
AIR DUCT ACCESSORIES

Part 1 GENERAL

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and installation for duct accessories including flexible connections, access doors, vanes and collars.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 45 00 Quality Control
- .3 Section 01 78 00 Closeout Submittals
- .4 Section 23 31 13.01 – Metal Duct to 750 Pa

1.3 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .2 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
 - .1 SMACNA - HVAC Duct Construction Standards - Metal and Flexible.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet. Indicate the following:
 - .1 Flexible connections.
 - .2 Duct access doors.
 - .3 Turning vanes.
 - .4 Instrument test ports.
 - .2 Submit WHMIS MSDS in accordance with this Section. Indicate VOC's for adhesive and solvents during application and curing.
- .3 Test Reports: submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.
 - .1 Certification of ratings: catalogue or published ratings to be those obtained from tests carried out by manufacturer or independent testing agency signifying adherence to codes and standards.

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- .4 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .5 Instructions: submit manufacturer's installation instructions.
- .6 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.5 QUALITY ASSURANCE

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting three weeks prior to beginning work of this Section in accordance with Construction Progress Schedules - Bar (GANTT) Chart specified in D14.
 - .1 Verify project requirements.
 - .2 Review installation and substrate conditions.
 - .3 Co-ordination with other building subtrades.
 - .4 Review manufacturer's installation instructions and warranty requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Divert unused metal materials from landfill to metal recycling facility.

Part 2 PRODUCTS

2.1 GENERAL

- .1 Manufacture in accordance with SMACNA - HVAC Duct Construction Standards.

2.2 FLEXIBLE CONNECTIONS

- .1 Frame: stainless steel metal frame 6 mm thick with fabric clenched by means of double locked seams.
- .2 Material:
 - .1 Fire resistant, self extinguishing, neoprene coated glass fabric, temperature rated at minus 40 degrees C to plus 90 degrees C, density of 1.3 kg/m².

2.3 ACCESS DOORS IN DUCTS

- .1 Non-Insulated Ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame.

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- .2 Insulated Ducts: sandwich construction of same material as duct, one sheet metal thickness heavier, minimum 0.6 mm thick complete with sheet metal angle frame and 25 mm thick rigid glass fibre insulation.
- .3 Gaskets: neoprene.
- .4 Hardware:
 - .1 Up to 300 x 300 mm: two sash locks complete with safety chain.
 - .2 301 to 450 mm: four sash locks complete with safety chain.
 - .3 451 to 1000 mm: piano hinge and minimum two handle type operators.
 - .4 Doors over 1000 mm: piano hinge and two handle type operators operable from both sides.
 - .5 Hold open devices.

2.4 TURNING VANES

- .1 Factory or shop fabricated double thickness, to recommendations of SMACNA and as indicated.

2.5 INSTRUMENT TEST

- .1 1.6 mm thick steel zinc plated after manufacture.
- .2 Cam lock handles with neoprene expansion plug and handle chain.
- .3 28 mm minimum inside diameter. Length to suit insulation thickness.
- .4 Neoprene mounting gasket.

2.6 SPIN-IN COLLARS

- .1 Conical galvanized sheet metal spin-in collars with lockable butterfly damper.
- .2 Sheet metal thickness to co-responding round duct standards.

2.7 WELDING FUME EXTRACTION ARM

- .1 Structure:

The external articulating support structure shall be assembled from extruded aluminum tube stock and hi-grade cast aluminum components. The upper support arm shall consist of two parallel support tubes. The upper tube shall be 3.56 cm x 2.54 cm x 0.229 cm thick extruded aluminum. The lower tube shall be 2.29 cm x 1.52 cm x 0.229 cm thick extruded aluminum. The lower support arm shall consist of a single 3.56 cm x 2.54 cm x 0.229 cm thick extruded aluminum tube. The mounting swivel assembly shall be hi-grade cast aluminum incorporating a 90° elbow with 360° rotation. Following and affixed to the mounting swivel, the 5 m arm shall incorporate a 1.83 m long horizontal arm section that ends in a horizontally articulating double clevis. The arm section shall be powder coated steel and the clevis shall be hi-grade cast aluminum. The heavy duty fume arm shall be articulated by two vertical joints. The vertical joints shall incorporate friction points that are adjustable for tension. In conjunction with the adjustable friction points, the support

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structure shall be balanced by phosphated steel springs. The upper arm support spring shall be wound from 0.635 cm diameter spring steel wire. The lower arm support spring shall be wound from 0.457 cm diameter spring steel wire. In order to protect the support structure from dust and dirt it shall be external to the air stream and fully enclosed. The support structure enclosure shall be composed of 0.25 cm thick, removable, blue molded polypropylene covers with black PVC bellows covering the articulating joints. The molded covers shall be attached to the support structure using plated steel bolts. The bellows shall be attached to the molded covers using EPDM rubber clips. The arm shall come from the factory fully adjusted for tension. The articulating fume arm shall have an effective reach of 5 m.

.2 Flexible Hose:

The blue external flexible hose shall be composed of two sections. The lower section is to be made of a heavy duty woven glass fabric with an internal and external PVC lamination. The second section is to be made of a polyester fabric material with an internal and external PVC lamination. Both sections of hose shall be supported by a spirally wound steel wire helix. The hose shall be capable of withstanding a maximum operating temperature of 121° C. The flexible hose shall be 200 mm diameter. A hose adaptor composed of polypropylene shall connect the two sections of hose. The hose shall be attached externally to the horizontal arm and the support arm covers using hose straps made of PVC and nylon. The hose and hose straps shall be easily removed to allow for cleaning.

.3 Integral Hood:

The articulating arm shall, as a standard component, incorporate a capture hood. The capture hood shall be constructed of 0.33 cm thick hi-grade cast aluminum with a 20 cm x 22.3 cm mouth opening and a 35.6 cm x 43.2 cm flanged O.D. The lip of the hood shall be cast so as to be functional as a handle to permit easy mobility. The entire hood is to be protected with a black powder coat finish inside and out. The hood shall incorporate an adjustable damper with positive seal. The damper shall be easily adjustable from outside the hood. The hood shall incorporate, as standard, an inlet grille to keep unwanted debris from entering the system. The inlet grille shall be 0.279 cm thick cast aluminum with 3.18 cm blade spacing. The hood shall incorporate a double ball joint mechanism allowing for ease of positioning and a full range of motion.

.4 Mounting Brackets

A fabricated plated steel wall mounting bracket shall be included with each articulating arm. The mounting bracket shall be fabricated from 5.08 cm x 2.54 cm x 0.305 cm thick steel with 0.305 cm thick reinforcing gussets, plated for durability, and shall incorporate predrilled mounting holes.

.5 Acceptable Product: Nederman Extraction Arm NEX HD or approved equal in accordance with B6.

2.8 SLUDGE TRUCK FUME EXTRACTION ARM

.1 Hose to withstand high stress when extracting exhaust from spark ignition engines or diesel engines. The hose can handle extraction of exhaust up to +150°C (302°F) at continuous use, provided exhaust funnels are used correctly and fresh air is supplied.

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Intermittently the hose resists +170°C (338°F). The lowest temperature resistance is -40°C (-40°F).

- .1 Material: Polyester fabric with EPDM
- .2 Length = 6 m, Ø = 200 mm
- .3 Helix material: Steel
- .4 Colour: Black with blue helix
- .5 Maximum temperature, intermittent: +170°C (338°F).
- .6 Maximum temperature, continuous: +150°C (302°F)
- .7 Minimum temperature: -40°C (-40°F)
- .8 Notes: Bending radius max. 225 mm (8.86") (inside)
- .9 Excellent resilience features
- .10 High resistance to mechanical stress
- .11 Flexible
- .12 Small bend radius
- .13 Super light weight
- .14 Good tensile and burst strength
- .15 Good flow characteristics

.2 Mounting Brackets

A tubular steel wall mounting bracket integral with swiveling flange adapter shall be included with balancer drop assembly. The wall bracket shall be formed from 3.18 cm diameter x 0.241 cm thick tubular steel.

.3 Manual Rubber Nozzle

- .1 Supplied with spring-loaded lid.
- .2 Ergonomic handle that is easy to catch hold of and to manoeuvre.
- .3 With wire guard.
- .4 With opening for CO probe.
- .5 Connects to 200 mm hose

.4 Acceptable Product: Nederman Single Exhaust Extractor hose type NFC-3 or approved equal in accordance with B6.

Part 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 INSTALLATION

- .1 Flexible Connections:

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- .1 Install in following locations:
 - .1 Inlets and outlets to supply air units and fans.
 - .2 Inlets and outlets of exhaust and return air fans.
 - .3 As indicated.
- .2 Length of connection: 100 mm.
- .3 Minimum distance between metal parts when system in operation: 75 mm.
- .4 Install in accordance with recommendations of SMACNA.
- .5 When fan is running:
 - .1 Ducting on sides of flexible connection to be in alignment.
 - .2 Ensure slack material in flexible connection.
- .2 Access Doors and Viewing Panels:
 - .1 Size:
 - .1 1200 x 600 mm for person size entry.
 - .2 450 x 450 mm for servicing entry.
 - .3 300 x 200 mm for viewing.
 - .4 As indicated.
- .3 Locations:
 - .1 Fire and smoke dampers.
 - .2 Control dampers.
 - .3 Devices requiring maintenance.
 - .4 Required by code.
 - .5 Reheat coils.
 - .6 Elsewhere as indicated.
- .4 Instrument Test Ports:
 - .1 General:
 - .1 Install in accordance with recommendations of SMACNA and in accordance with manufacturer's instructions.
 - .2 Locate to permit easy manipulation of instruments.
 - .3 Install insulation port extensions as required.
 - .2 Locations:
 - .1 For traverse readings:
 - .1 Ducted inlets to roof and wall exhausters.
 - .2 Inlets and outlets of other fan systems.
 - .3 Main and sub-main ducts.
 - .4 And as indicated.
 - .2 For temperature readings:
 - .1 At outside air intakes.
 - .2 In mixed air applications in locations as approved by Contract Administrator.
 - .3 At inlet and outlet of coils.

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- .4 Downstream of junctions of two converging air streams of different temperatures.
- .5 And as indicated.
- .5 Turning vanes:
 - .1 Install in accordance with recommendations of SMACNA and as indicated.

3.3 CLEANING

- .1 Perform cleaning operations as specified in Section 01 74 11 - Cleaning and in accordance with manufacturer's recommendations.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION