Valve Design Service

ENGINEERING ■ CONSULTANCY ■ TRAINING

2024

FRAMEWORK ENGINEERING

Founded in 2021 by industry experienced professionals with design specialization expertise and combine experience of more than 30 years in Valve Industry. Our goal is to provide valve designs and engineering services as per the customer specific requirements following latest International standards and related technical documentations. We provide complete end to end engineering solutions for valve manufacturers.

OUR SERVICES

- Valve designs as per International standards & Customer Specific requirements.
- Engineering support service for New Product Development / Order Management.
- Conversion of drawings from 2D to 3D models & vice-versa.
- Application Engineering Support for Techno-commercial Quotations.
- Sourcing support from India / Supplier Identification & Audits.
- Consultancy services for implementing API Q1, ISO 9001 & Product Monograms as API 6D / API 600 / API594 / API 6A etc.
- Training on valves and design related topics.

OUR TEAM

Mr. Amit Verma
M.Tech, Mechanical Design Engineering (BITS, Pilani)

Mr. Upendra Parghi
M.Tech, Mechanical Engineering (NIT, Surat)

We have an experienced team of 8 engineers, with combined experience of more than 50 years, who have been exceptional performers in their roles while working in various valve manufacturing MNCs.

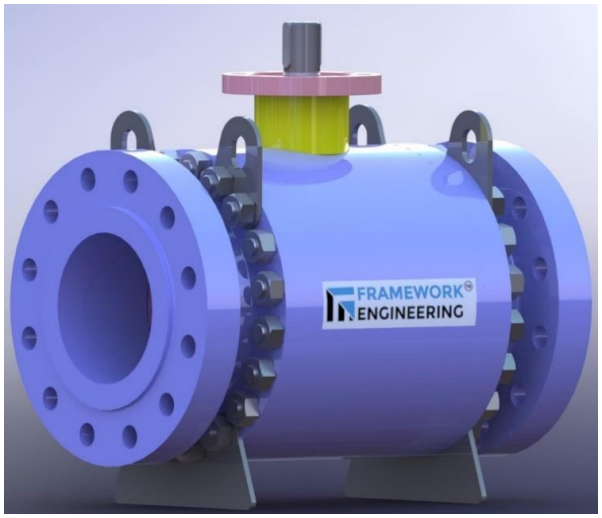
The expertise of the team is as below :

- Valve designing, 3D CAD Modelling, Drafting & Simulation
- QMS Lead Auditor & Internal Auditor
- Quality Assurance & Control, NDT Level II
- Foundary Expertise
- Valve & Components Sourcing
- Application Engineering

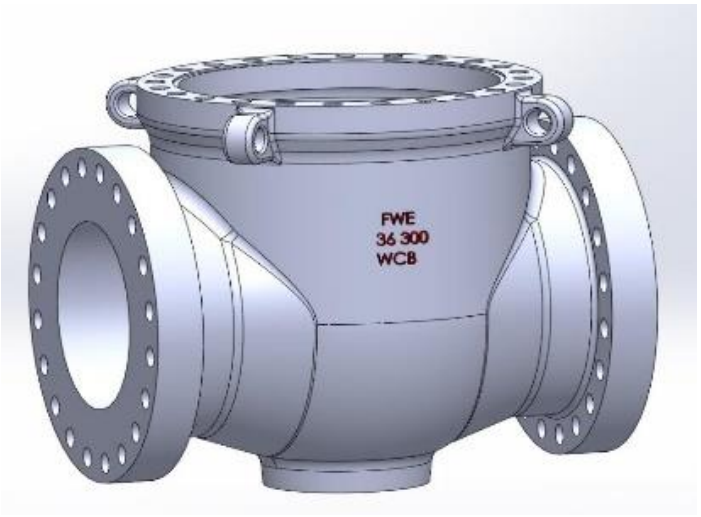
OUR WORK

❖ 3D Modelling

Based on the design inputs, customer specific requirements and International design standards, we are doing 3D modelling for the valves including all the components and assembly.



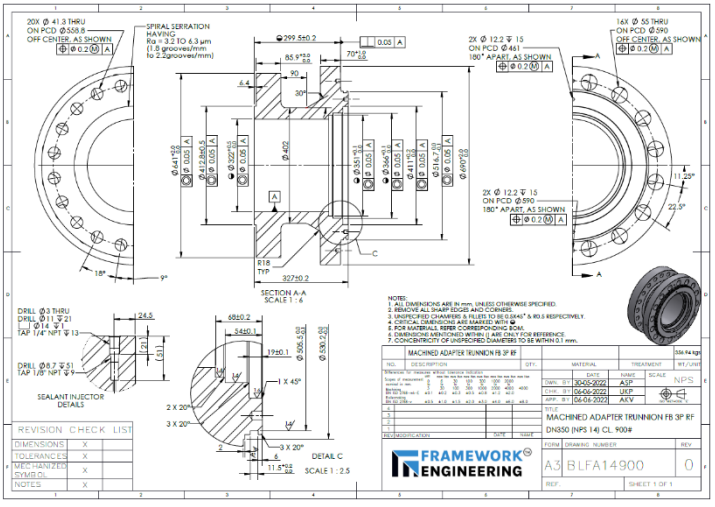
ASSEMBLY : TRUNNION MOUNTED BALL VALVE



MACHINED BODY : TOP ENTRY BALL VALVE

❖ Manufacturing Drawings

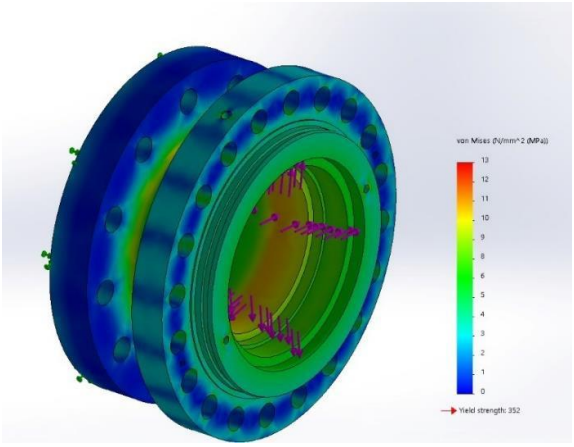
Upon Completion of 3D modelling, casting & machining drawings are created using linear & geometric tolerance and adhering to the capabilities of the manufacturing process.
Other drawings such as assembly drawing, GAD etc. are also created.



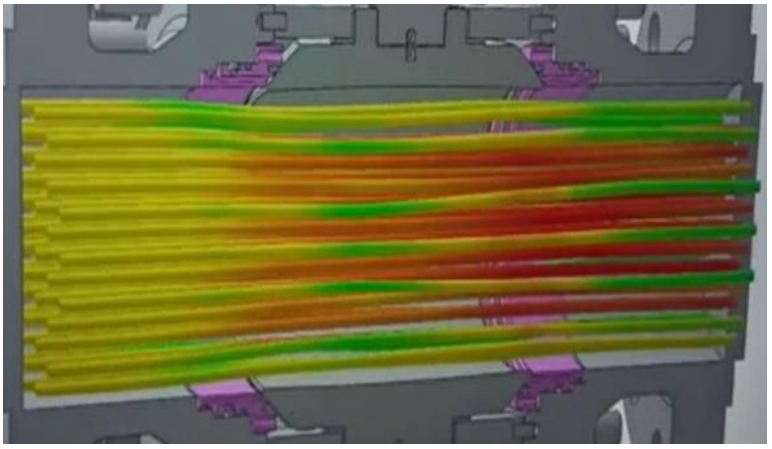
SAMPLE : COMPONENT DRAWING FOR MANUFACTURING

❖ Simulation & Finite Element Analysis

For the component and assembly, we can simulate the actual condition of pressure inside the valve or force exerted due to fluid media to understand the fluid dynamics such as velocity, pressure drop etc.



BODY ADAPTER : SIMULATION RESULT OF STRESS ANALYSIS



SIMULATION RESULT : COMPUTATIONAL FLUID DYNAMICS OF BALL VALVE

❖ Engineering Calculations

Complete set of engineering calculations are done to comply with the requirements of International Standards such as API, ASME, ISO, BS EN etc to verify the designs.

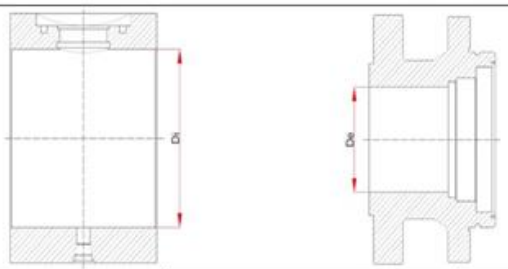
FRAMEWORK ENGINEERING

VALVE CALCULATION SHEET
Trunnion Ball Valve
1500# 16"

FWE/CAL-01 REV05

CAL NO.	FWE-CAL-569
DESIGN NO.	FWE-DES-569

Scope :	Design Calculation for Shell Thickness of Body & Adapter
Reference :	ASME B16.34 / ASME Sec. VIII Div. I / BS EN 12516-1



Material of Body & Adapter				A105	
Minimum Tensile Strength @ Room Temperature		S_t	=	485	Mpa
Minimum Yield Strength @ Room Temperature		S_y	=	250	Mpa
Maximum Allowable Stress Value @ Room Temperature		S_a	=	138.0	Mpa

SAMPLE FORMAT : DESIGN CALCUALTION FOR SHELL THICKNESS OF BODY AND ADAPTER

❖ Bill of Material

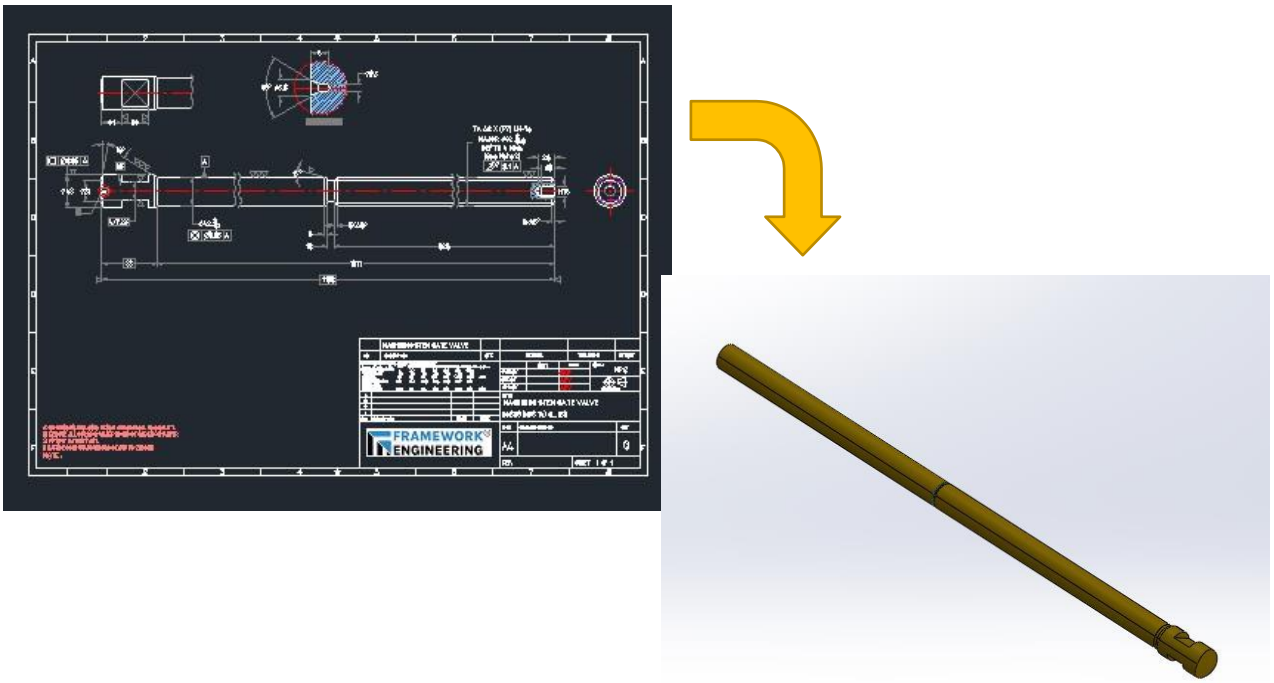
Bill of material is created along the parent child relations, part details, quantities, drawing number with revision, applicable standards and special instructions.

FRAMEWORK® ENGINEERING	FRAMEWORK ENGINEERING						BOM. No.: FWE-DG-BM-001	
							Rev. No.: 00	
	BILL OF MATERIAL						Date : 27.03.2022	
Product Code:	TMBV06FB150RF-000							
Product Description:	6" FB #150 RF, TRUNNION MOUNTED BALL VALVE							
Level	Part Name	Description	Material	Quantity	Unit	Drawing No.	Rev.	Remark

SAMPLE FORMAT : BILL OF MATERIAL

❖ 2D Drawings to 3D Model conversion

We do convert the 2D to 3D models, and also update the designs to comply the latest standards.



SAMPLE : CONVERSION OF 2D DRAWING (AUTOCAD) TO 3D MODEL (SOLIDWORKS / CREO)

AVAILABLE DESIGNS

- Trunnion Mounted Ball Valve (API 6D) : Size - upto NPS 56 / Pressure Class - upto 2500, 2/3 Pc Design, Casting/Forging, Soft/Metal Seated
- Floating Ball Valve (API 608/API 6D) : Size - upto NPS 08 / Pressure Class - upto 2500, 2/3 Pc Design, Casting/Forging, Soft/Metal Seated
- Top Entry Ball Valve (API 6D) : Size - upto NPS 48 / Pressure Class - upto 2500, Soft/Metal Seated
- Through Conduit Gate Valve (API 6D) : Size - upto NPS 36 / Pressure Class - upto 2500
- Gate Valve (API 600) : Size - upto NPS 48 / Pressure Class - upto 2500
- Globe Valve (API 623) : Size - upto NPS 12 / Pressure Class - upto 2500
- Swing Check Valve (API 594 & API 6D) : Size - upto NPS 24 / Pressure Class - upto 600
- GGC (API 602) : Size - upto NPS 2 / Pressure Class - upto 2500
- Piston Valve (ASME B16.34) : Size - upto NPS 8 / Pressure Class - upto 300
- Dual Plate Check Valve (API 594) : Size - upto NPS 42 / Pressure Class - upto 1500
- Concentric Butterfly Valve (API 609) : Size - upto NPS 36 / Pressure Class - upto 300
- Double Offset Butterfly Valve (API 609) : Size - upto NPS 36 / Pressure Class - upto 300
- Triple Offset Butterfly Valve (API 609) : Size - upto NPS 36 / Pressure Class - upto 1500

DESIGNS IN-PROGRESS

- Axial Flow Check Valve (API 6D) : Size - up to NPS 36 / Pressure Class - up to 1500
- Plug Valve (API 599) : Size - up to NPS 24 / Pressure Class - up to 600
- Gate Valve (API 6A) : Size - up to 7-1/16 / Pressure Class - up to 10000 psi

QMS CONSULTING

We offer onsite and online consultation solutions for various certifications.

We provide end to end support for certifications that includes thorough review of existing documents, proper assistance in preparation, implementation, training etc., to the time client receives their certification.

To list a few of our expertise are, as below:

- API Spec. Q1 : 2023 Certification
- ISO 9001 : 2015 Certification
- ISO 14001 : 2015 Certification
- ISO 45001 : 2018 Certification
- ISO 29001 : 2020 Certification
- PED 2014/68/EU Certification
- API Product Monogram Certification
- API/ISO/PED Gap Analysis Audits
- Supplier Qualification Audits (Valve & its Components)

Contact Us

Click on the icons to reach us directly.

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