Environmental Ratings

IP Environmental Protection Codes

First Numeral - Protection from Particles
0   No protection
1   Particles >50 mm
2   Particles >12 mm
3   Particles >2.5 mm
4   Particles >1 mm
5   Dust protected - limited ingress, no deposits ingress permitted
6   Dust tight - totally protected

IP (first numeral, second numeral), for example IP67

Second Numeral - Protection from Water
0   No protection
1   Vertical falling water
2   Direct sprays up to 15° from vertical
3   Direct sprays up to 60° from vertical
4   Direct sprays from all directions - limited ingress permitted
5   Low pressure jets of water from all directions - limited
6   Strong jets of water from all directions
7   Immersion in water from 15 cm to 1 m
8   Immersion in water under pressure for long periods of time
9   High pressure steam jet up to 100 bar

Environmental ratings on NOSHOK transducers are indicated with the individual specifications throughout this catalog. The following ratings are used and this is how they are defined.

IP65   Totally protected from dust as well as protection from low pressure jets of water from all directions - limited ingress permitted (no effect on performance)
IP67   Dust tight and capable of immersion in water from 15 cm to 1 m
IP68   Capable of immersion in water for long periods of time.
IP69K   Capable of steam jet washdown.

Since IP65, NEMA 4 and NEMA 4X are related, the differences are in the standards used in qualification. Here they are:

	IP65	NEMA 4
Method	Stream of water	Stream of water
Nozzle Size	1/2 "	1 "
Distance	10 ft	10 ft
Duration	15 minutes	5 minutes
Direction	All angles	All angles
Pressure/Flow	10 m of water	65 gallons/min.

In order to meet the standard, the IP65 test results allow some ingress of water as long as it does not affect the performance of the instrument. In order to meet the standard, the NEMA 4 test results do not allow any ingress of water. NEMA 4X includes the NEMA 4 standard requirements plus corrosion resistance.