



GVA
LIGHTING

FA-D Series
Waterproof
Luminaires



File: 208502

GRP Body

IP65
IP66
IP67

FA-D is an IP65, IP66 and IP67 rated, dimensionally stable, light-weight fixture for use in damp or wet locations and for areas with high concentrations of dust, fumes and diluted acids. It is an energy efficient surface or suspension mount waterproof luminaire for use with T8, T5 or T5HO lamps.

Standard Features

- GRP (Glass Reinforced Polyester) body, corrosion-moisture-acid resistant
- IP65, IP66 and IP67 rated
- cCSAus certified for wet locations in Canada and the USA
- High frequency Electronic Ballast, Instant Start, THD<20%
- Available in single, two or three T8, T5 or T5HO lamps
- Available in 2 ft, 4 ft and 5 ft lengths
- Diffuser available in PM (Pearled Acrylic), CA (Clear Acrylic) and PC (Polycarbonate)
- Non-ageing robot formed continuous polyurethane gasket.
- Captive, highly resistant clips made of polyamide (PA)
- 6 clips per 2 ft, 8 clips per 4 ft and 10 clips per 5 ft fixture
- Snap-in 22 gauge steel reflector tray, painted high-reflective white, after fabrication
- Highest quality lampholders (BJB)
- Quick disconnect for screwless power and ground connection
- Suitable for end to end installation without gaps
- Trouble-free installation and maintenance
- Rubber washers, end plugs and mounting screws supplied with the fixture
- Luminaire lenses are recyclable

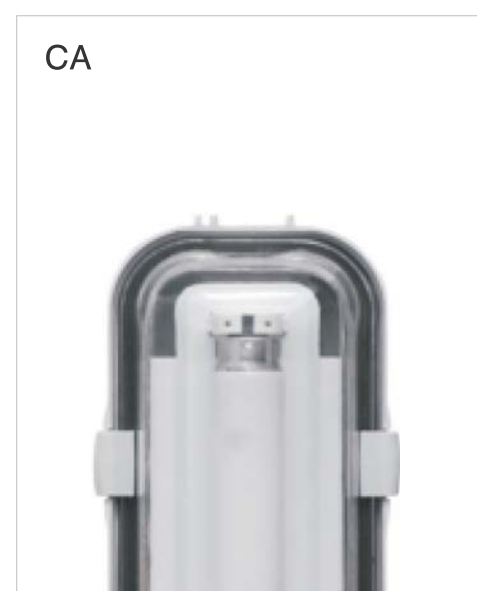
Optional Features

- High performance (THD <10%) electronic ballast
- Program Start electronic ballasts
- Cold Weather electronic ballasts (-30°C)
- Dimmable (analog) electronic ballasts
- Emergency electronic ballasts
- Stainless Steel clips with optional Tamper Resistant Screws
- Specular aluminum reflector
- Cut-Off Specular aluminum reflector
- Suspension set
- Through Wiring Harness (3 or 5 conductors AWG 14)
- Master/Slave wiring option
- 220V-240V ballasts

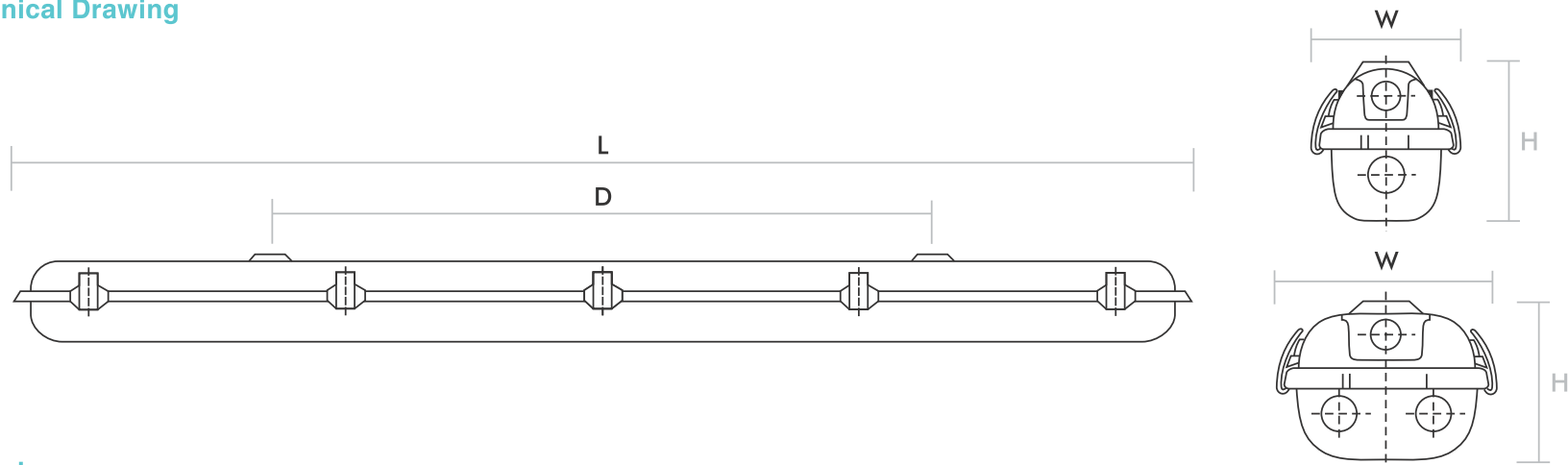
Diffusers

PM lens is made of UV-resistant acrylic with a pearl structure. This thermoformed diffuser provides a highly translucent, durable lens that is resistant to weathering and ageing and provides outstanding resistance to chemical influences. CLEAR diffusers are also made of UV-resistant acrylic and available for 4 ft fixtures.

PC lens is made of highly transparent UV stabilized polycarbonate (PC) with internal longitudinal prisms and an etched surface structure. This injection-molded diffuser has outstanding impact resistance and dimensional stability.



Mechanical Drawing



Dimensions

Size	Lamps	L, mm (inch)	W, mm (inch)	H, mm (inch)	D, mm (inch)	Weight, kg (lb)
2'	1	673 (26.49")	111 (4.37")	110 (4.33")	450 (17.72")	1.50 (3.30)
	2/3	673 (26.49")	168 (6.69")	114 (4.49")	450 (17.72")	1.90 (4.18)
4'	1	1283 (50.51")	111 (4.37")	110 (4.33")	660 (26.00")	2.40 (5.28)
	2/3	1283 (50.51")	168 (6.69")	114 (4.49")	660 (26.00")	3.40 (7.48)
5'	1	1583 (62.32")	111 (4.37")	110 (4.33")	900 (35.43")	2.50 (5.50)
	2/3	1583 (62.32")	168 (6.69")	114 (4.49")	900 (35.43")	4.30 (9.46)

FA-D fixtures are approved for protected outdoor installation.
 Normal ambient temperature range: -20 °C (0°F) to +25°C (77°F)

Chemical Resistance

No material is resistant to all chemical influences. Chemical resistance is an important consideration, given the number of chemical environments in which this fixture may be used. Our chemical resistance table merely gives a brief overview of some frequently occurring chemical influences. This table can be found on next pages. The information in the table is applicable in under the following conditions.

The chemical substance listed in the table is a basic material and not part of a chemical compound.
 The ambient temperature is 22°C
 To be used as a guide only

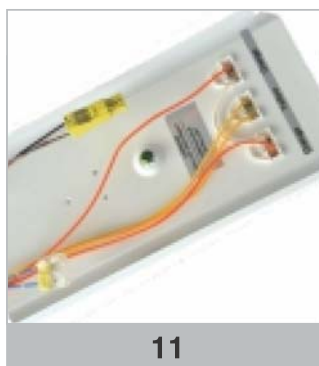
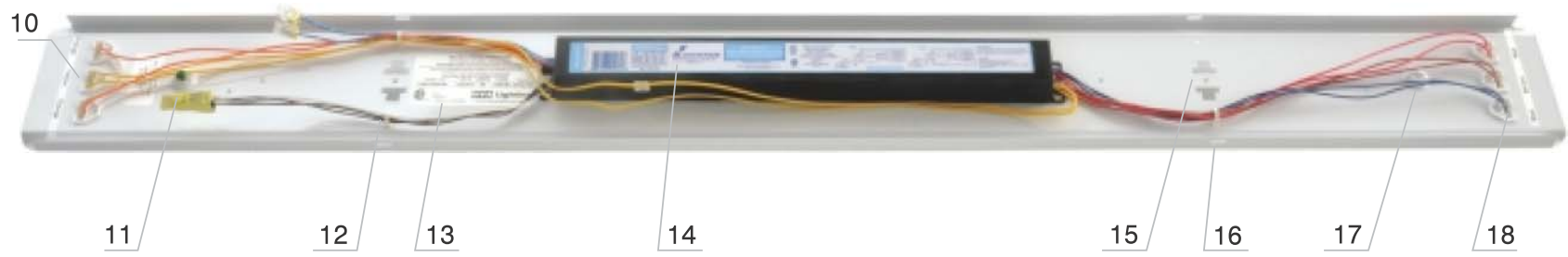
Chemical reactions will occur more or less rapidly and intensively at higher or lower temperatures depending on the type and composition of the substances involved. We will be happy to assist you, should you have any questions or concerns about the resistance of any materials.

Specification Logic

FAMILY	# OF LAMPS	LAMP WATTAGE	DIFFUSER	VOLTAGE	BALLAST	CLIPS	OPTIONS
FAD	1	17W T8 (2')	PC (Polycarbonate)	120	IH (Instant Start, THD < 10%)	PL (Plastic)	EM (Emergency Ballast)
	2	32W T8 (4')	PM (Pearled Acrylic)	277	PH (Program Start, THD < 10%)	SS (Stainless Steel)	ALR (Aluminum Reflector)
	3	40W T8 (5')	CA (Clear Acrylic)*	120/277	PH-CW (Programmed Start Cold Weather, -30C, THD < 10%)		ALRC (Aluminum Reflector Cut-Off)
		14W T5 (2')		347	ADIM (Analog Dimming 0-10V DC)		TWH3 (Through Wiring Harness 3 conductors)
		28W T5 (4')			SB (Specified Ballast)		TWH5 (Through Wiring Harness 5 conductors)
		35W T5 (5')					TRS (Tamper Resistant Screws)
		24W T5HO (2')					
		54W T5HO (4')					
		80W T5HO (5')**					

* Note only available in four foot fixtures

** Note: only available in two lamp cross section



1. Acrylic (PMMA) or Polycarbonate (PC) diffuser (interchangeable)
2. Glass Reinforced Polyester (GRP) body
3. Plastic clips (6 pcs for 2' units, 8 pcs for 4' units, 10 pcs for 5' units)
4. Snap lock for holding gear tray
5. Robot foamed polyurethane gasket without joint
6. Alignment pins
7. Niches allow installing fixtures with waterproof fittings end to end without gaps
8. Through wiring harness (optional)
9. Cable holder for through wiring harness (optional)
10. Formed 22 gauge steel gear tray painted white
11. Quick disconnect mean
12. Wire support clips
13. Label with cCSAus logo
14. Electronic ballast
15. Mounting holes
16. Holes on each side for hanging gear tray for easy connection and maintenance
17. Grounding screw terminal for grounding continuity with Master/Slave installations
18. Lampholders
19. Tandem liquid-tight connector FAD (optional)
20. Stainless Steel clips (optional)
21. Mirrored aluminum reflector (optional)
22. Rubber plug for sealing unused opening (use CSA/ UL approved fittings for wiring)
23. Suspension set (two plastic hooks with rubber washers and screws) (optional)
24. Surface-mount installation of the body
25. Snap-in mounting kit



For illumination of large facilities the luminaires are often arranged in continuous rows.

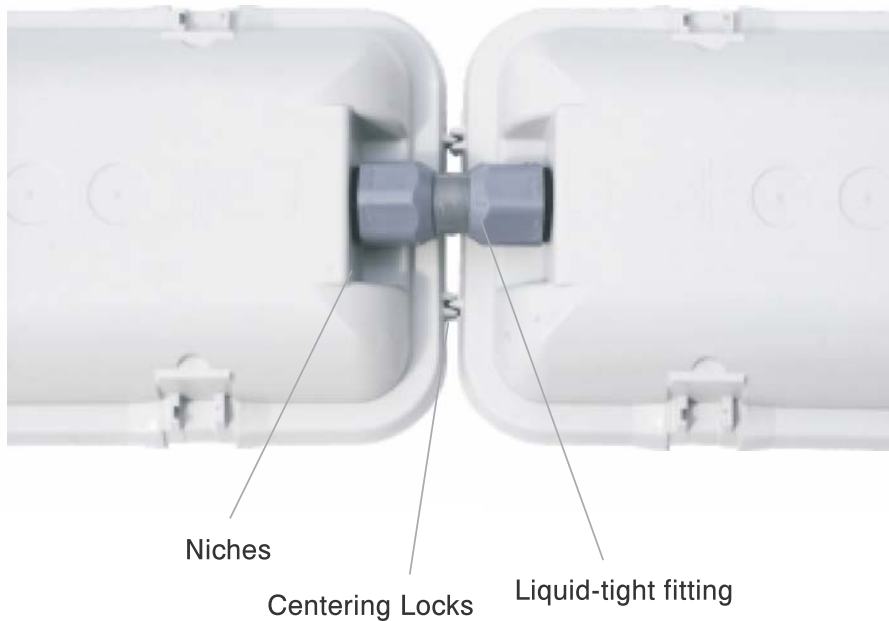
Master-Slave/Tandem wiring configurations can be used for long runs of FAD fixtures and remote ballast applications.

Master-Slave Wiring is connecting the electrical power to one fixture (Master) and the ballast of that one fixture controls the lamps inside Master and other nearby similar fixture (Slave).

Unlike magnetic ballasts, electronic ballasts are limited in remote mounting distance from the lamp they operate. The factors limiting the distance from the electronic ballasts to the lamps are: open circuit voltage as opposed to operating voltage, operating frequency and the lamp operating current. Maximum distance between Master and Slave units is based on the general rule that Instant Start fixed light-output ballasts can be remoted up to 18'-20' using 18 AWG wire. There are a wide range and varying types of electronic ballast architectures that are capable of being remote mounted for an equally wide range of distances. If you are uncertain of the remote mounting restrictions for a particular electronic ballast please consult the ballast manufacturer or our factory.

Tandem or Continuous Row wiring is when two (or more) fixtures are attached together and the primary electrical connection is made into the first fixture but then internally wired to subsequent fixtures in the row. The fixtures act as a raceway for the power (usually described as "through wiring").

GVA offers as an option a through wiring harness to simplify and reduce the on-site wiring requirement.

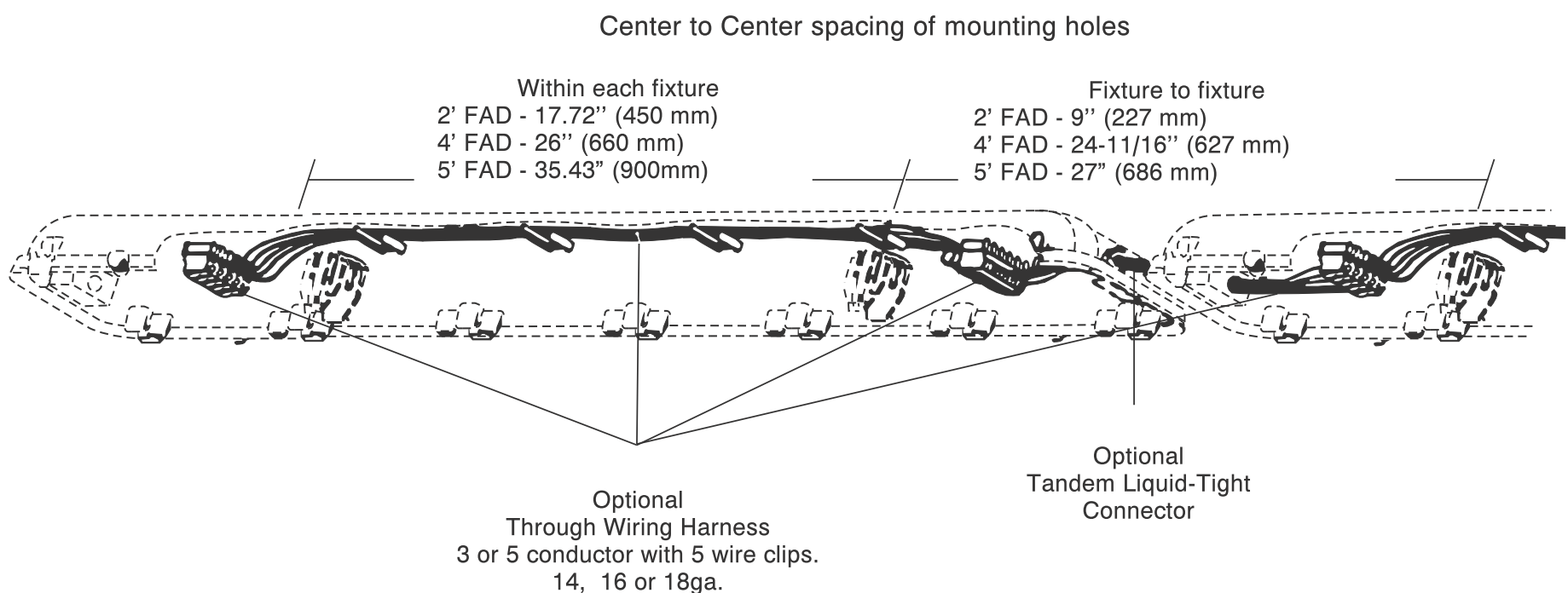


Bodies of **FA-D** fixtures have special niches for liquid-tight fittings. These avoid overlapping and allow placement of FA-D fixtures end to end.

FA-D housings are equipped with centering locks for easy row mounting and row alignment.

Tandem liquid-tight connectors can be supplied by GVA (optional).

Mounting Dimensions of Tandem FA-D fixtures



Enclosure Type Designation

Enclosures serve the dual purpose of protecting personnel from incidental contact with the enclosed electrical equipment and protecting the enclosed equipment against specified environmental conditions. Enclosures are rated for use in specific environmental conditions by international and national standard organization. The major international rating system uses the IEC Enclosure Classification Designation.

The IEC

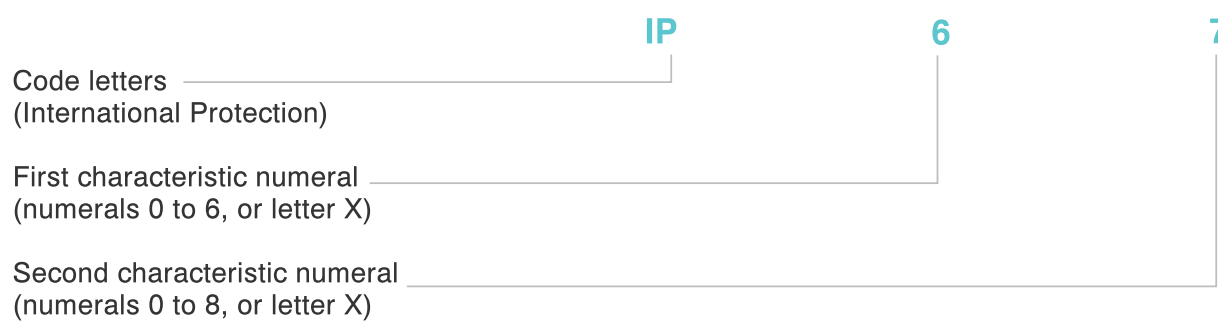
Founded in 1906, the International Electrotechnical Commission (IEC) is the global organization that prepares and publishes international standards for all electrical, electronic and related technologies. The membership consists of more than 60 participating countries, including Canada and the USA. Central office of IEC is located in Geneva, Switzerland.
IEC web site www.iec.ch

International Standard IEC 60529

IEC International Standard 60529 “Degrees of protection provided by enclosures (IP Code)” describes a system for classifying the degree of protection by the IP Code.

IP Code

IP (International Protection) Code is a coding system to indicate the degree of protection provided by enclosure against access to hazardous parts, ingress of solid foreign objects, ingress of water and to give additional information in connection with such protection. IP code is arranged in the following way:



Elements of the IP Code and their meaning

The first digit The protection class against the penetration of firm foreign Objects and hazardous touch by persons			The second digit The protection against ingress of water with harmful effects	
The first digit	Protection of equipment	Protection of persons	The second digit	Protection of equipment
0	non-protected	non-protected	0	non-protected
1	≥ 50 mm diameter	back of hand	1	vertically dripping
2	≥ 12,5 diameter	finger	2	dripping (150 tilted)
3	≥ 2,5 diameter	tool	3	spraying
4	≥ 1,0 diameter	wire	4	splashing
5	dust-protected	wire	5	jetting
6	dust-tight	wire	6	powerful jetting
			7	temporary immersion
			8	continuous immersion

Example: an enclosure with IP 67 Code:

- Totally protects persons against access to hazardous parts (tested with a wire of 1.0 mm diameter)
- Dust-tight enclosure, totally protects the equipment inside the enclosure against dust (tested by the talcum powder in suspension in a closed test chamber with underpressure)
- Waterproof enclosure, totally protects equipment inside the enclosure against water penetration (tested by completely immersing the enclosure in water tank for 30 minutes 1 m deep)

Note 1: The higher protection classification does not always takes precedence over the lower classification. For instance, IP67 rating does not mean that fixture is IP66 rated.

Note 2: IP rating will ONLY apply for properly installed equipment!

No material is resistant to all chemical influences. This is not really surprising because there are so many chemical influences. In fact, they fill whole volumes of resistance tables. Our chemical resistance table merely gives a brief overview of some frequently occurring chemical influences. The information in the table applies subject to the following conditions.

The chemical substance listed in the table is a basic material and not part of a chemical compound.

The ambient temperature is 22°C

To be used as a guide only

Chemical reactions will occur more or less rapidly and intensively at higher or lower temperatures depending on the type and composition of the substances involved. We shall be happy to assist you if you have any questions or doubts about the resistance of any materials.

Chemical Resistance	PC (Polycarbonate)	PMMA (Acrylic)	Polyester
Chemical Material Investigated			
Accumulator acid (Battery)	✓	✓	✓
Acetic acid up to 30%	⊗	⊗	✓
Acetic acid up to 5%	✓	⊗	✓
Acetone	⊗	⊗	⊗
Alcohol concentrated	⊗	⊗	⊗
Alcohol up to 30%	✓	✓	✓
Alcoholic Drinks	✓	✓	✓
Aluminum Sulphate	✓	✓	✓
Ammonia 25%	⊗	✓	⊗
Ammonia 5%	⊗	✓	✓
Aniline	⊗	⊗	⊗
Arsenic acid 20%	✓	✓	
Beer	✓	✓	✓
Benzene	⊗	⊗	⊗
Benzillic Alcohol	⊗	⊗	⊗
Benzol	⊗	⊗	⊗
Blood	✓	✓	✓
Bromine	⊗	⊗	⊗
Calcium Chloride	✓	✓	✓
Calcium Nitrate	✓	✓	✓
Carbon dioxide	✓	✓	✓
Carbon monoxide	✓	✓	✓
Carbon tetrachloride	⊗	⊗	✓
Carbonic Acid	⊗	⊗	
Caustic Potash	⊗	✓	⊗
Caustic Soda solution 10%	⊗	✓	⊗
Caustic Soda solution 2%	⊗	✓	⊗
Cement	✓	✓	✓
Chloroform	⊗	⊗	⊗
Chlorphenol	⊗	⊗	⊗
Chromic Acid	⊗	⊗	⊗
Citric Acid	✓	✓	✓
Common salt solution	✓	✓	✓
Cooper Sulfate	✓	✓	
Diesel oil, Crude oil	⊗	✓	✓
Dioxane	⊗	⊗	✓
Ether (diethyl ether, ethyl ether)	⊗	⊗	⊗
Ethyl Acetate	⊗	⊗	⊗
Ethyl Alcohol	✓	⊗	✓
Ethylene Chloride	⊗	⊗	⊗
Food Oil and Fat	⊗	✓	✓
Formic Acid 30%	⊗	⊗	✓
Gasoline	✓	✓	✓
Glycerine (Glycerol)	⊗	✓	✓
Glycol (Ethylene Glycol)	✓	✓	✓
Glystantin (BASF Engine Coolant)	✓	✓	✓
Hexane	⊗	✓	✓
Hydrobromic acid (Hydrogen Bromide)	⊗	⊗	⊗
Hydrocarbon	⊗	⊗	✓
Hydrocarbons Aliphatic	✓	⊗	⊗

Chemical Resistance	PC (Polycarbonate)	PMMA (Acrylic)	Polyester
Chemical Material Investigated			
Hydrocarbons Aromatic	⊖	⊖	✓
Hydrochloric acid above 20%	✓	✓	✓
Hydrochloric acid up to 20%	✓	✓	✓
Hydrogen peroxide above 30%	⊖	⊖	⊖
Hydrogen peroxide up to 30%	✓	✓	⊖
Iodine	⊖	✓	
Iron Chloride	⊖	✓	✓
Isopropyl Alcohol	⊖	⊖	
Ketones	⊖	⊖	⊖
Liquid Chlorine Vapours	⊖	⊖	⊖
Lysol	⊖	⊖	⊖
Manganese Sulphate	✓	✓	
Mercury	✓	✓	
Metal salts (Aqueous solution)	✓	✓	✓
Methanol (Methyl Alcohol, Wood Alcohol)	⊖	⊖	⊖
Methylene chloride	⊖	⊖	⊖
Milk of lime (Calcium Hydrate)	✓	✓	✓
Mineral Oil	⊖	✓	✓
Nitric acid above 20%	⊖	⊖	⊖
Nitric acid up to 20%	⊖	⊖	⊖
Nitric acid up to 10%	✓	✓	✓
Oxygen	✓	✓	✓
Ozone	✓	✓	✓
Perchloric Acid 10%	✓	✓	✓
Petrol	✓	✓	✓
Petroleum	⊖	⊖	
Petroleum ether	⊖	⊖	✓
Phenol (Carbonic Acid)	⊖	⊖	⊖
Potassium Permanganate	✓	✓	✓
Potassium Nitrate	✓	✓	✓
Pottasium Bromide	✓	✓	✓
Pyridine	⊖	⊖	⊖
Sea Climate	✓	✓	✓
Sea-water	✓	✓	✓
Silicone Acid	✓	⊖	
Soap-suds	✓	✓	✓
Soda	✓	✓	✓
Sodium Chloride	⊖	✓	✓
Sodium Hydrate	⊖	✓	
Sodium Hydroxide	⊖	✓	⊖
Sodium Sulphate	✓	✓	✓
Sugar	⊖	⊖	✓
Sulphur	✓	✓	
Sulphuretted Hydrogen	✓	✓	✓
Sulphuric Acid above 70%	⊖	⊖	⊖
Sulphuric Acid up to 70%	⊖	⊖	✓
Sulphuric Acid up to 50%	✓	✓	✓
Sulphuric Chloride	✓	✓	
Sulphurous Acid up to 5%	⊖	⊖	✓
Synthetic Detergents	⊖	✓	✓
Toluene	⊖	⊖	⊖
Trichloro-Ethylene	⊖	⊖	✓
Turpentine	⊖	⊖	✓
Water up to 60° C	✓	✓	✓
Xylene	⊖	⊖	⊖
Zinc Sulphate	✓	✓	✓

✓ - Resistant ⊖ - Resistant Within Limits ⊖ - Non Resistant

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