

**Q:** Were housing sizes increased (from the original Pile Driver) to achieve the extra sensing distance?

**A:** No. X-series models use the same one-piece, 100% stainless steel housings as standard Pile Drivers.

**Q:** Were performance sacrifices necessary to achieve the extended range?

**A:** No. It was critical to match the impact, mechanical shock, vibration, and abrasion immunity standards set by the original Pile Driver.

**Q:** Are weld immune models available?

**A:** Yes. A full line of 12 mm, 18 mm, and 30 mm diameter models are available. They feature immunity to both AC and DC weld fields, as well as the industry's most reliable slag resistant coating—Black Armor™.


**Q:** Can the X-series Pile Driver detect all metals?

**A:** Yes. In fact, the product family offers some of the industry's longest sensing ranges to stainless steel targets. Like traditional proximity sensors, reduction factors apply for detection of nonferrous metals like aluminum or brass.

**Q:** If I initiate a motor drive or heavy machinery, will the electrical noise false-trip this product like other "extended range" metal face sensors I've tried in the past? Is it temperature-stable?

**A:** Unlike the competition, Pepperl+Fuchs took no design short cuts. Pile Driver's advanced circuitry enables restriction-free mounting, while also offering the industry's best immunity to the effects of industrial noise & temperature extremes.

THE TALE OF THE TAPE

X-SERIES PILE DRIVER		TRADITIONAL INDUCTIVE SENSORS
	Up to 150% beyond traditional models	Standard
	Lifetime proven to exceed 20X that of traditional models*	Standard
	100% Stainless steel barrel and face	Brass and plastic
	IP69k (high pressure washdown)	IP67/68 (limited hose down and submersion)



\* See the Pile Driver abrasion withstandability test @ <http://www.am.pepperl-fuchs.com/pdf/documents/piledrivermovie.mov>

FACTORY AUTOMATION – SENSING YOUR NEEDS



Pepperl+Fuchs sets the standard in quality and innovative technology for the world of automation. Our expertise, dedication, and heritage of innovation have driven us to develop the largest and most versatile line of industrial sensor technologies and interface components in the world. With our global presence, reliable service, and flexible production facilities, Pepperl+Fuchs delivers complete solutions for your automation requirements—wherever you need us.



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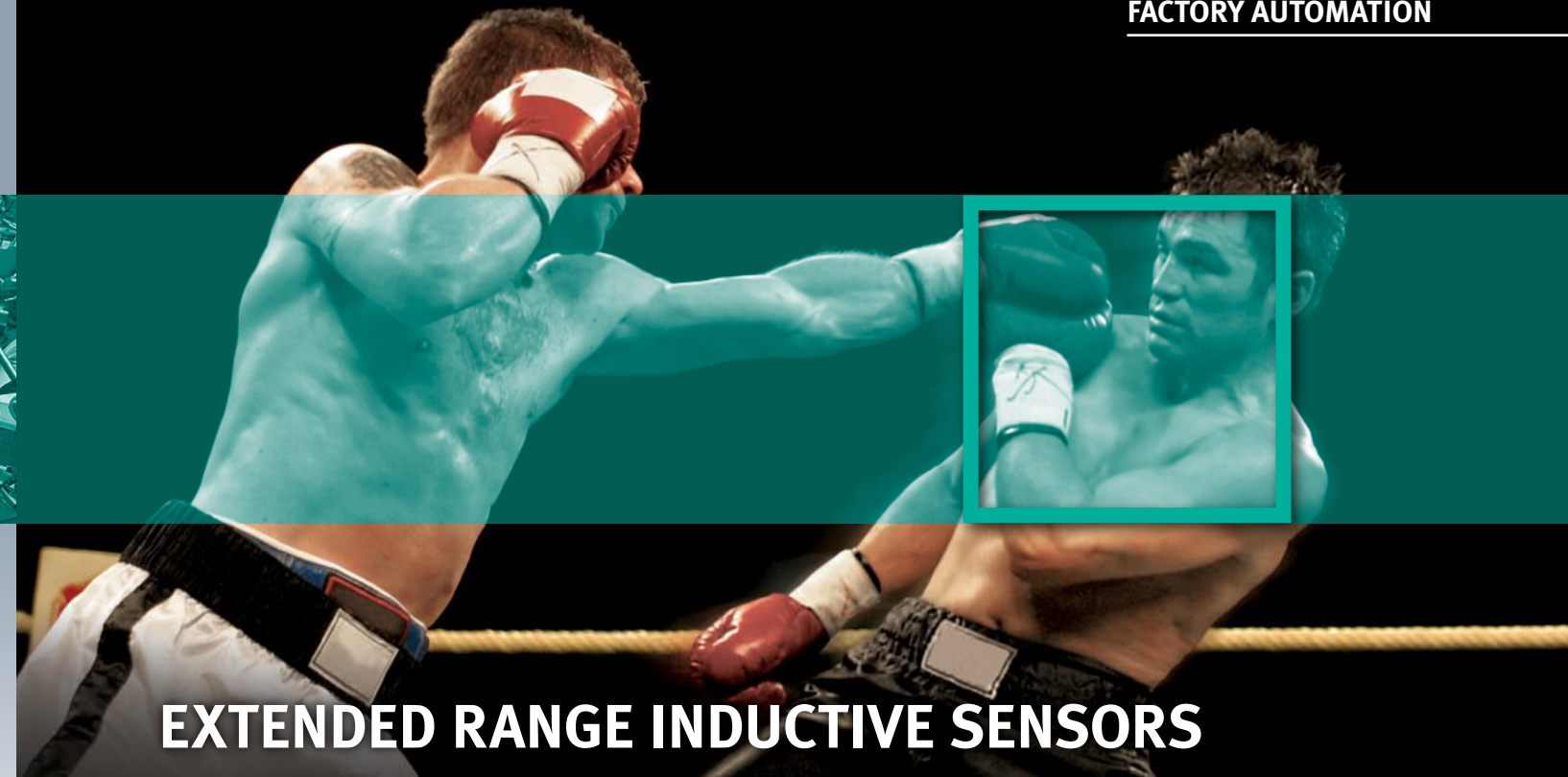
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EXTENDED RANGE INDUCTIVE SENSORS  
 X-SERIES PILE DRIVER™



# X-SERIES PILE DRIVER™ – THE FUTURE IS NOW

**1997** – In response to industry demands for a proximity sensor tough enough to survive the most punishing environments, Pepperl+Fuchs developed the revolutionary Pile Driver. It soon became the sensor-of-choice for applications where impact and abuse are part of everyday operation.



**Today** – While it's good to withstand a punishing target impact, reducing, or all together avoiding impacts is even better. Hence the popularity of many of today's "extended range" sensors. Until now, however, sensor users have been forced to make a difficult choice – distance or durability?



**Withstand**

The ability to **withstand** punishment is good...



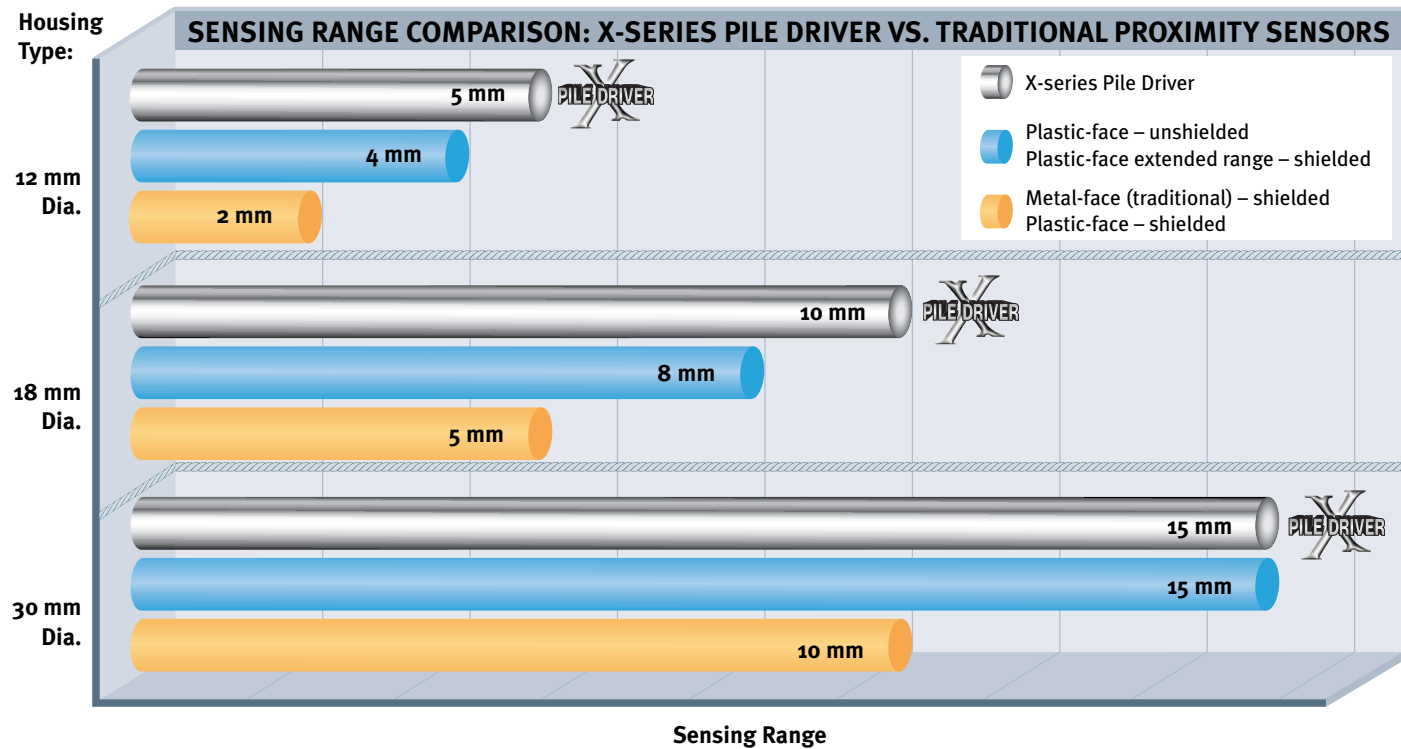
**Avoid**

The ability to **avoid** punishment is better...

## X-SERIES PILE DRIVER

Introducing the world's first extended range proximity sensor worthy of carrying the "Pile Driver" name—the new X-series Pile Driver. It features the durability you've come to expect from a Pile Driver, but with sensing ranges up to 2.5X beyond industry standards! And unlike competitors' products, which appear to be OK on paper but fail to perform once installed, Pile Driver delivers rock-solid, restriction-free sensing performance.

See how the new X-series Pile Driver's sensing range matches up to the industry's most common plastic and metal-face proximity sensors, including plastic-face "extended range" models, in the comparison graph below.



When you combine sensing ranges up to 150% beyond industry standards, with durability 20X that of ordinary sensors, the decision is unanimous. It's time to put the new, undisputed sensing champion in your corner – X-series Pile Driver.



**The Best**

To both **withstand** and **avoid** punishment...that's the **BEST!**

## MAXIMUM DURABILITY + LONGER RANGE = COST SAVINGS

If your sensing application averages even one contact-related failure per year, the X-series Pile Driver, at only 35-40% additional cost over an equivalent plastic-face product, will save your company money. By upgrading your problematic sensors, the following cost savings are immediately realized:

- Fewer replacement sensors (by a factor of 20X, or more)
- Reduced maintenance/troubleshooting labor
- Increased machine uptime
- Fewer rejected parts & increased quality
  - No scuffing of critical surfaces
  - Wider detection area eliminates "double counts" and "misses"
- Dramatically reduced internal costs
  - Fewer replacement sensor POs
  - Less warehouse handling
  - Lower inventory

# PRODUCT OVERVIEW

## X-SERIES PILE DRIVER

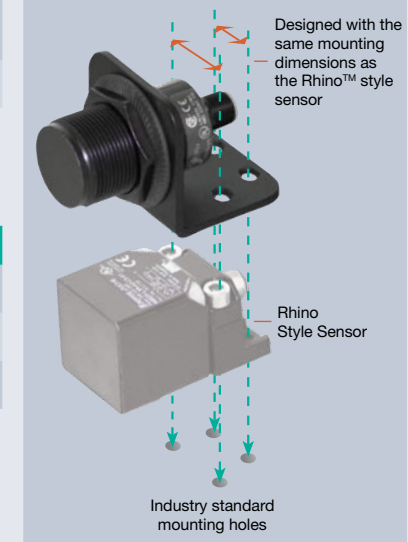
SENSING RANGE	5 mm		10 mm			15 mm		
Model Number	<i>NPN, N.O.</i>	<b>NMB5-12GM55-E0</b>	<b>NMB5-12GM65-E0-V1</b>	<b>NMB10-18GM55-E0</b>	<b>NMB10-18GM65-E0-V1</b>	–	<b>NMB15-30GM55-E0</b>	<b>NMB15-30GM65-E0-V1</b>
	<i>PNP, N.O.</i>	<b>NMB5-12GM55-E2</b>	<b>NMB5-12GM65-E2-V1</b>	<b>NMB10-18GM55-E2</b>	<b>NMB10-18GM65-E2-V1</b>	<b>NMB10-18GM70-E2-V94</b>	<b>NMB15-30GM55-E2</b>	<b>NMB15-30GM65-E2-V1</b>
Dimensions	<i>Diameter</i>	12 mm		18 mm			30 mm	
	<i>Length</i>	55 mm	65 mm	55 mm	65 mm	70 mm	55 mm	65 mm
	<i>Thread</i>	47 mm	44 mm	47 mm	42 mm	49 mm	45 mm	40 mm
Switching Frequency	360 Hz			240 Hz			150 Hz	
Connection Type	2-meter, 22 AWG PUR Cable	Micro (M12) Quick Disconnect	2-meter, 20 AWG PUR Cable	Micro (M12) Quick Disconnect	Mini (7/8"-16) Quick Disconnect	2-meter, 20 AWG PUR Cable	Micro (M12) Quick Disconnect	Micro (M12) Quick Disconnect

## X-SERIES WELD IMMUNE PILE DRIVER

SENSING RANGE	5 mm	10 mm	15 mm	
Model Number	<i>PNP, N.O.</i>	<b>NMB5-12GM65-E2-C-V1</b>	<b>NMB10-18GM65-E2-C-V1</b>	<b>NMB15-30GM65-E2-C-V1</b>
Coating	Black Armor™ (repels weld slag)			
Dimensions	<i>Diameter</i>	12 mm	18 mm	30 mm
	<i>Length</i>	65 mm	65 mm	65 mm
	<i>Thread</i>	44 mm	42 mm	40 mm
Weld Field Immunity Test Limit	250 mT (AC and DC)			
Connection Type	Micro (M12) Quick Disconnect			

## BRACKET

Cylindrical/Rhino Conversion Bracket	
<b>AB-30-L3M-C</b>	
Black Armor™ (repels weld slag)	
<i>Thru-hole</i>	30 mm
<i>Width</i>	51 mm
<i>Height</i>	48.5 mm



## COMMON SPECIFICATIONS

Supply Voltage	10-30 VDC
Output	3-wire DC
Load Current (I <sub>L</sub> )	200 mA max.
Mounting	Flush
LED Indication	Green: Power / Yellow: Output status
Housing Material	303 stainless steel
Ambient Temperature	-14 °F to +158 °F (-25 °C to +70 °C)

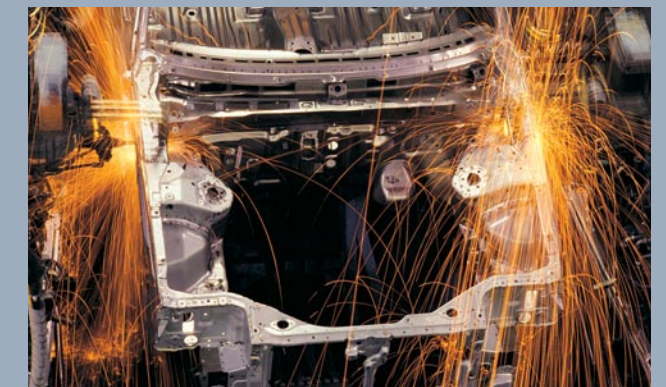
## REDUCTION FACTORS

TARGET MATERIALS	
Steel	1.0
304 Stainless Steel	0.8
Aluminum	0.4

For complete X-series Pile Driver data sheets and additional information, go to: [www.sensing.net/xpd](http://www.sensing.net/xpd)



X-series Pile Driver's extended sensing field enables reliable detection of irregularly shaped contours. Increased sensor-to-target distances help eliminate contact-related scuffing of "Class A" hood, door, and trunk surfaces.



Black Armor-coated X-series Pile Drivers provide long-range part detection, repel weld spatter, and feature full immunity to both AC and DC weld fields.