**Product Design Specifications**

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**Product Title: Get A Grip**

**A. Purpose**

Design a fixture that is capable of mounting an unfinished handlebar clamp in order for the machining process to take place

**B. Features**

The following features for the fixture should be incorporated into the proposed design have been prioritized as follows:

1. Adjustable to fit various sized clamps
2. Easy to install
3. No moving parts during the machining process
4. Remove the need to manually unthread the holes
5. Less than 5 pounds
6. No bigger than 7 ¾ x 3 ¾ with a thickness of 0.85 inches

**C. Competition**

The pre existing fixtures which were not adjustable and had to be changed out after every use

**D. Intended Market**

Valley Tools Inc

The intended market is the manufacturers of various companies that produce handlebar clamps for motocross riders, both competition and leisure. Manufacturers will benefit from this due to maximizing efficiency by reducing the time in between cycles and performance with increased worker safety.

**E. Performance Requirements**

The following performance requirements have been established:

Maximum travel STROKE (280,-280)X, (0,-640)Y, and (0,-640)Z

**Lateral stiffness at the tip xx kN/m**

Total mass: 4.2 lbs

Unit mfg cost $270

Time to disassemble for maintenance: 30 sec

Tool for assembly:

Allen Wrench

Bending strength: 16.17 kN

Clamping force must withstand 80 lb-ft

Processes: Batch production

Quantity: Batches of 24 per day for domestic markets.

Maintenance: Minimal (new screw maybe required overtime)

Finish: Aluminum 6061

**F. Life-cycle**

The product is intended to be replaced after 5-7 years of use.

**G. Human Factors**

Reduce the human error due no need to manually thread the holes after the machining process is completed

Increase the safety by removing the human interaction with the product

The fixture must provide the user with easy adjustment in order to mount the various sized clamps.

The dowel pins eliminate the possibility of self adjusting during machining.

**H. Social, Political, Legal and Ethical Issues**

Politics: Not applicable

Life in service: Minimum of five years

Reliability: Maximum 0.1% failure rate over service life.

Safety: Should not have sharp projections and no need to manually unthread the holes as the machining process will now be able to untread the holes during the cycle

Environment: Temperature range -20°C to 655°C; resistant to water and coolant