Formula Air
Supporting your performance

YOGA Extraction arms

YOGA -M/Z
YOGA -K/Z
YOGA -L/Z
YOGA -D/Z

Maintenance Manual

Table of contents

1. How it works

YOGA extraction arms are designed for capturing the welding dusts and gases and also fine dusts, directly at the emission source, in order to avoid expanding the impurities in the workspace and being inhaled by people.

The arms are manufactured in hanging and standing versions. The extraction arms can work independently with an extraction fan, or in a group of devices connected to the main ductwork with a central fan.

Therefore, installing, start up and operational use are exclusively admissible after getting acquainted with the contents of the Use and Maintenance Manual.

The construction of the YOGA Extraction Arm meets the following requirements & harmonized standard :

- **2006/42/EC Machinery Directive** of the European Parliament and of the Council of 17 May, 2006 on machinery – amending the 95/16/EC (recast) /Journal of Laws EC L157 of 09.06.2006, page 24/
- **PN-EN ISO 12100-1:2012** – "Safety of machinery. Basic concepts, general principles for design. Risk assessment and risk reduction".

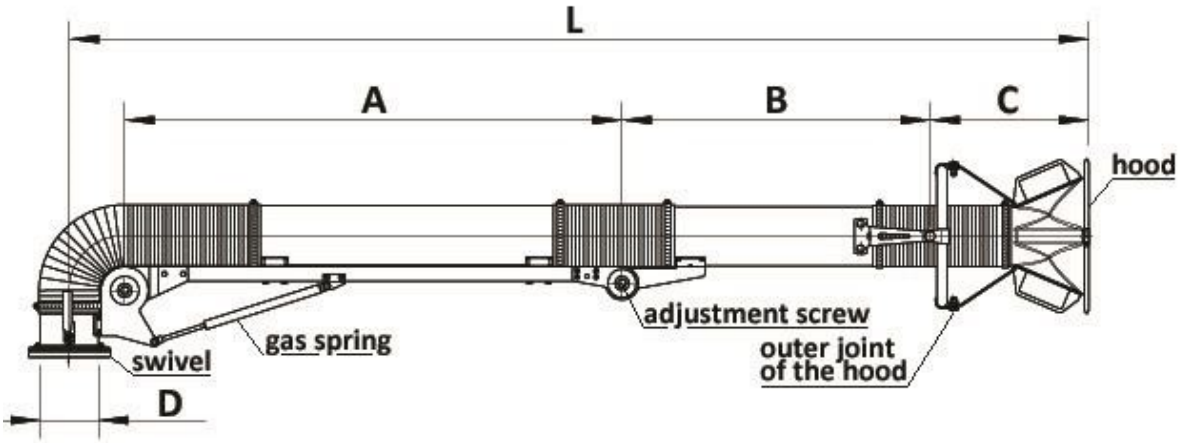
2. Technical Datasheets

Remarks		Type	Dimensions					Weight
			D_n [mm]	L [m]	A [mm]	B [mm]	C [mm]	[kg]
Standing version	standard hood	YOGA-M/1,5-R	100	1,6	630	555	335	9,5
		YOGA-M/2-R		2,1	960	675		10,5
		YOGA-K/2-R	125	2,2	1055	650		12,5
		YOGA-K/3-R		2,9	1540	915		14
		YOGA-L/2-R	160	2,2	905	790		17
		YOGA-L/3-R		3,0	1530	1030		19
		YOGA-L/4-R		3,65	1910	1260		21
		YOGA-D/2-R	200	2,2	905	790		17,5
		YOGA-D/3-R		3,0	1530	1030		21
		YOGA-D/4-R		3,65	1910	1260		23,5
	hood with halogen light	YOGA-LL/2-R	160	2,2	905	790		17
		YOGA-LL/3-R		3,0	1530	1030		19
		YOGA-LL/4-R		3,65	1910	1260		21
		YOGA-DL/2-R	200	2,2	905	790		17,5
		YOGA-DL/3-R		3,0	1530	1030		21
		YOGA-DL/4-R		3,65	1910	1260		23,5

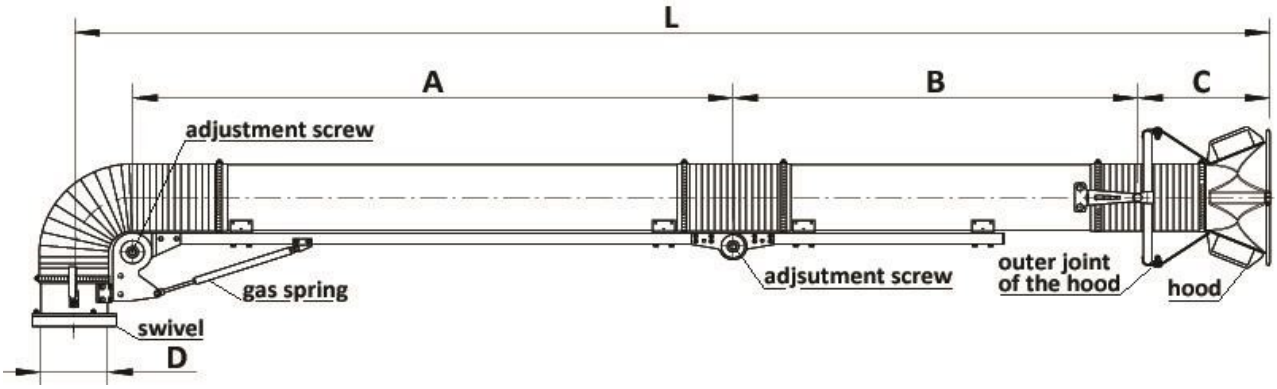
Table nº 1

Extraction arms type YOGA-LL-R and YOGA-DL-R are equipped with hoods with halogen spotlights. For information about the connection of the lighting see the Connection Diagram enclosed to the present Use and Maintenance Manual (Fig. No.4).

YOGA-M/1,5R, YOGA-M/2-R, YOGA-K/2-R, YOGA-K/3-R



YOGA-L/2-R, YOGA-L/3-R, YOGA-D/2-R



YOGA-L/4-R, YOGA-D/3-R, YOGA-D/4-R

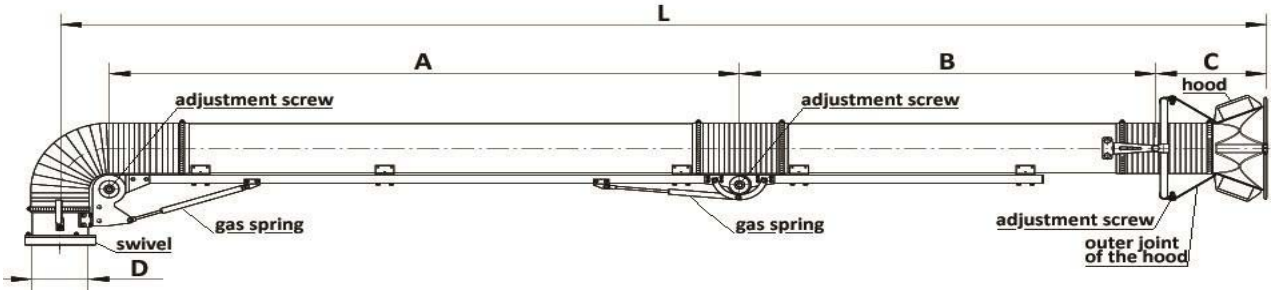


Figure nº1 : YOGA Extraction arms – dimension-conceptual drawings

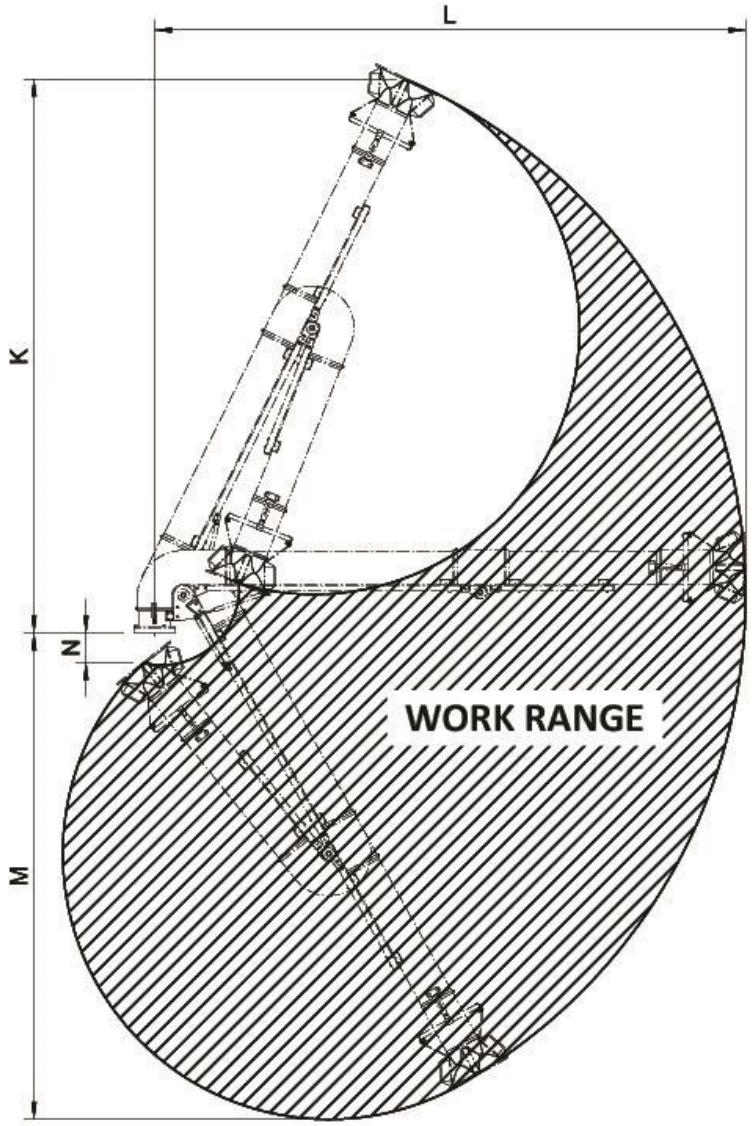


Figure nº2 : Ranges of the extraction arms

Type	**K** [m]	**M** [m]	**N** [m]	**L** [m]
YOGA-L(L)/2-R, YOGA-D(L)/2-R	2,0	1,7	0	2,2
YOGA-L(L)/3-R	2,85	2,5	0,15	3,0
YOGA-D(L)/3-R				
YOGA-L(L)/4-R	3,4	3,0	0,5	3,65
YOGA-D(L)/4-R				

Table No.2 Ranges of the extraction arms

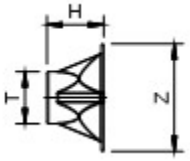
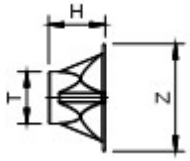
Sort of the hood	Material	Type	Z [mm]	T [mm]	H [mm]	Weight [kg]	Application	Equipment
	plastic ABS	MST	330	100	190	0,35	YOGA-M/1,5-R YOGA-M/2-R	- Replaceable inlet wiremesh
		KST	330	125		0,36	YOGA-K/2-R YOGA-K/3-R	
		LST	365	170		0,42	YOGA-L/2-R YOGA-L/3-R YOGA-L/4-R	
		DST	415	210		0,53	YOGA-D/2-R YOGA-D/3-R YOGA-D/4-R	
		LLT	365	170		0,45	YOGA-LL/2-R YOGA-LL/3-R YOGA-LL/4-R	- replaceable inlet wiremesh - halogen spotlight 12V - switch
		DLT	415	210		0,55	YOGA-DL/2-R YOGA-DL/3-R YOGA-DL/4-R	

Table No.2 – Hoods for the YOGA-R extraction arms

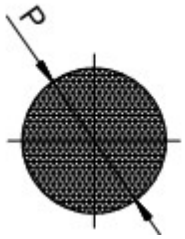
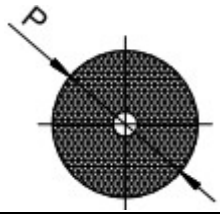
	Type	P [mm]	Application	Weight [kg]
	DST	~ø410	hood **DST**	0,15
	LST	~ø360	hood **LST**	0,10
	MKST	~ø320	hood **MST** hood **KST**	0,08
	LLT	~ø360	hood **LLT**	0,09
	DLT	~ø410	hood **DLT**	0,14

Table No.3 – Inlet wire-mesh for the hoods

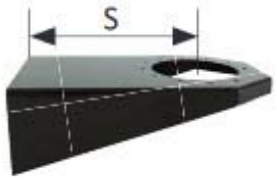
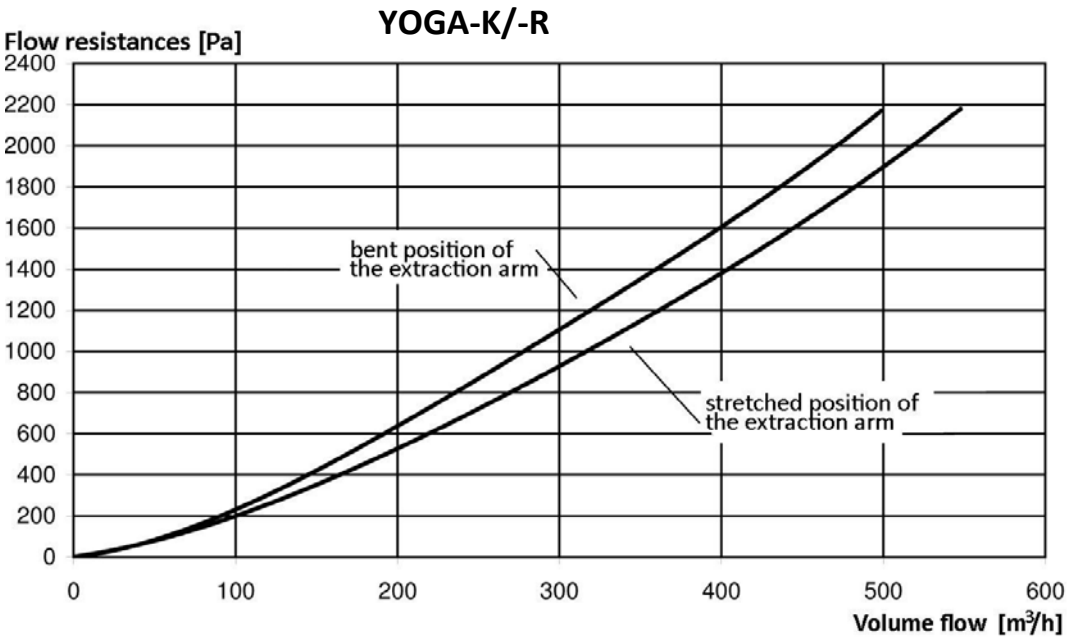
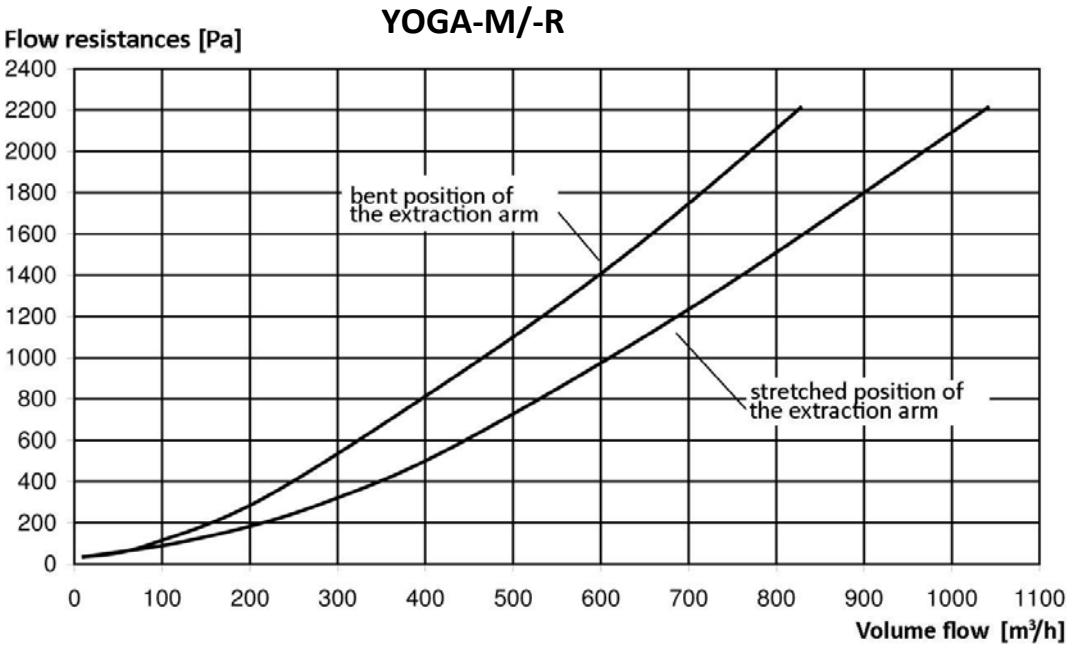
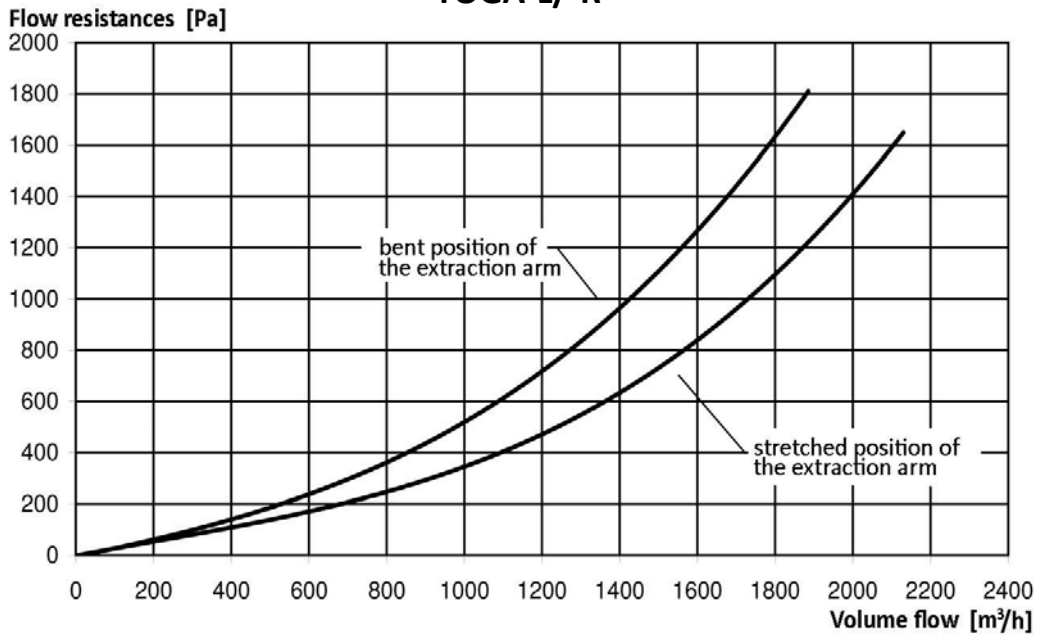
Sort of the bracket	Material	Type	S [mm]	Masa [kg]	Corresponding extraction arms
	steel sheet	WBN-125-K	250	3	YOGA-M-R YOGA-K-R
		WBN-160-L	320	4,6	YOGA-L-R
		WBN-200-D	340	6,1	YOGA-D-R

Table No.4 – Wall bracket – additional element of the device

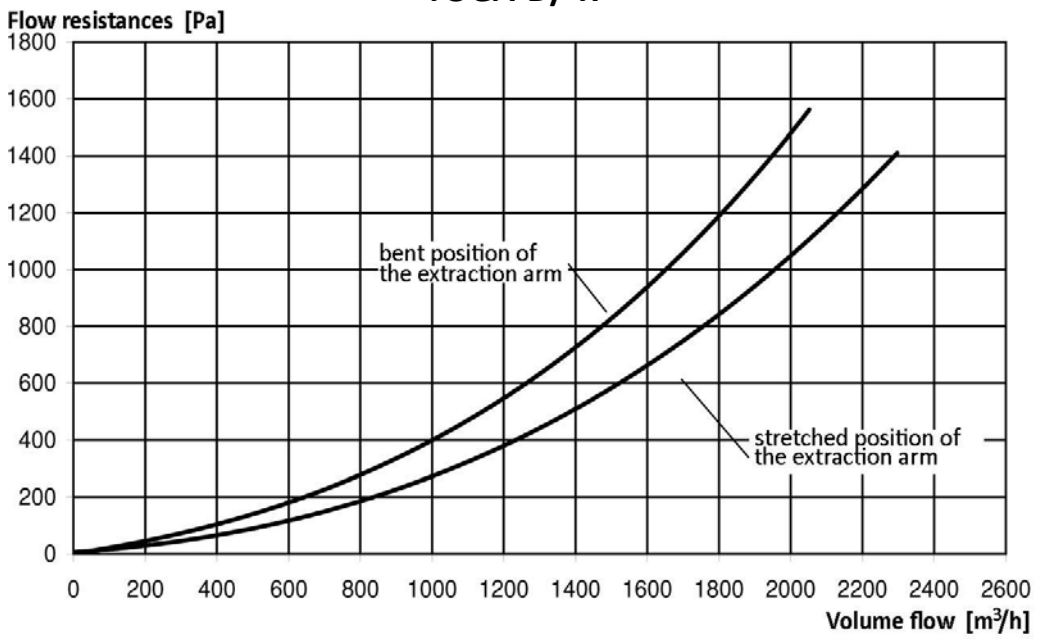




YOGA-L/-R



YOGA-D/-R



4.1 – Flow charts of the YOGA-R extraction arms

3. Structure and Function

YOGA extraction arms are assembled with different elements presented in the Drawing No.1:

- swivel
- two pipe segments ("**I**" and "**II**") connected together with frictional joints
- gas springs – to equilibrate the segment weights
- shut-off damper
- suction hood of plastic – with the inlet wire-mesh avoiding the burning rests and chippings from getting in.

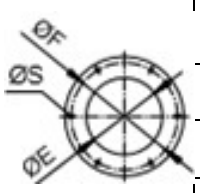
The swivel guarantees a full rotation of the device around its vertical axis and therefore ensures an easy positioning in the requested point at the work station.
The swivel and the pipe segments integrated together with hose sections (flexible connectors) along with the attached hood form a **ventilation duct** to extract the dust laden air. This configuration can be changed within the work range of the given type of the extraction arm.

Additionally, the intake air volume can be adjusted by means of the shut-off damper (installed in the pipe segment "**I**").
Adequately adjusted frictional joints in co-function with the gas springs ensure a comfortable manoeuvring of the extraction arm. The suction hood can be equipped with a halogen spotlight to light up the workspace.
In order to install the extraction arm on a wall or column use a wall bracket.
It can also be suspended at the end of the YOGA-RO-type extension arm.

4. Assembly

Extraction arms are delivered in cardboard packages, in a partly assembled state.
Before the extraction arm is installed at the workplace – it is important to put the extraction arm together into a form of a completely assembled structure – according to the enclosed assembly instruction (see page 14 of the present Use and Maintenance Manual). Wall brackets, by means of which the extraction arms are mounted, are delivered on separate order.
The diameter and distribution of the mounting holes in the bracket and in the arm swivel are identic.

Diameters and mounting hole patterns in the swivel

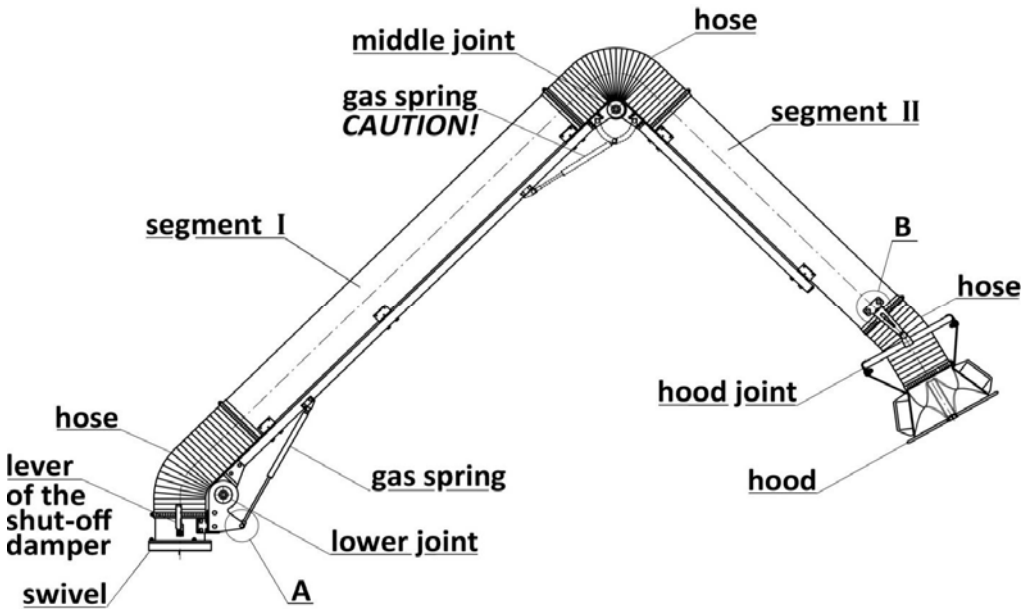


E [mm]	**F** [mm]	**S** [mm]	Application
~ ø110	ø155	6xø6,5	YOGA-M/1,5-R; YOGA-M/2-R; YOGA-K/2-R; YOGA-K/3-R
~ ø160	ø194		YOGA-L/2-R; YOGA-L/3-R; YOGA-L/4-R
~ ø195	ø246	8xø8,5	YOGA-D/2-R; YOGA-D/3-R; YOGA-D/4-R

Do not install the YOGA-R extraction arms directly to the ventilation conduits, because they are usually not constructed to carry such charges during the operational use of the device.

ASSEMBLY :

1. Take out the YOGA-R extraction arm from the transport package and put it stably on the even surface.
2. Pull the arm segments apart to enable further assembly.
3. Screw up the swivel support, to the plate of the lower joint – according to the information in Fig. No.**5** Detail "**C**".
4. Sleeve the hose onto the swivel ferrule and secure it with a hose clamp.
5. Screw together the terminations of the gas spring with a plate of the lower joint – according to the Fig. No.**5** Detail "**A**" (see also Photo No.**1**).
6. Connect the **segment II** with the **segment I** using a hose – according to information in the Point **4**.
7. Screw up the hood with the hood joint – according to the information in Fig. No.**5**, Detail "**B**".
8. Using a hose, connect the **segment II** with the hood – according to the information in the Point **4**.
9. Install the YOGA-R extraction arm at a wall bracket or to a device (see Photo No.**1**).



CAUTION: In case of extraction arms **YOGA-L-4-R**, **YOGA-D-3-R** and **YOGA-D-4-R** in the middle joint, is introduced the additional gas spring.

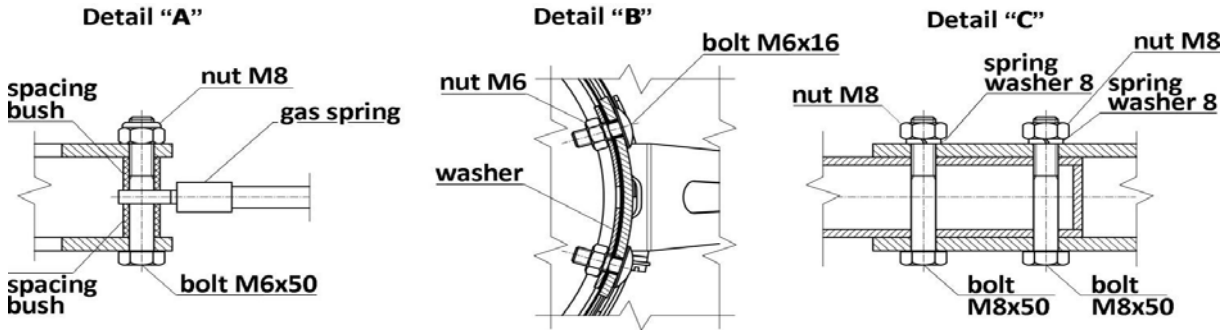


Fig. No.5 – Assembly instruction of the extraction arms type YOGA-{M;K;L;D}-R

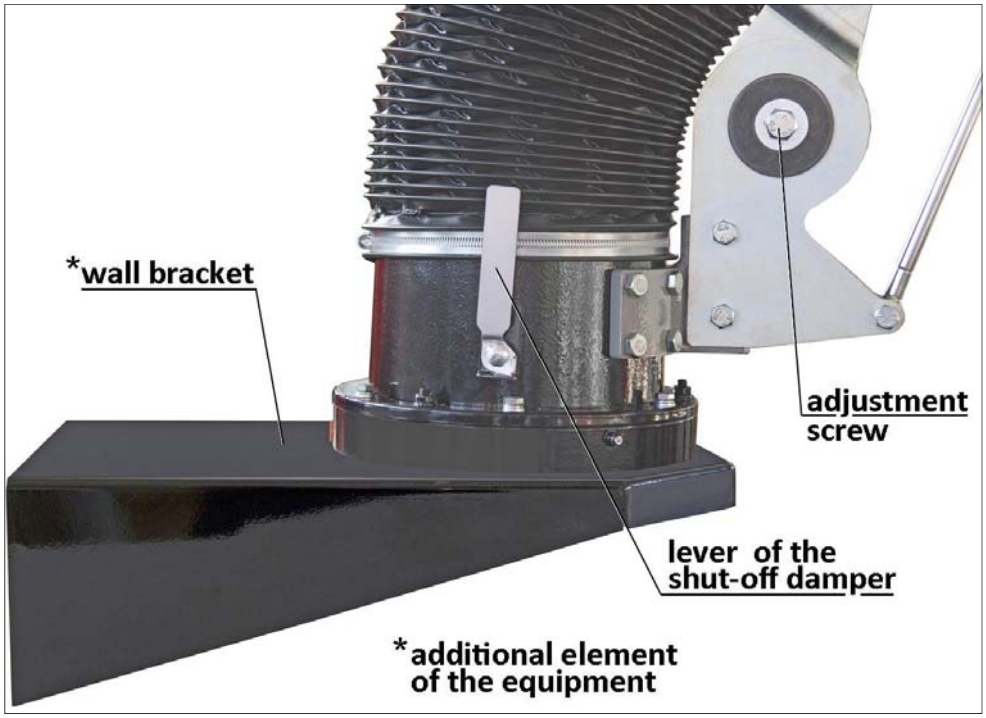


Photo No.1 – Wall bracket

Photo No.2 – Hood

In case when the extraction arm is installed at the wall bracket, it is important to level the mounting plane of the wall bracket during its installing to the wall (see Phot No.**1**). If the bracket mounting plane is not horizontal, the extraction arm would tend to set (turn) itself always in the same position, and it is difficult to adjust the arm position.

5. Operational Use

Mainly, the adjustment of the YOGA extraction arm consists in the setting within the frictional joints. The frictional brakes are placed in each joint and their function is to provide the balance and self-supporting properties of the whole extraction arm and to guarantee easy maneuvering during the operation. The adjustment of the frictional brakes is carried out by increasing or reducing the tension of the nuts upon the frictional elements

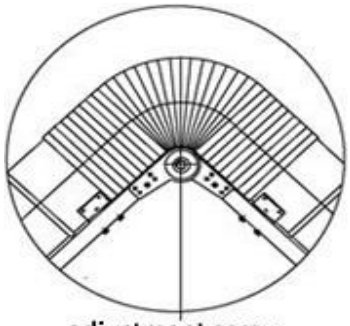


Fig. No.3 – Frictional joint

The brake adjustment in the following joints ought to be executed in such a way that it guarantees the stability and self-supporting features of the extraction arm (which is important to keep the stable arm position).

Whereas, on the other hand, do not tighten up too strongly, as this might cause excessive resistance while User is changing the arm position.

The placement of the adjustment nuts is illustrated in Fig. No.1, whereas the frictional joint is shown in Fig. No.3.

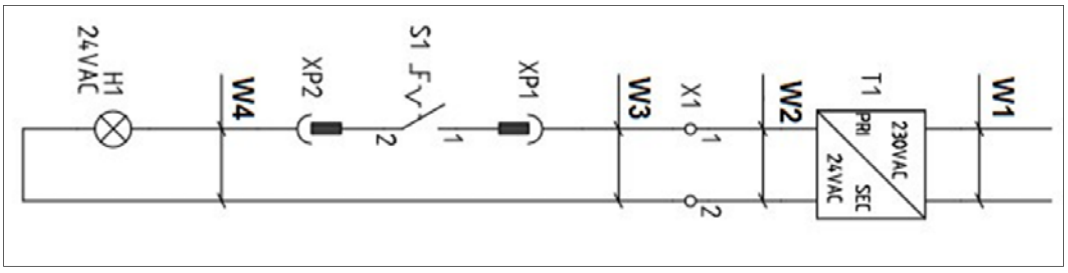


Fig. No.4 – Connection diagram of the halogen lamp

6. Start-up

How to start the device:

- Prior to work, start the extraction fan and make sure the ventilation discharge ductwork is functioning.
- Set the hood in the desired position: not more than 30 cm from the welding arc, and n less than 20 cm – as the welding chippings could affect the hood and additionally the hood suction could interrupt the protection gas shield (CO2, argon). It is important tha the hood is effectively capturing the fume and does not cause any obstacle to the user.
- Adjust the intake air volume with the damper lever to eliminate the dust / fume most efficiently.
- The position of the hood and the damper lever can be changed many times during the work, so the user can adjust them best to the current needs.
- After the work is completed – the extraction arm can be left in the open position (operational state), or if it causes an obstacle – set the arm in the folded position.
- Stop the extraction fan, if the device works in a ventilation system – close the appropriate shut-off damper**.**

7. Use

The construction guarantees a safe and reliable functioning without continuous servicing or special handling. The adjustment of the YOGA extraction arm consists mainly in the adjustment of the frictional joints. The frictional brakes are placed in each joint of the extraction arm and their function is to ensure balance and self-supporting properties for an easy manoeuvring during the operation.

The adjustment of the frictional brakes is carried out by increasing or reducing the tension of the nuts upon the frictional elements.
The brake adjustment in the following joints ought to be set in such a way that it guarantees the stability and self-supporting ability of the extraction arm (which is important to keep the stable arm position), but it may not cause any excessive resistance while the user is changing the arm position. Having completed the adjustment, tighten-up the counter-nut.
The placement of the adjustment nuts is illustrated in the "YOGA Extraction Arms – Dimensional-conceptual Drawings" (Drawing No1).

8. Trouble Shooting Guide

	problem	possible reason corrective action
1.	The extraction arm keeps falling.	Improperly adjusted frictional brake. Increase the tension on frictional disks by tightening the adjustment nuts.
2.	The extraction arm is always settling in the same position.	The rotation axis of the arm is not positioned vertically. Carry out the positioning of the mounting flange of the YOGA extraction arm to set the rotation axis vertically.
3.	Drop in the air suction rate along with increased noise level.	Improper impeller rotation sense of the extraction fan. Change the phase connection sequence (only 3-phase motor).

9. Maintenance and Repair

The maintenance is to be executed periodically :

- Periodically, clean the hood surface and the inlet wire mesh of the deposited dust and impurities to provide proper flow of the extracted air. In case of welding dust, rinse the hood additionally with the anti-spattering liquid (to avoid gluing up the welding chipping on the hood surface).
- Undertake the adjustment of its joint system in case when the extraction arm loses its self-supporting properties.
- Lubricate the swivel every 3 months using solid grease (lubrication nipple is located in the swivel flange).
- After 1 operational year submit the device to technical revision and repair or replace the spotted faulty element.
- Clean the internal surfaces of the extraction segments from the deposited impurities. Frequency of these steps depends on the intensity of use. **Within a period of 3 months, it is recommended to examine the pollution state and undertake cleaning when necessary.**

10. Safety

The YOGA extraction arms will not bring any risk under the condition they are firmly and correctly mounted to the wall or another structural element of the building.

Unsure installing could result in an uncontrolled detachment of the device and cause serious risk to personnel / people in the vicinity.

Once the work finished, you may leave the extraction arm in the open position. If it should constitute an obstacle to personnel, or become a hazard, set in into the close position.

Prior to installing check the load carrying capacity of the building structure.

11. Storage and Transport

YOGA extraction arms have to be stored and transported in partly disassembled state in special packages. The devices ought to be stored in a dry and well ventilated area. During the transport / reloading protect the device from scratches, indents and pay attention that the markings and labels do not get detached.

12. Reservations of Producer

A. Producer is not responsible for failures arising during the use that is inconsistent to the purpose of application.

B. Installing any additional elements not belonging to the normal device structure (or accessory set) is not acceptable.

C. Any structural changes or modification of the unit carried out by User on one's own are not permitted.

D. Protect the flexible elements and the duct segment from mechanical damage.

E. Prior to installing examine the load capacity of the of the wall or other building structure in points where the device shall be mounted. Unsure mounting could cause hazard to personnel / people in the vicinity, as well as damage of the device itself.

F. Do not use the device for conveying the air mixture with combustible substances, in form of gas, vapor, mist or dust – that might create explosive atmosphere.

G. Do not apply the device for conveying the air containing viscous compounds that would deposit on the surface of the device elements.

H. In the course of operational use, pay attention that any sources of ignition i.e. glowing cigarette butts would not get into the filtering chamber.

13. Terms of Warranty

The period of warranty for the purchased device is indicated in the "Card of Warranty". The warranty does not comprise:

- Producer accepts no liability for any consequences following from the operational use that is in contradiction to the purpose of application.
- Defects and damages arising during the incorrect use and in application that is inconsistent with the present manual,
- Mechanical and electrical damages being caused during improper storage and transpoı or incorrect maintenance,
- Structural modifications, or changes / adaptations introduced by the user on one's owı are not permitted.
- Inefficiency following from the normal operational exhaustion.

Infringement of the section 3 "**Reservations of producer**" of the ***User's Manual*** and especially modifications undertaken by the user on one's own shall cause the loss of warranty validity.

14. Dismantling and recycling

When dismantling a unit, be sure to keep in mind the following important information:

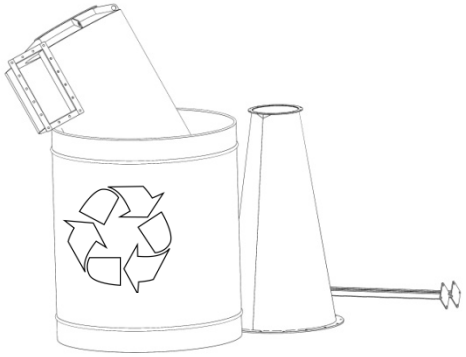
As the unit is dismantled, set aside all still functioning parts in order to re-use them on another unit.

You should always separate the different materials depending on their type : iron, rubber, oils, greases, etc…

Recyclable parts must be disposed of in the appropriate containers or brought to a local recycling company.

The rubbish must be collected in special containers with appropriate labels and disposed of in compliance with the national laws and/or local legislations in force.

CAUTION! It is strictly forbidden to dispose of toxic wastes in municipal sewerage and drain systems. This concerns all oils, greases, and other toxic materials in liquid or solid form.



15. Spare parts

For spare parts please contact Formula Air Group.

Formula Air
The Netherlands
Bosscheweg 36
SX 5741 Beek en Donk
The Netherlands
Tel: +31 (0) 45 492 15 45
Fax: +31 (0) 492 45 15 99

info-nl@formula-air.com
view Google Map

Formula Air
Belgium
Rue des Dizeaux 4
1360 Perwez
Belgium
Tel: +32 (0) 81 23 45 71
Fax: +32 (0) 81 23 45 79

info-be@formula-air.com
view Google Map

Formula Air
Baltic
Televizorių G.20
LT-78137 Šiauliai
Lithuania
Tel: +370 41 54 04 82
Fax: +370 41 54 05 50

info-lt@formula-air.com
view Google Map

Formula Air
France
Zac de la Carrière Doree
BP 105, 59310 Orchies
France
Tel: +33 (0) 320 61 20 40
Fax: +33 (0) 320 61 20 45

info-fr-nord@formula-air.com
view Google Map

Formula Air
Est Agence France
2, rue Armand Bloch
25200 Montbeliard
France
Tel. +33 (0) 91 381 70 71
Fax +33 (0) 381 31 08 76

info-fr-est@formula-air.com
view Google Map

Formula Air
France Agence Ouest
19a rue Deshoulières
44000 Nantes
France
Tel. +33 (0) 89 251 90 75
Fax +33 (0) 251 89 94 06

info-fr-ouest@formula-air.com
view Google Map

Formula Air
France Agence Sud
Chemin de Peyrecave
09600 Regat
France
Tel: +33 561 66 79 70
Fax: +33 567 07 01 09

info-fr-sud@formula-air.com
view Google Map

Air Formula
Russia
Нижний Новгород
Россия
Tel: +7 (499) 609 23 54
Fax: +7 (831) 277 85 38

info-ru@formula-air.com
View Google Map

Formula Air
Vietnam
33, Lot 2, Den Lu 1
Hoang Mai District, Hanoi,
Vietnam
Tel: +84 (4) 38 62 68 01
Fax: +84 (4) 38 62 96 63

info@vinaduct.com
www.vinaduct.com
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NOTE : All drawings and references contained within this manual are non-contractual and are subject to change without prior notice at the discretion of the Formula Air group and its partners.