

# CBS7 – CRYO BEARING STAGE 7



## Features

- Non-magnetic
- Spring preloaded roller guides; play free
- 10 mK to 375K, vacuum compatible
- xyz configurable
- Compact and robust design with large stroke
- Integrated scanner functionality
- Position feedback option -RLS
- Increased driving force option -HF
- Ceramic roller guides

## Description / Applications

The CBS7 is a non-magnetic and robust linear stage for all-round applications in a cryo-vacuum, which will run both horizontally and vertically. The combination of long-range stepping motion followed by short range scanning offers sub-nm positioning over the full range. The full ceramic guides are spring preloaded, ensuring play free and smooth running from room temperature to cryogenic temperatures.

## Specifications

General info	
Type of motion	Linear, both horizontal and vertical
Dimensions	See drawings below
Operational environmental conditions	10 mK to 375 K, ambient to UHV
Weight	21 g, -RLS adds 3 g
Stepping motion	
Travel range	7 mm
Velocity @ 300 K	3 mm/s
Velocity @ 4 K	1 mm/s
Minimal step size @ 300 K	150 nm
Minimal step size @ 4 K	50 nm
Drive voltage	-30 V to 120 V
Scanning motion	
Scanning range @ 300 K	10 $\mu$ m
Scanning range @ 4 K	2 $\mu$ m
Minimal step size	Sub-nm
Drive voltage @ 300 K	-30 V to 120 V
Drive voltage @ 4 K	-30 V to 120 V
Forces and load capacity	
Driving force @ 300 K	1 N, increased to 2 N for -HF model
Driving force @ 4 K	1 N, increased to 2 N for -HF model
Load capacity @ horizontal motion	2 kg
Load capacity @ vertical motion	100 g, increased to 200 g for -HF model
Materials	
Main body	Titanium
Piezo actuator	Low voltage multilayer, ceramic insulated
Linear guides	Ceramic
Model specific information	
-RLS	Resistive Linear Sensor, typical resolution 100 nm RMS
-HF	High Force, to increase driving force to 2 N
-V, -HV or -UHV	Level of vacuum compatibility, see the glossary on the homepage for details
Electronics CPSC	
Controller Base Cabinet	CAB
Driver for stepping and scanning	CADM
Position readout	RSM

## Ordering Information

### Available Models

CBS7-V	Cryo Bearing Stage 7
CBS7-RLS-V	Cryo Bearing Stage 7-Resistive Linear Sensor
CBS7-HF-V	Cryo Bearing Stage 7-High Force
CBS7-RLS-HF-V	Cryo Bearing Stage 7-Resistive Linear Sensor-High Force

### Available Options

-HV	Upgrade to High Vacuum compatibility
-UHV	Upgrade to Ultra High Vacuum compatibility

### Accessories

I1-CBS7	Interface bracket for CBS7, to add z axis on x or xy
AKM1	Accessory Kit Mechanical 1
AKE1	Accessory Kit Electrical 1

### Mechanical and electrical information

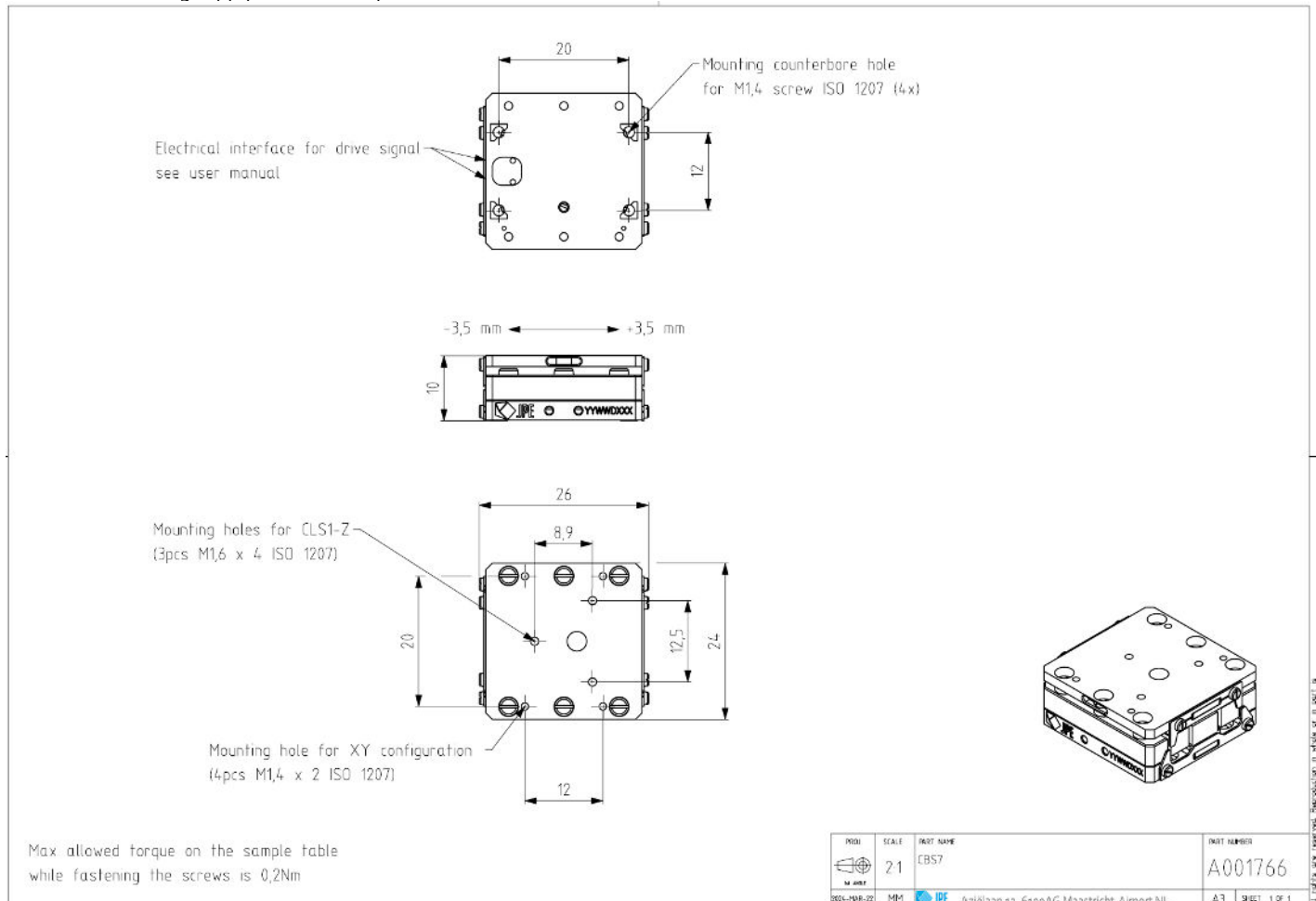
Download 3D step files and manuals from:  
<https://www.jpe-innovations.com/cryo-nano-products/>

### Contact

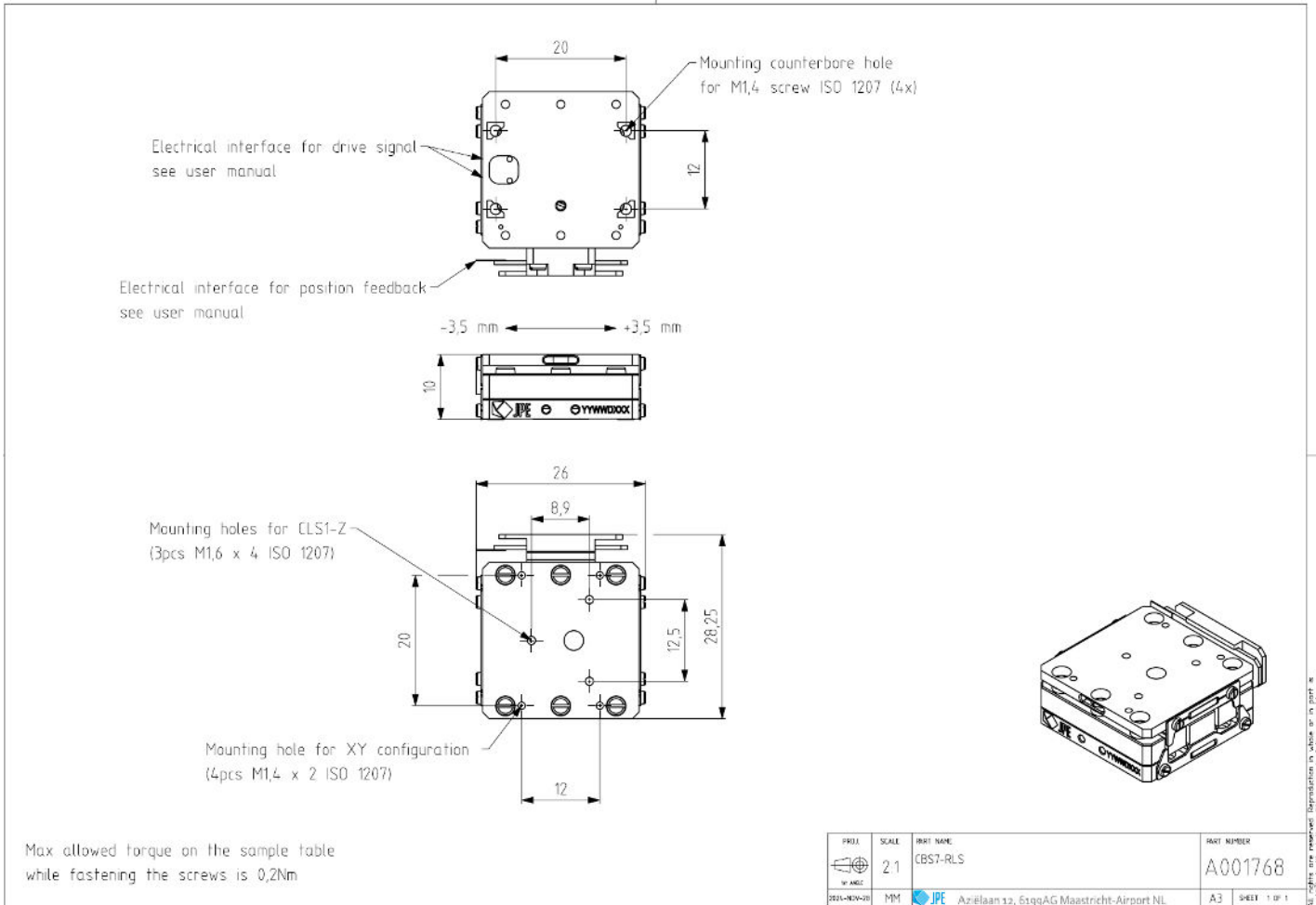
For quotations, specials, or engineering services, please contact us at:  
<https://www.jpe-innovations.com/contact/>

## Drawings

Note: same drawings apply for the -HF option



STATUS: RELEASED



All rights reserved. Information is subject to change without notice.  
 JPE disclaims any liability with regard to the accuracy, completeness, and timeliness of the information provided.

STATUS: RELEASED