# RED HEAD®

## CONCRETE ANCHORING SYSTEMS

# Red Head Adhesives: A7+ & C6+

***All-in-one adhesive solutions for light, medium, and heavy-duty anchoring***

**Common Features and Advantages**

- **Most Versatile** – One adhesive to be used across an extremely wide range of anchoring applications and substrates, including masonry
- **All Weather** – Approved for saturated, water-filled, and submerged installations
- **Code Approvals** – cracked concrete, seismic, NSF 61, ministry of transportation Ontario, Quebec and BC.

**A7+ HYBRID**


- Sets and cures faster and can be installed at lower temperatures
- Two cartridge sizes to adapt to all jobsite requirements

**C6+ EPOXY**


- Approved for use in diamond core drilled and/or oversized holes in all conditions and without need for roughening
- Exceptional shelf life, 24 months
- Highest bond strength in all conditions

## ADHESIVE ANCHORING SYSTEM COMPETITIVE CROSS REFERENCE

| | Red Head | HILTI | DEWALT | SIMPSON Strong-Tie |
|---|---|---|---|---|
| Quick Cure | A7+ A7P-28 and A7P-10 | HY200A (Accelerated)<br>HY200R (Regular)<br>HY100<br>HY70 (Masonry)<br>HIT ICE (Cold Weather)<br>HY10 PLUS | AC50 SILVER<br>AC100+ Gold<br>AC200+ | AT-XP<br>AT |
| Slow Cure | C6+ C6P-30 | RE500SD<br>RE500V3<br>RE100 | PE-1000+<br>PURE110+<br>PURE50+<br>PUREGP | SET<br>SET-XP<br>SET-3G<br>ET-HP |

# A7+ Strength and Approval Comparison

## Reinforcing Bar

| | Red Head | Hilti | | Simpson | | DeWALT | | | UCAN |
|---|---|---|---|---|---|---|---|---|---|
| **#5 US Reinforcing bar** | **A7+** | **HY-100** | **HY-200** | **AT** | **AT XP** | **AC50** | **AC100+** | **AC200+** | **FR5MAX (10:1)** |
| CHARACTERISTIC BOND STRENGTH (UNCRACKED) | 1900 | - | 1560 | - | 970 | - | 823 | 2028 | 1087 |
| CHARACTERISTIC BOND STRENGTH (CRACKED) | 755 | - | 1090 | - | 780 | - | 345 | 1128 | N/A |
| CHARACTERISTIC BOND STRENGTH (SAT UNCRACKED) | 1900 | - | 1320 | - | 517 | - | 696 | 1716 | 1087 |
| CHARACTERISTIC BOND STRENGTH (SAT CRACKED) | 755 | - | 922 | - | 416 | - | 292 | 954 | N/A |
| **APPROVALS** | | | | | | | | | |
| ICC ESR listed | **YES** | YES | YES | NO | YES | NO | YES | YES | NO |
| Masonry | **YES** | NO | Only grout-filled | YES | Only grout-filled | NO | YES | NO | NO |
| Cracked Concrete | **YES** | NO | YES | NO | YES | NO | YES | YES | Only threaded rod |
| All Seismic Zones (A-F) | **YES** | NO | YES | NO | YES | NO | YES | YES | YES |
| Water filled and submerged conditions | **YES** | NO | NO | N/A | NO | NO | NO | NO | NO |
| NSF61 | **YES** | YES | YES | YES | YES | N/A | YES | YES | N/A |
| COLD TEMPERATURE (-10 celcius or below) | **YES** | YES | YES | YES | YES | YES | YES | NO | YES |

*Bond strength values for A7+ and HY-200 are for the following temperature range: Maximun short term temperature of 130 °F and maximum long term temperature of 110 °F

*Bond strength values for AC200+, AC100+, FR5MAX are for the following temperature range: Maximun short term temperature of 176 °F and maximum long term temperature of 122 °F

*Bond strength values for AT XP are for temperature range: Maximun short term temperature of 180 °F and maximum long term temperature of 110 °F

*N/A indicates that the information is not available or unclear

## Threaded Rod

| | Red Head | Hilti | | Simpson | | DeWALT | | | UCAN | |
|---|---|---|---|---|---|---|---|---|---|---|
| **3/4" Threaded rod** | **A7+** | **HY-100** | **HY-200** | **AT** | **AT XP** | **AC50** | **AC100+** | **AC200+** | **FR5MAX (10:1)** | **FR6-SD (1:1)** |
| CHARACTERISTIC BOND STRENGTH (UNCRACKED) | 1769 | - | 2220 | - | 1770 | - | 823 | 2142 | 1070 | 1350 |
| CHARACTERISTIC BOND STRENGTH (CRACKED) | 887 | - | 1215 | - | 950 | - | 519 | 1219 | 720 | 965 |
| CHARACTERISTIC BOND STRENGTH (SAT UNCRACKED) | 1769 | - | 1878 | - | 1225 | - | 700 | 1812 | 1070 | 1350 |
| CHARACTERISTIC BOND STRENGTH (SAT CRACKED) | 887 | - | 1028 | - | 658 | - | 441 | 1031 | 720 | 965 |
| **APPROVALS** | | | | | | | | | | |
| ICC ESR listed | **YES** | YES | YES | NO | **YES** | NO | **YES** | **YES** | NO | **YES** |
| Masonry | **YES** | NO | YES | YES | Only grout-filled | NO | YES | NO | NO | NO |
| Cracked Concrete | **YES** | NO | YES | NO | YES | NO | YES | YES | YES | YES |
| All Seismic Zones (A-F) | **YES** | NO | YES | NO | YES | NO | YES | YES | YES | YES |
| Water filled and submerged conditions | **YES** | NO | NO | N/A | NO | NO | NO | NO | NO | NO |
| NSF61 | **YES** | YES | YES | YES | YES | N/A | YES | YES | N/A | YES |
| COLD TEMPERATURE (-10 celcius or below) | **YES** | YES | YES | YES | YES | YES | YES | NO | YES | NO |

*Bond strength values for A7+, FR6-SD and HY-200 are for the following temperature range: Maximun short term temperature of 130 °F and maximum long term temperature of 110 °F

*Bond strength values for AC200+, AC100+, FR5MAX are for the following temperature range: Maximun short term temperature of 176 °F and maximum long term temperature of 122 °F

*Bond strength values for AT XP are for temperature range: Maximun short term temperature of 180 °F and maximum long term temperature of 110 °F

*N/A indicates that the information is not available or unclear

# C6+ Strength and Approval Comparison

## Reinforcing Bar

| | Red Head | Hilti | DeWALT | Simpson | UCAN |
|---|---|---|---|---|---|
| **#5 US Reinforcing bar** | **C6+** | **RE-500 V3** | **Pure110+** | **SET-XP** | **FR6-SD (1:1)** |
| CHARACTERISTIC BOND STRENGTH (UNCRACKED) | 2180 | 1720 | 1671 | 788 | 1350 |
| CHARACTERISTIC BOND STRENGTH (CRACKED) | 1110 | 1390 | 1122 | 615 | 1025 |
| CHARACTERISTIC BOND STRENGTH (SAT UNCRACKED) | 2180 | 1720 | 1414 | 545 | N/A |
| CHARACTERISTIC BOND STRENGTH (SAT CRACKED) | 1110 | 1390 | 949 | 426 | N/A |
| **APPROVALS** | | | | | |
| ICC ESR listed | **YES** | YES | YES | YES | YES |
| Masonry | **YES** | Only grout-filled | YES | NO | NO |
| Cracked Concrete | **YES** | YES | YES | YES | YES |
| All Seismic Zones (A-F) | **YES** | YES | YES | YES | YES |
| Water filled and submerged conditions | **YES** | Only in hammer-drilled holes | Only in hammer-drilled holes | NO | NO |
| NSF61 | **YES** | YES | YES | YES | YES |
| Diamond Core Drilled holes | **YES** | Only uncraked concrete | NO | NO | NO |

*Bond strength values for FR6-SD and RE 500 V3 are for the following temperature range: Maximun short term temperature of 130 °F and maximum long term temperature of 110 °F

*Bond strength values for C6+ are for the following temperature range: Maximun short term temperature of 142 °F and maximum long term temperature of 110 °F

*Bond strength values for SET-XP are for temperature range: Maximun short term temperature of 150 °F and maximum long term temperature of 110 °F

*Bond strength values for Pure 110+ are for the following temperature range: Maximun short term temperature of 140 °F and maximum long term temperature of 110 °F

*N/A indicates that the information is not available or unclear

*Bond strength values include sustained loading

# *A7+ vs AC200+*

RED HEAD®
CONCRETE ANCHORING AND REINFORCING SOLUTIONS


VS


| Red Head A7+ | DeWALT AC200+ | **Your Benefits** |
|---|---|---|
| **Base Material:** Solid Concrete (Cracked & Uncracked) and masonry | **Base Material:** Solid Concrete (Cracked & Uncracked) and grout filled blocks | |
| **Base Material Temperature:** -10°C to 43°C | **Base Material Temperature:** -5°C to 40°C | Wider temp. range provides more versatility and installation in colder and warmer climates |
| **Manufactured:** France | **Manufactured:** Germany | |
| **Shelf Life:** 18 Months | **Shelf Life:** 18 Months | |
| **Hole Preparation:** Standard cleaning procedure (vacuum, wire brush, blow-out pump) | **Hole Preparation:** Standard cleaning procedure (vacuum, wire brush, blow-out pump) | |
| **Cartridge Size:** 10 oz and 28 oz, 10:1 mix ratio | **Cartridge Size:** 10 oz, 12 oz, and 28 oz, 10:1 mix ratio | |
| **Cartridge type:** Rigid coaxial cartridge for the 10 oz, and rigid dual cartridge for 28 oz | **Cartridge type:** Rigid coaxial cartridge for the 10 oz, and rigid dual cartridge for 12 and 28 oz | |
| **Good pumpability with modified S55 nozzle included with cartridge** | **Comparable pumpability with standard nozzle included with cartridge** | |
| **In Field Performance:** Works in dry, water saturated, water-filled concrete, and submerged conditions | **In Field Performance:** Works in dry, and water saturated concrete | A7+ can be installed in water-filled and submerged conditions with barely no strength reduction |
| **Work Time at 0°C:** 35 Min<br>**Work Time at 10C:** 16 Min<br>**Work Time at 21°C:** 10 Min | **Work Time at 0°C:** 25 Min<br>**Work Time at 10°C:** 10 Min<br>**Work Time at 21°C:** 3 Min | A7+ provides more working time at higher temperatures allowing easier and better installation |
| **Cure Time at 0°C:** 4 Hours<br>**Cure Time at 10°C:** 1-1/2 Hours<br>**Cure Time at 21°C:** 3/4 Hours | **Cure Time at 0°C:** 3.5 Hours<br>**Cure Time at 10°C:** 1 Hours<br>**Cure Time at 21°C:** 1/2 Hours | |
| **Threaded rod:** 3/8" to 1-1/4"<br>**Rebar:** #3 to #10 | **Threaded Rod:** 3/8" to 1-1/4"<br>**Rebar:** #3 to #10 | |
| **Resealable** | **Resealable** | |
| **Minimum Edge Distance (E)/Spacing (S):**<br>1/2" - S: 1-1/2"; E: 1-1/2"<br>5/8"- S: 2-1/2"; E: 2-1/2"<br>3/4" - S: 3"; E: 3"<br>1" - S: 4"; E: 4" | **Minimum Edge Distance (E)/Spacing (S):**<br>1/2" - S: 2-1/2"; E: 1-3/4"<br>5/8"- S: 3"; E: 2"<br>3/4" – S: 3-3/4"; E: 2-3/8"<br>1" – S: 4-3/4"; E: 2-3/4" | A7+ smaller spacing allows for more efficient designs |
| **Price:** Competitive | **Price:** Competitive | |
| **Bond Strength:** Heavy duty. Maintains through all weather conditions with few exceptions with some diameters in submerged conditions | **Bond Strength:** Heavy duty. Decreases 15% from dry to water saturated conditions. | A7+ has basically no strength reductions with different water conditions. Hydrophobic nature. |
| **Approvals:**<br>- Cracked concrete and masonry<br>- Seismic approval (A-F)<br>- Wind loading<br>- NSF 61<br>- Transportation for ON, QC, and BC<br>- ICC ESR 3903 (Concrete) and 3951 (Masonry) | **Approvals:**<br>- Cracked concrete<br>- Seismic approval (A-F)<br>- Wind loading<br>- NSF 61<br>- ICC ESR 4027 (Concrete) | A7+ Masonry approval provides a wider range of applications<br>A7+ has Canadian Transportation approvals |

Updated: April 2019

# *A7+ vs Sika AnchorFix 3001*

RED HEAD®
CONCRETE ANCHORING AND REINFORCING SOLUTIONS


VS


| Red Head A7+ | Sika AnchorFix 3001 | **Your Benefits** |
|---|---|---|
| **Base Material:** Solid Concrete (Cracked & Uncracked) and masonry | **Base Material:** Solid Concrete (Cracked & Uncracked) and grout filled blocks | |
| **Base Material Temperature:** -10°C to 43°C | **Base Material Temperature:** 5°C to 40°C | Wider temp. range provides more versatility and installation in colder and warmer climates |
| **Shelf Life:** 18 Months | **Shelf Life: 24** Months | |
| **Hole Preparation:** Standard cleaning procedure (vacuum, wire brush, blow-out pump) | **Hole Preparation:** Standard cleaning procedure (vacuum, wire brush, blow-out pump) | |
| **Cartridge Size:** 10 oz and 28 oz, 10:1 mix ratio | **Cartridge Size:** 8.4 oz, 20 oz, and 50.7 oz, 1:1 mix ratio | |
| **Cartridge type:** Rigid coaxial cartridge for the 10 oz, and rigid dual cartridge for 28 oz | **Cartridge type:** Rigid coaxial cartridge for the 8.4 oz, and rigid dual cartridge for 20 and 50 oz | |
| **Good pumpability with modified S55 nozzle included with cartridge** | **Comparable pumpability with standard nozzle included with cartridge** | |
| **In Field Performance:** Works in dry, water saturated, water-filled concrete, and submerged conditions | **In Field Performance:** Works in dry, water saturated concrete and water-filled holes | A7+ can be installed in submerged conditions with barely no strength reduction |
| **Work Time at 0°C:** 35 Min<br>**Work Time at 10C:** 16 Min<br>**Work Time at 21°C:** 10 Min | **Work Time at 0°C: 30** Min<br>**Work Time at 10°C: 2**0 Min<br>**Work Time at 21°C:** 11 Min | |
| **Cure Time at 0°C:** 4 Hours<br>**Cure Time at 10°C:** 1-1/2 Hours<br>**Cure Time at 21°C:** 3/4 Hours | **Cure Time at 0°C:** 72 Hours<br>**Cure Time at 10°C:** 12 Hours<br>**Cure Time at 21°C:** 7 Hours | A7+ will cure much faster for anchor loading |
| **Threaded rod:** 3/8" to 1-1/4"<br>**Rebar:** #3 to #10 | **Threaded Rod:** 3/8" to 1-1/4"<br>**Rebar:** #3 to #10 | |
| **Resealable** | **Resealable** | |
| **Minimum Edge Distance (E)/Spacing (S):**<br>1/2" - S: 1-1/2"; E: 1-1/2"<br>5/8"- S: 2-1/2"; E: 2-1/2"<br>3/4" - S: 3"; E: 3"<br>1" - S: 4"; E: 4" | **Minimum Edge Distance (E)/Spacing (S):**<br>1/2" - S: 1-1/2"; E: 1-1/2"<br>5/8"- S: 1-3/4"; E: 1-3/4"<br>3/4" – S: 1-7/8"; E: 1-7/8"<br>1" – S: 2"; E: 2" | |
| **Price:** Competitive | **Price:** Competitive | |
| **Bond Strength:** Heavy duty. Maintains through all weather conditions with few exceptions with some diameters in submerged conditions | **Bond Strength:** Heavy duty. Characteristic strength significantly lower at any concrete conditions. | A7+ has basically no strength reductions with different water conditions and has higher characteristics strengths. Hydrophobic nature. |
| **Approvals:**<br>- Cracked concrete and masonry<br>- Seismic approval (A-F)<br>- Wind loading<br>- NSF 61<br>- Transportation for ON, QC, and BC<br>- ICC ESR 3903 (Concrete) and 3951 (Masonry) | **Approvals:**<br>- Cracked concrete<br>- Seismic approval (C-F)<br>- Wind loading<br>- NSF 61<br>- Transportation for ON, QB and BC<br>- ICC ESR 3608 (Concrete) | A7+ Masonry approval provides a wider range of applications<br>A7+ has approval for all seismic zones |

Updated: April, 2019

# EPCON C6+ vs. RE500 V3

RED HEAD
CONCRETE ANCHORING AND REINFORCING SOLUTIONS


VS.


| Red Head C6+ | Hilti RE500 V3 | Your Benefits |
|---|---|---|
| **Base Material:** Solid Concrete (Cracked & Uncracked) | **Base Material:** Solid Concrete (Cracked & Uncracked) | |
| **Base Material Temperature:** 4°C to 40°C | **Base Material Temperature:** -5°C to 40°C | |
| **Manufactured:** United Kingdom | **Manufactured:** Liechtenstein | |
| **Shelf Life:** 24 Months | **Shelf Life:** 9 Months | Longer shelf life gives distributors and contractors a longer window to work and make sales. Reduces chance of using expired products |
| **Hole Preparation:** Standard cleaning procedure (vacuum, wire brush) | **Hole Preparation:** Safe Set Technology, Standard cleaning procedure (vacuum, wire brush) | Safe Set Technology not practical for job site conditions and is expensive |
| **Cartridge Size:** 10 oz, 20z | **Cartridge Size:** 11.1oz, 16.9 oz, 47 oz | |
| **Cartridge:** Durable Polyethlyene | **Cartridge:** Sausage Tubes | C6+ will not puncture or burst on job site. Sausage tubes crack and become pierced easily |
| **Easy to pump** | **Easy to pump** | |
| **In Field Performance:** Works in dry, water saturated and water-filled concrete | **In Field Performance:** Works in dry, water saturated*, water-filled* and submerged concrete*<br>* Only in hammer-drilled holes | Water filled and submerge application in any type of hole instalation |
| **Work Time at 5°C:** 20 Min<br>**Work Time at 10C:** 20 Min<br>**Work Time at 21°C:** 11 Min | **Work Time at 5°C:** 60 Min<br>**Work Time at 10°C:** 45 Min<br>**Work Time at 21°C:** 15 Min | |
| **Cure Time at 5°C:** 24 Hours<br>**Cure Time at 10°C:** 12 Hours<br>**Cure Time at 21°C:** 7 Hours | **Cure Time at 5°C:** 24 Hours<br>**Cure Time at 10°C:** 16 Hours<br>**Cure Time at 21°C:** 6.5 Hours | |
| **Threaded rod:** 3/8" to 1-1/4"<br>**Rebar:** 10M to 25M, 35M | **Threaded Rod:** 3/8" to 1-1/4"<br>**Rebar:** 10M to 30M | C6+ has been designed to work on oversized holes |
| **Resealable** | **Resealable** | C6+ cartridges are more user friendly to store and re-use like regular cartridges |
| **Suitable in oversized and diamond cored drilled holes** | **Suitable in oversized and diamond cored drilled holes** | |
| **Minimum Edge Distance/Spacing:** Min 1-1/2", Max 2-1/2" | **Minimum Edge Distance/Spacing:** Min 2.2", Max 5.9" | C6+ has greater versatility which allows contractors and engineers to design closer to building edges |
| **Price:** 10oz: ~$23 | **Price:** 11.1oz: ~$53.25 | C6+ less than half the cost of Hilti RE500 V3 |
| **Bond Strength:** Comparable | **Bond Strength:** Comparable | |

Updated: March 21, 2016