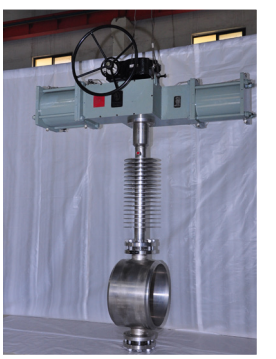
INSTRUMENTATION LIMITED

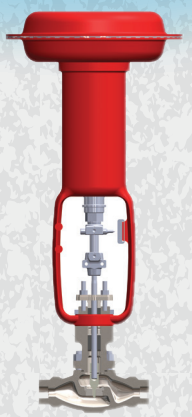
50 Years in
CONTROL VALVES
Experience - Expertise - Excellence

PRODUCT PROFILE





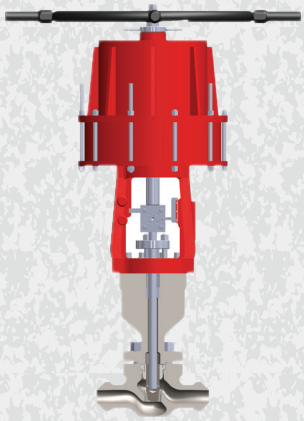




Low Flow Single Seated Valves

Low Flow type single seated valves are compact, sturdy and capable of high precision performance. They are usually employed for the control of small currents. A variety of combination is possible through interchange of parts at a few points. Consequently this unit provides a large choice of type depending on duty.

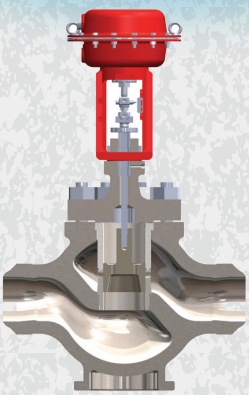
Model	:	VSL– Standard Model VSL (HC) – High Capacity VSL (Cas)– Anti – Cavitation Trip Valve (On – Off) Angle Configuration
Nominal Size (inch)	:	½ , ¾ & 1
Pressure Rating	:	ANSI 150, 300, 600
End Connection	:	Flanged End (RF, FF & RJ), Socket & Butt Welded. End connection size available upto 3" on request.
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Other materials against specific request.
Trim Material	:	SS304, SS316, SS440C, Monel , Hastelloy-B&C,Titanium,Alloy 20
CV Value	:	0.001 ~ 10 – VSL 10 ~ 18– VSL (HC)
Flow Characteristics	:	Standard Trim - Linear, Equal Percentage & Quick Opening (ON-OFF) Cascaded Trim - Modified Liner
Actuator	:	Spring Return Single Acting diaphragm VA Series, SA Series Multi Spring Return Single Acting diaphragm HN Series Others special actuators can be provided as per requirement.
Leakage Class	:	Soft (Teflon) Seat : 0.00001% or less (Class VI) Stellited On-Off : 0.00001% or less (Class VI) (on request only) Metalic Seat : 0.01% (Class IV) (Class V can be provided as a special case)



Top Guided Single Seated Valves

Top guiding single seated valve has a single guide and can be used for slurried fluids which contain suspended matter. Guide portion is solid, and provided with sufficient sliding area against abrasion. It is highly resistant to attrition. The body constructed for easy disassembly, quick checking of trim and easier part replacement.

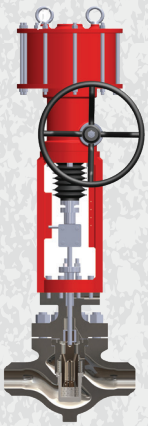
Model	:	VST – Standard Model VST (M) – Modified VST (Cas) – Anti – Cavitation (upto 4") VST (Spl) – Low Noise VAA – Angle Configuration VTM - Three way Mixing Valve VTD - Three way Diverting Valve
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20 & 24
Pressure Rating	:	ANSI 150, 300, 600,1500,2500 Allowable pressure for Bellow Sealed valve is 26Kg/Cm² at 300˚C and 40 Kg/Cm² at ambient temperature.
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded (Also screwed end for 1 Inch)
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Hastalloy & Alloy 20 Other materials against specific request.
Trim Material	:	SS304,SS316,SS420C,SS440C, Monel,HastelloyB&C,Titanium,Alloy 20
CV Value	:	0.25 ~ 1960
Flow Characteristics	:	Linear, Equal Percentage & Quick Opening (ON-OFF) Cascaded Trim Modified Liner VST Special trim Low Noise trim
Actuator	:	Spring Return Single Acting diaphragm VA Series Multi Spring Return Single Acting diaphragm HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Soft Seat : 0.00001% (Class VI) Metalic Seat
*Contoured	:	Class IV (0.01%) * QC On-Off (Q0) Class IV On-Off plug with stellite : 0.00001% or less * Class V optional with stellited trim



Single Seated Cage Guided Valves

Cage guided single seated control valve suitable to handle large flows at relatively tougher operating conditions. Leakage class V can be achieved and for tight shut off soft seated trim are available in VSC model. Pressure balanced trim design enables to use smaller actuators for higher differential pressure application.

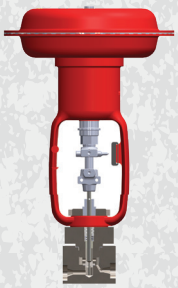
Model	:	VSC – Single Seated VSC (M) – Modified VSC (HT) – High temperature (> 300˚ C) VSA – Angle Configuration
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24 & 30
Pressure Rating	:	ANSI 150, 300, 600,1500,2500 Bellows configuration is also available
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Hastalloy & Alloy 20 Other materials against specific request.
Trim Material	:	SS304, SS316, SS420C, SS440C, Monel , Hastelloy-B&C,Titanium,Alloy 20,17-4-PH
CV Value	:	11 ~ 5760
Flow Characteristics	:	Linear, Equal Percentage & ON-OFF Modified Liner for Low noise Trims.
Actuator	:	Spring Return Single Acting VA Series Multi Spring Return Single Acting HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Soft Seat : 0.00001% (Class VI)
Metalic Seat	:	0.01% or less (Class IV) (For Single Seated Valves) (Class V can be offered as a special case)



Single Seated Low Noise Valves

Cage guided single seated low noise control valve with pressure balanced low noise trim design. Leakage class V can be achieved by specially designed tight shut off soft seated trims. Low noise trim ensures reduction of noise and smooth operation throughout the process range.

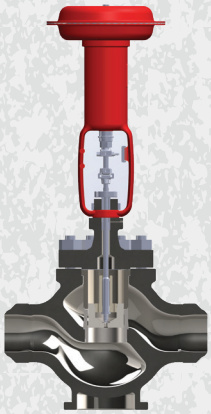
Model	:	VSN – Standard Model VSN (HT) – High Temperature VAZ – Angle Configuration
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24 & 30
Pressure Rating	:	ANSI 150, 300, 600,1500,2500 Bellows Sealed configuration is also available.
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded.
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Hastalloy & Alloy 20 Other materials against specific request.
Trim Material	:	SS304, SS316, SS420C, SS440C, Monel , Hastelloy-B&C,Titanium,Alloy 20,17-4-PH
CV Value	:	10 ~ 5760 10 ~ 860 - VAZ
Flow Characteristics	:	Linear, Equal Percentage & ON-OFF Modified Liner for Low noise Trims.
Actuator	:	Spring Return Single Acting diaphragm VA Series Multi Spring Return Single Acting diaphragm HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Soft Seat : 0.00001% (Class VI) Metalic Seat :0.01% or less (Class IV) (For Single Seated Valves) (Class V can be offered as a special case)



Micro Flow Single Seated Valves

Micro-flow valves are used for control of a small flow. The compact and sturdy valve body is of a forged structure and it is less affected by stress from the pipe. The valve employs a top entry type and parts can be replaced without dismantling the valve from the pipe. Thread- connected valve can be readily disassembled and reassembled without requiring any special tools.

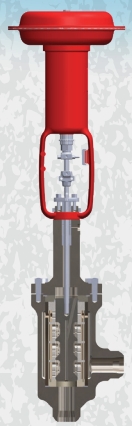
Model	:	VSM – Micro Flow
Nominal Size (inch)	:	½ , ¾ & 1
Pressure Rating	:	ANSI 150, 300, 600,900,1500,2500
End Connection	:	NPT ¼" and NPT ½"
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Other materials against specific request.
Trim Material	:	SS304, SS316, SS440C, Monel , Hastelloy-B&C,Titanium,Alloy 20
CV Value	:	0.001 ~ 1.6
Flow Characteristics	:	Standard Trim Linear, Equal Percentage & Quick Opening (ON-OFF)
Actuator	:	Spring Return Single Acting diaphragm HM Series SA Series Others special actuators can be provided as per requirement.
Leakage Class	:	Soft (Teflon) Seat: 0.00001% or less (Class VI)
Stellited On-Off	:	0.00001% or less (Class VI) (on request only)
Metalic Seat	:	0.01% (Class IV) (Class V can be provided as a special case)



Cage-Guided Valves With Auxiliary Pilot Plug

Cage guided control valve with auxiliary pilot plug model VSP is a low/high pressure, high temperature application control valves. This valves is capable to deliver most of the performance of a cage guided balanced trim design with an enhanced advantage of class V leakage like a simple design top guided valve. VSP is a single seated valve with an additional spring loaded pilot plug. The pilot plug is provided to reduce the actuator thrust as well as to improve the seat leakage in order of class V. It is ideal for ON-OFF applications.

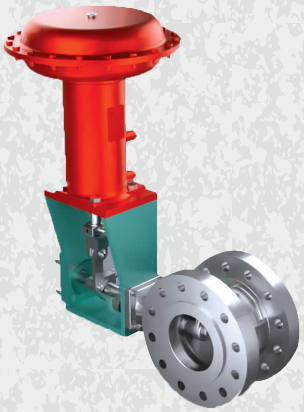
Model	:	VSP – Standard Model VSP (M) – Modified VSP (N) – Low Noise
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10& 12
Pressure Rating	:	ANSI 150, 300, 600,1500,2500 Allowable pressure for Bellow Sealed valve is 26Kg/Cm² at 300˚C and 40 Kg/Cm² at ambient temperature.
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded (Also screwed end for 1 Inch)
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6, WC9 Hastalloy & Alloy 20 Other materials against specific request.
Trim Material	:	SS304, SS316, SS420C, SS440C, Monel , Hastelloy-B&C,Titanium, Alloy 20, 17-4-PH
CV Value	:	11 ~ 5760
Flow Characteristics	:	Linear, Equal Percentage & ON-OFF Modified Liner for Low noise Trims.
Actuator	:	Spring Return Single Acting diaphragm VA Series Multi Spring Return Single Acting diaphragm HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Soft Seat : 0.00001% (Class VI)
Metalic Seat	:	0.01% or less (Class IV) (Class V can be offered as a special case)



Severe Service Valves

High pressure drop valve models manufactured to meet the most exacting operating conditions of liquids. Even in very high pressure drop application the multi stage pressure reduction trim prevents the adverse effect of cavitation.

Model	:	VHD – Angle & Y Type Body VHD (S) – Micro Cv (0.5,0.63,1.0,1.2 & 1.6) VHD (Sp) – Straight Pattern VSD - Disk Stack Valve VDS - Desuperheating Valve VMD - Multi stage Valve
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10, 12
Pressure Rating	:	ANSI 150, 300, 600,1500,2500, 3000
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M , Alloy Steel ASTM A 217 WC6
Trim Material	:	17-4-PH, CA6-NM, 440C
CV Value	:	2.5 ~ 400
Flow Characteristics	:	Modified Linear Modified Equal Percentage
Actuator	:	Spring Return Single Acting diaphragm VA Series Multi Spring Return Single Acting diaphragm HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Class IV (0.01% or less) (ANSI B 6.104) (Class V can be provided as a special case)



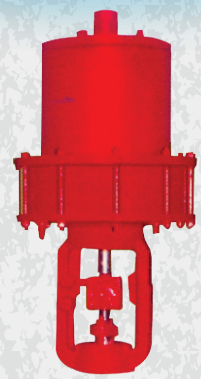
Eccentric Rotary Valves

FloWing is a low-resistance, Rotary-type, Quarter turn control valve suitable for use in fluid containing slurry and to control flow high capacity and high rangeability.

FloWing is an eccentric axis rotary type control valve provided with such outstanding construction as open yoke and plug with wing and has proven its stability in service.

Leakage at closed valve is same as that of single seated control valve and tight shut-off can be provided with soft seat (TFE).

Model	:	VFR – Straight Through
Nominal Size (inch)	:	1, 1½, 2, 2½, 3, 4, 5, 6, 8, 10 & 12
Pressure Rating	:	ANSI 150, 300 Optional JIS 10K, 20K
End Connection	:	Flanged End (RF, FF, RJ & TG), Socket Welded and Butt Welded
Body Material	:	Carbon Steel ASTM A 216 WCB, Stainless Steel ASTM A 351 CF8, CF8M ,
Trim Material	:	SS304 & SS316
CV Value	:	6 ~ 1900
Flow Characteristics	:	Inherent
Actuator	:	Spring Return Single Acting diaphragm VA Series Multi Spring Return Single Acting diaphragm HN Series Single/Double Acting Piston Cylinder SPA/DPA Series Others special actuators – Electrical & Electro Hydraulic as per requirement.
Leakage Class	:	Soft Seat & Metalic Seat (Class VI as per ANSI - B 16.104)



Actuators & Power Cylinder

Actuators

Model	:	Spring Type Diaphragm Actuators Direct (D) : VA1, VA2, VA3, VA4, VA5& SA1 Reverse (R): VA1, VA2, VA3, VA4, VA5& SA1 Multi Spring Diaphragm Actuators Direct (D) : HN1, HN2, HN3& HN4 Reverse (R): HN1, HN2, HN3& HN4 Spring Type Piston Cylinder Actuators Direct (D) : VA6, VA6DS, VA7& VA8 Reverse (R): VA6, VA6RS, VA7, VA7RS, VA8R, VA8RS, VA9R Springless Piston Cylinder Actuators SPA0X, SPA0XM SPA1, SPA1M, SPA1X, SPA1XM SPA2, SPA2M, SPA2X, SPA2XM DPA1, DPA1M
Manual Actuators	:	VA1M, VA2M, VA3M, VA4M& VA5M SPA1& SPA2 (Manual)
Lever Type Actuators	:	VA1L, VA2L, VA3L, VA4L & VA5L
Temperature	:	- 30˚C ~ 70˚C
Stroke	:	6 ~ 200 mm

Electrical Actuators

Linear Actuators	:	Type A (Maximum Thrust - 1400kgf) Type B (Maximum Thrust - 2200kgf)
Quarter Turn Actuators	:	AS 50 (Maximum Torque - 50kgm) BS 100 (Maximum Torque - 100kgm)

Power Cylinder

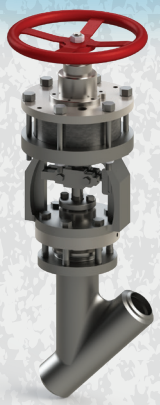
Model	:	Regulating Duty (PCLT) 0404, 0408, 0608, 0616 ,0808, 0816, 1016, 1024, 1216, 1418.5& 2014 ON-OFF Duty (PCC) 0404, 0408, 0608, 0616 ,0808, 0816 & 1016
Temperature	:	- 20˚C ~ 150˚C (- 20˚C ~ 70˚C For positioner)

Salient Features

- Totally protected from dust and weather
- Optimum range and size give economic selection
- Tough and rigid construction
- Both for regulating and on – off
- Good cushion arrangement for PC – C series

Butterfly Valve

Model	:	VBS Soft seated butterfly valves VBS DE Soft seated butterfly valves - Double eccentric VBW Clearance type butterfly valves VBS RL Rubberlined butterfly valves VBF Frozen seal butterfly valves
Size Range	:	50mm to 3500mm
Maximum Working Pressure	:	25 Kg/cm²
Construction	:	Casting, Fabricated
End connection	:	Wafer, Flanged, Buttweld
Design standard	:	AWWA C504, AWWA C516, BSEN 593, API 609
Face to Face standard	:	AWWA C504,AWWA C516, BSEN 558, API 609
Flange standard	:	AWWA C207, BSEN 1092, ANSI B16.5, ANSI B16.47, IS6392
Working temperature	:	VBS -20 to 200 degC VBW -20 to 800 degC
Inherent Rangeability	:	20:1
Leakage class	: :	VBS, VBS DE Tight Shut off VBW Class II
Control Mode	:	On-Off service (90°), Regulating (60°)
Flow characteristics	:	Inherent butterfly valve characteristics
Standard materials	:	Body & Vane A216 WCB, A216 WCC, A351 CF3M, A351 CF8M, IS2062 Shaft A479 SS410, A479 SS304, A479 SS316, DUPLEX 2205 Seat NBR, VITON, EPDM, PTFE
Actuator	: : : :	Manual lever Manual Gearbox Motorised Gearbox Pneumatic single acting & Double Acting



Space and Nuclear Service Valves

Wide ranges of Valves are available to meet the requirements of Space, Defence & Nuclear applications. Bellows Sealed, Cryogenic, Sodium Service Valves are conforming to ASME section III /section VIII standards. The valves for nuclear and sodium system services are both environmentaly and seismically qualified.

Model:

- Bellow Sealed Integral Seat Globe Valves (BSIGV)
- Bellow Sealed Integral Seat Globe Valves – Y Type (BSIGV - Y)
- Gland Sealed Integral Seat Globe Valves (GSIGV)Gland Sealed
- Integral Seat Globe Valves – Angle Type (GSIGV - A)
- Cryogenic Bellow Sealed Globe Valve (CBSIGV)
- Cryogenic Gland Sealed Globe Valve (CGSIGV)
- Cryogenic Bellow Sealed Globe Valve – Vacuum Jacketed (CBSIGV - VJ)
- Cryogenic Gland Sealed Globe Valve - Vacuum Jacketed (CGSIGV – VJ)
- Non Return Valve (NRV)
- Bellow Sealed Three Way Manifold (TWM – B)
- Bellow Sealed High Vacuum Service Valve (BHVS)
- Bellow Sealed High Vacuum Service Valve – Angle Type (BHVS – RA)

Nominal Size	:	DN – 8, 10, 15, 16, 20, 25, 32, 35, 40, 50, 65, 80, 100
Pressure rating	:	ANSI – 150, 300, 600, 900, 1500, 2500, 3550
End Connection	:	BW, SW, RF, CF, RJ, and Screwed End.
Body Material	:	Stainless Steel (SS) – ASTM A 182F – 304, 304L, 316, 316L, 316LN, 321, F51. A 351 – CF3, CF8, CF3M, CF8M. Carbon Steel (CS) – ASTM A 105, A216 WCB, A352 LCB.
Trim material	:	Stainless Steel (SS) – 304, 304L, 316, 316L, 316LN, 321, 17-4 PH, F51
CV	:	0.4 – 210
Flow characteristics	:	Linear, Equal percentage (EQ %), Quick Opening (ON-OFF)
Actuators	:	Manual Spring Return Single Acting diaphragm (VA series, SA series) Multi Spring Return Single Acting diaphragm (HN series) Single/Double Acting Piston Cylinder (SPA/ DPA series) Electrical Actuators
Temperature range	:	-256˚C to 650˚C
Leakage Class	:	Metal seated – Class V As per FCI 70-2 Soft seated – Class VI As per FCI 70-2

Safety Relief Valves

Description: Safety relief Valves for liquid, gas, vapour services in accordance with API 526 and fully meet ASME Section VIII requirements. The valves are equipped with single blow down ring for easy maintenance and control of blow down and ensures total safety in performance with high discharge coefficient (K = 0.947). The valves also feature high resistance to galling and seizing.

Model	:	Standard Open Lever Packed Lever 2500 SERIES Orifice: D, E, F, G, H, J, K, L, M, N, P, Q, R, T. Non balanced type and balanced type 2500/F screwed 2501/F, 2502/F, 2503/F, 2504/F, 2505/F, 2506/F Orifice (cm2): 0.785, 1.389, 2.851 2600 screwed 26001, 26002, 26003 Orifice (cm2): 0.258, 0.387
Nominal Size	:	½”x1”, ¾”x1”, 1”x1”, 1”x1½”, 1½”x2”, 1½”x2½ ”, 1½”x3”, 2”x2”, 2”x3”, 2½”x4”, 3”x4”, 3”x6”, 4”x6”, 6”x8”, 6”x10”, 8”x10”
Fluids	:	Liquids, Gas, Steam.
Pressure Rating	:	ORIFICE D to G Inlet – ANSI 150 to 2500 Outlet – ANSI 150 to 300 ORIFICE H to L Inlet – ANSI 150 to 1500 Outlet – ANSI 150 to 300 ORIFICE M to P Inlet – ANSI 150 to 900 Outlet – ANSI 150 ORIFICE Q to R Inlet – ANSI 150 to 600 Outlet – ANSI 150 ORIFICE T Inlet – ANSI 150 to 300 Outlet – ANSI 150
Over Pressure (%)	:	10% - 25% of set pressure.
Blow down Pressure (%)	:	5% - 7% of set pressure.
Back Pressure (%)	:	Non – balanced Bellows ≤ 10% Balanced Bellows ≥ 10%
Working Temperature	:	-20˚C to 400˚C
End connections	:	Flanges can be provided as per requirement, 2500 Series – RF Flange, RJ Flange 2500/F Screwed Series – NPT/BSP Female – Female connections 2600/F Screwed Series – NPT/BSP Male – Female connections
Body Material	:	Stainless Steel: ASTM A351 CF8. Carbon Steel: A216 WCB, A217 WC6. Alloy Steel: A352 LC1.
Trim Material	:	17-4 PH, Stainless Steel 304, 316, 316L
Nozzle & Disc	:	Stainless steel with STELLITE / 17- 4 PH
Spring	:	Stainless Steel, Inconnel Steel, Spring Steel.

Instrumentation Limited

(A Government of India Enterprise)

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50 Years in
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Experience - Expertise - Excellence

ISO : 14001 - 2015

ISO/TS : 29001 - 2020