# 3300 XL 8 mm Proximity Transducer System

## Datasheet

Cordant™

141194 Rev. AN




## Description

The 3300 XL 8 mm Proximity Transducer System consists of:

- One 3300 XL 8 mm probe,
- One 3300 XL extension cable[1], and
- One 3300 XL Proximitor Sensor[2].

The system provides an output voltage that is directly proportional to the distance between the probe tip and the observed conductive surface and can measure both static (position) and dynamic (vibration) values. The system's primary applications are vibration and position measurements on fluid-film bearing machines, as well as Keyphasor reference and speed measurements[3].

The 3300 XL 8 mm system delivers the most advanced performance in our eddy current proximity transducer systems. The standard 3300 XL 8 mm 5-meter system also fully complies with the American Petroleum Institute's (API) 670 Standard for mechanical configuration, linear range, accuracy, and temperature stability. All 3300 XL 8 mm proximity transducer systems provide this level of performance and support complete interchangeability of probes, extension cables, and Proximitor sensors, eliminating the need to match or bench calibrate individual components.

Each 3300 XL 8 mm Transducer System component is backward compatible and interchangeable[4] with other non-XL 3300 series 5 mm and 8 mm transducer system components[5]. This compatibility includes the 3300 5 mm probe, for applications in which an 8 mm probe is too large for the available mounting space[6,7].

Baker Hughes

## Proximitor Sensor

The 3300 XL Proximitor Sensor incorporates numerous improvements over previous designs. Its physical packaging allows you to use it in high-density DIN-rail installations. You can also mount the sensor in a traditional panel mount configuration, where it shares an identical 4-hole mounting “footprint” with older Proximitor Sensor designs. The mounting base for either option provides electrical isolation and eliminates the need for separate isolator plates. The 3300 XL Proximitor Sensor is highly immune to radio frequency interference, allowing you to install it in fiberglass housings without adverse effects from nearby radio frequency signals. The 3300 XL Proximitor Sensor’s improved RFI/EMI immunity satisfies European CE mark approvals without requiring special shielded conduit or metallic housings, resulting in lower installation costs and complexity.

The 3300 XL’s SpringLoc terminal strips require no special installation tools and facilitate faster, more robust field wiring connections by eliminating screw-type clamping mechanisms that can loosen.

## Proximity Probe and Extension Cable

The 3300 XL probe and extension cable also reflect improvements over previous designs. A patented TipLoc molding method provides a more robust bond between the probe tip and the probe body. The probe’s cable incorporates a patented CableLoc design that provides 330 N (75 lbf) pull strength to more securely attach the probe cable and probe tip.

You can also order 3300 XL 8 mm probes and extension cables with an optional FluidLoc cable option. This option prevents oil and other liquids from leaking out of the machine through the cable’s interior.

## Connectors

The 3300 XL probe, extension cable, and Proximitor sensor have corrosion-resistant, gold-plated ClickLoc connectors. These connectors require only finger-tight torque (the connectors will "click" when tight), and the specially-engineered locking mechanism prevents the connectors from loosening. These connectors require no special tools for installation or removal.

You can order the 3300 XL 8 mm probes and extension cables with connector protectors already installed. We can also supply connector protectors separately for field installations (such as when an application must run the cable through restrictive conduit). We recommend connector protectors for all installations to provide increased environmental protection[8].

## Extended Temperature Range Applications

An extended temperature range (ETR) probe and ETR extension cable are available for applications in which either the probe lead or extension cable may exceed the standard 177°C (350°F) temperature specification. The ETR probe has an extended temperature rating for up to 218°C (425°F). The ETR extension cable rating is up to 260°C (500°F). Both the ETR probe and cable are compatible with standard temperature probes and cables, for example, you can utilize an ETR probe with the 330130 extension cable. The ETR system uses the standard 3300 XL Proximitor Sensor. Note that when you use any ETR component as part of your system, the ETR component limits the system accuracy to the accuracy of the ETR system.

### Description Notes:

1. One-meter systems do not use an extension cable.

2. Proximitor sensors are supplied by default from the factory calibrated to AISI 4140 steel. Calibration to other target materials is available upon request.

3. Consult Bently Nevada Applications Note, Considerations when using Eddy Current Proximity Probes for Overspeed Protection Applications, when considering this transducer system for tachometer or overspeed measurements.

# Specifications

Unless otherwise noted, the following specifications are for a 3300 XL 8 mm Proximitor Sensor, extension cable and 8 mm probe between +18°C and +27°C (+64°F to +80°F) at a maximum altitude of 2000 meters, with a -24 Vdc power supply, a 10 kΩ load, an AISI 4140 steel target, and a probe gapped at 1.27 mm (50 mils). Performance characteristics apply to systems that consist solely of 3300 XL 8 mm components. The system accuracy and interchangeability specifications do not apply to transducer systems that are calibrated to any target other than our AISI 4140 steel target.

## Electrical

| | |
|---|---|
| Proximitor Sensor Input | Accepts one non-contacting 3300-series 5 mm, 3300 XL 8 mm Proximity Probe and Extension Cable. |
| Power | Requires -17.5 Vdc to -26 Vdc when installed with non-incendive circuit connected per installation drawing 140979 at 12 mA maximum consumption, -23 Vdc to -26 Vdc with barriers. Operation at a more positive voltage than -23.5 Vdc can result in reduced linear range. |
| Supply Sensitivity | Less than 2 mV change in output voltage per volt change in input voltage. |
| Output Resistance | 50 Ω |

| Nominal Probe DC Resistance | |
|---|---|
| Resistance ($R_{PROBE}$) from Center Conductor to Outer Conductor | |
| **Probe Length (m)** | **$R_{PROBE}$(Ω)** |
| 0.5 | 7.45 ± 0.50 |
| 1.0 | 7.59 ± 0.50 |
| 1.5 | 7.73 ± 0.50 |
| 2.0 | 7.88 ± 0.50 |
| 3.0 | 8.17 ± 0.50 |
| 5.0 | 8.73 ± 0.50 |
| 9.0 | 9.87 ± 0.50 |

| Nominal Extension Cable DC Resistance | |
|---|---|
| Resistance ($R_{CORE}$) from Center Conductor to Center Conductor | |
| **Length of Extension Cable (m)** | **RCORE (Ω)** |
| 3.0 | 0.66 ± 0.10 |
| 3.5 | 0.77 ± 0.12 |
| 4.0 | 0.88 ± 0.13 |
| 4.5 | 0.99 ± 0.15 |
| 6.0 | 1.32 ± 0.21 |
| 7.0 | 1.54 ± 0.23 |
| 7.5 | 1.65 ± 0.25 |
| 8.0 | 1.76 ± 0.26 |
| 8.5 | 1.87 ± 0.28 |

| Resistance ($R_{JACKET}$) from Outer Conductor to Outer Conductor | |
|---|---|
| **Length of Extension Cable (m)** | **$R_{JACKET}$ (Ω)** |
| 3.0 | 0.20 ± 0.04 |
| 3.5 | 0.23 ± 0.05 |
| 4.0 | 0.26 ± 0.05 |
| 4.5 | 0.30 ± 0.06 |
| 6.0 | 0.39 ± 0.08 |
| 7.0 | 0.46 ± 0.09 |
| 7.5 | 0.49 ± 0.10 |
| 8.0 | 0.53 ± 0.11 |
| 8.5 | 0.56 ± 0.11 |

| | |
|---|---|
| Extension Cable Capacitance | 69.9 pF/m (21.3 pF/ft) typical |
| Field Wiring | 0.2 to 1.5 mm² (16 to 24 AWG). Recommend using 3 conductor shielded triad cable and tinned field wiring. Maximum length of 305 meters (1,000 feet) between the 3300 XL Proximitor Sensor and the monitor. See the frequency response graphs, Figures 10 and 12, for signal rolloff at high frequencies when using longer field wiring lengths. |
| Linear Range | 2 mm (80 mils). Linear range begins at approximately 0.25 mm (10 mils) from target and is from 0.25 to 2.3 mm (10 to 90 mils) (approximately –1 to –17 Vdc). |
| Recommended Gap Setting for Radial Vibration | -9 Vdc [approximately 1.27 mm (50 mils)] |
| **Incremental Scale Factor (ISF)** | |
| Standard 5 or 1 meter System | 7.87 V/mm (200 mV/mil) ± 5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0°C to +45°C (+32°F to +113°F). |
| Standard 9 meter System | 7.87 V/mm (200 mV/mil) ± 6.5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0°C to +45°C (+32°F to +113°F). |
| Extended Temperature Range (ETR) for 5 and 9 Meter Systems | 7.87 V/mm (200 mV/mil) ± 6.5% including interchangeability error when measured in increments of 0.25 mm (10 mils) over the 80 mil linear range from 0°C to +45°C (+32°F to +113°F). |
| **Deviation from best fit straight line (DSL)** | |
| Standard 5 or 1 meter System | Less than ±0.025 mm (±1 mil) with components at 0°C to +45°C (+32°F to +113°F). |
| Standard 9 meter System | Less than ±0.038 mm (±1.5 mil) with components at 0°C to +45°C (+32°F to +113°F). |
| Extended Temperature Range 5 and 9 meter Systems | Less than ±0.038 mm (±1.5 mil) with components at 0°C to +45°C (+32°F to +113°F). |

| Performance over Extended Temperatures | |
|---|---|
| Standard 5 or 1 meter System | Over a probe temperature range of –35°C to +120°C (-31°F to +248°F) with the Proximitor sensor and extension cable between 0°C to +45°C (+32°F to +113°F), the ISF remains within ±10% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.076 mm (±3 mils).<br><br>Over a Proximitor sensor and extension cable temperature range of –35°C to +65°C (-31°F to +149°F) with the probe between 0°C to +45°C (+32°F to +113°F), the ISF remains within ±10% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.076 mm (±3 mils). |
| Standard 9 meter System | Over a probe temperature range of –35°C to +120°C (-31°F to +248°F) with the Proximitor sensor and extension cable between 0°C to +45°C (+32°F to +113°F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils).<br><br>Over a Proximitor sensor and extension cable temperature range of –35°C to +65°C (-31°F to +149°F) with the probe between 0°C to +45°C (+32°F to +113°F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils). |
| Extended Temperature Range 5 and 9 meter Systems | Over a probe and extension cable temperature range of –35°C to +260°C (-31°F to +500°F) with the Proximitor sensor between 0°C to +45°C (+32°F to +113°F), the ISF remains within ±18% of 7.87 V/mm (200 mV/mil) and the DSL remains within ±0.152 mm (±6 mils). |
| Frequency Response | (0 to 10 kHz), +0, -3 dB, with up to 305 meters (1000 feet) of field wiring. |
| Minimum Target Size | 15.2 mm (0.6 in) diameter (flat target) |
| **Shaft Diameter** | |
| Minimum | 50.8 mm (2 in) |
| Recommended Minimum | 76.2 mm (3 in) |

When gapped at the center of the linear range, the interaction between two separate transducer systems (cross-talk) will be less than 50 mV on shaft diameters of at least 50 mm (2 in) or greater. You should take care to maintain minimum separation of transducer tips, generally at least 40 mm (1.6 in) for axial position measurements or 38 mm (1.5 in) for radial vibration measurements to limit cross-talk to 50 mV or less. Radial vibration or position measurements on shaft diameters smaller than 76.2 mm (3 in) will generally change the scale factor.

| Effects of 60 Hz Magnetic Fields Up to 300 Gauss | | | | |
|---|---|---|---|---|
| **Output Voltage in Mil pp/Gauss** | | | | |
| Gap | 5 or 1-meter Proximitor Sensor | 9 meter Proximitor Sensor | Probe | Ext. Cable |
| 10 | 0.0119 | 0.0247 | 0.0004 | 0.0004 |
| 50 | 0.0131 | 0.0323 | 0.0014 | 0.0014 |
| 90 | 0.0133 | 0.0348 | 0.0045 | 0.0045 |

## Mechanical

| | |
|---|---|
| Probe Tip Material | Polyphenylene sulfide (PPS). |
| Probe Case Material | AISI 303 or 304 stainless steel (SST). |
| **Probe Cable Specifications** | |
| Standard cable | 75Ω triaxial, fluoroethylene propylene (FEP) insulated probe cable in the following total probe lengths: 0.5, 1, 1.5, 2, 3, 5, or 9 meters. |
| Extended Temperature Range cable | 75Ω triaxial, perfluoroalkoxy (PFA) insulated probe cable in the following total probe lengths: 0.5, 1, 1.5, 2, 5, or 9 meters. |
| Armor (optional on both) | Flexible AISI 302 or 304 SST with FEP outer jacket. |
| Tensile Strength (Maximum Rated) | 330 N (75 lbf) probe case to probe lead.<br>270 N (60 lbf) at probe lead to extension cable connectors. |
| Connector Material | Gold-plated brass or gold-plated beryllium copper. |

| Probe Case Torque | | |
|---|---|---|
| **Probe Type** | **Maximum Rated** | **Recommended** |
| Standard forward mounted probes | 33.9 N•m (300 in•lbf) | 11.2 N•m (100 in•lbf) |
| Standard forward-mount probes - first three threads | 22.6 N•m (200 in•lbf) | 7.5 N•m (66 in•lbf) |
| Reverse-mount probes | 22.6 N•m (200 in•lbf) | 7.5 N•m (66 in•lbf) |
| **Extension Cable Material** | | |
| Standard cable | 75 Q triaxial, fluoroethylene propylene (FEP) insulated | |
| Extended Temperature Range cable | 75Ω triaxial, perfluoroalkoxy (PFA) insulated. | |
| Minimum Cable Bend Radius | 25.4 mm (1.0 in) | |

3300 XL 8 mm components are both electrically and physically interchangeable with non-XL 3300 5 mm and 8 mm components when minimum permissible cable bend radius is observed.

| | |
|---|---|
| Connector Material | Gold-plated brass or gold-plated beryllium copper. |
| Maximum Connector Torque | 0.565 N•m (5 in•lbf) |

## Environmental Limits

| Probe Temperature Range | |
|---|---|
| **Operating and Storage Temperature** | |
| Standard Probe | -52°C to +177°C (-62°F to +350°F) |
| Extended Temperature Range Probe | -52°C to +218°C (-62°F to +425°F) for the probe tip; -51°C to +260°C (-60°F to +500°F) for the probe cable and connector. |

Exposing the probe to temperatures below –34˚C (-30˚F) may cause premature failure of the pressure seal.

| Probe Pressure |
|---|
| 3300 XL 8 mm probes are designed to seal differential pressure between the probe tip and case. The probe sealing material consists of a Viton® O ring. Probes are not pressure tested prior to shipment. Contact our custom design department if you require a test of the pressure seal for your application. |

It is the responsibility of the customer or user to ensure that all liquids and gases are contained and safely controlled should leakage occur from a proximity probe. In addition, solutions with high or low pH values may erode the tip assembly of the probe causing media leakage into surrounding areas. Bently Nevada does not be held responsible for any damages resulting from leaking 3300 XL 8 mm proximity probes. In addition, 3300 XL 8 mm proximity probes does not be replaced under the service plan due to probe leakage.

| Extension Cable Temperature Range | |
|---|---|
| **Operating and Storage Temperature** | |
| Standard Cable | -52°C to +177°C (-62°F to +350°F) |
| Extended Temperature Range Cable | -52°C to +260°C (-62°F to +500°F) |

| Proximitor Sensor Temperature Range | |
|---|---|
| Operating Temperature | -52°C to +100°C (-62°F to +212°F) |
| Storage Temperature | -52°C to +105°C (-62°F to +221°F) |

| Probe Relative Humidity |
|---|
| Less than a 3% change in Average Scale Factor (ASF) when tested in 93% humidity in accordance with IEC standard 68 2 3 for up to 56 days. |

# Compliance and Certifications

## FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

## EMC

European Community Directive:

EMC Directive 2014/30/EU

Standards

EN 61000-6-2; Immunity for Industrial Environments

EN 61000-6-4; Emissions for Industrial Environments

## RoHS

European Community Directive:

RoHS Directive 2011/65/EU

## China RoHS

Cables associated with the product(s) mentioned in this datasheet have an EFUP designation of 15 years, in accordance with SJ/T 11364-2024.




## Maritime

2019 Rules for Conditions of Classification,

Part 1, 1-1-1/7.7, 1-1-A3, 1-1-A4

2019 Rules for Conditions of Classification,

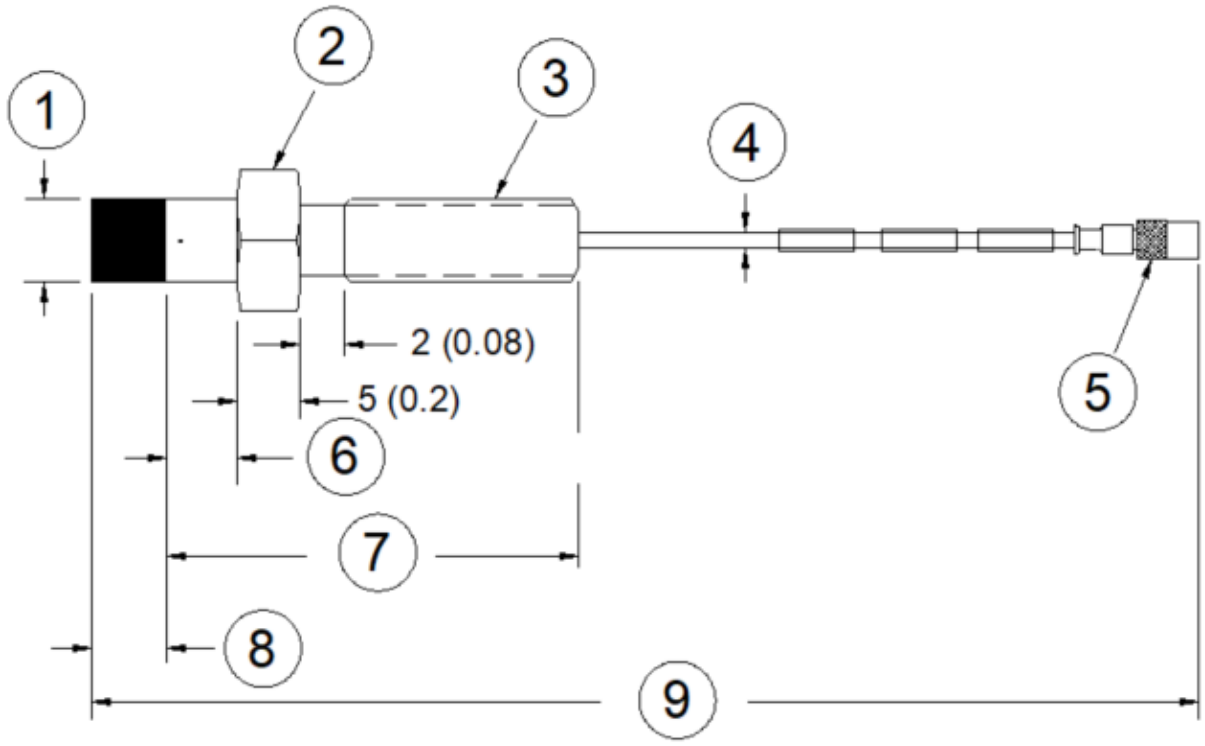
Part 1, Offshore Units and Structures

1-1-4/9.7, 1-1-A2, 1-1-A3

## Functional Safety

SIL 2, HFT = 0

SIL 3, HFT = 1




1. Probe tip, 8.0 mm (0.31 in) diameter
2. 7/16 in or M10 hexagonal
3. Case thread
4. 75 Ω cable, 3.68 mm (0.145 in) outside diameter
5. Miniature male coaxial connector, 7.24 mm (0.285 in) maximum outside diameter “D”
6. Unthreaded length “A”, 5.0 mm (0.20 in)
7. Case length “B”, 30 mm (1.2 in)
8. 6.0 mm (0.235 in) maximum
9. Total length “C”, +30%, -0%[3]

**Figure 15: 3300 XL 8 mm Proximity Probes, Reverse Mount [4, 7]**

330105 and 330195, 3/8-24 UNF-2A threads

330106 and 330196, M10X1 threads

| Proximity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P/N | 00 | 01 | 02 | 05 | AE | AE0 | AU | AZ | AZ0 | BR | BY | BY0 | CN | IN | JP | K0 | KR | KZ | MA | MA0 | NZ | R0 | RU | TW | U0 | UA | UK | UZ | UZ0 | ZA |
| 330106 | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330140 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ |
| 330141 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ |
| 330165 | ✓ | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × |
| 330171 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330172 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330173 | × | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330174 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330180 | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330191 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330192 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330193 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330194 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330195 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330196 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330197 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330198 | ✓ | × | × | ✓ | ✓ | ✓ | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330232 | ✓ | × | × | ✓ | ✓ | × | × | × | × | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | × | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | × | ✓ |
| 330300 | ✓ | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × | × |
| 330301 | ✓ | × | × | × | × | ✓ | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × |
| 330302 | ✓ | × | × | × | × | ✓ | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × |
| 330303 | ✓ | × | × | × | × | ✓ | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × |
| 330380 | ✓ | × | × | × | × | ✓ | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × | × | ✓ | × | × | × | × | × | × | × | × |
| 330701 | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330702 | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330703 | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 330704 | ✓ | × | × | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | × | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |