



R-193 High Strength Anchor Bolts

With Optional RotaBolt™ Load Monitors

Revised July 09

ENGINEERING DATA:

MATERIAL SPECIFICATIONS

ALL BOLTS MACHINED FROM HIGH STRENGTH CHROMIUM MOLYBDENUM ALLOY STEEL (AISI 4140 TYPICALLY) WITH A MINIMUM TENSILE STRENGTH OF 125,000PSI AND ROLLED THREADS – ALL OF THE ABOVE PER ASTM A193

2H HEAVY HEX NUT PER ASTM 194

ENGINEERING SPECIFICATIONS

8 TPI PER ASTM A193

TOP SECTION DESIGN LENGTH ALLOWS FOR 12 TIMES THE BOLT DIAMETER IN FREE STRETCH

TOP SECTION HEAT TREATED PER ASTM A193, GR B-7

FRANGIBLE SECTION SHAPED PER ASTM A370

SHOT PEENED PER MIL SPEC S-13165-B AMENDMENT 2

SELF-ALIGNING DOUBLE SPHERICAL WASHER MADE FROM 4140, THROUGH HARDENED TO THE REQUIREMENTS OF ASTM F-436

PLASTIC GROUT SLEEVE PROVIDED

CLASS 2B FIT EXTRA LONG COUPLING HEAT TREATED TO ROCKWELL C 24-29

COUPLING THREAD ENGAGEMENT (TOP AND BOTTOM SECTIONS) IS 2" MINIMUM FOR 1.25" TO 2" DIAMETER BOLTS – TOP SECTION WILL HAVE ADDITIONAL $\pm .5$ " ENGAGEMENT TO ALLOW FOR TOP SECTION ELEVATION ADJUSTMENT

2H HEAVY HEX COUPLING LOCK NUT

COUPLING AND COUPLING LOCK NUT WILL HAVE A THREAD ADHESIVE APPLIED BEFORE TIGHTENING

BOTTOM SECTION IS B7 ALL THREAD – DESIGN LENGTH PER ACI 439

BOTTOM PLATE, IF USED, SECURED WITH A 2H NUT THREADS BELOW 2H NUT ARE DEFORMED OR SPOT WELDED TO PREVENT LOOSENING

OPTIONAL

EXTRA 2H NUT PROVIDED THAT CAN BE WELDED TO REBAR CAGE TO SECURE BOLT LOCATION/ELEVATION

QUALITY CONTROL REQUIREMENTS

ALL BOLTS CHECKED WITH A CALIBRATED RING GAGE

ALL COUPLINGS CHECKED WITH A CALIBRATED GO/NO GO GAGES FOR A CLASS 2B FIT

ALL THREADS VISUALLY INSPECTED FOR DELAMINATION FROM ROLLING PROCESS

ALL BOLTS AND COUPLINGS WILL HAVE A STAMPED SERIAL NUMBER – TRACEABLE BACK TO ORIGINAL MILL RUN OF THE BAR STOCK. MTR'S KEPT FOR ALL BOLTS.

ALL THREADS INSPECTED FOR BURRS OR DEFORMATIONS TO ENSURE THAT NUTS ARE FREE TURNING – ALL BURRS REMOVED BEFORE SHOT PEENING OPERATION

ALL BOLTS WILL BE PROTECTED WITH A POLYNET WEBBING TO PROTECT THE THREADS DURING SHIPPING

ALL BOLTS WILL BE PROTECTED FROM CORROSION WITH AN ANTI-RUST LUBRICANT THAT MEETS ASTM D-1735-62 AND ASTM B-117-73

BOTTOM NUT OR PLATE, IF USED, LOCK NUT THREAD DEFORMATION OR SPOT WELD CHECKED TO ENSURE THE NUT CANNOT LOOSEN

ALL GREASE WILL BE REMOVED FROM THE BOLT AND COUPLING IN THE AREA WHERE THE TREAD ADHESIVE IS TO BE APPLIED

LOAD MONITOR SPECIFICATIONS

$\pm 5\%$ REPEATABLE ACCURACY

WITHSTAND 1500 HRS OF CONTINUOUS SALT SPRAY

THE LOAD SETTING FOR ALL BOLTS IS CHECKED BY A HYDRAULIC TENSIONER TO ENSURE THE LOAD SETTING IS ACCURATE

LOAD INDICATOR DOES NOT REQUIRE VISUAL INSPECTION TO DETERMINE ANCHOR BOLT TORQUE

GAGE PIN MADE FROM 12.9 CARBON STEEL TO BS 3692

WITHSTAND OPERATING TEMPERATURES OF 350°F OR 180°C

SPECIAL ORDER HIGH TEMPERATURES (UP TO 1100°F OR 600°C) APPLICATIONS

ANHYDROUS HIGH MELT CALCIUM BASE GREASE TO MIL-G-10924C AND NATO G403 AS CORROSION PROTECTION

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