

Enclosure Ratings

NEMA 250-1991

- NEMA 1** Enclosures are intended for indoor use primarily to provide a degree of protection against limited amounts of falling dirt.
- NEMA 3** Enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust, and damage from external ice formation.
- NEMA 4** Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water, and damage from external ice formation.
- NEMA 4X** Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, hose-directed water and damage from external ice formation.
- NEMA 6** Enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against hose-directed water, the entry of water during occasional temporary submersion at a limited depth, and damage from external ice formation.

IEC 529

- IP 40** Protection against solid bodies larger than 1 mm. No protection against liquids.
- IP 65** Dust tight. Protection against water spray from all directions at 14.2 PSI through a 12.5 mm nozzle.
- IP 67** Dust tight. Protection against the effects of immersion in water for 30 minutes at 1 meter.
- IP 68** Dust tight. Protection against the effects of indefinite immersion in water at a pressure specified by the manufacturer. Ex. **TURCK's** IP 68 definitions is IP 67 plus.
- 24 hours at 70°C
 - 24 hours at -25°C
 - 7 days at 1 meter under water at a constant temperature
 - 10 cycles +70°C and -25°C, minimum of 1 hour @ each temperature

IP 69K

Hot steam jet cleaning per EN 60529 (IP enclosure ratings) and DIN 40050-9

TURCK TIP



For oily environments - Use plastic sensors with quick disconnects and **TURCK PUR "/S90"** cordsets.



For washdown environments - Use **TURCK's** Washdown or Amphibian[®] Sensors and appropriate mating cordsets.

Material Descriptions

Plastics

ABS - Acrylonitrile-Butadiene-Styrene	Impact resistant, rigid. Resistant to aqueous acids, alkalis, salts, alcohols, oils, concentrated hydrochloric acid; disintegrated by concentrated sulfuric or nitric acids, esters, ketones.
CPE, Thermoset (rubber cables)	Excellent resistance to oils, acids, chemicals, ozone, extreme temperatures, cuts, abrasions; flame retardant in welding applications.
PA - Polyamide (nylon)	Good mechanical strength, temperature resistant.
PA, Amorphous (Trogamid T)	Similar properties to nylon, but transparent. Hard, rigid, good chemical resistance.
PA 12-GF30	Nylon 12, 30% glass filled.
PA 66-GF25-V0	Nylon 66, 25% glass filled, self-extinguishing.
PBT - Polybutylene Terephthalate (when glass reinforced, Crastin®)	Good mechanical strength; resistant to abrasion; resistant to alcohols, oils, some acids, trichloroethylene.
PBT-GF30-V0	PBT, 30% glass filled, self-extinguishing.
PEI - Polyetherimide (Ultem®)	Excellent resistance to most commercial automotive fluids, fully hydrogenated hydrocarbons, alcohols, weak aqueous solutions. Withstands higher temperatures.
POM - Polyoxymethylene / Polyacetal (Delrin®)	High impact resistance; good mechanical strength; good resistance to oils, alcohols, alkalis, gasoline, xylene, toluene. Dielectric constant 3.7.
PP - Polypropylene	Excellent resistance against chemicals including acids, solvents and solutions. High temperature resistance and good mechanical strength.
PTFE - Polytetrafluoroethylene (Teflon®)*	Optimum resistance against high temperature and chemicals; low dielectric constant (2.0).
PUR - Polyurethane	Elastic, resistant to abrasion, impact-resistant, oil- and grease-tolerant.
PVC - Polyvinylchloride	Good mechanical strength, viscosity to impact; resistant to acids, alkalis.
PVC, irradiated	Heat and chemical resistant, withstands short-term temperatures to 482° F.
PVDF - Polyvinylidene fluoride (Kynar®)	Resistant to high and low temperatures, good resistance to chemicals (similar to PTFE), high mechanical strength.
Silicon	For use at high or low ambient temperatures (-50...+180 °C), moderate mechanical strength, average resistance against alkalis, acids, oils, and solvents.
IRPA12 - Irradiated Polyamide (nylon)	Good mechanical strength, temp. resistant.
EPTR - Elastomer, Polymer Thermal Plastic	Good fluid resistance.
TROG - Trogamid T	Hard, rigid, good chemical resistance.

Metals

AG	Armorguard [®]
SS - 306 Stainless Steel	Excellent atmospheric resistance.
CPB	Chrome Plated Brass
CuZn - Brass	Generally good resistance to industrial atmospheres.
GD - AlSi12 - Aluminum, die-cast	Low specific weight, long-life characteristics.
GD - ZnAl4Cu1 (Z410) - Zinc, die-cast	Long-life characteristics.
TC	Teflon Coated
WG	Weldguard
AL - Anodized Aluminum	Long-life characteristics
SF - Stoneface [®]	High abrasion resistance, excellent for MIG welding applications, high heat and weld flow immunity.
TS - Tool Steel	Excellent durability.

Matrix of TURCK Sensor Materials *

Housing Style	ABS	PA, Trog. T	PA	PBT	POM	PP	PUR	PVC	PVDF	PEI	306 SS	Al	Brass	Zinc	Thermoset Plastic
CA25, CA40												X	X	X	X
CK40				X									X	X	
CP40			X**	X											
CP80, K90SR		X	X	X											
DS20				X				X							
EG			X				X	X			X				
EM			X								X				
G, M (potted-in cable)			X				X	X					X		
G, M (connector)			X										X		
G..SK		X	X										X		
G47SR	X		X										X		
INR, INT			X				X						X		
K..SK, P..SK		X	X												
K40SR, P30SR	X		X												
KT34									X						
M..T			X					X					X		
PCS				X			X	X					X		
P, S (potted-in cable)			X				X	X							
P, S (connector)			X												
P.../S139			X		X		X								
PT30									X						
QF5.5						X									
Q06			X					X							
Q6.5 (World Clamp)				X			X						X		
Q6.5				X			X								
Q5.5, Q9.5, ISI			X				X								
Q08, Q8SE			X					X					X	X	
Q10				X											
Q10S			X				X	X							
Q11S, Q12				X				X							
Q14, Q20				X			X	X					X		
Q14, Q20 Ring				X	X			X					X		
Q18, Q25, Q30				X			X	X							
Q26			X	X				X							
Q34, Q80				X									X		
S185							X	X	X						
Cable Gland			X												
Wet Suit				X					X	X					

* Does not apply to *picoprox*®.

** Optional part, ie cable gland, connector, cable, bracket, etc.

Matrix of TURCK Sensor Materials *

Specs

Housing Style	ABS	PA, Trog. T	PA	PBT	POM	PUR	PVC	PVDF	PEI	306 SS	Al	Brass	Zinc	Thermoset Plastic
A23			X				X				X	X	X	
AKT			X				X			X	X		X	
CRS			X									X	X	
FST, NST, QST			X				X				X	X		
IKE, IKM, IKT			X				X				X	X	X	
KST			X				X			X		X	X	
PSM			X				X			X	X	X		
PST			X				X			X		X		

Chemical Compatability

The information in this chart is derived from reputable industry sources and is to be used only as a guide in selecting materials suitable for your application. **TURCK** does not warrant in any fashion that the information in this chart is accurate or complete, or that any material is suitable for any purpose.

Most ratings listed here apply to a 48-hour exposure period.

Ratings: A - No effect

B - Minor effect

C - Moderate effect

D - Severe effect

φ - No specific data, but probable rating.

nd - no data

	ABS	Trog. T	PA 12	PBT	PEI	POM	PTFE	PUR	PVC	PVDF	306 SS	Al	Brass	Zinc
Ammonia, liquid	B	B	A	B	D	C/D	A	C	A	A	B	A	D	A
Chlorine anhydrous liquid	nd	nd	D	D	nd	C	A	C	D	A	C	D	D	nd
De-ionized water	nd	nd	A	nd	A	nd	A	nd	A	A	A	A	A	nd
Formic acid	D	D	D	A	nd	C	A	C	A	A	A/B	A	D	D
Gasoline	D	A	A	A	A	A	A	A	C	A	A	A	A	nd
Hydrochloric acid <40%	A	A/B	D	A	A	C	A	D	B	A	D	D	D	D
Hydrofluoric acid <50%	C	D	D	B	A	D	A	C	B	A	D	D	D	nd
Methanol	D	D	B	A	A	A	A	B	A	A	A	A	A	A
Phosphoric acid <40%	B(C)	D	B	A	A	D	A	D ^φ	B	B	D	C	D	D
Potassium hydroxide <15%	A	A	C	B	A	B	A	C	A	A	B	D	D	nd
Sodium hydroxide <55%	A	A	C	B	A	B	A	B	A	D	B	D	D	D
Sodium hypochlorite ≤13%	B	nd	B	A	nd	C	A	B	A	A	C	D	D	A
Sulfuric acid <75%	B	A	D	A	A	D	A	C	A	A	D	D	D	D
Toluene	D	A	A	A	A	A	A	C	D	A	A	A	A	nd