



NTN Portable Vibroscope

CAT.No.6601/E



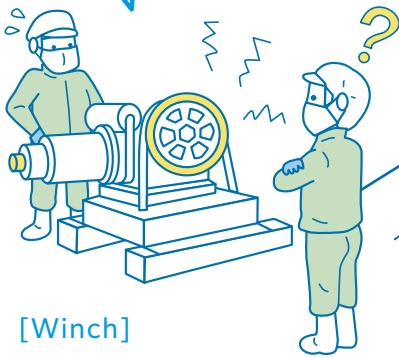
It's Too Late if Machinery Stops

Regular diagnosis of equipment and machinery is recommended

Production equipment that is operating correctly may seem ordinary, but is not something that should be taken for granted. Regularly diagnosing the condition and performing maintenance on equipment and machinery ensures that they are operating correctly. Using the "NTN Portable Vibroscope" makes it easy to conduct high-precision measurements and analyses, so that you are always aware of the condition of bearings.

Example 1 | Elevator equipment (winch)

The winch makes abnormal noise when it is operating, but I don't know what is causing it. I am worried that it might break down.

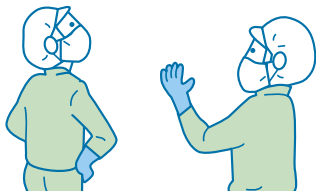
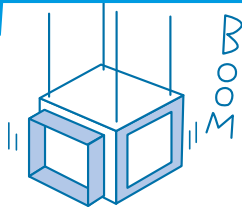


[Winch]

- ▶ Significant vibration when moving up or down
- ▶ Makes abnormal noise when it is operating

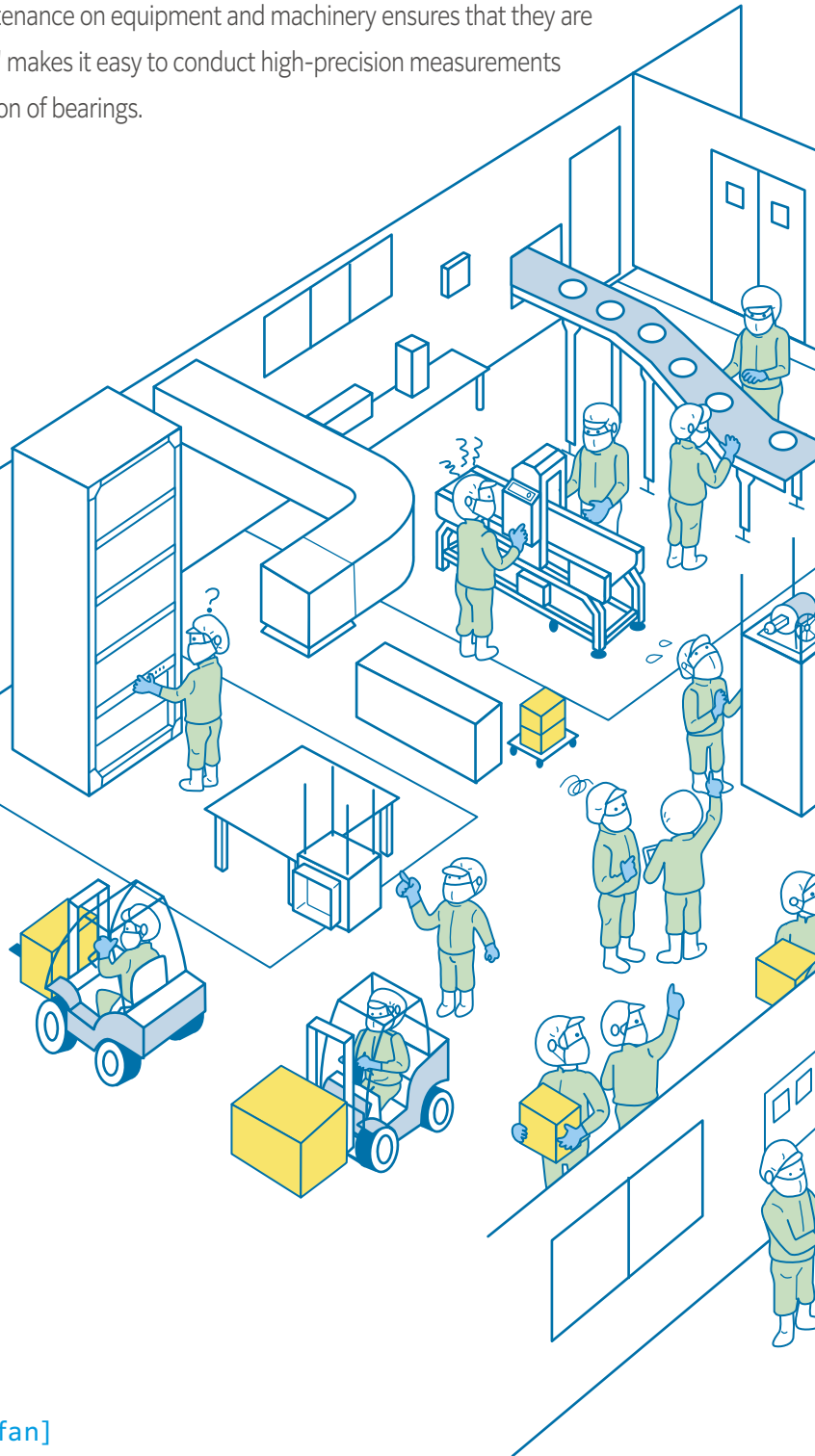
Example 2 | Blower

The place to take measurements is difficult to reach, and I never get around to doing it. If only I could take measurements more easily and safely.



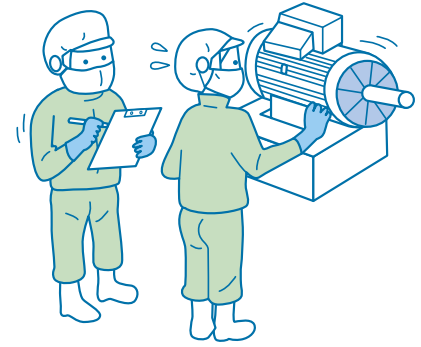
[Ventilation fan]

- ▶ Rattling noise from fan
- ▶ Significant vibration from fan



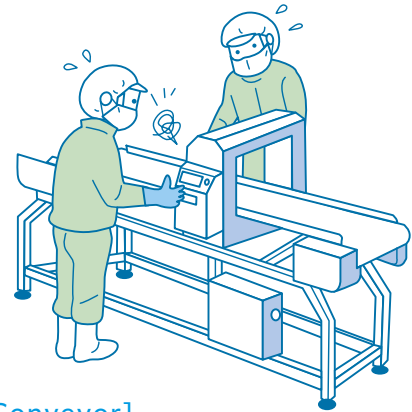
Example 3 | Food machinery

Checks for hygiene are strict, but it is difficult to get close to machines to take each measurement. Measurement results are handwritten, and then entered into a PC, which doubles the amount of work required.



[Electric motor]

- ▶ Makes abnormal noise when it is operating
- ▶ Significant vibration

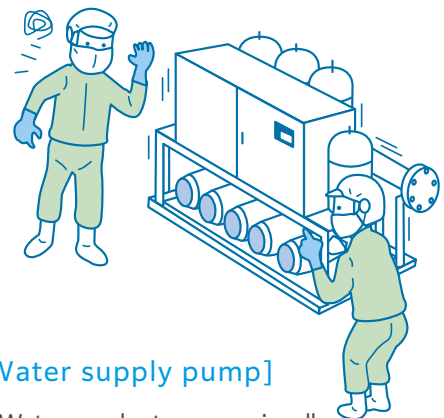


[Conveyor]

- ▶ Product does not flow smoothly
- ▶ Makes abnormal noise when it is operating

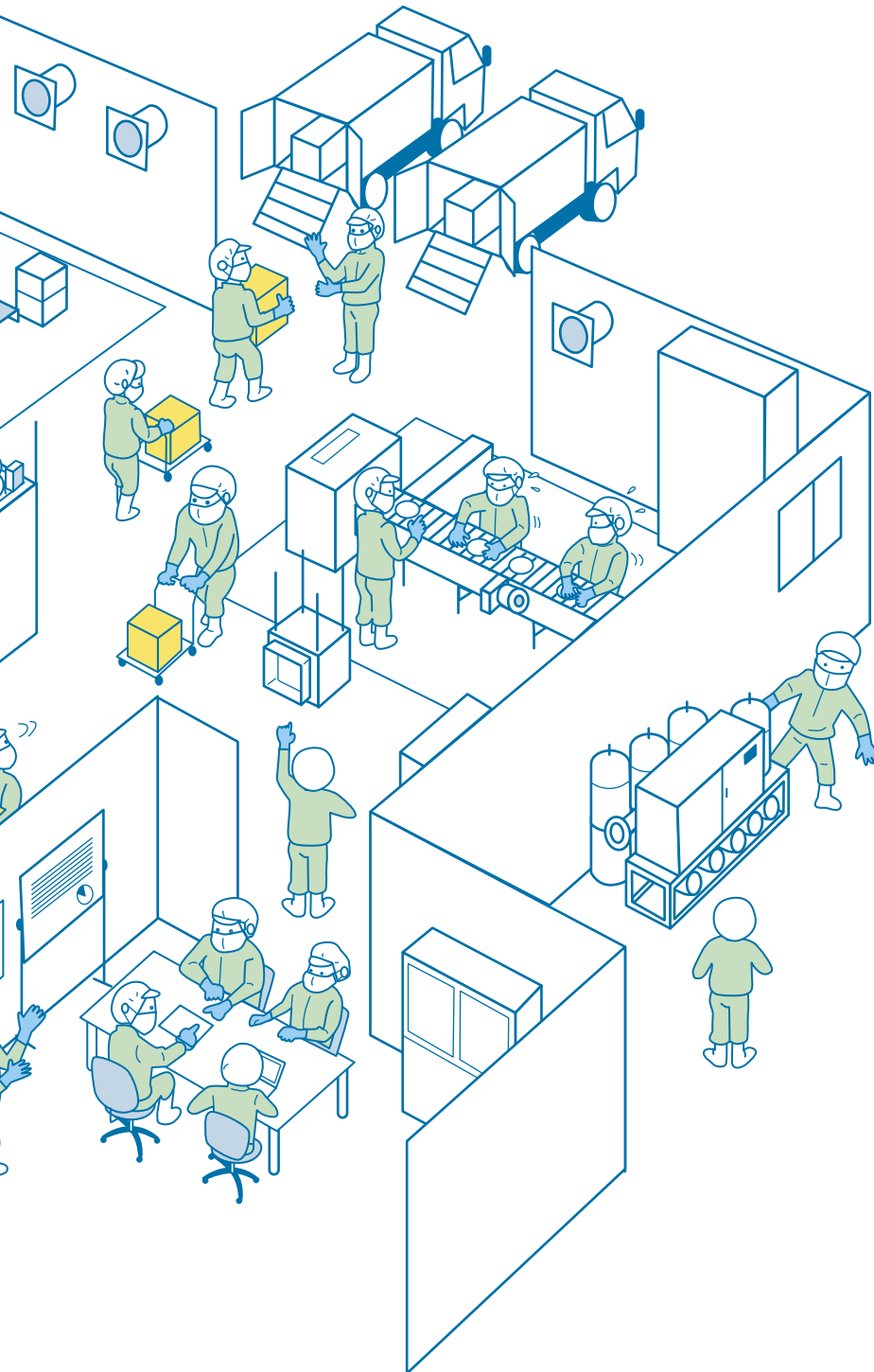
Example 4 | Pump

I am concerned about the movement in the water supply pump. It would be great to have a device that can easily take measurements in wet areas.

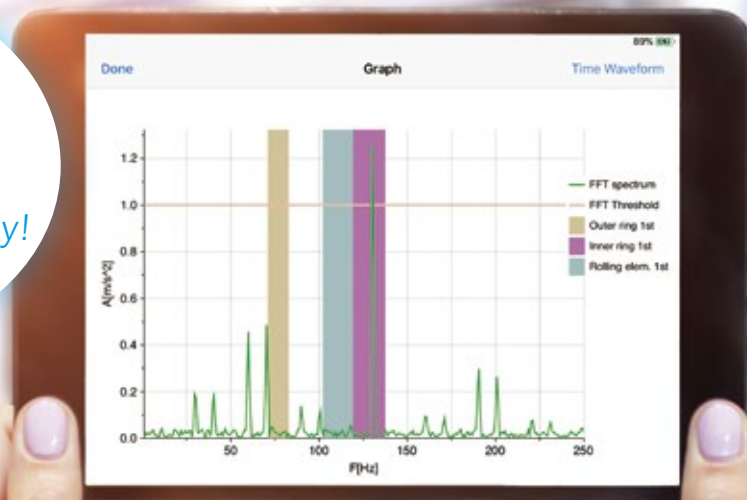


[Water supply pump]

- ▶ Water supply stops occasionally
- ▶ Significant noise and vibration during operation



Now anyone can
check bearing
conditions accurately!

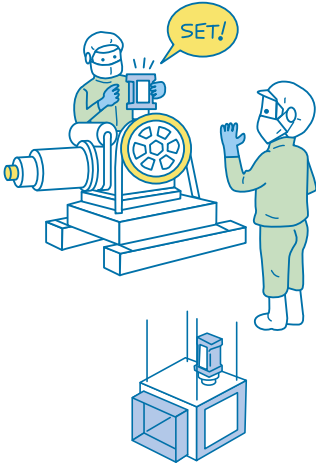


Take measurements right away with the **NTN Portable Vibroscope**, when you want to check the condition of the machine or when you think something is faulty.

So easy to carry around
and set up! Take it with you
for regular checks!



Four features of the NTN Portable Vibroscope



Find the cause of "abnormal noises" and prevent unexpected incidents before they happen.

Measurement & analysis

- ▶ Damaged areas of bearings can be identified using FFT analysis
Display inspection results by setting criteria values in advance
- ▶ Overall measurement (peak value, RMS value) of acceleration, velocity and displacement
- ▶ Conduct measurements on approx. 5,500 NTN bearings and bearings from other manufacturers

Simple operation and analysis using an iPad or iPhone

Operations & communications

- ▶ Quick and easy analysis using an iPad or iPhone (approx. 7 seconds in standard mode)
- ▶ High-speed communication over Wi-Fi means no cables required

Hassle-free, paperless operation by transferring measurement data directly to PC

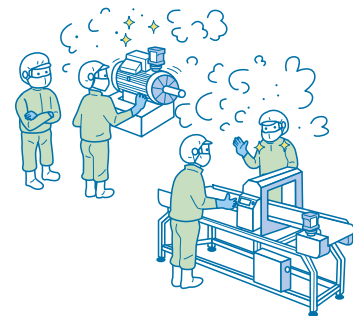
Save data

- ▶ Register measurement conditions so that only measurement and analysis data is saved on iPad or iPhone internal storage
- ▶ Measurement data on iPad or iPhone storage can be managed via iTunes
- ▶ Trend data is available using measurement history

Excellent resistance to dust and water splashes. Designed for use in wet areas as well as in harsh environments with oil and dust.

Device specifications

- ▶ IP65-compliant* dust and water resistance make it ideal for use in various usage environments
* With USB connector flap closed
- ▶ Lightweight at approx. 145 g (5.1 oz) (excluding magnet)
- ▶ Compact design with integrated sensor, power supply and wireless functions



Download the dedicated "NTN Portable Vibroscope" app from the App Store to take measurements, run analyses and save data on your iPad or iPhone.

• iPhone or iPad used with the system are to be supplied by the customer.



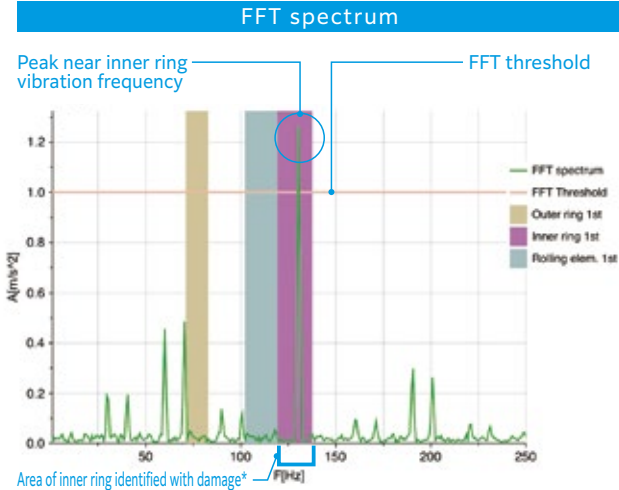
See the next page for example of fault detection

Examples of fault detection

Visualize faults in equipment and machinery to help identify causes.

Bearing inner ring defect

[Measurement conditions] Measured bearing: 6203LLB / Bearing rotational speed: 1,800 min⁻¹ / FFT threshold: 1.0 m/s² / Enveloping: ON



Area of inner ring identified with damage*
 * Area identified with damage is displayed across a -10 to +5% range from the calculated vibration frequency.

Bearing damage identification

Inner ring condition determined to be "Warning"

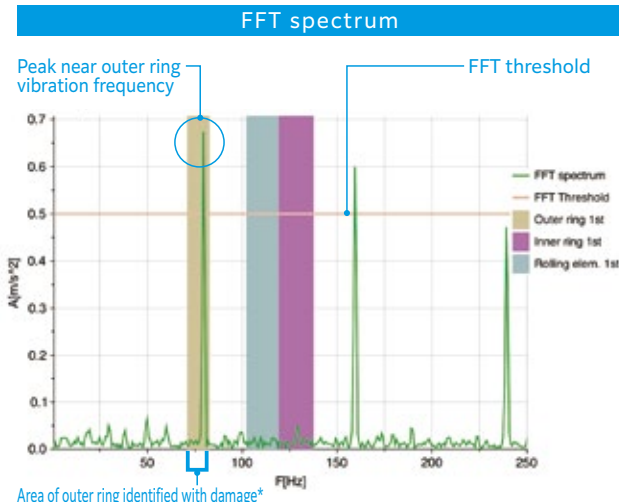
FFT Judgement (FFT Threshold = 1.000)				
No.	A[m/s ²]	F[Hz]	Diagnosis	Part
1	1.262	138.47	Warning	Inner ring 1st
2	0.616	268.94	Good	Inner ring 2nd
3	0.486	78.31	Good	-
4	0.457	68.16	Good	Speed 2nd
5	0.298	199.62	Good	-
6	0.263	652.34	Good	-
7	0.263	288.78	Good	-
8	0.231	782.81	Good	-
9	0.193	48.62	Good	-
10	0.188	29.69	Good	Speed 1st

OA Result						
	Peak	Threshold	RMS	Threshold	CF	Threshold
A[m/s ²]	7.267	1.000	1.383	1.000	9.978	1.000
V[mm/s]	2.298	1.000	0.952	1.000	2.414	1.000
D[μm]	26.088	1.000				

ISO 10816		
Machine type	Foundation	Diagnosis
Medium	Rigid	Good

Bearing outer ring defect

[Measurement conditions] Measured bearing: 6203LLB / Bearing rotational speed: 1,800 min⁻¹ / FFT threshold: 0.5 m/s² / Enveloping: ON



Area of outer ring identified with damage*
 * Area identified with damage is displayed across a -10 to +5% range from the calculated vibration frequency.

Bearing damage identification

Outer ring condition determined to be "Warning"

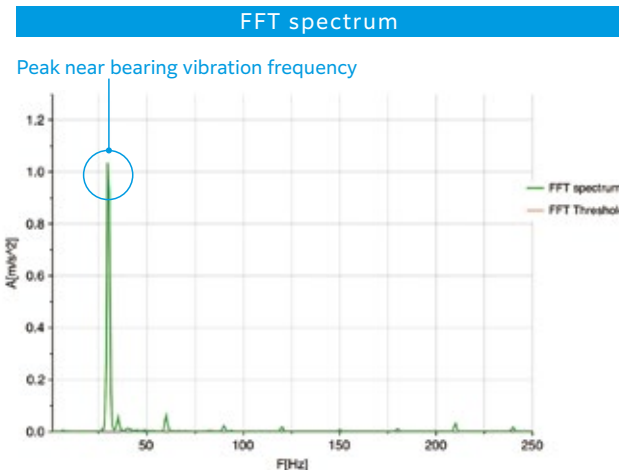
FFT Judgement (FFT Threshold = 0.500)				
No.	A[m/s ²]	F[Hz]	Diagnosis	Part
1	0.674	79.69	Warning	Outer ring 1st
2	0.601	159.38	Warning	Outer ring 2nd
3	0.472	239.86	Caution	-
4	0.328	318.75	Good	-
5	0.238	398.44	Good	-
6	0.193	478.91	Good	-
7	0.152	558.59	Good	-
8	0.086	638.28	Good	-
9	0.064	58.88	Good	-
10	0.050	289.86	Good	-

OA Result						
	Peak	Threshold	RMS	Threshold	CF	Threshold
A[m/s ²]	4.483	1.000	0.744	1.000	9.712	1.000
V[mm/s]	1.726	1.000	0.785	1.000	2.198	1.000
D[μm]	15.973	1.000				

ISO 10816		
Machine type	Foundation	Diagnosis
Medium	Rigid	Good

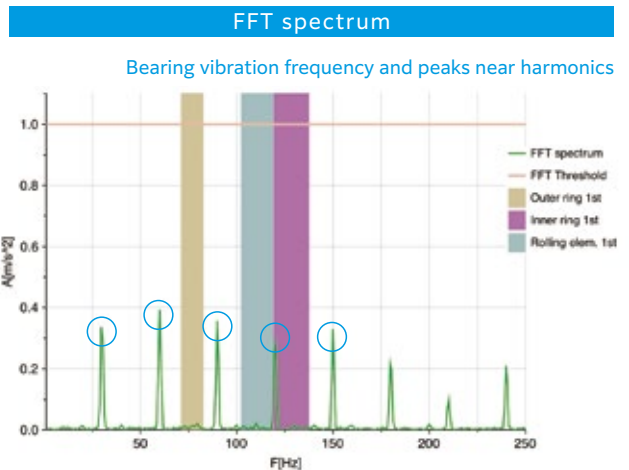
Unbalanced rotation

[Measurement conditions]
 Measured bearing: 6203LLB / Bearing rotational speed: 1,800 min⁻¹ / Enveloping: OFF



Misalignment

[Measurement conditions]
 Measured bearing: 6203LLB / Bearing rotational speed: 1,800 min⁻¹ / Enveloping: ON



Examples of main applications

Bearings in a broad range of industries can be inspected.

Food machinery (conveyor)



For measurements in areas with confined spaces

Mining equipment (raw material transportation conveyor)



For measurements in high places, dangerous locations or other areas that are difficult for measurements

Cement equipment (vertical pulverization mill)



For measurements in areas with high dust levels

Paper manufacturing machinery (paper machines)



Steelworks facilities (cold rolling mill)



For measurements where there are many measurement positions

Main specifications

Model	DAT-HV0002
Compatible devices	Apple iPhone, iPad
App operating OS	iOS 12.0 or higher
Interface	Wireless LAN: Wi-Fi compliant
Measurement function	OA measurement, FFT analysis, time waveform measurement
Sampling frequency	2.56 kHz / 12.8 kHz / 25.6 kHz
Frequency bandwidth	Acceleration: 10 Hz to 10 kHz Velocity: 10 Hz to 1 kHz Displacement: 10 Hz to 150 Hz
Maximum measured acceleration	500 m/s ²
Ingress protection code	IP65
Power supply	Rechargeable AAA batteries ×2
Device dimensions	41 mm (W) × 36 mm (D) × 87 mm (H) (1.61" (W) × 1.42" (D) × 3.43" (H))
Device weight	Approx. 145 g (5.1 oz) (excluding magnet)
Usable temperature range	+5 to +50 °C (41 °F to 122 °F) (guaranteed only for supplied batteries)
Usable humidity range	30 to 90% (no condensation)
Accessories	Magnet for curved surfaces, USB cable, rechargeable AAA batteries ×2

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* Accurate measurements may not be possible depending on the usage conditions or measurement environment.



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