# SIMpull® T90 Copper

SIMpull® THHN THWN-2 MTW / c(UL) T90 Nylon TWN75 Copper Conductor, 600V, Thermoplastic-Insulated Cable, All Sizes Rated TWN75

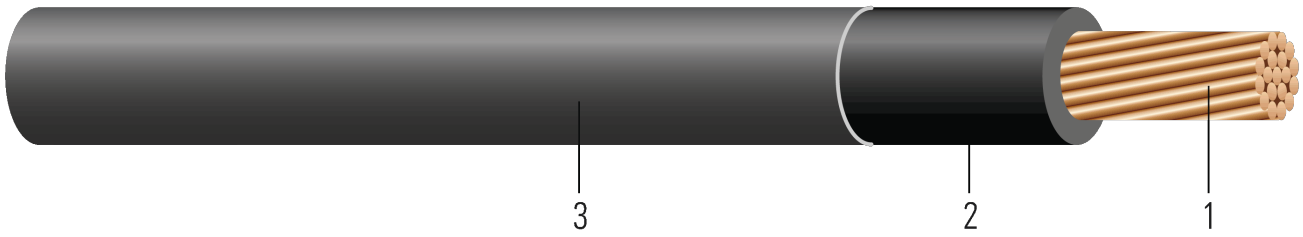


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Solid per ASTM B3 or Combination unilay-stranded copper conductors per ASTM B787.
2. **Insulation:** All phases are insulated with Polyvinyl Chloride with Nylon Sheath
3. **Jacket:** Polyvinyl Chloride PVC jacket utilizing SIMpull® Technology.

## APPLICATIONS AND FEATURES:

SIMpull® THHN, THWN-2, MTW - (UL)- Suitable for dry locations not exceeding 90°C. For Gasoline and Oil Resistant II applications not to exceed 75°C. MTW (UL) - suitable for dry locations not exceeding 90°C. For wet locations, Gasoline and Oil Resistant II applications not to exceed 60°C. T90 Nylon c(UL) - cables are primarily intended for installation in conduit (raceways) as exposed wiring in dry locations not exceeding 90°C. TWN75 c(UL) - suitable for wet or dry locations at not more than 75°C. The maximum voltage rating for all intended applications is 600 volts. Minimum installation handling temperature is limited to -25°C. Minimum operating temperature limited to -40°C. Non-SIMpull Silicone Free size 14, 12, 10.

## SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- CSA Certified LL90458
- ASTM B787 19 Wire Combination Unilay-Stranded Copper Conductors
- Canadian Electrical Code
- CSA FT-1 Flame Test

## SAMPLE PRINT LEGEND:

SOUTHWIRE SIMpull{TM} E51583 {UL} (XX AWG) XX.X{mm2} CU TYPE MTW OR THWN-2 OR THHN OR GASOLINE AND OIL RESISTANT II OR AWM 600 VOLTS VW-1 --- {CSA} T90 NYLON OR TWN75 600 VOLTS FT1 {NOM}-ANCE 90°C - (X AWG) ---RoHS PAT www.patentSW.com





UPDATED: Dec. 8, 2024, 1:43 p.m.UTC REVISION: 1.000.017

## Table 1 – Weights and Measurements

| Stock Number | Cond. Size | Strand Count | Diameter Over Conductor | Insul. Thickness | Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|---|---|---|---|---|---|---|---|---|
| | AWG/Kcmil | No. of Strands | inch | mil | mil | inch | lb/1000ft | lb/1000ft |
| 507665◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 507699◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 507673◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 507723◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 610483◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 507707◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 553096◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 507681◊ | 14 | Solid | 0.064 | 15 | 5 | 0.106 | 12 | 15 |
| 672659◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 472019◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 472027◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 687517◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 472043◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 472035◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 507715◊ | 14 | 19 | 0.073 | 15 | 5 | 0.113 | 12 | 16 |
| 495770◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 507632◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 495812◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 495804◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 507640◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 495788◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 495796◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 507657◊ | 12 | Solid | 0.080 | 15 | 5 | 0.122 | 19 | 23 |
| 472068◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 672675◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 472092◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 472076◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 472084◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 552660◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 672667◊ | 12 | 19 | 0.090 | 15 | 5 | 0.132 | 20 | 24 |
| 484626◊ | 10 | Solid | 0.101 | 20 | 5 | 0.153 | 31 | 37 |
| 507756◊ | 10 | Solid | 0.101 | 20 | 5 | 0.153 | 31 | 37 |
| 507731◊ | 10 | Solid | 0.101 | 20 | 5 | 0.153 | 31 | 37 |
| 672683◊ | 10 | Solid | 0.101 | 20 | 5 | 0.153 | 31 | 37 |
| 507749◊ | 10 | Solid | 0.101 | 20 | 5 | 0.153 | 31 | 37 |
| 552663◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 610486◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 472134◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 472118◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 552662◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 472126◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |

| Stock Number | Cond. Size | Strand Count | Diameter Over Conductor | Insul. Thickness | Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|---|---|---|---|---|---|---|---|---|
| | AWG/Kcmil | No. of Strands | inch | mil | mil | inch | lb/1000ft | lb/1000ft |
| 472142◊ | 10 | 19 | 0.117 | 20 | 5 | 0.165 | 32 | 38 |
| 611462◊ | 8 | 19 | 0.143 | 30 | 5 | 0.217 | 50 | 63 |
| 472175◊ | 8 | 19 | 0.143 | 30 | 5 | 0.217 | 50 | 63 |
| 472167◊ | 8 | 19 | 0.143 | 30 | 5 | 0.217 | 50 | 63 |
| 472191◊ | 8 | 19 | 0.143 | 30 | 5 | 0.217 | 50 | 63 |
| 472183◊ | 8 | 19 | 0.143 | 30 | 5 | 0.217 | 50 | 63 |
| 472217◊ | 6 | 19 | 0.179 | 30 | 5 | 0.253 | 81 | 95 |
| 472225◊ | 6 | 19 | 0.179 | 30 | 5 | 0.253 | 81 | 95 |
| 472241◊ | 6 | 19 | 0.179 | 30 | 5 | 0.253 | 81 | 95 |
| 472233◊ | 6 | 19 | 0.179 | 30 | 5 | 0.253 | 81 | 95 |
| 472282◊ | 4 | 19 | 0.226 | 40 | 5 | 0.324 | 128 | 154 |
| 684068◊ | 3 | 19 | 0.254 | 40 | 5 | 0.352 | 162 | 190 |
| 484675◊ | 3 | 19 | 0.254 | 40 | 5 | 0.352 | 162 | 190 |
| 684076◊ | 2 | 19 | 0.286 | 40 | 5 | 0.384 | 204 | 236 |
| 672394◊ | 2 | 19 | 0.286 | 40 | 5 | 0.384 | 204 | 236 |
| 688051◊ | 2/0 | 19 | 0.420 | 50 | 5 | 0.524 | 410 | 465 |
| 672402◊ | 2/0 | 19 | 0.420 | 50 | 5 | 0.524 | 410 | 464 |
| 471995◊ | 3/0 | 19 | 0.471 | 50 | 5 | 0.574 | 518 | 578 |
| 472001◊ | 14 | 19 | 0.070 | 15 | 5 | 0.113 | 12 | 16 |
| 472050◊ | 12 | 19 | 0.088 | 15 | 5 | 0.132 | 20 | 24 |
| 472100◊ | 10 | 19 | 0.113 | 20 | 5 | 0.165 | 32 | 38 |
| 472159◊ | 8 | 19 | 0.141 | 30 | 6 | 0.217 | 50 | 63 |
| 472209◊ | 6 | 19 | 0.177 | 30 | 6 | 0.253 | 81 | 95 |
| 472258◊ | 4 | 19 | 0.225 | 40 | 7 | 0.322 | 128 | 153 |
| 484667◊ | 3 | 19 | 0.252 | 40 | 7 | 0.350 | 162 | 190 |
| 672386◊ | 2 | 19 | 0.282 | 40 | 7 | 0.382 | 204 | 235 |
| 684084◊ | 1 | 19 | 0.322 | 50 | 8 | 0.439 | 258 | 301 |
| 471979◊ | 1/0 | 19 | 0.361 | 50 | 8 | 0.480 | 326 | 374 |
| 471987◊ | 3/0 | 19 | 0.456 | 50 | 8 | 0.574 | 518 | 579 |
| 677820◊ | 4/0 | 19 | 0.512 | 50 | 8 | 0.630 | 655 | 723 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item

## Table 2 – Electrical and Engineering Data

| Stock Number | Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 75°C | Inductive Reactance @ 60Hz | Allowable Ampacity At 75°C | Allowable Ampacity At 90°C |
|---|---|---|---|---|---|---|---|---|
| | AWG/ Kcmil | inch | lb | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp |
| 507665◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507699◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507673◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507723◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 610483◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507707◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 553096◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507681◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 672659◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 472019◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 472027◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 687517◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 472043◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 472035◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 507715◊ | 14 | 0.500 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 495770◊ | 12 | 0.400 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 507632◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 495812◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 495804◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 507640◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 495788◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 495796◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 507657◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 472068◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 672675◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 472092◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 472076◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 472084◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 552660◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 672667◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 484626◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 507756◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 507731◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 672683◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 507749◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 552663◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 610486◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 472134◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 472118◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 552662◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |

| Stock Number | Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 75°C | Inductive Reactance @ 60Hz | Allowable Ampacity At 75°C | Allowable Ampacity At 90°C |
|---|---|---|---|---|---|---|---|---|
| | AWG/ Kcmil | inch | lb | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp |
| 472126◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 472142◊ | 10 | 0.700 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 611462◊ | 8 | 0.900 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472175◊ | 8 | 0.900 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472167◊ | 8 | 0.900 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472191◊ | 8 | 0.900 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472183◊ | 8 | 0.900 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472217◊ | 6 | 1.000 | 209 | 0.411 | 0.495 | 0.051 | 65 | 75 |
| 472225◊ | 6 | 1.000 | 209 | 0.411 | 0.495 | 0.051 | 65 | 75 |
| 472241◊ | 6 | 1.000 | 209 | 0.411 | 0.495 | 0.051 | 65 | 75 |
| 472233◊ | 6 | 1.000 | 209 | 0.411 | 0.495 | 0.051 | 65 | 75 |
| 472282◊ | 4 | 1.300 | 333 | 0.258 | 0.310 | 0.048 | 85 | 95 |
| 684068◊ | 3 | 1.400 | 420 | 0.205 | 0.246 | 0.047 | 100 | 115 |
| 484675◊ | 3 | 1.400 | 420 | 0.205 | 0.246 | 0.047 | 100 | 115 |
| 684076◊ | 2 | 1.500 | 530 | 0.162 | 0.195 | 0.045 | 115 | 130 |
| 672394◊ | 2 | 1.500 | 530 | 0.162 | 0.195 | 0.045 | 115 | 130 |
| 688051◊ | 2/0 | 2.100 | 1064 | 0.081 | 0.097 | 0.043 | 175 | 195 |
| 672402◊ | 2/0 | 2.100 | 1064 | 0.081 | 0.097 | 0.043 | 175 | 195 |
| 471995◊ | 3/0 | 2.300 | 1342 | 0.064 | 0.078 | 0.042 | 200 | 225 |
| 472001◊ | 14 | 0.400 | 32 | 2.631 | 3.170 | 0.058 | 20 | 25 |
| 472050◊ | 12 | 0.500 | 52 | 1.662 | 2.002 | 0.054 | 25 | 30 |
| 472100◊ | 10 | 0.600 | 83 | 1.040 | 1.253 | 0.050 | 35 | 40 |
| 472159◊ | 8 | 0.800 | 132 | 0.653 | 0.786 | 0.052 | 50 | 55 |
| 472209◊ | 6 | 1.000 | 209 | 0.411 | 0.495 | 0.051 | 65 | 75 |
| 472258◊ | 4 | 1.200 | 333 | 0.258 | 0.310 | 0.048 | 85 | 95 |
| 484667◊ | 3 | 1.400 | 420 | 0.205 | 0.246 | 0.047 | 100 | 115 |
| 672386◊ | 2 | 1.500 | 530 | 0.162 | 0.195 | 0.045 | 115 | 130 |
| 684084◊ | 1 | 1.700 | 669 | 0.128 | 0.154 | 0.046 | 130 | 145 |
| 471979◊ | 1/0 | 1.900 | 844 | 0.102 | 0.122 | 0.044 | 150 | 170 |
| 471987◊ | 3/0 | 2.200 | 1342 | 0.064 | 0.078 | 0.042 | 200 | 225 |
| 677820◊ | 4/0 | 2.500 | 1692 | 0.051 | 0.062 | 0.041 | 230 | 260 |

* Ampacities based upon 2023 NEC Table 310.16 and do not take into account the overcurrent protection limitations in NEC 240.4(D) of 15 Amps for 14 AWG CU, 20 Amps for 12 AWG CU, and 30 Amps for 10 AWG CU (independent of the conductor temperature rating and stranding if size is present in table). Also, see NEC sections 310.15 and 110.14(C) for additional requirements.
* Ampacities have been adjusted for more than Three Current-Carrying Conductors.
* Inductive impedance is based on non-ferrous conduit with one diameter spacing center-to-center.
* Non-SIMpull Silicone Free sizes: 14, 12, 10.

## Table 3 - Stock Code Colors

| Size (Strand) | Color | Stock Number |
|---|---|---|
| 14 (Solid) | BK | 507665 |
| 14 (Solid) | RD | 507699 |
| 14 (Solid) | WE | 507673 |
| 14 (Solid) | YW | 507723 |
| 14 (Solid) | OE | 610483 |
| 14 (Solid) | BE | 507707 |
| 14 (Solid) | BN | 553096 |
| 14 (Solid) | GN | 507681 |
| 14 (19) | BK | 472001 |
| 14 (19) | YW | 672659 |
| 14 (19) | WE | 472019 |
| 14 (19) | RD | 472027 |
| 14 (19) | OE | 687517 |
| 14 (19) | BE | 472043 |
| 14 (19) | GN | 472035 |
| 14 (19) | BN | 507715 |
| 12 (Solid) | BK | 495770 |
| 12 (Solid) | OE | 507632 |
| 12 (Solid) | BE | 495812 |
| 12 (Solid) | GN | 495804 |
| 12 (Solid) | BN | 507640 |
| 12 (Solid) | WE | 495788 |
| 12 (Solid) | RD | 495796 |
| 12 (Solid) | YW | 507657 |
| 12 (19) | BK | 472050 |
| 12 (19) | WE | 472068 |
| 12 (19) | YW | 672675 |
| 12 (19) | BE | 472092 |
| 12 (19) | RD | 472076 |
| 12 (19) | GN | 472084 |
| 12 (19) | OE | 552660 |
| 12 (19) | BN | 672667 |
| 10 (Solid) | RD | 484626 |
| 10 (Solid) | BE | 507756 |
| 10 (Solid) | BK | 507731 |
| 10 (Solid) | GN | 672683 |
| 10 (Solid) | WE | 507749 |
| 10 (19) | BK | 472100 |
| 10 (19) | YW | 552663 |
| 10 (19) | OE | 610486 |
| 10 (19) | GN | 472134 |
| 10 (19) | WE | 472118 |
| 10 (19) | BN | 552662 |
| 10 (19) | RD | 472126 |
| 10 (19) | BE | 472142 |

| Size (Strand) | Color | Stock Number |
|---|---|---|
| 8 (19) | BK | 472159 |
| 8 (19) | RD | 611462 |
| 8 (19) | RD | 472175 |
| 8 (19) | WE | 472167 |
| 8 (19) | BE | 472191 |
| 8 (19) | GN | 472183 |
| 6 (19) | BK | 472209 |
| 6 (19) | WE | 472217 |
| 6 (19) | RD | 472225 |
| 6 (19) | BE | 472241 |
| 6 (19) | GN | 472233 |
| 4 (19) | BK | 472258 |
| 4 (19) | GN | 472282 |
| 3 (19) | WE | 484667 |
| 3 (19) | GN | 684068 |
| 3 (19) | BK | 484675 |
| 2 (19) | BK | 672386 |
| 2 (19) | GN | 684076 |
| 2 (19) | WE | 672394 |
| 1 (19) | BK | 684084 |
| 1/0 (19) | BK | 471979 |
| 2/0 (19) | GN | 688051 |
| 2/0 (19) | BK | 672402 |
| 3/0 (19) | WE | 471987 |
| 3/0 (19) | BK | 471995 |
| 4/0 (19) | WE | 677820 |