

# Fiberscopes

Remote visual inspection

Precision optics  
Durable construction  
Cost effective



**Waygate  
Technologies**

a Baker Hughes business

## Ergonomic body

The trim, sleek body is comfortable for hands of all sizes and the conveniently-placed articulation and focus controls enable single-handed operation.

## Designed to be used

Our flexible fiberscopes are built to withstand today's tough industrial applications. With a stainless steel monocoil core, waterproof sealant, and stainless steel or tungsten outer braid, the scopes are built for durable performance in a variety of inspection environments.



Image of Turbo Impeller



# Hardware features

## Tip articulation

This aids maneuverability and has a scanning capability which can provide a panoramic view of the area being inspected. Tip articulation is controlled by a conveniently-located lever which operates the two-way articulating tips. Two concentric knobs are used on four-way systems. Both types have locking mechanisms to maintain a fixed articulation angle during inspection.



## Eyepiece

The standard DIN eyepiece connects easily to a c-mount video camera system by way of a variable focus coupler. The ocular assembly incorporates a diopter focus adjustment to suit operators with varying eyesight characteristics.

## Insertion tube

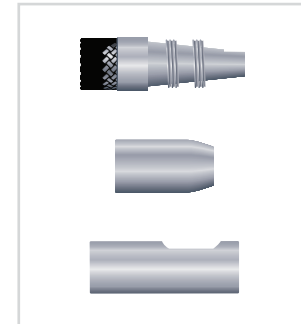
A strong stainless steel monocoil provides protection from crushing forces, while a stainless steel or tungsten braid cover resists wear from sliding over rough and sharp surfaces. The insertion tube is made watertight with layers of PVC and soft urethanes. The flexible insertion tube adapts easily to curves and bends and can be maneuvered around corners and over obstacles, yet is torsionally stiff to allow it to be twisted for better access and positioning.

## Interchangeable tip optics

These enable both forward-view and 90° side-view inspections with one fiberscope. The tip optics are retained by a double screw-thread which ensures that the tips are positively secured to the instrument. The forward-viewing tip headguard is standard and the 90° side-view tip optics are optional and diameter-specific.

## Light guide

A continuous high-efficiency fiber bundle maximizes light transmission from light source to scope tip. Various entrance adapters are available which enable the instrument to be used with a wide variety of light sources including those of other manufacturers.



# Technical specifications

## Operating temperature:

-18° to 82° C (0° to 180° F)

## Watertight:

Insertion tube and bending neck to 1 bar (14.7 psi)  
scope body splashproof

## Liquid compatibility:

Can be immersed in water, synthetic and mineral lubricating oil, mineral and synthetic hydraulic fluid (not Skydrol®), gasoline, diesel and jet fuel. (Instrument must be cleaned of contaminating fluid after use and before storage).

## Insertion tube bend radius:

### Scope diameter

2.4 mm to 6 mm  
8.4 mm  
12.5 mm

### Minimum bend radius

32 mm (1.25 in.)  
36 mm (1.5 in.)  
51 mm (2.0 in.)

# Technical specifications

## Fiberscope models with articulation

Part No.	Diameter mm (in.)	Working length m (ft.)	Articulation	Direction of view	Field of view	Side view tip	Insertion tube/ Bending neck braid**
<b>2.4 mm diameter</b>							
F2D07	2.5 (0.098)	0.75 (2.5)	2-Way	0°	60°	No	tungsten
F2D12	2.5 (0.098)	1.2 (3.9)	2-Way	0°	60°	No	tungsten
<b>3.0 mm diameter</b>							
F3X085	3.3 (0.130)	0.85 (2.8)	2-Way	0°	45°	No	tungsten
<b>4.0 mm diameter</b>							
F4X085	4.0 (0.157)	0.85 (2.8)	2-Way	0°	45°	No	tungsten
F4D15	4.0 (0.157)	1.5 (4.9)	2-Way	0°	45°	No	tungsten
<b>5.0 mm diameter</b>							
F5X085	5.0 (0.197)	0.85 (2.8)	2-Way	0°/90°	45°	Yes	tungsten
<b>6.0 mm diameter</b>							
F6X085	6.0 (0.236)	0.85 (2.8)	2-Way	0°/90°	45°	Yes	tungsten
F6X17	1.5 (4.9)	0.85 (2.8)	4-Way	0°/90°	45°	Yes	tungsten
F6X27	6.0 (0.236)	2.7 (8.9)	2-Way	0°/90°	45°	Yes	tungsten
<b>8.0 mm diameter</b>							
F8X18	8.0 (0.331)	1.8 (6.1)	4-Way	0°/90°	45°	Yes	tungsten

## Fiberscope models without articulation

Part No.	Diameter mm (in.)	Working length cm (in.)	Articulation	Direction of view	Field of view	Side view tip	Insertion tube covering
<b>0.4 mm diameter</b>							
FCN04D025	0.4 (0.016)	25 (9.8)	—	0°	50°	—	polyamide
FCN04D06	0.4 (0.016)	60 (23.6)	—	0°	50°	—	polyamide
<b>0.5 mm diameter</b>							
FCN05D06	0.5 (0.0197)	60 (23.6)	—	0°	50°	—	polyamide
FCN05D120	0.5 (0.0197)	120 (47.2)	—	0°	50°	—	polyamide
<b>0.9 mm diameter</b>							
FCN09D10	0.9 (0.0354)	100 (39.4)	—	0°	55°	—	polyamide
<b>1.0 mm diameter</b>							
FCN1.0D06	1.0 (0.039)	60 (23.6)	—	0°	55°	—	polyamide
FCN1.0D120	1.0 (0.039)	120 (47.2)	—	0°	55°	—	polyamide
FCN1.0D20	1.0 (0.039)	200 (78.7)	—	0°	55°	—	polyamide
FN1.0S10	1.0 (0.039)	100 (39.4)	—	90°	50°	—	polyamide
<b>1.5 mm diameter</b>							
FCN1.5D06	1.5 (0.059)	60 (23.6)	—	0°	70°	—	polyamide
FCN1.5D08	1.5 (0.059)	80 (31.5)	—	0°	70°	—	polyamide
FCN1.5D120	1.5 (0.059)	120 (47.2)	—	0°	70°	—	polyamide
<b>2.0 mm diameter</b>							
FN2D10	2.0 (0.0787)	100 (39.4)	—	0°	70°	—	stainless steel
FN2D12	2.0 (0.0787)	120 (47.2)	—	0°	70°	—	stainless steel
FN2S12	2.0 (0.0787)	120 (47.2)	—	90°	70°	—	stainless steel
FN2D15	2.0 (0.0787)	200 (78.7)	—	0°	70°	—	stainless steel
FN2D20	2.0 (0.0787)	200 (78.7)	—	0°	70°	—	stainless steel
FN2S20	2.0 (0.0787)	200 (78.7)	—	90°	70°	—	stainless steel
FN2.0S12-SF70	2.0 (0.0787)	120 (47.2)	—	90°	70°	—	stainless steel



# A large family of rugged, high performance inspection tools

A wide range of diameters, lengths and viewing options, combined with a high-resolution image guide, make Waygate Technologies flexible fiberscopes ideal for a variety of remote visual inspection applications. They excel in capturing bright, clear images from deep inside turbines, compressors, pipes, tanks and other hard-to-reach places.

## Full range of models

With over 30 standard models from which to choose, you are sure to find the right fiberscope for your inspection application. Standard articulating models have diameters as small as 2.4 mm (0.94 in.) and lengths up to 2.7 m (8.9 ft.).

Non-articulating models are available from 0.4 mm (0.20 in.) diameter and in lengths as long as 2.0 m (6.6 ft.).

## High-resolution images

The super thin fiberoptic technology used by Waygate Technologies fiberscopes allows thousands more fibers to be packed into the same size image bundle. Our "Superfine" image guides have up to 50 percent more fibers than other fiberscopes of similar diameter. The high quality of smaller fibers provides a sharper, smoother image and reveals finer details of the inspection surface.



