | 4.0 |
| Weight without brake | m_{Mot} | kg | 3.7 |
| Recommended motor module 6SL312 - TE13-0AA | | | |
| Rated current converter | $I_{N\ Inv}$ | A | 3 |
| Max. current converter | $I_{max\ Inv}$ | A | 6 |
| Max. torque at $I_{max\ Inv}$ | $M_{max\ Inv}$ | Nm | 4.9 |

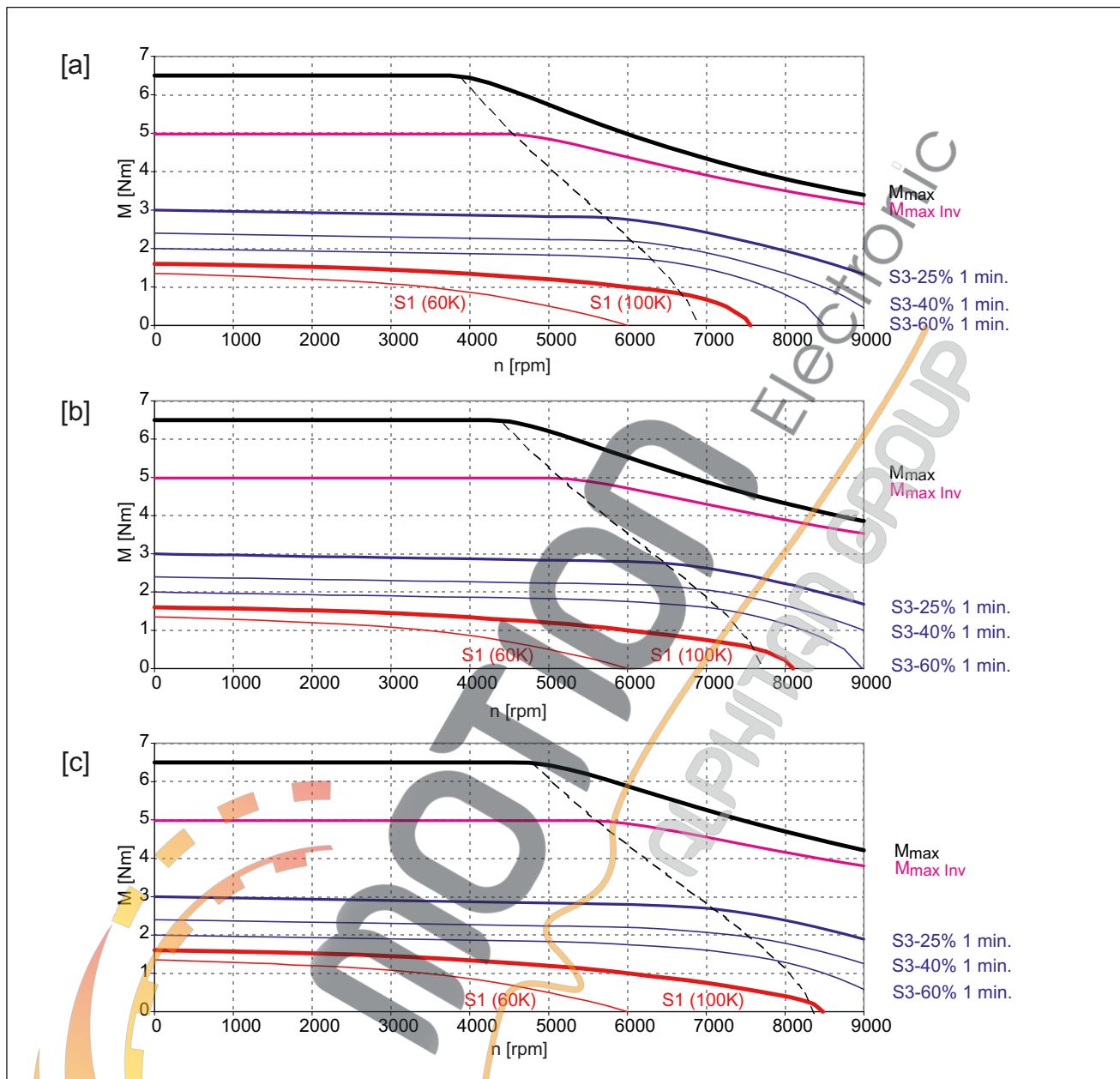


Figure 7-5 1FK7034-5AK71

- [a] SINAMICS SLM 400 V
- [b] SINAMICS ALM 400 V
- [c] SINAMICS SLM 480 V

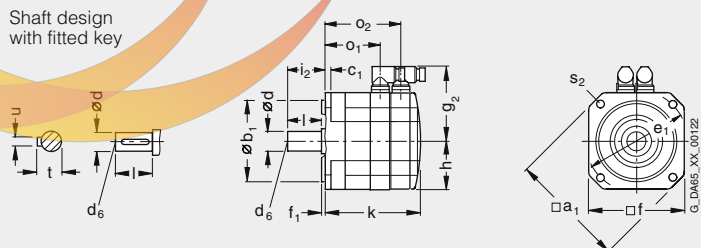
8.1 1FK7 Compact and High Dynamic motors

8.1.1 1FK7 Compact motors

| For motor | | Dimensions in mm (in) | | | | | | | | | | | Resolver | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|--|--|--------------|------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|------|-----|--|--------------|------|------|------------------|------------------|------|------------------|------------------|------|------------------|------------------|------|------------------|------------------|-----|------------------|-----|------|-----|
| Shaft height | Type | DIN IEC | a ₁ P | b ₁ N | c ₁ LA | e ₁ M | f AB | f ₁ T | g ₂ - | h H | i ₂ - | s ₂ S | without brake | | | with brake | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1FK7 Compact, type IM B5, natural cooling, with connector, with/without brake | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 1FK7011-5 | - | 30 | 7 | 46 | 40 | 2.5 | 65.5 | 20 | 18 | 4.5 | 140 | 89 | 118 | 140 | 89 | 118 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7015-5 | - | 30 | 7 | 46 | 40 | 2.5 | 65.5 | 20 | 18 | 4.5 | 165 | 114 | 143 | 165 | 114 | 143 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | 1FK7022-5 | - | 40 | 10 | 63 | 55 | 2.5 | 75 | 27.5 | 20 | 5.4 | 153 | 95 | 128 | 175 | 95 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7032-5 | 92 | 60 | 8 | 75 | 72 | 3 | 81 | 36 | 30 | 6.5 | 150 | 90 | 125 | 175 | 90 | 149 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 1FK7034-5 | 92 | 60 | 8 | 75 | 72 | 3 | 81 | 36 | 30 | 6.5 | 175 | 115 | 150 | 200 | 115 | 174 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7040-5 | 120 | 80 | 10 | 100 | 96 | 3 | 90 | 48 | 40 | 7 | 134 | 73 | 106 | 163 | 73 | 135 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | 1FK7042-5 | 120 | 80 | 10 | 100 | 96 | 3 | 90 | 48 | 40 | 7 | 162 | 101 | 134 | 191 | 101 | 163 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7060-5 | 155 | 110 | 10 | 130 | 126 | 3.5 | 105 | 63 | 50 | 9 | 157 | 94 | 126 | 200 | 94 | 169 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 1FK7063-5 | 155 | 110 | 10 | 130 | 126 | 3.5 | 105 | 63 | 50 | 9 | 202 | 139 | 171 | 245 | 139 | 214 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7063-5 | 155 | 110 | 10 | 130 | 126 | 3.5 | 105 | 63 | 50 | 9 | 202 | 139 | 171 | 245 | 139 | 214 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; vertical-align: top;"> Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos1 V_{pp} without brake with brake </td> <td style="width:50%; vertical-align: top;"> Absolute encoder (EnDat) without brake with brake </td> </tr> <tr> <td style="text-align: center;"> <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> </td> <td style="text-align: center;"> <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> </td> </tr> </table> | | | | | | | | | | | | | | | | | | | Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos1 V _{pp} without brake with brake | Absolute encoder (EnDat) without brake with brake | <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> | Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F | <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> | Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F |
| Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos1 V _{pp} without brake with brake | Absolute encoder (EnDat) without brake with brake | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> | Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F | <table border="0" style="width:100%;"> <tr> <th>Shaft height</th> <th>Type</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>k LB</th> <th>o₁ -</th> <th>o₂ -</th> <th>d D</th> <th>d₆ -</th> <th>l E</th> <th>t GA</th> <th>u F</th> </tr> </table> | Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F | | | | | | | | | | | | | | | | | | | | | |
| Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shaft height | Type | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | d D | d ₆ - | l E | t GA | u F | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 1FK7011-5 | 155 | 89 | 118 | 155 | 89 | 118 | 155 | 98 | 118 | 155 | 89 | 118 | 8 | M3 | 18 | 8.8 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7015-5 | 180 | 114 | 143 | 180 | 114 | 143 | 180 | 114 | 143 | 180 | 114 | 143 | 8 | M3 | 18 | 8.8 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | 1FK7022-5 | 178 | 95 | 128 | 200 | 95 | 150 | 178 | 95 | 128 | 200 | 95 | 150 | 9 | M3 | 20 | 10.2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7032-5 | 175 | 90 | 125 | 200 | 90 | 149 | 175 | 90 | 125 | 200 | 90 | 149 | 14 | M5 | 30 | 16 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 1FK7034-5 | 200 | 115 | 150 | 225 | 115 | 174 | 200 | 115 | 150 | 225 | 115 | 174 | 14 | M5 | 30 | 16 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7040-5 | 155 | 73 | 106 | 184 | 73 | 135 | 163 | 73 | 106 | 192 | 73 | 135 | 19 | M6 | 40 | 21.5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | 1FK7042-5 | 182 | 101 | 134 | 211 | 101 | 163 | 191 | 101 | 134 | 220 | 101 | 163 | 19 | M6 | 40 | 21.5 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1FK7060-5 | 180 | 94 | 126 | 223 | 94 | 169 | 188 | 94 | 126 | 231 | 94 | 169 | 24 | M8 | 50 | 27 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 1FK7063-5 | 225 | 139 | 171 | 268 | 139 | 214 | 233 | 139 | 171 | 276 | 139 | 214 | 24 | M8 | 50 | 27 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

1FK701.-5
1FK702.-5
1FK703.-5
1FK704.-5
1FK706.-5

Shaft design
with fitted key



8.1 1FK7 Compact and High Dynamic motors

| For motor | | Dimensions in mm (in) | | | | | | | | | | | Resolver | | | | | |
|--|-----------|-----------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------|------------------|------------------|-----|--|
| Shaft height | Type | DIN IEC | a ₁ P | b ₁ N | c ₁ LA | e ₁ M | f AB | f ₁ T | g ₂ - | h H | i ₂ - | s ₂ S | without brake | | | with brake | | |
| | | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | | |
| 1FK7 Compact, type IM B5, natural cooling, with connector, with/without brake | | | | | | | | | | | | | | | | | | |
| 80 | 1FK7080-5 | 186 | 130 | 13 | 165 | 155 | 3.5 | 119.5 | 77.5 | 58 | 11 | 156 | 91 | 124 | 184 | 91 | 151 | |
| | 1FK7083-5 | 186 | 130 | 13 | 165 | 155 | 3.5 | 119.5 | 77.5 | 58 | 11 | 194 | 129 | 162 | 245 | 129 | 207 | |
| 100 | 1FK7100-5 | 240 | 180 | 13 | 215 | 192 | 4 | 138 | 96 | 80 | 14 | 185 | 113 | 153 | 204 | 113 | 172 | |
| | 1FK7101-5 | 240 | 180 | 13 | 215 | 192 | 4 | 160 | 96 | 80 | 14 | 211 | 139 | 179 | 240 | 139 | 208 | |
| | 1FK7103-5 | 240 | 180 | 13 | 215 | 192 | 4 | 160 | 96 | 80 | 14 | 237 | 165 | 205 | 266 | 165 | 234 | |
| | 1FK7105-5 | 240 | 180 | 13 | 215 | 192 | 4 | 160 | 96 | 80 | 14 | 289 | 217 | 257 | 318 | 217 | 286 | |

| Shaft height | Type | Basic absolute encoder (EnDat) (shaft height 48 and larger), Incremental encoder sin/cos 1 V _{pp} | | | | | | Absolute encoder (EnDat) | | | | | | d D | d ₆ - | l E | t GA | u F |
|--------------|------------------|--|------|------------------|------------------|------|------------------|--------------------------|------|------------------|------------------|------|------------------|------------------|------------------|-----|------|-----|
| | | without brake | | | with brake | | | without brake | | | with brake | | | | | | | |
| k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | k LB | o ₁ - | o ₂ - | | | | |
| 80 | 1FK7080-5 | 179 | 91 | 124 | 206 | 91 | 151 | 187 | 91 | 124 | 215 | 91 | 151 | 32 | M12 | 58 | 35 | 10 |
| | 1FK7083-5 | 217 | 129 | 162 | 268 | 153 | 213 | 225 | 129 | 162 | 276 | 129 | 207 | 32 | M12 | 58 | 35 | 10 |
| 100 | 1FK7100-5 | 208 | 113 | 153 | 227 | 113 | 172 | 216 | 113 | 153 | 235 | 113 | 172 | 38 | M12 | 80 | 41 | 10 |
| | 1FK7101-5 | 234 | 139 | 179 | 263 | 139 | 208 | 242 | 139 | 179 | 271 | 139 | 208 | 38 | M12 | 80 | 41 | 10 |
| | 1FK7103-5 | 260 | 165 | 205 | 289 | 165 | 234 | 268 | 165 | 205 | 297 | 165 | 234 | 38 | M12 | 80 | 41 | 10 |
| | 1FK7105-5 | 312 | 217 | 257 | 341 | 217 | 286 | 320 | 217 | 257 | 349 | 217 | 286 | 38 | M12 | 80 | 41 | 10 |

1FK708...-5

Shaft design with fitted key

