



**SEGNUT<sup>TM</sup>**  
Safer. Faster. Smarter.

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# SEGNUT

## TECHNICAL DATA SHEET

Release Date: 16-04-2019

This Technical Data Sheet (TDS) applies to the following part numbers:

N-M12C-03-08B-00	M12 Class 8 Black
N-M16C-01-08B-00	M16 Class 8 Black
N-M20C-03-08B-00	M20 Class 8 Black
N-M24C-03-08B-00	M24 Class 8 Black
N-063C-01-05B-00	5/8" Grade 5 Black
N-075C-03-05B-00	3/4" Grade 5 Black
N-088C-03-05B-00	7/8" Grade 5 Black
N-100C-03-05B-00	1" Grade 5 Black
N-125C-03-S9B-01	1-1/4" S9 Black

Check our website ([www.segnut.com](http://www.segnut.com)) for the latest Technical Data Sheet.

Joint Requirement

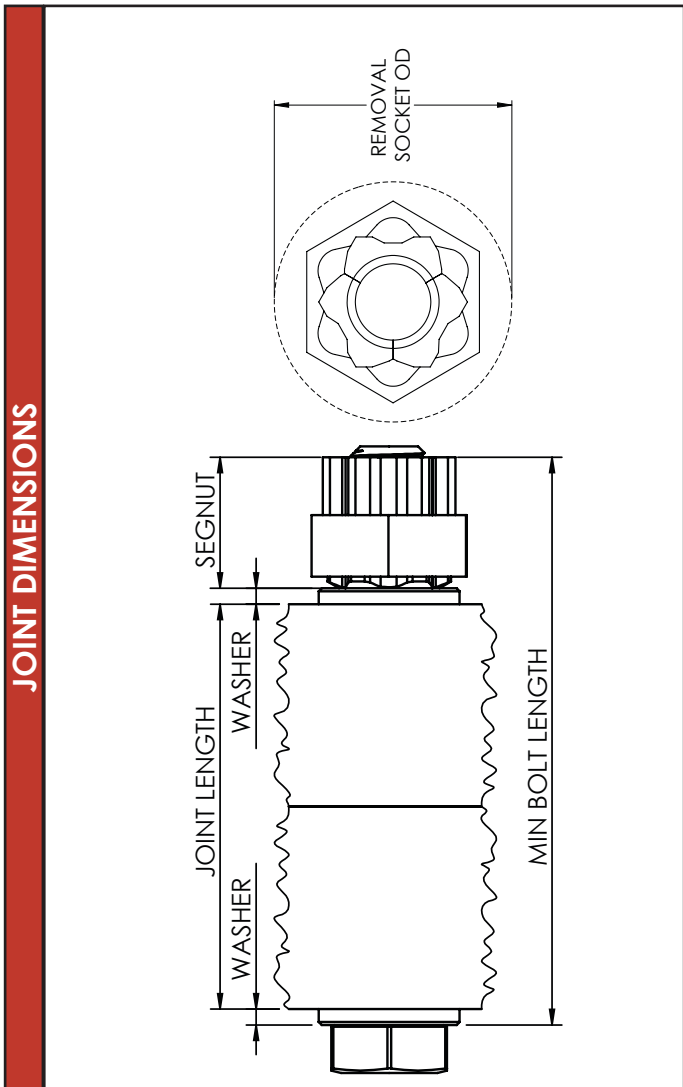
Segnuts are taller than conventional nuts and require longer bolts. Please ensure some threads protrude from the end of the segnut. The minimum required bolt length can be calculated as shown below.

The Segnut is also wider than a conventional nut, please ensure removal tools have sufficient clearance around the Segnut. Check the outside diameter (OD) of your removal socket prior to installation. Socket ODs vary with brand and drive size, some socket modification may be required in applications with particularly tight bolt spacing.

Min Bolt Length

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Joint Length + Washer Thickness + Segnut Height



Installation Hardware

For the part numbers to which this TDS applies, do not use galvanised bolts. Always install Segnuts with hardened washers. Lubricate both the thread and nut bearing surface (or washer) to ensure sufficient tension is generated in the bolt. The Segnut S9 1-1/4" must be installed with the supplied Segnut Double Washers.

**Note:** Insufficient bolt tension can lead to self-loosening and other joint failures.

Tightening and Tooling Requirements

Tighten using the upper hex and release using the outer sleeve. No special tooling is required; wrenches, ratchets, rattle guns, and rad guns are all appropriate depending on the required torque. The torque required to tighten a Segnut depends on the friction and thread size. This friction is represented by the K-Value (refer to SEGMENT K-VALUES Table). The formula below is used to calculate your tightening torque.

**Note:** When tightening Segnuts using rattle guns and other high energy impact tools, ensure the nut is first snug-tight by other methods before the rattle gun is used.

Torque(Nm)

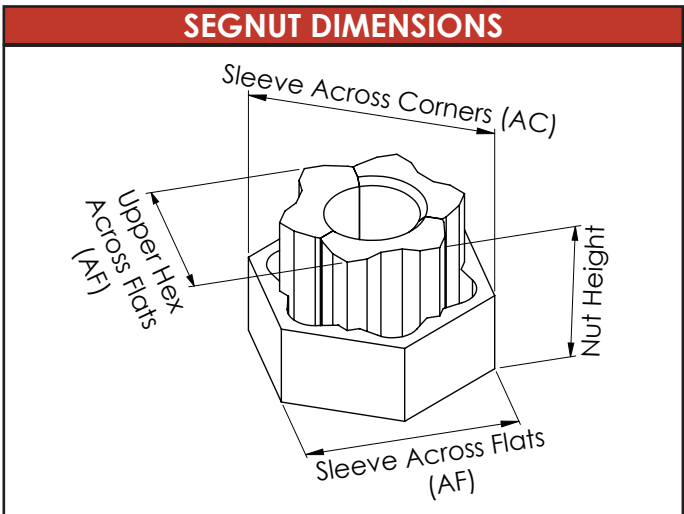
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K-Value x Tension(N) x Thread Diameter(m)

**Example:**  
M20 Tightened to 95kN (Lubricated)

$Torque = 0.17 \times 95000N \times 0.020m = 325Nm$

Refer to the following reference tables for Segnut dimensions and tightening information.



SEGNUT DIMENSIONS (mm)				
Nut Thread (Coarse - 6H/2B*)	Nut Height	Upper Hex AF	Outer Sleeve AF	Outer Sleeve AC
M12 x 1.75	20.25	21	27	31.2
M16 x 2.0	27	21	32	37.0
M20 x 2.5	34.5	30	40	46.2
M24 x 3.0	34.5	36	50	57.7
5/8" UNC	27	21	32	37.0
3/4" UNC	34.5	30	40	46.2
7/8" UNC	34.5	36	50	57.7
1" UNC	43	41	55	63.5
<b>S9 1-1/4" UNC</b>	44	45	64	73.9

\* Segnuts are internally threaded with a tolerance class of 6H (Metric ISO 965-2) and 2B (Imperial ASME B1.1). This is the same general purpose thread as plain (black) standard nuts.

SEGNUT MATERIAL PROPERTIES				
Property	Hardness	Standard	Material	Coating
Class 8	23-36 HRC	ISO 898-2	Carbon Steel	Black Oxide
Grade 5	≤ 32 HRC	SAE J995 / ASTM A194	Carbon Steel	Black Oxide
Segnut S9	26-43 HRC	Internal	40Cr Q&T Alloy	Black Oxide

FASTENER TENSIONS (kN)			
(ISO898)	8.8 Bolt Proof	8.8 Bolt Ultimate Tensile	Class 8 Segnut Proof
M12	48.9	67.4	74.2
M16	91	125	138.2
M20	147	203	225.4
M24	212	293	324.8
(SAE J429)	Grade 5 Bolt Proof	Grade 5 Bolt Ultimate Tensile	Grade 5 Segnut Proof
5/8"	85.4 (19200lbs)	120.5 (27100lbs)	133.9 (30100lbs)
3/4"	126.3 (28400lbs)	178.4 (40100lbs)	197.5 (44400lbs)
7/8"	174.8 (39300lbs)	246.4 (55400lbs)	273.1 (61400lbs)
1"	229.1 (51500lbs)	323.4 (72700lbs)	358.5 (80600lbs)
	Plow Bolt Proof	Plow Bolt Ultimate Tensile	S9 Segnut Proof
S9 1-1/4"	659.4*	732.7 (164730lbs)	774**

\*Plow bolt Ultimate Tensile Strength 170ksi, proof assumed to be 90% UTS

\*\* 20% Higher than an SAE Grade 8 Hex Nut (Comparable proof stress to a Class 12 metric nut)

INSTALLATION & REMOVAL			
Nut	Tightening Torque*	Installation Socket Size	Removal Socket Size
M12	65Nm	21mm	27mm
M16	160Nm	21mm	32mm
M20	325Nm	30mm	41mm
M24	565Nm	36mm	50mm
5/8"	150Nm	21mm	32mm
3/4"	265Nm	30mm	41mm
7/8"	430Nm	36mm	50mm
1"	645Nm	41mm	55mm
<b>S9 1-1/4"</b>	2000Nm**	45mm	65mm

\*Tightening torques are indicative only and actual recommended tightening torques may be different for different applications. The Torque-Method has an approximate 35% error on desired tension depending on multiple joint parameters. Tightening torques have been estimated to achieve **65% of the bolt proof load using a 0.17 (lubricated) K-Value.**

\*\*2000Nm is the tightening torque recommended by 3rd party OEMs for their Plow Bolts. This tightening torque is appropriate for the Segnut S9 1-1/4" with Double Washer however do not exceed 2300Nm as this may over-tension the Plow Bolt.

### Class/Grade

Metric Class 8 Segnuts are to be used with Class 8.8 or lower bolts, and Imperial Grade 5 Segnuts are to be used with Grade 5 or lower bolts. The Segnut S9 is designed for cutting edge blade plow bolts and thus can be paired with bolts having up to 170ksi UTS.

### Quality Assurance

All quality assurance testing is conducted according to ISO3269. Segnut Design tests involve an internal version of the AS1252.1:2016 / EN14399 Assembly Test. Passing this test requires snapping a class/grade equivalent bolt.

### Vibration Resistance

Segnuts are a conventional nut replacement - they **do not** replace prevailing torque (Nyloc, Conelock, etc.) or other anti-vibration nuts. If intending to use a Segnut in an application requiring vibration resistance, please consult an engineer about the use of an appropriate additional vibration security measure (eg Nord-Lock washers, Safety Washers etc).

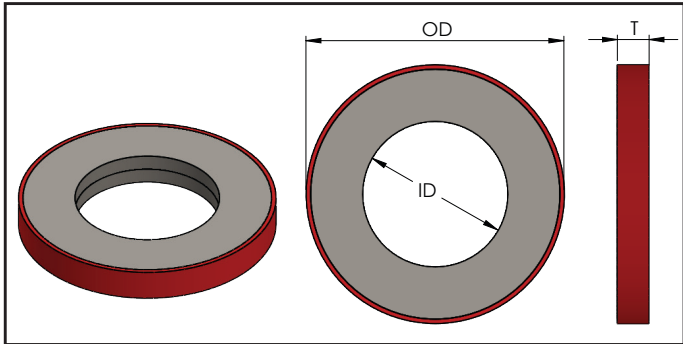
### Traceability

All Segnuts are marked with; thread size, property class/grade and batch number for traceability. Refer below for the stamp on an M24 Class 8 Segnut from batch FSH.

SEGNUT K-VALUES	
CONDITION	RESULT
No Washer	Not Recommended
Unlubricated	Not Recommended (0.18-0.22)
Lubricated	0.15 - 0.18
Double Washer and Lubricated	0.11 - 0.15



DOUBLE WASHER MATERIAL PROPERTIES					
Property	Hardness	Standard	Material	Coating	Retaining Ring
Segnut S9	40-50 HRC	Internal	Carbon Steel Q&T	Zinc	Silicon Rubber



DOUBLE WASHER DIMENSIONS			
Nominal Size	ID	OD	T
1-1/4"	32.5mm	57mm	7mm

### Double Washer

The double washer is designed to reduce the friction at the bearing surface of the 1-1/4" S9 Segnut such that sufficient bolt tension is generated during tightening. The friction between the washers is much lower and more controlled than that between the nut and a single washer. **Always install S9 1-1/4" Segnuts with provided double washers.**

### Contact

For all supply and pricing enquiries within Australia and New Zealand, please contact Konnect Fastening Systems. For all technical, and product related enquires or feedback, please contact Segnut.



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