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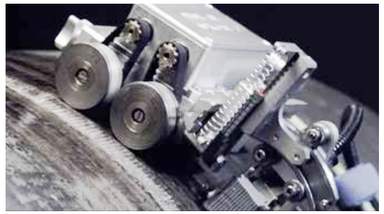
DEVELOPMENT, PRODUCTION AND SUPPLY OF NON-DESTRUCTIVE SYSTEMS SINCE 1990

ECHOPLUS





Scanners for ultrasonic inspection

Technical specifications and application

About

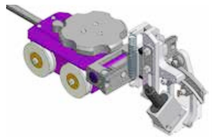
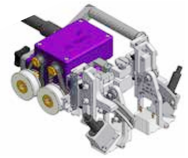
The ECHOPLUS Scientific and Production Center of Non-Destructive Testing was founded in 1990 and is one of the leading in Russia in the development, production and launch of modern non-destructive testing systems. The list of products manufactured by the ECHOPLUS includes automated ultrasonic inspection systems, scanners, flaw detectors, wedges, phased arrays, software.

Scanners

Scanning devices solve two main tasks for ultrasound inspection, which are the basis of automation of the entire process – it is the replacement of manual movement of transducers by mechanical scanning and recording of echo signals on a spatial grid linked to the coordinate system of the object of inspection. Along with solving these tasks, scanners perform many useful functions that significantly improve the quality of inspeciton. So, scanners provide uniform pressing of one to several probes to the metal surface, signal preamps are placed on scanners, which allows you to remove analog-digital conversion from the object of inspection and improve the quality of the signal. In addition, the scanners provide electrical connection of several probes and, if necessary, a distributed supply of contact fluid.

This brochure presents scanning devices for ultrasonic inspection produced by the ECHOPLUS Scientific and Production Center, which are used today at energy, oil and gas and other industries – in Russia and abroad.

Technical specifications

	Mini S0160084	**SHODS** S021012	**Mouse** S0160017	**Mouse Auto** S0160018
				
	A manual encoder for mounting on a phased array prism for fast manual ultrasonic inspection, mainly for monitoring in confined space.	Single-axis handheld compact scanner for one phased array for ultrasonic inspection of annular welded joints made of magnetic and non-magnetic materials with limited access.	A manual single-coordinate scanner of reduced dimensions on magnetic wheels for conducting automated ultrasonic inspection of control objects made of magnetic materials.	Motorized single-coordinate scanner on magnetic wheels – equipped with a gear motor and a scanner control unit for operation in automated movement mode.
Application				
Objects of inspection	Pipes and vessels	Pipes and branch pipes	Pipes, pipes, vessels	Pipes, pipes, vessels
Annular welded joints	●	●	●	●
Longitudinal welded joints	●		●	●
Types of steels	Pearlitic, austenitic	Pearlitic, austenitic	Pearlitic	Pearlitic
Ultrasonic thickness measurement	●	●	●	●
Laboratory tests	●	●	●	●

	Mini	**SHODS**	**Mouse**	**Mouse Auto**
Specifications				
Range of inspection diameters	From 57 mm up to plane	57–426 mm	From 108 mm up to plane	720–4000 mm
Coordinate inspection planes	Single-coordinate	Single-coordinate	Single-coordinate	Single-coordinate
Inspeciton mode	Manual	Manual	Manual	Automated
Movement speed	—	—	—	Up to 50 mm/s
Encoder	Built-in	Built-in	Built-in	Built-in
Encoder resolution	11.6 counts/mm	4.8 counts/mm	12.9 counts/mm	13.5 counts/mm
Movement method	Wheel with tire	By track	On magnetic wheels	On magnetic wheels
Scanner control	—	—	—	BUSK.A
Dimensions	51 x 69 x 38 mm	Ø57—426 x 15(B) mm	121.5 x 80 x 79 mm	149.4 x 169.8 x 79.8 mm
Weight	0.3 kg	0.3—0.5 kg	1.4 kg	2.2 kg
Ultrasonic inspection technology				
TOFD method			●	●
Phased array method (digital focus)	●	●	●	●
Phased array method + TOFD				
Compatibility[1]				
AUGUR series	●	●	●	●
OmniScan MX, MX2, SX	●	●	●	●
Harfang X-32, Veo	●	●	●	●
Gekko	●	●	●	●

[1] For ordering, you must know the flaw detector with which the scanner will work

Technical specifications

SK89-273
S0160028

Motorized track single-coordinate scanner for monitoring pipes and flanges made of non-magnetic and magnetic materials.

SK159-426
S0160041

Single-coordinate manual compact scanner for one phased array for ultrasonic inspection of annular welded joints made of magnetic and non-magnetic materials with limited access.

SPSH 100-150
S0160058

Track manual single-coordinate scanner for ultrasonic inspection of annular welded joints made of non-magnetic and magnetic materials.

Spider
S0160058

Motorized single-coordinate scanner on magnetic wheels for automated ultrasonic inspection of objects of magnetic materials.

Application				
Objects of inspection	Pipes and branch pipes	Pipes and branch pipes	Pipes and branch pipes	Pipes, pipes, vessels
Annular welded joints	●	●	●	●
Longitudinal welded joints				●
Types of steels	Pearlitic, austenitic	Pearlitic, austenitic	Pearlitic, austenitic	Pearlitic
Ultrasonic thickness measurement	●		●	
Laboratory tests	●	●	●	●

Specifications	**SK89-273**	**SK159-426**	**SPSH 100-150**	**Spider**
Range of inspection diameters	89–325 mm	159–426 mm	108 and 159 mm	From 159 up to plane
Coordinate inspection planes	Single-coordinate	Single-coordinate	Single-coordinate	Single-coordinate
Inspeciton mode	Automated	Manual / Automated	Manual	Automated
Movement speed	Up to 17 mm/s	—	—	Up to 48 mm/s
Encoder	Built-in	Built-in	Built-in	External
Encoder resolution	4.8 counts/mm	4.8 counts/mm	16.4 counts/mm	—
Movement method	By track	By track	By track	On magnetic wheels
Scanner control	BUSK.A	BUSK.A	—	BUSK.A
Dimensions	350 x 256 x 117 mm	279 x 79 x 264 mm	140 x 140 x 60 mm	452 x 263 x 138 mm
Weight	3.6 kg (without a track)	1.9 kg (without a track)	2.4 / 2.6 kg (with a track)	10 kg

Ultrasonic inspeciton technology				
TOFD method		●		●
Phased array method (digital focus)	●	●	●	●
Phased array method + TOFD				●

Compatibility[1]				
AUGUR series	●	●	●	●
OmniScan MX, MX2, SX	●	●	●	●
Harfang X-32, Veo	●	●	●	●
Gekko	●	●	●	●

[1] For ordering, you must know the flaw detector with which the scanner will work

Technical specifications

Chameleon
S0160001

Manual one- or two-coordinate scanner for objects of magnetic materials.

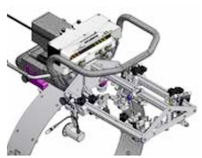
Cat
S0160076

Motorized single-coordinate scanner on magnetic wheels for ultrasonic inspection of welded joints with one-way or two-way access.

Horse
S0160095

Two-coordinate scanner for automated inspection of welded joints with limited access (located in a narrow gap).

Elephant (SK.TF.K)
S0180005OB



Motorized high-performance scanner for automated ultrasonic inspection ring welded joints. It is used as part of the AUGUR TF system.

Application				
Objects of inspection	Pipes, branch pipes, vessels	Pipes and vessels	Pipes and vessels	Pipes, vessels
Annular welded joints	●	●	●	●
Longitudinal welded joints	●	●	●	
Types of steels	Pearlitic	Pearlitic	Pearlitic, austenitic	Pearlitic, austenitic
Ultrasonic thickness measurement	●		●	
Laboratory tests	●	●	●	●

	Chameleon	**Cat**	**Horse**	**Elephant (SK.TF.K)**
Specifications				
Range of inspection diameters	From 57 mm up to plane	From 159 mm up to plane	720–4000 mm	159–1440 mm
Coordinate inspection planes	Single- / Two-coordinate	Single-coordinate	Two-coordinate	Single-coordinate
Inspeciton mode	Manual	Automated	Automated	Automated
Movement speed	—	Up to 60 mm/s	Up to 40 mm/s	Up to 100 mm/s
Encoder	Built-in	Built-in	Built-in	Built-in
Encoder resolution	8.2 counts/mm	4.8 counts/mm	X: 12.8 / Y: 6.4 counts/mm	6.5 counts/mm
Movement method	On magnetic wheels	By track	Tension belt	By track
Scanner control	—	BUSK.A	BUSK.2D	BUSK.2D
Dimensions	550 x 250 x 120 mm	278 x 156 x 118 mm	458 x 200 x 302 mm	680 x 300 x 280 mm
Weight	3.1–7.7 kg	4.6 kg	9.9 kg	4 kg
Ultrasonic inspeciton technology				
TOFD method	●	●	●	●
Phased array method (digital focus)	●	●	●	●
Phased array method + TOFD	●	●	●	●
Compatibility[1]				
AUGUR series	●	●	●	●
OmniScan MX, MX2, SX	●	●	●	●
Harfang X-32, Veo	●	●	●	●
Gekko	●	●	●	●

[1] For ordering, you must know the flaw detector with which the scanner will work

Technical specifications

Combo (SK.TF.M)
S0180044

Motorized high-performance single-coordinate scanner. It is used as part of the AUGUR TF automatic ultrasonic inspection system.

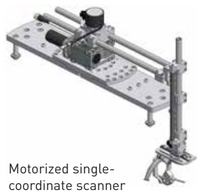
Scorpio (SK.M.2D)
S021012

Motorized two-coordinate scanner on magnetic wheels for conducting automated ultrasonic inspection of objects made of magnetic materials with a diameter from 159 mm up to plane.

Arrow (CK426C)
S018007

Track two-coordinate scanner for conducting automated ultrasonic inspection of objects made of non-magnetic and magnetic materials with a diameter from 426 mm up to plane.

Nozzle Pipe Scanner
S220050



Motorized single-coordinate scanner for nozzles.

Application				
Objects of inspection	Pipes and vessels	Pipes and vessels	Pipes, pipes, vessels	Branch pipes
Annular welded joints	●	●	●	●
Longitudinal welded joints	●	●	●	
Types of steels	Pearlitic	Pearlitic	Pearlitic, austenitic	Pearlitic, austenitic
Ultrasonic thickness measurement		●	●	
Laboratory testsv		●	●	●

	Combo (SK.TF.M)	**Scorpio (SK.M.2D)**	**Arrow (SK426S)**	**Branch Pipe Scanner**
Specifications				
Range of inspection diameters	114–1420 mm	159–1435 mm	От 108 mm up to plane	720–4000 mm
Coordinate inspection planes	Single-coordinate	Two-coordinate	Two-coordinate	Single-coordinate
Inspeciton mode	Automated	Automated	Automated	Automated
Movement speed	1–100 mm/s	5–56 mm/s	5–60 mm/s	0.0005–0.5 rpm
Encoder	External	Built-in	Built-in	Built-in
Encoder resolution	6.5 counts/mm	X: 16.3 / Y: 8.2 counts/mm	12.9 counts/mm	3600 on the turnover
Метод перемещения	On magnetic wheels	On magnetic wheels	By track	By flange
Scanner control	BUSK.2D	BUSK.2D	BUSK.2D	BUSK.A
Dimensions	510 x 690 x 380 mm	480 × 700 × 480 mm	465 x 119 x 272 mm	850x280x150 mm
Weight	5 kg	0.3–0.5 kg	8 kg	16 kg
Ultrasonic inspeciton technology				
TOFD method	●	●	●	
Phased array method (digital focus)	●	●	●	●
Phased array method + TOFD	●	●		
Compatibility[1]				
AUGUR series	●	●	●	●
OmniScan MX, MX2, SX	●	●	●	●
Harfang X-32, Veo	●	●	●	●
Gekko	●	●	●	●

[1] For ordering, you must know the flaw detector with which the scanner will work

Configurations

Стандартная комплектация	Mini	SHODS	Mouse	Mouse Auto	SK89-273	SK159-426	SPSH 100-150	Spider TOFD	Spider TOFD FP	Spider PA	Spider TOFD+	Chameleon SM	Chameleon TOFD PA	Chameleon TOFD	Chameleon PA	Cut	Horse	Elephant (SK.TF.K)	Combo (SK.TF.M)	Scorpio (SK.M.2D)	Arrow (SK426C)	Branch Pipe Scanner
Clamps PA	●	●	●	●	●	●	●		●	●		●	●		●	●	●	●	●	●	●	●
Clamps TOFD								●	●		●		●	●				●	●			
Scanner control				●	●	●		●	●	●	●					●	●	●				
Carriage Y	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Carriage X					●							●					●			●		
Track/bracket of the required diameter		●			●	●	●									●		●	●	●	●	●
Guides							●	●	●	●	●	●	●	●	●				●	●	●	●
Path sensor (encoder)	●	●	●	●	●		●	●	●	●	●								●	●	●	●
Cable encoder[1]			●	●	●			●	●	●	●	●	●	●	●	●	●					
Accessories for fasteners	●						●												●	●	●	●
Tool Kit			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

[1] Cables of the required length are manufacturing to order

Additional options	Mini	Shods	Mouse	SK89-273	SK159-426	SPSH 100-150	Spider	Chameleon	Cut	Horse	Elephant	Combo (SK.TF.M)	Scorpio (SK.M.2D)	Arrow (SK426S)	Branch Pipe Scanner
Contact fluid supply system		●	●	●	●	●	●	●	●	●	●	●	●	●	
Preamp for TOFD sensors							●	●				●			
Automated visual and measuring inspeciton system											●	●			
Wheel of different diameters	●														
Magnetic wheel for better grip on pearlitic objects	●														
Carriage of increased length for mounting elongated clamps					●		●							●	●
Carriages for scanning across the weld				●				●							
Track required diameter[1]				●	●				●		●		●	●	
Converters and wedges[2]	●		●	●	●		●	●		●					
Wedges / Phased arrays												●			
Clamps / forks / guides[3]	●	●	●	●	●		●	●		●		●			
X path sensor for scanning along the second axis				●											
Computer control software										●	●	●	●	●	
Cables of the requested length			●		●	●	●	●	●	●	●	●	●	●	●
Laser target pointer							●		●			●			

[1] The required number of tracks is ordered additionally
[2] Converters and wedges are not included in the package and are purchased separately
[3] Clamps, forks and guides can be made to order

Ordering Information

Scanner	Article No	Description
Мини	S0160084	With a wheel Ø38 mm
SHODS T57	S0170004s	For pipes Ø57 mm
SHODS T86	S0170005s	For pipes Ø76 mm
SHODS T89	S0170005s	For pipes Ø89 mm
SHODS T114	S0170012s	For pipes Ø114 mm
SHODS T168	S0170013s	For pipes Ø168 mm
SHODS T219	S0170014s	For pipes Ø219 mm
SHODS T273	S0170007s	For pipes Ø273 mm
SHODS T325	S0170008s	For pipes Ø325 mm
SHODS T426	S0170008s	For pipes Ø426 mm
Mouse	S0160017	Manual
Mouse Auto	S0190001	Automated
SK89-273	S0160028	Flange and branch pipes scanner
SK159-426	S0180007	
SPSH 100-150	S0160125	
Spider TOFD	S0160058	TOFD method ultrasonic inspection
Spider TOFD-PA	S0160070	PA & TOFD method ultrasonic inspection
Spider PA	S0160074	PA method ultrasonic inspection
Spider TOFD+	S0160071	
Chameleon X-SM	S0160001	PA method UTM & USI
Chameleon X-TOFD-PA	S0160010	PA & TOFD method ultrasonic inspection
Chameleon X-TOFD	S0160013	TOFD method ultrasonic inspection
Chameleon X-PA	S0160014	PA method ultrasonic inspection
Cut	S0160076	
Horse	S0160095	

Scanner	Article No	Description
Elephant (SK.TF.K)	S0180005	
Combo (SK.TF.M)	S0180044	
Scorpio (SK.M.2D)	S023040	with a carriage 130 mm
Scorpio (SK.M.2D)	S023045	with a carriage 300 mm
SK426S	S0180007	with a carriage 120 mm
SK426S300	S0180007ss	with a carriage 300 mm
SK426S400	S0180007s	with a carriage 400 mm
Nozzle Pipe Scanner	S220050	

Feedback

To order equipment or consult a specialist, you can contact the technical department of the ECHOPLS at the address:
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