

Catalogue
of products
2013

TESECO

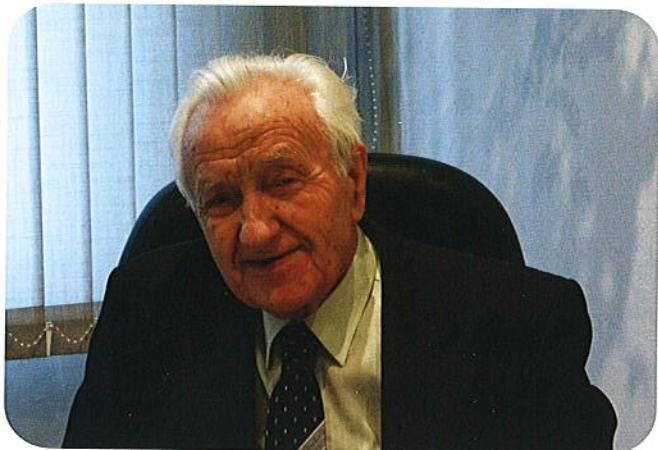
VENTILATION OF MINES
AND TUNNELS



www.teseco.pl

CHAIRMAN OF THE BOARD

inż. Aleksander Tomalski



TESECO HEADQUARTERS

Mysłowice, ul. Fabryczna 12



CERTIFICATES

All our products have been certified as compliant with EU directives and harmonised/national standards.

KOMAG MINING MECHANIZATION CENTRE
Attestation Department
Certifying Body
Pszczynska 37, 44-101 Gliwice, Poland

CERTIFICATE FOR CONFORMITY
No. KOMAG/08/ATEX/ST/15
System 5 acc. to PN-ISO/IEC Guide 67:2007

Name of the product: Flexible sucking venturi made of technical cloth coated from both sides
Type: TS-LWT
Name and address of the product supplier: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Name and address of the manufacturer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Product identification: according to the certificate's Explanatory which includes technical parameters and specification of documentation

Conformity with the following has been accepted:
- Main requirements included in EN 1839-1 to the ATEX Directive dated 23rd March 1986 (implemented by a Decree of Ministry of Economy and Labour in regard to the main requirements for protective systems and equipment designed to operate in areas threatened by explosion hazard dated 27th December 2008 (Law Journal No. 243, item 2243))
- Standards: PN-G-43001:1999 item 2.1; PN-EN 13463-1:2003

Manager of Attestation Department
Certifying Body
Jacek Kozłowski, M.Sc., Eng.
Gliwice, 28.02.2008

KOMAG MINING MECHANIZATION CENTRE
Attestation Department
Certifying Body
Pszczynska 37, 44-101 Gliwice, Poland

CERTIFICATE FOR CONFORMITY
No. KOMAG/08/ATEX/ST/21
System 5 acc. to PN-ISO/IEC Guide 67:2007

Name of the product: Flexible sucking venturi made of technical cloth coated from both sides
Type: TS-LWS
Name and address of the product supplier: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Name and address of the manufacturer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Product identification: according to the certificate's Explanatory which includes technical parameters and specification of documentation

Conformity with the following has been accepted:
- Main requirements included in EN 1839-1 to the ATEX Directive dated 23rd March 1986 (implemented by a Decree of Ministry of Economy and Labour in regard to the main requirements for protective systems and equipment designed to operate in areas threatened by explosion hazard dated 27th December 2008 (Law Journal No. 243, item 2243))
- Standards: PN-G-43001:1999 item 2.1; PN-EN 13463-1:2003

Manager of Attestation Department
Certifying Body
Jacek Kozłowski, M.Sc., Eng.
Gliwice, 08.02.2008

KOMAG MINING MECHANIZATION CENTRE
Attestation Department
Certifying Body
Pszczynska 37, 44-101 Gliwice, Poland

CERTIFICATE FOR CONFORMITY
No. KOMAG/07/ATEX/ST/28
MODEL 5 ISO

Name of the product: Flexible sucking venturi made of technical fabric coated on both sides of PVA type
Type: TS-LWT
Name and address of the product supplier: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Name and address of the manufacturer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice
Product identification: according to the certificate's Explanatory which includes technical parameters and specification of documentation

Conformity with the following has been accepted:
- Main requirements included in EN 1839-1 to the ATEX Directive dated 23rd March 1986 (implemented by a Decree of Ministry of Economy and Labour in regard to the main requirements for protective systems and equipment designed to operate in areas threatened by explosion hazard dated 27th December 2008 (Law Journal No. 243, item 2243))
- PN-G-43001:1999 item 2.1; PN-EN 13463-1:2003

Manager of Attestation Department
Certifying Body
Jacek Kozłowski, M.Sc., Eng.
Gliwice, 02.08.2007

VVOU, s. s.
Certification Body for Products
Pikarska 1337/7, 716 07 Ostrava - Radvinice, Czech Republic
ID No.: 45193389

CERTIFICATE
No. VVOU-034/2013
Issued

To producer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice, Poland
For product: Flexible ventilation blow pipe including accessories (branch, reduction and connection pieces) type TS - LWT, diameter 200 mm - 2 400 mm

The above mentioned Certification Body hereby certifies that the sample of the product conforms:
- with the requirements of Section 183, Part 2, of CMO Directive no. 22/1986 Col. as amended;
- with the requirements of Section 3, Part 2, of CMO Directive no. 22/1986 Col. as amended;
- with the requirements of CEN EN 13463-1, CEN EN 1127-2-1 and CEN EN 1127-4-1;
- with the requirements of the Law no. 102/2001 Col. as amended;
- with the technical documentation, including the User Manual.

Electrostatic properties of the certified products are in agreement with the requirements of the specified standards, stipulated for products of the Group I, categories M2 and M1 (products intended for use in the areas of gas generating mines with dangerous atmospheric conditions 2 and 1, see CEN EN 1127-2-1 and 1127-4-1) these conditions correspond to the M20 areas according to Part 23, Section 232, and the M20 areas according to Part 13, par. 233 of the CMO Directive no. 22/1986 Col. as amended, in the specified areas the hanging air pipe system (metal hanging systems and hoses) must be attached to a grounded part of mine work.

The manufacturer chose a certification scheme - 2A (Description of the scheme - see Assessment Report).

As integral part of the certificate is the Evaluation Report No. VVOU-01/09/2013, from February 27th, 2013, issued by VVOU, s. s., Certification Body for Products, Pikarska 1337/7, 716 07 Ostrava - Radvinice, Czech Republic.

This certificate is issued for the purpose of producer's declaration of conformity of the product with the above mentioned technical regulations.

Products, which this certificate refers to, are subjected to supervision and inspection of the Certification Body once every three years, according to the requirement of the producer. The certificate holder is obliged to adhere to principles for the certificate usage which are introduced on the other side (back page) of the certificate.

The certificate is valid until 26th February 2018.

27th February 2013, Ostrava - Radvinice
Certification body official seal and stamp

2013-09-21

VVOU, s. s.
Certification Body for Products
Pikarska 1337/7, 716 07 Ostrava - Radvinice, Czech Republic
ID No.: 45193389

CERTIFICATE
No. VVOU-034/2013
Issued

To producer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice, Poland
For product: Flexible ventilation suction-blow pipe including accessories (branch, reduction and connection pieces) type TS - LWS, diameter 200 mm - 1 400 mm

The above mentioned Certification Body hereby certifies that the sample of the product conforms:
- with the requirements of Section 183, Part 1, of CMO Directive no. 22/1986 Col. as amended;
- with the requirements of Section 3, Part 2, of CMO Directive no. 22/1986 Col. as amended;
- with the requirements of CEN EN 13463-1, CEN EN 1127-2-1 and CEN EN 1127-4-1;
- with the requirements of the Law no. 102/2001 Col. as amended;
- with the technical documentation, including the User Manual.

Electrostatic properties of the certified products are in agreement with the requirements of the specified standards, stipulated for products of the Group I, categories M2 and M1 (products intended for use in the areas of gas generating mines with dangerous atmospheric conditions 2 and 1, see CEN EN 1127-2-1 and 1127-4-1) these conditions correspond to the M20 areas according to Part 23, Section 232, and the M20 areas according to Part 13, par. 233 of the CMO Directive no. 22/1986 Col. as amended, in the specified areas the hanging air pipe system (metal hanging systems and hoses) must be attached to a grounded part of mine work.

The manufacturer chose a certification scheme - 2A (Description of the scheme - see Assessment Report).

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This certificate is issued for the purpose of producer's declaration of conformity of the product with the above mentioned technical regulations.

Products, which this certificate refers to, are subjected to supervision and inspection of the Certification Body once every three years, according to the requirement of the producer. The certificate holder is obliged to adhere to principles for the certificate usage which are introduced on the other side (back page) of the certificate.

The certificate is valid until 26th February 2018.

27th February 2013, Ostrava - Radvinice
Certification body official seal and stamp

2013-09-21

INSTYTUT TECHNOLOGII BEZPIECZEŃSTWA
"MORATEX"
ZAKŁAD CERTYFIKACJI WYROBÓW
CERTIFICATE OF CONFORMITY
No. 15/AC-09/2011
Certification system 3 according to PN-ISO/IEC Guide 67:2007

Name and address of the Certificate holder: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice, POLAND
Name and address of the manufacturer: TESECO Sp. z o.o., ul. Fabryczna 12, 41-404 Mysłowice, POLAND
Name of product, type, model, version, etc.: Flexible sucking venturi made of technical fabric coated on both sides, type TS-2
Basic parameters, declaration: Polymeric fabric coated with PVC on both sides, designed for manufacturing the mining ventilation ducts, curtains, dams and seals, etc. for use in potentially explosive atmospheres in underground mines.
The product complies with requirements set forth in:
- PN-EN 13463-1:2003 Equipment and components intended for use in potentially explosive atmospheres in underground mines, part 1: Basic method and requirements, in 3.7.4.4 - surface resistance
- PN-EN 1127-2-1:2003 Non-electrical equipment for use in potentially explosive atmospheres, Part 1: Basic method and requirements, in 3.7.4.4 - surface resistance

According to the report on testing made by: Bad Engineering Laboratory, Wrocław University of Technology, Institute of Mining, 3 Pawłowskiego, 50-370 Wrocław, POLAND; Bad Engineering Laboratory of ITB "MORATEX", 3 Wroclawskiego, 50-370 Wrocław, POLAND
No. 15/AC-09/2011 dated 13.07.2011

The sign on the Certificate is the personal stamp of 13.07.2011 and 13.07.2011. It is used for products being tested (as specified in the requirements) and for testing and certifying on the requirements of the standard. The sign on the Certificate is the personal stamp of the signatory.

HEAD OF THE CERTIFICATION DEPARTMENT: Elżbieta Borkowska, M.Sc., Eng.
DIRECTOR: Elżbieta Wójcik, Ph.D., Eng.

2013-09-21



TESECO Sp. z o.o. has since 1984 been a leading manufacturer of flexible plastic ventilation ducts (also referred to as mining ducts)

TESECO Company was the first business in Poland, established to design machines and facilities for production of flexible plastic ventilation ducts, as well as to set up their manufacturing, prompting an implementation of state-of-the-art ventilation systems in underground mining plants.



Our ventilation duct situated in the mine

Despite a strong competition, the **TESECO** Company has achieved an established position on the Polish and European Markets, owing to design and implementation of unique manufacturing technology and novel designs of ventilation ducts.

The multiyear experience of our technical staff is the best guarantee for our Customers that the product, which they get, is of top quality and tailored to their individual needs.

Moreover, the quality of our products is maintained by the implemented and fully integrated Quality Management System and supported by a long collaboration with certified research institutes in Poland and abroad.

Our **POLICY OF QUALITY** is outlined in our Motto:

„**TESECO QUALITY – SAFETY OF MINES**”

The Company offers flexible, forcing and exhaust ventilation ducts in a broad range of diameters and lengths, adjusted to current needs of underground mining plants, tunnel construction companies as well as individual customers.

We also produce accessories for ventilation systems, including storage ducts, T-connections, reductions, control gate valves, shaft ducts, perforated ducts, whirling ducts, etc.



Our ventilation duct situated in the tunnel

SPECIFICATION OF THE FABRIC

Our products are made of technical fabric, PVC-coated on either side and hot air welded.

This fabric is characterized by high breaking and tearing strength, the oxygen index above 27% and superficial resistance below $1 \times 10^8 \Omega$



Exhaust ventilation ducts after assembly

ADDITIONAL PRODUCTS

Beside ventilation accessories, our portfolio of products encompasses:

- barrage balloons of various diameters
- protection systems of hydraulic cylinder sliding surfaces
- blinds
- curtains
- Dog training tunnels, also known as agility tunnels, are made of fabrics in various colours and are tailored to needs of our Customers



Y-connection with gate valves

MATERIAL FEATURES

The fabric does not release any caustic or toxic substances and is resistant to ageing, abrasion, oils and fumes of most solvents.

All these properties ensure safe applications of our ducts not only at underground mining plants with explosion and/or fire hazards but also at tunnel construction sites, shipyards, woodworking shops, steel works, paint shops, chemical plants, etc.

Our ducts are certified for their compliance with the requirements of Annex No. II to the ATEX Directive (94/9/EC) of March 23, 1994.



Pressure ventilation duct with an elbow

OUR PRODUCTS CAN BE DIVIDED INTO:

- pressure ventilation ducts
- exhaust ventilation ducts (reinforced)
- pressure/exhaust ventilation shaft ducts
- perforated, pressure/exhaust ventilation ducts
- T-connections, reduction T-connections (T and Y types) in pressure/exhaust lines
- reduction systems in pressure/exhaust lines
- elbows in pressure/exhaust lines
- storage ventilation ducts
- control gate valves
- flexible joints

- Ventilation accessories:
stopping systems, containers and barrage balloons, made of bilaterally PVC-coated fabrics

Other products:

- dog training (agility) tunnels in customer-tailored colours
- protection systems of hydraulic cylinder sliding surfaces
- blinds
- curtains

FLEXIBLE VENTILATION DUCTS

For pressure ventilation systems

Pressure ventilation duct - are applied mainly in underground mining plants to ventilate headings. They are also used in drilling works of tunnel and railway construction projects, as well as in other industry branches, including, among others, pressure ventilation, air-delivering ducts, mounted at residential premises, production shops, tents, etc

Pressure ventilation ducts are delivered in the range of diameters from 200 up to 2,400 mm but larger diameters, as well as various lengths, are also available to be tailored to needs of our Customers. Our portfolio of products includes also "light reinforced" pressure ducts of "O" class. A specific design of "O" class ducts facilitates their use as elbows in pressure ventilation systems, as well as pressure ducts alone, if a given ventilation duct cannot be run in overhead configuration.



Pressure ventilation duct

See the table below for the range of our pressure ventilation ducts.

Ventilation duct diameter [mm]	Max working pressure [Pa]	Average weight of 1 meter section of ventilation duct	Working temperature [°C]	Ventilation duct length [m]
Ø 200 Ø 250 Ø 315 Ø 400 Ø 500 Ø 600 Ø 700 Ø 800 Ø 1000 Ø 1200 Ø 1400 Ø 1600	15000	0,7 0,8 0,9 1,5 2,0 2,4 2,6 2,9 3,9 4,5 4,9 5,6	-10 ÷ +60	Standard lengths: 0.5 to 100 m We accept orders or tailored ventilation ducts, with lengths and diameters as per Customer's request
Ø 1800 Ø 2000 Ø 2100	5000	6,1 6,8 7,0		
Ø 2200 Ø 2400	3500	7,2 7,6		

Our ventilation ducts ensure small aerodynamic resistance, thus contributing to significant reduction of ventilation investment costs. As standard, the ducts are provided with:

- carrying folds of fabric
- hooks of galvanized wire, ensuring simple, safe and efficient duct suspension

Two carrying folds with mounted hooks are used for ducts with bigger diameters (above 1000 mm). Subsequent duct sections are joined together with special clamping bolt joints. Joint design ensures reliable and tight connection of adjacent duct sections and of other ventilation system accessories.

FLEXIBLE VENTILATION DUCTS

Used in suction ventilation applications

Exhaust ventilation ducts - are used everywhere, where it is necessary to exhaust air, poisonous gases, dusts and other industrial contaminations.

This ventilation type is especially demanded. in mining practice, at headings and dog headings, drilled with heading machines.

This ventilation type is provided by plastic suction-ducts, strengthened with spiral wire. The type of duct-strengthening (wire diameter, spiral lead) is selected, according to its required resistance to vacuum, generated by the ventilation duct fan.



Exhaust ventilation ducts

Exhaust ventilation ducts are supported by spring wire in various, duct size-related diameters (2 mm – 7.5 mm).

Spring wire is fixed on duct surface by the hot air welding method. The maximal vacuum resistance of our exhaust ducts amounts to 8,000 Pa ("C" class ducts)

Proper connection of two exhaust ventilation ducts

See the table below for the range of our exhaust and reinforced pressure ventilation ducts.

Wire dia [mm]	Max duct vacuum and pressure (kPa)				Length in m	WORK CLASS											
	WORK CLASS					A			B			C			O		
	A	B	C	O		Wire dia	Coil lead	Average weight of 5 m	Wire dia	Coil lead	Average weight of 5 m	Wire dia	Coil lead	Average weight of 5 m	Wire dia	Coil lead	Average weight of 5 m
						mm	mm	kg	mm	mm	kg	mm	mm	kg	mm	mm	kg
Ø 200	Max vacc. 3 kPa / max pressure 15 kPa	Max vacc. 5 kPa / max pressure 15 kPa	Max vacc. 5 kPa / max pressure 15 kPa	Max pressure 15 kPa	0.5 m – 20 m	2,0	100	4,6	2,0	75	4,7	2,0	50	5,6	2,0	150	3,7
Ø 250						2,5	100	5,8	2,5	75	6,4	2,5	50	8,0	2,5	150	4,9
Ø 315						3,0	100	8,8	3,0	75	10,5	3,0	50	13,8	3,0	150	7,3
Ø 400						4,0	100	13,9	4,0	75	16,5	4,0	50	21,7	4,0	150	11,5
Ø 500						5,0	100	21,6	5,0	75	26,6	5,0	50	35,8	5,0	150	17,2
Ø 600						5,0	100	26,0	5,0	75	31,8	5,0	50	42,8	5,0	150	20,5
Ø 700						6,0	100	37,8	6,0	75	47,1	6,0	50	65,2	6,0	150	28,9
Ø 800						6,0	100	43,1	6,0	75	53,7	6,0	50	74,5	6,0	150	33
Ø 1000						7,0	100	70,6	7,0	75	88,3	7,0	50	115	7,0	150	53,8
Ø 1200						7,5	85	100	7,5	65	125	7,5	45	160	7,0	150	67,2
Ø 1400	7,5	85	117	7,5	65	146	7,5	45	187	7,5	150	78,4					
Working temperature [°C]					-10 ÷ +60												
Wire acc. to PN-EN 10270-1, DIN 17223, PN-71/M-80057																	

Meeting the needs of our Customers, including, among others, reduction of dust levels in the air, a broad range of diameters is offered, from Ø 200 mm up to Ø 1,400 mm. The standard exhaust duct length is 5 meters.

We are ready to process special orders of our Customers with various duct length requirements in the scope from 0.5 m up to 20 m.

Sections of „lightly reinforced” exhaust ventilation ducts with wire coil lead of 150 mm (cl. 0) are also used in assembly of pressure ventilation ducts as elbows, mounted in different bending radii. The principles of suspending and connecting exhaust ventilation ducts are analogous as in case of pressure ventilation ducts.

FLEXIBLE VENTILATION DUCTS

Shaft ventilation ducts

Our offer includes ventilation ducts, intended for use in **underground shafts** and made by hot air welding as well.

Shaft ventilation ducts may also be used for pressure ventilation. In this case, in addition to standard suspension gear, galvanized steel ropes are also used, located on both sides of suspended duct and terminated on one side with clamping and stretching bolts.

The assembled lines, including the clamping bolts, facilitate duct mounting in shafts, being an additional support element for overhead ducts.

Subsequent sections of shaft duct sections are connected also with clamping screw joints.



Shaft ventilation duct

FLEXIBLE VENTILATION DUCTS

Perforated and whirling ducts

Ventilation ducts of this type are used for chimney ventilation systems with dust separators.



Perforated duct

They are applied in pressure ventilation, being an ideal solution for air distribution at production shops and warehouse premises.

DUCT STRUCTURE

Perforated ventilation duct structure is based on exhaust ventilation duct design, except that it has been perforated, having holes all over its entire length or in its part only; the number of perforation holes.

depends on air displacement rate, while the circumferential perforation layout is arranged according to Customer's wish. Perforation can be made as holes, finished or not with steel eyes.

Whirling ventilation ducts are also based on reinforced duct design but with additional outlet holes, enforcing air whirling circulation and thus leading to dissipation of methane or other hazardous gases in mining heads.



Whirling duct



T – connection



Y – connection

T-/Y-CONNECTIONS, ELBOWS, STORAGE DUCTS, CONTROL GATE VALVES

The following elements are offered for ventilation duct assemblies:

- reduction ducts
- storage ducts
- elbows
- flow control gate valves
- T- / Y-connections
- etc.

T-/Y-CONNECTION CLASS

T-/Y connections, reduction T-/Y connections, elbows and reductions, both for pressure and exhaust ventilation.

T-/Y-connections, elbows and reductions are made in the same classes as for exhaust ducts.

Class selection depends on ventilation duct vacuum level.

T-/Y-connections and elbows, used in pressure ventilation, are made in „light reinforced” version, for example in “0” class.

T-/Y-connections, used in pressure and exhaust lines, can be made in various diameter configurations, as reduction T-/Y-connections, and in different lengths.

Moreover, the design of our reinforced T-connections allows any blunt angle, thus a T-connection may easily be reconfigured into a Y-connection. T-/Y-connections may also have metal gate valves for air flow control.

All the above mentioned elements are adapter to blot clamping joint systems, same as in pressure and exhaust ventilation ducts.

Storage ventilation ducts have been designed to improve ventilation system performance in heads, drilled by heading machines, to maintain separate ventilation of the heads in course of drilling progress .

Storage ventilation duct consists of:

- metal vessel with a cartridge, on which a pressure ventilation duct is mounted with maximal length 50 m
- outlet air diffuser

The outlet diffuser is adapted for mounting in standard or special ventilation ducts, such as whirling or perforates ventilation duct solutions.



Storage duct



Bolt clamping joints

VENTILATION ACCESSORIES

Stopping systems



Barrage balloons

STOPPING CURTAINS

Stopping curtains are made of PVC-coated technical fabric and have got galvanised steel ropes with stretching bolts for mounting stability in corridors and passages.

They are used for tight closing of corridors at underground mining plants in case any emergency or compromised ventilation hazard.

BARRAGE BALLOONS

Barrage balloons are made of fabric and have got holes, which may provisionally dam water or other media in case of emergency failures or repairs in ventilation or water supply channels.

Containers of various shape and size, used for loading and handling of quick-binding materials, e.g., concrete, are applied in construction of dams, protection systems and pillars.



Stopping curtain

OTHER PRODUCTS

www.teseco.pl

Sliding surface protection systems and agility tunnels

Hydraulic cylinder sliding surface covers are made by the hot air welding method, both in wire-strengthened and non strengthened-unbuckled (laced) versions, the latter version facilitating assembly works.

Our covers are made of certified, double PVC-coated fabric, meeting the requirements for applications at explosion hazardous zones and at underground mining plants. The use of our covers is especially justified as a cost-effective solution in case when new or repaired stands are used, what improves their age, while reducing failure rates.



Agility tunnel - yellow

The tunnel is flexible and can be configured in one or more bending shapes. This type of tunnels is made in any colour selection – see the enclosed photos. Soft tunnel is another type of tunnel designs.



Agility tunnel – red/transparent

ON CUSTOMER'S WISH

In order to strengthen tunnel stability, additional grips may be introduced to be fixed in soil or stabilising, sand-filled weight.

Other width and length values of our agility tunnels for dog training purposes may also be enquired by our Customers.

AGILITY TUNNELS

For dog training

Agility tunnels for dog training are made of fabric, PVC - coated on both sides and strengthened with coiled wire, the coil lead from 150 mm

A rigid tunnel (tube tunnel) in the following dimensions:

- diameter Ø 600 cm
- length from 3m up to 6 m

These parameters are in compliance with the requirements of the FCI (Federation Cynologique Internationale) Regulations

Soft tunnel (flat tunnel):

- made of durable fabric
- water-proof
- PVC-coated

Tunnel entrance:

- a rigid structure
- diameter Ø 600 mm
- length 0.9 m

Tunnel exit:

- made of soft, PVC-coated fabric
- diameter Ø 600 mm
- length – per individual wish



Agility tunnel – transparent



TESECO

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