CLA-VAL *Material Selection Guide*

CLA-VAL™

Cla-Val Automatic Control Valves

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Little or Minor Effect
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U Not Recommended
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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Acetaldehyde	C	-	U	C	A	A	A	A	U	U
Acetamide	-	-	-	-	-	-	-	A	A	B
Acetic Acid, Glacial	C	-	C	C	B	A	A	A	C	C
Acetic Acid, 30%	C	-	C	C	B	A	A	A	B	B
Acetic Anhydride	U	-	C	U	B	B	A	B	C	U
Acetone	A	A	A	A	A	A	A	A	U	U
Acetophenone	-	-	-	-	-	-	-	A	U	U
Acetyl Chloride	-	-	-	-	-	-	-	-	-	A
Acetylene	A	U	B	A	A	A	A	A	B	A
Acrylonitrile	C	-	A	A	A	A	A	U	U	U
Adipic Acid	-	-	-	-	-	-	-	-	A	-
Alkazene	-	-	-	-	-	-	-	U	-	B
Alum-NH^3-Cr-K	-	-	-	-	-	-	-	A	A	U
Aluminum Acetate	-	-	-	-	-	-	-	A	B	-
Aluminum Chloride	B	-	B	B	C	A	A	A	A	A
Aluminum Fluoride	-	B	-	-	-	-	-	A	A	A
Aluminum Nitrate	-	-	-	-	-	-	-	A	A	-
Aluminum Phosphate	-	-	-	-	-	-	-	A	A	A
Aluminum Sulfate	C	A	C	C	B	A	A	A	A	A
Ammonia Anhydrous	B	-	U	A	A	A	B	A	A	U
Ammonia Gas (Cold)	-	B	-	-	-	-	-	A	A	-
Ammonia Gas (Hot)	-	-	-	-	-	-	-	B	-	U
Ammonium Carbonate	B	-	B	B	B	B	B	A	U	-
Ammonium Chloride	U	U	U	U	C	C	B	A	A	-
Ammonium Hydroxide	C	U	U	C	B	B	U	A	U	B
Ammonium Nitrate	U	U	U	U	A	A	U	A	A	-
Ammonium Nitrite	-	-	-	-	-	-	-	A	A	-
Ammonium Persulfate	-	-	-	-	-	-	-	A	U	-
Ammonium Phosphate	U	-	C	U	B	B	C	A	A	-
Ammonium Sulfate	C	B	B	C	B	B	C	A	A	-
Amyl Acetate	C	-	B	C	B	B	B	A	U	U
Amyl Alcohol	C	-	B	B	A	A	C	A	B	B
Amyl Borate	-	-	-	-	-	-	-	U	A	A
Amyl Chloronapthalene	-	-	-	-	-	-	-	U	-	A

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Amyl Napthalene	-	-	-	-	-	-	-	U	U	A
Aniline	C	-	C	C	B	B	B	B	U	C
Aniline Dyes	C	-	C	C	A	A	A	B	U	B
Aniline Hydrochloride	-	-	-	-	-	-	-	B	B	B
Animal Fats	-	-	-	-	-	-	-	B	A	A
Ansul Ether	-	-	-	-	-	-	-	C	C	U
Aqua Regia	-	U	-	-	-	-	-	C	-	B
Arochlor(s)	-	-	-	-	-	-	-	C	C	A
Arsenic Acid	U	-	U	U	B	B	U	A	A	A
Arsenic Trichloride	-	-	-	-	-	-	-	-	A	-
Askarel	-	-	-	-	-	-	-	U	B	A
Asphalt	B	A	A	B	A	A	A	U	B	A
Barium Chloride	C	A	B	C	C	C	B	A	A	A
Barium Hydroxide	B	-	B	C	B	B	B	A	A	A
Barium Sulfate	C	-	C	C	B	B	A	A	A	A
Barium Sulfide	C	-	C	C	B	B	C	A	A	A
Beer	U	A	A	U	A	A	A	A	A	A
Beet Sugar Liquors	B	A	A	B	A	A	A	A	A	A
Benzene	-	A	-	-	-	-	-	U	U	A
Benzenesulfonic Acid	-	-	-	-	-	-	-	-	-	A
Benzaldehyde	B	-	A	A	A	A	A	A	U	U
Benzyl Alcohol	-	-	-	-	-	-	-	B	U	A
Benzyl Benzoate	-	-	-	-	-	-	-	B	-	A
Benzyl Chloride	-	-	-	-	-	-	-	-	U	A
Benzoic Acid	U	-	B	U	B	B	B	-	-	A
Blast Furnace Gas	-	-	-	-	-	-	-	-	U	A
Bleach Solutions	-	B	-	-	-	-	-	A	-	A
Borax	-	A	-	-	-	-	-	A	B	A
Bordeaux Mixture	-	-	-	-	-	-	-	A	-	A
Boric Acid	U	A	B	U	B	B	A	A	A	A
Brine	C	A	B	C	B	B	A	A	A	-
Bromine - Anhydrous	-	-	-	-	-	-	-	-	-	A
Bromine Trifluoride	-	-	-	-	-	-	-	U	U	U
Bromine Water	-	-	-	-	-	-	-	-	-	A

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Bromobenzene	-	-	-	-	-	-	-	U	U	A
Bunker Oil	B	-	B	B	A	A	A	-	A	A
Butadiene	B	A	C	B	A	A	C	C	U	B
Butane	B	A	A	B	B	B	B	U	A	A
Butter	-	-	-	-	-	-	-	A	A	A
Butyl Acetate	-	-	-	-	-	-	-	B	-	U
Butyl Acetyl Ricinoleate	-	-	-	-	-	-	-	A	-	A
Butyl Acrylate	-	-	-	-	-	-	-	U	-	U
Butyl Alcohol	C	-	B	B	A	A	C	B	A	A
Butyl Amine	-	-	-	-	-	-	-	U	C	U
Butyl Benzoate	-	-	-	-	-	-	-	A	-	A
Butyl Carbitol	-	-	-	-	-	-	-	A	A	A
Butyl Cellosolve	-	-	-	-	-	-	-	A	C	U
Butyl Oleate	-	-	-	-	-	-	-	B	-	A
Butyl Stearate	-	-	-	-	-	-	-	B	B	A
Butylene	A	A	A	A	A	A	A	U	B	A
Butyraldehyde	-	-	-	-	-	-	-	B	C	U
Calcium Acetate	-	-	-	-	-	-	-	A	B	U
Calcium Bisulfite	U	-	B	U	C	B	B	U	A	A
Calcium Chloride	C	-	B	C	C	B	A	A	A	A
Calcium Hydroxide	C	B	A	C	B	B	A	A	A	A
Calcium Hypochlorite	U	B	U	U	C	C	C	A	C	A
Calcium Nitrate	-	-	-	-	-	-	-	A	A	A
Calcium Sulfide	-	-	-	-	-	-	-	A	B	A
Cane Sugar Liquors	-	-	-	-	-	-	-	A	A	A
Carbamate	-	-	-	-	-	-	-	B	C	A
Carbitol	-	-	-	-	-	-	-	B	B	B
Carbolic Acid	U	B	B	U	B	B	B	B	U	A
Carbon Bisulfide	B	-	C	B	B	B	A	U	C	A
Carbon Dioxide	B	A	A	A	A	A	A	B	A	A
Carbonic Acid	U	-	U	U	B	B	A	A	A	A
Carbon Monoxide	-	-	-	-	-	-	-	A	A	A
Carbon Tetrachloride	-	B	-	-	-	-	-	U	C	A
Castor Oil	-	-	-	-	-	-	-	B	A	A

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Cellosolve	-	-	-	-	-	-	-	B	-	C
Cellosolve Acetate	-	-	-	-	-	-	-	B	U	U
Cellulube	-	-	-	-	-	-	-	A	U	A
Chlorine (Dry)	B	B	C	B	B	B	B	-	-	A
Chlorine (Wet)	U	U	U	U	U	U	C	C	-	A
Chlorine Dioxide	-	-	-	-	-	-	-	C	U	A
Chlorine Trifluoride	-	-	-	-	-	-	-	U	U	U
Chloroacetone	-	-	-	-	-	-	-	A	U	U
Chloracetic Acid	U	B	C	U	U	U	C	B	-	-
Chlorobenzene	B	B	B	B	A	A	C	U	U	A
Chlorobromomethane	-	-	-	-	-	-	-	B	-	B
Chlorobutadiene	-	-	-	-	-	-	-	U	U	A
Chlorododecane	-	-	-	-	-	-	-	U	U	A
Chloroform	B	B	B	B	A	A	A	U	U	A
O-Chloronapthalene	-	-	-	-	-	-	-	U	U	A
1-Chloro 1-Nitro Ethane	-	-	-	-	-	-	-	U	U	C
Chlorosulphobic Acid	-	-	-	-	-	-	-	U	U	C
Chlorotoluene	-	-	-	-	-	-	-	U	U	-
Chrome Plating Solutions	-	-	-	-	-	-	-	U	U	A
Chromic Acid	U	C	U	U	C	C	B	C	U	A
Citric Acid	-	U	-	-	-	-	-	A	A	A
Cobalt Chloride	-	-	-	-	-	-	-	A	A	-
Coconut Oil	C	-	B	C	B	B	B	A	A	-
Cod Liver Oil	-	-	-	-	-	-	-	A	A	A
Coke Oven Gas	B	-	C	B	A	A	B	-	-	A
Copper Acetate	U	-	U	U	A	A	C	A	B	-
Copper Chloride	U	-	U	U	C	C	C	A	A	A
Copper Cyanide	-	-	-	-	-	-	-	A	A	A
Copper Sulfate	U	B	U	U	B	B	A	A	A	A
Corn Oil	C	-	B	C	B	B	B	C	A	A
Cottonseed Oil	C	A	-	C	B	B	B	A	A	A
Creosote	B	-	B	B	B	B	A	U	B	A
Cresol	-	-	-	-	-	-	-	U	C	A
Cresylic Acid	U	-	C	C	B	B	B	U	C	A

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Cumene	-	-	-	-	-	-	-	-	-	A
Cyclohexane	A	-	A	A	A	A	A	U	A	A
Cyclohexanol	-	-	-	-	-	-	-	U	B	A
Cyclohexanone	-	-	-	-	-	-	-	B	U	U
p-Cymeme	-	-	-	-	-	-	-	-	-	A
Decalin	-	-	-	-	-	-	-	-	-	A
Decane	-	-	-	-	-	-	-	-	A	B
Denatured Alcohol	-	-	-	-	-	-	-	A	A	A
Detergent Solutions	-	-	-	-	-	-	-	A	A	A
Developing Fluids	-	-	-	-	-	-	-	B	A	A
Diacetone	-	-	-	-	-	-	-	A	-	U
Diacetone Alcohol	A	-	A	A	A	A	A	A	U	-
Dibenzyl Ether	-	-	-	-	-	-	-	B	U	-
Dibenzyl Sebecate	-	-	-	-	-	-	-	B	-	B
Dibutyl Amine	-	-	-	-	-	-	-	U	U	U
Dibutyl Ether	-	-	-	-	-	-	-	C	C	C
Dibutyl Phthalate	-	-	-	-	-	-	-	A	U	B
Dibutyl Sebecate	-	-	-	-	-	-	-	B	U	B
O-Dichlorobenzene	-	-	-	-	-	-	-	U	U	A
Dichloro-Isopropyl Ether	-	-	-	-	-	-	-	C	U	C
Dicyclohexylamine	-	-	-	-	-	-	-	-	C	-
Diesel Oil	A	-	A	A	A	A	A	U	A	A
Diethlamine	A	-	A	A	A	A	A	B	C	U
Diethyl Benezene	-	-	-	-	-	-	-	U	U	A
Diethyl Ether	-	-	-	-	-	-	-	U	U	U
Diethylene Glycol	-	-	-	-	-	-	-	A	A	A
Diethyl Sebecate	-	-	-	-	-	-	-	B	U	B
Diisobutylene	-	-	-	-	-	-	-	-	B	A
Diisopropyl Benzene	-	-	-	-	-	-	-	U	U	A
Diisopropyl Ketone	-	-	-	-	-	-	-	A	U	U
Dimethyl Aniline	-	-	-	-	-	-	-	B	-	U
Dimethyl Formamide	-	-	-	-	-	-	-	-	B	U
Dimethyl Phthalate	-	-	-	-	-	-	-	B	U	B
Dinitrotoluene	-	-	-	-	-	-	-	U	U	C

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Dioctyl Phthalate	-	-	-	-	-	-	-	B	-	B
Dioctyl Sebecate	-	-	-	-	-	-	-	B	U	B
Dioxane	-	-	-	-	-	-	-	B	-	-
Dixolane	-	-	-	-	-	-	-	B	U	-
Dipentene	-	-	-	-	-	-	-	-	B	A
Diphenyl	-	-	-	-	-	-	-	-	-	A
Diphenyl Oxides	-	-	-	-	-	-	-	A	-	A
Dowtherm Oil	-	-	-	-	-	-	-	U	-	A
Dry Cleaning Fluids	B	-	C	B	A	A	B	U	C	A
Epichlorahydrin	-	-	-	-	-	-	-	B	-	U
Ethane	B	-	A	B	B	B	B	U	A	A
Ethanolamine	-	-	-	-	-	-	-	B	B	U
Ethyl Acetate	C	-	C	B	B	B	B	B	U	U
Ethyl Acetoacetate	-	-	-	-	-	-	-	B	U	U
Ethyl Acrylate	C	-	B	C	A	A	B	B	-	U
Ethyl Alcohol	B	-	B	B	B	B	B	A	A	A
Ethyl Benzene	-	-	-	-	-	-	-	U	U	A
Ethyl Benzoate	-	-	-	-	-	-	-	B	-	A
Ethyl Cellosolve	-	-	-	-	-	-	-	B	-	U
Ethyl Cellulose	-	-	-	-	-	-	-	B	-	U
Ethyl Chloride	-	-	-	-	-	-	-	A	A	A
Ethyl Chlorocarbonate	-	-	-	-	-	-	-	-	-	A
Ethyl Chloroformate	-	-	-	-	-	-	-	-	-	A
Ethyl Ether	-	-	-	-	-	-	-	C	C	U
Ethyl Formate	-	-	-	-	-	-	-	B	U	A
Ethyl Mercaptan	-	-	-	-	-	-	-	U	U	A
Ethyl Oxalate	-	-	-	-	-	-	-	A	U	A
Ethyl Pentochlorobenzene	-	-	-	-	-	-	-	U	C	A
Ethyl Silicate	-	-	-	-	-	-	-	A	A	A
Ethylene	-	-	-	-	-	-	-	-	A	A
Ethylene Chloride	-	-	-	-	-	-	-	C	-	A
Ethylene Chlorohydrin	-	-	-	-	-	-	-	-	U	A
Ethylene Diamine	-	-	-	-	-	-	-	A	A	U
Ethylene Dichloride	-	-	-	-	-	-	-	C	U	A

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Ethylene Glycol	B	A	B	B	B	B	B	A	A	A
Ethylene Oxide	B	-	A	B	B	B	B	C	U	U
Ethylene Trichloride	-	-	-	-	-	-	-	C	U	A
Fatty Acids	U	B	B	U	B	A	B	U	B	A
Ferric Chloride	U	-	U	U	U	U	U	A	A	A
Ferric Nitrate	U	U	U	U	C	C	C	A	A	A
Ferric Sulfate	U	U	U	U	B	B	C	A	A	A
Fish Oil	B	-	B	B	A	A	A	-	A	A
Fluoroboric Acid	-	-	-	-	-	-	-	A	A	-
Fluorine (Liquid)	-	-	-	-	-	-	-	C	-	B
Fluorobenzene	-	-	-	-	-	-	-	U	U	A
Fluorocarbon Oils	-	-	-	-	-	-	-	A	-	-
Fluorolube	-	-	-	-	-	-	-	A	A	B
Fluorinated Cyclic Ethers	-	-	-	-	-	-	-	A	-	-
Fluosilicic Acid	U	-	A	U	B	B	A	-	A	-
Formaldehyde	-	A	-	-	-	-	-	A	B	A
Formic Acid	U	A	B	U	C	B	B	A	B	C
Freon 11	-	-	-	-	-	-	-	U	A	A
Freon 12	-	-	-	-	-	-	-	B	A	B
Freon 13	-	-	-	-	-	-	-	A	A	A
Freon 21	-	-	-	-	-	-	-	U	U	U
Freon 22	-	-	-	-	-	-	-	A	U	U
Freon 31	-	-	-	-	-	-	-	A	U	U
Freon 32	-	-	-	-	-	-	-	A	A	C
Freon 112	-	-	-	-	-	-	-	U	B	A
Freon 113	-	-	-	-	-	-	-	U	A	B
Freon 114	-	-	-	-	-	-	-	A	A	B
Freon 115	-	-	-	-	-	-	-	A	A	B
Freon 142b	-	-	-	-	-	-	-	A	A	U
Freon 152a	-	-	-	-	-	-	-	A	A	U
Freon 218	-	-	-	-	-	-	-	A	A	A
Freon C316	-	-	-	-	-	-	-	A	A	-
Freon C318	-	-	-	-	-	-	-	A	A	A
Freon 13B1	-	-	-	-	-	-	-	A	A	A

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Freon 114B2	-	-	-	-	-	-	-	U	B	B
Freon 502	-	-	-	-	-	-	-	-	B	B
Freon TF	-	-	-	-	-	-	-	U	A	A
Freon T-WD602	-	-	-	-	-	-	-	B	B	A
Freon TMC	-	-	-	-	-	-	-	B	B	A
Freon T-P35	-	-	-	-	-	-	-	A	A	A
Freon TA	-	-	-	-	-	-	-	A	A	C
Freon TC	-	-	-	-	-	-	-	B	A	A
Freon MF	-	-	-	-	-	-	-	-	A	-
Freon BF	-	-	-	-	-	-	-	-	B	-
Fuel Oil	B	-	B	B	A	A	A	U	A	A
Fumaric Acid	-	-	-	-	-	-	-	-	A	A
Furan, Furfuran	-	-	-	-	-	-	-	C	U	-
Fufural	B	-	A	A	A	A	A	B	U	U
Gallic Acid	U	-	C	U	B	B	B	B	B	A
Gasoline	-	A	-	-	-	-	-	U	A	A
Gelatin	U	-	A	U	A	A	A	A	A	A
Glauber's Salt	-	A	-	-	-	-	-	B	-	A
Glucose	B	A	A	B	A	A	A	A	A	A
Glue	A	-	B	A	B	B	B	A	A	A
Glycerin	B	A	B	B	A	A	B	A	A	A
Glycols	B	-	B	B	B	B	B	A	B	A
Green Sulfate Liquor	-	-	-	-	-	-	-	A	B	A
Halowax Oil	-	-	-	-	-	-	-	U	U	A
N-Hexaldehyde	-	-	-	-	-	-	-	A	U	-
Hexane	B	-	B	B	B	B	B	U	A	A
N-Hexene-1	-	-	-	-	-	-	-	U	B	A
Hexyl Alcohol	-	-	-	-	-	-	-	C	A	A
Hydrazine	-	-	-	-	-	-	-	A	B	-
Hydraulic Oil (Petroleum)	B	-	B	A	A	A	A	U	A	A
Hydrobromic Acid	U	B<15%	U	U	U	U	C	A	U	A
Hydrochloric Acid (Hot) 37%	-	-	-	-	-	-	-	C	U	A
Hydrochloric Acid (Cold) 37%	-	-	-	-	-	-	-	A	B	A
Hydrocyanic Acid	C	C	U	C	A	A	C	A	B	A

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Hydrofluoric Acid (Conc.) Hot	-	B	-	-	-	-	-	U	U	B
Hydrofluoric Acid (Conc.) Cold	-	B	-	-	-	-	-	B	U	A
Hydrofluoric Acid - Anhydrous	-	B	-	-	-	-	-	B	-	-
Hydrofluosilicic Acid	U	B	A	U	C	C	B	A	B	A
Hydrogen Gas	-	-	-	-	-	-	-	A	A	A
Hydrogen Peroxide (90%)	-	C	-	-	-	-	-	C	U	B
Hydrogen Sulfide (Wet) (Cold)	-	U	-	-	-	-	-	A	U	U
Hydrogen Sulfide (Wet) (Hot)	-	U	-	-	-	-	-	A	U	U
Hydroquinone	-	-	-	-	-	-	-	-	C	U
Hypochlorous Acid	-	U	-	-	-	-	-	B	U	A
Iodine Pentafluoride	-	-	-	-	-	-	-	U	U	U
Iodoform	C	-	C	B	A	A	C	A	-	-
Isobutyl Alcohol	-	-	-	-	-	-	-	A	B	A
Isoactane	B	-	A	A	A	A	A	U	A	A
Isophorone	-	-	-	-	-	-	-	A	U	U
Isopropyl Acetate	-	-	-	-	-	-	-	A	U	U
Isopropyl Alcohol	B	-	B	B	B	B	B	A	B	A
Isopropyl Chloride	-	-	-	-	-	-	-	U	U	A
Isopropyl Ether	B	-	A	A	A	A	A	U	B	U
Kerosene	B	-	A	B	A	A	A	U	A	A
Lacquers	C	A	A	C	A	A	A	U	U	U
Lacquer Solvents	-	A	-	-	-	-	-	U	U	U
Lactic Acid	-	-	-	-	-	-	-	A	A	A
Lard	C	-	A	C	B	B	B	U	A	A
Lavender Oil	-	-	-	-	-	-	-	U	B	A
Lead Acetate	U	-	C	U	B	B	B	A	B	-
Leead Nitrate	-	-	-	-	-	-	-	A	A	-
Lead Sulfamate	-	-	-	-	-	-	-	A	B	A
Lime Bleach	-	-	-	-	-	-	-	A	A	A
Lime Sulfur	-	-	-	-	-	-	-	A	U	A
Lindol	-	-	-	-	-	-	-	A	-	B
Linoleic Acid	B	-	B	B	A	A	B	U	B	B
Linseed Oil	A	-	B	A	B	B	B	B	A	A
Liquefied Petroleum Gas	B	-	A	B	B	B	B	U	A	A

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Lubricating Oil	A	A	B	A	A	A	B	U	A	A
Lye	-	A	-	-	-	-	-	A	B	B
Magnesium Chloride	U	A	B	C	B	B	B	A	A	A
Magnesium Hydroxide	B	A	B	B	A	A	A	A	B	A
Magnesium Sulfate	B	A	B	B	B	B	B	A	A	A
Maleic Acid	B	-	B	B	B	B	A	C	-	A
Maleic Anhydride	-	-	-	-	-	-	-	C	-	A
Malic Acid	U	-	B	U	B	B	B	U	A	A
Mercuric Chloride	U	U	U	U	U	C	B	A	A	A
Mercury	A	-	U	A	A	A	B	A	A	A
Mesityl Oxide	-	-	-	-	-	-	-	B	U	U
Methane	B	-	A	B	B	B	B	U	A	A
Methyl Acetate	B	-	A	B	A	A	A	B	U	U
Methyl Acrylate	-	-	-	-	-	-	-	B	U	U
Methylacrylic Acid	-	-	-	-	-	-	-	B	-	B
Methyl Alcohol	B	-	B	B	B	B	A	A	A	C
Methyl Bromide	-	-	-	-	-	-	-	-	B	A
Methyl Butyl Ketone	-	-	-	-	-	-	-	A	U	U
Methyl Cellosolve	B	-	A	B	A	A	B	B	-	U
Methyl Chloride	B	-	A	B	B	A	B	C	U	A
Methyl Cyclopentane	-	-	-	-	-	-	-	U	-	A
Methylene Chloride	B	-	A	B	A	A	B	U	U	B
Methyl Ethyl Ketone	A	-	A	A	A	A	A	A	U	U
Methyl Formate	C	-	A	C	B	B	B	A	U	U
Methyl Isobutyl Ketone	-	-	-	-	-	-	-	C	U	U
Methyl Methacrylate	-	-	-	-	-	-	-	U	U	U
Methyl Oleate	-	-	-	-	-	-	-	B	U	A
Methyl Salicylate	-	-	-	-	-	-	-	B	-	-
Milk	U	-	A	U	A	A	A	A	A	A
Mineral Oil	B	-	B	B	A	A	A	U	A	A
Monochlorobenzene	U	-	U	U	U	U	C	U	U	A
Monomethyl Aniline	-	-	-	-	-	-	-	-	U	B
Monoethanolamine	-	-	-	-	-	-	-	B	U	U
Monoethylether	-	-	-	-	-	-	-	A	A	-

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Monovinyl Acetylene	-	-	-	-	-	-	-	A	A	A
Mustard Gas	-	-	-	-	-	-	-	A	-	-
Naptha	B	A	B	B	B	B	B	U	C	A
Napthalene	B	-	B	A	B	B	B	U	U	A
Napthenic Acid	-	-	-	-	-	-	-	U	B	A
Natural Gas	-	A	-	-	-	-	-	U	A	A
Neatsfoot Oil	-	-	-	-	-	-	-	B	A	A
Neville Acid	-	-	-	-	-	-	-	B	C	A
Nickel Acetate	-	-	-	-	-	-	-	A	B	U
Nickel Chloride	U	B	U	U	B	B	B	A	A	A
Nickel Sulfate	-	B	-	-	-	-	-	A	A	A
Niter Cake	-	-	-	-	-	-	-	A	A	A
Nitric Acid - Conc.	-	U	-	-	-	-	-	C	U	A
Nitric Acid- Dilute	-	U	-	-	-	-	-	B	U	A
Nitric Acid - Red Fuming	-	U	-	-	-	-	-	U	U	C
Nitrobenzene	B	-	U	B	B	B	B	U	U	B
Nitrobenzine	-	-	-	-	-	-	-	C	-	A
Nitroethane	-	-	-	-	-	-	-	B	U	U
Nitromethane	-	-	-	-	-	-	-	B	U	U
Nitrogen	A	A	A	A	A	A	A	A	A	A
Nitrogen Tetroxide	-	-	-	-	-	-	-	C	U	U
Octadecane	-	-	-	-	-	-	-	U	A	A
N-Octane	-	-	-	-	-	-	-	U	-	A
Octachlorotoluene	-	-	-	-	-	-	-	U	U	A
Octyl Alcohol	-	-	-	-	-	-	-	A	B	A
Oleic Acid	C	A	B	C	B	B	B	B	C	B
Oleum Spirits	C	-	B	B	B	B	B	-	B	A
Olive Oil	B	A	B	B	A	A	A	B	A	A
O-Dichlorobenzene	-	-	-	-	-	-	-	-	U	A
Oxalic Acid	U	-	B	U	B	B	B	A	B	A
Oxygen - Cold	-	B	-	-	-	-	-	A	B	A
Oxygen - 200 - 400°	-	-	-	-	-	-	-	U	U	B
Ozone	-	-	-	-	-	-	-	A	U	A
Paint Thinner, Duco	-	-	-	-	-	-	-	U	-	B

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Palmitic Acid	C	-	B	C	B	B	B	B	A	A
Peanut Oil	-	-	-	-	-	-	-	C	A	A
Perchloric Acid	-	-	-	-	-	-	-	B	-	A
Perchloroethylene	B	-	C	B	A	A	B	U	C	A
Petroleum - Below 250	-	A	-	-	-	-	-	U	A	A
Petroleum - Above 250	-	-	-	-	-	-	-	U	C	B
Phenol	U	B	B	U	B	B	B	B	-	A
Phenylbenzene	-	-	-	-	-	-	-	U	U	A
Phenyl Ethyl Ether	-	-	-	-	-	-	-	U	U	-
Phenyl Hydrazine	-	-	-	-	-	-	-	C	U	A
Phorane	-	-	-	-	-	-	-	B	-	-
Phosphoric Acid - 20%	-	B	-	-	-	-	-	A	B	A
Phosphoric Acid - 45%	-	B	-	-	-	-	-	B	U	A
Phosphorous Trichloride	-	-	-	-	-	-	-	A	U	A
Pickling Solution	-	A	-	-	-	-	-	C	-	B
Picric Acid	U	-	B	U	B	B	A	B	B	A
Pinene	-	-	-	-	-	-	-	U	B	A
Pine Oil	B	-	B	B	A	A	A	U	B	A
Piperidine	-	-	-	-	-	-	-	U	U	U
Plating Solution - Chrome	-	-	-	-	-	-	-	A	-	A
Plating Solution - Others	-	-	-	-	-	-	-	A	A	A
Polyvinyl Acetate Emulson	-	-	-	-	-	-	-	A	-	-
Potassium Acetate	-	-	-	-	-	-	-	A	B	U
Potassium Chloride	B	A	B	C	C	C	B	A	A	A
Potassium Cupro Cyanide	-	-	-	-	-	-	-	A	A	A
Potassium Cyanide	B	U	U	B	B	B	B	A	A	A
Potassium Dichromate	C	-	U	C	B	B	B	A	A	A
Potassium Hydroxide	C	A	U	C	B	B	B	A	B	B
Potassium Nitrate	B	B	B	B	B	B	B	A	A	A
Potassium Sulfate	C	A	B	B	B	B	B	A	A	A
Producer Gas	B	-	B	B	B	B	A	U	A	A
Propane	B	A	A	B	B	B	B	U	A	A
Propyl Acetate	-	-	-	-	-	-	-	B	U	U
N-Propyl Acetate	-	-	-	-	-	-	-	A	U	U

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Chemicals	Ductile Iron	Nickel Alum. Bronze	Bronze	Carbon Steel	SST 303	SST 316	Monel	Ethylene Propylene	Buna-N	Viton
Propyl Alcohol	B	-	A	B	A	A	A	A	A	A
Propyl Nitrate	-	-	-	-	-	-	-	B	-	U
Propylene	-	-	-	-	-	-	-	U	U	A
Propylene Oxide	-	-	-	-	-	-	-	B	-	-
Pyranol	-	-	-	-	-	-	-	U	A	A
Pydrauls	-	-	-	-	-	-	-	B	U	A
Pyridine	-	-	-	-	-	-	-	B	U	U
Pyroligenous Acid	-	-	-	-	-	-	-	B	-	-
Pyrrole	-	-	-	-	-	-	-	C	U	-
Radiation	-	-	-	-	-	-	-	B	B	U
Rapeseed Oil	-	-	-	-	-	-	-	A	B	A
Red Oil	-	A	-	-	-	-	-	U	A	A
Sal Ammoniac	-	U	-	-	-	-	-	A	A	A
Salicyclic Acid	U	-	C	U	A	A	A	A	A	A
Salt Water	-	-	-	-	-	-	-	A	A	A
Sewage	-	-	-	-	-	-	-	B	A	A
Silicate Esters	-	-	-	-	-	-	-	U	B	A
Silicone Greases	-	-	-	-	-	-	-	A	A	A
Silicone Oils	-	-	-	-	-	-	-	A	A	A
Silver Nitrate	U	-	U	U	B	B	U	A	B	A
Skydrol 500	-	-	-	-	-	-	-	A	U	U
Skydrol 7000	-	-	-	-	-	-	-	A	U	B
Soap Solutions	-	A	-	-	-	-	-	A	A	A
Soda Ash	-	-	-	-	-	-	-	A	A	A
Sodium Acetate	C	-	B	C	B	B	C	A	B	U
Sodium Bicarbonate	C	A	B	C	B	B	B	A	A	A
Sodium Bisulfite	-	-	-	-	-	-	-	A	A	A
Sodium Borate	C	A	B	C	B	B	B	A	A	A
Sodium Chloride	C	A	B	C	B	B	A	A	A	A
Sodium Cyanide	B	C	U	B	B	B	B	A	A	A
Sodium Hydroxide	-	A	-	-	-	-	-	A	B	B
Sodium Hypachlorite	-	-	-	-	-	-	-	B	B	A
Sodium Metaphosphate	B	-	C	B	A	A	A	A	A	A
Sodium Nitrate	B	B	B	B	B	B	B	A	B	-

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Sodium Perborate	B	B	B	B	B	B	B	A	B	A
Sodium Peroxide	C	C	U	C	B	B	B	A	B	A
Sodium Phosphate	C	A	C	C	B	B	B	A	A	A
Sodium Silicate	B	A	B	B	B	B	B	A	A	A
Sodium Sulfate	B	A	B	B	B	A	A	A	A	A
Sodium Thiosulfate	B	-	B	B	A	A	A	A	B	A
Soybean Oil	C	-	B	C	A	A	A	C	A	A
Stannic(ous) Chloride	U	-	U	U	U	C	C	B	A	A
Steam Under 300°F	-	A	-	-	-	-	-	A	U	U
Steam Over 300°F	-	-	-	-	-	-	-	B	U	U
Stearic Acid	C	-	C	C	B	B	B	B	B	-
Stoddard Solvent	B	-	B	B	B	B	B	U	A	A
Styrene	B	-	A	A	A	A	A	U	U	B
Sucrose Solution	-	-	-	-	-	-	-	A	A	-
Sulfite Liquors	-	-	-	-	-	-	-	B	B	A
Sulfur	C	C	U	C	B	B	A	A	U	A
Sulfur Chloride	-	U	-	-	-	-	-	U	C	A
Sulfur Dioxide	B	B	B	B	A	A	A	A	U	A
Sulfur Hexafluoride	-	-	-	-	-	-	-	A	A	A
Sulfur Trioxide	B	-	B	B	A	A	A	B	U	A
Sulfuric Acid (Dilute)	-	A	-	-	-	-	-	B	U	A
Sulfuric Acid (Concentrated)	-	-	-	-	-	-	-	B	U	A
Sulfuric Acid (20% Oleum)	-	-	-	-	-	-	-	U	U	A
Sulfurous Acid	U	B	C	U	B	B	U	B	B	A
Tannic Acid	C	A	B	C	B	B	B	A	A	A
Tar, Bituminous	-	-	-	-	-	-	-	U	B	A
Tartaric Acid	U	A	A	U	B	B	B	B	A	A
Terpineol	-	-	-	-	-	-	-	C	B	A
Tertiary Butyl Alcohol	-	-	-	-	-	-	-	B	B	A
Tertiary Butyl Catechol	-	-	-	-	-	-	-	B	U	A
Tertiary Butyl Mercaptan	-	-	-	-	-	-	-	U	U	A
Tetrabromomethane	-	-	-	-	-	-	-	U	U	A
Tetrabutyl Titanate	-	-	-	-	-	-	-	A	B	A
Tetrachloroethylene	-	-	-	-	-	-	-	U	U	A

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Tetraethyl Lead	C	-	B	C	B	B	A	U	B	A
Tetrahydrofuran	-	-	-	-	-	-	-	B	-	U
Tetralin	-	-	-	-	-	-	-	U	U	A
Thionyl Chloride	-	-	-	-	-	-	-	U	-	A
Titanium Tetrachloride	-	-	-	-	-	-	-	U	C	A
Toluene	-	A	-	-	-	-	-	U	U	A
Toluene Diisocyanate	-	-	-	-	-	-	-	A	-	-
Transformer Oil	B	-	B	A	A	A	A	U	A	A
Transmission Fluid Type A	-	-	-	-	-	-	-	U	A	A
Triacetin	-	-	-	-	-	-	-	A	B	U
Tributoxy Ethyl Phosphate	-	-	-	-	-	-	-	A	U	A
Tributyl Phosphate	A	-	A	A	A	A	A	A	U	U
Tributyl Mercaptan	-	-	-	-	-	-	-	U	U	A
Trichloroethane	-	-	-	-	-	-	-	U	U	A
Trichloroacetic Acid	-	-	-	-	-	-	-	B	B	C
Trichloroethylene	C	B	B	B	B	B	A	U	C	A
Tricresyl Phosphate	-	-	-	-	-	-	-	A	U	B
Triethanol Amine	-	-	-	-	-	-	-	B	C	U
Triethyl Aluminum	-	-	-	-	-	-	-	-	-	B
Triethyl Borane	-	-	-	-	-	-	-	-	-	A
Trinitrotoluene	-	-	-	-	-	-	-	U	U	B
Trioctyl Phosphate	-	-	-	-	-	-	-	A	U	B
Triaryl Phosphate	-	-	-	-	-	-	-	A	U	A
Tung Oil	B	-	B	B	A	A	C	U	A	A
Turbine Oil	-	-	-	-	-	-	-	U	B	A
Turpentine	B	A	B	B	B	B	B	U	A	A
Unsymmetrical Dimethyl (Hydrazine) (UDMH)	-	-	-	-	-	-	-	A	B	U
Varnish	C	A	A	C	A	A	A	U	B	A
Vegetables Oils	B	A	B	B	A	A	B	A	A	A
Versilube	-	-	-	-	-	-	-	A	A	A
Vinegar	U	-	B	U	A	A	A	A	B	A
Vinyl Chloride	-	-	-	-	-	-	-	B	-	A
Wagner 21B Fluid	-	-	-	-	-	-	-	A	C	U
Water	-	A	-	-	-	-	-	A	A	A

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Whiskey, Wines	U	A	A	U	A	A	A	A	A	A
White Pine Oil	-	-	-	-	-	-	-	U	B	A
White Oil	-	-	-	-	-	-	-	U	A	A
Wood Oil	-	-	-	-	-	-	-	U	A	A
Xylene	B	A	A	B	A	A	A	U	U	A
Xylidenes	-	-	-	-	-	-	-	U	C	U
Zeolites	-	-	-	-	-	-	-	A	A	A
Zinc Acetate	-	-	-	-	-	-	-	A	B	U
Zinc Chloride	C	B	U	U	U	U	B	A	A	A
Zinc Sulfate	U	B	B	U	B	B	B	A	A	A

Diaphragm Temperature and Pressures Ratings

Material	Max Temperature °F	Max Temperature °C
Buna-N (NBR)	180°	82°
EPDM	210°	99°
Viton	210°	99°
Ballistic Nylon	180°	82°

Diaphragm Thickness	Max Working Pressure (psi)	Approximate Mullen's Burst Pressure (psi)
0.188"	740	>2000
0.125"	600	1000
0.050"	450	700

Main Valve Pressure Ratings (psi)

Material	150 Class	300 Class	Threaded	Groove	PN 16	PN 25
Ductile Iron*	250	640	640	640	232	362
Bronze	225	500	500	500	232	362
Carbon Steel	285	740	740	740	232	362
Stainless Steel	285	740	740	740	232	362

* Max temperature rating for DI with KC Fusion Bond Epoxy Coating is 200°F

Note: Maximum application pressure is 400psi for a 300 class valve.

High Differential Pressure:

Standard Buna-N disc material has a 90 shore durometer hardness and is not an overriding concern in high differential applications. When the maximum operating differential exceeds **300 psid**, a ultra-high molecular weighted polyethylene (UHMW-PE) disc may be an option. Caution must be used when considering UHMW-PE polyethylene discs on valve applications; where drip tight valve closure is required. i.e. relief valves, on/off valves. The extremely hard UHMW-PE disc typically has an unevenness that causes the disc not to sit properly in the retainer or flat onto the seat surface, potentially allowing valve leakage and preventing a drip tight shutoff.

Flange Dimensions and End Details

All flanged Cla-Val valves are furnished faced and drilled unless otherwise specified. The dimensions and drilling of end flanges conform to standards of the American National Standards Institute.

The ANSI tables are provided here for your convenience. When ANSI standards call for 1/16" raised face, this face is included in the dimensions for the thickness of flange. All dimensions are shown in inches.

Ductile Iron Valves Class 150 and 300 (ANSI B16.42 — 1987)

Nominal Pipe Size	Diameter of Flange		Thickness of Flange		Diameter of Raised Face		Diameter of Bolt Circle		Number of Bolts		Diameter of Bolts		Diameter of Bolt Holes	
Pressure Class	150	300	150	300	150	300	150	300	150	300	150	300	150	300
1.5	5.00	6.12	.56	.81	2.88	2.88	3.88	4.50	4	4	.50	.75	.62	.88
2	6.00	6.50	.62	.88	3.62	3.62	4.75	5.00	4	8	.63	.63	.75	.75
2.5	7.00	7.50	.69	1.00	4.12	4.12	5.50	5.88	4	8	.63	.75	.75	.88
3	7.50	8.25	.75	1.12	5.00	5.00	6.00	6.62	4	8	.63	.75	.75	.88
4	9.00	10.00	.94	1.25	6.19	6.19	7.50	7.88	8	8	.63	.75	.75	.88
6	11.00	12.50	1.00	1.44	8.50	8.50	9.50	10.62	8	12	.75	.75	.88	.88
8	13.50	15.00	1.12	1.62	10.62	10.62	11.75	13.00	8	12	.75	.88	.88	1.00
10	16.00	17.50	1.19	1.88	12.75	12.75	14.25	15.25	12	16	.88	1.00	1.00	1.12
12	19.00	20.50	1.25	2.00	15.00	15.00	17.00	17.75	12	16	.88	1.12	1.00	1.25
14	21.00	23.00	1.38	2.12	16.25	16.25	18.75	20.25	12	20	1.00	1.12	1.12	1.25
16	23.50	25.50	1.44	2.25	18.50	18.50	21.25	22.50	16	20	1.00	1.25	1.12	1.38
18	25.00	28.00	1.56	2.38	21.00	21.00	22.75	24.75	16	24	1.12	1.25	1.25	1.38
20	27.50	30.50	1.69	2.50	23.00	23.00	25.00	27.00	20	24	1.13	1.25	1.25	1.38
24	32.00	36.00	1.88	2.75	27.25	27.25	29.50	32.00	20	24	1.25	1.50	1.38	1.62
30	38.75	43.00	2.12	3.00	—	37.19	36.00	39.25	28	28	1.25	1.75	1.38	2.00
36	46.00	50.00	2.38	3.38	—	42.69	42.75	46.00	32	32	1.50	2.00	1.62	2.25

Cast Iron Valves Class 125 and 250 (ANSI B16.1 — 1989)

Nominal Pipe Size	Diameter of Flange		Thickness of Flange		Diameter of Raised Face		Diameter of Bolt Circle		Number of Bolts		Diameter of Bolts		Diameter of Bolt Holes	
Pressure Class	125	250	125	250	125	250	125	250	125	250	125	250	125	250
1.5	5.00	6.12	.56	.81	—	2.88	3.88	4.50	4	4	.50	.75	.62	.88
2	6.00	6.50	.62	.88	—	3.62	4.75	5.00	4	8	.63	.63	.75	.75
2.5	7.00	7.50	.69	1.00	—	4.12	5.50	5.88	4	8	.63	.75	.75	.88
3	7.50	8.25	.75	1.12	—	5.00	6.00	6.62	4	8	.63	.75	.75	.88
4	9.00	10.00	.94	1.25	—	6.19	7.50	7.88	8	8	.63	.75	.75	.88
6	11.00	12.50	1.00	1.44	—	8.50	9.50	10.62	8	12	.75	.75	.88	.88
8	13.50	15.00	1.12	1.62	—	10.62	11.75	13.00	8	12	.75	.88	.88	1.00
10	16.00	17.50	1.19	1.88	—	12.75	14.25	15.25	12	16	.88	1.00	1.00	1.12
12	19.00	20.50	1.25	2.00	—	15.00	17.00	17.75	12	16	.88	1.12	1.00	1.25
14	21.00	23.00	1.38	2.12	—	16.25	18.75	20.25	12	20	1.00	1.12	1.12	1.25
16	23.50	25.50	1.44	2.25	—	18.50	21.25	22.50	16	20	1.00	1.25	1.12	1.38
18	25.00	28.00	1.56	2.38	21.00	23.00	22.75	24.75	16	24	1.12	1.25	1.25	1.38
20	27.50	30.50	1.69	2.50	—	23.00	25.00	27.00	20	24	1.13	1.25	1.25	1.38
24	32.00	36.00	1.88	2.75	—	27.25	29.50	32.00	20	24	1.25	1.50	1.38	1.62

Bronze Valves Class 150 and 300 (ANSI 16.24 — 1979)

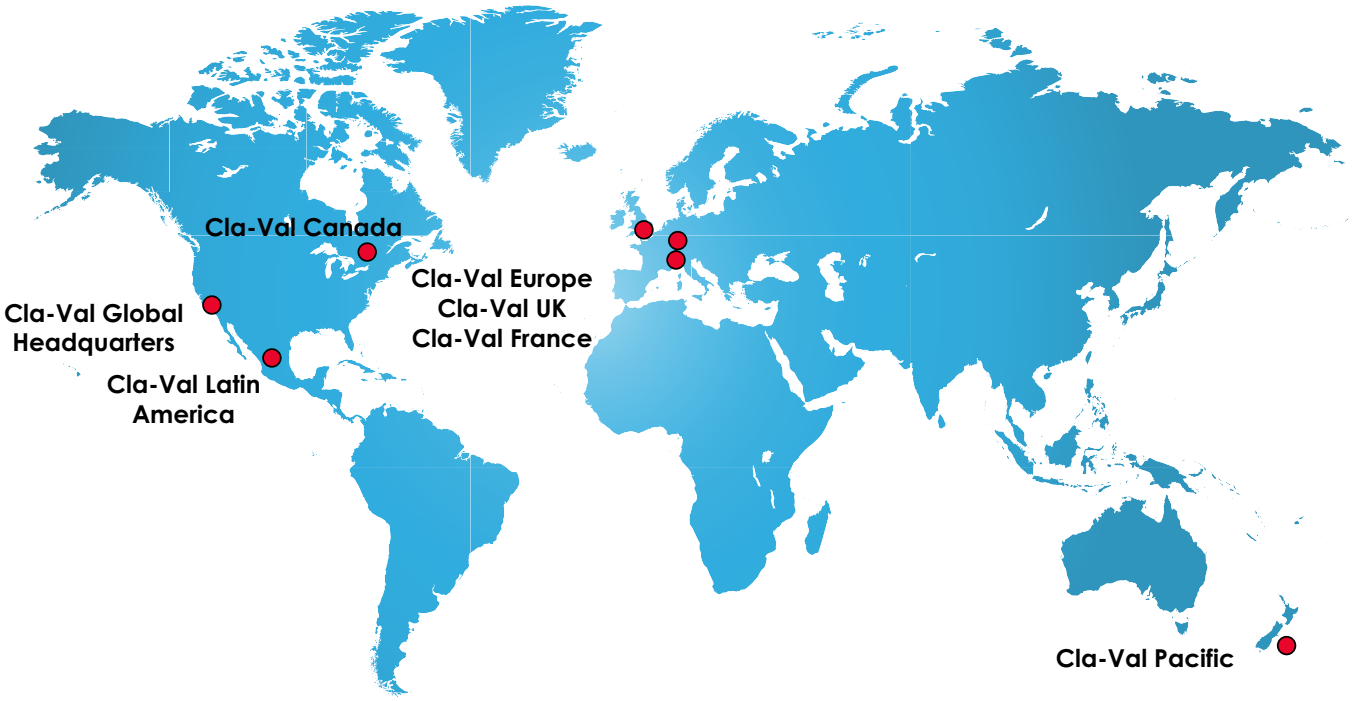
Nominal Pipe Size	Diameter of Flange		Thickness of Flange		Diameter of Raised Face		Diameter of Bolt Circle		Number of Bolts		Diameter of Bolts		Diameter of Bolt Holes	
Pressure Class	150	300	150	300	150	300	150	300	150	300	150	300	150	300
1.5	5.00	6.12	.44	.69	—	—	3.88	4.50	4	4	.50	.75	.62	.88
2	6.00	6.50	.50	.75	—	—	4.75	5.00	4	8	.63	.63	.75	.75
2.5	7.00	7.50	.56	.81	—	—	5.50	5.88	4	8	.63	.75	.75	.88
3	7.50	8.25	.62	.91	—	—	6.00	6.62	4	8	.63	.75	.75	.88
4	9.00	10.00	.69	1.06	—	—	7.50	7.88	8	8	.63	.75	.75	.88
6	11.00	12.50	.81	1.19	—	—	9.50	10.62	8	12	.75	.75	.88	.88
8	13.50	15.00	.94	1.38	—	—	11.75	13.00	8	12	.75	.88	.88	1.00
10	16.00	—	1.00	—	—	—	14.25	—	12	—	.88	—	1.00	—
12	19.00	—	1.06	—	—	—	17.00	—	12	—	.88	—	1.00	—

Cast Steel Valves Class 150 and 300 (ANSI 16.5 — 1988)

Nominal Pipe Size	Diameter of Flange		Thickness of Flange		Diameter of Raised Face		Diameter of Bolt Circle		Number of Bolts		Diameter of Bolts		Diameter of Bolt Holes	
Pressure Class	150	300	150	300	150	300	150	300	150	300	150	300	150	300
1.5	5.00	6.12	.56	.81	2.88	2.88	3.88	4.50	4	4	.50	.75	.62	.88
2	6.00	6.50	.62	.88	3.63	3.63	4.75	5.00	4	8	.63	.63	.75	.75
2.5	7.00	7.50	.69	1.00	4.13	4.13	5.50	5.88	4	8	.63	.75	.75	.88
3	7.50	8.25	.75	1.12	5.00	5.00	6.00	6.62	4	8	.63	.75	.75	.88
4	9.00	10.00	.94	1.25	6.19	6.19	7.50	7.88	8	8	.63	.75	.75	.88
6	11.00	12.50	1.00	1.44	8.50	8.50	9.50	10.62	8	12	.75	.75	.88	.88
8	13.50	15.00	1.12	1.62	10.63	10.63	11.75	13.00	8	12	.75	.88	.88	1.00
10	16.00	17.50	1.19	1.88	12.75	12.75	14.25	15.25	12	16	.88	1.00	1.00	1.12
12	19.00	20.50	1.25	2.00	15.00	15.00	17.00	17.75	12	16	.88	1.12	1.00	1.25
14	21.00	23.00	1.38	2.12	16.25	16.25	18.75	20.25	12	20	1.00	1.12	1.12	1.25
16	23.50	25.50	1.44	2.25	18.50	18.50	21.25	22.50	16	20	1.00	1.25	1.12	1.38
18	25.00	28.00	1.56	2.38	21.00	23.00	22.75	24.75	16	24	1.12	1.25	1.25	1.38
20	27.50	30.50	1.69	2.50	23.00	23.00	25.00	27.00	20	24	1.13	1.25	1.25	1.38
24	32.00	36.00	1.88	2.75	27.25	27.25	29.50	32.00	20	24	1.25	1.50	1.38	1.62

E-ED (R-3/2012)

CLA-VAL *Material Selection Guide*



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