

Changes to **AS 1252: 2016** and its relationship with **EN 14399**

The 2016 revision of the AS 1252 standard has included the use of EN 14399, new sampling plans and new testing requirements which have not been included in any previous editions.

Adapting to AS 1252: 2016

What does AS 1252: 2016 cover?

- » The standard focuses on **structural bolting assembly testing**.
- » It includes a manufacturing guideline for structural bolts, nuts and washers.
- » A two part standard:
 - » AS 1252.1 contains the general dimensions and product manufacturing specifications along with testing, certification and a purchasing guideline.
 - » AS 1252.2 focuses on the verification testing of K0 bolting assemblies and its components which are required prior to market distribution.
- » Referenced in AS 4100 (Steel Structures) & AS 5131 (Steel fabrication & erection).
- » Largely based on the European Standard, EN 14399: 2005.

What is EN14399?

- » A 10-part European standard for structural bolt assemblies/components.
- » All bolt assemblies must comply to documentation requirements to get a CE mark.

HR Bolt systems

This classification of structural bolts refers to the failure mode of the structural bolt assembly. System HR bolt assemblies are designed to snap the bolt, in a ductile manner, at the threaded portion of the shank. HR bolt assembly types directly align with the design model and provisions in AS 4100.

Assembly Testing

Assembly testing was made to be 'normative' in AS 1252: 2016. **This makes it compulsory to do assembly testing for K0 assemblies.**

AS 1252: 1983 dimensional (1996 mechanical) Structural Bolt Assemblies now replaced with AS 1252: 2016 8.8 Type HR with K0 classification

Products that make Hobson Bolting safe, easy and accurate:

- » Squirter® DTI Washer. This Direct Tension Indicator [DTI] is designed in accordance with AS 4100 to clearly indicate Bolt tension in K0 assemblies.
- » Tone® Electric Torque Control Wrench. This tool is designed to make Bolting installation safer and easier.
- » Nord-Lock® SC-washers. These washers are designed to prevent loosening of Bolted connections.
- » **EN 14399: 2005 K2 8.8 HR Assemblies.** These assemblies are part of our premium range that allow torque to be used for tensioning.

Qualification of Assemblies and components

One of the biggest changes in the 2016 edition of AS 1252 is the inclusion of a new documentation structure to improve the quality of structural bolting assemblies being supplied to the Australian market. The new documentation structure closely resembles that of the European structural bolting standard EN 14399.

Continued ...



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Required Documentation

EN 14399: 2005 **K2** 8.8 HR
Assembly document structure.

» **European Conformity (CE) Certificate.**

The European Conformity (CE) mark is given to a manufacturer who has been assessed by a notified body and audited to the Harmonised European Standard (hEN) stating that they have the fabrication processes and quality management in place which is acceptable for the products manufactured. It is a requirement in the European Union to have the required CE marking on their products. A CE mark is only required in AS 1252: 2016 for the alternative and additional assembly types.

» **Factory Production Control (FPC).**

Inspection Certificate.

» **Declaration of Performance (DoP).**

AS 1252: 2016 **K0** 8.8 HR
Assembly document structure.

» **Initial Type Testing Certificate (ITT)** as demonstrated by the European Conformity (CE) Certificate.

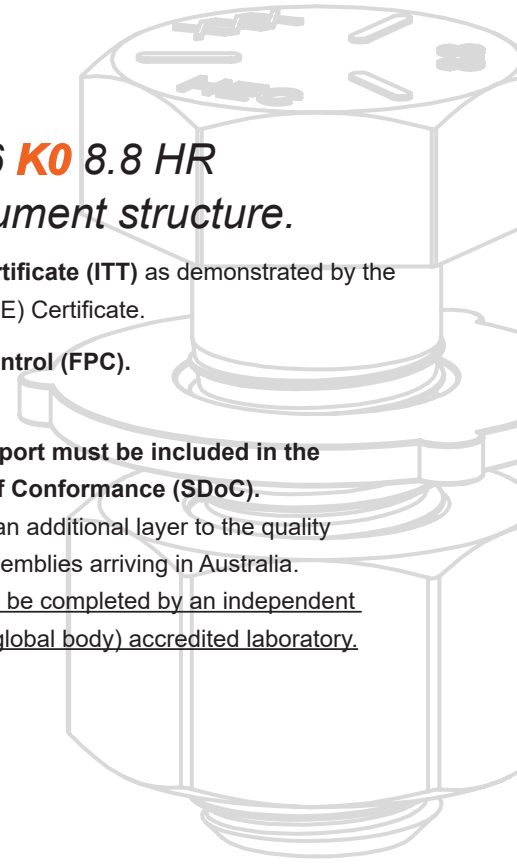
» **Factory Production Control (FPC).**

Inspection Certificate.

» **Verification Testing Report must be included in the Supplier Declaration of Conformance (SDoC).**

Verification Testing is an additional layer to the quality assurance of the **K0** assemblies arriving in Australia.

Verification Testing must be completed by an independent ILAC (NATA equivalent global body) accredited laboratory.

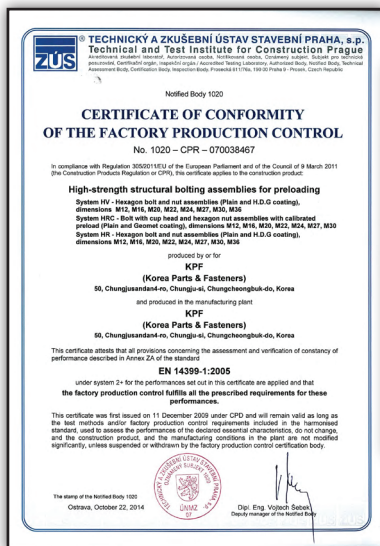


K2 Quality Assurance Documentation Online

FIND

Find Test Certificates by typing at least 3 characters of a Heat Number. Then press the FIND button to retrieve links to all matching certificates.

Heat Number	Description	Category	Part Number	Certificates
2015351400-2MT	EN 8.8 K2 HDG BSW:M24 X 80	AS1252 Structural	KBHK2GCM240080	



INSPECTION CERTIFICATE											
1. Certificate No.:		2. Mechanical Properties		3. Assembly Lot Torque Test		4. Visual & Thread		5. Chemical Composition (%)			
J00110123048		2.2 Bolt 2.2.1 2.2.2		3.1 3.2		4.1 4.2		5.1 5.2			
Customer: HOBSON (PRAHA)		Tensile strength: 800 N/mm²		Tensile strength: 800 N/mm²		Tensile strength: 800 N/mm²		C: 0.25, Mn: 0.035, P: 0.010, S: 0.005, Si: 0.030, Ni: 0.005, Cu: 0.005, Al: 0.005, Fe: Bal.			

DECLARATION OF PERFORMANCE
No. DoP-2016-05-001

- Unique identification code of the product-type:
EN14399-1 High-Strength structural bolting assemblies for preloading
Hexagon structural bolt, nut, 2 washers (EN 14399-3) : M12-M36 HR 8.8/8
- Intended uses:
For structural connectors in structural metallic works
- Manufacturer:
KPF
50, Chungjūnsandan 5-ro Chungju-city Chungcheongbuk-do, Korea 380-250
• TEL : 82-43-849-1343 • FAX : 82-43-849-1230
• URL : www.kpf.co.kr • E-mail : hrkim@kpf.co.kr
- Authorised representative:
N/A
- System's of AVCP
System 2+
- Harmonised standard:
EN 14399-1:2005

Notified body:
Notified Body number : 1020
TECHNICKÝ A ZKUSEBNÍ ÚSTAV STAVEBNÍ PRAHA s.p.
Address: Prosecká 811/76b 196 00 PRAHA 8, Czech Republic

Performance	Harmonised technical specification
EN 14399-1:2005 Table 3	EN 14399-1:2005
EN 14399-3:2005 Table 8	EN 14399-3:2005
EN 14399-3:2005 Table 6	EN 14399-3:2005
EN 14399-3:2005 Table 3	EN 14399-3:2005
EN 14399-3:2005 Table 3	EN 14399-3:2005
EN 14399-3:2005 Table 3	EN 14399-3:2005

The European Union's Certificate of conformity

Factory Production Control (FPC)

Declaration of Performance (DoP)



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KO Quality Assurance Documentation Online

JJT

FIND

Find Test Certificates by typing at least 3 characters of a Heat Number. Then press the FIND button to retrieve links to all matching certificates.

Heat Number	Description	Category	Part Number	Certificates
JJT-E987654	K0 AS1252:2016 HDG BNW:M20 X 50	AS1252 Structural	KBHK0GCM200050	ITTT F S

F Factory Production Control (FPC)

ITT Initial Type Testing (ITT)

S Suppliers Declaration of Conformity (SDoC)

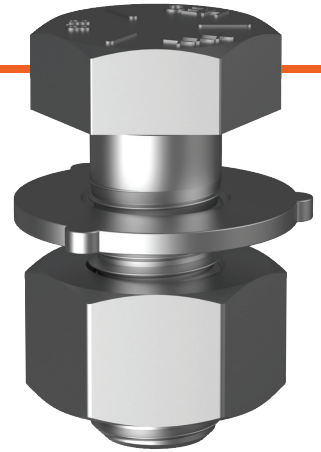
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Bolt Tension | Anti-Vibration | Corrosion Resistance | Product Reliability | Traceability



AS 1252: 2016 K0 8.8 HR Structural Assembly

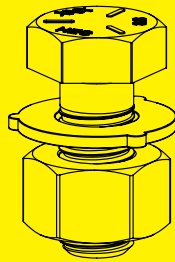
- » AS 1252: 2016 K0 8.8 HR replaces AS 1252: 1983 dimensional (1996 mechanical)
- » Fully adhering to the new standard.
- » Unique Batch head marking. See photo below
- » Verification Testing Reports included in the Supplier Declaration of Conformance [SDoC].
- » Full Quality Assurance documentation online.



**HOT DIP GALVANISED
K0 STRUCTURAL ASSEMBLY
AS1252:2016 K0 / CLASS 8.8**

M20 x 50

50 pcs



Q:K02050

SDoC: This product complies to AS1252:2016 Part 1 and 2 (mandatory).
ALL conforming documentation and quantity production units are
available online at hobson.com.au/k0 or scan the below QR code.

KBHK0GCM200050

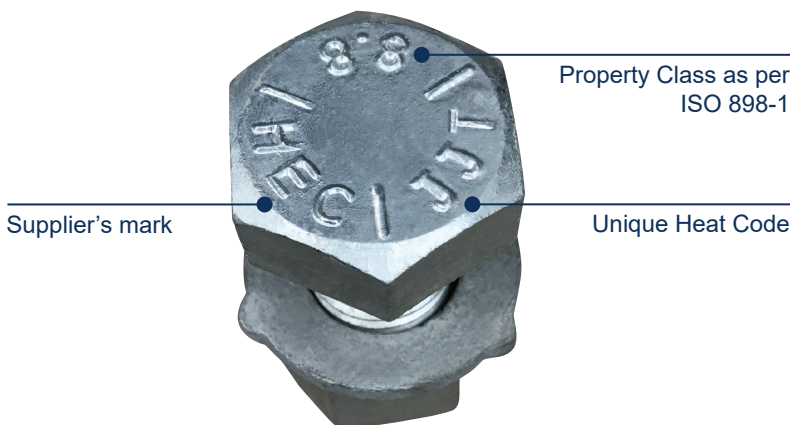
HEAT: JJT-E987654



LOT: A123456
PO: 99999 NS1
CTN WGT: 16.00kg

K0 8.8 HR STRUCTURAL ASSEMBLY HOT DIP GALVANISED / AS1252:2016 K0 / CLASS 8.8

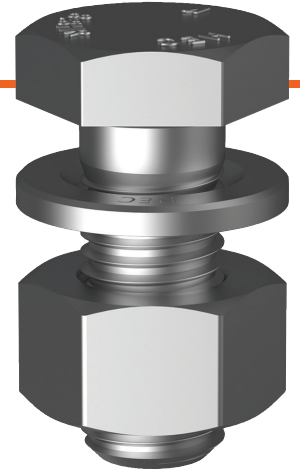
Part	Size	Length (mm)
KBHK0GCM120	M12	30-200
KBHK0GCM160	M16	40-700
KBHK0GCM200	M20	40-800
KBHK0GCM220	M22	55-200
KBHK0GCM240	M24	50-750
KBHK0GCM270	M27	80-200
KBHK0GCM300	M30	75-725
KBHK0GCM330	M33	130-230
KBHK0GCM360	M36	90-600




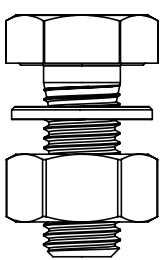
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EN 14399: 2005 K2 8.8 HR Structural Assembly

- » EN 14399: 2005 K2 8.8 HR [AS 1252: 2016 states that EN 14399 can be used as an 'alternative assembly type'].
- » Premium Range.
- » Unique batch head marking. See photo below.
- » Friction tightly controlled during manufacture. Refer details on the label for k factor and torque method.
- » Torque able to be used for tensioning.
- » Full Quality Assurance documentation online.

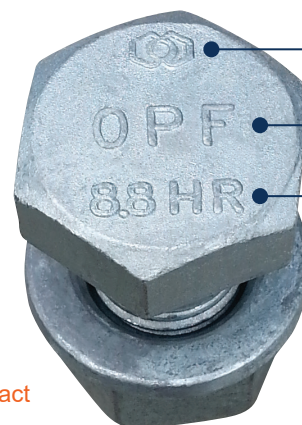


Carton Label

HR, HDG (EN14399-3 8.8 BOLT/ (1) EN14399-3 CL.8 NUT/ (1) EN14399-5 WASHER)		
KBHK2GCM240080 PO# 58949 Heat Code: 2MT	LOT# 2015351400 Hobson Engineering 10 Clay Place Eastern Creek NSW 2766 AUSTRALIA	Quantity: 30 PCS
 935062901642		
M24x3.0Px80		
Torque Method according to EN1090-2 1 1st : 430 Nm 2 2nd : 630 Nm		
k - class K2 3 $k_m : 0.120$ 4 $V_k : 0.06$		KEG NO: 1 PLT NO: 155

K2 8.8 HR STRUCTURAL ASSEMBLY HOT DIP GALVANISED / EN14399:2005 K2 / CLASS 8.8

Part	Size	Length (mm)
KBHK2GCM120	M12	30-90
KBHK2GCM160	M16	40-100
KBHK2GCM200	M20	45-350
KBHK2GCM220	M22	65-130
KBHK2GCM240	M24	50-150
KBHK2GCM300	M30	75-500
KBHK2GCM360	M36	90-200



Manufacturer's mark

Unique Heat Code

Property Class as per
ISO 898-1 and HR

- 1** The rated torque value required to bring the steel plies to firm contact (Snug or Bearing Joint).
- 2** The rated torque value required to reach the correct tension in the assembly (Friction Joint).
- 3** The mean value of the k-factor obtained through testing.
- 4** V_k is the coefficient of variation of the k-factor values obtained in testing.

ONLINE 

Technical Article link:
[k2-structural-assembly.pdf](#)

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Bolt Tension | Anti-Vibration | Corrosion Resistance | Product Reliability | Traceability

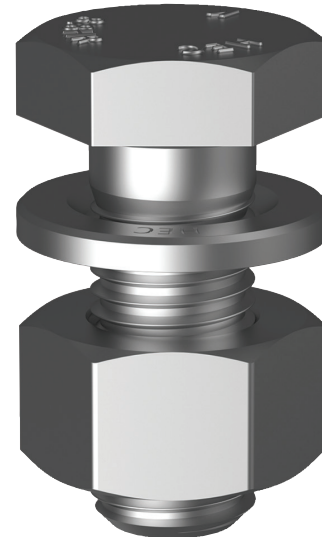


K Classification of Bolt Systems

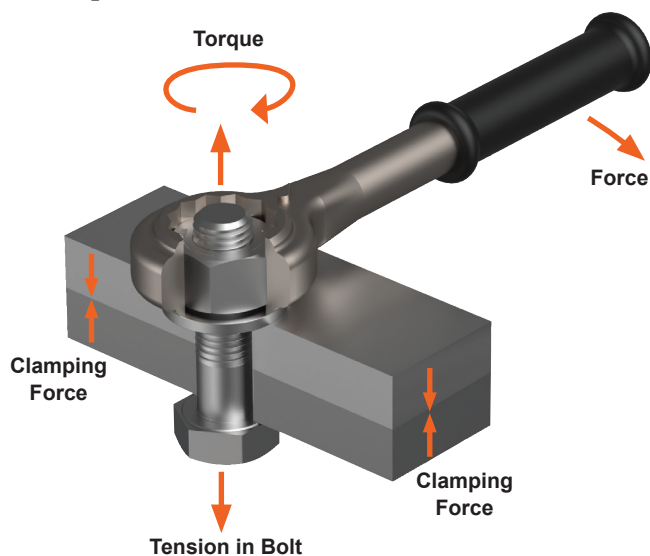
EN 14399 documentation provides performance values for designers along with tests to ensure that the assembly will perform as intended by the standard.

This European standard allows torque to be used when tightening structural bolts. This only applies for K1 and K2 assemblies where the torque-tension relationship is calibrated.

Structural Bolt assemblies that are manufactured to EN 14399 8.8 Type HR with K2 classification comply to the requirement of AS 1252: 2016 and can be used directly in the Australian market.



Torque and Tension?



Forces at play when a bolt is torqued.

Torque is the *rotational* force applied to a solid body.

Tension is the *axial* (along the shank) force applied to a solid body.

We can relate the torque applied to the nut to the tension achieved by the bolt. However, the effect of friction on surfaces that are in contact (threads and nut face) must be calibrated!

Friction

The formula below is applied to relate the tension achieved by the bolt from a specific torque on the nut.

$$M = F \cdot k \cdot d$$

M = torque required on the nut to achieve 'F'

F = required tension on the bolt

k = a factor applied to account for the torque loss primarily due to friction.

d = the thread diameter of the bolt

K Class

The K class of a bolt refers to the control of friction between the threads.

k-class and k-factor



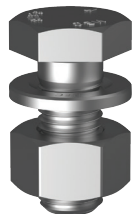
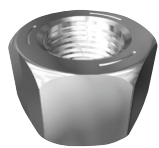
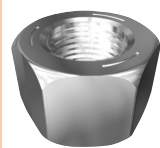
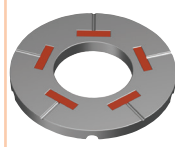
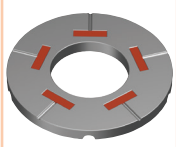
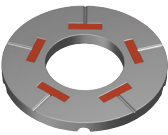

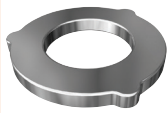
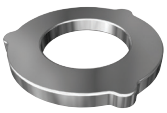
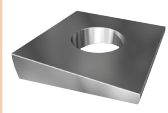

k-class	k-factor
K0	—
K1	$0,10 \leq k_f \leq 0,16$
K2	$0,10 \leq k_m \leq 0,23 \quad V_k \leq 0,06$

From EN 14399: 2005-04.



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<p>HDG AS 1252: 1983 Class 8.8</p>  <p>STRUCTURAL ASSEMBLY</p> <p>KBHSTGCM</p>	<p>HDG AS 1252: 2016 Class 8.8</p>  <p>K0 STRUCTURAL ASSEMBLY</p> <p>KBHK0GCM</p>	<p>HDG EN 14399: 2005 Class 8.8</p>  <p>K2 STRUCTURAL ASSEMBLY</p> <p>KBHK2GCM</p>	<p>HDG AS 1252 Class 8</p>  <p>STRUCTURAL HEX NUT</p> <p>NHSTGCM</p>	<p>PLN AS 1252 Class 8</p>  <p>STRUCTURAL HEX NUT</p> <p>NHSTPCM</p>	<p>MGAL ASTM F959M Class 8.8</p>  <p>METRIC SQUIRTER® DTI WASHER</p> <p>WDSTGM</p>	<p>PLN ASTM F959M Class 10.9</p>  <p>METRIC SQUIRTER® DTI WASHER</p> <p>WD10PM</p>
<p>MGAL ASTM F959M Class 10.9</p>  <p>METRIC SQUIRTER® WASHER</p> <p>WD10MM</p>	<p>MGAL ASTM F959M Class 8.8</p>  <p>METRIC LOAD INDICATOR</p> <p>WISTGM</p>	<p>HDG AS 1252 32-45HRC</p>  <p>STRUCTURAL WASHER</p> <p>WRSTGM</p>	<p>PLN AS 1252 35-45HRC</p>  <p>STRUCTURAL WASHER</p> <p>WRSTPM</p>	<p>HDG AS 1252 26-45HRC</p>  <p>TAPER WASHER 8° SQUARE</p> <p>WTSTGM</p>	<p>SS 301 HEC</p>  <p>FEELER GAUGE 0.13MM</p> <p>XGF013</p>	<p>Cartridge 425g</p>  <p>STICK WAX LUBRICANT</p> <p>XXWSC</p>

orange is good

TONE

Bolting made Safe, Easy and Accurate

» TONE® Electric Torque Control Wrench



PART: XT-STC7TE



PART: XT-STC12TE

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Bolt Tension | Anti-Vibration | Corrosion Resistance | Product Reliability | Traceability

No loosening in **steel structures**

Steel construction washers (SC-washers)

Based on the leading Nord-Lock® wedge-locking technology, the Nord-Lock® SC-washers are specially designed for steel construction applications and to fit EN 14399: 2005 K2 8.8 HR Structural Assemblies.

Nord-Lock® SC-washers are designed to directly replace standard washers according to EN 14399. The torque requirements have to be adjusted accordingly to specific torque guidelines for HR bolts.

For more info on the torque guidelines for your application refer www.hobson.com.au/nord-lock-sc-washers

Specifications

Material	Steel 1.7182 or equivalent
Hardness	HV1 > 465 HV through hardened
Surface coating	Delta Protekt®
Available range	M12 – M36 (NL12SC – NL36SC)

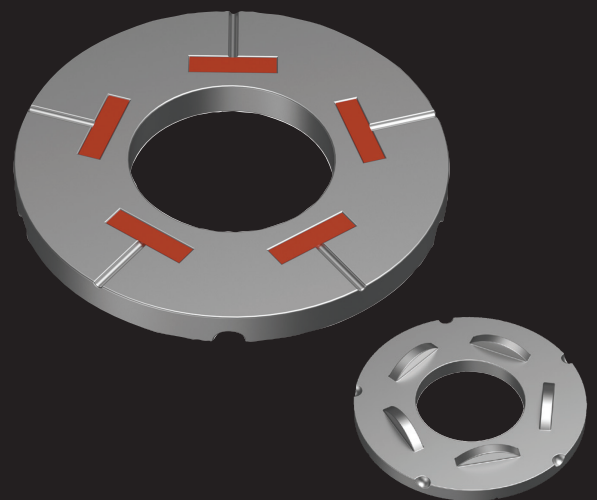
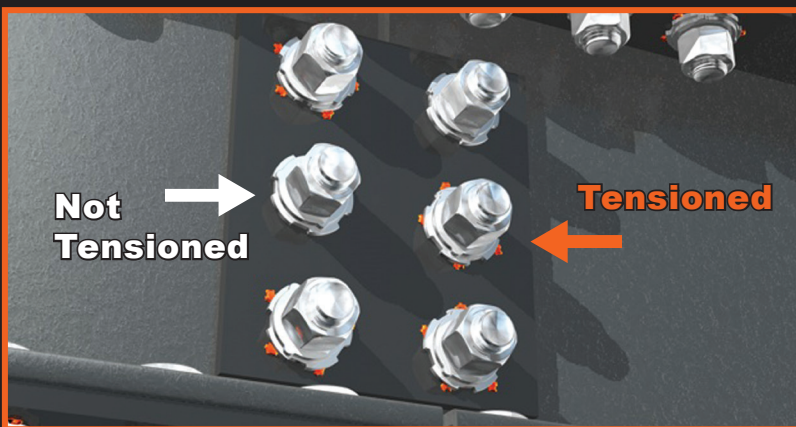


NORD-LOCK
GROUP

the best way to bolt!

Squirter® DTIs

Squirter® DTIs (Direct Tension Indicator)



Try **Squirter® DTIs** on your next bolting project... you'll never go back



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