

## HEXATRAC<sup>plus</sup><sup>TM</sup>

# HEXATRAC PLUS<sup>TM</sup>

The HEXATRAC PLUS<sup>TM</sup> drive system was developed by Camcar Innovations as a response to our customers' request for a lightweight fastener that uses a standard hex socket. Functionally, HEXATRAC PLUS<sup>TM</sup> performs the same as a standard heavy hex flange bolt while simultaneously providing a 25-35% reduction in head weight. This weight reduction is achieved by the elimination of unnecessary material in the head.

Extensive testing was performed on the HEXATRAC PLUS<sup>TM</sup> drive system to confirm that there are no concerns with head integrity. The HEXATRAC PLUS<sup>TM</sup> drive system has a comprehensive set of standards, including manufacturing know-how and gaging to ensure a consistent quality product.



### FEATURES

- ▶ Unique patented drive system geometry
- ▶ Larger than standard minimum across corners results in a tighter fit to a hex socket
- ▶ Controlled grain flow and drive geometry gaging

### BENEFITS

- ▶ Fits within the same envelope as a standard heavy hex head
- ▶ Replaces a heavy hex flange bolt while having a 25-35% head weight reduction
- ▶ Uses standard hex sockets — no changes are required on the assembly line, including tightening parameters
- ▶ Performs equally well with surface drive sockets
- ▶ Drive system strength of 3X the torque required to yield the fastener when using a standard hex or surface drive socket

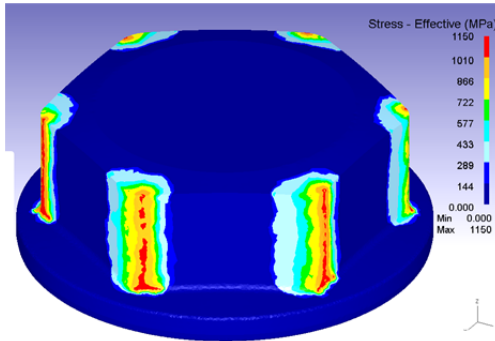
### IDEAL APPLICATIONS

- ▶ Where weight reduction is desirable and using a hex or surface drive socket is required
- ▶ Interior applications that currently use a standard heavy hex bolt
- ▶ Exterior applications where the bolt is horizontal or the head is down

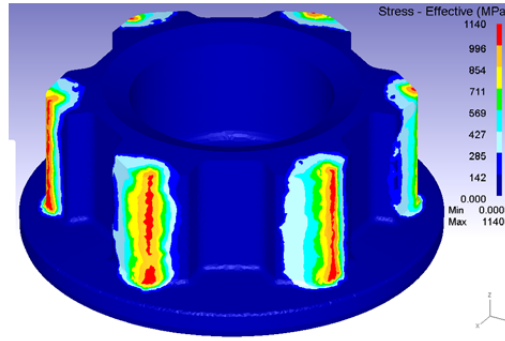
## GEOMETRY AND DESIGN

Functionally, **HEXATRAC PLUS™** performs the same as the standard heavy hex flange heads

Heavy Hex Flange Head (13mm)



**HEXATRAC PLUS™ (HX13)**



Condition tested to ~46Nm

DRIVE SIZE	THREAD SIZE	HEX FLANGE HEAD WEIGHT (GRAMS)	HEXATRAC PLUS™ HEAD WEIGHT (GRAMS)	WEIGHT REDUCTION (GRAMS)	% WEIGHT REDUCTION
HX8	M5	2.9	2.1	0.8	27.6%
HX10	M6	5.0	3.5	1.5	30.0%
HX11	M7*	6.8	4.7	2.1	30.9%
HX13	M8	10.3	6.9	3.4	33.0%
HX16	M10	19.0	12.7	6.3	33.2%
HX18	M12	29.4	20.8	8.6	29.3%
HX21	M14	46.1	32.2	13.9	30.2%
HX24	M16	68.0	47.9	20.1	29.6%
HX27	M18*	90.4	66.4	24.0	26.5%
HX30	M20	128.1	89.7	38.4	30.0%

1. HEXATRAC PLUS™ drive system bolt head weights are based on target dimensions to meet the HEXATRAC PLUS™ drive system standards specifications.

2. Hex flange bolt head weights are based on expected part dimensions to meet DIN EN 1665-2007-07 specifications.

\*M7 and M18 based on expected part dimensions to meet Daimler specification MBN 10105:2014-10.

## STANDARD DESIGN GUIDELINES

- Drive sizes HX8-HX30 for thread sizes M5-M20