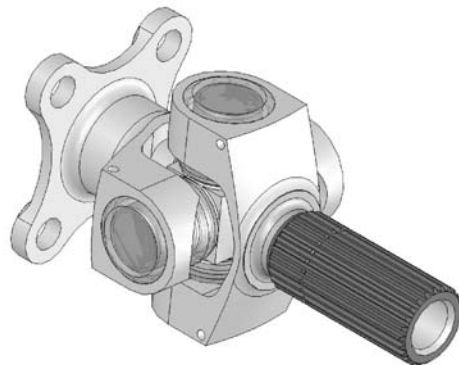
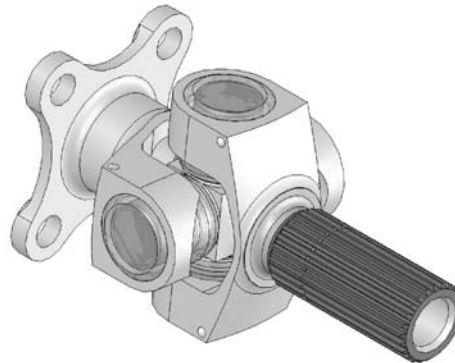


BELDEN



Quality
Precision
Reliability

Belden Aerospace Universal Joints and Quality Policy



Quality

For more than 30 years, Belden has supplied the world with the highest quality power transmission products. All Belden products are accurately manufactured to the highest standards set by the industry. Belden practices Total Quality Management, to assure quality throughout the manufacturing process and to ensure that the end product meets and exceeds our customer's expectations

Precision

Through innovated manufacturing processes, team-approach engineering and constant communication with our customers, Belden manufactures solutions. With this complete approach to manufacturing, customers only receive products meeting their exact specifications.

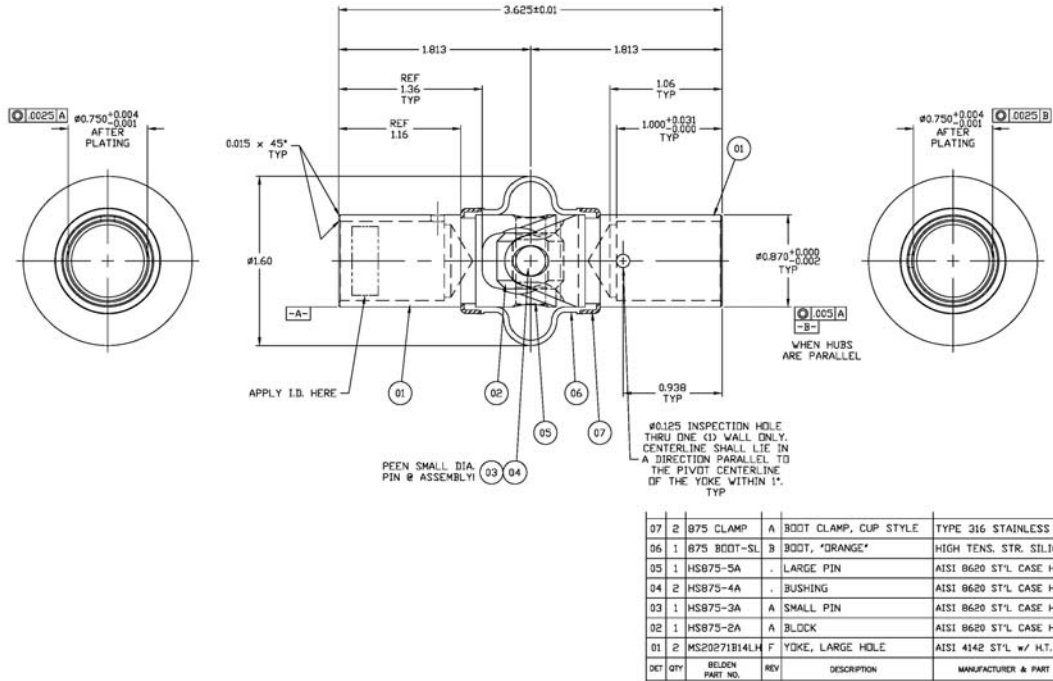
Reliability

Belden's growth in the power transmission world-market is due to the commitment of our long time customers and to the foresight of our new customers. All rely on the products they receive from Belden - not only are the products of the highest quality, but they are supplied at the lowest price possible while supported by the excellence of Belden's customer service.

Capabilities

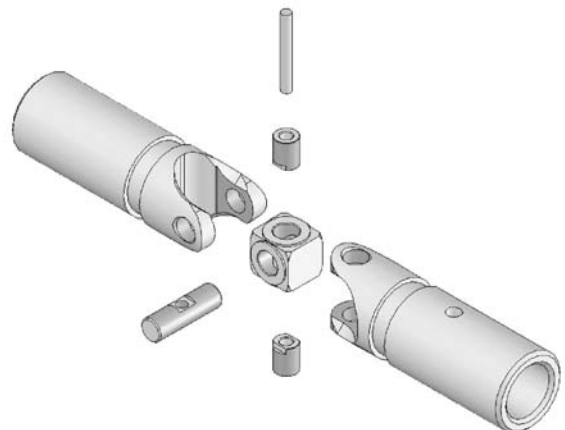
Belden has far reaching capabilities beyond the superior products of our standard line. Belden is a forward thinking company committed to bringing the newest innovations in our field to our customers. We are goal driven, solution based and we constantly strive for customer satisfaction. For every customer challenge, Belden has a solution.

Universal Joints certified according to MIL-J-6193



Year of manufacture: 1998 to present
 U-joint materials used: Yokes: plated alloy steel
 Blocks and pins: plated alloy steel

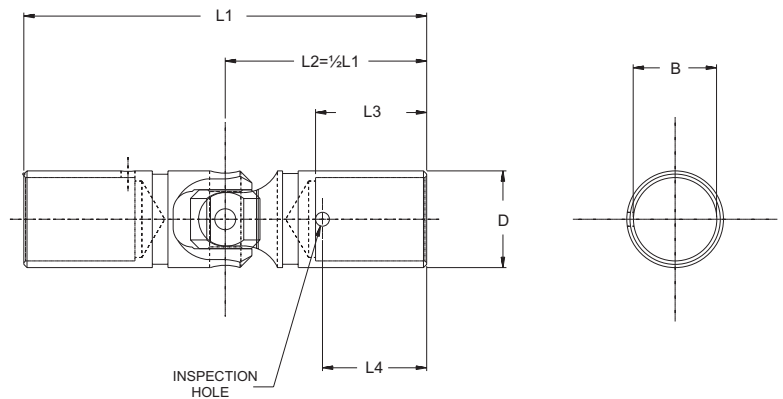
The Mil-Spec joint is used for a variety of applications in aircrafts, including positioning applications and flap control and operation.



Military Standard Joint - MS20270 Light Duty Series

- Meets or exceeds military specification MIL-J-6193

Belden military standard universal joints are precisely designed and manufactured for a variety of applications. These include specifications where low deflection rates, high strength-to-weight ratios and long service life are essential.



MS20270 Series

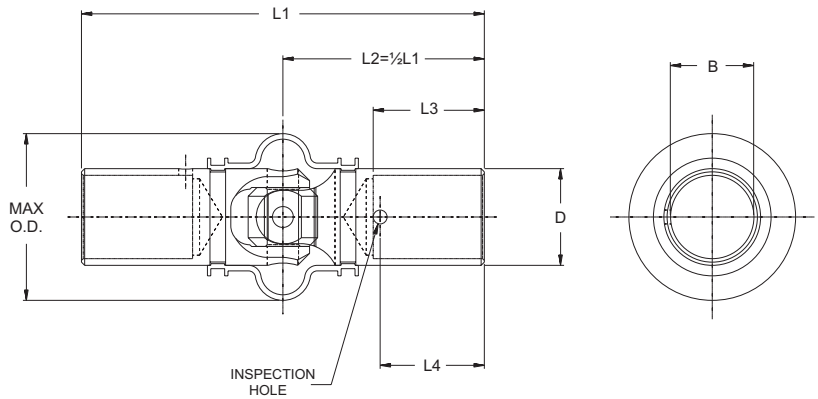
Part No.	Nominal Size.	∅ D +0.000 [+0.00] -0.002 [-0.05] in [mm]	L1 Overall Length in [mm]	L3 in [mm]	∅B +0.004 [+0.10] -0.001 [-0.03] in [mm]	L4 Inspection Hole Location in [mm]	Weight Maximum lb [kg]
MS20270B6	3/8"	0.372 [9.45]	1.750 [44.45]	0.375 [9.53]	0.250 [6.35]	0.312 [7.92]	0.035 [0.02]
MS20270B8	1/2"	0.495 [12.57]	1.875 [47.63]	0.500 [12.70]	0.375 [9.53]	0.437 [11.10]	0.065 [0.03]
MS20270B10	5/8"	0.620 [15.75]	2.187 [55.55]	0.625 [15.88]	0.500 [12.70]	0.562 [14.27]	0.095 [0.04]
MS20270B12	3/4"	0.745 [18.93]	2.500 [63.50]	0.750 [19.05]	0.625 [15.88]	0.687 [17.45]	0.160 [0.07]
MS20270B14	7/8"	0.870 [22.10]	3.000 [76.20]	0.937 [23.80]	0.750 [19.05]	0.875 [22.23]	0.220 [0.10]
MS20270B16	1"	0.995 [25.27]	3.375 [85.73]	0.937 [23.80]	0.812 [20.62]	0.875 [22.23]	0.385 [0.17]
MS20270B20	1-1/4"	1.245 [31.62]	3.750 [95.25]	1.000 [25.40]	1.062 [26.97]	0.937 [23.80]	0.630 [0.29]
MS20270B24	1-1/2"	1.495 [37.97]	4.500 [114.30]	1.125 [28.58]	1.250 [21.75]	1.062 [26.97]	1.200 [0.54]

Part No.	Torsional Play			Axial Tension & Compress. (±2%) lbf [N]	Maximum Static Torque (±2%) lbf-in [Nm]	Endurance			
	Test Angle	Test Torque (±2%) lbf-in [Nm]	Limit Degrees (±2%)			Oper. Angle	Torque Load (±2%) lbf-in [Nm]	RPM	Run Time Hours
MS20270B6	0	4 [0.45]	1.00	200 [890]	175 [20]	15	26 [3]	120	2
MS20270B8	0	4 [0.45]	0.80	200 [890]	250 [28]	15	38 [4]	120	2
MS20270B10	0	4 [0.45]	0.64	300 [1334]	500 [56]	15	75 [8]	120	2
MS20270B12	0	4 [0.45]	0.53	400 [1779]	1000 [113]	15	150 [17]	120	2
MS20270B14	0	8 [0.90]	0.46	500 [2224]	1750 [198]	15	262 [30]	120	2
MS20270B16	0	8 [0.90]	0.40	600 [2669]	2500 [282]	15	375 [42]	120	2
MS20270B20	0	8 [0.90]	0.32	800 [3559]	5000 [565]	15	750 [85]	120	2
MS20270B24	0	8 [0.90]	0.27	1100 [4893]	7500 [847]	15	1125 [127]	120	2

Military Standard Joint - MS20271 Heavy Duty Series

- Meets or exceeds military specification MIL-J-6193

Belden's complete universal joint line includes a full range of military certified and continually tested universal joints used in auto racing/gear change linkage, defense vehicles as well as aerospace applications.

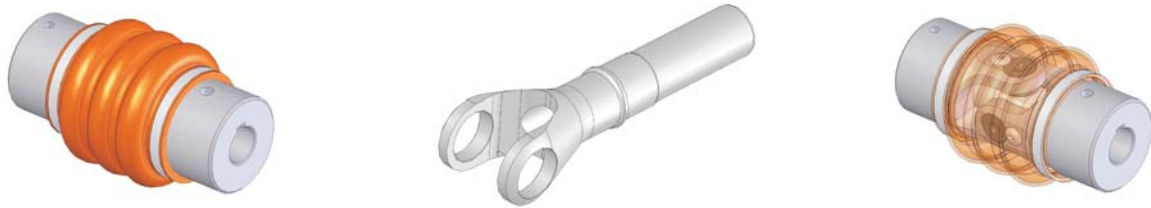


MS20271 Series

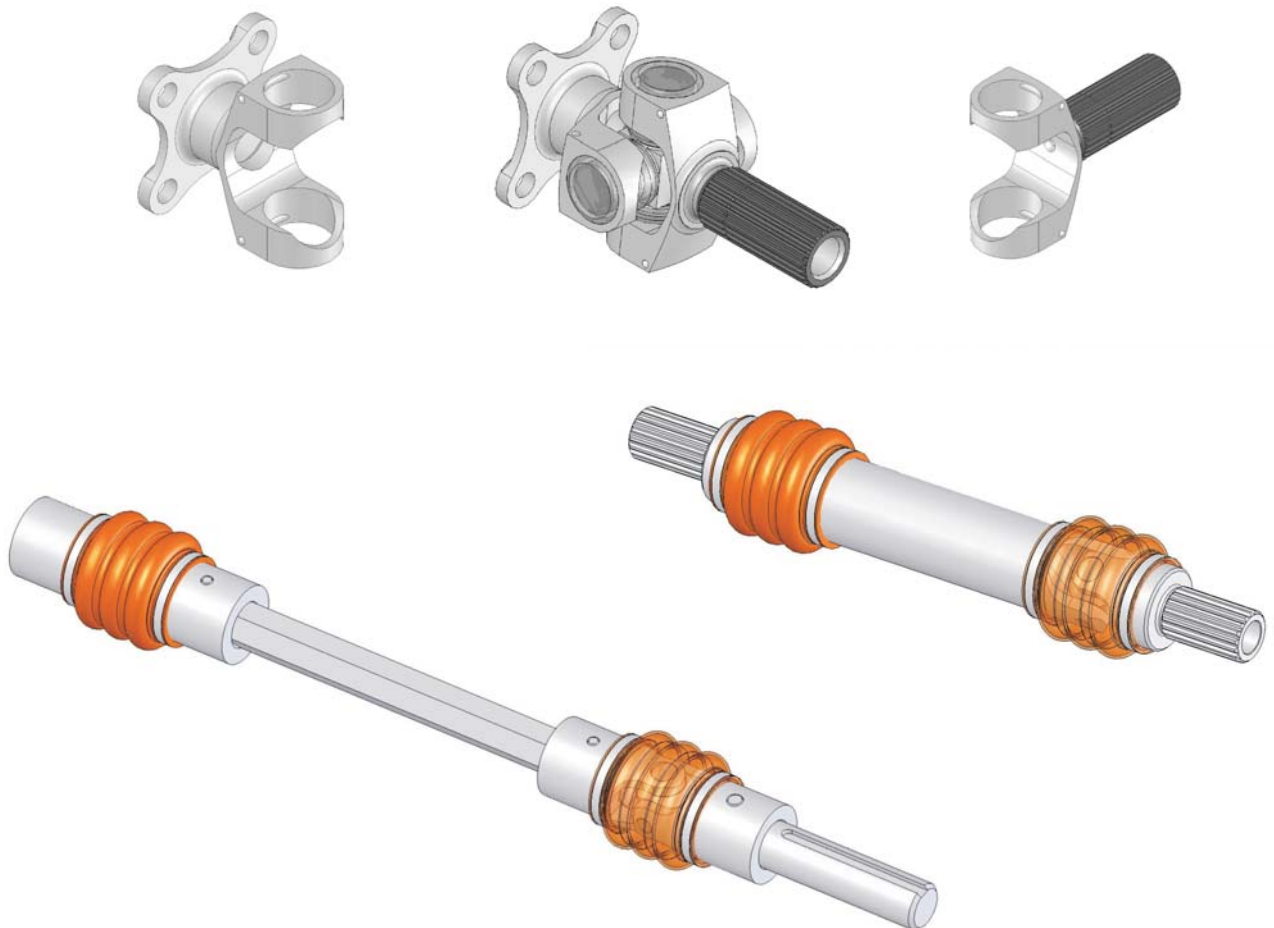
Part No.	Nominal Size.	∅ D +0.000 [+0.00] - 0.002 [- 0.05] in [mm]	L1 Overall Length in [mm]	L3 in [mm]	∅ B +0.004 [+0.10] - 0.001 [- 0.03] in [mm]	L4 Inspection Hole Location in [mm]	Weight Maximum lb [kg]
MS20271B6	3/8"	0.372 [9.45]	2.000 [50.80]	0.500 [12.70]	0.250 [6.35]	0.437 [11.10]	0.070 [0.03]
MS20271B8	1/2"	0.495 [12.57]	2.312 [58.72]	0.625 [15.88]	0.375 [9.53]	0.562 [14.27]	0.090 [0.04]
MS20271B10	5/8"	0.620 [15.75]	2.750 [69.85]	0.750 [19.05]	0.500 [12.70]	0.687 [17.45]	0.180 [0.08]
MS20271B12	3/4"	0.745 [18.93]	3.187 [80.95]	0.875 [22.23]	0.625 [15.88]	0.812 [20.62]	0.240 [0.11]
MS20271B14	7/8"	0.870 [22.10]	3.625 [92.08]	1.000 [25.40]	0.750 [19.05]	0.937 [23.80]	0.350 [0.16]
MS20271B16	1"	0.995 [25.27]	4.062 [103.17]	1.125 [28.58]	0.812 [20.62]	1.062 [26.97]	0.550 [0.25]
MS20271B20	1-1/4"	1.245 [31.62]	4.625 [117.46]	1.187 [30.15]	1.062 [26.97]	1.125 [28.58]	0.900 [0.41]
MS20271B24	1-1/2"	1.495 [37.97]	5.250 [133.35]	1.321 [33.55]	1.250 [21.75]	1.250 [31.75]	1.500 [0.68]

Part No.	Torsional Play			Axial Tension & Compress. (±2%) lbf [N]	Maximum Static Torque (±2%) lbf-in [Nm]	Endurance			
	Test Angle	Test Torque (±2%) lbf-in [Nm]	Limit Degrees (±2%)			Oper. Angle	Torque Load (±2%) lbf-in [Nm]	RPM	Run Time Hours
MS20271B6	0	4 [0.45]	0.83	500 [2224]	200 [23]	15	30 [3]	120	5
MS20271B8	0	4 [0.45]	0.62	1000 [4448]	600 [68]	15	90 [10]	120	5
MS20271B10	0	4 [0.45]	0.50	1500 [6672]	1080 [122]	15	162 [18]	120	5
MS20271B12	0	4 [0.45]	0.42	2000 [8896]	1900 [215]	15	285 [32]	120	5
MS20271B14	0	8 [0.90]	0.36	3500 [15569]	3000 [339]	15	450 [51]	120	5
MS20271B16	0	8 [0.90]	0.32	5000 [22241]	4700 [531]	15	705 [80]	120	5
MS20271B20	0	8 [0.90]	0.24	7000 [31138]	9500 [1073]	15	1425 [161]	120	5
MS20271B24	0	8 [0.90]	0.20	9000 [40034]	14500 [1638]	15	2175 [246]	120	5

Product Capabilities



Materials such as precipitation hardened stainless steel and aluminum, for high strength to weight ratio, are available for aerospace universal joints as well as special coatings for pins and crosses. All universal joints can be customized with a variety of hub and connection methods including internal or external splines.



Belden supplied booted and unbooted versions of several universal joints and complete shaft assemblies made from plated alloy steel and stainless steel.

A variety of customers including SKF Aerospace, Federal Aviation, Ametek, Moog, Sikorsky, Precision Technology USA, EADS North America, Fergusson Integrated, Lockheed Martin, Four Winds Aircraft, ASE, Barret Aircraft, Raytheon and Telair have purchased customized universal joints and complete shaft assemblies manufactured to their exact specifications and application requirements.

In 2005, Belden Incorporated researched and developed plans for certification to the ISO9001:2000 standard. Belden took on this project to gain a competitive advantage, improve customer confidence and develop a universally understood and accepted quality system that would drive quality improvements. With this standard, there is an emphasis on customer satisfaction, product and process monitoring, internal communication, work environment and management.

Having an ISO9001 certified system will address most concerns of Belden's customers. The customer satisfaction requirement allows Belden to better hear the Voice of the Customer and satisfy their needs. Through the monitoring of product and processes, manufacturing will have improved data on which to make sound decisions and improve efficiency. These are desired improvements to the Belden quality system.

SUMMARY OF IMPLEMENTATION

Belden ISO Project Plan Major Milestones Task Description Training, Writing & Implementation	Start
Clause(s) 4.2.2 Quality Manual	6/20/2006
4.0, 5.0 Document & Record Control, Management Responsibility	7/12/2006
6.2, 8.2.2, 8.5.2, 8.5.3 Auditing, Training, Corrective Action	7/19/2006
6.3, 6.4, 7.1, 7.5.1, 7.5.2 Quality Plans, Process Control	8/2/2006
7.5.3, 8.2.4, 8.3 Inspection, Nonconforming Material Control	8/9/2006
7.5.3-5, 8.1, 8.4 Customer Property, ID, Data, Stats	8/23/2006
7.2, 7.4 Purchasing, Orders, Quotes	8/30/2006
7.6, 7.3 Calibration, Design	9/13/2006
Pre-Assessment Audit	12/12/2006
Registrar Audit and ISO Certification	1/24/2007

Belden Incorporated is implementing ISO with the assistance of Total Quality Systems Associates, Inc. (TQS) through Triton College. TQS has experience in assisting companies with ISO as well as AS9100. TQS comes in once a week to train on the elements of ISO, review completed procedures and various areas for implementation. TQS will assist Belden in selecting a registrar and will perform a Pre-Assessment Audit to prepare Belden for the Certification Audit by the Registrar. TQS is also providing software for corrective action, training and document control, auditing, vendor approval, preventive maintenance and SPC pre-control.

Quality Manager Resume

Belden increases its commitment to ISO certification by adding a Quality Manager to its staff. The Quality Manager comes to Belden with 11 years experience as a Quality Engineer and Manager at an ISO certified company, Federal Signal Corporation, where he assisted in ISO implementation. Also, he has an additional 3½ years of experience at an AS9100 certified aerospace company, MPC Products Corporation, where he was involved with Boeing, Lockheed Martin, Northrop Grumman and Bombardier Aerospace projects and customer audits. He has a Bachelors Degree in Industrial Technology and a Masters Degree in Industrial Training from Illinois State University in Normal, Illinois.

SUMMARY OF ISO CLAUSES

4.2.2 Quality Manual

Belden has completed a quality manual that addresses all the elements of the ISO9001:2000 Standard.

4.2.3 Control of Documents

Management is responsible for assigning authors for documents. The author is responsible for writing the document, creating related forms, getting a document number and submitting the document to the department manager for review. Department managers are responsible for approving documents for their area of responsibility, distribution and posting new and revised documents in the system. Quality is responsible for assigning document numbers. The SysPro System maintains the Part Master File. All employees are responsible for reviewing the document revisions as they use them and submitting Engineering Change Requests (ECRs) to update documents as necessary. Engineering is responsible for revising prints. The Network Administrator is responsible for backing up the network daily. The Production Manager is responsible for maintaining programs that control (CNC) equipment. Belden will develop a Control of Documents system in accordance with ISO9001:2000 utilizing document control software wherever beneficial. Software from TQS called Training / Document Control will be purchased and PDMWorks software, already in house, will be used to control prints.

4.2.4 Control of Records

Records are stored and protected in such a way to prevent damage, deterioration or loss. Quality records and their associated entries are electronically stored. This can include dates, employee initials and/or signatures and relevant information pertaining to the documented process. Paper documents are stored in file boxes, file cabinets or other designated storage media. The same departments that initially established the records are normally responsible for storage of their records. Belden will develop a Control of Records system in accordance with ISO9001:2000 utilizing electronic storage and retrieval wherever beneficial and that will fully document the process.

5. Management Responsibility

Belden's President has the ultimate responsibility for the Quality Management System (QMS). The Management Representative (Quality Manager) reports directly to the President. The Quality Manager is responsible for identifying the Key Processes to be included in the QMS and identifying the data required for effective review. Belden will fully develop a system for Management Responsibility in accordance with ISO9001:2000 that will require the Quality Manager to schedule and conduct management review meetings, collect summary reports and data from the responsible functions and ensure adequate employee awareness of the company's QMS. The Management Review Team members will recommend improvements to the QMS. The management review team has already been identified.

5.3 Quality Policy

Belden Incorporated is committed to the following principles: We will meet our customers' requirements. We will seek to continuously improve our products, processes and the effectiveness of our quality management system.

6.2.2 Competence, Awareness & Training

Belden highly encourages its employees to attend training seminars and courses. Belden will develop a system for Competence, Awareness & Training in accordance with ISO9001:2000 that will require the Quality Manager to identify and document requirements in a job description for each position that affects product quality. The Human Resources Manager maintains records of employee qualifications. Managers and Supervisors identify specific training requirements for positions in their area. Human Resources and Supervisors identify training needs, the Quality Manager and the trainer schedule training for employees and measure the effectiveness of training. Trainers complete training and give completed Training Sign-In sheets and Training Evaluation forms to Human Resources. Human Resources will maintain the training database for the employees utilizing Software from TQS called *Training / Document Control*. The software will aid in organizing and storing training records for easy retrieval and monitoring of necessary training.

6.3 Infrastructure

Belden will develop a system for Infrastructure in accordance with ISO9001:2000, which will fully document the process and will determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. The Production Manager will be responsible for the preventive maintenance of facilities and equipment and maintaining Preventive Maintenance activity utilizing software from TQS called Preventive Maintenance.

7.1 Planning of Product Realization

Belden will develop a system for the Planning of Product Realization in accordance with ISO9001:2000, which will fully document the process. This procedure will describe the numbering system for the documents in the ISO document that includes the quality manual, procedures and work instructions.

7.2 Customer Related Processes

Sales/Marketing/Customer Service Specialists are responsible for acquiring new business and maintaining current customers; this includes but is not limited to arranging customer presentations, beginning the quote and proposal cycle, negotiating new business opportunities, reviewing and entering orders into the system and filing. The specialists are also responsible for keeping the customer informed of project progresses and getting feedback from the customer, monitoring and coordinating the activity associated with prototype hardware development.

Any employees that receive feedback from customers are responsible for communicating the feedback to the Specialist. The system has the capability to measure on-time performance and will be fully utilized within the next 3 months. Belden will develop a system for Customer Related Processes in accordance with ISO9001:2000, which will fully document the process.

Belden will develop a system for Design and Development in accordance with ISO9001:2000, which will fully document the process. The procedure will ensure that Contract review activities are considered for Design Input, Design Output must match Input & identify crucial characteristics and the Engineering Manager ensures Validation. For Design Review, Design Review members will be determined and will review Input, Output, Verification, Validation and hold multiple reviews to establish a baseline if necessary. The Engineering Change Process ensures traceable changes to baseline, Engineering Change Request Review and a Control Board that consists of Production, Purchasing, Sales, Quality and Engineering.

7.4 Purchasing

Belden utilizes SysPro to manage purchasing activities. Vendors are selected based on reputation, cost and reliability. MRP and Min/Max systems provide control of the inventory. Before an order is placed, the inventory count is double checked. The system provides an open order/past due report that is reviewed weekly. Purchasing will contact the vendor if the order is due within a week to acquire the status. If an order is over due, the date will be changed in the system. The system has the ability to rate vendors on quality and delivery and will be fully utilized within 3 months. Other features of the system include shortage tracking and a method to view relevant part information and make adjustments necessary to ensure meeting customer due dates.

Belden will develop a system for Purchasing in accordance with ISO9001:2000, which will fully document the process and provide control of suppliers. It will ensure that Purchasing evaluates suppliers before they supply materials. Purchasing and Quality will maintain records of evaluations in the supplier files, perform periodic evaluation of suppliers and document supplier product and service quality problems. Receiving is responsible for initiating verification of purchased product. Procedures will be written that specifically address Receiving Inspection, First Article Inspection Reports, Supplier Qualification, Approved and Probationary Supplier, Supplier Classification and Supplier Performance Rating. This additional Purchasing activity will be supported by utilizing SysPro and software from TQS called Vendor Approval Monitoring.

7.5.1 Control of Production and Service Provision

The Sales/Marketing/Customer Service Specialists are responsible for Sales Orders. Management is responsible for assigning responsibility to the Production Manager for the quality planning for new products and processes. The Engineering Manager is responsible for completing designs. Production Manager and Engineering Manager are responsible for selecting appropriate process control methods for processes identifying the associated Job Packet. A Job Packet consists of the current print, inspection sheet, Work Order that contains the BOM and Operations Routing.

Purchasing is responsible for purchasing components, parts and assemblies required for the Sales Order. Inspection is responsible for verification of the components, parts and assemblies required for the Sales Order. Manufacturing personnel are responsible for performing all operations per the Job Packet. The Quality Manager is responsible for the control and monitoring of the measuring and testing equipment. Quality is responsible for the verification of product and processes involved in the design and manufacture of the Sales Order.

Prints issued for build are issued by Engineering and are marked For Build with the date and the Sales Order number. If the parts are in stock, the Sales Order is sent to the Stock Room Manager, who will pull the parts and send them to Shipping. If the parts are not in Stock, a Work Order is generated in the system. The cut-to-length is stamped on the Work Order. For the manufacturing of production piece parts, a Job Number is used in place of the Sales Order and the parts are put into stock. If there is an issue with the any part of the Job Packet, that document is stamped with an Engineering Change Stamp and reviewed for possible use on the next run.

Shipping will perform a visual inspection as well as ensure that the joints operate by hand, package and ship the units according to the defined shipping method. The Job Packet stays with the parts until the parts ship to the customer. The work order will be closed by the Production Supervisor after the parts ship and are then filed by date. Belden will develop a system for Control of Production and Service Provision in accordance with ISO9001:2000, which will fully document the process.

7.5.3 Identification and Traceability

Engineering, Purchasing, Receiving, Storage and Manufacturing functions are responsible for material identification and traceability. This includes allocating work order numbers for product and product marking that encompasses part number, date code, job number and serialization as required. Belden will develop a system for Identification and Traceability in accordance with ISO9001:2000, which will fully document the process.

7.5.4 Customer Property

Belden will create quality plans that address Customer Property as necessary until ISO is implemented.

7.5.5 Preservation of Product

Belden ensures that all material, parts and products have proper handling, packaging, storage and protection that will preserve the conformity of product through delivery to its intended destination. It is the responsibility of all manufacturing employees to ensure proper handling, the Shipping Department to ensure proper packaging, and the Inventory Department to ensure proper storage. Belden will develop a system for Preservation of Product in accordance with ISO9001:2000, which will fully document the process.

7.6 Control of Monitoring and Measuring Devices

Belden will develop a system for Control of Monitoring and Measuring Devices in accordance with ISO9001:2000, which will fully document the process. This system will ensure that all measuring devices are uniquely identified, traceable to National Institute of Standards and Technology (NIST) and provide documented methods for calibration. A database will be set up that provides a recall by due date. Software from TQS called Calibration will be utilized for this purpose.

8. Measurement, Analysis and Improvement

Belden will develop a system for Measurement, Analysis and Improvement in accordance with ISO9001:2000, which will fully document the process. For continuous improvement, data from customers, distributors, internal, Sales/Marketing/Customer Service Specialists and supplier sources will be utilized that will include a Non-Conforming Material and Warranty Report. Other sources will include a Cost of Quality Report that will measure overall quality as a percent of Cost of Sales and monitor Prevention, Appraisal, Internal & External Failure costs each month. Belden also plans to implement Lean Manufacturing and is considering a Six Sigma program in the near future.

8.2.1 Customer Satisfaction

Belden will develop a system for monitoring and measuring of Customer Satisfaction in accordance with ISO9001:2000, which will fully document the process. The new procedure will ensure that customer feedback data which includes Quality performance, Delivery, Scrap, Rework, Warranty, Corrective Actions, Customer Communication and Customer Satisfaction surveys are reviewed, analyzed and reported for Management Review. Management will identify customer satisfaction projects, planned measurements, frequency and analysis during management review. Management will assign responsibility for the projects, review data and assigns action items.

8.2.2 Internal Audits

Belden will develop a system for Internal Audits in accordance with ISO9001:2000, which will fully document the process. TQS is providing training for the internal auditors. Belden's Quality Manager and Sales and Marketing Specialist have taken a Lead Auditor Course. Software from TQS called Audit Planner will be utilized for managing audits.

8.2.4 Monitoring and Measuring of Product

Receiving inspection consists of receiving materials, checking for the correct part number, quantity and review of documentation. Bar stock is also checked for color code. Certificates of Conformance, inspection reports, First Article Inspection Reports, material, heat treat, finish, and lubricant certifications are electronically stored.

All jobs utilize First Piece inspection. Military Standard parts have a sampling of critical dimensions which are inspected and documented. Implementation of a SPC system that utilizes WinSPC began in June of 2006. This provides electronic recording and storage of measurements and immediate feedback on the quality manufacturing process and allows operators to make necessary adjustments to the process before nonconforming material is created. SPC also provides the process predictability to further ensure that customer due dates are met. Final inspection occurs just prior to packaging and shipping to ensure quality. Belden will develop a system for Monitoring and Measuring of Product in accordance with ISO9001:2000, which will fully document the process.

8.3 Control of Nonconforming Product

If suspect material is detected, it is segregated and tagged for review by the Production Manager and assigned a disposition of Scrap, Return, Rework, or Repair. The material is then moved to the appropriate department for processing according to disposition. Belden will develop a system for Control of Nonconforming Material in accordance with ISO9001:2000, which will fully document the process. The procedure will document and ensure that suspect material is identified, segregated. Disposition approvals will require that Quality is included. The data will be tracked in a database and monthly Non-Conforming Material Report and Return to Supplier Report will be created. A combination of SysPro and Microsoft Access Databases will assist in providing tracking and reporting of Nonconforming Product.

8.5.2 & 8.5.3 Corrective Action & Preventive Action

A customer with an issue will call Sales. Sales will send an email to the Production Manager describing the problem. The Production Manager will reply and recommend a disposition. If the parts are to be returned, Sales issues an RMA. The returned parts are analyzed and assigned a disposition of Scrap, Return, Rework, or Repair and moved to the appropriate department for processing according to the disposition. Based on the analysis, the Production Manager will initiate the appropriate corrective and preventive action to resolve the issue. Belden will develop a system for Corrective Action and Preventive Action in accordance with ISO9001:2000, which will fully document the process. The new procedure will document and ensure Supplier, Internal and Customer corrective action. Software from TQS called Corrective / Preventive Action will provide monitoring and reporting of Corrective and Preventative Action.

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