

# Anil Kumar, C.Eng.

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## SUMMARY

Solutions focused, meticulous and result oriented Professional Mechanical Engineer, C.Eng., with professional experience offering 13+ years of accomplished career in Mechanical Equipment Design, Research, Engineering & Manufacturing arena distinguished by commended performance and proven results. I particularly enjoy opportunities to solve challenges and bridge technological gaps in the manufacturing industry.

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## EDUCATION

2019-2021	<b>ILLINOIS INSTITUTE OF TECHNOLOGY</b> <i>Masters in Manufacturing Engineering degree, 3.89 GPA</i>	Chicago, IL, USA
2013-2015	<b>WELINGKAR INSTITUTE OF MANAGEMENT DEVELOPMENT &amp; RESEARCH</b> <i>Post graduate diploma in operations management, First Class</i>	Mumbai, Maharashtra/India
2005-2009	<b>ARMY INSTITUTE OF TECHNOLOGY, UNIVERSITY OF PUNE</b> <i>Bachelors in Mechanical Engineering degree, First Class with distinction</i>	Pune, Maharashtra/India

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## SKILLS

AUTOCAD, Solidworks, PDM, Creo, ANSYS Workbench, Geometric Dimensioning & Tolerancing, Safety Relief Valves, Gate Valves, Globe Valves, Check Valves, Non-Return Valves, Blow-down Valves, Butterfly valves, Ball Valves, Control Valves, Cryogenics, Finite Element Analysis(FEA), Reliability assessment (DFMEA), Design of experiments (DOE), Steam, Hydraulics, Pressure Vessels, Fluid Mechanics, Engineering Drawings, International standards complying with Valve design & development (ASME/BS/API/DNV/ASTM/ISO/IS), Oxygen Gas, Process Pipe Design, Intellectual Property, Innovation, Design Calculations, Problem Solving, Teamwork, Analytical Thinking, Mechanical Engineering

## EXPERIENCE

Jan'21-Present	<b>OCEANEERING INTERNATIONAL INC</b> <i>Principal Design Engineer, ROV Installation / Subsea products</i> <ul style="list-style-type: none"><li>• Guide, coach and mentor a team of design engineers to enable them to handle design projects effectively</li><li>• Lead multiple projects simultaneously, including large/complex projects involving multiple disciplines.</li><li>• Review work carried out by other design engineers and lead design reviews.</li><li>• Ascertain compliance with established Engineering processes by functional or project teams</li><li>• Define, review and implement functional processes and work towards continuous improvement, design and analysis needs, capture COPQ &amp; review and approve RCA and CAPA</li></ul>	Pune, Maharashtra/India
Dec'18-Jan'21	<b>AKER SOLUTIONS</b> <i>Senior Valve Engineer, Application Engineering</i> <ul style="list-style-type: none"><li>• Technical Responsible for Subsea valves requirement in Manifolds, X-mas trees, work over systems and Tie in pressure caps for different projects as per client's requirement</li><li>• Review, verify and validate on 3<sup>rd</sup> Party Subsea valve documentations like FAT, Qualification testing procedures, General assembly drawings, ITP etc.</li><li>• Spearhead generation of product data sheets comparing and evaluating it with client detailed technical and tender requirements</li><li>• Lead engineering projects with varied tasks and responsibilities such as evaluation of Subsea Valve Product specifications, supplier material selection and overall design of valve</li><li>• Technical Lead for Dalia Phase 3 Subsea 3rd Party Valves Technical evaluation and specifications in coordination with Supply Chain department Malaysia.</li><li>• Technical Lead for OSS MJ Reliance Subsea 3rd Party Valves Technical evaluation and specifications in coordination with Supply Chain department Malaysia.</li><li>• Technical Lead for Kameleon Infill Mid Project 3rd Party Valves Technical evaluation and specifications in coordination with Supply Chain department Norway</li></ul>	Pune, Maharashtra/India
May'17- Oct'18	<b>JOHNSON CONTROLS INC</b> <i>Engineer II (Team Lead), Valves &amp; Actuators</i>	Pune, Maharashtra/India

- Designing and development of mechanical equipment, Globe & Ball type control valves for HVAC service involves product study, design calculation, sizing, material selection with ref to various international standards (ASME/ISO/API/BS/DIN), prepare the 3D model for drafting, FEA Analysis
- Design, optimization & liaison with cross-functional Teams for new product development for HVAC equipment
- Project Delivery Owner for Patent filing procedure for Valves & Actuators (VnA) Mechanical Team
- Coordinate with JCI Invention disclosure team and Foley & Lardner LLP to draft and file 15 + patents for VnA
- Supervised end-to-end planning, monitoring, control and reporting for assigned projects for scope, schedule, cost, quality, utilization for assigned project
- Validate new product designs with PDP including D3 requirements and DFMEA
- Manage document and engineering change requests. Analyze impact of engineering changes on schedule and efforts

May'16- Apr'17 **KIRLOSKAR BROTHERS LIMITED** Pune, Maharashtra/India  
*Associate Manager, New Product Development*

- Spearhead new product development for Gate, Globe & Check valves (GGC), Ball valves (TMBV), Butterfly valves for water, oil/gas & steam service undergoing product study, design calculation, sizing, prepare 3D model for drafting and analysis
- Lead product development with design for Manufacturing & assembly approach
- Supervise the preparation of proposal drawings, manufacturing drawings, 3D modeling, structural analysis (FEA), design calculations, developing & validating design methodology, NPD process & documentation as per ISO requirements, design verification & validation
- Managing projects using engineering principles and techniques

Jun'14- May'16 **MACK VALVES PTY LIMITED** Pune, Maharashtra/India  
*Head, Design & Engineering*

- Spearhead research, design & development of prototypes of new range of Cryogenic Globe, Check & floating type Ball valves
- Reviewing general assembly drawing & scrutinizes of non-standard requests for manufacturing from Sales & Marketing
- Organizing timely internal audits for ISO 9001:2008 & 97/23/EC for engineering division
- Synchronizing with team for documentation of department with regards to ISO 9001:2008, & design calculations with regards to 97/23/EC
- Supervise, teach and lead joiner draftsmen and engineers in department

Aug'09- Jun'14 **FORBES MARSHALL PVT LIMITED** Pune, Maharashtra/India  
*Engineer, Design & Development*

- Formulating manufacturing drawings using GD & T on AUTOCAD for 2D and SOLIDWORKS for 3D for various components of Blowdown valves, Safety relief valves, Throttling valves & Check valves for superheated Steam service
- Managing customer's complaints/site issues and fixing for different valves
- New Product development of range of safety relief, check and blowdown valves for steam service
- Leading Flow coefficient testing of valves facility at Forbes Marshall premises

**R & D PROJECTS** Pune, Maharashtra/India  
 2009-2021

- Design & Development of Safety Relief Valve Size 6 by 8 for superheated steam service
- Design & Development of Safety Relief Valve Size 8 by 10 for superheated steam service
- Design & Development of pressure vessel for nitrogen gas with 87 bar
- Design & Development of Cryogenic Bolted Bonnet Globe Valve of size 15,20,25,40,50, 65 & 80mm
- Design & Development of Cryogenic Bolted Bonnet Check Valve of size 15,20,25,40,50, 65 & 80mm
- Design & Development of Ball valve of 15mm full bore floating type primarily for ultra-high purity gaseous oxygen service
- Engineering for P & ID for Oxygen gas pressure reducing station for major steel plant
- Engineering for P & ID for LOX cryogenic line for static test facility for methane based liquid propulsion systems for cryogenic engine

- Design and development of 150mm Trunnion mounted ball valve for oil & gas service
- Design and development of 1800mm Multi door Non return valve for water service
- Engineering & design calculation for 1200mm PN10 double offset dual seat butterfly valve
- Engineering & design calculation for 1800mm PN16 double offset butterfly valve
- Design and development of 15mm Low Kv Precise control compact ball valve for 0.4 Kv and 0.63 Kv
- VAVE for Globe type control valve from DN15 to DN50 for cost and design optimization for 2-way and 3-way for HVAC service
- Design and development of 15mm floating ball valve for HVAC service
- Static structural analysis for Mining Rover for RMC for NASA sponsored Lunabotics competition
- Design & engineering of pig launching system for launching pigs for natural gas pipeline

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## RESEARCH PROJECTS

Pune, Maharashtra/India

2018-2021

- Design of experiments and numerical assessment of thermal impact on torque for cryogenic globe valve
- Review of materials for cryogenic propellant tank
- Numerical analysis of heat transfer in switched reluctance motor
- Numerical optimization of pressure vessel for storing nitrogen gas at design pressure of 130 bar
- A review of X-ray diffraction from bent silicon crystals
- Surface modification of single crystal silicon with nanosecond lasers for enhanced throughput
- Augmentation of cryogenic performance of sintered stainless steel by virtue of peening methodology

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## PUBLICATIONS

Pune, Maharashtra/India

2015-2022

- Technical paper titled "An Assessment of Health Hazards in Valves for Gaseous Oxygen Service: Sources and Preventive Measures" accepted and published for conference proceedings for 27th Symposium for Industrial Flows in Fluid Engineering Track in the ASME's International Mechanical Engineering Congress and Exposition 2018
- Technical paper presented in National Level Conference, 37th Seminar on Industrial Gases organized by All India Industrial Gas Manufacturers Association in Feb 2015
- Technical Poster presented on "A review of materials for cryogenic propellant tank" in Armour R&D summer expo at Illinois Institute of Technology, Chicago
- Technical Poster presented on "Strength and thermal integrity of the robot for NASA RMC" in NASA sponsored Lunabotics competition
- Technical Poster accepted on "Numerical analysis of heat transfer in Switched Reluctance Motor" at Illinois Institute of Technology, Chicago
- Technical Poster presented on "Stress analysis of weld neck raised face flanges for subsea pig launcher" in Engineering Analysis Conference sponsored by Oceaneering International Inc.

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## PATENTS

Pune, Maharashtra/India

2017-2018

- Adaptors and linkages for actuators and valves (Published, US20190203849A1)
- Unique bracket coupling for rotary valve (Published, US20200173572A1)
- Low Flow Coefficient (Kv) Precise Control Compact Ball valve (Filed in India, 201821017131)

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## PERSONAL

- Full Professional Proficiency in English and Hindi language
- Recipient of Young Researcher Award by Institute of Scholars, Bangalore, India
- Reviewer for the Research papers submitted in ASME's International Mechanical Engineering Congress and Exposition
- Reviewer for the "Journal of The Institution of Engineers (India): Series C"
- Professional Member of The American Society of Mechanical Engineers
- Professional Member of The Institute of Scholars, Bangalore, India
- Corporate Member of The Institute of Engineers, India
- Life member of Indian Cryogenics Council

- Life member of Tau Beta Pi Illinois Beta Chapter
- Member of Illinois Tech (IIT-C) Scarlet Space-Hawks Mechanical Team to participate in NASA sponsored Robotic mining competition Lunabotics 2021
- Certification for “Valves Selection for Optimum System Performance” by ASME and “Control Valves & Actuators” by Fluid Control & Research Institute of India
- Certification for “System Engineering Fundamentals” by BlueKei Solutions
- Mentor at Alumni Mentorship Programme, Illinois Institute of Technology, Chicago
- Visa - B1/B2, USA (expiring Oct 2028)
- Avid learner to acquire new skills
- Hobbies includes listening music