

# GEDORE

TOOLS FOR LIFE

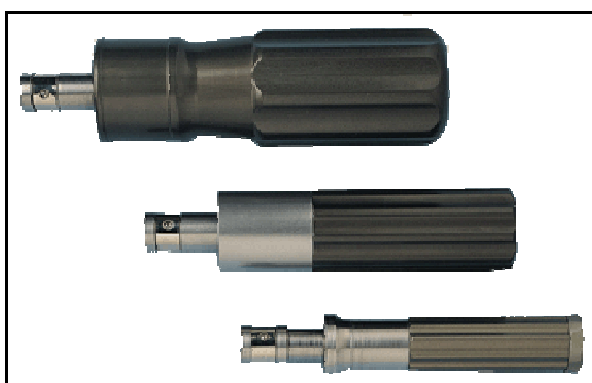
formerly TORQUELEADER

## CRS 100 CLEAN ROOM SCREWDRIVERS

DATA SHEET: 014  
DATE: 04/16

Issue No: 6  
No of Pages: 1 of 3

### CLEAN ROOM SCREWDRIVERS



### PRODUCT OVERVIEW

In response to the demand for Torque tools for clean room environments, Torqueleader have developed versions of their TLS0022, Minor and Standard torque screwdrivers which comply to the stringent cleanliness requirements for use within Class 100 or ISO Class 5 Clean Rooms. The screwdrivers aluminum handles are polished and then sealed with a PTFE impregnated anodised finish. Most external steel components are manufactured from high grade stainless steels and all are specifically finished to inhibit any form of corrosion. The tools are fitted with special 'smooth skin seals' to prevent the egress of internal lubricants and the ingress of any cleaning solvents. The internal lubricant is specially prepared and micro-filtered. Should any grease leak past the seals it will thus have minimal contamination effect.

### AVAILABLE MODELS

MODEL	ORDER CODE	RANGE
CRS 100-0022FH	015089	2-22cN.m
CRS 100-0135FH	015209	11-135cN.m
CRS 100-0406FH	015609	16-406cN.m
CRS TLS-1360FH	015939	1.35-13.6N.m

## CLEAN ROOM STANDARDS

According To the International Organisation for standardization (ISO 14644-1), classes of cleanliness are defined by the maximum number of allowable particles of the indicated size per cubic metre for each Clean Room Class.

### ISO 14644-1 CLEAN-ROOM STANDARDS

Table 1: Air cleanliness classification table by particle concentration

Maximum allowable concentration (particles/m<sup>3</sup>) for particles equal to and greater than the considered sizes shown below:

CLASS	PARTICLES/in <sup>3</sup>					
	0.1µm	0.2µm	0.3µm	0.5µm	1µm	5µm
ISO 1	10b	2	d	d	d	e
ISO 2	100	24b	10b	d	d	e
ISO 3	1,000	237	102	35b	d	e
ISO 4	10,000	2,370	1,020	352	83b	e
ISO 5	100,000	23,700	10,200	3,520	832	e
ISO 6	1,000,000	237,000	102,000	35,200	8,320	293
ISO 7	c	c	c	352,000	83,200	2,930
ISO 8	c	c	c	3,520,000	832,000	29,300
ISO 9	c	c	c	35,200,000	8,320,000	293,000

- a. All concentrations in the table are cumulative, e.g. for ISO Class 5, the 10,200 particles shown at 0.3µm include all particles equal to and greater than this size.
- b. These concentrations will lead to large air sample volumes for classification. Sequential sampling procedure may be applied.
- c. Concentration limits are not applicable in this region of the table due to very high particle concentration.
- d. Sampling and statistical limitations for particles in low concentrations make classification inappropriate.
- e. Sample collection limitations for both particles in low concentrations and sizes greater than 1µm make classification inappropriate, due to potential particle losses in the sampling system.

The use of Table 1 will ensure a better definition of the appropriate particle-size ranges for the different classes.

## COMPARISON

ISO 14644-1	FEDSTD 209E
ISO 2	1
ISO 4	10
ISO 5	100
ISO 6	1,000
ISO 7	10,000
ISO 8	100,000

Prototypes of the Torqueleader CRS 100 tools were independently tested and found to well exceed the requirements of class 100 / ISO Class 5 and almost consistently achieving class 10 / ISO Class 4.

### **Anticipated Areas Of Use:**

Apart from computer assembly clean rooms it is anticipated the CRS 100 range of torque screwdrivers will be of use in other industries utilising clean rooms—namely Aerospace, Medical, Pharmaceutical, Electronics, Optical, Bio –Technology etc.

### **Prices:**

See Gedore Torque general price list.

### **Delivery:**

Only limited quantities of the CRS 100 torque screwdrivers are kept in stock. Contact our Sales Office at the time of ordering for delivery information.

### **Options:**

Some CRS screwdrivers can also be supplied with various options. For instance IFR (Impact Free Resetting) cams, also ESD handles. Contact Sales Office for specific details.

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BS EN ISO  
9001:2008



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FM00363