DESIGN AND OPTIMIZATION OF A SIX-COMPONENT FORCE SENSOR OF DOUBLE CROSS BARS

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ABSTRACT

STRAIN-GAUGED TYPE THE FORCE SENSOR EXPLOIT TO PRODUCE STRAIN AFTER DETECTING THE BODY OF THE ELASTICITY AT SUFFER THE FORCE，MAKE POST THE STRAIN GAGE OF PARTICULAR PART TO E -LONGATION IS PRODUCED OR SHORTEN，MAKE RESISTANCE OF STRAIN GAGE TAKE PLACED TO CHANGE, SUBSEQUENTLY THROUGH THE ELECTRIC CIRCUIT OF THE WHEATSTONE BRIDGE CONSTITUTED BY STRAIN GAGE, OUTPUT CERTAIN TENSION, BE USED AS THE JUDGMENT THE LOAD THE BASIS OF THE DIMENSI -ON. THIS TEXT AIM AT THE STRAIN-GAUGED TYPE THE FORCE SENSOR PROGRESS TO STUDIES AND TO THE FORCE DETECTING FLEXIBLE BODY PROGRESS DESIGNS AND OPTIMIZE.STRAIN SINCE IS THE OUTPUT SE -NSIBILITY OF THE FORCE SENSOR WHETHER GOOD DEPEND ON TO DETECT THE ABILITY OF THE STRAIN OF THE BODY OF THE ELASTICITY PRIMARILY.THIS TEXT APPLIED THE METHOD OF THE DESIGN OF THE FINITE ELEMENT AND OPTIMIZATION TO DESIGN THAT DETECTING ELASTICITY BODY TO PROVIDE AN AN -ALYTICAL PROCEDURE OF THE REASONABLE, AND DESIGN TO DETECT FLEXIBLE BODY NEWLY, ALSO DES -IGN THE DETECTING ELASTICITY BODY NEWLY, NOT ONLY TO CALCULATE THE NEW DETECTING ELASTIC -ITY BODY LIMIT IN THE RATED LOAD AND OTHER THE BEST SIZE THAT CONDITION DOWN THE PARAMET -ER THE VALUE, IT IS ALSO DETAILED TO INDICATE THE STRAIN GAGE POST THE BEST THE PART AND DIRECTION , AND BRIDGE CONSTITUTED BY STRAIN GAGE TYPE OUTPUT OF THE ELECTRIC CIRCUIT TEN -SION SENSIBILITY. COME TO ACQUIRE A GOOD SENSOR OF THE PERFORMANCE, MAKE HAVE THE BEST D -ETECTING THE SENSIBILITY AND DETECTING DECOUPLING AND SENSOR THAT IMPROVE PRESENT MOST D -EFICIENT IN LACK OF DETECTING UNIFORM.

Keywords : force sensor ; strain gage ; wheatstone bridge

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