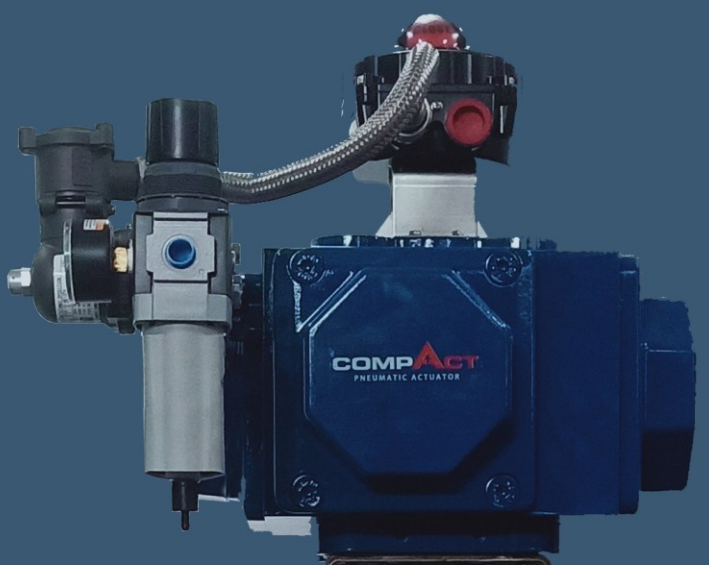
TSC

PRE-QUALIFICATION



BALL / GATE/ GLOBE/ CHECK VALVES

APPLICABLE CODES & STANDARDS
(ASME, API, BS, ISO, DIN, MSS-SP)

Qingdao
태성밸브
꿈과 열정으로 고객감동을 실현하는 기업이 되겠습니다.
TSC VALVE WITH DREAMS AND PASSIONS

CONTENTS

TSC

Contents

* Attached catalog : Qingdao TSC(TAESUNG) VALVE

TSC

PREFACE

The competition in every field of society has become every more fierce day by day, and the worldwide competition is also an international stream of the business.

No exception to this principal can be made for "*TSC*", which has shared in the development of the industrial society in the basis of noteworthy Technical know-how, However, "*TSC*" hereby declares further dynamic advancement of valve engineering and manufacturing through the reinforcement of its power of competition through ceaseless technical development, innovation and collaboration with the advanced technical professionals all over the world.

We called it "the globalization of valve business".

"TSC VALVE CO.,LTD." founded in 2005 as a specialized company of trade the API 600, ASME B16.34 API 6D steel gate ,globe, check & ball valve in Company, has attained a high reputation to the customers by supplying high quality products in both domestic and overseas markets.

Also our present success has been attributed to our business philosophy supported by the efficient management and facilities combined with the common truth that our prosperity in business also makes for our customer's advantage and benefits.

We ,*TSC*, would be your reliable business partners to share our mutual benefits with your constant collaborations supplying with the highest quality engineered valves. We also do our utmost endeavors so that we could be the indispensable enterprise and the unique valve engineering company in the development of China & Korean industry.

Thanks & best regards

Byungho. Shin
President by B.H.Shin

TSC

2.1 Hade Office Summary.

- QINGDAO TAESUNG VALVE CO.,LTD.
- QINGDAO TAESUNG INTERNATIONAL TRADING CO.,LTD.

Company Name	QINGDAO TAESUNG(*TSC*) VALVE CO.,LTD.		
Location	#50-1, Tianan Digital City, Chengyang District, Qingdao City, Shandong, China.		
Tel.	86+532-5555-0702~3 / 86+186-6943-0068 / 070-7938-0090		
Web	www.tscvalve.com		
E-Mail	tscvalve@naver.com		
President	BYUNG HO-SHIN	Since by	2005.10.14
Main Products	API 6D, API 600, ASME B16.34, API 602, ,API 608, BS, ISO, MSS-SP		
Employee	14		
Capital of Stock	CNY 2,630,000		

Company Name	QINGDAO TAESUNG(*TSC*) TRADING CO.,LTD.		
Location	#50-1, Tianan Digital City, Chengyang District, Qingdao City, Shandong, China.		
Tel.	86+532-5555-0702~3 / 86+186-6943-0068 / 070-7663-9007		
Web	www.tscvalve.com		
E-Mail	tscvalve@naver.com		
President	BYUNG HO-SHIN	Since by	2011.11.11
Main Products	API 6D, API 600, ASME B16.34, API 602, ,API 608, BS, ISO, MSS-SP		
Employee	8		
Capital of Stock	CNY 600,000		

3.ORGANIZATION

TSC

TSC

4.1. Manufacturing Equipment.

NO.	Description	Capacity	Q'TY	Remarks
1	Machining	General Lathe	6	
		Horizontal lathe	5	
		CNC Lathe CK6150A	2	
		Vertical lathe	2	
		Radial Drill M/C	2	
		Welding M/C	3	
		Bench Drill	2	
		Hook type shot Blasting machine	1	
		Coated blast-Cleaning machine	1	
		Paint Spraying automation Equipment	1	

4.2. Manufacturing Equipment.

NO.	Description	Capacity	Q'TY	Remarks
1	Measurement Tools	Height Gauge 0-300mm	1	
		Depth Gauge 0-300mm	1	
		Cylinder Gauge 50-400mm	4	
		Thickness Gauge 0-150mm	1	
		Micro Tester 50-250	3	
		Dial Gauge 0.001-10mm	4	
		Vernier Calipers 0-1000mm	5	
		Taper Thread Plug Gauge	2	

4.3. Inspection Equipment.

NO.	Description	Capacity	Q'TY	Remarks
1	Pressure test machine	YF-H400,YFC250-600	4	

TSC

5. 1 Product Ranges

NO.	SEPARATION	APPLICABLE CODES&STANDARDS	
1	Valve STD.	API 6D, API 600, API 602, API 608, ASME B16.34, BS	
2	Valve Type	Gate, Globe, Swing Check, Ball Valves, Bellows Seal, Cryogenic Service	
3	Bonnet Type	1> Bolted Bonnet.	
		2> Pressure Sealed Bonnet.	
4	Material (Casting & Forging)	1> Casting	Carbon Steel, Stainless Steel, Alloy Steel High-Alloy Steel, Etc.
		2> Forging	Carbon Steel, Stainless Steel Alloy Steel, High-Alloy Steel. Etc.
5	Class & Size	1> Class	ASME Class 150~Class 4500
		2> Size	2”~60”

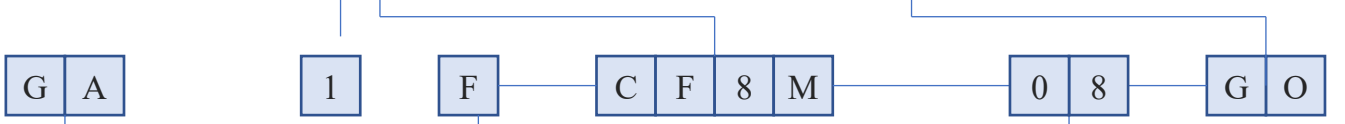
5.2 Manufacturing Ranges.

TSC

PRESSURE CLASS			
1	150#	A	10K
3	300#	B	20K
4	600#	C	30K
6	900#	D	40K
7	1500#	E	63K
8	2500#	F	100K
9	4500#		

SHELL MATERIAL	
WCB	A216-WCB
C5	A217-C5
WC6	A217-WC6
WC9	A217-WC9
C12	A217-C12
LCB	A352-LCB
LCC	A352-LCC
CF8	A351-CF8
CF8M	A351-CF8M
CF3	A351-CF3
CF3M	A351-CF3M
CG3M	A351-CG3M
CG8M	A351-CG8M
CF8C	A351-CF8C
CN7M	A351-CN7M
MONL	MONEL
HASC	HASTELLY-C
DUPL	DUPLEX

SPECIAL TYPE	
GO	GEAR OPERATED
MO	MOTER OPERATED
PN	PNWUMATIC
WB	WELDED BONNET
RB	REDUCED BORE
TS	TEFLON SEAT
VP	V-PORT
BP	BY-PASS
NA	NACE



VALVE TYPE	
GA	GATE
PG	PARALLER GATE(BB)
TG	THROUGH CONDUIT GATE(BB)
GL	GLOBE(BB)
SC	SWING CHECK(BC)
PC	PLSTON(BC)
YG	Y-GLOBE(BB)
AG	GATE(PSB)
AP	PARALLER GATE(PSB)
TP	THROUGH CONDUIT GATE(PSB)
LG	GOLBE(PSB)
CS	SWING CHECK(PSC)
GY	Y-GLOBE(PSB)

END CONNECTION	
F	RF
W	BUTTWELD
J	RTJ
X	SPECIAL
(CUSTOMER TO SPECIFY)	

TRIM MATERIALS
FOLLWED API600 TRIM NO.
(TABLE3.NOMINAL SEATING SURFACE,STEM AND BACK SEAT BUSHING OR WELD-DEPOSIT MATERIALS AND HARDNESS)

TSC

6.1 Approval of QMS Manual.

This Quality Management Manual shall be prepared by the QA Team manager, reviewed by the Management Representative, and approved by the CEO prior to distribution in according to ISO 9001:2008 / Q1 8th / Addendum 1 management system and API 6D / Addendum 3 Product specification requirements.

To inform Notified Body any intended adjustment to the quality system.

This Manual shall be effected from 8 Hrs the final approval in considering the training duration.

6.2. Responsibility and Authorities

6.2.1 CEO

1) Shall represent the company and perform CEO actives.
2) Approval the Quality Policy and Management Objectives.
3) Approval the QMS manual concerning the ISO9001/API Q1
4) Conduct the Management Review and Appoint the Management Representative,

6.2.2 Q.A Team manger/Management Representative

1) Issue , revise, repeal and maintain Documents.
2) Establish & Administer for team management objective.
3) Administer the related QMS Process.
4) Evaluate the tasks competence for the team personnel.
5) Conduct the tasks relating to Quality assurance, Quality control improvement.
6) Administer the internal training.
7) Conduct the verification of products & purchased materials.

6.2.3 Sales Team manager

1) Establish & Administer for team management objective.
2) Administer the related QMS Process.
3) Evaluate the tasks competence for the team personnel.
4) Administer the tasks relating to review the contract.

6.2.4 Design Team manager

1) Establish & Administer for team management objective.
2) Administer the related QMS Process.
3) Evaluate the tasks competence for the team personnel.
4) Conduct the task relating process design & development.
5) Conduct the task relating to engineering support of product.

6.2.5 Production Team manager

1) Establish & Administer for team management objective.
2) Administer the related QMS Process.
3) Evaluate the tasks competence for the team personnel.
4) Conduct the task relating to production,
5) Conduct the handle the affairs related with the drafting of plant facility.

6.2.6 Administration Team manager

1) Establish & Administer for team management objective.
2) Administer for team management objective.
3) Evaluate the tasks competence for the team personnel.
4) Conduct the handle the affairs related with the personnel management, labor and allowance.
5) Conduct the handle the affairs related with health and safety.
6) Conduct the handle with the other accounting affairs.
7) Administer the in – house human resources.

6.2.7 Purchase Team manager

1) Establish & Administer for team management objective.
2) Administer for team management objective.
3) Evaluate the tasks competence for the team personnel.
4) Evaluate the supplier and Purchase the required parts for product manufacturing.

6.2.8 Quality policy signature

Our company Quality policy shall be developed to based on ISO 9001:2008, API – Q1 8th Edition, API spec 6D:23rd & Addendum3 Edition and the customer relevant specified requirements. All the employees Include responsibility and authority in accordance with the following Quality policy in order to be leader in Valve that is based on the basis management objective for coexistence and coprosperity focusing on human.

Quality policy

Customer Satisfaction
Quality Improvement
Observation in Standard
Continuous Improvement of QMS Effectiveness

All employees shall try to aware the above quality policy and quality Targets, to meet the customer requirement through effort of continuous improvement for achieving as well as meet the customer exceed requirements. (Customer focus). And all employees shall be communicated and understood the establishment of a consistence organization objective and orientation, and the clear objective (Leadership). Also everyone have responsibility of quality of owned task, positively participate to organization objective through in corporation with the colleagues (Participation by everyone). The efficiency of quality management system shall be raised through the data analysis, corrective action, Preventive action and continual improvement actives of the processes (Continual improvement).

Byungho-Shin
President by Byung Ho
June.27.2025

6.3. Scope and interaction of Process

6.3.1 Scope of Application

1) This manual is established to based requirement of ISO9001: 2008 Quality Management System, API-Q1:8th edition and API spec 6D:23th edition & Addendum3 the scope is applied to production, inspection, service and all organization.
2) The adoption of a quality management system should be a strategic decision of an organization. The design and implementation of an organization's quality management system is influenced by
   a) its organizational environment, changes in that environment, and the risks associated with that environment,
   b) its varying needs,
   c) its particular needs,
   d) the products it provides,
   e) the processes it employs
   f) its size and organizational structure

6.3.2 Interaction of QMS and process

Interaction of QMS and process are as follows.

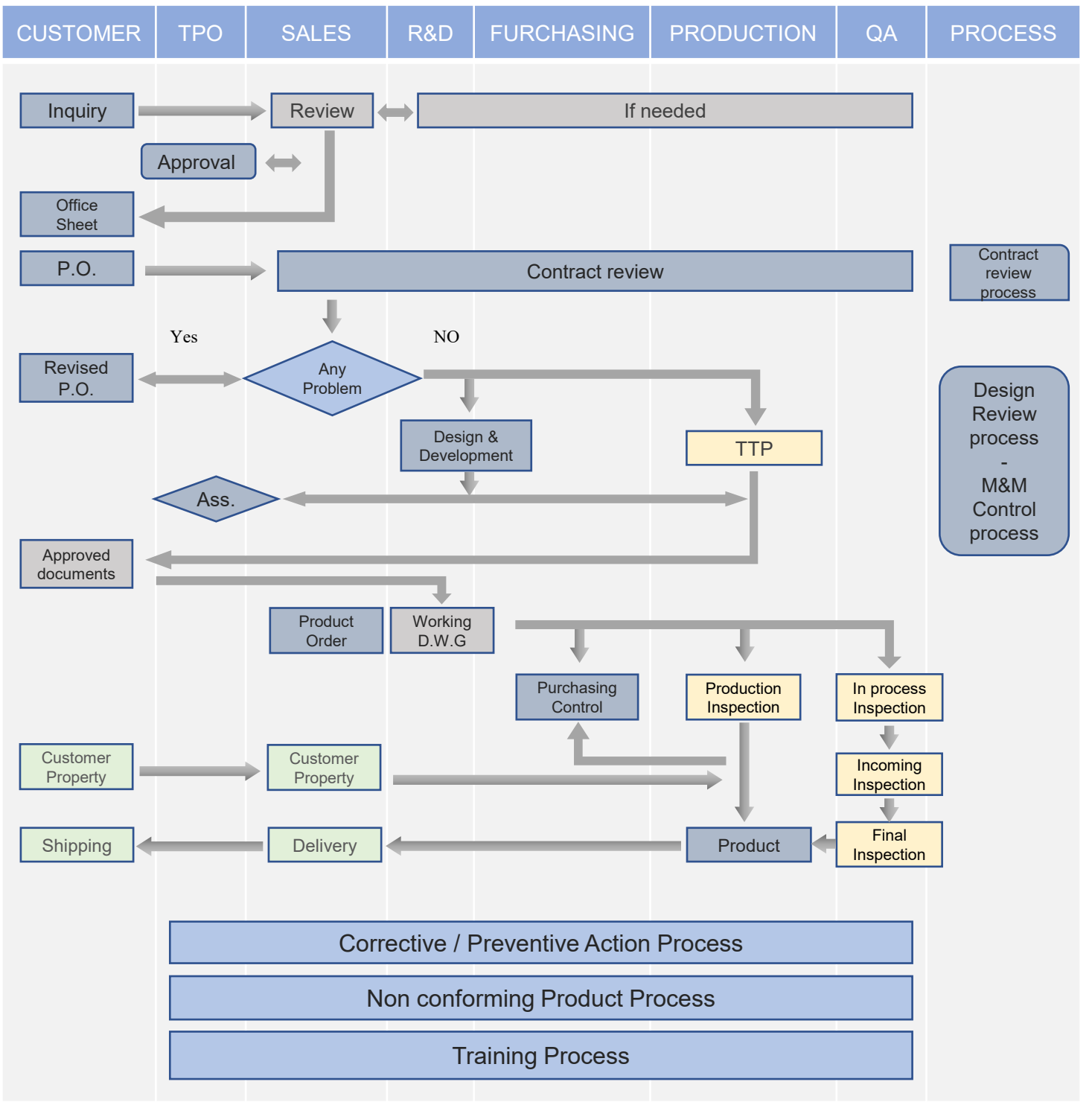
1) Relation of System, process and procedure
   a. Quality management Manual
   b. Process
   c. Procedure
   d. Instruction etc.

This technical specification defines the quality managements system for products and service supply organizations for petroleum, petrochemical and natural gas industries.

- Scope of Products : Industrial Valves.

Policy Control / Objective Development Process Management Review Process /
Internal Audit Process Customer Satisfaction Process

6.3.3 Process System



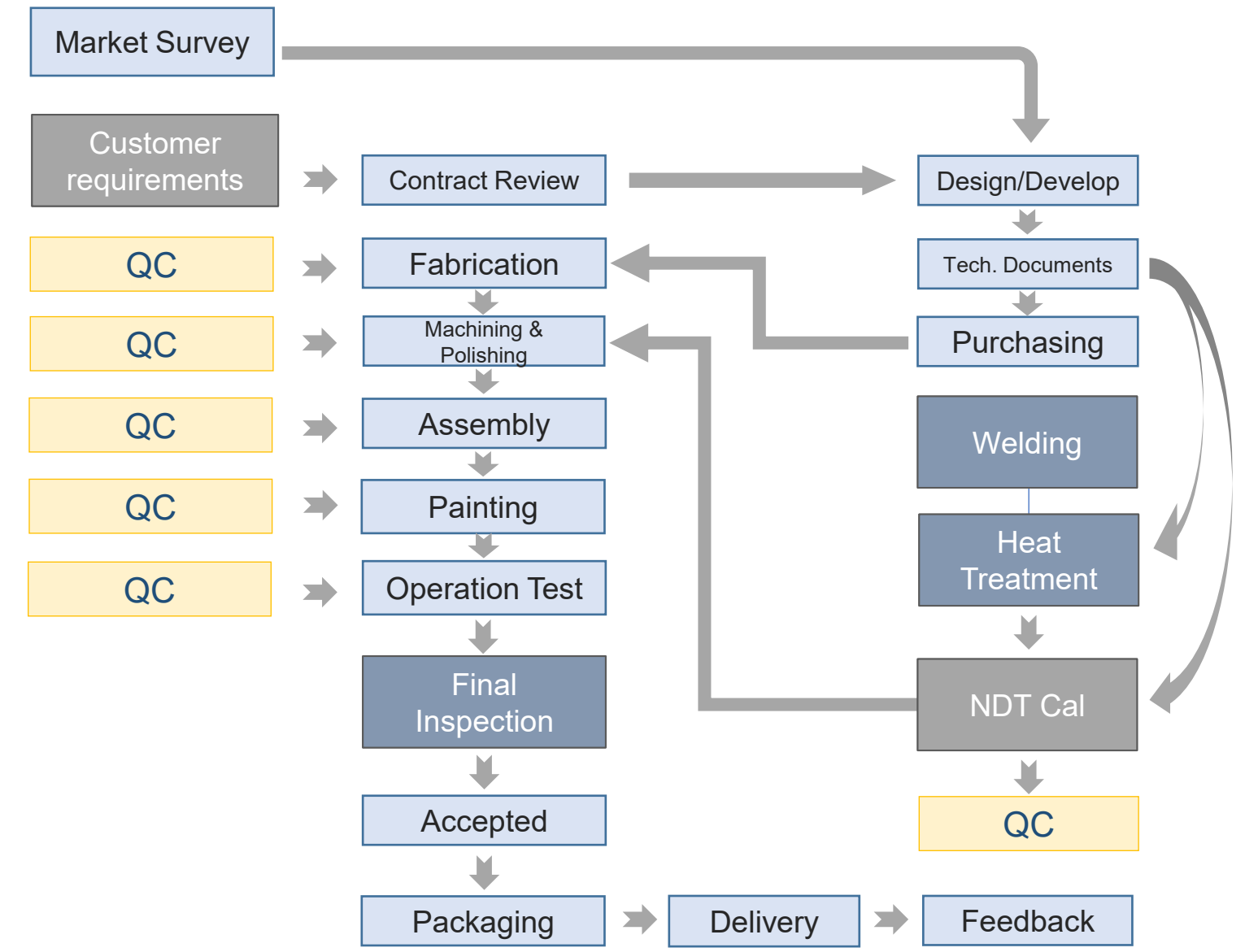
6.3.4 Interaction relevance of processes

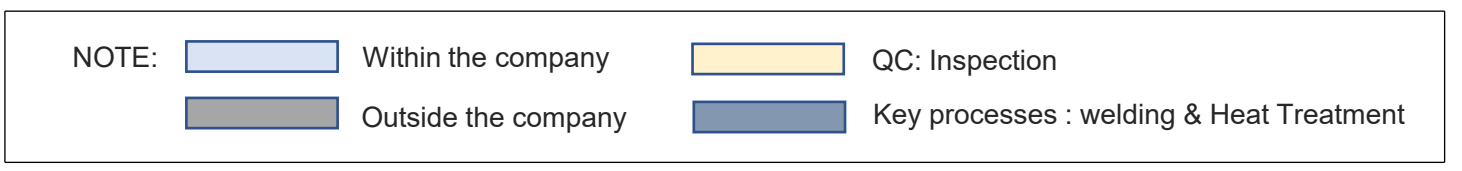
Process name	Function					
	CEO	Sales Team	Purchase Team	Design Team	QA Team	Production Team
Policy Control	●	○	○	○	○	○
Objectives Development	●	○	○	○	○	○
Internal Audit		○	○	○	●	○
Management Review	●	○	○	○	○	○
Corrective/Preventive Action		○	○	○	●	○
Customer Satisfaction		●	○	○	○	○
Outsourcing		○	●	○	○	○
Contract Review		●	○	○	○	○
Design/Development		○	○	●	○	○
Purchasing			●	○	○	○
Production/Service Control		○	○	○	○	●
Identification			○		○	●
Customer Property Control		●			○	○
Production Preservation					○	●
M&N Control					●	○
Inspection/Test					●	○
Nonconforming Product		○	○	○	●	○
Training		○	○	○	●	○

- Legend: ● Responsible ○ Supporting

6.3.5 Scope and interaction of Process

Fig.1 Product Realization Process





TSC

Fig.2: Production and Inspection /Test Control Process

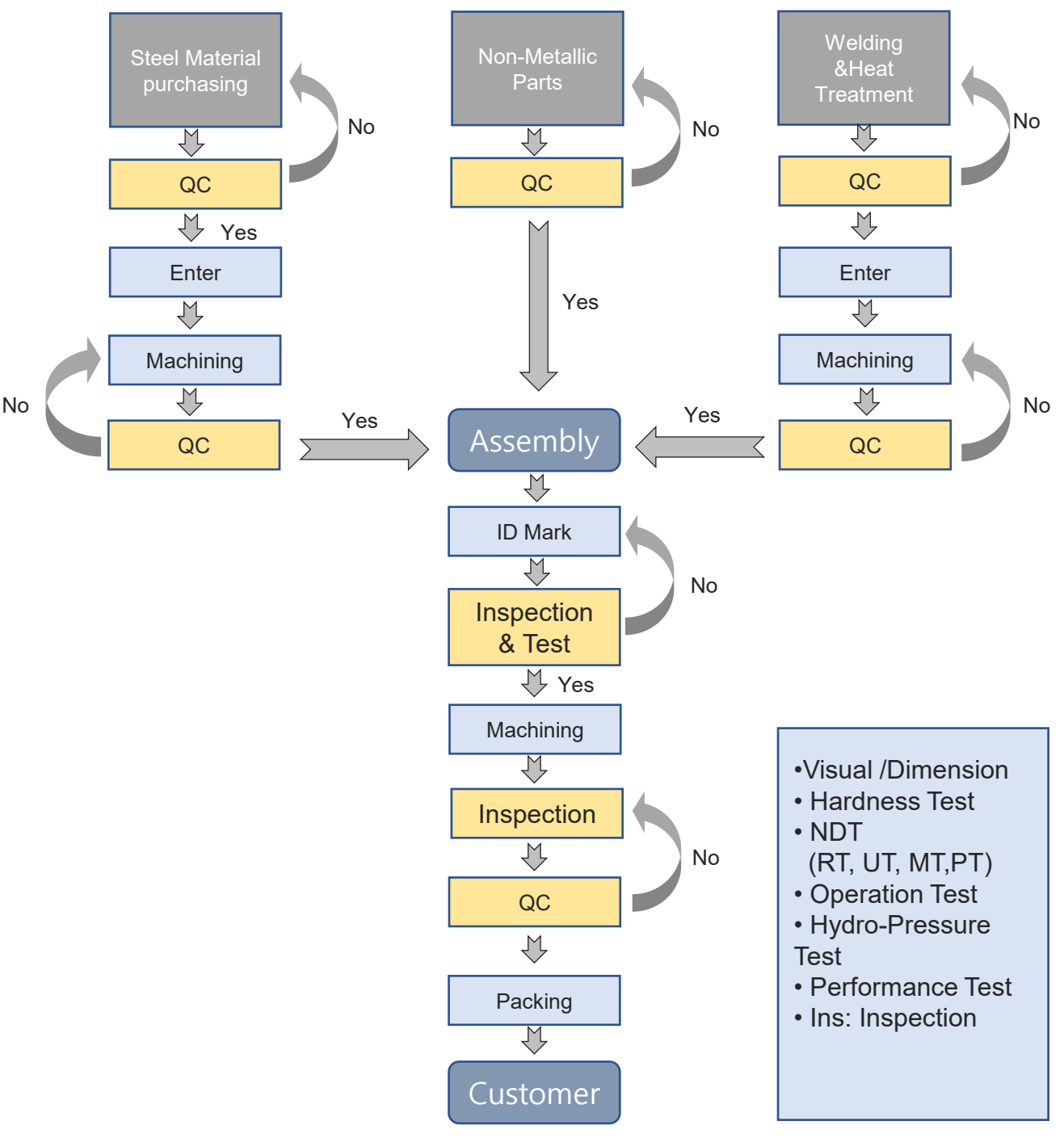


Fig.3 : Order / Contract Review Process

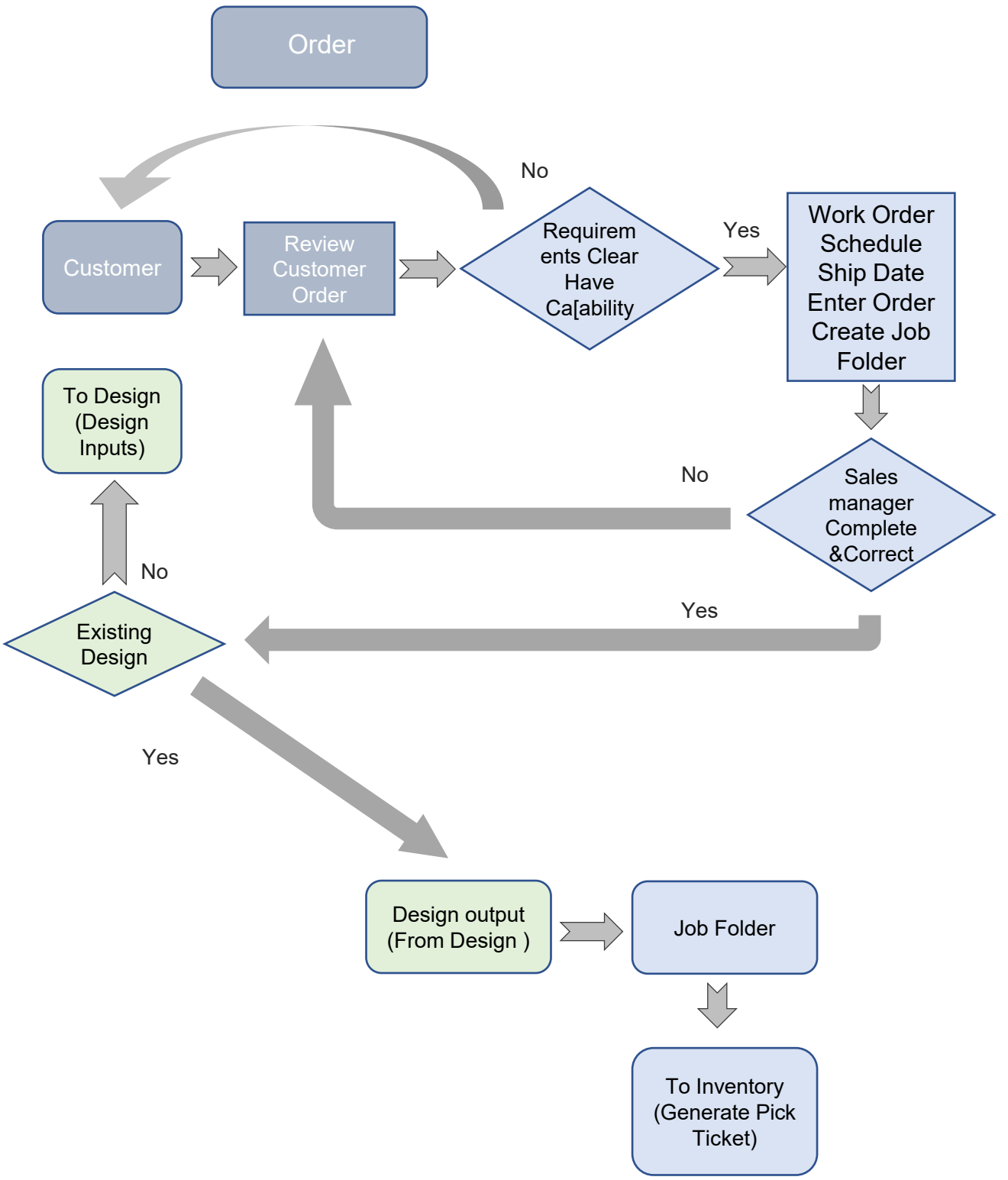


Fig.4: Design and Development Process

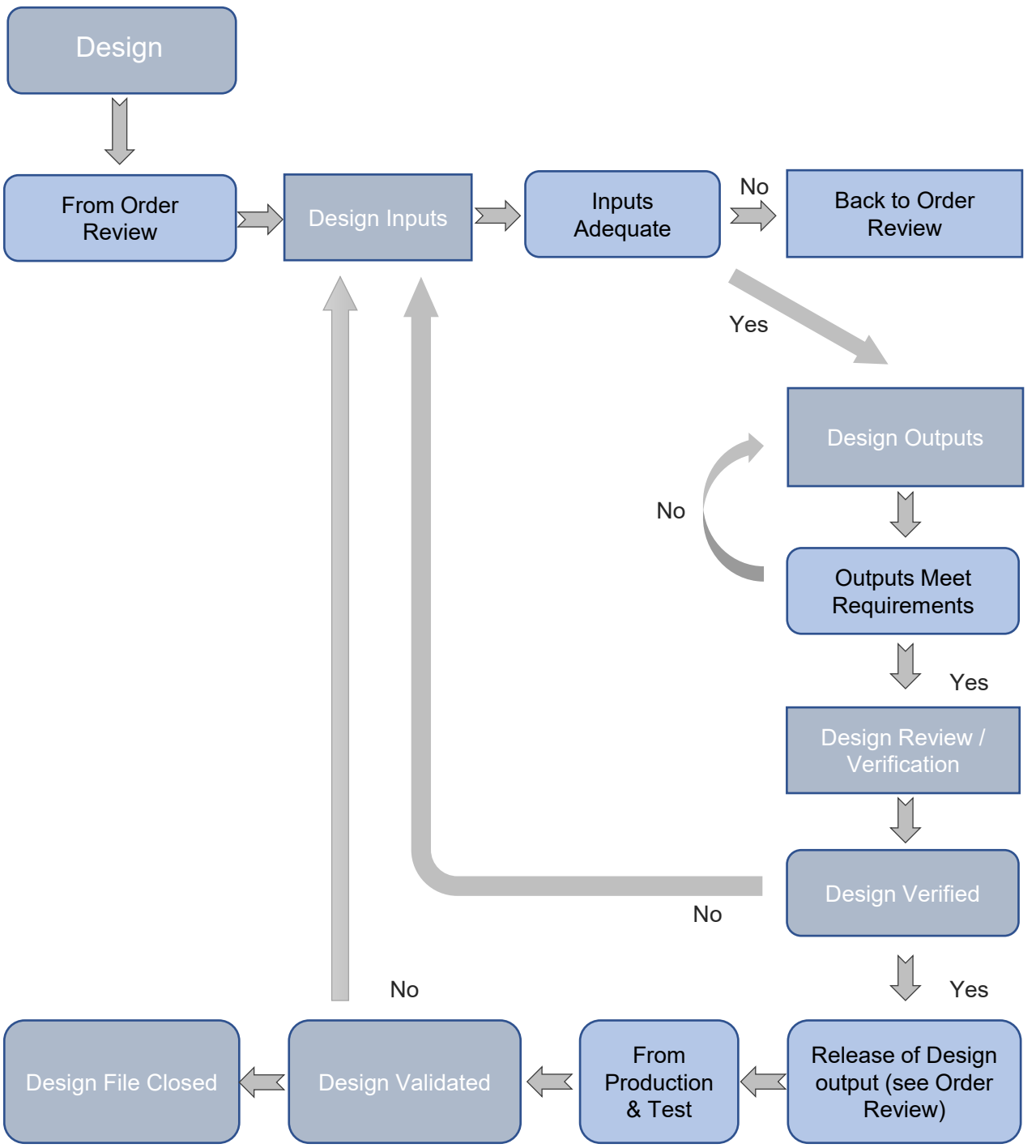
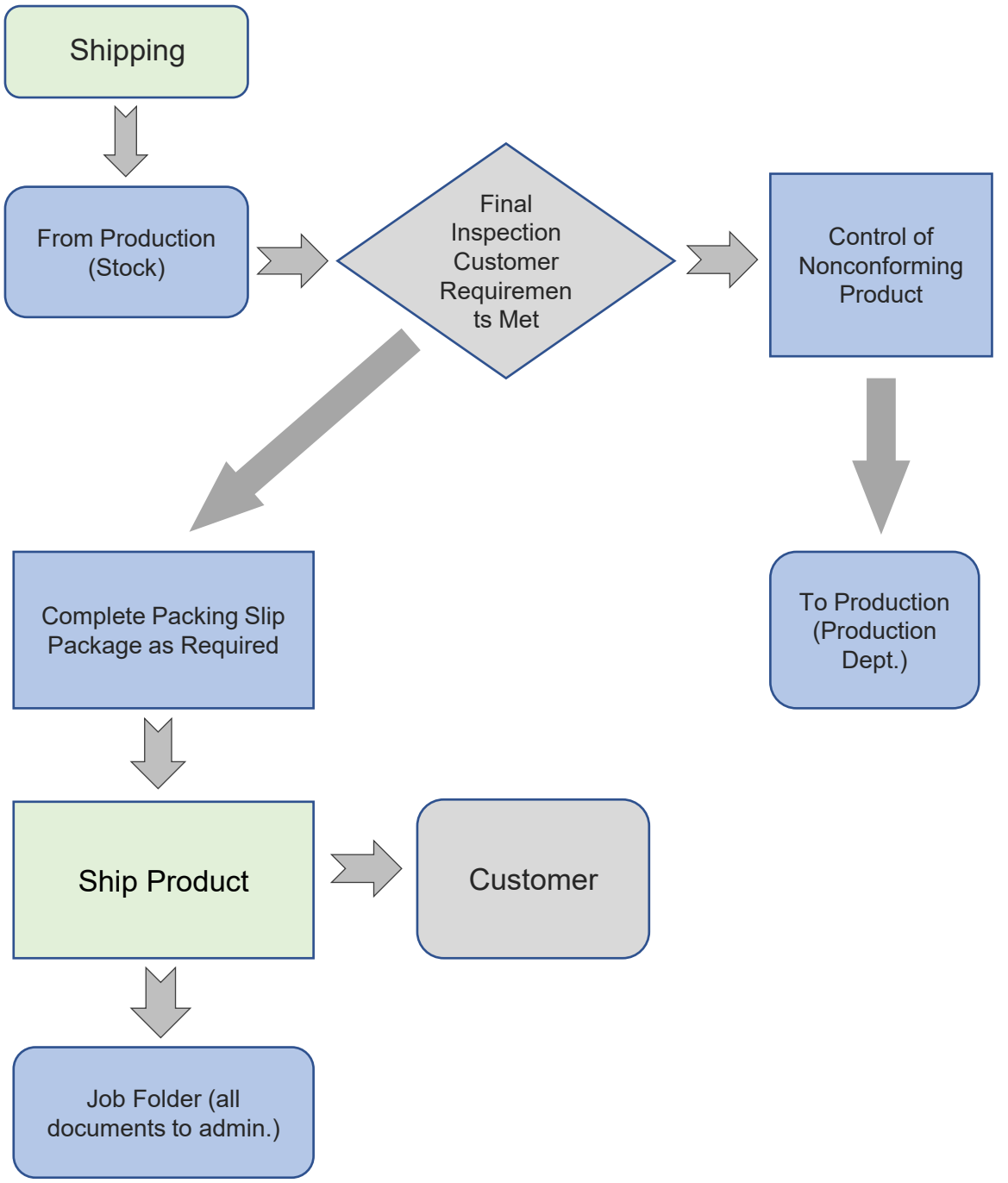


Fig.5 product shipping Control Process



6.4 Term and Definition

6.4.1 Terms and Definition

The terminology which used in this manual accordance with defines of terminology of ISO 9000 : 2005 and API-Q1;8th Edition Throughout the text of this International Standard, wherever the term “product” occurs, It can also mean “service”.

1) Quality management manual
Quality manual is the top-level document of quality system that describes the quality system of organization & the relate standard procedure and the quality assurance, evaluation & information are recorded in quality manual.

2) Process
Process is an activity with interrelationship and interaction that is translated input into offered output, is an association that human, facility, procedure and environment supply an product and service. Refer to QMS process Flow Chart and relating processes Fig.1~Fig.5

3) Procedure
Quality procedure shall describe the contents of quality manual detailed as a form or a chart. This procedure are drawn up in sequence as scope,& purpose, definition, procedure, record and revision history.

4) Instruction
The contents of affairs procedure is described more precisely and concretely in order to apply to actual affairs. And this doesn’t contradict with procedure specified limits of acceptability applied to process or product characteristics.

5) Acceptance inspection
Demonstration through monitoring or measurement that the product complies with Specified requirements

6) Standard
This document shall prescribe the working method, inspection method, and shall be working standard, Q.C Flow chart and test standards etc.

7) Key Characteristics
The features of a material, process, or part whose variation has a significant influence on produce fit, performance, service life, or manufacturability.

8) KPI (Key performance indicator)

9) MP (Management Process)

10) COP(Customer Oriented Process)

11) SP(Supporting Process)

12) Field nonconformity
Product nonconformity that is detected after delivery or use has started.

13) Manufacturing acceptance criteria
Defined limits on characteristics of materials, products, or services established by the organization to achieve conformity to the manufacturing or service requirements

14) Product
Intended outputs through product realization process in accordance with customer requirements

15) Out-sourced process

16) Design Acceptance Criteria
Defined limits placed on characteristics of materials, products, or services established by the organization, customer, and / or applicable specifications to achieve conformity to the product design.

17) Design validation
Process of proving a design by testing to demonstrate conformity of the product to design requirements .

18) Design verification
Process of examining the result of a given design or development activity to determine conformity with specified requirements.

19) Field nonconformity
Product nonconformity that is detected after delivery or use has started

20) Manufacturing acceptance criteria
Defined limits placed on characteristics of materials, products, and services established by t he organization to achieve conformity to the manufacturing or service requirements

21) Tender
Offer made by an organization in response to an invitation to provide a product.

6.5 General of QMS

6.5.1 Quality Management System

1) General Requirements

The *TSC* shall establish, document, implement and maintain a quality management system and continually improve its effectiveness in accordance with international quality management system standard.

a) Determine the process needed for the quality management system and their application throughout the *TSC*.
b) Determine the sequence and interaction of these processes.
c) Determine criteria and method need to ensure that both the operation and control of these processes are effective.
d) Ensure the availability of resource and information necessary to support the operation and monitoring of these processes,
e) Monitor, measure where applicable, and analysis these processes, and,
f) Implement actions necessary to achieve planned results and continual implement of these processes.

The *TSC* shall manage these processes in accordance with requirements of international quality management system standard.

Where the *TSC* chooses to outsource any process that affects product conformity to requirements, the *TSC* shall ensure control over such process. The type and extent of control to be applied to these outsourced processes shall be defined within the quality management system.

Note 1. Processes needed for the quality managements system referred to above include processes for management activities, provision of resources, product realization, measurement, analysis and improvement.

Note 2. An "outsourced process" is a process that the organization needs for its quality management systems and which the organization chooses to have performed by an external party.

Note 3. Ensuring control over outsourced processes does not absolve the organization of the responsibility of conformity to all customer, statutory and regulatory requirements. The type and extent of control to be applies to the outsourced processes can be influenced by factory such as;

a) The potential impact of the outsourced processes on the organization's capability to provide product that conforms to requirements,
b) The degree to which the control for process is shared,
c) The capability of achieving the necessary control through the application of 6.8.4

The TSC shall maintain responsibility for product conformity to specified requirements when processes are outsourced.

6.5 General of QMS

6.5.2 Documentation Requirements

1) General

The QMS documentation shall include:

a) Documented statements of a quality management policy and management objectives,
b) Quality Manual
c) Documented procedures and records required by this International Standard,
d) Documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of its processes.

Note 1. where the term "documented procedure" appear within this International Standard, this means that the procedure is established, documented, implemented and maintained. A single document may address the requirements for one or more procedures.
A requirement for a documented procedure may be covered by more than one document.

Note 2. The extent of the quality management system documentation can differ from one organization to anther due to
a) the size of organization and type of activities
b) the complexity of processes and type of activities
c) the competence of personnel.

Note 3. The documentation can be in any form or type of medium.

2) Quality Management Manual

The organization shall establish and maintain a quality management manual.

a) the scope of the quality management system, including details of and justification for any exclusions
b) the documented procedures establish for the quality management system, or reference to them, and
c) A description of the interaction between the process of the quality management system.
d)The quality manual shall identify the manner in which the organization addresses each specific requirement of API Q1 8th , including both the requirements of ISO 9001: 2008 and the supplemental requirements.

3) Control of Documents

Documents required by the quality management system shall be controlled. Records are a special type of document and shall be controlled according to the requirements given in 6.5.2.4. Procedure of Documents Control includes the controls needs:

a) To approve documents for adequacy prior to issue,
b) To review and update as necessary and re-approve documents,
c) To ensure that change and the current revision status of documents are identified,
d) To relevant versions of applicable documents are available at points of use,
e) To ensure that documents remain legible and readily identifiable,
f) To ensure that documents of external origin determined by the organization to be necessary for the planning and operation of the quality management system are identified and their distribution controlled, and
g) To prevent the unintended use of obsolete documents, and to apply suitable identification to them if they are retained for any purpose.

(a) control of documents- Supplemental
A master list or equivalent control feature shall be used to identify the documents required by the quality management system, and their current revision status.

(b) control of documents- Supplemental
Changes to documents shall be reviewed and approved by the same functions that performed the original review and approval.

4) Control of records

Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled. The organization shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records.
Records shall remain legible, readily identifiable and retrievable.

a) Control of Records-Supplemental
The documented procedure shall identify the functions responsible for the collection and maintenance of records.
Records required by applicable industry product standards shall be retained for not less than the period of time specified by the industry standard or five years, which is longer

Note. Collection is the process of obtaining, assembling and/or organizing applicable documentation with the intent of meeting the requirements of 6.5.2.4)

TSC

The documentation listed below shall be retained by the TSC for minimum of ten yeas following the date of manufacture

1) Design Documentation
2) WPS(Weld Procedure Specification)
3) PQR(Weld Procedure Qualification Record)
4) WPQ(Welder Performance Qualification)
5) Qualification records of NDE personnel
6) Qualification of test equipment calibration
7) DN50(NPS2) For valve DN50(NPS2) and larger
   - Material test of body, bonnet/cover(s) and end-connector(s)/closure(s) traceable to the unique valve serial number.
   - Serial number;
   - Pressure test results
8) For sour service valves, certificate of compliance to ISO15156(all parts)

“procedure of record control “ includes the controls needed the controls needed for the identification, storage, protection, retrieval, retention time and disposition of records (including records that are created by and/or retained by suppliers.)

6.6 Management Responsibility

6.6.1 Management Commitment

The CEO of "*TSC*" shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by:

a) Communication to the departure the importance of meeting customer as well as statutory and regulatory requirements,
b) Establishing the quality management policy and nursing that management objectives are established,
c) Conducting management reviews, and
d) Ensuring the availability of resources.

6.6.2 Customer Focus

The CEO of "*TSC*" shall ensure that customer requirements are determined and are met with the aim of enhancing customer certification.

6.6.3 Quality Policy

The CEO of "*TSC*" shall ensure that the quality policy

a) Is appropriate to purpose of "*TSC*"
b) Includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system
c) Provides a framework for establishing and reviewing management system,
d) Is communicated and understood within the "*TSC*", and
e) Is reviewed for continuing suitability.

1) Quality policy-Supplemental
CEO shall document its approval of the quality policy.

6.6.4 Planning

1) Management Objectives
The CEO of "*TSC*" shall ensure that quality objectives, including those needed to meet requirements for product are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with quality policy.

2) Quality Management System Planning
The CEO of "*TSC*" shall ensure that
a) The planning of the quality management system is carried out in order to meet the requirements given in 6.5.1.1, as well as the quality management system are planned and implemented and.
b) The integrity of the quality management system is maintained when changes to the quality management system are panned and implemented.

6.6.5 Responsibility, Authority and communication

1) Responsibility and authority

The CEO of "*TSC*" shall ensure that responsibility and authorities are defined and Communicated within the company.

2) Management Representative

The CEO of "*TSC*" shall appoint a member of the organization's management QA Manager who, irrespective of other responsibility and authority and authority that includes.

a) Ensuring that processes needed for the quality management system are established, implement and maintained,
b) Reporting to the CEO of "*TSC*" on the performance of the quality management system and any need for improvement,
c) Ensuring the promotion of awareness of customer requirements through the company,

Note. Liaising with external parties on matters relating to the quality management system.

3) Internal Communication

The CEO of "*TSC*" shall ensure that appropriate communication processes are established with the company and that communication tacks place regarding the effectiveness of the quality management system.

6.6.6 Management Review

1) General

To ensure continuing suitability, adequacy and effectiveness of quality management system, the CEO of *TSC*'s quality management system. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality management policy and management objectives.

Records form management reviews shall be maintained.-see 6.5.2.4

a) General –Supplemental
The management review shall be conducted at least annually.

Note. Included monitoring of quality objective as part of the management review.

2) Review input

The input to management review shall include information on
a) Result of audits (e.g. results of internal audits, results of customer's audits, results of certification audits, etc.)
b) Customer feedback (e.g. Customer's complaints, etc.)
c) Process performance and product conformity
d) Status of preventive and corrective actions
e) Follow-up actions from precious management reviews,
f) Changes that could affect the quality management system, and
g) Recommendation for improvement.

Note 1.5.6.2 c) in conjunction with 6.9.4 c) includes trends of product nonconformity.
Note 2.5.6.2 f) includes changes to applicable petroleum, petrochemical and natural gas industry standards.
Note 3.5.6.2 c) include reports and analysis of field nonconformities, if applicable.

3) Review Output

The output from the management review shall include any decisions and actions related to
a) Improvement of the effectiveness of the quality management system and its processes,
b) Improvement of product related to customer requirements, and
c) Resource needs

6.7 Resource Management

6.7.1 Provision of Resources

"TSC" shall determine and provide the resources needed to:
a) To implement and maintain the quality management system and continually improve its effectiveness, and
b) To enhance customer satisfaction by meeting customer requirements.

6.7.2 Human Resources

1) General

Personnel performing work affecting conformity to product requirement shall be competent on the basis of appropriate education, training, skills and experience.

Note) Conformity to product requirements can be affected directly or indirectly by personnel performing any task within the quality management system.

2) Competence, training and awareness the organization shall

a) Determine the necessary competence for personnel performing work affecting conformity to product requirements
b) Where applicable, provide training or take other actions to achieve the necessary competence,
c) Evaluate the effectiveness of the action taken,
d) Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives,
e) Maintain appropriate records od education, training, skills and experience – see 6.5.2.4)
f) Personnel qualification requirements to Design Review/Inspector/Internal Auditor/NDE/welder/ Heat Treatment Operator

3) Training-supplemental

The organization shall establish control features for identifying training needs and providing for training of personnel who perform activities addressed in the quality management system. The training requirements shall provide for quality management system training and for job training of personnel.

The frequency of training shall be defined by the organization.
Note 1.6.2.6 provides on-the-jog training for personnel in any training and for job trainee Personnel in any new or modified job affecting quality, including contract or agency personnel. Note 2.6.2.6 includes job affecting quality, including contract or agency personnel. The relevance and importance of their activities and how they contribute to the achievement of the quality objectives. Personnel whose work can affect quality should be informed about the consequences to the customer of nonconformity to quality requirements.

6.7 Resource Management

6.7.3 Infrastructure

The “TSC” shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements.
Infrastructure include, as applicable,
a) Buildings, worker TSC and associated utilities
b) Process equipment(both hardware and software), and
c) Supporting services
(such as transport or communication or information systems)

6.7.4 Work Environment

The TSC’s work environment shall determine and manage the work environment needed to achieve conformity to product requirements.

Note) The term “work environment” relates to those conditions under which work is performed including physical, environmental and other factors.

(1) Temperature
(2) Humidity
(3) Lighting
(4) Noise
(5) Weather etc.

6.8 Product Realization

6.8.1 Planning of Product Realization

Planning of product realization shall be prepared at form of valve and QC plan. Planning of product realization shall be consistent with the requirement of the other processes of the quality management system In planning product realization, the Related manager shall determine the following, as appropriate:

a) Quality objectives and requirements for the product;
b) The need to establish processes and documents, and to provide resources specific to the product:
c) Required verification, validation, monitoring, measurement, inspection, and test activities specific to the product and the criteria for product acceptance
d) Records needed to provide evidence that realization processes and product meet requirement -see 6.5.2.4)

The output of this planning shall be in a form suitable for the organization's method of operations.

A document specifying the processes of the quality management system (including the product realization processes) and the resources to be a specific product, project or contract can be referred to as a quality plan.

The organization may also apply the requirements given in 6.8.3 to the development of product realization process.

1) Planning of product realization-Supplemental
When product requirements are provided from external sources, the organization shall define the methods and shall establish control features used to translate these activities activities into the product realization process.

6.8.2 Customer –related processes

1) Determination of requirements related to the product
- The organization shall determine
a) Requirements specified by the customer, including the requirements for delivery and post-delivery activities
b) Requirements not stated by the customer but necessary for specified or intended use, where known
c) Statutory and regulatory requirements applicable to the product, and
d) Any additional requirements considered necessary by the organization.

Note) Post-delivery activities include, for example, actions under warranty provisions contractual obligations such as maintenance services, and supplementary services such as recycling of final disposal.

2) Review of requirements related to the product

The sales team manager and related team manager shall review the requirements related to the product prior to the TSC commitment to supply a product the customer (e.g. Submission of tenders, acceptance of contacts or orders, acceptance of changes to contacts or orders) and shall ensure that

a) Product requirements are defined,
b) Contract or order requirements differing from those previously expressed are resolved.
c) The “TSC” has the ability to meet the defined requirements.
Records of the results of the review and actions arising from the review shall be maintained.

Where the customer provides no documented statement of requirements related to the product, the Business team manager shall confirm the requirements related to the product prior to acceptance

Where product requirements are changed, the Business team manager and related team manager shall ensure that relevant documents art amended and that relevant personnel are made aware of the changed requirements.

Note) In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover relevant product information such as catalogues or advertising material

(a) Customer-related processes-supplements.

The organization shall establish control features to review requirements related to the products.

3) Customer communication

The Sales dept manager and related dept manager shall communicate with customer in relation to;

a) Product information
b) Enquires, contracts(Including contract items requiring customer discussion) or order handling, including amendments,
c) Customer feedback, including customer complaints

6.8.3 Design and Development

1) Design and development planning

a) The organization shall plan and control the design and development of product.
b) During the design and development planning, the organization shall determine
   (a) The design and development stages
   (b) The review, verification and validation that are appropriate to each design and development stages, and
   (c) The responsibilities and authorities for design and development
c) The organization shall manage the inter TSC between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.
d) Planning output shall be updated, as appropriate, as the design and development progresses.

Note) Design and development review, verification and validation have distinct purposes. They can be conducted and recorded separately or in any combination, as suitable for the product and the organization.

e) To apply valve industry international standards or ensure meeting the essential requirements
f) Design and development planning
   The organization shall establish control features for the design of the product. When design and development are outsourced, the organization shall ensure the supplier meets the requirements of 6.8.3 and provide objective evidence that the supplier has met these requirements.
g) Design Documentation
   Design documentation shall include the methods, assumptions, formulas and calculations.

2) Design and development inputs

Inputs relating product requirements shall be determined and records maintained -see 6.5.2.4).
- These inputs shall included
a) functional and performance requirements,
b) applicable statutory and regulatory requirements
c) where applicable, information derived from previous similar designs, and development
d) other requirements essential for design and development
The inputs shall be reviewed for adequacy Requirements shall be complete, unambiguous and not in conflict with each other.

2-1) Design and development inputs process
(1) The design team engineer shall convene the meeting to identify and select the design inputs by review of the customer document and applicable code/ standard and shall establish the design plan which includes the identification of design inputs, design outputs and verification method, design interfaces, schedule, defined responsibility, detailed plans or reference development activity, necessary activities assigned to qualified personnel and updated as design evolves.
(2) The requirements contained within the customer documents and other accepted design input shall be correctly translated into design outputs.
(3) Design shall be verified for the adequacy and compliance with the design inputs as described in paragraph 6.2 of this Chapter.
(4) The design Team Manger is responsible for obtaining, maintaining, and making available to the Design team engineer the applicable documented information derived from experience.
(5) All design outputs shall be approved by the design Team Manager.
(6) When customer requires that specific design outputs to the customer review, the Design Team Manager shall transmit the design outputs to customer through the Sales The at any specified time.

3) Design and development output

The outputs of design and development shall bin a from suitable for verification against the design and development input and shall be approved prior to release.

a) Meet the input requirements for design and development
b) Provide appropriate information for purchasing, production and service provision,
c) Contain or reference product acceptance criteria, and
d) Specify the characteristics of the product that are essential for its safe and proper use.

Note) information for production and service provision can include details for the preservation of product.

3-1) Design and development output Procedure

(1) Design and development outputs such as design drawings and manufacturing specifications shall be easily, identifiable, retrievable suitable form for reproduction, filing, and revision. Design and development outputs shall be documented

(2) Design and development output shall be documented and expressed in terms that can be verified against design input requirements and validated.

Design and development output shall :

(a) Meet the design input requirements.

(b) Contain or reference product acceptance criteria.

(c) Identify those characteristics of the design that are crucial to the safe and proper functioning of the product (e.g., operating, storage, handling, maintenance, and disposal requirements).

(d) Be translated into instructions, procedures, specifications, and drawings that include acceptance criteria. (Provide information for purchasing, production and service)

(e) Design output documents shall be approved before release

4) Design and development review

As suitable stages, systematic revise of design and development shall be performed in accordance With planned arrangements –see 6.8.3.1)

a) To evaluate the ability of the results of design and development to meet requirements,

b) To identify and problems and propose necessary actions.

Participants in such revies shall representatives of functions concerned with the design and development stage(s) being reviews. Records of the results of the reviews and any necessary actions shall be maintained –see 6.5.2.4)

4-1) Design and development review Procedure

a) Final design reviews shall be conducted, documented. Individual(s) other than the person(s) who developed the design shall approve the final design.

b) At appropriate stages of design, formal documented review of the design results shall be planned and conducted. Participants at each design review shall include representatives of all functions concerned with the design stage being reviewed as well as other specialist personnel, as required. Records of such reviews shall be maintained. Final design review shall be conducted and documented by individuals other than the person or persons who developed the design.

5) Design and Development Verification

Verification shall be performed in accordance with planned arrangements -see 6.8.3.1) to ensure that the design and development outputs have met the design and development input requirement.

Records of the results of the verification and any necessary actions shall be maintained -see 6.5.2.4)

5-1) Design and Development Verification Procedure

a) Design validation shall be performed to ensure that product conforms to defined user needs and/or requirements.
b) Design validation follows successful design verification.
c) Validation is normally performed under defined operating conditions.
d) Validation is normally performed on the final product, but may be necessary in earlier stages prior to completion.
e) Multiple validations may be performed if there are different intended uses.

6) Design and Development Validation

Design and development validation shall be performed in accordance with planned arrangements see 6.8.3.1 to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained -see 6.5.2.4)

7) Control of design and development change

a) Design and development change shall be identified and records maintained. The changes shall be reviewed, verified, and validate, as appropriate, and approved before their implementation.
b) Design and According to customer requirements. may be requested by;
(1) According to customer requirements.
(2) According to other discipline's requirements.
c) The follows shall be reviewed when design and development change.
(1) Relation with other components
(2) Another problems cause from design an development changes.
(3) Evaluation of affected products that were already delivered.
d) Design and development changes comes from internal reason, customer's approval shall be required for ordered product.
e) Design and development changes shall be performed by the designer who was originator.
f) Change out put shall be distributed again to the previous position of use.

7-1) Control of design and development change-Supplemental

Design and development changes including changes to design documents, shall require the same controls as the as original and development, and design documentation.

8) Manufacturing drawing

a) Based on design outputs, the Design team engineer shall prepare manufacturing drawings which include necessary date and requirements for manufacturing and assembly of item.
b) The manufacturing drawings shall be checked for accuracy and completeness by a competent engineer other than those who performed the original design.
c) After approval of the Design Team Manager, the manufacturing drawing is distributed as described in the Chapter 6.5.2 of this QM Manual.
d) Changes to the manufacturing drawings shall be handled as described for the original, and the Design Team Manger shall assure that all changes are reconciled with design outputs.

9) Document & Records

All documents including design and development outputs, manufacturing drawings, casting drawings manufacturing specifications, design and development inputs, record of the result the verification, record of the result the validation, record of the result the reviews and necessary actions shall be maintained as described in the Chapter 4 of this QM Manual.

6.8.4 Purchasing

1) Purchasing process

The organization shall ensure that purchased product conforms to purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product.

The organization shall evaluate and select suppliers based on their ability to product in accordance with the organization's requirements. Criteria for selection, evaluations and reevaluation shall be established. Records of the results of evaluations and any necessary actions arising form the e valuation shall be maintained –see 6.5.2.4)

2) Purchasing information

Purchasing information shall describe the product to be purchased, including where appropriate

a) Requirements for approval of product procedures, processes and equipment.
b) Requirements for qualification of personnel, and
c) Quality management system requirements.

3) Verification of purchased product

The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. Where the organization or its customer intends to perform verification at the supplier's premises, the organization shall state the intended verification arrangements and method of product release in the purchasing information

3-1) Purchasing process-Supplemental

The organization shall establish control feature -see 6.3.3) for the purchasing process and supplier selection

Note) Purchased products above include all products and services that affect compliance with customer requirements.

3-2) Supplier provided processes that require validation-Supplemental)

Where an organization chooses to outsource any process that require validation, the organization shall require that the supplier comply with the requirements, as applicable

a) The type, class, grade or other precise identification, and
b) The title or other positive identification, and applicable issues of specifications, drawings, process requirements, inspection instructions and other relevant technical data.

3-3) Verification of purchased product- Supplemental

The organization shall establish control features -see 6.3.3)for the verifications of purchased product. The organization shall maintain records of verification activities – see 6.5.2.4)

4) Purchasing Procedure

a) All products purchased from suppliers shall be met to the specified purchasing requirements.
b) To use Notified Body approved suppliers for major item including welding, heat -treatment and NDT.
c) The "TSC" shall evaluate and select suppliers based on their ability to supply product in accordance with the TSC's requirements. Criteria for selection, evaluation and re-evaluation shall be established.

d) The approved supplier list, including the scope of the approval shall be maintained.
e) The supplier performance shall be periodically reviewed to determine the level of supplier controls. The Quality team manager approving supplier quality management system may disapprove the use of the suppliers that do not meet requirements of the quality management system.
f) Records of the results of evaluations and any necessary actions arising from the evaluation shall be maintained.
g) Purchasing documents shall describe the product to be purchased, including where appropriate. (If necessary)
(a) The name or other positive identification, and applicable issue of specifications, process requirements, inspection instructions and other relevant technical data,
(b) Requirements for test, examination, inspection and related instructions for acceptance
(c) Requirements for test specimens for inspection, investigation or auditing,
(d) Supplier notification to “TSC”, of nonconforming product and
(e) Requirements for the supplier to notify the TSC of changes in product and/or process definition and, where required, obtain SMI approval,
(f) Right of access by the “TSC”, their customer/customer representative, and regulatory authorities to all facilities involved in the order and to all applicable records, and
(g) Requirements for supplier to flow-down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required, and
(h) Requirements relative to intended verification arrangements and method of product release where the “TSC” or its customer intends to perform verification at the supplier’s premises.
(i) The adequacy of specified purchase requirements shall be reviewed and approved prior to issue of purchasing document.
(j) The “TSC” shall implement the verification for ensuring that purchased product meets specified purchase requirements by ;
- Obtaining objective evidence of the quality of the product from suppliers (e.g. Test reports, certificate of conformity, etc.)
(k) Where the “TSC” utilizes test report to verify purchased product, the data in those report shall be acceptable per applicable specifications. The test reports for raw material shall be periodically validated.
(l) Inspection and audit at supplier’s premises, If necessary. -Review of the required documentation,
(m) Receiving inspection.
(n) Delegation of verification to the supplier, or supplier certification.
Where the “TSC” delegate verification activities to the supplier, the requirements for delegation shall be defined and a register of delegations maintained.
(o) Purchased product shall not be used or processed until it has been verified as conforming to specified requirements unless it is released under positive recall procedure.
(p) Where specified in the contract, the customer shall be afforded the right to verify at the supplier’s premises and the “TSC” premises that subcontracted product conform to specified requirements.
(q) Verification by the customer shall not be used by the “TSC” as evidence of effective control of quality by the supplier and shall not absolve the “TSC” of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the customer.

h) The purchaser may selector supplementary documentation

1. NDE Records
2. WPS, PQR & WPQ
3. For sour service valves, certificate of compliance to ISO15156(all parts)
4. Hardness test report on pressure-containing parts
5. Hardness test report on pressure-control parts
6. Certificate of conformance to this international standard
7. Heat treatment certification chart (e.g.. Chart)
8. design calculation for pressure-containing parts and/or drive train
9. design calculation for pressure-controlling parts
10. Pressure test report
11. NDE personnel qualification records
12. coating/plating certification
13. NDE Procedures
14. Calibration records
15. Fire type-test certificate
16. Material inspection certificates accordance with iso 10474 or ISO10204, as applicable
17. Design verification by certification body/agency
18. type approval by certification body/agency
19. Installation, operation and maintenance instruction/manuals
20. General arrangements drawing
21. BOM Cross sectional drawings with parts and material list
22. flow coefficient Cv, or Kv
23. Current quality management system certificate

6.8.5 Product and service provision

1) Control of production and service provision

The organization shall plan and carry our production and service provision under controlled conditions. Controlled conditions shall include, as applicable

a) The availability of information that describes the characteristics of the product.
b) The availability of work instructions, as necessarily.
c) The use of suitable equipment.
d) The availability and use of monitoring and measuring devices.
e) The implementation of monitoring and measurements
f) The implementation of product release delivery and post-delivery activities.

2) Validation of processes for production and service provision

The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product id in use or the service has been delivered. Validation shall demonstrate the ability of these processes to achieve planned results. The organization shall establish arrangements for these processes including, as applicable.

a) Devoiced criteria for review and approval of the processes.
b) Approval off equipment and qualification of personnel.
c) Use of specific methods and procedure.
d) Requirements for records –see 6.5.2.4), and
e) Revalidation

2-1) Product process control Procedure

a) The organization shall consider;
(a) The establishment of process controls and development of Process control plans where key characteristics have been identified.
(b) The identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of realization.
(c) The design, manufacture, and use of tooling so that variable measurements can be taken, particularly for key characteristics, and

b) The production provision shall be planned and carried out under controlled condition including, as applicable
(a) The availability of information that describes the characteristics of the product,
(b) The availability of work instruction, as necessary
(c) The use of suitable equipment,
(d) The availability and use of inspection and test
(e) The implementation of inspection and test
(f) The implementation of release, delivery and post-delivery activities.
When problems of production are identified after delivery, the appropriate actions (Including investigation, reporting activities, determination of actions and the customer representative feedback) for problems shall be taken.
(g) Accountability for all products during manufacture (e.g. Parts quantities, nonconforming product, etc.)
(h) Evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized,

(i) The organization shall establish control feature that describe in the control of production and service activities performed.
(j) Process controls shall be documented in routings, travelers, checklists, process sheet, or other type of control features and shall include requirements for verifying compliance with quality plan, control features, and reference standard/codes.
The process control document shall include or reference instructions, workmanship and accept criteria for processes, tests, inspections, and customer's inspection hold or witness point.
(k) Personnel authorized to approve changes to production processes shall be identified. The authorized personnel shall identify and obtain acceptance of changes that require customer and/or regulatory authority approval in accordance with contract or regulatory requirements.
(l) Changes affecting processes, production equipment, Jigs shall be documented. Procedures relating to production process changes shall be available to control their implementation.

2-2) Where serving is a specified requirement, service operation processes shall be established for:
a)A method of collecting and analyzing in-service data,
b)Actions to be taken where problems are identified after delivery, including investigation, reporting activities, and actions on service information consistent with contractual and/ or regulatory requirements,
c)The control and updating of technical documentation,
d)The approval, control, and use of repair schemes,
e)The controls required for off-side work (e.g. TSC work undertaken at the customers facilities), and
f) The provision of appropriate resource for effective service.

2-3) Validation of processes for production and service provision – Supplemental
The organization shall validate those processes identified by the applicable product specification as requiring validation. If these processes are not identified, or there is no product specification involved, the processes requiring validation shall include as a minimum, nondestructive examination, welding and heat treating, if applicable to the product.

3) Identification and Traceability

a) The product shall be identified by suitable means (e.g. Label, tag, stamp, etc.) throughout product realization.
b) The "TSC" shall maintain the identification of the configuration of the product in order to identify any differences between the actual configuration and the agreed configuration.
c) The "TSC" shall identify the product status with respect to monitoring and measurement requirements
d) The controls for the acceptance authority media (e.g. stamps, etc.) shall be established and documented.
e) Identification of the product. Where traceability is a requirement, the "TSC" shall control and record the unique
f) According to the level of traceability required by contract, regulatory, or other established requirement, the following items shall be defined.
g) Identification to be maintained throughout the product line,

h) All the products manufactured from the same batch of raw material or from the same manufacturing batch to traced, as well as the destination (delivery, scrap) of all products of the same batch,
i) For an assembly, the identify of its components and those of the next higher assembly to be traced,
j) For a given product, a sequential record of its components and those of the next higher assembly to be retrieved.
k) The organization shall establish control features for the replacement of identification and traceability marks and record
l) The organization shall establish control features for identification of product status.

3-1) Identification and traceability

The organization shall establish control features -see 6.3.3) for identification and traceability of the product by suitable means from receipt and during all stages of production, delivery and installation, as required by the organization, the customer, and the applicable product satisfactions.

3-2) Identification and traceability maintenance and replacement – Supplemental)

Control features shall requirements for maintenance or replacement of identification and tractability marks, and records.

3-3) Product status

The organization shall establish control features -see 6.3.3) for the identification of product status.

4) Customer Property

a) The “TSC” shall exercise care with customer property while it is under the TSC control or being used by the “TSC”
b) The organization shall identify, verify, protect and safeguard customer property provided for use or incorporation into the product.
c) If any customer property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to the customer and records maintained.
d) Customer property should be included intellectual property, such as technical Know-how or other information by customer.

4-1) Customer Property-Supplemental

The organization shall establish control features (6.3.3) for the verification, storage, maintenance and control of customer property.

5) Preservation of Product

The organization shall preserve the product during internal processing and delivery to the intended destination in order to manufactured conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage and protection. Preservation shall also apply to the constituent parts of a product.

5-1) Preservation of product-Supplemental

The organization shall establish control features 6.3.3 describing the methods used to preserve the conformity of product f the activities of 6.5.5.

5-2) Periodic assessment of stock-Supplemental

In order to detect deterioration, the condition of product or constituent parts in stock shall be assesses at specified intervals.

Note) 6.5.5.2 included the possible use of an inventory management system to optimize inventory turn-over time and assure stock rotation, such as “first-in-first-out” (FIFO)

6) Control f monitoring and measuring equipment

a) The organization shall determine the monitoring and measurement to be undertaken and the monitoring and measuring equipment needed to provide evidence of conformity of product to determined requirements.

b) The monitoring and measuring requirements can be carried out and are carried out in a manner that is consistent with the monitoring and measurement requirements in accordance with “Procedure of Monitoring and Measuring Equipment Control”

c) Where necessary to ensure valid results, measuring equipment shall

(a) Be calibrated or verified, or both, at prior to use, against measurement standards Tr TSC able to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded – see 6.5.2.4)

(b) Be adjusted or re-adjusted as necessary;

(c) Have identification in order to determine its calibration status;

(d) Be safeguarded from adjustments that would invalidate the measurement result;

(e) Be protected from damage and deterioration during handling, maintenance and storage;

d) The validity of the previous measuring results shall be assessed and recorded when the M and TE is found not to conform to requirements. In addition, the organization shall assess and record the validity of the measuring results when the equipment and any product affected.

e) Records of the results of calibration and verification shall be maintained.

f) The management results for the area being audited shall ensure that any necessary correction and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes.

Note) Confirmation of the ability of computer software to satisfy the intended application would typically include its verification configuration management to maintain its suitability for use.

6-1) (Control of monitoring and measuring equipment-Supplemental)

The organization shall establish control features to control, calibrate and maintain monitoring and measuring devices. Control features shall include device type, unique identification, location, frequency of checks, check method, and acceptance criteria.

6-2) Environmental conditions-Supplemental

1) The organization shall ensure that environmental conditions are suitable for the calibrations, inspections, measurements and tests being carried out.

Note) Records of the calibrate ion/verification activity for all gauges, measuring and test equipment, needed to provide evidence of conformity of product to determined requirements, including employee- and customer-owned equipment should include

- equipment identification, including the measurement standard against which the equipment is calibrated,
- revisions following engineering changes,
- any out-of-specification readings received for calibration,
- an assessment of the impact of out-of-specification condition, and
- notification to the customer if suspect product or material has been shipped.

2) When used in the monitoring and measurement of specified requirements, he ability of computer software to satisfy the intended application shall be confirmed.

3) This shall be Records of the results of calibration and verification shall be maintained.

6.9 Measurement, Analysis & Improvement

6.9.1 General

1) The “TSC” shall plan and implement the monitoring, measurement, analysis and improvement processes needed:
   a)To demonstrate conformity of the product requirements,
   b)To ensure conformity of the quality management system, and
   c)To continually improve the effectiveness of the quality management system.

2) The “TSC” shall determine the applicable methods, including statistical techniques, and the extent of their use.

6.9.2 Monitoring and measurement

1) Customer Satisfaction
   As one of the measurements of the performance of the quality management system, the disorganization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined.

   Note) Monitoring customer perception can include obtaining input from sources such as customer satisfaction surveys, customer data on delivered product quality, user opinion surveys, lost business analysis, complaints, warranty claims and dealer reports.

2) Internal Audit
   a) The TSC shall conduct internal audits at planned intervals to determine whether the quality management system.
      (a) Conforms to the planned arrangements relating to product realization, to the customer’s quality management system.
      (b) Is effectively implemented an maintained.
   b) An internal audit programs shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of the previous audits .
   c) The internal audit criteria, scope, frequency and method shall be defined.
   d) Selection of internal auditors and conduct of internal audits shall ensure objectivity and impartiality of the internal audit process. Internal auditors shall not audit their own work.
   e) The dept manager responsible for the area being internal audited shall ensure that actions are taken without undue delay to eliminate detected nonconformities/ noncompliance and their
   f) Causes. Follow -up activities shall include the verification of the actions taken and reporting of verification results.
   g) Records of the audit and their results shall be maintained. The responsibilities and requirement for planning and conducting internal audits, and for reporting results and maintaining records are defined in “Procedure of Internal Audit ”

   2-1) Internal audit-Supplemental
      Internal audit shall be scheduled and conducted at least annually by personnel independent of those who performed or directly supervised the activity being audited.

2-2) Response times-Supplemental

The organization shall identify response times for addressing detected nonconformities.

2-3) Monitoring and Measurement of Processes

1) The Quality team& Production team manager shall establish the quality management system process.
2) The Quality team manager shall monitoring and measuring the Quality Management system like internal audit and process audit etc.
3) The Quality team manager (Process audit), Production team manager (self inspection) shall monitor and measure the effectiveness of the related process at the planned interval.
4) The methods of monitoring and measurement for processes shall be check periodically
5) When the objective of the process is not achieved, the Quality team manager shall take appropriate actions for improvement.
6) In the event of process nonconformity, the Quality team manager shall.
   (1) Take appropriate action to correct the nonconforming process,
   (2) Evaluate whether the process nonconformity has resulted in product nonconformity, and the nonconforming product shall be controlled in accordance with Clause 7.6)
7) The organization should maintain records of the effectiveness of process changes .

2-4) Monitoring and Measurement of Product

1) The Quality team manager shall monitor and measure the characteristics of the product to verify that product requirements have been met. The monitoring and measurement of product shall be carried out at appropriate stages of the product realization in accordance with “Procedure of Product Inspection &Test control
2) When key characteristics have been identified, they shall be monitored an controlled.

2-4-1) Monitoring and measurement f product
The organization shall establish control features to monitor and measure the characteristics of the product.

2-4-2) Acceptance inspection
1) Personnel other than those who performed or directly supervised the production of the product shall perform final acceptance inspection (see6.3.2)at planned stages of the product realization process.
2) When he sampling inspection in used as a means of product acceptance, the plan for sampling inspection shall be statistically valid and appropriate for use. The plan for sampling inspection shall preclude the acceptance of lots whose samples have known nonconformities. When required, the plan for sampling inspection shall be submitted for customer approval.
3) Product shall not be used until it has been inspected or otherwise verified as conforming to specified requirements, except when product is released under positive-recall procedures pending completion of all required measurement and monitoring activities.
4) Product release shall not proceed until all the inspection and test have been satisfactorily completed, unless otherwise approved by a relevant authority and, where applicable. By the customer.

5) Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate the person(s) authorizing release of product by using stamp.
   a) Criteria for acceptance and/or rejection
   b) Where in the sequence measurement and testing operations are performed,
   c) Functions, or characteristics to be measurement and test,
   d) A record of the measurement results (including measurement data),
   e) Type of measurement and test equipment's required and any specific instructions associated with their use.
   f) Criteria of defect classification
   g) Sampling plan (Including frequency of measurement and test, sampling size, permissible criteria).and
   h) Methods of measurement and test required.
6) Tests shall be performed in accordance with “Procedure of Inspection and test
7) Test records shall show actual test results data when required by specification or acceptance test plan.
8) The following items are defined in “Procedure of Inspection and test”
   (1) Procedure for operating test facility,
   (2) Qualification requirements for test personnel.
   (3) Accuracy of test and tractability with the related test standard, and
   (4) Reviewing the related records.
9) Where required to demonstrate product qualification the related records shall include evidence that the product meets the defined requirements.

6.9.3 Control of Nonconforming Product

a) The organization shall ensure that product which does not conform to product requirements is identified and controlled to prevent its unintended use or delivery. A documented procedure shall be established to define the controls and related responsibilities and authorities for dealing with nonconforming product.
b) Where applicable, the organization shall deal with nonconforming product by one more of the following ways;
   (a) by taking action (rework or concession (repair or use-as-is)) to eliminate the defected nonconformity.
   (b) by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer.
   (c) by taking action to preclude its original intended use or application;
   (d) by taking action appropriate to the effects, or potential effects, of the nonconformity when nonconformity when nonconforming product is detected after delivery or use has started.
c) When nonconforming product is corrected it shall be subjected to re-verification to demonstrate conformity to the requirements.
d) Records of the nature of nonconformities and ant subsequent actions taken, including concessions obtained, shall be maintained.

1) (Release or acceptance of nonconforming product-Supplemental)
The process of evaluation, release and acceptance of nonconforming product shall include one or more of the following.
a) accepting products that do not satisfy manufacturing acceptance criteria provided that. products satisfy the design acceptance criteria,
the violated manufacturing acceptance criteria are categorized as unnecessary to satisfy the design acceptance criteria, or products are repaired or reworked to satisfy the design acceptance criteria or manufacture acceptance criteria;
b) accepting products that do not satisfy the original design acceptance criteria provided that the original design acceptance criteria are changed per 6.8.3.7) and the materials or products satisfy the new design acceptance criteria.

2) Field nonconformity analysis-Supplemental
The documented procedure for nonconforming product shall include requirements for identifying, documenting and reporting incidents of field nonconformities or product failures -see 6.3 The documented procedure shall ensure the analysis of field nonconformities of product failure -see 6.3 The product or documented evidence supporting the nonconformity is available to facilitate the determination of the cause.

3) Customer notification-Supplemental
The organization shall notify customers in the event that product which does not conform to design acceptance criteria -see 6.3 has been delivered. The organization shall maintain records of such notification –see 6.5.2.4) “Customer Notification”. When found the products not comply design acceptance.

6.9.4 Analysis of Data

The Related team manager shall determine, collect and analyze appropriate data to demonstrate the suitability and effectiveness of the quality management of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources.
The analysis of data shall provide information relating to

1) Customer satisfaction,
2) Conformity to product requirements,
3) Characteristics and trends of processes and products including opportunities for preventive action, and
4) Suppliers
Records relating to data analysis shall be maintained, and available for review by customer or customer representative.

4-1) Analysis of data-Supplemental
The company shall establish control features for the identification and use of the techniques for the analysis of data.

6.9.5 Improvement

1) Continual Improvement
The TSC shall continually improve the effectiveness of the quality management system through the use of the quality management policy, management objective and preventive action and management review.

2) Corrective Action
Corrective action for nonconformities/noncompliance shall be taken accordance with “Procedure of Corrective and preventive Action”.
Corrective actions shall be appropriate to the effects of the nonconformities/ noncompliance encountered.

The following items are defined in “Procedure of Corrective and preventive Action”
a) Reviewing nonconformities/noncompliance (including customer complaints)
b) Determining the cause of nonconformities/noncompliance.
c) Evaluating the need for action to ensure that nonconformities/noncompliance do not recur,
d) Determining and implementing action needed,
e) Records of the results of action taken,
f) Reviewing the effectiveness of the corrective action taken,
g) Verification of effectiveness for Corrective action taken

2-1) Corrective action-supplemental
The organization shall ensure that any corrective action is effective
2-2) Response times-supplemental
The organization shall identify response times for addressing corrective action.

3) Preventive Action
Preventive action for nonconformities/noncompliance shall be taken in accordance with Procedure of Corrective action and preventive Action”
a) Prevention actions shall be appropriate to the effects of the potential problems.
b) The following items are defined in “Procedure of Corrective Action and preventive Action
(a) Determining potential nonconformities/noncompliance and their causes,
(b) Evaluating the need for action to prevent occurrence of on conformities/ noncompliance,
(c) Determining and implementing action needed,
(d) Records of the results of action taken, and
(e) Reviewing the effectiveness of preventive action taken.
(f) Verification of effectiveness for preventive action taken.

3-1) Preventive action
The organization shall ensure that any preventive action is effective.

6.10 API Monogram Application Control

6.10.1 API Monogram shall be applied in according to API Spec Q1 (API Monogram Program) at our company after the approval f licensee as follows.

1) API Monogram shall be applied in accordance with applicable procedure on the final products finally accepted by the QA Inspector.
2) API Monogram shall be removed by QA Inspector if the product is subsequently found to be in nonconformity with API-specified requirements.
3) A marking procedure specified shall be used to apply the Monogram, license No and the date of manufacture by QA Inspector according to relative Procedure to meet the applicable API Product specification.
4) The QA Inspector shall affix its license number to the monogrammed product in accordance with specified requirements.
5) The monogrammed product shall be recorded for status in according to the applicable procedure.
6) The monogram related records shall be maintained and controlled as a record by the production team.

6.11 API Monogram Program

6.11.1 For all organization desiring to acquire and maintain a license to use the API Monogram, conformance with the following shall be required at times;

a) the QMS requirements of API specification Q1.
b) the API Monogram Program requirements of API specification Q1, Annex A.
c) the requirements contained in the API product specification(s) for which organization desires to be licensed.
d) the requirements contained in the API Monogram Program License Agreement.

6.11.2 When an APL Licensed organization is providing an API monogrammed product, conformance with API specified requirements, described in API Specification Q1, including Annex A, is required.

6.11.3 Each licensee shall control the application of the API Monogram in accordance with the following.

1) Each Licensee shall develop and maintain an API Monogram Marking Procedure that documents the marking/monogramming requirements specified by the API product specification to be used for application of the API Monogram by the Licensee. The marking procedure shall define the location(s) where the Licensee shall apply by the API Monogram and require that the Licensee's license number and date of manufacture be marked on monogrammed products in conjunction with month and two digits representing the month and two digits representing the year(e.g. 5-07 for May 2007) unless otherwise stipulated in the applicable API product specification. Where there are no API product specification marking requirements, the Licensee shall define the location(s) where this information is applied.

2) The AP I Monogram may be applied at any time appropriate during the production process but shall be removed in accordance with the Licensee's API Monogram Marking Procedure if the product is subsequently found to be nonconforming with API Monogram Marking Procedure if the product is subsequently found to be nonc-onforming with API specified requirements. Products that do not conform to API specified requirement shall not API specified requirements shall not bear the API Monogram.

3) Only an API Licensee may apply the API Monogram and its license to API monogram able products. For certain manufacturing processes or types of products, alternative Monogram marking procedure may be acceptable. The current API requirement for Monogram Marking are detailed in the API Policy Document, Monogram Marking Requirements, available on the API Monogram Program website at http: www.api.org/certifications/monogram/.
4) The API Monogram shall be applied at the licensed facility.
5) The authority responsible for applying and removing the API Monogram shall be defined in the Licensee's API Monogram Marking Procedure.

6.11 API Monogram Program

6.11.4 Any proposed change to the Licensee's quality program, to a degree requiring changes to the quality manual, shall be submitted to API for acceptance prior to incorporation into the Licensee's quality program.

6.11.5 Licensee shall not use the API Monogram on letterheads or in any advertising (including company sponsored web sites) without an express statement of fact describing the scope of Licensee's authorization (license number)

7. PRINCIPAL SUPPLY LIST

TSC

7.1 Principal Partner Supply List

2024	Registered as a business partner to SAMKUN century Co.,Ltd	KOREA
	Registered as a business partner to WEIGU Valve Co.,Ltd	CHINA
	Registered as a business partner to XDY STEEL Co.,Ltd	CHINA
2023	Taylor SAMSUNG Semiconductor USA : Project No.: T-1	USA
	Pyeongtaek SAMSUNG Electronics Co.,Ltd. : Project No.: Phase3	KOREA
	Registered as a business partner to BAOTI TITANIUM Co.,Ltd	CHINA
2022	Registered as a business partner to YILANG STEEL Co.,Ltd	CHINA
2020	Registered as a business partner to INHA Co.,Ltd	KOREA
2019	Registered as a business partner to DWC Co.,Ltd	KOREA
	Registered as a business partner to VMV Co.,Ltd	CHINA
	Registered as a business partner to BTL Co.,Ltd	CHINA
	FUSHUNG ADVANCED MASTERIALS (NANTONG) Co.,Ltd. : Project No. NS-161	CHINA
2018	Registered as a business partner to CHANGYUAN Co.,Ltd	CHINA
	Registered as a business partner to CRXV Co.,Ltd	CHINA
	Registered as a business partner to FUJI Co.,Ltd	CHINA
	FUSHUNG CHEMICAL (NANTONG) Co.,Ltd. :Project No. TC-100	CHINA
2017	HANOI SAMSUNG DISPLAY MODUL Co.,Ltd	VIETNAM
2015	Registered as a business partner to TEJI Valve Co.,Ltd	CHINA
	INDONESIA MADURA CHEMICAL Co.,Ltd : Project No. Husky Madura FPSO	INDONESIA
2014	Registered as a business partner to PT.ALPHACON Valve Co.,Ltd	INDONESIA
	Registered as a business partner to KVC Valve Co.,Ltd	JAPAN
	Registered as a business partner to SSV Valve Co.,Ltd	KOREA
2012	Registered as a business partner to HENGTONG Valve Co.,Ltd	CHINA
	Registered as a business partner to STARD-MINLI Valve Co.,Ltd	CHINA
	Registered as a business partner to OVIKO Valve Co.,Ltd	CHINA
2011	The Company was established of 'Qingdao TAESUNG Trading Co.,Ltd'	CHINA
	Registered as a business partner to ICL Valve Co.,Ltd	KOREA
2010	Registered as a business partner to SUNKOREA Co.,Ltd	KOREA
	Registered as a business partner to S&W Valve Co.,Ltd	KOREA
	Registered as a business partner to SHINSUNG Valve Co.,Ltd	KOREA
	Registered as a business partner to WINJOIN Co.,Ltd	CHINA
2009	Registered as a business partner to HWASUNG Valve Co.,Ltd	KOREA
2007	Registered as a business partner to HWAYI Valve Co.,Ltd	CHINA
	Registered as a business partner to DUNAN Group	CHINA
	Registered as a business partner to HONGSHIN Valve Co.,Ltd	KOREA
	TAESUNG Valve Project Promotion	KOREA
2006	Registered as a business partner to POSCO	KOREA
2005	The Company was established of 'Qingdao TAESUNG VALVE Co.,Ltd'	CHINA

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7.2 Principal Partner Supply List.

CUSTOMER	YEAR	MARK	COUNTY	ITEM	CLASS	MATERIAL	SIZE
FUSHUNG	2019	TSC	CHINA	API 602, API6D	150~800LB	A351-CF8,CF8M	½ ”~12”
FUSHUNG	2018	TSC	CHINA	API 608, API6D	150~800LB	A351-CF8,CF8M	½ ”~12”
SAMSUNG	2017	DWC	KOREA	API 608	150LB	A351-CF8	½”~2”
KIKAI	2015	KIKAI	USA	API 600	150-300LB	A351-CF3MN	2”-8”
PK VALVE	2015	PK	KOREA	API 6D	600-900LB	F316L	2”-10”
PT. ALPHACON	2015	APL	INDONESIA	API 608	150-600LB	A105,A182,	2”-24”
KINKA	2015	KINKA	JAPAN	API 600	150-300LB	A351-CF3MN	2”-10”
KVC	2015	KVC	JAPAN	API 6D / API 600	150-900LB	A105,A182, IN625	2”-24”
CEPHAS	2014	SPS	KOREA	API 608	150-300LB	A351 CF8	2”-12”
SEJIN	2014	SJ	KOREA	API 608	150-300LB	A351 CF8M	2”~12”
ICL	2012	ICL	KOREA	API 608	150-900LB	A105,A182,CW6MC	2”-42”
PT. PRAJAYA	2011	PRA	INDONESIA	KS B 2813	5K,10K,20K	A126, A536	2”~24
S&W	2011	S&W	KOREA	API 600 / 608	150-900LB	A216,A105,A182	2”~24
SUN	2011	SUN	KOREA	Marine JIS Valve	5K,10K,20K	A126, A536	2”~8”
KIMYA VINA	2011	KY	VIETNAM	KS B 2813	5K,10K,20K	A126, A536	2”~24”
DAEHAN	2009	DH	KOREA	KS B 2813	5K,10K,20K	A126, A536	2”~24
KISUNG	2009	KS	KOREA	Marine JIS Valve	5K,10K,20K	A126, A536	2”~8”
DAEDONG	2009	DD	KOREA	Marine JIS Valve	5K,10K,20K	A126, A536	2”~8”
WONKANG	2009	WK	KOREA	Marine JIS Valve	5K,10K,20K	A126, A536	2”~8”
HWASUNG	2008	SHS	KOREA	KS B 2813	5K,10K,20K	A126, A536	2”~24”
SHINHUNG	2008	HS	KOREA	API 600	150~300LB	A536, A351CF8	2”~12”
HONGSHIN	2007	HS	KOREA	KS B 2813	5K,10K,20K	A125,A351	2”~24”

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7.3 Cooperative Firm Partner Supply List.

COMPANY NAME	ITEM	MATERIAL	REAMRK
CHANGWEN	API 608	A182, A351	ZHENGJIANG WENZHOU
BTL	API 6D,600,602,609,TS,CE	A182, A351,A890,A494	ZHENGJIANG WENZHOU
FBIC	API 6D,600,	A105, A351, B564	ZHEJIANG LISHUI
TEJI	API 6D,600,608	A105, A352-LC1	ZHENGJIANG WENZHOU
HENGTONG	API 608,602	A105, A182, A494-CW6MC	ZHENGJIANG WENZHOU
OVK	API 6D,600, 608	CF8, A494-CW6MC	ZHENGJIANG WENZHOU
XIUYUAN	KS B 2813	A126, A536, A216	TIANJIN JINNAN
WINJOIN	YFLUO-XYLAN	A194-2HM	GUANGDONG SHENZHEN
HUAYI	KS B 2813	A126, A536.	TIANJIN JINNAN
WAIHENG	KS B1503-1999	A105,Q235	HEBEI CANGZHOU
STARDMINLI	API 6D, 600	A536, A351	JIANGSU YANCHENG
HUARUI	KS B1503-1999	A126,A536	JIANGSU ZHANGJIAGANG
DUNAN	KS B 2308	C3771	ZHEJIANG ZHUJI
HUACHENG	KS B 2308	C3771	ZHEJIANG NINGBO

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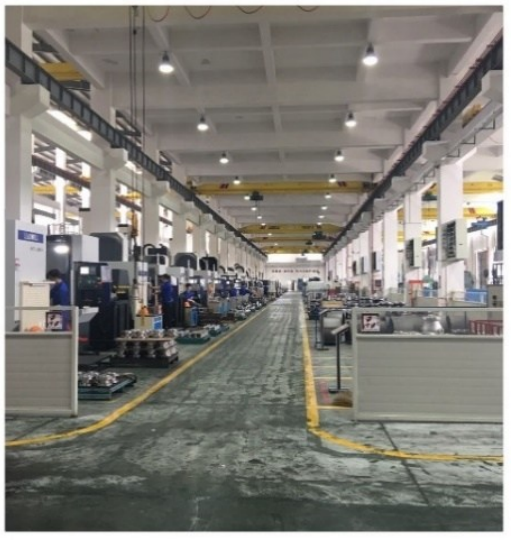
8.1 Valve Facility Image







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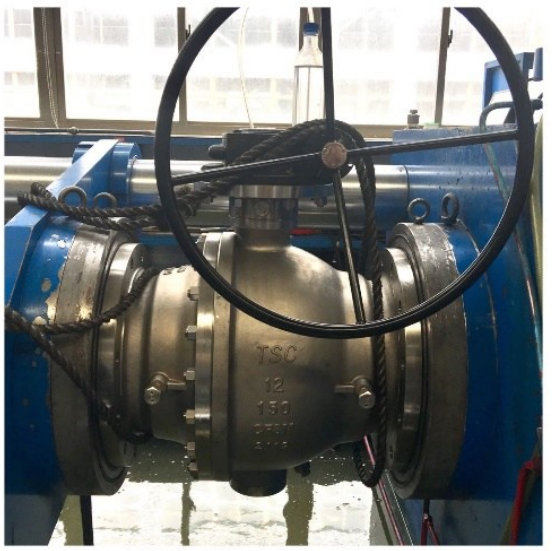
8.2 Valve Picture







8.Valve Picture

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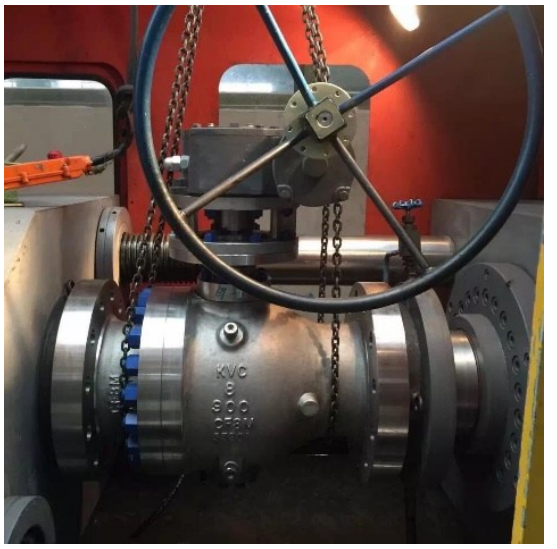

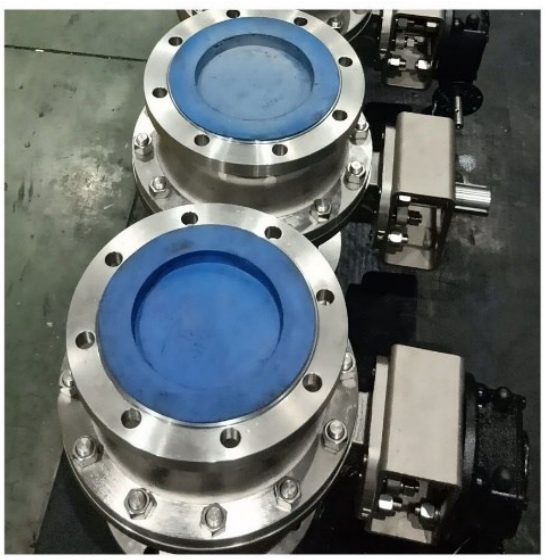

8.Valve Picture

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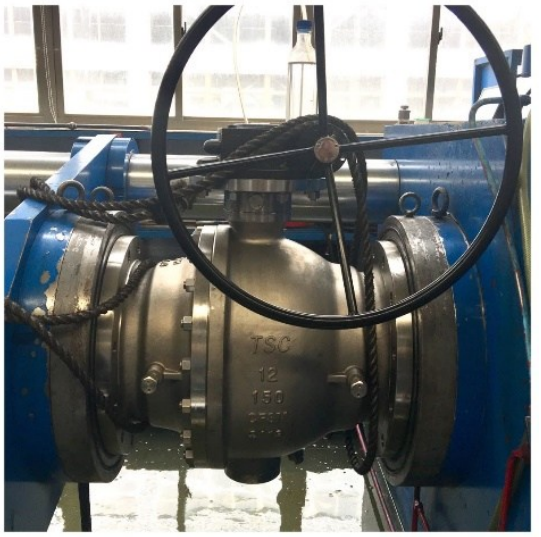

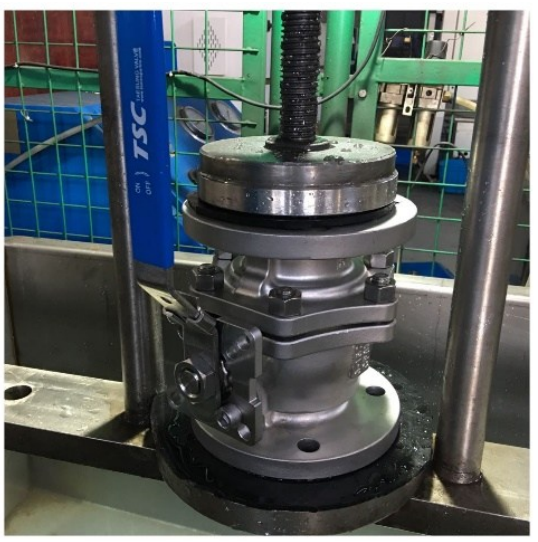

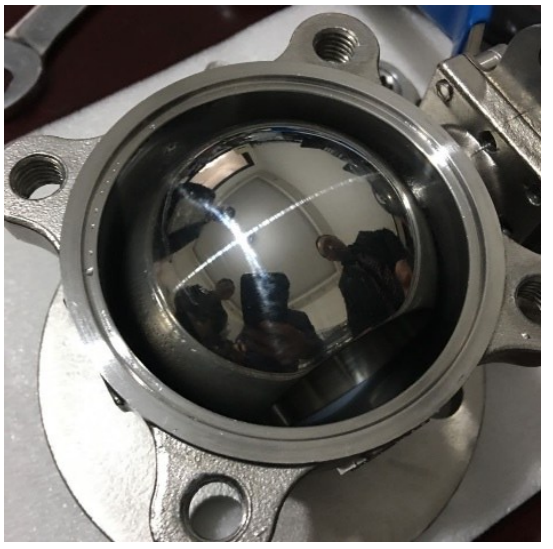

8.Valve Picture

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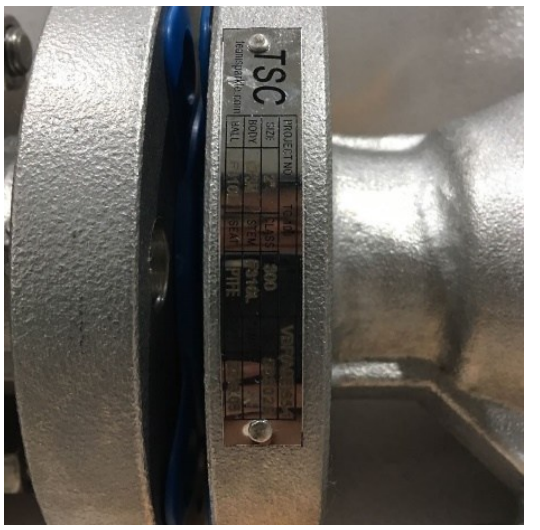

Thank you

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