



YOUR SOLUTION PARTNER IN
INDUSTRIAL
VALVE AUTOMATION...



FEP-PFA **LINED** BALL VALVE

Stainless Steel actuator
for **higher corrosive**
valves



Scan For More Information



Mfg. & Mkt by:
aira Euro automation pvt. ltd.
INDIA

www.airaindia.com



UNIT : 1

UNIT : 2

UNIT : 3

About Us

Clients are why we exist!

We welcome and thank you for referring our detailed catalogue.

aira is known all over continents as a manufacturer of quality products - Ball Valves, Butterfly Valves, Plug Valves, & Control On / Off Valves with Pneumatic Actuators for Pharma, Oil & Gas, Steel, Paper, Water, Chemical and all type of processing industries.

aira has walked through more than 3 decades, gaining valuable experience, offering equipment's in the products manufactured by OEMs in all spheres of engineering. **aira** products have gained reputations of consultants, and approvals of users, OEMs and other as a quality product.

aira has expanding business into foreign markets specially GCC, UAE, Asian & African countries. This is because increase its customer base and revenue, leading to overall growth and success. Now foreign users come to know and believe in the services provided by the **aira**. Along with the same, it also helps to reach a large number of users thereby leading to the increase their business.

Being an ISO 9001 BVQI certified company has put **aira** in fore front. Our motto is "Value the customer" and "Superior product", one among the best in the world.

Our Quality

- In- House full scale testing facility.
- Lean manufacturing practices
- Certified by : ISO 9001 : 2015 (BVQI LONDON), CE, ATEX, CIMFR, BIS, PESO, SIL 3, IBR
- API 609, API 6D

Our Commitment

- To understand customer's need first before proposing our products.
- To keep on providing competitive rate's by adapting to continuous process improvement, without compromising on quality.
- To provide continuous support to our customers and go beyond their expectations in terms of delivery and after sale services.

Our Manufacturing Facility

- In house R & D, manufacturing and testing facility is all located in a spread over three campuses at Ahmedabad, Gujarat, INDIA.

Network - Sales Office

- 60 Plus Branch Offices in different states in India.
- Sales office in the Bangladesh, Dubai, Kenya, Malaysia, Nepal, Qatar, Singapore, South Africa, Sri Lanka, Turkey, USA (Expanding).



CERTIFICATIONS



ISO 9001:2015



CE - Butterfly Valve



SIL 3 - Pneumatic Rotary Actuators



ISO 14001 : 2015



ISO 45001 : 2018



ISO 45001 : 2018



SIL 3 - Butterfly Valve





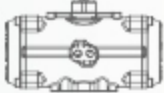
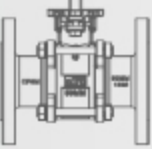

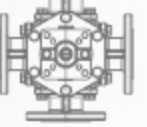

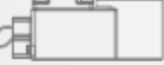

API - Ball Valve (6D)

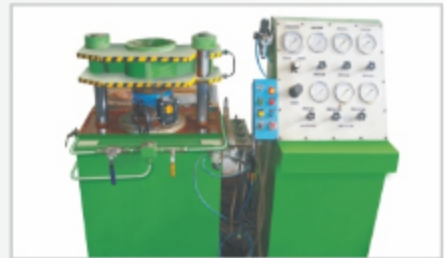


API - Butterfly Valve (609)



Some of Our CERTIFICATIONS Approvals

<p>QMS (Quality Management System)</p> <p>ISO 9001 : 2015</p>	<p>EMS (Environment Management System)</p> <p>ISO 14001 : 2015</p>	<p>OHSAS (Occupational Health & Safety Management System)</p> <p>ISO 45001 : 2018</p>
<p>PNEUMATIC ACTUATOR</p> <p>CE / ATEX / EXIDA SIL-3 / PROOF OF DESIGN</p> 	<p>SCOTCH & YOKE ACTUATOR</p> <p>CE / ATEX / SIL 3</p> 	<p>S. S. ACTUATOR</p> <p>CE / IEP ATEX</p> 
<p>BALL VALVES (Floating & Trunnion)</p> <p>FIRE SAFE TEST DESIGN / FUGITIVE EMISSIONS TEST as per ISO 15848-1 / CE / PED / API 6D / API 607 / EXIDA SIL-3</p> 	<p>BUTTERFLY VALVE (Concentric / Double & Triple Eccentric)</p> <p>FIRE SAFE TEST DESIGN / FUGITIVE EMISSIONS TEST as per ISO 15848-1 / CE PED / API 609 / EXIDA SIL-3 / IBR / PROOF OF DESIGN / FOOD GRADE / BIS / ISI</p> 	<p>MULTIPORT BALL VALVE</p> <p>FUGITIVE EMISSIONS TEST as per ISO 15848-1 / CE PED / EIL</p> 
<p>PLUG VALVE</p> <p>FUGITIVE EMISSIONS TEST as per ISO 15848-1 / IBR</p> 	<p>FLAMEPROOF SOLENOID COIL</p> <p>IEP ATEX / CE / CIMFR / IP 65 / IP 67 / IP 68 / BIS / PESO</p> 	<p>LIMIT SWITCH</p> <p>IEP ATEX / CE / CIMFR / IP 67 / BIS / PESO / EQDC IP 68</p> 
<p>IBR</p> <p>PISTON VALVE GLOBE CONTROL VALVE (CKD / CND) DISC CHECK VALVE (DCV) PRESSURE REDUCING VALVE (PRV) POP TYPE SAFETY VALVE BALL VALVE</p>		<p>POSITIONER ENCLOSURE</p> <p>CE / CIMFR / IP 67 / BIS / PESO</p>



FEP / PFA LINED VALVE TORQUE & TESTING DETAILS

VALVE SIZE		TORQUE IN NM		
MM	INCH	PFA BALL VALVE	PFA PLUG VALVE	PFA & TECO BUTTERFLY VALVE
15	1/2"	10	14	----
20	3/4"	14	20	----
25	1"	20	38	----
40	1 1/2"	38	42	----
50	2"	42	87	15
65	2 1/2"	86	88	35
80	3"	128	210	40
100	4"	210	306	50
125	5"	----	----	55
150	6"	436	713	90
200	8"	470	----	115
250	10"	1537	----	200
300	12"	2865	----	350
350	14"	----	----	440
400	16"	----	----	676
450	18"	----	----	713
500	20"	----	----	----
600	24"	----	----	----

ACTUATOR SELECTION MULTIPLY THE ABOVE VALUES BY THE FOLLOWING FACTORS (F) TO GET THE ACTUATOR TORQUE.

SERVICE	FACTOR 'F'
RAW WATER	1.35
WET SERVICE	1.35
STEAM	1.25
GAS	1.40
SLURRY	1.80
VISCOUS LIQUID	2.00

TESTING AND TEST DURATION

PRESSURE TEST CHART

FEP / PFA LINED BALL VALVE, PLUG VALVE, BUTTERFLY VALVE, CONTROL VALVE, DIAPHRAGM VALVE			
Pressure Rating	Hydro Test Pressure		Pneumatic
	Body (Kg/cm ²)	Seat (Kg/cm ²)	
150#	10	7	7
300#	10	7	7

FEP / PFA LINED & TECO BUTTERFLY VALVE ONLY			
Pressure Rating	Hydro Test Pressure		Pneumatic
	Body (kg/cm ²)	Seat (Kg/cm ²)	
PN 6 Upto 24"	10	7	7
PN 10 Upto 8"	16	10	7

FEP / PFA LINED BALL VALVE, PLUG VALVE, BUTTERFLY VALVE, CONTROL VALVE, DIAPHRAGM VALVE			
Pressure Rating	Hydro Test Pressure		Pneumatic
	Body (Kg/cm ²)	Seat (Kg/cm ²)	
PN 6 Upto 24"	10	7	7

FEP / PFA LINED BALL VALVE, PLUG VALVE, BUTTERFLY VALVE, CONTROL VALVE, DIAPHRAGM VALVE

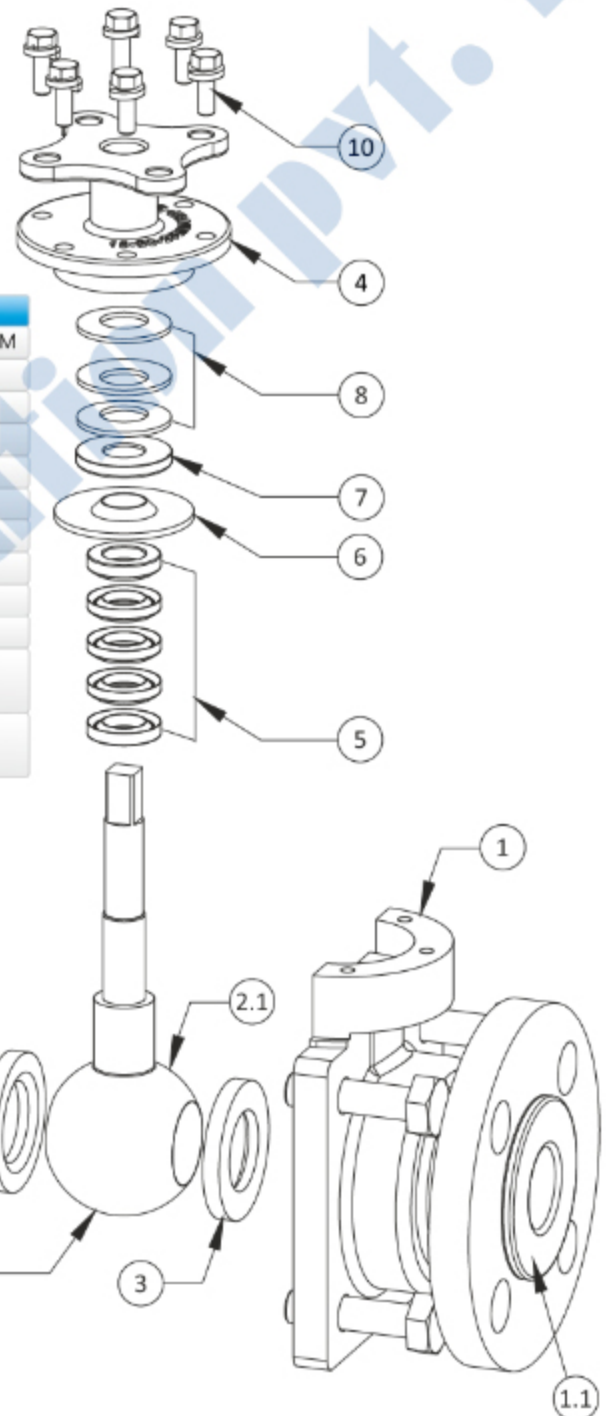
Test Duration In Seconds		
Valve Size	Body (Minutes-Seconds)	Seat (Minutes-Seconds)
2" & Smaller	0.25 - 15	0.25 - 15
2 1/2" to 6"	1 - 60	1 - 60
8" to 12"	2 - 120	2 - 120
14" & Larger	5 - 300	2 - 120

HYDRAULIC TESTING



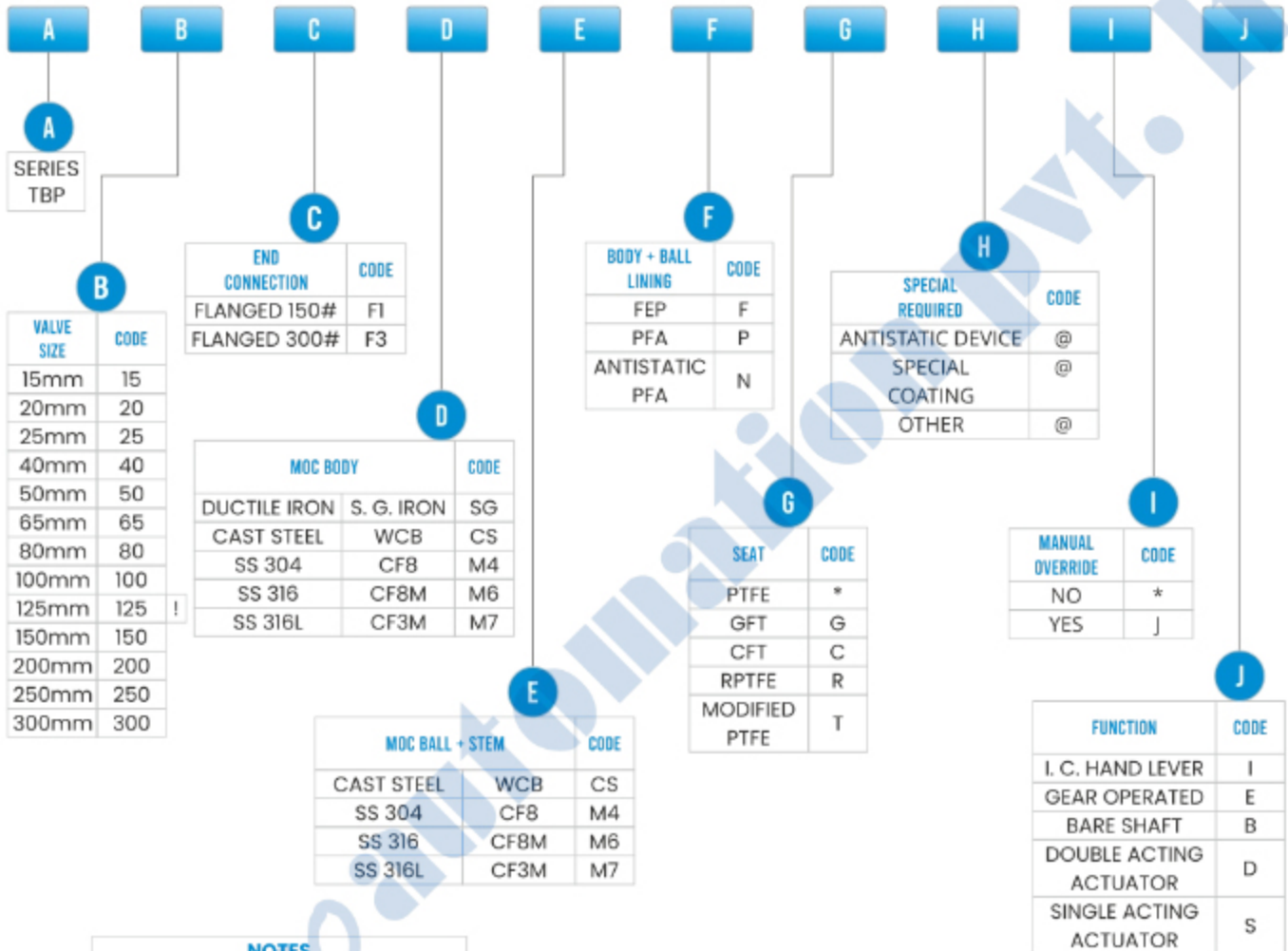
FEP / PFA LINED BALL VALVE EXPLODED VIEW

SR. NO.	DESCRIPTIONS	MATERIALS
1	Body	S. G. Iron / WCB / CF8 / CF8M / CF3M
1.1	Lining Material	FEP / PFA / PVDF / Antistatic PFA
2	Ball	WCB / CF8 / CF8M / CF3M
2.1	Lining Material	FEP / PFA / PVDF / Antistatic PFA
3	Seat	PTFE
4	Top Cover with Bracket	WCB / CF8 / CF8M / CF3M
5	Chevron Packing Seals	PTFE
6	PTFE Diaphragm	PTFE
7	Thrust Collar	S. S. 304 / S. S. 316
8	Disc Spring Washers	M. S.
9	Body Fitting Bolt + Nut+ Washer	S. S. 304 / S. S. 316
10	Top Cover Fitting Bolt + Nut+ Washer	S. S. 304 / S. S. 316



PRODUCT CODING


2 WAY 2 PIECE LINED BALL VALVE



NOTES	
SYMBOL	INDICATION
@	Contact Factory
*	By Default, Do Not Mention
!	125mm Reduce Bore

EXAMPLE-1	TBP 50F1M4M4F1	50MM FLANGED 150# CF8 BODY & CF8 BALL FEP LINING PTFE SEAT HAND LEVER OPERATED
EXAMPLE-2	TBP 100F3CSM77PJ	100MM FLANGED 300# WCB BODY & CF3M BALL PFA LINING PTFE SEAT M.O WITH D/A ACTUATOR OPERATED
EXAMPLE-3	TBP 150F1M6M6FGB	150MM FLANGED 150# CF8M BODY & CF8M BALL FEP LINING GFT SEAT BARE SHAFT

FEP / PFA LINED BALL VALVE FEATURES

- **aira** Make corrosion resistant Virgin Fluoropolymer lined valves. **aira's** lined valves provide **bubble-tight shutoff, low maintenance, no leak & integrated ball & stem assembly.**
- For, **Performance, Safety & Reliability.**
- Two piece design with **3 MM to 6 MM** lining on all wetted parts with VIRGIN FEP / PFA. Inspected Upto 20,000 V DC for checking defects FEP Upto 160 °C & PFA Upto 200 °C
- Lining securely gripped into the body by DOVE tail grooves 
- Range of different body & ball material also available



With Stainless Steel Body
Actuator



With Aluminium Body
Actuator

- FEP / PFA lining offers highest corrosion resistance.
- Bubble tight shut-off precision machined ball & seats guarantees an absolute On - line leak free valve.
- Full bore offers high Cv - Value equal to the pipe.
- One piece ball stem :
No possibility of damaging FEP / PFA lining on ball by the stem, no hysteresis, ideal for flow control applications.
- Specific anti blow out shaft design, which can not be affected by the media.
- Static electricity : any build up of static electricity is eliminated since the ball / stem and the housing are of the same potential.
- Constant torque : the unique two piece body construction together with the spring loaded gland guarantee a constant torque even after month of operation.
- The self adjusting packing is maintenance free and provides a leak free stem seal.
- The hand Lever features a positive locked position in the open and closed position
- Direct mounting according to ISO 5211.

FEP / PFA LINED BALL VALVE FLANGED 150# & 300#



The **aira** Lined ball valve is ideally suited for highly corrosive or abrasive application, where superior performance, tight shut-off and constant torque at almost no maintenance are required. Thanks to its wide range of optional linings it is suitable to handle a multitude of corrosive applications across a large variety of industries like chemical, fine-chemical, pharmaceutical, petro - chemical, pulp & paper and mining. The **aira** lined ball valves has proven its superior performance as on/off, control or throttle device for fluids in liquid or gas form.

SIZE RANGE : 1/2" TO 12" (15 MM TO 300 MM)

TECHNICAL DETAILS

- Design and Manufacturer : ASME B 16.34 / BS EN ISO 17292
- Valve Face to Face Dimension : As Per ASME B 16.10
- Flange Standard Conformity : ASME B 16.5 Class 150 / 300
- Inspection & Testing : BS EN 12266 - 1 / ISO - 5208
- Leakage Class : Class VI as per ISO - 5208



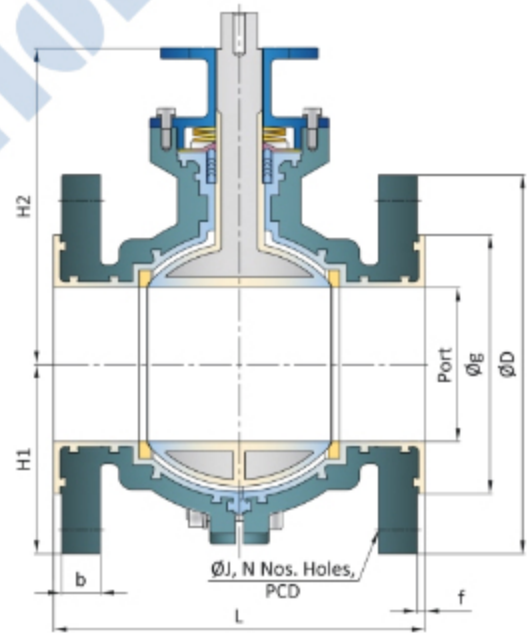
With Aluminium Body
Actuator



With Stainless Steel
Body Actuator



MODEL : TBP



VALVE SPECIFICATION	
Working Pressure	Upto 8 Kg/cm ²
Working Temperature	FEP : 160 °C PFA : 230 °C
Valve Rating	Flanged 150#
Spark Test	15 Kv DC to 40 Kv DC

DIMENSIONS :

Size Range	150# DIMENSIONS TABLE											300# DIMENSIONS TABLE								WEIGHT APPROX.			
	Inch	MM	Port	L	ØD	Øg	f	b	ØJ	PCD	H1	H2	Port	L	ØD	Øg	f	b	ØJ	PCD	H1	H2	150#
1/2"	15	13	141	90	34.9	3.5	8	15.88	60.3	92	45	13	141	95	34.9	3.5	12.7	15.88	66.7	47.5	92	2.94	3.24
3/4"	20	17	141	100	42.9	3.5	9	15.88	69.9	92	50	17	141	115	42.9	3.5	14.3	19.05	82.6	57.5	92	3.24	3.54
1"	25	25	127	110	50.8	3.5	12.7	15.88	79.4	101	55	25	127	125	50.8	3.5	15.9	19.05	88.9	62.5	101	4.45	5.51
1 1/2"	40	38	167	125	73	4	13.5	15.88	98.4	112	62.5	38	167	155	73	4	19.1	22.23	114.3	77.5	112	7.11	9.31
2"	50	49	178	150	92.1	4	17.5	19.05	120.7	136	75	49	178	165	92.1	4	20.7	19.05	127	82.5	136	11.95	13.55
2 1/2"	65	62	203	180	104.8	4	15.9	19.05	139.7	151	90	62	203	190	104.8	4	23.9	22.23	149.2	95	151	17.63	19.23
3"	80	74	203	190	127	5	17.5	19.05	152.4	172	95	74	203	210	127	5	27	22.23	168.3	105	172	28.02	29.40
4"	100	94	226	230	157.2	5	22.3	19.05	190.5	193	115	94	226	255	157.2	5	30.2	22.23	184.2	127.5	193	32.48	37.91
6"	150	146	267	280	215.9	5	23.9	22.23	241.3	258	140	146	403	320	215.9	5	35	22.23	269.9	160	258	64.07	88.53
8"	200	201	457	345	269.9	6	27	22.23	298.5	374	172.5											199.25	----
8"	200	201	295	345	269.9	6	27	22.23	298.5	----	172.5											----	----
10"	250	252	533	405	245	6	28.6	25.4	362	----	202.5											----	----
10"	250	245	340	405	245	6	28.8	25.4	362	428	202.5											232.2	----
12"	300	303	610	485	381	7	30.2	25.4	431.8	548	242.5											489.4	----

All Dimensions are in mm

Weight are bare shaft in Kgs.



CHEMICAL COMPATIBILITY TABLE

R = Resistant | A = Excellent - No effect | B = Good - Minor effect | IC = Fair - Moderate effect
 U = Unsatisfactory | IX = Conflicting Data | /- = No Data Available
 *No corrosion rate reported

CODE	PTFE	FEP	PFA	PVDF	HDPE	PP	CODE	PTFE	FEP	PFA	PVDF	HDPE	PP
Acetaldehyde	A	R	A	X	U	A	Diacetone Alcoho	A	R	A	A	R	R
Acetamide	A	R	A	C	R	A	Dibutyl Phthalate	R	R	R	U	U	R
Acetate Solvent	A	R	A	A	R	B	Dichlorobenzene	A	R	A	A	U	C
Acetic add 10%	A	R	A	C	R	B	Dichloroethane	A	R	A	A	R	X
Acetic Add, Glacial	A	R	A	B	R	A	Dichloroethylene	R	R	R	R	-	R
Acetone	A	R	A	U	R	A	Dichlorofluoromethane	R	R	R	-	-	-
Acetonitrile	R	R	-	R	-	R	Diesel Fuel	A	R	A	A	R	A
Acetophenone	R	R	R	R	U	R	Diethanolamine	R	R	R	U	-	R
Acetyl Chloride	A	R	A	R	U	U	Diethyl Amine	X	R	X	X	U	A
Acetylene	R	R	R	R	-	R	Diethyl Ether	A	R	A	R	U	R
Acrylonitrile	A	R	A	A	R	A	Diethyl Phthalate	R	-	R	-	-	-
Adipic Acid	A	R	A	A	R	B	Diethylene Glycol	A	R	A	A	R	A
Aldrin (1 oz./gal.)	-	-	-	-	-	-	Dimethyl Aniline	A	R	A	A	-	X
Allyl Alcohol	R	R	R	R	R	R	Dimethyl Ether	R	R	R	-	-	-
Allyl Chloride	R	R	R	R	R	R	Dimethyl Formamide	X	R	X	U	R	A
Ammonium Acetate	A	R	A	R	-	A	Dimethyl Phthalate	R	R	R	R	-	R
Ammonium Oxalate 10%	R	R	R	-	-	R	Dimethyl Sulfoxide	R	R	R	U	R	R
Amyl Acetate	A	R	A	A	R	X	Dinitrotoluene	R	-	R	-	-	-
Amyl Alcohol	A	R	A	A	R	B	Diocetyl PHTHALATE	R	R	R	R	U	U
Amyl Chloride	R	R	R	U	U	U	DIOXANE	R	R	R	U	U	R
Aniline	A	R	A	A	R	X	Diphenyl	A	R	A	-	-	U
Aniline Hydrochloride	A	R	A	A	U	X	Diphenyl Oxide	A	-	A	B	-	U
Antifreeze	-	-	-	-	-	U	Esters (general)	R	R	R	R	-	-
Aroclor 1248	A	R	A	-	U	U	Ethane	A	-	A	A	-	U
Asphalt	A	R	A	A	R	B	Ethanolamine	A	R	A	X	-	X
Benzaldehyde	A	R	A	A	U	X	Ethers (genera)	A	-	A	R	U	U
Benzene	A	R	A	A	U	X	Ethyl Acetate	A	R	A	X	R	A
Benzo Sulfonic Acid 10%	R	R	R	R	R	R	Ethyl Alcohol	A	R	A	R	R	A
Benzyl Alcohol	A	R	A	A	U	A	Ethyl Benzene	R	R	R	R	U	U
Benzoic	A	R	A	A	B	R	Ethyl Benzoate	A	-	A	U	U	B
Benzol	A	R	A	A	U	U	Ethyl Chloride	R	R	R	R	U	U
Benzonitrile	A	R	A	-	A	-	Ethyl Ether	A	R	A	R	U	U
Benzyl	R	R	R	R	-	C	Ethyl Sulfate	A	-	A	-	-	-
Bromobenzene	R	R	R	R	-	U	Ethylene Bromide	A	R	A	A	U	U
Butadiene	A	R	A	A	U	U	Ethylene Chloride	A	R	A	A	R	X
Butane	A	R	A	A	U	U	Ethylene Chlorohydrin	A	R	A	A	U	X
Butyl Alcohol	A	R	A	A	B	R	Ethylene Diamine	A	R	A	B	-	R
n-Butyl Amine	A	R	A	X	U	U	Ethylene DiBromide	R	R	R	R	-	R
Butyl Ether	A	R	A	A	-	-	Ethylene Glycol	A	R	A	A	R	A
Butyl Phenol	R	R	R	R	-	U	Ethylene Oxide	A	R	A	A	R	U
Butyl Phthalate	R	R	R	R	-	R	Formaldehyde 100%	A	-	A	A	-	C
Butylacetate	A	R	A	B	R	X	Formaldehyde 37%	A	R	A	A	R	A
Butyric Acid	R	R	R	A	U	R	Formic Acid 5%	R	R	R	R	R	R
Carbon Tetrachloride	R	R	R	R	U	U	Fuel Oils	B	R	B	B	R	A
Carbonic Acid	A	R	A	A	R	A	Gasoline (high-aromatic)	B	-	B	A	-	A
Chloroacetic Acid	A	R	A	A	U	C	Gasoline (LEADED)	A	R	A	A	U	X
Chlorobenzene	B	R	B	A	U	U	Gasoline (unleaded)	A	R	A	A	U	X
Chlorobromomethane	A	-	A	-	-	A	Glycolic Acid	A	R	A	B	R	A
Chlordane (1/4 lb./gal.)	R	-	R	-	-	-	Heptane	A	R	A	A	R	C
Chloroethane	A	R	A	A	R	X	Hexachloroethane	R	-	R	-	-	-
chloroform	A	R	A	A	U	X	Hexamine	R	R	R	-	-	-
Chloronaphthalene	-	-	-	-	-	-	HeXane	A	R	A	A	U	B
Chlorophenol 5% (aq.)	R	R	R	R	-	-	Hexyl Alcohol	A	-	A	-	-	-
Citric Acid	A	R	A	A	A	A	Hydraulic Oil (petro.)	A	-	A	A	-	U
Cresol	R	R	R	R	U	U	Hydraulic Oil (synthetic)	A	-	A	A	-	U
Cresylic Acid 50%	R	R	R	R	R	X	Hydrazine	C	-	C	A	U	C
Crude Oil	U	R	U	U	U	R	Hydrogen Peroxide (dilute)	R	R	R	R	R	R
Cyclohexane	A	R	A	R	R	U	Hydroquinone	A	R	A	R	-	A
Cyclohexanone	A	R	A	R	U	U	Hydroxyacetic Acid 70%	A	-	A	A	-	-
DDT5%	-	-	-	-	-	-	IodoForm	C	R	C	C	-	R
Detergents (general)	A	R	A	A	R	A	Isobutyl Alcohol	A	-	A	-	-	A



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CODE	PTFE	FEP	PFA	PVDF	HDPE	PP	CODE	PTFE	FEP	PFA	PVDF	HDPE	PP
Isooctane	A	----	A	A	B	A	Acetamide	A	R	A	C	R	A
Isopropyl Acetate	A	R	A	X	R	B	Acetate Solvent	A	R	A	A	R	B
Isopropyl Alcohol	A	R	A	R	R	A	Acetic Add 10%	A	R	A	C	R	B
Isopropyl Ether	A	R	A	X	----	X	Acetic Add, Glacial	A	R	A	B	R	A
Isotane	----	----	----	A	----	U	Acetone	A	R	A	U	R	A
J et Fuel JP-4, JP-5	A	R	A	A	----	A	Acetonitrile	R	R	R	R	----	R
Kerosene	A	R	A	A	R	R	Acetophenone	R	R	R	R	U	R
Lacquer Thinners	A	----	A	----	----	U	Acetyl Chloride	A	R	A	R	U	U
Lacquers	A	----	A	U	----	U	Acetylene	R	R	R	R	----	R
Lactic Acid	A	R	A	B	----	B	Acrylonitrile	A	R	A	A	R	A
Lead Acetate	A	R	A	A	R	A	Adipic Acid	A	R	A	A	R	B
Linoleic Acid	A	R	A	A	U	B	Aldrin (1 oz./gal.)	----	----	----	----	----	----
Maleic Acid	A	R	A	A	R	R	Allyl Alcohol	R	R	R	R	R	R
Malic Acid	A	R	A	A	R	A	Allyl Chloride	R	R	R	R	R	R
Melamine	A	----	A	----	----	A	Ammonium Acetate	A	R	A	R	----	A
Methane	A	R	A	A	----	A	Ammonium Oxalate 10%	R	R	R	----	----	R
Methyl Acetate	A	R	A	B	R	X	Amyl Acetate	A	R	A	A	R	X
Methyl Acetone	A	----	A	U	----	----	Amyl Alcohol	A	R	A	A	R	B
Methyl Acylate	----	----	----	B	----	U	Amyl Chloride	R	R	R	U	U	U
Methyl Alcohol	A	R	A	A	R	A	Aniline	A	R	A	A	R	X
Methyl Alcohol 10%	A	----	A	A	B	A	Aniline Hydrochloride	A	R	A	A	U	X
Methyl Amide	A	----	A	C	----	A	Antifreeze	----	----	----	----	----	U
Methyl Bromide	A	R	A	A	R	X	Aroclor 1248	A	R	A	----	U	U
Methyl Butyl Ketone	----	----	----	U	U	U	Asphalt	A	R	A	A	R	B
Methyl Chloride	A	R	A	A	U	U	Benzaldehyde	A	R	A	A	U	X
Methyl Chloroform	R	R	R	R	----	U	Benzene	A	R	A	A	U	X
Methyl Dichloride	----	----	----	U	----	U	Benzo Sulfonic Acid 10%	R	R	R	R	R	R
Methyl Ethyl Ketone	A	R	A	U	U	B	Benzyl Alcohol	A	R	A	A	U	A
Methyl Isopropyl Ketone	R	----	A	----	----	----	Benzoic Acid	A	R	A	A	B	R
Methyl Methacrylate	A	R	R	B	----	X	Benzol	A	R	A	A	U	U
Methyl Pentanone	A	R	A	X	R	R	Benzonitrile	A	R	A	----	A	----
Methylene Chloride	A	R	A	B	U	B	Benzyl Chloride	R	R	R	R	----	C
Monochloroacetic Acid	A	----	A	B	U	----	Bromobenzene	R	R	R	R	----	U
Monoethanolamine	A	R	A	U	----	B	Butadiene	A	R	A	A	U	U
Motor Oil	A	R	A	B	U	U	Butane	A	R	A	A	U	U
Napthalene	A	R	A	A	U	R	Butyl Alcohol	A	R	A	A	B	R
Nitro benzene	A	R	A	A	U	B	n-Butyl Amine	A	R	A	X	U	U
Nitromethane	A	R	A	A	----	R	Butyl Ether	A	R	A	A	----	----
Nitrophenol	R	----	R	----	----	----	Butyl Phenol	R	R	R	R	----	U
Octane	R	R	R	R	R	R	Butyl Phthalate	R	R	R	R	----	R
Octyl Alcohol	----	----	----	----	----	----	Butylacetate	A	R	A	B	R	X
Oleic Acid	A	R	A	A	U	B	Butyric Acid	R	R	R	A	U	R
Oxalic Acid 5%	R	R	R	R	R	R	Carbon Tetrachloride	R	R	R	R	U	U
Palmitic Acid 10%	A	R	A	A	R	B	Carbonic Acid	A	R	A	A	R	A
Pentachlorophenol	R	----	R	----	----	----	Chloroacetic Acid	A	R	A	A	U	C
Pentane	A	----	A	A	----	U	Chlorobenzene	B	R	B	A	U	U
Petroleum	A	R	A	A	U	B	Chlorobromomethane	A	----	A	----	----	A
Phenol 10%	A	R	A	A	R	B	Chlordane (114 lb./gal.)	R	----	R	----	----	----
Phthalic Acid	A	R	A	A	----	A	Chloroethane	A	R	A	A	R	X
Phthalic Anhydride	A	R	A	A	----	U	Chloroform	A	R	A	A	U	X
Picric Acid	A	R	A	A	U	A	Chloronaphthalene	----	----	----	----	----	----
Propyl Alcohol	A	R	A	A	R	A	Chlorophenol 5% (aq.)	R	R	R	R	----	----
Propylene	A	----	A	----	----	----	Citric Acid	A	R	A	A	A	A
Propylene Glycol	A	R	A	A	A	A	Cresol	R	R	R	R	U	U
Propylene Oxide	R	R	R	U	U	R	Cresylic Acid 50%	R	R	R	R	R	X
Pyridine	A	R	A	U	U	A	Crude Oil	U	R	U	U	U	R
Sodium Acetate	A	R	A	A	A	A	Cyclohexane	A	R	A	R	R	U
Sodium Benzoate	A	R	A	A	A	A	Cyclohexanone	A	R	A	R	U	U
Sodium Hypochlorite 20%	R	R	R	R	R	R	DDT5%	----	----	----	----	----	----
Stearic Acid	A	R	A	A	A	A	Detergents (general)	A	R	A	A	R	A
Acetaldehyde	A	R	A	X	X	A	Diacetone Alcohol	A	R	A	A	R	C



CHEMICAL COMPATIBILITY TABLE



R = Resistant | A = Excellent - No effect | B = Good - Minor effect | IC = Fair - Moderate effect
 U = Unsatisfactory | IX = Conflicting Data | I = No Data Available
 *No corrosion rate reported

CODE	PTFE	FEP	PFA	PVDF	HDPE	PP	CODE	PTFE	FEP	PFA	PVDF	HDPE	PP
Dibutylphthalate	R	R	R	U	U	R	sopropyl Acetate	A	R	A	X	R	B
Dichlorobenzene	A	R	A	A	U	-	sopropyl Alcohol	A	R	A	R	R	A
Dichloroethane	A	R	A	A	R	X	sopropyl Ether	A	R	A	X	R	X
Dichloroethylene	R	R	R	R	-	R	otane	-	-	-	A	-	U
Dichlorofluoromethane	R	R	R	-	-	-	Jet Fuel Jp-4, Jp-5	A	R	A	A	-	A
Diesel Fuel	A	R	A	A	R	A	Kerosene	A	R	A	A	R	R
Diethanolamine	R	R	R	U	-	R	Lacquer Thinners	A	-	A	-	-	U
Diethyl Amine	X	R	X	X	U	A	Lacquers	A	-	A	U	-	U
Diethyl Ether	A	R	A	R	U	R	Lactic Acid	A	R	A	B	-	B
Diethyl Phtha Late	R	-	R	-	-	-	Lead Acetate	A	R	A	A	R	A
Diethylene Glycol	A	R	A	A	R	A	Linoleic Acid	A	R	A	A	U	B
Dimethyl Aniline	A	R	A	A	-	X	Maleic Acid	A	R	A	A	R	R
Dimethyl Ether	R	R	R	-	-	-	Malicacid	A	R	A	A	R	A
Dimethyl Formamide	X	R	X	U	R	A	Melamine	A	-	A	-	-	A
Dimethyl Phthalate	R	R	R	R	-	R	Methane	A	R	A	A	-	A
Dimethyl Sulfoxide	R	R	R	U	R	R	Methyl Acetate	A	R	A	B	R	X
Dinitrotoluene	R	-	R	-	-	-	Methyl Acetone	A	-	A	U	-	-
Diocetyl Phthalate	R	R	R	R	U	U	Methyl Acylate	-	-	-	B	-	U
Dioxane	R	R	R	U	U	R	Methyl Alcohol	A	R	A	A	R	A
Diphenyl	A	R	A	-	-	U	Methyl Alcohol 10%	A	-	A	A	B	A
Diphenyl Oxide	A	-	A	B	-	U	Methyl Amide	A	-	A	C	-	A
Esters (general)	R	R	R	R	-	-	Methyl Bromide	A	R	A	A	R	X
Ethane	A	-	A	A	-	U	Methyl Butyl Ketone	-	-	-	U	U	U
Ethanolamine	A	R	A	X	-	X	Methyl Chloride	A	R	A	A	U	U
Ethers (general)	A	-	A	R	U	U	Methyl Chloroform	R	R	R	R	-	U
Ethyl Acetate	A	R	A	X	R	A	Methyl Dichloride	-	-	-	U	-	U
Ethyl Alcohol	A	R	A	R	R	A	Methyl Ethyl Ketone	A	R	A	U	U	B
Ethyl Benzene	R	R	R	R	U	U	Methyl Isopropyl Ketone	A	-	A	-	-	-
Ethyl Benzoate	A	-	A	U	U	B	Methyl Methacrylate	R	R	R	B	-	X
Ethyl Chloride	R	R	R	R	U	U	Methyl Pentanone	A	R	A	X	R	R
Ethyl Ether	A	R	A	R	U	U	Methylene Chloride	A	R	A	B	U	B
Ethyl Sulfate	A	-	A	-	-	-	Monochloroacetic Acid	A	-	A	B	U	-
Ethylene	A	R	A	A	U	U	Monoethanolamine	A	R	A	U	-	B
Ethylene Chloride	A	R	A	A	R	X	M-orbil	A	R	A	B	U	U
ETHYLENE Chlorohydrin	A	R	A	A	U	X	Napthalene	A	R	A	A	U	R
Ethylene Diamine	A	R	A	B	-	R	Nitrobenzene	A	R	A	A	U	B
Ethylene Dibromide	R	R	R	R	-	R	Nitromethane	A	R	A	A	-	R
Ethylene Glycol	A	R	A	A	R	A	Nitrophenol	R	-	R	-	-	-
Ethylene Oxide	A	R	A	A	R	U	Octane	R	R	R	R	R	R
Formaldehyde 100%	A	-	A	A	-	C	Octyl Alcohol	-	-	-	-	-	-
Formaldehyde 37%	A	R	A	A	R	A	Oleic Acid	R	R	A	A	U	B
Formic Acid 5%	R	R	R	R	R	R	Oxalic Acid 5%	R	R	R	R	R	R
Fuel Oils	B	R	B	B	R	A	Palmitic Acid 10%	A	R	A	A	R	B
Gasoline (High-Aromatic)	B	-	B	A	-	A	Pentachlorophenol	R	-	R	-	-	-
Gasoline (leaded)	A	R	A	A	U	X	Pentane	A	-	A	A	-	U
Gasoline (unleaded)	A	R	A	A	U	X	Petroleum	A	R	A	A	U	B
Glycolic Acid	A	R	A	B	R	A	Phenol 10%	A	R	A	A	R	B
Heptane	A	R	A	A	R	C	Phthalic Acid	A	R	A	A	-	A
Hexachloroethane	R	-	R	-	-	-	Phthalic Anhydride	A	R	A	A	-	U
Hexamine	R	R	R	-	-	-	Picric Acid	A	R	A	A	U	A
Hexane	A	R	A	A	U	B	Propyl Alcohol	A	R	A	A	R	A
Hexyl Alcohol	A	-	A	-	-	-	Propylene	A	-	A	-	-	-
Hydraulic Oil (petro.)	A	-	A	A	-	U	Propylene Glycol	A	R	A	A	R	A
Hydraulic Oil (Synthetic)	A	-	A	A	-	U	Propylene Oxide	R	R	R	U	R	R
Hydrazine	C	-	C	A	U	C	Pyridine	A	R	A	U	R	A
Hydrogen Peroxide(dilute)	R	R	R	R	R	R	Sodium Acetate	A	R	A	A	R	A
Hydroquinone	A	R	A	R	-	A	Sodium Benzoate	A	R	A	A	R	A
Hydroxyacetic Acid 70%	A	-	A	A	-	-	Sodium Hypochlorite 20%	R	R	R	R	R	R
Iodoform	C	R	C	C	-	R	Stearic Acid	A	R	A	A	R	A
Isobutyl Alcohol	A	-	A	-	-	A							
Isooctane	A	-	A	A	B	A							



Pneumatic - Pneumatic & Electro Pneumatic ROTARY Valve Positioner



ELECTRO - PNEUMATIC
Input Signal : 4 - 20 mA DC
Supply Air Pressure : 20 - 100 psi Max.
(7.0 Kg/cm²)
Standard Stroke : 10 - 80 mm
Air Pipe Connection : 1/4" NPT
Ambient Temperature : -20 °C to 70 °C
Degree of Protection : IP 65
Out-put Characteristics : Rotary
Conduit Connection : 1/2" NPT
Body Material : Aluminium Die Cast



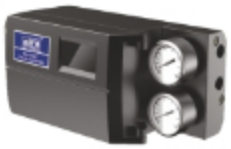
Pneumatic - Pneumatic & Electro Pneumatic LINEAR Valve Positioner



ELECTRO - PNEUMATIC
Input Signal : 3 - 15 (0.2 - 1.0 Kg/cm²)
Supply Air Pressure : 100 psi Max.
(7.0 Kg/cm²)
Standard Stroke : 10 - 80 mm
Air Pipe Connection : 1/4" NPT
Ambient Temperature : -20 °C to 70 °C
Degree of Protection : IP 65
Out-put Characteristics : Linear
Conduit Connection : 1/2" NPT
Body Material : Aluminium Die Cast



SMART Positioner LINEAR



Model : IP 6000 Series
Body : Aluminium
Set Point : 4 - 20mA DC
Signal
Ambient Temperature : Normal Version : -20 °C - 70 °C
Optional Version : -40 °C - 70 °C



Supply Pressure : 0.14 - 0.7 MPa
Flow : 55L/min (Sup=0.14MPa)

Weatherproof MICRO Limit Switch Box



Model : MMLS-BX-WP-01-A
MMLS-BX-WP-01-B
MMLS-BX-WP-01-C
Switch : Honeywell ZM / NJ2-V3-N /
NBB-V3-Z4
Type : 1 NO + 1 NC / 2 Switch
Enclosure : IP 67
Protection
Ambient Temp. : -20 °C to 80 °C
Conduit Entry : 1/2" - NPT
Terminal : 8 Point
Mounting : Namur VDI / VDE3845 / ISO 5211
Material : Aluminium Die Cast



Flameproof Limit Switch Box



Model : MLS-BX-FLP-01-A / MLS-BX-FLP-01-B
MLS-BX-FLP-01-C / MLS-BX-FLP-01-D
Switch : Honeywell V15 / Honeywell
V15 PCB Type / NCB2-V3-NO /
NJ2-V3-N / NBB-V3-Z4 /
NBB3-V3-Z4
Type : 1 NO + 1 NC / 2 NO + 2 NC / 2 Switch
Enclosure : IP 68
Temp. : -20 °C to 80 °C
Conduit Entry : 1/2" - NPT
Terminal : 8 Point
Mounting : Namur VDI / VDE3845 / ISO 5211
Material : Aluminium Die Cast



Flameproof Limit Switch Box STAINLESS STEEL 304 / 316



Model : LS4-BX-FLP-01-A / LS6-BX-FLP-01-A
LS4-BX-FLP-01-B / LS6-BX-FLP-01-B
LS4-BX-FLP-01-C / LS6-BX-FLP-01-C
LS4-BX-FLP-01-D / LS6-BX-FLP-01-D
Switch : Honeywell V15 / Honeywell
V15 PCB Type / NCB2-V3-NO /
NJ2-V3-N / NBB-V3-Z4 / NBB3-V3-Z4
Type : 1 NO + 1 NC / 2 NO + 2 NC / 2 Switch
Enclosure : IP 67
Temp. : -20 °C to 80 °C
Conduit Entry : 1/2" - NPT
Terminal : 8 Point
Mounting : Namur VDI / VDE3845 / ISO 5211
Material : ASTM A351 Gr. CF8 / CF8M / CF3M



Weatherproof Limit Switch Box (Big Box)



Model : MLS-BX-01-A / MLS-BX-01-B
MLS-BX-01-C / MLS-BX-01-D
Switch : Honeywell V15 / NJ2-V3-N /
NBB-V3-Z4 / NCB2-V3-NO
Type : 1 NO + 1 NC / 2 NO + 2 NC /
2 Switch
Enclosure : IP 67
Temperature : -20 °C to 80 °C
Conduit Entry : 1/2" - NPT
Terminal : 8 Point
Mounting : Namur VDI / VDE3845 / ISO 5211
Material : Aluminium Die Cast



Weatherproof Limit Switch Box STAINLESS STEEL 304 / 316



Model : MLS4-BX-01-A / MLS4-BX-01-B
MLS4-BX-01-C / MLS4-BX-01-D
Switch : Honeywell V15 / NJ2-V3-N /
NBB-V3-Z4 / NCB2-V3-NO
Type : 1 NO + 1 NC / 2 NO + 2 NC /
2 Switch
Enclosure : IP 67
Temperature : -20 °C to 80 °C
Conduit Entry : 1/2" - NPT
Terminal : 8 Point
Mounting : Namur VDI / VDE3845 /
ISO 5211
Material : ASTM A351 Gr. CF8 / CF8M / CF3M



3/2 Way Namur Direct Acting Solenoid Valve



Model	: NAM-SA-32
Coil Voltage	: All Std. Voltage Available
Frequency	: 50 - 60 Hz
Connection Type	: 1/4" (NPT)
Conduit	: PF 1/2"
Coil Insulation Grade	: Class "F"
Ambient Temp.	: -20 °C - 70 °C
MOC	: Aluminium
Seals	: NBR (Viton On Request)
Working Pressure	: Upto 0 to 10 Kg/cm ²

5/2 Way Convertible Poppet Type SINGLE & DOUBLE Namur Solenoid Valve



Model	: OTX-ALU-52 / 2OTX-ALU-52
Coil Voltage	: All Std. Voltage Available
Frequency	: 50 - 60 Hz
Connection Type	: 1/4" (NPT)
Conduit	: PF 1/2"
Coil Insulation Grade	: Class "F"
Ambient Temp.	: -20 °C - 70 °C
MOC	: Aluminium
Seals	: NBR (Viton On Request)
Working Pressure	: Upto 2.5 to 10 Kg/cm ²

3/2 Way Internal Pilot Operated STAINLESS STEEL 316 Single Namur Solenoid Valve



Model	: MPT-S6-32
Coil Voltage	: All Std. Voltage Available
Frequency	: 50 - 60 Hz
Connection Type	: 1/4" (NPT)
Conduit	: PF 1/2"
Coil Insulation Grade	: Class "F" & "H"
Ambient Temp.	: -20 °C - 70 °C
MOC	: ASTM A351 Gr. CF8M
Seals	: NBR (Viton On Request)
Working Pressure	: Upto 2.5 to 10 Kg/cm ²

5/2 Way Poppet Type STAINLESS STEEL 316 Single Namur Solenoid Valve



Model	: OTX-S6-52
Coil Voltage	: All Std. Voltage Available
Frequency	: 50 - 60 Hz
Connection Type	: 1/4" (NPT)
Conduit	: PF 1/2"
Coil Insulation Grade	: Class "F" & "H"
Ambient Temp.	: -20 °C - 70 °C
MOC	: ASTM A351 Gr. CF8M
Seals	: NBR (Viton On Request)
Working Pressure	: Upto 2.5 to 10 Kg/cm ²

3/2 Way Midget Type Direct Acting Solenoid Valve



Model	: DMV
Size	: 1/4"
Body	: CFB / CF8M / Brass / S.S 304
Orific	: 2
Pressure	: 7 Kg / cm ²
Temp.	: Upto -5 to 80 °C max.
Coil Rating	: Continuous Rated
Coil Insulation	: "F" Class & "H" Class For Flameproof
Media	: Air & Gas
Voltage	: 12V, 24V, 48V, 110V, 230V, AC/DC

3/2 Way Midget Type Direct Acting Solenoid Valve



Model	: MDV
Size	: 1/4"
Body	: CFB / CF8M / Brass / S.S 304
Orific	: 2
Pressure	: 7 Kg / cm ²
Temp.	: Upto -5 to 80 °C max.
Coil Rating	: Continuous Rated
Coil Insulation	: "F" Class & "H" Class For Flameproof
Media	: Air & Gas
Voltage	: 12V, 24V, 48V, 110V, 230V, AC/DC

Filter + Regulator Air Combination



Model	: 4FQ / 8 FQ / FRJ / AFRS4
Air Connection	: 1/4"
Max. Supply Pressure	: 4FQ : 0.5 to 4 Kg / cm ² 8FQ : 0.5 to 8 Kg / cm ² FRJ : 1 to 9 Kg / cm ²
Gauge Connection	: 1/8"
Ambient Temp.	: -20 °C - 70 °C
Mini Filtering Size	: 5 Micron
Material	: Aluminium Pressure Die Cast / CFB / CF8M

(4FQ / 8FQ) (FRJ) (AFRS4)

Air Volume Booster



Model	: VLB
Size	: 1/4" to 1"
MOC	: Aluminium
Seals	: NBR
Supply Pressure	: 10 Bar
Output Pressure	: 7 Bar
Temperature	: -20 °C - 70 °C

Single & Double Air Lock Valve



Model Single	: SALV
Model Double	: DALV
Size	: 1/4" to 3/4"
MOC	: Aluminium
Seals	: NBR
Supply Pressure	: 10 Bar
Output Pressure	: 7 Bar
Temperature	: -20 °C - 70 °C

Manual Override Clutch Type (MO)



Model	: AMO
Torque	: 200 Nm to 10000 Nm
Body	: Aluminium Pressure Die Cast / S. G. Iron
Lever Wheel	: Stainless Steel
Hand Wheel	: S.S. / M.S. (Fabricated)



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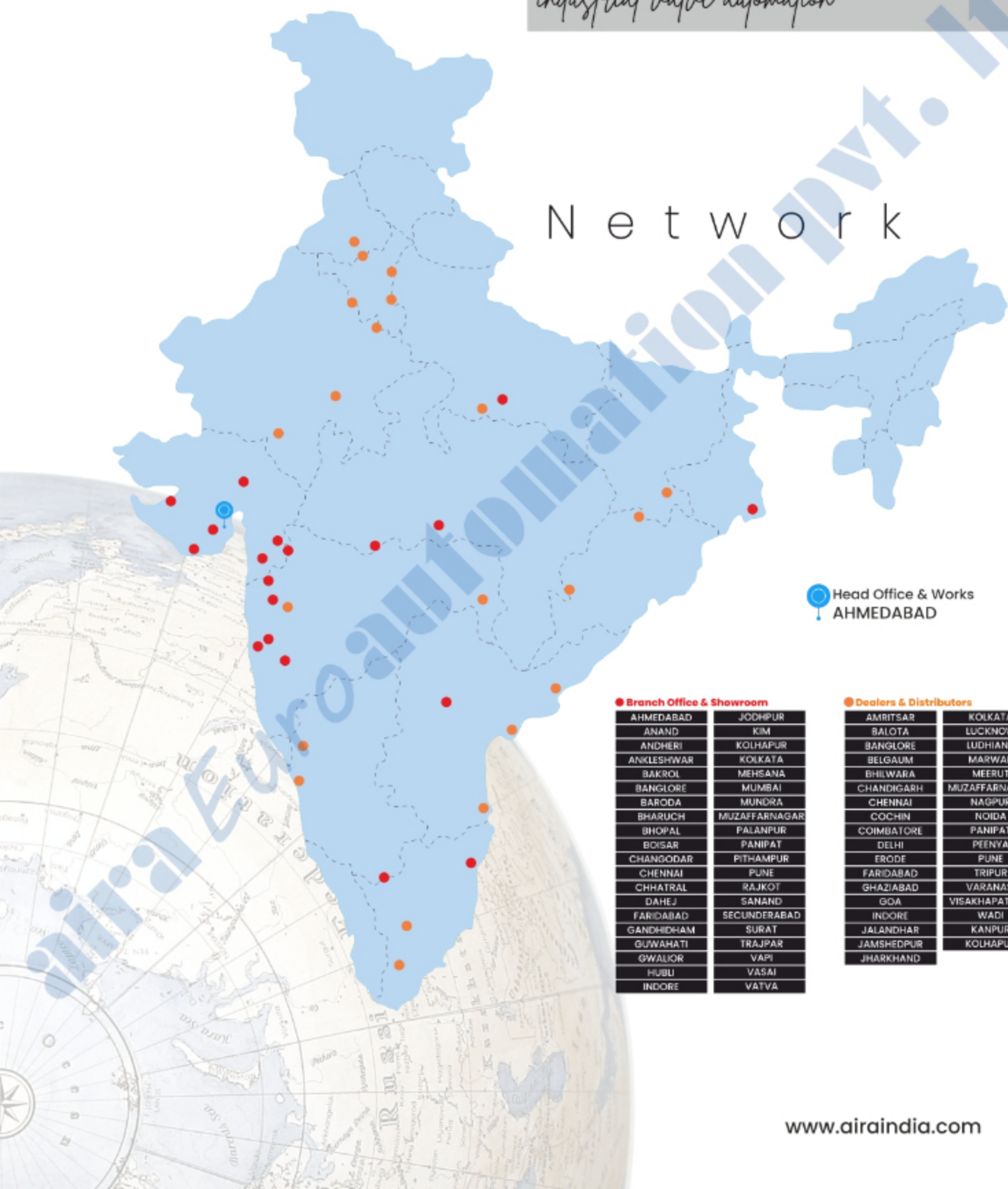
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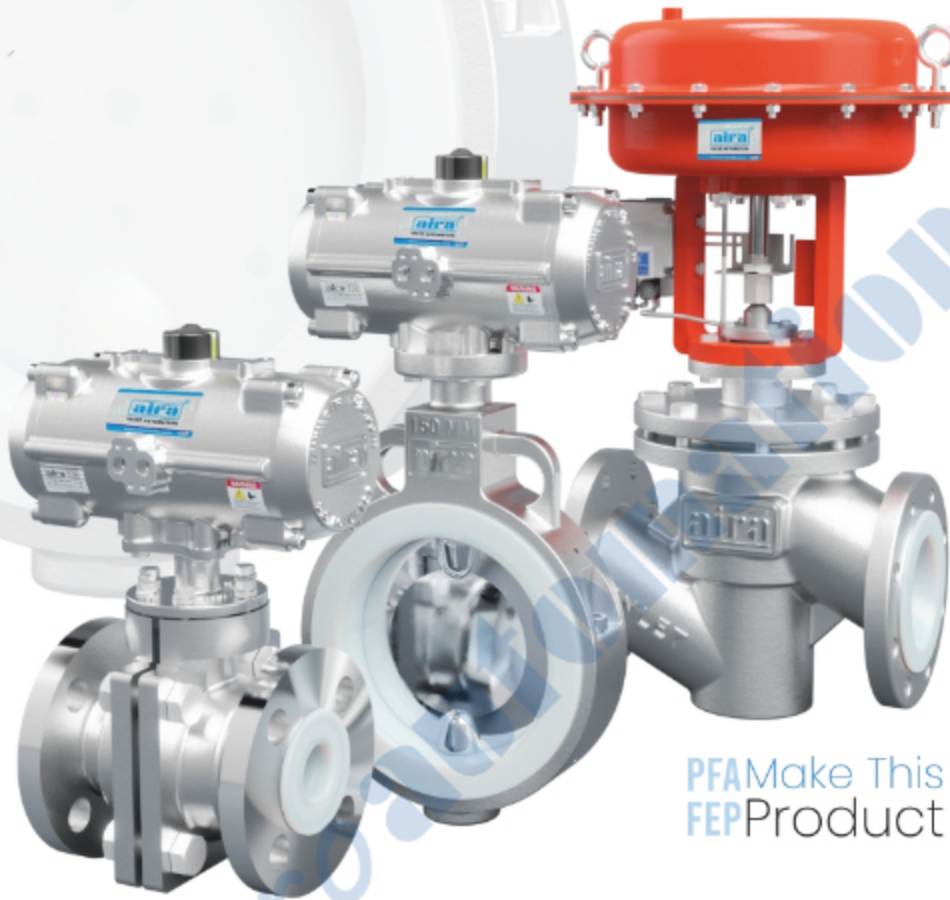
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